



# AC-1200UR

1200Mbps 802.11AC  
AP Router with USB

## User's Manual





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**This product requires professional installation. Please do not attempt to install the device without the necessary knowledge in regards to your country's wireless regulations.**

## Regulatory Information

### Federal Communication Commission Interference Statement

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

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

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) 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.

For product available in the USA/Canada market, only channel 1~11 can be operated.

Selection of other channels is not possible.

## IMPORTANT NOTE

### FCC Radiation Exposure Statement:

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

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

FCC NOTICE: To comply with FCC part 15 rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.



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# 1

## Introduction

### 1.1 Overview



The AC-1200UR is a multi-functional dual band concurrent AP Router that can operate in 5 different wireless modes. The AP features 2 radios that run in 5GHz or 2.4GHz frequency band. Moreover, it supports latest standard 802.11ac which provide the higher throughput than pervious standard.

#### Feature Summary

- 2.4G/5G Dual Band Concurrent
- 11ac + 11b/g/n, data rate up to 1200Mbps
- 5 Wireless Modes
- 23dBm\* Hi-Power with standard antennas. ( Limit 20dBm in EU)
- QoS and Bandwidth Control
- Multiple SSID and VLAN
- 10/20/40/80 Channel Width
- PPPoE Server
- Virtual Server and DMZ support
- Syslog Support

## 1.2 Firmware Upgrade and Tech Support

If you encounter a technical issue that cannot be resolved by information on this guide, we recommend that you visit our comprehensive website support at [www.airlive.com](http://www.airlive.com). The tech support FAQ are frequently updated with latest information.

In addition, you might find new firmware that either increase software functions or provide bug fixes for AC-1200UR. You can reach our on-line support center at the following link:

[http://www.airlive.com/support/support\\_3.php](http://www.airlive.com/support/support_3.php)

## 1.3 Wireless Operation Modes

The AC-1200UR can perform as a multi-function wireless device. Through the AirLive web interface, users can easily select which wireless mode they wish the AC-1200UR to perform.

The AC-1200UR provides 5 modes of wireless operational applications. It can transform the AC-1200UR into different roles in the wireless infrastructure. Below is the example application table for AC-1200UR.

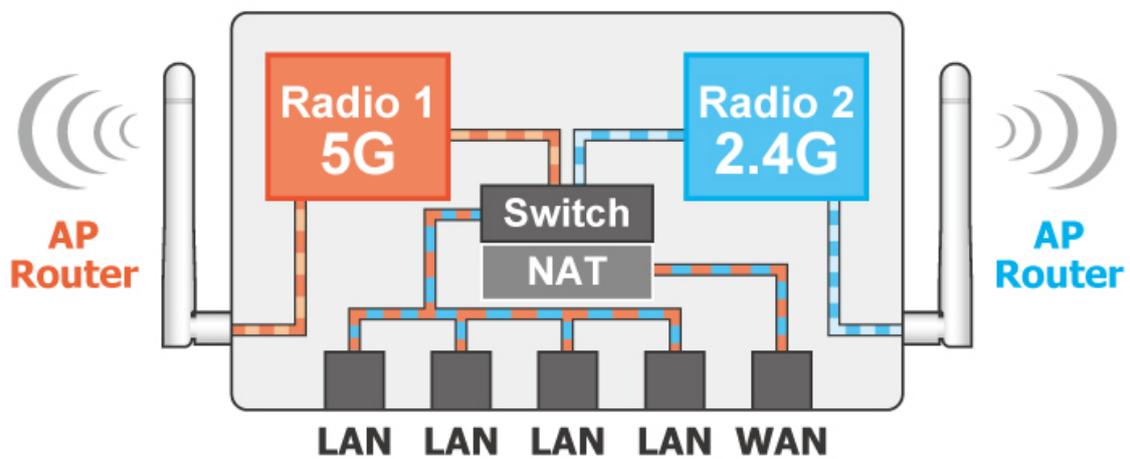
Mode	Radio 1(5G)	Radio2(2.4G)	Applications
Dual Band Router	AP Router	AP Router	Dual Home Networks: 5GHz for Games/AV and 2.4GHz for PC
Dual AP Mode	Access Point	Access Point	Dual Band Hotspots
WISP + AP	Client Mode	AP Router	Sharing WISP 5GHz Broadband Wirelessly
Bridge + AP	Bridge Mode	Access Point	WDS Wireless Repeater
Client + AP	Client	Access Point	Universal Repeater

### 1.3.1 Dual Band Router Mode

In Dual Band Concurrent mode, the radio1 works in 5GHz while radio2 works in 2.4GHz mode. That means the AC-1200UR can provide Internet service to both 5GHz (like game network) and 2.4GHz(like PC network) at the same time.

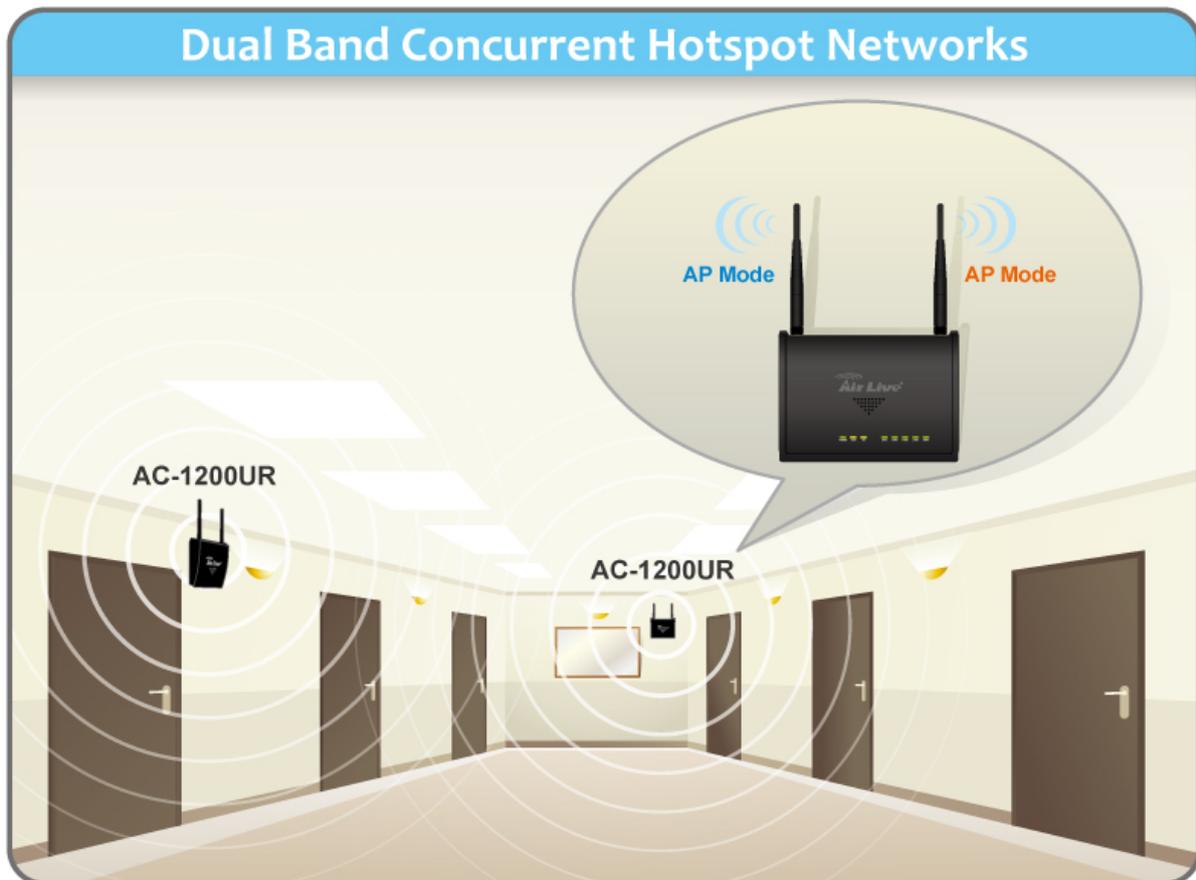


## Dual Band Router

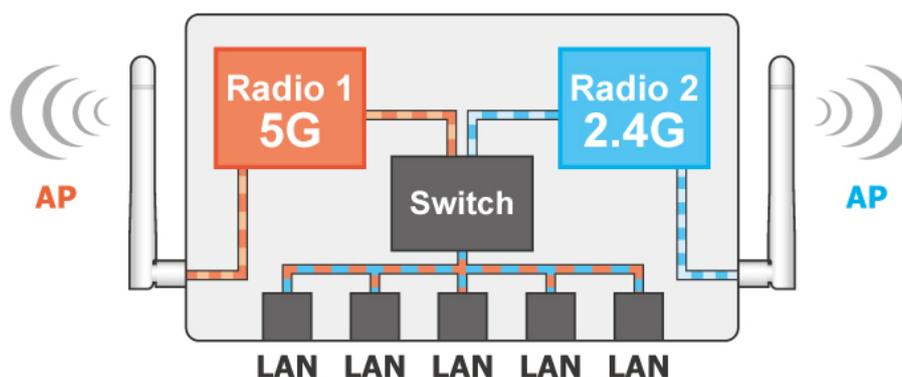


### 1.3.2 Dual AP Mode

In Dual AP mode, both wireless interface of AC-1200UR are set as AP and provide hotspot service on each interface. Radio1 is set to 11ac mode while Radio2 is set to 11g/b/nMode. This mode is most useful for Dual Band Hotspot function such as in the hotels, shopping malls, or offices.

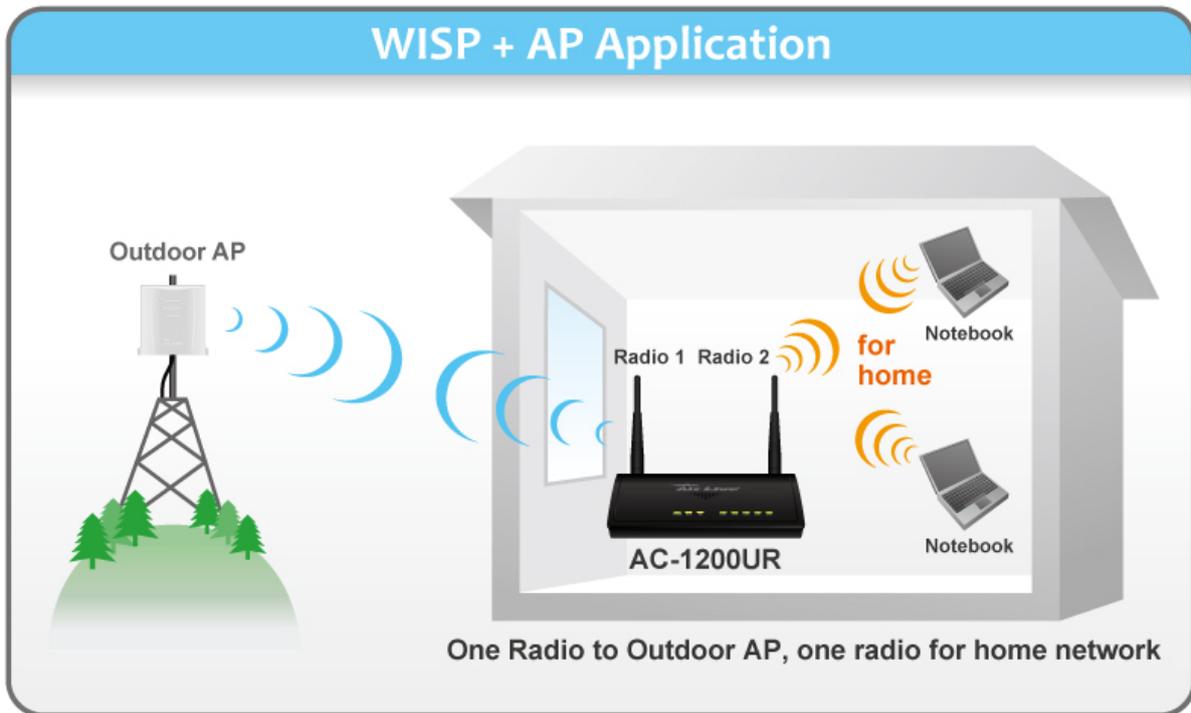


### Dual + AP

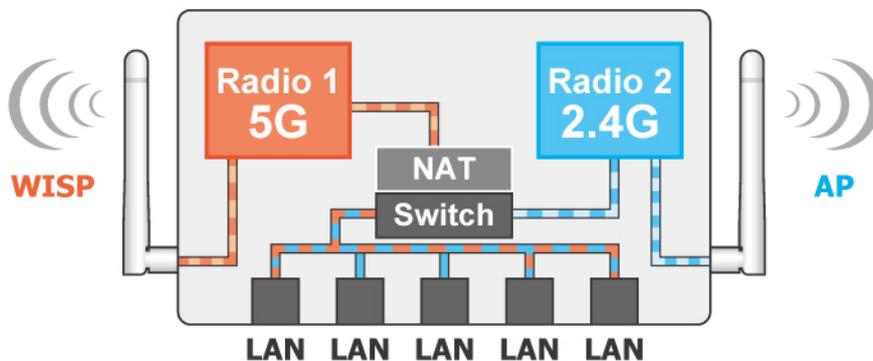


### 1.3.3 WISP + AP Mode

In this mode, Radio1 (5GHz) acts as a client to connect with remote WISP Base Station. Radio 2 (in 11g/b/n mode) works as an AP router to allow subscriber to share the WISP connection wirelessly. Using the AC-1200UR, WISP no longer requires 2 AP/CPE to provide wireless access in subscriber's home or office.

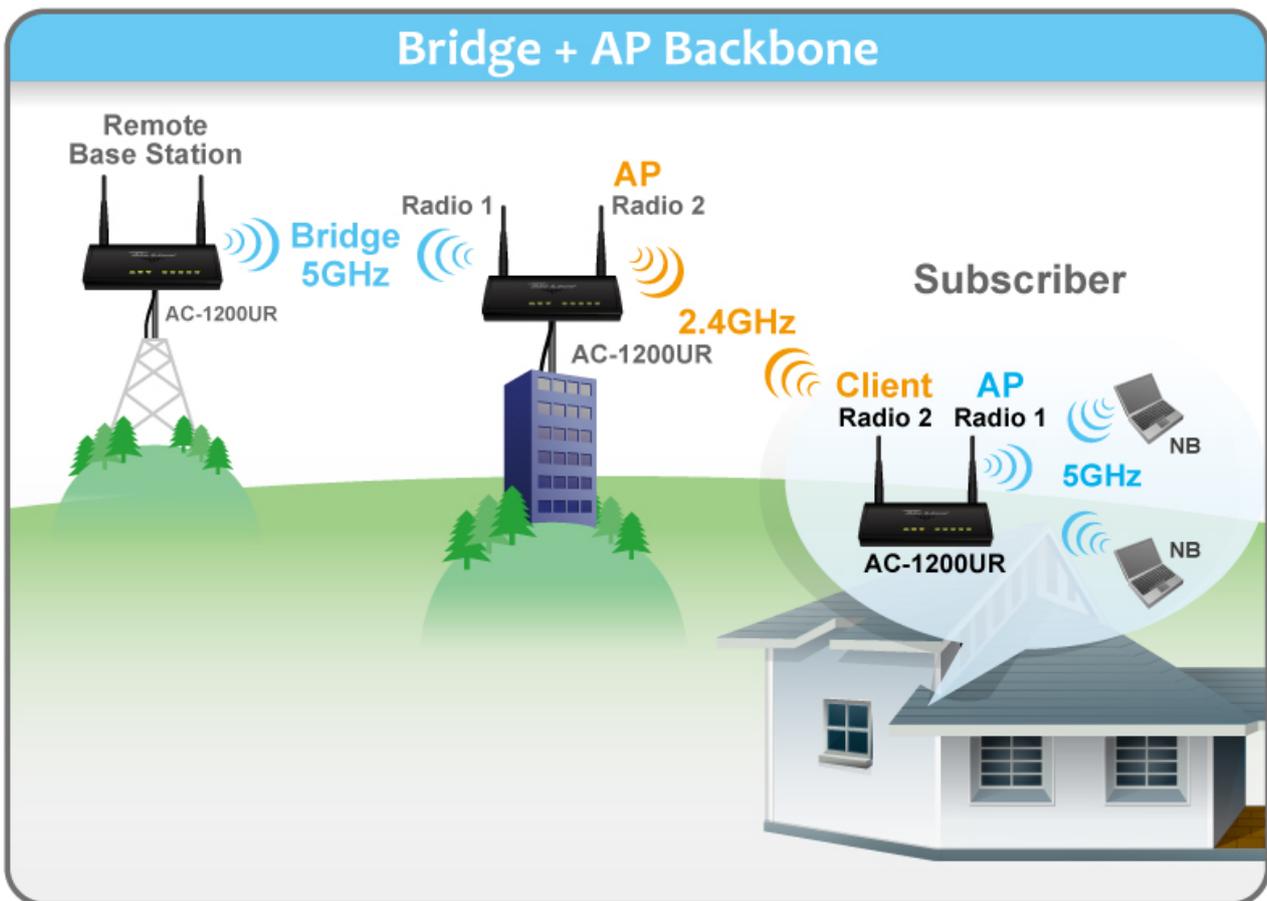


### WISP + AP



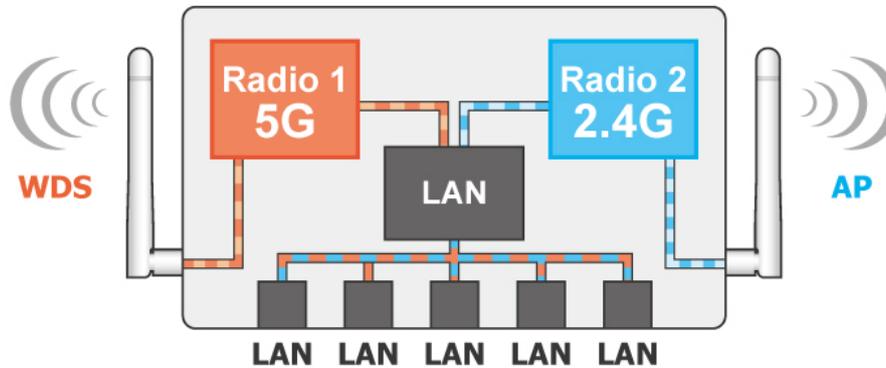
### 1.3.4 Bridge + AP Mode

In this mode, Radio1 is working as Bridge mode in 5GHz while Radio 2 is working as AP mode in 2.4GHz. This mode is useful for WISP backbone application where Radio 1 is used for connection to another Base Station and Radio2 is used for service to subscribers. This mode can also be used as repeater in indoor environment.



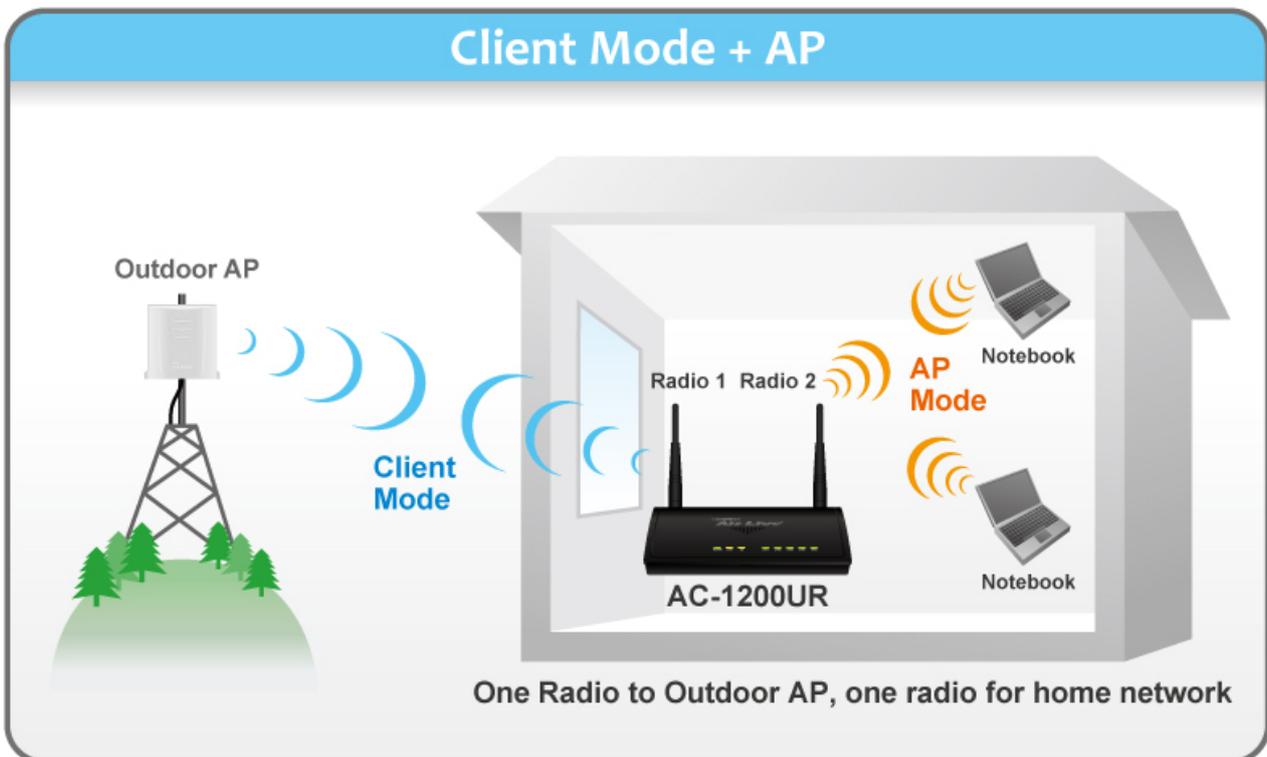
The AC-1200UR's Bridge mode can be configured as "WDS Bridge". In WDS Bridge, you must enter the remote AP's MAC Address. It can connect with another AC-1200UR via WDS Bridge.

### WDS + AP



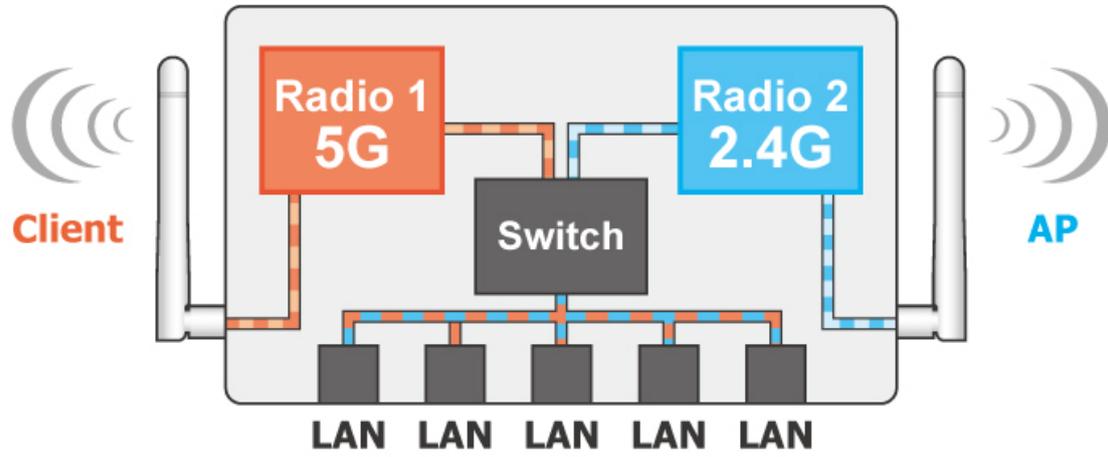
### 1.3.5 Client + AP Mode

In this mode, it can work as a wireless repeater to extend the coverage of remote wireless router.



Radio 1 (5G) work in the Client Mode to receive the signal from another AP such as AirMax 5x. Radio 2 (2.4) work in AP Mode to provide the connection for the NB or Smart Phone.

## Client + AP



# 2

## Installing the AC-1200UR

This section describes the hardware features and the hardware installation procedure for the AC-1200UR. For software configuration, please go to chapter 3 for more details.

### 2.1 Before You Start

It is important to read through this section before you install the AC-1200UR.

- The use of 5GHz spectrum might be prohibited in some countries. Please consult with your country's telecom regulation first.
- Please install the antennas first before connecting the power. Connecting the power without installing the antennas may result in damage to the wireless radios which may void your warranty.

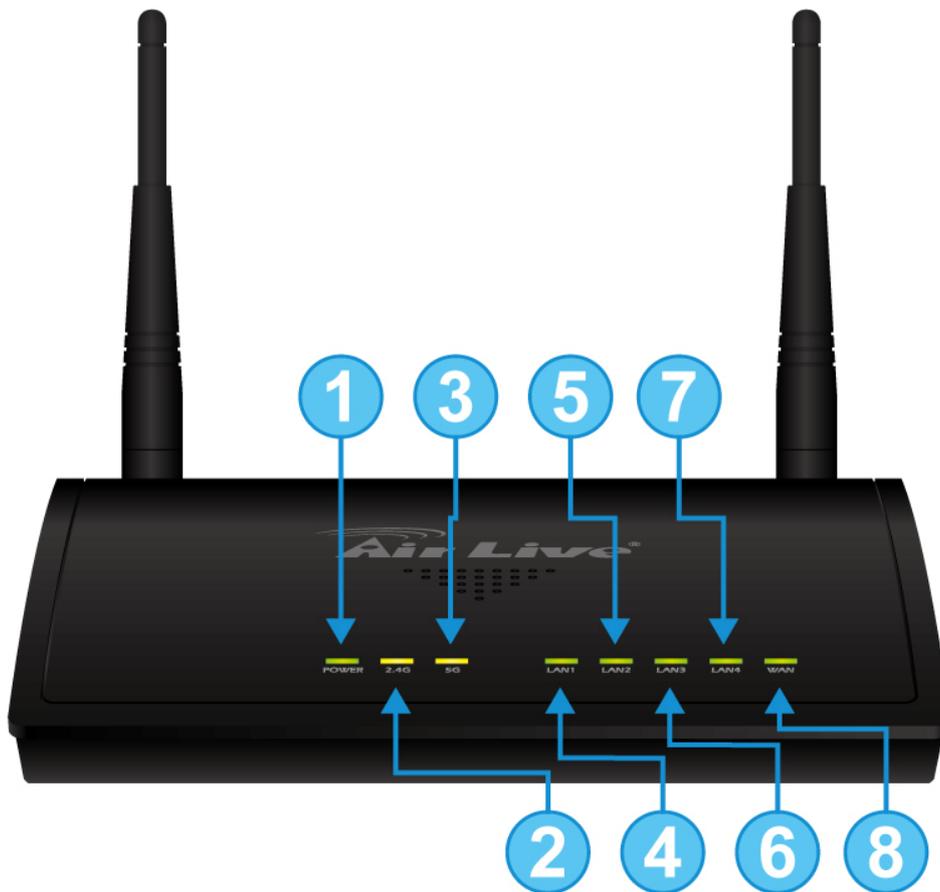
### 2.2 Installing AC-1200UR

The AC-1200UR package contains the following items:

- One AC-1200UR main unit
- One 12V 1A DC power adapter
- Indoor detachable dual band Omni Antenna x 2
- Quick Start Guide
- User's Guide CD

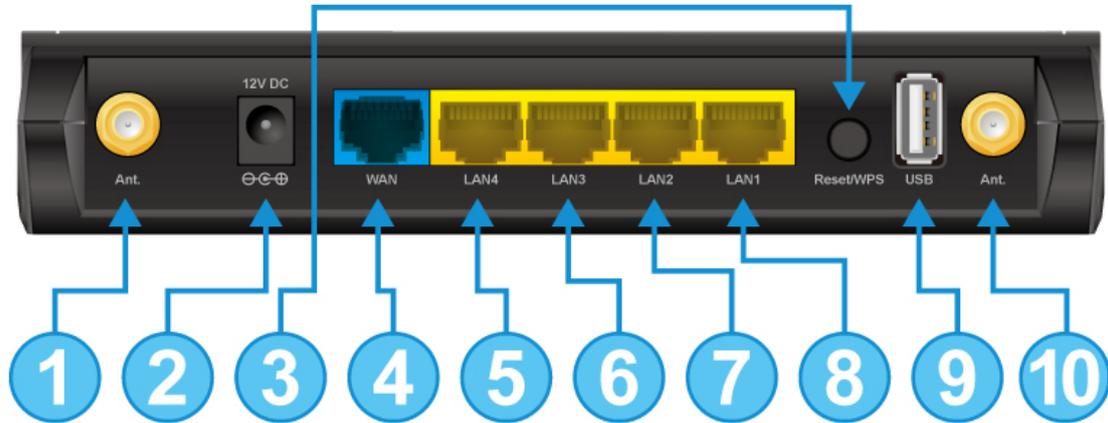
## 2.3 Knowing Your AC-1200UR

### 2.3.1. Front Side Introduction



LED #	Display	Description
1	Power	Solid Green LED while the device is powered on, either by power adaptor
2	2.4G	Solid Green LED while the device is powered on. Blinking while there is Data transmission, dark when this interface is turn off.
3	5G	
4~8	LAN WAN	LAN ports status LED, Solid Green LED shows when a port is actively connected, blinking while there is data transmission, turns into dark when this disconnected. LAN5 is also the WAN port

### 2.3.2. Back Side Introduction

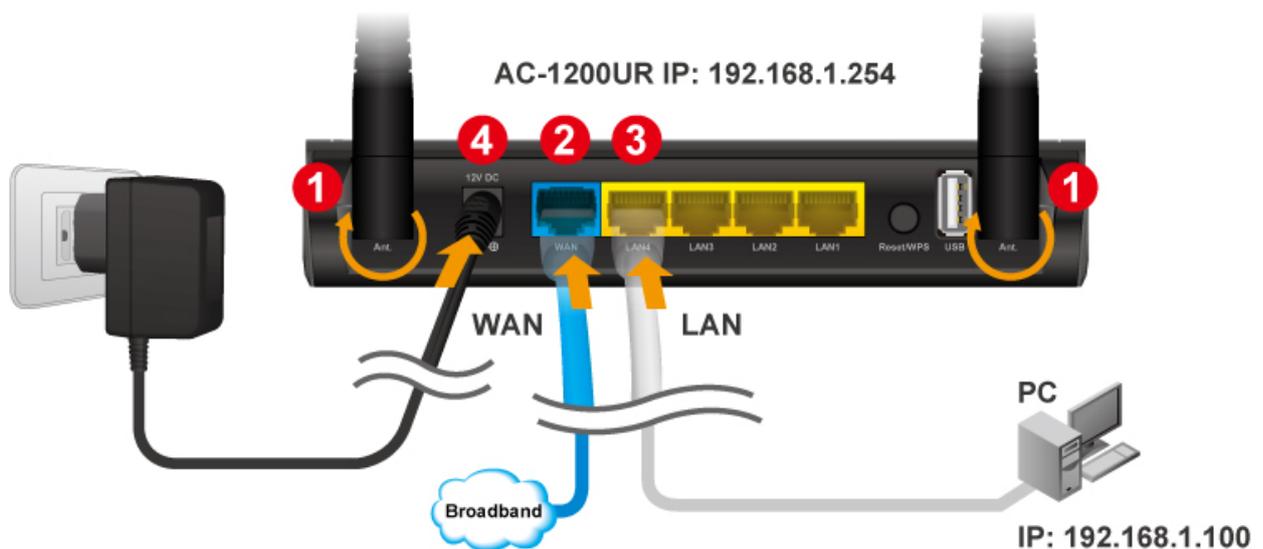


Port #	Display	Description
1	WLAN1	Detachable antenna with R-SMA connector. 2 indoordual band antennas are delivered.
2	Power Adaptor	12V 1A power supply adaptor delivered with product.
3	WPS/Reset	It works as WPS or Reset button. Push 15 sec of the button, the device will reset to default
4	WAN Port	WAN Port. When it is in Dual Band Router mode, it function as a WAN port. In Dual AP mode , it work as LAN port
5~8	LAN	LAN port
9	USB	USB connector to connect USB disk or USB printer
10	WLAN2	Detachable antenna with R-SMA connector.

## 2.4 Installation Steps

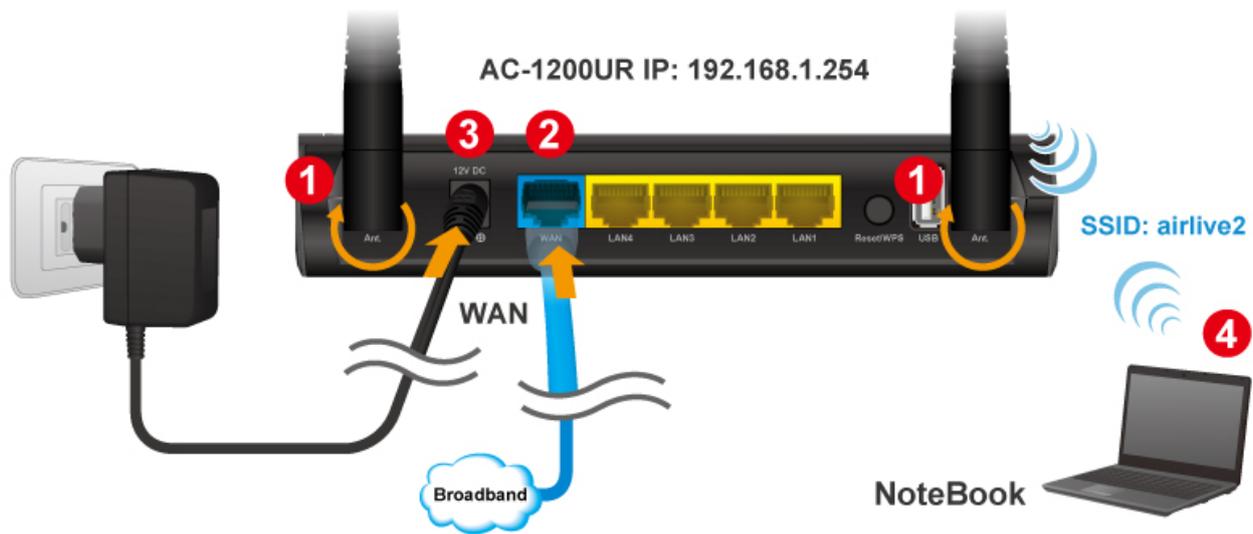
This section describes installation steps required for the AC-1200UR before it can work properly in your network.

### 2.4.1. Installation Steps by using LAN port

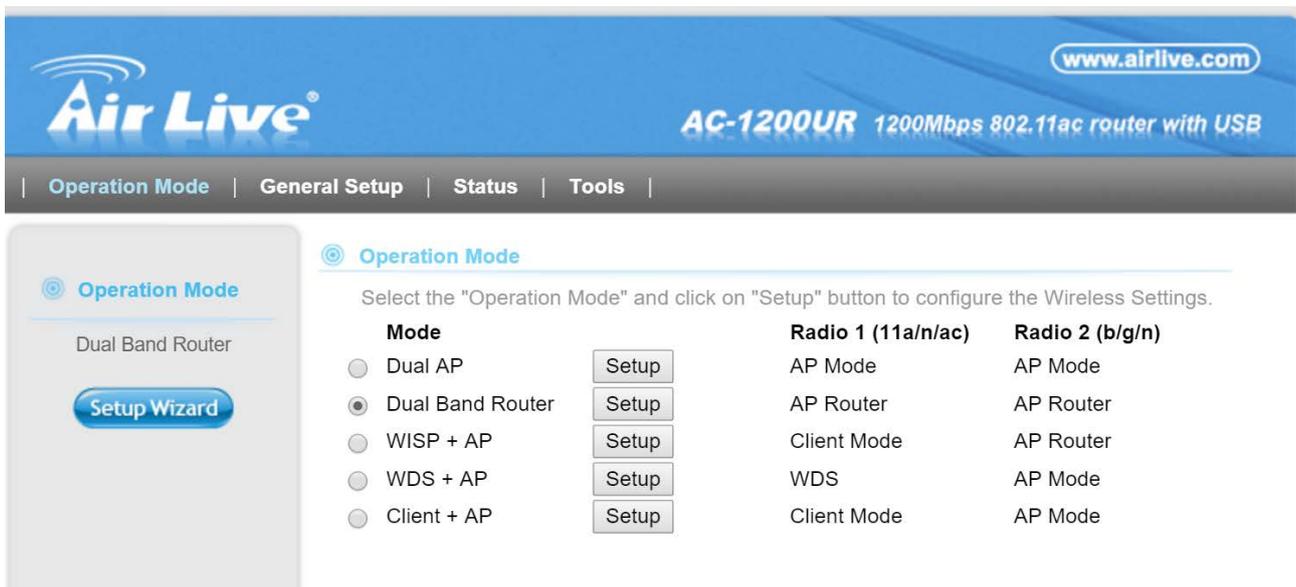


1. Install antennas into the AC-1200UR
2. Connect the broadband line into the WAN port of the AC-1200UR
3. Connect your PC to any LAN port.
4. Connect the power jack to the power port.
5. Wait for 5 minutes. Then open the browser on your PC and type in "192.168.1.254" to reach the web management
6. For software configuration, please go to chapter 3 for more details.

### 2.4.2. Wireless Installation Steps



1. Install antennas into the AC-1200UR
2. Connect the broadband line into the WAN port of the AC-1200UR
3. Connect the power jack to the power port.
4. Wait for 5 minutes. Then on your Notebook PC, scan and connect to “airlive” wireless network
5. Open your web browser and type “192.168.1.254” to configure your AC-1200UR
6. When prompt for username/password, type “admin” as username and “airlive” as password
7. When the following screen appears, click on “Setup” to configure wireless settings.



8. Select “Change Settings for: Radio2”. Then click on “Security Settings”

Regulatory Domain: 2.FCC ▾  
Change Setting For: Radio 2 ▾

---

**WLAN Standard for Radio 2**

Enable Radio 2

Network ID (SSID) Airlive SiteSurvey

Disable SSID Broadcasting

Radio Mode: 2.4 GHz (B+G+N) ▾

Channel : 11 ▾

Channel Width: 20/40 MHZ ▾

Security Settings: Setup

Advanced Settings: Setup

Access Control: Setup

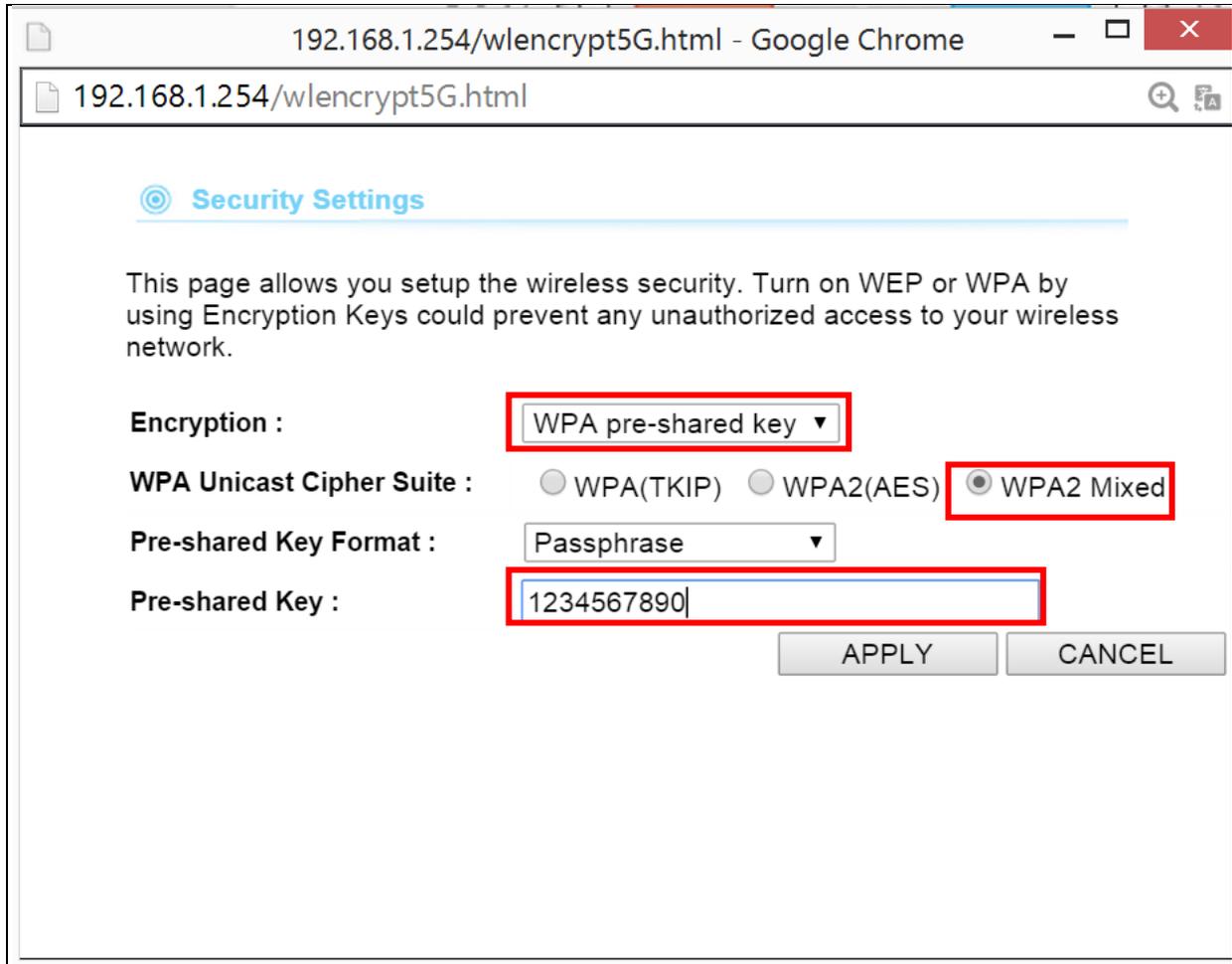
Multiple SSID: Setup

QoS Setting: Setup

**WAN Setting**

WAN Port Settings:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>	Special Applications:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>
DHCP Server Settings:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>	IP Filtering Settings:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>
Multiple DMZ:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>	Dynamic DNS Settings:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>
Virtual Server Settings:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>	Remote Management:	<span style="border: 1px solid gray; padding: 2px;">Setup</span>

9. Choose WPA2-PSK and enter your own encryption key (please write down and do not forget it is case sensitive). Then click on “Apply” button



192.168.1.254/wlencrypt5G.html - Google Chrome

192.168.1.254/wlencrypt5G.html

### Security Settings

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption : WPA pre-shared key

WPA Unicast Cipher Suite :  WPA(TKIP)  WPA2(AES)  WPA2 Mixed

Pre-shared Key Format : Passphrase

Pre-shared Key : 1234567890

APPLY CANCEL

10. The AC-1200UR will reboot. After about 3 minutes, please try to access the network again. You will be prompted to enter your encryption key.

### 2.4.3. Internet Installation Steps

Please finish the LAN port and Wireless installations first in 2.4.1 and 2.4.2 before performing the following steps.

If you are using AC-1200UR as a router, please follow the steps below:

1. Please make sure the Internet line is connected to the WAN port.
2. Open your web browser and type 192.168.1.254
3. When prompt for password, enter “admin” for username and “airlive” for password.
4. Choose “Dual Band Router” on Operation Mode Screen and click on “Setup”

**Operation Mode**

Select the "Operation Mode" and click on "Change Mode" to change wireless mode.  
Click on "Setup" button to configure the Wireless Settings.

Mode		Radio 1 (11a/n/ac)	Radio 2 (b/g/n)
<input type="radio"/> Dual AP	Setup	AP Mode	AP Mode
<input checked="" type="radio"/> Dual Band Router	Setup	AP Router	AP Router
<input type="radio"/> WISP + AP	Setup	Client Mode	AP Router
<input type="radio"/> WDS + AP	Setup	WDS	AP Mode
<input type="radio"/> Client + AP	Setup	Client Mode	AP Mode

5. Choose “WAN Port Settings” on the bottom.

**WAN Setting**

<b>WAN Port Settings:</b>	Setup	<b>Special Applications:</b>	Setup
<b>DHCP Server Settings:</b>	Setup	<b>IP Filtering Settings:</b>	Setup
<b>Multiple DMZ:</b>	Setup	<b>Dynamic DNS Settings:</b>	Setup
<b>Virtual Server Settings:</b>	Setup	<b>Remote Management:</b>	Setup

6. Please enter your ISP's authentication Information and Click on "Apply" button. Here are some guidelines.

- If your Internet connection is ADSL, it is most likely using the following option:

**Your ISP already provides you with PPPoE authentication information, select this button and enter the information below:**

- If your internet connection is Cable Modem, it is most likely to use the option:  
**If your ISP already provides you with a Host Name, select this button and enter the information below: (DHCP)**

However, please still consult with your ISP about the correct account information.

7. Click on "Apply" to finish.

# 3

## Configuring the AC-1200UR

The AC-1200UR offers web based management interface. You can configure through standard web browser (http). In this chapter, we will explain AC-1200UR's available management interfaces and how to get into them. Then, we will provide the introduction on Web Management and recommended initial settings.

### 3.1 Important Information

The following information will help you to get start quickly. However, we recommend you to read through the entire manual before you start. Please note the password and SSID are case sensitive.

- The default IP address is: **192.168.1.254** Subnet Mask: **255.255.255.0**
- When using Web UI, the login as follow:
  - User name: **admin**
  - Password: **airlive**
- The default radio mode for Radio 1 is **802.11ac/n**
- The default radio mode for Radio 2 is **802.11g/b/n**
- The default SSID for Radio 1 is: **airlive 5g**
- The default SSID for Radio 2 is: **airlive**
- The default wireless mode is : **Dual Band Router Mode**
- After power on, please wait for 2 minutes for AC-1200UR to finish boot up
- Please remember to click on "Apply" for new settings to take effect

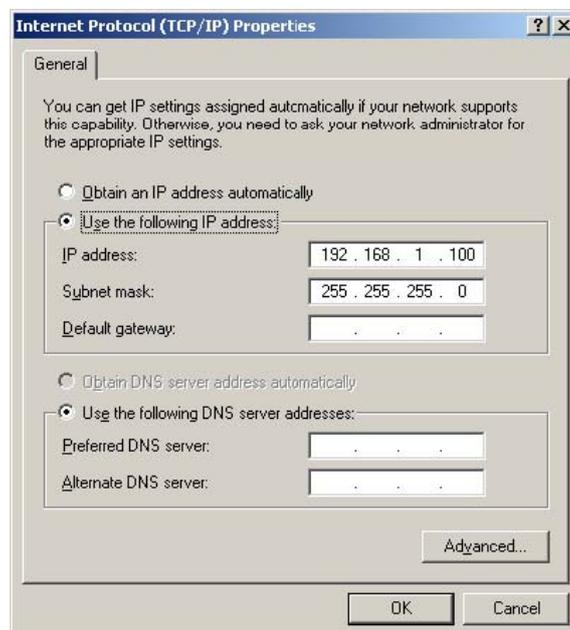
## 3.2 Prepare Your PC

The AC-1200UR can be managed remotely by a PC through either the wired or wireless network. The default IP address of the AC-1200UR is **192.168.1.254** with a *subnet mask* of 255.255.255.0. This means the IP address of the PC should be in the range of 192.168.1.1 to 192.168.1.253.

The default mode for AC-1200UR is “Dual Band Router” mode. In this mode, the AC-1200UR’s DHCP server is turned on; therefore, your PC can get IP automatically from AC-1200UR. You just need to set your PC to “Obtain IP address automatically” on the TCP/IP setting. By default, Windows already do this so you do not need to change.

However, if you are using AC-1200UR in non-router modes (Dual AP, Dual Band Router, WDS+AP, Client+AP), you need to set your IP manually. To prepare your PC for management with the AC-1200UR, please do the following:

1. Connect your PC directly to the LAN port of AC-1200UR
2. Set your PC’s IP address manually to 192.168.1.100 (or other address in the same subnet)



You are ready now to configure the AC-1200UR using your PC.

## 3.3 Management Interface

The AC-1200UR can be configured using web management interfaces below:

### 3.3.1 Web Management (HTTP):

You can manage your AC-1200UR by simply typing its IP address in the web browser. Most functions of AC-1200UR can be accessed by web management interface. We recommend using this interface for initial configurations. To begin, simply enter AC-1200UR's IP address (default is 192.168.1.254) on the web browser. The default user name is "admin"; default password is "airlive".

## 3.4 Introduction to Web Management

### 3.4.1 Getting into Web Management

#### Normal Web Management (HTTP)

To get into the Normal Web Management, simply type in the AC-1200UR's IP address (default IP is 192.168.1.254) into the web browser's address field.



### 3.4.2 Login

After the procedure above, the Login username and password is required.

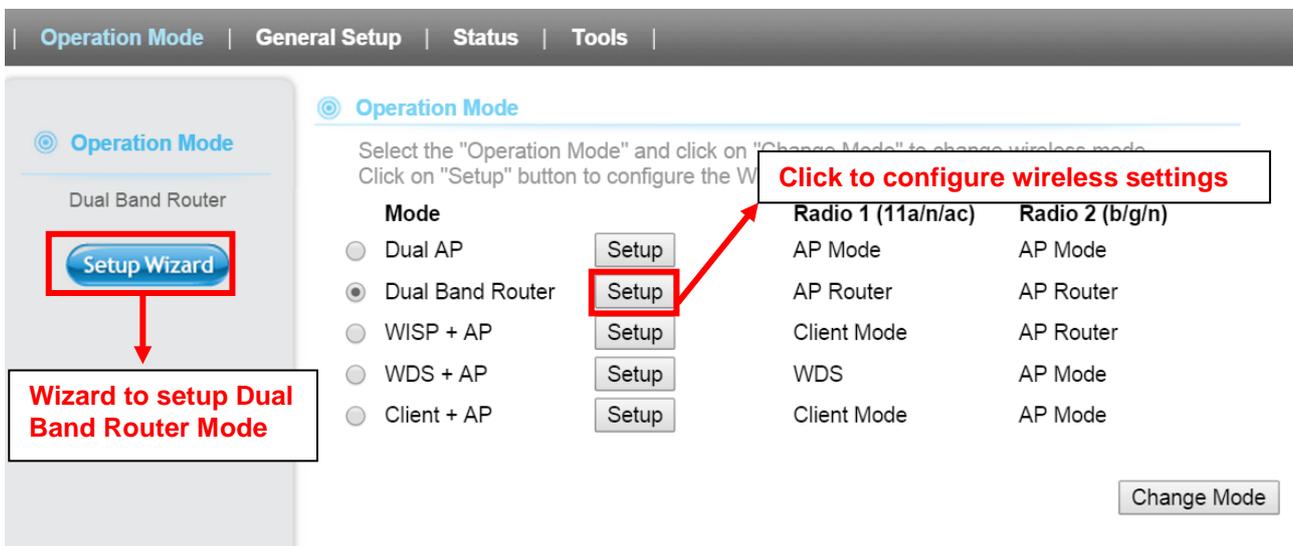
Please type in the username and password. The default username is "admin" and password is "airlive". After that Operation Mode page will appear.

### 3.5 Initial Configuration

We recommend users to browse through AC-1200UR’s web management interface to get an overall picture of the functions and interface. Below are the recommended initial configurations for first time login:

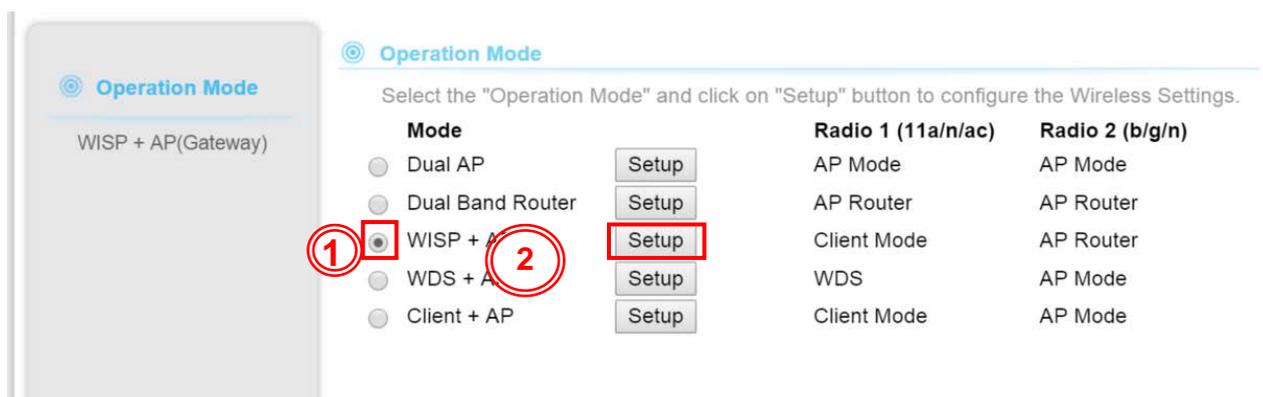
#### 3.5.1 Choose the wireless Operation Modes

The wireless settings of AC-1200UR are dependent on the wireless operation mode you choose. Therefore, the first step is to choose the operation mode. For explanation on when to use what operation mode, please refer to Chapter 1.



Follow the example below to change to “WISP + AP” mode

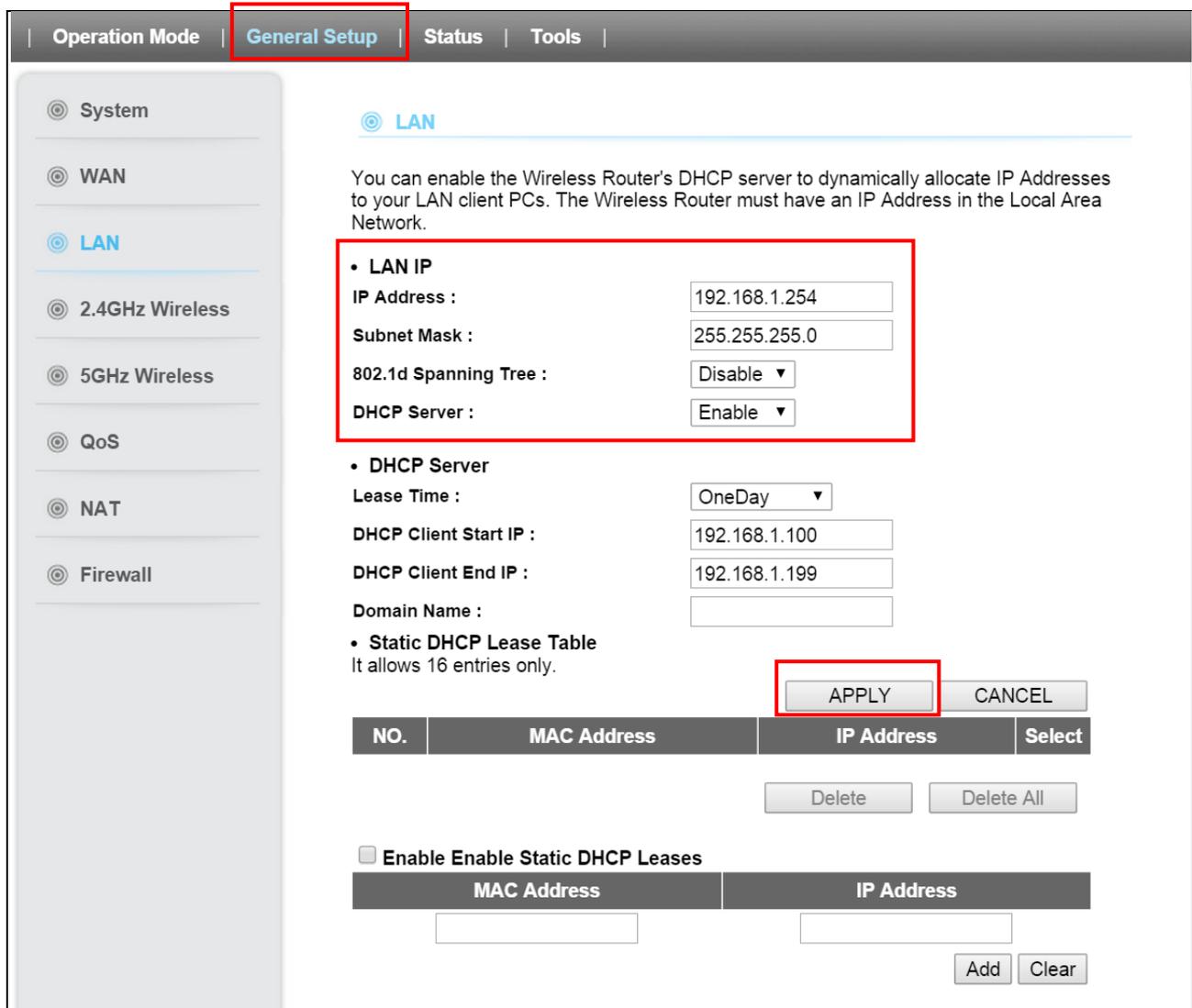
1. Select “WISP + AP” mode
2. Click on “setup” button
3. The AP will reboot, wait for about one minute



### 3.5.2 Change the Device's IP Address

The default IP address is at 192.168.1.254. You should change it to the same subnet as your network. Also, if you want to manage AC-1200UR remotely, you have to set the Gateway and DNS server information.

To setup the IP settings for AC-1200UR, please select "General Setup" ->LAN". After entering the IP information, click on "Apply" to finish.



The screenshot shows the web interface for the AC-1200UR. The top navigation bar includes 'Operation Mode', 'General Setup' (highlighted with a red box), 'Status', and 'Tools'. On the left sidebar, 'LAN' is selected. The main content area is titled 'LAN' and contains the following configuration options:

- LAN IP** (highlighted with a red box):
  - IP Address : 192.168.1.254
  - Subnet Mask : 255.255.255.0
  - 802.1d Spanning Tree : Disable
  - DHCP Server : Enable
- DHCP Server**:
  - Lease Time : OneDay
  - DHCP Client Start IP : 192.168.1.100
  - DHCP Client End IP : 192.168.1.199
  - Domain Name :
- Static DHCP Lease Table**: It allows 16 entries only.
  - Buttons: APPLY (highlighted with a red box), CANCEL
  - Table header: NO., MAC Address, IP Address, Select
  - Buttons: Delete, Delete All
  - Checkbox:  Enable Enable Static DHCP Leases
  - Table header: MAC Address, IP Address
  - Buttons: Add, Clear

### 3.5.3 Change the Country Code

The legal frequency and channels in 5GHz spectrum varies between countries. The default country code is ETSI which should require no changes if you are living in Europe. If you are living outside EU, you should change the country code accordingly. In the example below, we will change the country code to FCC

**Step 1.** Select "Operation Mode" -> "Setup"

**Operation Mode**

Select the "Operation Mode" and click on "Setup" button to configure the Wireless Settings.

Mode	Radio 1 (11a/n/ac)	Radio 2 (b/g/n)
<input type="radio"/> Dual AP	AP Mode	AP Mode
<input checked="" type="radio"/> Dual Band Router	AP Router	AP Router
<input type="radio"/> WISP + AP	Client Mode	AP Router
<input type="radio"/> WDS + AP	WDS	AP Mode
<input type="radio"/> Client + AP	Client Mode	AP Mode

**Step 2.** From the Regulatory Domain, please select your regulatory domain (FCC or ETSI) and click on "Apply" to finish.

**Wireless Settings**

**Dual Band Router**

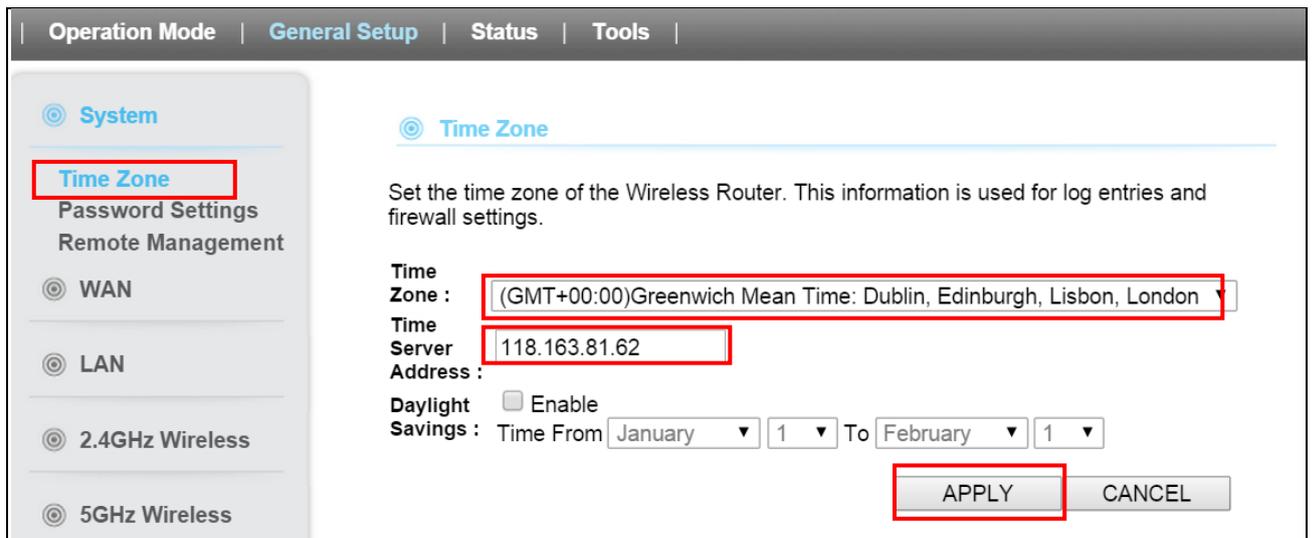
Regulatory Domain: **2.FCC**

Change Setting For: Radio 1

WLAN Standard for Radio 1

### 3.5.4 Set the Time and Date

It is important that you set the date and time for your AC-1200UR so that the system log will record the correct date and time information. Please go to “*System Configuration*” -> *Time Settings*. We recommend you choose “Enable NTP” so the time will be keep even after reboot. If your AC-1200UR is not connected to Internet, please enter the time manually. Please remember to select your local time zone and click “Apply” to finish.



Operation Mode | **General Setup** | Status | Tools

System

**Time Zone**

Password Settings

Remote Management

WAN

LAN

2.4GHz Wireless

5GHz Wireless

**Time Zone**

Set the time zone of the Wireless Router. This information is used for log entries and firewall settings.

Time Zone : (GMT+00:00)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London

Time Server Address : 118.163.81.62

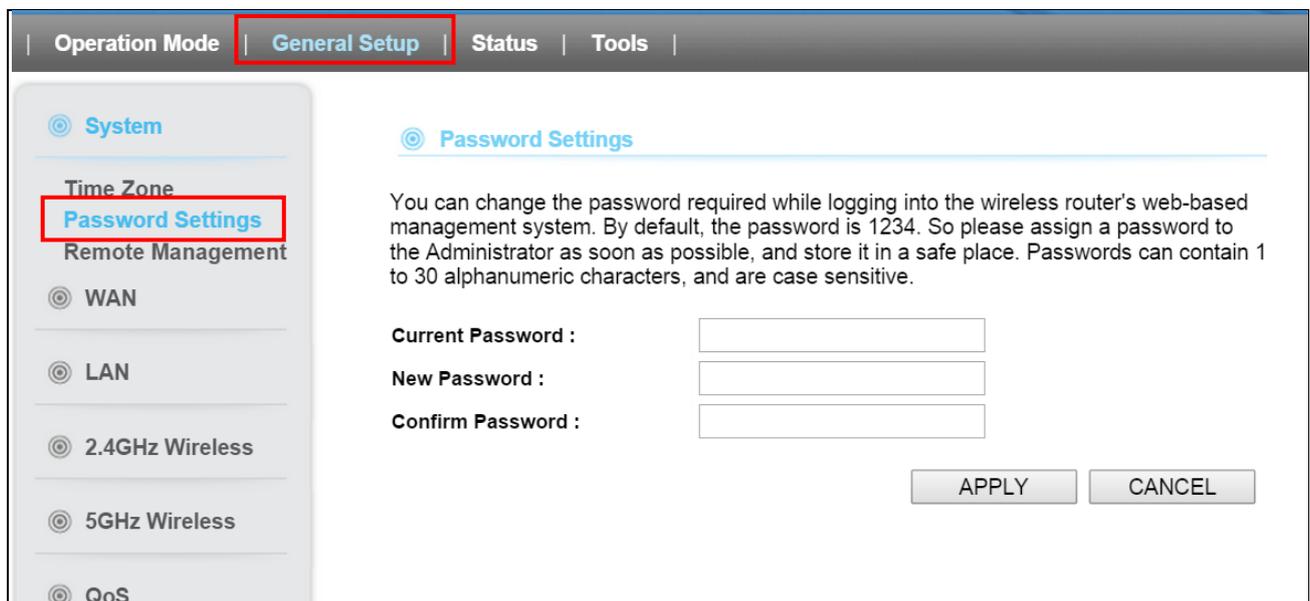
Daylight Savings :  Enable

Time From January 1 To February 1

APPLY CANCEL

### 3.5.5 Change Password

You should change the password for AC-1200UR at the first login. To change password, please go to “*General Setup* -> “*Password Settings*” menu.



Operation Mode | **General Setup** | Status | Tools

System

Time Zone

**Password Settings**

Remote Management

WAN

LAN

2.4GHz Wireless

5GHz Wireless

QoS

**Password Settings**

You can change the password required while logging into the wireless router’s web-based management system. By default, the password is 1234. So please assign a password to the Administrator as soon as possible, and store it in a safe place. Passwords can contain 1 to 30 alphanumeric characters, and are case sensitive.

Current Password :

New Password :

Confirm Password :

APPLY CANCEL

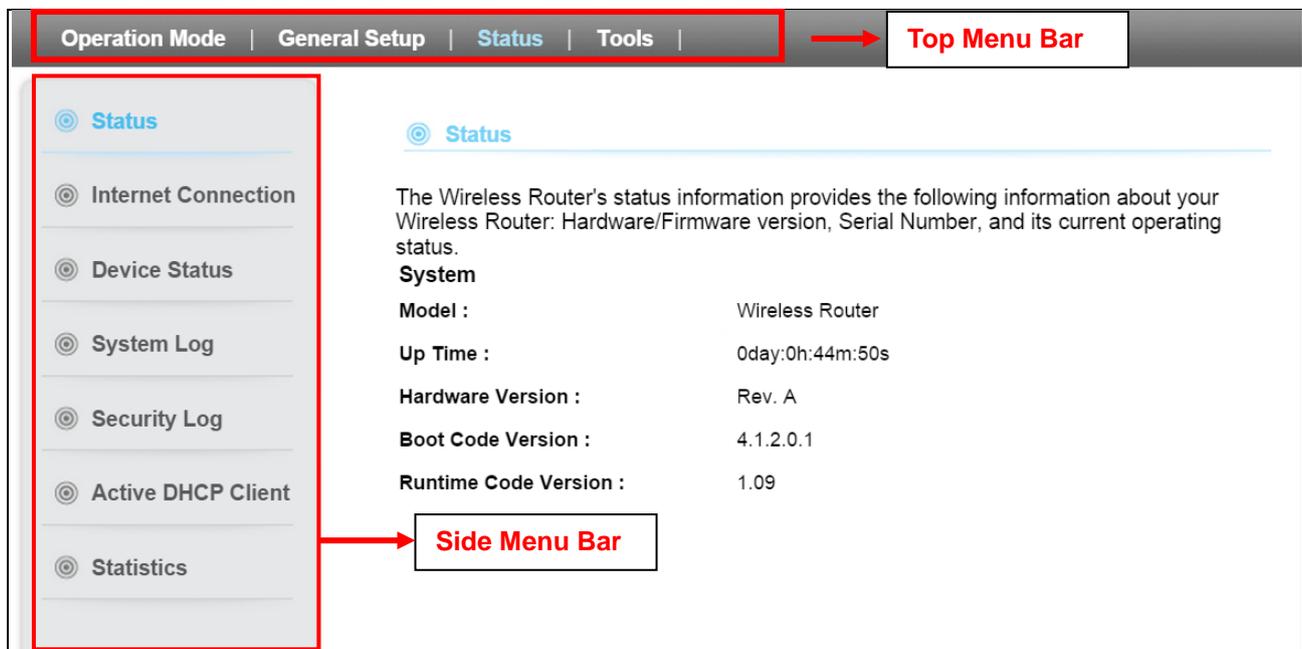
# 4

## Wireless and WAN Settings

In this chapter, we will explain about the wireless settings and router mode settings in web management interface. Please be sure to read through Chapter 3's "Introduction to Web Management" and "Initial Configurations" first. For system configurations, device status, and other non-wireless related settings; please go to Chapter 5.

### 4.1 About AC-1200UR Menu Structure

The AC-1200UR's web management menu is divided into 4 main sections: **Operation Modes**, **General Setup**, **Tools** and **Status**. The main menus' options are always displayed on the top of the web management page. Within each main menu category, there are sub-menu options which are displayed on the side of the web management page.

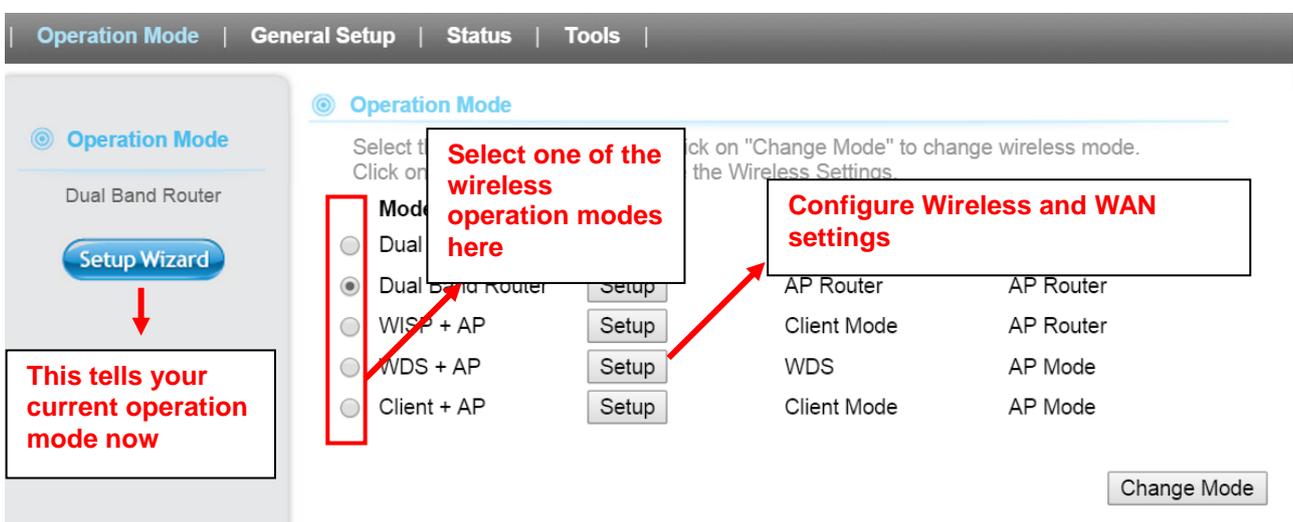


- Operation Mode:** This menu is where you will find wireless and WAN settings. The AC-1200UR's wireless settings are dependent on the wireless operation mode you choose; only the applicable wireless settings for selected operation mode are shown. For example; WAN port setting is available only for AP Router and WISP Router mode, it will only be shown in those modes. To access wireless settings, click on the "Setup" button within each operation mode. For explanation on different wireless modes, please refer to Chapter 1. We will talk about functions in this menu for this chapter.
- General Setup:** All settings besides Wireless and WAN functions are in this category. The system configuration including changing password, upload firmware, backup configuration, settings PING watchdog, and setting management interface. We will talk about this menu's function in Chapter 5.
- Tools:** Discover network status using ping, trace route and other tools
- Status:** This section for monitoring the status of AC-1200UR. It provides information on device status, Ethernet status, wireless status, wireless client table, and system log.

## 4.2 General Wireless Settings

The wireless settings of AC-1200UR are dependent on the wireless operation mode you choose. Therefore, the first step is to choose the operation mode. For explanation on when to use what operation mode, please refer to Chapter 1.

When you select "Wireless Settings" in the welcome screen, or click on the "Operation Mode" on the top menu; the following screen will appear:



- **Mode:**The available wireless operation modes for AC-1200UR. Select one and click on “Change Mode” button to switch between modes.
- **Setup:**Click here to configure the Wireless and WAN(in router mode) settings.

Once you click on the “Setup” page, the wireless settings will appear

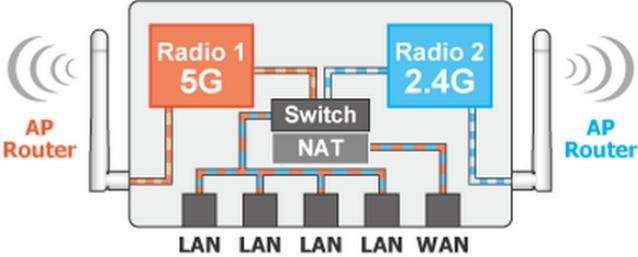
Operation Mode
General Setup
Status
Tools

⊙ **Operation Mode**

Dual Band Router

⊙ **Wireless Settings**

### Dual Band Router



Regulatory Domain: 2.FCC

Change Setting For: Radio 1

---

**WLAN Standard for Radio 1**

Enable Radio 1

**Network ID (SSID):** Airlive-5G SiteSurvey

Disable SSID Broadcasting

**Radio Mode:** 5 GHz (A+N+AC)

**Channel :** 36

**Channel Width:** Auto (20/40/80MHZ)

**Security Settings:** Setup

**Advanced Settings:** Setup

**Access Control:** Setup

**Multiple SSID:** Setup

**QoS Setting:** Setup

The AC-1200UR device provides all 14 modes of wireless operational applications with:

Mode	Radio 1 (11n/ac)	Radio2 (11a/b/g/n )	Applications
Dual Band Router	AP Router	AP Router	Dual Home Networks: 5GHz for Games/AV and 2.4GHz for PC
Dual AP Mode	Access Point	Access Point	Dual Band Hotspots
WISP + AP	Client Mode	AP Router	Sharing WISP 5GHz Broadband Wirelessly
WDS + AP	WDS Bridge Mode	Access Point	WDS Wireless Repeater
Client + AP	Client	Access Point	Universal Repeater

### 4.2.1 Regulatory Domain

#### **Operation Mode -> Setup -> Regulatory Domain**

The legal frequency and channels in 5GHz spectrum varies between countries. Please select your country from here. It is for compatibility testing only. Please make sure the channel you used is allowed in your country when select this special domain.

### 4.2.2 Network SSID

#### **Operation Mode -> Setup -> Network SSID**

The SSID is the network name used to identify a wireless network. The SSID must be the same for all devices in the same wireless network. In AC-1200UR, it is possible to create more than one SSID or guest Mode in AP and AP Router mode, please check the “General Setup→2.4G-> Guest” for 2.4 radio and “General Setup→5G-> Guest” for 5G radio. The SSID length is up to 32 characters. The default SSID is “**airlive**”.

- **Enable Radio 1/2:** The default wireless is on. You can uncheck this box to disable wireless interface.
- **Disable SSID Broadcasting:** If you check this box, the SSID will be hidden; only users who know the SSID can associate with this network.

### 4.2.3 Site Survey

#### Operation Mode -> Setup -> Site Survey

The Site Survey function in AC-1200UR provides 4 important functions

- In Client and Bridge Infrastructure mode, site survey will scan for available AP network. Then allow user to select and connect to the AP. These greatly simplify the installation.
- Once Site Survey displays the available AP or Bridge networks, you can select a particular SSID to display its Signal value continuously. This function is called “Signal Survey”. Signal Survey can be used for antenna alignment.
- For WDS Bridge mode, the Site Survey will scan for available AP and Bridge networks. User can then find the MAC address (BSSID) of the remote Bridges.
- For AP and AP router mode, the Site Survey allows administrator to check what channels are already occupied for choosing a cleaner channel.

When you click on Site Survey, the following screen will appear. It might take a few minutes to scan all the channels in the 2.4G or 5GHz spectrum.

**Wireless Site Survey**

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Select	SSID	BSSID	Channel	Authentication	Encryption	Signal	Mode
<input type="radio"/>	N450R5g	00:4F:67:05:2B:61	36	OPEN	NONE	60	11a/n
<input type="radio"/>	AceTop5G	74:DA:38:14:E0:5D	36	WPA2PSK	AES	39	11ac
<input type="radio"/>	airlive-5G	00:A0:00:00:00:0F	40	OPEN	NONE	100	11ac

Click here to select SSID for Association or Signal Survey

To connect with the selected SSID, this function is available only in Client Infrastructure or Bridge Infrastructure

For antenna alignment, it will display and update signal value after refresh button is clicked

- **Done:** Please choose a SSID before click on this button. This button is available only in Client Infrastructure or Bridge Infrastructure modes. Once you click on this button, AC-1200UR will attempt to make a connection with the selected ESSID. If there is encryption needed, the AC-1200UR will prompt you to enter the encryption key. Please make sure you enter the correct encryption key, the AC-1200UR will not check whether the encryption key is correct.
- **Signal:** Signal is a value to show the Signal Level for other access point RSSI. In general, remote APs with stronger signal will display higher signal values. For RSSI value, the smaller the absolute value is, the stronger the signal.

#### 4.2.4 Radio Mode

##### *Operation Mode -> Setup -> Radio Mode*

AC-1200UR has different options for WLAN transmission. All devices in the same network should use the same WLAN mode. In radio 1 (5G), 6 options can be selected: A+N+AC , N+AC, AC,A+N,N,A

In radio 2 (2.4G): 5 options can be selected: B+G+N,G,B+G, N,B

#### 4.2.5 Channel

##### *Operation Mode -> Setup -> Channel*

The channel is the frequency range used by radio. In 802.11ac standard, each channel occupies 80MHz width. For 2 wireless devices to connect, they must use the same channel. The number of available legal channels might be different between countries. If you are living outside EU, please change the country from the "Regulatory Domain" option in this page.

## 4.2.6 Channel Width

### *Operation Mode -> Setup -> Channel Width*

In radio1 (5G) spec, each channel occupies 20MHz channel width. Therefore, each channel will jump by number of 4 (i.e. 36, 40, 44...etc). You can change the Channel Width to 10MHz(Half) or 5MHz(Quarter) to either increase performance or reduce the interference problem.

- **Auto(20/40/80MHz):** This is the default channel width specified by IEEE 802.11ac specification
- **20/40:** Using this option would reduce the interference when AC-1200UR is deployment in congested areas. However, the performance will also drop by half when using this option.
- **20MHz:** It is a good choice for deployment in very congested areas. However, the performance will also drop greatly when using this option.

## 4.2.7 Security Settings

### *Operation Mode -> Setup -> Security Settings*

Security settings allow you to use encryption to secure your data from eavesdropping. You can select different security policy to provide association authentication and/or data encryption. The AC-1200UR features various security policies including WEP, WPA radius, WPA, WPA-PSK, WPA2, and WPA2-PSK. Please note not all security policies are available in all operation modes. All wireless devices on the same network must use the same security policy. We recommend using WPA-PSK or WPA2-PSK whenever possible.

**WEP:** WEP Encryption is the oldest and most available encryption method. However, it is also the least secure.

**Security Settings**

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption :

Key Length :

Key Format :

Default Tx Key :

Encryption Key 1 :

- **Select one of the WEP key for wireless network:** There are total of 4 possible keys for WEP encryption. You need to choose which key will be used for encryption. All wireless devices on the same network have to use the same settings. We recommend using WEP Key 1 as in default setting.
- **WEP Keys:** Please enter the WEP keys used for encryption. You need to fill at least the “Select WEP Key”. For example; if you choose “Encrypt Data with WEP Key 1” in the previous field, then it is necessary to fill WEP Key 1. The length of key is dependant on the Key Length and Key type you choose.

**Key Length:** The AC-1200UR offers 64bit, 128 bit, and 152 bit for WEP key length. The longer the Key Length, the more secure the encryption is.

**Key Type:** 2 types are available: ASCII and HEX. ASCII is a string of ASCII code including alphabetical characters, space, signs and numbers (i.e. “airlivepass12”). HEX is a string of 16-bit hexadecimal digits (0..9, a, b, c, d, e, f). All wireless devices on the network must match the exact key length and Key type. Some Wireless clients only allow HEX type for WEP.

**ASCII-64:** This is a key with 64-bit key length of ASCII type. Please enter 5 ASCII Characters if you choose this option. For example, “passw”

**HEX-64:** This is a key with 64-bit key length of HEX type. Please enter 10 Hexadecimal digits if you choose this option. For example, “12345abcdef”

**ASCII-128:** This is a key with 64-bit key length of ASCII type. Please enter 13 ASCII Characters if you choose this option. For example, “airlivewepkey”

**HEX-128:** This is a key with 128-bit key length of HEX type. Please enter 26 Hexadecimal digits if you choose this option. For example, “1234567890abcdef1234567890”

**WPA radius:**WPA radius allows users to leverage a RADIUS server to do association authentications.

**Security Settings**

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption :

WPA Unicast Cipher Suite :  WPA(TKIP)  WPA2(AES)  WPA2 Mixed

RADIUS Server IP Address :

RADIUS Server Port :

RADIUS Server Password :

**To Enable RADIUS Server:**

- **Server IP:** The IP address of the RADIUS server.
- **Port Number:** The port number that your RADIUS server uses for authentication. The default setting is 1812.
- **Radius Server Password:** This is used by your RADIUS server in the Shared Secret field in RADIUS protocol messages. The password configured in the AC-1200UR must match the password configured in the RADIUS server. The password can contain up to 64 alphanumeric characters.

**WPA-PSK, WPA2-PSK:** Wi-Fi Protected Access (WPA) with Pre-Shared Key (PSK) provides better security than WEP keys. It does not require a RADIUS server in order to provide association authentication, but you do have to enter a shared key for the authentication purpose. The encryption key is generated automatically and dynamically. WPA2-PSK adds AES encryption for even better security. WPA2 mixed tries to authenticate wireless clients using WPA-PSK or WPA2-PSK.

**Security Settings**

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption : WPA pre-shared key ▾

WPA Unicast Cipher Suite :  WPA(TKIP)  WPA2(AES)  WPA2 Mixed

Pre-shared Key Format : Passphrase ▾

Pre-shared Key :

- **Pre-shared Key:** This is an ASCII string with 8 to 63 characters. Please make sure that both the AC-1200UR and the wireless client stations use the same key.
- **WPA unicast Cipher Suite:** There are three cipher suite : WPA (TKIP), WPA2(AES), WPA2 Mixed
- **Pre-shared Key format:** To select the key format

## 4.2.8 Advance Settings

### **Operation Mode -> Setup -> Advance Settings**

This page includes all the wireless settings that change the RF behaviors of AC-1200UR. It is important to read through this section before attempting to make changes.

**Advanced Settings**

Set the time zone of the Wireless Router. This information is used for log entries and firewall settings.

**Fragment Threshold :**  (256-2346)

**RTS Threshold :**  (0-2347)

**Beacon Interval :**  (20-1024 ms)

**DTIM Period :**  (1-10)

**Data Rate :**

**N Data Rate :**

**Channel Width :**  Auto 20/40 MHZ  20 MHZ

**Preamble Type :**  Short Preamble  Long Preamble

**Broadcast Essid :**  Enable  Disable

**CTS Protect :**  Auto  Always  None

**Tx Power:**

**WMM :**  Enable  Disable

**Multicast to Unicast :**  Enable  Disable

- **Beacon Interval:** The device broadcasts beacon frames regularly to announce its existence. The beacon Interval specifies how often beacon frames are transmitted in time unit of milliseconds. The default value is **100**, and a valid value should be between 1 and 65,535.
- **RTS Threshold:** RTS/CTS frames are used to gain control of the medium for transmission. Any unicast (data or control) frames larger than specified RTS threshold must be transmitted following the RTS/CTS handshake exchange mechanism. The RTS threshold should have a value between 256-2347 bytes, with a default of **2347**. It is recommended that this value does not deviate from the default too much.
- **Fragmentation Threshold:** When the size of a unicast frame exceeds the fragmentation threshold, it will be fragmented before the transmission. It should have a value of 256-2346 bytes, with a default of 2346. If you experience a high packet error rate, you should slightly decrease the Fragmentation Threshold.
- **DTIM Interval:** The AC-1200UR buffers packets for stations that operate in the power-saving mode. The Delivery Traffic Indication Message (DTIM) informs such power-conserving stations that there are packets waiting to be received by them. The DTIM interval specifies how often the beacon frame should contain DTIMs. It should have a value between 1 to 255, with a default value of 3.

- Transmit Power:** You can adjust the transmit output power of the AC-1200UR's radio. The higher the output power, the more distance AC-1200UR can deliver. However, it is advised that you use just enough output power so it will not create excessive interference for the environment. Also, using too much power at close distance can create serious performance drop due to signal distortion. At less than 200meter distance, the best output power is about 14dBm. At 2km distance; the best output power setting is 18dBm for "11a".
- Data Rate:**Select here to change the Data Rate for the radio. Lower data rate sometimes provide longer distance. In most cases, however, we recommend to keep the setting at "Auto

### 4.2.9 Access Control (ACL)

**Operation Mode -> Setup -> Access Control**

The AC-1200UR allows you to define a list of MAC addresses that are allowed or denied to access the wireless network. This function is available only for Access Point and AP Router modes.

**Access Control**

For security reason, the Wireless Router features MAC Address Filtering that only allows authorized MAC Addresses associating to the Wireless Router.

- MAC Address Filtering Table**  
 It allows 20 entries only.

NO.	MAC Address	Comment	Select
		Delete	Delete All

**Enable Access Control**

MAC Address	Comment	
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	Add Clear

APPLY CANCEL

To add a MAC address into the table, enter a Mnemonic Name and the MAC Address, and then click Add. The table lists all configured MAC Filter entries.

To delete entries, check the corresponding Select boxes and then press *Delete Selected or delete all.*

## 4.2.10 Multiple SSID

### Operation Mode -> Setup -> Multiple SSID

This function is available only for Access Point and AP Router modes. Multiple SSID also known as Guest mode allows AC-1200UR to create up to 1 different wireless networks (SSID). It is also known as “Virtual AP or Guest” function. Each SSID can have its Encryption type. The users who access the Guest mode SSID cannot access the AC-1200UR.

### Configuring the Multiple SSID

When you click on the “Multiple SSID” button, the following screen will appear.

#### Guest

This page allows you to define the ESSID and wireless security. These parameters are used by wireless stations to connect to this router. Turn on WEP or WPA by using encryption keys in order to prevent unauthorized access to your wireless network.

**Enable Guest SSID**

Wireless Guest Name :

Hidden SSID :

Enable Wireless Clients Isolation :

Band :  (ID)

Channel Number :  (Same as main SSID)

#### Security Settings

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption :

**Enable 802.1x Authentication**



### How to enable Guest SSID

You can add 1 SSID for guest in each radio. Please follow the procedure below:

1. Enter the Wireless Guest Name (SSID) name (i.e. BridgeNet)
2. Select the Security Policy (i.e. WPA-PSK)
3. Enter the Security Key (i.e. BridgeNetKey).
4. Click on “Apply” to add SSID

### How to disable Guest SSID

To disable the Guest SSID, please uncheck the “Enable Guest SSID”.

## 4.2.11 QoS Setting

### *Operation Mode -> Setup -> QoS Setting*

QoS also known as the Bandwidth Control, administrator can set up the bandwidth for each IP address.

#### QoS

QoS (Quality of Service) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. Also important is making sure that providing priority for one or more flows does not make other flows fail.

Enable QoS

Total Download Bandwidth :  >>  kbits

Total Upload Bandwidth :  >>  kbits

Current QoS Table

Priority	Rule Name	Upload Bandwidth	Download Bandwidth	Select
----------	-----------	------------------	--------------------	--------

## Configure the QoS Parameters

 **QoS**

---

This page allows users to add/modify the QoS rule's settings.

**Rule Name :**

**Bandwidth :**   Kbps

**Local IP Address :**  -

**Local Port Range :**

**Remote IP Address :**  -

**Remote Port Range :**

**Traffic Type :**

**Protocol :**

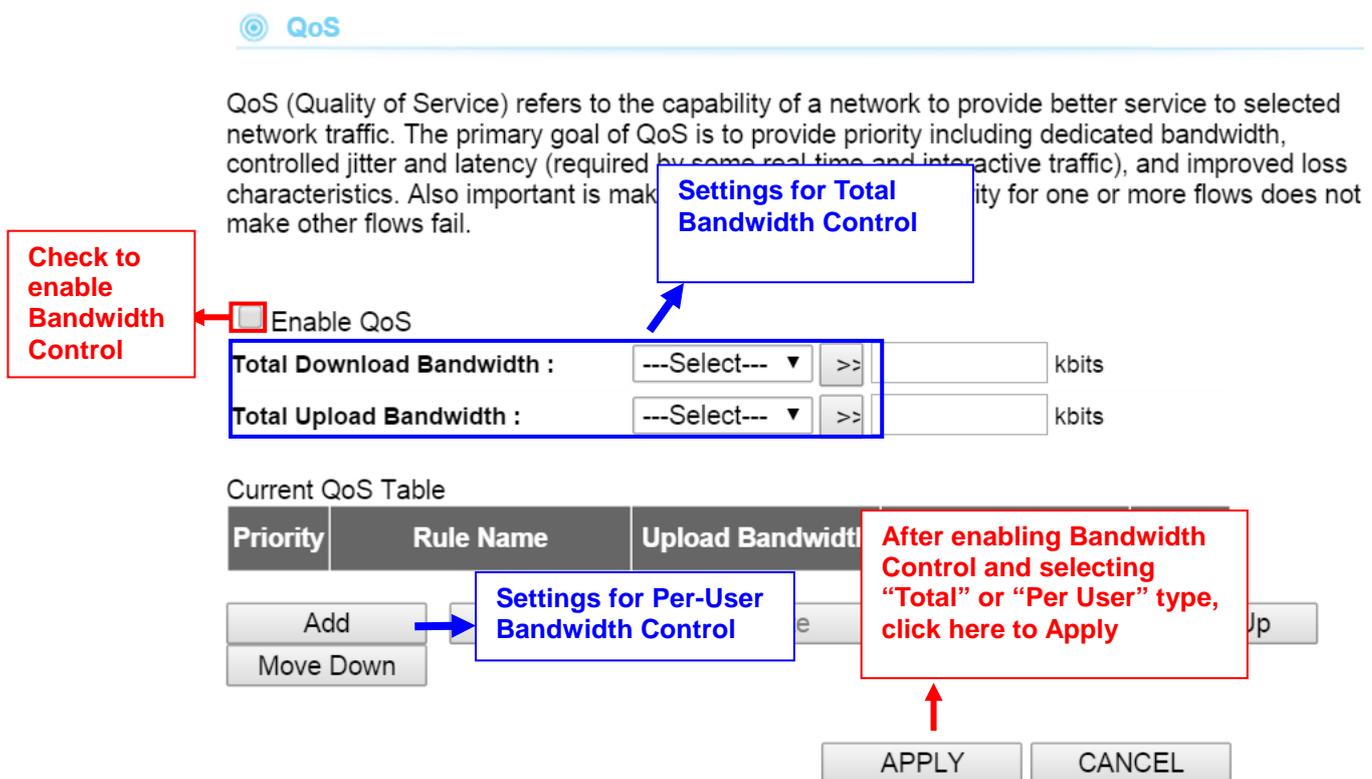
- **Rule Name:** Set the name for the rule
- **Bandwidth:** Set the number which you want to limit
- **Local IP address:** Set the IP address which you want to manage
- **Local Port Range:** Set the port number for which you want to manage
- **Remote IP address:** Set the IP address
- **Remote Port Range:** Set the port range
- **Specific the Traffic Type:** Select the specific traffic you want to manage
- **Protocol:** select the QoS protocol: TCP or UDP

## 4.2.12 Bandwidth Control

### Operation Mode -> Setup -> QoS

QoS also known as Bandwidth Control can limit the maximum speed of entire wireless interface or individual device. It is also known as Traffic Shaping. The AC-1200UR provides both Total Bandwidth and Per-User Bandwidth Control for both uplink and downlink speed. It controls the speed of both wireless and wired interface.

To configure, please click on the “Bandwidth Control” button under wireless settings. The following screen will appear:



**QoS**

QoS (Quality of Service) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real time and interactive traffic), and improved loss characteristics. Also important is making sure that the quality for one or more flows does not make other flows fail.

**Check to enable Bandwidth Control** →  Enable QoS

**Settings for Total Bandwidth Control** →

Total Download Bandwidth : ---Select--- >> [ ] kbits  
 Total Upload Bandwidth : ---Select--- >> [ ] kbits

Current QoS Table

Priority	Rule Name	Upload Bandwidth
[Add]	[Settings for Per-User Bandwidth Control]	[ ] kbps
[Move Down]		

**After enabling Bandwidth Control and selecting “Total” or “Per User” type, click here to Apply** →

[APPLY] [CANCEL]

 **QoS**

---

This page allows users to add/modify the QoS rule's settings.

**Rule Name :**

**Bandwidth :**   Kbps

**Local IP Address :**  -

**Local Port Range :**

**Remote IP Address :**  -

**Remote Port Range :**

**Traffic Type :**

**Protocol :**

- **Enable QoS:** Check to enable QoS (Bandwidth Control). Uncheck to disable it. The default value is disabled.
- 
- **Total Download Bandwidth:** Total Download Bandwidth control limit the bandwidth which all users can download from the WAN. Enter speed you wish to limit the download traffic in Kbps
- **Total Upload Bandwidth:** Enter the speed you wish to limit the upload traffic in Kbps units.

**QoS table:** QoS table can limit speed of individual PC and network device. The AC-1200UR allows multiple rule for QoS bandwidth control and it can limit the bandwidth by IP address, Port segment. Please first enable the Bandwidth Control, then click add to add the *Rule*.

- **Rule Name:** Enter a description for the bandwidth policy. For example, "VIP" subscriber
- **Bandwidth:** To set the download, upload bandwidth limited
- **IP address:** To limit the bandwidth of one single MAC address
- **Port Range:** This is available only in WISP router and AP Router mode. It can limit the bandwidth by application ports.
- **Traffic type:** This option is special for WISP router and AP Router mode. It can limit the bandwidth of HTTP, FTP, POP3, and SMTP traffic.

### 4.3 AP Specific Settings

The Access Point mode is the most basic mode of multi-function Access Point. In this mode, the AP will act as a central hub for different Wireless LAN clients. Some hotspot Access Points requires 802.1x authenticator function to authenticate a user before providing internet service.



Change Setting For: Radio 1 ▾

#### WLAN Standard for Radio 1

	<input checked="" type="checkbox"/> Enable Radio 1
Network ID (SSID)	<input type="text" value="Airlive-5G"/> <input type="button" value="SiteSurvey"/>
	<input type="checkbox"/> Disable SSID Broadcasting
Radio Mode:	<input type="text" value="5 GHz (A+N+AC) ▾"/>
Channel :	<input style="width: 50px;" type="text" value="165"/>
Channel Width:	<input type="text" value="Auto (20/40/80MHZ) ▾"/>
Security Settings:	<input type="button" value="Setup"/>
Advanced Settings:	<input type="button" value="Setup"/>
Access Control:	<input type="button" value="Setup"/>
Multiple SSID:	<input type="button" value="Setup"/>
QoS Setting:	<input type="button" value="Setup"/>

**NOTE:** To access the wireless network, user must have correct SSID and encryption key, if enabled.

**Enable Radio:** Use this check box to turn on or turn off the radio.

- **Network ID (SSID):** This is to change your SSID.
- **Disable SSID Broadcasting:** Enable the check box if you want to hide your SSID in the network. This prevent an un-welcomed client survey your radio.
- **Radio Mode:** Connection modes on AC-1200UR and its wireless client. Note that the client must support the same mode as AC-1200UR to connect.
- **Channel:** The radio for channel in Radio 1 (5G) and Radio 2 (2.4G) is totally depend on the country regulation

## 4.4 Bridge Mode Specific Settings

The AC-1200UR supports WDS Bridge connection. In a WDS network, each node can have up to 4 connections.

WDS Bridges are using BSSID (AP's Wireless MAC address) to authenticate each other. Therefore, it is necessary to know the remote Bridge's wireless MAC addresses. You can always do a "Site Survey" to find out the MAC Addresses. You also need to set the same encryption with remote Bridge. You can set up the encryption in Security Setting.

Regulatory Domain: 2.FCC ▼  
 Change Setting For: Radio 1 ▼

---

**WLAN Standard for Radio 1**

Enable Radio 1  
SiteSurvey

Radio Mode: 5 GHz (A+N+AC) ▼

Channel : 165 ▼

Channel Width: Auto (20/40/80MHZ) ▼

Security Settings: Setup →

Advanced Settings: Setup

QoS Setting: Setup

MAC Address 1:

MAC Address 2:

MAC Address 3:

MAC Address 4:

Here are the encryption key settings for WEP. Please make sure all bridges in the WDS network enter the same keys.

Apply

**NOTE:** To access the wireless network, user must have correct SSID and encryption key, if enabled.

## 4.5 Client Mode Specific Settings

Client mode is also known as Ethernet Client. In this mode, the AP will act as a WLAN card to connect with the remote AP. Users can connect PC or local LAN to the Ethernet port of local LAN to the Ethernet port of the client mode AP. This mode is mostly used as a CPE device for WISP subscriber.



1. To connect to an access point, use the “**Site Survey**” button to find the Access Point.

Regulatory Domain: 2.FCC ▾

Change Setting For: Radio 1 ▾

---

**WLAN Standard for Radio 1**

Enable Radio 1

Network ID (SSID) Airlive-5G SiteSurvey

Radio Mode: 5 GHz (A+N+AC) ▾

Channel : 165 ▾

Channel Width: Auto (20/40/80MHZ) ▾

Security Settings: Setup

Advanced Settings: Setup

QoS Setting: Setup

Apply

**NOTE:** To access the wireless network, user must have correct SSID and encryption key, if enabled.

- The Site Survey pop up window then shows up and lists available access point with relative information.

**Wireless Site Survey**

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Select	SSID	BSSID	Channel	Authentication	Encryption	Signal	Mode
<input type="radio"/>	airlive-5G	00:A0:00:00:00:0F	40	OPEN	NONE	65	11ac
<input type="radio"/>	N450R5g	00:4F:67:05:2B:61	44	OPEN	NONE	73	11a/n

Refresh Done

Select the access point you want to connect and then click the “Done” button.

- After the access point is selected, its SSID shows automatically in the Network ID (SSID) field.

**WLAN Standard for Radio 1**

Enable Radio 1

Network ID (SSID):  SiteSurvey

Radio Mode: 5 GHz (A+N+AC) ▼

Channel: 40 ▼

Channel Width: Auto (20/40/80MHZ) ▼

Security Settings: Setup

Advanced Settings: Setup

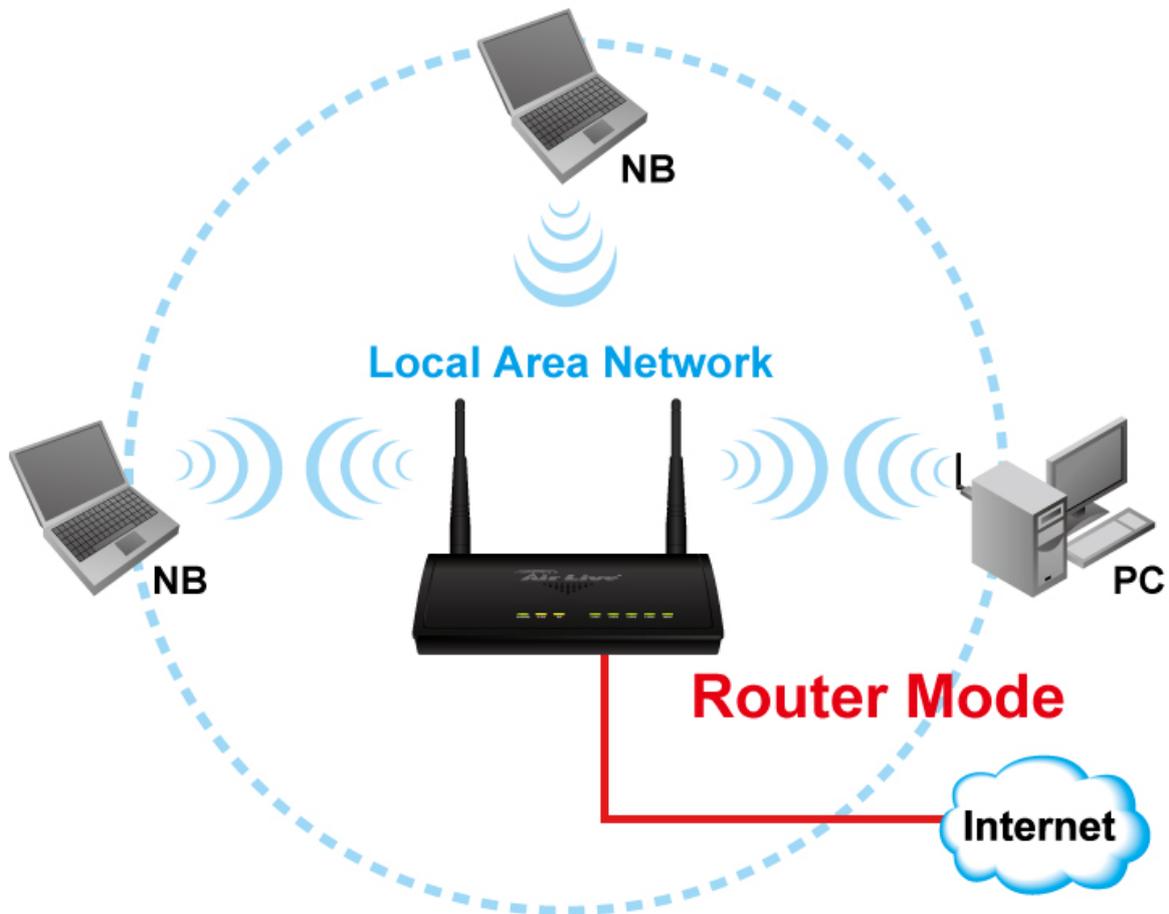
QoS Setting: Setup

Apply

**NOTE:** To access the wireless network, user must have correct SSID and encryption key, if enabled.

## 4.6 Router Mode Specific Settings

In Router mode, router functions are added between one Ethernet port and other network interfaces. Therefore, the ISP subscriber can share the ISP connection without need for extra router.



WAN Setting			
WAN Port Settings:	<input type="button" value="Setup"/>	Special Applications:	<input type="button" value="Setup"/>
DHCP Server Settings:	<input type="button" value="Setup"/>	IP Filtering Settings:	<input type="button" value="Setup"/>
Multiple DMZ:	<input type="button" value="Setup"/>	Dynamic DNS Settings:	<input type="button" value="Setup"/>
Virtual Server Settings:	<input type="button" value="Setup"/>	Remote Management:	<input type="button" value="Setup"/>
<input type="button" value="Apply"/>			

### 4.6.1 WAN Port Settings

**Operation Mode -> Setup -> WAN Port Settings**

The AC-1200UR support different authentication and IP assignment standards for the WAN port. It includes fixed IP, DHCP, PPPoE and PPTP protocols. Please consult with your ISP about what authentication type is used for the WAN port connection.

**WAN Port Settings:**

If your ISP has assigned you a static IP address, select this button and enter the information below:

IP Address Assigned by Your ISP:  .  .  .

IP Subnet Mask:  .  .  .

ISP Gateway IP Address:  .  .  .

Primary DNS Server:  .  .  .

Secondary DNS Server:  .  .  .

If your ISP already provides you with PPPoE authentication information,select this button and enter the information below:

User Name:

Password:

Service name:

Connection Type:  ▼

MTU:  Bytes (128-1500)

MRU:  Bytes (1-1500)

Session Type:  ▼

- **Clone MAC Address:** Some service provider (Cable Modem provider) lock to certain MAC address. In this situation, the WAN port of AC-1200UR needs to clone the MAC address. Please check the “Clone MAC address” box and enter the address that need to be cloned.

- If your ISP already provides you with a Host Name, select this button and enter the information below: (DHCP)

Host Name:

- If your ISP already provides you with PPTP authentication information, select this button and enter the information below:

PPTP Local IP Address:  .  .  .

PPTP IP Netmask:  .  .  .

PPTP Remote IP Address:  .  .  .

User Name:

Password:

Idle Time:  Minutes (0 means always on)

**Cloned MAC Address :**

If your ISP requires you to use a specific WAN Ethernet MAC address, check this box and enter the MAC address here.

MAC Address:  (in xx-xx-xx-xx-xx-xx format)

NOTE: Changes to this page will not take effect until you click Apply on the save config page.

## 4.6.2 DHCP Server Settings

**Operation Mode -> Setup -> DHCP Server Settings**

DHCP Server Settings is to assign private IP address to the devices in your local area network (LAN). Note that AC-1200UR keeps the IP address of 192.168.1.254 and act as the default gateway of the LAN.

You can assign IP address to MAC address; the DHCP server will keep the IP for the MAC address.

**LAN**

You can enable the Wireless Router's DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The Wireless Router must have an IP Address in the Local Area Network.

**• LAN IP**

IP Address :

Subnet Mask :

802.1d Spanning Tree :

DHCP Server :

**Change AC-1200UR IP address**

**• DHCP Server**

Lease Time :

DHCP Client Start IP :

DHCP Client End IP :

Domain Name :

**• Static DHCP Lease Table**  
It allows 16 entries only.

**Change IP range and IP Lease Time here**

NO.	MAC Address	IP Address	Select
<input type="button" value="Delete"/> <input type="button" value="Delete All"/>			

**Enable Static DHCP Leases**

MAC Address	IP Address
<input type="text"/>	<input type="text"/>

**Manually assign MAC address to IP here**

### 4.6.3 Multiple DMZ

**Operation Mode -> Setup -> Multiple DMZ**

Multiple DMZ opens all TCP/UDP ports to particular IP address on the LAN side. It allows setting up servers behind the AC-1200UR.

**DMZ**

If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, then you can open the client up to unrestricted two-way Internet access by defining a Virtual DMZ Host.

Enable DMZ

	Public IP	Client PC IP Address	Computer Name
<input checked="" type="radio"/> Dynamic IP <input type="radio"/> Static IP	Session 1 ▼ <input type="text"/>	<input type="text"/>	-----Select----- ▼ <input type="text"/>
		<input type="button" value="Add"/>	<input type="button" value="Reset"/>

**• Current DMZ Table**

NO.	Computer Name	Public IP	Client PC IP Address	Select
		<input type="button" value="Delete"/>	<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>
		<input type="button" value="APPLY"/>	<input type="button" value="CANCEL"/>	

Select a DMZ type and then enter the local DMZ IP address

Note: A DMZ server is a common term used to describe the default virtual server. If the DMZ server is selected, Internet traffic not destined for a valid virtual server is redirected to this privately addressed LAN client. This can be used together with a separate firewall device to perform additional security functions.

### 4.6.4 Virtual Server Settings

**Operation Mode -> Setup -> Virtual Setting**

This allows you to specify one or more applications running on server computers on the LAN that may be accessed by any Internet user. Internet data destined for the specified public port will be directed to the specified private port number on the LAN client with the specified private IP address.

**Virtual Server**

You can configure the Wireless Router as a Virtual Server so that remote users accessing services such as the Web or FTP at your local site via Public IP Addresses can be automatically redirected to local servers configured with Private IP Addresses. In other word depending on the requested service (TCP/UDP) port number, the Wireless Router redirects the external service request to the appropriate internal server (located at one of your LAN's Private IP Address).

**Enable Virtual Server**

Private IP	Computer Name	Private Port	Type	Public Port	Comment
	-----Select----- ▼		Both ▼		

**• Current Virtual Server Table**

NO.	Computer Name	Private IP	Private Port	Type	Public Port	Comment	Select

### 4.6.5 Special Applications

**Operation Mode -> Setup -> Special Applications**

Some Internet application such as Instant Messaging or games use groups of ports, and are not easy to work behind a firewall. To work well with these special applications we will open ports to let traffic pass through.

Note: You can use up to 3 sets of opened ports for a specific application. The opened ports can be separated by a comma and no spaces are allowed (e.g. 2300-2305, 4300-4305, 5300-5305).

**Special Applications**

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications cannot work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic. Note: The range of the Trigger Port is 1 to 65535.

**Enable Special Applications**

IP Address	Computer Name	TCP Port to Open	UDP Port to Open	Comment
	-----Select----- ▼			

Popular Applications :

**• Current Trigger-Port Table**

NO.	Computer Name	IP Address	TCP Port to Open	UDP Port to Open	Comment	Select
-----	---------------	------------	------------------	------------------	---------	--------

### 4.6.6 IP Filtering Settings

**Operation Mode -> Setup -> IP Filtering Settings**

IP Filtering Settings allows users to define the traffic type permitted or not permitted in your LAN. You can control which PC client uses what services in which they can have access to these services. If both of MAC filtering and IP filtering are enabled simultaneously, the MAC filtering table will be checked first and then IP filtering table

#### Access Control

Access Control allows users to define the traffic type permitted or not permitted in your LAN. You can control which PC client uses what services in which they can have access to these services. If both of MAC filtering and IP filtering are enabled simultaneously, the MAC filtering table will be checked first and then IP filtering table.

**Enable MAC Filtering**   
  **Deny**   
  **Allow**

Client PC MAC Address	Computer Name	Comment
<input type="text"/>	-----Select----- ▼	<input type="text"/>
<input type="button" value="Add"/>		<input type="button" value="Reset"/>

#### Current MAC Filtering Table

NO.	Computer Name	Client PC MAC Address	Comment	Select
<input type="button" value="Delete"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>				

**Enable IP Filtering**   
  **Deny**   
  **Allow**

NO.	Client PC Description	Client PC IP Address	Client Service	Protocol	Port Range	Select
<input type="button" value="Add PC"/>		<input type="button" value="Delete"/>		<input type="button" value="Delete All"/>		
<input type="button" value="APPLY"/>				<input type="button" value="CANCEL"/>		

This allows you to define who are allowing / denying access from / to the Internet.

- **Enable MACFiltering:**To enable the MAC filtering.
- **Enable IP Filtering :** To enable the IP filtering
- **Allow:** Data traffic satisfying rules below are allowed/forwarded.
- **Deny:**Data traffic satisfying rules below are denied/filtered.

To grant or deny IP address, select **ADD ,ADD PC** or **Reset**.

### 4.6.7 Dynamic DNS Settings

**Operation Mode -> Setup -> Dynamic DNS Settings**

Dynamic DNS (DDNS) allows you to create a hostname that points to your dynamic IP or static IP address or URL. AC-1200UR provide Dynamic DNS client using DynDNS, please visit <http://dyn.com/dns> for detail.

#### DDNS

DDNS (DynamicDNS) allows users to map the static domain name to a dynamic IP address. You must get a account, password and your static domain name from the DDNS service providers. Our products have DDNS support for [www.dyndns.org](http://www.dyndns.org) and [www.tzo.com](http://www.tzo.com) now.

Dynamic DNS :  Enable  Disable

Provider :

Domain Name :

Account :

Password / Key :

### 4.6.8 Remote Management Settings

**Operation Mode -> Setup -> Remote Management**

The remote management function allows you to designate a host in the Internet to have management/configuration access to the Wireless Router from a remote site. Enter the designated host IP Address in the Host IP Address field.

#### Remote Management

The remote management function allows you to designate a host in the Internet to have management/configuration access to the Wireless Router from a remote site. Enter the designated host IP Address in the Host IP Address field.

Host Address	Port	Enable
<input type="text" value="192.168.1.32"/>	<input type="text" value="8080"/>	<input checked="" type="checkbox"/>

## 4.7 WISP Specific Settings

In WISP mode, the AP will behave just the same as the Client mode for wireless function. However, router functions are added between the wireless WAN side and the Ethernet LAN side. Therefore, the WISP subscriber can share the WISP connection without need for extra router.



WISP mode acts both in AP and Router which included in these operation modes: WISP + AP.

In WISP + AP mode, the Radio 1 is actually a wireless client of the WISP wireless node and also the gateway of the local area network.

Router mode acts both in AP and Router which included in these operation modes: Dual Band Router

WAN Setting			
WAN Port Settings:	<input type="button" value="Setup"/>	Special Applications:	<input type="button" value="Setup"/>
DHCP Server Settings:	<input type="button" value="Setup"/>	IP Filtering Settings:	<input type="button" value="Setup"/>
Multiple DMZ:	<input type="button" value="Setup"/>	Dynamic DNS Settings:	<input type="button" value="Setup"/>
Virtual Server Settings:	<input type="button" value="Setup"/>	Remote Management:	<input type="button" value="Setup"/>
<input type="button" value="Apply"/>			

**NOTE:** To access the wireless network, user must have correct SSID and encryption key, if enabled.

## 4.7.1 WAN Port Settings

### Operation Mode -> Setup -> WAN Port Settings

The AC-1200UR support different authentication and IP assignment standards for the WAN port. It includes fixed IP, DHCP, PPPoE and PPTP protocols. Please consult with your ISP about what authentication type is used for the WAN port connection.

#### WAN Port Settings

If your ISP has assigned you a static IP address, select this button and enter the information below:

IP Address Assigned by Your ISP:	<input type="text" value="172.1.1.1"/>
IP Subnet Mask:	<input type="text" value="255.255.0.0"/>
ISP Gateway IP Address:	<input type="text" value="172.1.1.254"/>
Primary DNS Server:	<input type="text"/>
Secondary DNS Server:	<input type="text"/>

If your ISP already provides you with PPPoE authentication information,select this button and enter the information below:

User Name:	<input type="text"/>
Password:	<input type="text"/>
Service name:	<input type="text"/>
Connection Type:	<input type="text" value="Continuous"/>
MTU:	<input type="text" value="1392"/> Bytes (128-1500)

If your ISP already provides you with a Host Name, select this button and enter the information below: (DHCP):

Host Name:	<input type="text"/>
------------	----------------------

If your ISP already provides you with PPTP authentication information,select this button and enter the information below:

- **Clone MAC Address:** Some service provider (Cable Modem provider) lock to certain MAC address. In this situation, the WAN port of AC-1200UR needs to clone the MAC address. Please check the “Clone MAC address” box and enter the address that need to be cloned.

- If your ISP already provides you with a Host Name, select this button and enter the information below: (DHCP)

Host Name:

- If your ISP already provides you with PPTP authentication information,select this button and enter the information below:

PPTP Local IP Address:  .  .  .

PPTP IP Netmask:  .  .  .

PPTP Remote IP Address:  .  .  .

User Name:

Password:

Idle Time:  Minutes (0 means always on)

**Cloned MAC Address :**

If your ISP requires you to use a specific WAN Ethernet MAC address,check this box and enter the MAC address here.

MAC Address:  in xx-xx-xx-xx-xx-xx format)

NOTE: Changes to this page will not take effect until you click Apply on the save config page.

## 4.7.2 DHCP Server Settings

**Operation Mode -> Setup -> DHCP Server Settings**

DHCP Server Settings is to assign private IP address to the devices in your local area network (LAN). Note that AC-1200UR keeps the IP address of 192.168.1.1 and act as the default gateway of the LAN.

You can assign IP address to MAC address; the DHCP server will keep the IP for the MAC address.

**LAN**

You can enable the Wireless Router's DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The Wireless Router must have an IP Address in the Local Area Network.

**• LAN IP**

IP Address :

Subnet Mask :

802.1d Spanning Tree :

DHCP Server :

Change IP range and IP Lease Time here

**• DHCP Server**

Lease Time :

DHCP Client Start IP :

DHCP Client End IP :

Domain Name :

**• Static DHCP Lease Table**  
It allows 16 entries only.

APPLY    CANCEL

NO.	MAC Address	IP Address	Select

Delete    Delete All

Manually assign MAC address to IP here

**Enable Enable Static DHCP Leases**

MAC Address	IP Address
<input type="text"/>	<input type="text"/>

Add    Clear

### 4.7.3 Multiple DMZ

**Operation Mode -> Setup -> Multiple DMZ**

Multiple DMZ opens all TCP/UDP ports to particular IP address on the LAN side. It allows setting up servers behind the AC-1200UR.

**DMZ**

If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, then you can open the client up to unrestricted two-way Internet access by defining a Virtual DMZ Host.

**Enable DMZ**

Public IP	Client PC IP Address	Computer Name
<input checked="" type="radio"/> Dynamic IP Session 1 ▼	<input type="text"/>	-----Select----- ▼
<input type="radio"/> Static IP <input type="text"/>		

**• Current DMZ Table**

NO.	Computer Name	Public IP	Client PC IP Address	Select
		<input type="button" value="Delete"/>	<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>

Select a DMZ type and then enter the local DMZ IP address

Note: A DMZ server is a common term used to describe the default virtual server. If the DMZ server is selected, Internet traffic not destined for a valid virtual server is redirected to this privately addressed LAN client. This can be used together with a separate firewall device to perform additional security functions.

### 4.7.4 Virtual Server Settings

**Operation Mode -> Setup -> Virtual Setting**

This allows you to specify one or more applications running on server computers on the LAN that may be accessed by any Internet user. Internet data destined for the specified public port will be directed to the specified private port number on the LAN client with the specified private IP address.

**Virtual Server**

You can configure the Wireless Router as a Virtual Server so that remote users accessing services such as the Web or FTP at your local site via Public IP Addresses can be automatically redirected to local servers configured with Private IP Addresses. In other words, depending on the requested service (TCP/UDP) port number, the Wireless Router redirects the external service request to the appropriate internal server (located at one of your LAN's Private IP Address).

**Enable Virtual Server**

Private IP	Computer Name	Private Port	Type	Public Port	Comment
	-----Select----- ▼		Both ▼		

**• Current Virtual Server Table**

NO.	Computer Name	Private IP	Private Port	Type	Public Port	Comment	Select
			<input type="button" value="Delete"/>			<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>
						<input type="button" value="APPLY"/>	<input type="button" value="CANCEL"/>

### 4.7.5 Special Applications

**Operation Mode -> Setup -> Special Applications**

Some Internet application such as Instant Messaging or games use groups of ports, and are not easy to work behind a firewall. To work well with these special applications we will open ports to let traffic pass through.

Note: You can use up to 3 sets of opened ports for a specific application. The opened ports can be separated by a comma and no spaces are allowed (e.g. 2300-2305, 4300-4305, 5300-5305).

 **Special Applications**

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications cannot work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic. Note: The range of the Trigger Port is 1 to 65535.

**Enable Special Applications**

IP Address	Computer Name	TCP Port to Open	UDP Port to Open	Comment
	-----Select----- ▼			

Popular Applications :

• **Current Trigger-Port Table**

NO.	Computer Name	IP Address	TCP Port to Open	UDP Port to Open	Comment	Select
			<input type="button" value="Delete"/>	<input type="button" value="Delete All"/>	<input type="button" value="Reset"/>	
				<input type="button" value="APPLY"/>	<input type="button" value="CANCEL"/>	

### 4.7.6 IP Filtering Settings

**Operation Mode -> Setup -> IP Filtering Settings**

IP Filtering Settings allows users to define the traffic type permitted or not permitted in your LAN. You can control which PC client uses what services in which they can have access to these services. If both of MAC filtering and IP filtering are enabled simultaneously, the MAC filtering table will be checked first and then IP filtering table

**Access Control**

Access Control allows users to define the traffic type permitted or not permitted in your LAN. You can control which PC client uses what services in which they can have access to these services. If both of MAC filtering and IP filtering are enabled simultaneously, the MAC filtering table will be checked first and then IP filtering table.

**Enable MAC Filtering**   
  **Deny**   
  **Allow**

Client PC MAC Address	Computer Name	Comment
<input type="text"/>	-----Select----- ▼	<input type="text"/>
<input type="button" value="Add"/>		<input type="button" value="Reset"/>

**Current MAC Filtering Table**

NO.	Computer Name	Client PC MAC Address	Comment	Select
<input type="button" value="Delete"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>				

**Enable IP Filtering**   
  **Deny**   
  **Allow**

NO.	Client PC Description	Client PC IP Address	Client Service	Protocol	Port Range	Select
<input type="button" value="Add PC"/>		<input type="button" value="Delete"/>		<input type="button" value="Delete All"/>		
<input type="button" value="APPLY"/>				<input type="button" value="CANCEL"/>		

This allows you to define who are allowing / denying access from / to the Internet.

- **Enable MAC Filtering:**To enable the MAC filtering.
- **Enable IP Filtering :** To enable the IP filtering
- **Allow:** Data traffic satisfying rules below are allowed / forwarded.
- **Deny:**Data traffic satisfying rules below are denied / filtered.

To grant or deny IP address, select **ADD ,ADD PC** or **Reset**.

### 4.7.7 Dynamic DNS Settings

**Operation Mode -> Setup -> Dynamic DNS Settings**

Dynamic DNS (DDNS) allows you to create a hostname that points to your dynamic IP or static IP address or URL. AC-1200UR provide Dynamic DNS client using DynDNS, please visit <http://www.dyndns.org> for detail.

#### DDNS

DDNS (DynamicDNS) allows users to map the static domain name to a dynamic IP address. You must get a account, password and your static domain name from the DDNS service providers. Our products have DDNS support for [www.dyndns.org](http://www.dyndns.org) and [www.tzo.com](http://www.tzo.com) now.

Dynamic DNS :  Enable  Disable

Provider :

Domain Name :

Account :

Password / Key :

### 4.7.8 Remote Management Settings

**Operation Mode -> Setup -> Remote Management**

The remote management function allows you to designate a host in the Internet to have management/configuration access to the Wireless Router from a remote site. Enter the designated host IP Address in the Host IP Address field.

#### Remote Management

The remote management function allows you to designate a host in the Internet to have management/configuration access to the Wireless Router from a remote site. Enter the designated host IP Address in the Host IP Address field.

Host Address	Port	Enable
<input type="text" value="192.168.1.32"/>	<input type="text" value="8080"/>	<input checked="" type="checkbox"/>

# 5

## System Configuration

In this chapter, we will explain about General Setup in web management interface. Please be sure to read through Chapter 3's "Introduction to Web Management" and "Initial Configurations" first.

### 5.1 System Configuration

When you click on the "General Setup" menu on the top menu bar, the following screen will appear. The system configuration includes all non-wireless settings. We will explain their functions here.

#### 5.1.1 Device IP Settings

##### General Setup>>LAN

The LAN Settings screen allows you to configure the IP address and subnet of the device. You also can enable or disable the DHCP server in this page. If AC-1200UR is working in client mode or AP mode, please disable the DHCP server.

The DHCP server setting, please refer the chapter 4.6.2

**LAN**

You can enable the Wireless Router's DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The Wireless Router must have an IP Address in the Local Area Network.

**• LAN IP**

IP Address :

Subnet Mask :

802.1d Spanning Tree :

DHCP Server :

**• DHCP Server**

Lease Time :

DHCP Client Start IP :

DHCP Client End IP :

Domain Name :

**• Static DHCP Lease Table**

It allows 16 entries only.

NO.	MAC Address	IP Address	Select
-----	-------------	------------	--------

**Enable Static DHCP Leases**

MAC Address	IP Address
-------------	------------

## 5.1.2 Time Settings

### General Setup>>System ->Time Zone

It is important that you set the date and time for your AC-1200UR so that the system log will record the correct date and time information. We recommend you choose "Enable NTP" so the time will be keep even after reboot. If your AC-1200UR is not connected to Internet, please enter the time manually. Please remember to select your local time zone and click "Apply" to finish.

Operation Mode | **General Setup** | Status | Tools

**System**

- Time Zone**
- Password Settings
- Remote Management

WAN

LAN

2.4GHz Wireless

5GHz Wireless

QoS

**Time Zone**

Set the time zone of the Wireless Router. This information is used for log entries and firewall settings.

Time Zone : (GMT+00:00)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London ▼

Time Server Address : 118.163.81.62

Daylight Savings :  Enable

Time From : January ▼ 1 ▼ To : February ▼ 1 ▼

APPLY CANCEL

### 5.1.3 Password Settings

#### General Setup ->System ->Password Settings

To change password, please go to “System Configuration” -> “Password Settings” menu.

Operation Mode | **General Setup** | Status | Tools

**System**

- Time Zone
- Password Settings**
- Remote Management

WAN

LAN

2.4GHz Wireless

5GHz Wireless

QoS

NAT

**Password Settings**

You can change the password required while logging into the wireless router's web-based management system. By default, the password is 1234. So please assign a password to the Administrator as soon as possible, and store it in a safe place. Passwords can contain 1 to 30 alphanumeric characters, and are case sensitive.

Current Password :

New Password :

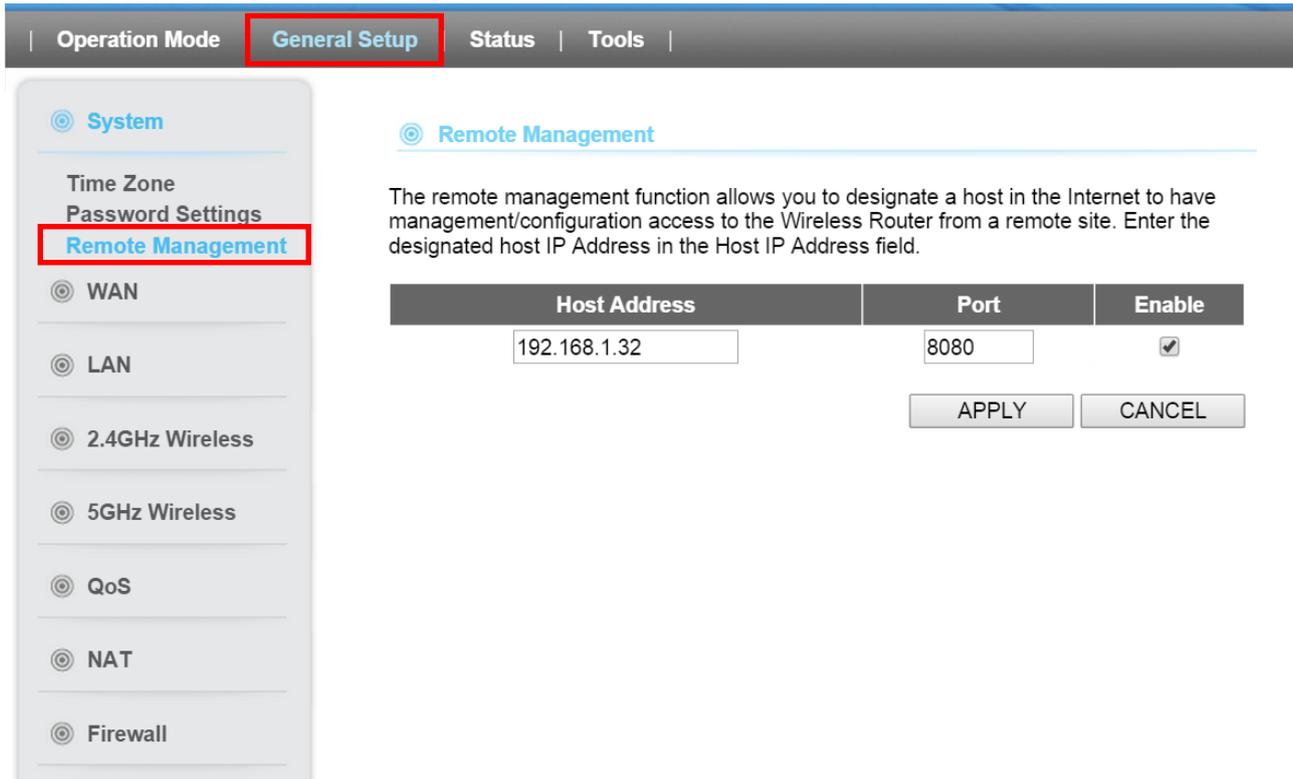
Confirm Password :

APPLY CANCEL

## 5.1.4 System Management

### General Setup ->System ->Remote Management

In this page, administrator can change the management parameters and disable/enable management interface.



The screenshot shows the configuration page for Remote Management. The left sidebar contains a menu with 'Remote Management' selected. The main content area has a heading 'Remote Management' and a descriptive paragraph. Below this is a table with three columns: Host Address, Port, and Enable. The Host Address field contains '192.168.1.32', the Port field contains '8080', and the Enable checkbox is checked. At the bottom right of the table are 'APPLY' and 'CANCEL' buttons.

Host Address	Port	Enable
192.168.1.32	8080	<input checked="" type="checkbox"/>

- **Host Address:** To set up the IP address which allow the user to management AC-1200UR via Internet
- **HTTP Port No:** The port number for remote management. The default port for HTTP is Port 8080; you can change the value here. Please do not set the 80
- **Enable:**You can enable or disable HTTP service from WAN side
- **Response to WAN ping:**You can disable or enable whether AC-1200UR will response to PING command.

## 5.1.5 WAN

### General Setup -> WAN

If AC-1200UR is working in router mode, WAN setting will appear. The detail setting can refer the chapter 4.7.1

## 5.1.6 2.4G Wireless

AC-1200UR supports multiple operations for 2.4G and 5G radio and each radio can work in difference mode. You can setup the operation mode, channel, SSID in operation setup or you can setup in here if you want to have specific operation in each mode. When you setup in Operation Mode, the parameter in here will change as well

### 5.1.6.1 Basic Setting

This page allows you to define ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point. You also can figure out who are connecting to the AC-1200UR via 2.4G band

#### Basic Settings

This page allows you to define ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

Mode :	<input type="text" value="Access Point"/>
Band :	<input type="text" value="2.4 GHz (B+G+N)"/>
SSID :	<input type="text" value="ac-1200_2.4"/>
Channel Number :	<input type="text" value="Auto"/>
Associated Clients :	<input type="button" value="ShowActiveClients"/>
<input type="button" value="APPLY"/> <input type="button" value="CANCEL"/>	

### 5.1.6.2 Guest

This page allows you to define the ESSID (Guest) and wireless security. These parameters are used by wireless stations to connect to this router. Turn on WEP or WPA by using encryption keys in order to prevent unauthorized access to your wireless network.

The wireless stations which connect to the Guest SSID cannot access AC-1200UR and it can have difference wireless encryption from the main SSID

### Guest

This page allows you to define the ESSID and wireless security. These parameters are used by wireless stations to connect to this router. Turn on WEP or WPA by using encryption keys in order to prevent unauthorized access to your wireless network.

**Enable Guest SSID**

Wireless Guest Name :

Hidden SSID :

Enable Wireless Clients Isolation :

Band : 2.4 GHz (B+G+N) (Same as main SSID)

Channel Number :  (Same as main SSID)

### Security Settings

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption :

**Enable 802.1x Authentication**

APPLY

CANCEL

### 5.1.6.3 Advance Setting

This page is to set the advance setting for wireless parameter. You can refer the chapter 4.2.8 for the detail.

#### ⊙ Advanced Settings

Set the time zone of the Wireless Router. This information is used for log entries and firewall settings.

Fragment Threshold :	<input type="text" value="2346"/>	(256-2346)
RTS Threshold :	<input type="text" value="2347"/>	(0-2347)
Beacon Interval :	<input type="text" value="100"/>	(20-1024 ms)
DTIM Period :	<input type="text" value="3"/>	(1-10)
Data Rate :	<input type="text" value="Auto"/>	
N Data Rate :	<input type="text" value="Auto"/>	
Channel Width :	<input checked="" type="radio"/> Auto 20/40 MHZ	<input type="radio"/> 20 MHZ
Preamble Type :	<input checked="" type="radio"/> Short Preamble	<input type="radio"/> Long Preamble
Broadcast Essid :	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable
CTS Protect :	<input checked="" type="radio"/> Auto	<input type="radio"/> Always <input type="radio"/> None
Tx Power:	<input type="text" value="100"/>	
WMM :	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable
Multicast to Unicast :	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable

### 5.1.6.4 Security Setting

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

You can refer the 4.2.7 for detail setting; each radio has its own security setting.

Operation Mode
General Setup
Status
Tools

- System
- WAN
- LAN
- 2.4GHz Wireless
- Basic Settings
- Guest
- Advanced Settings
- Security Settings
- Access Control
- WPS
- 5GHz Wireless

#### Security Settings

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

**Encryption :**

**WPA Unicast Cipher Suite :**  WPA(TKIP)  WPA2(AES)  WPA2 Mixed

**Pre-shared Key Format :**

**Pre-shared Key :**

### 5.1.6.5 Access Control

For security reason, the Wireless Router features MAC Address Filtering that only allows authorized MAC Addresses associating to the Router via 2.4G radio.

- System
- WAN
- LAN
- 2.4GHz Wireless
- Basic Settings
- Guest
- Advanced Settings
- Security Settings
- Access Control
- WPS
- 5GHz Wireless
- QoS
- NAT
- Firewall

Access Control

For security reason, the Wireless Router features MAC Address Filtering that only allows authorized MAC Addresses associating to the Wireless Router.

- **MAC Address Filtering Table**  
It allows 20 entries only.

NO.	MAC Address	Comment	Select
		<input type="button" value="Delete"/> <input type="button" value="Delete All"/>	

**Enable Access Control**

MAC Address	Comment	
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input type="button" value="Add"/> <input type="button" value="Clear"/>

### 5.1.6.6 WPS

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). WPS can help your wireless client automatically connect to the Wireless Router.

Operation Mode
General Setup
Status
Tools

- [System](#)
- [WAN](#)
- [LAN](#)
- [2.4GHz Wireless](#)
- Basic Settings
  - Guest
  - Advanced Settings
  - Security Settings
  - Access Control
  - WPS
- [5GHz Wireless](#)
- [QoS](#)
- [NAT](#)
- [Firewall](#)

[WPS](#)

---

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). WPS can help your wireless client automatically connect to the Wireless Router.

**Enable WPS**

**WPS Information**

WPS Status :	Configured
PinCode Self :	33076492
SSID :	ac-1200_2.4
Authentication Mode :	Disable
Passphrase Key :	

**Device Configure**

Config Mode :	<input type="text" value="Registrar"/>
Configure by Push Button :	<input type="button" value="Start PBC"/>
Configure by Client PinCode :	<input style="width: 100px;" type="text"/> <input type="button" value="Start PIN"/>

### 5.1.7 5G Wireless

AC-1200UR supports multiple operations for 2.4G and 5G radio and each radio can work in difference mode. You can setup the operation mode, channel, SSID in *Operation Mode* or you can setup in here if you want to have specific operation in each mode. When you setup in *Operation Mode*, the parameter in here will change as well

AC-1200UR 2.4G/5G can work individually. You can refer the 5.1.6 for the detail setting.

| Operation Mode
| **General Setup**
| Status
| Tools

- System

---

- WAN

---

- LAN

---

- 2.4GHz Wireless

---

- 5GHz Wireless**

---

- Basic Settings**
- Guest
- Advanced Settings
- Security Settings
- Access Control
- WPS

---

- QoS

---

- NAT

---

- Firewall

**Basic Settings**

This page allows you to define ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

**Mode :**

**Band :**

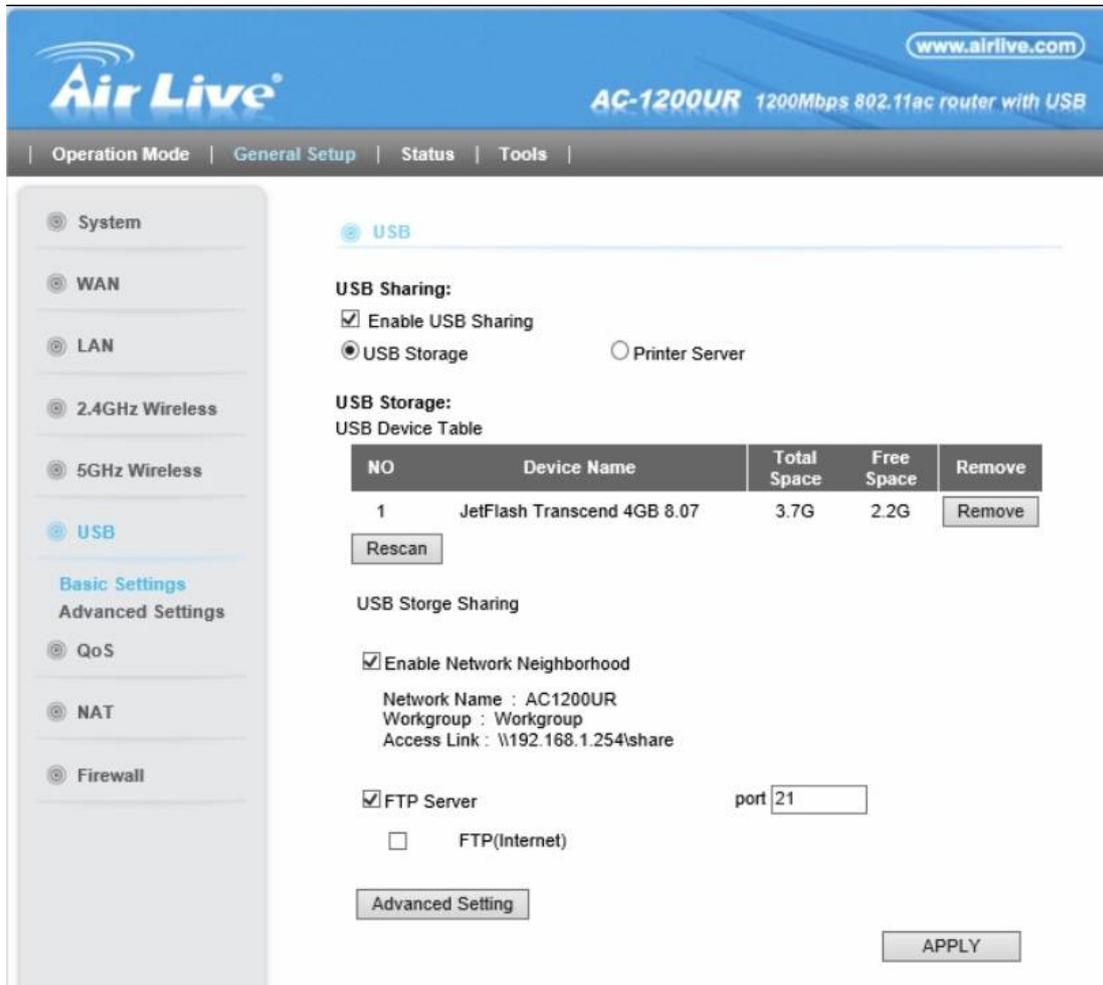
**SSID :**

**Channel Number :**

**Associated Clients :**

### 5.1.8 USB

AC-1200UR USB port can connect USB Printer, USB Speaker and USB hard drive in order to access that device remotely. It also support the FTP server function



**USB**

**USB Sharing:**

Enable USB Sharing

USB Storage  Printer Server

**USB Storage:**

USB Device Table

NO	Device Name	Total Space	Free Space	Remove
1	JetFlash Transcend 4GB 8.07	3.7G	2.2G	<input type="button" value="Remove"/>

**USB Storage Sharing**

Enable Network Neighborhood

Network Name : AC1200UR  
 Workgroup : Workgroup  
 Access Link : \\192.168.1.254\share

FTP Server port

FTP(Internet)

### 5.1.8.1 Basic Setting

**USB**

**USB Sharing:**

- Enable USB Sharing
- USB Storage                       Media Server

**USB Storage:**

USB Device Table

NO	Device Name	Total Space	Free Space	Remove
----	-------------	-------------	------------	--------

Rescan

USB Storage Sharing

- Enable Network Neighborhood
- Network Name : AC1200UR
- Workgroup : Workgroup
- Access Link : \\192.168.1.254\share

- FTP Server                      port
- FTP(Internet)

Advanced Setting

APPLY

To support the USB sharing , tick **Enable USB sharing**.When you select the **USB Storage** ,You can configure the USB drive connected to the Router, and view the Device Settings like ID, Volume, Capacity, Free Space and Sharing Status.

- Total Space: The storage capacity of the USB driver.
- Free Space : The available space of the USB driver
- Select: Indicates the sharing status of each storage volume.

In USB storage, you also can set up as a FTP server.  
Follow the instructions below to set up your router as a FTP server:

1. Plug the external hard drive or USB flash drive into the router.
2. Click **Rescan** to find the connected drive.
3. Click **Safely Remove** to eject the connected drive.
4. Check the Select box to enable file sharing.
5. Uncheck the Active box to disable file sharing

1) **Network Neighborhood**: This method is enabled by default. To access the USB drive for example from a Windows computer:

- i. Select Start > Run.
- ii. Enter \\192.168.1.254 in the dialog box and click the OK button.

2) **FTP Server**: This method is enabled by default. If you select this check box and click the **Apply** button, the LAN users can access the USB drive through FTP. You can access USB via FTP client software.

3) **FTP (Internet)**: This method is enabled by default. If you select this check box, remote users can access the USB drive through FTP over the Internet. This feature supports both downloading and uploading of files. The default Port number is 21 and it can be changed.

To access the USB drive for example from a Windows computer:

- i. Select Start > Run.
- ii. Enter ftp://WAN IP:port in the dialog box and click the OK button.

Note: If the port for FTP Server's Port number is changed, the port for FTP (Internet) will be changed to the same port.

AC-1200UR also can work as the media server to share the USB content, USB speaker or printer to user who connect with this router. To do so , you should install the AirLive USB Control center on your PC or MAC. The detail introduction on this function, please refer the chapter 7

### 5.1.8.2 Advance Setting

The Advance Setting is to set the advance feature for FTP server including the Network Name and access management

**USB**

**Network Neighborhood :**

Network Name :

Workgroup :

**Access Management :**

Share All  Required Authentication

NO	User Name	Password	Permission	Select

User Name	Password	Permission
<input type="text"/>	<input type="text"/>	Read/Write ▾

All Folders  Select Folders

NO	Device Name	Share Name	Shared Folder	Select

Share Name	Folder Name	Select Folder
<input type="text"/>	<input type="text"/>	----- ▾

- 1) Network neighborhood : You can change the network name and work group
- 2) Access Management:
 

In authentication section : If share all is select , everyone can access the FTP server. If the required authentication is selected, “ Username” and “password” is required. In addition, the username can be set the permission to read only or read/write.

In Folders section:  
User can decide which folder the want to open. If **all folders** is selected. All of the data inside the USB drive can be accessed.

### 5.1.9 QoS

QoS (Quality of Service) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. Also important is making sure that providing priority for one or more flows does not make other flows fail.

You can refer chapter 4.2.11 for the detail setting.

Operation Mode
General Setup
Status
Tools

- System
- WAN
- LAN
- 2.4GHz Wireless
- 5GHz Wireless
- QoS
- NAT
- Firewall

QoS

QoS (Quality of Service) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. Also important is making sure that providing priority for one or more flows does not make other flows fail.

Enable QoS

Total Download Bandwidth :  >>  kbits

Total Upload Bandwidth :  >>  kbits

Current QoS Table

Priority	Rule Name	Upload Bandwidth	Download Bandwidth	Select
<div style="display: flex; justify-content: space-around; margin: 5px 0;"> <span>Add</span> <span>Edit</span> <span>Delete</span> <span>Delete All</span> </div> <div style="display: flex; justify-content: space-around; margin: 5px 0;"> <span>Move Up</span> <span>Move Down</span> </div>				

APPLY
CANCEL

## 5.1.10 NAT

NAT (Network Address Translation) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as the Web or FTP.

You can refer chapter 4.6.4 ,4.6.5, 4.6.6 for the Port Forwarding, Virtual Server, Special applications.

### 5.1.10.1 UPNP

UPnP is more than just a simple extension of the Plug and Play peripheral model. It is designed to support zero-configuration, "invisible" networking, and automatic discovery for a breadth of device categories from a wide range of vendors. With UPnP, a device can dynamically join a network, obtain an IP address, convey its capabilities, and learn about the presence and capabilities of other devices-all automatically; truly enabling zero configuration networks. Devices can subsequently communicate with each other directly; thereby further enabling peer to peer networking.

Select Enable to enable the UPNP function

#### UPnP Settings

---

UPnP is more than just a simple extension of the Plug and Play peripheral model. It is designed to support zero-configuration, "invisible" networking, and automatic discovery for a breadth of device categories from a wide range of vendors. With UPnP, a device can dynamically join a network, obtain an IP address, convey its capabilities, and learn about the presence and capabilities of other devices-all automatically; truly enabling zero configuration networks. Devices can subsequently communicate with each other directly; thereby further enabling peer to peer networking.

UPnP Module :  Enable  Disable

### 5.1.10.2 ALG Setting

Some applications that need router's special support to make them work under the NAT. You can select applications that you are using.

#### ALG Settings

Below are applications that need router's special support to make them work under the NAT. You can select applications that you are using.

Enable	Name	Comment
<input checked="" type="checkbox"/>	Amanda	Support for Amanda backup tool protocol.
<input checked="" type="checkbox"/>	FTP	Support for FTP.
<input checked="" type="checkbox"/>	H323	Support for H323/netmeeting.
<input checked="" type="checkbox"/>	IRC	Allows DCC to work though NAT and connection tracking.
<input checked="" type="checkbox"/>	SIP	Support for SIP.
<input checked="" type="checkbox"/>	TFTP	Support for TFTP.
<input checked="" type="checkbox"/>	IPsec	Support for IPsec passthrough
<input checked="" type="checkbox"/>	PPTP	Support for PPTP passthrough.
<input checked="" type="checkbox"/>	L2TP	Support for L2TP passthrough.

APPLY

CANCEL

### 5.1.11 Firewall

AC-1200UR Router provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attack, and defending against a wide array of common attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).

You can refer the chapter 4.7.3 and 4.7.6 for the DMZ and IP Filtering Setting

### 5.1.11.1 URL Blocking

URL Blocking allow user to block access to certain Web sites from a particular PC by entering either a full URL address or just a keyword of the Web site

#### ⊙ URL Blocking

You can block access to certain Web sites from a particular PC by entering either a full URL address or just a keyword of the Web site.

Enable URL Blocking

URL/Keyword :

#### Current URL Blocking Table

NO.	URL/Keyword	Select
		<input type="button" value="Delete"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>

### 5.1.11.2 DoS

AC-1200UR can block common hacker attacks, including DoS, Discard Ping from WAN and Port Scan.

Operation Mode | General Setup | Status | Tools

- ⊙ System
- ⊙ WAN
- ⊙ LAN
- ⊙ 2.4GHz Wireless
- ⊙ 5GHz Wireless
- ⊙ QoS
- ⊙ NAT
- ⊙ Firewall

#### ⊙ DoS

The Wireless Router's firewall can block common hacker attacks, including DoS, Discard Ping from WAN and Port Scan.

**DoS Module**

Ping of Death :

Discard Ping from WAN :

Port Scan :

Sync Flood :



# 6

## Device Status & Tools

### 6.1 Status

When you click on the “Status” on the top menu bar, the sub menu for device status will appear.

#### 6.1.1 Status

This page provides the following information about your Wireless Router: Hardware/Firmware version, Serial Number, and its current operating status.

##### ⦿ Status

The Wireless Router's status information provides the following information about your Wireless Router: Hardware/Firmware version, Serial Number, and its current operating status.

##### System

<b>Model :</b>	Wireless Router
<b>Up Time :</b>	Oday:5h:15m:54s
<b>Hardware Version :</b>	Rev. A
<b>Boot Code Version :</b>	4.1.2.0.1
<b>Runtime Code Version :</b>	1.09

#### 6.1.2 Internet Connection

This page displays the current internet connection status and related information.

##### ⦿ Internet Connection

View the current internet connection status and related information.

<b>Attain IP Protocol :</b>	DHCP
<b>IP Address :</b>	192.168.0.90
<b>Subnet Mask :</b>	255.255.255.0
<b>Default Gateway :</b>	192.168.0.254
<b>MAC Address :</b>	00:0a:8a:cb:0f:04
<b>Primary DNS :</b>	168.95.1.1
<b>Secondary DNS :</b>	8.8.8.8



### 6.1.3 Device Status

This page shows the general information about AC-1200UR such as, device IP/MAC Wireless Encryption, SSID...etc. Below are some additional explanations on some status information of this page:

#### 📶 Device Status

View the current setting status of this device.

##### Wireless Configuration

<b>2.4GHz Wireless :</b>	Enable
<b>Mode :</b>	AccessPoint
<b>ESSID :</b>	ac-1200_2.4
<b>Channel Number :</b>	0
<b>Security :</b>	Disable
<b>MAC Address :</b>	00:0a:8a:cb:0f:01

<b>5GHz Wireless :</b>	Enable
<b>Mode :</b>	AccessPoint
<b>ESSID :</b>	Airlive-5G
<b>Channel Number :</b>	165
<b>Security :</b>	WPAPSK
<b>MAC Address :</b>	00:0a:8a:cb:0f:02

##### LAN Configuration

<b>IP Address :</b>	192.168.1.254
<b>Subnet Mask :</b>	255.255.255.0
<b>DHCP Server :</b>	Enable
<b>MAC Address :</b>	00:0a:8a:cb:0f:03



## 6.1.4 System Log

The System Log displays the system activities, login, and system error report. If you need to report a problem to Air Live, please be sure to send us the System Log information also.

### System Log

View the system operation information. You can see the system start up time, connection process and etc., here.

```
Jan 1 00:00:03 (none) syslog.info syslogd started: BusyBox v1.12.1
```




## 6.1.5 Security Log

The Security Log displays any attempts that have been made to illegally gain access to your network.

### Security Log

View any attempts that have been made to illegally gain access to your network.

```
Thu Jan 1 05:03:00 UTC 1970 Firewall start
Thu Jan 1 05:03:02 UTC 1970 NAT start
Thu Jan 1 05:03:06 UTC 1970 SNTP start
Thu Jan 1 05:03:06 UTC 1970 SNTP setting End
Tue Mar 10 12:01:02 UTC 2015 DNS setting End
Tue Mar 10 12:01:02 UTC 2015 IPV6 start
```



### 6.1.6 Active DHCP Client

This table shows the assigned IP address, MAC address and time expired for each DHCP leased client.

#### Active DHCP Client

This table shows the assigned IP address, MAC address and time expired for each DHCP leased client.

IP Address	MAC Address	Time Expired (Second)
None	----	----

### 6.1.7 Statistics

This page shows the packet counters for transmission and reception regarding to networks including 2.4G/5G Wireless, LAN and WAN Port

#### Statistics

This page shows the packet counters for transmission and reception regarding to networks.

2.4GHz Wireless LAN	Packets Sent	52120
	Packets Received	527104
5GHz Wireless LAN	Packets Sent	24024
	Packets Received	7176
Ethernet LAN	Packets Sent	19248
	Packets Received	13884
Ethernet WAN	Packets Sent	2040
	Packets Received	10473



## 6.1.8 Configuration Tools

Use the "Backup" tool to save the Wireless Router's current configurations to a file named "config.bin". You can then use the "Restore" tool to restore the saved configuration to the Wireless Router. Alternatively, you can use the "Restore to Factory Default" tool to force the Wireless Router to perform System Reset and restore the original factory setting

### Configuration Tools

Use the "Backup" tool to save the Wireless Router's current configurations to a file named "config.bin". You can then use the "Restore" tool to restore the saved configuration to the Wireless Router. Alternatively, you can use the "Restore to Factory Default" tool to force the Wireless Router to perform System Reset and restore the original factory settings.

Backup Settings :

Restore Settings :

 config.bin

Restore to Factory Default :

## 6.1.9 Firmware Upgrade

This page allows you to upgrade the Wireless Router's system firmware. Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.

### Firmware Upgrade

This tool allows you to upgrade the Wireless Router's system firmware. Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.

The system will automatically reboot the router after you finished the firmware upgrade process. If you don't complete the firmware upgrade process in the "next" step, you have to reboot the router.



Do not power off the device while upgrading the firmware. It is recommended that you do not upgrade your AC-1200UR unless the new firmware has new features you need or if it has a fix to a problem that you've encountered.

### 6.1.10 Reset

In the event that the system stops responding correctly or stops functioning, you can perform a Reboot. Your settings will not be changed. To perform the reboot, click on the APPLY button below. You will be asked to confirm your decision. The Reboot will be complete when the LED Power light stops blinking.

#### Reset

---

In the event that the system stops responding correctly or stops functioning, you can perform a Reboot. Your settings will not be changed. To perform the reboot, click on the APPLY button below. You will be asked to confirm your decision. The Reboot will be complete when the LED Power light stops blinking.

APPLY



# 7

## AC-1200UR AirLive USB Control Center

### 7.1 Introduction AC-1200UR AirLive USB Control Center

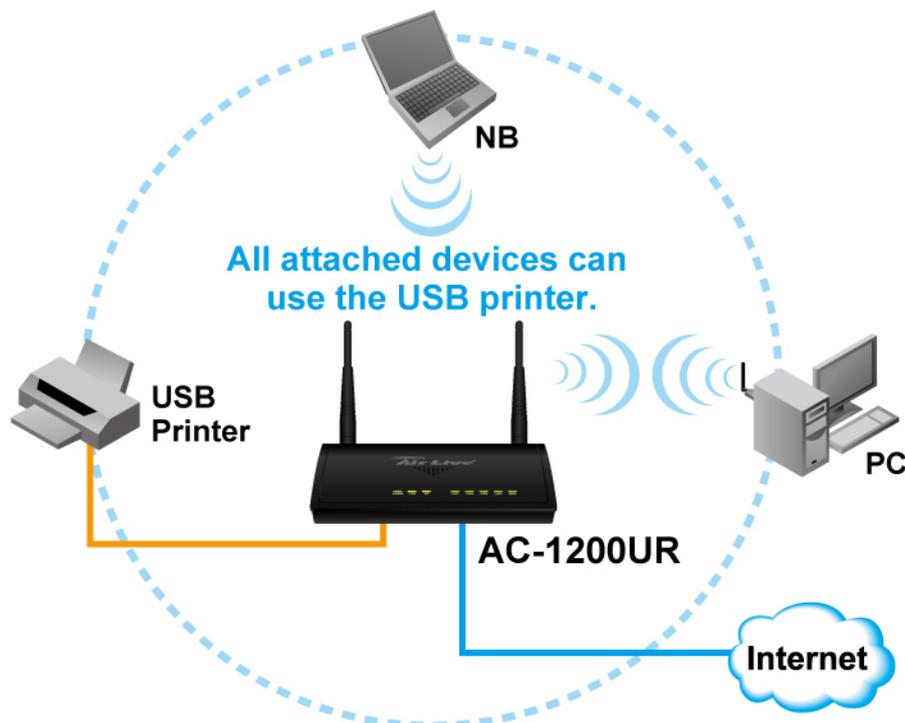
AC-1200UR allows you to connect a USB printer/scanner , USB disk, or USB speaker and all attached clients can use the printer to print or scan file

To support the media server function , User need to install the AC-1200UR AirLive USB controller software which can be work in win 7,8,10 and MAC. This software let user to connect the USB devices in AC-1200UR like connect to PC directly. This software can be downloaded in AirLive's webpage.

#### Note

Verify that the printer is working normally when it is connected to your computer.

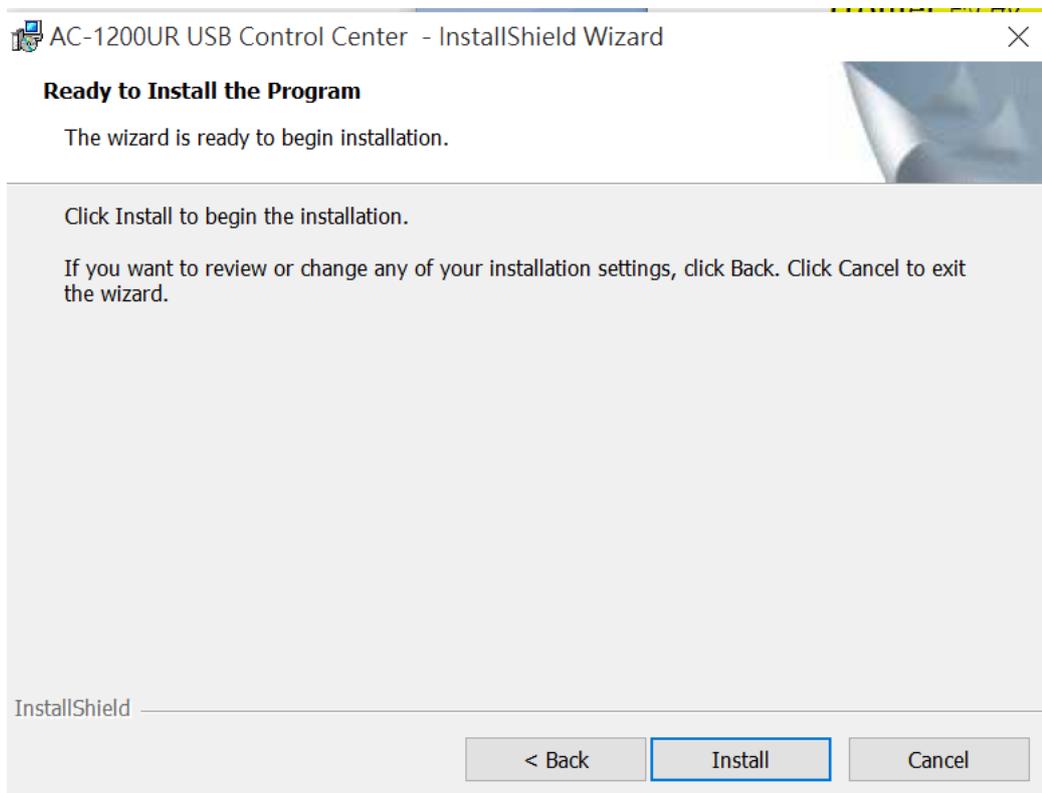
If not, please refer to the User Guide of the printer.





## 7.2 How to install the software

1. Double click the setup icon
2. Keep Click next until following page appears, then click install
3. Click Finish When the following page appears



4. The shortcut icon of the AC-1200UR USB controller will appear on your desktop



## 7.3 AirLive USB Control Center introduction

To enable the printer service feature , please log in to the AC-1200UR's webpage and go to **General Setup → USB** , select the Media Server



Operation Mode | **General Setup** | Status | Tools

System

**WAN**

LAN

2.4GHz Wireless

5GHz Wireless

**USB**

Basic Settings

Advanced Settings

QoS

NAT

Firewall

**USB**

**USB Sharing:**

Enable USB Sharing

USB Storage

Media Server

**USB Storage:**

USB Device Table

NO	Device Name	Total Space	Free Space	Remove
Rescan				

USB Storage Sharing

Enable Network Neighborhood

Network Name : AC1200UR  
Workgroup : Workgroup  
Access Link : \\192.168.1.254\share

FTP Server port 21

FTP(Internet)

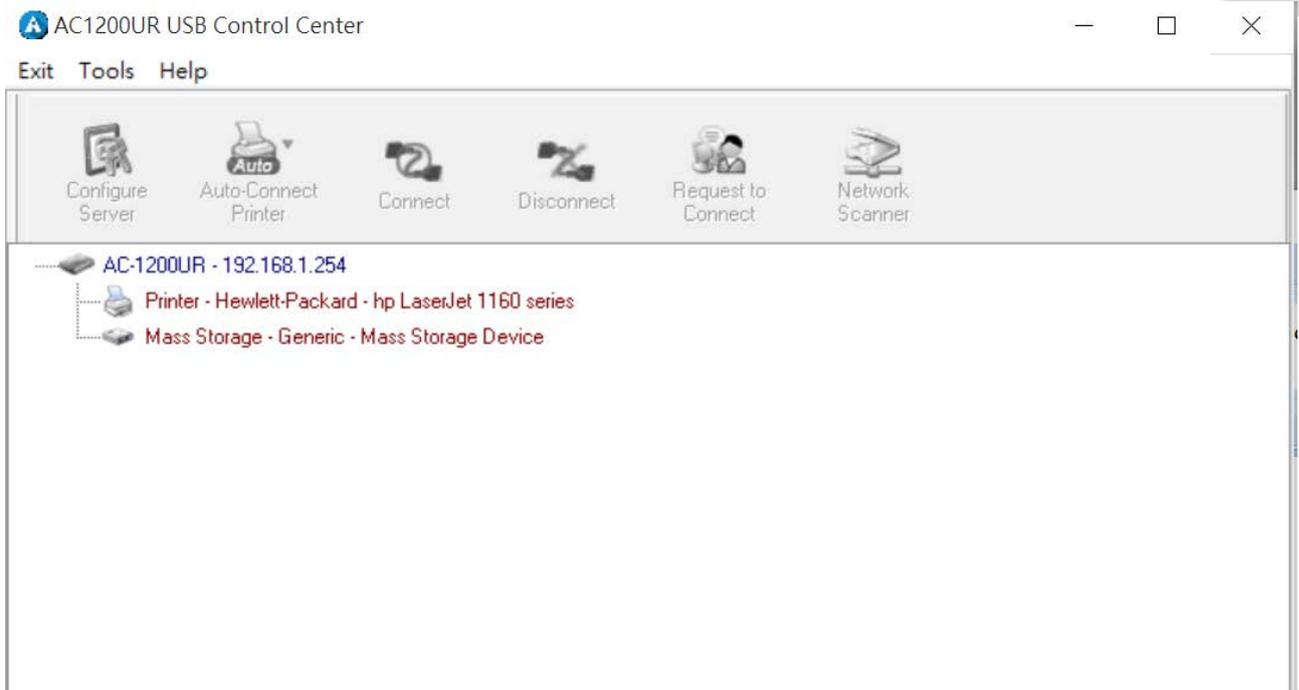
To Print file:

1. Connect the USB printer to the router's USB port



2. Double-click the shortcut icon of the AC-1200UR USB Printer Controller

3. The AC-1200UR USB Controller will detect the printer automatically if the Media Server feature is enabled



#### 4. Click the printer and then connect



Then you can print the file

Note: The USB controller is compatible with most printers on the market, but if your printer can not be detected by the USB printer controller, you can contact our technical support for help

# 8

## Frequent Asked Questions

=====  
**Question:** I heard AC-1200UR can limit the bandwidth of BitTorrent and eDonkey traffic. But I don't see the option on the Bandwidth Control.

**Answer:** The option to limit bandwidth by application or port is available only on WISP and Router modes.

=====  
**Question:** When do I use Per-User Bandwidth Control by IP, MAC, or IP segment?

**Answer:** In general, IP address control limits the devices on the end node (i.e. PC and WISP router). MAC address control can limit the traffic of a AP/CPE in wireless client mode.

- IP address:** When you want to limit the bandwidth of a single notebook computer, PC, or WISP router.
- MAC address:** When you want to limit the bandwidth of a remote AP/CPE in Client mode. For example, another AC-1200UR in client mode
- IP Segment:** When you want to limit the bandwidth of an entire IP range. For example, all the PCs using the DHCP server to get IP addresses.

=====  
**Question:** I thought AC-1200UR has PPPoE server function, where can I find it?

**Answer:** The AC-1200UR PPPoE function is available only in "Dual Band Router Mode". The PPPoE function is inside the "Wireless Settings"->WAN Settings. Please see graphics below:



If your ISP already provides you with PPPoE authentication information,select this button and enter the information below:

User Name:

Password:

Service name:

Connection Type:

MTU:  Bytes (128-1500)



# 9

## Specifications

The specification of AC-1200UR is subject to change without notice. Please use the information with caution.

### Hardware

- MediaTek CPU
- High power design, up to 23dBm with included antennas ( 20dBm in EU)
- 5 x 10/100/1000Mbps LAN Ports
- 2.4G/5G Dual Band Technology
- MIMO Technology
- 8MB Flash, 32MB SDRAM
- USB 2.0

### Antenna

- 2 x R-SMA antenna connectors

### Frequency Range

- WLAN1(Radio 1)
  - 802.11ac : 5.15 to 5.825 GHz
- WLAN2 (Radio 2)
  - 802.11b/g/n : 2.412 to 2.472 GHz

## Frequency Band

- 5.15 to 5.25GHz: U-NII Low and ETSI Band1
- 5.25 to 5.35GHz: U-NII Mid and ETSI Band2
- 5.47 to 5.725GHz: U-NII World Wide and ETSI Band3
- 5.745 to 5.825GHz, U-NII Upper Band

## Frequency Channel

- WLAN1(Radio 1)
  - 802.11ac
    - ◆ USA (FCC) : 12
    - ◆ Europe (ETSI) : 4
- WLAN2(Radio 2)
  - 802.11b/g
    - ◆ USA (FCC) : 11
    - ◆ Europe (ETSI) : 13

## Power Supply

- 12V at 1.5ADC Power Adapter

## Supported WLAN Mode

- 11ac mode
- 11 b/g/n

## Output Power (without antennas)

- 2.4GHz
  - 11b(11M): 16±1.5 dBm
  - 11g(54M): 14±1.5 dBm
  - 11n(20MHz, MCS7): 14±1.5 dBm
  - 11n(40MHz, MCS7): 14±1.5 dBm

- 5GHz
  - 11a(54M):  $13\pm 1.5$  dBm
  - 11n(20MHz, MCS7):  $13\pm 1.5$  dBm
  - 11n(40MHz, MCS7):  $13\pm 1.5$  dBm

### Receive Sensitivity

- 2.4GHz
  - 11b(11M):  $-76\pm 2$ dBm
  - 11g(54M):  $-65\pm 2$ dBm
  - 11n(20MHz, MCS7):  $-64\pm 2$ dBm
  - 11n(40MHz, MCS7):  $-61\pm 2$ dBm
- 5GHz
  - 11a(54M):  $-65\pm 2$ dBm
  - 11n(20MHz, MCS7):  $-64\pm 2$ dBm
  - 11n(40MHz, MCS7):  $-61\pm 2$ dBm

### Software

- Wi-Fi, WPA compatible interoperability
- Support WDS Bridge Mode, Client Mode, AP Mode on interface under each predefined operational mode
- Client Isolation supported
- 5/10/20/40/80 MHz Variable Channel Width
- Support adjustable output power
- User Limitation
- Multiple SSID, VLAN, QoS, WPA with PSK/TKIP/AES support ,WPA2 support
- Radius Support
- QoS
- Bandwidth Control

### Product Weight (g)

- 305 g

### Product Size (L x W x H mm)

- 173 x 130 x 33 mm

# 10

## Wireless Network Glossary

The wireless network glossary contains explanation or information about common terms used in wireless networking products. Some of information in this glossary might be outdated, please use with caution.

### 802.11a

An IEEE specification for wireless networking that operates in the 5 GHz frequency range (5.15 GHz to 5.850 GHz) with a maximum of 54 Mbps data transfer rate. The 5 GHz frequency band is not as crowded as the 2.4 GHz band. In addition, the 802.11a have 12 non-overlapping channels, comparing to 802.11b/g's 3 non-overlapping channels. This means the possibility to build larger non-interfering networks. However, the 802.11a deliver shorter distance at the same output power when comparing to 802.11g.

### 802.3ad

802.3ad is an IEEE standard for bonding or aggregating multiple Ethernet ports into one virtual port (also known as trunking) to increase the bandwidth.

### 802.3af

This is the PoE (Power over Ethernet) standard by IEEE committee. 802.3af uses 48V POE standard that can deliver up to 100 meter distance over Ethernet cable.

**802.11b**

International standard for wireless networking that operates in the 2.4 GHz frequency band (2.4 GHz to 2.4835 GHz) and provides a throughput up to 11 Mbps.

**802.1d STP**

Spanning Tree Protocol. It is an algorithm to prevent network from forming. The STP protocol allows network to provide a redundant link in the event of a link failure. It is advised to turn on this option for multi-link bridge network.

**802.11d**

Also known as "Global Roaming". 802.11d is a standard for use in countries where systems using other standards in the 802.11 family are not allowed to operate.

**802.11e**

The IEEE QoS standard for prioritizing traffic of the VoIP and multimedia applications. The WMM is based on a subset of the 802.11e.

**802.11g**

A standard provides a throughput up to 54 Mbps using OFDM technology. It also operates in the 2.4 GHz frequency band as 802.11b. 802.11g devices are backward compatible with 802.11b devices.

**802.11h**

This IEEE standard defines the TPC (transmission power control) and DFS (dynamic frequency selection) required to operate WiFi devices in 5GHz for EU.

### **802.11i**

The IEEE standard for wireless security. 802.11i standard includes TKIP, CCMP, and AES encryption to improve wireless security. It is also known as WPA2.

### **802.1Q Tag VLAN**

In 802.1Q VLAN, the VLAN information is written into the Ethernet packet itself. Each packet carries a VLAN ID (called Tag) as it traveled across the network. Therefore, the VLAN configuration can be configured across multiple switches. In 802.1Q spec, possible 4096 VLAN ID can be created. Although for some devices, they can only view in frames of 256 ID at a time.

### **802.1x**

802.1x is a security standard for wired and wireless LANs. In the 802.1x parlance, there are usually supplicants (client), authenticator (switch or AP), and authentication server (radius server) in the network. When a supplicants request a service, the authenticator will pass the request and wait for the authentication server to grant access and register accounting. The 802.1x is the most widely used method of authentication by WISP.

### **Adhoc**

A Peer-to-Peer wireless network. An Adhoc wireless network do not use wireless AP or router as the central hub of the network. Instead, wireless client are connected directly to each other. The disadvantage of Adhoc network is the lack of wired interface to Internet connections. It is not recommended for network more than 2 nodes.

### **Access Point (AP)**

The central hub of a wireless LAN network. Access Points have one or more Ethernet ports that can connect devices (such as Internet connection) for sharing. Multi-function Access Point can also function as an Ethernet client, wireless bridge, or repeat signals from other AP. Access Points typically have more wireless functions comparing to wireless routers.

## **ACK Timeout**

Acknowledgement Timeout Windows. When a packet is sent out from one wireless station to the other, it will wait for an Acknowledgement frame from the remote station. The station will only wait for a certain amount of time; this time is called the ACK timeout. If the ACK is NOT received within that timeout period then the packet will be re-transmitted resulting in reduced throughput. If the ACK setting is too high then throughput will be lost due to waiting for the Ack Window to timeout on lost packets. If the ACK setting is too low then the ACK window will have expired and the returning packet will be dropped, greatly lowering throughput. By having the ability to adjust the ACK setting we can effectively optimize the throughput over long distance links. This is especially true for 802.11a and 802.11g networks. Setting the correct ACK timeout value needs to consider 3 factors: distance, AP response time, and interference. The AC-1200UR provides ACK adjustment capability in form of either distance or direct input. When you enter the distance parameter, the AC-1200UR will automatically calculate the correct ACK timeout value.

## **Bandwidth Management**

Bandwidth Management controls the transmission speed of a port, user, IP address, and application. Router can use bandwidth control to limit the Internet connection speed of individual IP or Application. It can also guarantee the speed of certain special application or privileged IP address - a crucial feature of QoS (Quality of Service) function. The AC-1200UR's features both "Per-user Bandwidth Control" and "Total Bandwidth Control". "Per-user Bandwidth Control" allow administrator to define the maximum bandwidth of each user by IP, IP Group, or MAC address. Total Bandwidth defines the maximum bandwidth of wireless or Ethernet interface.

## **Bootloader**

Bootloader is the under layering program that will start at the power-up before the device loads firmware. It is similar to BIOS on a personal computer. When a firmware crashed, you might be able to recover your device from bootloader.

## **Bridge**

A product that connects 2 different networks that uses the same protocol. Wireless bridges are commonly used to link network across remote buildings. For wireless application, there are 2 types of Bridges. WDS Bridge can be used in Point-to-Point or Point-to-Multipoint topology. Bridge Infrastructure works with AP mode to form a star topology.

## **Cable and Connector Loss**

During wireless design and deployment, it is important to factor in the cable and connector loss. Cable and connector loss will reduce the output power and receiver sensitivity of the radio at connector end. The longer the cable length is, the more the cable loss. Cable loss should be subtracted from the total output power during distance calculation. For example, if the cable and connector loss is 3dBm and the output power is 20dBm; the output power at the cable end is only 17dBm.

## **Client**

Client means a network device or utility that receives service from host or server. A client device means end user device such as wireless cards or wireless CPE.

## **CPE Devices**

CPE stands for Customer Premises Equipment. A CPE is a device installed on the end user's side to receive network services. For example, on an ADSL network, the ADSL modem/router on the subscriber's home is the CPE device. Wireless CPE means a complete Wireless (usually an AP with built-in Antenna) that receive wireless broadband access from the WISP. The opposite of CPE is CO.

## **CTS**

Clear To Send. A signal sent by a device to indicate that it is ready to receive data.

## **DDNS**

Dynamic Domain Name System. An algorithm that allows the use of dynamic IP address for hosting Internet Server. A DDNS service provides each user account with a domain name. A router with DDNS capability has a built-in DDNS client that updates the IP address information to DDNS service provider whenever there is a change. Therefore, users can build website or other Internet servers even if they don't have fixed IP connection.

## **DHCP**

Dynamic Host Configuration Protocol. A protocol that enables a server to dynamically assign IP addresses. When DHCP is used, whenever a computer logs onto the network, it automatically gets an IP address assigned to it by DHCP server. A DHCP server can either be a designated PC on the network or another network device, such as a router.

## **DMZ**

Demilitarized Zone. When a router opens a DMZ port to an internal network device, it opens all the TCP/UDP service ports to this particular device. The feature is used commonly for setting up H.323 VoIP or Multi-Media servers.

## **DNS**

A program that translates URLs to IP addresses by accessing a database maintained on a collection of Internet servers.

## **Domain Name**

The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. In [www.airlive.com](http://www.airlive.com), the "airlive.com" is the domain name.

## **DoS Attack**

Denial of Service. A type of network attack that floods the network with useless traffic. Many DoS attacks, such as the Ping of Death and Teardrop attacks, exploit limitations in the TCP/IP protocols.

## **Encryption**

Encoding data to prevent it from being read by unauthorized people. The common wireless encryption schemes are WEP, WPA, and WPA2.

## **ESSID (SSID)**

The identification name of an 802.11 wireless network. Since wireless network has no physical boundary like wired Ethernet network, wireless LAN needs an identifier to distinguish one network from the other. Wireless clients must know the SSID in order to associate with a WLAN network. Hide SSID feature disables SSID broadcast, so users must know the correct SSID in order to join a wireless network.

## **Firewall**

A system that secures a network and prevents access by unauthorized users. Firewalls can be software, router, or gateway. Firewalls can prevent unrestricted access into a network, as well as restricting data from flowing out of a network.

## **Firmware**

The program that runs inside embedded device such as router or AP. Many network devices are firmware upgradeable through web interface or utility program.

## **FTP**

File Transfer Protocol. A standard protocol for sending files between computers over a TCP/IP network and the Internet.

## **Fragment Threshold**

Frame Size larger than this will be divided into smaller fragment. If there are interferences in your area, lower this value can improve the performance. If there are not, keep this parameter at higher value. The default size is 2346. You can try 1500, 1000, or 500 when there are interference around your network.

## **Full Duplex**

The ability of a networking device to receive and transmit data simultaneously. In wireless environment, this is usually done with 2 or more radios doing load balancing.

## **Gateway**

In the global Internet network, the gateways are core routers that connect networks in different IP subnet together. In a LAN environment with an IP sharing router, the gateway is the router. In an office environment, gateway typically is a multi-function device that integrates NAT, firewall, bandwidth management, and other security functions.

## **Hotspot**

A place where you can access Wi-Fi service. The term hotspot has two meanings in wireless deployment. One is the wireless infrastructure deployment; the other is the Internet access billing system. In a hotspot system, a service provider typically need an authentication and account system for billing purposes, and a wireless AP network to provide access for customers.

## **IGMP Snooping**

Internet Group Management Protocol (IGMP) is a Layer 3 protocol to report IP multicast memberships to neighboring multicast switches and routers. IGMP snooping is a feature that allows an Ethernet switch to "listen in" on the IGMP conversation between hosts and routers. A switch support IGMP snooping has the possibility to avoid multicast traffic being treated as broadcast traffic; therefore, reducing the overall traffic on the network.

## **Infrastructure Mode**

A wireless network that is built around one or more access points to provide wireless clients access to wired LAN / Internet service. The opposite of Infrastructure mode is Adhoc mode.

## **IP address**

IP (Internet Protocol) is a layer-3 network protocol that is the basis of all Internet communication. An IP address is 32-bit number that identifies each sender or receiver of information that is sent across the Internet. An IP address has two parts: an identifier of a particular network on the Internet and an identifier of the particular device (which can be a server or a workstation) within that network. The new IPv6 specification supports 128-bit IP address format.

## **IPsec**

IP Security. A set of protocols developed by the IETF to support secure exchange of packets at the IP layer. IPsec has been deployed widely to implement Virtual Private Networks (VPNs). IPsec supports two encryption modes: Transport and Tunnel. Transport mode encrypts only the data of each packet, but leaves the header untouched. The more secure Tunnel mode encrypts both the header and the payload. On the receiving side, an IPsec-compliant device decrypts each packet.

### **LACP (802.3ad) Trunking**

The 802.3ad Link Aggregation standard defines how to combine the several Ethernet ports into one high-bandwidth port to increase the transmission speed. It is also known as port trunking. Both devices must set the trunking feature to work.

### **MAC**

Media Access Control. MAC address provides layer-2 identification for Networking Devices. Each Ethernet device has its own unique address. The first 6 digits are unique for each manufacturer. When a network device have MAC access control feature, only the devices with the approved MAC address can connect with the network.

### **Mbps**

Megabits per Second. One million bits per second; a unit of measurement for data transmission

### **MESH**

Mesh is an outdoor wireless technology that uses Spanning Tree Protocol (STP) and Wireless Distribution system to achieve self-forming, self-healing, and self-configuring outdoor network. MESH network are able to take the shortest path to a destination that does not have to be in the line of site.

### **MIMO**

Multi In Multi Out. A Smart Antenna technology designed to increase the coverage and performance of a WLAN network. In a MIMO device, 2 or more antennas are used to increase the receiver sensitivity and to focus available power at intended Rx.

### **NAT**

Network Address Translation. A network algorithm used by Routers to enables several PCs to share single IP address provided by the ISP. The IP that a router gets from the ISP side is called Real IP, the IP assigned to PC under the NAT environment is called Private IP.

## **Node**

A network connection end point, typically a computer.

## **Packet**

A unit of data sent over a network.

## **Passphrase**

Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for the company products.

## **POE**

Power over Ethernet. A standard to deliver both power and data through one single Ethernet cable (UTP/STP). It allows network device to be installed far away from power source. A POE system typically compose of 2 main component: DC Injector (Base Unit) and Splitter(Terminal Unit). The DC injector combines the power and data, and the splitter separates the data and power back. A PoE Access Point or CPE has the splitter built-in to the device. The IEEE 802.3af is a POE spec that uses 48 volt to deliver power up to 100 meter distance.

## **Port**

This word has 2 different meaning for networking.

- The hardware connection point on a computer or networking device used for plugging in a cable or an adapter.
- The virtual connection point through which a computer uses a specific application on a server.

## **PPPoE**

Point-to-Point Protocol over Ethernet. PPPoE relies on two widely accepted standards: PPP and Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as a single DSL line, wireless device or cable modem.

## **PPTP**

Point-to-Point Tunneling Protocol: A VPN protocol developed by PPTP Forum. With PPTP, users can dial in to their corporate network via the Internet. If users require data encryption when using the Windows PPTP client, the remote VPN server must support MPPE (Microsoft Point-To-Point Encryption Protocol) encryption. PPTP is also used by some ISP for user authentication, particularly when pairing with legacy Alcatel / Thomson ADSL modem.

## **Preamble Type**

Preamble are sent with each wireless packet transmit for transmission status. Use the long preamble type for better compatibility. Use the short preamble type for better performance

## **Rate Control**

Ethernet switches' function to control the upstream and downstream speed of an individual port. Rate Control management uses "Flow Control" to limit the speed of a port. Therefore, the Ethernet adapter must also have the flow control enabled. One way to force the adapter's flow control on is to set a port to half-duplex mode.

## **RADIUS**

Remote Authentication Dial-In User Service. An authentication and accounting system used by many Internet Service Providers (ISPs). When you dial in to the ISP, you must enter your username and password. This information is passed to a RADIUS server, which checks that the information is correct, and then authorizes access to the ISP system. Radius typically uses port 1812 and port 1813 for authentication and accounting port. Though not an official standard, the RADIUS specification is maintained by a working group of the IETF.

## **Receiver Sensitivity**

Receiver sensitivity means how sensitive is the radio for receiving signal. In general; the slower the transmission speed, the more sensitive the radio is. The unit for Receiver Sensitivity is in dB; the lower the absolute value is, the higher the signal strength. For example, -50dB is higher than -80dB.

## **RJ-45**

Standard connectors for Twisted Pair copper cable used in Ethernet networks. Although they look similar to standard RJ-11 telephone connectors, RJ-45 connectors can have up to eight wires, whereas telephone connectors have only four.

## **Router**

An IP sharing router is a device that allows multiple PCs to share one single broadband connection using NAT technology. A wireless router is a device that combines the functions of wireless Access Point and the IP sharing router.

## **RSSI**

Receiver Sensitivity Index. RSSI is a value to show the Receiver Sensitivity of the remote wireless device. In general, remote APs with stronger signal will display higher RSSI values. For RSSI value, the smaller the absolute value is, the stronger the signal. For example, "-50db" has stronger signal than "-80dB". For outdoor connection, signal stronger than -60dB is considered as a good connection.

## **RTS**

Request To Send. A packet sent when a computer has data to transmit. The computer will wait for a CTS (Clear To Send) message before sending data.

## **RTS Threshold**

RTS (Request to Send). The RTS/CTS (clear to send) packet will be sent before a frame if the packet frame is larger than this value. Lower this value can improve the performance if there are many clients in your network. You can try 1500, 1000 or 500 when there are many clients in your AP's network.

## **SNMP**

Simple Network Management Protocol. A set of protocols for managing complex networks. The SNMP network contains 3 key elements: managed devices, agents, and network-management systems (NMSs). Managed devices are network devices that contain SNMP agents. SNMP agents are programs that reside on SNMP-capable devices' firmware to provide SNMP configuration service. The NMS typically is a PC-based software such as HP Openview that can view and manage SNMP network devices remotely.

## **SSH**

Developed by SSH Communications Security Ltd., Secure Shell is a program to log into another computer over a network, to execute commands in a remote machine, and to move files from one machine to another. It provides strong authentication and secure communications over insecure channels. It is a replacement for rlogin, rsh, rcp, and rdist.

## **SSL**

Secure Sockets Layer. It is a popular encryption scheme used by many online retail and banking sites to protect the financial integrity of transactions. When an SSL session begins, the server sends its public key to the browser. The browser then sends a randomly generated secret key back to the server in order to have a secret key exchange for that session. SSL VPN is also known as Web VPN. The HTTPS and SSH management interface use SSL for data encryption.

## **Subnet Mask**

An address code mask that determines the size of the network. An IP subnet is determined by performing a BIT-wise AND operation between the IP address and the subnet mask. By changing the subnet mask, you can change the scope and size of a network.

## **Subnetwork or Subnet**

Found in larger networks, these smaller networks are used to simplify addressing between numerous computers. Subnets connect to the central network through a router, hub or gateway. Each individual wireless LAN will probably use the same subnet for all the local computers it talks to.

## **Super A**

Super A is an Atheros proprietary turbo mode to increase speed over standard 802.11a mode. It adds Bursting and Compression to increase the speed. If you live in countries that prohibit the channel binding technology (i.e. Europe), you should choose "Super-A without Turbo" if you need more speed than 11a mode.

## **TCP**

A layer-4 protocol used along with the IP to send data between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the packets that a message is divided into for efficient routing through the Internet.

## **Turbo A**

Turbo A is an Atheros proprietary turbo mode to increase speed over standard 802.11a mode. It uses channel binding technology to increase speed. There are 2 types of Turbo A modes: Dynamic Turbo and Static Turbo. In Dynamic Turbo, the channel binding will be used only if necessary. In Static Turbo, the channel binding is always on. This protocol may be combined with Super-A model to increase the performance even more. The use of channel binding might be prohibited in EU countries.

### **TX Output Power**

Transmit Output Power. The TX output power means the transmission output power of the radio. Normally, the TX output power level limit for 2.4GHz 11g/b is 20dBm at the antenna end. The output power limit for 5GHz 802.11a is 30dBm at the antenna end.

### **UDP**

User Datagram Protocol. A layer-4 network protocol for transmitting data that does not require acknowledgement from the recipient of the data.

### **Upgrade**

To replace existing software or firmware with a newer version.

### **Upload**

To send a file to the Internet or network device.

### **URL**

Uniform Resource Locator. The address of a file located on the Internet.

### **VPN**

Virtual Private Network. A type of technology designed to increase the security of information transferred over the Internet. VPN creates a private encrypted tunnel from the end user's computer, through the local wireless network, through the Internet, all the way to the corporate network.

## **Walled Garden**

On the Internet, a walled garden refers to a browsing environment that controls the information and Web sites the user is able to access. This is a popular method used by ISPs in order to keep the user navigating only specific areas of the Web

## **WAN**

Wide Area Network. A communication system of connecting PCs and other computing devices across a large local, regional, national or international geographic area. A WAN port on the network device means the port (or wireless connection) that is connected to the Internet side of the network topology.

## **WEP**

Wired Equivalent Privacy. A wireless encryption protocol. WEP is available in 40-bit (64-bit), 108-bit (128-bit) or 152-bit (Atheros proprietary) encryption modes.

## **Wi-Fi**

Wireless Fidelity. An interoperability certification for wireless local area network (LAN) products based on the IEEE 802.11 standards. The governing body for Wi-Fi is called Wi-Fi Alliance (also known as WECA).

## **WiMAX**

Worldwide Interoperability for Microwave Access. A Wireless Metropolitan Network technology that complies with IEEE 802.16 and ETSI Hiperman standards. The original 802.16 standard call for operating frequency of 10 to 66Ghz spectrum. The 802.16a amendment extends the original standard into spectrum between 2 and 11 Ghz. 802.16d increase data rates to between 40 and 70 Mbps/s and add support for MIMO antennas, QoS, and multiple polling technologies. 802.16e adds mobility features, narrower bandwidth (a max of 5 mhz), slower speed and smaller antennas. Mobility is allowed up to 40 mph.

**WDS**

Wireless Distribution System. WDS defines how multiple wireless Access Point or Wireless Router can connect together to form one single wireless network without using wired uplinks. WDS associate each other by MAC address, each device

**WLAN**

Wireless Local Area Network. A type of local-area network that uses high-frequency radio waves rather than wires to communicate between nodes. The most popular standard for WLAN is the 802.11 standards.

**WMM**

Wi-Fi Multimedia (WMM) is a standard to prioritize traffic for multimedia applications. The WMM prioritize traffic on Voice-over-IP (VoIP), audio, video, and streaming media as well as traditional IP data over the AP.

**WMS**

Wireless Management System. An utility program to manage multiple wireless AP/Bridges.

**WPA**

Wi-Fi Protected Access. It is an encryption standard proposed by WiFi for advance protection by utilizing a password key (TKIP) or certificate. It is more secure than WEP encryption. The WPA-PSK utilizes pre-share key for encryption/authentication.

**WPA2**

Wi-Fi Protected Access 2. WPA2 is also known as 802.11i. It improves on the WPA security with CCMP and AES encryption. The WPA2 is backward compatible with WPA. WPA2-PSK utilizes pre-share key for encryption/authentication.