IEEE 802.11n Wireless USB Adapter

User's Manual

December 2007

FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device,

pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Revision History

Revision V1.0 History First release

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1. Introduction

This is a wireless 11n USB Adapter that provides unsurpassed wireless performance for your Desktop PC or Notebook. It complies with IEEE 802.11n draft 2.0 wireless standard and is backward compatible with IEEE 802.11b/g. This USB adapter provides better wireless reception and up to 300Mbps data transfer rates in 11n mode. With this adapter, you can easily upgrade your Desktop PC or Notebook wireless connectivity. Once connected, to access the network with high-speed Internet connection while sharing photos, files, music, video, printers, and storage. Get a better Internet experience with a faster wireless connection so you can enjoy smooth digital phone calls, gaming, downloading, and video streaming.

The Wireless USB adapter provides peer-to-peer communication among any compatible wireless client users and no Access Point required. Otherwise, it provides maxmum transfer rate up to 150Mbps and supports WEP, WPA, WPA2, WPS, 802.1x high-level WLAN security features that guarantee the best security for users.

This product is made in ISO9001 approved factory and complies with FCC part 15 regulations and CE approval.

1.1 Features

- Complies with draft IEEE 802.11n standard
- Up to 300Mbps data transfer rates in IEEE 802.11n mode
- Backward compatible with IEEE 802.11b/g
- Legacy and High Throughput Modes
- Supports 64/128-bit WEP Data Encryption
- Supports WPA, WPA2 (802.11i), WPS, 802.1x advanced security
- Supports Quality of Service (QoS) WMM, WMM-PS
- Supports both Infrastructure and Ad-Hoc Networking Modes
- Supports Multiple BSSID
- Simple user setup and diagnostics utilities

1.2 LED Indicator

LED	Light Status	Description
ACT	Blinking	Data is being transmitted or received

1.3 Package Contents

- One Wireless USB adapter
- One USB A-type extension cable
- One CD-ROM (Drivers, Utility, User's Manual)

1.4 Before you start

You must have the requirements as follow,

- A computer with an available USB 2.0 port
- At least a 300MHz processor and 32MB memory
- Windows 2000/XP/Vista
- A CD-ROM drive
- · Wireless USB Adapter properly installed

2. Installation Procedure

Note: If you have installed the Wireless Adapter driver & utility before, please uninstall the old version first.

2.1 For Windows XP and 2000

STEP1: Found New Hardware Wizard is displayed after the adapter is installed and the computer is restarted. Please click **Cancel** to continue.



(For Windows XP)

Found New Hardware Wizard				
Install Hardware Device Drivers A device driver is a software program that enables a hardware device to work with an operating system.				
This wizard will complete the installation for this device:				
802.11 n WLAN				
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.				
What do you want the wizard to do?				
Search for a suitable driver for my device (recommended)				
Display a list of the known drivers for this device so that I can choose a specific driver				
< <u>B</u> ack <u>N</u> ext > Cancel				

(For Windows 2000)

STEP2: Insert Installation CD into CD-ROM drive then windows below will appear. Click **Install Driver** to begin device driver installation.

STEP3: Please read the following license agreement. Use the scroll bar to view the rest of this agreement. Select **I accept the terms of the license agreement** and click **Next** to continue.

Ralink Wireless LAN - InstallS	hield Wizard	
License Agreement Please read the following license	agreement carefully.	
Ralink	ALINK Wireless Utility for Windows 98/ME/2000/XP/Vista Copyright [C] RALINK TECHNOLOGY, CORP. All Rights Reserved. Thank you for purchasing RALINK Wireless product! SOFTWARE PRODUCT LICENSE The SOFTWARE PRODUCT Is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed, not sold. 1. GRANT OF LICENSE. This End-User License Agreement grants you the following rights:Installation and Use. You may install and use an unlimited number of copies of the SOFTWARE PRODUCT. Reproduction and Distribution. You may reproduce and distribute an unlimited number of copy, including all copyright and trademark notices, and shall be accompanied by a copy of this EULA. Copies of the SOFTWARE PRODUCT may be distributed as a standalone product or included with your own product. I go not accept the terms of the license agreement	e t
InstallShield	< Back Next> Car	icel

STEP4: In Windows XP, there is a **Windows Zero Configuration Tool** for you to setup wireless adapter. You can choose to configure the adapter through the **Microsoft Zero Configuration Tool** or the **Ralink Configuration Tool**. It is recommended to choose the **Ralink Configuration Tool** for the adapter. Click **Next** to continue.

Ralink Wireless LAN - InstallShield Wizard 🛛 🔀			
Setup Type Select the setup type that best st	uits your needs.		
	Select Configuration Tool		
	Microsoft Zero Configuration To	ol	
Ralink			
InstallShield	< <u>B</u> ack	<u>N</u> ext >	Cancel

STEP5: If you need the adapter to operate with better performance, place choose **Optimize for performance mode** to enable the **Tx Burst mode**. Or you can choose **Optimize for WiFi mode** to run in standard wireless network.

Ralink Wireless LAN - InstallShield Wizard 🛛 🛛 🔀			
Setup Type Select the setup type that bes	t suits your needs.		
Ralînk	Choose Configuration TxBurst or V	/IFi.	
Install Shield	< <u>B</u> ack	<u>N</u> ext>	Cancel

STEP6: Click **Install** to begin the installation.

The wizard is ready to begin in	n stallation.	
	Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.	8
Ralink		
InstallShield	< Back Install Cancel	

STEP7: Please wait for a while during the adapter is configuring your new software installation.

Ralink Wireless LAN - InstallShield Wizard		
Setup Status		
	The InstallShield Wizard is installing Ralink Wireless LAN	
	Installing	
Ralink		
InstallShield	Cancel	

STEP8: After the setup wizard has successfully installed wireless LAN, click **Finish** to exit the wizard.

Ralink Wireless LAN - InstallShield Wizard		
	InstallShield Wizard Complete	
	The InstallShield Wizard has successfully installed Ralink Wireless LAN. Click Finish to exit the wizard.	
ъ		
Ralink		
InstallShield	< Back Finish Cancel	

To check if the adapter is properly installed, you can right-click My Computer \rightarrow choose

Properties \rightarrow click **Device Manager**.



(For Widows XP)

(For Widows 2000)

The Configuration Utility appears as an icon on the system tray of Windows while the

adapter is running. You can open the utility by double-click on the icon.

Right-click the icon, there are some items for you to operate the configuration utility,

- Launch Config Utilities \rightarrow Select this option to open the Configuration Utility tool.
- Use Zero Configuration as Configuration utility → Select this option to use Windows XP built-in wireless configuration utility (Windows Zero Configuration) to configure to card.
- Switch to AP Mode \rightarrow Select this option to change to AP mode.
- **Exit** \rightarrow Select **Exit** to close the Configuration Utility tool.



2.2 For Vista

STEP1: Found New Hardware Wizard is displayed after the adapter is installed and the computer is restarted. Please click **Cancel** to continue.

Found New Hardware
Windows needs to install driver software for your 802.11 n WLAN
Locate and install driver software (recommended) Windows will guide you through the process of installing driver software for your device.
Ask me again later Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device Your device will not function until you install driver software.
Cancel

STEP2: Insert Installation CD into CD-ROM drive then windows below will appear. Click **Install Driver** to begin device driver installation.

STEP3: Please read the following license agreement. Use the scroll bar to view the rest of this agreement. Select **I accept the terms of the license agreement** and click **Next** to continue.

Ralink Wireless LAN - InstallShield Wizard		
License Agreement Please read the following licen:	se agreement carefully.	
Ralink	ALINK Wireless Utility for Windows 98/ME/2000/XP/Vista Copyright (C) RALINK TECHNOLOGY, CORP. All Rights Reserved. Thank you for purchasing RALINK Wireless product! SOFTWARE PRODUCT LICENSE The SOFTWARE PRODUCT LICENSE The SOFTWARE PRODUCT is protected by copyright laws and international copyright tractices, as well as other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed, not sold. 1. GRANT OF LICENSE. This End-User License Agreement grants you the following rights:Installation and Use. You may reproduce and distribute an unlimited number of copies of the SOFTWARE PRODUCT. Reproduction and Distribution. You may reproduce and distribute an unlimited number of copies of the SOFTWARE PRODUCT. Reproduction and Distribution. You may reproduce and distribute as a standalone product or included with your own product. I gccept the terms of the license agreement I go not accept the terms of the license agreement	
InstallShield	K Back (Next>)	el

STEP4: Click **Install** to begin the installation.

Ralink Wireless LAN - InstallShield Wizard		
Ready to Install the Program The wizard is ready to begin instal	llation.	
Ralink	Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.	
InstallShield	K Back Install Cancel	

STEP5: Please wait for a while during the adapter is configuring your new software installation.

Ralink Wireless LAN - InstallShield	Wizard	3
Setup Status		
	The InstallShield Wizard is installing Ralink Wireless LAN	
Ralink	Installing C:\Program Files\RALINK\RT2870 Wireless LAN Card\Driver\RaInst.exe	
InstallShield	Cancel	1

STEP8: After the setup wizard has successfully installed wireless LAN, click **Finish** to exit the wizard.

Ralink Wireless LAN - InstallShield	Wizard
	InstallShield Wizard Complete
	The InstallShield Wizard has successfully installed Ralink Wireless LAN. Click Finish to exit the wizard.
Ralink	
InstallShield	< Back Finish Cancel

To check if the adapter is properly installed, you can right-click **My Computer** \rightarrow choose **Properties** \rightarrow click **Device Manager**.



The Configuration Utility appears as an icon on the system tray of Windows while the

	Sile Sulvey Statistic	slvvro	Configuration	on Qos	ADOUT		
SSID	BSSID	Phy	Signal	▲ C	Encryption	Authentic	Network Ty
Belkin_N1	00-17-3F-5A-8E-AD	N	76%	1	None	Unknown	Infrastructur
morry_test	00-06-4F-5B-13-2F	N	96%	3	None	Unknown	Infrastructur
Default_WL	00-06-4F-43-CF-8F	G	55%	6	None	Unknown	Infrastructur
Default_11N	00-06-4F-33-44-66	N	20%	6	None	Unknown	Infrastructur
WLAN_SW	00-07-40-F1-99-42	G	100%	9	TKIP	WPA-PSK	Infrastructur
MISO	00-06-4F-1F-34-A6	G	86%	10	None	Unknown	Infrastructur
iny 3510	000377720002	G	30%		NUTE	UNKIOWI	
•							,
Disconnected				Rescan		Add to Profi	le

adapter is running. You can open the utility by double-click on the icon.

Ralink wireless utility needs to cooperate with Microsoft AutoConfig service in order to perform scanning and connecting actions, so the AutoConfig service should be enable beforehand.



Control Menu \rightarrow Once Ralink wireless utility is minimized, the user can click the Ralink icon on the taskbar to bring up the control menu.

- Launch Config Utilities \rightarrow Restore Ralink wireless utility window.
- Switch to AP Mode → Select this option to change to AP mode.
- Exit \rightarrow Select Exit to close the Configuration Utility tool.

3. Wireless Network Configuration Utility

3.1 For Windows XP & 2000

The Configuration Utility is a powerful application that helps you to configure the Wireless LAN adapter and monitor the link status and statistics during the communication process.

When the adapter is installed, the configuration utility will be displayed automatically. This adapter will auto connect to wireless device which has better signal strength and no wireless security setting.

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.

RaUI can co-exist with **WZC** (**Windows Zero Configuration**). 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. Please see below picture: To select WZC or RaUI



If "Use Zero Configurations as Configuration utility" is selected, please continue on the section. Below picture shows that the RaUI status when WZC is active as main control utility.

1 RaUI							
Profile	La Network	Advanced	Statistics	NAM N	Ø WPS Radio	On/Off Abc	iut 🎓
Sorted by >>	SSID	Channe	əl 🙆	Signal		Show dBm	
			AP List	>>			
Belkin_N1		Ø1		76%			100
dlink		1 0	6 <mark>9</mark> 07	94%			
morry_test		1	D 9 🗓	91%			•
mySSID		1 1	b 9	94%			• .
SMC		1 0	bg 🕈	86%			
WLAN_SW		1 /29	bg 🕈	100%			
Rescan Status >	Connect	Add to Profile 07-40-F1-99-42			Link Quality >	> 100%	
Channel >	> 9 <> 2452 MHz	si . 1003aj			Signal Strength	1 >> 100%	
Authentication >	>> WPA-PSK				Noise Strength	>> 26%	
Encryption >	•> TKIP						_
Network Type >	Infrastructure			Tra	nsmit		
IP Address >	> 192.168.10.47				Link Speed >> 48.0 Mbps	Max	
Sub Mask >	> 255.255.255.0				Throughput >> 17.088 Kbps	10 048	
Default Gateway >	>> 192.168.10.1					Kbps	4. C.
	HT			Rec	eive		
BW >> n/a		SNRO >> n/a			Link Speed >> 54.0 Mbps	Max	
Gl>> n/a	MCS >> n/a	SNR1 >> n/a			Throughput >> 486.420 Kbps	547.860 Kbps	Au _{le}

When activating WZC, there are couple different on RaUI status compare to the without WZC running:

- (1) **Profile** button will be gray, profile function is removed since the NIC is controlled by WZC.
- (2) The **connect** and **add profile** function will be gray. The reason is same as the first difference.

[Use WZC to configure wireless adapter]

STEP1: If connection is lost or not connected, the status prompt as below will pop up.



STEP2: Right-click the network connection icon in the task bar.



STEP3: Select "View Available Wireless Networks" will pop up the dialog shown as below.



STEP4: Select intended AP and click "**Connect**" shown as below, then click "**Connect** Anyway".



STEP5: AP1 is successful connected.

((†)) Wireless Network Connect	on	
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 information.	to get more
Set up a wireless network for a home or small office	((p)) AP1 C	onnected ☆ 📤
Related Tasks	((o)) 242	
Learn about wireless networking	Security-enabled wireless network (WPA)	0000
Change the order of preferred networks	Unsecured wireless network	
Change advanced settings	((p)) AP	
	((p)) ²¹⁹	
	Security-enabled wireless network (WPA) Baron_PC_AP4	0000
	Security-enabled wireless network	. O00s
		Connect



STEP6: If you want to modify information about AP, click "Change advanced settings"

STEP7: Choose "Wireless Networks" tab.

ieneral	Wireless Networks	Advanced	
🔽 Use	Windows to configur	e my wireles:	s network settings
Availa	able networks:	~	
Toco	onnect to, disconnect	from, or find	out more information
abou	t wireless networks in	range, click	the button below.
Prefe Autor belov	rred networks: matically connect to a v: AP1 (Automatic)	vailable netv	vorks in the order listed
Prefe Autor belov	rred networks: matically connect to a v: AP1 (Automatic)	vailable netv	works in the order listed
Prefe Autor belov	rred networks: matically connect to a v: AP1 (Automatic) Add	vailable netw	works in the order listed Move up Move down

STEP8: Click "Properties" and then click "OK" button.

ssociation	Authentication	Connection	
Network <u>n</u> a	ame (SSID):	AP1	
Wireless	network key		
This netv	vork requires a key	for the following:	
Network	Authentication:	Open	~
<u>D</u> ata end	cryption:	Disabled	*
Network	key:		
C <u>o</u> nfirm r	ietwork key:		
Key inde;	g (advanced):	1	
The k	ey is provided for i	ne automatically	
This is a access	a computer-to-com points are not use	outer (ad hoc) network; wire	eless

STEP9: After filling appropriate value, click "**OK**" button. And the status will prompt up as below.



STEP10: 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 below screen. User may user the available tab to configure more advanced features provided by Ralink's wireless NIC.

1 RaUI							
Profile	Lee Network	ل Advanced	Statistics	www.	Ø WPS Ra	dio On/Off	R about
Sorted by >>	SSID	🖉 Channe	əl 🥥	Signal	[Show dBm	
-			AP List	>>			
Belkin_N1		1	0907	76%			
dlink		1 0	6907	94% 📕			
morry_test		1 /23	D 🤁 🗊	91% 📕			
mySSID		11	b 9	94% 📕			
SMC		1 0	69 📍	86%			
WLAN_SW		1 /29	b9 P	100% 💼			
Rescan	Connect	Add to Profile					
Status >	> WLAN_SW <> 00-	07-40-F1-99-42			Link Quali	ty >> 100%	
Extra Info >	> Link is Up [TxPowe	er:100%]		Signal Strength 1 >> 100%			
Channel >	> 9 <> 2452 MHz				Signal Streng	th 2 >> 100%	
Authentication >	> WPA-PSK				Noise Stren	ngth >> 26%	
Network Type >	 Infrastructure 			+			
IP Address >	> 192.168.10.47			i ransmi Lini	it ik Speed >> 48.0 Mbps	Max	
Sub Mask >	> 255.255.255.0			Thro	oughput >> 17.088 Kbp	IS 20	
Default Gateway >	> 192.168.10.1					19.968 Kbps	also.
-	HT			Receive	·		
BW >> n/a		SNR0 >> n/a		Lin	ik Speed >> 54.0 Mbps	Мах	<u>ь</u> и,
GI >> n/a	MCS >> n/a	SNR1 >> n/a		Thro	oughput >> 486.420 Kb	547.860 Kbps	

3.1.1 Start

When starting RaUI, system will connect to the AP with best signal strength without setting profile or matching profile setting. 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.

1🕏 RaUI									X
•	Profile	LLL Network	Advanced) Statistics	www.	Ø WPS Radi	o On/Off	R	
Sorted	by >>	SSID	🥥 Channe	el 🥝	Signal		Show dBm		
-			ii.	AP List	t >>				
Belk	in_N1		61	D 9 0 T	76%				
dlini	k		1 0	b 9 0 7	94% 📕				
mor	ry_test		1 /23	D 9 🔟	91% 💻				
myS	SID		b 11	b 9	94% 📕				
SAAC			10	69 🕈	86%				
▶ WLA	N_SW		6 9	B9 P	100% 💼				
Re	escan Status >:	Connect > WLAN_SW <> 00-	Add to Profile 07-40-F1-99-42			Link Quality	>> 100%		
	Extra Info >:	> Link is Up [TxPowe	er:100%]			Signal Strength	1 >> 100%		
Autt	entication >	> 9 <> 2452 MHZ				Signal Strength	2 >> 100%		
HUG	Encryption >:	> TKIP				Noise screigt	.11 22 20%		
Net	twork Type >:	> Infrastructure			Transm	vit			
	IP Address >	> 192.168.10.47			Lir	nk Speed >> 48.0 Mbps	Max	un	
	Sub Mask >	> 255.255.255.0			Thr	oughput >> 17.088 Kbps	10.0/0	l I a -	
Defau	lt Gateway >	> 192.168.10.1					19,968 Kbps	all a	
		HT			Receive	e			
BW :	>> n/a		SNR0 >> n/a		Lin	nk Speed >> 54.0 Mbps	Max		
GI	»> n/a	MCS >> n/a	SNR1 >> n/a		Thr	oughput >> 486.420 Kbps	547.860 Kbps		

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

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



Function Section: Corresponding button

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

→ Network Page

Sorted by >>	SSID	Channel	0	Signal	Show dBm	
			AP List			
_Shiang_2860AF	3	11	B 9 🗊	81%		~
aaa		💐 З	bg 🕆	55%		
AlbertY-200		1 /26	69 🕈	76%		
AP		101	B9 🕈	55%		
AP1		1 /26	b g	100%		
APPA		1 /26	13 g ท	70%		
asus		11	b g	81%		
Broadcom		11	b g	81%		
Buffalo 54		11	b g	76%		
Cobra		\$ 6	69 🕈	34%		~
Rescan	Connect	Add to Profile				

➔ Advanced Page

Wireless mode >>	802.11 B/G/N mix	Enable CCX (Cisco Compatible eXtensions)
		Turn on CCKM
		Enable Radio Measurements
Enable TX Burst		Non-Serving Channel Measurements limit 250 ms (0-2000)
Enable TCP Winde	ow Size	
Fast Roaming at	-70 dBm	
Show Authentica	tion Status Dialog	
Select Yo	ur Country Region Code	
11 B/G >>): CH1-11	•
Apply		

→ Statistics Page

Transmit	Receive		
Frames Transmitted	d Successfully	-	1432
Frames Retransmit	ted Successfully	=	4
Frames Fail To Rece	vive ACK After All Retries	-	0
RTS Frames Success	fully Receive CTS	-	0
RTS Frames Fail To F	Receive CTS		0

Reset Counter

→ WMM Page

WMM Enable				
WMM - Power Save E	nable			
AC_BK	AC_BE	AC_VI	AC_VO	
Direct Link Setup En	able			
MAC Address >>		Timeout Vali	ue >> 60 sec	Apply
				Tear Down

➔ WPS Page

		WPS AP LIST				
ID : Unknown	hsinchu1	00-11-26-71-27-68	6	9	Rescar	r.
					Informat	
					Pin Cod	е
					64893945 F	Renew
		WPS Profile List			Config Mode	е
					Enrollee	*
					Detail	
					Connec	t.
					Rotate	
					Disconne	ct
PIN 🔽	WPS Associate IE	Progress >> 0%			Export Pro	ofile
PBC I					Delete	

(c) Copyright 2007, Ralink Technology, Ir	nc. All rights reserved.
RaConfig Version >> 2.0.3.0	Date >> 08-02-2007
Driver Version >> 1.0.4.0	Date >> 07-28-2007
EEPROM Version >> 134.0	
Firmware Version >> 0.4	
Phy_Address >> 00-06-4F-55-88-77	

- Status Section: Include Link Status, Authentication Status, AP's information, Configuration and retrying the connection when authentication is failed.
- Status >> Default_11G <--> 00-06-4F-44-CB-F0 Extra Info >> Link is Up [TxPower:100%] Signal Strength 1 >> 41% Channel >> 6 <--> 2437 MHz trength 2 >> 50% Authentication >> Unknown Noise Strength >> 26% Encryption >> None Network Type >> Infrastructure Transmit IP Address >> 192.168.10.21 Link Speed >> 48.0 Mbps Sub Mask >> 255.255.255.0 Throughput >> 2.320 Kbps 3.152 Default Gateway >> 192.168.10.1 Kbps HT Receive Link Speed >> 11.0 Mbps BW >> n/a SNR0 >> n/a Throughput >> 7.420 Kbps Gl >> n/a MCS >> n/a SNR1 >> n/a 9.808 Kbps

➔ Authentication Status

→ Link Status

cara Nano 22 Nanini e	02.1 III WIIGIG33 ENN GAIG	connected by mandal
16:37:25.062	Starting network connection	
16:37:25.171	Network is connecting	
16:37:25.281	PEAP Authenticating	
16:37:28.375	Wireless client is authenticated.	

→ AP's Information

General	WPS	ссх	
	SSID >> AP1		
MAC 4	Address >> 00-03-7F-00-D3	7-A4	Signal Strength >> 100%
Authenticatio Encryptio	on Type >> Unknown on Type >> None Channel >> 6 <> 2437000	KHz	Supported Rates (Mbps) 1, 2, 5.5, 11, 6, 12, 24, 36, 9, 18, 48, 54
Netwo Beacon I	rk Type >> Infrastructure nterval >> 100		
			ок

➔ Retry the Connection

Profile Name >> PROF1		Password >>	
Message >> Invalid identity or password			
1000	ОК	Cancel	

→ Configuration

A	wthentication WPA Preshare	>> WPA 🔻	•	Encryption :	>> TKIP	•	
ер Ке	ey						
0	Key#1	Hexadecimal	-				
0	Key#2	Hexadecimal	- [
0	Key#3	Hexadecimal	- [
0	Key#4	Hexadecimal	- E				Show Password

At the mean time of starting RaUI, there is also a small Ralink icon appears within windows taskbar as below. You may double click it to bring up the main menu if you selected to close RaUI menu earlier. You may also use mouse;s right button to close RaUI utility.



 \rightarrow Ralink icon in system tray.

- Besides, the small icon will change color to reflect current wireless network connection status. The status indicates as follow:
 - → 11/15 -- indicate Connected and Signal Strength is Good.
 - → 🔢 -- indicate Connected and Signal Strength is Normal
 - → 1 indicate Wireless NIC is not connected yet
 - → 😹 -- indicate Wireless NIC is not detected
 - → K -- indicate Connected and Signal Strength is Weak

3.1.2 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.



[Definition of each field]

Profile Name: Name of profile, preset to PROF* (* indicate 1,2,3,...)

SSID: AP or Ad-Hoc name

Network Type: Network's type, including infrastructure and Ad-Hoc.

Authentication: Authentication mode

Encryption: Encryption Type

Use 802.1x: Whether or not use 802.1x feature

Channel: channel in use for Ad-Hoc mode

Power Save Mode: Choose from CAM (Constantly Awake Mode) or Power Saving Mode.

Tx Power: Transmit power, the amount of power used by a radio transceiver to send the signal out.

RTS Threshold: User can adjust the RTS threshold number by sliding the bar or key in the value directly.

Fragment Threshold: User can adjust the Fragment threshold number by sliding the bar or key in the value directly.

[Icons and buttons]

- ightarrow ightarrow indicate connection is successful on currently activated profile
- \blacktriangleright \rightarrow indicate connection is failed on currently activate profile
- \checkmark \Rightarrow indicate network type is infrastructure mode
- \blacksquare → indicate network type is Ad-Hoc
- Indicate security-enabled wireless network

Add	→ Add a new profile
Edit	→ Edit an existing profile
Delete	→ Delete an existing profile
Activate	→ Activate selected profile

➡ Show the information of Status Section

 \blacksquare \rightarrow Hide the information of Status Section

3.1.2.1 Add/Edit Profile

There are 3 methods to open Profile Editor form:

- → You can open it from "Add to Profile" button in Site Survey function
- → You can open it form "Add" button in Profile function
- → You can open it from "Edit" button in Profile function

Profile Name >> P	ROF1		Network Type >>	Infrastructure	-
SSID >> A	P1	•	Tx Power >>	Auto	•
			and the second sec		
Power Save Mode >> (🔵 САМ 🕥 РЅМ		Preamble >>	Auto	~
Power Save Mode >> () CAM () PSM		Preamble >>	Auto 2347	*

Authentication	>> Open 🔻	Encryption >> N	lone 🔻	802.1X	
WPA Preshare	ed Key >>				
р Кеу					
🙆 Key#1	Hexadecimal 🔻 🗌				
🖉 Key#2	Hexadecimal 👻				
🖉 Key#3	Hexadecimal 👻				
	Hexadecimal 👻 🔽				Show Password

Profile Name: User can chose name for this profile, or use default name defined by system.SSID: User can key in the intended SSID name or use pull down menu to select from available APs.

Power Save Mode: Choose from CAM [Constantly Awake Mode] or Power Saving Mode.

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.

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

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

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

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

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.

802.1x Setting: It is an authentication for WPA and WPA2 certificate to server.

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 lengths.

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

- → Hexadecimal 40bits: 10 Hex characters
- → Hexadecimal 128bits: 26 Hex characters.
- → ASCII 40bits: 5 ASCII characters
- → ASCII 128bits: 13 ASCII characters

3.1.2.2 Example to Add Profile in Profile

Step 1: Click Add in Profile function

14 Ral	JI								
4	Profile	Letwork	Advanced	Statistics	NVMM	Ø WPS	Radio On/Off	R About	4
		Profile	e List						
						Profile Name	>>		
						SSID	>>		
						Network Type	>>		
						Authentication	>>		
						Encryption			
						Lice 902 1v			
						056 002.1X			
					_	Channel	>>		
					Po	ower Save Mode	>>		
						Tx Power	>>		
						RTS Threshold	>>		
-					Frag	ment Threshold	>>		
	Add	Edit	Delete	Activate					
	Status >> I	Default_11G <> 0	0-06-4F-44-CB-F0			Lin	« Quality >> 100%		
	Extra Info >>	Link is Up (TxPowe	r:100%]				Strength 1 >> 41%		
	Channel >> (6 <> 2437 MHz				Signa	IStrength 2 <mark>>> 60%</mark>		
Au	thentication >> I	Unknown				Nois	e Strength >> 26%		
	Encryption >> I	None							
N	ID Addross >> 1	Intrastructure			Transmi	t	May		3
	Sub Mask >> 1	755,255,255,0			Link	k Speed >> 48.0	Mbps	<mark>.</mark> .	
Defa	ault Gateway >>	192.168.10.1			inro	ughput >> 0.51	1.472 1.472		8
		HT			Peccilio		Kbps		
PM	(as p/a		SNR0 >> p /a		Link	k Speed >> 48.0	Max	1 Blue Ad	
G	l >> n/a	MCS >> n/a	SNR1 >> n/a		Thro	ughput >> 6.66	60 Kbps	T ^{an t}	
J			Jac				7.792 Kbps		

Step 2: Add Profile page will pop up.

Profile	Land Network	Advanced	Statistics	WAMA	Ø WPS	Radio On	/Off	R
	Profil	e List						
					Profile Name :	•>		
					SSID :	•>		
					Network Type :	•>		
					Authentication :	**		
					Encryption :	*>		
					Use 802.1x :	•>		
				Dr	Unannel : Wer Save Mode			
					Tx Power :	•>		
					RTS Threshold :	•>		
				Frag	ment Threshold :	·>		
				1105				
Add	Edit Auth. \ Er	Delete	Activate 021X					
Add System Config Profile	Edit Auth. \ Er e Name >> PROF	Delete ncry. 8	Activate 021X		Network T	ype >> Infra	structure	•
Add iystem Config Profile	Edit Auth. \ Ei e Name >> PROF SSID >>	Delete ncry. 8	Activate 021X		Network T Tx Po	ype >> Infra wer >>	structure Auto	•
Add System Config Profil Power Sav	Edit Auth. \ Ei e Name >> PROF SSID >> re Mode >> 💽 0	Delete nory. 8 1 CAM (PSM	Activate 1021X	-	Network T Tx Po Prear	ype >> Infra wer >> ,	structure Auto	• • •
Add ystem Config Profil Power Sav RTS Threshold	Edit Auth. \ Er e Name >> PROF SSID >> SID >> re Mode >> 💽 0	Delete nory. 8 1 cam @ PSM 0	Activate 02:1X		Network T Tx Po Prear	ype >> Infra wer >> , nble >> 17 2347	structure Auto	• •
Add iystem Config Profil Power Sav RTS Threshold Fragment Thre	Edit Auth. \ Ei e Name >> PROF SSID >> re Mode >> O	Delete ncry. 8 1 CAM @ PSM 0 _ 256 _	Activate 102.1X		Network T Tx Po Prear 234	ype >> Infra wer >> // nble >> 17 2347 16 2346	structure Auto	•

Step 3: 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.

(Profile Net	w ork	ر Advanced) Statistics	WAMA	Ø WPS	Radio On/Off	R About	4
		Profile	= List						
						Profile Name	3 >>		
						SSIE) >>		
						Network Type	e >>		
					A	uthenticatio	ר >>		
						Encryption	۹ >>		
						Use 802.1:	x >>		
						Channe	sl >>		
					Pov	ver Save Mod	8 >>		
						Tx Powe	r >>		
						RTS Threshol	<< t		
					Fragm	ent Threshol	:>>		
	Add Edi		Delete	Activate					
		-			_				2
5	System Config Au	th. \ Fr	ncrv. 8						
-									-
	Profile Name >	> PROF1				Network	Type >> Infrastruct	ture 🔻	
	SSID :	.> [*		TXI	ower>> Auto	_	
				1 2002					
	Dower Style Hode y	_Shian	g_2860AP		000C4368601	6 🔥 Pre	amble >> Auto	~	
	Power Save Mode >	> Albert	g_2860AP Y-200		000C4368601 00AA2E82EB9 0007404D0C7	6 📩 Pre E	amble >> Auto	Ŧ	
	Power Save Mode >	> Albert AP AP1	ig_2860AP Y-200		000C4368601 00AA2E82EB9 0007404D0C7 00037F00D7A	6 \land Pre	amble >> Auto	*	
ſ	Power Save Mode >	 Shian Albert[*] AP AP1 APPA Belk in 	g_2860AP Y-200		000C4368601 00AA2E82EB9 0007404D0C7 00037F00D7A 0014A549F42 000C4328111	6 A Pre E 4	amble >> Auto 347 2347	*	
[Power Save Mode :	Shian Albert' AP AP1 APPA Belkin_ Broadc	g_2860AP Y-200 _N1_Wireless_281' ;om	111	000C4368601 00AA2E82EB9 0007404D0C7 00037F00D7A 0014A549F42 000C4328111 001018902ED	6 Pre E 4 1 2 A = 2	amble >> Auto 347 2347 346 2346	-	
[Power Save Mode :	 Shian Albert' AP AP1 APPA Belkin_ Broado Broado 	g_2860AP Y-200 _N1_Wireless_281 :om :omWPS	111	000C4368601 00AA2E82E89 00074040DC7 00037F00D7A 0014A549F42 000C4328111 001018902ED 001018902E2	6 Pre E 4 - - 1 2 A 7	amble >> Auto 347 2347 346 2346	-	
[Power Save Mode : RTS Threshold Fragment Threshold	 Shian Albert' AP AP1 APPA Belkin_ Broado Claude 	Ig_2860AP Y-200 	111	000C4368601 00AA2E82E89 000740400C7 00037F00D7A 0014A549F42 000C4328111 001018902ED 001018902E2 000C766FC59	6 A Pre	amble >> Auto 347 2347 346 2346	-	
[Power Save Mode :	 Shian Albert' AP AP1 APPA Belkin_ Broado Broado Claude Cobra Descri 	Ig_2860AP Y-200 	111	000C4368601 00A42E82E89 0007404D0C7 00037F00D7A 0014A549F42 000C4328111 001018902E2 000C766FC59 000A795C08B	6 A Pre	amble >> Auto 347 2347 346 2346	-	

Step 4: Then, you can see the profile which you set appear in the profile list. Click "**Activate**" to activate the profile setting.

RaUI							P10.52
Profile	e Network	Advanced	Statistics	WAWA	Ø WPS	Radio On/Off	R
	Profil	e List					
PROF1	WLAN_SW		₽b		Profile Name >:	PROF1	
					SSID >:	WLAN_SW	
					Network Type >:	 Infrastructure 	
					Authentication >:	WPA-PSK	
					Encryption >:	• TKIP	
					Use 802.1x >:	• NO	
					Channel >:	. 9	
				Po	ower Save Mode >:	• CAM	
					Tx Power >:	• Auto	
					RTS Threshold >:	2347	
				Frag	ment Threshold >:	2346	
Add	Edit	Delete	Activate				
Status	: >> WLAN_SW <> 00-	07-40-F1-99-42			Link	Quality >> 92%	
Extra Info	>> Link is Up [TxPowe	er:100%]			Signal Si	trength 1 >> 26%	
Channel	I >> 9 <> 2452 MHz					trength 2 35%	
Encryption	>> TKIP				Signal Si	464/34/16 2 >> 60%	
Network Type	>> Infrastructure			Transmi	it		
IP Address	: >> 192.168.10.44			Lin	k Speed >> 48.0 M	bps Max	
Sub Mask	>> 255.255.255.0			Thro	oughput >> 0.160	Kbps	
Default Gateway	>> 192.168.10.1					20.832 Kbps	
	HT			Receive	,		
B₩ >> n/a		SNRD >> n/a		Lin	k Speed >> 24.0 M	bps Max	
		() ID (Three	support so 7 274	Khns	

3.1.3 Network

Under the Network function, system will display the information of surrounding APs from last scan result. List information includes SSID, BSSID, Signal, Channel, Encryption algorithm, Authentication and Network type as below:



[Definition of each field]

SSID: Name of BSS or IBSS network

Network Type: Network type in use, infrastructure for BBS, Ad-Hoc for IBSS network

Channel: Channel in use.

Wireless Mode: AP support wireless mode. IT may support, 802.11b, 802.11g or 802.11n wireless mode.

Security-Enable: Whether AP provides security-enabled wireless network

Signal: Receive signal strength of specified network

[Icons & Buttons]

Indicate connection is successful.
Indicate network type is infrastructure mode.
Indicate network type is Ad-Hoc mode.
Indicate security-enabled wireless network.
Indicate security-enabled wireless mode.
Indicate 802.11b wireless mode.
Indicate 802.11g wireless mode.
Indicate 802.11n wireless mode.
Indicate 802.11n wireless mode.
Indicate 802.11n wireless mode.
Sorted by >> SSID Channel Signal Indicate the AP lists are sorted by SSID, Channel, or Signal.
Connect -> Command to connect to the selected network.

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

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

[Connected Network]

- (1) When RaUI first ran, it will select the best AP to connect automatically.
- (2) If user wants to connect to other AP, He can click "Connect: button for the intended AP to make connection.
- (3) If the intended network has encryption other than "Not Use", RaUI will bring up the security page appropriate information to make the connection.
- (4) When you double-click on the intended AP, you can see AP's detail information.

3.1.4 Advanced

Wireless mode >>	802.11 B/G/N mix	Enable CCX (Cisco Compatible eXtensions)
		Turn on CCKM
		Enable Radio Measurements
Enable TX Burst	t	Non-Serving Channel Measurements limit 250 ms (0-2000)
Enable TCP Win	dow Size	
Fast Roaming a	t -70 dBm	
Show Authentic	ation Status Dialog	
Select Y	′our Country Region Code	
11 B/G >>	0: CH1-11	•
Apply		

Wireless Mode: Select wireless mode. 802.11B only, 802.11B/G mix, and 802.11B/G/N mix modes are supported. (802.11 A/B/G mix selection item only exists for A/B/G adapter; 802.11B/G/N mix selection item only exists for B/G/N adapter; 802.11B/G/N mix selection item only exists for A/B/G/N adapter.)

Wireless Protection: User can choose from Auto, On, and Off (Only 802.11n adapter don't support)

- → Auto: STA will dynamically change as AP announcement
- → ON: Always send frame with protection.
- → Off: Always send frame without protection.

TX Rate: Manually force the Transmit using selected rate. Default is auto. (802.11n wireless card doesn't support.)