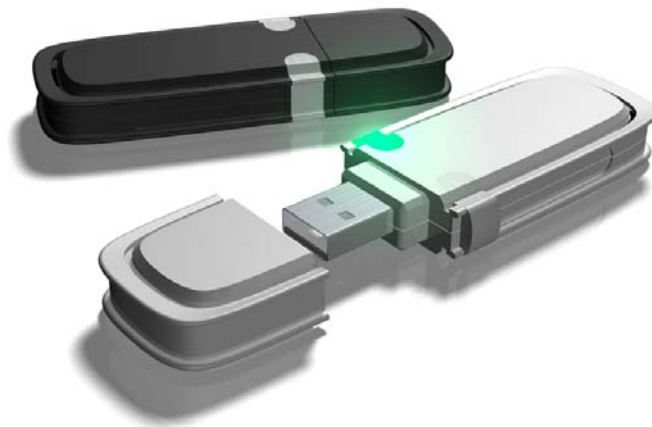# 802.11b/g/n Wireless LAN

USB Adapter

Model: XN-721AI / XN-721

User's Manual

Version: 1.0

Date of issue: March 31, 2008

Federal Communications Commission (FCC)

Interference Statement

This device, IEEE 802.11n Wireless LAN USB Adapter, complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

✧   This device may not cause harmful interference.

✧   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 or more of the following measures:

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

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

FC Trade name
Model number

Caution:

1. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The 802.11b/g/n Wireless LAN USB Adapter has been tested to the FCC exposure requirements

(Specific Absorption Rate)

CE Statement:

Hereby, Z-COM, Inc., declares that this device is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/5/EC.

This device will be sold in the following EEA countries: Austria, Italy, Belgium, Liechtenstein, Denmark, Luxembourg, Finland, Netherlands, France, Norway, Germany, Portugal, Greece, Spain, Iceland, Sweden, Ireland, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland, Slovenia, Bulgaria, Romania.

依據 低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Technical Support

The software version of the IEEE 802.11n Wireless LAN USB Adapter is displayed on the utility **About** window. Users could download the most recent software version from the supplier¡s web site or refer to the selling contact for the latest software information. If you have difficulty solving the problem while installing or using the IEEE 802.11n Wireless LAN USB Adapter, please contact the supplier for support.

About This Manual

IEEE 802.11n Wireless LAN USB Adapter User¡s Manual is first published on March 2008. This manual is intended for people who want to configure the IEEE 802.11n Wireless LAN USB Adapter under Windows Vista, Windows XP, and Windows 2000. You should have at least a basic knowledge of TCP/IP networking concepts and topology.

Table of Contents

Chapter 1   Preface

This chapter introduces the IEEE 802.11n Wireless LAN USB Adapter and prepares you to use your wireless adapter.

1.1 About your IEEE 802.11n Wireless LAN USB Adapter

The IEEE 802.11n Wireless LAN USB Adapter is a standard USB adapter that fits into any standard USB 2.0 and 1.1 slots in a notebook computer. It¡s IEEE 802.11n draft 2.0 compliant device that supports up to 300Mbps rate, giving equivalent Ethernet speed to access corporate network or the Internet in a wireless environment. When installed, IEEE 802.11n Wireless LAN USB Adapter is able to communicate with any 802.11b/g/n compliant devices.

1.2 Features and Benefits

- ✓ Automatic rate selection.

- ✓ Support 802.11b/g/n solution in 2.4GHz frequency band.

- ✓ Greater flexibility to locate or move networked PCs.

- ✓ Wireless connection without the cost of cabling.

- ✓ Easy to install and user friendly, just Plug and Play.

- ✓ With built-in antenna.

- ✓ Security Capable: WEP, WPA, WPA2 supported.

- ✓ Software supports for Windows 2000, Windows XP and Vista.

1.3 Applications

The IEEE 802.11n Wireless LAN USB Adapter offers a fast, reliable, cost-effective solution for wireless client access to the network in applications like these:

✓ **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**
Retailers, manufacturers and those who frequently rearrange the workplace and change location.

✓ **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 requiring 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 can be installed quickly and provide flexibility.

1.4 Product Kit

IEEE 802.11n Wireless LAN USB Adapter comes with the following items. Please go through each item below. If any of listed items appears to be damaged or missing, please contact your local dealer.

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

● Software and Documentation CD---.x 1

1.5 IEEE 802.11n Wireless LAN USB Adapter LED Indicators

The IEEE 802.11n Wireless LAN USB Adapter has one LED indicators. The behavior of the indicators is described as below:

Link LED
■ Off ¡ Power off
■ Solid Green ¡ Associate with the Access Point or Ad-Hoc wireless workstation
■ Blinking Green ¡ Indicate the device is transmitting data through the Access Point or Ad-Hoc wireless workstation. Also when the PBC button is pressed, the LED will blink to indicate WPS status that the LED will blink 2 seconds and off 2 seconds.

Chapter 2   Getting Started

This chapter describes the instructions that guide you through the proper installation of your IEEE802.11n Wireless LAN USB Adapter for the Windows Vista/XP/2000 operating systems.

2.1 Installation Requirements

Before installation, make sure you have computer with following:

✓ A minimum of 5MB available hard disk space.

✓ A minimum of 32 MB RAM

✓ A computer equipped with USB slot, and socket services compliant with revision 1.1 or 2.0 of USB specification.

✓ A CD-ROM drive.

✓ Windows Vista/XP/2000.

2.2 Installation

This section describes the installation of the IEEE 802.11n Wireless LAN USB Adapter software for the Windows 2000/XP and Windows Vista. The installation procedures for Windows Vista refer to **2.2.1 Install IEEE 802.11n Wireless LAN USB Adapter for Windows Vista**; for Windows XP/2000 please see **2.2.2 Install IEEE 802.11n Wireless LAN USB Adapter for Windows XP/2000**.
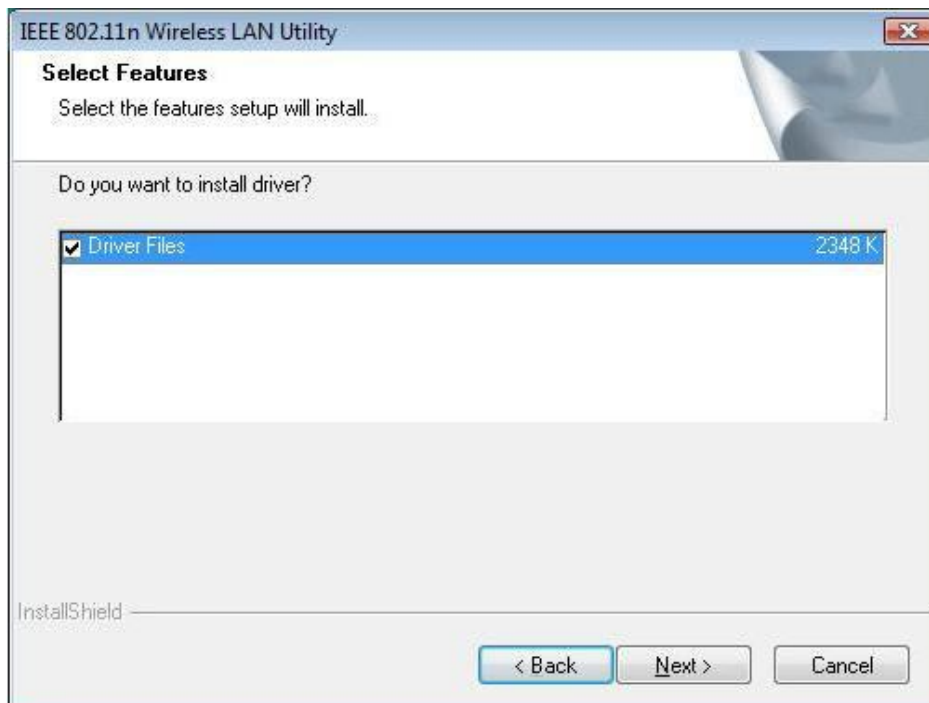
2.2.1 Install IEEE 802.11n Wireless LAN USB Adapter for Windows Vista

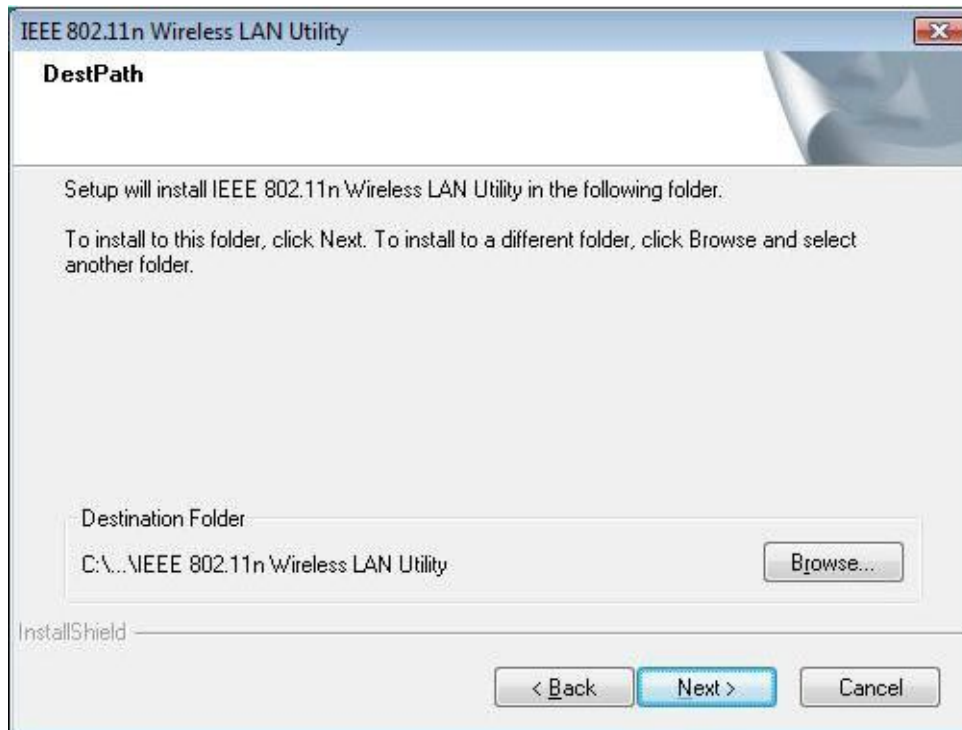**Step 1:** Insert the included CD into the CD-ROM driver on your computer. Locate and double-click **setup.exe**.

Step 2: The following screen displays. Click **Next**.

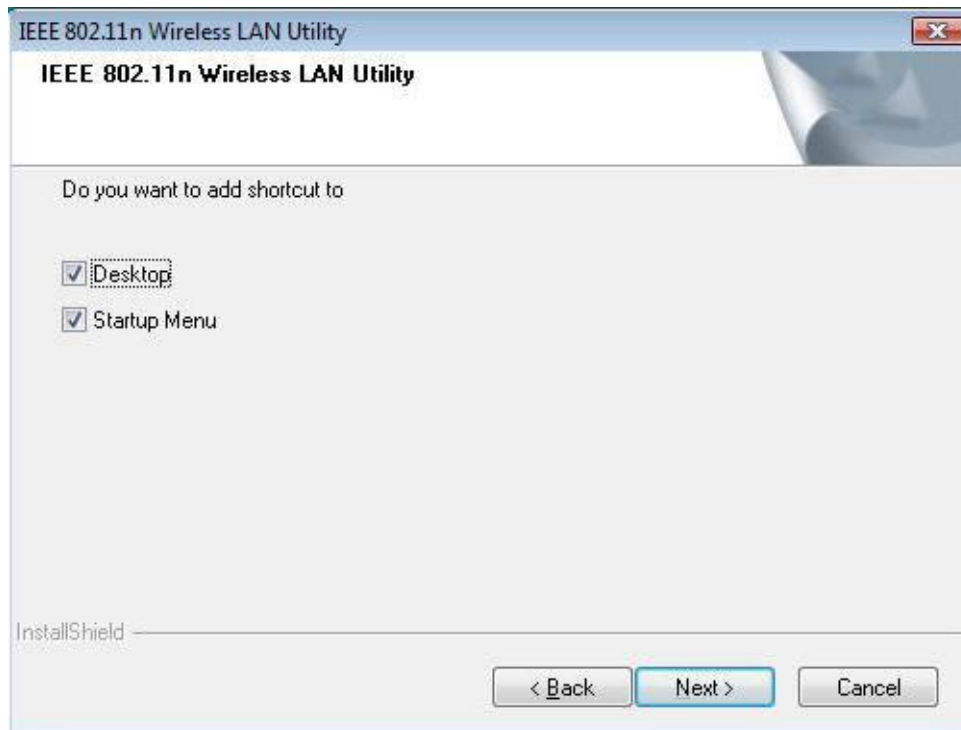**Step 3:** Click **Next** to accept installing IEEE 802.11n Wireless LAN USB Adapter driver files.

Step 4: Click **Next** to accept the default file location or click **Browse** to select an alternate folder.

IEEE 802.11n Wireless LAN Utility

DestPath

Setup will install IEEE 802.11n Wireless LAN Utility in the following folder.

To install to this folder, click Next. To install to a different folder, click Browse and select another folder.

Destination Folder

C:\...\IEEE 802.11n Wireless LAN Utility   Browse...

InstallShield

< Back   Next >   Cancel

Step 5: Select a program folder or type a new folder name and click **Next**.

IEEE 802.11n Wireless LAN Utility

IEEE 802.11n Wireless LAN Utility

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.

Program Folder:

IEEE 802.11n Wireless LAN Utility

Existing Folders:

Accessories
Administrative Tools
Extras and Upgrades
Games
Maintenance
Startup
Tablet PC

InstallShield

< Back   Next >   Cancel

Step 6: You may add a shortcut in the startup folder as desired and click **Next**.

Step 7: The windows will appear the message about the windows can¡t verify the publisher of this driver software compatibility with Windows Vista. Select **Install this driver software anyway** to continue installing
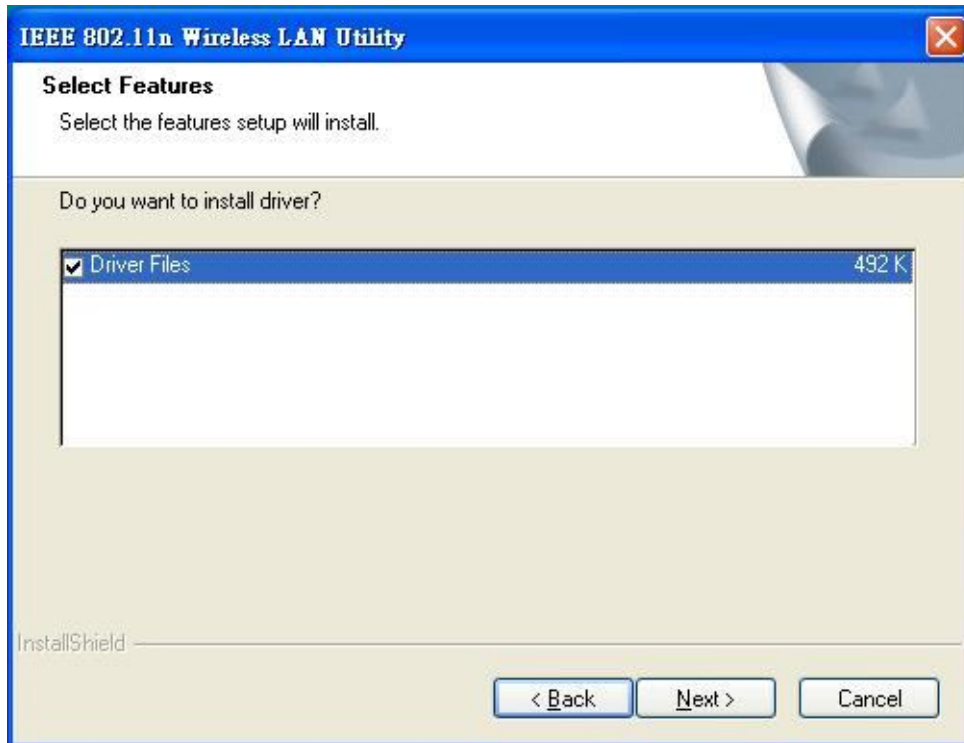
Step 8: Click on **Finish** to complete the installation.
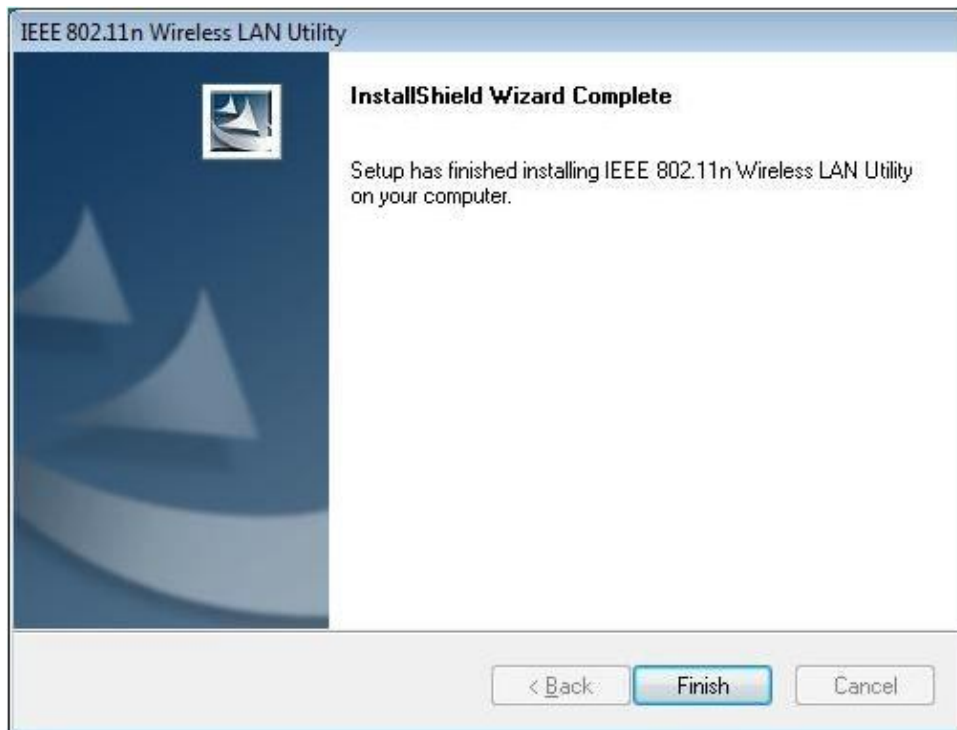
Step 9: Insert the IEEE802.11n Wireless LAN USB Adapter into the USB port on your notebook, and the Windows will auto-install the IEEE802.11n Wireless LAN USB Adapter driver and utility.

After the driver installed completed, the bellowing information will appear in the system tray.

Click the icon, to configure the wireless LAN adapter via utility. To use the utility, please refer to **Chapter 4**.

2.2.2 Install IEEE 802.11n Wireless LAN USB Adapter for Windows XP/2000

Step 1: Insert the included CD into the CD-ROM driver on your computer. Locate and double-click **setup.exe**.
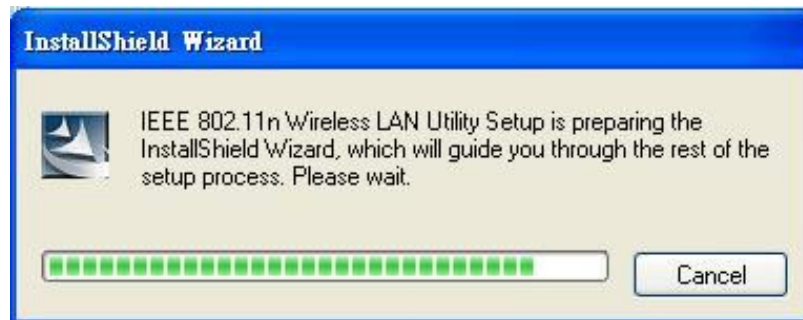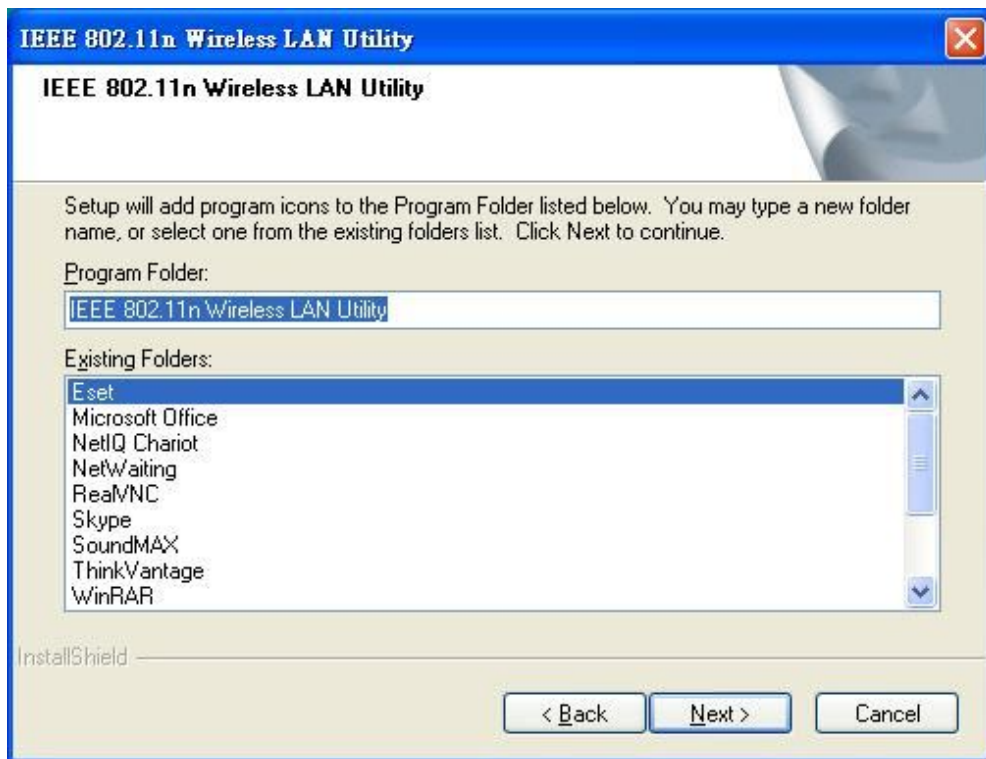
Step 2: The following screen displays. Click **Next**.

Step 3: Click **Next** to accept installing IEEE 802.11n Wireless LAN USB Adapter driver files.

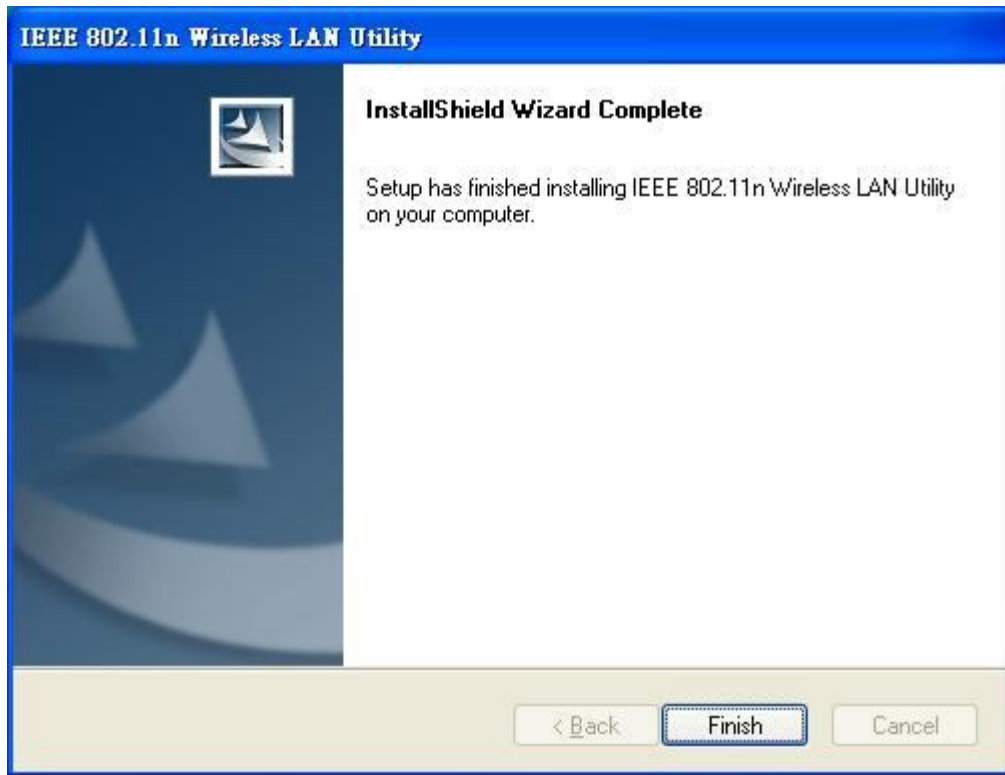**Step 4:** Click **Next** to accept the default file location or click **Browse** to select an alternate folder.
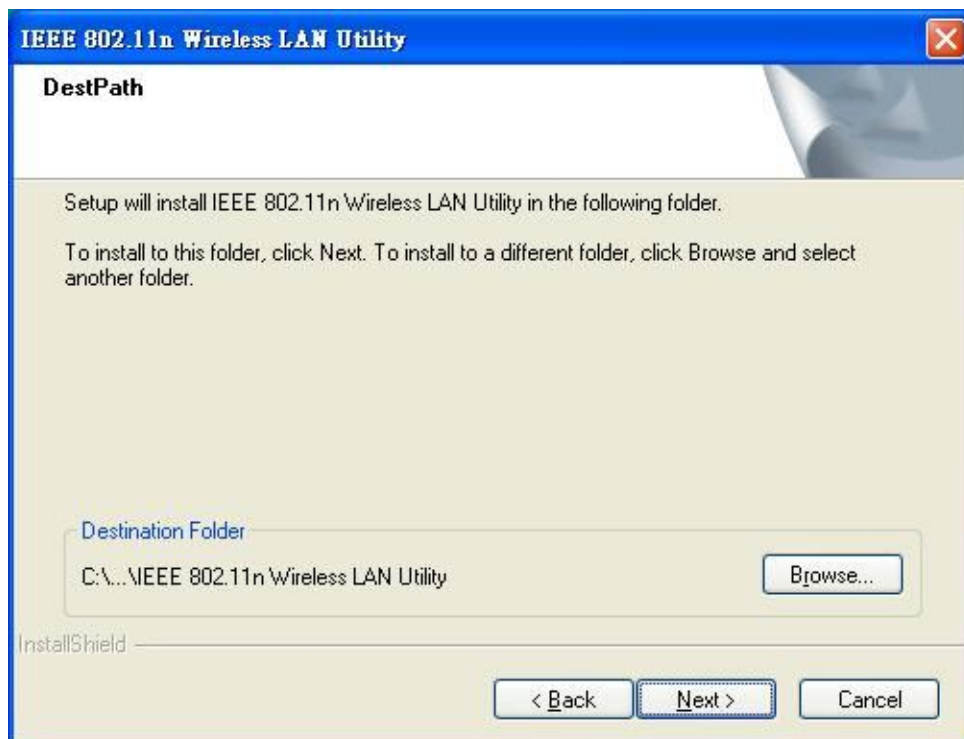
Step 5: Select a program folder or type a new folder name and click **Next**.

Step 6: You may add a shortcut in the startup folder as desired and click **Next**.
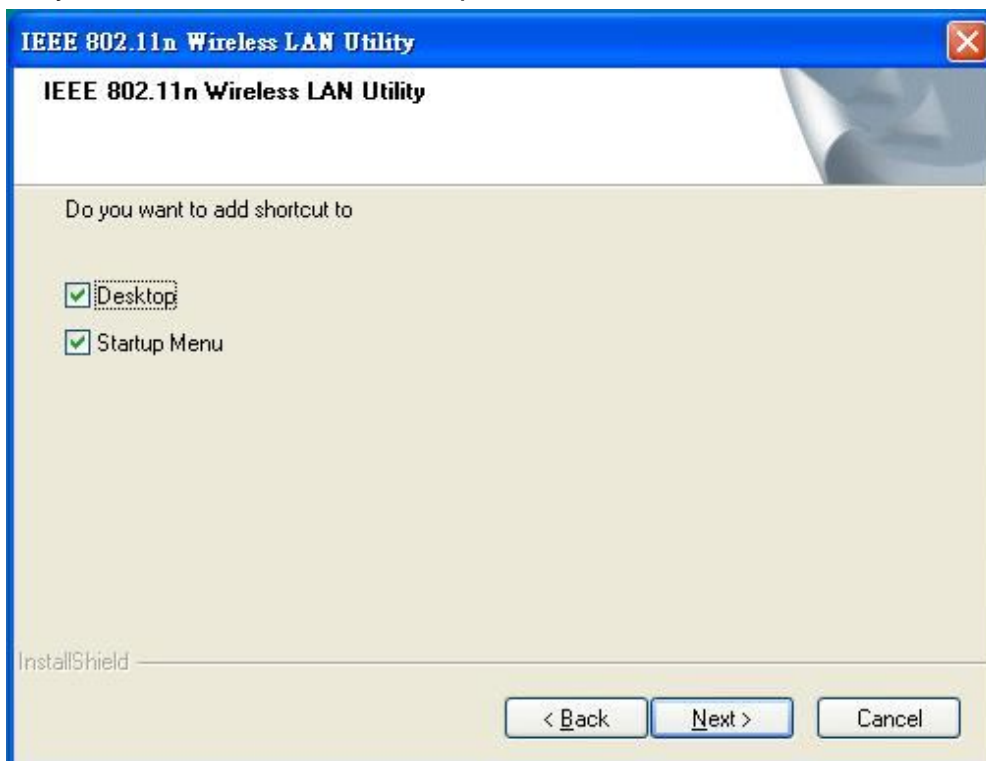
Step 7: Click on **Finish** to complete the installation.

Step 8: Find an available USB port on the computer and insert the IEEE 802.11n Wireless LAN USB Adapter into the USB port.
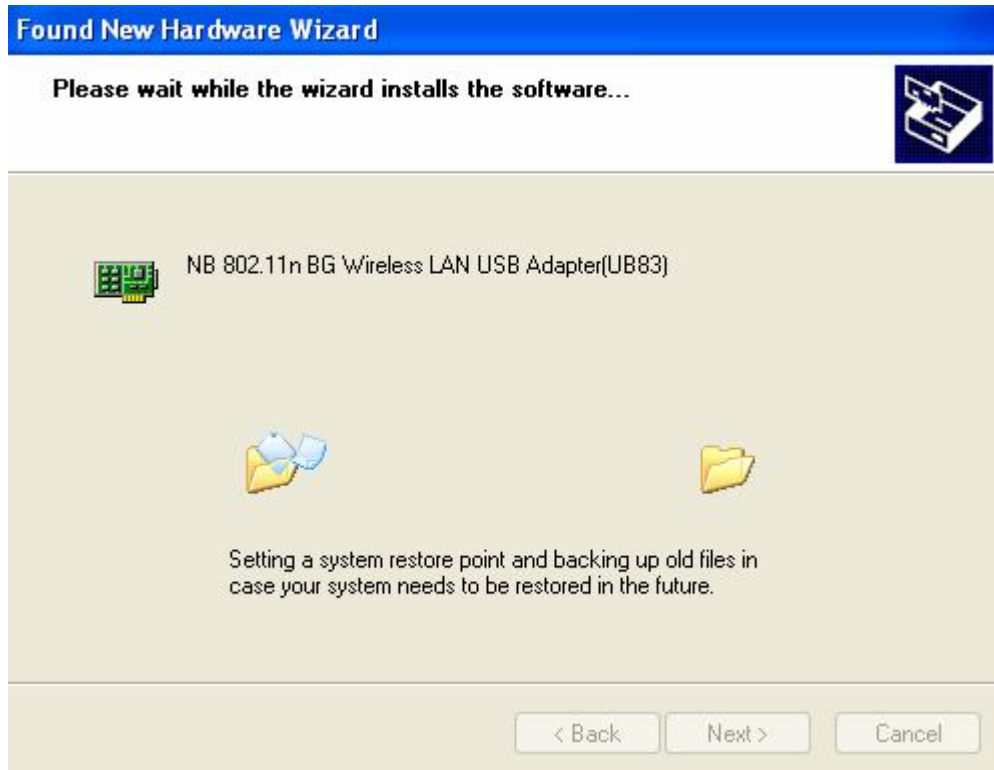
Step 9: After inserting USB Adapter into the USB port on your computer, Windows will auto-detect new hardware and will display a ¡**Found New Hardware Wizard**¡ window. Select ¡**Install the software automatically (Recommended)**¡ and press **Next** to install the driver.

Step 10: The windows will appear the message about the Network Contrd has not passed Windows Logo testing to verify its compatibility with Windows XP. Click on **Continue Anyway** button to continue installing.

Step 11: The windows will find 802.11n Wireless LAN USB Adapter and start copying corresponding files into the system. Click on **Next** to continue.

Found New Hardware Wizard

Please wait while the wizard installs the software...

NB 802.11n BG Wireless LAN USB Adapter(UB83)

Setting a system restore point and backing up old files in case your system needs to be restored in the future.

< Back   Next >   Cancel

Step 12: Click **Finish** to complete the installation.

Found New Hardware Wizard

Completing the Found New Hardware Wizard

The wizard has finished installing the software for:

NB 802.11n BG Wireless LAN USB Adapter(UB83)

Click Finish to close the wizard.

< Back   Finish   Cancel

智捷科技股份有限公司　Z-COM,Inc.

ZCOM

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7F-2,No.9.Prosperity RD. I
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Fax：886-3-5773359

After you install the driver and utility and insert your wireless USB adapter, the icon appears in the system tray.

If the icon is blue and/or you see the following icon on your desktop, you¡re already connected to a wireless network.

Upon completion, clicking on the icon will open the configuration window. When you minimize the window, the system tray icon will be loaded in the System Tray again.

The color behind the system tray icon indicates the link status. Refer to the following table for details.

Color	Description
	A good or excellent link status.
	Not connected to a wireless network or is searching for an available wireless network.

Note for Windows XP users

If you want to use WZC, either to disable the wireless network utility (if you already install it) or just install the driver.

To install the driver only

1. Slide the IEEE 802.11n Wireless LAN USB Adapter into an available USB port.
2. The **Found New Hardware Wizard** window appears. (In Windows XP SP2, select **No, not this time** and click **Next**.)
3. Select **Install from a list of specific location (Advanced)** and click **Next**.
4. Insert the included CD into your CD-ROM drive, select **Search removable media (floppy, CD-ROM¡**) and then click **Next**.
5. Click **Finish** in the last wizard screen to complete the installation.

Chapter 3   Wireless LAN Network

This chapter provides general overview of wireless LAN network configuration parameters.

3.1 Wireless LAN Overview

This section describes applications of IEEE 802.11n Wireless LAN USB Adapter.

3.1.1 SSID

The SSID is the unique ID used by Access Points and stations to identify a wireless Network. Wireless clients associating to any Access Point must have the same SSID. The default setting is ANY, which allows your IEEE 802.11n Wireless Network USB Adapter to automatically associate to any Access Point (Infrastructure mode) in the vicinity of your wireless adapter. The ESS ID can be set up to *32 characters* and is case sensitive.

SSID: |WLAN|

3.1.2 Channel

A radio frequency used by a wireless device is called a channel.

3.1.3 Transmit Rate (Tx Rate)

The IEEE 802.11n Wireless Network USB Adapter supports various transmit (data) rate. The Auto Rate algorithm allows your IEEE 802.11n Wireless Network USB Adapter to operate at the maximum transmit (data) rate. When the communications quality drops below a certain level, the Wireless Network USB Adapter will automatically switch to a lower data rate. Transmission at lower data speed is usually more reliable. However, when the communications quality improves again, the Wireless Network USB Adapter will gradually increase the transmit (data) rate again until it reaches the highest available transmit rate.

Note: Actual speed attained also depends on the distance from the AP, noise, etc.

3.2 Wireless LAN Security Overview

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.

Configure the wireless LAN security by clicking the check box next to **Security**. A privacy Configuration window will appear.
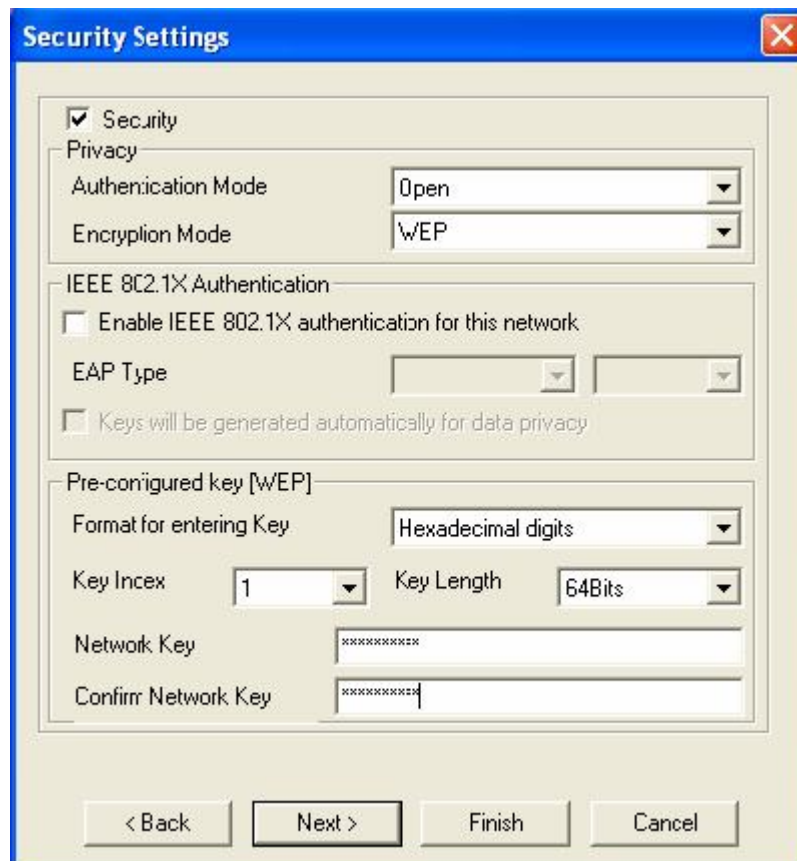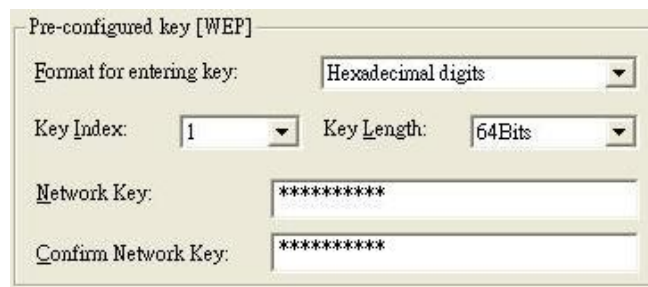

If you do not enable any wireless security on your IEEE 802.11n Wireless LAN USB Adapter, the wireless communication is accessible to any wireless networking device that is in the coverage area.

3.2.1 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.

The IEEE 802.11n Wireless LAN USB Adapter allows you to configure up to four 64-bit, and 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¡ and ¡0-9¡ (e.g. MyKey).
- **Hexadecimal**: entering *10 hexadecimal digits* in the range of ¡A-F¡, ¡a-f¡ and ¡0-9¡ (e.g. 11AA22BB33, showed as below).

For 128bit encryption you may choose:
- **Alphanumeric***: entering *13 characters* (case sensitive) ranging from ¡a-z¡, ¡A-Z¡ and ¡0-9¡ (e.g. MyKey12345678).
- **Hexadecimal**: entering **26** *hexadecimal digits* in the range of ¡A-F¡, ¡a-f¡ and ¡0-9¡ (e.g. 00112233445566778899AABBCC).

3.2.2 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 using an external RADIUS server.

3.2.2.1 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.

3.2.3 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: 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, TTLS, SIM 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.

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.
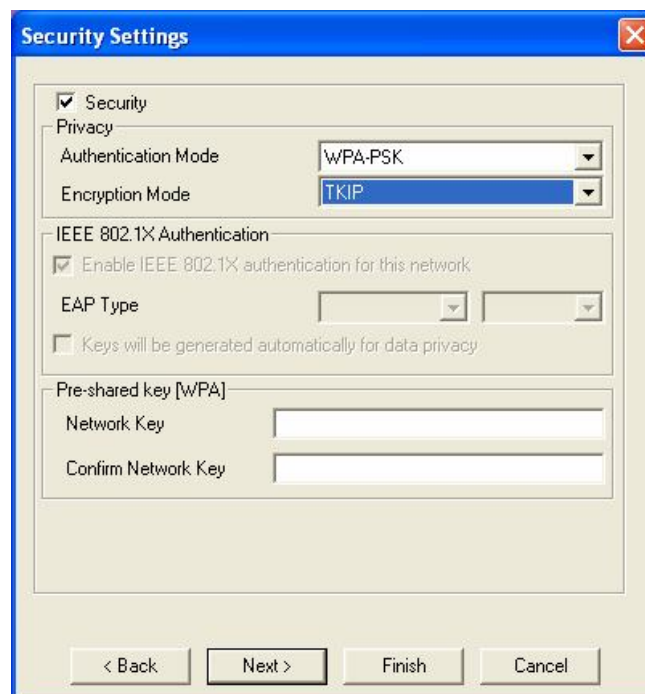
WPA2: WPA2 provides a stronger encryption mechanism than WPA. WPA2 is the second generation of WPA security, providing personal and enterprise users with a high level of assurance that only authorized users can access to their wireless network. There is no difference between WPA and WPA2. The only difference 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.
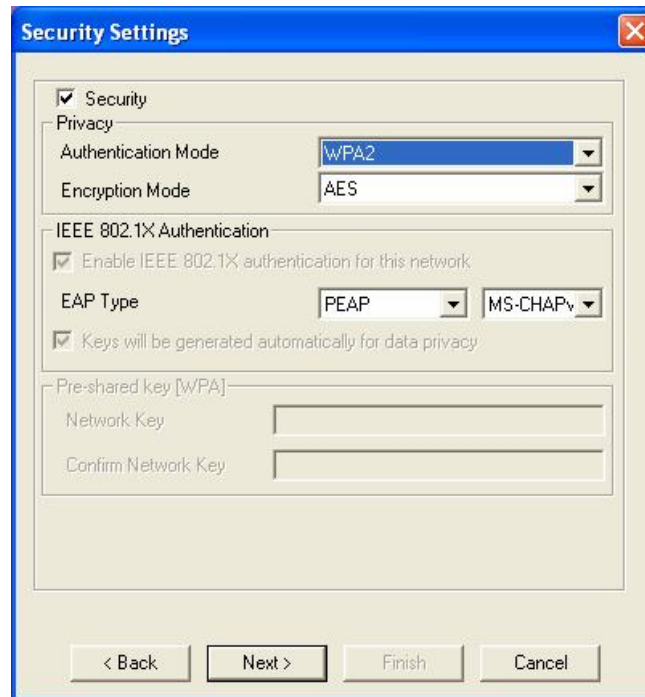
WPA2-PSK: Like WPA, WPA2-Personal offers authentication via a pre-shared key. Pre-shared key is usually used for Personal authentication. Personal mode requires only an access point and client on the network. Similarly, you need to type a mixture of numbers and letters in the **Pre-shared key** section of this menu. You may input either 8-63 ASCII characters or 64 HEX characters. Choose WPA2-PSK if needed from Authentication Mode.

3.2.3.1 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.
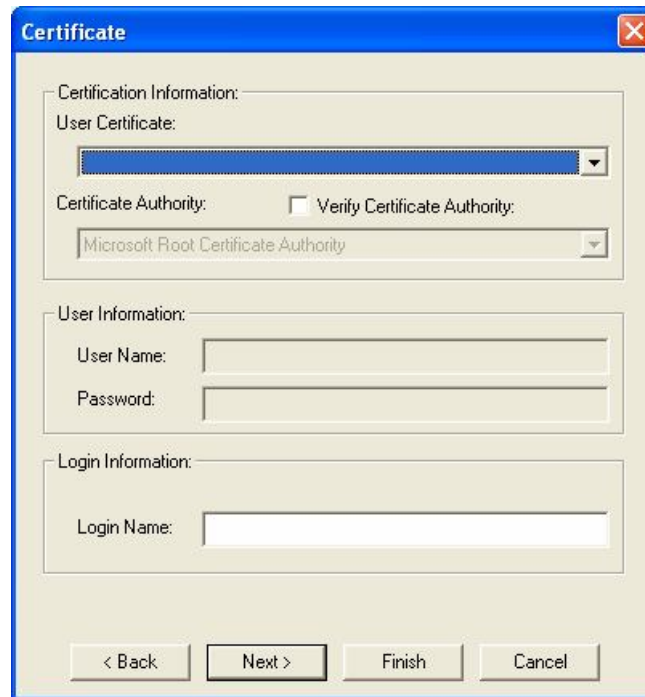
The encryption mechanism used for WPA(2) and WPA(2)-PSK are the same. The only difference between them is that WPA(2)-PSK uses a simple common password, instead of user specific credentials. The common password approach makes WPA(2)-PSK susceptible to brute-force password-guessing attacks but it;s still 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.

3.2.3.2 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.

After you select the EAP type, you need to click **Certification** tab to make advanced setting. The following describes configuration of each available EAP type.

TLS: Clicking the **Certification** tab for TLS shows the following menu.

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. To save the information you entered in the appropriate field, click the **OK** button. Otherwise, click the **Cancel** button to close the menu. If you want to return to select other EAP type, click the **Security** tab.

PEAP: Clicking the Certification tab for PEAP displays the following menu.

PEAP requires the use of Cerficate 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 fled 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.

To save the information you entered in the appropriate field, click the Next > button or Finish button. Otherwise, click the Cancel button to close the menu. If you want to return to select other EAP type, click the < Back tab.

TTLS: Clicking the **Certification** tab for TTLS shows the following menu.

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:** Clicking the Certification tab for SIM displays the following menu.

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**."

3.3 Authentication Mode

The IEEE 802.11b/g standard describes a simple authentication method between the wireless stations and AP. Two authentication types are defined: **Open** system mode and a **Shared** key mode.

- 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. Shows as below:
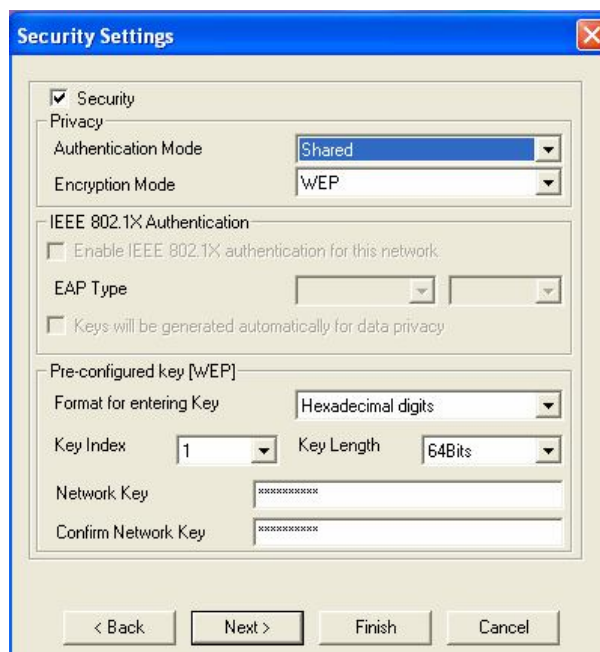
3.3 Wi-Fi Protected Setup (WPS)

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.

The WPS protocol defines two types of devices in a network:
- Registrar: A device with the authority to issue the credentials to enroll new clients on the network.   A Registrar may be integrated into an AP, or it may be separate from the AP.
- Enrollee: A device seeking to join a wireless LAN network.

The WPS gives users a variety of setup options.   It uses **PBC** (Push Button Configuration) and **PIN** (Personal Identification Number) to enable user to automatically configure network names and strong data encryption and authentication.

For the PBC mode, the Access Point and the wireless client just simply push a hardware button or software button on the unit. After pushing Access Point WPS button, the client must push software button or hardware button within 2 minutes.

For the PIN mode, input the same PIN number for the Access Point and for the wireless client. After the connection is made successfully, the wireless client will be able to receive the data from the Access Point such as SSID, wireless security, and etc.

Chapter 4　Configure by Wireless LAN Utility

This chapter provides more detail introduce for using the utility to configure the wireless adapter.

4.1 Use the 802.11n Wireless LAN Utility

The WLAN Utility enables you to make configuration changes and perform user-level diagnostics on your IEEE802.11n Wireless LAN USB Adapter in the Windows Vista/XP/2000 operating system environments. The WLAN Utility consists of window with 5 items for you to monitor and configure the IEEE802.11n Wireless LAN USB Adapter: **Connection**, **profiles**, **Link Test**, **Site Survey** and **About**.
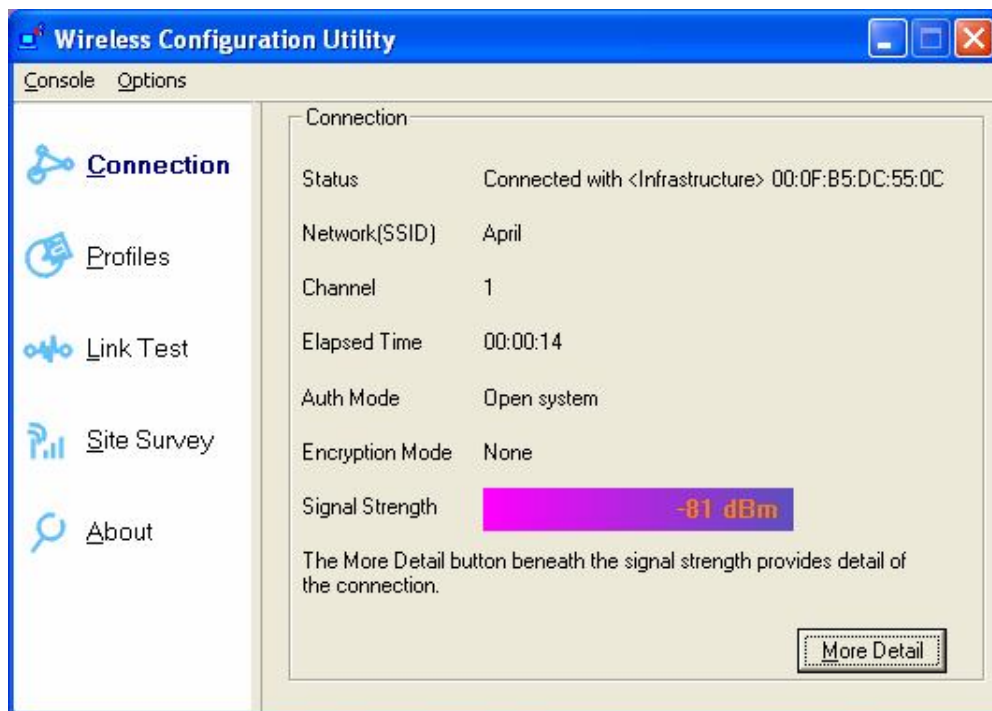
Connection

The **Connection** item allows you to monitor the current status and quality of your connection to the wireless network. When you click on this tab, the following screen will display.

Status: Shows the MAC address and the network type of Profile with which you are associated.

SSID: The SSID is the unique ID used by Access Points and stations to identify a wireless LAN. Wireless clients associating to any Access Point must have the same SSID. The default setting is **ANY**, which allows your Wireless USB Adapter to automatically associate to any Access Point (Infrastructure mode) in the vicinity of your wireless adapter. The SSID can be set up to 32 characters and is case sensitive.

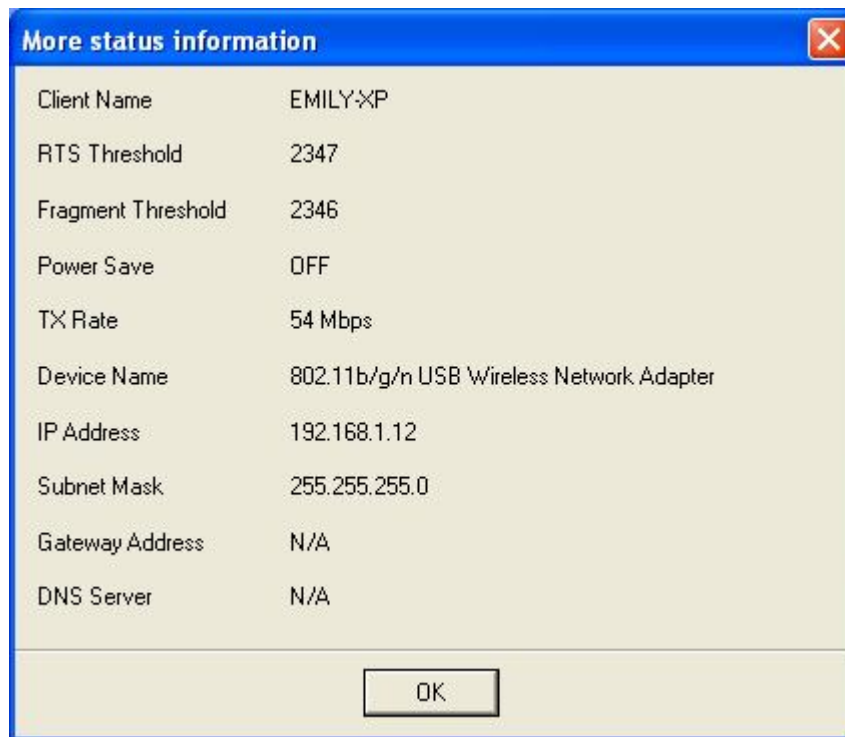**Channel:** Shows the channel on which the connection is made.

Elapsed time: Shows the elapsed time of the current association.

Auth Mode: Shows the authentication mode of the connected Access Point.

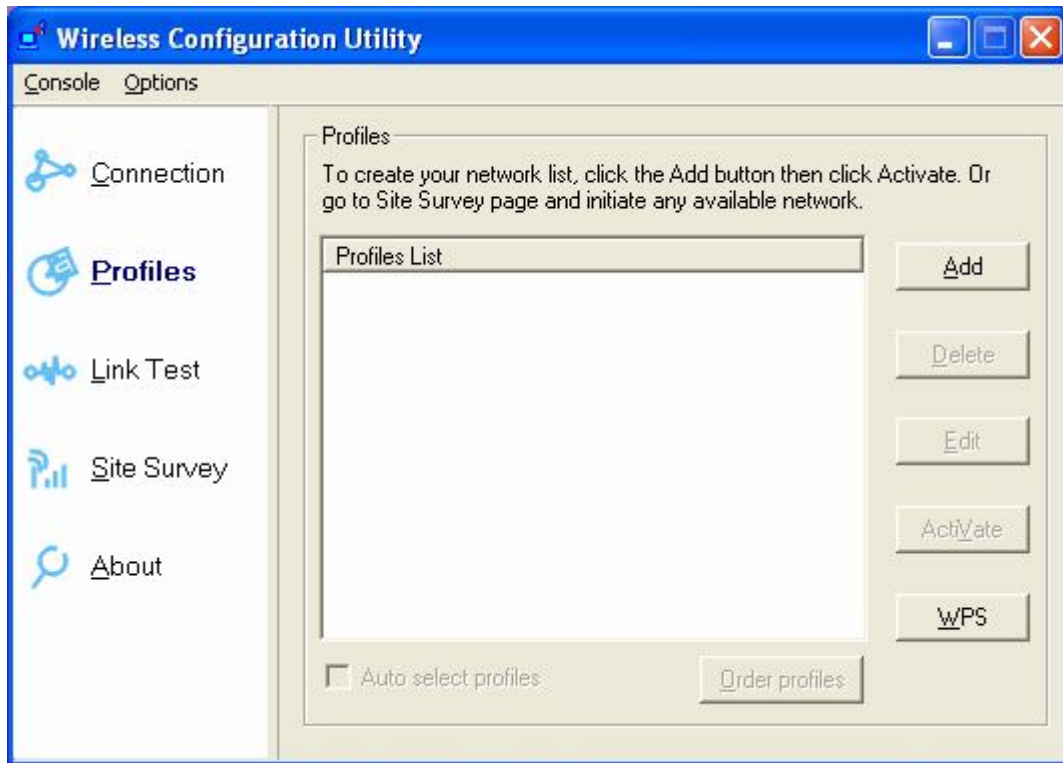**Encryption Mode:** Shows the current wireless network encryption mode.

Signal Strength: Based on the received signal strength measurement of the baseband processor of the Beacon signal. There are 5 states of signal strength:

There is one button to choose from. Clicking on the [More Detail] to let you monitor the more

current status of your connection. To close the menu, click [OK].

| More status information	
Client Name	EMILY-XP
RTS Threshold	2347
Fragment Threshold	2346
Power Save	OFF
TX Rate	54 Mbps
Device Name	802.11b/g/n USB Wireless Network Adapter
IP Address	192.168.1.12
Subnet Mask	255.255.255.0
Gateway Address	N/A
DNS Server	N/A

OK

Profile

The **Profiles** item allows you to add a new profile or to set values for all parameters by editing a previously defined profile. Clicking this tab displays the following screen:

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Press ___Add___ to create a new profile, and configure all the parameters following the steps below.

Step1. Input the **Profile Name**, **Network (SSID)**, and select **Network type (Infrastructure/Adhoc)** when **Add a profile** progress start.
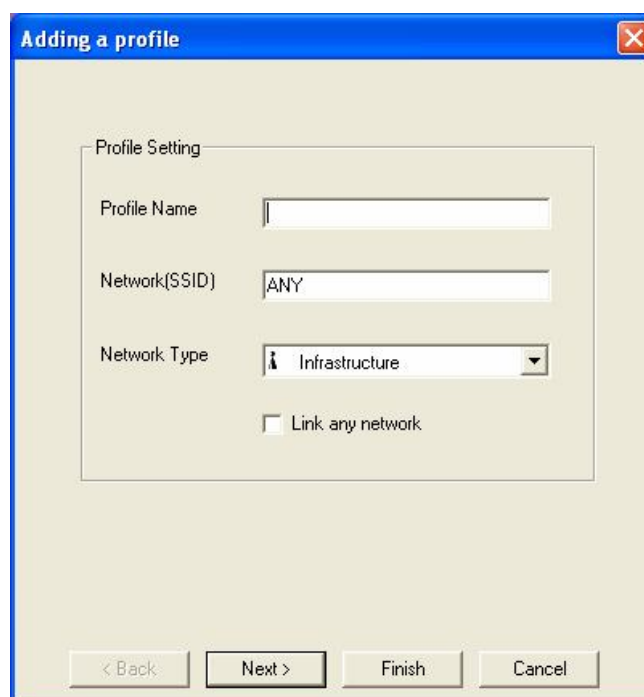
Step2. To protect against hacker entering your system and prevent unauthorized wireless station from accessing data transmitted over the network, the WLAN Utility offers a sophisticated security algorithm. To activate security enable, click the Security check box.　For detailed security configuration please refer to Chapter 3 for how to configure security settings.
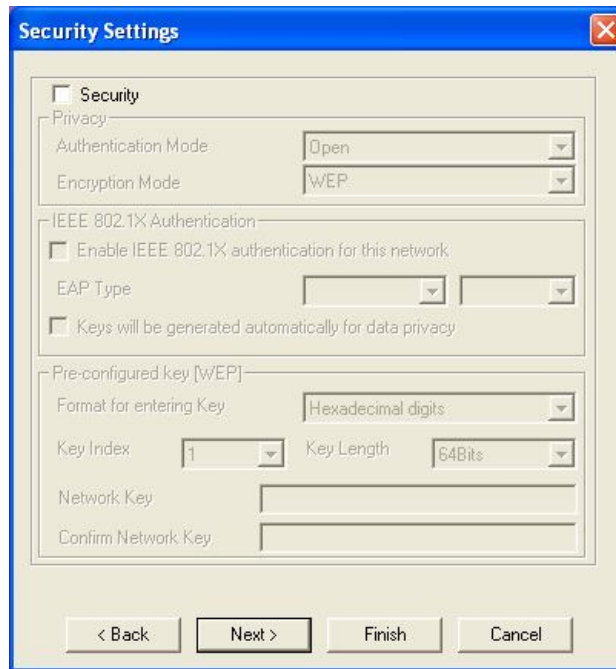
Step3. Setup the TCP/IP settings. When you check the box, you can choose to obtain the IP address from the DHCP server on your network automatically.　Or you can specify IP address manually but it must be an unique IP address to your network.
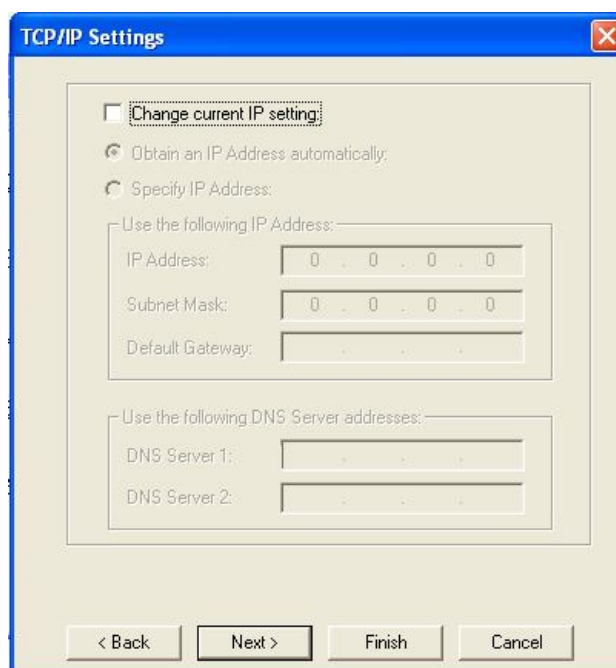
Step4. The WLAN Utility also offers the advanced configuration for user to set the IEEE 802.11n Wireless LAN USB Adapter under certain network environment. These advanced options include Power Save Mode, and Wireless Mode.
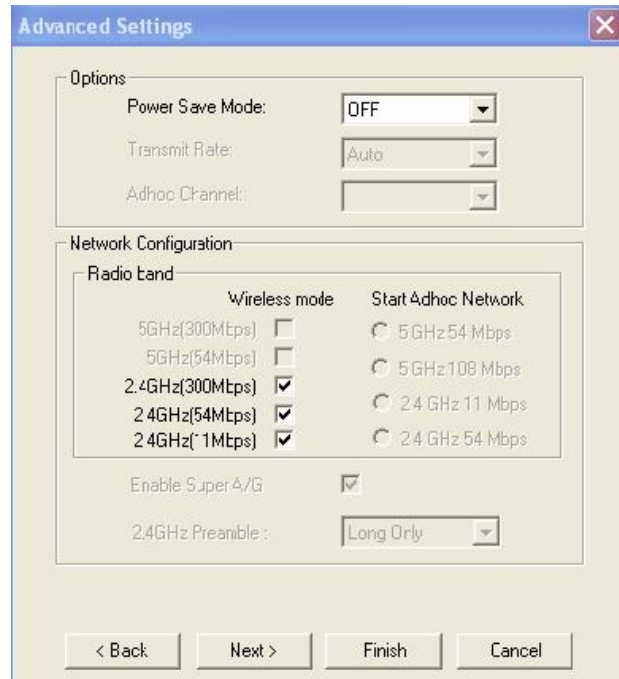
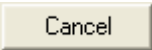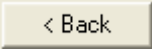**Note:** Under Vista OS, these advanced parameters are not allowed to be configured.

Power Save Mode

The Power Save Mode is designed to conserve battery life of you computer. When Power Save Mode is enabled, your IEEE 802.11n Wireless LAN USB Adapter will go into sleep mode to minimize power consumption.

Note: When power save mode is enabled, the Access Points you use need to support power saving as well so that the communication can be established.

Wireless Mode

The wireless Mode supports three options: 2.4GH 300Mbps (802.11n), 2.4GH 54Mbps (802.11G), and 2.4GHz 1Mbps (802.11B).   These three modes can operate concurrently.

Step5. This **Confirm Information** menu allows you to double-check the changes you make. To apply any changes, click on the Finish button. Otherwise, click on the Cancel button to close this menu. If you want to return to select other security type, click on the < Back button.

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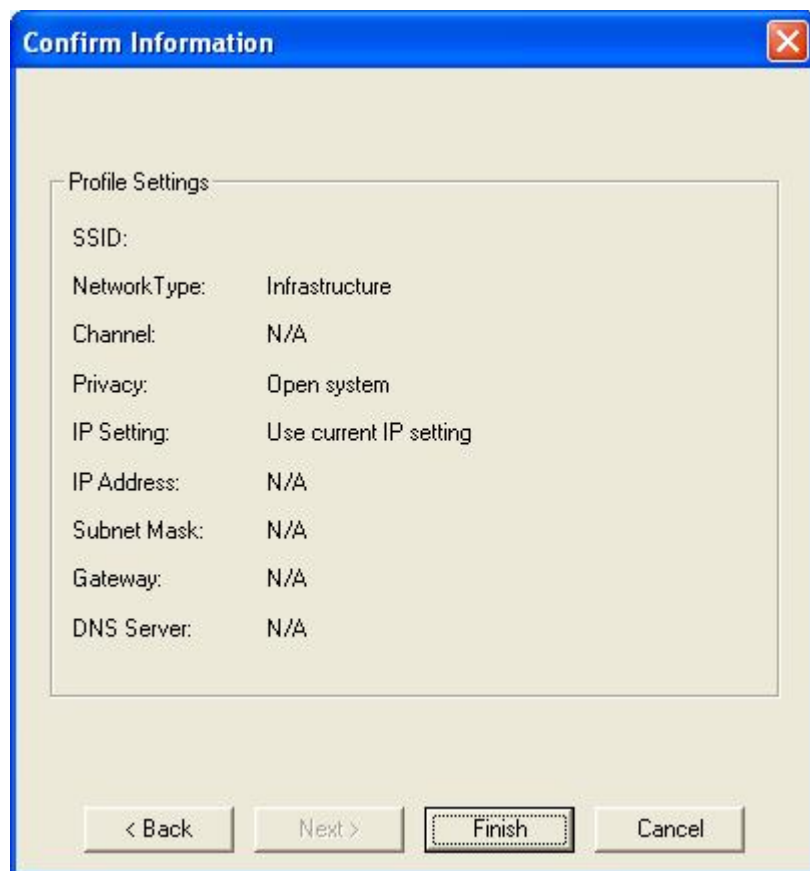
Link Test:

The **Link Test** menu provides a suite of tests which you can run to identify the connection between your computer and the wireless network.
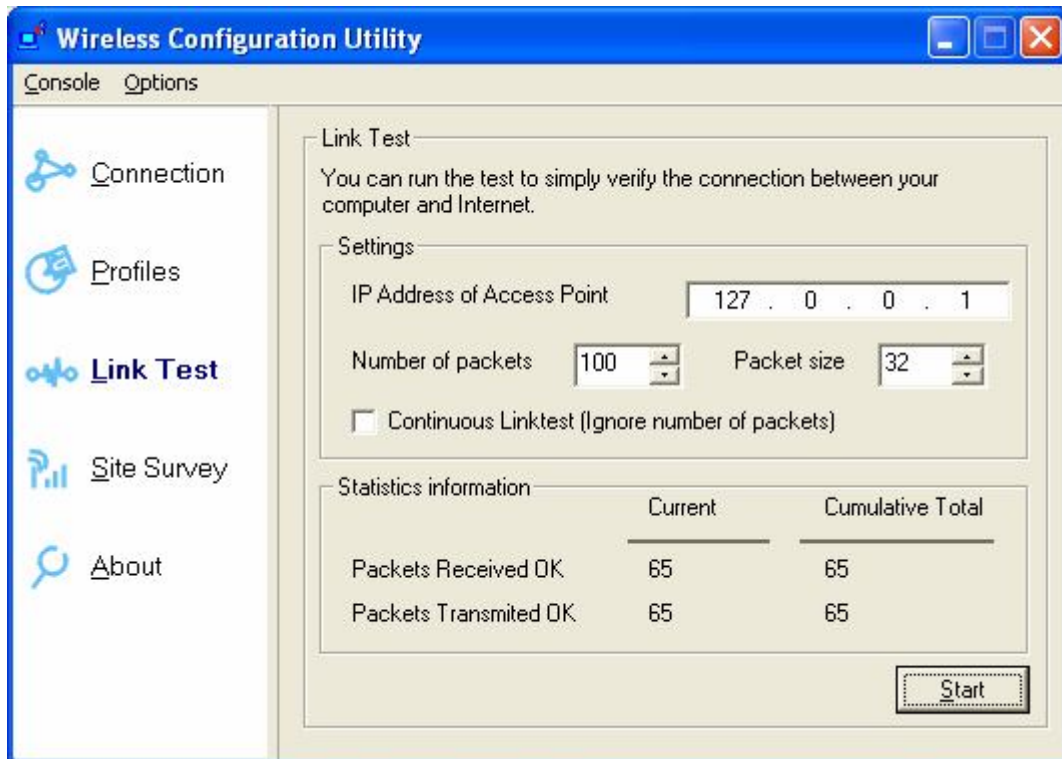

Enter the **IP Address of Access Point** which you desire to connect. The settings following the address allow you to setup the number and size of packets being transmitted between your computer and the wireless network. Furthermore, clicking the check box **Continuous Linktest** ignores number of packets you set. On the bottom of this menu provides current and cumulative counters of the activity on your wireless network. The counters of packets turn to 0 once you click on the **Start** button.

Site Survey:

Use the Site Survey function to scan available wireless Access Points on your network. You may click on the **Rescan** button to enforce the utility to scan Access Points around the environment. Besides showing the ESSID of each Access Point, it also displays wireless network mode and signal strength. To join any of the displayed Access Points, highlight the Access Point you desire to connect and then click **Join**.

By pressing the [Advanced scan] icon you may see more information of Access Points such as ESSID, Channel, Network Type, BSSID, Security, Signal, and Supported Rates. Click **OK** to close the menu.

About:

The **About** item displays version number of the Wireless LAN USB Adapter Driver and Utility. Also, the MAC address and frequency domain are displayed.
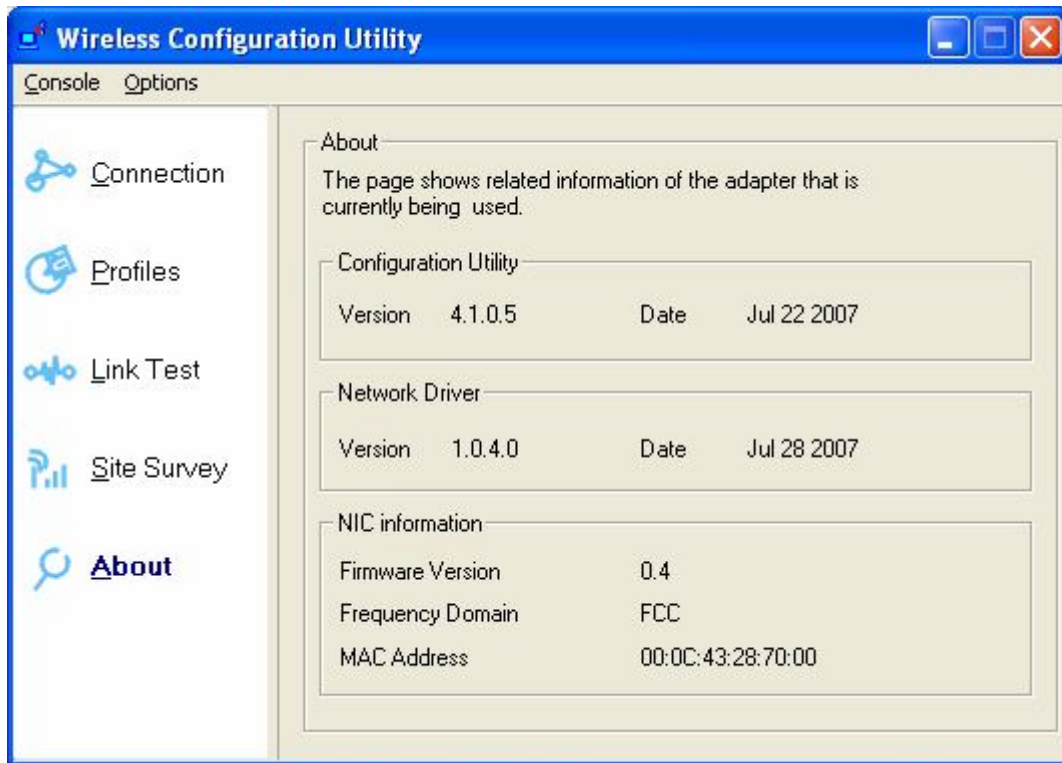

4.2 Establish WPS Connection

The IEEE 802.11n Wireless LAN USB Card supports WPS (Wi-Fi Protected-Setup) feature defined by the Wi-Fi Alliance.   It¡s a new protocol for configuring a wireless network more easily, and secure. The IEEE 802.11n Wireless LAN USB Card supports two modes of WPS protocol, Enrollee mode (Join a WPS WLAN) and Registrar mode (Configure WPS AP).

To setup the WPS, please follow the steps below.

Step1. Go to profile setup page and click the WPS button.
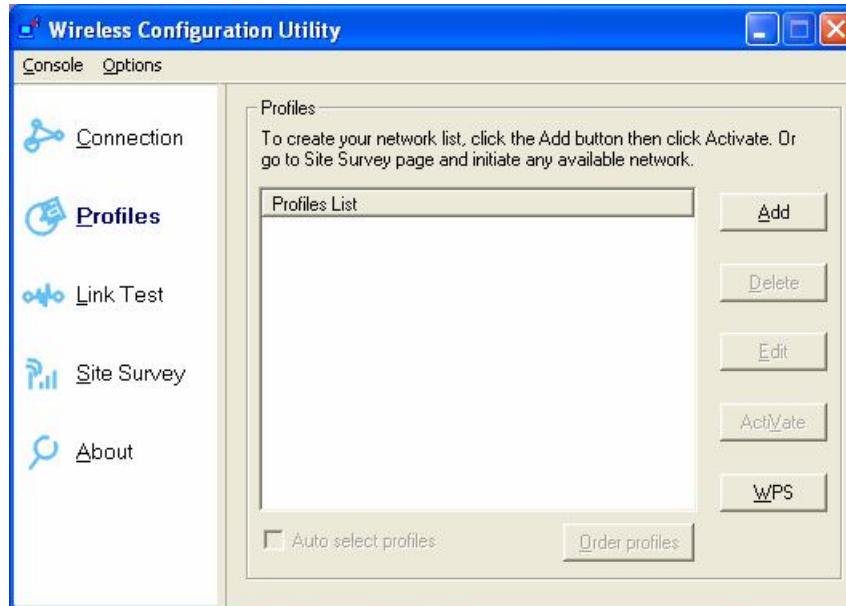
Or, right click on utilty icon in the system tray and select ¡WPS¡ (Wi-Fi Protected Setup).

Step2. Select the WPS mode to link or manage the WPS-enabled AP you want to connect.

If your 802.11n Wireless LAN USB Card performs as enrollee, choose ¡**Join a WLAN (Enrollee)**¡ and click on **Next**.   You will have two methods to join a WPS-enabled AP.

Push Button on AP: Push the button on the Access Point and then click [Next >] on the client utility to start WPS link within 2 minutes.   If WPS link is established successful, it will display the success message.
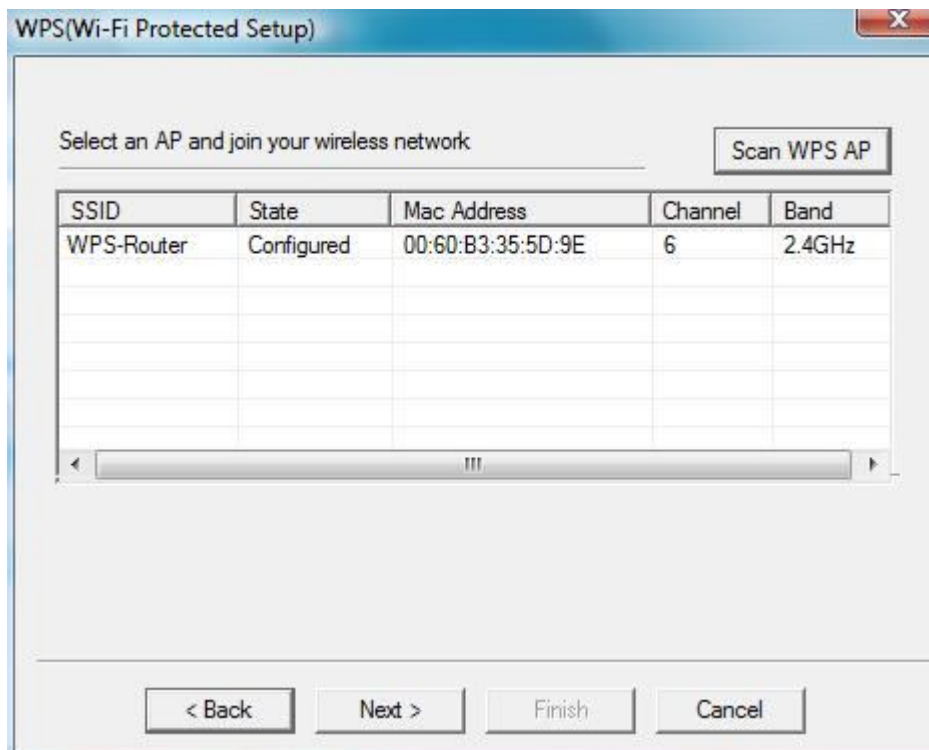
Instead of Push Button on AP, you may use XN-721¡s hardware push button to establish WPS link as well.   Push the button on the Access Point and press PBC button on the client to start WPS link within 2 minutes.   If WPS link is established successful, it will display the success message figured below.

Furthermore, there are two options for connecting to the WPS-enabled AP, one is that the Utility will find any available WPS-AP on the network by checking the **Automatically select the network** checkbox.

If you want to manually connect to a specified AP, uncheck the **Automatically select the network** checkbox and click on **Next**, a WPS AP scan list will appear and scan WPS APs on the network within coverage, select the desired AP and click on **Next** to start WPS authentication process.

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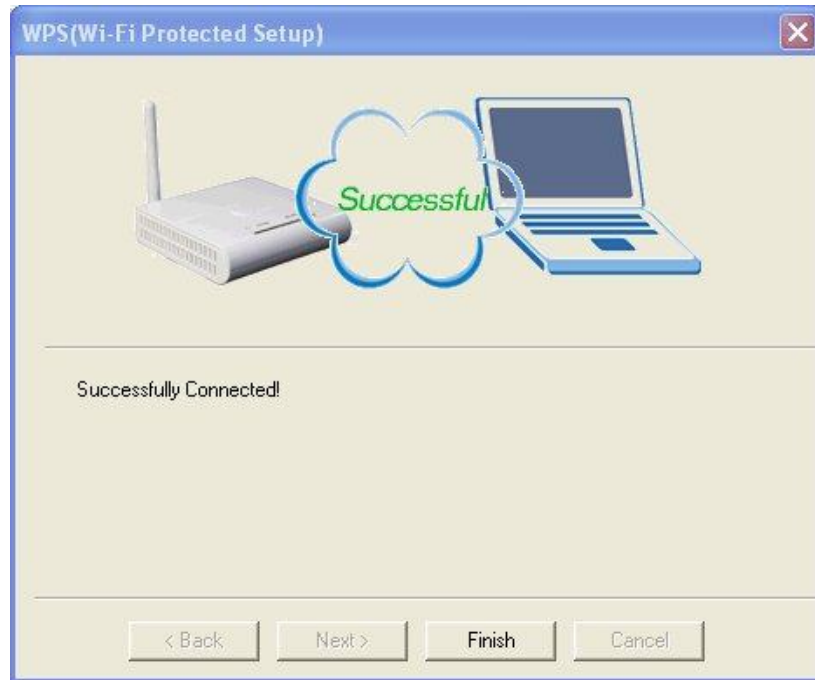SBIP Hsinchu,300 Taiwan

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Client¡s PIN Mode: Select PIN and then the PIN key field will generate a dynamic PIN code automatically. Input the PIN key into the Access Point PIN key field, and apply change. Click `Next >` to start WPS link progress.
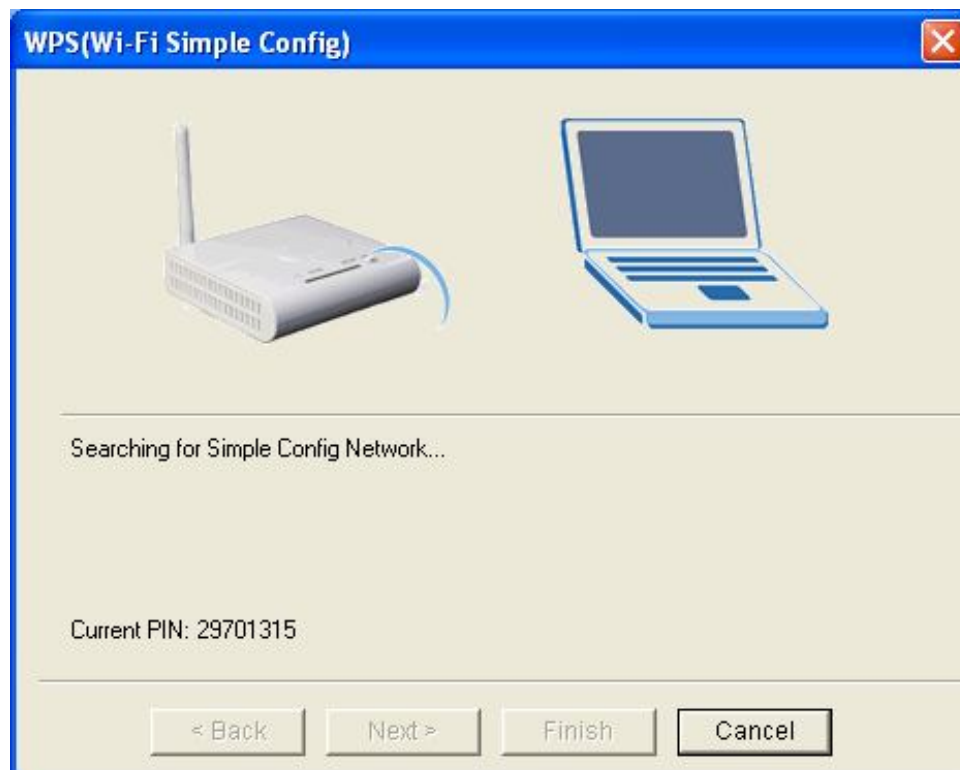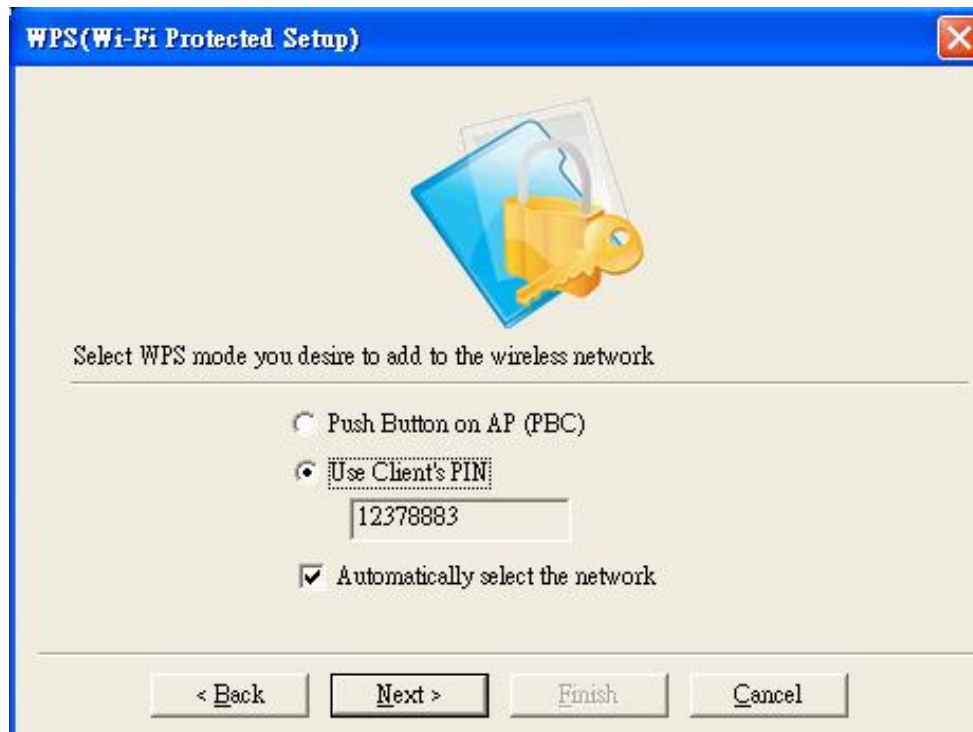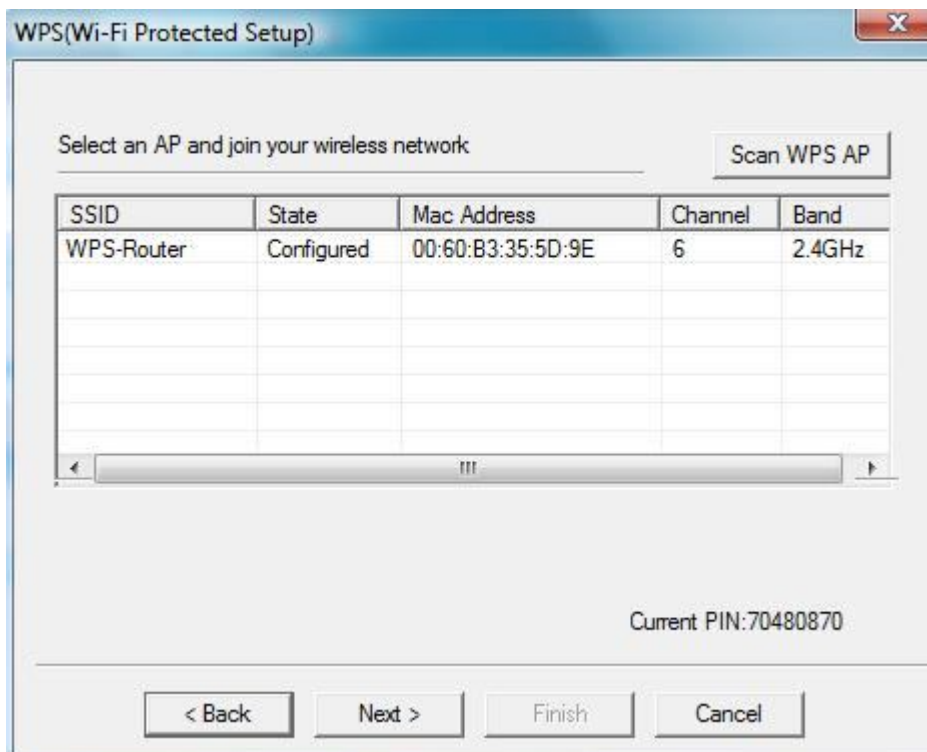
Same as PBC mode, the Client PIN mode also allows you to connect to any WPS-enabled AP within coverage by checking **Automatically select the network** checkbox, or select one that you want to connect.

If it is necessary to have your 802.11n Wireless LAN USB Card perform as Registrar on your network, select ¡**Configure a WLAN (Registrar)**¡ and click on **Next**. The following window will show up.
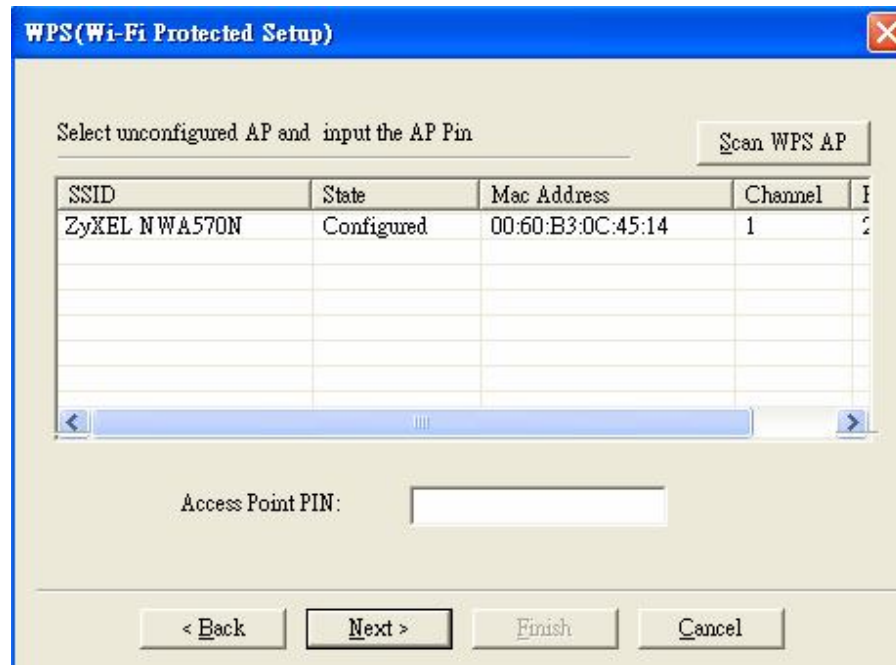
The scan list will scan the WPS-enabled AP on your network within its coverage. Select the one that you want to configure and input the AP pin generated by the AP in the Access Point PIN field. Click **Next** to proceed to the next step.
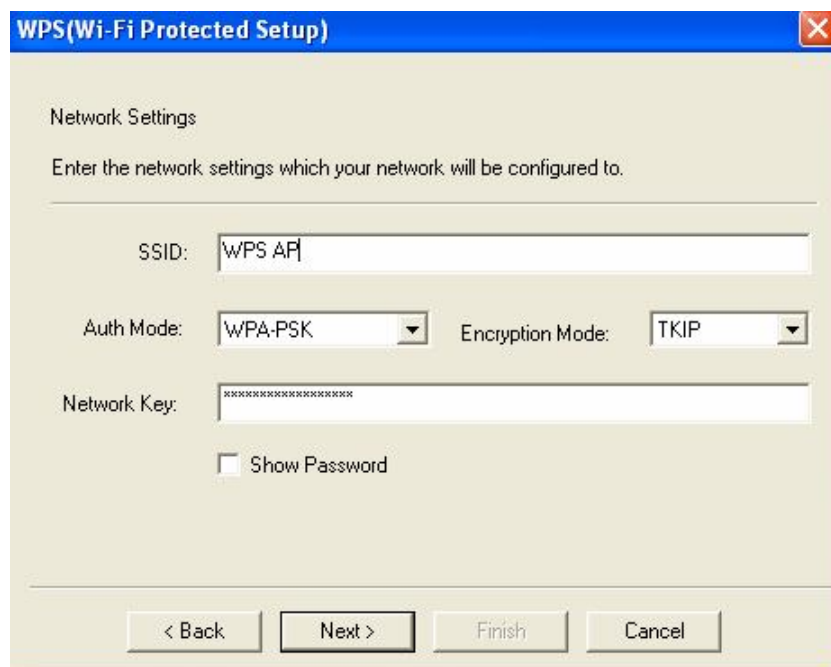
Manage the network profile in order to configure the AP.　Settings that can be managed include SSID, Auth Mode, Encryption Mode and Network Key.

Click [Next >] to start WPS link progress.

To check whether the setting of AP is modified corresponding with the profile, you may use scan function to display AP information.

Chapter 5   Management with Wireless Zero Configuration

This chapter instructs you how to manager your IEEE 802.11n Wireless LAN USB Adapter using the Windows Vista and Windows XP wireless zero configuration tool.

5.1 Windows XP Wireless Zero Configuration

Step 1: Make sure the *Use Windows to configure my wireless network settings* check box is selected in the *Wireless Network Connection Properties*.

Warning: **You must choose one way to configure Wireless LAN USB Adapter either of using our WLAN Utility by un-checking this check box or using Windows XP** *Automatic Wireless Network Configuration* **first by checking this check box.**
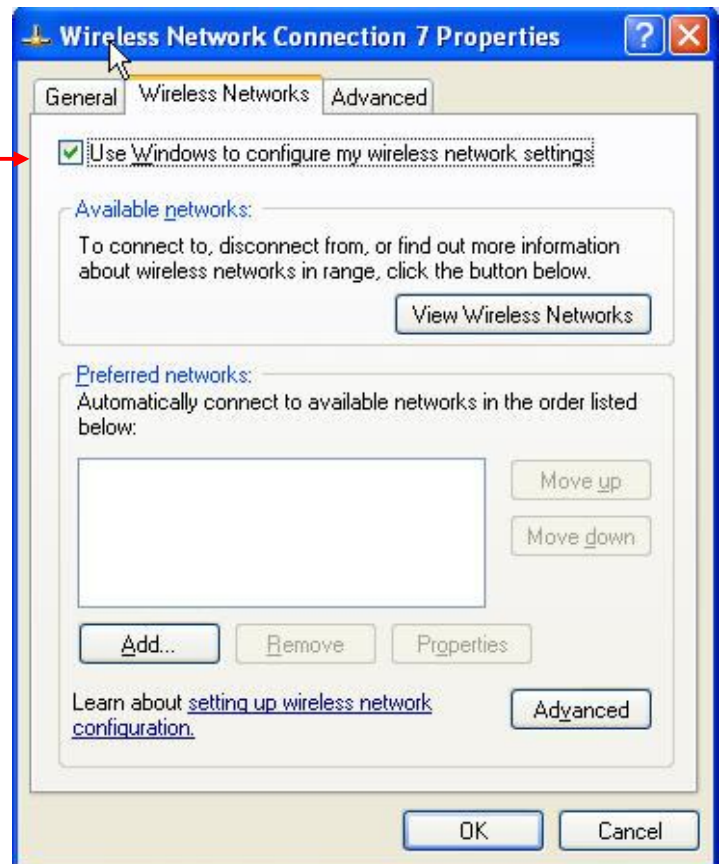
Step 2: Double click the network icon for wireless connections in the system tray to open the Wireless Network Connection Status screen.

Step 3: In the *Wireless Network Connection Status* screen, click *View Wireless Networks* to open the *Wireless Network Connection* screen.

Step 4: Click *Refresh network list* to reload and search for available wireless devices within transmission range. Select a wireless network in the list and click *Connect* to join the selected wireless network.
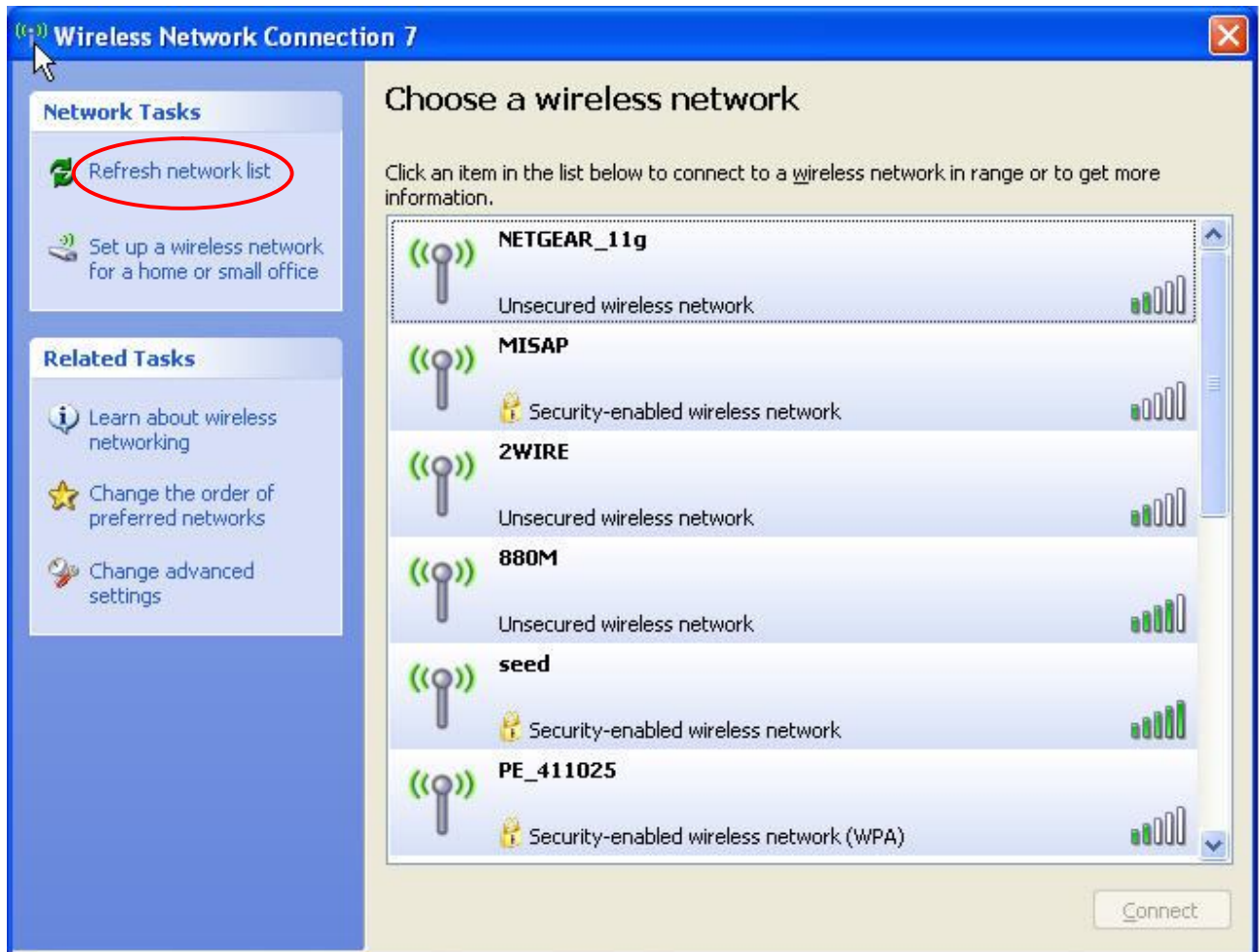
5.2 Windows Vista WLAN AutoConfig

Step 1: Click the network icon for wireless connections in the system tray to open the Wireless Network Connection Status screen.

Step 2: Select the *Connect to a network* to open the *Connect to the network* screen.
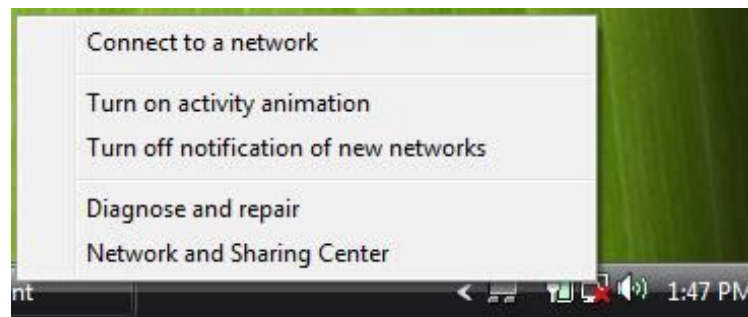
Step 3: Select a wireless network in the list and click *Connect* to join the selected wireless network.

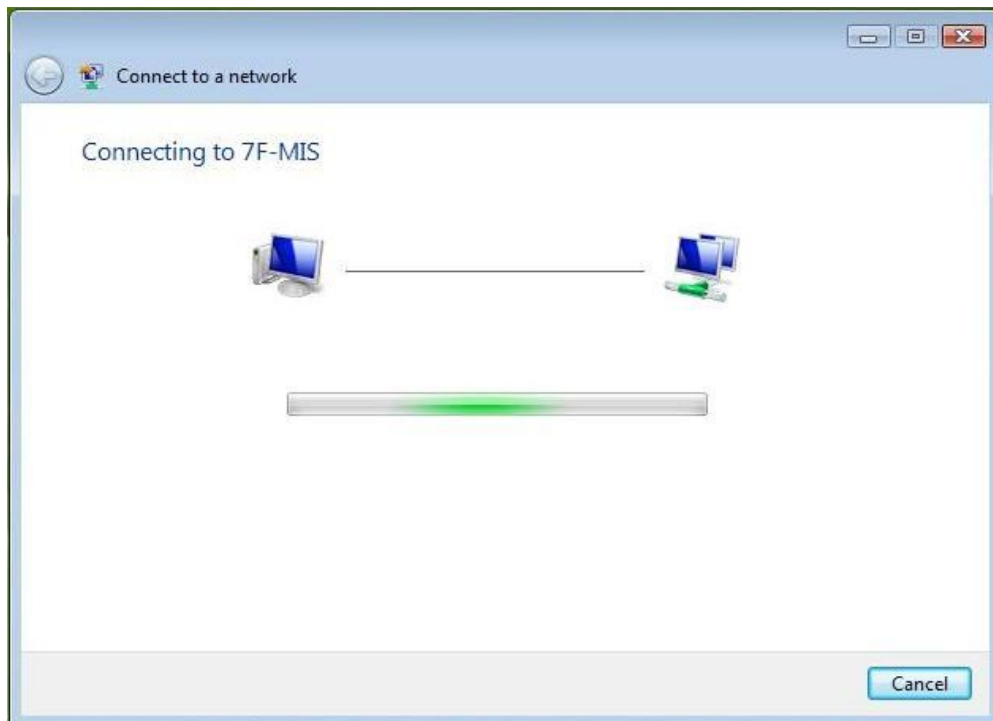If the wireless security is activated for the selected wireless network, the related fields must be set to the same security setting as the associated AP.

Step 4: Click *Connect* to connect the wireless network.

Limited 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 materals, 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 demage.

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:

- The Warranty Repair Card
- A copy of the invoice/proof of purchase, and
- 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.

Please complete the information below and include it along with your products.

Name:	
Title:	
Company:	
Telephone:	
Fax:	
Email:	
City/State/Zip code:	
Country:	
Product Name:	
Serial Number:	
MAC Address:	
Invoice Date:	
Product Description:	

If you have any further questions, please contact your local authorized reseller for support.

Distributor Information

Zcomax Technologies, Inc.			
California Business Center	14545 VALLEY VIEW AVE., SUITE "S" SANTA FE SPRINGS, CA 90670	Tel: +1-562-926-4588 Fax:+1-562-926-7885	Sales/Product Inquiries: sales@zcomax.com Tech Support/Questions: support@zcomax.com
New Jersey Business Center	98 Ford Road, Suite 3-F, Denville, NJ 07834, USA	Tel: +1-973-664-0310 Fax:+1-973-664-0313	
ZCOMAX - United Kingdom Limited			
European Business Centre	19 Colindale Avenue London NW9 5DS UK	Tel: +44-(0)-20-8982-8200 Fax:+44-(0)-20-8201-3232	Sales Contact sales@zcomax.co.uk FAE Support support@zcomax.co.uk

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