

# **11Mbps Wireless LAN PC Card**

## **EVR1000**

### **User's Manual**

**2002/01/20 Ver. 1.0**

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# Introduction

## **The Instant Wireless Network PC card**

Put the “mobile” back into mobile computing with the Gemtek Instant Wireless Network PC card! Whether you are at your desk or in the boardroom, the Gemtek Instant Wireless Network PC card allows you to share printers, files, and more productivity and keeping you “in touch.”

The Instant Wireless Network PC card gives you the freedom to work your way, from where you want, letting you take full advantage of your notebook PC’s portability, while providing you with access to all your network resource. A high-powered built-in diversity antenna means that you are covered-at a distance of up to 457 meters. Compatible with Windows 98, 2000, Millennium, and XP, the Instant Wireless Network PC card from Gemtek are true necessities for all your wireless PC applications.

## **Features**

- 11 Mbps High-Speed Transfer Rate
- Interoperable with IEEE802.11b (DSSS) 2.4 GHz-compatible Equipment
- Plug-and-Play Operation Provides Easy Setup
- Utilizes Intersil HFA3841/HFA3842 chip sets
- Advanced Power Management Features Conserve Valuable Notebook PC Battery Life
- Direct Sequence Spread Spectrum Compatible to Prevent Lost Connections
- Rugged Metal Design with Integrated Antenna
- Compatible with Windows 98, Millennium, 2000 and XP.
- Works with All Standard Internet Applications
- Capable of up to 128-Bit WEP Encryption
- Free Technical Support-24 Hours a Day, 7 Days a Week
- Full 1-year Warranty

## **Package Contents for the Network PC card**

- One Instant Wireless Network PC card
- One Driver and Utility CD-ROM
- User Guide and Registration Card

## **System Requirements for the Network PC card**

- A 16-bit PCMCIA Type II or Type III slot
- PCMCIA revisions 2.10 compliant card and socket services
- Windows 98, Millennium, 2000 and XP.
- 500 Kbytes of free disk space for utility and driver installation

## **2. Wireless LAN Basics**

Wireless LAN (Local Area Networks) systems offer a great number of advantages over a traditional, wired system. Wireless LANs (WLANs) are more flexible, easier to setup and manage and often more cost effective than their wired equivalence.

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.

With wireless LANs, users can access shared information without looking for a place to plug in and network managers can set up or augment networks without installing or moving wires.

### **3. Installation for Windows platform**

The following section will assist you to successfully install wireless LAN Adapter successfully. First of all, you will install software (Utility) and insert the Wireless LAN adapter afterwards. Finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The Wireless LAN 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:

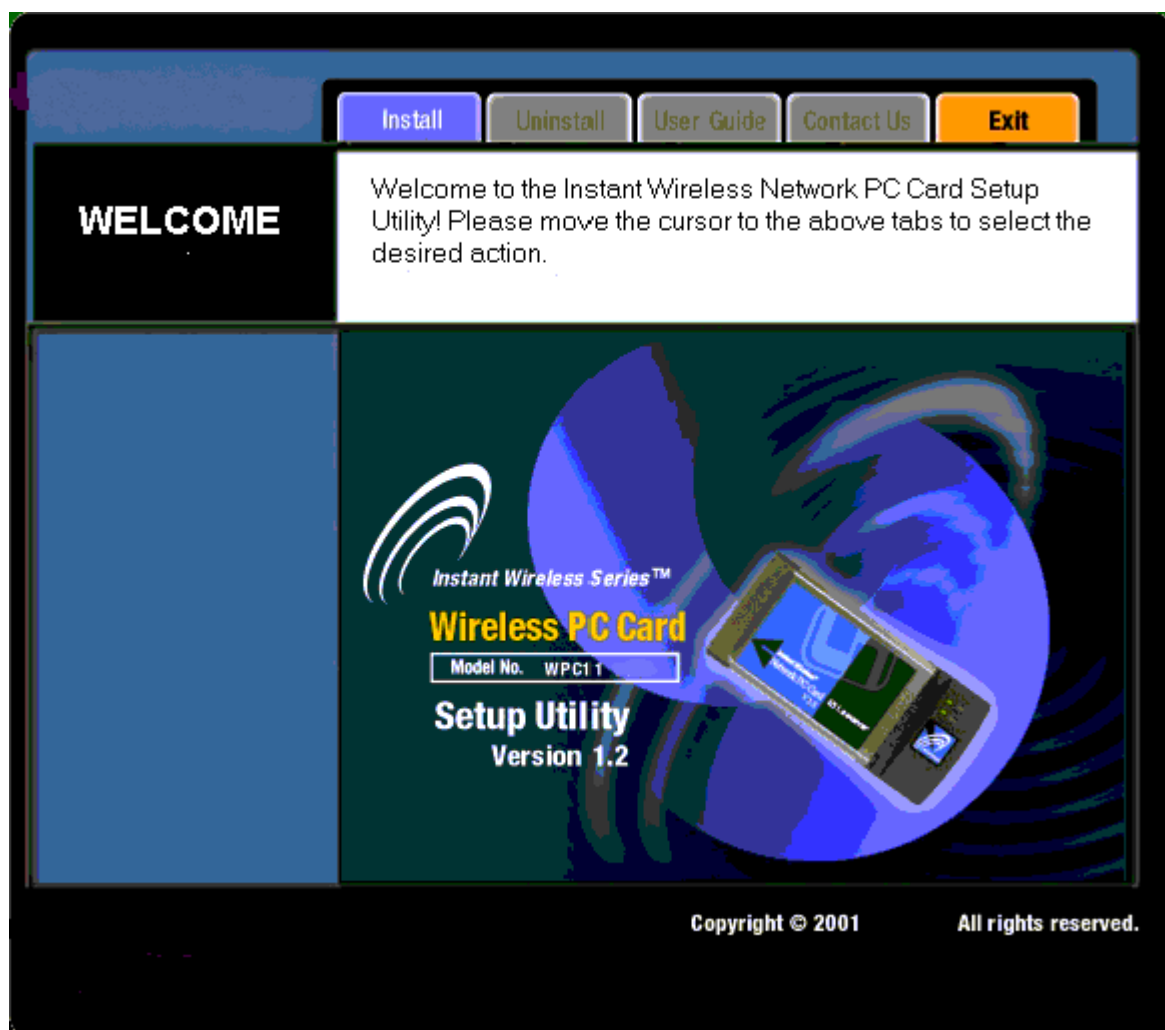
- **Peer to Peer Mode (Ad Hoc Mode):** Apply your PC to connect to the internet as your server. Start the installation process with this PC.
- **Infrastructure Mode:** In the infrastructure mode, a gateway or an AP is applied to serve as a hub to communicate (transmit/receive) data for PCs. In this mode, it is supposed to *install a gateway or an AP ahead of the installation process of 802.11b PC card*.
- **Install the software:** After finishing the installation process of the hardware and drivers, you are ready to install the software by inserting the attached CD and performing the setup program.
- **Install the 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 **Gemtek WLAN adapter** unless you are asked to do so, failure of which may result in unsuccessful installation of your **device**.

**Please follow the instructions setp by setp in order to install the WLAN adapter successfully.**

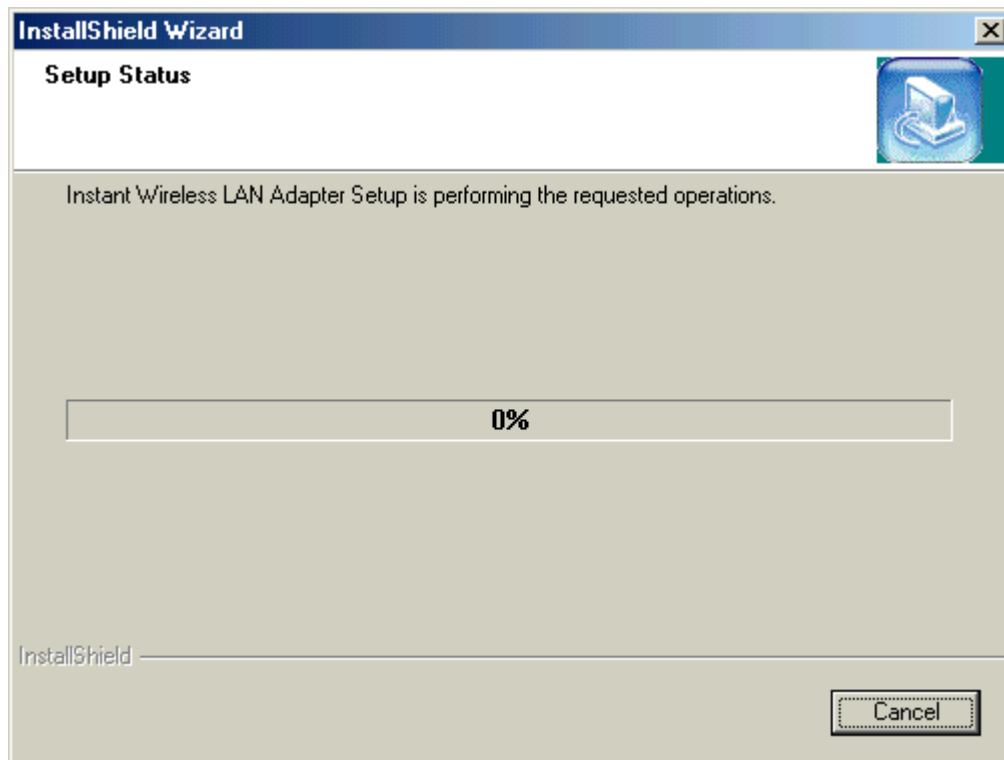
1. Power on your computer and allow **Windows 98/ME/2000/XP** to load fully.
2. Be sure that there is no **Wireless LAN 11Mbps** adapter inserted yet. If the setup program detects an additional network PC card exists, please select **some of these PC cards are not used and can be disabled** from the prompted screen.
3. Insert the **Installation CD** in the **CD-ROM** and then the User interface will be automatically loaded:



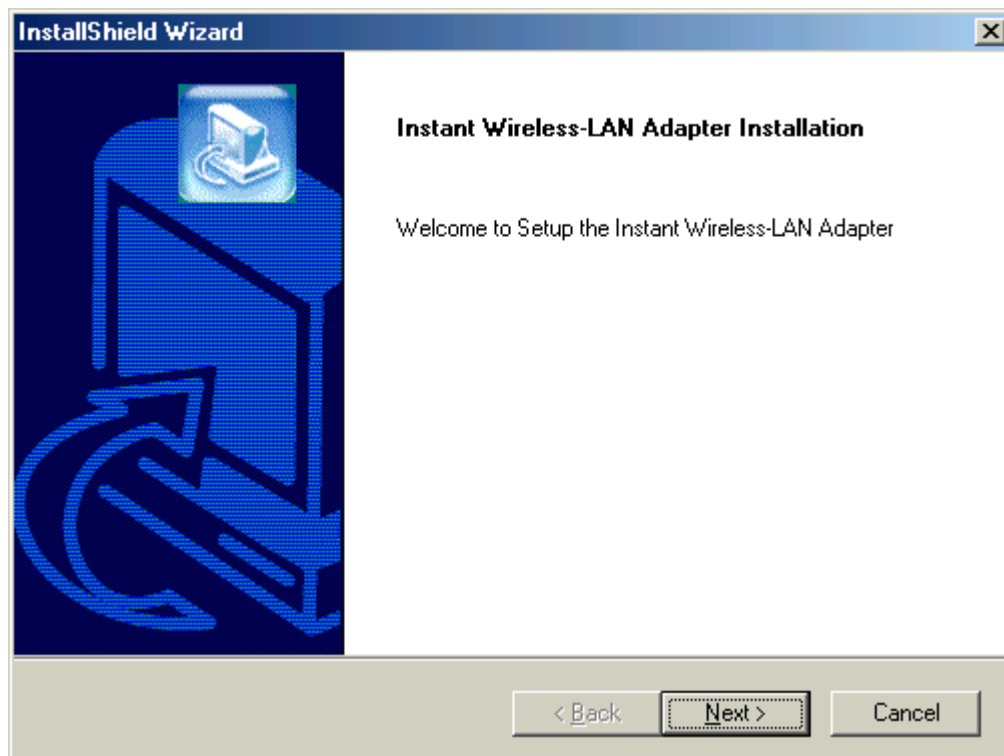
Click **Install**.



4. The InstallShield Wizard will perform the setup.

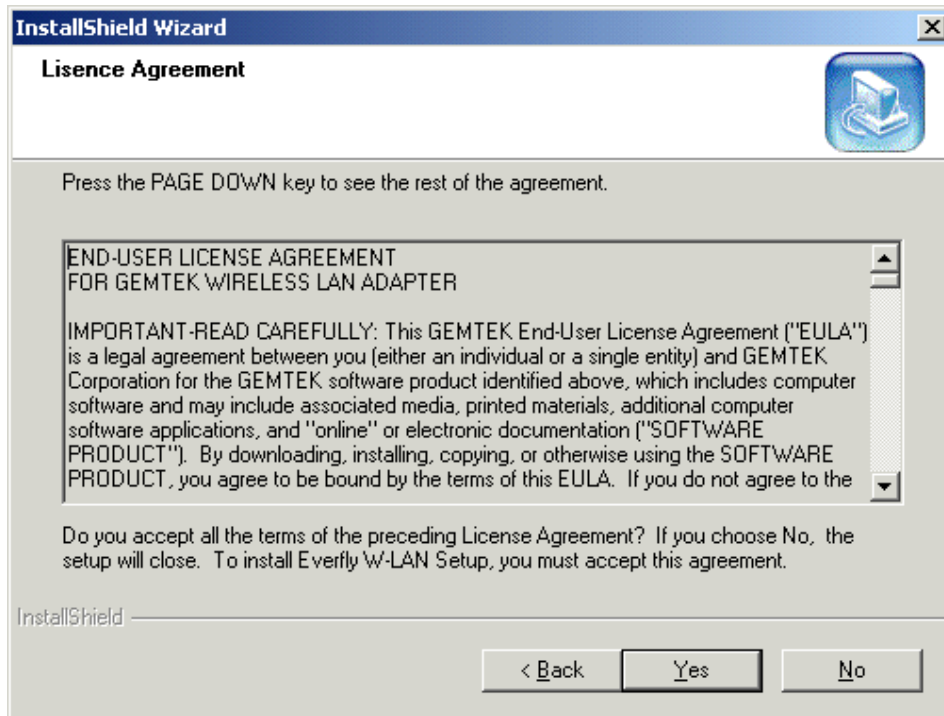


5. Click **Next** to continue the installation.

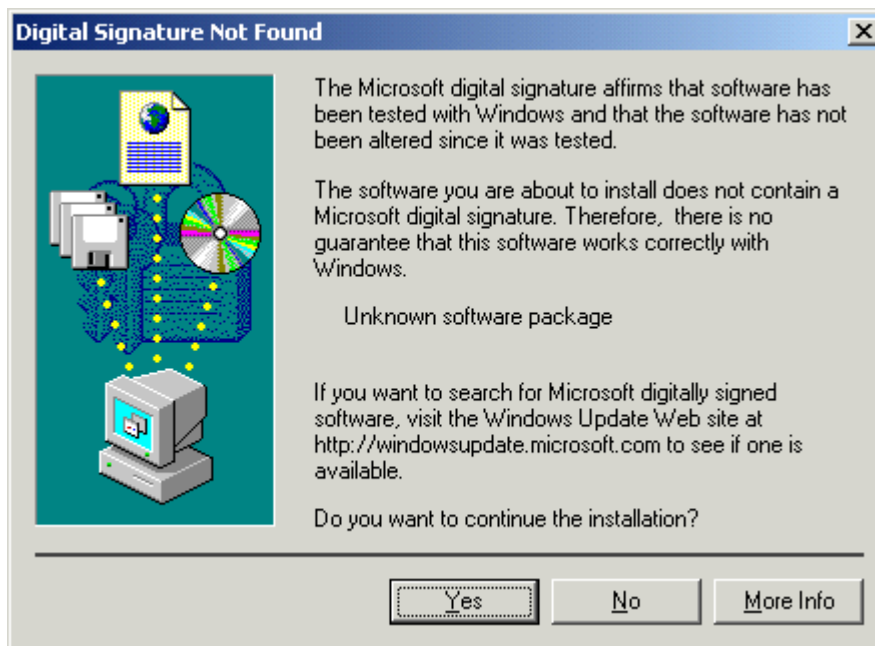


Click **Next**.

6. Click **Yes** to accept the legal agreement.

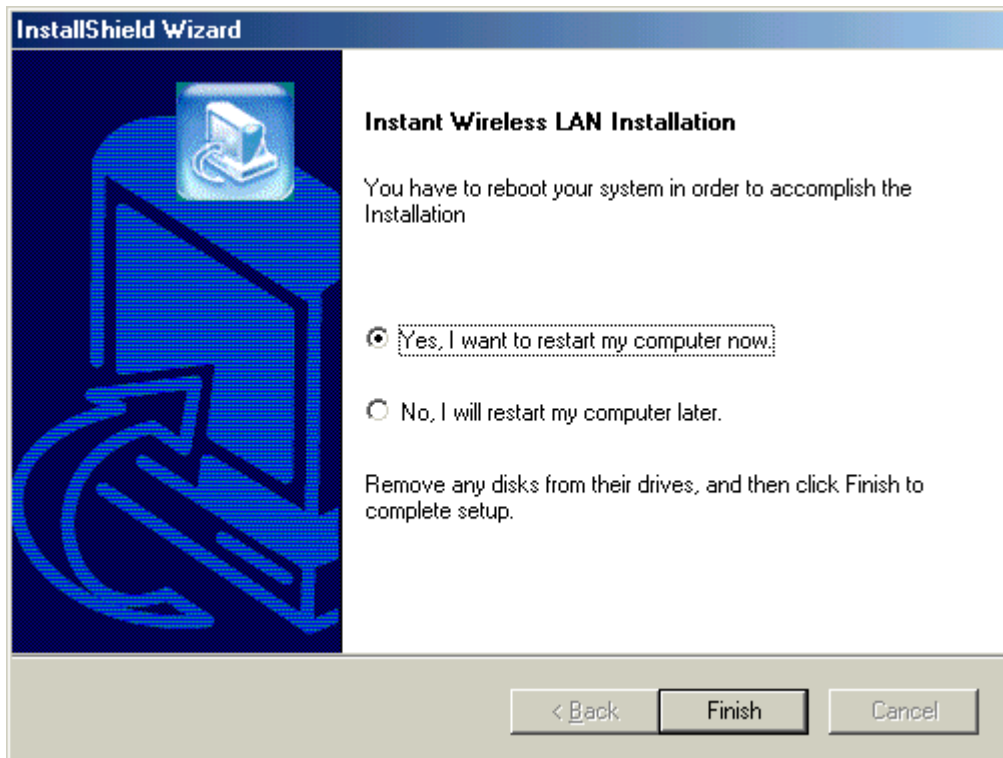


7. For Win2000/XP users, select **Yes** to install the driver package.



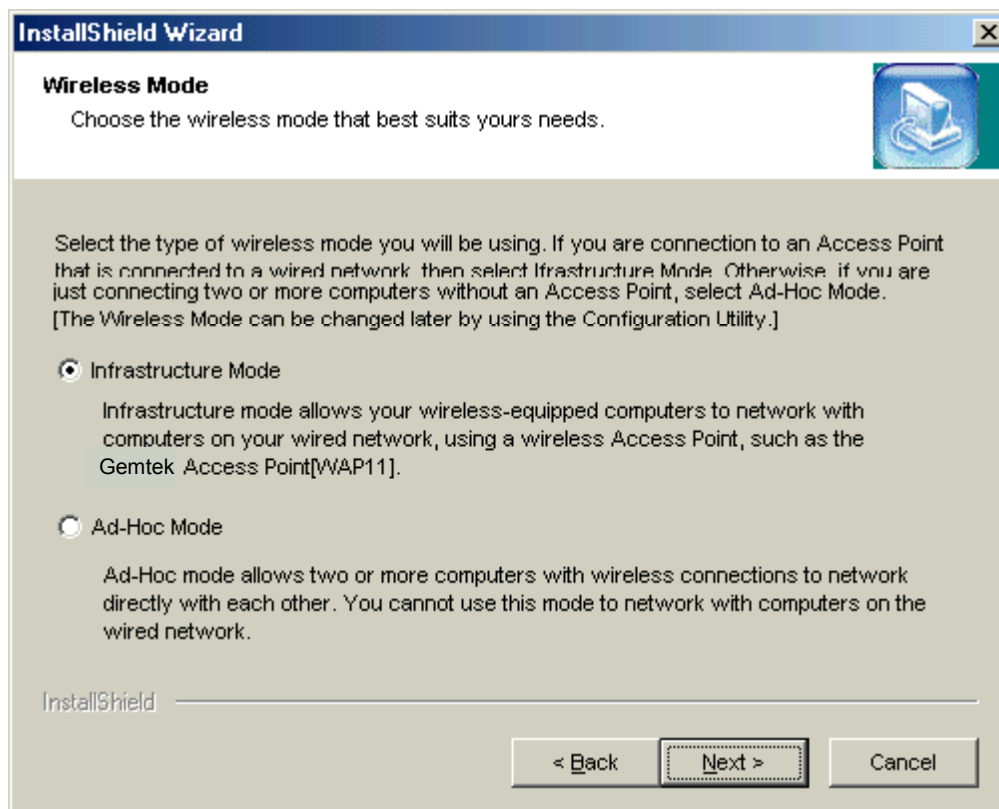
Click **Yes**.

8. For 98/ME users, click **Yes** to restart your PC.



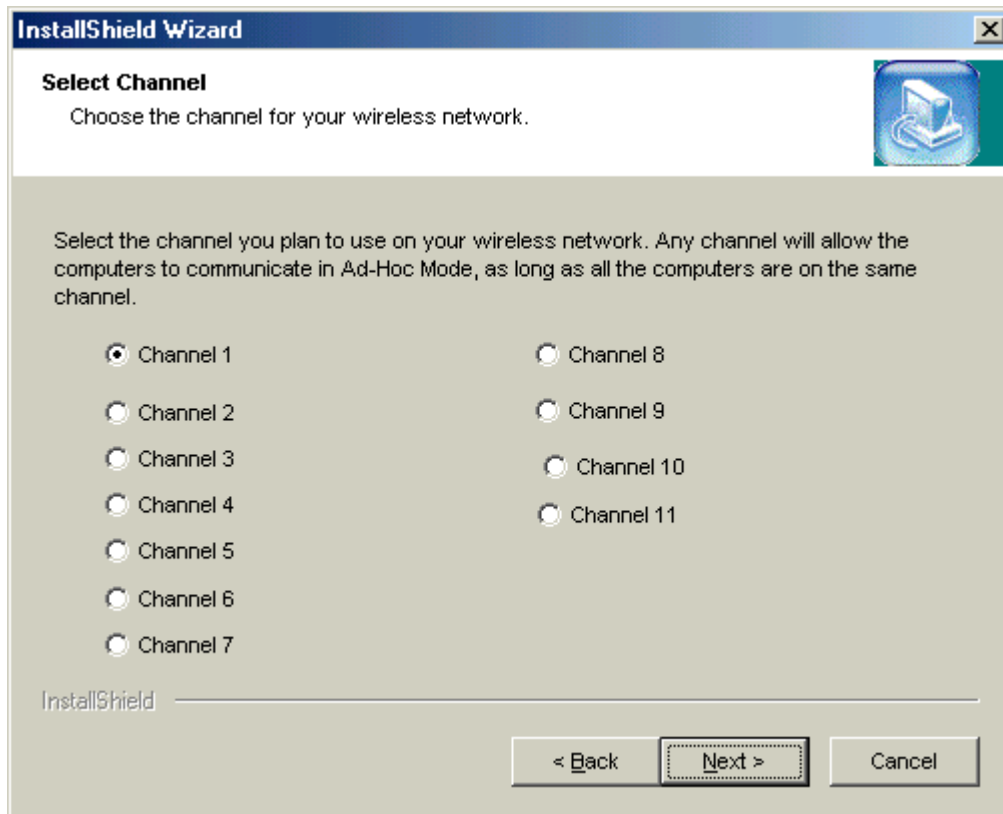
Click **Finish**.

9. Determine your Network modes. There are two network modes in the PC card settings. One is **Infrastructure Mode** and the other is Peer to Peer Mode. Please see 3.1 for the details.



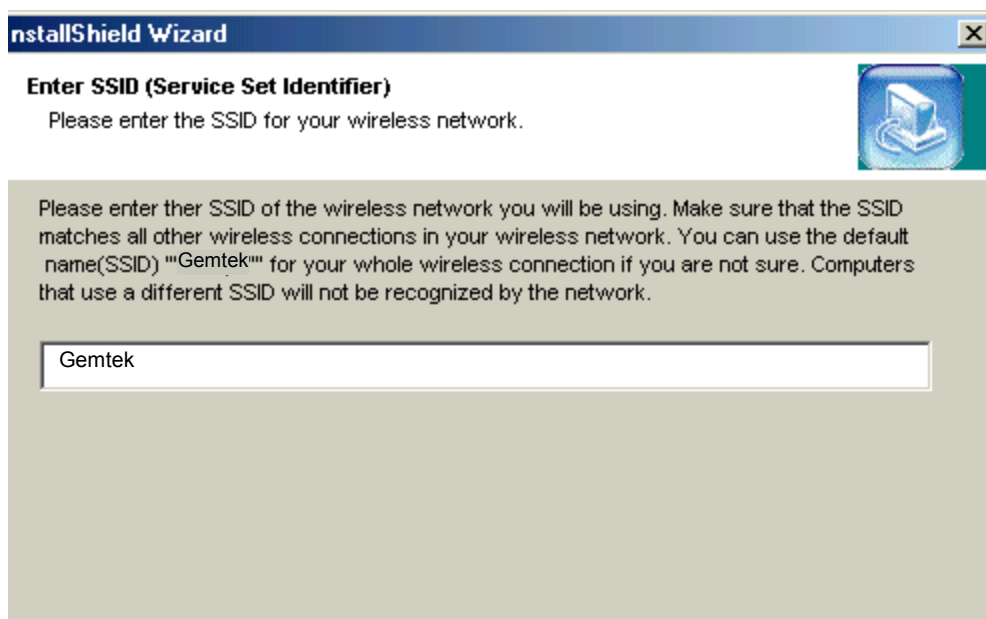
Click **Next**.

10. Select a channel for the Network adapter.



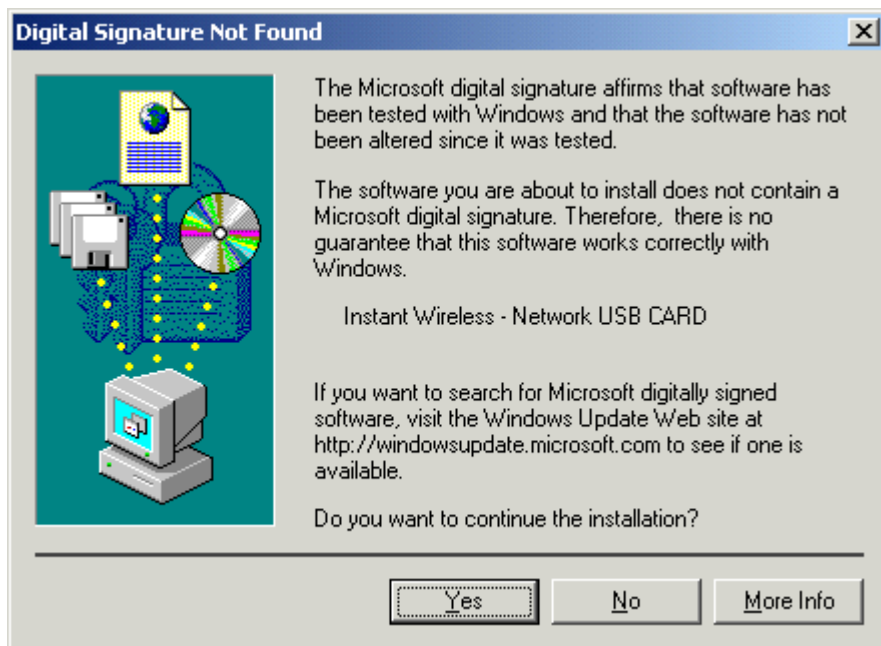
Click **Next**.

11. Choose a Network ID Code (SSID) screen appears.



Click **Next**.

12. After finishing all the steps of the Install-Shield setup, plug in your PC card.
13. Click **Yes** to install the driver package.



Click **Yes**.

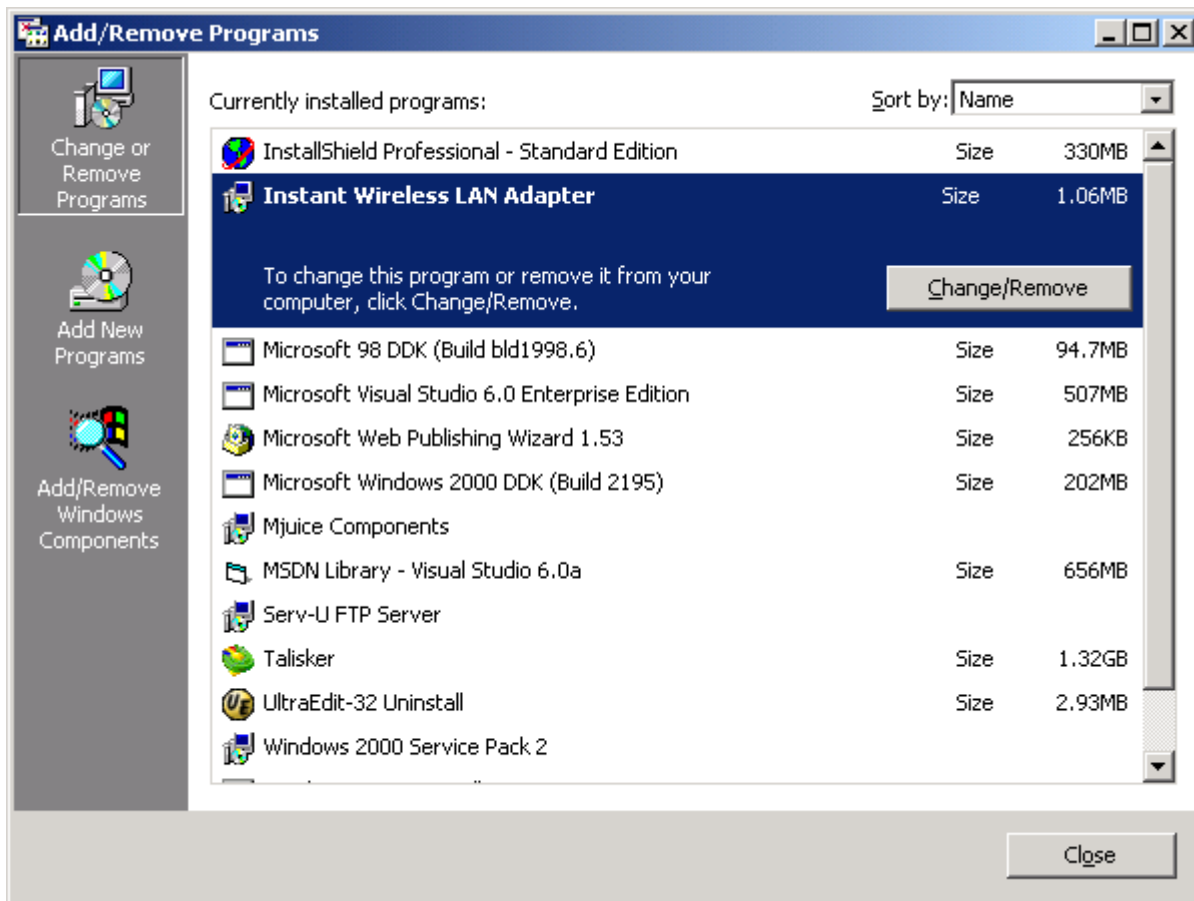
**The Installation is complete.**

### 3.3. Uninstall Procedure

If you want to uninstall the WLAN PC card, please follow the steps as below,

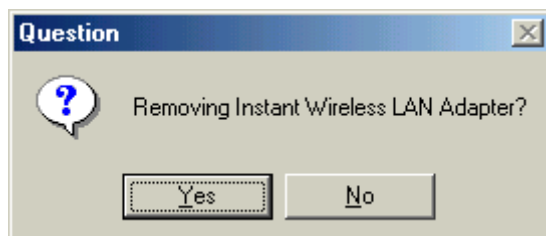
Windows 2000/XP users

1. Open the **Add/Remove** program from the control panel.



choose **Instant Wireless LAN PC card** and click **Change/Remove**.

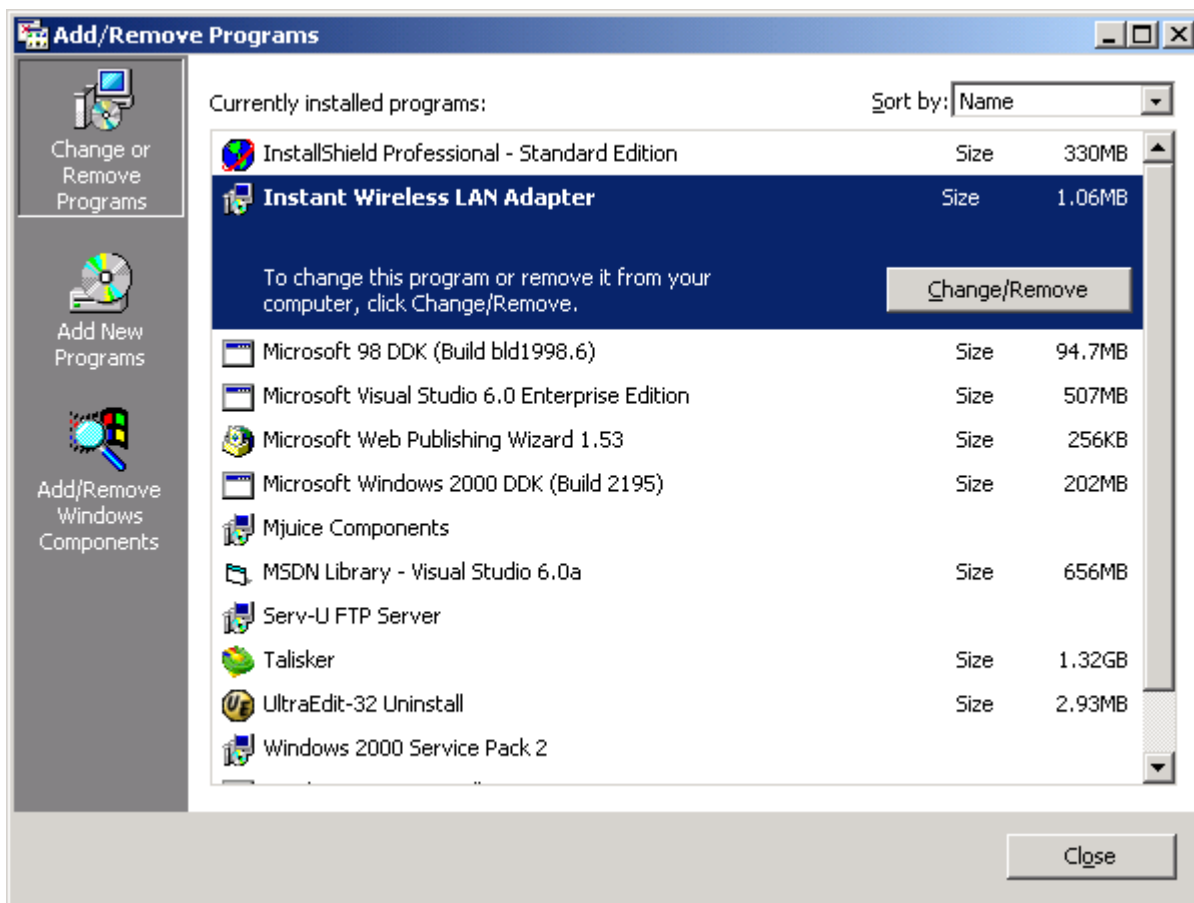
2. Click **Yes** to uninstall the adapter.



The Uninstallation process is complete.

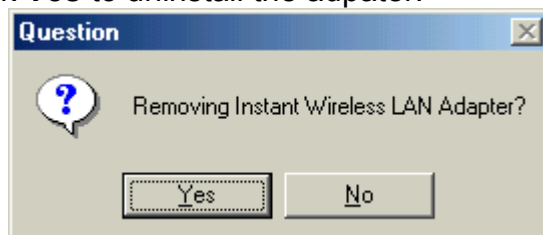
## Win98/ME users

1. Open the **Add/Remove** program from the control panel.

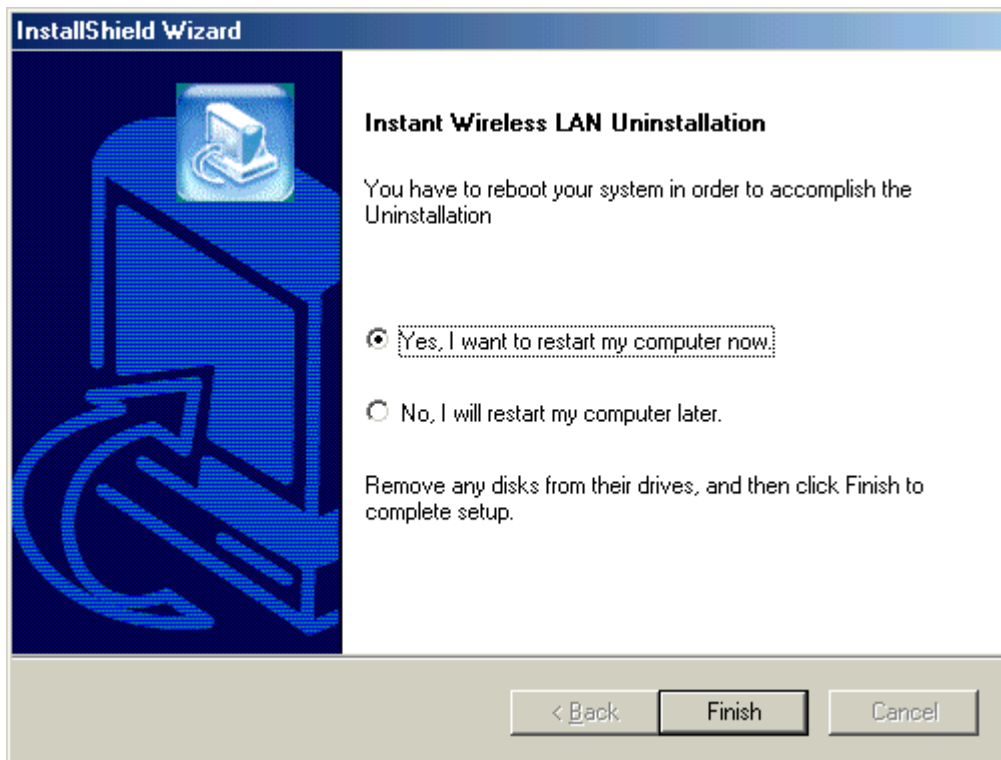


choose **Instant Wireless LAN PC card** and click **Change/Remove**.

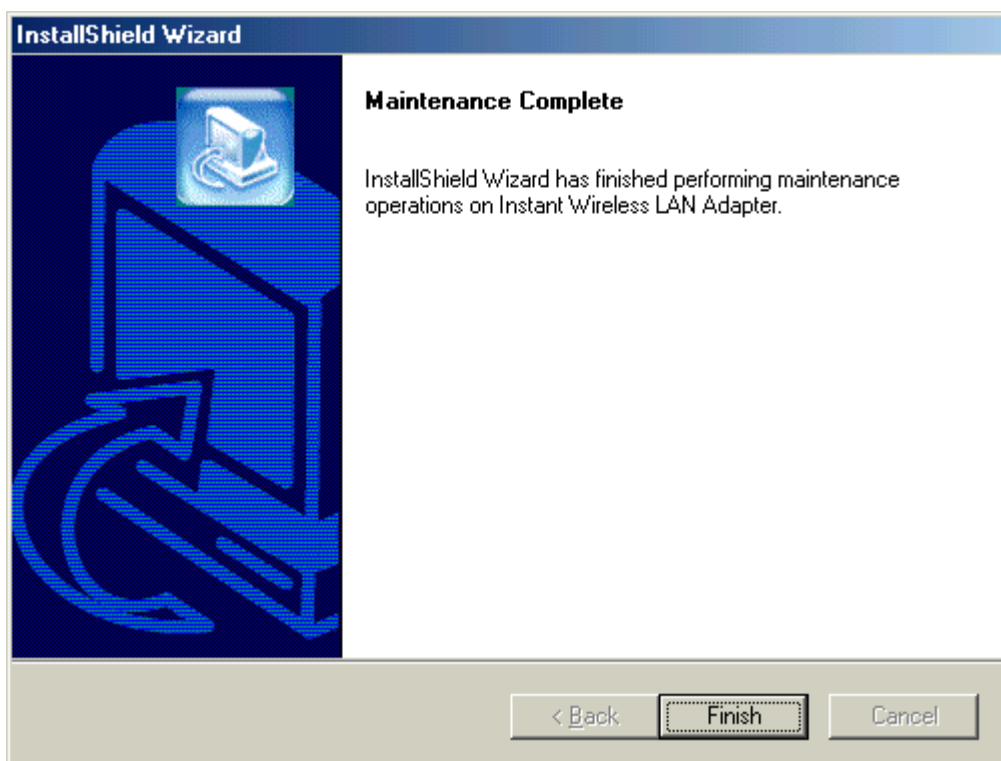
2. Click **Yes** to uninstall the adapter.



3. Check **Yes** to restart your PC.



4. Click **Finish**.



The Uninstallation process is complete.

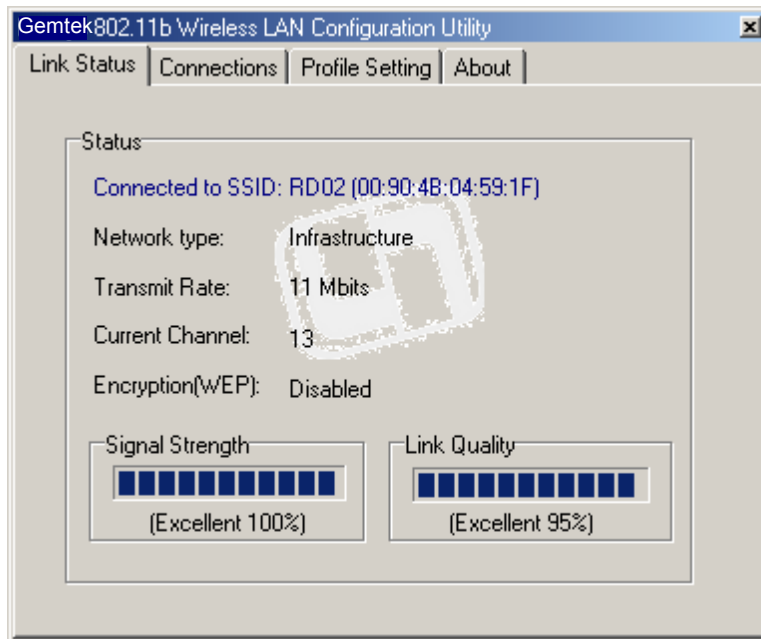


## 4. Configuring the Network PC card with the Configuration Utility

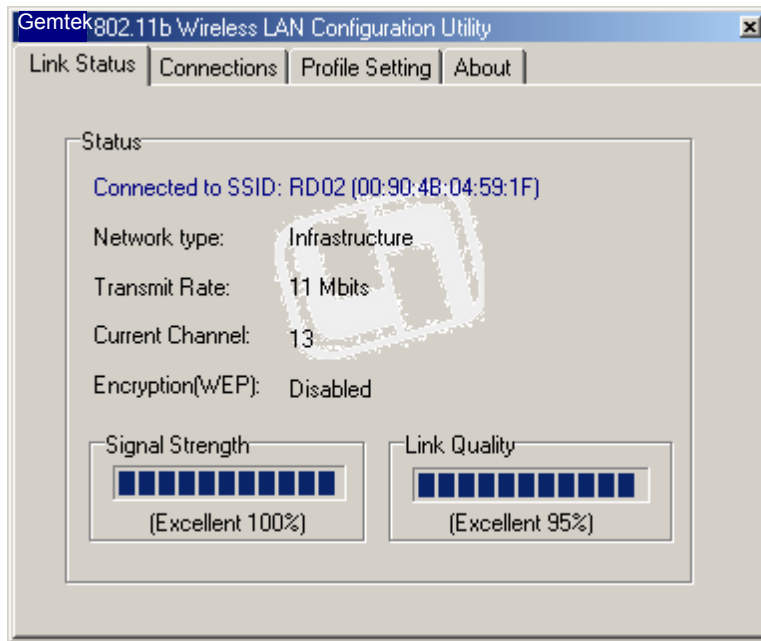
After installing the Network Adapter, the **Instant Wireless-Network Adapter** icon will automatically show in the taskbar as below:



Double click the **Green** icon and the Network Adapter Utility appear:



# Link Status



- **Connected to SSID**

This field is used to display the current associated Network SSID. If the operation is in the Infrastructure mode, SSID created for the designated Access Point is RD02 shown as the above. The BSSID (MAC address on the Access Point) is shown in the form of hex digits, **[00:90:4B:04:59:1F]**

- **Network type**

The network mode is one of the PC card settings during the installation. Wireless networks can operate either in peer to peer mode (Ad Hoc mode) or infrastructure mode. Please refer to 4.1 for details.

- **Transmit Rate**

The field shows the transfer rate in megabits per second.

- **Current Channel**

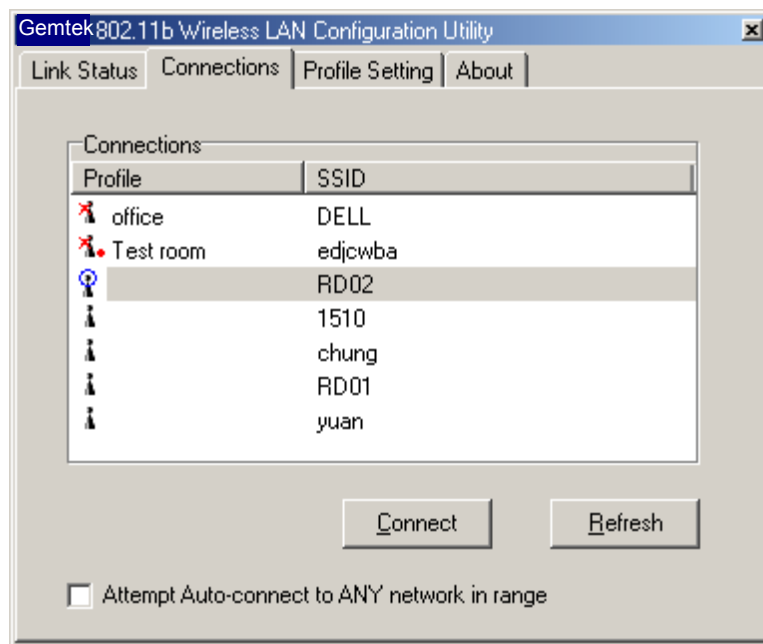
This field shows to what channel the Network PC card is set.

- **Signal Strength/Link Quality**

The Signal Strength/Link Quality bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality of the link between the node and its Access Point. A label summarizes the quality of the link over the bar graph, which can take on one of the following values:

- “Poor”
- “Weak”
- “Fair”
- “Good”
- “Excellent”

## “CONNECTIONS” tab



- **Profile**

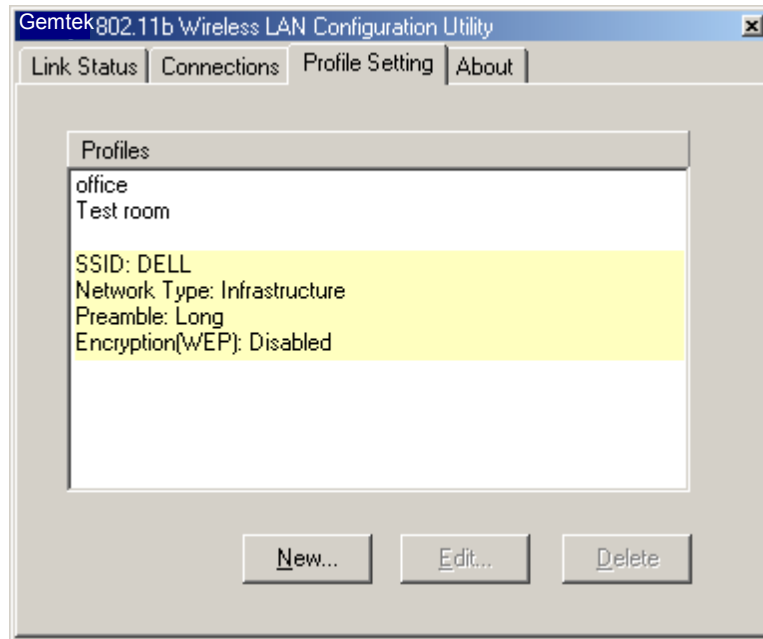
The **Profile** box contains all the profiles of the wireless network.

- **SSID**

The **SSID** box contains all the names of the applied gateways or access points that exist in the environments.

**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.

## “PROFILES SETTING” tab



The box shows all the detailed information of profile setting.

Click **New** when you create a new profile

Enter the settings:

- Profile name
  - SSID
  - Network type
  - Transmit rate
  - Channel
  - Preamble
  - Encryption (WEP)
  - Encryption settings
- **Encryption (WEP):** it is an encryption scheme used to protect your wireless data communications. It can be set to Disabled, 64-bit, or 128 bit. With the combination of 64-bit or 128- bit keys, it provides access control to your network and encryption security for every data transmission. To decode a data transmission, each point in a network must use an identical 64-bit or 128-bit key. Higher encryption levels mean higher levels of security, but, due to the complexity of the encryption, they may mean decreased network performance.

**Note:** Not all Wireless Access Points or PC cards support 128-bit WEP Encryption. Check your wireless device's documentation for more information.

## “ABOUT” tab



About tab shows the product release information including the details of Driver, Configuration Utility, and NIC firmware version. Users must use the correct version numbers when reporting problems to technical support professionals.

## 5. Troubleshooting

If you encounter any problems during the installation, or to confirm that the WLAN 11Mbps device is installed properly, please read the following troubleshooting section.

### In Windows 98/ME:

To check that the **WLAN 11Mbps device** is installed properly, please do the following:

1. Go to **START>SETTINGS>CONTROL PANEL>NETWORK**. Choose the **Configuration Tab**. If you find the **WLAN 11Mbps Adapter**, it means the card is installed properly. If you see the **Yellow Question-mark (?)** means the resources are conflicting. (Please read further in this section for solutions.)

-or-

2. Right click on **My Computer** and select **Properties**. Select the **Device Manager** and click on the **Network Adapter**. You will find the **WLAN 11Mbps Adapter** if it is installed successfully. If you see the **Yellow** sign, the resources are conflicting. Click on the PCMCIA Card and then on the PCMCIA Card Service, you can see the status of the PC card. If there is a yellow sign either on the adapter or the PC card, please check the following.
  1. Check to see if your computer supports **3.3V** Card.
  2. Check to see if your computer has a free **IRQ**. If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1, COM 2 can be assigned the same IRQ values.
  3. Check that you have inserted the right card and have installed the proper driver.

## Troubleshooting (Continued)

### In Windows 2000/XP:

1. Check the **Windows 2000/XP Diagnostics**. See if there is any conflict in the **resource** allocation or the **I/O Address, IRQ** allocations. If you find that the **IRQ** or **I/O Addresses** are already assigned to some other devices, you must change that value. **I/O Address** needs 40h byte length.
2. Go to the **Control panel**. Double click on the **PCMCIA Card** and you will see **WLAN Adapter**. Double clicking on that will show you the **Card Information**, driver name and the driver **file**. You must confirm the name of the driver and the driver file as "**prismnic.inf**" and "**prismnds.sys**". If you do not find the names listed above, there are some problems and the driver is not installed properly. Reinstall the driver.

**Note:** Check the PnP BIOS setup menu and select **no** in case of the **WLAN Adapter** installation.



## **6. Recognizing Instant Wireless Network**

What is IEEE802.11 standard?

The IEEE 802.11 Wireless LAN standards subcommittee, which is formulating a standard for the industry. The objective is to enable wireless LAN hardware from different manufacturers to communicate.

What is Ad-Hoc?

An Ad-Hoc wireless LAN is a group of computers, each with a WLAN adapter, connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

What is Infrastructure?

An integrated wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

## 7. Technical specifications of Wireless LAN

### Hardware compatibility

- IBM-compatible computer with a PC card Type II

### Driver support

- Windows XP
- Windows 2000
- Windows ME
- Windows 98

### Standards supported

- IEEE 802.11 standard for Wireless LAN
- All major networking standards (including TCP/IP, IPX)

### Environmental

Operating temperature (ambient):

- -10°C to 50°C (Operating), -20 to 70°C (Storing)
- Max . Humidity: 95% Non-condensing

### Power specifications

Operating voltage:

- +3.3V DC  $\pm 5\%$
- Nominal Temp Range: 17 dBm
- Extended Temp Range: 14 dBm min.
- Transmit Power, 2.7v to 3v: 14 dBm min.

### Radio specifications

Range:

- per cell indoors approx. 35-100 meters or more
- per cell outdoors up to 100-300 meters

Frequency range:

- 2.4-2.4835 GHz, direct sequence spread spectrum

Number of Channels:

- Europe: 13 (1-13 )
- US: 11 (1-11 )
- France: 4 (10-13 )
- Japan: 14 (1-14 )

Antenna system:

- Internal patch antenna supporting diversity.

Mobility:

- Seamless roaming across cell boundaries with handover

### **Specific features**

Supported bit rates:

- 11 Mbps
- 5.5 Mbps
- 2 Mbps
- 1 Mbps

Data encryption:

- 64 /128 bit WEP Encryption

Utility Software:

- Management utility software

### **Physical Dimensions**

Extended type-II PC card 110 x 54 x 6 mm

## Specifications

### EVR1000 IEEE 802.11b PCMCIA General Specification Sheet

#### Specification

Product Name	11 Mbps Wireless LAN PC Card	
Model Number	EVR1000	
Host Interface	PCMCIA PC Card Type II	
Dimensions	115 x 54 x 10 mm	
Weight	40g	
Frequency Band	2.400 ~ 2.4835GHz (subject to local regulations)	
Number of Channel	USA and Canada – 11	Most European countries – 13
	France – 4	Japan – 14
Operating Voltage	3.3V±5% or 5V±5%	
Current Consumption	Typ. 300mA; Max. 470mA	
Spreading	DSSS (Direct Sequence Spread Spectrum)	
Data rate	11Mbps, 5.5Mbps, 2Mbps, 1Mbps	
Transmit Power	Max. 20dBm; Typ. 18dBm @ Nominal Temp Range	
Receive Sensitivity	Nominal Temp Range: 11 Mbps 10-5 BER @ -82dBm, nominal	
Modulation	11Mbps and 5.5Mbps CCK; 2Mbps: DQPSK; 1Mbps: DBPSK	
Security	64-bit WEP (128-bit optional)	
Antenna	Internal PIFA antenna supporting diversity	
LED indicator	Power; Wireless ACT	
Supplied Driver	Windows 95/98/98SE/2K/ME/NT4.0/XP, Linux.	
Standards	IEEE 802.11b, Wi-Fi compliant	
Media Access Protocol	CSMA/CA with ACK	
Warranty	1 year	
Temperature Range	0 ~ 55°C (Operating), -20~65°C (Storage)	
Humidity	Max. 95% Non-condensing	
Operating Range	Open Space: 100 – 300m; Indoor: 30m – 100m The transmission speed varies in the surrounding environment.	
Roaming	Full mobility and seamless roaming from cell to cell and across access points	
Network Protocol	TCP/IP, IPX, NetBEUI	
Management Utility	Link Configuration for network join and diagnostics	
EMC certification	FCC part 15B, 15C; R&TTE; TELEC/JATE	
Packaging	Customer Define	
CIS	Customer Define	

## Glossary

**Access Point:** A hardware device that serves as a communication hub for 802.11b wireless PCs and can also provide a connection to a wired network. An AP can double the range of wireless client PCs and provide enhanced security.

**Ethernet:** The most widely used network access method. Ethernet is defined by the IEEE802.3 standard. Ethernet networks operate at 10Mbps using CSMA/CD (Carrier-Sense Multiple Access) to run over 10BaseT cables.

**Gateway:** A network device that provides a bridge or entrance to another network. For example, a residential gateway can allow a wireless network to connect to a phoneline or Ethernet network.

**Infrastructure Mode:** A software setting for 802.11b wireless PC cards allowing connectivity to a gateway or an access point (AP). The gateway or AP not only intermediate the wireless network traffic, but also provides the communication with the networking.

**MAC Address-**The MAC (Media Access Control) address is your computer's unique hardware number.

**Peer to Peer mode (Ad Hoc mode):** A software setting for 802.11b wireless PC cards. This mode allows independent peer to peer connectivity from one PC to another in a wireless network.

**SSID:** Standard Set ID. To communicate with each other, all wireless devices on the same network must use the same SSID. The SSID allows two or more wireless networks to function in the same vicinity without interfering with each other. The SSID can be a word or a combination of letters and numbers.

**WEP** (Wired Equivalent Privacy): A data privacy mechanism based on a 64 bit shared key algorithm, as described in the IEEE 802.11 standard.

## **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: 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.

### **CAUTION STATEMENT:**

#### **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 1.5cm between the radiator & your body.

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

## **R&TTE Compliance Statement**

This equipment complies with all the requirements of the DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

*The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000 .*

## **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this manual and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.

## **EU Countries 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, The 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.

## **EU Countries Not intended for use**

None.

## **Potential restrictive use**

France: Only channels 10,11,12, and13

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