

U S E R ' S M A N U A L

T60H656

Mini-PCI Type IIIB WLAN CARD

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Section One: Introduction

Ambit Wireless Mini-PCI Module complied with IEEE 802.11b 11Mbps Standard, it can be used to provide a variety of low-cost wireless network interface card to connect your wireless LAN via fitting into the MiniPCI Type III slot. The Wireless MiniPCI Module that complies with this specification and combines networking with high-speed Internet access will let people connect to the Internet anywhere, anytime.

With seamless roaming, fully interoperability and advanced security with WEP standard, Wireless MiniPCI Module can allow user to switch to different vendors' Access Points through the wireless networks and to prevent from eavesdropping.

1.1 Features

1.1.1 Wireless LAN Function

Form Factor & Bus Interface	MiniPCI Type IIIB, compliant to MiniPCI Specification Rev 1.0
Wireless LAN Compliance	IEEE 802.11b
Radio Technology	Direct Sequence Spread Spectrum
Operating Frequency	2.4 ~ 2.497GHz ISM band
Modulation Schemes	DQPSK, DBPSK and CCK
Channel Numbers	IEEE 802.11b compliant 1 ~ 11 channels for United States 1 ~ 13 channels for Europe 1 ~ 13 or 14 channels for Japan
WLAN Data Rate	11, 5.5, 2, and 1Mbps
Spreading	11-chip Barker Sequence
Media Access Protocol	CSMA/CA with ACK
Transmitter Output Power	Typ. 13+/-1 dBm
Receiver Sensitivity	Typ. -82 dBm for 11Mbps @ 8% PER Typ. -85 dBm for 1Mbps @ 8% PER
Antenna Type	Integrated diversity switch with Hirose compliant connectors(U-FL) for connecting dual diversity antennas

Operating Voltage	3.3VDC
Radio	On / Off
Dynamic Rate Shifting	Automatic fallback
Network Architecture	Ad-hoc, Infrastructure
Operating Systems	Windows 98/Me/2000/XP
Mechanical Requirements	Mini-PCI Type IIIB dimension.

1.2:FCC Notice

1.2.1 FCC Class B 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 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 the 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

IMPORTANT NOTE:

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

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or **antenna**.

As long as the 2 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

The OEM integrator is required to label their end product using this module by the warning statement such as "This product integrate an RF module with FCC ID: MCLT60H656".

The OEM integrator is not allowed to use the antenna which is not included in this authorization. Also the warning statement of the use of the antenna which is not approved in this authorization should be also included in the users manual of the end product.

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and Obtaining a separate FCC authorization.

Caution: For your health sake, please keep at least 20 cm away from your Notebook LCD Panel while using wireless LAN.

Section Two: Wireless Lan Installation

2-1 System Requirements

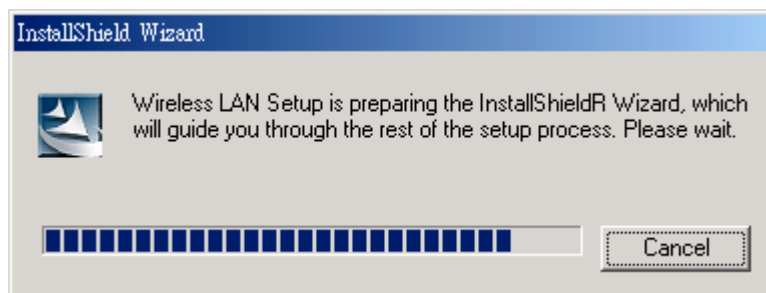
In order to install Wireless LAN driver and Utility and use the Wireless LAN card in your notebook computer. Your notebook system must meet the following requirements:

- Ambit Mini-PCI Wireless LAN Card already inserted
- Windows 98SE, 2K, ME, XP OS Support

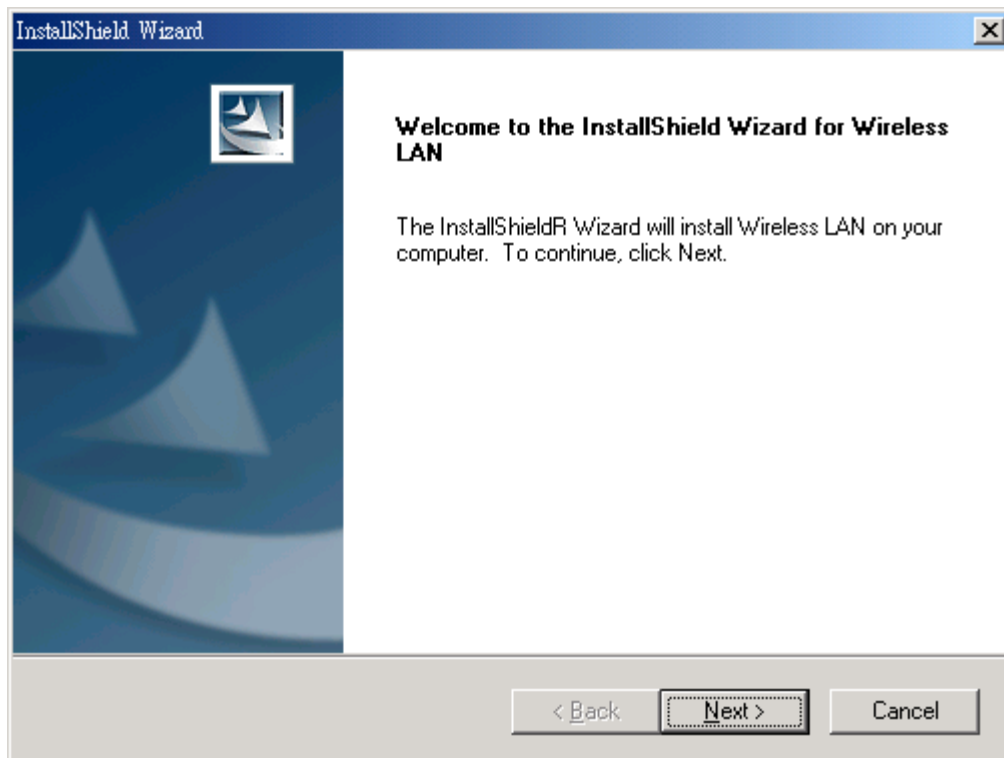
2-2 Installation and Uninstall Process

Install Wireless LAN (Windows 98/2K/ME/XP)

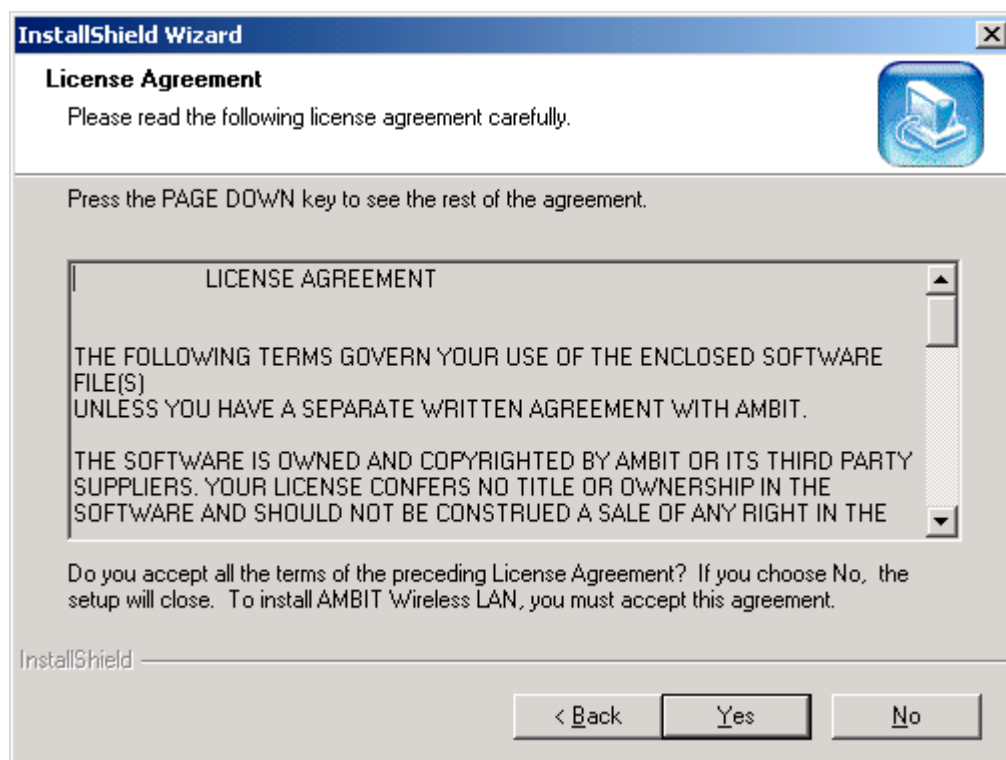
1. While power on and open Windows OS at first time, the OS will detect Wireless LAN Card exist and pop up the following dialogue. If you don't want to perform install process now, then press 'Cancel' bottom. If you want to install now, please wait a moment then you can see the next InstallShield Wizard dialogue pop up.



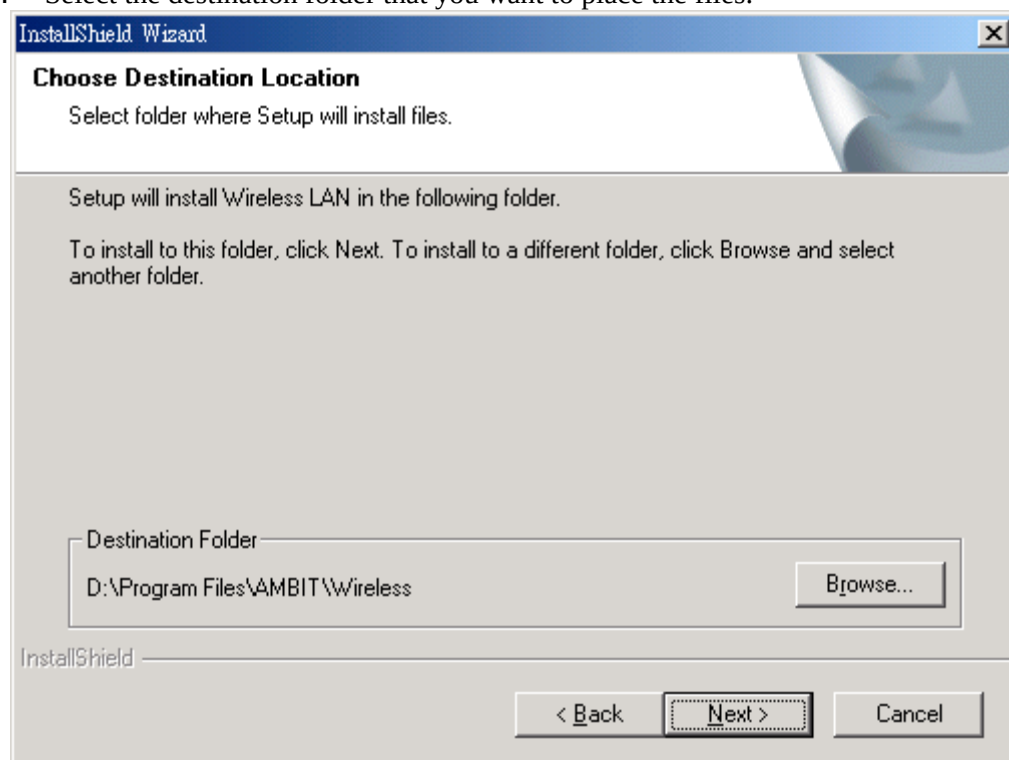
If you press 'Cancel' Bottom at the above dialogue, but you want to start install process later. Execute the program 'Setup.exe' in the CD. Windows displays the dialog as below. Press 'Next' button to continue.



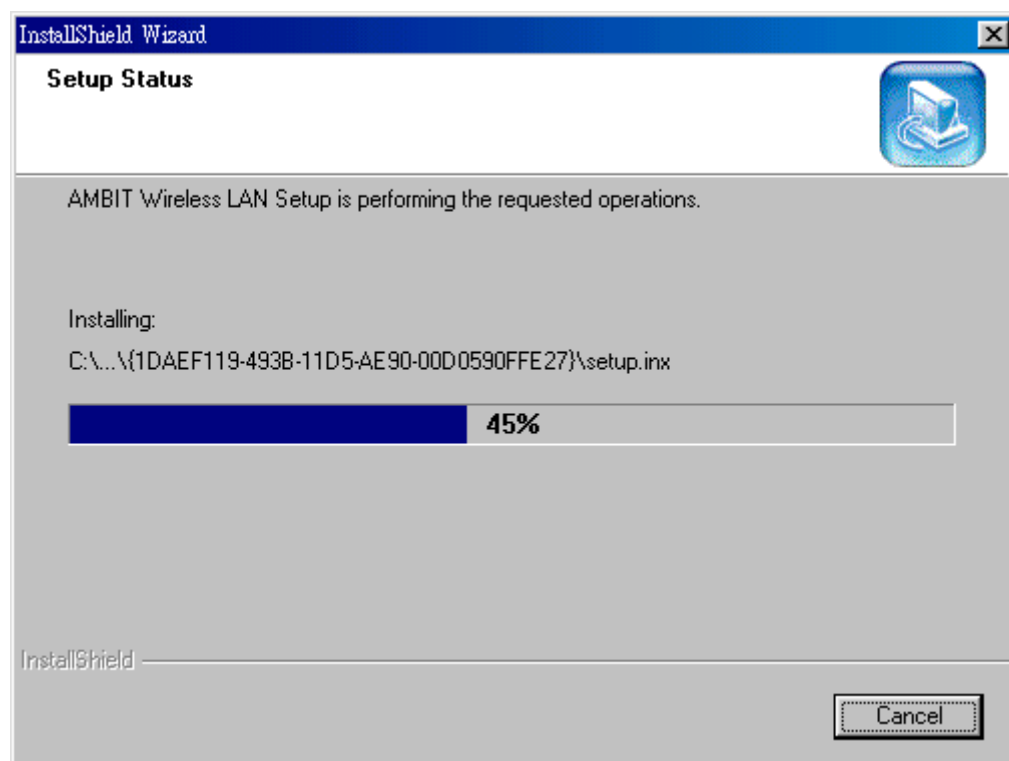
2. It displays a License Agreement dialog. Press 'Next' to continue.



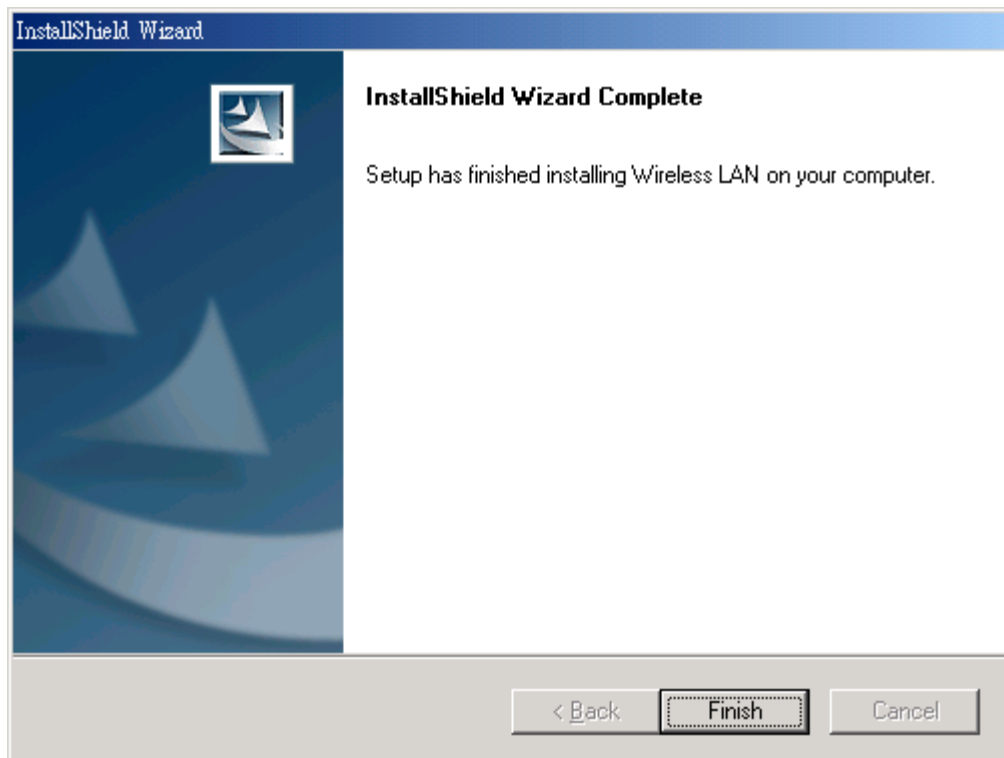
3. Select the destination folder that you want to place the files.



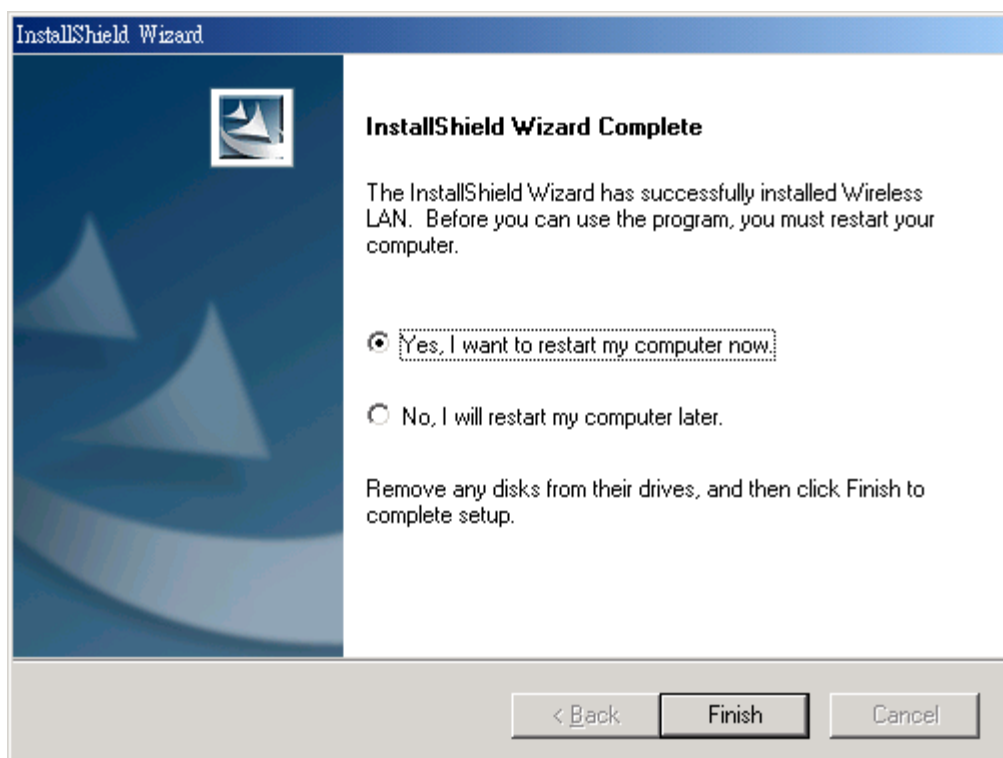
4. Wait for the install program to do the installation.



5. Congratulations! Wireless LAN has been installed successfully.
Please click '**Finish**' to go to the next step.

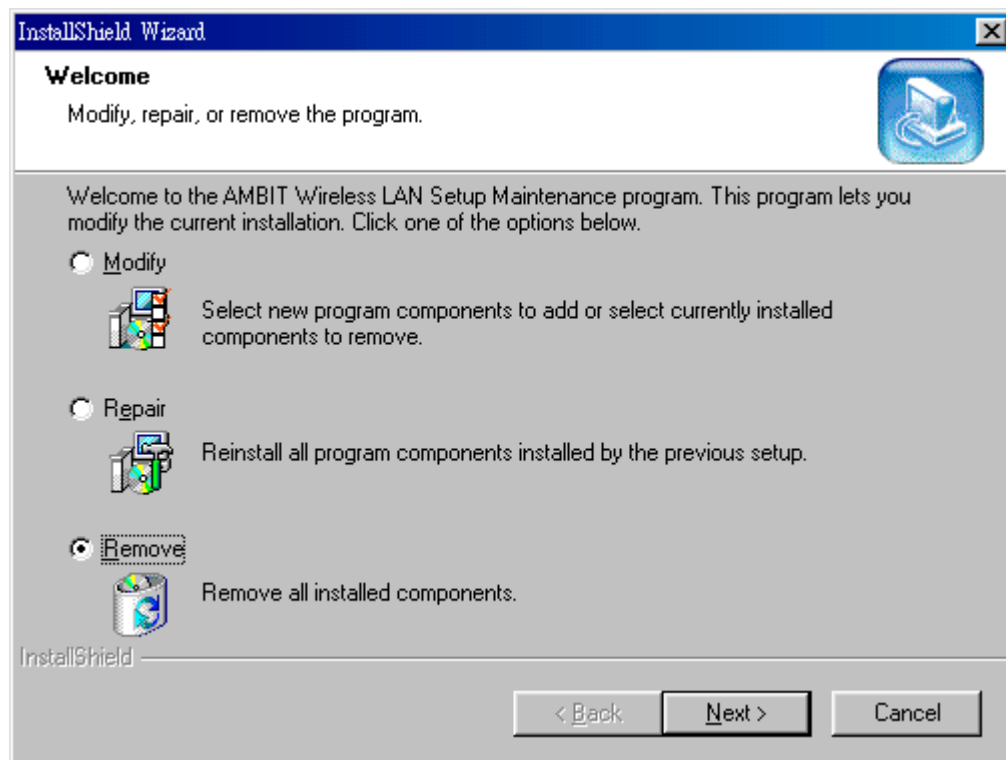


6. Please remove any disks from any drives before your click '**Finish**'.
Then click '**Finish**' to complete setup.

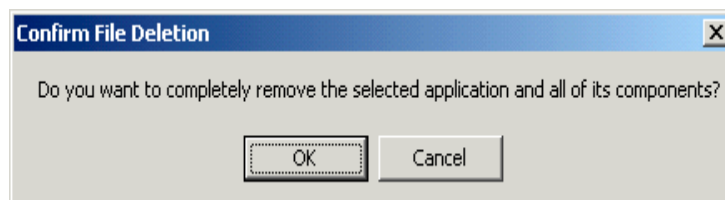


Uninstall Wireless LAN (Windows 98/2K/ME/XP)

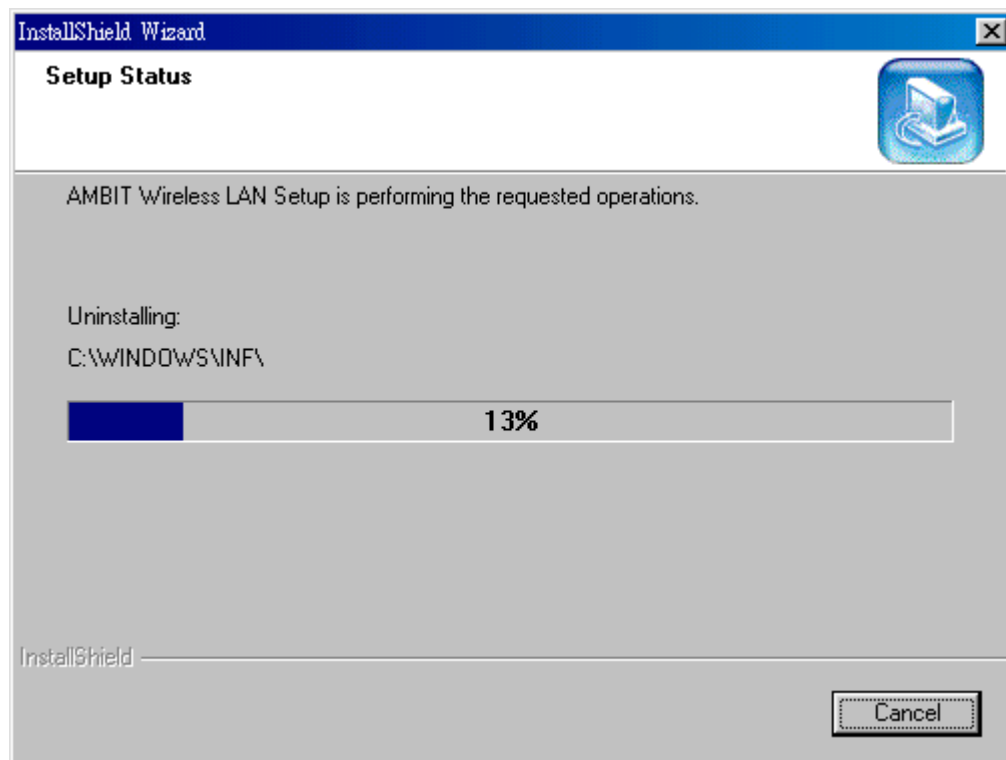
1. One can remove the Wireless LAN via the 'Add/Remove Programs' in the 'Control Panel'. Select 'Wireless LAN' and click 'Add/Remove' button, the dialog as below displays.



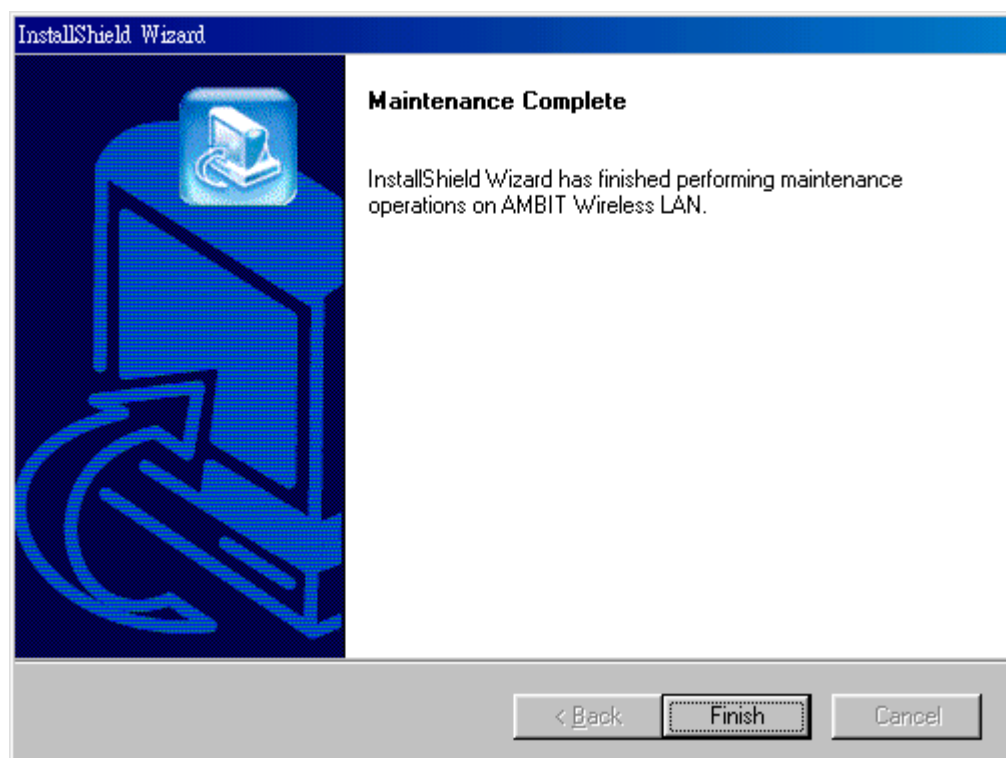
2. Select 'Remove' and then click the 'Next' button to perform the un-installation. Click 'OK' button if you really want to remove the Wireless LAN.



3. Wait for the un-installation to do its work.



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



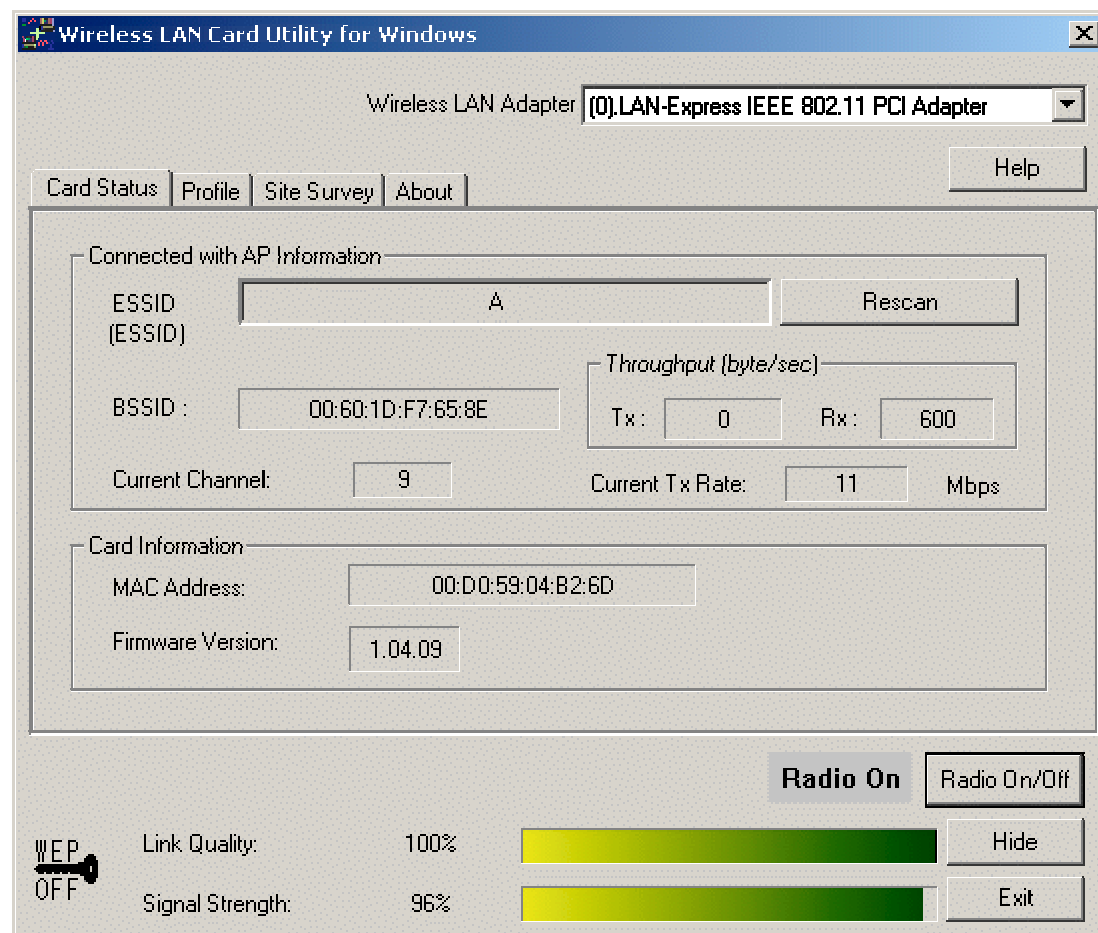
Section Three: Wireless Utility and Configuration

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

3-1 Windows 98/ME/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” ->”Program”->”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 , MAC Address and Frequency Domain.

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 32 characters. Press 'Rescan' it will scan the specific ESSID that your profile set. If your profile set the ESSID to be ANY, then while you press 'Rescan', it will scan AP in the nearby area and choose the stronger one. From Link Quality and Signal Strength, you can tell the wireless transmission quality.

Profile

The screenshot shows the 'Wireless LAN Card Utility for Windows' window with the 'Profile' tab selected. The 'Wireless LAN Adapter' is set to '(0) LAN-Express IEEE 802.11 PCI Adapter'. The 'Profile name' is 'DEFAULT' and the 'Transmission Rate' is 'Fully Auto'. The 'ESSID' is 'ANY' with a 'Scan' button. 'Power Save' is set to 'Disable' and 'Network Type' is 'Infrastructure' with 'Channel' set to '10'. The 'WEP Key Entry' section shows 'WEP Key' as 'Disable', 'Key format' as 'ASCII mode', and 'Default Key' as 'Key 1'. There are four empty text boxes for 'Key 1', 'Key 2', 'Key 3', and 'Key 4'. At the bottom, there are 'Delete', 'Undo', and 'Apply' buttons. A 'Radio On' button and a 'Radio On/Off' button are also present. The status bar shows 'WEP OFF', 'Link Quality: 100%', and 'Signal Strength: 91%' with corresponding progress bars and 'Hide' and 'Exit' buttons.

If you want to use default Profile setting, then choose the DEFAULT at profile name. If you want to setup your own profile, then select PROFILE1 and you can change this PROFILE1 name to the one you like.

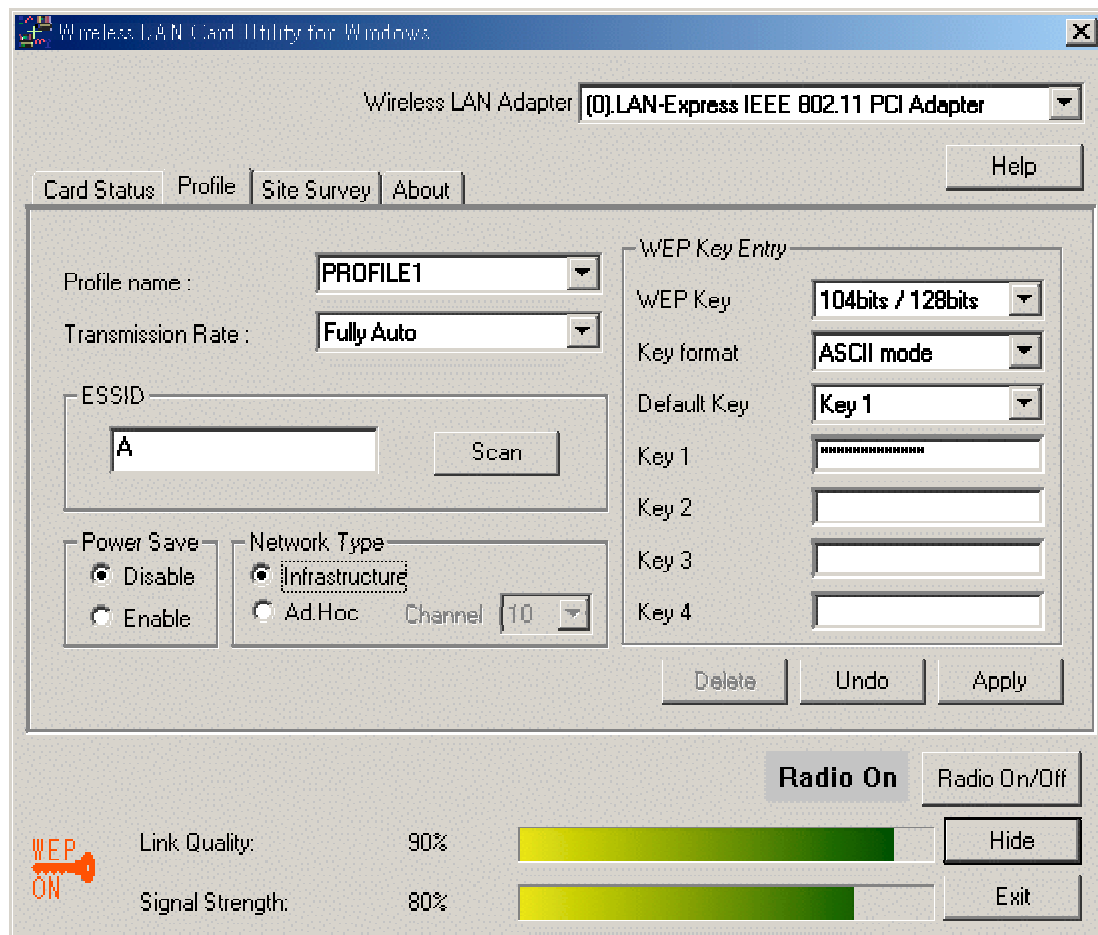
There are two network types:

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: 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.



WEP Key: Wired Equivalent Privacy, WEP is an encryption scheme used to protect your wireless data communications. WEP uses a combination of 40-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.

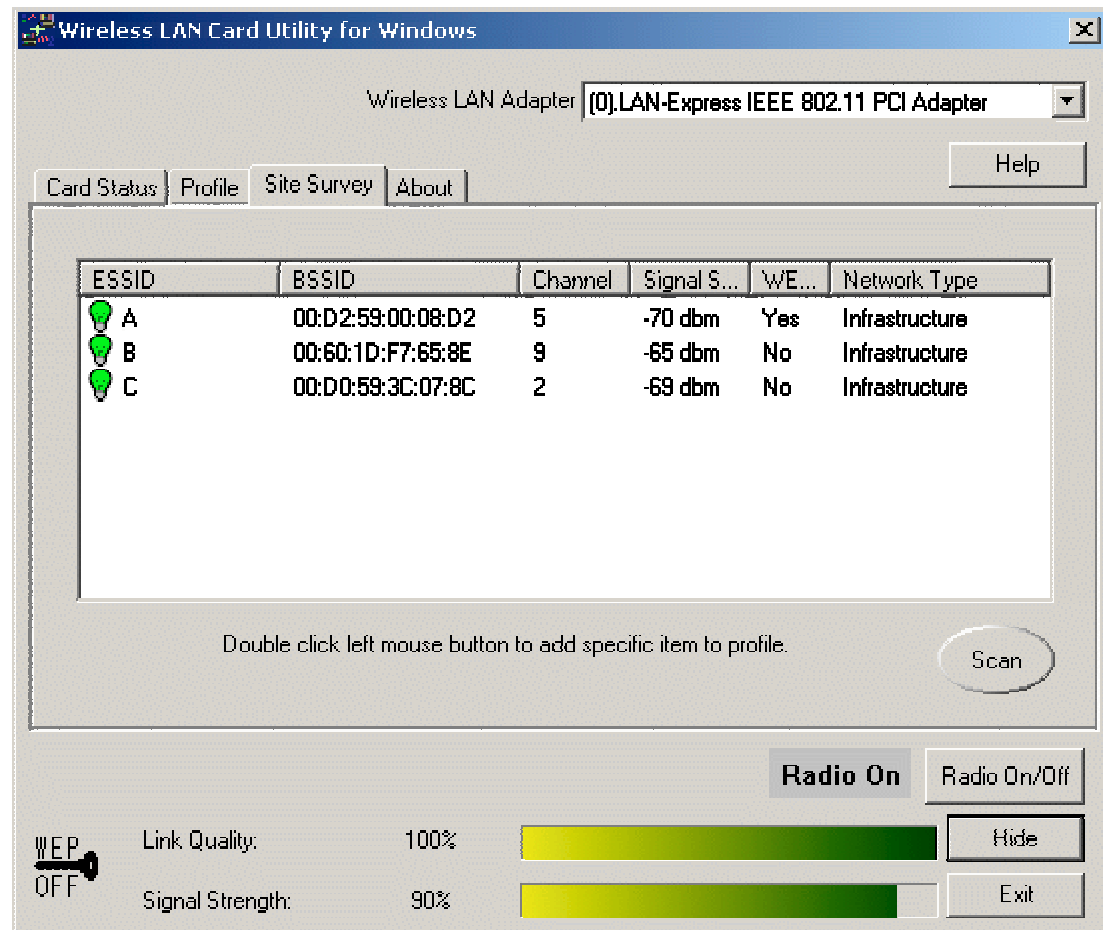
KEY Format: You can choose to enter ASCII Characters (0~9, a~z, A~Z) or Hexadecimal number (0~9, a~f, A~F)

Default Key: The current KEY you choose.

KEY1~4: If you choose 40-bit keys, then you must enter 5 ASCII Characters or 10 Hexadecimal numbers. If you choose 128-bit keys, then you must enter 13 ASCII Characters or 26 Hexadecimal numbers.

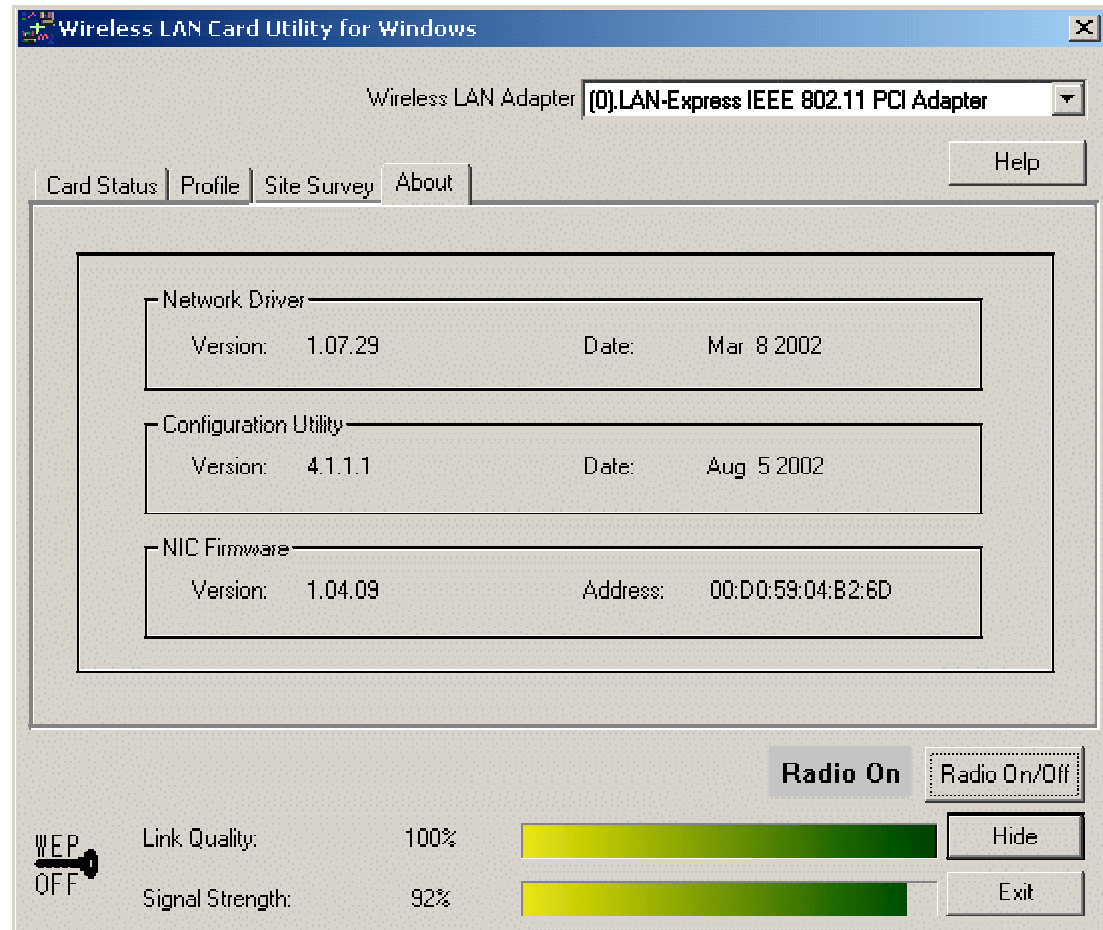
Site Survey

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



About

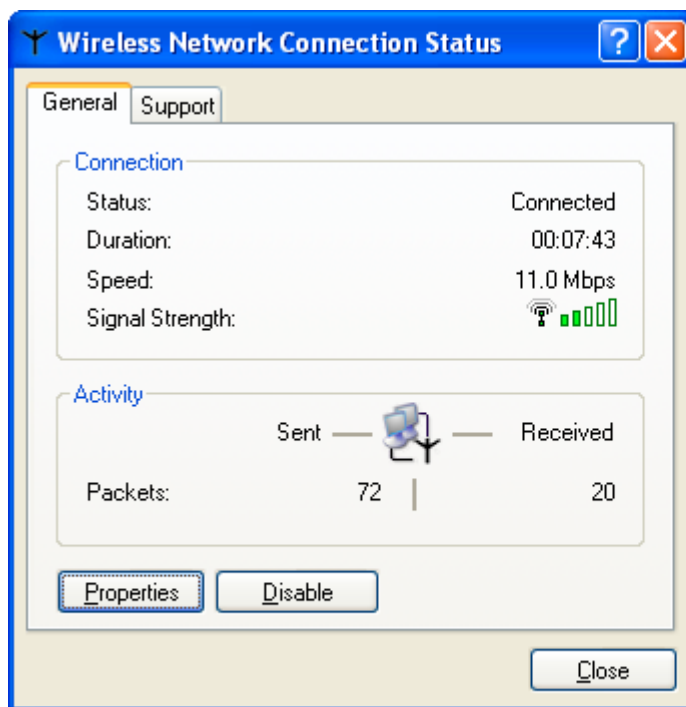
Use the About, you can see the information of Network Driver, Configuration Utility and Firmware Version.



Section Four: Windows XP Wireless Utility and Configuration

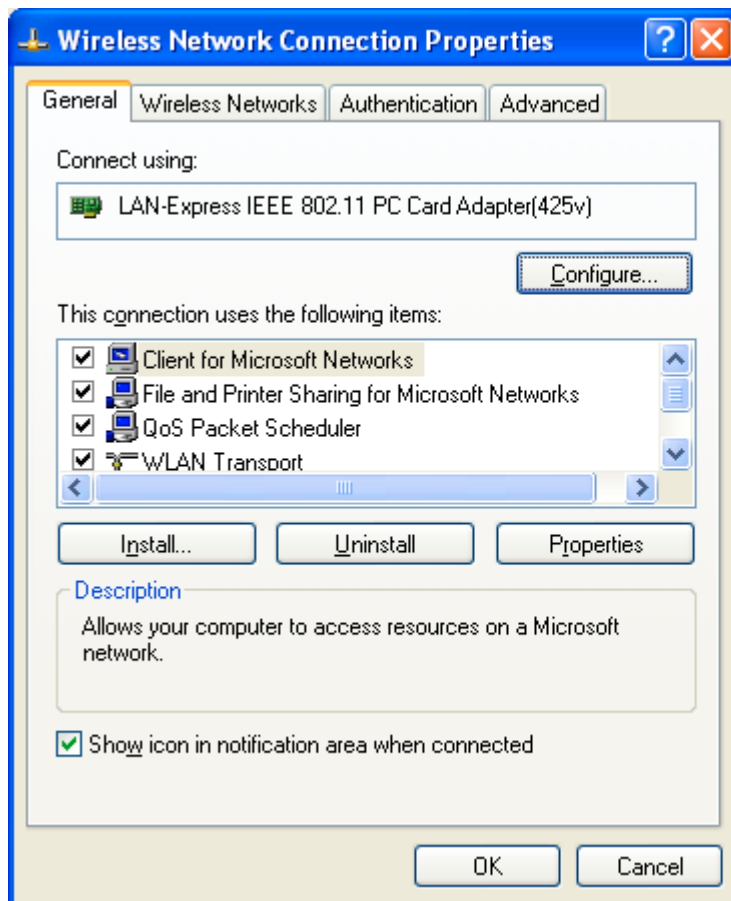
4-1 Windows XP Wireless Utility

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.

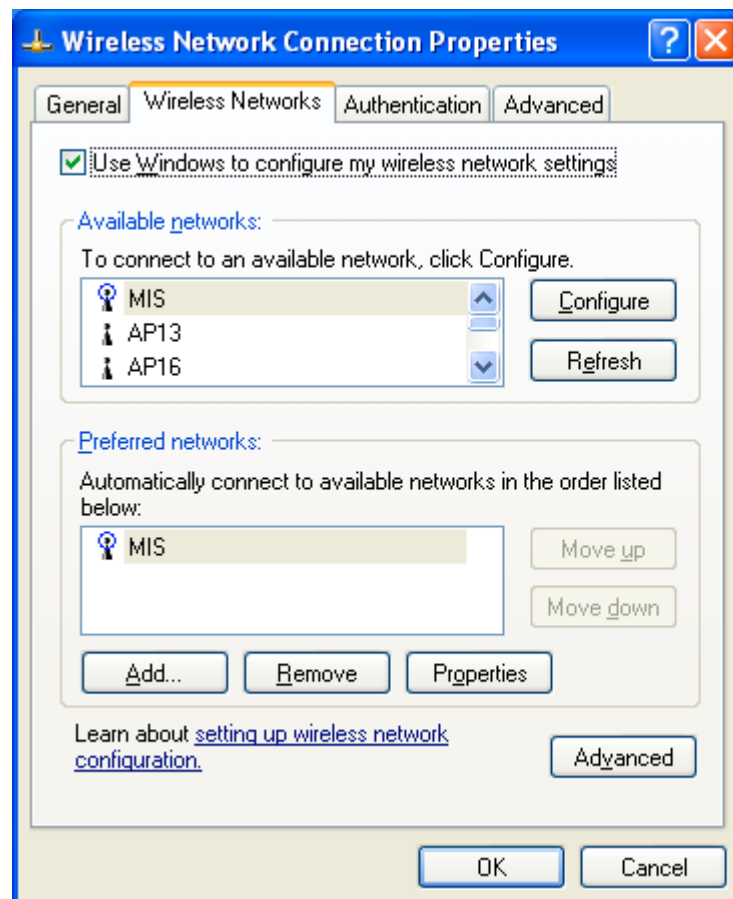


2. Select 'Properties' in the above screen. The following windows will show up.

In 'General' page, Wireless LAN 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.



Configure

To connect to an existing access point (infrastructure) network, under Available networks, click the network name, and then click 'Configure' to setup wireless security and data encryption.

Refresh

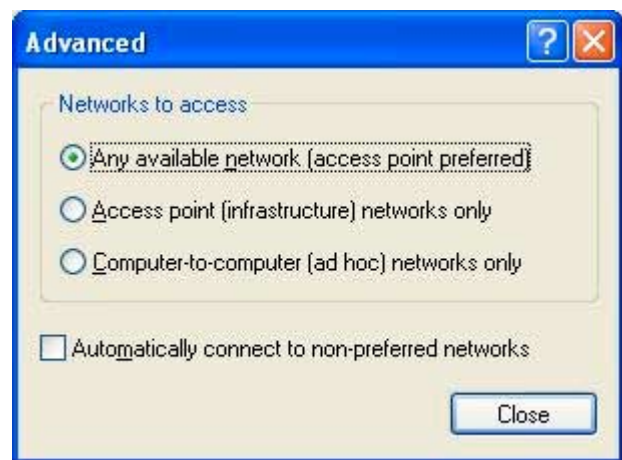
To update the list of available networks that are within range of your computer, click Refresh.

Add

To connect to an access point (infrastructure) network that you know is available but that does not appear under Available networks, under Preferred networks, click Add. In Wireless Network Properties, specify the network name (Service Set Identifier).

Remove

To remove a wireless network from the list of preferred networks.



Advanced

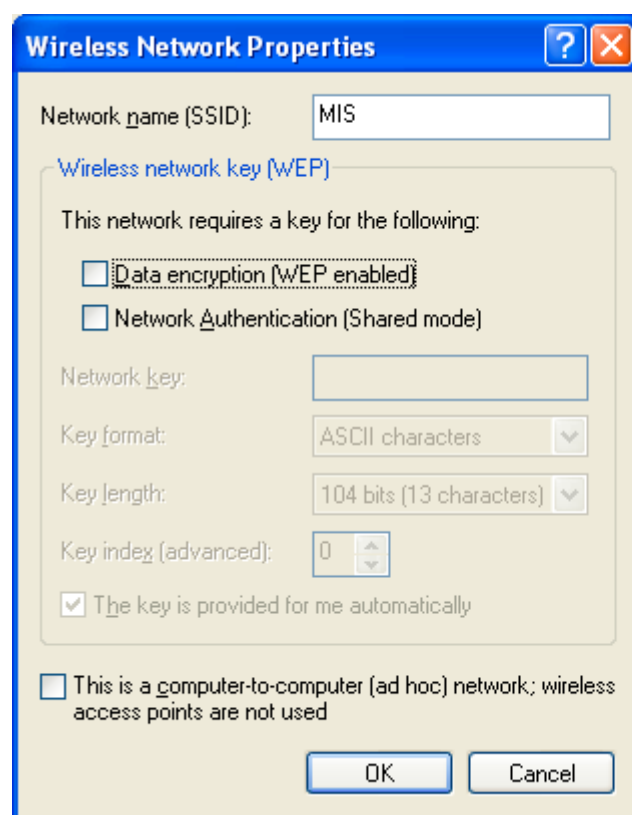
*If your network are configuring to a computer-to-computer (ad hoc) network, select 'Computer-to-computer (ad hoc) network only'.

*If you want to connect to a computer-to-computer and access point (infrastructure) networks are within range of your computer, click 'Access point (infrastructure)network only'.

*If you want to connect to a computer-to-computer (ad hoc) network and both computer-to-computer and access point (infrastructure) networks are within range of your computer, click 'Any available network (access point preferred)'.

To automatically connect to available networks that do not appear in the Preferred networks list, click Advanced, and then select the Automatically connect to non-preferred networks check box.

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, check 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 following fields and options: "Network name (SSID):" with a text box containing "MIS"; "This network requires a key for the following:" with two unchecked checkboxes, "Data encryption (WEP enabled)" and "Network Authentication (Shared mode)"; "Network key:" with an empty text box; "Key format:" with a dropdown menu set to "ASCII characters"; "Key length:" with a dropdown menu set to "104 bits (13 characters)"; "Key index (advanced):" with a spinner box set to "0"; and a checked checkbox "The key is provided for me automatically". The bottom section has an unchecked checkbox "This is a computer-to-computer (ad hoc) network; wireless access points are not used". At the bottom of the dialog 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

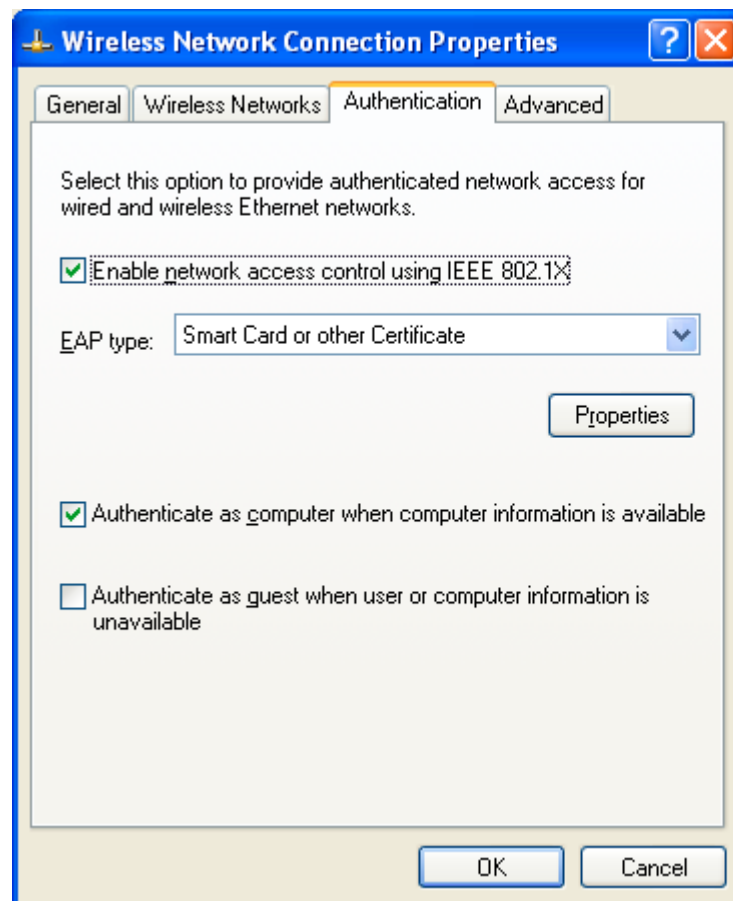
☐ This is a computer-to-computer (ad hoc) network; wireless access points are not used

OK Cancel

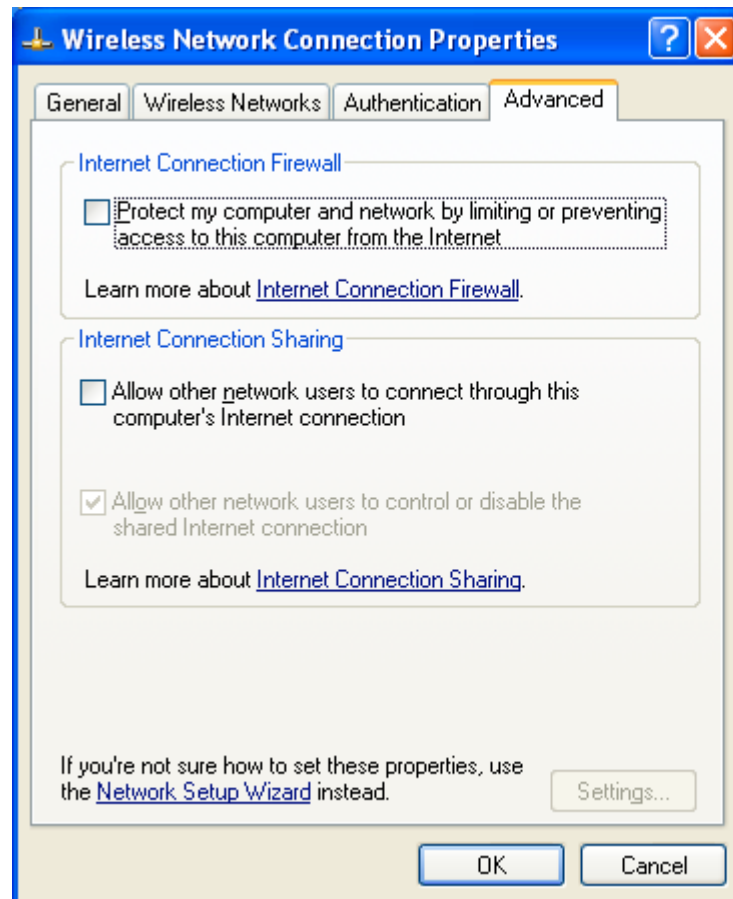
This window provides authentication via 802.1X. 802.1X, an IEEE standard that provides an authentication framework for 802-based LANs. 802.1X takes advantage of an existing authentication protocol known as the Extensible Authentication Protocol. 802.1x, giving someone secure, encrypted, wireless access 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. Depends on your networking environment, you can select below functions.



Appendix A 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.

MINI-PCI TYPE III - Personal Computer Memory Card International Association, which develops standards for PC cards, formerly known as MINI-PCI TYPE III cards, 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.