How to access a serial device over the Internet using a serial converter and a wireless router

This guide is based on the serial Wi-Fi adapter part number UCW232C and Windows 10.
The setup is also tested and confirmed working with serial Wi-Fi adapter part WF5000B and serial to Ethernet converter part XS1000 and US2000A/B. The setup for these is slightly different but the overall setup procedure is the same. Please refer to the datasheet for the specific IP's and port numbers for each product.
UCW232C, WF5000B, US2000B and XS1000 were all tested using USR-VCOM virtual COM port software (VCOM v3.6.6 NOT working with XS1000 in this setup).

The setup looks like this:

Note regarding dynamic IP addresses:
If your Internet connection has a dynamic IP address (most consumer and small business are dynamic), then you will need to request a static IP address from your Internet Service Provider. In most cases you will be able to test this setup with a dynamic IP; but once your ISP changes your IP you will no longer be able to connect to the serial device, which is why you will need a static IP.

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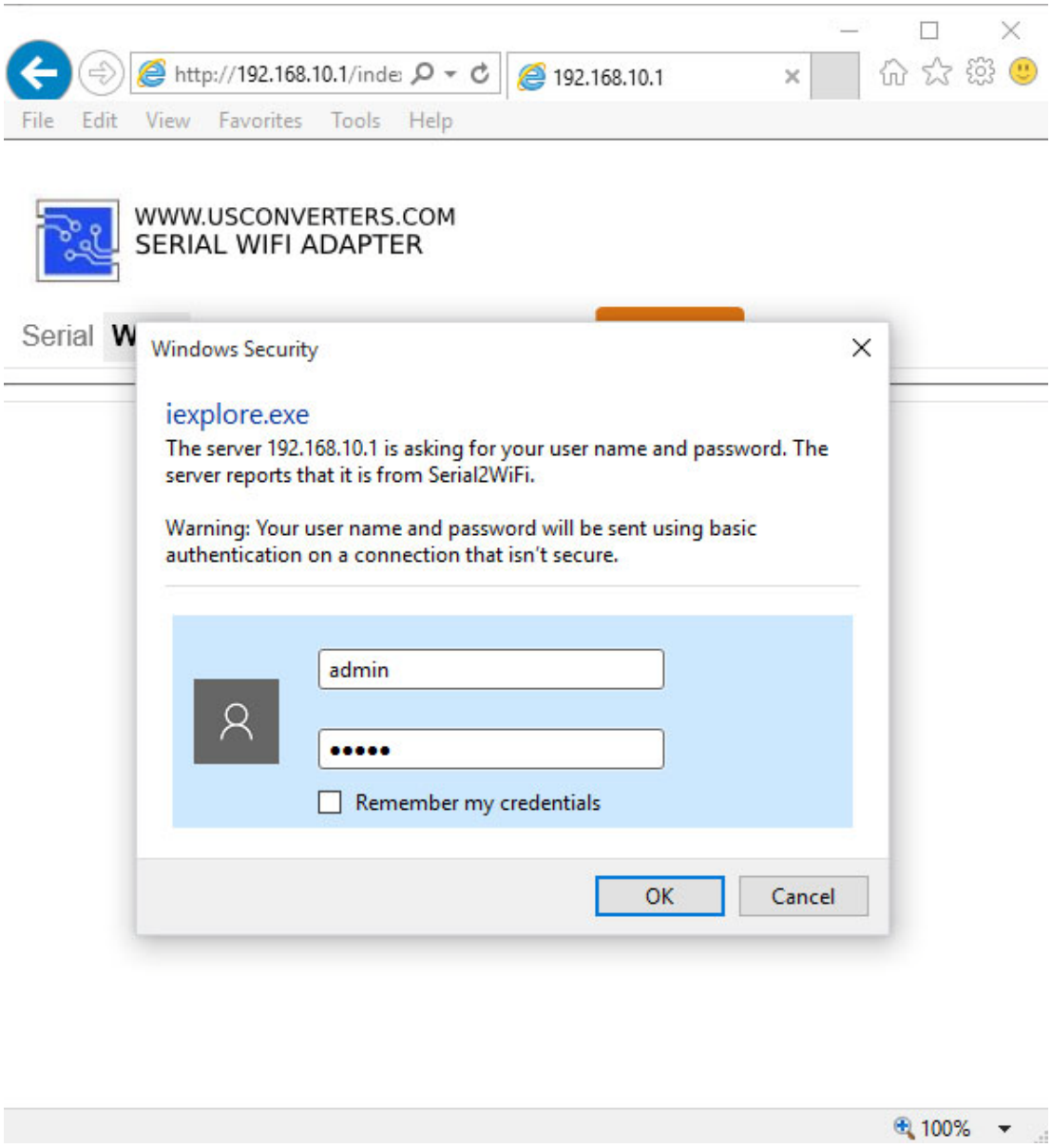
First you need to configure the UCW232C as a “Station” device. You do that by connecting to the adapter through an access point and then enter the adapter’s default IP address 192.168.10.1 in the browser as shown below:



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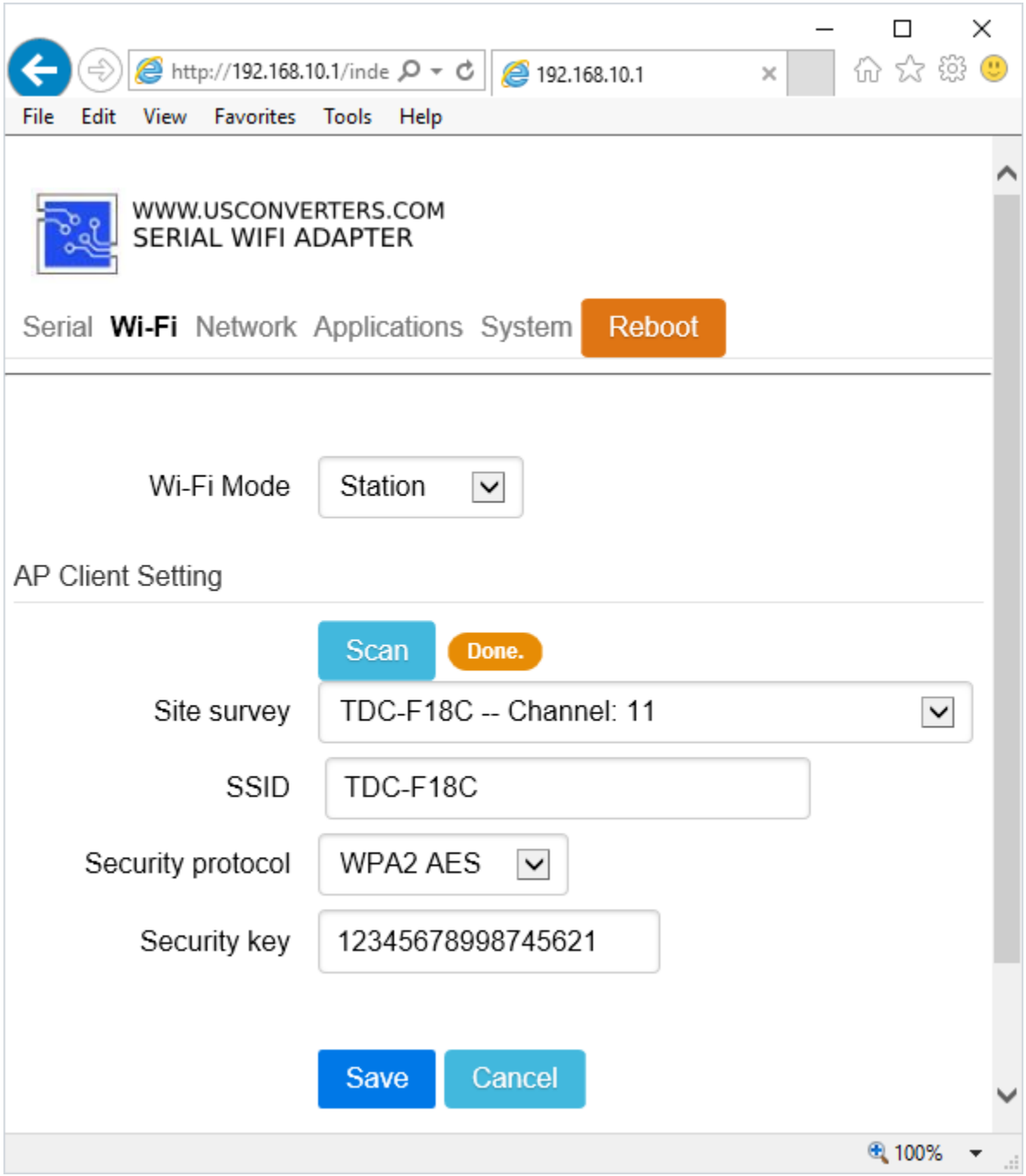
Go to the “Wi-Fi” tab and set the Wi-Fi Mode to “Station”. Click the “Scan” button and select the network you want to connect to. Enter the SSID, protocol and keyword.
Reboot the adapter by clicking the Reboot button.
(DHCP is enabled by default so you don’t need to manually enable this).



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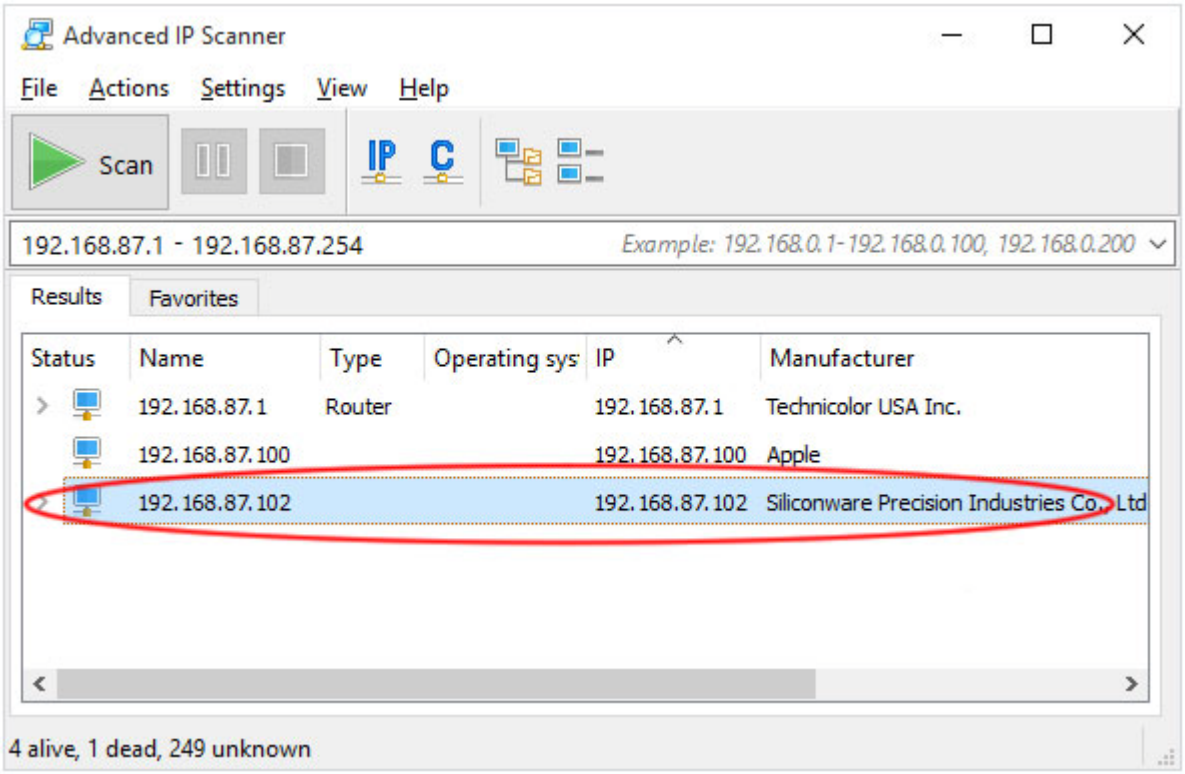
Now you need to find out which IP address your wireless router has assigned to the UCW232C. In this example we use “Advanced IP Scanner” which is a free and easy to use network scanner.

We know that our wireless router has the IP address 192.168.87.1 so we scan from 192.168.87.1 to 192.168.87.254:



We can now see that 192.168.87.102 has been assigned to the UCW232C.

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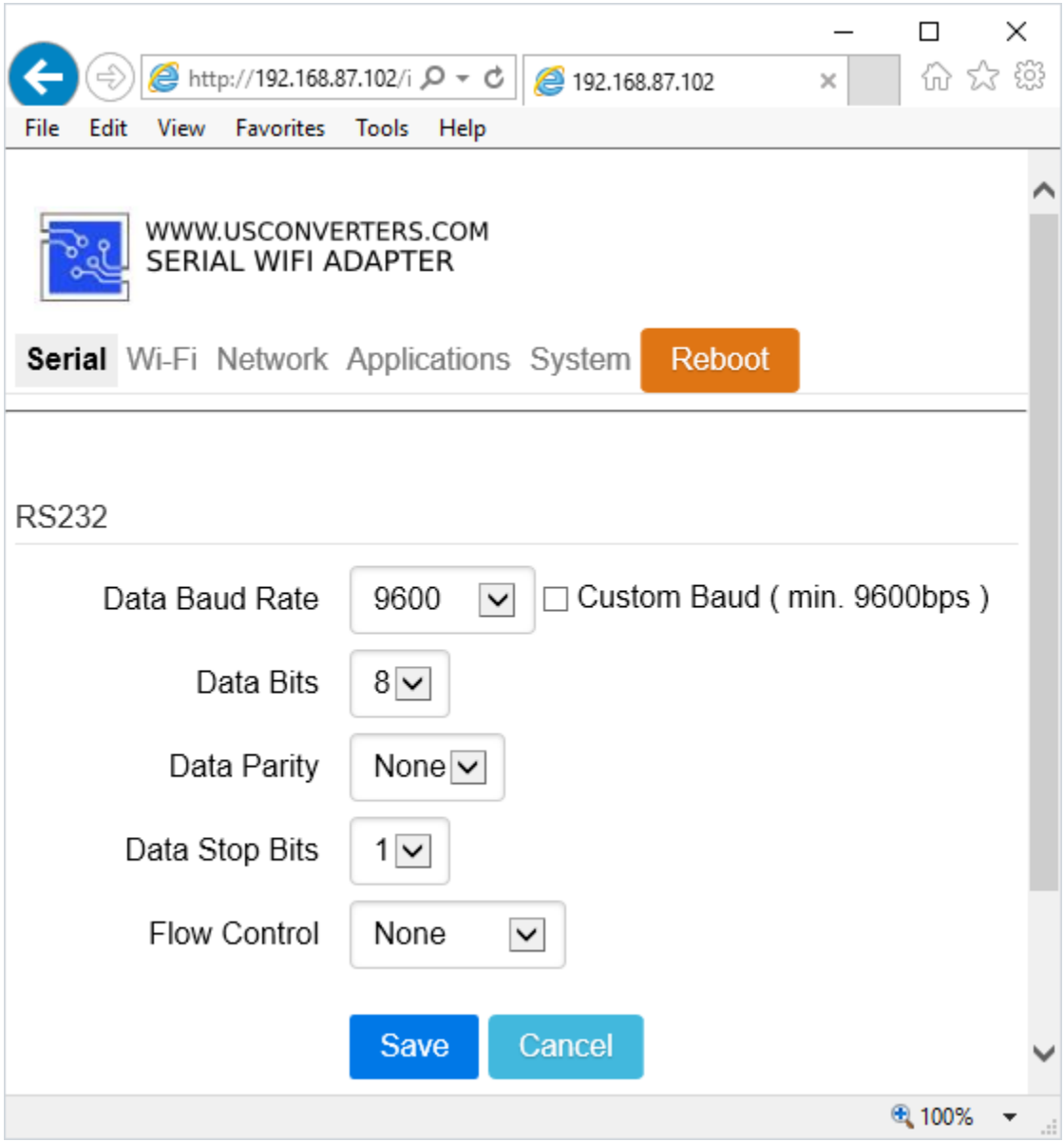
Now you can check that you can actually connect to the UCW232C through the wireless router at 192.168.87.102 by entering the IP in the browser:



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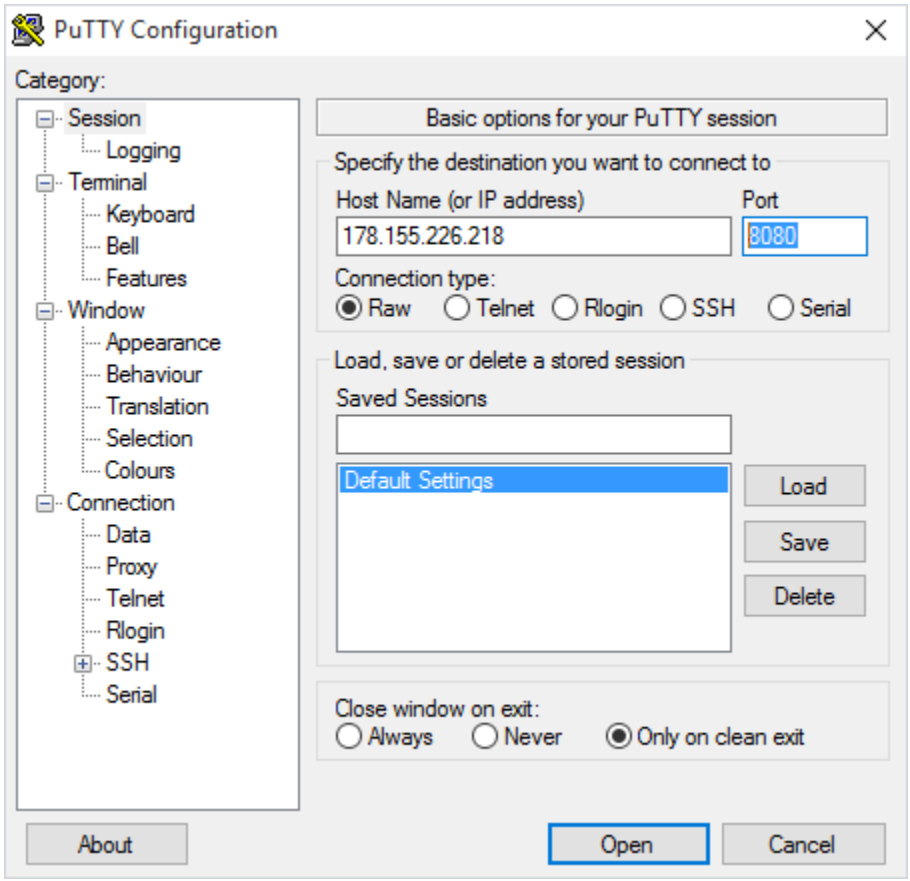
To be able to access the UCW232C from the Internet you now need to forward/open a port in your wireless router. So we now login to the wireless router and forward the UCW232C's IP address and port number (8080):

Port Forwarding										
Internal			External							
IP Address	Start Port	End Port	IP Address	Start Port	End Port	Prot	Description	Enabled		Remove All
192.168.87.102	8080	8080	0.0.0.0	8080	8080	TCP		Yes	Edit	Remove

The UCW232C is now accessible from the Internet.

To test if this is working you can open a connection from a different computer. To test it properly it should be a remote computer which is not on the same network. It should have its separate IP address and connect through the Internet.
Our test PC to which the UCW232C is connected via the wireless router has IP address 178.155.226.218, so we enter this in Putty (or you can any other terminal program) on the remote PC. We also enter the UCW232C's port number 8080 and set the connection to RAW:



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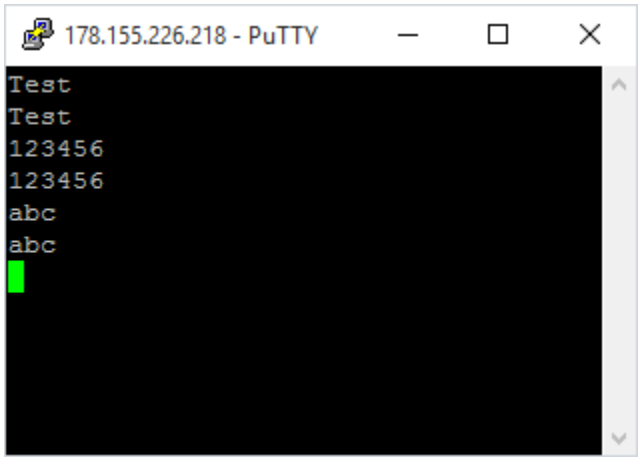
Now loop-back TX to RX (pin 2 to pin 3) in the UCW232C's DB9 connector. This will echo back the data you send to the UCW232C, so you can see if the setup is working.

Enter a string of characters in Putty and press Enter. If its working then you should get the same string back:



If you need an actual virtual COM port on the remote PC, instead of just a TCP socket, then you can install USR-VCOM on the remote PC. USR-VCOM is a virtual COM port software which will create a virtual COM port in Windows Device Manager which can be used for communicating with the UCW232C over the Internet.
Install USR-VCOM on the remote PC and start the software. Click the "Add COM" button and enter the IP address for the PC to which the UCW232C is connected. In this example 178.155.226.218 and port 8080:

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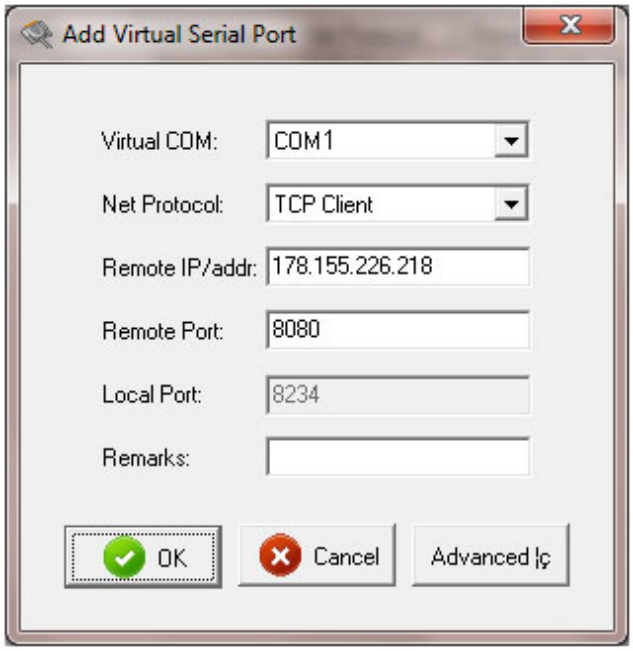
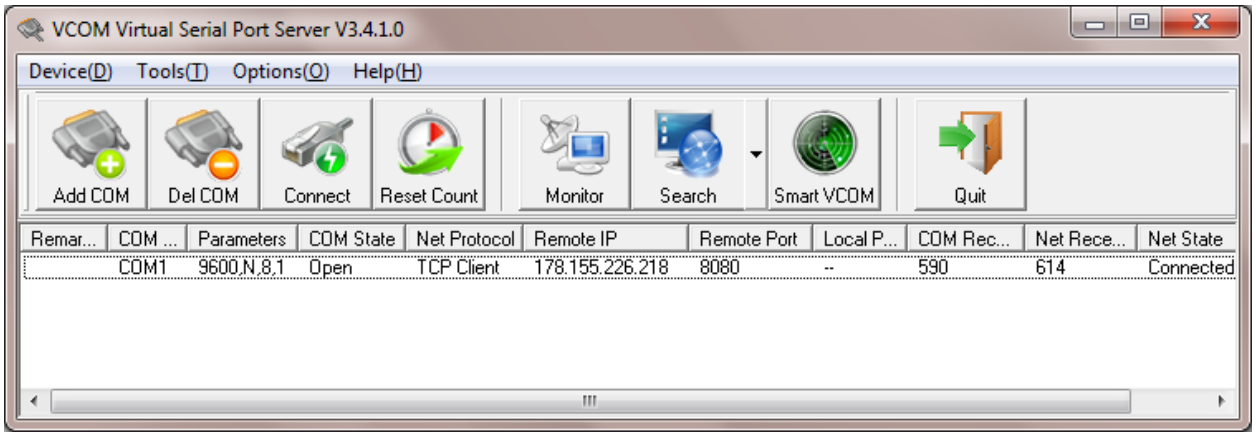


The software should now connect to the UCW232C over the Internet and create a COM port in Windows Device Manager on the remote PC:



Testing the setup can be done with AccessPort (which can be downloaded for free from www.usconverters.com). Loop the TX and RX pins on the UCW232C and start sending data to the virtual COM port. If the data is received back then its working:

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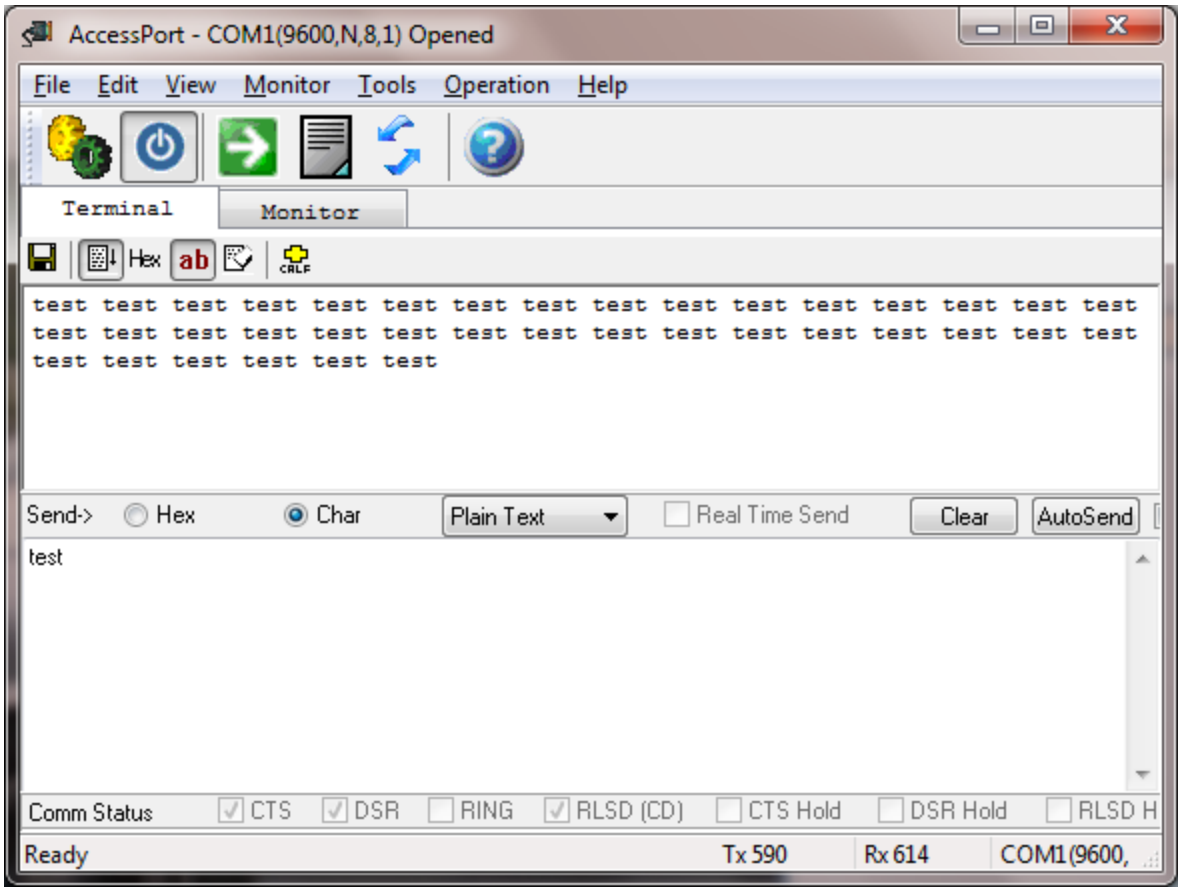

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