How to setup a the WF5000B Serial WiFi adapter

This Step-by-step guide explains how to get started using the Serial WiFi Adapter part WF5000B.

Powering the WF5000B module.

The WF5000B module can be powered by a 5VDC, 350mA (max) voltage and a standard connector jack size of 5.5 x 2.1 x 11.5mm.

When power is applied to the module the red “Power” LED should be solid ON and after the module has booted and is ready the “Ready” LED should solid ON.

A standard 110VAC / 5VDC power adapter as shown below can be used to power the module.

Configuring the parameters.

There are three ways of configuring the parameters of the WF5000B module:

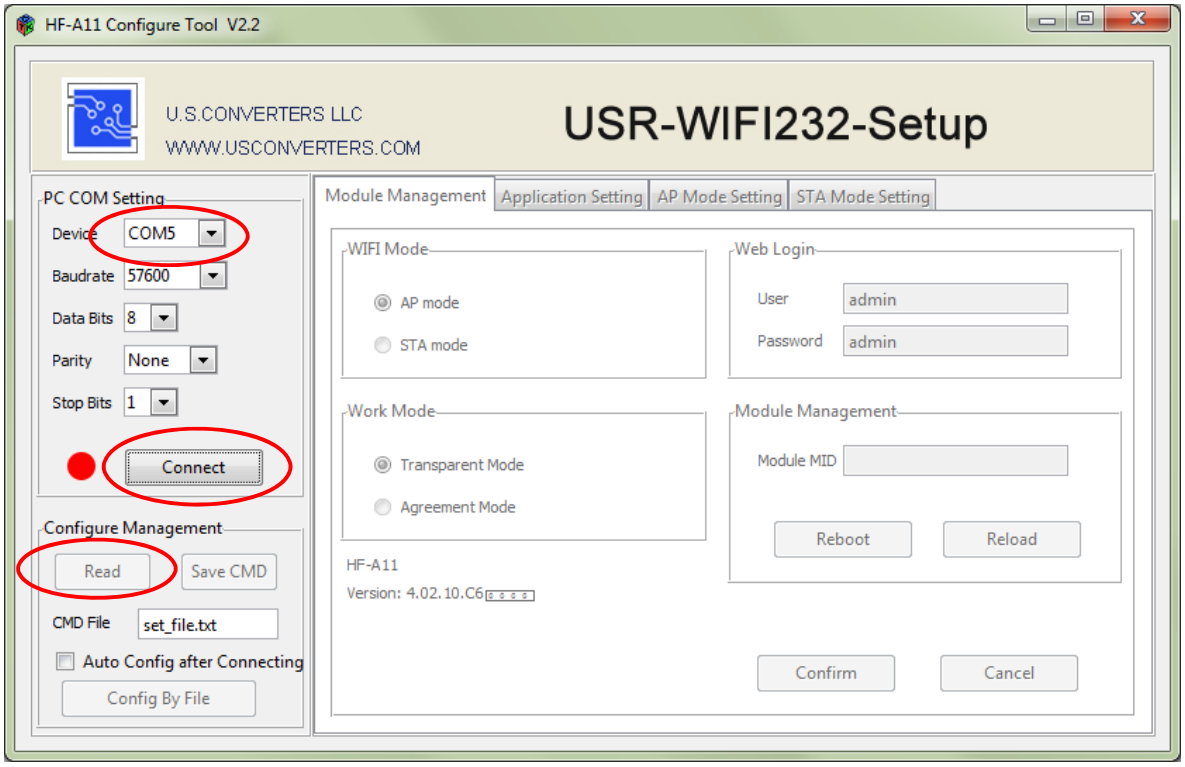
- by connecting to the module via the serial RS232 port and using the configuration utility to access the parameters.
- by connecting to the module over WiFi and use a standard web browser to access the parameters.
- by AT commands.

We will here describe methods 1 and 2 which are the two most used methods. Please contact us for more information if you wish to configure the module by AT commands.

Accessing the parameters via the serial RS232 port.

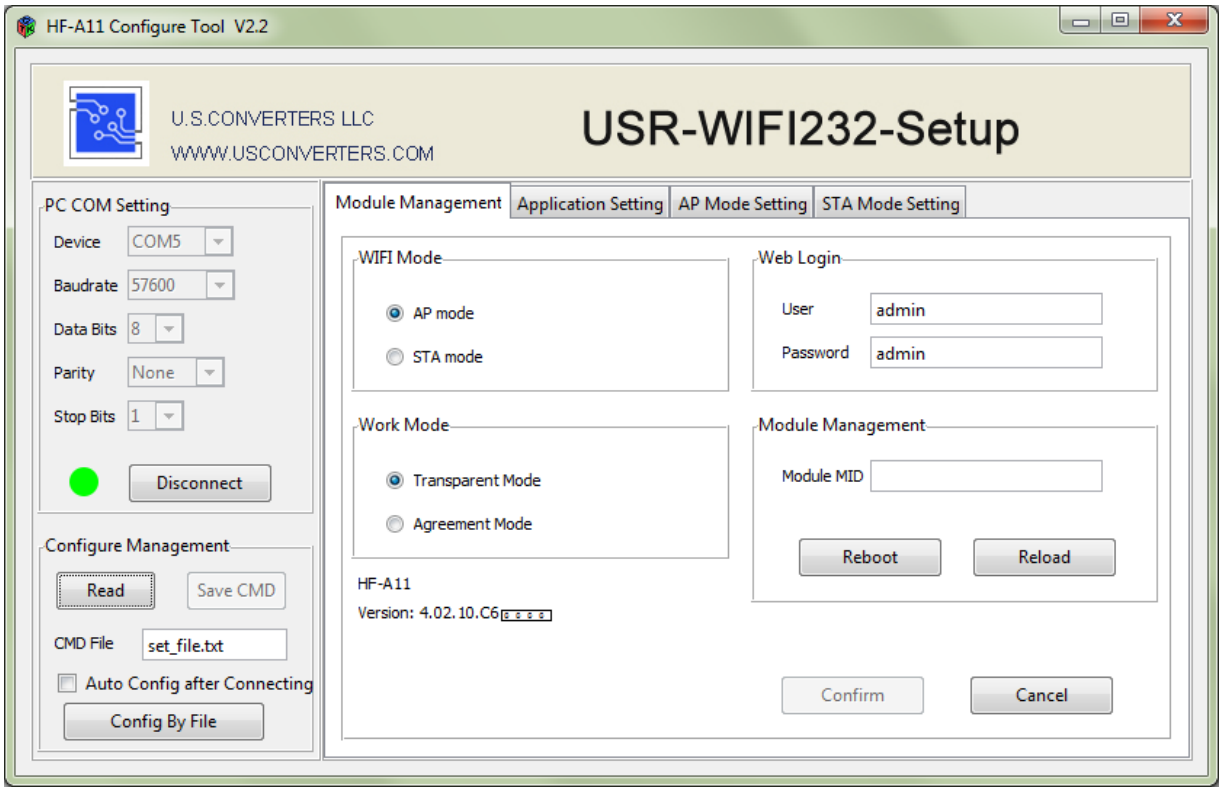
1. Connect the module to your computer's serial port with the included null modem serial cable. If your computer does not have a serial port then you can use a quality USB to serial adapter.
2. Start the configuration software and select the COM port number you have connected to module to (you can check the COM port number in your operating system's Device Manager).

The following shows the default settings:

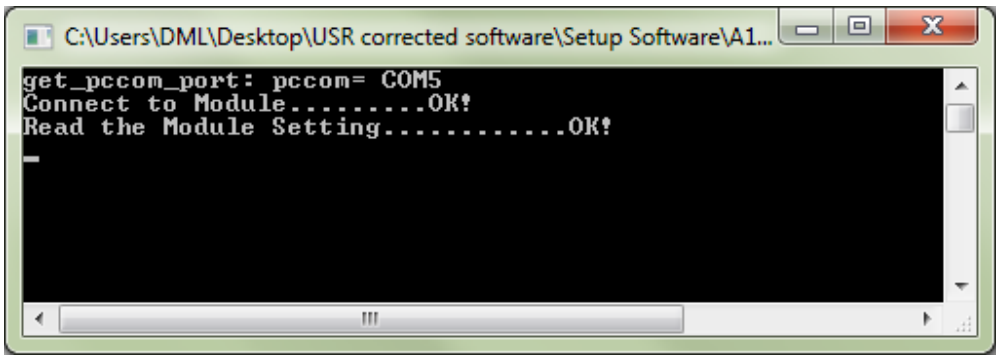


Click the "Connect" button; and then click the "Read" button once the software has connected to the module.

The software has read WF5000B's parameters:



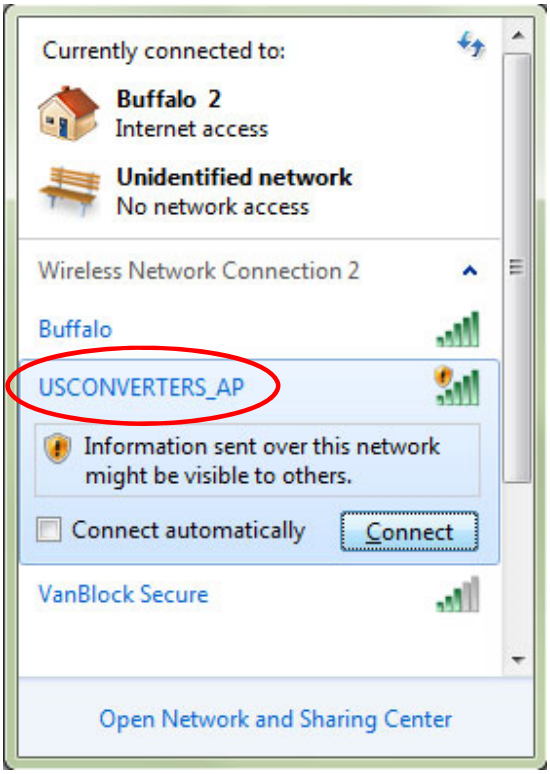
A DOS window will show the communication between the software and the module:



Access the parameters over WiFi.

Instead of accessing the parameters over a serial port you can access them over WiFi.

First connect to the WF5000B module using your operating system's default wireless network manager. In this case we use Windows 7's wireless manager.

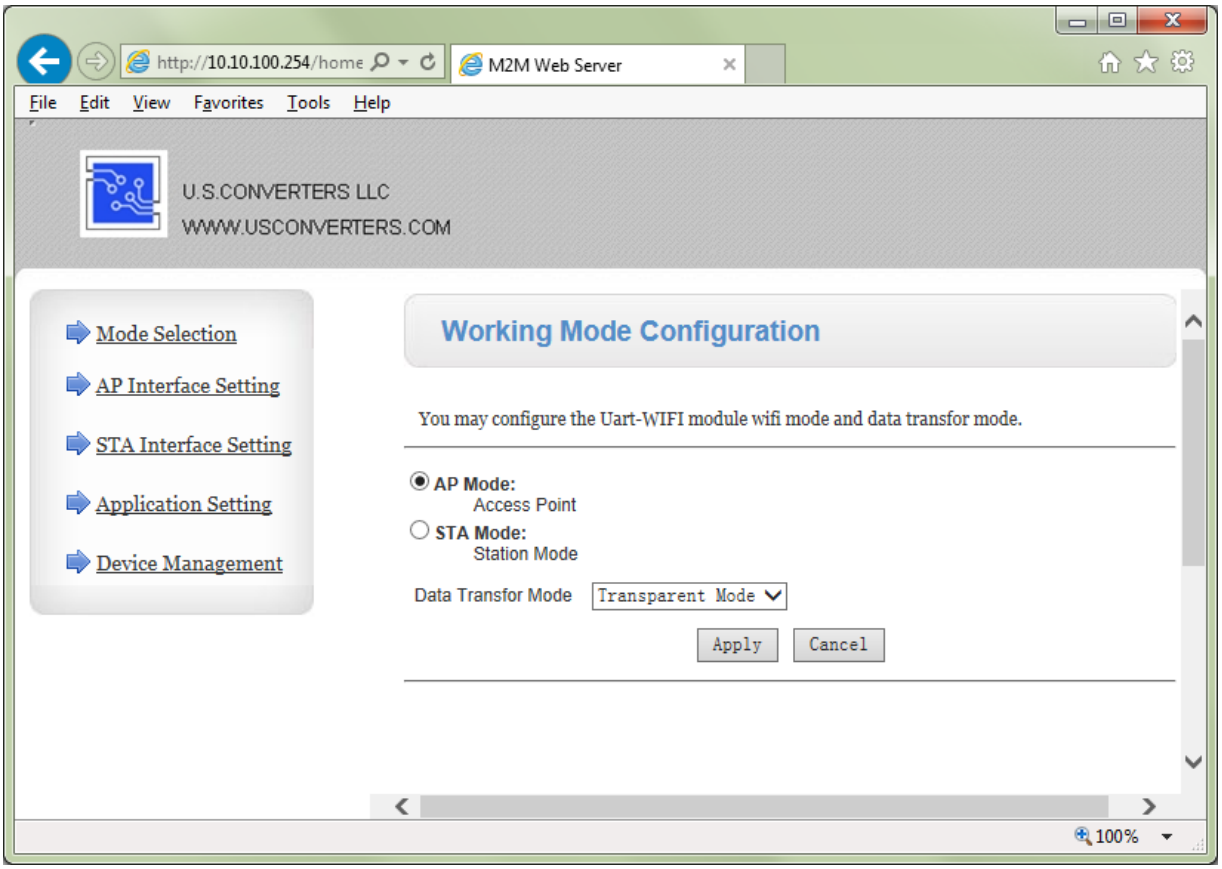


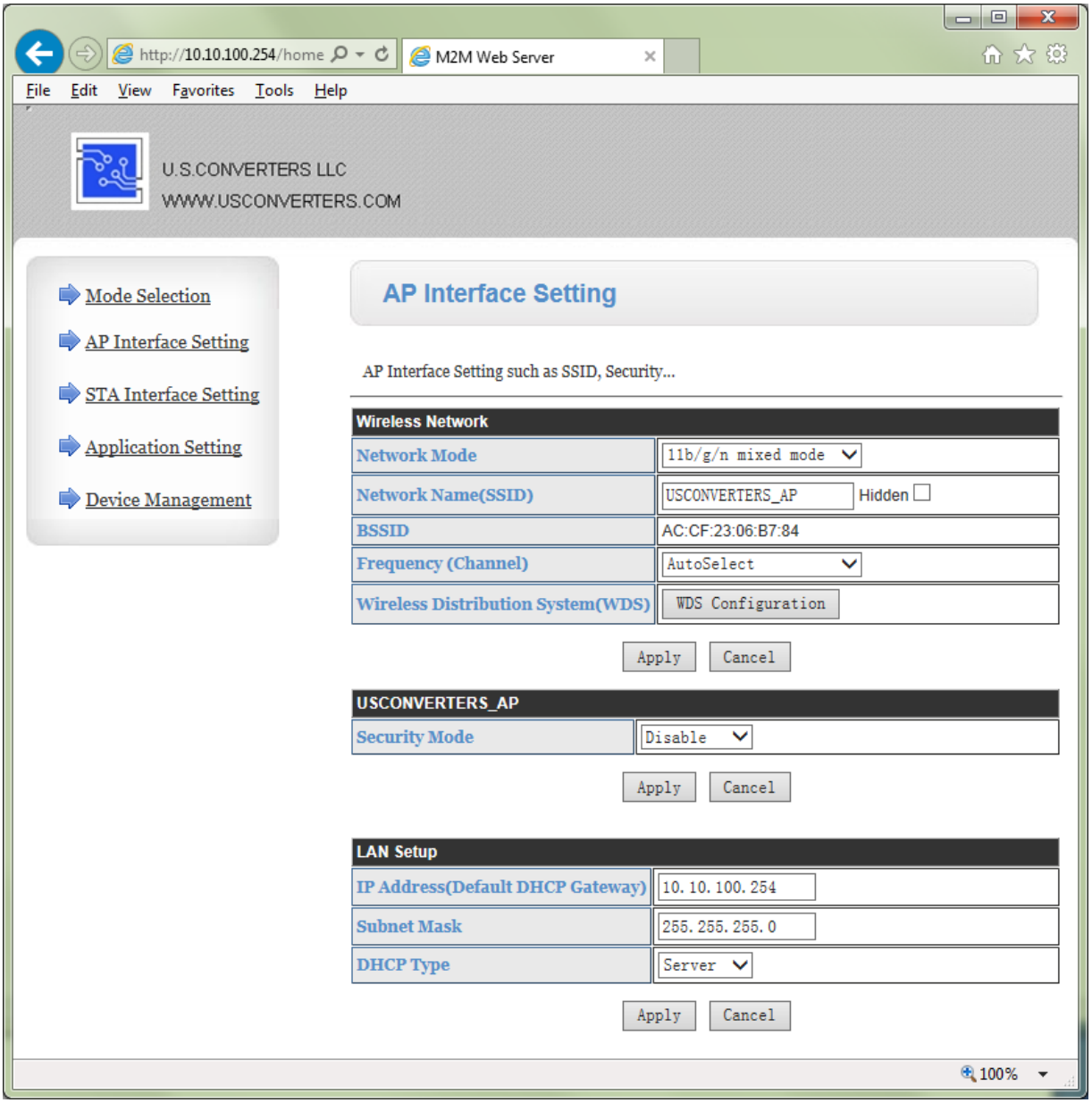
Once your computer is connected successfully to the WF5000B module you can open a web browser and enter the WF5000B's IP address which by default is **10.10.100.254**.

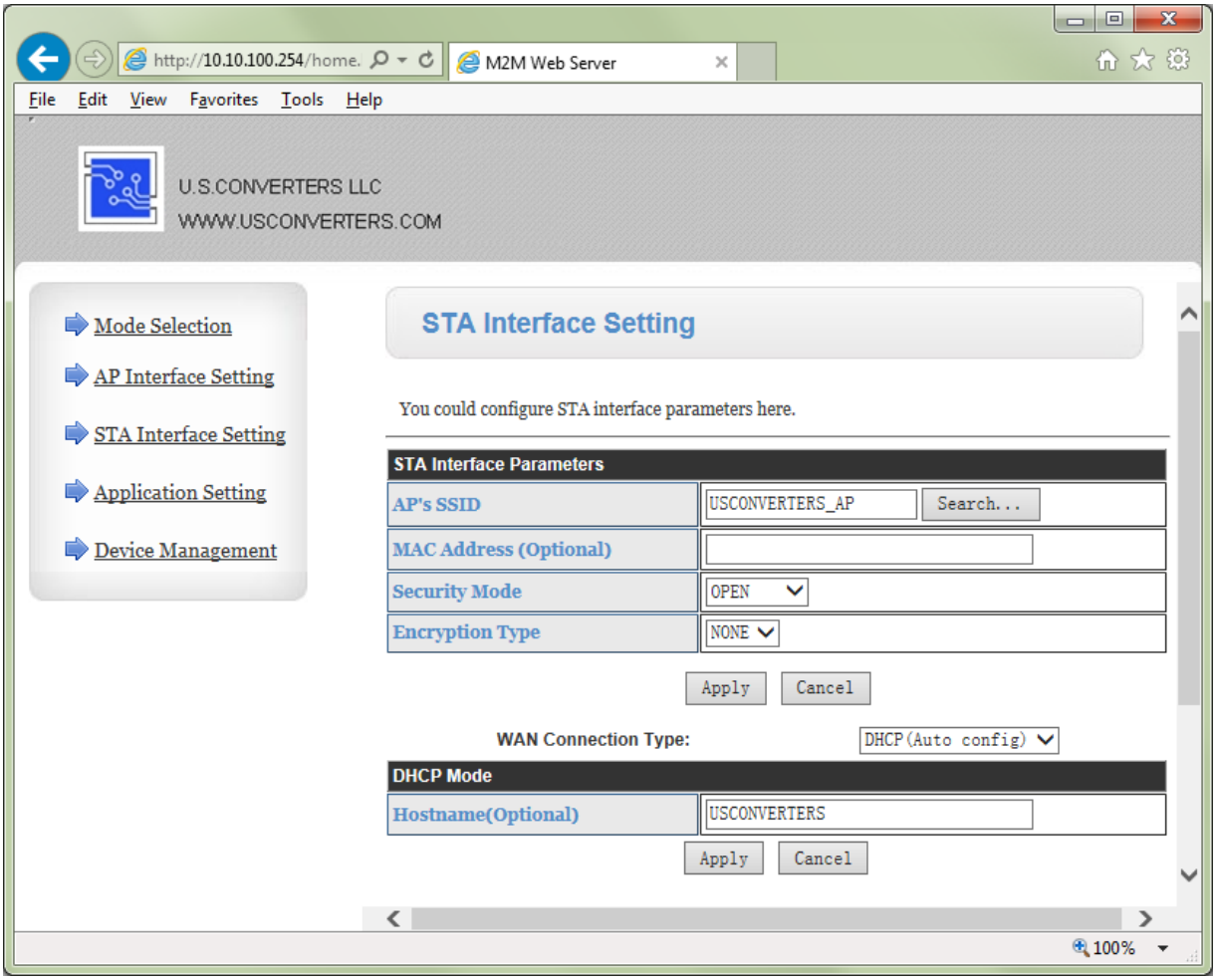
A login window will open. Enter the user name and password.

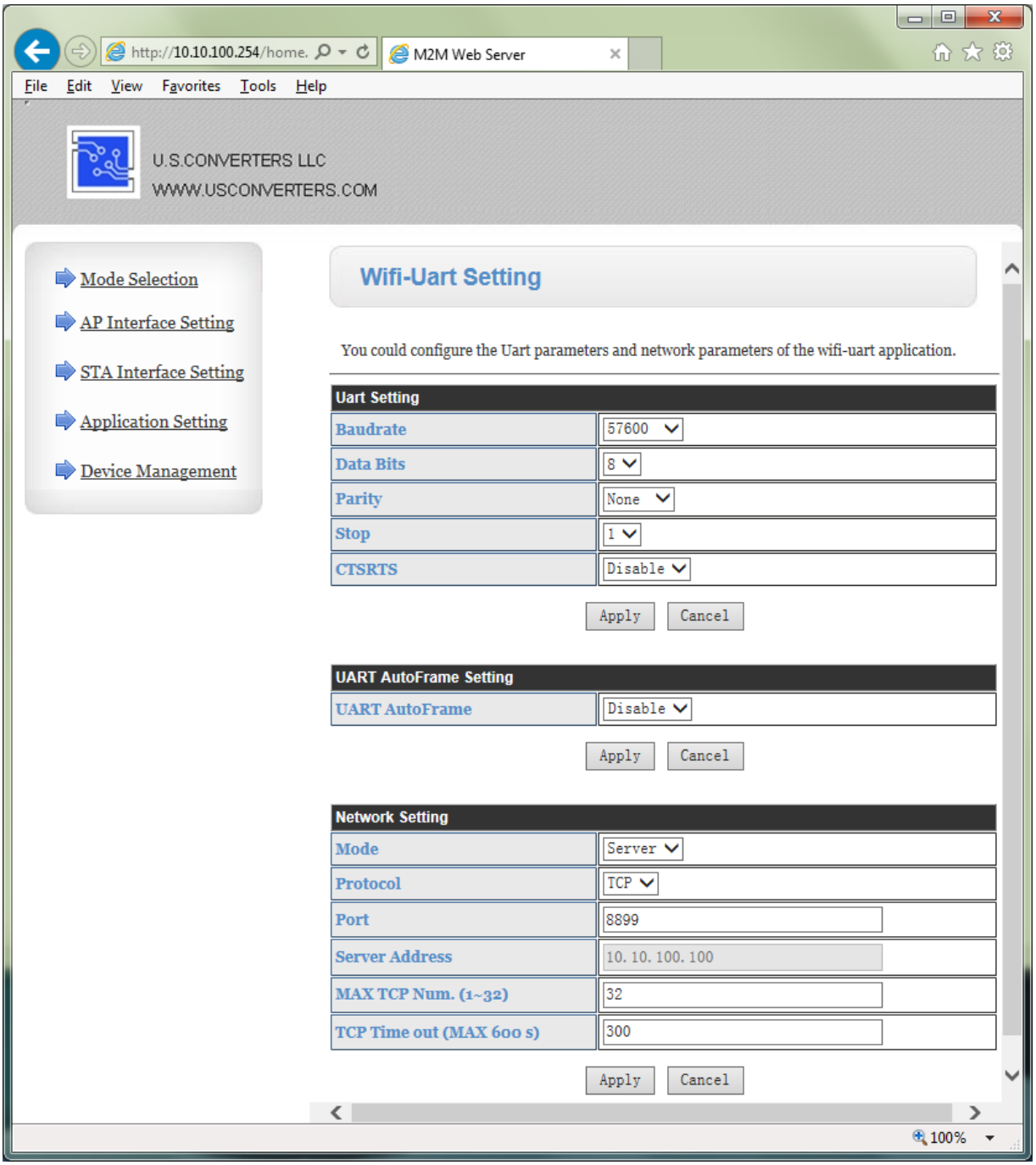
User: **admin**
Password: **admin**

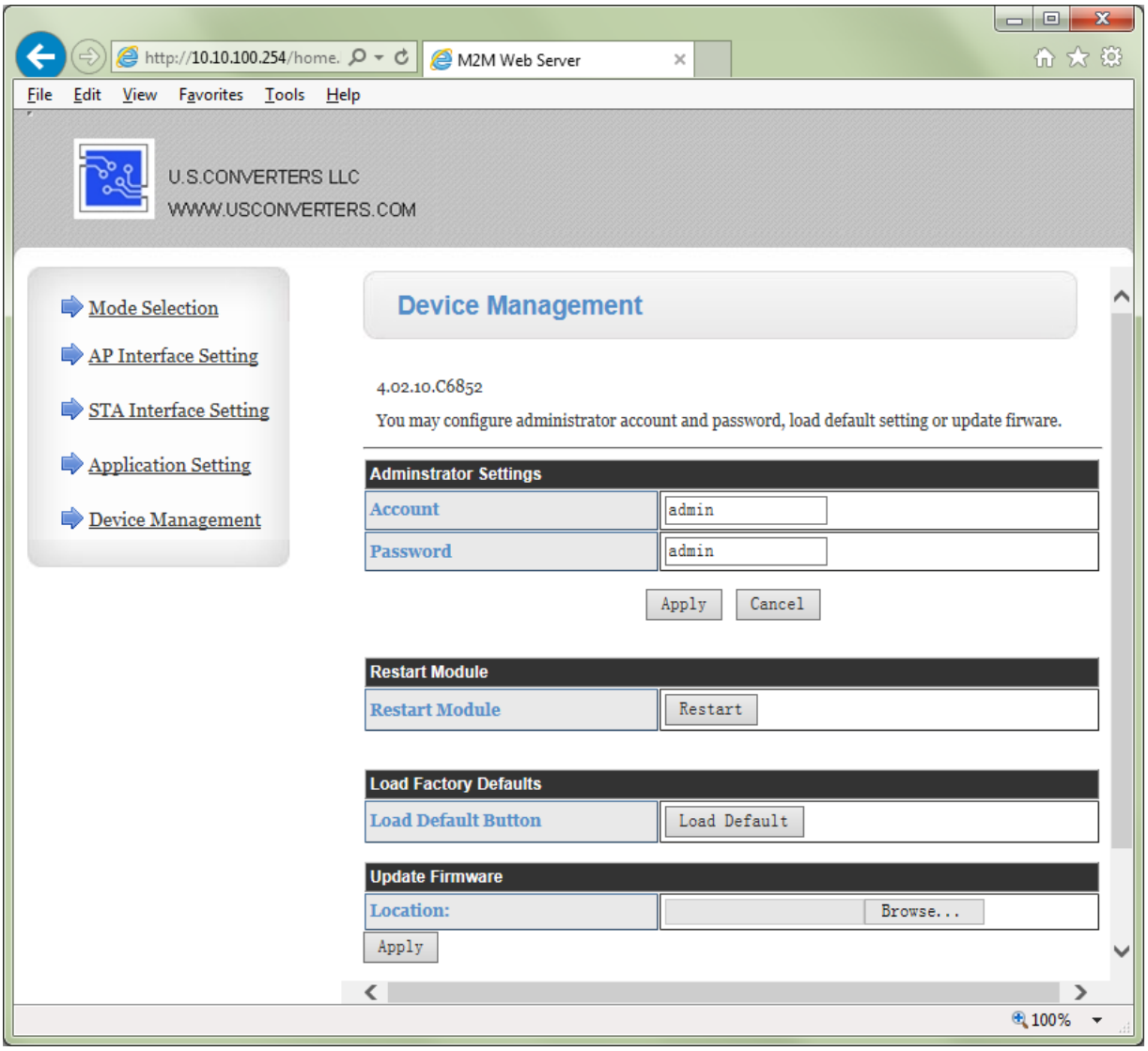
The main menu will open from where you can access all the parameters. Below are screenshots of the available parameters:







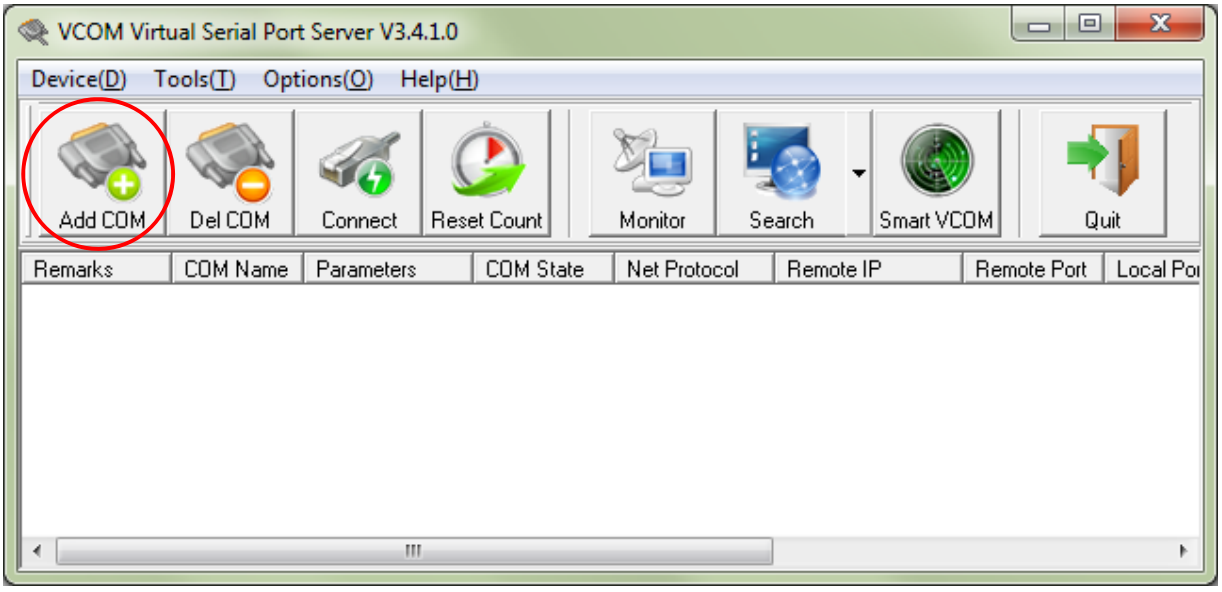




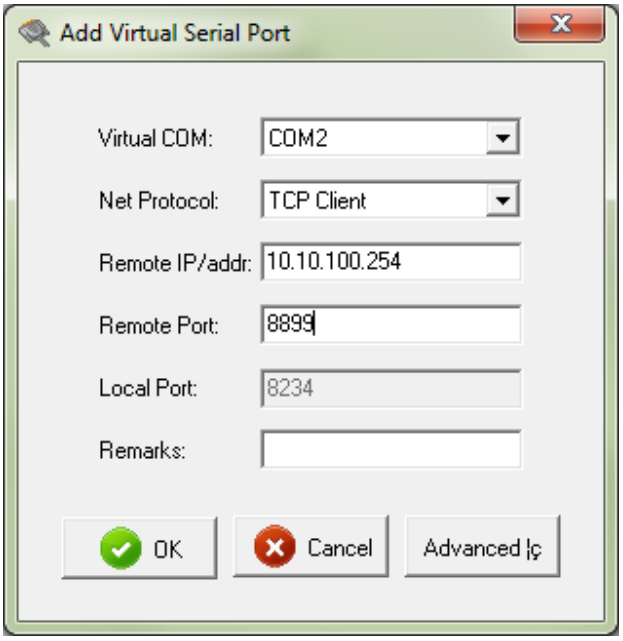
How to create a virtual COM port

To create a virtual COM port for the WF5000B module which can be used by a serial application or serial device you need to use a COM port redirector. You can either use the VCOM software included with the WF5000B or a 3rd party VCOM software such as "PortShare" which is free or "Fabulatech COM port Redirector" which is a 15-day trial and can be purchased from fabulatech.com.

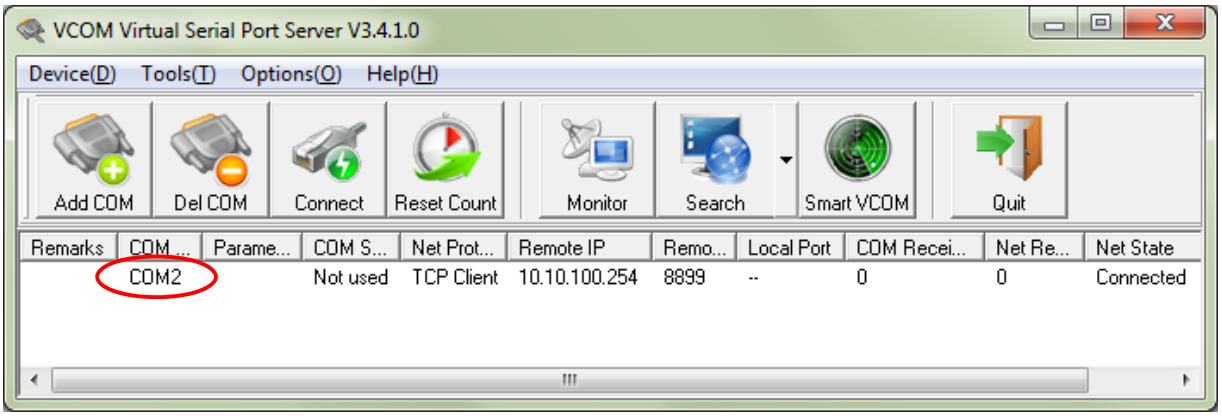
Start the VCOM software and click the "Add COM" button:



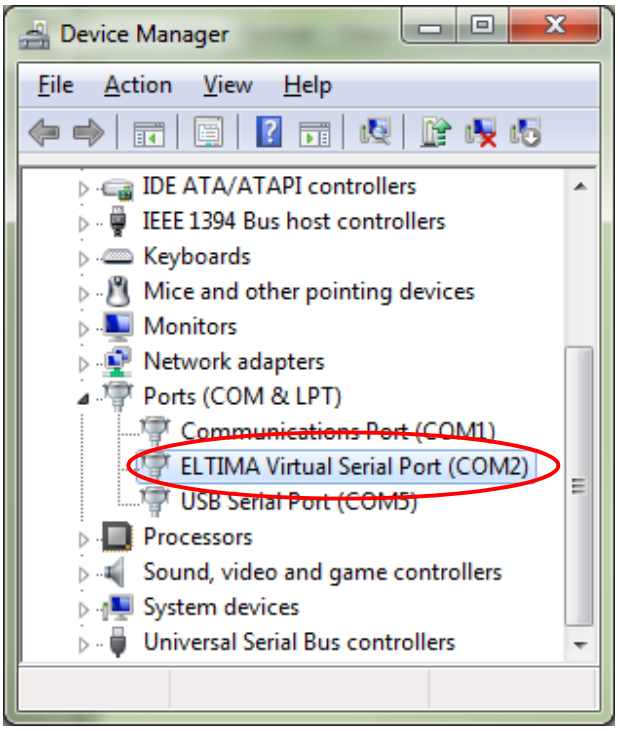
Select which COM port number you want to create and set WF5000B's IP address and port number:



The port will now be created:



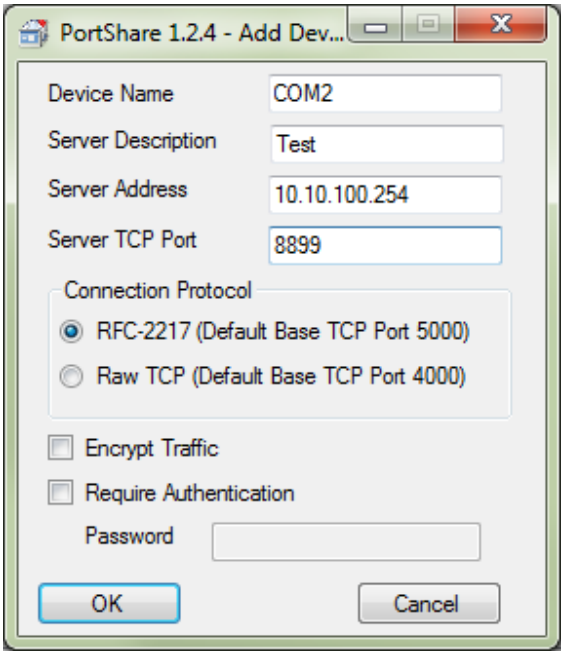
Check in Windows Device Manager to see if the COM port has been successfully created:



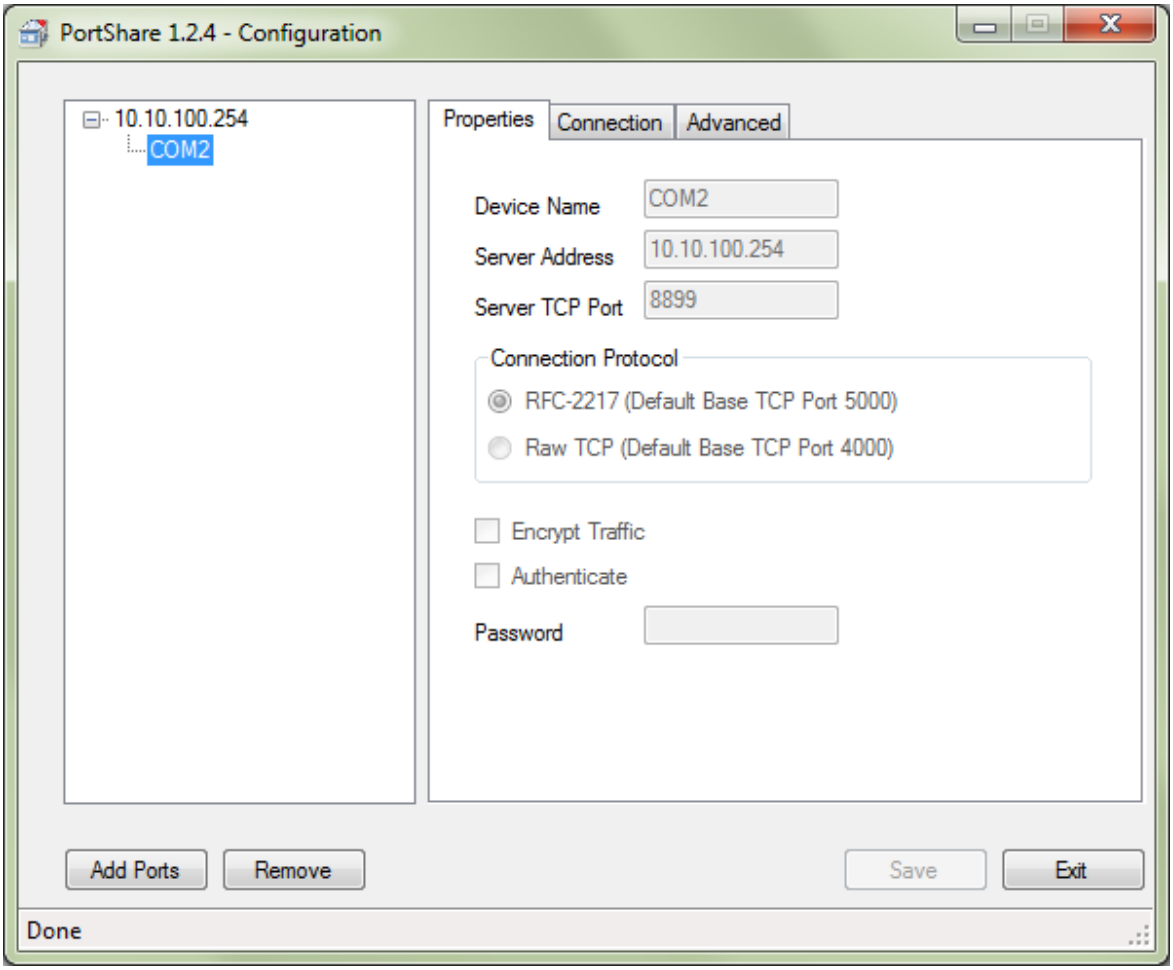
Using PortShare Redirector for creating a virtual COM port.

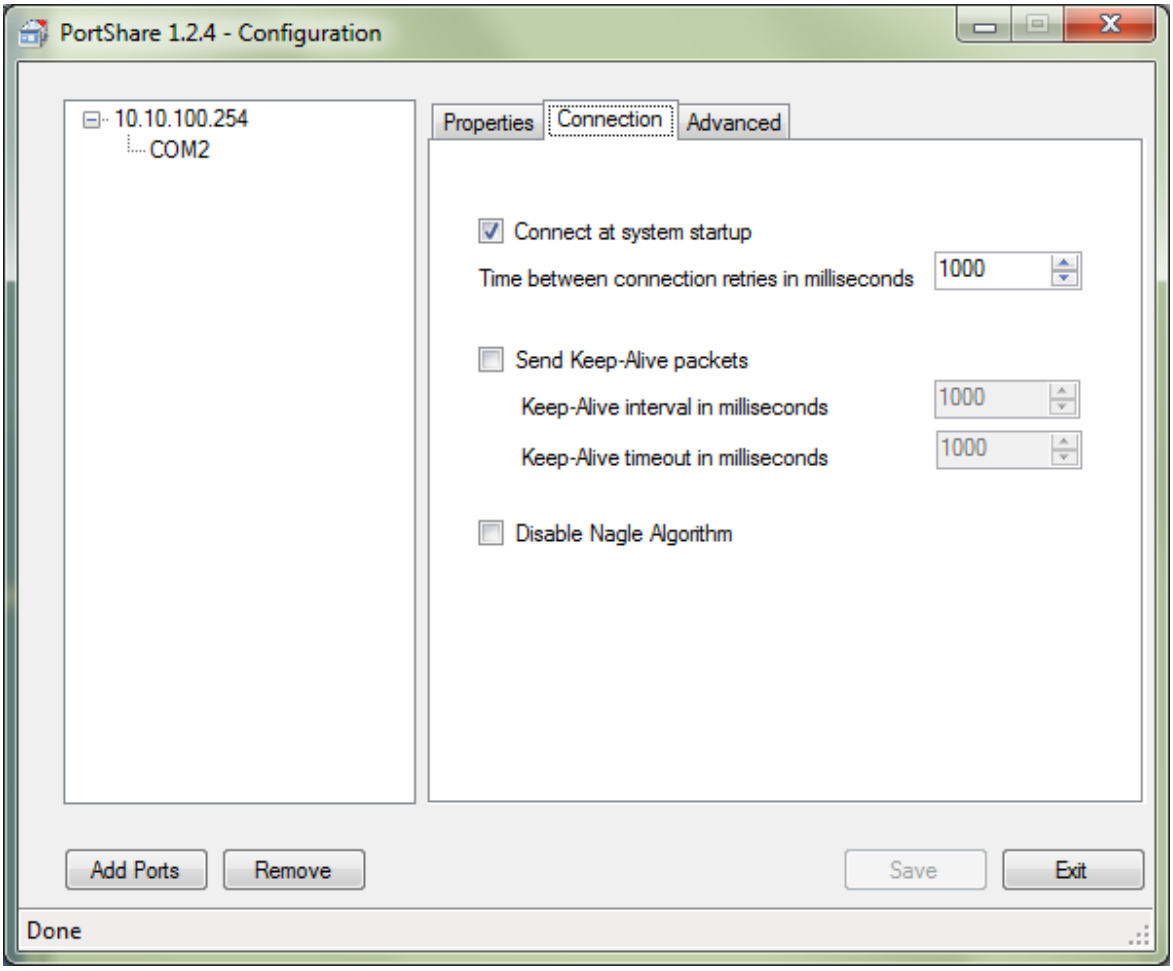
PortShare can be downloaded for free from www.usconverters.com.

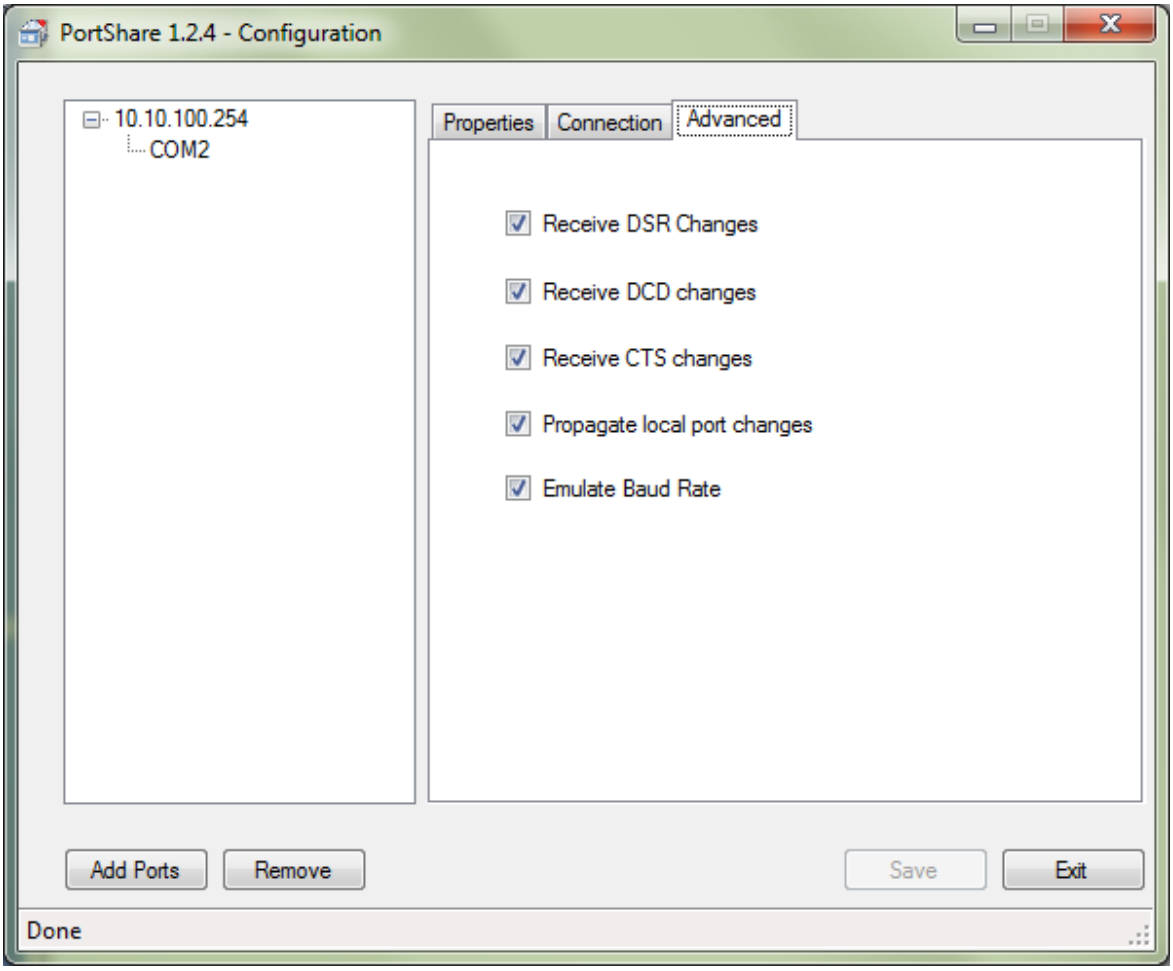
Open PortShare and enter the information for the WF5000B:



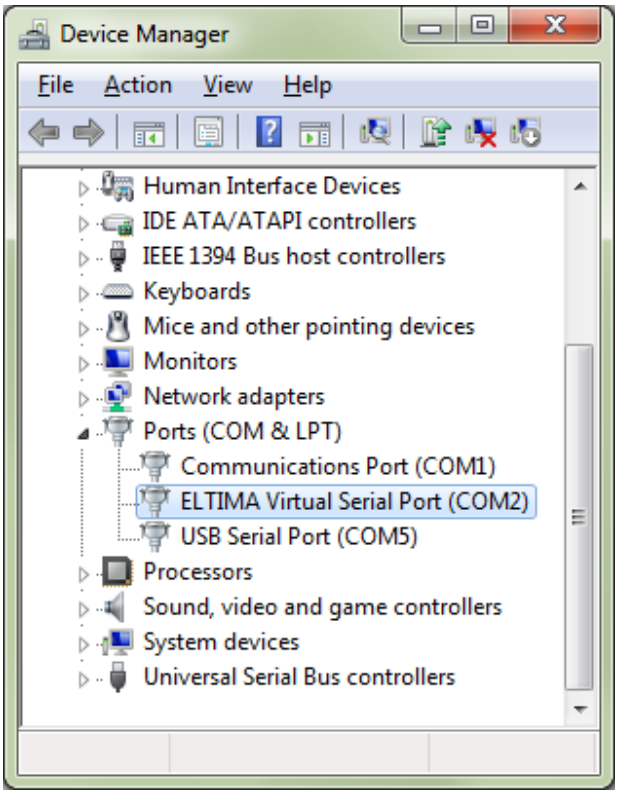
PortShare will now create a virtual COM port for the WF5000B module:







Check if the COM port has been successfully created in Device Manager:

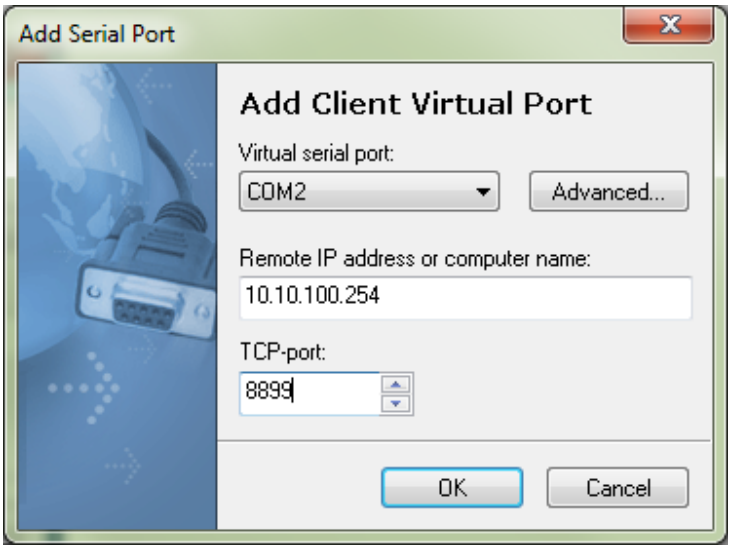


Using Fabulatech Redirector for creating a virtual COM port.

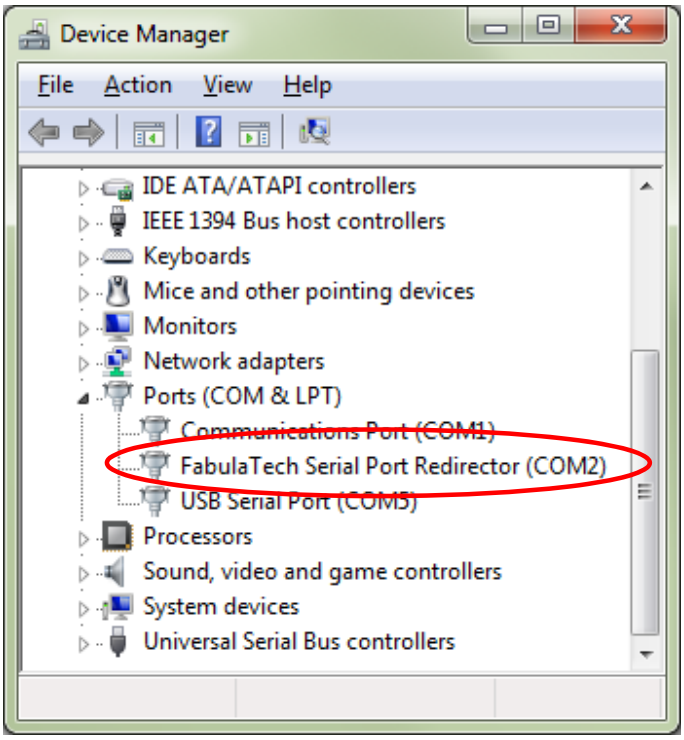
The Fabulatech Redirector can be download here:

http://www.fabulatech.com/serial-port-redirector-download.html

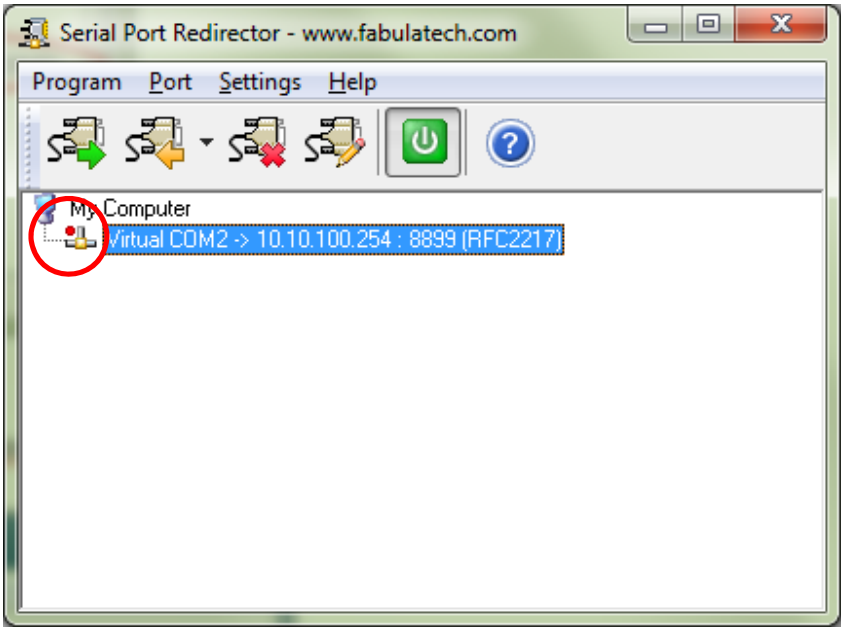
Open the software and enter the parameters for the WF5000B module:



Check if the COM port has been successfully created in Device Manager:

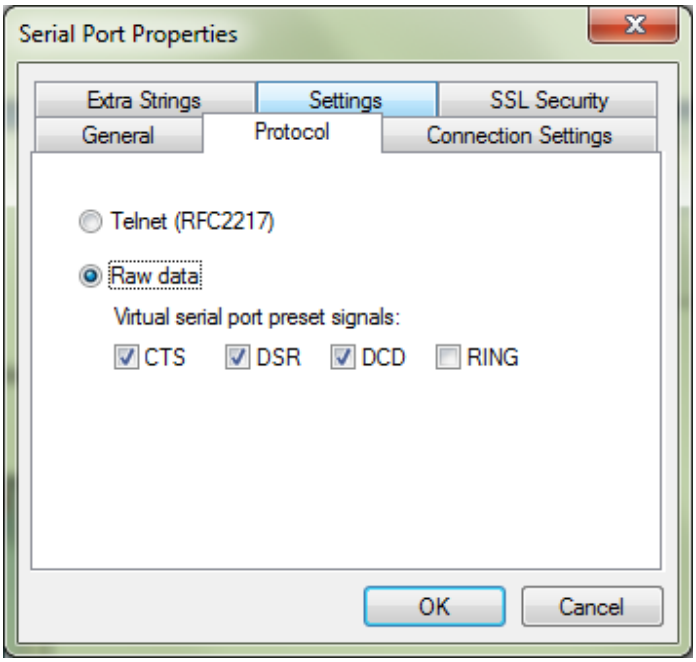


The COM port should also show up in Fabulatech:



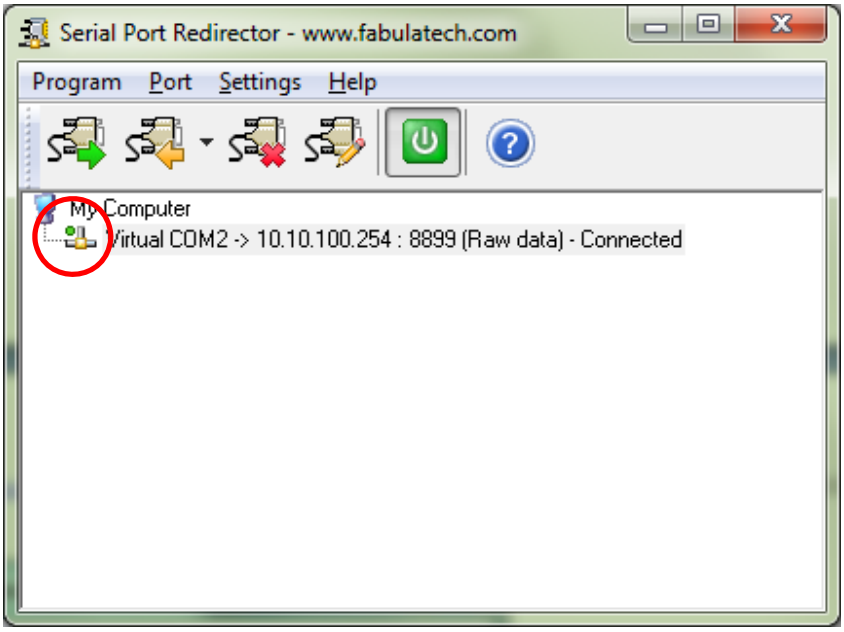
The small red dot next to the Virtual COM port means that the port is currently closed.

Right-click on the COM port and select Properties, then select the Protocol tab and select Raw Data and click OK:

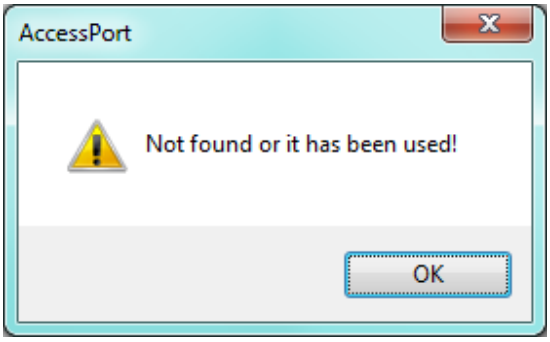


To check if you can successfully open the virtual COM port you can use AccessPort (downloadable from www.usconverters.com). Simply open the AccessPort software and try and open the virtual COM port.

Successfully created and opened/connected virtual COM port with AccessPort. The small green dot next to the Virtual COM port means that the port is currently open.



If you try to open the port but it is already in use or otherwise occupied by the operating system you will get the following error message from AccessPort. Using a different port is the easiest solution.



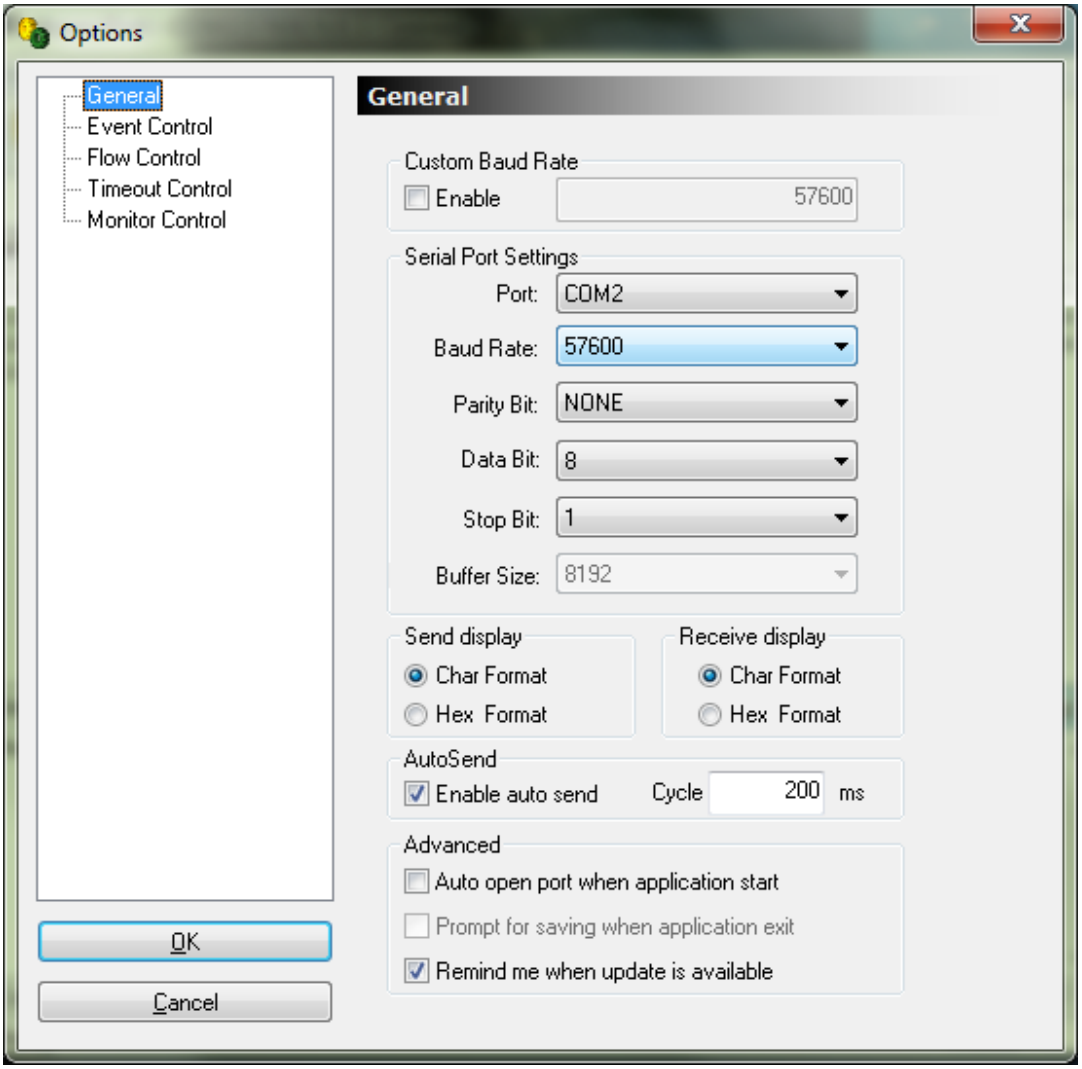
Making a loop-back test.

To verify if the WF5000B module is working properly and the ports has been successfully created you can make a loop-back test.

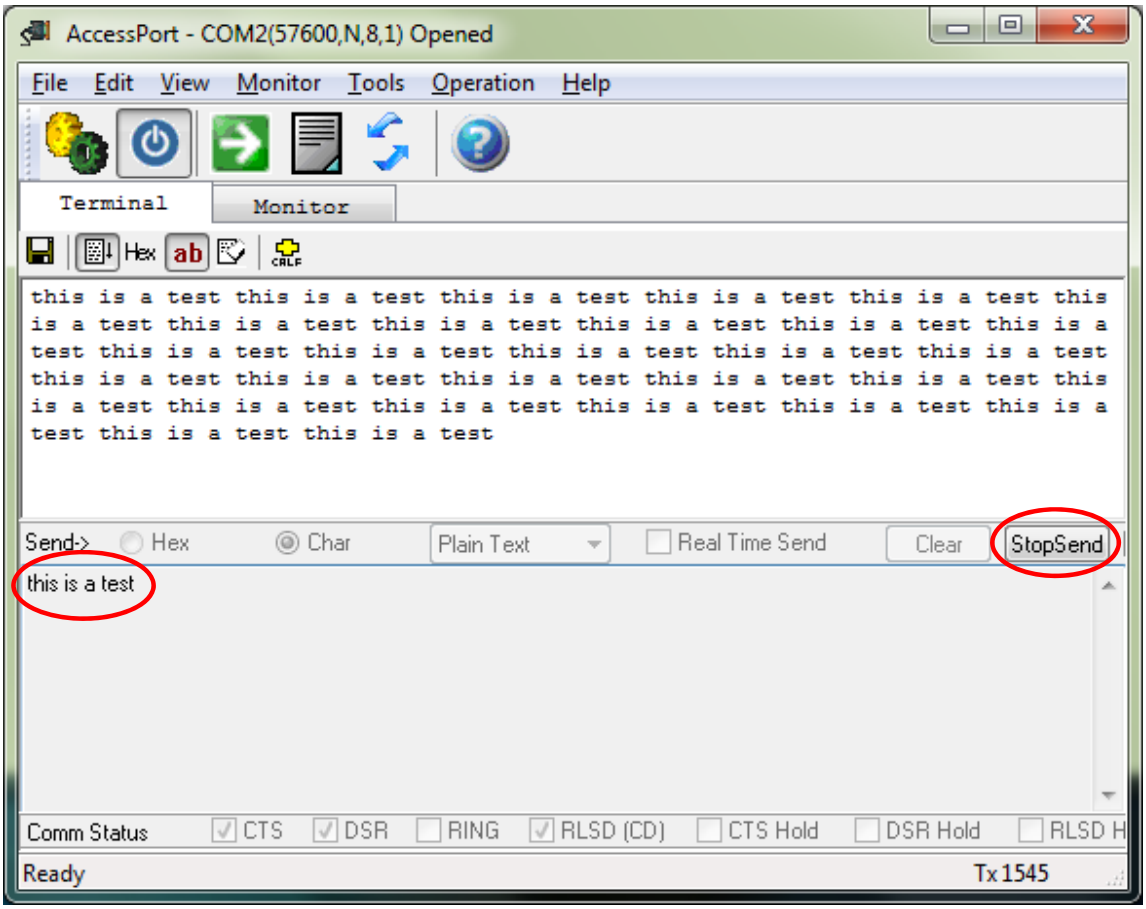
Carefully use a paper clip or similar to jump the RX (pin 2) and TX (pin 3) pins at the end of the included null modem cable and connect the cable to the WF5000B module's DB9 connector.

Open AccessPort (can be downloaded for free from http://www.usconverters.com).

Configure AccessPort's parameters to match the virtually created COM port (the COM port created by the VCOM software), in this example COM 2, and click the OK button:



The port will now open.



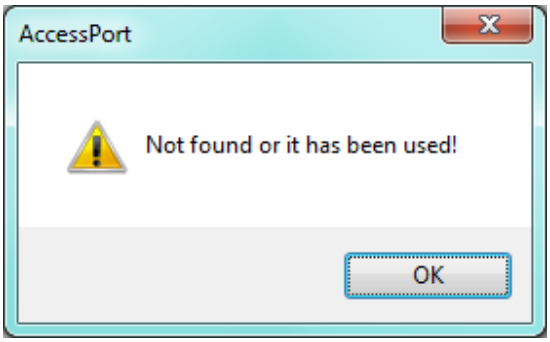
Enter a text string in the lower (send) window in AccessPort and click the AutoSend button. The characters should now be sent via virtual COM 2, over WiFi to the WF5000B module, out on the TX pin, back into the RX pin, back over WiFi, back into virtual COM port 2 and should appear in AccessPorts upper (receive) window.

If you remove the jumper at the end of the serial cable connected to the WF5000B the data flow should stop.

The WF5000B module obviously should be joining a network when performing this test.

Making this loopback test will confirm that the COM port has been successfully created and that the WF5000B can send and receive data, ensuring that the module has been setup correctly.

If you try to open the port but it is already in use or otherwise occupied by the operating system you will get the following error message from AccessPort. Using a different port is the easiest solution.



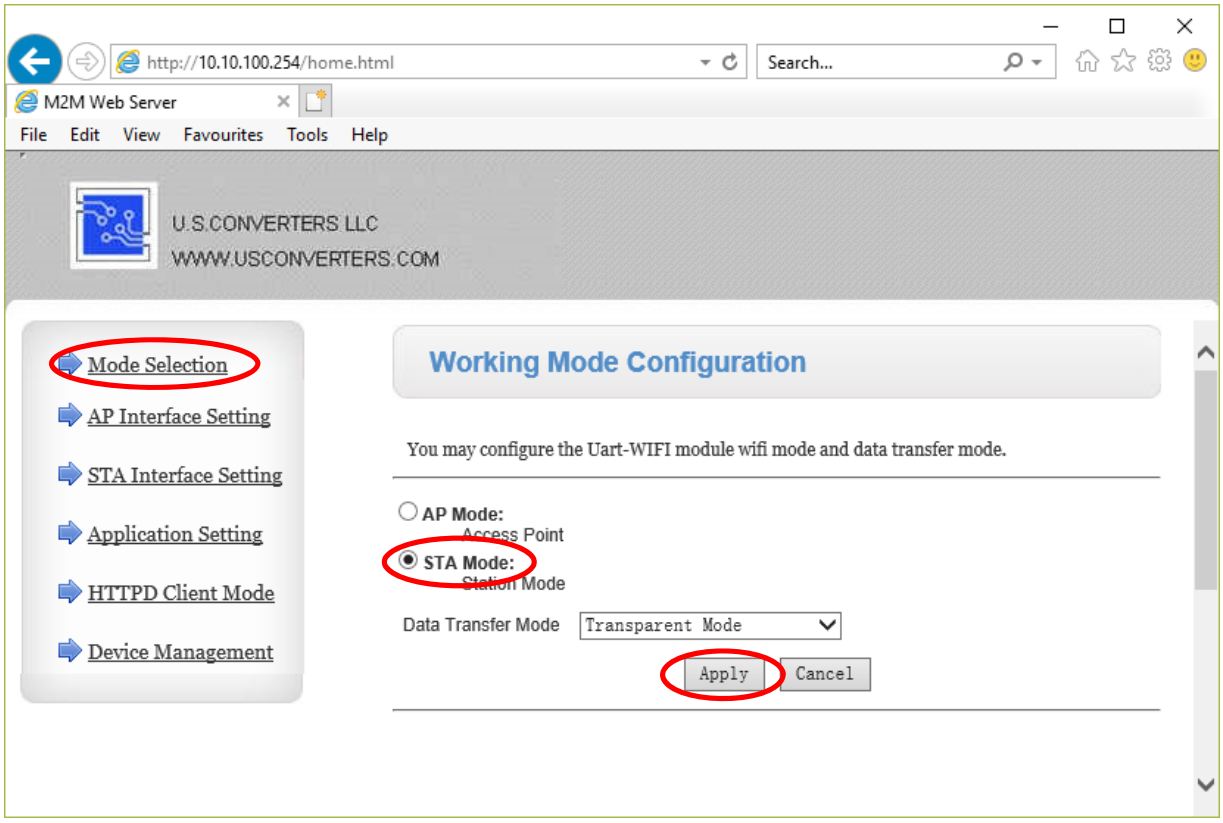
Pairing two modules

The WF5000 can be configured to communicate in pairs between two serial ports, also called point-to-point communication.

One unit must be configured as a Server in AP mode (which it is by default) and the other as a Client in STA mode. You can of course choose different serial port settings, security, or IP address than shown below, however the procedure as shown must be followed.

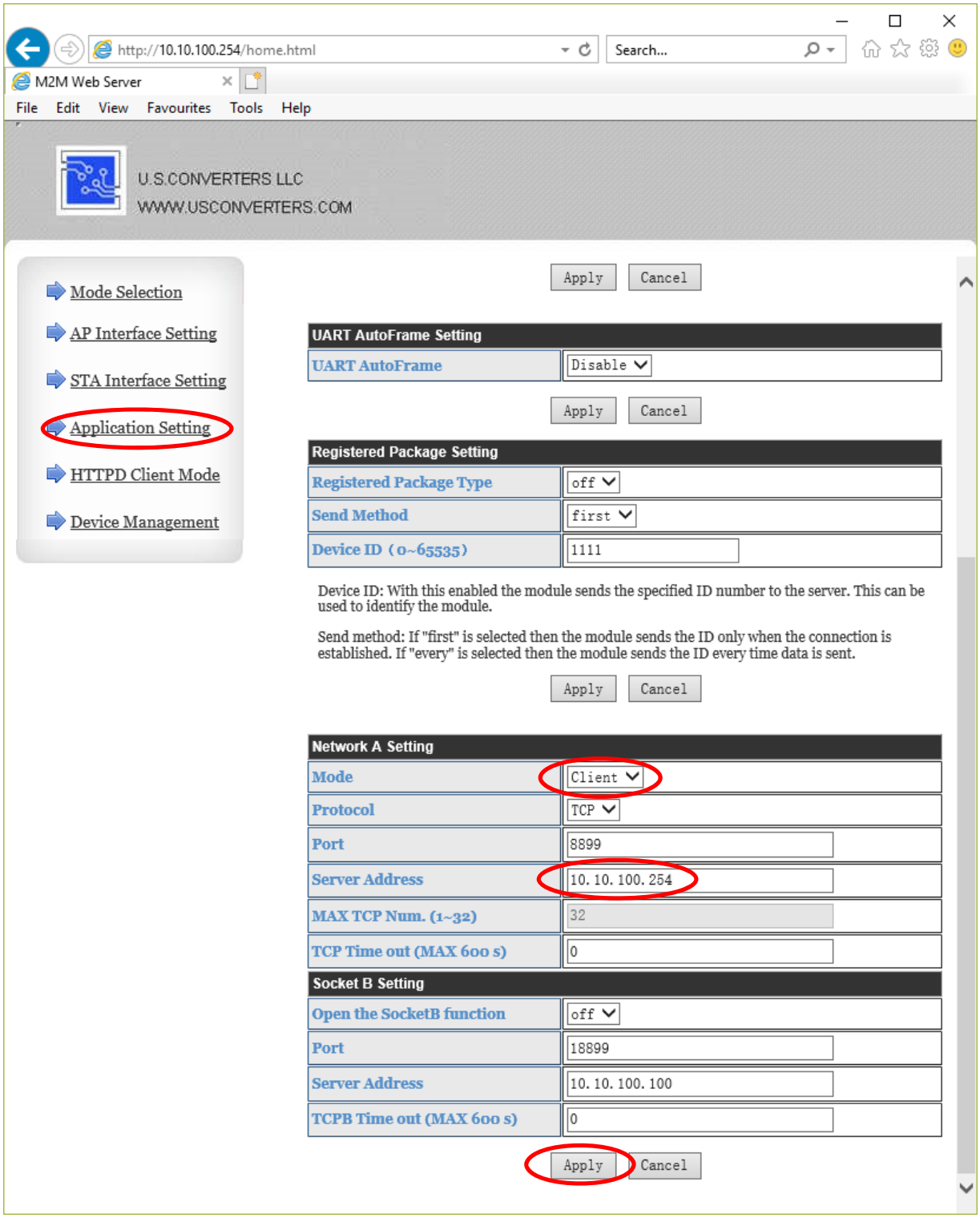
The Server in AP mode use all default settings so below is shown the settings for the Client in STA mode.

Client (STA) configuration:



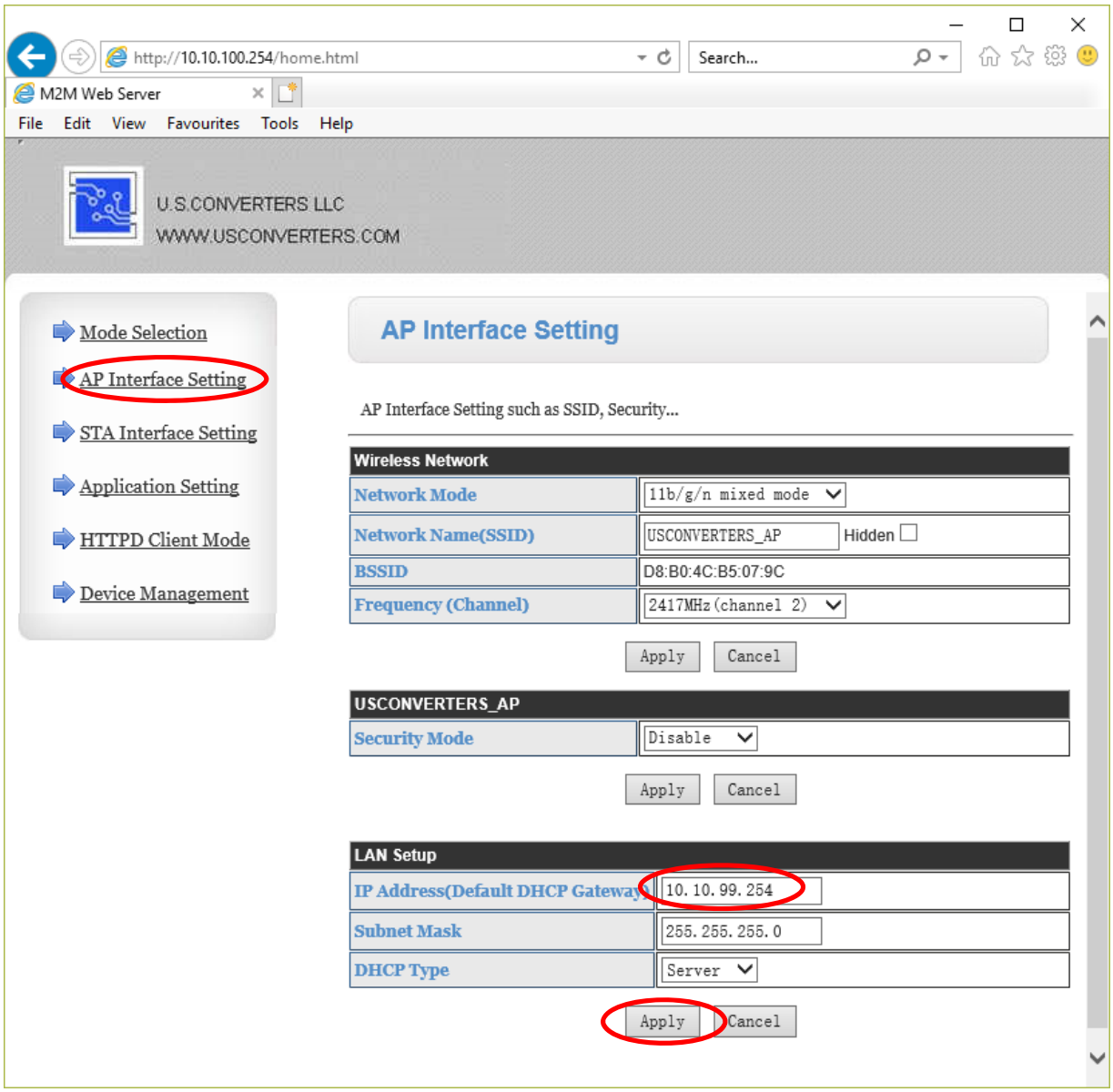
Do NOT reboot the converter yet.

Client (STA) configuration:



Do NOT reboot the converter yet.

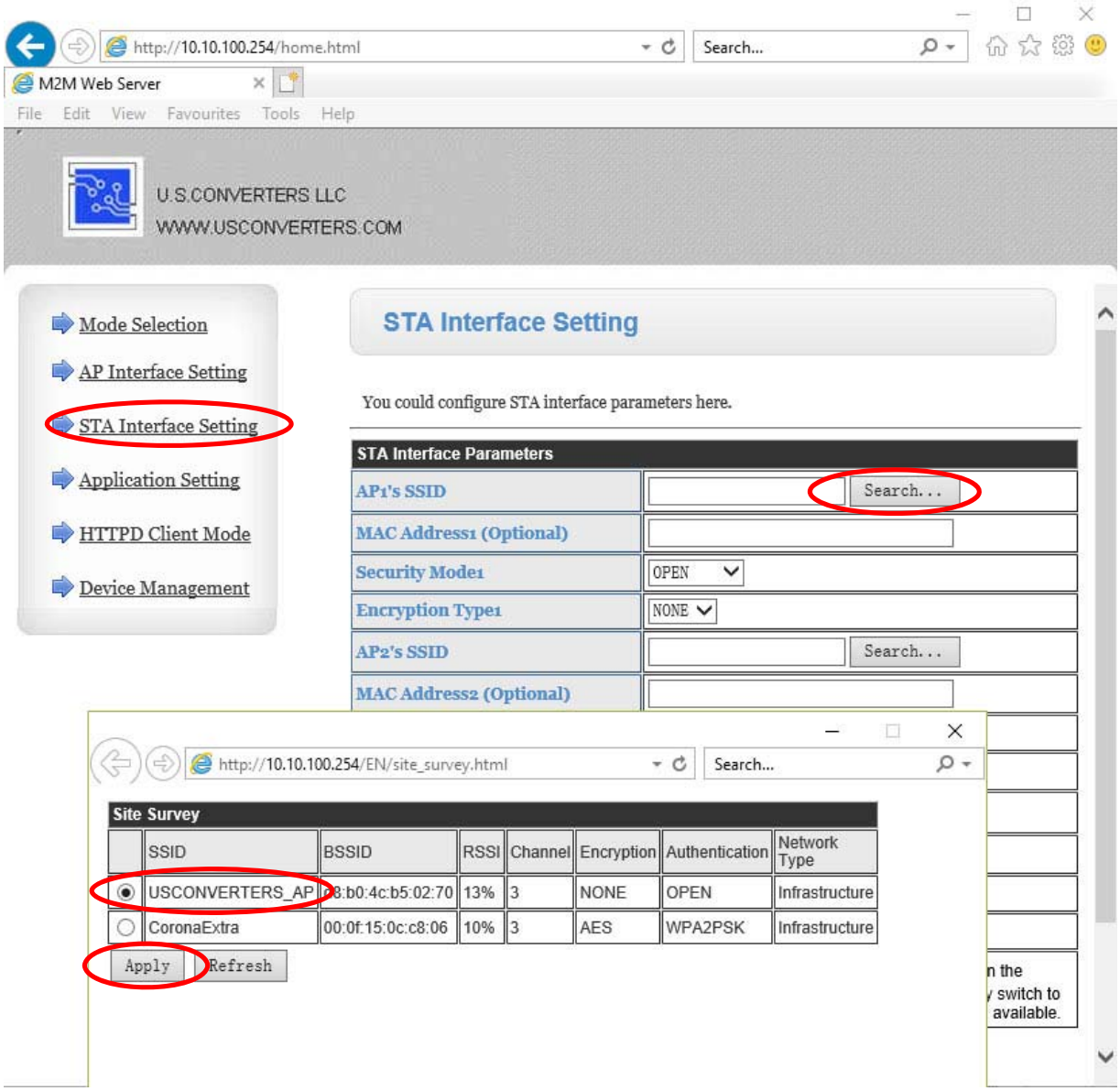
Client (STA) configuration:



Do NOT reboot the converter yet.

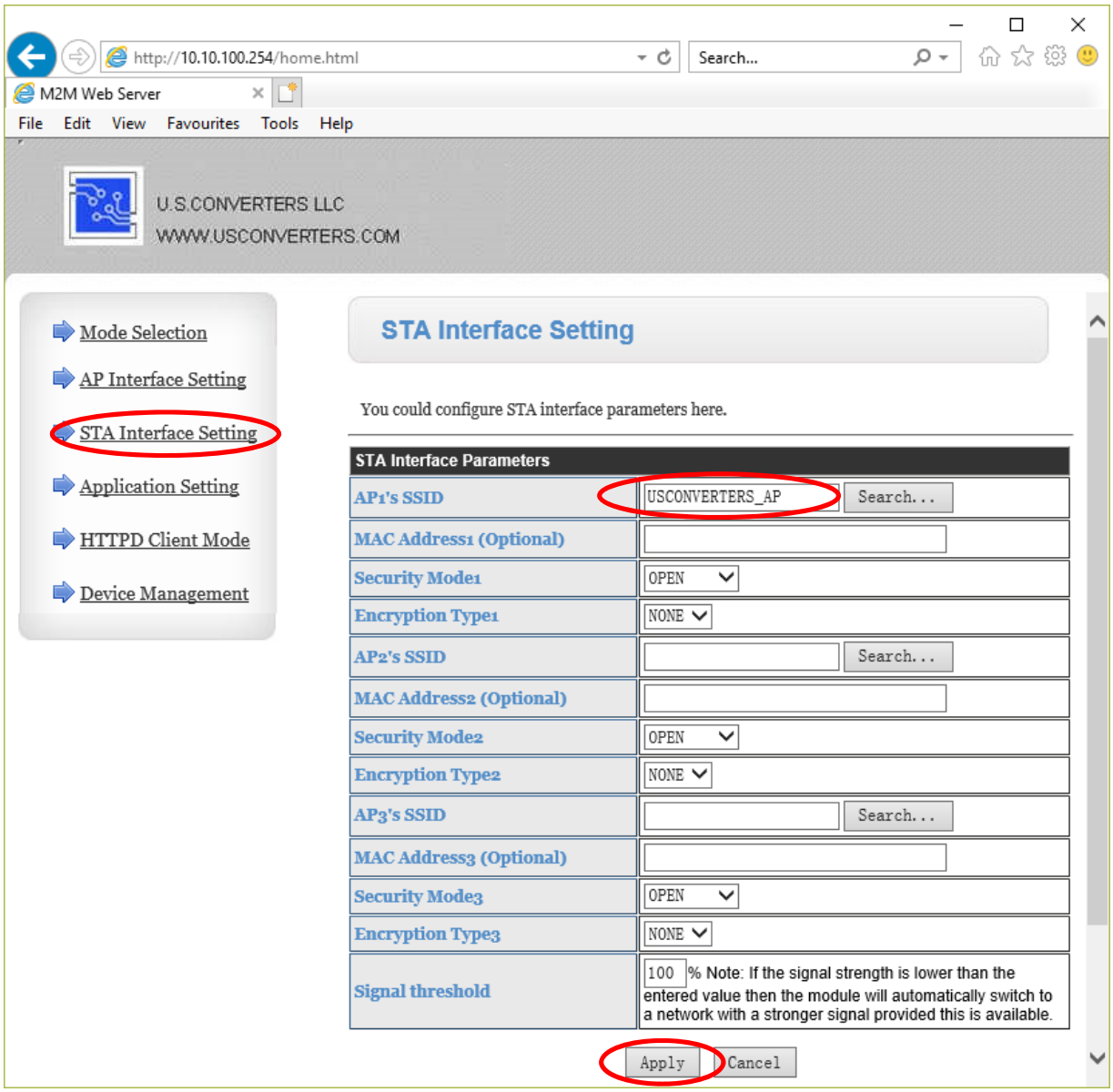
Client (STA) configuration:

Connect the Server to a power source and Search for the Server:



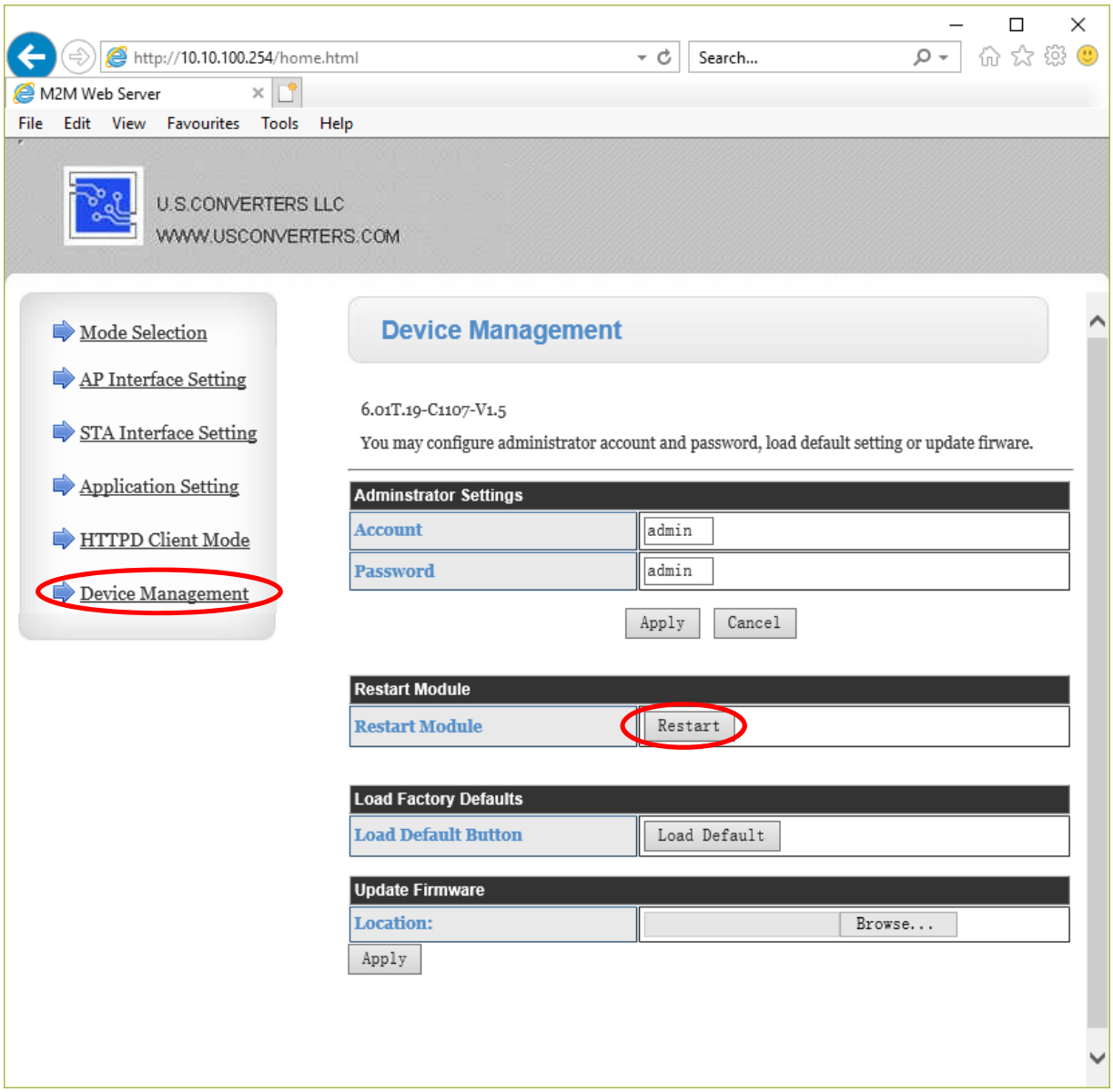
Do NOT reboot the converter yet.

Client (STA) configuration:



Do NOT reboot the converter yet.

Client (STA) configuration:



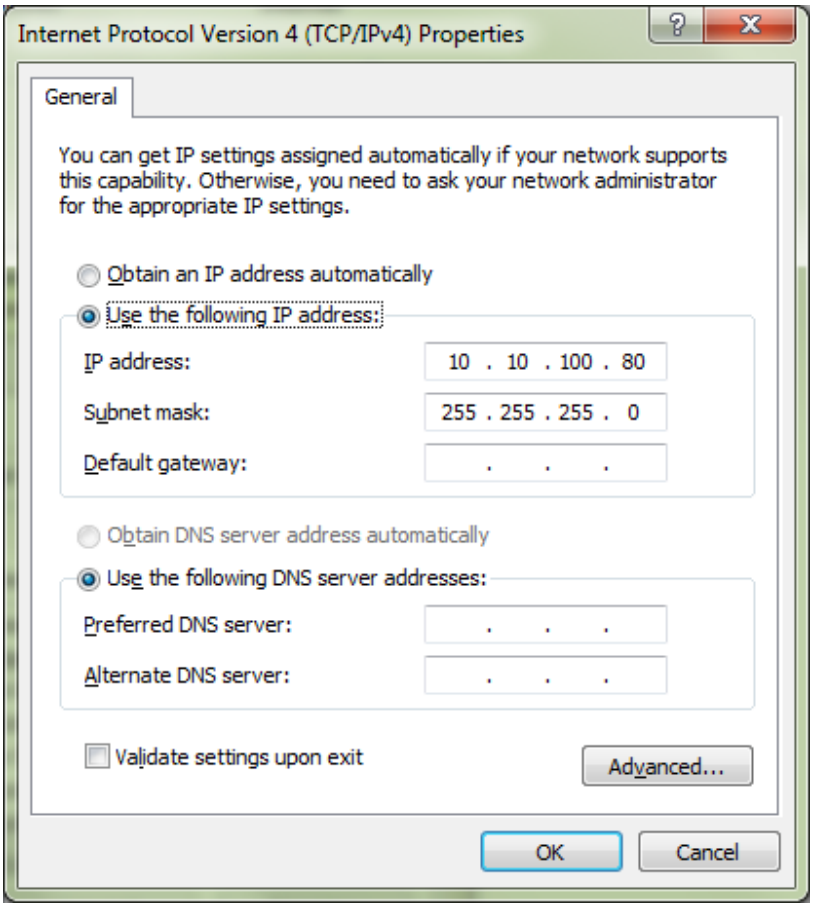
Reboot the converter.

Anter the converter has rebooted it should find and link with the Server. You might need to power cycle either the Server or the Client or both if they don't automatically link after the reboot.

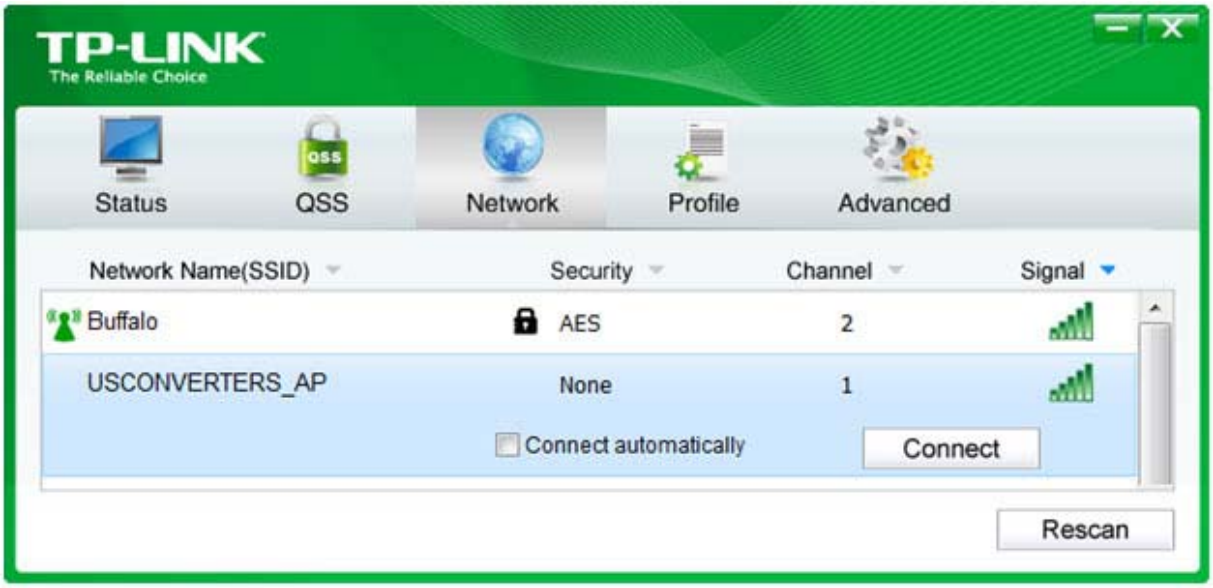
How to connect the WF5000B using a wireless router

The setup looks like this:

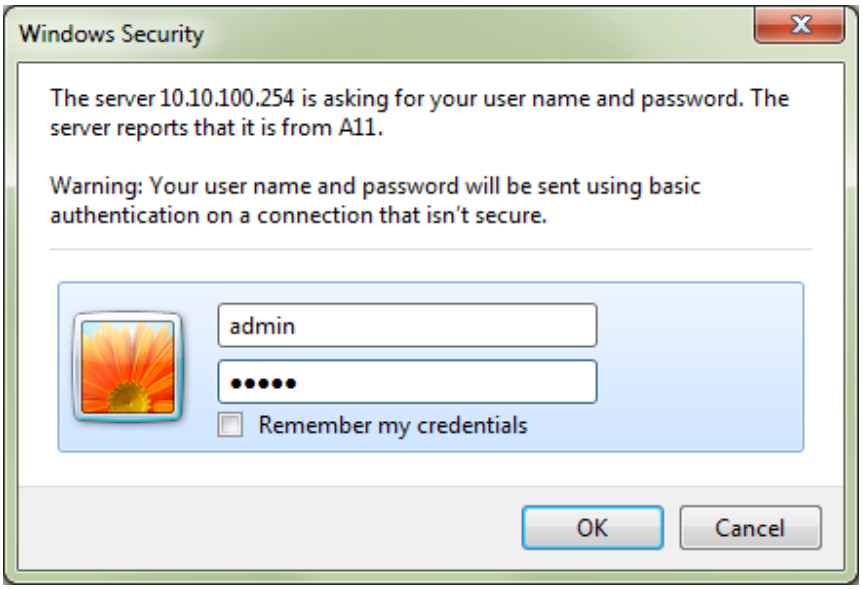
First set the IP of your wireless connection to the same sub-net as the WF5000B, which is 10.10.100.xxx:



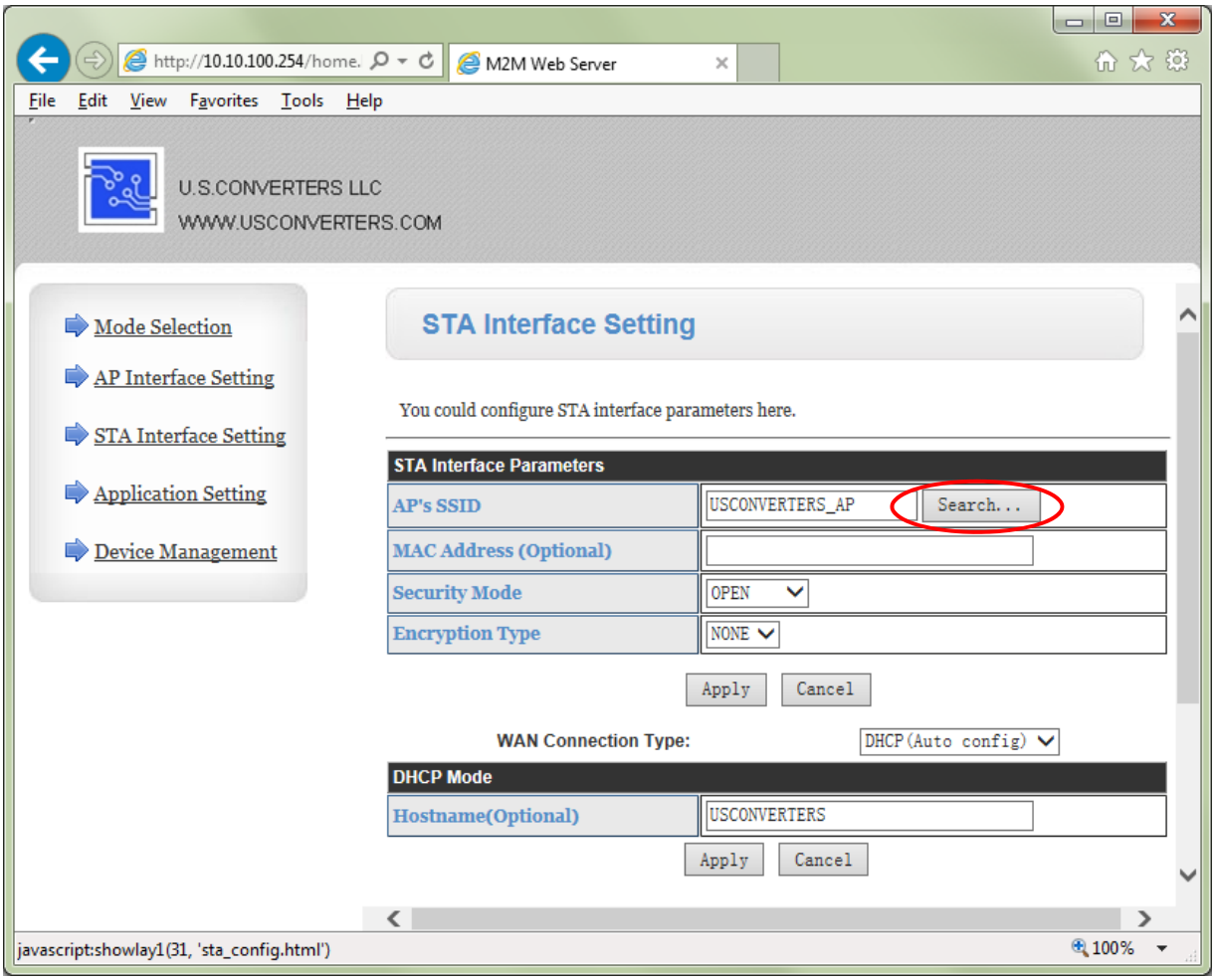
Connect to the WF5000B using an access point. In this example we use a wireless USB network adapter from TP-Link:



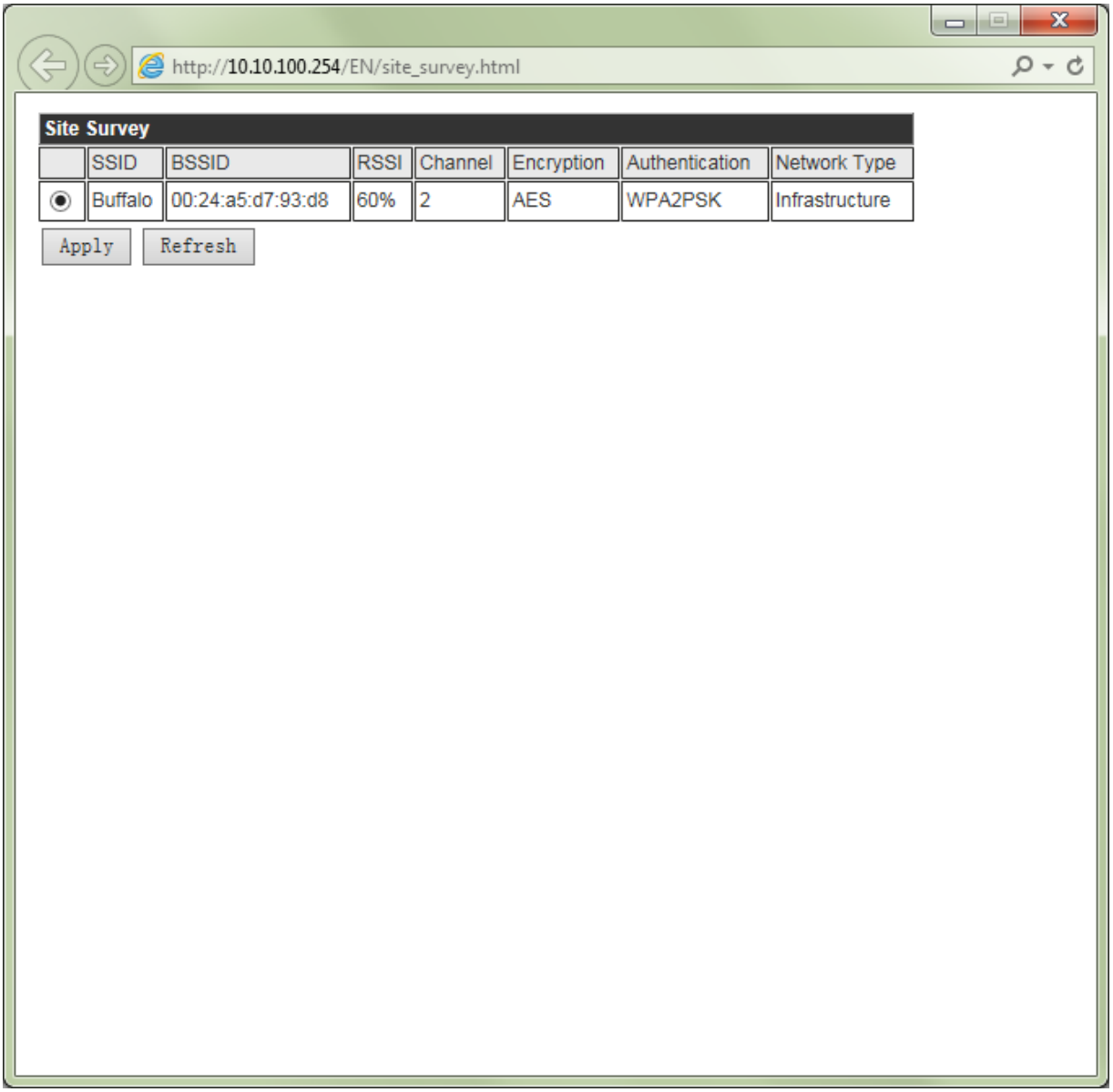
Open a web-browser and go to 10.10.100.254, and enter the credentials which is “admin” for both the user name and password:



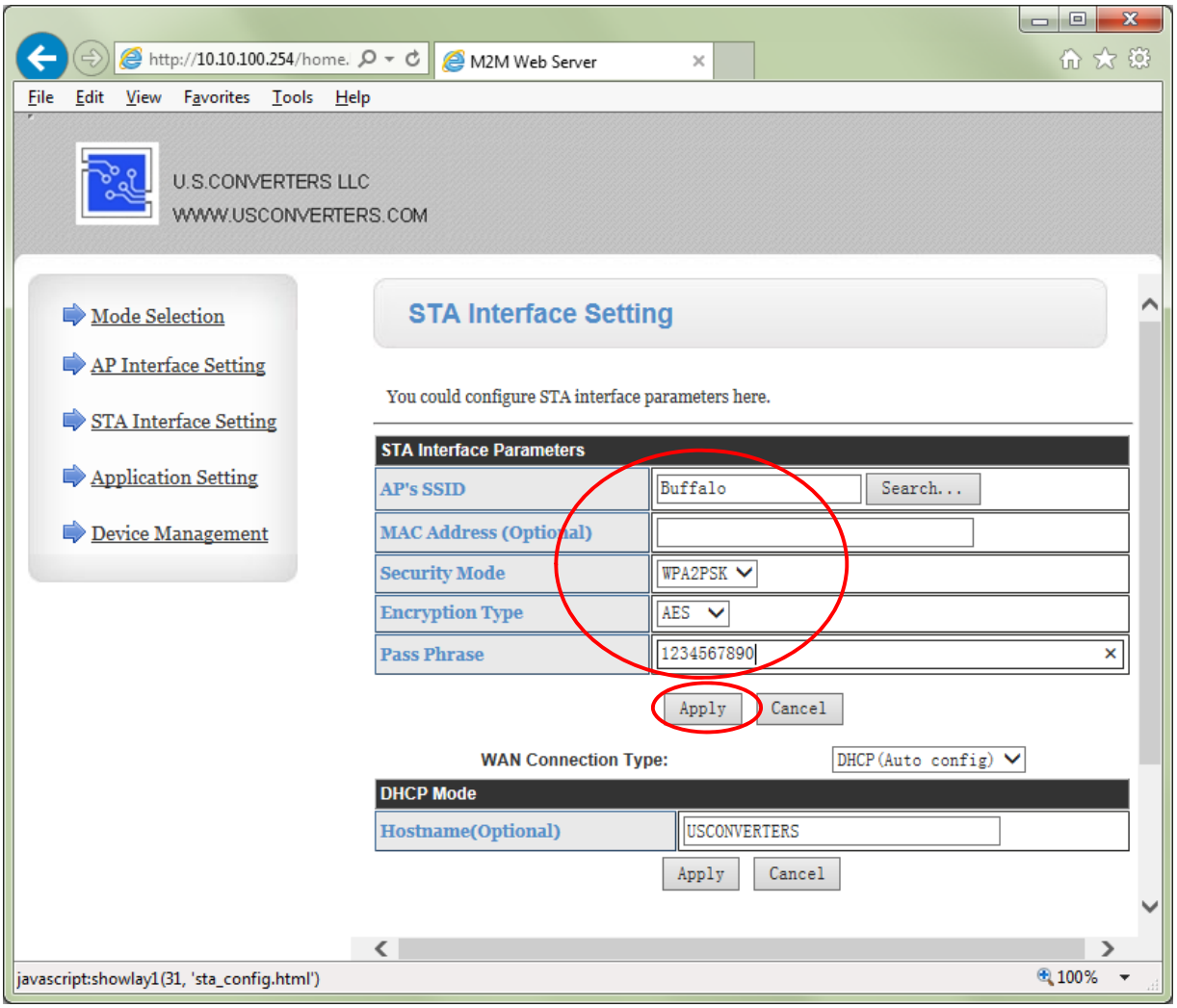
Go to the “STA Interface Setting” page and click the “Search” button:



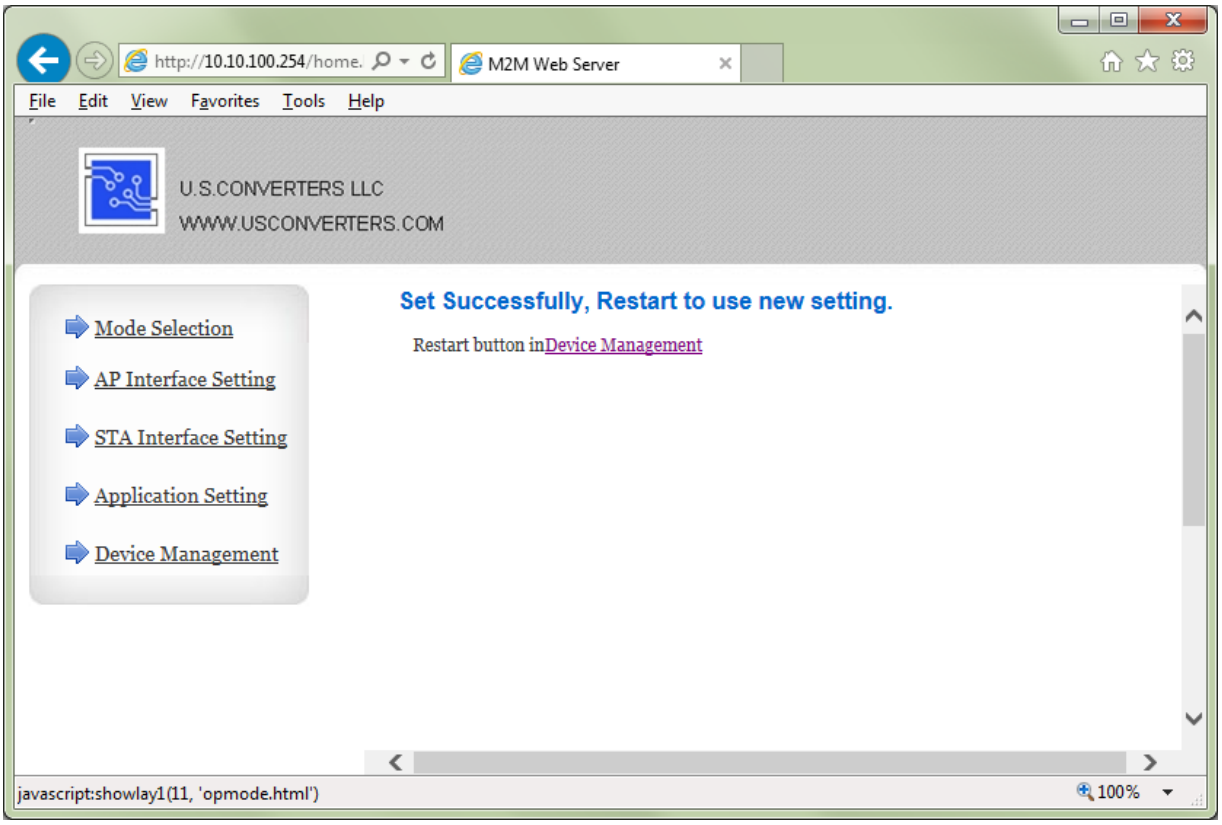
In this example the SSID is “Buffalo” and the encryption is AES with WPA2PSK authentication. Select the wireless router and click the “Apply” button:



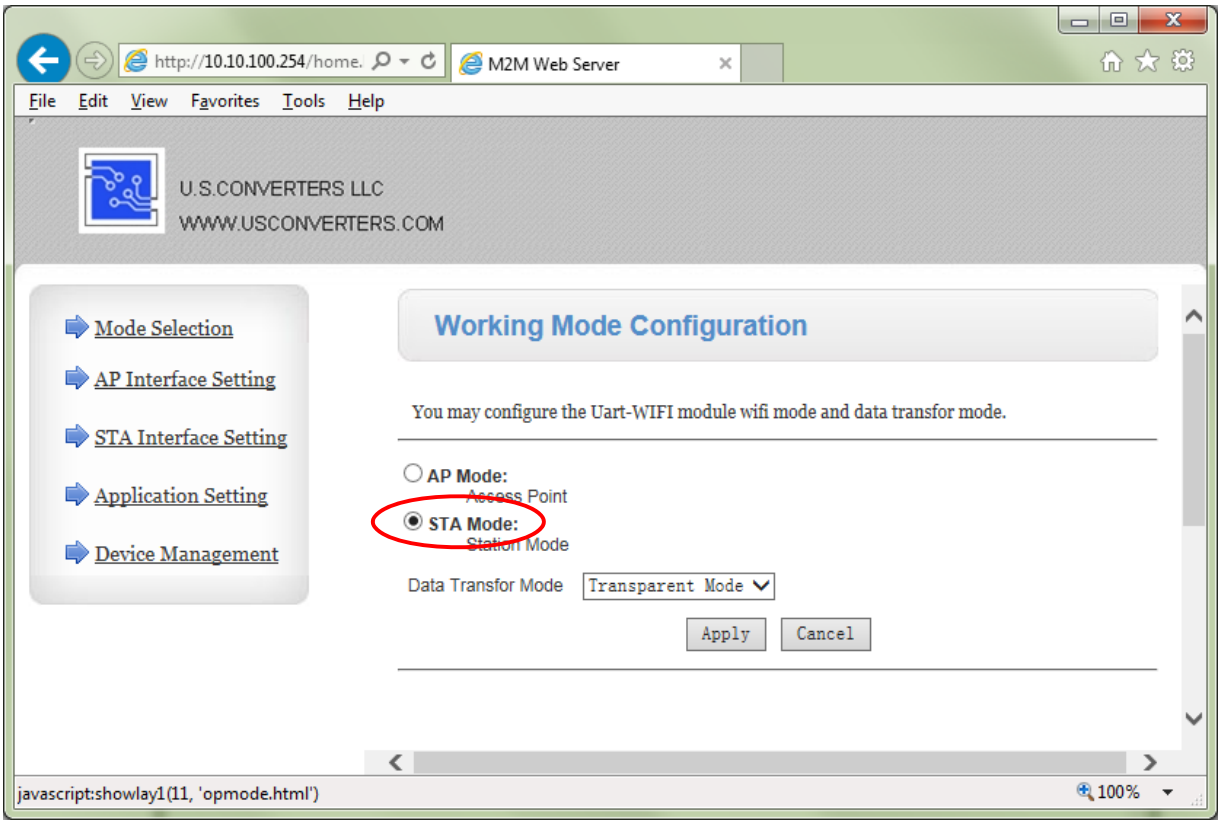
Check that the wireless router settings are correct, enter the password and click the “Apply” button.



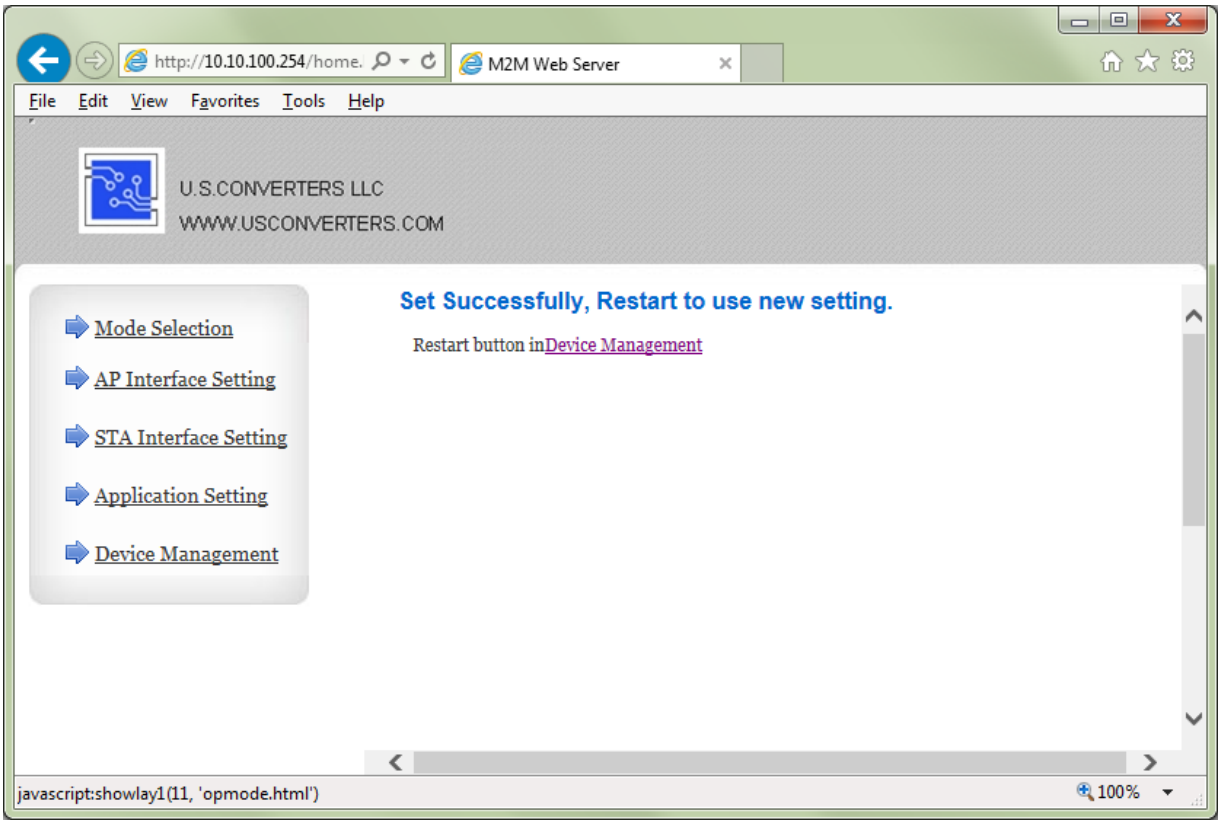
Do not go to the Device Management page and reset the unit yet.



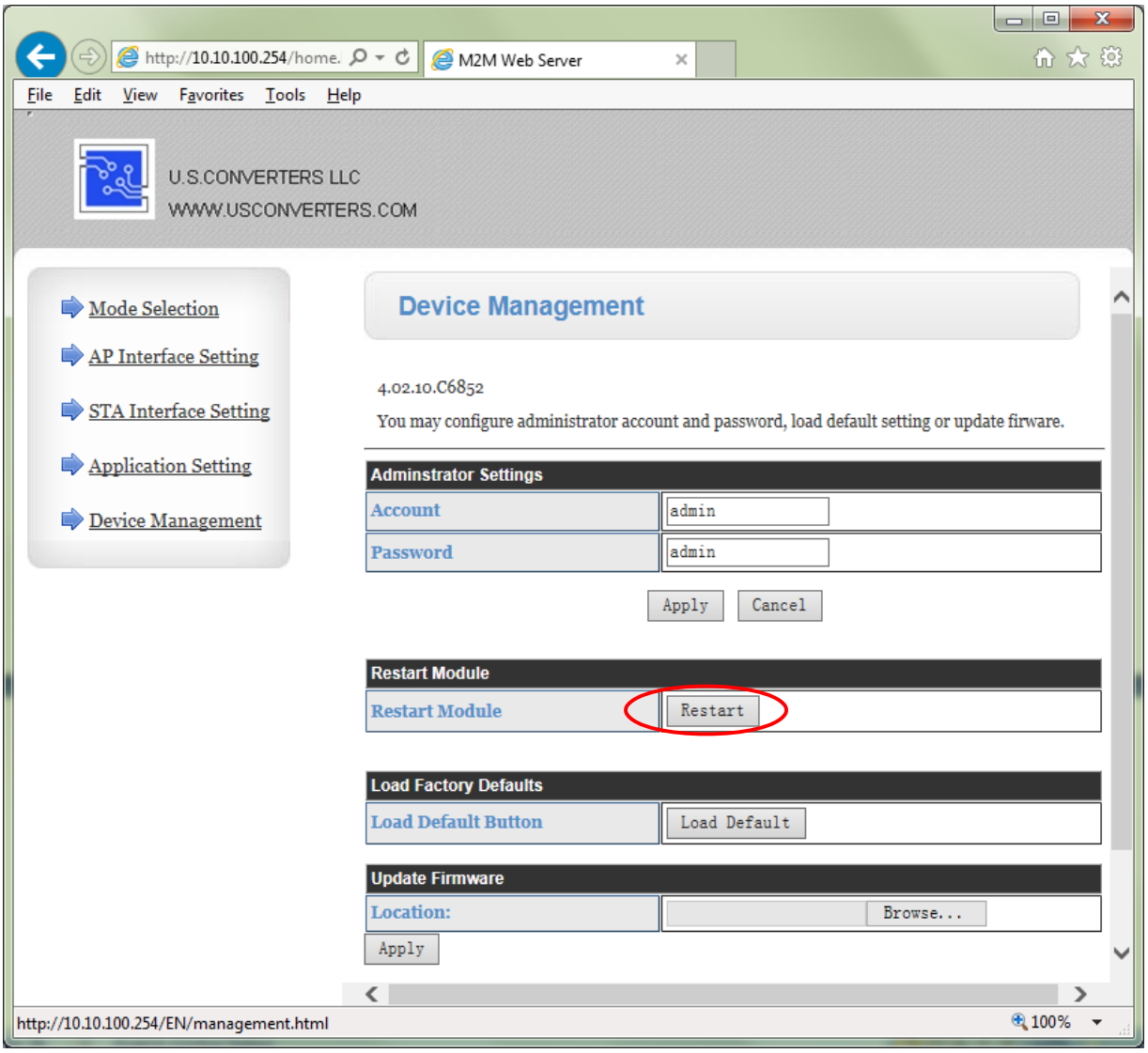
Go to the Mode Selection page, select STA mode and click the “Apply” button.

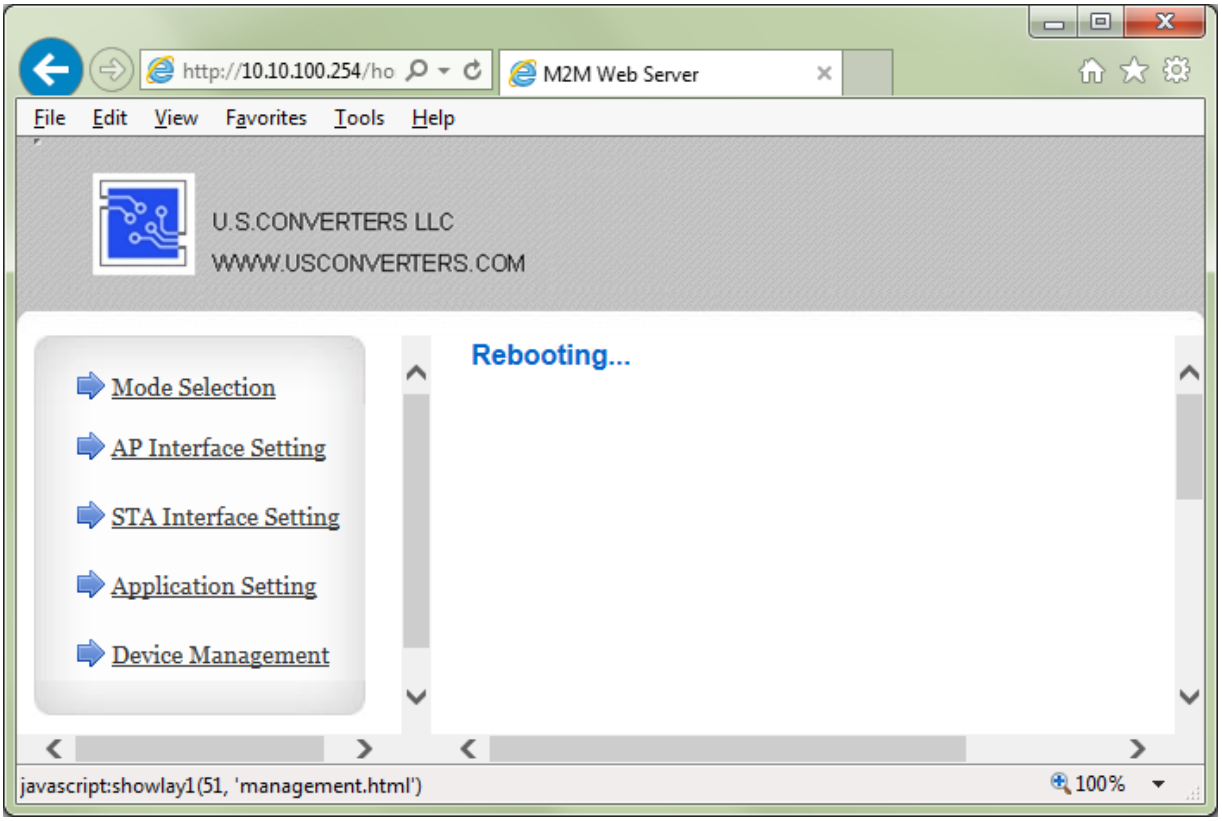


Now go to the Device Management page and reset the unit.



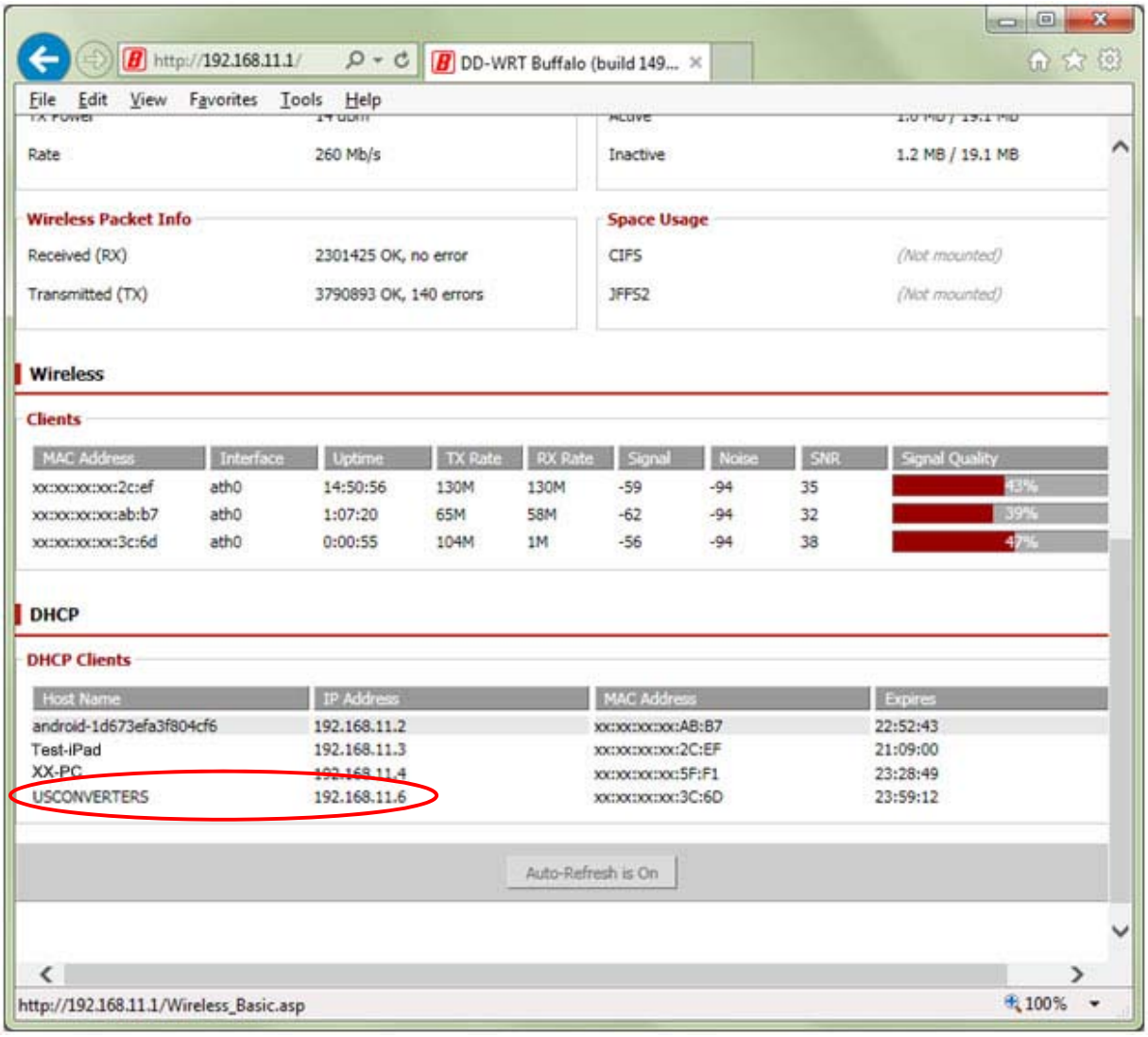
Click the “Restart” button for the changes to take effect.





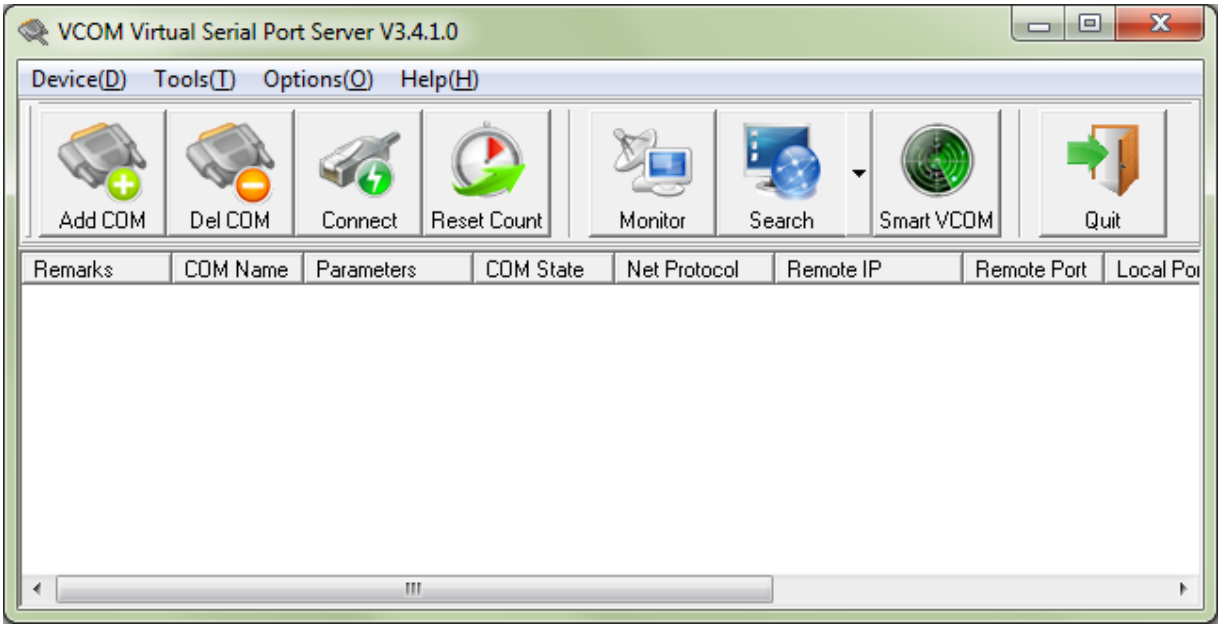
After the reboot is complete the “Ready” light will be steady on. If you have entered the correct network settings and password then the converter will now automatically join the network, and the “Link” light will be on.

To check/verify if the adapter has joined the network successfully you may be able to login to your wireless routers admin status page and see the converter:

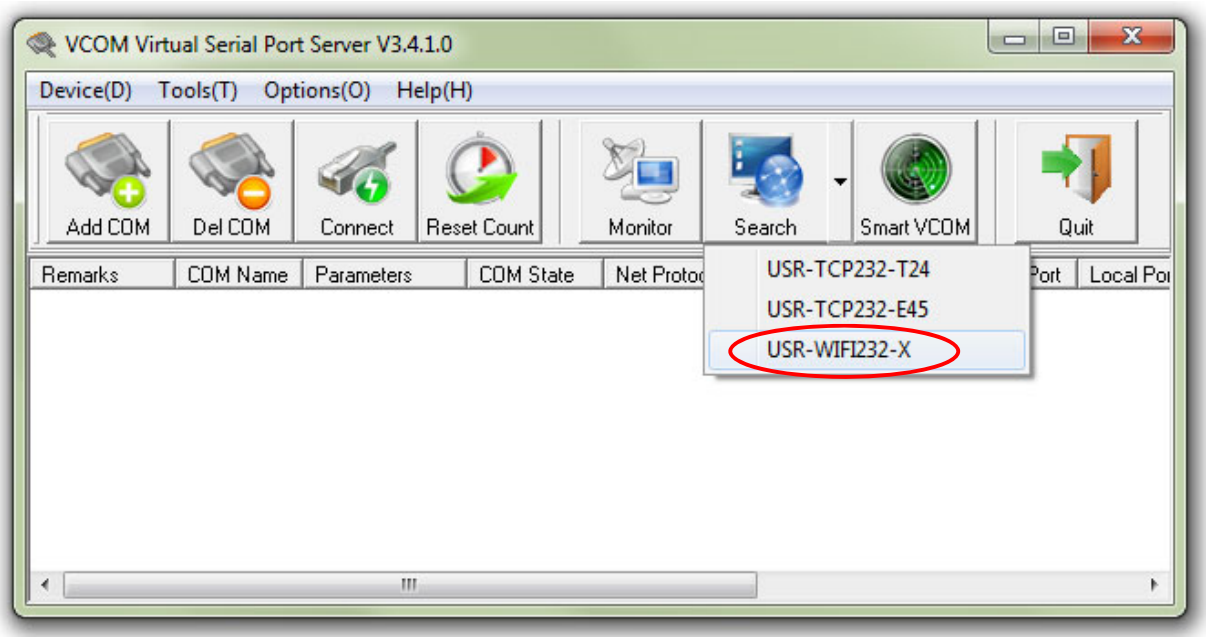


Create a virtual COM port

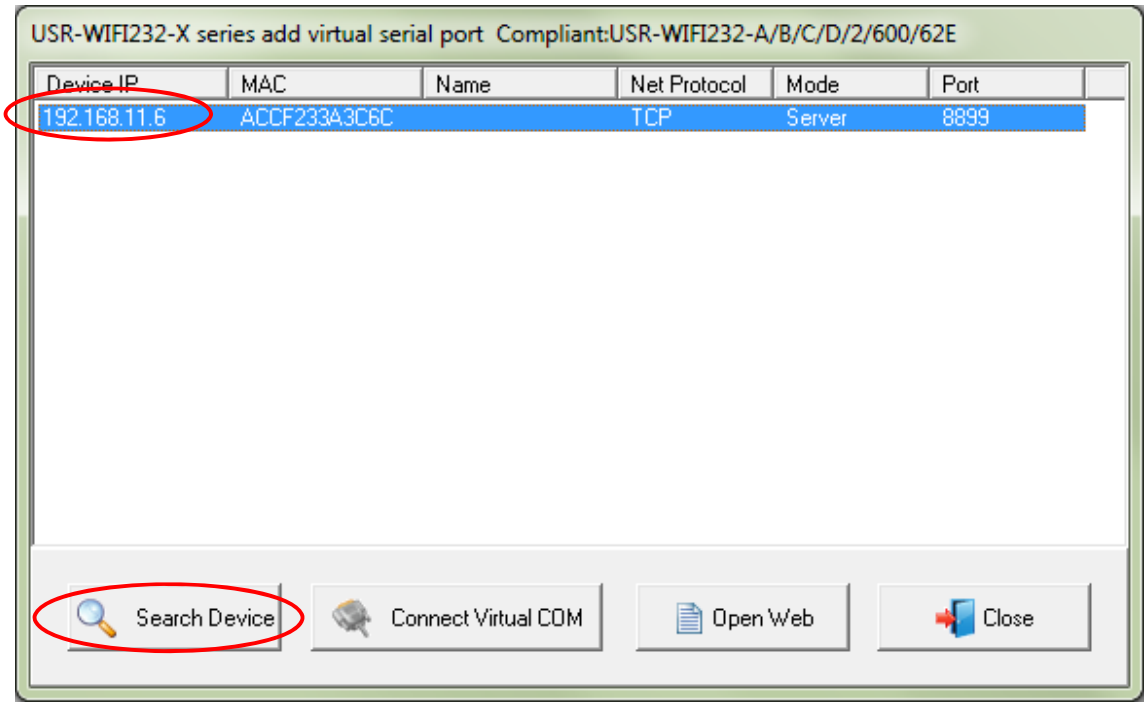
Open the USC-VCOM virtual COM port software:



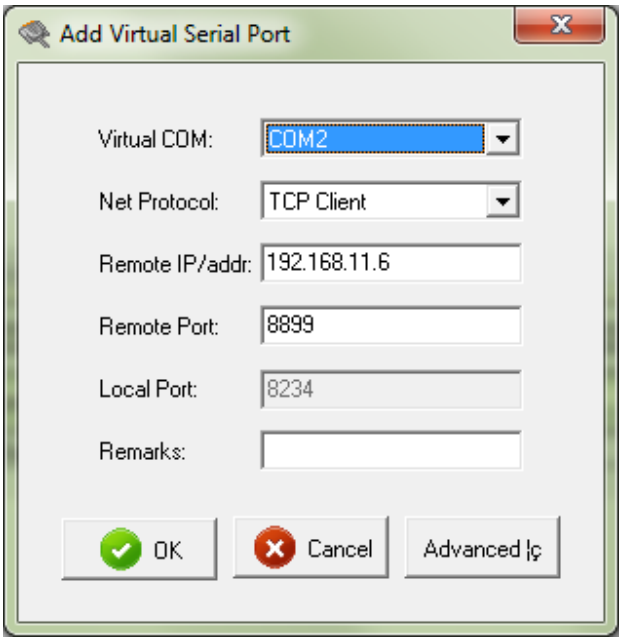
Click the “Search” button and select “USR-WIFI232-X”:



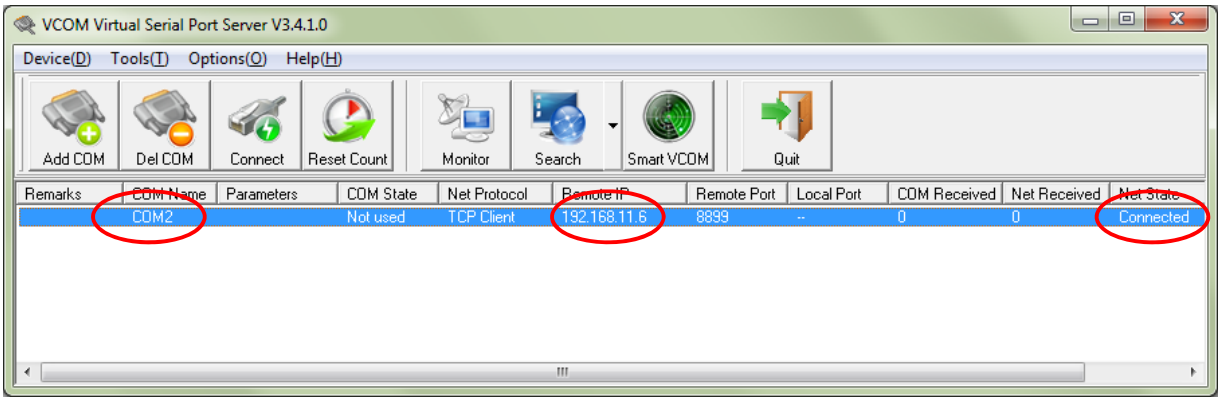
Click “Search Device” and the software should find the WF5000B:



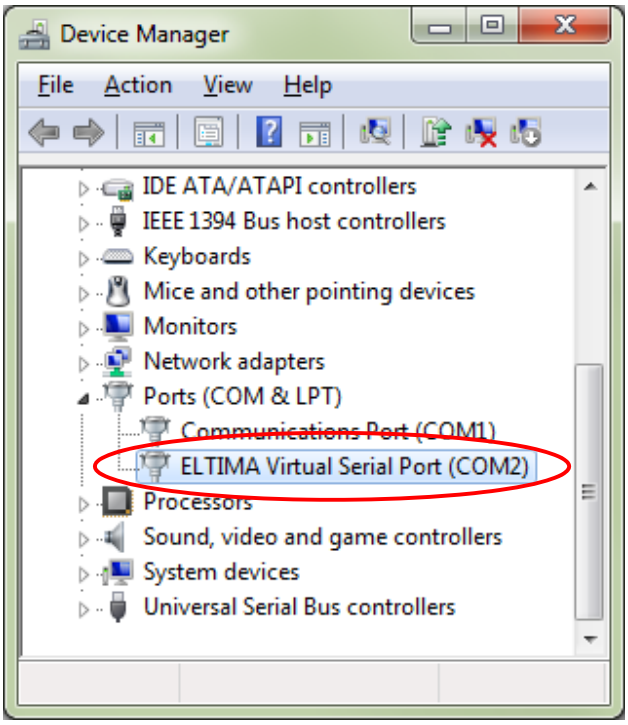
Click “Connect Virtual COM” and check the settings in the window that’s opens. If all settings are correct, click the “OK” button:



The virtual COM port should now be created:

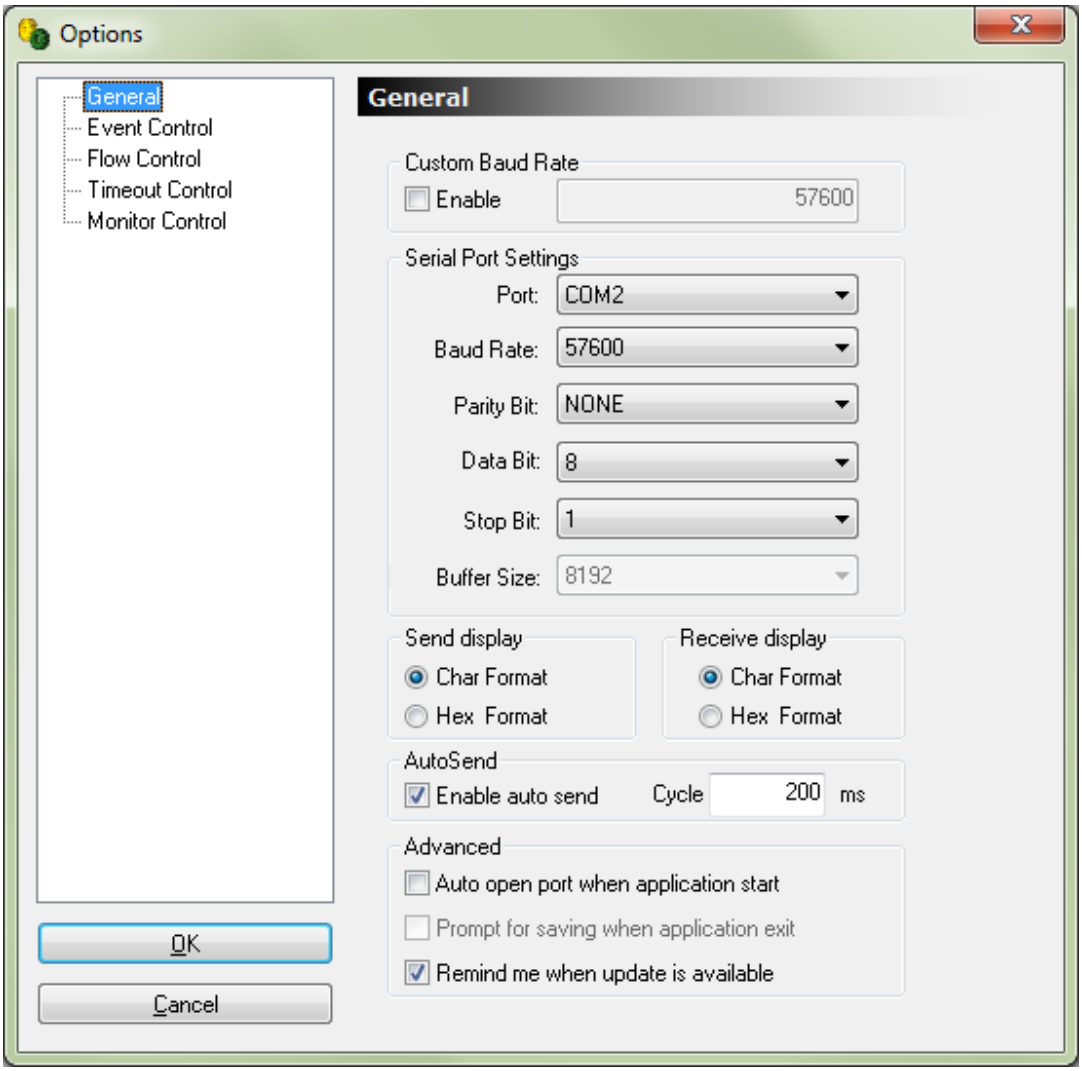


You should now be able to see the virtual COM port in Windows Device Manager:

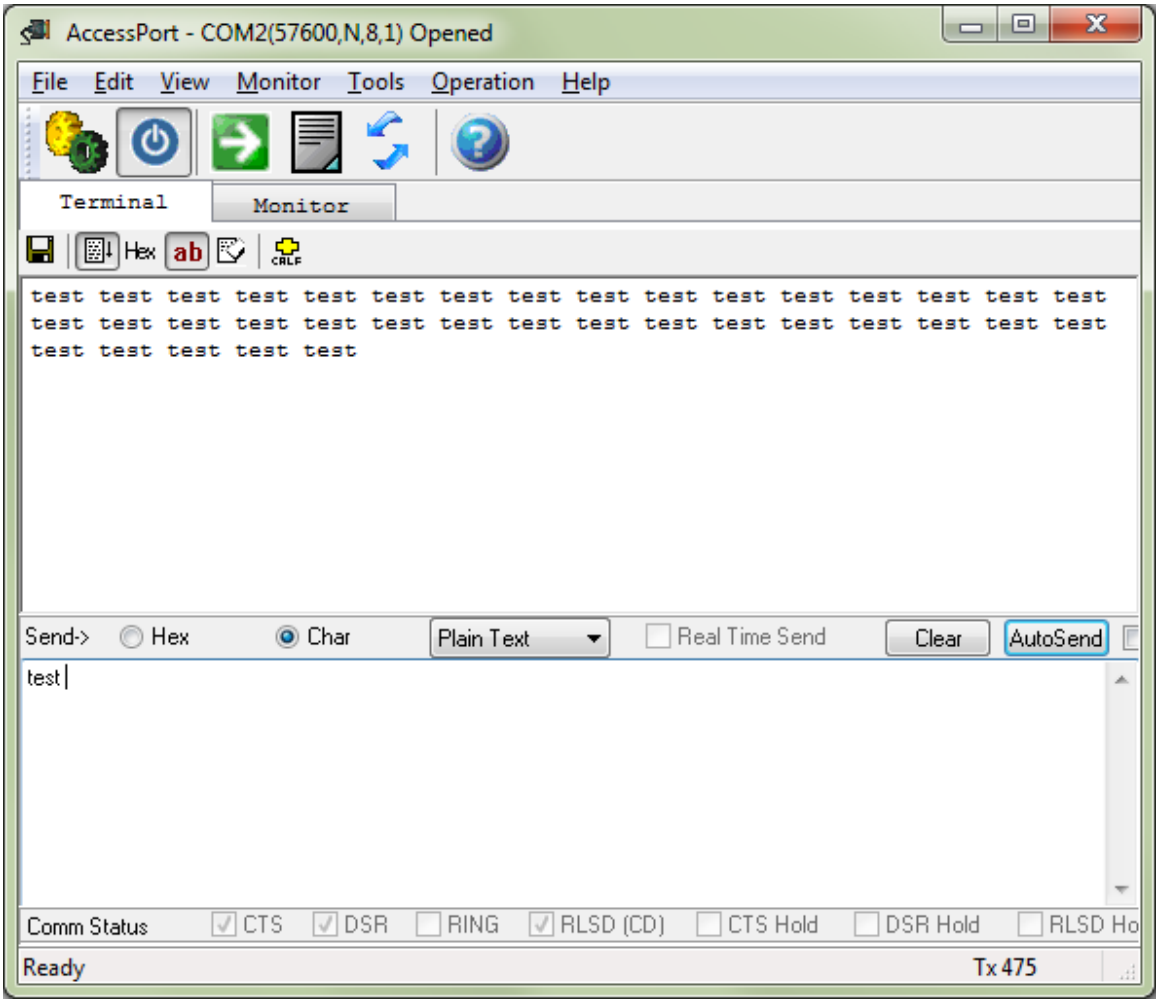


Verify communication by making a loop-back test

Loop the TX and RX pins on the DB9 interface of the WF5000B and open Access Port. Enter the following settings and click the OK button:



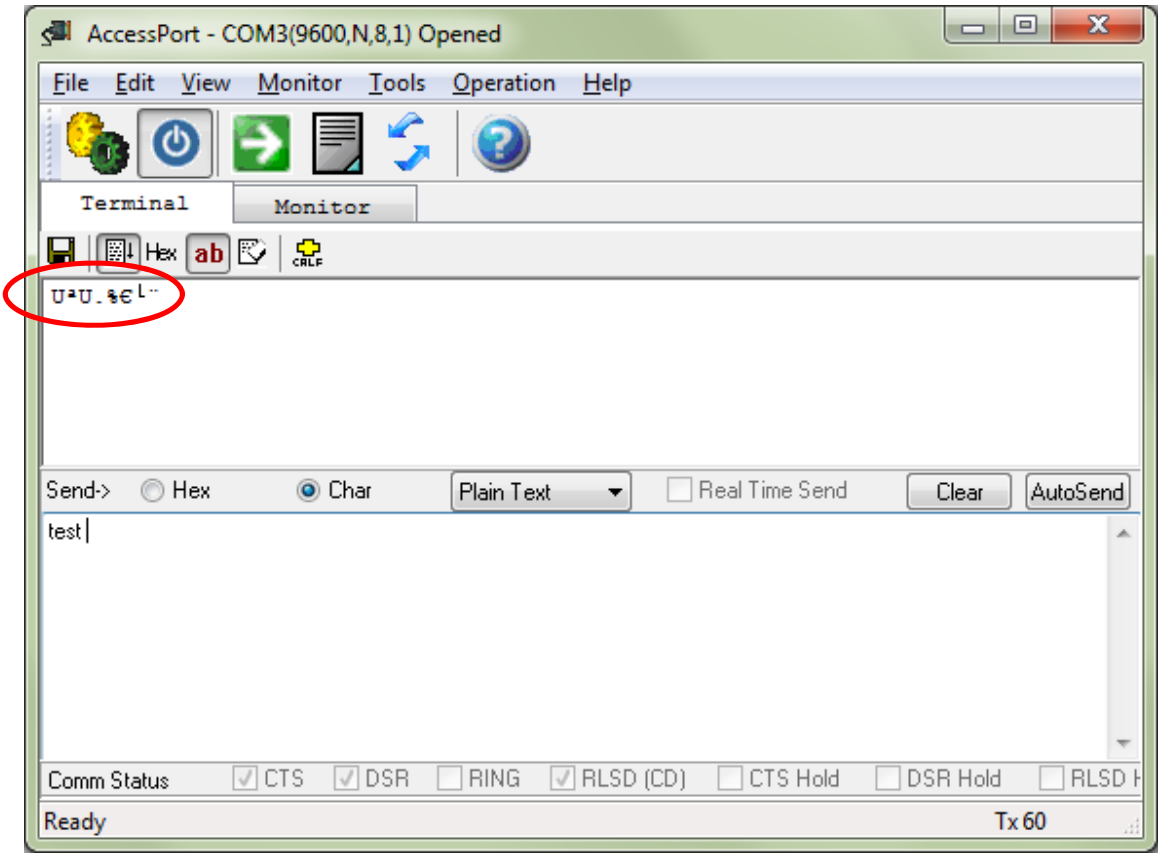
Enter a text string in the lower windows and click the “AutoSend” button. The data from the lower window should now be sent to the WF5000B and back again and appear in the upper window:



FAQ

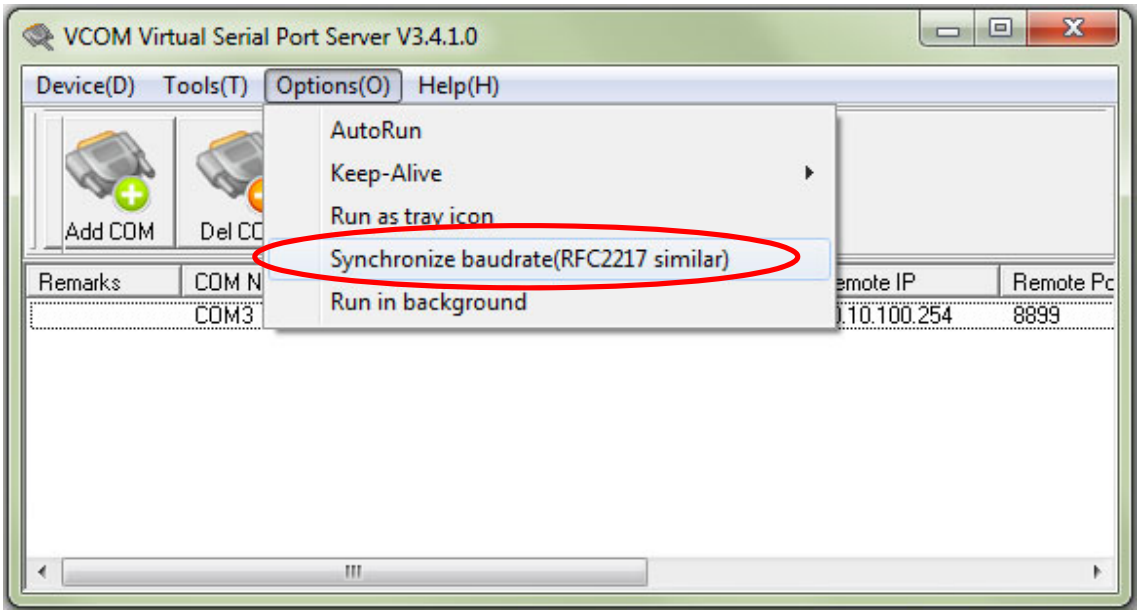
Question:

When I open the virtual COM port for the first time a text string is sent from the converter. How can I disable that?



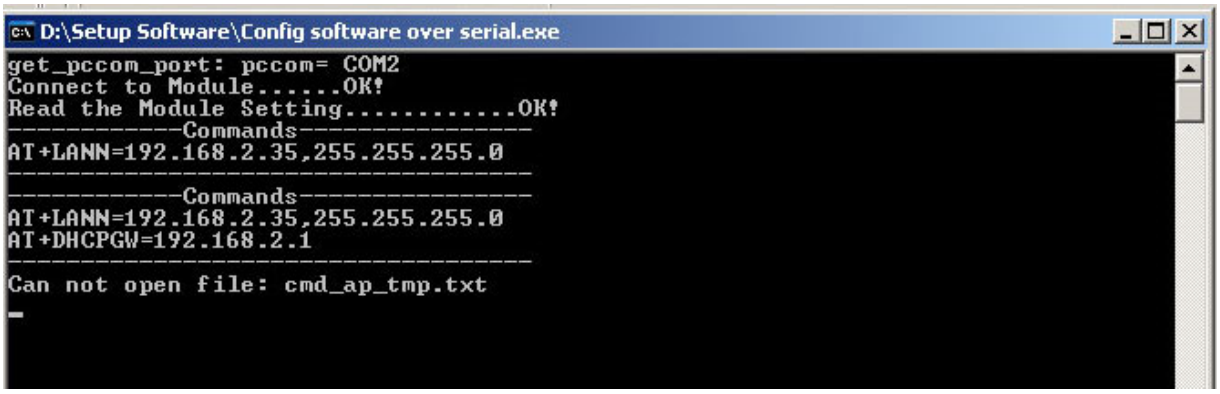
Answer:

Disable “Synchronize baud rate (RFC2217 similar)” in the virtual COM software:



Question:

When trying to save the settings using the configuration tool I get the message "Can not open file: cmd_ap_tmp.txt" as shown below.



Answer:

The file "cmd_ap_tmp.txt" for some reason cannot be created. Try one or more of the following:

1. Log in to your computer as an administrator.
2. Run the configuration software as an administrator.
2. Disable firewall and antivirus software.
3. Make sure the folder with the configuration software is NOT set to "Read-only".

Question:

The MAC address on the back of the WF5000B does not match with the real MAC address on the network, why?

On back of WF5000B:

On the network:

172.1.1.11	DA:B0:4C:0F:45:B8

Answer:

The WF5000B has four MAC addresses: AP MAC, STA MAC, LAN MAC and WAN MAC. The label on the back of the WF5000B shows only the AP MAC address.