



WH-9200AP Dual Band

Connection Guide

For AP vs. Client Mode





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Bluetooth®

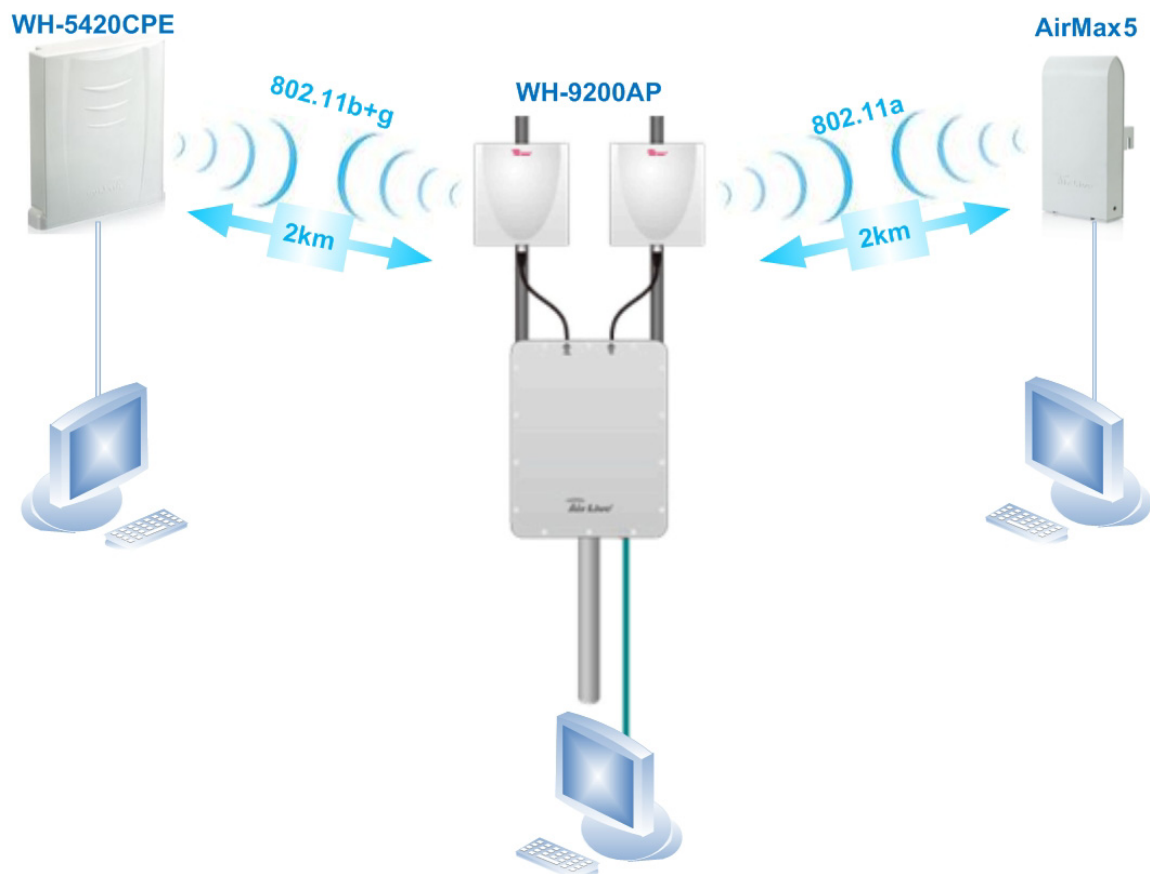
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Overview

This document guides we use WH-9200AP to connect two wireless networks simultaneously that radio1 is 802.11b/g mode and radio2 is 802.11a mode in 2km.



Devices:

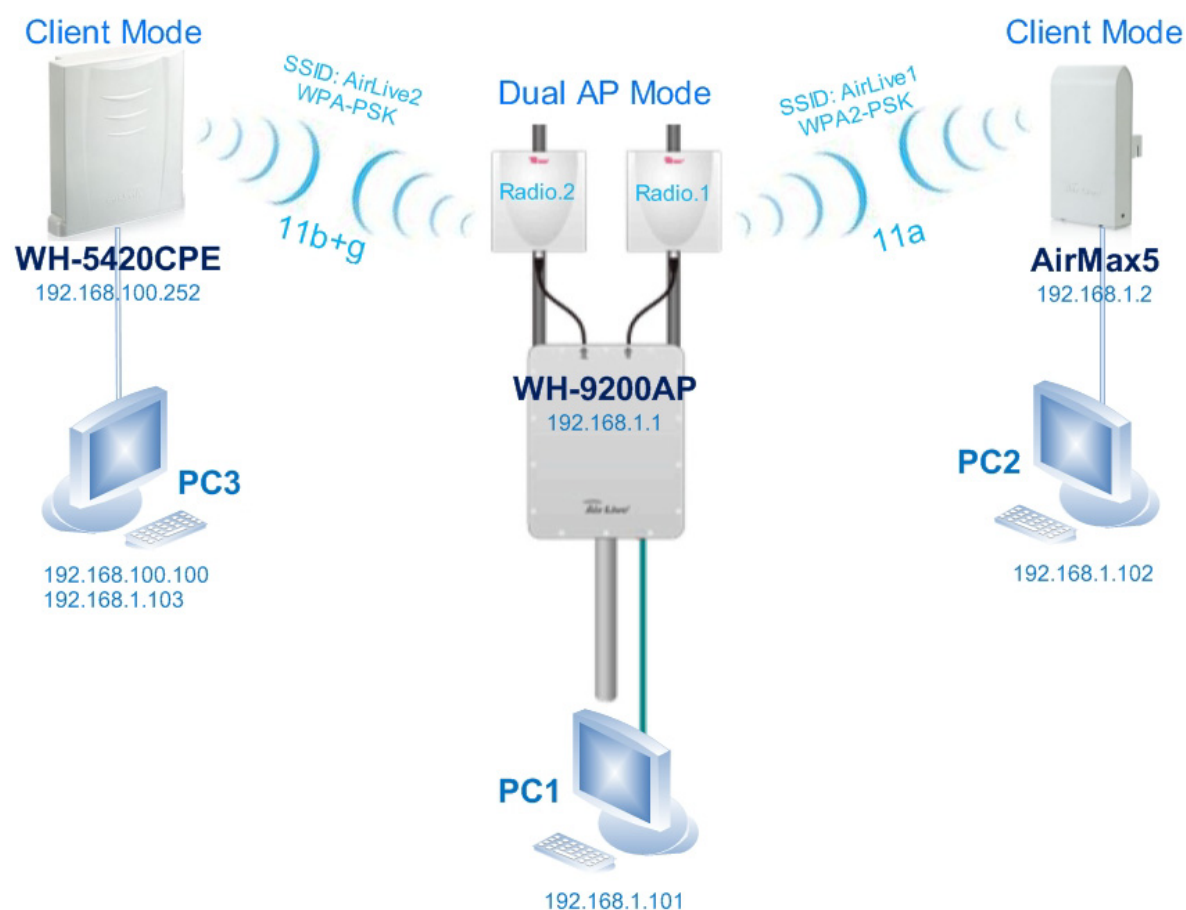
1. WH-9200AP (firmware version is v1.00e07a)
2. WH-5420CPE (firmware version is 5420cpe_e1_eu)
3. AirMax5 (firmware version is 1.00e13)
4. PC *

Configuration

1. Topology:

In this sample, we are going to introduce you to connect WH-5420CPE and AirMax5 with the “dual AP mode” of WH-9200AP. The radio1 of WH-9200AP is 802.11a band that connects to AirMax5 via WPA2-PSK encryption, and the radio2 is using 802.11b/g band to connect with WH-5420CPE via WPA-PSK encryption.

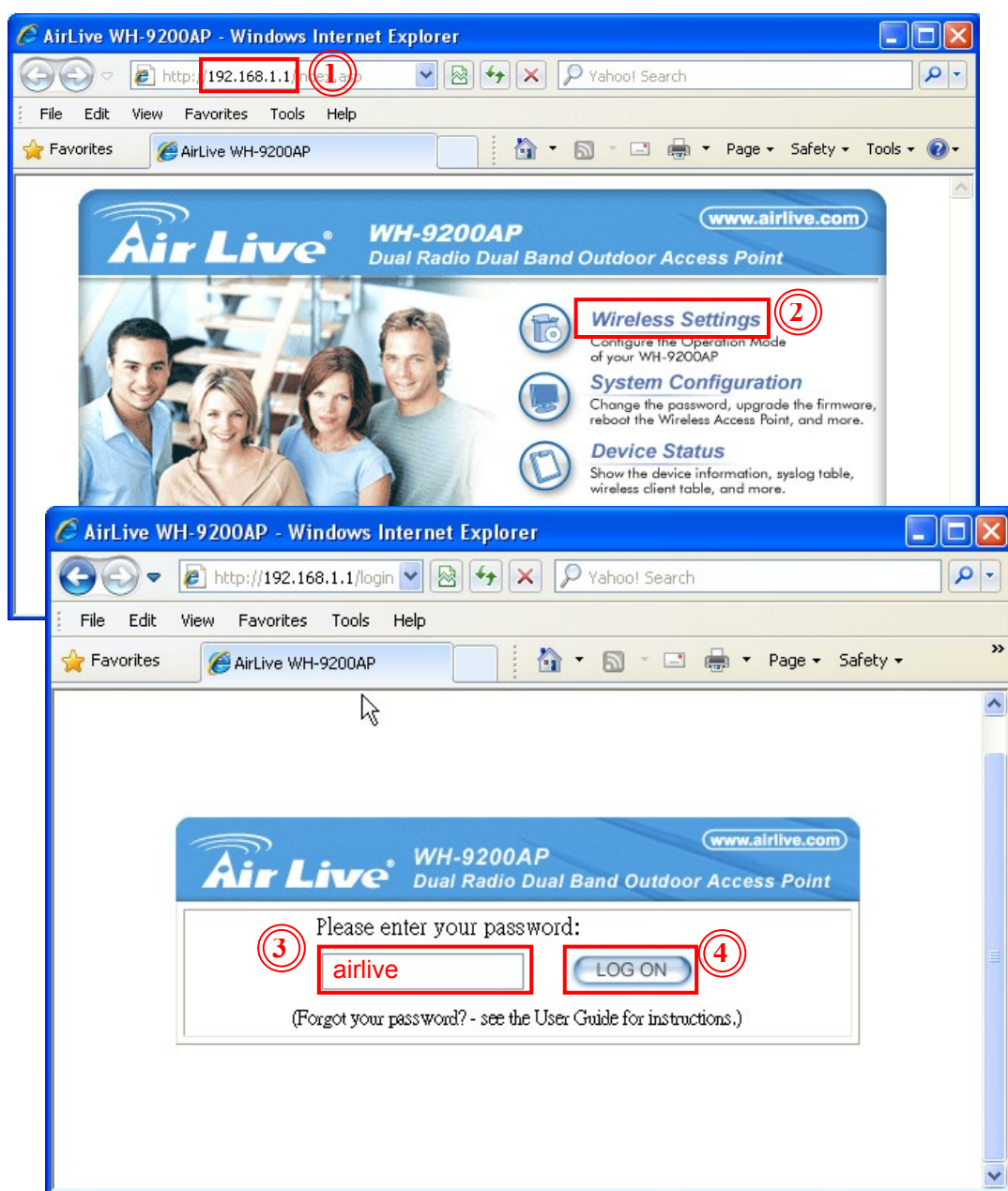
Before the process, please change the IP address of each PC and direct the devices with the following topology.



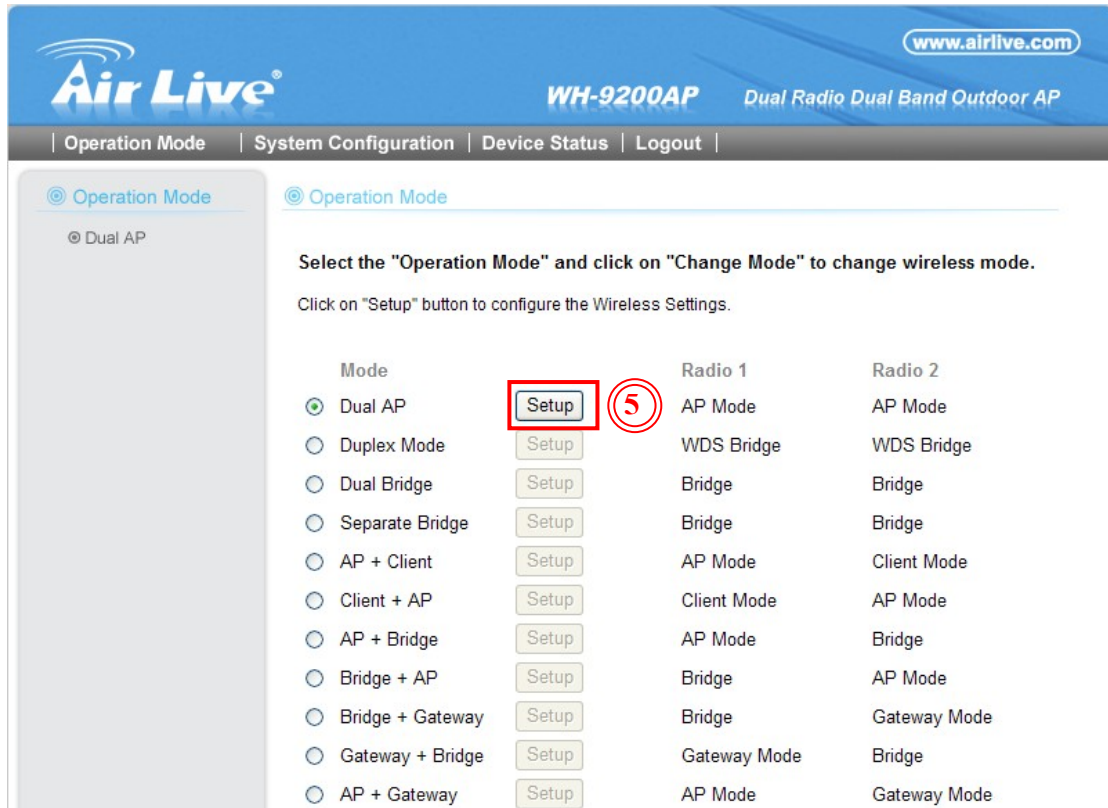
2. WH-9200AP Settings

Step 1. Login the device and enter the Dual AP Mode.

1. In PC1, type "WH-9200AP's IP address" into the web browser's address field to access the device. ① (default IP is 192.168.1.1)
2. Press the "Wireless Settings" button ② then key-in the password to login the device. ③ (default password is "airlive")



- Press the “Setup” button of Dual AP mode to into the set up page. ⑤



Step 2. Encryption and connection settings for Radio 1.

- Check the Radio1 and Radio2 is already enabled.
In this sample, the SSID, Radio Mode and the channel number are using default settings to show as following picture.
- Please press the “Setup” button of security settings to show the “Security Settings” dialog box. ①

WH-9200AP Dual Radio Dual Band Outdoor AP

Operation Mode | System Configuration | Device Status | Logout

Operation Mode

Dual AP

Regulatory Domain: United Kingdom

WLAN Standard for Radio 1

☒ Enable Radio 1

Network ID (SSID): AirLive1

Site Survey

☐ Disable SSID Broadcasting

Mode: 11a

Channel: 36

Security: Setup (1)

Advanced

WLAN Standard for Radio 2

☒ Enable Radio 2

Network ID (SSID): AirLive2

Site Survey

☐ Disable SSID Broadcasting

Mode: 11a

Channel: 36

Security: Setup

Advanced

3. In our sample, we use these parameters:

Security: WPA2-PSK (2)

Key string: 12345678 (3)

Type: Both (TKIP/AES Mix)

Remember press “Apply”
button to save the settings. (4)

AirLive WH-9200AP - Windows Internet Explorer

http://192.168.1.1/security.asp

Security Settings

Select Security Policy: WPA2-PSK (2)

Pre-shared Key (ASCII string): 12345678 (3)

(8-63 characters)

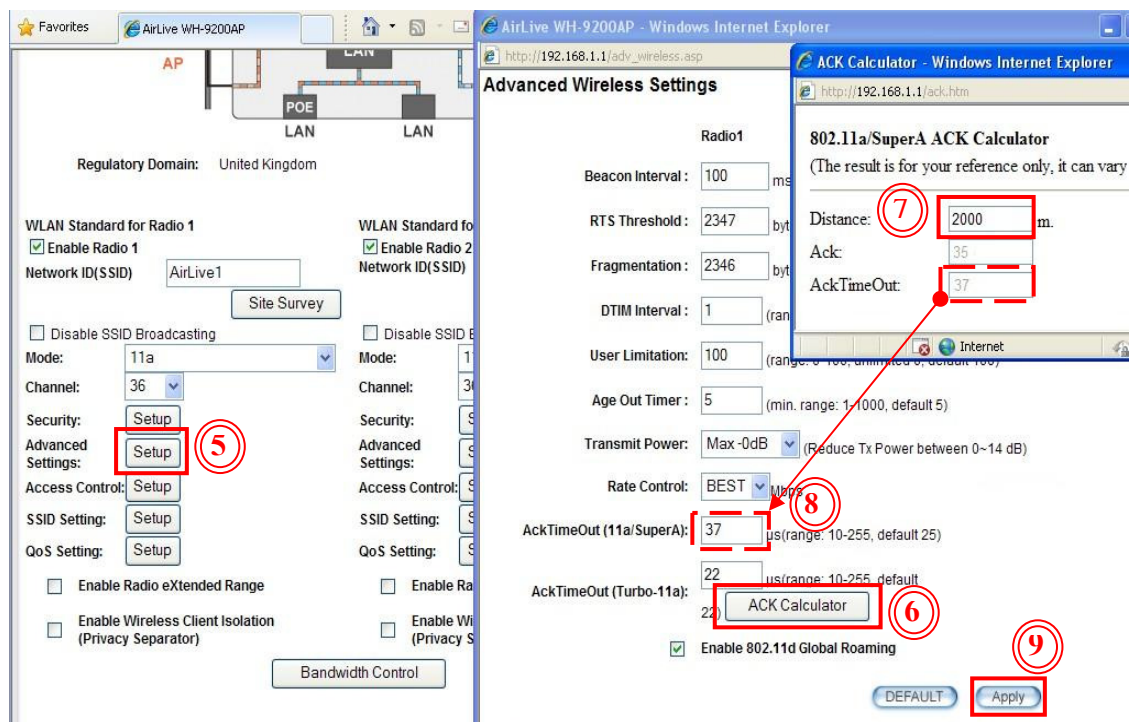
WPA Encryption Type: ☐ TKIP ☐ CCMP(AES) ☒ Both (4)

WPA2 Group Rekey Interval: 300 sec.(0 means disable rekey)

Apply (4)

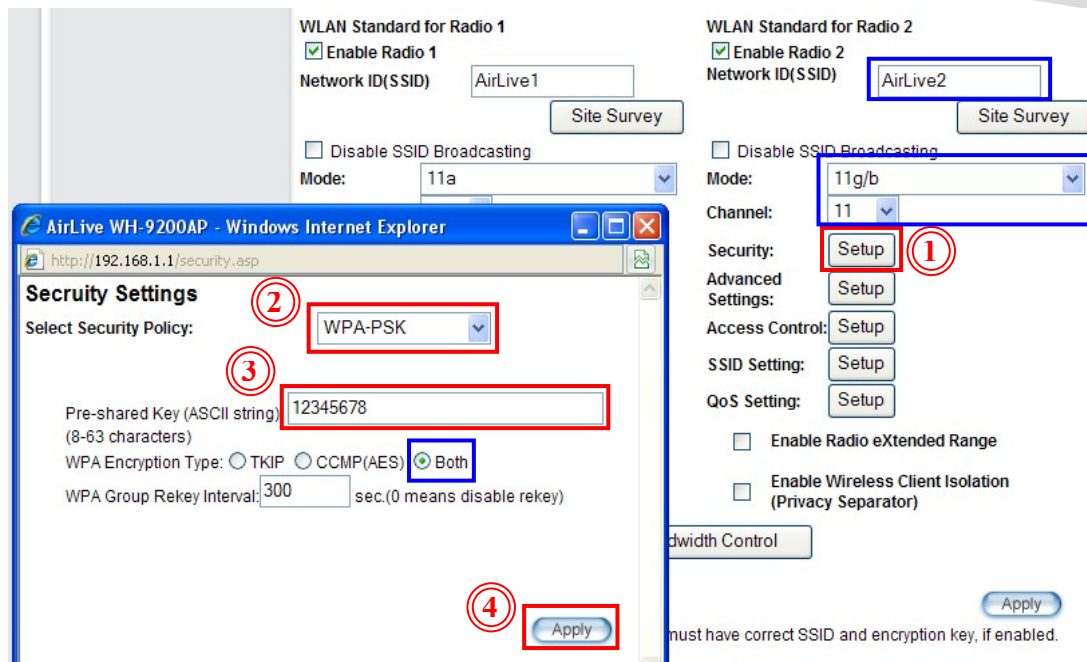
(If you want to use other encryptions, you must use the same as AirMax5's wireless encryptions.)

4. Press the “Setup” button of Advanced Settings to show the “Advanced Wireless Settings” dialog box ⑤, then press “ACK Calculator” button ⑥. It shows “802.11a/SuperA ACK Calculator” dialog box. Please enter the distance between WH-9200AP and AirMax5 ⑦, then press the “Tab” button on your keyboard, at this time it shows the Ack time out value in the field. (In this sample, the distance is 2000m; the Ack Time Out is 37) You can copy the value to paste with “AckTimeOut(11a/SuperA)” field ⑧. Remember press “Apply” button to save the settings ⑨.



Step 3. Encryption and connection settings for Radio 2.

1. Check if the Radio2 is 11b/g mode and the channel number is 11. In this sample, the SSID is “AirLive2” by default.
2. Please press the “Setup” button of security settings to show the “Security Settings” dialog box. ①
3. In our sample, we use these parameters:
 Security: WPA-PSK ②
 Key string: 12345678 ③
 Type: Both (TKIP/AES Mix)
 Remember press “Apply” button to save the settings. ④



WLAN Standard for Radio 1

☒ Enable Radio 1

Network ID(SSID) AirLive1

Site Survey

☐ Disable SSID Broadcasting

Mode: 11a

Security: Setup ①

Advanced Settings: Setup

Access Control: Setup

SSID Setting: Setup

QoS Setting: Setup

☐ Enable Radio eXtended Range

☐ Enable Wireless Client Isolation (Privacy Separator)

Bandwidth Control

Apply

must have correct SSID and encryption key, if enabled.

AirLive WH-9200AP - Windows Internet Explorer

http://192.168.1.1/security.asp

Security Settings

Select Security Policy: WPA-PSK ②

Pre-shared Key (ASCII string) 12345678 ③

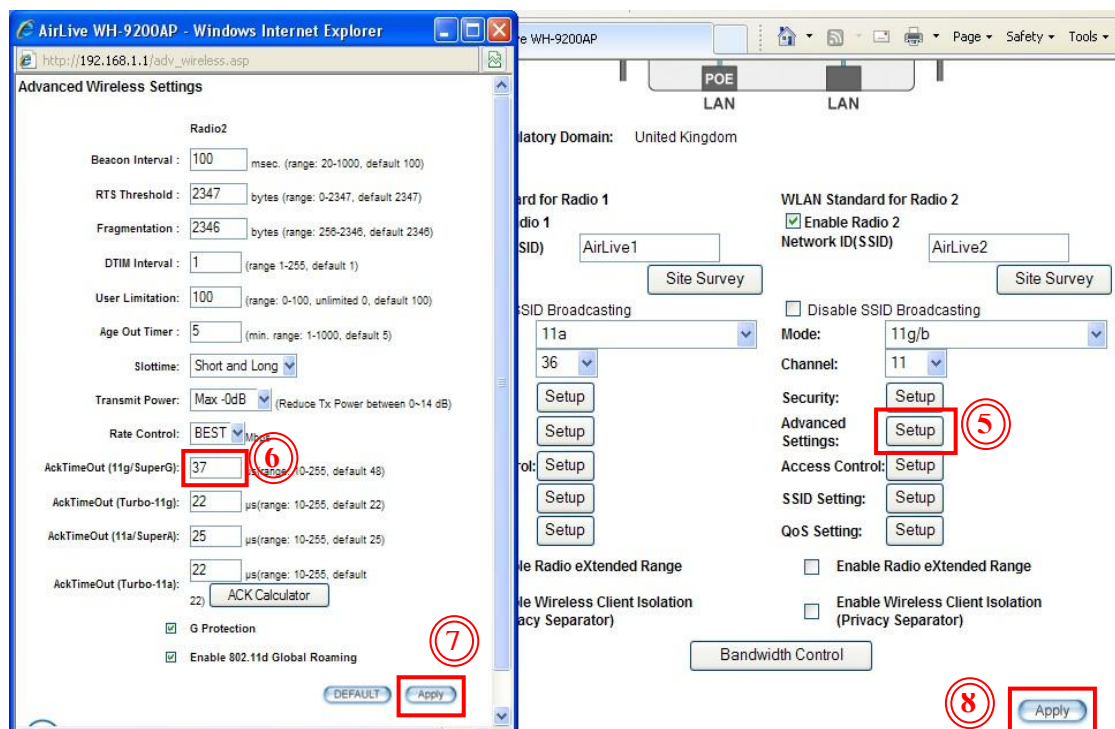
WPA Encryption Type: ☐ TKIP ☐ CCMP(AES) ☒ Both

WPA Group Rekey Interval: 300 sec.(0 means disable rekey)

Apply ④

(If you want to use the other encryptions by yourself, you must use the same as WH-5420CPE's encryptions.)

4. Press the "Setup" button of Advanced Settings to show the "Advanced Wireless Settings" dialog box ⑤, then enter the Ack Time Out value in "AckTimeOut(11g/SuperG)" field ⑥. The value is the same as 11a. (In this sample, the Ack Time Out is 37)
- Remember press "Apply" button to save the settings. ⑦ ⑧



AirLive WH-9200AP - Windows Internet Explorer

http://192.168.1.1/adv_wireless.asp

Advanced Wireless Settings

Radio2

Beacon Interval: 100 msec. (range: 20-1000, default 100)

RTS Threshold: 2347 bytes (range: 0-2347, default 2347)

Fragmentation: 2346 bytes (range: 256-2346, default 2346)

DTIM Interval: 1 (range: 1-255, default 1)

User Limitation: 100 (range: 0-100, unlimited 0, default 100)

Age Out Timer: 5 (min. range: 1-1000, default 5)

Slottime: Short and Long

Transmit Power: Max -0dB (Reduce Tx Power between 0-14 dB)

Rate Control: BEST

AckTimeOut (11g/SuperG): 37 ⑥

AckTimeOut (Turbo-11g): 22 us(range: 10-255, default 22)

AckTimeOut (11a/SuperA): 25 us(range: 10-255, default 25)

AckTimeOut (Turbo-11a): 22 us(range: 10-255, default 22)

☒ G Protection

☒ Enable 802.11d Global Roaming

Apply ⑦

WLAN Standard for Radio 2

☒ Enable Radio 2

Network ID(SSID) AirLive2

Site Survey

☐ Disable SSID Broadcasting

Mode: 11g/b

Channel: 11

Security: Setup

Advanced Settings: Setup ⑤

Access Control: Setup

SSID Setting: Setup

QoS Setting: Setup

☐ Enable Radio eXtended Range

☐ Enable Wireless Client Isolation (Privacy Separator)

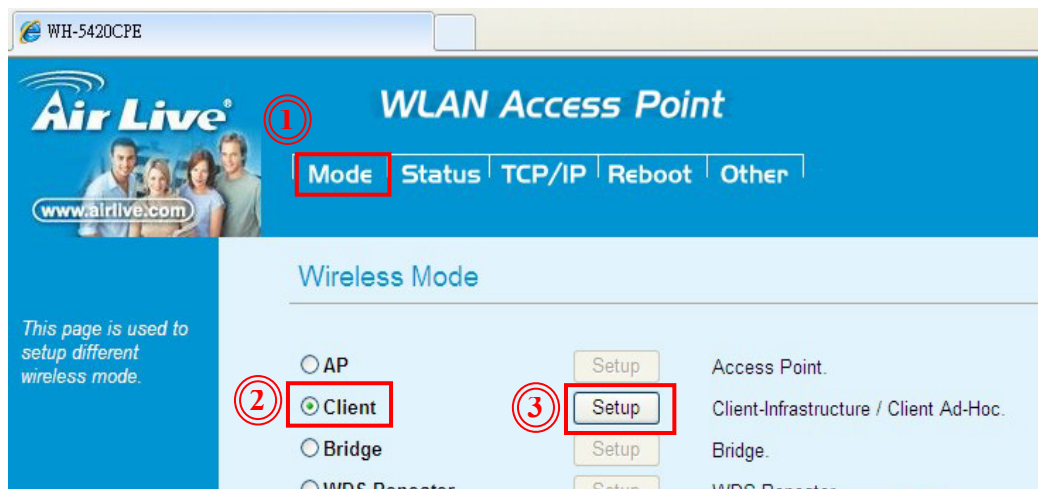
Bandwidth Control

Apply ⑧

3. WH-5420CPE Settings

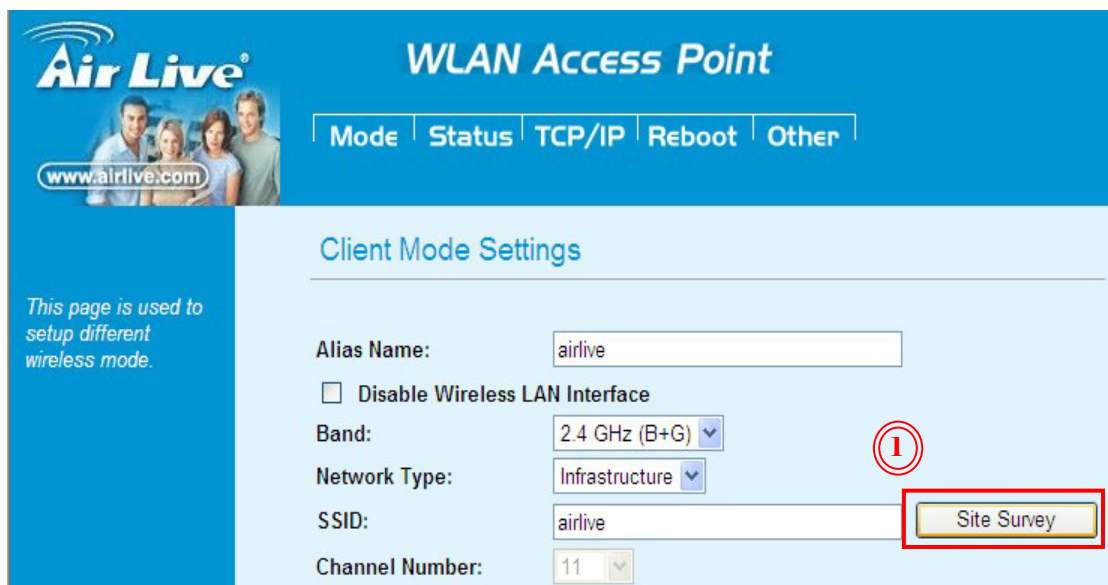
Step 1. Login the device and change to the Client Mode.

1. In PC3, type "WH-5420CPE's IP address" into the web browser's address field to access the device. (default IP is 192.168.100.252)
2. Press the "Mode" button ① then select "Client" ② to change operation mode.

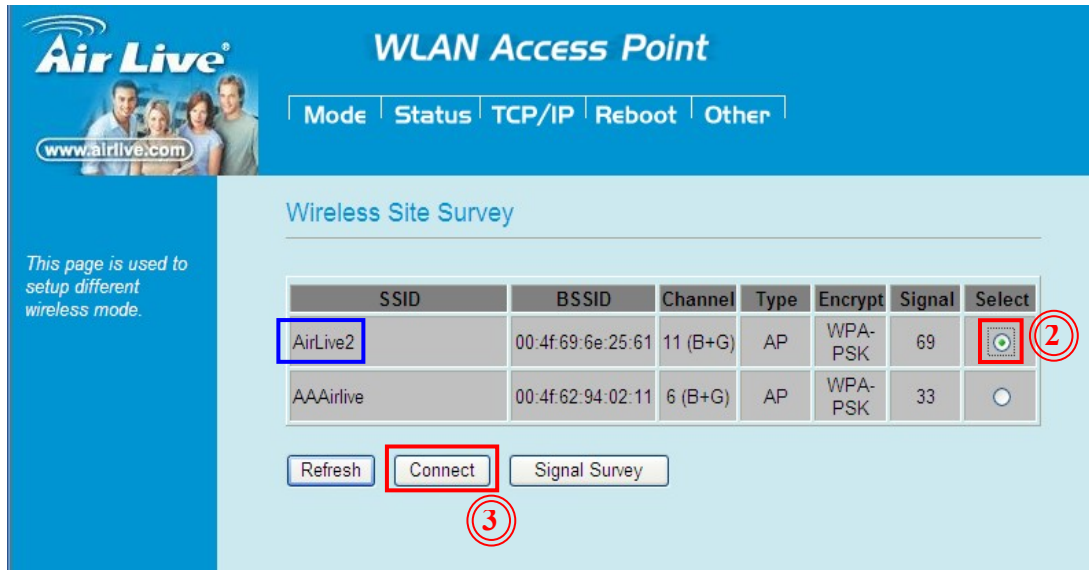


Step 2. Site survey and connect with WH-9200AP.

1. In the Client Mode Settings page, please press "Site Survey" button to survey the signal in your environment ①.



- You can see the SSID with WH-9200AP's Radio2, then select it ② → Press "Connect" button ③. (In our sample the SSID is "AirLive2")



Air Live® **WLAN Access Point**

Mode | Status | TCP/IP | Reboot | Other

Wireless Site Survey

SSID	BSSID	Channel	Type	Encrypt	Signal	Select
AirLive2	00:4f:69:6e:25:61	11 (B+G)	AP	WPA-PSK	69	<input checked="" type="radio"/>
AAairlive	00:4f:62:94:02:11	6 (B+G)	AP	WPA-PSK	33	<input type="radio"/>

Refresh | Connect | Signal Survey


- And then, set the encryption that should be the same as WH-9200AP's Radio 2.

In our sample, we use these parameters:

Security: WPA-PSK(TKIP) ④

Key string: 12345678 ⑤

Then press "Apply Changes" button that will connect to WH-9200AP's Radio2 automatic.



Air Live® **WLAN Access Point**

Mode | Status | TCP/IP | Reboot | Other

Connect to AirLive2 : Connect failed!

<< Previous

Wireless Security Setup

Encryption: WPA-PSK (TKIP) ④

Pre-Shared Key Format: Passphrase

Pre-Shared Key: 12345678 ⑤

Group Key Life Time: 86400 sec

Apply Changes ⑥ | Reset

Step 3. Check the connection.

After configured successfully, you can ping the PC1's IP from PC3 to check if the connection was successful.

```
E:\Documents and Settings\Administrator>ping 192.168.1.101

Pinging 192.168.1.101 with 32 bytes of data:

Reply from 192.168.1.101: bytes=32 time=1ms TTL=128
Reply from 192.168.1.101: bytes=32 time=1ms TTL=128
Reply from 192.168.1.101: bytes=32 time=2ms TTL=128
Reply from 192.168.1.101: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.1.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 1ms
```

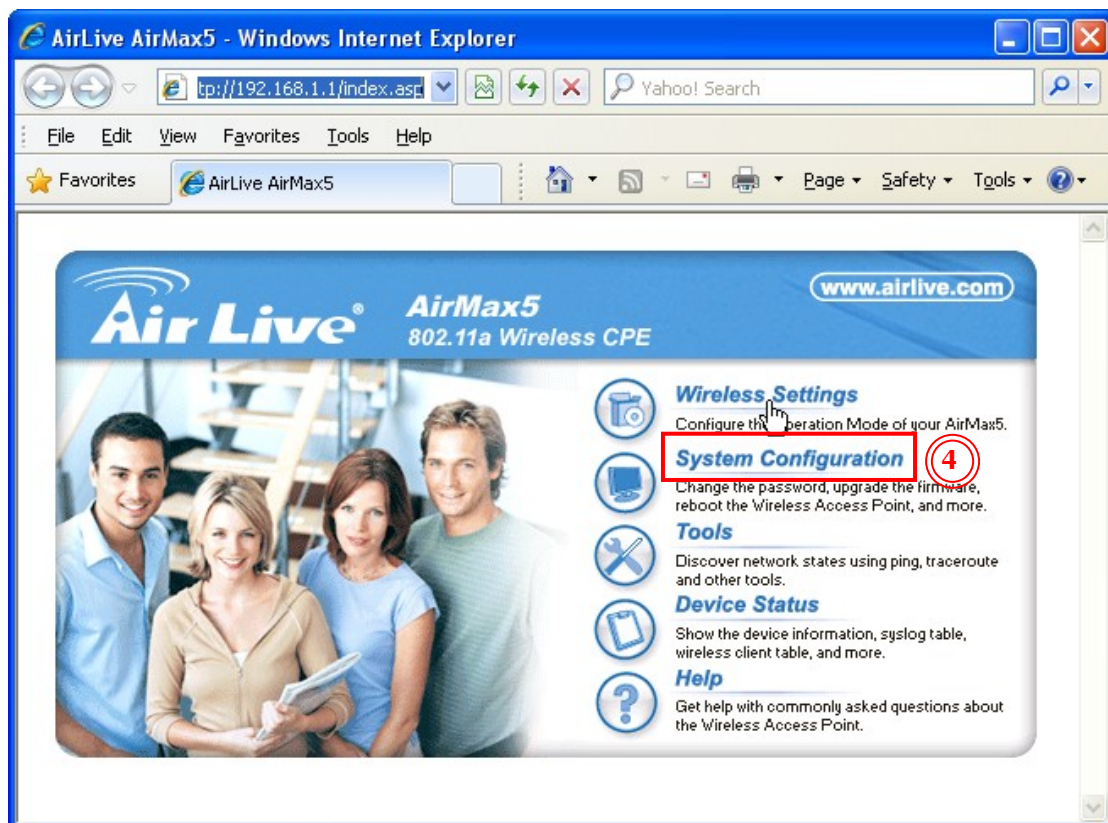
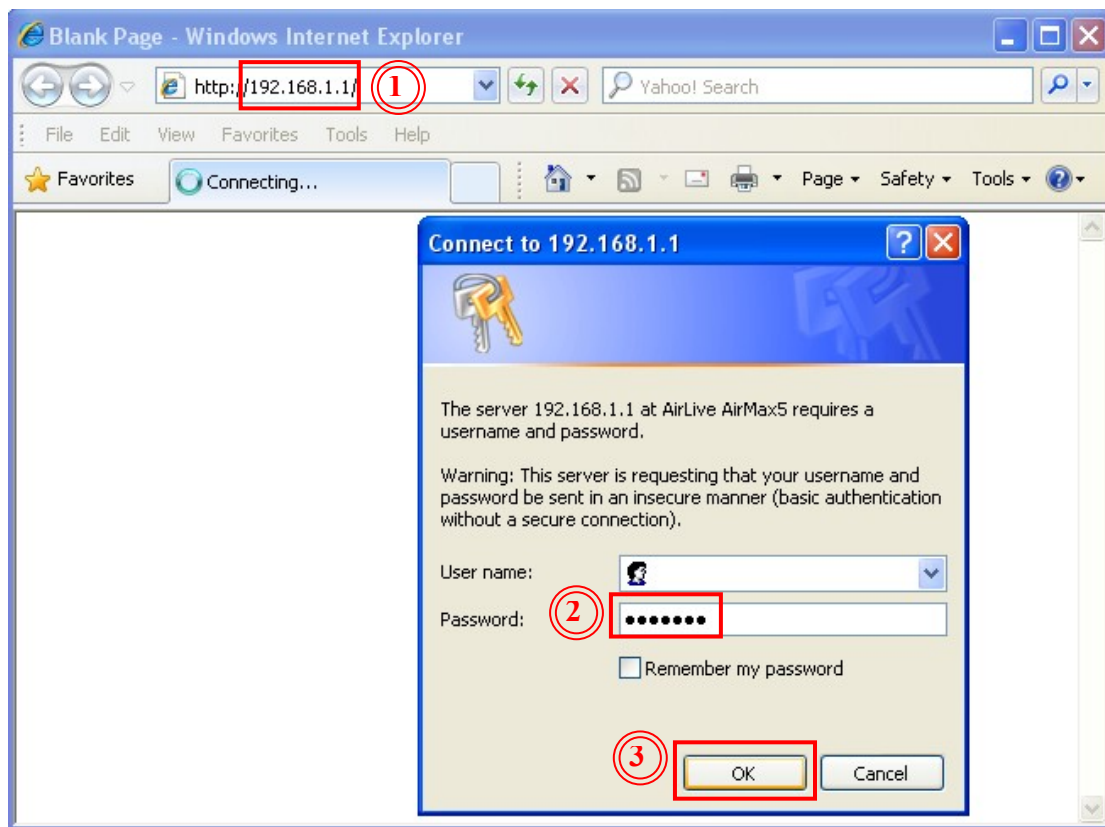
If you can't ping the PC1, please check the firewall is already disable of PC1's OS.

4. AirMax5 Settings

Step 1. Login the device and change its IP.

1. In the PC2, type the AirMax5's IP address into the web browser's address field to access the device.① (default IP is 192.168.1.1)
2. Key-in the password to login the device.② (default User name and password are "airlive")
3. If your AirMax5's IP is the same as WH-9200AP's IP, you have to change another IP address to avoid the conflict. The same IP addresses can't exist in one LAN.

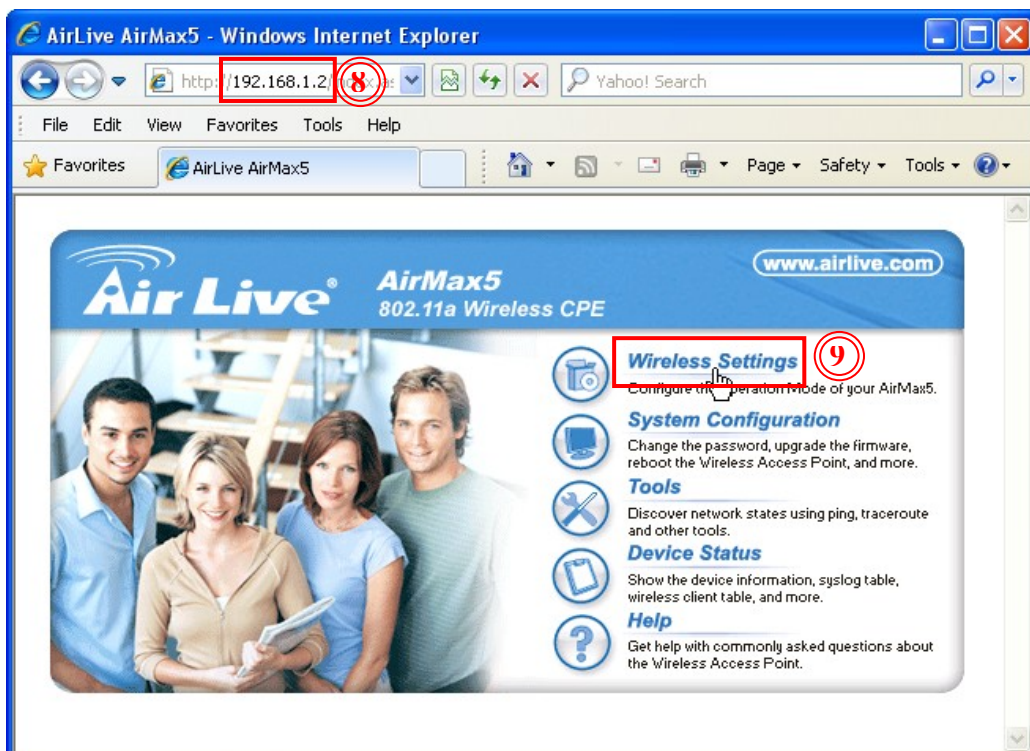
In this case, please press the "System configuration" button to go to the "Device IP Settings" page.④



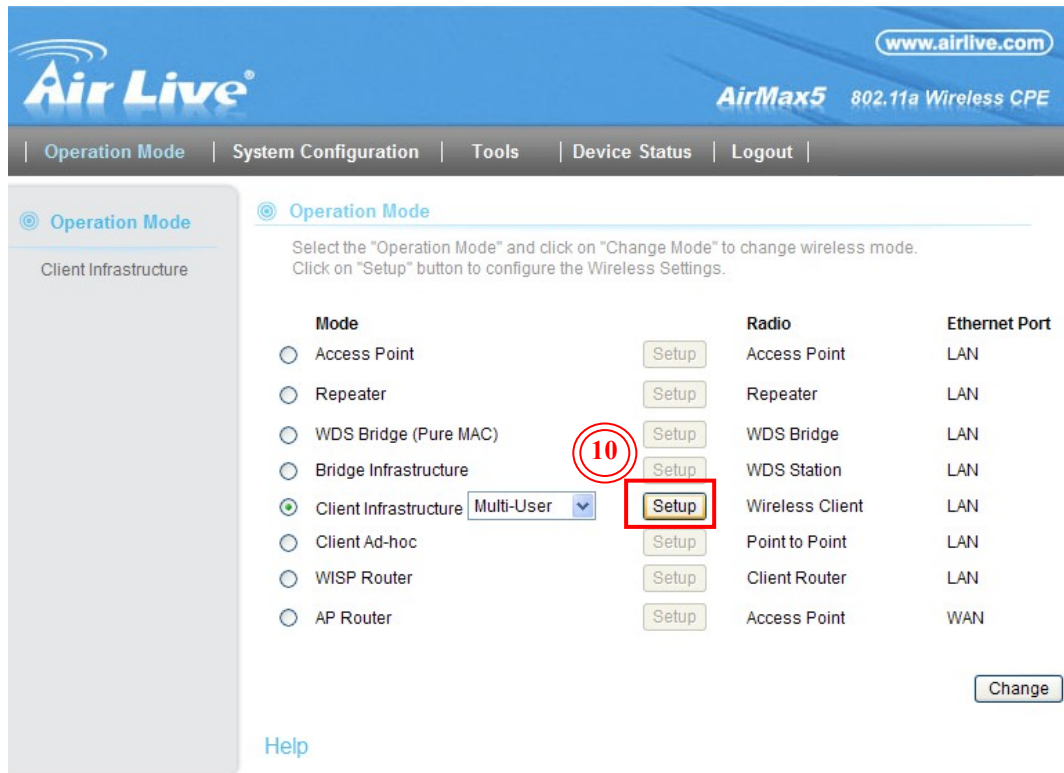
4. In our sample, we change the device's IP to 192.168.1.2^⑤ → press “Apply”^⑥ → “OK”.^⑦

The screenshot shows the AirLive AirMax5 web interface. The top navigation bar includes links for Operation Mode, System Configuration, Tools, Device Status, and Logout. The left sidebar lists various settings: Device IP Settings, Time Settings, Password Settings, System Management, SNMP Settings, Ping V, Firmw, and Config and Restore. The main content area is titled 'Device IP Settings' and contains a message: 'You can select one of the following two approaches to assign an IP address to this device.' Below this, the 'Assign static IP to this device' option is selected. The IP Address field is set to 192.168.1.2, with the '2' highlighted by a red box and a circled 5. The IP Subnet Mask is 255.255.255.0, the Gateway IP Address is 192.168.1.254, and the DNS Server is 0.0.0.0. A message box is displayed in the foreground, asking 'Changing the device IP address may cause your connection to be lost. Do you want to continue?'. The 'Apply' button is highlighted by a red box and a circled 6, and the 'OK' button is highlighted by a red box and a circled 7.

5. Access the device as new IP^⑧ then press the “Wireless Settings” button^⑨.



6. Press the “Setup” button of Client Infrastructure mode to into the set up page. ⑩



Mode	Radio	Ethernet Port
<input type="radio"/> Access Point	Access Point	LAN
<input type="radio"/> Repeater	Repeater	LAN
<input type="radio"/> WDS Bridge (Pure MAC)	WDS Bridge	LAN
<input type="radio"/> Bridge Infrastructure	WDS Station	LAN
<input checked="" type="radio"/> Client Infrastructure Multi-User	Wireless Client	LAN
<input type="radio"/> Client Ad-hoc	Point to Point	LAN
<input type="radio"/> WISP Router	Client Router	LAN
<input type="radio"/> AP Router	Access Point	WAN

Step 2. Connect to 9200AP via WPA2-PSK encryption.

1. Check if the “Radio Mode” and “Channel Width” were the same as WH-9200AP.
2. Enter the distance between WH-9200AP and AirMax5 in “Distance” field ① then press “Apply” button to save the distance setting. ②
After configured successfully, please press “Site Survey” button to site survey the signal in your environment. ③

Wireless Settings

Regulatory Domain: United States

Network ID (SSID): airlive 3 Site Survey

Lock to AP: Setup

☐ Cloned MAC Address 00-00-00-00-00-00 (xx-xx-xx-xx-xx-xx)

Radio Mode: 11a

SuperA Option: ☒ Bursting ☒ Compression ☒ Fast Frames

Channel: AUTO

Channel Width: Normal (20MHz)

Security Setting: Setup

Distance: 1 20000 meters

Antenna Setting: Vertical

Transmit Power: 24dBm (Approximate TX Output Power)

DFS Control: Enable

Advanced Settings: Setup

Bandwidth Control: Setup

RSSI LED Thresholds: Setup

2 Apply

- Then it will **show** the site survey result of the “Site Survey” dialog window. You can see the SSID with WH-9200AP’s Radio1, then select it 4 → Press “ASSOCIATE” button 5. (In our sample the SSID is “AirLive1”)

AirLive AirMax5 - Windows Internet Explorer

http://192.168.1.1/sts_sitesvy.asp

Site Survey

Site survey list:

Select	ESSID	MAC Address	Conn Mode	Channel	Turbo	Super	XR	WME	Signal Strength (dbm)	Security	Network
4	AirLive1	00-4f-69-6e-25-60	A	36	-	-	-	*	-67	WPA2 PSK	AP

NOTE: The sitesurvey will show both AP and Bridge connections. Device without ESSID is more likely to be a Bridge device.

5 ASSOCIATE

REFRESH SIGNAL

4. Then it shows the “Security Settings” dialog box.

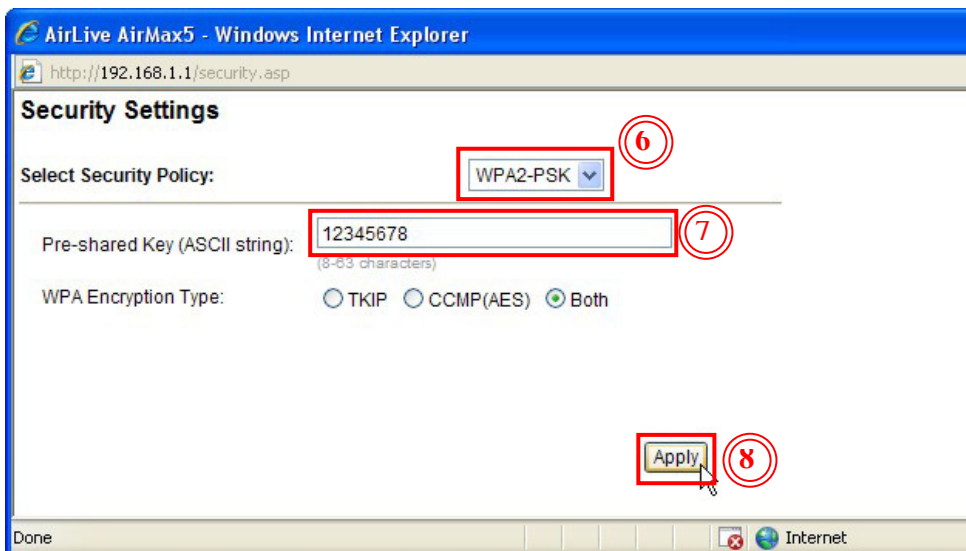
In our sample, we use these parameters:

Security: WPA2-PSK ^⑥

Key string: 12345678 ^⑦

Type: Both (TKIP/AES Mix)

Remember press “Apply” button to save the settings. ^⑧

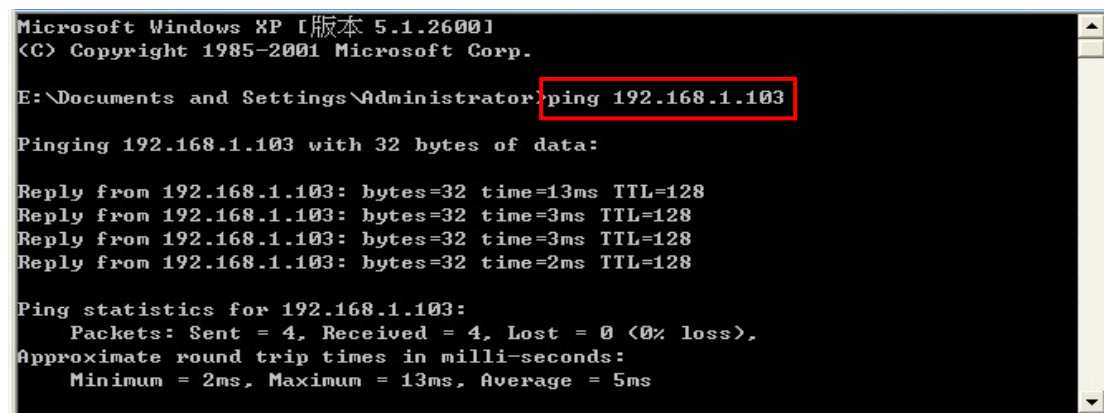


(If you want to use other encryptions, you must use the same as WH-9200AP Radio 1’s encryptions.)

Then it will connect to WH-9200AP’s Radio1 automatic.

Step 3. Check the connection.

After configured successfully, you can ping PC3 from PC2 to check if the connection was successful.



If you can’t ping the PC3, please check the firewall is already disable of PC3’s OS.