# IEEE802.11b WLAN PCI Card

**User's Manual** 

Rev 1.0

#### **Regulatory compliance**

#### **FCC Warning**

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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

#### **IMPORTANT NOTE:**

#### Federal Communications Commission (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.

#### **CE Mark Warning**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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

#### About this manual

This User's Manual describes how to install and operate your IEEE802.11b WLAN PCI Card. Please read this manual before you install the product.

This manual includes the following topics:

- Product description and features.
- > Hardware installation procedure.
- Software installation procedure.
- > FAQ

## **Table of Contents**

Regulatory compliance	2
About this manual	
Chapter 1 - Introduction	5
Features	5
What is Wireless LAN?	6
Wireless LAN Modes	
Notes on Wireless LAN Configuration	7
Chapter 2 - Hardware Installation	8
Package Contents	8
System Requirements for the Card	8
Install the PCI Adapter	8
LED Indicators	9
Connecting the adjustable Antenna to the Card	10
Chapter 3 – Driver Installation for Windows	
Driver installation for Windows 98	11
Driver installation for Windows 2000	14
Driver installation for Windows ME	17
Driver installation for Windows XP	19
Chapter 4 – Installing and Using the Wireless Utility	21
Installation in Windows	21
Using Wireless Utility In Windows XP	24
Use Windows Wireless Network Configuration	
Use Wireless LAN Utility	
Use Wireless LAN Utility In Windows 98, 2000 and ME	
Configuring the IEEE802.11b WLAN PCI Card	
Chapter 5 – Installing Network Protocols	35
Installing the Network Protocols for Windows 98 and	
Millennium	35
Appendix A – FAQ	38
Appendix B – Specifications	39

## **Chapter 1 - Introduction**

Thank you for purchasing the IEEE802.11b WLAN PCI Card. This high-speed IEEE802.11b WLAN PCI Card provides you with an innovative wireless networking solution. The Card is easy to set up and use. With this innovative wireless technology, you can share files and printers on the network—without inconvenient wires!

The Card is a network Adapter with a rate of 1, 2, 5.5, and 11 Mbps operating in the ISM band using Direct Sequence Spread Spectrum (DSSS) transmission implementing the IEEE 802.11b standard. This Adapter provides Device Drivers for Windows Operating Systems. It also provides tools for the configuration of the Card. The tool, as well as the installation steps of the plug-and-play procedure for the Windows operating systems, is described in this document.

#### Features

The IEEE802.11b WLAN PCI Card offers compliance with the IEEE 802.11b specification. This feature allows them to communicate with other wireless devices that support the standard. Features of the Card are:

- Uses 2.4GHz frequency band, which complies with worldwide requirement
- Wireless interface following the IEEE 802.11b standard
- Using PCI interface
- Enciphering/deciphering of wireless data by the implementation of the WEP algorithm
- Wire-free access to networked resources from anywhere beyond the desktop
- Allows users move between Access Points without resetting their connection reconfiguration
- Delivers data rate up to 11 Mbps
- Supports 11, 5.5, 2, and 1 Mbps rates
- Provide IEEE802.11b WLAN PCI Card Configuration utility
- The Card uses external Antenna with LEDs indicating Power and Link
- Supports most popular operating systems

#### What is Wireless LAN?

Wireless Local Area Network (WLAN) systems offer a great number of advantages over traditional wired systems. WLAN is flexible and easy to setup and manage. They are also more economical than wired LAN systems.

Using radio frequency (RF) technology, WLAN transmit and receive data through the air. WLAN combine data connectivity with user mobility. For example, users can roam from a conference room to their office without being disconnected from the LAN.

Using WLAN, users can conveniently access-shared information, and network administrators can configure and augment networks without installing or moving network cables.

WLAN technology provides users with many convenient and cost saving features:

- **Mobility:** WLAN provide LAN users with access to real-time information anywhere in their organization, providing service opportunities that are impossible with wired networks.
- **Ease of Installation:** Installing is easy for novice and expert users alike, eliminating the need to install network cables in walls and ceilings.
- Scalability: WLAN can be configured in a variety of topologies to adapt to specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users roaming over a broad area.

#### Wireless LAN Modes

Wireless LANs can be configured in one of two ways:

Ad-hoc Networking	Also known as a peer-to-peer network, an ad-hoc network is one that allows all workstations and computers in the network to act as servers to all other users on the network. Users on the network can share files, print to a shared printer, and access the Internet with a shared modem. However, with ad-hoc networking, users can only communicate with other wireless LAN computers that are in the wireless LAN workgroup, and are within range.
Infrastructure Networking	Infrastructure networking differs from ad-hoc networking in that it includes an access point. Unlike the ad-hoc structure where users on the LAN contend the shared bandwidth, on an infrastructure network the access point can manage the bandwidth to maximize

bandwidth utilization.
Additionally, the access point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing.
Infrastructure networking has the following advantages over ad-hoc networking:
• Extended range: each wireless LAN computer within the range of the access point can communicate with other wireless LAN computers within range of the access point.
• <b>Roaming:</b> the access point enables a wireless LAN computer to move through a building and still be connected to the LAN.
• Wired to wireless LAN connectivity: the access point bridges the gap between wireless LANs and their wired counterparts.

#### **Notes on Wireless LAN Configuration**

When configuring a wireless LAN (WLAN), be sure to note the following points:

- Optimize the performance of the WLAN by ensuring that the distance between access points is not too far. In most buildings, WLAN Adapters operate within a range of 100 ~ 300 feet, depending on the thickness and structure of the walls.
- Radio waves can pass through walls and glass but not metal. If there is interference in transmitting through a wall, it may be that the wall has reinforcing metal in its structure. Install another access point to circumvent this problem.
- Floors usually have metal girders and metal reinforcing struts that interfere with WLAN transmission.

This concludes the first chapter. The next chapter deals with the hardware installation of the Card.

# **Chapter 2 - Hardware Installation**

This chapter covers connecting your IEEE802.11b WLAN PCI Card to PCI slot of desktop PC.

#### **Package Contents**

Please make sure that items below are included on package.

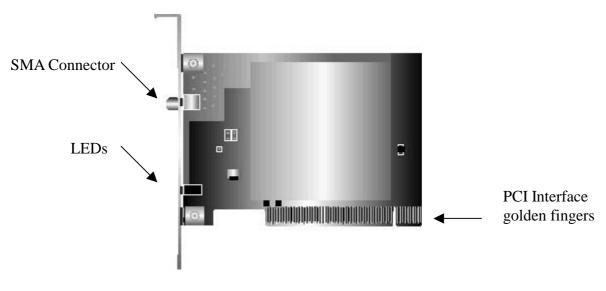
- ✓ One IEEE802.11b WLAN PCI Card
- ✓ One Driver / Utility CD-ROM (this user's manual included)
- ✓ One Quick Installation Guide
- ✓ One external antenna

#### System Requirements for the Card

- > Operating System: Microsoft Windows 95/98/ME/2000/NT4.0/XP
- Desktop PC with CD-ROM drive
- > One free PCI slot
- > Pentium-Class 90MHz or higher

#### Install the PCI Adapter

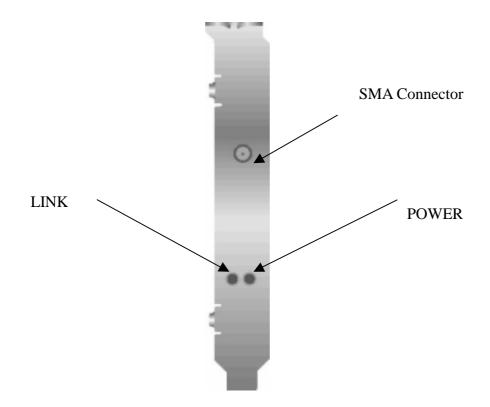
**NOTE:** These instructions apply to most desktop computers. For detailed information on inserting PCI Adapter into your desktop PC, consult the desktop PC User's Manual.



The IEEE802.11b WLAN PCI Card

- 1. Turn off the computer, unplug the power cord and remove the computer's cover.
- 2. Pick a free PCI expansion slot and remover the protective bracket.
- 3. Insert the Card into the slot until it is fully seated.
- 4. Secure the Card bracket with the screw from step 2.
- 5. Replace the computer's cover.
- 6. Reconnect the power cord and turn on the computer.

#### **LED Indicators**



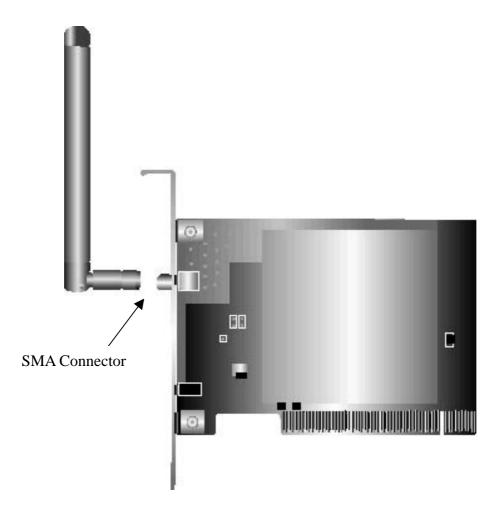
Side view of the PCI Card from bracket.

The following table describes the meaning of LED indicators:

LED	MEANING
POWER	Indicates that the Card is powered on (solid green).
LINK	Indicates link status. The LED lights up (solid green) while the wireless connection is linked. The LED is blinking green while wireless data transmitting / receiving.

#### Connecting the adjustable Antenna to the Card

After installing the Card on computer, connect external Antenna to the Card from the SMA connector. Hold the antenna in the desired orientation and then turn the lock nut clockwise until snug (do not over tighten the nut). To adjust the antenna direction, turn the nut counter clockwise one full turn, adjust the antenna and then tighten the nut.



After hardware installation is completed, please go to Chapter 3 to install driver on different Operating System.

# Chapter 3 – Driver Installation for Windows

The following sections cover IEEE802.11b WLAN PCI Card driver installation in the Windows Operating Systems.

Note: You have to install your hardware first before you begin to install the drivers.

### **Driver installation for Windows 98**

Follow the steps below to install the IEEE802.11b WLAN PCI Card drivers for Windows 98.

- 1. Insert the IEEE802.11b WLAN PCI Card to PCI slot of desktop PC first. (Refer to Chapter 2 Hardware installation.)
- 2. After Windows 98 detects the IEEE802.11b WLAN PCI Card, the Add New Hardware Wizard window appears. Clicks **Nex**t to continue the installation.



3. A screen appears prompting you to select an installation method. Select **Search for the best driver for your device. (Recommended)** and click **Next** to continue.

Add New Hardware Wizard	
	<ul> <li>What do you want Windows to do?</li> <li>Search for the best driver for your device. [Recommended].</li> <li>Display a list of all the drivers in a specific location, so you can select the driver you want.</li> </ul>
	< <u>B</u> ack Next > Cancel

4. Ensure that the **CD-ROM drive** is selected. Inserts the driver CD-ROM into your CD-ROM drive and clicks **Next** to continue.

Add New Hardware Wiz	zard
	Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search. Floppy disk drives CD-ROM drive Microsoft Windows Update Specify a location: F:\nic Browse
	< <u>B</u> ack Next > Cancel

5. The following screen appears showing the driver search result. Click **Next** to continue the installation.



6. Windows 98 copies files to your hard disk. The following screen will appear to inform you when the software installation has finished. Click **Finish** to finish the installation.

Add New Hardware Wizard	
	IEEE802.11b WLAN PCI Card V3.0
	Windows has finished installing the software that your new hardware device requires.
<b>~</b>	
	< Back Finish Cancel
	< <u>B</u> ack <b>Finish Cancel</b>

7. The following screen will ask you to restart your computer to finish the installation. Click **Yes** to reboot the system. After system reboot, the Wireless LAN Utility will be installed automatically. Please go to Chapter 4 to install the utility.



NOTE: In most cases, Windows will automatically copy all of the files needed for networking. If Windows asks you for the files and prompts you to input the path to the files. Follow the instructions on your screen, and then click **OK** to continue.

## **Driver installation for Windows 2000**

Follow the steps below to install the IEEE802.11b WLAN PCI Card drivers for Windows 2000.

- 1. Insert the IEEE802.11b WLAN PCI Card to PCI slot of desktop PC first. (Refer to Chapter 2 Hardware installation.)
- 2. After Windows 2000 detects the IEEE802.11b WLAN PCI Card, the *Found New Hardware Wizard* window appears. Click **Next** to start the installation.



3. A screen appears prompting you to select an installation method. Select **Search** for a suitable driver for my device (recommended) and click Next to continue.

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: Network Controller 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

4. Ensure that the **CD-ROM driver** is selected and insert the driver CD-ROM into your CD-ROM drive and click **Next** to continue.

Found New Hardware Wizard
Locate Driver Files Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
✓ Floppy disk drives ✓ CD-ROM drives
Specify a location
Microsoft Windows Update
< <u>B</u> ack <u>N</u> ext > Cancel

5. The following screen appears showing the driver search result. Click **Next** to continue the installation.

Found New Hardware Wizard
Driver Files Search Results The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
Windows found a driver for this device. To install the driver Windows found, click Next.
< <u>B</u> ack <u>Next</u> > Cancel

6. The following screen appears. Click Yes to continue



7. The Windows has finished installing software for the device. Click **Finish** to finish the installation.



Then system will start to install Wireless LAN Utility. Please refer to procedures at Chapter 4.

## **Driver installation for Windows ME**

Follow the steps below to install the IEEE802.11b WLAN PCI Card drivers for Windows ME.

- 1. Insert the IEEE802.11b WLAN PCI Card to PCI slot of desktop PC first. (Refer to Chapter 2 Hardware installation.)
- 2. After Windows ME detects the IEEE802.11b WLAN PCI Card, the *Add New Hardware Wizard* window appears. Select **Automatic search for a better driver** (**Recommended**) and insert the driver CD-ROM into CD-ROM drive and click **Next** to continue.

3. The system will find the setup files and follow the instruction to copy files to your hard disk. The following screen will appear when the software installation has finished. Click **Finish** to finish the installation.

Add New Hardware Wiz	zard
	IEEE802.11b WLAN PCI Card V3.0
	Windows has finished installing the new hardware device.
	< Back [Finish] Cancel

4. The following screen will ask you to restart your computer to finish the hardware setting up. Click **Yes** to reboot the system. After system reboot, the Wireless LAN Utility will be installed automatically. Please go to Chapter 4 to install the utility.



NOTE: In most cases, Windows will automatically copy all of the files needed for networking. If Windows asks you for the files and prompts you to input the path to the files. Follow the instructions on your screen, and then click **OK** to continue.

## **Driver installation for Windows XP**

Follow the steps below to install the IEEE802.11b WLAN PCI Card drivers for Windows XP.

- 1. Insert the IEEE802.11b WLAN PCI Card to PCI slot of desktop PC first. (Refer to Chapter 2 Hardware installation.)
- After Windows XP detects the IEEE802.11b WLAN PCI Card, the Found New Hardware Wizard window appears. Select Install the software automatically [Recommended] and insert the driver CD-ROM into CD-ROM drive and click Next to continue.



3. Click **Continue Anyway** to continue the installation.

Har dwa	re Installation
1	The software you are installing for this hardware: IEEE802.11b WLAN PCI Card V3.0 has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway

4. The Windows has finished installing software for the device. Click **Finish** to finish the installation

Found New Hardware Wizard		
	Completing the Found New Hardware Wizard	
	The wizard has finished installing the software for:	
	IEEE802.11b WLAN PCI Card V3.0	
	Click Finish to close the wizard.	
	< Back Finish Cancel	

Then system will start to install Wireless LAN Utility. Please refer to procedures at Chapter 4.

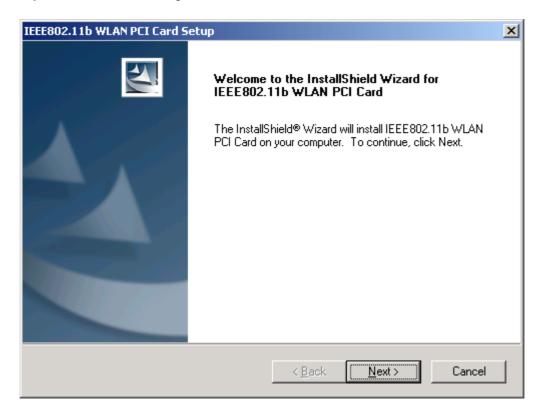
# Chapter 4 – Installing and Using the Wireless Utility

The following sections cover the IEEE802.11b WLAN PCI Card utility installation and configuration.

## **Installation in Windows**

After you have installed driver, system will start to install Wireless LAN Utility. Please follow the steps below to install the utility.

1. Once you see the following screen, click **Next** to continue.



2. The screen will show you the default destination chosen by the utility. Click **Next** to continue or click the **Browse** button to select an alternate destination.

IEEE802.11b WLAN PCI Card Setup	×
Choose Destination Location Select the folder where Setup will install the files.	
Setup will install the IEEE802.11b WLAN PCI Card in the folder shown below.	
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.	
Destination Folder	
E:\\Wireless\IEEE802.11b WLAN PCI Card Utility Browse	
InstallShield	
< <u>B</u> ack <u>Next&gt;</u> Cancel	

3. The following screen will add program icons to the Program Folder. You may type a new folder name or select one from the existing folders list. Click **Next** to continue or click **Back** to review or change any settings.

IEEE802.11b WLAN PCI Card Setup	×
Select Program Folder Please select a program folder.	
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.	
Program Folders:	
IEEE802.115 WLAN PCI Card Utility	
Existing Folders:	
Accessories	
Administrative Tools	
PRISM Test Utilities	
Startup WinZip	
,	
InstallShield	
< <u>B</u> ack <u>N</u> ext > Cancel	

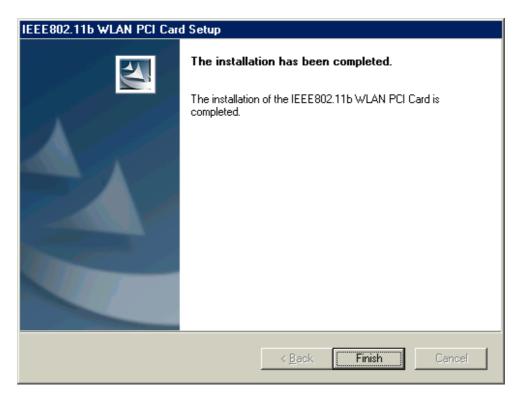
4. The following screen shows the current settings, click **Next** to continue or click **Back** to change the **Destination Folder** in step 3.

IEEE802.11b WLAN PCI Card Setup	×
Start Copying Files Review settings before copying files.	
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.	
Current Settings:	
The following items are copied: IEEE802.11b WLAN PCI Card Utility	
The default configuration of the IEEE802.11b WLAN PCI Card is: Wireless Mode : Infrastructure Mode SSID : any	
۲ ۲	
InstallShield	
< <u>B</u> ack <u>Next</u> > Cancel	

5. The following screen shows you the Setup status by percentage.

IEEE802.11b WLAN PCI	Card Setup	×
Setup Status		
IEEE802.115 WLAN	PCI Card Setup is performing the requested operations.	
Installing:		
	23%	
InstallShield		Cancel

6. The Windows has finished installing Wireless LAN Utility. Click **Finish** to finish the installation.



## **Using Wireless Utility In Windows XP**



Wireless LAN Utility

There are two ways to configure IEEE802.11b WLAN PCI Card. One is Wireless LAN Utility; the other one is Windows Wireless Network Configuration.

#### **Use Windows Wireless Network Configuration**

1. Click the right key of the mouse and Exit Wireless LAN Utility.



2. Click the Windows Wireless Network Configuration icon.



Windows Wireless Network Configuration

3. The Connect to Wireless Network window pop up as following, the click the **Advanced** button.

Connect to Wireless Network			
The following network(s) are available. To access a network, select it from the list, and then click Connect.			
Available <u>n</u> etworks:			
WLAN     NDTESTWEP0     AP1000     ✓			
This network requires the use of a network key (WEP). To access this network, type the key, and then click Connect.			
Network <u>k</u> ey:			
If you are having difficulty connecting to a network, click Advanced.			
Advanced Connect Cancel			

4. Make sure "Use Windows to configure my wireless network settings" has been selected, and then click **OK** button.

🕹 Wireless Network Connection 6 Properties 👘 ? 🔀
General Wireless Networks Authentication Advanced
Use Windows to configure my wireless network settings
Available networks:
To connect to an available network, click Configure.
👗 WLAN 🔼 Configure
& NDTESTWEPO
AP1000
Preferred networks: Automatically connect to available networks in the order listed below:
Move up
Move <u>d</u> own
Add <u>Remove</u> Properties
Learn about <u>setting up wireless network</u> <u>configuration.</u> Ad <u>v</u> anced
OK Cancel

5. Click the Windows Wireless Network Configuration icon again to open the Connect to Wireless Network window.



Windows Wireless Network Configuration

6. Select an available network and click **Connect** button.



7. The Windows Wireless Network Configuration has been enabled.



Windows Wireless Network Configuration is enabled

#### **Use Wireless LAN Utility**

1. Exit the Wireless LAN Utility.



2. Double click Windows Wireless Network Configuration icon.



Windows Wireless Network Configuration

3. Click Advanced button.



4. Disable "Use Windows to configure my wireless network settings" and click OK button.

🕹 Wireless Network Connection 6 Properties 💦 🔀				
General	Wireless Networks	Authentication Advanced		
Use	Windows to configur	e my wireless network settings		
Avail	able <u>n</u> etworks:			
Toc	onnect to an available	e network, click Configure.		
1	WLAN			
-	NDTESTWEPO			
Å.	AP1000	Refresh		
- Prefe	rred networks:			
Autor	Automatically connect to available networks in the order listed below:			
		Move <u>up</u>		
		Move <u>d</u> own		
	Add <u>R</u> emo	Properties		
	about <u>setting up wire</u> guration.	Advanced		
		OK Cancel		

5. Select Start -> All Programs -> IEEE802.11b WLAN PCI Card then click IEEE802.11b WLAN PCI Card Utility to start the Wireless LAN Utility.

Administr	ator		2
Internet Internet Explorer Internet Explorer E-mail Outlook Express	My Documents My Activate Windows Windows Catalog Windows Update Accessories		
MSN Explorer	Games +	(IEEE802.11b WLAN PCI Card Utili	
Windows Media Playe	🛅 Startup 🔹 📘	실. Uninstall	
Windows Movie Make			
Tour Windows XP	<ul> <li>Remote Assistance</li> <li>Windows Media Player</li> </ul>		
All Programs 🜔	S Windows Messenger	ter	
背 start			🗽 🏡 12:33 AM

6. The Wireless LAN Utility will be enabled.



#### Use Wireless LAN Utility In Windows 98, 2000 and ME



Wireless LAN Utility icon

lcon	Meaning
	Green: indicates a connection is linked to a wireless network.
<b>_</b>	Red: indicates that the wireless LAN card is looking for an available access point.

Double-click the icon to open the Wireless LAN Utility.

### Configuring the IEEE802.11b WLAN PCI Card

1. This screen shows you the status of your current connection. Click **Re-Scan** to search for wireless connection (the Card will search for the connection automatically when it is activated).

IEEE802.11b WLAN PCI Card Utility	×
Link Info Configuration Site Survey Encryption Advanced About	
State Connected - BSSID = 00-02-DD-30-18-A8	
Current Channel 11 Re-Scan	
Current Transfer Rate 11 Mbps	
Current Service Set Identifier WLAN	
Throughput (Bytes/Second) Transmitted	
Link Quality: Excellent (100%)	
Signal Strength: Excellent (100%)	
OK Cancel Help	

2. Select the "Configuration" tab. The profile setting allows you to save

configurations in different profiles for different working environments. The default profile will contain the initial configuration setting when you install the Card. Under the **Operating Mode** drop-box, you may choose either Infrastructure or Ad-Hoc. The Infrastructure mode allows a wireless adapter to communicate with a wired network employing an Access Point, while the Ad-Hoc mode allows wireless-to-wireless, peer-to-peer communication. If you choose Infrastructure, the **SSID** should have the same name as the Access Point. If you choose **Ad-Hoc**, all clients should share the same **SSID** name. You may also select which **Transfer Rate** you wish to use: **1**, **2**, **5.5**, **11Mbps** or **Auto Rate**. Under **Power Saving Mode**, you can select **Enabled** to allow your adapter to go to sleep mode while the Card never go to sleep mode. Click **Apply** to save the settings.

IEEE802.11b WLAN PCI Card Utility
Link Info Configuration Site Survey Encryption Advanced About
Profile default Remove Create Activate
Configuration
Operating Mode
Service Set Identifier (SSID)
Transfer Rate 🔽
Channel 6
Power Saving Mode Disabled 💌
Restore Defaults Undo Changes Apply Changes
OK Cancel Help

 Select the "Site Survey" tab. The list on the adjacent screen shows you available Access Points and their features. Click on the desired Access Point, then click Connect to connect or Search to search for more Access Points. Click OK when you are finished.

IEEE802.11b WLAN P	I Card Utility			×
Link Info Configurat	on Site Survey End	ryption /	Advanced	About
update the list, clic	vailable Access Points k 'Search' button. You the list, and click 'Conn ss Point.	can selec	t a desired	- I
SSID	BSSID	Signal	Channel	WEP
WLAN	00-02-DD-30-18-A8	100%	11	No
default	00-10-91-AB-CD-25	60%	6	No
•				
S	earch	Connect		
	ОК	Cancel		Help

4. Click on the "Encryption" tab. Under the drop-box, you can choose to have WEP encryption Disabled, 64-Bit, or 128-Bit. Wired Equivalent Privacy (WEP) is an encryption scheme used to protect wireless data communication. The Disabled setting prevents the sharing of data with other computers on the WEP network. For data sharing to be enabled, select the level of encryption desired, either 64 or 128-bit.

IEEE802.11b WLAN PCI Card Utility
Link Info Configuration Site Survey Encryption Advanced About
Your encryption settings must match those of your network, or your computer will be unable to communicate.
Encryption (WEP) Disabled
WEP Key Entry Oisabled 64 Bits 128 Bits Passphrase
Manual Entry
Key 1
Key 2 Key 2
Key 3
Кеу 4
Default Tx Key 1
Restore Defaults Undo Changes Apply Changes
OK Cancel Help

5. Select the "Advanced" tab. You can choose the fragmentation threshold to define the maximum data frame size your adapter will transmit. When the packet error rate is high, you may set the threshold value to transmit shorter frames. You may select RTS/CTS threshold to define when will your adapter send out RTS/CTS frames to reserve bandwidth for transmission. By using the RTS/CTS function, you may request bandwidth from AP to allow you have better chance to send out your data. For the Security, it's only applicable while WEP is enabled. For the Authentication Type, the current supported algorithms are Open System, Shared Key, and Auto. The algorithm will be invoked when associated to Access Point. To associate to the desired Access Point you must set the same algorithm as the one of the desired Access Point. When select Auto mode, the driver can auto detect the Authentication Type of the Access Point you are going to associate. You can also select Preamble Type, which is for framing synchronization. The possible settings are Long and Short. The setting must be the same as the setting of the Access Point you are going to associate.

IEEE802.11b WLAN PCI Card Utility
Link Info Configuration Site Survey Encryption Advanced About
Transmit Threshold Control
Fragmentation Threshold ( <u>2432</u> )
BTS/CTS Threshold
Security
Authentication Type Auto
Preamble Type Long
Restore Defaults Undo Changes Apply Changes
OK Cancel Help

6. The "**About**" tab shows you copyright and version information about the driver, the configuration utility, and the firmware. Click **OK** to complete the configuration.

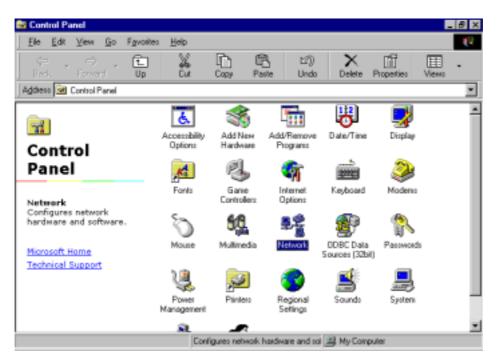
IEEE802.11b W	/LAN PCI Card Utility	x
Link Info Co	nfiguration Site Survey Encryption Advanced About	
((((	Copyright (c) 2002, All rights reserved. IEEE802.11b WLAN PCI Card Utility	
Driver-		
Version:	1.7.29.1032	
	tion Utility 2.97.3.2	
- Firmware		
Versions	: 1.03.04.00	
	OK Cancel Help	

# Chapter 5 – Installing Network Protocols

Protocols are necessary for computers to be recognized on your network. Windows 2000 users need to check their Windows User Guides for protocol installation.

# Installing the Network Protocols for Windows 98 and Millennium

1. From the **Start** Menu, select **Settings** and bring up the **Control Pane**l. From the Control Panel, double-click on the **Network** icon.



Note: Before adding any network protocols, verify that the protocol is not already installed. Never install duplicate protocols.

2. Select *IEEE802.11b WLAN PCI Card* from the list and click the Add button.

Configuration       Identification       Access Control         The following network components are installed:         Client for Microsoft Networks         IEEE802.11b       WLAN Card v2.5         IEEE802.11b       WLAN CF Card v2.5         IEEE802.11b       WLAN PCI Card V3.0         Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC         Add       Remove         Add       Remove         Properties         Primary Network Logon:         Client for Microsoft Networks         Elle and Print Sharing         Description         A network adapter is a hardware device that physically	Network
The following network components are installed:         Image: Client for Microsoft Networks         Image: IEEE 802.11b WLAN Card v2.5         Image: IEEE 802.11b WLAN CF Card v2.5         Image: IEEE 802.11b WLAN PCI Card v3.0         Image: IEEE 802.11b WLAN PCI Card v3.0	Configuration   Identification   Access Control
Client for Microsoft Networks IEEE802.11b WLAN Card v2.5 IEEE802.11b WLAN CF Card v2.5 IEEE802.11b WLAN PCI Card V3.0 Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC Add Remove Properties Primary Network Logon: Client for Microsoft Networks Eile and Print Sharing Description A network adapter is a hardware device that physically	
<ul> <li>IEEE802.11b WLAN Card v2.5</li> <li>IEEE802.11b WLAN CF Card v2.5</li> <li>IEEE802.11b WLAN PCI Card V3.0</li> <li>Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC</li> <li>Add</li> <li>Remove</li> <li>Properties</li> <li>Primary Network Logon:</li> <li>Client for Microsoft Networks</li> <li>Eile and Print Sharing</li> <li>Description</li> <li>A network adapter is a hardware device that physically</li> </ul>	The following <u>n</u> etwork components are installed:
IEEE802.11b WLAN CF Card v2.5         IEEE802.11b WLAN PCI Card V3.0         IP Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC         ▲dd         Add         Remove       Properties         Primary Network Logon:         Client for Microsoft Networks         File and Print Sharing         Description         A network adapter is a hardware device that physically	
IEEE802.11b WLAN PCI Card V3.0         Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC         Add         Remove       Properties         Primary Network Logon:         Client for Microsoft Networks         Eile and Print Sharing         Description         A network adapter is a hardware device that physically	
Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC         Add         Add         Remove       Properties         Primary Network Logon:         Client for Microsoft Networks         Eile and Print Sharing         Description         A network adapter is a hardware device that physically	
▲dd       Remove       Properties         Primary Network Logon:       Client for Microsoft Networks       ▼         Eile and Print Sharing       ■         Description       A network adapter is a hardware device that physically	
Primary Network Logon: Client for Microsoft Networks File and Print Sharing Description A network adapter is a hardware device that physically	
Primary Network Logon: Client for Microsoft Networks File and Print Sharing Description A network adapter is a hardware device that physically	
Primary Network Logon: Client for Microsoft Networks File and Print Sharing Description A network adapter is a hardware device that physically	Add Remove Properties
Client for Microsoft Networks         File and Print Sharing         Description         A network adapter is a hardware device that physically	
Eile and Print Sharing Description A network adapter is a hardware device that physically	
Description A network adapter is a hardware device that physically	Client for Microsoft Networks
Description A network adapter is a hardware device that physically	File and Print Sharing
A network adapter is a hardware device that physically	
connects your computer to a network.	A network adapter is a hardware device that physically connects your computer to a network.
OK Cancel	OK Cancel

3. Highlight **Protocol** and click the **Add** button.

Select Network Component Type	? ×
Click the type of network component you want to install:	
📃 Client	<u>A</u> dd
🕮 Adapter	
T Protocol	Cancel
Service	
Protocol is a 'language' a computer uses. Computers must use the same protocol to communicate.	

4. Select **Microsoft** from the list of "Manufacturers" and **TCP/IP** from the list of "Network" Protocols" and click the **OK** button to finish the installation.

Select Network Protocol	×
	otocol that you want to install, then click OK. If you have this device, click Have Disk.
<u>M</u> anufacturers:	Network Protocols:
🍹 Banyan	🍹 Microsoft 32-bit DLC
🏹 ІВМ	G Microsoft DLC
🏹 Microsoft	🖗 NetBEUI
🖗 Novell	TCP/IP
	G WAN support for ATM
	🐨 Winsock2 ATM Service Provider 🛛 🔽
	<u>H</u> ave Disk
	OK Cancel

# Appendix A – FAQ

#### 1. What is IEEE 802.11 standard?

The IEEE 802.11 is a wireless LAN industry standard, and the objective of IEEE 802.11 is to make sure that different manufactures' wireless LAN devices can communicate to each other.

#### 2. What is WEP?

As described in the IEEE 802.11 standard, WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 40 bit shared key algorithm.

#### 3. My desktop PC cannot recognize the Wireless Network PCI Adapter.

- Please make sure that the Card is inserted into the PCI slot of your desktop PC properly (check this when the PC is powered off).
- And also make sure that the PCI controller is enabled in the BIOS of your desktop PC.
- > Try installing the card in a different PCI slot.

# 4. In Infrastructure mode, my desktop PC cannot communicate with the others PCs on the network.

- First, make sure that the SSID is same as the others PC.
- Check if the WEP is enabled on the Access Point, if it is, set your Adapter's WEP the same as the Access Point.
- Also check the Access Point's Authentication Type and Preamble Type and match those settings.

# 5. In ad-hoc mode, my desktop PC cannot communicate with the others PCs on the network.

- Make sure the SSID and the Channel number are the same as other wireless stations.
- > Check if WEP settings are the same in all wireless stations.
- Check the Network Properties, make sure proper protocol is installed and File and Printer Sharing is enabled.

# Appendix B – Specifications

Standards:	IEEE 802.11b PCI Local Bus 2.1 Compliance
Channels:	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)
Antenna:	Dipole antenna with reversed SMA Connector
Frequency:	2.4 to 2.4835GHz (Industrial Scientific Medical Band)
Data Rate:	up to 11Mbps
Operating Ranges:	Indoor (varies depends on the environment): Up to 50M @ 11Mbps Up to 80M @ 5.5Mbps Outdoor (varies depends on the environment): Up to 150M @ 11Mbps Up to 300M @ 5.5Mbps
Temperature:	Operating: 0° ~ 55° C
	Storage: $-25^\circ \sim 70^\circ \text{C}$