

802.11g Wireless USB2.0 Adapter

User's Manual

Rev. 01 (June 2004)

Made in Taiwan

FCC Warning

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

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

The 802.11g Wireless USB2.0 Adapter has been tested to the FCC exposure requirements (Specific Absorption Rate)

NOTE: 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 or more 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 needed.
- Consult the dealer or an experienced radio/TV technician for help.



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

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

NOTE:

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY
RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED
MODIFICATIONS TO THIS EQUIPMENT SUCH MODIFICATIONS
COULD VOID THE USER'S AUTHORITY TO OPERATE THE
EQUIPMENT.

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ABOUT THIS GUIDE

This manual provides instructions and illustrations on how to use your 802.11g Wireless USB2.0 Adapter:

- Chapter 1, **Introduction**, provides the general information of the adapter.
- Chapter 2, **Hardware Installation**, describes the hardware installation procedure and the application of the adapter.
- Chapter 3, **Using the Utilities**, helps you to install and use the software.
- Chapter 4, **Product Specification**.

Please note that the illustrations or setting values in this manual are **FOR YOUR REFERENCE ONLY**. The actual settings and values depend on your system and network. If you are not sure about the respective information, please ask your network administrator or MIS staff for help.

INTRODUCTION

Congratulations on purchasing the **802.11g Wireless USB2.0 Adapter**, a device that based on 802.11g technology and compatible for interoperability with existing 802.11b devices. It provides a data rate that can be up to 54 Mbps* and auto-negotiated to 48, 36, 24, 18, 12, 9, 6Mbps (IEEE 802.11g), or 11, 5.5, 2, 1Mbps (IEEE 802.11b). For your networking security, the communications through this adapter are protected by up to 256-bit WEP encryption, so your data stays secure.

This hot-plug USB-interface adapter comes with a user-friendly software utility and driver for the most popular Microsoft® Windows operating system, allowing you to run the configuration utility and uses easily. This adapter can be integrated into your network with either **Ad-hoc mode** (without an access point or router) or **Infrastructure mode** (an access point or router is required). Using this adapter, you can share files, printers, and high-speed access the Internet over your existing wireless network.

** A theoretical maximum value of the adapter. Actual throughput may vary depending on the distance between wireless adapters, the configuration of your working environment, or the capabilities or limitations of your computer systems.*

Package Contents

Unpack the package and check all the items carefully, and be certain that you have:

- ◆ One 802.11g Wireless USB2.0 Adapter.
- ◆ One Quick Installation Guide.
- ◆ One Installation CD-ROM containing the driver, utility and User's Guide.
- ◆ One USB Cable.

If any item contained is damaged or missing, please contact your local dealer immediately. Also, keep the box and packing materials in case you need to ship the unit in the future.

System Requirements

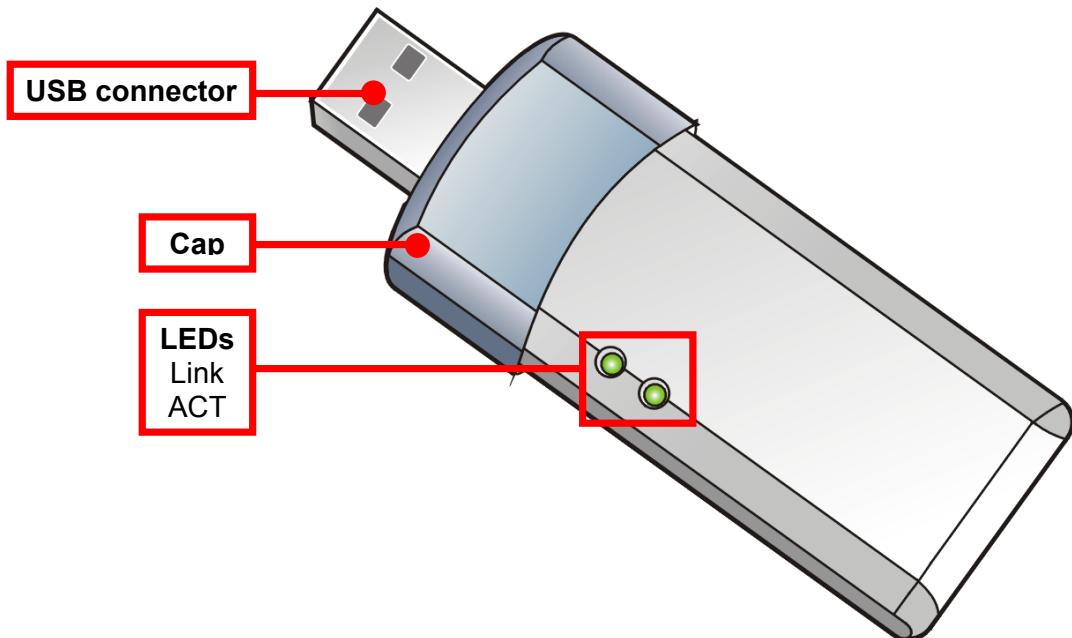
- ◆ A computer or laptop with an available USB port.
- ◆ Microsoft Windows® 98SE/ME/2000/XP.
- ◆ At least 32MB of memory and a 300MHz processor.
- ◆ Properly installed and working USB Controller in your system.

General Features

- ◆ Compatible with IEEE 802.11g for 2.4GHz wireless networking environment, and backwards compatible with 802.11b standard.
- ◆ Plug-and-Play installation.
- ◆ Works with all existing network infrastructure.
- ◆ Compatible with Wi-Fi wireless products and services.
- ◆ Supports up to 256-bit WPA encryption for high-level security, and 64, 128 and 256-bit WEP shared-key encryption.
- ◆ Freedom to roam while staying connected.
- ◆ Up to 54Mbps high-speed transfer rate.
- ◆ Support internal antenna for better sensitivity.
- ◆ Easy-to-install and user-friendly configuration utility.

Product View

This section describes the externally visible features of the adapter.



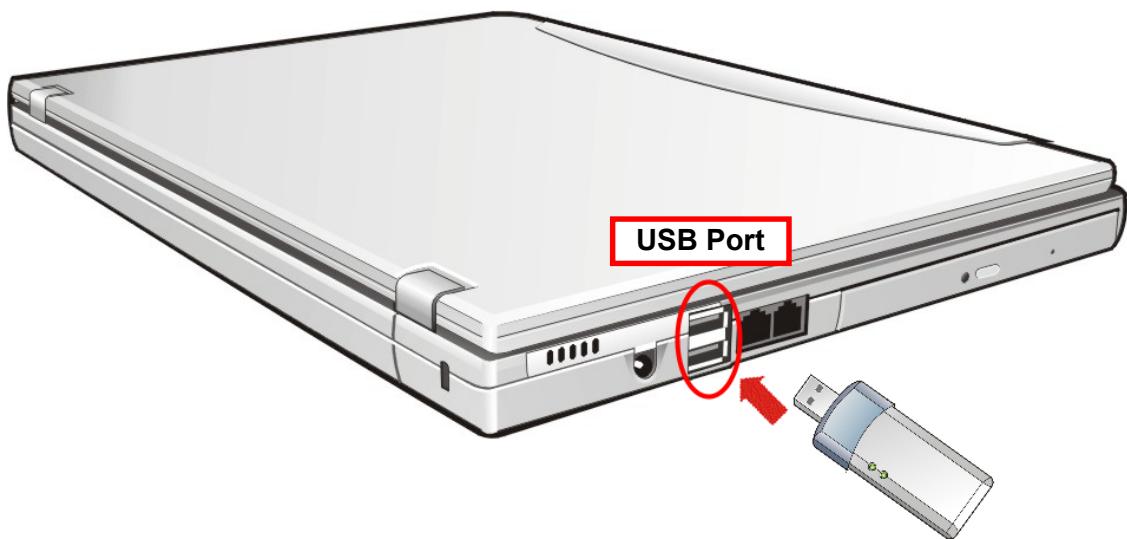
Wireless USB2.0 Adapter (with cap opened)

LEDs	Description
Link (Green)	Steady light to confirm the adapter is connected to the wireless network.
ACT (Green)	Blinking light to confirm the adapter is receiving/transmitting data from/to the wireless network.

HARDWARE INSTALLATION

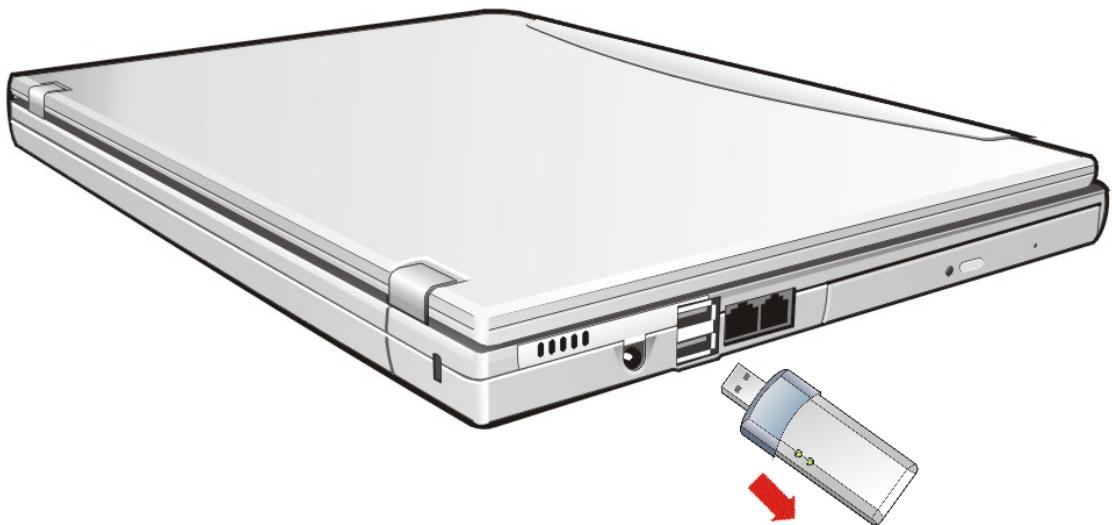
Installing the USB Adapter

To install the USB adapter, simply plug it into an available USB port on your computer.



The USB adapter supports hot-plug function, so you can remove it

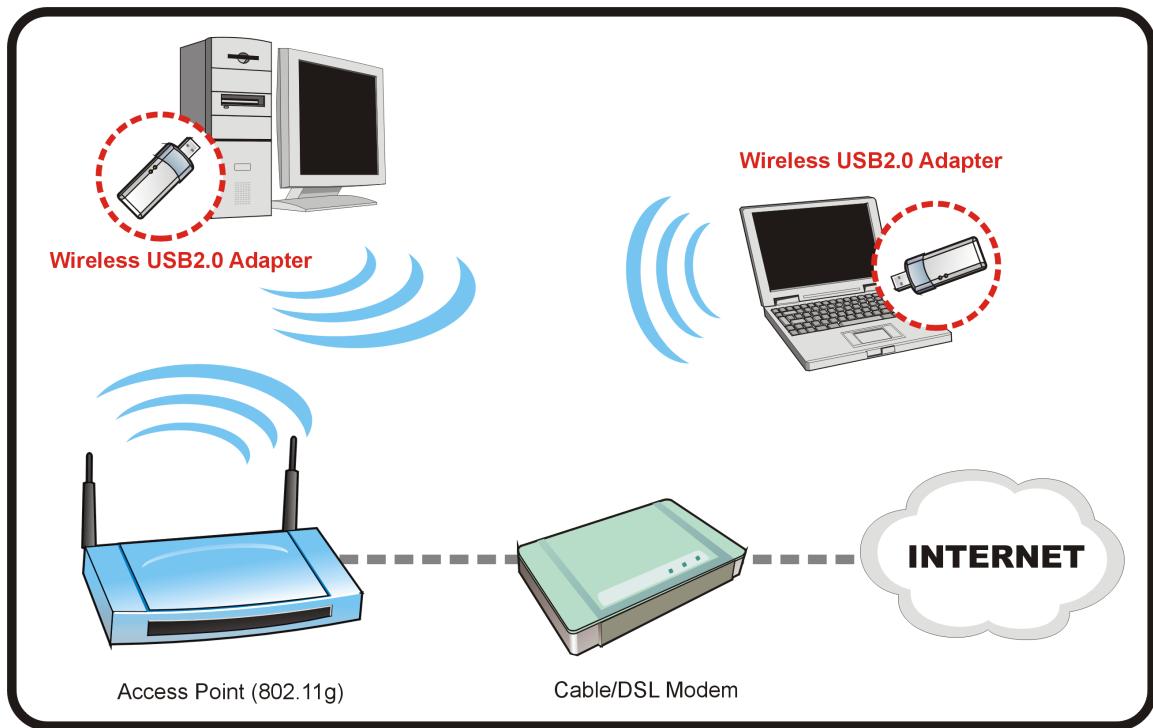
under Windows operating system without shutting down the system. To remove the USB adapter, gently pull the adapter out from the port.



NOTE: DO NOT remove the USB adapter while transferring data (the LED is flashing). Please close the communication programs or stop the task before removing it.

Networking Application

The following diagram explains the application of your USB adapter in your wireless network.



To build a wireless network at home (as shown above), you may need the followings:

- A broadband Internet access (a Cable/DSL subscriber line) from your ISP.
- A proper installation of the Cable/DSL modem (consult with your Cable/DSL provider or ISP).
- Connect the Cable/DSL modem to your broadband router.
- Install the USB adapter into an available USB port on your desktop/notebook computer, and complete some required configurations.

USING THE UTILITY

Introduction

Your USB adapter uses a **Configuration Utility** as the management software. The utility provides the user with an easy interface to change any settings related to the adapter.

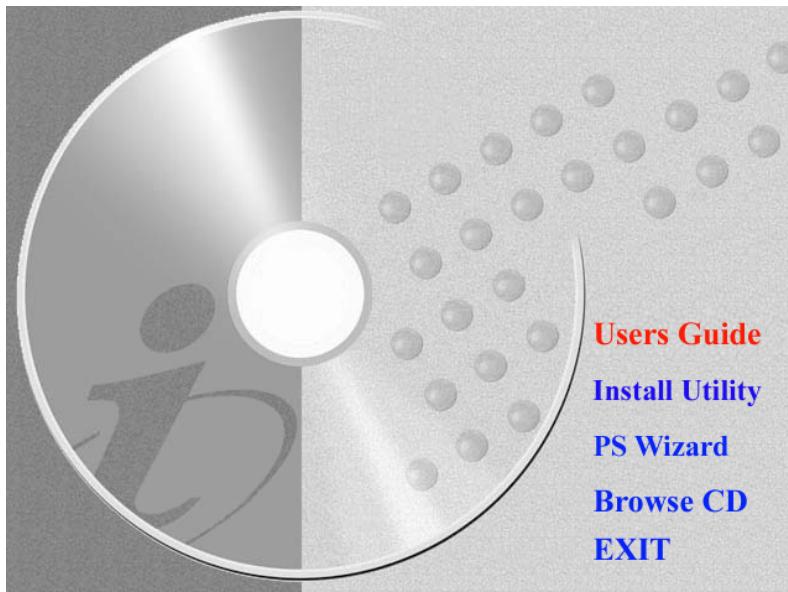
After you have completed the installation of the USB adapter, the Configuration Utility starts automatically as you start the computer, and the system tray icon is loaded in the toolbar (as shown below). Clicking on the utility icon will start the Configuration Utility. Alternately, you can launch the Configuration Utility by clicking on **Start > Programs > Utility**.



Configuration Utility Icon

Auto-Run Installation

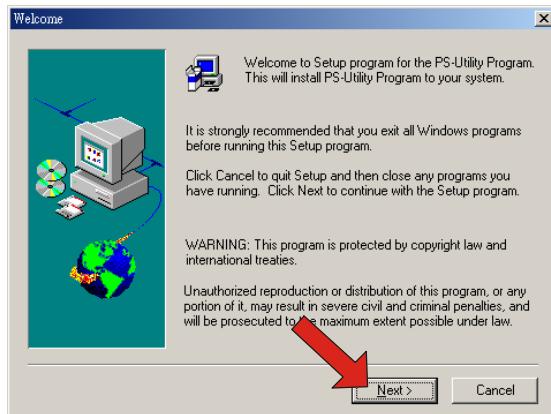
Insert the Installation CD-ROM into your computer's CD-ROM drive to initiate the Auto-Run program, and the menu screen will appear as below.



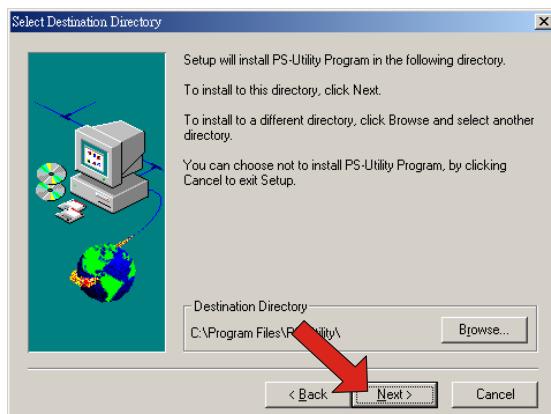
- User's Guide – click to preview the User's Guide in PDF format for detailed information of the USB adapter.
- Install Utility – click to install the Configuration Utility.
- Browse CD – if you want to browse the contents of the Installation CD-ROM, click this button and the contents of the CD will be available for preview.
- Exit – click to close the Auto-Run program.

Installing the Configuration Utility

1. Click **Install Utility** from the Auto-Run menu screen. Once executed, the Setup program will extract files to launch the InstallShield Wizard; then, click **Next >** in the welcome screen of InstallShield Wizard.



2. Choose the destination location. If no specific requirement, leave the default setting and click **Next >**.



3. The InstallShield Wizard starts to install the software, and the Progress bar indicates the installation is proceeding.
4. When completed, click **Finish**.



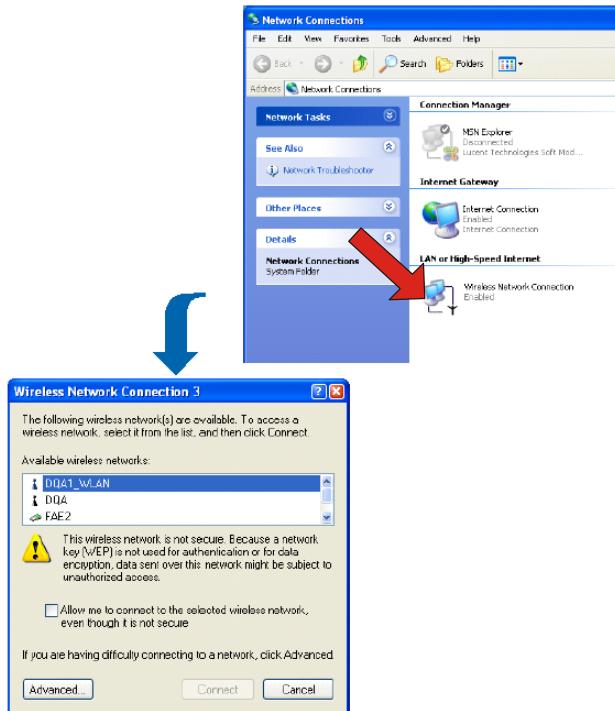
After installing the utility, the application program for the adapter is automatically installed to your computer, and creates a folder in **Start\Programs\Utility**.

Changing the Control Setting

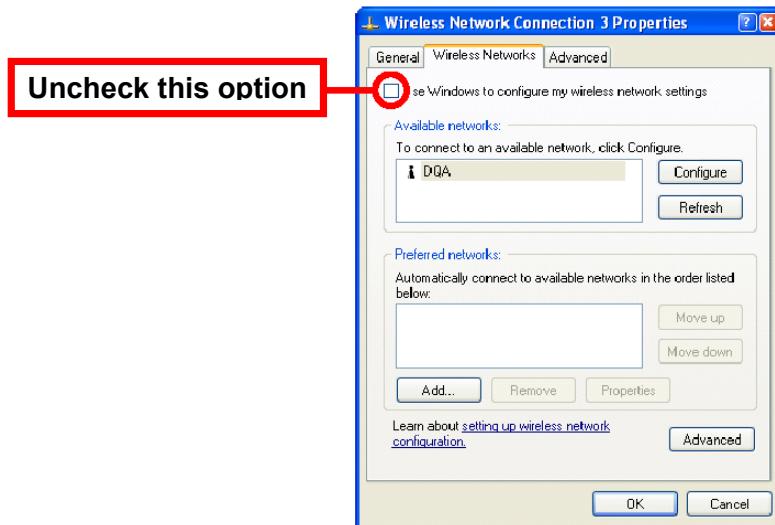
If you use Windows® XP, you can choose to control your USB adapter using either the Windows “**Zero Configuration Utility**” or the adapter’s **Configuration Utility**. As default setting, the wireless network is controlled by the operating system. To take full advantage of the adapter, it is recommended to use the adapter’s Configuration Utility to configure your adapter and set up the network.

To change the control setting:

1. Click **Start > Settings > Control Panel** to open the Control Panel window.
2. Double-click the **Network Connection** icon to open the Networking Connection window.
3. In the Networking Connection window, double-click the Wireless Network Connection icon to bring up the following dialog window.



4. Click **Advanced** to bring up the Properties window. Uncheck the **Use Windows to configure my wireless network settings** option. Then, click **OK**.

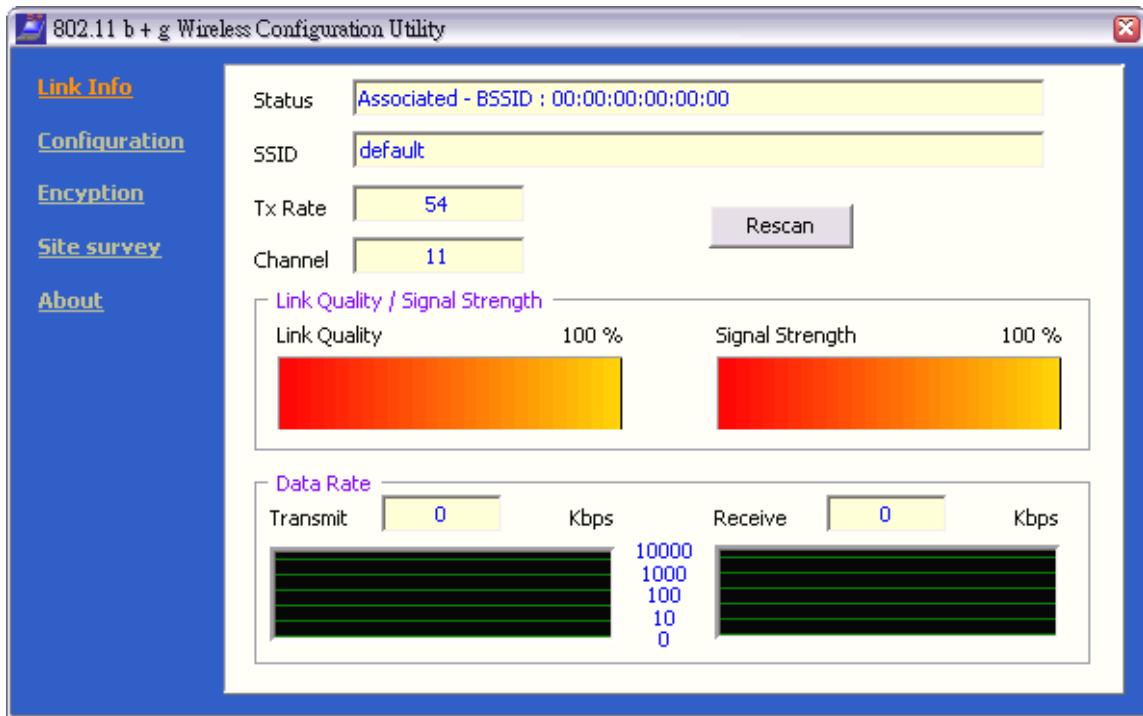


Now, you can use the adapter's Configuration Utility to configure your network.

Using the Configuration Utility

After clicking on the Configuration Utility icon, the **Link Info** screen will display the settings for the adapter.

Link Info Screen



Status: Displays current connection state of the adapter.

SSID: The Service Set Identifier is the name assigned to the wireless network. The factory SSID setting is **default**.

Tx Rate: Tx Rate settings are automatically determined for an optimal speed up to a maximum of 54Mbps.

Channel: The channel selection is automatically determined by the adapter.

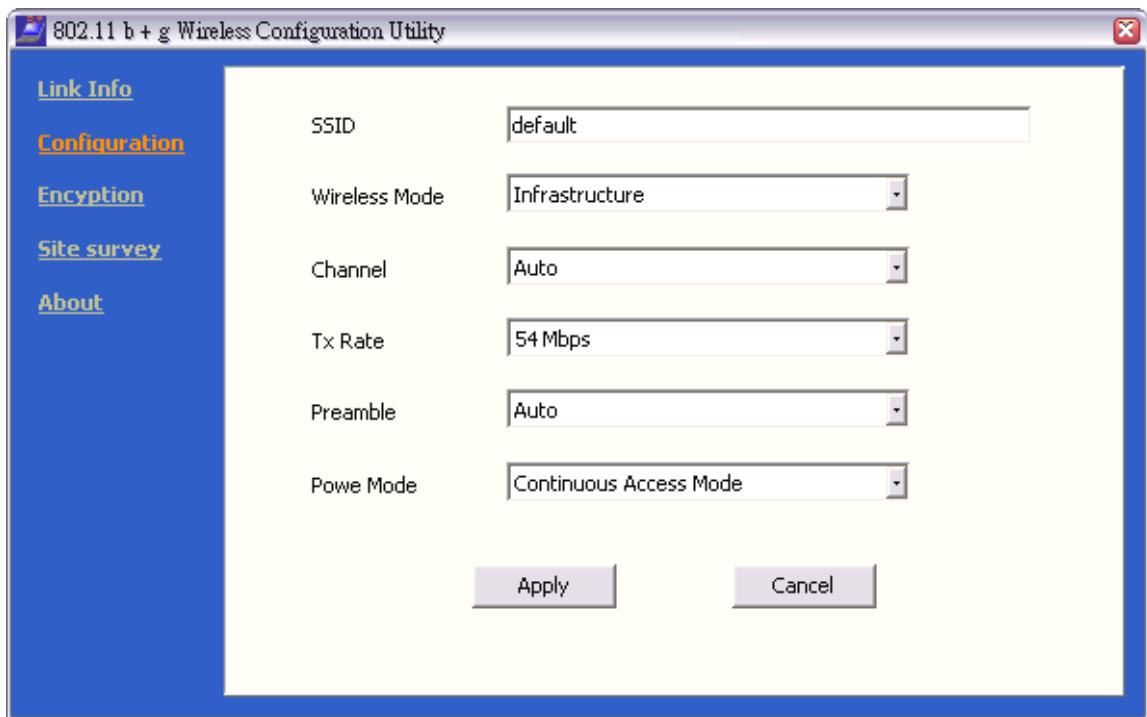
Link Quality: Displays the wireless signal strength for the wireless connection to the access point.

Signal Strength: Displays the Link Quality for the wireless connection to the access point. The Signal Strength represents the wireless signal between the access point and the adapter. The percentage coincides with the graphical bar.

Data Rate: Displays the statistics of the data that is transmitted and received.

Rescan Button: Rescans for the strongest signal in your environment and associates with that access point or router.

Configuration Screen



SSID: The Service Set Identifier is the name assigned to the wireless network. The factory SSID setting is set to **default**. Make changes here to match the SSID on the existing wireless router or access point.

Wireless Mode: **Infrastructure** is the factory default setting. Ad-Hoc mode is used for Peer-to-Peer networking.

Channel: The default channel setting is channel **6**. In Infrastructure mode, the adapter will automatically select the channel to match the channel setting for the selected access point. In Ad-Hoc mode, the channel must be manually set to the same channel for each wireless adapter.

Tx Rate: You can adjust the transmission rate to get the best signal possible depending on your usage and your environment. The Tx Rate will be determined automatically by signal strength. Default is set to **Auto**.

Preamble: Select Long or Short Preamble. The Preamble defines the length of the CRC block (Cyclic Redundancy Check is a common technique for detecting data transmission errors) for communication between the access point and the roaming wireless network adapters.

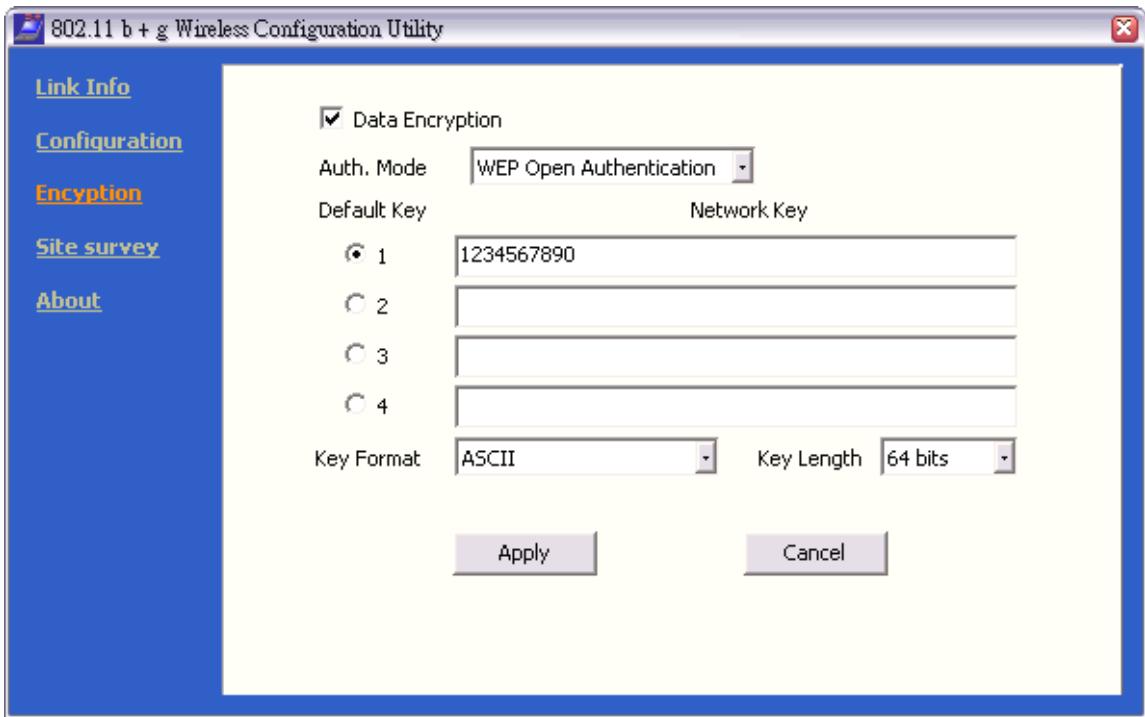
Long Preamble is the default setting. High network traffic areas should use the Short Preamble.

Power Mode:

- ***Continuous Access Mode:*** this default setting consumes the most power.
- ***Maximum Power Save:*** this setting consumes the least power.
- ***Power Save:*** this setting consumes a moderate amount of power.

Click **Apply** to save changes.

Encryption Screen



Data Encryption: Enable encryption by clicking in the box. Data encryption is de-selected as the default setting.

Auth. Mode:

- ***WEP Open Authentication:*** communicates the key across the network.
- ***WEP Shared Authentication:*** allows communication only with other devices with identical WEP settings.
- ***WPA:*** a dynamically changing encryption mechanism for wireless networking that provides the user with encryption strength up to 256-bit.
- ***WPA-PSK:*** WPA authentication (802.1X) is used with a pre-shared key. It is recommended to use WPA-PSK because it provides the strongest security algorithm.

Default Key: Enter a key in either ASCII or hexadecimal format. Select one of the 4 keys that you have created to be the default key.

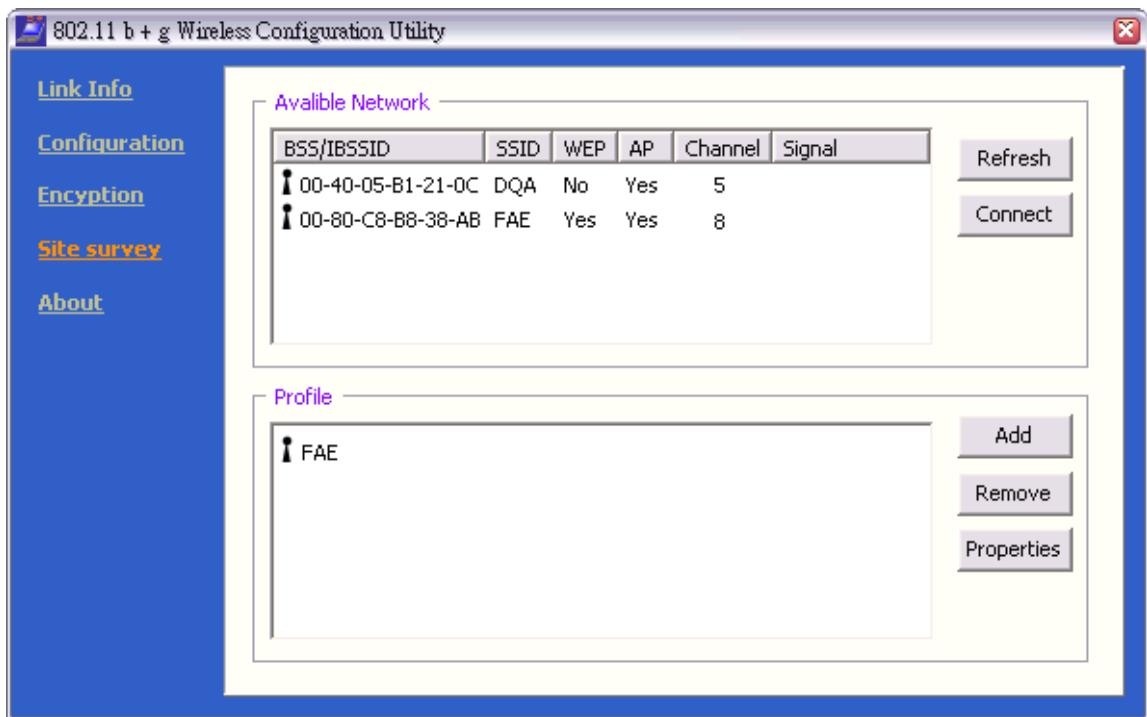
Key Format: ASCII or hexadecimal format.

Key Length: Select the key length, either **64**, **128** or **256** bits.

Click **Apply** if you have made any changes

Hexadecimal digits consist of the numbers 0-9 and the letters A-F. ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

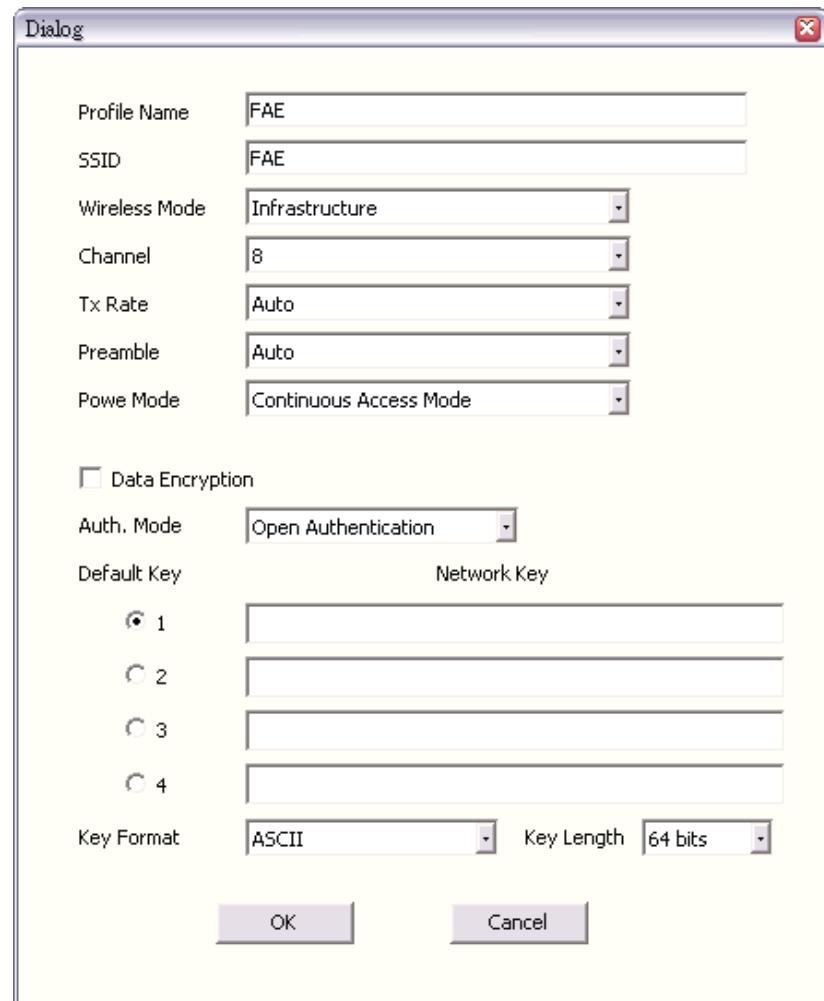
Site Survey Screen



Available Networks: The top section of the window displays the Available Networks. Scroll up and down the list and highlight the network to which you wish to connect. Click the **Connect** button.

Profiles: In the lower half of the screen, you can manage the profiles that you have created for the wireless network at home, at the office and in public places. Scroll up and down and highlight the profile that you wish to configure. You can **Add** or **Remove** a profile, or configure the Properties of the profile in order to connect with an available network.

Properties: Click **Properties** and the following screen will appear.

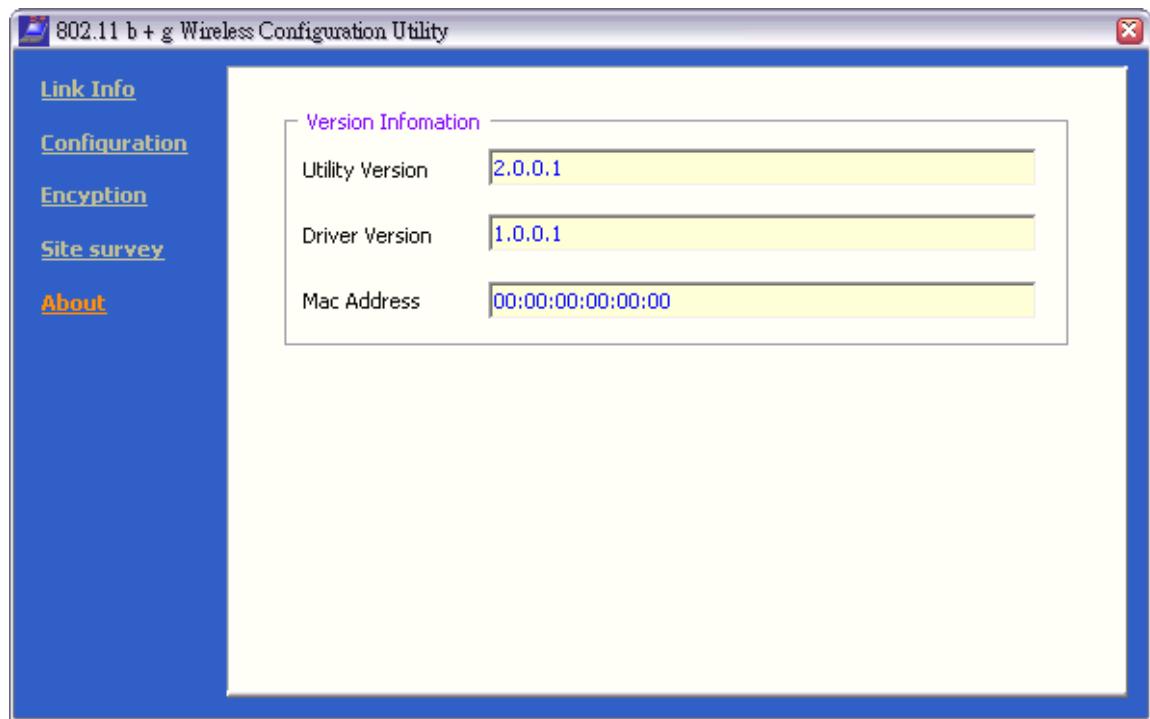


In this window you can configure all the properties of a profile in order to connect with a network of your choice.

Click **OK** to save the changes.

Information Screen

This screen shows the general information of your adapter and utility, including the utility version, driver version, and the adapter's MAC address.



PRODUCT SPECIFICATIONS

Interface

USB 2.0

Standard

IEEE 802.11g, IEEE802.11b, Wi-Fi compliant

Antenna

Internal Chip Antenna, -1dBi

Frequency Range

2.412GHz ~ 2.4835GHz:

- 2.412 ~ 2.462 GHz (North America)
- 2.412 ~ 2.484 GHz (Japan)
- 2.412 ~ 2.472 GHz (Europe ETSI)

- 2.457 ~ 2.462 GHz (Spain)
- 2.457 ~ 2.472 GHz (France)

Number of Selectable Channels

- **USA & Canada:** 11 channels
- **Europe:** 13 channels
- **Japan:** 14 channels

Data rate

- **802.11g:** 54, 48, 36, 24, 18, 12, 9, 6Mbps
- **802.11b:** 1, 2, 5.5, 11Mbps

Modulation Technique

- **802.11g:** Orthogonal Frequency Division Multiplexing (64QAM, 16QAM, QPSK, BPSK)
- **802.11b:** Direct Sequence Spread Spectrum (CCK, DQPSK, DBPSK)

Security

64, 128, 256-bit WEP

Media Access Protocol

CSMA/CA (Collision Avoidance) with optional ACK

Output Power

- **802.11g:** 19.89 dBm @ 54Mbps (Typical)
- **802.11b:** 19.68dBm @ 11Mbps (Typical)

Sensitivity

- **802.11g:** -69dBm @ 54Mbps
- **802.11b:** -82 dBm @ 11Mbps

Operating System Support

Microsoft® Windows 98SE/ME/2000/XP

LEDs

Link, ACT

Environmental and Physical

- **Weight:** 20 g
- **Dimension:** 73 (L) x 29.5 (W) x 10.6 (H) mm
- **Operating Voltage:** 5V DC
- **Operating Temperature:** 0°C to 50°C
- **Storage Temperature:** -10°C to 65°C
- **Operating Humidity:** 90%, non-condensing
- **Storage Humidity:** 95%, non-condensing

EMI Compliance

- FCC Part15 in US
- EN300328 and EN300826 (EN301489-17) in Europe
- Telec in Japan