IEEE802.11N
Wireless USB Adaptor

User's Manual

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Federal Communication Commission Interference Statement

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.

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.

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.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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

Federal Communication Commission (FCC) Radiation Exposure Statement
This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C. This equipment should be installed and operated with minimum distance 0.5 cm between the radiator & your body.

Chapter 1 Welcome to the Wireless USB Adaptor User's Manual

Welcome to the Wireless USB Adaptor User's Manual

Congratulations on your purchase of the Wireless USB Adaptor. The User's Manual will assist you to get the full picture of it.

We've arranged this user's manual in a way that contains both getting started with Wireless USB Adaptor as well as everything about it. First of all, the manual starts from the introduction of Wireless USB Adaptor like features, benefits, etc. Then, it goes as hypothetically the first time you open the box and will walk you through the features we think that you may want to know or use right away when you plug Wireless USB Adaptor into your PC/laptop. Afterwards, the user's manual offers the basic/advanced information about the "Wireless Configuration Utility" which can make the best of Wireless USB Adaptor, configure your wireless network and even monitor the status of Wireless USB Adaptor.

Enjoy the journey and your Wireless USB Adaptor for a richly wireless life!

Chapter 2 About your Wireless USB Adaptor

What is Wireless USB Adaptor!

The IEEE 802.11n Wireless LAN USB Adapter is a standard USB adapter that fits into every standard USB 2.0 and 1.1 ports of a PC/laptop. By complying with the IEEE 802.11n draft 2.0, Wireless USB Adaptor is able to support the transmission rate up to 150Mbps, giving itself the speed equivalent with Ethernet to access corporate network or the Internet wirelessly. When Wireless USB Adaptor is installed, it is able to communicate with every IEEE 802.11b/g/n compliant devices.

Features and Benefits

- Enable your PC/laptop to enjoy the wireless connection to the Internet.
- Free of cable and embracing the mobility.
- Support IEEE 802.11b/g/n solution in 2.4GHz frequency band.
- Automatic rate selection
- Easy setup and user friendly configuration.
- With built-in antenna.
- Security supported: WEP, WPA, WPA2.
- OS supported: Windows 2000, Windows XP and Windows Vista.

Applications

Wireless USB Adaptor offers a fast, reliable, cost-effective solution for wireless client to access to the network with applications (not limited to) as below:

- Remote access to corporate network information
  - E-mail, file transfer and terminal emulation.
- Difficult-to-wire environments
  - Historical or old buildings, asbestos installations, and open area where wiring is difficult to deploy.
- Frequently-changing environments
  - For retailers, manufacturers and those who frequently change the workplace and locations.
- Temporary LANs for special projects or peak time

- Trade shows, exhibitions and construction sites where a temporary network will be practical.
- Retailers, airline and shipping companies need additional workstations during peak period.
- Auditors require workgroups at customer sites.

- Access to database for mobile workers
  - Doctors, nurses, retailers, accessing their database while being mobile in the hospital, retail store or office campus.
- SOHO (Small Office and Home Office) users
  - SOHO users need easy and quick installation of a small computer network.
- High security connection
  - The secure wireless network needs to be installed quickly and full of flexibility.

System requirements

Before installing Wireless USB Adaptor, please make sure your system complies with the following conditions:

- A minimum of 10MB available hard disk space.
- A minimum of 32 MB RAM
- A computer equipped with a USB port, and socket services compliant with revision 1.1 or 2.0 of USB specification.
- A CD-ROM drive.
- OS with Windows Vista/XP/2000.

Chapter 3 Inside the Box

You should find the following items inside the box.

- IEEE 802.11n Wireless LAN USB Adapter ……x 1

- Product CD (Driver, Utility and Manual are inside)……...x1

Chapter 4 Starting Up

For Windows XP users

1. Insert the product CD into the CD-ROM on your computer. Locate **setup.exe** in the CD and then double-click it.

Figure 1 Setup Icon in Windows XP

2. Click **Next** to continue the installation of IEEE 802.11n Wireless LAN Utility. This utility will help configuring your wireless network and monitoring the status of Wireless USB Adaptor after it is done.

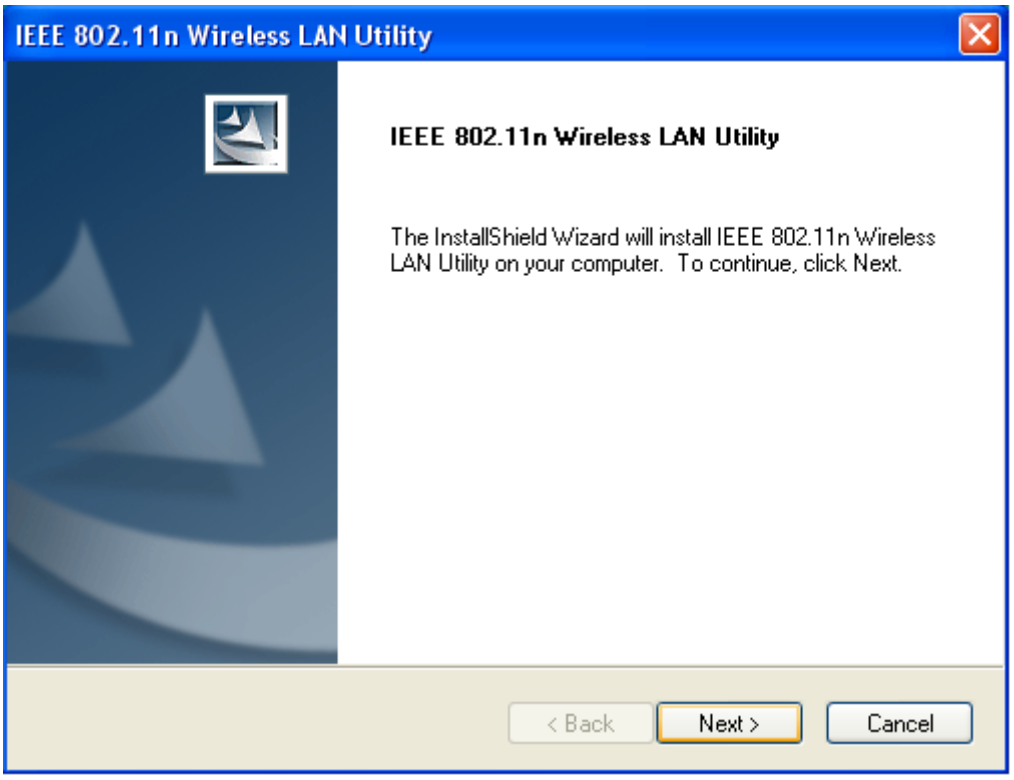

Figure 2 Setup in Windows XP－Initial Screen

3. Click **Next** to install the driver.

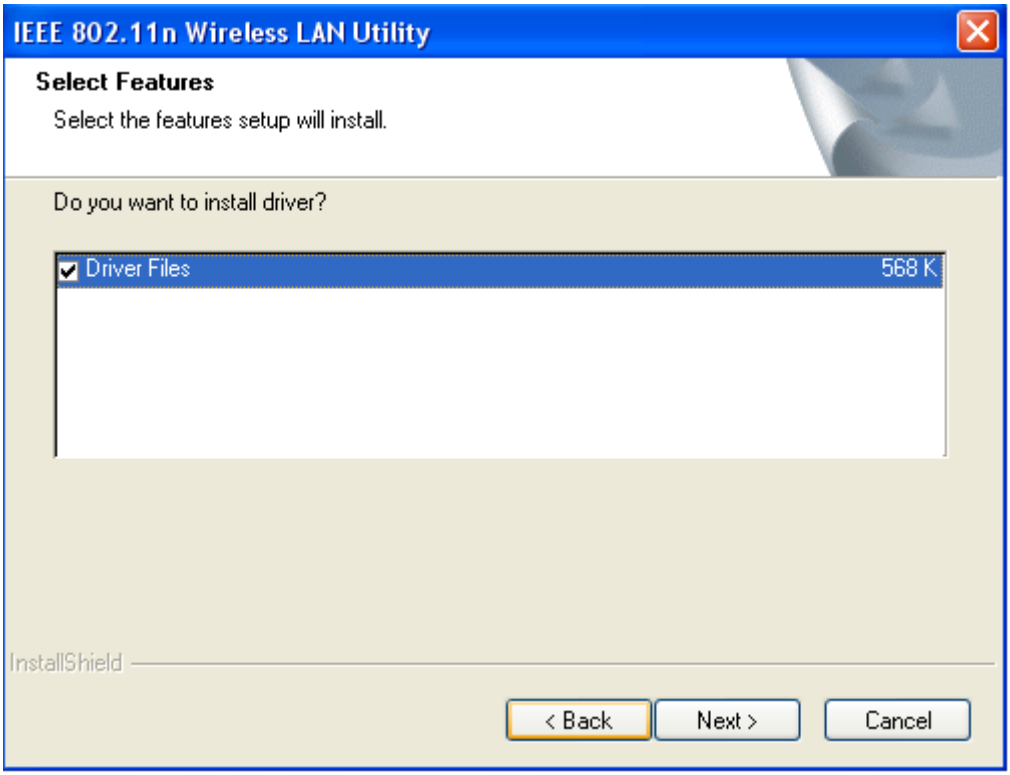

Figure 3 Setup in Windows XP—Select Driver Files

4. Click **Next** to install the utility into the designated folder; or click Browse to choose your preferred folder.

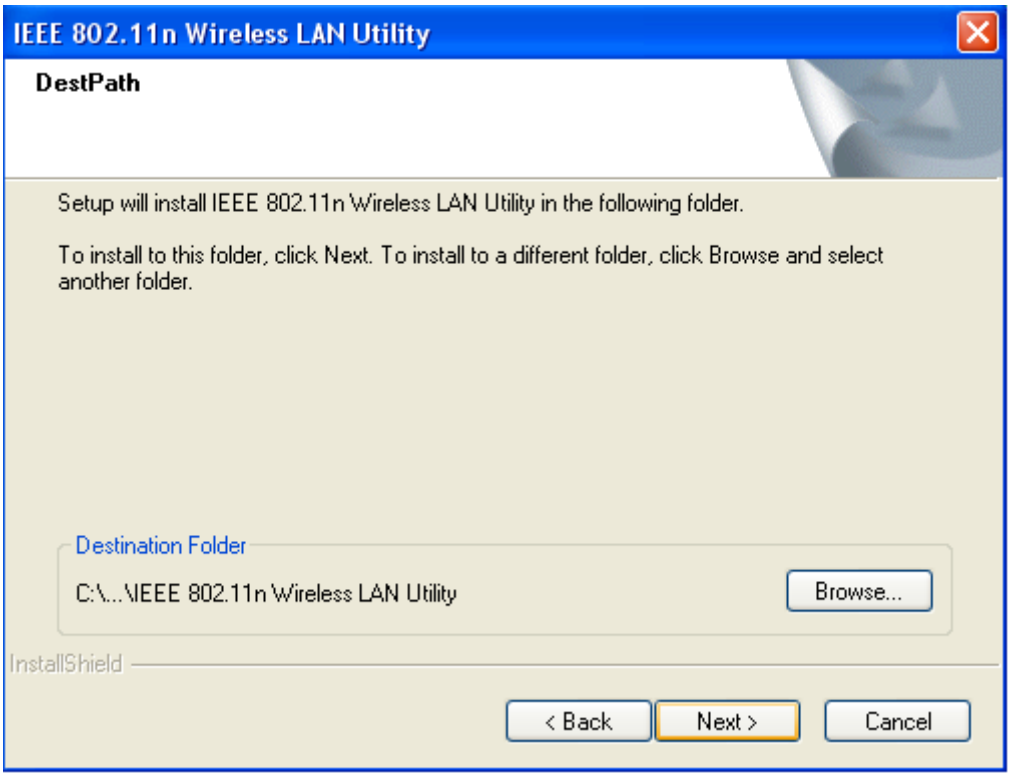

Figure 4 Setup in Windows XP—Select Destination Folder

5. Click **Next** to continue.

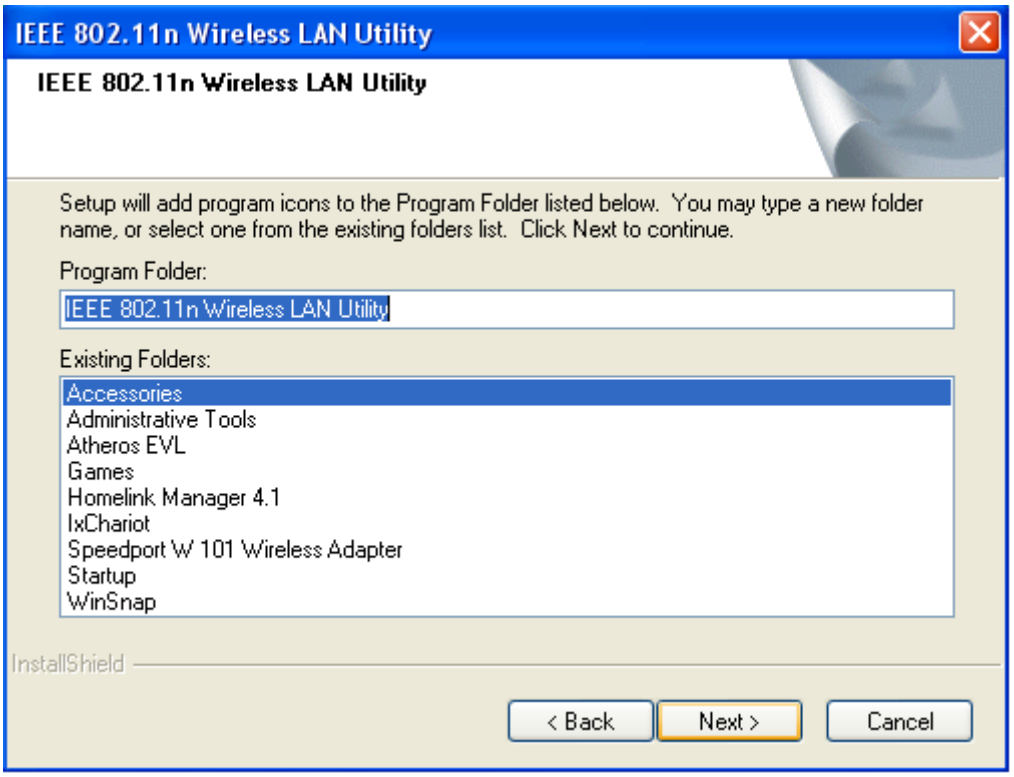

Figure 5 Setup in Windows XP—Select Program Folder

6. Select the item you like to add the shortcut to it. Then Click **Next**.

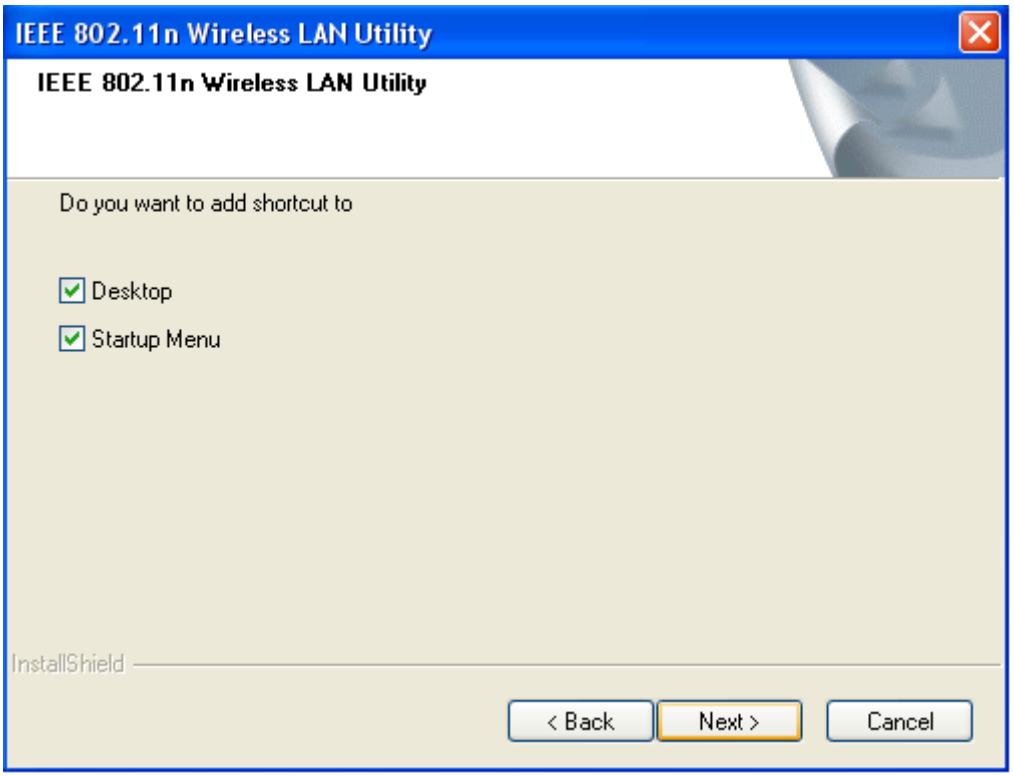

Figure 6 Setup in Windows XP—Add Shortcuts

7. **Installation is successfully processing.** (Click Cancel to stop it.)

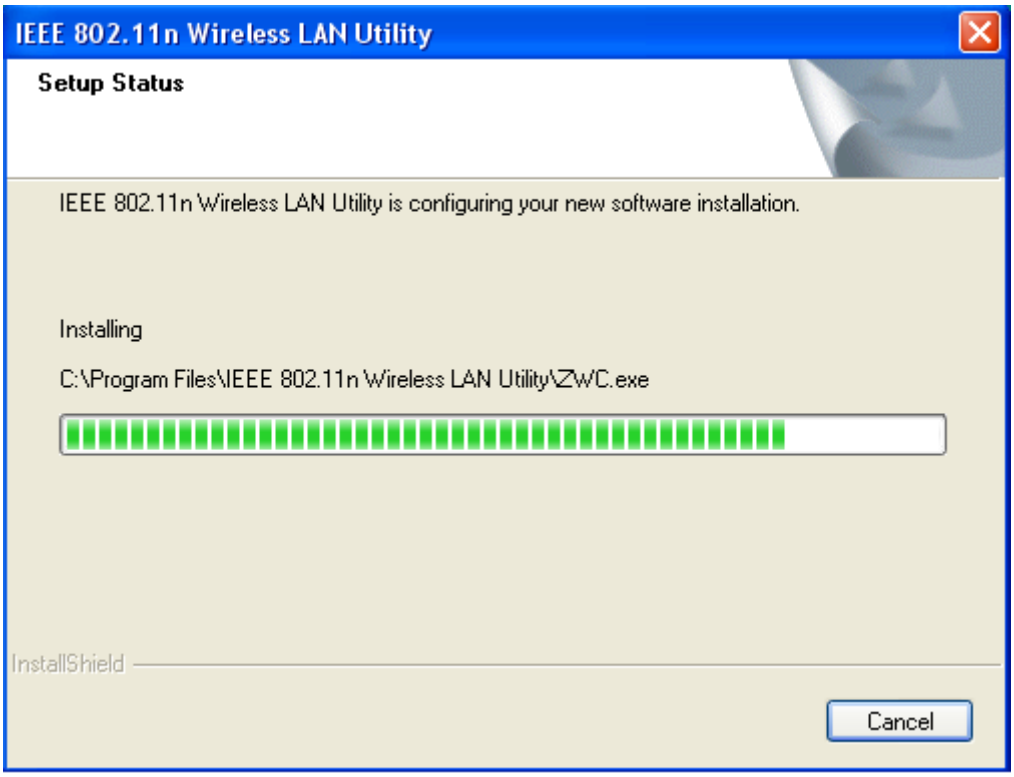

Figure 7 Setup in Windows XP－Installation Processing

8. Installation is successfully done. Click **Finish** and you will find the IEEE 802.11n Wireless LAN Utility on the desktop.

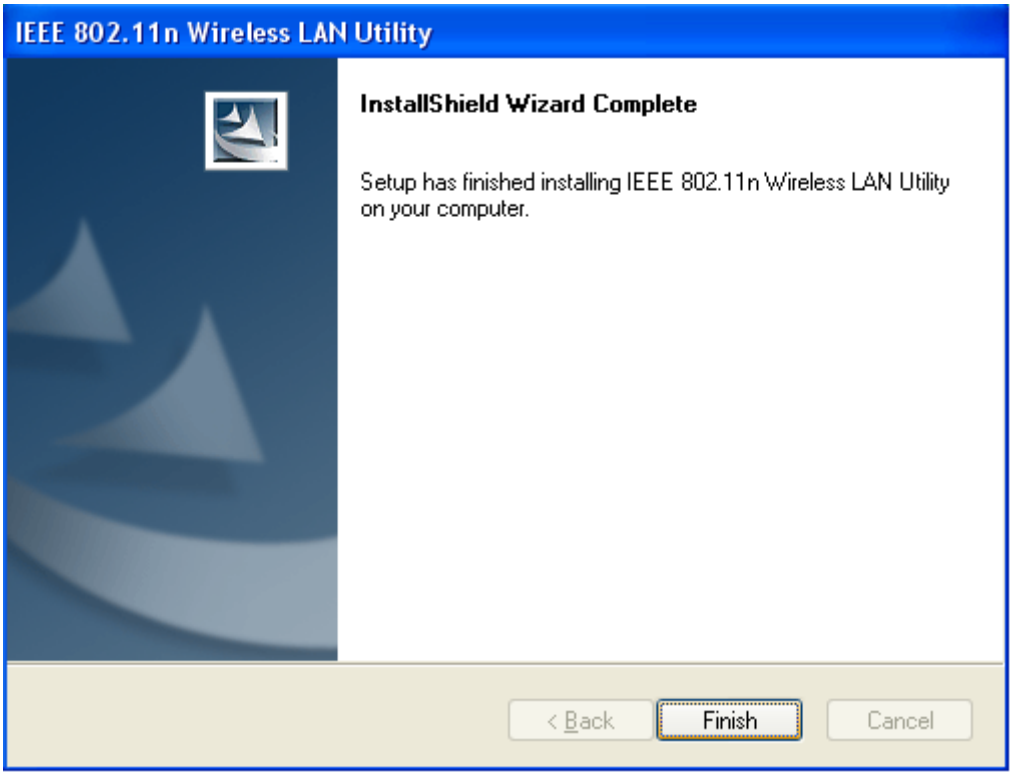

Figure 8 Setup in Windows XP－Installation Completed

9. IEEE 802.11n Wireless LAN Utility is now on the desktop.

Figure 9 Wireless LAN Utility Icon in Windows XP

10. Plug Wireless USB Adaptor to your PC through the USB port, and the following Wizard window will show up to guide you for the rest of the processes. Select **Yes, this time**

only to allow Windows to search the driver for Wireless USB Adaptor automatically. Then, click **Next** to go on.

Figure 10 Found New Hardware Wizard—Step 1

11. Select **Install the software automatically (Recommended)**, and click **Next** to continue.

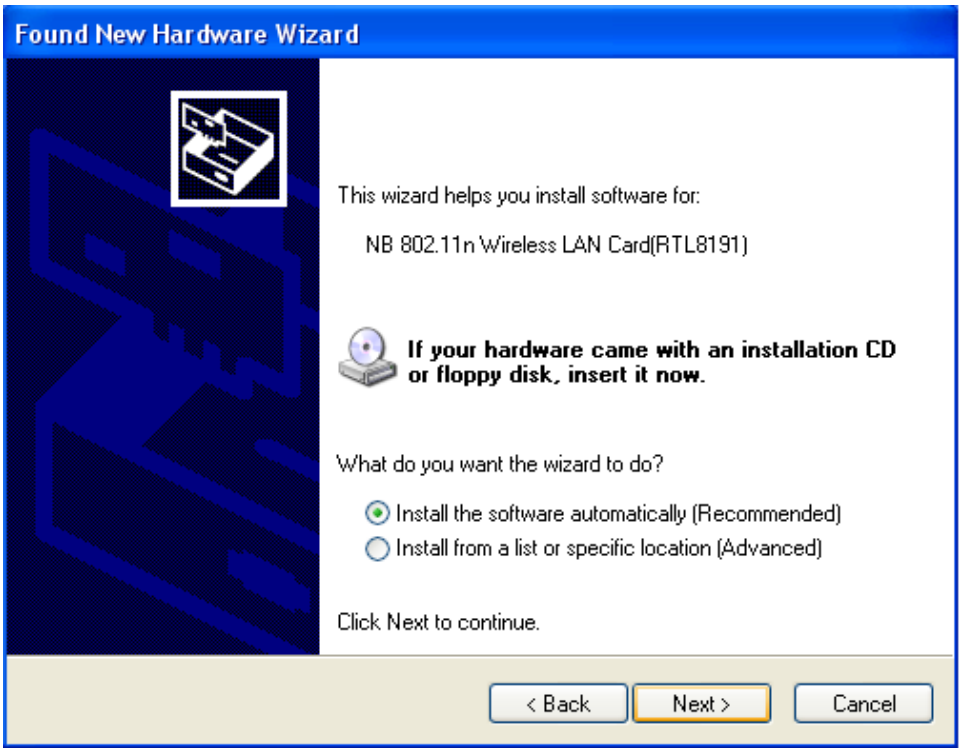

Figure 11 Found New Hardware Wizard—Step 2

12. If the sign of “Windows Logo testing” shows up, please click **Continue Anyway**.

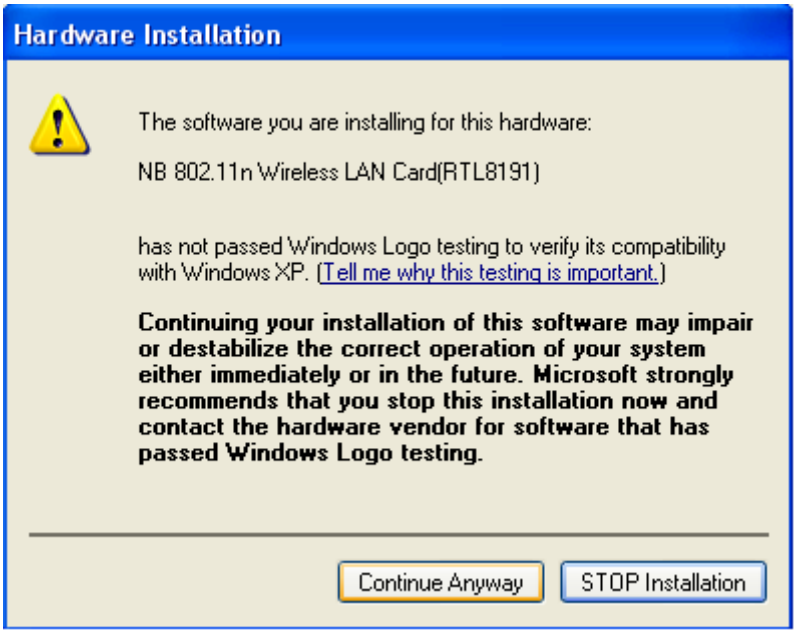

Figure 12 Hardware Installation Note

13. Wireless USB Adaptor is now successfully activated and ready for you. Click **Finish** to close the wizard.

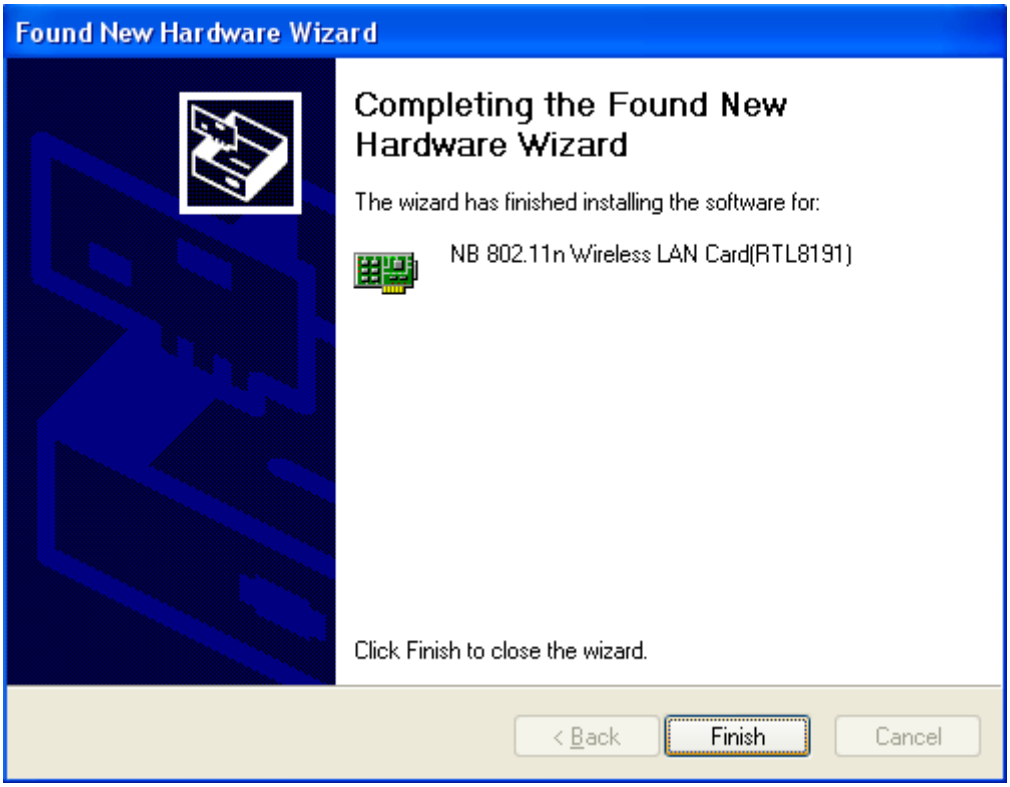

Figure 13 Found New Hardware Wizard—Step 3

14. The “Wireless Configuration Utility” will show up automatically when the previous step has finished.

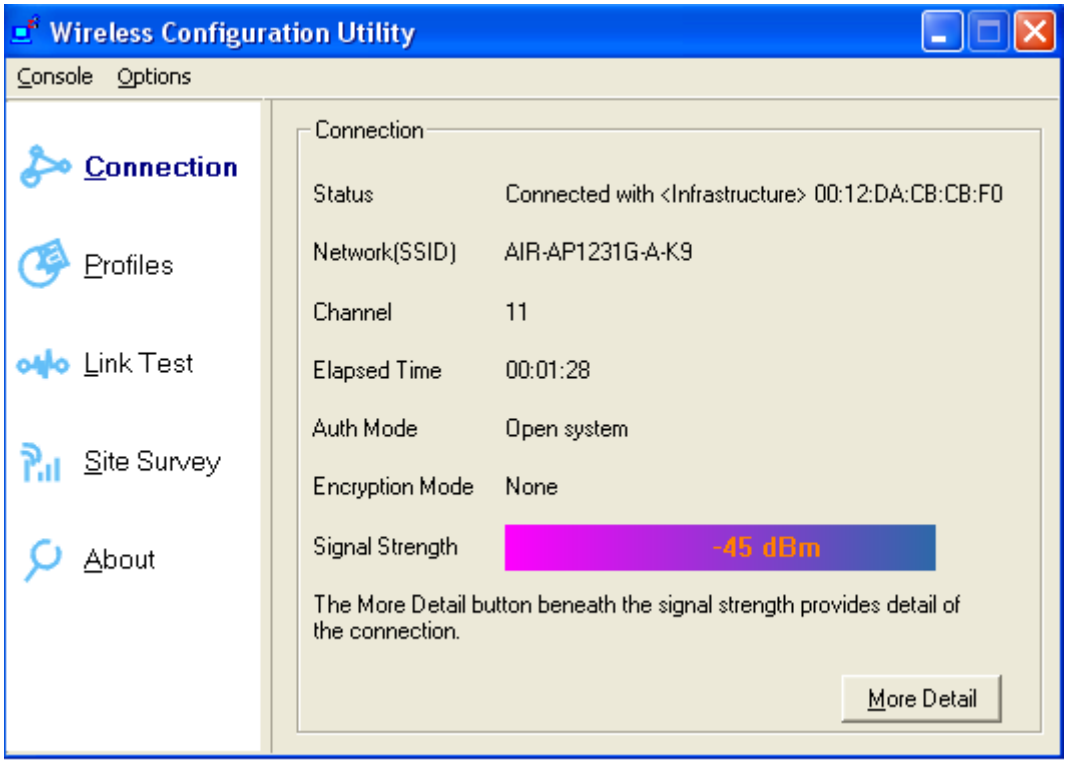

Figure 14 Wireless Configuration Utility—Connection

15. Click **Site Survey** in the left column, and you will see all the currently available access points in the right page. Choose the one you are allowed to use by single-clicking it, and then click **Join.** (Password required, if needed)

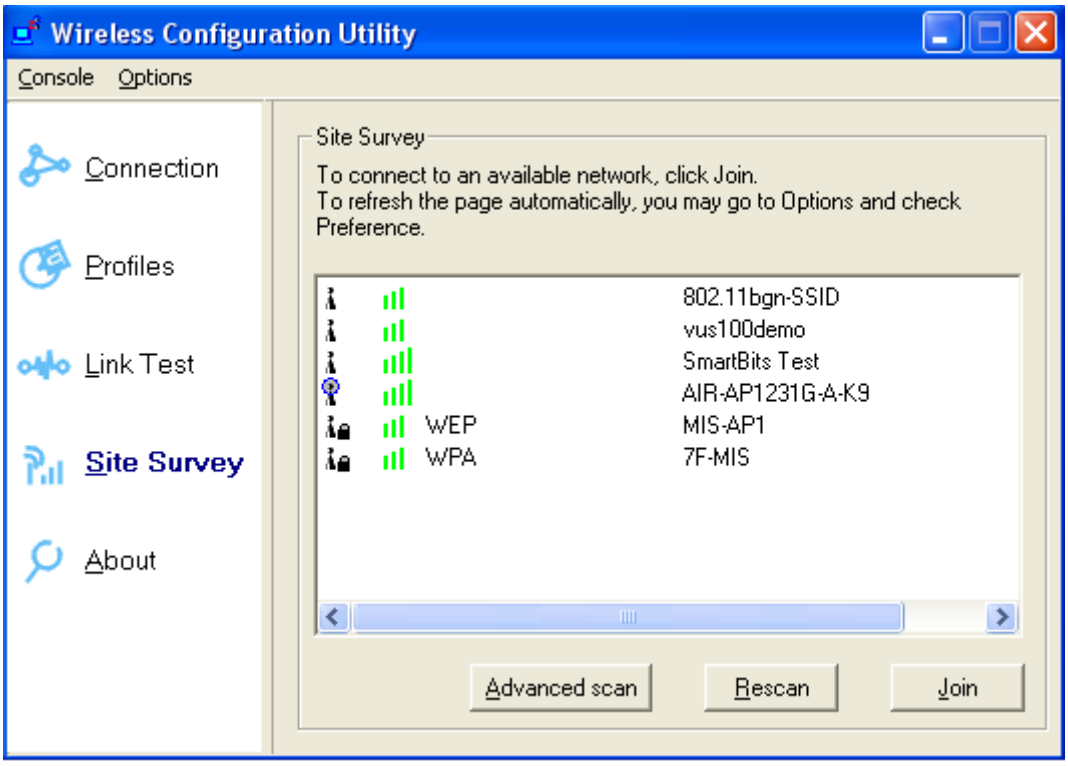

Figure 15 Wireless Configuration Utility—Site Survey

16. Open your web browser and enjoy the Internet now!

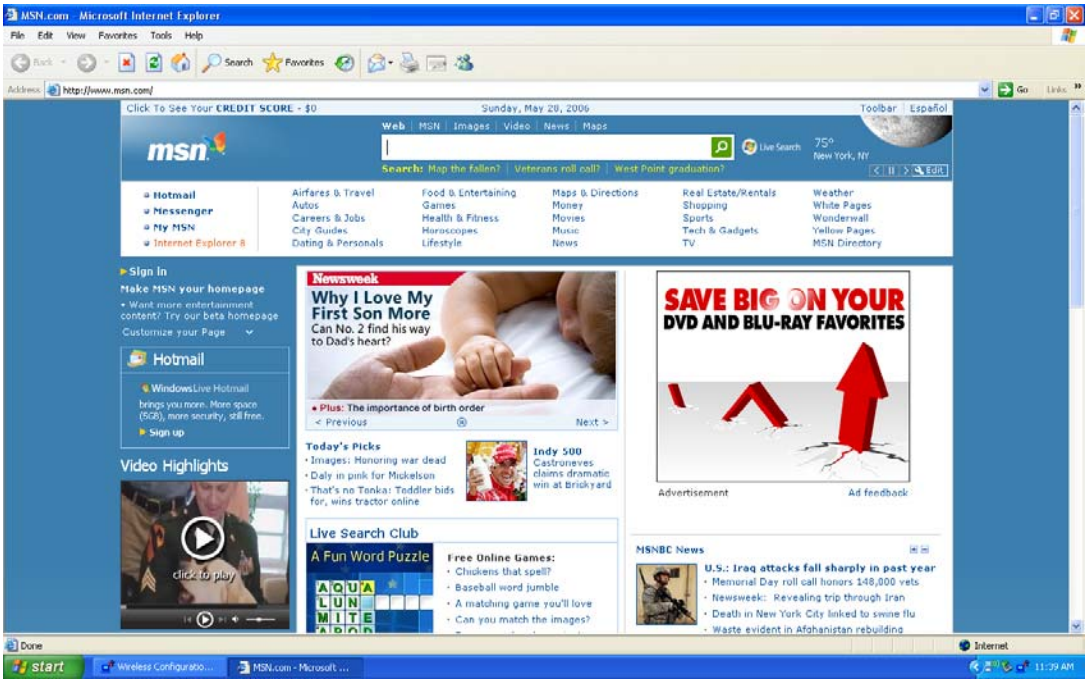

Figure 16 Enjoy the Internet

Note.1 for Windows XP users

If you prefer to use the built-in “Wireless Zero Configuration” of Windows XP to connect to a wireless network, please follow the steps below.

1. When the “Wireless Configuration Utility” shows up as the previous step. 14 did, please click **Console** at the top left side, and select **Use Windows to Config Adapters**.

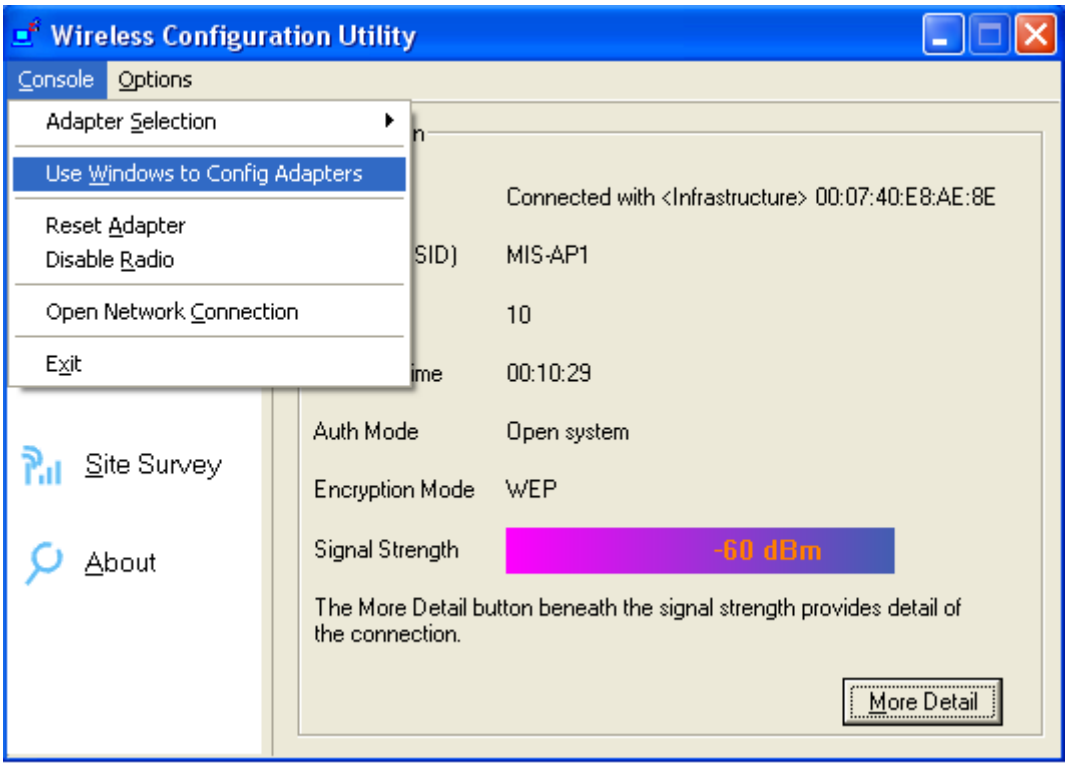

Figure 17 Wireless Configuration Utility—Console

2. Click **OK.**

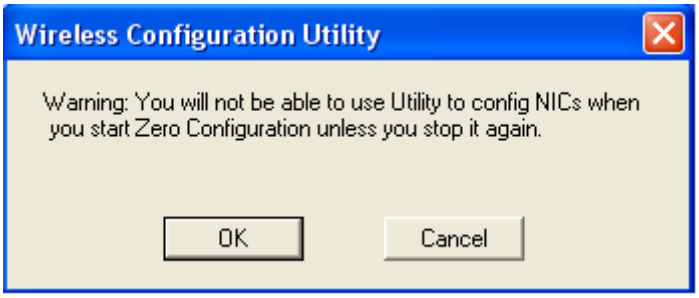

Figure 18 Wireless Configuration Utility—Warning Sign

3. Click the icon “Wireless Zero Configuration” at the bottom right desktop.

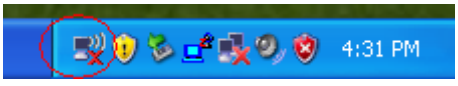

Figure 19 Wireless Zero Configuration Icon

4. A window will show up as below, and all the currently available access points are listed in

the right side. Choose the one you are allowed to use by single-clicking it, and then click **Connect**. (Password required, if needed)

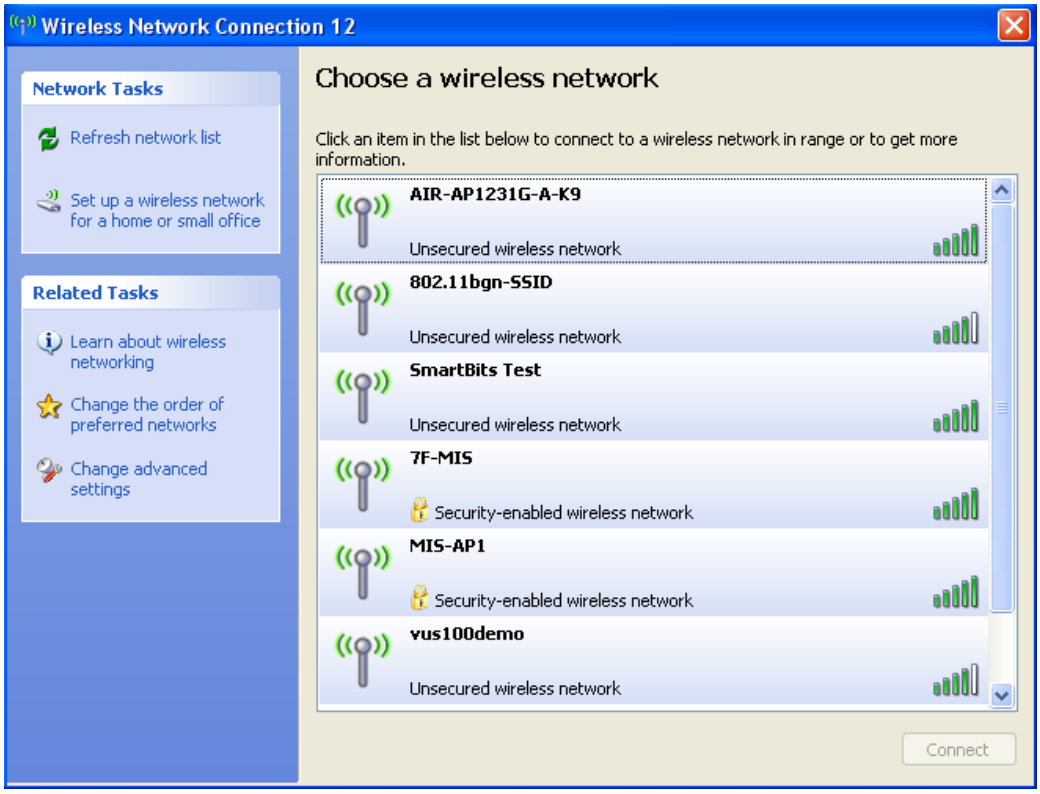

Figure 20 Wireless Network Connection List

Note.2 for Windows XP users

If you would like to switch back from “Wireless Zero Configuration” to “Wireless Configuration Utility”, please follow the steps below.

1. Locate the icon “IEEE 802.11n Wireless LAN Utility” on the desktop, and double-click it.

Figure 21 Wireless LAN Utility Icon in Windows XP

2. When the “Wireless Configuration Utility” shows up, please click **Console** at the top left side, and unselect **Use Windows to Config Adapters**.

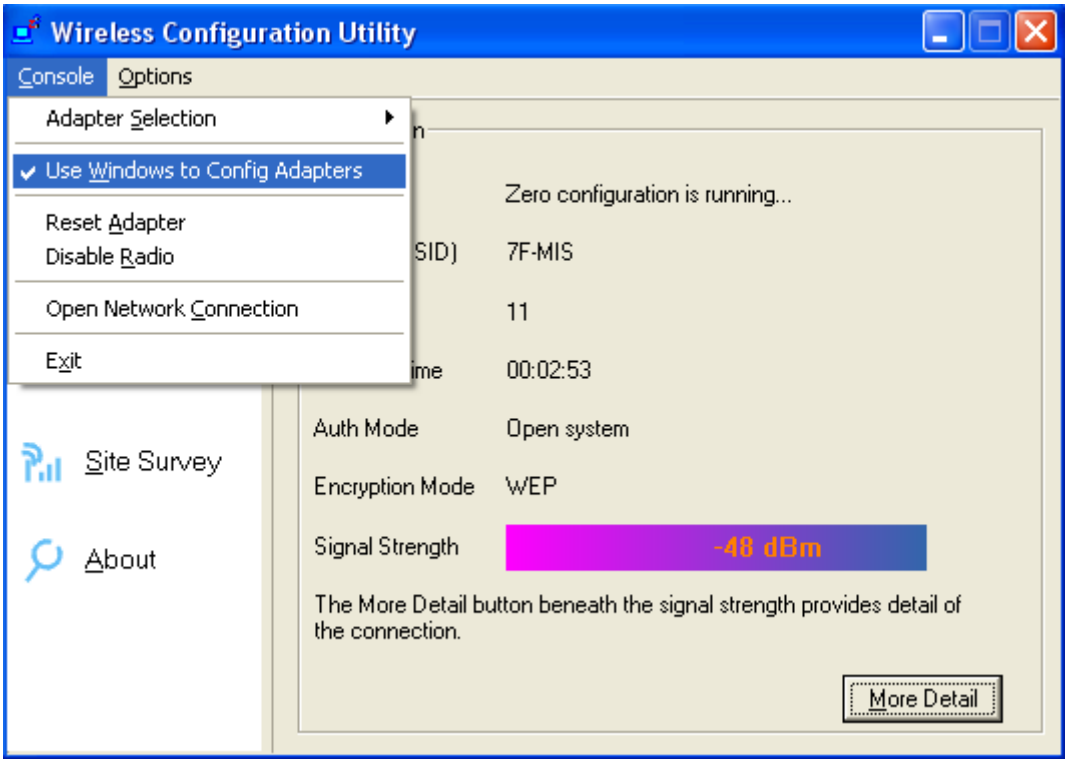

Figure 22 Wireless Configuration Utility—Console

3. Click **OK**. And the "Wireless Configuration Utility" is again ready for you.

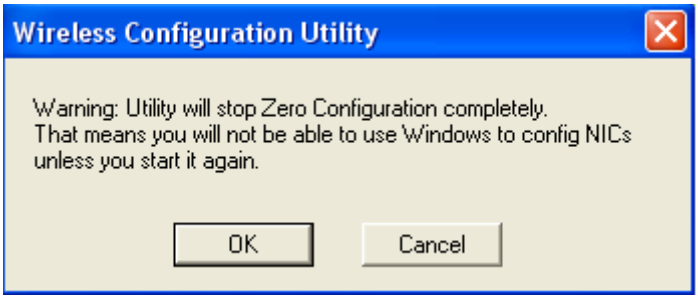

Figure 23 Wireless Configuration Utility—Warning Sign

Note.3 for Windows XP users

"Wireless Configuration Utility", which comes with Wireless USB Adaptor, provides you with more tools to configure and monitor it. Tools like "Link Test" or "Profiles" allow you to test the connection of your network or even create your own list for common used places (access points/routers) for convenience. In addition, the WiFi Protected Setup (WPS) function is able to be easily activated by using "Wireless Configuration Utility".

For more information about "Wireless Configuration Utility", please refer to the chapter 5 of this manual.

For Windows Vista users

1. Insert the product CD into the CD-ROM on your computer. Locate **setup.exe** in the CD and then double-click it.

Figure 24 Setup Icon in Windows Vista

2. Click **Next** to continue the installation of IEEE 802.11n Wireless LAN Utility. This utility will help configuring your wireless network and monitoring the status of Wireless USB Adaptor after it is done.

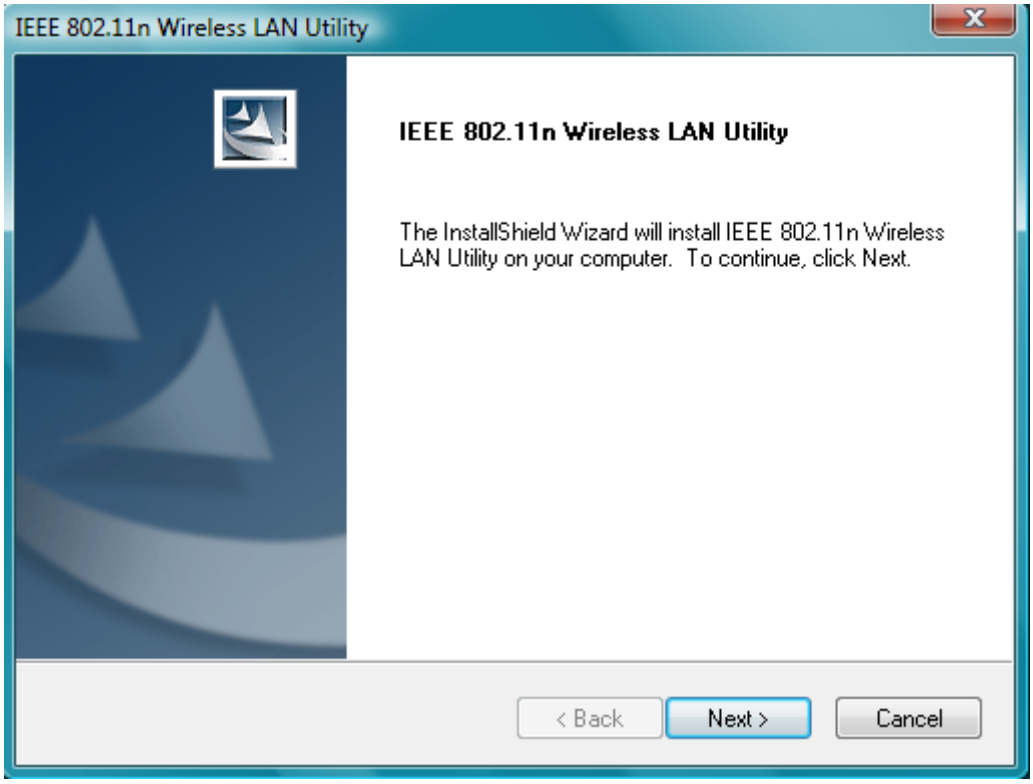

Figure 25 Setup in Windows Vista－Initial Screen

3. Click **Next** to install the driver.

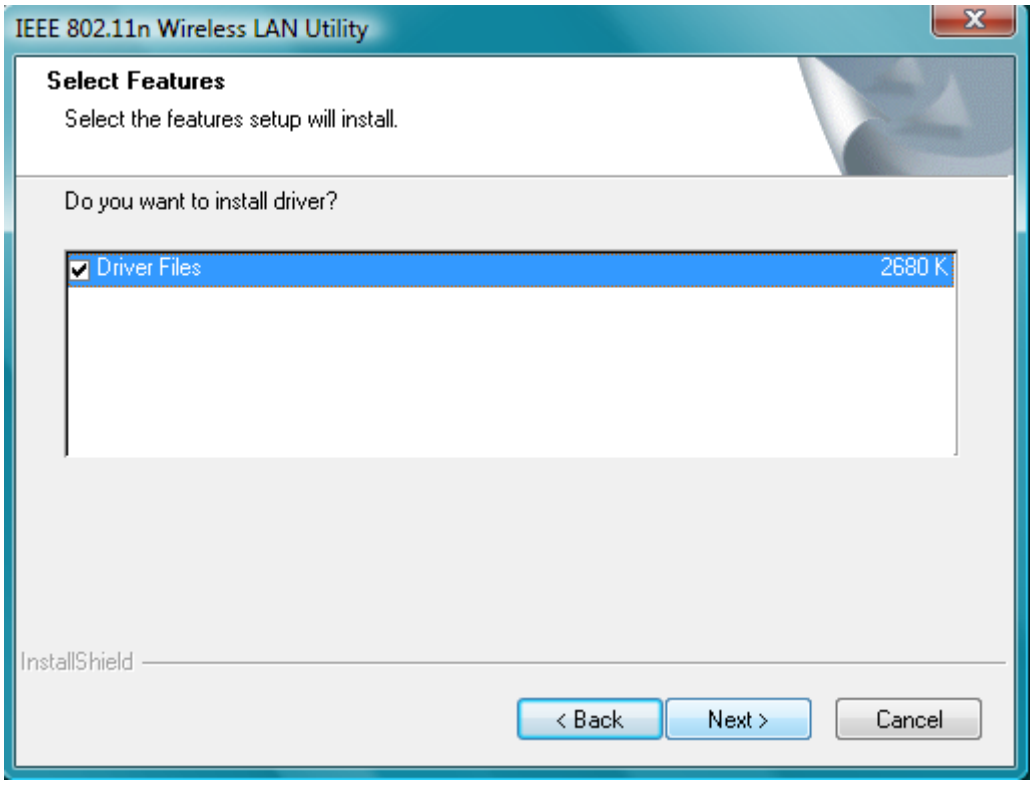

Figure 26 Setup in Windows Vista－Select Driver Files

4. Click **Next** to install the utility into the designated folder; or click **Browse** to choose your preferred folder.

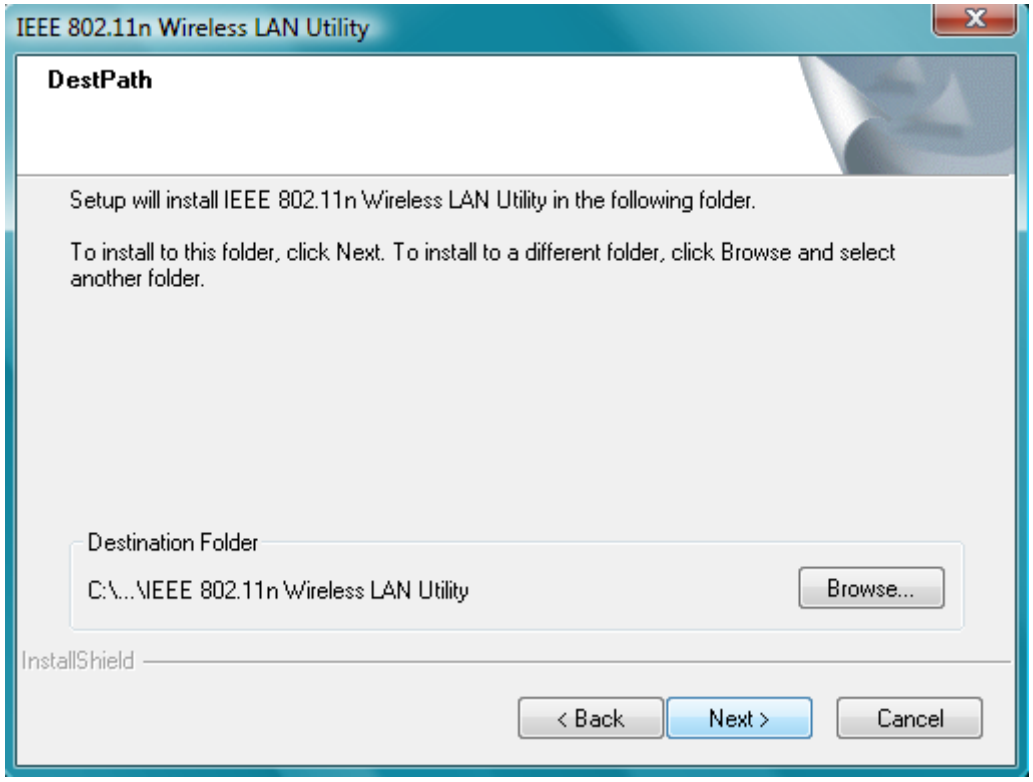

Figure 27 Setup in Windows Vista－Select Destination Folder

5. Click **Next** to continue.

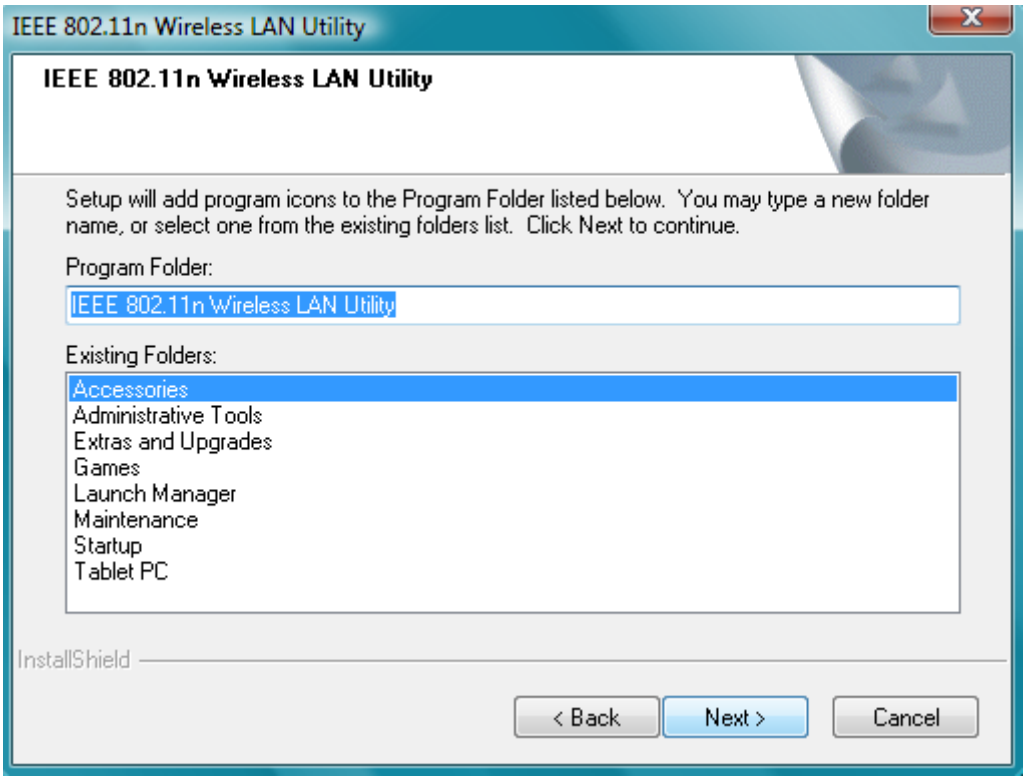

Figure 28 Setup in Windows Vista—Select Program Folder

6. Select the item you like to add the shortcut to it. Then Click **Next**.

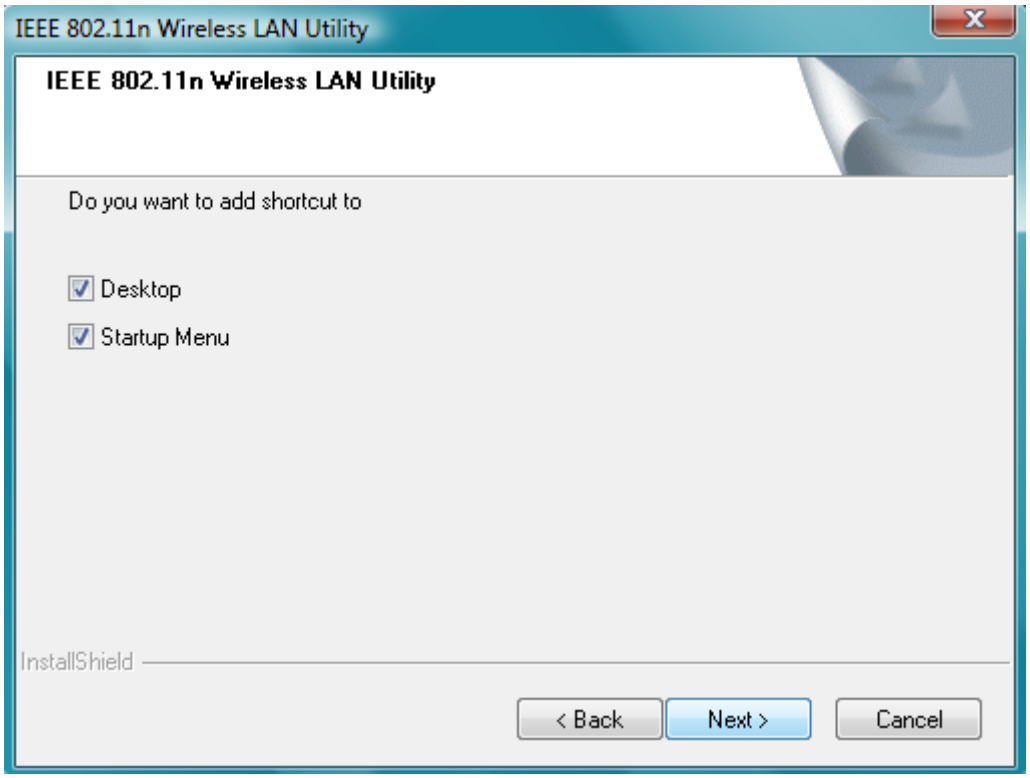

Figure 29 Setup in Windows Vista—Add Shortcuts

7. **Installation is successfully processing**. (Click Cancel to stop it.)

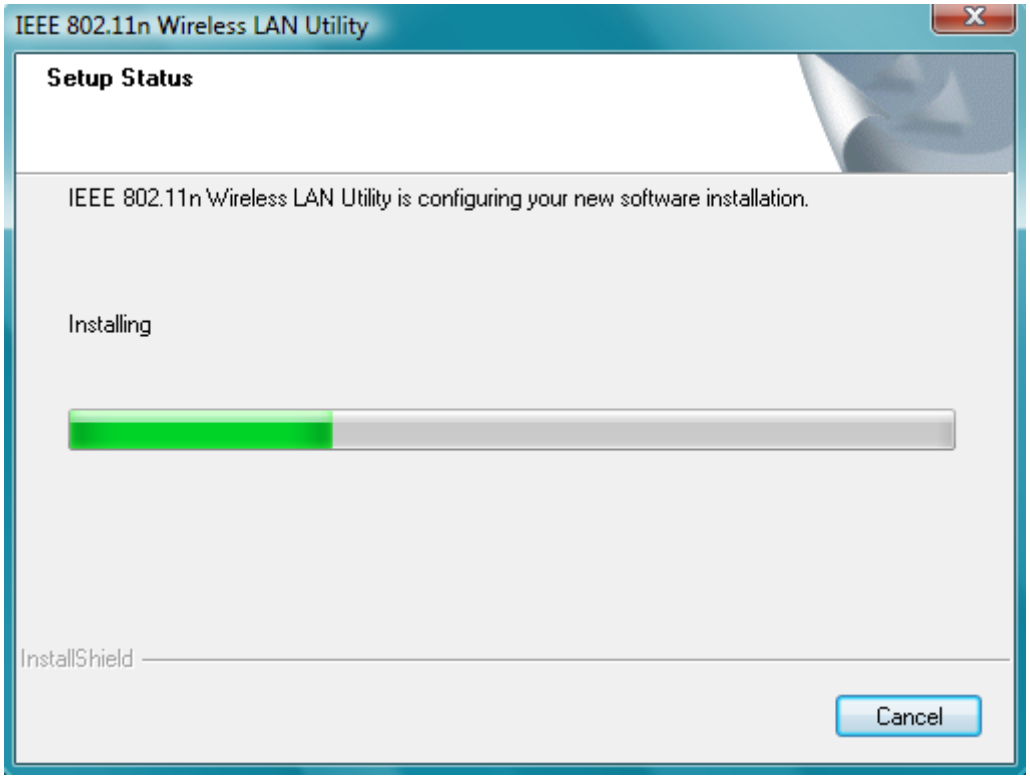

Figure 30 Setup in Windows Vista－Installation Processing

8. A sign of “Windows can’t verify the publisher of this driver software” will show up. Please click **Install this driver software anyway** to go on.

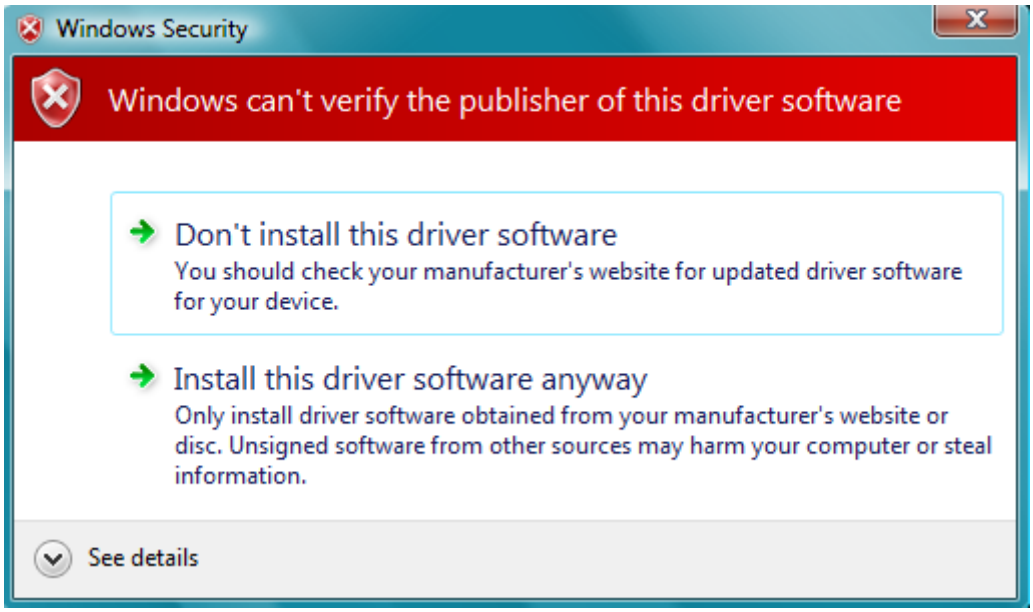

Figure 31 Windows Security

9. Installation is successfully done. Click **Finish** to close the window.

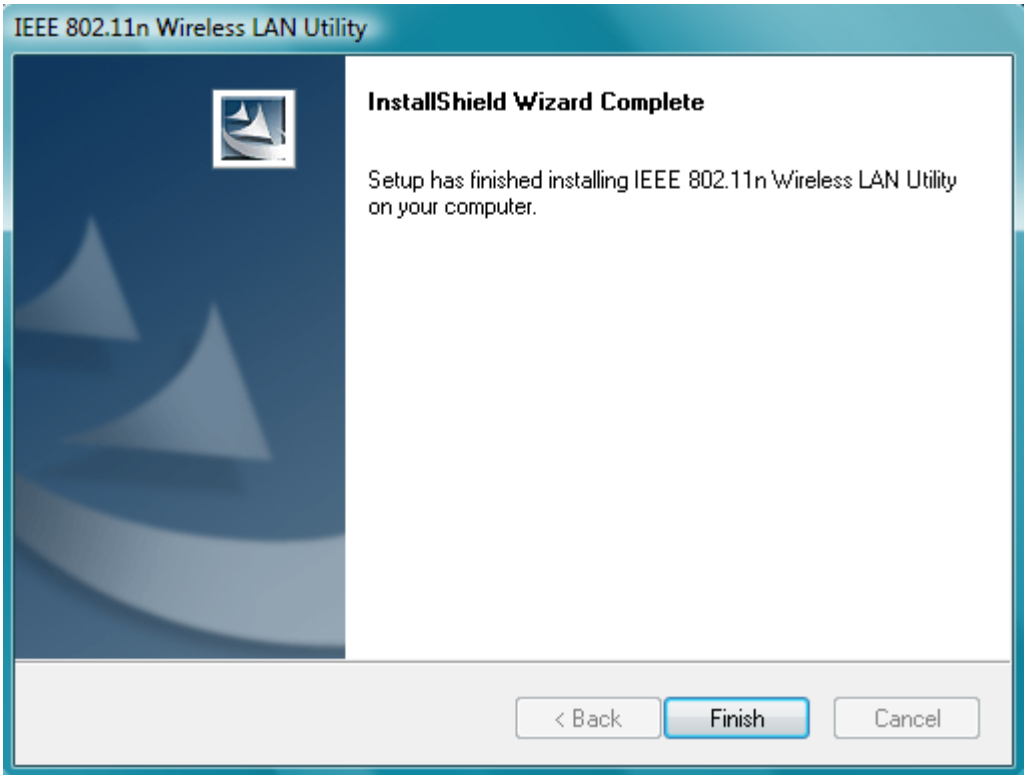

Figure 32 Setup in Windows Vista－Installation Completed

10. Plug Wireless USB Adaptor to your PC through the USB port, and after a few seconds, the successful installation dialogue will pop up as below.

Figure 33 Successful Driver Installation Sign

11. The “Wireless Configuration Utility” will show up automatically when the previous step has finished.

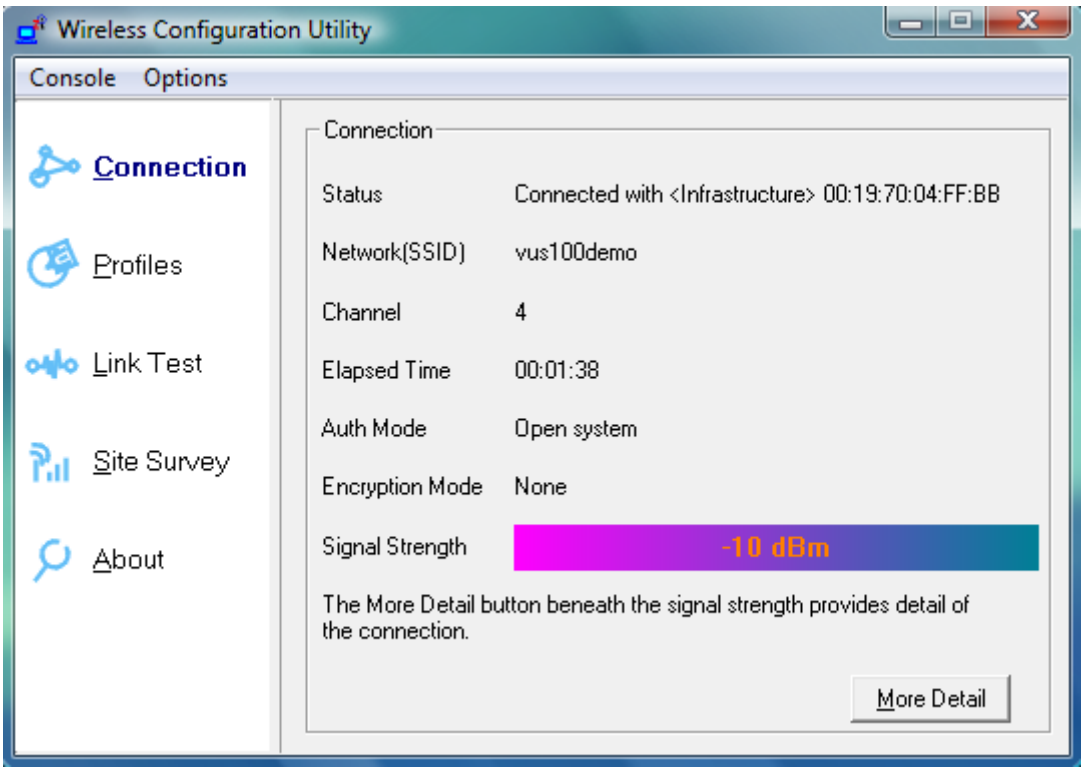

Figure 34 Wireless Configuration Utility—Connection

12. Click **Site Survey** in the left column, and you will see all the currently available access points in the right page. Choose the one you are allowed to use by single-clicking it, and then click **Join.** (Password required, if needed)

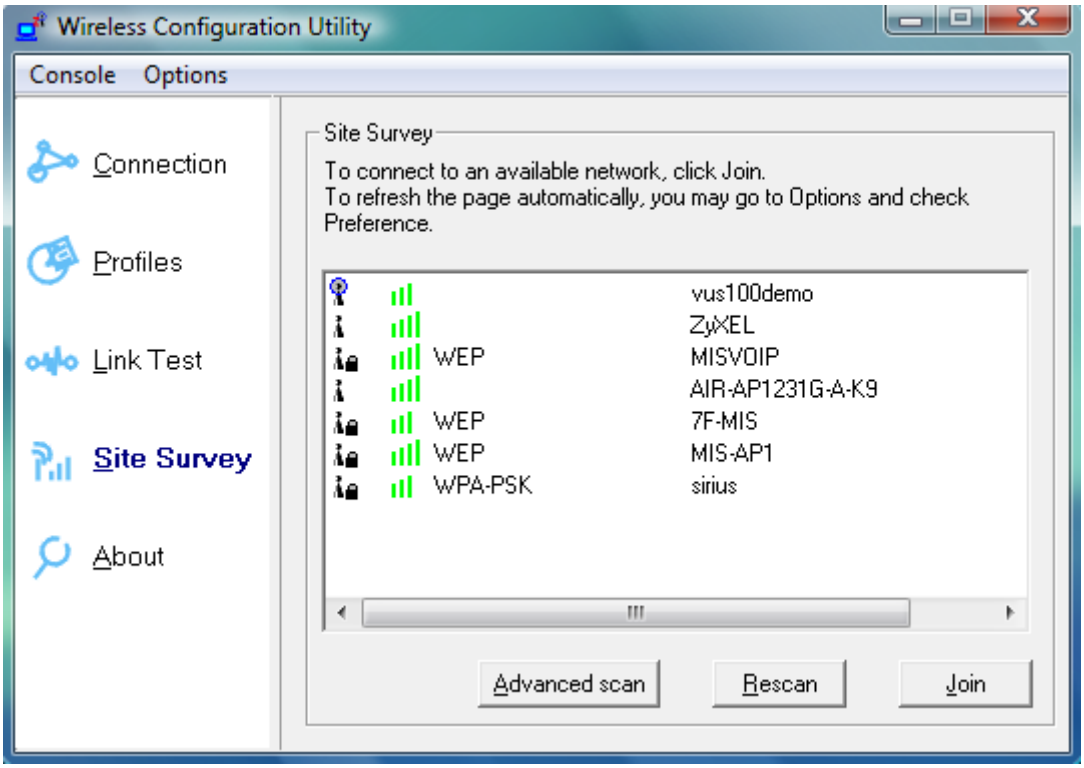

Figure 35 Wireless Configuration Utility—Site Survey

13. Open your web browser and enjoy the Internet now!

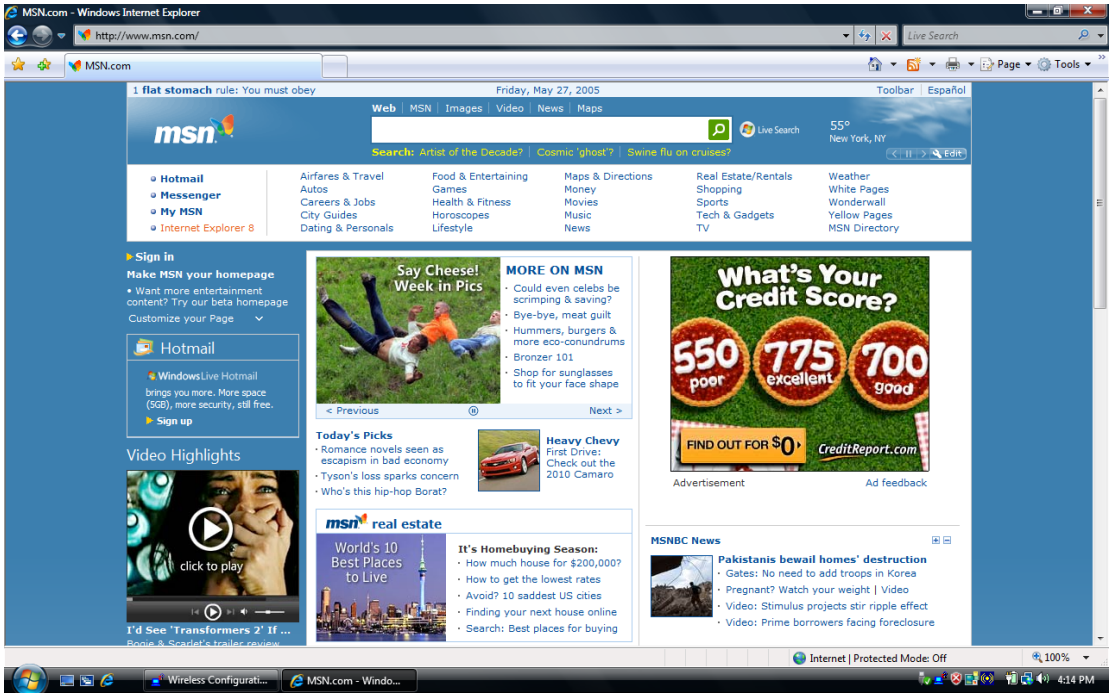

Figure 36 Enjoy the Internet

Note.1 for Windows Vista users

If you prefer to use the built-in “Wireless Zero Configuration” of Windows Vista to connect to a wireless network, please follow the steps below.

1. Click the icon in the red circle as below on the side bar of the desktop, and a small window will pop up. Click **Connect or disconnect…**.

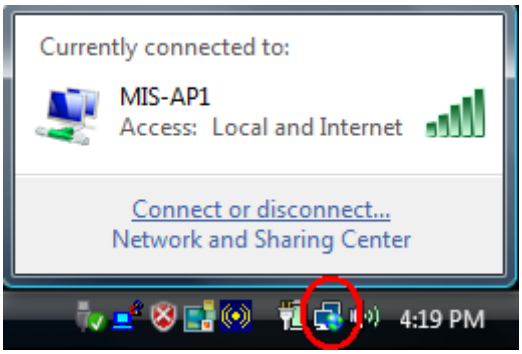

Figure 37 Wireless Zero Configuration Icon

2. A window will show up as below, and all the currently available access points are listed in the right side. Choose the one you are allowed to use and then double click it to connect to it. (Password required, if needed)

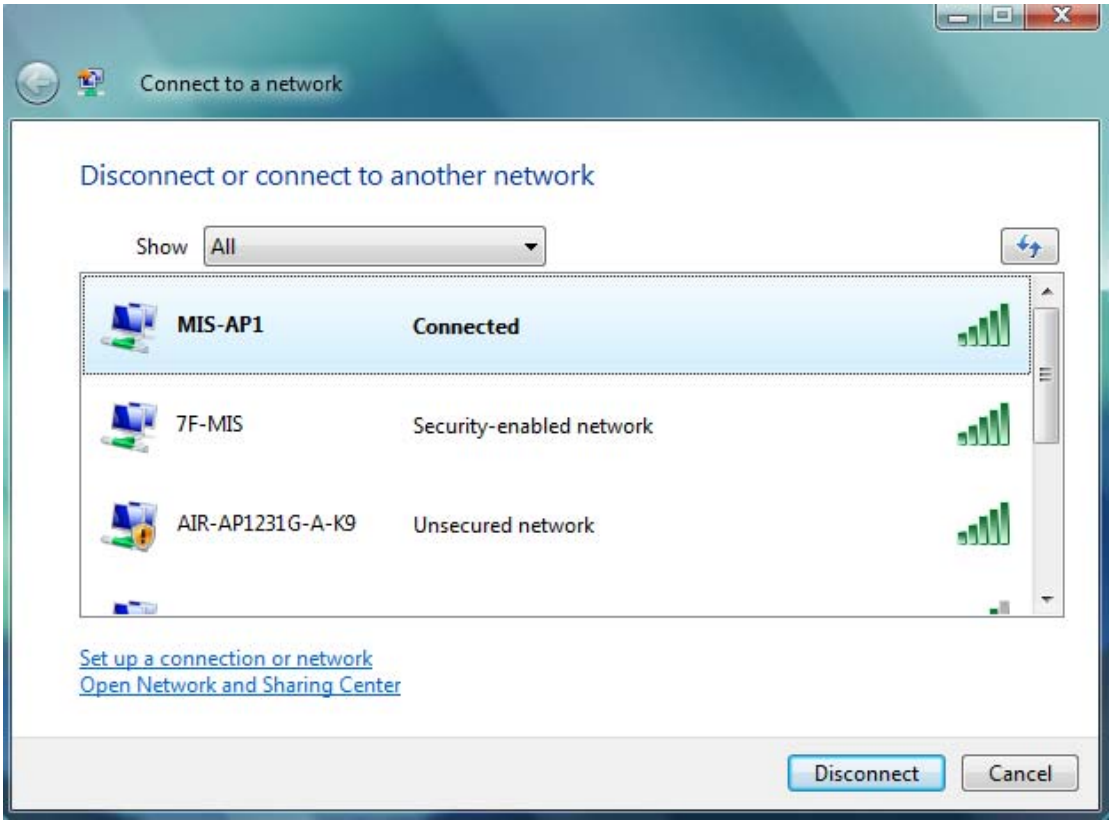

Figure 38 Wireless Network Connection List

Note.2 for Windows Vista users

"Wireless Configuration Utility", which comes with Wireless USB Adaptor, provides you with more tools to configure and monitor it. Tools like "Link Test" or "Profiles" allow you to test the connection of your network or even create your own list for common used places (access points/routers) for convenience. In addition, the WiFi Protected Setup (WPS) function is able to be easily activated by using "Wireless Configuration Utility".

For more information about "Wireless Configuration Utility", please refer to the chapter 5 of this manual.

For Windows 2000 users

1. Insert the product CD into the CD-ROM on your computer. Locate **setup.exe** in the CD and then double-click it.

Figure 39 Setup Icon in Windows 2000

2. Click **Next** to continue the installation of IEEE 802.11n Wireless LAN Utility. This utility will help configuring your wireless network and monitoring the status of Wireless USB Adaptor after it is done.

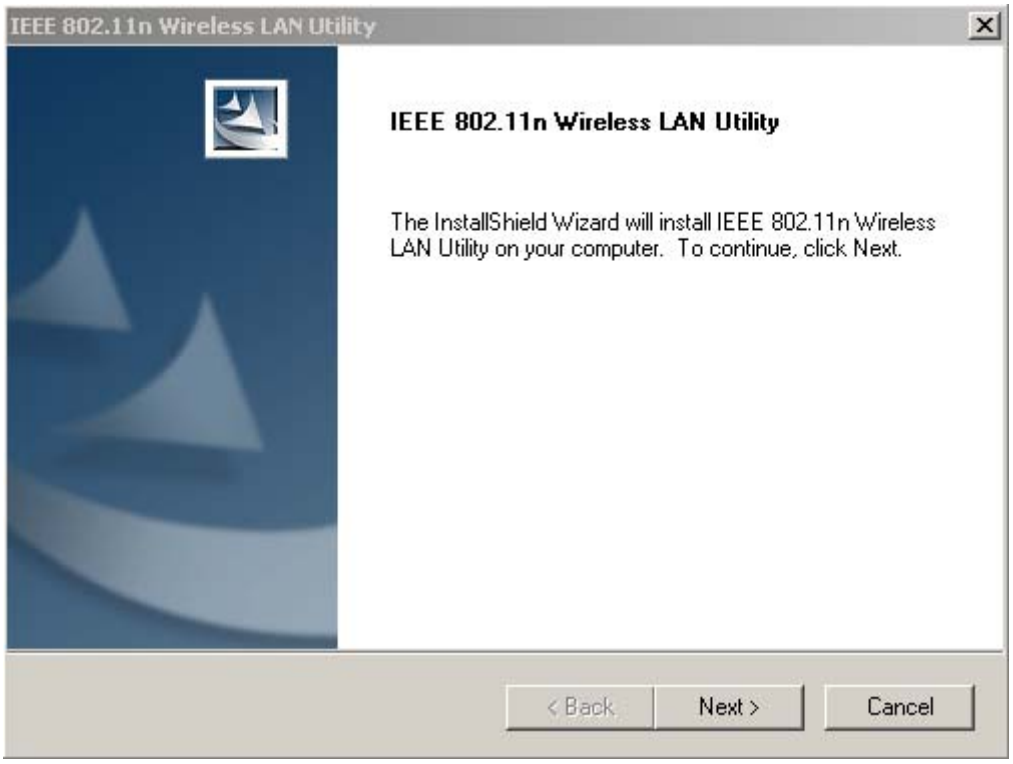

Figure 40 Setup in Windows 2000－Initial Screen

3. Click **Next** to install the driver.

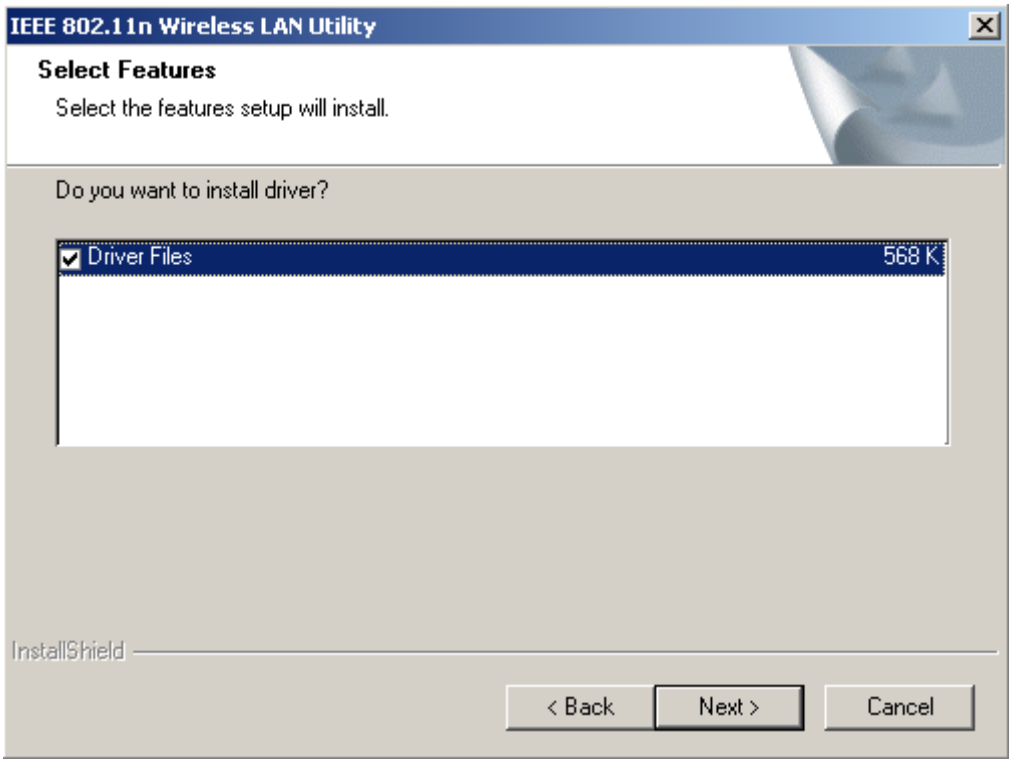

Figure 41 Setup in Windows 2000—Select Driver Files

4. Click **Next** to install the utility into the designated folder; or click **Browse** to choose your preferred folder.

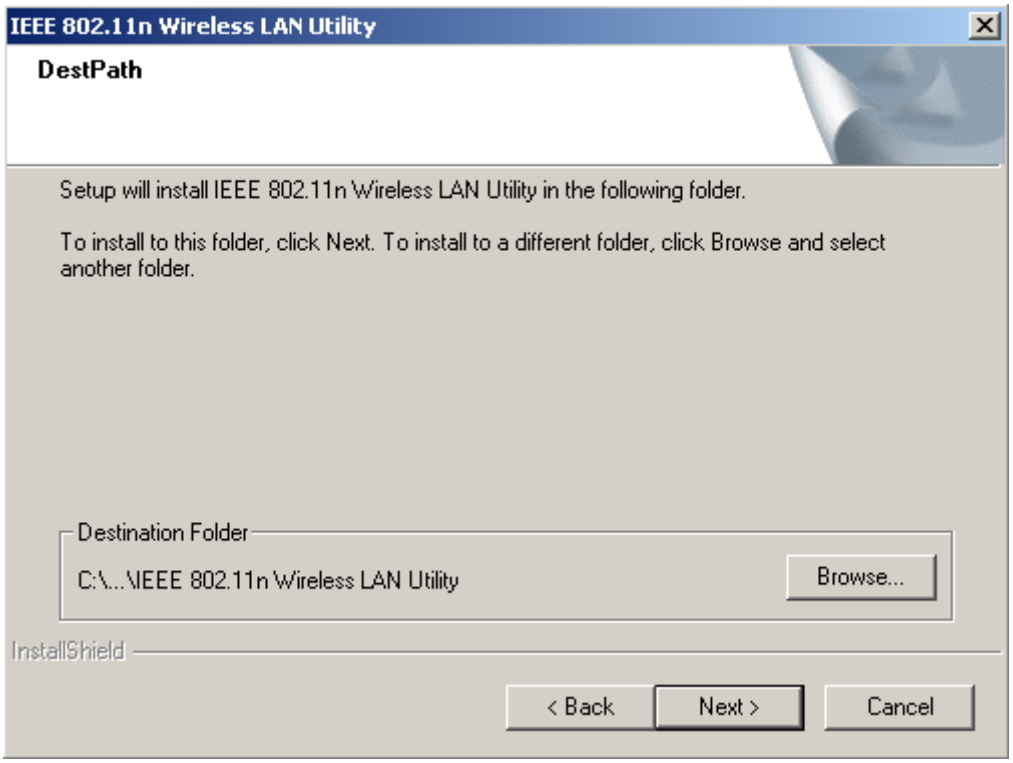

Figure 42 Setup in Windows 2000—Select Destination Folder

5. Click **Next** to continue.

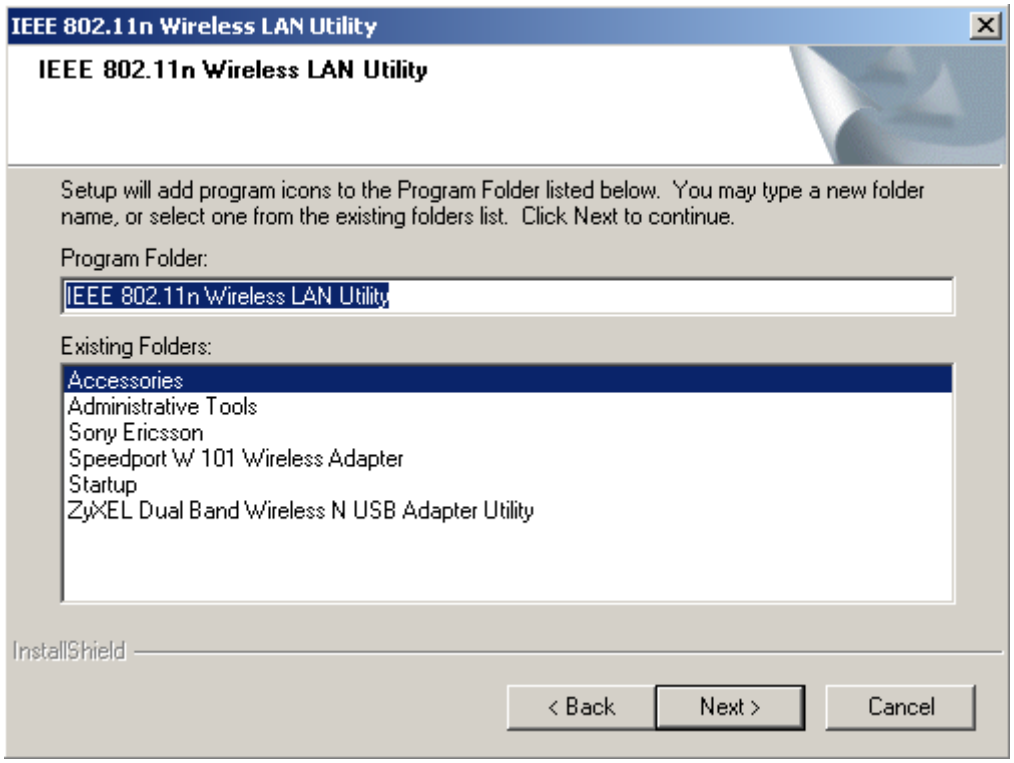

Figure 43 Setup in Windows 2000—Select Program Folder

6. Select the item you like to add the shortcut to it. Then Click **Next.**

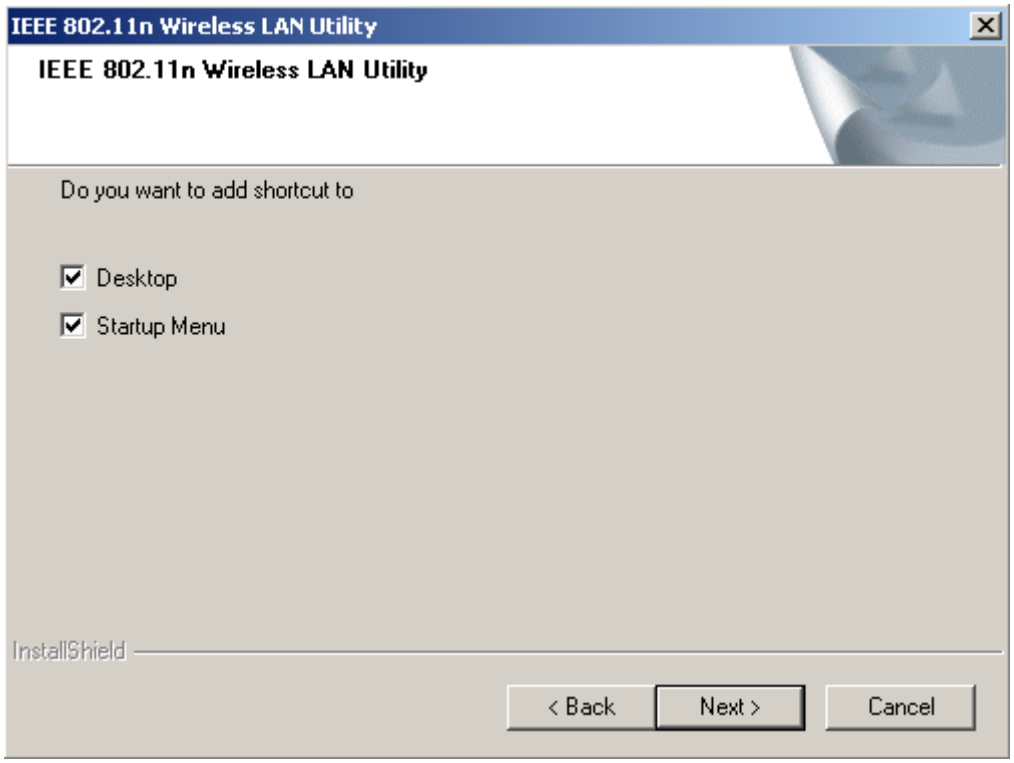

Figure 44 Setup in Windows 2000—Add Shortcuts

7. **Installation is successfully processing.** (Click Cancel to stop it.)

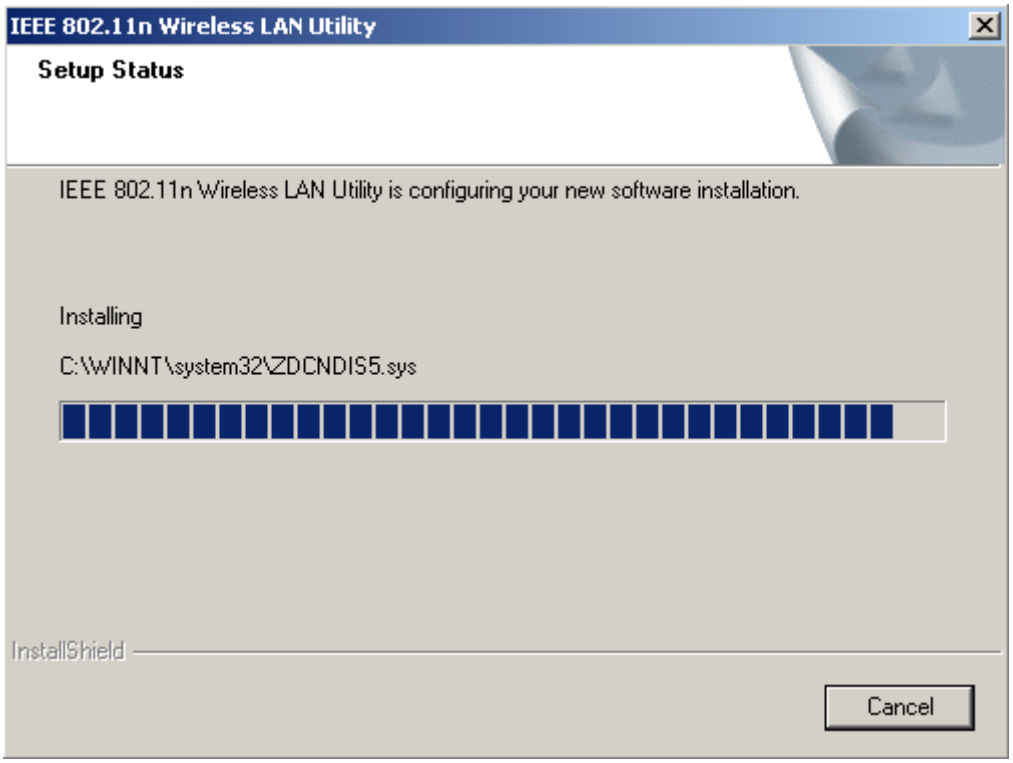

Figure 45 Setup in Windows 2000—Installation Processing

8. Installation is successfully done. Click **Finish** to close the window.

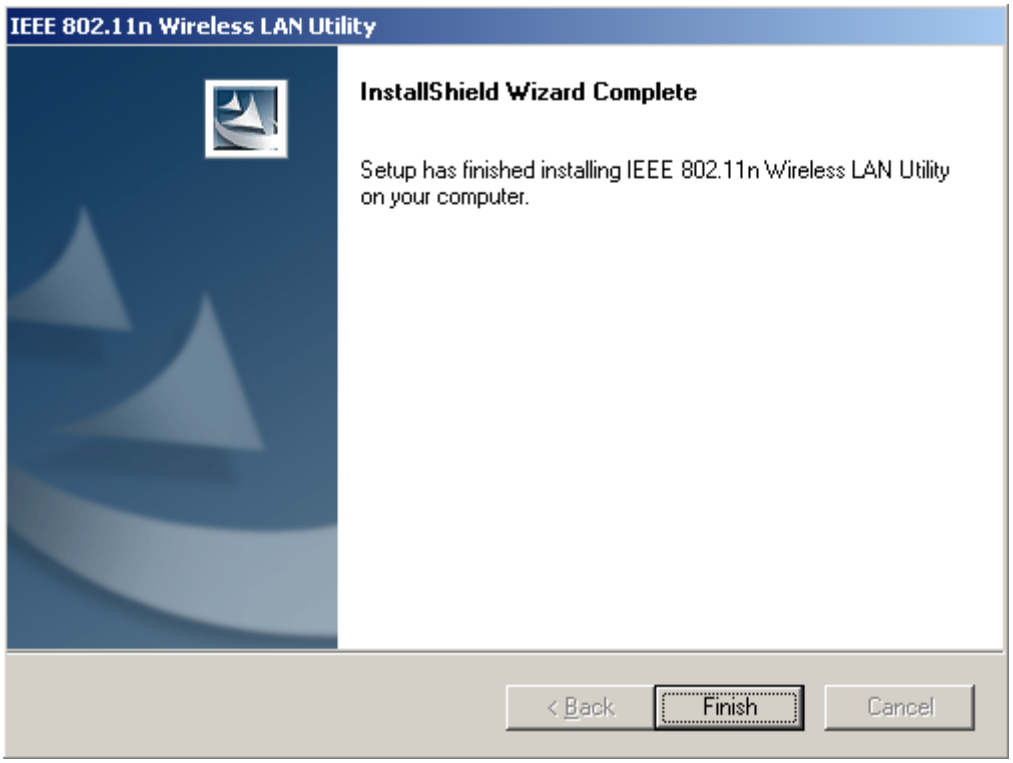

Figure 46 Setup in Windows 2000—Installation Completed

9. Plug Wireless USB Adaptor to your PC through the USB port. If the sign of “Digital Signature Not Found” shows up, please click **Yes**.

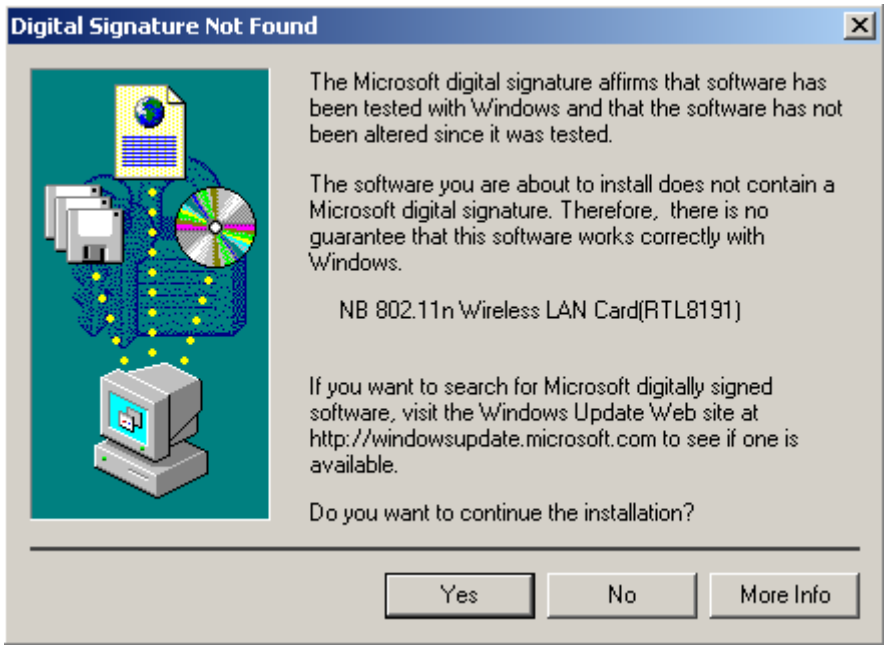

Figure 47 Digital Signature Not Fount Sign

10. Wireless USB Adaptor is successfully installed once the icon below is listed in the side bar of the desktop. Click the icon.

Figure 48 Wireless Configuration Utility Icon

11. Wireless Configuration Utility will show up. This utility can help configuring your wireless network and monitoring the status of Wireless USB Adaptor.

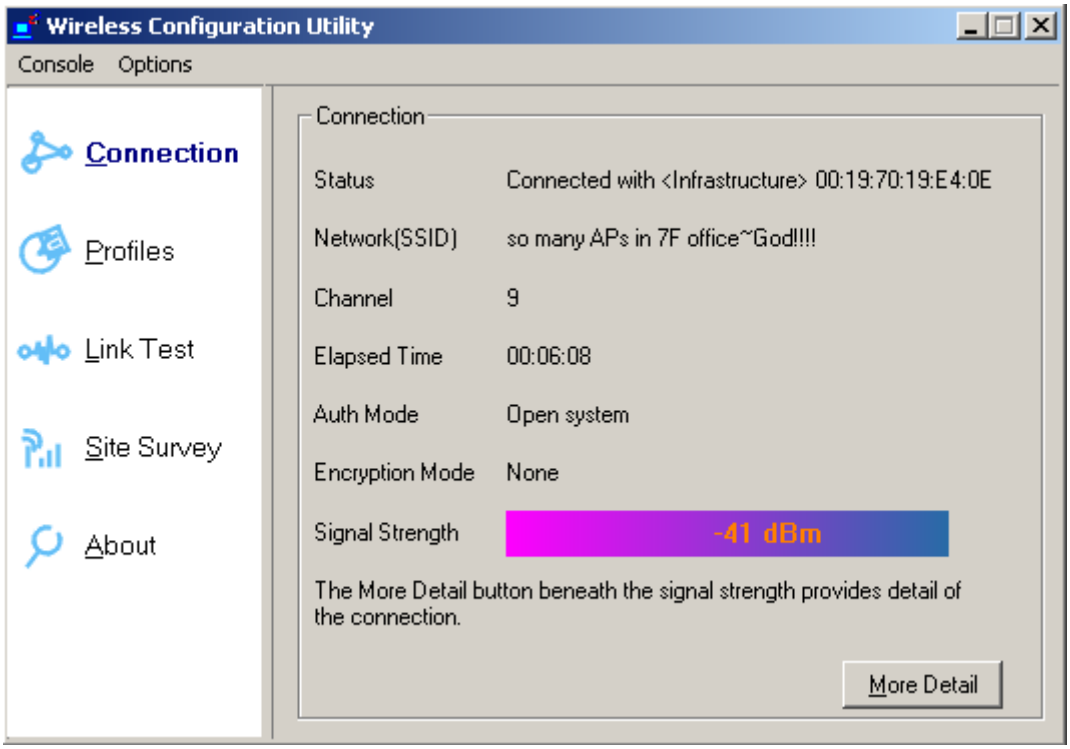

Figure 49 Wireless Configuration Utility—Console

12. Click **Site Survey** in the left column, and you will see all the currently available access points in the right page. Choose the one you are allowed to use by single-clicking it, and then click **Join**. (Password required, if needed)

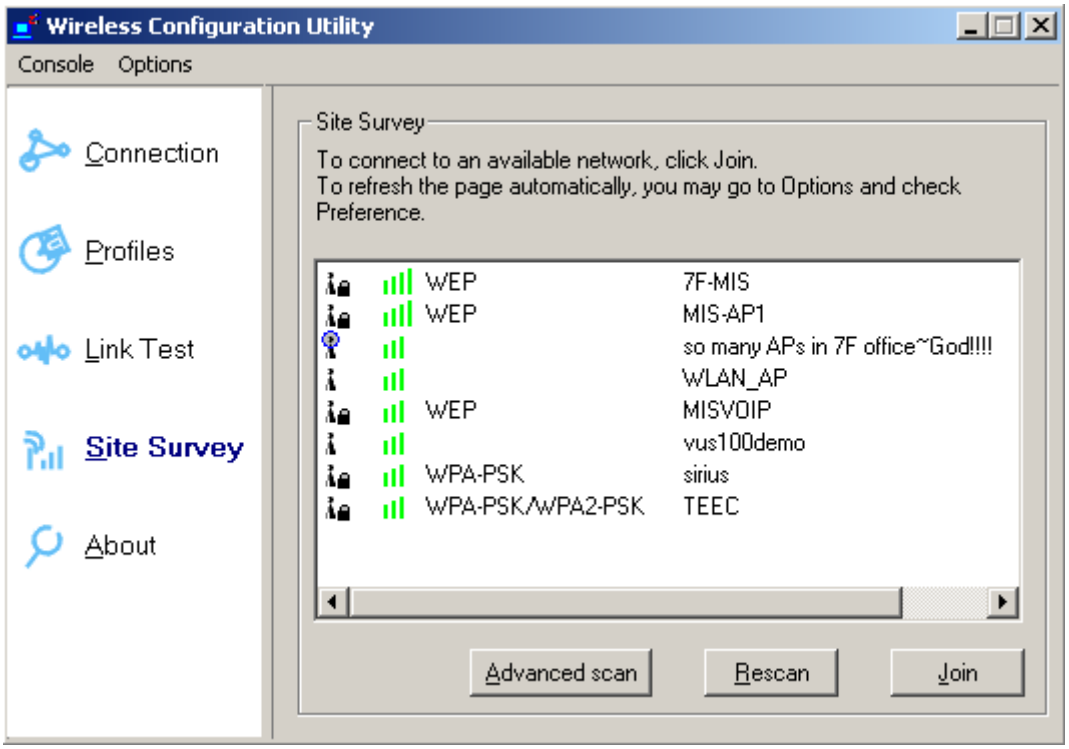

Figure 50 Wireless Configuration Utility—Site Survey

13. Open your web browser and enjoy the Internet now!

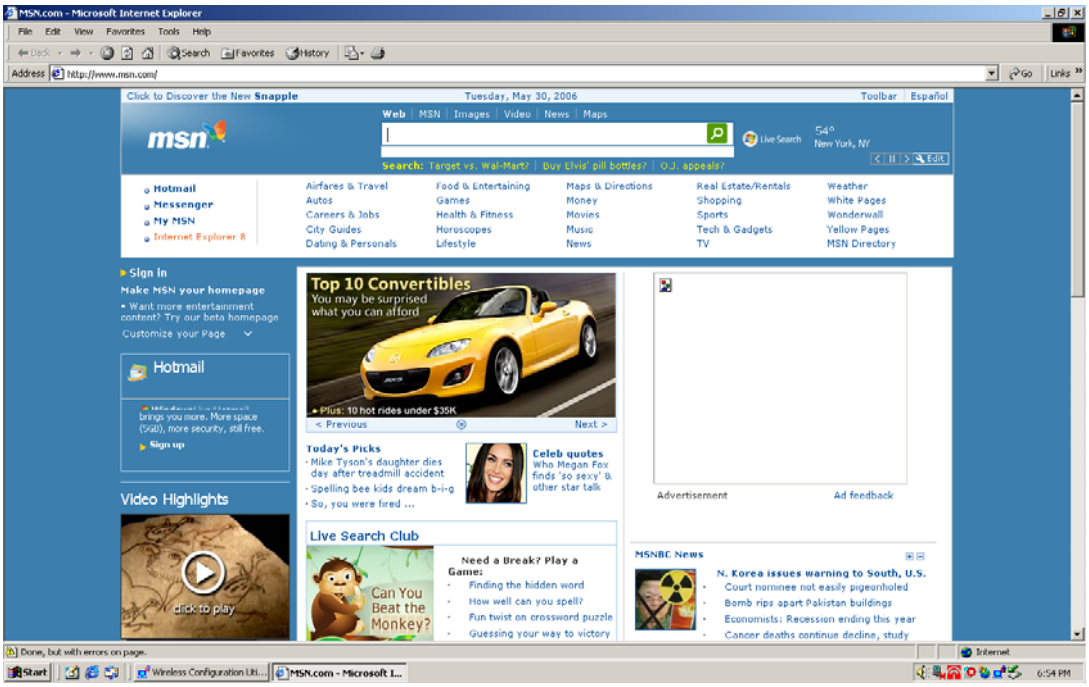

Figure 51 Enjoy the Internet

Note.1 for Windows 2000 users

“Wireless Configuration Utility”, which comes with Wireless USB Adaptor, provides you with more tools to configure and monitor it. Tools like “Link Test” or “Profiles” allow you to test the connection of your network or even create your own list for common used places (access points/routers) for convenience. In addition, the WiFi Protected Setup (WPS) function is able to be easily activated by using “Wireless Configuration Utility”.

For more information about “Wireless Configuration Utility”, please refer to the chapter 5 of this manual.

Chapter 5 Utility Overview

This chapter introduces the functions of the utility and how you can take advantage of it. After going through this chapter, you will be able to optimize your wireless network.

Connection:

Here shows the status of your current wireless network which is built by the Wireless USB Adaptor and the access point it connects to.

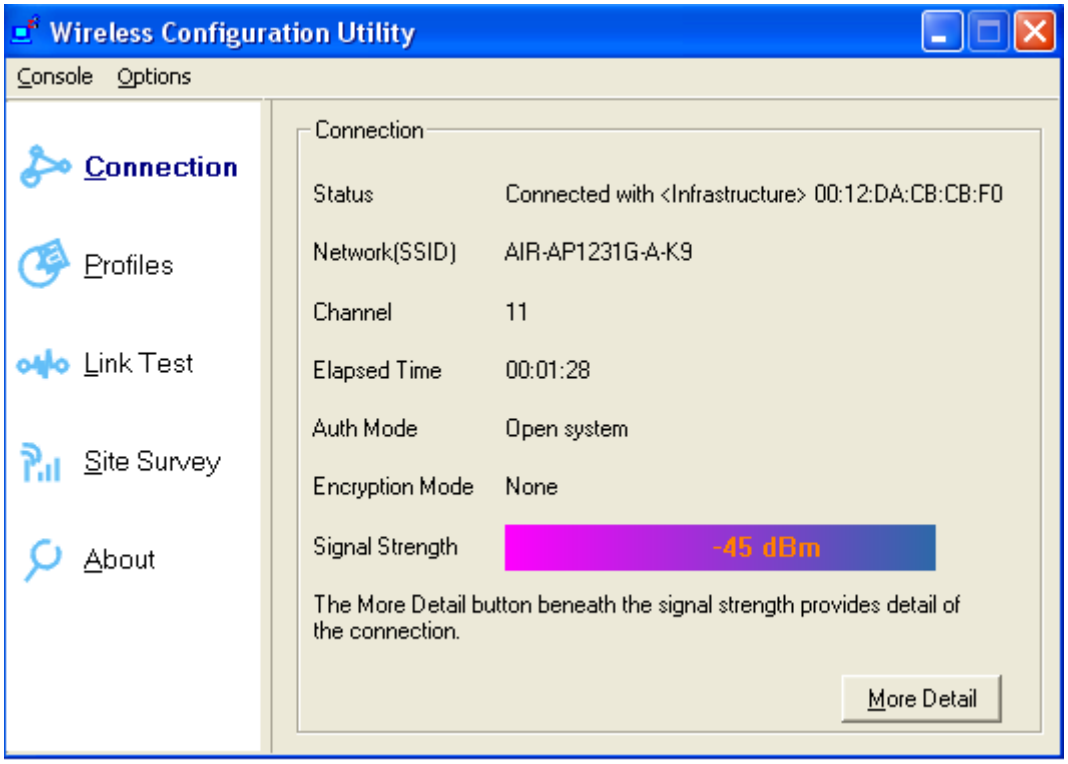

Figure 52 Wireless Configuration Utility—Connection

Status: Shows the MAC address and the network type of the access point or router you connected to.

Network(SSID): **Service set identifier**, or **SSID**, is a friendly name that identifies a particular IEEE 802.11 wireless LAN. The SSID can be up to 32 characters long. By the SSID, you are able to know exactly which network you are in.

Channel: Shows the RF channel you are using.

Elapsed Time: Shows the duration of your current connection.

Auth Mode: Shows the authentication way of your current connection to an access point or router.

Encryption Mode: Shows the encryption way of your current connection to an access point or router.

Signal Strength: The longer the bar is, the stronger the signal you get from access point or router. This item shows the connection strength.

By clicking **More Detail** at the bottom right, you can get more information as below.

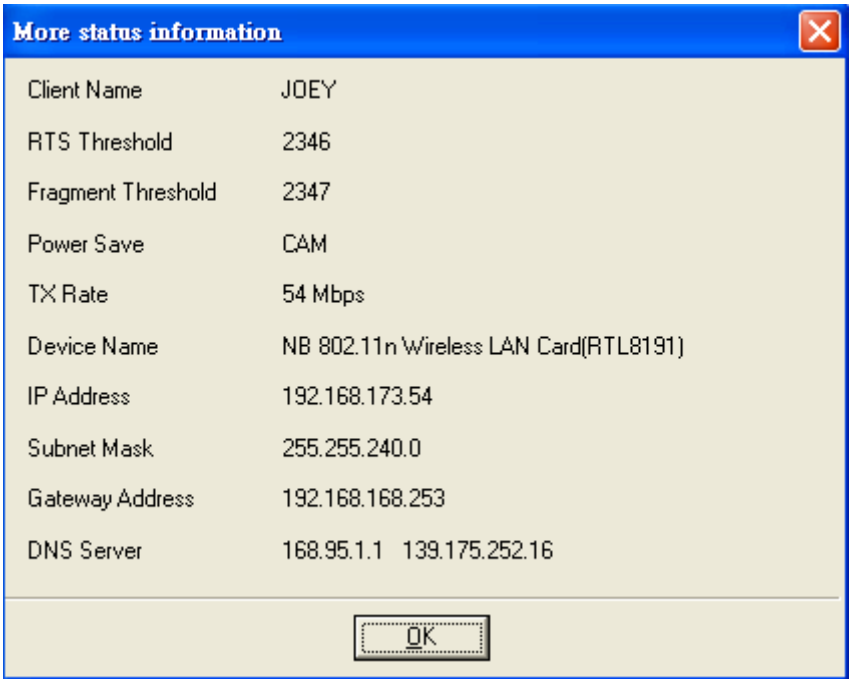

Figure 53 More Status Information

Profiles:

To create a list of your most common used network, you can add new access points, edit the current access points, or even delete any access point which you will never use again in the future. You can arrange your own Profiles for your convenience anytime.

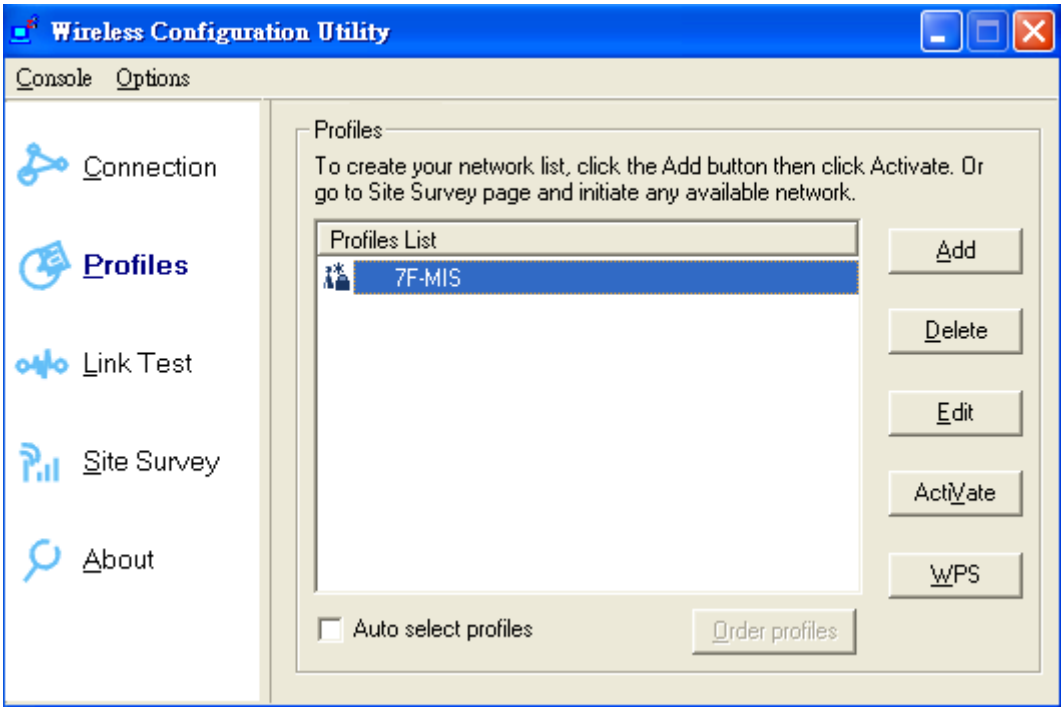

Figure 54 Wireless Configuration Utility—Profiles

To add a new network to the Profiles List:

1. Click **Add.**
2. Fill out the Profile Name, Network (SSID), and choose the Network Type. Then, click **Next**.

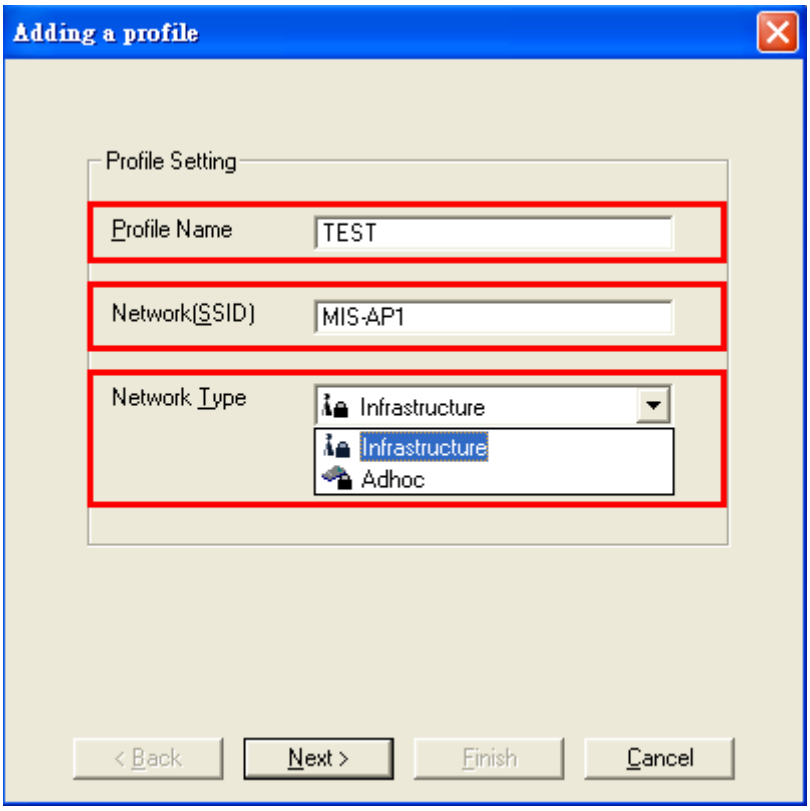

Figure 55 Adding a Profile

3. Select Security if required. Then click **Next.** (Detailed security settings will be brought

up on Page.49.)

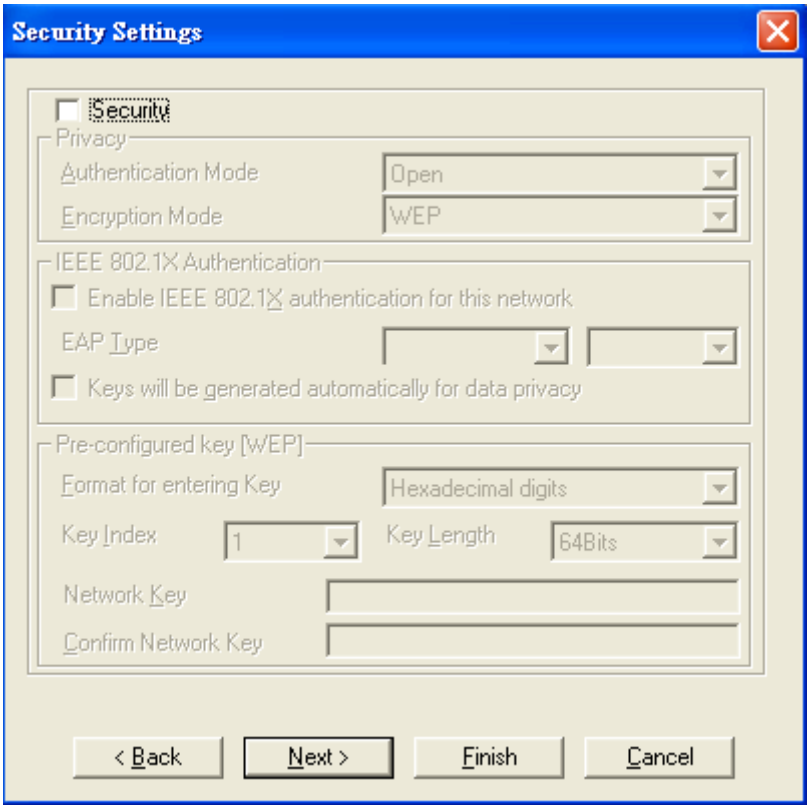

Figure 56 Security Settings

4. Select Change current IP setting if needed. Then click **Next**. The default is “Obtain an IP address automatically”, or you can select “Specify IP address” and fill in the related information below to use the static IP address.

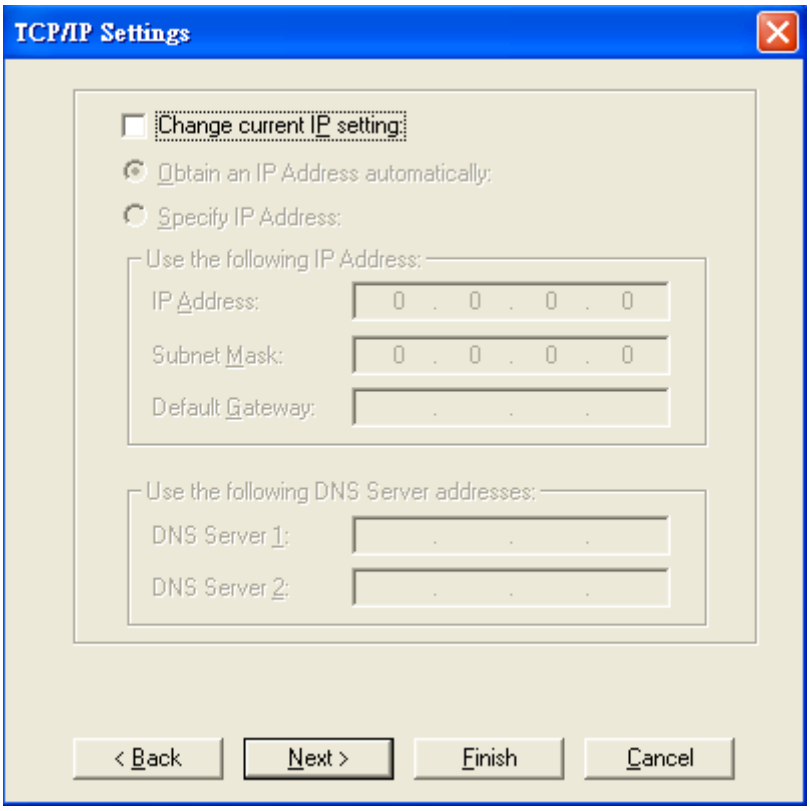

Figure 57 TCP/IP Settings

5. Do advanced settings if you want. Then click **Next**.

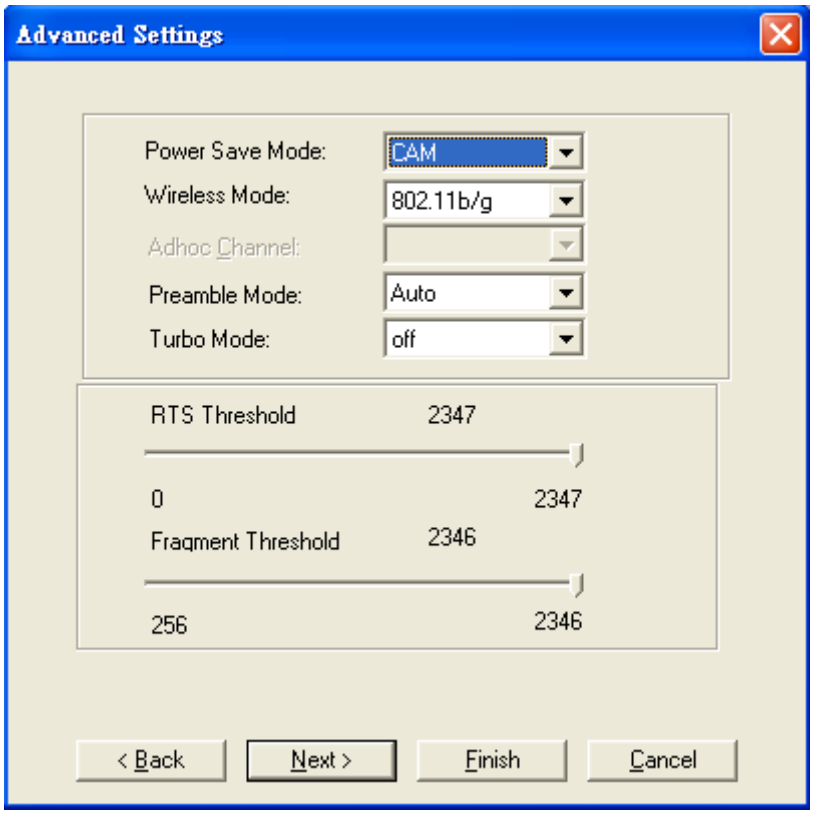

Figure 58 Advanced Settings

Power Save Mode:

- CAM = Constantly Awake Mode.
- MAX = Maximum Power Save.
- Fast: = Fast Power Save.

Power-saving ability

CAM < Fast < MAX

Wireless Mode:

The wireless Mode supports three options 802.11b, 802.11b/g, and 802.11b/g/n.

Adhoc Channel:

Selects bands and channels for device to device (ad hoc) networks.

* This item will be available while network type is set to be Adhoc.

Preamble Mode:

Select it between Auto, long or short. The default is Auto.

Turbo Mode:

Turn it on to increase the throughput; however, this mode is supported only if the access point / router you connected to also supports this mode.

RTS Threshold:

The Request-To-Send threshold specifies the packet size of an RTS transmission. This helps control traffic flow through an access point, especially one with many clients.

* If you are not familiar with this parameter, please leave it as the default.

Fragment Threshold:

If you experience a high packet error rate, try to slightly increase your Fragmentation Threshold. Default is set to the maximum of 2346. Setting the Fragmentation Threshold too low may result in very poor performance.

6. Click **Finish** to confirm the information.

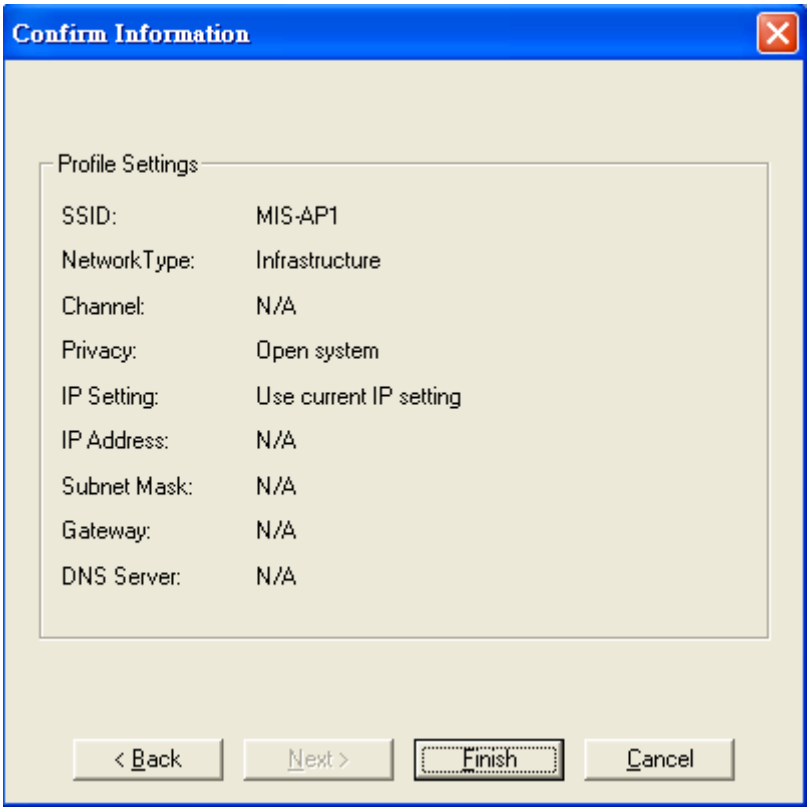

Figure 59 Confirm Information

7. The new network (TEST) has successfully been added to the Profiles List.

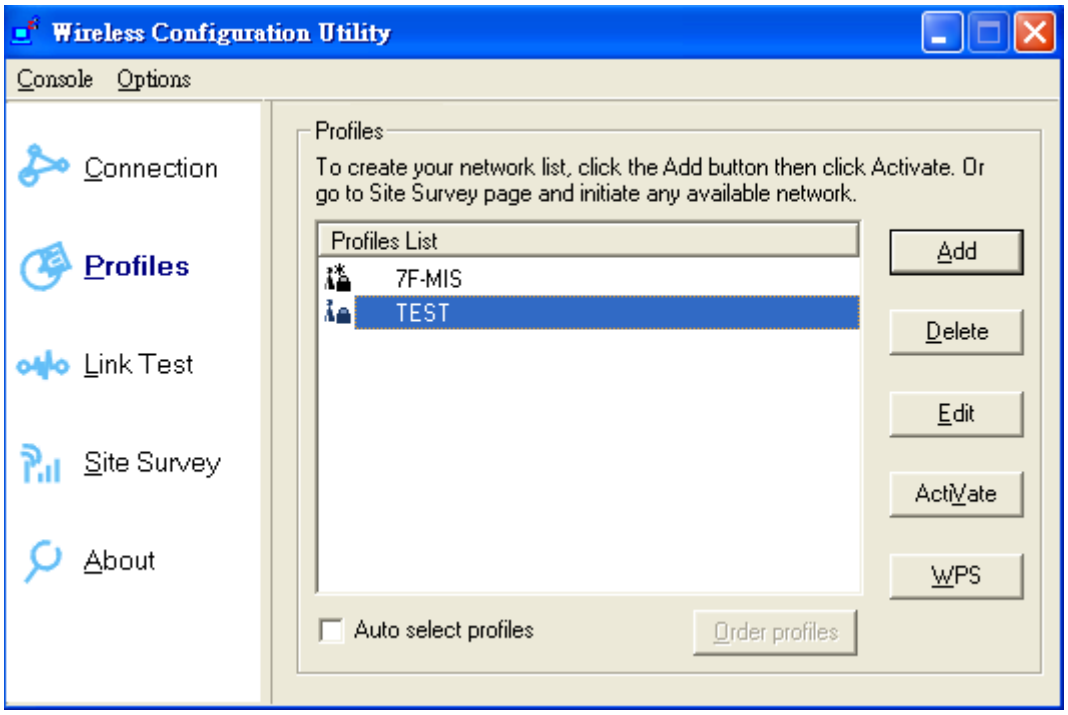

Figure 60 Wireless Configuration Utility－Profiles

To delete a current network from the Profiles List:

1. Choose the network you would like to delete in the Profiles List.
2. Click **Delete**.

To edit a current network from the Profiles List:

1. Choose the network you would like to edit in the Profiles List.
2. Click **Edit.**
3. Follow the same steps in **To add a new network to the Profiles List** to edit the variables.

To activate a current network from the Profiles List:

1. Choose the network you would like to activate in the Profiles List.
2. Click **ActiVate.**

To enable WPS:

Wi-Fi Protected Setup (WPS) is a standard for easy and secure establishment of a wireless home network, defined by the Wi-Fi Alliance. The goal of the WPS is to simplify the process of connecting any home device to the wireless network.

WPS can be easily activated by pressing the WPS button on the body of Wireless USB Adaptor as well as the one on your access point / router. After both of them are pressed, wait about 2 minutes, and the successful message will show up as below.

Figure 61 Wi-Fi Protected Setup

In addition, WPS could also be activated from Profiles List by the following steps.

1. Click **WPS**.
2. Choose Join a WLAN (Enrollee), and then click **Next**.

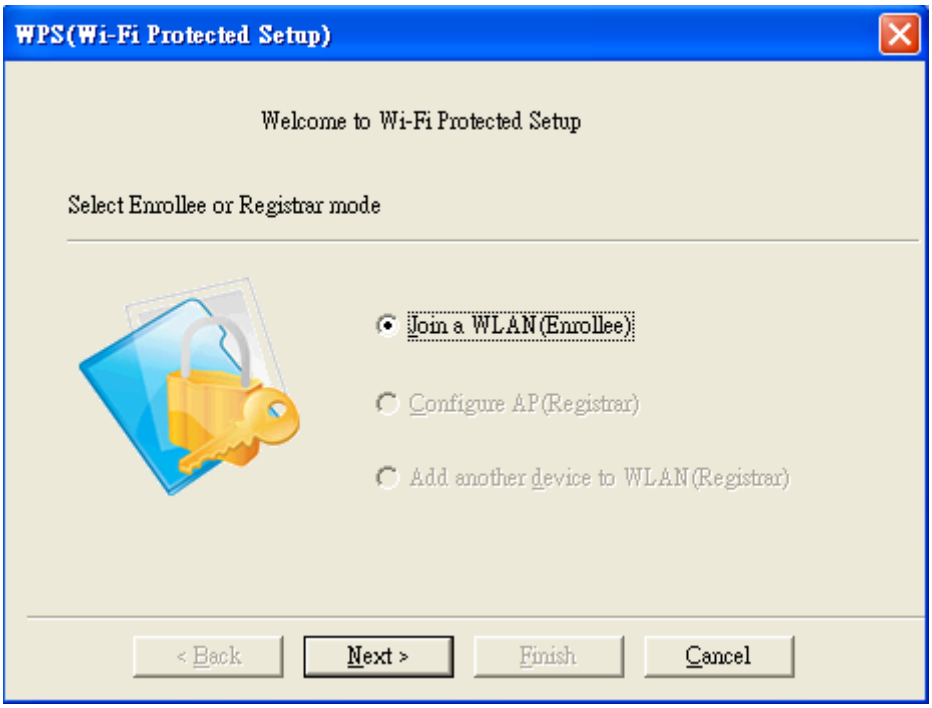

Figure 62 WPS Setup－Initial Screen

The step.3 will have many scenarios. Please choose the one that suits your environment the most.

3.1 Choose “Push Button on AP (PBC)” and select “Automatically select the network”. Then click **Next**.

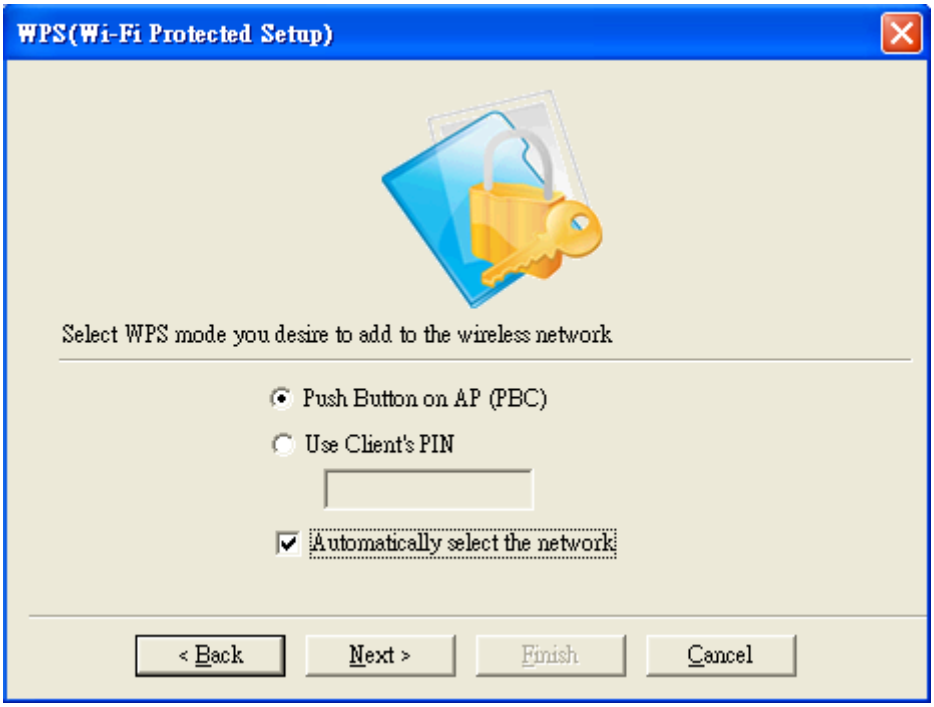

Figure 63 WPS Setup—Select a Mode

3.2 If you would like to connect to a specified WPS-enabled AP, please choose “Push Button on AP (PBC)” and **un**select “Automatically select the network”. Then click **Next**.

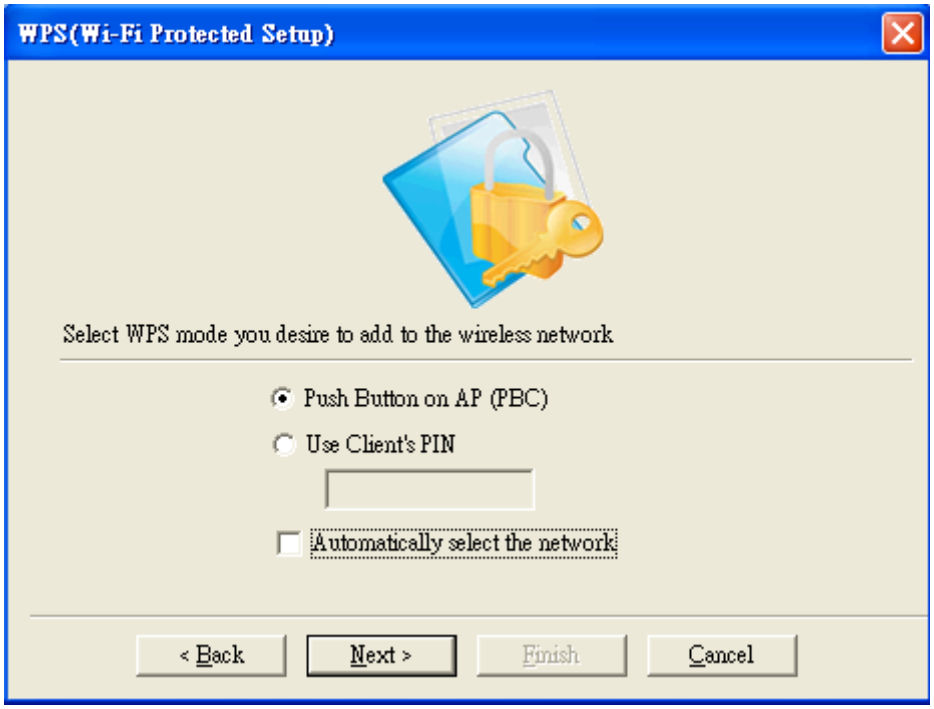

Figure 64 WPS Setup—Select a Mode

A window will appear and show every currently available WPS-enabled AP on the list. Choose the one you prefer, and click **Next**.

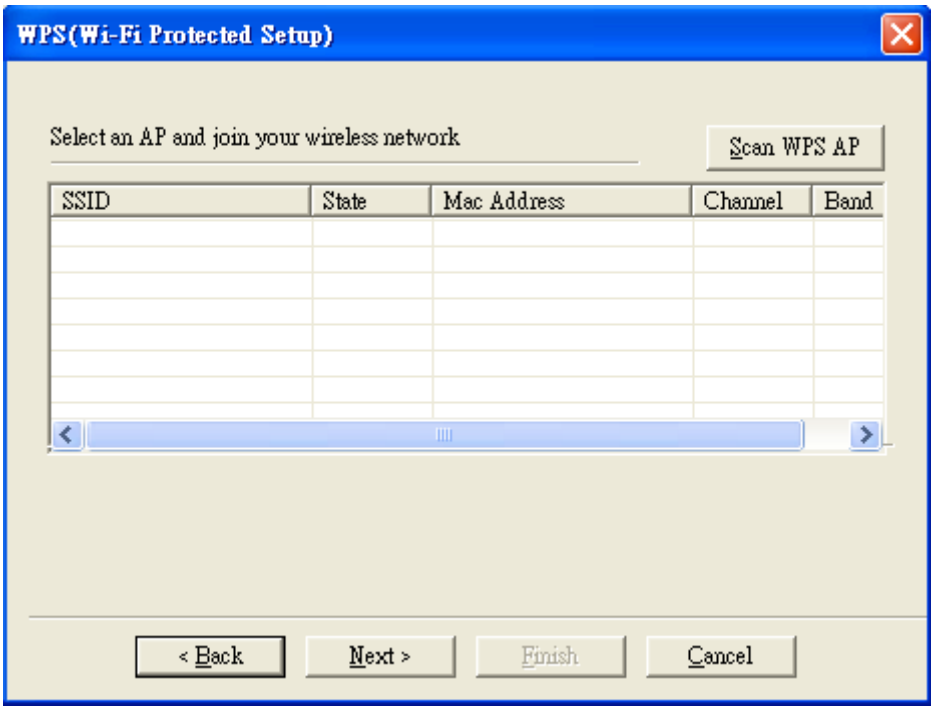

Figure 65 WPS Setup－Select an AP

3.3 Choose “Use Client PIN” and select “Automatically select the network”. When you choose “Use Client PIN”, a random series of numbers will come out. Remember to use these numbers as the PIN key in your access point / router before clicking **Next**. When your access point / router is done with the same PIN key, click **Next** to build the connection.

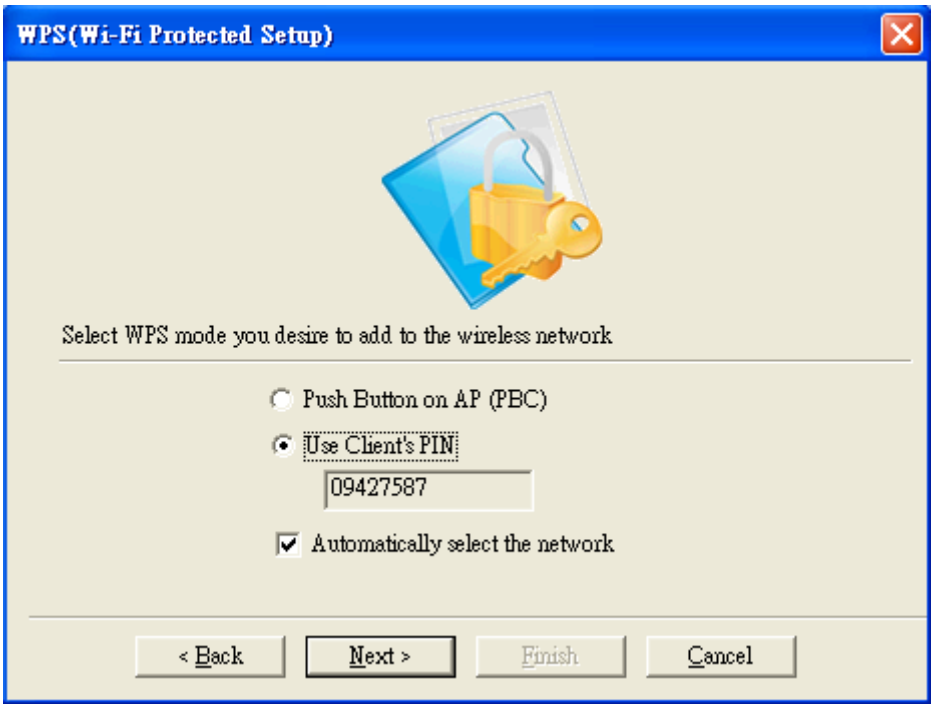

Figure 66 WPS Setup－Select a Mode

3.4 Choose “Use Client PIN” and **un**select “Automatically select the network”. When you choose “Use Client PIN”, a random series of numbers will come out. Remember to use

these numbers as the PIN key in your access point / router before clicking **Next.** When your access point / router is done with the same PIN key, click **Next.**

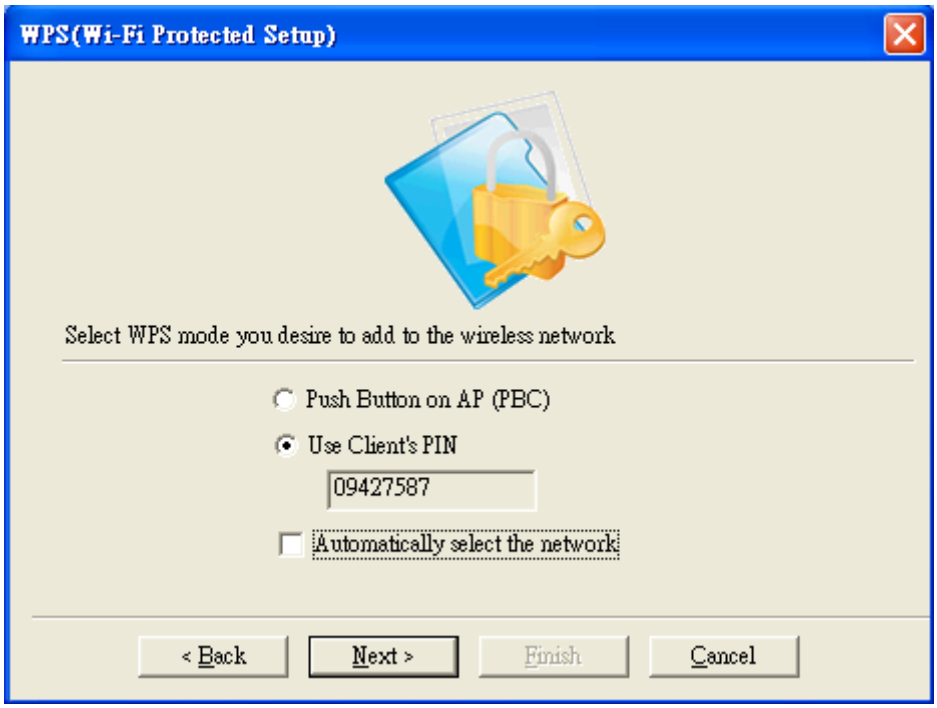

Figure 67 WPS Setup－Select a Mode

A window will appear and show every currently available WPS-enabled AP on the list. Choose the one you designated, and click **Next** to build the connection.

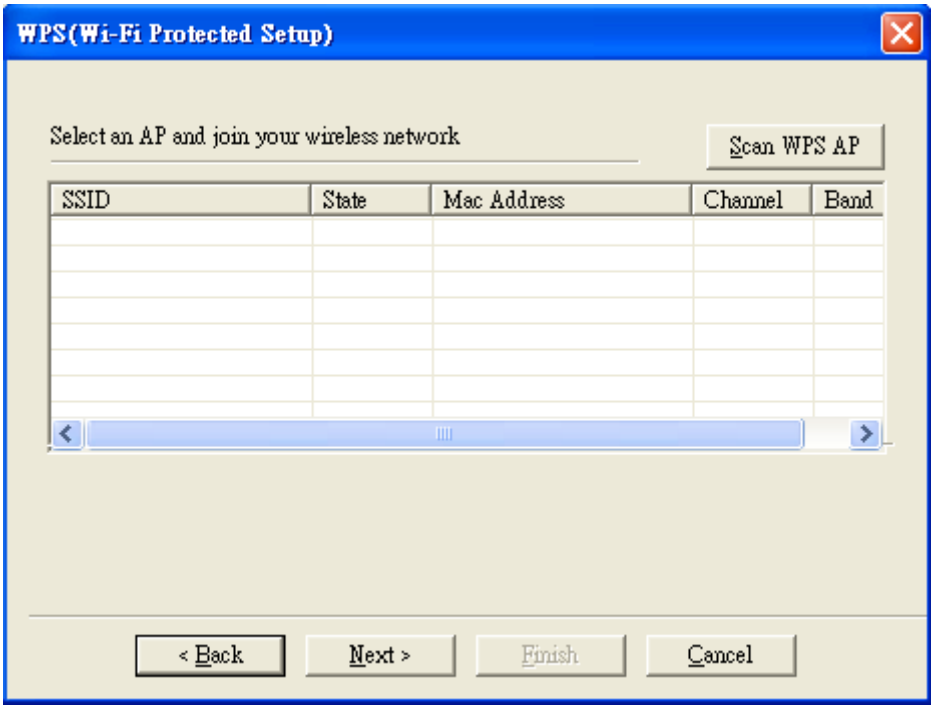

Figure 68 WPS Setup－Select an AP

4. When any of previous scenarios has been done, the processing message will be shown as below. It might take about 2 minutes to make the connection.

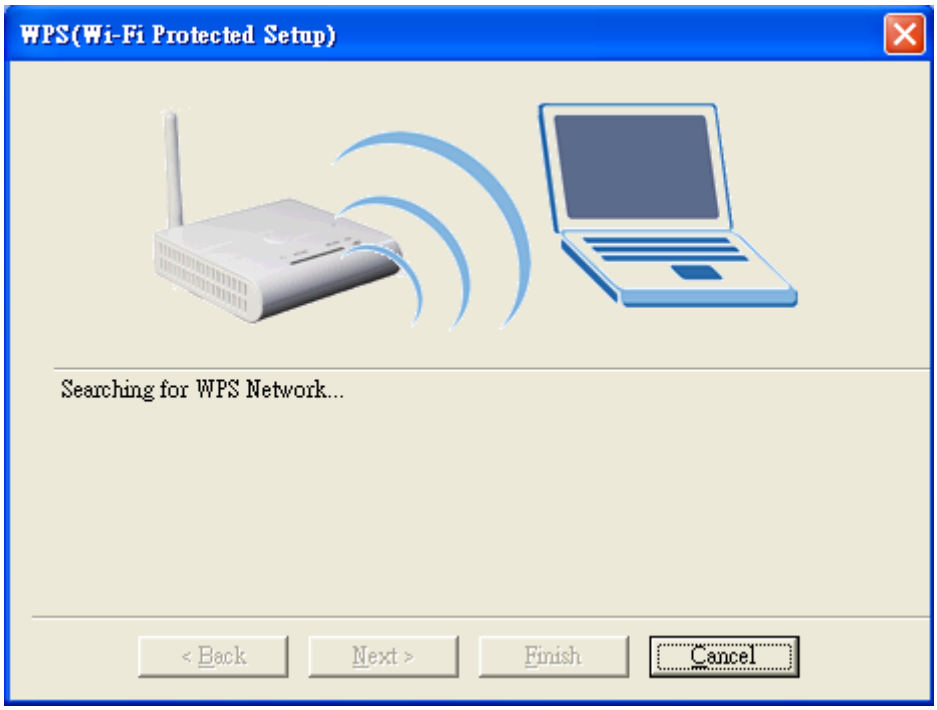

Figure 69 WPS Setup—Searching for WPS Network

5. WPS connection has been successfully built.

Figure 70 WPS Setup—Successfully Connected

Security Settings

Wireless LAN security is vital to your network to protect wireless communications against hacker entering your system and prevent unauthorized wireless station from accessing data transmitted over the network; the WLAN Utility offers a sophisticated security algorithm.

Select **Security.** A privacy Configuration window will appear as below.

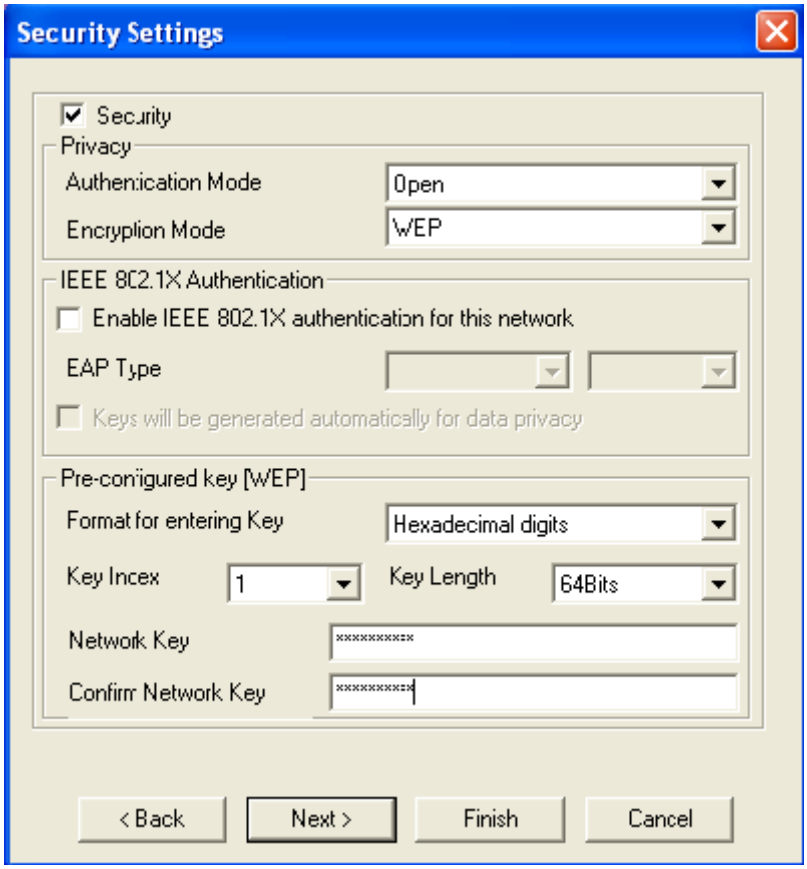

Figure 71 Security Settings

If you do not enable any wireless security on your IEEE 802.11n Wireless LAN USB Adapter, the wireless communication is accessible by any wireless networking device that is in the coverage area.

Data Encryption with WEP

WEP (Wired Equivalent Privacy) encryption scrambles all data packets transmitted between the wireless LAN adapter and the AP or other wireless station to keep network communication private.

Both the wireless stations and the access points must use the same WEP key for data encryption and decryption.

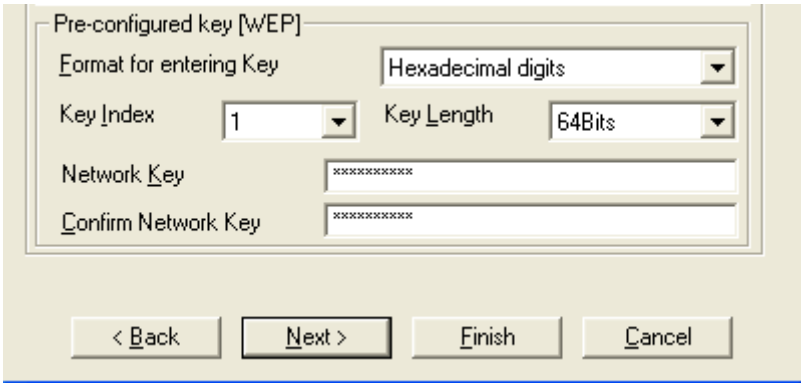

Figure 72 Security Settings

The IEEE 802.11n Wireless LAN USB Adapter allows you to configure up to four 64-bit, or 128-bit WEP keys and only one key is used as the default key at one time. The Key index field allows you to specify the key index you desire to use for transmitting data on your wireless LAN. You can change the default key by clicking on the up or down arrow and make sure the default key is set up exactly the same on the Wireless LAN stations as they are on the wireless Access Point.

- For 64bit encryption you may choose:
  Alphanumeric: entering 5 characters (case sensitive) ranging from “a-z”, “A-Z” “0-9” to special characters like “@”, “#”, “$” and so on as long as they are in the ASCII table. (e.g. My&12).
  Hexadecimal: entering 10 hexadecimal digits in the range of “A-F”, “a-f” and “0-9” (e.g. 11AA22BB33, shown as below).
- For 128bit encryption you may choose:
  Alphanumeric: entering 5 characters (case sensitive) ranging from “a-z”, “A-Z” “0-9” to special characters like “@”, “#”, “$” and so on as long as they are in the ASCII table. (e.g. My#$%12345678).
  Hexadecimal: entering 26 hexadecimal digits in the range of “A-F”, “a-f” and “0-9” (e.g. 00112233445566778899AABBCC).

Authentication with WEP: Open System authentication and Shared Key authentication

- Open system mode is implemented for ease-of-use and when security is not an issue. It requires NO authentication, since it allows any device to join a network without performing any security check. The wireless station and the AP do not share a secret key. Thus the wireless stations can associate with any AP and listen to any data transmitted plaintext.
- Shared key mode involves a shared secret key to authenticate the wireless station to the AP. It requires that the station and the access point use the same WEP key to

authenticate. This basically means that WEP must be enabled and configured on both the AP and the other wireless stations with a same key.

IEEE 802.1X

The IEEE 802.1X standard outlines enhanced security methods for both the authentication of wireless stations and encryption key management. Authentication can be done by using an external RADIUS server.

EAP Authentication

EAP (Extensible Authentication Protocol) is an authentication protocol which runs on the top of IEEE 802.1x transport mechanism in order to support multiple types of user authentication. By using EAP to interact with an EAP-compatible RADIUS server, an Access Point helps a wireless station and a RADIUS server perform authentication.

The type of authentication you use depends on the RADIUS server and an intermediary AP that supports IEEE 802.1X. You must first have a wired connection to the network and obtain the certificate from a certificate authority (CA). A certificate can be used to authenticate users and a CA issues certificates and guarantees the identity of each certificate owner.

WPA (2)

Wi-Fi Protected Access (WPA) is a subset of the IEEE 802.11i standard. WPA2 is a wireless security standard that defines stronger encryption, authentication and key management than WPA.

WPA

WPA allows you to gain access to a more secured wireless network that requires mutual authentication between client and access point with a Radius authentication server or other authentication server on the network. WPA uses 802.1X and Extensible Authentication Protocol (EAP) for authentication. WPA offers Enterprise and individual needs to meet the different market segments. This product supports various EAP types (TLS and PEAP), which require different credential authentication. In order to access the wireless network, you must select EAP type your service provider supplied in the section of IEEE802.11X Authentication. Choose WPA2 if needed from Authentication Mode.

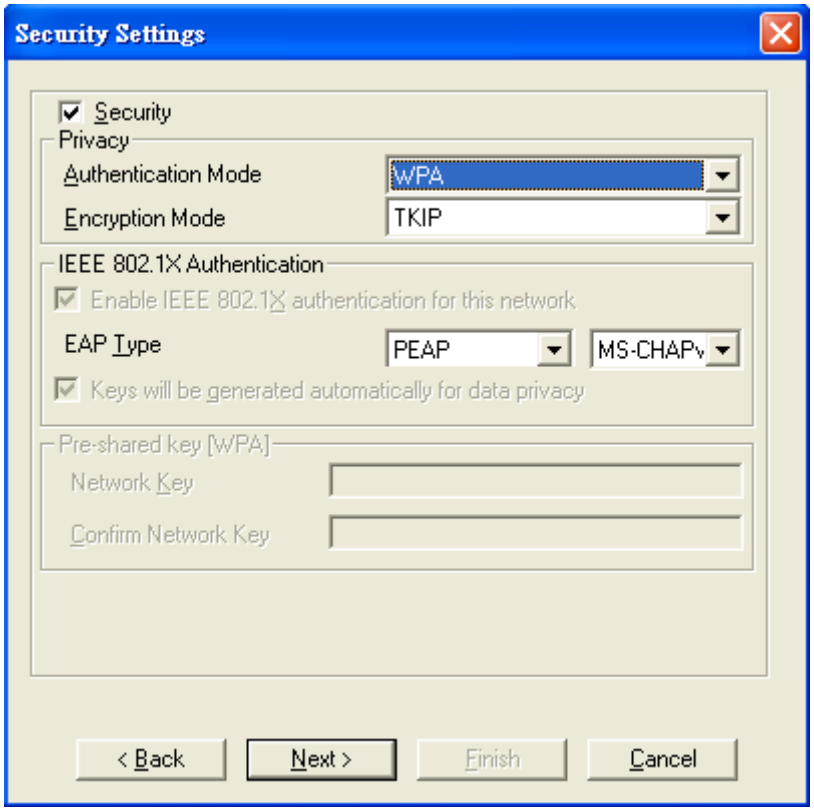

Figure 73 Security Settings

WPA-PSK

WPA-PSK offers a Personal mode of operation. In the Personal mode of operation, a pre-shared key is used for authentication. WPA-PSK allows you to gain access to a secured wireless network that the station and the access point use the same pre-shared key to authenticate. You must type a mixture of numbers and letters in the Pre-shared key section of this menu. You may input either 8-63 ASCII characters or 64 HEX characters. Choose WPA-PSK if needed from Authentication Mode.

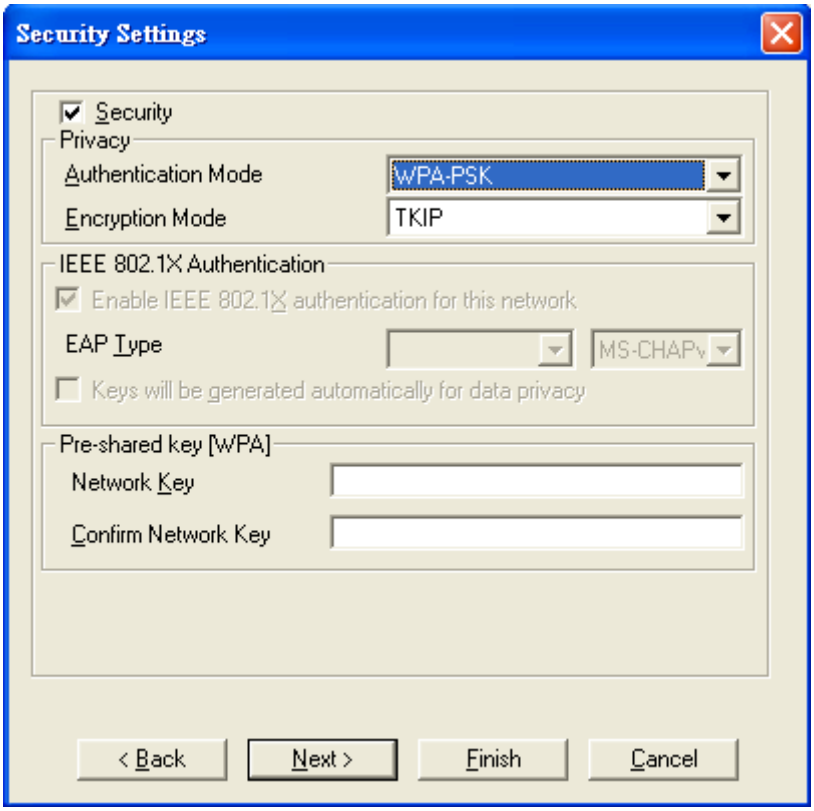

Figure 74 Security Settings

WPA2

WPA2 provides a stronger encryption mechanism than WPA. WPA2 is the second generation of WPA security, providing personal and enterprise users with a high level of assurance that only authorized users can access to their wireless network. There is no difference between WPA and WPA2. The only difference is that WPA2 provides a stronger data encryption via the AES, contrast to WPA, which uses Temporal Key Integrity Protocol (TKIP). Choose WPA2 if needed from Authentication Mode.

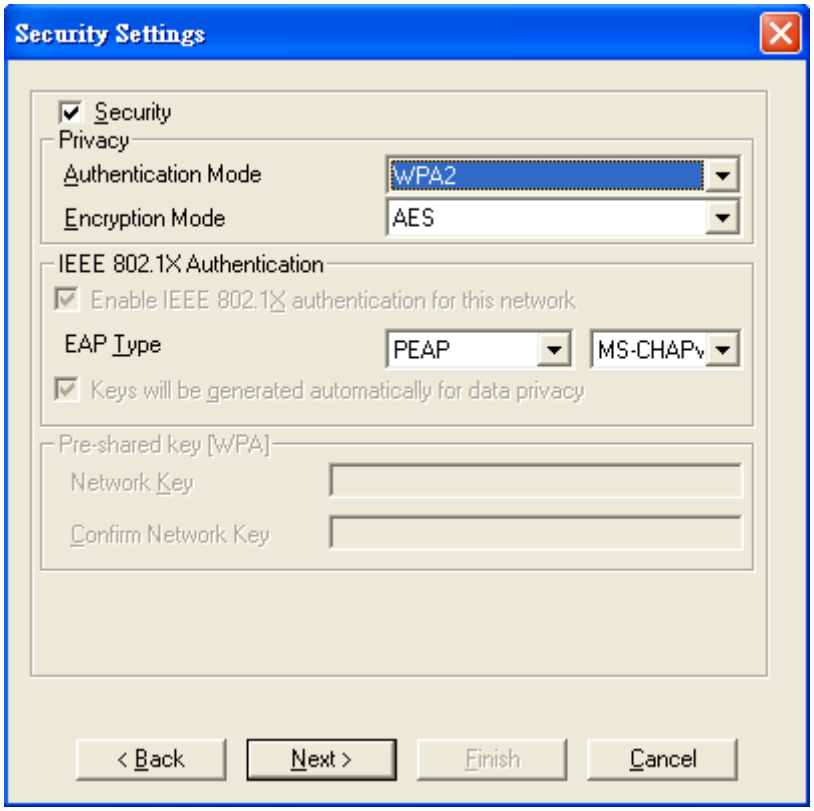

Figure 75 Security Settings

WPA2-PSK

Like WPA, WPA2-Personal offers authentication via a pre-shared key. Pre-shared key is usually used for Personal authentication. Personal mode requires only an access point and client on the network. Similarly, you need to type a mixture of numbers and letters in the Pre-shared key section of this menu. You may input either 8-63 ASCII characters or 64 HEX characters. Choose WPA2-PSK if needed from Authentication Mode.

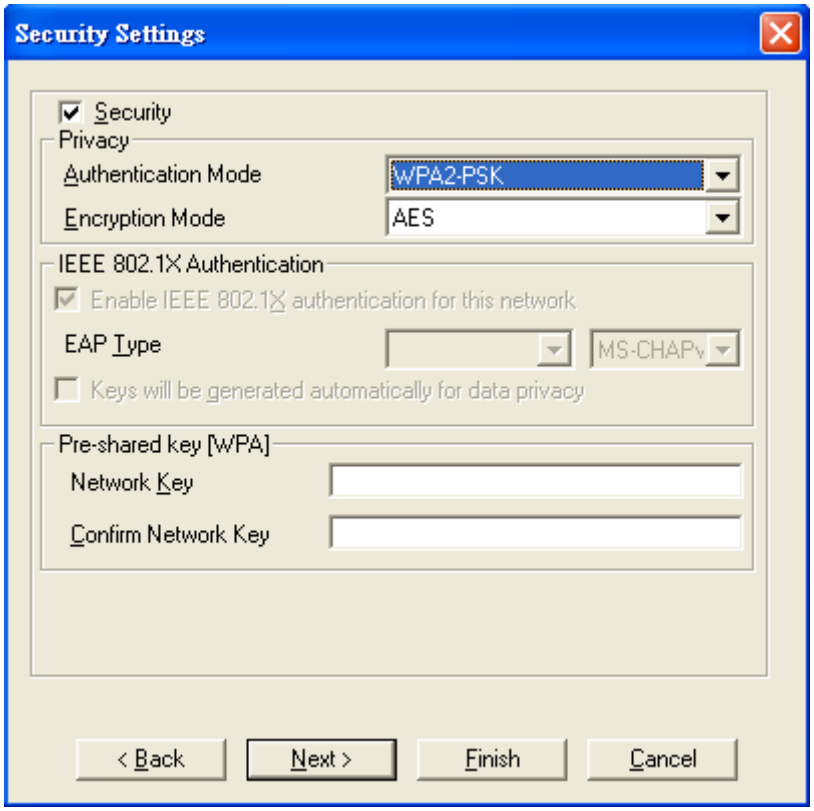

Figure 76 Security Settings

Encryption Mode

WPA improves data encryption by using Temporal Key Integrity Protocol (TKIP), Message Integrity Check (MIC) and IEEE 802.1X. WPA2 use Advanced Encryption Standard (AES) in the Counter mode with Cipher block chaining Message authentication code Protocol (CCMP) to offer stronger encryption than TKIP.

The encryption mechanism used for WPA(2) and WPA(2)-PSK are the same. The only difference between them is that WPA(2)-PSK uses a simple common password, instead of user specific credentials. The common password approach makes WPA(2)-PSK susceptible to brute-force password-guessing attacks but it's still an improvement over WEP as it employs a consistent, single, alphanumeric password to derive a PMK which is used to generate unique temporal encryption keys.

IEEE 802.1X Authentication

WPA and WPA2 apply IEEE 802.1X and Extensible Authentication Protocol (EAP) to authenticate wireless stations using an external RADIUS database. WPA2 reduces the number of key exchange messages from six to four (CCMP 4 way handshake) and shortens the time required to connect to a network. Other WPA2 authentication features that are different from WPA include key caching and pre-authentication.

EAP Type

There are 4 types available in EAP including PEAP, TLS, TTLS, and SIM.

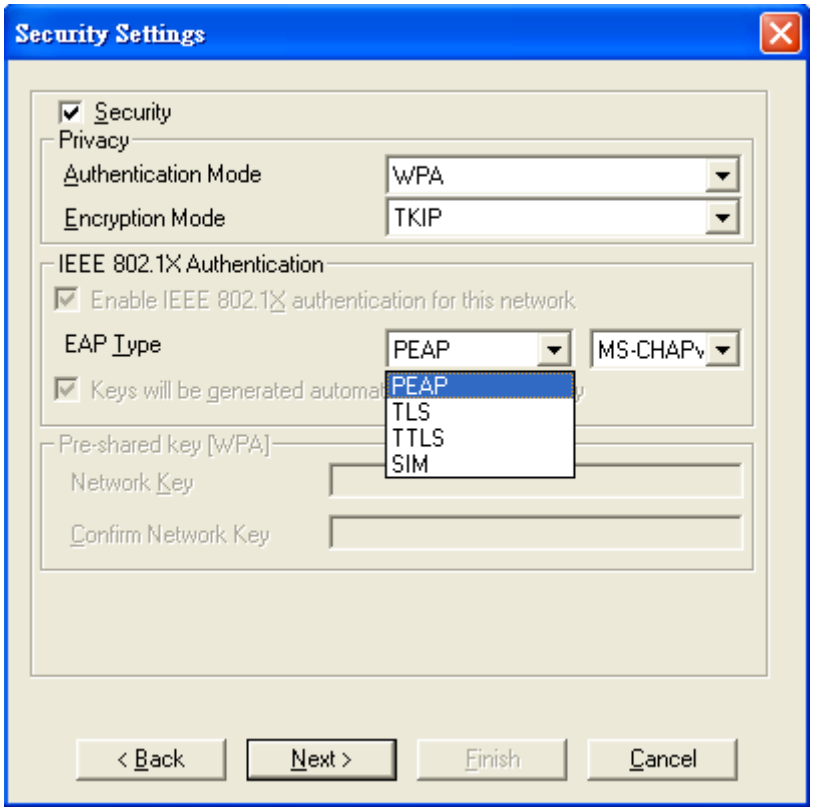

Figure 77 Security Settings

Choose the one you prefer and click **Next**, and then you will be guided to a new window named “Certificate”.

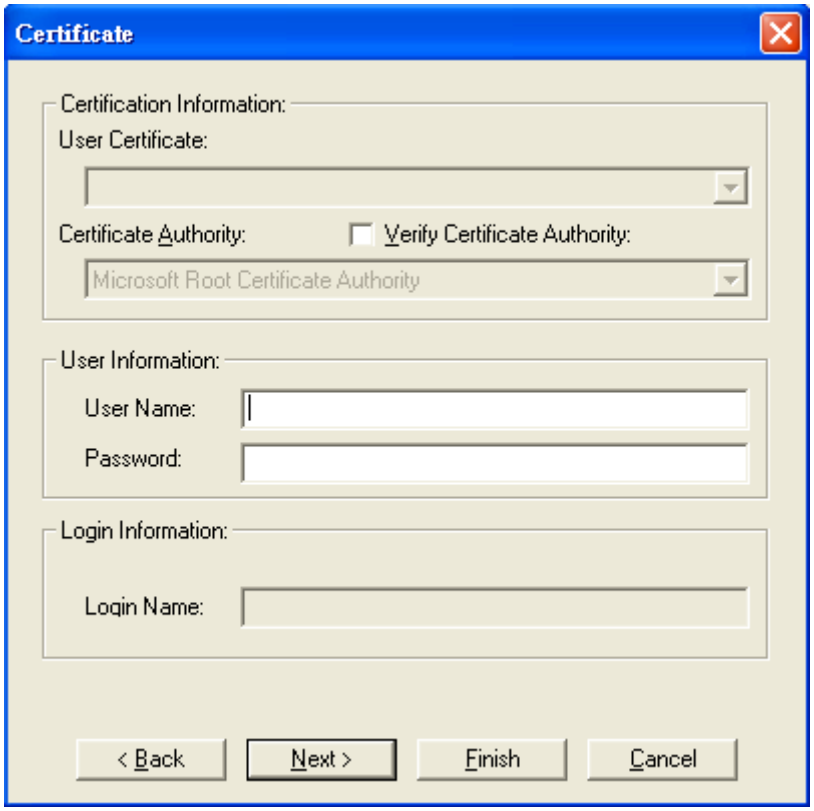

Figure 78 Certificate

You have to fill out the required information before going to the next step. The following will show the process of each type.

- PEAP

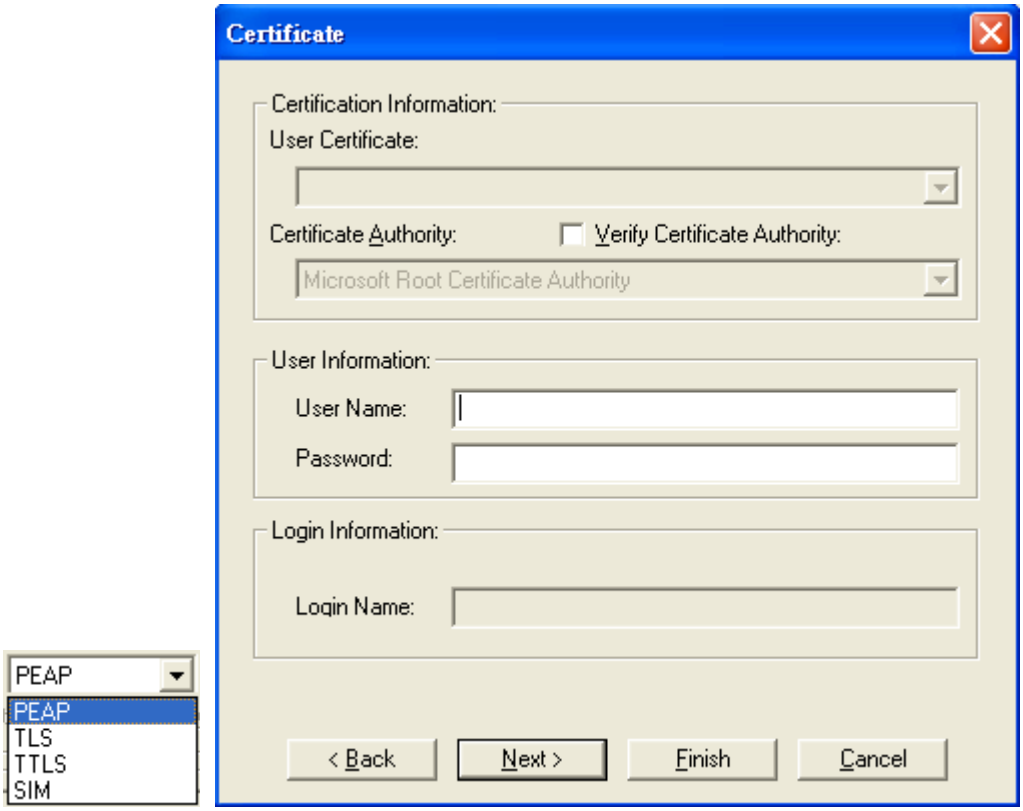

Figure 79 Certificate—PEAP

PEAP requires the use of Certificate Information and User Information. This utility will automatically identify Certificate Information and Login Information for users to configure PEAP easily. You only need to enter User Name and Password in the User information filed to authenticate. If you click the "**Verify Certificate Authority**" check box, you are able to choose one of User Certificate from the drop-down menu. Furthermore, you need to input User Name and Password in the User Name field on the screen.

- TLS

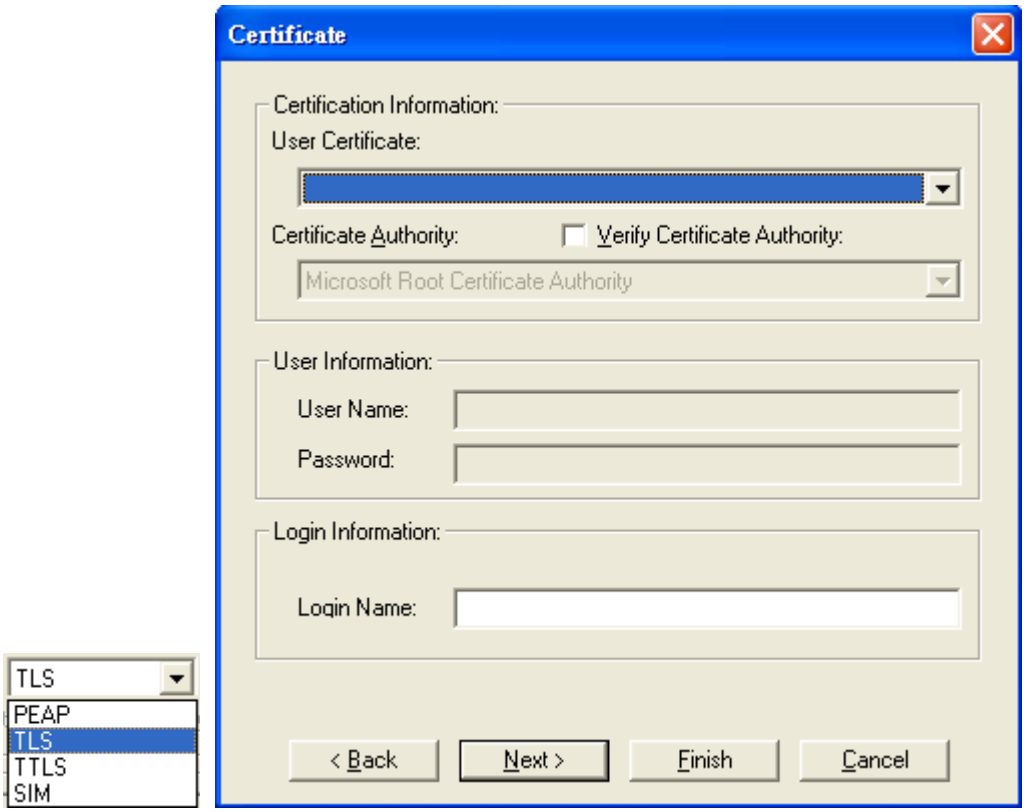

Figure 80 Certificate—TLS

TLS requires the entry of Certificate Information and Login Information for mutual authentication. This utility will auto-detect the Certificate Information for you to configure TLS easily. You only need to enter the **Login Name** in the Login information filed to authenticate. If you desire to use the Certificate Authority manually, you can click the check box next to **"Verify Certificate Authority"** and choose the usable selection in the **User Certificate** field using drop-down menu.

User Certificate: select one of user certificates you have enrolled.

TLS is used to create a secure tunnel through which authentication and encryption keys can be passed and require server and client side keys.

- TTLS

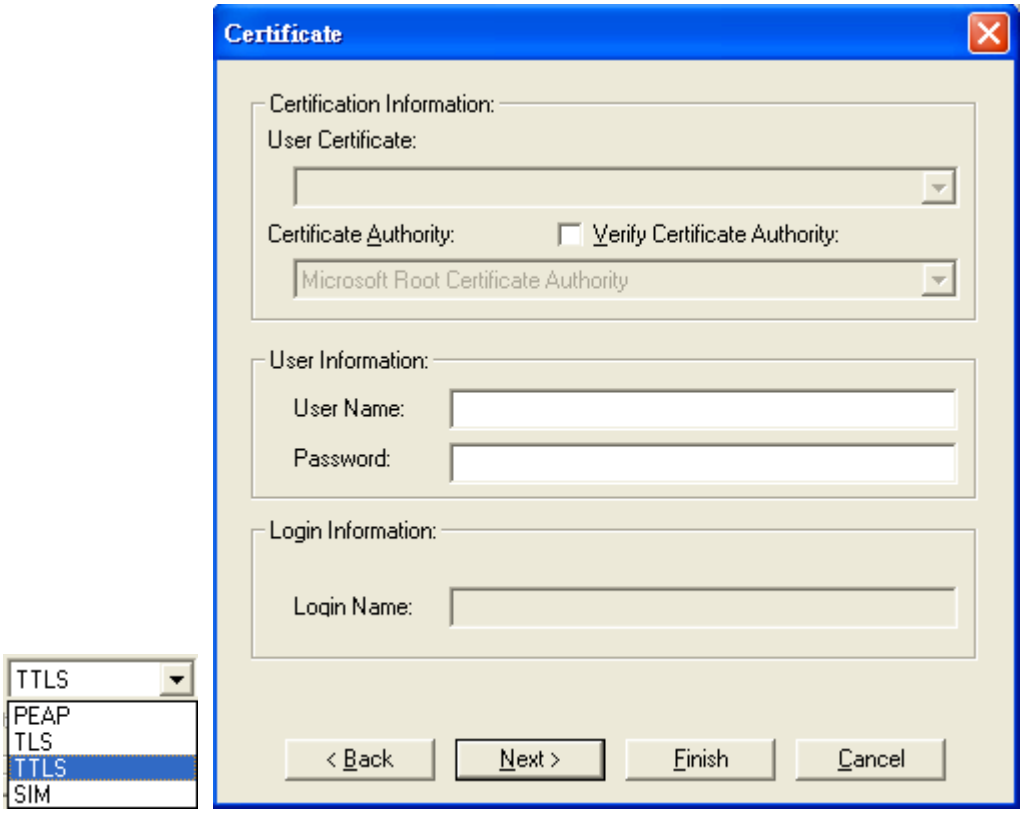

Figure 81 Certificate—TTLS

TTLS requires the mutual authentication between station and access points. You must present a **User Name** and **Password** in the User Information field that will be verified by TTLS-capable server. This mutual authentication ensures that only authorized users are allowed access to the network.

- SIM

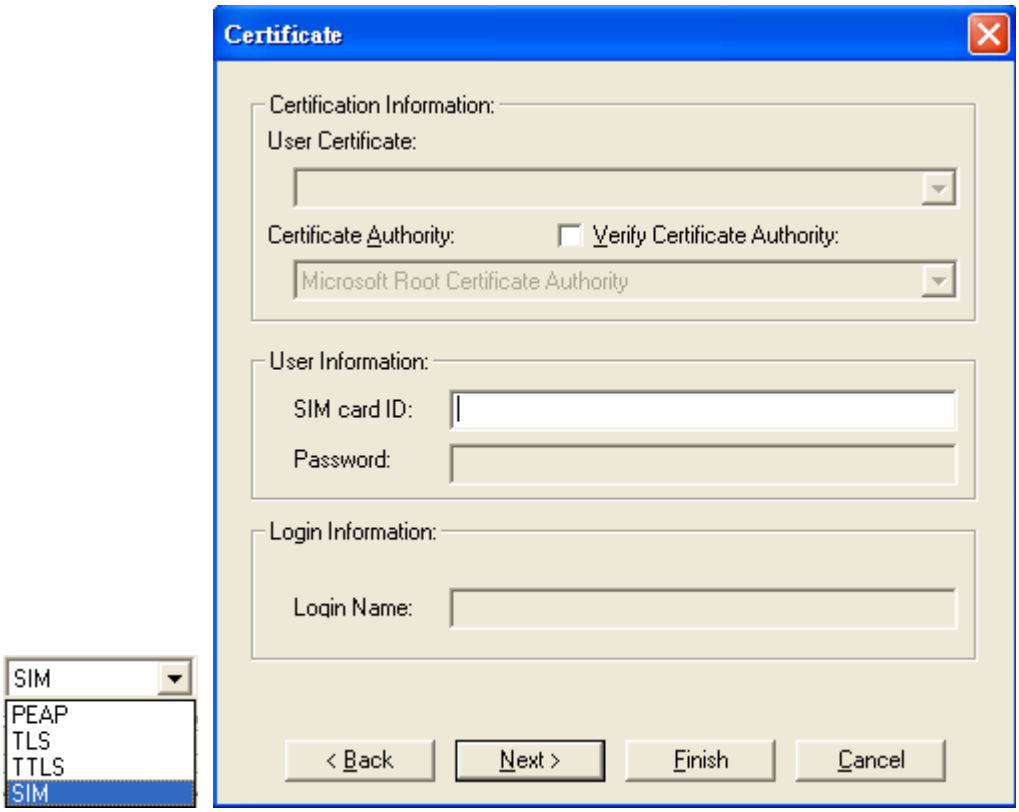

Figure 82 Certificate—SIM

SIM requires a valid PIN to the SIM card, which must match the PIN stored on the SIM. Please enter the PIN in the **SIM Card ID** field. When the configuration takes effect, the EAP authentication process begins automatically, and the client adapter will use the saved PIN to access the SIM card.

To verify authentication, double-click **My Computer**, **Control Panel**, and **Network Connections**. The status appears to the right of your **Wireless Network Connection**. Click **View** and **Refresh** to obtain the current status. If the client adapter is authenticated, the status reads, "**Authentication succeeded**."

Link Test:

Link Test is provided to test the connection quality between Wireless USB Adaptor and access point / router you connected to. You may follow the steps below to test the connection quality.

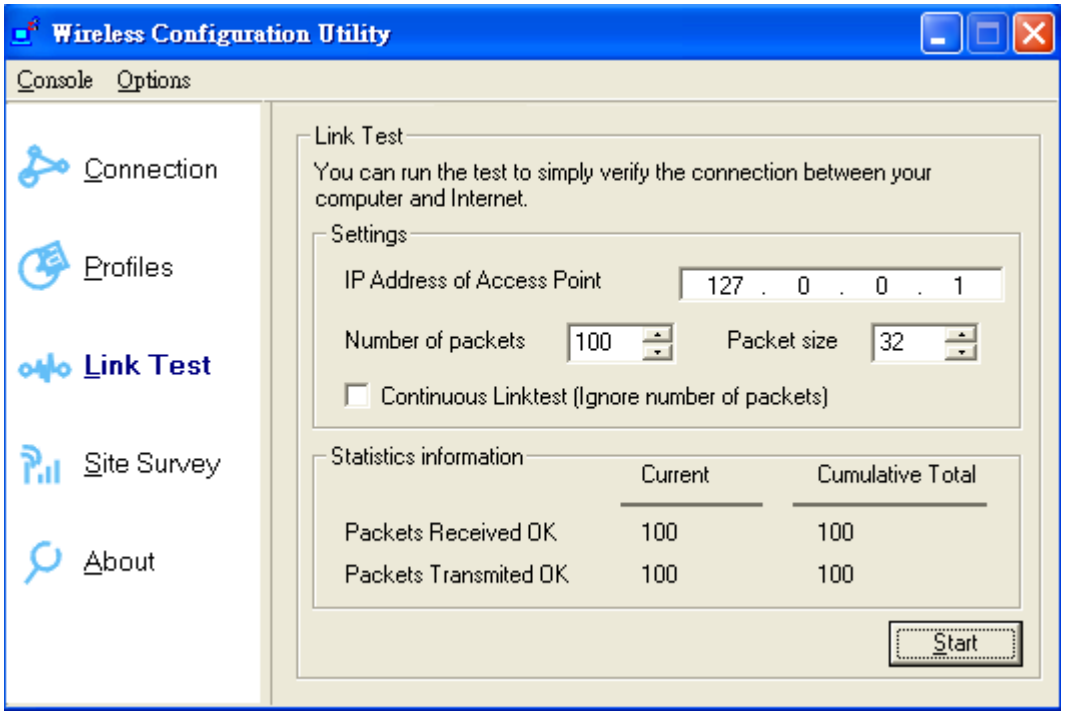

Figure 83 Wireless Configuration Utility—Link Test

1. Enter the IP address of the access point you connected to.
2. Choose the numbers and size of the packet.
3. Select the **Continuous Link test** to test the connection quality until you stop it; or leave the **Continuous Link test** blank to test it only once.
4. Click **Start** to find out the result.

If **Packets Received Ok** equals to **Packet Transmitted OK**, the connection quality is great; however, if not, please go to **Site Survey** to choose other available access point / router in order to get better connection quality.

Site Survey:

Here shows all the currently available access points.

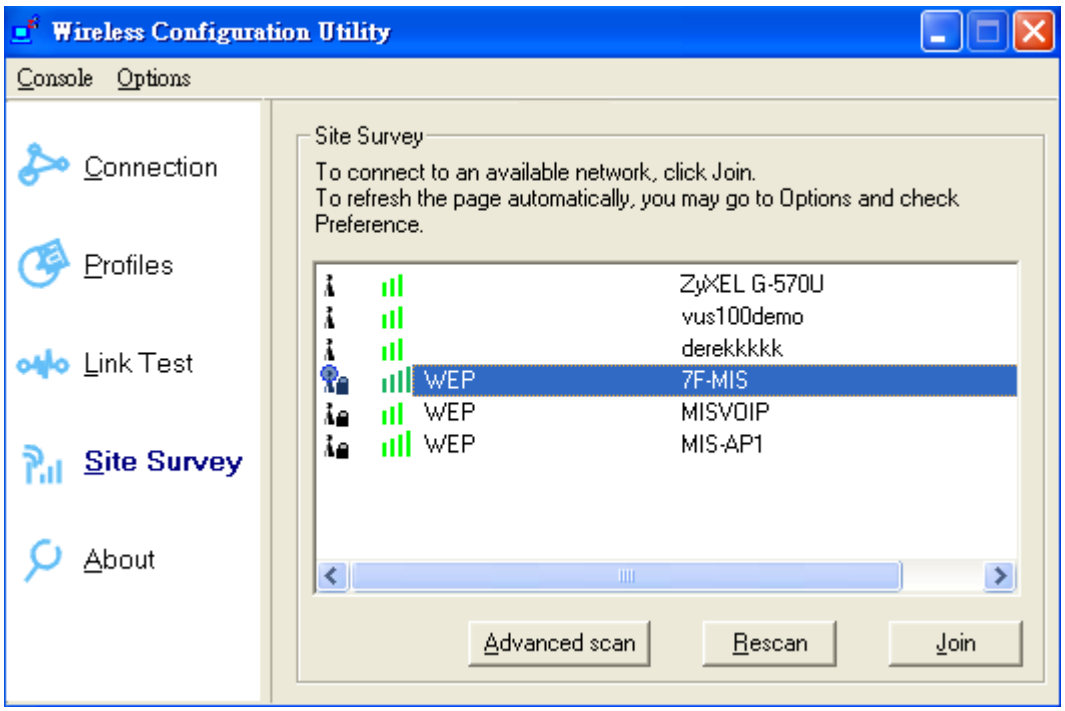

Figure 84 Wireless Configuration Utility—Site Survey

Join:

Choose the one you are allowed to use by single-clicking it, and then click Join to get into that network. (Password required, if needed)

Rescan:

Click **Rescan** to refresh the Site Survey list.

Advanced scan:

Click **Advanced scan** to get the detailed scan information.

About:

Here shows the detailed information about Wireless USB Adaptor and Wireless Configuration Utility themselves like versions, MAC address, etc.

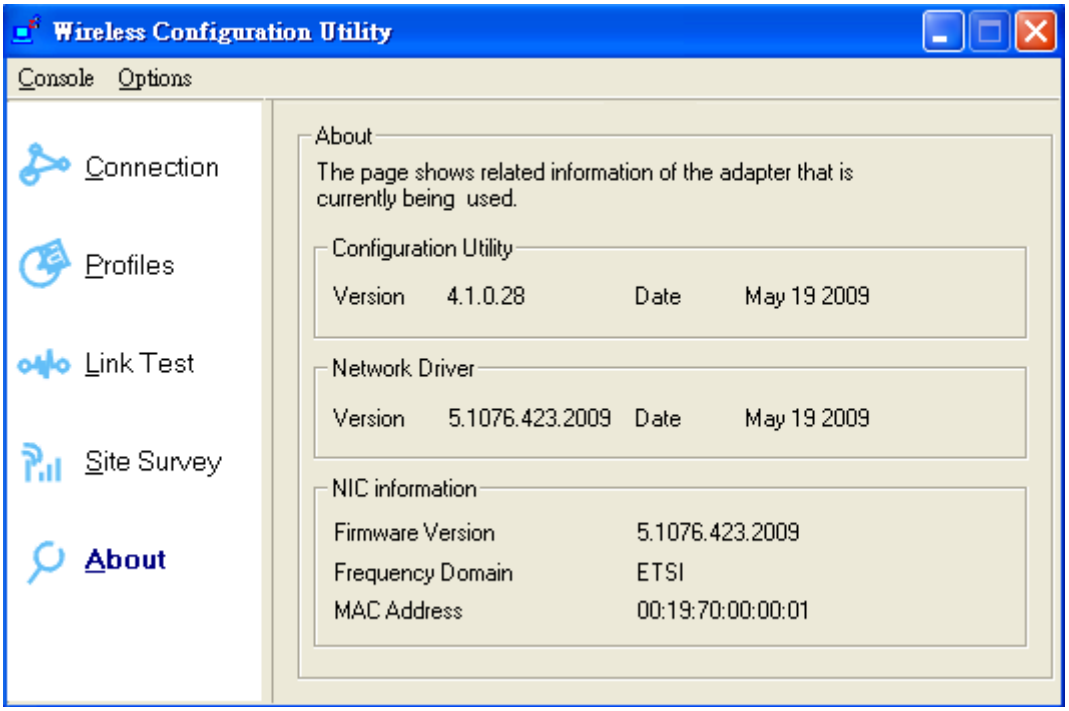

Figure 85 Wireless Configuration Utility－About

Chapter 6 Troubleshooting

Q1. Why can't I go into the Internet after successfully following all the steps for installation?

Check the availability of the Internet for the access point or router you connected to by opening "Wireless Configuration Utility", choosing **Connection**, and clicking **More Detail**. You will find IP Address there. If the IP Address is listed as 169.254.xxx.xxx or N/A, it represents the access point or router you connected to is useless. Please choose the access point or router you are notified or allowed to use again.

Q2. I am successfully going into the Internet, but the quality of surfing the Internet is unstable or bad. How could I solve it?

Open "Wireless Configuration Utility". Click **Connection** to see the Signal Strength. If the Signal Strength is weak or unstable, please click **Site Survey** to choose another available access point or router for better connection.

Or click **Link Test**, fill up the IP address of the access point you connected to, and click **Start** to see the connection results. If the result is not good, please click **Site Survey** to choose another available access point or router for better connection.

Q3. How would I know if my Wireless USB Adaptor is properly working now?

Once Wireless USB Adaptor is plugged into the PC or laptop, the built-in 2 LEDs will light up dedicating statuses. Normally, the red LED will keep on lighting, and the other yellow LED will blink, if Wireless USB Adaptor is properly working.

The red LED ON/OFF: Power ON/OFF
The yellow LED blinks: Data are transmitting/receiving.

Chapter 7 Warranty

This Warranty constitutes the sole and exclusive remedy of any buyer or reseller's equipment and the sole and exclusive liability of the supplier in connection with the products and is in lieu of all other warranties, express, implied or statutory, including, but not limited to, any implied warranty of merchantability of fitness for a particular use and all other obligations or liabilities of the supplier.

In no even will the supplier or any other party or person be liable to your or anyone else for any damages, including lost profits, lost savings or other incidental or consequential damages, or inability to use the software provided on the software media even if the supplier or the other party person has been advised of the possibility of such damages.

The following are special terms applicable to your hardware warranty as well as services you may use during part of the warranty period. Your formal Warranty Statement, including the warranty applicable to our Wireless LAN products, appears in the Quick Installation Guide which accompanies your products.

Duration of Hardware Warranty: One Year

Replacement, Repair or Refund Procedure for Hardware:

1. This product is design based on the 802.11n draft 2.0 standards, do not guarantee the compatibility with the products that design by other vendors based on 802.11n draft or the products that design accroding to the 802.11n formal standard that announce in the future.
2. The maximum performance defines based on 802.11g and 802.11n draft standard. The actual throughput will be different because of using environment and conditions, including network bandwidth, building materials, building structure, and wireless working range. These are possible to reduce the wireless performance.
3. Don't dismantle the housing of the device as your wish to avoid the product damage.

If your unit needs a repair or replacement, return it to your dealer/distributor in its original packaging. When returning a defective product for Warranty, always include the following documents:

- A copy of the invoice/proof of purchase.
- The RMA Report Form (To receive a Return Materials Authorization form (RMA), please contact the party from whom you purchased the product).

Upon proof-of-purchase we shall, at its option, repair or replace the defective item at no cost to the buyer.

This warranty is contingent upon proper use in the application for which the products are intended and does not cover products which have been modified without the reseller's approval or which have been subjected to unusual physical or electrical demands or damaged in any way.