TLG09WMC05 Network Interface Card User Guide

（Windows XP version）

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Statement

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- One Network Interface Card of MiniCard Interface
- One User Guide
- One Guarantee Card of Repair
- One CD contained Driver and Configure Software

1 Product Introduction

1.1 Brief Introduction

Minicard wireless adapters is the product which is developed based on the WLAN network interface controller chip HED08W04SUA. Using the radio frequency (RF) technology, HED08W04SUA sends and receives data via the radio waves. With this series adapter, mobile office can be achieved for users without networks interrupted, and the networks can also be configured or extended without setup or move the cables by administrators.

1.2 caution of security

- For the product working on,please be sure it's far from water
- Please don't lay the product in the condition which it's dank or hot.
- Be far from the substances,e.g.acid and alkali.
- Please read the User Guide before using the product.
- If the product is in problem,please don't open the product,it's just repaired by the technicians.

1.3 Features

(1) Convenience of configuration network

The configuration tool is convenient and easy to use, which is helpful to connect to a wireless network rapidly.

(2) Improves the security of networks efficiently

Hardware of the adapter supports China WAPI standard，as well as many security protected standards，includes of WEP (both 64bit and 128bit) and WPA , as well as WPA2.

(3) Excellent performance

The adapter has a high throughput and strong capability of load.

(4) Guide user conveniently

The adapter offer management software. Users can manage their adapters easily though this software without specialty knowledge.

1.4 Production Appearance

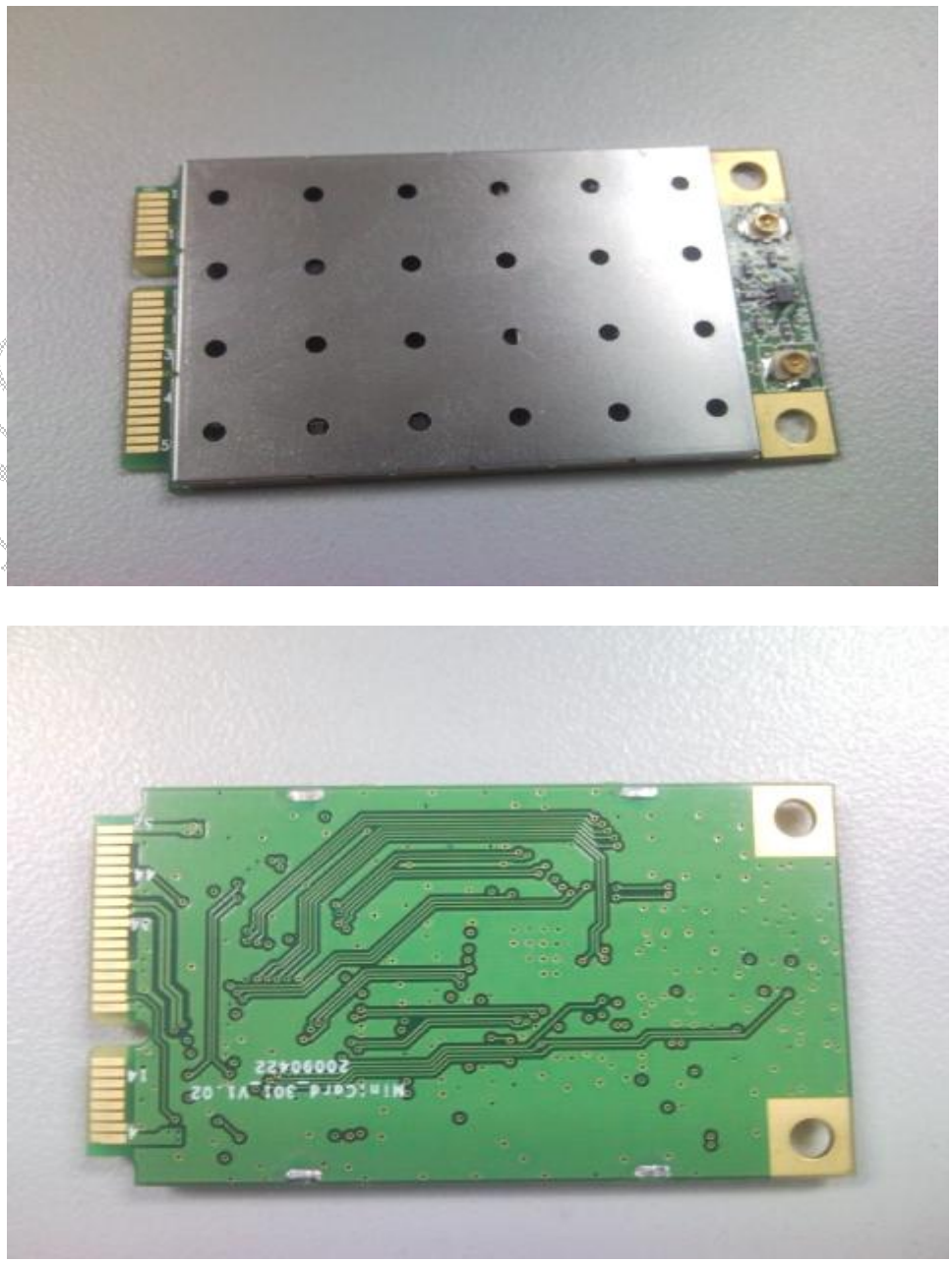

Figure 1-1 Wireless Minicard Adapter Appearance

2 Installation

2.1 System Requirements

(1) Windows XP operating system
(2) A computer or laptop with an available PCI-E port

2.2 Adapter Installation

Please plug the wireless network adapter into the PCI-E port directly.
Notice:
It is advised that the adapter should not be pulled out while transmitting data in order to avoid data lost though it supports hot-plugging.

2.3 Driver and Management Software Installation

2.3.1 Driver Installation

Notice:

The window of installation has a little difference in the different computer.

The steps for setting up wireless network adapter:

(1) Please insert **HED** wireless network adapter.
(2) After computer detecting the adapter automatically, the **Found New Hardware Wizard** window will appear, as shown in figure2-1.

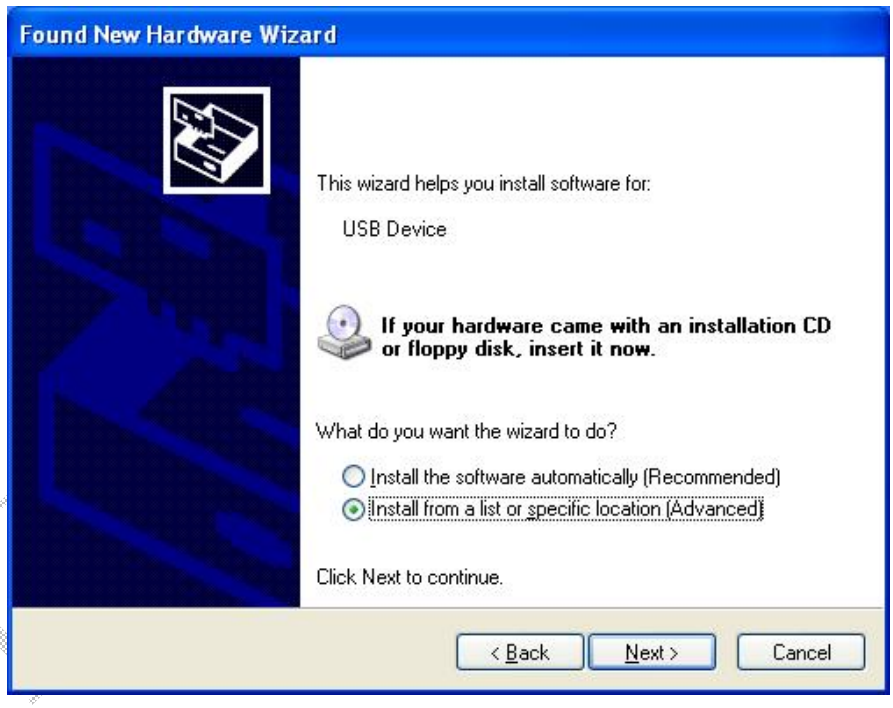

Figure 2-1 Hardware Wizard 1

(3)Select **Install from a list or specific location (Advanced)**, the window will appear as shown in figure 2-2 after click **Next**.

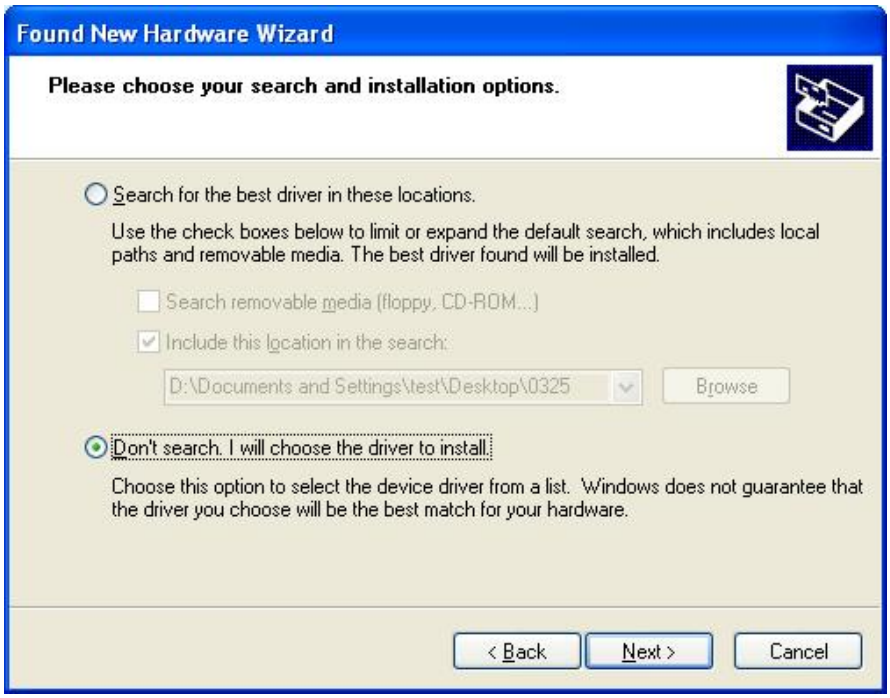

Figure2-2 Hardware Wizard 2

(4) Select **Don't search, I will choose the driver to install**, the window will appear as

shown in figure 2-3 after click **Next**.

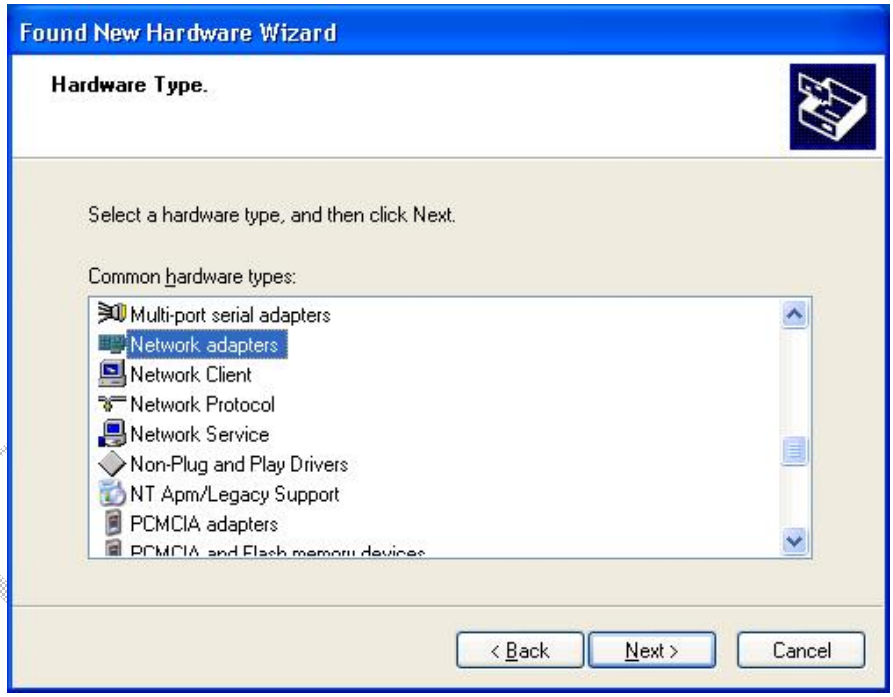

Figure 2-3 Hardware Wizard 3

(5) The setup wizard will ask you to choose a **Hardware Type**. Select network adapters in the list, click **Next** to continue. The window will appear as shown in figure 2-4.

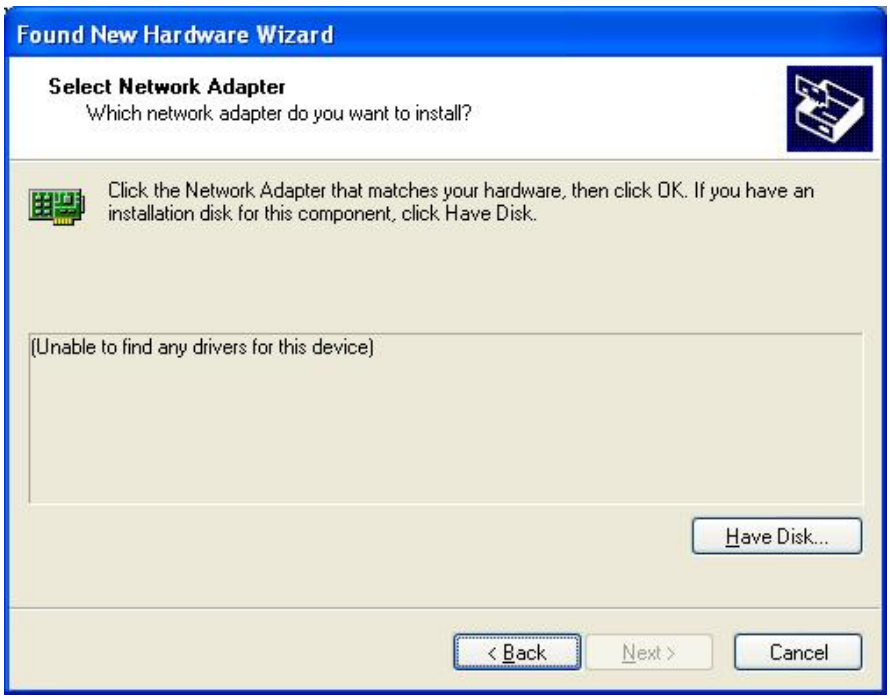

Figure 2-4 Hardware Wizard 4

(6) Click **Have Disk**, select the path of installation from **Browse** in the **Install From Disk** window which is shown in figure2-5.

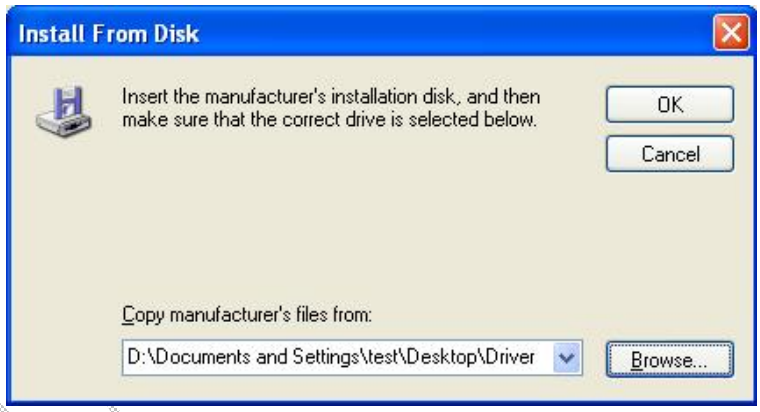

Figure 2-5 Hardware Wizard 5

(7) Click **OK**, the window will appear as shown in figure 2-6.The setup wizard will ask you to choose a network adapter. Select **HED08W04SUA Device**, click **Next** to start copying files.

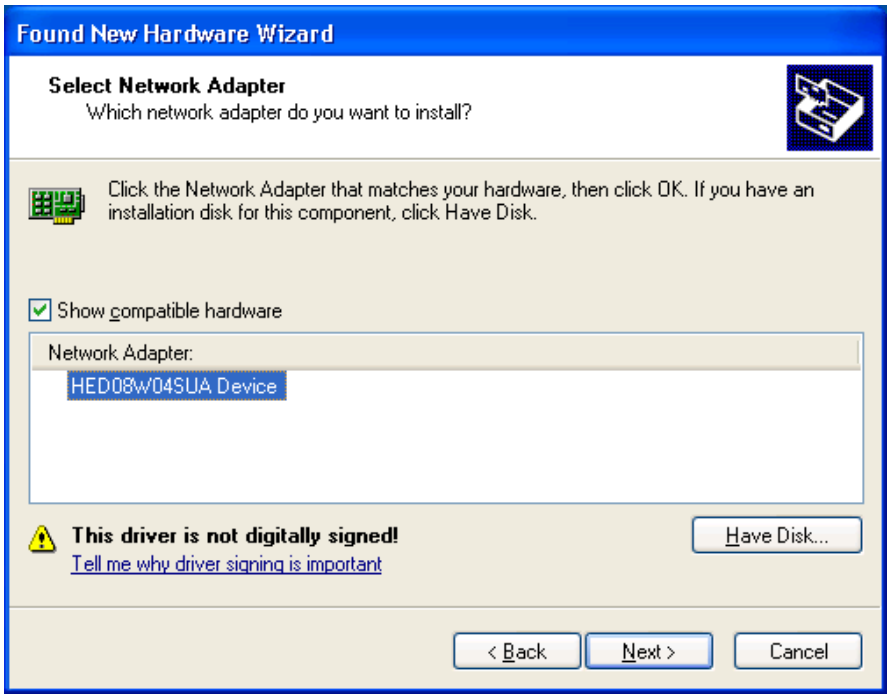

Figure 2-6 Hardware Wizard 6

(8)After copying files, finish window will appear as shown in figure 2-7.Click **Finish** button to complete installation.

Figure 2-7 Finish the Installation

Notice:
In the process of driver installation, click ***Continue Anyway*** *when a clue on the Microsoft DTM appearing.*

2.3.2 AirQuick Wireless Network Config Tool Installation

The steps for setting up **AirQuick Wireless Network Config Tool**:

(1) Click **AirQuick Utility V2.0.6.msi**, the **InstallShield Wizard** window will appear (As shown in figure 2-8).

Figure 2-8 InstallShield Wizard 1

(2)Click **Next** to continue the installation, or click **Cancel** to end the installation.

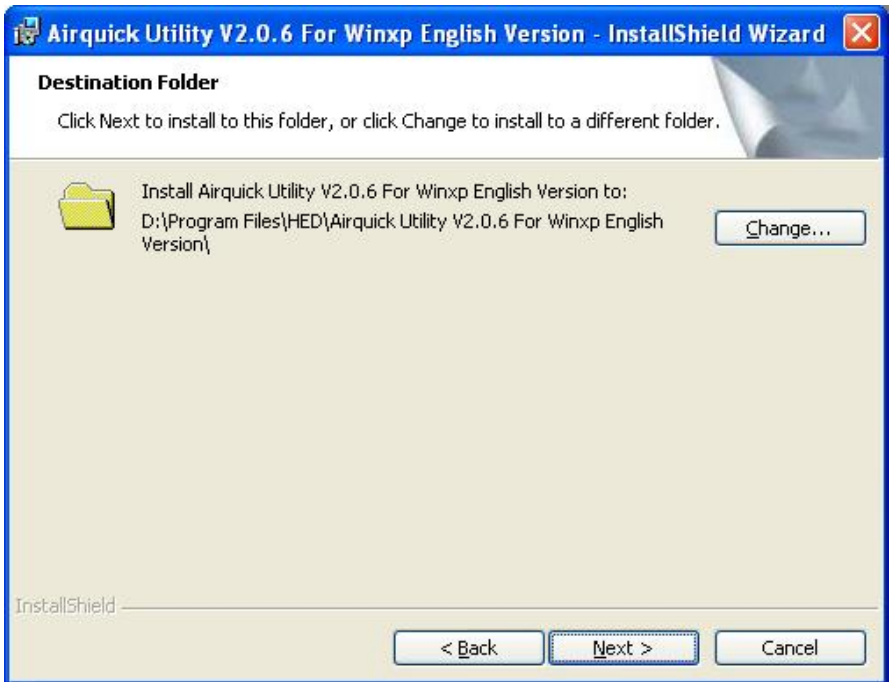

Figure 2-9 InstallShield Wizard 2

(3) Click **Next** to the window as shown in figure 2-9. Choose the destination folder. By default setup will install to the default location. To install to a different location, click change and specify the location.

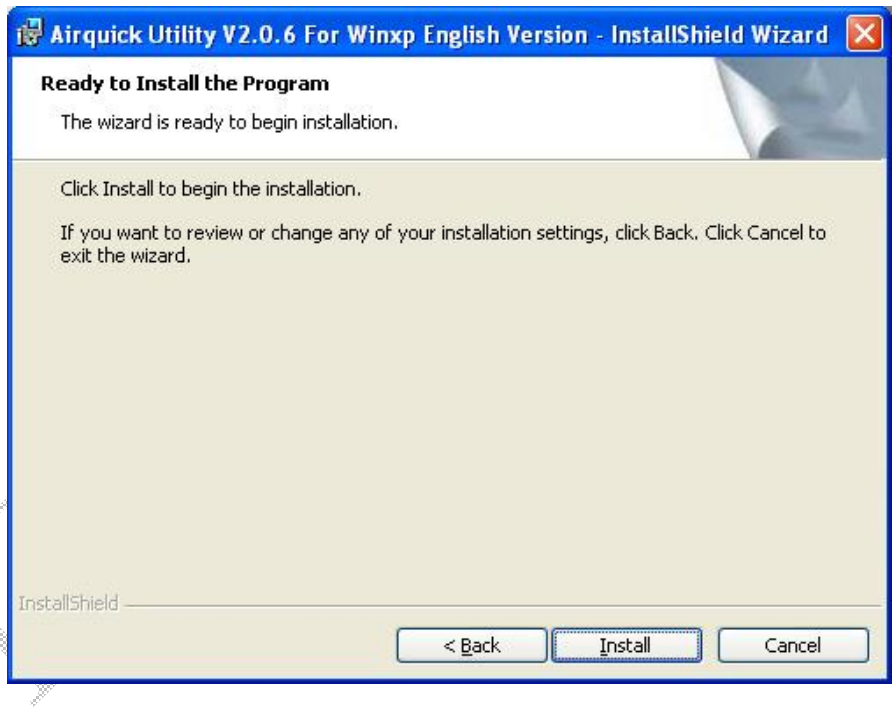

Figure 2-10 InstallShield Wizard 3

(4) After choose the folder, click **Next** on the **Ready to Install the Program**. As shown in figure 2-10, click **Install** to begin the installation. **InstallShield Wizard** finish window as shown in figure 2-11. Click **Finish** button to complete installation.

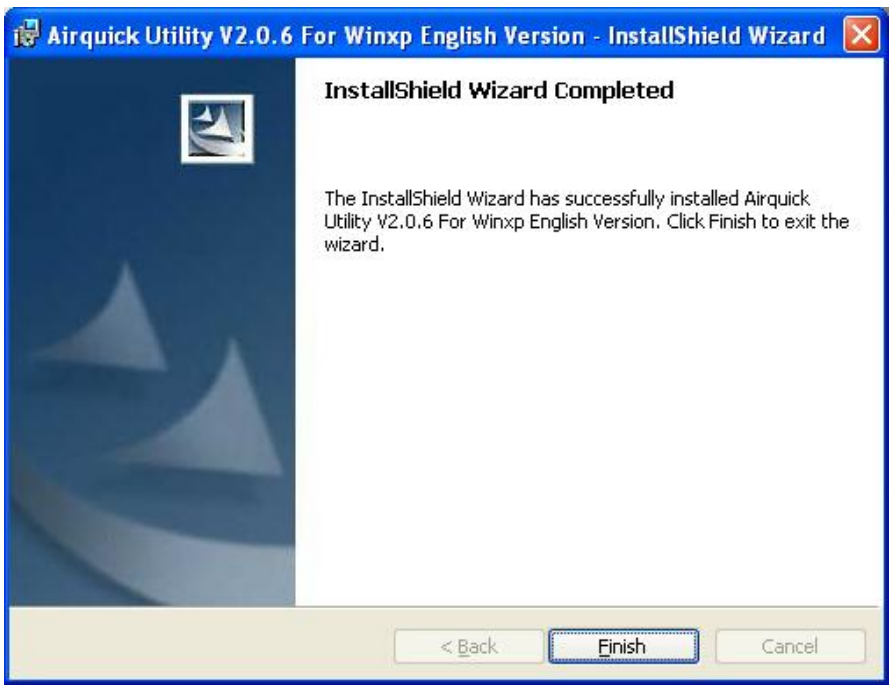

Figure 2-11 InstallShield Wizard 4

2.4 Uninstall

To remove the **AirQuick Wireless Network Config Tool**:

Click Start →All Programs → HED→Airquick Utility v2.0.6 For WinXP English Version → Uninstall Airquick Utility v 2.0.6

To remove the **Adapter**:

Right-click on the My Computer icon →Properties →Hardware → Device Manager → Network Adapters→ Right-click on the HED08W04SUA Device icon →Uninstall

3 Configuration Wireless Network Adapter

You can use **AirQuick Wireless Network Config Tool** or **Wireless Zero Configuration** to configure wireless network adapter.

3.1 Choose/Switch Wireless Network Configuration Program

Notice:
Please skip over this section when your operating system is not Windows XP.

AirQuick Wireless Network Config Tool offers the function that it can switch to **Wireless Zero Configuration**. Minimize the **AirQuick Wireless Network Config Tool**, right-click on the icon in the system tray (lower right corner of the screen). Select **Use Windows Zero Configuration**, you can use **Wireless ZeroConfiguration**.
When you in the state of **Wireless ZeroConfiguration**, click the icon of **AirQuick Utility V2.0.6**, you can use **AirQuick Wireless Network Config Tool**.

3.2 Introduction of AirQuick Wireless Network Config Tool

3.2.1 Network Management

Network Manage window is shown in figure 3-1.The meaning of the field is shown in table 3-1.

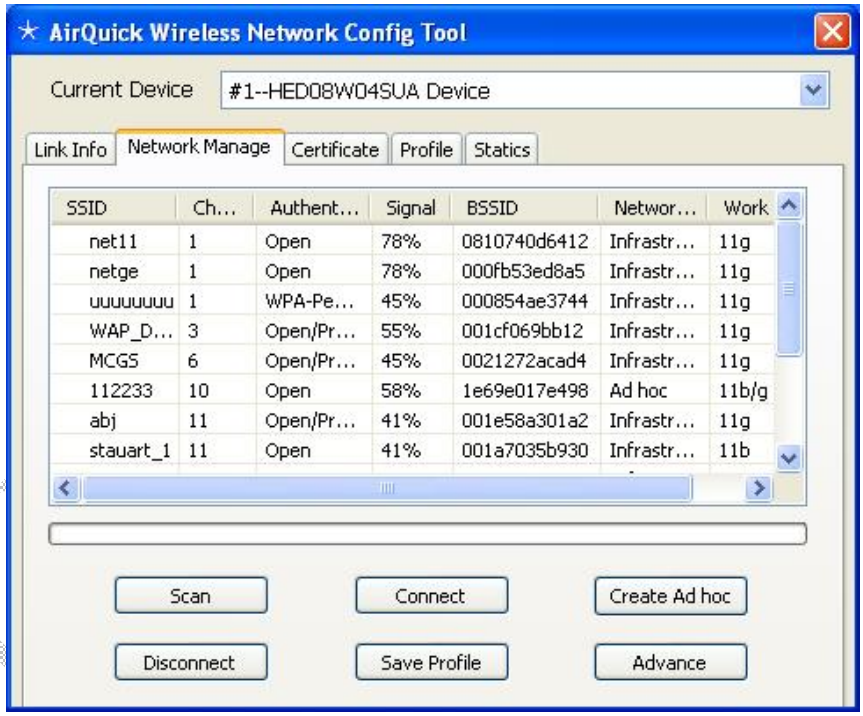

Figure 3-1 Network Manage

Table 3-1 Meanings of the Network Manage Field

Field	Meanings
SSID	Displays the name of the wireless network.
Channel	Displays the channel of the wireless network.
Signal	Displays the signal of the wireless network.
Authenticate Type	Displays the authentication method of the wireless network, it contains open、open/presharekey、WPA-personal、WPA2-personal and so on.
BSSID	Displays the MAC address of the wireless device.
Network Mode	Includes of Ad hoc and Infrastructure.
Work Mode	Includes of 11g, 11b and 11b/g.
< Scan >	Click the **Scan** button, adapter will scan the wireless network and refresh network list.
< Connect >	To establish the network connection, choose a network in the list and click the connect button.
< Create Ad hoc >	Creates IBSS network.
< Disconnect >	Disconnects the established network connection.
< Save Profile >	Saves the information of the current connection, profile name length between 1-32 characters.

< Advance >	Configures the parameter of the network.

3.2.2 Link Information

Link Info window is shown in figure 3-2. The meaning of the field is shown in table 3-2.

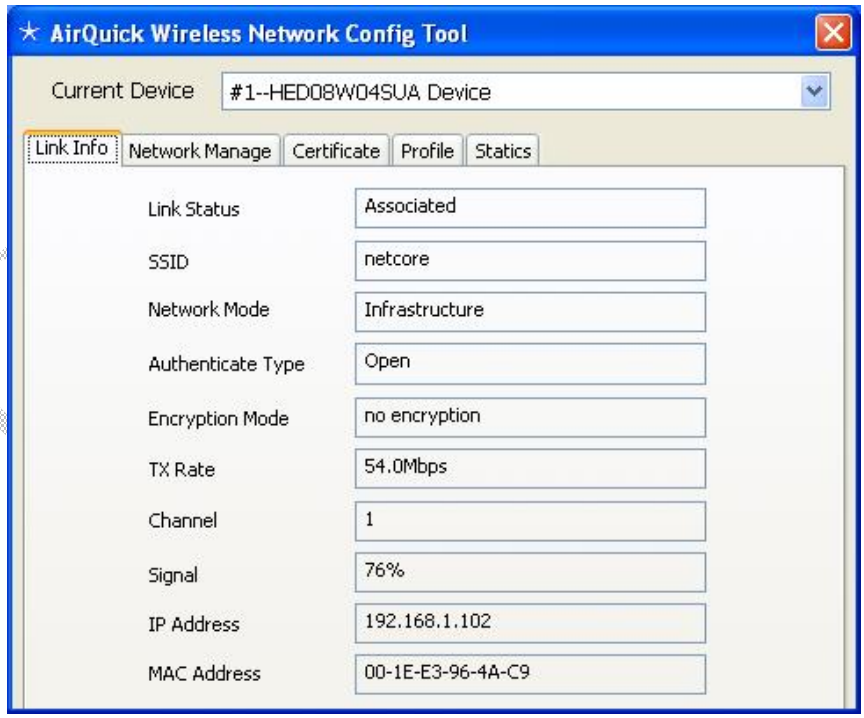

Figure 3-2 Link Info

Table 3-2 Meanings of the Link Info Field

Field	Meanings
Link Status	Displays the status of the wireless network connection.
SSID	Displays the name of the wireless network.
Network Mode	Includes of Ad hoc and Infrastructure.
Authenticate Type	Displays the authentication method of the wireless network.
Encryption Type	Displays the Encryption method of the wireless network, such as wep64, wep128, tkip, ccmp and so on.
Tx Rate	Displays the data transfer rate of the current network connection.
Channel	Displays the channel of the wireless network.
Signal	Displays the signal of the wireless network.
IP Address	Displays the IP Address of the adapter.

MAC Address	Displays the MAC address of the wireless device.

3.2.3 Advance Setting

Advance Setting window is shown in figure 3-3.The meaning of the field is shown in table 3-3.

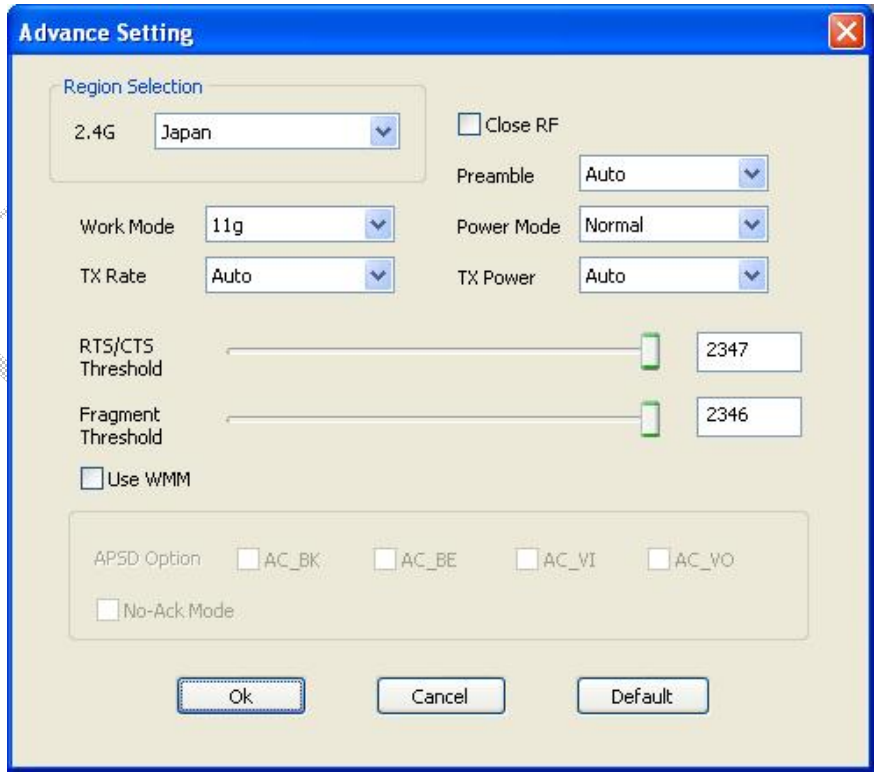

Figure 3-3 Advance Setting

Table 3-3 Meanings of the Advance Setting Field

Field	Meanings
Work Mode	Sets work mode for 11g, or 11b, or 11b/g.Default setting is 11g.
Region Selection	Chooses the country region based on the current region.
TX Rate	Sets data transfer rate. Default setting is auto mode. For 802.11b, it can set for 1Mbps, or 2Mbps, or 5.5Mbpsb, or 11Mbps. For 802.11g, it can set for 1Mbps,or 2Mbps,or 5.5Mbps,or 11Mbps,or 6Mbps,or 9Mbps,or 12Mbps,or 18Mbps,or 24Mbps,or 36Mbps,or 48Mbps,or 54Mbps.
Preamble	Sets preamble for long or short. Default setting is auto mode.
Power Mode	Sets power mode for normal, or max power mode, or fast power mode.
TX Power	Sets transfer mode for high, or medium, or low, or very low. Default setting is auto mode.

Close RF	Disables or enables the RF.
RTS/CTS Threshold	Sets RTS/CTS Threshold for integer from 0 to 2347.
Fragment Threshold	Sets Fragment Threshold for integer from 256 to 2346.
Use WMM	Disables or enables the WMM. When WMM is enabled, NO ACK or AC can be triggered.

3.2.4 WAI Certificate

Certificate window is shown in figure 3-4.The meaning of the field is shown in table 3-4.

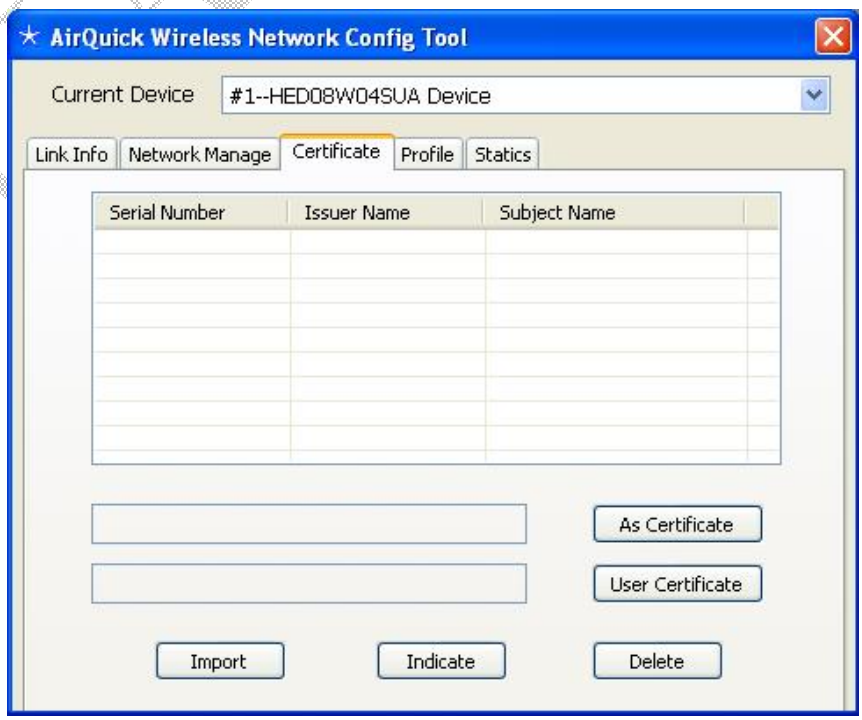

Figure 3-4 WAI Certificate

Table 3-4 Meanings of the Certificate Field

Field	Meanings
As Certificate	Opens the file of as certificate
Import:	Imports the as certificate and user certificate.
User Certificate	Opens the file of user certificate
Indicate	Indicates the one of the certificate of the list.
Delete	Delete the certificate of the list.

3.2.5 Profile Management

Profile window is shown in figure 3-5.The meaning of the field is shown in table 3-5.

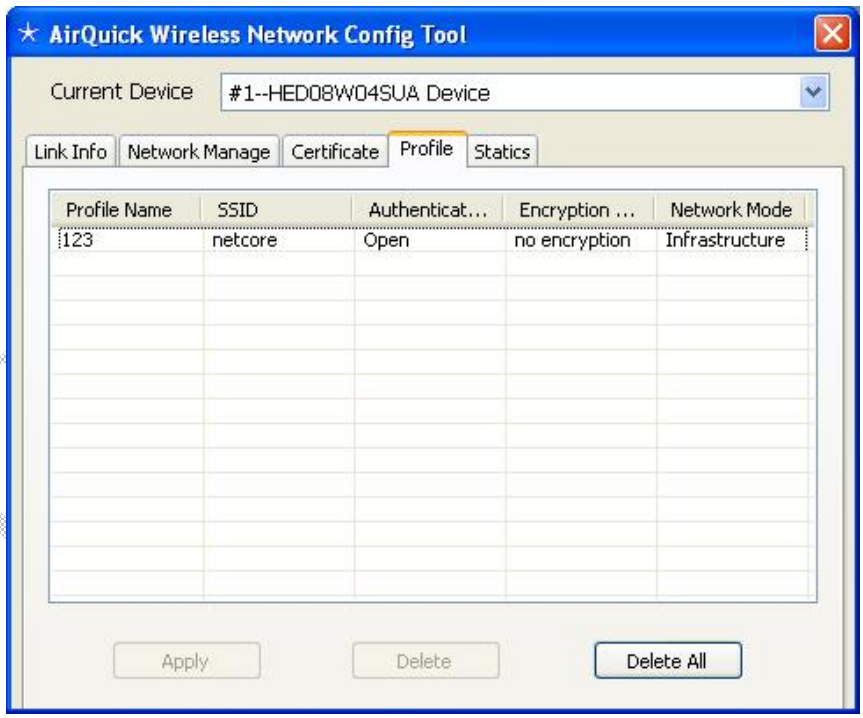

Figure 3-5 Profile Management

Table 3-5 Meanings of the Profile Field

Field	Meanings
Apply	Apply one profile of the list. When the network is in existence, click apply button to join the network. Other wise, this creates a new network when the network is IBSS.
Delete	Deletes one profile of the list.
Delete All	Deletes all profiles of the list.

3.2.6 Statistic

Statistic window is shown in figure 3-6.The meaning of the field is shown in table 3-6.

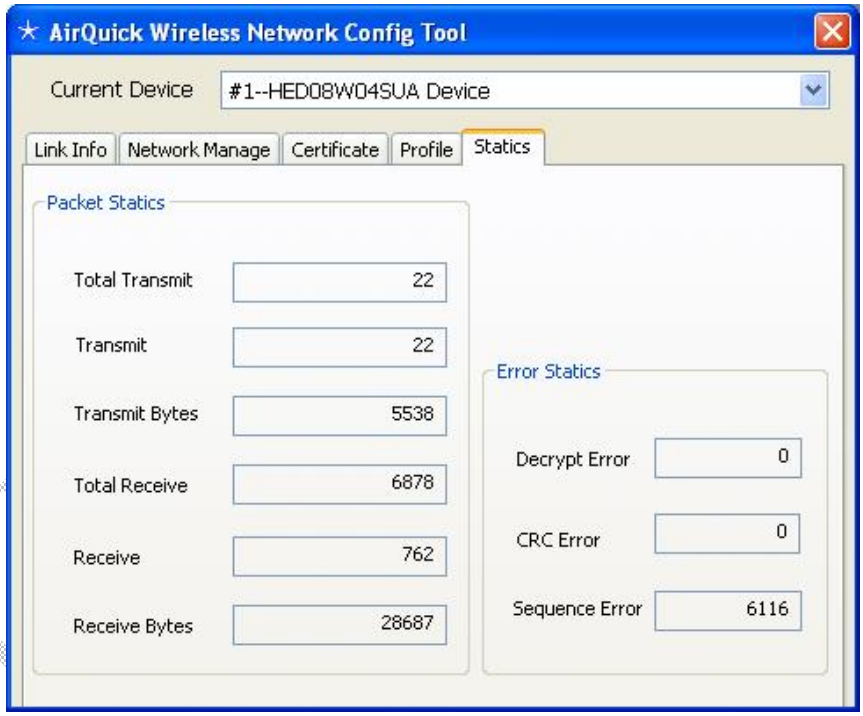

Figure 3-6 Statistics

Table 3-6 Meanings of the Statistic Field

Field	Meanings
Total Transmit	This shows the number of packets transmitted from the adapter totally
Transmit	This shows the number of packets transmitted from the adapter successfully.
Transmit Bytes	This shows the number of bytes transmitted from the adapter totally.
Total Receive	This shows the number of packets received by the adapter totally.
Receive	This shows the number of packets received by the adapter successfully.
Receive Bytes	This shows the number of bytes received by the adapter totally.
Decrypt Error	This shows the number of decryption error.
CRC Error	This shows the number of CRC error.
Sequence Error	This shows the number of sequence error.

3.2.7 Current Device

You can choose any **HED08W04SUA Device** to usage in the list of the current device.

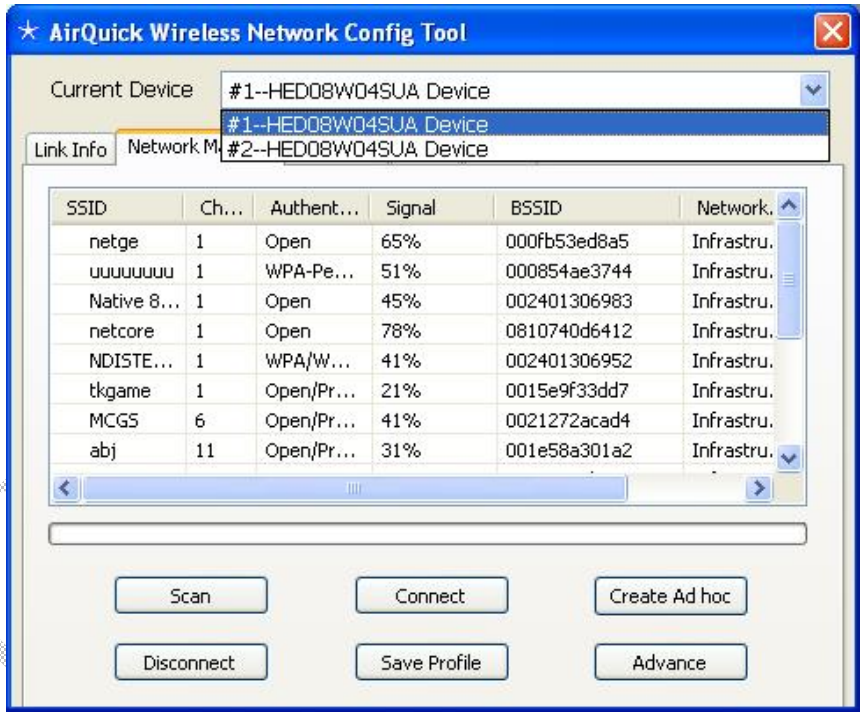

Figure 3-7 Device Choice

3.3 Windows XP Configuration Utility

Notice:
Please skip over this section when your operating system is not Windows XP.

The steps for connection to the wireless network using **Windows Zero Configuration**:
(1)Click the wireless network icon in the system tray, the Windows XP Wireless Utility window will open, as shown in figure 3-9.

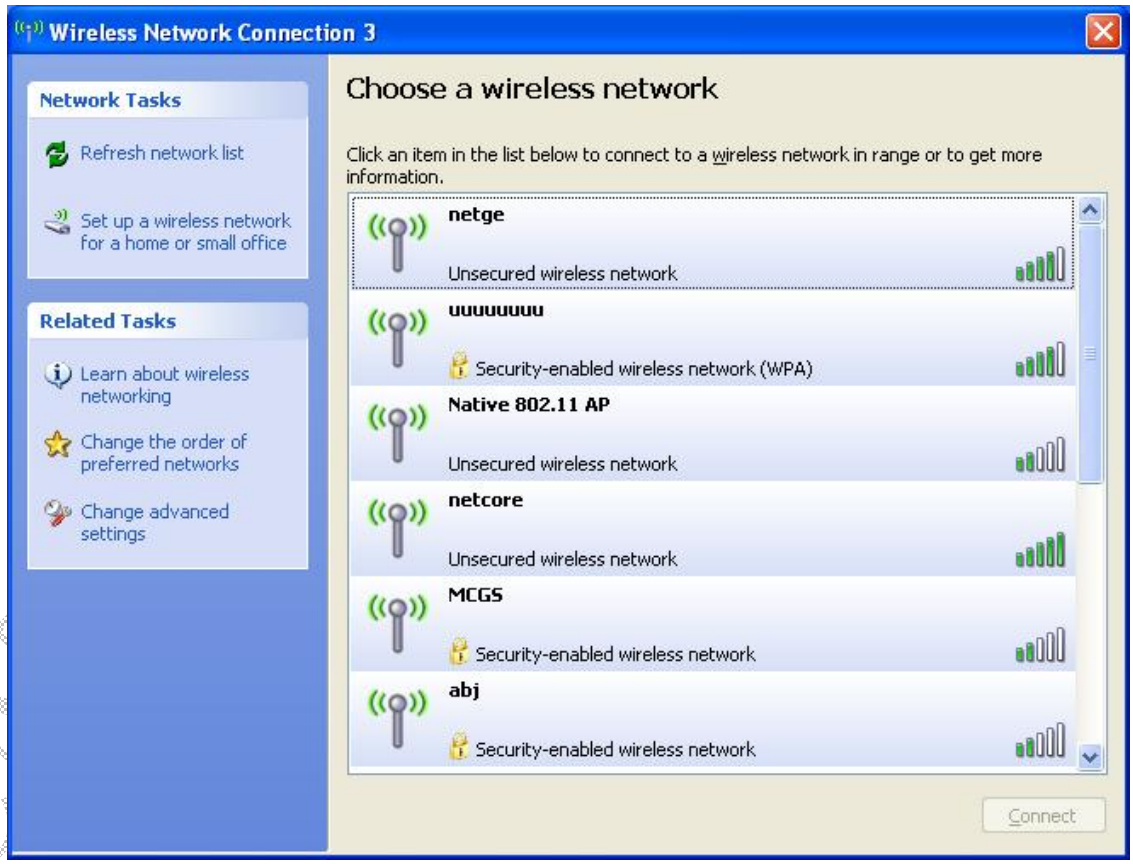

Figure 3-9 Wireless Network Icons

(2)Choose a wireless network you want to connect. If the network is open, the message box as warning is shown in figure 3-10.Click **Connect Anyway** to continue, click **Cancel** to end the connection.

Figure 3-10 Clue on the Wireless Network Connection

(3) When the wireless network is connected, the status is shown in figure 3-11.

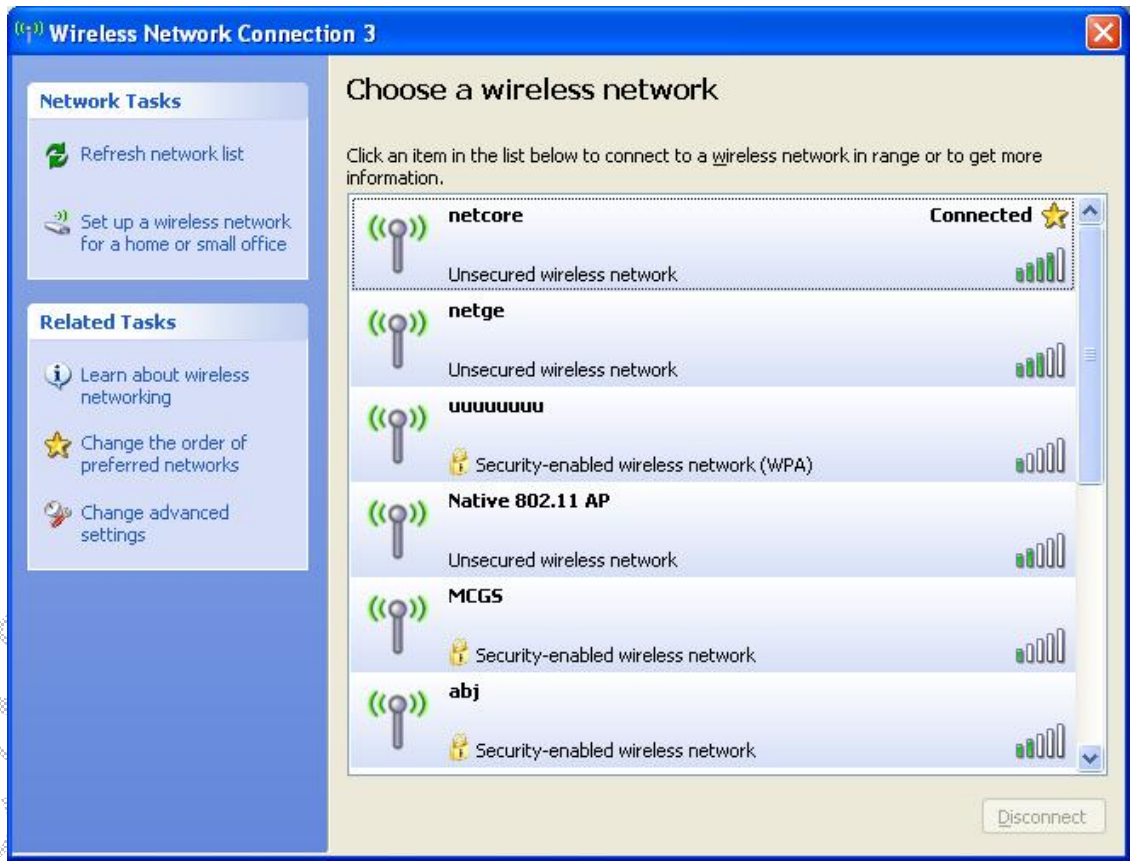

Figure 3-11 Wireless Network Connection Status

(4) If the network is encrypted, you should enter the pass phrase. You can configure your network though the **Change advanced setting** item which locates the left of the wireless network connection window.

4 Examples for Configuration the Wireless Network

This clause introduces how to use **AirQuick Wireless Network Config Tool** to connect to the network, and how to create a network.

4.1 Example1 Connecting to the WEP Network

Notice:
You will need to know the WEP key before joining an existing network.

(1)As shown in figure 4-1, we select the network which **SSID** is ***netcore***. WEP encryption network has two authentication methods. You can use open or presharekey

authentication method to join the network.

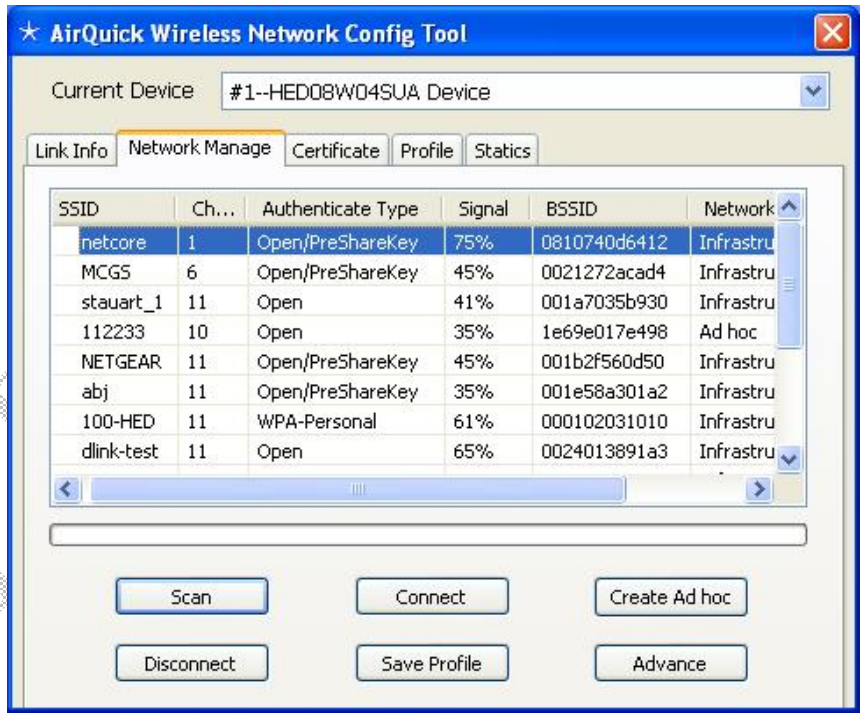

Figure 4-1 Network Item

(2)Click the **Connect** button or double-clicking on the item, **Security Option Setting** window will appear, as shown in figure 4-2. We should select the correct configurations based on the AP. For example, the network which we connect, the **Authentication Type** is ***Open*, Encryption Mode** is ***WEP64***, and **Key Type** is ***Hex Number***. We should select the correct configurations. For example, we enter the pass phrase in the key index one as *1111111111*and in the key index two as *2222222222*, and use the first key.

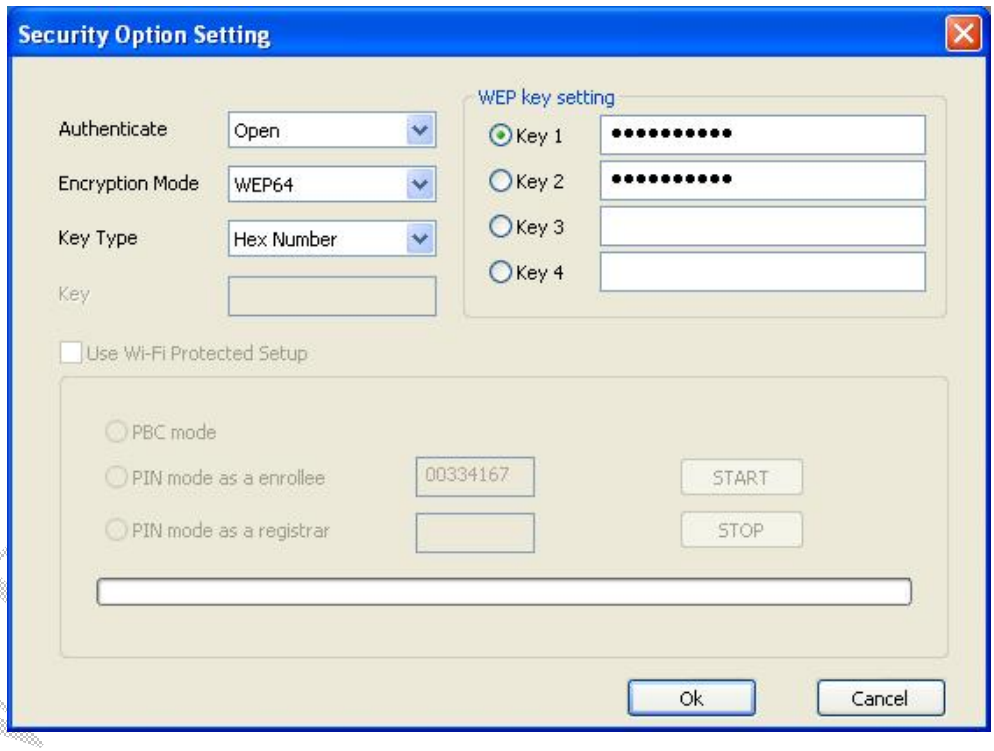

Figure 4-2 Security Option Setting

(3)Click **OK** button to start the process the authentication. When we join the network successfully, the window as shown in figure 4-3 will appear.

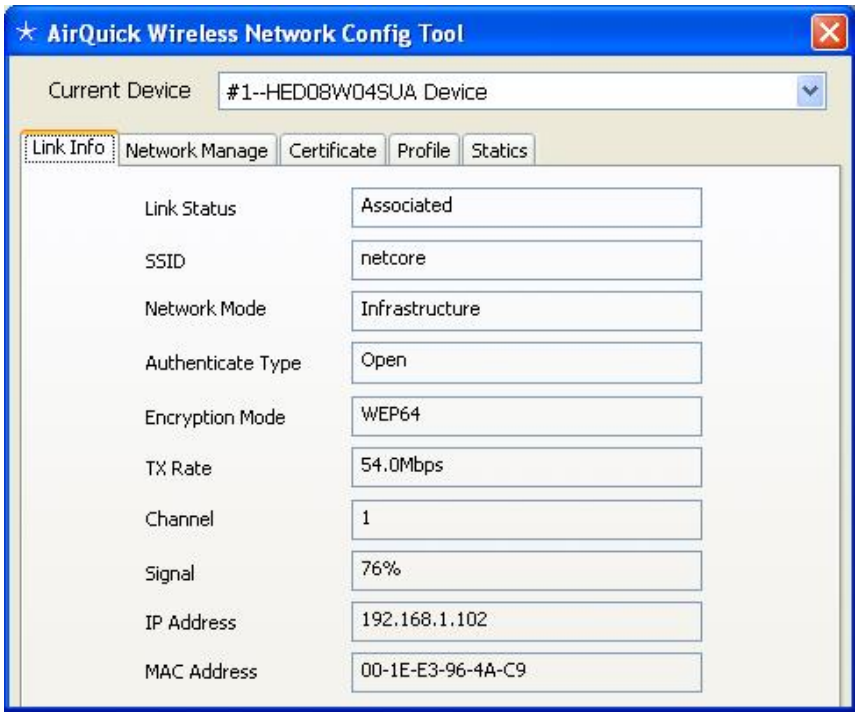

Figure 4-3 Connection Success

4.2 Example2 Connecting to the WPA2 Network

Notice:
You will need to know the passphrase before joining an existing network.

(1) As shown in figure 4-4, we select the network which **SSID** is ***netcore***. Though the authenticate type of the network, we can conclude it is the WPA2 network.

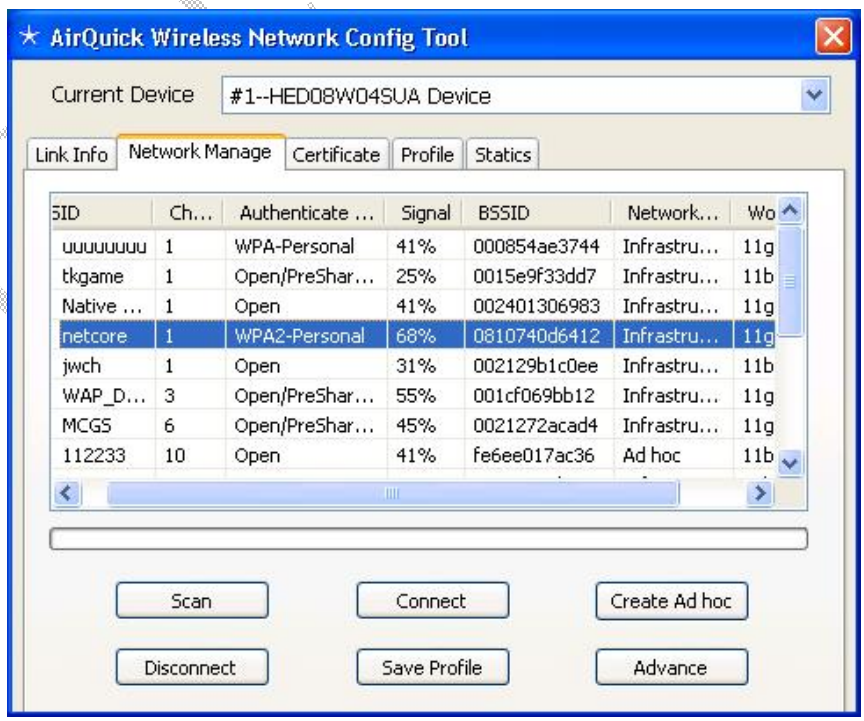

Figure 4-4 Network Item

(2)Click the **Connect** button or double-clicking on the item, **Security Option Setting** window will appear, as shown in figure 4-5. Authentication method and encryption mode is locked by the configuration tool. We should select the key type and enter the pass phrase. For example we enter the pass phrase in the key field as *11111111*.

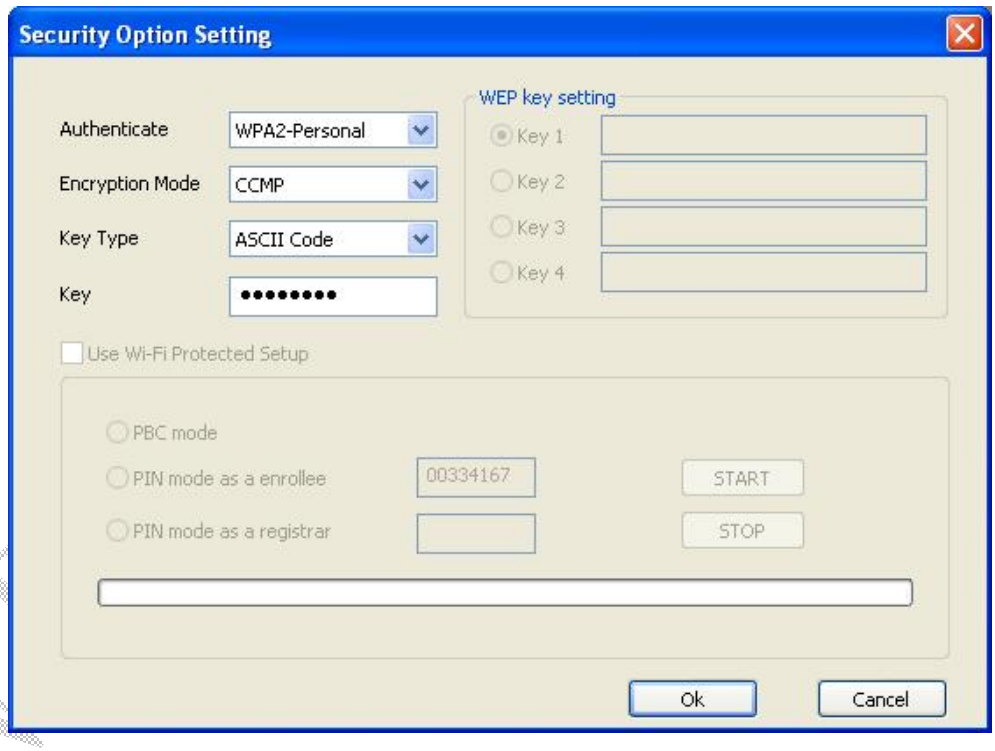

Figure 4-5 Security Option Setting

(1) Click **OK** button to start the process the authentication. When we join the network successfully, the window as shown in figure 4-6 will appear.

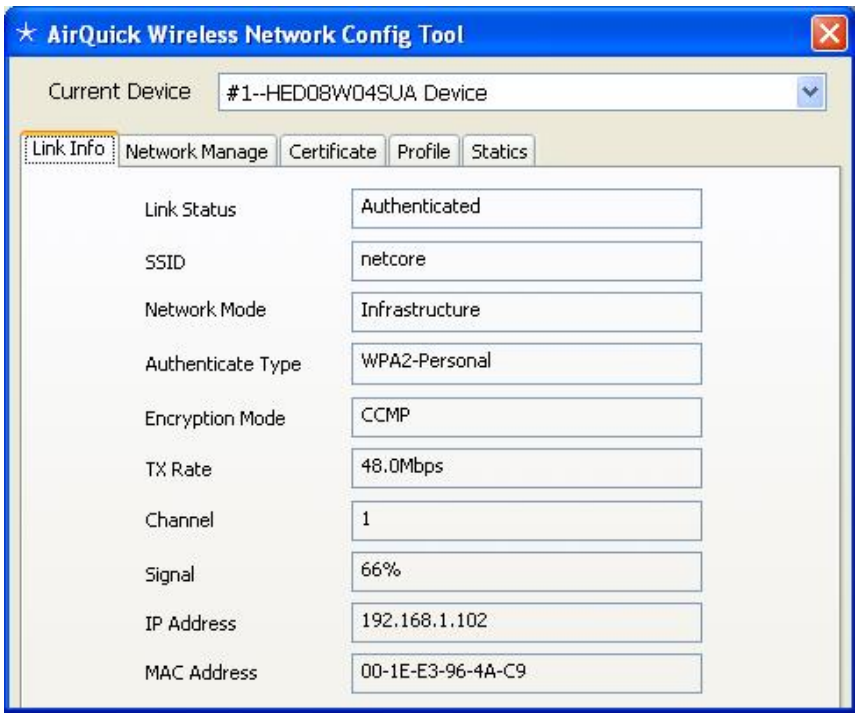

Figure 4-6 Connection Success

4.3 Example3 Creating the WAPI Ad hoc

(1) Click the **Create Ad hoc** button in the **Network Manage** tab, the **Network Creating Setting** window will appear, as shown in figure 4-7.

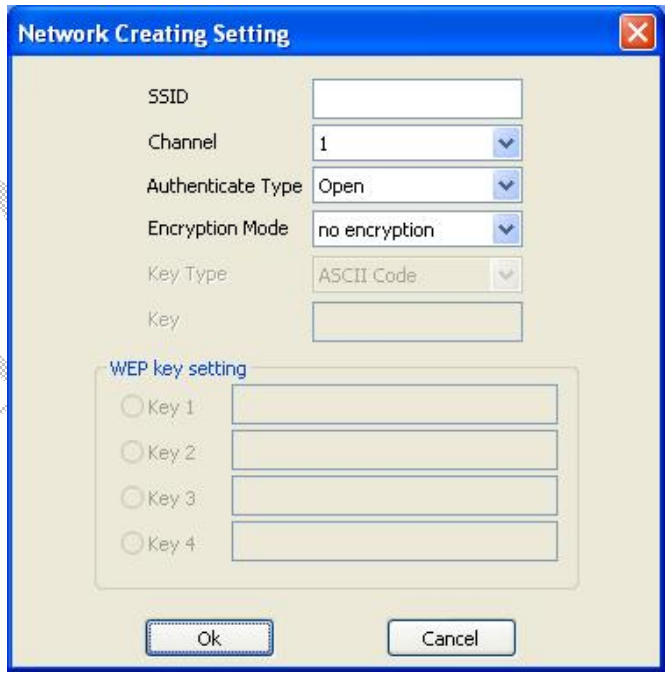

Figure 4-7 Network Creating Setting

(2)We select **Authenticate Type** for **WAI-PreShareKey**, select **Encryption Mode** for **WPI**. We should select the **Key Type** and **Channel**, and enter the SSID and pass phrase. For example, we set **SSID** for ***test***, select **Channel** for **1**, select **Key Type** for ***ASCII Code***, and set pass phrase for *12345678*, as figure shown in 4-8.

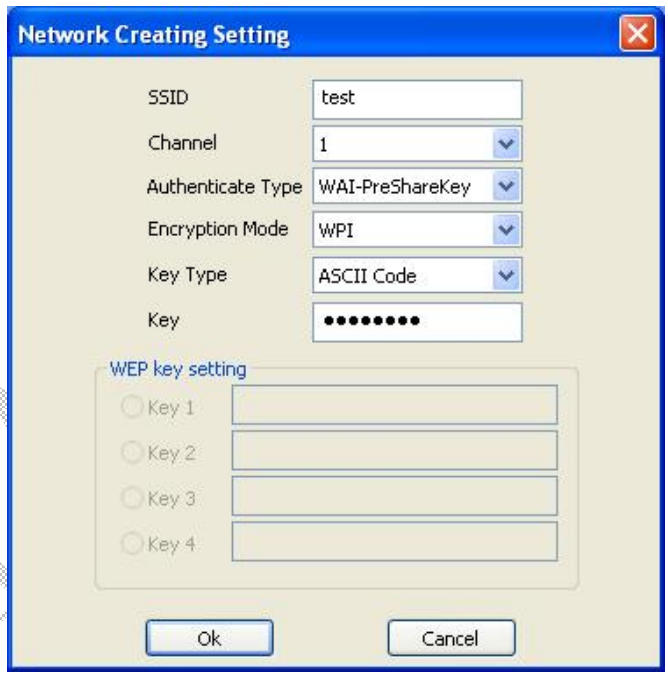

Figure 4-8 Configuration Network

(3)Click the **OK** button to show the **Link Info** window, as shown in figure 4-9.

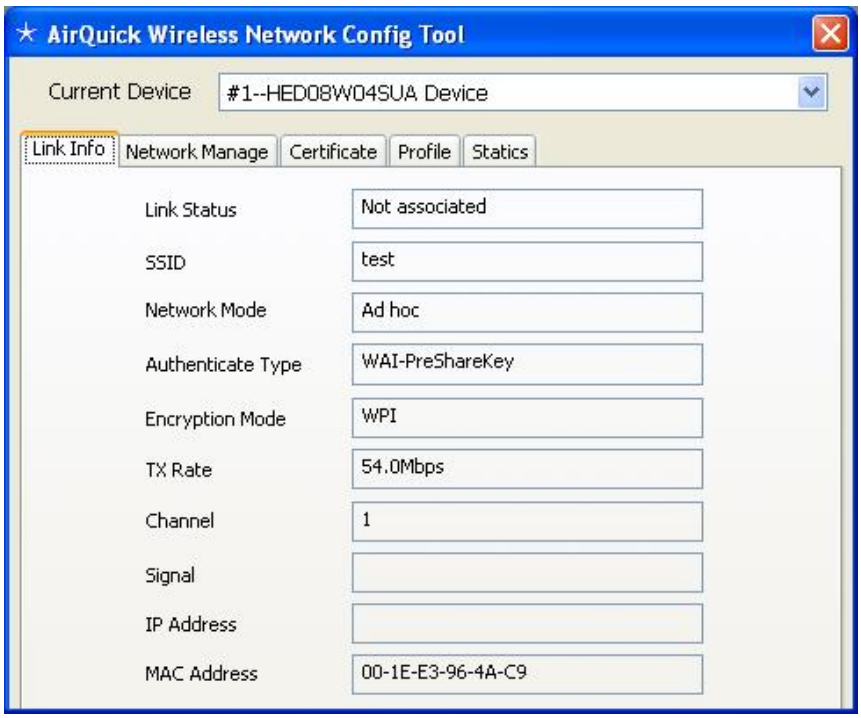

Figure 4-9 Creating Network Success

4.4 Example4 Creating the WEP Ad hoc

(1)Click the **Create Ad hoc** button in the **Network Manage** tab, the **Network Creating Setting** window will appear, as shown in figure 4-7.

(2)We select **Encryption Mode** for ***WEP64***. We should select the **Key Type** and **Channel**, and enter the SSID and pass phrase. For example, we set **SSID** for ***test***, select **Channel** for *1*, and select **Key Type** for ***ASCII Code***. We set the key index one for *11111*, set the key index two for *22222*, set the key index three for *33333*, and use the second key, as figure shown in 4-10.

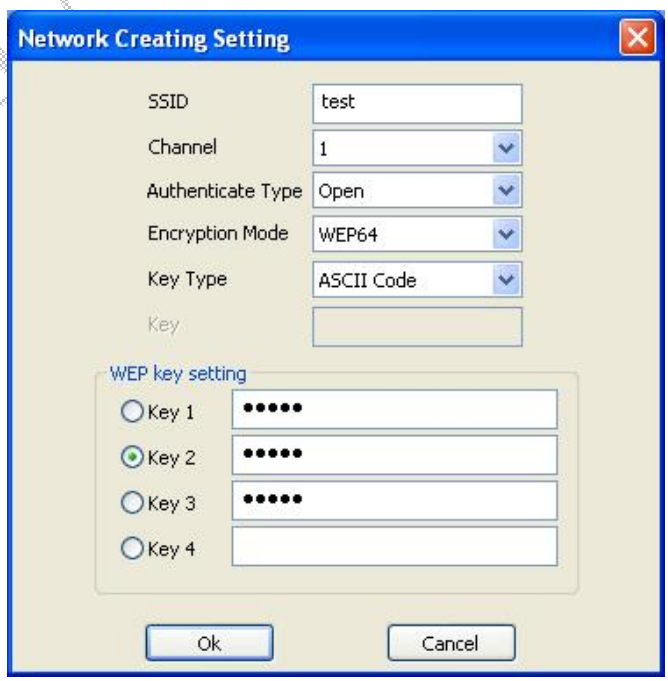

Figure 4-10 Configuration Network

(3)Click the **OK** button to show the **Link Info** window, as shown in figure 4-11

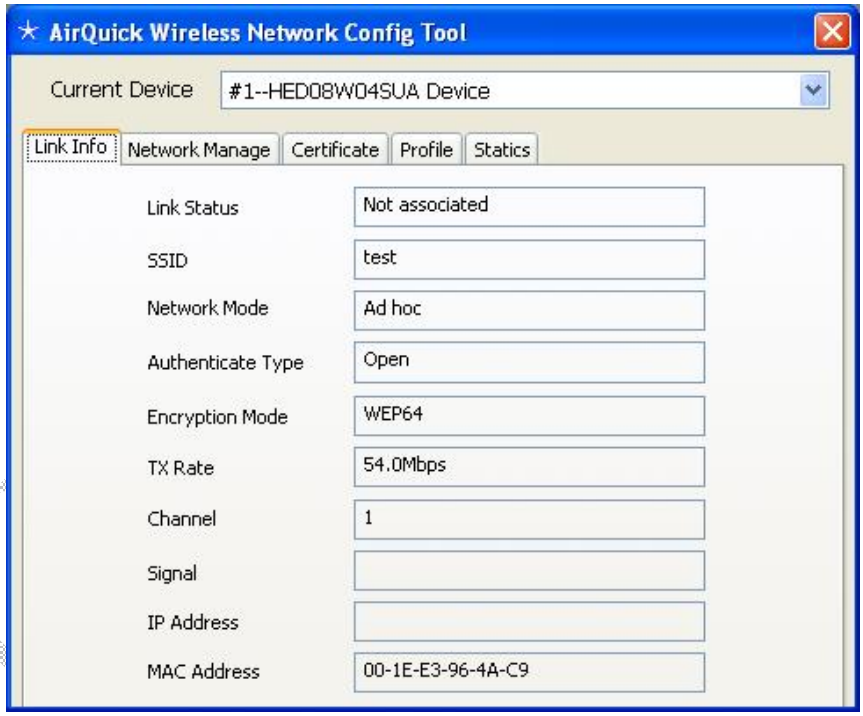

Figure 4-11 Creating Network Success

5 Addendum

5.1 Frequently Asked Questions

1. What's the IEEE 802.11 standard?

Answer:IEEE802.11 standard is a industrial standard of wireless network.IEEE802.11standard is used to ensure different devices of wireless network are compatible with each others.

2. What's WEP?

Answer:As IEEE802.11standard describes,WEP(Wired Equivalent Privacy) is a Data Encrpytion Mechanism based on the 40 bytes sharekey arithmetic.

3. In the model of Infrastructure,my computer can't communicate with other computers in the network,why?

Answer:Please check according to the steps.

(1) Make sure the authentication type and keys in the product is consistent with AP.

(2) Make sure the computer communicates with AP normally.

(3) Make sure the other computers also communicate with AP normally.

4. In Ad-hoc Model, my computer can't communicate with other computers in the network,why?

Answer:Please check according to the steps.

(1)Make sure the SSID and channel of the product in the computer is consistent with the others.

(2)Make sure the authentication types of all devices in the Ad-hoc network are uniform .

5.2 National Channel List

Tabel5-1 National Channel List

Country	Channel Area
0：North American	CH1~CH11

5.3Technical terms explanation

∷ **WLAN:**the abbreviation of Wireless Local Area Network.

∷ **AP（Access Point）:**wireless Access Point.

∷ **SSID**：also be abbreviated with ESSID，it's denotation character of AP.

∷ **Point to point Mode（Ad-hoc）**：point to point network mode in IEEE 802.11g standard，it can be formed without AP.A few network interface cards can compose a network group,of course they must have the same SSID and channel to insure they can connect.

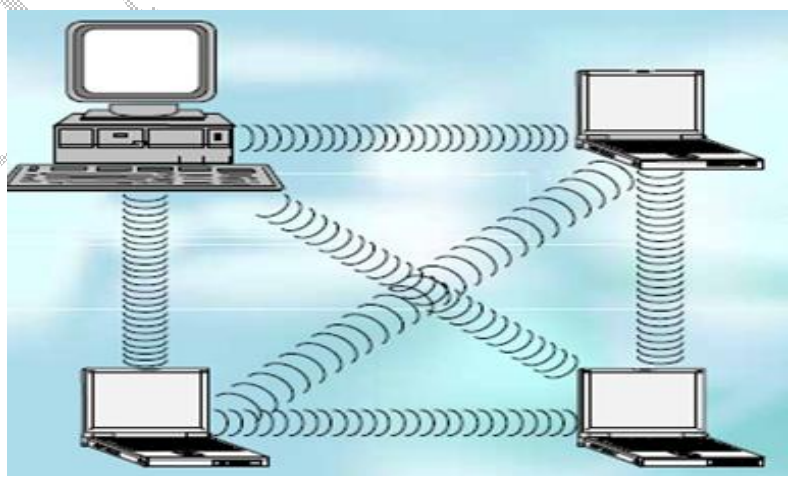

Figure 5-1 point-to-ponit mode（Ad hoc）

∷ **Infrastructure Mode**：The mode needs AP fulfils IEEE802.11b/g Standard.All communications are connected by AP,just as the routers in wired network.wireless network in this mode can connect to the wired network through the LAN interfacein AP.

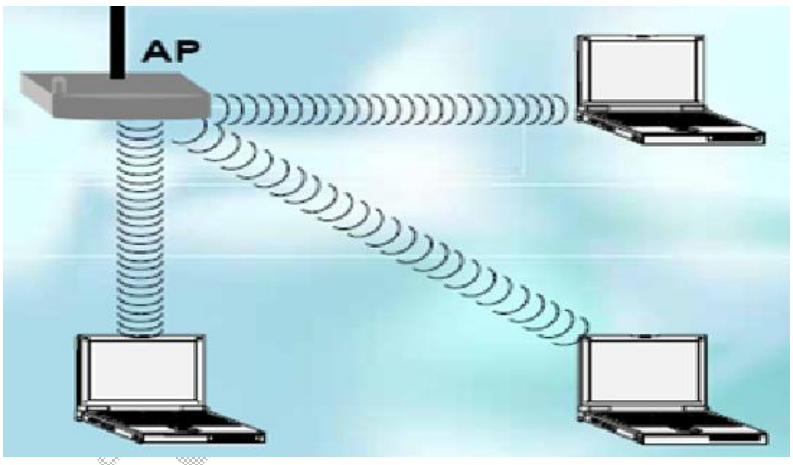

Figure5-2 Infrastructure

- **IEEE 802.11b**：IEEE 802.11b Standard defined the Physical Layer used as data transfers in WLAN and Medium Access Control Sublayer,it adopted 2.4GHz wireless frequency in Physical Layer and the most speed may reach 11Mbps.
- **IEEE 802.11g**：IEEE 802.11g Standard is the successor of IEEE 802.11b Standard,the data transfers speed can achieve 54 Mbps.IEEE 802.11g Standard can also resolve the disturbance problem between Bluetooth products and IEEE802.11b products.
- **Site Survey**：It can scan in the area where the users are,and support a usable AP list for users to decide the wireless AP they want conveniently.
- **Wired Equivalent Privacy**：called WEP for short,it's a part of wireless protocol，its purpose is supporting confidentiality and data integrality,and protect the access to the Infrastructure Network through rejecting all not WEP information package.
- **Wi-Fi(Wireless-Fideliy)**：Wireless transport criterion.
- **WPA(Wi-Fi Protected Access)**：Wi-Fi Protected Access criterion,the criterion enhances data security and the ability of access control in WI-Fi WLAN,protects all editions of IEEE 802.11,and the security is better than WEP technique.WPA is derived from IEEE 802.11i Security Standard and compatible with it.Since it's installed,it will support high quality of data security for WLAN users and ensure that only the accredited persons can join the network.
- **WPA2**：It achieve all the charaters of IEEE802.11i standard.WPA2 do not only adopt TKIP

encryption, IEEE802.11X/EAP authentication and PSK techniques,but also support AES(a new security mode)。

∷ **PSK(Per-shared Key)**： Wi-Fi Protected Access（WPA）personal mechanism.

∷ **TKIP(Temporal Key Integrity Protocol)**：a wireless security encryption mechanism of Wi-Fi Protected Access.

∷ **AES(Advanced Encryption Standard)**：higher encryption mechanism，it uses Symmetrical Block Encryption technique,it's the preferred standard to use in commerce and government.The standard is used to achieve WPA2.

∷ **CCK**：the modulation technique of IEEE802.11b used.

∷ **OFDM**：the modulation technique of IEEE802.11g used.

∷ **TLS(Transport Layer Security)**：it supports the common authentication of basis and credence between clients and network,it performs the authentication according to the credence of client and server,and it's used to dynamicly produce WEP secret key according to user's work,and then protects the security of the latter communication between client and access point.

∷ **WAPI**：it's short for WLAN Authentication and Privacy Infrastructure in English，it's a kind of wireless transfers protocol,it is WLAN security resolvd scenario,which is mian against the question of WEP protocol security in IEEE 802.11 standard and advanced in Chinese WLAN National Standard GB15629.11.

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

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Federal Communications Commission (FCC) Requirements, Part 15

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 or more 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.

Regulatory information / Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the

equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government

CAUTION: To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use on the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

MPE Statement (Safety Information)

Your device contains a low power transmitter. When device is transmitted it sends out Radio Frequency (RF) signal.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
IEEE 802.11b/g operation of this product in the U.S.A. is firmware -limited to channels 1 through 11.

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

The antenna must be installed such that 20 cm is maintained between the antenna and users, and

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 (for example, digital device emissions, PC peripheral requirements, etc.).