



**2.4 GHz IEEE 802.11g 54Mbps Wireless LAN  
PCIbus Adapter**

**GW-DS54GR**

**PLANEX COMMUNICATIONS INC.**

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# Chapter 1 Introduction

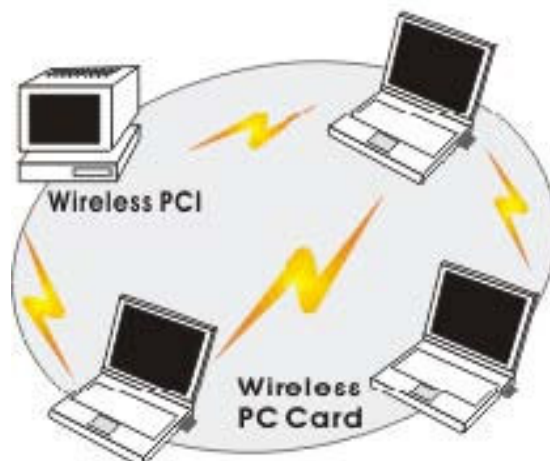
The **GW-DS54GR** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

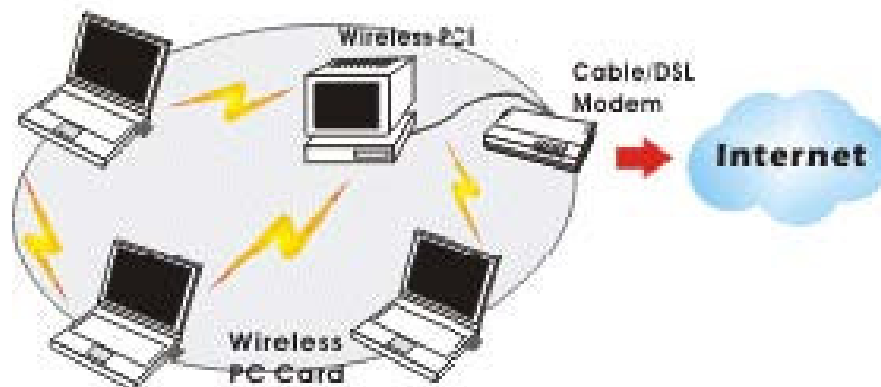
## 1.1 Wireless Network Options

### 1.1.1 The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.



You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



### 1.1.2 The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an Access Point.

## Chapter 2 Package Contents

GW-DS54GR comes with the following items. Please go through each item below. If any of listed items appears to be damaged or missing, please contact your local dealer.

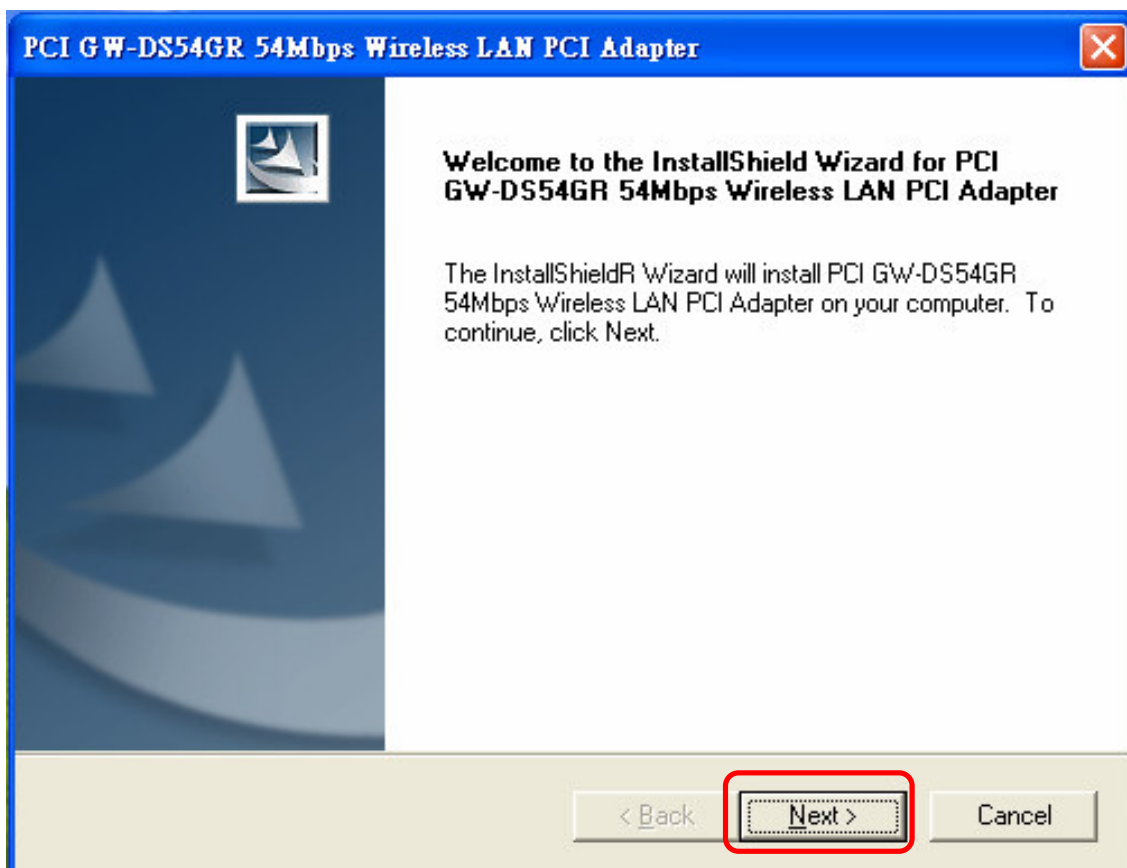
- GW-DS54GR
- Quick Installation Guide
- CD-ROM (User's Manual / Driver & Utility)
- 2dBi Dipole Antenna
- 2dBi Desktop Antenna (except Europe area)
- Warranty Card

## Chapter 3 Installation

**Caution:** Do not insert the **GW-DS54GR** into your desktop computer until the procedures in **Utility Installation** has been performed.

### 3.1 Utility Installation

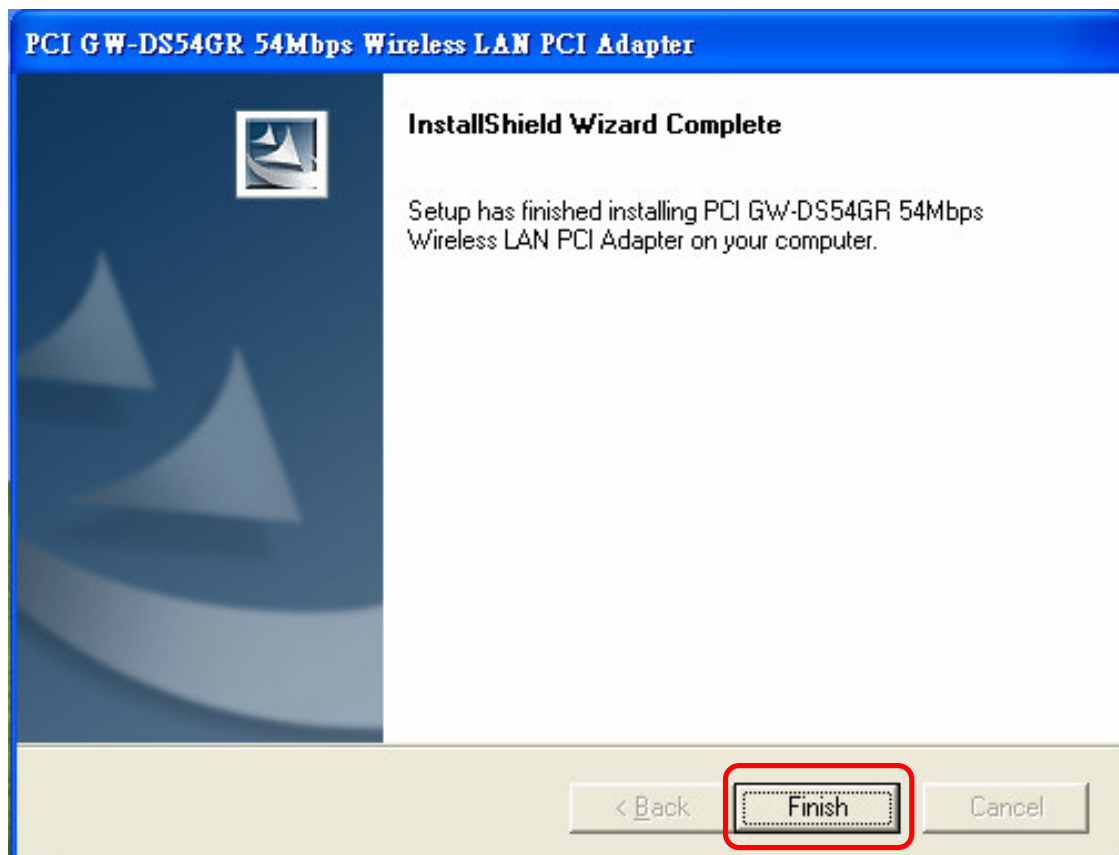
1. Insert the CD-ROM into the drive on your PC.
2. The auto-run program should start automatically. Choose **English** and click **Install Utility** to start the installation. If it does not, run the CD-ROM path: \EN\utility\setup.exe program.
3. When the **InstallShield Wizard** screen appears, click **Next** to continue.



4. Click **Continue Anyway** to continue.



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



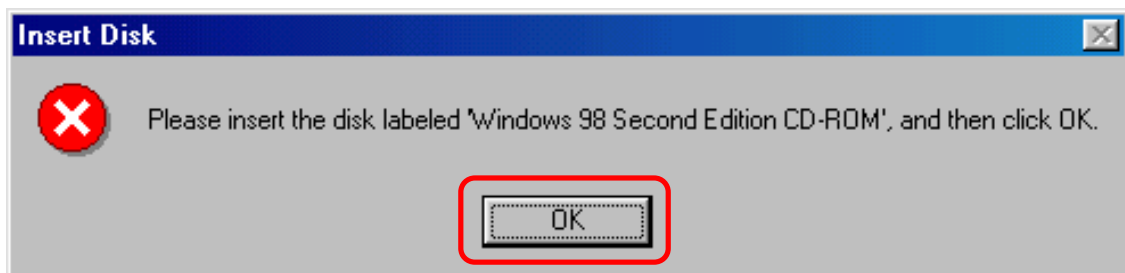
## 3.2 Device Installation

**Note:** Make sure the procedure in **Utility Installation** has been performed.

1. Before installing the device, make sure the computer is turned off. Remove the expansion slot cover from the computer.
2. Carefully slide the GW-DS54GR into the PCI slot of your computer. Push evenly and slowly and ensure it is properly seated. You may have to use the mounting screw to have the card screwed securely in place.
3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking.

### 3.2.1 Notes for Windows 98SE/ME users

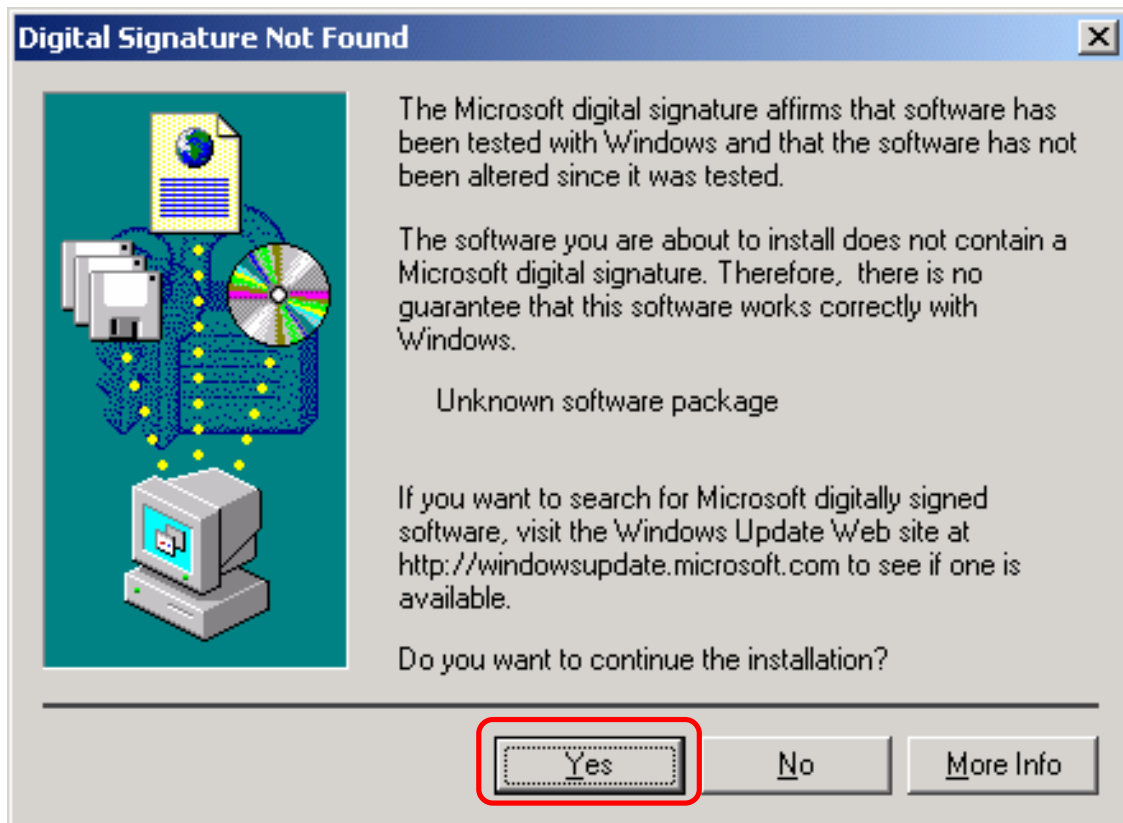
Please make sure you have the operating system CD-ROM ready before installation of the device. You may be asked to insert the CD-ROM in order to locate the specific drivers.



### 3.2.2 Notes for Windows 2000 users

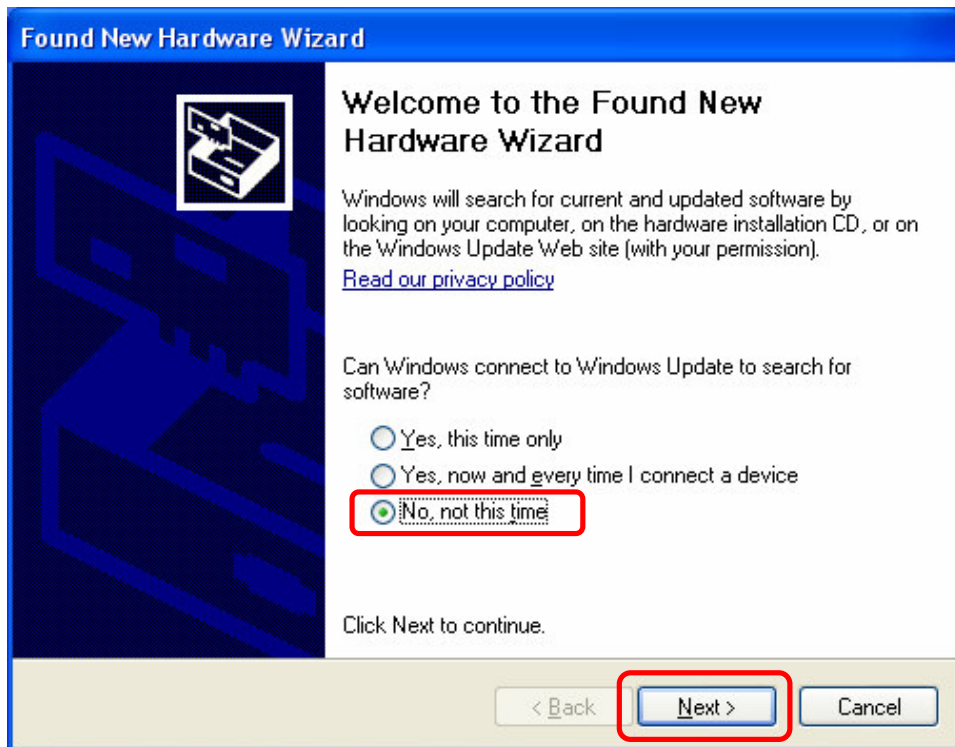
During the installation, when the **Digital Signature Not Found** screen appears, click **Yes** to continue.



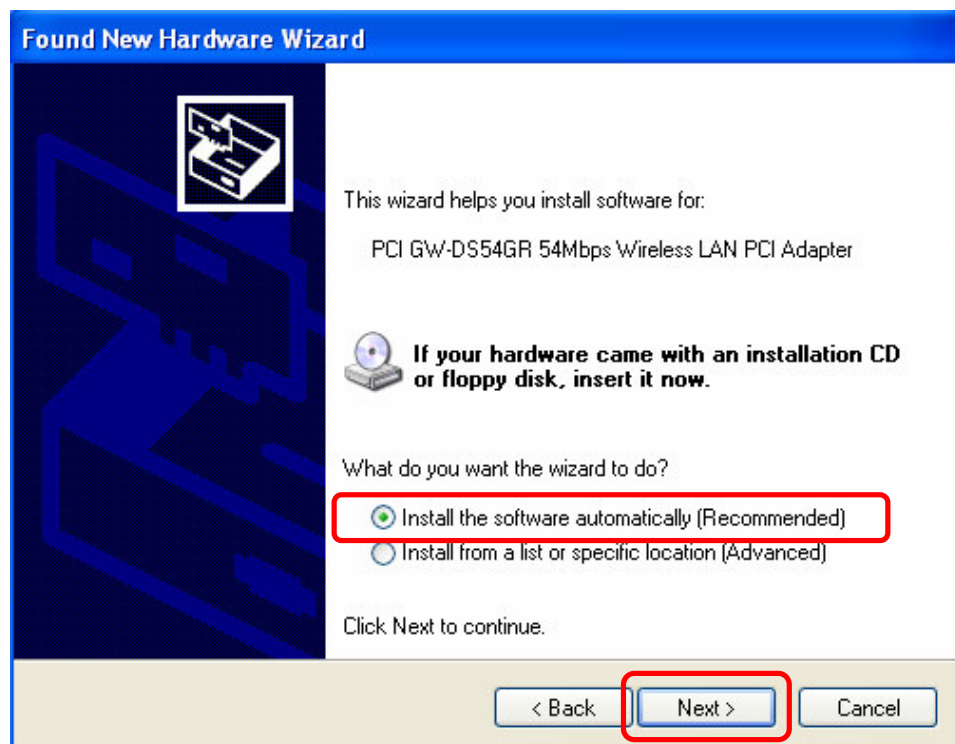


### 3.2.3 Notes for Windows XP users

1. Select **No**, **not this time** and click **Next**.



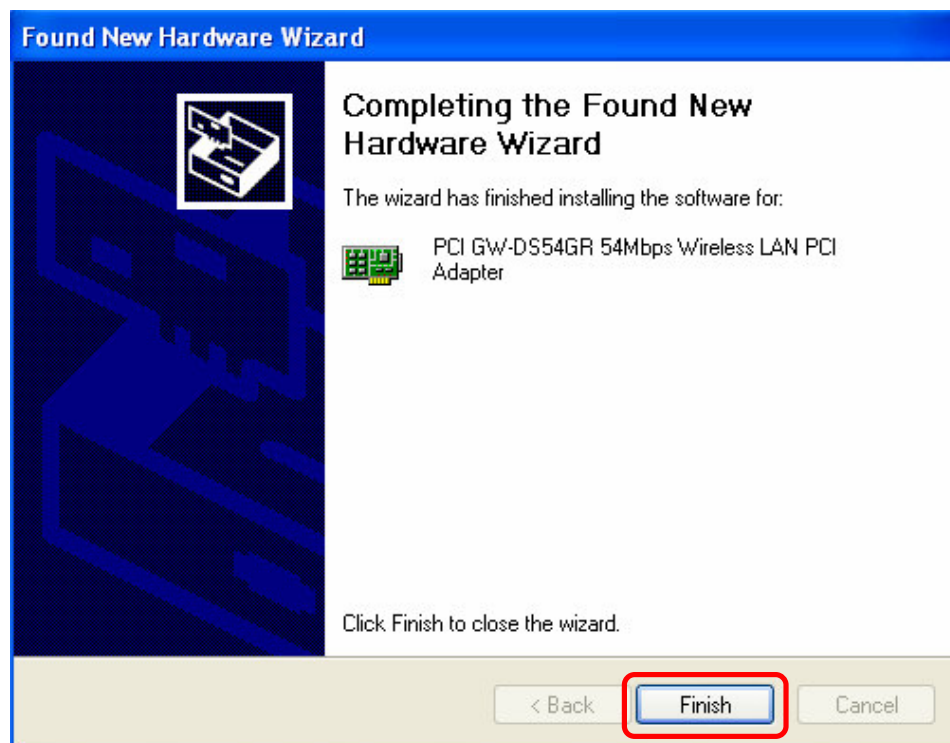
2. Select **Install the software automatically (Recommended)** and click **Next**.



3. Click **Continue Anyway**.

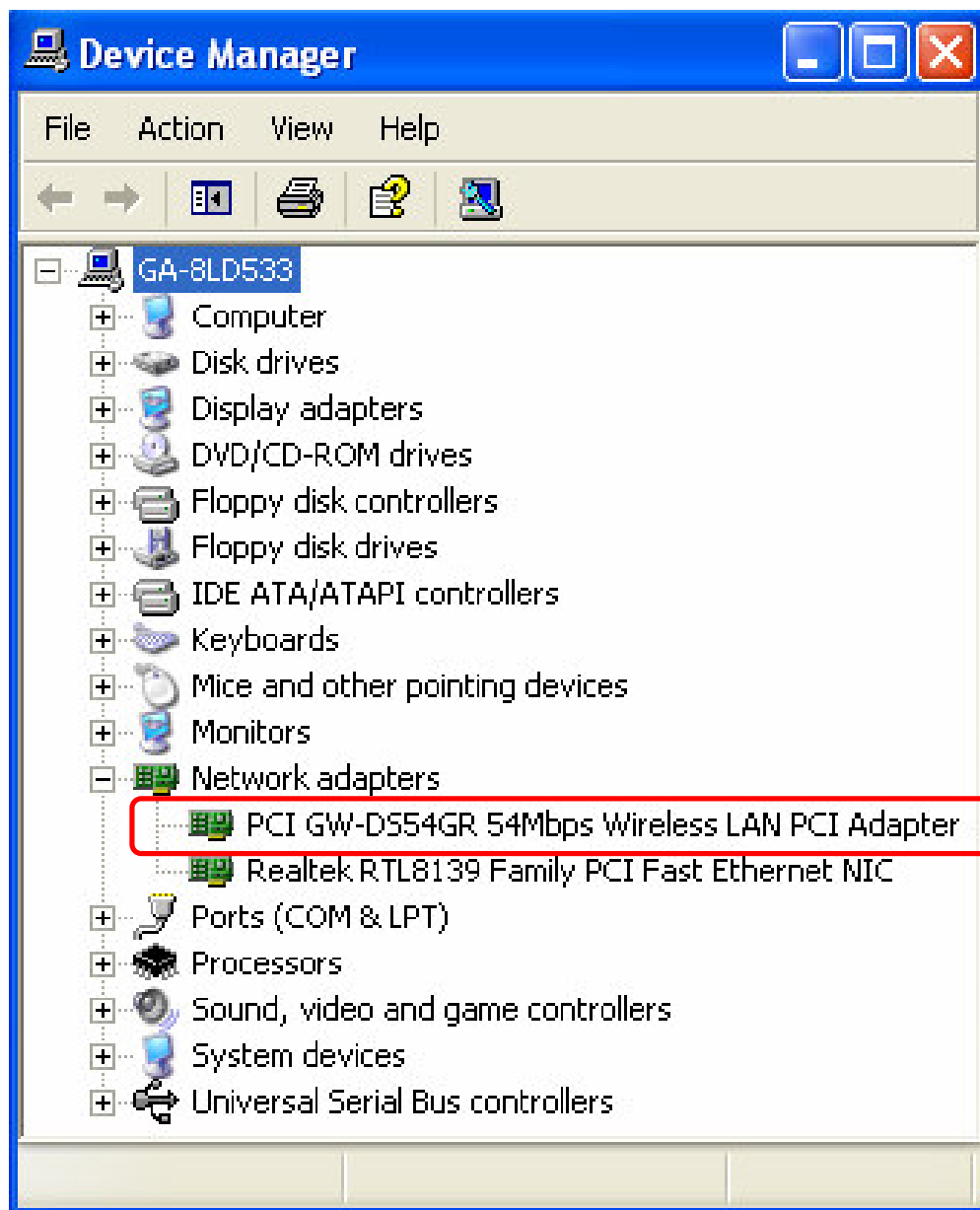


4. Click **Finish** to complete the installation.



### 3.2.4 Device Verification

To verify that the device has been properly installed in your computer and is enabled, go to **Start → Settings → Control Panel → System (Hardware) → Device Manager**. Select the **Network adapters** item. If the **PCI GW-DS54GR 54Mbps Wireless LAN PCI Adapter** is listed, it means that your device is properly installed and enabled successfully.



## Chapter 4 Configuration

After successful installation of the Wireless LAN Card's driver, the utility icon will display in the task bar. You will be able to access the Configuration Utility through the Network Status icon.

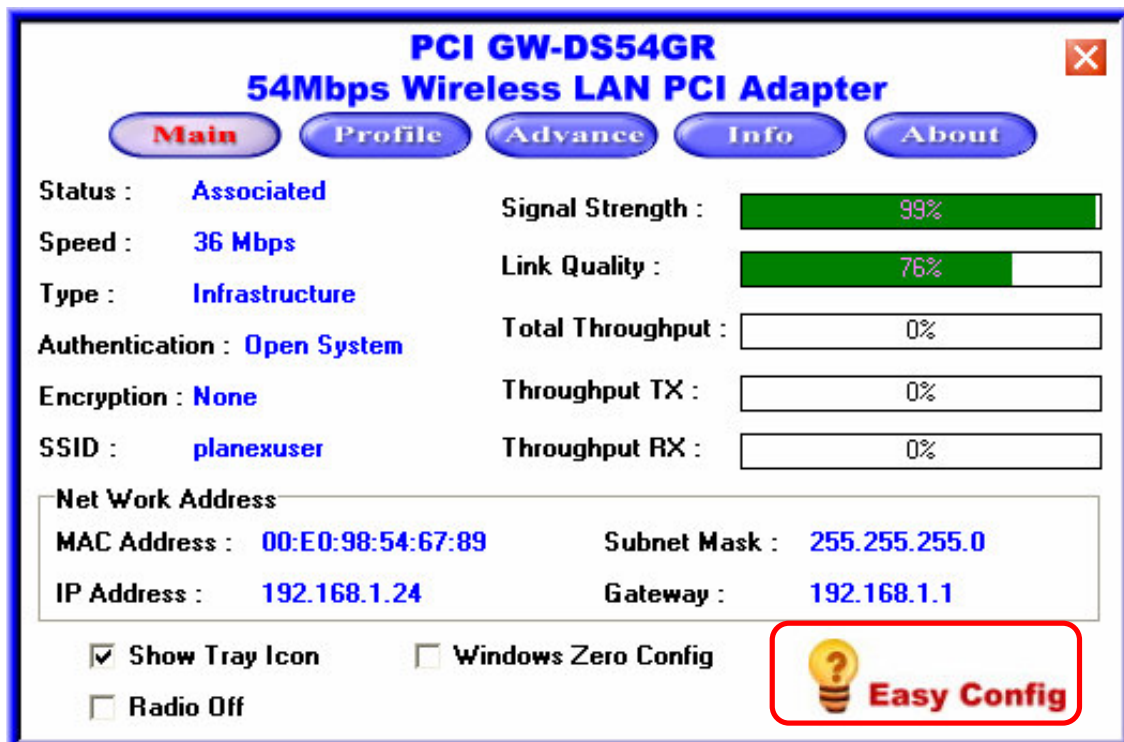


If the icon doesn't appear automatically, go to **Start** → **Programs** → **bRoad Lanner Wave** → **PCI GW-DS54GR Utility**, it will appear in the task bar.



## 4.1 Easy Config

1. In the **Main** tab, click **Easy Config** on the right down corner to start quick configuration.



2. Select the wireless connection type, either **Infrastructure** or **Ad-Hoc**. Click **Next** to continue.

## Select Station Type

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**Choice work infrastructure or Ad-Hoc Mode**

☒ **Infrastructure :**  
Connect a wireless network through the AP.

☐ **Ad-Hoc :**  
Connect to a wireless station.

**Next** **Cancel**

3. Select a wireless station on the list, and click **Next** to configure its settings.

## Select Access Point Network To Connect

---

**Click on item to select**

Select Network

SSID	Chan...	Encry...	Netw...	Signal
⦿	8	Disabl...	Unkn...	36%
⦿ A4	4	WEP	Unkn...	12%
⦿ CSD	6	WEP	Unkn...	78%
⦿ Guest-s	4	Disabl...	Unkn...	32%

**Refresh**

**Back** **Next** **Cancel**

The following screen will appear for you to configure, for detailed configuration, please refer **4.2.2 Profile Manager Tab**.





The image shows a Windows-style dialog box titled "Wireless Network Properties". It contains several sections for configuring a wireless network profile. The "Profile Name" and "Network Name (SSID)" fields are both set to "Guest-s". The "Ad Hoc" section has an unchecked "Ad Hoc" checkbox and a "Channel" dropdown set to "4 (2427MHz)". The "Wireless Network Security" section has "Network Authentication" set to "Open System" and "Data encryption" set to "Disabled". Under "WEP Key Format", the "Mask Key" checkbox is checked. "Key Length" is set to "64 Bits" and "Default Key Index" is set to "1". There are four empty text boxes for "Encryption Key 1" through "Encryption Key 4", and an unchecked "Passphrase" checkbox with an empty text box. The "802.1x configure" section has "EAP TYPE" set to "TLS", and empty text boxes for "Tunnel", "Username", "Identity", and "Password". The "Certificate" checkbox is unchecked with an empty text box. At the bottom are "OK" and "Cancel" buttons.

Wireless Network Properties	
Profile Name :	Guest-s
Network Name (SSID) :	Guest-s
Ad Hoc	
<input type="checkbox"/> Ad Hoc	Channel : 4 (2427MHz)
Wireless Network Security	
Network Authentication :	Open System
Data encryption :	Disabled
WEP Key Format :	<input type="checkbox"/> ASCII <input type="checkbox"/> Hex <input checked="" type="checkbox"/> Mask Key
Key Length :	64 Bits
Default Key Index :	1
Encryption Key 1 :	
Encryption Key 2 :	
Encryption Key 3 :	
Encryption Key 4 :	
<input type="checkbox"/> Passphrase :	
802.1x configure	
EAP TYPE :	TLS
Tunnel :	
Username :	
Identity :	
Password :	
Certificate :	<input type="checkbox"/>
OK Cancel	

4. Configure the network TCP/IP, you may select **DHCP** to obtain an IP address automatically or select **Manual** to set an IP address. Click **Next** to continue.



**Setup TCP/IP**

**Choice DHCP or Manual obtains IP**

**TCP/IP**

☒ **DHCP** ☐ **Manual**

**IP :** [ ] . [ ] . [ ] . [ ]

**Mask :** [ ] . [ ] . [ ] . [ ]

**GateWay :** [ ] . [ ] . [ ] . [ ]

**Back** **Next** **Cancel**

5. Select **DNS Auto** to obtain DNS automatically or select **Manual** to set the primary and secondary DNS. Click **Finish** to complete the **Easy Config** procedure.

**Setup DNS**

**Choice DNS Auto or DNS Manual**

**DNS**

☒ **DNS Auto** ☐ **Manual**

**Primy :** [ ] . [ ] . [ ] . [ ]

**Sec :** [ ] . [ ] . [ ] . [ ]

**Back** **Finish**

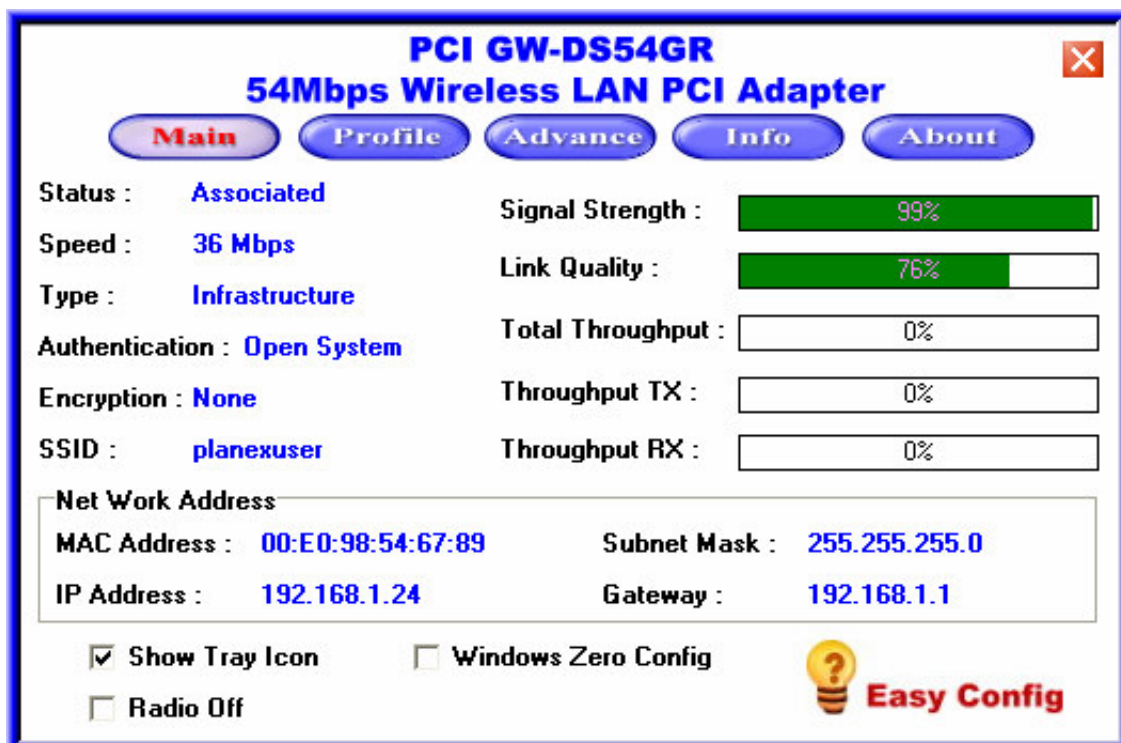
## 4.2 Accessing the Configuration Utility

All settings are categorized into 5 Tabs:

- Main Tab
- Profile Manager Tab
- Advanced Tab
- Info Tab
- About Tab

#### 4.2.1 Main Tab

The main tab enables you to scan for available networks, select a network to which to connect, modify the settings for the current connection, or set up your station for Ad Hoc connection.



- **Status-** Shows the current connection status.
- **Speed-** Shows the connection speed.
- **Type-** Shows the wireless connection type.
- **Authentication-** Shows the authentication type.
- **Encryption-** Shows the encryption type.
- **SSID-** The SSID is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.
- **Signal Strength-** The signal strength from the network Access Point or

station. The strength is displayed in three formats: a signal quality level (one of five levels, from Bad to Best), a numerical value in dBm, and a signal quality bar graph with a scale of -82 to -10.

- **Link Quality-** Shows the link quality percentage.
- **Total Throughput-** Shows the total throughput percentage.
- **Throughput TX-** The actual instantaneous transmitting rates.
- **Throughput RX-** The actual instantaneous receiving rates.
- **Network Address**
  - **MAC Address-** The MAC address of this wireless adapter.
  - **IP Address-** The IP address of this wireless adapter.
  - **Subnet Mask-** The subnet mask of this wireless adapter.
  - **Gateway-** The default gateway address of the adapter.
- **Show Tray icon-** Place a check in the check box to show the utility icon in the tray.
- **Radio Off-** Place a check in the check box to disable the radio function.
- **Windows Zero Config-** External Configuration Checkbox (Windows XP only): A checkbox that enables you to disable the WLAN Station Configuration Utility and indicates that the station driver is to be configured with Windows XP's built-in Zero Configuration Utility (ZCU).

On Windows XP systems, the ZCU service is automatically stopped when the WLAN utility is installed. The ZCU is started when you check the Configure using Windows Zero Configuration checkbox. The checkbox is only displayed on Windows XP systems.

**PCI GW-DS54GR**  
**54Mbps Wireless LAN PCI Adapter**

**Main** Profile Advance Info About

Status : **Not Associated**

Speed :

Type :

Authentication :

Encryption :

SSID :

Signal Strength : 0%

Link Quality : 0%

Total Throughput : 0%


Throughput TX : 0%

Throughput RX : 0%

**Net Work Address**

MAC Address : **00:E0:98:54:67:89** Subnet Mask : **0.0.0.0**

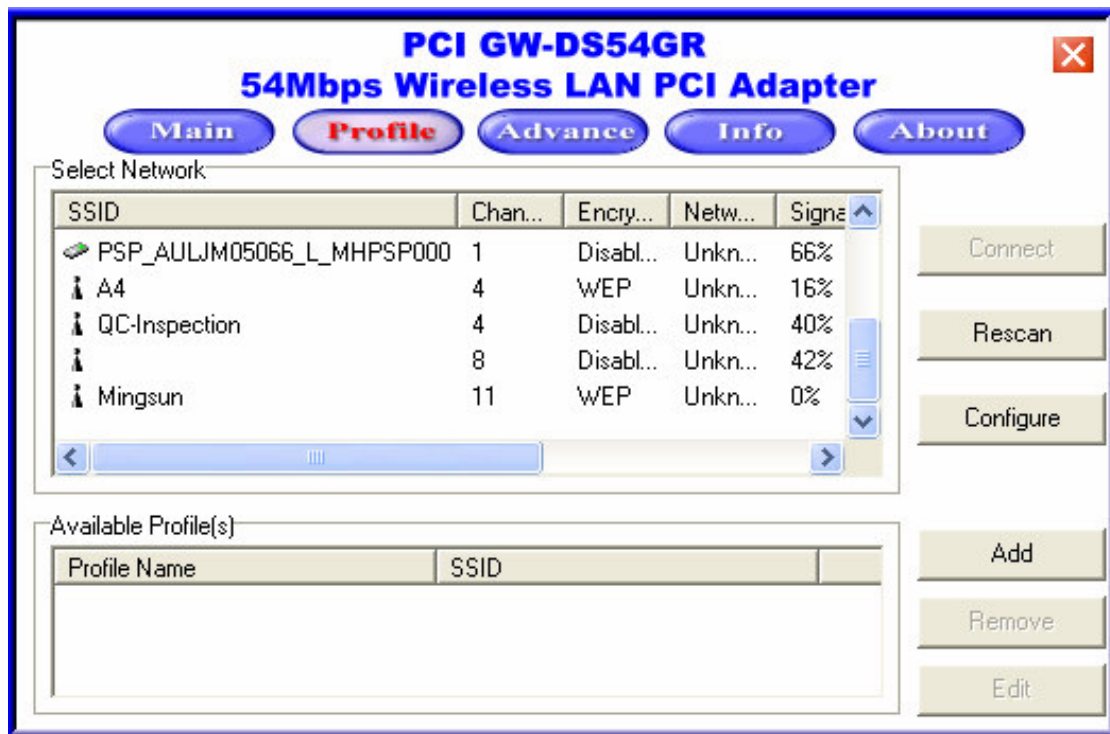
IP Address : **0.0.0.0** Gateway :

☒ Show Tray Icon ☒ **Windows Zero Config**  **Easy Config**

☐ Radio Off

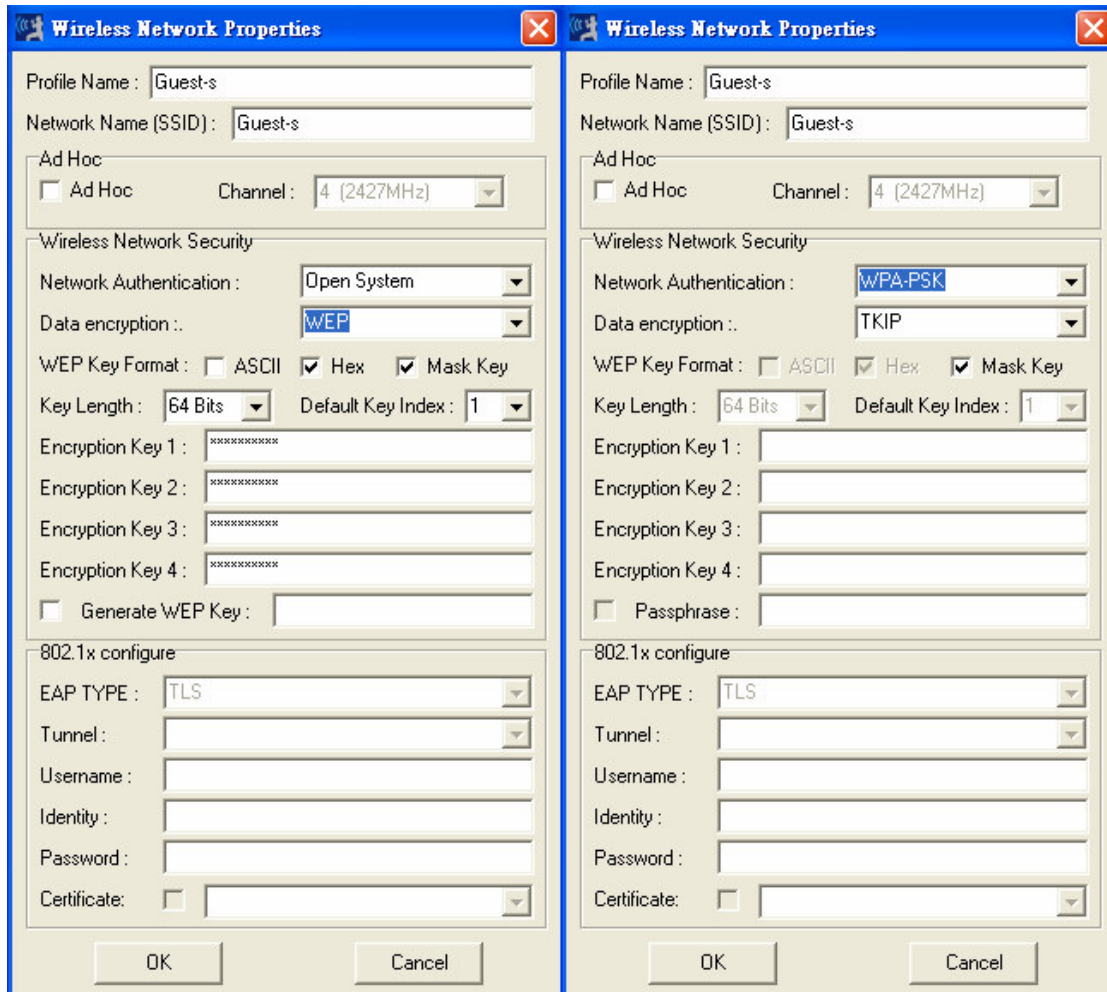
#### 4.2.2 Profile Manager Tab

The Profile Manager enables you to create, modify and delete the profiles that the station uses to connect to WLAN networks, to activate and de-activate profiles, and to raise and lower a profiles' priority.



- **Connect-** Select a wireless device that you want to connect with and click **Connect** to make a connection. The wireless device you have connected will be added into the **Available Profile(s)** field below.
- **Rescan-** Click **Rescan** to refresh the wireless device list.
- **Configure-** Click **Configure** to set up the detailed configuration.
- **Add-** Click **Add** to add a wireless device into the **Available Profile(s)** field below.
- **Remove-** Select a wireless device that listed in the **Available Profile(s)** field and then click **Remove** to delete it.
- **Edit-** Select a wireless device in the **Available Profile(s)** field and then click **Edit** to change its configuration.

The following configuration screen will appear if you just click **Connect**, **Configure** or **Add** buttons.



**Note:**

1.) **WEP :**

If **WEP** is selected, you can either input Encryption Key #1~4 or check the **Generate WEP Key** and enter a WEP, the system will automatically generate.

2.) **WPA-PSK/WPA2-PSK :**

If **WPA-PSK/WPA2-PSK** is selected, enter the **Passphrase** in the column.

➤ **Profile Name-** You may enter the preferred profile name in this column.

➤ **Network Name (SSID)-** The SSID for the current profile.

➤ **Ad Hoc-**

- **Ad Hoc-** Place a check in the check box to enable the Ad Hoc function. This mode allows wireless-equipped computers to communicate directly with each other. No access point is used.

**Note : Infrastructure-** The infrastructure allows wireless and wired networks to communicate through an access point.

- **Channel-** Select the channel (Channel 1-11) from the pull-down list.
- **Wireless Network Security-**
  - **Network Authentication-** The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. Select the Network Authentication from the pull-down list.
    - (1) **Open system** : If the Access Point is using **Open System** authentication, then the wireless adapter will need to be set to the same authentication type.
    - (2) **Shared Key** : Shared Key is when both the sender and the recipient share a secret key.
    - (3) **WPA-PSK/WPA2-PSK** : In the **Passphrase** field, enter the key (8~63 characters, case sensitive) that you are sharing with the network for the WLAN connection. By default, the key that you type is masked with asterisks \*. To view the key that you entered, check **Mask Key**.
    - (4) **WPA /WPA2** : Require setting up a RADIUS sever for authentication, RADIUS server manager will assign the username and password.  
(This function only support Windows 2000/XP)
  - **Data encryption-** Select the data encryption from the pull-down menu, either TKIP or AES.
  - **WEP Key Format-**
    - (1) **ASCII** : ASCII (American Standard Code for Information Interchange), the standard for assigning numerical values to the set of letters in the Roman alphabet and typographic characters.
    - (2) **HEX** : HEX (Hexadecimal): numbers from 0 to 9 and letters from A to F.
    - (3) **Mask Key** : Place a check in the check box to enable the Unmask Key function, this function is for concealing the WEP key.
  - **Passphrase-** Instead of manually entering WEP keys, you can enter a Passphrase, so that a WEP key is automatically generated. It is case-sensitive and should not be longer than 16 alphanumeric characters. This Passphrase must match the Passphrase of your wireless network.
  - **Key Length-** Select the key length from the pull-down menu, either 64Bit or 128 Bit. If you are using 64-bit WEP encryption, then the key must consist of exactly ten hexadecimal characters. If you are using 128-bit WEP encryption, then the key must consist of exactly 26 hexadecimal characters. Valid hexadecimal characters are 0 to 9 and A to F.
  - **Default Key Index-** Select the default key index from the pull-down menu.
  - **Encryption Key 1~4-** To configure your WEP settings, you can specify up to 4 different keys to decrypt wireless data. **WEP (Wired Equivalent Privacy)** encryption can be used to ensure the security of your wireless

network. Select one **Key** and **Key Size** then fill in the appropriate value/phrase in **Encryption** field.

**Note:** (1) You must use the same **Key** and **Encryption** settings for the both sides of the wireless network to connect.

(2) A key of **10** hexadecimal characters (0-9, A-F) is required if a **64-bit Key Length** was selected; A key of **26** hexadecimal characters (0-9, A-F) is required if a **128-bit Key Length** was selected.

➤ **802.11x configure-**

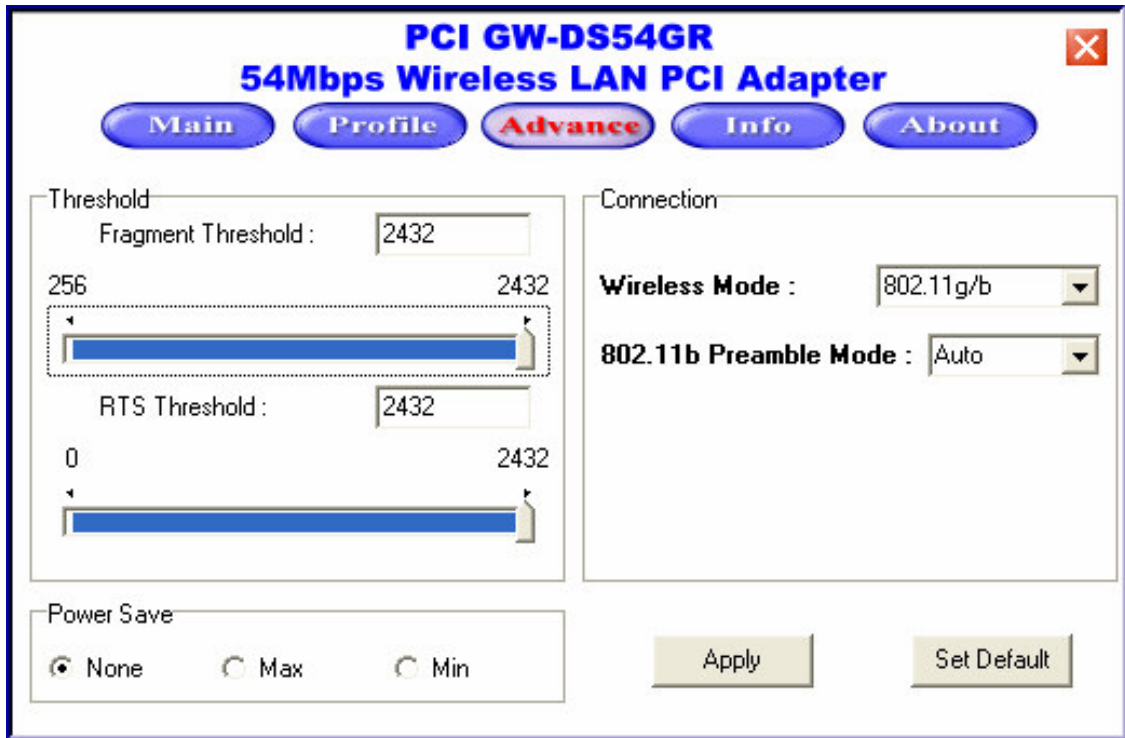
- **EAP TYPE-** Select the EAP TYPE from the pull-down list. Including TLS, TTLS and PEAP.
- **Tunnel-** Select the tunnel from the pull-down menu.
- **Username-** Type in the user name assigned to the certificate.
- **Identity-** Enter the identity in this column.
- **Password-** This panel enables you to enter a login name and password or request that the driver prompt for them when you connect to a network.
- **Certificate-** Please query your network manager about the certificate, select the same certificate as the certification server.

➤ **OK-** Click **OK** to save the configuration.

➤ **Cancel-** Click **Cancel** to exit the configuration screen.

#### 4.2.3 Advanced Tab

The **Advanced** tab displays the current status of the Wireless PCI Card.



➤ **Threshold-**

- **Fragment Threshold-** The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is **2346**.
- **RTS Threshold-** RTS/CTS Threshold is a mechanism implemented to prevent the **Hidden Node** problem. If the Hidden Node problem is an issue, users have to specify the packet size. The RTS/CTS mechanism will be activated if the data size exceeds the value you set. The default value is **2347**.

This value should remain at its default setting of **2347**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.

➤ **Power Save-**

- **None** : Select **None** will disable the power save function.
- **Min** : Select **Min** will adjust the power save function as the minimum value.
- **Max** : Select **Max** will adjust the power save function as the maximum value.

➤ **Connection-**



- **Wireless Mode** : Select **802.11b** or **802.11g/b** from the pull-down menu.
  - **802.11b Preamble mode (Auto, Long or Short)** : A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. Select from the pull-down menu to change the Preamble type into **Auto**, **Long** or **Short**.
- **Apply**- Click Apply to save current changes.
- **Set Default**- Click Set Default to restore default settings.

#### 4.2.4 Info Tab

The **Info** tab displays information maintained by the driver, such as the number of packet errors and the total number of bytes received or transmitted. The tab also displays information about the current connection, as well as network information about the station. The statistics are for the period starting when you last connected to a network. The statistics are refreshed at least twice a second.

The screenshot shows the configuration window for the PCI GW-DS54GR 54Mbps Wireless LAN PCI Adapter. The 'Info' tab is selected, displaying transmit and receive statistics, card status, and a reset button.

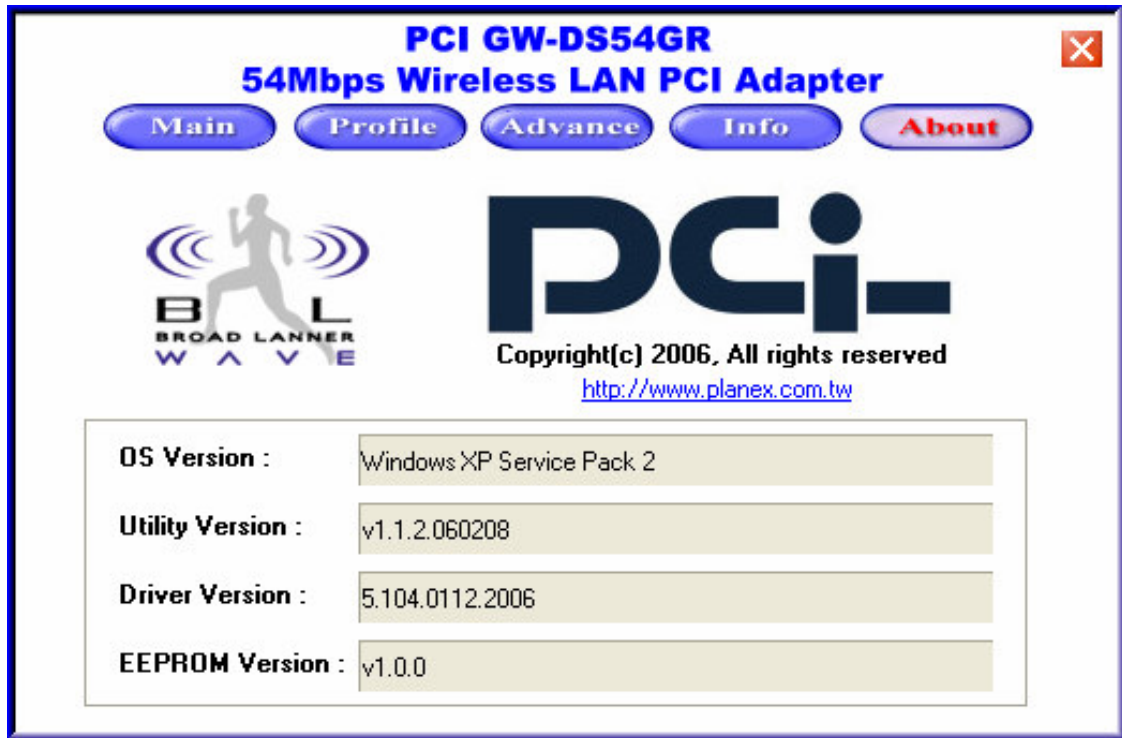
Transmit		Card Status	
TX OK :	4853	Short Radio Header :	YES
TX Error :	3	Encryption :	Disabled
TX Retry :	32	Authenticate :	Open System
TX Beacon OK :	0	Channel Set :	ETSI
TX Beacon Error :	0	MAC Address :	00:E0:98:54:67:89
		Data Rate :	54 Mbps
		Channel (Frequency) :	1 (2412 MHz)
		Status :	Not Associated
		SSID :	
		Network Type :	
		Power Save Mode :	None
		Associated AP MAC :	00:00:00:00:00:00
		Associated AP IP :	
		Up Time (hh:mm:ss) :	0:31:47

**Receive**

RX OK :	103
RX Packet Count :	103
RX Retry :	0
RX CRC Error(0-500) :	229
RX CRC Error(500-1000) :	0
RX CRC Error(>1000) :	0
RX ICV Error :	0

#### 4.2.5 About Tab

Click on the **About** tab to view basic version information about the OS Version, Utility Version, Driver Version, Firmware Version and EEPROM Version.



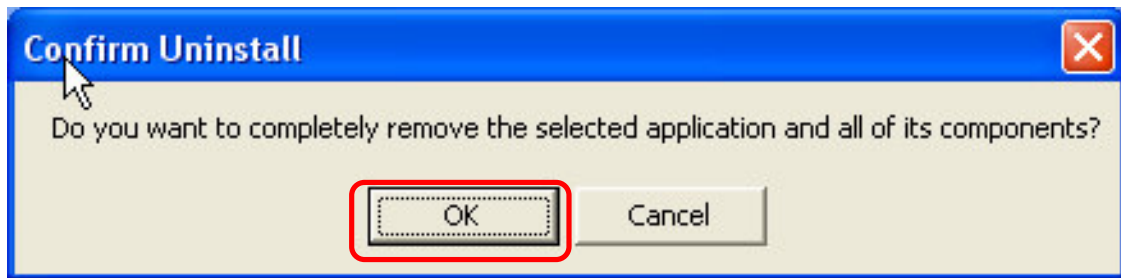
# Chapter 5 Uninstallation

In case you need to uninstall the Utility and driver, please refer to below steps.  
(As you uninstall the utility, the driver will be uninstalled as well.)

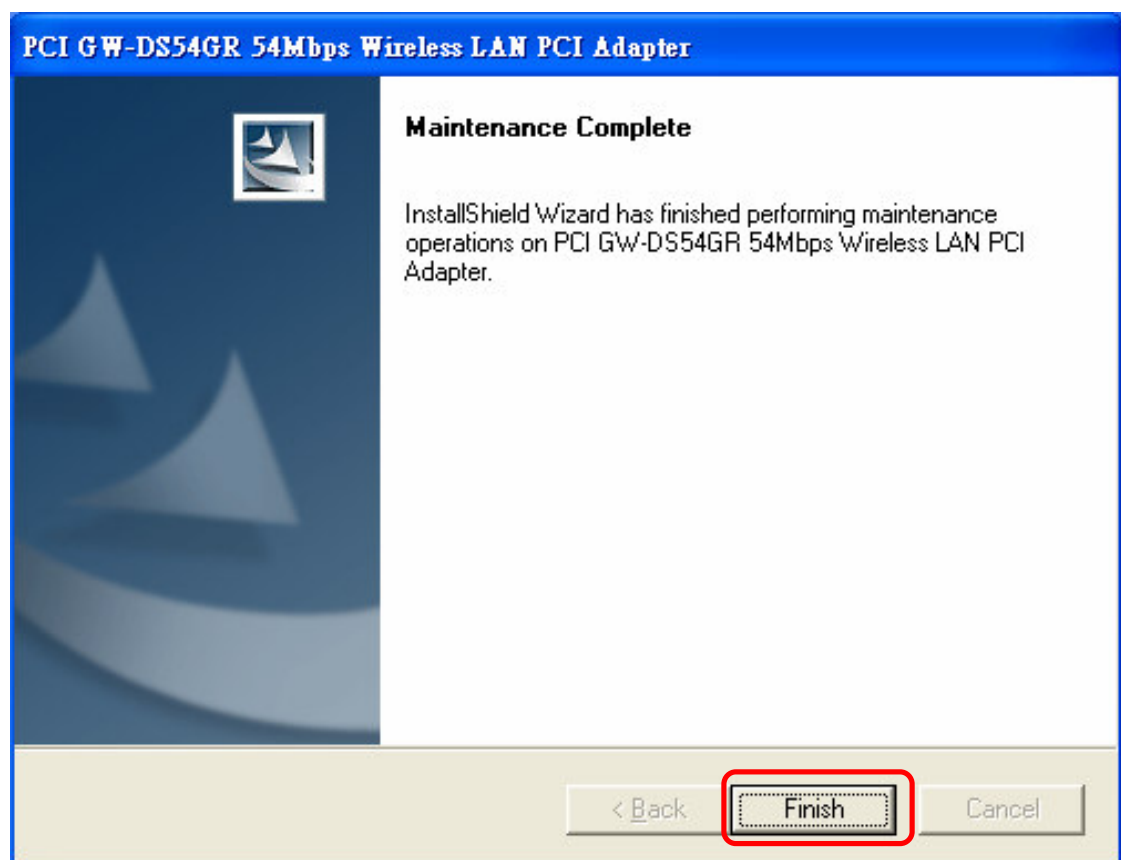
1. Go to **Start**→ **Programs**→ **bRoad Lanner Wave**→ **Uninstall**.



2. Click **OK** to continue.



3. Click **Finish** to complete the uninstalled procedure.



## Chapter 6 Specification

<b>Chipset</b>	RTL8185L
<b>Standard</b>	IEEE 802.11b, IEEE 802.11g Standard
<b>Interface</b>	PCI Interface 2.2
<b>Antenna</b>	Dipole Antenna (RP-SMA 2dBi)
<b>Frequency Range</b>	2.412GHz ~ 2.4835GHz
<b>Number of Channels</b>	<b>USA, Canada:</b> 11 channels <b>Europe:</b> 13 channels <b>Japan:</b> 14 channels
<b>Data Rate</b>	<b>802.11b:</b> 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps <b>802.11g:</b> 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps
<b>Modulation Technique</b>	<b>802.11b:</b> Direct Sequence Spread Spectrum (PBCC, CCK, DQPSK, DBPSK) <b>802.11g:</b> Orthogonal frequency division multiplexing
<b>Operating Voltage</b>	3.3V
<b>Output Power</b>	<b>54Mbps OFDM:</b> 12dBm ~ 14dBm <b>11Mbps CCK:</b> 16dBm ~ 18dBm
<b>Environment Specifications</b>	<b>Operating Temperature:</b> 0 ~ 60°C ambient temperature <b>Storage Temperature:</b> -20 ~ 70°C ambient temperature <b>Operating humidity:</b> 90% maximum (non-condensing) <b>Storage humidity:</b> 90% maximum (non-condensing)
<b>Range</b>	<b>Indoors:</b> up to 100meters <b>Outdoors:</b> up to 400meters
<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
<b>Security</b>	<b>Win 98SE/ME:</b> WEP 64/128 bit, WPA-PSK and WPA2-PSK <b>Win 2000/XP:</b> WEP 64/128 bit WPA-PSK, WPA2-PSK, WPA(TKIP / AES),WPA2(TKIP / AES) encryption
<b>OS</b>	Windows 98 Windows ME Windows 2000 Windows XP
<b>Dimension</b>	135 (L) x 22 (W) x 122 (H) mm
<b>Weight</b>	47g (Antenna not included)
<b>EMI</b>	CE, DGT

# Chapter 7 Safety Statements

## ➤ CE statement

This device has been tested and found to comply with the requirements set up in the council directive on the approximation of the law of member states relating to EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC and R&TTE Directive 99/5/EC.

