USB Wireless Network Adapter

User's Manual

Rev 1.1

Regulatory compliance

FCC Warning

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

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

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC Radiation Exposure Statement

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

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

About this manual

This User's Manual describes how to install and operate your USB Wireless Network Adapter.   Please read this manual before you install the product.

This manual includes the following topics:

> ➢ Product description and features.
>
> ➢ Hardware installation procedure.
>
> ➢ Software installation procedure.
>
> ➢ FAQ

Table of Contents

Chapter 1 - Introduction

Thank you for purchasing the USB Wireless Network Adapter. This high-speed USB Wireless Network Adapter provides you with an innovative wireless networking solution. The Adapter is easy to set up and use. With this innovative wireless technology, you can share files and printers on the network —without inconvenient wires! Now you can carry the LAN in your pocket!

The Adapter is a network adapter with a rate of 1, 2, 5.5, and 11 Mbps operating in the ISM band using Direct Sequence Spread Spectrum (DSSS) transmission implementing the IEEE 802.11b standard. This adapter provides Device Drivers for Windows 98, Windows 2000 and Windows ME. It also provides tools for the configuration of the adapter. The tool, as well as the installation steps of the plug-and-play procedure for the Microsoft Windows 98, Windows ME and Windows 2000 operating systems, is described in this document.

Features

The USB Wireless Network Adapter offers compliance with the IEEE 802.11b specification. This feature allows them to communicate with other wireless devices that support the standard. Features of the adapter are:

- **Uses 2.4GHz frequency band, which complies with worldwide requirement**
- **Wireless interface following the IEEE 802.11b standard**
- **Using Universal Serial Bus (USB) interface**
- **Enciphering/deciphering of wireless data by the implementation of the WEP algorithm**
- **Wire-free access to networked resources from anywhere beyond the desktop**
- **Allows users move between Access Points without resetting their connection reconfiguration**
- **Delivers data rate up to 11 Mbps**
- **Supports 11, 5.5, 2, and 1 Mbps rates**
- **Provide USB Wireless Network Adapter Configuration utility**
- **Antenna is built in to the Adapter with LEDs indicating Power and Link**
- **Supports most popular operating systems: Window 98/2000 & Windows ME**

What is Wireless LAN?

Wireless Local Area Network (WLAN) systems offer a great number of advantages over traditional wired systems. WLAN is flexible and easy to setup and manage. They are also more economical than wired LAN systems.

Using radio frequency (RF) technology, WLAN transmit and receive data through the air. WLAN combine data connectivity with user mobility. For example, users can roam from a conference room to their office without being disconnected from the LAN.

Using WLAN, users can conveniently access-shared information, and network administrators can configure and augment networks without installing or moving network cables.

WLAN technology provides users with many convenient and cost saving features:

- **Mobility:** WLAN provide LAN users with access to real-time information anywhere in their organization, providing service opportunities that are impossible with wired networks.

- **Ease of Installation:** Installing is easy for novice and expert users alike, eliminating the need to install network cables in walls and ceilings.

- **Scalability**: WLAN can be configured in a variety of topologies to adapt to specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users roaming over a broad area.

Wireless LAN Modes

Wireless LANs can be configured in one of two ways:

Ad-hoc Networking	Also known as a peer-to-peer network, an ad-hoc network is one that allows all workstations and computers in the network to act as servers to all other users on the network. Users on the network can share files, print to a shared printer, and access the Internet with a shared modem. However, with ad-hoc networking, users can only communicate with other wireless LAN computers that are in the wireless LAN workgroup, and are within range.
Infrastructure Networking	Infrastructure networking differs from ad-hoc networking in that it includes an access point. Unlike the ad-hoc structure where users on the LAN contend the shared bandwidth, on an infrastructure network the access

	point can manage the bandwidth to maximize bandwidth utilization.
	Additionally, the access point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing.
	Infrastructure networking has the following advantages over ad-hoc networking:
	• **Extended range:** each wireless LAN computer within the range of the access point can communicate with other wireless LAN computers within range of the access point.
	• **Roaming:** the access point enables a wireless LAN computer to move through a building and still be connected to the LAN.
	• **Wired to wireless LAN connectivity:** the access point bridges the gap between wireless LANs and their wired counterparts.

Notes on Wireless LAN Configuration

When configuring a wireless LAN (WLAN), be sure to note the following points:

• Optimize the performance of the WLAN by ensuring that the distance between access points is not too far. In most buildings, WLAN cards operate within a range of 100 ~ 300 feet, depending on the thickness and structure of the walls.

• Radio waves can pass through walls and glass but not metal. If there is interference in transmitting through a wall, it may be that the wall has reinforcing metal in its structure. Install another access point to circumvent this problem.

• Floors usually have metal girders and metal reinforcing struts that interfere with WLAN transmission.

This concludes the first chapter.   The next chapter deals with the hardware installation of the Adapter.

Chapter 2 - Hardware Installation

This chapter covers connecting your USB Wireless Network Adapter to USB port of desktop / notebook PC.

Package Contents

Please make sure that items below are included on package.
- ✓ One USB Wireless Network Adapter
- ✓ One USB cables
- ✓ One Driver / Utility CD-ROM (this use's manual included)
- ✓ One Quick Installation Guide

System Requirements for the Adapter

- ➢ Operating System: MS Windows 98, Windows 2000, Windows ME
- ➢ Desktop PC or notebook PC with CD-ROM drive
- ➢ One free USB port
- ➢ Pentium-Class 90MHz or higher

Connecting the USB Adapter

NOTE: *These instructions apply to most desktop/notebook computers. For detailed information on inserting USB adapters into your desktop/notebook PC, consult the desktop/notebook PC User's Manual.*
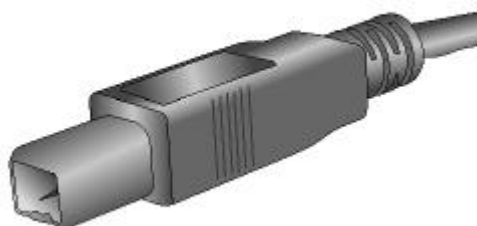
The Adapter's USB port is located on the back of the Adapter.
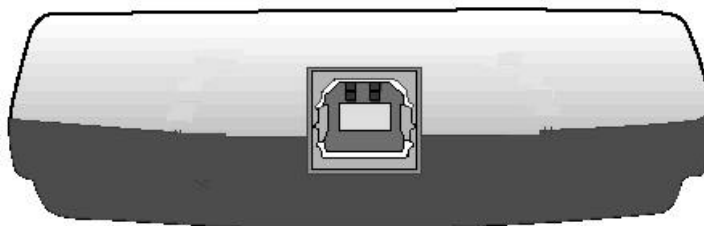
And your Adapter comes with a USB cable that has two different types of connectors – type A & type B. Type A connector of the USB cable plugs into your notebook/desktop PC's USB port. And type B connector of the USB cable connects to the USB port of your USB Wireless Network Adapter.

USB Type A   **USB Type B**

LED Indicators

POWER   LINK

The following table describes the meaning of LED indicators:

LED	MEANING
POWER	Indicates that the Adapter is powered on when the LED lights up.
LINK	Indicates link status. The LED lights up while the wireless connection is linked. If the light is blinking, it means there is data sending or receiving via wireless.

Disconnecting the USB Adapter

In Win 98/ME operating systems, you do not have to power down your notebook/desktop PC to remove the Adapter.   The Adapter is hot swappable — you can remove the Adapter when your notebook/desktop PC is powered on. However, Microsoft recommends that you stop the Adapter before removing the Adapter. Refer to your Win 98/ME online help for information on stopping the USB Adapter.

WARNING: *Do not remove the USB Wireless Network Adapter when a data transmission is taking place.   Exit your communications program normally, stop the Adapter if necessary, and then remove the adapter.*

Chapter 3 - Installation Procedures Under Windows 98

Use the procedures described in this chapter to install and configure the USB Wireless Network Adapter under Windows 98.

Throughout this chapter it is assumed that you have a basic working knowledge of Windows 98 and of how to install new network adapters on them. However, in this paragraph, some specific features of Windows 98 are briefly explained.

What You Will Need

During the installation, you may be prompted to load operating system files from the Windows installation disc. Please have this disc handy.

You will also need the Drivers/Utility CD provided with your package.

Installing the Driver Under Windows 98

1. Connecting the Adapter to the USB port of a notebook or desktop PC. (Refer to Connecting the USB Adapter at Chapter 2)

2. The **Add New Hardware Wizard** will indicate that Windows have recognized a new device that has not been used before.
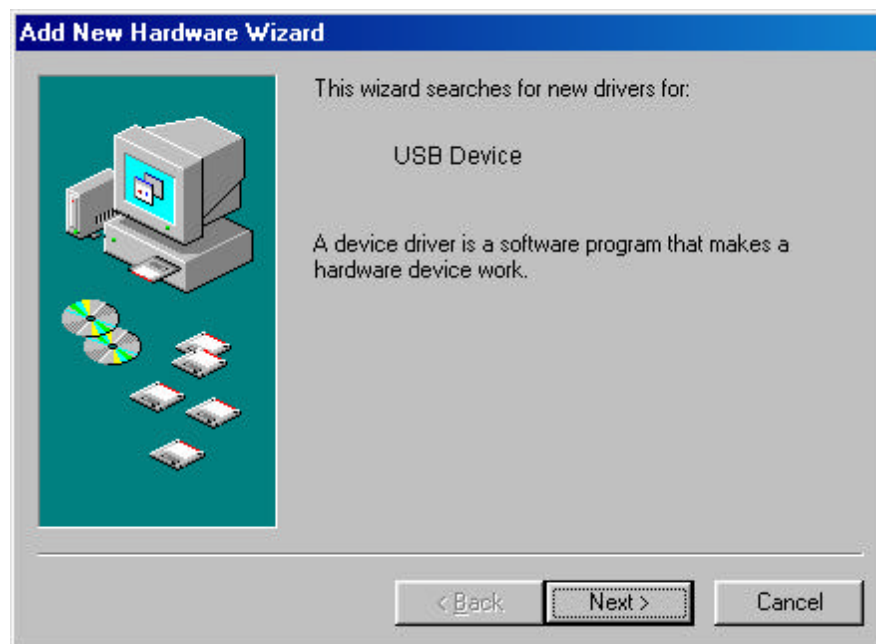
3. Click **Next** to continue the installation. A screen appears prompting you to select an installation method:
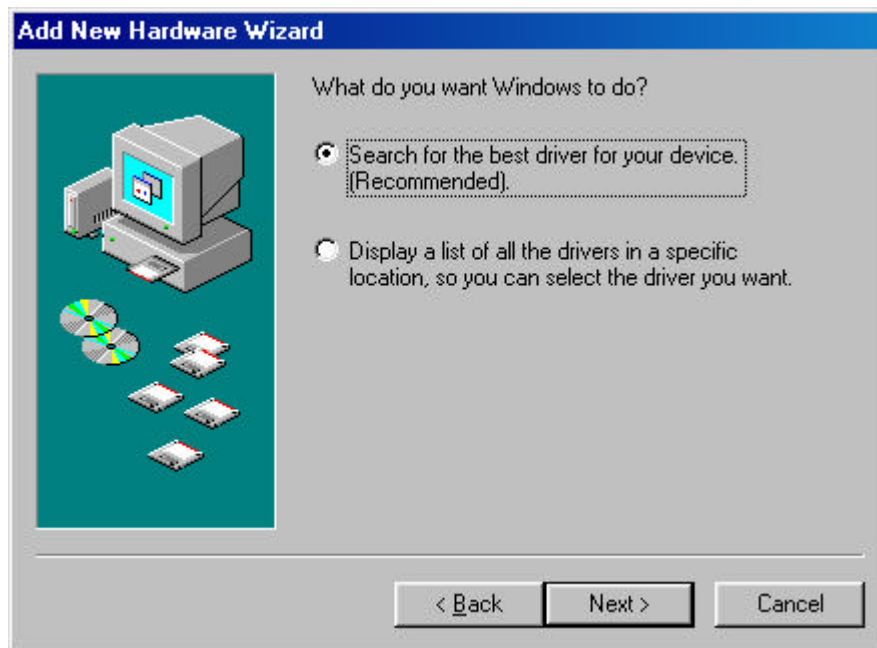
4. Select **Search for the best driver for your device. (Recommended)** and click **Next**. The following screen appears:

5. Ensure that the **CD-ROM drive** box is checked.

6. Insert the driver/utility disc into your CD-ROM drive and click **Next**. The following screen appears:

7. Click **Next** to continue. Windows 98 copies files to your hard disk drive, and you see the following screen:

8. Click **Finish** to complete the installation.

9. Go to "**Chapter 6 – Install and Use Configuration Utility"** to install the Configuration Utility.

Uninstall Procedures Under Windows 98

In order to uninstall the Adapter from Windows 98, you must double click on the "**Network**" icon in the "**Control Panel**" (**Start -> Settings -> Control Panel**). Select the "**USB Wireless Network Adapter**" from the list and press the "**Remove**" button. The system will prompt you to re-boot. Press "**Yes**" to re-boot.

Chapter 4 - Installation Procedures Under Windows 2000

Use the procedures described in this chapter to install and configure the USB Wireless Network Adapter under MS Windows 2000.

Throughout this Chapter it is assumed that you have a basic working knowledge of Windows 2000 and of how to install new network adapters on them. However, in this paragraph, some specific features of Windows 2000 are briefly explained.

What You Will Need

During the installation, you may be prompted to load operating system files from the Windows installation disc. Please have this disc handy.

You will also need the Drivers/Utility CD provided with your package.

Note: *In order to be able to install the Adapter on to your notebook/desktop PC running under Windows 2000, you will need to log on as "**Administrator**".*

Installing the Driver Under Windows 2000

1. Connecting the Adapter to the USB port of a notebook or desktop PC. (Refer to Connecting the USB Adapter at Chapter 2)

2. The **Found New Hardware Wizard** will indicate that Windows have recognized a new device that has not been used before.
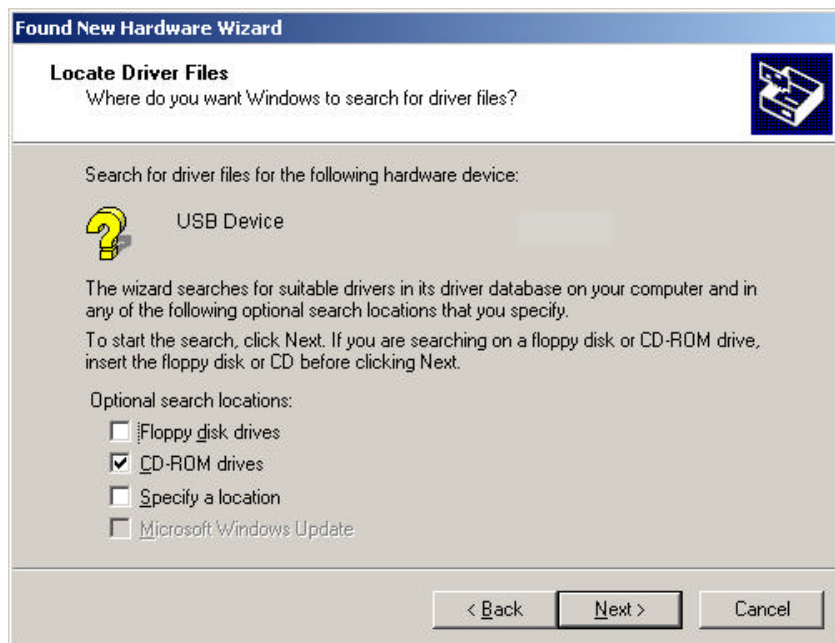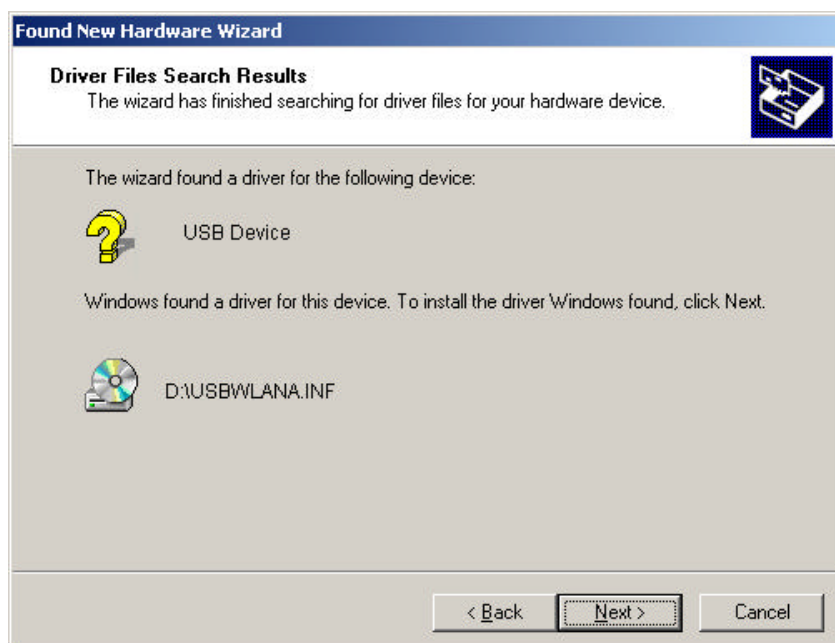
3. Click **Next** to continue the installation. A screen appears prompting you to select an installation method:
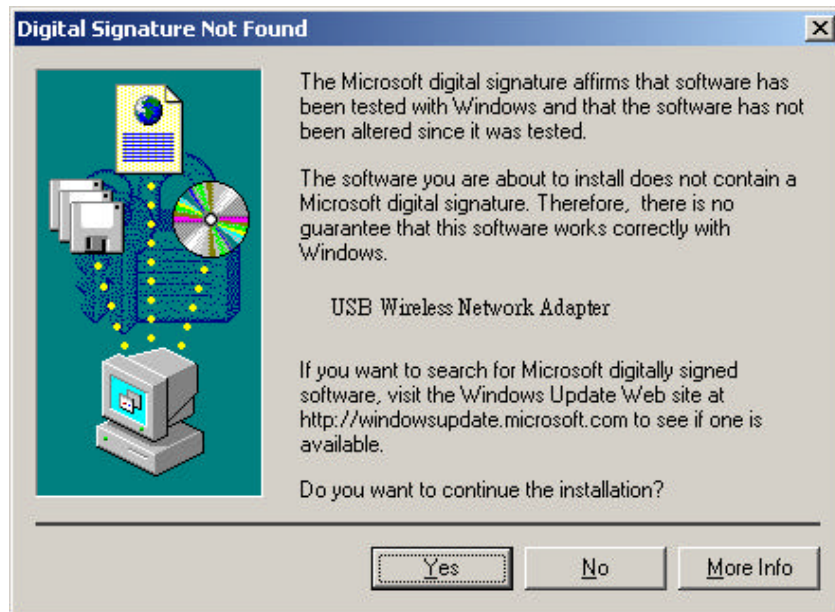

4. Select **Search for a suitable driver for my device (recommended)** and click **Next**. The following screen appears:

5. Ensure that the **CD-ROM drives** box is checked and insert the driver/utility disc into CD-ROM drive. Click **Next** to continue. The following screen appears:


6. Click **Next** to continue.

7. Windows may display the message "**Digital Signature Not Found**". Ignore it by pressing "**Yes**". Windows will start copying the files and then the following screen appears:


8. Click **Finish** to complete the installation.

9. Go to "**Chapter 6 – Install and Use Configuration Utility**" to install the Configuration Utility.

How to Unplug the Device Under Windows 2000

After the successful installation of the Adapter, you will see an icon corresponding to the device in the Windows taskbar for as long as the device is connected to the PC.
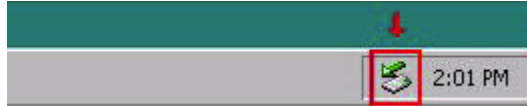

If you want to unplug the device, double click on this icon. The dialog of *Unplug or Eject Hardware* will appear.
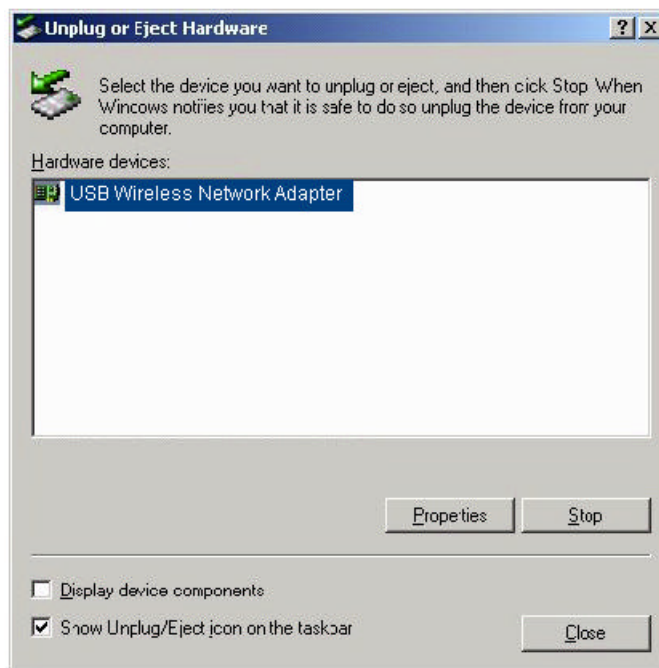
Select **USB Wireless Network Adapter** and press "**Stop**". Now it is safe to unplug the device from the PC.

In case you unplug the device without having followed the above procedure, the dialog **Unsafe Removal of Device** will appear reminding you the problems this action may have caused. Press "**OK**". It is recommended not to unplug the device unless you have followed first the above procedure to stop the Adapter.
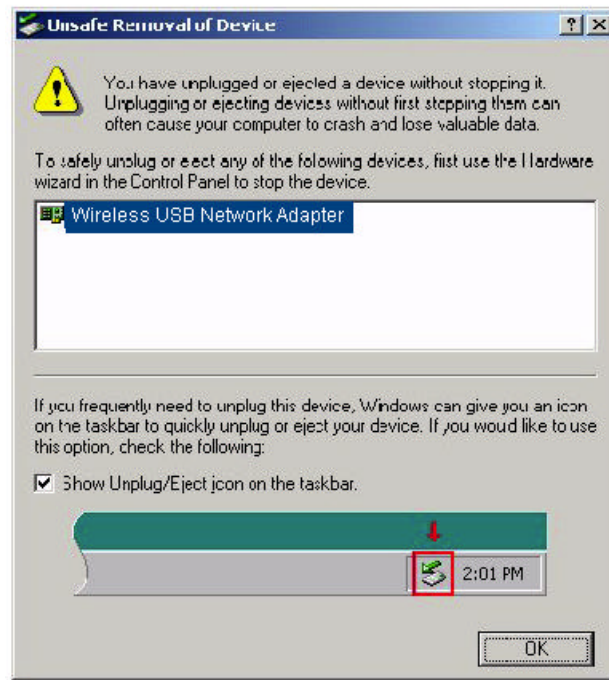
Uninstall Procedures Under Windows 2000

In order to uninstall the Adapter you must select it in the **Device Manager** (**Start -> Settings -> Control Panel -> System -> Hardware -> Device Manager**) of Windows 2000 and press the "**Uninstall**" icon . The "**Uninstall"** procedure can be performed only if the Adapter is plugged-into your computer.

Chapter 5 - Installation Procedures Under Windows ME

Use the procedures described in this chapter to install and configure the USB Wireless Network Adapter under Windows ME

Throughout this Chapter it is assumed that you have a basic working knowledge of Windows ME and of how to install new network adapters on them. However, in this paragraph, some specific features of Windows ME are briefly explained.

What You Will Need

During the installation, you may be prompted to load operating system files from the Windows installation disc. Please have this disc handy.

You will also need the Drivers/Utility CD provided with your package.

Installing the Driver Under Windows ME

1. Connecting the Adapter to the USB port of a notebook or desktop PC. (Refer to Connecting the USB Adapter at Chapter 2)

2. The **Add New Hardware Wizard** will indicate that Windows have recognized a new device that has not been used before.

3. Select **Automatic search for a better driver (Recommended)** and insert the driver/utility disc into CD-ROM drive. Click **Next** to continue.

4. The system will find the setup files and follow the instruction of the setup file to copy drivers. After the drivers were copied, the following screen appears:

5. Click **Finish** to complete the installation.

6. Go to "**Chapter 6 – Install and Use Configuration Utility"** to install the Configuration Utility.

Uninstall Procedures Under Windows ME

In order to uninstall the Adapter from Windows ME, you must double click on the "**Network**" icon in the "**Control Panel**" (**Start -> Settings -> Control Panel**). Select the "**USB Wireless Network Adapter**" from the list and press the "**Remove**" button. The system will prompt you to re-boot. Press "**Yes**" to re-boot.

# Chapter 6 – Install and Use Configuration Utility

The Configuration Utility is a powerful utility that helps you to configure the Adapter and monitor the statistics of the communication. The Adapter offers the Configuration Utility for Windows 98, Windows 2000 and Windows ME.
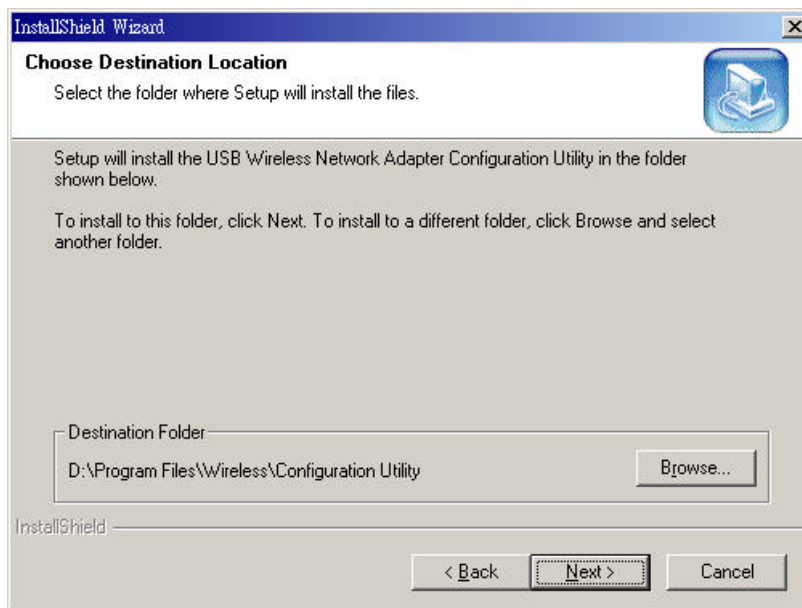
How to Install the Configuration Utility

1. Run the program **SETUP.EXE**, which you will find in the "**CONFIG UTILITY**" folder of your driver/utility CD.
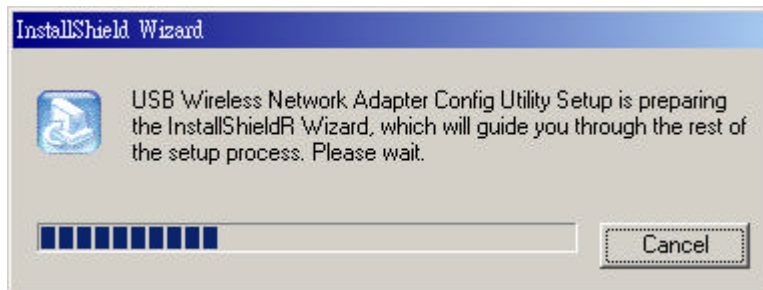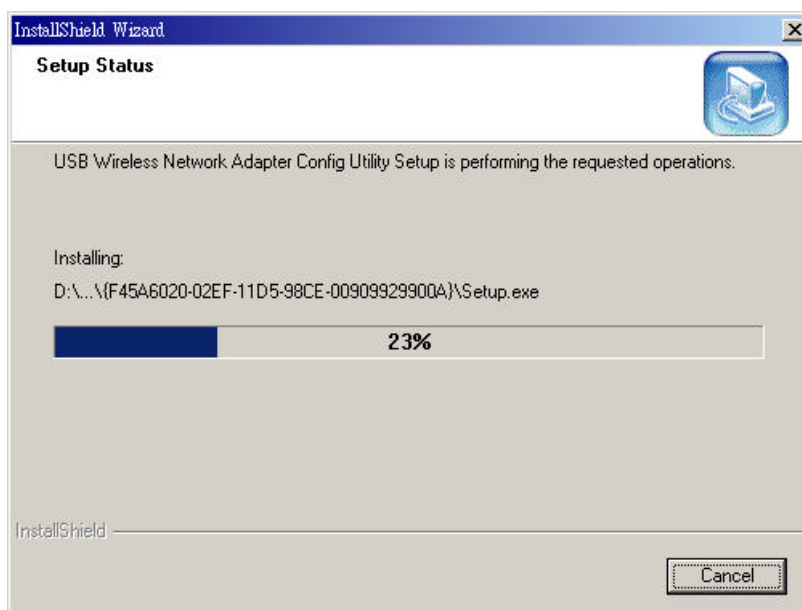

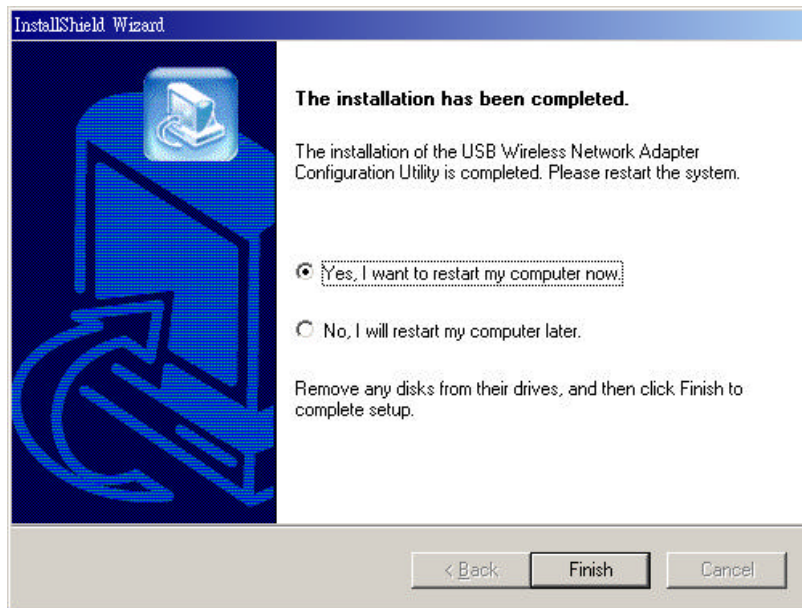2. The following screen appears:
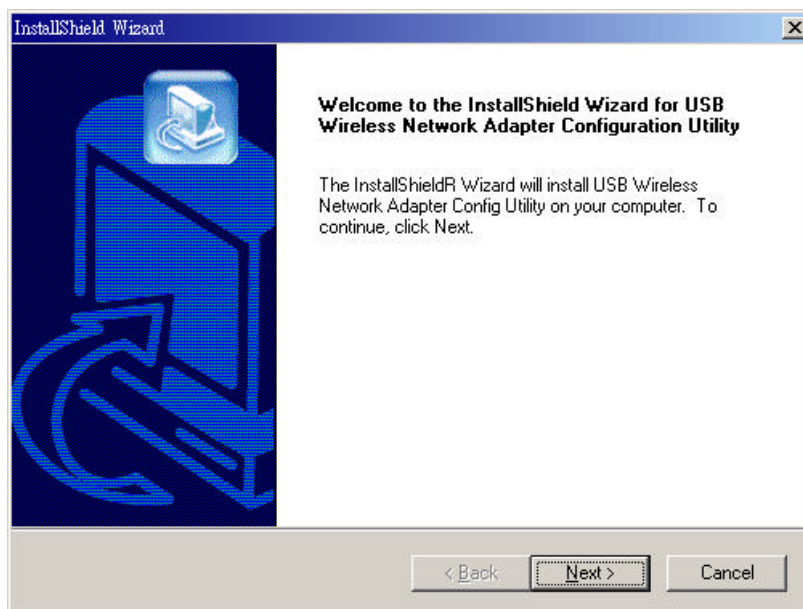


3. Click **Next** to continue.

4. Click **Next** to continue, if you want to install the Configuration Utility in the default folder. Otherwise, click **Browse** and select another folder to install to a different folder.

5. Start installing the utility. When it finish, the following screen appears:

6. Select "**Yes, I want to restart my computer now"** and click **Finish** to restart your system.

7. After system restarted, utility will start running and will appear as an icon on the system tray. (And you also can find the utility under **Start -> Programs -> USB Wireless Network Adapter -> USB Wireless Network Adapter Configuration Utility.**)
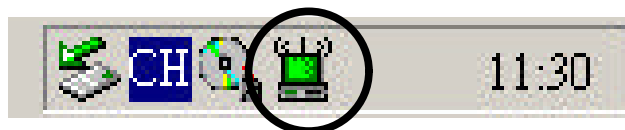
Using the Configuration Utility

The Configuration Utility appears as an icon on the system tray of Windows every time the Adapter is running. You can open it by double-clicking on this icon. While the station is in infrastructure mode and not associated to an access point, the color of the icon is **red**. As soon as the station associates itself to an access point, the icon color turns to **green**. In ad-hoc mode the color is always **green**, except when the Adapter is resetting where it turns to red during the reset procedure.

1. Double-clicking the icon on the system tray to open the utility, the following screen will appears:
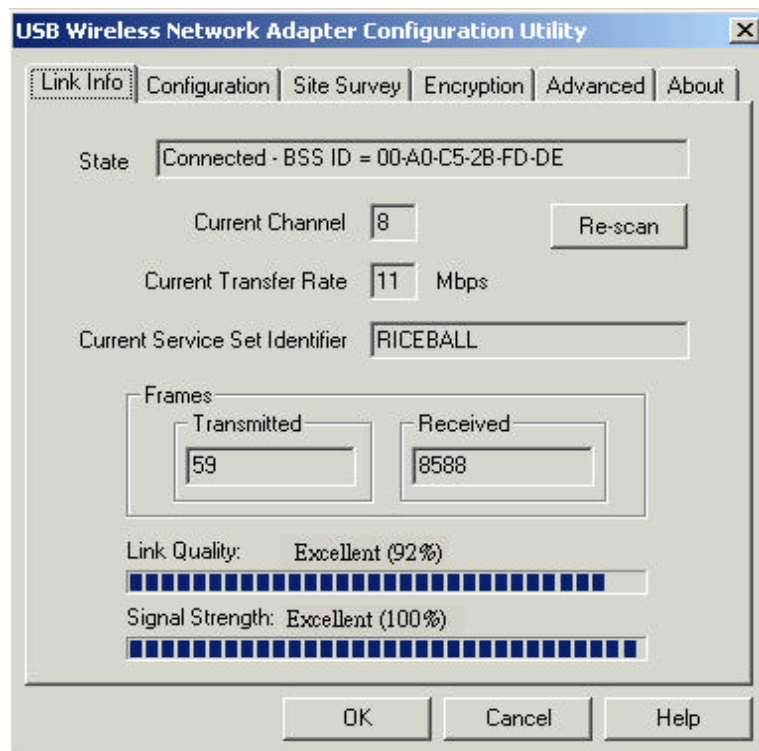
This screen shows you the wireless connection status. You can click "**OK**" to close the utility.

2. Or, select the "**Configuration**" tab. The following screen will appears:
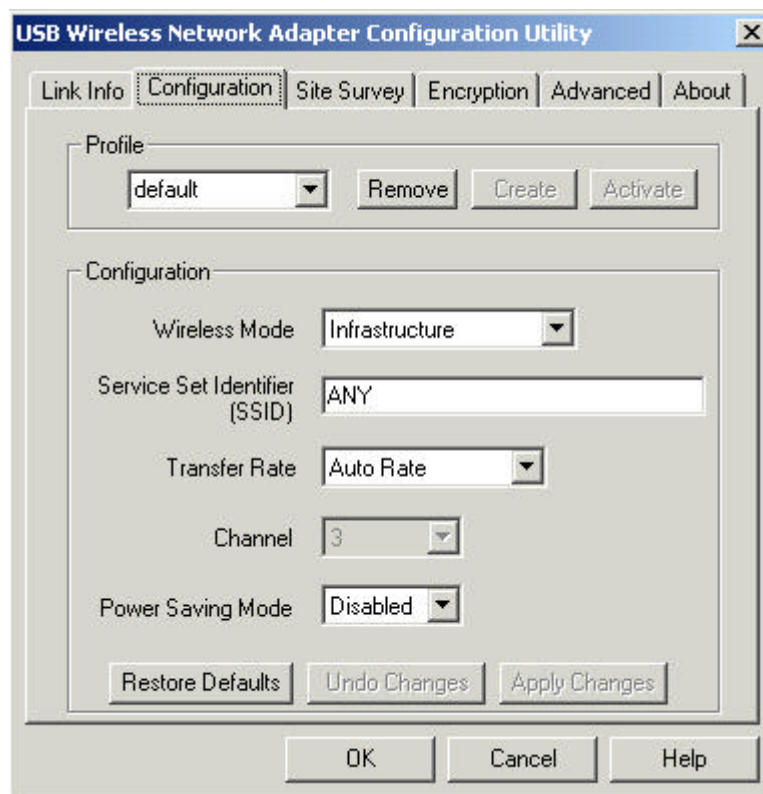
You can set the following Wireless Network USB Adapter operational

parameters:

- **Profile:** The profile setting allows you to save configurations in different profiles for different working environments. The default profile will contain the initial configuration setting when you install the adapter. You can type a new profile name and click **"Create"** button to create a new profile. When you click the "**Create**" button, the utility will create a profile contains the current configuration setting. If you want to change the setting, make sure to click "**Apply changes**" button to save the change in profile. If you want to use existed profile, just select the profile from the dropdown list and click "**Activate**" button to activate the profile setting. To remove a existed profile, select the profile from the dropdown list, then click "**Remove**" button to remove it.

- **Wireless Mode:** Infrastructure mode or Ad-Hoc mode.

  Infrastructure mode allows the Adapter to communicate with a wired network which employing an access point. Ad-Hoc mode allows PC-to-PC, peer-to-peer communication.

- **SSID:** Key in the SSID to be used.

  The SSID can be either the SSID of the access point to which the station will be associated if in Infrastructure Mode, or the SSID of the Ad-Hoc network in case the station will operate in Ad-Hoc mode. In the latter case, all stations participating in the Ad-Hoc network should have the same SSID.

- **Transfer Rate:** Select the rate to be used among the following options: 1 Mbps, 2 Mbps, 5.5 Mbps, 11Mbps or Auto Rate.

- **Channel:** Select the channel to be used. There are 11 channels available at North America, and 13 channels available at Europe.

  In Infrastructure Mode, you do not need to select the channel manually. The channel will be set as same as the access point automatically. In Ad-Hoc Mode, the channel being used should be set as same as the other points in the network.

- **Power Saving Mode:** Disabled or Enabled

  Select Enabled to allow your Adapter to go to sleep mode while the adapter doesn't proceed the data transmission. Select Disabled to make the adapter never go to sleep mode.

  If any operational parameter has been changed, click "**Apply Changes**" to save the settings in the current profile you open.

3. Select the "**Site Survey**" tab. The following screen will appears:
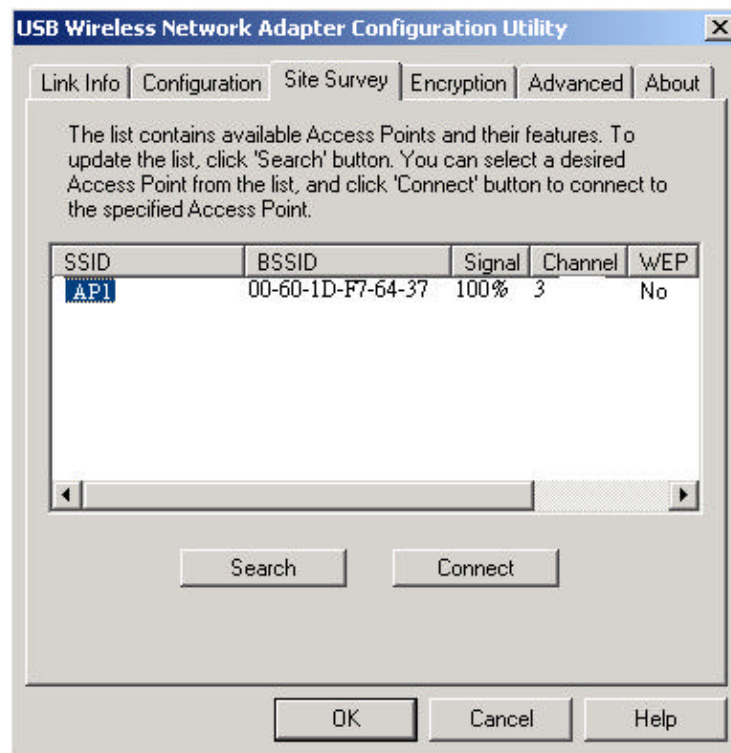
Available access points and their features will be listed on the screen. Click on the desired access point. And click "**Connect**" to link to the access point. Click "**OK**" when you are finished.

4. Select the "**Encryption**" tab. The following screen will appears:

Under "**Encryption (WEP)**" drop-box, you can select **Disabled, 64 Bits** or **128 Bits**. Wired Equivalent Privacy (WEP) is an encryption scheme, and it has been used to protect wireless data communication.
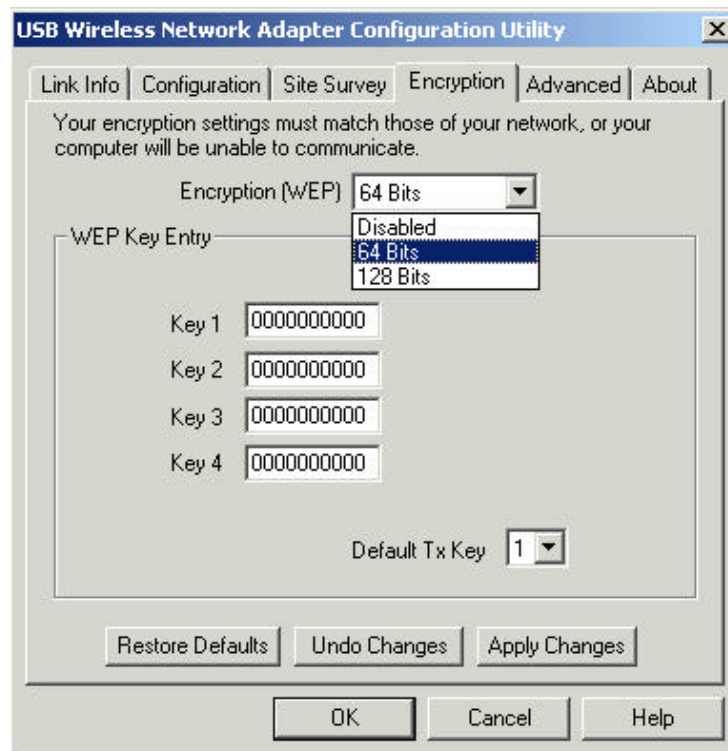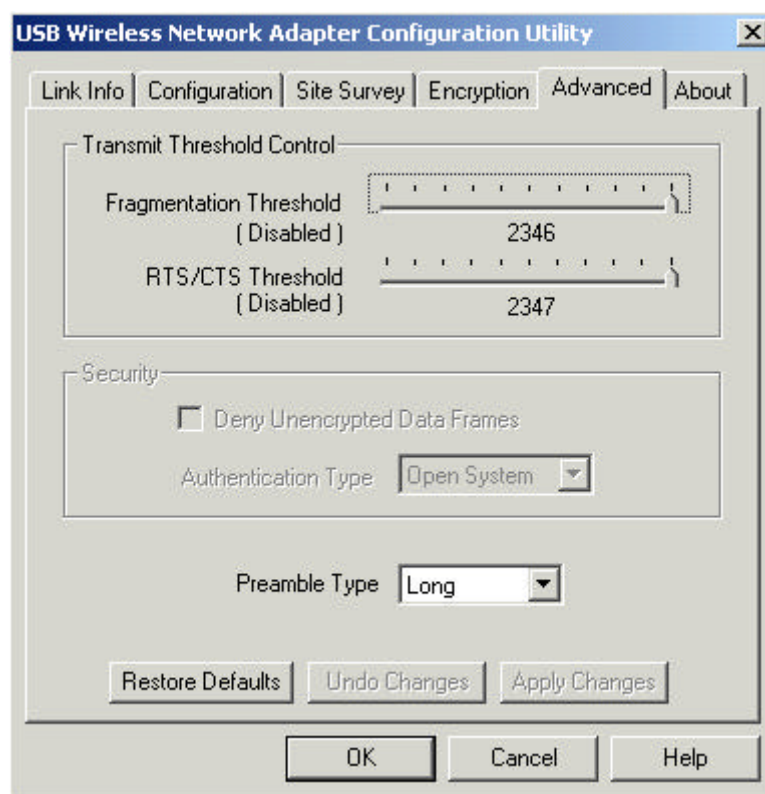
If any operational parameter has been changed, click "**Apply Changes"** to save the settings in the current profile you open.

5. Select the "**Advanced**" tab. The following screen will appears.

You can set the following operational parameters:

Fragmentation Threshold : The threshold defines the maximum data frame size your adapter will transmit. For those transmitted data frames which are larger than the threshold value will be fragmented into several frames. The slider bar allows you to adjust the fragmentation threshold. When the packet error rate is high, you may set the threshold value to transmit shorter frames.

RTS/CTS Threshold: The threshold defines when will your adapter send out RTS/CTS frames to reserve bandwidth for transmission. For those transmitted data frames which are larger than the threshold value will cause RTS/CTS frames be sent out to request bandwidth for the transmitted data frames. By using the RTS/CTS function, you may request bandwidth from AP to allow you have better chance to send out your data.

Security: It's only applicable while WEP is enabled.

Deny Unencrypted Data Frames: Check the box will deny to receive unencrypted data frames to prevent from unknown intruders probe your station.

Authentication Type: Which authentication algorithm is used. The current supported algorithms are Open System, and Shared Key. The algorithm will be invoked when associated to Access Point. To associate to the desired Access Point you must set the same algorithm as the one of the desired Access Point.

Preamble Type: Preamble is for framing synchronization. The possible setting are long and Short. The setting must be the same as the setting of the Access Point you are going to associate.

If any operational parameter has been changed, click "**Apply Changes**" to save the settings in the current profile you open.

6. Select the "**About**" tab. The following screen will appears:
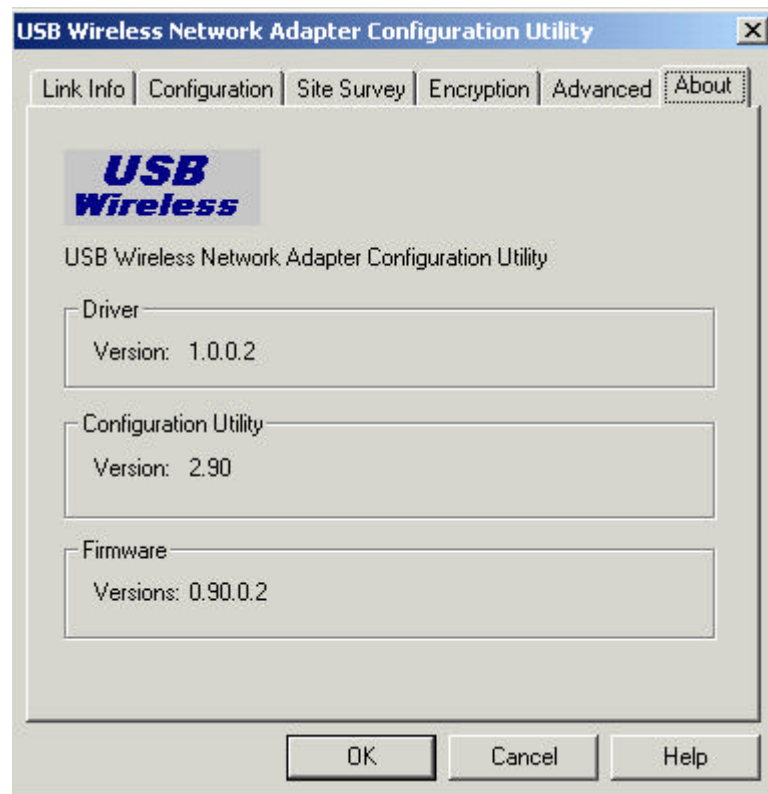
You can find version information about the driver, the Configuration Utility and the firmware on this screen. Click **OK** to complete the configuration.

Appendix A – FAQ

1. **What is IEEE 802.11 standard?**

   ➢ The IEEE 802.11 is a wireless LAN industry standard, and the objective of IEEE 802.11 is to make sure that different manufactures' wireless LAN devices can communicate to each other.

2. **What is WEP?**

   ➢ As described in the IEEE 802.11 standard, WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 40 bit shared key algorithm.

3. **My notebook / desktop PC cannot recognize the USB Wireless Network Adapter.**

   ➢ Please make sure that the Adapter is inserted into the USB port of your notebook / desktop PC properly.
   ➢ And also make sure that the USB controller is enabled in the BIOS of your notebook / desktop PC.

4. **How to check that the USB controller on my notebook / desktop PC is working properly?**

   ➢ Right click on **My Computer** and select **Properties.** Click on the **Device Manager** tab and select the **Universal Serial Bus Controllers.** Click on **Properties** button. In the **General** tab, check under "**Device status**" that the USB controller is working properly.

5. **The Adapter does not work properly.**

   ➢ Check that the Adapter drivers are loaded properly. You can easily check it through the **Network Adapter** (Right click on **My Computer** and select **Properties.** Click on the **Device Manager** tab and select the **Network Adapter**). If there is a yellow exclamation mark on USB Wireless Network Adapter, the resource may be conflicting. Please uninstall the Adapter and restart your notebook / desktop PC. The repeat hardware and software installation as specified in this manual.

6. **In Infrastructure mode, my notebook / desktop PC cannot communicate with the others PCs on the network.**

   ➢ First, make sure that the SSID is same as the others PC.

➤   Check that your Adapter is configured on the same channel & WEP as the others PCs on the network.

Appendix B – Specifications

Standards:	IEEE 802.11b USB 1.0, 1.1
Channels:	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)
Antenna:	Dipole Antenna inside
Frequency:	2.4 to 2.4835GHz (Industrial Scientific Medical Band)
Data Rate:	up to 11Mbps
Operating Ranges:	Indoor: Up to 30M @ 11Mbps Up to 50M @ 5.5Mbps Up to 70M @ 2Mbps Up to 90M @ 1Mbps Outdoor: Up to 150M @ 11Mbps Up to 250M @ 5.5Mbps Up to 350M @ 2Mbps Up to 450M @ 1 Mbps