Radicom Research. Inc.

Designer's Guide for the

RW8300E-a-PR

A set of paired devices:
RW8300E-NL + RW8300E

RW8300E

RW8300E-NL

Firmware version:
RW8300E-NL: RW8300E-a-NL.RRI.041_3.4.6.6
RW8300E: RW8300-D.RRI.110_3.4.6.6

FC CE IC **RoHS** Compliant

Date: Jan 30. 2020

Doc#RRD2Z50-20200130001

Table of Contents

Introduction of RW8300E-a-PR (USB-device) Universal Adapter Products

Thank you for choosing Radicom RW8300E-a-PR series.

The RW8300E-a-PR combines one RW8300E and one RW8300E-NL into a single. automatically paired. wireless connection between a device based with USB host to a Wi-Fi router with Ethernet

This combination allows any device to connect into an Ethernet based router.
No password or user intervention needed.

NOTE: ※RW8300E-a-PR firmware for USB Host and USB Device are not compatible.

Features

- WiFi AP/Client
- Router capability
- IEEE 802.11b/g/n compatible WLAN adapter
- WiFi USB adapter
- USB Ethernet adapter
- USB 1.1/2.0 and OTG (optional)
- 20MHz and 40MHz bandwidth transmission
- Operates in 2.4GHz Frequency Range
- Support WPS mode
- Backward compatible with 802.11b/g Devices while operating at 802.11n data rates
- Frame aggregation for increased MAC efficiency (A-MSDU. A-MPDU)
- Low latency immediate High-Throughput Block Acknowledgement (HT-BA)
- Long NAV for media reservation with CF-End for NAV release
- PHY-level spoofing to enhance legacy compatibility
- Built-in TCP/IP stack
- Channel management and co-existence
- Support Wake-On-WLAN via Magic Packet and Wake-up frame
- Transmit Opportunity (TXOP) Short Inter-Frame Spaces (SIFS) bursting for higher multimedia bandwidth
- Short Guard Interval (400ns)
- DSSS with DBPSK and DQPSK. CCK modulation with long and short preamble
- Selectable digital transmit and receive FIR filters
- Support DHCP for LAN
- One Ethernet port
- Operating temperature: 0℃ to +50℃
- Support IEEE 802.11b/g/n compatible WLAN
- Support IEEE 802.11e QoS Enhancement (WMM)
- Support IEEE 802.11h TPC. Spectrum Measurement
- Support IEEE802.3 & IEEE802.3u
- Support IEEE802.3x full duplex flow control
- Support IEEE802.3az Energy efficiency
- Support IEEE 802.11i (WPA. WPA2. WEP). Security ~ Open. shared key. and pair-wise key authentication services
- Support TLS mode
- Firmware upgradable

Approvals

CE Marked

- EN 60950-1:2006/AMD 11:2009 /AMD 1:2010/AMD 12:2011/AMD 2:2013
- EN55024:2010+A1:2015
- EN55032:2015.
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- ETSI EN 301 489-1 V1.9.2
- EN 301 489-17 V2.2.1
- ETSI EN 300 328 V2.1.1
- EN 62311:2008

Medical E&E Certification

- IEC 60601-1:2005/A1:2012
- EN 60601-1: 2006 + A1: 2013

Medical CE/EMC Certification

- EN 60601-1-2:2014 Ed4.0
- EN 60601-1: 2006 + A1: 2013

FCC Certification

- 47 CFR FCC Part 15 Subpart B 2016
- 47 CFR FCC Part 15 Subpart C 15.247 & ANSI C63.10 2013

IC Certification

- ICES-003.Issue 6 .January 2016.
- RSS-247 Issue 2 Feb 2017

Japan Certification

- SCS-F135 Japan Radio Certificate

RoHS 3 compliant

RW8300E-a-PR Universal Adapter Application Summary

The RW8300E supports **LAN. USB** and **WiFi** interfaces. The RW8300E-NL supports **WiFi** and **USB but without LAN**.
RW8300E works in bridge mode and connects to router by a RJ45 cable. RW8300E is under the same domain with router. RW8300E-NL works in WISP mode and plays as gateway. RW8300E-NL will connect to RW8300E through WiFi. and will get an IP address "**192.168.137.100**" as an USB NIC of connected device.

※WISP: Wireless Internet Service Provider

※NIC: Network Interface Controller

WARNING: Please ensure the AP router is not 192.168.137.xxx domain for sub-net otherwise the device will get 192.168.136.xxx IP address.

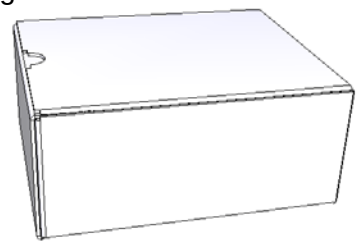
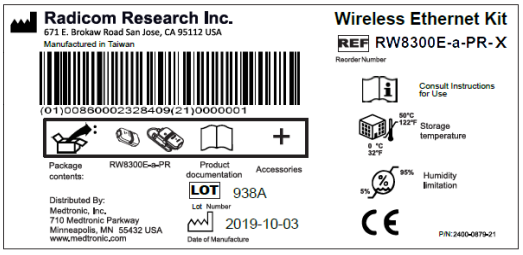
RW8300E-a-PR is a factory paired solution which includes a RW8300E and a RW8300E-NL for non-configuration WiFi applications. Once USB. power adapter and Ethernet cables are inserted. the system automatically connects. no configuration needed.

※RW8300E-a-PR are pre-paired by Radicom. Please contact Radicom for more detail.

Model & Ordering Information

Model Number	Description
RW8300E-a-PR-1 RW8300E-a-PR-2 RW8300E-a-PR-2a RW8300E-a-PR-3 RW8300E-a-PR-4  	RW8300E-a-PR-1 US/CAN. PN: 9500-0879-21 Include RW8300E. RW8300E-NL. RJ45 cable and Power adapter (USA.UL.PSE). PN:4000-0001-01 RW8300E-a-PR-2 West EU. PN: 9500-0879-22 Include RW8300E. RW8300E-NL. RJ45 cable and power adapter (CE). PN:4000-0001-02 RW8300E-a-PR-2a North EU. PN: 9500-0879-32 Include RW8300E. RW8300E-NL. RJ45 cable and power adapter (CE). PN:4000-0001-02 RW8300E-a-PR-3 ANZ. PN: 9500-0879-23 Include RW8300E. RW8300E-NL. RJ45 cable and power adapter (AU). PN:4000-0001-03 RW8300E-a-PR-4 UK+. PN: 9500-0879-24 Include RW8300E. RW8300E-NL. RJ45 cable and power adapter (UK). PN:4000-0001-04 ※RW8300E and RW8300E-NL are pre-paired by Radicom. Please contact Radicom for more detail.
RW8300E-a-PR 	PN: 9500-0879-17 Includes RW8300E. and RW8300E-NL only ※RW8300E and RW8300E-NL are pre-paired by Radicom. Please contact Radicom for more detail.
RW8300E (USB-Device) 	PN:9500-0879-20 Standalone product (USB/WiFi/LAN) in plastic enclosure with RJ45 jack. RW8300E with embedded on-board antennas in the plastic enclosure.

RW8300E-NL (USB-Device) 	PN: 9500-0879-19 Universal adapter (USB/WiFi) standalone in plastic enclosure with USB. RW8300E-NL with embedded on-board antenna inside the case.
Power Adapter for UL.PSE 	PN: 4000-0001-01 Power adapter- USA. Japan (UL. PSE) connects to RW8300E. 100-240VAC/5VDC. 1A. USB mini-B Type Plug types :Type A is used for USA. Canada. Mexico. Japan +others
Power Adapter for CE 	PN: 4000-0001-02 Power adapter- Europe (CE) connects to RW8300E. 100-240VAC/5VDC. 1A. USB mini-B Type Plug types :Type C is used for Europe. So America. Asia +others
Power Adapter for RCM 	PN: 4000-0001-03 Power adapter- Australia .NZ.(RCM) connects to RW8300E. 100-240VAC/5VDC. 1A. USB mini-B Type Plug types :Type I is used for Australia. New Zealand. China. Argentina +others
Power Adapter for CE 	PN: 4000-0001-04 Power adapter- UK. Ireland (CE) connects to RW8300E. 100-240VAC/5VDC. 1A. USB mini-B Type Plug types :Type G is used for UK. Ireland. Malta. Malaysia. Singapore +others

3ft RJ-45 cable 	PN:6000-0029-02 Cable.RJ45.8P8C.Cat5e.3ft.Light Blue
Label Remover Tool 	PN:2820-0000-00 Tool. RW8300E-a-PR Label Remover. Yellow
Package box 	PN:4100-0268-00 Box. RW8300E-a-PR package box
Package label  	PN:2400-0662-01 Label. RW8300E-a-PR-1 package label PN:2400-0662-02 Label. RW8300E-a-PR-2 package label PN: 2400-0662-05 Label. RW8300E-a-PR-2a package label PN:2400-0662-03 Label. RW8300E-a-PR-3 package label PN:2400-0662-04 Label. RW8300E-a-PR-4 package label

RW8300E-a-PR (USB-Device) General Information

RW8300E-NL

WiFi Ratings @ 25° C

Parameter	Min	Typical	Max	Units
Operating Temperature RW8300E-NL	0	25	50	°C
Relative Humidity (non-condensing)	5		95	%
USB Voltage Requirement	4.5	5	5.5	VDC
Current consumption when WiFi_ON		340		mA
Current consumption when WiFi_OFF and LAN connected	NO LAN			mA
Current consumption when WiFi_OFF and LAN disconnected		170		mA
Storage and transportation condition. in range of °C and % R.H.	Storage temperature: 0~+70 °C Humidity: <10% RH			
Operating temperature and humidity	Operating temperature: 0~+50 °C Humidity: <95% RH			
IP classification protection against harmful ingress of water and particulate matter.	Ingress Protection Rating 21			

RW8300E

WiFi Ratings @ 25° C

Parameter	Min	Typical	Max	Units
Operating Temperature RW8300E	0	25	50	°C
Relative Humidity (non-condensing)	5		95	%
USB Voltage Requirement	4.5	5	5.5	VDC
Current consumption when WiFi_ON		370		mA
Current consumption when WiFi_OFF and LAN connected		200		mA
Current consumption when WiFi_OFF and LAN disconnected		170		mA
Storage and transportation condition. in range of °C and % R.H.	Storage temperature: 0~+70 °C Humidity: <10% RH			
Operating temperature and humidity	Operating temperature: 0~+50 °C Humidity: <95% RH			
IP classification protection against harmful ingress of water and particulate matter.	Ingress Protection Rating 21			

Physical Description

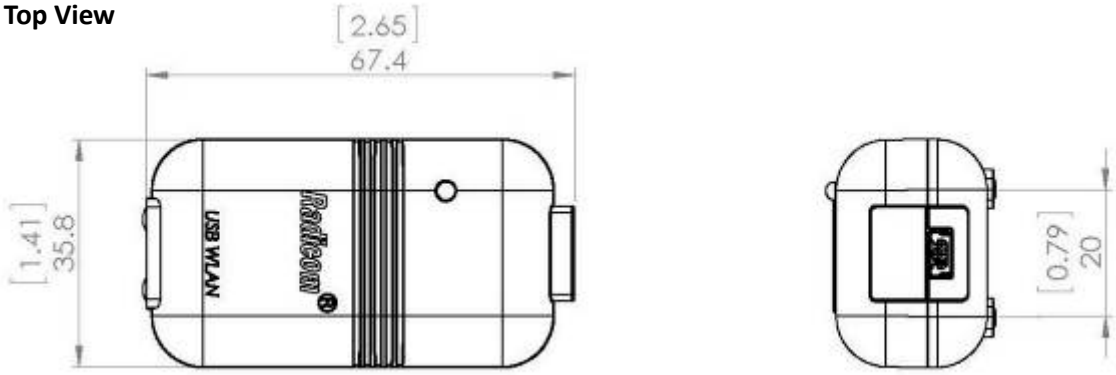
RW8300E-NL: **Size & Weight**	2.7” x 1.4” x 1.0” (67.4 x 35.8 x 26.4mm) 36.1g
RW8300E: **Size & Weight**	2.7” x 1.4” x 1.0” (67.4 x 35.8 x 26.4mm) 30.6g

RW8300E-a-PR Standalone Product Mechanical Diagram

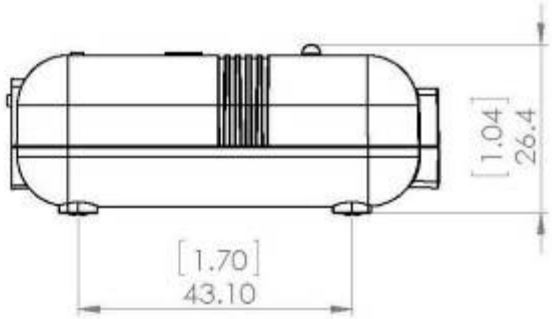
Size:
RW8300E Size: 67.4 x 35.8 x 26.4mm [2.65” x 1.41” x 1.04”]
RW8300E-NL Size: 67.4 x 35.8 x 26.4mm [2.65” x 1.41” x 1.04”]

Unit: mm[inch]

Top View

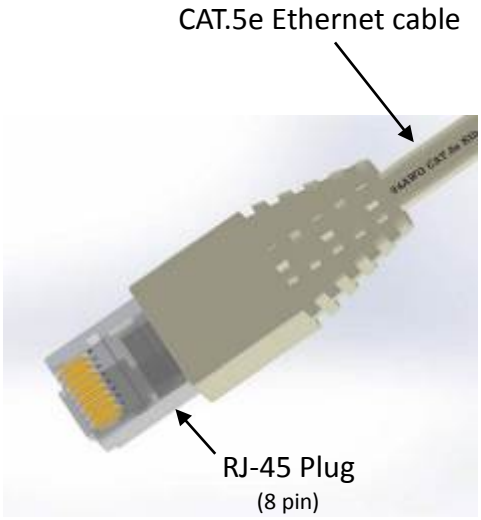


Side View



RJ45 Ethernet Cable Description

The following table shows the RJ45 connector pin assignments for Ethernet cable. PHY data rate is 100Mbps.



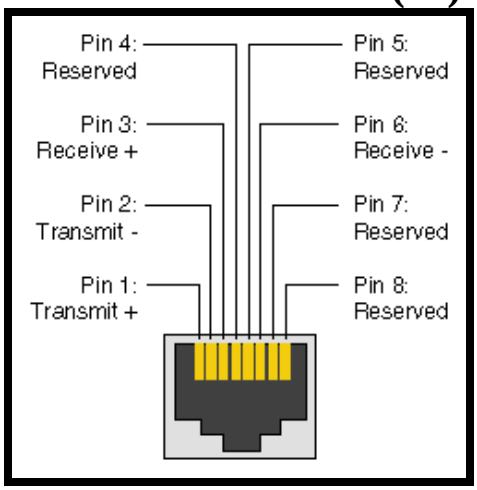
Contact	10/100 Base-T Signal
1	TD+ (Transmit Data)
2	TD- (Transmit Data)
3	RD+ (Receive Data)
4	Not used
5	Not used
6	RD- (Receive Data)
7	Not Used
8	Not Used

Ethernet Port Connector Pin Definitions

Standard RJ45 10/100 BASE-T Port

A RJ45 connector is used for Ethernet twisted pair links. The RJ45 connector has 8-pins. and may also be referred to as an **8-pin modular connector**. A male RJ45 plug is mounted on each end of the twisted pair cable. A female RJ45 jack or receptacle is integrated into the Ethernet hub or NIC.

Ethernet Connector (J1)



RW8300E-a-PR (USB-Device) LED Operation

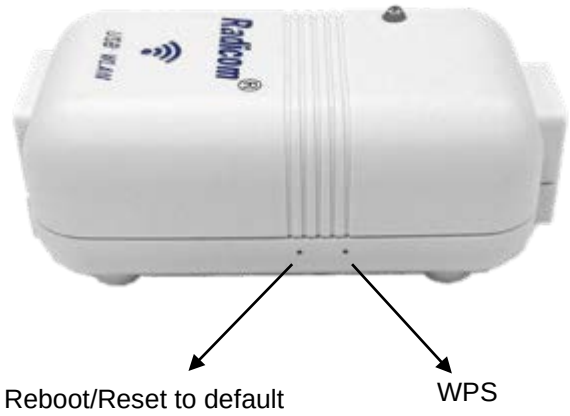
There are four LED status in RW8300E-a-PR (RW8300E or RW8300E-NL).

1. Glowing: RW8300E-a-PR is power on and ready.
2. Blinking in 2 seconds: RW8300E-a-PR could connect to internet.
3. Blinking in 1/2 seconds: RW8300E-a-PR will reboot after release the reset button.
4. Blinking in 1/8 seconds: RW8300E-a-PR will reset to factory default setting after release the reset button then reboot.

Ethernet Connector LED Operation

(Reserved)

WPS/RESET Button on RW8300E-a-PR (USB-Device)



1. **RESET multi-functional button (MFB)**
   MFB button supports reboot and reset functions.
   Reboot RW8300E-a-PR: Press MFB for 2-5 seconds
   Reset RW8300E-a-PR factory default setting: Long-press MFB over 5 seconds.

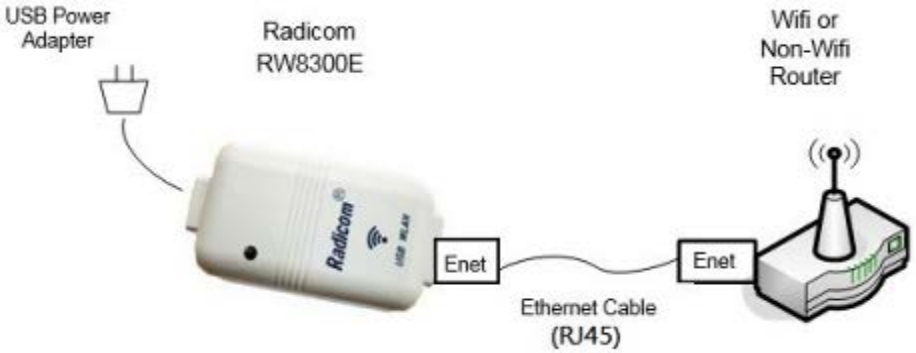
2. **WPS button: Reserved**

RW8300E-a-PR Quick Start Method

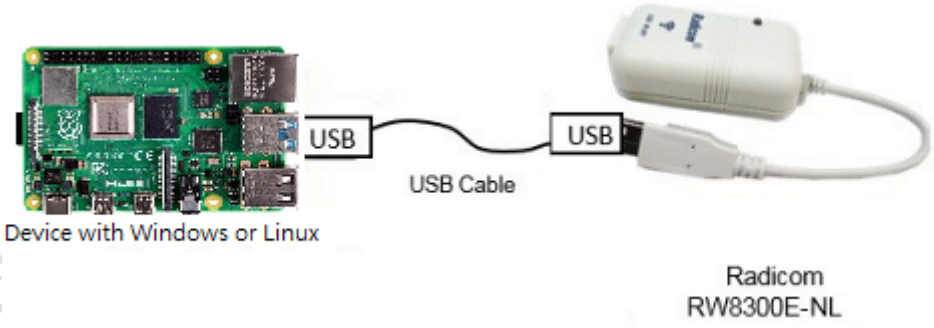
RW8300E-a-PR is a factory pre-paired solution which includes one RW8300E and one RW8300E-NL to become a non-configuration WiFi solution. Please prepare RW8300E-a-PR. internet accessible AP router and your equipment for setup environment. You may need to install the driver for RW8300E-NL if your machine does not have pre-install driver. RW8300E-NL also has the capability to automatically load the driver into your machine.

WARNING: Please ensure the AP router is not 192.168.137.xxx domain for sub-net otherwise the device will get 192.168.136.xxx IP address instead.

Step 1: Connect the USB power adapter to the RW8300E then connect the Ethernet cable to an internet accessible AP router.
Step 2: Connect the other side of RW8300E-NL to your device with USB cable



Setup RW8300E



Setup RW8300E-NL

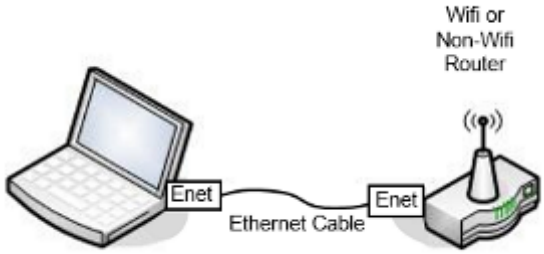
Step 3: Your device has accessed to the router. now.

Connection Process of RW8300E-a-PR

Setup RW8300E connection
This session details a method to set up RW8300E connection.

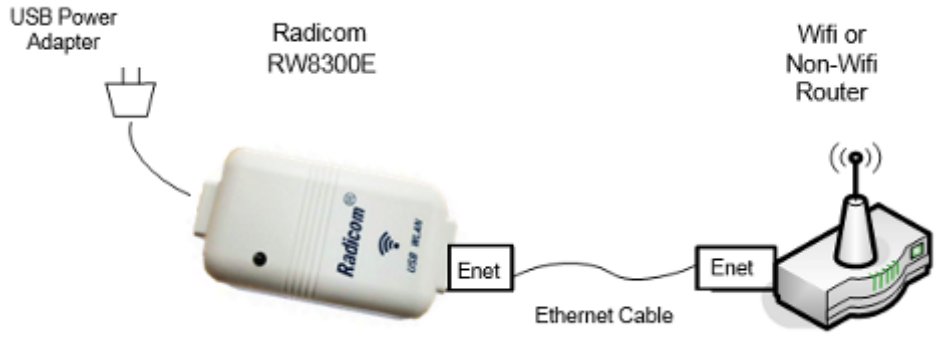
※Please make sure RW8300E is at default settings. you can refer chapter “WPS/RESET Button on RW8300E-a-PR (USB-Device)” on page 15.

1. Ensure the router operates via the RJ45 Ethernet:
   Connect RJ45 Ethernet cable from your computer to the Internet router to make your computer access to Internet via the RJ45 connection.



Ensure the router accepts RJ45 and test the connection

2. Once the Internet connection between computer and router is confirmed. remove the computer and re-connect RW8300E and router with the same RJ45 Ethernet cable.



Connect Ethernet between RW8300E and router

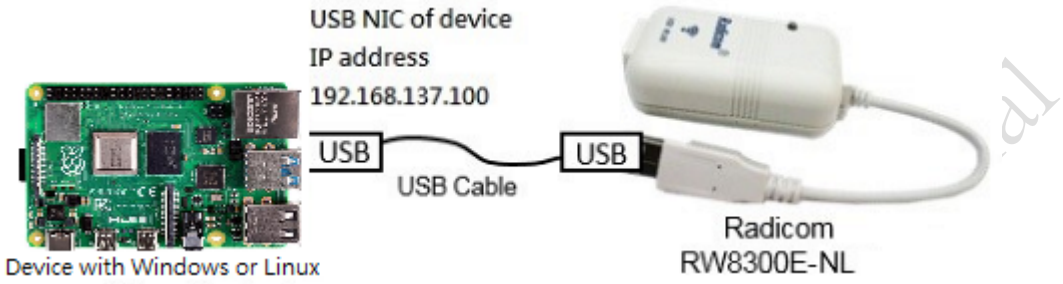
3. Plug the USB power adapter into USB connector on the RW8300E.

4. Wait approximate one minute for booting to complete and the LED flashes at a 2 seconds rate.

Various Connection Processes of RW8300E-a-PR

This session will show you how to setup RW8300E-NL connection under different environments.

※ Ensure RW8300E has powered on and connected router by RJ45 cable.
※ Ensure RW8300E-NL is at default setting. For RW8300E(-NL) button position. check "WPS/RESET Button on RW8300E-a-PR (USB-Device)" on page 15.

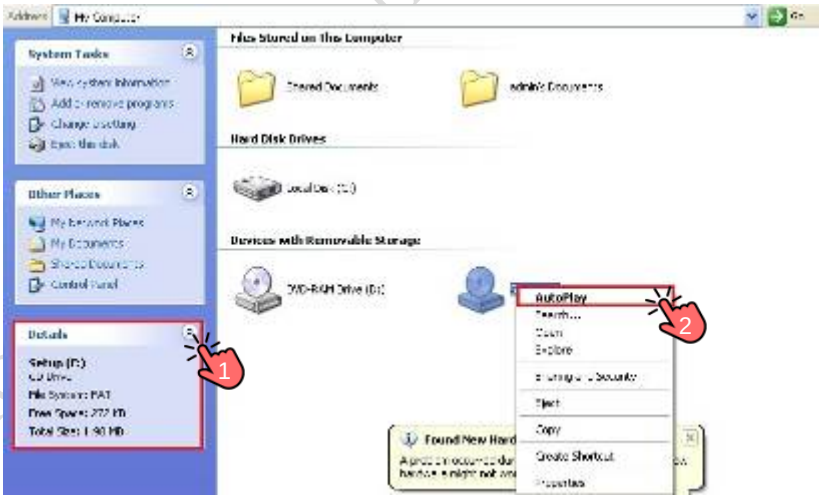


RW8300E-NL setup environment

1. Windows XP Device

1.1 Plug RW8300E-NL into USB port on your device.

1.2 Once system detected USB device. it will install USB driver automatically. If it doesn't detect automatically. follow the device pop-up screen to run setup.exe.
※If device does not automatically install the USB driver. please manually execute the CD Driver.



Manually executed auto play to setup

1.3 Wait approximate one minute. green LED will flash on both devices and Internet connection is complete. If you experience a problem check "trouble shooting" on page 21.

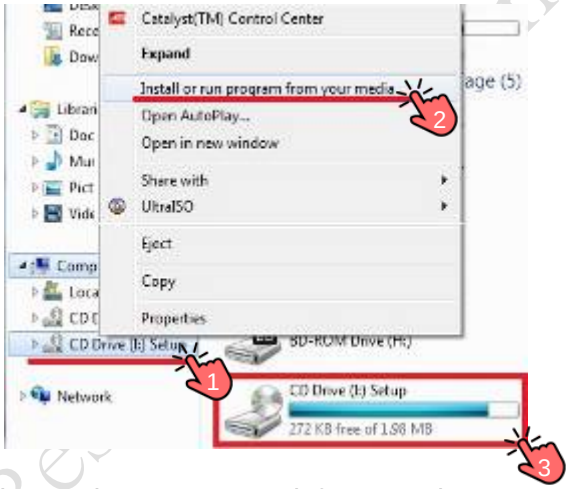
2. Windows 7 Device

2.1 Plug RW8300E-NL into USB port on your device

2.2 Load USB driver on your device. click “Run Setup.exe”.

※If device doesn`t play setup automatically. please manually executed CD Driver.

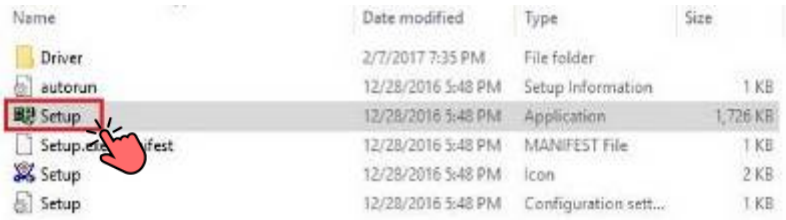
AutoPlay Setup



2.3 Manually executed auto play to setup Wait for one minute. You’ll see green LED is flashing on both RW8300E-NL. Now. you have Internet on the device again. If it doesn’t work. please check “trouble shooting” on page 21.

3. Windows 10 Device

3.1 Install USB driver on your device.



Manually Setup

3.2 Plug RW8300E-NL into USB port on your device.

3.3 Wait for one minute. You'll see green LED is flashing on both RW8300E-NL. Now. you have Internet on the device again. If it doesn't work. please check "trouble shooting" on page 21.

4. Linux Device

4.1 Plug RW8300E-NL into USB port on your device. It's not necessary to load driver on Linux.

4.2 Wait for one minute. You'll see green LED is flashing on both RW8300E-NL. Now. you have Internet on the device again. If it doesn't work. please check "trouble shooting" on page 21.

※Linux kernel version requires 2.6 above.

Trouble Shooting

If the device does not connect to the Ethernet after setup. please follow the instructions below to check system environment and network setting.

1. DHCP release and renew IP address

1.1 Windows Device

1.1.1 Press "**Windows Key**" + "**R**" to open search box

Windows key

1.1.2 Key in "**cmd**" to open terminal application.

1.1.3 Execute "**ipconfig /release**" command to release all IP address setting

1.1.4 Execute "**ipconfig /renew**" command to renew the IP address.

1.2 Linux Device

1.2.1 Press "**Windows Key**" to go to search box.

Windows key

1.2.2 Key in "**gnome-terminal**" to open terminal application.

Search gnome-terminal

1.2.3 Key in “**sudo dhclient –r**” to release IP address setting.

1.2.4 Key in “**sudo dhclient**” to renew IP address.

2 Check network connection status.

2.1 Key in “**ping 8.8.8.8**” to check Ethernet connection.

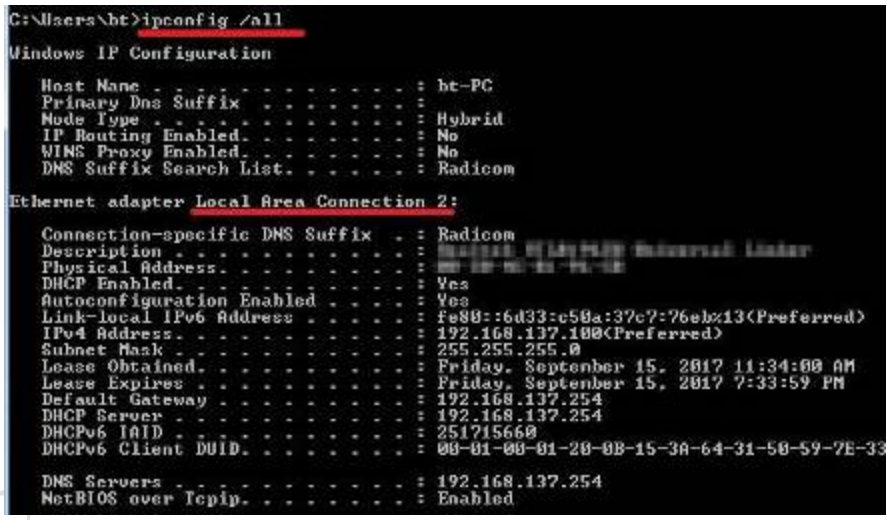
2.2 If ping program connect times out. re-plug RW8300E-NL. To check DNS status. key in “**ping www.radi.com**”.

2.3 If ping program connect times out. setup DNS server in operation system.

3 Setup DNS server in operation system

3.1 Windows Device

3.1.1 Key in “**ipconfig /all**” to check network interface name of RW8300E-NL.

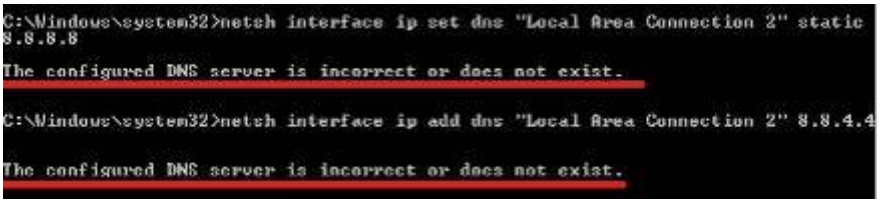


Check network interface name of RW8300E-NL

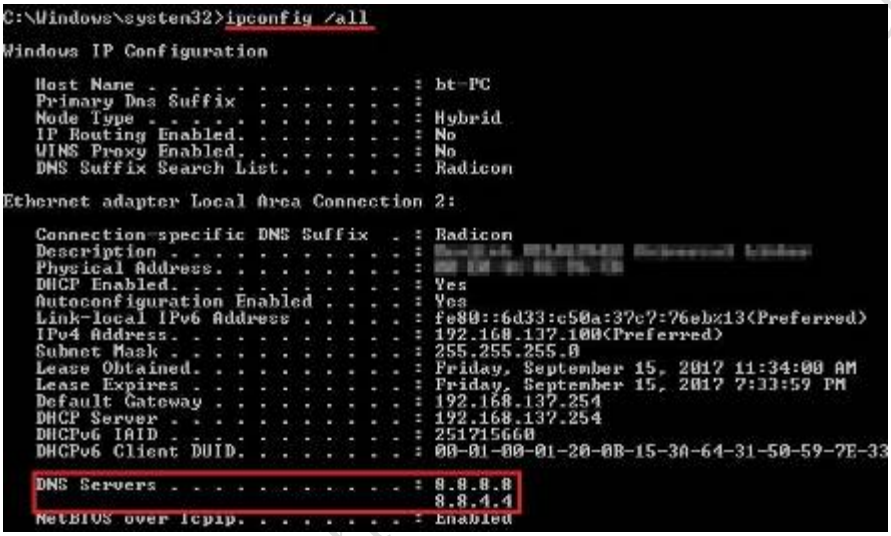
3.1.2 Key in “**netsh interface ip set dns “Local Area Connection 2” static 8.8.8.8**” to setup DNS1.

3.1.3 Key in “**netsh interface ip add dns “Local Area Connection 2” 8.8.4.4**” to setup DNS2.

3.1.4 If you see the message "**The configured DNS server is incorrect or does not exist**". you can ignore it and key in "**ipconfig /all**" to check DNS server.



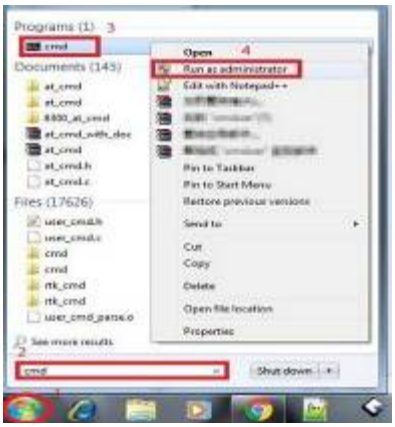
Response message



Check DSN setting

3.1.5 If you see the message "**The requested operation requires elevation <Run as administrator>**". please re-run terminal as administrator purview. Then repeat step. 3.1.1 to 3.1.4.

Purview error



Run as administrator

3.2 Linux Device

※This example is operated under **Fedora 20** system. If the RW8300E-NL runs under others Linux distribution. please ask IT members or contact Radicom.

3.2.1 Set DNS through GUI.

3.2.1.1 Press “**Windows Key**” to enter search box.

Windows key

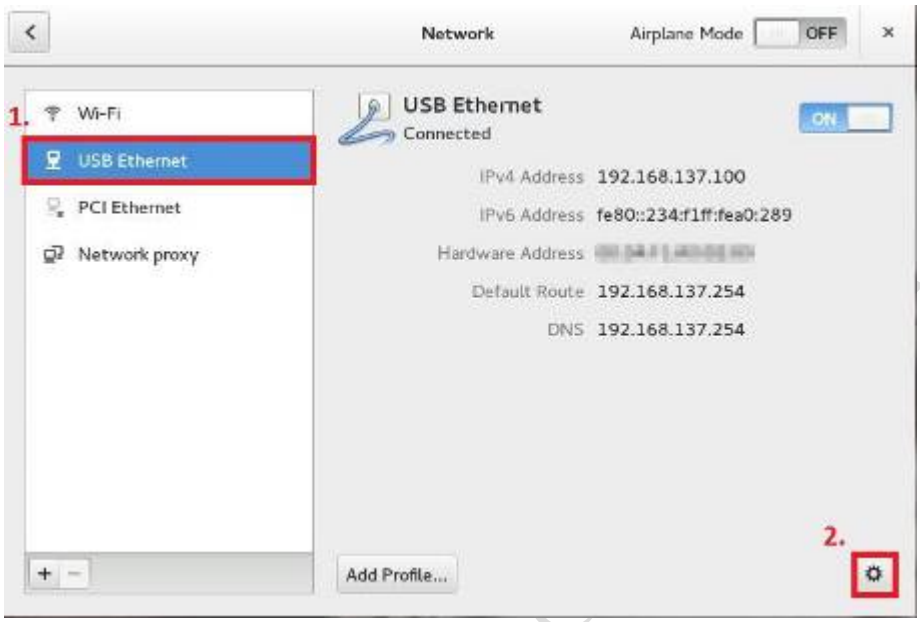
3.2.1.2 Key in “**Settings**” to open system setup window.

Search “Settings”

3.2.1.3 Click “**Network**” to get network setup window.

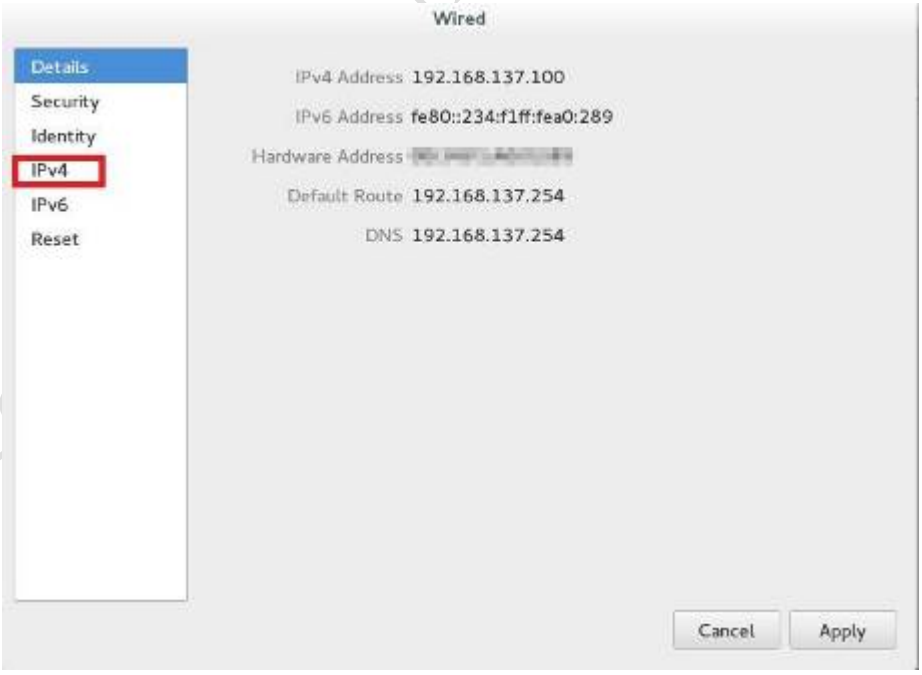
Click Network

3.2.1.4 Click “**USB Ethernet**” on the left side. and then click gear symbol  to open configuration window.



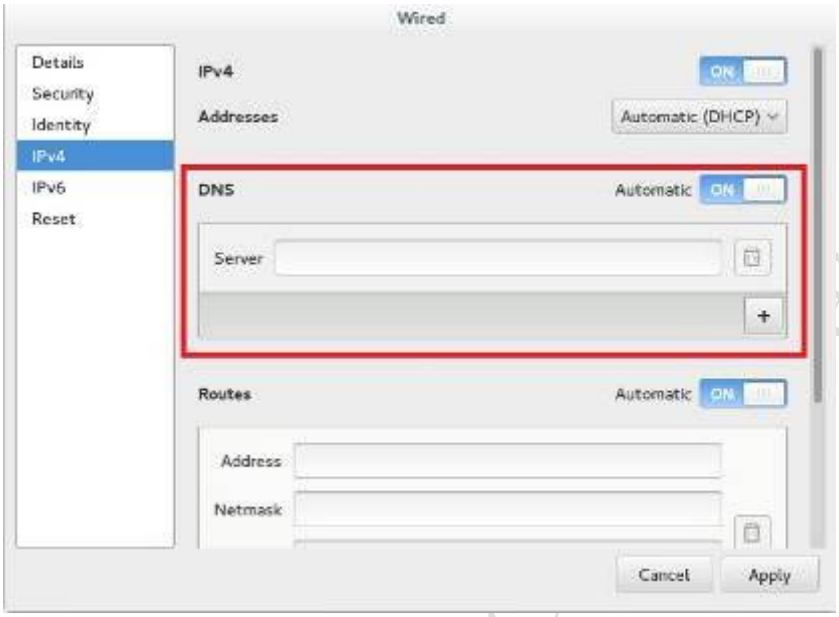
Network setup window

3.2.1.5 Click “**IPv4**” on the left side.

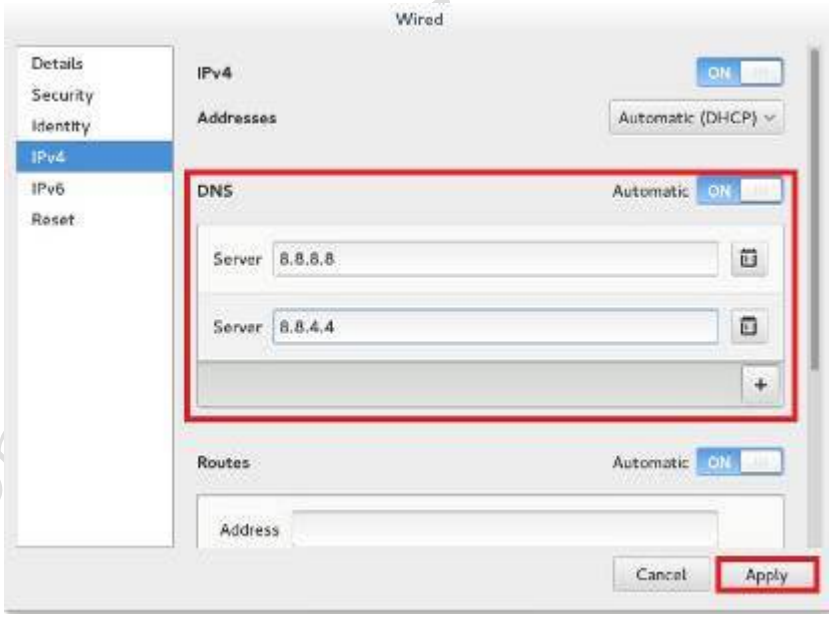


Network configuration

3.2.1.6 Key “**8.8.8.8**” in textbox of DNS. Then click plus symbol +. Key in “**8.8.4.4**” to second textbox. and click “**Apply**”.

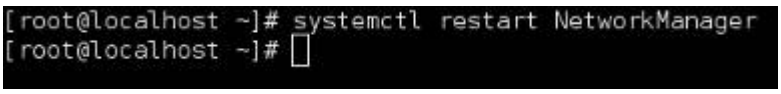


Before set DNS



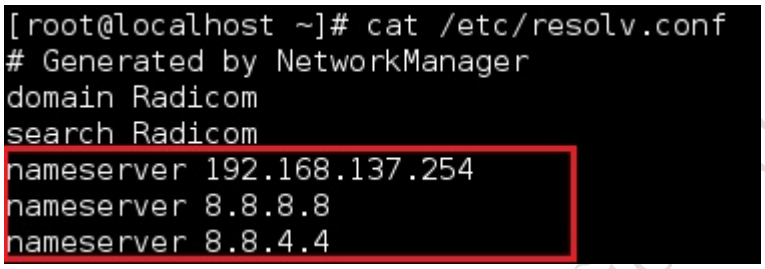
After set DNS

3.2.1.7 Open terminal application. and key in “**systemctl restart NetworkManager**” to restart network interface.



Restart network interface

3.2.1.8 Key in “**cat /etc/resolv.conf**” to check DNS setting.



Check DNS setting

Reset RW8300E-a-PR (USB-Device) to the Default

This chapter will show you how to reset and reboot RW8300E-a-PR with multi-functional button (MFB).

※For RW8300E-a-PR button position. please refer to chapter “WPS/RESET Button on RW8300E-a-PR (USB-Device)” on page 15.

Reset RW8300E-NL to factory default setting

1. Connect your device and RW8300E-NL with USB cable to power on RW8300E-NL. and wait one minute for startup.

2. Insert a pin into the RESET hole. long-press **RESET** button over 5 seconds. until LED flash within 1/8 seconds. Then release **RESET** button and wait 2 minutes. RW8300E-NL will change back to factory default setting. Once system reboots and LED glowing more than 10 seconds. the system back to default setting successfully.

Reset RW8300E to factory default setting

1. Plug in USB adapter to power on RW8300E. and waiting 1 minute to start system up.

2. Insert a pin into the RESET hole (near the LAN port). press and hold the **RESET** button for 2-5 seconds. RW8300E will reboot.

Upgrade RW8300E-a-PR firmware

This chapter will show you how to upgrade firmware and check firmware's version. When user upgrades firmware. **Do not connect RW8300E and RW8300E-NL simultaneously.**

Firmware version:

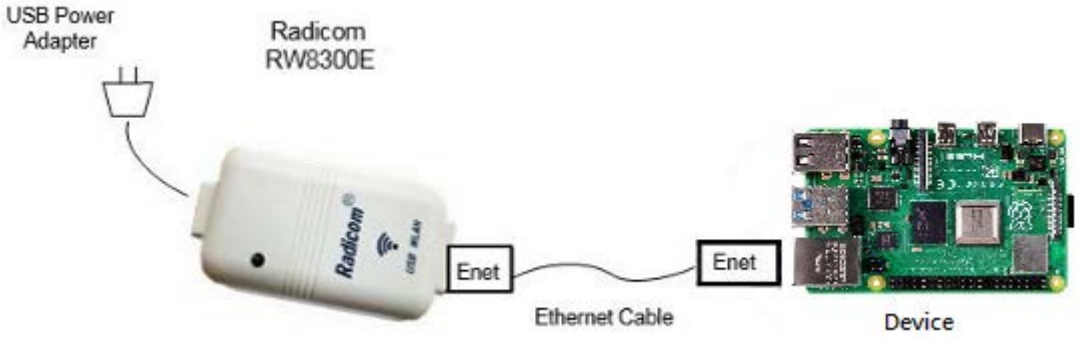
RW8300E	RW8300E-NL
RW8300-D.RRI.110_3.4.6.6	RW8300E-a-NL.RRI.041_3.4.6.6
RW8300-D.RRI.110T_3.4.6.6	RW8300E-a-NL.RRI.041T_3.4.6.6

Use web page upgrade firmware only for version: RW8300-D.RRI.110T_3.4.6.6
RW8300E-a-NL.RRI.041T_3.4.6.6

1. Connect to web page of RW8300E and RW8300E-NL

1.1 RW8300E

1.1.1 Follow below figure to set up environment of RW8300E to upgrade firmware and turn off all WiFi interfaces or other Ethernet of YOUR DEVICE.



Environment of RW8300E updating firmware

1.1.2 Power on RW8300E and wait 70 seconds.

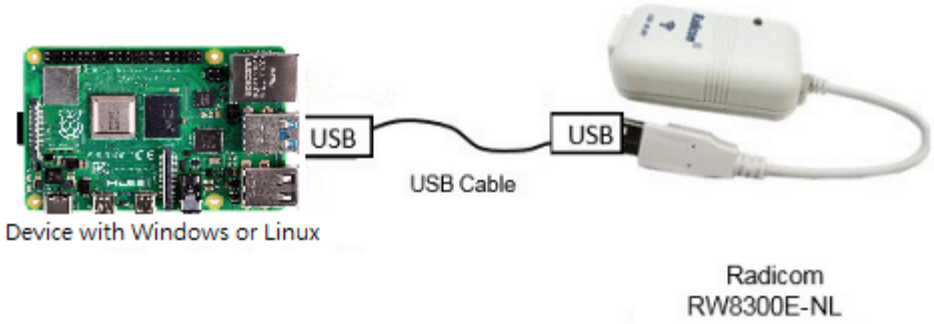
1.1.3 Set up IPv4 static IP address under Ethernet interface of the device. Set IP address to "**192.168.1.100**".
※To know more details about "Static IP setting". please refer to page 33.

1.1.4 Open a browser (ex: chrome. IE. FireFox…) on the device. and go to http://192.168.1.254.

RW8300E web page

1.2 RW8300E-NL

Follow below figure to set up environment of RW8300E-NL to upgrade firmware and turn off all Ethernet/WiFi interfaces of the device.



Environment of RW8300E-NL updating firmware

1.2.1 Power on RW8300E-NL and wait 80 seconds.

1.2.2 Turn on DHCP service of the USB NIC in the device will get an IP address "**192.168.137.100**".

※To know more details about "obtain an IP address automatically". Please refer to page 36.

1.2.3 Open a browser (ex: chrome. IE. FireFox…) under your device. And go to http://192.168.137.254. Then click "**Advanced Setting**".

RW8300E-NL web page of Setup Wizard

2. Setup Static IP address

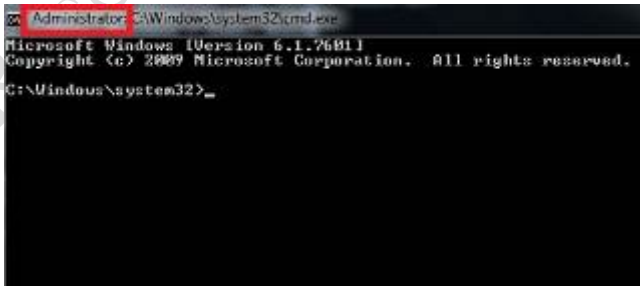
2.1 Windows Device

2.1.1 Press “**Windows Key**” to enter search box.

Windows key

2.1.2 Key “**cmd**” in search box and press “**Ctrl**” + “**Shift**” + “**enter**” to run terminal as administrator purview.

Open terminal as administrator purview



Terminal of administrator purview

2.1.3 Key in “**ipconfig**” to check the name of LAN interface.

Check name of LAN interface

2.1.4 Key in "**netsh interface ipv4 set address name="Local Area Connection 2" static 192.168.1.100 255.255.255.0**" to set static IP address and subnet.
(Command format: **netsh interface ipv4 set address name="Interface name" static IP Address Subnet Mask**)

```
C:\Windows\system32>
C:\Windows\system32>netsh interface ipv4 set address name="Local Area Connection
 2" static 192.168.1.100 255.255.255.0
```

Command sample

2.1.5 Key in "**ipconfig**" to check IP address.

```
Windows IP Configuration

Ethernet adapter Local Area Connection 2:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::6d33:c50a:37c7:76eb%13
   IPv4 Address. . . . . . . . . . . : 192.168.1.100
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
```

Check IP address

2.2 Linux Device

※This example operates on **Fedora 20** system.

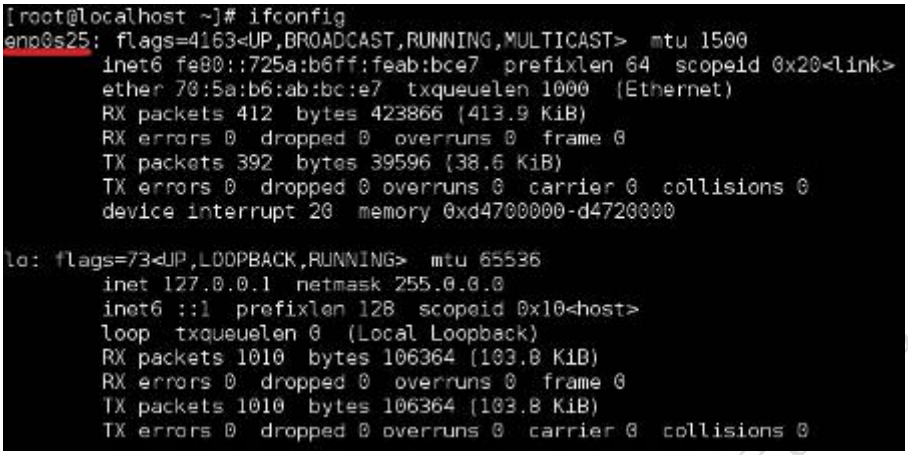
2.2.1 Press "**Windows Key**" to go to search box.

Windows key

2.2.2 Key in "**gnome-terminal**" to open terminal application.

Search gnome-terminal

2.2.3 Key in “**ifconfig**” to check the name of LAN interface.



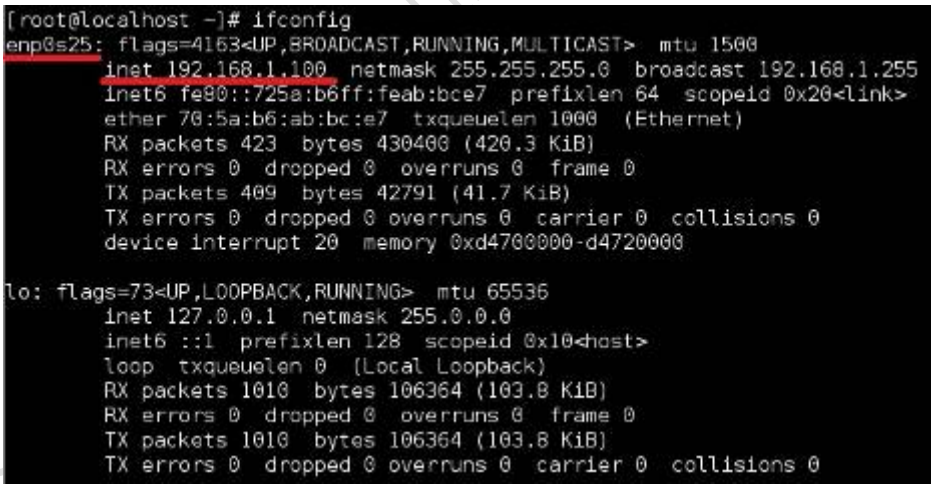
Check name of LAN interface

2.2.4 Key in “**ifconfig enp0s25 192.168.1.100**” to set IP address.
(Command format: **ifconfig <u>Interface name</u> <u>IP address</u>**)

```
[root@localhost ~]# ifconfig enp0s25 192.168.1.100
```

Command sample

2.2.5 Key in “**ifconfig**” to check IP address.



Check IP address

3. Setup to obtain an IP address automatically (DHCP)

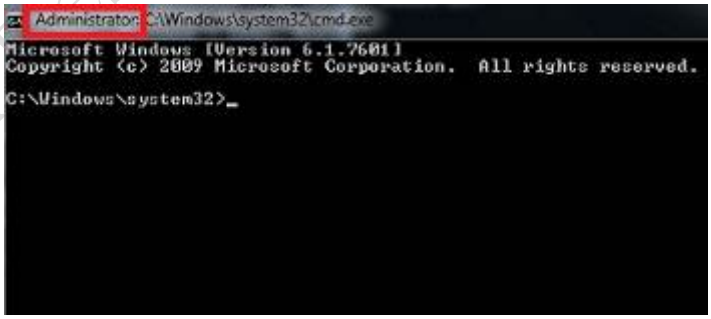
3.1 Windows Device

3.1.1 Press “**Windows Key**” to enter search box.

Windows key

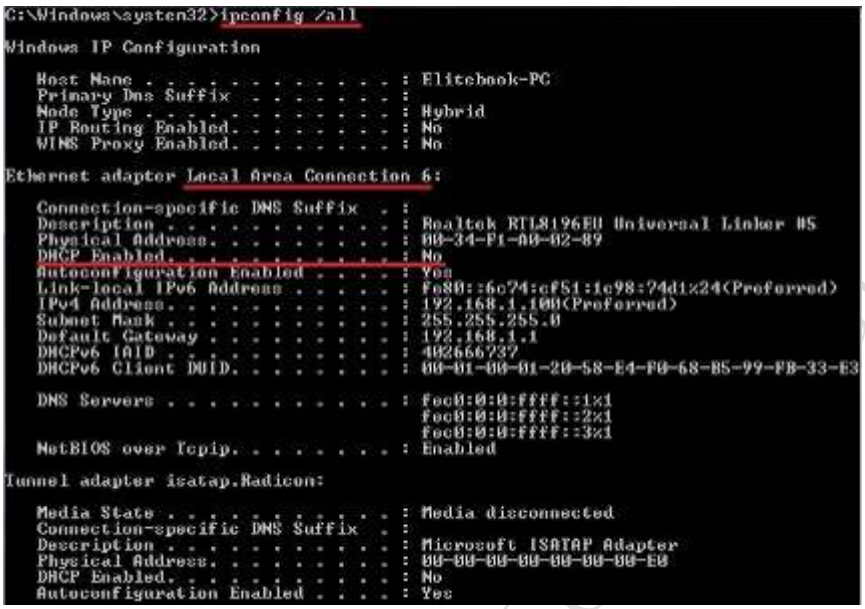
3.1.2 Key “**cmd**” in search box and press “**Ctrl**” + “**Shift**” + “**enter**” to run terminal as administrator purview.

Open terminal as administrator purview



Terminal of administrator purview

3.1.3 Key in “**ipconfig /all**” to check the name of LAN interface and DHCP Enabled.



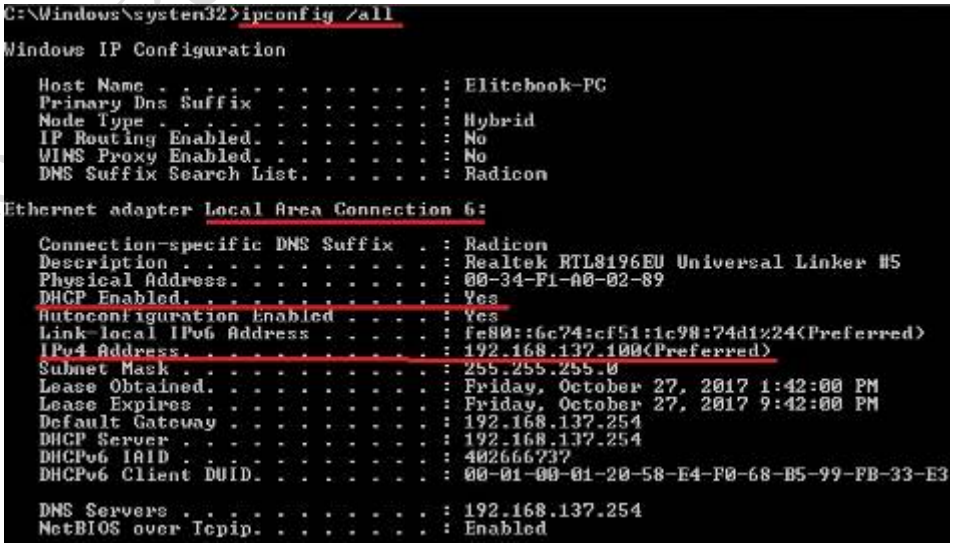
Check name of LAN interface

3.1.4 Key in “**netsh interface ipv4 set address name="Local Area Connection 6" source=dhcp**” to set static IP address and subnet. (Command format: **netsh interface ipv4 set address name="<u>Interface name</u>" source=dhcp**)

```
C:\Windows\system32>netsh interface ipv4 set address name="Local Area Connection
 6" source=dhcp
```

Command sample

3.1.5 Key in “**ipconfig /all**” to check IP address and DHCP Enabled.



Check IP address and DHCP Enabled

4. **Upgrade firmware**

In this section. we'll show you how to upgrade firmware. Also. how to check firmware version and md5sum.

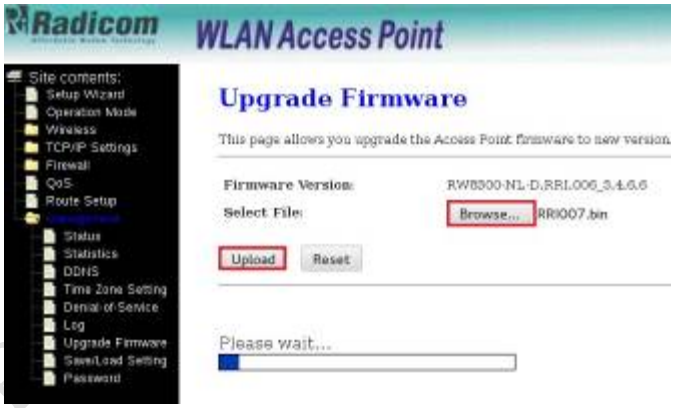
4.1 Upgrade firmware

4.1.1 Open a browser and go to RW8300E / RW8300E-NL web page.

4.1.2 Click "**Management**" on the left side and click "**Upgrade Firmware**".

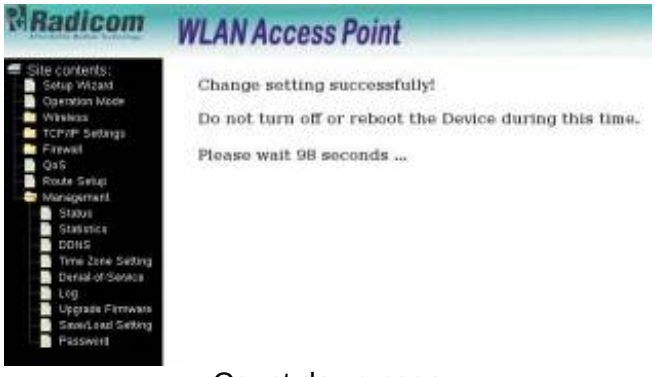
RW8300E / RW8300E-NL web page

4.1.3 Click "**Browse**…" to open firmware file (.bin file) and click "**Upgrade**" to upgrade firmware.



Upgrade firmware

4.1.4 Wait 120 seconds to upgrade firmware and reboot RW8300E / RW8300E-NL.



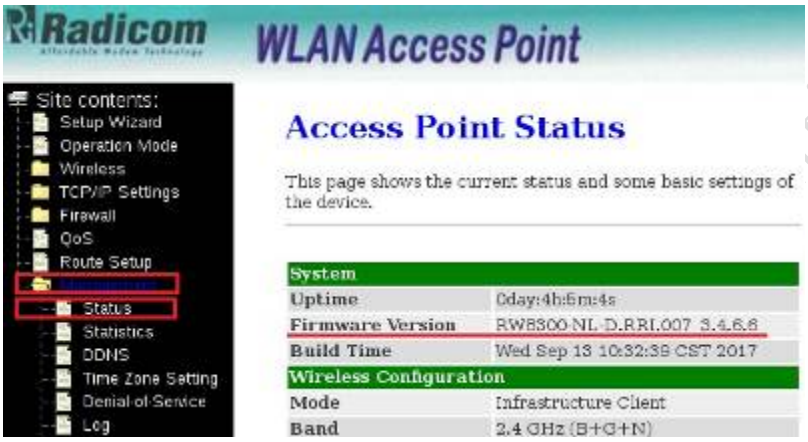
Count down page

4.1.5 After upgrade RW8300E / RW8300E-NL firmware. reset to default setting by reset button. Please check “WPS/RESET Button on RW8300E-a-PR (USB-Device)” on page 15.

4.2 Check firmware version

4.2.1 Open a browser and go to RW8300E / RW8300E-NL web page.

4.2.2 Click “**Management**” on the left side and click “**Status**”. Current firmware version will be shown on “**Firmware Version**” line. In this example. firmware version is “**RW8300-NL-D.RRI.007_3.4.6.6**”.



Status Page

4.3 How to check md5sum of firmware

※This example operates on Fedora 20 system.

4.3.1 Press “Windows Key” to go to search box.

Windows key

4.3.2 Key in “**gnome-terminal**” to open terminal application.

Search gnome-terminal

4.3.3 After getting new firmware (bin file) and release note from Radicom. please confirm if files are existed in correct directory by typing command “ls” in download directory.

```
[root@localhost MD5]# ls
ReleaseNote.txt  RW830GE-a-NL.RRI.010_3.4.6.6.bin
```

Check new firmware file

4.3.4 Key in “md5sum RW8300E-a-NL.RRI.010_3.4.6.6.bin” to obtain md5sum number.
Command format as “**md5sum** <filename>”

```
[root@localhost MD5]# md5sum RW8300E-a-NL.RRI.010_3.4.6.6.bin
87caeab9f36c57b3eefcdeef2c9836db  RW8300E-a-NL.RRI.010_3.4.6.6.bin
```

Create md5sum of new firmware

4.3.5 Key in “cat ReleaseNote.txt” and find out the correspondent release version. Then please compare md5sum in release note with md5sum of bin file. Both of them should be the same.

```
//-------------------------------------------------------------------------
======//

Date: 2017/10/25
        Release Version: RW8300-NL-D.RRI.010_3.4.6.6.bin
        md5sum: 87caeab9f36c57b3eefcdeef2c9836db
                1. Operation mode change to WISP mode.
                2. DHCP mode change to DHCP server.
                3. DMZ was enables and set to "192.168.137.100".

        Warning:
                Under version RRI.010, please don't downgrade firmware.

        known issue:
                1. AP domin is "192.168.137.xxx",  the device of connected RW830
0E-a-NL will get "192.168.136.xxx" IP address.
//=========================================================================
------//
```

Release Note

Get RW8300E-NL web page on pair connection

RW8300E-NL will assign an IP address to connected device. This IP address must be "**192.168.137.100**". In addition. URL of RW8300E-NL web is "http://192.168.137.254".

※ RW8300E-NL web page is accessed by USB NIC only.

.

※ Web page only for version: RW8300E-a-NL.RRI.041T_3.4.6.6

※ Because RW8300E is a pure LAN to WiFi device. there`s no need to change its setting.

There are four ways to get the web page of RW8300E-NL after assign the final IP address. including browser. curl. curl library and TCP/IP socket.

1. By browser: Please refer to page 31 and change IP address to match your local environment.
2. By curl: Install curl tool and execute under command mode.
3. By curl library: Install curl develop tool and write down a proprietary program.
4. By TCP/IP socket: Use basic socket API to write down a proprietary program.

EMC Guidance and Manufacturer's Declaration

Test	Voltage kV
ESD in air discharge	15KV
ESD in contact discharge	8KV

FCC. IC. CE and TELEC Module Model Identification

The RW8300E-a-PR module family is FCC Part 15 and IC (Industry Canada) certified. The RW8300E-a-PR is also CE. TELEC marked. The modules are labeled with the appropriate RW8300E-a-PR module model number and FCC Part 15 ID. IC registration number and CE mark. The label can be found on top of the metal shielding on the RW8300E-a-PR Module.

※ The first 6 digits of MAC#0034F1 is fixed.

※ The 7th digits of MAC# represent the model. “8” is RW8300E. and “9” is RW8300E-NL.

※ For paired products. the last 5 digits are the same.

Important Regulatory Compliance and User Information

The final product with the modules installed needs to be tested for FCC Part 15. IC (Industry Canada) CE. EMI/RF compliance. Radicom certification documentation will help streamline the final product approval process. Contact Radicom for more information. To maintain compliance in the finished product. carefully follow guidelines in this section.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users.

2) The transmitter module may not be co-located with any other transmitter or antenna. As long as the two conditions above are met. further transmitter testing will not be required. However. the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with the module installed (for example. digital device emissions. etc).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain device configurations or co-location with another transmitter). then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances. the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Canada, Industry Canada (IC) Notices
This device complies with Industry Canada licenseexempt RSS standard(s).
This Class B digital apparatus complies with Canadian ICES-003 and CAN ICES-3(B)/NMB-3(B).
Operation is subject to the following two conditions:
(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. The IC ID for this device is 2377A-RW8300M.

Radio Frequency (RF) Exposure Information
Déclaration d'exposition aux radiations:
Cet équipement doit être installé et utilisé conformément aux instructions fournies et les antennes utilisées pour cet émetteur doivent être installées de manière à fournir une distance de séparation d'au moins 20 cm par rapport à toutes les personnes et ne doivent pas être colocalisées ou fonctionner conjointement avec toute autre antenne ou émetteur.

IC Radio Frequency (RF) Exposure Information
The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized. This device has been evaluated for and shown compliant with the IC Specific
This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC RF Radiation Exposure Statement

IMPORTANT NOTE: To *comply with the FCC RF exposure compliance requirements. the antenna used on this transmitter must be installed to provide a separation of at least 20 cm from all persons and must not be co-located or operating in* conjunction *with any antenna or transmitter. This device contains a low power transmitter. When this device is* operational. *use only with the supplied. or recommended antenna.* Unauthorized *antenna. modification. or attachments could damage the transmitter and may violate FCC regulations. Changes or modifications not expressly approved by the manufacturer or party responsible for compliance could void the user's authority to operate the equipment.*

FCC Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received. including interference that may cause undesired operation.

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 and radiates radio frequency energy and. if not installed and used in accordance with the instructions. may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception. which can be determined by turning the equipment off and on. the user is encouraged to try to correct the interference by one of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for assistance.*

IC (Industry Canada) Statement:

"This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference. and (2) this device must accept any interference. including interference that may cause undesired operation of the device"

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de license. L'exploitation est autorisee aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage. et (2) l'utilisateur de l'appareil doit acceptor tout brouillage radioelectrique subi. meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Europe – *The Radio Equipment Directive (RED)* Compliance Statement:

Hereby. Radicom Research Inc. declares that this equipment complies with the essential requirements and other relevant provisions of *Radio Equipment Directive (RED) 2014/53/EU. The Radio Equipment Directive (RED) was published in the Official Journal of the European Union on 22nd May 2014 and supersedes the Radio and Telecommunications Terminal Equipment (R&TTE) Directive on 12th June 2016.*

CE Declaration of Conformity

For the following equipment:

Radicom Research Inc. WiFi USB Modem Module
Model(s): RW8300E-NL. RW8300E

is herewith confirmed to comply with the requirements set out in the Council (European parliament) Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility of Radio and Telecom device (1999/5/CE). For the evaluation regarding this Directive. the following standards were applied:

EN 60950-1:2006/AMD 11:2009 /AMD 1:2010/AMD 12:2011/AMD 2:2013
EN55024:2010+A1:2015 . EN55032:2015.
EN 61000-3-2:2014. EN 61000-3-3:2013
ETSI EN 301 489-1 V1.9.2 . EN 301 489-17 V2.2.1
ETSI EN 300 328 V2.1.1. EN 62311:2008

This equipment is marked with the CE *and can be used throughout the European community.*

France – 2.4GHz for Metropolitan France:
In all Metropolitan departments. wireless LAN frequencies can be used under the following conditions. either for public or private use:

- *Indoor use: maximum power (EIRP*) of 100 mW for the entire 2400-2483.5 MHz frequency band*
- Outdoor use: maximum power (EIRP*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP*) of 10 mW for the 2454-2483 MHz band

Caution: Exposure to Radio Frequency Radiation.
To comply with RF exposure compliance requirements. for mobile configurations. a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Limited Warranty

Warranty Coverage and Duration

Radicom Research. Inc. ("RRI") warrants to the original purchaser its RRI-manufactured products ("Product") against defects in material and workmanship under normal use and service for a period of one year from the date of delivery. During the applicable warranty period. at no charge. RRI will. at its option. either repair. replace or refund the purchase price of this Product. provided it is returned in accordance with the terms of this warranty to RRI. Repair. at the option of RRI. may include the replacement of parts. boards or other components with functionally equivalent reconditioned or new parts. boards or other components. Replaced parts. boards or other components are warranted for the balance of the original applicable warranty period. All replaced items shall become the property of RRI.

RRI MAKES NO GUARANTEE OR WARRANTY THAT THE PRODUCT WILL PREVENT OCCURRENCES. OR THE CONSEQUENCES THEREOF. WHICH THE PRODUCT IS DESIGNED TO DEFECT.

This expressed limited warranty is extended by RRI to the original end-user purchaser only. and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by RRI. and RRI assumes no obligation or liability for additions or modifications to this warranty. In no case does RRI warrant the installation. maintenance or service of the Product. RRI is not responsible in any way for any ancillary equipment not furnished by RRI that is attached to or used in connection with the Product. or for operation of the Product with any ancillary equipment and all such equipment is expressly excluded from this warranty. Because of wide variations in topographical and atmospheric conditions. which may require availability of repeater stations or of particular radio frequencies. RRI assumes no liability for range. coverage or suitability of the Product for any particular application. Buyer acknowledges that RRI does not know a particular purpose for which buyer wants the Product. and that buyer is not relying on RRI's skill and judgment to select or furnish suitable goods.

What this Warranty does NOT Cover:

(a) Defects or damage resulting from use of the Product in other than its normal and customary manner.

(b) Defects or damage from misuse. accident or neglect.

(c) Defects of damage from improper testing. operation. maintenance. installation. alteration. modification or adjustment.

(d) Disassembly or repair of the Product in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

(e) Any Product that has had its serial number or date code removed or made illegible.

How to Receive Warranty Service:

To obtain warranty service. contact RRI by phone (408) 383 9006 for RMA Department and RMA (Return Merchandise Authorization) number. Deliver or send the Product. transportation and insurance prepaid to RRI. with the RMA number clearly marked on the outside of the package.

General Provision

This warranty sets forth the full extent of RRI's responsibilities regarding the Product. Repair. replacement or refund of the purchase price. at RRI's option. is the exclusive remedy. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. ANY APPLICABLE IMPLIED WARRANTIES. INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTY OF MERCHANTABILITY. ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. TO THE FULLEST EXTENT PERMITTED BY LAW. RRI DISCLAIMS ANY LIABILITY FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT. FOR ANY LOSS OF USE. LOSS OF TIME. INCONVENIENCE. COMMERCIAL LOSS. LOST PROFITS OR SAVING OR OTHER INCIDENTAL. SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE OR FAILURE OF SUCH PRODUCT.

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