IEEE 802.11n Wireless LAN USB Adapter

Model: XN-790

User's Manual

Version: 1.0

Date of issue: June 6, 2007

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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.

Trade Name	Model Number
FC Tested To Comply With FCC Standards	
FOR HOME OR OFFICE USE	
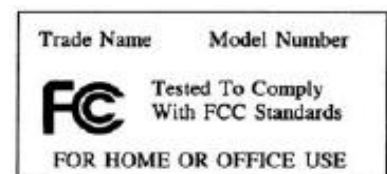
1.The equipment complies with FCC RF radiation exposure limits set forth for
an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

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

The 802.11b/g/n Wireless USB Card has been tested to the FCC exposure requirements (Specific Absorbtion Rate).

CE Statement:

Hereby, <u>Company Name (申請或販售公司)</u>, 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 June 2007. 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.

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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. Its IEEE 802.11n draft 2.0 compliant device that support 300Mbps rate gives 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 and 802.11g compliant products.

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.
- ✓ Low power consumption.
- ✓ A build-in antenna.
- ✓ Security Capable: WEP, WPA, WPA2 supported.
- ✓ Driver supports for Windows 2000, Windows XP and Windows Vista.
- ✓ Utility supports for Windows 2000, and Windows XP.

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

- USB Cable …………………………………………………….. 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:

Power LED

- ■ OFF – No light
- ■ ON – Solid Blue

Link LED

- ■ Solid Blue – Connect with the Access Point or Ad-Hoc wireless workstation and transmitting data.
- ■ Blinking Blue – Indicate the device is active data through the Access Point or Ad-Hoc wireless workstation.

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**.
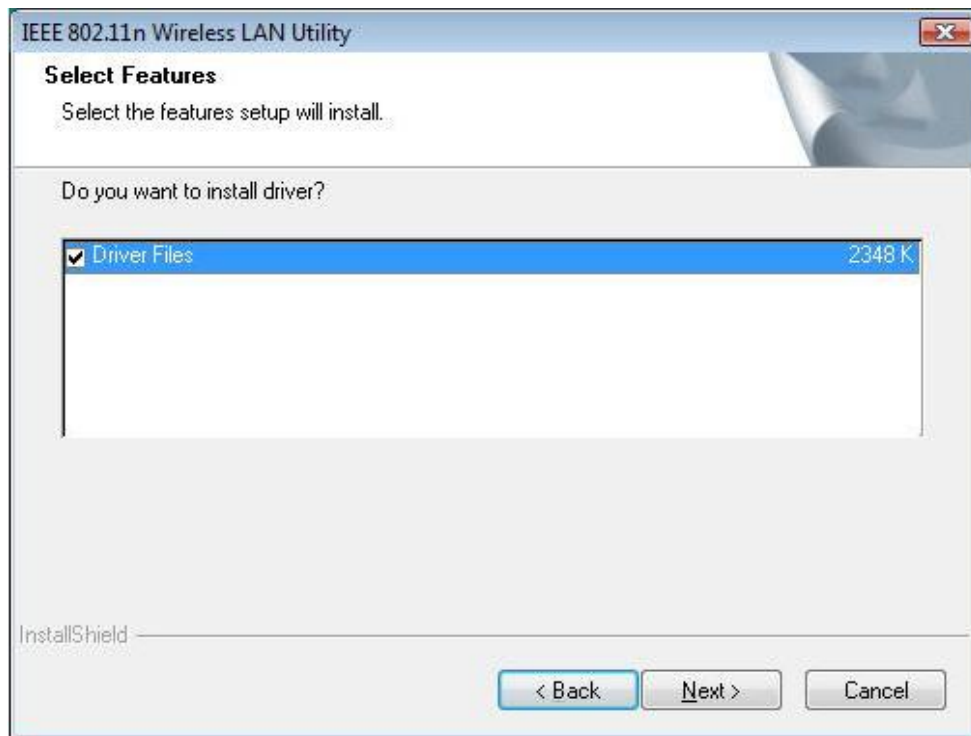
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2.2.1 Install IEEE 802.11n Wireless LAN USB Adapter for Windows Vista

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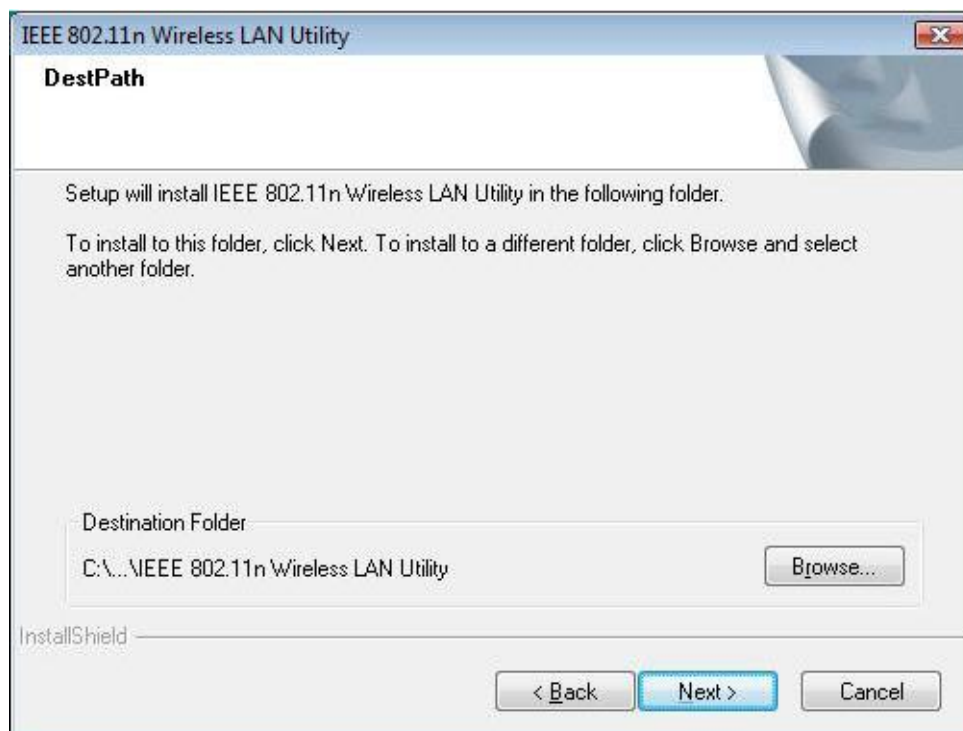
**Step 2:** The following screen displays. Click **Next**.

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

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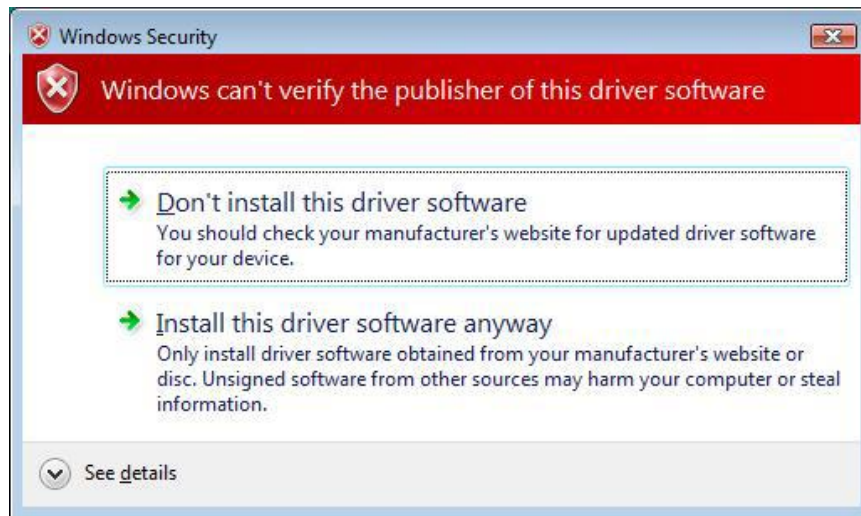

**Step 5:** Select a program folder or type a new folder name and click **Next**.
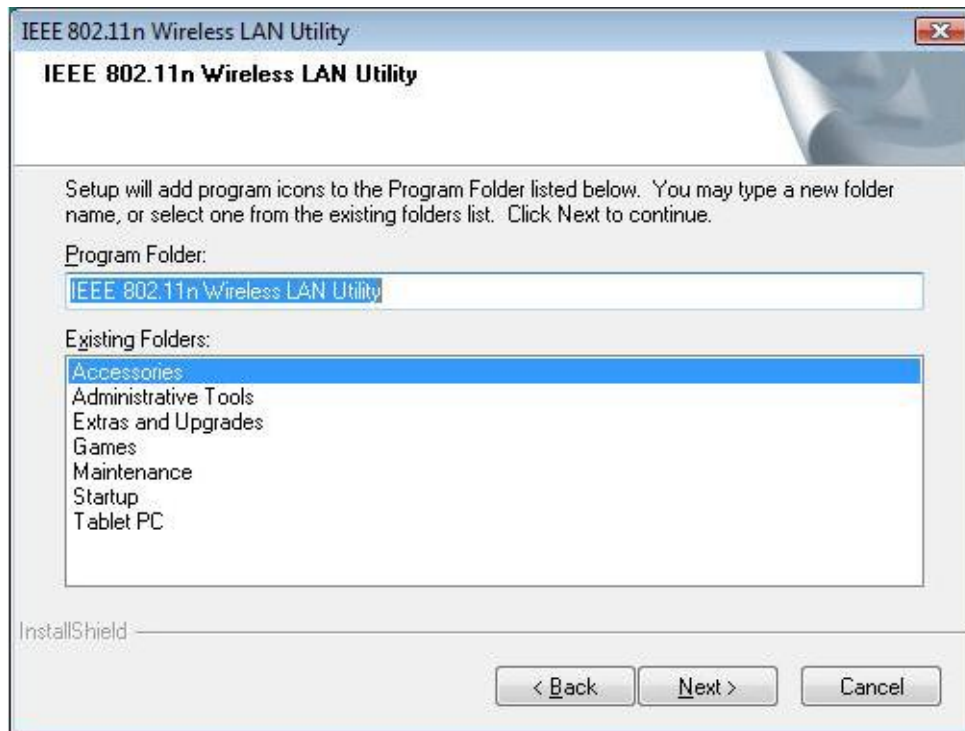
Step 6: You may add a shortcut in the startup folder as desired and click **Next**.
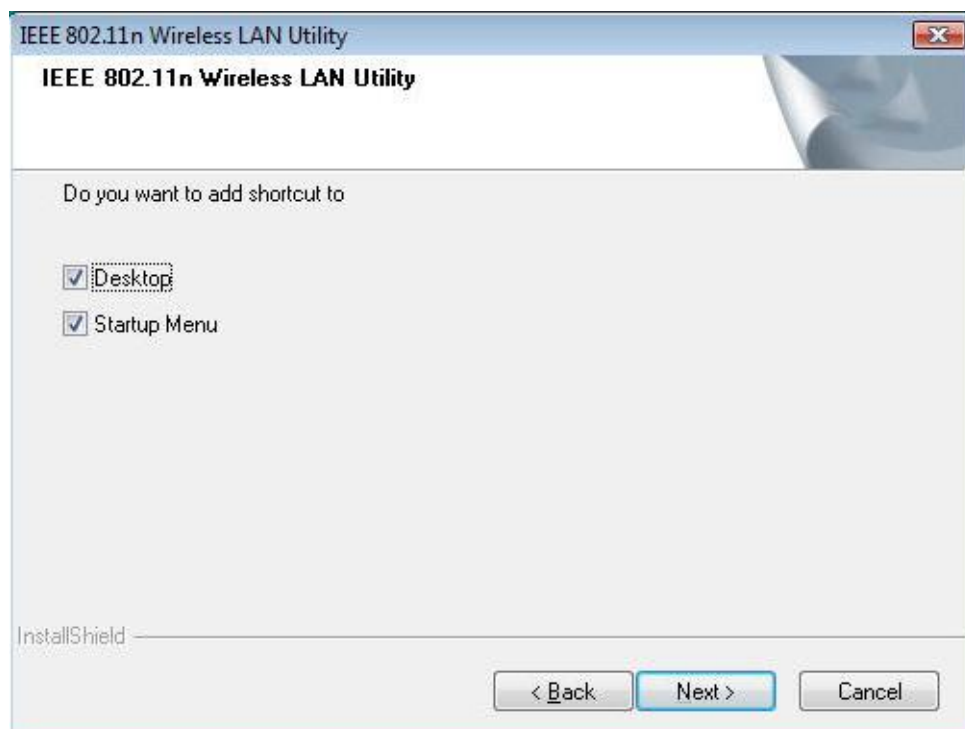
Step 7: The windows will appear the message about the windows can't verify the publisher of this driver software compatibility with Windows Vista. Select **Install this driver software anyway** to continue installing

Step 8: Click on **Finish** to complete the installation.
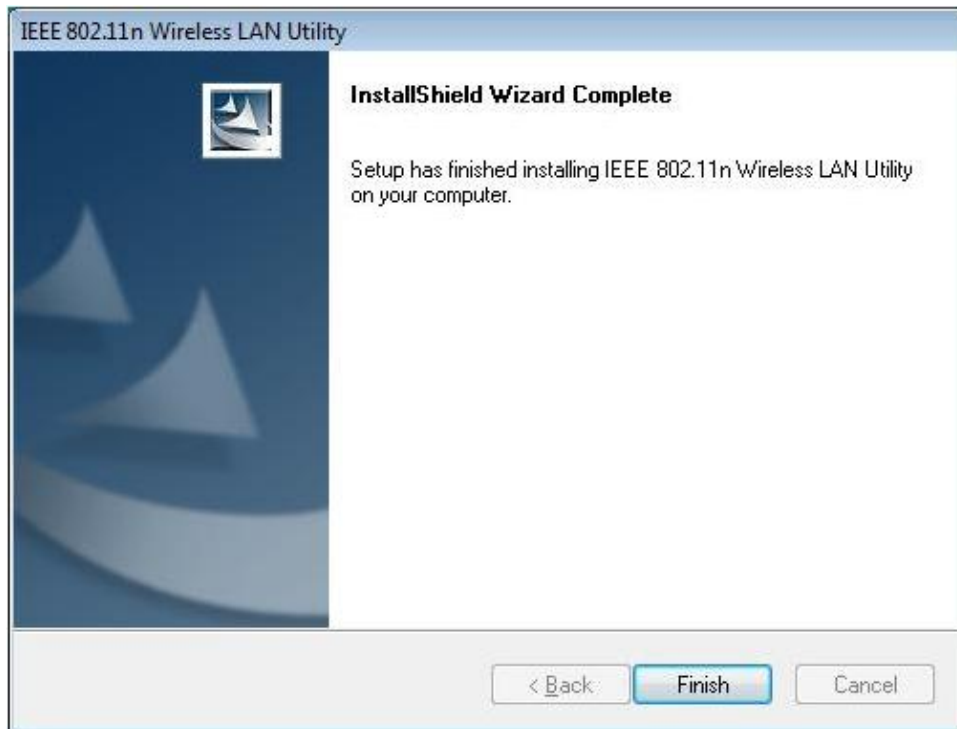
Step 9: Insert the IEEE802.11n Wireless LAN USB Adapter into the USB port on your notebook, and the Windows will auto-install the IEEE802.11n Wireless LAN USB Adapter driver and utility.

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


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

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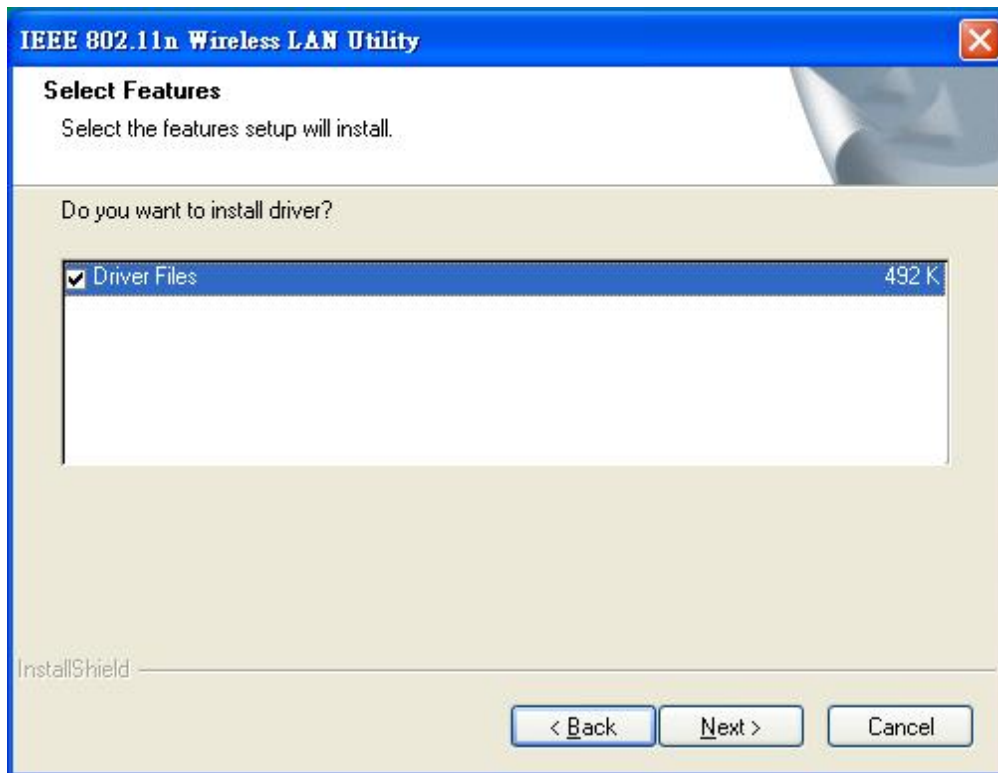## 2.2.2 Install IEEE 802.11n Wireless LAN USB Adapter for Windows XP/2000

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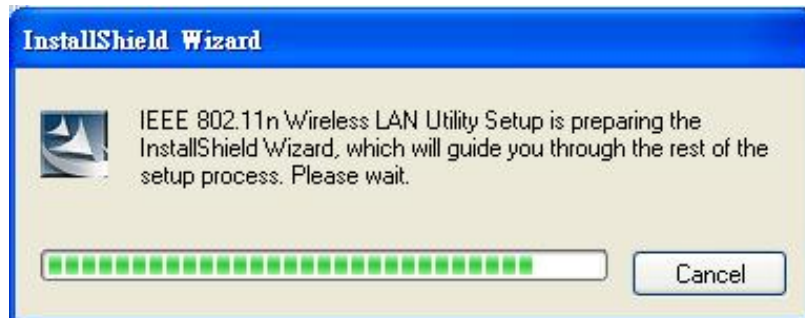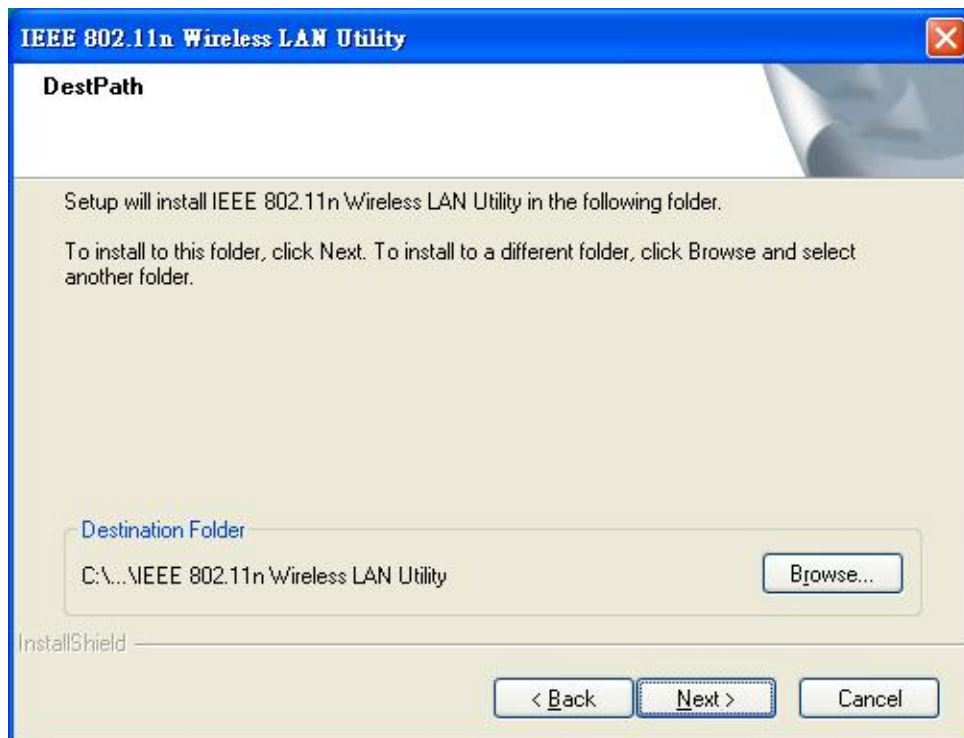

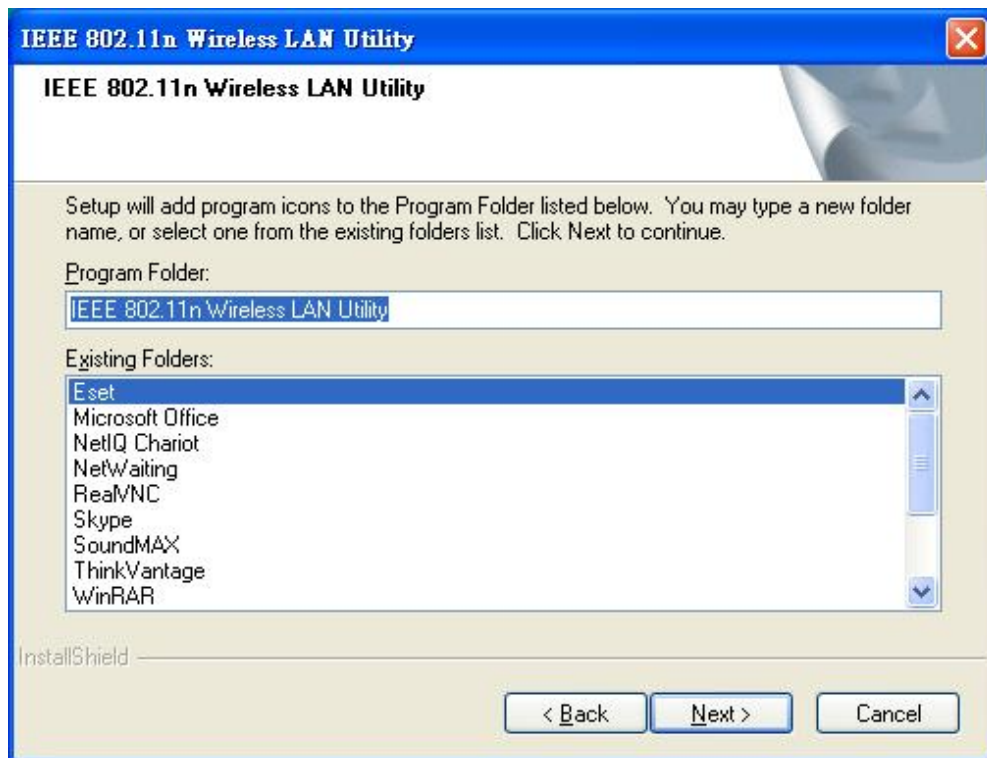**Step 2:** The following screen displays. Click **Next**.
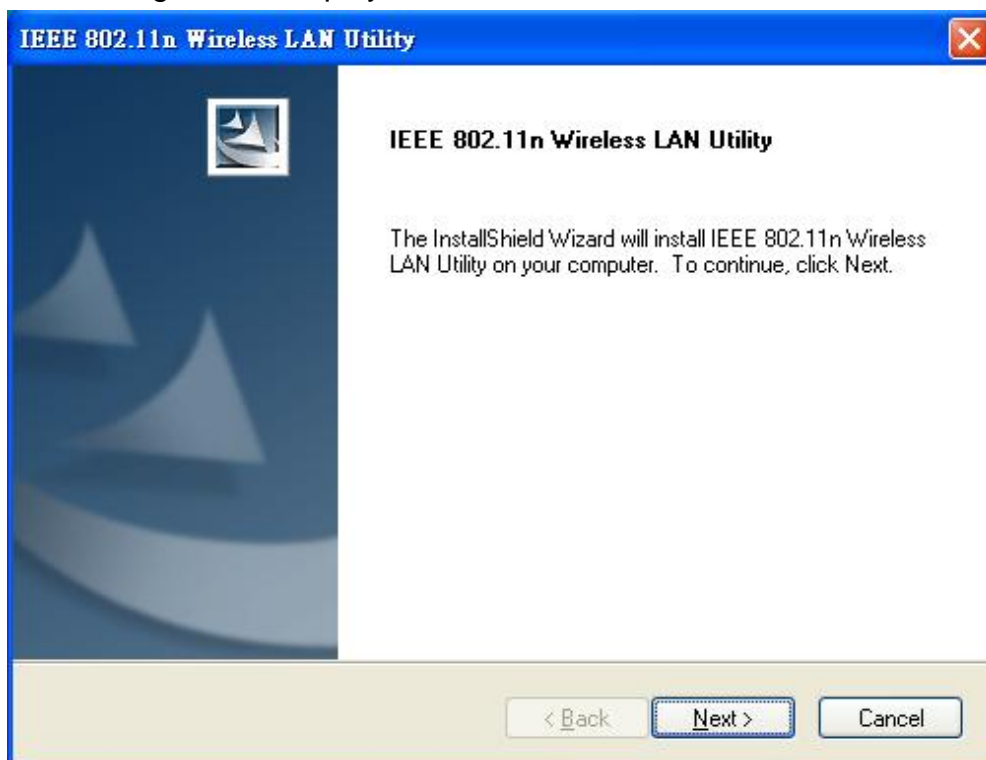
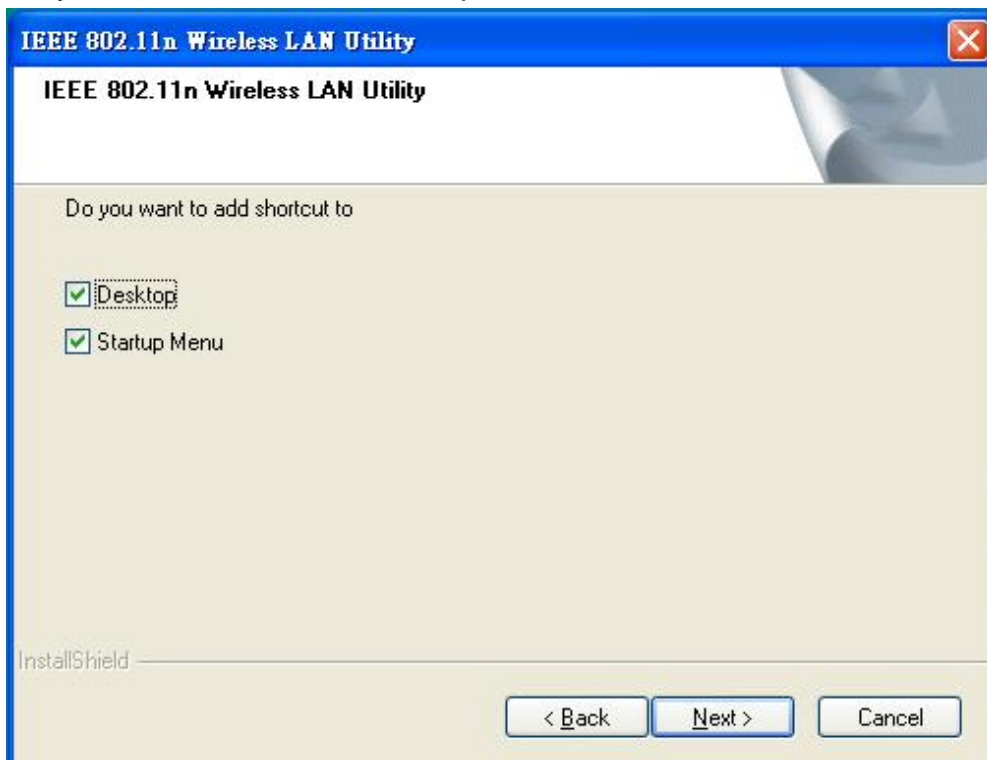**Step 3:** Click **Next** to accept installing IEEE 802.11n Wireless LAN USB Adapter driver files.

Step 4: Click **Next** to accept the default file location or click **Browse** to select an alternate folder.
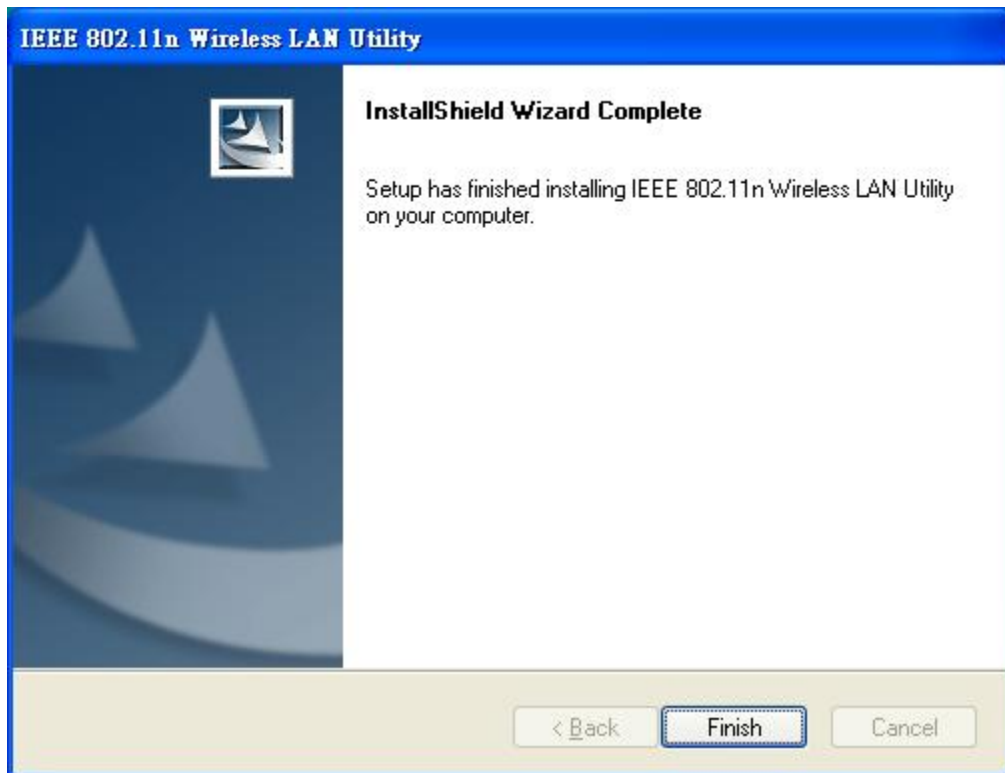
智捷科技股份有限公司 Z-COM,Inc.

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.

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Step 8: Locate 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 Control 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.

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

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

If the [icon] 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.
	A usable but weak 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 background information on wireless LAN network.

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 support various transmit (data) rate. It include **Auto**, **1 or 2 Mbps**, **5.5 Mbps**, **11 Mbps and up to 300Mbps.** In most networking scenarios, the factory default "**Auto**" setting proves the most efficient. This setting 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 speeds attained also depend 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 Enable**. A privacy Configuration window will appear.
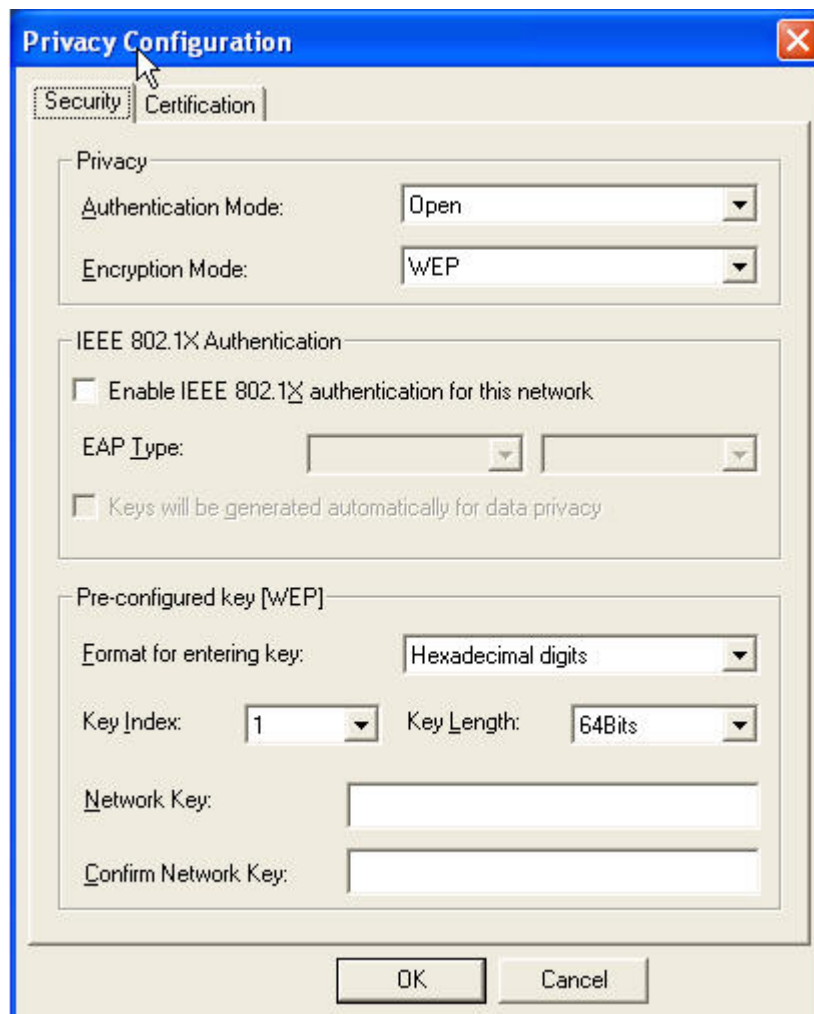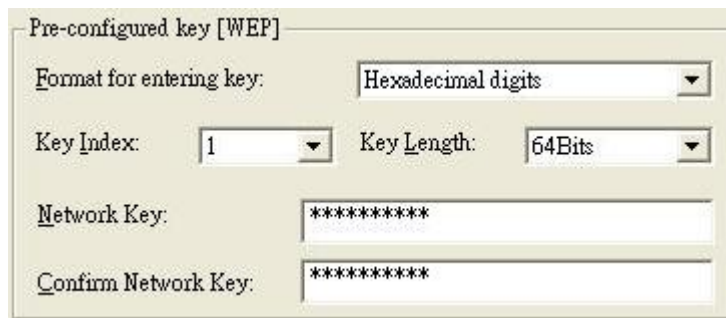

If you do not enable any wireless security on your IEEE 802.11n Wireless LAN USB Adapter, the wireless communications are accessible to any wireless networking device that is in the coverage area.

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 communications 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, or 128-bit WEP keys and only one key is used as the default key at any one time. The **Key index** field allows you specify which of the four keys you use to transmit 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 Points.

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.

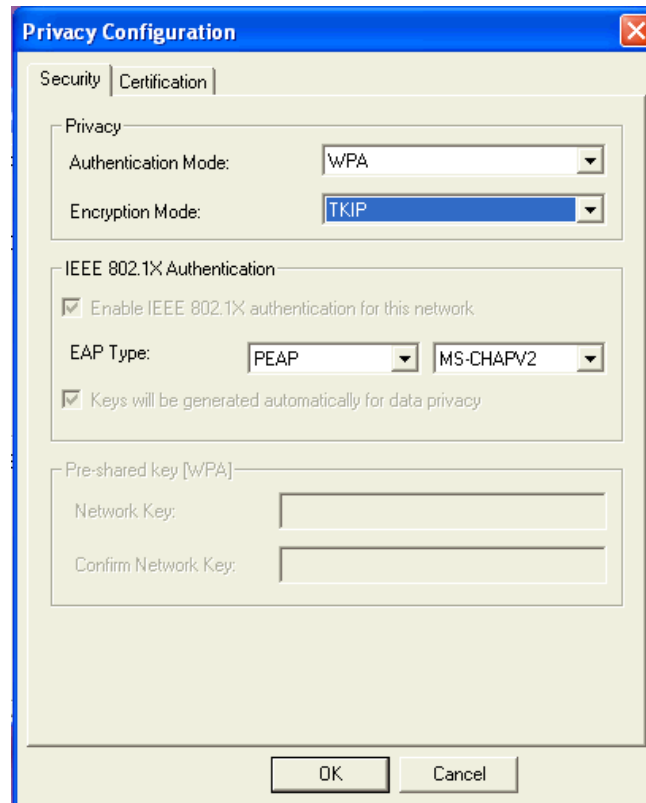### 3.2.2.1 EAP Authentication

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.
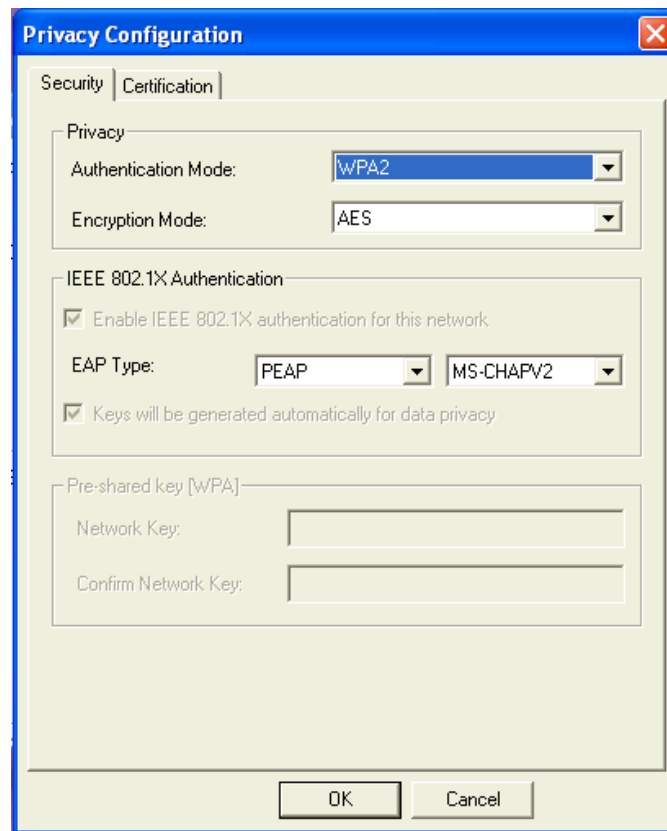
WPA: Allows you to gain access to a more secured wireless network that requires mutual authentication between client and access point with a Radius authentication server or other authentication server on the network. WPA uses 802.1X and Extensible Authentication Protocol (EAP) for authentication. WPA offers Enterprise and individual needs to meet the different market segments. This product supports various EAP types (TLS 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 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.
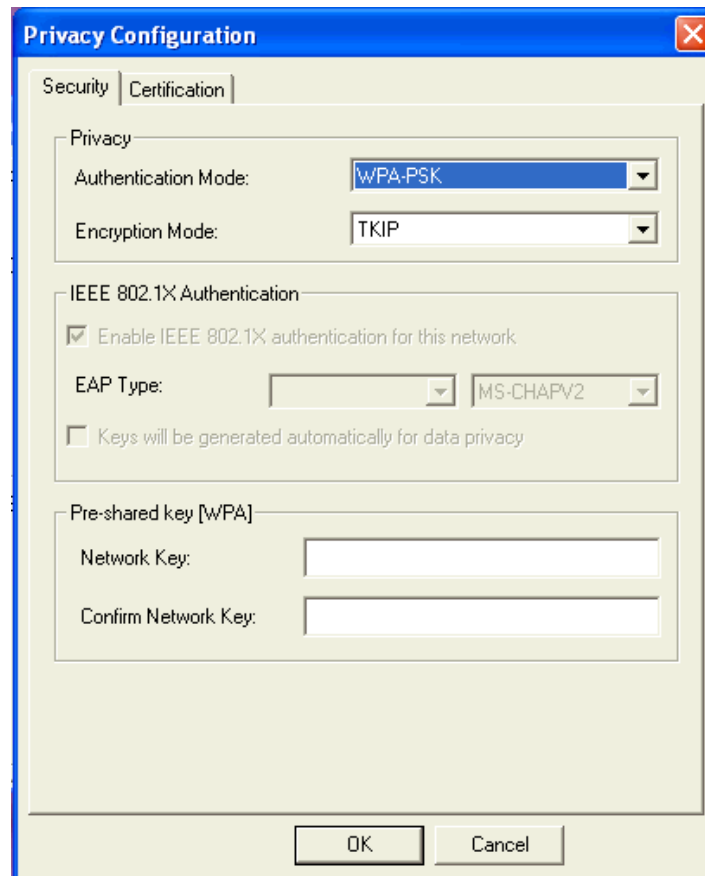
WPA2: WPA2 provides a stronger encryption mechanism than WPA. WPA2 is the second generation of WPA security, providing personal and enterprise users with a high level of assurance that only authorized users can access to their wireless network. There is no difference between WPA and WPA2. The only difference 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.

Privacy Configuration

Security | Certification

Privacy

Authentication Mode: WPA2

Encryption Mode: AES

IEEE 802.1X Authentication

☑ Enable IEEE 802.1X authentication for this network

EAP Type: PEAP | MS-CHAPV2

☑ Keys will be generated automatically for data privacy

Pre-shared key [WPA]

Network Key:

Confirm Network Key:

OK | Cancel

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.
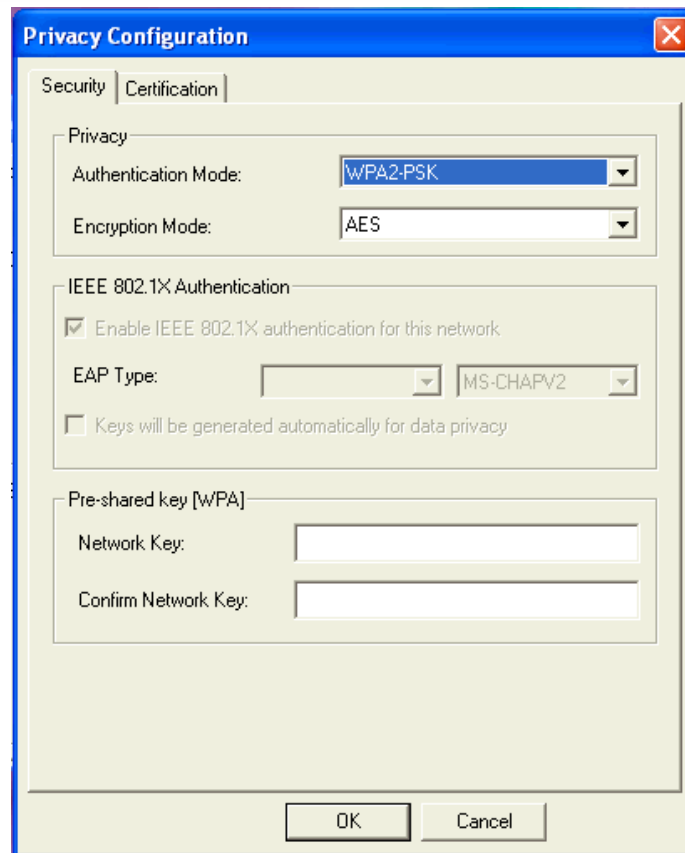
3.2.3.1 Encryption Mode

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.
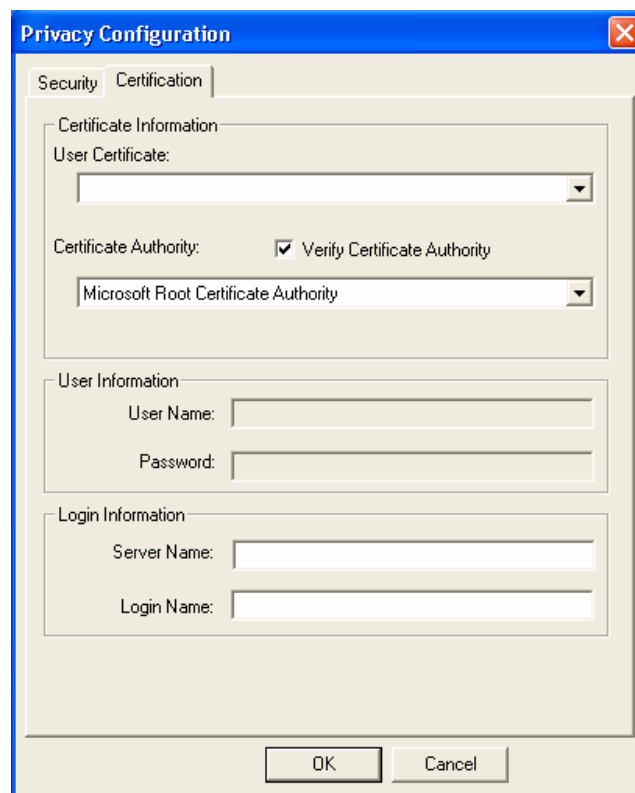
3.2.3.2 IEEE 802.1X Authentication

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 Server Certificate manually, you can click the check box next to **"Verify Server Certificate"** and choose the usable selection in the User Certificate field using drop-down menu.

User Certificated: 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.
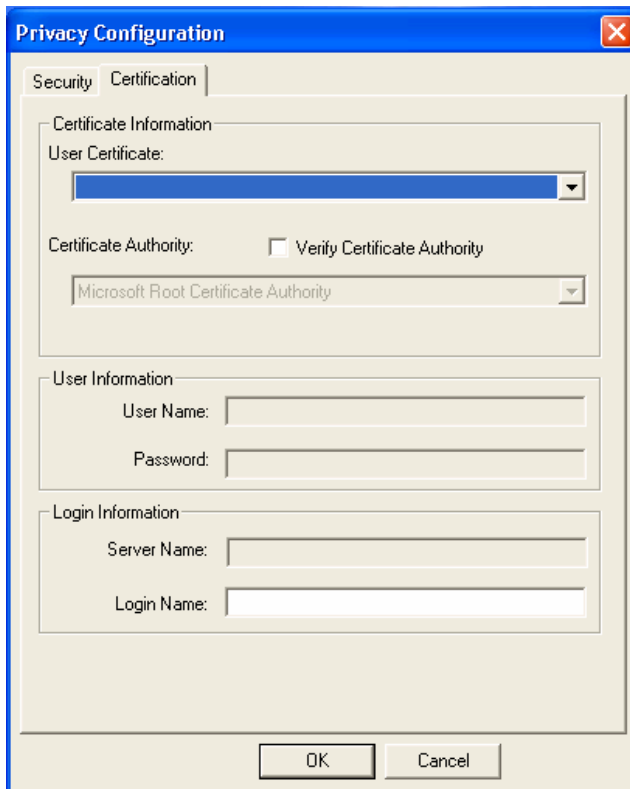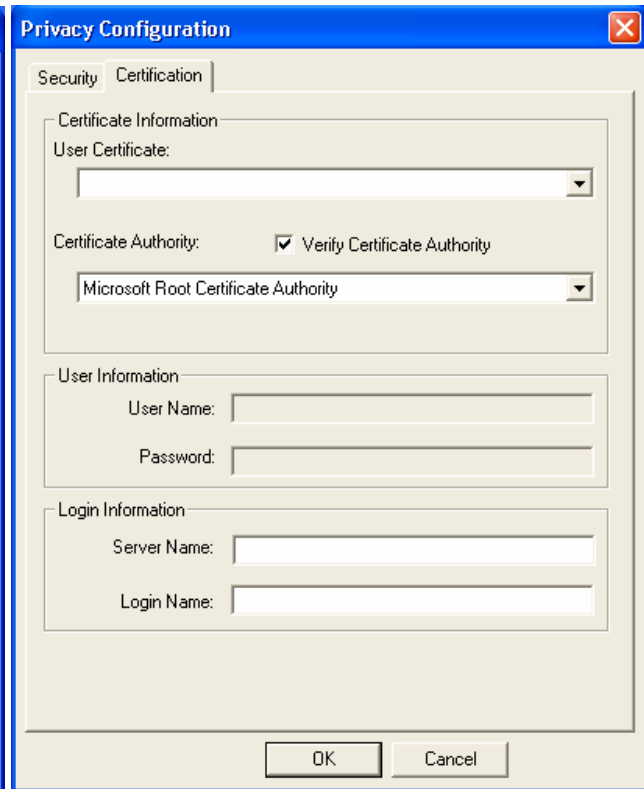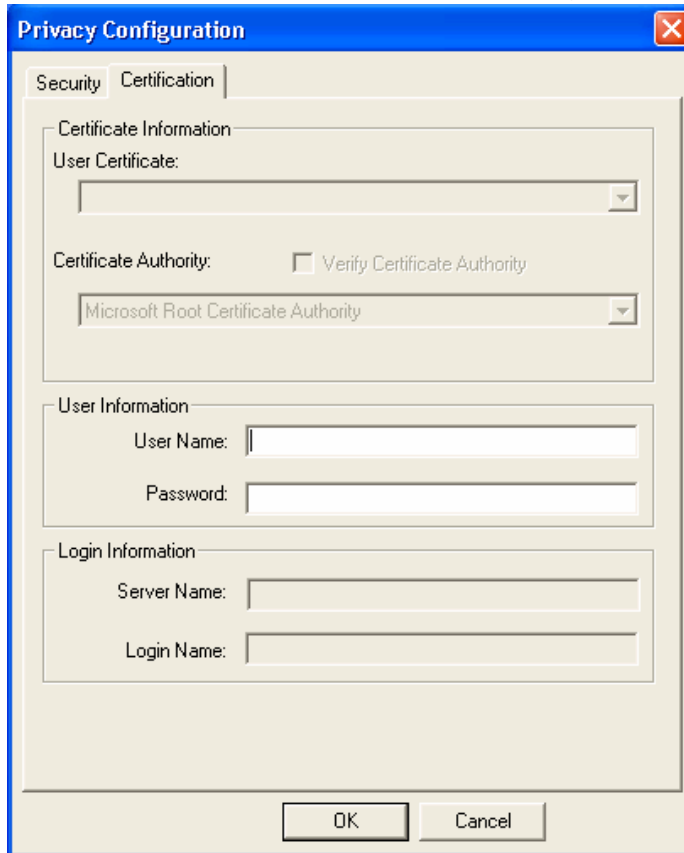
Figure 3.1   Figure 3.2

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 (Figure 3.1). If you click the "Verify Server Certificate" 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 (Figure 3.2).

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.

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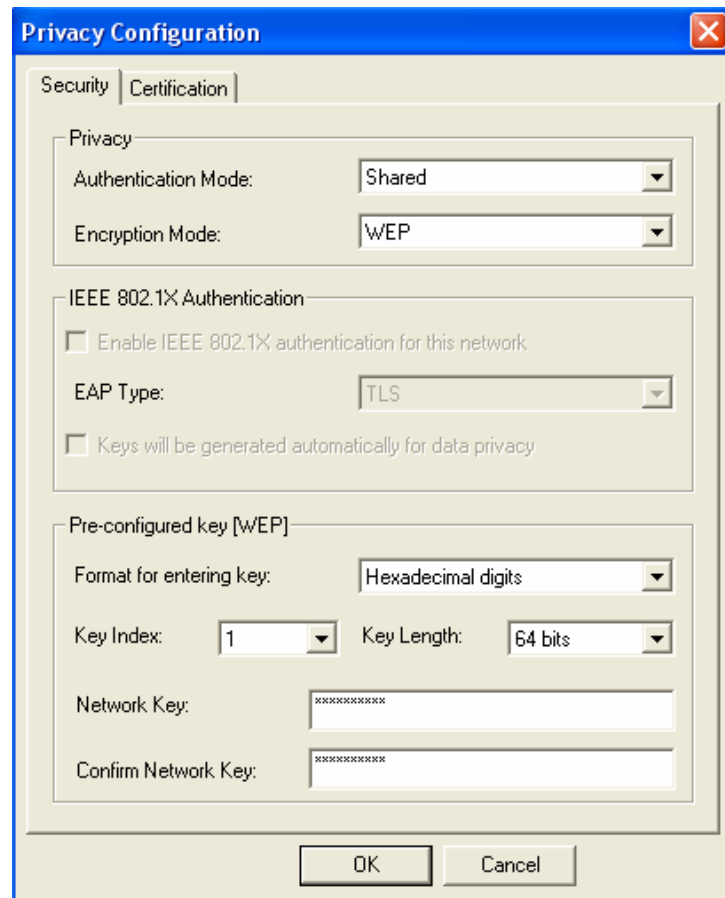

TTLS requires the mutual authentication between station and access points. You must present a **User Name** and **Password** in the User Information field that will be verified by TTLS-capable server. This mutual authentication ensures that only authorized users are allowed access to the network.

3.3 Authentication Type

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:

Chapter 4

4.1 Use the 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 XP/2000 operating system environments. The WLAN Utility consists of window with 3 items for you to monitor and configure the IEEE802.11n Wireless LAN USB Adapter: **Configuration**, **Site Survey** and **About**.

Configuration
The **Configuration** item allows you to modify the configuration parameters for the IEEE802.11n Wireless LAN USB Adapter such as **Profile**, **SSID**, **Network Type**, **Ad-Hoc Channel**, **Transmit Rate**, **Security Enabled**, **RTS**, **Fragment Threshold**, and **Power Save** mode. Furthermore, you may monitor the current status of the IEEE802.11n Wireless LAN USB Adapter such as **State**, **Current Channel**, **Current Tx Rate**, **Throughput**, **Link Quality** and **Signal Strength**.
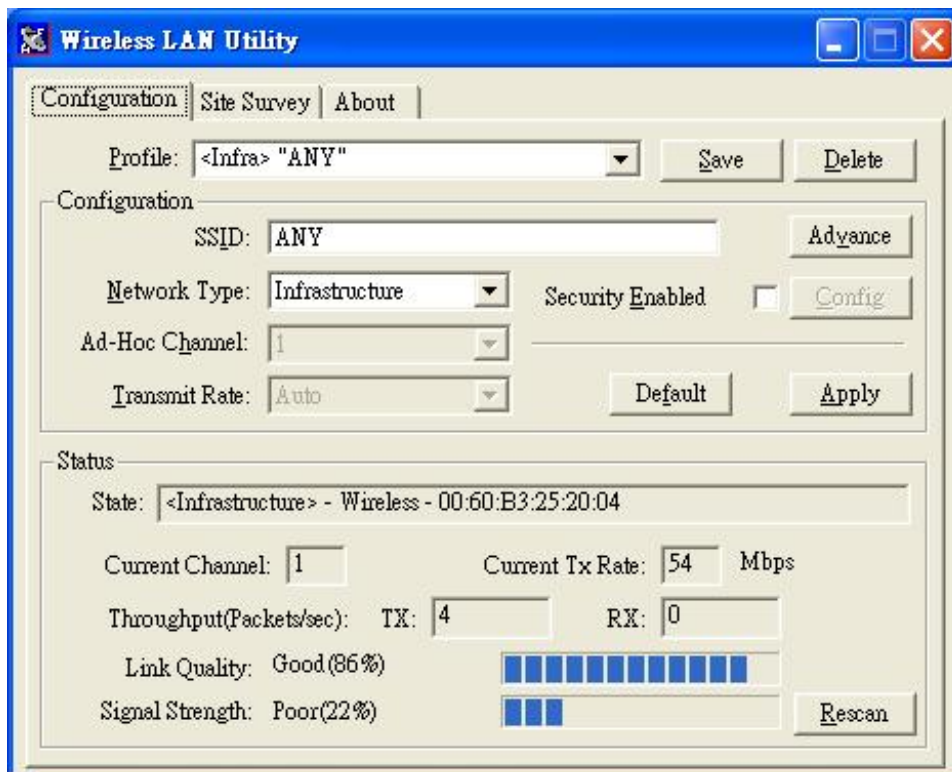
Profile
The **Profile** field allows you to set values for all parameters by selecting a previously defined

profile. With a profile activated, each time you start the wireless LAN adapter, it automatically scans for the specific SSID and joins that network with the pre-defined wireless security settings. To create the profile, go to the **Profile** field, type a profile name and set the corresponding parameters. If one of the profiles is no longer used, you may remove it by clicking the **Delete** button. After changing parameters, save the profile and click the **Apply** button to take effect. You can have multiple profiles and modify the profile at any time.
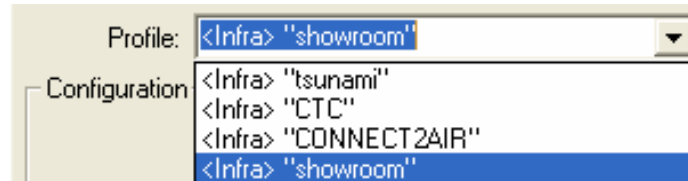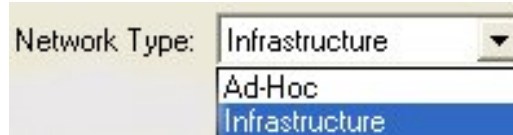
Network Type

There are two network types for the IEEE 802.11g Wireless LAN USB Adapter to operate. If you need to access company network or Internet via an Access Point, select "Infrastructure". To set up a group of wireless stations for file and printer sharing, select "Ad-Hoc" (without Access Point). For standard 802.11 Ad-Hoc, note that you may set wireless stations with the same ESS ID and the same channel.

Security Enable

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 check box next to **Security Enable**. A **Privacy Configuration** window will then appear.

> **Note**: Privacy Configuration consists of specifying **Security** and **Certification.** Refer to **Chapter 3** for how to configure security settings.

Advance

The WLAN Utility also offers the advanced configuration for user to set the IEEE 802.11g Wireless LAN USB Adapter under certain network environment. These advanced options include Power Save Enabled, RTS Threshold, Fragmentation Threshold and Nitro Time. To enable the advanced configuration, go to the **Configuration** tab and click the **Advance** button.

Note: On Vista OS, there are not allowing configure the parameters via Advance page.
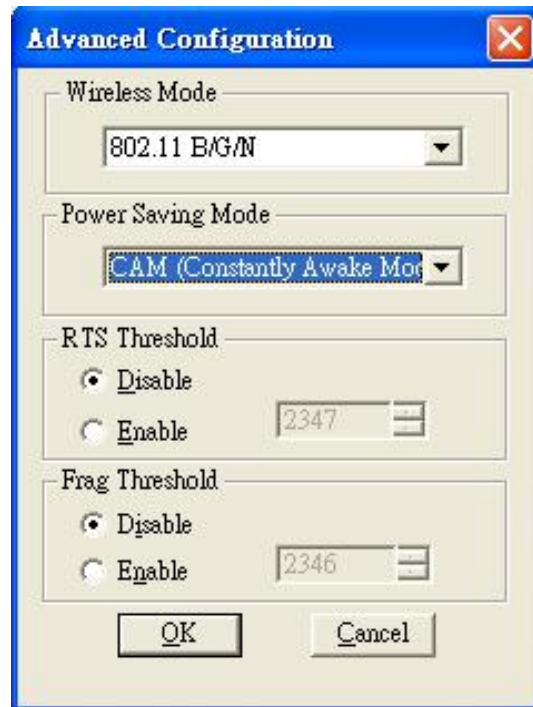
Wireless Mode

The wireless Mode supports three options 802.11B, 802.11B/G, and 802.11B/G/N.

Power Saving Mode

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

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

RTS Threshold

RTS Threshold is a mechanism implemented to prevent the "Hidden Node" problem. If the "Hidden Node" problem is an issue, please specify the packet size. *The RTS mechanism will be activated if the data size exceeds the value you set.* It is highly recommended that you set the value ranging from 0 to 2347. The default value is **Disable**.

> **Note:** Enabling RTS Threshold would cause redundant network overhead that could negatively affect the throughput performance instead of providing a remedy.

Frag. Threshold

Fragmentation mechanism is used for improving the efficiency when high traffic flows along in

the wireless network. If your IEEE 802.11n Wireless LAN USB Adapter often transmits large files in the wireless network, you can enable the Fragmentation Threshold by clicking the **Enable** button and the mechanism will split the packet. The default value is **Disable**.
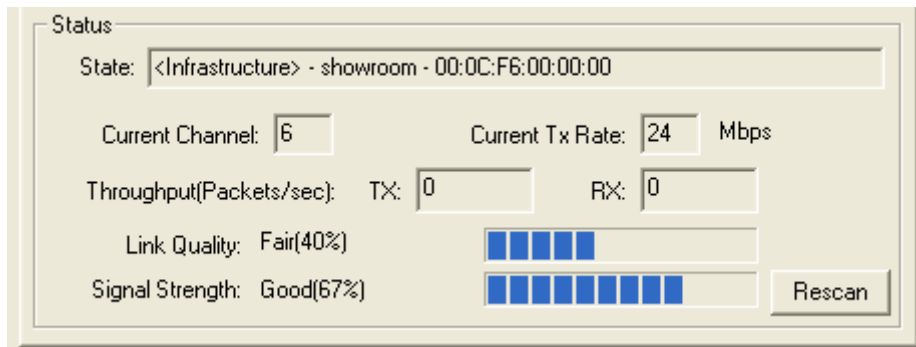
Status:

The Status field on the **Configuration** menu provides the following information.

State: When operating in Infrastructure mode, this field shows the MAC address of the Access Point with which the IEEE 802.11n Wireless LAN USB Adapter is communicating. When operating in Ad-Hoc mode, it shows the virtual MAC address used by computers participating in the Ad-Hoc network.

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

Current Tx Rate: Shows the highest transmit rate of the current association.

Throughput: Shows the short term transmit and receive throughput in bytes/second, and is continuously updated.

Link Quality: Based on the quality of the received signal of the Access Point beacon. There are 5 states of link quality:

100%~80%: Excellent link.
80%~60%: Good link quality.
60%~40%: Fair link quality.
Under 40%: Poor or no connection.

Signal Strength: Based on the received signal strength measurement of the baseband processor of the Beacon signal. Same as link quality, there are 5 states of signal strength:

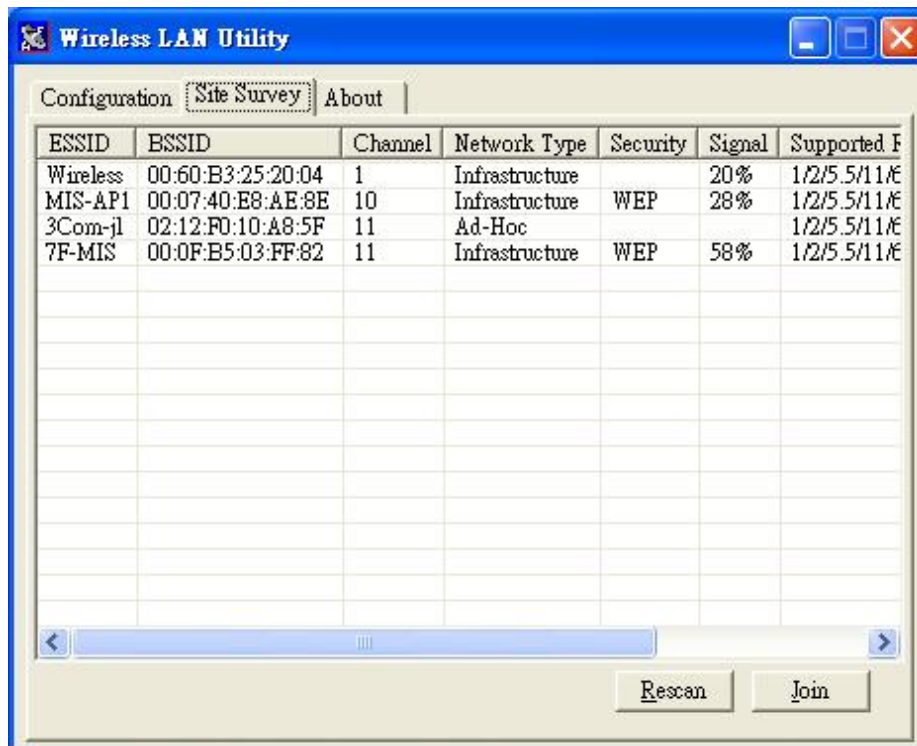*100%~80%:* Excellent signal strength.
80%~60%: Good signal strength.
60%~40%: Fair signal strength.
Under 40%: Poor or no signal strength.

You can click the **Rescan** button to force the radio to rescan all available channels. If your link quality or signal strength is poor, rescanning can be used to push the radio off a weak Access Point and search for a better link with another Access Point.

Site Survey:

Use the Site Survey screen to scan for and connect to a wireless network automatically. By clicking the **Rescan** button, the AP Browser can display Access Points around the working environment. Besides showing the ESSID of each Access Point, it also displays BSSID, Channel, Capability, Signal, and Rates. To join any of the displayed Access Points, highlight the Access Point you desire to connect and then click the **Join** button to associate to the AP.

ESSID	BSSID	Channel	Network Type	Security	Signal	Supported F
Wireless	00:60:B3:25:20:04	1	Infrastructure		20%	1/2/5.5/11/6
MIS-AP1	00:07:40:E8:AE:8E	10	Infrastructure	WEP	28%	1/2/5.5/11/6
3Com-jl	02:12:F0:10:A8:5F	11	Ad-Hoc			1/2/5.5/11/6
7F-MIS	00:0F:B5:03:FF:82	11	Infrastructure	WEP	58%	1/2/5.5/11/6

About:

The **About** item displays related version numbers of the Wireless LAN Utility, and driver, firmware of the IEEE 802.11n Wireless LAN USB Adapter. Also, the MAC address and frequency domain are displayed.

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Fax：886-3-5773359

Wireless LAN Utility

Configuration | Site Survey | About

Wireless LAN Utility

Configuration Utility
Version: 4.1.0.8   Date: May 23 2007

Network Driver
Version: 1.0.2.0   Date: May 23 2007

NIC Firmware
Version: 0.3   MAC Address: 00:0C:43:28:70:00
Frequency Domain: FCC
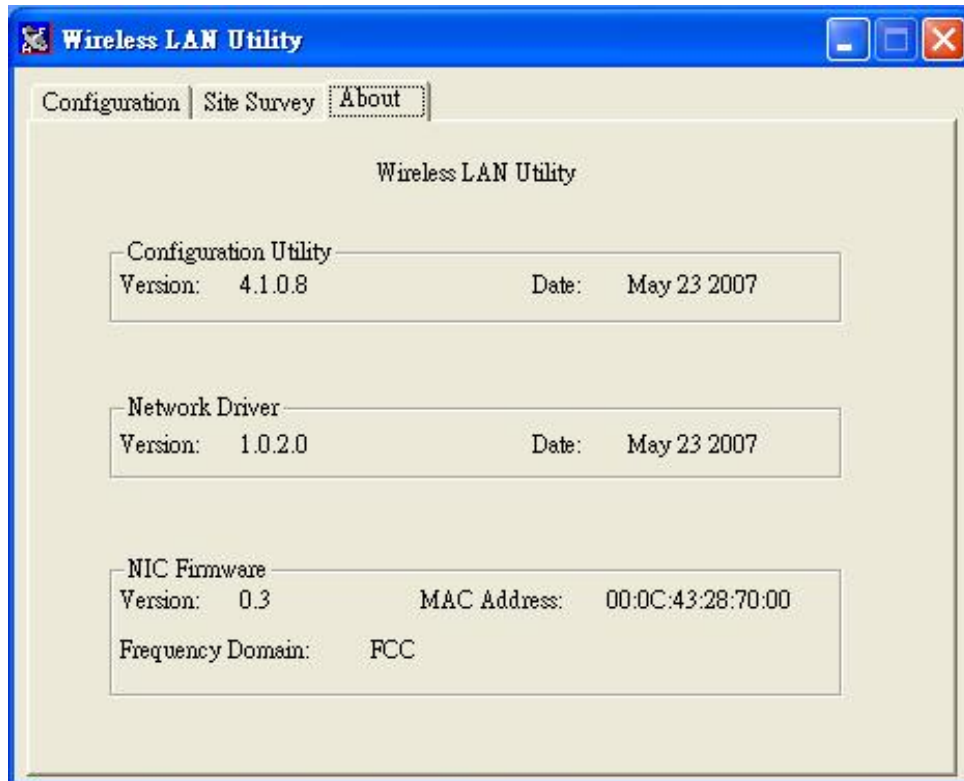
Chapter 5

Management with Wireless Zero Configuration

This chapter shows 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.
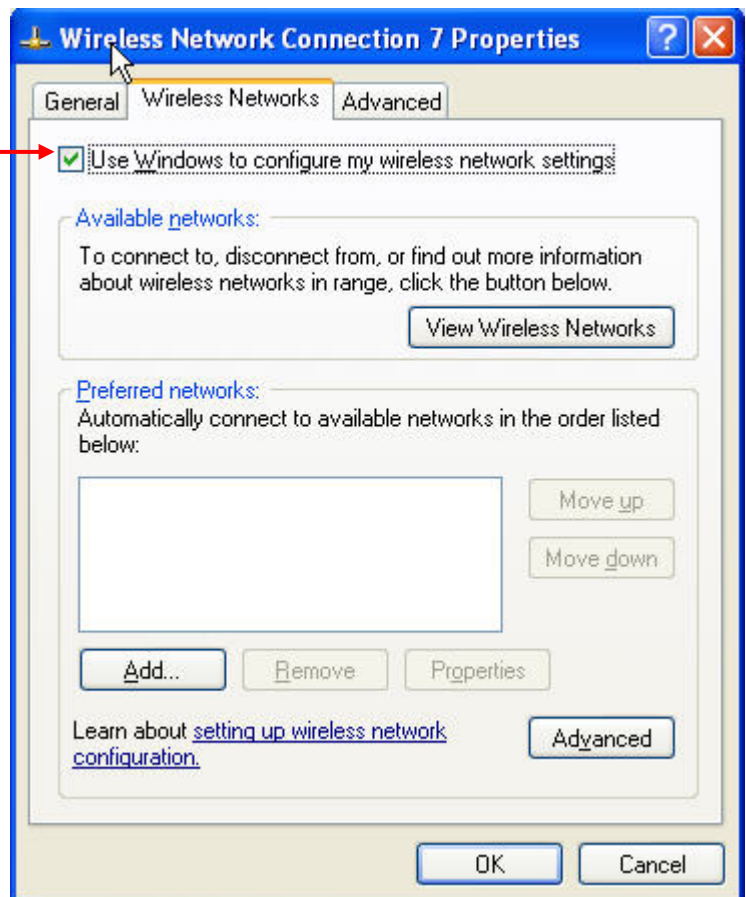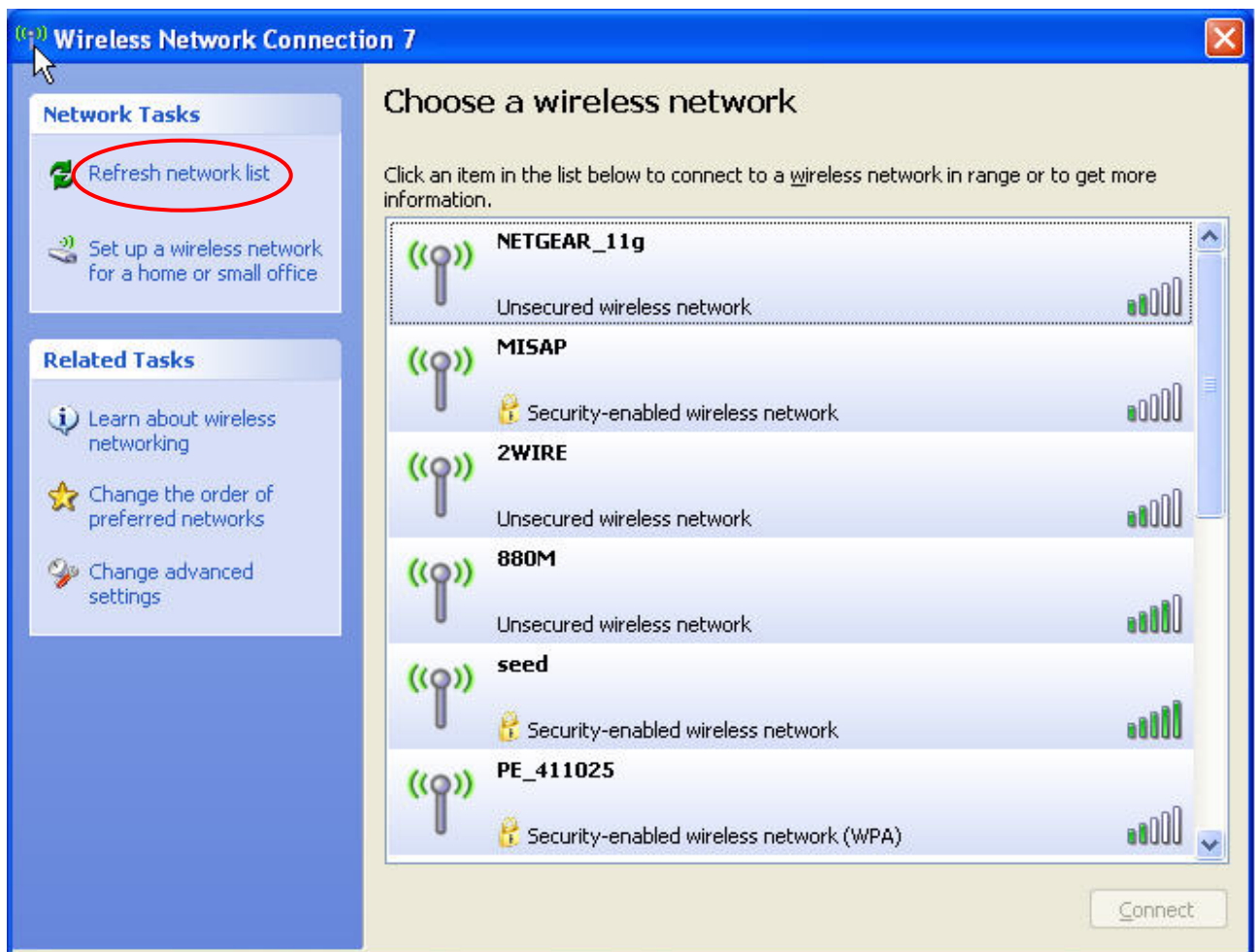

Step 2: Double click the network icon for wireless connections in the system tray to open the Wireless Network Connection Status screen.

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.

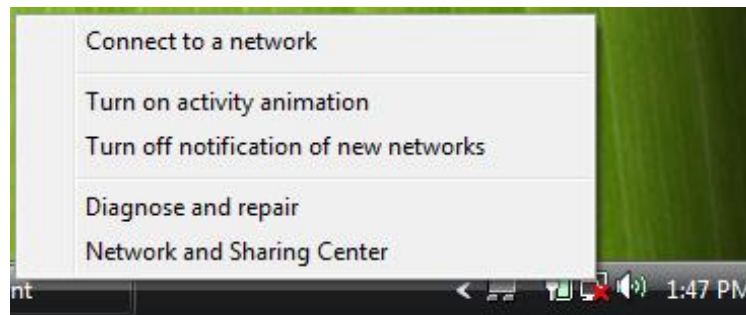## 5.2 Windows Vista WLAN AutoConfig

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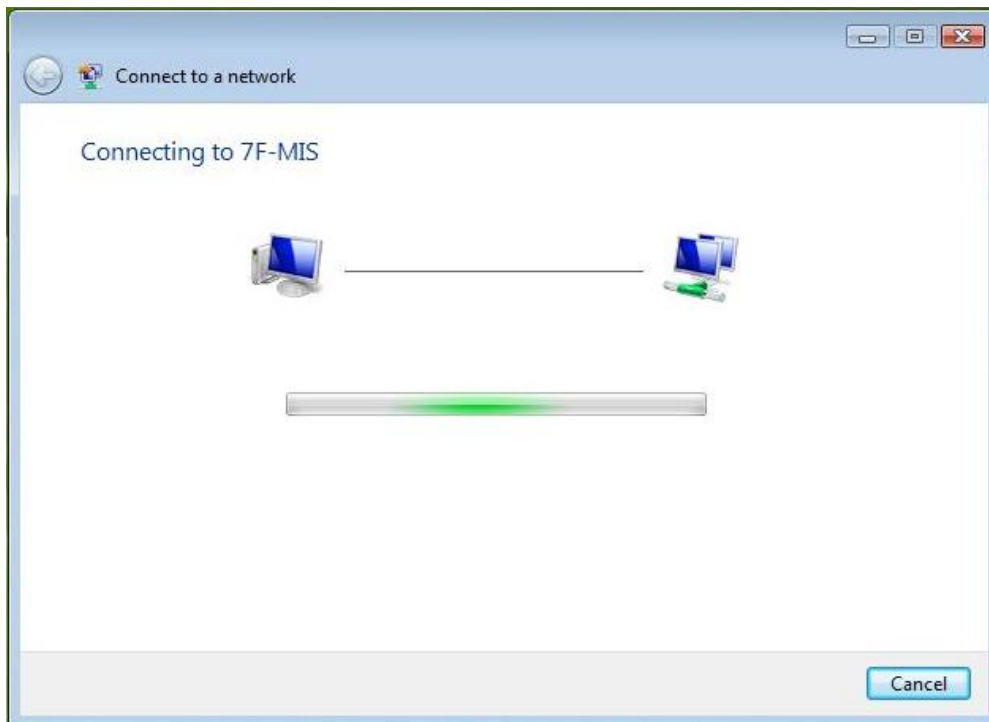
Step 3: Select a wireless network in the list and click *Connect* to join the selected wireless network.

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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.

Service Centre:
COMPANY NAME: ZCOMAX TECHNOLOGIES, INC.
ADDRESS: 13850 CERRITOS CORPORATE DR., SUITE C CERRITOS, CA 90703
TEL: (562) 926-4588

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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.