SE-WL-PCI-03-11G

PCI CARD DRIVERS INSTALLATION

Table of Contents

1. Introduction

1.1 System Requirement

Please confirm that you have the following system configuration.
The computer with more than 300MHz Central Processing Unit (CPU)
The system memory should be no less than 32MB
The operation system should be Windows Vista/XP/2000/ME/98SE
CD-ROM in order to install the driver

1.2 Objects Counting

Please confirm that the package box of the production you purchased is intact or not, if the package is damaged or any accessory shortage, please kindly contact with your vendor as soon as possible.

Standard Accessories:

1 Wireless Adapter
2 1PCS Antenna
3 CD for Driver and Application
4 Quick Guide and User Manual

2. Installation

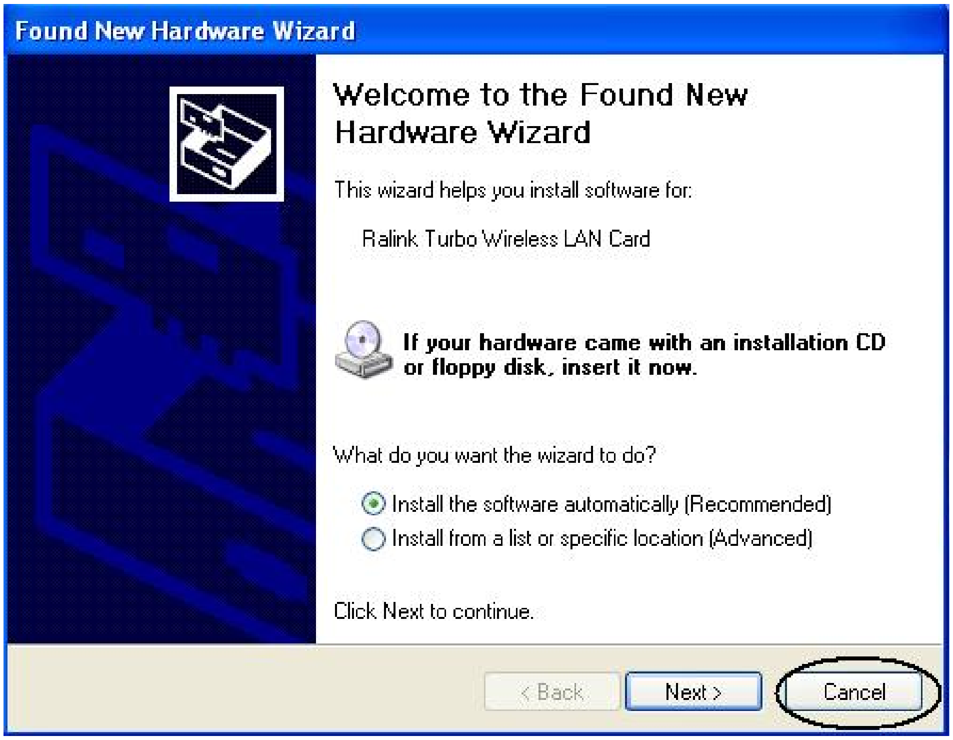
This Chapter will introduce how to configure the Wireless Adapter, Diver and Application. The Wireless Adapter is compatible with the operation system Windows 98/Me/2000/XP/Vista.This guide will explain the process of the installation through installing hardware and software on Windows XP.

2.1 Install Wireless PCI Adapter

Turn off your desktop PC and disconnect the power cord, insert the adapter into the PCI slot of your desktop PC carefully and make sure that the edge connector is aligned correctly. Connect antenna to the end of SMA of the adapter. Open your PC’s case

2.2 Install Driver and Application for Wireless Adapter

1. Once you turn on your desktop PC, the system will launch the “ Found New Hardware” wizard automatically. Click “ Cancel” .



Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

Ralink Turbo Wireless LAN Card

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

● Install the software automatically (Recommended)

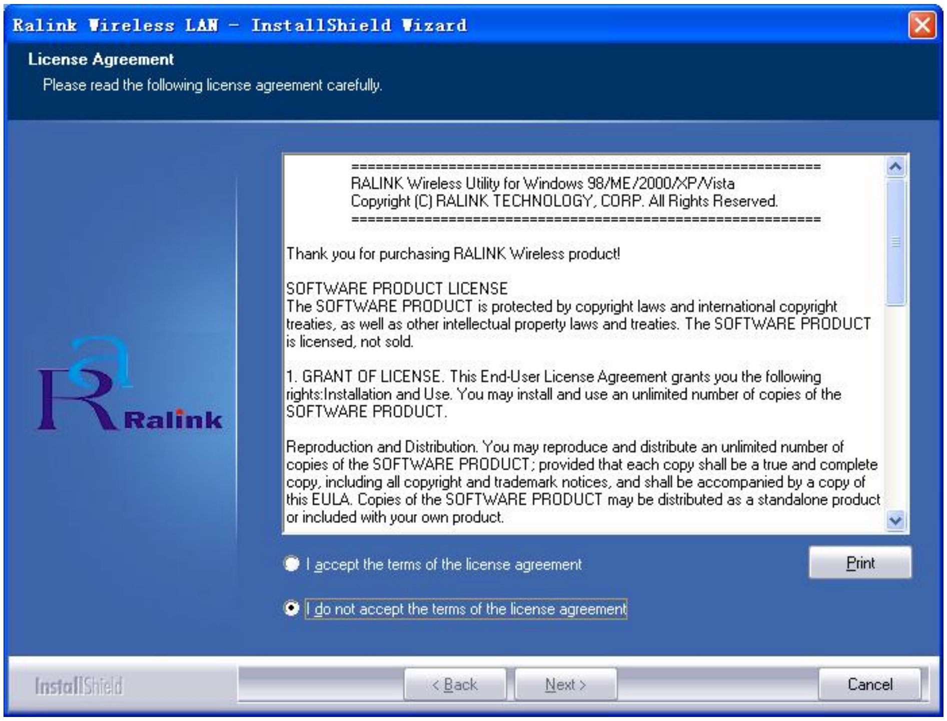
○ Install from a list or specific location (Advanced)

Click Next to continue.

2 Insert the Driver CD-ROM into your CD-ROM drive. The setup wizard will run automatically. If it does not, browse the CD-ROM by double-clicking the CD-ROM drive icon, then double-click on the " Setup.exe" file to start the installation procedure.

WirelessPCI
Setup.exe
InstallShield Software Corpora...

3 The welcome screen will appear, please read the Grant of License in detail and accept the terms of the license agreement, click " next" to continue.


Ralink Wireless LAN - InstallShield Wizard

License Agreement

Please read the following license agreement carefully.

==
RALINK Wireless Utility for Windows 98/ME/2000/XP/Vista
Copyright (C) RALINK TECHNOLOGY, CORP. All Rights Reserved.
==

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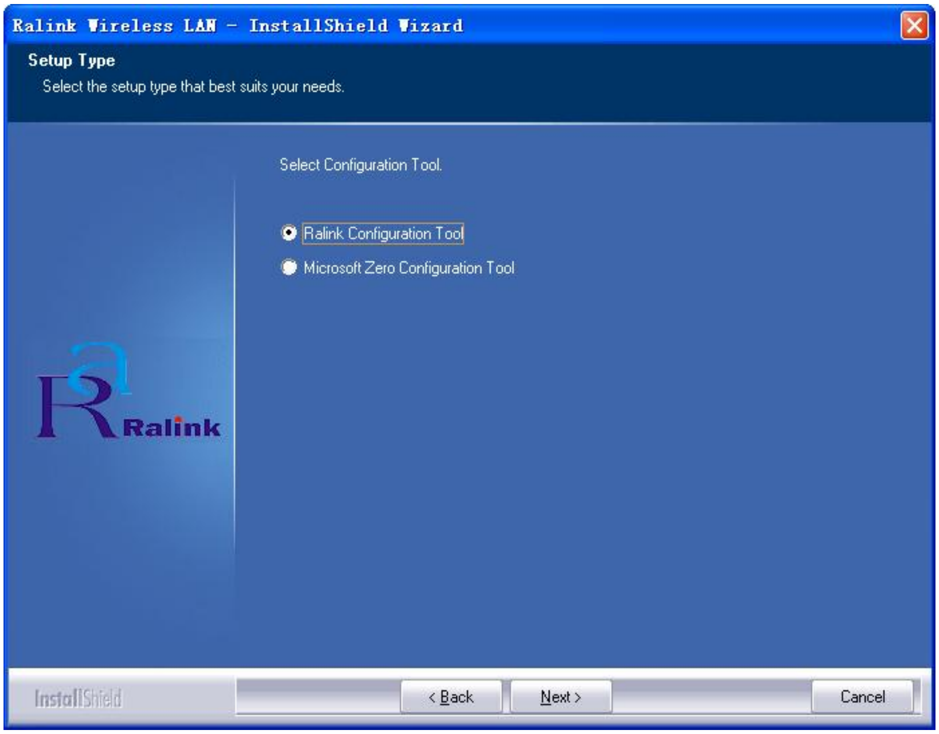
○ I accept the terms of the license agreement

● I do not accept the terms of the license agreement

4. Windows XP uses the " Windows Zero Configuration Tool" to set up wireless adapter. You can choose to configure the card by using the " Zero Configuration Tool" . Click " next" to continue.



Ralink Wireless LAN - InstallShield Wizard

Setup Type

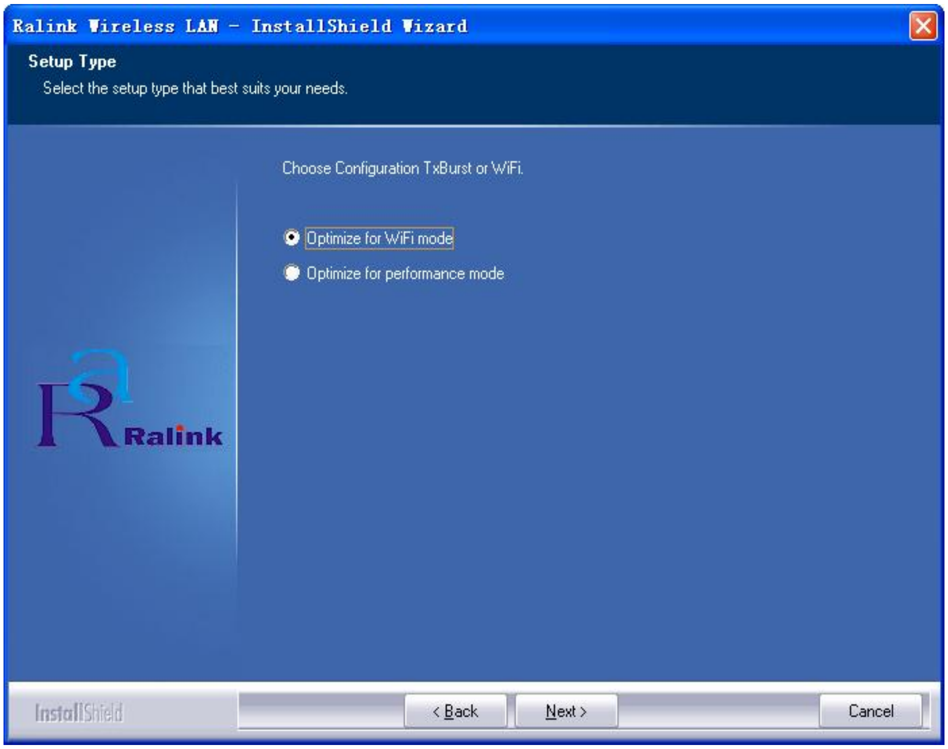
Select the setup type that best suits your needs.

Select Configuration Tool.

● Ralink Configuration Tool

○ Microsoft Zero Configuration Tool

5. If you need the adapter to operate with better performance, please choose " Optimize for Performance Mode" to enable Tx Burst mode or select " Optimize for WiFi Mode" to use the adapter in a standard wireless network. Click " next" to continue.



Ralink Wireless LAN - InstallShield Wizard

Setup Type

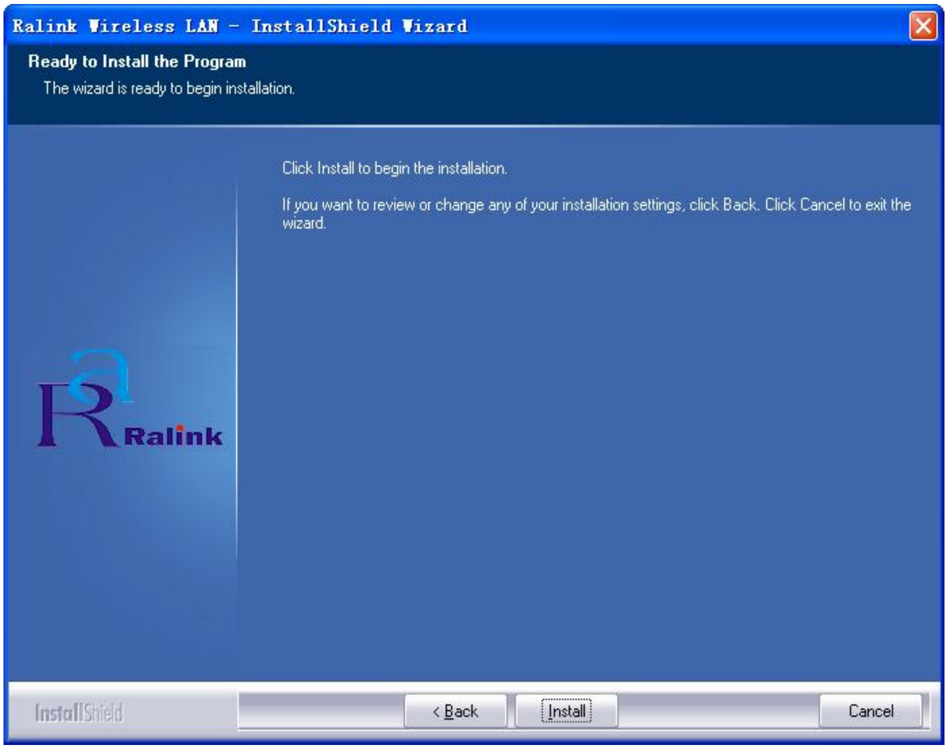
Select the setup type that best suits your needs.

Choose Configuration TxBurst or WiFi.

● Optimize for WiFi mode

○ Optimize for performance mode

6. Click“ Install” to continue, and copy the corresponding documents.



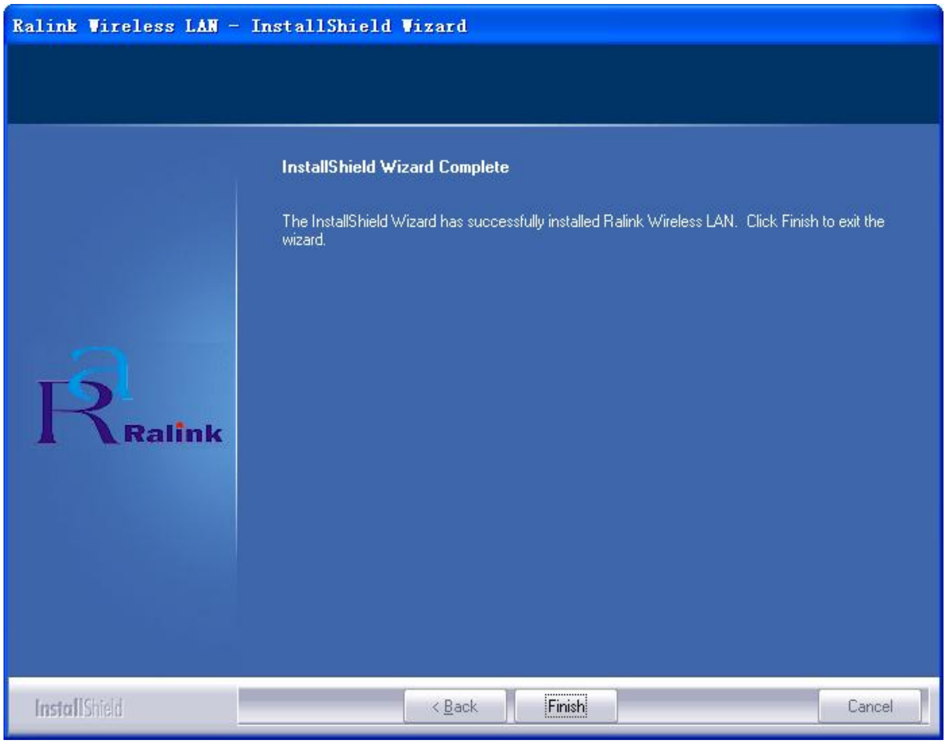
Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

7. When the installation is complete, please click “ Finish” .



InstallShield Wizard Complete

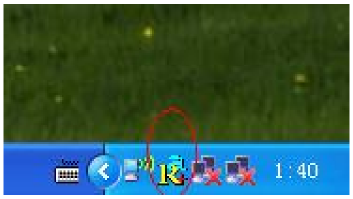
The InstallShield Wizard has successfully installed Ralink Wireless LAN. Click Finish to exit the wizard.

3. The use of Application

The application is a tool to manage the wireless adapter, use it can check and amend the configuration of the wireless adapter, or monitor the running status of your wireless adapter.

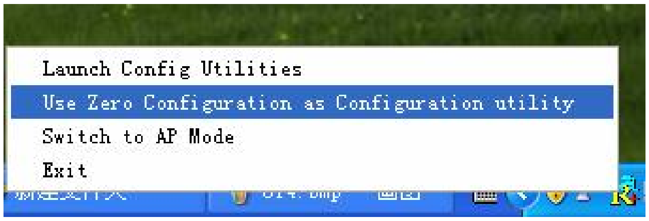
3.1 Launch the Utility

After launching the utilities, you will see the icon shown in the right.



Right click the icon, the four items: Launch Configuration Utilities are appear; Use Zero Configuration as Configuration Utility; Switch to AP Mode and Exit will appear.

To use the application offered by Windows means to use the defaulted wireless management application of Window, not Ralink application.

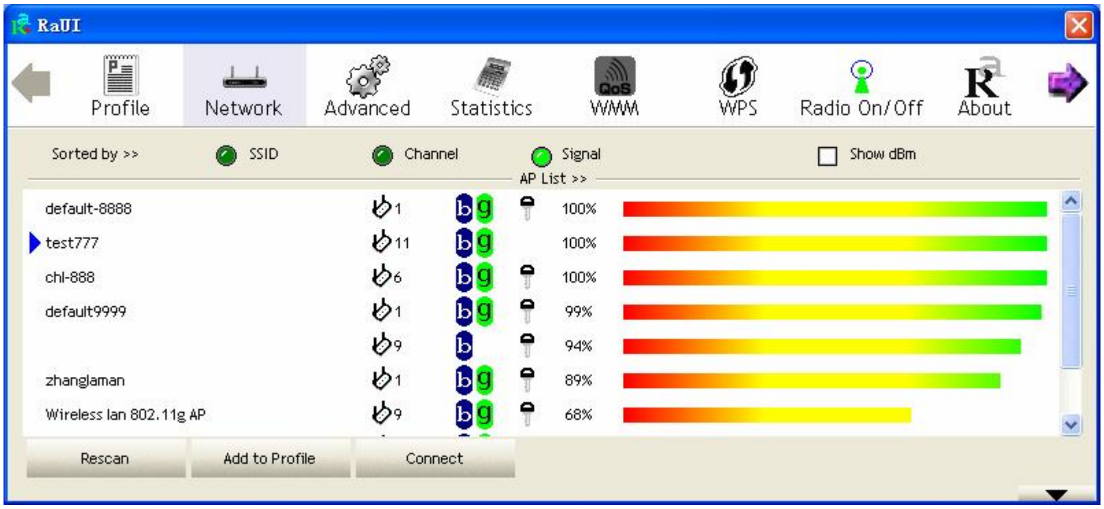


Chapter 4 will introduce the using of Windows wireless management application.

Now choose “ Launch the Utilities” , the main wizard of the application will appear. There are Profile, Network, Advanced, Statistics, WMM, WPS, related information, etc.

3.2 Wireless Network

Open the label “ Network” , this page shows the status of the wireless network of your wireless adapter. If necessary, it can be sorted by SSID, Channel and Signal.



default-8888	1	bg	🔑	100%
test777	11	bg		100%
chl-888	6	bg	🔑	100%
default9999	1	bg	🔑	99%
	9	b	🔑	94%
zhanglaman	1	bg	🔑	89%
Wireless lan 802.11g AP	9	bg	🔑	68%

SSID -- Means the adapter is connected or will be connected, the right figure shows that the adapter is connected, SSID is the default network.

BSSID -- Means the MAC address of connected AP or the basic service device ID of Hoc AP.

Channel- Shows the present signal channel of the adapter. As the signal can scan the usable channel and always change the channel, this figure is changeable.

Encryption - Means wireless network encryption information. All the devices in the network have to use the same encryption to ensure the communication.

There are two network models: Infrastructure and AD Hoc.

- Infrastructure-- means to get connection by AP, once connected, AP will permit you to access wireless network or LAN network. If the connection is infrastructure, the Channel will display Auto.

- AD Hoc-- Means to get connection not by AP, AD Hoc can be built conveniently without any plan in advance. For example, all the persons in the meeting could share the meeting record in the meeting room.

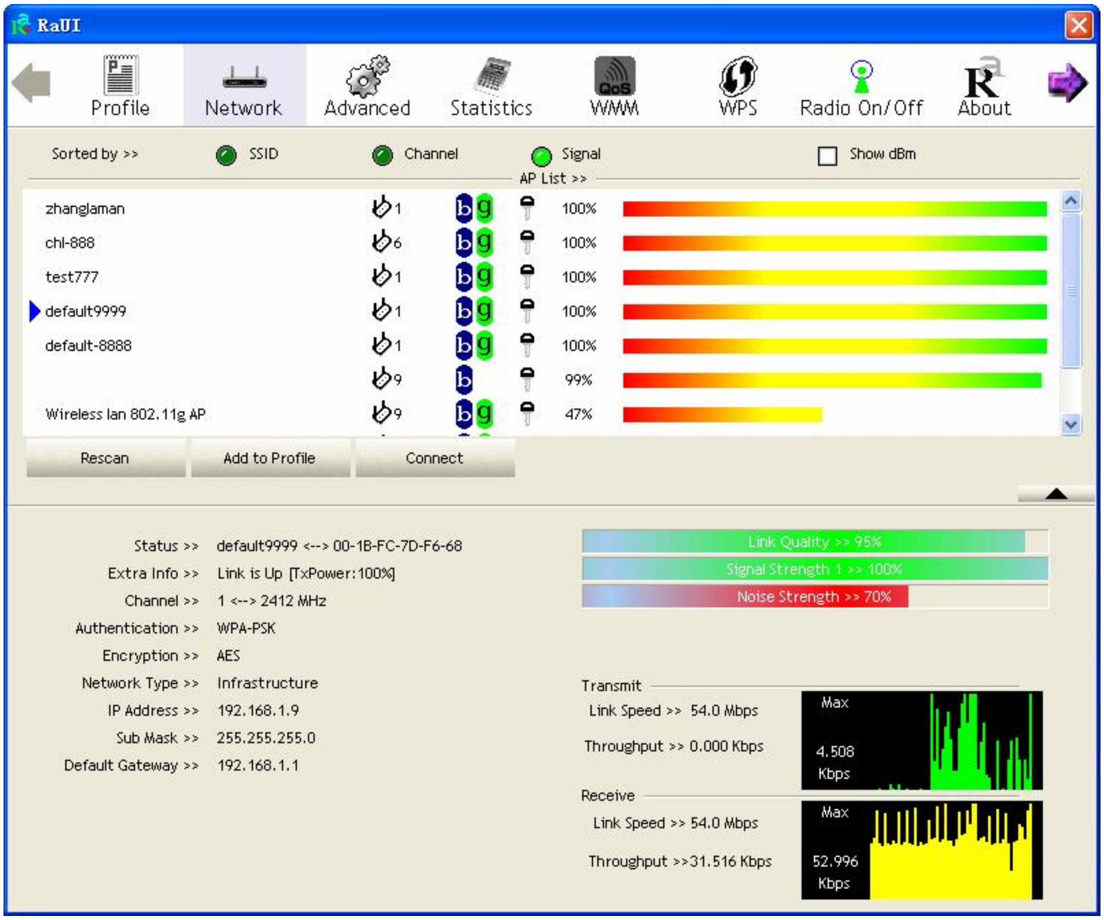
Rescan-- Make the adapter rescan the available device. If the link is not good or the signal is too weak, the rescan will make the adapter link to a better device which will take several seconds.

Add to Profile – Save the corresponding information of the usable equipment which searched by wireless adapter and the corresponding settings.

Connect-- Choose Network from Network list and click it to link.

3.3 Link Status

Click ▼, you can browse more information, see the following tab.



SSID	Channel			Signal
zhanglaman	1	b g		100%
chl-888	6	b g		100%
test777	1	b g		100%
default9999	1	b g		100%
default-8888	1	b g		100%
	9	b		99%
Wireless lan 802.11g AP	9	b g		47%

Status >> default9999 <--> 00-1B-FC-7D-F6-68
Extra Info >> Link is Up [TxPower:100%]
Channel >> 1 <--> 2412 MHz
Authentication >> WPA-PSK
Encryption >> AES
Network Type >> Infrastructure
IP Address >> 192.168.1.9
Sub Mask >> 255.255.255.0
Default Gateway >> 192.168.1.1

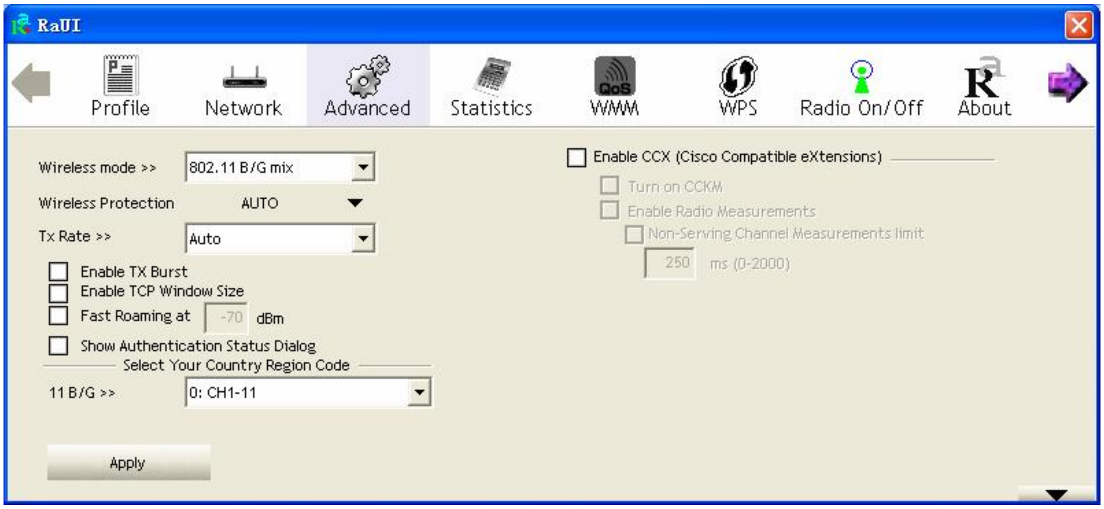
Link Quality >> 95%
Signal Strength 1 >> 100%
Noise Strength >> 70%

Transmit
Link Speed >> 54.0 Mbps
Throughput >> 0.000 Kbps
Max
4.508 Kbps

Receive
Link Speed >> 54.0 Mbps
Throughput >>31.516 Kbps
Max
52.996 Kbps

3.4 Advanced

Click “ Advanced” and the following figure will appear, we suggest you not modify any item but keep the default configurations.



Wireless mode >> 802.11 B/G mix

Wireless Protection AUTO

Tx Rate >> Auto

□ Enable TX Burst

□ Enable TCP Window Size

□ Fast Roaming at -70 dBm

□ Show Authentication Status Dialog

Select Your Country Region Code

11 B/G >> 0: CH1-11

□ Enable CCX (Cisco Compatible eXtensions)

□ Turn on CCKM

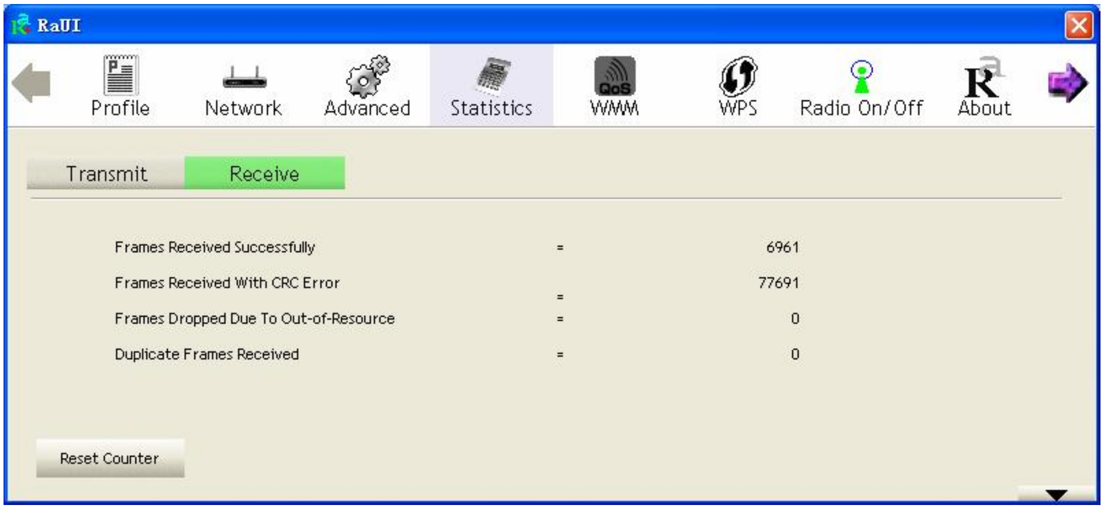
□ Enable Radio Measurements

□ Non-Serving Channel Measurements limit

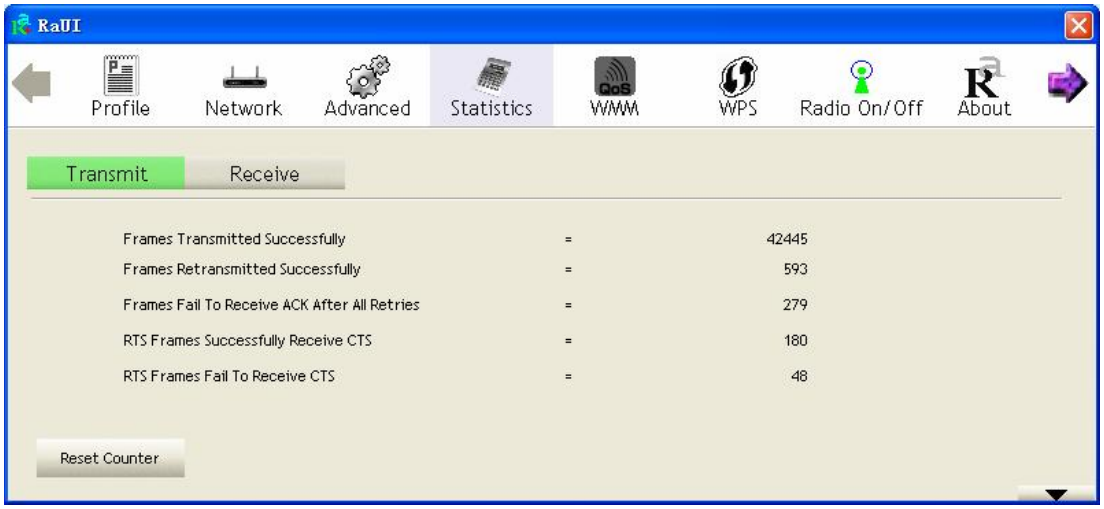
250 ms (0-2000)

3.5 Statistics

Click “ Statistics” and the following figure appears, which displays transmitting and receiving statistics. Click “ Reset Counter” could reconfigure the statistics to zero



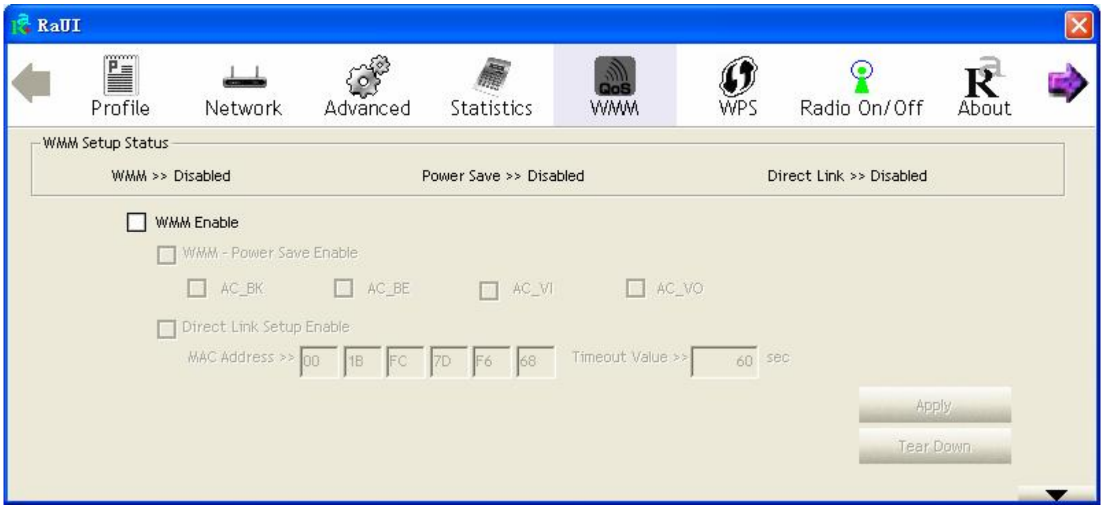
Frames Received Successfully	=	6961
Frames Received With CRC Error	=	77691
Frames Dropped Due To Out-of-Resource	=	0
Duplicate Frames Received	=	0



Frames Transmitted Successfully	=	42445
Frames Retransmitted Successfully	=	593
Frames Fail To Receive ACK After All Retries	=	279
RTS Frames Successfully Receive CTS	=	180
RTS Frames Fail To Receive CTS	=	48

3.6 WMM

Click“ WMM” ,you can make the corresponding settings which include the priority settings of WMM information transmitting, start Power Save Mode and DLS settings shown as below,



WMM Setup Status

WMM >> Disabled Power Save >> Disabled Direct Link >> Disabled

□ WMM Enable

□ WMM - Power Save Enable

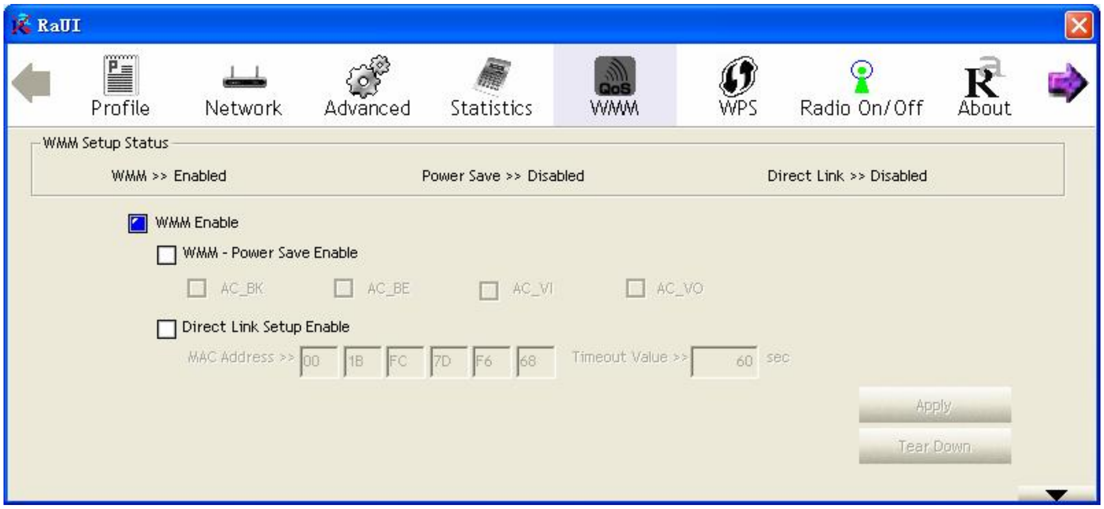
□ AC_BK □ AC_BE □ AC_VI □ AC_VO

□ Direct Link Setup Enable

MAC Address >> 00 1B FC 7D F6 68 Timeout Value >> 60 sec

3.6.1 Start WMM: Start Wi-Fi Multi-media

1.Choose“ WMM Enable” shown as below,



WMM Setup Status

WMM >> Enabled   Power Save >> Disabled   Direct Link >> Disabled

☑ WMM Enable

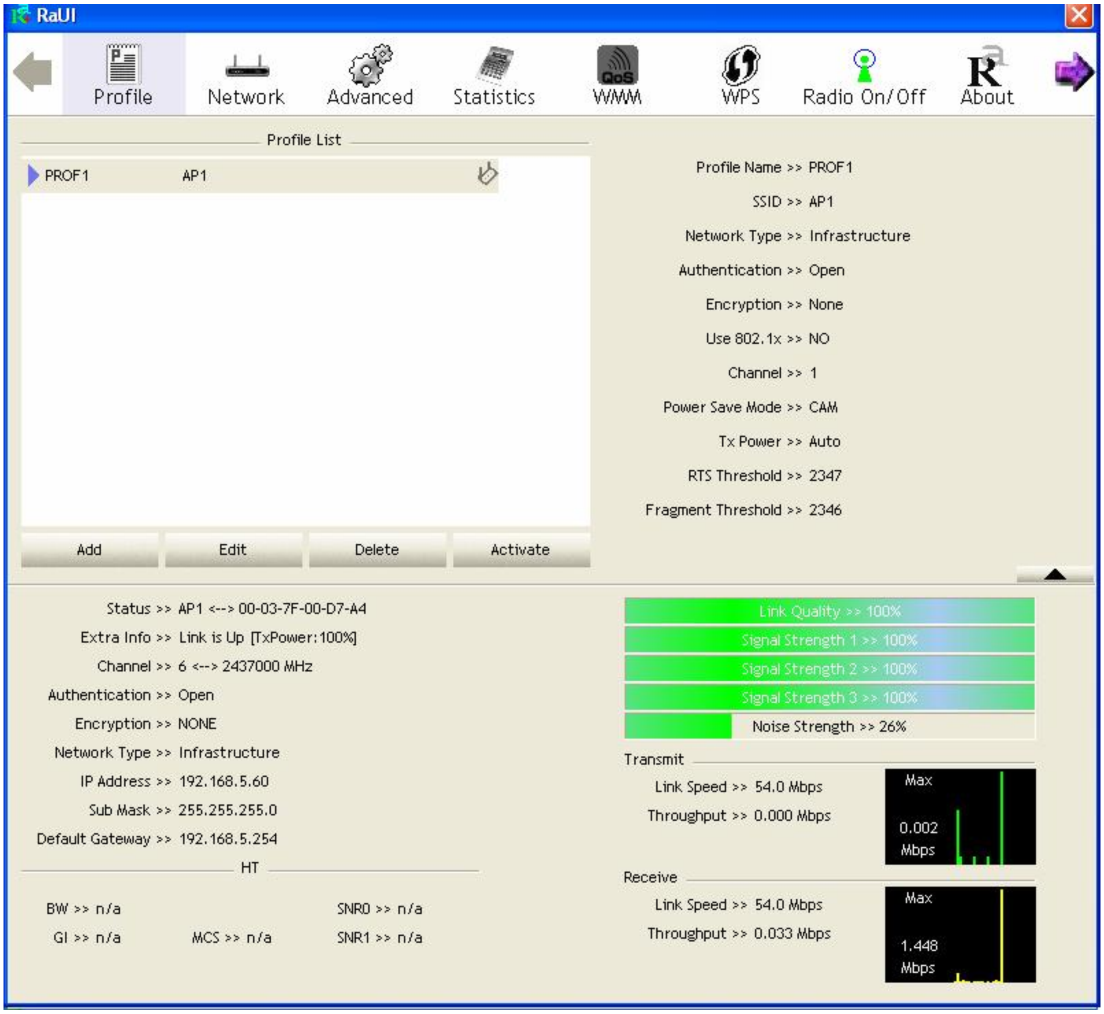
□ WMM - Power Save Enable

□ AC_BK   □ AC_BE   □ AC_VI   □ AC_VO

□ Direct Link Setup Enable

MAC Address >> 00 1B FC 7D F6 68   Timeout Value >> 60 sec

2 In the “ Network” page, add the AP which supports WMM to configuration information. After setting successfully, you will see the following figure in the function page “ Profile”



Profile List

PROF1   AP1

Profile Name >> PROF1
SSID >> AP1
Network Type >> Infrastructure
Authentication >> Open
Encryption >> None
Use 802.1x >> NO
Channel >> 1
Power Save Mode >> CAM
Tx Power >> Auto
RTS Threshold >> 2347
Fragment Threshold >> 2346

Status >> AP1 <--> 00-03-7F-00-D7-A4
Extra Info >> Link is Up [TxPower:100%]
Channel >> 6 <--> 2437000 MHz
Authentication >> Open
Encryption >> NONE
Network Type >> Infrastructure
IP Address >> 192.168.5.60
Sub Mask >> 255.255.255.0
Default Gateway >> 192.168.5.254

HT

BW >> n/a   SNR0 >> n/a
GI >> n/a   MCS >> n/a   SNR1 >> n/a

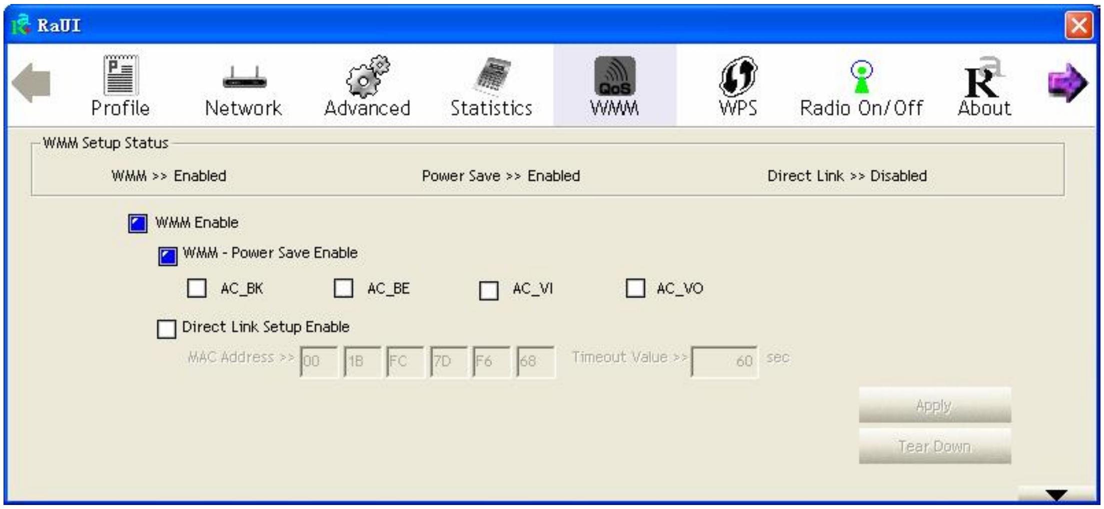
Link Quality >> 100%
Signal Strength 1 >> 100%
Signal Strength 2 >> 100%
Signal Strength 3 >> 100%
Noise Strength >> 26%

Transmit
Link Speed >> 54.0 Mbps
Throughput >> 0.000 Mbps

Receive
Link Speed >> 54.0 Mbps
Throughput >> 0.033 Mbps

3.6.2 Start WMM Power Save Mode

1.Choose “ WMM -Power Save Enable” shown as below,



WMM Setup Status

WMM >> Enabled   Power Save >> Enabled   Direct Link >> Disabled

☑ WMM Enable

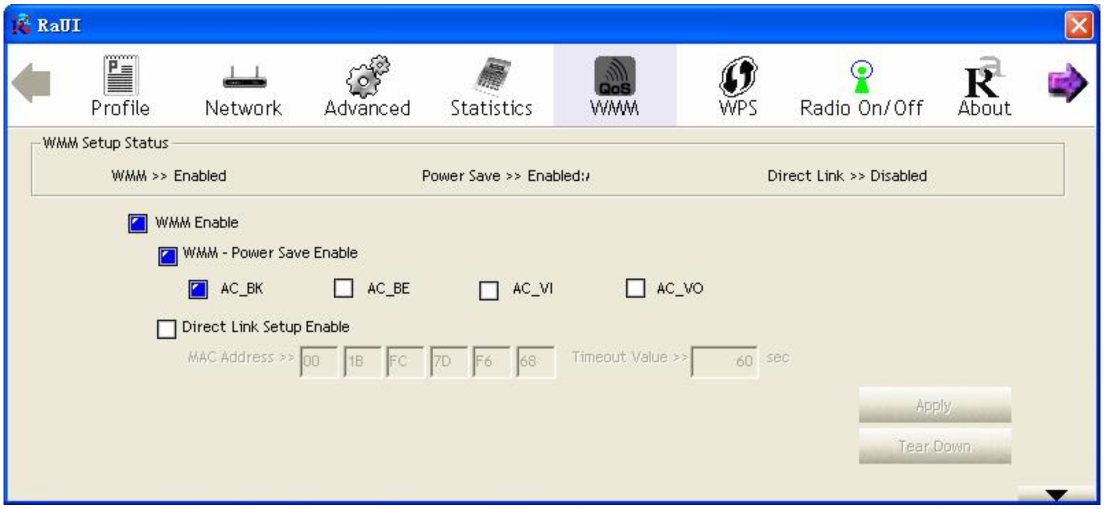
☑ WMM - Power Save Enable

□ AC_BK □ AC_BE □ AC_VI □ AC_VO

□ Direct Link Setup Enable

MAC Address >> 00 1B FC 7D F6 68   Timeout Value >> 60 sec

2. Choose“ AC_BK” ,the settings is successful shown as below,



WMM Setup Status

WMM >> Enabled   Power Save >> Enabled:/   Direct Link >> Disabled

☑ WMM Enable

☑ WMM - Power Save Enable

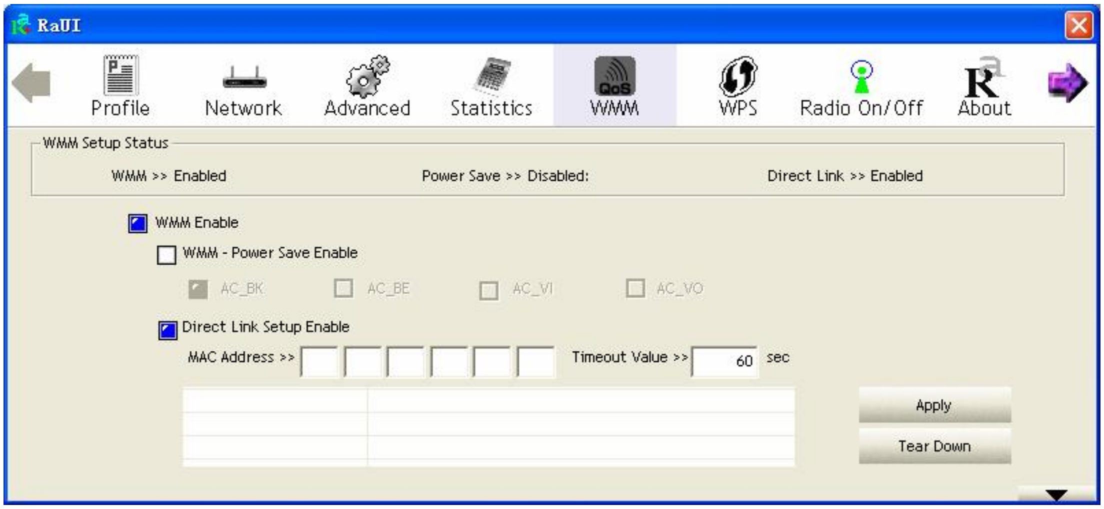
☑ AC_BK □ AC_BE □ AC_VI □ AC_VO

□ Direct Link Setup Enable

MAC Address >> 00 1B FC 7D F6 68   Timeout Value >> 60 sec

3.6.3 Start DLS (Direct Link Setup)

1.Choose“ Direct Link Setup Enable” shown as below,,



WMM Setup Status

WMM >> Enabled   Power Save >> Disabled: Direct Link >> Enabled

☑ WMM Enable

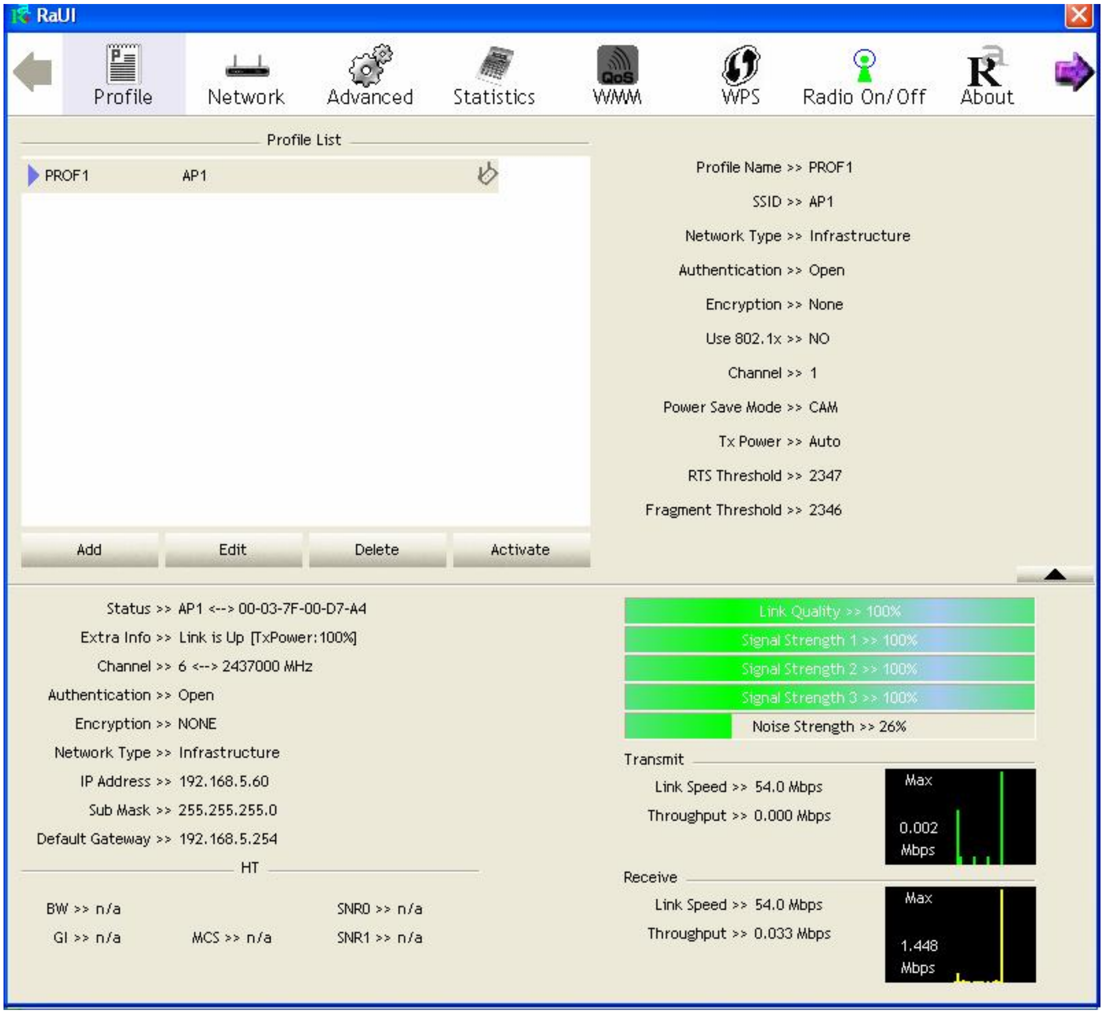
☐ WMM - Power Save Enable

☑ AC_BK   ☐ AC_BE   ☐ AC_VI   ☐ AC_VO

☑ Direct Link Setup Enable

MAC Address >>   Timeout Value >> 60 sec

2 In the " Network" page, add the AP which supports WMM to configuration information. If set successfully, you will see the following figure in the function page " Profile"



Profile List

PROF1   AP1

Profile Name >> PROF1
SSID >> AP1
Network Type >> Infrastructure
Authentication >> Open
Encryption >> None
Use 802.1x >> NO
Channel >> 1
Power Save Mode >> CAM
Tx Power >> Auto
RTS Threshold >> 2347
Fragment Threshold >> 2346

Status >> AP1 <--> 00-03-7F-00-D7-A4
Extra Info >> Link is Up [TxPower:100%]
Channel >> 6 <--> 2437000 MHz
Authentication >> Open
Encryption >> NONE
Network Type >> Infrastructure
IP Address >> 192.168.5.60
Sub Mask >> 255.255.255.0
Default Gateway >> 192.168.5.254

HT

BW >> n/a   SNR0 >> n/a
GI >> n/a   MCS >> n/a   SNR1 >> n/a

Link Quality >> 100%
Signal Strength 1 >> 100%
Signal Strength 2 >> 100%
Signal Strength 3 >> 100%
Noise Strength >> 26%

Transmit
Link Speed >> 54.0 Mbps
Throughput >> 0.000 Mbps

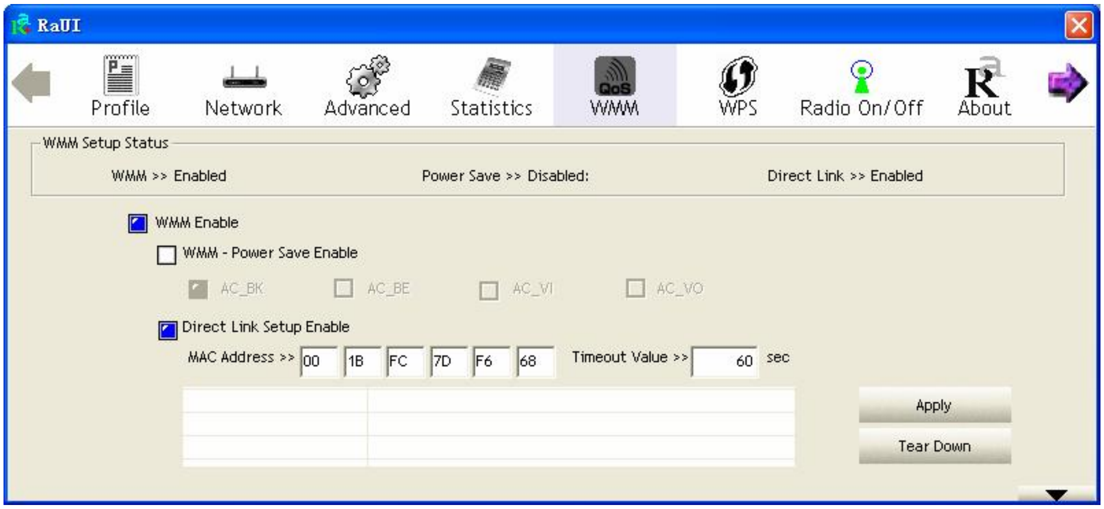
Receive
Link Speed >> 54.0 Mbps
Throughput >> 0.033 Mbps

3 The mode of Direct Link Setup is as follow:

Fill the MAC address in a STA, the STA should meet the following two,

A. Can link AP which supports DSL.

B. Have to start DLS function.



WMM Setup Status

WMM >> Enabled Power Save >> Disabled: Direct Link >> Enabled

☑ WMM Enable

□ WMM - Power Save Enable

☑ AC_BK □ AC_BE □ AC_VI □ AC_VO

☑ Direct Link Setup Enable

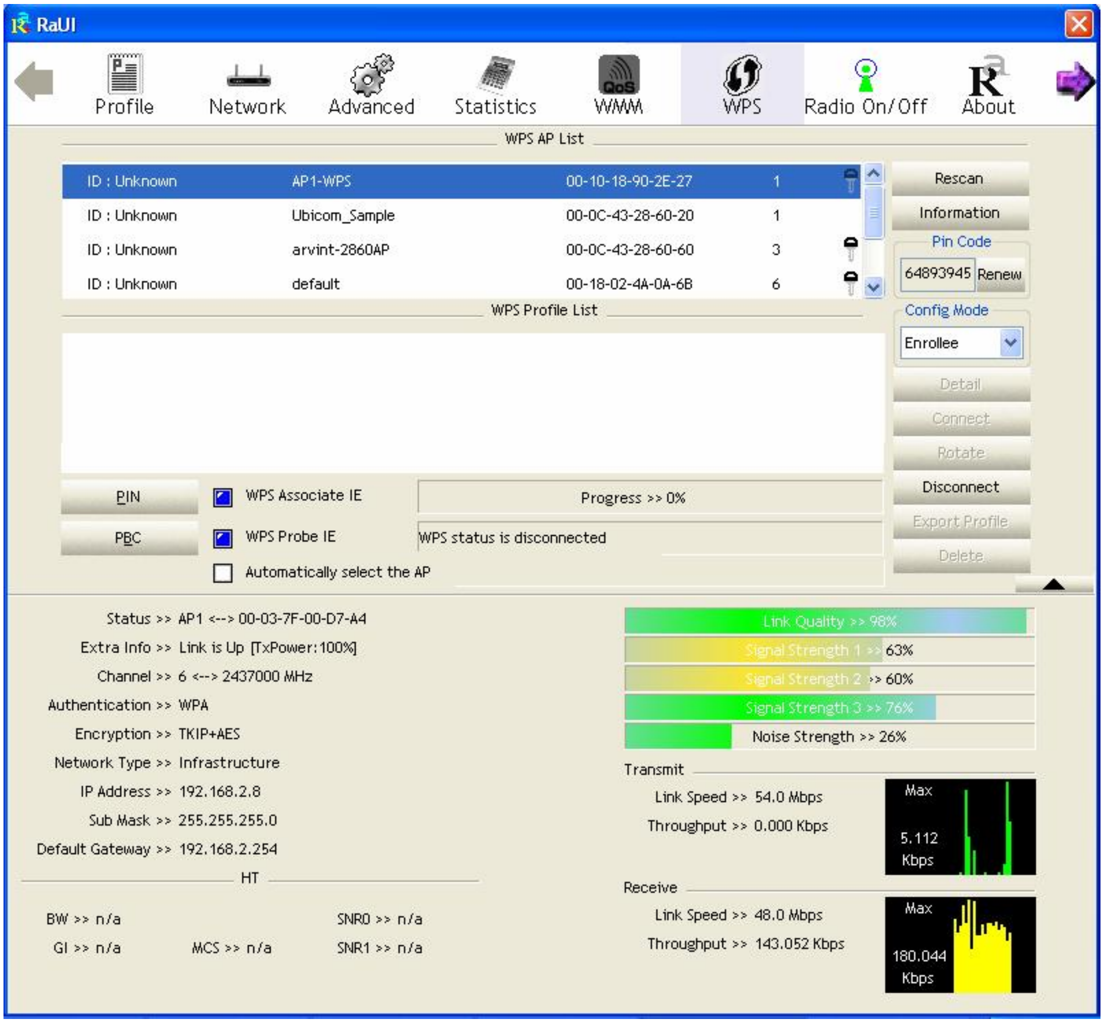
MAC Address >> 00 1B FC 7D F6 68 Timeout Value >> 60 sec

Apply

Tear Down

3.7 WPS

Click “ WPS” ,you can make corresponding settings. WPS includes authentication, encryption, network type, channel, Extra info, status, version, security settings of AP, sole identification code, radio frequency and so on shown as below,



WPS AP List

ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	default	00-18-02-4A-0A-6B	6

Pin Code: 64893945

Config Mode: Enrollee

WPS Profile List

☑ WPS Associate IE

☑ WPS Probe IE

□ Automatically select the AP

Progress >> 0%

WPS status is disconnected

Status >> AP1 <--> 00-03-7F-00-D7-A4
Extra Info >> Link is Up [TxPower:100%]
Channel >> 6 <--> 2437000 MHz
Authentication >> WPA
Encryption >> TKIP+AES
Network Type >> Infrastructure
IP Address >> 192.168.2.8
Sub Mask >> 255.255.255.0
Default Gateway >> 192.168.2.254

HT
BW >> n/a
GI >> n/a
MCS >> n/a
SNR0 >> n/a
SNR1 >> n/a

Link Quality >> 98%
Signal Strength 1 >> 63%
Signal Strength 2 >> 60%
Signal Strength 3 >> 76%
Noise Strength >> 26%

Transmit
Link Speed >> 54.0 Mbps
Throughput >> 0.000 Kbps
5.112 Kbps

Receive
Link Speed >> 48.0 Mbps
Throughput >> 143.052 Kbps
180.044 Kbps

WPS settings--Simplify the program and configuration of the network (Wi-Fi Protected Setup). The STA of Ralink is Enrollee or Registrar, use PIN or PBC mode to offer online settings.

WPS wireless network-The system will scan the AP with WPS IE, and then list every AP information with WPS IE including SSID, BSSID, Channel, ID, Authentication, Encryption.

Rescan-rescan and update all the AP information.

Information-- Display the AP information with WPS IE, the displayed information including: authentication, encryption, the way of online setting, set password ID, registrar, status, version, lock the online settings of AP, sole macrocosm identifier, radio frequency. The detailed introduction is same as the WPS information of AP.

Pin Code-Under the Registrar online setting mode, when you use “ PIN online setting mode” , you will be asked to input a set of PIN code. When the STA of Ralink is Enrollee, you can use “ update” button to produce a set or PIN code again.

Online Setting Mode- The STA of Ralink plays the part of Enrollee or Registrar.

The items of controlling Credentials:

1. Contents: Show the selected Credentials, the information about security and encryption key.

2. Online: Connect the AP which Credentials belonged. Use the selected Credentials same as the online settings.

3. Rotate: Connect the AP of next Credentials by rotating way.

4. Break off online: Stop WPS, and break off online, then connect the last selected online settings. If the online setting is blank or the unused online settings, it will choose to connect an AP which is open.

5. Remitting the online settings: Add all the Credentials to online setting.

6. Delete: Delete the selected Credentials, and then it will connect the AP of next Credentials. If the online setting form is in blank, then it will connect an AP which is open

PIN Use “ PIN online setting mode” to start or add an online setting.

PBC Use“ PBC online setting mode” to start or add an online setting.

When you press PIN or PBC button, please don’ t do any scan in two minutes. If you want to cancel the setting, please start PIN/PBC again or press “ break off online” to stop WPS.

WPS link IE--During the period of WPS online settings, transmit an IE with WPS IE. For STA, it is optional.

WPS Probe IE- During the period of WPS online settings, transmit an probe IE with WPS IE. For STA, it is optional.

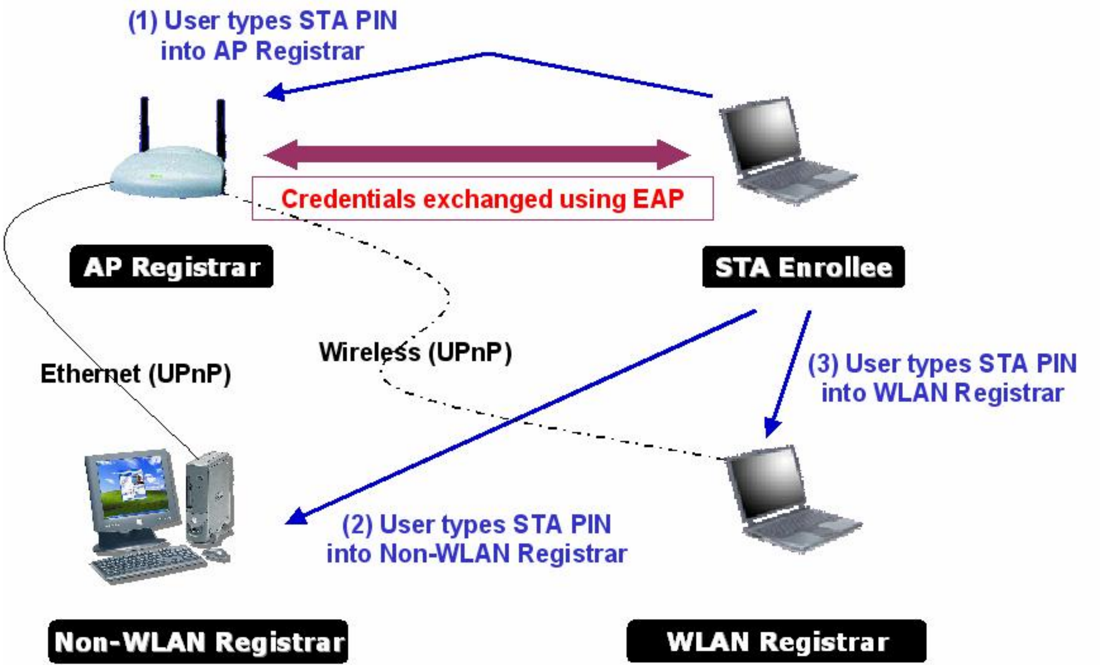
Speed list-Show the speed proportion from beginning to online success.

Status list- Show the present status of WPS.

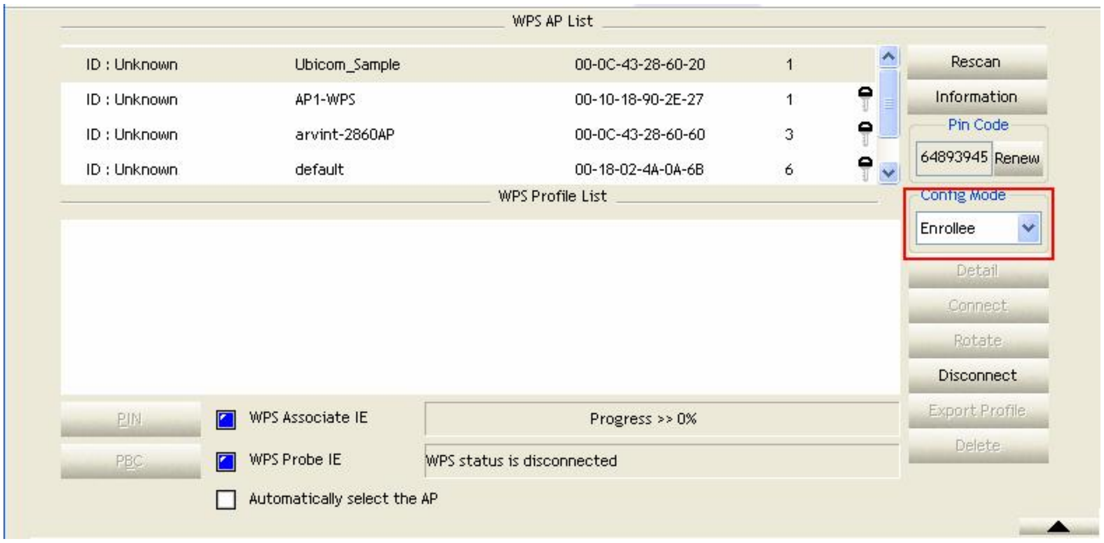
Automatically select the AP-Choose an AP and start to be online when use " PIN online setting mode" .

3.7.1 Connecting settings by Pin link mode

1. Enrollee gets a set of Pin passwords from STA, and types the STA PIN into AP Registrar. In this setting, both Enrollee and Registrar have to use PIN link setting mode. The detailed setting method is as below.


(1) User types STA PIN into AP Registrar
Credentials exchanged using EAP
AP Registrar
STA Enrollee
Ethernet (UPnP)
Wireless (UPnP)
(3) User types STA PIN into WLAN Registrar
(2) User types STA PIN into Non-WLAN Registrar
Non-WLAN Registrar
WLAN Registrar

2 In the Configuration mode, choose " Enrollee" and " Rescan" to update the usable AP.



WPS AP List

ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	default	00-18-02-4A-0A-6B	6

WPS Profile List

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

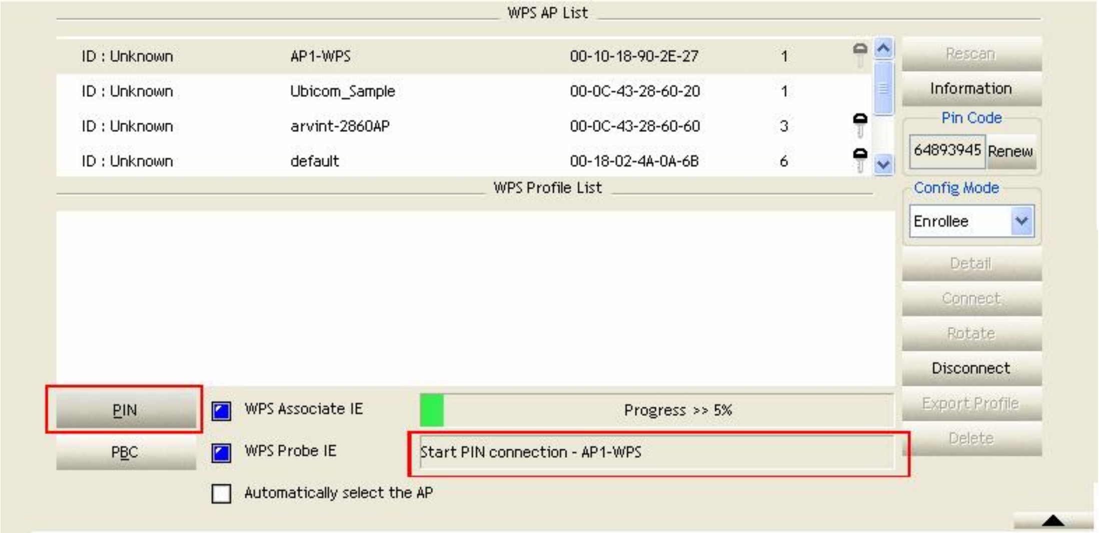
☑ WPS Probe IE

☐ Automatically select the AP

Progress >> 0%

WPS status is disconnected

3. Choose an AP you want to add, and click the button “ PIN” , type PIN provided by STA into Registrar.



WPS AP List

ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	default	00-18-02-4A-0A-6B	6

WPS Profile List

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

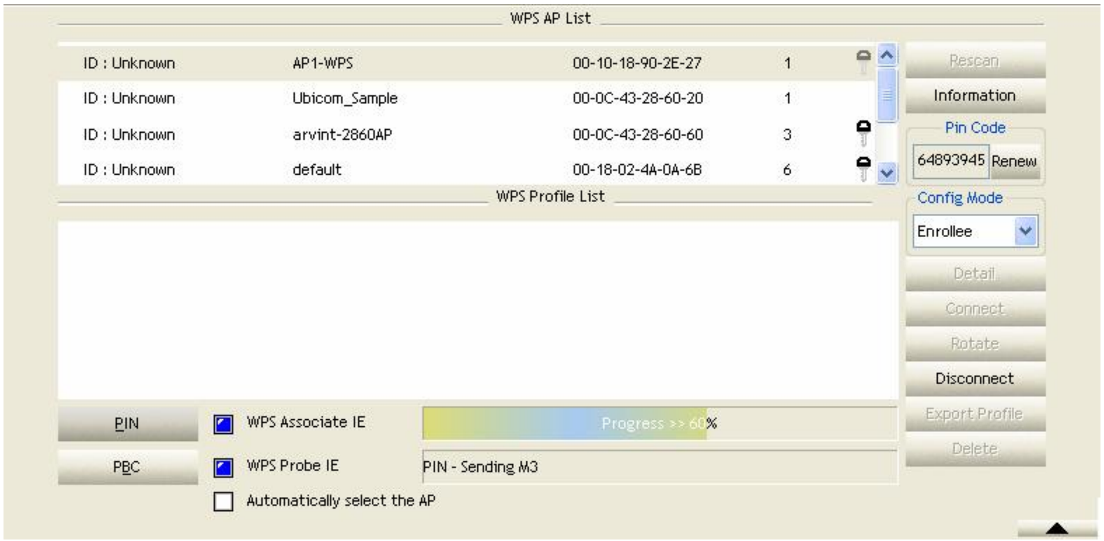
☑ WPS Probe IE

☐ Automatically select the AP

Progress >> 5%

Start PIN connection - AP1-WPS

4. If you use shared Internet online as external Registrar, you have to start “ PIN online” at STA port firstly, then find the device name and MAC address of WPS from Microsoft’ s Registrar, and then add a new device to Microsoft’ s Registrar and type Pin code into STA. The setting is successful shown as below,



WPS AP List

ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	default	00-18-02-4A-0A-6B	6

WPS Profile List

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

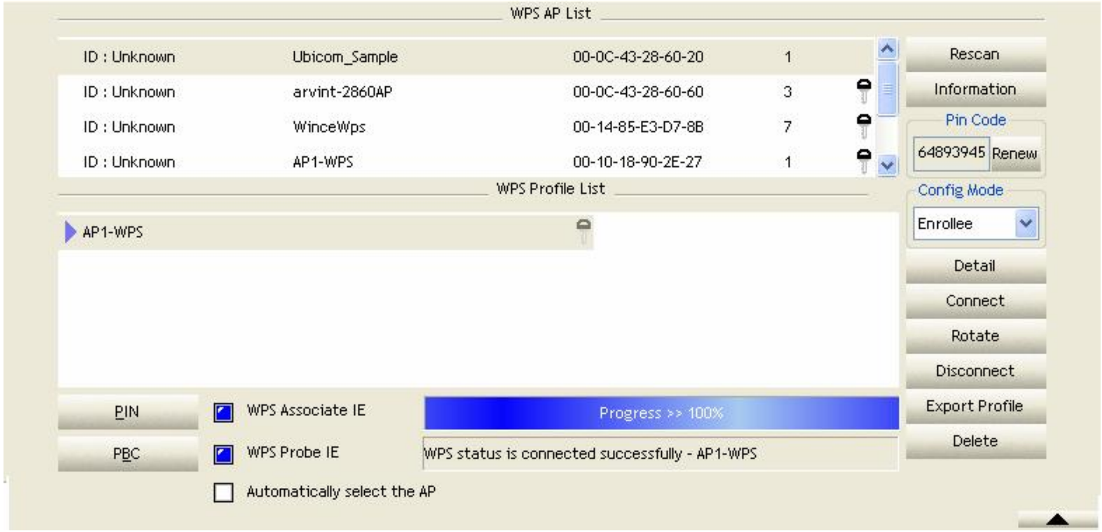
☑ WPS Probe IE

☐ Automatically select the AP

Progress >> 60%

PIN - Sending M3

5. Online setting and get a set of or more sets of Credentials. The successful online is shown as below.



WPS AP List

ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1

WPS Profile List

AP1-WPS

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

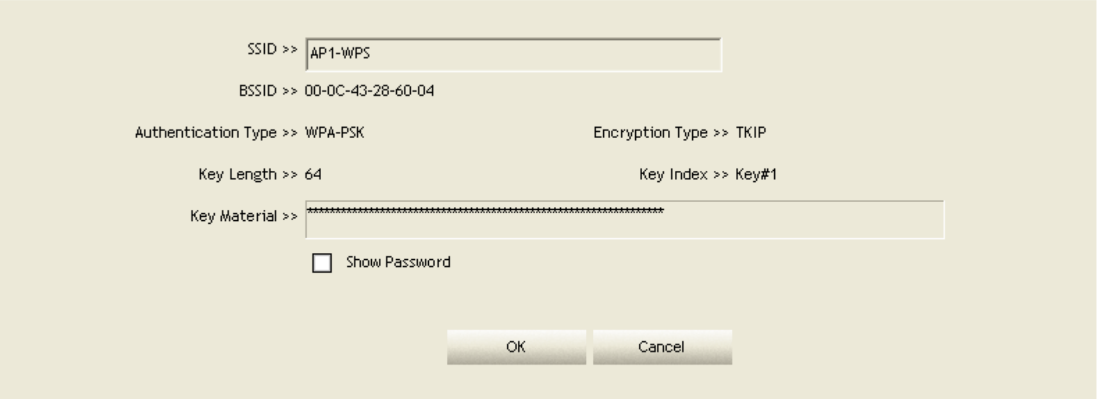
☑ WPS Probe IE

☐ Automatically select the AP

Progress >> 100%

WPS status is connected successfully - AP1-WPS

6 The detailed contents of successful online setting are shown as below,



SSID >> AP1-WPS

BSSID >> 00-0C-43-28-60-04

Authentication Type >> WPA-PSK   Encryption Type >> TKIP

Key Length >> 64   Key Index >> Key#1

Key Material >> **

□ Show Password

* If the first Credential is valid and existing, the system will connect AP of the first Credentials. Contrarily, the system will connect AP of the next Credentials automatically.

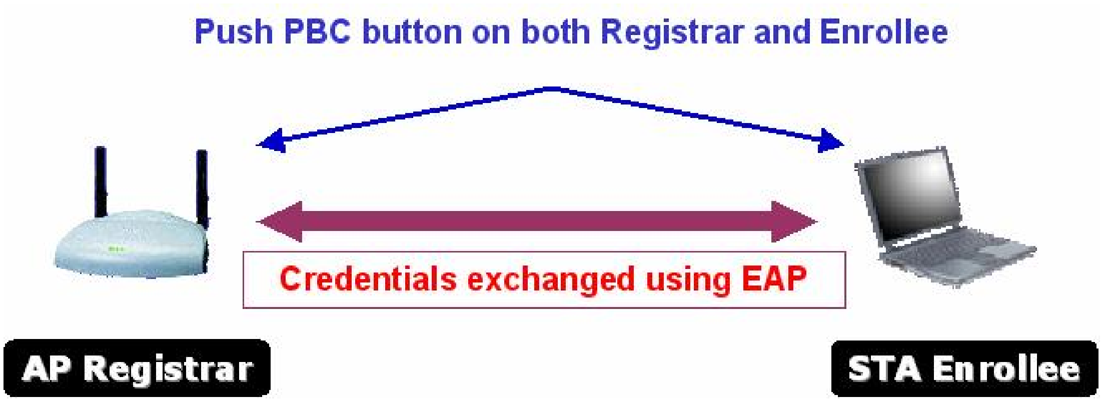
* You can also press the button " Rotate" for rotating online next AP of the Credentials.

3.7.2 Use PBC link mode to make link settings

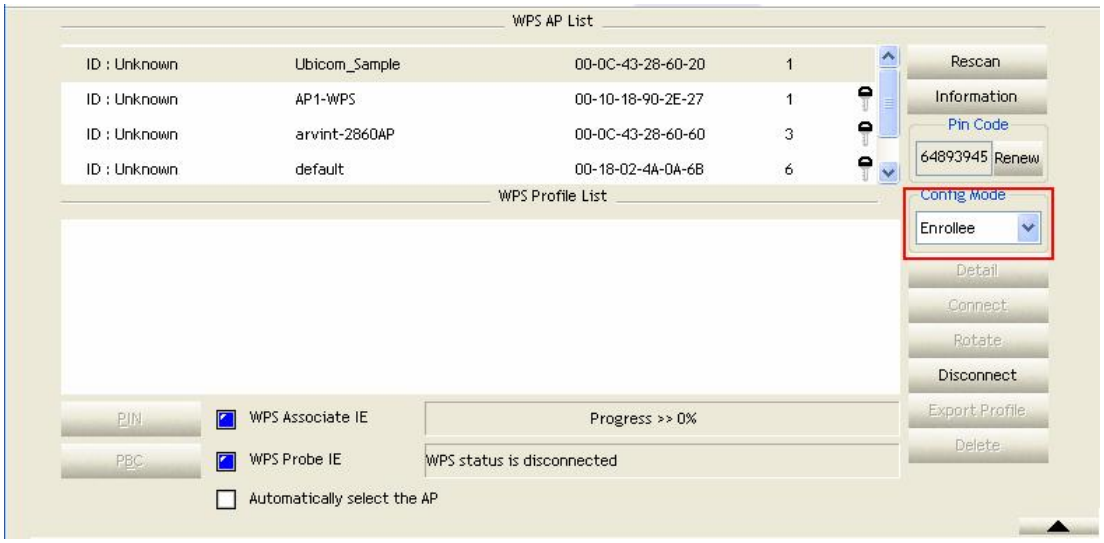
1.Both Registrar and Enrollee need push PBC button in two minutes under PBC online setting mode, the two minutes is called " roam time" . In the PBC online setting mode, only one Registrar with ID 0x0004 can be scanned, then Enrollee performs Registrar agreement immediately.

If Enrollee finds that there are more than two Registrars, it will cancel this scanning online, and then continue scanning over two minutes.

* Before pressing the button PBC and AP which is going to be online, please confirm that all the other AP are not PBC online setting mode, or all the AP which use PBC online setting mode exceed the belonged " roam time" .


Push PBC button on both Registrar and Enrollee
Credentials exchanged using EAP
AP Registrar
STA Enrollee

2. Under the Configuration mode, choose “ Enrollee” and press the button “ PBC” to be online.



ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	default	00-18-02-4A-0A-6B	6

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

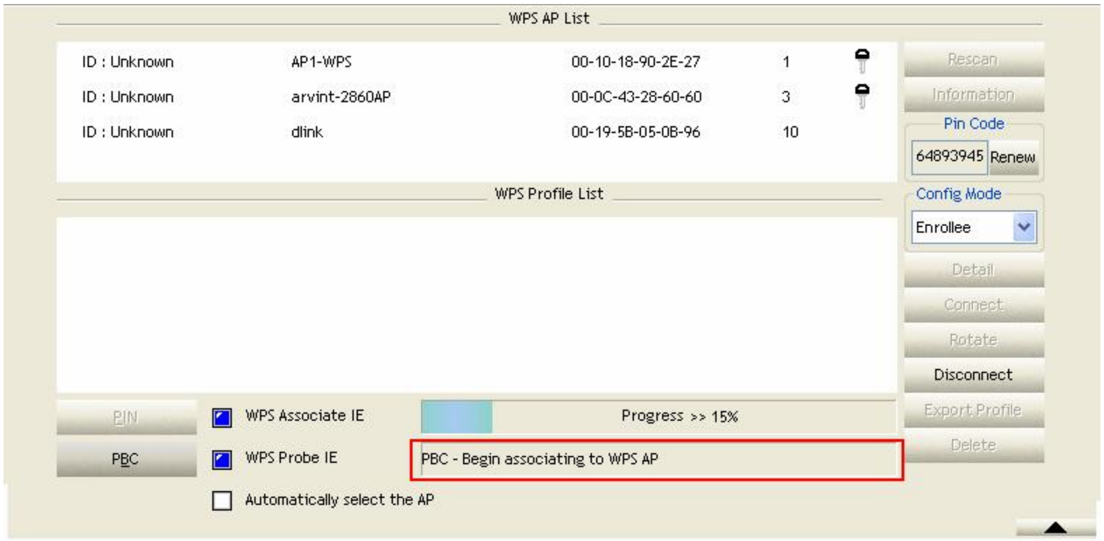
☑ WPS Probe IE

□ Automatically select the AP

Progress >> 0%

WPS status is disconnected

3. Choose an AP to connect PBC as below,



ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	dlink	00-19-5B-05-0B-96	10

Pin Code: 64893945

Config Mode: Enrollee

☑ WPS Associate IE

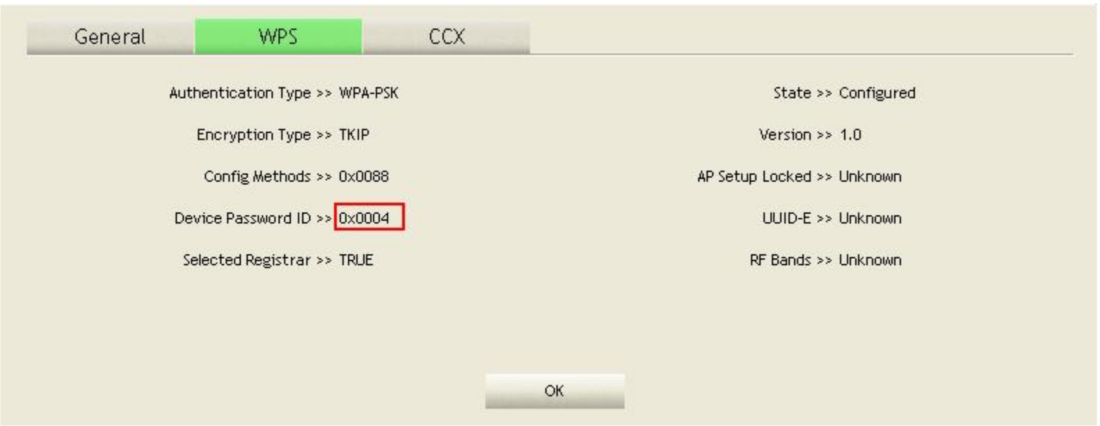
☑ WPS Probe IE

□ Automatically select the AP

Progress >> 15%

PBC - Begin associating to WPS AP

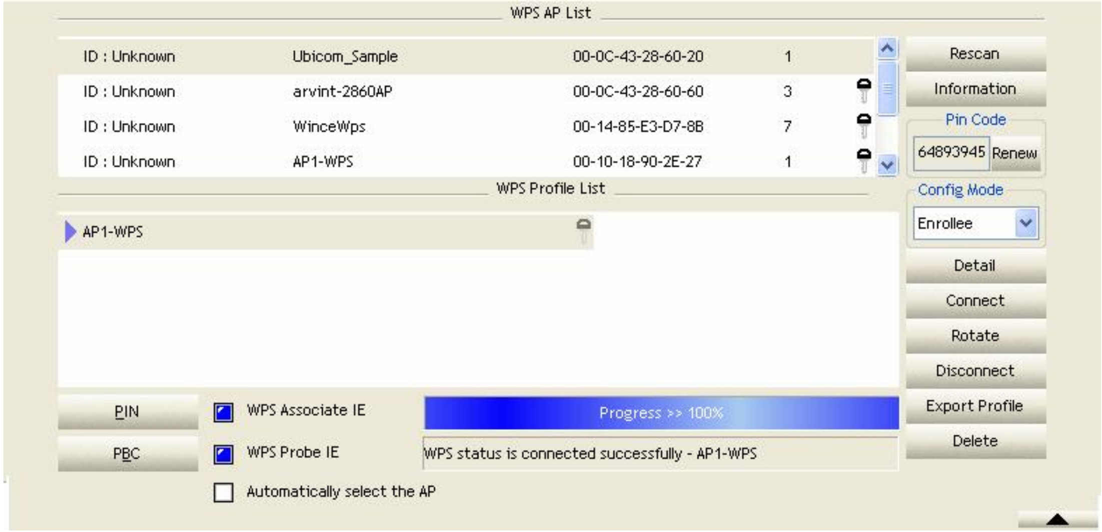
4. Confirm that the AP has valid WPS function, see the following picture.



Authentication Type >> WPA-PSK
Encryption Type >> TKIP
Config Methods >> 0x0088
Device Password ID >> 0x0004
Selected Registrar >> TRUE

State >> Configured
Version >> 1.0
AP Setup Locked >> Unknown
UUID-E >> Unknown
RF Bands >> Unknown

5 Online setting to get one group or more Credentials. The successful online is shown as below,



ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1

Pin Code: 64893945

Config Mode: Enrollee

AP1-WPS

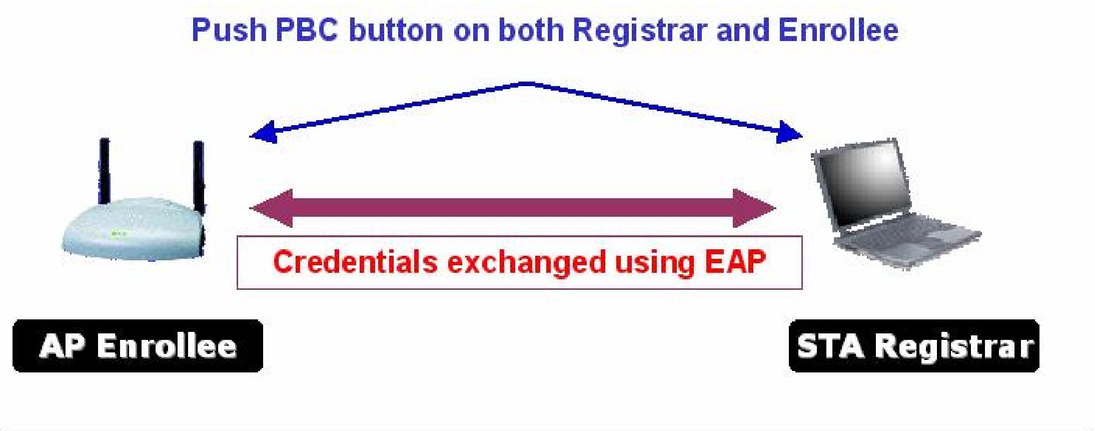
☑ WPS Associate IE
☑ WPS Probe IE
□ Automatically select the AP

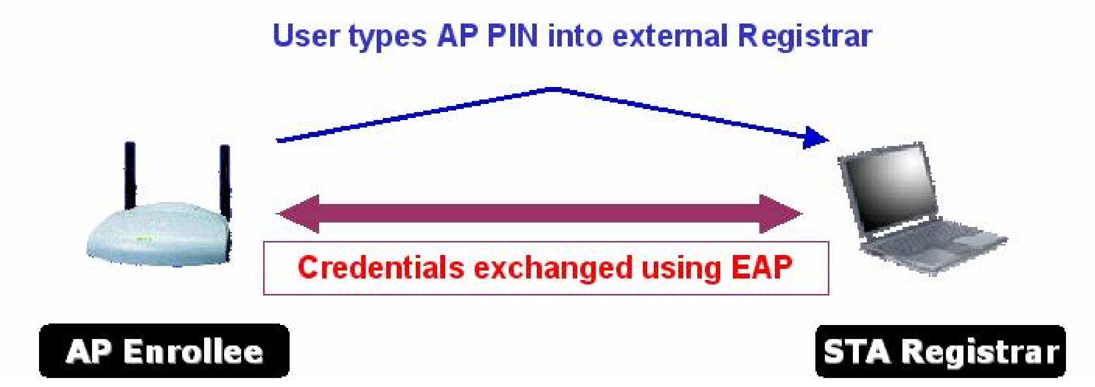
Progress >> 100%

WPS status is connected successfully - AP1-WPS

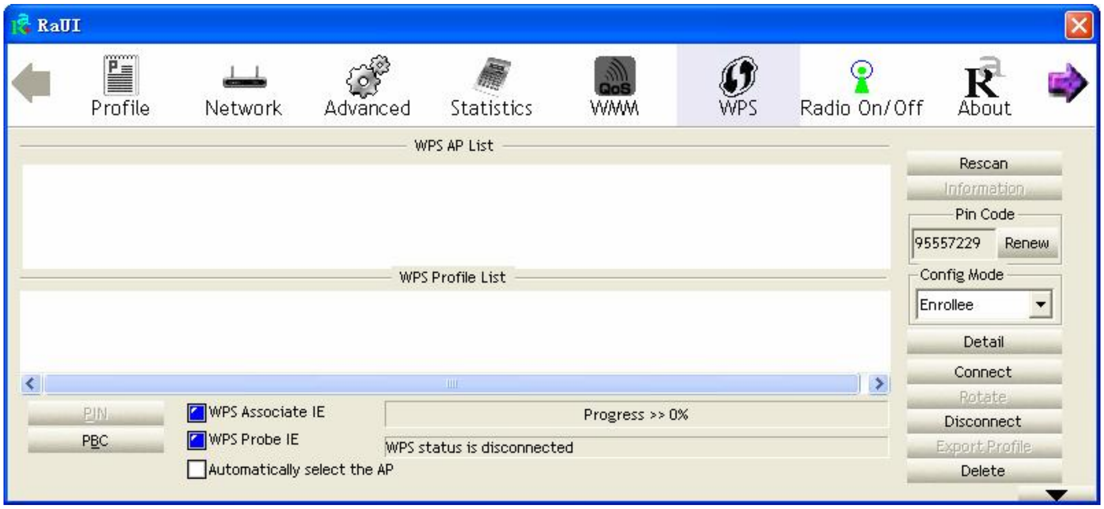
3.7.3 Use PIN or PBC link mode to connect an AP or a network

1. Use PIN or PBC link mode to connect an AP or a network shown as below,


Push PBC button on both Registrar and Enrollee
Credentials exchanged using EAP
AP Enrollee
STA Registrar


User types AP PIN into external Registrar
Credentials exchanged using EAP
AP Enrollee
STA Registrar

2 In the configuration mode, choose Registrar shown as below,



Pin Code: 95557229

Config Mode: Enrollee

☑ WPS Associate IE

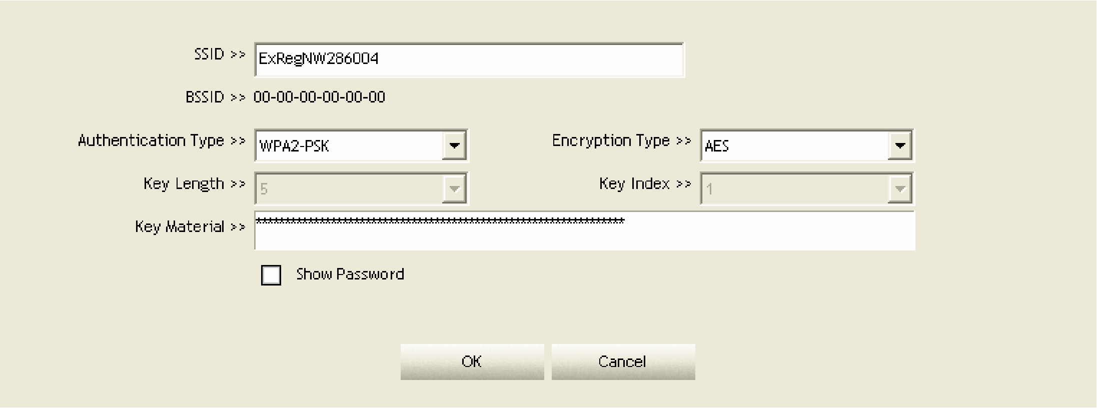
☑ WPS Probe IE

□ Automatically select the AP

Progress >> 0%

WPS status is disconnected

3 If changing SSID, Authentication Type, Encryption Type and Key Material, please press the button “ Detail” ,manually change the contents.



SSID >> ExRegNW286004

BSSID >> 00-00-00-00-00-00

Authentication Type >> WPA2-PSK

Encryption Type >> AES

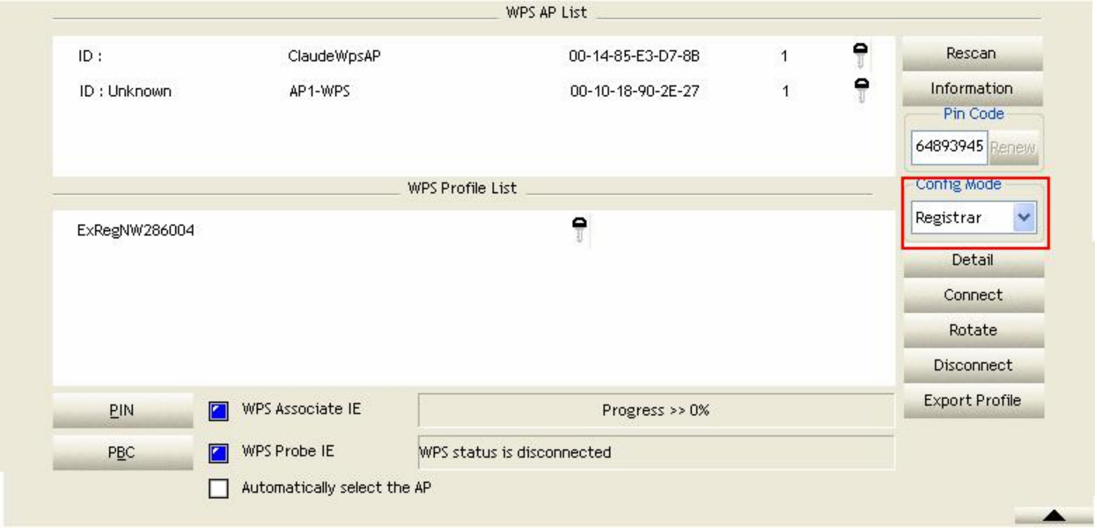
Key Length >> 5

Key Index >> 1

Key Material >> **

□ Show Password

4. If use“ PIN online setting mode” , please type PIN code of Enrollee.



WPS AP List

ID :	ClaudeWpsAP	00-14-85-E3-D7-8B	1
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1

Pin Code: 64893945

Config Mode: Registrar

WPS Profile List

ExRegNW286004

☑ WPS Associate IE

☑ WPS Probe IE

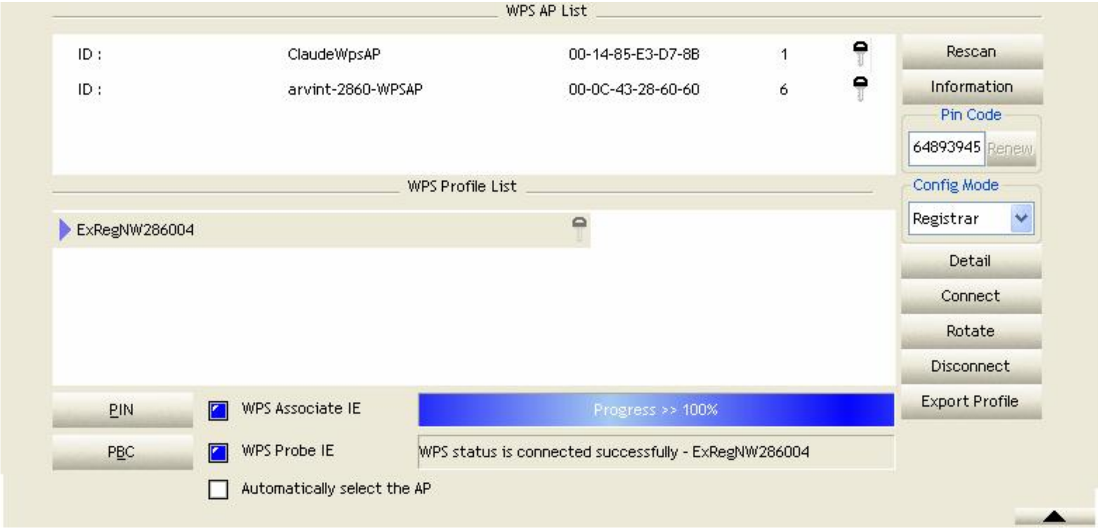
□ Automatically select the AP

Progress >> 0%

WPS status is disconnected

5. Start “ PIN online setting” or “ PBC” online setting. The following setting is same as 3.7.1(Enrollee mode PIN setting) or 3.7.2(Enrollee mode PBC setting).

6 If Enrollee has done online setting before running WPS, the Credentials will be updated as Enrollee setting; or after Registrar is successful, Enrollee will use new parameter to do online setting again, then STA Registrar will use the new parameter and AP to be online as below,



☑ WPS Associate IE

☑ WPS Probe IE

□ Automatically select the AP

WPS status is connected successfully - ExRegNW286004

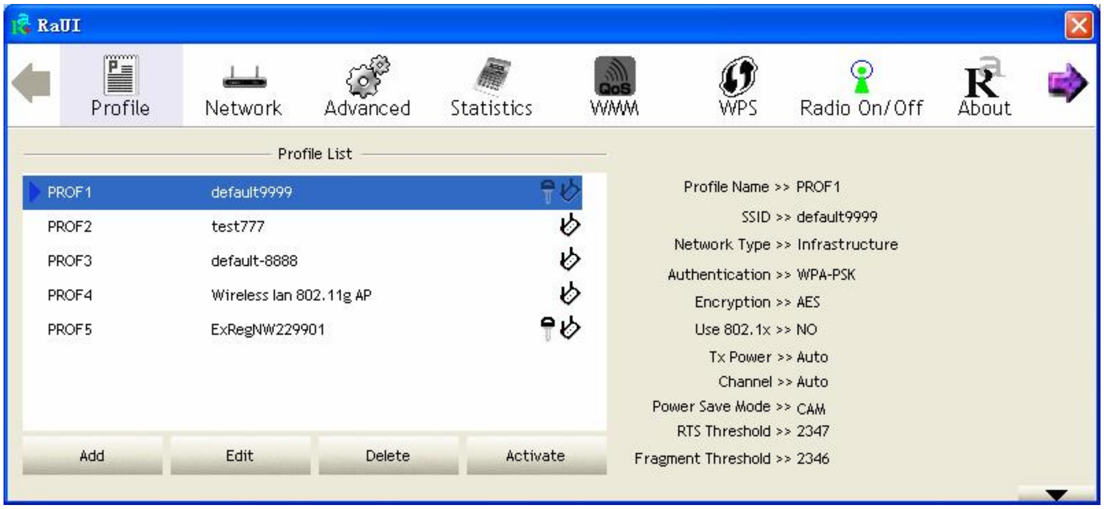
7 The detailed setting of “ WP ”- “ PIN – xxx ” is as follow:

A successful PIN online setting:

Start PIN connection - SSID -> Begin associating to WPS AP -> Associated to WPS AP -> Sending EAPOL-Start -> Sending EAP-Rsp (ID) -> Receive M1 -> Sending M2 -> Receive M3 -> Sending M4 -> Receive M5 -> Sending M6 -> Receive M7 -> Sending M8 -> Receive EAP-Rsp (Done) -> Sending EAP Rsp (ACK) -> Configured -> WPS status is disconnected -> WPS status is connected successfully-SSID

3.8 Configuration

“ Profile” saves the configurations to each wireless network or the different configurations to the same network.



PROF1	default9999
PROF2	test777
PROF3	default-8888
PROF4	Wireless lan 802.11g AP
PROF5	ExRegNW229901

Profile Name >> PROF1
SSID >> default9999
Network Type >> Infrastructure
Authentication >> WPA-PSK
Encryption >> AES
Use 802.1x >> NO
Tx Power >> Auto
Channel >> Auto
Power Save Mode >> CAM
RTS Threshold >> 2347
Fragment Threshold >> 2346

Delete - To delete the configuration which will not be used.

Edit - To modify the configuration of wireless network.

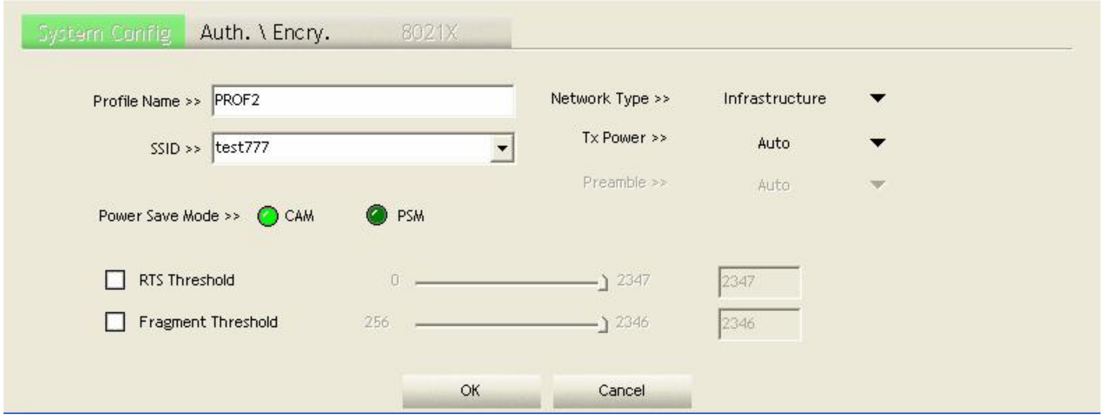
Activate- To choose a configuration which applies to the present network from several configuration documents.

Append - To increase new configuration.

【System Configuration】

RTS --RTS/CTS (Request to Send/Clear to Send) is used to lower the conflict among wireless base stations to the minimum. When RTC/CTS is open, the router will resend the data frames until another RTC/CTS is finished. You could start the RTS/CTS by configuring the minimum and maximum value of the packet, we suggest using the default (2347).

Frame value ---Frame value is used to divide 802.11 frame into the smaller segments and transmit them to the target independently. You could specify the minimum and maximum value of the packet to start the segmentation. If there are many conflicts among the wireless network, you could make tests by configuring different maximum value to strengthen the frame transmission reliability. For the general use, we suggest using the default (2346)



Profile Name >> PROF2

SSID >> test777

Network Type >> Infrastructure

Tx Power >> Auto

Preamble >> Auto

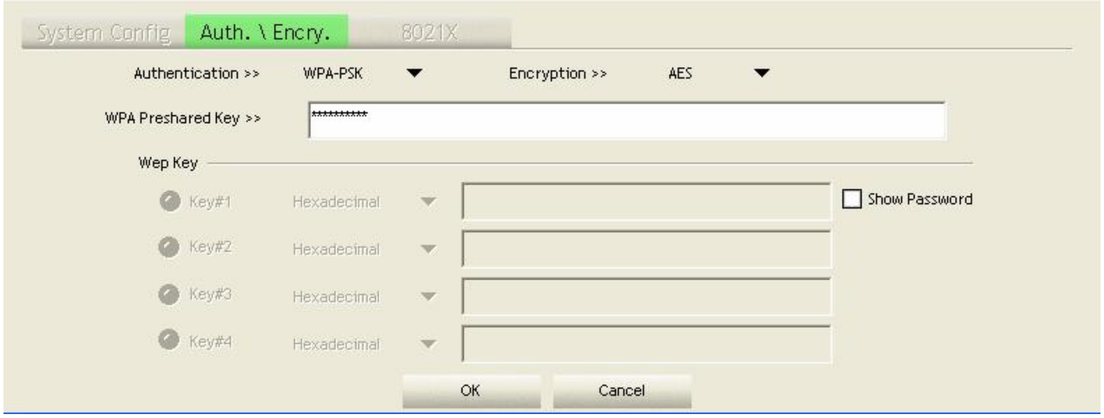
Power Save Mode >> ● CAM ● PSM

□ RTS Threshold 0 2347 2347

□ Fragment Threshold 256 2346 2346

【Auth.\Encry.】

In this page, the user could make the setting about Encryption and Authentication for the Wireless Adapter.



Authentication >> WPA-PSK

Encryption >> AES

WPA Preshared Key >> **********

Wep Key

○ Key#1 Hexadecimal

○ Key#2 Hexadecimal

○ Key#3 Hexadecimal

○ Key#4 Hexadecimal

□ Show Password

For the data security of the wireless environment, IEEE 802.11 stipulates WEP(be equivalent to Wired encryption) protocol to ensure the transmission security. WEP uses the encryption key to encrypt or decrypt the packet. The encryption process confuses the frame order in order to avoid any leak to others. WPA/WPA2 is the improved security system of 802.11 and overcomes the shortage of WEP. For the Authentication mode, as there is no accurate limit for wireless network, the wireless network users need complement the specific configuration for security. The authentication in this tab provides the different protection levels, such as open, shared encryption key, LEAP, WPA, WPA, WPA-PSK,WPA2 WPA2-PSK。

Open--- This option makes the network run under the open system mode without any authentication. Open base station and AP could authenticate with each other even there is WEP encryption key.

Shared encryption key- This option makes the network run under shared encryption key. Under shared encryption key authentication system modem, it needs four-step frame switch to ensure if the base station uses the same WEP encryption key as the AP or not.

LEAP: LEAP (Light Extensible Authentication Protocol) is an edition of EAP　Extensible Authentication Protocol　. EAP ensures the mutual authentication between the wireless network users and the server at the networking operation centre.

WPA-PSK/ WPA2-PSK – This option permits the use of WPA Pre-Shared encryption key under infrastructure mode and permit you to use the WPA-PSK/WPA2-PSK encryption between users and AP.

WPA/ WPA2 ---The network uses IEEE 802.1x authentication which can adapt to RADIUS　Remote Access Dial-in User Service　Telnet　。RADIUS supports multi EAP including PEAP,TLS/Smart Card, TTLS and LEAP。

Data encryption

Under the modes of open authentication and shared key authentication, the options of encryption are FORBID and WEP, under the modes of WPA, WPA-PSK, WPA2 and WPA2-PSK　it supports Temporal Key Integrity Protocol (TKIP) and Advanced Encryption Standard (AES)

FORBID ---Forbid the encryption function.
WEP -- The shared key performs the encryption before data wireless transports, you could communicate with the wireless devices which use the same shared key.

TKIP --TKIP uses the stricter encryption rules than the WEP, and also use the existing WLAN arithmetic to realize the encryption. TKIP will verify the security configuration after shared key encryption is realized.

AES --AES is a symmetrical encryption technology with 128 bits, it could work in the multi-layer at the same time.

WPA shared key.

This option could be started until you choose WPA-PSK or WPA2-PSK. Choose “ TIKP” or “ AES” in the area of “ Data encryption” to start the encryption process. Notice: 8-64 characters are needed.

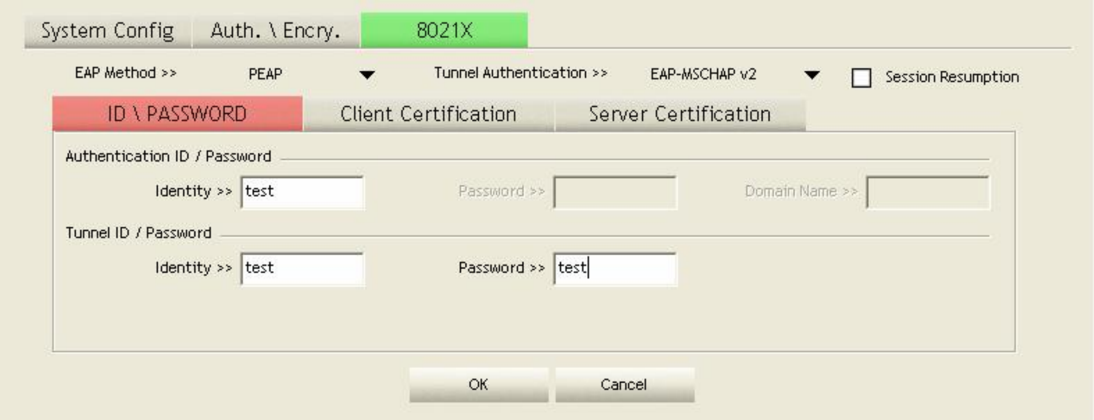
Key configuration

This option could be configured until you choose WEP in the area of Data encryption. WEP is 64/128 bits data, used encrypt and decrypt data packet.

Display key
After choosing this option, your configuration key will be displayed.

【802.1x configuration】

When choose “ WPA” or “ WPA2” under authentication mode you could configure this option. If you chose “ Open” and “ Shared-key” , you could also click “ 802.11 x authentication” to configure 802.11x.



EAP Method >> PEAP

Tunnel Authentication >> EAP-MSCHAP v2

□ Session Resumption

Authentication ID / Password

Identity >> test

Password >>

Domain Name >>

Tunnel ID / Password

Identity >> test

Password >> test

The authentication includes,

PEAP --PEAP (Protected Extensible Authentication Protocol) is an edition of EAP Extensible Authentication Protocol。EAP assures the mutual authentication of wireless users and server at the networking operation center.

TLS/Smart Card -- TLS (Transport Layer Security) is used to configure up an encryption channel and obtain the authentication of server, similar to the webpage server authentication by SSL(Secure Sockets Layer). This way uses data certificate to check the identity of users and server.

TTLS -- TTLS uses certificate to validate the server identity and keep the similar security properties of TLS at the same time, such as, the shared secret of the mutual authentication and dialog WEP key.

EAP-FAST: Authenticate communication protocol through the extension of security channel. In the extensible function edition 3(CCX v.3) which is compatible with Cisco, Cisco increases supports for EAP-FAST, the protocol establishes verified channel between user port and sever by using PAC. Mutual validation doesn't need to use certificate, but use certain method of PAC to achieve it. PAC can provide allocation to user port with manual operation or automatic operation. As to Tunnel Authentication, it only offers "Generic Token Card ".

LEAP: The extensible verification communication protocol. LEAP is an EAP authentication type which mainly used to Cisco Aironet WLAN, which uses WEP encryption to encrypt the data transmission and supports the common authentication.

MD5-challenge: Message data 5. MD5 is a kind of EAP authentication type which offers basic level EAP support, it is only adapt to the single authentication. There isn' t common authentication between wireless user port and network.

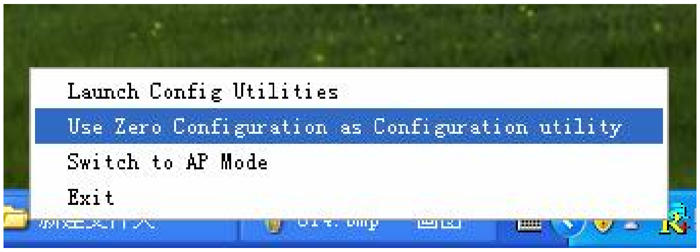
Session Resumption After the signal is broke off and reconnected, you can make setting to reduce the packet when reconnected, and expedite the reconnection. There are two styles for option, "Disabled" and "Enabled ".

Tunnel Protocol According to different authentication styles Tunnel Authentication includes: " EAP-MSCHAP v2 "、"EAP-TLS/Smart card"、" Generic Token Card "、" CHAP"、 "MS-CHAP "、" MS-CHAP-V2 "、" PAP "、 "EAP-MD5 "。

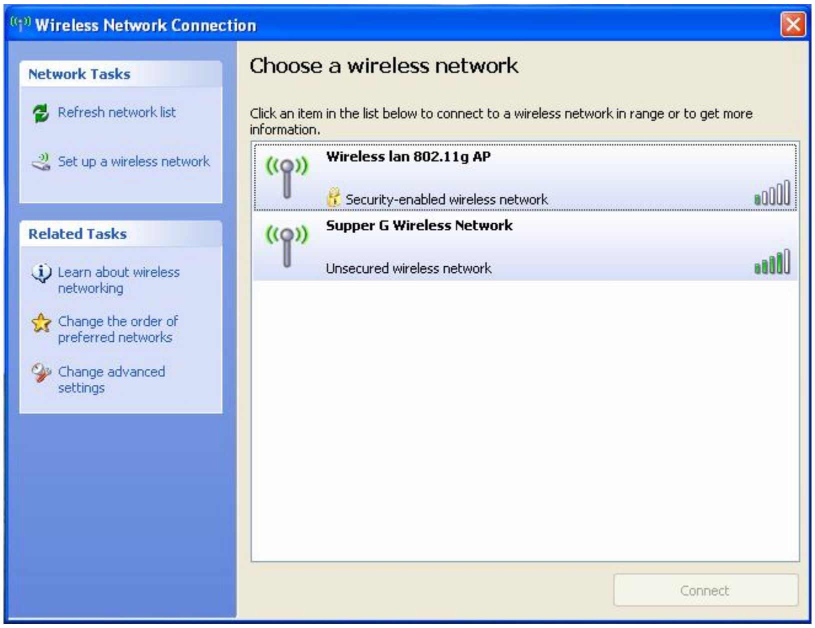
4. Zero Configuration

Right click utility of the system tray to choose " Use Zero

Configuration as configuration Utility” and then Windows wireless network configuration could be used. If you choose “ Launch Configuration Utilities ” , it will use Ralink configuration procedure shown as below,



1. Double click the wireless network icon in the taskbar to check the wireless network, choose the network and click “ Connect” .


Wireless Network Connection
Network Tasks
Refresh network list
Set up a wireless network
Related Tasks
Learn about wireless networking
Change the order of preferred networks
Change advanced settings
Connect

Choose a wireless network

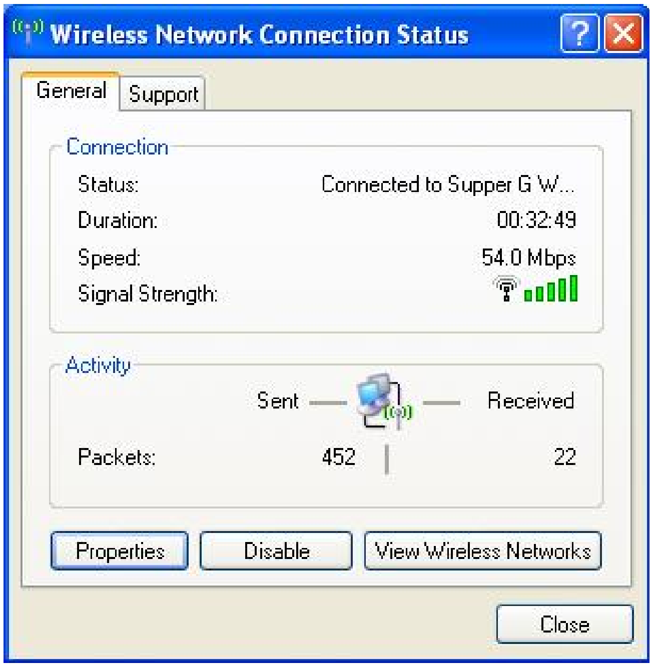
Click an item in the list below to connect to a wireless network in range or to get more information.

Wireless lan 802.11g AP
Security-enabled wireless network

Supper G Wireless Network
Unsecured wireless network

2. If your wireless router has been encrypted, there will be a window to prompt you to input the key. Please input the key and click“ Connect” , then the connection is finished.

3.To configure the wireless connection properties, please right click the wireless icon in the system tray and choose “ Status” , open the page “ wireless network link status” .



Connection

Status: Connected to Supper G W...

Duration: 00:32:49

Speed: 54.0 Mbps

Signal Strength:

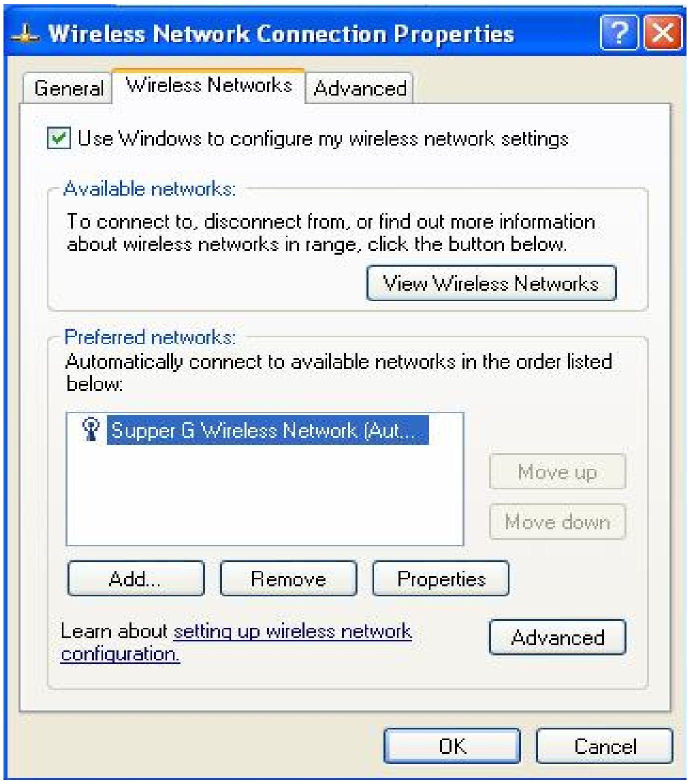
Activity

Sent — — Received

Packets: 452 | 22

4.【General】“ General” displays link time, speed and signal strength which is shown in green line, 5 lines shows the signal is good, 1 line shows the signal is bad.

5.【View Wireless Network】shows preferred network. Use the button “ Add” to add the “ SSID” of available network, if there are several available networks, link priority could be configured by the button “ Move up” and “ Move down” . The icon with a transmitter tower shows the current linked AP. Click “ Properties” to configure authentication of wireless connection.



Wireless Network Connection Properties

☑ Use Windows to configure my wireless network settings

Available networks:

To connect to, disconnect from, or find out more information about wireless networks in range, click the button below.

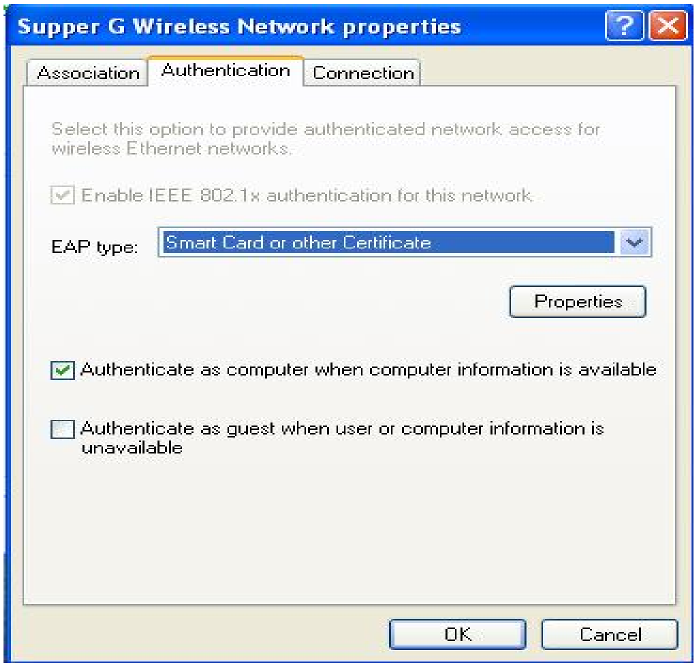
Preferred networks:

Automatically connect to available networks in the order listed below:

Supper G Wireless Network (Aut...

Learn about setting up wireless network configuration.

6.【Authentication】“ Authentication” permits you to add security configuration. You could refer to Windows Help to get more information.



Supper G Wireless Network properties

Select this option to provide authenticated network access for wireless Ethernet networks.

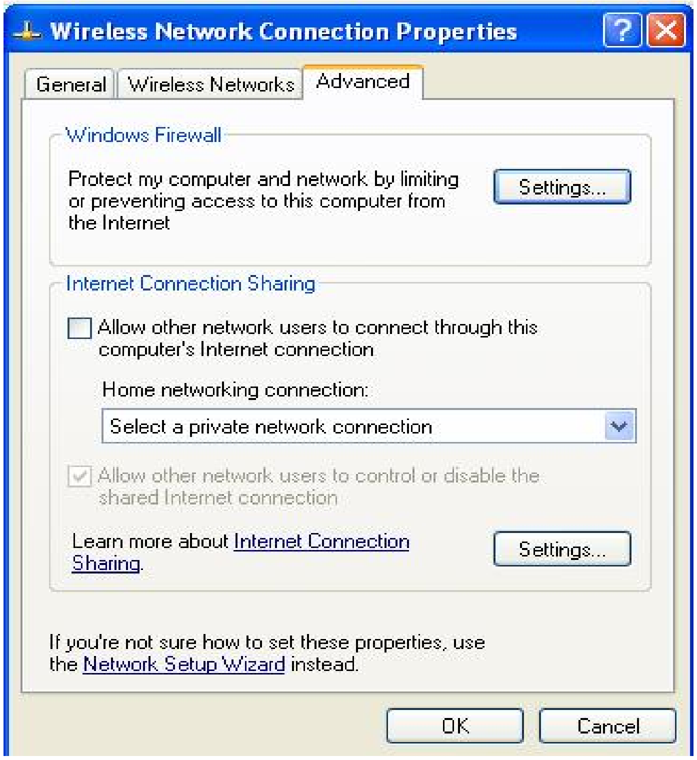
☑ Enable IEEE 802.1x authentication for this network

EAP type: Smart Card or other Certificate

☑ Authenticate as computer when computer information is available

☐ Authenticate as guest when user or computer information is unavailable

7.【Advanced】‘ Advanced” permits you configure firewall and share. You could refer to Windows Help to get more information.



Protect my computer and network by limiting or preventing access to this computer from the Internet

□ Allow other network users to connect through this computer's Internet connection

Home networking connection:

Select a private network connection

☑ Allow other network users to control or disable the shared Internet connection

Learn more about Internet Connection Sharing.

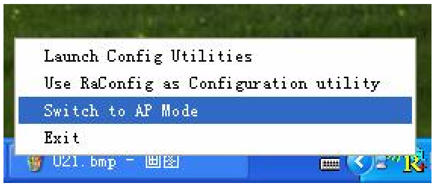
If you're not sure how to set these properties, use the Network Setup Wizard instead.

5. Soft AP

The adapter has two modes: working station and Soft AP. After starting Soft AP, the adapter will be an AP to accept any wireless device access.

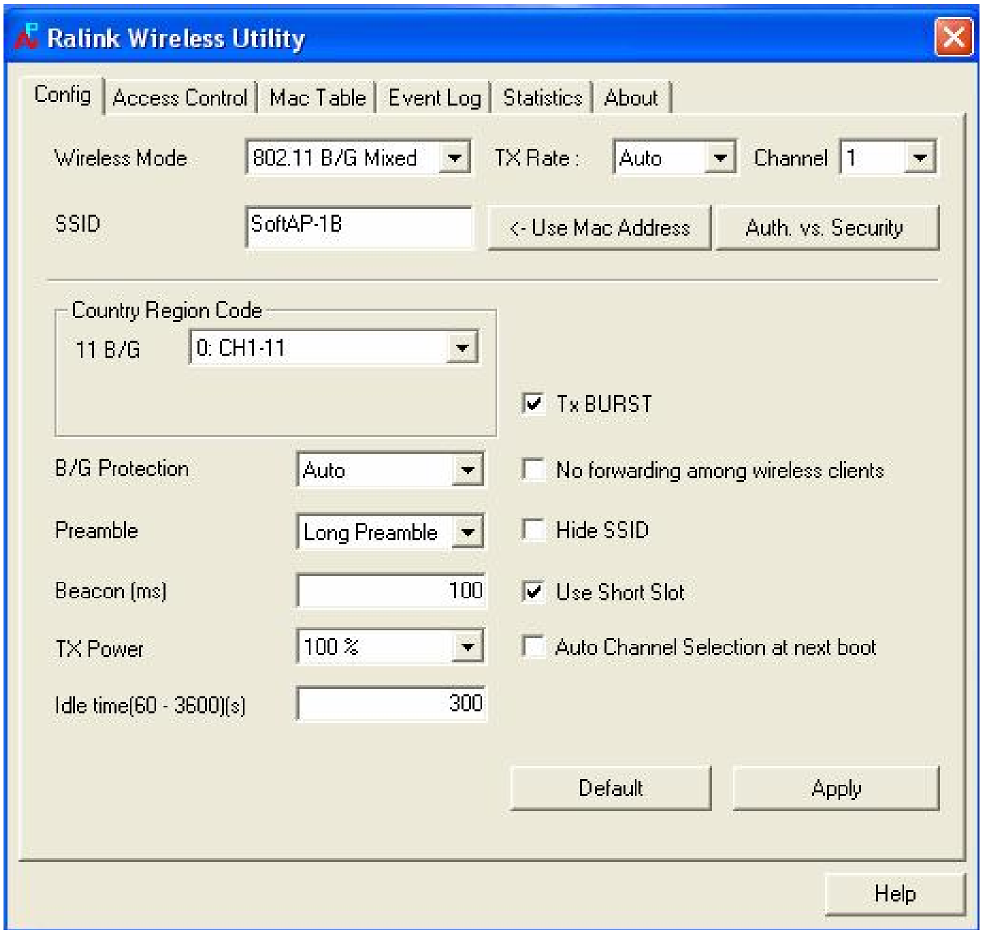
Notice: the soft AP is available only in Windows XP.

5.1 Start Soft AP



After starting configuration software of adapter, you could see figure in the tray of operation system.

Right click the icon and the menu as the right picture will appear. Click " Switch to AP Mode" menu the soft Ap configuration software window will appear.



Wireless Mode 802.11 B/G Mixed

TX Rate : Auto

Channel 1

SSID SoftAP-1B

Country Region Code

11 B/G 0: CH1-11

☑ Tx BURST

B/G Protection Auto

□ No forwarding among wireless clients

Preamble Long Preamble

□ Hide SSID

Beacon (ms) 100

☑ Use Short Slot

TX Power 100 %

□ Auto Channel Selection at next boot

Idle time(60 - 3600)(s) 300

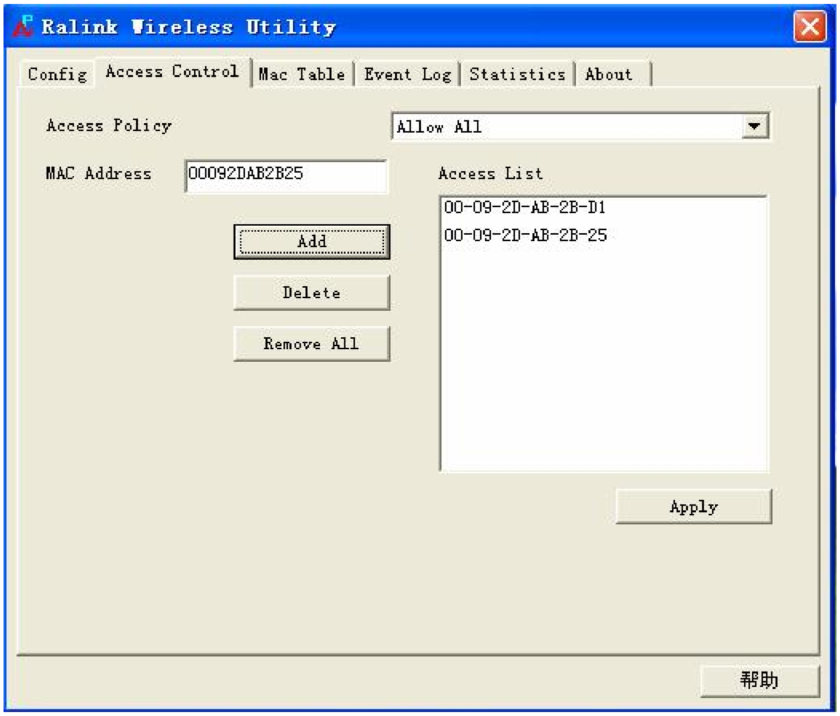
5.2 Configuration Page

As the above picture, you could make some basic configuration, such as wireless network name, mode, channel, authentication and so on. Click the button " Auth. Vs. Security" to make different security configuration of wireless communication shown as below. And you could choose all kinds of authentication types and encryption types, such as WEP64 Bits and WEP128 Bits encryption.

5.3 Access Control

The picture is shown as below. You could choose this page to start MAC control function.

MAC control function includes " Permit all" and " Refuse all" . After editing the MAC address access list, only the MAC in the list" Permit all" could be allowed to access the Soft AP.



Access Policy: Allow All

MAC Address: 00092DAB2B25

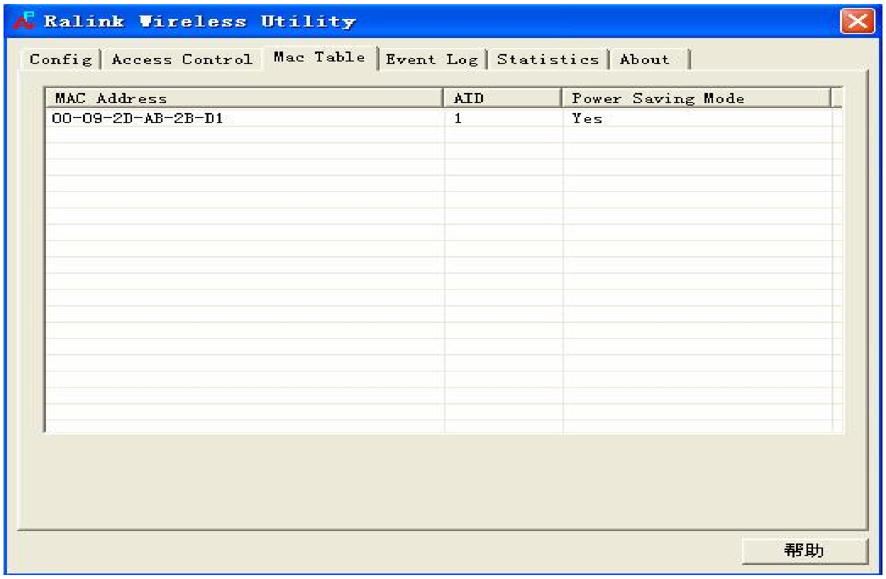
Access List

00-09-2D-AB-2B-D1

00-09-2D-AB-2B-25

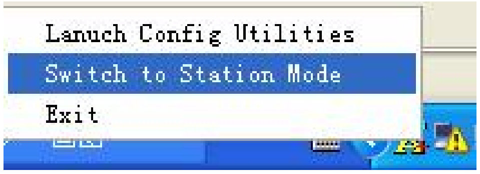
5.4 MAC

This page shows the information of the wireless devices accessed to this AP.



MAC Address	AID	Power Saving Mode
00-09-2D-AB-2B-D1	1	Yes

5.5 Switch to Working Station mode



As the right picture, under the Soft AP mode, right click the configuration software tray icon and appear a menu, please choose “ Switch to Station Mode” , then the adapter is switched to working station mode together with an interface of working station.

6 Specification:

Standard& protocol	IEEE 802.11g、IEEE 802.11b、CSMA/CA with ACK
Interface	32-bit PCI 2.1/2.2/2.3
Frequency range	2.4~2.4835GHz
Radio data rate	11g 54/48/36/24/18/12/9/6M auto adaptive
	11b 11/5.5/2/1M auto adaptive
Channel	13
Spectrum Spread Technology	DSSS
Modulation	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM)
Receive sensitivity	54M -68dBm@10%PER 11M -84dBm@8% PER 6M -88dBm@10% PER 1M -90dBm@8% PER 256K -105dBm@8% PER typical
Transmit distance	indoor up to 300 meters and outdoor up to 100 meters (standard transmit distance is limited to the environments)
Transmit power	13-15dBm 11g 18-20dBm 11b
Antenna Gain	2dBi
LED	Status LINK/ACT and AIR
OS	Windows 98SE/ME/2000/XP/Vista
Antenna type	Omni-directional exterior Antenna (removable)

Environmental	Operation Temp.: 0℃ - 45℃ Storage Temp.: -20℃ - 70℃ Operation Humidity 10% - 95% RH, Non-condensing
Safety	CE, FCC