

# **Wireless USB Adapter User Manual**

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# Chapter 1 About the Wireless USB Adapter

This IEEE 802.11b Wireless is compatible with computer USB Adapter. As a Plug-and-Play device, Windows 95/98/2000/ME/XP will automatically recognize the wireless USB Adapter and initiate the installation process. Upon successful installation, the wireless USB Adapter will communicate seamlessly with other IEEE 802.11b wireless products.

## 1-1 Features

1. Supports up to 11 Mbps data rate.
2. Working range up to 800 ft. in an open environment enhances mobility.
3. Supports point-to-point and point-to-multipoint access provides increased flexibility.
4. Seamless connectivity to wired Ethernet and PC network LAN' s offers quick, trouble-free integration with existing networks.
5. Direct Sequence Spread Spectrum (DSSS) technology provides secure wireless connection.
6. Wireless connections eliminate the hassle and cost of cabling.
7. Supports a wide range of LAN (Local Area Network) Network Operating Systems (NOS)  
including Windows 98/2000/NT/ME/XP
8. Easy Plug and Play installation.
9. Omni - directional antenna provides wide range of reception.
10. Greater flexibility to locate or move networked PC' s

## 1-2 Applications

This wireless USB Adapter offer a fast, reliable, cost-effective solution for wireless client access to the network. Refer below for examples :

- ✂✂ Remote access to corporate network information
- ✂✂ E-mail, file transfer and terminal emulation
- ✂✂ Difficult-to-wire environments
- ✂✂ Historic or older buildings without Ethernet wiring.
- ✂✂ Buildings with asbestos insulation
- ✂✂ Open areas where wiring is difficult to employ
- ✂✂ Re-layout frequently environments

- ✂✂ Retailers, manufacturers or other organizations that frequently rearrange the workplace or relocate
- ✂✂ Temporary LANs for special projects or peak time usage
- ✂✂ Trade shows, exhibitions and construction sites that employ temporary networks.
- ✂✂ Retailers, airline and shipping companies that need additional workstations for a peak period and auditors that require workgroups at customer sites.
- ✂✂ Access to database for mobile workers
- ✂✂ Medical, technical and retail specialists that require roaming access to a database or other network resources.
- ✂✂ SOHO (Small Office and Home Office) users
- ✂✂ Perfect for users that need a small, easy-to-install network that deploys rapidly.

### **1-3 Product Kit**

The wireless USB Adapter includes the following items. Ensure that the items in the following list have been included. If any of the listed items are missing, please contact your local dealer.

- ✂✂ One wireless USB Adapter
- ✂✂ One Compact Disk. The CD includes 98/2000/NT/ME/XP driver, utility, and this user manual

## Chapter 2 Network Configuring and Planning

The wireless USB Adapter supports legacy Ethernet LAN network configuration options as defined by the IEEE 802.11b. The wireless USB Adapter can be configured as:

- . Ad-Hoc mode for no Access Point wireless environment.
- . Infrastructure mode for wireless environment with Access Point.

### 2-1 Network Topology

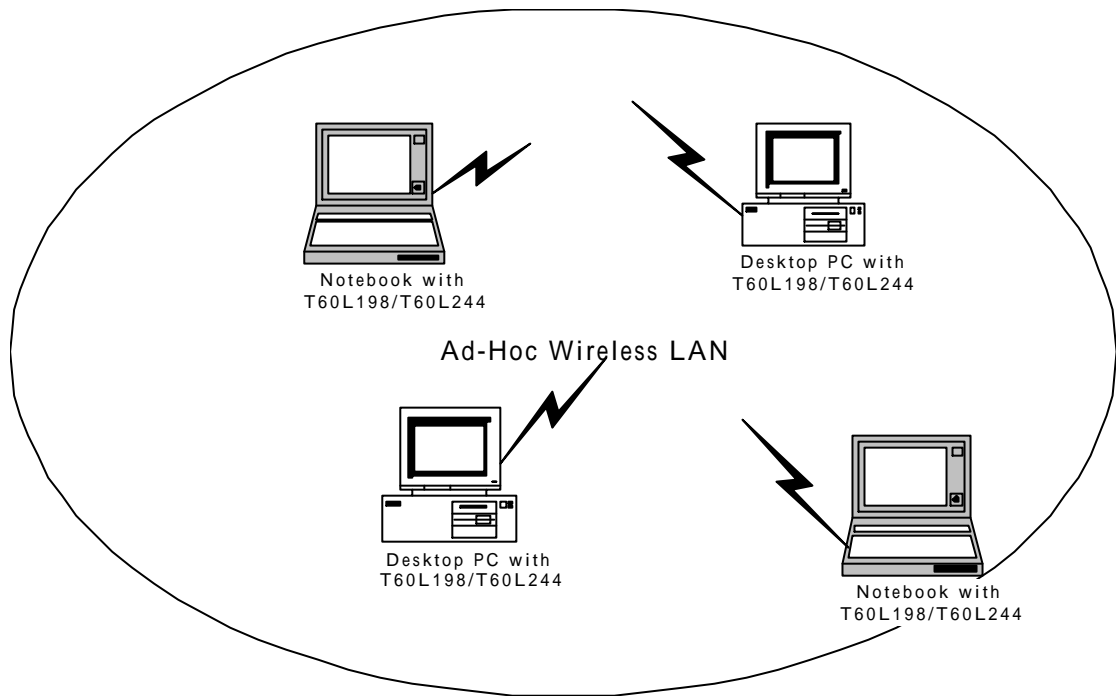


Fig.1 Ad-Hoc Wireless LAN

An Ad-Hoc wireless LAN is a group of computers. Each computer is equipped with a wireless USB Adapter that is configured to the same radio channel in order to communicate with others. Ad-Hoc wireless LAN configurations are appropriate for branch level departments or SOHO operations.

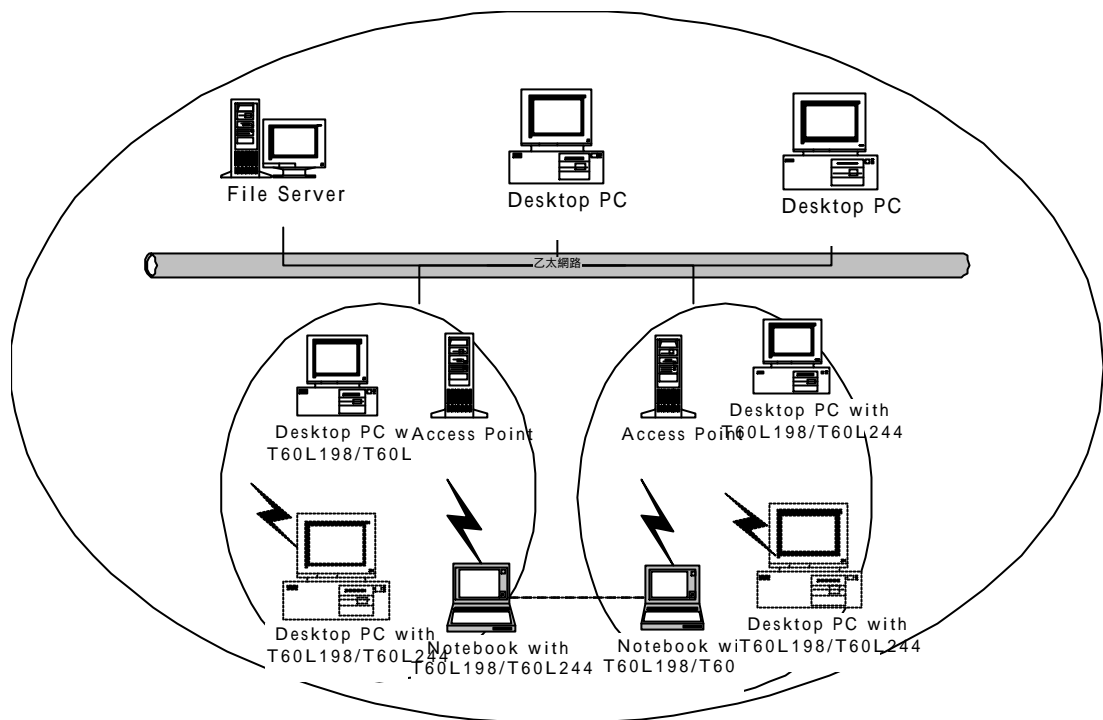


Fig.2 Infrastructure Wireless LAN Configuration

A group of wireless users and an Access Point compose a Basic Service Set (BSS). Wireless clients can talk to any computer in both wired and wireless LAN network via the Access Point.

## 2-2 Roaming

Infrastructure mode also supports roaming capabilities for mobile users. More than one BSS can be configured as an Extended Service Set (ESS). The continuous network allows users to roam freely within an ESS. All wireless USB Adapter and Access Point within one ESS must be configured with the same ESSID in order to utilize the roaming function. Proper Access Point positioning with a clear radio signal can greatly enhance wireless performance.

## **Chapter 3    Installation**

### **3-1 System Requirements**

In order to install and use the wireless USB Adapter in your notebook computer, your notebook system must meet the following requirements:

- ✂✂ USB interface
- ✂✂ CD-ROM Drive

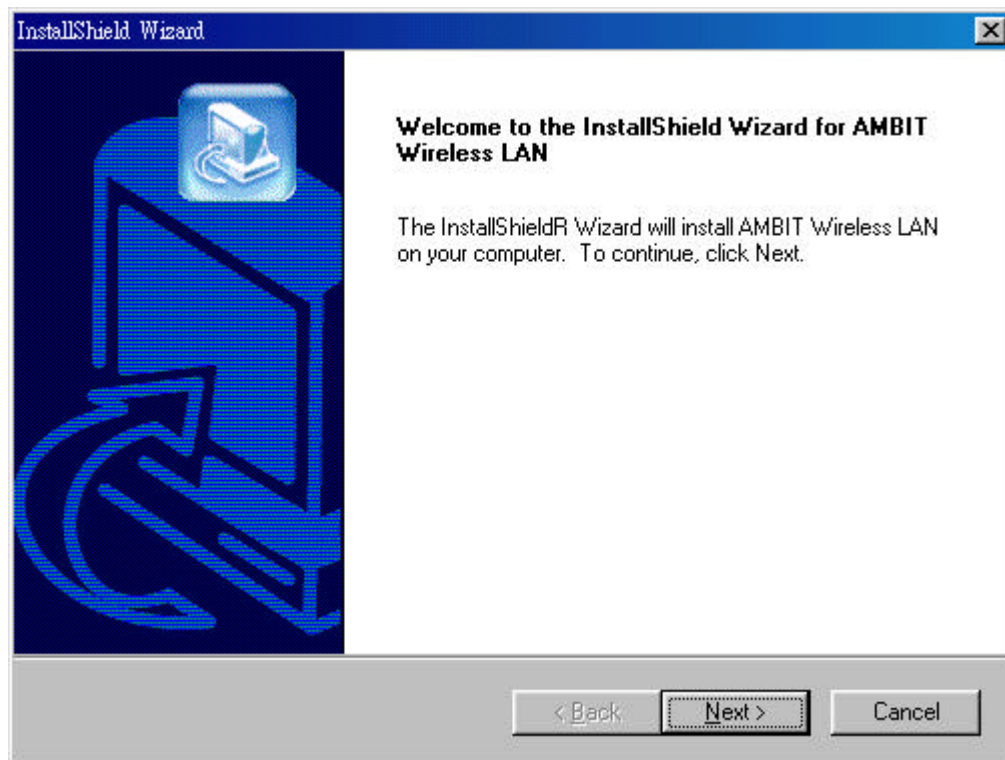
### **3-2 Inserting the Wireless Card**

1. Locate an available USB Adapter.
2. With the USB ADAPTER card pin connector facing the USB ADAPTER slot, you can easily insert the card into the slot.
3. After properly inserting the wireless card, you can continue with wireless driver installation.
4. Windows will find the new driver and ask for driver file. You can browse the CD and select the driver file.
5. Reboot your system and continue to install the wireless utility.

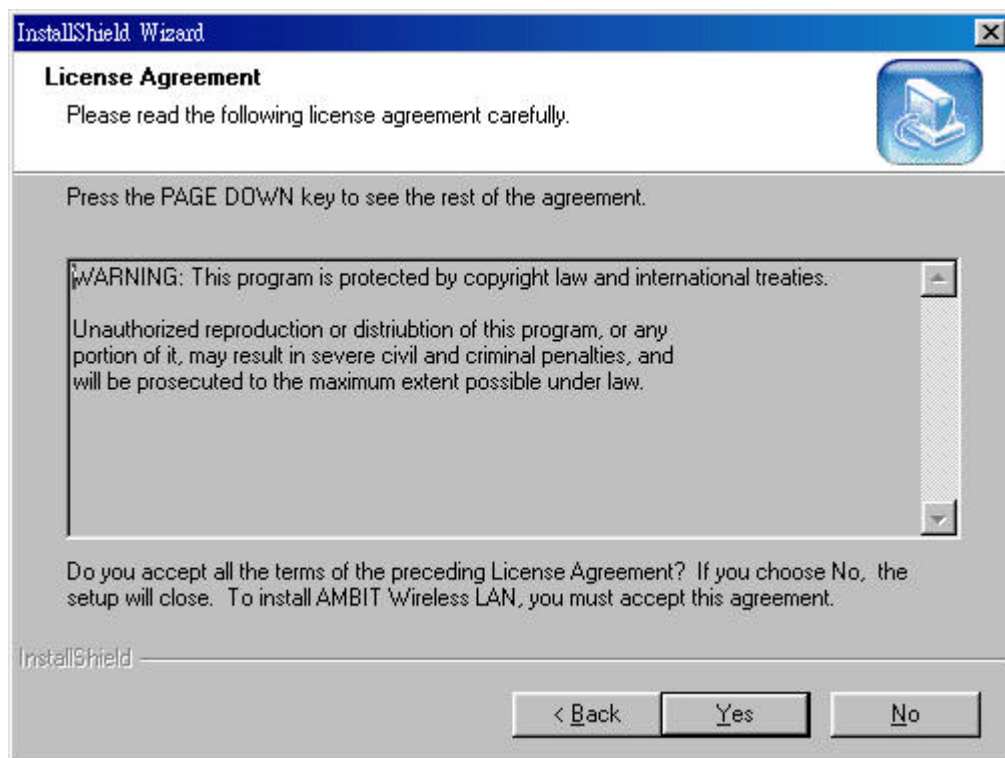
### **3-3 Installation and Uninstall Process**

#### **Install AMBIT Wireless LAN Utility**

1. Execute the program setup.exe' in the CD. Windows displays the dialog similar to the one below. Press 'Next' button to continue.

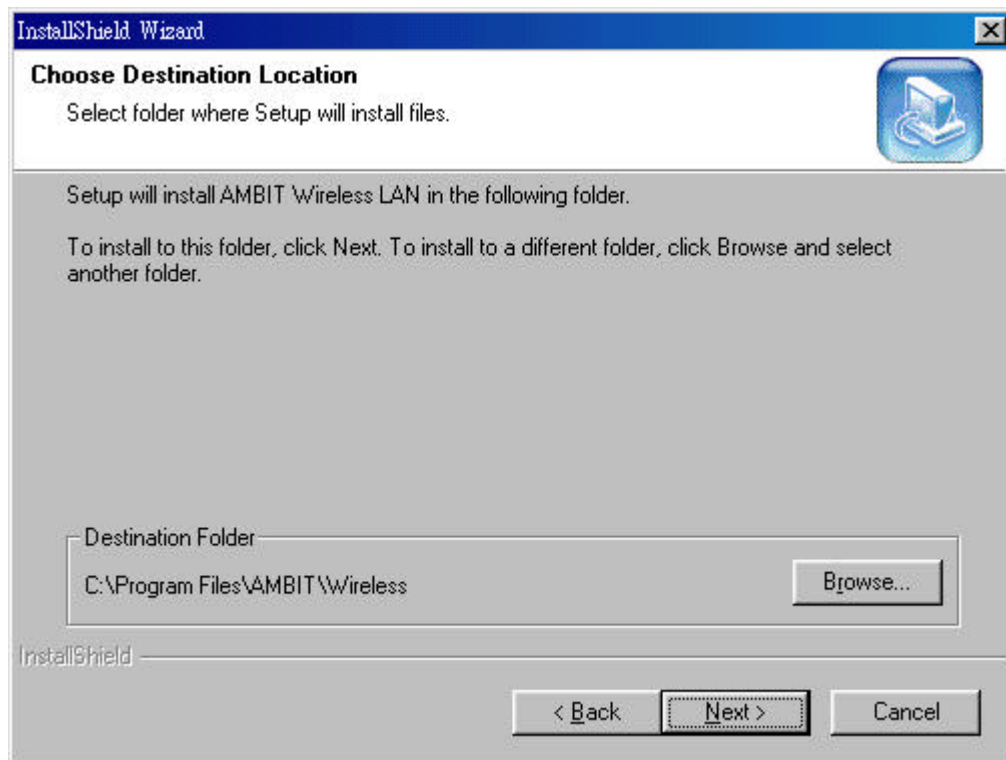


2. It displays a License Agreement dialog. Press 'Next' to continue.

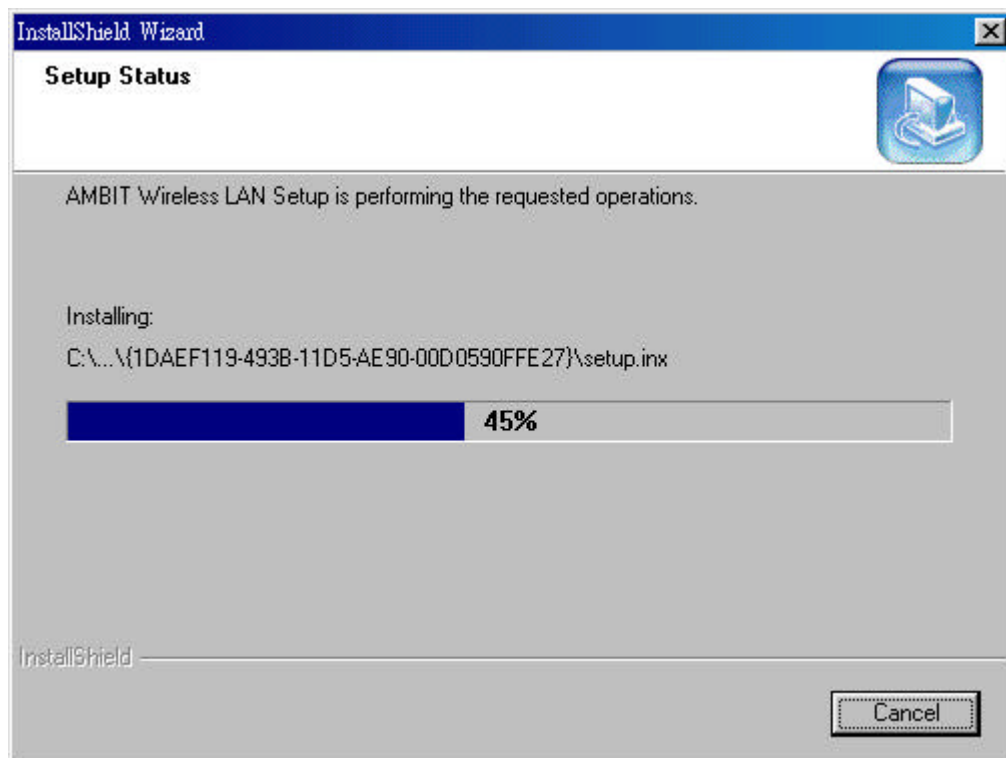


3. Select the destination folder that you want to place the files.

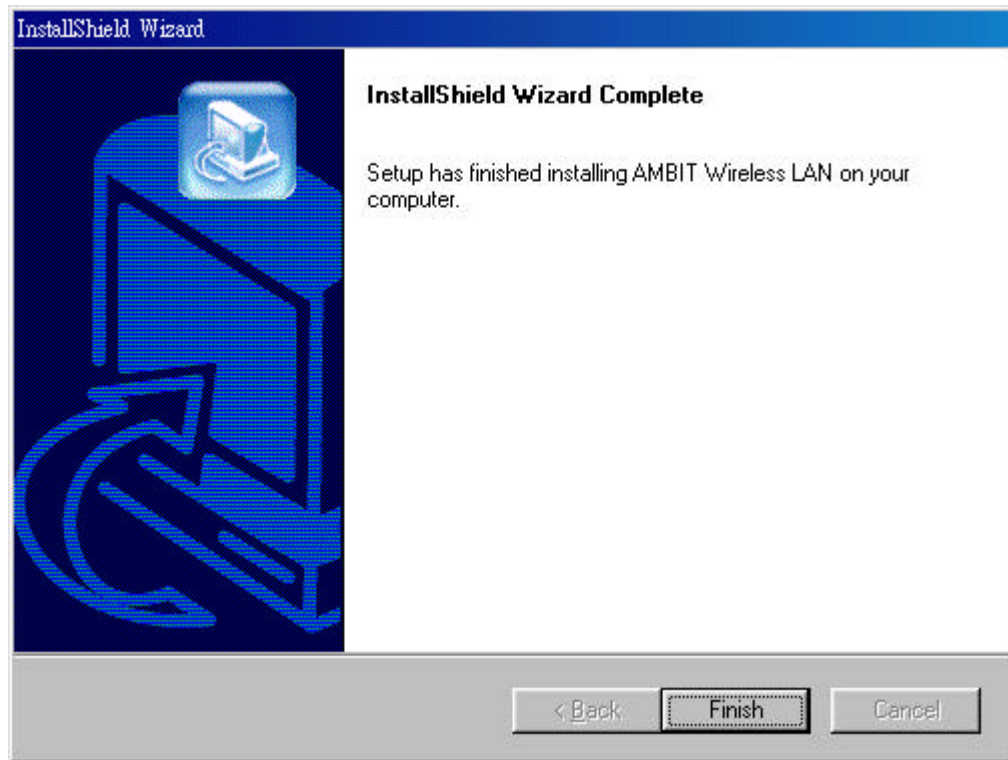




4. Wait for the install program to do the installation.

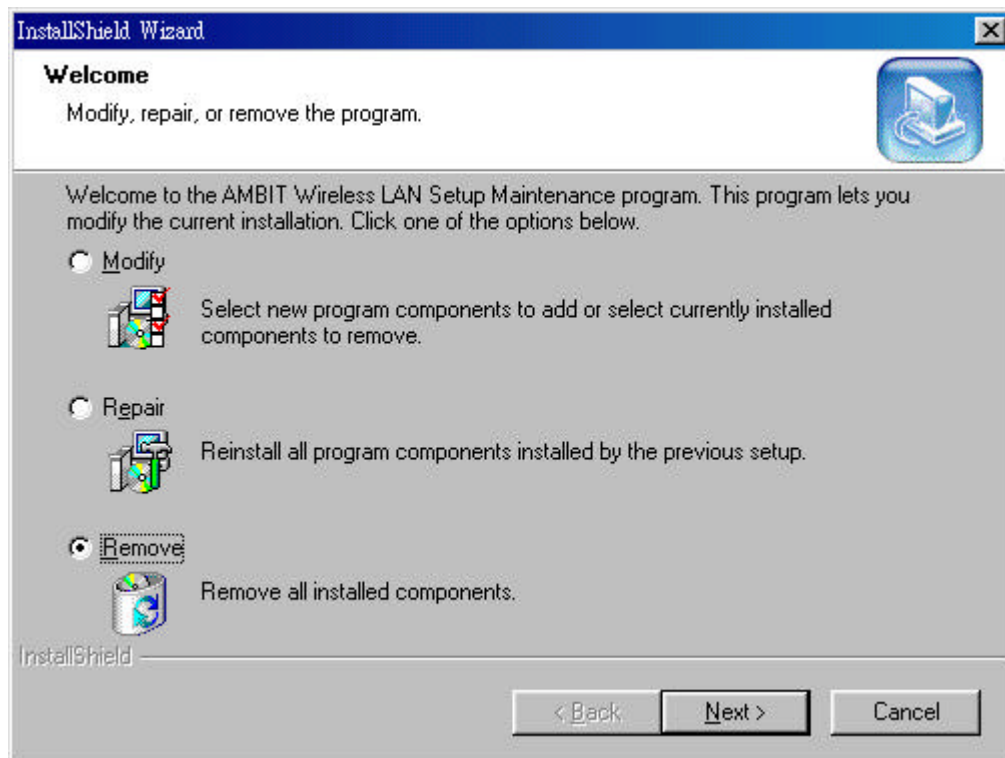


5. Congratulations! AMBIT Wireless LAN has been installed successfully.  
At this moment, Windows will try to find any wireless cards on your system.  
This may take a few minutes.

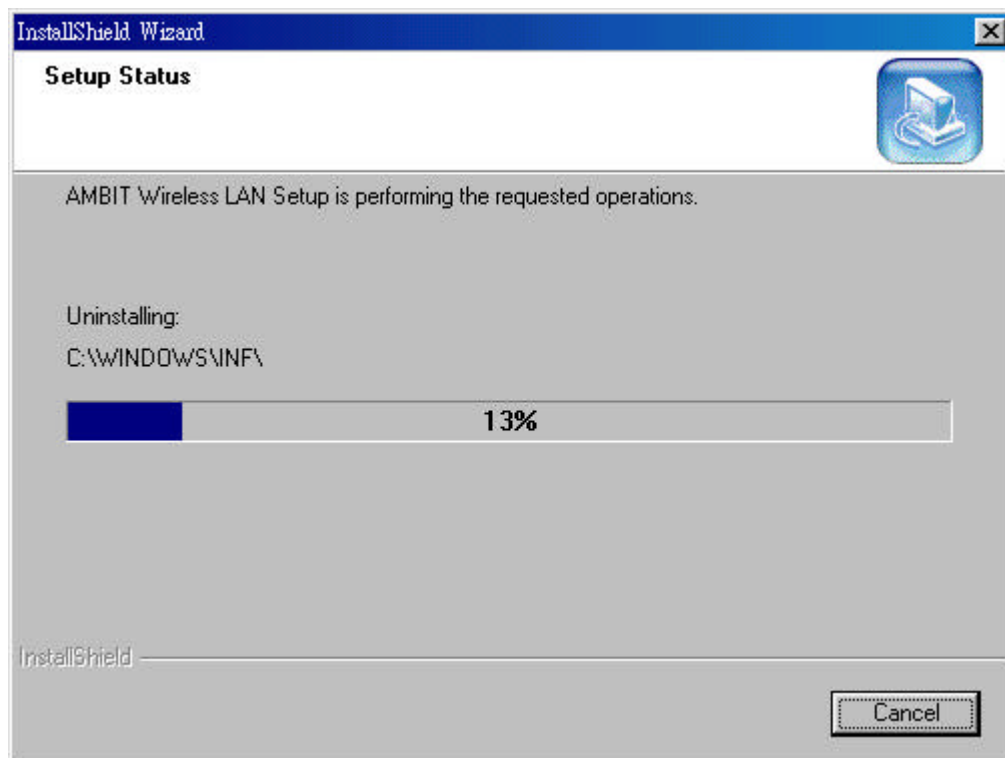


### Uninstall AMBIT Wireless LAN

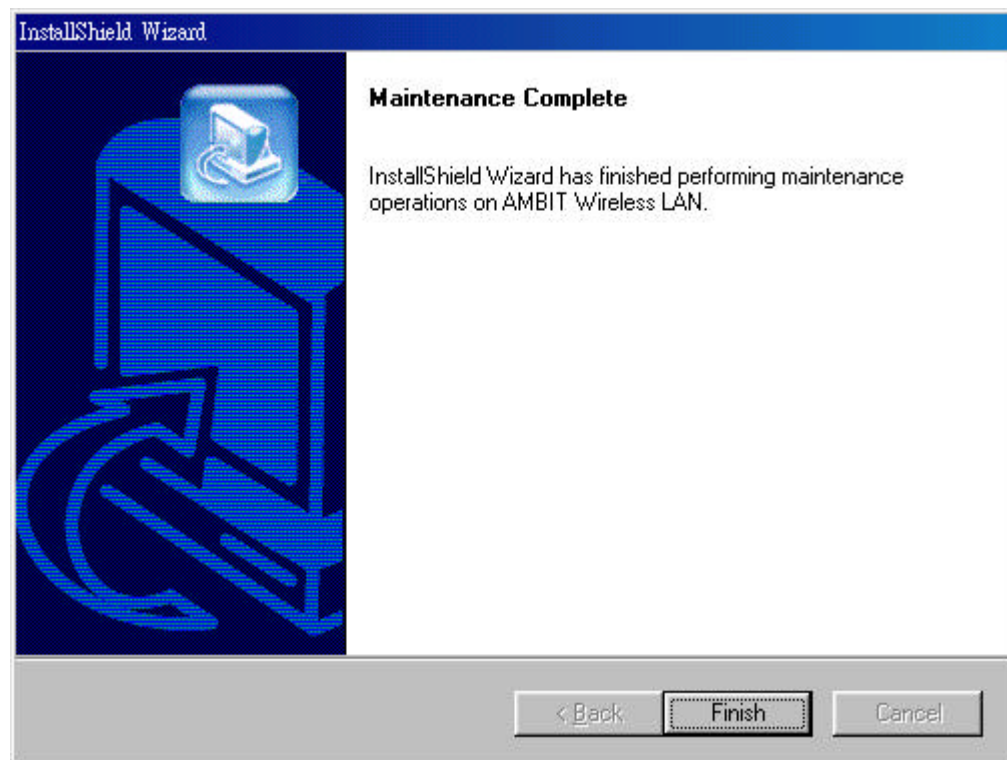
1. One can remove the AMBIT Wireless LAN via the 'Add/Remove Programs' in the 'Control Panel'. Select 'AMBIT Wireless LAN' and click 'Add/Remove' button. Windows displays the dialog box similar to the one below.



2. Select 'Remove' and then click the 'Next' button to perform the un-installation. Click 'OK' button if you really want to remove the AMBIT Wireless LAN.
3. Wait for the un-installation to complete.



4. Click 'Finish' to complete the un-Installation.

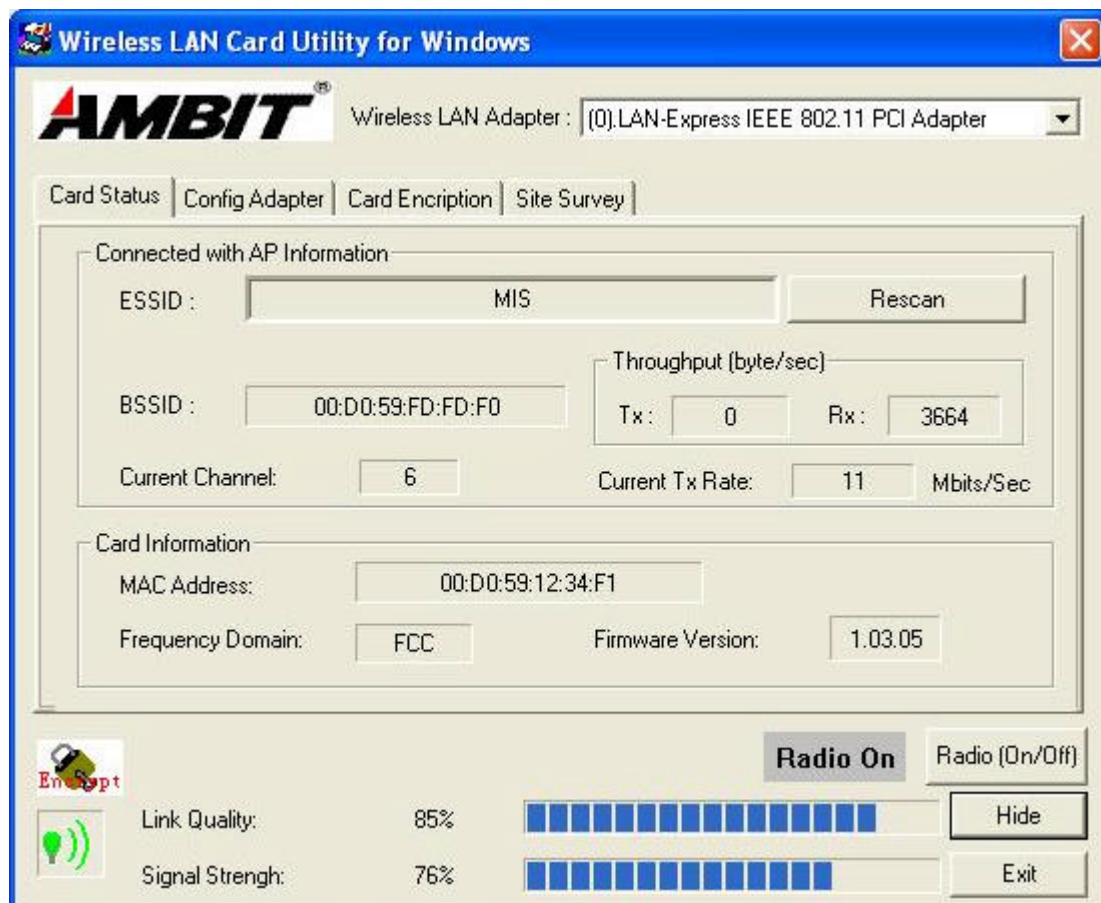


## Chapter 4 Wireless Utility and Configuration

The following sections describe the Wireless Network Configuration Utility. This utility provides quick access and a friendly user-interface to configure the card setup.

### 4-1 Windows 98/2000 Wireless Utility

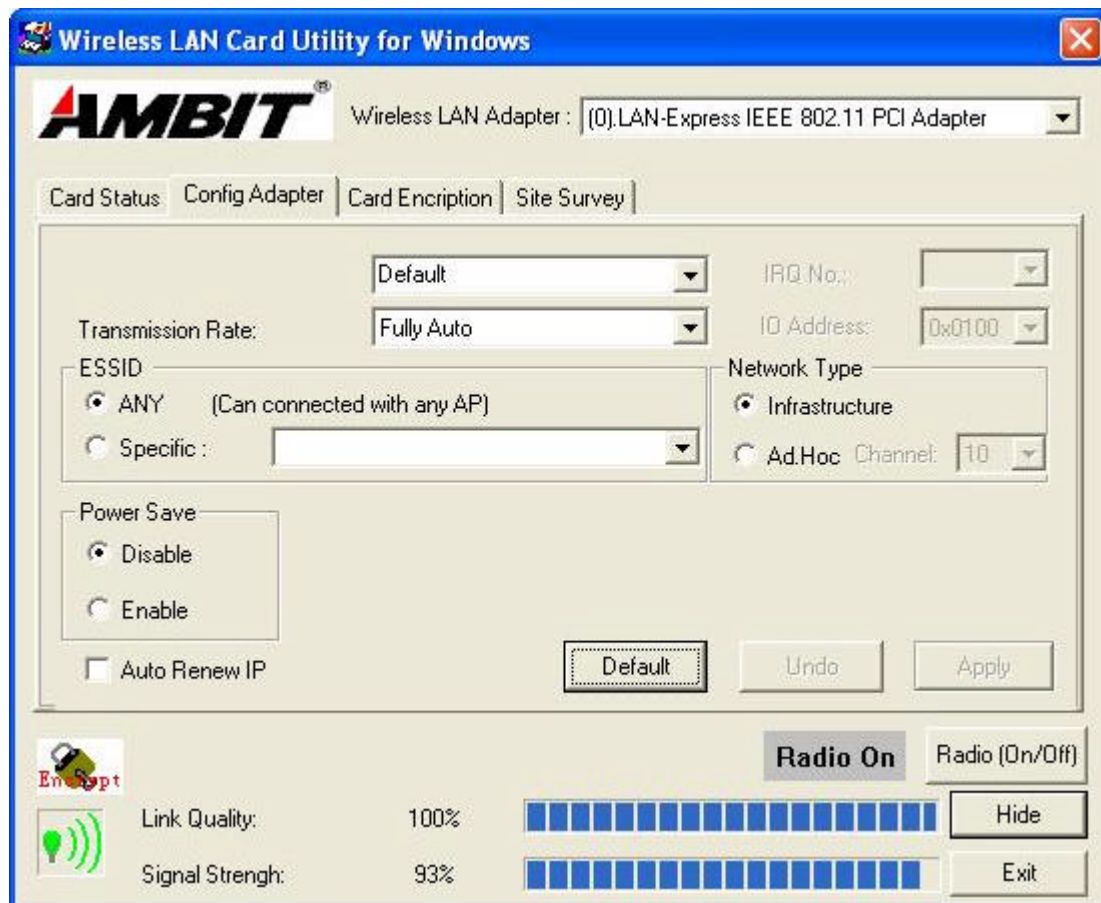
After installation is completed, a Wireless LAN Utility icon will appear in Desktop screen. Click it, then you will see the screen below. If you cannot find the icon, you can select “Start” ->”Programs”->”Wireless LAN Configuration Utility” Icon.



**Card Status:** You can see the AP information that your card connected. In this page you also can find Firmware Version and manufacturer information.

**ESSID:** An acronym for Extended Service Set Identifier, ESSID is the unique name

shared among all clients and Access Points in a wireless network. The ESSID must be identical for all clients or Access Points participating in the same network. The ESSID is case sensitive and must not exceed 30 characters. Pressing ‘Rescan,’ will scan all the APs in the nearby area and choose the strongest one. Using “Link Quality” and “Signal Strength”, you can determine the wireless transmission quality. Press ‘Config Adapter’ tab, then you will see the screen below.



There are two network types:

**Ad-Hoc:** This mode is used for a simple peer-to-peer network. It offers file sharing between wireless clients without a wireless Access Point (AP).

**Infrastructure (Default):** This mode allows a wireless LAN to be integrated into an existing wired network through an AP. Infrastructure type networks also permit roaming between Access Points while maintaining connection to all network resources. Infrastructure mode provides additional features, such as WEP security, power saving and extended range.

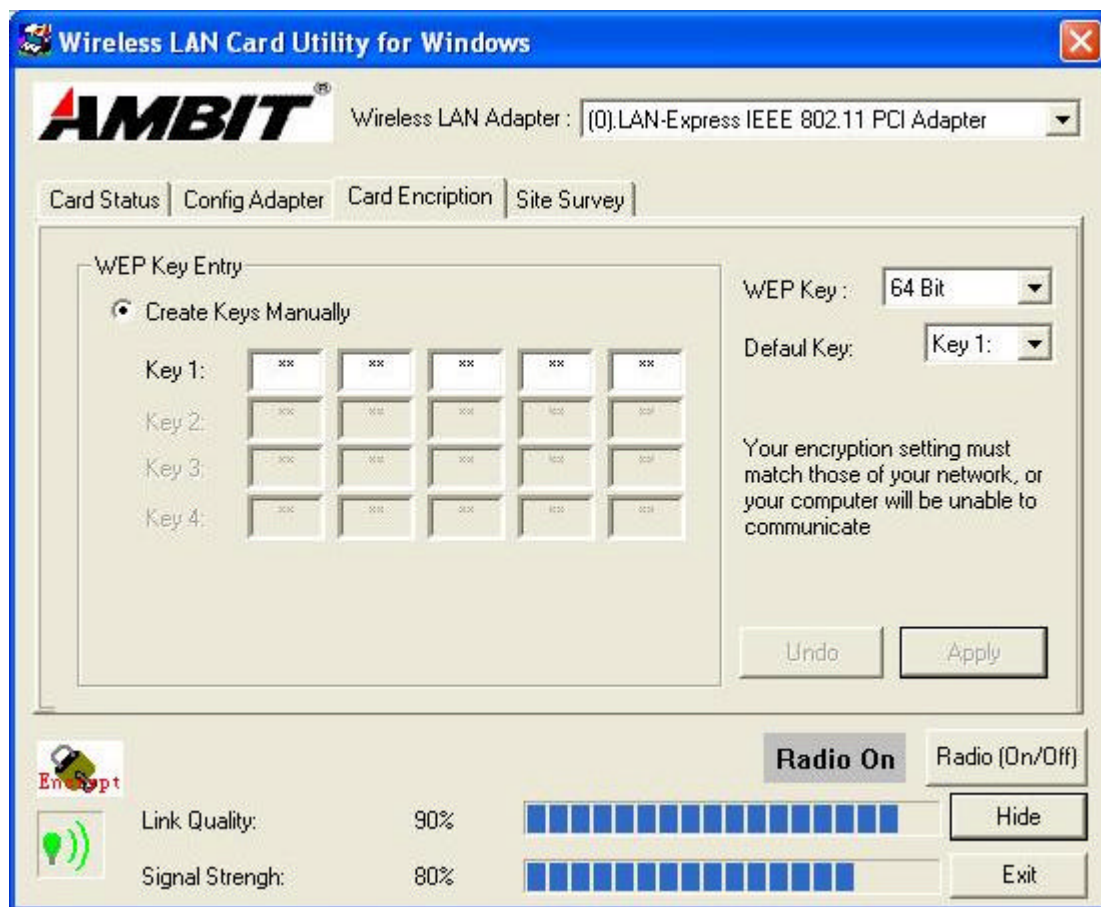
**ESSID:** You can either choose specific AP or connect to any AP in the nearby area.

**Power Save:** enable it, so it will be triggered when your computer system is inactive. After computer system active again, wireless connection will rebuild.



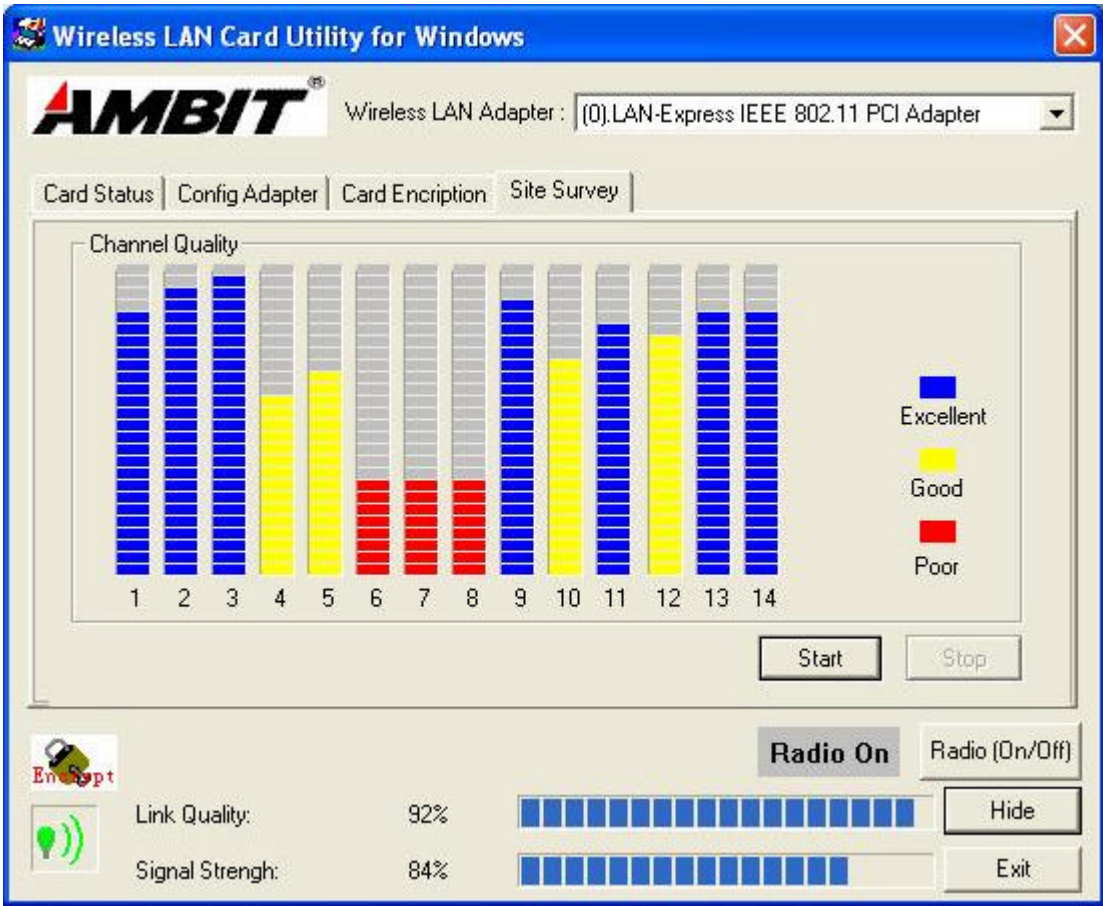
**Auto Renew IP:** Select this item, so the wireless network card can automatically gain an IP when you move to another network subnet. For example, if you are in 192.168.1.X subnet and move to 192.178.5.X subnet, your computer will renew an IP address from 192.178.5.X subnet.

Press 'Card Encryption' tab, then you will see the screen below.



Wired Equivalent Privacy, WEP is an encryption scheme used to protect your wireless data communications. WEP uses a combination of 64-bit keys, 128-bit keys to provide data encryption for your wireless network. AP and wireless card should use the same WEP key in order to communicate

Use the Site Survey Tool. You can identify each channel transmission quality.

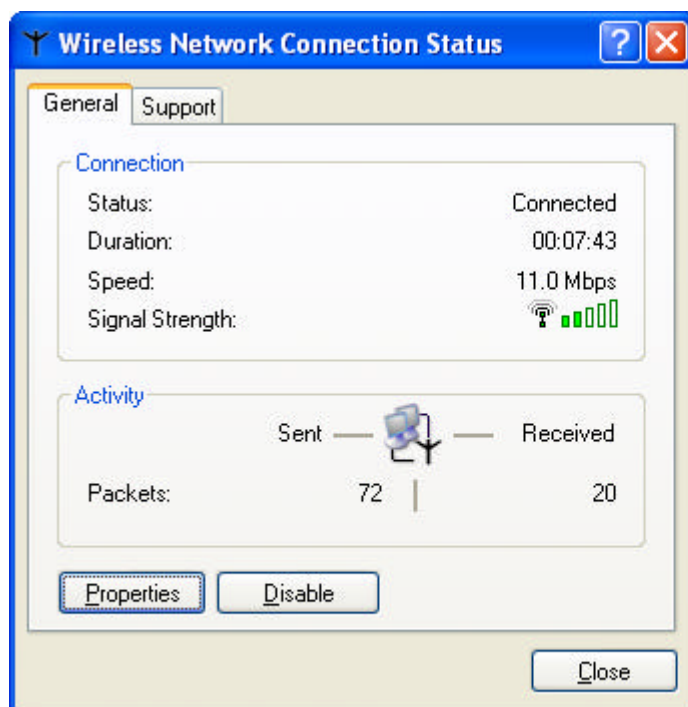




## 4-2 Windows XP Wireless Utility

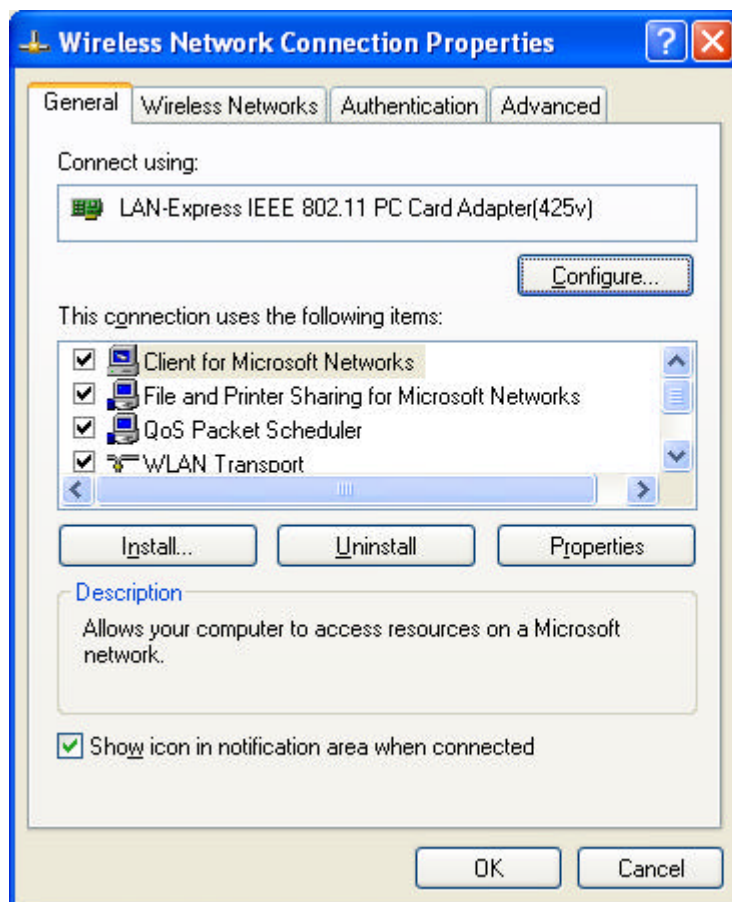
NOTE: You do not need to install the utility from the CD if you are using Windows XP. Windows XP provides wireless Utility as below.

1. To configure the wireless card setting, you can select Start\Settings\Network Connection in the Windows XP. Choose the wireless network connection, then you will see below screen. From this screen, you can see wireless connection status and wireless signal level.

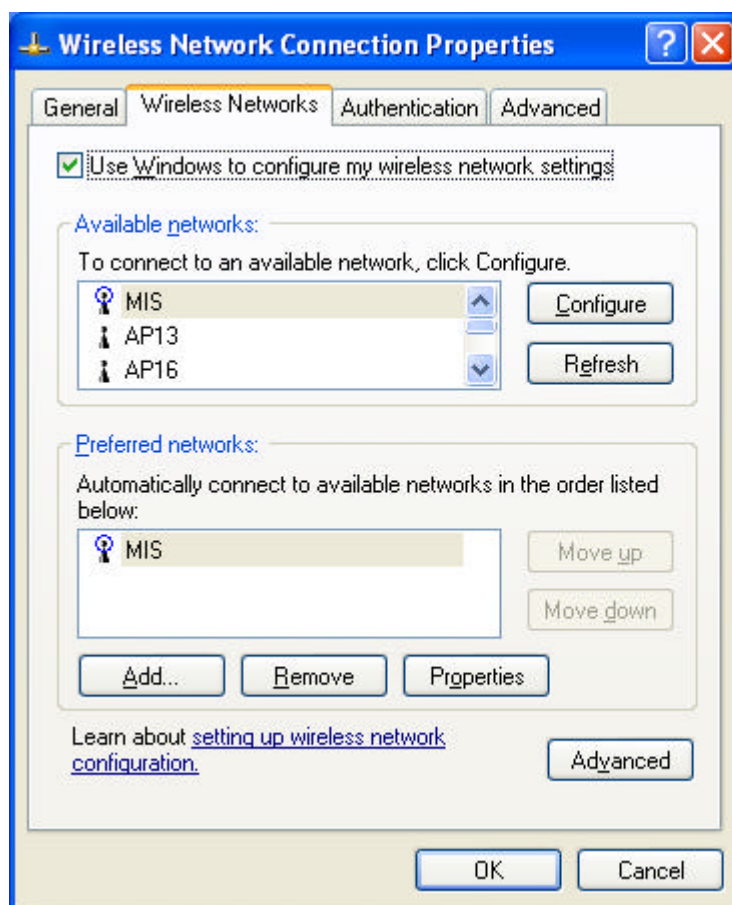


2. Select 'Properties' in the above screen. The following windows will show up.

In 'General' page, wireless card information and networking protocol have been displayed. Extra networking protocol can be installed in this page.

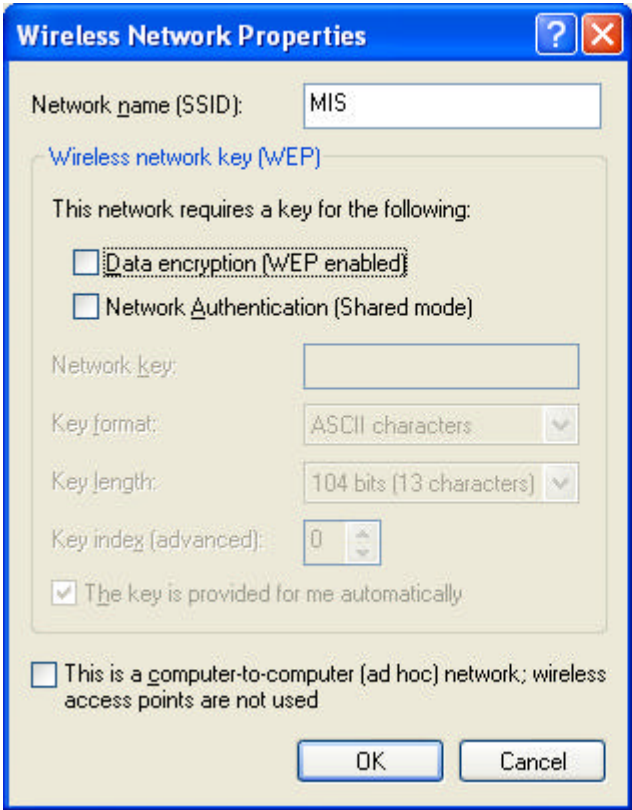


3. Select Wireless Networks page, you can see available wireless networks in your nearby area. You can add your preferred wireless Access Point to your list, so your wireless card will search for specific wireless networks.



3. Click 'Configure' above to setup wireless security and data encryption.

Define your network name (SSID) in the following windows, so you can join a specific wireless network. Check AP has WEP on or not. Your wireless network will need to have the same WEP setting with AP in order to communicate. If your wireless network doesn't have any AP, mark the 'This is computer-to-computer (ad-hoc) network; wireless access points are not used'



The image shows a Windows XP-style dialog box titled "Wireless Network Properties". It has a blue title bar with a question mark icon and a close button (X). The dialog is divided into two main sections. The top section, titled "Wireless network key (WEP)", contains the text "This network requires a key for the following:" followed by two unchecked checkboxes: "Data encryption (WEP enabled)" and "Network Authentication (Shared mode)". Below these are four input fields: "Network key:" (empty), "Key format:" (set to "ASCII characters"), "Key length:" (set to "104 bits (13 characters)"), and "Key index (advanced):" (set to "0"). A checked checkbox "The key is provided for me automatically" is located below the key index field. The bottom section of the dialog has an unchecked checkbox labeled "This is a computer-to-computer (ad hoc) network; wireless access points are not used". At the bottom right are "OK" and "Cancel" buttons.

Wireless Network Properties

Network name (SSID): MIS

Wireless network key (WEP)

This network requires a key for the following:

☐ Data encryption (WEP enabled)

☐ Network Authentication (Shared mode)

Network key:

Key format: ASCII characters

Key length: 104 bits (13 characters)

Key index (advanced): 0

☒ The key is provided for me automatically

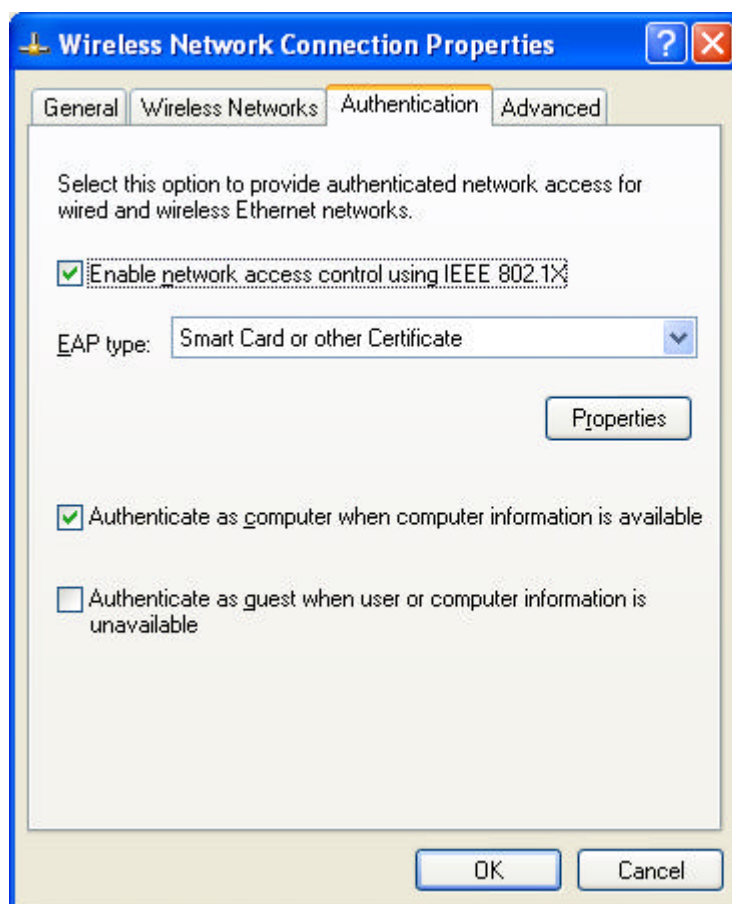
☐ This is a computer-to-computer (ad hoc) network; wireless access points are not used

OK Cancel

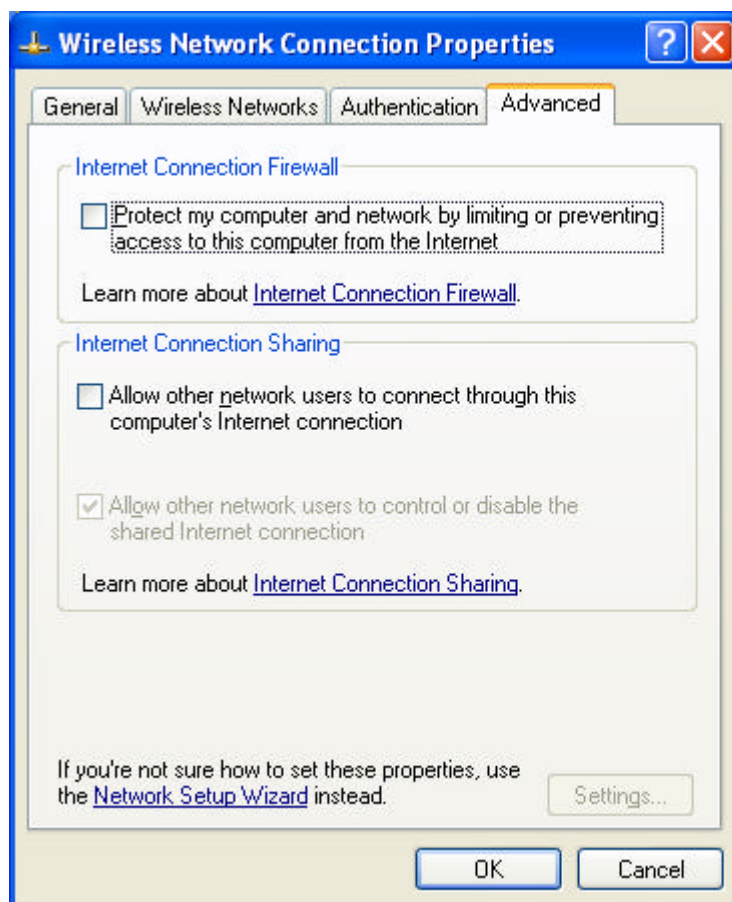
This window provides authentication via 802.1X. 802.1X, an IEEE standard that provides an authentication framework for 802-based LANs. 802.1X takes advantage of an existing authentication protocol known as the Extensible Authentication Protocol. 802.1x, giving someone secure, encrypted, wireless access on a Microsoft network will be as easy as setting a flag on the users domain account.

*What does this mean for the Home Network user?*

802.1x will ensure that if and when you make the change over to Wireless Ethernet, your neighbor will not be able to access your wireless LAN!



The 'Advanced' window offers Firewall and Internet Connection Sharing functions. Depending on your networking environment, you can select the functions below.



## Appendix A Troubleshooting

### Problem Solving

#### ***1. My computer does not recognize the wireless network card.***

Solution:

- ✎✎ The wireless network card is not properly inserted into the USB Adapter slot.
- ✎✎ Ensure that the wireless network card has been inserted into an available USB Adapter .

#### ***2. The wireless network card does not work properly.***

Solution:

- ✎✎ Insert the USB Adapter into Notebook' s slot again. A beep should be heard if the card properly inserted.
- ✎✎ The Activity LED indicator is active if the card is properly connected.
- ✎✎ Right click on “My Computer” and the select Properties. Select the device Manager and click on the Network Adapter. You will find “LAN-Express IEEE 802.11 USB Adapter” if it is installed successfully. If you see the Yellow Question Mark besides the wireless network card, then the wireless card is not properly installed. Please check below:
  - ✎✎ Check if your Notebook has a free IRQ
  - ✎✎ Check that you have inserted the right card and have installed the proper driver.
  - ✎✎ Try to remove driver, install again, and then reboot your computer.
- ✎✎ Confirm the station is configured the same ESSID as the same wireless network.
- ✎✎ Check your channel is the same as AP setting. Try to use ‘Rescan’ function in the card status page after launch Wireless Utility.

## **Appendix B    Glossary**

**Access Point** - An internetworking device that seamlessly connects wired and wireless networks together.

**Ad-Hoc** - Ad-Hoc is a peer- to-peer wireless network without Access Point. A group of wireless clients consistent an independent wireless LAN.

**Backbone** - The core infrastructure of a network, the portion of the network that transports information from one central location to another central location. The information is then off-loaded onto a local system.

**BSS** - Stands for “Basic Service Set.” An Access Point associated with several wireless stations.

**ESS** - Stands for “Extended Service Set.” More than one BSS can be configured as an Extended Service Set. An ESS is basically a roaming domain.

**Ethernet** - A popular local area data communications network, originally developed by Xerox Corp., which accepts transmission from computers and terminals. Ethernet operates on 10/100 Mbps transmission rate over shielded coaxial cable or over shielded twisted pair telephone wire.

**Infrastructure** - An integrated wireless and wired LAN is called an Infrastructure configuration.

**USB ADAPTER** - Personal Computer Memory Card International Association, which develops standards for PC cards, formerly known as USB Adapter, are available in three “types” which are about the same length and width as credit cards, but range in thickness from 3.3 mm (Type I) to 5.0 mm (Type II) to 10.5 mm (Type III). These cards can be used for many functions, including memory storage, as landline modems and as wireless LAN.

**Roaming** - A function that allows one to travel with a mobile end system (wireless LAN mobile station, for example) through the territory of a domain (an ESS, for example) while continuously connecting to the infrastructure.



## **Appendix C Specifications for Wireless Card**

**Frequency Band: 2400 ~ 2483.5MHz (for US, Canada, and ETSI)  
2400 ~ 2497MHz (for Japan)**

**Modulation TYPE: CCK, BPSK, QPSK**

**Operating Channels:**

**11 channels (US, Canada)**

**13 channels (ETSI)**

**14 channels (Japan)**

**Radio Technology: Direct Sequence Spread Spectrum**

**Data Rate: 1 / 2 / 5.5 / 11 Mbps**

**Output Power: > +13dBm**

**Receive sensitivity: Min. -76dBm for 11Mbps; Min. -80dBm for 5.5/2/1  
Mbps ;(@BER 10E-5)**

**Antenna Type: Printed antenna**

**Power Consumption : TX mode 350 m A (Max.) ; Rx mode 230  
m A (Max.);**

**Package: USB Adapter**

**Certification: FCC Part 15**

**ETSI 300.328**

**ARIB STD33 & T66**

**Driver : Windows 98/2000/ME/NT/XP**

### Federal Communication Commission Interference Statement

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RF Exposure Warning: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device is provided with an internal antenna and minimum 20 cm spacing must be maintained between this PC C Card and all person's body (excluding extremities of hands, wrist and feet) during wireless mode of operation. Further, this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.