

11Mbps Wireless LAN PCI Adapter



Date of Issue: Aug. 20th, 2003

Technical Support

The firmware version of the Wireless LAN PCI Card is displayed on the utility **About** window. Users could download the most recent software version from the supplier's web site or refer to the selling contact for the latest software information. If you have difficulty resolving the problem while installing or using the 802.11b Wireless LAN PCI Card, please contact the supplier for support.

About This Manual

802.11b Wireless LAN PCI Card User Manual was first released on August, 2003. The manual includes procedures for the setup of the 802.11b Wireless LAN PCI Card under Windows XP, Windows 2000, Windows 98SE or Windows ME. Take a moment to read through this manual and familiarize yourself with wireless technology.

FCC Information

This device, IEEE 802.11b WLAN PCI Card, 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.

Federal Communications Commission (FCC) 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 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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

Tested to comply with FCC standard. FOR HOME OR OFFICE USE.



FCC RF Radiation Exposure Statement:

1. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2). This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The **IEEE 802.11b WLAN PCI Card** has been tested to the FCC exposure requirements (Specific Absorbtion Rate).

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About Wireless LAN PCI Card

1

The 802.11b Wireless LAN PCI Card is a standard PCI adapter that fits into any standard PCI slot in a desktop. The 802.11b Wireless LAN PCI Card is an enhanced high-performance, that supports high-speed wireless networking at home, or at office. 802.11b Wireless LAN PCI Card is able to communicate with any 802.11b and 802.11g compliant products.

1-1 Features and Benefits

1. Fully IEEE 802.11b compatible.
2. Supports 1, 2, 5.5, and up to 11 Mbps data rate.
3. Working range up to 800 ft. in an open environment.
4. Seamless connectivity to wired Ethernet and PC network LAN's augments existing networks quickly and easily.
5. Greater flexibility to locate or move networked PCs.
6. Wireless connection without the cost of cabling.
7. Easy to install and user friendly, just Plug and Play (PnP).
8. Lower power consumption.
9. Supports a variety of operating systems (Win98SE/ME/2000/XP)
10. 64-bit and 128-bit WEP encryption capable.
11. Direct Sequence Spread Spectrum (DSSS) technology provides robust, interference-resistant and secure wireless connection.

1-2 Applications

The 802.11b Wireless LAN PCI Card offers a fast, reliable and cost-effective solution for wireless client access to the network in applications like these:

1. Remote access to corporate network information

E-mail, file transfer and terminal emulation.

2. Difficult-to-wire environments

Historical or old buildings, asbestos installations and open area where wiring is difficult to deploy.

3. Frequently changing environments

Retailers, manufacturers and those who frequently rearrange the workplace and change location.

4. Temporary LANs for special projects or peak time

■ Trade shows, exhibitions and construction sites where a temporary network will be practical.

■ Retailers, airline and shipping companies need additional workstations during peak period.

■ Auditors requiring workgroups at customer sites.

5. Access to database for mobile workers

Doctors, nurses and retailers can access their database while being mobile in the hospital, retail store or office campus.

6. SOHO (Small Office and Home Office) users

SOHO users need easy and quick installation of a small computer network.

7. High security connection

The secure wireless network can be installed quickly and provide flexibility. (Please refer to page 26 for encryption configuration.)

1-3 Product Kit

The 802.11b Wireless LAN PCI Card comes with the following items. Please go through each item below. If any of listed items appear to be damaged or missing, please contact your local dealer.

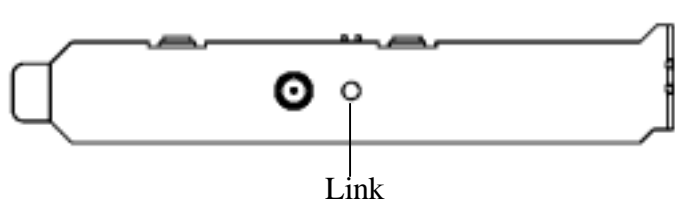
802.11b Wireless LAN PCI Card

- 802.11b Wireless LAN PCI Card..... x 1
- Software and Documentation CD..... x 1
- 802.11b Wireless LAN PCI Card Quick Start Guide..... x 1



1-4 About Wireless LAN PCI Card LED Indicators

The 802.11b Wireless LAN PCI Card has one LED indicator. The behavior of the indicator is described as below:



Link LED

- Solid Green – Associated with the Access Point or Ad-Hoc wireless workstation.
- Blinking Green – Indicate the device is active data through the Access Point or Ad-Hoc wireless workstation..

2

Getting Started

This chapter describes the instructions that guide you through the proper installation of your 802.11b Wireless LAN PCI Card for the Windows XP/2000/ME/98SE operating systems.

The complete installation of the Wireless LAN PCI Card consists of the following steps:

STEP 1: Insert your Wireless LAN PCI Card into the connector of any free PCI Bus Master expansion slot on your desktop computer.

STEP 2: Install the corresponding driver and utility.

STEP 3: Set basic settings.

STEP 4: Finish Installation.

2-1 Before Installation

In addition to the items shipped with the client adapter, you will also need the following in order to install the adapter:

1. A computer equipped with a PCI slot.
2. Windows XP/2000/98SE/ME (with a Windows installation CD-ROM, diskettes for use during installation)
3. Minimum 5 Mbps free disk space for installing driver and utility program.

2-2 Insert the 802.11b Wireless LAN PCI Card

To install the 802.11b Wireless LAN PCI Card, please do the following:

1. Open the case of your desktop computer.
2. Find an available PCI slot on your computer.
3. Insert the PCI adapter into the PCI slot.
4. Close the case of the computer and start Windows.



CAUTION: Do not force the client adapter into the slot. Forcing it will damage both the client adapter and the slot. If the client adapter does not go in easily, remove the card and reinsert it.

3

Install Driver for Windows

This section describes the installation of the 802.11b Wireless LAN PCI Card driver for the Windows 98SE/ME/2000 and Windows XP operation systems. The installation procedures for Windows XP refer to *3-1 Set up Wireless LAN PCI Card for Windows XP*, for Windows 2000 please see *3-2 Set up Wireless LAN PCI Card for Windows 2000*, and for Windows 98SE/ME refer to *3-3 Set up Wireless LAN PCI Card for Windows 98SE/ME*.



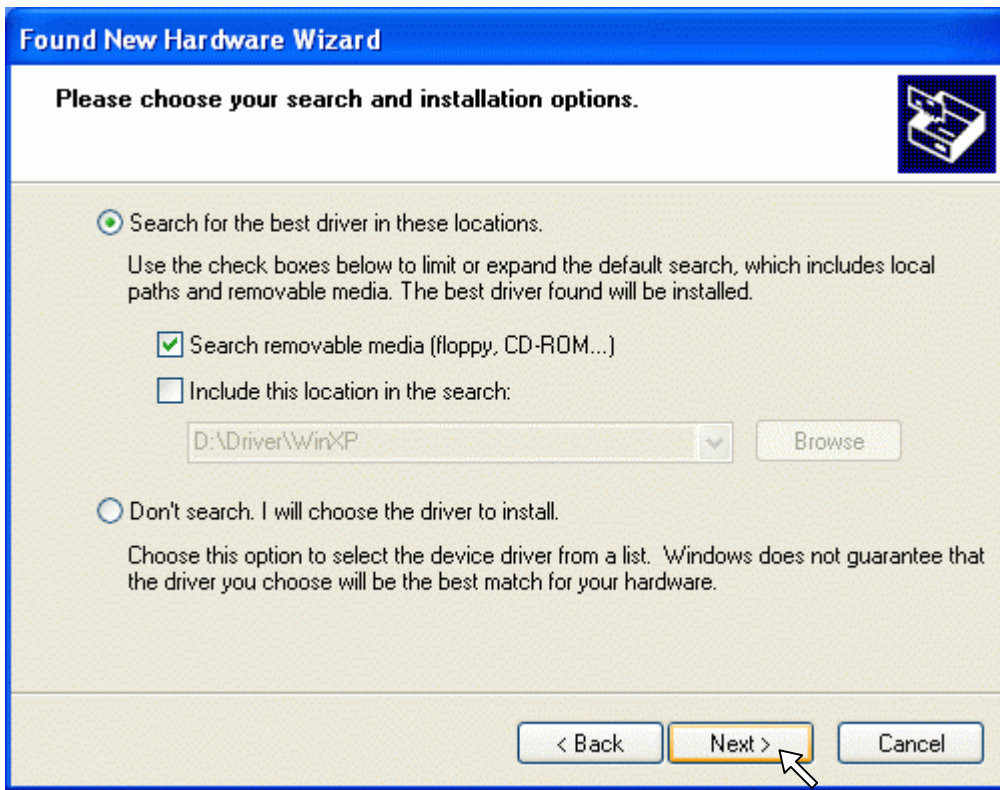
Note: Before you start the installation, you are advised to keep the Windows CD-ROM in case you might need certain system files.

3-1 Set up Wireless LAN PCI Card for Windows XP

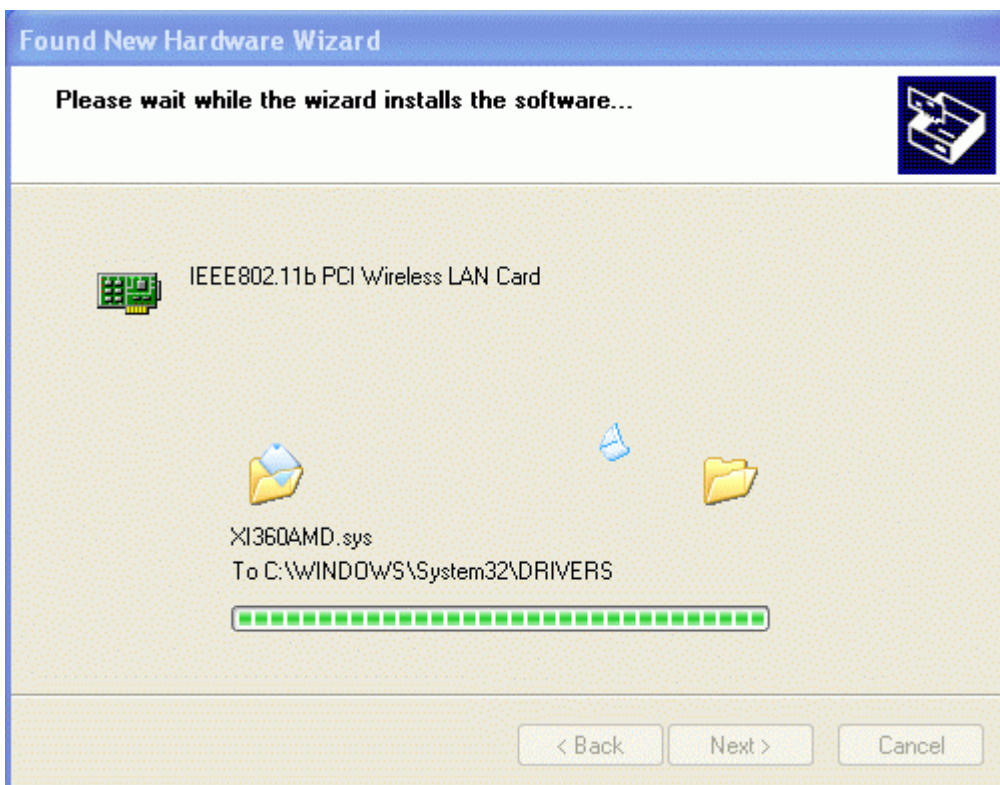
Step 1: After inserting the 802.11b Wireless LAN PCI Card into the PCI slot on your desktop computer, the Windows will auto-detect the Wireless LAN PCI Card and a “**Found New Hardware Wizard**” window will show up. Select “**Install from a list or specific (Advanced)**” to install the driver and click on **Next** to proceed..



Step 2: Insert the Product CD-ROM into the CD-ROM drive. Check the “**Search removable media (floppy, CD-ROM...)**” check box and click on **Next** to install the driver.



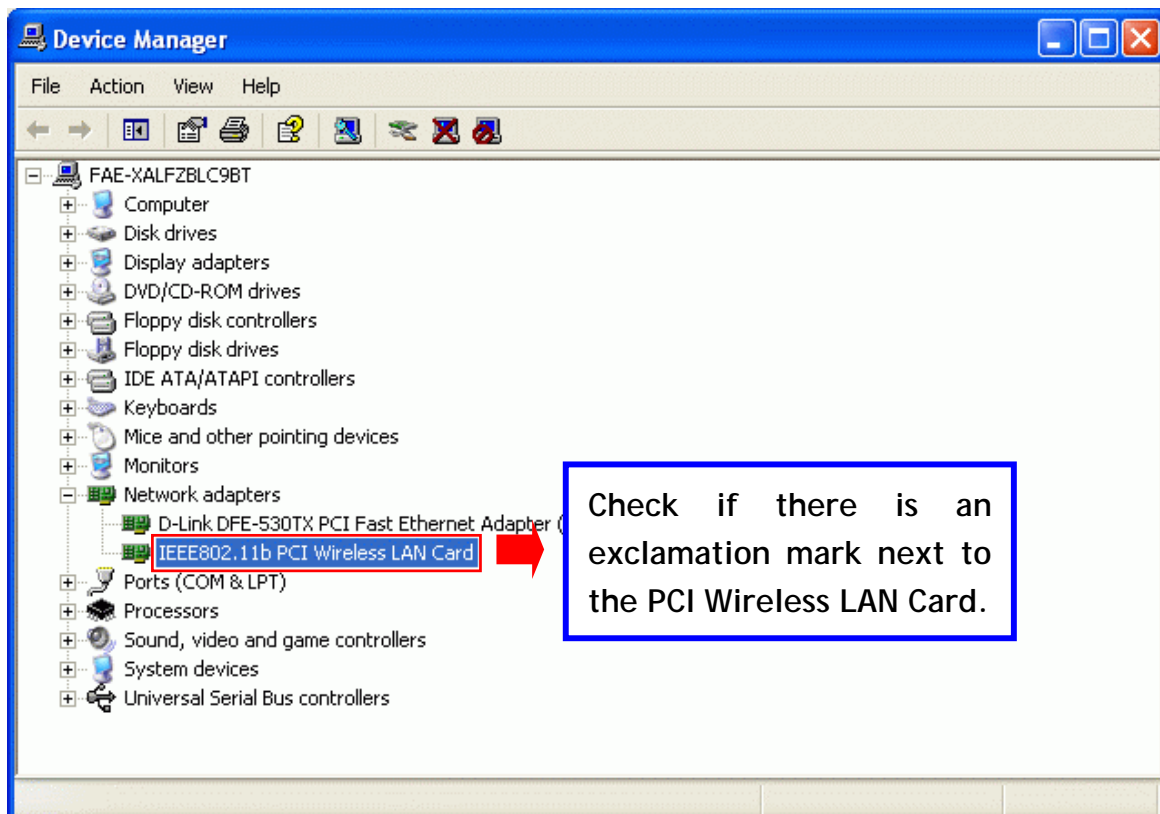
Step 3: The windows will find “**IEEE 802.11b PCI Wireless LAN Card**” and start copying corresponding files into the system. Click on **Next** to continue.



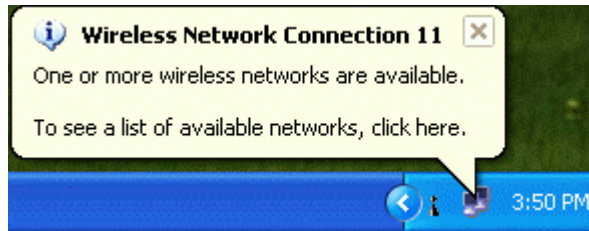
Step 4: Click on **Finish** to complete the installation.



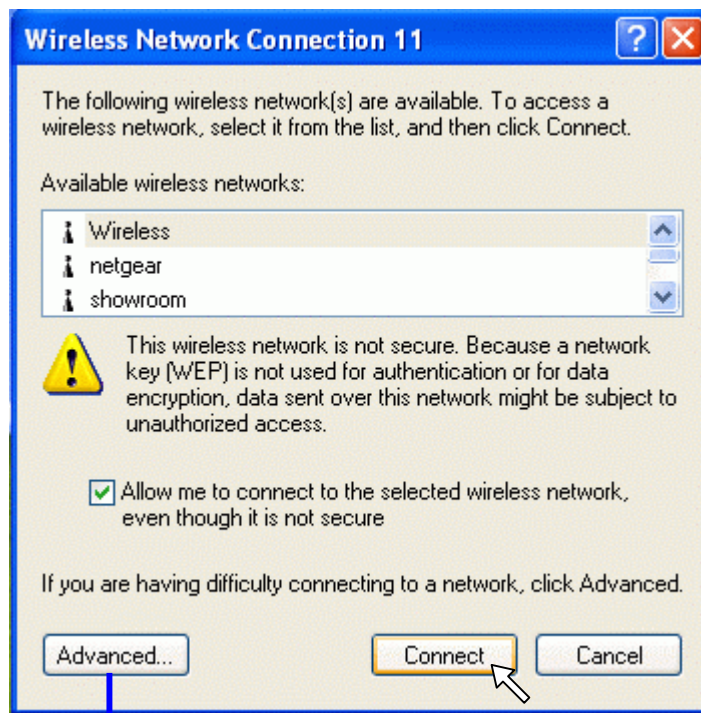
Step 5: Right click “My Computer” from **Start**, select **Properties**, go to the **Hardware** tab and click the **Device Manager** button to see if any exclamation mark appears next to the **Network Adapter/IEEE 802.11b PCI Wireless LAN Card**. If no, your Wireless LAN PCI Card is working well.



After installing the Wireless LAN PCI Card, the Windows XP will display a “Wireless Network Connection #” message.



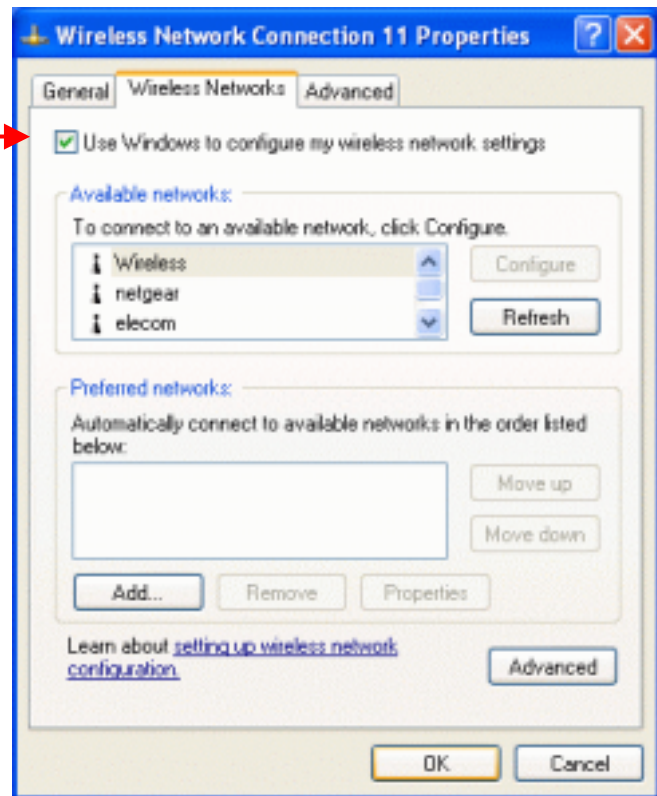
Click on the message and the “Automatic Wireless Network Configuration” will appear automatically. You may select “**Allow me to connect to the selected wireless network, even though it is not secure**” and click on **Connect** button to allow you to connect to an available wireless infrastructure network (Access Point). You may also click the **Advanced** button to make advanced configuration for the Wireless LAN PC Card, shown as below.



Advanced Configuration Setting

For more information on using the automatic wireless network configuration please refer to Windows XP **Help** file.

Warning: You must choose one way to configure Wireless LAN PC Card either of using our WLAN Utility by un-checking this check box or using Windows XP *Automatic Wireless Network Configuration* first by checking this check box.



However, the WLAN Utility, which comes with the Wireless LAN PCI Card, provides you more tools to configure the Wireless LAN PCI Card and monitor the wireless connection. For more information on installing and using the WLAN utility, please refer to the following sections “*Install the WLAN Utility*” and “*Use the WLAN Utility*”.



Note: To use the WLAN utility under Windows XP, you need to disable the *Automatic Wireless Network Configuration* first. Steps are described as follows:

- Right click the **Network Connections** icon. Select **Properties**.
- Go to the **Wireless Networks** tab.
- Uncheck the “**Use Windows to configure my wireless network settings**” check box and click the **OK** button (see the above picture).

3-2 Set up Wireless LAN PCI Card for Windows 2000

Step 1: After inserting the 802.11b Wireless LAN PCI Card into the PCI slot on your computer, Windows will auto-detect the 802.11b Wireless LAN PCI Card.



Step 2: A “Found New Hardware Wizard” window shows up. Click on **Next** to proceed.



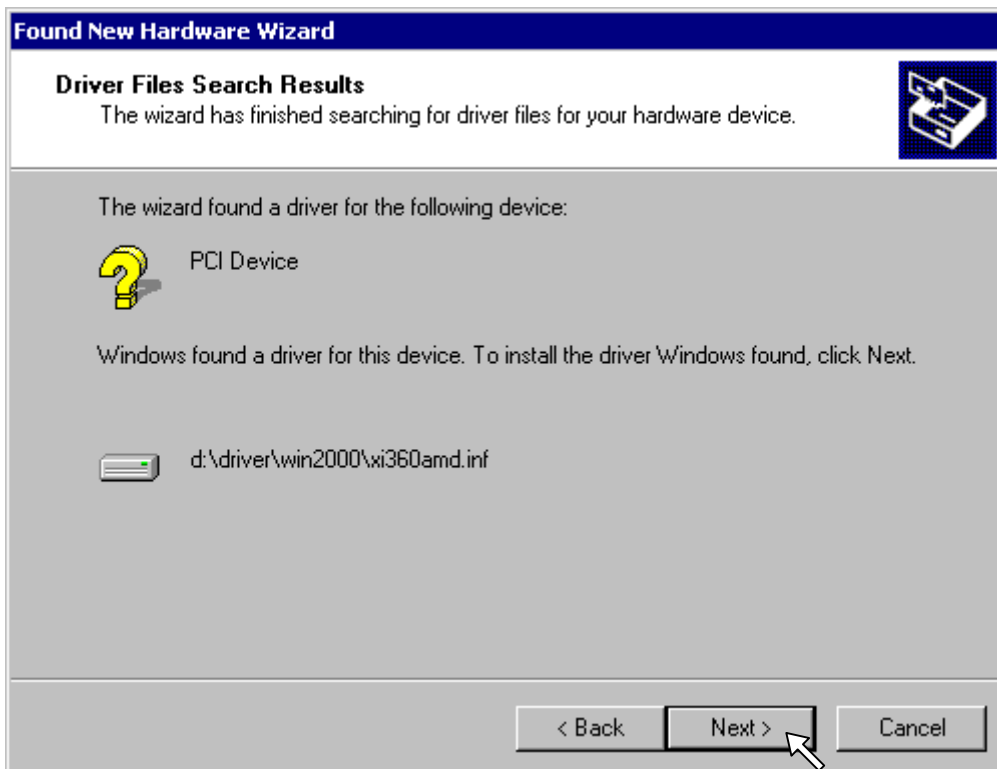
Step 3: Select “Search for a suitable driver for my device (recommended)” and click on **Next** to proceed.



Step 4: Insert the Product CD-ROM into the CD-ROM drive. Specify the location where the installation driver is placed. Click on **Next** to install the driver.



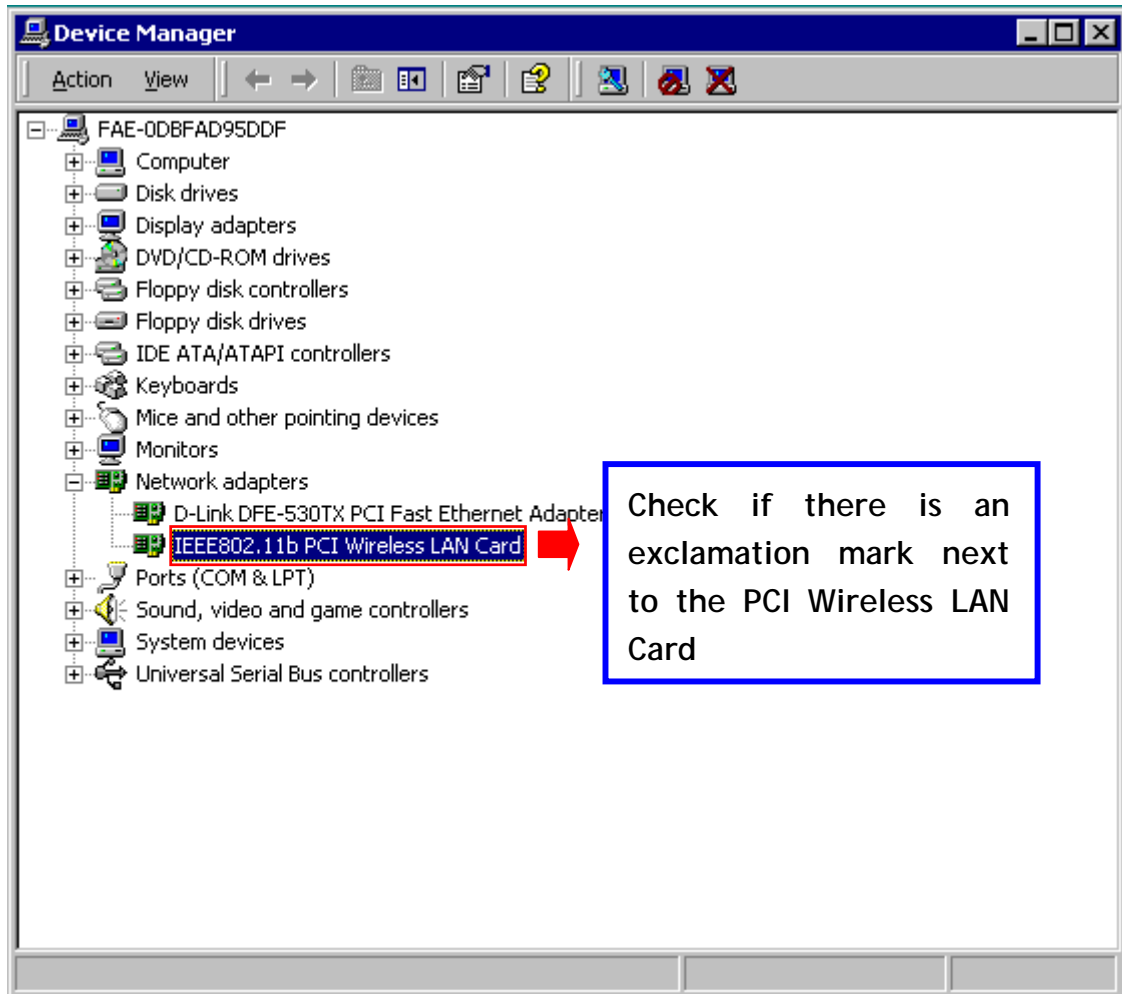
Step 5: The windows will find “PCI Device”. Click on **Next** to continue.



Step 6: Click on **Finish** to complete the installation.



Step 7: Open **Control Panel/System/Device Manager**, and check **Network Adapters** to see if there is an exclamation mark appears. If no, your Wireless LAN PCI Card is working well.



3-3 Set up Wireless LAN PCI Card for Windows 98SE/ ME

Step 1: After inserting the IEEE802.11b Wireless LAN PCI Card into the PCI slot on your computer, Windows will auto-detect new hardware and will appear an “Add New Hardware Wizard” window. Click on **Next** to continue.



Step 2: Select “Search for the best driver for your device (Recommended)” and click **Next** to proceed.



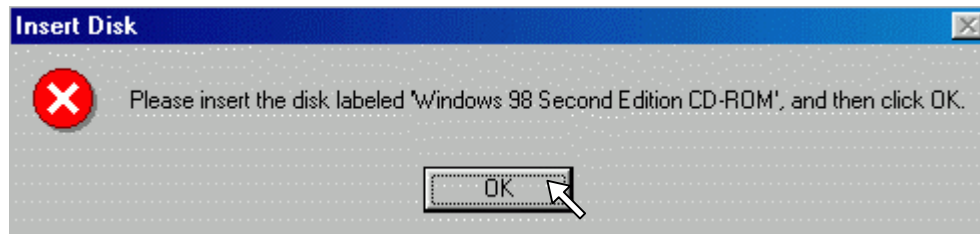
Step 3: Insert the installation CD-ROM into the CD-ROM drive. Select the “**CD-ROM drive**” or “**specify a location**” check box to search the proper installation driver and click on **Next** to install the driver.



Step 4: The Windows will find “**IEEE 802.11b PCI Wireless LAN Card**”. Click on **Next** to continue.



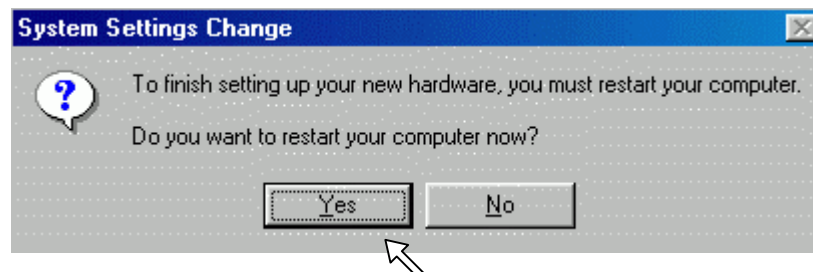
Step 5: Once the [Please insert the disk labeled “Windows 98SE/ME CD-ROM”, and then click OK] window pops up, enter the path corresponding to the appropriate drives and click on **OK** to proceed. Usually these files can be found at C:\Windows or C:\Windows\system.



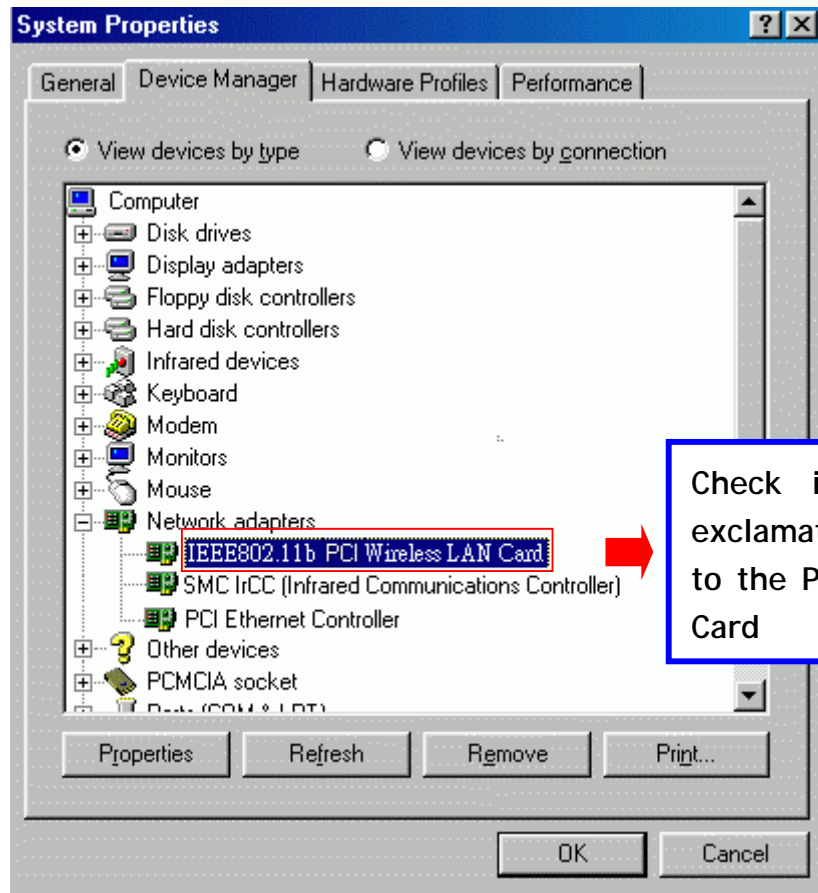
Step 6: Click on **Finish** to complete the driver installation.



Step 7: Click on **Yes** to reboot the computer.



Step 8: Open **Control Panel/System/Device Manager**, and check **Network Adapters** to see if exclamation mark appears next to the IEEE 802.11b Wireless LAN PCI Card. If no, your 802.11b Wireless LAN PCI Card is working well.



Configure the Wireless LAN PCI Card **4**

This chapter gives you assistance with detail configuration for the Wireless LAN PCI Card under Windows XP/2000/98SE/ME.

4-1 Install the WLAN Utility

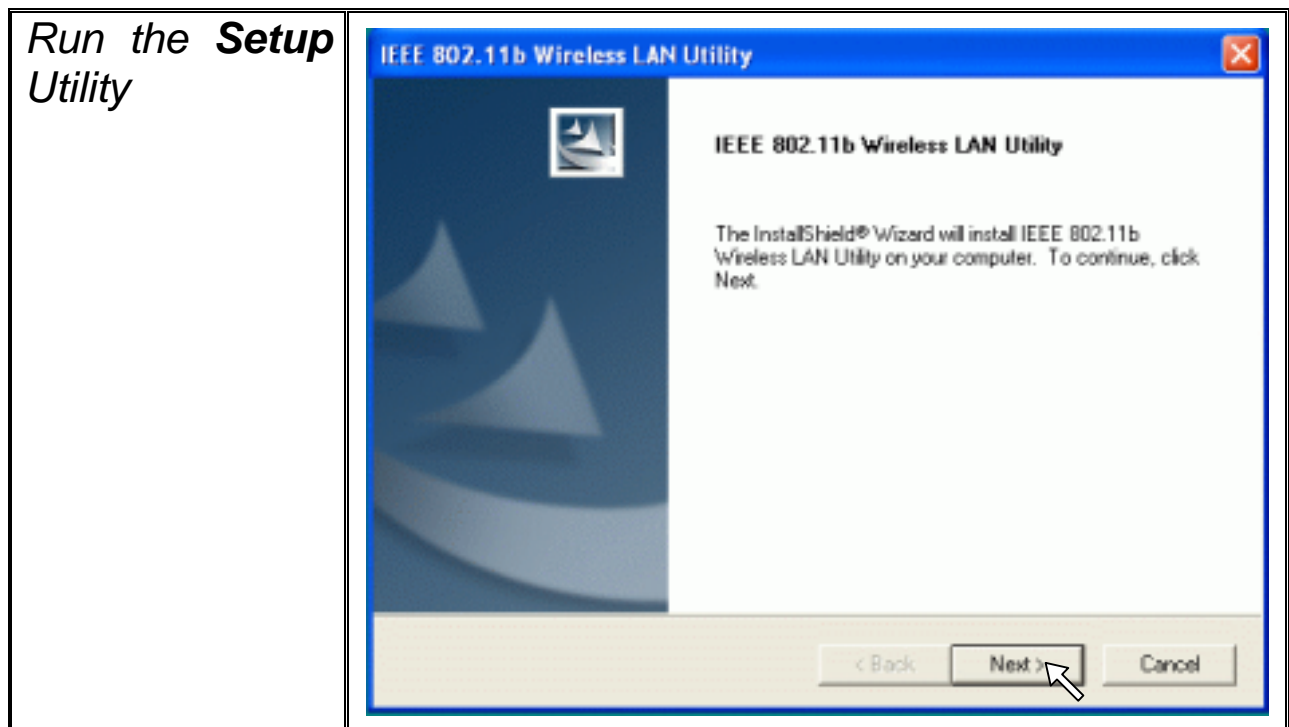
To install the WLAN Utility, follow these steps:

Step 1: Insert the Product CD-ROM.

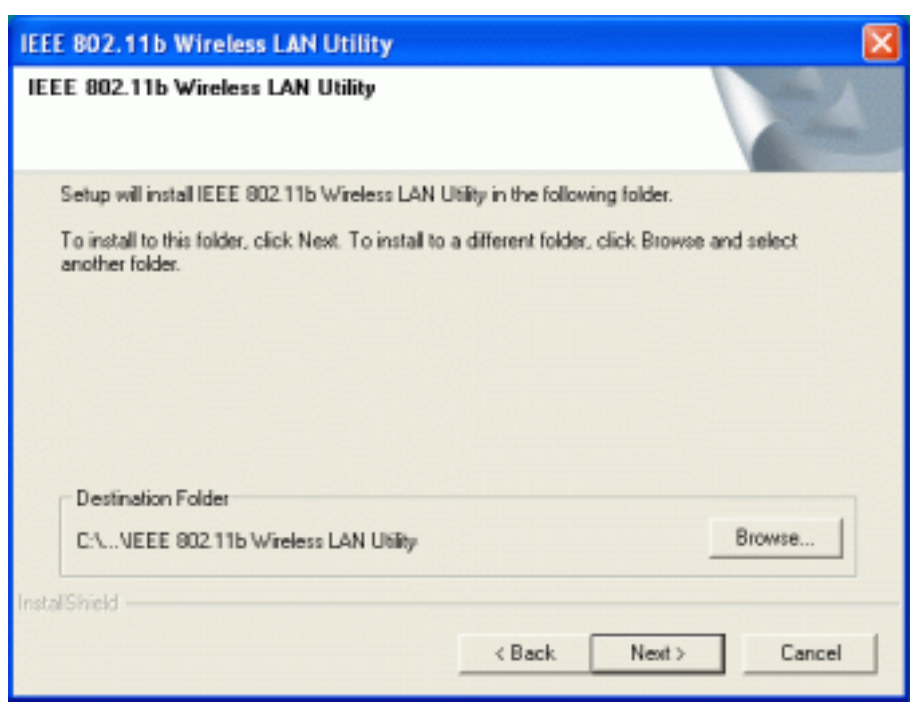
Step 2: Go to the **utility** folder and run **setup.exe**.



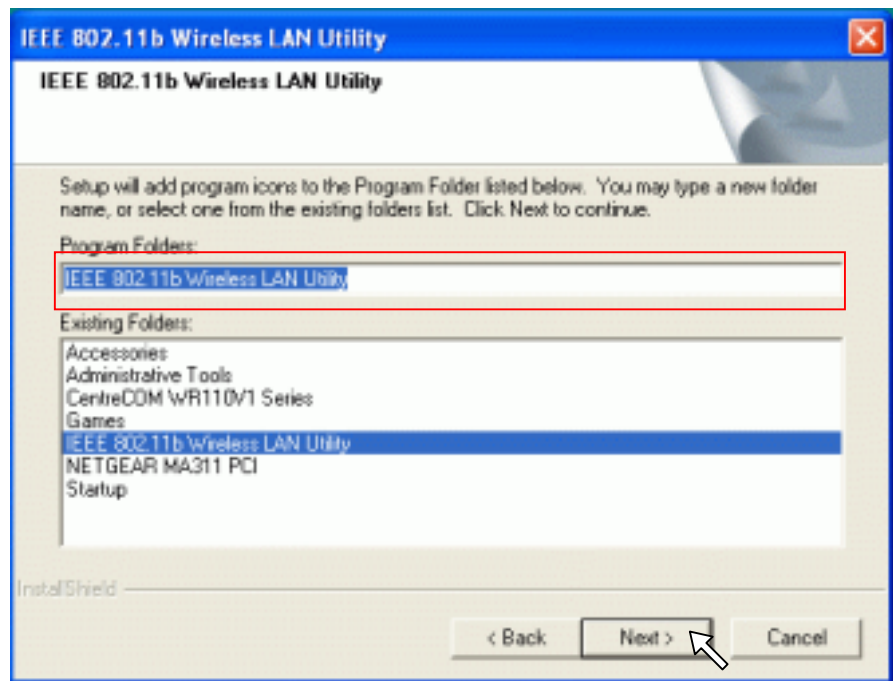
Step 3: The InstallShield Wizard will show up and guide you through the rest of the setup process.



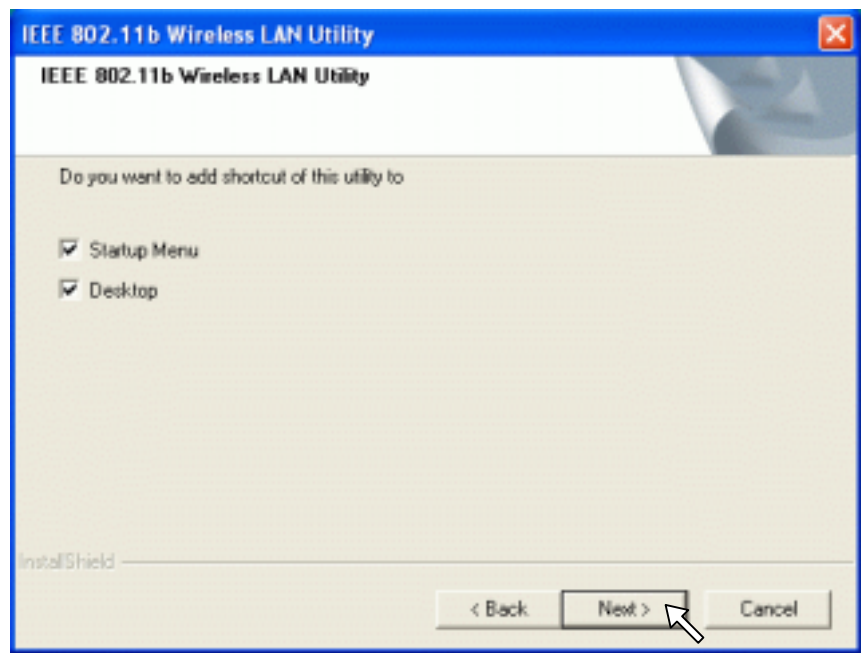
Choose Destination Folder and click on **Next** to continue.



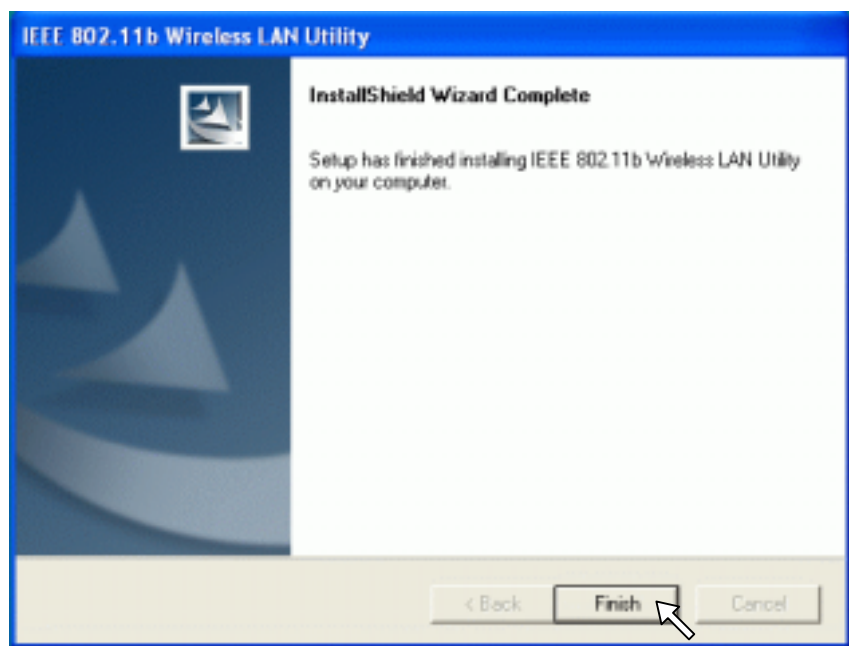
Select a program folder and click **Next**. Change the Folder Name upon your desire.



Select where a shortcut is added and click on **Next** to proceed.



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



Upon completion, double click the WLAN Utility icon on the desktop or go to **Program Files** and run the WLAN Utility by clicking its icon in the **System Tray** in the bottom right corner of your task bar. Click on the icon will open the configuration window. When you minimize the window, the system tray icon will be loaded in the System Tray again.



The color behind the system tray icon indicates the link status:



Blue indicates a good link or an excellent link. (Good / Excellent)



Yellow indicates a usable but weak link. (Low)



Red indicates no or very poor link quality. (Unavailable)

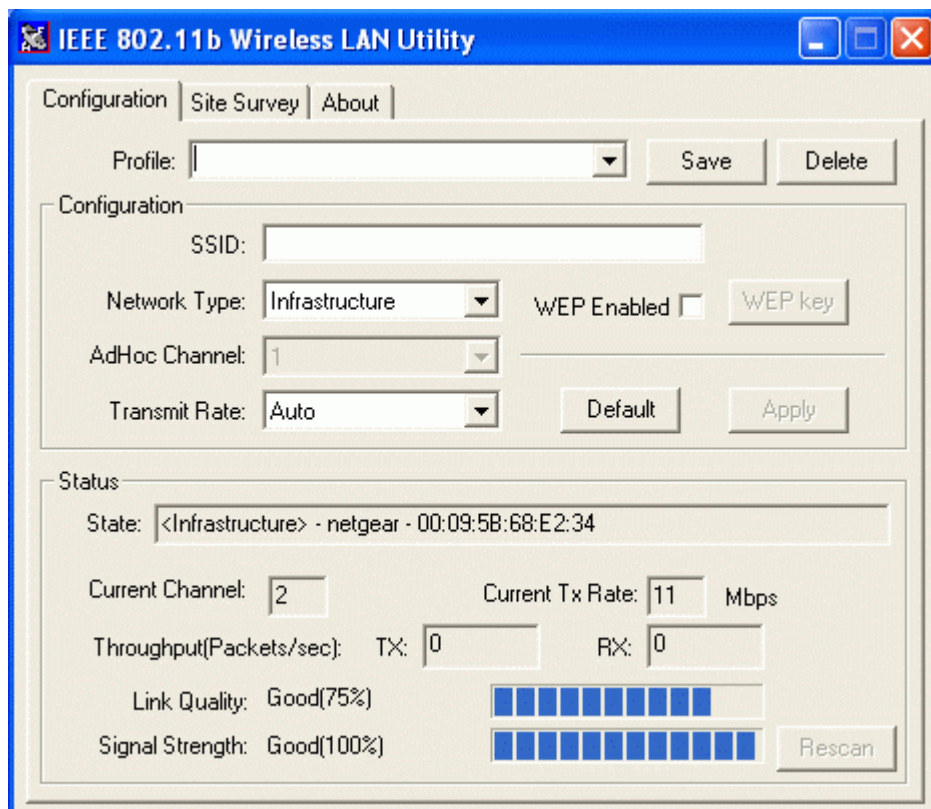
When you minimize the window, the system tray icon will be loaded in the **System Tray** again.

4-2 Use the WLAN Utility

The WLAN Utility enables you to make configuration changes and perform user-level diagnostics on your 802.11b Wireless LAN PCI Card in the Windows XP/2000/98SE/ME operating system environments. The WLAN Utility window consists of 3 tabs for you to monitor and configure the 802.11b Wireless LAN PCI Card: **Configuration**, **Site Survey** and **About**.

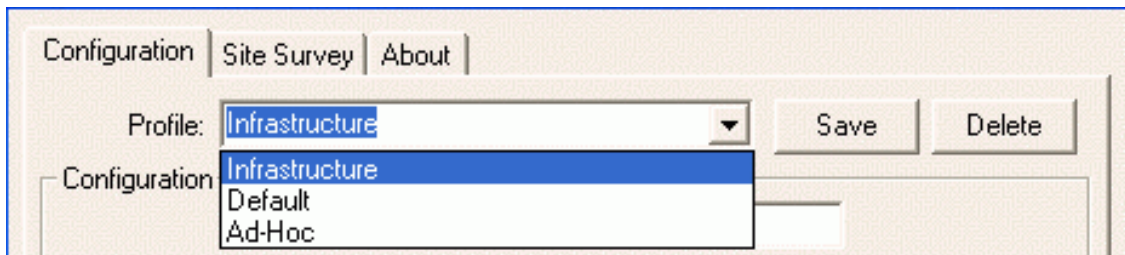
4-2-1 Configuration

The **Configuration** item allows you to modify the configuration parameters for the 802.11b Wireless LAN PCI Card such as **Profile**, **SSID**, **Network Type**, **Ad-Hoc Channel**, **Transmit Rate** and **WEP**. Furthermore, you may monitor the current status of the Wireless LAN PCI Card such as **State**, **Current Channel**, **Current Tx Rate**, **Throughput**, **Link Quality** and **Signal Strength**.

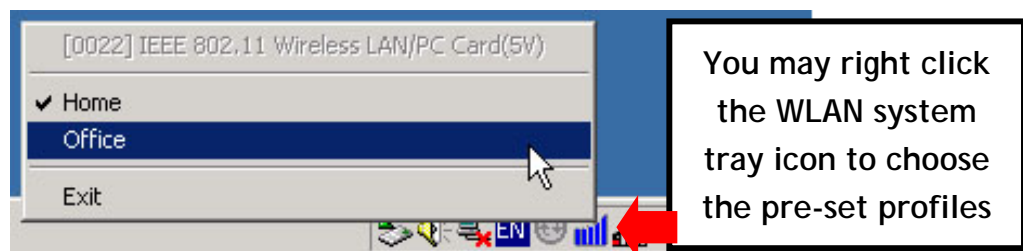


Profile

The **Profile** field allows you to set values for all parameters by selecting a previously defined profile. To create the profile, go to the **Profile** field, type a profile name and set the corresponding parameters. If one of the profiles is no longer used, you may remove it by clicking on the **Delete** button. After changing parameters, click on the **Save** button to save the profile and click on the **Apply** button to take effect. You can have multiple profiles and modify the profile at any time.

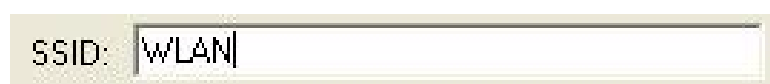


Alternatively, you may choose the profile by right clicking the system tray icon on the task bar, making the configuration more friendly and efficient.



SSID

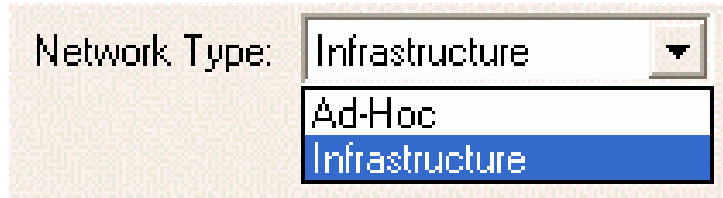
The SSID is the unique ID used by Access Points and stations to identify a wireless LAN. Wireless clients associating to any Access Point must have the same SSID. The default setting is ANY, which allows your Wireless LAN PCI Card to automatically associate to any Access Point (Infrastructure mode) in the vicinity of your wireless adapter. Alternatively, you may check the **SSID** check box to specify the SSID. It will then attempt to associate with Access Points or stations with the same SSID. The SSID can be set up to *32 characters* and is case sensitive.



Network Type

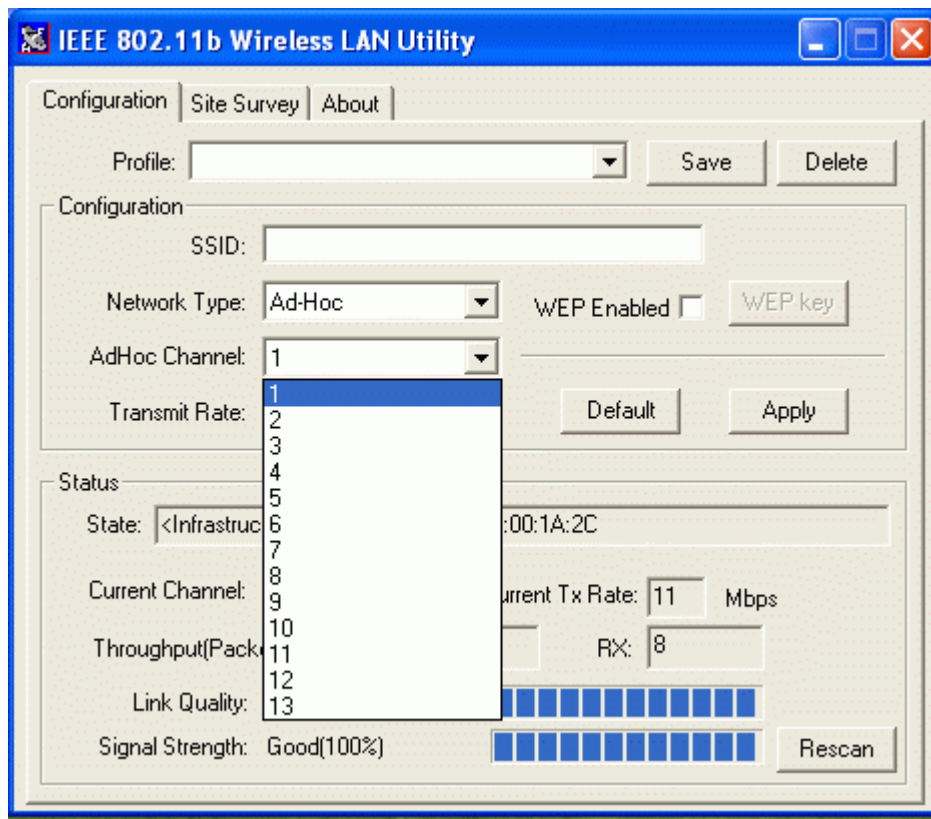
There are 2 network types for the 802.11b Wireless LAN PCI Card to operate. If you need to

access company network or Internet via a wireless Access Point, select “**Infrastructure**”. If standard “**Ad-Hoc**” mode is selected to communicate with multiple computers directly with each other, you need to set wireless stations with the same ESSID and with the same channel as well.



Ad-Hoc Channel

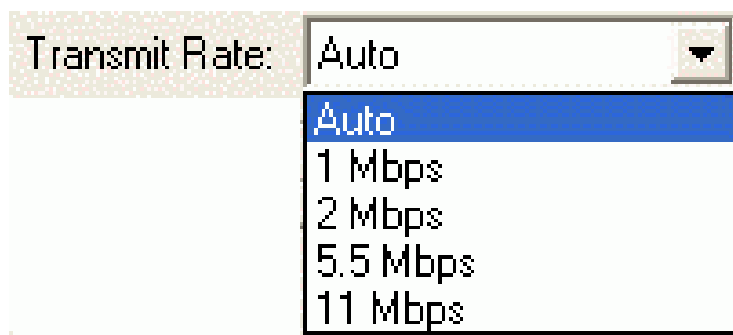
Wireless LAN PCI Card provides various data rate options for you to select. When the Ad-Hoc mode is selected, there are 13 channels enable to choose as needed.



Transmit Rate

The 802.11b Wireless LAN PCI Card provides various data rate options for you to select. Data rates options include **Auto**, **1 Mb**, **2 Mb**, **5.5 Mb** and **11 Mb**. In most networking scenarios, you will see that the factory-set default “**Auto**” will prove the most efficient. This “**Auto**” setting will allow your 802.11b Wireless LAN PCI Card to operate at the maximum data

rate. When the communications quality drops below a certain level, the Card will automatically switch to a lower data rate. The Transmission at a lower data speed is usually more reliable. However, when the communication quality improves again, the 802.11b Wireless LAN PCI Card will gradually increase the data rate again, until it has reached the highest available transmit rate.



WEP

To prevent unauthorized wireless stations from accessing data transmitted over the network, the WLAN Utility offers highly secure data encryption, known as WEP, making your data transmission over air more secure. To activate the WEP Encryption, check the **WEP Enabled** check box. An Encryption window will then pop up. The instructions are as follows:

- Pull down the **Encryption (WEP)** menu and select either **64bit** or **128bit** encryption method.
- Specify the encryption keys. There are two methods to set the WEP keys, as described below:

Create Keys with PassPhrase

To create encryption keys by using a pass-phrase, click the **Create Key with PassPhrase** check box and type a character string in the **Passphrase** field. As you type, the utility uses an algorithm to generate 4 keys automatically. Select either the **64bit** or **128bit** encryption first, and type a string in the **Create Key with Passphrase** field. Select one key from the 4 WEP keys and click on **OK** button. Then click on the **Apply** button on the **Configuration** tab to make the setting take effect.

Warning: *When **Create Key with Passphrase** is enabled, the wireless device's Key with PassPhrase must match the Key with PassPhrase used by the access point with which wireless device is planning to communicate.*

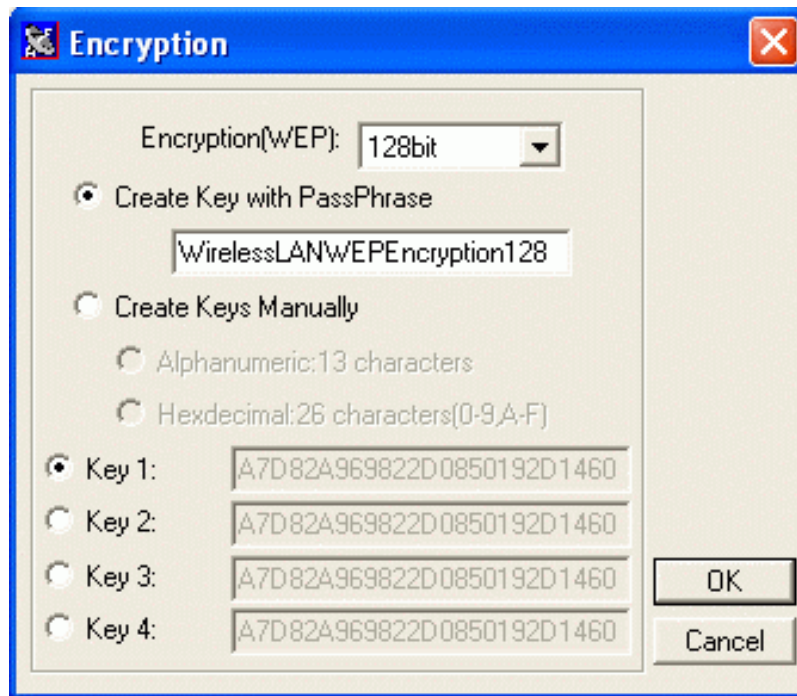


Fig. Create Encryption Keys Using a Passphrase (128-bit)

Create Keys Manually

You can also create encryption keys manually by clicking the **Create Keys Manually** check box.

For 64-bit encryption you may choose:

- **Alphanumeric: 5 characters** (case sensitive) ranging from “a-z”, “A-Z” and “0-9” (e.g. MyKey)
- **Hexadecimal: 10 hexadecimal digits** in the range of “A-F”, “a-f” and “0-9” (e.g. 11AA22BB33)

For 128-bit encryption you may choose:

- **Alphanumeric: 13 characters** (case sensitive) ranging from “a-z”, “A-Z” and “0-9” (e.g. MyKey12345678)
- **Hexadecimal: 26 hexadecimal digits** in the range of “A-F”, “a-f” and “0-9” (e.g. 00112233445566778899AABBCC).

After entering the WEP keys in the key field, select one key as active key, click the **OK** button and then click the **Apply** button on the **Configuration** tab to make the setting take effect.

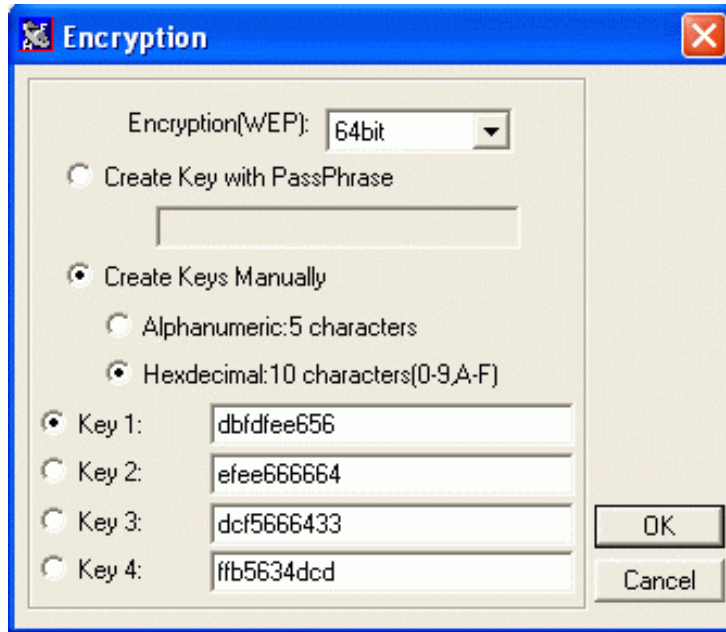


Fig. Create Encryption Keys Manually – Hexadecimal (64-bit)

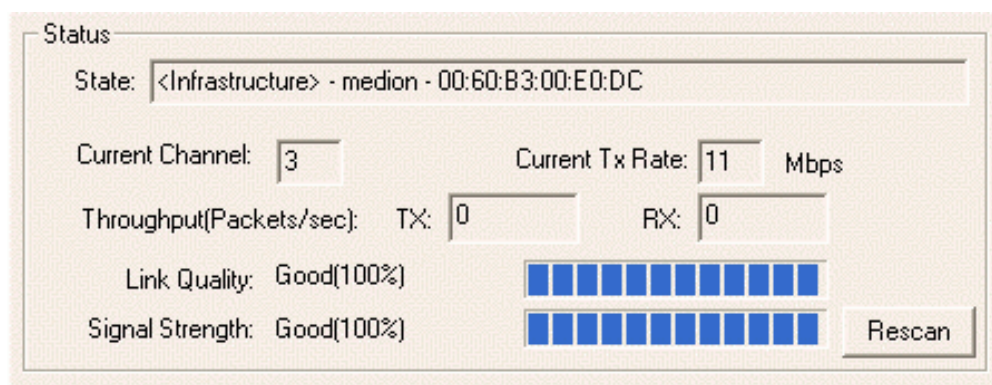


Warning: The WEP key must be set up exactly the same on the Wireless LAN stations as they are on the wireless Access Points. If you set “MyKey” for the Wireless LAN PCI Card, the same WEP Key “MyKey” must be assigned to the Access Point or other stations.

Note: Different factories would have some different WEP setting. Therefore, before setting access point or PCC WEP, please refer to manual respectively.

Status

The **Status** on the **Configuration** tab provides the following information.



- **State:** When operating in Infrastructure mode, this field shows the MAC address of the Access Point with which the Wireless LAN PCI Card is communicating. When operating in Ad-Hoc mode, it shows the virtual MAC address used by computers

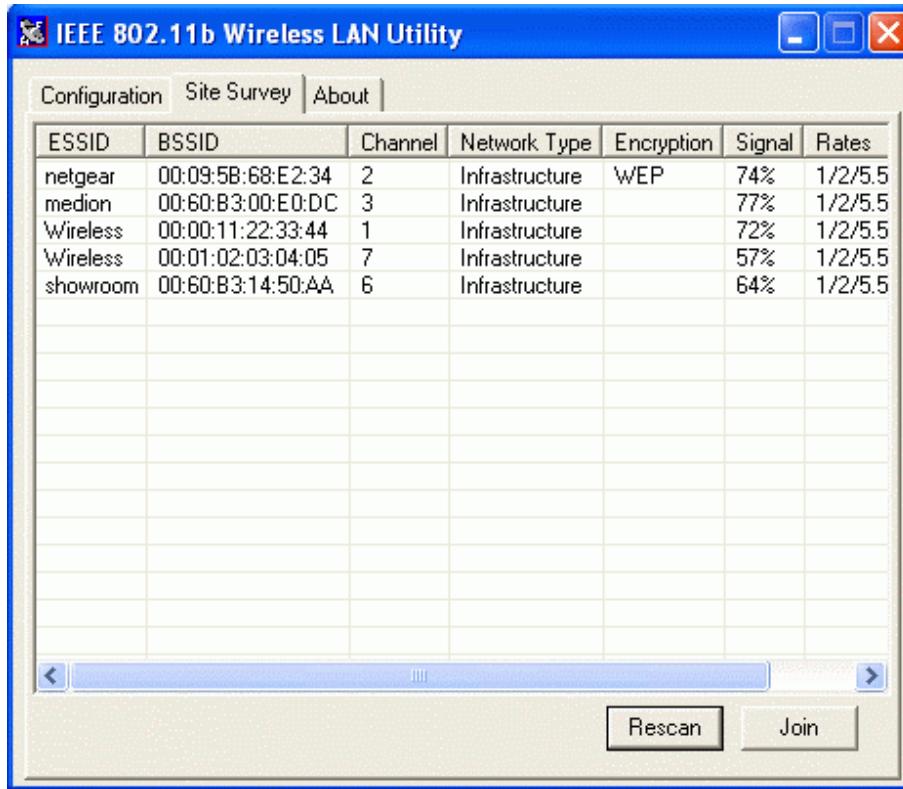
participating in the Ad-Hoc network.

- **Current Channel:** Shows the channel on which the connection is made.
- **Current Tx Rate:** Shows the highest transmit rate of the current association.
- **Throughput:** Shows the short term transmit and receive throughput in bytes/second, and is continuously updated.
- **Link Quality:** Based on the quality of the received signal of the Access Point beacon. There are 5 states of link quality:
 - 100%~80%:* Excellent link.
 - 80%~60%:* Good link quality.
 - 60%~40%:* Fair link quality.
 - Under 40%:* Poor or no connection.
- **Signal Strength:** Based on the received signal strength measurement of the baseband processor of the Beacon signal. Same as link quality, there are 5 states of signal strength:
 - 100%~80%:* Excellent signal strength.
 - 80%~60%:* Good signal strength.
 - 60%~40%:* Fair signal strength.
 - Under 40%:* Poor or no signal strength.

You can click on the **Rescan** button to force the radio to rescan all available channels. If your link quality or signal strength is poor, rescanning can be used to push the radio off a weak Access Point and to search for a better link with another Access Point.

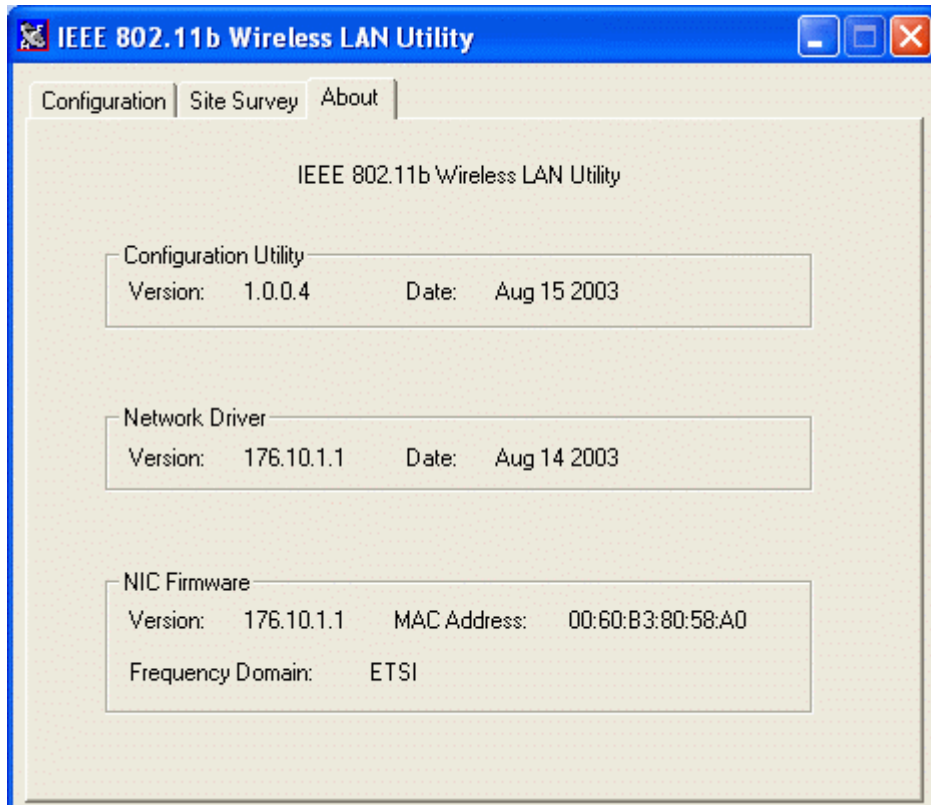
4-2-2 Site Survey

By clicking the **Rescan** button, the **Site Survey** can display Access Points around the working environment. Besides showing the **ESSID** of each Access Point, it also displays **BSSID**, **Channel**, **Network Type**, **Encryption**, **Signal** and **Rates**. To join any of the displayed Access Points, highlight the Access Point you desire to connect and then click on the **Join** button to associate to the AP.



4-2-3 About

The **About** tab shows the versions of the Wireless LAN Utility, driver, firmware of the 802.11b Wireless LAN PCI Card. Also, the MAC address and frequency domain are displayed.



Limited Warranty

This Warranty constitutes the sole and exclusive remedy of any buyer or reseller's equipment and the sole and exclusive liability of the supplier in connection with the products and is in lieu of all other warranties, express, implied or statutory, including, but not limited to, any implied warranty of merchantability of fitness for a particular use and all other obligations or liabilities of the supplier.

In no even will the supplier or any other party or person be liable to your or anyone else for any damages, including lost profits, lost savings or other incidental or consequential damages, or inability to use the software provided on the software media even if the supplier or the other party person has been advised of the possibility of such damages.

The following are special terms applicable to your hardware warranty as well as services you may use during part of the warranty period. Your formal Warranty Statement, including the warranty applicable to our Wireless LAN products, appears in the Quick Installation Guide which accompanies your products.

Duration of Hardware Warranty: One Year

Replacement, Repair or Refund Procedure for Hardware:

If your unit needs a repair or replacement, return it to your dealer/distributor in its original packaging. When returning a defective product for Warranty, always include the following documents:

- The Warranty Repair Card
- A copy of the invoice/proof of purchase, and
- The RMA Report Form (To receive a Return Materials Authorization form (RMA), please contact the party from whom you purchased the product).

Upon proof-of-purchase we shall, at its option, repair or replace the defective item at no cost to the buyer.

This warranty is contingent upon proper use in the application for which the products are intended and does not cover products which have been modified without the reseller's approval or which have been subjected to unusual physical or electrical demands or damaged in any way.

Please complete the information below and include it along with your products.

Name:	
Title:	
Company:	
Telephone:	
Fax:	
Email:	
City/State/Zipcode:	
Country:	
Product Name:	
Serial Number:	
MAC Address:	
Invoice Date:	
Product Description:	

If you have any further questions, please contact your local authorized reseller for support.