How to setup a the USCHF2211 Serial WiFi adapter

This Step-by-step guide explains how to get started using the Serial WiFi Adapter part USCHF2211.

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Powering the USCHF2211 module.

The USCHF2211 module can be powered by a 5 - 36VDC, 350mA (max) voltage and a standard connector jack size of 5.5 x 2.1 x 11.5mm, or through screw terminals.

When power is applied to the module the red “Power” LED should be solid ON.

A standard 110VAC / 9VDC power adapter as shown below can be used to power the module.

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Configuring the parameters.

There are four ways of configuring the parameters of the USCHF2211 module:

- Over WiFi or LAN using a standard web browser to access the parameters (recommended method).
- Over WiFi or LAN using Telnet.
- Over WiFi or LAN using software utility.
- Through the RS232 port using CLI commands.

We will here describe how to configure the parameters using a web browser. Please contact us for more information if you wish to configure the module in other ways.

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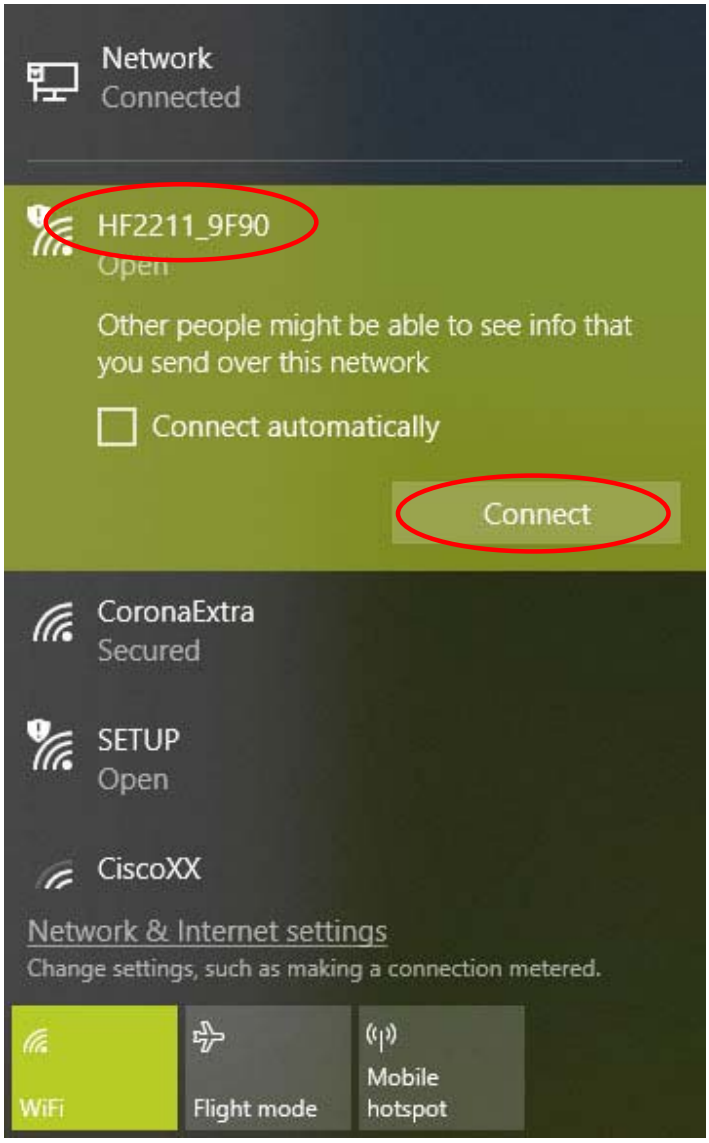
Access the parameters over WiFi.

Your PC needs a WiFi network card or USB WiFi dongle installed in order to use this method. Most labtops has a built-in WiFi card.

First connect to the USCHF2211 module using your operating system's default wireless network manager. In this case we use Windows wireless manager.



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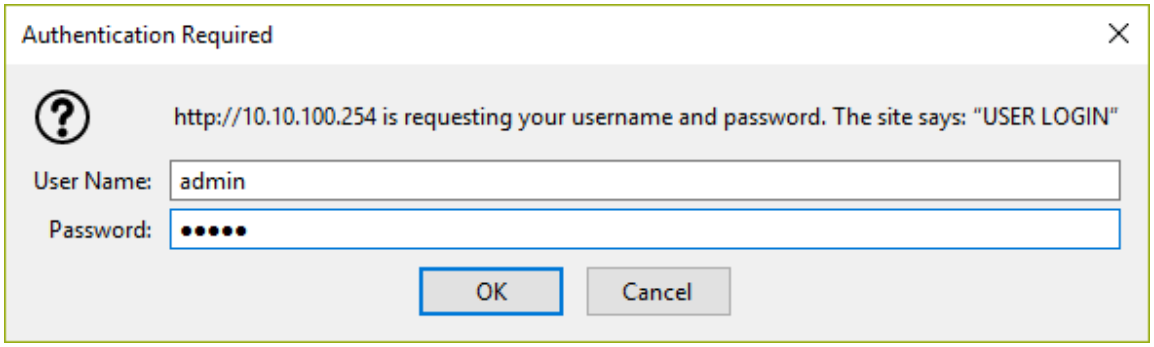
Once your computer is connected successfully to the USCHF2211 module you can open a web browser and enter the USCHF2211's IP address which by default is **10.10.100.254**.

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

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



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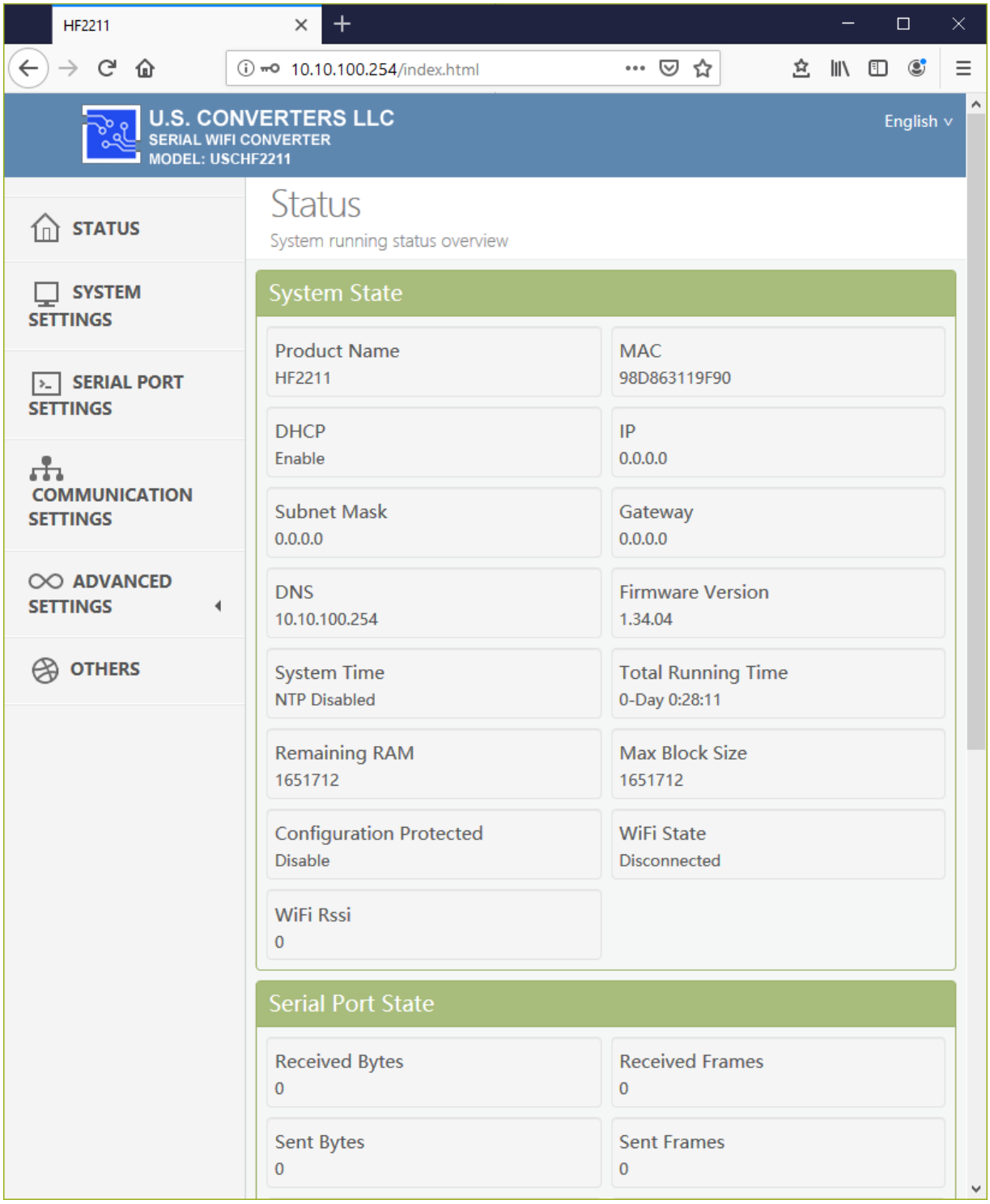
The main menu will open from where you can access all the parameters. Below are screenshots of the available parameters:



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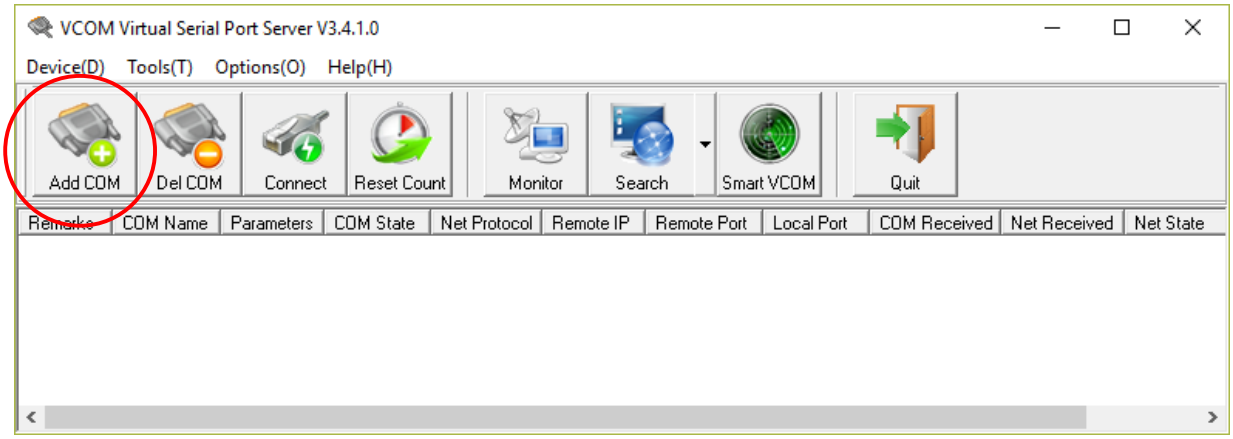
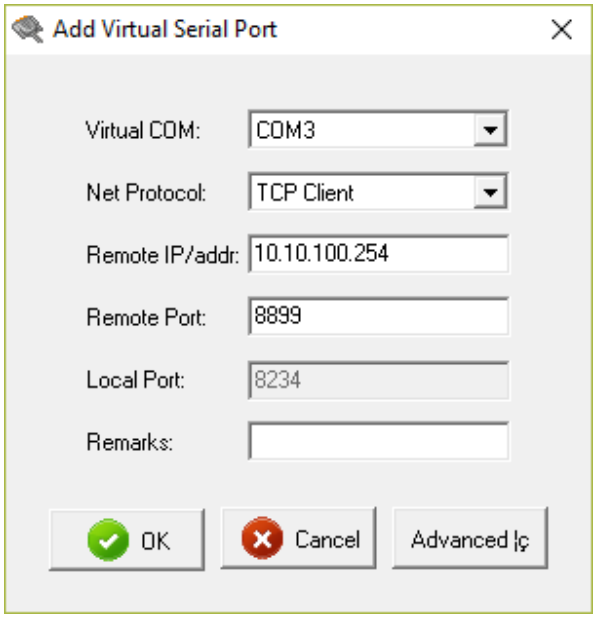
How to create a virtual COM port

To create a virtual COM port for the USCHF2211 module which can be used by a serial application or serial device you need to use a COM port redirector, also called virtual COM port software.
You can either use the VCOM software made for the USCHF2211 (called USR-VCOM, downloadable from www.usconverters.com) or use 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 USCHF2211's IP address and port number:



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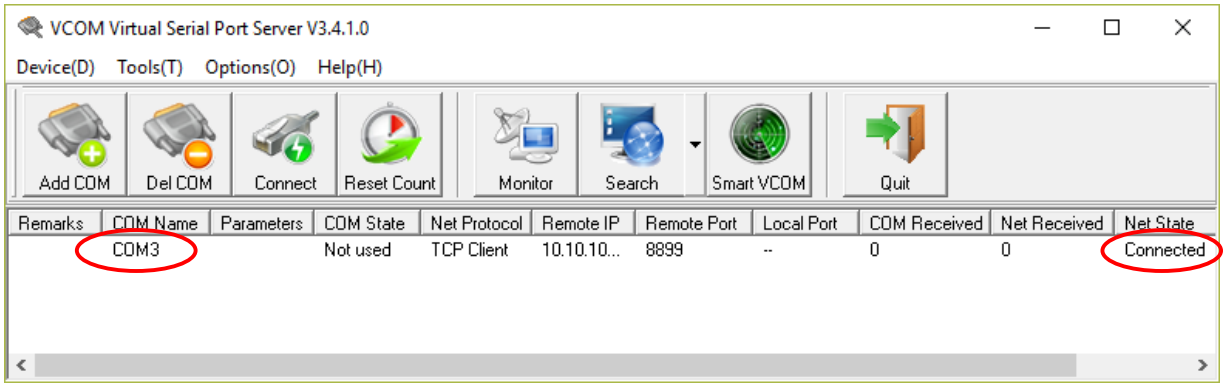
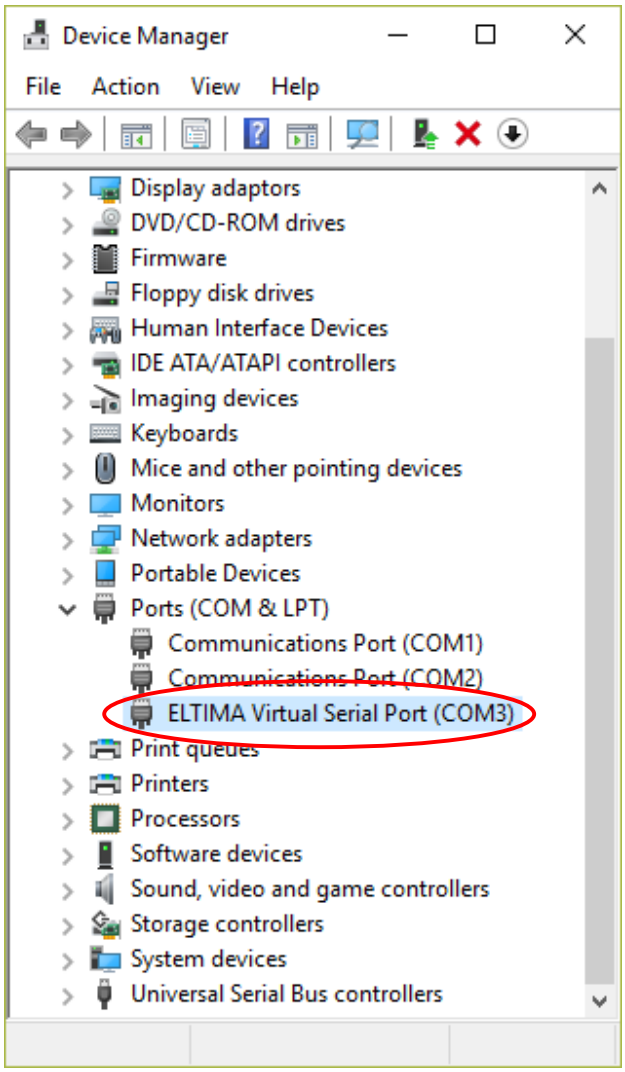
The port will now be created:



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



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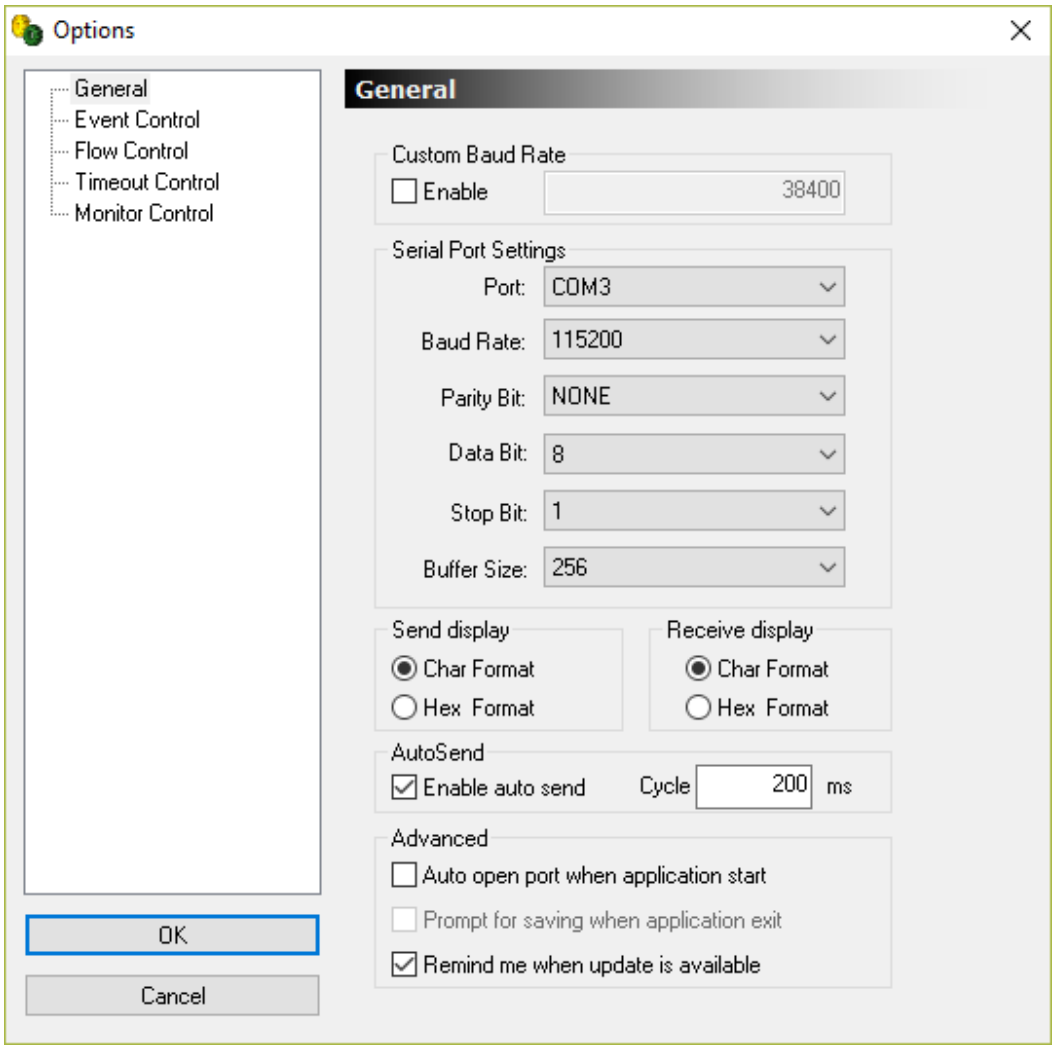
Making a loop-back test.

To verify if the USCHF2211 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 serial cable and connect the cable to the USCHF2211 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 3, and click the OK button:



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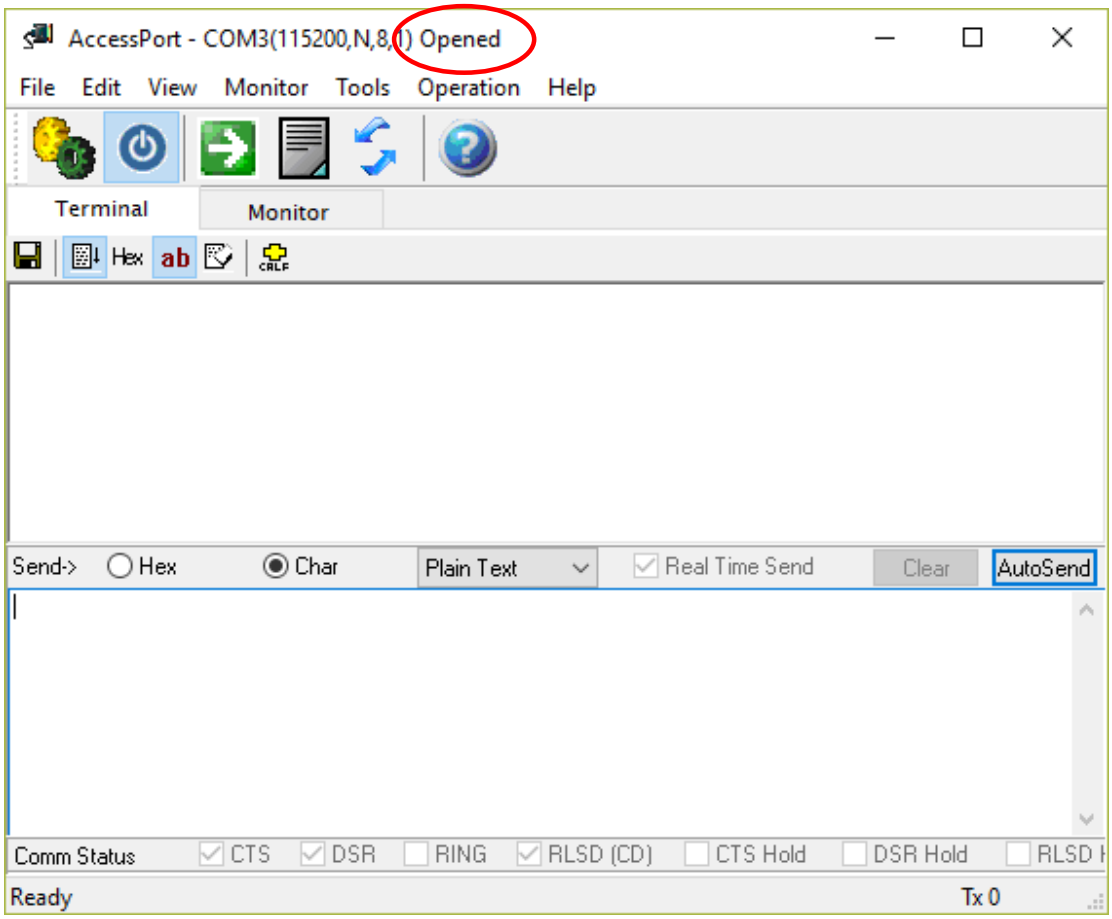
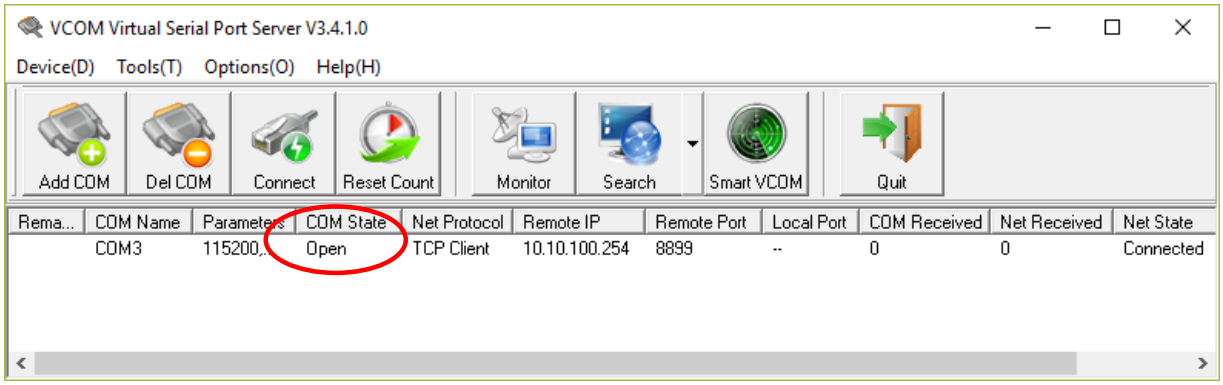
The port will now open:



In the VCOM software the 'COM State' column should now show 'Open':



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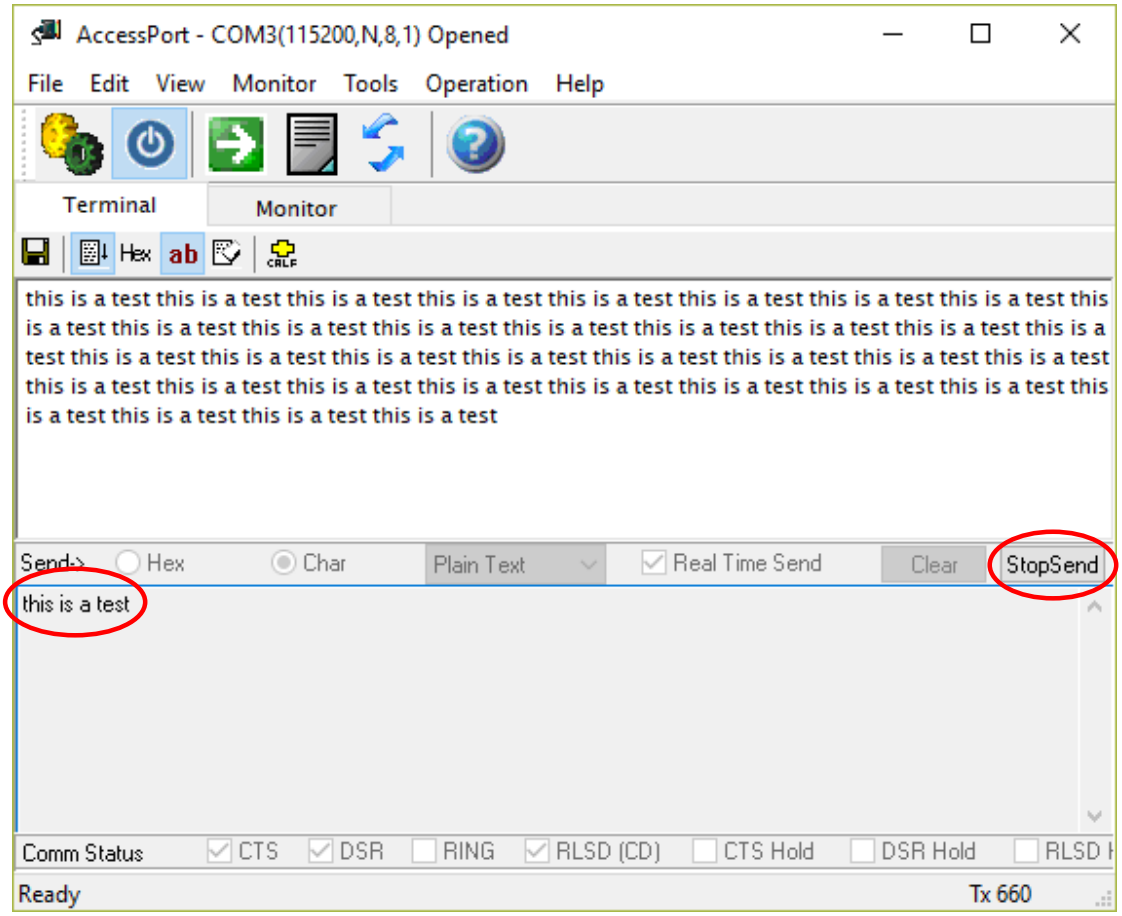
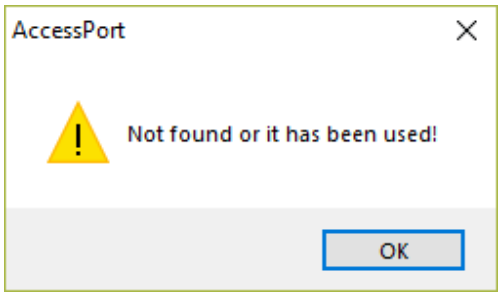
Enter a text string in the lower (send) window in AccessPort and click the AutoSend button. The characters should now be sent via virtual COM 3, over WiFi to the USCHF2211 module, out on the TX pin, back into the RX pin, back over WiFi, back into virtual COM port 3 and should appear in AccessPorts upper (receive) window:


AccessPort - COM3(115200,N,8,1) Opened
File Edit View Monitor Tools Operation Help
Terminal
Monitor
Hex
ab
this is a test this is a test this is a test

If you try to open the port but it is already in use, not existing or otherwise occupied by the operating system you will get the following error message from AccessPort. Using a different port is the easiest solution.



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Pairing two modules

The USCHF2211 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.

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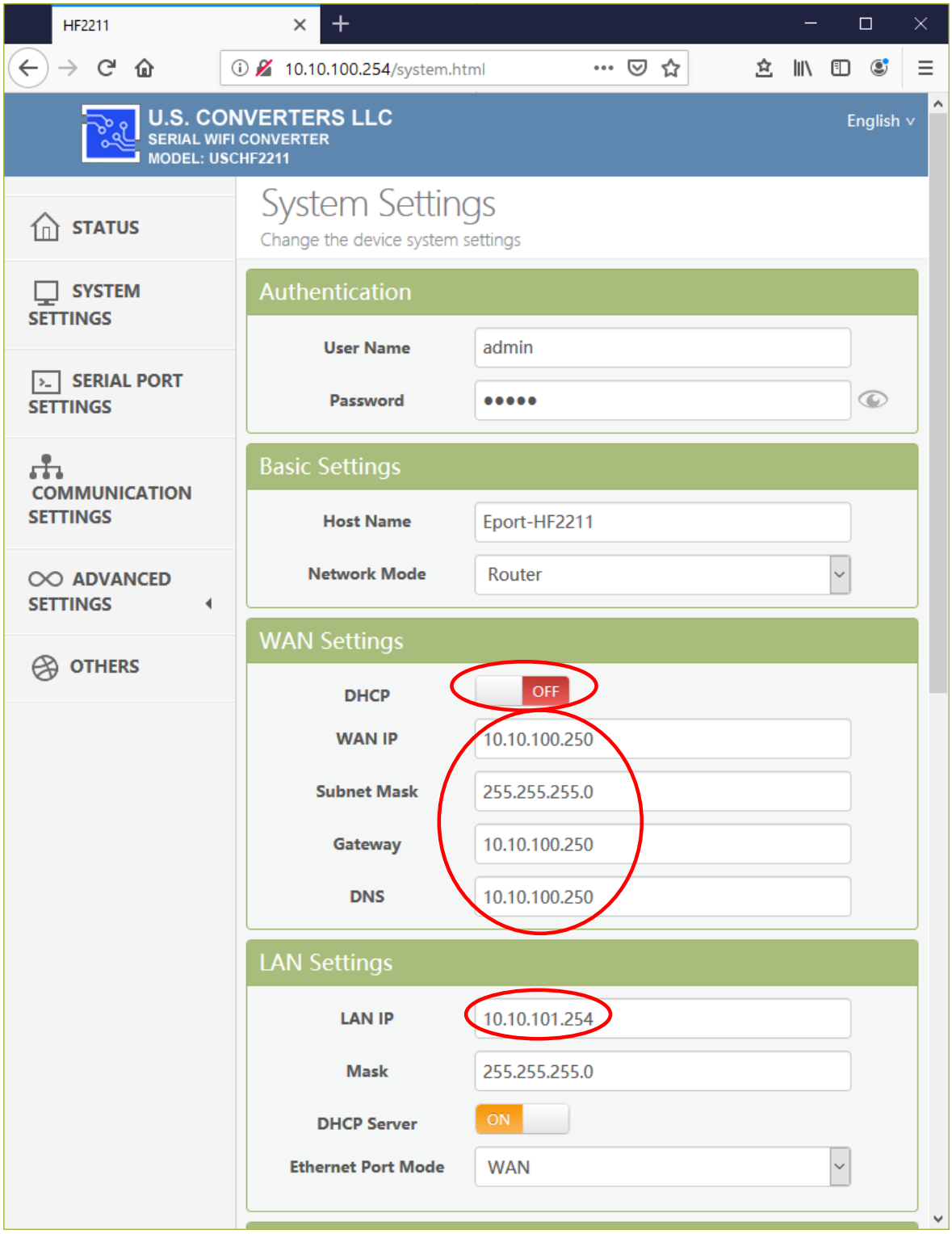
Client (STA) configuration:

System settings: disable DHCP under WAN Settings and enter an IP address different from the servers IP address:



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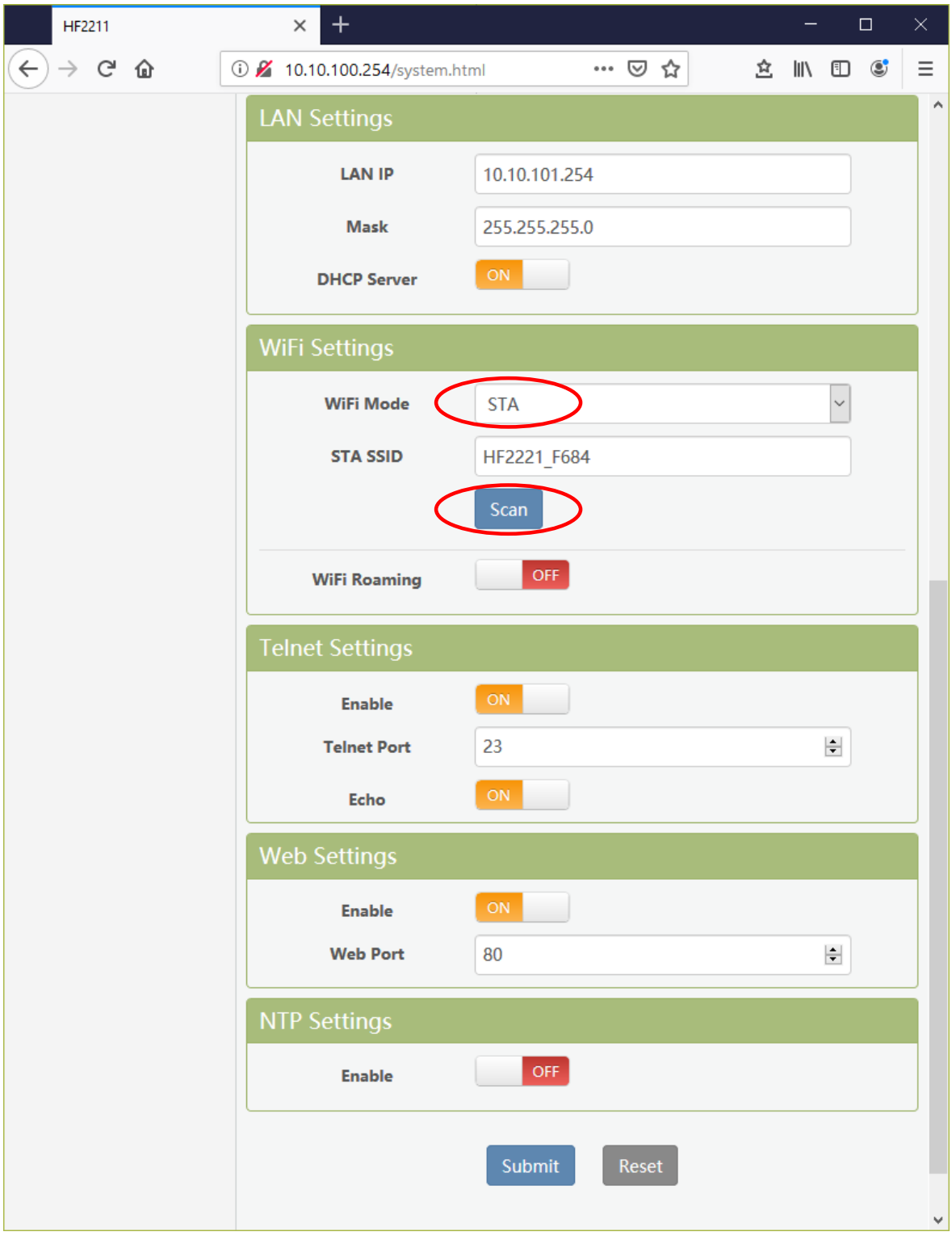
System settings: select STA mode and click the Scan button:



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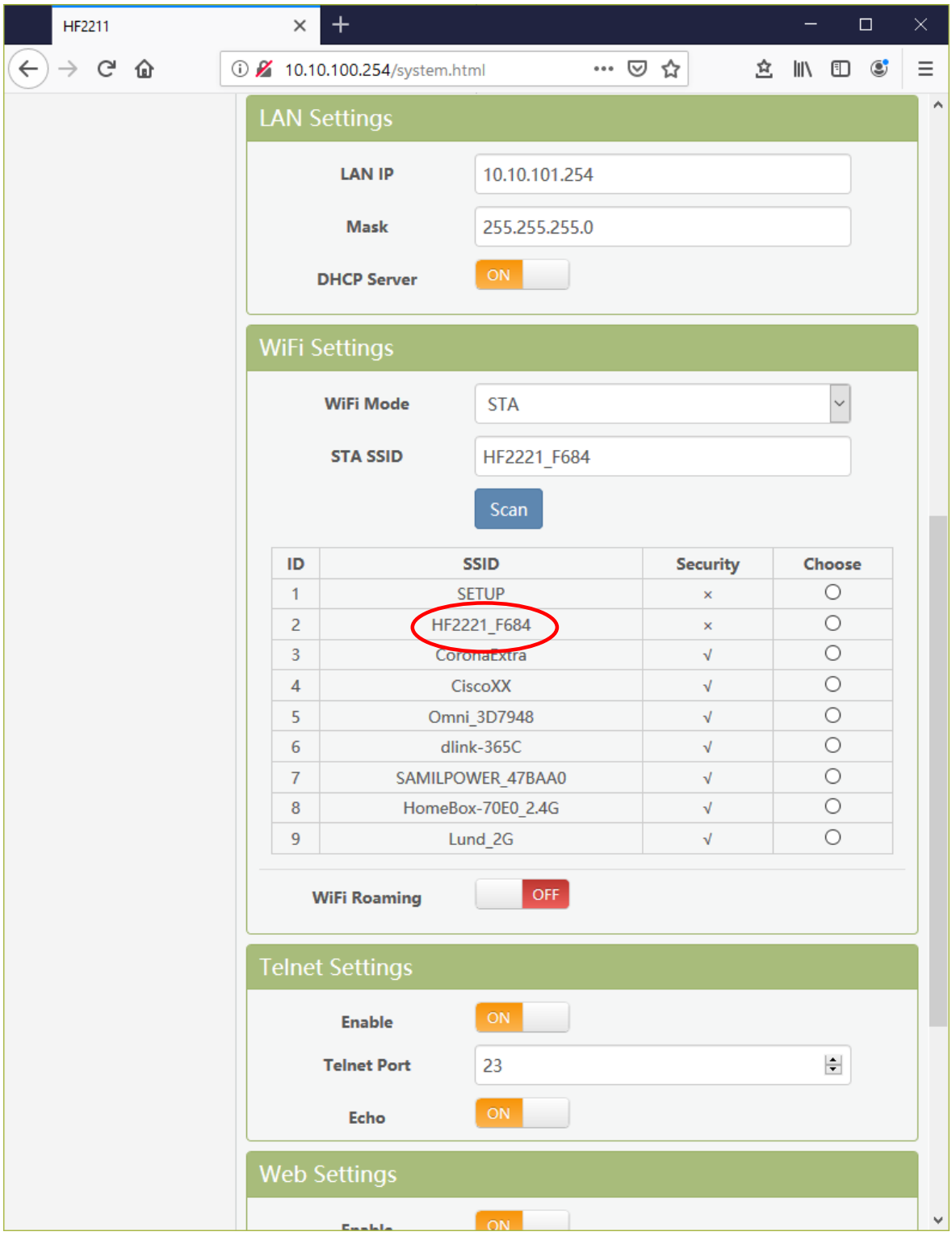
Select the server 'HF2211_XXXX' from the list (XXXX) is the last 4 digits of the MAC address:



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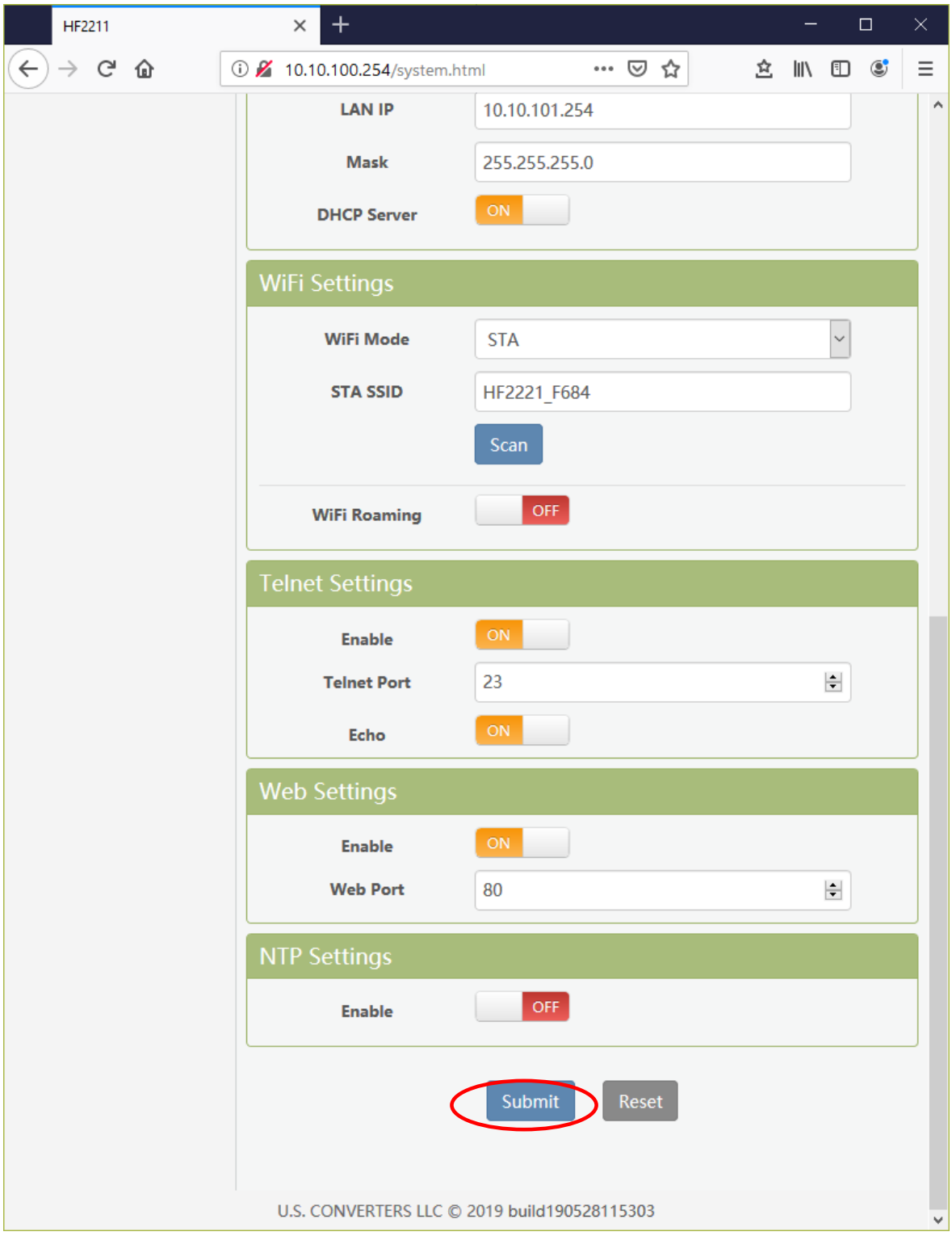
Click the Submit button:



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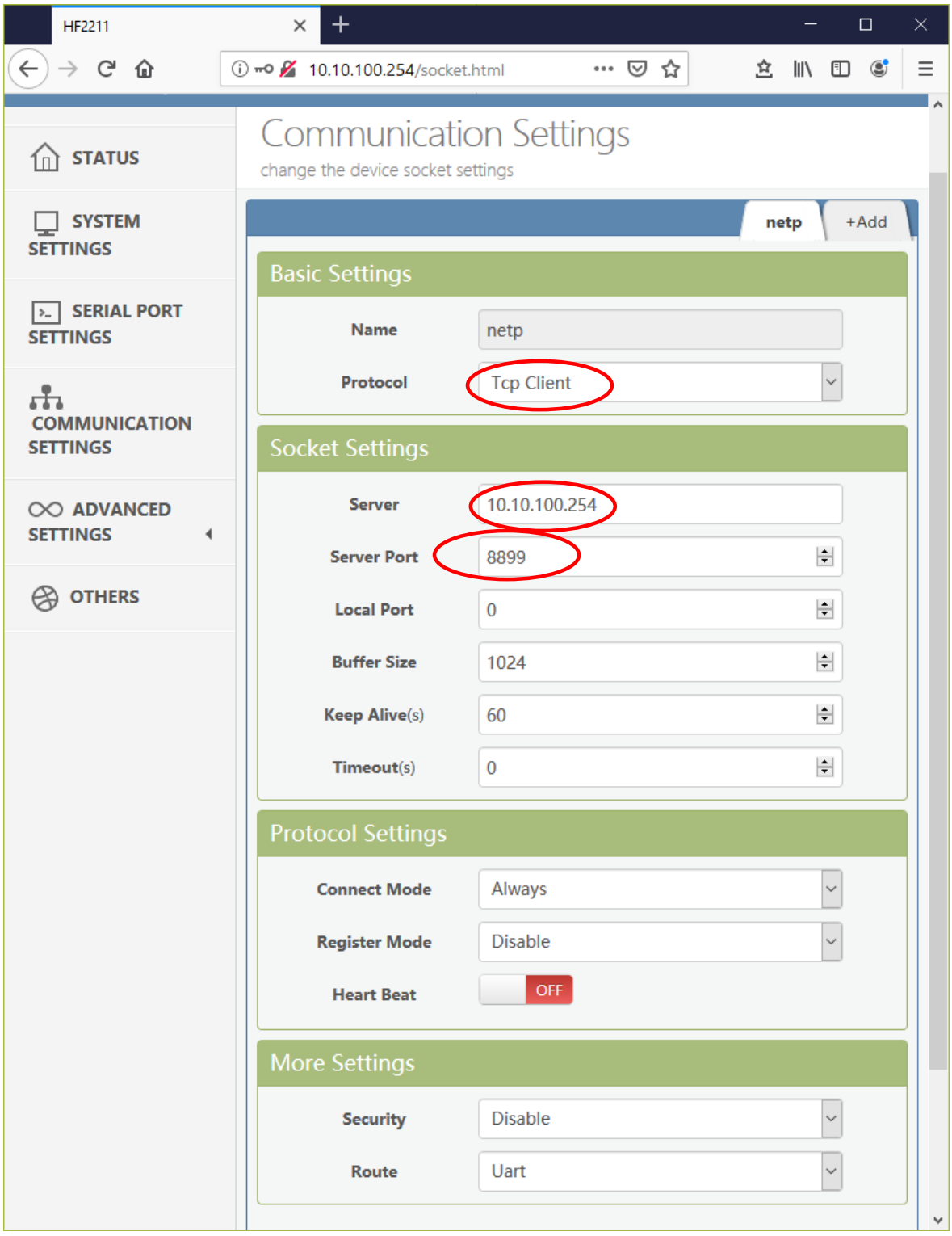
Communication Settings: select TCP Client and enter the server's IP address and port number:



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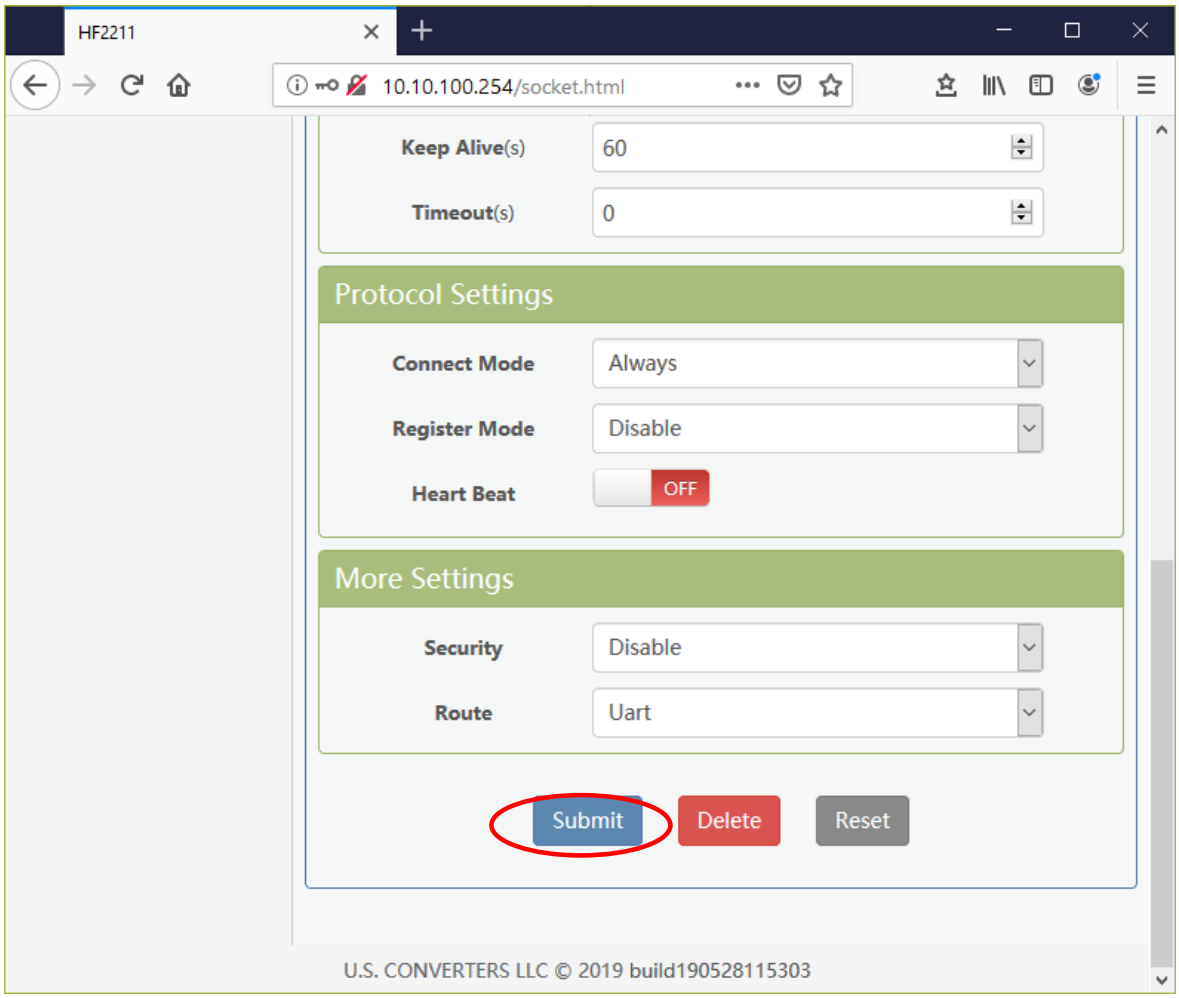
Click the Submit button:



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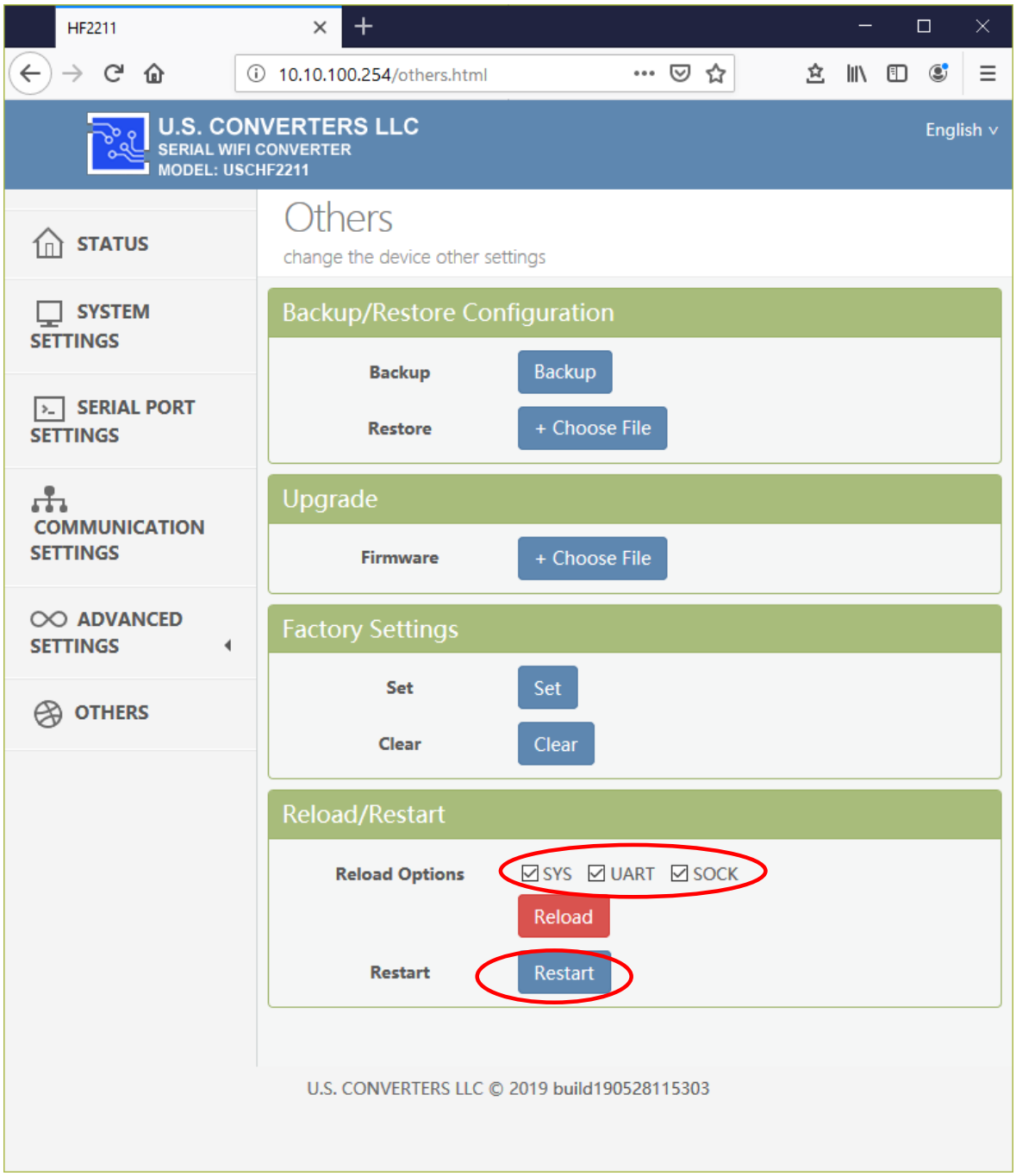
Others: check ‘SYS’, ‘UART’ and ‘SOCK’ and click the Restart button:



The server and the client USCHF2211 should not automatically link. The green Link lights on both converters should turn on after about 10 seconds.

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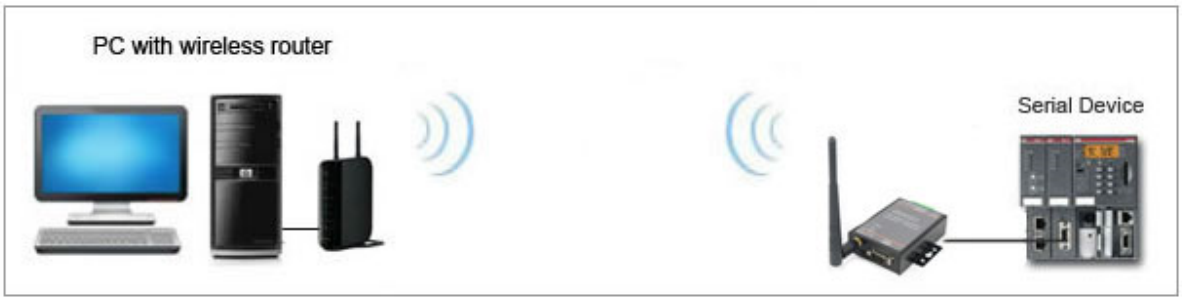
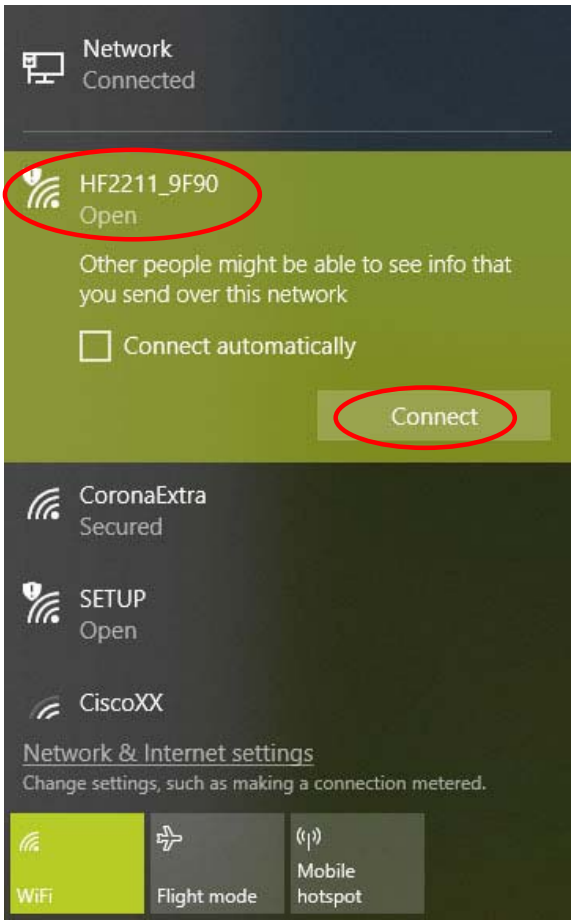
How to connect the USCHF2211 using a wireless router

The setup looks like this:



Connect to the USCHF2211 using Windows network manager. Your computer needs a WiFi network card or USB WiFi dongle in order to do this:



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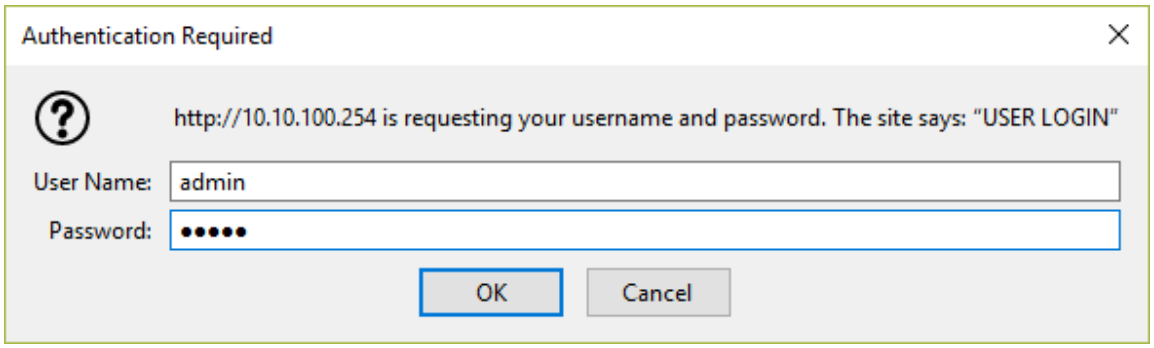
Open a web-browser and go to 10.10.100.254, and enter the credentials which is “admin” for both the user name and password:



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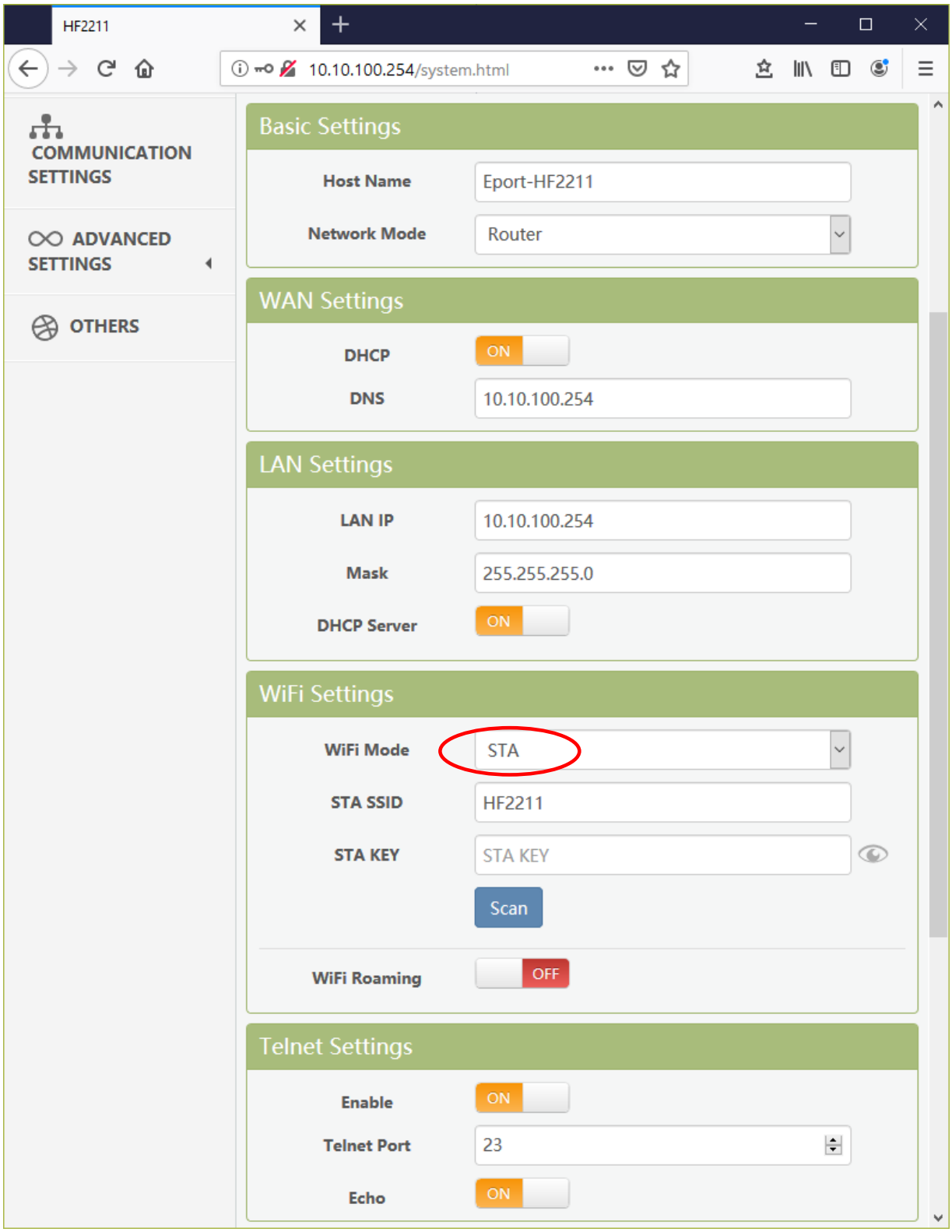
Go to the “System Settings” page and select STA under “WiFi Settings”:



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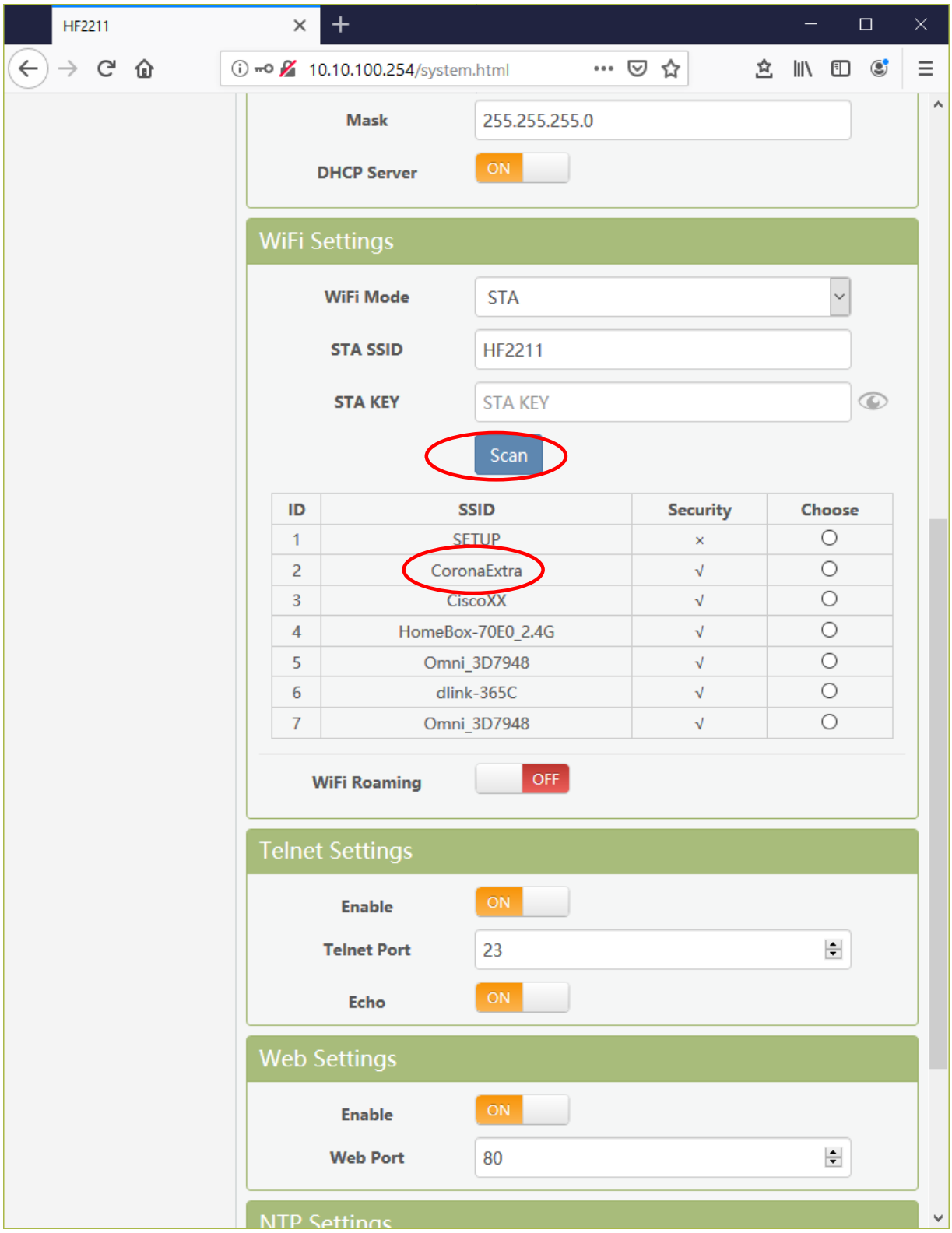
Click the Scan button and select your routers SSID:



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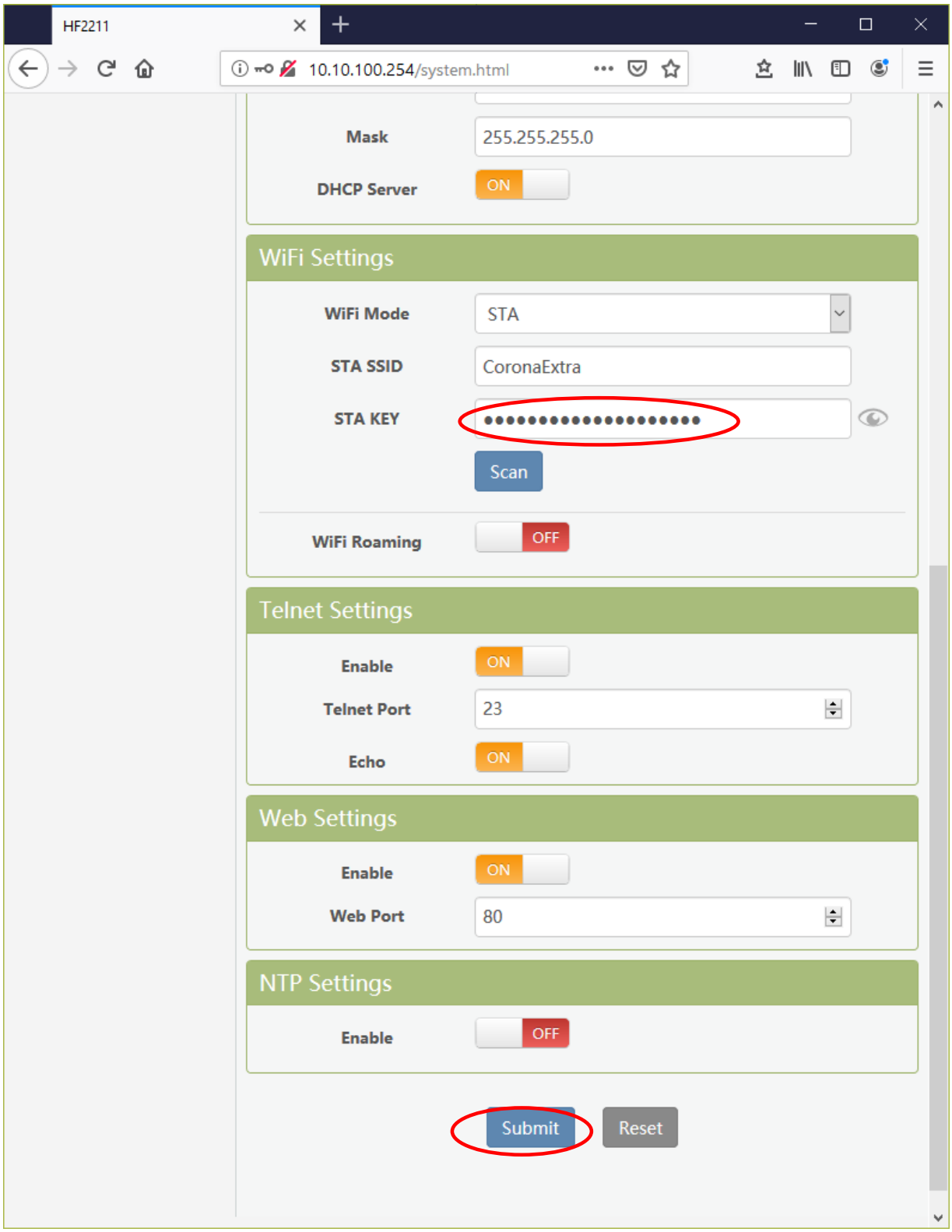
Enter the STA Key if required and click the Submit button:



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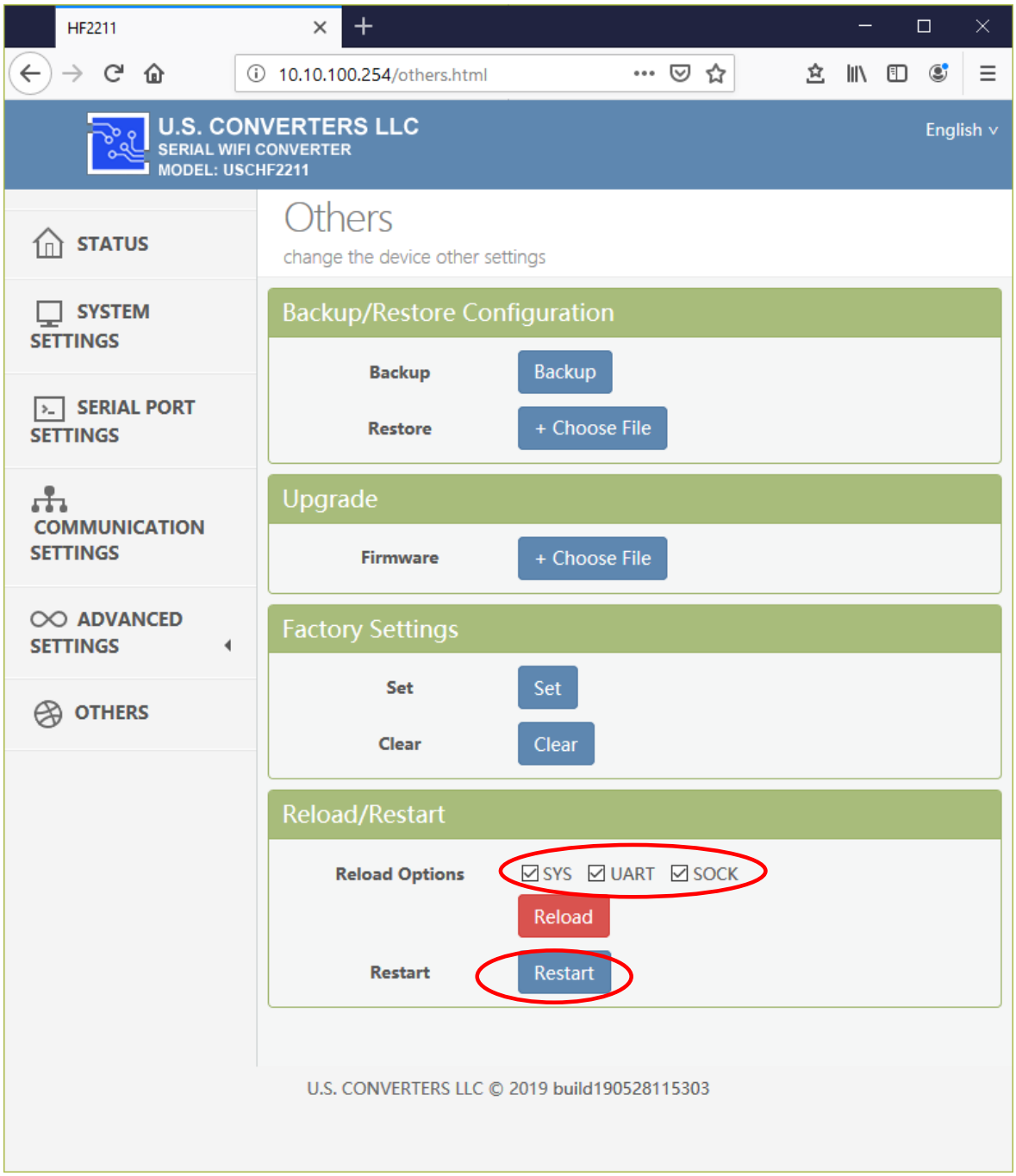
Under Others: check ‘SYS’, ‘UART’ and ‘SOCK’ and click the Restart button:



After the reboot and 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.

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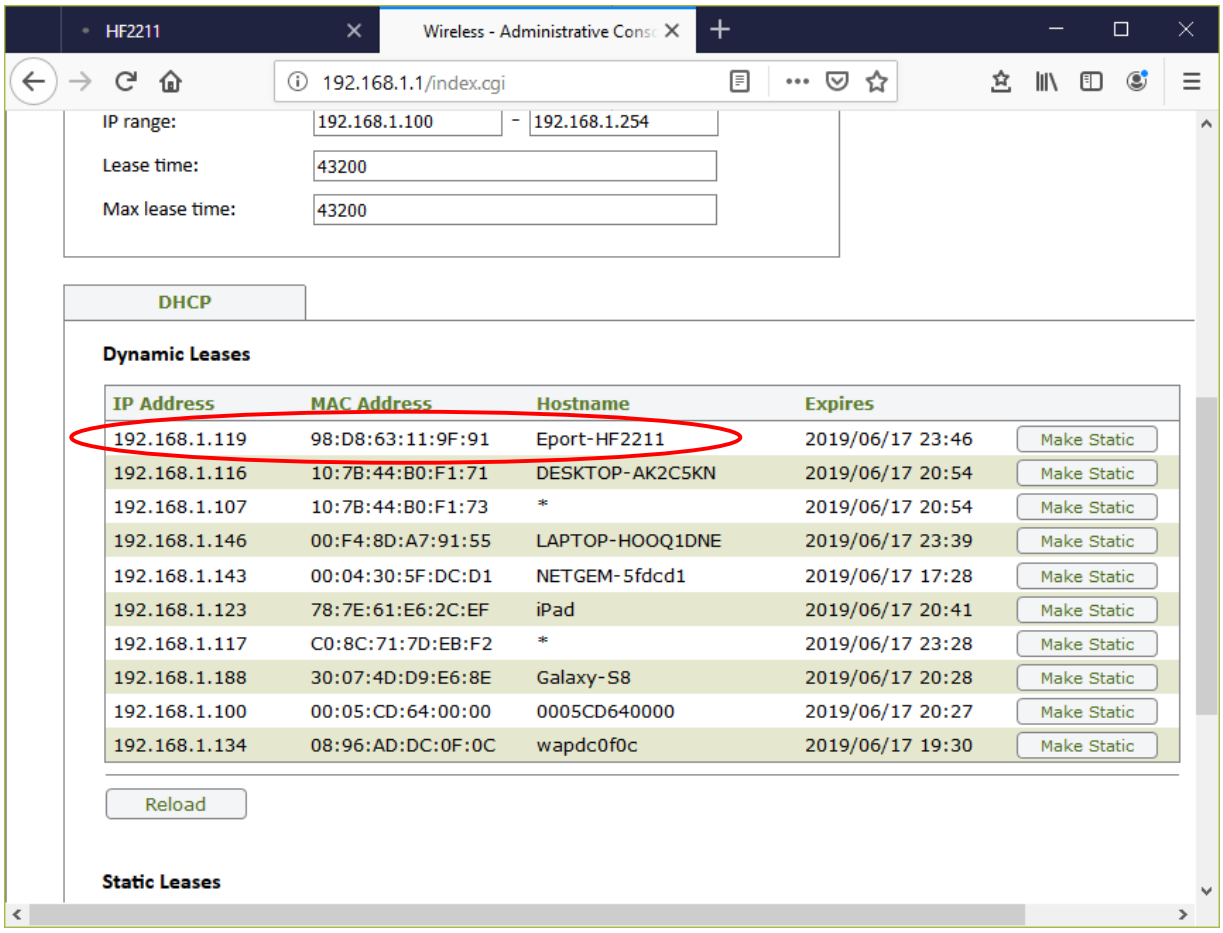
To check/verify if the adapter has joined the network successfully you may be able to login to your wireless routers admin status page and see the converter:



Alternatively you can use an IP scanner such as Advanced IP Scanner: https://www.advanced-ip-scanner.com/

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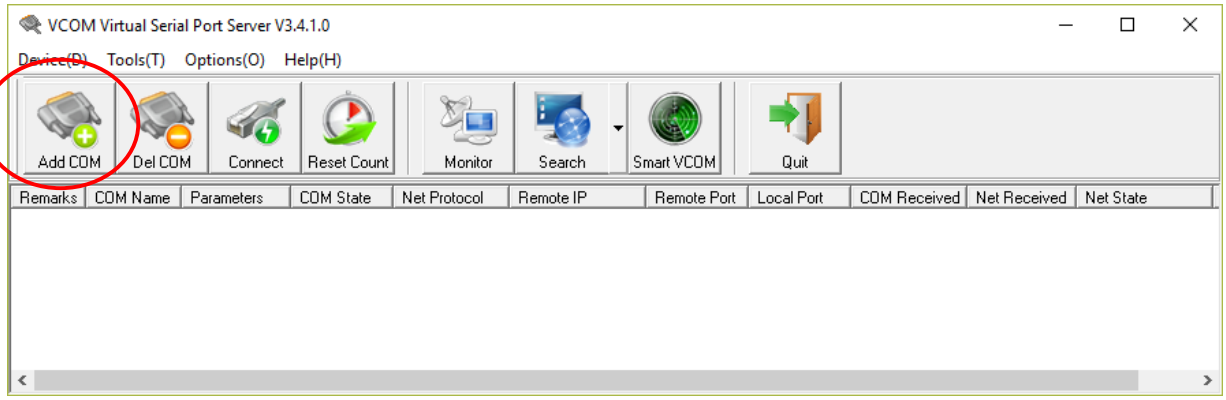
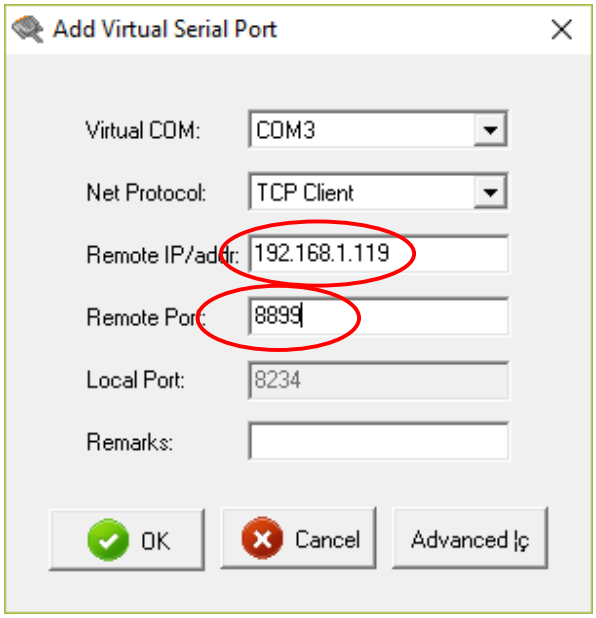
Create a virtual COM port.

Open the USC-VCOM virtual COM port software and click the ‘Add COM’ button:



Enter the IP address which your router has assigned to the converter:



Click OK.

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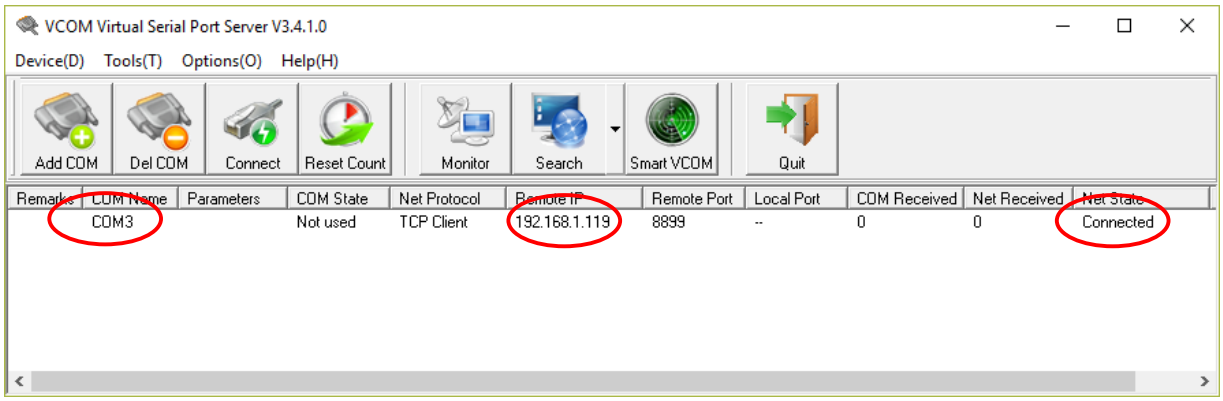
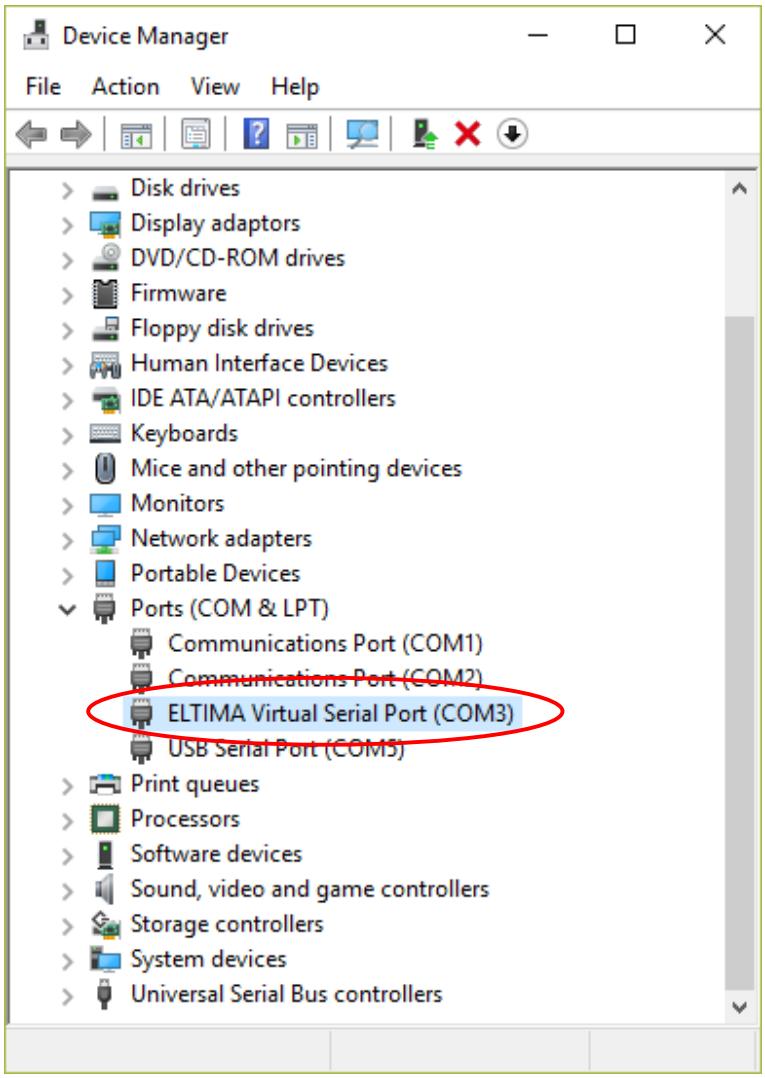
The virtual COM port should now be created:



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



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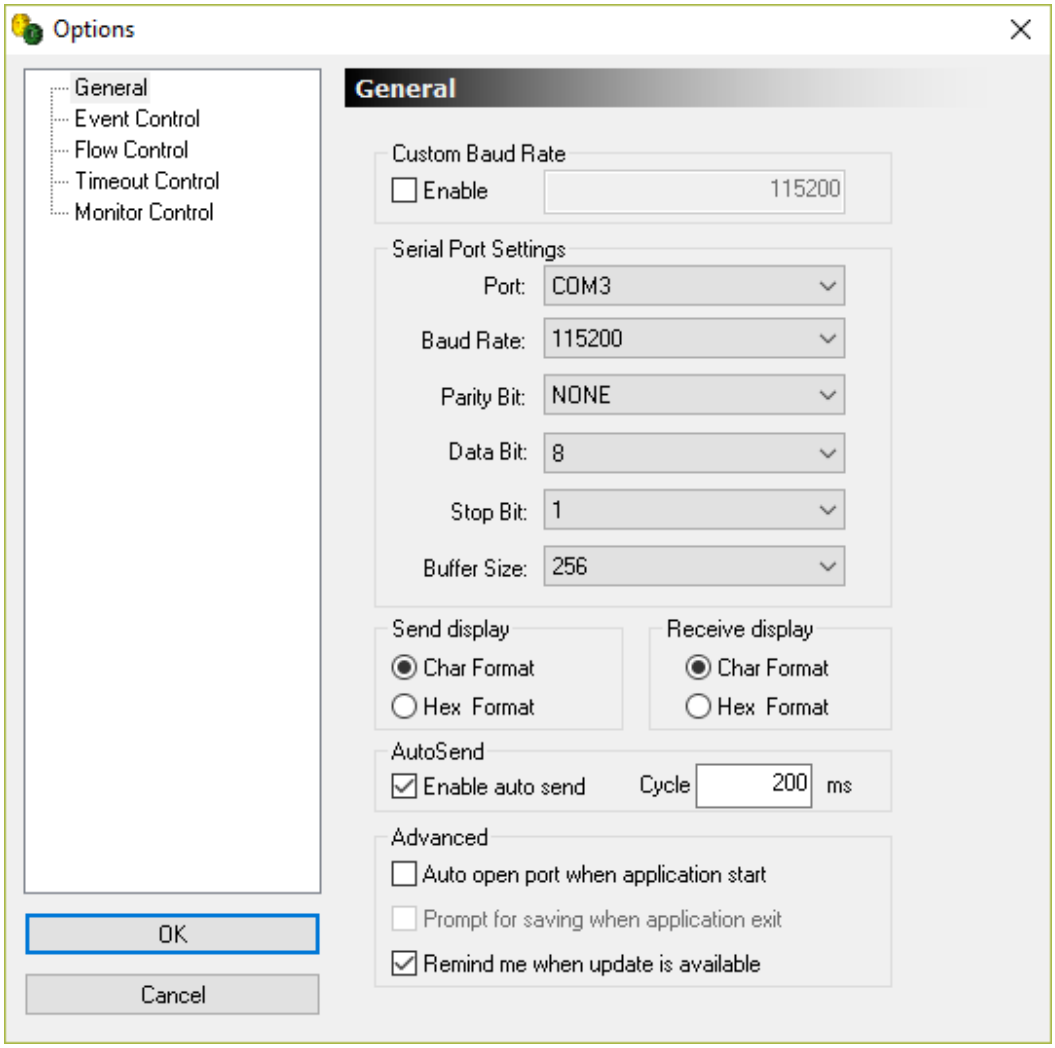
Verify communication by making a loop-back test.
Loop the TX and RX pins on the DB9 interface of the USCHF2211 and open Access Port. Enter the following settings and click the OK button:



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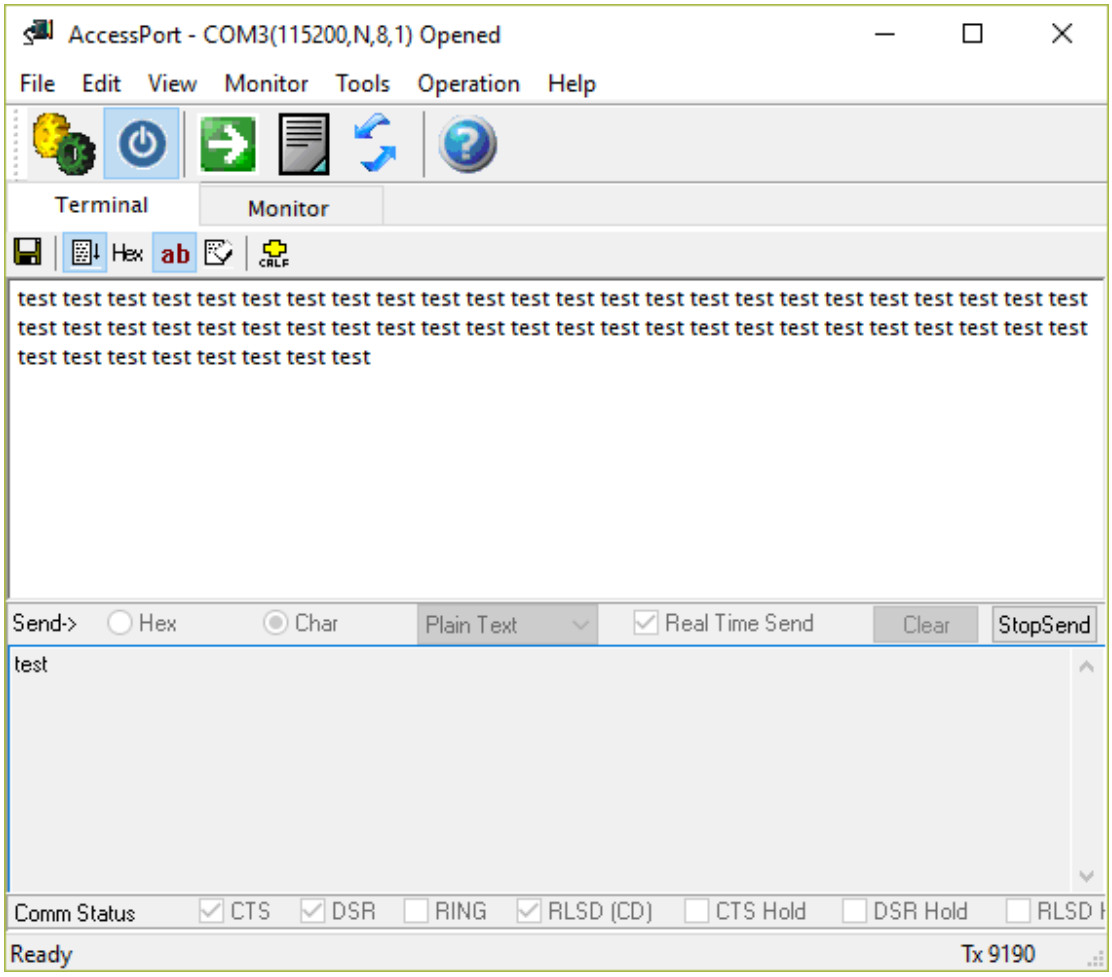
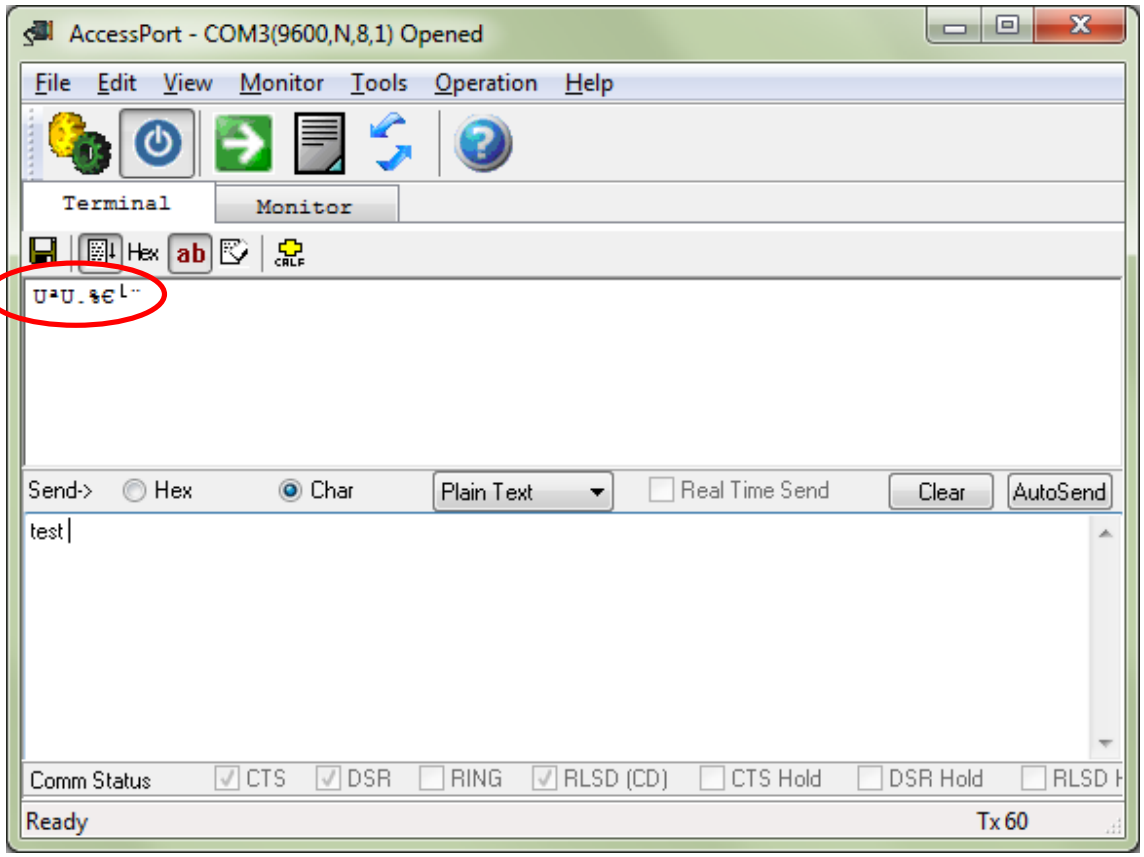
Enter a text string in the lower windows and click the “AutoSend” button. The data from the lower window should now be sent to the USCHF2211 and back again and appear in the upper window:


AccessPort - COM3(115200,N,8,1) Opened
File Edit View Monitor Tools Operation Help
Terminal
Monitor
Hex
ab
CRLF
test test test

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?



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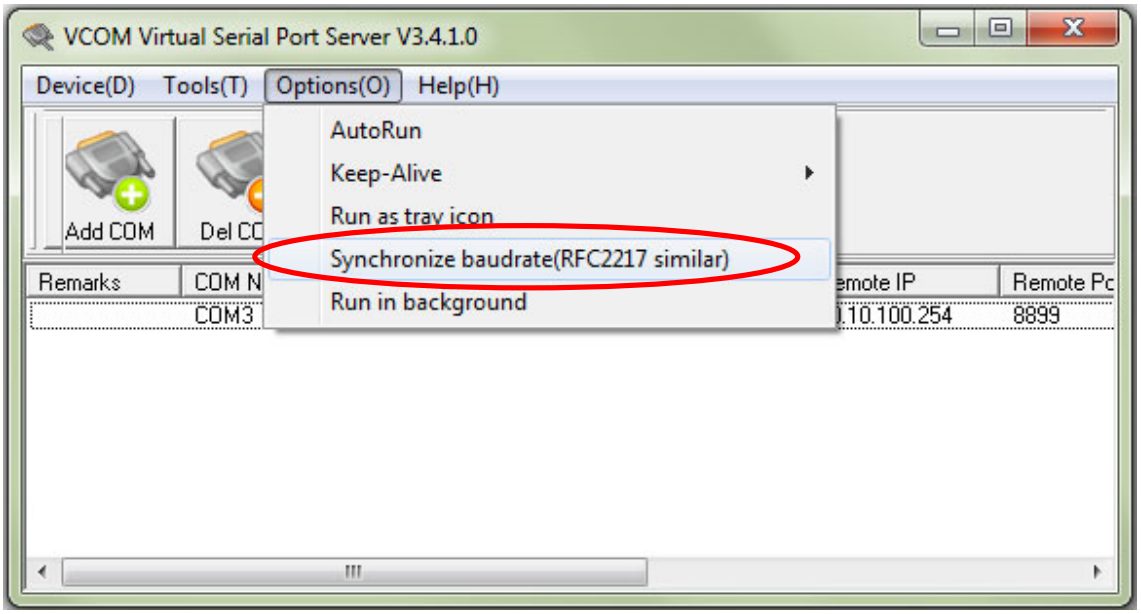
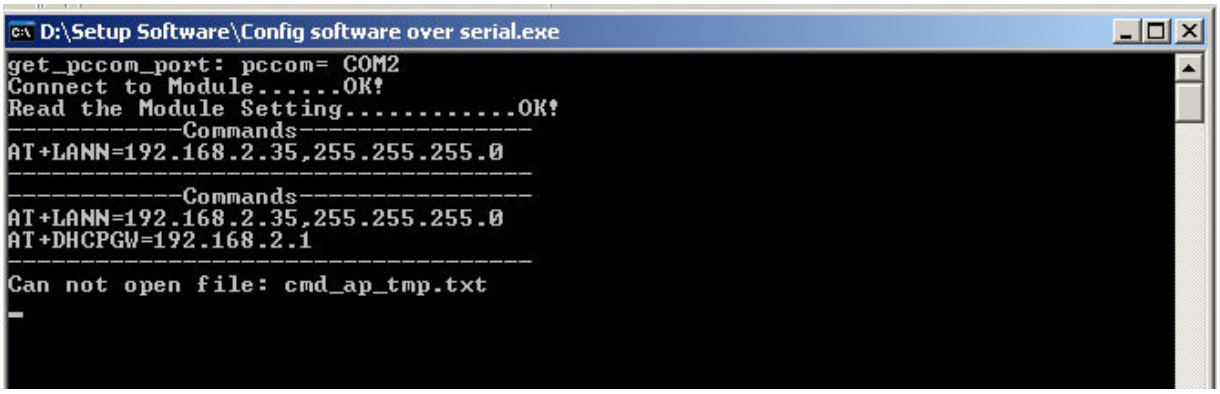
Answer:

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".

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Question:

The MAC address on the back of the USCHF2211 does not match with the real MAC address on the network, why?

On back of USCHF2211:

On the network:

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

Answer:

The USCHF2211 has four MAC addresses: AP MAC, STA MAC, LAN MAC and WAN MAC. The label on the back of the USCHF2211 shows only the AP MAC address.

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Testing XON/XOFF software flow control

Default settings:
10.10.100.254
port 8899
115200 bps
Half duplex
xon: 11
xoff: 13

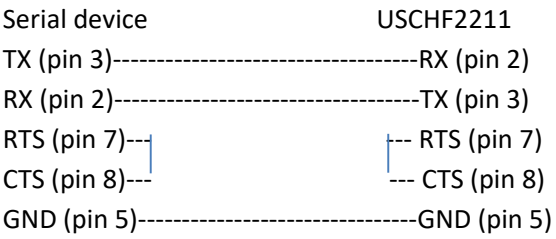
RTS MUST be enabled/high at both the serial device end and the virtual COM port/PC end.
This can be accomplished by enabling 'RTS' in both instances of the communicating software (in this case we use Hercules terminal program) or by putting a jumper wire from RTS (pin 7) to CTS (pin 8) in the DB9 cable connector.

XON/XOFF confirmed working only works with 'Fabulatech Serial Port Redirector'.

USC-VCOM does not work properly (it freezes when sending from serial device to virtual COM port).
SharePort does not work properly (it cannot send data after xoff and xon is sent).

Some devices require BOTH ends (the serial device and the virtual COM port/PC) to send a XON command (11) before communication can start.

Wire connections:



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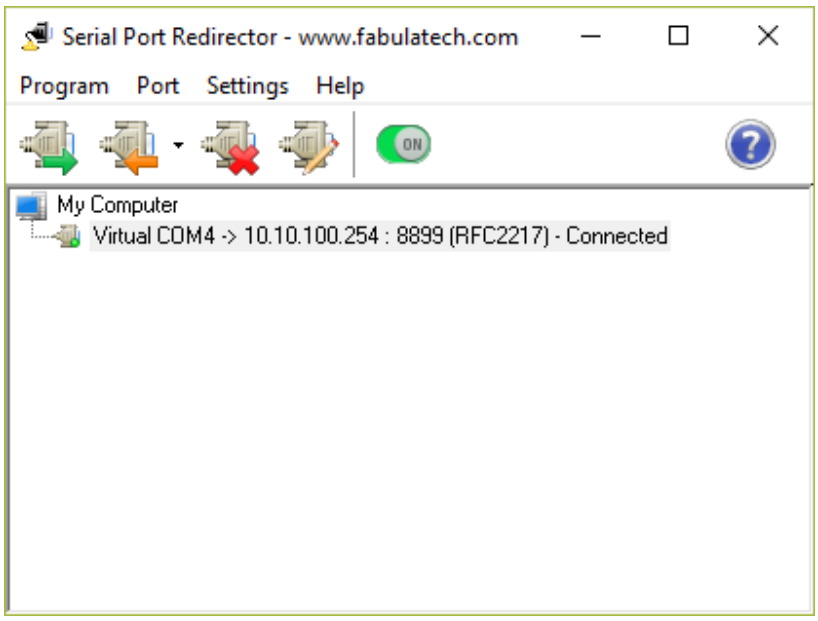
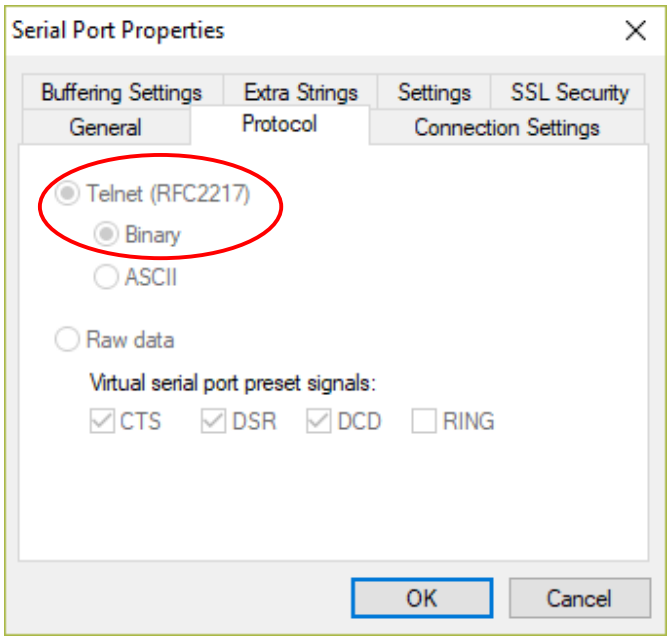
Fabulatech settings:





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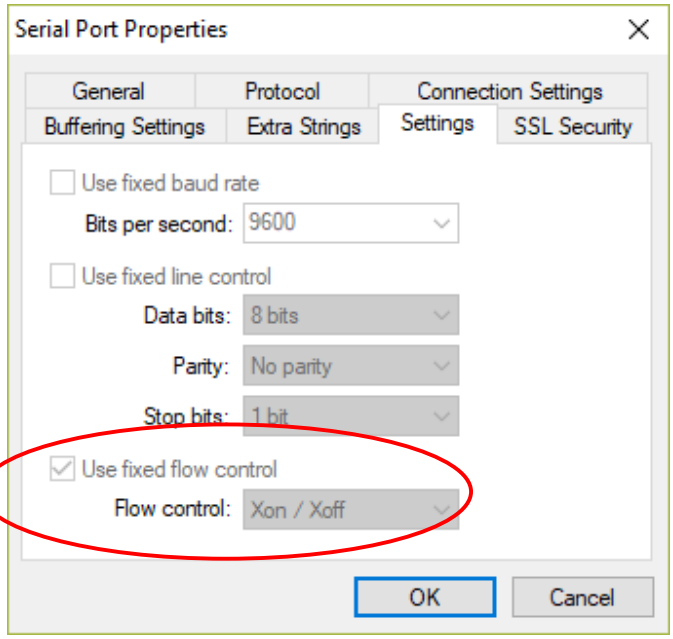

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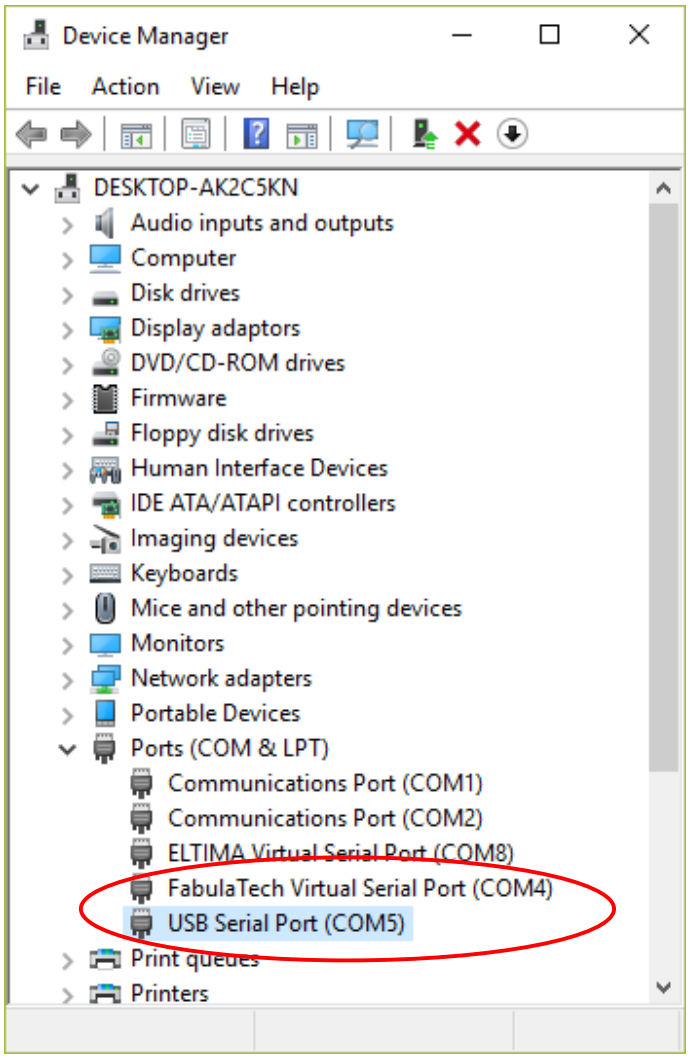
Windows Device Manager:



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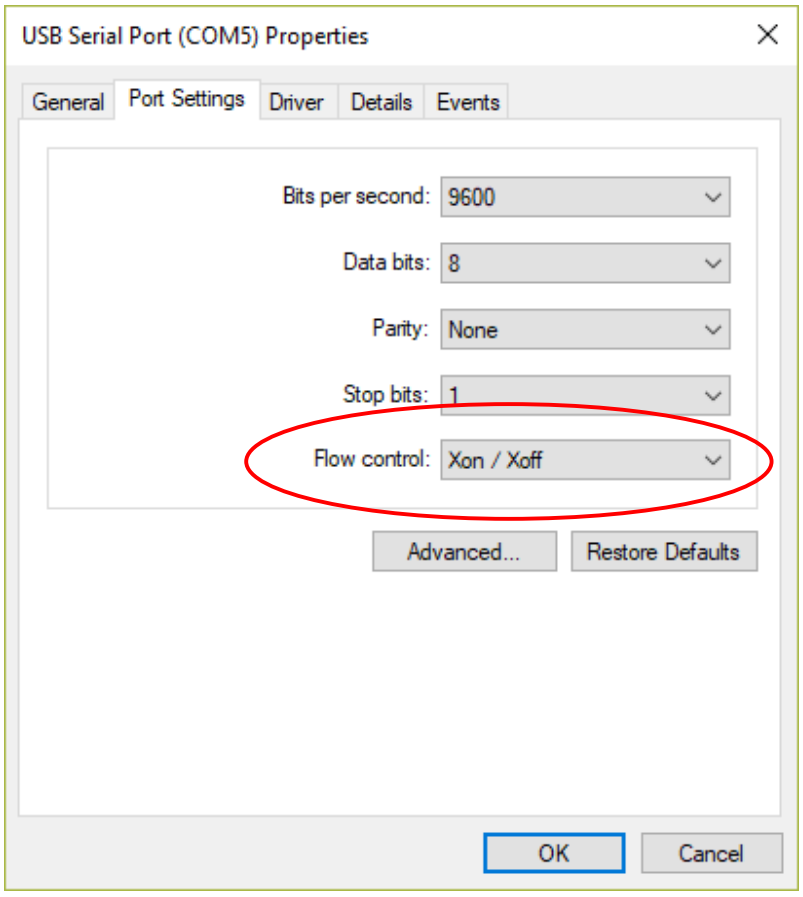
USB to serial adapter port settings (the adapter mimics a serial device):



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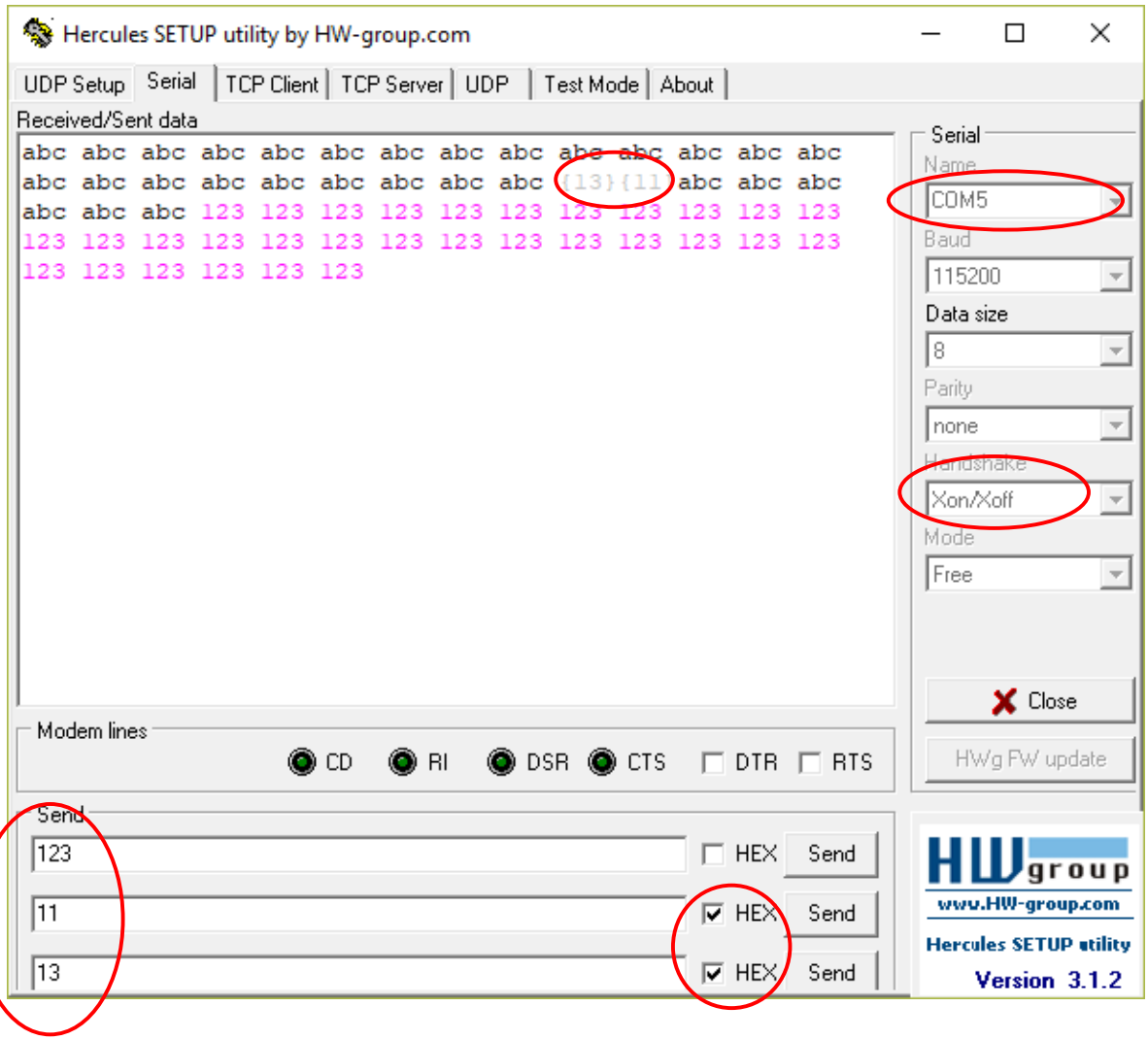
Testing communication using Hercules terminal software. Sending data between two COM ports:



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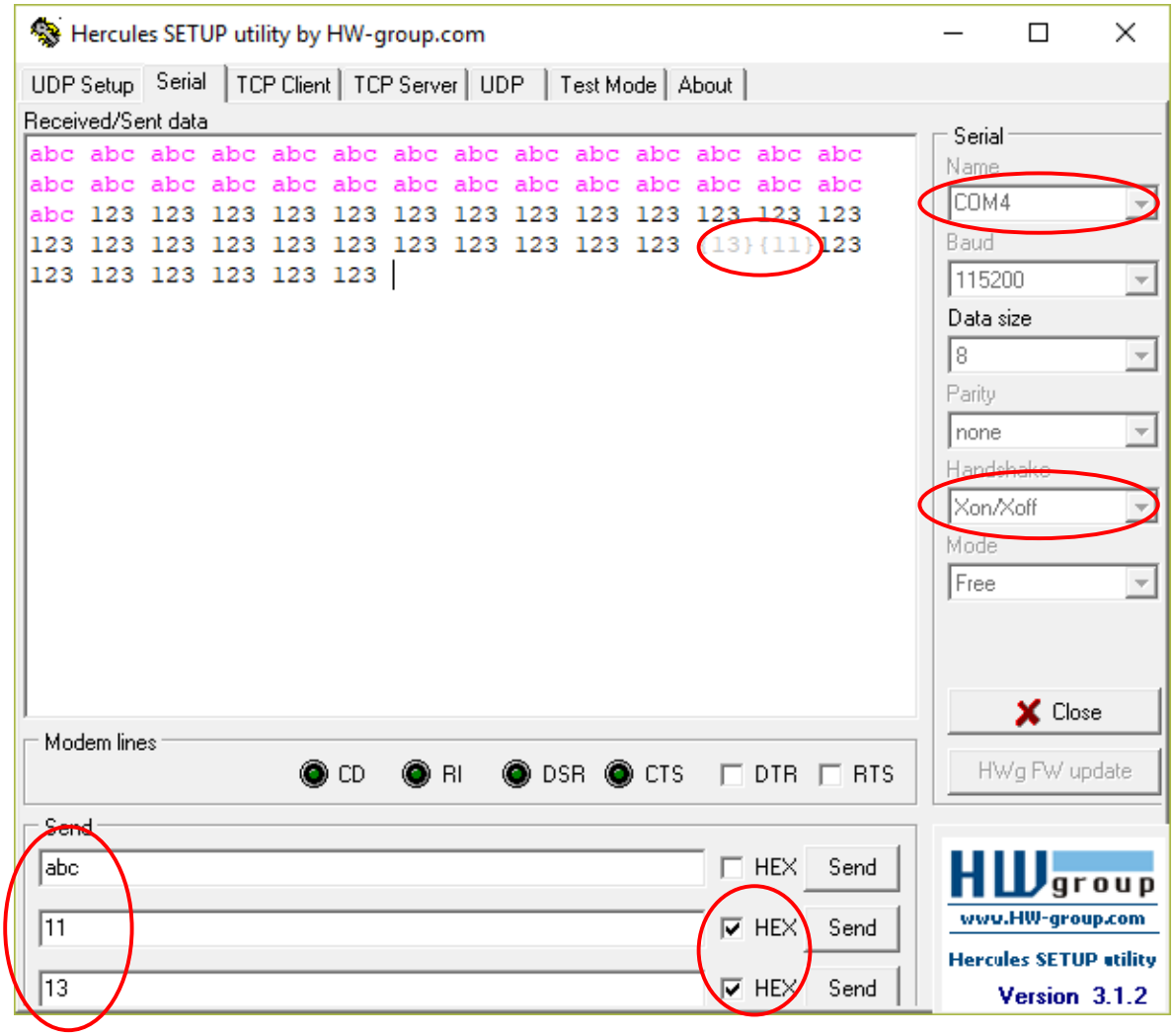

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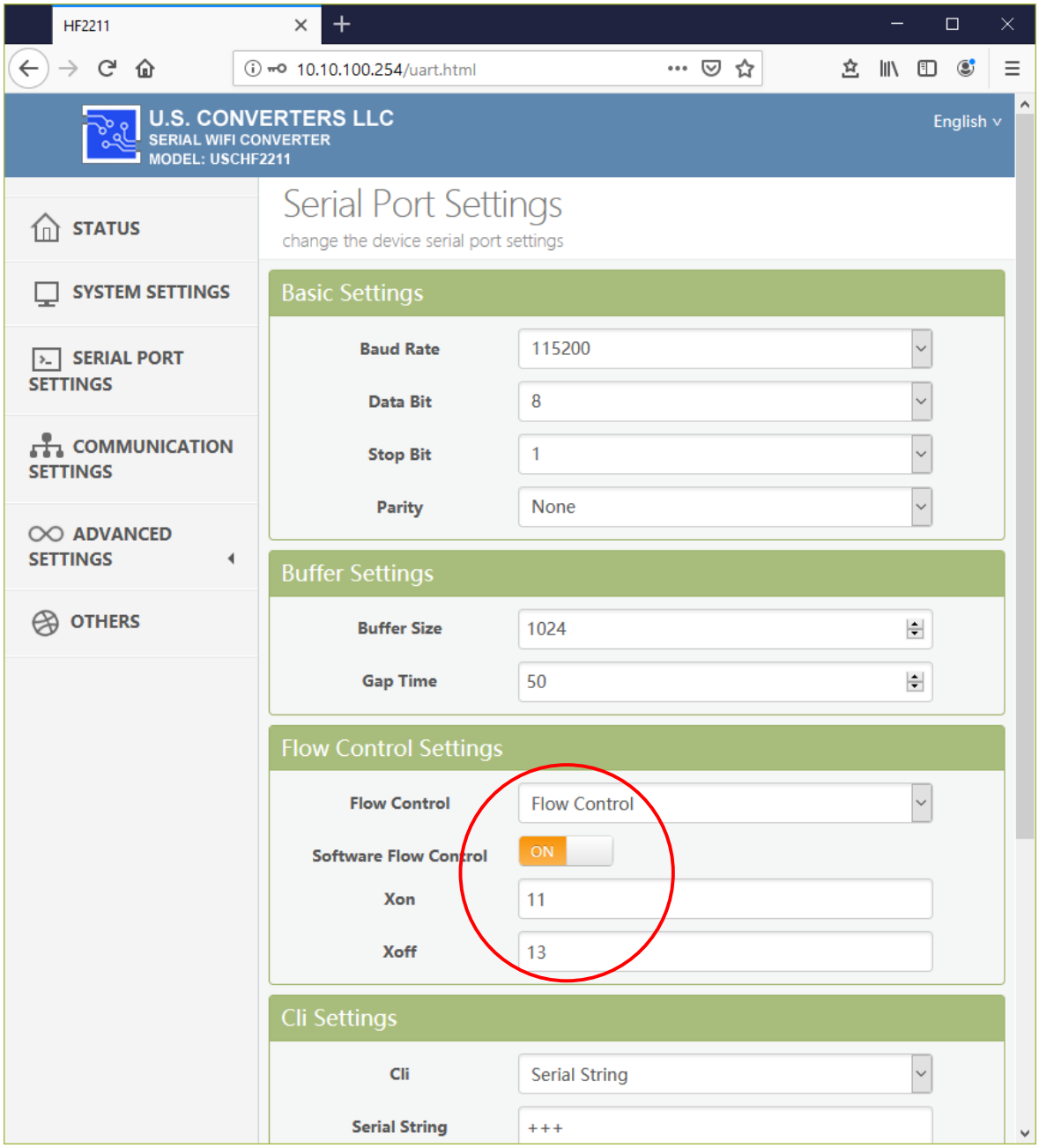

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