Quanta Microsystems

Product Specification

&

User's Manual

Model Name:US305

IEEE 802.11n WLAN

USB 2.0 Module

Version: 0.0

Date: 2011/2/11

Quanta Microsystems, Inc.

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U.S. Regulatory Wireless Notice

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.

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

As long as 2 conditions above are met, further transmitter test will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

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.

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. The final end product must be labeled in a visible area with the following: “Contains FCC ID: T5U-US305”.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

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Canadian Regulatory Wireless Notice

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

1) this device may not cause interference and
2) this device must accept any interference, including interference that may cause undesired operation of the device

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

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

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 CANADA authorization is no longer considered valid and the CANADA 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 CANADA 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. The final end product must be labeled in a visible area with the following: “Contains IC: 7424A-US305”.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

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

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne,
Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

NOTE IMPORTANTE:
Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 7424A-US305".

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.
Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

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NOTE IMPORTANTE: (Pour l'utilisation de dispositifs mobiles)

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

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1. Revision History

Date	Release	Author	Description
2011/2/11	0.0	Jack Ong	First release

2. Related Documents

Date	Author	Document(s)
February 2011	*Atheros*	AR9271L datasheet

3. Overview

3.1. Scope

This document describes the specifications of US305 WLAN USB module. The low power consumption and smaller size are suitable for USB adapter.

US305 implements half-duplex OFDM, CCK, and DSSS baseband processing supporting relevant IEEE 802.11n data rates. The MAC supports the IEEE 802.11 wireless MAC protocol as well as 802.11i security, receive and transmit filtering, error recovery, quality of service (QoS), and Extended Range technology, dramatically increasing WLAN performance.

3.2. Features

- BPSK, QPSK, 16 QAM, 64 QAM, DBPSK, DQPSK and CCK modulation techniques
- Operates at 2.4GHz frequency band
- 802.11e compatible bursting
- Supports Windows XP, Windows Vista, Windows 7, Linux kernel 2.6.20 or above.
- USB bus powered, external power is no required.
- Support Pre-IEEE 802.11n (draft 3.0), short GI and long GI, 20MHz and 40 MHz bandwidth with data rate up to 150Mbps maximum.
- Supports Ad-hoc mode in IEEE 802.11b, Ad-hoc G (802.11g OFDM rates) and Ad-hoc N (802.11n rates) modes.
- 802.11n SSN technique (1Transmit/1Receive).
- Supports Infrastructure mode in 802.11b and 802.11g modes.
- Supports Site survey: 802.11n/g/b BSS and IBSS.
- Supports USB adapter hot-swap, device driver disable/enable.
- Supports Radio On/Off in software.
- Supports IEEE 802.1x,
  - i Authentication modes: Open system, Share Key, Auto Switch, IEEE 802.1x, WPA, WPA-PSK, WPA2, WPA2-PSK
  - ii Encryption method: WEP 64/128, TKIP, AES
- USB 2.0(High/Full Speed) and backward compatible with USB 1.1 (Full Speed).

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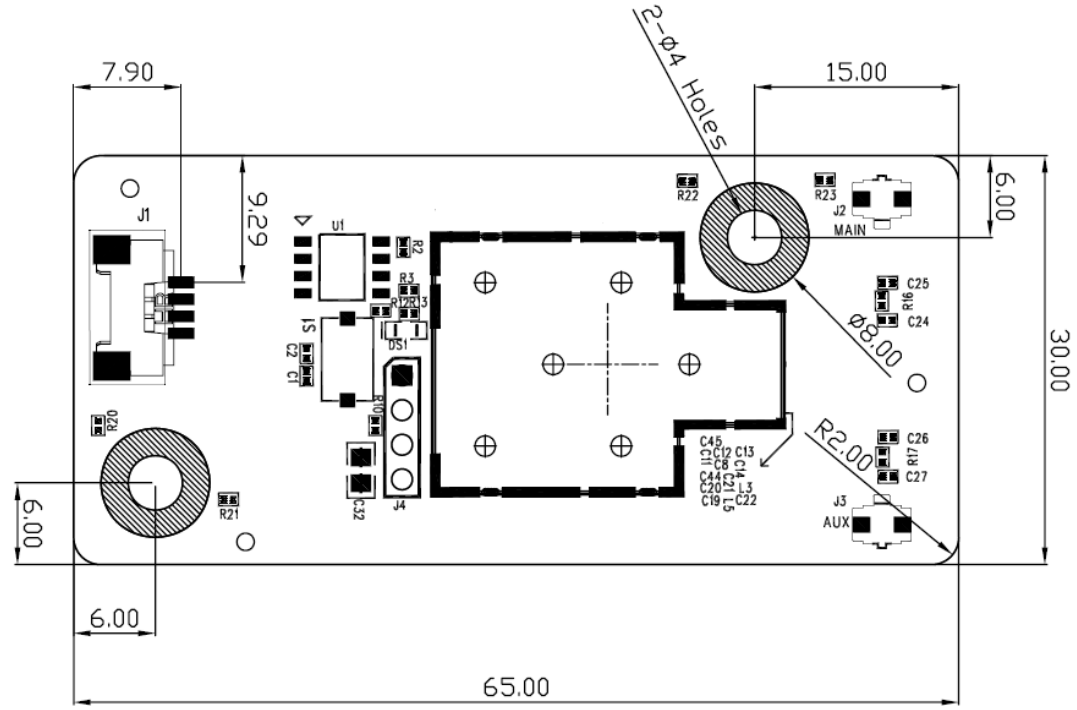
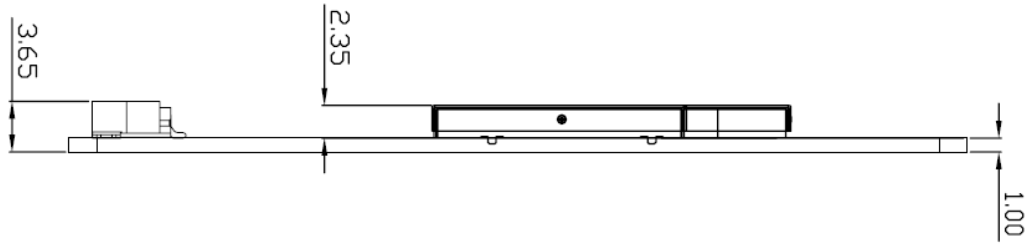
3.3. Specification

<table>
<tr><td>Standards Conformity</td><td>IEEE 802.11n</td><td>Frequency Range</td><td>11b/g/n: 2.412~2.4835GHz</td></tr>
<tr><td>Type</td><td>USB 2.0 with 4 pins WTB connector</td><td>Channels</td><td>11b/g: CH1~11(FCC), 1~13(CE)
11n (HT20): CH1~11 (FCC),1~13(CE)
11n (HT40): CH3~9(FCC),3~11(CE)</td></tr>
<tr><td>Modulation Technique</td><td>OFDM/ BPSK/ QPSK/ CCK</td><td>Data Rate (Mbps)</td><td>1Mbps to 11Mbps for 11b,
6Mbps to 54Mbps for 11g,
MCS0 to MCS7 for 11n HT20/HT40</td></tr>
<tr><td>Device Drivers</td><td>Windows XP SP2 32bit/64bit
Linux kernel 2.6.20 or above.
Windows Vista 32/64bit
Windows 7</td><td>Security</td><td>Supports 64-bit & 128-bit WEP for legacy mode
WPA/WPA2/WPS for all modes</td></tr>
<tr><td>Operating Voltage</td><td>DC 3.3V via USB bus power</td><td>Coverage Area</td><td>60Meters (Indoor)
80Meters (Outdoor)</td></tr>
<tr><td>Warranty</td><td>1 year limited warranty</td><td>Temperature</td><td>0 ~ 60°C (Operation)
-20~70°C (Storage)</td></tr>
<tr><td>Sensitivity</td><td><table><tr><th>Data rate</th><th>Typical</th></tr><tr><td>11Mbps CCK (11b)</td><td>- 87 dBm</td></tr><tr><td>54Mbps OFDM(11g)</td><td>- 73 dBm</td></tr><tr><td>11n HT20 MCS7</td><td>- 70 dBm</td></tr><tr><td>11n HT40 MCS7</td><td>- 66 dBm</td></tr></table></td><td>Output Power</td><td><table><tr><th>Data rate</th><th>Typical</th></tr><tr><td>11Mbps CCK (11b)</td><td>+19 dBm</td></tr><tr><td>54Mbps OFDM(11g)</td><td>+15 dBm</td></tr><tr><td>6Mbps OFDM (11g)</td><td>+15 dBm</td></tr><tr><td>HT20 MCS7</td><td>+13.5 dBm</td></tr><tr><td>HT40 MCS7</td><td>+10.5 dBm</td></tr></table></td></tr>
<tr><td>Current Consumption</td><td colspan="3"><table><tr><th>Mode</th><th>Watts/mA@3.3v</th></tr><tr><td>11b TX</td><td>1.188/360</td></tr><tr><td>11g TX</td><td>0.990/300</td></tr><tr><td>11n HT20 TX</td><td>1.254/380</td></tr><tr><td>11n HT40 TX</td><td>1.188/360</td></tr><tr><td>11b RX</td><td>0.627/190</td></tr><tr><td>11g RX</td><td>0.627/190</td></tr><tr><td>11n HT20 RX</td><td>0.66/200</td></tr><tr><td>11n HT40 RX</td><td>0.825/250</td></tr><tr><td>Radio Off</td><td>0.660/220</td></tr></table></td></tr>
</table>

3.4. Mechanical Characteristics

Dimension : 30 x 65 x 3.65mm





3.5. RoHS Compliant

US30AR is fully compliant with RoHS requirements.

4. Engineering sheets

Pins Out and Pin Descriptions

Pin no.	*Definition*	*Pin no.*	*Definition*
1	*3.3V*	*2*	*USB data differential input (D-)*
3	*USB data differential input (D+)*	*4*	*GND*

Table of Contents

INTRODUCTION

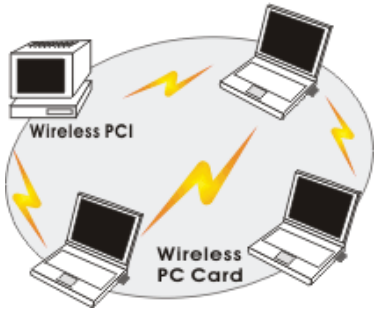
The **11b/g/n 1T1R WLAN Mini Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

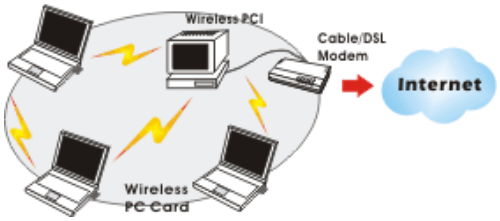
Wireless Network Options

The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.

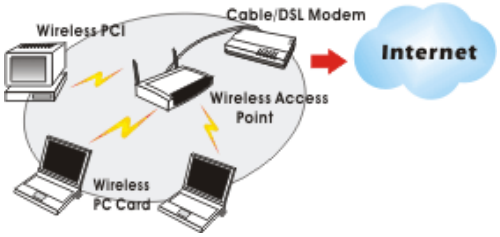


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an **Access Point**.



SOFTWARE INSTALLATION

Install the device

1. Make sure the computer is turned off. Remove the expansion slot cover from the computer.

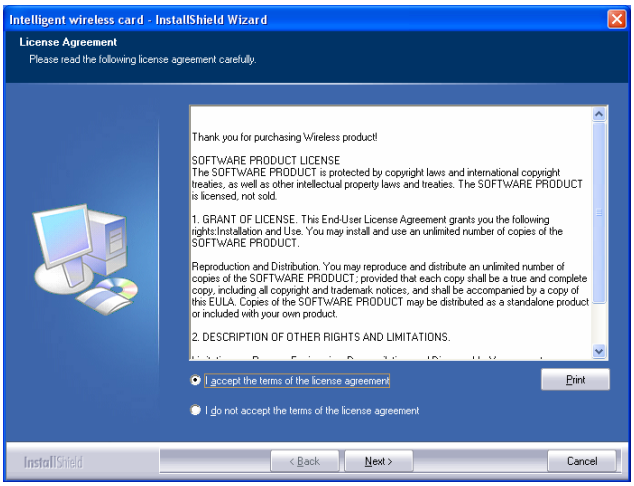
2. Carefully slide the **11b/g/n 1T1R WLAN Mini Card** into the mini PCI slot. Push evenly and slowly and ensure it is properly seated.

3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking.

Install the Driver & Utility

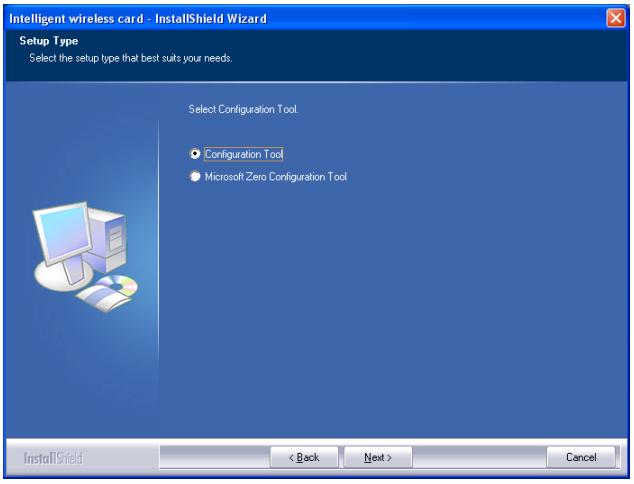
1. Exit all Windows programs. Insert the included CD-ROM into your computer. The CD-ROM will run automatically.

2. When the License Agreement screen appears, please read the contents and select "**I accept the terms of the license agreement** " then click **Next** to continue.

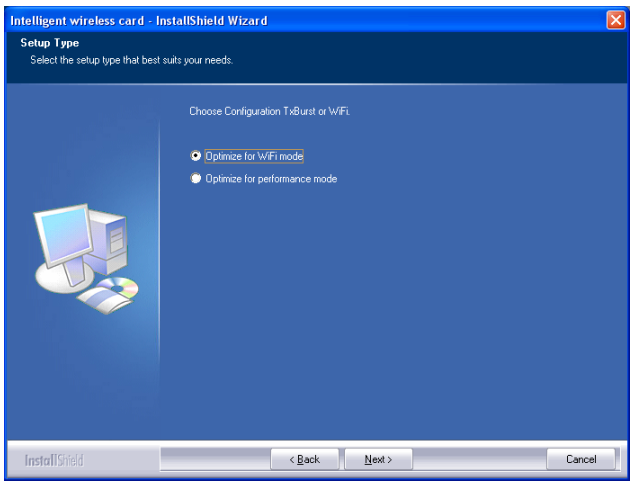


3. Select the check box to choose a **Configuration Tool** from the listed two choices.
   - **Configuration Tool**: Choose to use our configuration utility.
   - **Microsoft Zero Configuration Tool**: Choose to use Windows XP's built-in Zero Configuration Utility (ZCU).

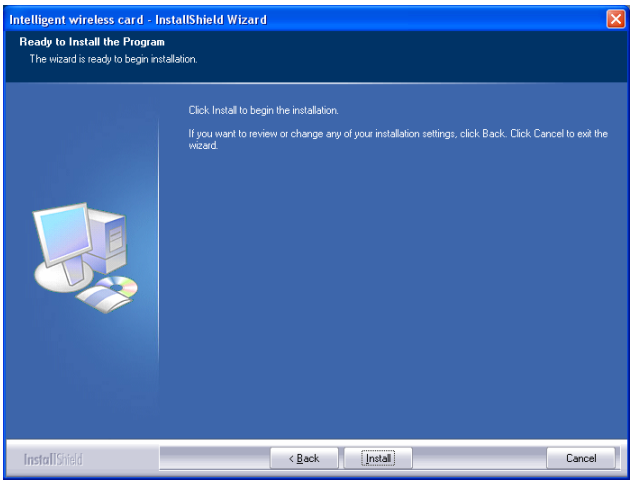
   Click **Next** to continue.



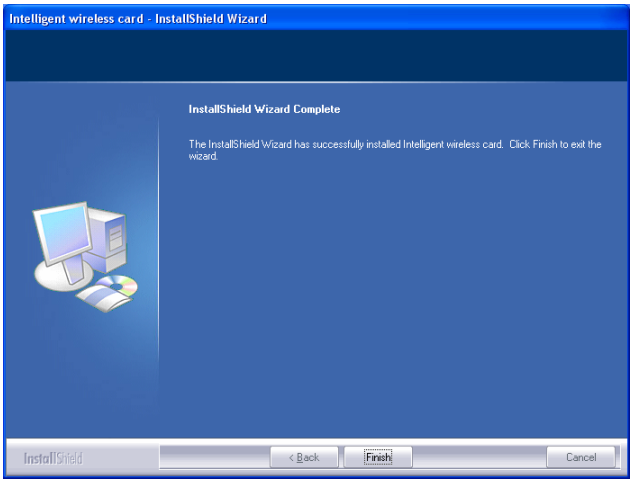
4. There are two modes for you to choose in this screen, either choose WiFi mode or performance mode (TxBurst mode). This mode selection screen is set for the default mode shown in the utility screen, you can still change its mode later in the utility screen. Click **Next** to continue.



5. When you are prompted the following message, please click **Install** to begin the installation.



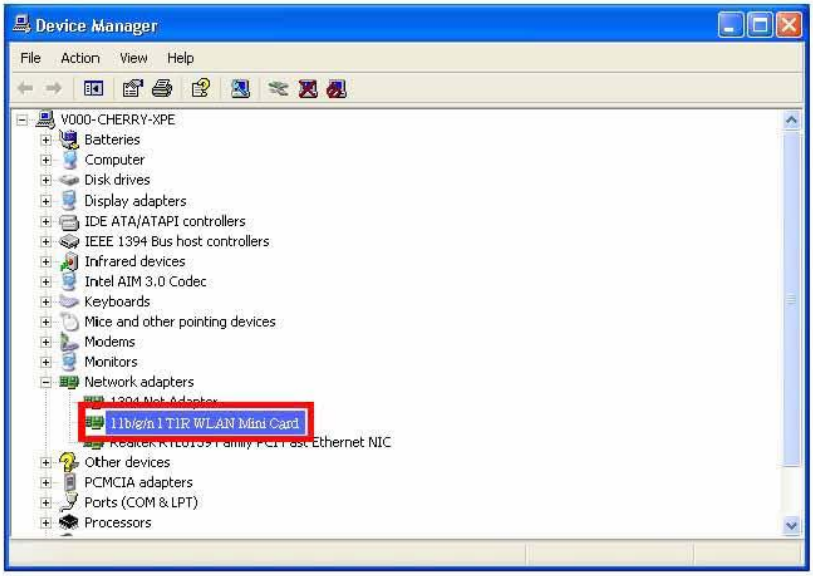
6. When the following screen appears, click **Finish** to complete the software installation.



HARDWARE INSTALLATION

Verification

To verify if the device exists in your computer and is enabled, go to **Start** > **Control Panel** > **System** (> **Hardware**) > **Device Manager**. Expand the **Network Adapters** category. If the **11b/g/n 1T1R WLAN Mini Card** is listed here, it means that your device is properly installed and enabled.



NETWORK CONNECTION

Once the device driver is well installed, a network setting described in the following should be also established.

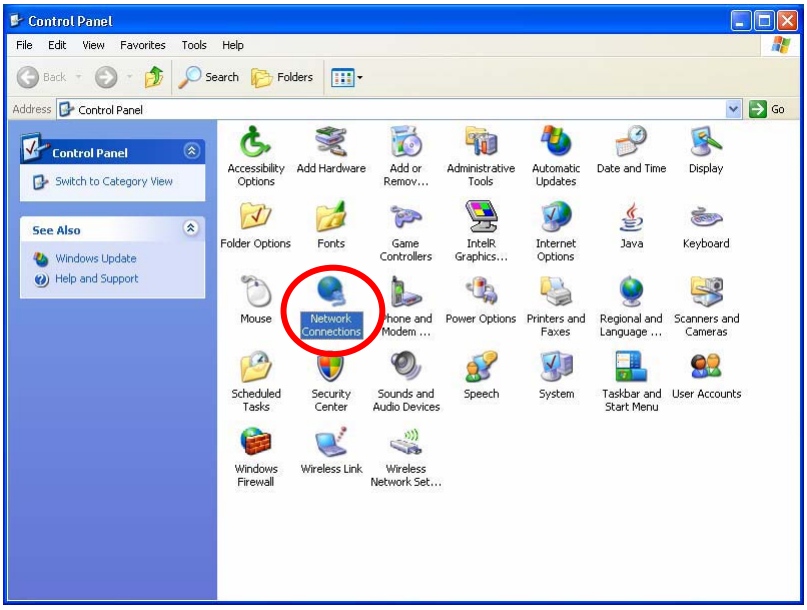
In Windows 2000/ XP

1. **(In Windows 2000)**

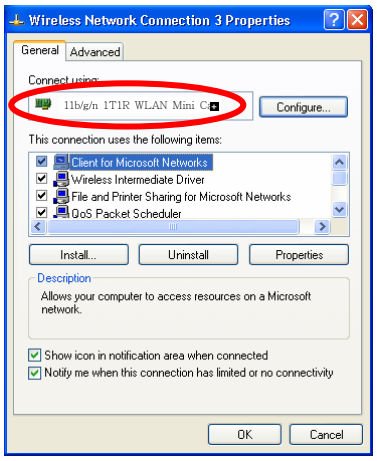
   Go to **Start → Settings → Control Panel → Network and Dial-up Connections → Local Area Connection → Properties**.

   (In Windows XP)

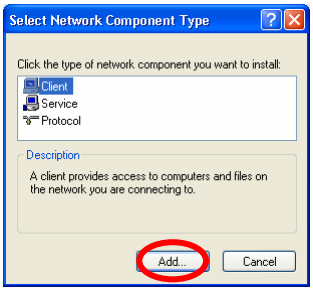
   Go to **Start → Control Panel → Network and Internet Connections → Network Connections → Wireless Network Connection → Properties**.



2. Make sure that all the required components are installed.



3. If any components are missing, click on the **Install…** button to select the **Client/Service/Protocol** required. After selecting the component you need, click **Add…** to add it in.

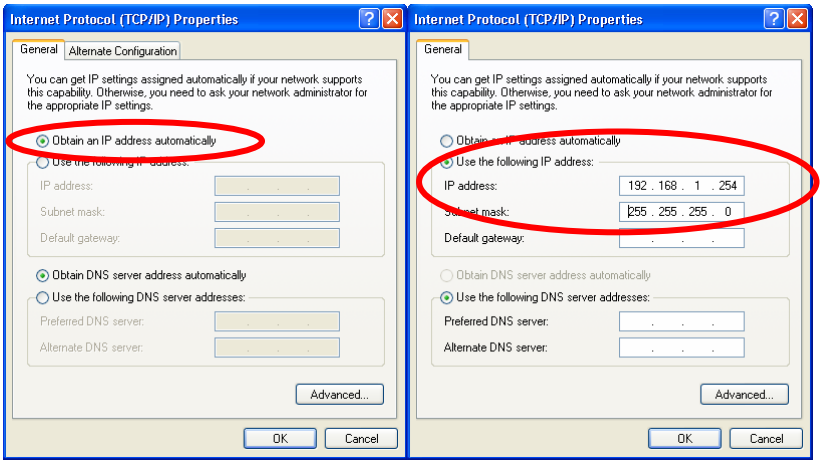


4. For making your computer visible on the network, make sure you have installed **File and Printer Sharing for Microsoft Networks**.

IP Address

***Note**: When assigning IP Addresses to the computers on the network, remember to have the IP address for each computer set on the same subnet mask. If your Broadband Router use DHCP technology, however, it won't be necessary for you to assign Static IP Address for your computer.*

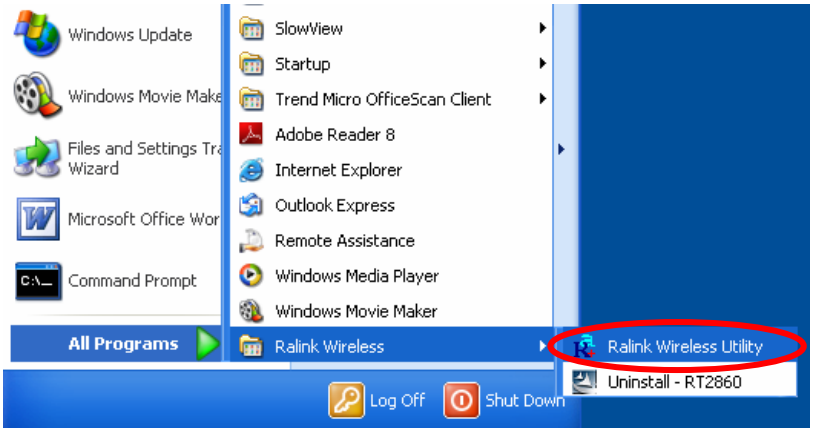
1. To configure a dynamic IP address (i.e. if your broadband Router has the DHCP technology), check the **Obtain an IP Address Automatically** option.
2. To configure a fixed IP address (if you broadband Router is not DHCP supported, or when you need to assign a static IP address), check the **Use the following IP address** option. Then, enter an IP address into the empty field; for example, enter ***192.168.1.254*** in the IP address field, and ***255.255.255.0*** for the Subnet Mask.



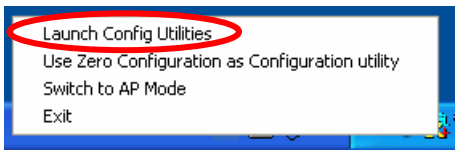
CONFIGURATION UTILITY

After the Wireless adapter has been successfully installed, users can use the included Configuration Utility to set their preference.

Go to **Start→ (All) Programs→ Ralink Wireless→ Ralink Wireless Utility**.



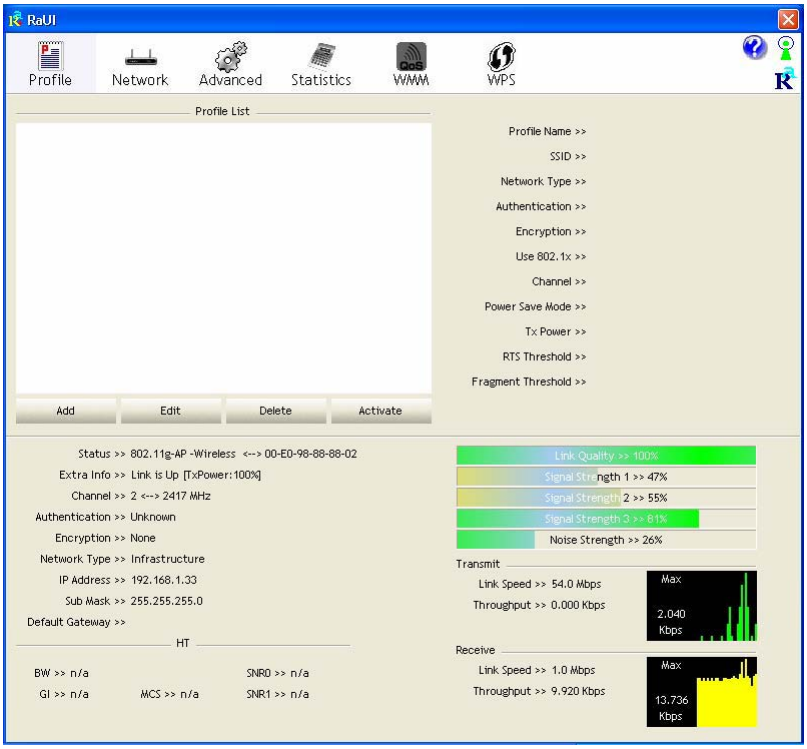
You can also open the Configuration Utility by double clicking the icon or right clicking to select **Launch Config Utilities**.



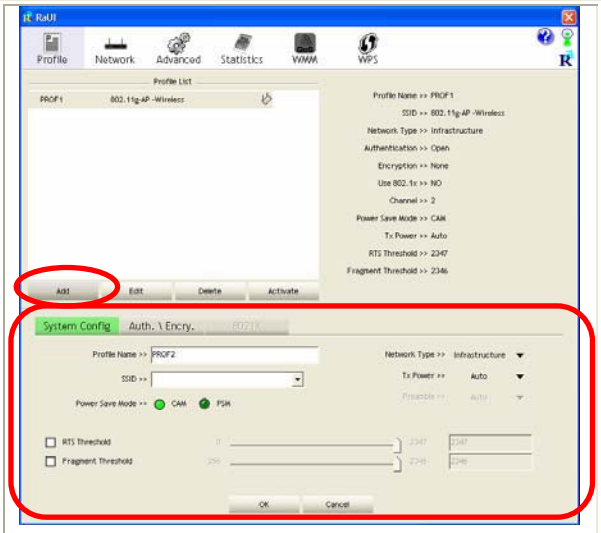
Intelligent Wireless Utility

Profile

Profile can book keeping your favorite wireless setting among your home, office, and other public hot-spot. You may save multiple profiles, and activate the correct one at your preference. The Profile manager enables you to **Add, Edit, Delete** and **Activate** profiles.



Profile Tab	
Profile Name	You may enter a distinctive name of profile in this column. The default is PROF# (# 1, #2, #3....)
SSID	The **SSID** is the unique name shared among all points in your wireless network.
Network Type	Shows the network type of the device, including infrastructure.
Authentication	Shows the authentication mode.
Encryption	Shows the encryption type.
Use 802.1x	Whether or not use 802.1x feature.
Channel	Shows the selected channel that is currently in use. (There are 13 channels available, depending on the country.)
Power Save Mode	Choose from CAM (Constantly Awake Mode) or Power Saving Mode.
Tx Power	Transmit power, the amount of power used by a radio transceiver to send the signal out.
RTS Threshold	Shows the RTS Threshold of the device.
Fragment Threshold	Shows the Fragment Threshold of the device.
Add	Click to add a profile from the drop-down screen. **System Configuration tab:**



Profile Name: User can enter profile name, or use default name defined by system. The default is PROF# (# 1, #2, #3….).

SSID: The **SSID** is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. User can use pull-down menu to select from available APs.

Power Save Mode:

- **CAM (Constantly Awake Mode)**: When this mode is selected, the power supply will be normally provided even when there is no throughput.
- **PSM (Power Saving Mode)**: When this mode is selected, this device will stay in power saving mode even when there is high volume of throughput.

Network Type: There are two types, infrastructure modes.

- The **infrastructure** is intended for the connection between wireless network cards and an Access Point. With the wireless adapter, you can connect wireless LAN to a wired global network via an Access Point.

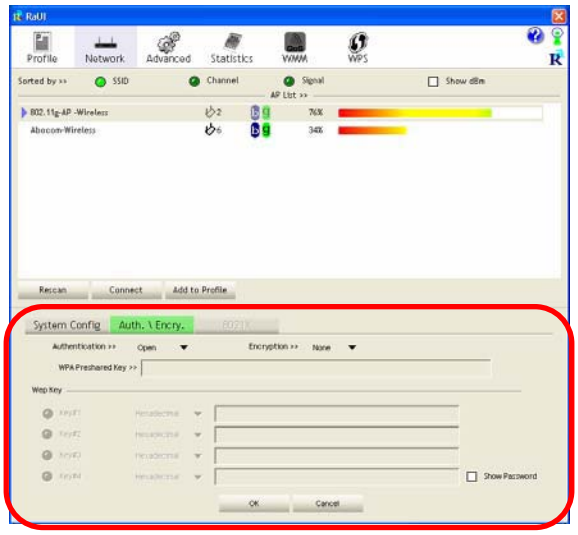
Tx Power: Select the Tx power percentage from the pull-down list including **Auto, 100%, 75%, 50%, 25%, 10%** and **Lowest.**

Preamble: A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. Select from the pull-down menu to change the Preamble type into **Auto** or **Long**.

RTS Threshold: User can adjust the RTS threshold number by sliding the bar or key in the value directly. The default value is 2347. RTS/CTS Threshold is a mechanism implemented to prevent the "**Hidden Node**" problem. If the "Hidden Node" problem is an issue, users have to specify the packet size. *The RTS/CTS mechanism will be activated if the data size exceeds the value you set.* This value should remain at its default setting of 2347. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.

Fragment Threshold: User can adjust the Fragment threshold number by sliding the bar or key in the value directly. The default value is 2346. The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your Wireless LAN Adapter often transmits large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346.

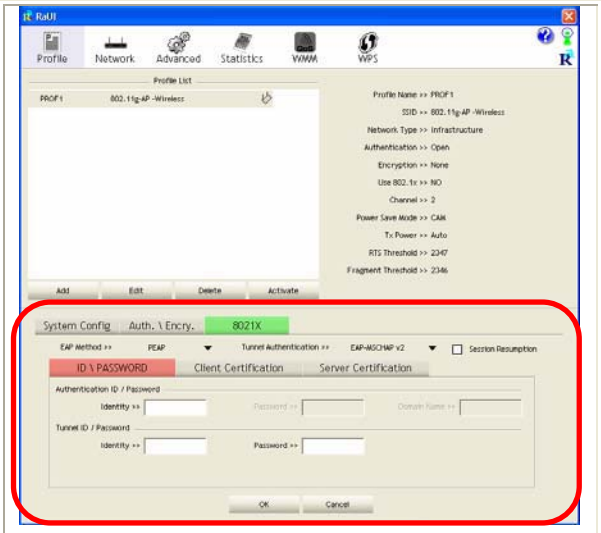
Authentication and Encryption tab:



Authentication Type: There are seven type of authentication modes including Open, Shared, Leap, WPA, WPA-PSK, WPA2, WPA2-PSK, and WPA-None.

- **Open**: If your access point/wireless router is using "**Open"** authentication, then the wireless adapter will need to be set to the same authentication type.
- **Shared**: Shared Key is when both the sender and the recipient share a secret key.
- **LEAP:** 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 (only with CCX mode enabled.)
- **WPA-PSK:** WPA-PSK offers two encryption methods, TKIP and AES. Select the type of algorithm,

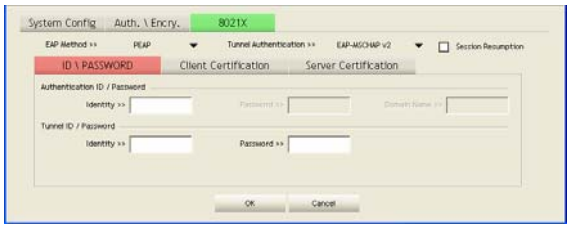
	TKIP or AES and then enter a WPA Shared Key of 8-63 characters in the WPA Pre-shared Key field. **Encryption** Type: For open and shared authentication mode, the selection of encryption type are None and WEP. For WPA, WPA2, WPA-PSK and WPA2-PSK authentication mode, the encryption type supports both TKIP and AES. **WPA Pre-shared Key**: This is the shared secret between AP and STA. For WPA-PSK and WPA2-PSK authentication mode, this field must be filled with character longer than 8 and less than 32 length. **WEP Key**: Only valid when using WEP encryption algorithm. The key must match with the AP's key. There are several formats to enter the keys. • Hexadecimal (40bits): 10 Hex characters. • Hexadecimal (128bits): 32Hex characters. • ASCII (40bits): 5 ASCII characters. • ASCII (128bits): 13 ASCII characters. **Show Password**: Check this box to show the password you entered. **802.1x Setting**: When user use radius server to authenticate client certificate for WPA authentication mode. **802.1x tab:**



EAP Method:

- **PEAP**: Protect Extensible Authentication Protocol. PEAP transport securely 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 for 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. • **EAP-FAST**: Flexible Authentication via Secure Tunneling. It was developed by Cisco. Instead of using a certificate, mutual authentication is achieved by means of a PAC (Protected Access Credential) which can be managed dynamically by the authentication server. The PAC can be provisioned (distributed one time) to the client either manually or automatically. Manual provisioning is delivery to the client via disk or a secured network distribution method. Automatic provisioning is an in-band, over the air, distribution. For tunnel authentication, only support "Generic Token Card" authentication now. • **MD5-Challenge**: Message Digest Challenge. Challenge is an EAP authentication type that provides base-level EAP support. It provides for only one-way authentication - there is no mutual authentication of wireless client and the network. **Tunnel Authentication**: • **Protocol**: Tunnel protocol, List information including **EAP-MSCHAP v2**, **EAP-TLS/Smart card**, and **Generic Token Card**. • **Tunnel Identity**: Identity for tunnel. • **Tunnel Password**: Password for tunnel. **Session Resumption**: User can click the box to enable or disable this function. **ID\PASSWORD tab:**



ID/ PASSWORD: Identity and password for server.

- **Authentication ID / Password**: Identity, password and domain name for server. Only "EAP-FAST" and "LEAP" authentication can key in domain name. Domain name can be keyed in blank space.
- **Tunnel ID / Password:** Identity and Password for server.

OK: Click to save settings and exit this page.
Cancel: Click to call off the settings and exit.

Client Certification tab:

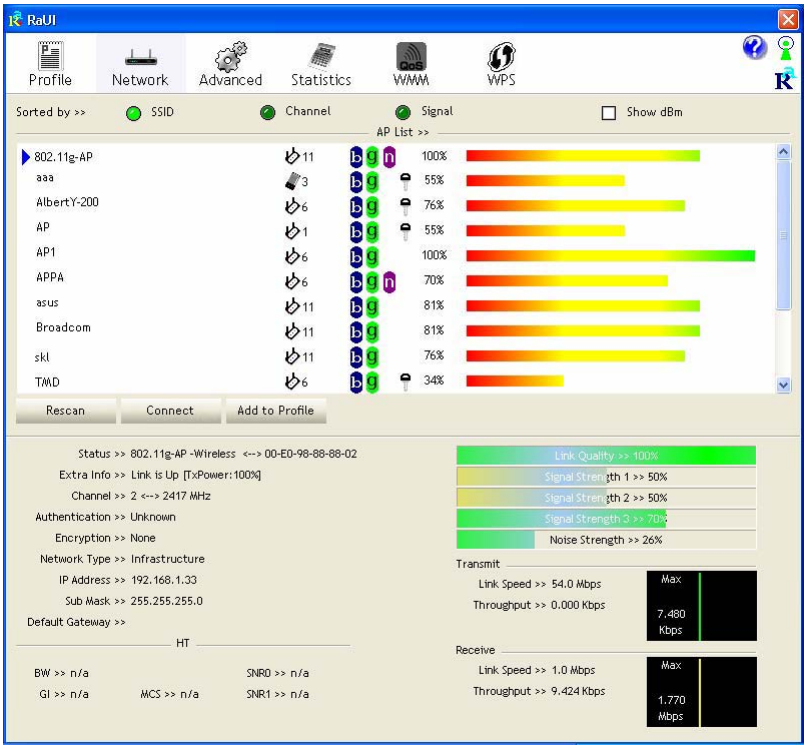
Client Certification: Client Certicate for server authentication.
Use Client certification: Choose to enable server authentication.
OK: Click to save settings and exit this page.
Cancel: Click call off the settings and exit.

Server Certification tab:

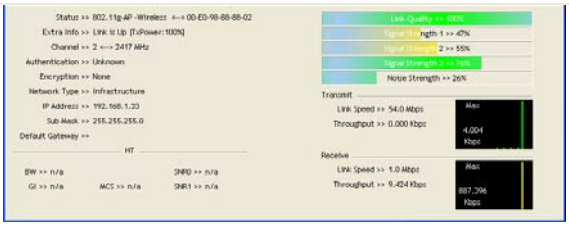
	 **Use Certificate chain**: Choose use server that issuer of certificates. **Allow intimidate certificates**: It must be in the server certificate chain between the server certificate and the server specified in the certificate issuer must be field. **Server name**: Enter an authentication sever root. **Server name must match exactly:** Click to enable or disable this function. **Domain name must end in specified name:** Click to enable or disable this function. **OK**: Click to save settings and exit this page. **Cancel:** Click call off the settings and exit.
Delete	Click to delete an existing profile.
Edit	Click to edit a profile.
Activate	Click to make a connection between devices.

Network

The Network page displays the information of surrounding APs from last scan result. The tab lists the information including SSID, Network type, Channel, Wireless mode, Security-Enabled and Signal.



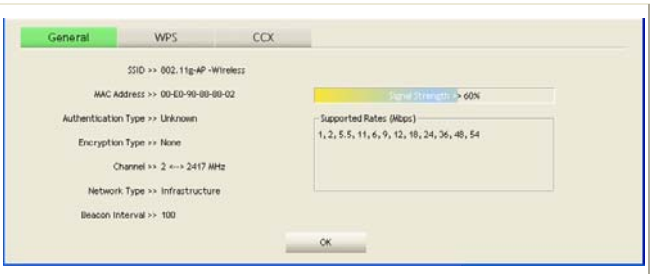
Network Tab	
Sorted by	Indicate that AP list are sorted by SSID, Channel or Signal.
Show dBm	Check the box to show the dBm of the AP list.
SSID	Shows the name of BSS network.
Network Type	Network type in use, Infrastructure for BSS.
Channel	Shows the currently used channel.
Wireless mode	AP support wireless mode. It may support 802.11a, 802.11b, 802.11g or 802.11n wireless mode.

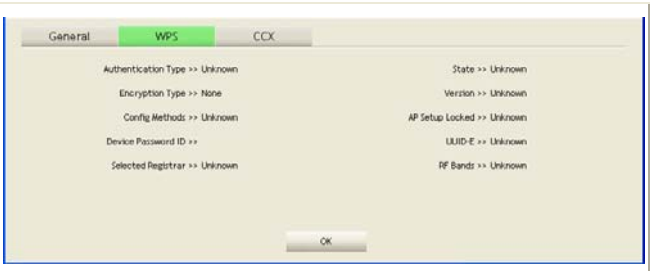
Encryption	Shows the encryption type currently in use. Valid value includes WEP, TKIP, AES, and Not Use.
Signal	Shows the receiving signal strength of specified network.
Rescan	Click to refresh the AP list.
Connect	Select an item on the list and then click to make a connection.
Add to Profile	Select an item on the list and then click to add it into the profile list.
Link status	
Status	Shows the current connection status. If there is no connection existing, it will show Disconnected.
Extra Info	Shows the link status.
Channel	Shows the current channel in use.
Authentication	Authentication mode used within the network, including Unknown, WPA-PSK, WPA2-PSK, WPA and WPA2.
Encryption	Shows the encryption type currently in use. Valid value includes WEP, TKIP, AES, and Not Use.
Network Type	Network type in use, Infrastructure for BSS.
IP Address	Shows the IP address information.
Sub Mask	Shows the Sub Mask information.
Default Gateway	Shows the default gateway information.
Link Quality	Shows the connection quality based on signal strength and

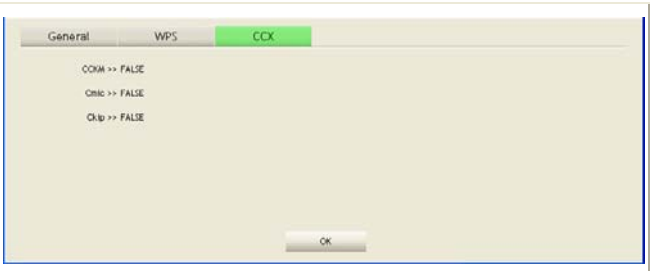
	TX/RX packet error rate.
Signal Strength 1, 2 and 3	Shows the Receiving signal strength, you can choose to display as percentage or dBm format.
Noise Strength	Shows the noise signal strength.
Transmit	Shows the current Link Speed and Throughput of the transmit rate.
Receive	Shows the current Link Speed and Throughput of receive rate.
Link Speed	Shows the current transmitting rate and receiving rate.
Throughput	Shows the transmitting and receiving throughput in the unit of K bits/sec.

AP information

When you double click on the intended AP, you can see AP's detail information that divides into three parts. They are General, WPS, CCX information. The introduction is as following:

General	 General information contain AP's SSID, MAC address, Authentication Type, Encryption Type, Channel, Network Type, Beacon Interval, Signal Strength and Supported Rates. **OK**: Click this button to exit the information screen.

WPS	 WPS information contains Authentication Type, Encryption Type, Config Methods, Device Password ID, Selected Registrar, State, Version, AP Setup Locked, UUID-E and RF Bands. **Authentication Type**: There are four types of authentication modes supported by RaConfig. They are open, Shared, WPA-PSK and WPA system. **Encryption Type**: For open and shared authentication mode, the selection of encryption type are None and WEP. For WPA, WPA2, WPA-PSK and WPA2-PSK authentication mode, the encryption type supports both TKIP and AES. **Config Methods**: Correspond to the methods the AP supports as an Enrollee for adding external Registrars. **Device Password ID**: Indicate the method or identifies the specific password that the selected Registrar intends to use. **Selected Registrar**: Indicate if the user has recently activated a Registrar to add an Enrollee. The values are "TRUE" and "FALSE". **State**: The current configuration state on AP. The values are "Unconfigured" and "Configured". **Version**: WPS specified version. **AP Setup Locked**: Indicate if AP has entered a setup locked state. **UUID-E**: The universally unique identifier (UUID) element generated by the Enrollee. There is a value. It is 16 bytes. **RF Bands**: Indicate all RF bands available on the AP. A dual-band AP must provide it. The values are "2.4GHz" and "5GHz". **OK**: Click this button to exit the information screen.

CXX	 CCX information contains CCKM, Cmic and Ckip information. **OK**: Click this button to exit the information screen.

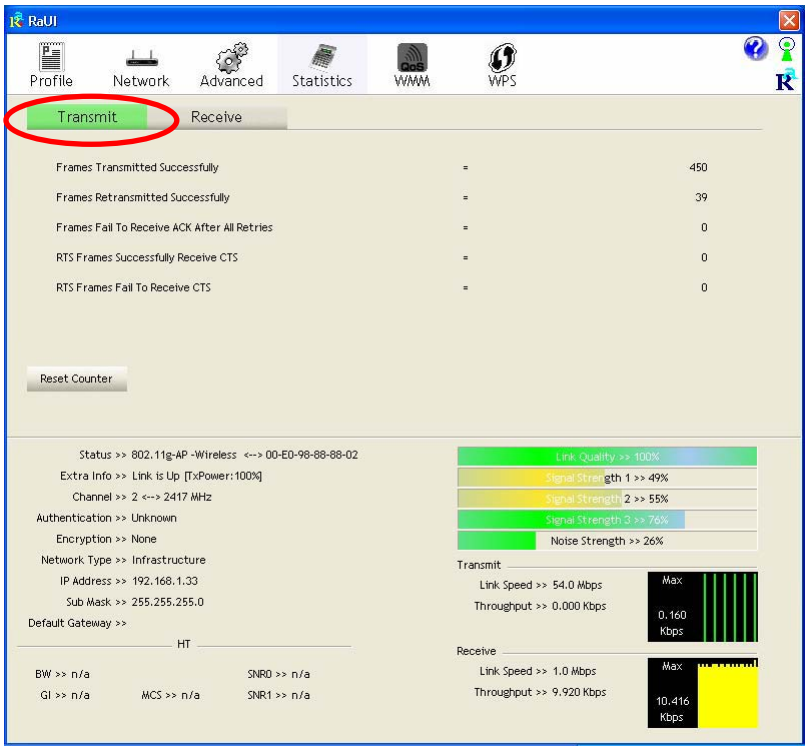
Advanced

This Advanced page provides advanced and detailed settings for your wireless network.

Authentication Status Dialog	whether show "Authentication Status Dialog" or not. Authentication Status Dialog displays the process about 802.1x authentications.
Enable CCX (Cisco Compatible extensions)	Check to enable the CCX function. • Turn on CCKM • Enable Radio Measurements: Check to enable the Radio measurement function. • Non-Serving Measurements limit: User can set channel measurement every 0~2000 milliseconds. Default is set to 250 milliseconds.
Apply	Click to apply above settings.

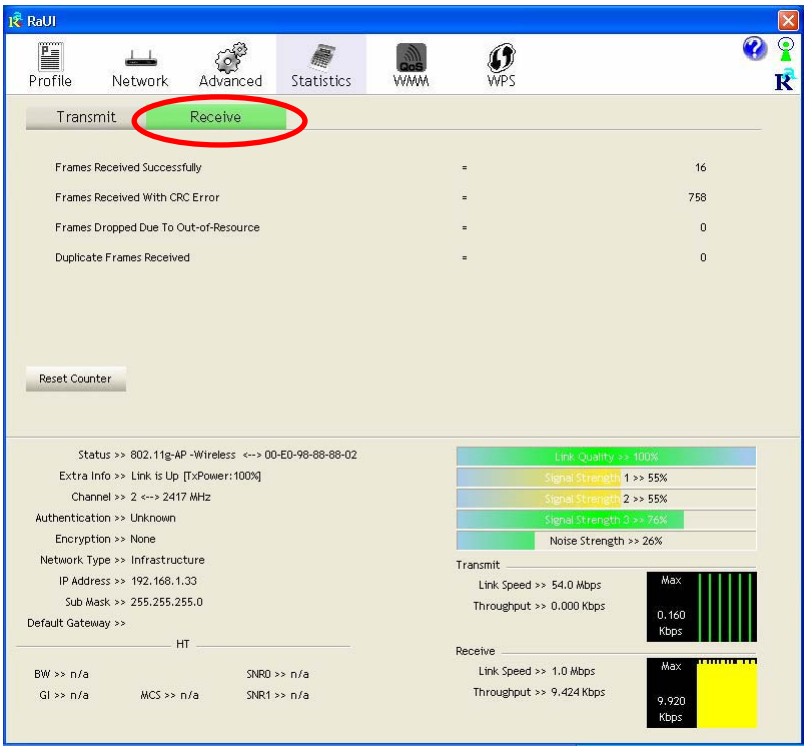
Statistics

The Statistics screen displays the statistics on your current network settings.



Transmit	
Frames Transmitted Successfully	Shows information of frames successfully sent.
Frames Retransmitted Successfully	Shows information of frames successfully sent with one or more reties.
Frames Fail To Receive ACK After All Retries	Shows information of frames failed transmit after hitting retry limit.
RTS Frames Successfully Receive CTS	Shows information of successfully receive CTS after sending RTS frame

RTS Frames Fail To Receive CTS	Shows information of failed to receive CTS after sending RTS.
Reset Counter	Click this button to reset counters to zero.

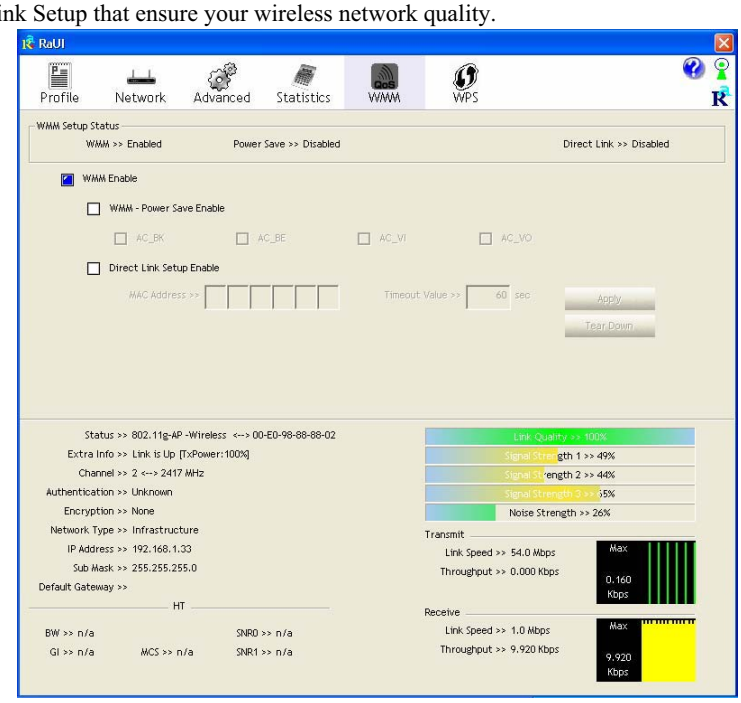


Receive Statistics	
Frames Received Successfully	Shows information of frames Received Successfully.
Frames Received With CRC Error	Shows information of frames received with

	CRC error.
Frames Dropped Due To Out-of-Resource	Shows information of frames dropped due to resource issue.
Duplicate Frames Received	Shows information of duplicate received frames.
Reset Counter	Click this button to reset counters to zero.

WMM / QoS

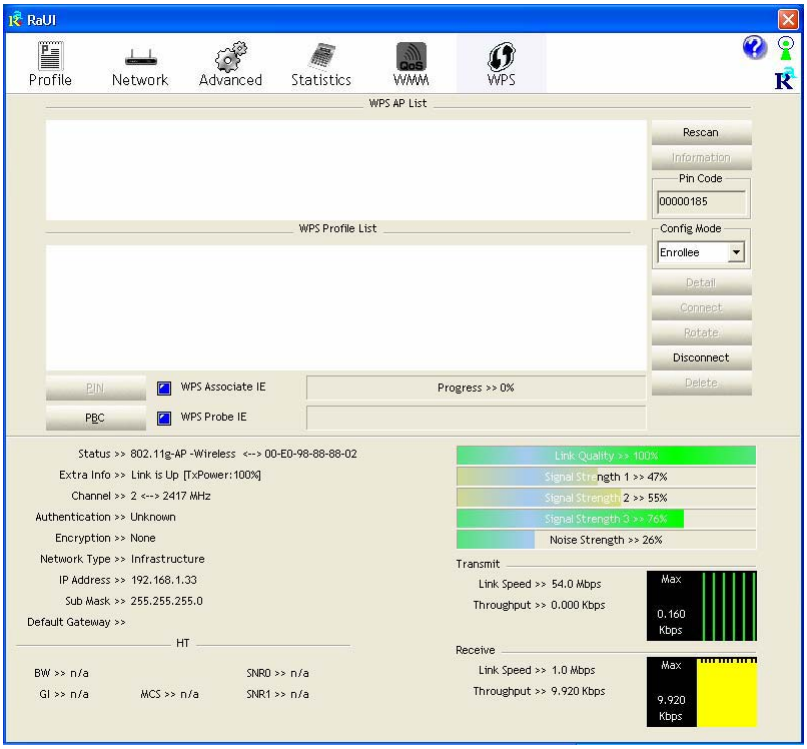
The WMM page shows the Wi-Fi Multi-Media power save function and Direct Link Setup that ensure your wireless network quality.



WMM Enable	Check the box to enable Wi-Fi Multi-Media function.
WMM- Power Save Enable	Select which ACs you want to enable.
Direct Link Setup Enable	Check the box to enable Direct Link Setup.
MAC Address	The setting of DLS indicates as follow : Fill in the blanks of Direct Link with MAC Address of STA, and the STA must conform to two conditions: • Connecting with the same AP that supports DLS feature. • DSL enabled.
Timeout Value	Timeout Value represents that it disconnect automatically after few seconds. The value is integer that must be between 0~65535. It represents that it always connects if the value is zero. Default value of Timeout Value is 60 seconds.
Apply	Click this button to apply the settings.
Tear Down	Select a direct link STA, then click "Tear Down" button to disconnect the STA.

WPS

The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simplify the security setup and management of Wi-Fi networks. The STA as an Enrollee or external Registrar supports the configuration setup using PIN (Personal Identification Number) configuration method or PBC (Push Button Configuration) method through an internal or external Registrar.



WPS AP List	Display the information of surrounding APs with WPS IE from last scan result. List information included SSID, BSSID, Channel, ID (Device Password ID), Security-Enabled.
Rescan	Issue a rescan command to wireless NIC to update information on surrounding wireless network.
Information	Display the information about WPS IE on the selected network. List information included Authentication Type,

	Encryption Type, Config Methods, Device Password ID, Selected Registrar, State, Version, AP Setup Locked, UUID-E and RF Bands.
PIN Code	8-digit numbers. It is required to enter PIN Code into Registrar using PIN method.
Config Mode	Our station role-playing as an Enrollee or an external Registrar.
Detail	Information about Security and Key in the credential.
Connect	Command to connect to the selected network inside credentials. The active selected credential is as like as the active selected Profile.
Rotate	Command to rotate to connect to the next network inside credentials.
Disconnect	Stop WPS action and disconnect this active link. And then select the last profile at the Profile Page. If there is an empty profile page, the driver will select any non-security AP.
PIN	Start to add to Registrar using PIN (Personal Identification Number) configuration method. If STA Registrar, remember that enter PIN Code read from your Enrollee before starting PIN.
PBC	Start to add to AP using PBC (Push Button Configuration) method.
WPS associate IE	Send the association request with WPS IE during WPS setup. It is optional for STA.
WPS probe IE	Send the probe request with WPS IE during WPS setup.

	It is optional for STA.
Progress Bar	Display rate of progress from Start to Connected status.
Status Bar	Display currently WPS Status.

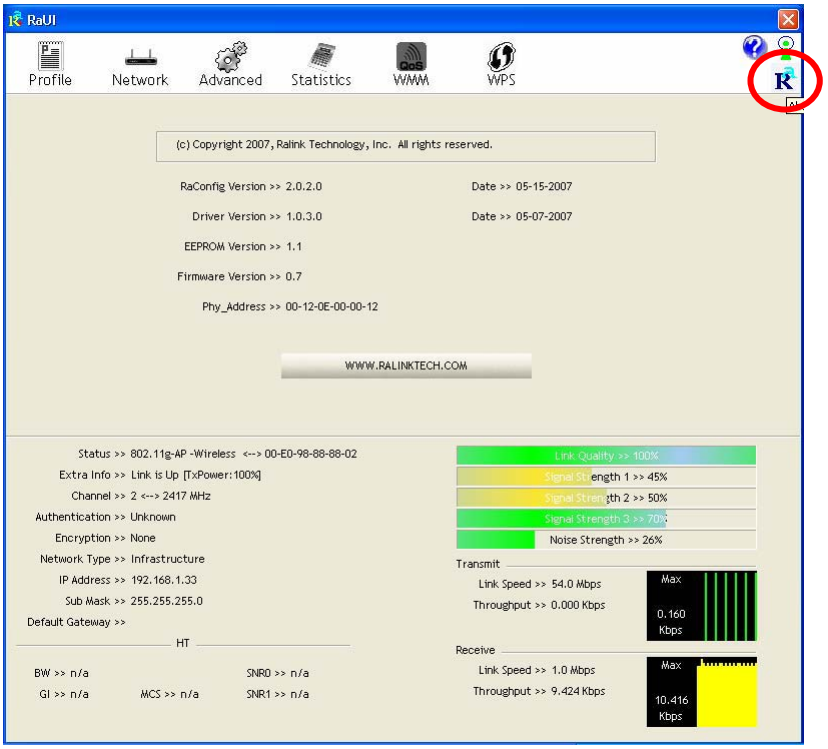
Radio On/Off

Click this icon to turn on radio function.

Click this icon to turn off radio function.

About

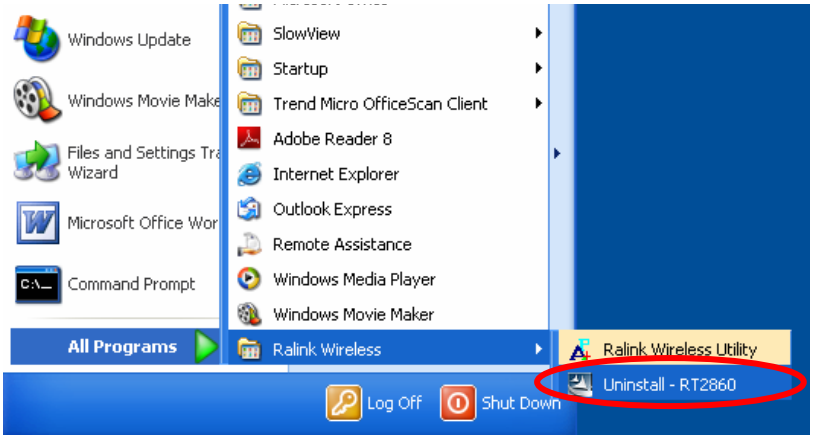
Click this button to show the information of the wireless card including, RaConfig Version/ Date, Driver Version/ Date, EEPROM Version, Firmware Version and Phy_Address.


RaUI
Profile
Network
Advanced
Statistics
WMM
WPS
(c) Copyright 2007, Ralink Technology, Inc. All rights reserved.
RaConfig Version >> 2.0.2.0
Date >> 05-15-2007
Driver Version >> 1.0.3.0
Date >> 05-07-2007
EEPROM Version >> 1.1
Firmware Version >> 0.7
Phy_Address >> 00-12-0E-00-00-12
WWW.RALINKTECH.COM
Status >> 802.11g-AP -Wireless <--> 00-E0-98-88-88-02
Extra Info >> Link is Up [TxPower:100%]
Channel >> 2 <--> 2417 MHz
Authentication >> Unknown
Encryption >> None
Network Type >> Infrastructure
IP Address >> 192.168.1.33
Sub Mask >> 255.255.255.0
Default Gateway >>
HT
BW >> n/a
GI >> n/a
MCS >> n/a
SNR0 >> n/a
SNR1 >> n/a
Link Quality >> 100%
Signal Strength 1 >> 45%
Signal Strength 2 >> 50%
Signal Strength 3 >> 70%
Noise Strength >> 26%
Transmit
Link Speed >> 54.0 Mbps
Throughput >> 0.000 Kbps
Max
0.160
Kbps
Receive
Link Speed >> 1.0 Mbps
Throughput >> 9.424 Kbps
Max
10.416
Kbps

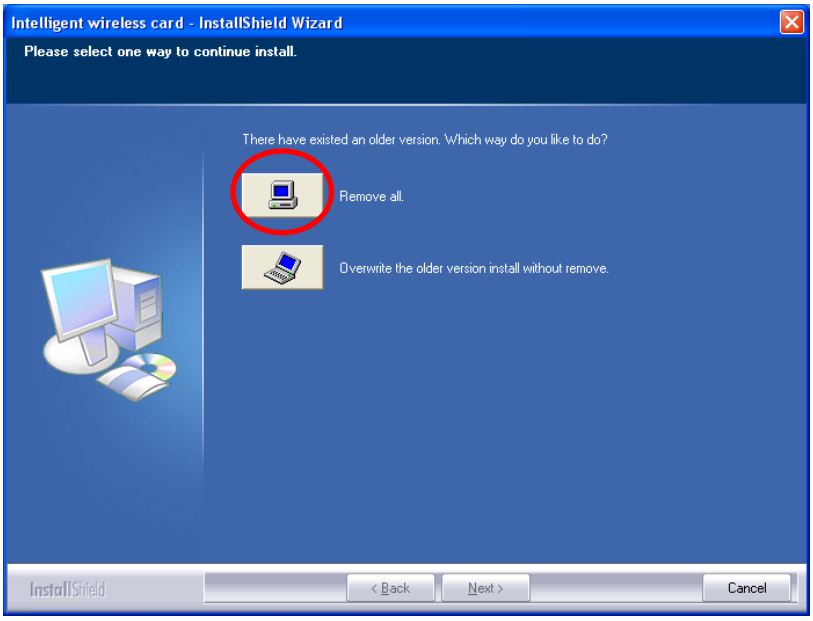
UNINSTALLATION

In case you need to uninstall the utility and driver, please refer to below steps. (As you uninstall the utility, the driver will be uninstalled as well.)

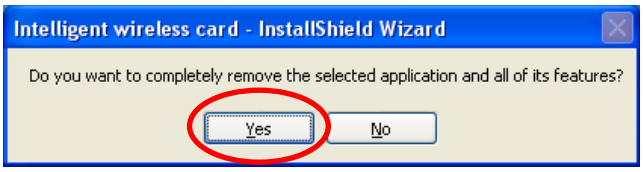
1. Go to **Start → Programs →Ralink Wireless → Uninstall.**



2. Select **Remove all** button and click **Next** to start uninstalling.



3. Click **Yes** to complete remove the selected application and all of its features.



4. Select "**Yes, I want to restart my computer now"** and then click **Finish** to complete the uninstallation.