User's Guide

11Mbps Wireless LAN PC Card

Version 1.3

INFORMATION TO USER

Federal Communications Commission 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 or device.
- ❒ Connect the equipment to an outlet other than receiver's.
- ❒ Consult a dealer or an experienced radio/TV technician for assistance

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
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.

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.

Regulatory

The wireless LAN PC Card must be installed and used in strict accordance with the manufacturer's instructions. This device complies with the following radio frequency and safety standards.

Europe - R&TTE Directive

This device complies with the specifications listed below:

- ☒ ETS 300-826 General EMC requirements for Radio equipment.
- ☒ ETS 300-328 Technical requirements for Radio equipment.
- ☒ EN60950 Safety requirements for Radio equipment.

EU Countries not intended for use
The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France (with Frequency channel restrictions). Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

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Chapter 1: Introduction

The 11Mbps Wireless LAN PC Card

The 11Mbps Wireless LAN PC Card now has a new , higher-powered antenna that provides a greater range than ever. The increased sensitivity helps filter out interference and notice to keep your signal clear. Improved error correction in the chipset keeps you operating at higher transmission rates for longer distances. And since you only need one Type II or III PCMCIA slot, you're free to use your other slots for additional accessories.

Plug-and-Play device, Windows 98/ME/2000/XP will automatically recognize the wireless LAN card and initiate the installation process. Upon successful installation, the wireless LAN card will communicate seamlessly with other wireless home and office networking products.

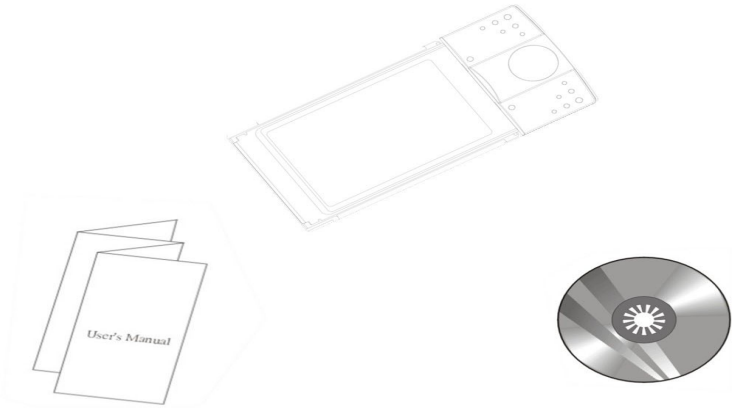
Using radio frequency (RF) technology, WLANs transmit and receive data over the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and through simplified configuration, enable movable LANs. This wireless networking solution has been designed for both large and small businesses, and it is scalable so that you can easily add more users and new network features as your business grows.

This manual will assist you in the installing WLAN PC Card.

Feature

- IEEE 802.11b Direct Sequence high rate compatible.
- High data rate 11/5.5/2/1 Mbps.
- Auto Rate fallback
- IPX, NetBEUI, TCP/IP protocols supported.
- Wired Equivalent Privacy Algorithm (WEP) (64 bits/128 bits)
- 802.11 Power save in infrastructure mode.
- Passive/Active scan. Long/Short preamble.
- RTS/CTS handshake.
- Beacon and Probe response generation in an IBSS.
- Plug-N-Play and easy setup

Package Contents



- One 11Mbps Wireless LAN PC Card.
- One setup Utility CD-ROM(User Guide on CD).
- Quick Installation Guide.

System Requirements

- One PCMCIA Type II or Type III slot.
- PCMCIA revision 2.10 compliant card and socket services.
- Operating System: Windows 98, ME, NT, 2000, or XP.
- 2M bytes free disk space for utility and driver installation.

Chapter 2: Network Configuration and Planning

Wireless LAN Basic

The WLANs supports legacy Ethernet LAN network configuration options as defined by the IEEE 802.11b standards committee.

The WLAN Card can be configured as:

- Ad-Hoc for departmental or SOHO LANs.
- Infrastructure for enterprise LANs.
- LAN-Interconnection for point-to-point link as campus backbone.

Network Topology

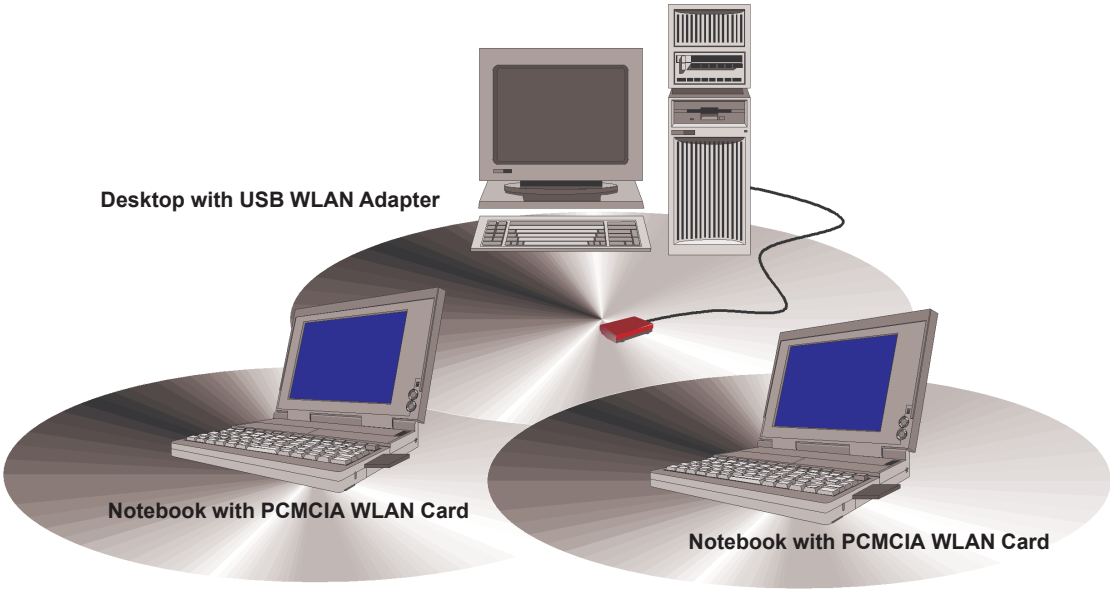


Fig 2-1 Ad-Hoc Wireless LAN

An Ad-Hoc wireless LAN is a group of computers, each equipped with one WLAN adapter, connected as an independent wireless LAN. Computers in a specific Ad-Hoc wireless LAN must be configured to share the same radio channel.(Fig 2-1)

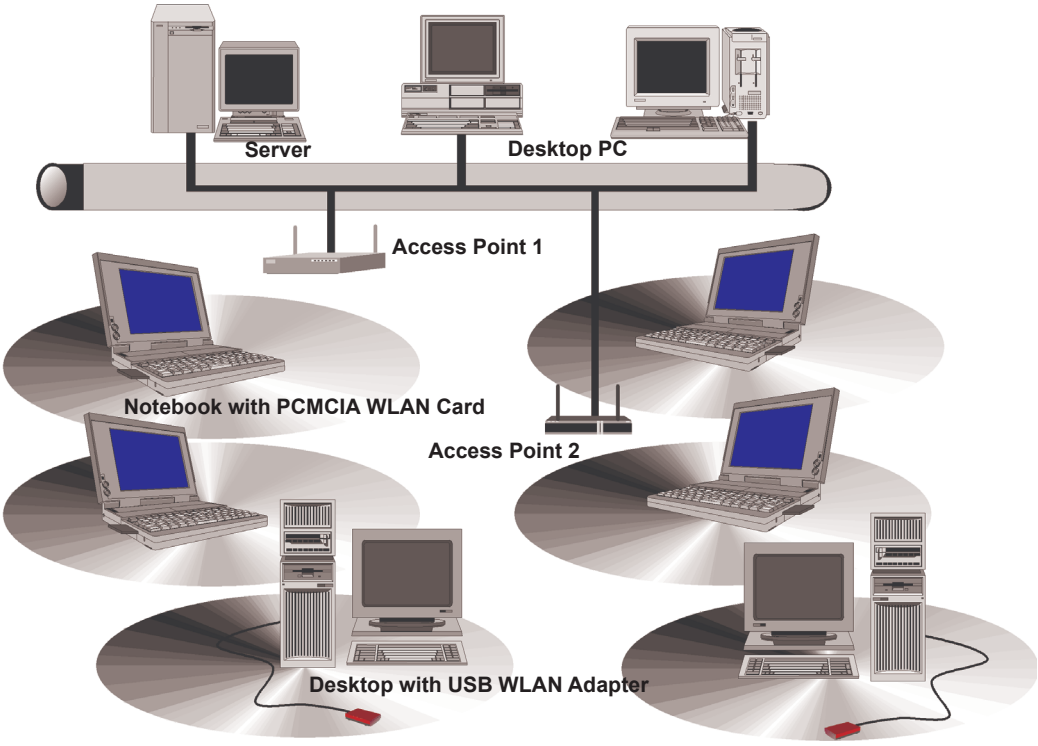


Fig 2-2 Infrastructure Wireless LAN

The adapter provides access to a wired LAN for wireless workstations. An integrated wireless and wired LAN is called an infrastructure configuration. A group of WLAN PC users and an Access Point compose a Basic Service Set (BSS). Each WLAN PC in a BSS can talk to any computer in the wired LAN infrastructure via the Access Point.(Fig 2-2)

An infrastructure configuration extends the accessibility of a WLAN equipped PC to a wired LAN, and doubles the effective wireless transmission range for 2 WLANs PCs. Since the Access Point is able to forward data within its BSS, the effective transmission range in an infrastructure LAN is double.(Fig 2-3)

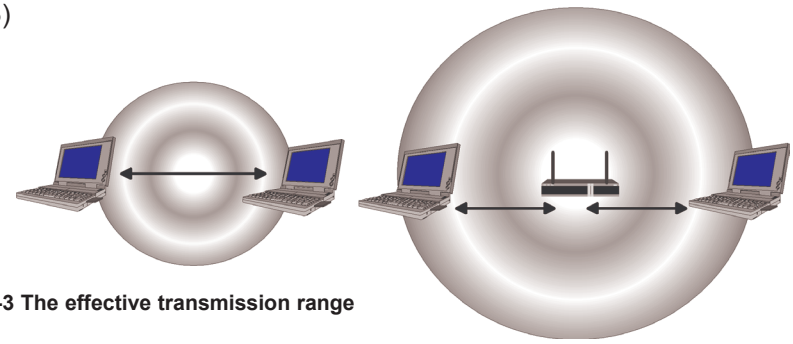


Fig 2-3 The effective transmission range

The use of a unique ID in a BSS is essential. All WLAN equipped PCs configured without roaming options in independent BSS must be configured with a BSS ID corresponding to the Access Point used in the BSS. Check your Access Point for its BSS ID or use the Access Point Browser Utility program to determine the BSS ID.(Fig 2-4)

The infrastructure wireless LAN configuration is appropriate for enterprise-scale wireless access to a central database, or as a wireless application for mobile users.

Roaming

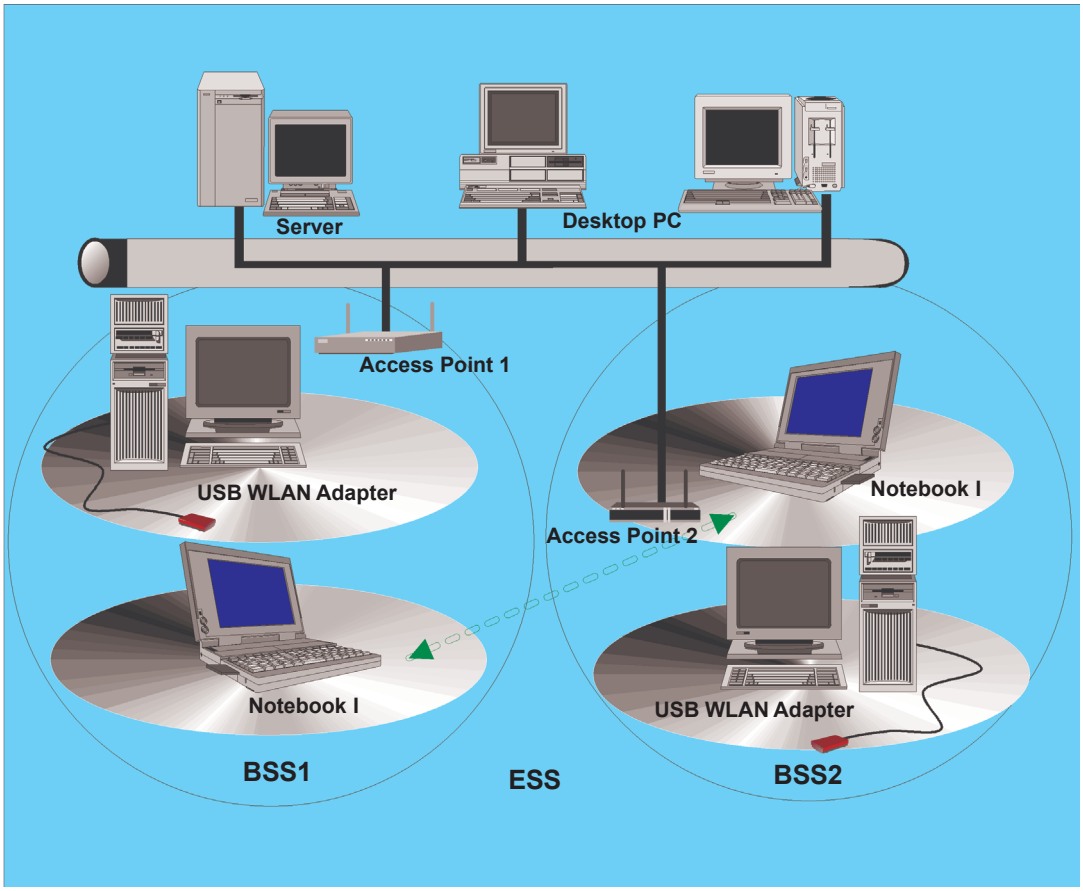


Fig 2-4 Roaming in an Extended Service Set (ESS)

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 WLAN PCs and Access Point within one ESS must be configured with the same ESS ID.

Before enabling an ESS with roaming capability, it is recommended to select a feasible radio channel and optimum Access Point position. Proper Access Point positioning combined with a clear radio signal will greatly enhance performance.

Chapter 3: Installing the Drivers and Configuration Utility for Windows 9X, ME, 2000

Running the Auto Driver & Utility Installation

Before installing your card, insert the AutoInstall CD into your CD-ROM driver. Unless you have deactivated the autorun feature of Windows, the screen shown in Fig 3-1 should appear automatically.

If this screen doesn't appear automatically, you can access the installation by clicking the ***Start*** button and choosing ***Run***. In the drop-down box provided type ***D:\Setup.exe*** (where D: is the letter of your CD-ROM drive). Alternately, double-click My Computer and double-click the ***Setup.exe*** icon in the folder that appears.

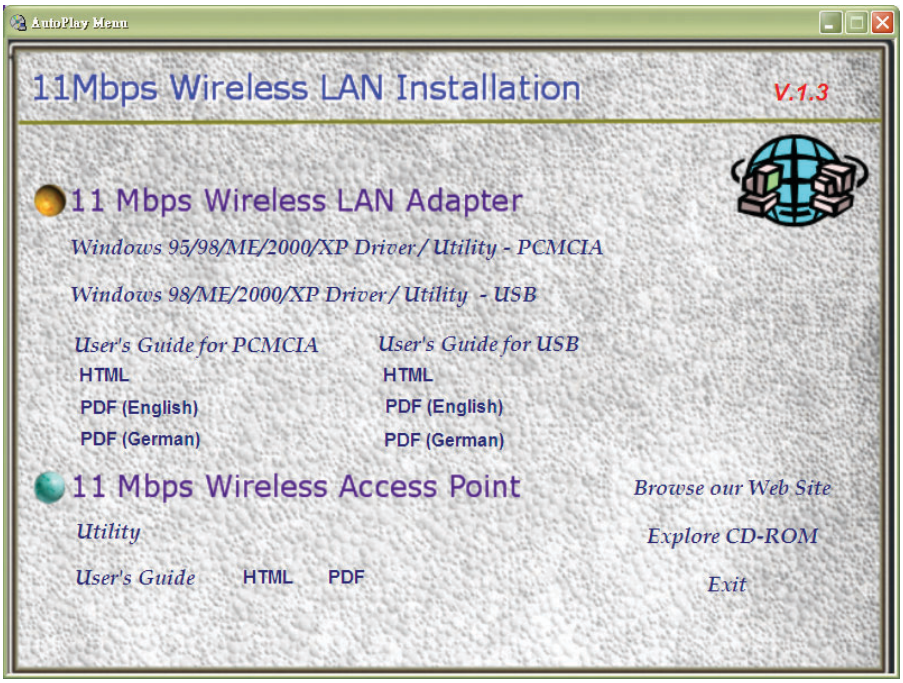


Fig 3-1 Autorun feature of Windows

1. Click "**Windows 95/98/ME/2000/XP Driver & Utility - PCMCIA**" to install driver/utility for your PCMCIA WLAN Card. You will see **Welcome to the InstallShield Wizard for 802.11 Wireless LAN**. Click "**Next >**" (Fig 3-2).

2. After clicking "**Next >**", components' version of package will be shown on this screen. (Fig 3-3).

NOTE: You must install this software before installation of the hardware

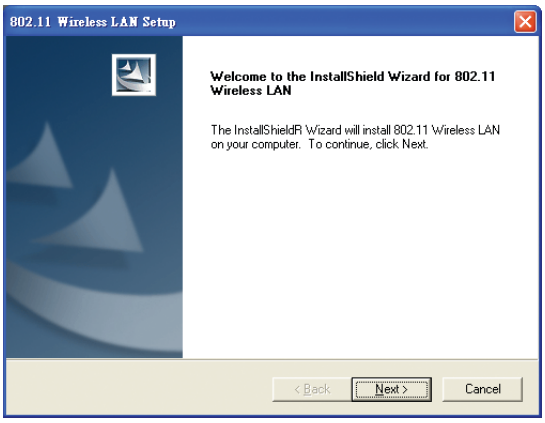


Fig 3-2 Install WLAN Driver / Utility

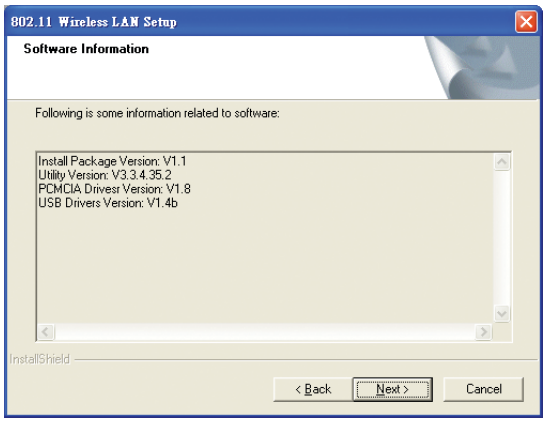


Fig 3-3 Componets Version

3. The installation provides you to install package **Custom** or **Typical**. (Fig 3-4)

4. If **"Custom"** be chosen, you can select package individually. If you choose **"Typical"**, The 3 packages will be installed in your system. (Fig 3-5)

The 3 packages mean *Application, PCMCIA card driver, and USB adapter driver.* (Fig 3-6).

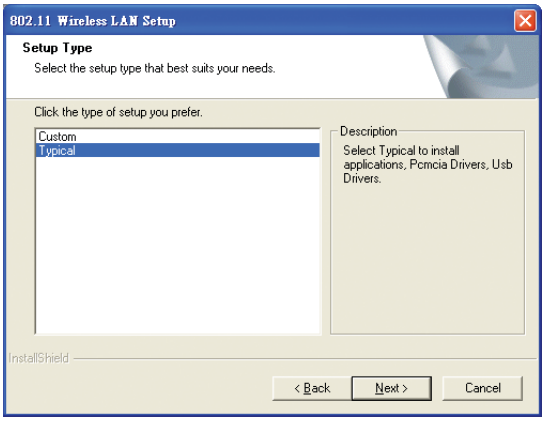


Fig 3-4 Setup Type

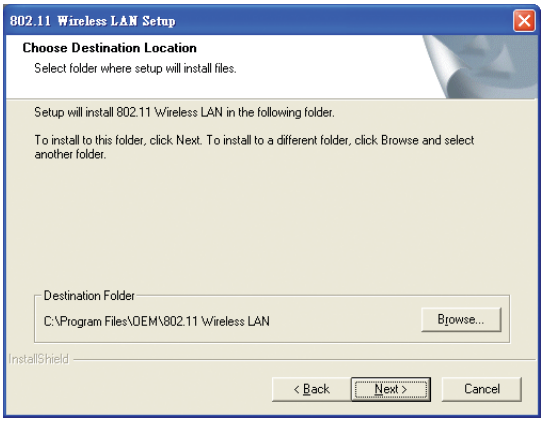


Fig 3-5 Typical Setup

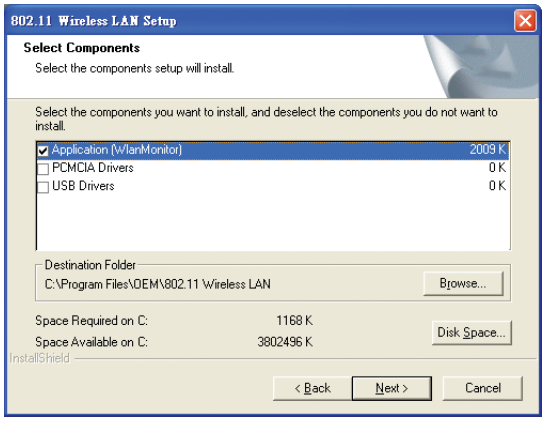


Fig 3-6 Custom Setup

5. You can specify a folder name of this program. (Fig 3-7)
6. After copying files, you will finish the installation. (Fig 3-8)

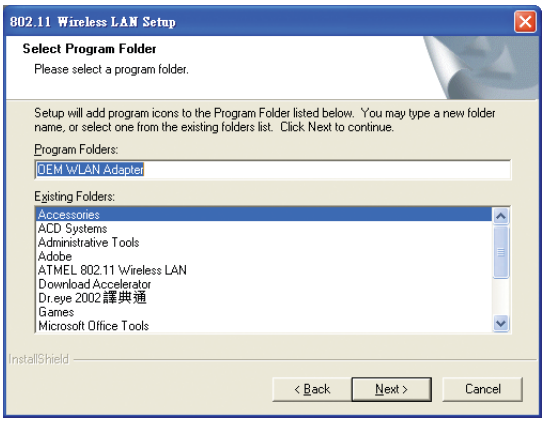


Fig 3-7 Select Program Folder

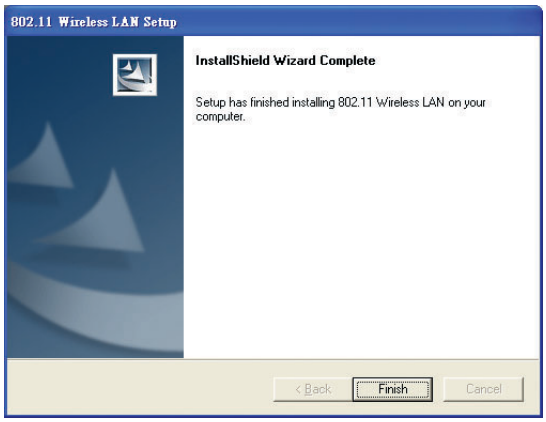


Fig 3-8 Finish

Inserting the adapter

To insert the wireless LAN Card into a notebook computer, do the following:

1. Locate an available Type II or Type III PCMCIA slot.
2. With the PCMCIA adapter's 68-pin connector facing the PCMCIA slot and the "Brand Name of PCMCIA" label facing up side the PCMCIA adapter completely into the PCMCIA slot.

Fig 3-9 Insert the Wireless LAN card into Notebook

After properly inserting the Network Adapter into your notebook, continue with the WLAN driver and configuration utility installation.(Fig 3-9)

NOTE: *The PCMCIA slot allows "hot swap" of PCMCIA adapter. You may insert or remove the WLAN PCMCIA adapter from the slot anytime, even when the power of your computer is on.*

NOTE: *Windows 98 requires that the Network card and socket services must be compliant with the PCMCIA revision 2.10 specification. Please check the documentation of the PCMCIA driver before installing the WLAN PCMCIA adapter.*

After installing PCMCIA WLAN Card driver and utility. Please insert the WLAN Card. You will see Found New Hardware. Please select **“Intall the software automatically”** then click **“Next>”** (Fig 3-10). The screen in Windows XP (Fig 3-11) will appear click **“Countine Anyway”**. The Windows has finished installing software for the device. Click **“Finish”** to finish the installation.(Fig 3-12). Configuration Utility please see **Chapter 4**

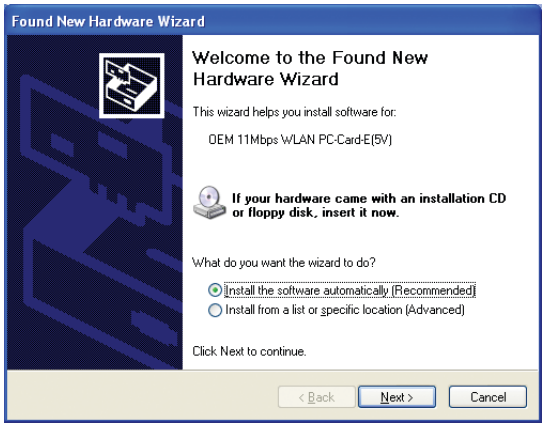


Fig 3-10 Found New Hardware

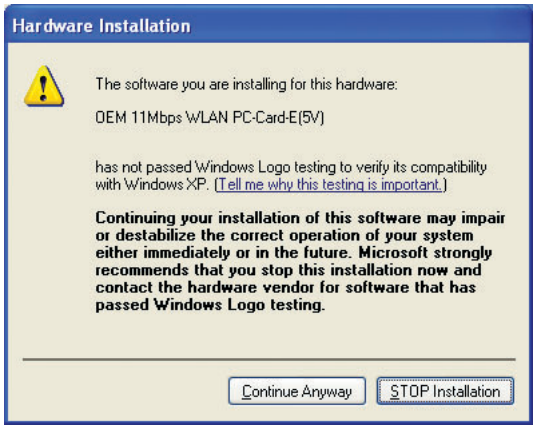


Fig 3-11 Windows XP Screen

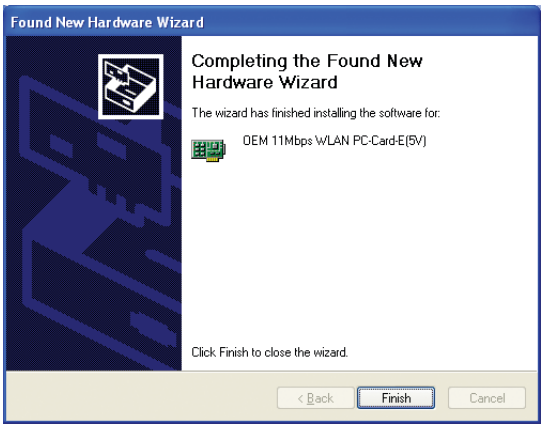


Fig 3-12 Finish the installation

Chapter 4: Configuration Utility

The **Configuration Utility** is provided to allow you further customization of the WLAN PC Card and your wireless network.

Using the configuration Utility

After the Configuration Utility has been installed, an icon will placed in the system tray (next to click button of your screen) when the WLAN PC Card is inserted, as shown in Fig 4-1.

Fig 4-1

The utility is divided into six parts: **Status, Statistics, Site Survey, Encryption, Advanced, and Info.** *You should change all your configuration settings for your WLAN PC Card using this utility and not with the Network Properties section in your Control Panel.*

Status

The Status screen (Shown in Fig 4-2) provides information about the current link between the Network PC Card and Wireless Access Point.

When in Infrastructure Mode, **Status** will display the connection statistics for the network segment that you are on.

The **Channel** field shows to what channel the WLAN PC Card is set.

The **SSID** field shows the current SSID set fir the wireless network. This SSID can be modified at you click **Change** bottom.

The **Tx Rate** field shows the transfer rate in megabits per second.

The **Int. Roaming** field shows to use this feature to allow your adapter to retrieve country information from the access point and behave according to that country's regulations.

The **Radio** field shows on / off radio signal

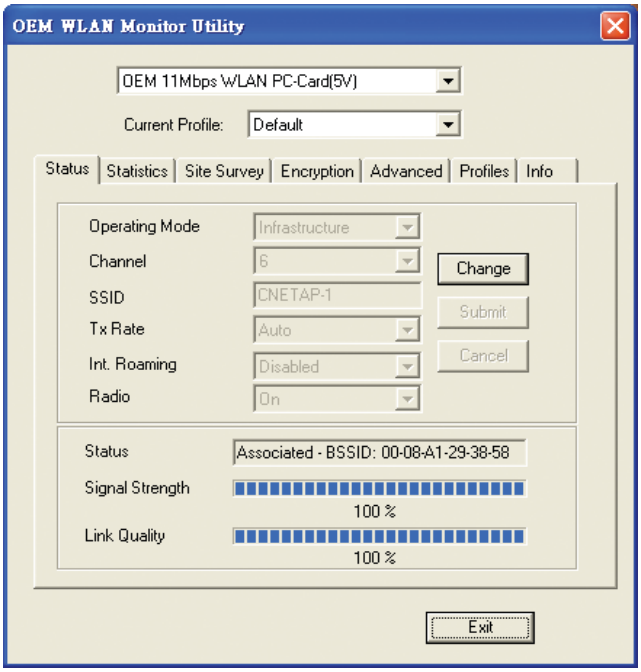


Fig 4-2

NOTE: When in Ad-Hoc mode, Signal Strength and Link Quality indicators will not be available.

The **Signal Strength** field will display a bar indicating the percentage, between 0 and 100 percent, of the strength of the signal. The higher the percentage, the stronger the signal.

The **Link Quality** field will display a bar indicating the percentage, between 0 and 100 percent, of the quality of the link. The higher the percentage, the better the link.

The **Change** bottom, allows you to customize the setting for the WLAN PC Card and your wireless network.

The Operating Mode setting determines the architecture of your wireless network select **Ad-Hoc** or **Infrastructure** Mode depending on your network type. The **Ad-Hoc** mode is used for sample peer-to-peer network and allows the sharing of local resources only between Network PC Card without needing a Wireless Access Point. The Infrastructure mode allows a wireless network to be integrated into an existed, wired network through an Access Point. Infrastructure networks permit roaming between Access Points while maintaining a connection to all network resources.

An acronym for Service Set Identifier, SSID is the unique name shared among all points in a wireless network. The SSID must be identical for all points in the network. *It is case sensitive and must not exceed 32 characters.*

The Tx Rate field shows the current transfer rate for the Network PC Card. To optimize performance and range, the Tx Rate should be set to Auto, which will automatically adjust the transfer speed for best performance and longest range.

The Channel setting specifies the channel used in wireless communication and should be set to the same channel as the other points in the wireless network. The setting can only be adjusted in Ad-Hoc mode.

Statistics

The Statistics screen (Shown in Fig 4-3) provides information about the Tx / Rx Data, Management, and rejected Packets.

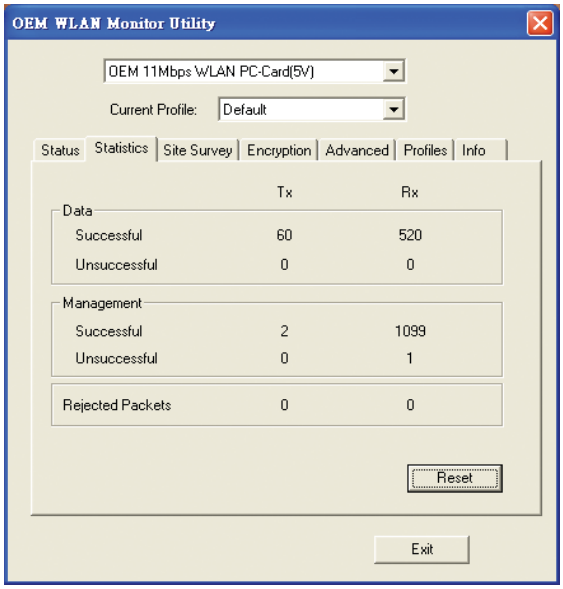


Fig 4-3

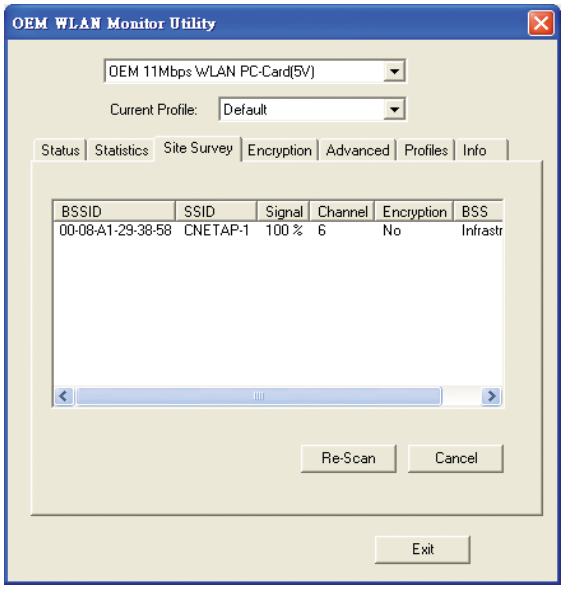


Fig 4-4

Site Survey

The Site Survey screen shows some features of the available access points or other stations. Click on the desired access point / station. Then double click BSSID to connect or Re-Scan to search for more access points. (Shown in Fig 4-4)