GIGABYTE
TECHNOLOGY

GN-WI05GS-RH

MINI-CARD Wireless Adapter

User's Manual

http://www.gigabyte.com.tw

Revised 1.0-1st
Version

Administrative Regulations on Low Power Radio Waves Radiated Devices

Article 14
Without permission granted, the frequency change, transmitting power enhance or alter of original design characteristic as well as function by companies, enterprises, or users for approved Low-power radio frequency devices is not allowed.

Article 17
Low-power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, shall cease operating immediately until no interference is achieved.

Article 20
A company, enterprise, or user importing, manufacturing low-power radio-frequency devices will be punished for violation of regulation hereunder, authorized frequency usage or change and power change in accordance with Telecommunications Act. Furthermore, Directorate General of Telecommunication can cancel its model certificate or recognition label.

Above mentioned Legal Communications is defined as radio communications operation complying to Telecommunications Act.
Low-power radio-frequency devices must susceptible with the interference from legal communications, ISM radio wave radiated devices.

Content

Chapter 1　Product Overview

1-1.Introduction

This 802.11b/g Wireless Local Area Network (WLAN) card is composed of Media Access Controller (MAC), baseband, radio components, USB V2.0 interface, and two external antenna. It operates within the 2.4GHz spectrum, providing high speed (up to 54Mbps) and secure (supporting AES, 802.1x & WEP and WPA) WLAN connections.

1-2.Features

- Conforms to 802.11b/802.11g specification
- Transmits data rate up to the maximum speed of 54 Mbps
- Dynamically scales the data rate.
- External antenna.
- Seamless roaming between WLAN.
- Supports AES (Advance Encryption System), enterprise-class 802.1x security and multiple-levels WEP encryption (64-bit /128-bit/), and WPA (Wi-Fi Protected Access)
- Drivers support Windows 98SE/Me/2000/XP.

1-3.Physical Dimensions/Packaging

Dimensions: 51mm × 30mm × 4mm
Before the installation procedures, please ensure the components are not damaged during the shipping. The components include:

GN-WI05GS WLAN card×1
Installation CD (including User's Manual and driver)×1
User's Manual×1

In case of any missing or damaged accessories, please contact your local distributor or authorized reseller immediately. If you require returning the damaged product, you must pack it in the original packing material or the warranty will be voided.

1-4.LED Indicator

ACT	OFF	ON	ON
LINK	OFF	ON	BLINK
Meaning	Network card is not functioning	Network card is connecting to network	Network card is sending/receiving data.

LED	● ○	○ ●
Condition of the Receiver	ACT	LINK

1-5.System Requirements

1-5-1. Supported Platform:

IBM PC/AT compatible computer

1-5-2. Supported Operation System:

Windows 98SE/Me/2000/XP

Chapter 2 Installing the WLAN Card

The following sections will assist you to install this WLAN card. 2-1: Hardware Installation, 2-2~2-5: Software Installation, which provides users more convenient installation methods and automatically installs drivers and utilities. Please refer to different section (2-2: Windows 98SE, 2-3: Windows ME, 2-4: Windows 2000, and 2-5: Windows XP) for software installation in accordance with your operation system.

2-1. Installing the WLAN Card (Hardware Installation)

Step 1: Power off you PC.

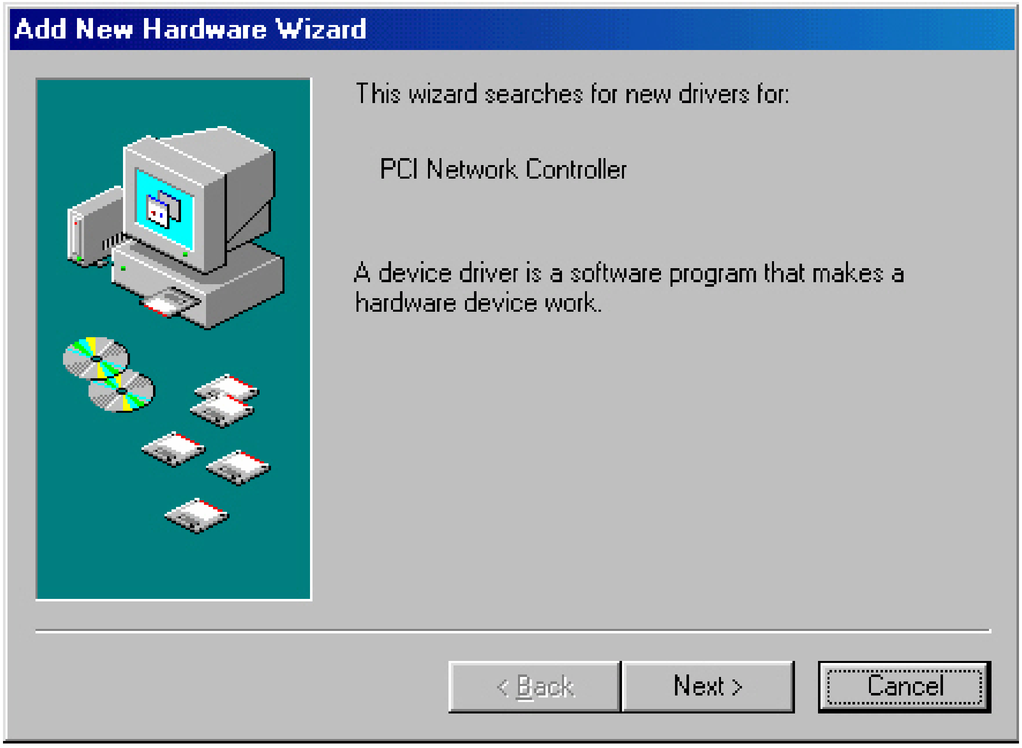
Step 2: Plug the WLAN Card into MINI-CARD slot on the motherboard.

Step 3: Install the antenna on the mount of the WLAN Card.

Step 4: Power on you PC.

2-2. Installing The Driver & Utility (Win 98SE)

Step 1: Click **"Cancel"** for automatic installation.



Add New Hardware Wizard

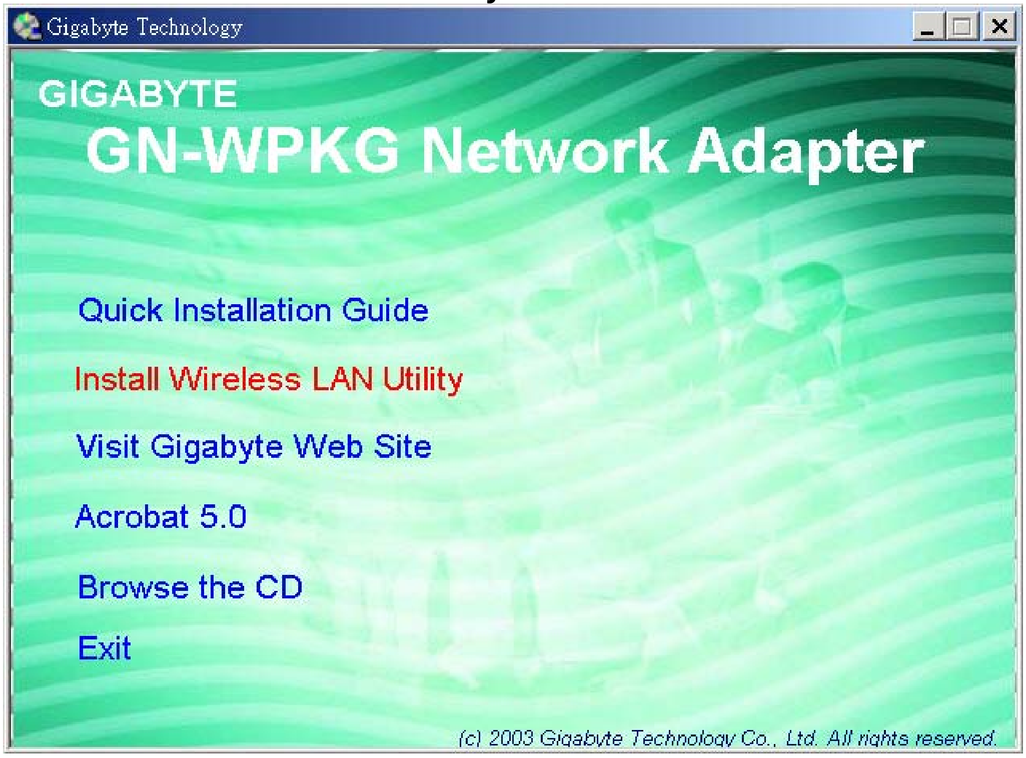
This wizard searches for new drivers for:

PCI Network Controller

A device driver is a software program that makes a hardware device work.

Step 2: Insert the installation CD into the CD-ROM drive. The following window will pop up.

Step 3: Click **"Install Wireless LAN Utility"**.



Gigabyte Technology

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GN-WPKG Network Adapter

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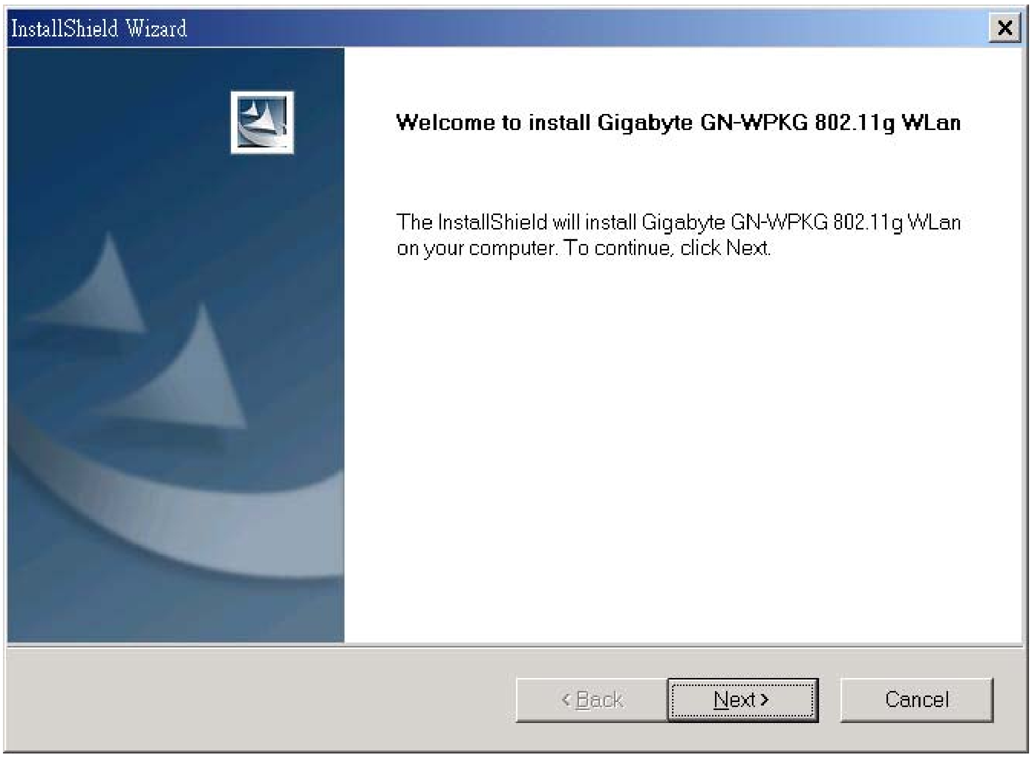
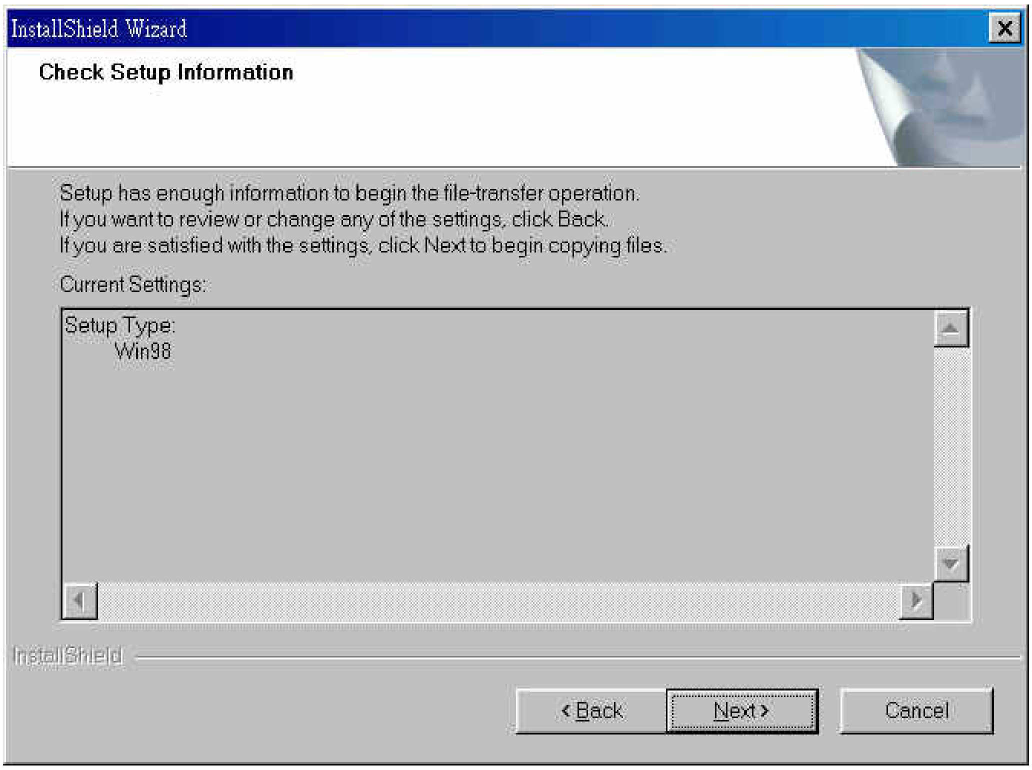
Step 4: Click **"Next"**.



Welcome to install Gigabyte GN-WPKG 802.11g WLan

The InstallShield will install Gigabyte GN-WPKG 802.11g WLan on your computer. To continue, click Next.

Step 5: Click **"Next"**.



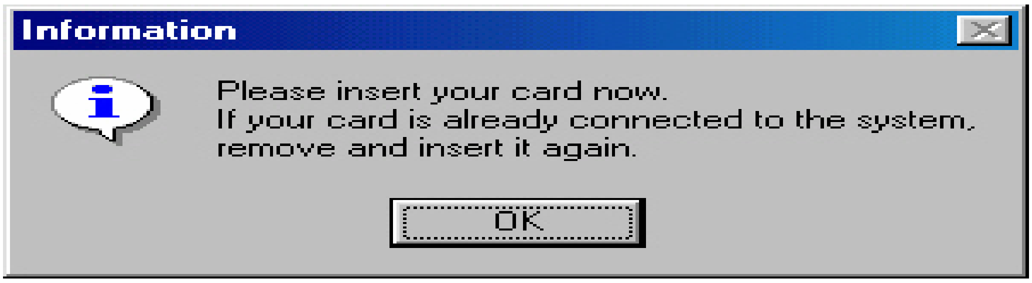
Check Setup Information

Setup has enough information to begin the file-transfer operation.
If you want to review or change any of the settings, click Back.
If you are satisfied with the settings, click Next to begin copying files.

Current Settings:

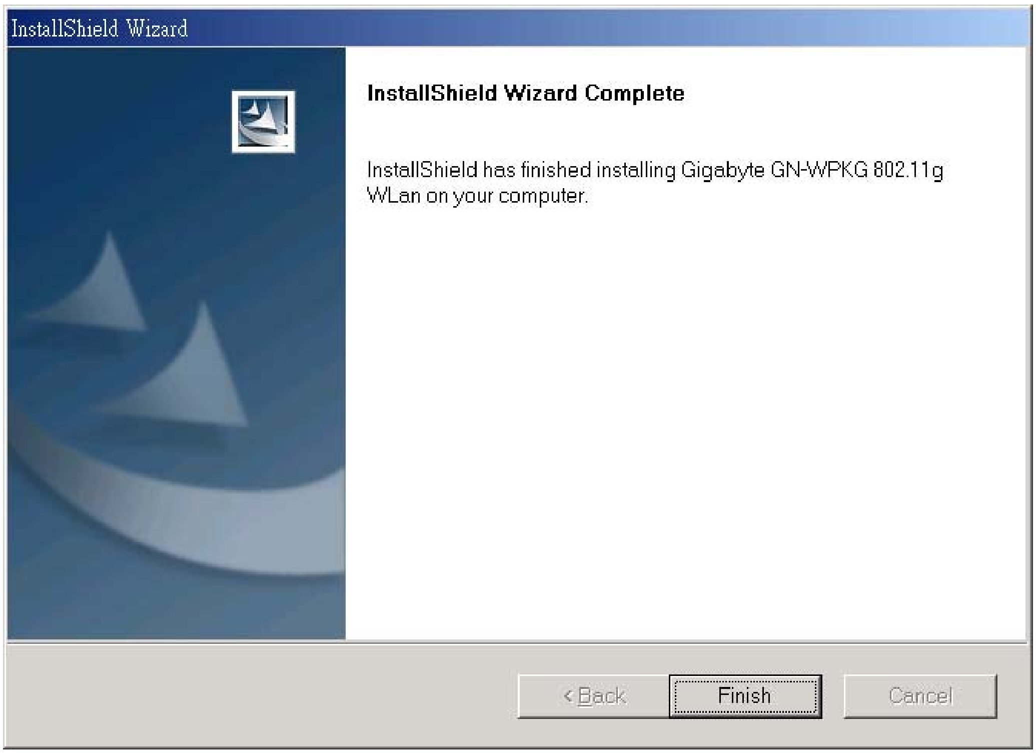
Setup Type:
Win98

Step 6: Click **"OK"**.


Information

Please insert your card now.
If your card is already connected to the system,
remove and insert it again.

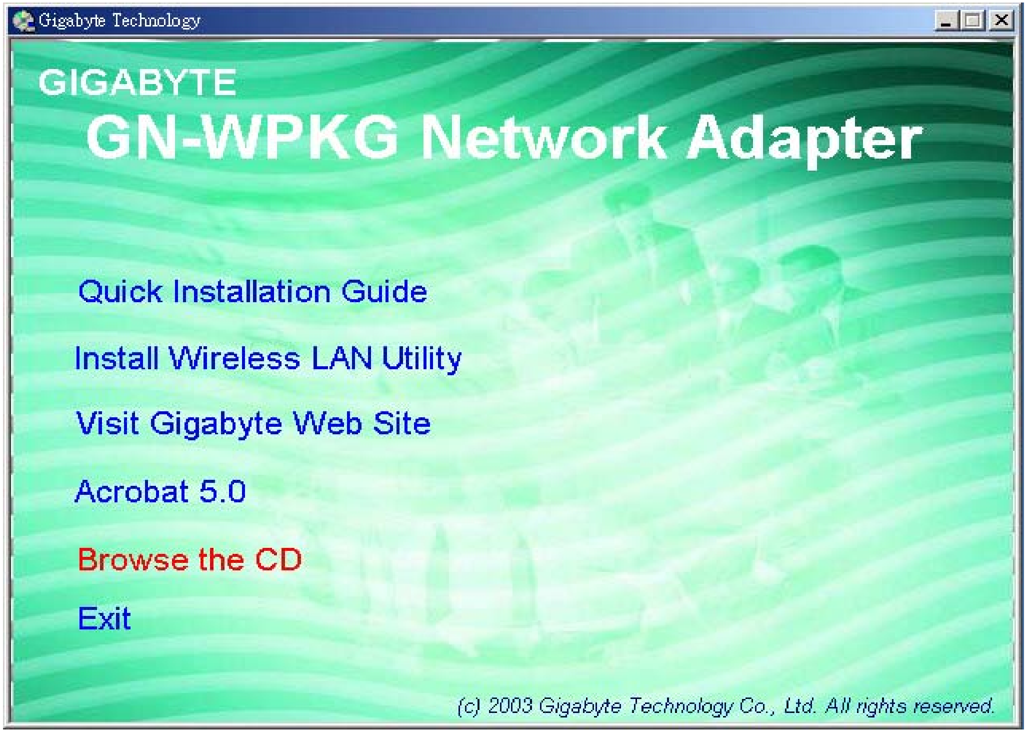
Step 7: Click **"Finish"**.


InstallShield Wizard

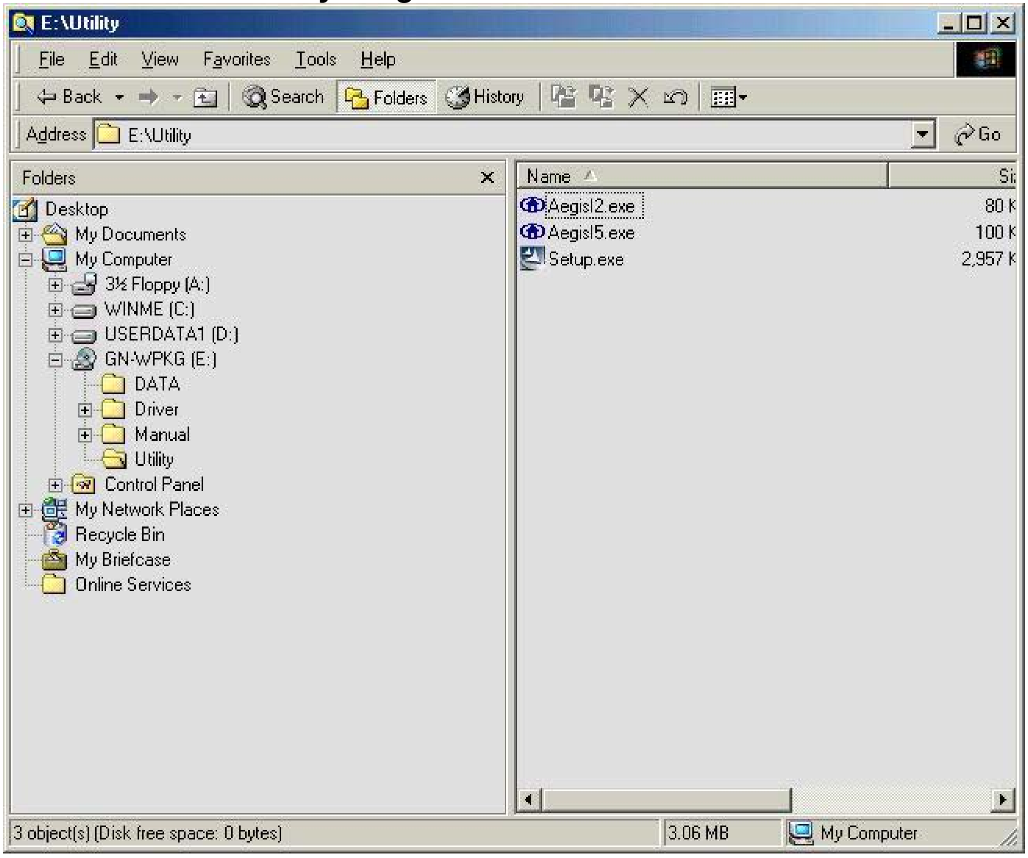
InstallShield Wizard Complete

InstallShield has finished installing Gigabyte GN-WPKG 802.11g WLan on your computer.

Step 8: To install 802.1X authentication function, click **"Browse the CD"**.



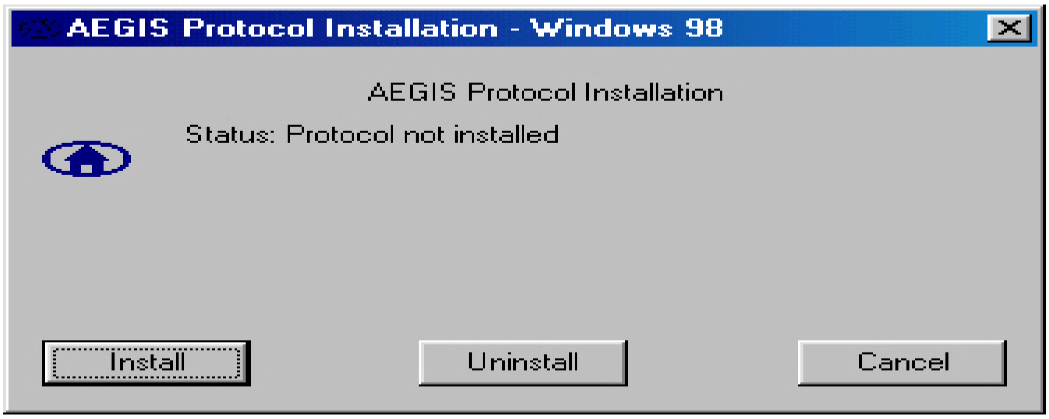
Step 9: Run **"CD-ROM:\\Utility \AegisI2.exe"** of the installation CD.



Name	Si
AegisI2.exe	80 K
AegisI5.exe	100 K
Setup.exe	2,957 K

3 object(s) (Disk free space: 0 bytes) 3.06 MB

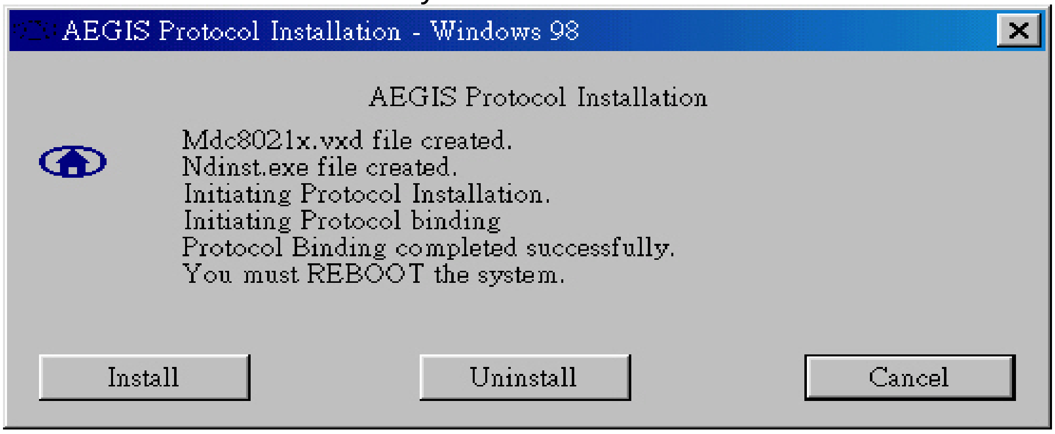
Step 10: Click **"Install"**.


AEGIS Protocol Installation - Windows 98

AEGIS Protocol Installation

Status: Protocol not installed

Step 11: Click **"Cancel"**. Windows may reboot after the installation.

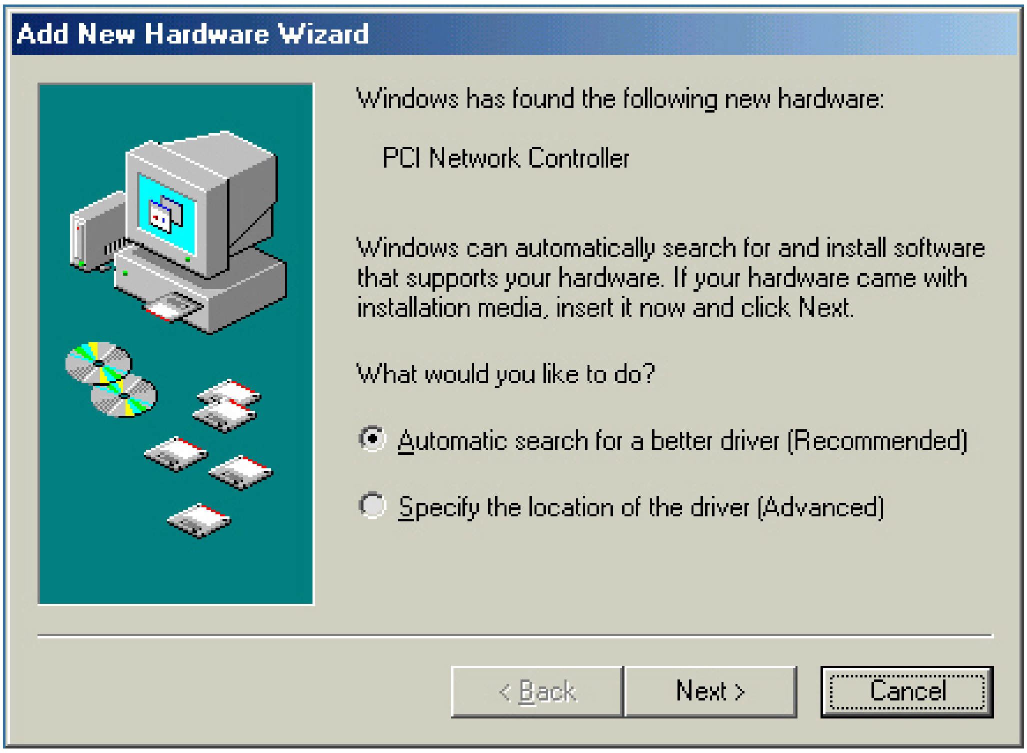

AEGIS Protocol Installation - Windows 98

AEGIS Protocol Installation

Mdc8021x.vxd file created.
Ndinst.exe file created.
Initiating Protocol Installation.
Initiating Protocol binding
Protocol Binding completed successfully.
You must REBOOT the system.

2-3. Installing The Driver & Utility (Win ME)

Step 1: Click **"Cancel"** for automatic installation.



Add New Hardware Wizard

Windows has found the following new hardware:

PCI Network Controller

Windows can automatically search for and install software that supports your hardware. If your hardware came with installation media, insert it now and click Next.

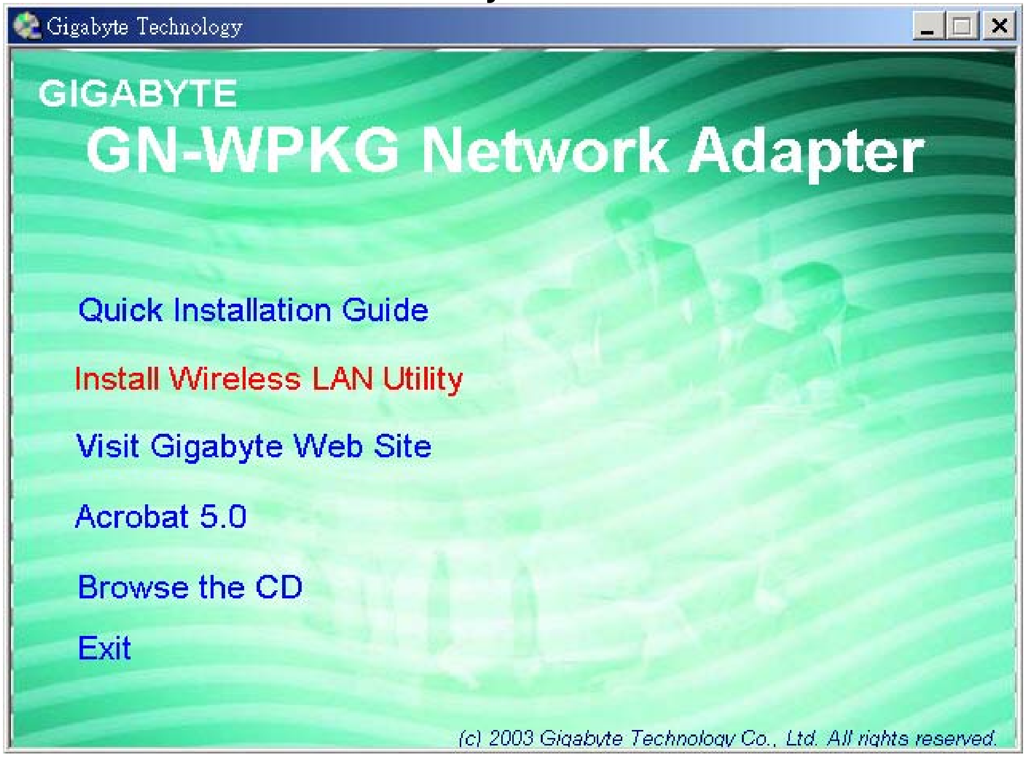
What would you like to do?

● Automatic search for a better driver (Recommended)

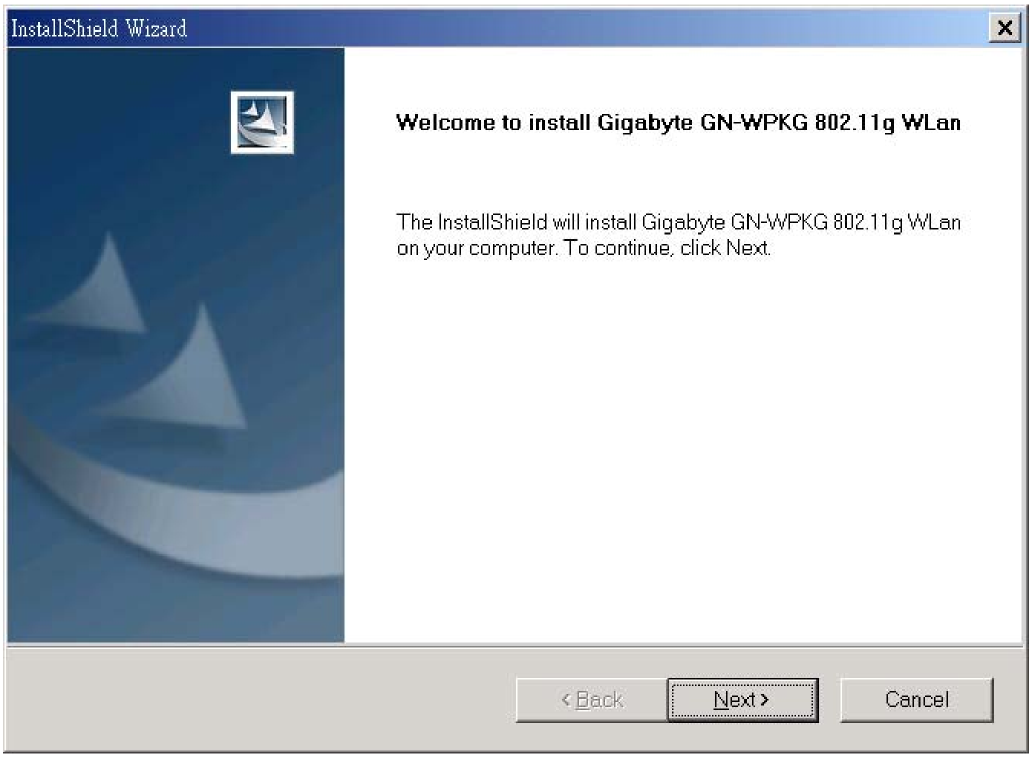
○ Specify the location of the driver (Advanced)

Step 2: Insert the installation CD into the CD-ROM drive. The following window will pop up.

Step 3: Click **"Install Wireless LAN Utility"**.



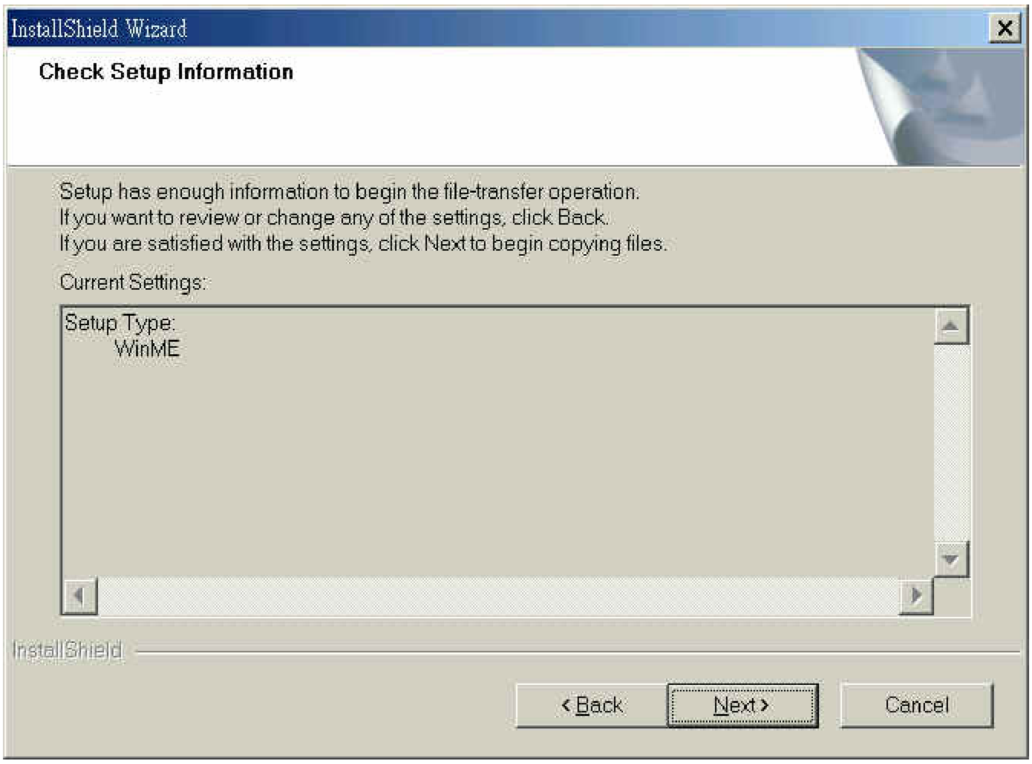
Step 4: Click **"Next"**.



Welcome to install Gigabyte GN-WPKG 802.11g WLan

The InstallShield will install Gigabyte GN-WPKG 802.11g WLan on your computer. To continue, click Next.

Step 5: Click **"Next"**.



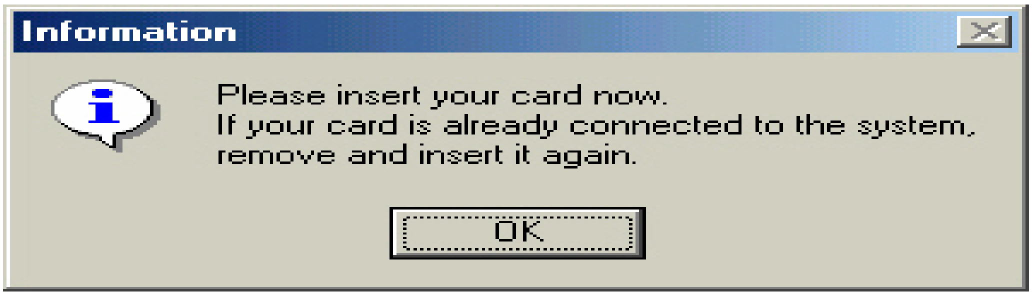
Check Setup Information

Setup has enough information to begin the file-transfer operation.
If you want to review or change any of the settings, click Back.
If you are satisfied with the settings, click Next to begin copying files.

Current Settings:

Setup Type:
WinME

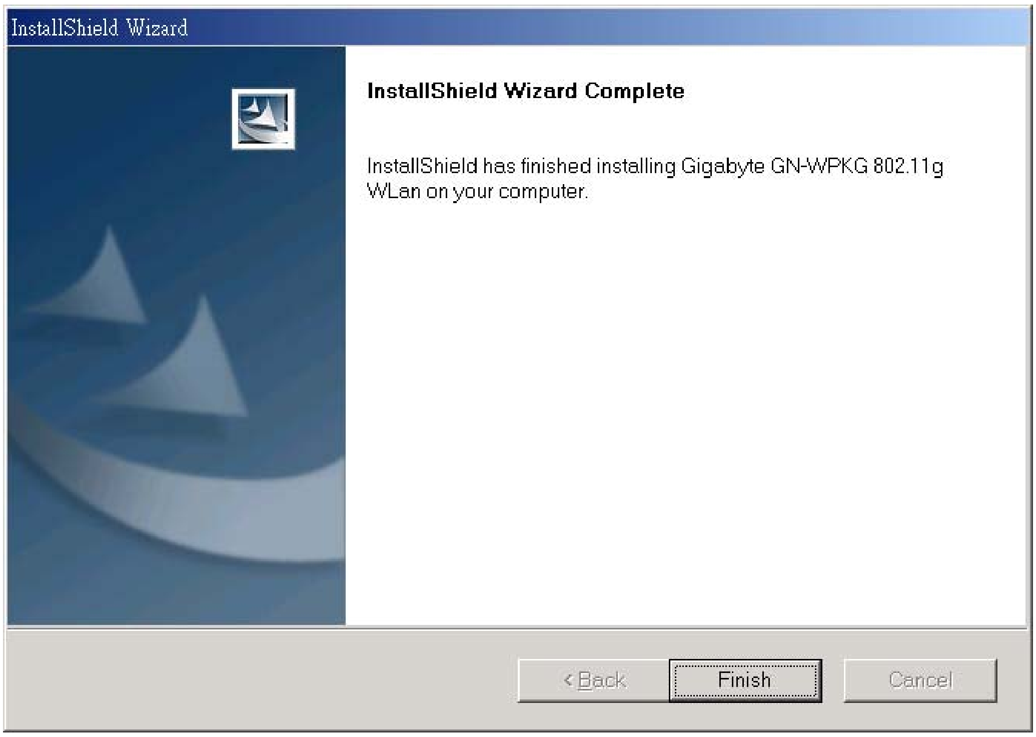
Step 6: Click **"OK"**.



Information

Please insert your card now.
If your card is already connected to the system, remove and insert it again.

Step 7: Click **"Finish"**.

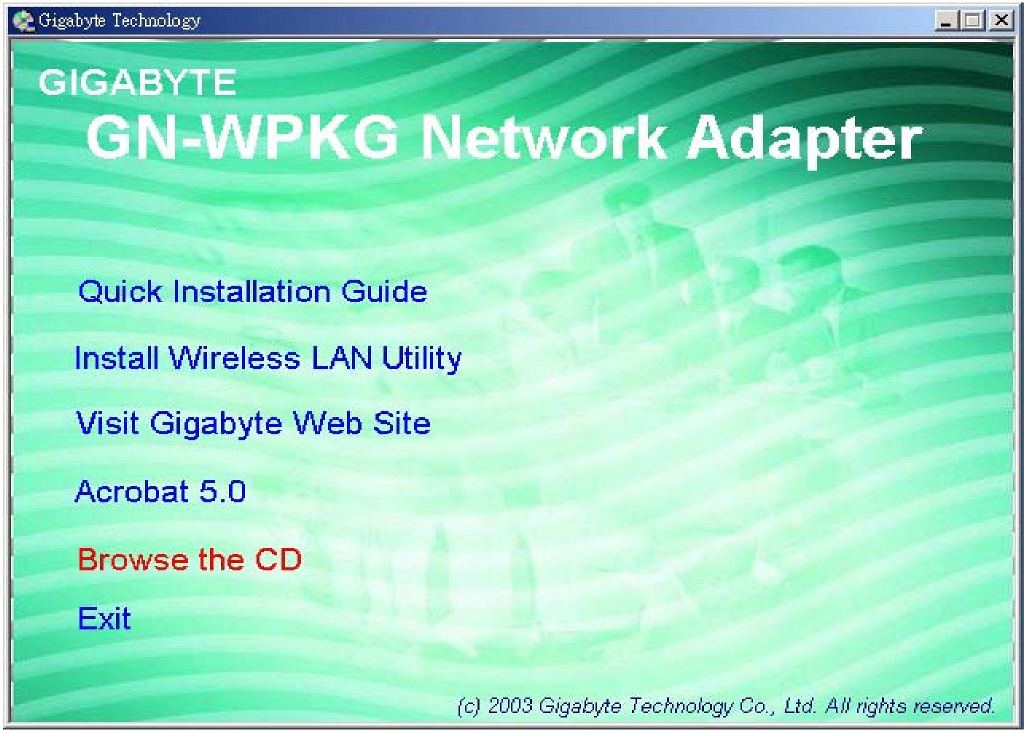


InstallShield Wizard

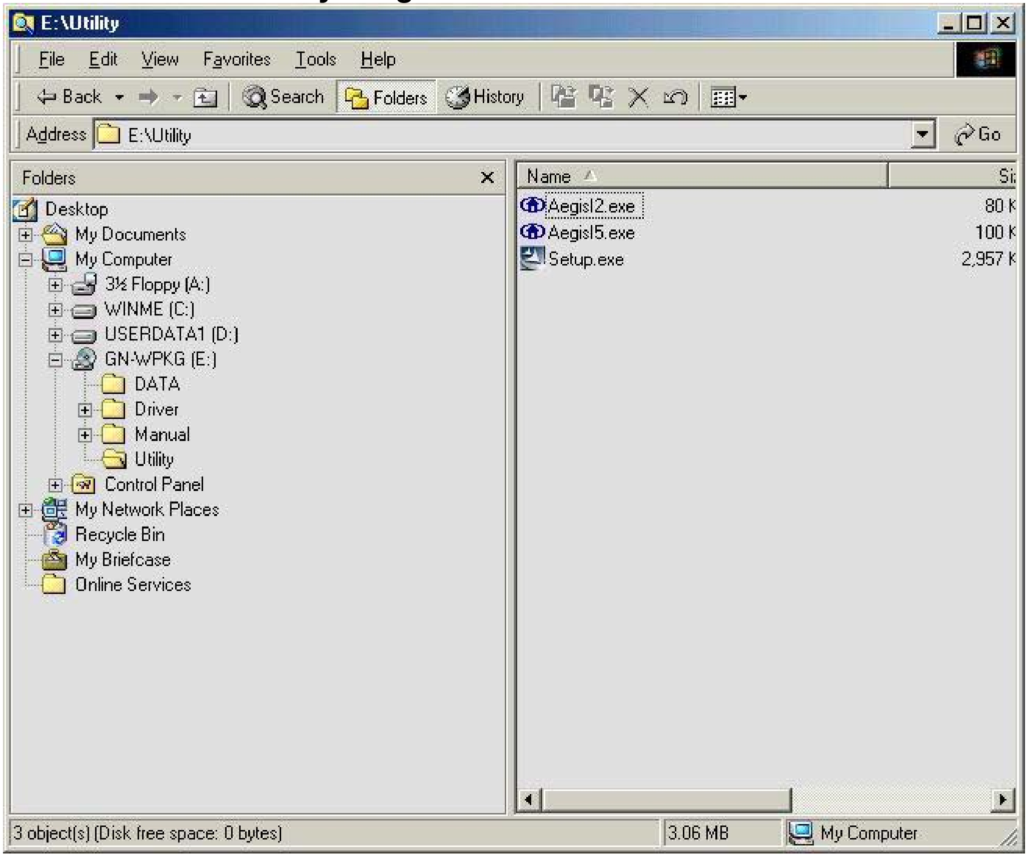
InstallShield Wizard Complete

InstallShield has finished installing Gigabyte GN-WPKG 802.11g WLan on your computer.

Step 8: To install 802.1X authentication function, click **"Browse the CD"**.



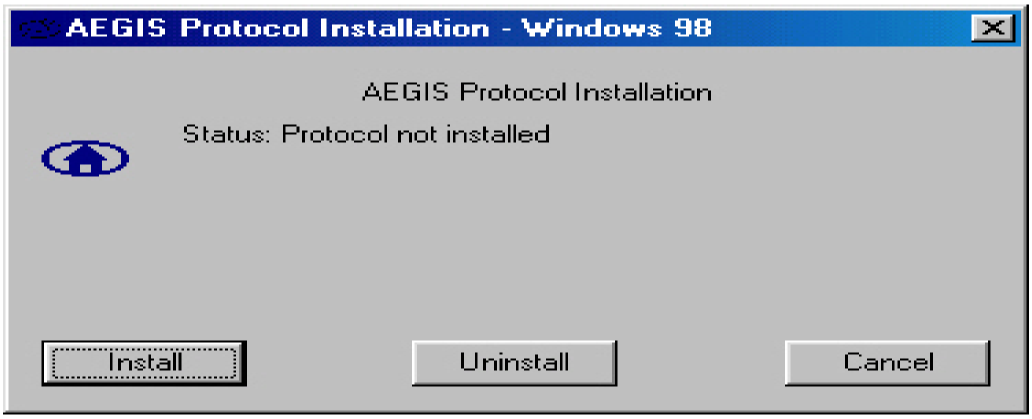
Step 9: Run **"CD-ROM:\\Utility \AegisI2.exe"** of the installation CD.



Name	Si
AegisI2.exe	80 K
AegisI5.exe	100 K
Setup.exe	2,957 K

3 object(s) (Disk free space: 0 bytes) 3.06 MB My Computer

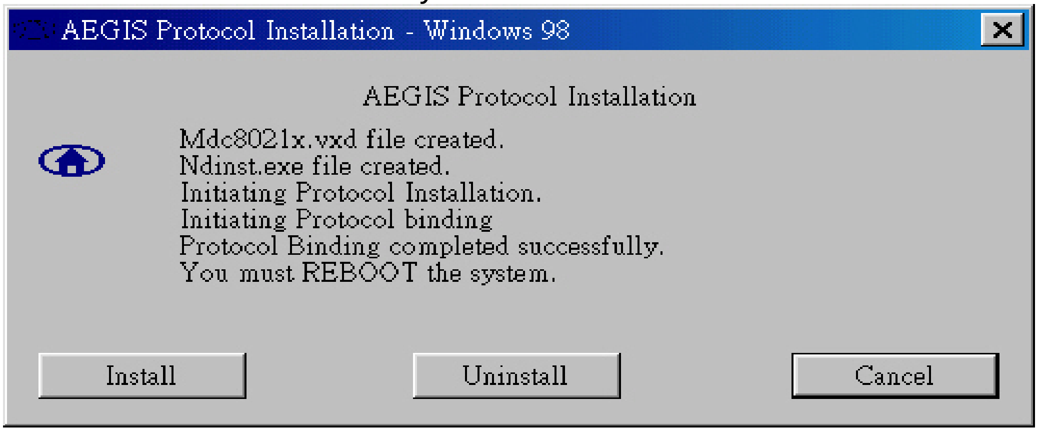
Step 10: Click **"Install"**.


AEGIS Protocol Installation - Windows 98

AEGIS Protocol Installation

Status: Protocol not installed

Step 11: Click **"Cancel"**. Windows may reboot after the installation.

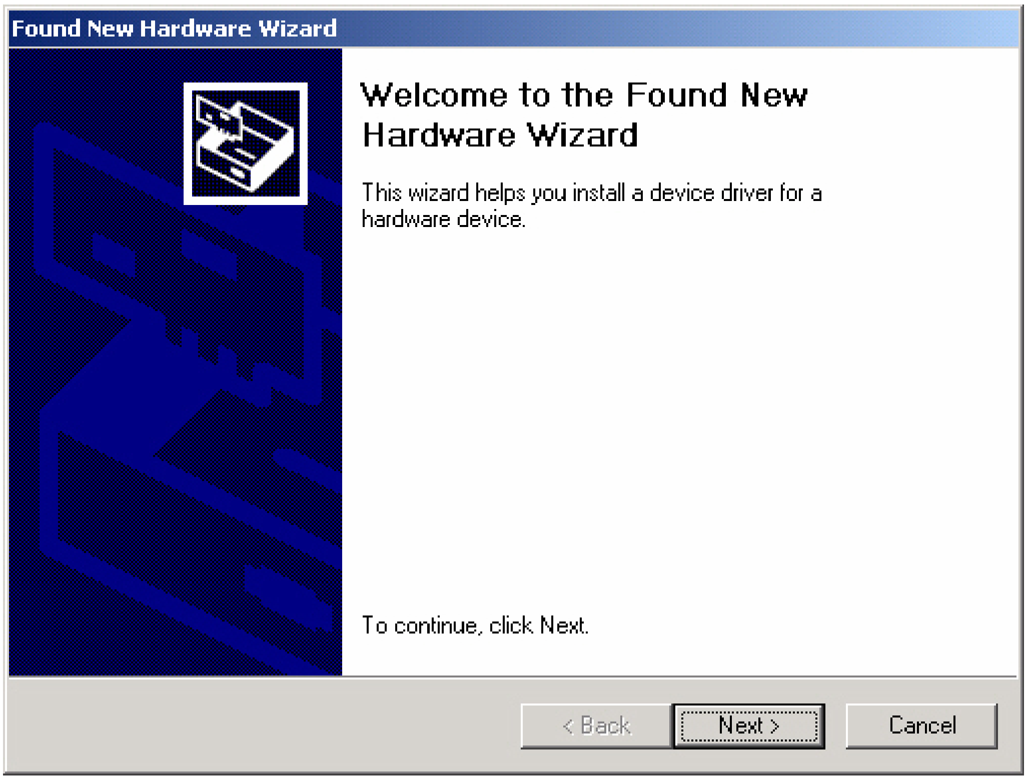

AEGIS Protocol Installation - Windows 98

AEGIS Protocol Installation

Mdc8021x.vxd file created.
Ndinst.exe file created.
Initiating Protocol Installation.
Initiating Protocol binding
Protocol Binding completed successfully.
You must REBOOT the system.

2-4. Installing The Driver & Utility (Win2000)

Step 1: Click **"Cancel"** for automatic installation.



Found New Hardware Wizard

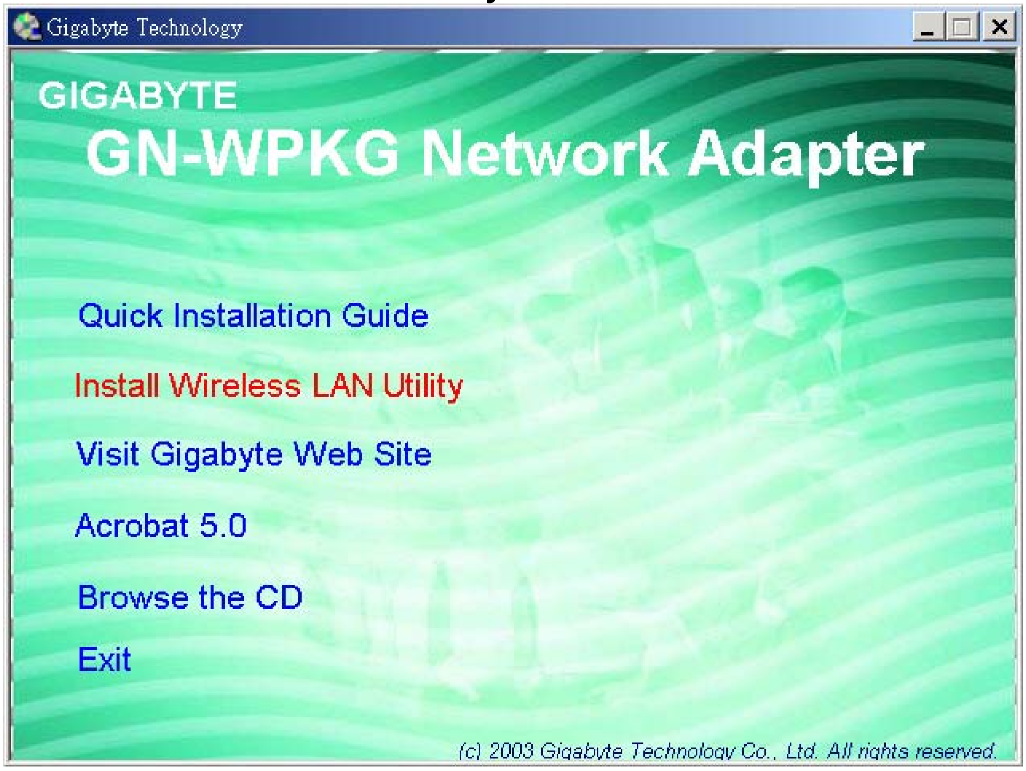
Welcome to the Found New Hardware Wizard

This wizard helps you install a device driver for a hardware device.

To continue, click Next.

Step 2: Insert the installation CD into the CD-ROM drive. The following window will pop up.

Step 3: Click **"Install Wireless LAN Utility"**.



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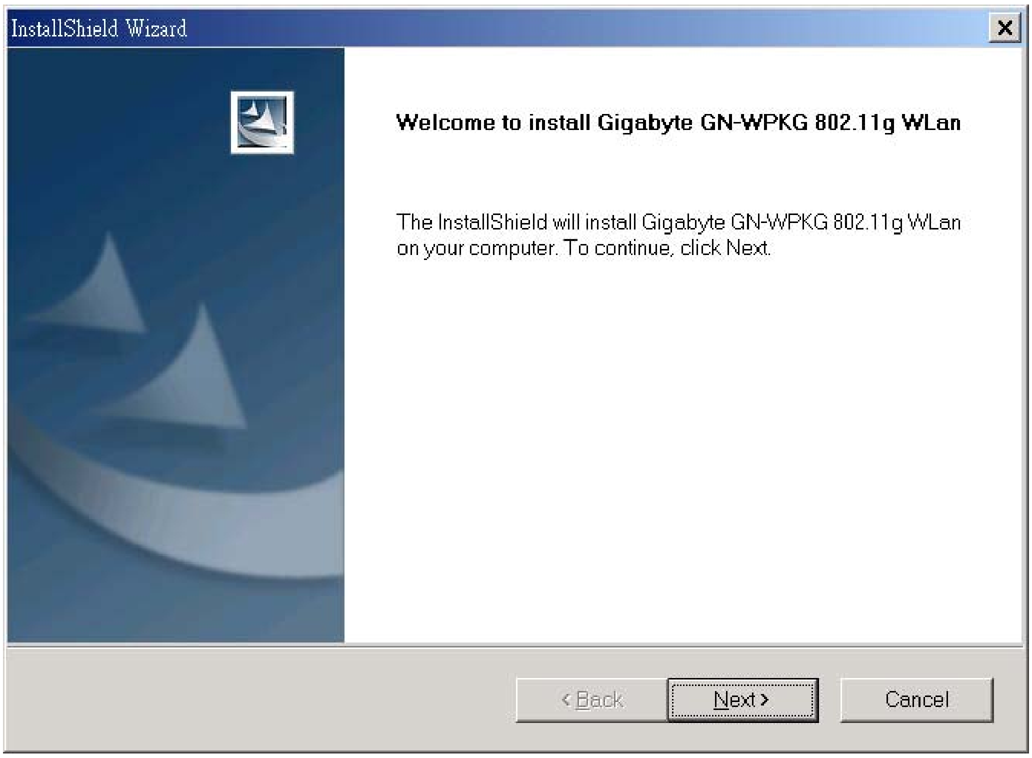
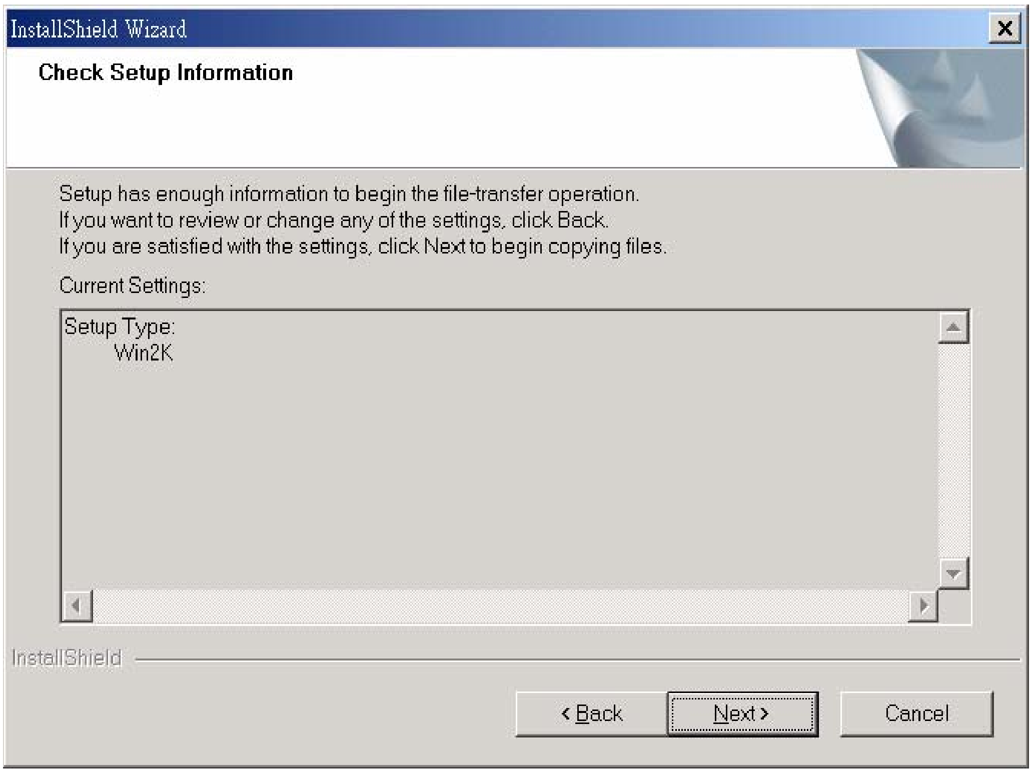
Step 4: Click **"Next"**.



Welcome to install Gigabyte GN-WPKG 802.11g WLan

The InstallShield will install Gigabyte GN-WPKG 802.11g WLan on your computer. To continue, click Next.

Step 5: Click **"Next"**.



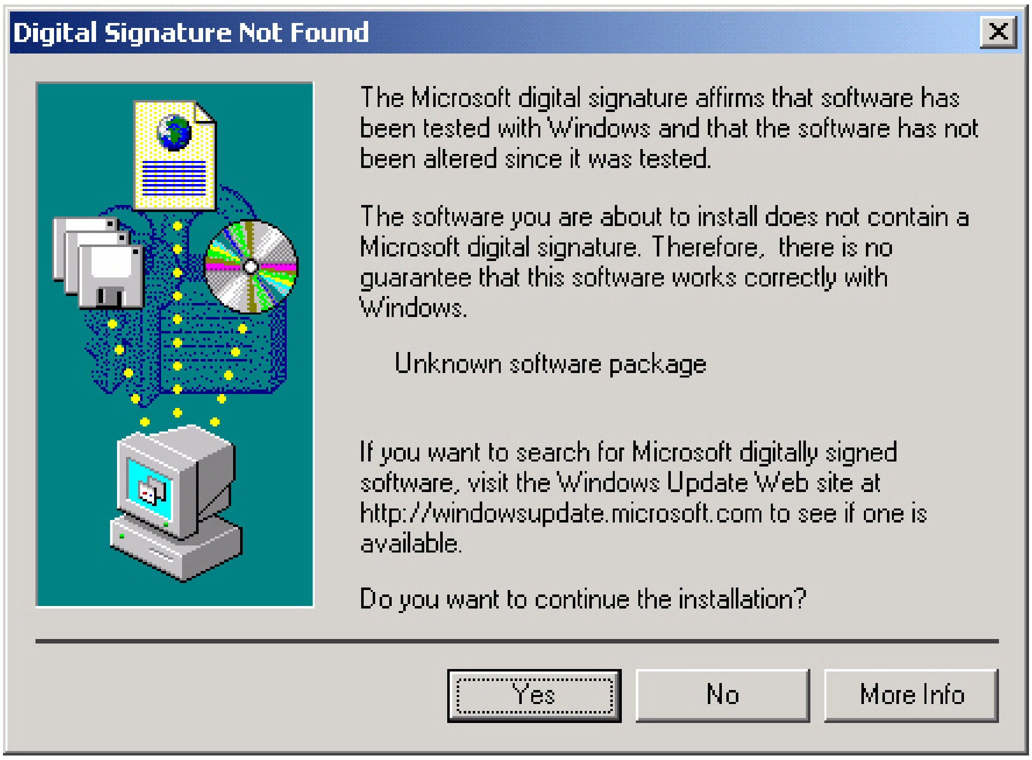
Check Setup Information

Setup has enough information to begin the file-transfer operation.
If you want to review or change any of the settings, click Back.
If you are satisfied with the settings, click Next to begin copying files.

Current Settings:

Setup Type:
Win2K

Step 6: Click **"OK"**.



Digital Signature Not Found

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

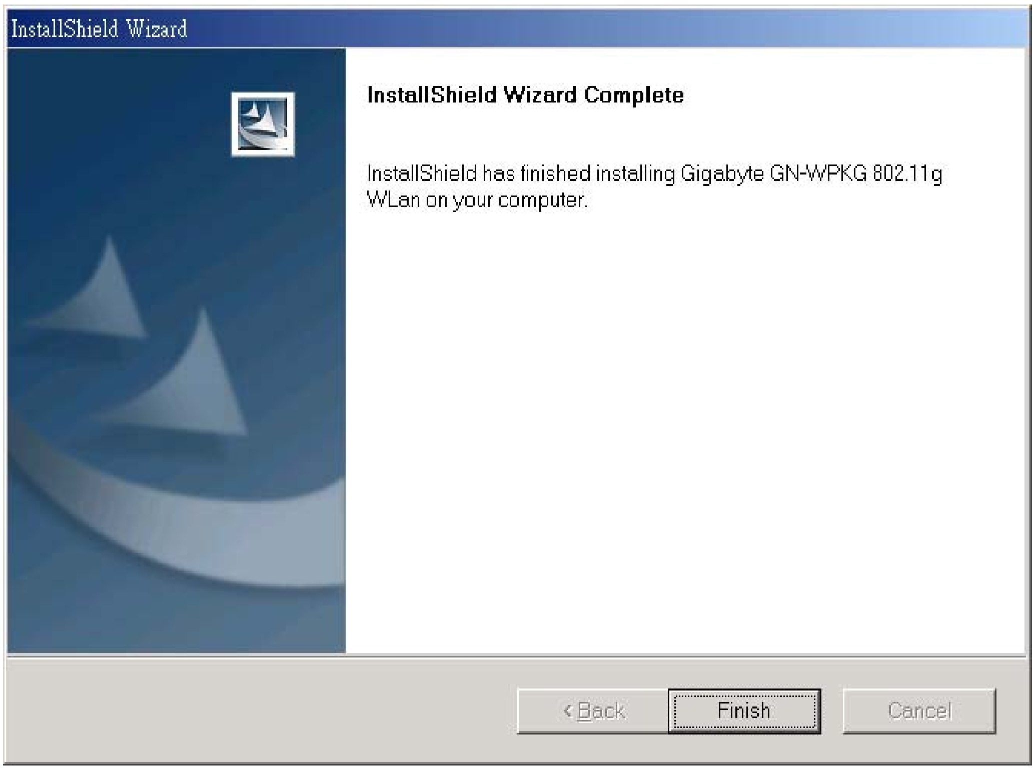
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

Unknown software package

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

Step 7: Click **"Finish"**.

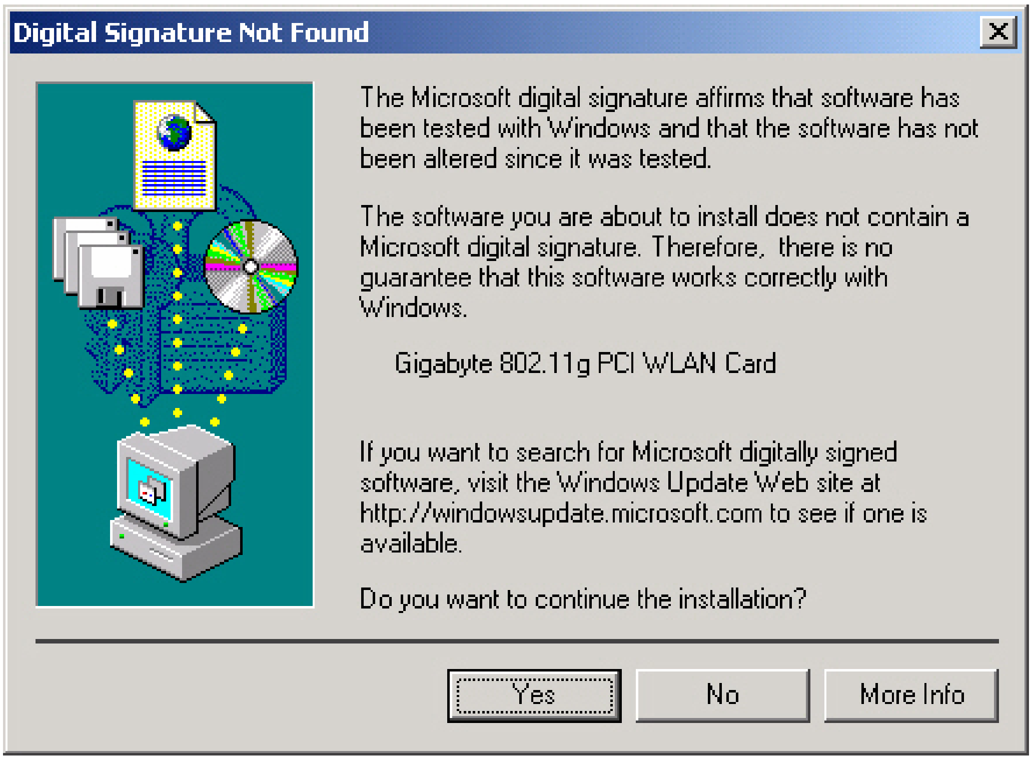


InstallShield Wizard

InstallShield Wizard Complete

InstallShield has finished installing Gigabyte GN-WPKG 802.11g WLan on your computer.

Step 8: Click **"Yes"**.



Digital Signature Not Found

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

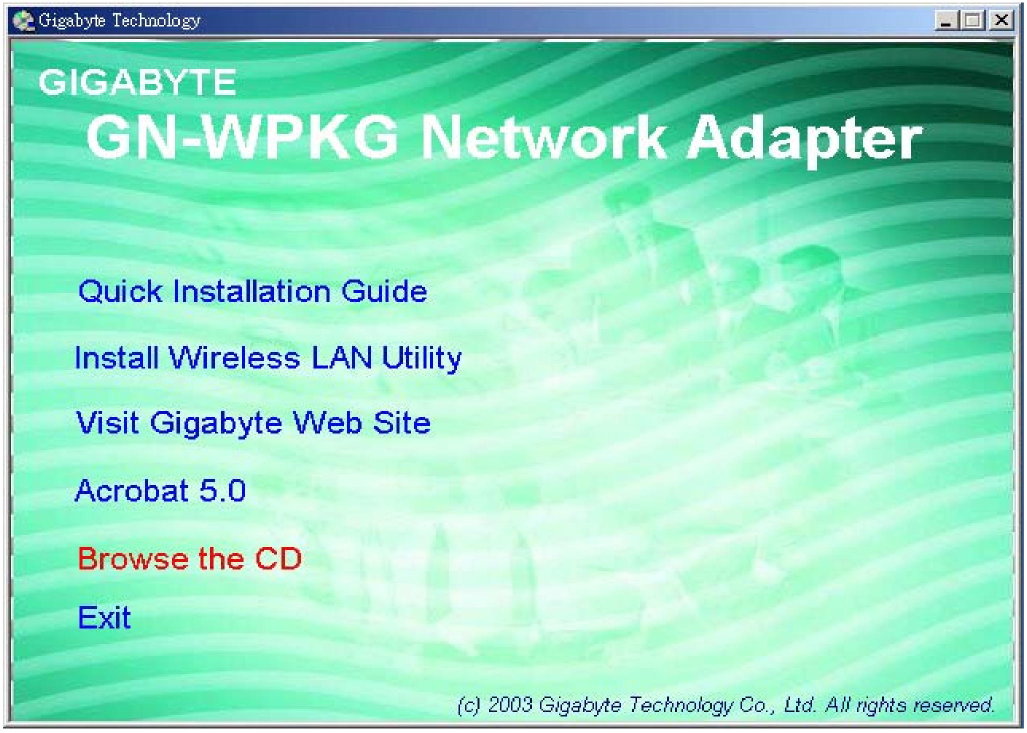
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

Gigabyte 802.11g PCI WLAN Card

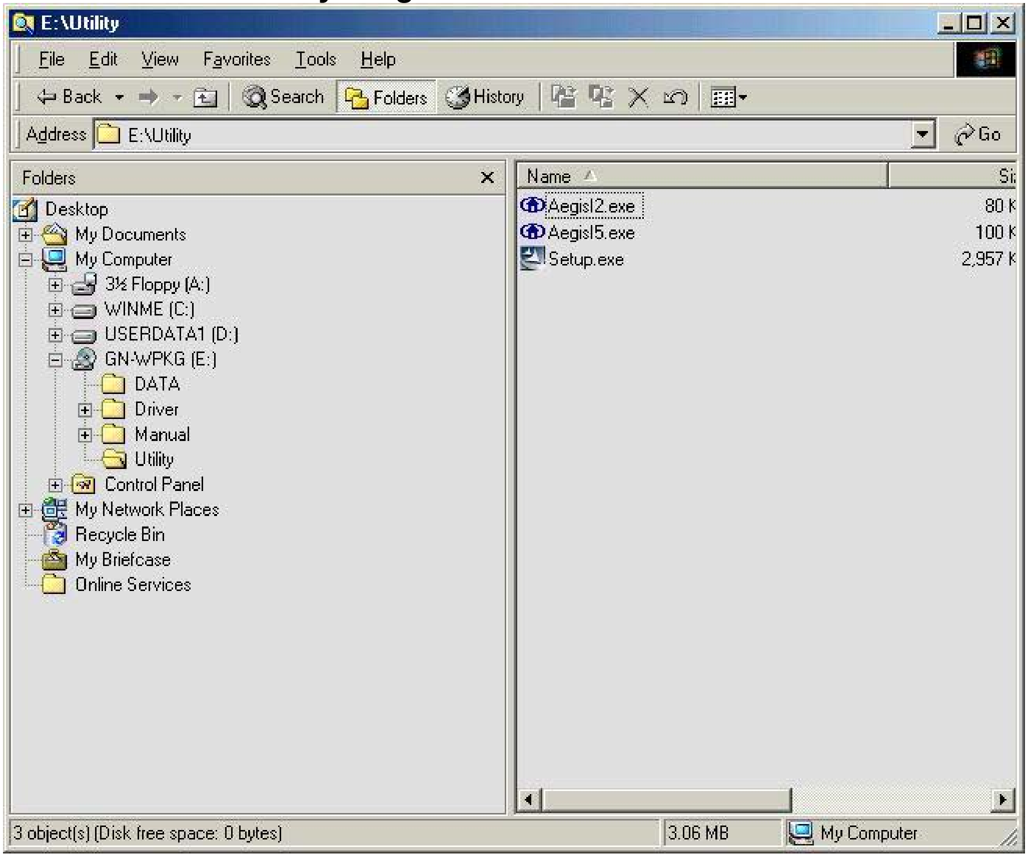
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

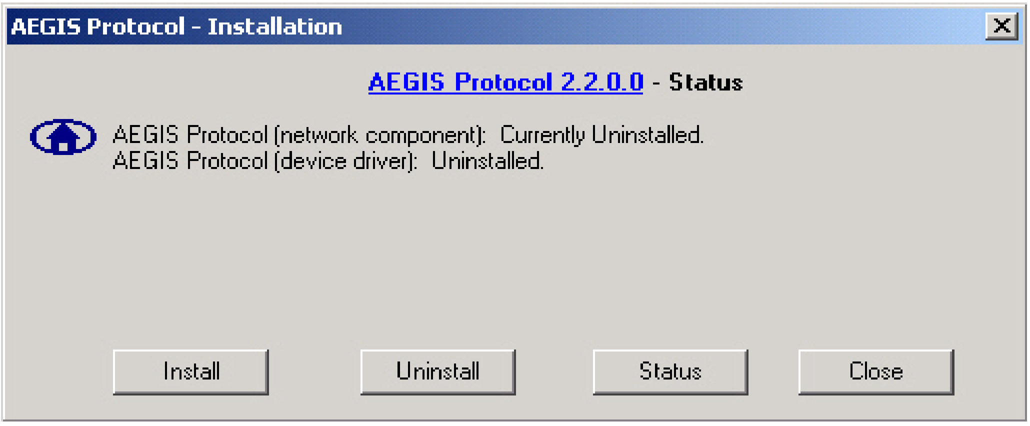
Step 9: To install 802.1X authentication function, click **"Browse the CD"**.



Step 10: Run **"CD-ROM:\\Utility \AegisI2.exe"** of the installation CD.



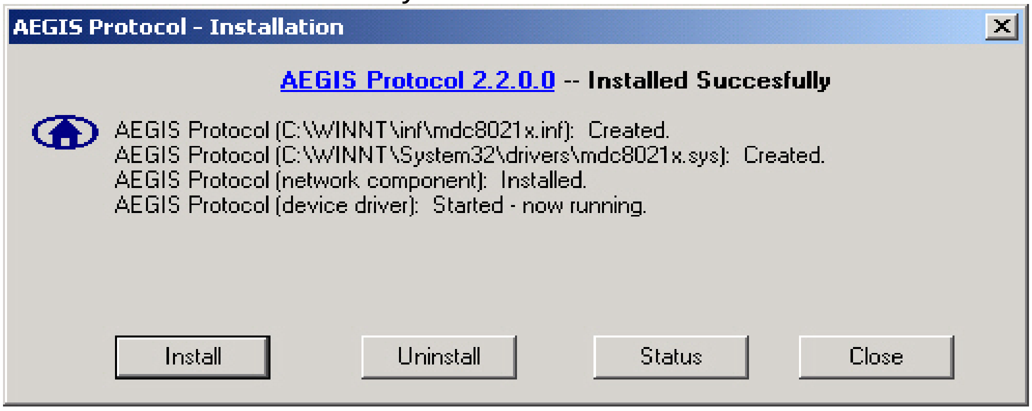
Step 11: Click **"Install"**.


AEGIS Protocol - Installation

AEGIS Protocol 2.2.0.0 - Status

AEGIS Protocol (network component): Currently Uninstalled.
AEGIS Protocol (device driver): Uninstalled.

Step 12: Click **"Close"**. Windows may reboot after the installation.

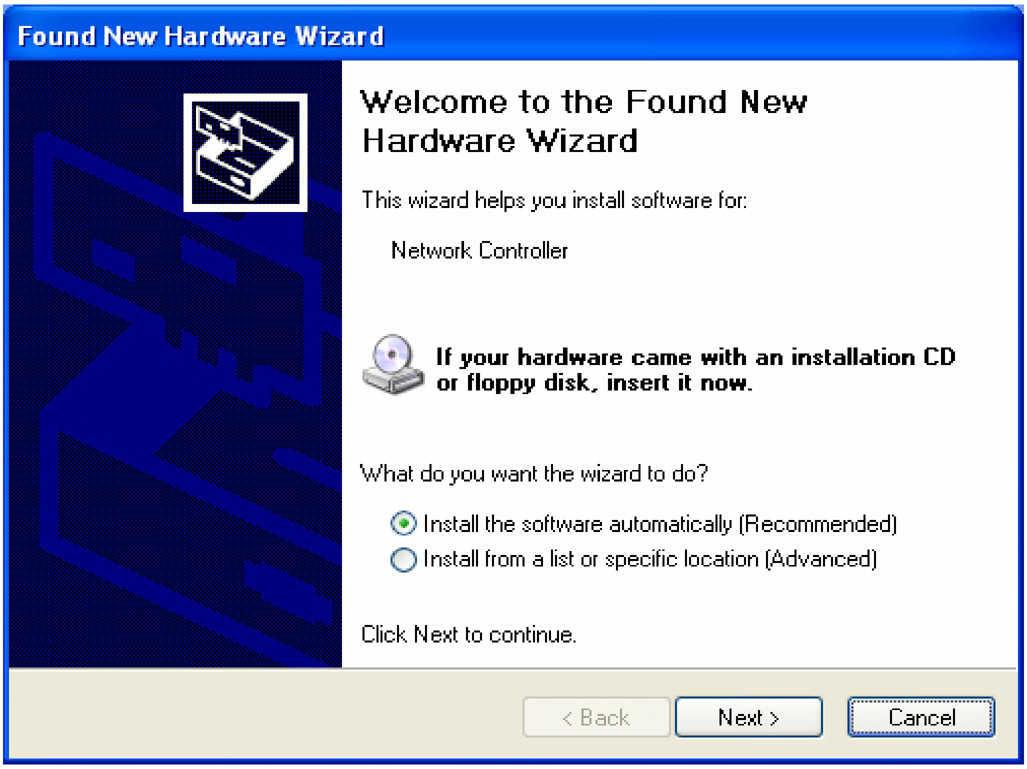

AEGIS Protocol - Installation

AEGIS Protocol 2.2.0.0 -- Installed Succesfully

AEGIS Protocol (C:\WINNT\inf\mdc8021x.inf): Created.
AEGIS Protocol (C:\WINNT\System32\drivers\mdc8021x.sys): Created.
AEGIS Protocol (network component): Installed.
AEGIS Protocol (device driver): Started - now running.

2-5. Installing The Driver & Utility (Win XP)

Step 1: Click **"Cancel"** for automatic installation.



Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

Network Controller

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

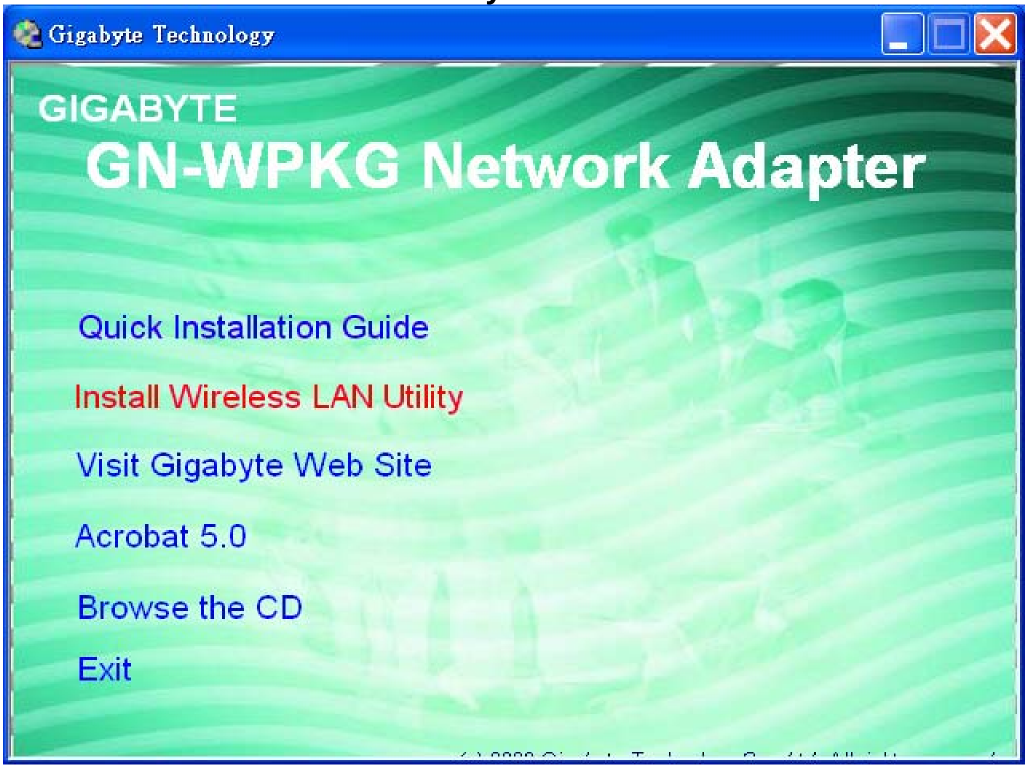
● Install the software automatically (Recommended)

○ Install from a list or specific location (Advanced)

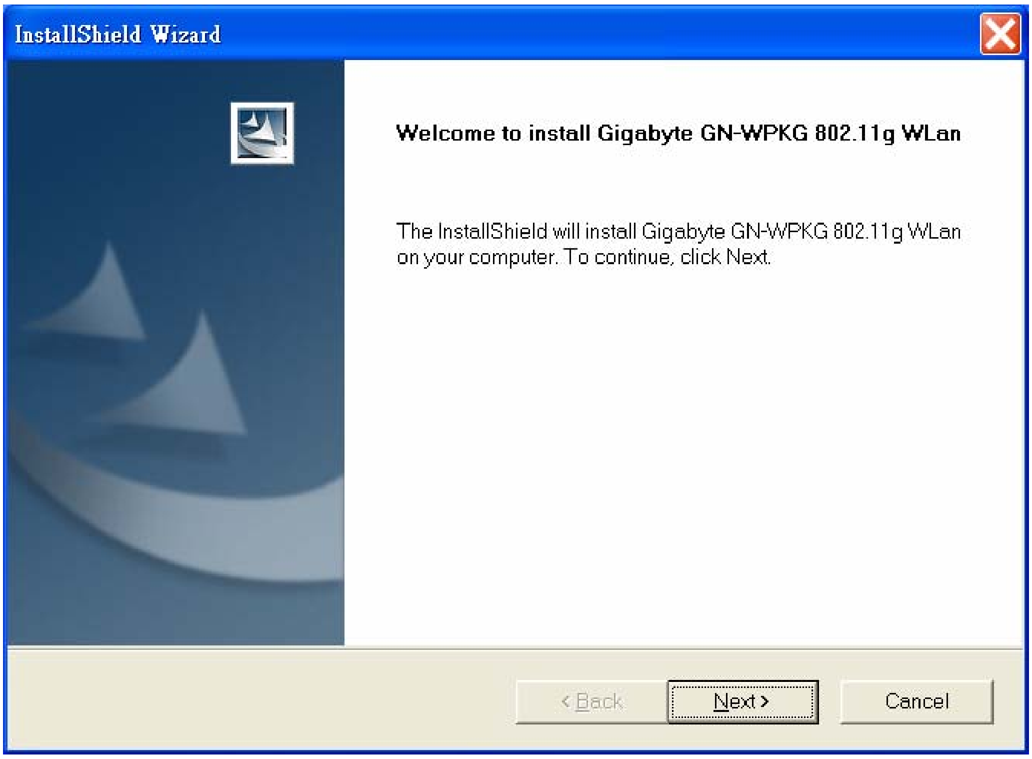
Click Next to continue.

Step 2: Insert the installation CD into the CD-ROM drive. The following window will pop up.

Step 3: Click **"Install Wireless LAN Utility"**.



Step 4: Click **"Next"**.

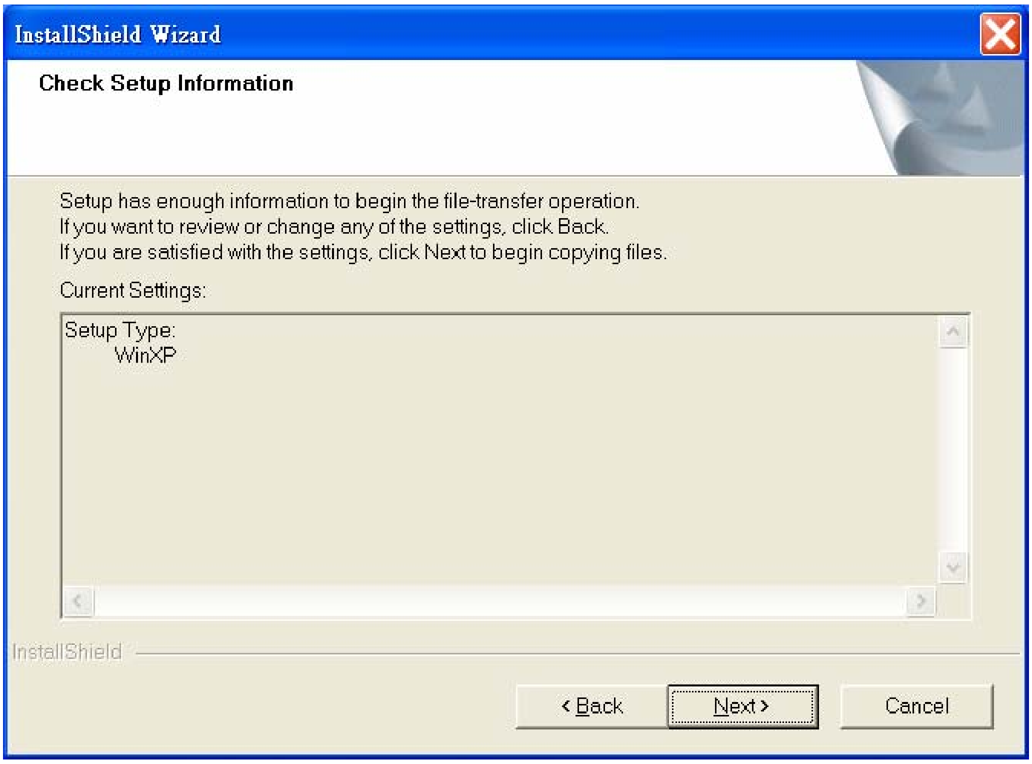


InstallShield Wizard

Welcome to install Gigabyte GN-WPKG 802.11g WLan

The InstallShield will install Gigabyte GN-WPKG 802.11g WLan on your computer. To continue, click Next.

Step 5: Click **"Next"**.



InstallShield Wizard

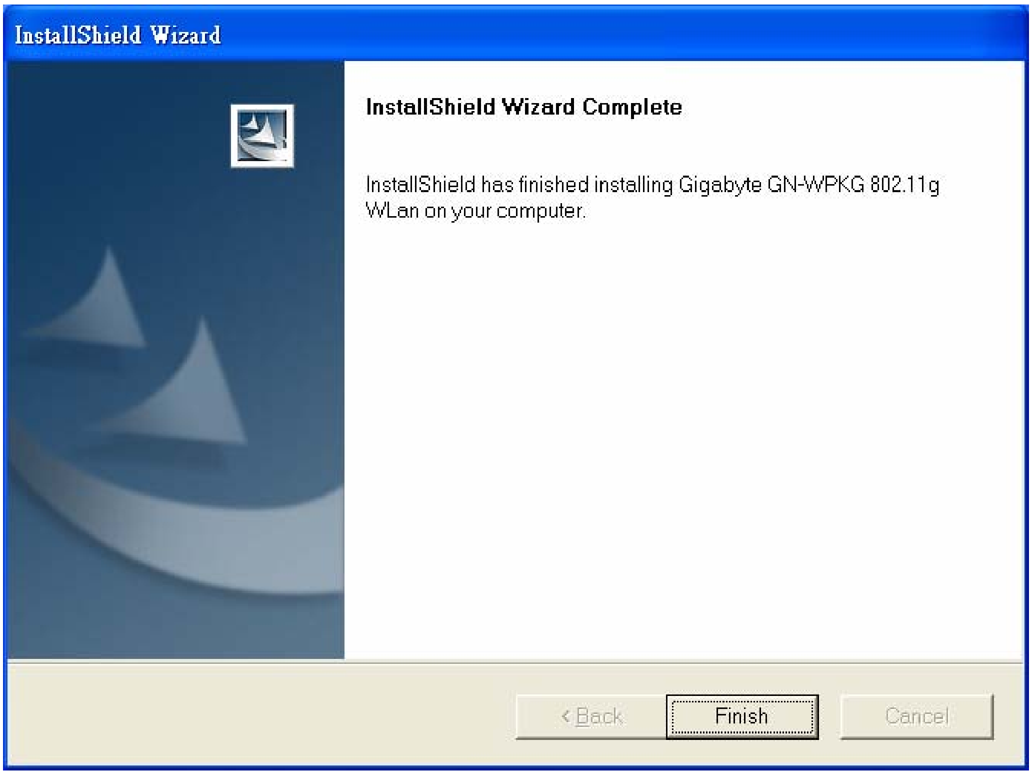
Check Setup Information

Setup has enough information to begin the file-transfer operation.
If you want to review or change any of the settings, click Back.
If you are satisfied with the settings, click Next to begin copying files.

Current Settings:

Setup Type:
WinXP

Step 6: Click **“Finish”**.

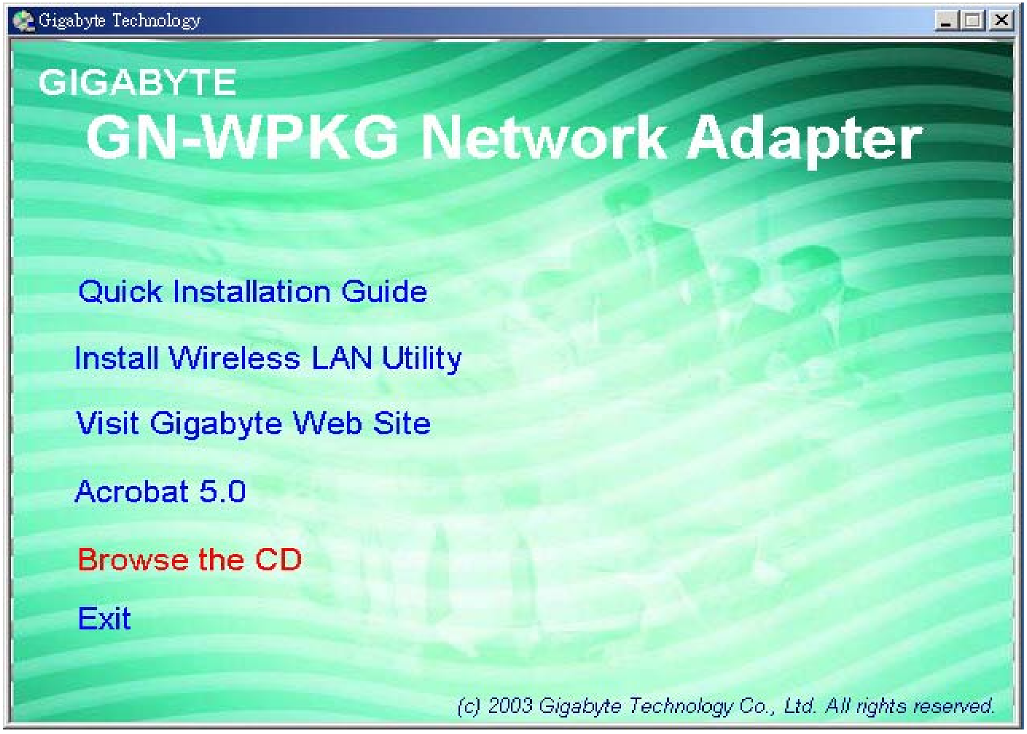


InstallShield Wizard

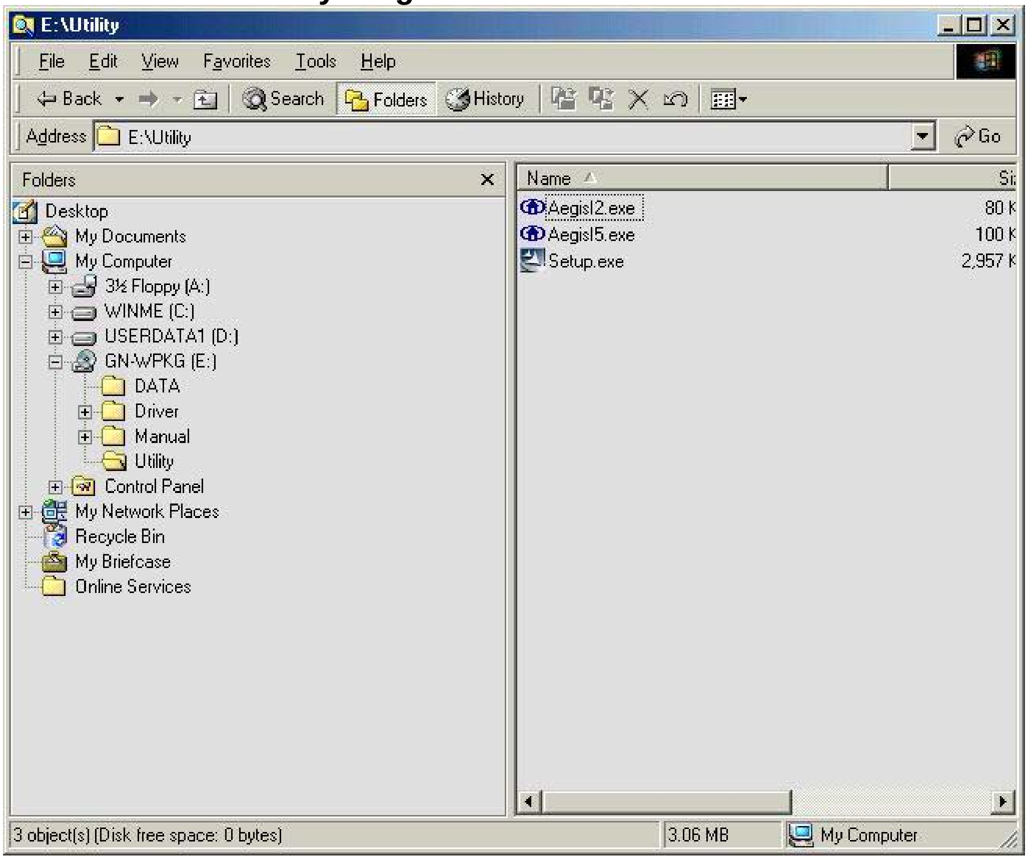
InstallShield Wizard Complete

InstallShield has finished installing Gigabyte GN-WPKG 802.11g WLan on your computer.

Step 7: To install 802.1X authentication function, click **“Browse the CD”**.



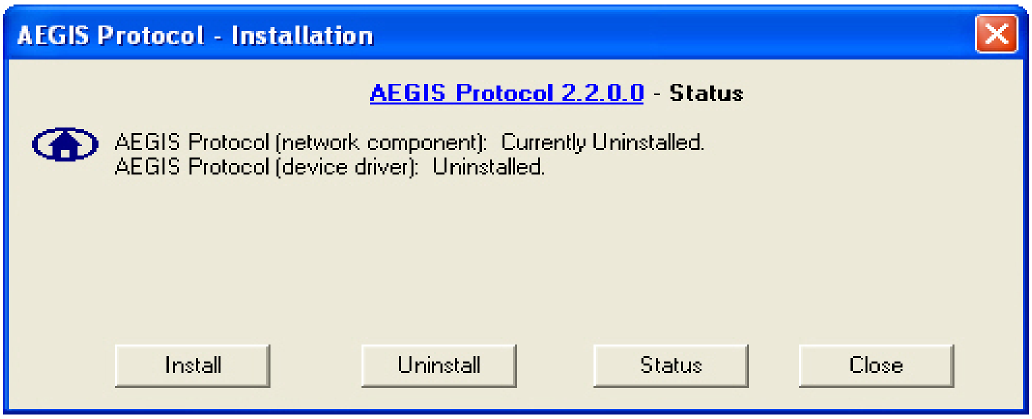
Step 8: Run **"CD-ROM:\\Utility \AegisI5.exe"** of the installation CD.



Name	Si
AegisI2.exe	80 K
AegisI5.exe	100 K
Setup.exe	2,957 K

3 object(s) (Disk free space: 0 bytes) 3.06 MB

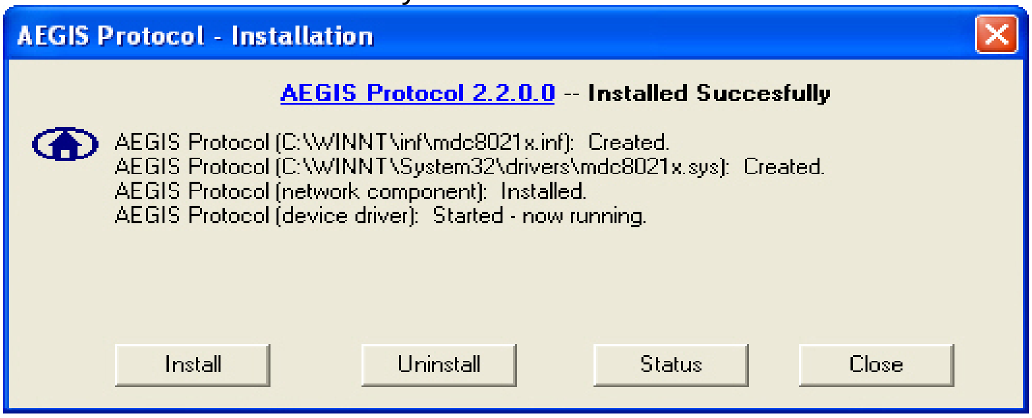
Step 9: Click **"Install"**.


AEGIS Protocol - Installation

AEGIS Protocol 2.2.0.0 - Status

AEGIS Protocol (network component): Currently Uninstalled.
AEGIS Protocol (device driver): Uninstalled.

Step 10: Click **"Close"**. Windows may reboot after the installation.


AEGIS Protocol - Installation

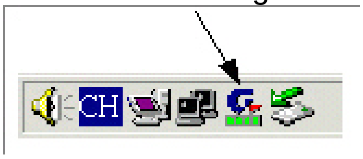
AEGIS Protocol 2.2.0.0 -- Installed Succesfully

AEGIS Protocol (C:\WINNT\inf\mdc8021x.inf): Created.
AEGIS Protocol (C:\WINNT\System32\drivers\mdc8021x.sys): Created.
AEGIS Protocol (network component): Installed.
AEGIS Protocol (device driver): Started - now running.

Chapter 3   Using the Utility

The Configuration & Monitor Utility is a powerful application that helps you to configure the network card and monitor the statistics of the communication link. This application permits the configuration for parameters while the card is operating. It also offers more configuration options and supports Windows 98SE/Me/2000/XP. It appears as an icon in the task bar at the bottom right corner of screen whenever the card is operating (*see **Figure 3-1***). The icon can tell you the received signal strength by four small lights. You can open it by double-clicking on this icon.

Figure 3-1. The icon of the Configuration & Monitor Utility



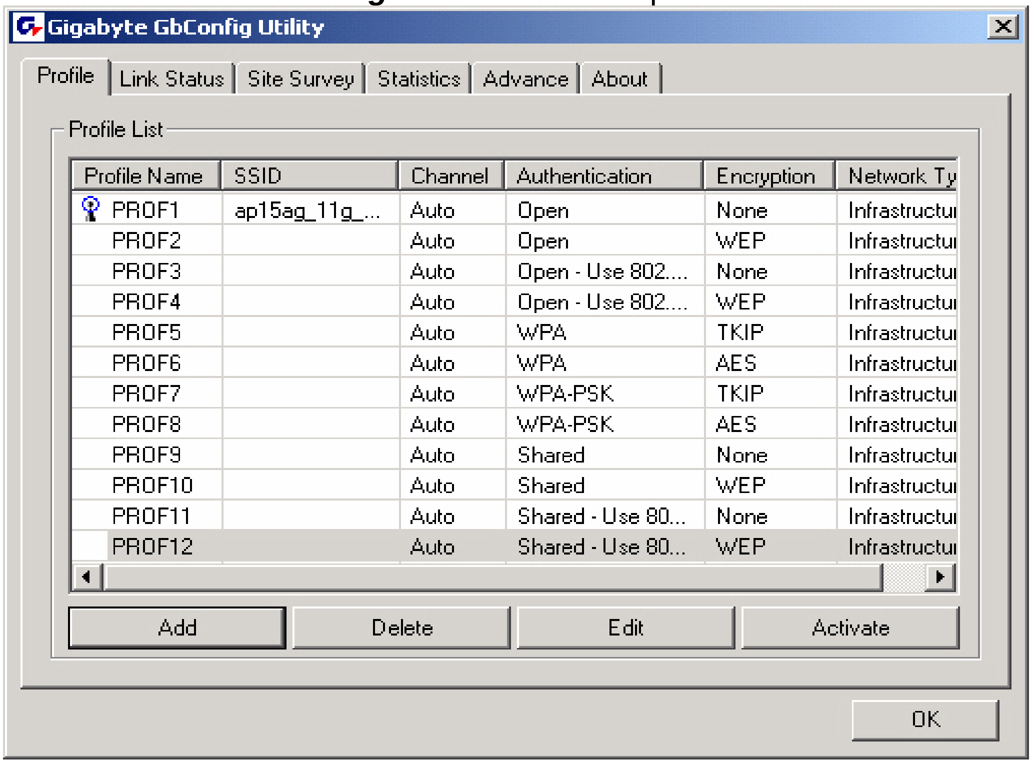
You may double click this icon to open the utility or go to Windows **Start** menu, select **Programs, GIGA-BYTE 802.11 WLAN, GN-WI05GS** and then **GN-WI05GS Utility**.

Note: You can use the utility to change configuration when the WLAN card is operating. You have to use the network configuration tool provided by the operation system when the WLAN card is not in use.

3-1.“Profile” Setting

The **“Profile”** tab shows you the current association information about the profile. *(*see ***Figure 3-2***).

Figure 3-2. Current profile



Profile Name	SSID	Channel	Authentication	Encryption	Network Ty
PROF1	ap15ag_11g_...	Auto	Open	None	Infrastructu
PROF2		Auto	Open	WEP	Infrastructu
PROF3		Auto	Open - Use 802....	None	Infrastructu
PROF4		Auto	Open - Use 802....	WEP	Infrastructu
PROF5		Auto	WPA	TKIP	Infrastructu
PROF6		Auto	WPA	AES	Infrastructu
PROF7		Auto	WPA-PSK	TKIP	Infrastructu
PROF8		Auto	WPA-PSK	AES	Infrastructu
PROF9		Auto	Shared	None	Infrastructu
PROF10		Auto	Shared	WEP	Infrastructu
PROF11		Auto	Shared - Use 80...	None	Infrastructu
PROF12		Auto	Shared - Use 80...	WEP	Infrastructu

Description of items in ***Figure 3-2*** is as follows:

Profile Name: You can save various wireless settings for different environments.
: In use.
SSID: Displays the SSID of the WLAN card or Access Point.

Channel: Shows which channel is current in use.

Authentication: Authentication types currently in use include “OPEN”, “WPA”, “WPA-PSK” and “Shared”.

Encryption: Four encryption types currently used in the profile include “None”, “WEP”, “AES” and “TKIP”.

Network Type: Informs you if an Access Point (infrastructure) or other access points (802.11 Ad Hoc) is connected. When it is 802.11 Ad Hoc, we can select a channel for all members in 802.11 Ad Hoc.

ADD: Add profile (see ***Figure 3-3***).

DELETE: Delete the selected profile.

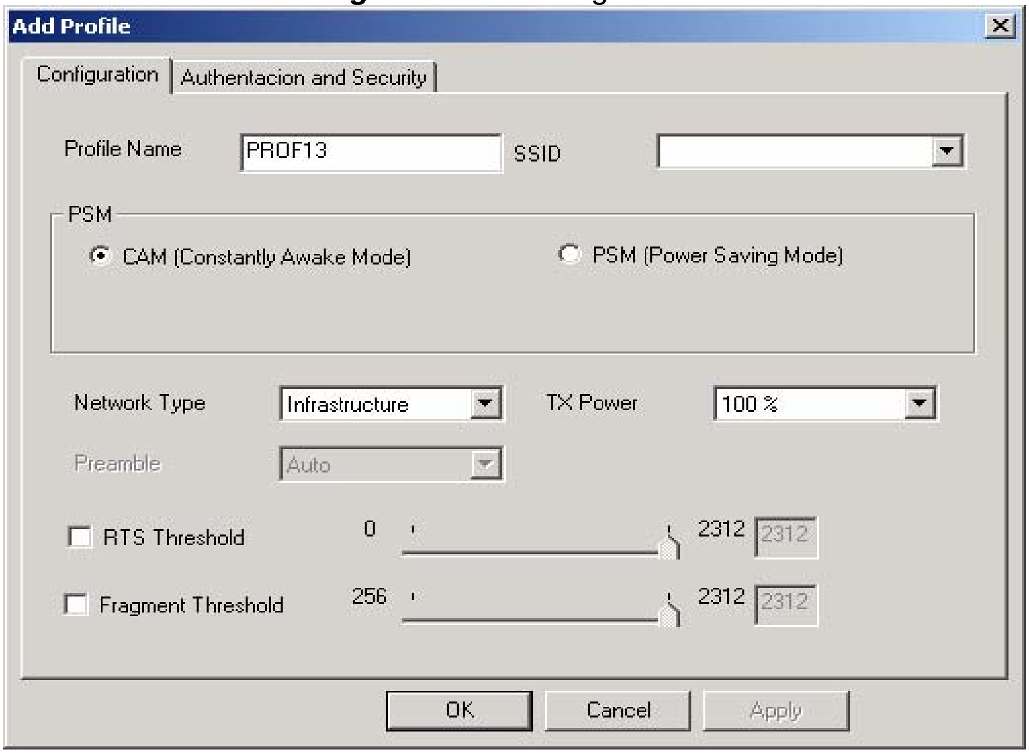
EDIT: Edit the selected profile.

ACTIVATE: Activate the selected profile.

3-1-1. Configuration

You can use ADD or EDIT button to set different configurations. *(see **Figure 3-3**)*

Figure 3-3. Configuration



Add Profile

Configuration | Authentacion and Security

Profile Name: PROF13
SSID:

PSM
● CAM (Constantly Awake Mode)
○ PSM (Power Saving Mode)

Network Type: Infrastructure
TX Power: 100 %
Preamble: Auto

□ RTS Threshold 0 — 2312 [2312]
□ Fragment Threshold 256 — 2312 [2312]

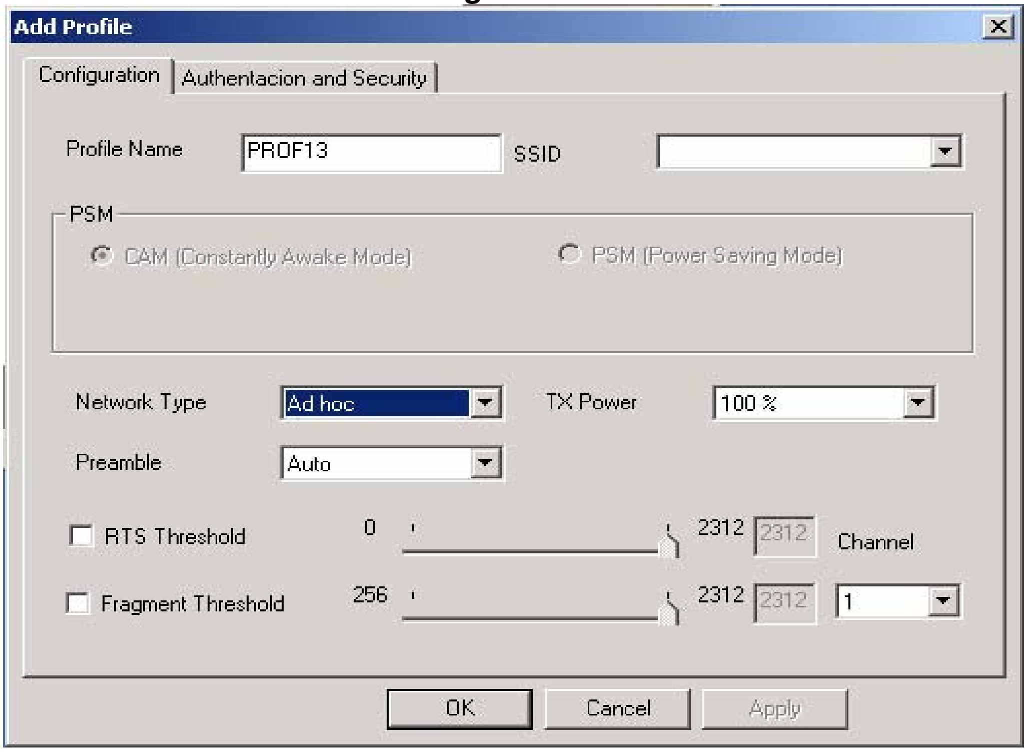
Description of items in ***Figure 3-3*** is as follows:

Profile Name: Users can save different profiles names for different configurations.

SSID: Select the AP detected by the system from the drop-down list or input a SSID.
Power Saving mode: Transceivers consume a lot of power in WLAN. Select “Power Saving Mode” (PSM) to turn off transceivers when no data is transmitted or select CAM to continuously turn on transceivers.

Network Type: “Infrastructure” and “802.11 Ad Hoc”. When the network type is “Infrastructure”, PSM will function but not Preamble. On the contrary, when the network type is “802.11 Ad Hoc”, Preamble will function but not PSM. Besides, Channel option will appear *(see **Figure 3-4**)* and 802.1X Authentication will not function.

Figure 3-4



Add Profile

Configuration | Authentacion and Security

Profile Name: PROF13
SSID:

PSM
● CAM (Constantly Awake Mode) ○ PSM (Power Saving Mode)

Network Type: Ad hoc
TX Power: 100 %
Preamble: Auto

□ RTS Threshold 0 – 2312 [2312]
□ Fragment Threshold 256 – 2312 [2312]
Channel: 1

TX Power: Select percentage of transmitted power.

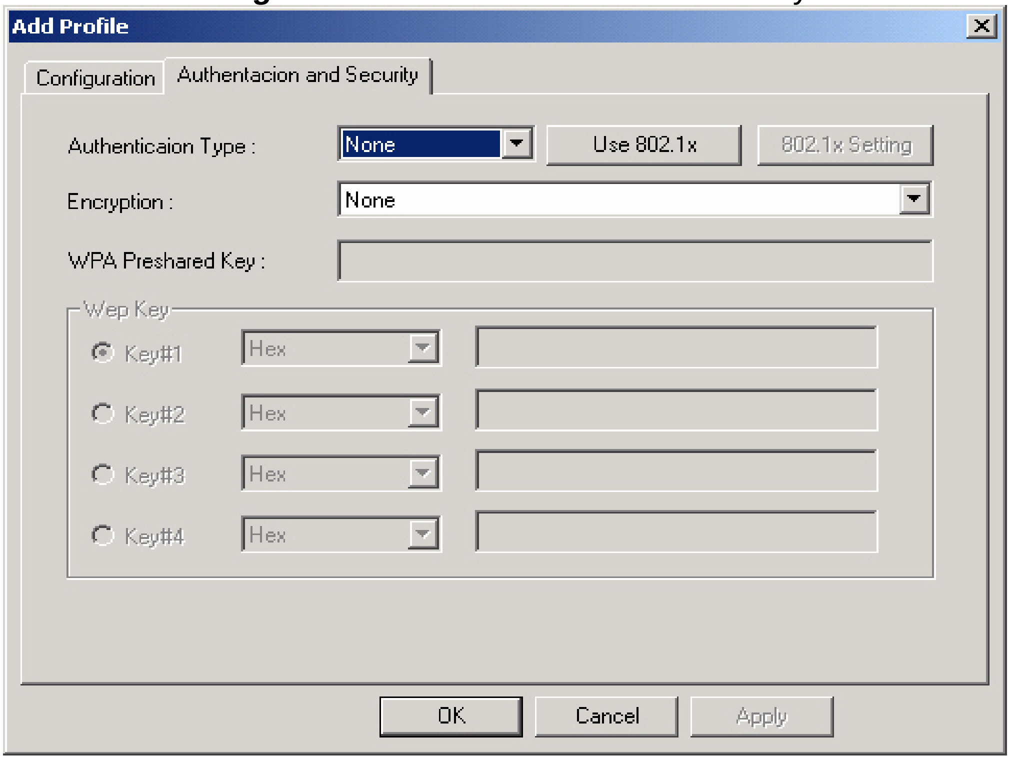
RTS Threshold: This is a mechanism implemented to prevent the “Hidden Node” problem, “Hidden Note” is a situation in which two stations are within range of the same Access Point, but are not within range of each other. Therefore, they are hidden nodes for each other and can not detect each other. This mechanism is a way to prevent data collision when WLAN equipments require transmission.

Fragment Threshold: Fragmentation mechanism is used for improving the efficiency when high traffic flows along in the wireless network.

3-1-2. Authentication and Security:

If an authentication or security setting is configured in your Access Point or router, you must enable this function to ensure successful connection. Use the following tab to configure data security and ID authentication (see ***Figure 3-5***). You may configure different settings in the profile, including 802.11 Protocol Authentication and Security and 802.1X Protocol.

Figure 3-5. Authentication and Security



Add Profile

Configuration | Authentacion and Security

Authenticaion Type : None

Encryption : None

WPA Preshared Key :

Wep Key

● Key#1 Hex

○ Key#2 Hex

○ Key#3 Hex

○ Key#4 Hex

Table 3-1

Authentication	Security	Secure Key Setting	Use 802.1X
None	None	None	YES
	WEP	Key Setting	
Shared	None	None	YES
	WEP	Key	
WPA	TKIP	None	YES
	AES	None	
WPA-PSK	TKIP	WPA-PSK Key	NO
	AES	WPA-PSK Key	

3-1-2-1. 802.11 Authentication and Security

Authentication: Before a station connects to a SSID, the authentication type used by the SSID must be known. Authentication types include OPEN SYSTEM, WAP, WAP-PSK and SHARED.

Security: To prevent unauthorized access to data transmitted on the network, WLAN card provide a data encryption of high security. Another station have to use the same password and encryption to connect with you. Different authentication types have different level of security. Please refer to ***Table 3-1***.

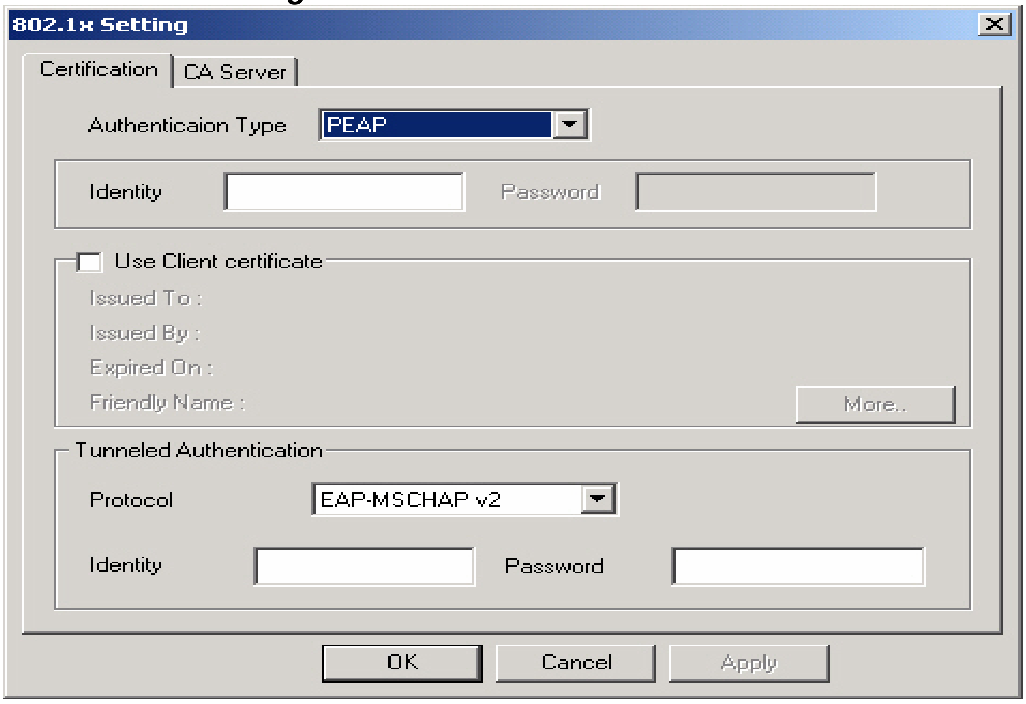
WEP encryption: Select one of the four keys as the default encrypted key.
Users have to set key the connected to AP access point. If WEP Key is set to be manually connected to AP, no record will be kept. WEP Key can only be saved through the setting of profile.
1. Select one Key #.
2. Select one data type (Hex or ASCII).
3. Enter password. Please enter 26 hexadecimal digits or 13 ASCII digits.
4. Click “OK to save the settings.

WPA-PSK encryption: Use WPA-PSK (Preshared Key) for WPA-PSK encryption (TKIP and AES).
The system will read the Key with different types of encryption according to the length of Preshared Key.
1. Enter Preshared Key. Please enter 64 hexadecimal digits or 8~63 ASCII digits.
2. Click "OK to save these settings.

3-1-2-2. 802.1X Authentication

Click **"Use 802.1X Authentication"** and then **"Enter 802.1X configuration"**. When you select this option, you may configure information about authentication, such as Tunnel Protocol, ID and Password and Client Certificate or Certificate Chain. *(see **Figure 3-6 and 3-8**)*

Figure 3-6. 802.1X Authentication



802.1x Setting

Authenticaion Type: PEAP

☐ Use Client certificate

Tunneled Authentication

Protocol: EAP-MSCHAP v2

Description of items in ***Figure 3-6*** is as follows:

Authentication type: PEAP, TLS/Smart Card, TTLS, LEAP and MD5-Challenge.

Identity: Users' accounts.

Password: Passwords for users' accounts can be used when LEAP and MD5-Challenge are selected as authentication types.

Use Client Certificate: This certificate is necessary for TLS and an option for PEPA and TTLS. Check "Use Client Certificate" to confirm if the Client Certificate is correct in the authentication process. Click "More" when selecting a Client Certificate (shown in ***Figure 3-7***). Users can select one suitable certificate as Client Certificate.

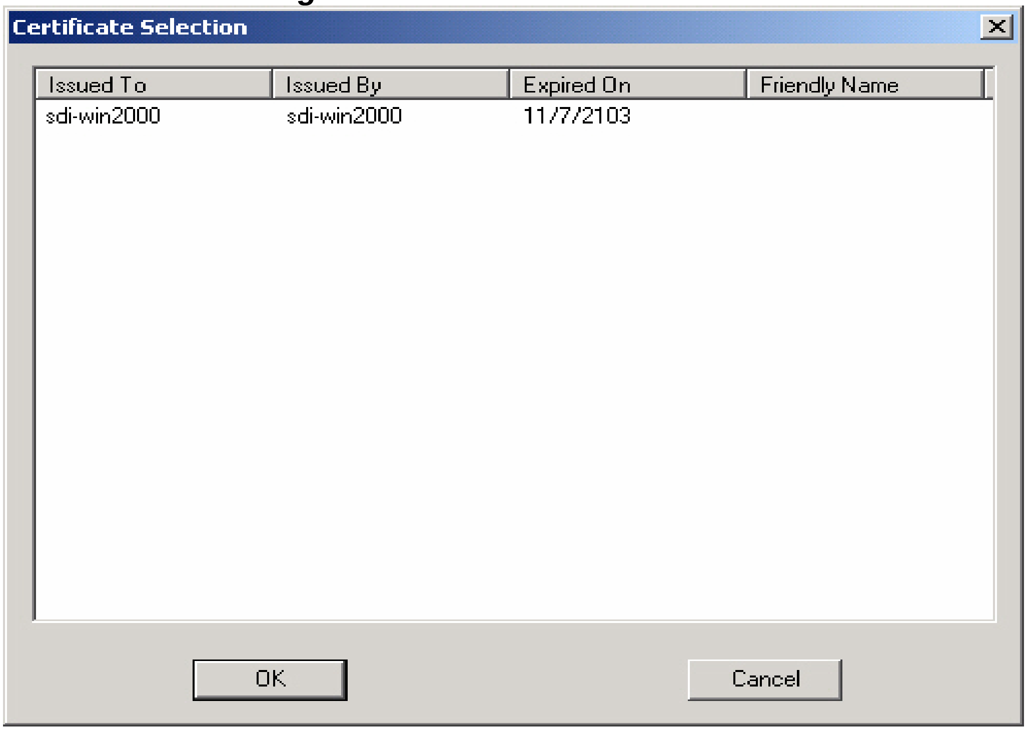
Tunnel Authentication: PEPA and TTLS use two-step authentication method. The first step is that Server sets up a Tunnel with its authentication. No option is need to be set for Station with WLAN card. The second step is to confirm the validity of Station with assigned authentication type in the Tunnel. Data needed for authentication includes Tunnel ID, Tunnel Password, Client Certificate or Server Authentication.

Protocol: Use assigned authentication type in the safe tunnel.

Tunnel ID: Users' accounts.

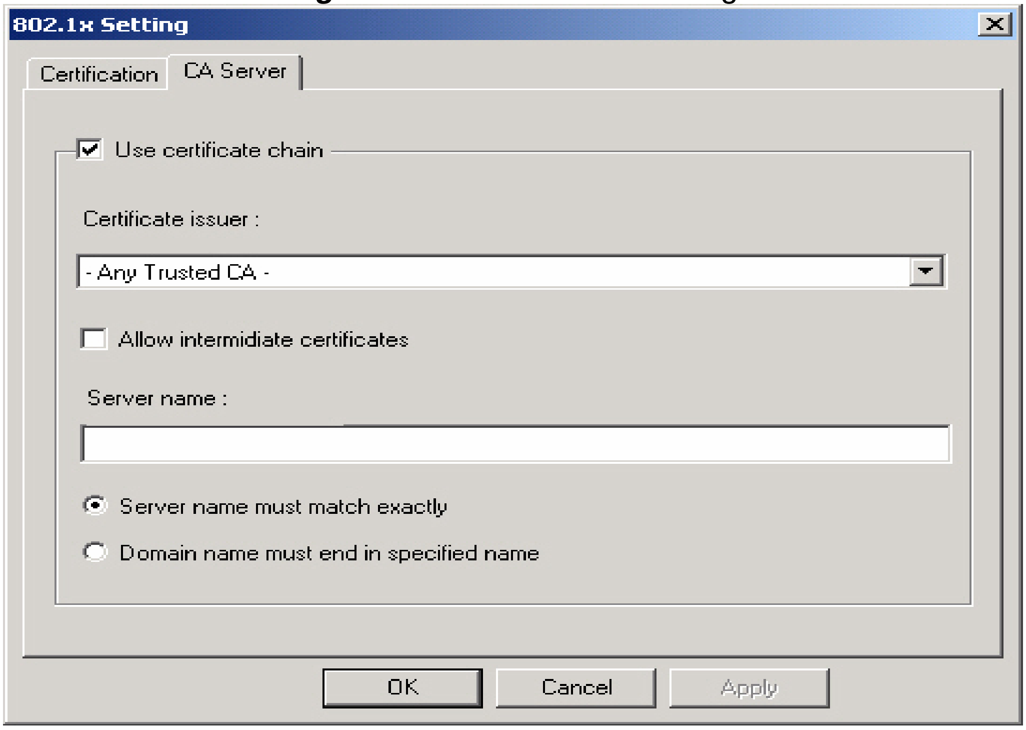
Password: Passwords for users' accounts.

Figure 3-7. Client Certificate List



Issued To	Issued By	Expired On	Friendly Name
sdi-win2000	sdi-win2000	11/7/2103	

Figure 3-8. CA Server Setting



☑ Use certificate chain

Certificate issuer : - Any Trusted CA -

□ Allow intermidiate certificates

Server name :

● Server name must match exactly

○ Domain name must end in specified name

Description of items in ***Figure 3-8*** is as follows:

CA Server is used when TLS, TTLS or PEAP is in use. The Client can verify if such server is reliable and then transmit Client Certificate after the verification is confirmed. (if “Use Client Certificate” is checked)

Verify CA server:

1. Confirm if the Server Certificate is issued by assigned certificate issuer. If “Allow Intermediate Authentication” is checked, the server certificate can be issued by one intermediate certificate issuer.

2. Check the server name of server certificate is the same as the name entered by the user or belongs to the same domain.

Server Certificate: If “Server Certificate” is checked, it indicates that Client will confirm whether CA server is reliable.

Certificate issuer: CA of a server certificate can be selected from certificate issuers on the drop-down list.

Allow intermediate Certificates: When this option is checked, the certificate issuer can be an issuer recognized by a specific certificate issuer. On the other hand, the server certificate must be issued by a certificate issuer selected by the user.

Server name: This value can be a server name or the name of a domain where the server is located.

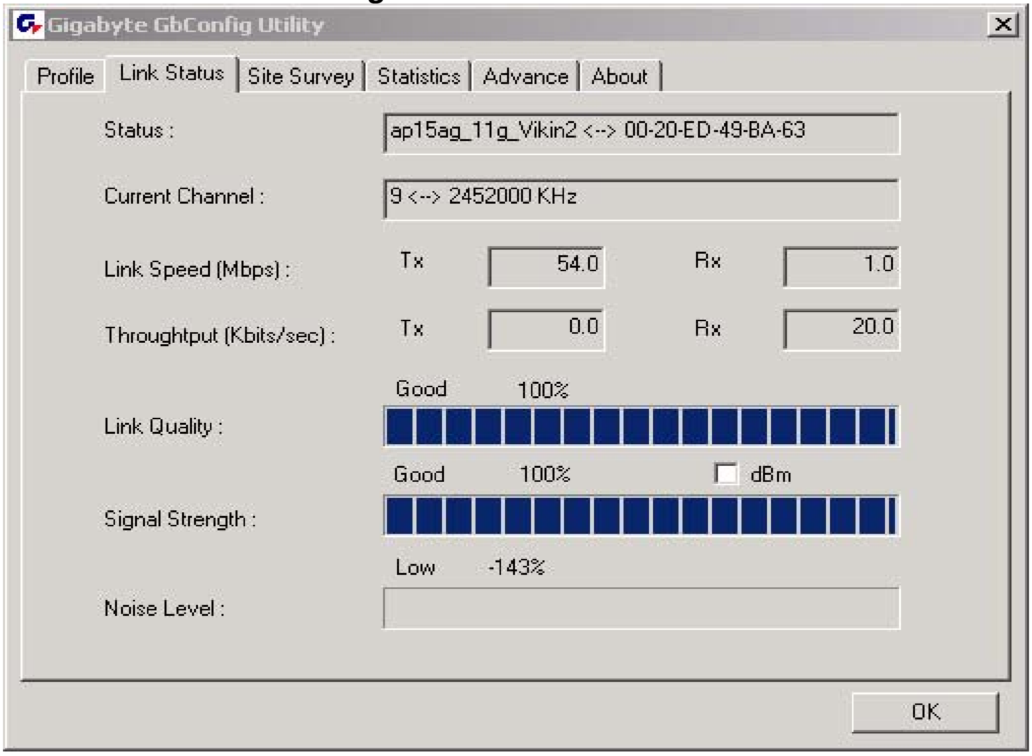
Server name must match exactly: If this option is selected, the server name of server certificate must be the same as “Server Name” or as the name of domain where the server is located.

Domain name must end in specified name: If this option is selected, the certificate issuer must be the domain or secondary domain entered in “Server Name”.

3-2.“Link Status” Setting

“**Link Status”** tab shows you the current association information about the card’s connection with a wireless network. *(see **Figure 3-9**)*

Figure 3-9. Link Status



Status : ap15ag_11g_Vikin2 <--> 00-20-ED-49-BA-63

Current Channel : 9 <--> 2452000 KHz

Link Speed (Mbps) : Tx 54.0 Rx 1.0

Throughtput (Kbits/sec) : Tx 0.0 Rx 20.0

Link Quality : Good 100%

Signal Strength : Good 100% □ dBm

Noise Level : Low -143%

Description of items in ***Figure 3-9*** is as follows:

Status: Shows current link status. “No Link” will appear on the screen when no connection is available. Otherwise, SSID and BSSID of a link will appear.

Current Channel: The current channel number used by the WLAN card.

Link Speed: Transmission rate (transferring and receiving) at which data is transferred between Stations with WLAN Card and AP. The speed will adjust according to different modes (802.11b, 11g or mixed) or distance.

Throughput: displays the transmitting (Tx) and receiving (Rx) bytes per second.

Link Quality: Measures quality of the link according to the quality of received AP signal.

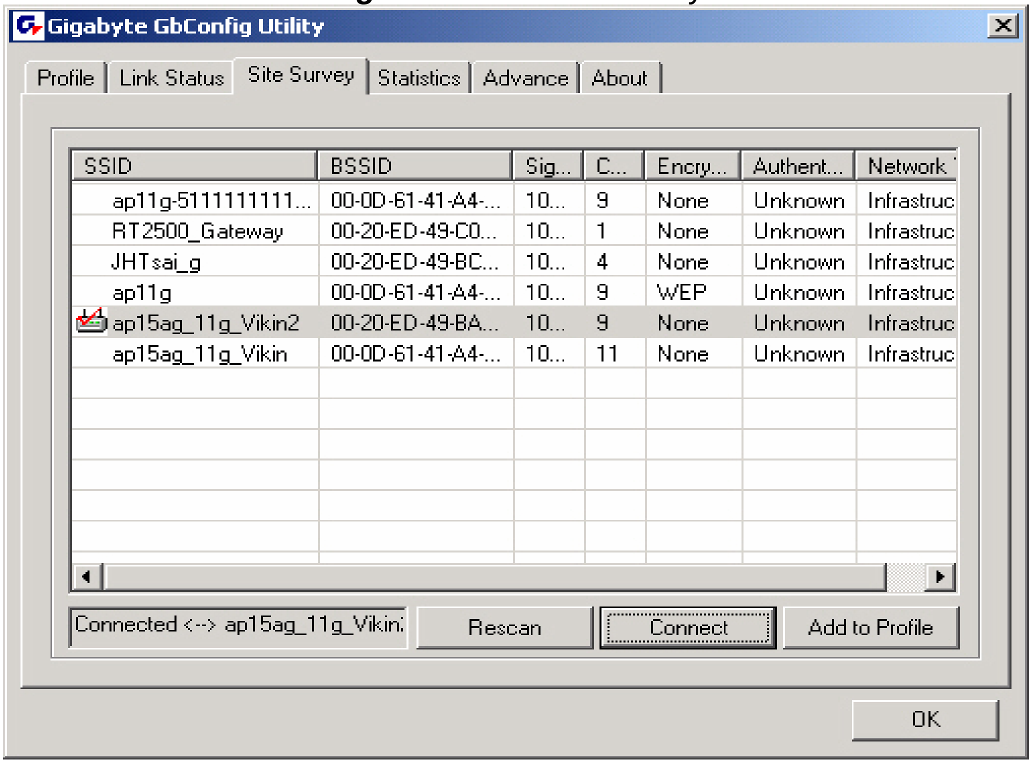
Signal Strength: Measures signal strength received by RF signal processor and displays the signal strength in dBm.

Noise Level: Noise level during connection.

3-3.“Site Survey”

Setting **“Site Survey”** tab shows you the list of reachable access points and/or peer-to-peer Stations. You can double click SSID that you want to connect or click **“Connect”**. *(see **Figure 3-9**)*

Figure 3-10. Site Survey



SSID	BSSID	Sig...	C...	Encry...	Authent...	Network
ap11g-5111111111...	00-0D-61-41-A4-...	10...	9	None	Unknown	Infrastruc
RT2500_Gateway	00-20-ED-49-C0...	10...	1	None	Unknown	Infrastruc
JHTsai_g	00-20-ED-49-BC...	10...	4	None	Unknown	Infrastruc
ap11g	00-0D-61-41-A4-...	10...	9	WEP	Unknown	Infrastruc
ap15ag_11g_Vikin2	00-20-ED-49-BA...	10...	9	None	Unknown	Infrastruc
ap15ag_11g_Vikin	00-0D-61-41-A4-...	10...	11	None	Unknown	Infrastruc

Connected <--> ap15ag_11g_Vikin;

Description of items in ***Figure 3-10*** is as follows:

AP Account: Access Points’ accounts.

BSSID: Displays the MAC address of the Access Point or center station.

Signal Strength: Displays the strength of the signal from a station to the AP.

Channel: Displays the current channel number used by the Access Point.

Encryption: A security method used by the Access Point.

Authentication: The authentication type used by the Access Point.

Network Type: Informs you if an Access Point (infrastructure) or other stations (802.11 Ad Hoc) is connected. When it is 802.11 Ad Hoc, we can select a channel for all members in 802.11 Ad Hoc.

RESCAN: Rescan the available network and then refresh the result.

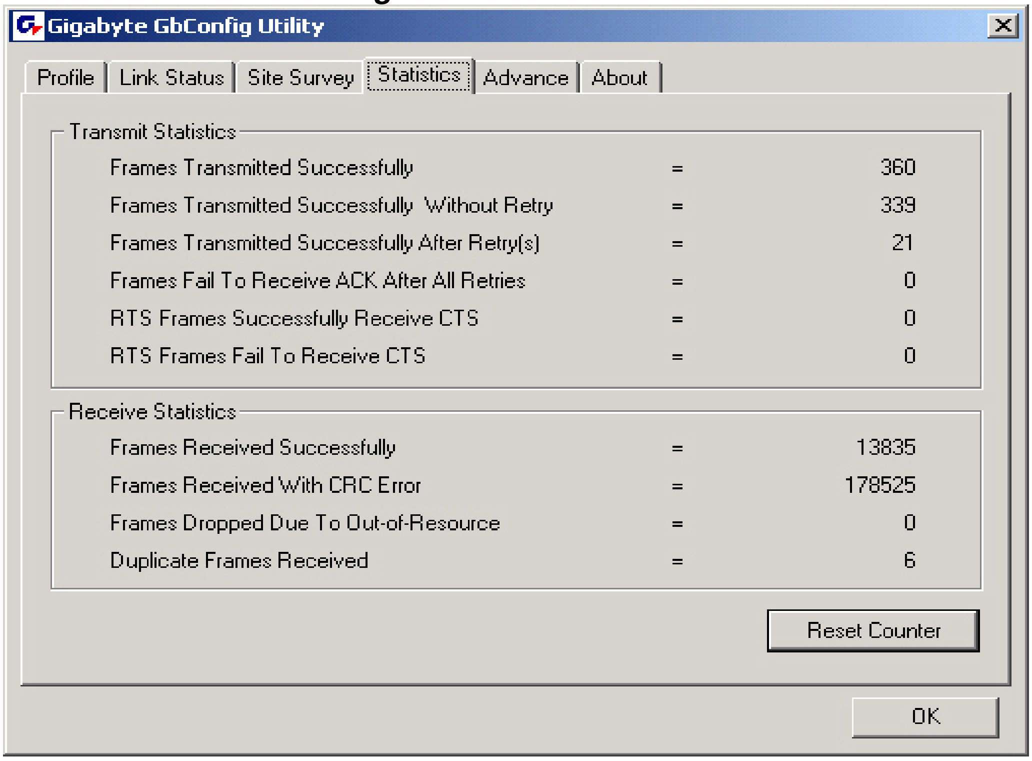
Connect: Connects with a specific Access Point.

ADD PROFILE: Adds a specific Access Point into the profile.

3-4.“Statistics” Setting

“Statistics” tab shows you the number of packets sent and received by the card *(see **Figure 3-11**)*

Figure 3-11. Statistics



Transmit Statistics

Frames Transmitted Successfully	=	360
Frames Transmitted Successfully Without Retry	=	339
Frames Transmitted Successfully After Retry(s)	=	21
Frames Fail To Receive ACK After All Retries	=	0
RTS Frames Successfully Receive CTS	=	0
RTS Frames Fail To Receive CTS	=	0

Receive Statistics

Frames Received Successfully	=	13835
Frames Received With CRC Error	=	178525
Frames Dropped Due To Out-of-Resource	=	0
Duplicate Frames Received	=	6

Description of items in ***Figure 3-11*** is as follows:

Frames Transmitted Successfully: Number of frames transmitted successfully.

Frames Transmitted Successfully Without Retry: Number of frames transmitted successfully, excluding packets transmitted successfully with more than one retry.

Frames Transmitted Successfully After Retry[s]: Number of frames transmitted successfully with more than one retry.

Frames Fail To Receive ACK After All Retries: Number of frames failing to receive ACK after many retries.

RTS Frames Successfully Receive CTS: Number of RTS frames successfully received CTS (Clear To Send) from AP.

RTS Frames Fail To Receive CTS: Number of RTS frames fail to receive CTS from AP.

Frames Receive Successfully: Number of frames received successfully**.**

Frames Receive With CRC Error: Number of frames received with CRC Errors.

Frames Dropped Due TO Out-of-Resource: Number of frames dropped due to out-of-resource.

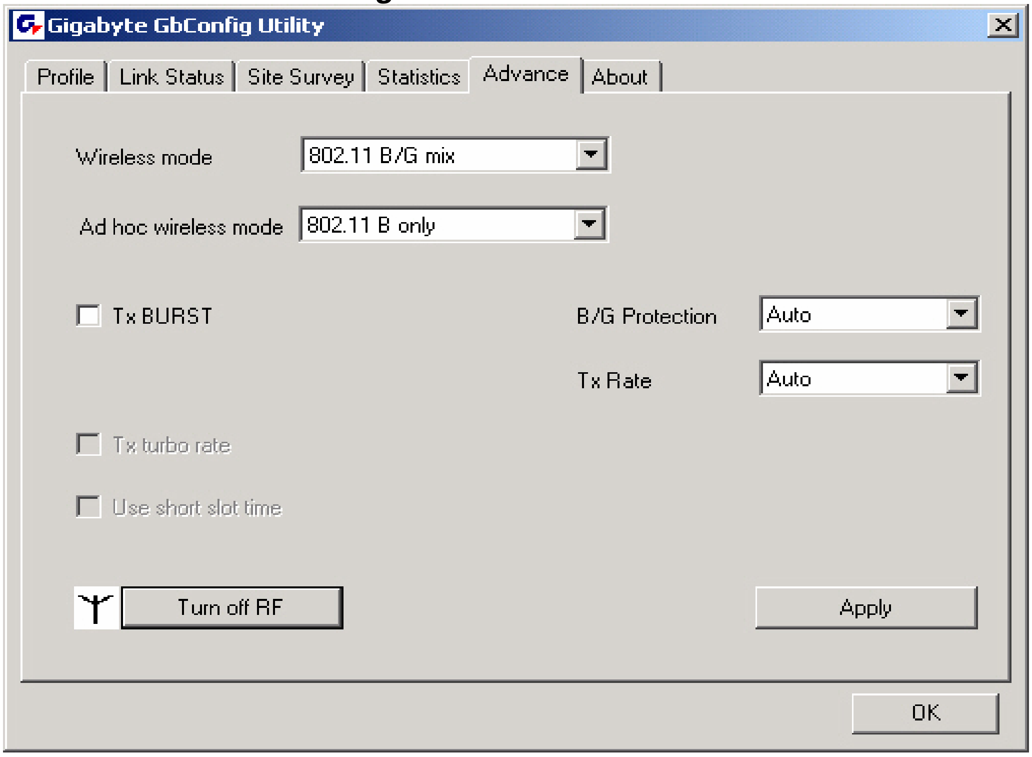
Duplicate Frames Received: Number of duplicate frames received.

Reset Counter: Resets the counter to zero.

3-5.“Advance” Setting

“Advance” tab includes fields of various parameters to review or change drivers. Just click “Apply” button to apply any parameter change to the driver in the tab. A reboot is not needed for the WLAN card *(see **Figure 3-12**)*

Figure 3-12. Advance



Wireless mode: 802.11 B/G mix

Ad hoc wireless mode: 802.11 B only

□ Tx BURST

B/G Protection: Auto

Tx Rate: Auto

□ Tx turbo rate

□ Use short slot time

Description of items in ***Figure 3-12*** is as follows:

Wireless Mode: Sets infrastructure Protocols, including 802.11 B/G mix and 802.11 B Only.

Ad Hoc Wireless Mode: Sets Ad Hoc Wireless Protocols, including 802.11 B/G mix, 802.11 B Only and 802.11 G Only.

TX Burst: The longest interval between frames is normally one DIFS while frames are transmitted. When this setting is open, the longest interval between frames is one SIFS that means the system is allowed to transmit higher capacity of data in one interval.

B/G Protection: 802.11b uses CCK modulation. 802.11g uses OFDM while CCK modulation for 802.11b is compatible. To prevent data collision between two stations with 802.11b and 802.11g within range of the same Access Point, it is necessary to set 11B/G Protection. This setting only functions when 802.11 B/G mix is selected as Wireless Mode. Three setting are available: AUTO, EABLE and DISABLE.

This is a mechanism implemented to prevent the “Hidden Node” problem, “Hidden Note” is a situation in which two stations are within range of the same Access Point, but are not within range of each other. Therefore, they are hidden nodes for each other and can not detect each other. This mechanism is a way to prevent data collision when WLAN equipments require transmission.

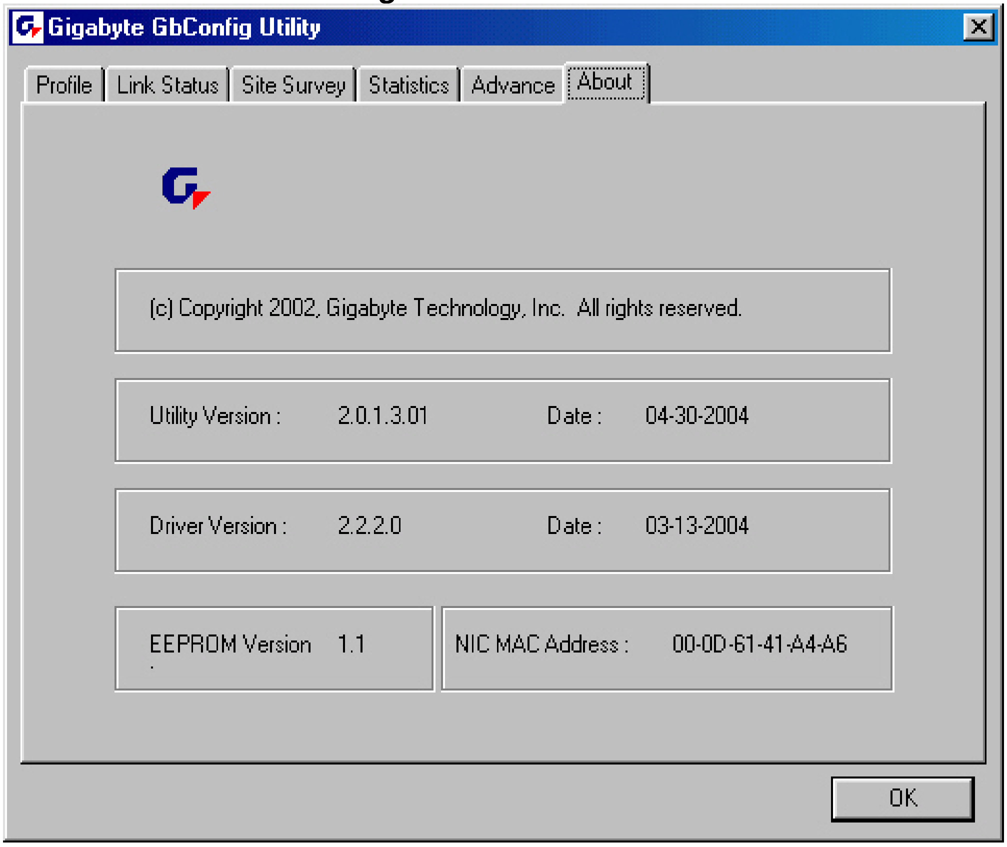
TX Rate: This option adjusts settings of TX Rate according to the setting of “Infrastructure Wireless Mode”.

Signal Control: To turn off transferring signals, click on **“Turn Off RF”** icon on the bottom right corner of the screen. Click **“Turn On RF”** to transfer signal again.
TX Turbo rate and Use short slot time: currently does not support.

3-6.“About” Setting

“About” tab displays information about current drivers and physical MAC address *(see **Figure 3-13**)*.

Figure 3-13. About



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Utility Version : 2.0.1.3.01 Date : 04-30-2004

Driver Version : 2.2.2.0 Date : 03-13-2004

EEPROM Version : 1.1

NIC MAC Address : 00-0D-61-41-A4-A6

Chapter 4 Troubleshooting

This troubleshooting guide provides answers to some common problems which you may encounter while installing or using GIGABYTE WLAN card products. Contact the WLAN Technical Support if you encounter problems not mentioned in this section.

◆ "802.1x", "WPA" and "WPA-PSK" can not work

- Windows XP / 2000:

1. Run \Utility\AegisI5.exe. on the installation CD.
2. Click "**Install**".

- Windows 98SE / ME:

1. Run \\Utility \AegisI2.exe on the installation CD.
2. Click "**Install**".

◆ Cannot connect to an AP

- Make sure the SSID for the Wireless LAN Card is the same as the Access Point.
- Make sure the security settings are the same as that of Access Point. When WEP or WPA encryption is enabled, check if the WEP or WPA keys for the WLAN and AP are the same.
- Make sure if the MAC address of the WLAN card is added in the AP Authorization Table.

◆ Can connect to an AP but cannot connect to the Internet

- Make sure the security settings are the same as that of Access Point. When WEP or WPA encryption is enabled, check if the WEP or WPA keys for the WLAN and AP are the same.
- Make sure the network configuration (IP address, subnet mask, gateway, and DNS) of your computer are correct.
- Check the proxy server of the WEB browser is correctly set.

◆ Poor link quality and signal strength

- Keep the WLAN card away from microwave ovens and large metal objects to avoid radio interference.
- Keep the distance between the WLAN card and the AP as close as possible.

Chapter 5 Specification

1. System	
Host Interface	Mini-Card v1.0
Operating Voltages	3.3V+-5%
2. RF Characteristics	
Frequency Bands	2412-2484 MHz (subject to local regulations)
Modulation Technology	OFDM and DSSS
Modulation Techniques	64QAM, 16QAM, QPSK, BPSK, CCK, DQPSK, DBPSK
Date Rates	54, 48, 36, 24, 18,12, 9, 11, 6, 5.5, 2, and 1 Mbps, auto fallback
Peak Power	Transmitting: 460mA, Receiving: 270mA
Output Power	Targeted at 15dBm @ 54Mbps, 19dBm@11Mbps
Receive sensitivity	Targeted at -71dBm @54Mbps, -85dBm@11Mbps
Antenna connectors	Two antenna connectors for supporting antenna diversity
3.Safety Regulation and Operating Environment	
EMC certification	FCC Part 15 (USA), CE (Europe)
Temperature Range	Operating: 0 ~ 70 degree C, Storing: -40 ~ 85 degree C
Humidity	0% ~ 90% Non-condensing
4. Software Support	
Driver	Windows 98SE/ME/2000/XP/X64
Security	64/128 bit WEP, AES, WPA, WPA2, TKIP, 802.1x
Roaming	Seamless roaming among 802.11b/g access points.
Management Utility	Monitors the network situation.
5. Mechanical	
Dimensions	50.8mm * 29.8mm * 3.95mm ± 0.15mm
Weight	6.5 ± 1.0 g
Packaging	Generic, Gigabyte, private labeling optional

*This specification is subject to change without notice.

FCC Caution

1. The 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.
   (2)This device must accept any interference received, including interference that may cause undesired operation.

2. FCC RF Radiation Exposure Statement: The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

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

FCC Statements:

1. This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users. For laptop installations, the antenna must be installed to ensure that the proper spacing is maintained in the event the users places the device in their lap during use (i.e. positioning of antennas must be placed in the upper portion of the LCD panel only to ensure 20 cm will be maintained if the user places the device in their lap for use), and

2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as the 2 conditions above are met, further transmitter test will not b required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ADSL modems, certain laptop configurations, and similar equipment). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: JCK-GN-WI05GS-RH".

Manual Information for End Users

The end user must not have manual instructions to remove or install the device. The user manual for end users must include the following informatio in a prominent location:"IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."