

Wireless Adapter RNX-G300EX/LX User Manual

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INTRODUCTION

Thank you for purchasing Wireless LAN PCI Card. Wireless card is a perfect combination product of performance and cost-effectiveness. It is sincerely hoped that you can enjoy the wireless world through this solidly profiled wireless card.

It provides a full solution of the IEEE 802.11b/g protocols, this solution passed the

WiFi tests that are compatible with all the wireless products with WiFi logo. If you

have a wireless card on hand, it means you can connect to the wireless world without any difficulty.

It provides all the data rates in the IEEE 802.1b/g standards, which confines the highest data rate as 54Mbps. In addition, it rewards customers with proprietary

"Turbo mode" for a better throughput as well as supports both the short and long preambles to ensure the compatibilities with legacy wireless products and new ones, saving the panic works for finding compatible products.

Since the security has became one of the most important issue in the wireless society,

it provides you with the full security coverage from the naïve 64/128bits Wep encryptions, second generation WPA-PSK and WPA-AES encryption, to the most advanced WPA2-PSK and WPA2-AES encryption. WPA2 is the latest security standard currently approved by WiFi standard.

SPECIFICATIONS

Interface	PCI
Standard	802.11b, 802.11g
OS support	98SE, WinME, Win2000, WinXP32, WinXP64, Vista32, Vista64
Data rate	1,2,5.5,11,6,8,12,18,24,36,48,54Mbps, depends on the wireless mode
Frequency band	BG:2.4 ~ 2.497 GHz
Operation Channel	1~11(BG)
Coverage Area	Indoors: 100m (BG) Outdoors: 400m (BG)
Compatibility	Fully compatible with IEEE 802.11 b/g devices
Operation Mode	Infrastructure and AdHoc
Security Capacity	64-bit/128-bit WEP, TKIP,WPA-AES, and WPA2-PSK,WPA2-AES
Antenna	External antenna
LED	LED0: On: link is on. Off: link is off LED1:Blinking: data transition
Turbo mode	Active when there is no other station around
Power Saving mode	Fast wake up and maximum power saving
Other features	Dynamically adjust power for the most stable and best throughput Dynamically adjust receiving ability for the best receiving Compiled with all the main radio regulations

INSTALLATION

HARDWARE INSTALLATION

- 1. Turn off your PC and remove the cover.
- 2. Insert the RNX-G300EX/ LX to an available PCI slot firmly.
- 3. Secure this card to the rear of the computer chassis
- 4. Put back the cover.
- 4. Fix the antenna to the antenna connector of the card.
- 5. Turn on the computer.





SOFTWARE INSTALLATION (FOR ALL WINDOWS OS)

After hardware installation complete, system will detect new hardware automatically as below:

Found New Hardware Wizard window pops up, click Cancel.

Found New Hardware Wiz	zard
	Welcome to the Found New Hardware Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Read our privacy policy
	Can Windows connect to Windows Update to search for software? Yes, this time only Yes, now and every time I connect a device No, not this time
and the second second	Click Next to continue.
	K Back Next > Cancel

Insert the driver disk into your DVD-ROM.

Click My Computer icon, then click DVD-ROM, then click autorun





Click I accept the term of the license agreement ,then click Next icon.



Click Ralink Configuration Tool, then click Next icon.

Ralink Wireless LAN - InstallSh	nield Wizard	
Setup Type Select the setup type that best suit	ts your needs.	
	Select Configuration Tool.	
	Ralink Configuration Tool	
	Microsoft Zero Configuration Tool	
Ralink		
InstallShield	K Back Next >	Cancel

Click Optimize for WiFi modes, then click Next icon.



Click Install icon.



Click Finish icon.

Ralink Wireless LAN - InstallSh	nield Wizard
	InstallShield Wizard Complete
RRalink	The InstallShield Wizard has successfully installed Ralink Wireless LAN. Click Finish to exit the wizard.
Instal IShfeld	K Back

SOFTWARE UNINSTALL

Click My Computer icon, then click Add or Remove Program icon, and then click Ralink Wireless LAN icon and then click Remove icon.



Click Yes, I want to restart my computer now icon, and then Finish icon.



RALINK WIRELESS UTILITY (RAUI) OR WINDOWS ZERO CONFIGURATION (WZC)

In windows XP, it provides wireless configuration utility named "Windows Zero configuration" which provides basic configuration function for Ralink Wireless NIC. Ralink's utility (RaUI) provides WPA supplicant functionality. To make it easier for user to select

the correct utility. RaUI will let user make the selection when it first runs after windows XP boots.

Click Figure 1-1 the icon will bring up the selection window and let user make the selection.



Figure 1-1 RaUI.exe

RaUI can co-exist with WZC. When coexisting with WZC, RaUI only provides monitoring function, such as link status, network status, statistic counters, advance feature status, WMM status and WPS status. It won't interfere with WZC's configuration or profile functions. It is shown as Figure 1-2.

Launch Config Utilities	Launch Config Utilities
Use Zero Configuration as Configuration utility	Use RaConfig as Configuration utility
Exit	Exit

If "Use RaConfig as Configuration utility" is selected, please jump to Section 2 on running RaUI.

If "Use Zero Configuration as Configuration utility" is selected, please continue on the section. We will explain the difference between RaUI and WZC. Figure 1-3 shows the RaUI status when WZC is active as main control utility.

Figure 1-2 Select WZC or RaUI

🖡 RaUI						
Profile	Network	Advanced	Statistics	www.	Ø WPS	Radio Or
Sorted by >> (SSID	🖉 Channe	el 🖉) Signal		🔲 Sho
_Shiang_2860AP		11	B9n	81%		
aaa		X 3	Bg f	55%		
AlbertY-200		История ИСтория История ИСтория И ИСтория ИСтория ИСтория ИСтория ИСтория ИСтория И	bg f			
AP		b ₁	bg f			
► AP1		Й°	B a ∶	100%		
APPA		6 6		70%		
		€∕°° 11/2	b 9 0			
asus			D U	81%		
Broadcom		11 V	D y	81%		
Buffalo 54		1 1	D9	76% 🗾		
Cobra		6 6	b 9 f	34%		
Rescan	Add to Profile	Connect				
Status >>	AP1 <> 00-03-7F-0)0-D7-A4			Link Q	uality >> 100%
Extra Info >>	Link is Up [TxPowe	r:100%]			Signal Str	ength 1 >> 10
Channel >>	6 <> 2437000 MHz	z			Signal Str	ength 2 >> 10
Authentication >>					Signal Str	ength 3 >> 10
Encryption >>					Noise St	rength >> 26%
Network Type >>				Transmit		Hew
IP Address >>	192.168.5.40 255.255.255.0			Link Speed >>		Мах
Default Gateway >>				Throughput >>	0.000 Mbps	0.104
- Franciacionay Pr	HT			Deserve		Mbps
BW >> n/a		SNRO >> n/a		Receive Link Speed >>		Max
GI >> n/a	MCS >> n/a	SNR1 >> n/a		Throughput >>		35.746 Mbps

Figure 1-3 RaUI status with WZC active

When activating WZC, there are couple difference on RaUI status compared to that with out WZC running.

A. Profile button will be gray, profile function is removed since the NIC is controlled by WZC

B. The connect and add profile function will be gray. The reason is same as the first difference.

For all other functions provided by RaUI, please read through this document for full detail.

USE WZC TO CONFIGURE WIRELESS NIC

A. If connection is lost or not connected, the status prompt as Figure 1-4 will pop up.



Figure 1-4 status prompt of no connection

B. Right-click the network connection icon in task bar.

Change Windows Firewall settings	
Open Network Connections	
Repair	
View Available Wireless Networks	11 122
	¥ %

Figure 1-5 Select WZC main status

C. Select "View Available Wireless Networks" will pop up the dialog shown as Figure 1-6.

(^(†)) Wireless Network Connect	ion	×
Network Tasks	Choose a wireless network	
🚭 Refresh network list	Click an item in the list below to connect to a <u>w</u> ireless network in range or to g information.	et more
Set up a wireless network for a home or small office	((p)) RalinkInitialAP	<u>^</u>
	Unsecured wireless network	
Related Tasks	((Q)) AP1	
Learn about wireless networking	Unsecured wireless network	
	((p)) AlbertY-200	•0 ⁼
Change the order of preferred networks	Security-enabled wireless network (WPA)	
Change advanced settings	((o)) ⁹⁹	
	Unsecured wireless network	
	((p)) APPA	- 20
	Unsecured wireless network	
	((Q)) ¹⁸¹	- 80
	Security-enabled wireless network	ullu 🗸
		Connect

Figure 1-6 Wireless Network Connection

D. Select intended AP and click "Connect" shown as Figure 1-7. Then click "Connect Anyway" shown as Figure 1-8.

Network Tasks	Choose a wireless network	
💋 Refresh network list	Click an item in the list below to connect to a <u>w</u> ireless network in range or to ge information.	t more
Set up a wireless network for a home or small office	((P)) RalinkInitialAP Unsecured wireless network	2 000e
Learn about wir networking Yo	Network Connection Image: Cancel ou are connecting to the unsecured network "AP1". Information sent ver this network is not encrypted and might be visible to other people. It over this network is not encrypted and might be visible to other people. Connect Anyway Cancel	this etwork,
	Security-enabled wireless network (WPA)	
	((Q)) ⁹⁹	

Figure 1-7 Select intended AP : AP1, then click "Connect"

((†)) Wireless Network Connect	lion	
Network Tasks	Choose a wireless network	
😴 Refresh network list	Click an item in the list below to connect to a <u>w</u> ireless network in range o information.	r to get more
Set up a wireless network for a home or small office	((စု)) ^{AP1} (Connected 👷 📤
Related Tasks	Unsecured wireless network ((Q)) 242	
(j) Learn about wireless	Security-enabled wireless network (WPA)	000
Change the order of preferred networks	((p)) 202 Unsecured wireless network	
Section 2010 Change advanced	((Q)) AP	
settings	Control Security-enabled wireless network (WPA)	
	((p)) 219 ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹ ²¹⁹	
	((o)) Baron_PC_AP4	
	Contract Con	. IOI 🗸

Figure 1-8 Connect AP : AP1 successfully

E. If you want to modify information about AP, click "Change advanced settings" shown as Figure 1-9. Then choose "Wireless Networks" label shown as Figure 1-10.

Network Tasks	Choose a wireless network		
🛃 Refresh network list	Click an iter information	m in the list below to connect to a <u>w</u> ireless network in 1.	range or to get more
Set up a wireless network for a home or small office	((ဓူ))	AP1	Connected ☆ 🗠
Related Tasks	((ດູ))	242	
Learn about wireless networking	U	Security-enabled wireless network (WPA)	0000
Change the order of preferred networks	((ူ))	202 Unsecured wireless network	
Change advanced settings	((ဓ))	AP	
	U	Security-enabled wireless network (WPA) 219	•00U
	((ူ))	Contraction of the second state of the second	
	((ອູ))	Baron_PC_AP4	
	U	😚 Security-enabled wireless network	

Figure 1-9 Click "Change advanced settings"

🕹 Wireless Network Connection Properties 💦 🏾 🖓 🗙
General Wireless Networks Advanced
✓ 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.
View Wireless Networks
Preferred networks: Automatically connect to available networks in the order listed below:
P AP1 (Automatic) Move up
Move <u>d</u> own
Add <u>B</u> emove Pr <u>o</u> perties Learn about <u>setting up wireless network</u> Ad <u>v</u> anced
OK Cancel

Figure 1-10 Choose "Wireless Networks" label

F. Click "Properties" shown as Figure 1-11. Then click "OK" button.

AP1 prope	rties	1	
Association	Authentication	Connection	
Network <u>n</u>	ame (SSID):	AP1	ן ר
Wireless	network key		
This net	work requires a ko	ey for the following:	
Network	< Authentication:	Open 💌	
<u>D</u> ata en	cryption:	Disabled 🗸	
Network	: <u>k</u> ey:		
Confirm	network key:		
	e <u>x</u> (advanced): key is provided fo	1 or me automatically	
	a <u>c</u> omputer-to-cor : points are not us	mputer (ad hoc) network; wireless sed	
		OK Canc	el

Figure 1-11 AP's properties

G. After filling appropriate value, click "OK" button. And the status will prompt up as Figure 1-12.



Figure 1-12 Network connection status

H. Click the Ralink's icon will bring up RaUI main window. User can find the surrounding APs in the list. The current connected AP will also shown with the green icon indicated as Figure 1-13. User may use the advance tab to configure more advanced features provided by Ralink's wireless NIC. For the detail on configure the advanced features, please check the Advance setting section for detail.

🖥 RaUI						
Profile	Lee Network	Advanced	Statistics	WAWA	() WPS	Radio Or
Sorted by >>	🥥 SSID	🙆 Channe) Signal ist >>		🗌 Sho
_Shiang_2860AP		1 1	B 9 n	81%		
aaa		🖉 З		55%		
AlbertY-200		1 06		76%		
AP		1		55%		
 AP1		6	b g	100%		
APPA		Б е		70%		
		-				
asus		11 b	b g	81%		
Broadcom		1 1	Ь <mark>У</mark>	81%		
Buffalo 54		1 1	Ьg	76% 🗾		
Cobra		6	b g	34% 🗾		
Rescan	Add to Profile	Connect				
Status >	> AP1 <> 00-03-7F-0	00-D7-A4			Link Q	uality >> 100%
Extra Info >	> Link is Up [TxPowe	r:100%]			Signal Sti	rength 1 >> 10
Channel >	> 6 <> 2437000 MH:	z			Signal Sti	rength 2 >> 10
Authentication >					Signal Sti	rength 3 >> 10
Encryption >					Noise S	trength >> 26
	> Infrastructure			Transmit		
	> 192.168.5.40			Link Speed >>		Мах
> Default Gateway	> 255.255.255.0			Throughput >>	0.000 Mbps	0.104
	HT					Mbps
5.00		c) 100		Receive		Max
BW >> n/a	1105	SNRO >> n/a		Link Speed >> Throughput >>		
GI >> n/a	MCS >> n/a	SNR1 >> n/a		nn odgipat >>	0.070 MDp3	35.746 Mbps

Figure 1-13 Show connection status by using WZC to do connection

START RAUI

When starting RaUI, system will connect to the AP with best signal strength without setting profile or matching profile setting. When starting RaUI, it will issue a scan command to wireless NIC. After two seconds, the AP list will updated with the result of BSS list scan. The AP list include most used fields, such as SSID, network type, channel used, wireless mode, security status and signal percentage. The arrow icon indicates the connected BSS or IBSS network. The page is shown as Figure 2-1.

Profile	Laak Network	Advanced	Statistics	www.	🚺 💡 WPS Radio Or
orted by >>	SSID	🖉 Channe	el 🥝	, .	🔲 Sho
_Shiang_2860AF)	1 /2	B9n	81%	
aaa		🖉 З	₿₫ 🖣	55%	
AlbertY-200		1 06	bg e		
AP		₿ ¹			
AP1		6		100%	
APPA		6		70%	
			b g n		
asus		11 11	b g	81%	
Broadcom		1 1	b g	81%	
Buffalo 54		1 1	bg	76% 🗾	
Cobra		1 /26	📴 📴 🖣	34% 🗾	
Rescan	Add to Profile	e Conne	ct		
Status :	>> AP1 <> 00-03-7F-0	00-D7-A4			Link Quality >> 10
	> Link is Up [TxPowe	-			Signal Strength 1 😕
	>> 6 <> 2437000 MH;	z			Signal Strength 2 >>
Authentication :					Signal Streng th 3 >>
Encryption :					Noise Strength >>
	Infrastructure			Transm	
IF MUUIESS -	> 255.255.255.0				ik Speed >> 54.0 Mbps
Sub Mask :				Inre	oughput >> 0.000 Mbps
	>> 192.168.5.254				
Sub Mask : Default Gateway :	>> 192.168.5.254 HT			Deceive	-
		SNRO >> n/a		Receive	e

Figure 2-1-1 RaUI section introduction

There are three sections in RaUI. These sections are briefly described as follow.

A. Button Section : Include Profile page, Network page, Advanced page, Statistics page, WMM page, WPS page, About button, Radio On/Off button and Help button.



Figure 2-1-2 Button section



Figure 2-1-3 Move to the left



Figure 2-1-4 Move to the right

B. Function Section : Corresponding button.



Figure 2-1-5 Profile page

Sorted by >> 🕜 SSID	🖉 Channel	 AP List 	Signal >>	Show
_Shiang_2860AP	🤣 11 📘	9 🖻	81%	
aaa	🦧 з 📘	g 🖣	55%	
AlbertY-200	b% 🔓	g 📍	76%	
AP	🤣 1 📙	g 📍	55%	
AP1	be 🗗	g	100%	
APPA	be 🗗	9 D	70%	
asus	🤣 11 📙	g	81%	
Broadcom	🤣 11 📙	g	81%	
Buffalo 54	🤣 11 📙	g	76%	
Cobra	1 /26 🚯	99	34%	
Rescan Add to P	rofile Connect			

Figure 2-1-6 Network page

Wireless mode >>	802.11 A/B/G/N mix	Enable CCX (Cisco Compatible eXtensions)
		Turn on CCKM
		Enable Radio Measurements
Enable TX Burst		Non-Serving Channel Measurements limit 250
Enable TCP Windo	ow Size	
Fast Roaming at	-70 dBm	
Show Authenticat	tion Status Dialog	
Select You	ur Country Region Code	
11 B/G >> 0	: CH1-11 🗾	
11 A >> 7	: CH 36,40,44,48,52,56,60,64,100 💌	
Apply		

Figure 2-1-7 Advance page

Figure 2-1-8 Statistics page

- WMM Setup Status WMM >> Enabled	Power Save >> Disabled			Direct Lin
WMM Enable				
WMM - Power Save Enable				
AC_BK	AC_BE	AC_VI	AC_VO	
Direct Link Setup Enable				
MAC Address >>		Timeout Value >>	60 sec	Ap
				Tear

Figure 2-1-9 WMM page

		WPS AP List		
	hsinchu1	00-11-26-71-27-68	6 🖣	T
		WPS Profile List		
				1
				1
<u>P</u> IN	WPS Associate IE	Progress >> 0%		
P <u>B</u> C	WPS Probe IE			
	Automatically select the	AP		

Figure 2-1-10 WPS page

RaConfig Version >> 2.0.0.3	Date >> 04-06-2007
Driver Version >> 1.0.2.0	Date >> 03-12-2007
EEPROM Version >> 1.1	
Firmware Version >> 0.6	
Phy_Address >> 00-0C-4	13-28-60-04
	WWW.RALINKTECH.COM

Figure 2-1-11 About page

C. Status Section : Include Link Status, Authentication Status, AP's information, Configuration and retrying the connection when authentication is failed.

Status	>> AP1 <> 00-03-7F	-00-D7-A4	Lir	nk Quality >> 100%
Extra Info	>> Link is Up (TxPow	er:100%]	Signa	al Strength 1 >> 100%
Channel	>> 6 <> 2437000 MH	Ηz	Signa	al Strength 2 >> 100%
Authentication	i >> Unknown		Signa	al Strength 3 >> 100%
Encryption	>> None		Noi	se Strength >> 26%
Network Type	>> Infrastructure		Transmit	
IP Address	: >> 192.168.5.40		Link Speed >> 54.0 Mbps	Мах
Sub Mask	>> 255.255.255.0		Throughput >> 0.000 Mbp	is a cont
Default Gateway	>> 192.168.5.254			0.004 Mbps
			Receive	inops .
BW >> n/a		SNRO >> n/a	Link Speed >> 54.0 Mbps	Max
GI >> n/a	MCS >> n/a	SNR1 >> n/a	Throughput >> 0.111 Mbp	0.245 M

Figure 2-1-12 Link Status

	Authentication Status	2
Card Name >> Ralink 8	02.11n Wireless LAN Card	Connected by manual
16:37:25.062 16:37:25.171 16:37:25.281 16:37:28.375	Starting network connection Network is connecting PEAP Authenticating Wireless client is authenticated.	
	Cancel	

Figure 2-1-13 Authentication Status

General WPS CCX	
SSID >> AP1	
MAC Address >> 00-03-7F-00-D7-A4	Signal Strength >> 100%
Authentication Type >> Unknown	Supported Rates (Mbps)
Encryption Type >> None	1, 2, 5.5, 11, 6, 12, 24, 36, 9, 18, 48, 54
Channel >> 6 <> 2437000 KHz	
Network Type >> Infrastructure	
Beacon Interval >> 100	
	ок

Figure 2-1-14 AP's Information

Card Name >> Ralink 802.11n Wireless	LAN Card	Identity >>	
Profile Name >> PROF1		Password >>	
Message >> Invalid identity or passw	vord		
	ОК	Cancel	

Figure 2-1-15 Retry the connection

Syste	em Config 🛛 Au	ith. \ Encry.		8021X				
A	Authentication >>	WPA 🔫		Encryption >> TKIP 🔻				
	WPA Preshared Key >>							
Wep Ke	зу							
	Key#1	Hexadecimal	•					
. 0	Key#2	Hexadecimal	-					
9	Key#3	Hexadecimal	-					
9	Key#4	Hexadecimal	-					
				OK Cancel				

Figure 2-1-16 Configuration

At the mean time of starting RaUI, there is also a small Ralink icon appears within windows taskbar as Figure 2-1-15. You may double click it to bring up the main menu if you selected

to close RaUI menu eariler. You may also use mouse's right button to close RaUI utility.



Figure 2-1-17 Ralink icon in system tray

Besides, the small icon will change color to reflect current wireless network connection status. The status indicates as follow:

- 🙀 : Indicate Connected and Signal Strength is Good.
- 🚓 : Indicate Connected and Signal Strength is Normal.
- : Indicated not connected yet.
- : Indicated wireless NIC not detected.
 - i Indicate Connected and Signal Strength is Weak.

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. Figure 2-2-1 show the profile function.

Profile List		
	Profile Name >>	
	SSID >>	
	Network Type >>	
	Authentication >>	
	Encryption >>	
	Use 802.1x >>	
	Channel >>	
	Power Save Mode >>	
	Tx Power >>	
	RTS Threshold >>	
	Fragment Threshold >>	
Add Edit Delete Activate		

Figure 2-2-1 Profile function

Definition of each field :

- A. Profile Name : Name of profile, preset to PROF* (* indicate 1, 2, 3...).
- B. SSID: AP or Ad-hoc name.
- C. Network Type : Network's type, including infrastructure and Ad-Hoc.
- Authentication : Authentication mode.
- D. Encryption : Encryption Type.
- E. Use 802.1x : Whether or not use 802.1x feature.
- H. Cannel : Channel in use for Ad-Hoc mode.
- I. Power Save Mode : Choose from CAM (Constantly Awake Mode) or Power Saving Mode.
- J. Tx Power : Transmit power, the amount of power used by a radio transceiver to send the signal out.
- K. RTS Threshold : User can adjust the RTS threshold number by sliding the bar or key in the value directly.
- L. Fragment Threshold : User can adjust the Fragment threshold number by sliding the bar or key in the value directly.

ICONS AND BUTTONS :



Indicate connection is successful on currently activated profile.



Indicate connection is failed on currently activated profile.



Indicate network type is infrastructure mode.



Indicate network type is Ad-hoc mode.



Indicate security-enabled wireless network.



Add a new profile.



Edit an existing profile.



Delete an existing profile.



Activate selected profile.



Show the information of Status Section.



Hide the information of Status Section.

ADD/EDIT PROFILE

There are three methods to open Profile Editor form.

- A. You can open it from "Add to Profile" button in Site Survey function.
- B. You can open it from "Add" button in Profile function.
- C. You can open it from "Edit" button in Profile function.

System Config Au	uth. \ Encry.	8021X	
Profile Name	>> PROF1		Network Type >> Infrastr
SSID	>> AP1	•	T× Power >> Aut
Power Save Mode	>> 🙆 CAM (PSM	Preamble >> Aut
RTS Threshold		0	
Fragment Threshold		256	2346 2346
		ОК Са	ncel
System Config Au	ith. \ Encry.	8021X	
Authentication >>	Open 🗸 🗸	Encryption >> Non	e 🔻 🗌 802.1X
WPA Preshared Key	>>		
Wep Кеу			
🕜 Key#1	Hexadecimal	•	
Key#2	Hexadecimal	•	
🥥 Key#3	Hexadecimal	•	
🖉 Key#4	Hexadecimal	•	C
		OK Car	ncel

Figure 2-2-2 Configuration

- A. Profile Name : User can chose name for this profile, or use default name defined by system.
- B. SSID : User can key in the intended SSID name or use pull down menu to select from available APs.
- C. Power Save Mode : Choose from CAM Constantly Awake Mode for Power Saving Mode.

D. Network Type : There are two types, infrastructure and 802.11 Ad-hoc mode. Under Ad- hoc mode, user can also choose the preamble type, the available preamble type includes auto and long. In addition to that, the channel field will be available for setup in Ad-hoc mode.

E. RTS Threshold : User can adjust the RTS threshold number by sliding the bar or key in the value directly. The default value is 2347.

F. Fragment Threshold : User can adjust the Fragment threshold number by sliding the bar or key in the value directly. The default value is 2346.

G. Channel : Only available for setting under Ad-hoc mode. User can choose the channel frequency to start their Ad-hoc network.

H. Authentication Type : There are 7 type of authentication modes supported by RaUI. They are open, Shared, LEAP, WPA and WPA-PSK, WPA2 and WPA2-PSK.

I..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.

J. 802.1x Setting : This is introduced in the topic of "Section 3-2 : 802.1x Setting".

K. 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.

L. WEP Key : Only valid when using WEP encryption algorithm. The key must matched AP's key. There are several formats to enter the keys.

- 1. Hexadecimal 40bits : 10 Hex characters.
- 2. Hexadecimal 128bits : 26Hex characters.
- 3. ASCII 40bits : 5 ASCII characters.
- 4. ASCII 128bits : 13 ASCII characters.

EXAMPLE TO ADD PROFILE IN PROFILE

A. Click Add in Profile function.

1 Ral	JI						
4	Profile	Lass Network	Advanced	Statistics	NAMA	Ø WPS	Radio On/
		Profile	e List		_		
						Profile Name	>>
						SSID	>>
						Network Type	>>
					3	Authentication	>>
						Encryption	>>
						Use 802.1x	>>
						Channel	>>
					Po	wer Save Mode	
					1.0	Tx Power	
						RTS Threshold	
					Frag	nent Threshold	
					1108	nent mresholu	~
-	Add	Edit	Delete	Activate			
	Status >>	AP1 <> 00-03-7F-	00-D7-A4			Éink	Quality >> 100%
	Extra Info >>	Link is Up (TxPowe	r:100%]				Strength 1 >> 5
	Channel >>	6 <> 2437000 MH	z		Signal Strength 2 >> !		
AL	ithentication >>					Signal	Strength 3 >> 2
	Encryption >>					Nois	e Strength >> 0%
N	letwork Type >>				Transmit	:	
	IP Address >>					. Speed >> 54.0	
Def	ault Gateway >>	255.255.255.0			Thro	ughput >> 0.00	0 Mbps
	dair datcoody >>	HT			_		
					Receive		116
1.00	V>>n/a		SNRO >> n/a			Speed >> 54.0 ughput >> 0.02	
G	il >> n/a	MCS >> n/a	SNR1 >> n/a		niro	ugiput >> 0.02	o wob?
							1

B. Add Profile page will pop up.

🔓 Ra	UI						
4	Profile	Land Network	ر Advanced	Statistics	www.	Ø WPS Rac	P lio On/
		Profile	e List				
						Profile Name >>	
						SSID >>	
						Network Type >>	
						Authentication >>	
						Encryption >>	
						Use 802.1x >>	
						Channel >>	
					Po	ower Save Mode >>	
						Tx Power >>	
						RTS Threshold >>	
					Frag	ment Threshold >>	
and the second	Add	Edit	Delete	Activate			
S	ystem Config	Auth. \ Er	nory. 8	021X			
	Profile	e Name >> PROF1	 		-	Network Type >>	Infras
		SSID >>		•		Tx Power >>	· A
	Power Sav	e Mode >> 🕜 (CAM 🙆 PSM			Preamble >>	Å
г	RTS Threshold		o			2347	2347
[Fragment Thre	eshold	256			2346	2346
				ок	Cancel		

C. Change profile name to what you want to connect. Pull down the ssid and select one intended AP. The AP list is the result of last Network.

🔓 RaU	1								
ŧ	Profile	↓ Network	Advanced	Statistics	os WMM	Ø WPS	Radio On/		
		Prof	ile List		_				
						Profile Name	>>		
						SSID	>>		
					1	Network Type	>>		
						uthentication			
						Encryption			
						Use 802.1x			
						Channel			
					Pow	er Save Mode	>>		
						Tx Power	>>		
						RTS Threshold >>			
					Fragm	Fragment Threshold >>			
-	Add	Edit	Delete	Activate					
Sy	rstem Config	Auth.\E	ncry. 8	021X					
					_				
	Profile N	Name >> PROF	1			Network	Type >> Infras		
		SSID >>		•		T× P	ower>> A		
			ing_2860AP		000C43686016		amble >> A		
	Power Save /	Mode >> Alber AP	tY-200		00AA2E82EB9E				
		AP1			00037F00D7A				
	RTS Threshold	APPA			0014A549F42F		347 2347		
Г	Fragment Threst		n_N1_Wireless_281; doom		000C43281111 001018902ED/		346 2346		
			dcomWPS		001018902E27	, H	I		
		Claud			000C766FC59				
		Cobr			000A795C08BI				
		Denn Fiona			000C43102718 000C4328602				

D. Then, you can see the profile which you set appear in the profile list. Click "Activate". Activate the profile setting.

🔓 Ral	UI						
•	Profile	Lass Network	Advanced	Statistics	www.	Ø WPS	Radio On/
		Profile	e List				
PR	OF1	AP1		b		Profile Name	>> PROF1
				Ý		SSID	>> AP1
						Network Type	>> Infrastructu
						Authentication	
						Encryption	
						Use 802.1x	
						Channel	
					De	wer Save Mode	
					PU		
						Tx Power	
						RTS Threshold	
					Frag	ment Threshold	>> 2346
-	Add	Edit	Delete	Activate			
	Status >> /	4P1 <> 00-03-7F-0	00-D7-A4			Link	Quality >> 100%
	Extra Info >>	Link is Up (TxPowe	r:100%]			Signal 1	Strength 1 >> 10
	Channel >> (6 <> 2437000 MH:	z			Signal :	Strength 2 >> 10
Au	uthentication >> (Open				Signal 1	Strength 3 >> 10
	Encryption >> I					Noise	e Strength >> 26
N	letwork Type >> I				Transmi	t	
	IP Address >>				Link	< Speed >> 54.0	Mbps
		255.255.255.0			Thro	ughput >> 0.000	D Mbps
Det	ault Gateway >> 1						
		HT			Receive		
B۷	V>> n/a		SNRO >> n/a			< Speed >> 54.0	
G	il >> n/a	MCS >> n/a	SNR1 >> n/a		Thro	ughput >> 0.03	3 Mbps

NETWORK

Under the Network function, system will display the information of surrounding APs from last scan result. List informations
include SSID, BSSID, Signal, Channel, Encryption algorithm, Authentication and Network type as Figure 2-3-1-1 shown.

Sorted by >> 🕜 SSID	Channel	⊘ Signal AP List >> —	Show -
_Shiang_2860AP	🤣 11 🕒 🖸		
aaa	🦧 3 🔁 🧕	9 55%	
AlbertY-200	🎸 🔓 📴	9 76%	
AP	🤣 1 🔂 🧕	9 55%	
AP1	🤣 🕑 🔓	100%	
АРРА	🎸 🕞 🖸	n 70%	
asus	🤣 11 🛛 🖪 🧕	81%	
Broadcom	🤣 11 🛛 🖪 🤤	81%	
Buffalo 54	🤣 11 🛛 🖪 🧕	76%	
Cobra	🎸 🔁 📴	9 34%	
Rescan Add t	o Profile Connect		



Definition of each field :

- A. SSID : Name of BSS or IBSS network.
- B. Network Type : Network type in use, Infrastructure for BSS, Ad-Hoc for IBSS network.
- C. Channel : Channel in use.
- D. Wireless Mode : AP support wireless mode. It may support 802.11a, 802.11b, 802.11g or 802.11n wireless mode.
- E. Security-Enable : Whether AP provides security-enabled wireless network.
- F. Signal : Receive signal strength of specified network.

ICONS AND BUTTONS :



Indicate connection is successful.



Indicate network type is infrastructure mode.



Indicate network type is Ad-hoc mode.



Indicate security-enabled wireless network.



Indicate 802.11a wireless mode. mode.



Indicate 802.11b wireless.



Indicate 802.11g wireless mode.



Indicate 802.11n wireless mode

9	Sorted by >>	O SSID	O Channel	Ø Signal

Indicate that AP list are sorted by SSID, Channel or Signal.



Command to connect to the selected network.



Issue an rescan command to wireless NIC to update information on surrounding wireless network.



Add the selected AP to Profile setting. It will bring up profile page and save user's setting to a new profile.



Show the information of Status Section.



Hide the information of Status Section.
CONNECTED NETWORK:

A. When RaUI first ran, it will select the best AP to connect automatically.

B. If user wants to connect to other AP. He can click "Connect" button for the intended AP to make connection.

C. If the intended network has encryption other than "Not Use", RaUI will bring up the security page and let user input the appropriate information to make the connection. Please refer to example on how to fill the security information.

When you double click on the intended AP, you can see AP's detail information.

AP's detail information divide into three parts. They are General, WPS, CCX information and 802.11n (802.11n button only exists for the AP supported N mode). The introduction is as follow :

A-1.General information contain AP's ssid, MAC address, authentication type, encryption type, channel, network type, beacon interval, signal strength and supported rates. It shows as Figure 2-3-1-2.



Figure 2-3-1-2 General informaion about AP's detal information

A-2. WPS information contain authentication type, encryption type, config methods, device password id, selected registrar, state, version, AP setup locked, UUID-E and RF bands as Figure 2-3-1-3. The introduction indicates as follow :

A-2-1. Authentication Type : There are three type of authentication modes supported by RaConfig. They are open, Shared, WPA-PSK and WPA system.

A-2-2. 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.

A-2-3. Config Methods : Correspond to the methods the AP supports as an Enrollee for adding external Registrars. (a bitwise OR of values)

Value Hardware Interface

- 0x0001 USBA (Flash Drive) 0x0002 Ethernet
- 0x0004 Label
- 0x0008 Display
- 0x0010 External NFC Token
- 0x0020 Integrated NFC Token
- 0x0040 NFC Interface
- 0x0080 Push Button
- 0x0100 Keypad

A-2-4. Device Password ID : Indicate the method or identifies the specific password that the selected Registrar intends to use. AP in PBC mode must indicate 0x0004 within two-minute Walk Time.

ValueDescription0x0000Default (PIN)0x0001User-specified0x0002Rekey0x0003Display0x0004PushButton (PBC)0x0005Registrar-specified0x0006-0x000FReserved

A-2-5. Selected Registrar : Indicate if the user has recently activated a Registrar to add an Enrollee. The values are "TRUE" and "FALSE".

A-2-6. State : The current configuration state on AP. The values are "Unconfigured" and "Configured".

A-2-7. Version : WPS specified version.

A-2-8. AP Setup Locked : Indicate if AP has entered a setup locked state.

A-2-9. UUID-E : The universally unique identifier (UUID) element generated by the Enrollee. There is a value. It is 16 bytes.

A-2-10. RF Bands : Indicate all RF bands available on the AP. A dual-band AP must provide it. The values are "2.4GHz" and "5GHz".

🙀 RaUI						
Profile	↓ ↓↓ Network	Advanced	Statistics	wawa	Ø WPS	Radio On/
Sorted by >> 🕜	SSID	🖉 Chann) Signal ist >>		🗌 Shov
132		1 /2	b g	100%		
202		¥¢1	₿g	70%		
213		1 1		29%		
215		Й°	Bg	44%		
219		I¢1		81%		
243		105		- 100% 🗾		
_Shiang_2860AP		11	Bgn	91%		
AP		1	₿ <mark>₿</mark> °	50%		
AP1		6	bg n	100%		
APPA		6 6	690	91%		
Rescan	Add to Profile	Conne	ct			
General	WPS	0	CX	802.11n		
Au	thentication Type	>> Unknown			St	tate >> Unknowi
	Encryption Type	>> None			Ver	sion >> Unknow
	Config Methods	: >> Unknown			AP Setup Loc	:ked >> Unknowi
Di	evice Password ID					ID-E >> Unknow
Selected Registrar >> Unknown						ands >> Unknowi
	olocica negistrar	CHAIDOWN			N Do	
			(ж		

Figure 2-3-1-3 WPS information about AP's detail information

A-3. CCX information contains CCKM, Cmic and Ckip information. It shows as Figure 2-3-1-4.

🛱 RaUI						
Profile	Land Network	کی Advanced	Statistics	NAN	Ø WPS	Radio On/
Sorted by >>	🥝 SSID	🙆 Chann	el 🥝) Signal		🗌 Shov
132		1 /2	b g	100%		
202		1	Ъg	70%		
213		11	b g 💡	29% 🗾		
215		1 /26	b g	44%		
219		1	bg 🕈	81%		
243		1 /25	69 9	100%		
_Shiang_2860AP		11	🕒 🤁 🗖	91%		
AP		1	🕒 🤁 🗍 🕈	50%		
AP1		6	B90	100%		
APPA		6	1 <mark>5 9</mark> 🗊	91%		
Rescan	Add to Profile	e Conne	ect			
General	WPS	C	CX	802.11n		
ССКА	√ >> FALSE					
Cmi	c >> FALSE					
Скі	p >> FALSE					
			O	к		
			and the second second			

Figure 2-3-1-4 CCX information about AP's detail information

A-4. 802.11n information contains some related 802.11n information. It shows as Figure 2-3-1-5.

Profile	Land Network	Advanced	Statistics	www.	Ø WPS	Radio On
Sorted by >> 🤇	SSID	🥥 Channe	el 🖉	·		🗌 Sho
132		1 /2	b g	100%		
202		₽ vo	₿ <mark>g</mark>	70%		
213		1 1	₿ Ţ			
215		6	bg ∎	44%		
		6∕°° 1∕2∕1				
219						
243		1∕ 5	bg 7			
_Shiang_2860AP		1 1	D D D	91%		
AP		1	D <mark>9</mark> 7	50%		
🕨 AP1		6	D 🥑 🗋	100%		
APPA		6	D <mark>9</mark> 0	91%		
Rescan	Add to Profile	Conne	ct			
General	WPS	C	cx	802.11n		
Secondary Chan	nel Offset elemer	nt				
Secondary Channe				0		
HT Information E>	ilities information change Support	element		FALSE		
Neighbor Report						
Mobility Domain				FALSE		
High Throughput HT Capabilities e	lement			FALSE		
HT Capability	acment			FALSE		
LDPC Coding Capa				FALSE		
Supported Channe	el Width Set			0		
				,		
			OH	(

Figure 2-3-1-5 802.11n information

EXAMPLE ON ADDING PROFILE IN NETWORK

A. Select the intended network from AP list in Network function.

RaUI						
100000001		â				
		ୈ		Gos	0	?
Profile	Network	Advanced	Statistics	WWW	ŴPS	Radio Or
Sorted by >> (🖉 SSID	🥥 Chann	el 🧉) Signal		🔲 Sh
AlbertY-200		1 /26	Bg f			
AP		1	₿ <mark>g</mark> f			
AP1		¥⁄56	bg	100%		
Broadcom		1 1	<u> </u>	70%		
BroadcomWPS		1		_		
DennisAP		<i>1</i> 26		76%		
		600 11		44%		
Fiona-Ap			b 9 D	_		
ISSI-3F-asus11b		₩ 1 2				
knilar		1 /28	b <mark>g</mark> 🖥	60%		
		_		_		
NB27-PC_Networl	k	1 0%	B90 9	_		
NB27-PC_Networl Rescan	k Add to Profile	1 /26	00	_		
Rescan		6 Conn	00	_	Lii	nk Quality >> 1
Rescan Status >>	Add to Profile	€ Conn 00-D7-A4	00	_		
Rescan Status >> Extra Info >>	Add to Profile AP1 <> 00-03-7F-	€ Conne 00-D7-A4 ar:100%]	00	_	Signa	al Strength 1 >
Rescan Status >> Extra Info >> Channel >> Authentication >>	Add to Profile AP1 <> 00-03-7F- Link is Up [T×Powe 6 <> 2437000 MH Unknown	€ Conne 00-D7-A4 ar:100%]	00	_	Signa Signa	al Strength 1 > al Strength 2 >
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None	€ Conne 00-D7-A4 ar:100%]	00	_	Signa Signa Signa	al Strength 1 > al Strength 2 > al Strength 3 >
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure	€ Conne 00-D7-A4 ar:100%]	00	_	Signa Signa Signa No	al Strength 1 > al Strength 2 > al Strength 3 >
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure 192.168.5.60	€ Conne 00-D7-A4 ar:100%]	00	81%	Signa Signa Signa No Ismit Link Speed >> 54	al Strength 1 > al Strength 2 > al Strength 3 > ise Strength >> .0 Mbps
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure 192.168.5.60 255.255.255.0	€ Conne 00-D7-A4 ar:100%]	00	81%	Signa Signa Signa No Ismit	al Strength 1 > al Strength 2 > al Strength 3 > ise Strength >> .0 Mbps
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure 192.168.5.60 255.255.255.0 192.168.5.254	€ Conne 00-D7-A4 ar:100%]	00	81%	Signa Signa Signa No smit Link Speed >> 54 'hroughput >> 0.0	al Strength 1 > al Strength 2 > al Strength 3 > ise Strength >> .0 Mbps
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >> Default Gateway >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure 192.168.5.60 255.255.255.0	€ Conn 00-D7-A4 er:100%] z	00	81%	Signa Signa No Ismit Link Speed >> 54 Throughput >> 0.0	al Strength 1 >: al Strength 2 >: al Strength 3 >: ise Strength >: 0 Mbps 000 Mbps
Rescan Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >>	Add to Profile AP1 <> 00-03-7F- Link is Up [TxPowe 6 <> 2437000 MH Unknown None Infrastructure 192.168.5.60 255.255.255.0 192.168.5.254	€ Conne 00-D7-A4 ar:100%]	00	81%	Signa Signa Signa No smit Link Speed >> 54 'hroughput >> 0.0	.0 Mbps

B. Click "Add to Profile".

RaUI						
Profile	LLL Network	Advanced	Statistics	www.	Ø WPS	Radio On
Sorted by >>	SSID	🥥 Channe	el 🖉) Signal		🗌 Sho
AlbertY-200		6 6	B9 T			
AP		v vo∕s				
AP1		€¢1 10/6		100%		
·			bg			
Broadcom		11 いた。	bg	70%		
BroadcomWPS		1 /21	b g 7			
DennisAP		6	b <mark>g</mark> n	76%		
Fiona-Ap		b 11	D <mark>9</mark> D	44%		
ISSI-3F-asus11b		1	b 🗍	20%		
knilar		\$ 8	🛛 🕒 🥊 🖣	60% 🗾		
NB27-PC_Network		b %	🕒 🤁 🚺 🕈	81% 🗾		
Rescan	Add to Profile	Conne	ct			
Status >> ,	AP1 <> 00-03-7F-0	00-D7-A4			Link	Quality >> 10
Extra Info >>	Link is Up (TxPowe)	r:100%]			Signal Si	trength 1 >>
Channel >> (6 <> 2437000 MHz	2			Signal St	trength 2 >>
Authentication >> I	Unknown				Signal Si	trength 3 >>
Encryption >> I					Noise	Strength >> 3
Network Type >>				Transmi	t	
IP Address >>				Lin	k Speed >> 54.0 እ	Abps
Sub Mask >> 3	255.255.255.0			Thro	ughput >> 0.000	Mbps
Default Catoway sa	192,100,5,254					
Default Gateway >>	HT					
Default Gateway >>	HT	SNRO >> n/a			د K Speed >> 48.0 ۸	/bps

C. System will pop up Add Profile windows. You can change profile name which you like most.

C. System will pop up Ad		s. fou can change	e prome name v	men you like mo	51.	
Profile	Lee Network	کی Advanced	Statistics	wawa	🚺 WPS Radi	P o On,
Sorted by >> 🥝) SSID	🖉 Channe	el 🧉			Shov
AlbertY-200		6 26	b g f			
AP		1	bg f			
AP1		6	b g	100%		
Broadcom		11	b g	70%		
BroadcomWPS		1	b g €	100%		
DennisAP		6	₿ ġ n	76%		
Fiona-Ap		11	B <mark>g</mark> n	44%		
ISSI-3F-asus11b		1 /23	b f	20%		
knilar		1 /28	<u>b</u>g	60%		
NB27-PC_Network		6	b g n f	81%		
Rescan	Add to Profile	Conne				
System Config	Auth. \ Er	icry. 80	21X			
Profile	Name >> PROF1				Network Type >>	Infra
	SSID >> AP1			1	Tx Power >>	
Power Save		:AM 🙆 PSM		1	Preamble >>	,
F00061 3406						
RTS Threshold		0			2347	2347
	-bald					
Fragment Thre	SHOID	256			2346	2346
			ок	Cancel		
		1000		Canoor		

D. Then, you can see the profile which you set appear in the profile list. Click "Activate". Activate the profile setting.

🔓 Ral	п						
+ Kau							
	P _		58 ⁹	1	m	ß	
	Profile	Network	Advanced	Statistics	WW	W WPS	Radio On/
		Drofik	. Lict		_		
				uh		Profile Nam	e >> PROF1
PR	OF1	AP1		- V) >> AP1
· · · ·							
							e >> Infrastructu
						Authenticatio	n >> Open
						Encryptio	n >> None
						Use 802.1	x >> NO
						Channe	el >> 6
						Power Save Mod	e >> CAM
						Tx Powe	r >> Auto
						RTS Threshol	d >> 2347
						Fragment Threshol	
						Tragmont micsho	a // 2040
Manada	Add	Edit	Delete	Activate			
	Status >>	AP1 <> 00-03-7F-0	00-D7-A4			Lir	nk Quality >> 100%
	Extra Info >>	Link is Up (TxPowe	r:100%]				I Strength 1 >> 10
	Channel >>	6 <> 2437000 MH;	z				l Strength 2 >> 10
Au	thentication >>	Unknown				Signa	I Strength 3 >> 10
	Encryption >>	None				Noi	se Strength >> 26
N	etwork Type >>	Infrastructure			Т	ransmit	
	IP Address >>	192.168.5.60				Link Speed >> 54.	0 Mbps
	Sub Mask >>	255.255.255.0				Throughput >> 0.0	00 Mbps
Defa	ault Gateway >>	192.168.5.254					
		HT			R	Receive	
BW	/ >> n/a		SNRO >> n/a			Link Speed >> 54.	0 Mbps
GI	l >> n/a	MCS >> n/a	SNR1 >> n/a			Throughput >> 0.0	92 Mbps

ADVANCED

Figure 2-4 shows Advance function of RaUI.

Wireless mode >> 802.11 A/B/G/N mix	Enable CCX (Cisco Compatible eXtensions)
	Turn on CCKM
	Enable Radio Measurements
Enable TX Burst	Non-Serving Channel Measurements limit 250
Enable TCP Window Size	
Fast Roaming at -70 dBm	
Show Authentication Status Dialog	
Select Your Country Region Code	
11 B/G >> 0: CH1-11	•
11 A >> 7: CH 36,40,44,48,52,56,60,64,	,100 🗸
Apply	

Figure 2-4 Advance function

A. Wireless mode : Select wireless mode. 802.11 B only, 802.11 A only, 802.11 B/G mix,

802.11 B/G/N mix, 802.11 A/B/G mix, and 802.11 A/B/G/N mix modes are supported.

(802.11 A/B/G mix selection item only exists for A/B/G adapter ; 802.11 B/G/N mix selection item only exists for B/G/N adapter ; 802.11 A/B/G/N mix selection item only exists for

A/B/G/N adapter)

B. Wireless Protection : User can choose from Auto, On, and Off.

- (only 802.11n adapter don't support.)
- B-1. Auto : STA will dynamically change as AP announcement.
- B-2. On : Always send frame with protection.
- B-3. Off : Always send frame without protection.
- C. TX Rate : Manually force the Transmit using selected rate. Default is auto.
- (802.11n wireless card don't support TX Rate now)
- D. Enable TX Burst : Ralink's proprietary frame burst mode.
- E. Enable TCP Window Size : Enhance throughput.
- F. Fast Roaming at : fast to roaming, setup by transmit power.

G. Select Your Country Region Code : eight countries to choose. Country channel list : Country channel list. (11A ListBox only shows for A/B/G adapter.)

H. Show Authentication Status Dialog : When you connect AP with authentication, choose whether show "Authentication Status Dialog" or not. Authentication Status Dialog display the process about 802.1x authentication.

- I. Enable CCX (Cisco Compatible eXtensions) : support Cisco Compatible Extensions function.
- I-1. LEAP turn on CCKM.
- I-2. Enable Radio Measurement : can channel measurement every 0~2000 milliseconds.
- J. Apply the above changes.

ICONS AND BUTTONS:



Show the information of Status Section.



Hide the information of Status Section.

STATISTICS

Statistics page displays the detail counter information based on 802.11 MIB counters. This page translates that MIB counters into a format easier for user to understand. Figure 2-5-1 shows the detail page layout.

Transmit	Receive		
Frames Transmitt	ed Successfully	=	
Frames Retransmi	tted Successfully	=	
Frames Fail To Rec	eive ACK After All Retries	=	
RTS Frames Succes	ssfully Receive CTS	=	
RTS Frames Fail To	Receive CTS	=	
Reset Counter			

Figure 2-5-1 Statistics function

Transmit Statistics :

Transmit Receive	
Frames Transmitted Successfully	=
Frames Retransmitted Successfully	=
Frames Fail To Receive ACK After All Retries	=
RTS Frames Successfully Receive CTS	=
RTS Frames Fail To Receive CTS	=
set Counter	

A. Frames Transmitted Successfully : Frames successfully sent.

B. Frames Fail To Receive ACK After All Retries : Frames failed transmit after hitting retry limit.

C. RTS Frames Successfully Receive CTS : Successfully receive CTS after sending RTS frame.

D. RTS Frames Fail To Receive CTS : Failed to receive CTS after sending RTS.

E. Frames Retransmitted Successfully : Successfully retransmitted frames numbers.

F. Reset counters to zero.

Receive Statistics :

Transmit	Receive	
Frames Received Succ	essfully	=
Frames Received With	CRC Error	-
Frames Dropped Due 1	o Out-of-Resource	=
Duplicate Frames Rece	eived	=
Reset Counter		

A. Frames Received Successfully : Frames received successfully.

- B. Frames Received With CRC Error : Frames received with CRC error.
- C. Frames Dropped Due To Out-of-Resource : Frames dropped due to resource issue.
- D. Duplicate Frames Received : Duplicate received frames.
- E. Reset counters to zero.

ICONS AND BUTTONS:

0 💌

Show the information of Status Section.

2 🔺

Hide the information of Status Section.

WMM

Figure 2-6-1 shows WMM function of RaUI. It involves "WMM Enable", "WMM - Power Save Enable" and DLS setup. The introduction indicates as follow :

-WMM Setup S	tatus				
W	MM >> Enabled	Power Save >> Disabled			Direct Lin
🔼 WA	MM Enable				
	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >>		Timeout Value >>	60 sec	Ap
					Tear

Figure 2-6-1 WMM function

- A. WMM Enable : Enable Wi-Fi Multi-Media. The setting method follows Section 2-6-2. WMM -
- B. Power Save Enable : Enable WMM Power Save. The setting method follows Section 2-6-3.
- C. Direct Link Setup Enable : Enable DLS (Direct Link Setup). The setting method follows Section 2-6-4.

ICONS AND BUTTONS:

Show the information of Status Section.

2 🔺

Hide the information of Status Section.

EXAMPLE TO CONFIGURE TO ENABLE DLS (DIRECT LINK SETUP)

A. Click "Direct Link Setup Enable"

– WMM Seti		λ >> Enabled	Power Save >> Disabled			Direct Lin
	WMM	Enable				
		WMM - Power Save Enabl	e			
		AC_BK	AC_BE	AC_VI	AC_VO	
		Direct Link Setup Enable				
		MAC Address >>		Timeout Value >>	60 sec	Ap
						Tear

B. Change to "Network" function. And add a AP that supports DLS features to a Profile. The result will look like the below figure in Profile page.

🔓 Ral	JI						
•	Profile	↓↓↓ Network	Advanced	Statistics	www.	Ø WPS	Radio On/
		Profil	e List				
PR	OF1	AP1		to		Profile Name	>> PROF1
				Ť		SSID	>> AP1
						Network Type	>> Infrastructu
					Ļ	uthentication	>> Open
						Encryption	>> None
						Use 802.1x	
						Channel	
					Por	wer Save Mode	
					FOU		
					Tx Power >> Auto		
						RTS Threshold	
					Fragл	nent Threshold	>> 2346
-	Add	Edit	Delete	Activate			
	Status >>	AP1 <> 00-03-7F-	00-D7-A4			Lini	< Quality >> 100%
	Extra Info >>	Link is Up [TxPowe	er:100%]			Signal	Strength 1 >> 10
	Channel >>	6 <> 2437000 MH	Iz			Signal	Strength 2 >> 10
Au	thentication >>	Open				Signal	Strength 3 >> 10
	Encryption >>					Nois	e Strength >> 26
N	letwork Type >>				Transmit		
		192.168.5.60			Link	Speed >> 54.0) Mbps
Def		255.255.255.0			Throu	ighput >> 0.00	10 Mbps
Det	ault Gateway >>	192.166.5.254					
					Receive	Count Car	
	V>>n/a		SNRO >> n/a			Speed >> 54.0	
G	il >> n/a	MCS >> n/a	SNR1 >> n/a		Inrou	ighput >> 0.03	o wobz

The setting of DLS indicates as follow :

A. Fill in the blanks of Direct Link with MAC Address of STA. The STA must conform to two conditions as follow :

- 1. Connect with the same AP that support DLS features.
- 2. Have to enable DLS.

WMM Setup S W	Status /MM >> Enabled	Power Save >> Disabled			Direct Lir
— Wi	MM Enable				
۵	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >>	0c 43 28 60 00	Timeout Value >>	600 sec	Ap
					Tear

B. Timeout Value represents that it disconnect automatically after some seconds. The value is integer. The integer must be between 0~65535. It represents that it always connects if the value is zero. Default value of Timeout Value is 60 seconds.

WMM Setu	up Staf	tus				
	WMA	l >> Enabled	Power Save >> Dis	abled		Direct Lin
	WWW	Enable				
		WMM - Power Save E	nable			
		AC_BK	AC_BE	AC_VI	AC_VO	
		Direct Link Setup En	able			
		MAC Address >>	00 Oc 43 28 60	00 Timeout Value	>> 600 sec	Ap
						Tear

C. Click "Apply" button. The result will look like the below figure.

VMM >> Enabled	Power Save >> Disabled			Direct Lir
'MM Enable				
WMM - Power Save Enable				
AC_BK	AC_BE	AC_VI	AC_VO	
Direct Link Setup Enable				
MAC Address >> 00	0c 43 28 60 00	Timeout Valu	ue >> 600 sec	Aj
	00-0C-43-28-60-00		600	Tear
	WMM - Power Save Enable AC_BK Direct Link Setup Enable MAC Address >> 00	WMM - Power Save Enable	WMM - Power Save Enable AC_BK AC_BE AC_VI Direct Link Setup Enable MAC Address >> 00 0c 43 28 60 00 Timeout Value	WMM - Power Save Enable AC_BK AC_BE AC_VI AC_VO Direct Link Setup Enable MAC Address >> 00 0c 43 28 60 00 Timeout Value >> 600 sec

Describe "DLS Status" as follow :

A. As the up figure, after configuring DLS successfully, show MAC address of the opposite side and Timeout Value of setting in "DLS Status". In "DLS Status" of the opposite side, it shows MAC address of myself and Timeout Value of setting.

B. Display the values of "DLS Status" to "Direct Link Setup" as follow :

B-1. In "DLS Status" select a direct link STA what you want to show it's values in "Direct Link Setup".

- WMM Setup St W/	tatus MM >> Enabled	Power Save >> Disabled			Direct Lin
ww	IM Enable				
] WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >>		Timeout Value >>	60 sec	Ap
		00-0C-43-28-60-00		600	Tear

B-2. Double click. And the result will look like the below figure.

WMM Setup Statu	21				
WMM	>> Enabled	Power Save >> Disabled			Direct Lir
WMM E	inable				
	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
[] (Direct Link Setup Enable				
	MAC Address >> 00	0c 43 28 60 00	Timeout Value >>	600 sec	Ap
		00-0C-43-28-60-00		600	Tear

- C. Disconnect Direct Link Setup as follow :
- C-1. Select a direct link STA.

- WMM Setup Sta WM	ntus M >> Enabled	Power Save >> Disabled			Direct Lir
MWWW	l Enable				
	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >> 00	0c 43 28 60 00	Timeout Value >>	600 sec	Ap
		00-0C-43-28-60-00		600	Tear

C-2. Click "Tear Down" button. The result will look like the below figure.

- WMM Setup Sta WMM	tus M >> Enabled	Power Save >> Disabled			Direct Lir
www.	Enable				
	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >> 00	0c 43 28 60 00	Timeout Value >>	600 sec	Ap
					Tear

EXAMPLE TO CONFIGURE TO ENABLE WI-FI MULTI-MEDIA

If you want to use "WMM-Power Save" or "Direct Link" you must enable WMM. The setting method of enabling WMM indicates as follows:

A. Click "WMM Enable".

- WMM Set	up Status				
	WMM >> Enabled	Power Save >> Disabled			Direct Link
	WMM Enable				
	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >>		Timeout Value >>	60 sec	App
					Tear D

B. Change to "Network" function. And add a AP that supports WMM features to a Profile. The result will look like the below figure in Profile page.

🔓 Ral	II						
•	Profile	Network	Advanced	Statistics	www.	Ø WPS	Radio On/
		Profile	e List		_		
Þ PR	OF1	AP1		\$		Profile Name	>> PROF1
Ľ.						SSID	>> AP1
						Network Type	>> Infrastructu
						Authentication	>> Open
						Encryption	>> None
						Use 802.1x	>> NO
						Channel	>> 1
					Po	wer Save Mode :	>> CAM
						Tx Power :	>> Auto
						RTS Threshold	
					Frag	nent Threshold	
	and an						2010
in the second se	Add	Edit	Delete	Activate	i		
	Status >> /	AP1 <> 00-03-7F-(00-D7-A4			Link	Quality >> 100%
	Extra Info >> I	Link is Up [TxPowe	r:100%]				Strength 1 >> 10
	Channel >> (6 <> 2437000 MH:	z			Signal S	Strength 2 >> 10
Au	ithentication >> (Open				Signal S	Strength 3 >> 10
	Encryption >> 1	NONE				Noise	Strength >> 26
N	letwork Type >>	Infrastructure			Transmit	t	
	IP Address >>	192.168.5.60			Link	: Speed >> 54.0	Mbps
		255.255.255.0			Thro	ughput >> 0.000) Mbps
Def	ault Gateway >> 1						
		HT			Receive		
BV	V >> n/a		SNR0 >> n/a		Link	Speed >> 54.0	Mbps
G	l >> n/a	MCS >> n/a	SNR1 >> n/a		Thro	ughput >> 0.033	3 Mbps

EXAMPLE TO CONFIGURE TO ENABLE WMM POWER SAVE

A. Click "WMM-Power Save Enable".

- WMM Setup S W	itatus (MM >> Enabled	Power Save >> Disabled			Direct Lin
– W/	MM Enable				
ſ	WMM - Power Save Enable				
	AC_BK	AC_BE	AC_VI	AC_VO	
C	Direct Link Setup Enable				
	MAC Address >>		Timeout Value >>	60 sec	Ap
					Tear

B. Please select which ACs you want to enable. The setting of enabling WMM-Power Save is successfully.

WMM Set	up Status				
	WMM >> Enabled	Power Save >> Enabled			Direct Lin
	WMM Enable				
	🦲 WMM - Power Save Enable				
	🔼 АС_ВК	AC_BE	AC_VI	AC_VO	
	Direct Link Setup Enable				
	MAC Address >>		Timeout Value >>	60 sec	Ap
					Tear

WPS

Figure 2-7-1 shows WPS function of RaUI. The introduction indicates as follow:

18 Ral	JI.						
•	Profile	LLL Network	Advanced	Statistics	www.	() WPS	Radio On/
-				WPS AF	P List		
	ID : Unknown	AF	P1-WPS		00-10-18-90-2E-27	1	e 🗠
	ID : Unknown	U	bicom_Sample		00-0C-43-28-60-20	1	
	ID : Unknown	aı	rvint-2860AP		00-0C-43-28-60-60	3	e
	ID : Unknown	de	efault		00-18-02-4A-0A-6B	6	9 🐱
-				WPS Prot	file List		
	<u>P</u> IN P <u>B</u> C Status >> Af	WPS Asso WPS Prol Automat	be IE W	/PS status is disco	Progress >> 0%	Link	Quality >> 98%
	Extra Info >> Li	nk is Up (TxPowe	er: 100%]				trength 1 >> 6
		<> 2437000 MH	z			CONTRACTOR OF THE OWNER.	Strength 2 <mark>>> 6</mark> 1
AUI	thentication >> W Encryption >> Th				_		strength 3 >> 7 Strength >> 26
Ne	etwork Type >> In				Transmit —	NOISE	Strength >> 20
	IP Address >> 19	92.168.2.8				eed >> 54.0	Wbps
	Sub Mask >> 2	55.255.255.0			Through	put >> 0.000	Kbps
Defa	ult Gateway >> 19						
-		HT	alaastaa ay		Receive		
	' >> n/a		SNRO >> n/a			eed >> 48.0	
GI	⇒> n/a	MCS >> n/a	SNR1 >> n/a		Inrough	put >> 143.0	oz kops

Figure 2-7-1 WPS function

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

B. WPS AP List : Display the information of surrounding APs with WPS IE from last scan result. List information include SSID, BSSID, Channel, ID (Device Password ID), Security- Enabled.

C. Rescan : Issue a rescan command to wireless NIC to update information on surrounding wireless network.

D. Information : Display the information about WPS IE on the selected network. List information include Authentication Type, Encryption Type, Config Methods, Device Password ID, Selected Registrar, State, Version, AP Setup Locked, UUID-E and RF Bands.

It's detail follows WPS Information on AP.

E. PIN Code : 8-digit numbers. It is required to enter PIN Code into Registrar using PIN method. When STA is Enrollee, you can use "Renew" button to re-generate new PIN Code.

F. Config Mode : Our station role-playing as an Enrollee or an external Registrar.

G. Table of Credentials: Display all of credentials got from the Registrar. List information include SSID, MAC Address, Authentication and Encryption Type. If STA Enrollee, credentials are created as soon as each WPS success. If STA Registrar, RaUI creates a new credential with WPA2-PSK/AES/64Hex-Key and doesn't change until next switching to STA Registrar.

H. Control items on credentials

H-1. Detail : Information about Security and Key in the credential.

H-2. Connect : Command to connect to the selected network inside credentials. The active selected credential is as like as the active selected Profile.

H-3. Rotate : Command to rotate to connect to the next network inside credentials.

H-4. Disconnect : Stop WPS action and disconnect this active link. And then select the last profile at the Profile Page of RaUI if exist. If there is an empty profile page, the driver will select any non-security AP.

H-5. Export Profile: Export all credentials to Profile.

H-6. Delete : Delete an existing credential. And then select the next credential if exist. If there is an empty credential, the driver will select any non-security AP.

I. PIN : Start to add to Registrar using PIN configuration method. If STA Registrar, remember that enter PIN Code read from your Enrollee before starting PIN.

J.PBC : Start to add to AP using PBC configuration method.

*When you click PIN or PBC, please don't do any rescan within two-minute connection. If you want to abort this setup within the interval, restart PIN/PBC or press Disconnect to stop WPS action.

K. WPS associate IE : Send the association request with WPS IE during WPS setup. It is optional for STA.

L. WPS probe IE : Send the probe request with WPS IE during WPS setup. It is optional for STA.

M. Progress Bar : Display rate of progress from Start to Connected status.

N. Status Bar: Display currently WPS Status.

O. Automatically select the AP: Start to add to AP by using to select the AP automatically in PIN method.

There are examples in section 2-7-3(PIN Enrollee Setup), section 2-7-4(PBC Enrollee Setup) and section 2-7-5(Registrar Configures and AP)

ICONS AND BUTTONS:



Show the information of Status Section.



Hide the information of Status Section.

WPS INFORMATION ON AP

WPS information contain authentication type, encryption type, config methods, device password id, selected registrar, state, version, AP setup locked, UUID-E and RF bands. The introduction indicates as follow :

🛱 RaUI						
Profile	Network	Advanced	Statistics	www.	Ø WPS	Radio On/
Sorted by >> 🛛 🥝	SSID	🥝 Chann	el 🧉	-		🗌 Show
132		1 /2	b g	100%		
202		v ≥1	₿ <mark>g</mark>	70%		
213		1 1				
215		b 6	₿ g	44%		
219		1	bg f	81%		
243		105	bg f			
_Shiang_2860AP		11	B9n	91%		
AP		1	₿ <mark>9</mark> f	50% 💼		
AP1		6	bgn	100%		
APPA		1 /26	690	91%		
Rescan	Add to Profile	Conne	ect			
General	WPS	(CX	802.11n		
Au	thentication Type	e >> Unknown			St	ate >> Unknowr
	Encryption Type	e >> None			Vers	ion >> Unknowr
	Config Method	s >> Unknown			AP Setup Loci	ked >> Unknowr
D	evice Password II					D-E >> Unknowr
	Selected Registra	r >> Unknown			RF Ba	nds >> Unknowr
			c	ж		

A. Authentication Type : There are three type of authentication modes supported by RaConfig. They are open, Shared, WPA-PSK and WPA system.

B. 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.

C. Config Methods : Correspond to the methods the AP supports as an Enrollee for adding external Registrars. (a bitwise OR of values)

Value Hardware Interface

- 0x0001 USBA (Flash Drive)
- 0x0002 Ethernet
- 0x0004 Label
- 0x0008 Display
- 0x0010 External NFC Token
- 0x0020 Integrated NFC Token
- 0x0040 NFC Interface
- 0x0080 Push Button
- 0x0100 Keypad

D. Device Password ID : Indicate the method or identifies the specific password that the selected Registrar intends to use. AP in PBC mode must indicate 0x0004 within two-minute Walk Time.

ValueDescription0x0000Default (PIN)0x0001User-specified0x0002Rekey0x0003Display0x0004PushButton (PBC)0x0005Registrar-specified

0x0006-0x000F Reserved

E. Selected Registrar : Indicate if the user has recently activated a Registrar to add an Enrollee. The values are "TRUE" and "FALSE".

F. State : The current configuration state on AP. The values are "Unconfigured" and "Configured".

G. Version : WPS specified version.

H. AP Setup Locked : Indicate if AP has entered a setup locked state.

I. UUID-E : The universally unique identifier (UUID) element generated by the Enrollee. There is a value. It is 16 bytes.

J. RF Bands : Indicate all RF bands available on the AP. A dual-band AP must provide it. The values are "2.4GHz" and "5GHz".

EXAMPLE TO ADD TO REGISTRAR USING PIN METHOD

The user obtains a device password (PIN Code) from the STA and enters the password into the Registrar. Both the Enrollee and the Registrar use PIN Config method for the configuration setup. The detail indicates as follows.



A. Go to the box of Config Mode and select Enrollee.

ID : Unknow	n	Ubicom_Sample	00-0C-43-28-60-20	1	
ID : Unknow	n	AP1-WPS	00-10-18-90-2E-27	1	9
ID : Unknow	n	arvint-2860AP	00-0C-43-28-60-60	3	9
ID : Unknow	n	default	00-18-02-4A-0A-6B	6	9
			WPS Profile List		
PIN		WPS Associate IE	Progress >> 0%		
PIN		WPS Associate IE	Progress >> 0%		
<u>P</u> IN P <u>B</u> C		WPS Associate IE WPS Probe IE	Progress >> 0% WPS status is disconnected		

ID : Unknown Ubicom_Sample 00-0C-43-28-60-20 1 ID : Unknown AP1-WPS 00-0C-43-28-60-60 3 1 ID : Unknown arvint-2860AP 00-0C-43-28-60-60 3 1 ID : Unknown default 00-18-02-4A-0A-6B 6 1 ID : Unknown default 00-18-02-4A-0A-6B 6 1 I WPS Profile List WPS Profile List I I I I ID : Unknown MPS Associate IE Progress >> 0% I I I I ID : WPS Probe IE WPS status is disconnected I I I I I					
ID : Unknown AP1-WPS 00-10-18-90-2E-27 1 ID ID : Unknown arvint-2860AP 00-0C-43-28-60-60 3 ID ID : Unknown default 00-18-02-4A-0A-68 6 IO IO WPS Profile List WPS Profile List WPS Profile List IO IO IO ID : Unknown MPS Associate IE Progress > 0% IO IO IO IO ID : WPS Probe IE WPS status is disconnected IO IO IO IO IO			WPS AP List		
ID : Unknown arvint-2860AP 00-0C-43-28-60-60 3 ID ID : Unknown default 00-18-02-4A-0A-6B 6 ID WPS Profile List WPS Profile List WPS WPS EIN IM S Associate IE Progress > 0% IM PEC WPS Probe IE WPS status is disconnected Im	ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	^
ID : Unknown default ID : Unknown default 00-18-02-4A-0A-6B 6 WPS Profile List WPS Profile List PBC WPS Probe IE WPS status is disconnected	ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	•
WPS Profile List WPS Associate IE PBC WPS Probe IE WPS status is disconnected	ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3	
PIN WPS Associate IE Progress >> 0% PBC WPS Probe IE WPS status is disconnected	ID : Unknown	default	00-18-02-4A-0A-6B	6	9 💌
PBC WPS Probe IE WPS status is disconnected			WPS Profile List		
PBC WPS Probe IE WPS status is disconnected					
PBC WPS Probe IE WPS status is disconnected					
PBC WPS Probe IE WPS status is disconnected					
PBC WPS Probe IE WPS status is disconnected					
PBC WPS Probe IE WPS status is disconnected					
	<u>P</u> IN	WPS Associate IE	Progress >> 0%		
Automatically select the AP	P <u>B</u> C	WPS Probe IE	WPS status is disconnected		
		Automatically select the	AP		

B. Click "Rescan" button to update available WPS APs.

C. Select an AP (SSID/BSSID) that STA will join to.

		WPS AP List		
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	7
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3	9
ID : Unknown	default	00-18-02-4A-0A-6B	6	9
		WPS Profile List		
PIN	WPS Associate IE	Progress >> 0%		
<u>P</u> IN	WPS Associate IE	Progress >> 0%		
<u>P</u> IN P <u>B</u> C		Progress >> 0% status is disconnected		
		-		
		-		

D. Click "PIN" button to start PIN connection.

F. Enter PIN Code of STA into the Registrar when prompted by the Registrar.

	WPS AP List		
AP1-WPS	00-10-18-90-2E-27	1	-
Ubicom_Sample	00-0C-43-28-60-20	1	
arvint-2860AP	00-0C-43-28-60-60	3	7
default	00-18-02-4A-0A-6B	6	9
	WPS Profile List		
_			
WPS Associate IE	Progress >> 5%		
	Progress >> 5% art PIN connection - AP1-WPS		
	Ubicom_Sample arvint-2860AP	AP1-WPS 00-10-18-90-2E-27 Ubicom_Sample 00-0C-43-28-60-20 arvint-2860AP 00-0C-43-28-60-60 default 00-18-02-4A-0A-6B	AP1-WPS 00-10-18-90-2E-27 1 Ubicom_Sample 00-0C-43-28-60-20 1 arvint-2860AP 00-0C-43-28-60-60 3 default 00-18-02-4A-0A-6B 6

*Allow of an exchange between Step 4 and Step 5.

*If you use Microsoft Window Connection Now as an External Registrar, you must start PIN connection at STA first. After that, search out your WPS Device name and MAC address at Microsoft Registrar. Add a new device and enter PIN Code of STA at Microsoft Registrar when prompted.

G. The result will look like the below figure.

		WPS AP List		
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	9 🔷
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	7 🗸
		WPS Profile List		
<u>P</u> IN	WPS Associate IE	Progress >> 60 <mark>%</mark>		
Р <u>В</u> С	WPS Probe IE	PIN - Sending M3		
	Automatically select the	AP		

		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	9
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	f
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	9
		WPS Profile List		
<u>P</u> IN	WPS Associate IE	Progress >> 95%		
<u>PIN</u> P <u>B</u> C		Progress >> 95% Configured		

H. Configured and got one or multiple credential(s).

I. Then connect successfully. The result will look like the below figure.

		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	9
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	• •
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	9
		WPS Profile List		
<u>P</u> IN	WPS Associate IE	Progress >> 100%		
PBC	WPS Probe IE	WPS status is connected successfully - AP1-W	PS	
	Automatically select the A	AP		

J. Click "Detail" button.

		WPS AP List		
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	2
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3	9
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	•
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	9
		WPS Profile List		
AP1-WPS		9		
	_			
<u>P</u> IN	WPS Associate IE	Progress >> 100%		
<u>PIN</u> P <u>B</u> C		Progress >> 100% PS status is connected successfully - AP1-WPS		

K. You will look like the below figure.

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	
	OK Cancel	

*If Credential#1 is reliable and present, system will connect with Credential#1. On the contrary, system will auto rotate to the next existed credential.

*Also you can click "Rotate" button. Command to rotate to the next credential you want to use.

Describe "WPS Status Bar" - "PIN - xxx" as follow :

A. Asuccessful PIN Configuration :

Start PIN connection - SSID ~> Begin associating to WPS AP ~> Associated to WPS AP

~> Sending EAPOL-Start ~> Sending EAP-Rsp (ID) ~> Receive EAP-Req (Start) ~>

Sending M1 ~> Received M2 ~> (Received M2D ~> Sending EAP-Rsp (ACK)) ~> Sending

M3 ~> Received M4 ~> Sending M5 ~> Received M6 ~> Sending M7 ~> Received M8 ~> Sending EAP-Rsp(Done) ~> Configured ~> WPS status is disconnected ~> WPS status is connected successfully-SSID

B. WPS configuration doesn't complete after two-minute connection : WPS Eap process failed.

C. When Errors occur within two-minute connection, the WPS status bar might report on "WPS Eap process failed".

Error messages might be :

- 1. Receive EAP with wrong NONCE.
- 2. Receive EAP without integrity.
- 3. Error PIN Code.
- 4. An inappropriate EAP-FAIL received.

EXAMPLE TO ADD TO REGISTRAR USING PBC METHOD

The PBC method requires the user to press a PBC button on both the Enrollee and the Registrar within a two-minute interval called the Walk Time. If only one Registrar in PBC mode, which PBC mode is obtained from ID 0x0004, is found after a complete scan, the Enrollee can immediately begin running the Registration Protocol.

If the Enrollee discovers more than one Registrar in PBC mode, it MUST abort its connection attempt at this scan and continue searching until two-minute timeout.

*Before you press PBC on STA and candidate AP. Make sure all of APs aren't PBC mode or APs using PBC mode have left their Walk Time.

Push PBC button on both Registrar and Enrollee







A. Go to the box of Config Mode and select Enrollee.

		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	9
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3	9
ID : Unknown	default	00-18-02-4A-0A-6B	6	9
		WPS Profile List		
ым	WPS Associate IE	Progress >> 0%		
<u>P</u> IN P <u>B</u> C		Progress >> 0% WPS status is disconnected		

B. Click PBC to start PBC connection.

C. Push PBC on AP.

		WPS AP List		
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	1
ID : 0x0004	AP1-WPS	00-10-18-90-2E-27	1	-
ID : Unknown	default	00-18-02-4A-0A-6B	6	•
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	7
		_ WPS Profile List		
<u>PIN</u>	WPS Associate IE	Progress >> 0%		
	-	Progress >> 0%		

*Allow of an exchange between Step 2 and Step 3.

D. Then it can be shown "Rcanning AP" as the below figure.

		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	9
ID : Unknown	default	00-18-02-4A-0A-6B	6	-
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	1
		WPS Profile List		
PIN	WPS Associate IE	Progress >> 10%		
<u>P</u> IN P <u>B</u> C		Progress >> 10% anning AP		

E. When finding only one AP, join it.

				WPS AP List			
ID : Unknown		AP1-WPS		00-10-	·18-90-2E-27	1	9
ID : Unknown		arvint-2860AP)	00-0C	-43-28-60-60	3	-
ID : Unknown		dlink		00-19-	·5B-05-0B-96	10	
				WPS Profile List			
EIN	WPS &	Associate IE			Progress >> 15	%	
			PBC - Beg	in associating to 1		%	
<u>P</u> IN P <u>B</u> C		Associate IE Probe IE	PBC - Beg	in associating to \		%	

F. Check WPS Information on available WPS APs

General	WPS	ССХ			
Aut	hentication Type >> WP	A-PSK		State >>	Configure
	Encryption Type >> TKI	Р		Version >>	1.0
	Config Methods >> 0x0	0088		AP Setup Locked >>	Unknown
De	vice Password ID >> 0x0	0004		UUID-E >>	Unknown
Se	elected Registrar >> TRL	JE		RF Bands >>	Unknown
		-	ОК		
		WPS AP List			
--------------	--------------------	-------------------	---	---	
ID:0x0004	AP1-WPS	00-10-18-90-2E-27	1	8	
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1		
ID : Unknown	default	00-18-02-4A-0A-6B	6	f	
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	9	
		WPS Profile List			
<u>P</u> IN	WPS Associate IE	Progress >> 95%			
P <u>B</u> C	WPS Probe IE PBC -	Configured			

G. Configured and got one or multiple credential(s).

H. Then connect successfully. The result will look like the below figure.

		WPS AP List		
ID:0x0004	AP1-WPS	00-10-18-90-2E-27	1	-
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	
ID : Unknown	default	00-18-02-4A-0A-6B	6	9
ID : Unknown	WinceWps	00-14-85-E3-D7-8B	7	9
		WPS Profile List		
<u>P</u> IN	WPS Associate IE	Progress >> 100%		
P <u>B</u> C	WPS Probe IE	WPS status is connected successfully - AP1-WF	's	
	Automatically select the A	4P		

Describe "WPS Status Bar" - "PBC - xxx" as follow :

A. A successful PBC Configuration :

Start PBC connection ~> Scanning AP ~> Begin associating to WPS AP ~> Associated to

WPS AP ~> Sending EAPOL-Start ~> Sending EAP-Rsp (ID) ~> Receive EAP-Rsp (Start)

 $\sim>$ Sending M1 $\sim>$ Received M2 $\sim>$ Sending M3 $\sim>$ Received M4 $\sim>$ Sending M5 $\sim>$ Received M6 $\sim>$ Sending M7 $\sim>$ Received M8 $\sim>$ Sending EAP-Rsp (Done) $\sim>$ Configured

~> WPS status is disconnected ~> WPS status is connected successfully-SSID

B. No PBC AP available :

Scanning AP ~> No PBC AP available ~> Scanning AP ~> No PBC AP available ~>...

C. Too Many PBC AP available :

Scanning AP ~> Too Many PBC AP available ~> Scanning AP ~> Too Many PBC AP available ~>...

D. WPS configuration doesn't complete after two-minute connection : WPS Eap process failed.

E. When Errors occur within two-minute connection, the WPS status bar might report on" WPS Eap process failed".

Error messages might be :

1. Receive EAP with wrong NONCE.

2. Receive EAP without integrity.

3. An inappropriate EAP-FAIL received.

Describe "Multiple PBC session overlaps" as follow :

A. Dual bands :

AP1 is a G-Band AP using PBC mode. (ID = 0x0004) AP2 is a A-Band AP using PBC mode. (ID = 0x0004) They have the same UUID-E.

STA would regard these two APs as a dual-radio AP and select one band to connect.

B. Different UUID-E :

AP1 is a G-Band AP using PBC mode. (ID = 0x0004) AP2 is a G-Band AP using PBC mode. (ID = 0x0004) They have the different UUID-E.

STA would regard these two APs as two different APs and wait until only one PBC AP is available.

EXAMPLE TO CONFIGURE A NETWORK/AP USING PIN OR PBC METHOD

Push PBC button on both Registrar and Enrollee



A o to the box of Config Mode and select Registrar.

		WPS AP List		
ID :	ClaudeWpsAP	00-14-85-E3-D7-8B	1	•
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	9
		WPS Profile List		
ExRegNW286004		9		
<u>P</u> IN	WPS Associate IE	Progress >> 0%		
P <u>B</u> C	WPS Probe IE	WPS status is disconnected		
Г	Automatically select the	e AP		

B. Enter "Detail" of the credential and change configurations (SSID, Authentication, Encryption and Key) manually if need.

ssid >>	ExRegNW286004				
BSSID >>	00-00-00-00-00				
Authentication Type >>	WPA2-PSK	•	Encryption Type >>	AES	•
Key Length >>	5	-	Key Index >>	1	-
Key Material >>	*****	*****	*****		
	Show Password				
		ок	Cancel		

C. If PIN configuration setup, enter Pin Code read from your Enrollee.

		WPS AP List		
ID :	ClaudeWpsAP	00-14-85-E3-D7-8B	1	9
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	-
		or Due die 14-4		
	WP	PS Profile List		
ExRegNW286004				
PIN	WPS Associate IE	Progress >> 0%		
P <u>B</u> C	WPS Probe IE	VPS status is disconnected		
	Automatically select the AF	p		

D. Start PIN or PBC. The following procedures are as similar as section 2-7-3(PIN Enrollee

Setup) or section 2-7-4(PBC Enrollee Setup),

E. If your AP Enrollee has been configured before WPS process, the credential you set in advance will be updated to AP itself. Otherwise, after a successful registration, the AP Enrollee will be re-configured with the new parameters, and STA Registrar will connect to the AP Enrollee with these new parameters.

		WPS #	AP List		
ID :	ClaudeWpsAP		00-14-85-E3-D7-8B	1	-
ID :	arvint-2860-WPS	AP	00-0C-43-28-60-60	6	-
		WPS Profile List			
ExRegNW286004					
<u>P</u> IN	WPS Associate IE		Progress >> 100%		
P <u>B</u> C	WPS Probe IE	WPS status is con	nected successfully - ExRe	gNW286004	
	Automatically select the	e AP			

Describe "WPS Status Bar" - "PIN - xxx" as follow :

A successful PIN Configuration :

Start PIN connection - SSID ~> Begin associating to WPS AP ~> Associated to WPS AP

 $\sim>$ Sending EAPOL-Start $\sim>$ Sending EAP-Rsp (ID) $\sim>$ Receive M1 $\sim>$ Sending M2 $\sim>$ Receive M3 $\sim>$ Sending M4 $\sim>$ Receive M5 $\sim>$ Sending M6 $\sim>$ Receive M7 $\sim>$ Sending M8

~> Receive EAP Rsp (Done) ~> Sending EAP Rsp (ACK) ~> Configured ~> WPS status is disconnected ~> WPS status is connected successfully-SSID

Describe "WPS Status Bar" - "PBC - xxx" as follow :

A successful PBC Configuration :

Start PBC connection ~> Scanning AP ~> 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

LINK STATUS

Figure 2-9 is the link status page, it displays the detail information current connection.

Statu	s >> AP1 <> 00-03-7F-	00-D7-A4	Link Qı	uality >> 100%
Extra Info	o >> Link is Up (TxPowe	er:100%]	Signal Str	ength 1 >> 100%
Channe	el >> 6 <> 2437000 MH	Iz	Signal Str	ength 2 >> 100%
Authentication	n >> Unknown		Signal Str	ength 3 >> 100%
Encryption	n >> None		Noise St	rength >> 26%
Network Type	e >> Infrastructure		Transmit	
IP Addres	s >> 192.168.5.40		Link Speed >> 54.0 Mbps	Max
Sub Masł	k >> 255.255.255.0		Throughput >> 0.000 Mbps	i
Default Gateway	y >> 192.168.5.254			0.004 Mbps
	HT		Receive	
BW >> n/a		SNRO >> n/a	Link Speed >> 54.0 Mbps	Мах
GI >> n/a	MCS >> n/a	SNR1 >> n/a	Throughput >> 0.111 Mbps	0.245 Mbps
GI >> n/a	MCS >> n/a	SNR1 >> n/a	Throughput >> 0.111 Mbps	

Figure 2-9 Link Status function

A. Status : Current connection status. If no connection, if will show Disconnected. Otherwise, the SSID and BSSID will show here.

- B. Extra Info : Display link status in use.
- C. Channel : Display current channel in use.

Authentication : Authentication mode in use.

- D. Encryption : Encryption type in use.
- E. Network Type : Network type in use.
- IP Address : IP address about current connection.
- F. Sub Mask : Sub mask about current connection.
- G. Default Gateway : Default gateway about current connection.
- H. Link Speed : Show current transmit rate and receive rate.
- I. Throughout : Display transmits and receive throughput in unit of Mbps.
- J. Link Quality : Display connection quality based on signal strength and TX/RX packet error rate.
- K. Signal Strength 1 : Receive signal strength 1, user can choose to display as percentage or dBm format.
- L. Signal Strength 2 : Receive signal strength 2, user can choose to display as percentage or dBm format.
- M. Signal Strength 3 : Receive signal strength 3, user can choose to display as percentage or dBm format.
- N. Noise Strength : Display noise signal strength.
- O. HT : Display current HT status in use, containing BW, GI, MCS, SNR0, and SNR1 value.
- (Show the information only for 802.11n wireless card.)

AUTH. \ ENCRY. SETTING - WEP/TKIP/AES

Auth. \ Encry. Setting, shown as Figure 3-1.

	wPA Preshared			Encryption	AES	•	
ep Ke		NOY **					
0	Key#1	Hexadecimal	- [
0	Key#2	Hexadecimal	- [
0	Key#3	Hexadecimal	-				
0	Key#4	Hexadecimal	* [

Figure 3-1 Auth. \ Encry. Setting

A. Authentication Type : There are 7 type of authentication modes supported by RaUI. They are open, Shared, LEAP, WPA and WPA-PSK, WPA2 and WPA2-PSK.

B. 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.

C. 8021X : This is introduced in the topic of Section 3-2.

D. 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.

E. WEP Key : Only valid when using WEP encryption algorithm. The key must matched

AP's key. There are several formats to enter the keys.

E-1. Hexadecimal - 40bits : 10 Hex characters.

E-2. Hexadecimal - 128bits : 32Hex characters.

E-3. ASCII - 40bits : 5 ASCII characters.

E-4. ASCII - 128bits : 13 ASCII characters.

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802.1X SETTING

8021X					
PEAP	•	Tunnel Authenti	ication >>	EAP-MSCHAP v2	▼ □ Ses:
)RD	Client C	Certification	Serv	er Certification	
assword			100		
>>		Password >>		Domain I	Vame >>
					1.6
>>		Password >>	>		
		ОК	Can	cel	
	PEAP	PEAP	PEAP Tunnel Authent: ORD Client Certification assword >> Password >> Password >> Password >>	PEAP Tunnel Authentication >> ORD Client Certification Serv assword >> Password >> Password >> Password >>	PEAP Tunnel Authentication >> EAP-MSCHAP v2 ORD Client Certification Server Certification assword

802.1x is a authentication for "WPA" and "WPA2" certificate to server.

AUTHENTICATION TYPE :

A. 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.

B. 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.

C. 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.

D. 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.

E. 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.

F. 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.

Session Resumption : user can choose "Disable" and "Enable". Tunnel

AUTHENTICATION :

A. Protocol : Tunnel protocol, List information include "EAP-MSCHAP v2", "EAP-TLS/Smart card", "Generic Token Card", "CHAP", "MS-CHAP", "MS-CHAP-V2", "PAP" and "EAP- MD5".

- B. Tunnel Identity : Identity for tunnel.
- C. Tunnel Password : Password for tunnel.

- ID \ PASSWORD -

A. 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.

B. Tunnel ID / Password : Identity and Password for server.

- CLIENT CERTIFICATION -

Auth. \ Encry.	8021X				
EAP Method >>	PEAP	👻 Tunn	el Authentication >>	EAP-MSCHAP v2	▼ □ Sess
ID \ PASSW	ORD	Client Certific	ation Se	rver Certification	
Use Client cert	ificate	wpatest2	2003serv	4/9/2008	
		ls:	ued To >> wpatest2	2	
		Ist	ued By >> 2003serv		
		Exp	ired On >> 4/9/2008	3	
		Friendl	y Name >>		
			ок с	Cancel	
			and the second second		

A. Use Client certificate : Client certificate for server authentication.

- EAP FAST -

EAP Method >>	EAP-FAST	▼ Tunnel Authentication >	> Generic To	oken Card	w.	Ses:
ID \ PASSW	/ORD	EAP Fast				
Allow:	unauthenticated pro	nuision mode				
MILLING AND IN C	anadu ien ricateu pre	1/15/01/1100E				
🔼 Use pi	rotected authentica	ation credential	Remove	Import		
🚺 Use p	rotected authentica File Path >>	ation credential	Remove	Import		
🚺 Use p		ation credential	Remove	Import		
🚺 Use p		ation credential	Remove	Import	_	

A. Allow unauthenticated provision mode : During the PAC can be provisioned (distributed

one time) to the client automatically. It only supported "Allow unauthenticated provision mode" and use "EAP-MSCHAP v2" authentication to authenticate now. It causes to continue with the establishment of the inner tunnel even though it is made with an unknown server.

B. Use protected authentication credential : During the PAC can be provisioned to the client manually via disk or a secured network distribution method.

- SERVER CERTIFICATION -

ID \ PASSWORD Client Certification Server Certification Use certificate chain	1	PE	EAP	-		Tu	nnel	Aut	hent	icati	ion	>>		EAP-	MSCF	0		-	1 500
Allow intermidiate certificates Server name >> Server name must match exactly				Client] Ses
Server name >> O Server name must match exactly	hain	hain			L ATE		inte	emid	iste	cart	Hfic	stor				 	 		
				Serv							cinic		-21			 	 		
				0	Sei	erve	r na	me n	nust	mat	ch e	exact	tly						
Ø Domain name must end in specified name				0	Do	oma	in na	ame	nust	end	l in	spec	ified	і пап	е				

A. Certificate issuer : Choose use server that issuer of certificates.

B. 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.

C. Server name : Enter an authentication sever root.

EXAMPLE TO RECONNECT 802.1X AUTHENTICATED CONNECTION AFTER 802.1X AUTHENTICATED CONNECTION IS FAILED IN PROFILE

There are two situations to be able to reconnect 802.1x authenticated connection and authenticate successfully after 802.1x authenticated connection is failed in profile page. Two examples about this case are as follows:

When keying in error identity, password or domain name :

A. Authentication type chooses "PEAP", key identity into test. Tunnel Protocol is "EAP- MSCHAP-v2, and tunnel identity is test and tunnel password is test. Those setting are same as our intended AP's setting.

System Config	Auth. \ Enc	ry.	8021X			
EAP Method >>	PEAP	-	Tunnel Authentic	ation >>	EAP-MSCHAP v2	▼ 🔲 Se
ID \ PASS	NORD	Clier	nt Certification	Serve	r Certification	
Authentication ID	/ Password	-				
Ident	ity >> test		Password >>		Domai	n Name >>
Tunnel ID / Passwo	rd					
Ident	ity >> test		Password >>	test		
5						
			ОК	Cance	el	

B. Because keying error identity and error password, the result will look like the below figure.

Card Name >> Ralink 8	02.11n Wireless LAN Card	Identity >>	
Profile Name >> PROF1		Password >>	
Message >> Invalid i	dentity or password		
	ок	Cancel	
	UK .	Cancer	

C. If you want to disconnect, click cancel button in Authentication Failure dialog. If you want to reconnect, key identity into wpatest2. And tunnel identity is wpatest2 and tunnel password is test2. Those setting are same as our intended AP's setting.

Card Name >> Ralink 802.11n Wireless Profile Name >> PROF1	s LAN Card	Identity >> Password >>	
Message >> Invalid identity or pass	word		
	ОК	Cancel	



🔓 RaU	ll –							
•	Profile	Network	کی Advanced	Statistics	ess WMM	Ø WPS	Radio On/	
		Profile	e List					
> PRC	DF1	AP1		٩b		Profile Name	>> PROF1	
				ų ~		SSID	>> AP1	
						Network Type	>> Infrastructu	
						Authentication	>> WPA	
						Encryption	>> AES	
						Use 802.1×		
						Channe		
					Po	wer Save Mode		
						Tx Power		
					_	RTS Threshold ment Threshold		
-	Add	Edit	Delete	Activate				
	Status >> A	AP1 <> 00-03-7F-	00-D7-A4			Lin	k Quality >> 100%	
	Extra Info >> I	Link is Up (TxPowe	er:100%]		Signal Strength 1 >> 10			
		6 <> 2437000 MH	z				Strength 2 >> 10	
Aut	thentication >> \						Strength 3 >> 10	
b.	Encryption >> 4					Nois	e Strength >> 26	
INE	etwork Type >> I IP Address >> 1				Transmi			
		255.255.255.0				< Speed >> 54.(
Defa	ult Gateway >> 1				Thro	ughput >> 0.0(JU KOPS	
	,	HT			Deerius			
БШ			SND0 set of (c		Receive	<pre>Speed >> 54.0</pre>) Whos	
	'>> n/a >> n/a	MCS >> n/a	SNRO >> n/a SNR1 >> n/a			ughput >> 90.(-	
G	22 II/a	MC3 22 1178	DINK 122 II/d			-0.4-1		

When occurring "Timeout" :

A. Authentication type chooses "PEAP", key identity into wpatest2. Tunnel Protocol is "EAP-MSCHAP-v2, and tunnel identity is wpatest2 and tunnel password is test2. Those setting are same as our intended AP's setting.

ystem Config	Auth. \ Encry.	8021X		
EAP Method >>	PEAP		ation >> EAP-MSCHAP v2	▼ 🗌 Ses
ID \ PASSV	VORD	Client Certification	Server Certification	
Authentication ID .	/ Password			
Identi	ty >> wpatest2	Password >>	Doma	ain Name >>
Tunnel ID / Passwo	rd			
Identi	ty >> wpatest2	Password >>	test2	
7				
		ок	Cancel	

B. Because occurring "Timeout", the result will look like the below figure.

Card Name >>	Ralink 802.11n Wireless LAN Card
Profile Name >>	PROF1
	Unable to PEAP authenticate the wireless user in the specified amount of time. Network infrastructure might be down. Please press OK to reconnect.
	OK Cancel

c. If it connected successfully, the result will look like the below figure.

🛱 Ra	UI						
•	Profile	Land Network	ر Advanced	Statistics	NAM NAM	Ø WPS	Radio On/
		Profile	e List		_		
Þ PR	NOF1	AP1		₽¢		Profile Name	>> PROF1
				0		SSID	>> AP1
						Network Type	>> Infrastructu
						Authentication	>> WPA
					Encryption	>> AES	
						Use 802.1x	>> YES
						Channel	>> 6
					Po	ower Save Mode	
						Tx Power	
						RTS Threshold	
					Frag	ment Threshold	
					1108	ment miteshold	2040 2040
	Add	Edit	Delete	Activate			
	Status >>	AP1 <> 00-03-7F-0	00-D7-A4			Link	Quality >> 100%
	Extra Info >>	Link is Up [TxPower	r:100%]			Signal	Strength 1 >> 10
	Channel >>	6 <> 2437000 MHz	z			Signal	Strength 2 >> 10
Au	uthentication >>					Signal	Strength 3 >> 10
	Encryption >>					Noise	e Strength >> 26
٨	Network Type >>				Transmi	t	
	IP Address >>	192.168.5.91			Link	k Speed >> 54.0	Mbps
		255.255.255.0			Thro	ughput >> 0.00	0 Kbps
Def	fault Gateway >>						
		HT			Receive	·	
B١	N >> n/a		SNRO >> n/a		Link	k Speed >> 54.0	Mbps
G	3l>> n/a	MCS >> n/a	SNR1 >> n/a		Thro	ughput >> 90.0	16 Kbps

EXAMPLE TO CONFIGURE CONNECTION WITH WEP ON

A. Select AP with WEP encryption and click "Connect" button.

Profile	Hetwork	Advanced Stat	tistics WWW	WPS Radio On/
orted by >>	🥥 SSID	🙆 Channel	Ø Signal AP List >>	Show
202		ゆ1 🚺	9 60%	
219		101	9 9 65% -	
230		1/2	g P 50% m	
243		105	9 9 81% -	
99		10	9 1 81%	
AP1		6 1	g 🕈 100% 📕	
arscadre		1 /21	g n 100% —	
Broadcom		10 11		
BroadcomWPS		. h		
BUFFALO_A		10 44 a	29%	
Rescan	Add to Profile			
Status >>	> arscadre <> 00-0	IC-43-28-70-11		Link Quality >> 100
Extra Info >>	Link is Up [TxPowe	er:100%]		Signal Strength 1 >>
Chappel xx	> 1 <> 2412000 MH	z; central channel : 3		Signal Strength 2 >> 1
Channel 22	> Linknown			Signal Strength 3 >>
Authentication >>	Ormanovari			the second se
				Noise Strength >> 2
Authentication >> Encryption >> Network Type >>	> None > Infrastructure		Transm	Noise Strength >> 2
Authentication >> Encryption >> Network Type >>	> None			
Authentication >> Encryption >> Network Type >> IP Address >>	> None > Infrastructure		Lin	it
Authentication >> Encryption >> Network Type >> IP Address >>	 None Infrastructure 169.254.73.184 255.255.0.0 		Lin	it k Speed >> 270.0 Mbps
Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >>	 None Infrastructure 169.254.73.184 255.255.0.0 		Lin Thro	t k Speed >> 270.0 Mbps
Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >>	 None Infrastructure 169.254.73.184 255.255.0.0 	SNR0 >> n/a	Lin Thro Receive	it k Speed >> 270.0 Mbps oughput >> 0.000 Mbps

B. Auth. $\$ Encry. function pop up.

Profile	LLL Network	Advanced) Statistics	WAWA	Ø WPS	Radio On/
Sorted by >> 📀	SSID	🥥 Chann	-			Show
202		101	AP Lis	st >>		
202		101				
230		102				
243		10 S				
99		6		81%		
AP1		6		1107359		
arscadre		1		100%		
Broadcom		11	Bg	60%		
BroadcomWPS		1	Ъg	60%		
BUFFALO_A		1 44	a 🗋	29%		
Rescan	Add to Profile	Conne	ect			
Auth. \ Encry.	8021X					
Authentication	>> Open	•	Encryption	>> WEP 🔻	•	802.1
WPA Preshare	ed Key >>					
Wep Key	1					
🙆 Key#1	Hexadecir	nal 🔻 🗌				
Key#2	Hexadecir	nal 🔻 🗌				
🖉 Key#3	Hexadecir	nal 🔻				
🖉 Key#4	Hexadecir	nal 🔻 🗌				
		,				

C. Enter 1234567890 at Key#1 which is same as our intended AP's setting.

Profile Netwo	ork Advanced	Statistics	WAWA	Ø WPS	Radio On
Sorted by >> 🔵 SSID	O Cha		Ø Signal List >>		Show
202	¢.	1000	60%		_
219	b.		9 65%		
230	6		9 50% 		
243	6		P 81%		
99	is.				
AP1	b		100%		
arscadre	6	and the second se			
Broadcom	6		60%		
BroadcomWPS	6		60%		
BUFFALO_A	6		29%		
Rescan Add to	Profile Co	onnect			
Auth. \ Encry.	8021X				
Authentication >> (Open 🔻	Encryptio	in >> WEP 🔻	•	802.1>
WPA Preshared Key >>					
Wep Key	1				
ey#1 ⊢	lexadecimal 👻	1234567890			
Ø Key#2 ⊢	lexadecimal 🔻 🗍				
	i Iexadecimal 🔻 🗍				
	lexadecimal 👻 🗍				
	iexaueciniai 🔍 🗸				

D. Click "OK" button. The result will look like the below figure.

Profile	Lee Network	Advanced	Statistics	www.	WPS Radio On
Sorted by >> (SSID	Chann	el 🥝) Signal	
240		<u>ل</u> م.	AP Lis		
219		1	bg f		
223		61	bg 7		
243		62	bg 7	94% 💻	
99		1 /26	b g 🗓	65% 📕	
_Shiang_2860AP		11	B 🛛 🕅 🕤	60% 💼	
AP1		6	Bg 9	• 100% 💼	
arscadre		101	BGn	89%	
BroadcomWPS		101	b g	70%	
BUFFALO_A		1 44	a	44%	
ClaudeAP		101			
				000	
Rescan	Add to Profile	Conne	ect		
Status >>	AP1 <> 00-03-7F-0	0-D7-A4			Link Quality >> 98
Extra Info >>	Link is Up [TxPower	:100%]			Signal Strength 1 >> !
Channel >>	6 <> 2437000 MHz				Signal Strength 2 >> 1
Authentication >>	Unknown				Signal Strength 3 >> 3
	WEP				Noise Strength >> 20
Encryption >>				Transm	it
Encryption >> Network Type >>	Infrastructure				
				Lin	k Speed >> 54.0 Mbps
Network Type >> IP Address >>					k Speed >> 54.0 Mbps bughput >> 0.000 Mbps
Network Type >> IP Address >>	192.168.5.113 255.255.255.0				and the second second second
Network Type >> IP Address >> Sub Mask >>	192.168.5.113 255.255.255.0				oughput >> 0.000 Mbps
Network Type >> IP Address >> Sub Mask >>	192.168.5.113 255.255.255.0 192.168.5.254	SNR0 >> n/a		Thro Receive	oughput >> 0.000 Mbps

EXAMPLE TO CONFIGURE CONNECTION WITH WPA-PSK

A. Select the AP with WPA-PSK authentication mode and click "Connect" button.

RaUI						
Profile	Land Hetwork	Advanced	Statistics	www.	Ø WPS	P Radio On
Sorted by >> 🤇	SSID	🥥 Chann	el 🥝	,		🗌 Sho
0148-1		60	a	20%		
11n		i ∕⊳1	🛛 🖪 🖪 🛱 🕈	50%		
132		11 /2	b g	60%		
202		¥¢1	b g	60%		
219		1	b g 🕈			
243		1 05				
2 4 5 99		6 10		81%		
		-				
_Shiang_2860AP		11 b		65%		
AP1				100%		
arscadre		b 1	6 <mark>9</mark> 0	99%		
Rescan	Add to Profile	e Conne	ect			
Status >> a	rscadre <> 00-0	C-43-28-70-11			Lin	k Quality >> 10
Extra Info >> L	ink is Up [TxPowe	r:100%]			Signa	al Strength 1 >>
Channel >> 1	<> 2412000 MH:	z; central channel :	3		Signa	al Strength 2 >>
Authentication >> C					_	al Strength 3 >:
Encryption >> N					Nois	se Strength >> :
Network Type >> I				Transmit	t	
IP Address >> 0					: Speed >> 270	
Sub Mask >> 0 Default Gateway >>	.0.0.0			Thro	ughput >> 0.0	00 Mbps
-	НТ					
					Speed vy E41	
BW >> 40	1105	SNRO >> 32			: Speed >> 54.1 ughput >> 0.0	
GI >> long	MC3 >> 15	SNR1 >> n/a		niro	agipat >> 0.0	12 MOPS

B. Auth. $\$ Encry. function pop up.

(If AP setup security to Both (TKIP + AES), system defines is AES that security is severely.)

Profile	Jetwork	Advanced	Statistics	www.	Ø WPS	P Radio On
orted by >> 🕜	SSID	🖉 Channe	l 🥥	Signal		🗌 Sho
0148-1		60	a	20% 🗾		
11n		b 1	🛛 🖪 🗊 🖶	50%		
132		1 /2	₿ <mark>9</mark>	60%		
202		1	₿ <mark>9</mark>	60%		
219		b 1	🕒 🤁 💡 💡	76%		
243		\$ ∕5	D 🖯 🗍	91%		
99		6	D <mark>9</mark> 🗊	81%		
_Shiang_2860AP		1 1	D 🖯 🗍 🖶	65%		
AP1		6	697	100%		
arscadre		1	🕒 <mark>9</mark> 🕦	99%		
Rescan	Add to Profile	Connec	t			
Auth. \ Encry.	8021X					
Authentication :	>> WPA-PSK	•	Encryption >	> AES 🔻		
WPA Preshared	d Key >>					
Wep Key						
	Hexadecin	nal 💌				
🖉 Key#1		,				
 Key#1 Key#2 	Hexadecin	nal 💌				
	Hexadecin Hexadecin					
		nal 🔻 🗌				
 Key#2 Key#3 	Hexadecin	nal 🔻 🗌	ок	Cancel		

C. Authentication Type is WPA-PSK. Select correct encryption (TKIP or AES). Enter WPA Pre-Shared Key secret as 12345678.

345078.							
RaUI							
P	Profile	Leeb Network	کو Advanced	Statistics		Ø WPS	Radio O
Sorted by	» 🥝	SSID	🥥 Chanr	-) Signal st >>		🗖 SH
0148-1			60	a	20%		
11n			1	🛛 🖪 🖸 🕤	50%		
132			₺ 2	b 9	60%		
202			1	1 <mark>6 g</mark>	60%		
219			1	🕒 📴 🕤	76% 🗾		
243			6	🕒 🤁 🕤	91% 🗾		
99			6	1 <mark>6 9</mark> 1	81%		
_Shiang	_2860AP		b 11	D 🛛 🗍 🗍			
AP1			6	b 9 f	100%		
🕨 arscadr	re		b 1	D 🖯 🔁	99%		
Res	scan	Add to Profile	e Conr	nect			
Auth.	. \ Encry.	8021X					
Au	uthentication	>> WPA-PSK	•	Encryption	>> AES 🤻	•	
	WPA Preshare	ed Key >> 12345	678				
Wep Kej	у						
9	Key#1	Hexadeo	imal 👻 🗌				
0	Key#2	Hexadeo	imal 🔻 🗌				
	Key#3	Hexadeo	imal 💌 🔽				
	Key#4	Hexadeo					
	Noyina	пехацер					
				ОК	Cancel		
				VIN	Carloor		

D. Click "OK" button. Be careful, if the WPA Pre-Shared Key entered is not correct, even though the AP can be connected, but you won't be able to exchange any data frames.

RaUI	exchange any dat					
Profile	LLL Network	ر Advanced	Statistics		Ø WPS	P Radio On
Sorted by >> 🛛 🥝) SSID	🥝 Chann	el 🥝) Signal		🗌 Sho
0148-1		6 60	a	20%		
11n		I¢1	B 9 ft 9	50%		
132		112	₿ <mark>g</mark>	60%		
202		vj- vj-1	R a	60%		
219		₩¢1				
243		100 S				
240 99		К С		81%		
_Shiang_2860AP		1 1		65%		
AP1		6		100,6		
arscadre		1 /2	1 <mark>5 9</mark> 🛛	99%		
Rescan	Add to Profile	Conne	ect			
Status >> Al	P1 <> 00-03-7F-0	D-D7-A4			Lir	nk Quality >> 8
Extra Info >> Li	ink is Up [TxPower:	:100%]			Signa	il Stren <mark>gth 1 ></mark> >
	<> 2437000 MHz				Signal	Strength 2 >>
Authentication >> W						al Strength 3 >
Encryption >> The					Nois	e Strength >> :
Network Type >> Ir IP Address >> 1'				Transm		
Sub Mask >> 2					k Speed >> 54.0	
Default Gateway >> 1				Inro	oughput >> 0.00	n wobz
-	HT			Deceive		
				Receive		
BW >> n/a		SNR0 >> n/a		Lin	k Speed >> 54.0) Mbps

EXAMPLE TO CONFIGURE CONNECTION WITH WPA

A. Select AP with WPA authentication mode and click "Connect" button.

KaUI		¢٩		Gos	Ø	Ŷ
Profile	Network	Advanced	Statistics	WWW	WPS	Radio On
Sorted by >> (SSID	🥥 Channe	l 🥝 AP List			Shov
223		1 /2	₿ <mark>g</mark>	65%		
240		11	b g n	91%		
243		1 4	₿ <mark>g</mark>	29%		
99		1 /26	b <mark>g</mark> fi	91%		
_Shiang_2860AP		1 1		91%		
 Ар-03		1 1	B a e	70%		
AP1		1 /26		100%		
AP47-g		₽ 1	bg 🕈	29%		
arscadre		i ∕o1	Ra R 9	100%		
arvint-2860AP		₽ 7		86%		
Rescan	Add to Profile					
Status >> I	Disconnected				Li	nk Quality >> 0%
Extra Info >>						al Strength 1 >>
Channel >>					Sign	al Strength 2 >>
Authentication >>					Sign	al Strength 3 >>
Encryption >>					Noi	se Strength >> 0
Network Type >>				Transmit	:	
IP Address >>				Link	Speed >>	
Sub Mask >>				Throu	ughput >>	
Default Gateway >>	HT					
	[1]			Receive		
BW >>		SNRO >>			Speed >>	
GI >>	MCS >>	SNR1 >>		Throu	ughput >>	

B. Auth. \ Encry. function pop up. (If AP setup security to Both (TKIP + AES), system defines is AES that security is severely.)

🔏 RaUI			,			
Profile	LLL Network	Advanced	Statistics		Ø WPS	Radio On/
Sorted by >>	ssid	🥥 Chann	-	-		🗌 Show
240		1 1	AP Li	st >>		
240		1 /24	b 9 D b 9	15%		
99		6 2¢	b g n	91%		
Shiang_2860AP		€0° 11				
Ap-03		1 1	b g f			
AP1		6	bg f			
AP47-g		1	B9			
arscadre		v ∕₁	Bgn f			
arvint-2860AP		b 7	Bgn f			
Broadcom		1 1	Ъg	76%		
Rescan	Add to Profile	Conn				
Auth. \ Encry.	8021X					
Authentication	ר>> WPA	~	Encryption	>> AES 🔻		
WPA Preshar	ed Key >>					
Wep Key						
🖉 Key#1	Hexadec	imal 🔻 🗌				
🙆 Key#2	Hexadec	imal 🔻				
🙆 Key#3	Hexadec	imal 🔻				
Key#4	Hexadec	imal 🔻				
			ок	Cancel		

C. Click "8021X" button and 802.1x setting page will pop up.

Profile Network	کی Advanced	Statistics	www.	Ø WPS	Radio On/
iorted by >> 👩 SSID	Channe	L O	Signal		Show
202	1	B g	81%		
213	11	bg e			
219	101	bg e			
223	11	b g	44%		
240	11	B91	86%		
99	1 /26	B90	99%		
_Shiang_2860AP	11	6909	81%		
Ар-03	11	bg 🕈	65%		
AP1	6	69 9	100%		
arscadre	101	6907	100%		
Rescan Add to Profil	e Connec	rt			
Auth. \ Encry. 8021					
EAP Method >> PEAP	-	unnel Authentica		-MSCHAP v2	•
ID \ PASSWORD	Client Certi	fication	Server Ce	rtification	
Authentication ID / Password		-			
Identity >>		Password >>		Doma	ain Name >>
Tunnel ID / Password		23		<u>.</u>	
Identity >>		Password >>			

D. Authentication type and setting method :

PEAP :

A. Authentication type chooses PEAP, key identity into wpatest2. Protocol chooses EAP- MSCHAP v2 for tunnel authentication, tunnel identity is wpatest2 and tunnel password is test2. Those setting are same as our intended AP's setting.

Land Network	Advanced	Statistics	www.	Ø WPS	P Radio On/
SSID	🥝 Channe	-) Signal		🔲 Show
	1 1				
		ßa			
	-	ßän			
	-				
	-				
		₿ ġ 📍	24%		
	1	b g n 9	91%		
	b 7	B g 🕅 🕆	91%		
	1 1	₿ <mark>9</mark>	76%		
Add to Profile	Connec	rt			
8021X					
PEAP	↓ T	unnel Authentica	ation >> EAP	-MSCHAP v2	▼ 🗌 Se
WORD	Client Cert	ification	Server Ce	ertification	
/ Password					
ity >> wpatest2	2	Password >>		Doma	in Name >>
, ord		,			,
ity >> wpatest2	2	Password >>	test2		
,		J			
		ок	Cancel		
	SSID Add to Profile 8021X PEAP WORD / Password ity >> wpatest2	SSID Channel SSID	SSID Channel AP Lis AP Lis AP Lis AP Lis AP Lis AP Lis AP Lis AP Lis AP Lis AP Lis A Channel AP Lis A Channel A Cha	SSID Channel Signal AP List >> AP List >>	SSID Channel Signal AP List >>

B. Click OK. The result will look like the below figure.

🔓 RaUI						
Profi		Advanced	Statistics	ess WMM	Ø WPS	Radio On/
Sorted by >>	🥝 SSID	Channel	L 🥥	_		🗌 Show
223 240 3344 99 _Shiang_2860 Ap-03	DAP	ゆ11 ゆ11 ず11 ゆ6 ゆ11		60%		
AP1	fireless_5AFB15 PS Add to Profile	じ ⁶ じ ⁶ じ11 じ1	b 9 b 9 b 9 b 9			
	Card Name >> Ralink 802	2.11n Wireless LAN Ca	Authenticat	ion Status	Connected t	oy manual
	20:30:26.765 20:30:26.890 20:30:27.000		ork connection			-
		-	ок	Cancel		

*If you want to disconnect, please click cancel button in Authentication Status function.

*In Profile function, show "Profile Name" option only in adding AP to Profile function.

C. If it connected successfully, the result will look like the below figure.

Profile	Lada Network	ل Advanced	Statistics	www.	Ø WPS Radi	? o On/
orted by >>	o ssid	Chann	el 🦉) Signal		Show
202		1	B g	81%		
213		11				
219		101				
		1818. a. m				
223		1 1	D y	44% 💻		
240		11	P a 🚺	86%		
99		1 /26	b g 🕦	99%		
_Shiang_2860AP		11	B g 👖 🕈	81% 📕		
Ар-03		11	b g 🕈	65% 📕		
AP1		6	b g 9	100%		
arscadre		1	6967	100% 💼		
Rescan	Add to Profile	Conn	ect			
Status >>	AP1 <> 00-03-7F-0	10-D7-A4			Link Quality	/ >> 89
Extra Info >>	Link is Up [TxPower	:100%]			Signal Strength	1 1 22 1
Channel >>	6 <> 2437000 MHz	12			Signal Strength	12 >> 1
Authentication >>	WPA				Signal Strength	13 >> 1
Encryption >>	TKIP+AES				Noise Strengt	th >> 20
Network Type >>	Infrastructure			Transmi	t	
	192.168.5.79			Lin	Speed >> 54.0 Mbps	
	255.255.255.0			Thro	ughput >> 0.000 Kbps	
Default Gateway >>						
	HT		12	Receive	ē.	-
		SNRO >> n/a		Link	Speed >> 54.0 Mbps	
BW >> n/a						

TLS / Smart Card :

A. Authentication type chooses TLS / Smart Card, TLS only need identity that is wpatest2

	I						
•	Profile	LLL Network	ر Advanced	Statistics	NAMA	Ø WPS	Radio On/
Sorted	by >> 🕜	SSID	🖉 Channe	el 🛛 🧉	-		🗌 Show
			6 26		50%		
			11	<mark>ь д</mark>	50%		
132			1 /2	b g	81%		
185			1 /26		60%		
202			1	<mark>B</mark> g	76%		
219			1	bg f	76%		
240			11	6 <mark>9</mark> 6	86%		
Ap-0	03		11	₿ <mark>₿</mark> ¶	65%		
AP1			1 /26	bg f	100%		
Bro	adcom		11	b g	76%		
	Rescan	Add to Profile	Conne	ect			
Au	uth. \ Encry.	8021X					
	EAP Method >>	TLS/SmartCa	rd 🔻	Tunnel Authentic	ation >>	-	Se
	ID \ PASS	WORD	Client Cert	tification	Server	Certification	
	Authentication ID	/ Password					
	Ident	tity >> wpatest:	2	Password >>		Doma	rin Name >>
	Tunnel ID / Passw	ord					
	Ident	tity >>		Password >>		_	
		,					
				ОК	Cancel		

B. TLS must use client certification. Click "Client Certification" button and choose a

certification for server authentication.

🔏 RaUI						
Profile	Land Handler Network	Advanced	Statistics	www.	Ø WPS	Radio On/
Sorted by >> 🕜) SSID	🥝 Channe	l 🥝	-		Show
		1 /26	b 9 7			
		11	1 <mark>5 g</mark>	50%		
132		1 /2	1 <mark>5 g</mark>	81%		
185		6	5 🕤	60% 🗾		
202		1	1 <mark>5 g</mark>	76%		
219		1	🕒 🤁 📲	76% 🗾		
240		11	D <mark>9</mark> 0	86%		
Ap-03		1 1	🕒 🤁 📲	65% 🗾		
AP1		6	🕒 🤁 📲	100% 🗾		
Broadcom		1 1	1 <mark>5 g</mark>	76%		
Rescan	Add to Profile	Conner	ct			
Auth. \ Encry.	8021X					
EAP Method >>	TLS/SmartCa	rd 🔻 T	unnel Authentica	ation >>	-	🔲 Se
ID \ PAS	SWORD	Client Cert	ification	Server Ce	ertification	
Use Client (certificate	wpatest2	2003:	serv	4/9/2008	
			Issued To >> w	vpatest2		
			Issued By >> 2	003serv		
			Expired On >> 4	/9/2008		
		Frie	endly Name >>			
			ок	Cancel		

C. Click "OK" button. The result will look like the below figure.

Prof		Lee Network	کې Advan	≱ ced	Statistics		WAWA	Ø WPS	Radio On/
Sorted by >>	0	SSID	0	Channe		Cist	Signal		Show
202				101	Bg	LISC	81% 📕		
213				11	Ъg	9	60%		
219				101	Ъg	9	76% 💼		
223				11	B9		44% 💼		
240				11	B 9 0		86% 💼		
99				1 /6	B 9 0		99% 💼		
_Shiang_28	60AP			11	B 9 n	17	81% 💼		
Ap-03				11	Ъg	9	65%		
AP1				16	bg	9	100%		
arscadre				101	690	9	100%		
Rescan		Add to Profile		Conne	ct				
					Authent	icatio	on Status		
	Card Na	me >> Ralink 80;	2.11n Wirel	ess LAN (ard			Connected	by manual
	20:51:0 20:51:0 20:51:0 20:51:0 20:51:0	2.343 2.453	Star Neti	ting netv	is NOT conne ork connect onnecting cating				
					ОК		Cancel		

*If you want to disconnect, please click cancel button in Authentication Status function.

*In Profile function, show "Profile Name" option only in adding AP to Profile function.

D. If it connected successfully, the result will look like the below figure.

RaUI			li li		
Profile	Network	Advanced	Statistics	Qos WAMA	WPS Radio On.
Sorted by >> (o ssid	🙆 Chann	el 🖉) Signal	Shor
202		1	B g	81%	
213		11	bg e		
219		1 1	69 7		
223		1 1	69	44%	
240		11	P a 🚺	86%	
99		1 /26	13 <mark>9</mark> 🚺	.99% 📕	
_Shiang_2860AP		11	6909	81% 💻	
Ap-03		11	b9 7	65% 💼	
AP1		6	bg e	100%	
arscadre		101	B 9 🖻 🕈	100%	
Rescan	Add to Profile	Conne	ect		
Status >>	AP1 <> 00-03-7F-0	00-D7-A4			Link Quality >> 89:
Extra Info >>	Link is Up (TxPower	r:100%]			Signal Strength 1 >> 1
Channel >>	6 <> 2437000 MHz	2			Signal Strength 2 >> 1
Authentication >>	WPA				Signal Strength 3 >> 1
Encryption >>	TKIP+AES				Noise Strength >> 2
Network Type >>	Infrastructure			Transmi	t
IP Address >>	192.168.5.79			Lin	k Speed >> 54.0 Mbps
Sub Mask >>	255.255.255.0			Thro	ughput >> 0.000 Kbps
Default Gateway >>					
	HT		15	Receive	
		SNR0 >> n/a		Lin	k Speed >> 54.0 Mbps
BW >> n/a					

TTLS :

A. Authentication type chooses TTLS, identity is wpatest2. Protocol chooses CHAP for tunnel authentication, tunnel identity is wpatest2 and tunnel password is test2. Those setting are same as our intended AP's setting.

Profile Link Advanced Statistics WWW Advanced Sorted by >> SSID Channel Signal Advanced Statistics WWW Advanced Signal Advanced Statistics WWW Advanced Signal Sorted by >> SSID Channel Signal AP List >> 132 132 139 50% Soft Soft 132 132 139 60% Soft Soft 132 132 139 60% Soft Soft Soft 132 132 139 76% Soft Soft Soft Soft 134 145 14 14 14 14 14 Soft Soft 134 14 14 15 14 15 14 Soft Soft Soft 135 14 14 15 16 Soft Soft <t< th=""><th>WPS Radio On/</th></t<>	WPS Radio On/
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	☐ Show
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
AP1 💋 🕈 100% 🗾 AP1 Broadcom 76% 🔤	
Rescan Add to Profile Connect	
Auth. \ Encry. 8021X EAP Method >> TTLS Tunnel Authentication >> CHAP	▼ [] S€
ID \ PASSWORD Client Certification Server Certific	ation
Authentication ID / Password Identity >> wpatest2 Tunnel ID / Password Identity >> wpatest2 Password >> Identity >> wpatest2 Password >>	Domain Name >>
OK Cancel	

B. Click "OK" button. The result will look like the below figure.

	Authentication Status	
Card Name >> RT73 U	ISB Wireless LAN Card	Profile Name >> PROF1
21:18:19.250	Network Link is NOT connected.	
21:18:19.359	Network is connecting	
21:18:21.156	Network is connecting	
21:18:21.265	TTLS Authenticating	
	OK Cano	-el
	OIL COIL	

*If you want to disconnect, please click cancel button in Authentication Status function.

*In Profile function, show "Profile Name" option only in adding AP to Profile function.

C. If it connected successfully, the result will look like the below figure.

RaUI					
Profile	Left Network	کی Advanced	Statistics	aos WAMA	WPS Radio Or
Sorted by >> (o ssid	🙆 Channa	el 🦉) Signal	🔲 Sho
202		1		81%	
213		11			
219		61	69 7		
223		U 11	P 8	44% 💻	
240		11	Þ 9 🚺	86% 💻	
99		6 6	12 🤨 🚺	99% 📕	
_Shiang_2860AP		11	6909	81% 💼	
Ар-03		11	Bg 9	65% 💼	
AP1		16	Bg e	100%	
arscadre		101	B 9 ft 9	100%	
Rescan	Add to Profile	Conne	ect		
Status >>	AP1 <> 00-03-7F-0	00-D7-A4			Link Quality >> 8
Extra Info >>	Link is Up (TxPower	r:100%]			Signal Strength 1 >>
Channel >>	6 <> 2437000 MHz	z			Signal Strength 2 >>
Authentication >>	WPA				Signal Strength 3 >>
Encryption >>	TKIP+AES				Noise Strength >>
Network Type >>	Infrastructure			Transmi	it
IP Address >>	192.168.5.79			Lin	k Speed >> 54.0 Mbps
	255.255.255.0			Thro	oughput >> 0.000 Kbps
Default Gateway >>					
	HT		1	Receive	
BW >> n/a		SNRO >> n/a			k Speed >> 54.0 Mbps
					oughput >> 57.148 Kbps

EAP-FAST :

A. Authentication type chooses EAP-FAST, key identity into wpatest2; key domain name into blank space. Tunnel Protocol only supported "Generic Token Card" now, and tunnel identity is wpatest2 and tunnel password is test2. Those setting are same as our intended AP's setting.

🔏 RaUI						
Profile	e Network	Advanced	Statistics	Cos WAMA	Ø WPS	Radio On/
Sorted by >>	🥝 SSID	🥝 Channe) Signal ist >>		🗌 Show
132 185 202 219 240 Ap-03 AP1 Broadcom	Add to Prot	ゆ6 ゆ11 ゆ2 ゆ6 ゆ1 ゆ1 ゆ1 ゆ11 ゆ11 ゆ6 ゆ11	b 9 b 9 b 9 b 9 b 9 b 9 b 9 b 9 b 9 c 9 c 9 c 9 c 9 c 9 c 7 c 7 c 7 c 7 c 7 c 7 c 7 c 7 c 7 c 7	50% 50% 81% 60% 76% 76% 86% 86% 65% 100% 76%		
Auth. \ En			Tunnel Authentia	cation >> Generi	: Token Card	▼ □ Se
i Di	A PASSWORD	EAP F	Fast			
	ation ID / Password - Identity >> wpate / Password	ist2	Password >>		Doma	in Name >>
	Identity >> wpate		Password >>	test2		
			ок	Cancel		

B. Click "OK" button. The result will look like the below figure.

🛱 RaUI							
Prof		LLL etwork	ر Advanced	Statistics	www.	Ø WP:) 🧣 5 Radio On/
Sorted by >>	🥝 ssi	D	🥥 Channe		Signal		🔲 Show
A= 02			11		ist >>		
Ap-03			6 1		7 55% 100%		
	4.D						
arvint-2860	AP		必 7 広44		-		
Broadcom	VDC		∲11 広	59	86%		
Broadcom∛ Cabus	VP5		100 した	59	94% • 24%		
Cobra			必 6] 34%		
dlink			11 め	590	86%		
jan C-0 AD 02			必 。 ふ		100%		
SoftAP-03			100 した。		55%		
SoftAP-kce			1 /21	p a	70%		
Rescan	A	dd to Profile	Conne	ct			
				Authentic	ation Status _		
	Card Name :	»> Ralink 802	.11n Wireless LAN (Card		Connect	ted by manual
	20:31:39.06 20:31:39.90		Starting netw Network is co	vork connection	۱		
	20:31:42.98		EAP-FAST Aut	_			
				ок	Cancel		

C. If it connected successfully, the result will look like the below figure.

RaUI Profile	Lee Network	Advanced	Statistics	www.	Ø WPS	Radio On,
orted by >>	SSID	🙆 Chann	el 🦉) Signal		Show
202		1 /21	B g	81%		
213		11				
219		1	bg 7			
223		b 11	b g	44%		
240		11	Б 🥑 🚺	86%		
99		1 /26	13 <mark>13</mark> 🗍	99%		
_Shiang_2860AP		11	6 9 🕅 🕈	81% 💼		
Ар-03		11	Bg P	65% 💼		
AP1		16	Bg e	100%		
arscadre		101	B 9 🖬 🕈	100%		
Rescan	Add to Profile	Conne	ect			
Status >> A	P1 <> 00-03-7F-0	0-D7-A4			Li	nk Quality >> 89!
Extra Info >> L	ink is Up [TxPower	:100%]			Stgna	i Strength 1 >> 1
Channel >> 6	<> 2437000 MHz				Signa	l Strength 2 >> 1
Authentication >> V	/PA				Signa	i Strength 3 >> 1
Encryption >> T					Noi:	se Strength >> 20
Network Type >> Ir				Transmi	t	
IP Address >> 1				Link	< Speed >> 54.	0 Mbps
Sub Mask >> 2				Thro	ughput >> 0.0	00 Kbps
Default Gateway >> 1	92.168.5.254 HT					
				Receive		
BW >> n/a		SNRO >> n/a		Link	< Speed >> 54.	U MDps
	MCS >> n/a	SNR1 >> n/a		1 mm - 1 mm	ughput >> 57.	4.40.121

*If you want to disconnect, please click cancel button in Authentication Status function.

*In Profile function, show "Profile Name" option only in adding AP to Profile function.

ACKNOWLEDGEMENTS

The above setting is test platform by RaLink technology corp. User can set the function in accordance with A.P.

Acknowledgements:

"This product includes software developed by MDC and its licensors. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)". This product includes cryptographic software written by Eric Young (eay@cryptsoft ...com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Thank you for purchasing a quality Rosewill Product.

Please register your product at : www.rosewill.com for complete warranty information and future support for your product.