

PCMCIA 11M

Wireless LAN Card

User Manual
Rev 1.0

Regulatory Compliance

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.

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.

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.

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

Wireless LAN card user manual

About this manual

This manual describes how to install and operate your Wireless LAN card. Please read this manual before you install the product.

This manual includes the following topics:

- Product description, features and specifications
- Hardware installation procedure
- Software installation procedure
- Trouble shooting procedures

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CHAPTER 1

Introduction

Thank you for purchasing the Wireless LAN card. This high-speed Wireless LAN 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! Now you can carry the LAN in your pocket!

Features

- Wire-free access to networked resources from anywhere beyond the desktop
- Low interference & high susceptibility guarantee reliable performance
- Delivers data rate up to 11 Mbps
- Dynamically shifts between 11, 5.5, 2, and 1 Mbps network speed, based on signal strength, for maximum availability and reliability of connection
- Antenna is built in to the card with LED indicating Power and Link
- Uses 2.4GHz frequency band, which complies with worldwide requirement
- Supports most popular operating systems: Window 95/98/2000/NT 4.0/ME
- Ensures great security by providing the Wired Equivalent Privacy (WEP) defined in the IEEE 802.11 standard

What is Wireless LAN?

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

Using radio frequency (RF) technology, WLANs transmit and receive data through the air. WLANs 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 WLANs, 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:** WLANs 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:** WLANs 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.

LAN Modes

Wireless LANs can be configured in one of two ways:

Ad-hoc Networking	<p>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.</p>
Infrastructure Networking	<p>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.</p> <p>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.</p> <p>Infrastructure networking has the following advantages over ad-hoc networking:</p> <ul style="list-style-type: none">• 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.• Roaming: 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 cards 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 Wireless LAN card.

CHAPTER 2

Hardware installation

This chapter covers inserting your Wireless LAN card in the PCMCIA slot of notebook, and connecting the card to a network.

What' s in the package

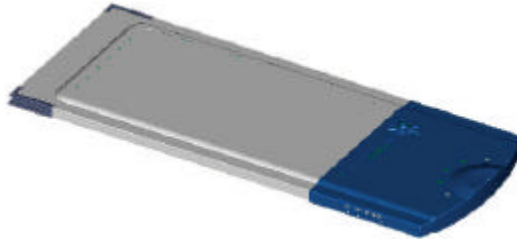
Please ensure that the following items are included in your package.

If any items are missing, contact your dealer.

- Wireless LAN PCMCIA card
- CD-ROM (includes utility, drivers, and this manual)
- Quick installation guide

Hardware description

The Wireless LAN Card is encased in a stainless compact frame and has a 68-pin connector for attaching to the PCMCIA port of notebook.



Inserting the Wireless LAN card

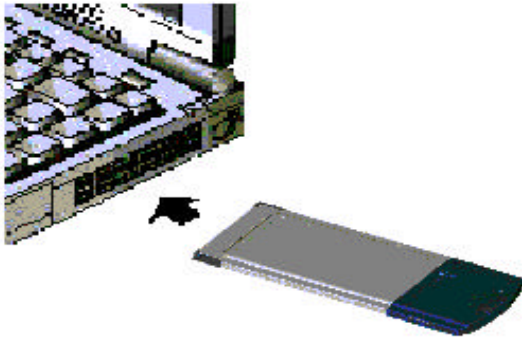
Note!

These instructions apply to most notebook computers.

For detailed information on inserting PC cards into your notebook, consult the notebook manual.

Follow the procedure below to install the Wireless LAN card.

1. With 68-pin connector of the card facing the PCMCIA slots on notebook, slide the card all the way into an empty slot



2. Connect to a network.

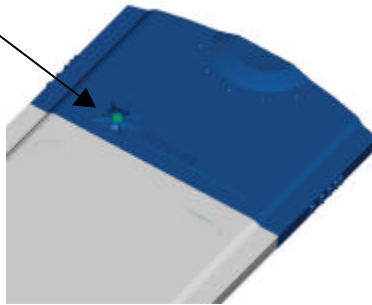
Note!

For information on connecting your Card to the LAN, contact your system administrator.

Status LED

The following table describes the meaning of the LED:

LED




LED	MEANING
BLINKING	Indicates that the card is scanning the channels, and the link is not active.
CONTINUOUS	Indicates that the card is locked to a channel ,and the link is active.

Ejecting the Wireless LAN card

After disconnecting from the LAN, you can eject the Wireless LAN card from the PC Card slot of notebook.

Note!	In Win 2000/ME/98/95 operating systems, you do not have to power down the notebook to remove the card. The card is hot-swappable — you can remove the card when the notebook is powered on. However, Microsoft recommends
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	That you stop the card. Refer to your Windows 2000/ME/98/95 online help for information on stopping the Wireless LAN card.
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Most notebooks have an eject lever or button for ejecting PC cards from the PC slots. Consult your notebook manual for details.

Warning!	To prevent data loss, do not eject the Wireless LAN card when a data transmission is taking place. Exit your communications program normally, stop the card if necessary, and then remove the card.
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This concludes Chapter 2. The next chapter covers driver installation for Windows 2000/ME/98/95/NT operating systems.

CHAPTER 3

DRIVER INSTALLATION FOR WINDOWS

The following section will assist you to in installing wireless LAN Adapter successfully. You will first install software (Utility) and then insert / attach the Wireless LAN Adapter to your system, and finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The Wireless LAN card can easily be installed and used, without bothering to connect cables for keeping your computer to use network resources.

3.1. Installation Overview

Here are some steps you will perform in establishing your wireless network connection:

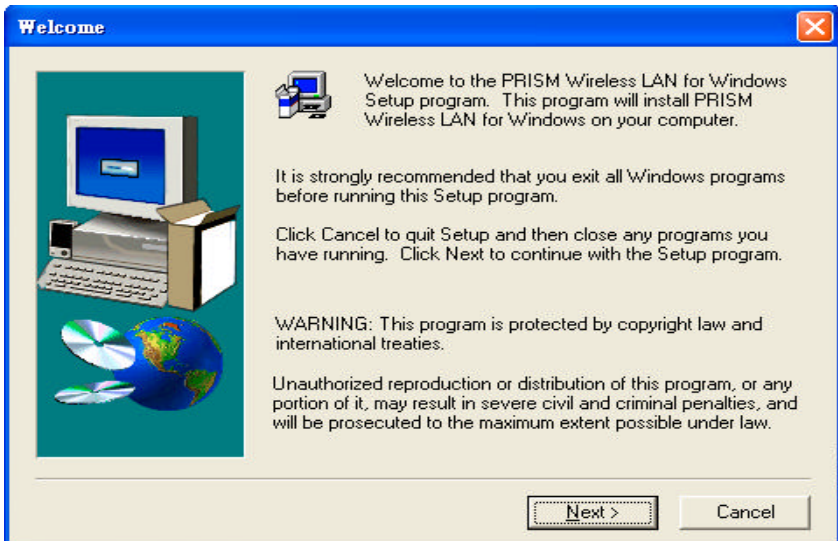
- Install the software using the Install CD.
- Install the Wireless LAN Card (WIRELESS LAN 11Mbps Adapter).
- Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

3.2. Install Procedure for Windows 98/ME/2000/XP

Note: Do not insert the **WLAN Adapter** until you are asked to do so, failure of which may result in unsuccessful installation of your **WLAN device**.

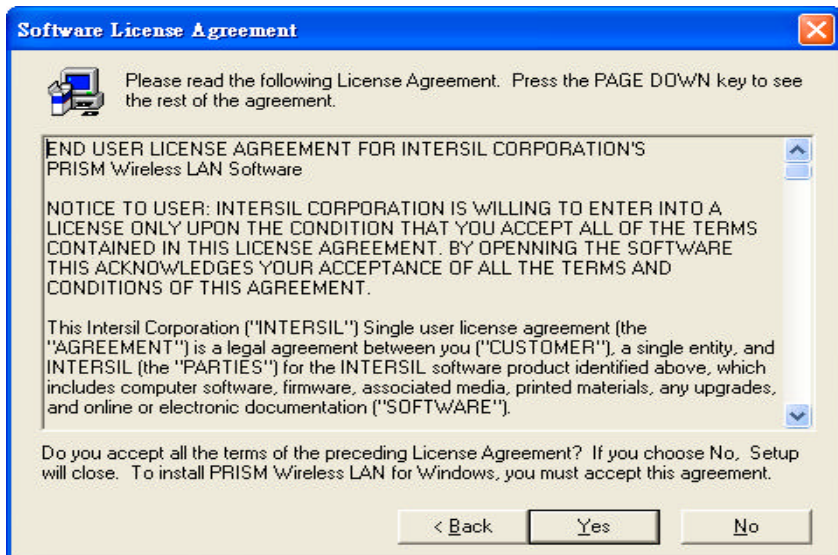
Please follow the following steps one by one in order to install the WLAN Adapter successfully.

1. Power on your computer and allow Windows 98/ME/2000 to load fully.
2. Be sure that there is no Wireless LAN 11Mbps Adapter inserted yet.
3. Insert the given Installation CD in the CD-ROM and then click on the Setup.

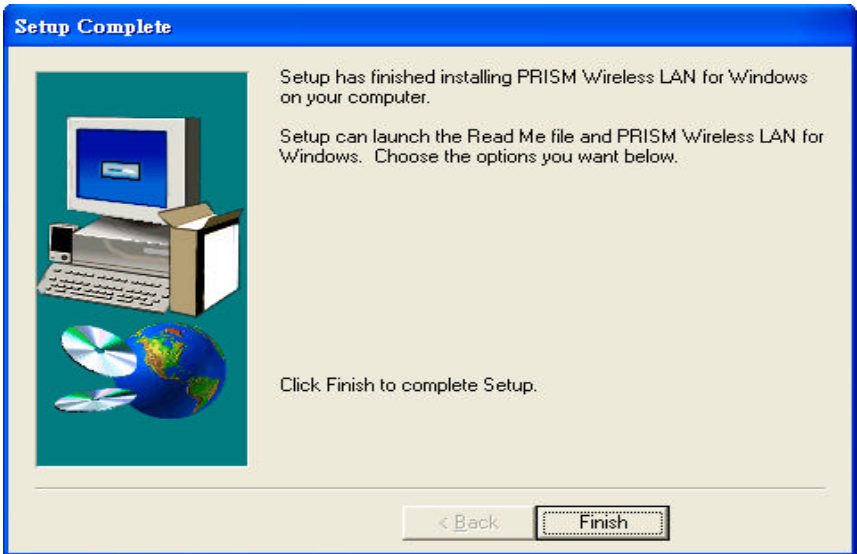


At the “ Welcome” window, click **Next**.

4. Accept the license agreement.



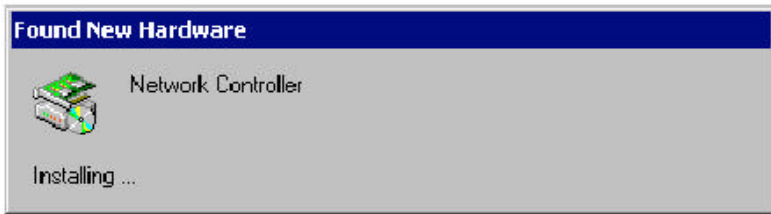
Accept the license agreement. Click **Yes** to accept.



Setup is complete. Click **Finish**.

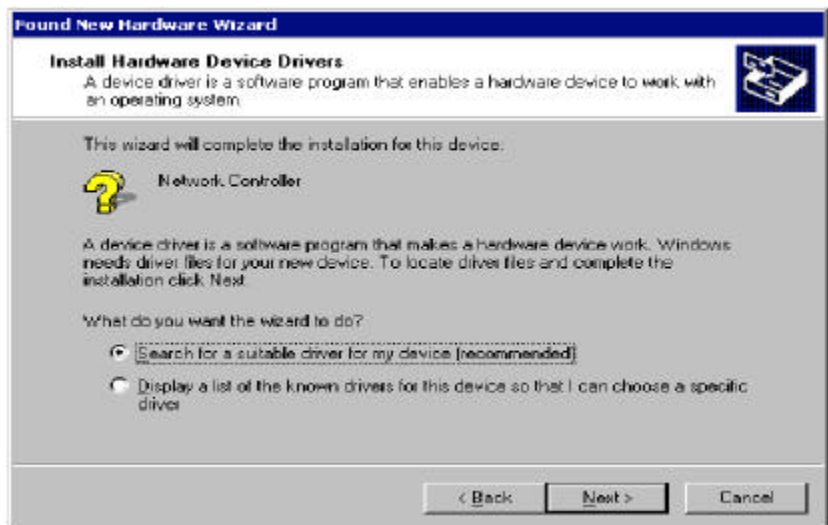
5. Insert / attach **Wireless LAN 11 Mbps Adapter** to your system

Windows will recognize the WLAN adapter and auto detect the driver, if the system did not find the driver automatically, please install the driver manually.

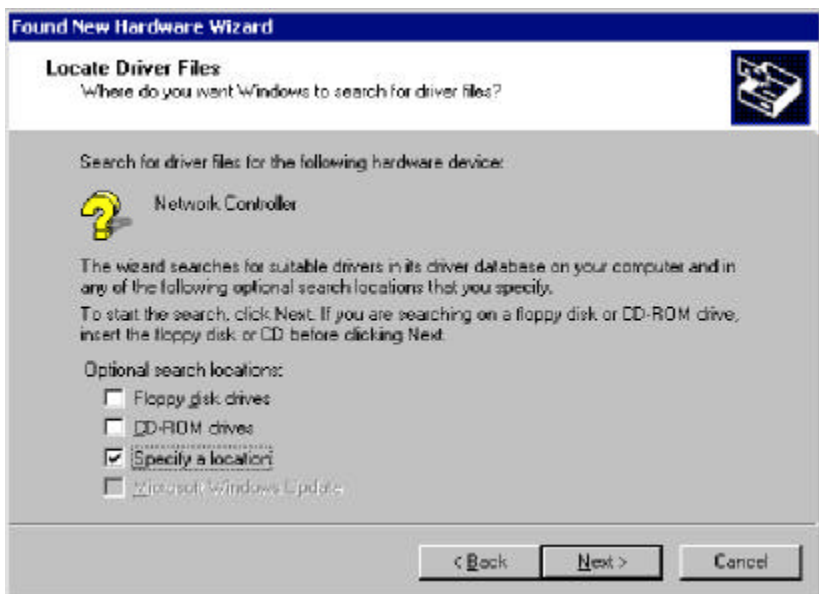




Click Next .



Click Next.



Click **Next**.



Click **Yes** to finish the setup & restart the computer.

CHPATER 4




Using the Wireless Utility

The following sections cover the Wireless LAN card usage.

After you have installed the utility, you will see the wireless utility icon in the Windows taskbar:

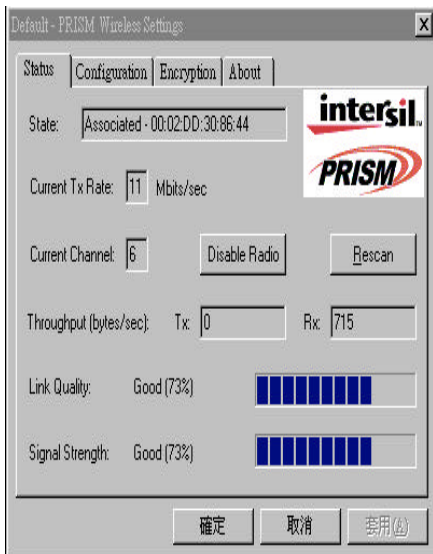


Wireless utility icon

Icon	Meaning
	Green: indicates a connection is active.
	Red: indicates no connection is active.
	Yellow: indicates that the wireless LAN card is looking for an available access point.

Double-click the icon to open the configuration utility

The following table describes the configuration utility:



State: displays the connection status.

Current Channel: displays the channel.

Current Tx Rate: displays the wireless bandwidth in megabits per second.

Throughput: displays the transfer and receive rates in bytes per second.

Link Quality: when connected to the wired LAN, displays the connection integrity.

Signal Strength: when connected to the wired LAN, displays the signal strength.

Note: Link quality and signal strength are not available when using a peer-to-peer connection.

Mode: displays the current LAN mode, either 802.11 AdHoc or Infrastructure.

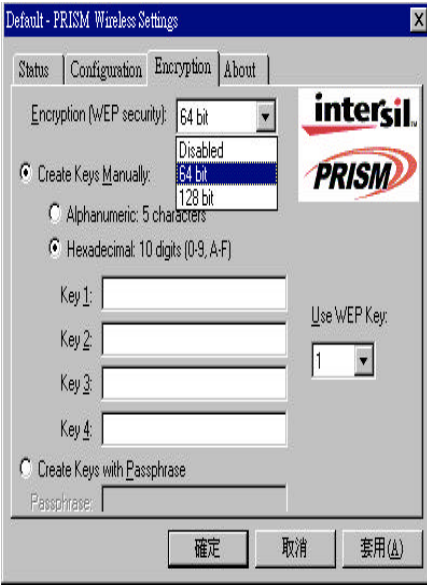
SSID: displays a list of Service Set Identifications.

Tx Rate: displays a list of transfer rates.

PS Mode: allows you to enable or disable power saving mode.

Channel: enables you to select a transmission channel.





The Encryption window enables you to create an encryption scheme for Wireless LAN transmissions.

You can also manually enter a set of values for each key.

Note: 128-bit encryption requires more system resources than 64-bit encryption. Use 64-bit encryption for better performance.



This screen displays the version number of the Wireless LAN card and the Configuration Utility.

Appendix A

Troubleshooting

Q&A

These guidelines give you tips to deal with some problems you may encounter while using the Wireless LAN card. If the problems re-main unsolved, contact your dealer for assistance.

Problem: Windows can not recognize the card.

Solution: Please check if PC Card support is installed. Double-click the PC Card icon on Control Panel. If PC Card support is not activated, you should activate it now.

Problem: Ejecting the card from the PCMCIA socket hangs or reboots the computer.

Solution: To prevent this phenomenon from occurring, stop the card by using the PC Card tool in the Control Panel or the PC Card icon on the taskbar before you re-move the card.

Problem: The card cannot be detected when reinserted.

Cause: This is caused by certain unstable PCMCIA status lines when the card is removed and reinserted. The Windows 95/98 drivers may read an incorrect status during this period of signal instability, and fail to detect the correct status of the card.

Solution: The card can be detected by clicking **Refresh** in Device Manager.

Question: What is the Microsoft digital signature?

Answer: Drivers that pass Microsoft Windows 2000 certification receive a digital signature file from Microsoft. The Wireless LAN card does not have

such a digital signature, however it is fully compatible with Windows 2000.

Question: The Wireless Utility icon on system tray is always red.

Answer: Please make sure that all clients have the same SSID. The SSID is case sensitive. And set all clients to the same wireless channel and make sure you are within range of an Access Point or client.

Question: Can not connect to one of the clients in the network.

Answer: First of all, make sure that all clients are up and running with a green Wireless Utility icon. And please check your TCP/IP setup is correct for your network.

Appendix B

Specifications

Standards Compliance:	IEEE802.11b WLAN Standard, PCMCIA 2.1 and JEIDA 4.2 Standard
Socket Interface:	68-pin 16-bit PCMCIA socket connector
Card Size:	PCMCIA extended Type II
Frequency:	2.4 to 2.4835GHz (Industrial Scientific Medical Band)
Antenna:	Internal printed Antenna
Roaming:	802.11 compliant
Data Rate:	11Mbps / 5.5Mbps / 2Mbps / 1Mbps
Modulation Technique:	Direct Sequence Spread Spectrum BPSK / QPSK / CCK
Coverage Area:	Indoor : 50m @ 11Mbps, 80m @ 5.5Mbps or lower Outdoor : 150m @ 11Mbps, 300m @ 5.5Mbps or lower
Power:	DC +3.3V /+5V, 220mA (3.3V)
Output Power:	14dBm (typical)
Receiver Sensitivity:	11Mbps: -82~ -85dbm; 5.5Mbps: -85~ -88dbm 2Mbps: -88~ -91dbm; 1Mbps: -91~ -93dbm
Operating Environment:	Temperature: 0 to 55 °C Humidity: 10% to 90%
Dimensions:	115 x 54 x 11.5mm
Weight:	47g