

# WMIA-198N

## Specifications

Standard	IEEE 802.11abgn
Chipset solution	Atheros AR9220
Radio stream <b>[Note1]</b>	2T2R
Antenna Type / con.	2 U.FL connectors
Bus Interface	32-bit mini-PCI Type III A
Form Factor	Mini PCI
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS 0 to 15 for HT20MHz MCS 0 to 15 for HT40MHz
Spreading /Modulation Techniques	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Frequency Range <b>[Note2]</b>	2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.825GHz
Transmit Output Power (Tolerance: +/-2dBm)	802.11b: 18dBm@11Mbps 802.11g: 17dBm@54Mbps 802.11a: 16dBm@54Mbps 802.11gn HT20: 17dBm@MCS7 802.11gn HT40: 17dBm@MCS7 802.11an HT20: 12dBm@MCS7 802.11an HT40: 9dBm@MCS7
Receiver Sensitivity (Tolerance: +/-2dBm)	802.11b: -90dBm @11Mbps 802.11g: -78dBm@54Mbps 802.11a: -76dBm@54Mbps 802.11gn HT20: -74dBm@MCS7 802.11gn HT40: -73dBm@MCS7 802.11an HT20: -74dBm@MCS7 802.11an HT40: -69dBm@MCS7
Operating Voltage	3.3 V $\pm$ 10 % I/O supply voltage

Power Consumption	TX Mode: 800mA(Max) RX Mode: 300mA(Max),
Temperature Range	0° ~ +60°C (Operating), -20°~+80°C (Storing) <b>[Note3]</b>
Humidity (non-condensing)	15~90%(Operating), 5~95 % (Storing) <b>[Note3]</b>
Security	WEP / WPA / WPA2
OS supported	Windows XP/Vista/Win7, Linux

## **Federal Communication Commission 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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

### **Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

**This device is intended only for OEM integrators under the following conditions:**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: **TNU-198NV2**". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

### **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

## ***Quick Installaton Guide***

**Version 1.0**

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## 1. Package Contents

Before you starting to use this Mini PCI Module, please check if there's anything missing in the package, and contact your dealer of purchase to claim for missing items:

### Package Contents

Please make sure you have the following in the box:

- ◆ Atheros Mini PCI Module
- ◆ Driver / QIG CDROM

**Note:** if anything is missing, please contact your vendor

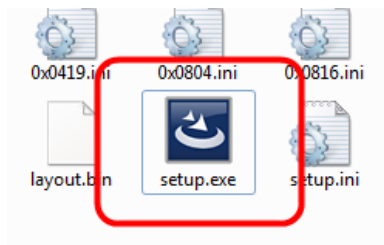


## 2. Quick installation Guide

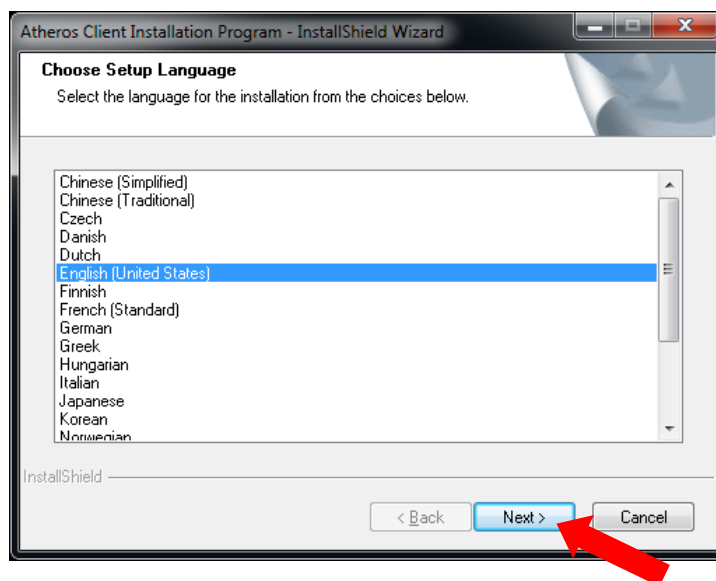
Please follow the following instructions to use Atheros Wireless Configuration (AWiC) to connect to wireless access point.

## 3. Driver Installation

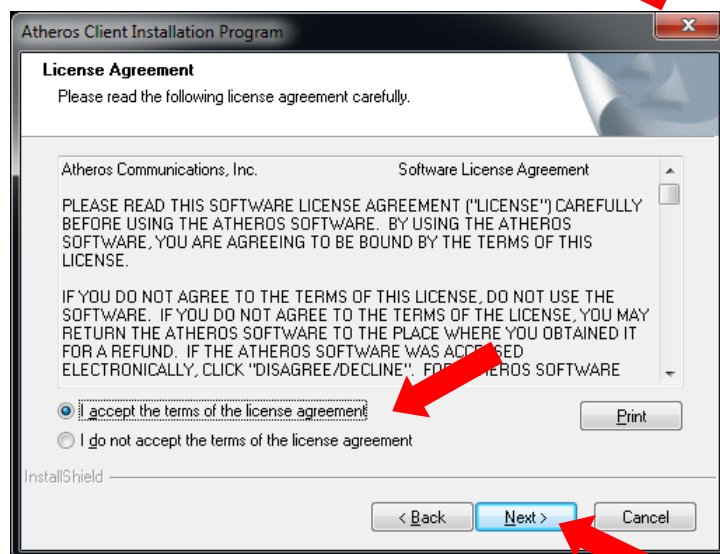
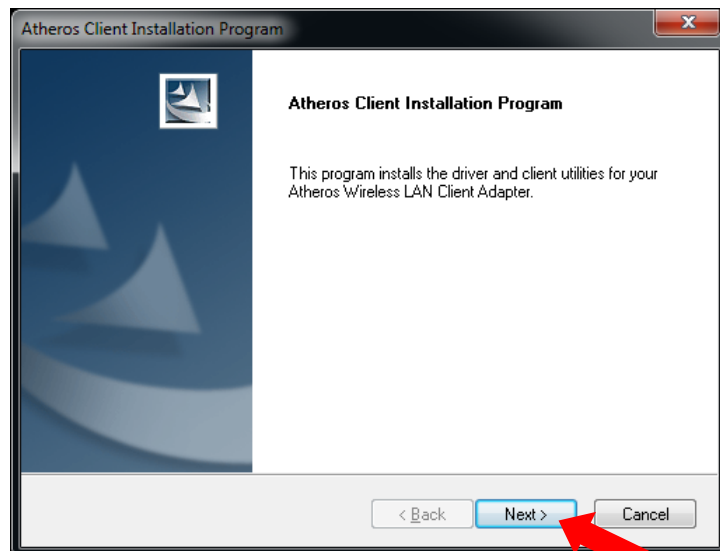
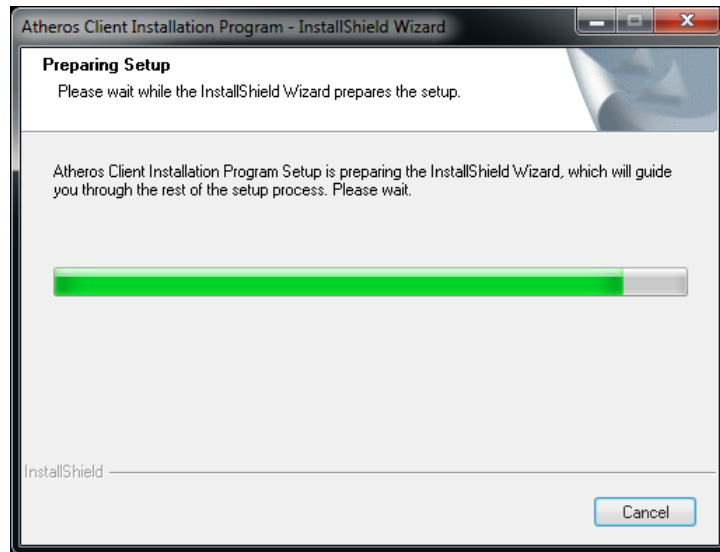
1. Setup your Atheros Mini PCI Module into an empty Mini PCI slot of your computer.
2. Insert the Driver CD, browse to the driver folder then double click the “setup.exe” file to start the driver installation.

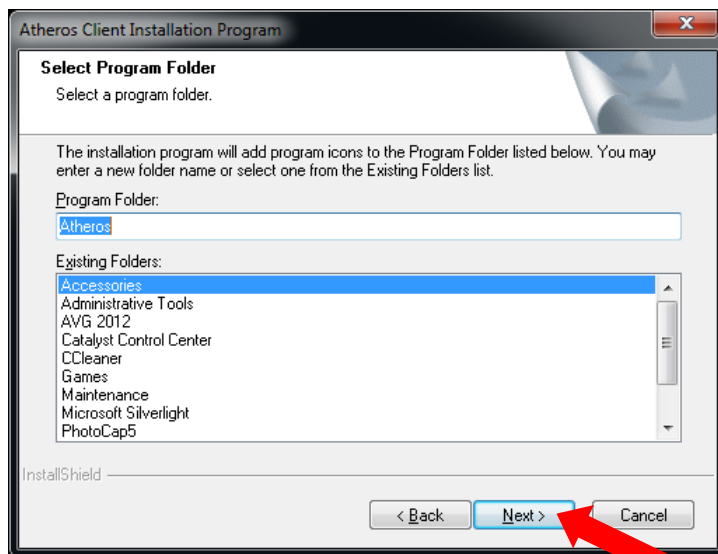
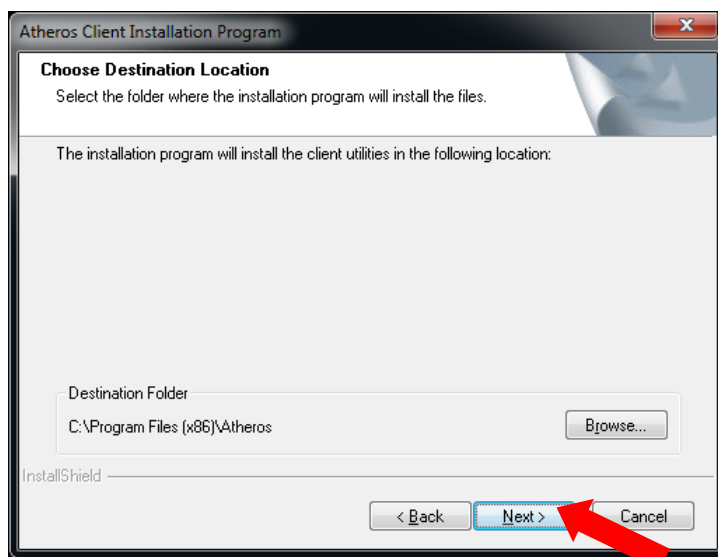
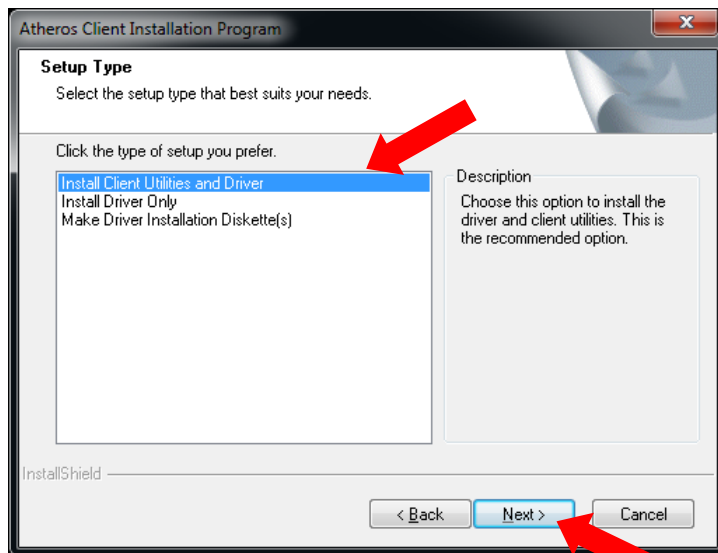


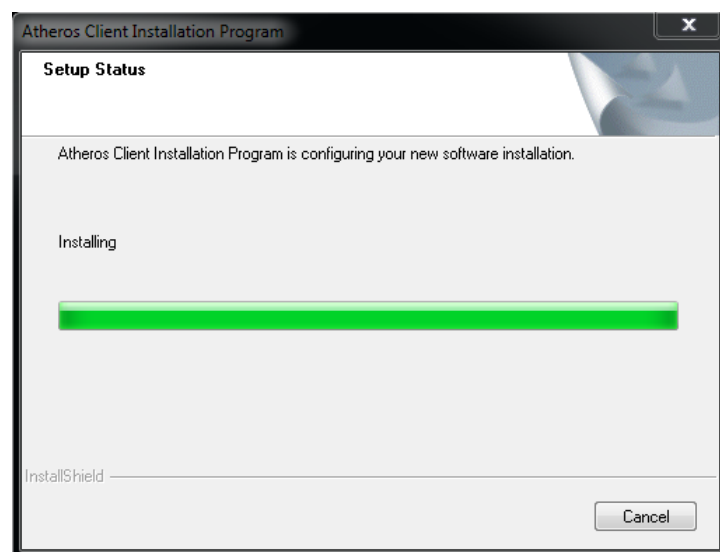
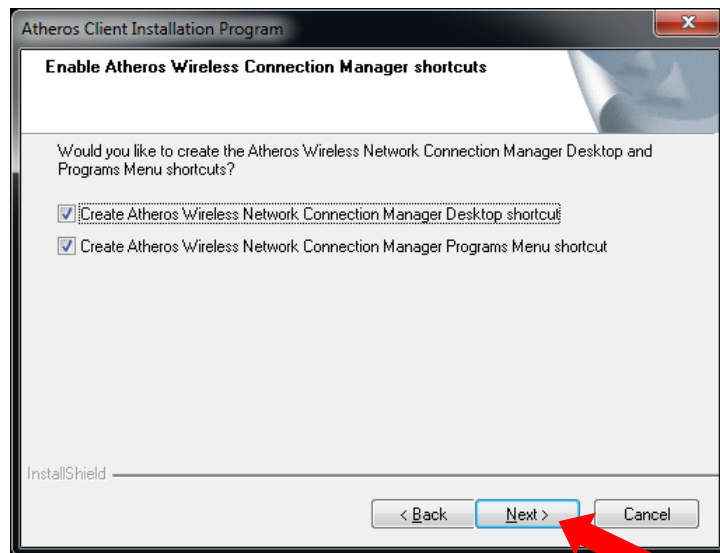
3. You will see “Atheros Client Installation Program – InstallShield Wizard” appears. Please choose the language which you need, and then click “Next” to begin the installation.



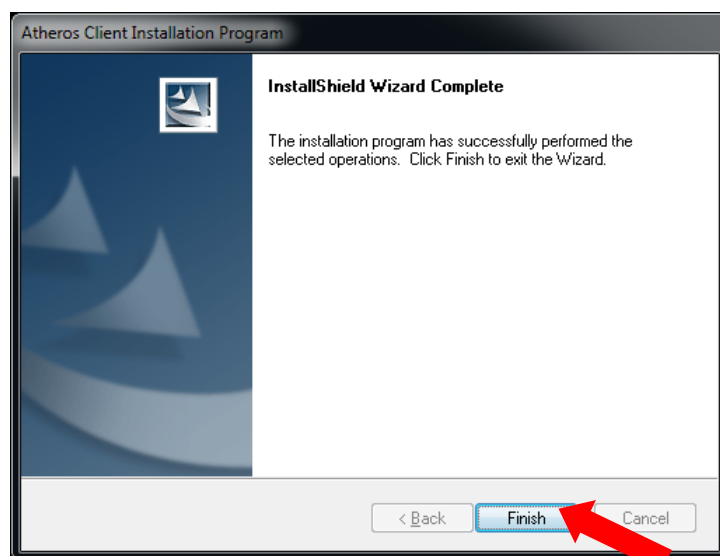
4. Click “Next” and then follow the instructions on the screen to continue the installation.







5. When you see this message, please click “Finish” to complete the driver installation process, and please reboot your computer.

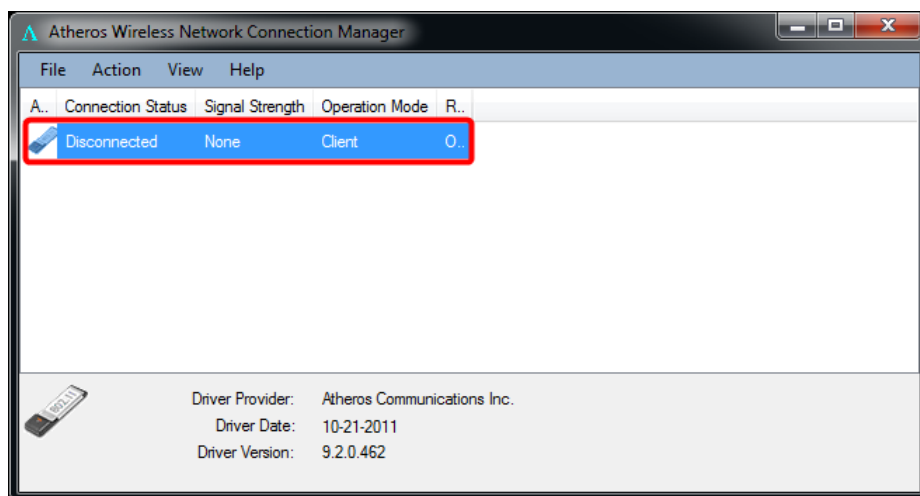


## 4. Connect to Wireless Access Point

1. After installation is complete, an “Atheros Wireless Network Connection Manager Utility” shortcut will show on the desktop. You can double click it to start the “Atheros Wireless Network Connection Manager”.



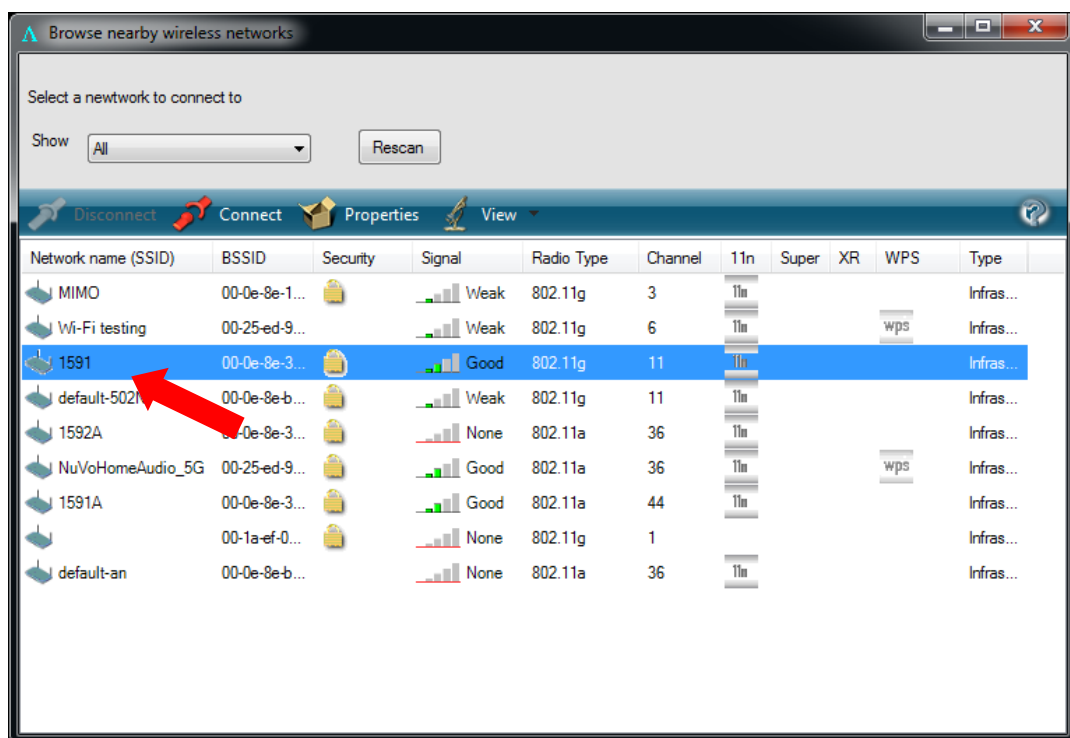
2. When “Atheros Wireless Network Connection Manager” appears, please double click the item which you want to start “AWiC”.



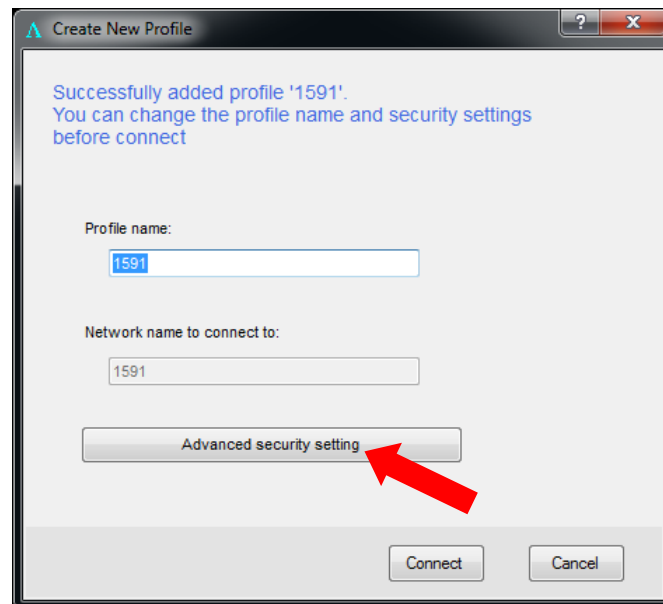
3. You will see "Atheros Wireless Configuration" (AWiC) shows on your desktop.



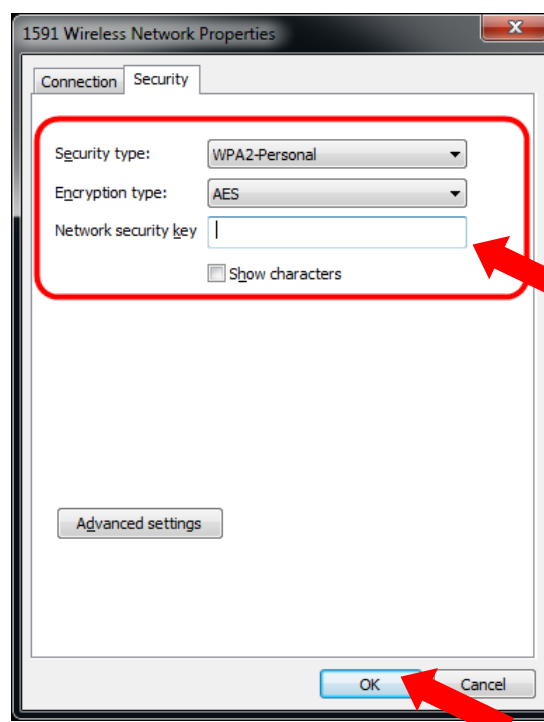
4. You could follow the steps to connect to the AP which you want to connect.
- a. Click the "Browse nearby wireless networks" icon to see the site survey table.



- b. You could choose one of the APs in the list to connect; on this sample, we will connect to the AP called “1591” with WPA2-PSK/AES Security/Encryption type, we just need to double click on the AP named “1591”, and the “create new profile” window will appear automatically.



- c. Click the “Advanced security setting” icon to modify the Security/Encryption type manually in the “Wireless Network Properties” window, and then enter the “Network security key”.

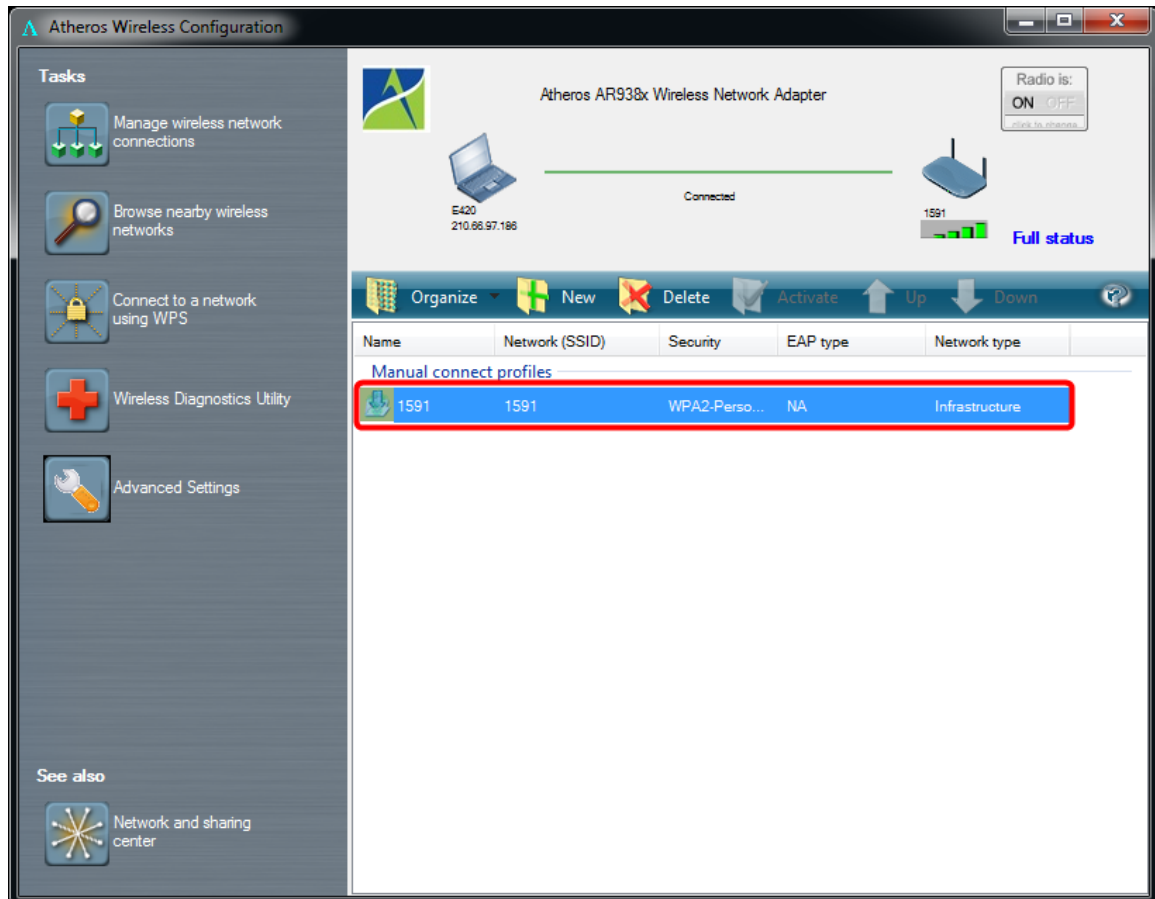





- d. Click "OK" to save the profile, and then click "Connect" to connect to the AP you choose.

You will see your profile shows in the AWiC, and there shows the module has "connected" to AP.

Be careful, if the "Network security key" was entered incorrect, you won't be able to exchange any data frames, even though the AP can be connected.



5. At last, if you want to know more using method of AWiC, you could refer to the help file by click the question mark  at the top right corner of AWiC to open it.



### Atheros Wireless Configuration Help.

