802.11g
Wireless PCI Adapter

User's Guide

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

EN 60 950-1: 2001 +A11: 2004

Safety of Information Technology Equipment

EN 50392: 2004

Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)

EN 300 328 V1.6.1 (2004-11)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

EN 301 489-1 V1.6.1: (2005-09)

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

EN 301 489-17 V1.2.1 (2002-08)

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

CE0560 ①

⊡ Česky [Czech]	*[Jméno výrobce]* tímto prohlašuje, že tento *[typ zařízení]* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
⊡ Dansk [Danish]	Undertegnede *[fabrikantens navn]* erklærer herved, at følgende udstyr *[udstyrets typebetegnelse]* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
⊡ Deutsch [German]	Hiermit erklärt *[Name des Herstellers]*, dass sich das Gerät *[Gerätetyp]* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
⊡ Eesti [Estonian]	Käesolevaga kinnitab *[tootja nimi = name of manufacturer]* seadme *[seadme tüüp = type of equipment]* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
⊡English	Hereby, *[name of manufacturer]*, declares that this *[type of equipment]* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
⊡ Español [Spanish]	Por medio de la presente *[nombre del fabricante]* declara que el *[clase de equipo]* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
⊡ Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *[name of manufacturer]* ΔΗΛΩΝΕΙ ΟΤΙ *[type of equipment]* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
⊡ Français [French]	Par la présente *[nom du fabricant]* déclare que l'appareil *[type d'appareil]* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
⊡ Italiano [Italian]	Con la presente *[nome del costruttore]* dichiara che questo *[tipo di apparecchio]* è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *[name of manufacturer / izgatavotāja nosaukums]* deklarē, ka *[type of equipment / iekārtas tips]* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

Lietuvių [Lithuanian]	Šiuo *[manufacturer name]* deklaruoja, kad šis *[equipment type]* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
nl Nederlands [Dutch]	Hierbij verklaart *[naam van de fabrikant]* dat het toestel *[type van toestel]* in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
mt Malti [Maltese]	Hawnhekk, *[isem tal-manifattur]*, jiddikjara li dan *[il-mudel tal-prodott]* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
hu Magyar [Hungarian]	Alulírott, *[gyártó neve]* nyilatkozom, hogy a *[... típus]* megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
pl Polski [Polish]	Niniejszym *[nazwa producenta]* oświadcza, że *[nazwa wyrobu]* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
pt Português [Portuguese]	*[Nome do fabricante]* declara que este *[tipo de equipamento]* está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
sl Slovensko [Slovenian]	*[Ime proizvajalca]* izjavlja, da je ta *[tip opreme]* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	*[Meno výrobcu]* týmto vyhlasuje, že *[typ zariadenia]* spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
fi Suomi [Finnish]	*[Valmistaja = manufacturer]* vakuuttaa täten että *[type of equipment = laitteen tyyppimerkintä]* tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
sv Svenska [Swedish]	Härmed intygar *[företag]* att denna *[utrustningstyp]* står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Export restrictions

This product or software contains encryption code that may not be exported or transferred from the US of Canada without an approved US Department of Commerce export license.

TABLE OF CONTENT

INTRODUCTION

Congratulations on your purchase of this 54Mbps IEEE 802.11g Wireless LAN Adapter.

This manual helps to get familiar with the 54Mbps IEEE 802.11g Wireless LAN Adapter. This manual contains detailed instructions in operation of this product. Please keep this manual for future reference.

With a Wireless LAN Adapter, a laptop computer or a station can communicate with another computer in a wireless way. Easy-to-use utilities are bundled with Wireless LAN Adapter for configuration, monitoring, and diagnosis purposes.

Wireless LAN Adapter can wirelessly transmit and receive data, with the Wireless LAN Adapter, you can locate your Notebook PC or station wherever you want without wires and cables.

Wireless LAN Adapter provides users with an access to real-time information anywhere in their organization. The mobility provides productivity and service, which are not available under wired networks. The Wireless LAN Adapter configuration is easy to change from peer-to-peer networks, suitable for a small number of users, to full infrastructure networks of thousands of users that allow roaming around a broad area.

Overview of this User's Guide

Introduction.	Describes the 54Mbps IEEE 802.11g Wireless LAN Adapter.
Unpacking and Setup.	Helps you get started with the basic installation of the 54Mbps IEEE 802.11g Wireless LAN Adapter.
Hardware Installation.	Describes the LED indicators of the 54Mbps IEEE 802.11g Wireless LAN Adapter.
Software Installation.	Tells how to setup the driver and the utility setting.
Technical Specifications.	Lists the technical (general, physical and environmental) specifications of the 54Mbps IEEE 802.11g Wireless LAN Adapter.

UNPACKING AND SETUP

This chapter provides unpacking and setup information for the 54Mbps IEEE 802.11g Wireless LAN Adapter.

Unpacking

Open the box of the 54Mbps IEEE 802.11g Wireless LAN Adapter and carefully unpack it. The box should contain the following items:

◆ One 54Mbps IEEE 802.11g Wireless LAN Adapter

◆ One Driver & Utility with User's Guide CD-ROM

If any item is found missing or damaged, please contact your local reseller for replacement.

Setup

The setup of the Wireless LAN Adapter can be performed using the following steps:

◆ Visually inspect the PCI Adapter and make sure that it is fully plugged in to the PCI slot.

◆ Make sure that there is a well environment that there is no much intrusion to have a better connection.

HARDWARE INSTALLATION

LED Indicator for CardBus

Link

The Link LED indicator lighted green when the 54Mbps IEEE 802.11g Wireless LAN Adapter is connected to wireless network successfully.

ACT (Activity)

The ACT LED indicator blinking green when the 54Mbps IEEE 802.11g Wireless LAN Adapter is transmitting or receiving data.

LED Indicator for PCI

Link

The Link LED indicator lighted green when the 54Mbps IEEE 802.11g Wireless LAN Adapter is connected to wireless network successfully.

Check the installation

The LEDs of the Wireless LAN Adapter are clearly visible and the status of the network link can be seen instantly:

1. Once the device is plugged to the station's PCI slot, the LED of the Wireless LAN Adapter will light up indicating a normal status.

2. When the device plugged to the station's PCI slot and the driver was installed, the ACT will start alternate blinking, it means that the device is starting to scan the wireless devices near the Wireless LAN Adapter.

3. While the Wireless LAN Adapter linked up and transmitting data to the Access Point or to other Wireless LAN station, the Link LED will lighted green.

SOFTWARE INSTALLATION

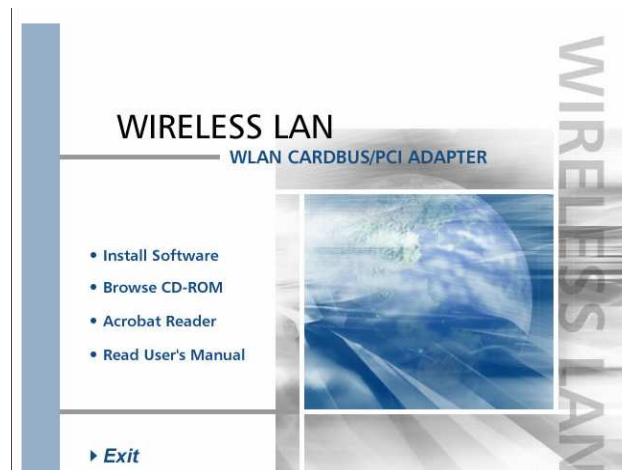This section will lead you to install the driver and utility of the Wireless LAN Adapter.

Windows 98/ME/2000/XP Utility and Driver Installation

1. Insert the 54Mbps IEEE 802.11g Wireless LAN Adapter Driver & Utility CD-ROM into computer's CD-ROM Drive and it will automatically run a setup menu and install the driver and the utility. In some specific setting on Windows system, you may need to proceed the software manually, go to your Windows Start menu and choose **Run**, type "D:\Setup.exe" in the dialog box (D:\ will depend on where your CD-ROM drive is located) and click **OK**.

2. If you need to install the driver manually, refer each Windows OS to the following CD-Rom directory path: D:\Driver\<Windows OS>.

  Note: (D:\ will depends on where the CD-ROM drive is located and <Windows OS> will depend on the Windows OS you are using).

3. The Install Shield Wizard screen will appear. Click "**Next**" to continue.
4. The installation program will help you to setup the Wireless LAN utility.

  Be noted that the Windows XP have its own Wireless Utility; you can either use the utility of Windows XP or the provided utility.

5. When the Wireless LAN Adapter was installed, you will see the icon on the Windows task bar.

  When the icon in the toolbar represents in full green color then the signal strength has an excellent performance with the AP, if it represents in yellow color then the signal strength has a fair performance with the AP, and if the icon represents no color, then the signal strength has a worst performance with the wireless station.
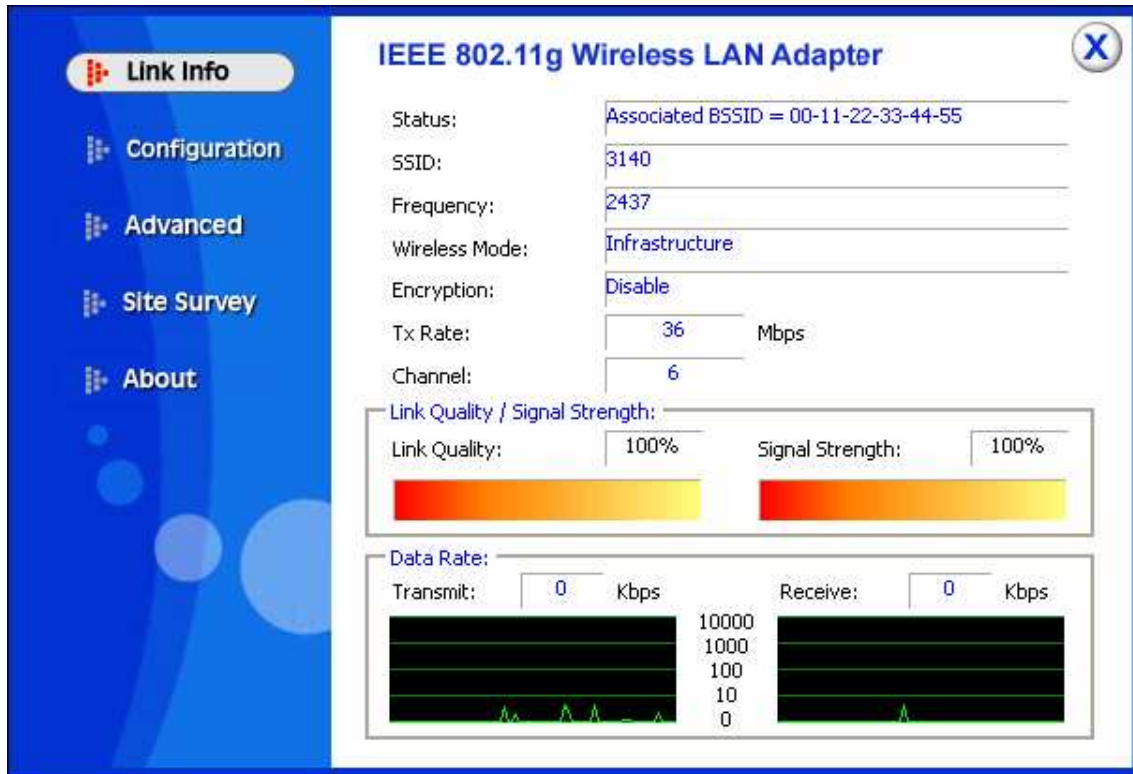
WIRELESS UTILITY SETTING

Link Information

The default page is as below after launching the Utility program.

Status: Shows the BSSID associated, which can be used to identify the wireless network.

SSID: Shows current SSID, which must be the same for the wireless client and AP in order for communication to be established.

Frequency: Shows the current frequency used for wireless network.

Wireless Mode: Shows the current wireless mode used for wireless communication.

Encryption: Shows the current encryption mode used for wireless network.

TxRate: Shows the current data rate used for transmitting.

Channel: Shows the current channel for communication.

Link Quality: Shows the link quality of the wireless LAN adapter with the Access Point when operating under Infrastructure mode.

Signal Strength: Shows the wireless signal strength of the connection between the wireless LAN adapter card with the Access Point.

Data Rate: Shows the statistics of data transfer, and the calculation is based on the number of packets transmitted and received.

Configuration

This is the page where changes the basic settings of the wireless LAN adapter with the minimum amount of effort to implement a secure wireless network environment.

SSID: Service Set Identifier, which is a unique name shared among all clients and nodes in a wireless network. The SSID must be identical for each clients and nodes in the wireless network.

Wireless Mode: There are two types available for selection

●Infrastructure – to establish wireless communication with LAN and other wireless clients through the use the Access Points.

●Ad-Hoc – to establish point-to-point wireless communication directly with other wireless client devices such as wireless network PCI Adapter.

AdHoc Band: When using *Wireless Mode* for *Ad-Hoc mode*, select the *AdHoc Band* from drop down list for *11b only*, *11g only* or *Auto* for both of 11b and 11g.

Channel: The value of channel that AP will operate in. User can find the channel range of 1 to 11 for North America (FCC) domain and 1 to 13 for European (ETSI) domain and 1 to 14 for Japanese domain.

WARNING: Country domain can't be choose by enduserr, because the incorrect region may be in violation of applicable laws.

Power Mode: There are 3 modes to choose.

- Continuous Access Mode (default) – the wireless LAN adapter is constantly operating with full power and it consumes the most power.

- Maximum Power Save – the wireless LAN adapter consumes the least power and only operates when there is wireless network activity.

- Power Save – the wireless LAN adapter consumes the moderate level of power.

Preamble: Select Long or Short Preamble type. Preamble is a sequence of bits transmitted at 1Mbps that allows the PHY circuitry to reach steady-state demodulation and synchronization of bit clock and frame start. Two different preambles and headers are defined: the mandatory supported Long Preamble and header, which interoperate with the 1 Mbit/s and 2 Mbit/s DSSS specification (as described in IEEE Std 802.11), and an optional Short Preamble and header (as described in IEEE Std 802.11b). At the receiver, the Preamble and header are processed to aid in demodulation and delivery of the PSDU. The Short Preamble and header may be used to minimize overhead and, thus, maximize the network data throughput. However, the Short Preamble is supported only from the IEEE 802.11b (High- Rate) standard and not from the original IEEE 802.11. That means that stations using Short-Preamble cannot communicate with stations implementing the original version of the protocol. Click "Apply" for the changes to take effect.

Support Band: There are two functions for users select, including 11B and 11G. The default setting is 11B and 11G are enabled, which is interoperable with both 11B and 11G devices.

Note: user must select one of 11B or 11G at least; otherwise the wireless connection will not function.

Advanced

This is the page to configure Security settings of the 54Mbps IEEE 802.11g Wireless LAN Adapter.

Auth Mode: Select the authentication type from drop down list for Disable, Open System, Shared Key, WPA, WPA-PSK, WPA2 and WPA2-PSK.
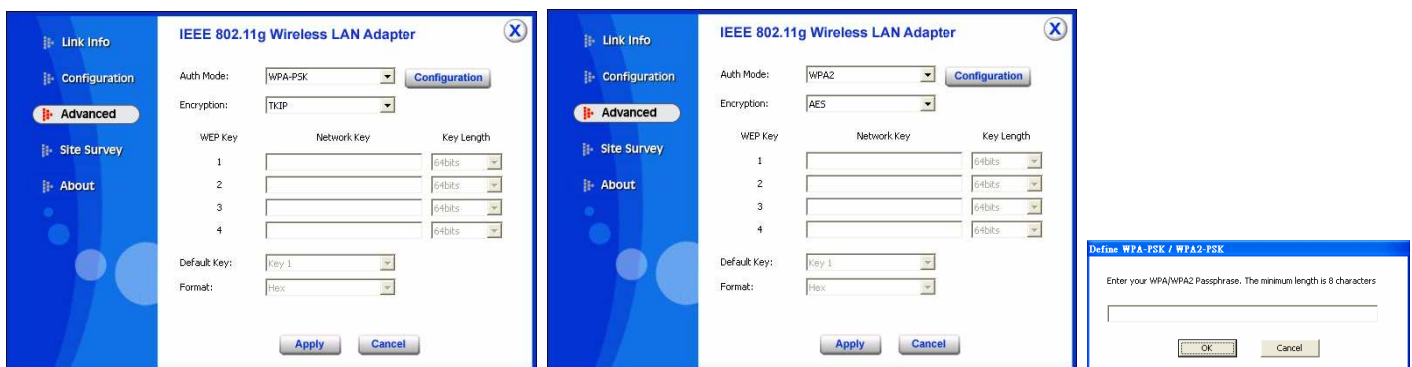
Open System / Shared Key

WEP Key 1~4: choose the encryption way, either in HEX or ASCII formats, and enter the password in the blank space.

Key Length: select 64 or 128 bits as the length of the keys. If you select 64bit in Hex format, you must type 10 values in the following range (0~F, hexadecimal), or 64bit in ASCII format, you must type 5 values in the following range (0~9, A~Z and a~z Alphanumeric); If you select 128bit in Hex format, you must type 26 values (0~F, hexadecimal), or 128bit in ASCII format, you must type 13 values in the following range (0~9, A~Z and a~z Alphanumeric).

Default Key: select one of the 4 keys to use.

Key Format: *ASCII* or *HEX*.

WPA-PSK / WPA2-PSK

If WPA-PSK or WPA2-PSK is selected, the above screen is shown. Please select the encryption type from drop down menu and press *Configuration* button to configure the passphrase key.

Encryption: Select the encryption type for TKIP or AES encryption type.

WPA / WPA2

If WPA or WPA2 is selected, the above screen is shown. Please select the encryption type from drop down menu and press *Configuration* button to configure parameters for the RADIUS server.

WARNING：WPA, WPA2 don't support In Windows 98/ME .
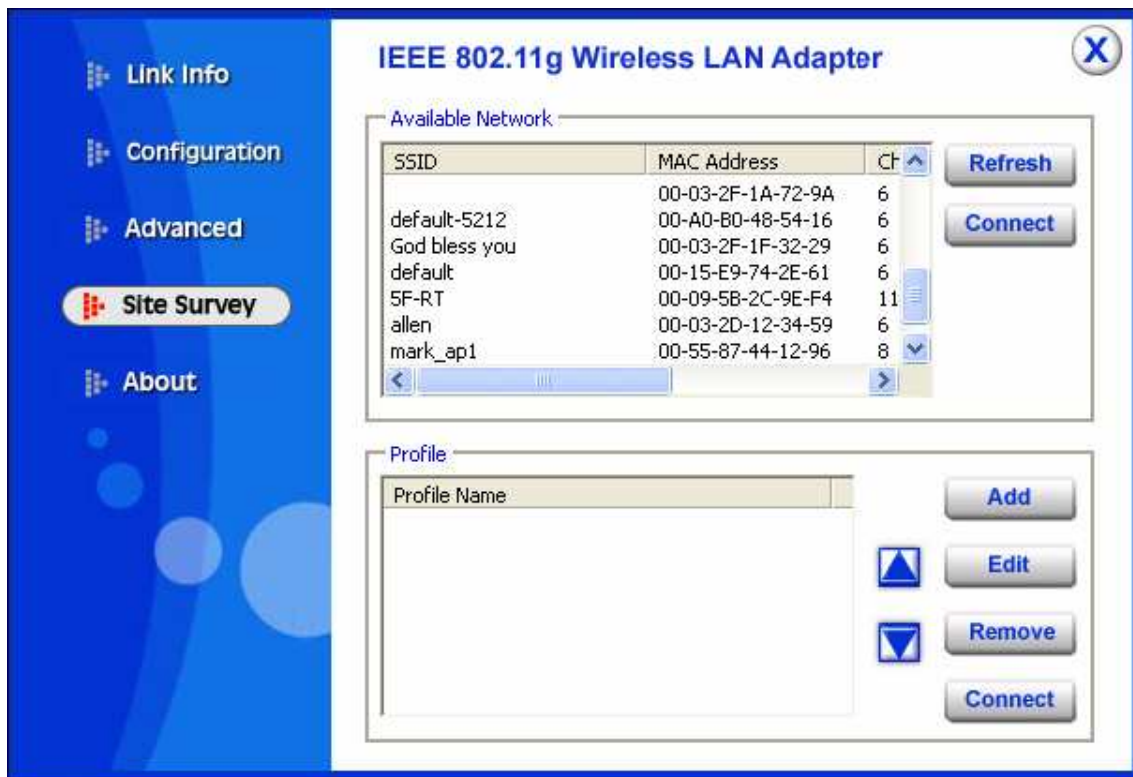
Encryption: Select the encryption type for TKIP or AES encryption type.

Site Survey

This page allows user to enable the Site Survey function to scan for the available wireless network (wireless clients and Access Points) and establish wireless communications with one.
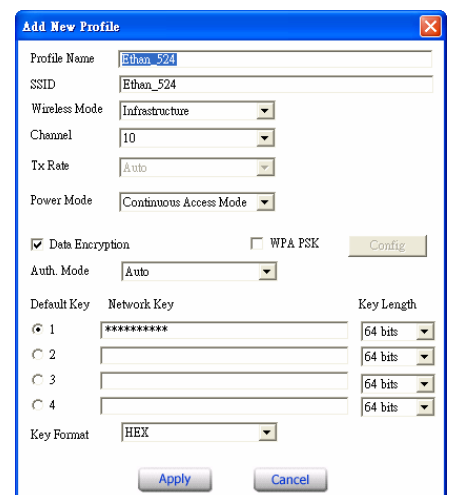

Available Network – displays the wireless networks (wireless clients and Access Points) that are in signal range.

Select any one of them to establish communications by simply mouse **double-click** or click on the "**Connect**" button.

Click "**Refresh**" button to start scanning for available network again.

Profile – User can create and manage the created profiles for Home, offices or public areas. By double-clicking on one of the created profile, the setting will adapt to the configuration such as SSID, channel, and WEP settings saved by that particular profile.

Add: To add a profile. Then, the following screen would appear. User can enter the necessary information required for accessing Access Points or Wireless Router.

Edit: To view and change its settings of the profile.

Remove: To remove the selected profile

About

This page displays some information about the 54Mbps IEEE 802.11g Wireless LAN Adapter utility, which includes the version numbers for Driver, Firmware and Utility. When there is new version of software available for upgrade, users will be able to identify by version numbers.

TECHNICAL SPECIFICATIONS

General	
Radio Technology	IEEE 802.11b Direct Sequence Spread Spectrum (DSSS) IEEE 802.11g Orthogonal Frequency Division Multiplexing (OFDM)
Interface	32-bit PCI bus
Data Transfer Rate	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54Mbps
Receiver Sensitivity	54Mbps: Typical -70dBm @ 10% PER (Packet Error Rate) 11Mbps: Typical -86dBm @ 8% PER (Packet Error Rate)
Transmit Power	802.11b: 15dBm 802.11g: 13dBm
Frequency Range	2412 ~ 2484 MHz ISM band (channels 1 ~ 14) 2400~2483.5MHz ISM band (channels 1 ~ 11)
Modulation Schemes	DBPSK/DQPSK/CCK/OFDM
Channels	1~11 channels (FCC), 1~13 channels (ETSI), 1~14 channels (MKK-Japan)
Media Access Protocol	CSMA/CA with ACK
Security	64/128-bits WEP Encryption, WPA-PSK, WPA2-PSK, WPA, WPA2
Diagnostic LED	Link
Antenna	2dBi dipole antenna
Physical and Environmental	
Driver Support	Windows 98, ME, Windows 2000, Windows XP
Temperature	Operating: 0° ~ 40° C, Storage: -10° ~ 70° C
Humidity	10% ~ 95% RH, no condensation
Dimensions	13 x 121 x 21.6 mm
Certifications	FCC Part 15.247 for US, ETS 300 328 for Europe,