Technical Note

ProSoft TECHNOLOGY

Red Lion HMI to DH+ SLC5/04 using an AN-X2-AB-DHRIO

Document Code: TN170830-001

Author: Daniel Roslan

Date: 7 2017

Asia Pacific

Malaysia Office
Phone: +603.7724.2080
asiapc@prosoft-technology.com
Languages spoken: Chinese, English

China Office
Phone: +86.21.5187.7337
asiapc@prosoft-technology.com
Languages spoken: Chinese, English

Europe, Middle East, Africa

France Office
Phone: +33 (0)5.34.36.87.20
europe@prosoft-technology.com
Languages spoken: French, English

Middle East and Africa
Phone: +971.(0)4.214.6911
mea@prosoft-technology.com
Languages spoken: English, Hindi

North America

Corporate Headquarters
Phone: +1 661.716.5100
support@prosoft-technology.com
Languages spoken: English, Spanish

Latin America

Brazil Office
Phone: +55.11.5083.3776
brasil@prosoft-technology.com
Languages spoken: Portuguese, English

Mexico and Central America Office
Phone: +52.222.3.99.6565
soporte@prosoft-technology.com
Languages spoken: Spanish, English

Regional Office
Phone: +1.281.298.9109
latinam@prosoft-technology.com
Languages spoken: Spanish, English

Document Information

Author	**Daniel Roslan**
Description	**How to use Crimson 3.0 to set up an EtherNet/IP Red Lion HMI to talk to a DH+ SLC5/04 through an AN-X2-AB-DHRIO using the DH+ firmware**
Date	**7/2017**
Revision	**1.01**
Product Name	**AN-X2-AB-DHRIO**
Document Code	TN170830-001

ProSoft Technology
9201 Camino Media, Suite 200
Bakersfield, CA 93311
+1 (661) 716-5100
+1 (661) 716-5101 (Fax)
http://www.prosoft-technology.com

Purpose of Tech Note:

This Tech Note has been designed to assist customers who are attempting to connect a Red Lion HMI using EtherNet/IP to a SLC5/04 using Data Highway Plus via an AN-X2-AB-DHRIO gateway. This tech note assumes that your SLC5/04 has already been configured with data you wish to extract or write to, and that you have at least moderate knowledge of how to use Red Lion's Crimson 3.0 software. For the sake of an example, a value of 5 has been put into a SLC5/04's N7:0 data file to be extracted by a Red Lion G310S210.

Required Components:

To complete this tech note you will need at least one of the following:

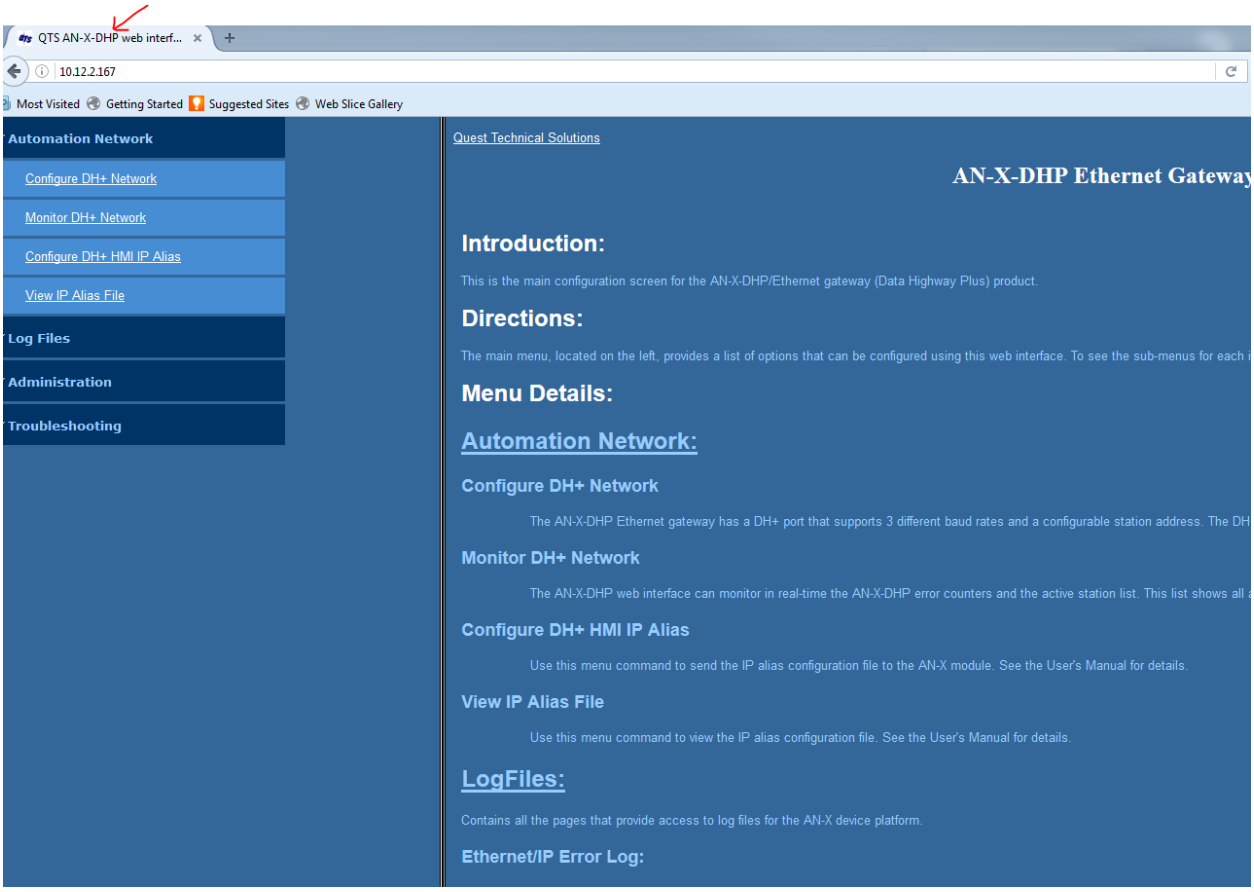
- An AN-X2-AB-DHRIO
- A Red Lion HMI with EtherNet/IP capability
- A SLC5/04
- A cat 5 (or similar Ethernet) cable
- A DH+ cable (Blue Hose)
- Red Lion's Crimson 3.0 software
- A configuration cable for the Red Lion HMI (a USB cable was used in screen shots)

Step 1: Setting up the AN-X2-AB-DHRIO

This tech note assumes that you have already configured the IP address for your AN-X2-AB-DHRIO to one you can reach from your PC. If you have not yet configured the IP address please refer to the user manual or watch one of the many AN-X2-AB-DHRIO tutorial videos which discusses how this can be done.

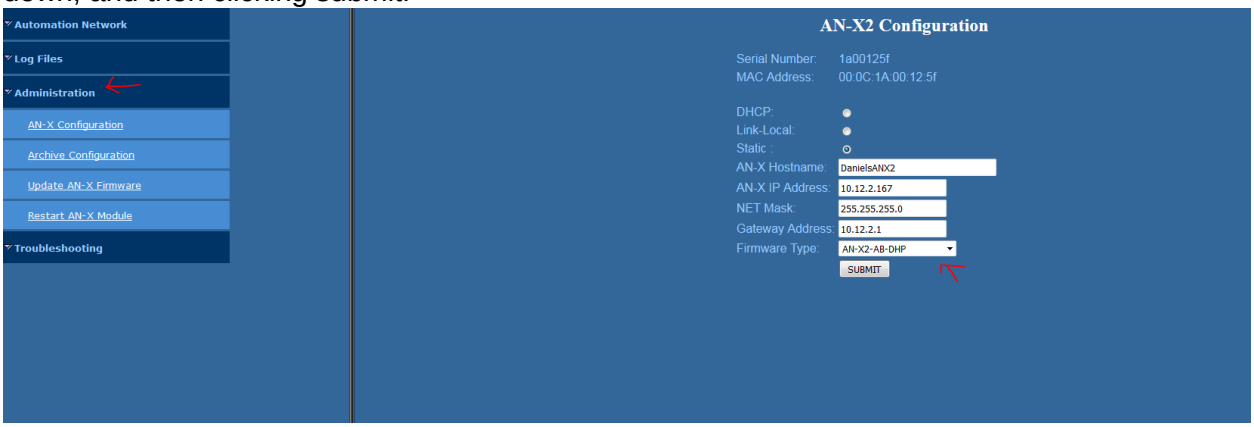
Enter the IP Address of your AN-X2-AB-DHRIO into your preferred web browser. If your AN-X2-AB-DHRIO is already in DH+ mode, you will see AN-X-DHP on the browser tab, as well as an Automation Network which, when expanded, will appear as below.

If you are in AN-X-DHP mode but do not see *Configure DH+ HMI IP Alias* and *View IP Alias File*, you have an older revision of the DH+ firmware. Please contact ProSoft Technical Support for directions on upgrading your firmware.



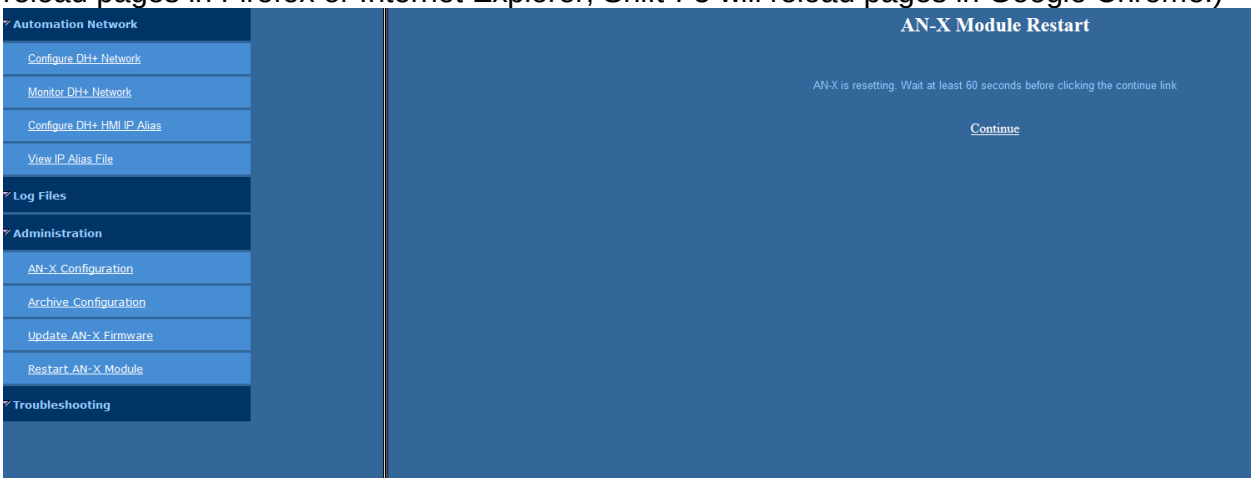
If you are already in DH+ mode you can skip to page 6.

In the event you are not in DHP mode you can activate this mode by expanding the administration tab, clicking on AN-X Configuration, selecting AN-X2-AB-DHP from the drop down, and then clicking submit.



A module reboot will be required after performing this action which usually takes about a minute to complete.

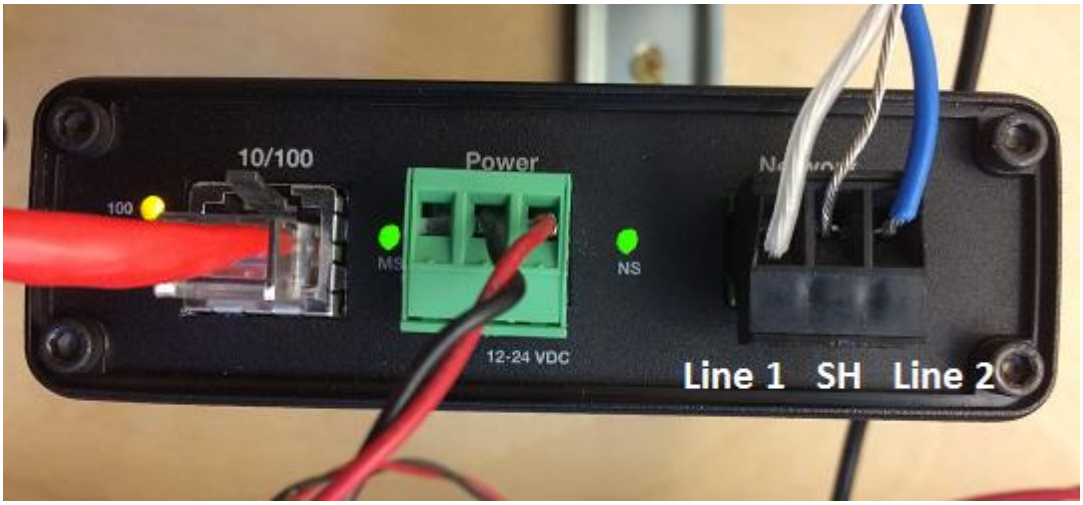
After the module has finished rebooting be certain to flush your browser's cache. (Ctrl-F5 will reload pages in Firefox or Internet Explorer, Shift-F5 will reload pages in Google Chrome.)



Once you are in DH+ mode, expand the Automation Network section and click on Configure DH+ Network, then choose the baud rate settings for your network and a Station number which is not already in use on your network and click submit.

In this example the SLC5/04 was using 57k and Station 1, and there was nothing else on the network so we chose 57k and Station 2.

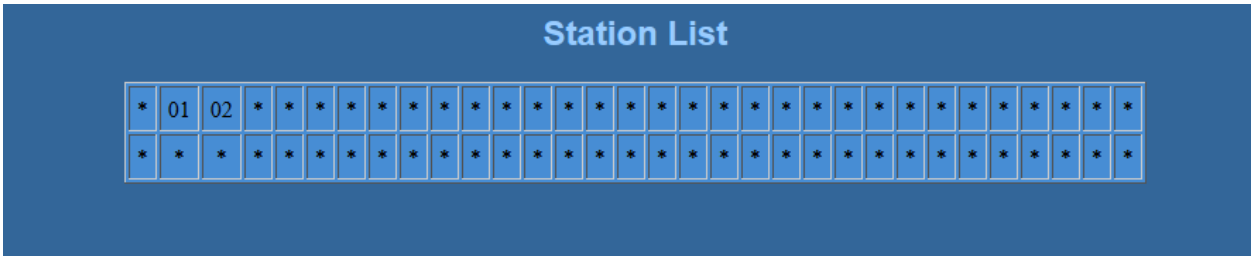
Next, wire the AN-X2-AB-DHRIO into your DH+ network (or directly to the SLC5/04 if that is the only device on the network, as was the case in this example). Your wiring should look similar to this:



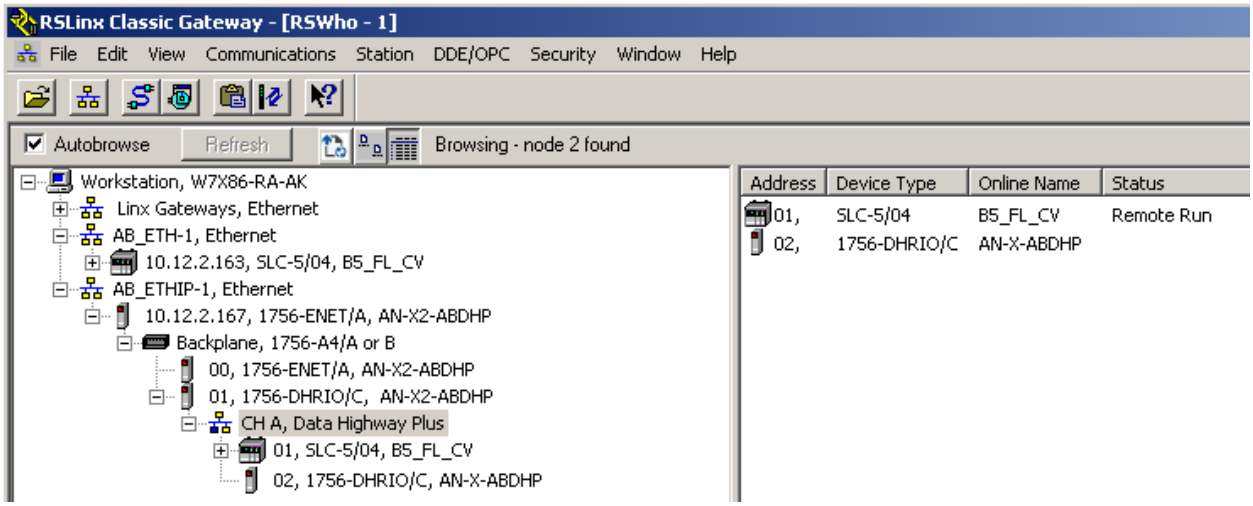
If we are at the end of the network, add proper termintation for your baud rate.

The picture above matches the SLC wiring below, that is, if the clear wire is on the top pin for the SLC5/04, connect it to the pin closest to the power on the AN-X2-AB-DHRIO.

If everything has been configured and wired correctly your NS light between the power and the DH+ cable on the AN-X2-AB-DHRIO should turn green as seen on the previous page. If you go to go to Monitor DH+ Network under Automation Network you should also now see both station ID's in the station list:



In RSLinx, you should see both stations in the AN-X2-ABDHP, CH A under the EtherNet/IP driver.



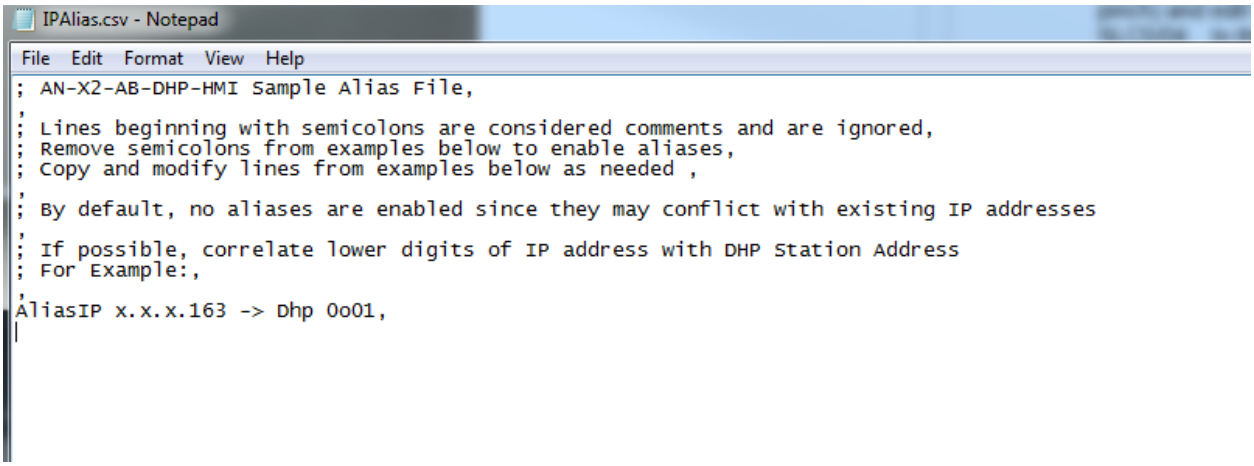
If the NS light does not turn green:

1) Double check that you have proper termination in place (even if the network seemed to work before).
2) If the light turns red, ensure that the outer braded shield has been grounded, and only grounded in one place, as this suggests there may be noise on the line.
3) If the light is amber, we are not seeing any communication on the network at all. Try swapping the polarity of the cable wiring on one end, and revalidate that we have the correct baud rate.

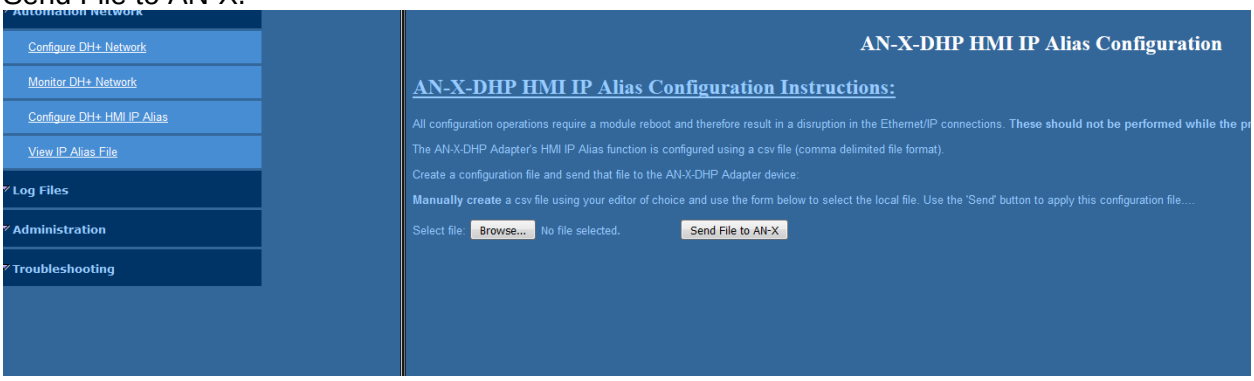
If both the AN-X2-AB-DHRIO and the SLC5/04's Station do not appear in this list, please contact Technical support for trouble shooting assistance.

Now let's create/edit the IP Alias File for the AN-X2-AB-DHRIO. If you click on View IP Alias File under Automation Network you can view (but not edit) the current IP Alias file the AN-X2-AB-DHRIO is using. Every line that begins with a semi colon (;) is only a comment and is not being executed. Copy and paste whatever field you have here into a text editor (notepad will suffice in a pinch) and edit the IP and station to match an unused IP on your network and the station of the SLC5/04. In this case 10.12.2.163 was available and my SLC5/04 was station 1. Note, you must keep the x.x.x at the beginning. (The ANX will automatically replace x.x.x with its first 3 IP octets.) You are only defining the fourth and final octet. This Alias IP is associated with the SLC DH+ station ID.

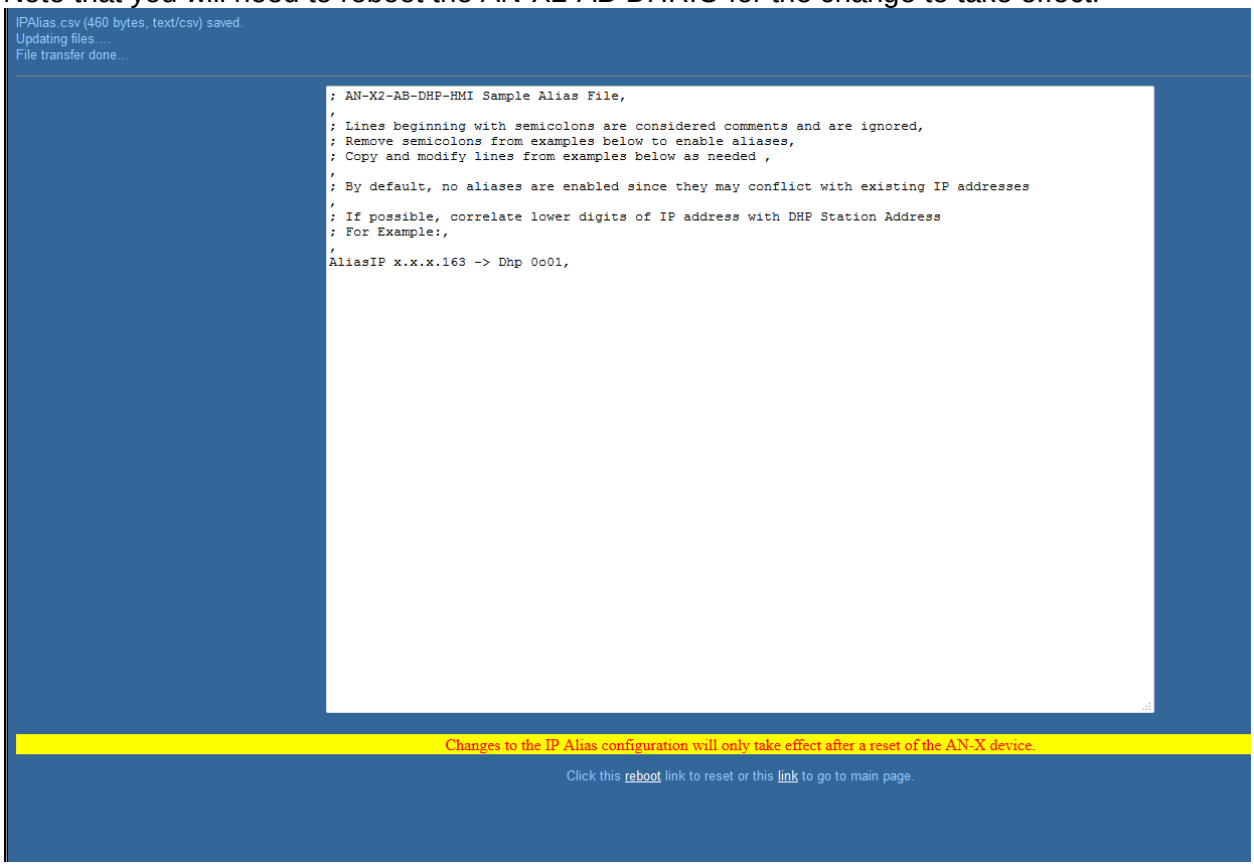
```
AliasIP x.x.x.163 -> Dhp 0o01
```



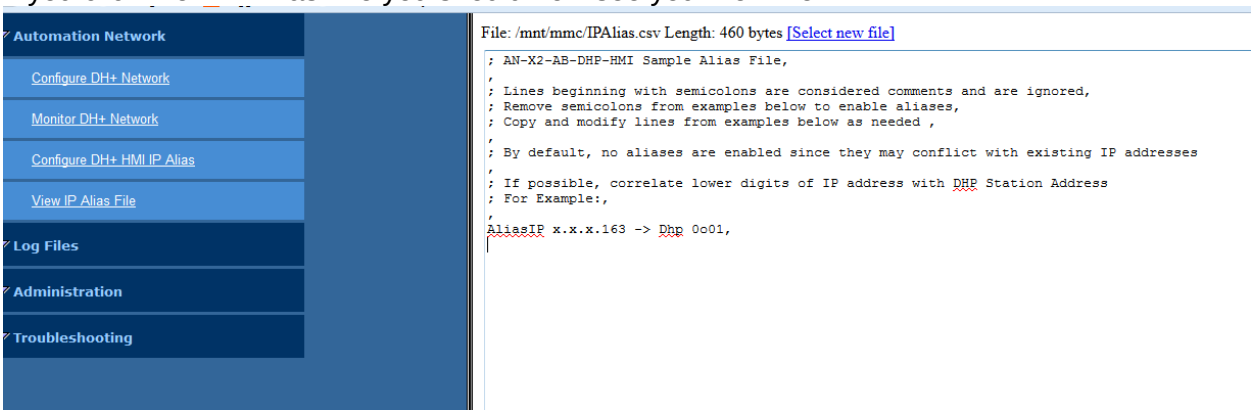
Save the file as IPAlias.csv, then use Configure DH+ HMI IP Alias to browse to the file and click Send File to AN-X.



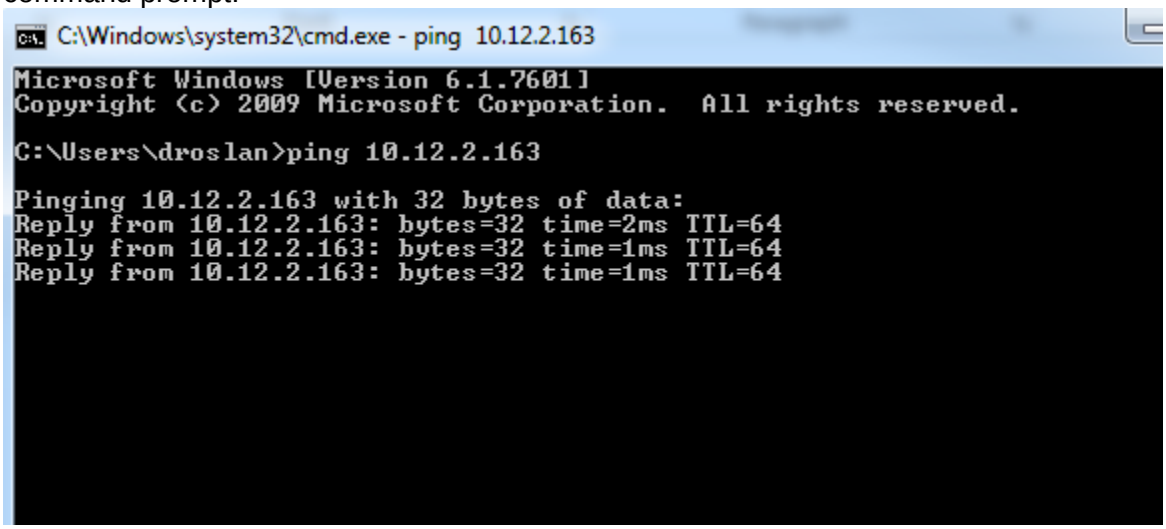
Note that you will need to reboot the AN-X2-AB-DHRIO for the change to take effect:



If you click View IP Alias File you should now see your new file:



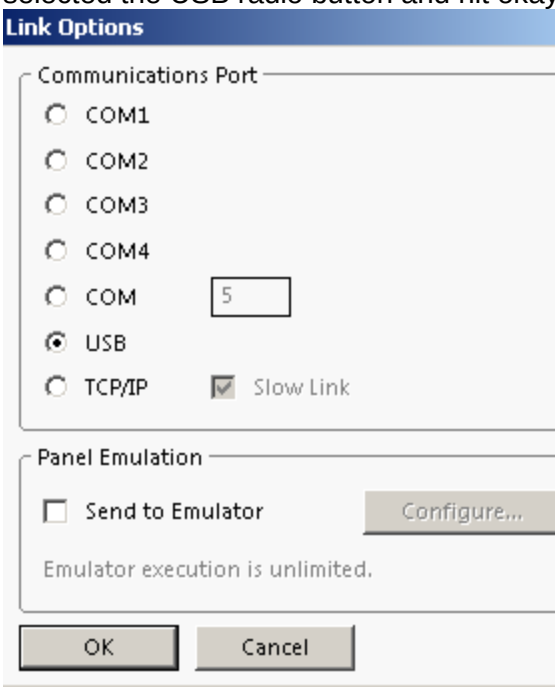
Although not required, you can validate that the alias file took by pinging the IP address from a command prompt:



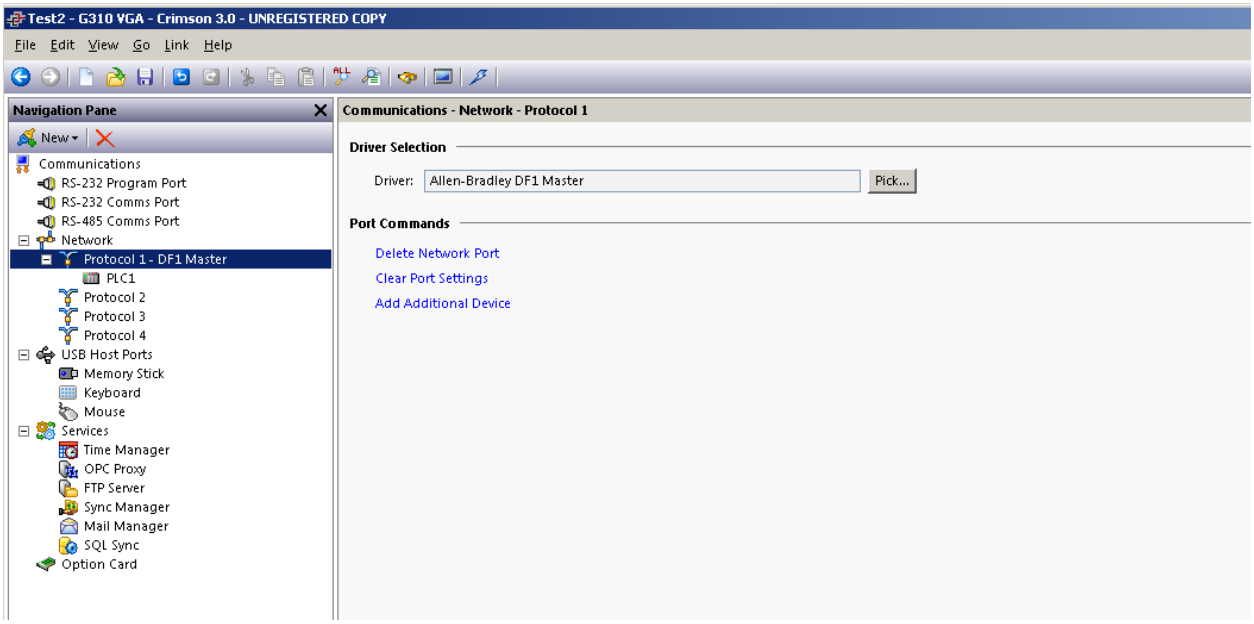
Your AN-X2-AB-DHRIO should now be configured and ready for your Red Lion HMI.

Step 2: Setting up the Red Lion HMI

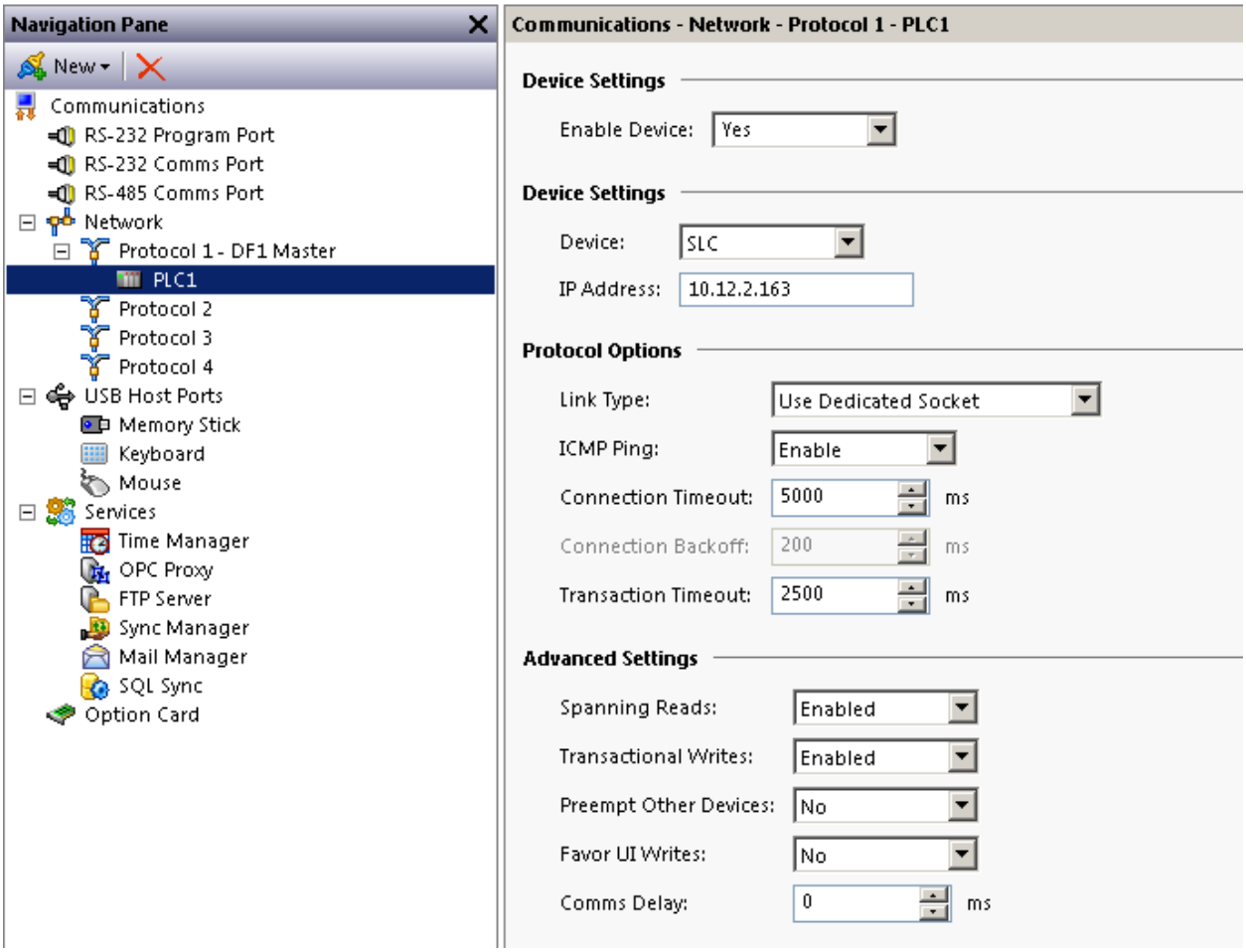
Please make sure to correctly wire your Red Lion HMI for power and communication. Connect the appropriate configuration cable to both your HMI and PC, and select that configuration cable type for use in the Crimson 3.0 software. In this example we connected the Red Lion HMI to our PC with a USB configuration cable, then went to Link -> Options and selected the USB radio button and hit okay:



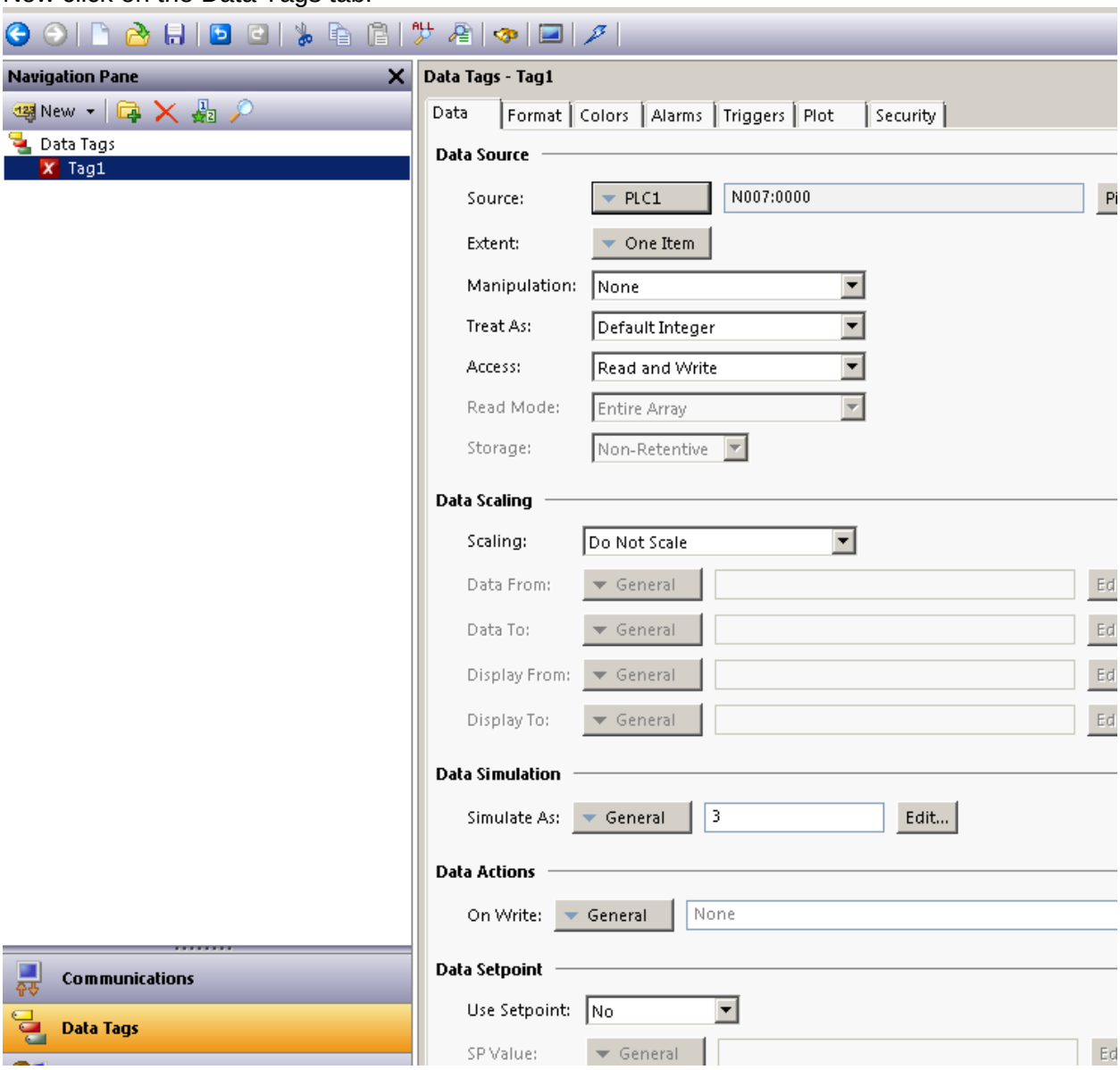
Choose the Communications tab on the navigation pane and select an unused Protocol under Network to configure the driver. When configuring the driver in Crimson 3.0 make certain that you choose the Allen-Bradley DF1 Master driver. Per a conversation with Red Lion's Tech Support, that is the only driver which can communicate with a SLC5/05 (which is what the AN-X2-AB-DHRIO emulates). As an aside, Red Lion's tech support also advised ProSoft that their emulator could NOT be used to test communication to a SLC5/05 and thus cannot be used to test with an AN-X2-AB-DHRIO either.



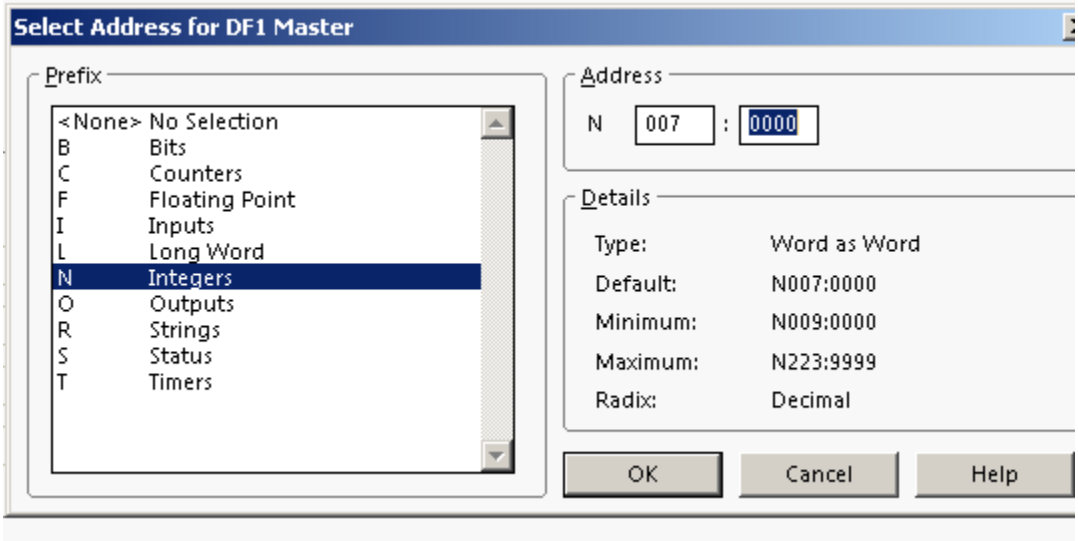
Next click on the PLC you have created. Make sure the device is both enabled and that the device is set to SLC, then set the IP Address to whichever ***Alias IP*** address you defined for the SLC's station in the previous steps. In this case, we used 10.12.2.163.



Now click on the Data Tags tab:



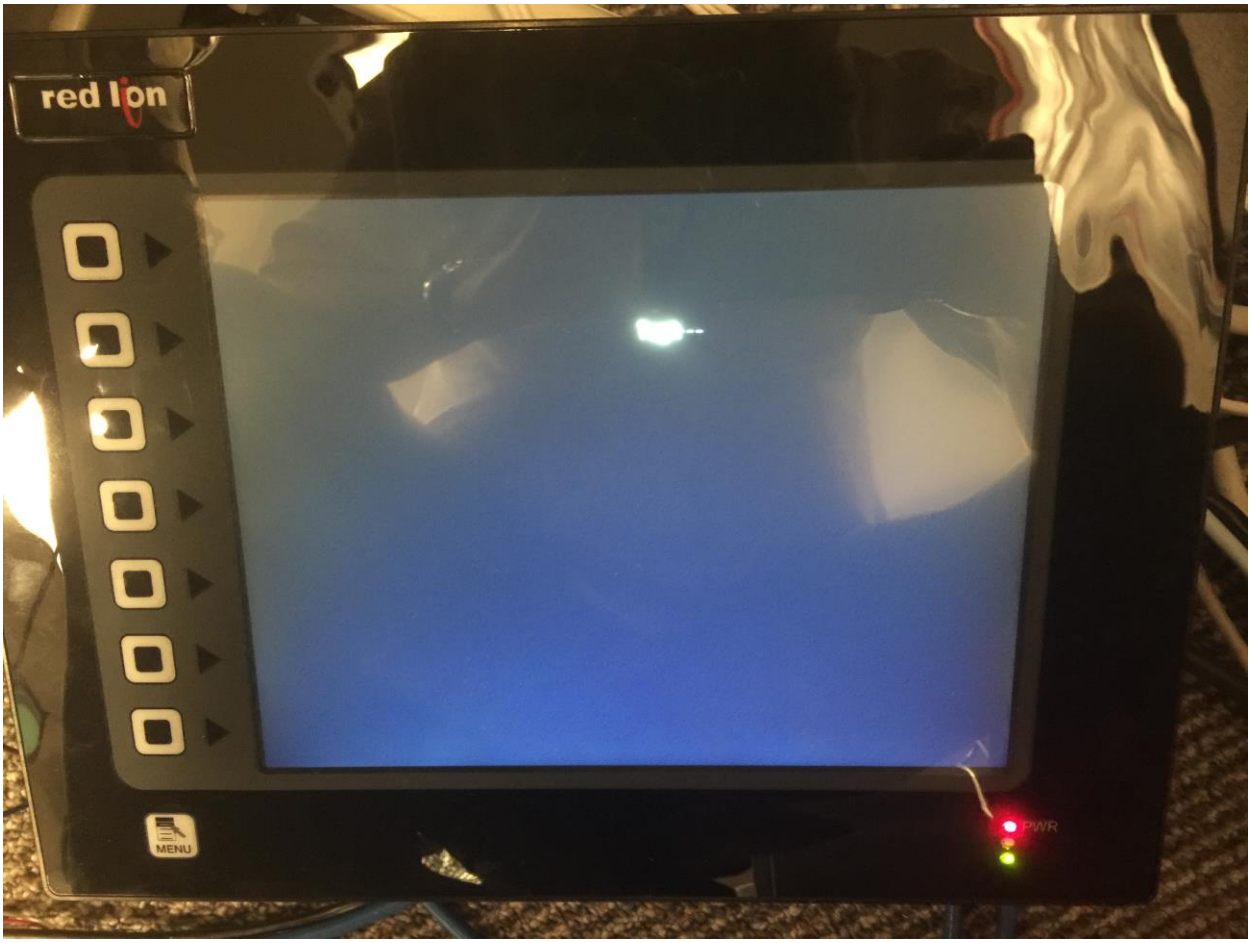
Add a new Data Tag. In this example we want to show the value contained in the SLC5/04's N7:0, so we chose Numeric Tag. From the Data tab click on the Source drop down and select the PLC you defined for the SLC5/04. Click Pick and select the data type and address you want. Again we wanted N7:0 so we selected that, then hit okay.



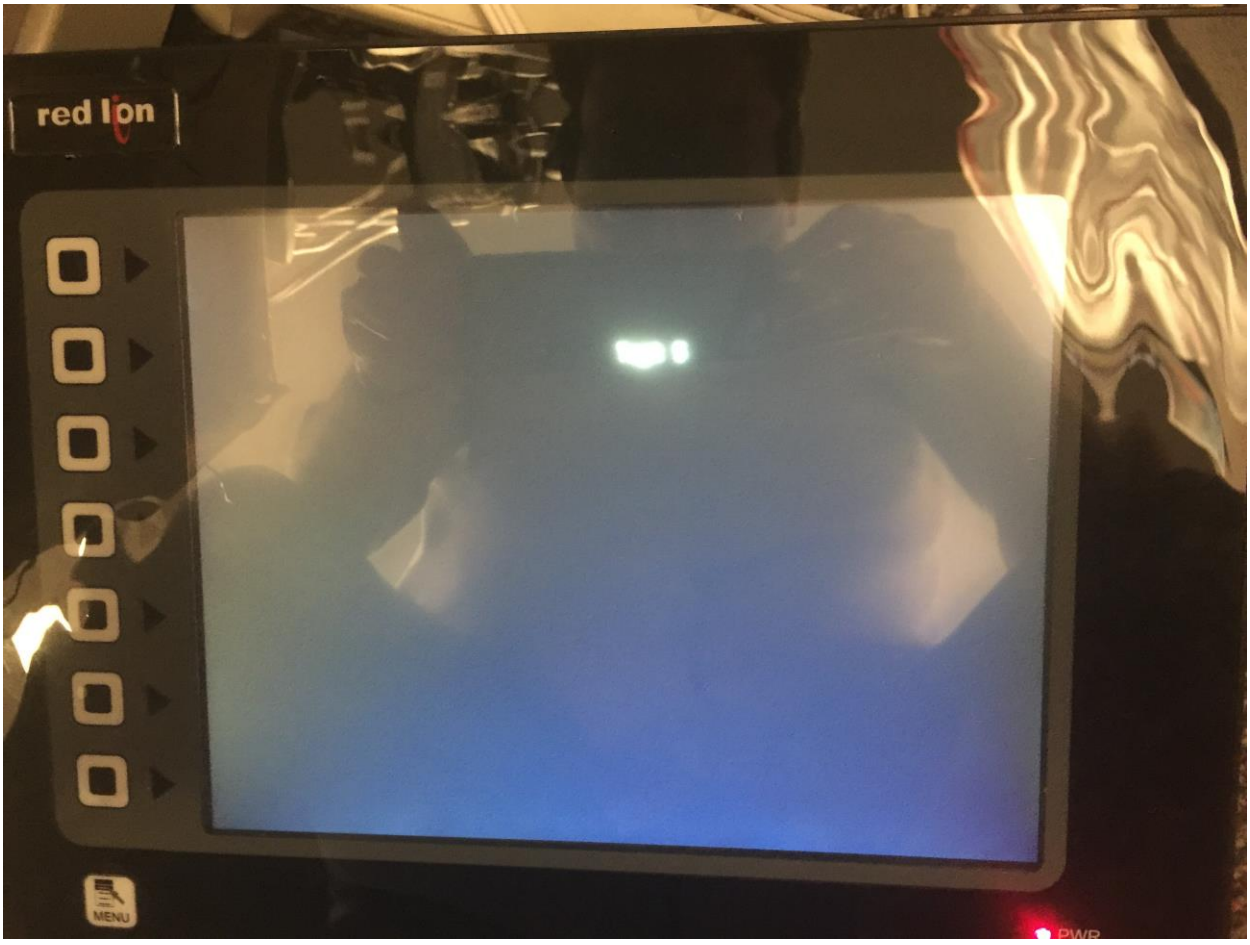
You can make additional changes to how data is displayed from here (please contact Red Lion for additional help if you are not familiar with Crimson 3.0)

For this example we only wanted to display that value so we next went to Display Pages tab and selected Data Tags on the right:

Next drag and dropped the data tag we created onto the display. We then hit save, and hit the little lightning bolt to download to the Red Lion HMI. After the downloading completed, the Red Lion HMI looked like this:

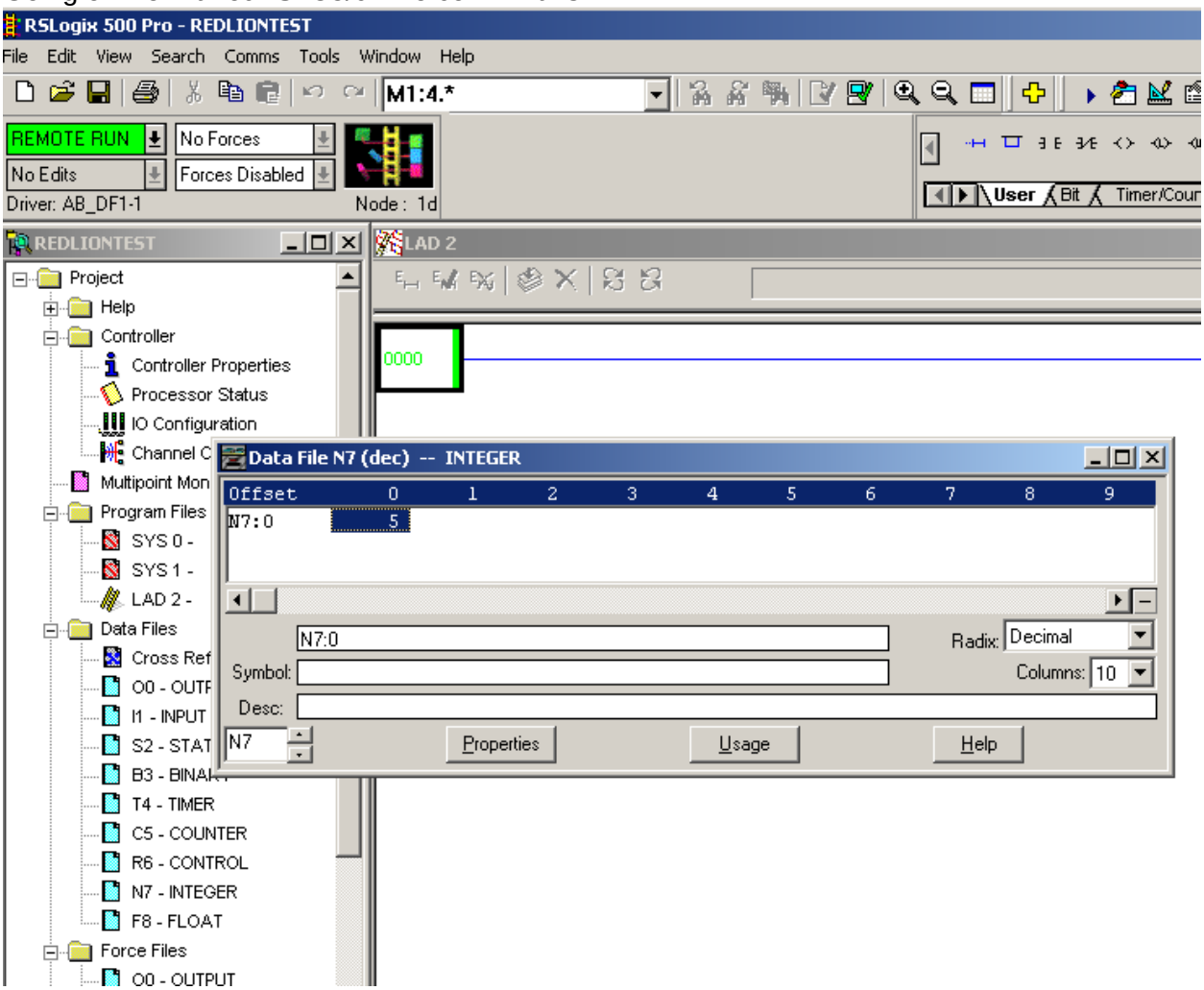


We then connected the CAT5 cable from the Red Lion to the AN-X2-AB-DHRIO.

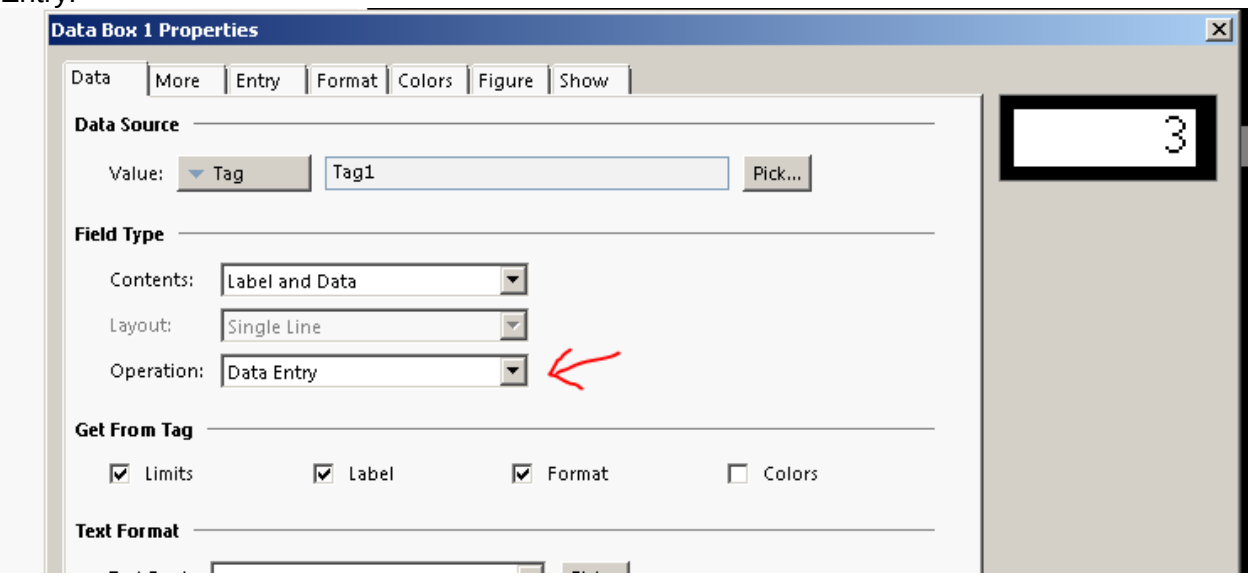


Although difficult to see do to glare, where once there was **--**, there is now a **5**, the value in the N7:0 in the SLC5/04.

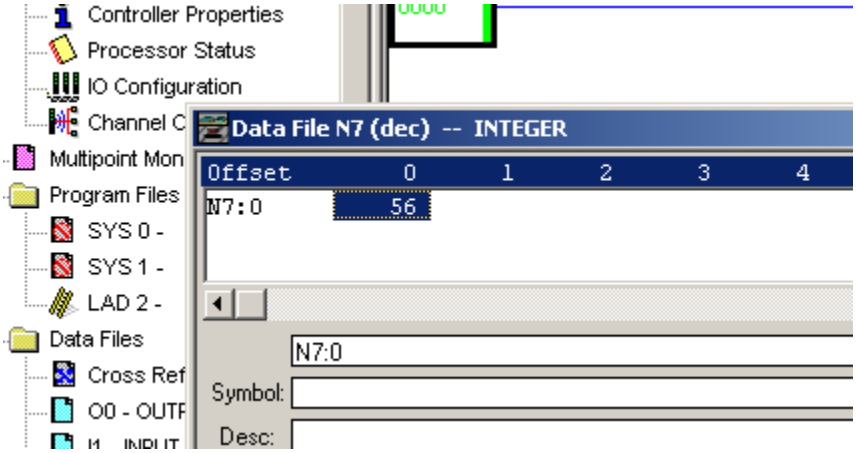
Going online with our SLC5/04 we confirm this.



Our final goal for this example was to use the Red Lion HMI to put a new number into the SLC5/04's N7:0 data file. Specifically we wanted to write a 56 (again, an arbitrary number for this example). By going back into Crimson and double clicking the data tag in the display page we were able to load the data box property and edit the operation from display only to Data Entry.



After saving and downloading this change, we then tapped on the tag on the Red Lion HMI screen and used the numeric display to put a 56 into the data tag, hit enter, and saw that same 56 show up in RSLogix500.



Asia Pacific

Malaysia Office

Phone: +603.7724.2080

asiapc@prosoft-technology.com

Languages spoken: Chinese, English

China Office

Phone: +86.21.5187.7337

asiapc@prosoft-technology.com
Languages spoken: Chinese, English

Europe

France Office

Phone: +33 (0)5.34.36.87.20

support.emea@prosoft-technology.com
Languages spoken: French, English

Middle East and Africa

Phone: +971.(0)4.214.6911

mea@prosoft-technology.com

Languages spoken: English, Hindi

North America

California and Wisconsin Offices

Phone: +1 661.716.5100

support@prosoft-technology.com
Languages spoken: English, Spanish

Latin America

Brazil Office

Phone: +55.11.5083.3776

brasil@prosoft-technology.com

Languages spoken: Portuguese, English

Mexico and Central America Office

Phone: +52.222.3.99.6565
soporte@prosoft-technology.com

Languages spoken: Spanish, English

Regional Office

Phone: +1.281.298.9109

latinam@prosoft-technology.com

Languages spoken: Spanish, English