How to setup the UCW232C Serial WiFi adapter

This step-by-step guide explains how to get started using the Serial RS232 WiFi Adapter part UCW232C and Serial RS485 / RS422 WiFi adapter part UCW4842. These products has several more advanced features and functions than described in this guide so you should consider this guide only as a quick-start guide to help you get started with the basic functions.

This guide is based on part UCW232C but also applies to part UCW4842.

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Configuring the parameters

The UCW232C's parameters can be configured by using a standard web-browser.

The default network settings are:

Adhoc mode (Simple AP), DHCP enabled
SSID: Serial2WiFi_ab_cd ("ab" and "cd" is the last 4 digits of the MAC address)
Security: WPA2, password: 12345678
IP: 192.168.10.1
Socket port: 8080
Channel: 6
Log in ID: admin
Log in password: admin

The default COM port settings are:
Baud rate: 9600 bps
Data bit: 8
Parity: none
Stop bit: 1
Flow control: none

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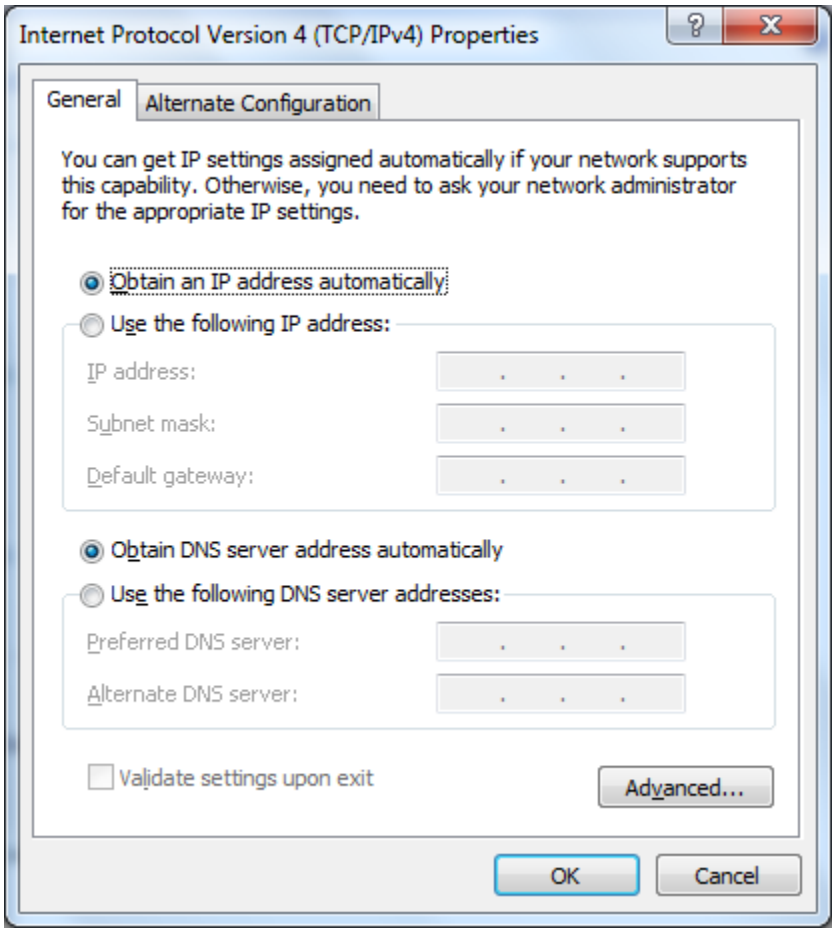
Configuring the parameters using a Web browser

First you need to connect to the UCW232C over WiFi. The UCW232C has DHCP enabled by default so your wireless connection should be set to support this:



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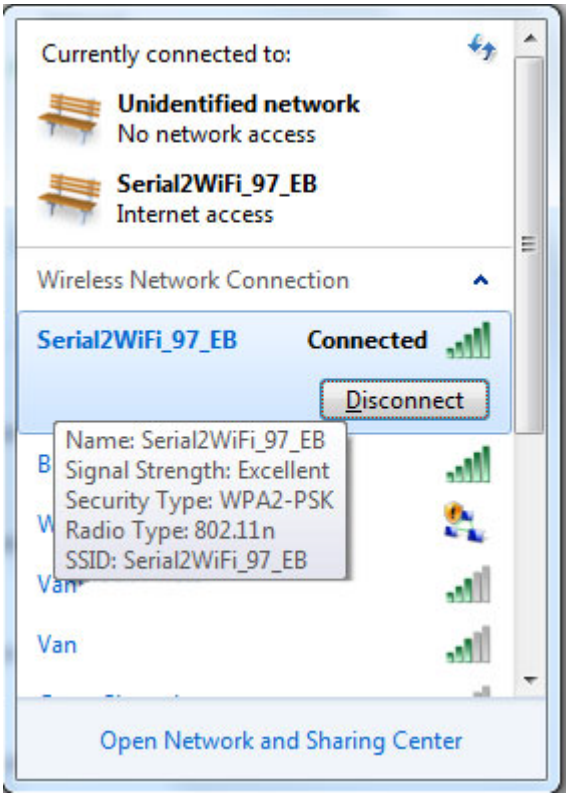
In this example we use Windows built-in wireless network manager to connect to the adapter:



If you enable “Connect automatically” then you don’t forget to manually re-connect when rebooting the adapter.

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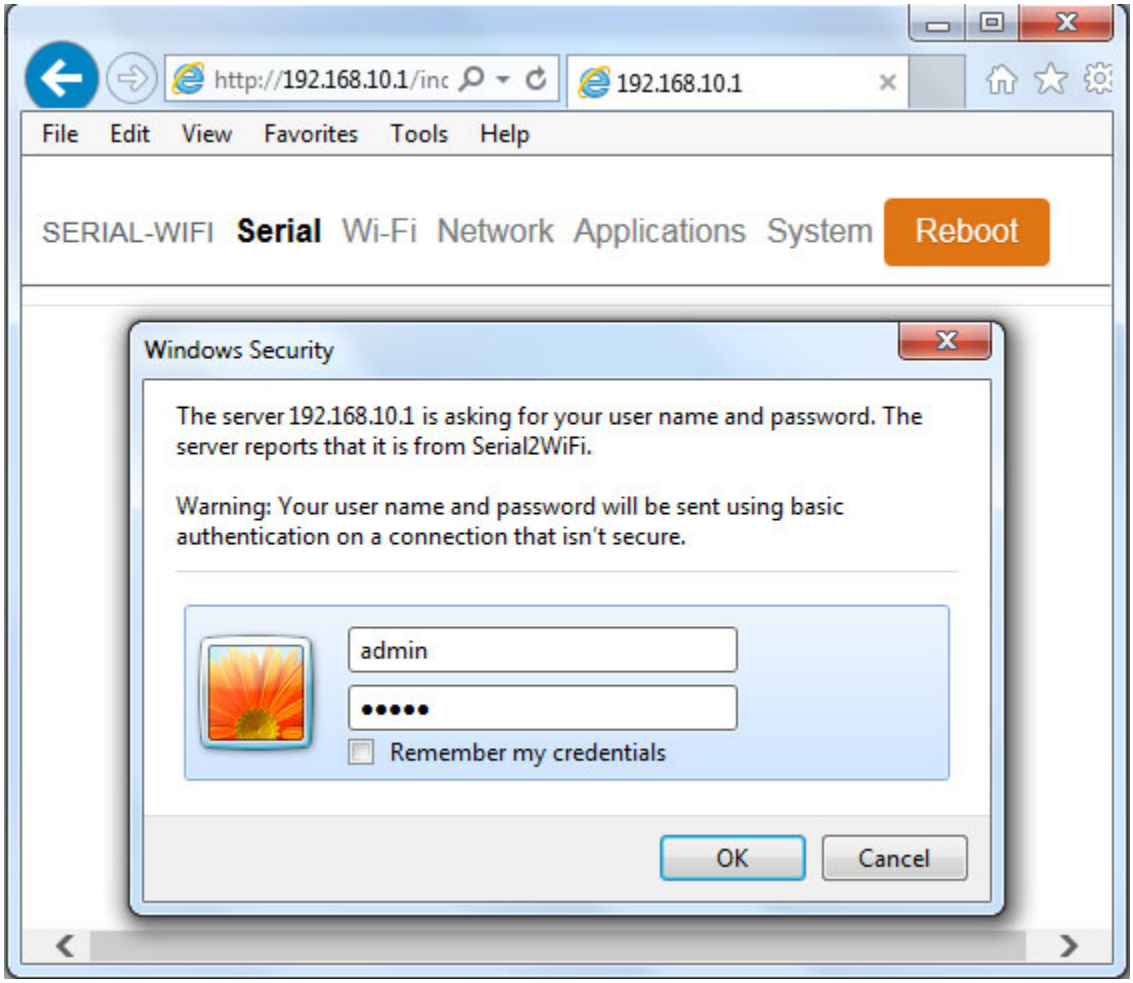
Open Internet Explorer and enter the IP address http:// 192.168.10.1. You should now see the login screen.

The default username is: admin
The default password is: admin



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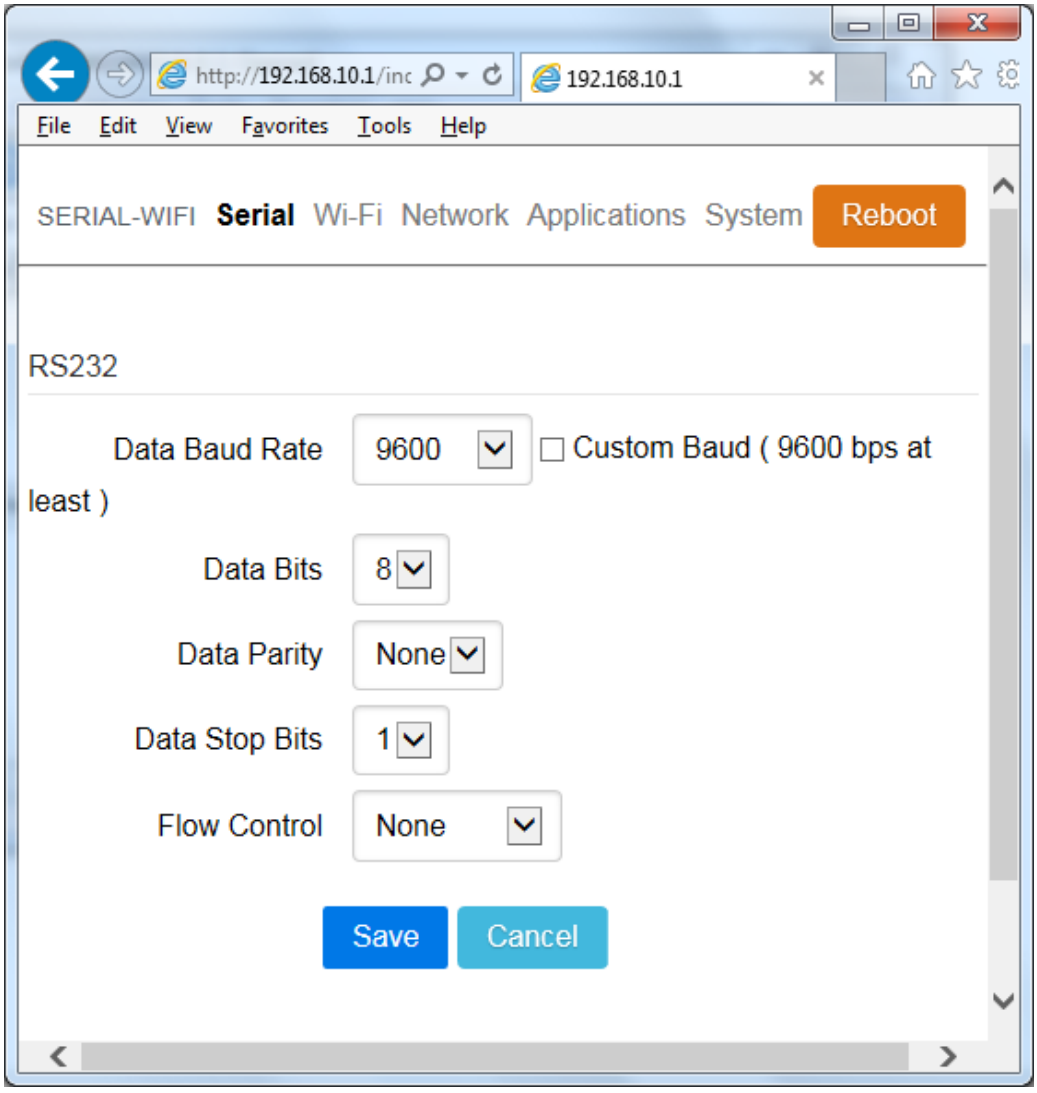
The correct way to change and save parameters:

NOTICE: If you are having problems changing the parameters then use Firefox browser instead of Internet Explorer.

1. Change the particular parameter to the value you need and click the Save button. The text "*Saved. Reboot required for the changes to take effect*" should appear at the bottom of the screen. Wait a few seconds.
2. Now click "Reboot" and wait about 10 seconds. The adapter is now rebooting and re-connecting to WiFi automatically if you have enabled “Connect automatically” in Windows WiFi Manager.
3. Now refresh the browser page by clicking the refresh icon in your browser (or press F5).

If you are having problems connecting to the adapter over WiFi try and disable your firewall software.

You should now be able to see the changed baud rate and also select other menu links etc. Below are screenshots of the configuration pages:



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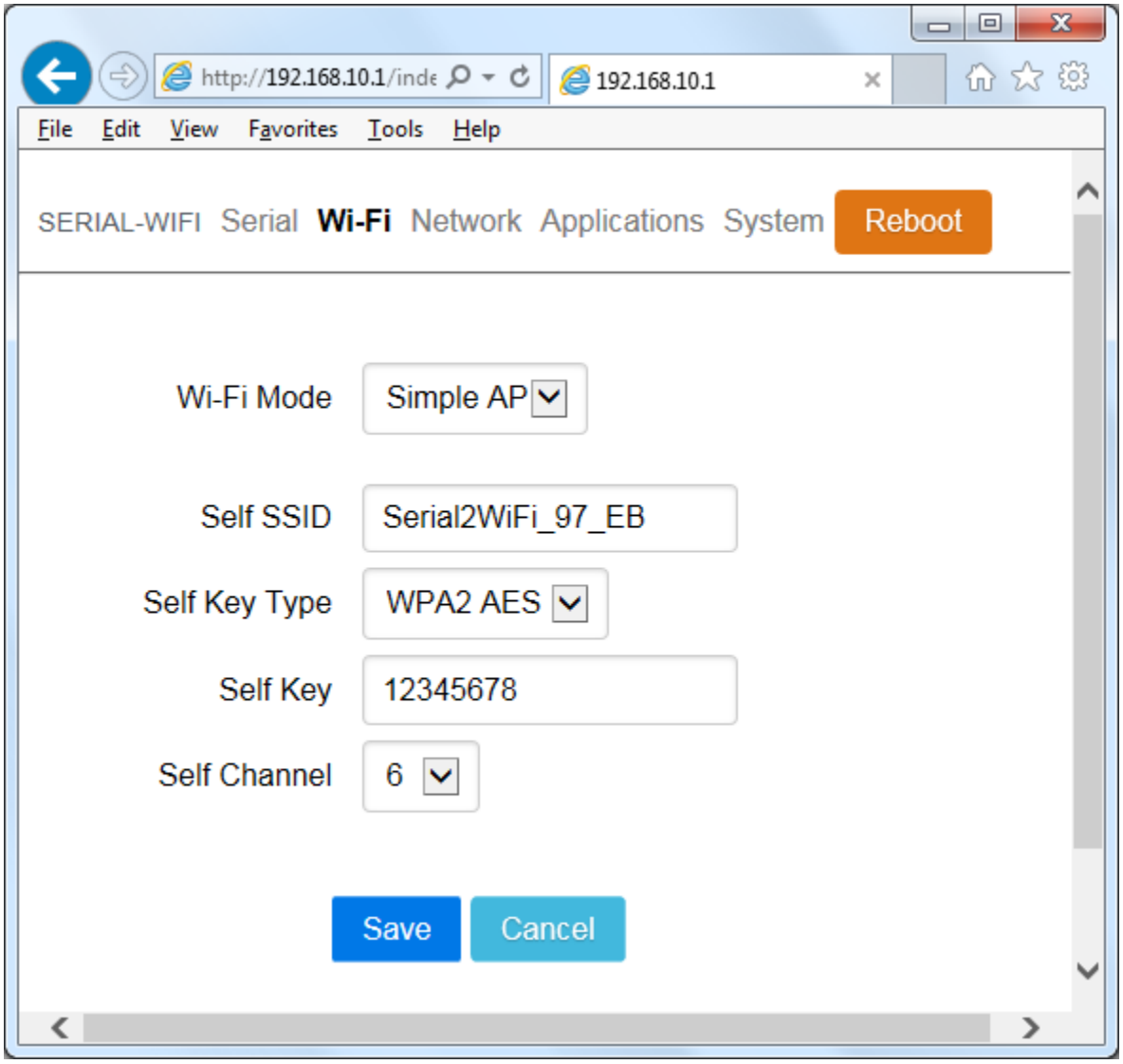

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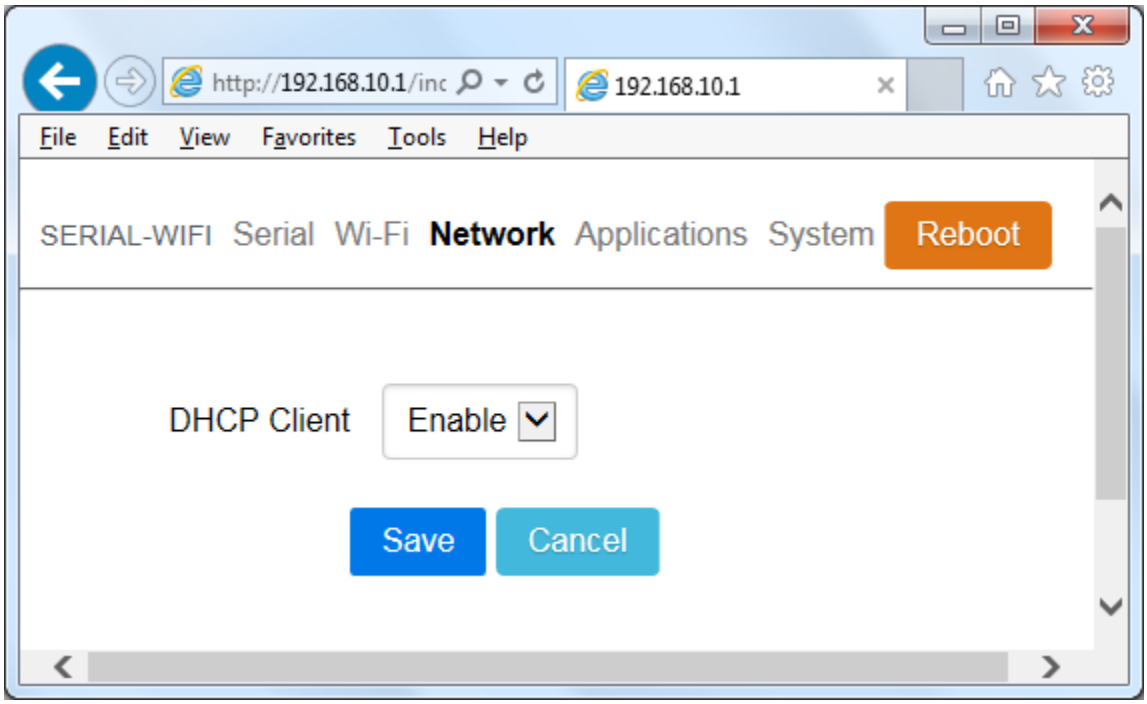

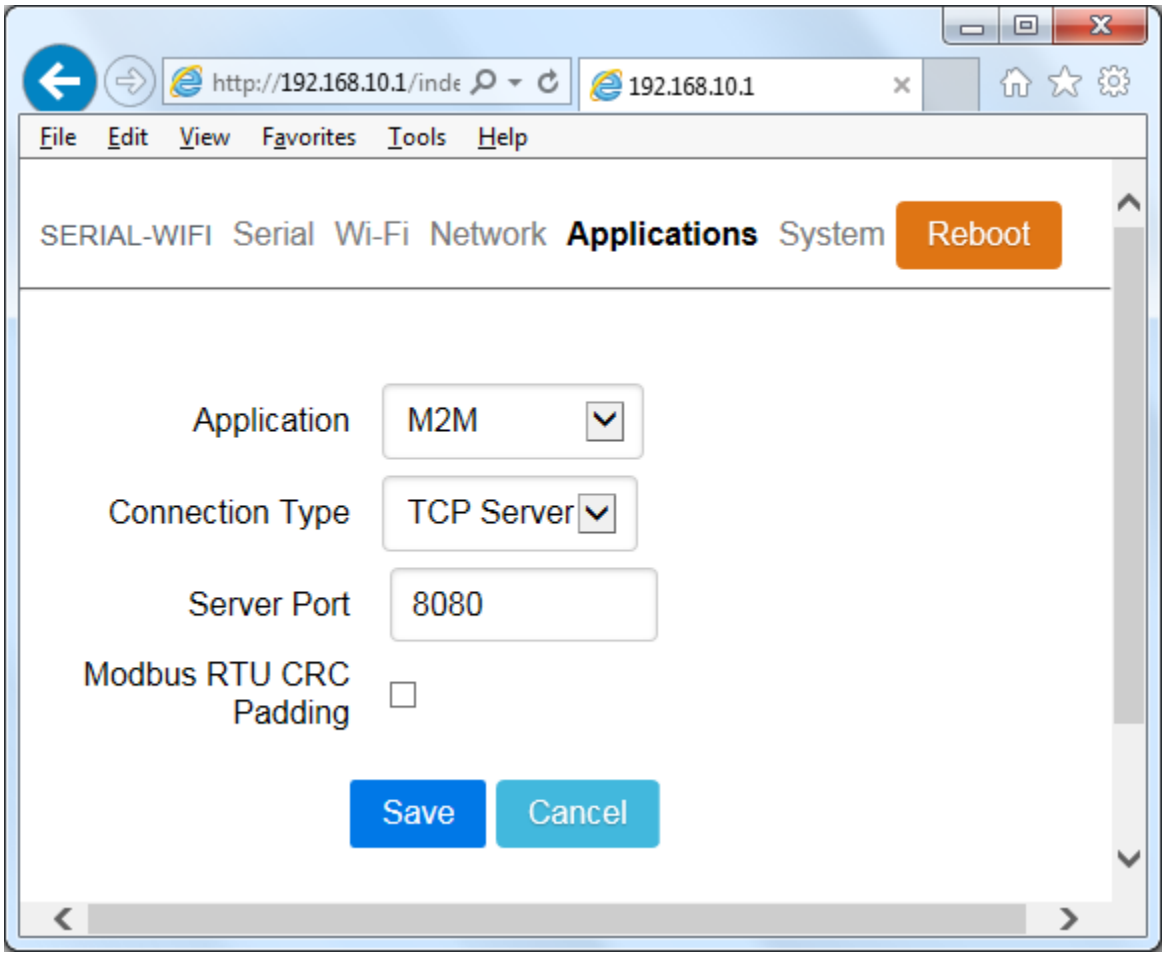

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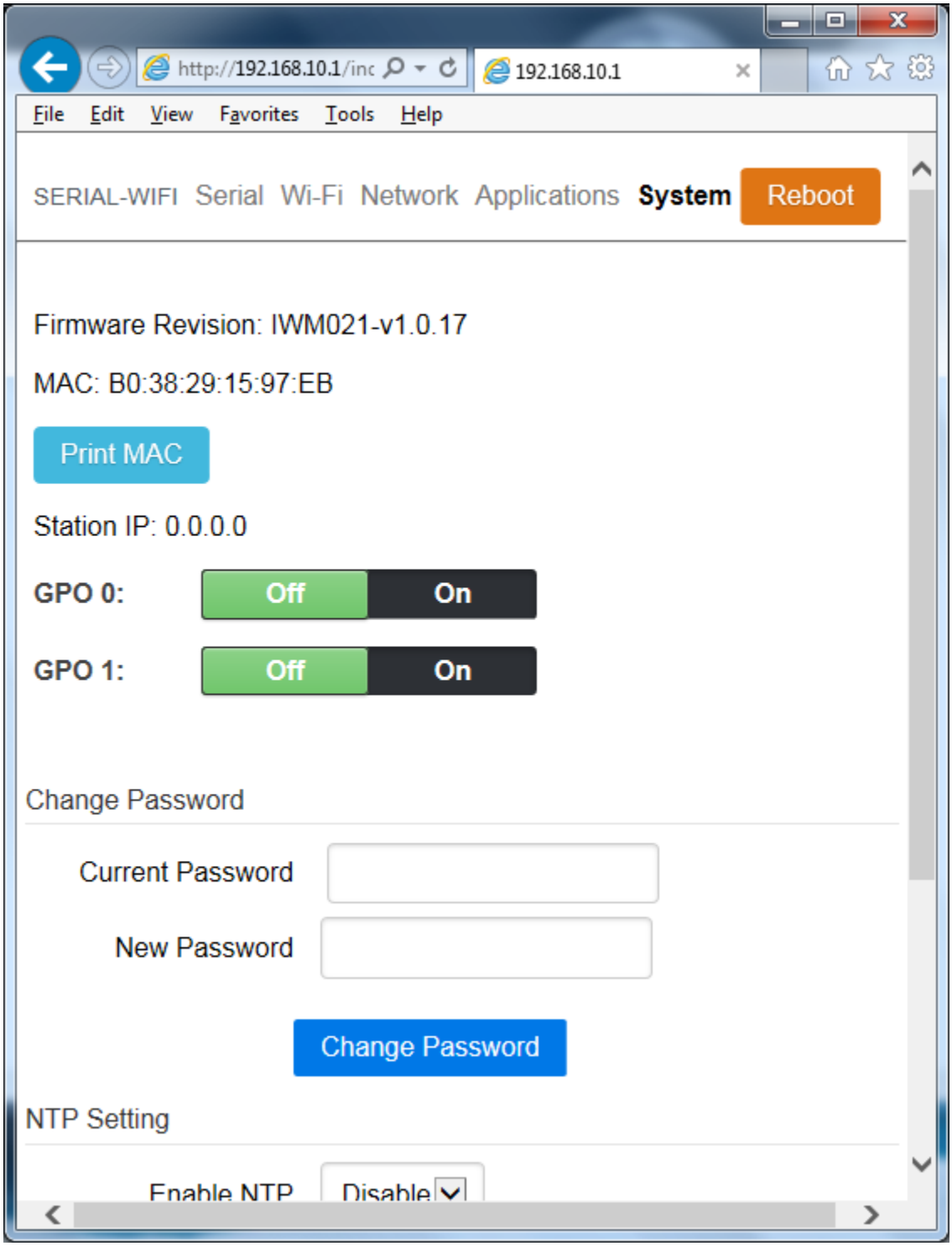

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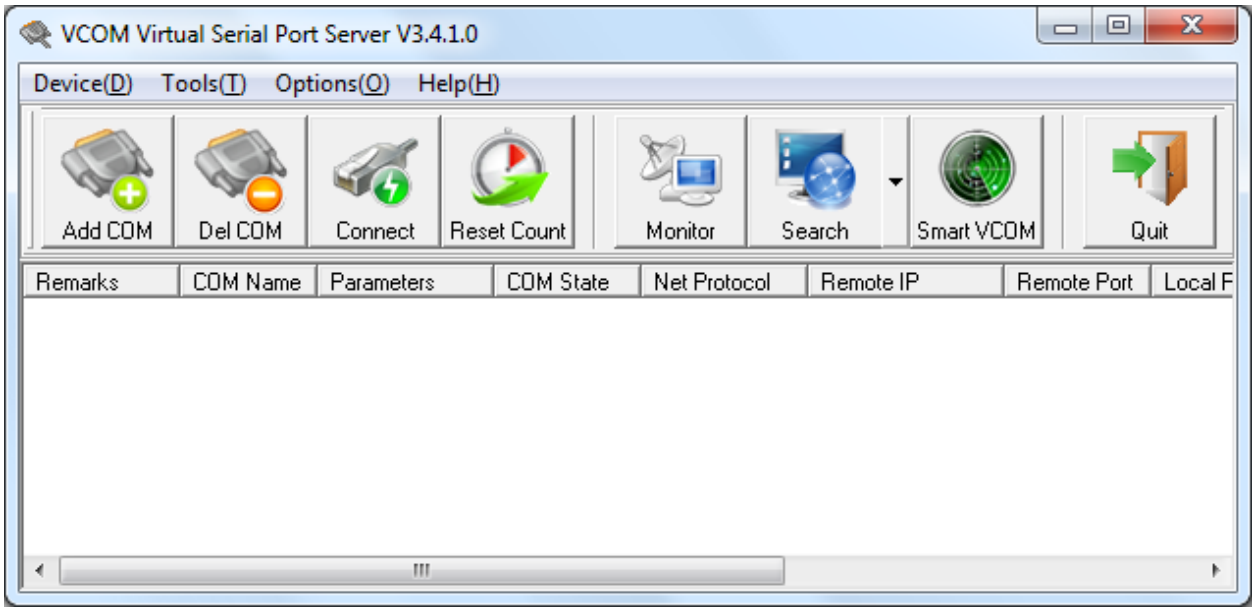
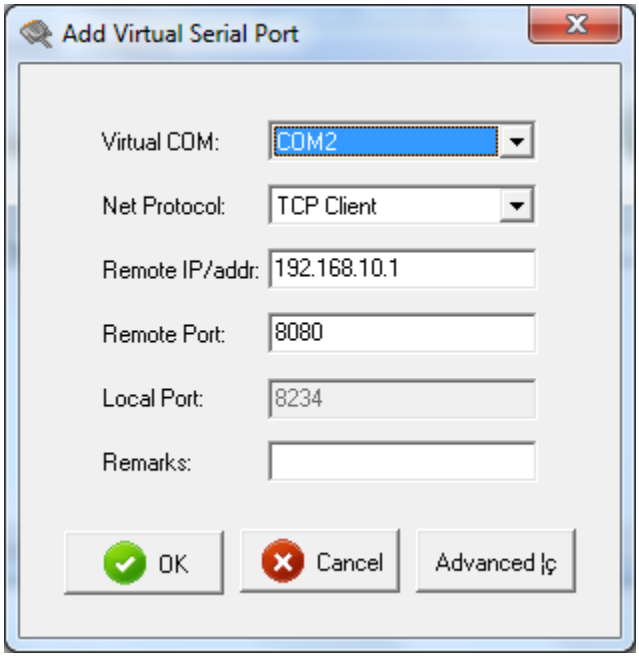
Creating a Virtual COM Port

For creating a virtual COM port we recommend using the virtual COM port software called USR-VCOM (downloadable for free from www.usconverters.com).

Install USR-VCOM, start the software and click the “Add COM” button:



Enter UCW232C’s IP address and port number (192.168.10.1 port 8080), and click “OK”:



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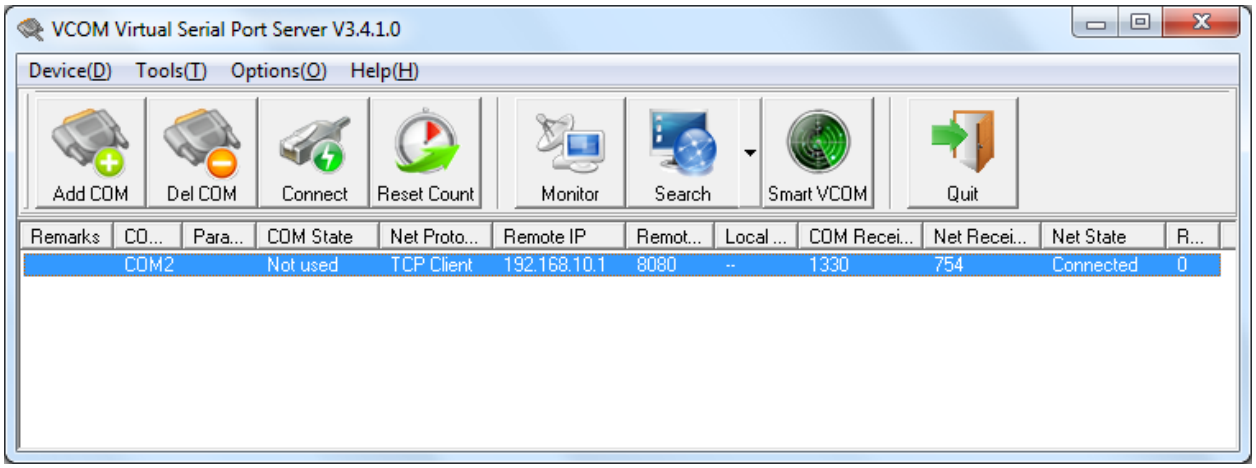
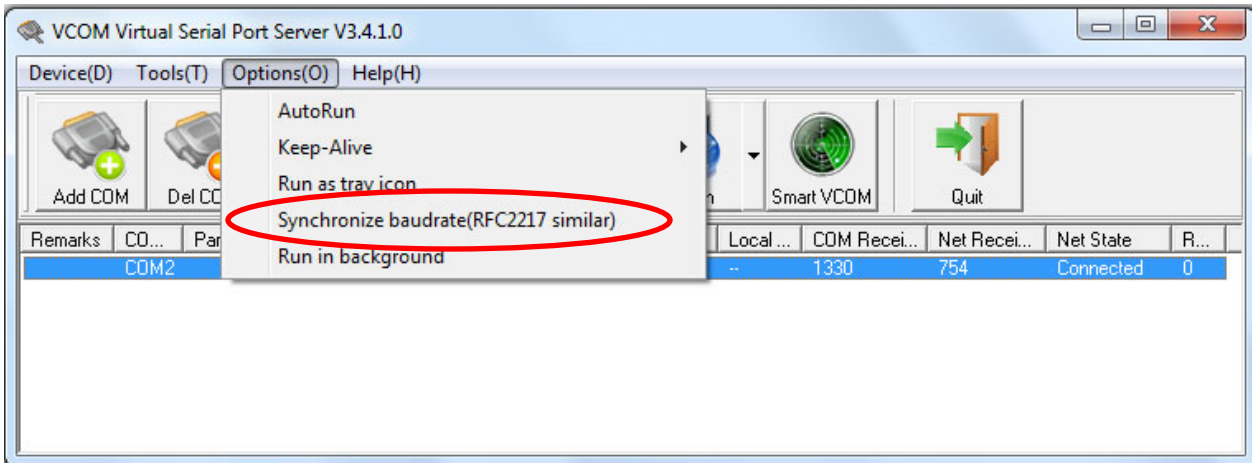
The virtual COM port should now be created:



We highly recommend disabling “Synchronize baudrate (RFC2217 similar)” in the Options menu:



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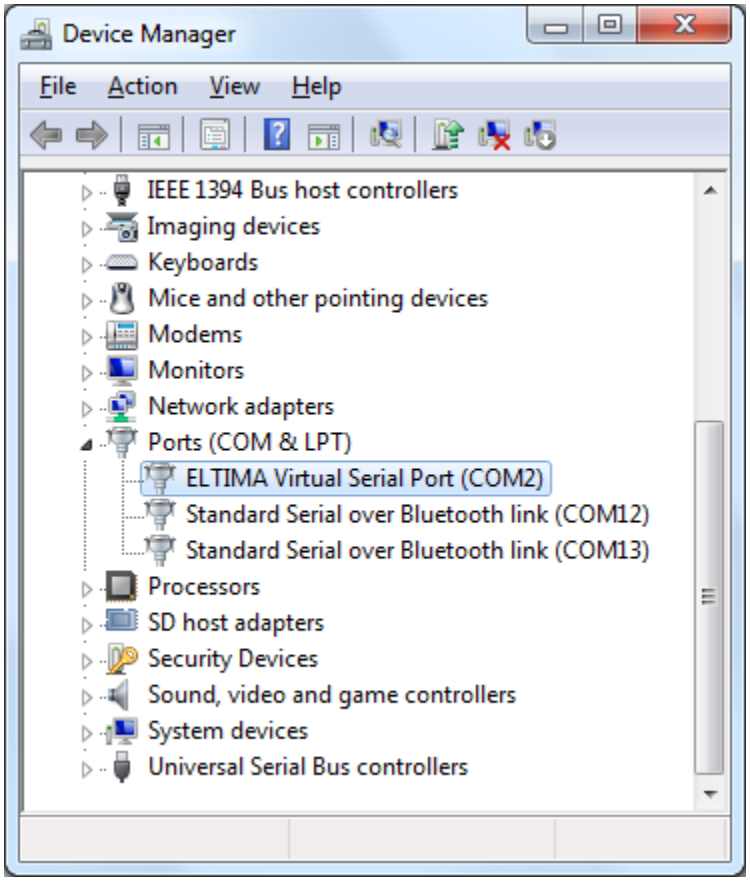
Verify in Windows Device Manager if the virtual COM port has successfully created:



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Verifying communication with a loop-back test

To check if the UCW232C can send and receive data successfully you can make a loop-back test using AccessPort (can be downloaded from www.usconverters.com).

First carefully loop-back the TX pin (pin 2) to the RX pin (pin 3) on the DB9 connector of the UCW232C by placing a jumper (for example a paperclip) between the TX and RX pins:

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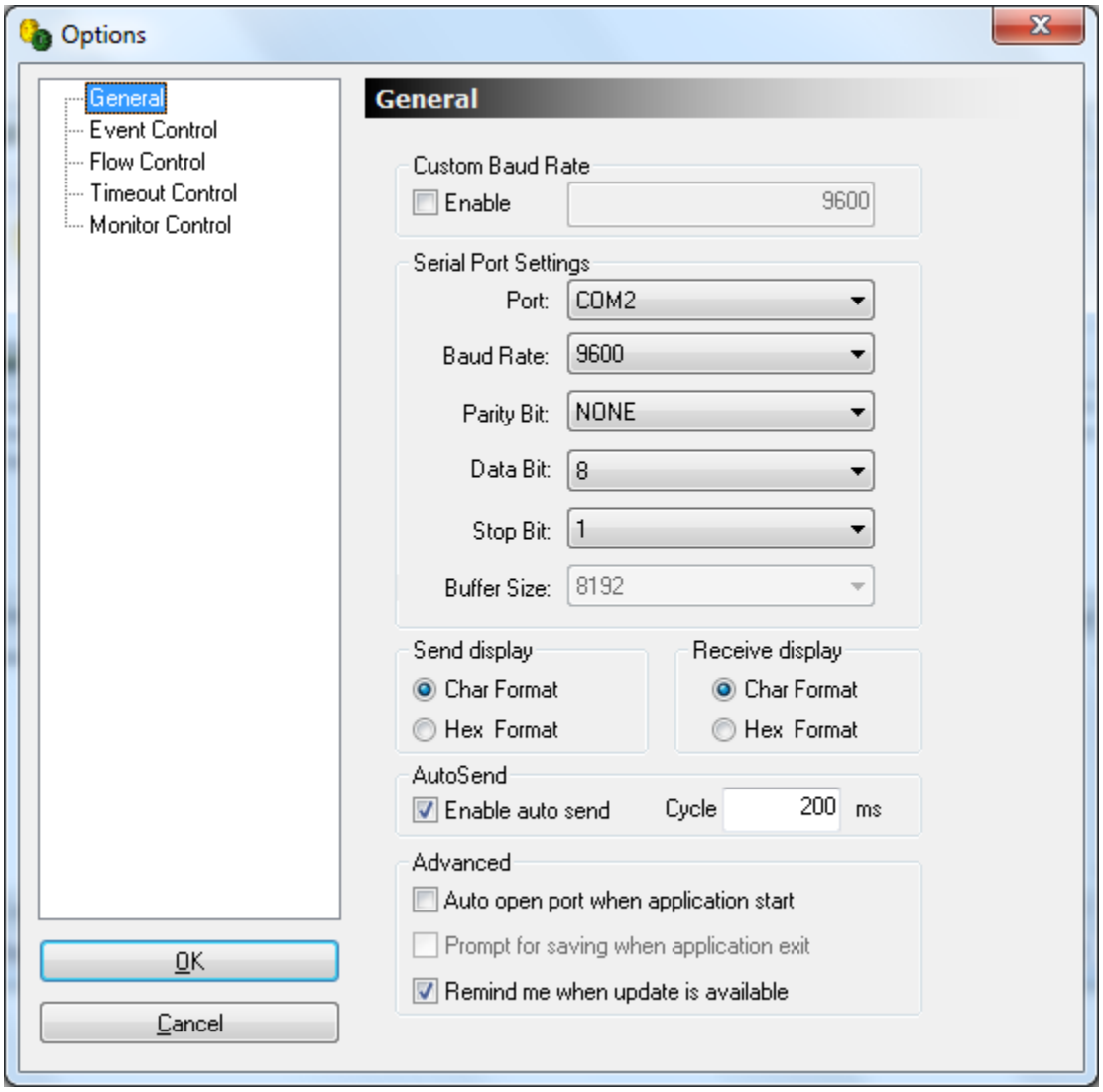
Open AccessPort (downloadable from www.usconverters.com) and set the parameters to match the UCW232C's port parameters:



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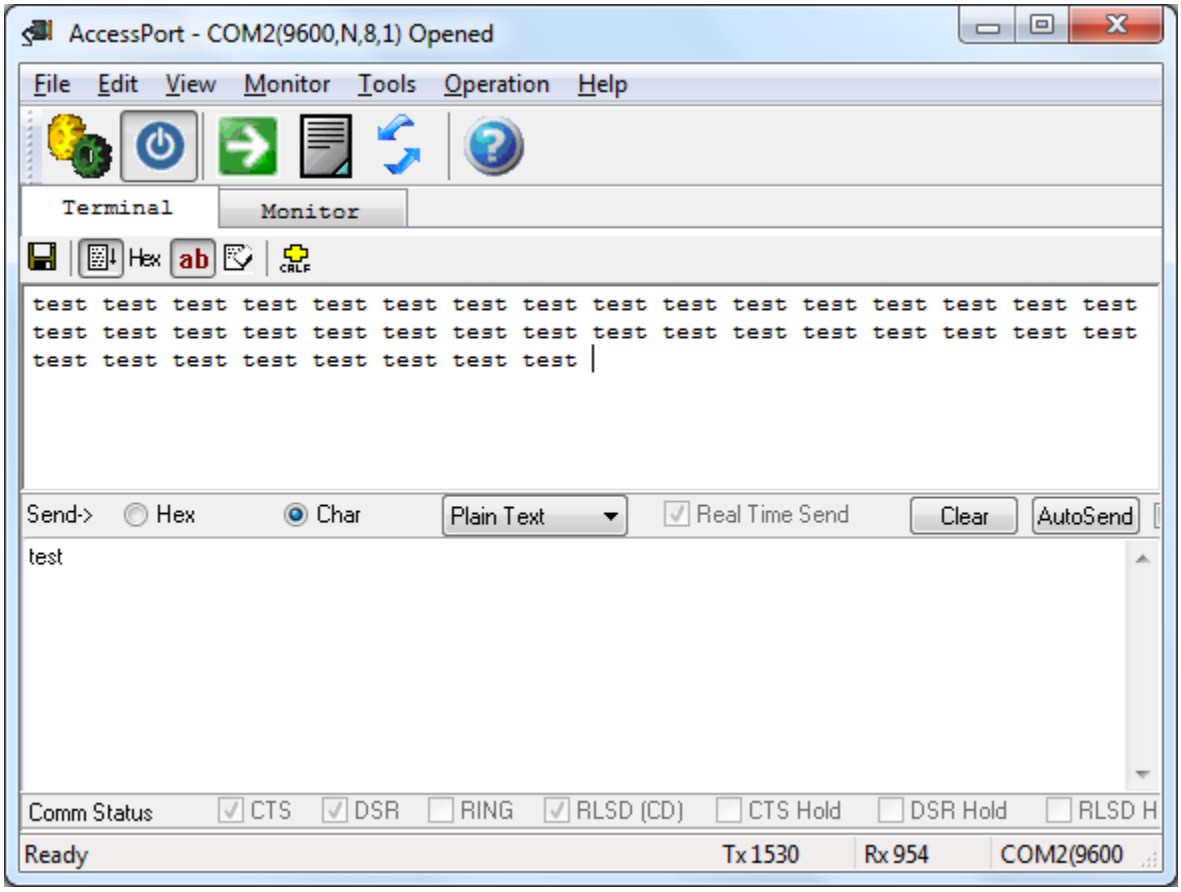
Enter a text string in the lower (send) window.

Click the “ON” button to open the COM port.

Click “AutoSend”. The text string should now be sent to the UCW232C, out on the TX pin and back through the jumper on the RX pin and appear in the upper (receive) window:



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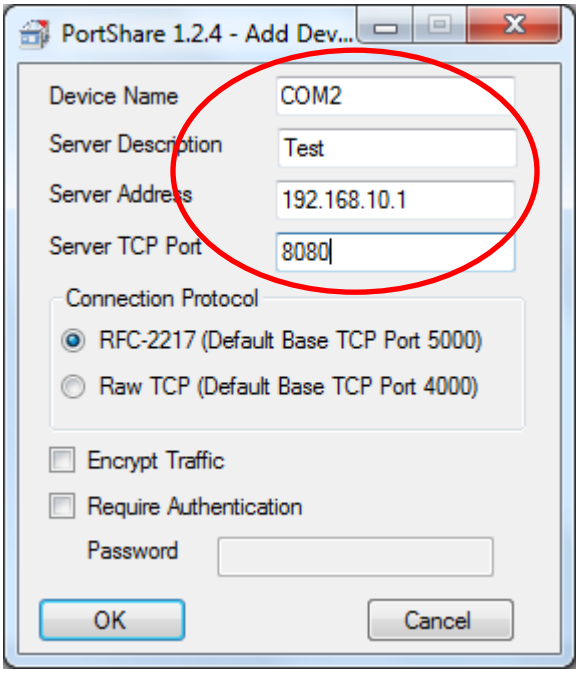
Creating a virtual COM using PortShare

PortShare is an alternative 3rd party virtual COM software which can be used for creating the virtual COM port. PortShare can be downloaded for free from www.usconverters.com.

First make sure that the UCW232C has joined the network.

Start PortShare and enter the settings of the UCW232C as shown below:



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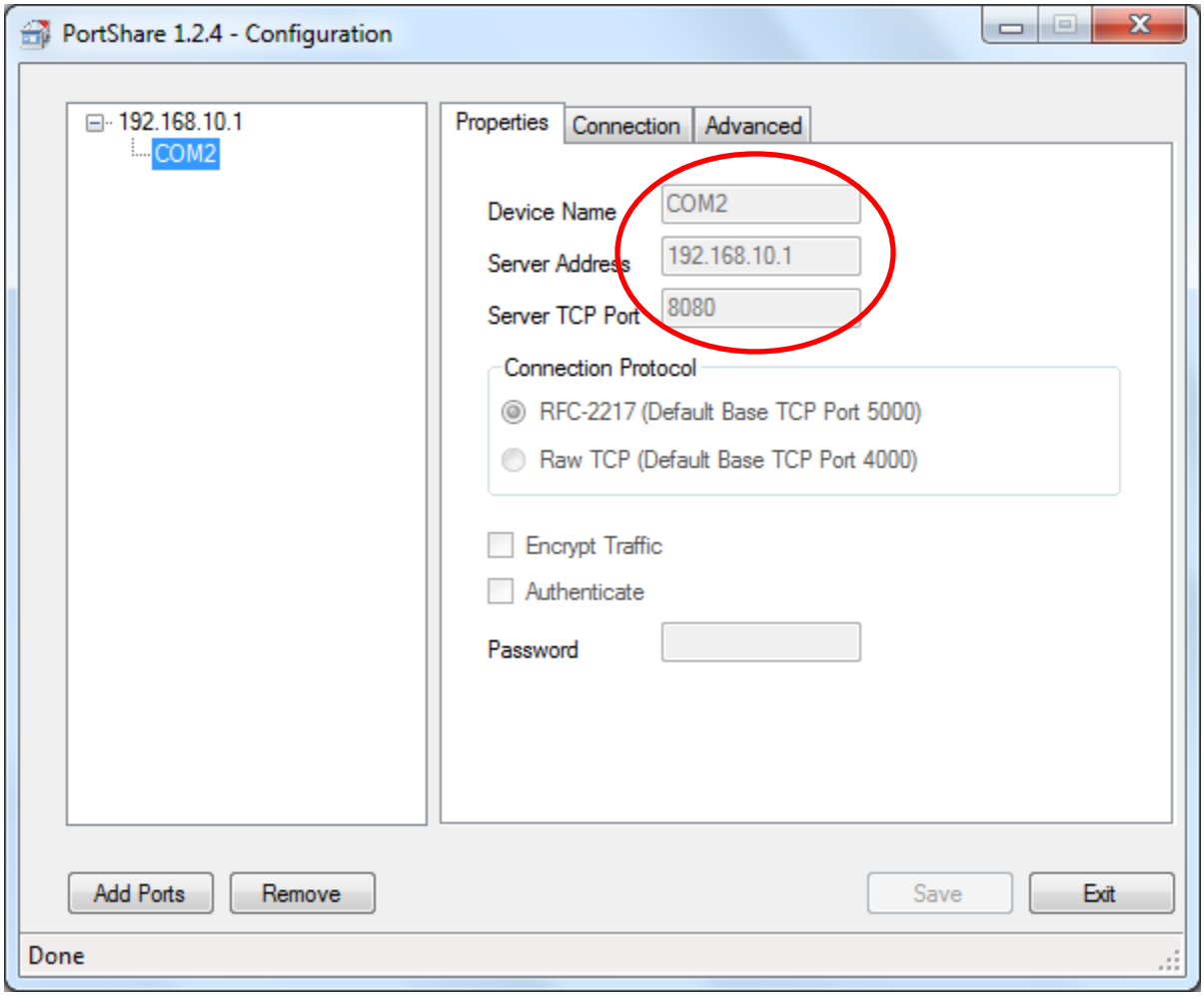
Default settings can usually be used without problems. PortShare will in this example create COM 2:



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Alternative compatible Virtual COM/TCP software is:

Fabulatech Serial Port Redirector: http://www.fabulatech.com/serial-port-redirector.html

and

Eltima Serial over Ethernet: http://www.eltima.com/products/serial-over-ethernet/

These alternative solutions are good products and offers a 30 day trial period.

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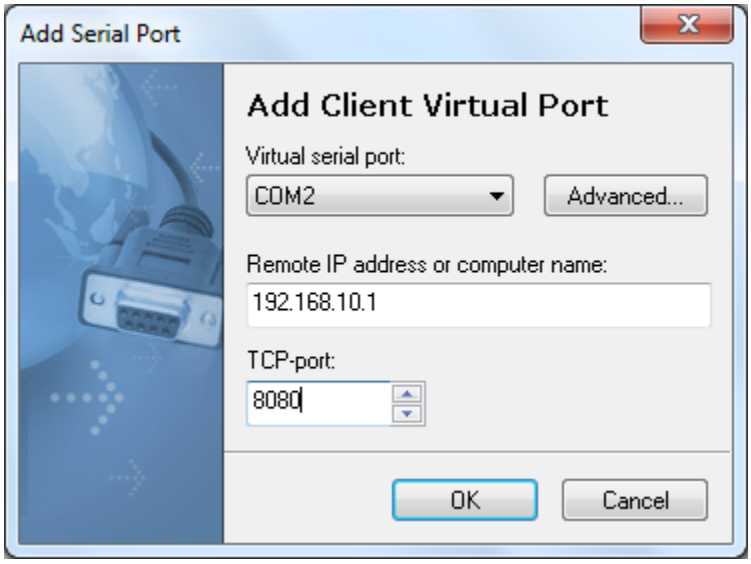
Creating a virtual COM port using Fabulatech

Fabulatech COM port redirector is compatible with the UCW232C and an excellent alternative software for creating a virtual COM port.
A 15-day trial software can be downloaded from www.usconverters.com or www.fabulatech.com.

Here is a quick overview for how to use the Fabulatech COM port redirector with the UCW232C.

Install and start the Fabluatech software.
Enter the COM port number and the IP address of the UCW232C. All other settings can be left to default:



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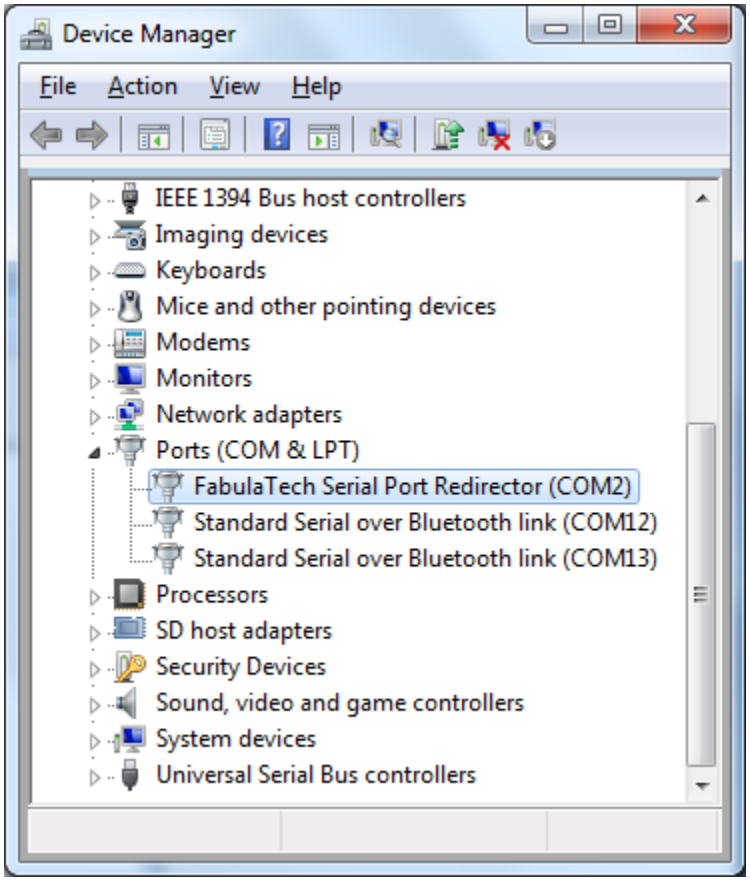
The COM port is now available in Windows Device Manager:



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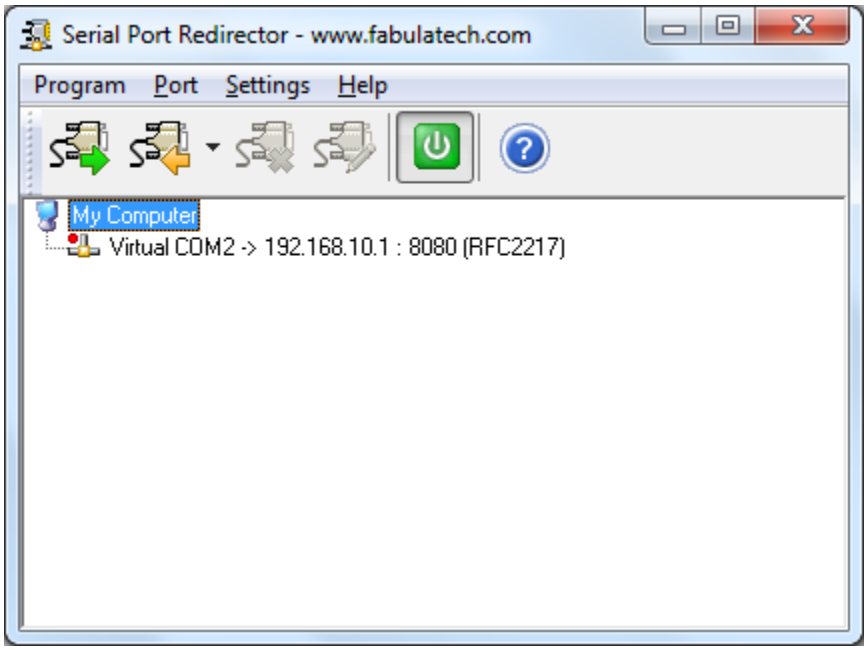
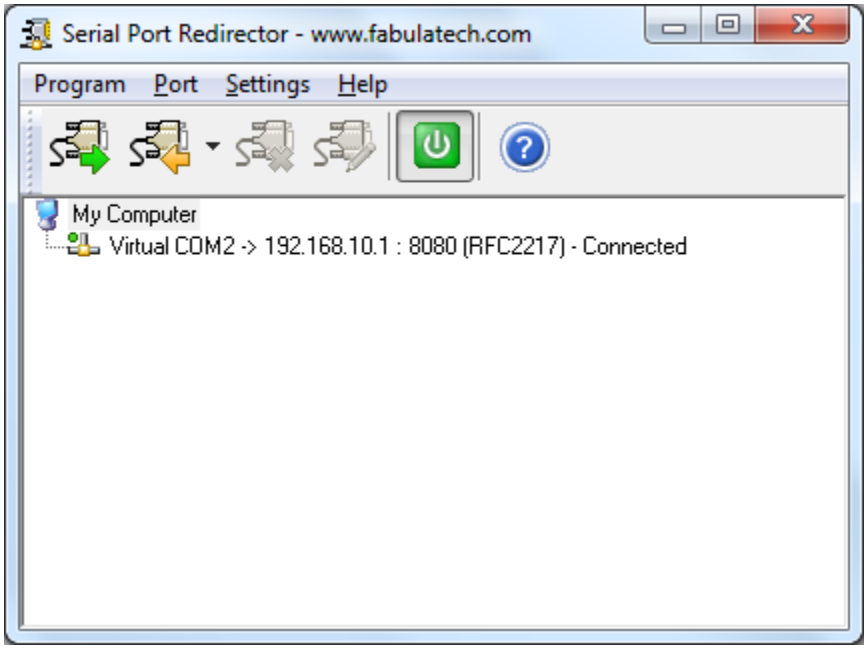
A small red dot next to the COM port indicates that the port is closed:



The small green dot next to the COM port indicates that the port is open:



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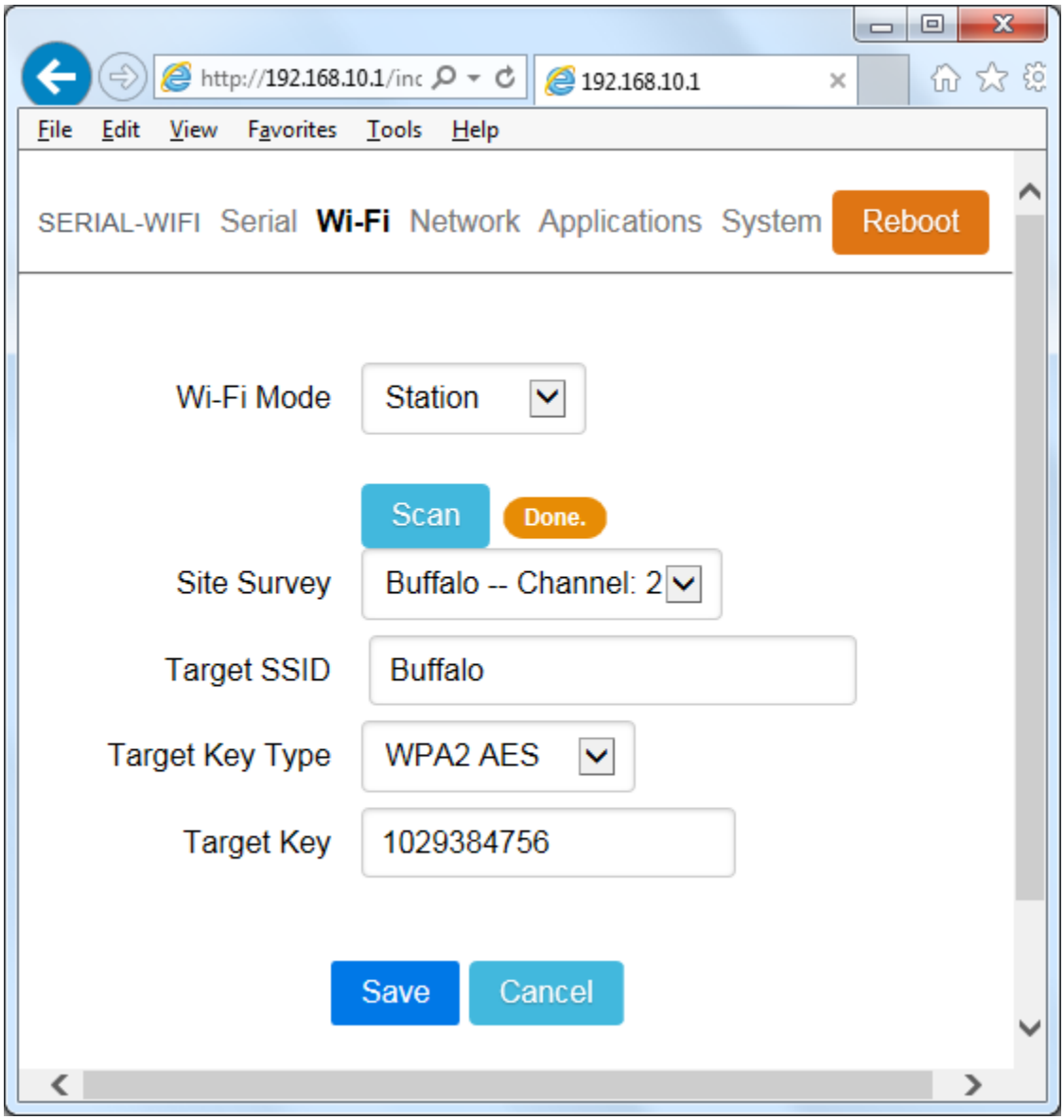
Connecting using a wireless router

Before you can use your wireless router to communicate with the serial WiFi adapter you first need to configure the adapter as an infrastructure device, also called Station Mode. Please follow the instructions below.

Reset the adapter to make sure it has all default settings. Login to the adapter via an access point. Once you have logged in, go to the "Wi-Fi" menu and change the WiFi Mode to "Station". Then click the "Scan" button to scan for a wireless router. Select the wireless router once the adapter finds it and then select the security protocol and enter the password. Click "Save" and "Reboot" and then power cycle the adapter.



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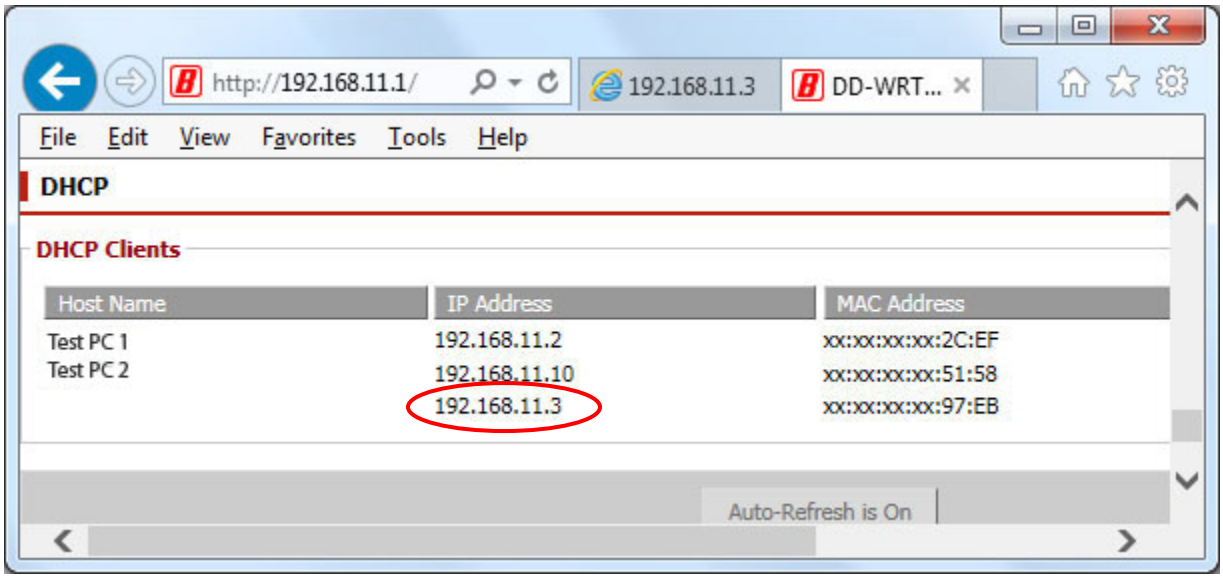
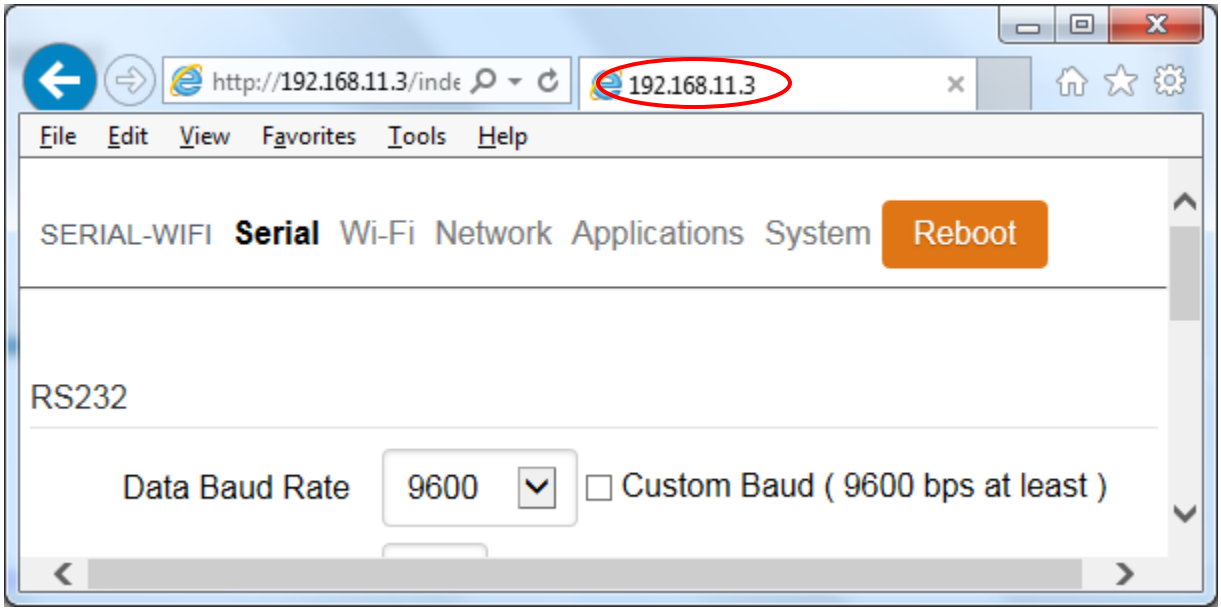
After the adapter restarts from the power cycle the wireless router will assign an IP address to the adapter. You now need to find out which IP address has been assigned to the adapter. The easiest way is to login to your wireless router's status page to see which IP address has been assigned:



Since our wireless router in this case has an IP address in the 192.168.11.xx range the IP address assigned to the adapter is 192.168.11.3. We can now login to the UCW232C:



If logging into your wireless router is not an option then you can use an IP Scanner to find the UCW232C. We recommend "Advanced IP Scanner" http://www.advanced-ip-scanner.com/ which is free and easy to use.

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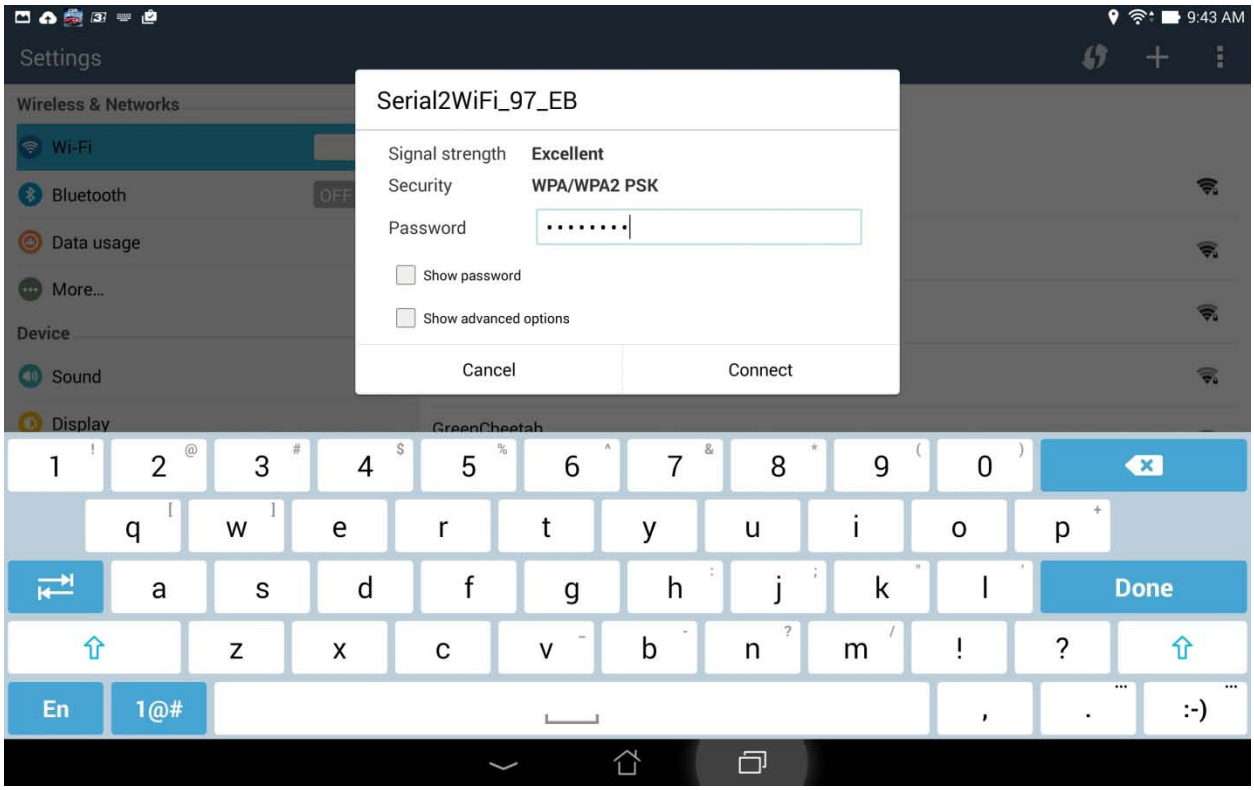
Connecting with Android

Connecting and communicating with the UCW232C using an Android tablet is easy. Simply search for the UCW232B using the tablet's built-in WiFi manager and connect to the UCW232C:



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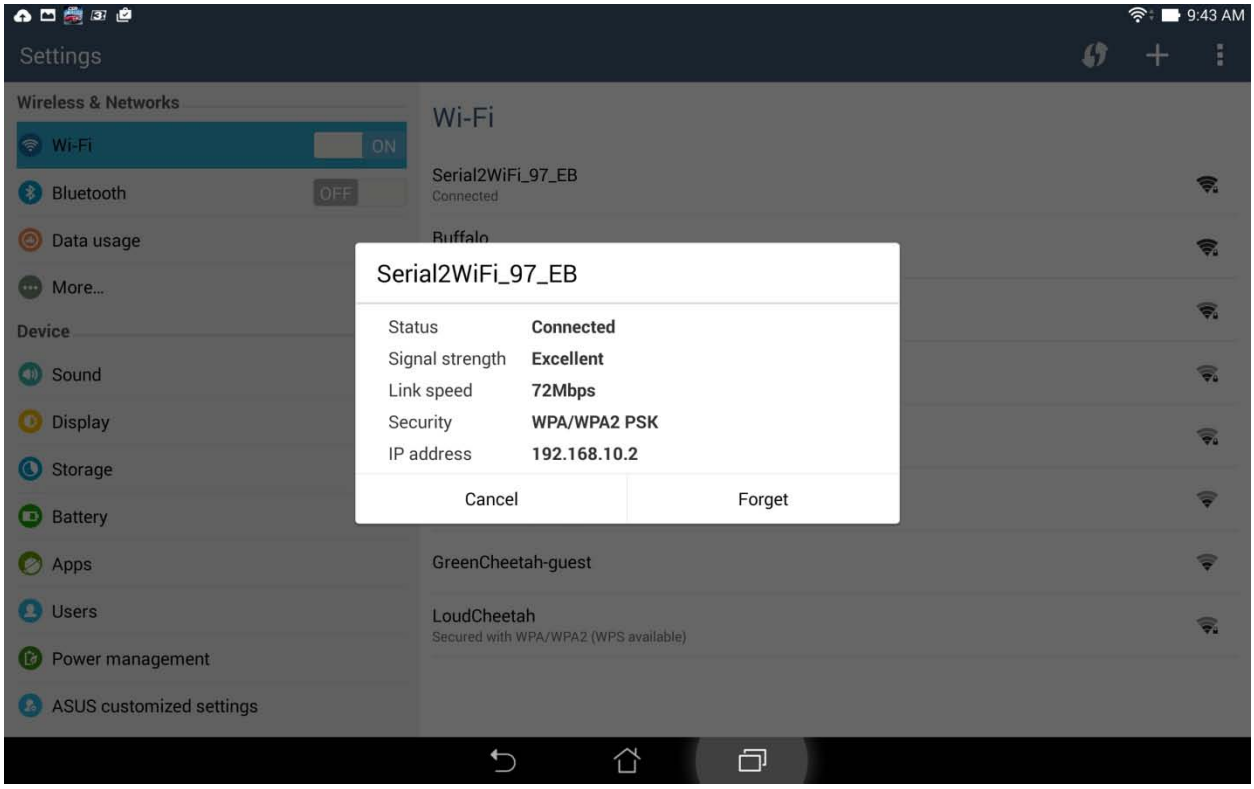
The UCW232C is now connected to the Android tablet.



Most of the free serial terminals are compatible with the UCW232B, simply search the Google Play Store for “Serial Terminal”, see what is available and experiment with the various terminals until you find one you like.

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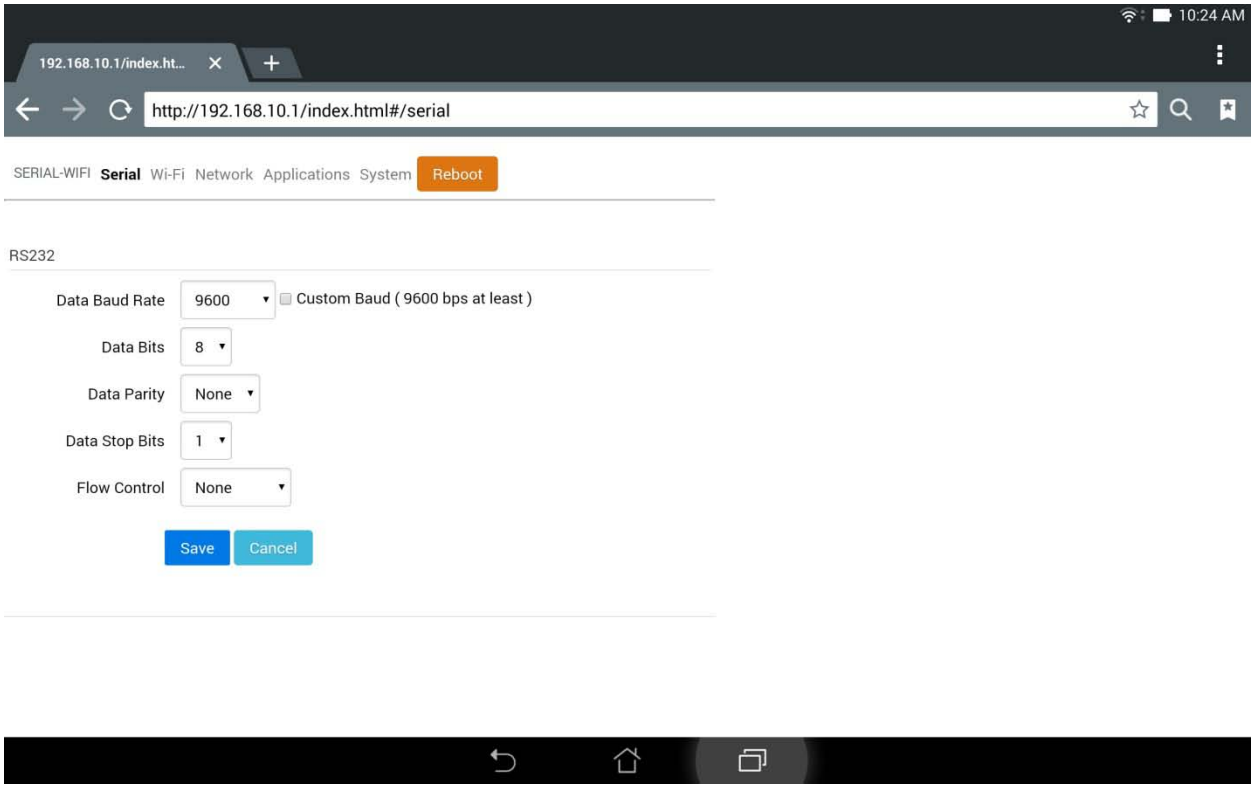
You can connect to the UCW232C by using a web-browser:



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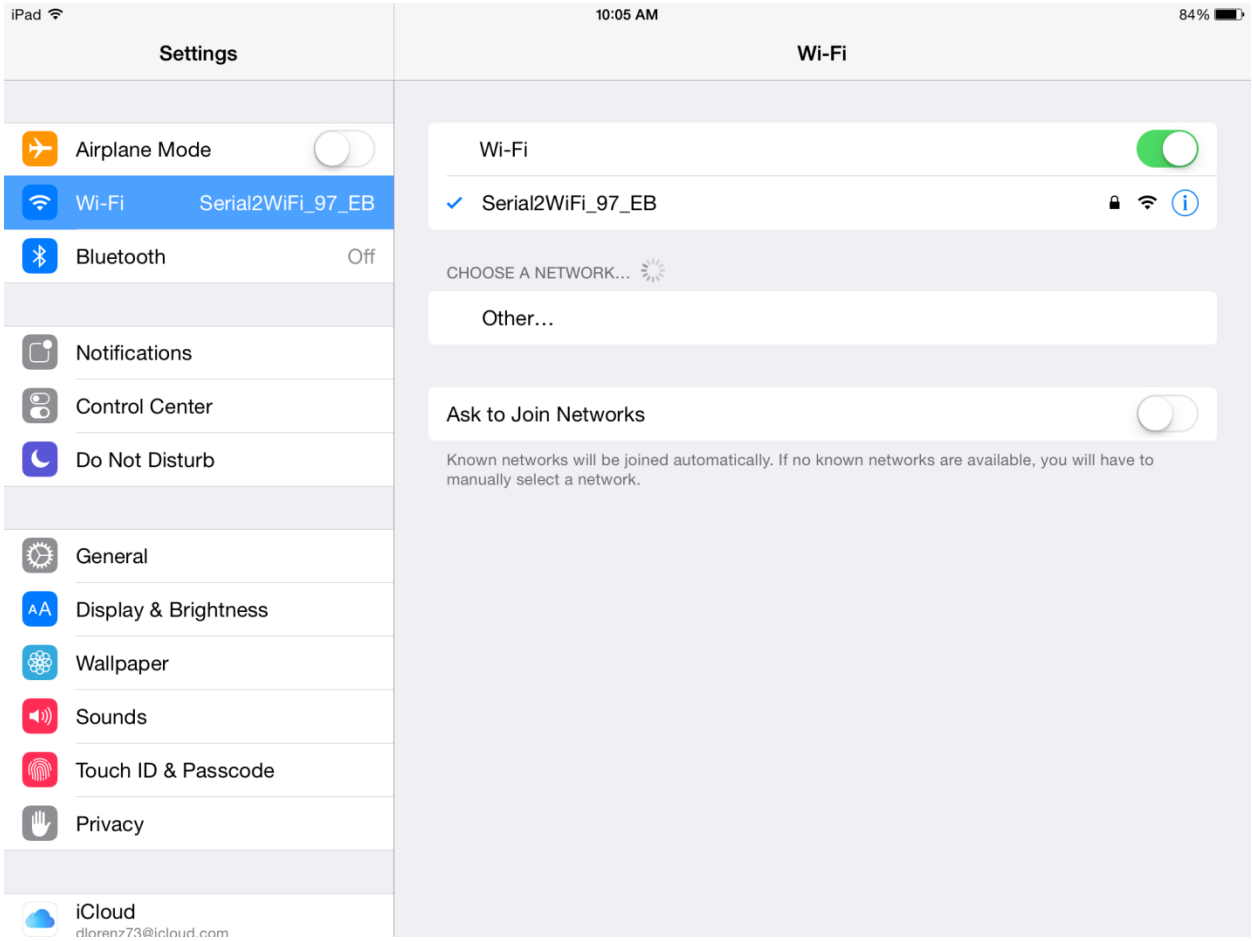
Connecting with iOS

Connecting and communicating with the UCW232C using an iPad table is easy. Simply search for the UCW232B using the tablet's built-in WiFi manager and connect to the UCW232C:



Most of the free serial terminals are compatible with the UCW232B, simply search the Apple App Store for "Serial Terminal", see what is available and experiment with the various terminals until you find one you like.

A free terminal emulator APP for iOS is offered from the iTunes store:
https://itunes.apple.com/WebObjects/MZStore.woa/wa/viewSoftware?id=1063937265&mt=8

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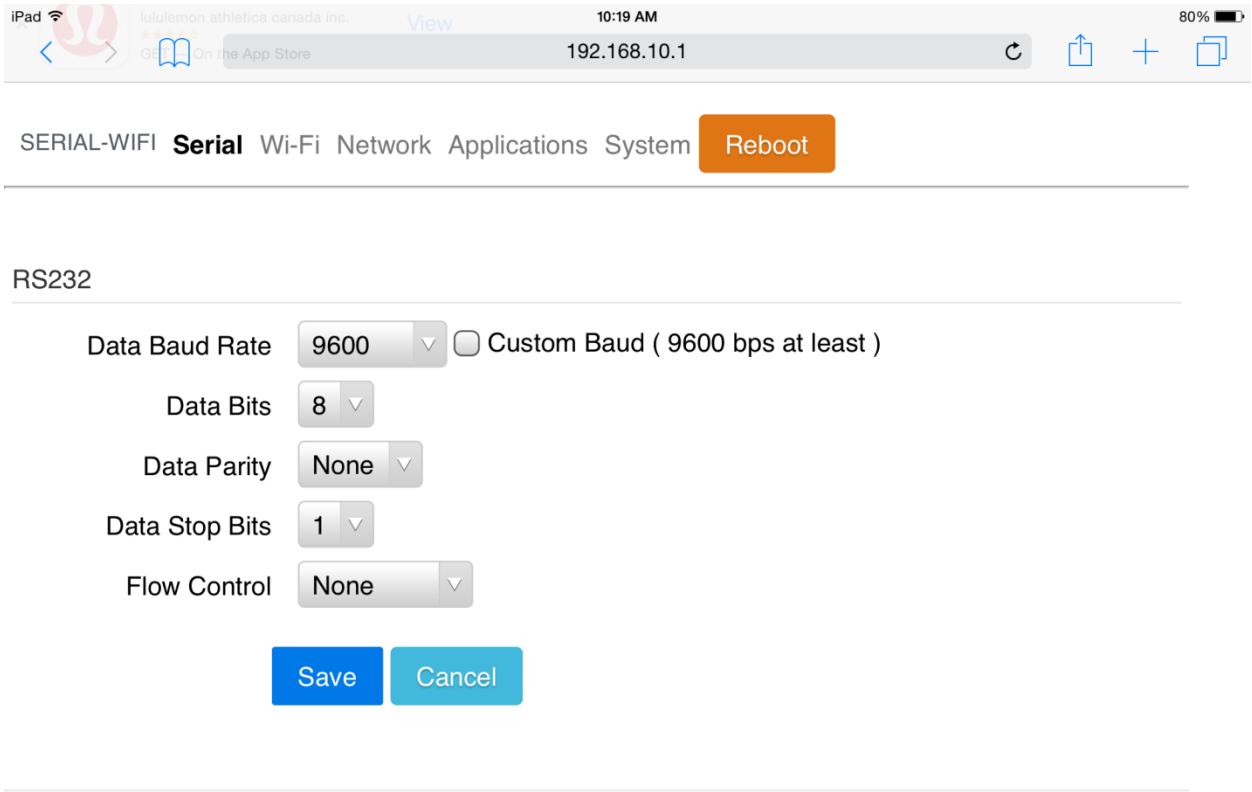
You can connect to the UCW232C by using a web-browser:



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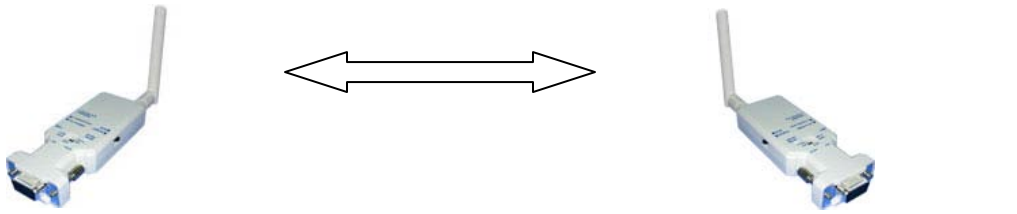
Point-to-Point Communication with a Pair of UCW232C's

The UCW232C can be configured to communicate in pairs between two serial ports, also called point-to-point communication.



Server in Simple AP mode (Default)

Client in Infrastructure/Station mode

We need to setup one adapter as a server in Simple AP mode (which it is by default) and one as a client in Station mode.

Configuring the Server.
There is nothing to configure on the server. All default parameter values can be used.

Configuring the Client.

Connect the other UCW232C to your computer's access point over WiFi; we will configure this adapter as the client. Login to the admin page by using a web browser (use Firefox).

Go to the "Wi-Fi" menu and select "Station" from the "Wi-Fi Mode" setting.

Turn on the *server* adapter.

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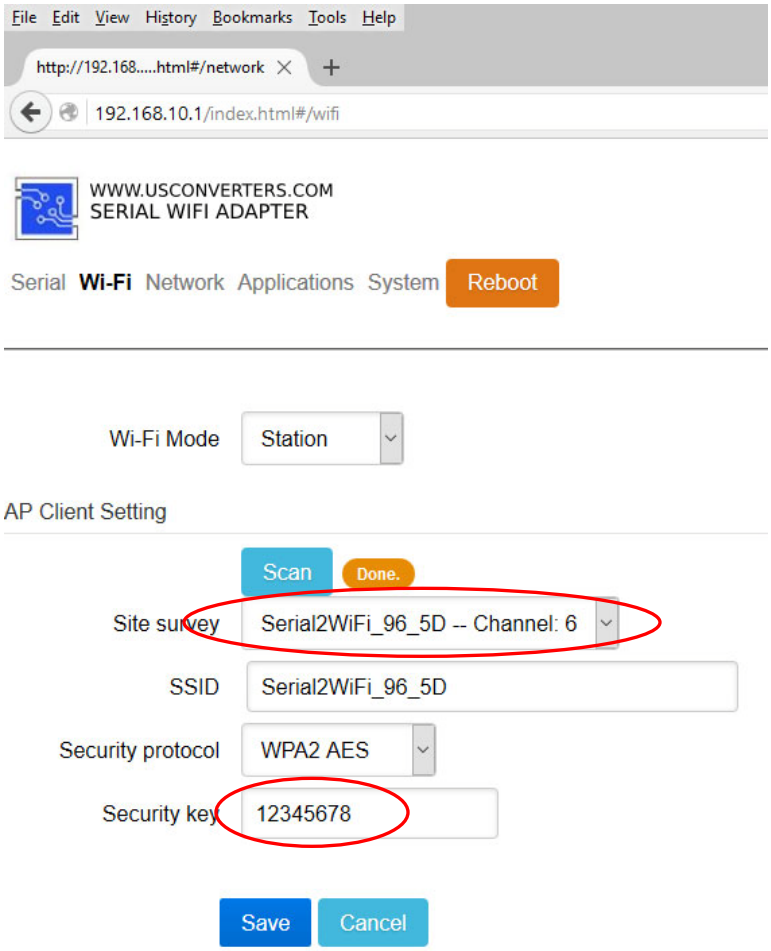
Click “Scan” and select the server adapter from the drop-down menu:



Enter the security key 12345678.

Click the “Save” button but do not yet reboot the adapter.

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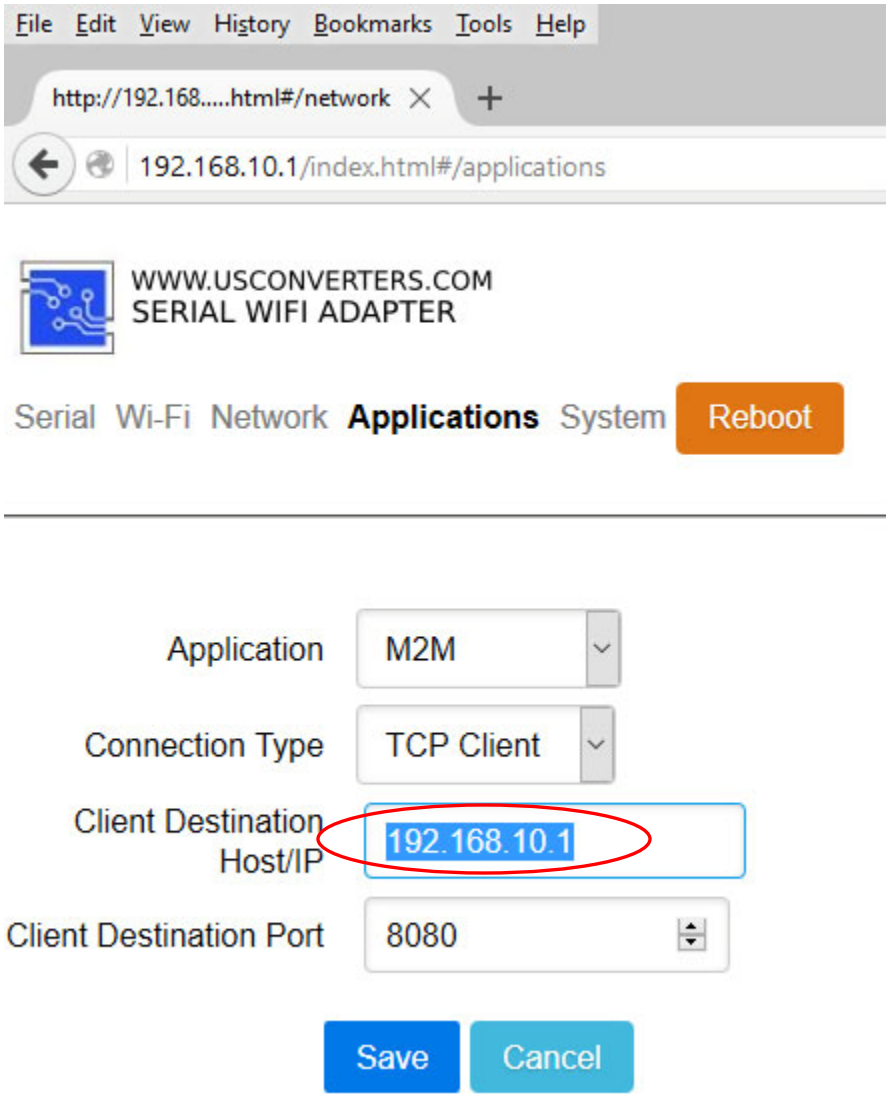
Go to the “Applications” menu and set the “Connection Type” to “TCP Client”. Enter the server adapter’s default IP address in the “Client Destination Host/IP field”: 192.168.10.1:



Click the “Save” button and also the “Reboot” button.

Now power cycle the Client adapter. Give it about 10 seconds to reboot and link with the server. It will automatically link with the server after about 10 seconds. The LED light should be solid red when they are linked. The Server and Client adapter’s can now be used to send and receive wireless data between two serial devices.

Notice: The server and client adapters cannot connect and create a link if there is data present on any of the serial ports before the link is created, so make sure the adapter’s serial port does not receive data from your serial device while they are linking.

You can link multiple clients with the server by following the instructions above.

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Troubleshooting / Known issues

Dropped connections or connection problems.

Using a serial WiFi adapter on a high traffic network with many WiFi and/or Bluetooth connections may sometimes be a challenge since all WiFi and Bluetooth devices share the same 2.4Ghz frequency. Sometimes this “noisy / busy” environment can cause problems connecting to the UCW232C or it can cause dropped connections, so here are a few things you can try to improve the situation:

1. Try changing the wireless channel.

2. Try changing the wireless data rate. Lowering the data rate may help improve time-out issues.

3. If possible try and scan the 2.4Ghz spectrum. This can for example be done by using a 3rd party software such as:

   inSSID:
   http://www.metageek.net/products/inssider/
   WiFi Stumbler:
   http://meraki.cisco.com/products/wireless/wifi-stumbler
   For Android: WiFi Analyzer APP

   Analyze the network and use the channel with the least number of other wireless devices.

4. Check the number of DHCP clients of your router if you use a wireless router. If the number of available IP addresses is less than the number of UCW232C's then they will disconnect randomly.

5. Make sure the UCW232C’s power supply is sufficient. We recommend 5VDC 1000mA USB power adapter, powered from a 120VAC-5VDC wall adapter.

6. Bandwidth of AP: If you connect using an external Access Point, please set 20 MHz bandwidth. 40 MHz may not work.

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FAQ

Q. When the UCW232C gets a 0x23 character on the serial port, it replaces that char in the TCP stream with a current timestamp of the UCW232C. Why? And how can I disable that?

A. 0x23 is the hexadecimal code for the character #. If a NTP (Network Time Protocol) server is active on your network then the # will add the timestamp to the data stream.

You can disable this by disabling the NTP server.

Federal Communications Commission (FCC) Statement
RADIO FREQUENCY INTERFERENCE STATEMENT
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS.
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED , INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
Tested to comply with FCC standards for home or office use

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