Wireless LAN Cardbus Adapter

User's Manual

February, 2004

FCC Warning

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 connected.

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

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.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

Your device contains a low power transmitter. When device is transmitted it sends out RadioFrequency (RF) signal.

CE Warning

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz; In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

For the following equipment: WCB61RL

CE0984 ⚠

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC), Low-voltage Directive (73/23/EEC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/3360EEC.

The equipment was passed. The test was performed according to the following European standards:

- EN 300 328 V.1.4.1 (2003-04)
- EN 301 489-1 V.1.3.1 (2001-09) / EN 301 489-17 V.1.1.1 (2000-09)
- EN 50371: 2002

EN 60950: 2000

Trademarks:

All trade names and trademarks are the properties of their respective companies.

Contents

1. Introduction

This Wireless LAN Cardbus Adapter is designed to comply with IEEE 802.11g Wireless LAN standard and easy to carry with the compact size.   It is suitable for any laptop computers and provides maximum data transfer rate up to 54 Mbps.   This Cardbus Adapter supports WEP, WPA and AES high level WLAN security features the guarantee the best security for users.   It also supports Windows OS Plug & Play and Cardbus Hot Swap which allows user plug in or remove it without rebooting the system.

Wireless LAN Cardbus Adapter operates with Microsoft Windows operating systems such as Windows XP/2000/ME/98SE, it is capable to operate with **Ad-hoc mode** (pier to pier without an Access Point) or **Infrastructure mode** (computer to access point, an access point is required).

Ad-hoc Mode: An Ad-hoc network is a local area network with wireless or temporary plug-in connections which some of the network devices are part of the network only for the duration of a communication session.   Users in the network can share files, network printer and access the Internet with a shared modem.   In this kind of network, new devices can be quickly added; however, users can only communicate with other wireless LAN computers that are in this wireless LAN workgroup within operating range.
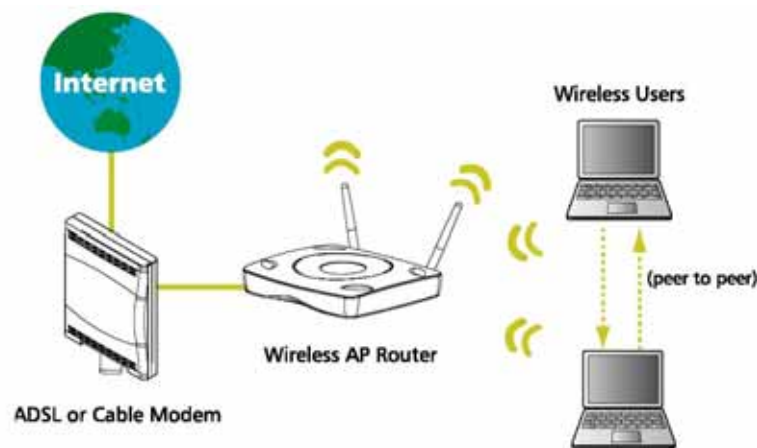
Ad-hoc Mode

Infrastructure Mode: The different between Infrastructure network and Ad-hoc network is that Infrastructure network has an Access Point.   In the Infrastructure network, the Access Point can manage to perform the maximum bandwidth utilization.   The Access Point allows Wireless LAN users to access an existing wired network.   The wireless users to take advantage of the wired networks resources such as Internet, file transfer and network printer.
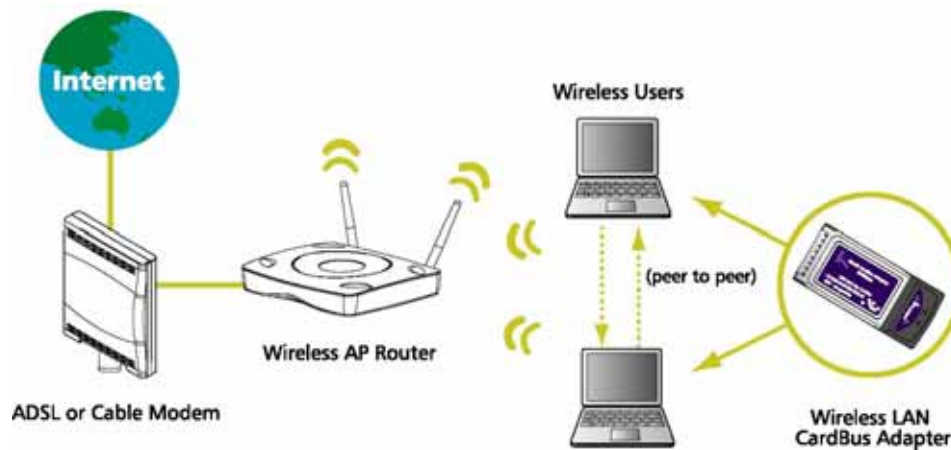
Infrastructure Mode

1.1 Features

- Maximum transfer rate up to 54 Mbps
- Supports 64/128-bit WEP Data Encryption function for high level of security
- Supports WPA and AES advanced WLAN Security
- Supports peer-to-peer communication among any wireless users, no Access Point required
- Supports automatic fallback increase data security and reliability
- Supports Power Save Mode
- Supports 32-bit Cardbus interface

1.2   Specifications

- Standard: IEEE 802.11g and backward compatible with IEEE 802.11b
- Interface: 32-bit Cardbus
- Frequency Band: 2.4GHZ ISM
- Operating radius: indoor up to 100m and outdoor up to 300m
- Antenna: Internal Antenna
- Supports auto fallback 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2 and 1 Mbps
- Supports 64/128-bit WEP Data Encryption function for high level of security
- Supports WPA and AES advanced WLAN Security
- Supports Windows 98SE, ME, 2000 and XP
- Transmit output power: 18 dBm
- Dimension: 113mm (L) x 54mm (W) x 7mm (H)
- Operating temperature: -40°C ~ 85°C ambient
- Humidity 5 % ~ 95 % (non-condensing)
- Storage temperature: -65°C ~ 150°C
- Certification: FCC, CE

1.3 Package Contents

- One Wireless LAN Cardbus Adapter
- One user's quick installation guide
- One CD (driver/manual/utility)

If any of the above items is missing, contact your dealer immediately.

2.   Software Installation

This chapter describes procedures of installing Wireless LAN Cardbus device driver and utility.   If you have installed other Wireless LAN Cardbus Adapter or older version on your system, please uninstall them first.

2.1   Install Device Driver
1.   Plug in the Wireless LAN Cardbus Adapter, the system will automatically find the device and search for its driver.   Click **"Cancel"**:

2.   Insert Utility Driver CD into CD-ROM drive and window below will appear. Click **"Install Driver Utility"** to install device driver and application programs.   **Note: Please click "*Install Driver Utility*" to install driver and utility, otherwise installation process will not be completed.**

3. Once Installation process is launched, window below will appear.

4. After driver is installed and Wireless LAN Cardbus Adapter is connected, driver installation complete window will pop out and a new icon will be displayed at lower right corner task bar.

Wireless Driver Install Info

i   Wireless Driver Install finished !

YES (Y)

5.   If there is an existing compatible wireless network, wireless
     Cardbus will connect with network.   An icon shown at lower right
   corner will display connected.

3.   Configuration Utility

The Configuration Utility is a powerful application that helps you configure the Wireless LAN Cardbus Adapter, setup wireless security settings and displays connection statistics.   You can configure wireless connection either use Ralink Configuration Utility or Microsoft Wireless Utility.

After you choose country in "**Country Channel Select**" window, window below will appear to ask users weather to use Ralink Configuration Utility or Microsoft Wireless Utility.   If you decide to use Ralink Configuration Utility go to section 3.1; if you decide to use Microsoft Wireless Utility, go to section 3.2 in page 16.
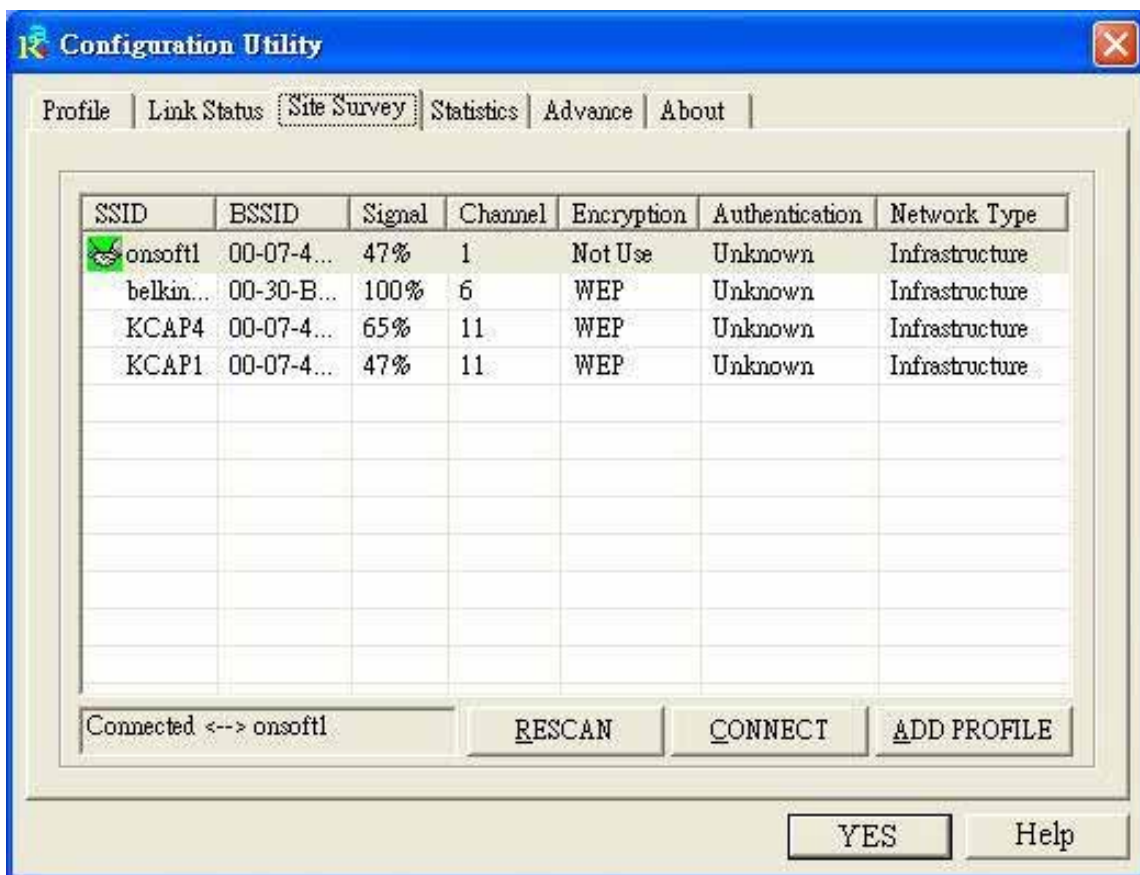
3.1   Ralink Configuration Utility
If you decide to use Ralink Configuration Utility, select "**Use RaConfig (Without WPA support)**".
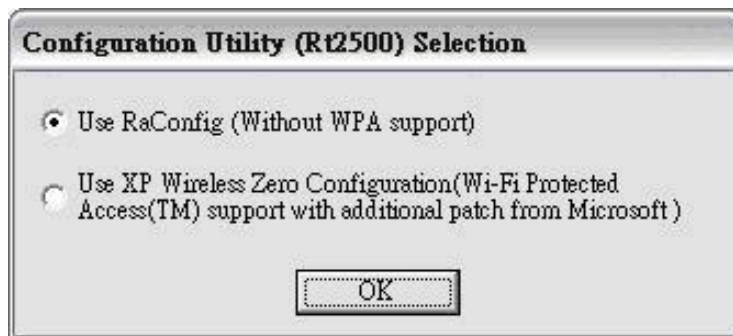
3.1.1   Site Survey
Site Survey displays available wireless AP, connection quality, channel selection, data encryption, authentication type and network type information.

SSID: System Set Identifier.   It is the name of the network that is connected to the Access Point.

BSSID: Basic Service Set Identifier.   An identification is assigned to an Access Point that connects to wired network and a set of wireless devices.

Signal: The signal transmission quality.

Channel: Which channel Cardbus Adapter is using to transmit data.

Encryption: Which data security encryption Cardbus Adapter is using.

Authentication: Network authentication type.

Network Type: It shows which kind of network your device connects to. It can be Infrastructure Mode or Ad-hoc Mode.
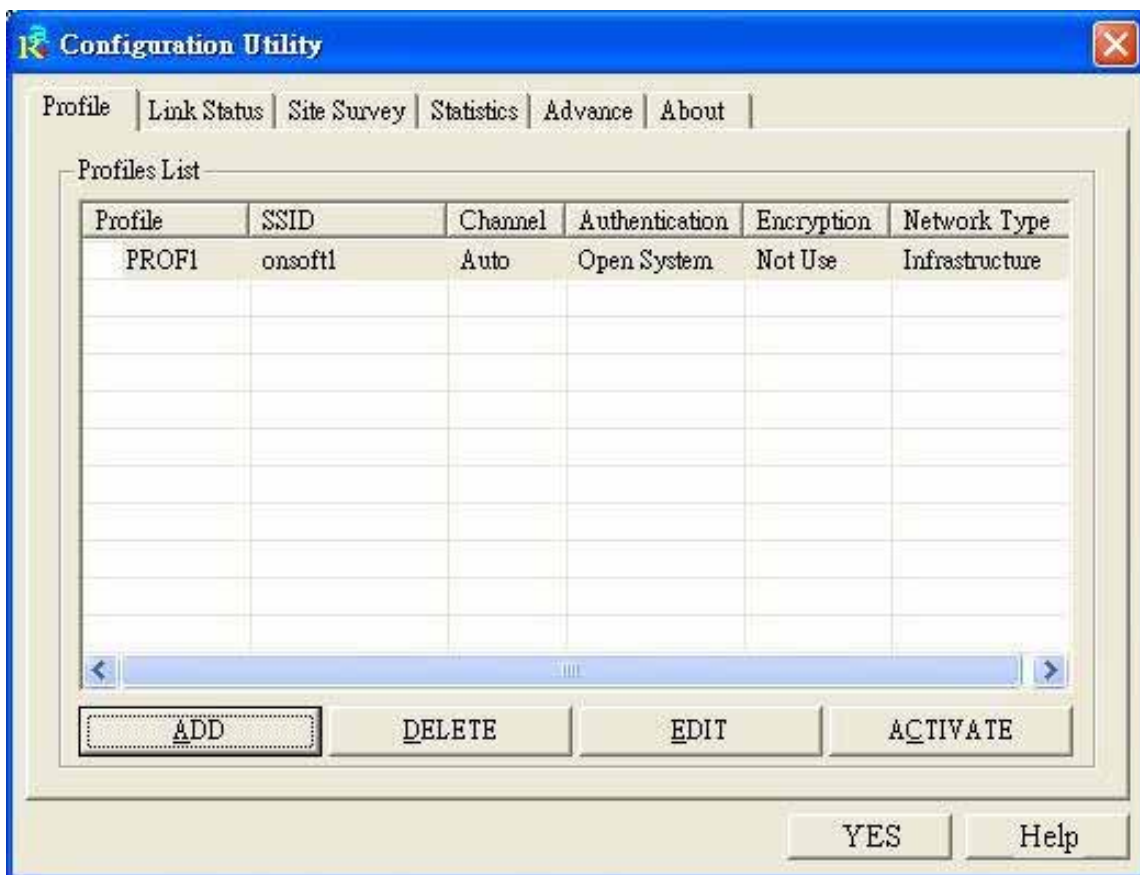
RESCAN: To search for available Wireless AP.

CONNECT: To connect with selected Wireless AP.

ADD PROFILE: To add selected connection into your profile list.

3.1.2　Profile

Profile window displays information of connections that in your profile list.

Profile: Connection profile ID.

SSID: System Set Identifier.　It is the name of the network that is connected to the Access Point.
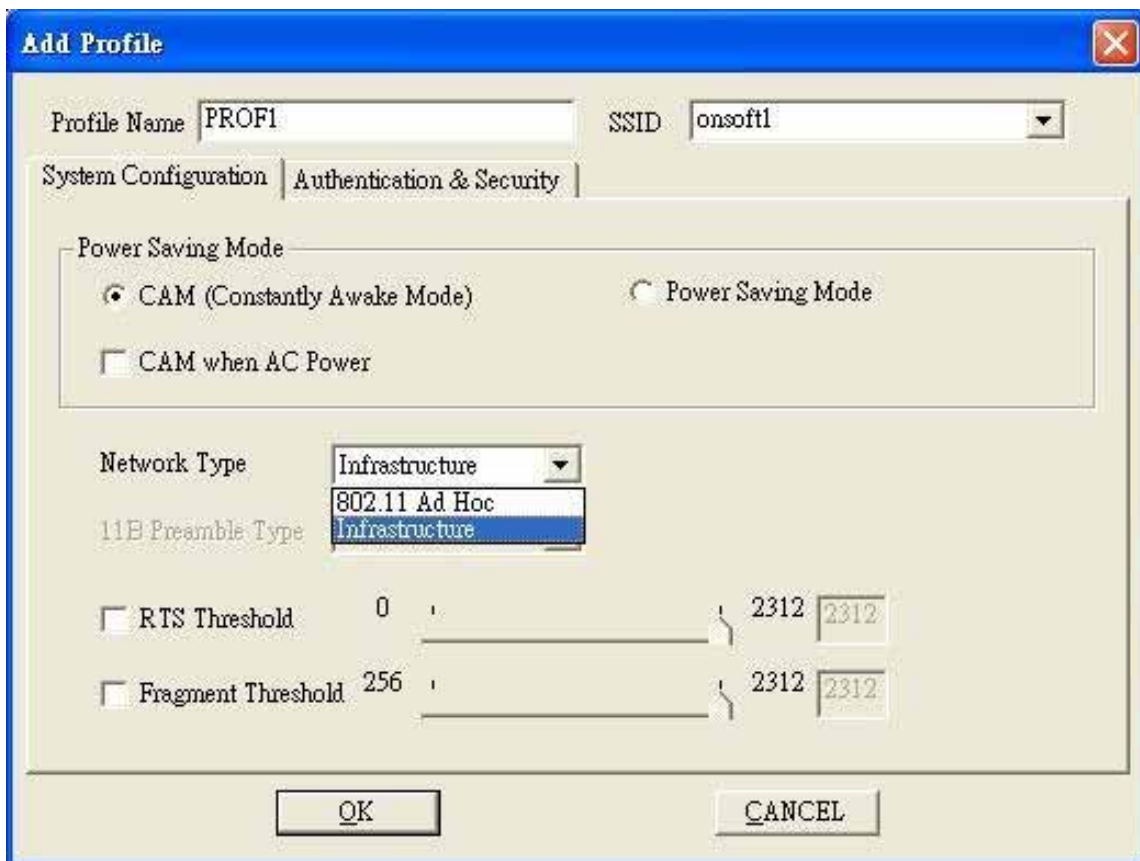
Channel: Channel that transmits data.

Authentication: Network authentication type.

Encryption: Which data security encryption Cardbus Adapter is using.

Network Type: It shows which kind of network your device connects to. It can be Infrastructure Mode or Ad-hoc Mode.

ADD: To add a new connection into profile list.

Profile Name: Name the wireless connection.

SSID: System Set Identifier.   It is the name of the network that is connected to the Access Point.

Power Saving Mode: Select the wireless LAN Cardbus power consumption mode.   You can choose from CAM (Constantly Awake Mode), Power Saving Mode, CAM when AC Power.

Network Type: Wireless Network type.   You can choose from Infrastructure and 802.11 Ad Hoc.

RTS Threshold: Request to Send threshold is a query for permission to transmit data to an Access Point.   This function is designed to prevent data collision at Access Point.

Fragment Threshold: Fragmentation is used to improve the efficiency of transmitting large files (packets) across a wireless network.   When Fragment Threshold is enabled, large files will split before they are transmitted and reassembled at the Access Point.

DELETE: Delete the selected connection.

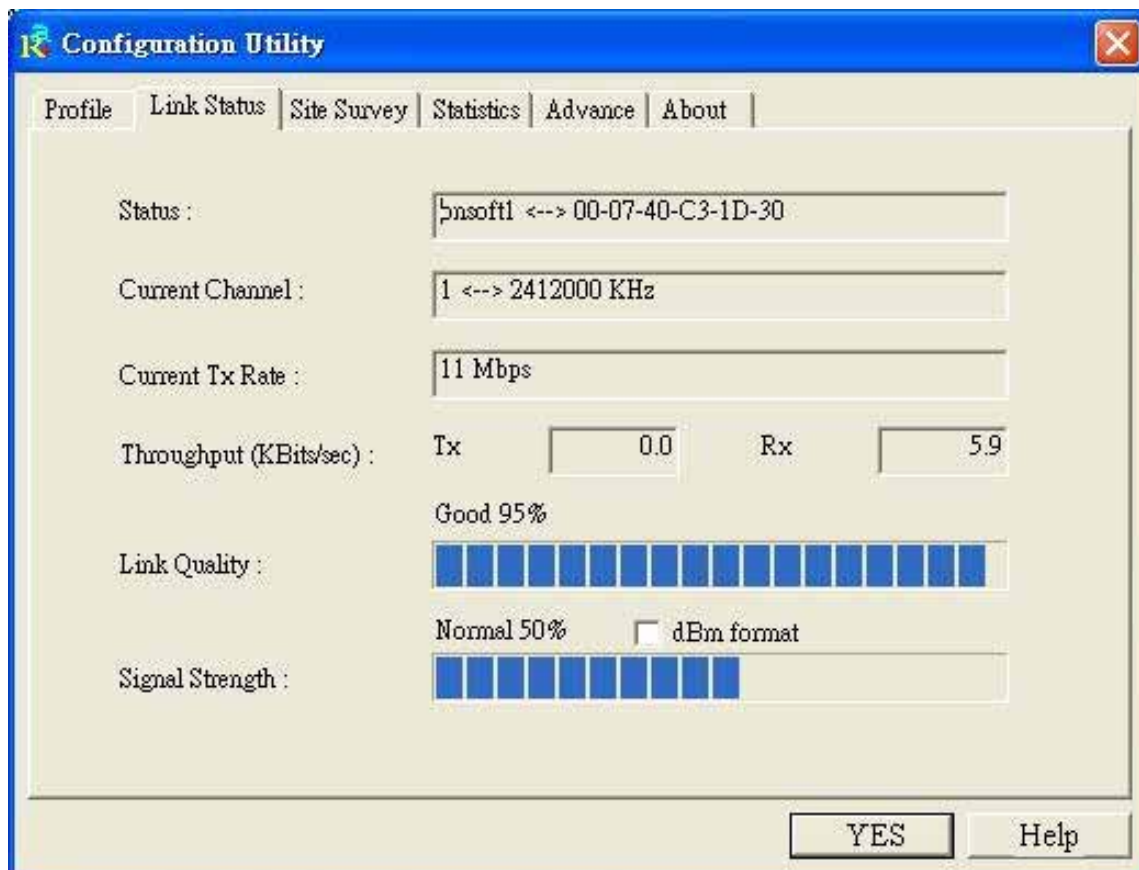**EDIT**: Edit the selected connection.
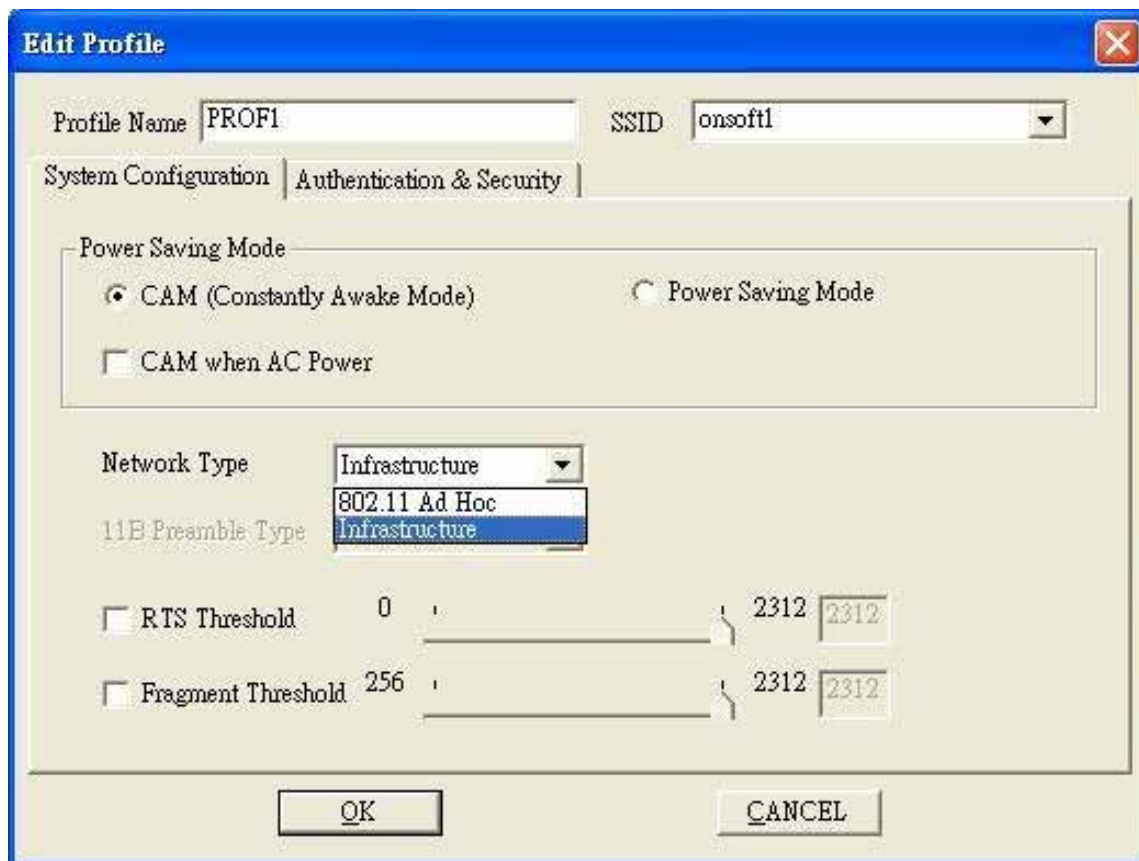
ACTIVATE: Activate the selected connection.

3.1.3   Link Status

This window displays connection status between Access Point and wireless device.

Status: Connection information between Access Point and wireless LAN device.

Current Channel: Channel number and frequency.

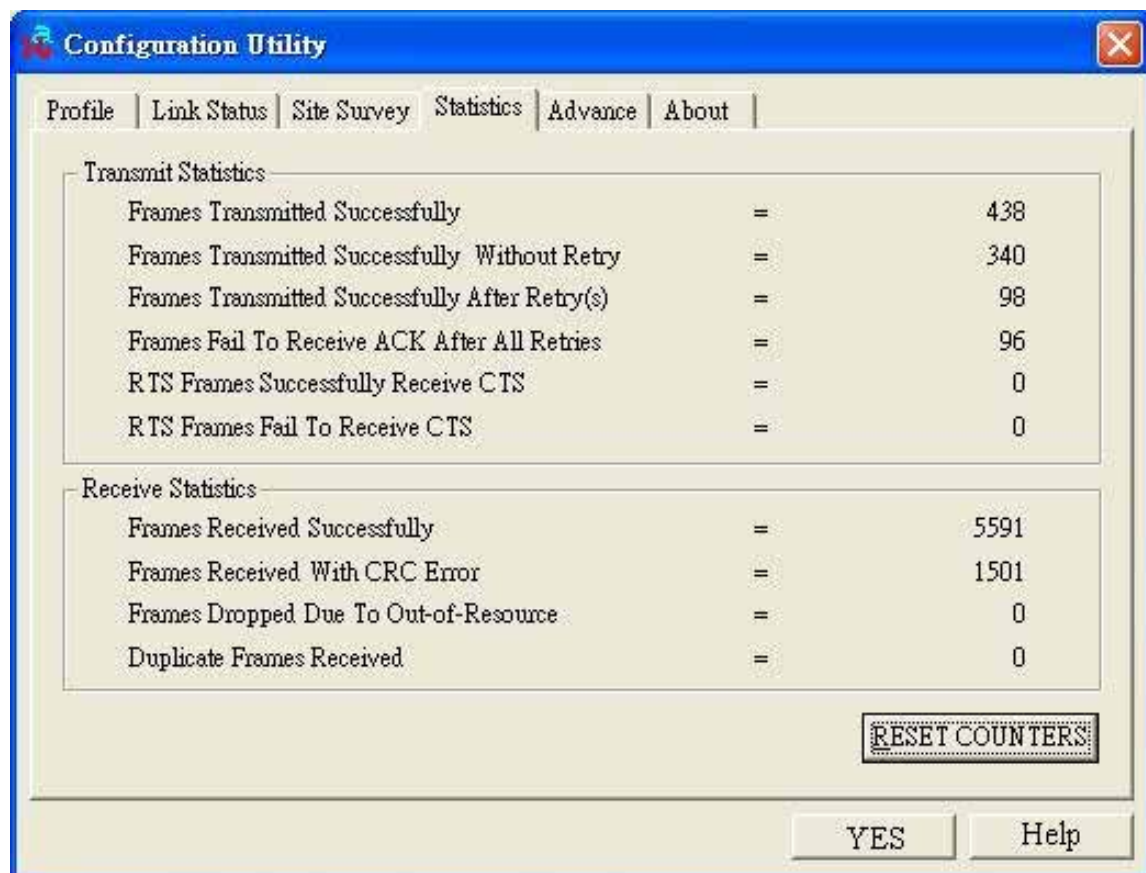**Current Tx Rate**: Data transfer rate.

Throughput (KBits/Sec): Displays data transmit and receiving rate.

Link Quality: Connection quality between Access Point and wireless LAN device.

Signal Strength: Transmitting signal sensitivity.

3.1.4   Statistics

This window displays data transmit and receive statistics.

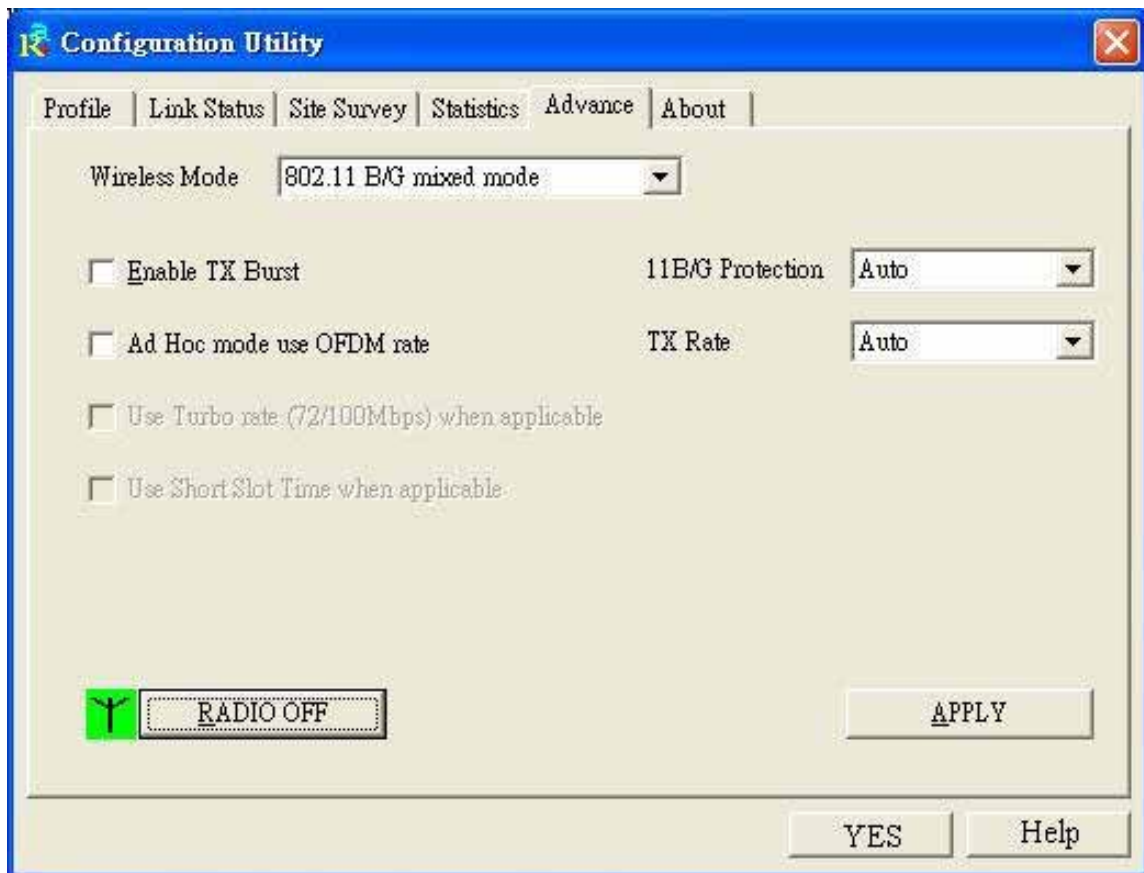

RESET COUNTERS: Reset transmit and receive statistics data.

3.1.5   Advance

This window allows user to set up which wireless standard network uses and data transmit speed.

Wireless Mode: User can select which wireless standard network uses. You can choose from "802.11 B/G mixed mode" and "802.11 B only".

Enable TX burst: Enable data burst mode during data transmission.

Ad Hoc mode use OFDM rate: In Ad Hoc mode network uses OFDM data transmitting standard.

11B/G Protection: User can choose from Auto, ON and OFF.
    Auto: Allows network to transmit data via 11B or 11G mode under different scenarios.

TX Rate: Allows user to choose data transmission rate.
    Auto: Data transfer rate will automatically set to 1Mbps, 2Mbps, 5.5Mpbs, 11Mbps, 6Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps or 54Mbps under different transmission condition.
    You can also set a fixed transfer rate at 1Mpbs, 2Mbps, 5.5Mpbs, 6Mbps and 11Mbps.

RADIO OFF: Allows user to turn on of off device antenna.

APPLY: Save the settings you select.

3.1.6   User can launch Ralink Configuration Utility, select country or uninstall device driver by clicking "**Start → Wireless LAN Card**".
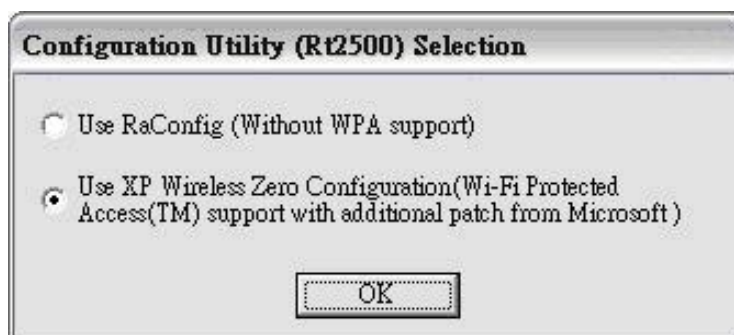
Country Channel Select: Select country you are located.
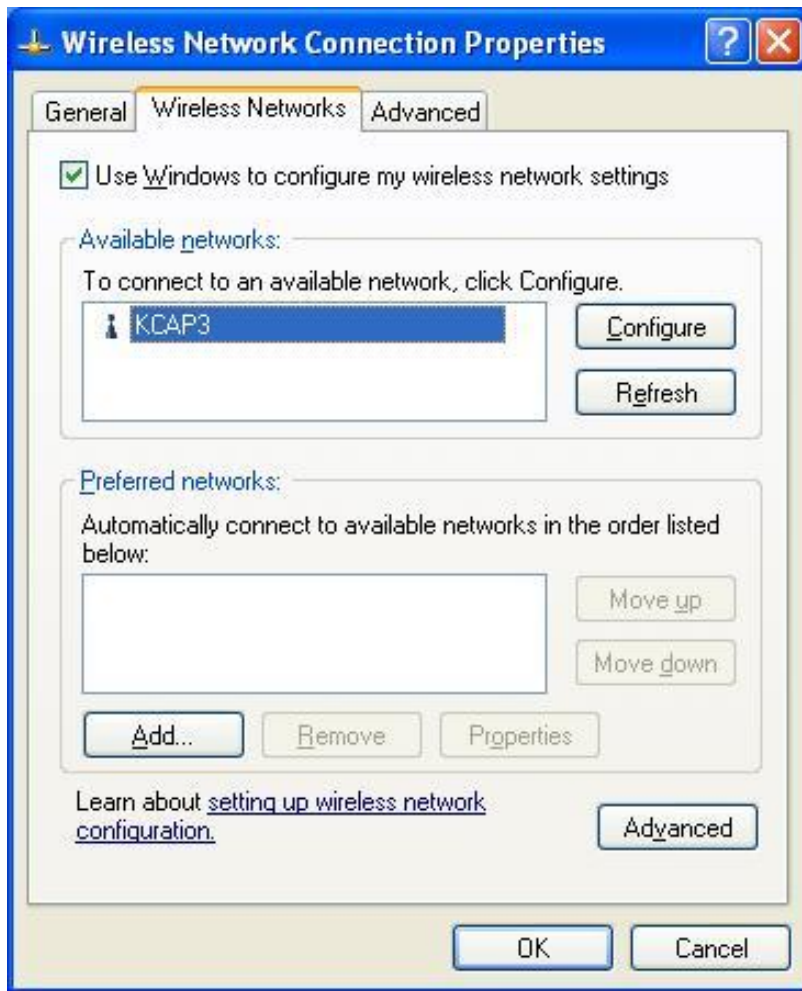**Uninstall Driver**: Uninstall Wireless LAN Cardbus device driver.
WLN Config Utility: Launch Ralink Configuration Utility.
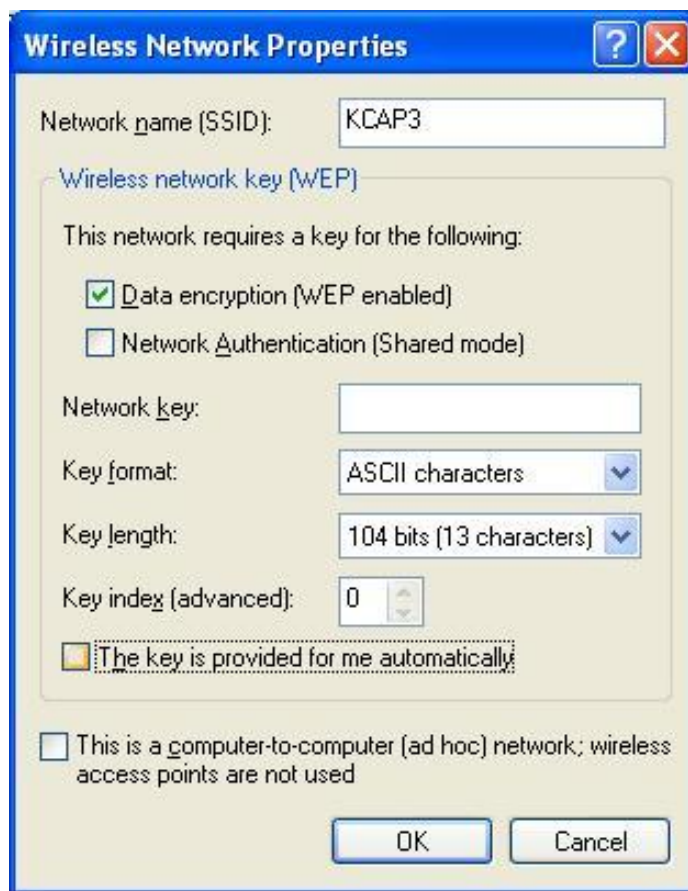
3.2 Microsoft Wireless Utility

Select "**Use XP Wireless Zero Configuration (Wi-Fi Protected Access™ support with additional patch from Mircrosoft)**".

Microsoft Wireless Utility window will appear as shown below.

3.2.1 Click **"Configure"** to configure wireless connection security settings.

Network name (SSID): Name of the Wireless Network.

Data encryption (WEP enabled): Enable/Disable WEP.

Network Authentication (Shared mode): Enable/Disable wireless connection security check mode.

The key is provided for me automatically: If user enable is feature, **Network Key, Key format, Key length and Key index** will be automatically assigned by active wireless connection.   Otherwise, user can select own WEP key format and length.

> **Network key**: user can name the key.
> **Key format**: User can choose from **Hexadecimal digits** and **ASCII characters**.
> **Key length**: User can choose from **40 bits (5 characters)** and **104 bits (13 characters)**.
> **Key index**: User can choose from 0 to 3 for key index.

This is a computer-to-computer (ad hoc) network; wireless access points are not used: To enable this feature, if user has pier-to-pier connection and there is no Access Point presented.   Otherwise, disable this feature.

3.2.2 Click **"Add"** to add available wireless connection into your reserved network list.

3.2.3 Click **"Advanced"** button to specify which wireless network to access from.
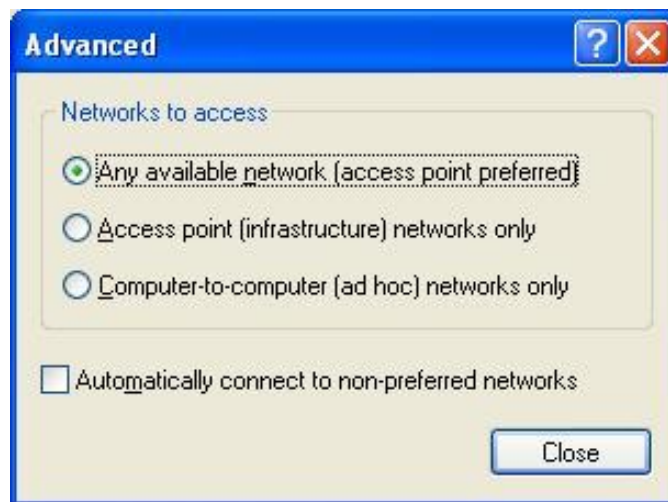

Any available network (access point preferred): Connect to any available wireless network.

Access point (infrastructure) networks only: Connect to Access Points only.

Computer-to-computer (ad hoc) networks only: Establish Pier-to-Pier wireless connection without a Access Point.

Automatically connect to non-preferred networks: Enable is feature means user wants to connect to any available accessible wireless network.

3.2.4 Click **"Advanced"** tag in **Wireless Network Connection Properties** window to setup connection firewall internet sharing functions.
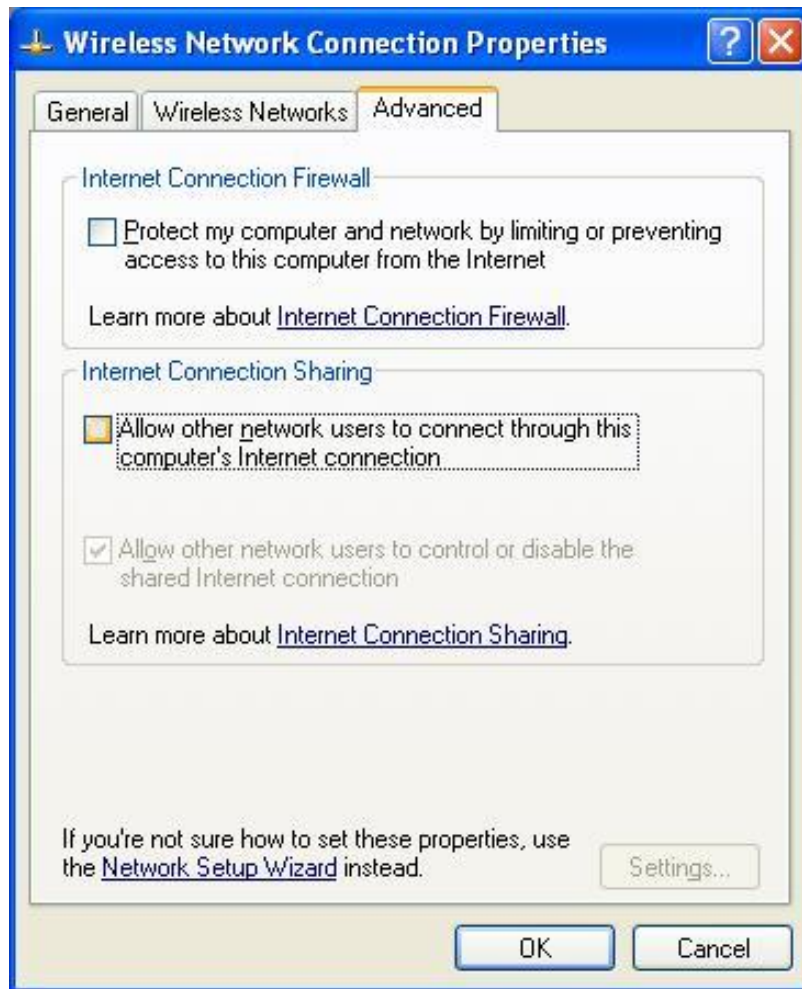
Protect my computer and network by limiting or preventing access to this computer from the Internet: Enable this function means to disable the firewall, and anybody can connection to your computer or network through the Internet. Otherwise, there is a firewall to protect your computer and network to be attacked.

Allow other network users to connect through this computer's Internet connection: Enable is function means users from other network can connect to your computer through the Internet. Otherwise, users from other networks are prevented connecting to your network.