How to setup the WA232E Serial WiFi adapter

(based on Windows 10, 32/64-bit)

This step-by-step guide explains how to get started using the Serial RS232 WiFi Adapter part WA232E. This product has many 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.

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Configuring the parameters

The WA232E's parameters can be configured several ways:

- Web browser over WiFi
- Configuration utility software (included) over WiFi
- Serial RS232 port

We will here describe each one of these methods.

The default network settings are:

Adhoc mode (Simple AP), DHCP enabled
SSID: Serial2WiFi_ab_cd (ab_cd is the last 4 numbers of the MAC address)
No Security
IP: 192.168.0.3
Socket port: 5000
Channel: 11
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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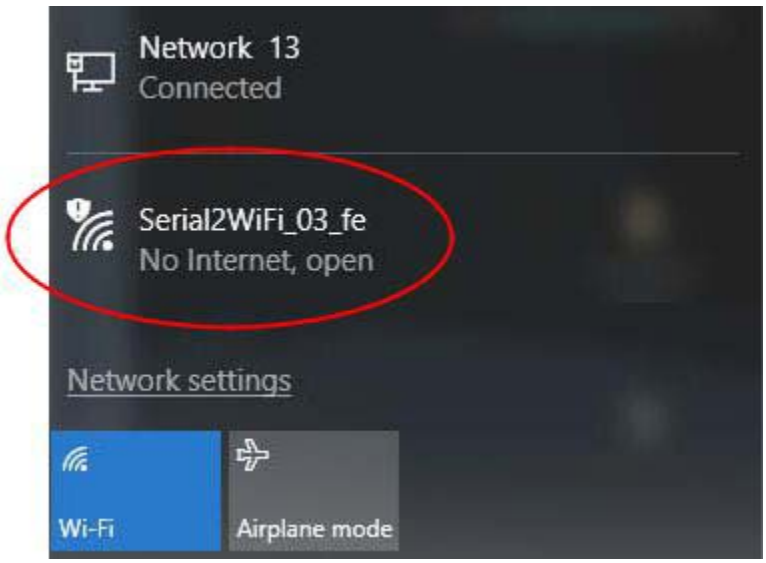
Configuring the parameters using a Web browser

Use your WiFi adapter's connection manager or Windows WiFi manager to connect to the adapter. In this example we use Windows connection manager:



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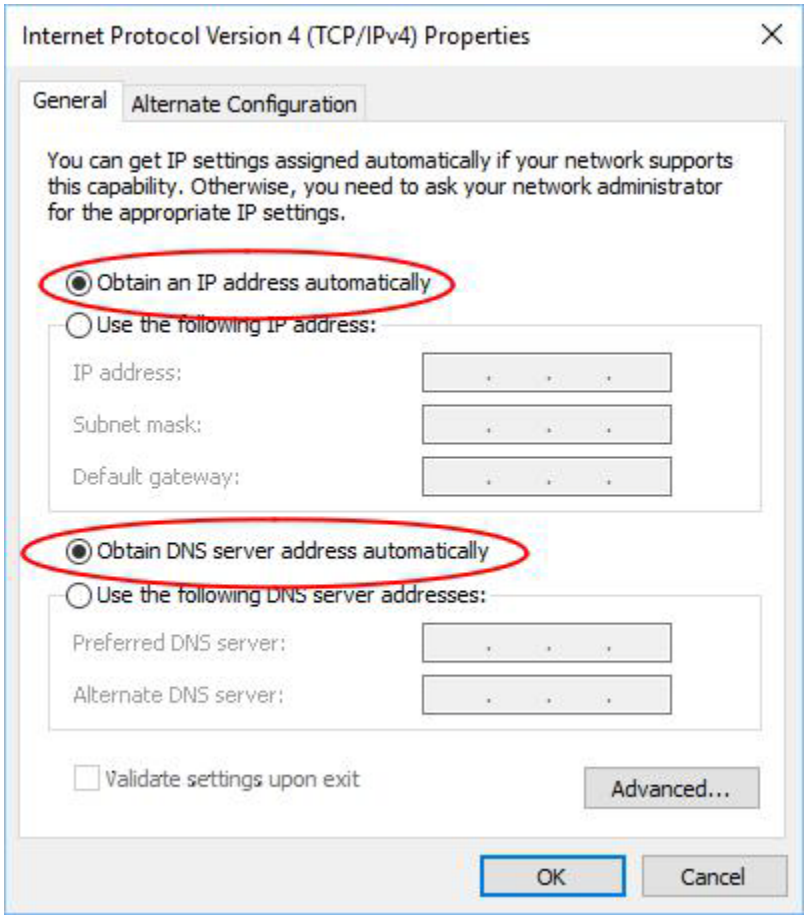
The WA232E has DHCP enabled by default so make sure your wireless network has “Obtain an IP address automatically” selected. Go to “Control Panel\All Control Panel Items\Network Connections”, right-click wireless network and click “Properties”. Select “Internet Protocol Version 4 (TCP/IPv4)” and click “Properties”.



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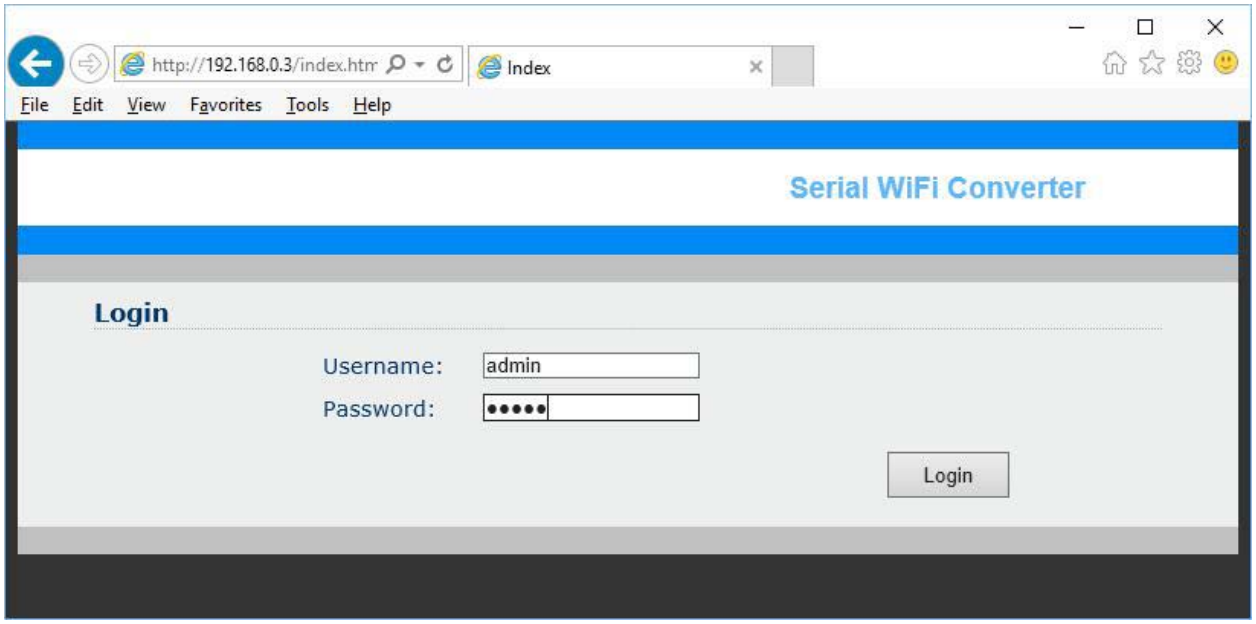
Open Internet Explorer and enter the IP address http://192.168.0.3. You should now see the login screen.

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



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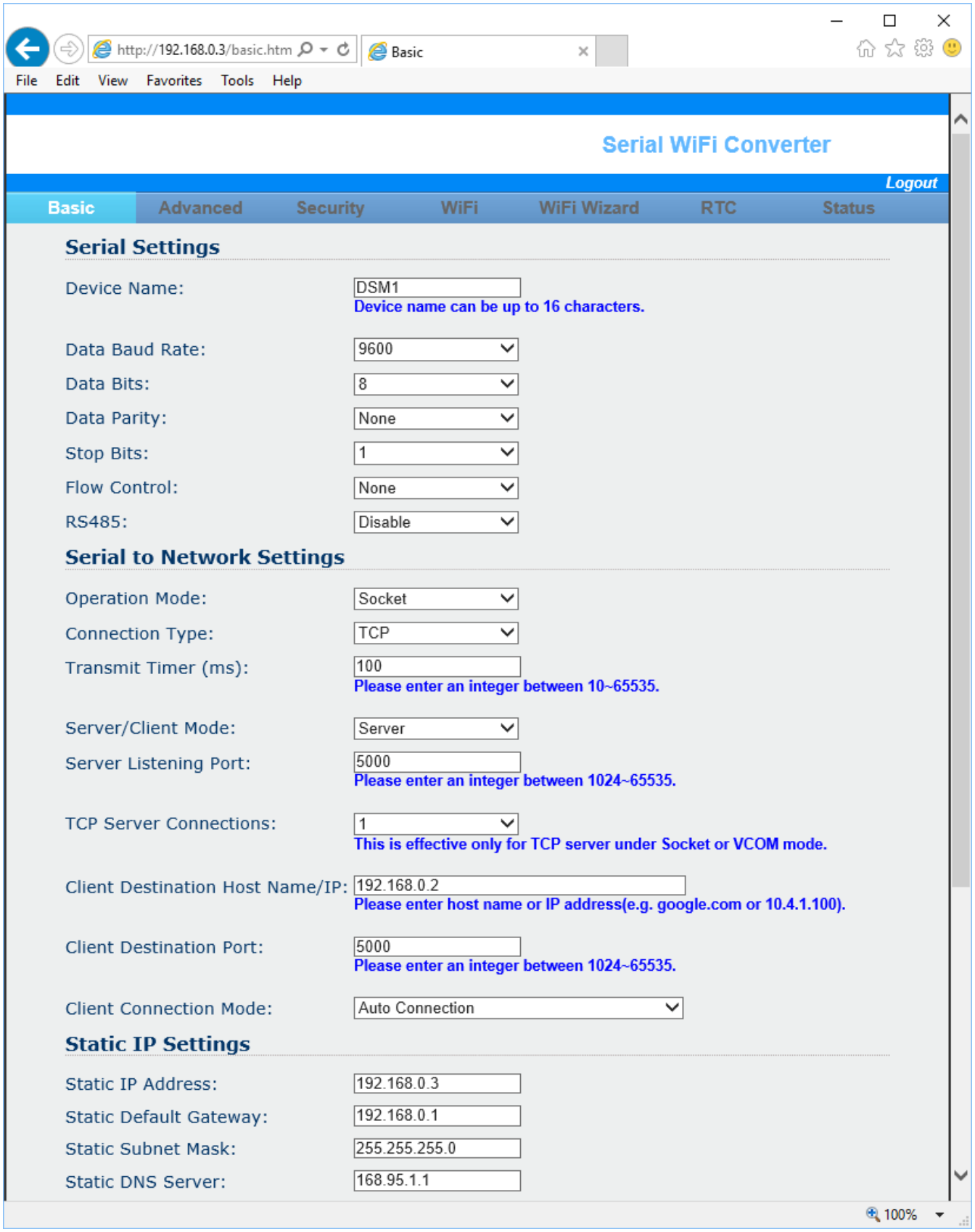
Below are screenshots of the default configuration pages (firmware v_0.7.4.0103):



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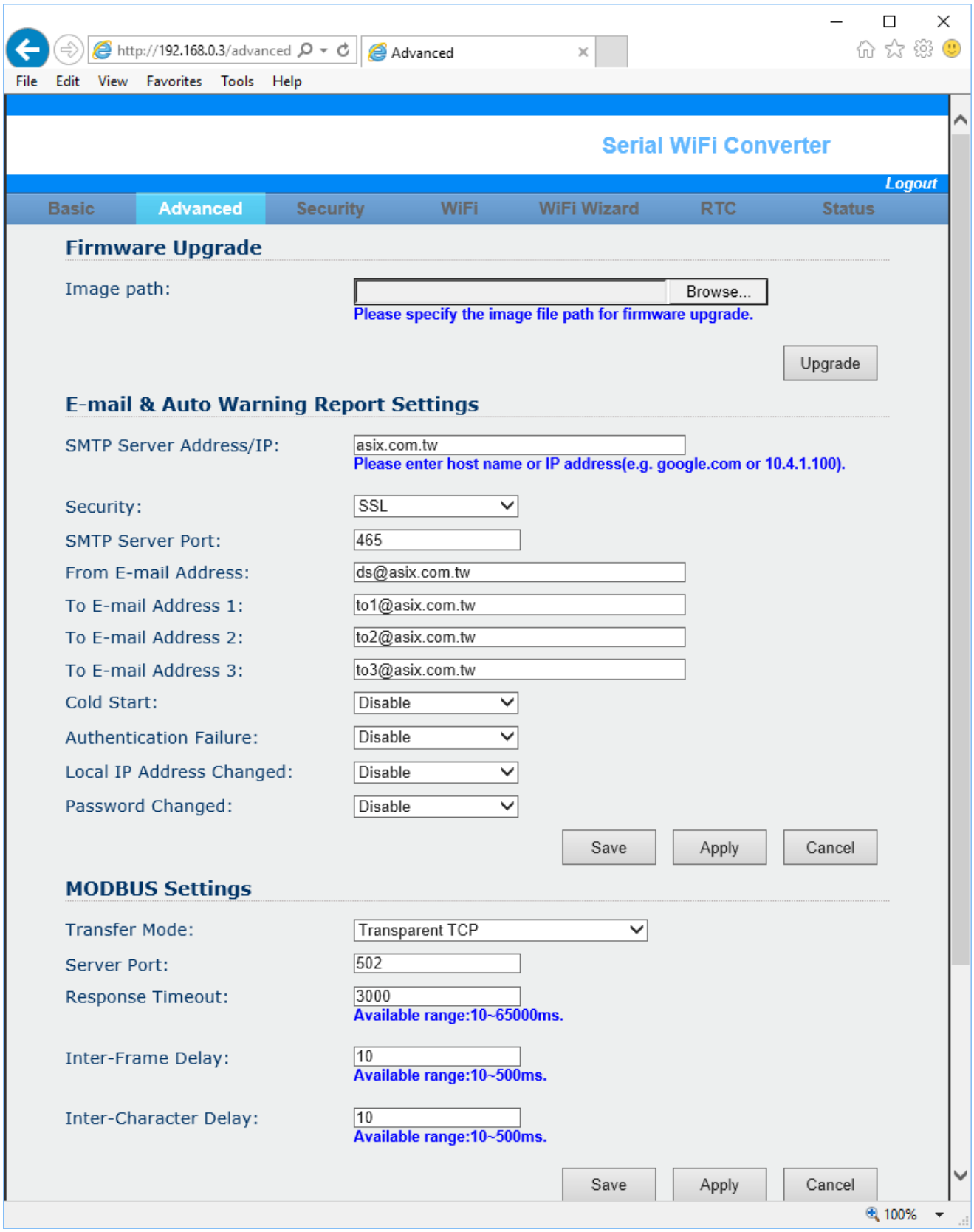

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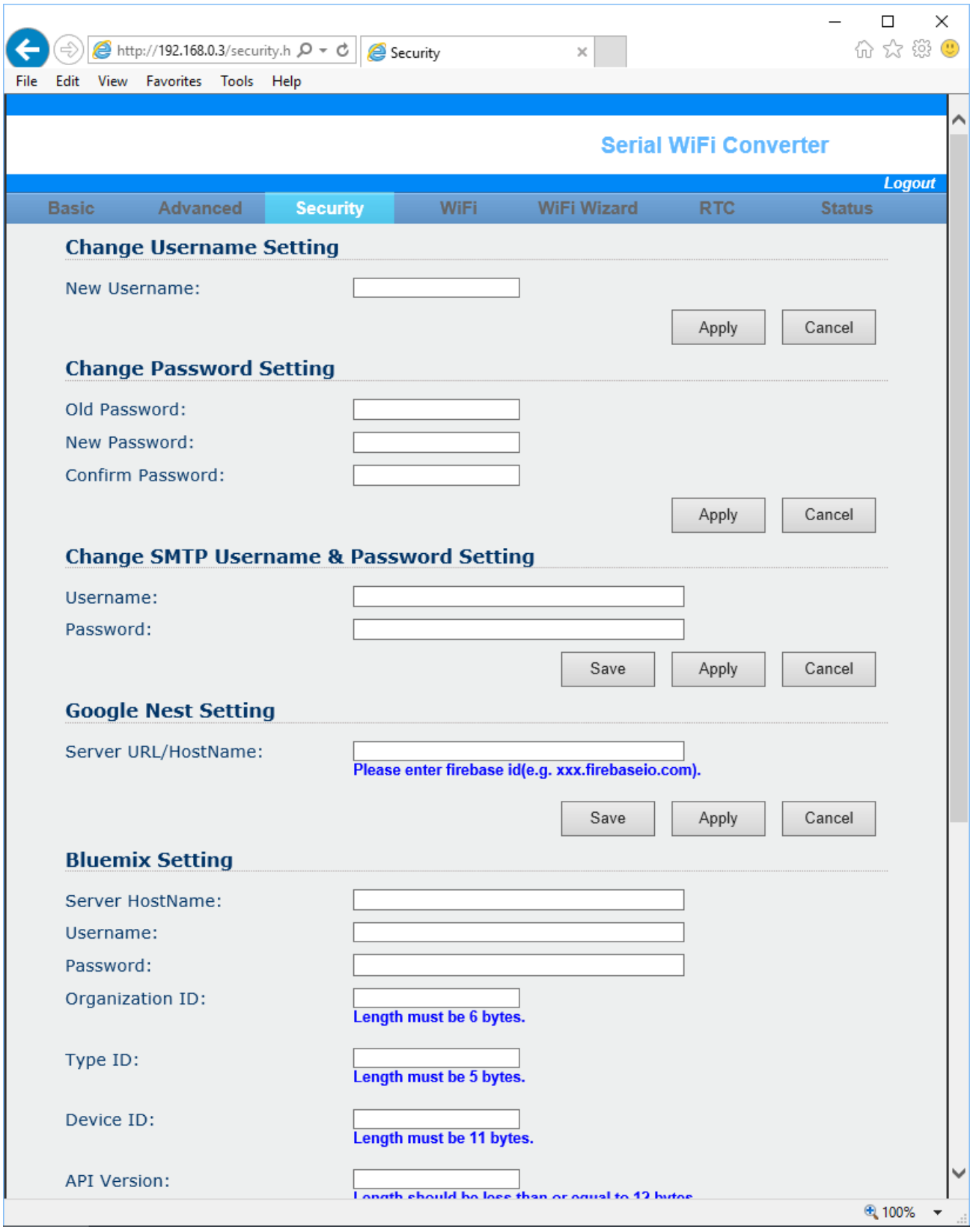

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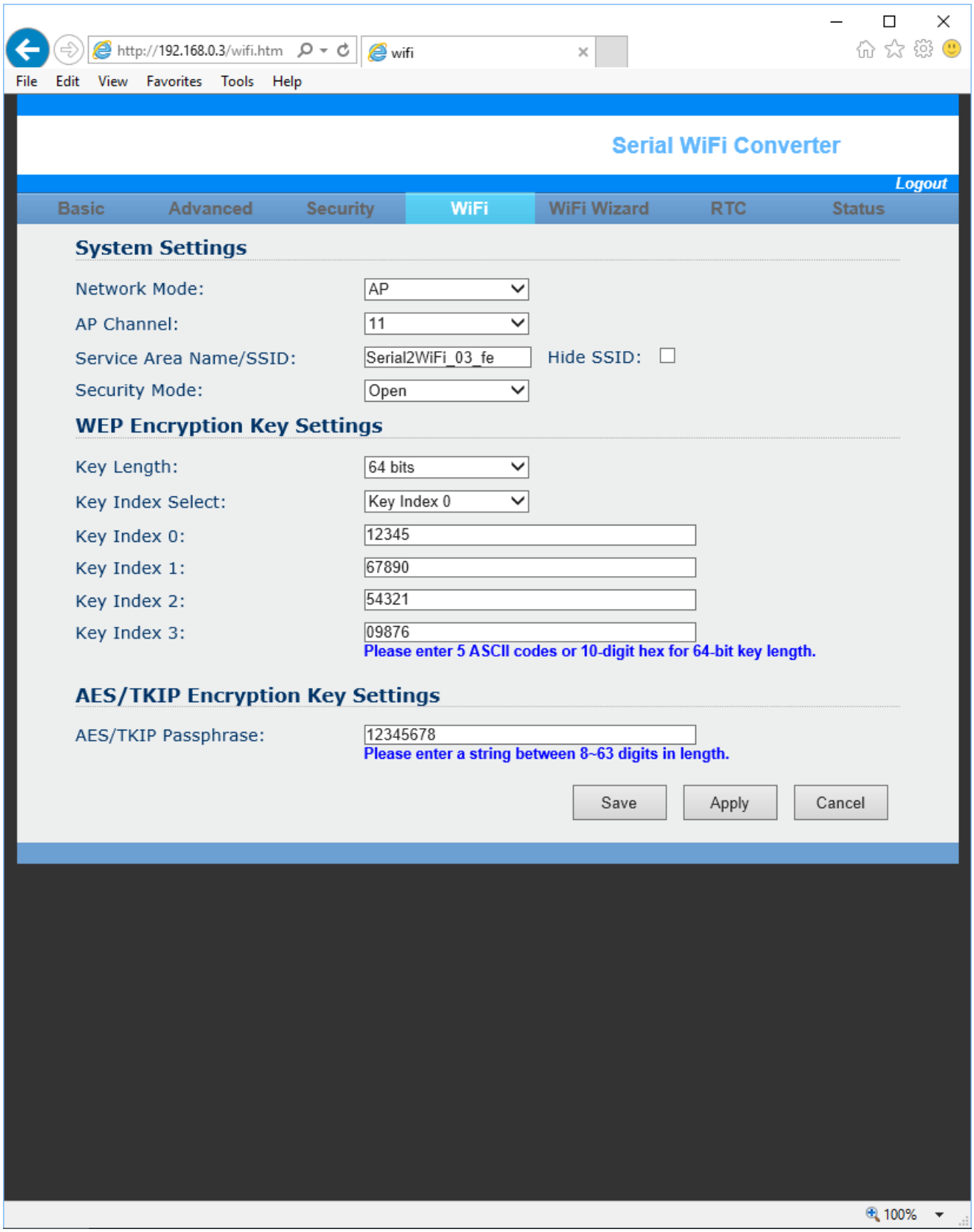

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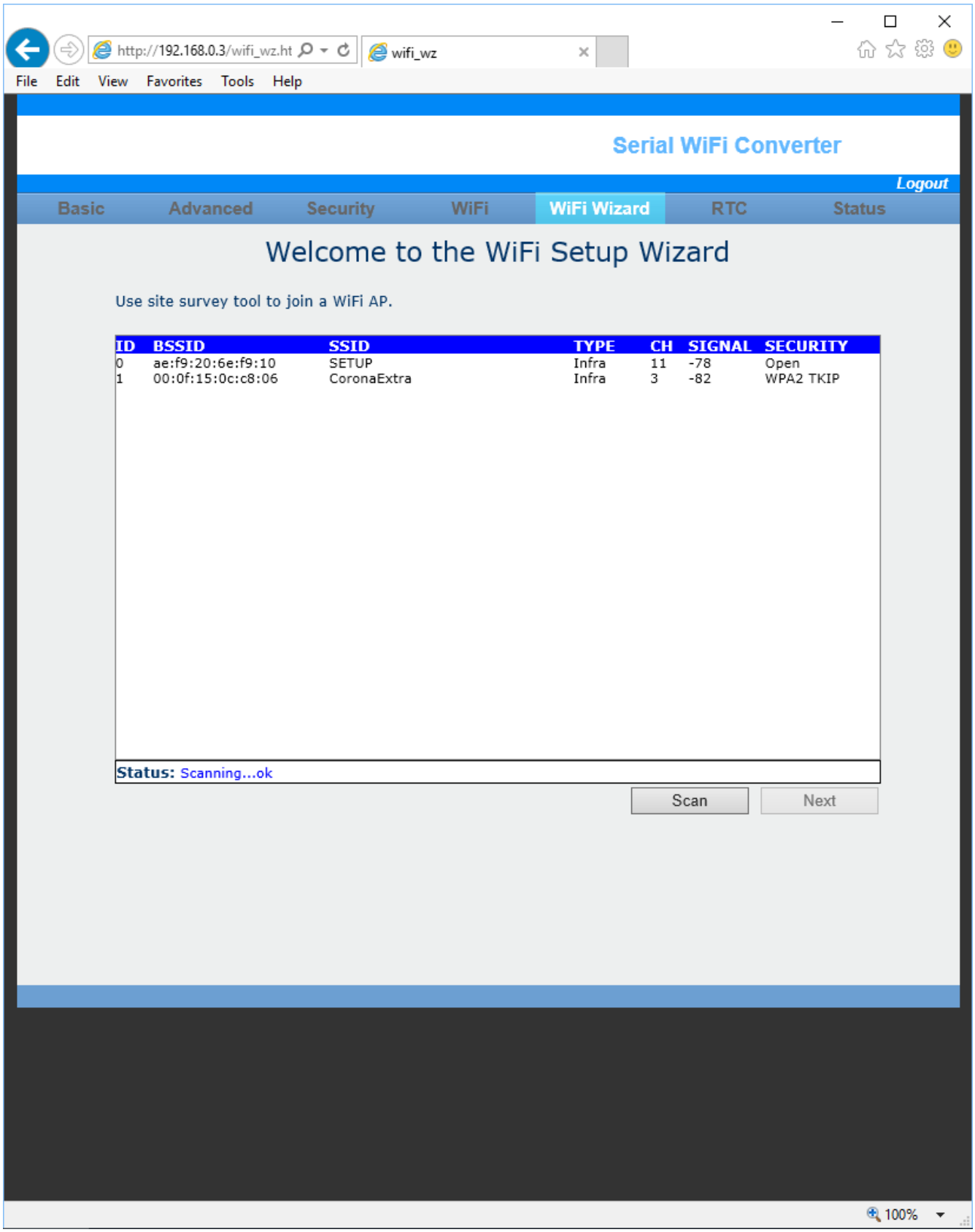

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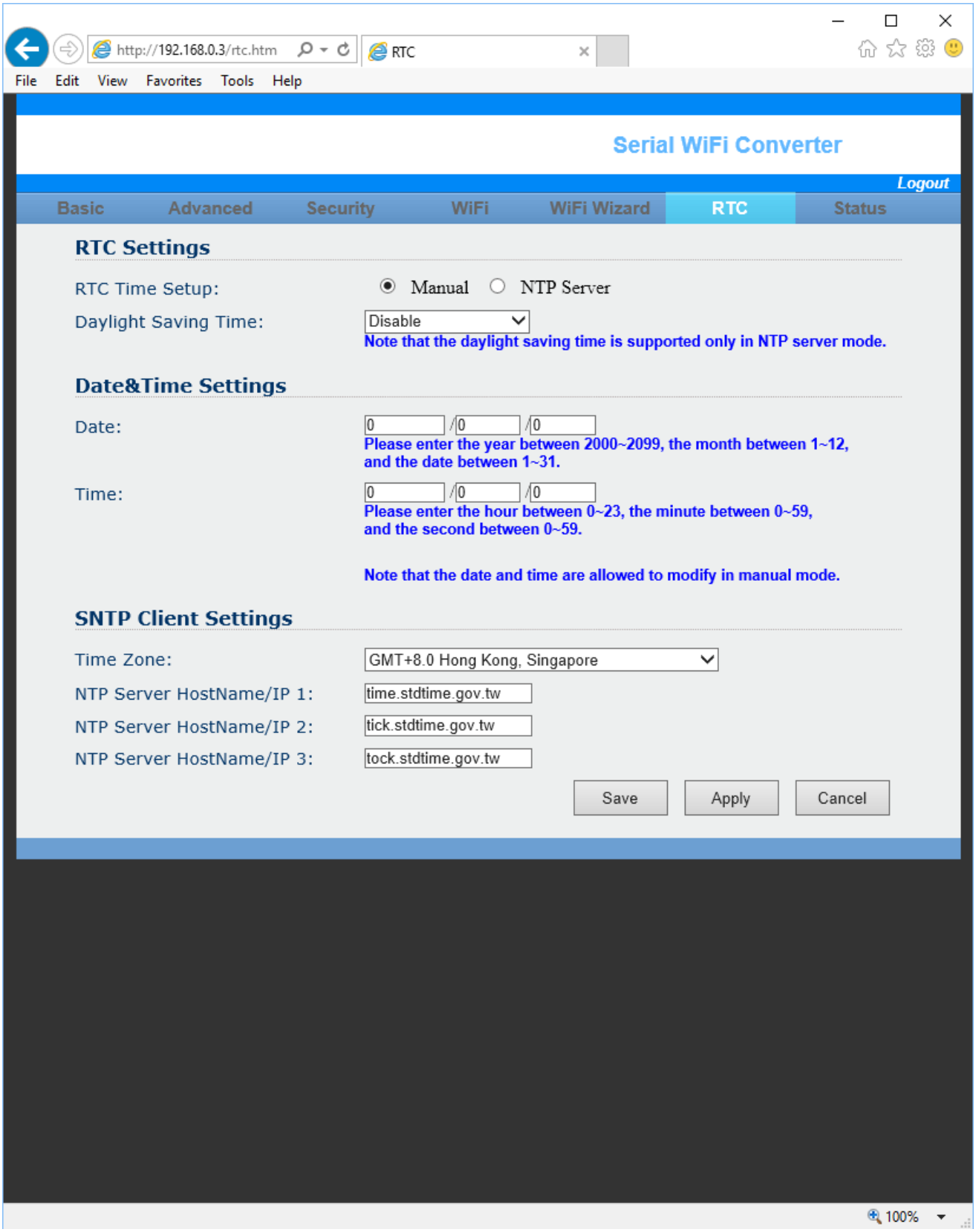

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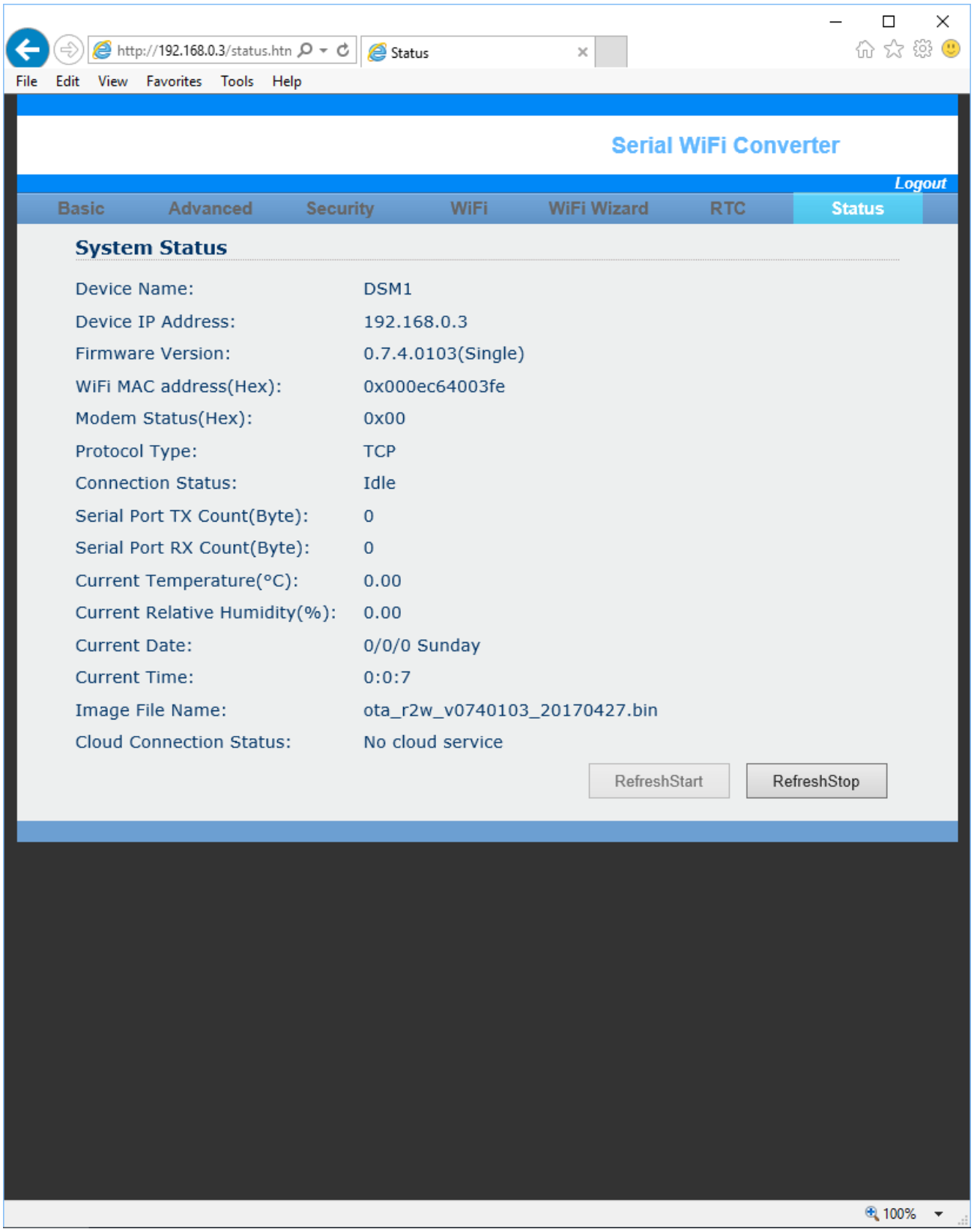

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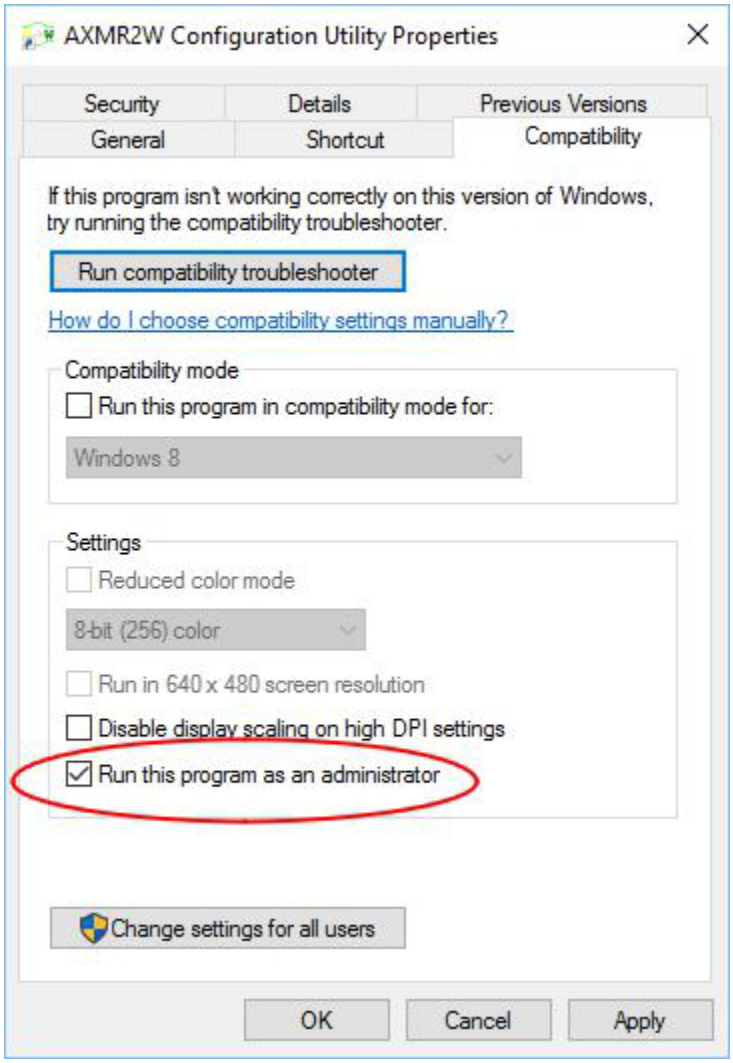
Configuring the parameters using the software utility

Install the software utility by executing the file “R2W_RS232-to-WiFi_Toolkit“ (either the 32-bit version or the 64-bit version).

After installation has finished, start the utility with administrator privileges. You do that by right-clicking the program icon and select “Properties”, then enable “Run this program as an administrator” and click “Apply” and “OK”:



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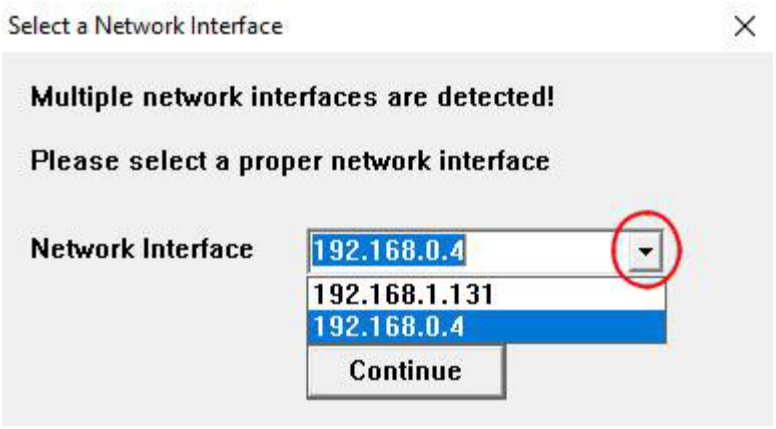
If your computer has more than one network connection you need to select the wireless network which is in the same subnet as the WA232E:



Use the up/down arrows to scroll through the IPs if there are more than two IPs.

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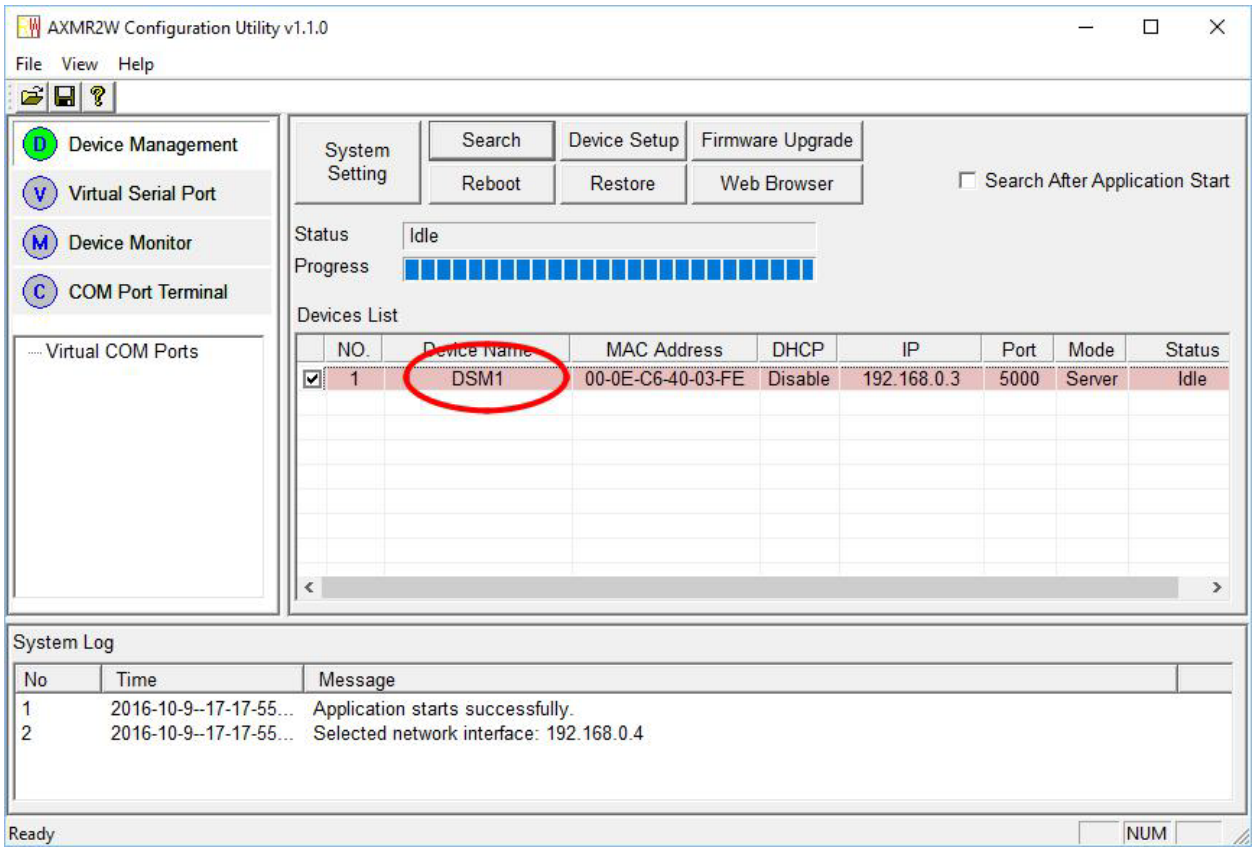
Once the software is open, click the Search button and the software should find the WA232E:



Select the WA232E from the device list and click “Device Setup” and the settings window will open:

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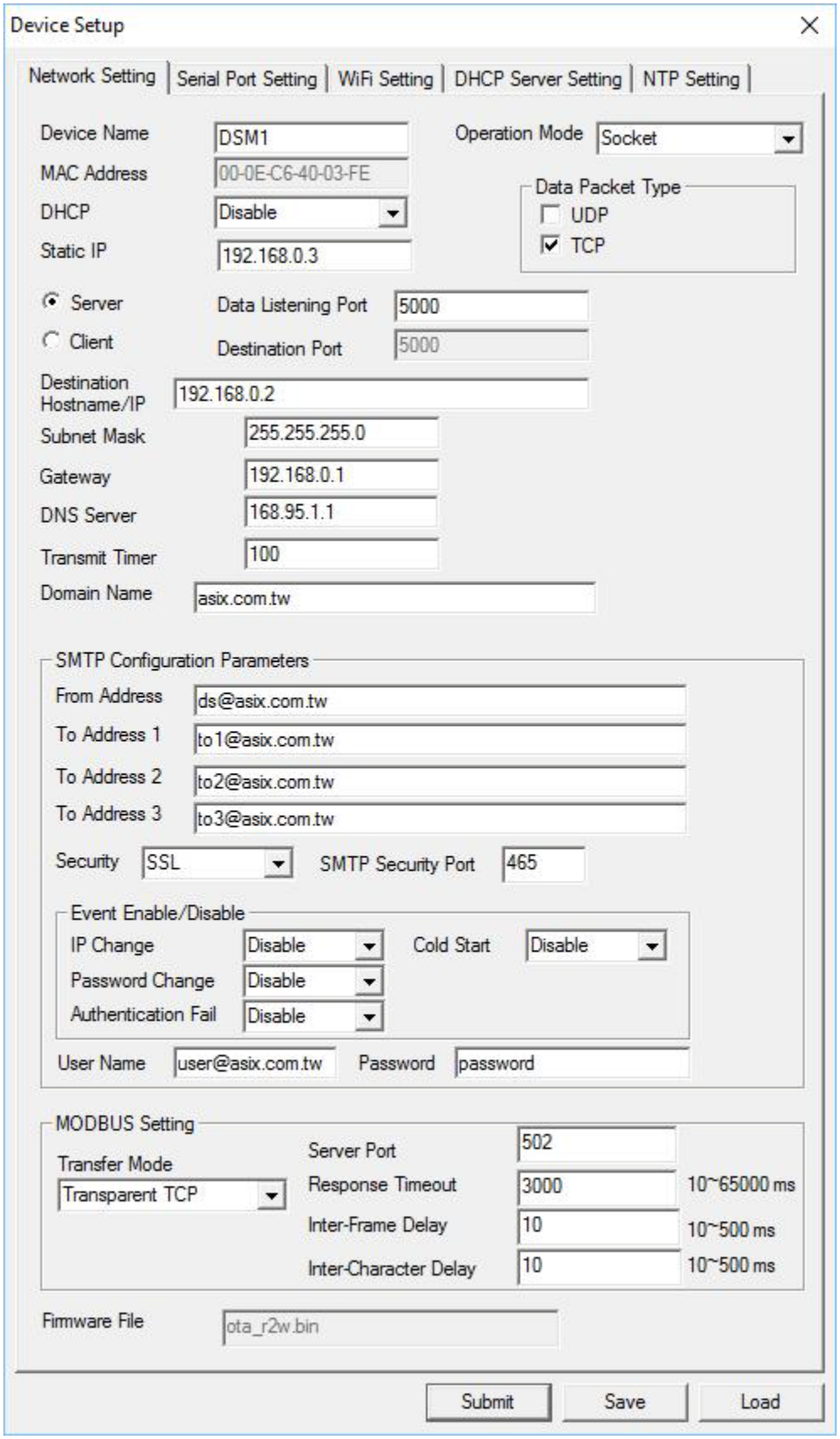

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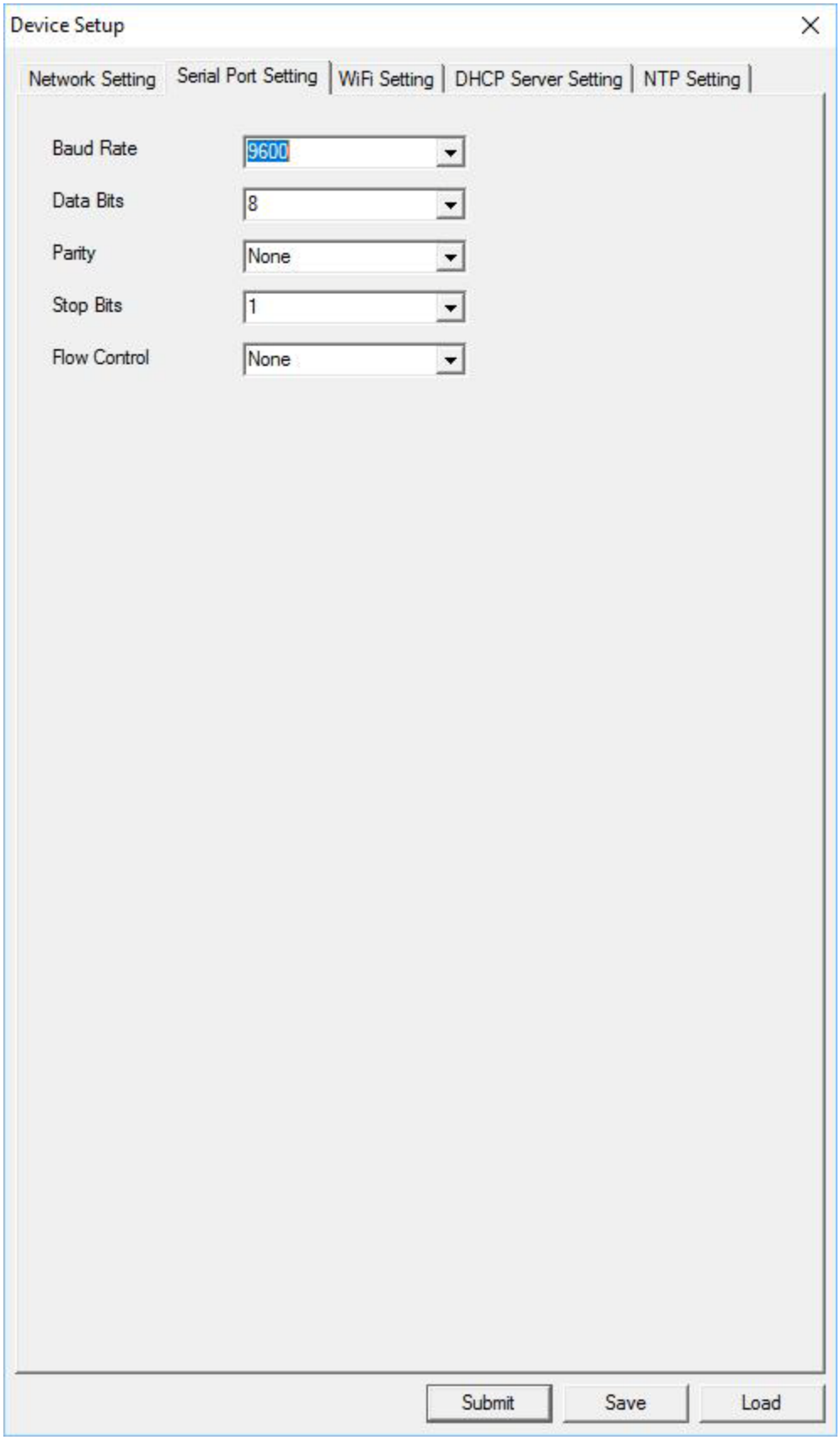

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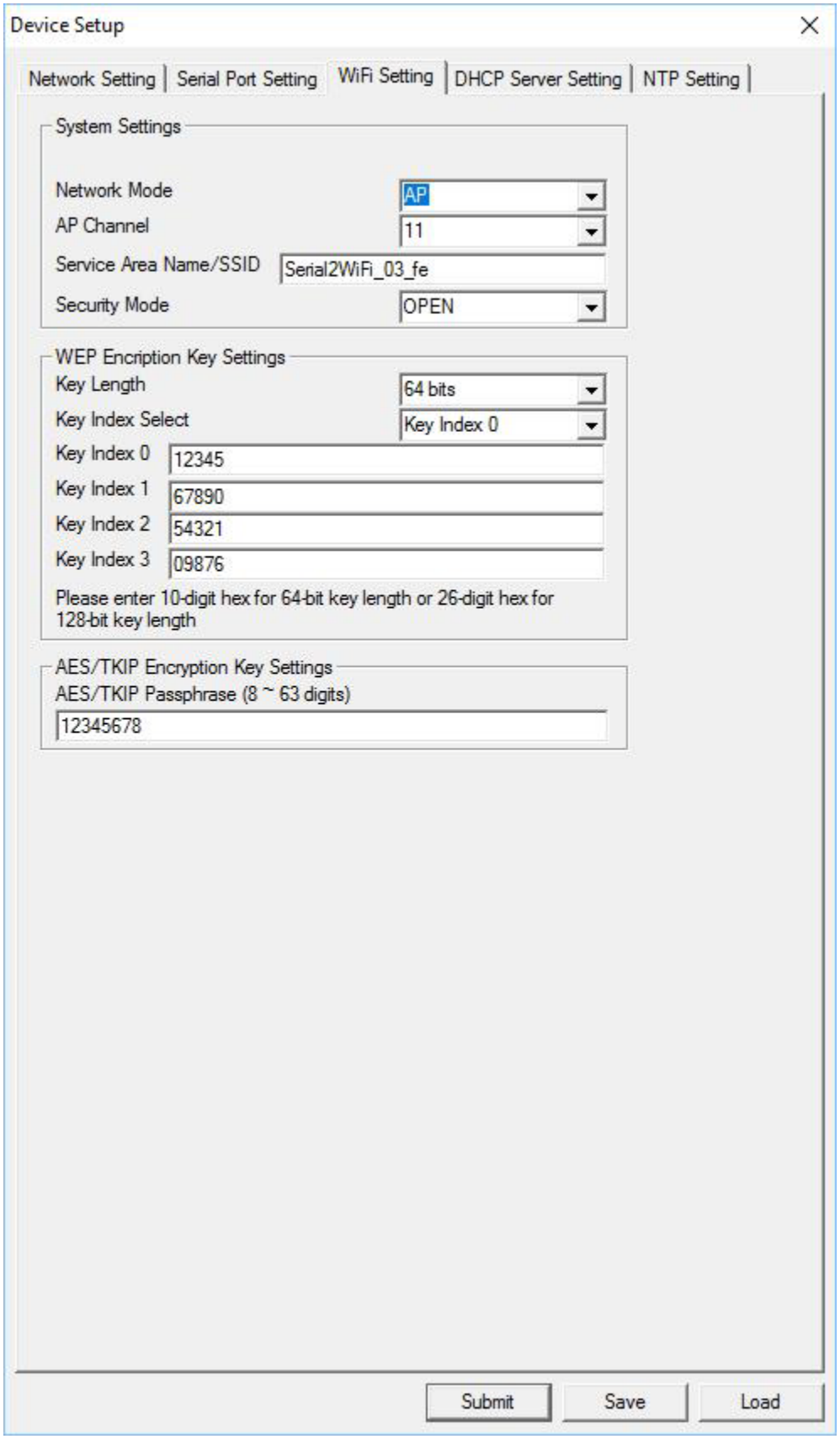

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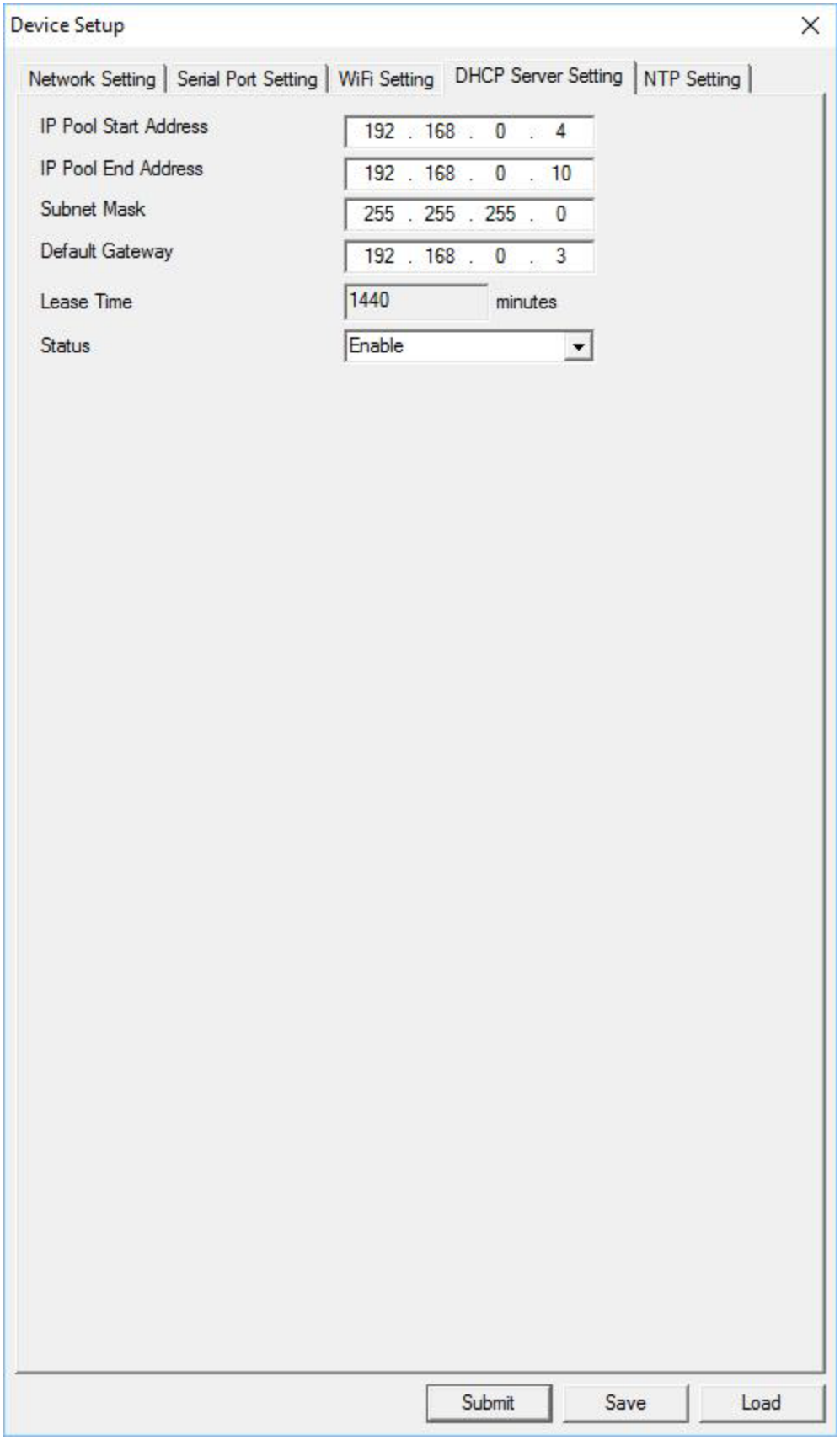

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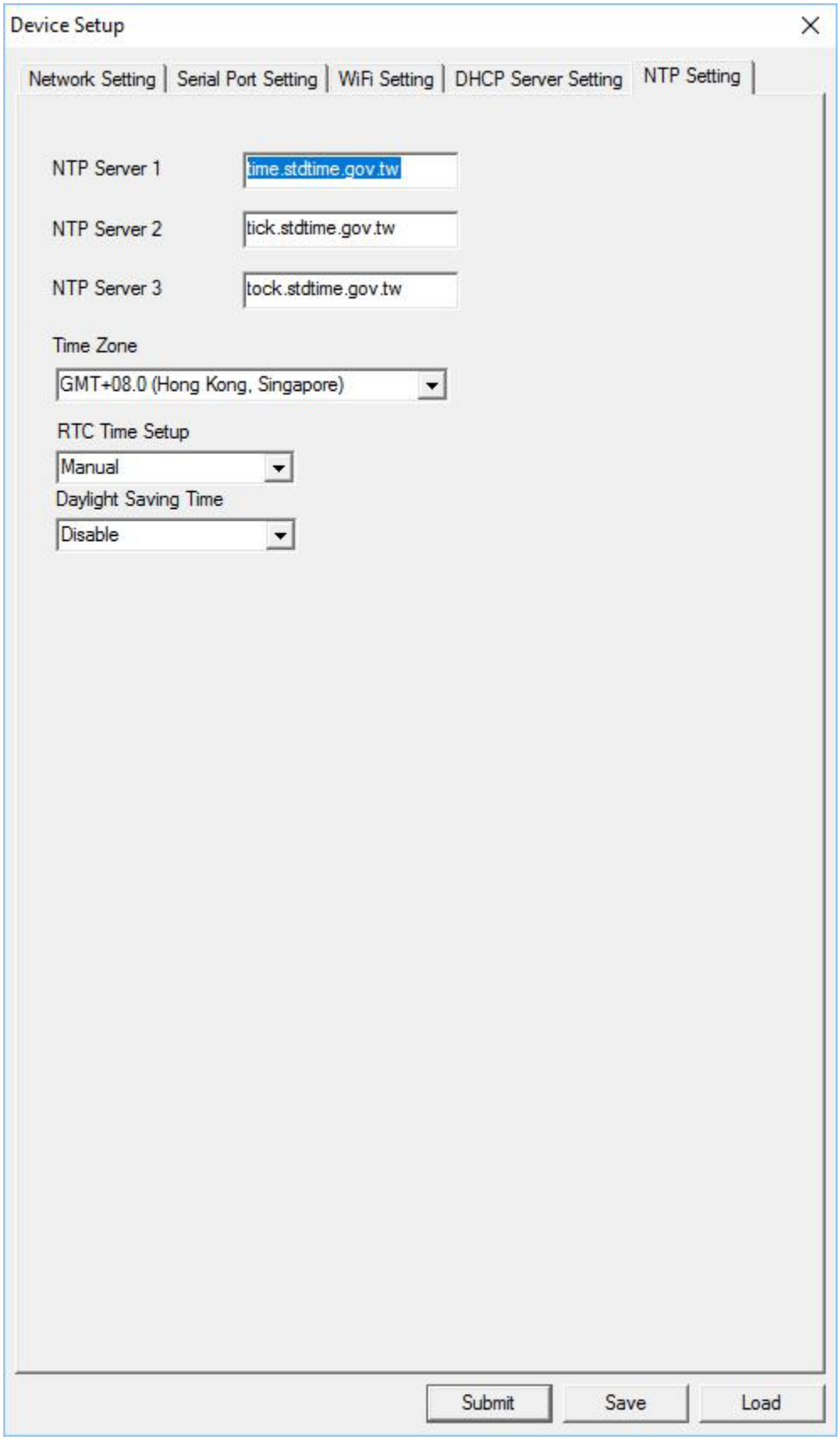

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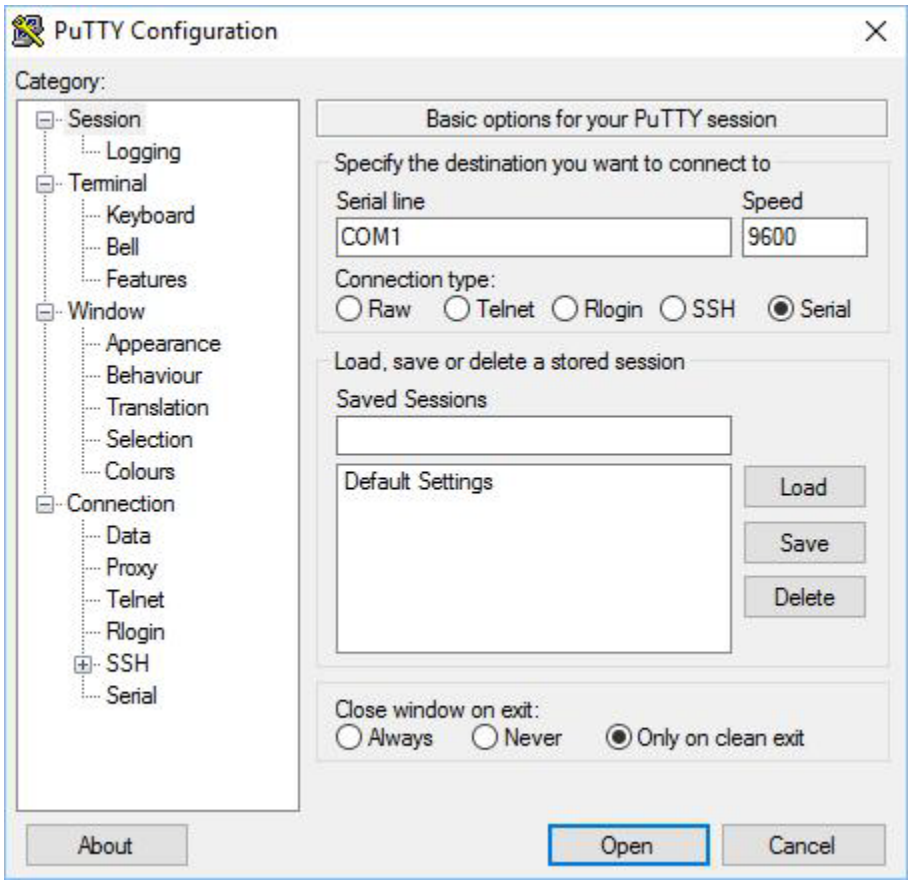
Configuring the parameters over the RS232 serial port

Connect the WA232E to your computer via the serial port.
Create a connection to the WA232E by using a terminal software such as Putty or Tera Term. Below is an example for the settings:



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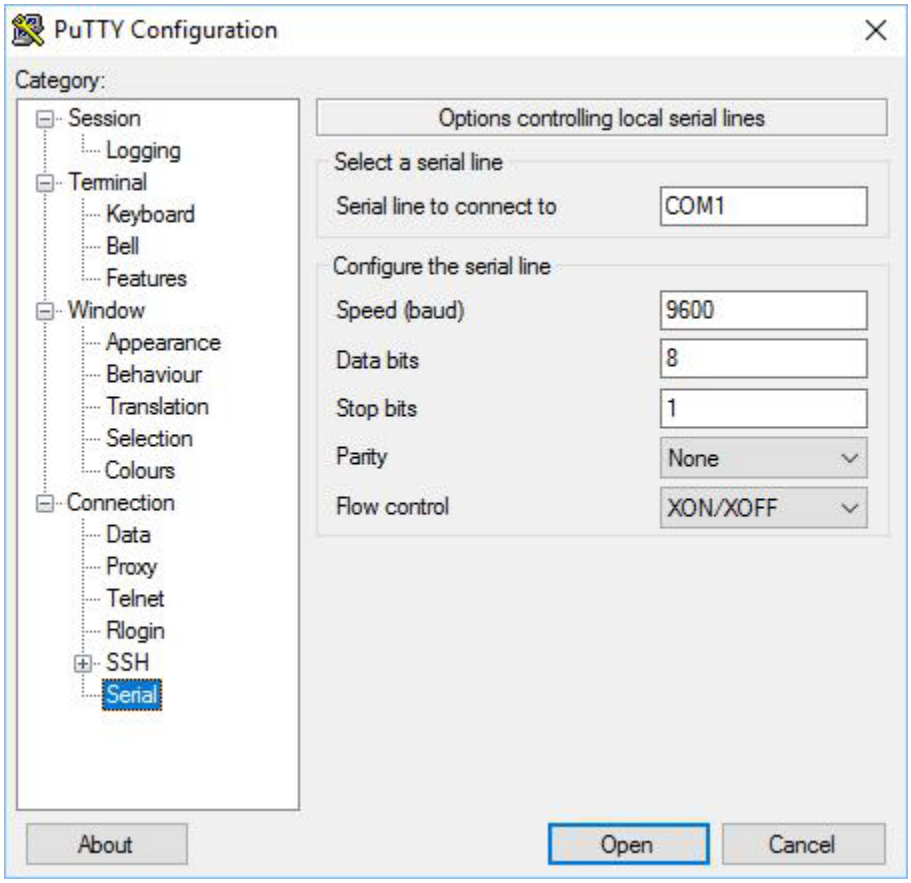
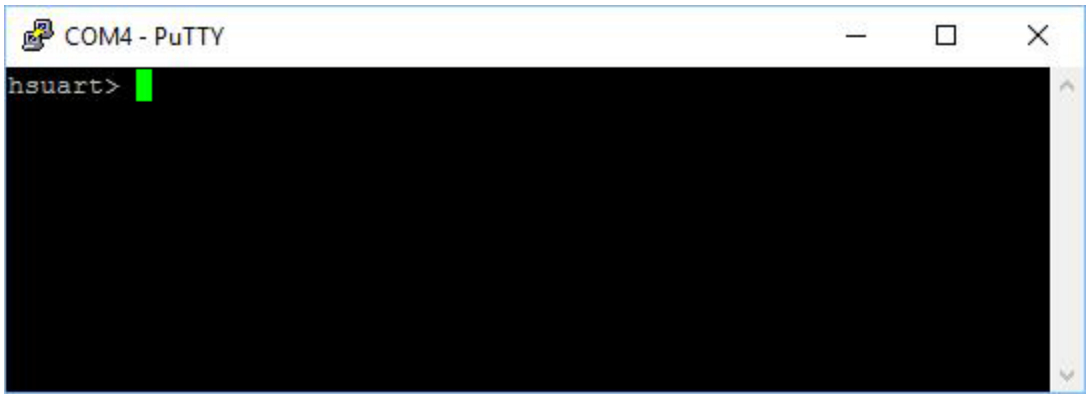


When the connection is established, enter +++ and press the Enter key on your keyboard to access the WA232E. (The +++ will not show up in TeraTerm's/Putty's window). NOTICE THAT ON SOME KEYBOARDS YOU NEED TO ENTER THE +++ AND PRESS ENTER BY USING THE MAIN KEYBOARD, NOT THE SMALL NUMBER PAD.



You are now ready to enter commands. Please refer to the datasheet for a complete list of commands, or enter 'help' to get the help menu.

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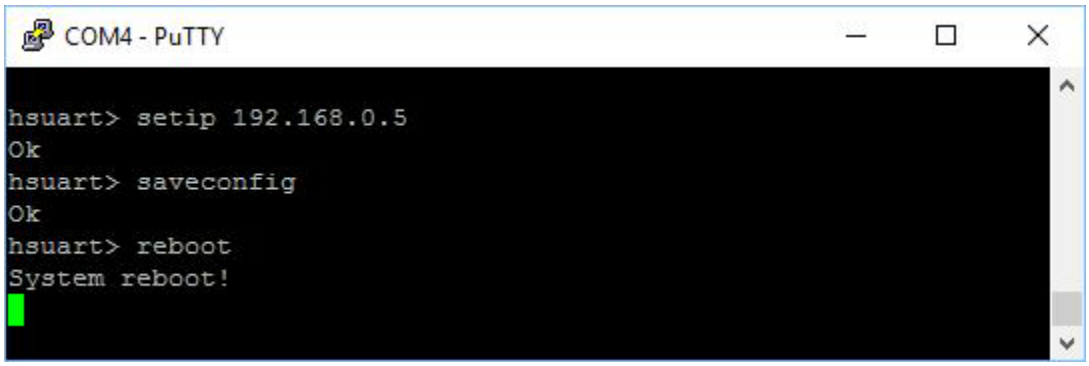
Example for changing the IP address:

First use the “setip” command to set the desired IP address then use the “saveconfig” and “reboot” commands to save and reboot the adapter. After this you will need to login to the adapter again using the +++ command. Once you are logged in you can check the new settings using the “ipconfig” command.



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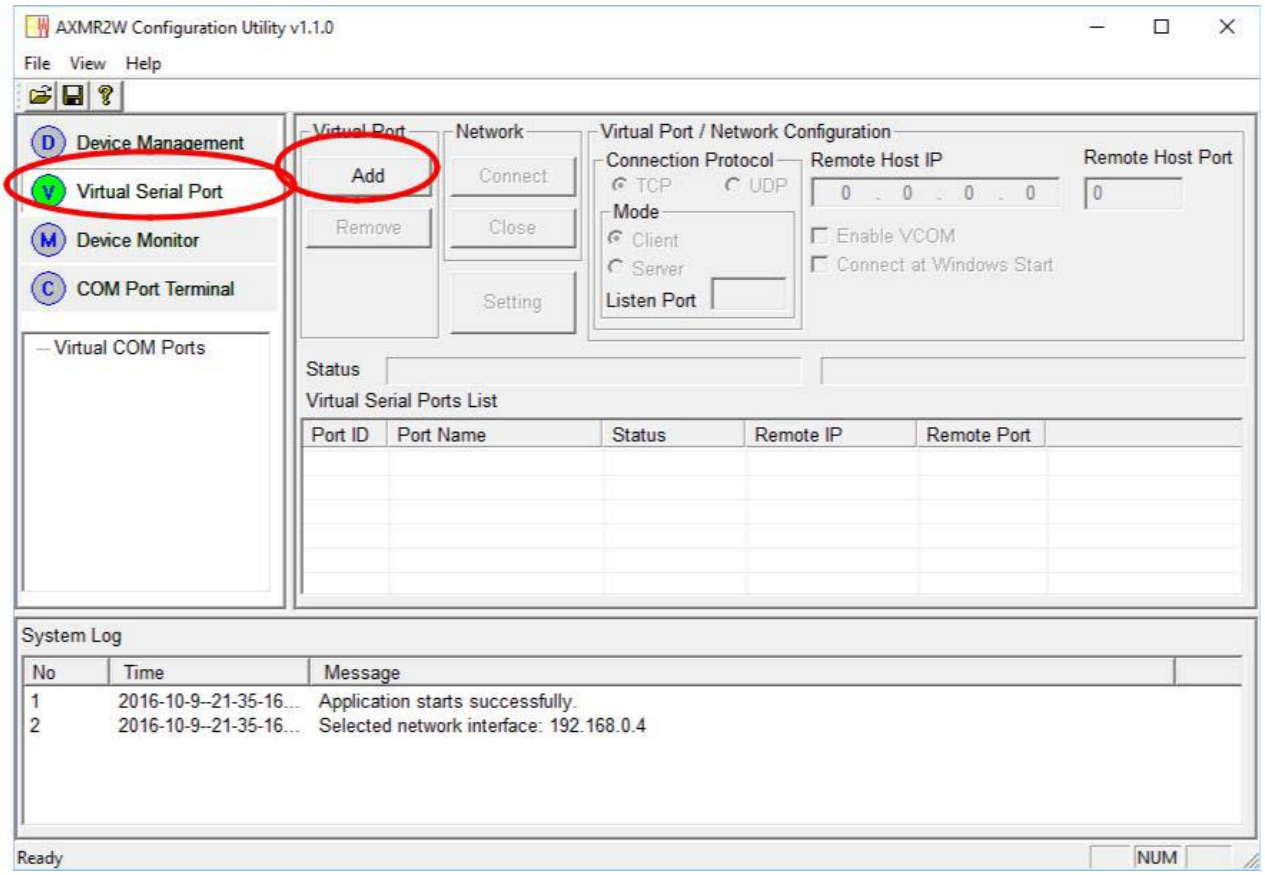
Creating a virtual COM port with the software utility

A virtual COM port can be created by using the AXMR2W Configuration Utility or it can be created by using alternative VCOM software such as PortShare, Fabulatech or USC-VCOM as described later in this setup guide.

First we show how to create a virtual COM port with the included configuration utility.

Make sure the WA232E is connected to the WiFi network.

Go to the “Virtual Serial Port” menu and click the “Add” button:



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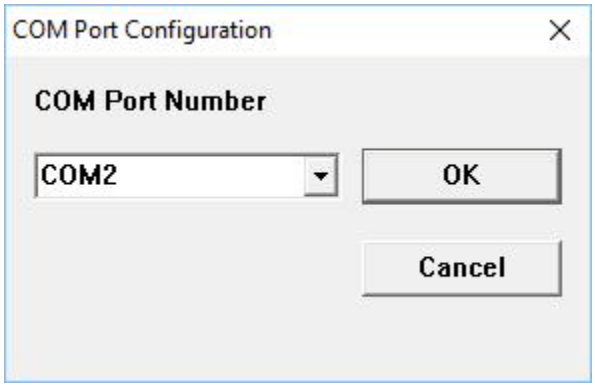
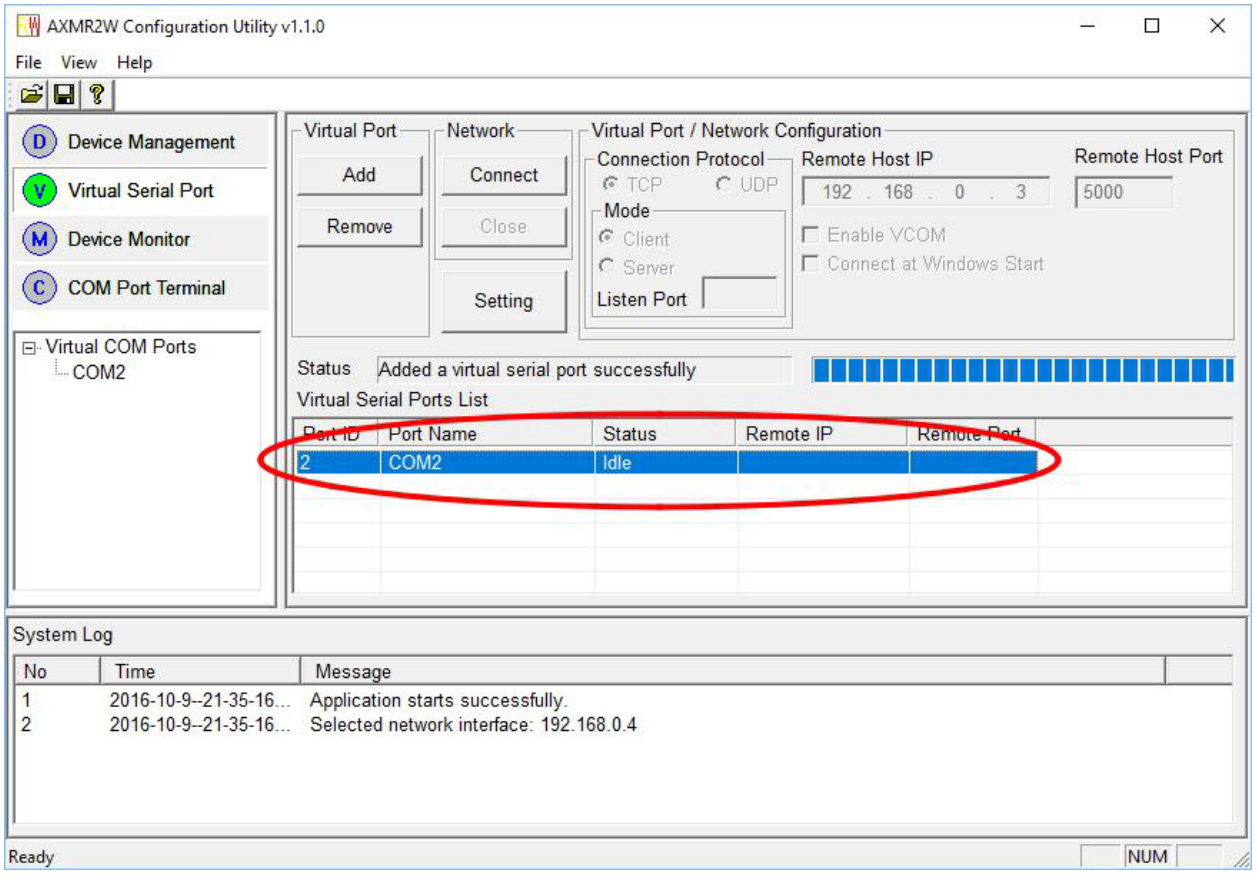
Select a COM port number:



The COM port should now be listed in the Virtual Serial Ports List:



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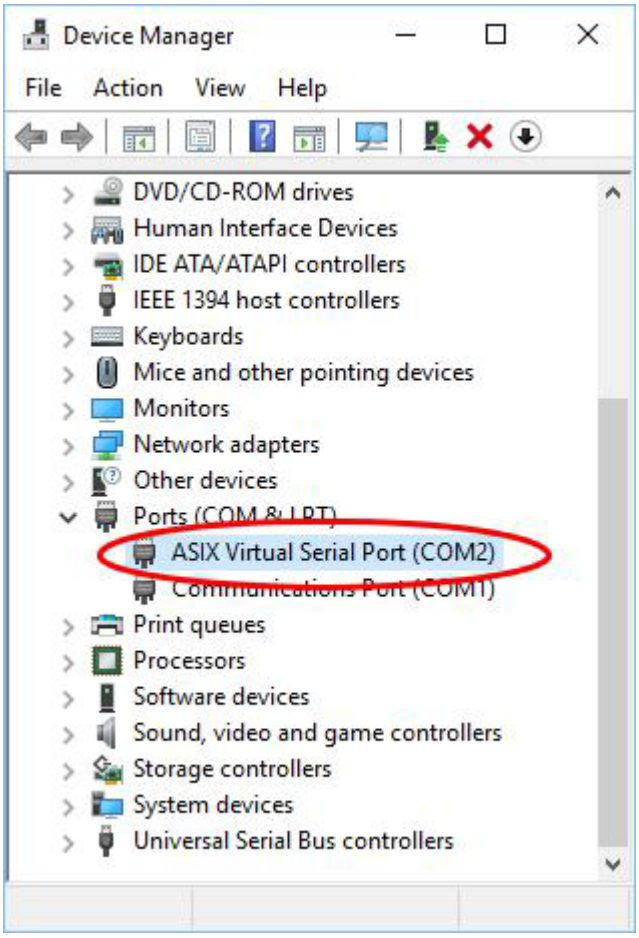
Check in Windows Device Manager to see if the COM port has been successfully created:



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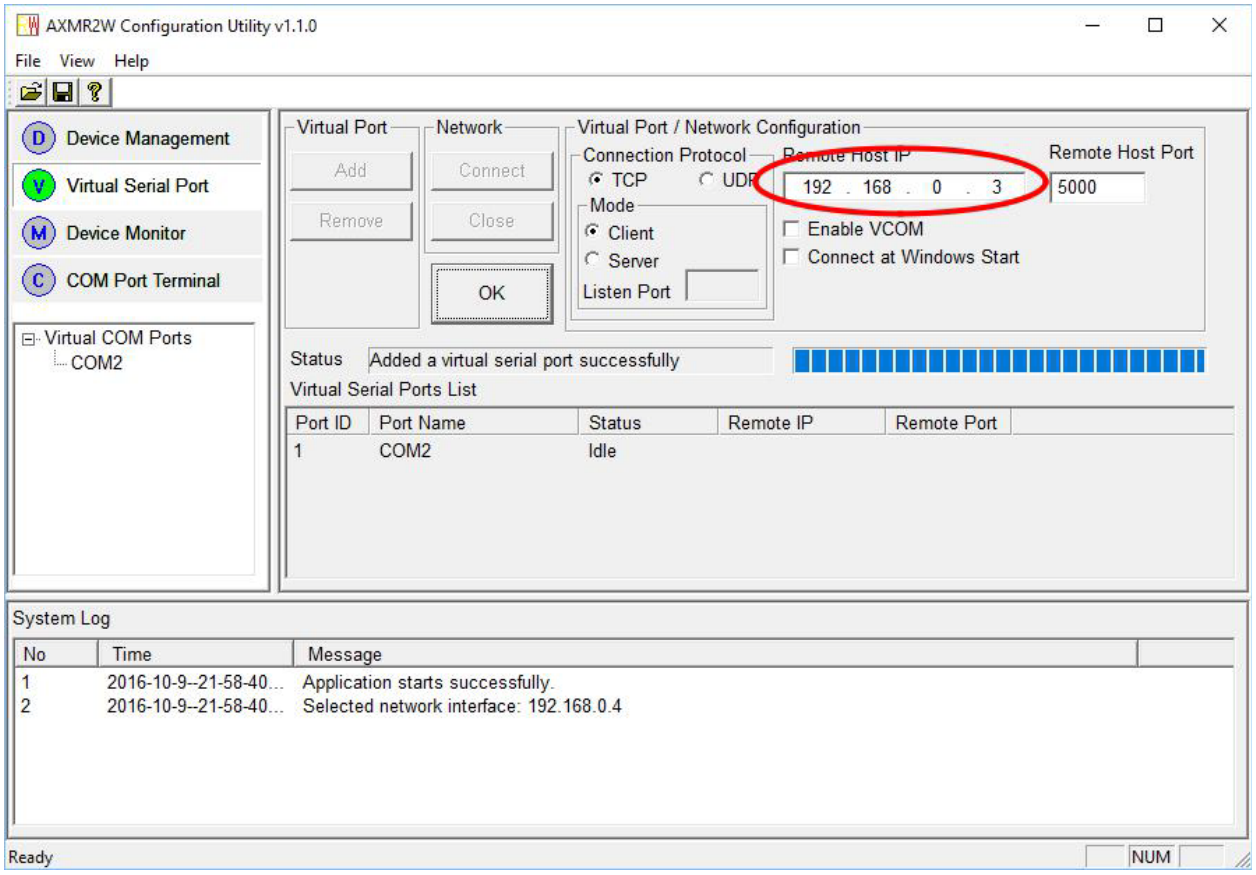
Click the “Setting” button and make sure the adapter’s IP address is entered in the “Remote Host IP” field, and click OK.



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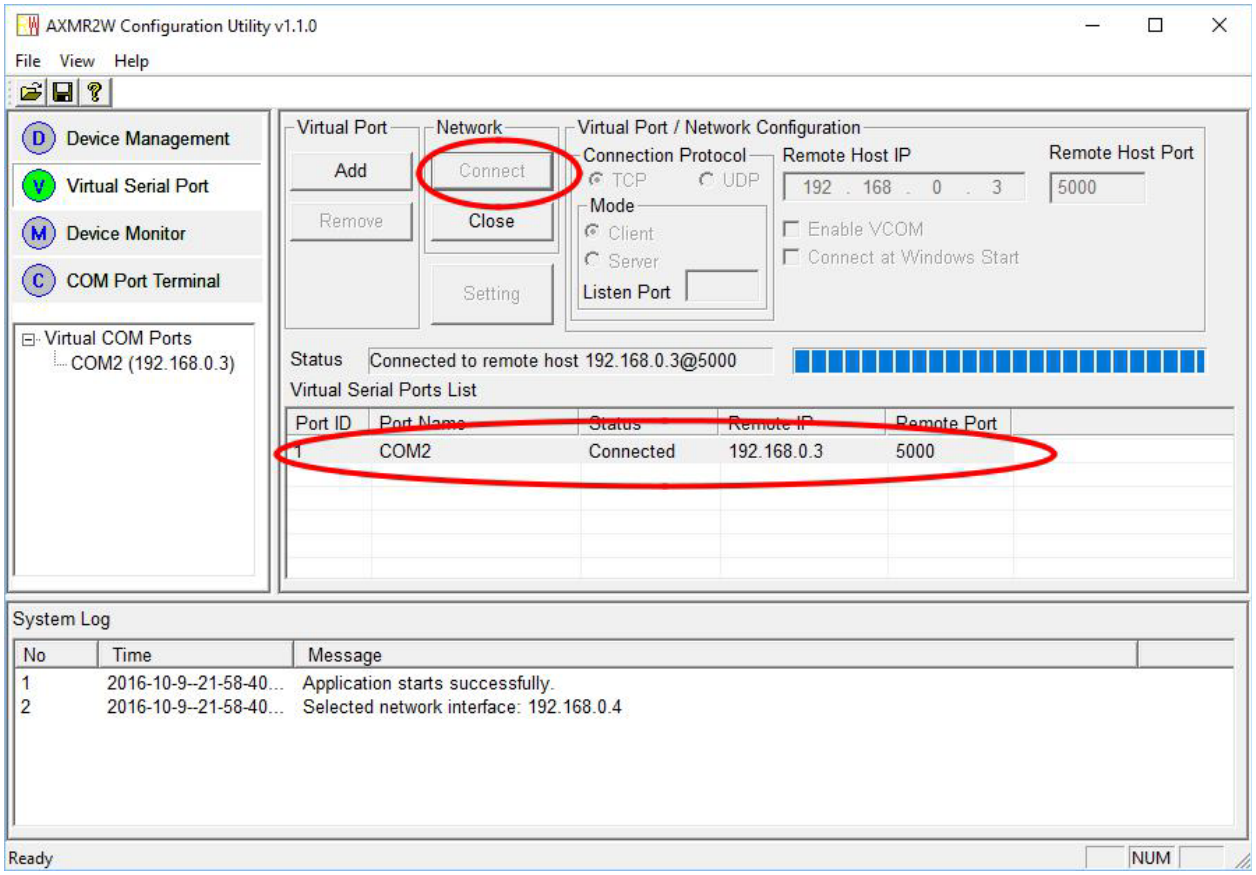
Click the “Connect” button and the software will open the COM port, ready to send and receive data.



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Verifying communication with a loop-back test

To check if the WA232E can send and receive data successfully you can make a loop-back test using AccessPort (can be downloaded from www.usconverters.com).

First loop-back the TX pin (pin 2) to the RX pin (pin 3) in the WA232E's DB9 connector by placing a jumper (for example a paperclip) between the TX and RX pins:

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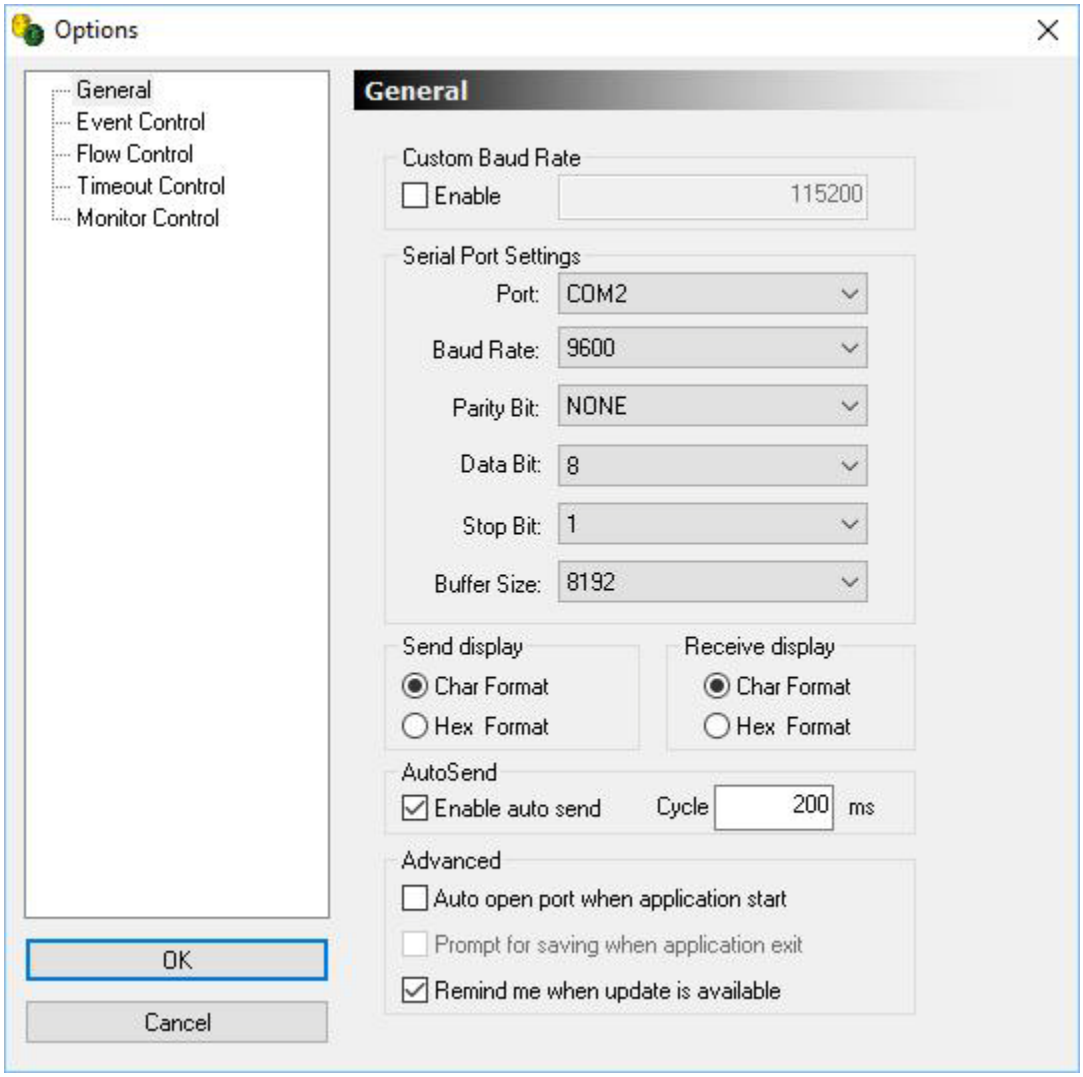
Open AccessPort and set the parameters as shown below:



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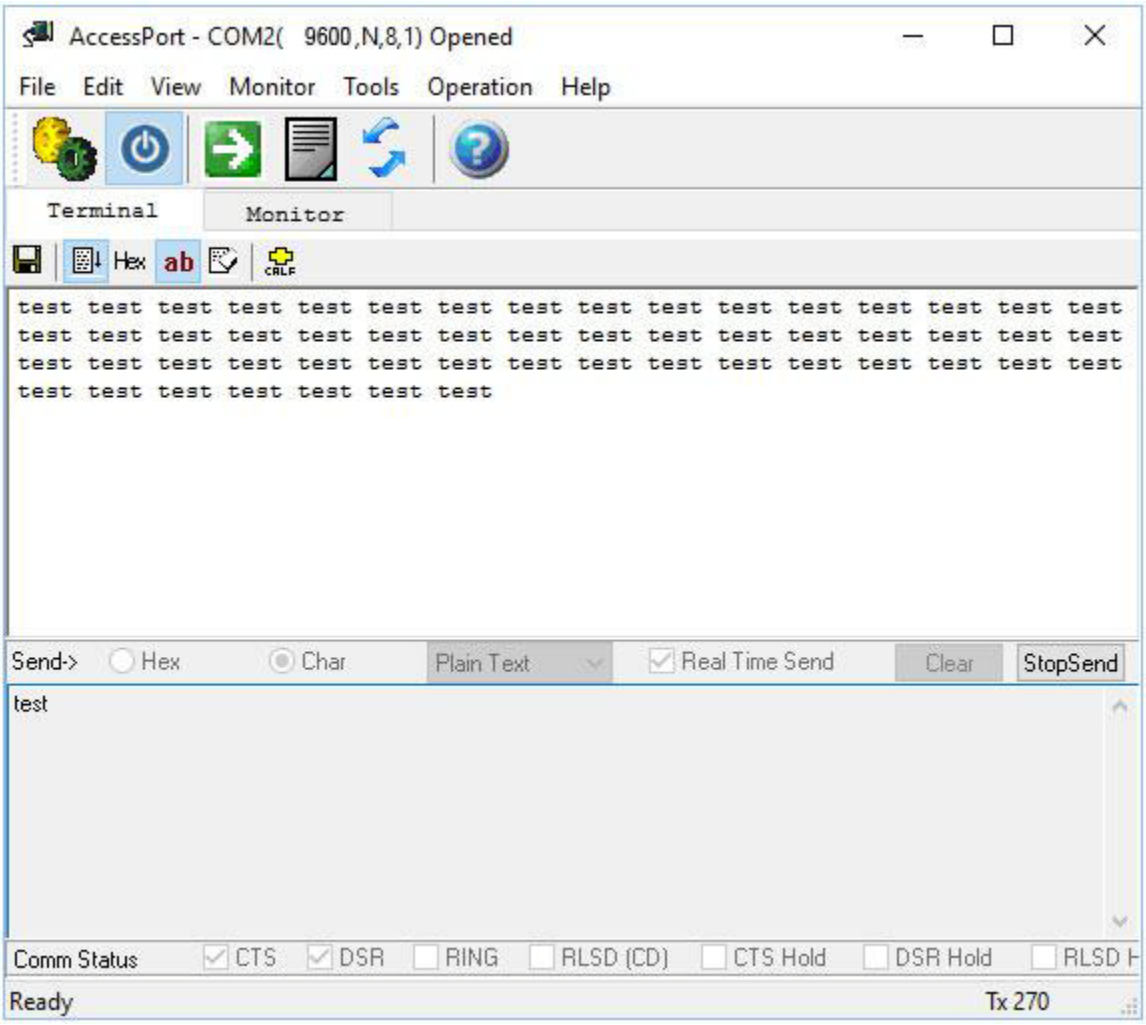
Enter a text string in the lower (send) window.

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

Click “AutoSend”. The text string should now be sent to the WA232E, 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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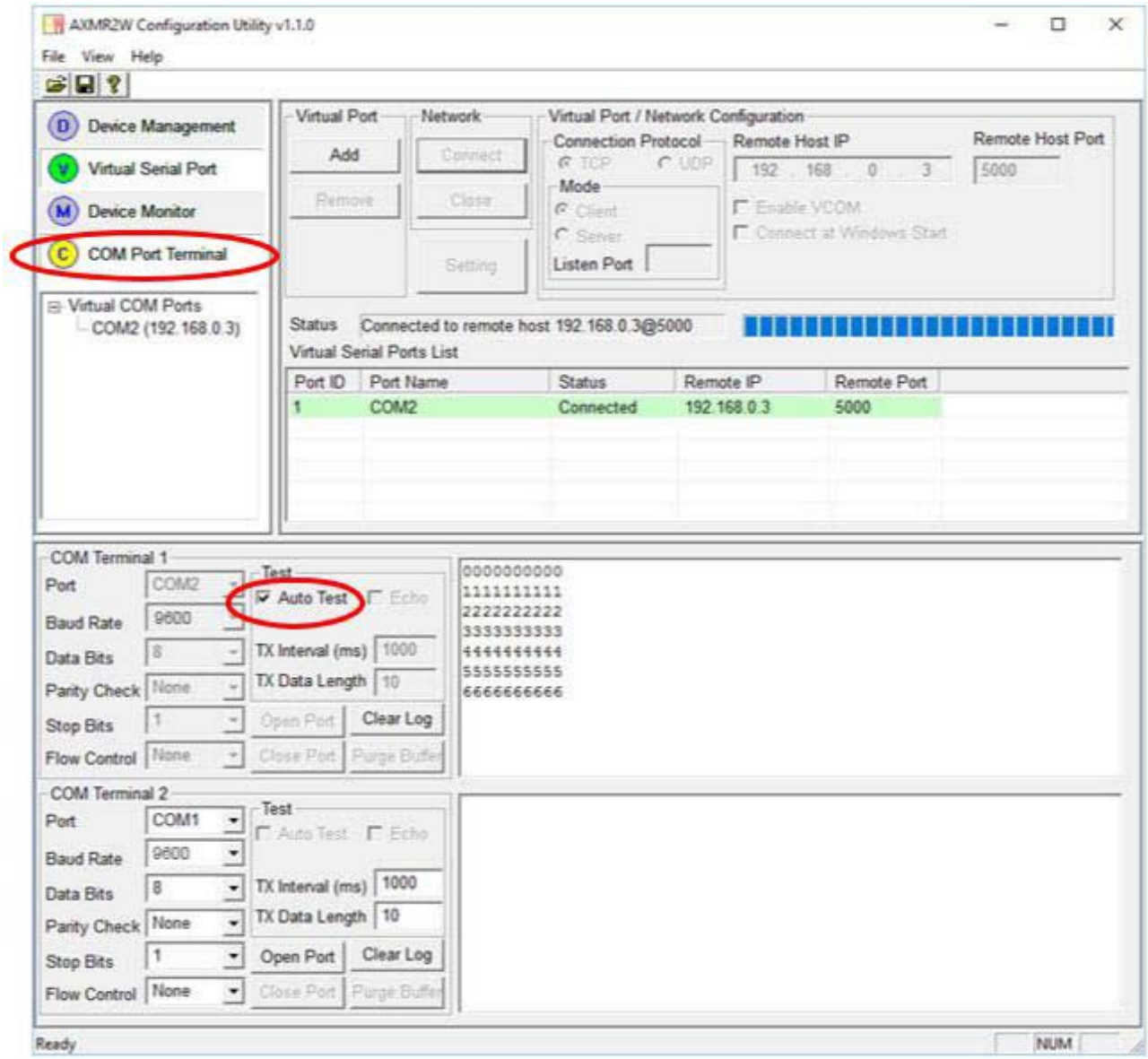
Alternatively a similar test can be made with the built-in COM terminal. Enable “Auto Test” and the software will send out test strings on the TX line:



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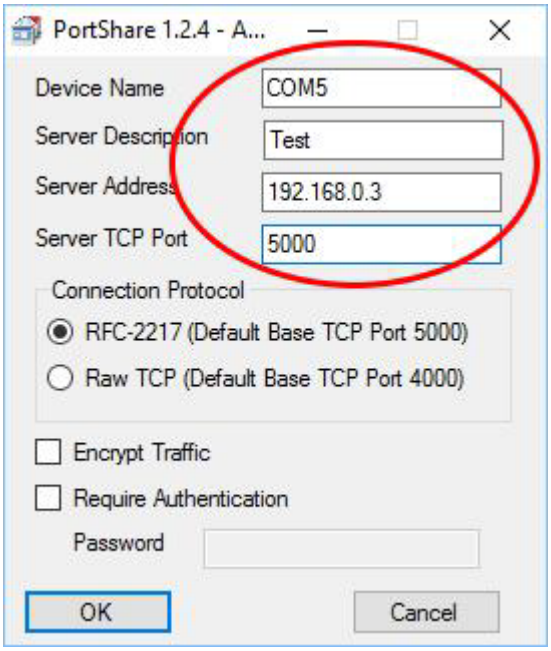
Creating a virtual COM/TCP port - example using PortShare

When creating a virtual COM port, an alternative to using the software utility for the WA232Eis using a COM port redirector called PortShare. PortShare can be downloaded for free at www.usconverters.com.

First make sure that the WA232E has joined the network.

Start PortShare and enter the settings of the WA232E as shown below:



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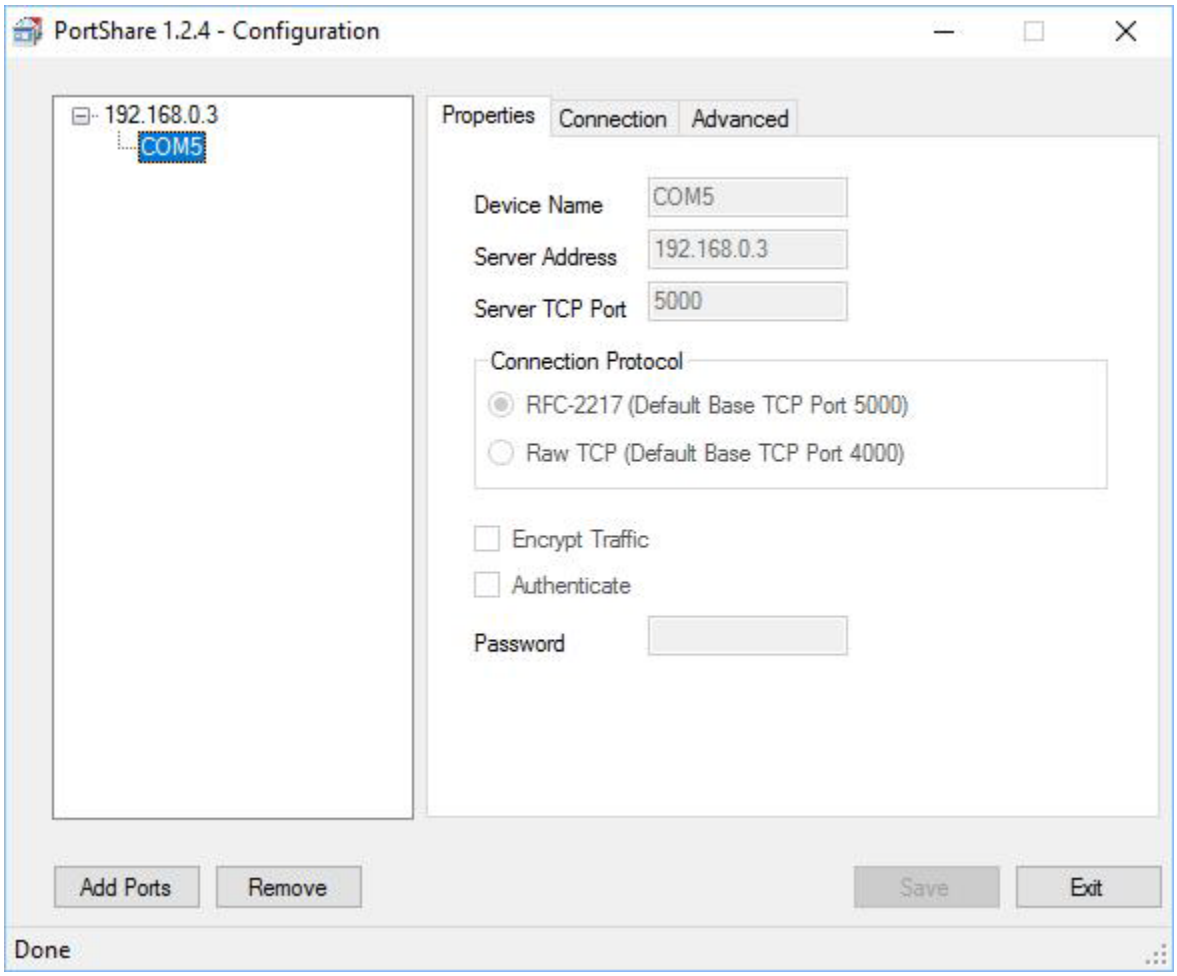
Default settings can usually be used without problems. PortShare will in this example create COM 5:



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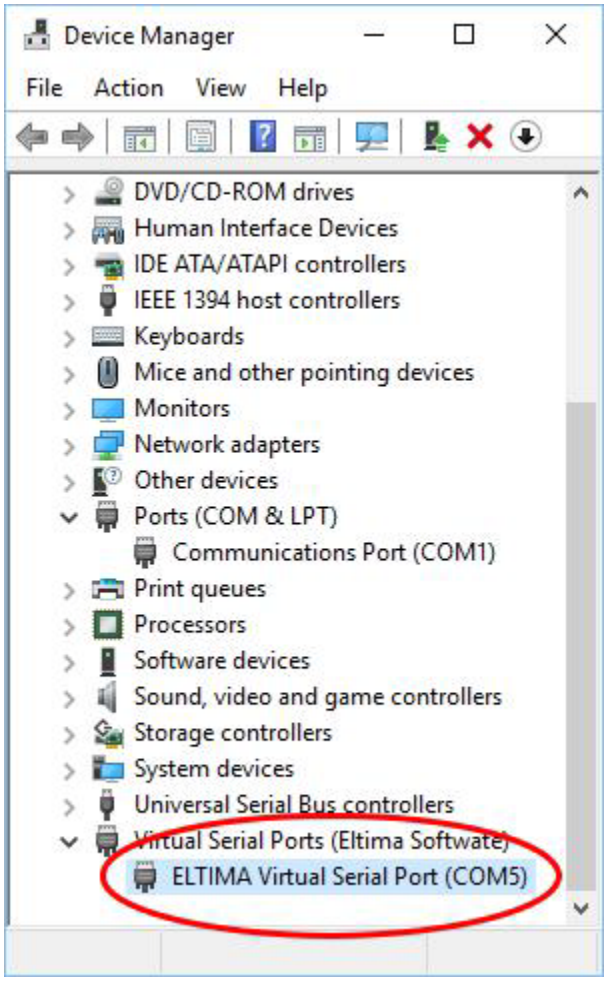
COM port 5 is now available in Device Manager, under “Virtual Serial Ports” in Windows 10. In older Windows versions the COM port may be listed under “Ports (COM & LPT)”:



To verify that the created virtual COM port can communicate properly with the WA232E you can make a loopback test as described earlier in this guide in the section called “Verifying communication with a loop-back test“.

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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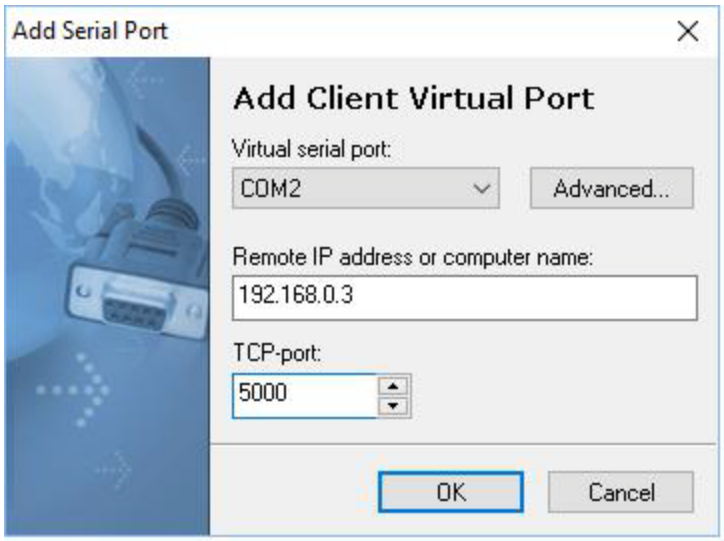
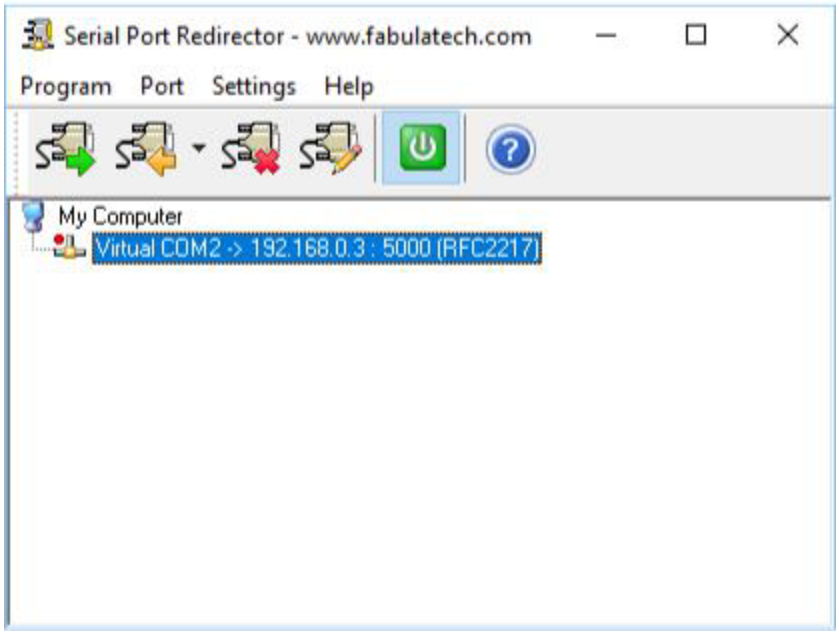
Creating a virtual COM/TCP port - example using Fabulatech

Fabulatech's "Serial Port Redirector" is compatible with the WA232E and an excellent alternative to creating a virtual COM port.
A 15-day trial software can be downloaded from www.fabulatech.com.

Here is a quick overview of what the Fabulatech COM port redirector software looks like:

Enter the COM port number and the IP address of the WA232E





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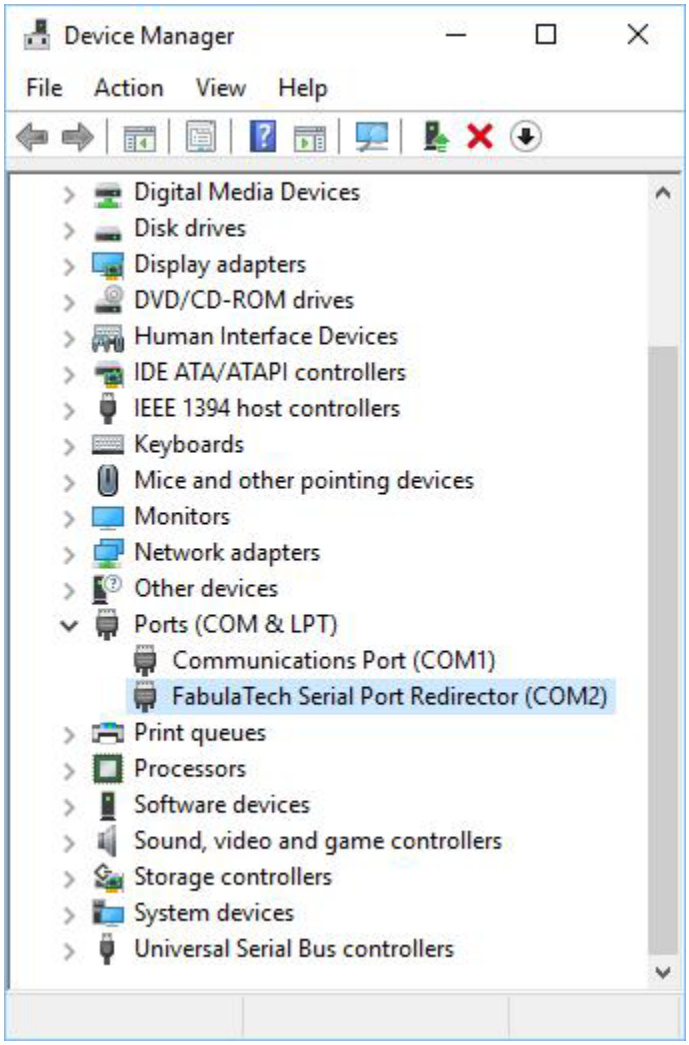
The COM port in now available in Windows Device Manager:



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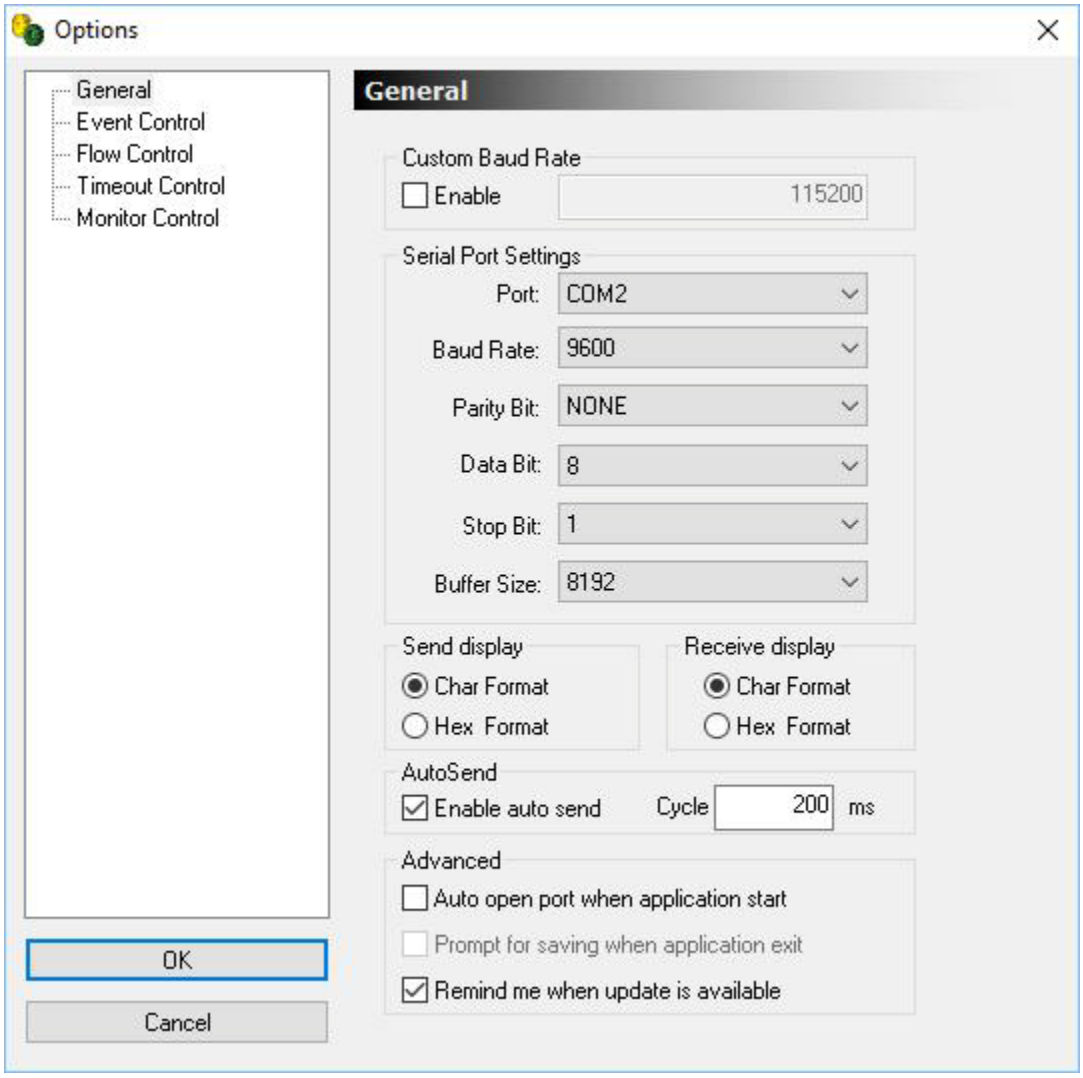
Check the COM port with AccessPort:



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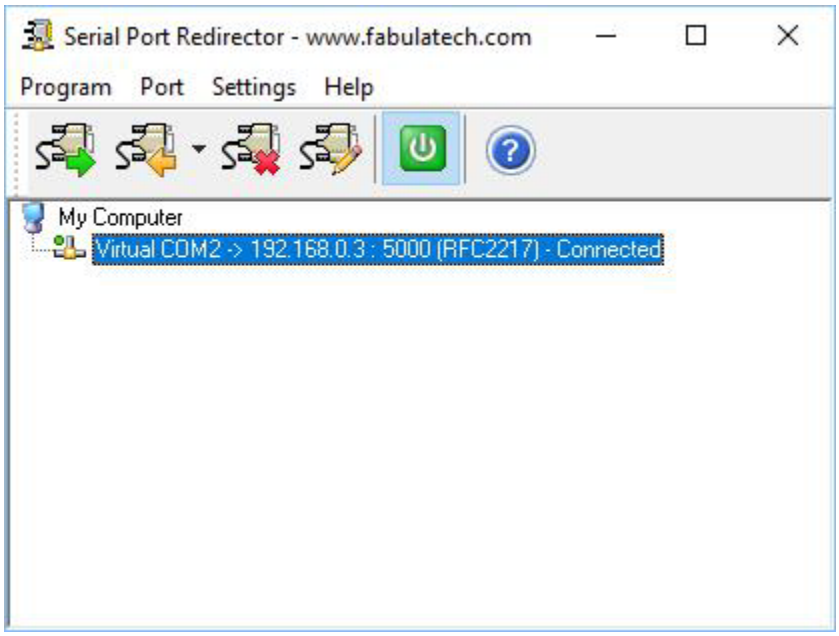
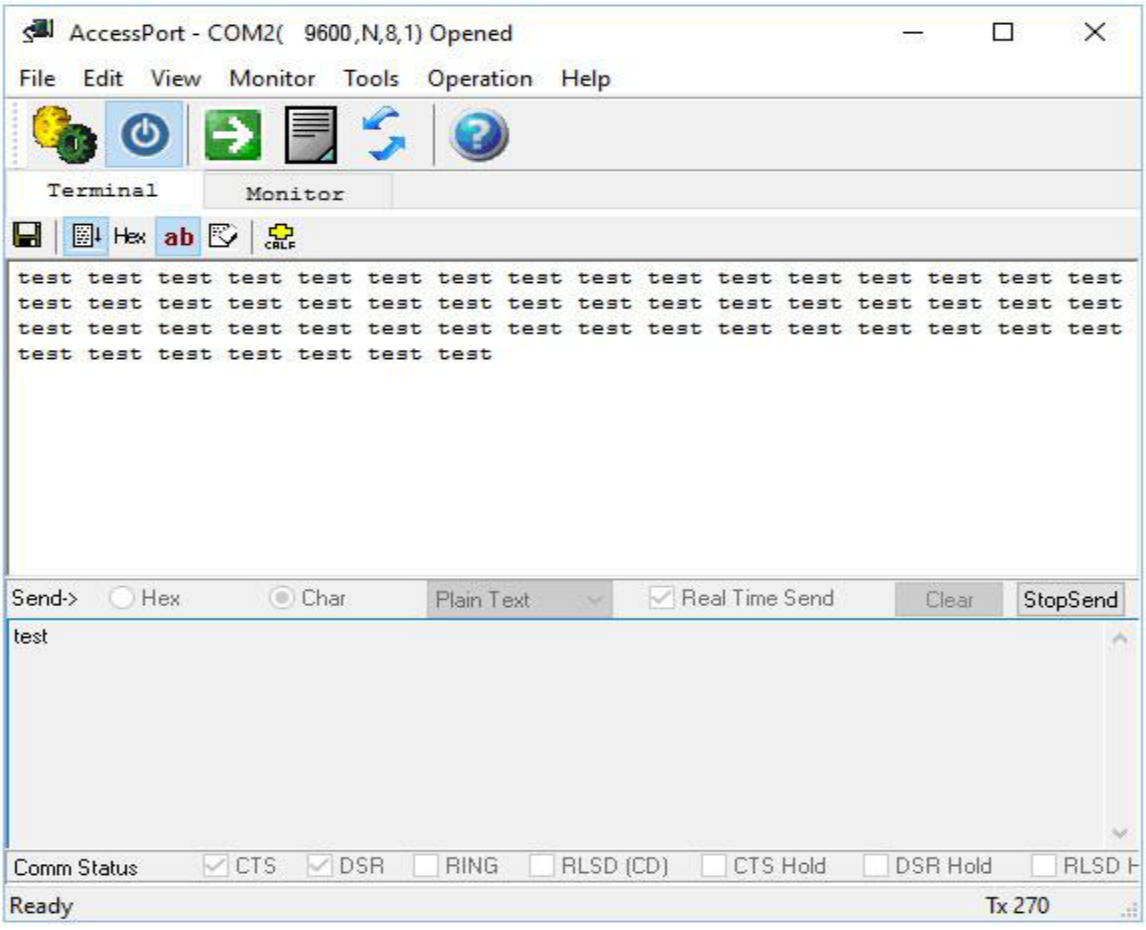
The small green dot next to the COM port indicates that the port is open:



Check that you can send and receive data with a loop-back test:



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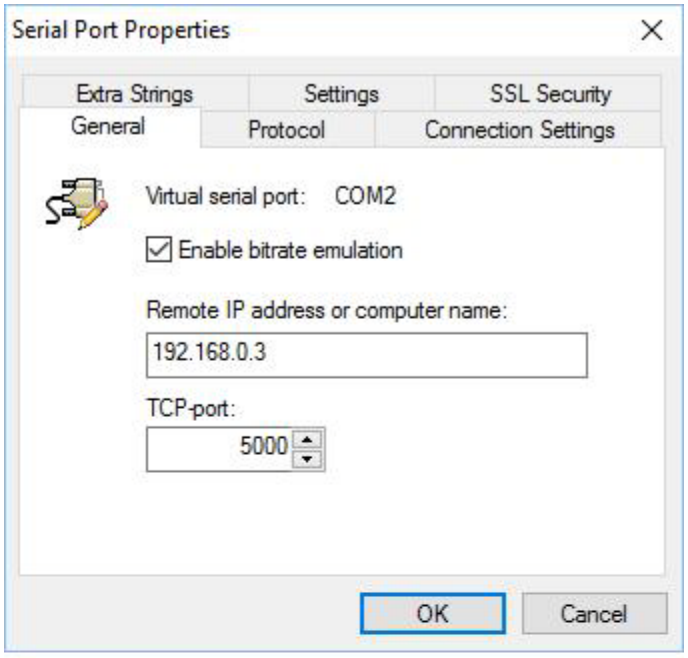
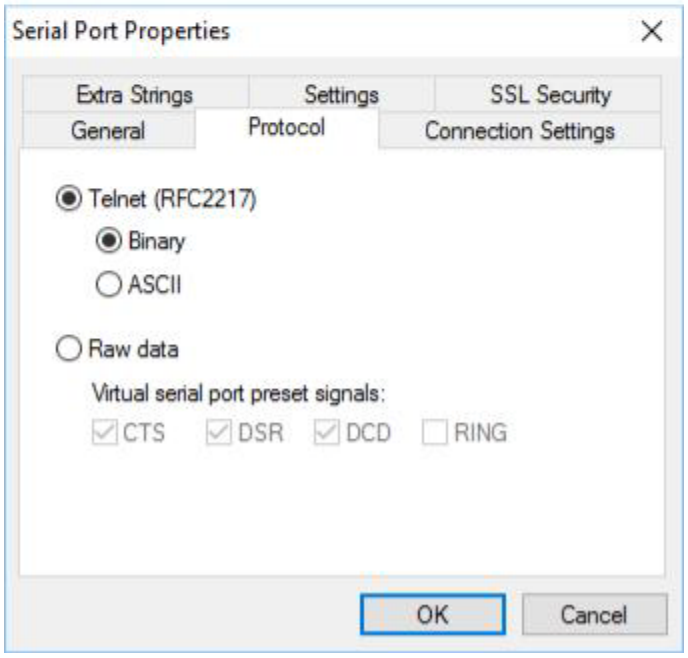
The following shows Fabulatech's COM port redirector's available settings:





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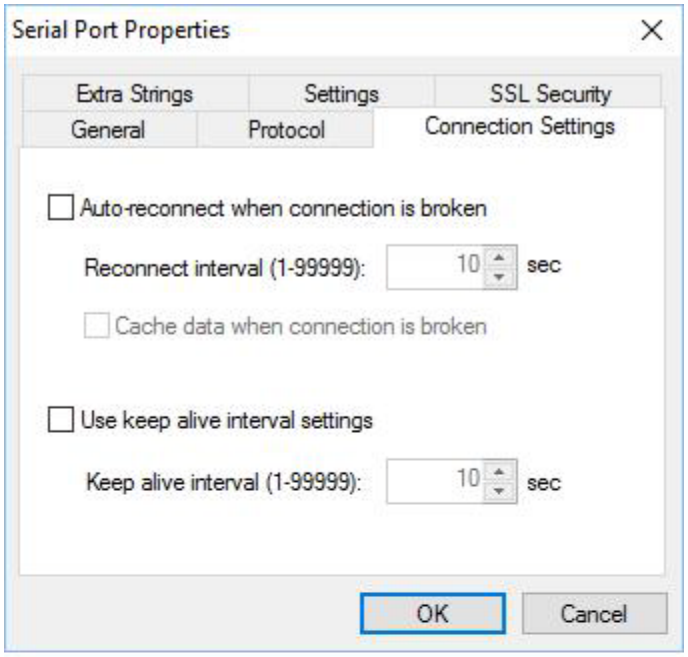

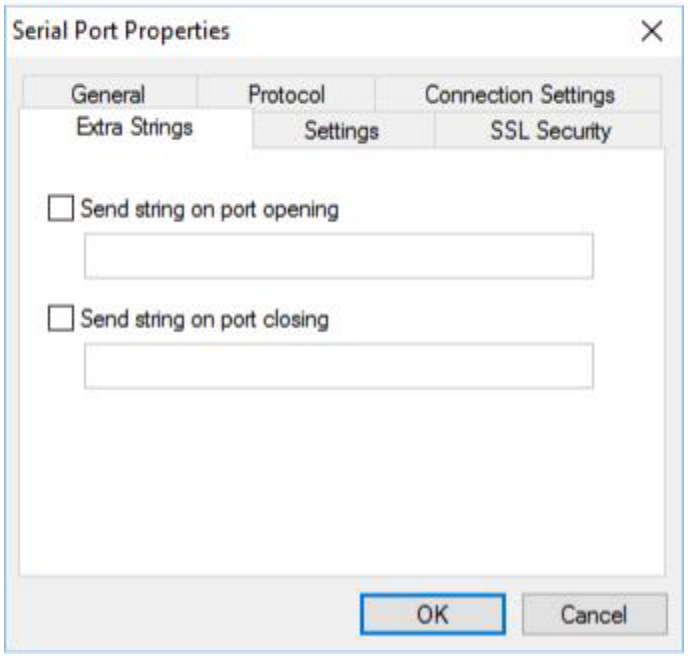

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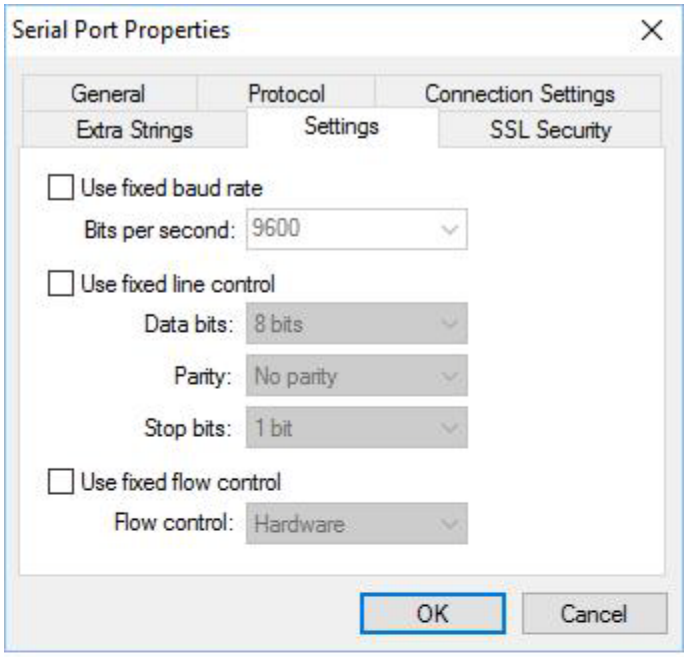

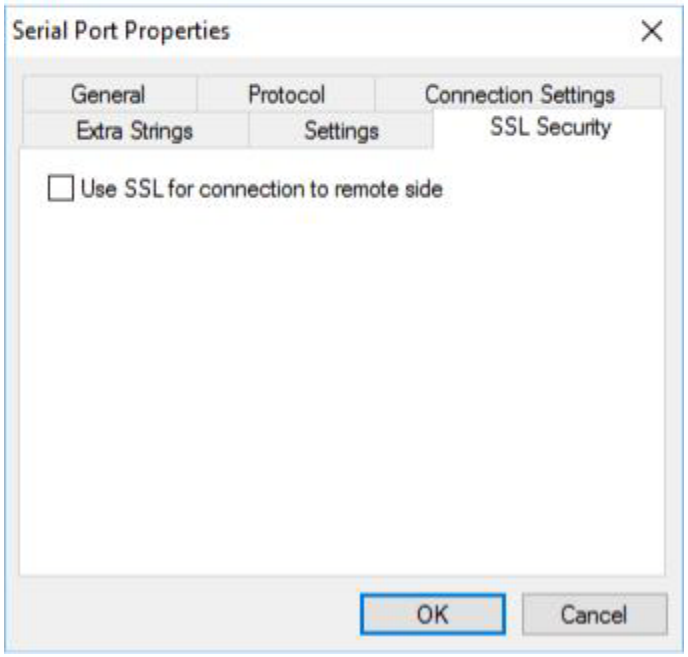

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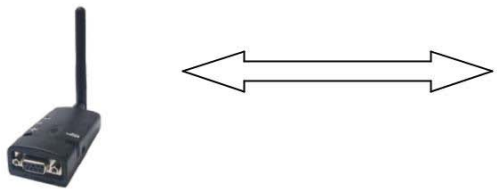
Point-to-point setup

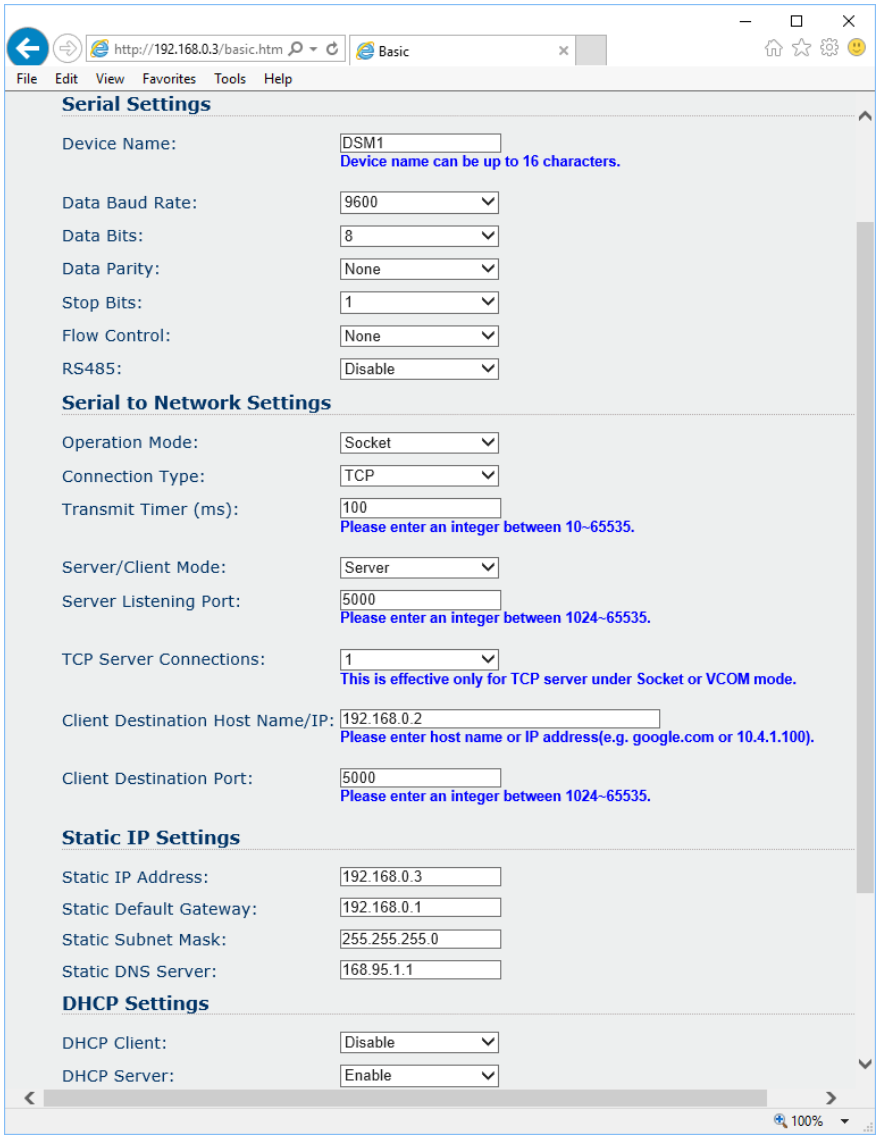
The WA232E can be configured to communicate in pairs between two serial ports, also called point-to-point communication.



Simple AP (TCP Server)

Infrastructure/station mode (TCP Client)

The Server adapter (configured as an Access Point by default) is using **all default settings** as shown below:



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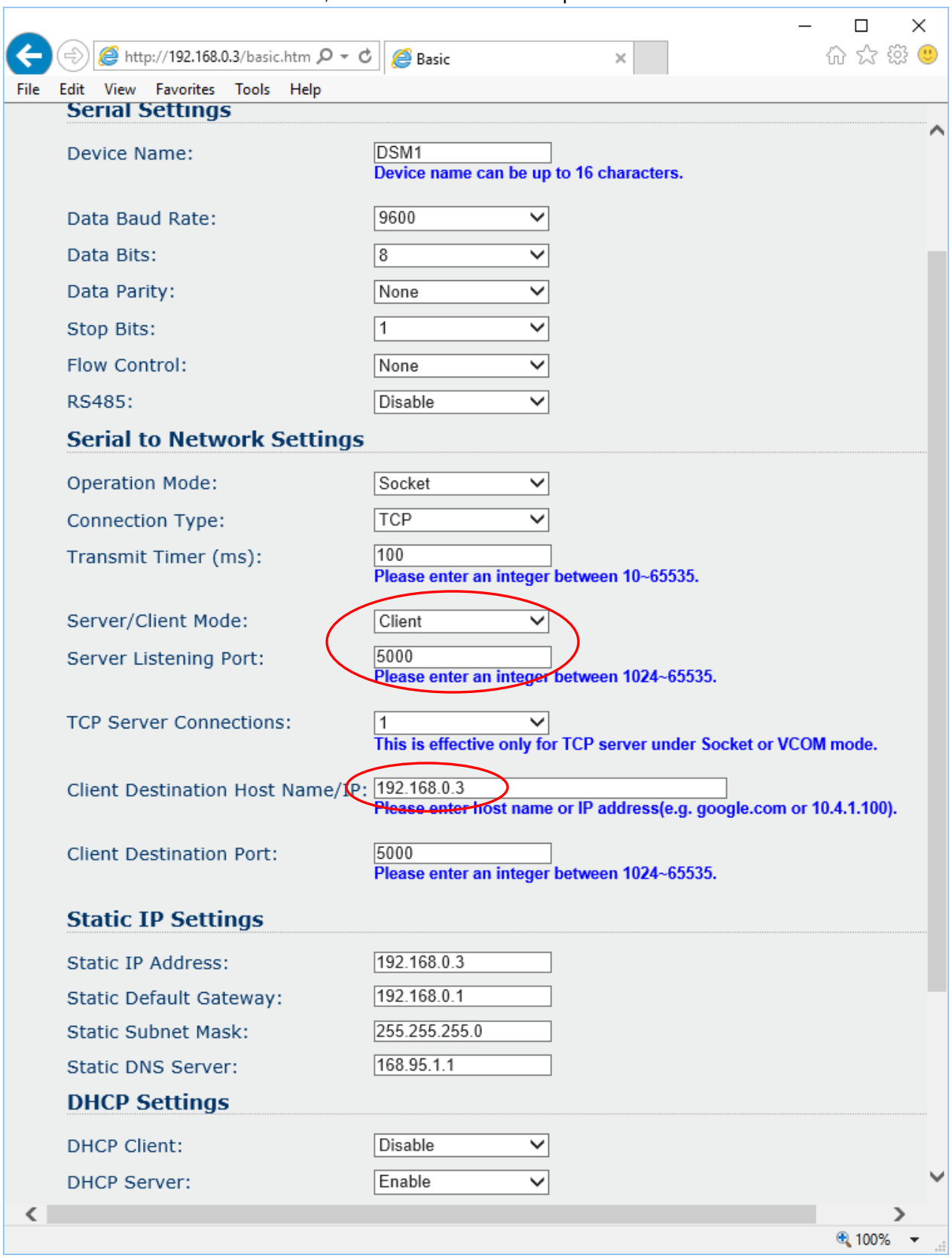
The other adapter must be configured as a Client in STA (Station) mode, with its host IP address set as the same as the Server's IP address, which is 192.168.0.3 and port 5000:



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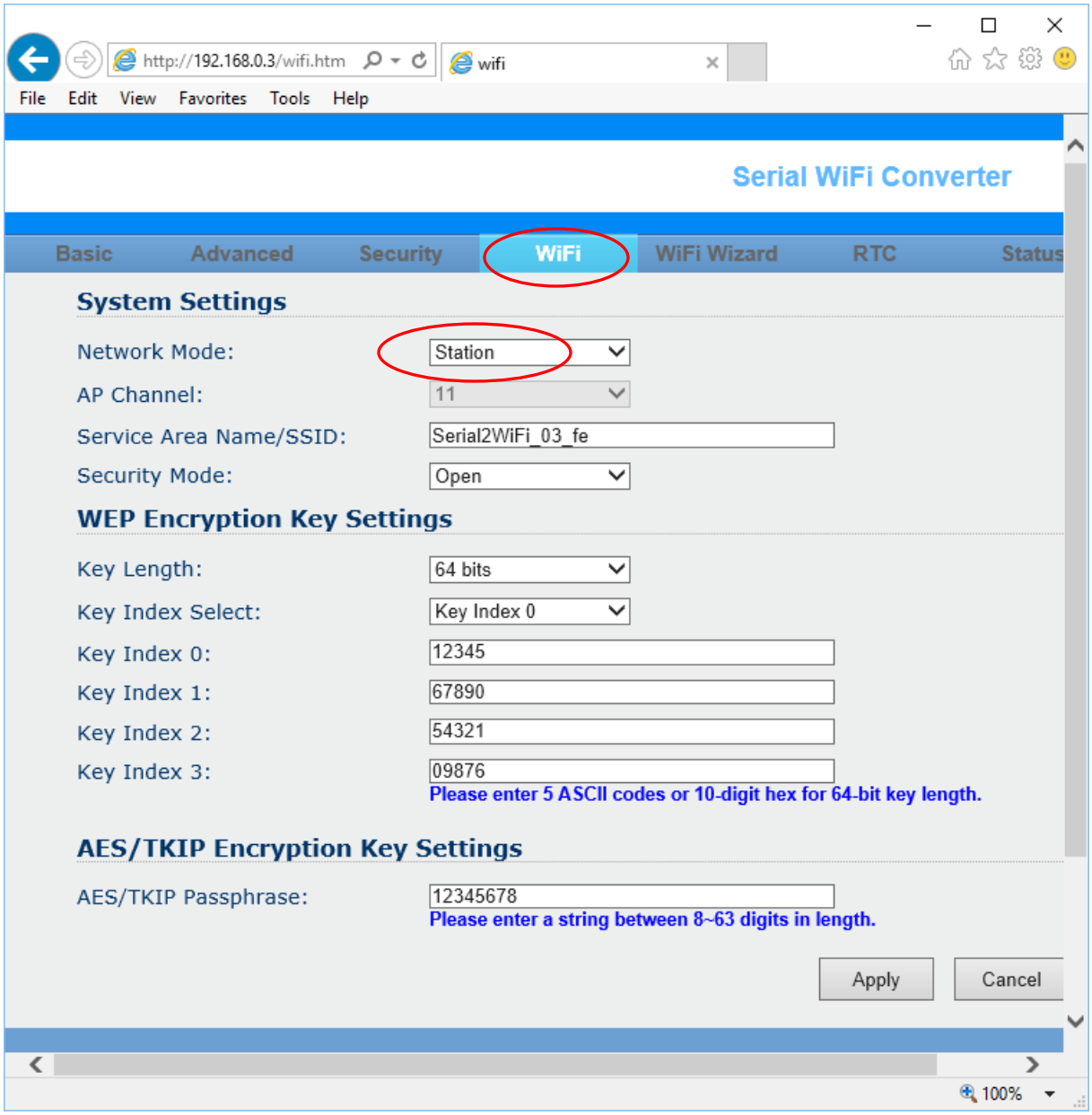

Now save the settings and restart the adapter. The Client adapter should now connect with the Server adapter automatically.

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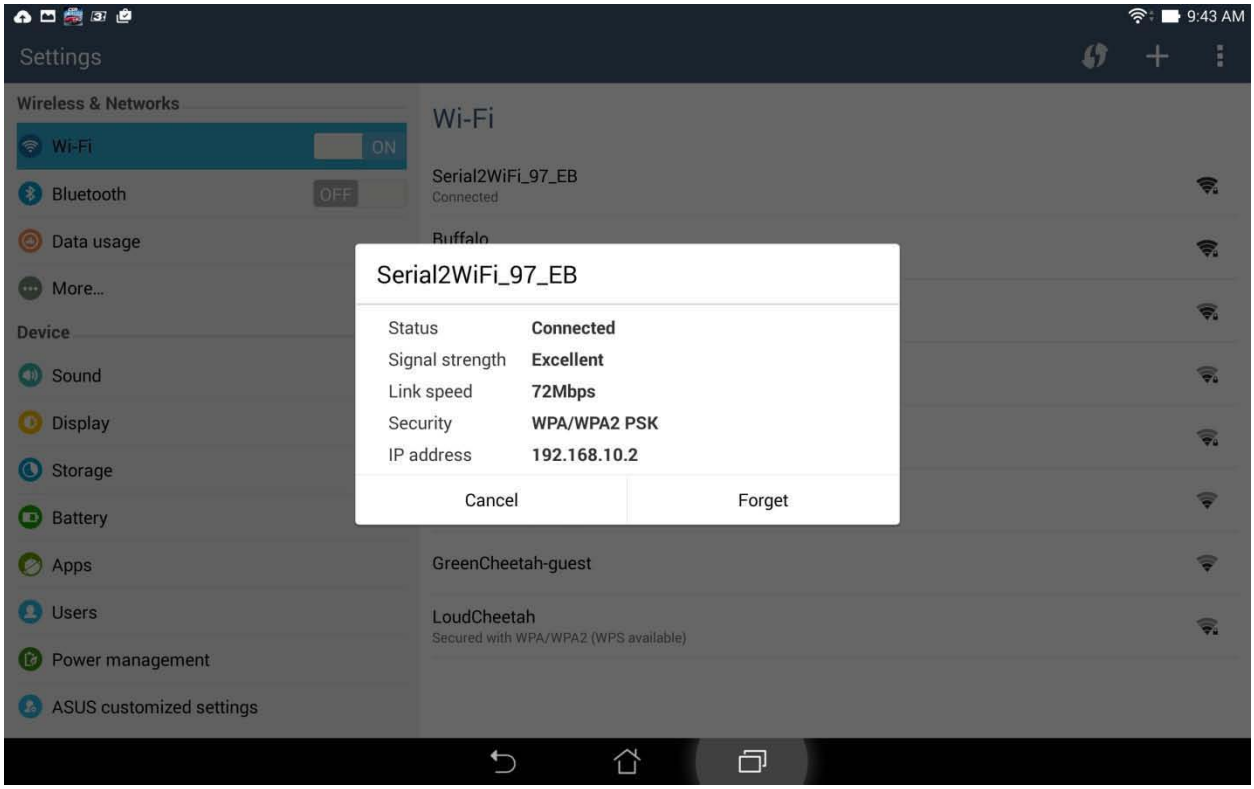
Connecting with Android

Connecting and communicating with the WA232E using an Android tablet is easy. Simply search for the WA232E using the tablet's built-in WiFi manager and connect to the WA232E:



You can now login to the adapter's admin page using any web-browser.

A free terminal emulator APP for Android is offered from the Google Play store:

http://play.google.com/store/apps/details?id=com.ucconnect.uctcpipadapter_hex

Most of the free serial terminals are compatible with the WA232E, 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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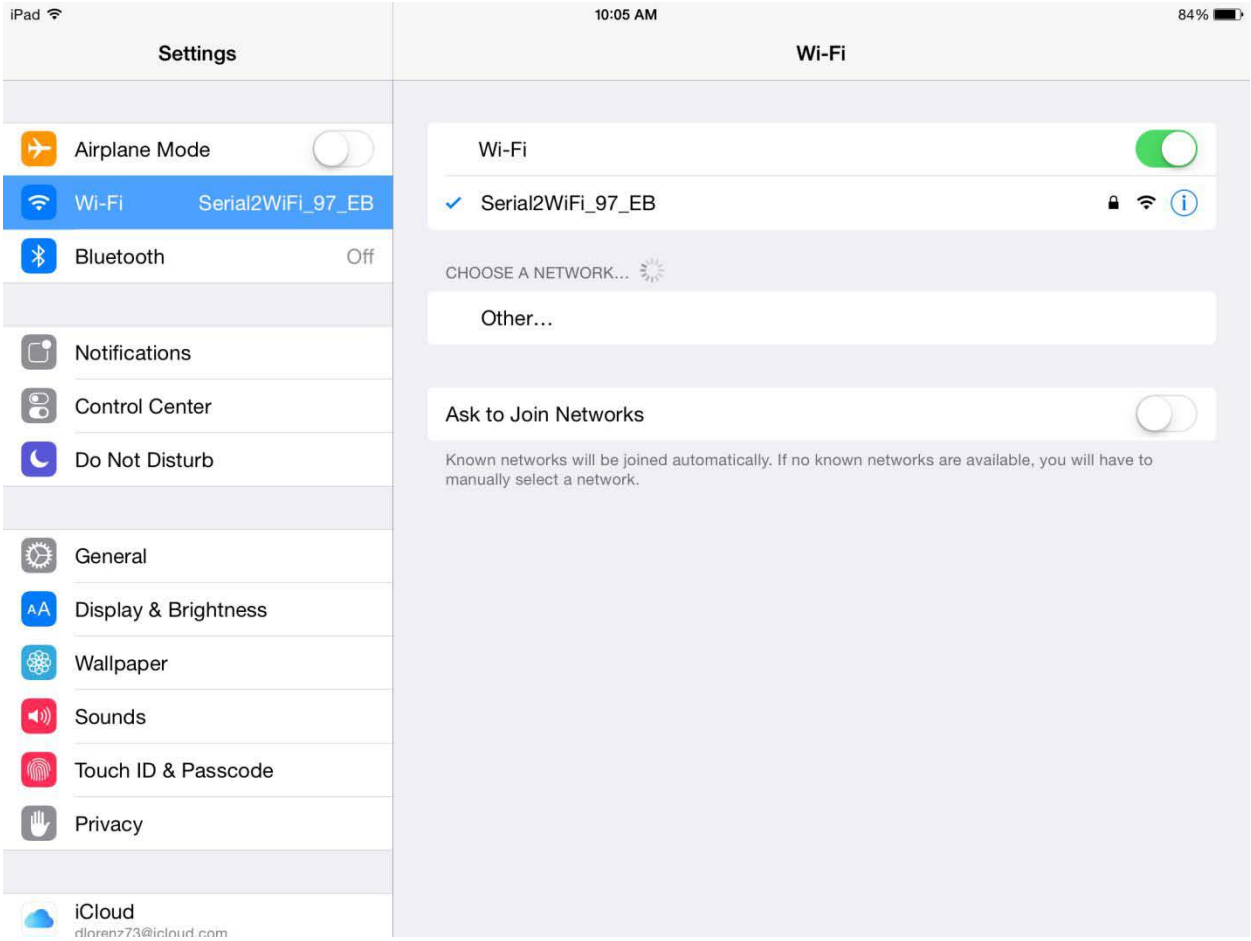
Connecting with iOS

Connecting and communicating with the WA232E using an iPad table is easy. Simply search for the WA232E using the tablet's built-in WiFi manager and connect to the WA232E:



You can now connect to the WA232E's admin page by using a web-browser.

A free terminal emulator APP for iOS is offered from the iTunes store:
https://itunes.apple.com/us/app/tcp-ip-to-serial-terminal/id1238054234?l=zh&ls=1&mt=8

Most of the free serial terminals are compatible with the WA232E, 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.

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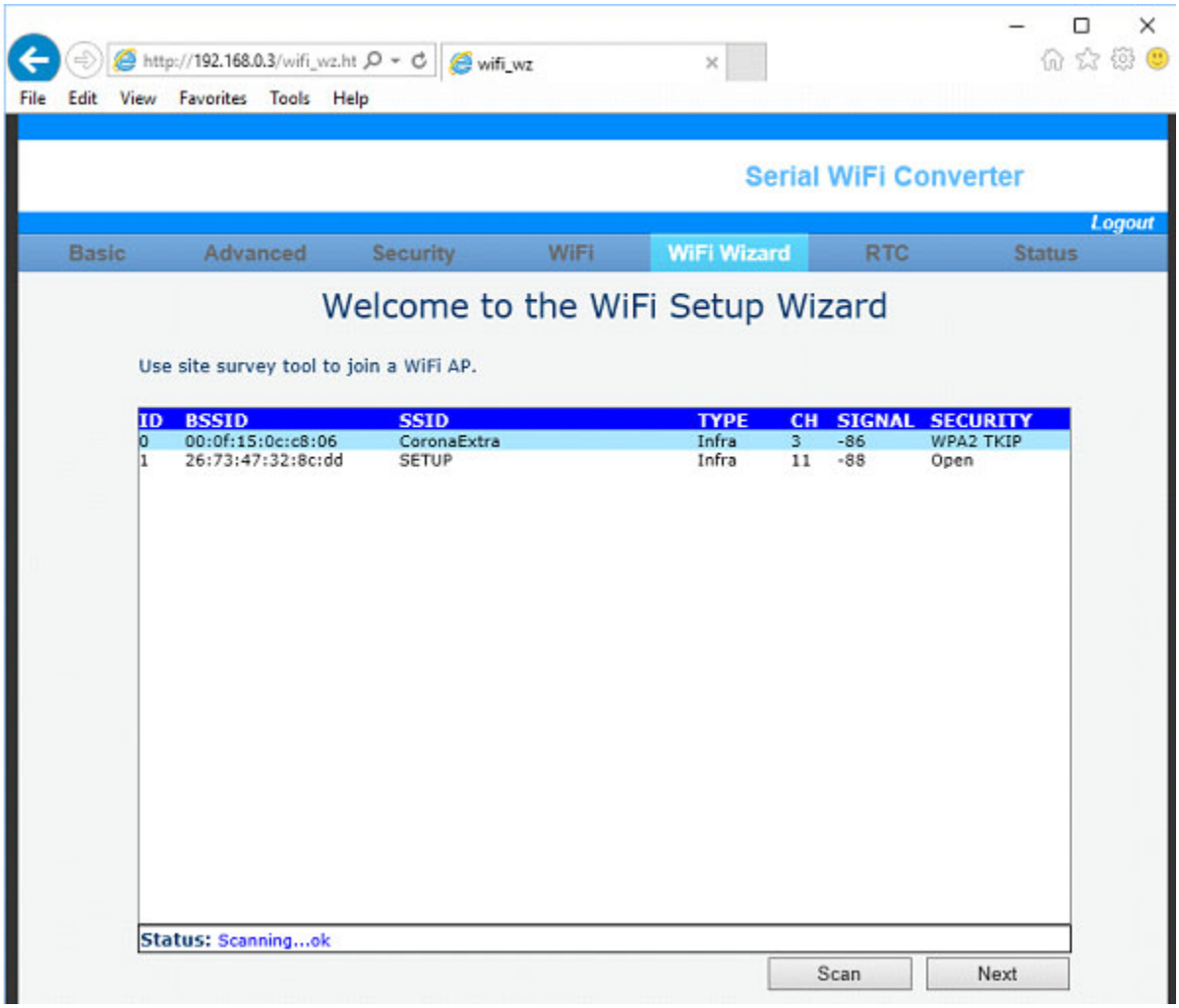
How to connect the WA232E using a wireless router

The setup looks like this:

First login to the WA232E using an access point (not the wireless router) as described earlier in this guide. Go to the “WiFi Wizard” screen, select the SSID you want to connect to and click the “Next” button:



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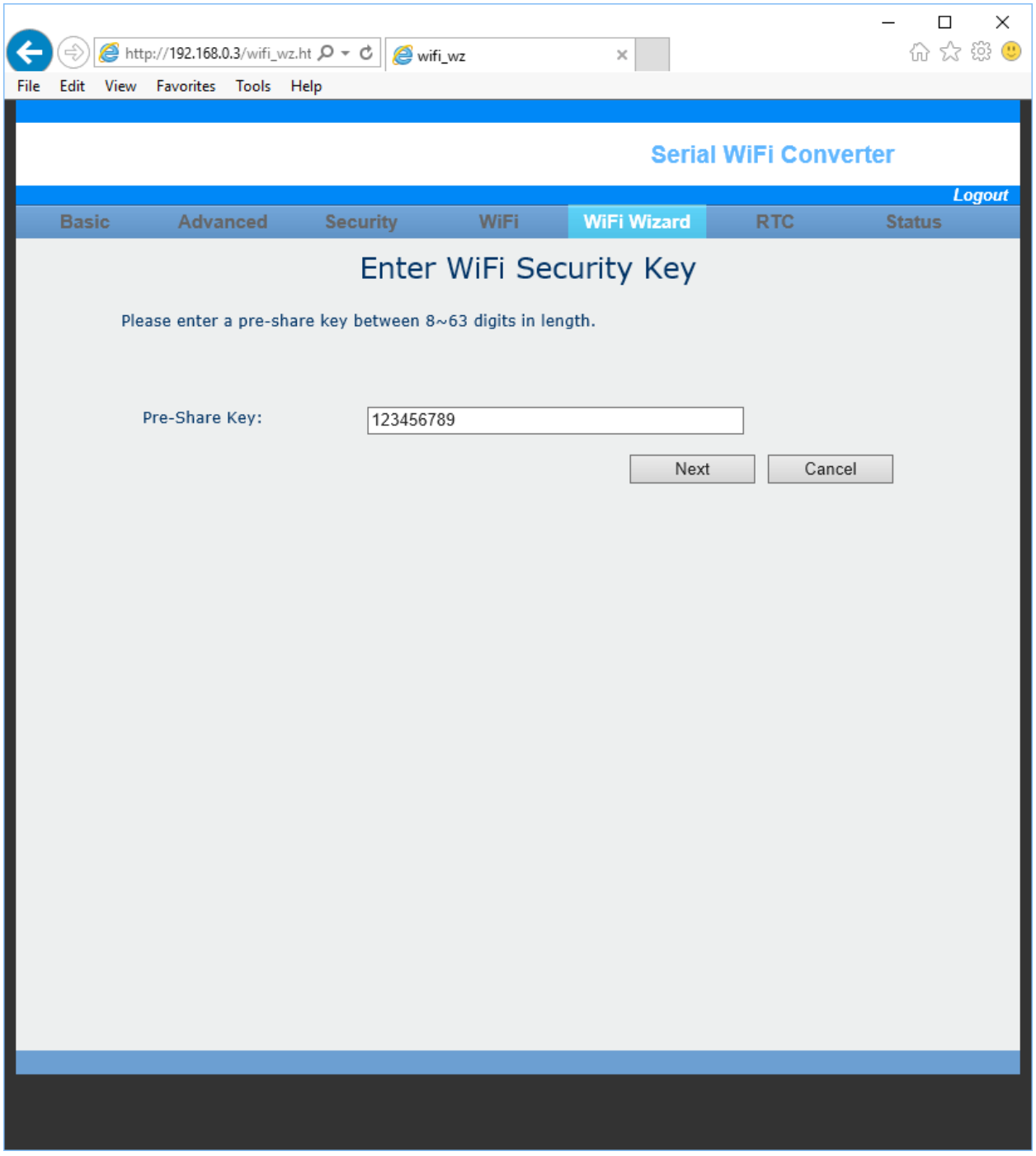
Enter your security key:



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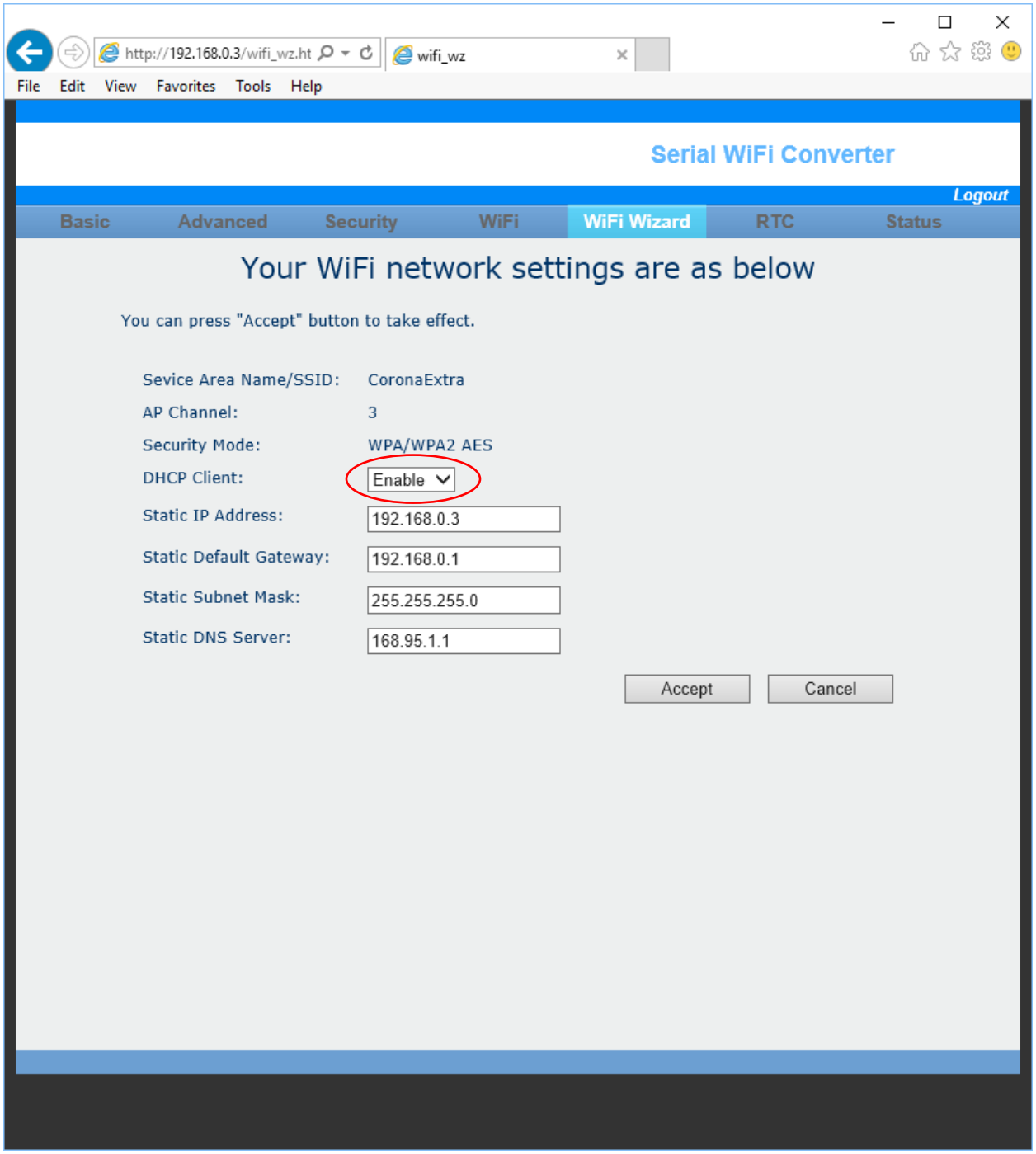
Enable DHCP or give the WA232E a static IP address and click the “Accept” button:



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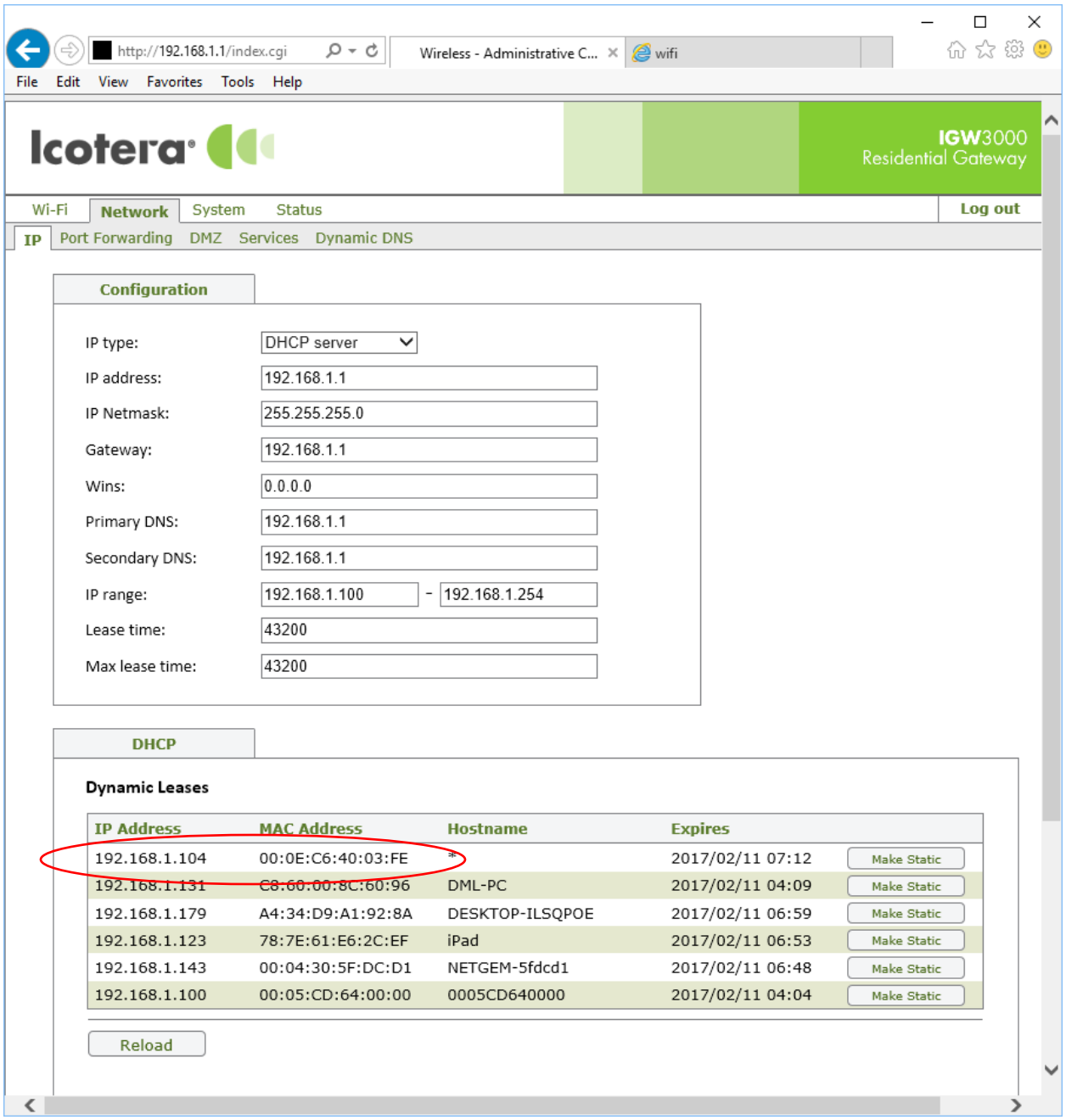
To check and verify if the WA232E has joined the network successfully you may be able to login to your wireless routers admin status page and see what IP address has been assigned to the WA232E:



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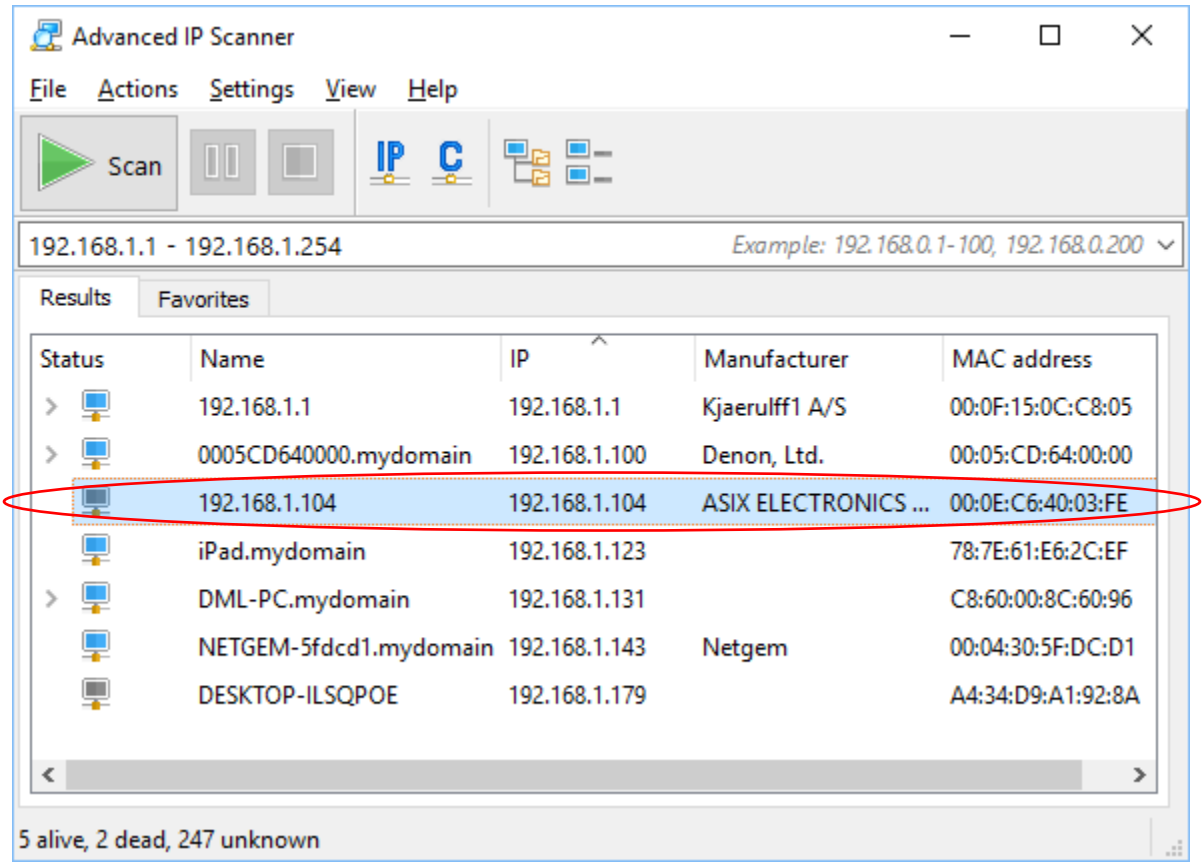
If logging into your wireless router is not an option then you can find the WA232E's IP address with an IP Scanner such as "Advanced IP Scanner", http://www.advanced-ip-scanner.com/



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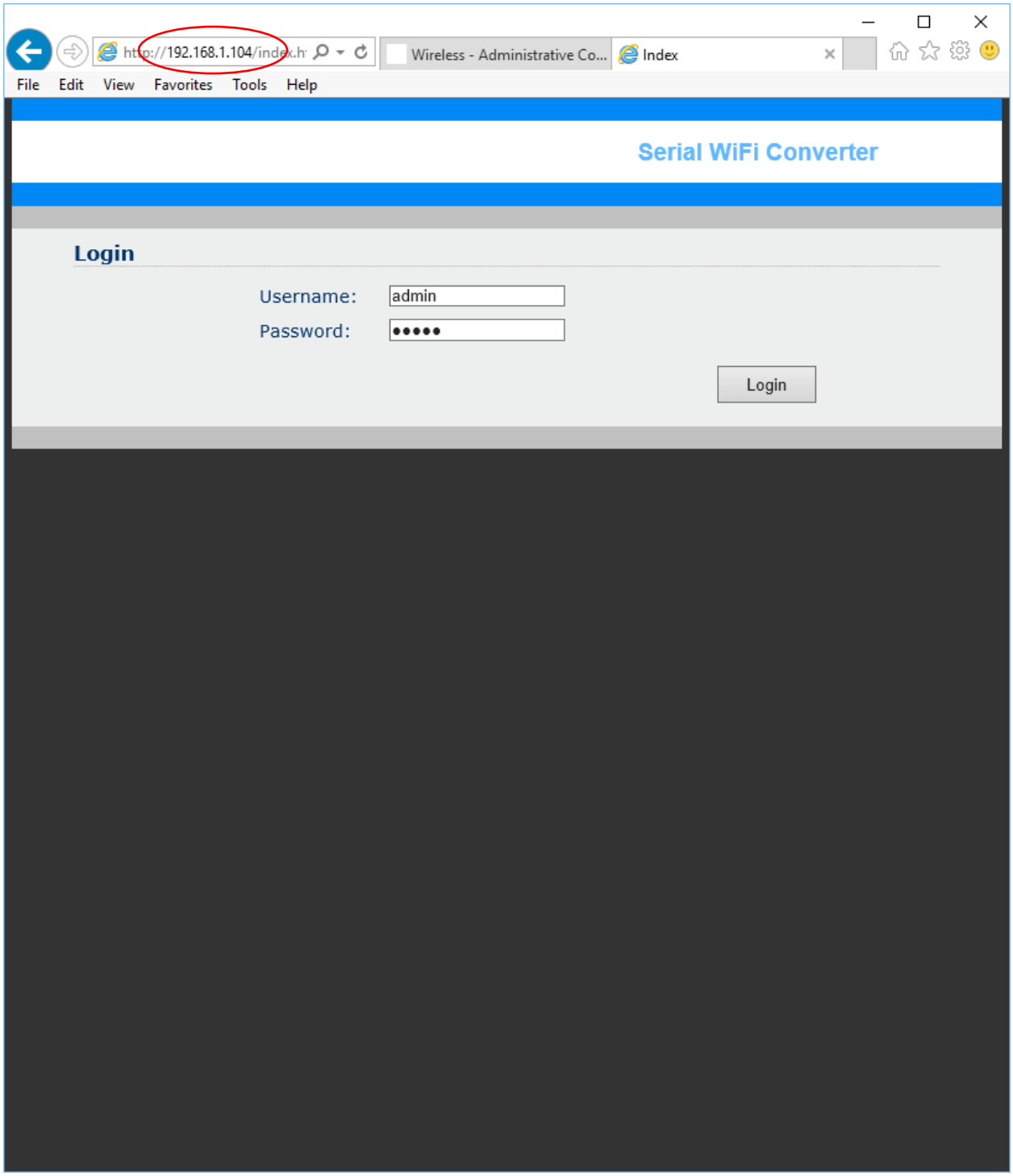
You can now login to the WA232E using the new IP address:



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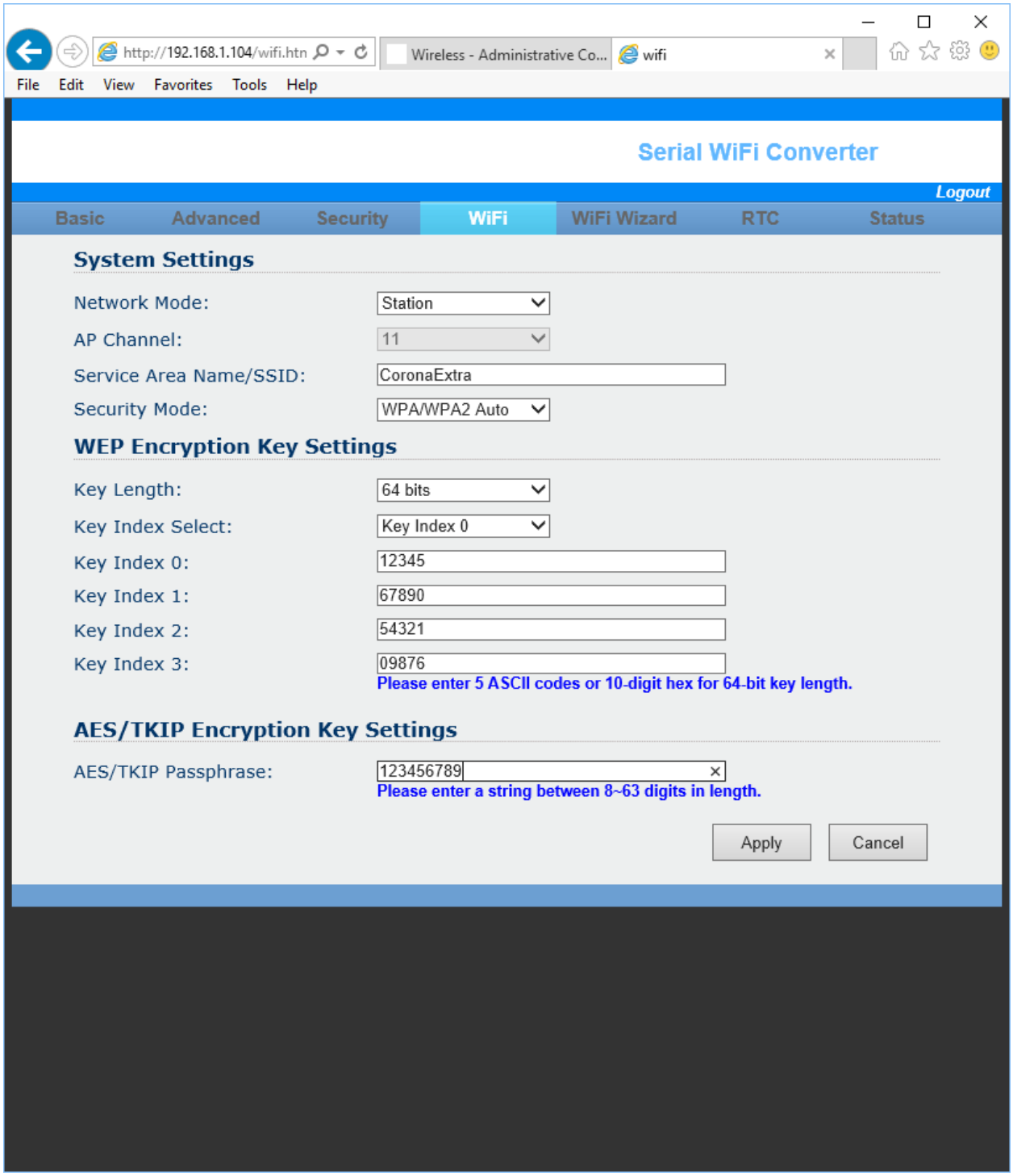

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Troubleshooting / Known issues

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 WA232E 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.

1. 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 WA232E 's then they will disconnect randomly.

2. Make sure the WA232E’s power supply is sufficient. We recommend 5VDC 1000mA USB power adapter, powered from a 120VAC-5VDC wall adapter.

3. 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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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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