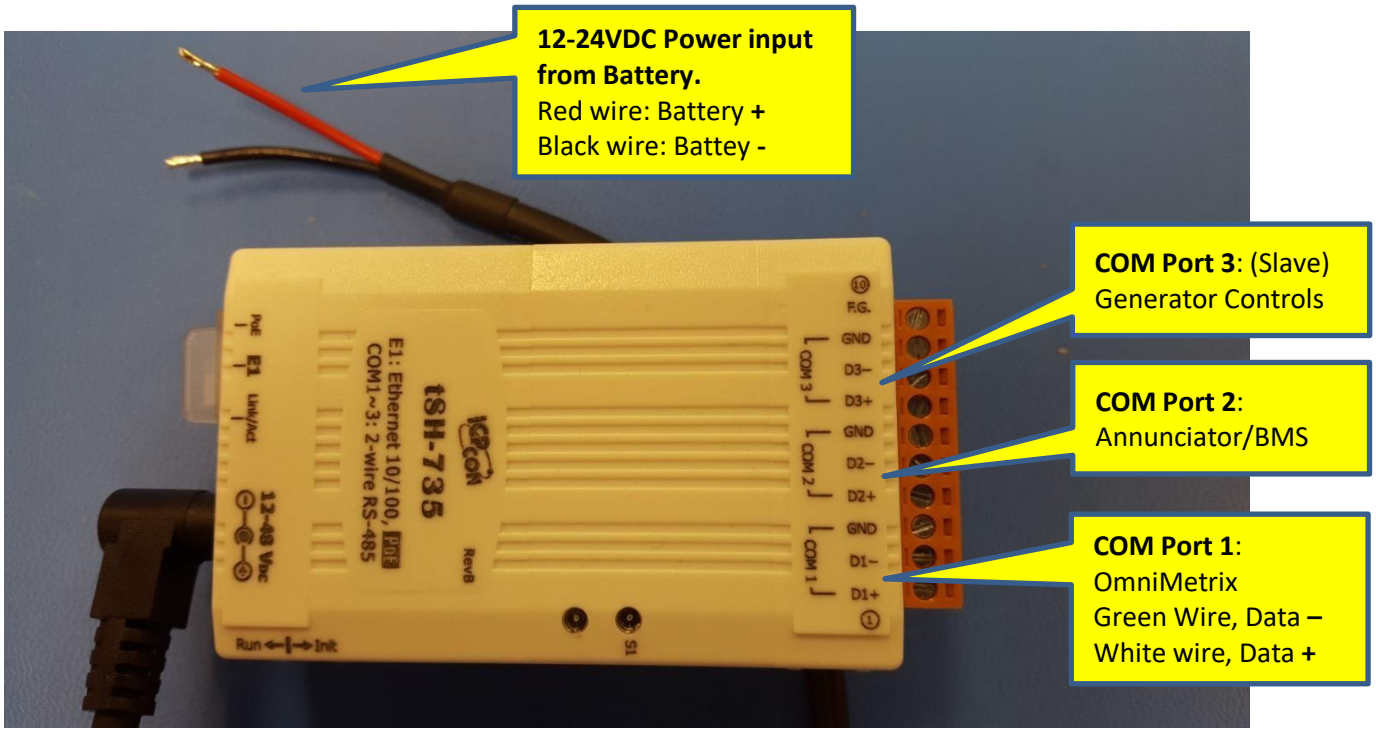
Wiring the tSH-735 Modbus Multiplexer / Port Sharing Module

This device allows two Modbus masters to share one downstream slave network. As delivered, all three ports are configured for 9600 8N1 RS485 serial interface.

Communication port 1 goes to the Omni device, Communication port 2 goes to the Annunciator/BMS, and Communication port 3 is set for the Genset Control.

If these settings are not appropriate for your application, they can be edited by plugging the device into your network, on the same subnet as your computer, and running the application contained in the CD included with the device.

The device accommodates different baud rates, so feasibly the two masters could operate at entirely different baud rates from the slaves. Obviously, all the slaves must have the same serial settings and the Com Port 3 must match those devices.



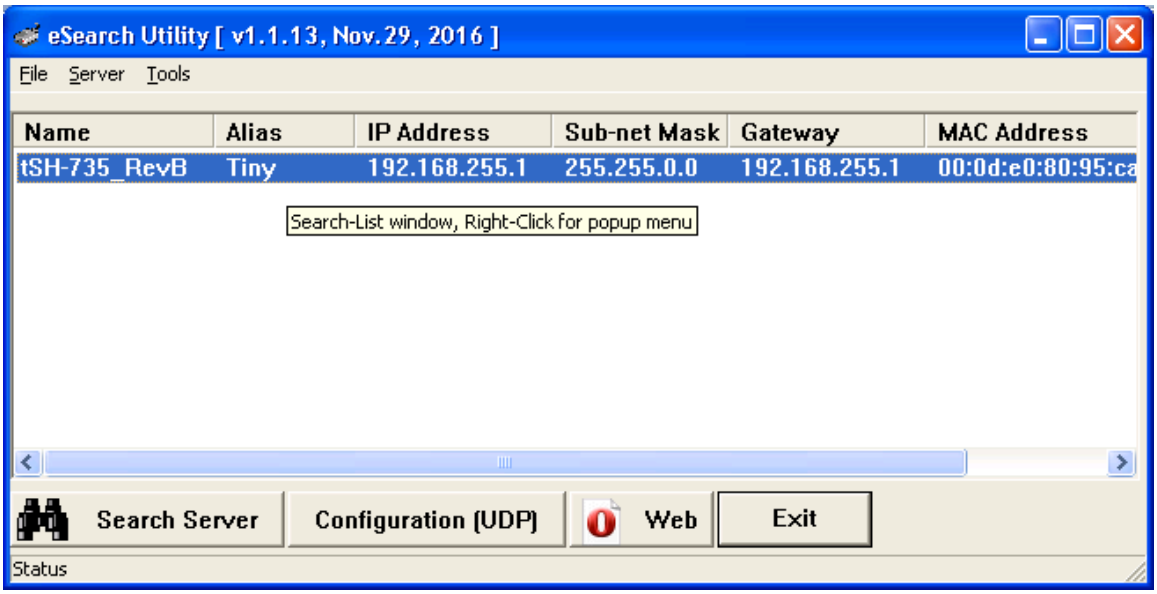
Be sure to pay attention to the Data **+** / Data **-** polarity. It won't work at all if you cross connect. Most applications don't require shields but do use twisted pair wires for noise immunity. No connection to the GND pins on the ports is required.

OmniMetrix devices use the following RS485 Color Code:
White Wire = Data **+**
Green Wire = Data **–**

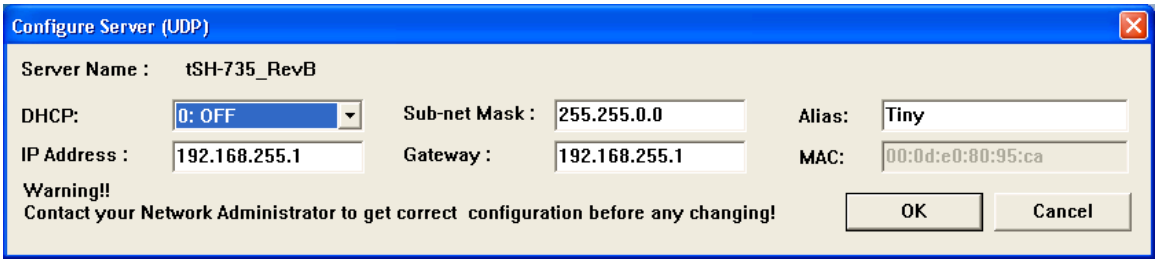
To set up the tSH-735 Serial Port Sharer, install the eSearch Utility found on the ICP-DAS web site… **https://www.icpdas-usa.com/software/esearch.zip**

Power up the device and plug it into your office Ethernet network near your workstation computer so that both will be on the same subnet.

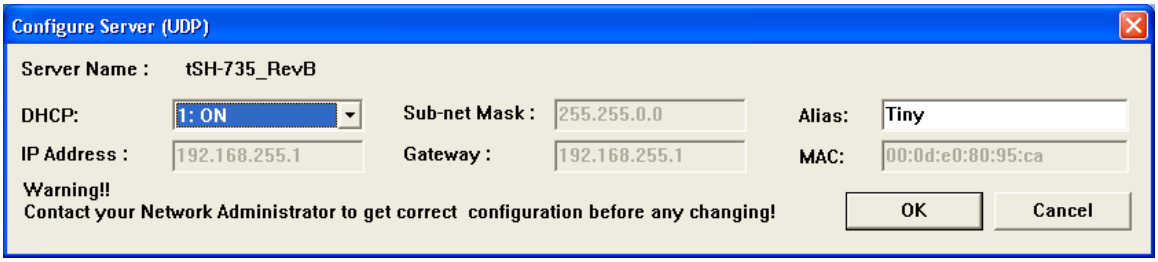
Click on the SEARCH SERVER button and the utility should find the device, with a 192.168… style address.



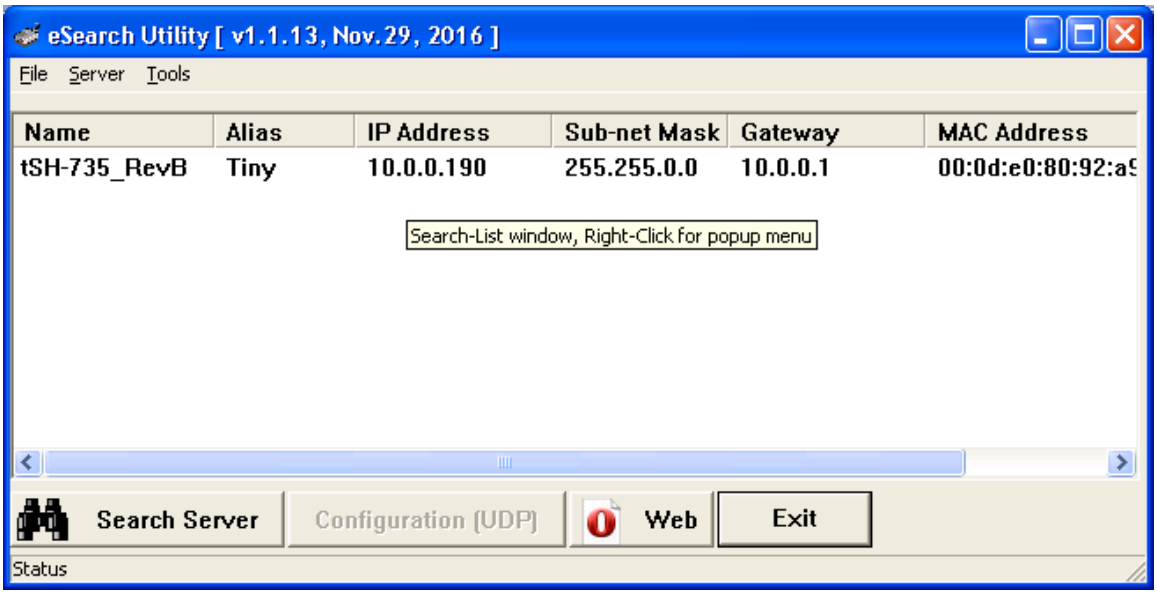
Double click on the tSH-735 item in the above window and it should present the window below:



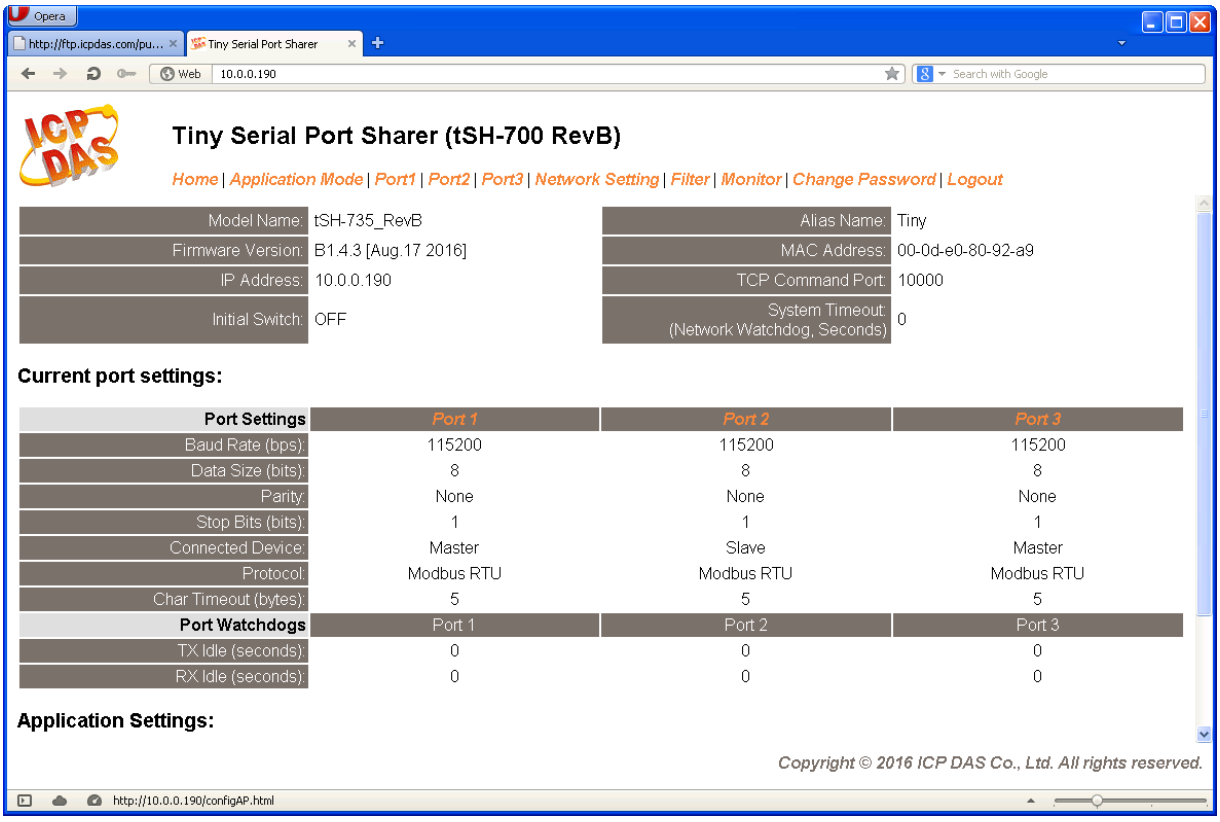
Change DHCP to ON and click OK.



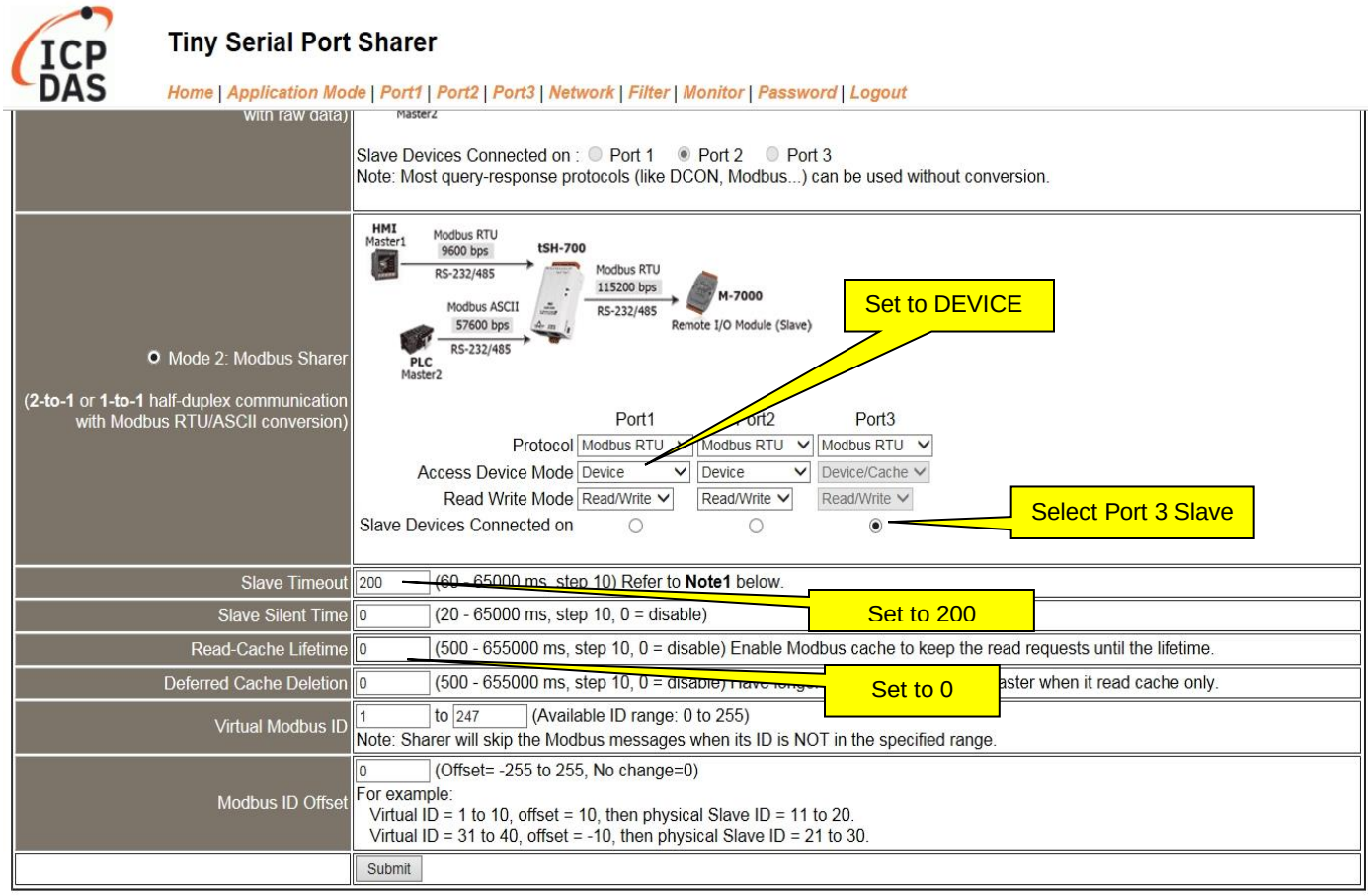
Go back to the prior screen and click on SEARCH SERVER, again. This time it will likely come up with an IP 10.x.x.x Address (or an address similar to the address of your computer).



In your browser (you can click the **WEB** button above to invoke the browser), browse to the IP Address now assigned to the device. It should look like this…

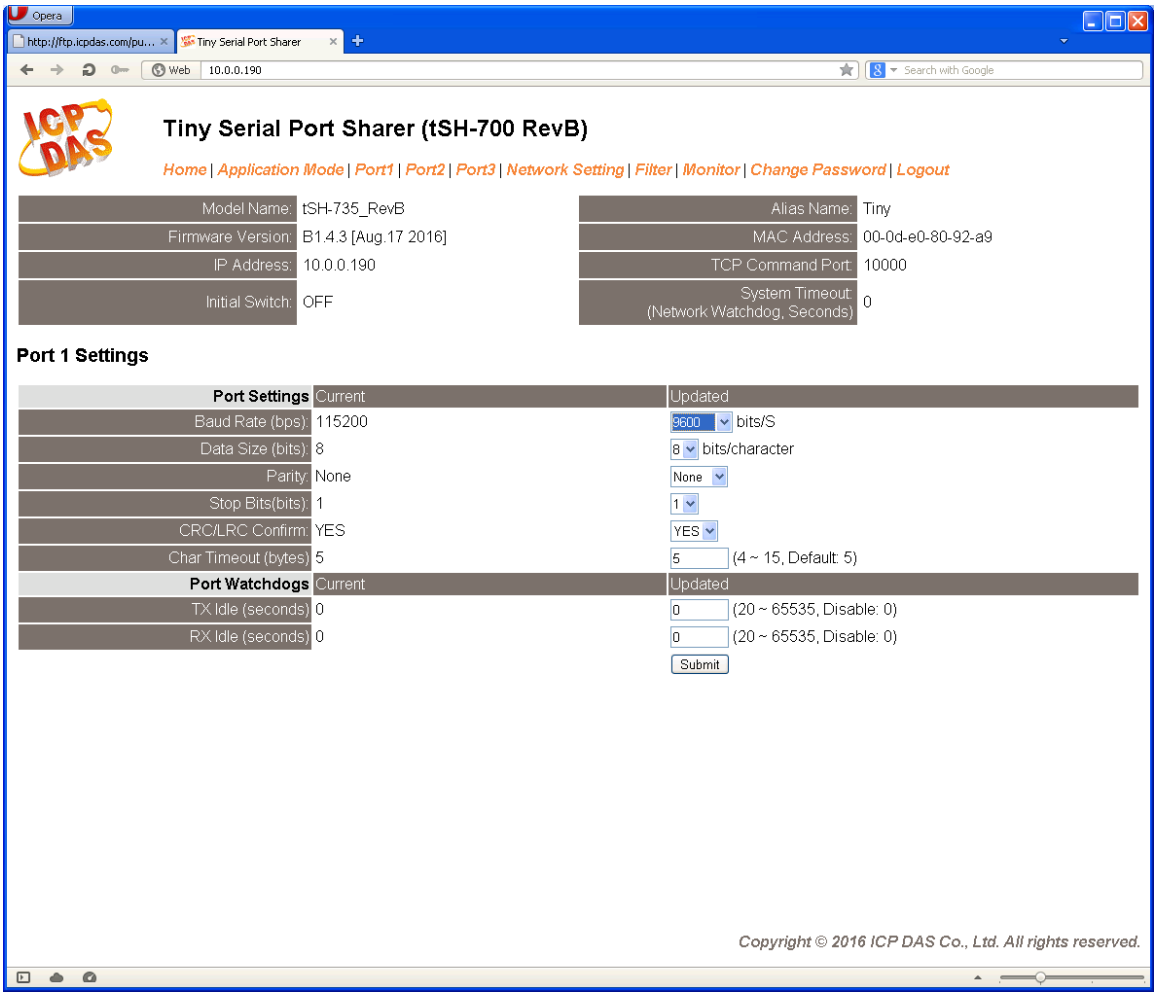


Start by clicking on the pull down menu item **APPLICATION MODE** to get to this window…



Select MODE2, click PORT 3 as the SLAVE DEVICE, and reduce the Slave Timeout to 200. Set the READ CACHE and DEFERRED CACHE to 0.. Click the SUBMIT button. This will send you back to the prior screen…

Then click the PORT 1 tab from the menu bar…

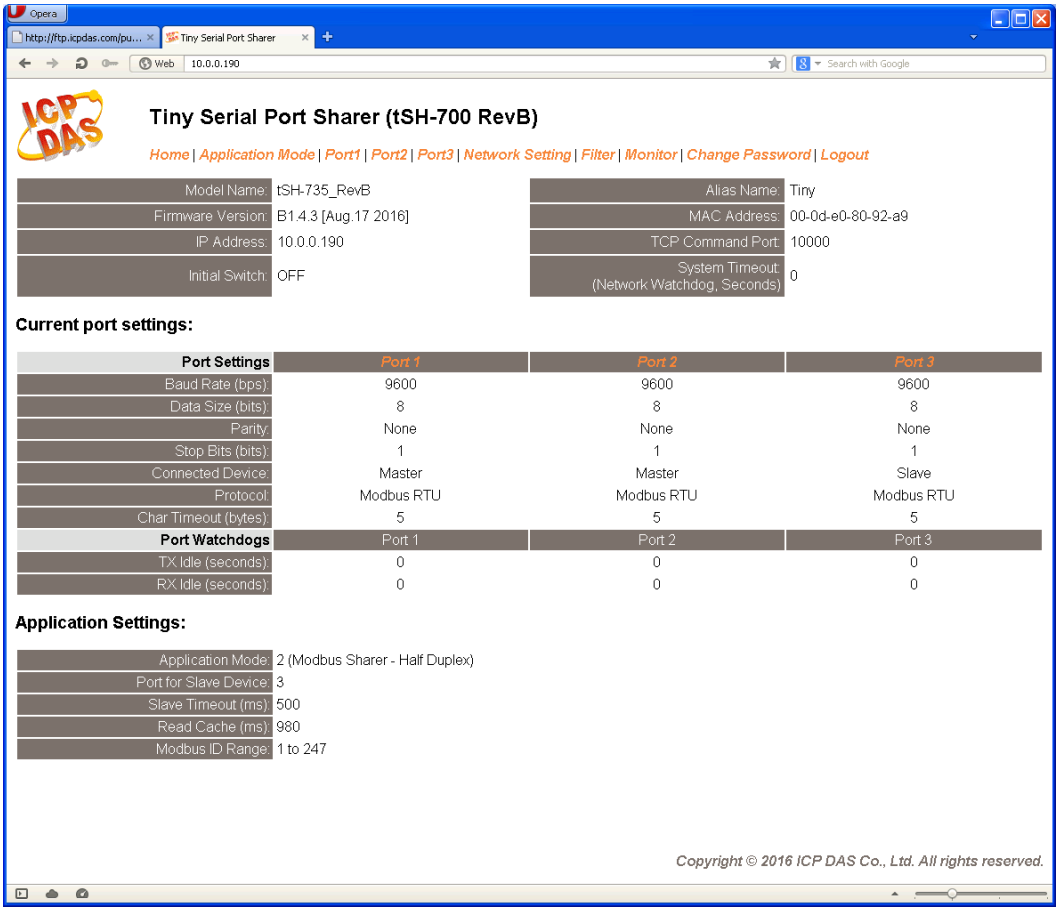


Select the desired baud rate settings… typically 9600 or 19200 8N1. Click the **SUBMIT** button.

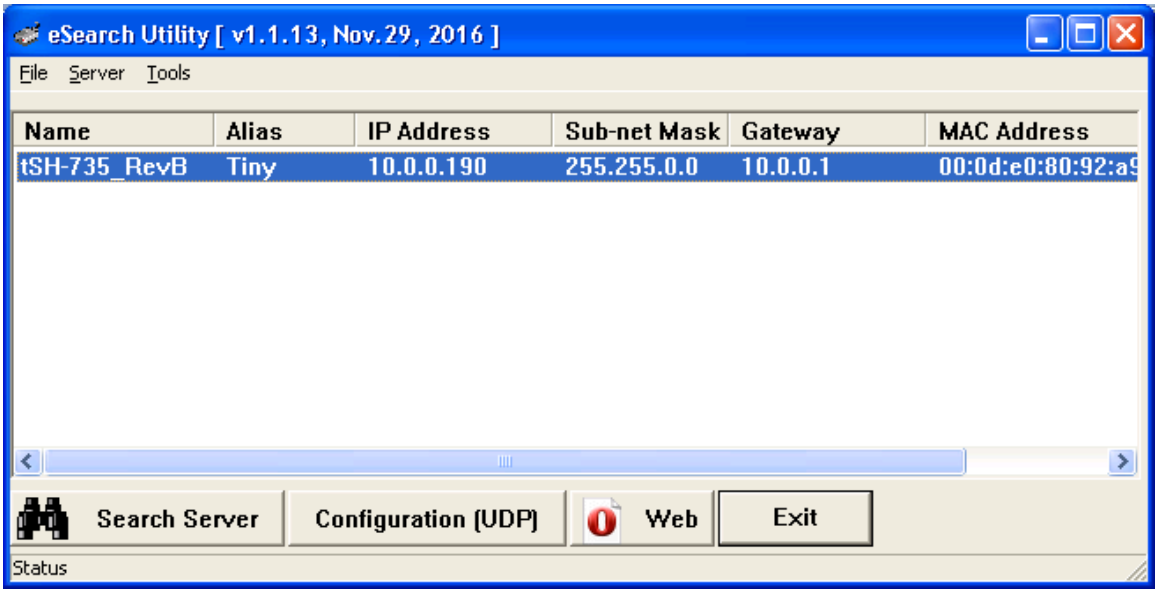
Repeat this step on PORT 2 and PORT 3, then navigate to the *Home Page*.

Note: The OMNI unit wants either 9600 or 19200 8N1. If the other connected devices, for example an annunciator or SCADA system and the Modbus slave want other baud rates, that is fine. The port sharing device allows all three ports to operate at different speeds, and the device manages the data flow accordingly.

The Home Page should now look like this…

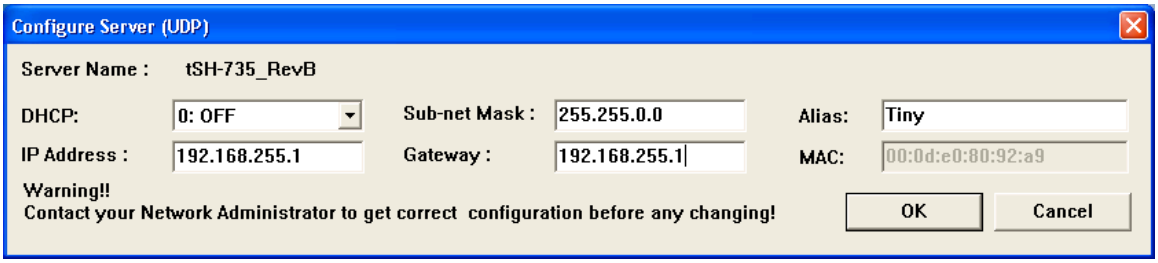


Click LOGOUT and go back to the eSearch Utility, which should look something like this…

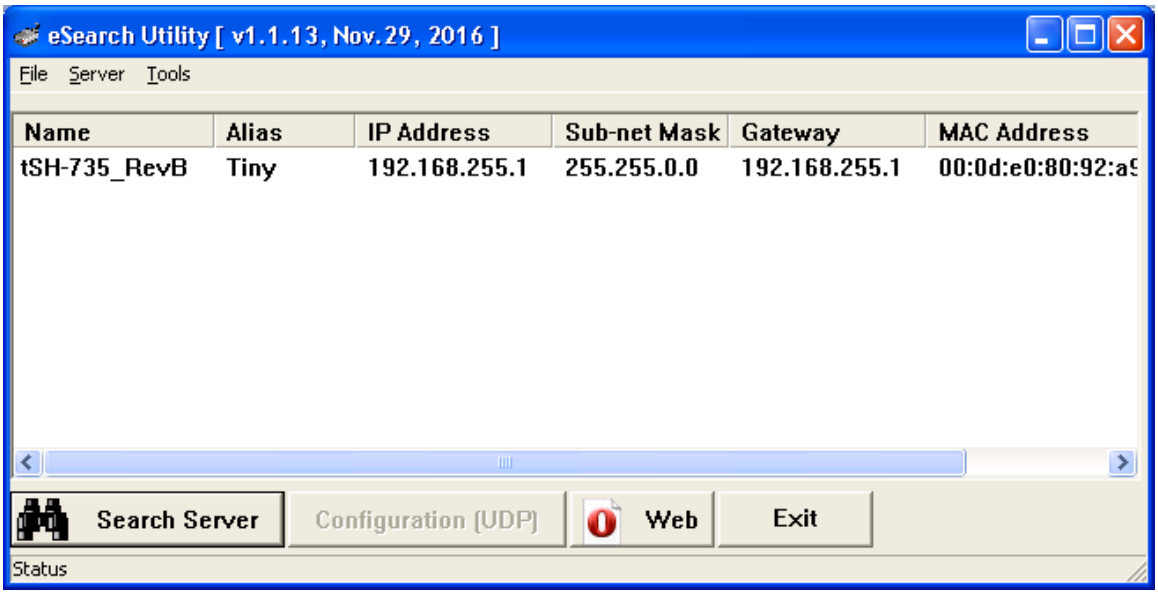


Double click on the device in the window above, and change DHCP back to OFF.

Put the 192.x.x.x values shown below back into the IP Address and Gateway and click OK. *(This step is optional.)*



As a final sanity check, power down the device and then power up and search for the device again, and confirm the configuration. Do not go in the field without double checking!!!



All done!

ADDENDUM: Point to Point / Non-Network Configuration

If you must do this configuration in the field with no network / DHCP option, you can do so by connecting an ethernet cable between the device and your network. This will require that the device and the laptop have IP addresses that are on the same subnet.

You can use the E-SEARCH by direct connection, and this will tell you the IP Address the device has… 192.168.255.1 / 255.255.0.0 in the example above. You will need to set your laptop's ethernet (not WiFi) IP Address to something like 192.168.255.2 / 255.255.0.0 in order to browse into the device. If you don't know how to do this, contact your in-house desktop support / IT support… do not contact OmniMetrix for this support.