CUA-854/854L

Wireless-G Long Range USB Adapter with Antenna

User's Guide

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Chapter 1. Introduction

1.1. About CUA-854

Once installed and connected, you can keep in touch with friends and work through e-mail, instant messaging and chat rooms as well as sharing files and other network resources such as printers and network storage with other computers.

The CUA-854 follows IEEE 802.11g wireless standard works at the speed of 54Mbps and for added versatility; it also interoperates with all Wireless-B (IEEE 802.11b) products found at homes, businesses, and public wireless hotspots around the country.

1.2. Key Features

The following lists the main features of the Wireless-G USB Adapter.
- 5 Times Faster and seamless operation with existing Wireless-B networks.
- 64/128-bit WEP and WPA/WPA2 (Wi-Fi Protected Access) Encryption Provides Maximum Wireless Security.
- Compatible with Windows 98SE/ME/2000/2003/XP/Vista.
- The CUA-854 is with a magnet base which can be stick.

1.3. Package Included

- CUA-854 with 5 dBi or 7 dBi antenna
- CD with driver, utility and User's Guide
- The QIG

Chapter 2. Connect your antenna

Figure 2-1 connect antenna with SMA connector

Chapter 3. Installing Driver, Configuration Utility and Hardware

3.1.   Driver Installation for Windows 98SE/ME/2000/2003/XP

Before installing your long range Wireless-G USB Adapter, insert the Auto-Install CD into your CD-ROM drive. Unless you have disabled the auto-run feature of Windows, the AutoPlay Menu should appear automatically. If not, you can manually access the installation by clicking the **Start** button and choosing **Run**. In the drop-down box type D:\ AUTORUN.EXE (where D: is the drive letter for your CD-ROM drive).

Alternately, double-click **My Computer** and double-click on the **CD drive icon**.

- Click on **CUA-854** to install driver/utility for your Long Range Wireless-G USB Adapter.
    Figure 3-1 AutoPlay Menu
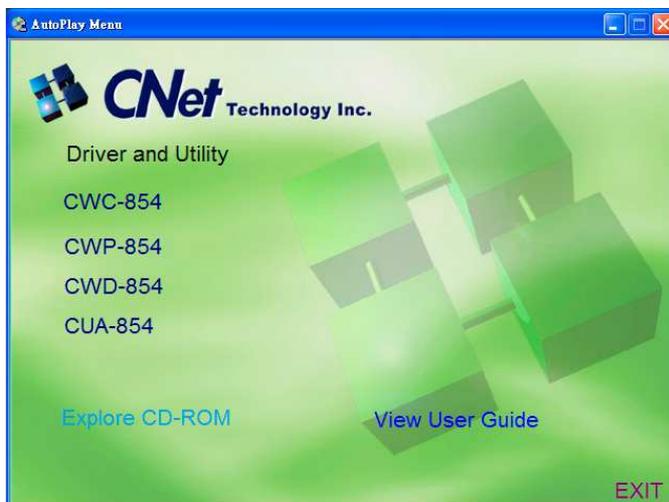
- After reading through the License Agreement, please click **Yes** to continue.
    Figure 3-2 Setup: License Agreement
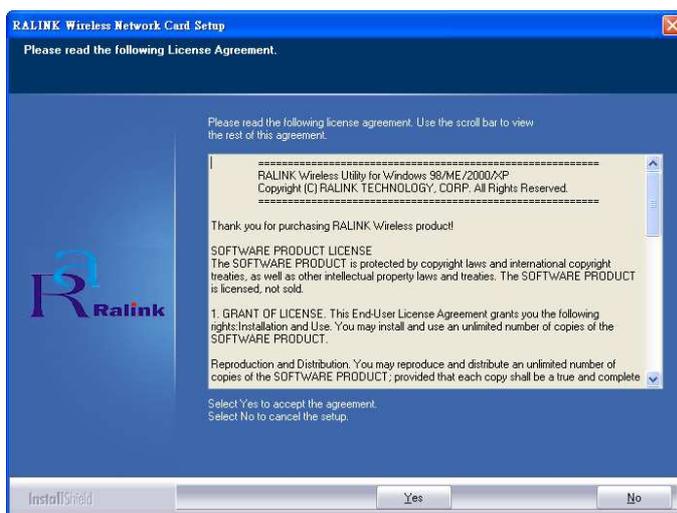
- Choose the **Optimize for performance mode** and click **Next**, you will get

- The driver will be installed to your computer. The Setup Status screen will be displayed.

Figure 3-3 Setup: Setup Status
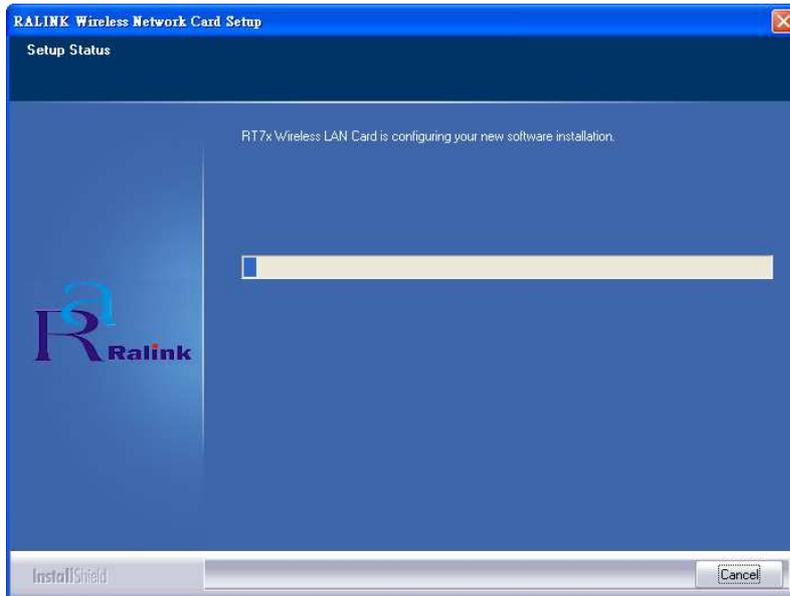
- During the installation, there will pops up a **plug-in message** screen. Please insert the Wireless-G USB Adapter into the USB port at this moment.
Figure 3-4 Setup: plug-in message

- In Windows XP and 2000, click **Finish** to complete the installation.

Figure 3-5 Setup: Click Finish to Complete (for WIN2000 / 2003 / XP)

- In Windows 98SE and ME, please select **Yes, I want to restart my computer now** and click **Finish** to complete the installation. The system will restart automatically.

Figure 3-6 Setup: Click Finish to Complete (for WIN98 / ME)
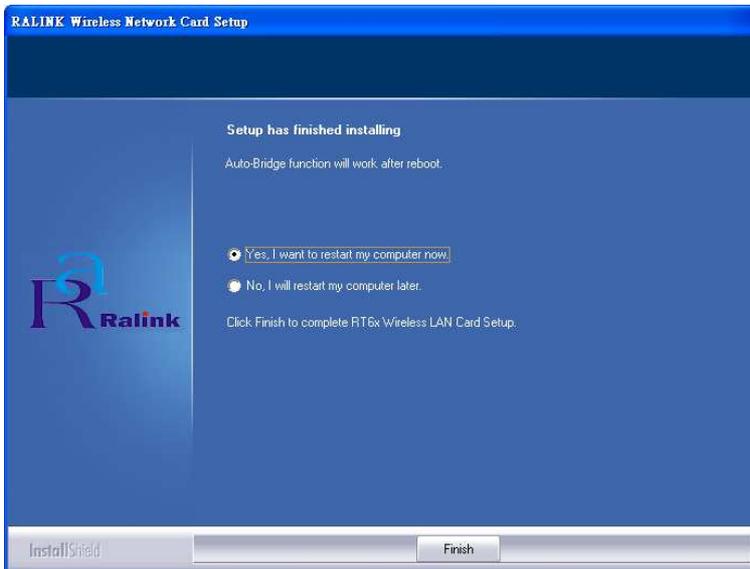
Note: In Windows ME and 98SE, after the installation is completed, Windows will ask to restart the computer, just click **Yes** to restart.

3.2. Driver Installation for Windows Vista

Before installing your Long Range Wireless-G USB Adapter, insert the Auto-Install CD into your CD-ROM drive.

- There will be a **Vista AutoPlay Confirm Window**. Click **Run AUTORUN.EXE** icon.

Figure 3-7 AutoPlay Confirm Window (Vista)

- Click on **CUA-854** to install driver/utility for your Wireless-G USB Adapter.

Figure 3-8 AutoPlay Menu (Vista)

- After reading through the License Agreement, please click **Yes** to continue.

Figure 3-9 Setup: License Agreement (Vista)
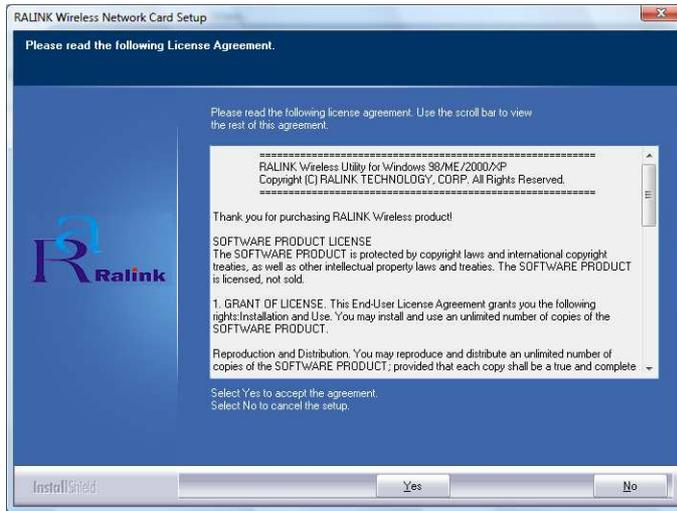
- The driver will be installed to your computer. The Setup Status screen will be displayed.

Figure 3-10 Setup: Setup Status (Vista)
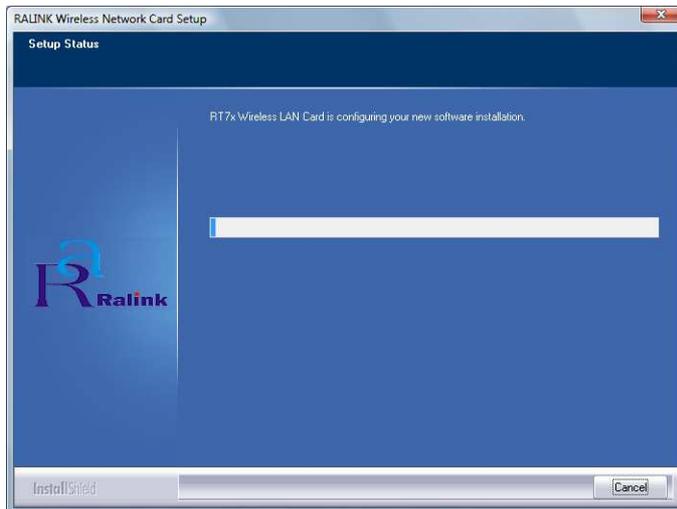
- There will be a **plug-in message** screen. Please insert the Wireless-G USB Adapter into the USB port now.

Figure 3-11 Setup: plug-in message (Vista)

Please plug-in the RT7x Wireless LAN Card on your computer.
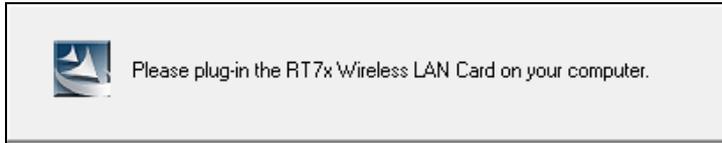
- Click <u>A</u>sk me again later when the **Found New Hardware** window appears.
  Figure 3-12 Setup: Found New Hardware (Vista)

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

  Figure 3-13 Setup: Click Finish to Complete (Vista)

RALINK Wireless Network Card Setup

Setup has finished installing

RT7x Wireless LAN Card Setup is almost complete.

Click Finish to complete RT7x Wireless LAN Card Setup.

InstallShield

Finish

Chapter 4. Using the Configuration Utility for 98SE/ME/2000/2003/XP

4.1.   Overview

The wireless Configuration Utility can be used to check link information, search for available wireless networks, or to create profiles that hold different configuration settings.

4.2.   Access the Configuration Utility

The Configuration Utility icon will appear in your system tray. Double-click the icon.
Figure 4-1 Utility Icon

The utility contains six parts: **Profile**, **Link Status**, **Site Survey**, **Statistics**, **Advance**, and **About**. You should change all your configuration settings for the Wireless-G USB Adapter by using this utility.

> **Note**: In Windows XP, you should disable the Wireless Zero Configuration service following the steps below:

A. Right Click **My Computer** on the desktop and select **Manage**.

Figure 4-2 Wireless Zero Configuration: Select Manage

B. The Computer Management window comes up. Select **Services** from the Services and Applications menu. Scroll down to locate **Wireless Zero Configuration** service.

Figure 4-3 Wireless Zero Configuration: Select Wireless Zero Configuration
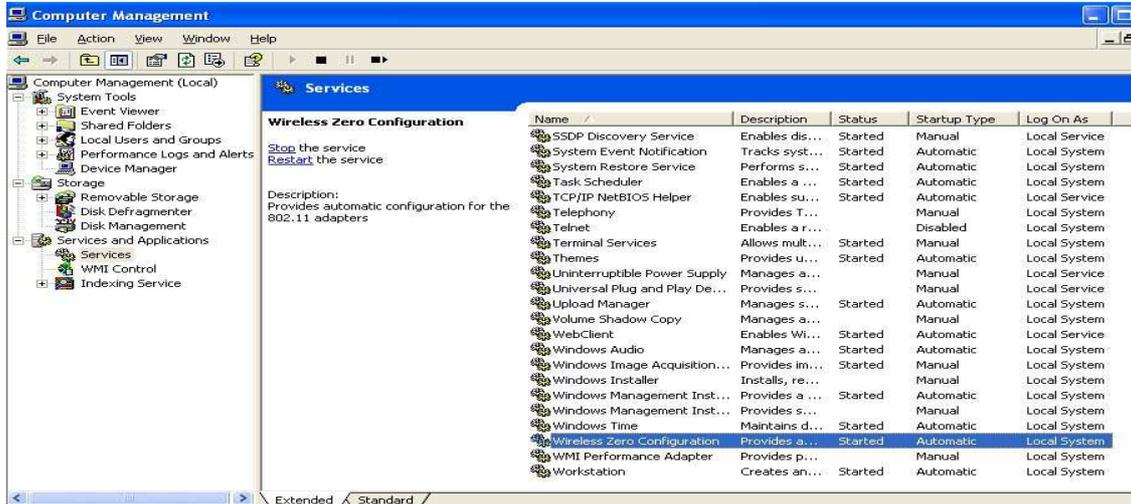
C. Double Click on **Wireless Zero Configuration** to go into its properties. For Startup type, choose **Disable** to disable the Wireless Zero Configuration then click **Apply** and **OK** to make the changes effective. Now you can use our Configuration Utility instead of Windows XP Wireless Zero Configuration Utility.

Figure 4-4 Wireless Zero Configuration: Select Disable

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4.3. Getting to Know the Utility

4.3.1. Profile

The Profile can keep your favorite wireless settings among your home, office and other public hotspots. You may save multiple profiles and activate the correct one at your preference.

Figure 4-5 Utility – Profile

Table 4-1 Profile

LABEL	DESCRIPTION
Profile Name	Connection profile name. There is a connection icon standing for the connection status, ![green icon] : Indicate connection is successful on currently activated profile. ![red icon] : Indicate connection fails on currently activated profile.
SSID	Wireless station or ad-hoc name.
Channel	Channel in use for this wireless connection.
Authentication	The Authentication method used for this profile.
Encryption	The Encryption type used for this profile.
Network Type	The Network type used for this profile.
Add	Click **Add** to create a new profile.
Delete	Click **Delete** to delete a selected profile.
Edit	Select a profile, and click **Edit** to change an existing profile.
Activate	To activate a specific profile, select the profile, and click **Activate** button.
OK	To pop-down this utility menu.
Help	Click **Help** to display on-line help information in a pop-up screen.

4.3.1.1. Create a New Profile

Click the **Add** button on the Profile screen to create a new profile.
(A) Add Profile: Configuration
    Fill the **Profile Name** and **SSID** for this new profile.
Figure 4-6 Add Profile: Configuration

Table 4-2 Configuration

LABEL	DESCRIPTION
Profile Name	Enter the profile name that you want.
SSID	User can key in the intended SSID name or use pull down menu to select from available wireless network.
PSM	CAM (Constantly Awake Mode) – the wireless Adapter will stay full power when AC power cord is plugged into power outlet. PSM (Power Saving Mode) – the wireless Adapter will enter the power saving mode.
Network Type	There are two wireless modes. (A) Infrastructure - This mode allows wireless and wired networks to communicate through an access point. (B) Ad-hoc - This mode allows wireless-equipped computers to communicate directly with each other.
Preamble	There are three types: Auto, Long and Short are supported.
Ad-hoc wireless mode	There are three types: 802.11B only, 802.11B/G mixed and 802.11G only modes are supported.
TX Power	Transmit power, the amount of power used by a radio transceiver to send the signal out. User can choose power value by sliding the bar.
RTS Threshold	User can adjust the RTS threshold number by sliding the bar or key in the value directly. The default value is 2347.
Fragment Threshold	User can adjust the Fragment Threshold number by sliding the bar or key in the value directly. The default value is 2346.
Channel	Only available for setting under ad-hoc mode. User can choose the channel frequency to start their ad-hoc network.
OK	Confirms and saves the settings.
Cancel	Ignore the settings and return to the previous screen.
Help	Click **Help** to display on-line help information in a pop-up screen.

(B) Add Profile: Authentication and Security
      Enter the authentication and security information here.

Figure 4-7 Add Profile: Authentication and Security: Open or Shared Key

Table 4-3 Authentication: Open or Shared

LABEL	DESCRIPTION
Authentication Type	Under Open System authentication, any wireless station can request authentication. Under Shared Key authentication, each wireless station is assumed to have received a secret shared key over a secure channel that is independent from the 802.11 wireless network communications channel. To use Shared Key authentication, you must have a network key.
Encryption	Select **None** or **WEP**
WEP Key#1 .. 4	When select the **WEP** encryption or **Shared** Key authentication without 802.1x, you should enter the WEP key correctly. If the WEP key is 64-bit, please enter 10 hexadecimal or 5 ASCII characters. If the WEP key is 128-bit, please enter 26 hexadecimal or 13 ASCII characters.
Show Password	When you check this function, the password will not be covered by * symbol.
Use 802.1x	Select this option to enable IEEE 802.1x for user authentication. IEEE 802.1x can support true authentication and user control
802.1x setting	When enabling IEEE 802.1x, you should set the IEEE 802.1x parameters.

Figure 4-8 Add Profile: Authentication and Security: LEAP
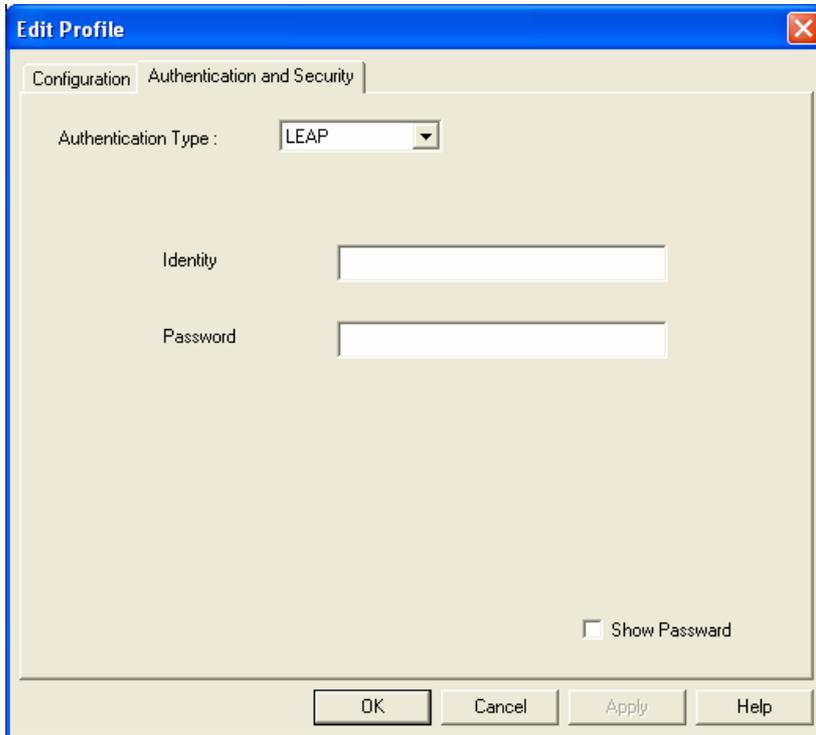
Table 4-4 Authentication: LEAP

LABEL	DESCRIPTION
Authentication Type	Light Extensible Authentication Protocol. It is an EAP authentication type used primarily in Cisco Aironet WLANs. It encrypts data transmissions using dynamically generated WEP keys, and supports mutual authentication.
Identity	Enter identity for the LEAP authentication service
Password	Enter password for the LEAP authentication service.
Show Password	When you check this function, the password will not be covered by * symbol.

Figure 4-9 Add Profile: Authentication and Security: WPA/ WPA-PSK/ WPA2/ WPA-PSK
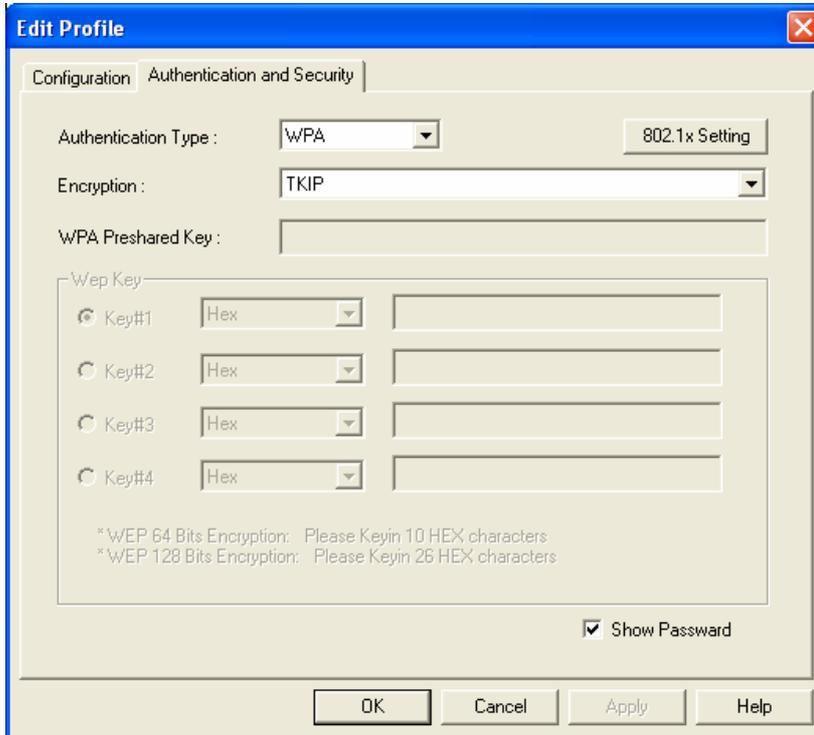
Table 4-5 Authentication: WPA/ WPA-PSK/ WPA2/ WPA-PSK

LABEL	DESCRIPTION
Authentication Type	Select **WPA**, **WPA-PSK**, **WPA2** or **WPA-PSK**
Encryption	Specify an encryption method to use. Select **TKIP** (Temporal Key Integrity Protocol) that uses a stronger encryption algorithm and protects against hackers with MIC (Message Integrity Check). Select **AES** (Advanced Encryption System) that uses symmetric 128-bit block data encryption.
WPA-PSK	Enter WPA Preshared Key, only valid for WPA-PSK and WPA2-PSK. This key should be between 8 and 32 characters in length.
802.1x setting	Only valid for WPA and WPA2.
Show Password	When you check this function, the password will not be covered by * symbol.

(C) Add Profile: 802.1x
IEEE 802.1x supports true authentication and user control.

Figure 4-10 Add Profile: Authentication and Security: 802.1x Setting: Certification
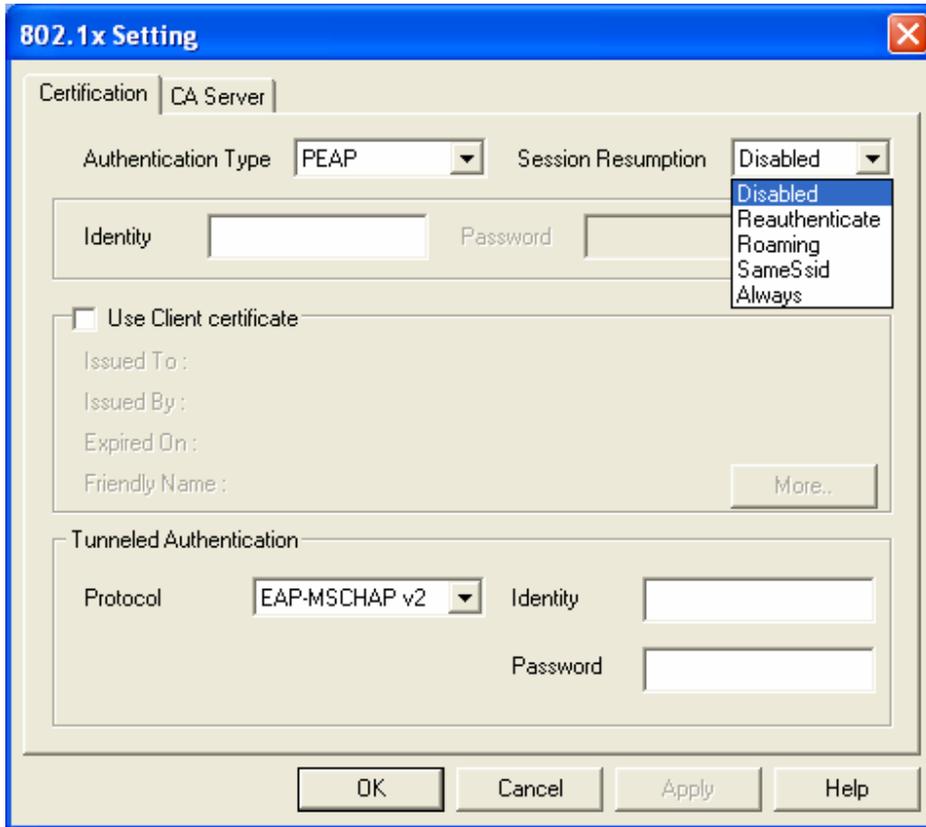
Table 4-6 Authentication: 802.1x Setting: Ceritication

LABEL	DESCRIPTION
Authentication Type	**PEAP**: Protected Extensible Authentication Protocol. PEAP transports authentication data by using tunneling between PEAP clients and an authentication server. PEAP can authenticate wireless LAN clients using only server-side certificates, thus simplifying the implementation and administration of a secure wireless LAN. **TLS／Smart Card**: Transport Layer Security, provides with certificate-based and mutual authentication of the client and the network. It relies on client-side and server-side certificates to perform authentication and can be used to dynamically generate user-based and session-based WEP keys to secure subsequent communications between the WLAN client and the access point. **TTLS**: Tunneled Transport Layer Security, this security method provides for certificate-based, mutual authentication of the client and network through an encrypted channel. Unlike EAP-TLS, EAP-TTLS requires only server-side certificates. **MD5-Challenge**: Message Digest Challenge, is an EAP authentication type that provides base-level EAP support. It only supports one-way authentication i.e. there is no mutual authentication of wireless client and the network. It's only valid for profile's authentication type to be none or shared.
Session Resumption	User can choose **Disabled**, **Reauthenticate**, **Roaming**, **SameSsid** or **Always**.
Identity	Enter the Identity for server
Password	Enter the Password for server
Use Client Certificate	Enable the client certificate for server authentication.
Tunnel Authentication	
Protocol	Tunnel protocol, List information includes **EAP-MSCHAP**, **EAP-MSCHAP v2**, **CAHAP** and **MD5**.
Identity	Enter Identity for tunnel
Password	Enter Password for tunnel

If you want to use CA server, please click **CA Server** page. Depending on the EAP in use, only the server or both the server and client may be authenticated and require a certificate. Server certificates identify a server, usually an authentication or RADIUS server to clients. Most EAPs require a certificate issued by a root authority or a trusted commercial CA.

Figure 4-11 Add Profile: Authentication and Security: 802.1x Setting: CA Server

Table 4-7 Authentication: 802.1x Setting: CA Server

LABEL	DESCRIPTION
Use certificate chain	Enable the certificate feature
Certificate issuer	Choose to use server that is the issuer of certificates.
Allow intermidiate certificates	It must be in the server certificate chain between the server certificate and the server specified in the certificate issuer field.
Server name	Enter the authentication server's name. There are two matching methods, - Server name must match exactly. - Domain name must end in specified name.

4.3.2. Link Status

The Link Status provides the link information of the Wireless-G USB Adapter with Atenna.

Figure 4-12 Utility - Link Status
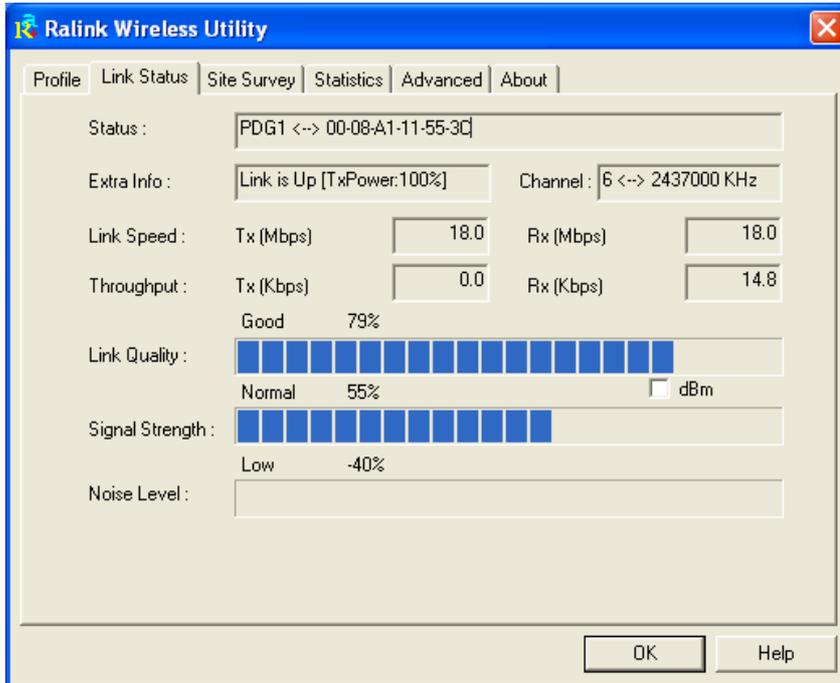
Table 4-8 Link Status

LABEL	DESCRIPTION
Status	Displays current connection status. If no connection, it will show Disconnected. Otherwise, the SSID and BSSID will show here.
Extra Info	Displays link status and current channel in use.
Channel	Shows the channel which the wireless network devices are currently using.
Link Speed	Tx(Mbps) field shows the transfer rate in megabits per second. Rx(Mbps) field shows the receive rate in megabits per second.
Throughput	Shows the amount of data moved successfully form one place to another in a given time period.
Link Quality	The level of Link Quality is displayed here by a bar indicating percentage, between 0 and 100 percent.
Signal Strength	The level of Signal Strength is displayed here by a bar indicating percentage, between 0 and 100 percent.
Noise Level	The Noise Level is displayed here by a bar indicating percentage, between 0 and 100 percent.

4.3.3. Site Survey

The site survey page displays a list of all Infrastructure and Ad-hoc wireless networks available for connection.

Figure 4-13 Utility – Site Survey
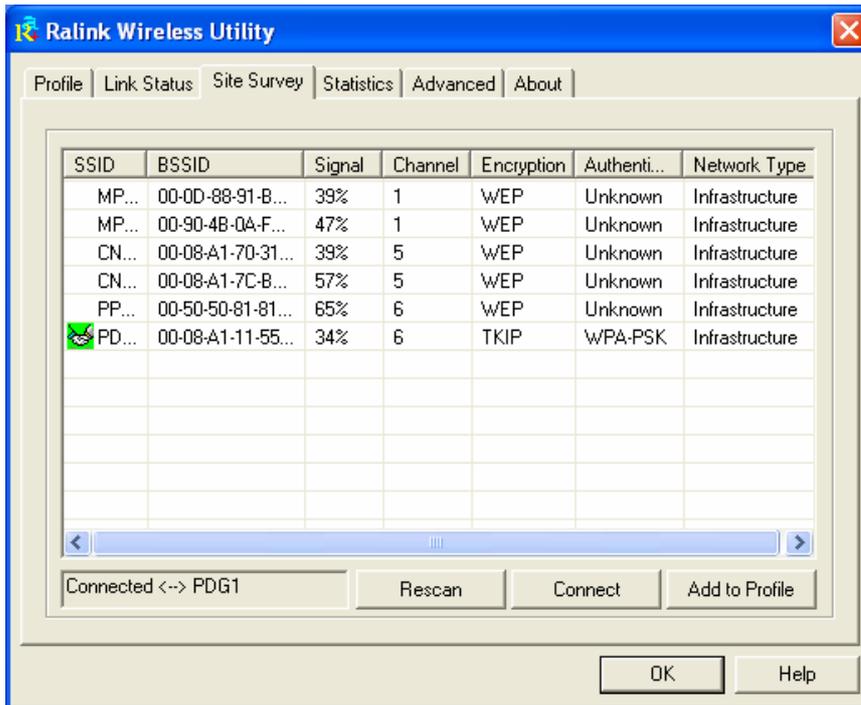
Table 4-9 Site Survey

LABEL	DESCRIPTION
SSID	Service Set ID of the Wireless Network.
BSSID	Basic Service Set ID of the Wireless Network.
Signal	Signal Strength status.
Channel	The channel used by Wireless Network.
Encryption	Encryption type.
Authentication	Authentication type used.
Network Type	Wireless Network mode. (Infrastructure mode or Ad-hoc mode)
Rescan	Click **Rescan** to re-search for wireless networks.
Connect	Select one of the networks on the list, and click the **Connect** button. Please note that if the wireless network has encryption enabled, you can't connect. If you want to connect, you must add a profile in the Profile Tab. **Note**: There is no **Connect** button in Window Vista. You have to use the **Add Profile** feature to build the wireless connection with the selected network. Please refer to the **Profile** information.
Add Profile	Add the selected network to **Profile List**.

4.3.4.   Statistics

The Statistics screen provides information about the Transmit and Receive Statistics. You can reset counters if you need, otherwise click **OK**.

Figure 4-14 Utility – Statistics
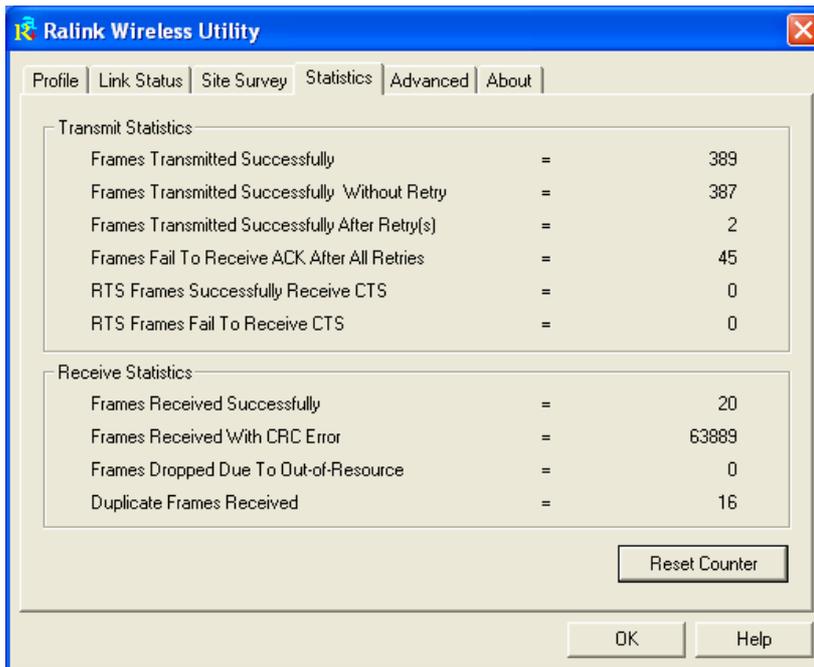
Table 4-10 Statistics

LABEL	DESCRIPTION
Transmit Statistics	Displays current transmit frame information
Receive Statistics	Displays current receive frame information.
Reset Counter	Resets all counter to zero.

4.3.5. Advanced

The Advanced screen shows settings for **Wireless Mode**, **Ad-hoc wireless mode**,………

Table 4-11 Advanced

LABEL	DESCRIPTION
Wireless mode	802.11 B only: allows to connect to the 802.11b wireless stations only. 802.11 B/G mix: allows to connect to the 802.11b or 802.11g wireless stations.
Ad-hoc wireless mode	When the network type is in Ad Hoc mode that the wireless adapter can only work in 802.11b data rate. It is defined by **Wi-Fi** organization. If you want to enable the data rate up to 54Mbps, please select **Ad-hoc** wireless mode.
B/G Protection	If there are 802.11b and 802.11g wireless stations in the network, it is recommended to enable the **B/G Protection** mechanism. **Auto**: Based on the status of the network and automatically disable/enable protection mode. **On**: Always send frame with protection. **Off**: Always send frame without protection.
Enable TCP Window Size	Enables the **TCP Window Size** to improve the TCP performance over wireless link.
Fast Roaming	Roaming mechanism setup by transmit power. Roaming will be happened if the station power is less than the defined power.
Select Your Country Region Code	Selects the correct region code for your country.
CCX2.0	Supports Cisco Compatible Extensions functions: 1. LEAP turn on CCKM 2. Enable Radio Measurement: Channel measurement every 0~2000 milliseconds.
Turn off RF/ Turn on RF	You can turn off or turn on the RF feature.
Apply	Save the changes.

4.3.6. About

The About screen shows release dates as well as driver/utility versions and the MAC/IP address of the wireless adapter.

Figure 4-15 Utility - Link About
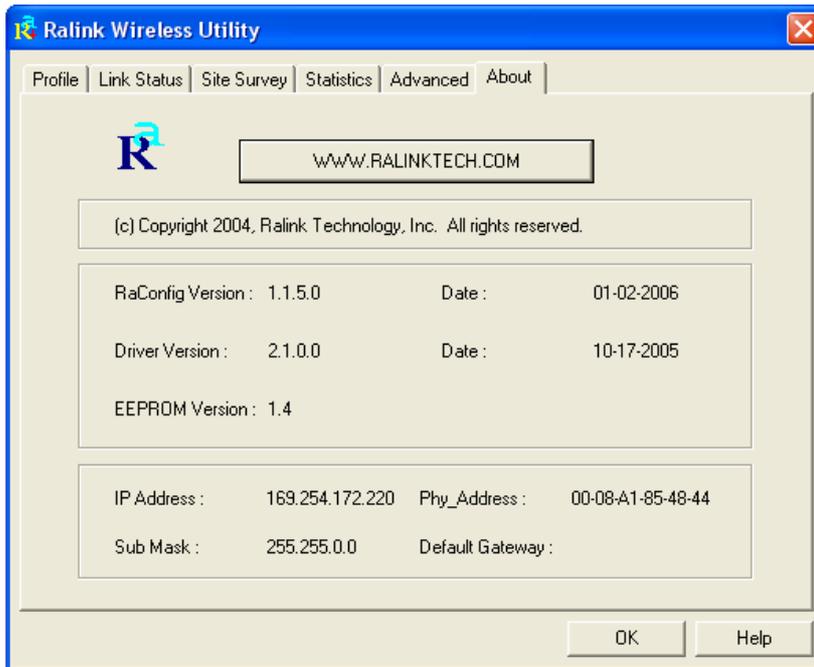
Chapter 5. Troubleshooting

1. I cannot connect to the configuration utility.

- Make sure the wireless adapter is inserted properly.
- Make sure you have installed the correct driver and utility version for your wireless adapter.

2. I cannot connect to a wireless network.

- Make sure the wireless router or AP is within range. Move your computer closer to the wireless router.
- Make sure that you have set the wireless network settings correctly. For example, the SSID and security settings.
- Make sure there is no radio interference (for example, cordless phones, microwave oven, etc) that may affect wireless transmission quality.

SPECIFICATIONS

Product Name	Wireless-G Long Range USB Adapter with Antenna
Frequency Range	2.4GHz ~ 2.5GHz
Channels	1-11 (US , Taiwan) 1-13 (Elsewhere Worldwide) 1-13,14 (Japan)
Transmit power	802.11b :15 dBm without Antenna 802.11g :18 dBm without Antenna
Modulation	802.11b :CCK,DQPSK,DBPSK 802.11g :OFDM
Connector	USB-Jack
Radiation Pattern	Omni
Cable	150cm / Fixed
Impedance	50Ω
Polarization	Linear Vertical
Storage Temperature	-20℃ ~ +80℃ (-4~176℉)
Operation Temperature	-10℃ ~ +60℃ (14~140℉)
Dimensions (W x D x H)	114 x 68 x 21mm (4.49x2.68x0.83 inches))

5.1. 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 60950-1: 2001
  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 301 489-17 V1.2.1 (2002-08) and EN 301 489-1 V1.5.1 (2004-11)
  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 ⚠

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.

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.

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.

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.