WLAN Card

User Manual

Version: 1.0

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.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

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

Fi Win declared that WP18 is limited in CH1~11 by specified firmware controlled in USA.

Table of Contents

1. Introduction

WLAN Management Utility supports the following:

802.11b WLAN Configuration

Windows 98SE / ME / 2000

(In Windows XP, we use its default WLAN Utility)

PCMCIA / USB / Mini-PCI Bus Interface
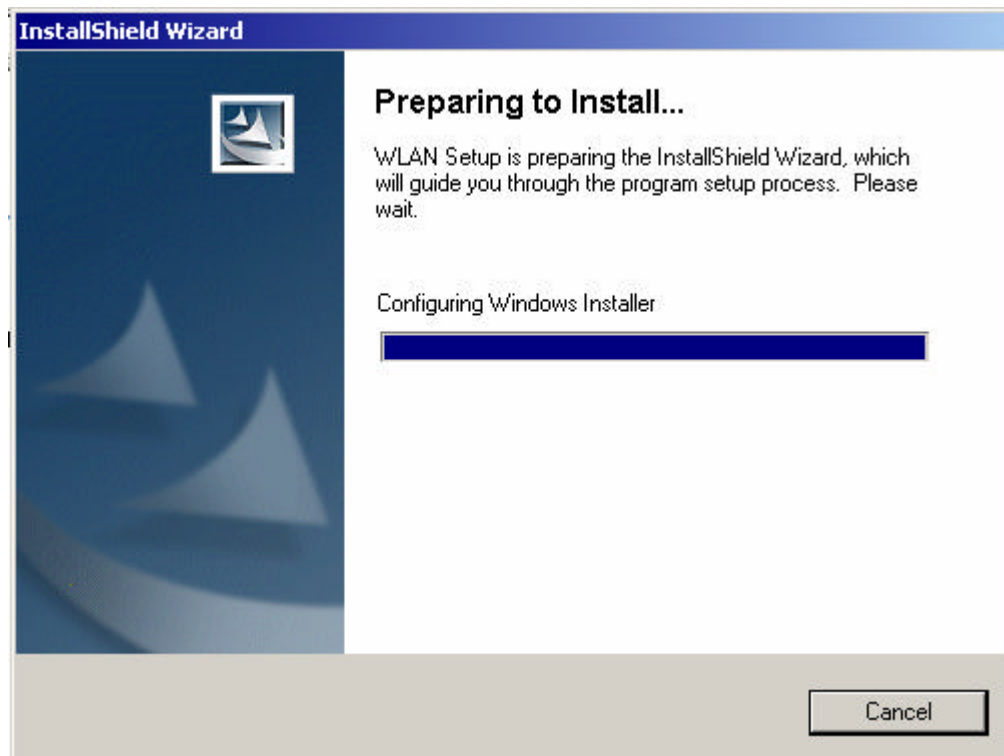
2. Installation

2.1 Overview

To establish your wireless network connection, the following steps should be executed.

1. Install the software using the installation CD.

2. Insert the Wireless LAN card.

This product is designed for Windows 98SE, Millennium, 2000, and XP. The installation procedure for each platform is similar. Please follow the installation wizard that provided by your system install the software.
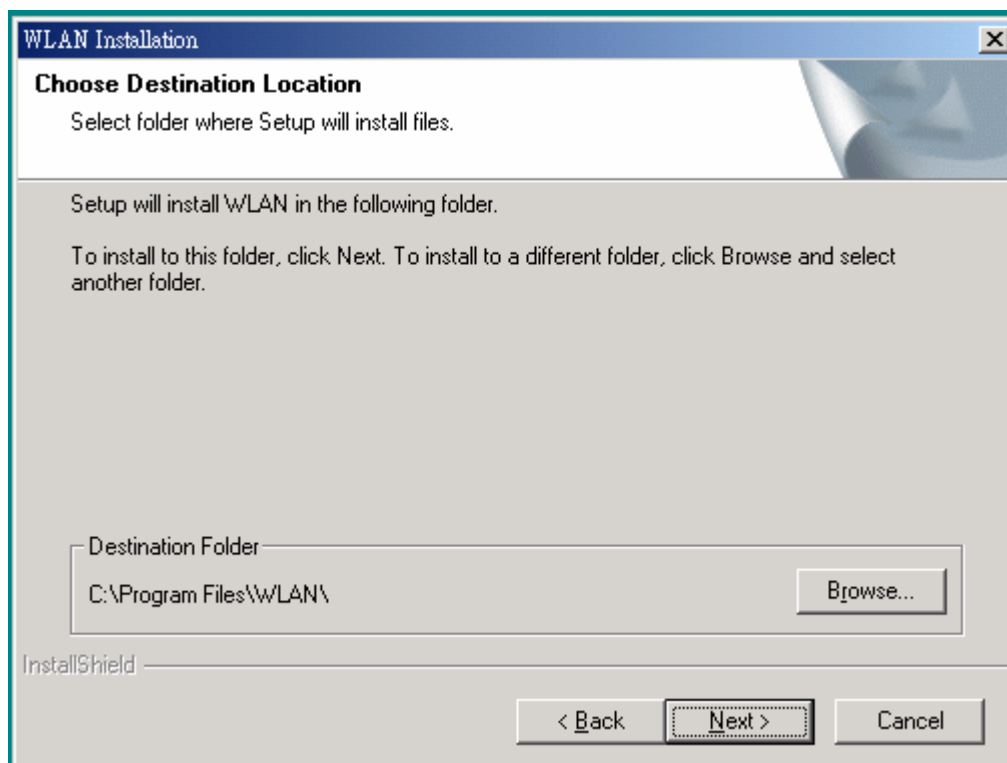
2.1.1 WLAN Driver/Utility Installation

1. Insert the installation CD into your CD-ROM drive. The setup program will start automatically.
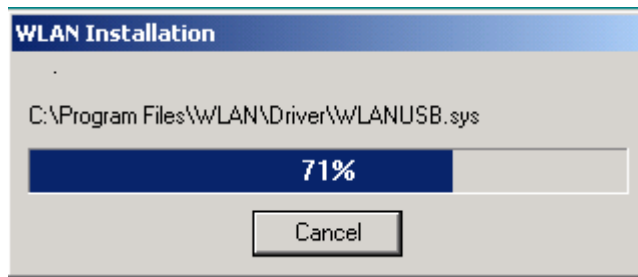
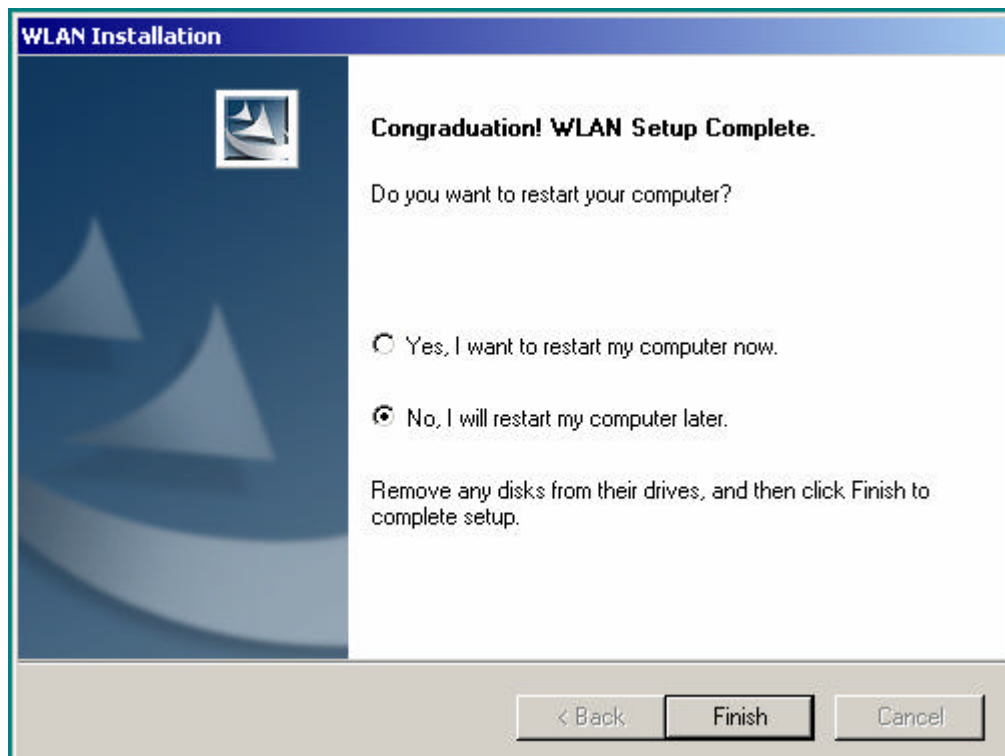**2**. Click "Next" to go to next screen.
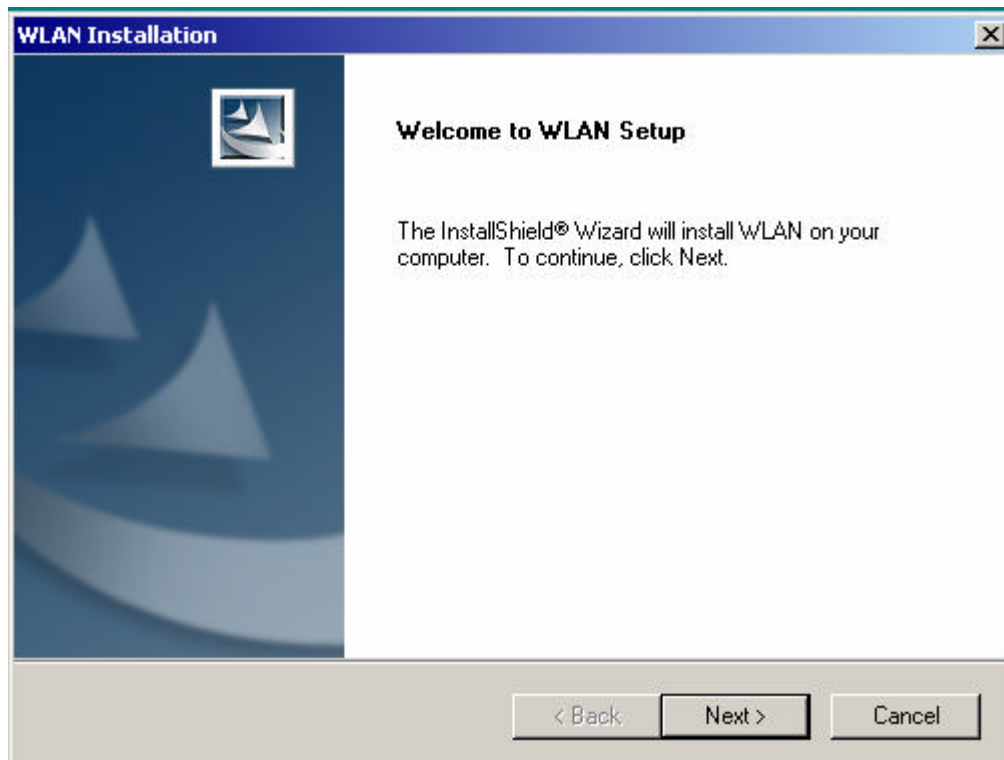
3. Select the destination folder. To install to the default folder as shown below, click "Next" to
go to the next screen.

4. During installation, Driver and Utility files will be copied to your system directory.

5. Select "No" and then click "Finish" to complete the installation (You must select "Yes" for Windows 98 and ME).

6. The shortcut will appear on your desktop. By click this icon, you can run the Utility program.

You will also find a shortcut "WLAN Manager" at Start\Programs\Startup Menu as shown below:
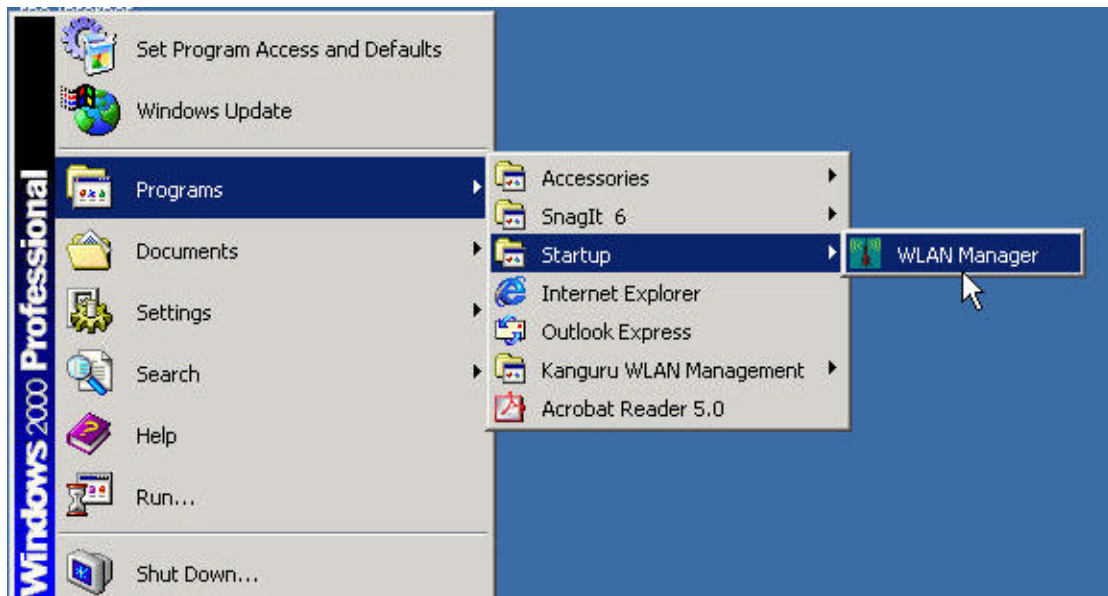
7. After click the shortcut, an inverse red pyramid-like icon will appear on the bottom right of the screen. Right click that icon and select open, the WLAN Utility will pop-up on the screen.

8
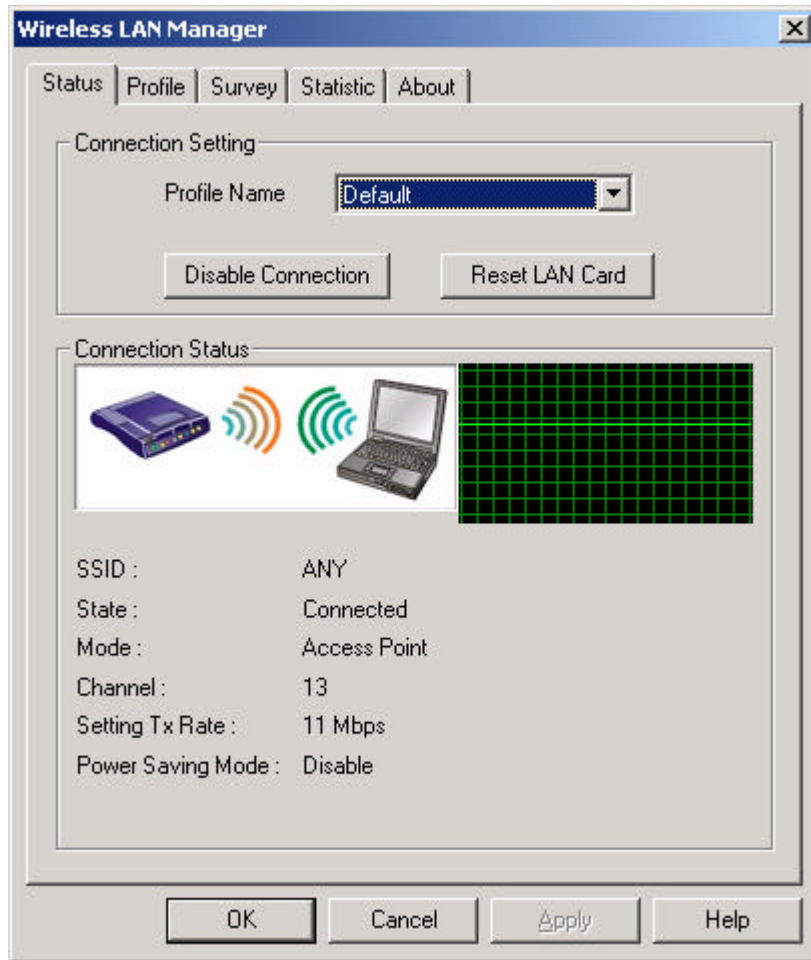
2.1.2 Install the WLAN card

The WLAN driver and utilities are included on the accompanying installation CD.
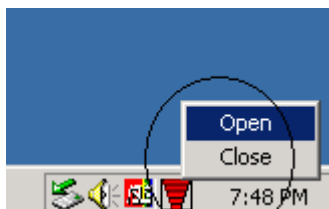
Please follow the installation procedures in Section 2.2. (Your WLAN card will not work properly if the

driver and utilities are not installed correctly).

Make sure that there is an empty WLAN slot (for example PCMCIA, USB, mini-PCI) for WLAN card.

Insert the WLAN Card and the installation will start automatically. When the WLAN card setup

task is completed, you can run the WLAN Utility.

2.2 Utility Startup Configuration Details

WLAN Card has its own management software. Users can control all functions provided by the application named WLAN Utility. The Utility icon will appear on the working bar by double clicking the WLAN Utility shortcut on your desktop.

Three colors are used to describe the status of connection and it is shown on the right of working bar. Green indicates excellent connection. Yellow indicates the connection has poor quality (Yellow) and Red means no connection. Double click the icon and the WLAN utility will be opened.

WLAN Utility contains five major functions. Each function is described below:

- **Status**: provide the information of the current wireless connection.
- **Profile**: allow users easily configure different settings for each profile.
- **Survey**: support site-survey tool to list the active access points that are within the range of your computer.
- **Statistic**: provide statistical counters of data transmission and reception.
- **About**: provide valuable information about the firmware and software version, MAC address, and so on.

2.2.1. Setting

(1.) This page is aimed at the basic setting of WLAN. You can change the configuration by click "Apply" to the following items.

- **Profile Name:** The name of the profile that is currently in use.
- **Mode:** If you want to connect with an access point, choose "Access Point". If you have more stations and just want to set them as peer to peer local network, choose "Peer to Peer".
- **SSID:** It is the group name that will be shared by every member of your

wireless network .You will only be able to connect with an Access Point (AP), which has the same SSID. Note that the SSID will be the continuous string excluding blank and case sensitivity.

- **Channel:** It shows radio channel numbers used for networking. The Channel can be changed only under the Ad-Hoc Mode. If the Mode is Infrastructure, this parameter will not be active. Infrastructure Client nodes will always go to the same channel as their AP.

(2.) Wired Equivalent Privacy:

- If you would like to enable WEP, click the encryption button.
- You may desire additional measure of security in your wireless network, which can be achieved by using the Wired Equivalent Privacy (WEP). Follow the steps below to set your WEP: Select the data privacy algorithm you want (64 or 128 bits WEP type). If you select 64 or 128 bits WEP type, 4 sets of WEP key will be generated; if you select disable , then profile encryption will not active.

2.2.2. WLAN Management Utility Introduction

(1.) Status Tab

The **Status** tab provides information on the current profile, if any, being used in the wireless connection. The information listed on the Status tab is indicated below. Figure 1 shows the screen layout of the **Status tab.**
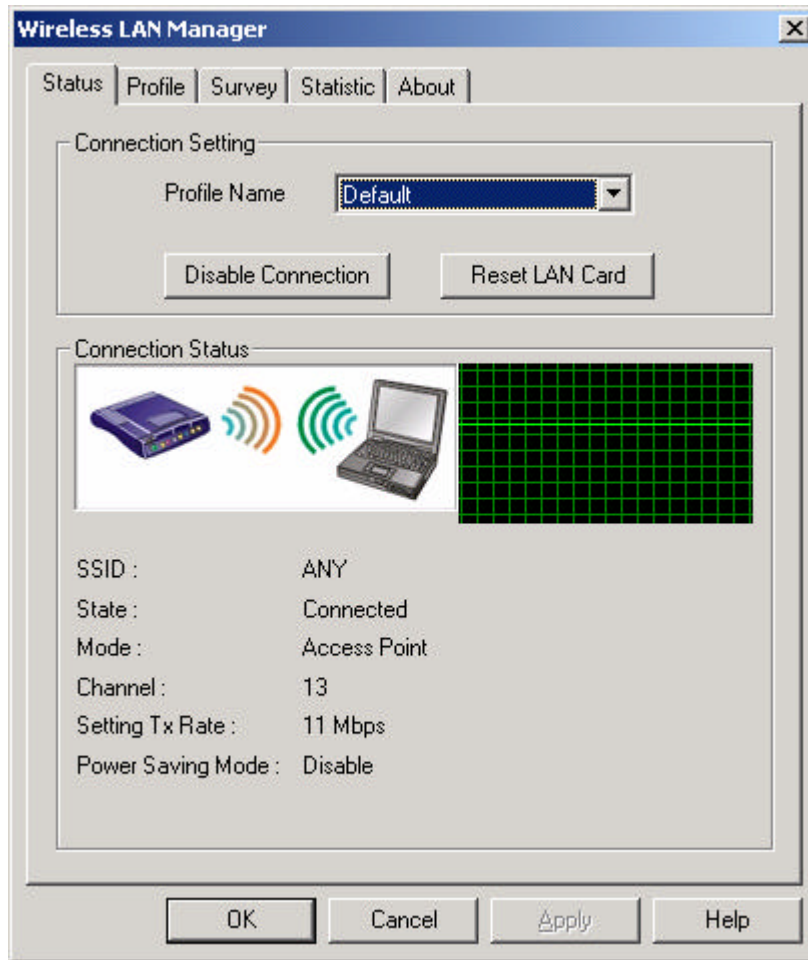
Figure 1 Status Tab

· **Connection Setting**

Profile Name

The name of profile currently in use.

· **Connection Status**

SSID

The name of the **SSID (Service Set Identification)** associated with the profile.

State

This field is used to display the current state of the driver.

Mode

The mode can be either "**access point**" or "**station**".

··**Access Point** ─ This mode of operation requires the presence of an access point. All communication is done via the access point, which relays packets to other wireless clients in the BSS as well as to nodes on a wired network such as Ethernet.

Station – This is the peer-to-peer mode of operation. All communication is done from client to client without the use of an access point.

Channel

It shows the channel being used, if any, for this wireless connection. The communication channel ranges from **1 to 11(US/FCC, Canada/RSS)**,**1 to 13(Europe/ETSI) or 1 to 14(Japan/TELEC).**

Setting Tx Rate

It shows the transmit rate being currently used for an active connection. The value is masked when the state shows the "scanning" message.

Power Saving Mode

Indicate the power saving mode is being enabled or disabled. Power saving mode can reduce the power usage by temporarily disconnecting wireless connections when the connection is idle.

Figure Status indication area

There are two modes in the status indication area. One is **Access Point** and the other is **Peer-to-Peer**. At the same time, each mode allows users to opt the WEP enable or WEP disable. When encryption is enabling, wireless client shall offer the matched WEP key for key verification to connect the access point; otherwise, the connecting will fail.   According to the potential fact that WEP key mismatch case may happen, Status diagram offer a sense of figures, which can help to point out the status. The detailed description with the matched figure will be shown as below.

Access Point / WEP disable

	The receiver can receive **excellent** signals. There is no encryption in use.
	The receiver can **not receive** any AP's signal. There is no encryption in use.

Peer-to-Peer / WEP disable

	The receiver can receive **excellent** signals. There is no encryption in use.
	The receiver can **not receive** any PC's signal. There is no encryption in use.

Peer-to-Peer / WEP enable

	The receiver can receive excellent signals. Encryption is enabled and matched each other.
	The receiver can not receive any PC's signal. Encryption is enabled and not matched each other.

(2.) Profile Tab

The **Profile** tab is used to configure the various profiles available to you for wireless connections. The Profile tab contains some of the same fields as the Status tab, but unlike the Status tab, all of the fields in the **Profile** tab are alterable. Figure 2 shows the screen layout of the profile tab.
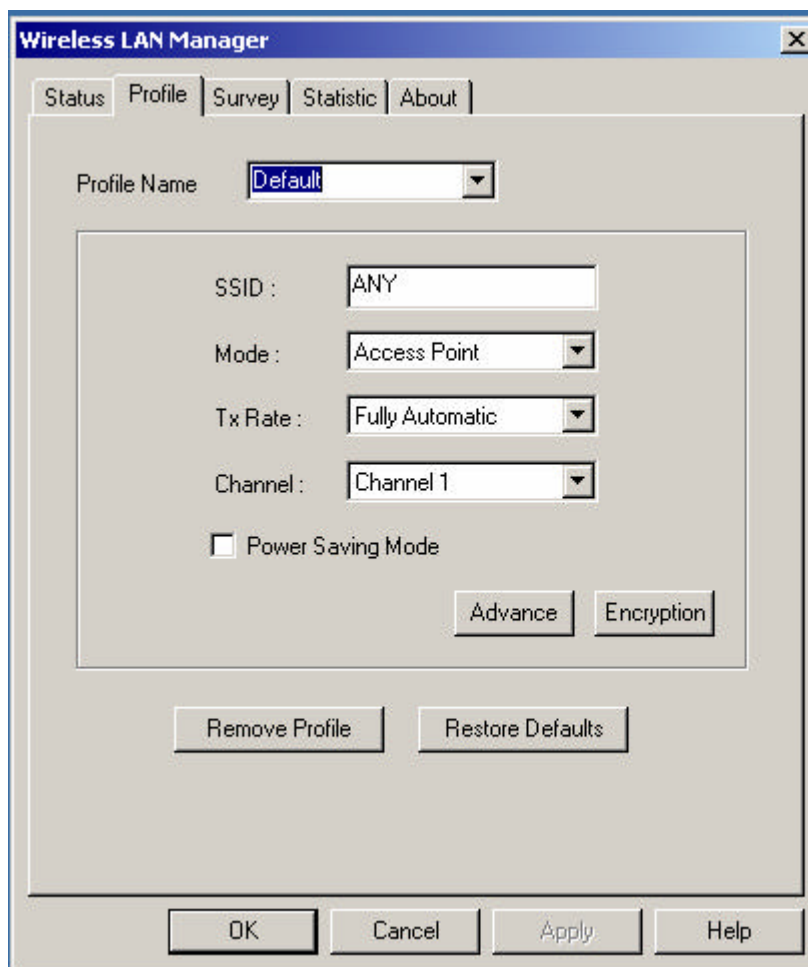

Figure 2 Profile Tab

· **Profile Name**

Allow to give a name to the profile. Any user can add **20 different profiles at most** if he wishes. After assigning a new profile name and complete related fields shown below it, you then can press Apply to save the profile. Click "Apply" or "OK" to activate the options that you have set.

- **Restore Defaults**

  Pressing this button restores each field in the panel to its default value. The default value for each field is as below.

- **Remove Profile**

  Pressing this will delete the current profile.

- **SSID**

  The identification of BSS (Basic Service Set) is associated with the current profile. The default value is "ANY". This allows your wireless client to automatically associate to any access point in the vicinity of your wireless client.

- **Mode**

  This field allows you to select from a list of supported network mode. The modes displayed will have "**Access Point**" and "**Peer-to-Peer**". The default value is "Access Point".

- **Tx Rate**

  The transmission rate is the rate at which the data packets are transmitted by the client of the access point. You can set this to **1Mbps, 2Mbps, Auto 1 or 2Mbps, 5.5Mbps, 11Mbps**, **or Fully Automatic**. The default value is "11Mbps".

- **Peer-to-Peer Channel**

  Changing the channel is only effective in **Ad-Hoc** networks. Networking operating infrastructure mode can automatically scans for a channel. Be aware that when the peer-to-peer mode is selected, be sure to set your wireless stations with the same channel.

- **Power Saving Mode**

  The field allows you to set enable or disable the power saving mode. Power saving mode can reduce power usage by temporarily disconnecting wireless connections when the connection is idle. The default value is "Disabled".
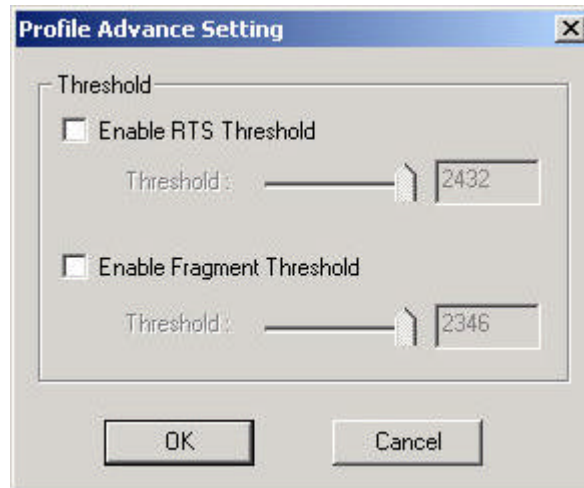
˙ **Advance**

Figure 3 Profile Advance Setting

¨ **RTS Threshold**

The field allows you to set enable or disable. When the field is set to Enabled, you can adjust the value between **0 to 2432**. RTS threshold is a mechanism implemented to prevent the "**Hidden Node**" problem.   "Hidden Node" is a situation in which two stations are within range of the same access point, but are not within range of each other. Thus, it provides a solution to prevent data collisions. Enabling RTS Threshold may cause redundant network overhead that could negatively affect the throughput performance.

¨ **Fragment Threshold**

The field allows you to set enable or disable. When the field is set to Enabled, you can adjust the value between **0 to 2346**. Fragmentation mechanism is used for improving the efficiency when **high traffic flows** along in the wireless network. If your wireless devices often transmit large files in wireless network, you can enable the Fragmentation Threshold and the mechanism will **split the packet** to send.

˙ Encryption

The **Encryption** tab is used to equip an additional measure of security on your wireless network, which can be achieved by using **WEP (Wired Equivalent Privacy)** encryption. To prevent unauthorized wireless stations from accessing data transmitted over the network, WEP can support high secure data encryption. WEP encrypts each frame transmitted through the radio by using one of the **Keys** entered from this panel. When an encrypted frame is received, it will only be accepted if it decrypts correctly. This will only happen if the receiver has the same **WEP Key** used by the transmitter. The **Encryption** tab contains some fields as below.
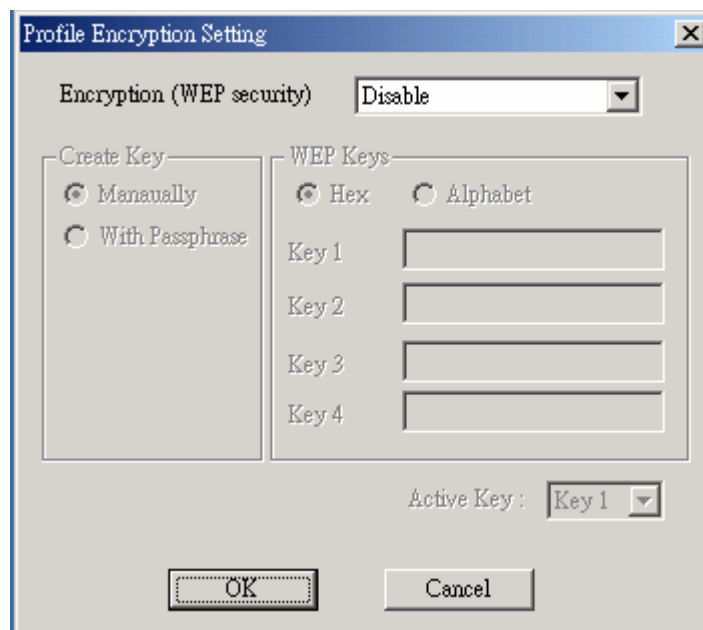

Figure 4 Encryption Tab

¨ Encryption [WEP security]

The field allows you to select Disabling, 64-bit and 128-bit. When setting 64-bit, or 128-bit, it means WEP security is used.

¨ WEP Key

You can choose "**Create Key Manually**" or "**Create Key with**

Pass-phrase" method to enter encryption keys. It allows the entry of **four keys for 64-bit and 128-bit key** according to WEP function select. To be written to the driver and registry, each key must consists of correct digits and letters allowed. The detailed descriptions will be shown as below for these two kinds of methods.

¨ Create Key Manually

For 64-bit encryption:

-- 5 alphanumeric characters in the range of "a-z", "A-Z", and "0-9" (e.g. MyKey).

--10 digit hexadecimal values in the range of "a-f", "A-F" and "0-9" (e.g. 11AA22BB33).

For 128-bit encryption:

--13 alphanumeric characters in the range of "a-z", "A-Z" and "0-9" (e.g. WEPencryption).

--26 digit hexadecimal values in the range of "a-f", "A-F" and "0-9" (e.g. 11AA22BB33123456789ABCDEFF).

¨ Create Key with Pass-phrase

A Pass-phrase can be entered which is used as a "seed" to randomly generate the four keys. This saves considerable time since the same keys must be entered into each node on the wireless network.

¨ WEP Keys:

--Key1, Key2, Key3, Key4

These four fields can be used to manually enter the keys. This may be necessary if you wish this node to match keys which is set in a different vendor product. These fields also display the keys when they are generated using a Pass-phrase.

Use WEP key

This field updates the driver with the four keys displayed in Key1 through Key4. These keys are also written to the registry for permanent storage.

(3.) Survey Tab

The **Survey** tab supports powerful Site-Survey tool to discovery all active wireless devices in the radio range. While selecting this wireless device displayed on the screen, users can press "**Connect**" button to quick connect the wireless device chosen by users and simultaneously modify the **"Default" profile** automatically. If users want to update the survey result, they can press "**Rescan**" button again. Each row of the information contains the following columns:
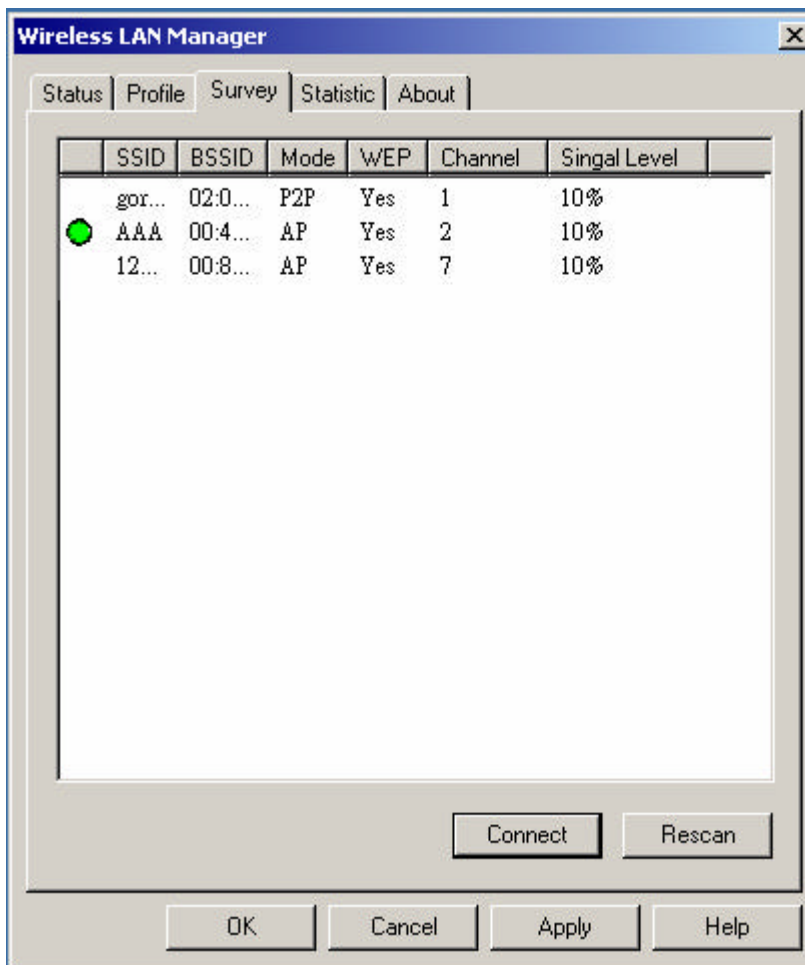

Figure 5 Survey Tab

Number of Discoveries:

The total number of wireless LAN devices discovered by this Site-Survey. ● refers to the discovered device by which the client device is correctly connecting to.

- **SSID**

   The ESS ID stands for Extended Service Set Identification, and it presents the SSID of the access point. In the peer-to-peer device discovered, all clients should share the same SSID for communication.

- **BSSID**

   The BSS ID stands for Basic Service Set Identification. During infrastructure mode, it represents the MAC address of the access point.

- **Mode**

   The discovered device is an access point (AP) or a peer-to-peer (P2P) device.

- **WEP**

   The discoverable device is encryption enable or disable in this column.

- **Signal Level**

   The signal measurement for each discovered device within the radio range. A higher percentage means that this discovered device has stronger signal strength. If the device you want to connect to has lower signal level, you can move it closer to this device or vice versa.

- **Channel**

   This field shows the current channel used by the discovered device.

(4.) Statistic Tab

The **Statistics** tab is used to monitor **TX and RX traffic** of the wireless network. It also offers the detailed information on error wireless packets that the other wireless LAN device transmits and receives. Each time users switch to this page will trigger the statistics to start counting from zero. Users can press "**Reset**" button if they want to restart the counter again. If users want to temporarily freeze the current showing counters, they can press "Pause" button to do that easily. The detailed **Statistics** information contains some fields as below.
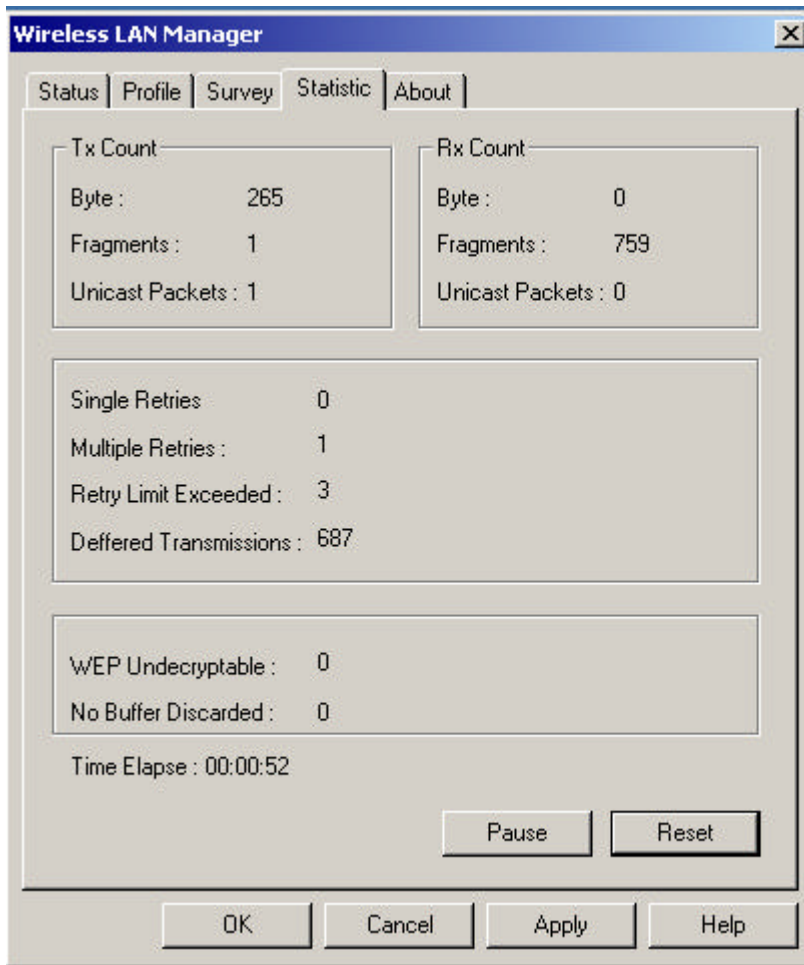
Figure 6 Statistics Tab

¨ **TX Count**

--Byte

The total bytes number of any kind of wireless packets.

--Fragments

The total number of successfully delivered/received MPDUs of type
Data or Management.

--Unicast Packets

The number of wireless unicast (point to point) TX packets.

¨ RX Count

--Byte

The total bytes number of any kind of wireless packets.

--Fragments

The total number of successfully delivered/received MPDUs of type
Data or Management.

--Unicast Packets

The number of wireless unicast (point to point) RX packets.

--Single Retries

The number of MSDUs successfully transmitted after one (and only
one) retransmission.

--Multiple Retries

The number of MSDUs successfully transmitted after more than one
retransmission.

--Retry Limit Exceeded

The number of times a MSDU was not transmitted successfully because
the retry limit (7 for short frame and 4 for long frame) was reached, due
to no acknowledgment or CTS received.

--Deferred Transmissions

The number of MSDUs for which one or more transmission attempt(s).

--WEP Undercryptable

The number of received MPDUs, with the WEP subfield in the Frame
Control field set to one, that were discarded because either it should not
have been encrypted, or due to the receiving station not implementing
the privacy option.

--No Buffer Discard

The number of received MPDUs that were discarded because of the

lack of buffer space on the NIC.

(5.) About Tab

The About tab is used to show Wireless Client Management Utility version, Serial Number and MAC Address of this Network Interface Card, Network Interface Card Driver version and Network Interface Card firmware version. Users need to use these version numbers when reporting their problems to technique support.
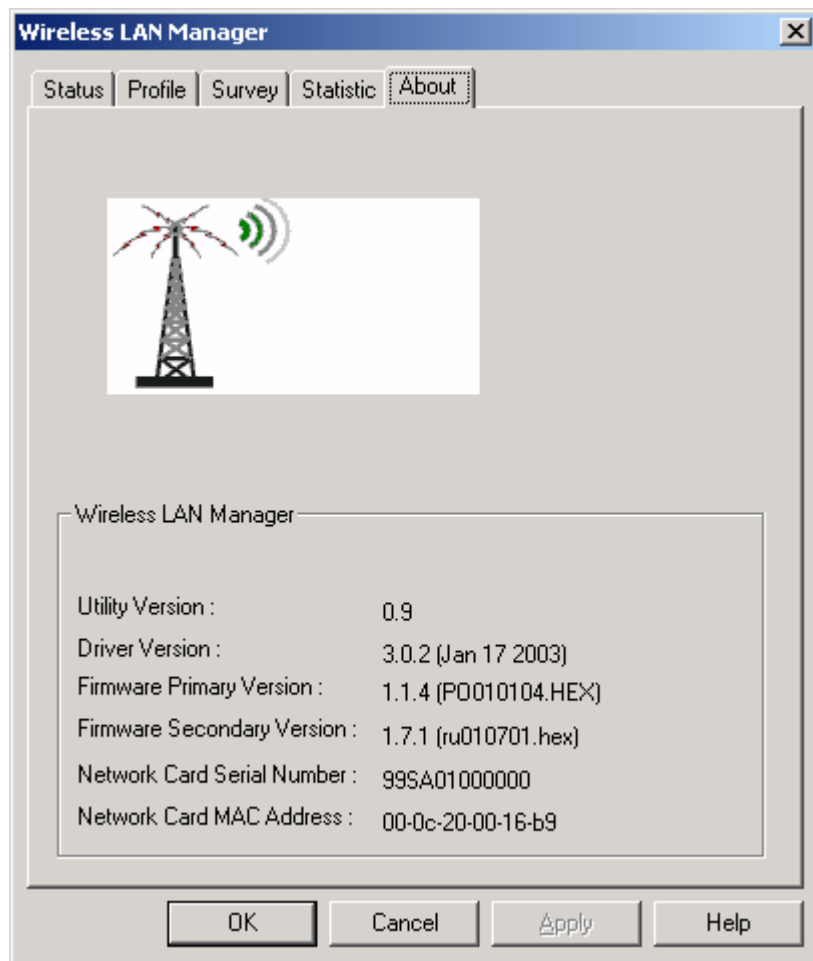

Figure 6 About Tab

¨ Wireless LAN Manager

--Utility Version

WLAN Management Utility version.

--Driver Version

Device Driver version and date.

--Firmware Primary Version

Firmware Primary version and file name.

--Firmware Secondary Version

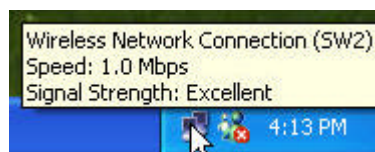Firmware Secondary version and file name.

--Network Card Serial Number
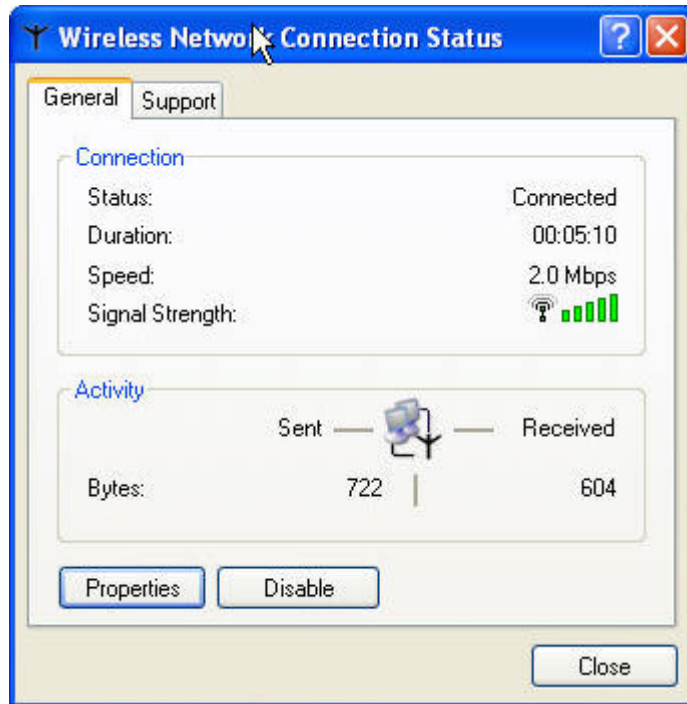
NIC serial number.

--Network Card MAC Address

NIC MAC address.

2.2.3 Using the Windows XP Configuration Tool

1. Right-click the network connection icon on the toolbar.

Wireless Network Connection (SW2)
Speed: 1.0 Mbps
Signal Strength: Excellent

4:13 PM

2. On the popup menu, click "Status." The Wireless Network Connection status box will open.


3. Click "Properties." The Wireless Network Connection Properties box will open. Click the "Wireless Networks" tab.
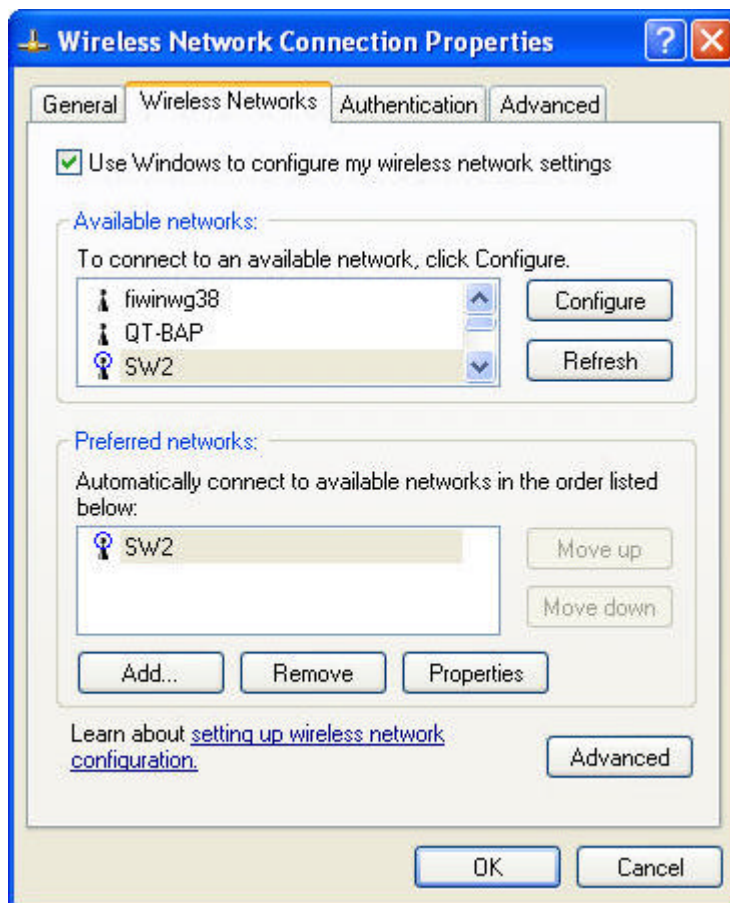
4. In the lower section of the screen click "learn about setting up wireless network configuration" an complete the wireless configuration a according to the Help and Support Center instructions.

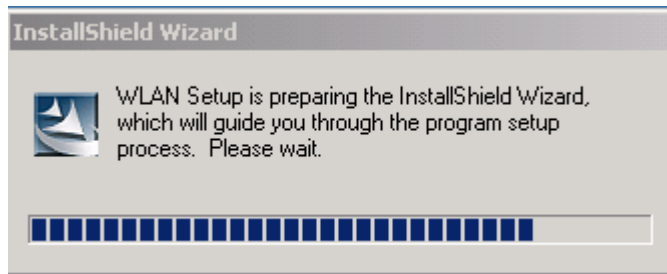## 2.3 Uninstall the WLAN Utility / Driver

1. To exit the WLAN Utility, you should click the right bottom on the Utility icon in the working bar and select "Close".
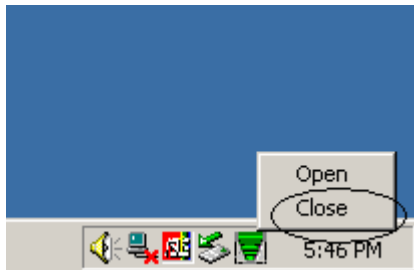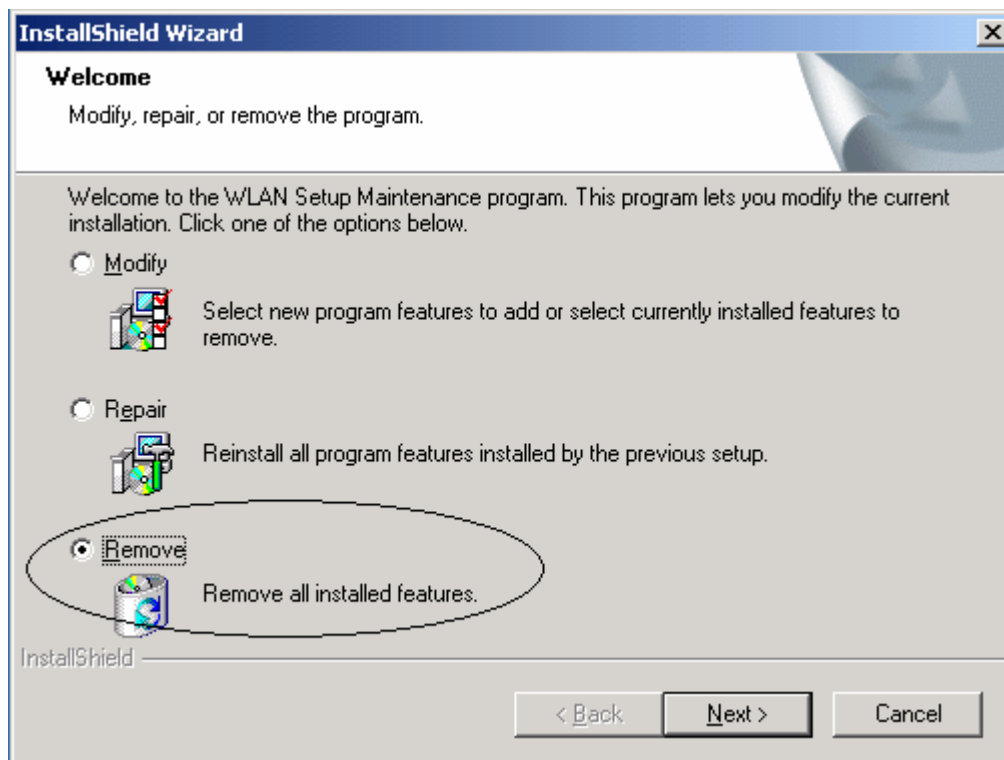

2. To uninstall the WLAN Utility and Driver, you can move to Start – Programs –WLAN Management Utility, and click "Un-installation".
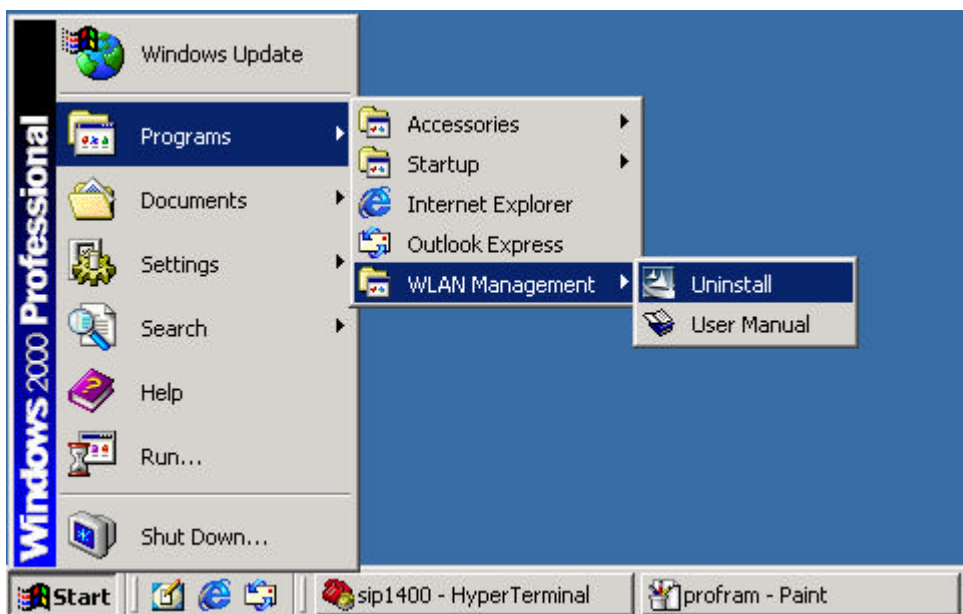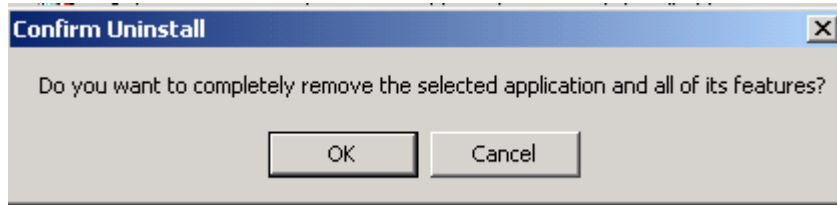
3. You will be asked if you want to uninstall the WLAN Utility and all of its components.

4. Click "Remove" option and " Next" button.

5. Click "OK" to remove or click "Cancel" to exit.

Confirm Uninstall

Do you want to completely remove the selected application and all of its features?

OK   Cancel

6. Performing "uninstall" option.

InstallShield Wizard

Setup Status

WLAN Setup is performing the requested operations.

91%

InstallShield

Cancel
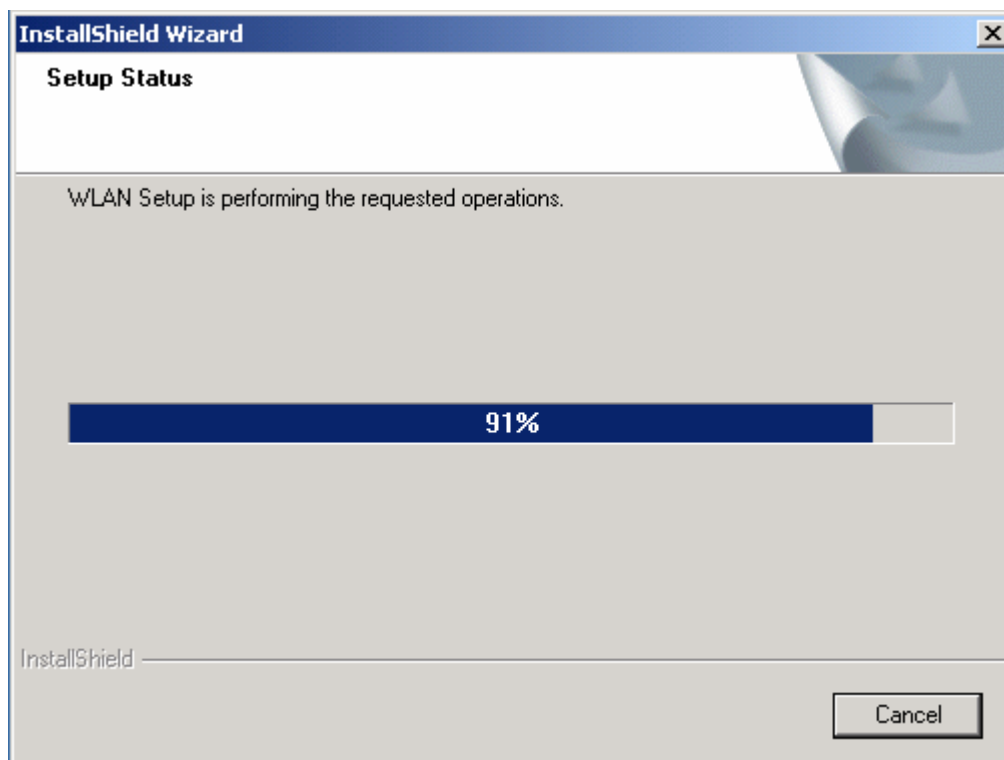
7. Now the un-installation is completed. Please click "Finish".
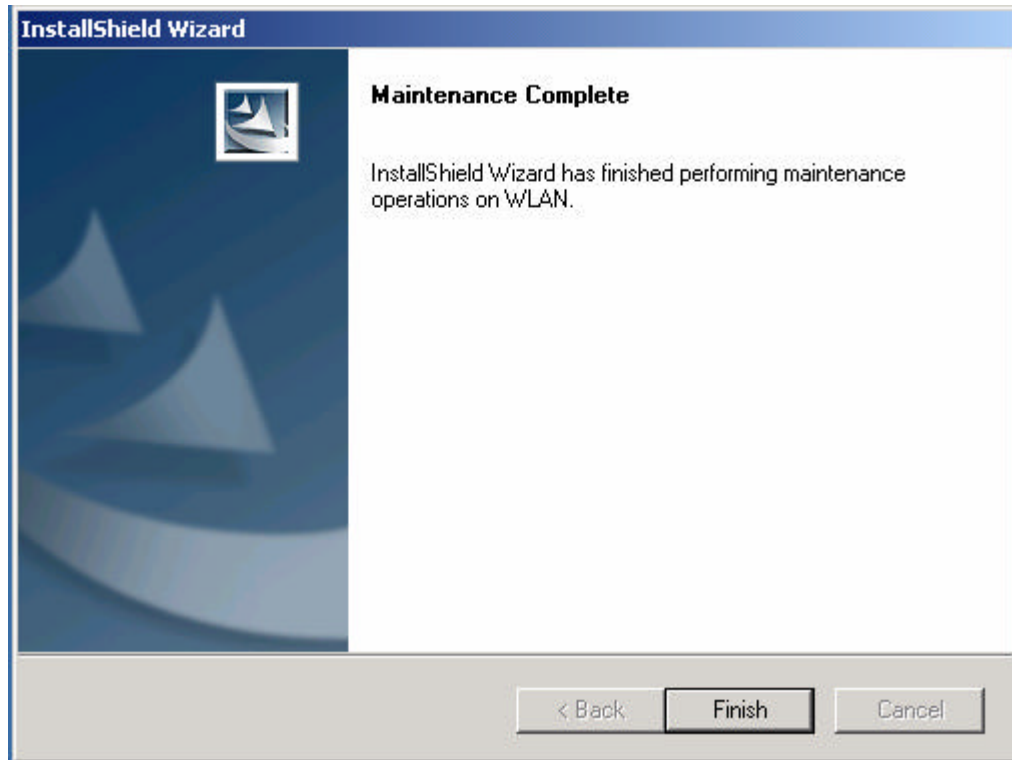
3. Troubleshooting

If you encounter some problems installing the WLAN PC card, refer to below the procedure after you have installed the card.

a. Check the Various Properties of the Card

Click the "Device Management" and check whether there is a WLAN card in one of the sockets or not.

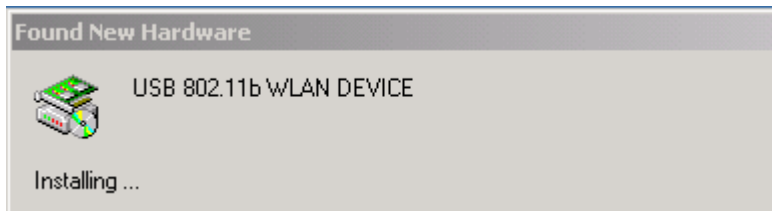If there are yellow signs on network card, please check the followings:
   1) Check if your notebook supports 3.3V Card.
   2) Check that you have inserted the right card and have installed the proper driver.
   3) Check if your notebook has installed some other wireless LAN card driver.

If you do not know the reason why, please contact agency that provide you WLAN

card.

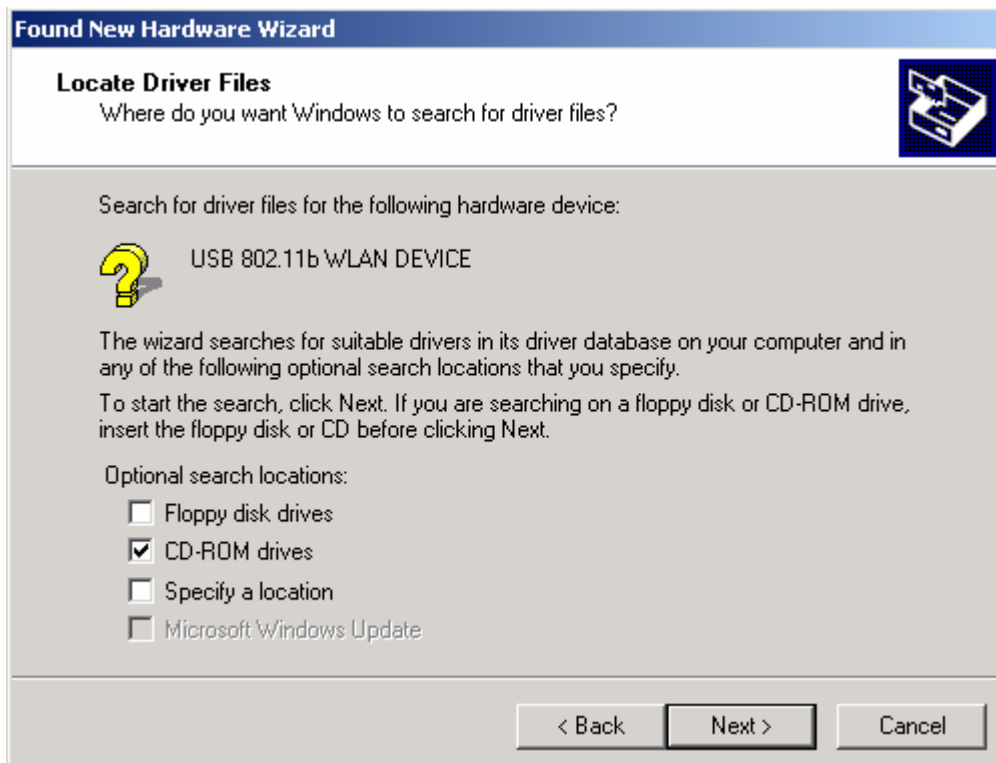**b. Plug the device first and then install the driver/ Utility**

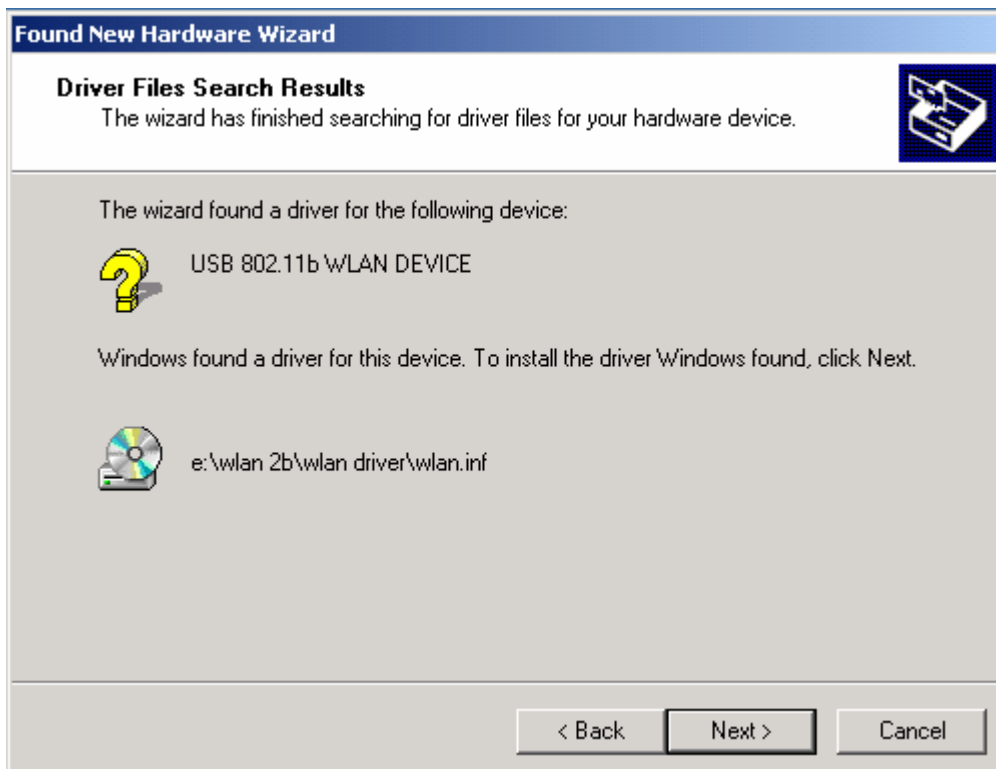**1.** When you plug the device in USB port, operating system will detect automatically.

```
Found New Hardware

      USB 802.11b WLAN DEVICE

Installing ...
```

2. Search the driver.

```
Found New Hardware Wizard

Install Hardware Device Drivers
    A device driver is a software program that enables a hardware device to work with
    an operating system.

    This wizard will complete the installation for this device:

        USB 802.11b WLAN DEVICE

    A device driver is a software program that makes a hardware device work. Windows
    needs driver files for your new device. To locate driver files and complete the
    installation click Next.

    What do you want the wizard to do?

    ( ) Search for a suitable driver for my device (recommended)

    ( ) Display a list of the known drivers for this device so that I can choose a specific
        driver

                                      < Back      Next >       Cancel
```

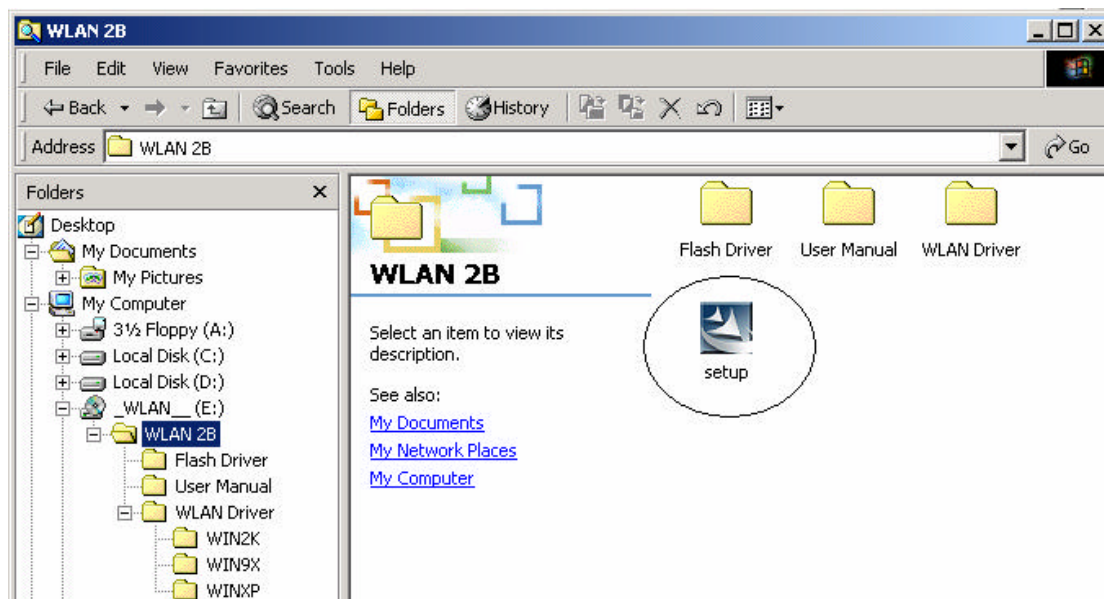**3.** Select CD-ROM drives and click Next.

4.

5. Driver installation is completed.

6. If you want to install the Utility, double click the setup in CD-ROM.

--The End ---