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Configuration Guide

Multi-service Controller AC3000

IP-COM
World Wide Wireless

Table of Contents

Configuration Guide Overview

AC3000 provides abundant functions and flexible configurations. This Configuration Guide tries to help you configure the AC by several applications. Also you have many other choices for your particular use case.

The configuration guide consists of the following parts.

Part	Description
Part 1 Web Login	This part describes how to login and logout AC's Web UI, and introduces the Web UI's other information.
Part 2 Switch Fat AP to Fit AP	This part is required.
Part 3 Discover AC in Different Network	This part is required if you need to manage cross-network or cross-Internet fit APs.
Part 4 Application of AP Forwarding Mode	This part introduces AP forwarding mode and provides four applications to help you configure AC and other devices. Centralized Forwarding Mode Application: If you need to centrally manage all wireless guests, follow this application. Distributed Forwarding Mode Application: If you want to save your network bandwidth, follow this application. Mixed Forwarding Mode Application 1: If your network has two types of users with different access rights, follow this application. Mixed Forwarding Mode Application 2: If your network has three types of users with different access rights and one has rights to access any provided service, follow this application.
Part 5 Application of Network Settings	This part provides an example to help you configure VLAN-based network settings.
Part 6 Application of Advertising	This part shows how to create and deliver advertisements to terminals.

Part 1 Web Login

1.1 Login

AC3000 provides Web UI to help you manage and maintain this device. When you use AC3000 for the first time, you can log in to the AC's Web UI via a browser with default login information.

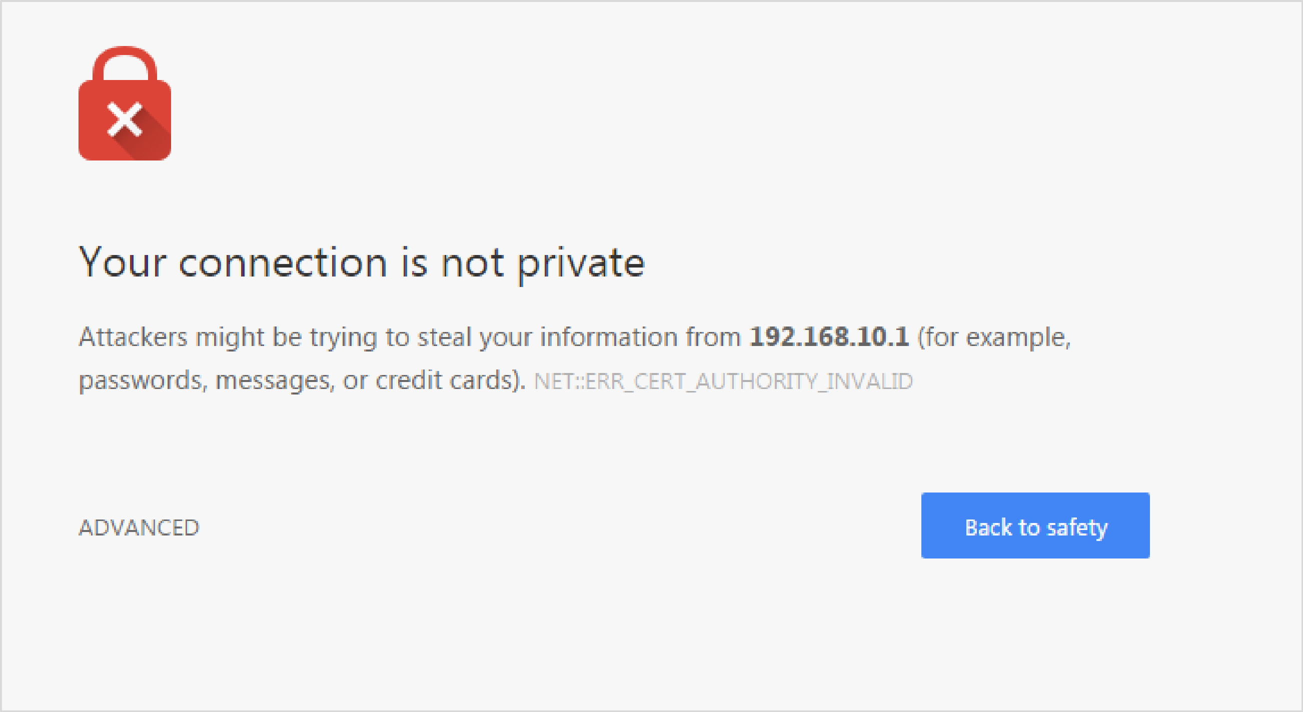
The default login information includes:

Login Information	Default Value
IP Address	192.168.10.1
Username	admin
Password	admin

To log in to the Web UI: (Assuming that the AC's login information is the default value)

1. Connect a management PC to the AC with an Ethernet cable.
2. Set up IP address of the PC to "192.168.10.X" (X is between 2~254), with a subnet mask of "255.255.255.0".
3. Launch a browser, enter https://192.168.10.1 in the address bar and press **Enter** or **Return**.

 If the following page appears, click **ADVANCED** > **Proceed to 192.168.10.1 (unsafe).**

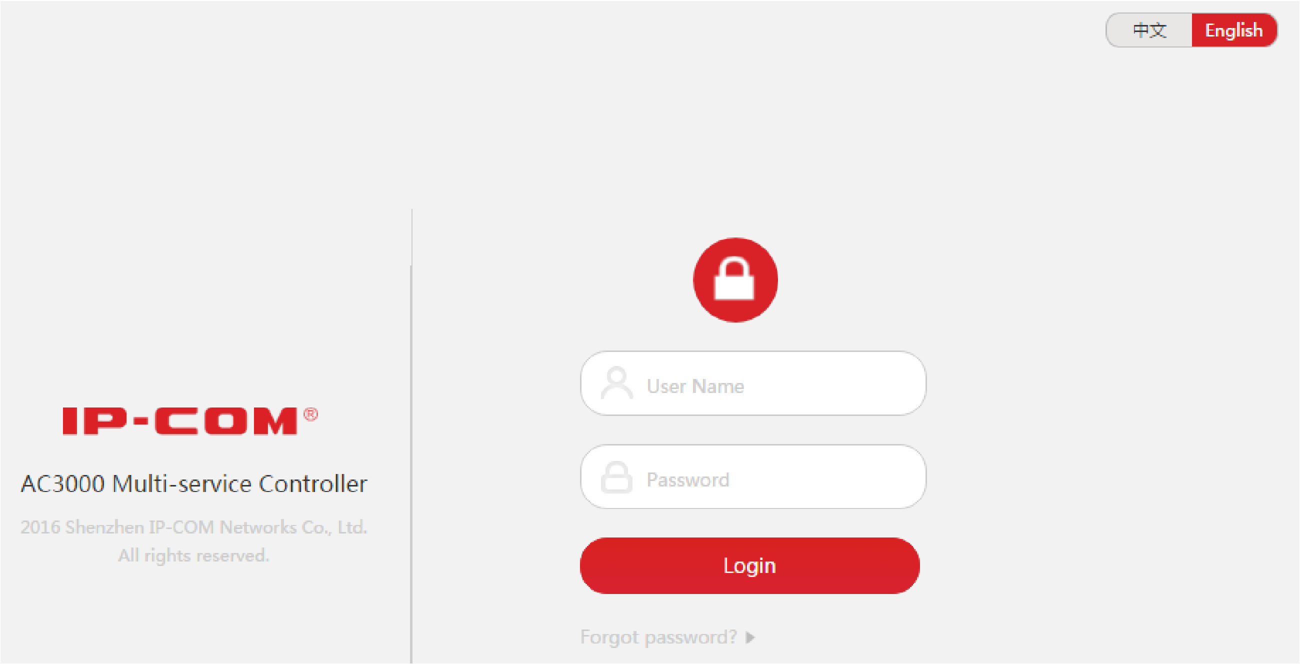


Your connection is not private

Attackers might be trying to steal your information from **192.168.10.1** (for example, passwords, messages, or credit cards). NET::ERR_CERT_AUTHORITY_INVALID

4. Enter the login username ***admin*** and password ***admin*** and click **Login**.

Then you can manage the AC through the Web UI.

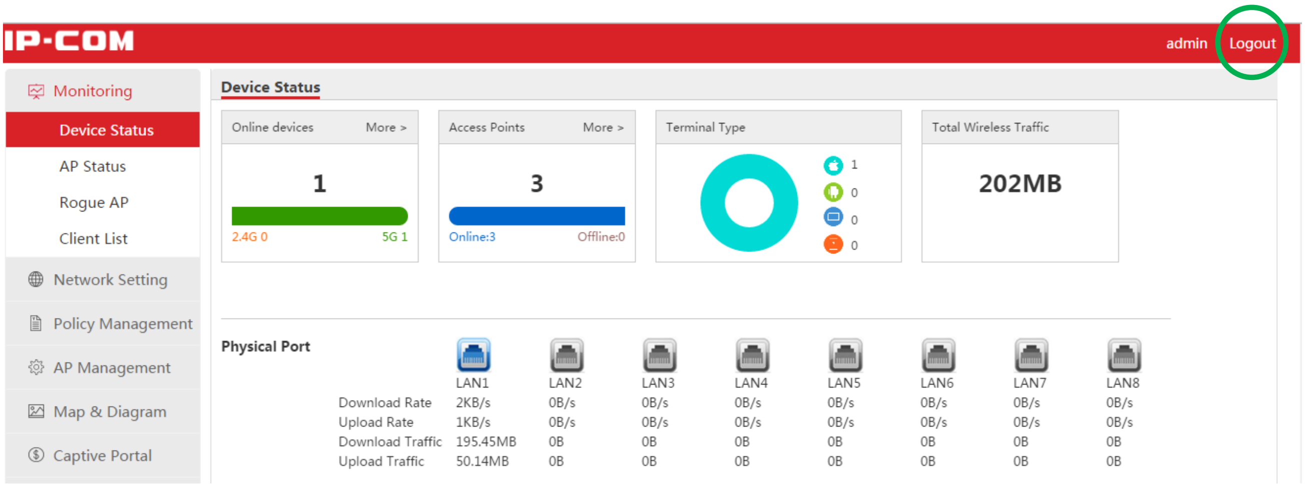


Tip

- For better compatibility, it is recommended to use the following browsers:
  - Google Chrome 26.0 or higher version
  - Internet Explorer 9.0 or higher version
  - Mozilla Firefox 20.0 or higher version
- In this configuration guide, we take Google Chrome as an example.
- After logging in to the Web UI, you can modify the login IP address or create new users.

1.2 Logout

Close the browser window directly or click “**Logout**” on the top right corner to safely exit from the Web UI.



	LAN1	LAN2	LAN3	LAN4	LAN5	LAN6	LAN7	LAN8
Download Rate	2KB/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s
Upload Rate	1KB/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s
Download Traffic	195.45MB	0B	0B	0B	0B	0B	0B	0B
Upload Traffic	50.14MB	0B	0B	0B	0B	0B	0B	0B

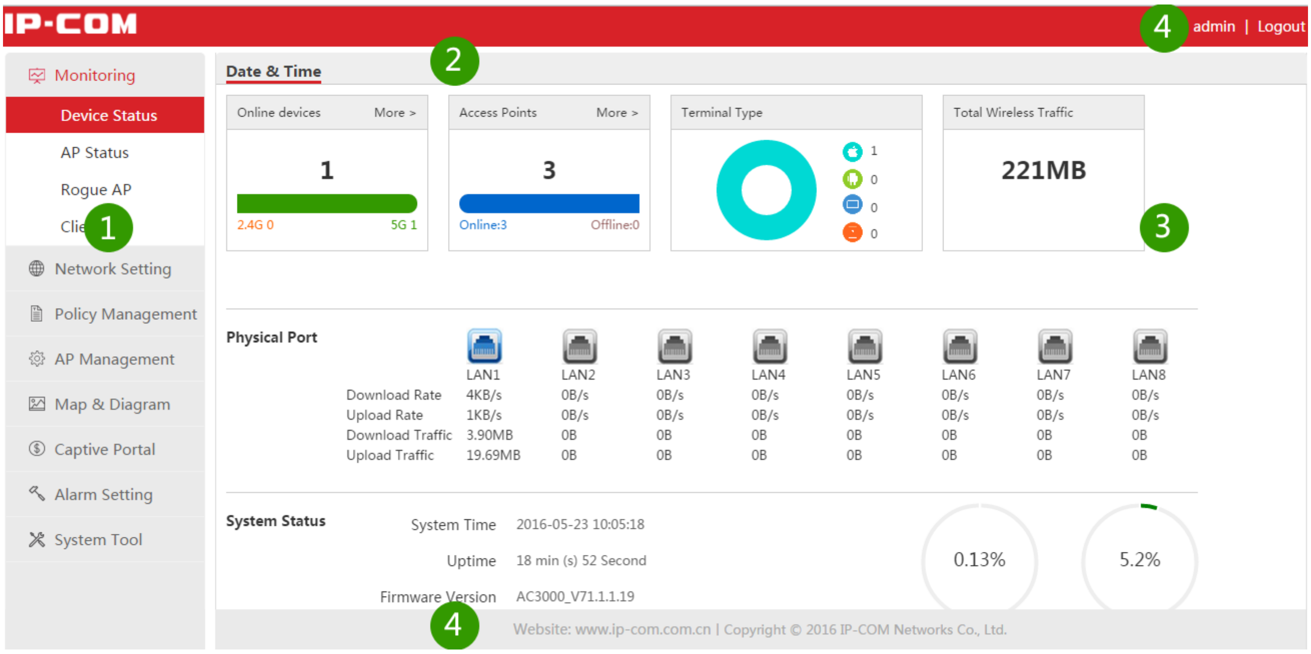
1.3 Layout of Web UI

AC3000 provides two Web UIs to manage fit AP and fat AP at the same time. To distinguish the two Web UIs, we might call them first Web UI and second Web UI respectively in some circumstances.

The layouts of the two Web UIs are described below.

Fit AP Management

After logging in to AC3000, you will come to the first Web UI for fit AP management, shown as follows.



Online devices More >	Access Points More >	Terminal Type	Total Wireless Traffic
1	3	1 0 0 0	221MB
2.4G 0 5G 1	Online:3 Offline:0		

Physical Port

	LAN1	LAN2	LAN3	LAN4	LAN5	LAN6	LAN7	LAN8
Download Rate	4KB/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s
Upload Rate	1KB/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s	0B/s
Download Traffic	3.90MB	0B	0B	0B	0B	0B	0B	0B
Upload Traffic	19.69MB	0B	0B	0B	0B	0B	0B	0B

System Status

System Time 2016-05-23 10:05:18

Uptime 18 min (s) 52 Second

Firmware Version AC3000_V71.1.1.19

0.13% 5.2%

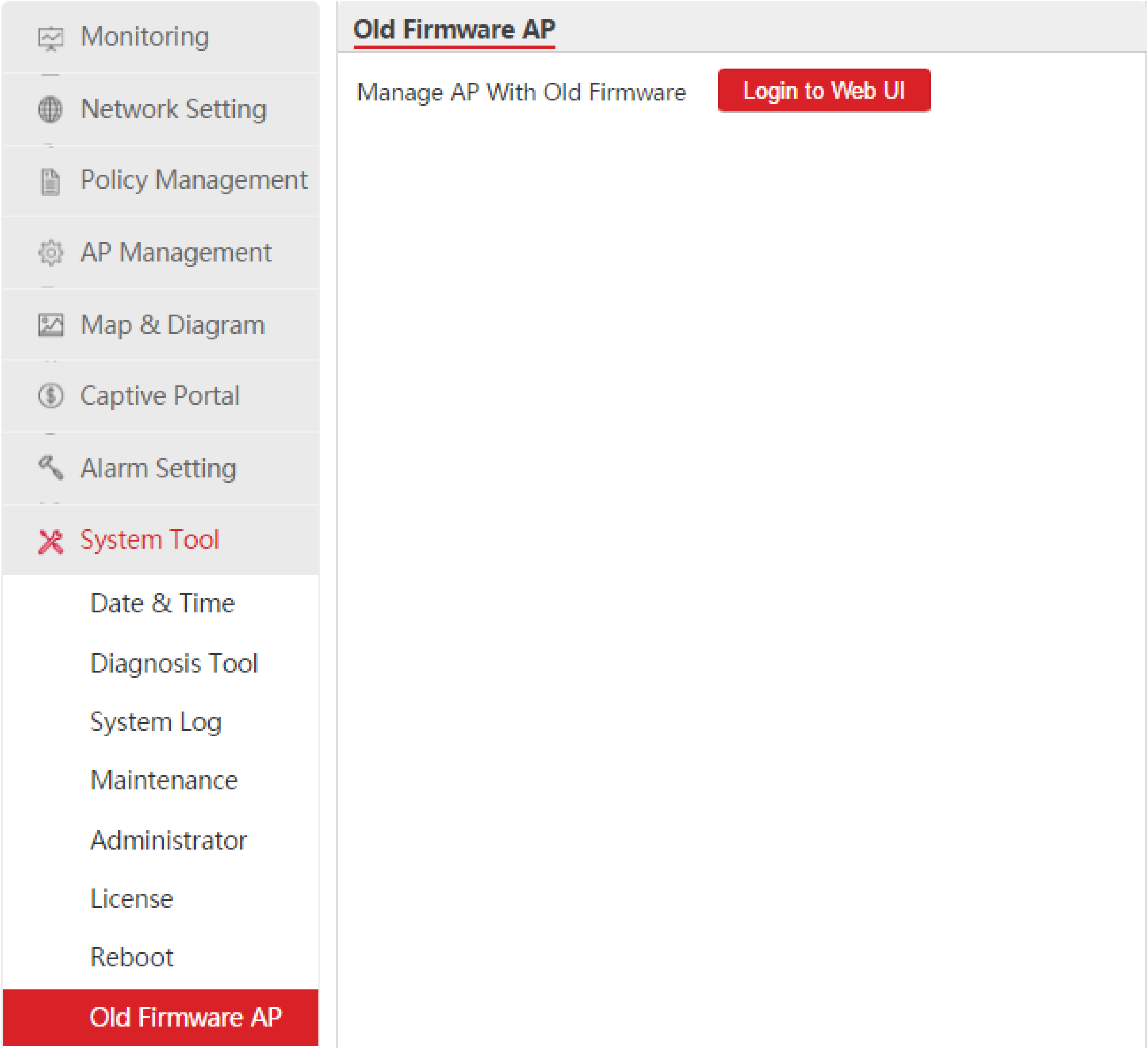
Website: www.ip-com.com.cn | Copyright © 2016 IP-COM Networks Co., Ltd.

This Web UI is divided into four parts: primary navigation bar, secondary navigation bar, configuration area, and auxiliary area, described as follows.

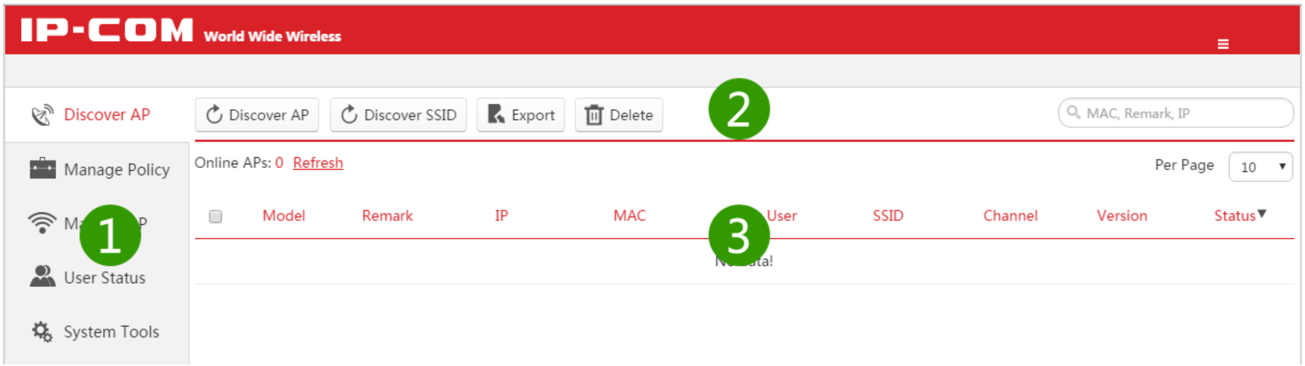
Number	Name	Description
1	Primary navigation bar	The navigation bar organizes the AC's menu of all functions in the form of a navigation tree. You can choose the function menu from the navigation bar with selection result shown in the configuration area.
2	Secondary navigation bar	
3	Configuration area	The area is used to configure and view settings.
4	Auxiliary area	• Auxiliary area in the top right corner displays the current login account, and provides "Logout" button. • Auxiliary area in the bottom of the page displays our website link and copyright.

Fat AP Management

AC3000 also provides a Web UI for fat AP management. To get into this Web UI, go to **System Tool** > **Old Firmware AP** of the first Web UI, and click **Login to Web UI**.



Then you will come to the second Web UI for fat AP management.



This Web UI is divided into three parts, shown as follows.

Number	Name	Description
1	Primary navigation bar	The navigation bar organizes the AC's menu of all functions in the form of a navigation tree. You can choose the function menu from the navigation bar with selection result shown in the configuration area.
2	Secondary navigation bar	
3	Configuration area	The area is used to configure and view settings.

Tip

If a parameter or button can't be modified, consider the following reasons:

- You have no permission to modify it. Please use a higher level account and retry.
- It can't be modified because you configure some incompatible parameters.
- This release version of AC3000 does not support it and it may be developed in the next version.

1.4 Login Account

AC3000 provides three levels of login account: Super Administrator, Administrator and Guest. If a lower level account can modify a setting, the higher level account also has the permission to modify it.

The permissions of the three accounts are described below.

Account	Permission
Super Administrator	A super administrator can modify and view any settings on the Web UI.
Administrator	An administrator can view any settings on the Web UI but can only modify the following settings: • Modify its own login password and allowed IP address in **System Tool** > **Administrator**. • Modify all settings of **Monitoring**, **Policy Management**, **AP Management**, **Map & Diagram** and **Captive Portal**. • Modify all settings of **Alarm Setting** > **Events Alarm**. • Modify all settings of **System Tool** > **Diagnosis Tool/ System Log/ Reboot/ Old Firmware AP**.
Guest	A guest can view any settings on the Web UI, but he can't modify any setting except: • Refresh and export information. • Use diagnosis tool *ping* and *traceroute* to detect the network connection status.

1.5 Elements of Web UI

The following table shows the commonly used buttons of the Web UI.

Button	Description
+Add	Click the button to create a policy or a rule.
Save	Click the button to apply your settings.
Cancel	Click the button to cancel or clear the settings you are editing.
Export	Click the button to export the current page's information to an appropriate directory. The exported file is in the format *Filename.csv*.
Delete	Click the button to delete an unused policy or an offline AP's information.

The following table shows the commonly used actions of the Web UI.

Action	Description
✎	Used to modify the corresponding rule or policy.
🗑	Used to delete the corresponding rule or policy.
Refresh	Used to refresh the information on the page.
25 ▾	Used to specify how many entries are displayed on each page.
SSID Policy ▾ 🔍	Used to search for target information. Please select an item from the dropdown menu and enter keywords in the box.

1.6 Note

If you have upgraded a firmware for the AC, please clear the browser cache to ensure that all functions of the Web UI are displayed correctly.

Part 2 Switch Fat AP to Fit AP

Most IP-COM APs are in fat AP mode when you purchase them. To easily manage your APs, switch them from fat AP mode to fit AP mode. Through this part, you can achieve that:

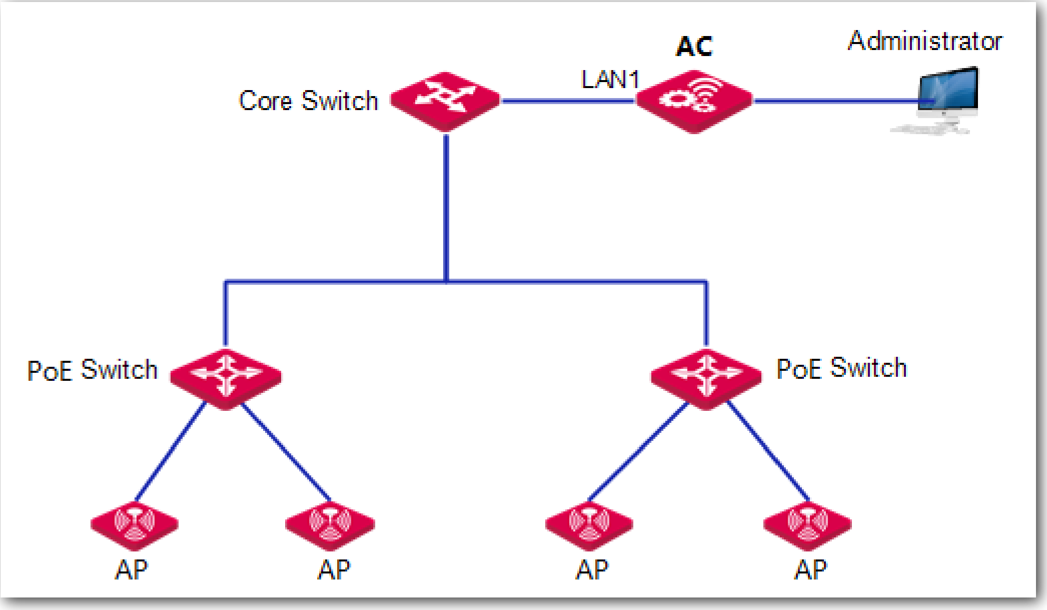
- All fat APs are switched to fit APs.
- All your fit APs can obtain an IP address from AC and can be managed by AC.
- The default SSID policy and default RF policy are delivered to all fit APs.

2.1 Network Topology

To switch your AP from fat AP mode to fit AP mode, please deploy your devices as follows first.

(The amount of switches depends on the amount of APs. You can remove excess core switch and PoE switch if necessary.)

Assume that all switches' ports are in VLAN 1. The AC and all APs are in factory default settings.



2.2 Configuration Step

To switch fat AP to fit AP, only three steps are required:

Step 1: Authorize Your AC

Step 2: Upload Fit AP's Firmware to AC

Step 3: Switch Fat AP Mode to Fit AP Mode

Other basic configurations are prepared for you by the AC so that you don't have to configure them right now.

Step 1: Authorize Your AC

By default the AC can manage only one AP. You need to obtain a license to authorize your AC and manage more APs.

To Authorize Your AC:

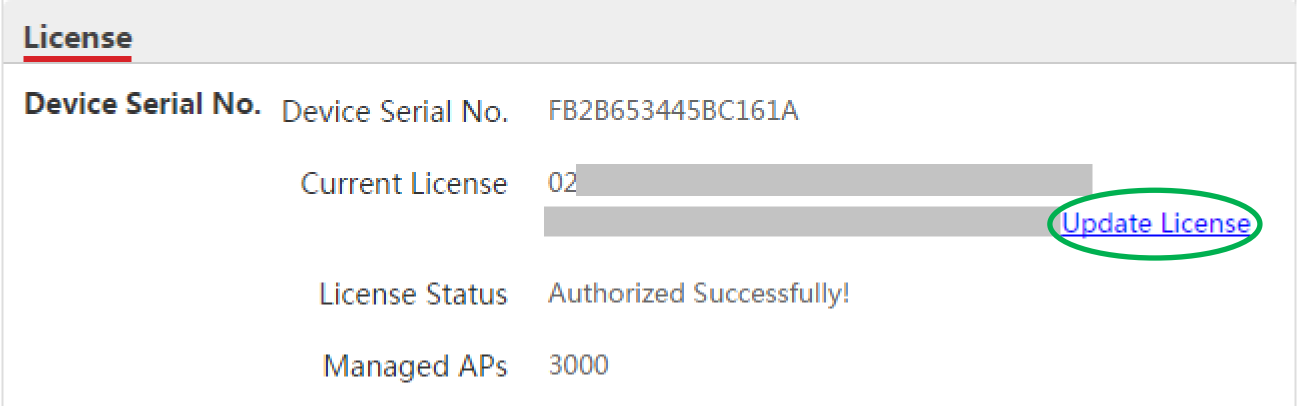
1. Contact IP-COM technical support engineer to obtain your license.(Each AC has a unique license.)

   (Go to our website http://www.ip-com.com.cn to contact us.)

2. Log in to AC's Web UI and go to **System Tool** > **License**.

3. Click **Update License**, enter your license and click **OK**.

   Authorized successfully! You can check how many APs your AC can manage currently.



License

Device Serial No.

Device Serial No. FB2B653445BC161A

Current License 02[redacted] Update License

License Status Authorized Successfully!

Managed APs 3000

Step 2: Upload Fit AP's Firmware to AC

Before you switch your AP from fat AP mode to fit AP mode, please upload fit AP's firmware to your AC.

To Upload Fit AP's Firmware to AC:

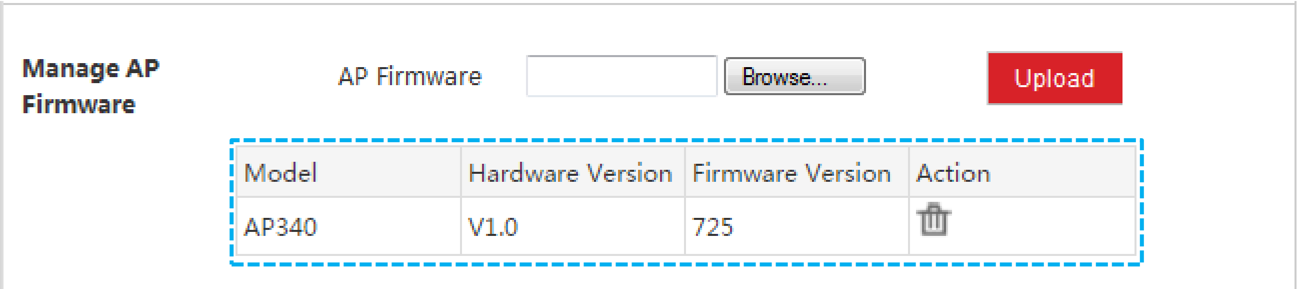
1. Go to http://www.ip-com.com.cn and download the AP's matched firmware to an appropriate directory.

2. Log in to the AC's Web UI and go to **System Tool** > **Maintenance** > **Manage AP Firmware**.

3. Click **Browse...** and upload the corresponding fit AP firmware to AC.

4. Click **Upload**.

   Then you will see the AP's firmware.



Manage AP Firmware

AP Firmware

Model	Hardware Version	Firmware Version	Action
AP340	V1.0	725	🗑

Step 3: Switch Fat AP Mode to Fit AP Mode

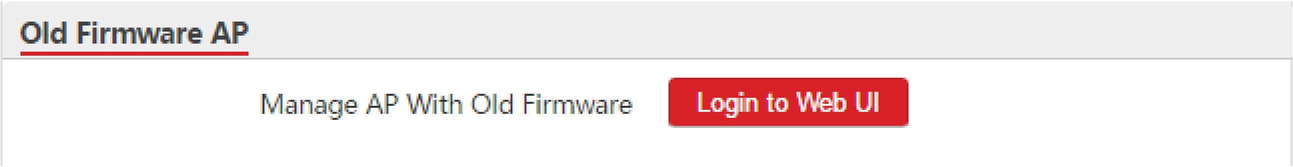
Most IP-COM APs are in fat AP mode when you purchase them. To easily manage your APs, switch them from fat AP mode to fit AP mode.

Note

When you are switching AP mode, DO NOT power off the AC and AP, or it might cause damage to the AP!

To Switch Fat AP Mode to Fit AP Mode:

1. Log in to the AC's first Web UI and go to **System Tool** > **Old Firmware AP**.



2. Click **Login to Web UI**.

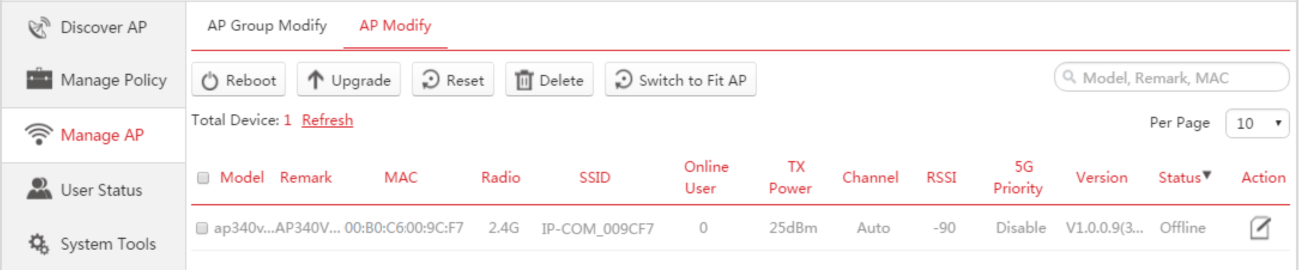
   Then you come to the second Web UI to manage fat AP.

3. On the second Web UI, go to **Manage AP** > **AP Modify**.

   You can see all fat APs have been managed by AC automatically.

4. Select all APs and click **Switch to Fit AP**.

   It will take about 1~2 minutes for all fat APs to switch to fit AP mode.



Total Device: 1 Refresh

□	Model	Remark	MAC	Radio	SSID	Online User	TX Power	Channel	RSSI	5G Priority	Version	Status▼	Action
□	ap340v...	AP340V...	00:B0:C6:00:9C:F7	2.4G	IP-COM_009CF7	0	25dBm	Auto	-90	Disable	V1.0.0.9(3...	Offline	✎

5. Go back to the AC's first Web UI and you can see all fit APs have been managed by the AC.

2.3 Verify the Configuration

After you finish above configurations, verify the following results.

- All fat APs are switched to fit APs.
- All your fit APs can obtain an IP address from AC and can be managed by AC.
- The default SSID policy and default RF policy are delivered to all fit APs.

Part 3 Discover AC in Different Network

Different network deployment requires different configurations.

- If AC and fit APs are in the same network, skip to Discover AC in Local Network.
- If AC and fit APs are in different network, skip to Discover Cross-network .
- If AC and fit APs are cross Internet, skip to Discover Cross-Internet .

3.1 Discover AC in Local Network

If AC and APs are in the same local network, the AC can manage fit APs automatically after you deploy all devices and Switch Fat AP to Fit AP.

3.2 Discover Cross-network AC

If AC and fit APs are in different network, you need to:

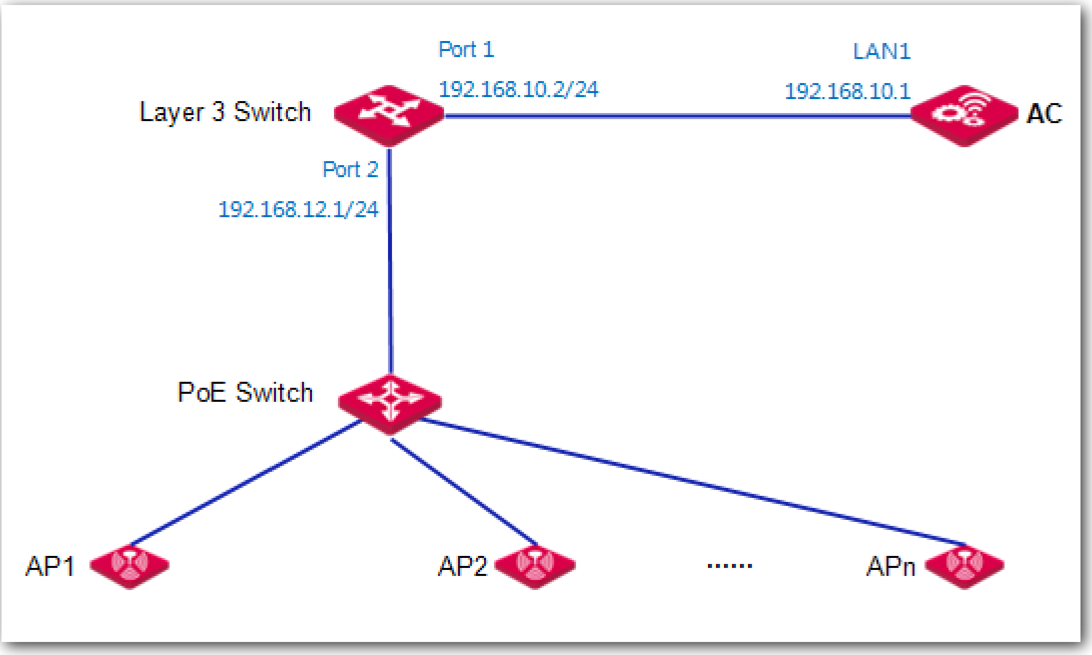
- Configure AC
- Configure AP

Networking Requirement

The AC needs to manage fit APs from other networks. Assumptions are as follows.

- AC's LAN1 port is in *default* VLAN interface.
- Layer 3 switch enables DHCP server on port 2.
- Other assumptions are shown on the network topology.

Network Topology



Configuration Guide

1. Manually configure AP1 to discover AC.

2. When AP1 is managed by AC successfully, AP1 will broadcast AC's IP address to other APs.

   You don't need to configure other APs.

3. Finally all APs will be managed by AC.

Tip

By default, all fit APs might have the same IP address. To ensure that you can successfully log in to AP1's Web UI, it is recommended to deploy AP1 first. After AP1 is successfully managed by AC, you can deploy other APs.

Configuration Step

Configure AC

To manage APs from other networks, you need to configure AC to make it reachable to AP's network.

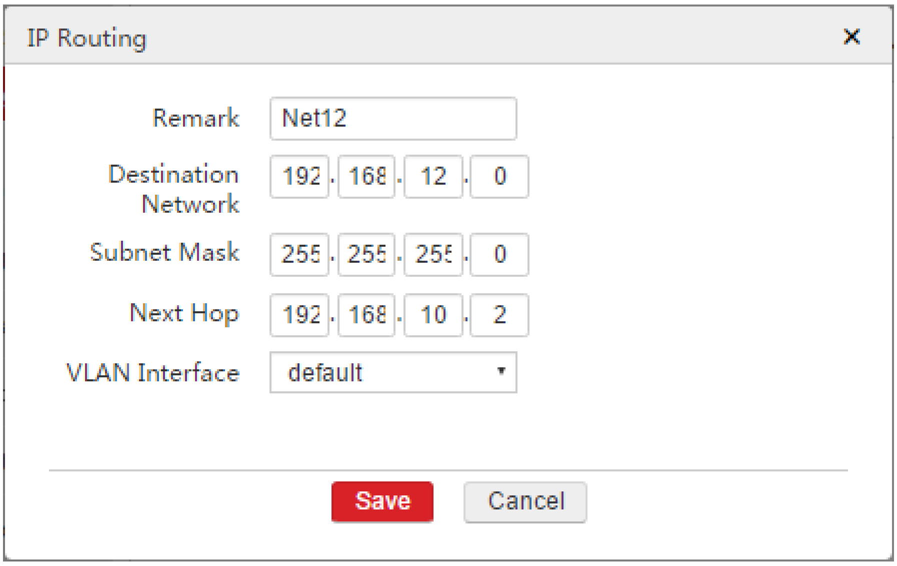
To Configure AC:

1. Log in to AC's Web UI and go to **Network Setting** > **IP Routing**.

2. Click **Add** to create a route which is reachable to AP's network.

   - Remark: Enter a remark for this route, such as *Net12*.

- Destination Network: Enter the AP's network *192.168.12.0*.
- Subnet Mask: Enter the AP's subnet mask *255.255.255.0*.
- Next Hop: Enter the gateway of this route. In this example, it is Layer 3 switch's port 1 IP address *192.168.10.2*.
- VLAN Interface: Select *default*.
- Click **Save** to apply your settings.



IP Routing

Remark: Net12

Destination Network: 192.168.12.0

Subnet Mask: 255.255.255.0

Next Hop: 192.168.10.2

VLAN Interface: default

Configure AP

Here we take AP325 as an example.

To Configure AP:

1. Restore AP1 to factory default.

   Press **RESET** button for 15 seconds and wait for about 45 seconds, the AP will be restored to factory default.

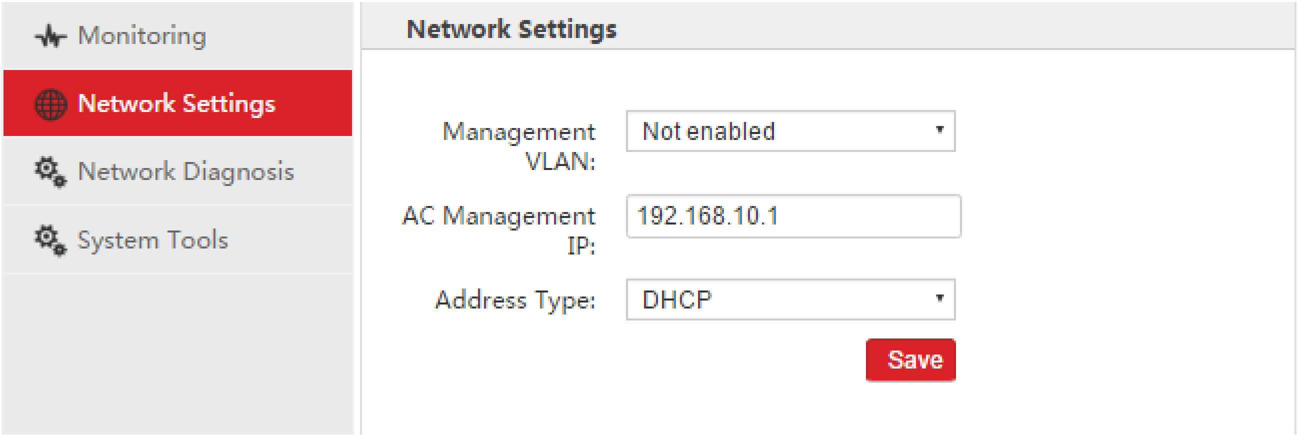
2. Log in to AP1's Web UI with the following information.

   - Address: *http://192.168.0.254:8080*
   - Username: *admin*
   - Password: *admin*

   If you fail to login, it might be caused by IP conflict, please disconnect other APs from PoE switch and retry.

3. Go to **Network Settings** and set up the following parameters.

   - AC Management IP: Enter AC's corresponding VLAN interface IP address. In this example, we enter *192.168.10.1*.
   - Address Type: Select *DHCP*.
   - Click **Save**.



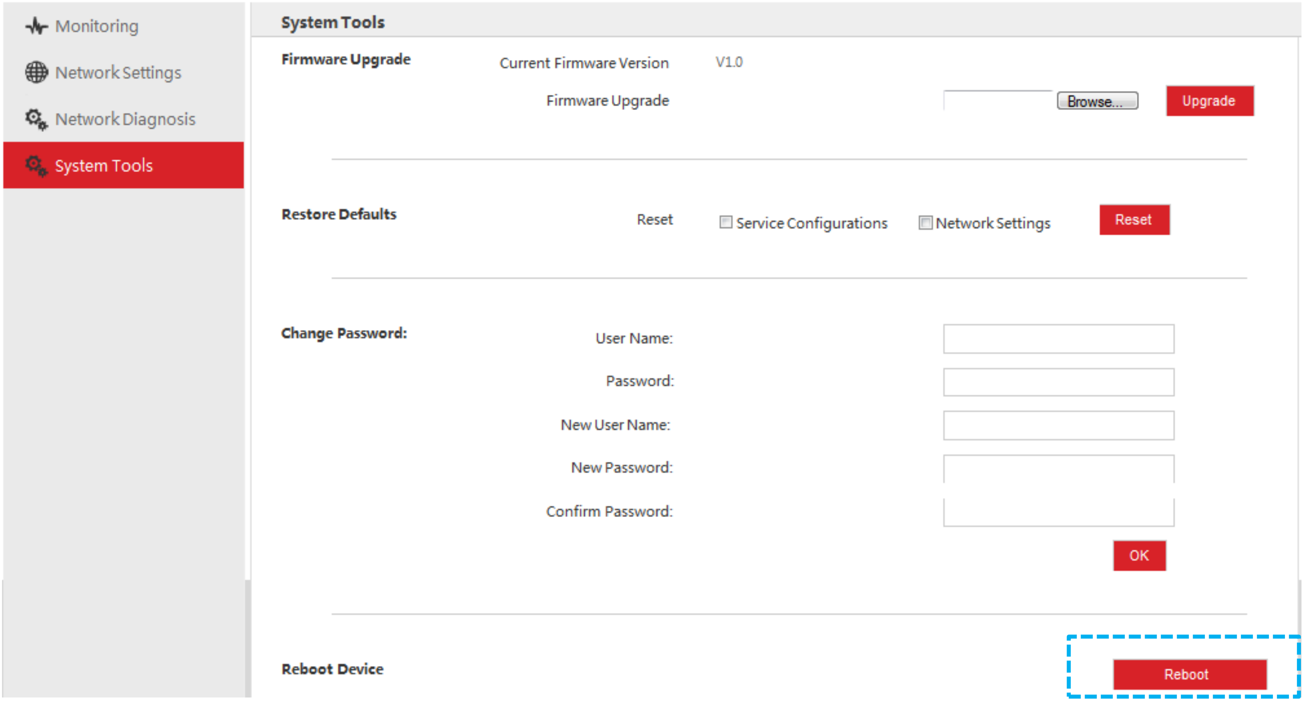
Network Settings

Management VLAN: Not enabled

AC Management IP: 192.168.10.1

Address Type: DHCP

4. Go to **System Tools** > **Reboot Device** and click **Reboot** to make above configurations take effect.



System Tools

Firmware Upgrade — Current Firmware Version V1.0

Firmware Upgrade

Restore Defaults — Reset □ Service Configurations □ Network Settings

Change Password:

User Name:

Password:

New User Name:

New Password:

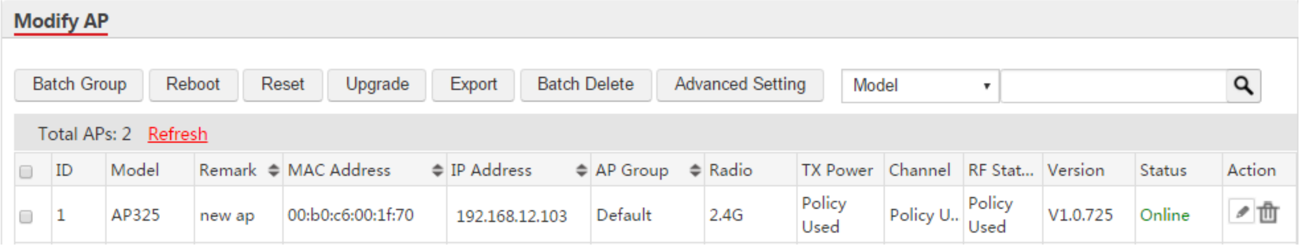
Confirm Password:

Reboot Device

5. After you finish configuring AP1, connect other APs to PoE switch if necessary.

Verify the Configuration

1. After you configure AC and AP1, log in to AC’s Web UI and go to **AP Management** > **Modify AP**. Click **Refresh** and you will see AP1 (AP325) is online and managed by AC.



Total APs: 2 Refresh

□	ID	Model	Remark	MAC Address	IP Address	AP Group	Radio	TX Power	Channel	RF Stat...	Version	Status	Action
□	1	AP325	new ap	00:b0:c6:00:1f:70	192.168.12.103	Default	2.4G	Policy Used	Policy U..	Policy Used	V1.0.725	Online	

Tip

If AP1 is not online, please wait for about 1 minute and click **Refresh** to retry.

2. After you connect all APs to PoE switch, you will see all APs will gradually be online on AC’s **AP Management** > **Modify AP** page.

3.3 Discover Cross-Internet AC

If AC and fit APs are cross Internet, you need to:

- Configure AC
- Configure Router
- Configure AP

Tip

When AC needs to manage fit APs from Internet, you may need to open the following ports to public on the AC’s gateway.

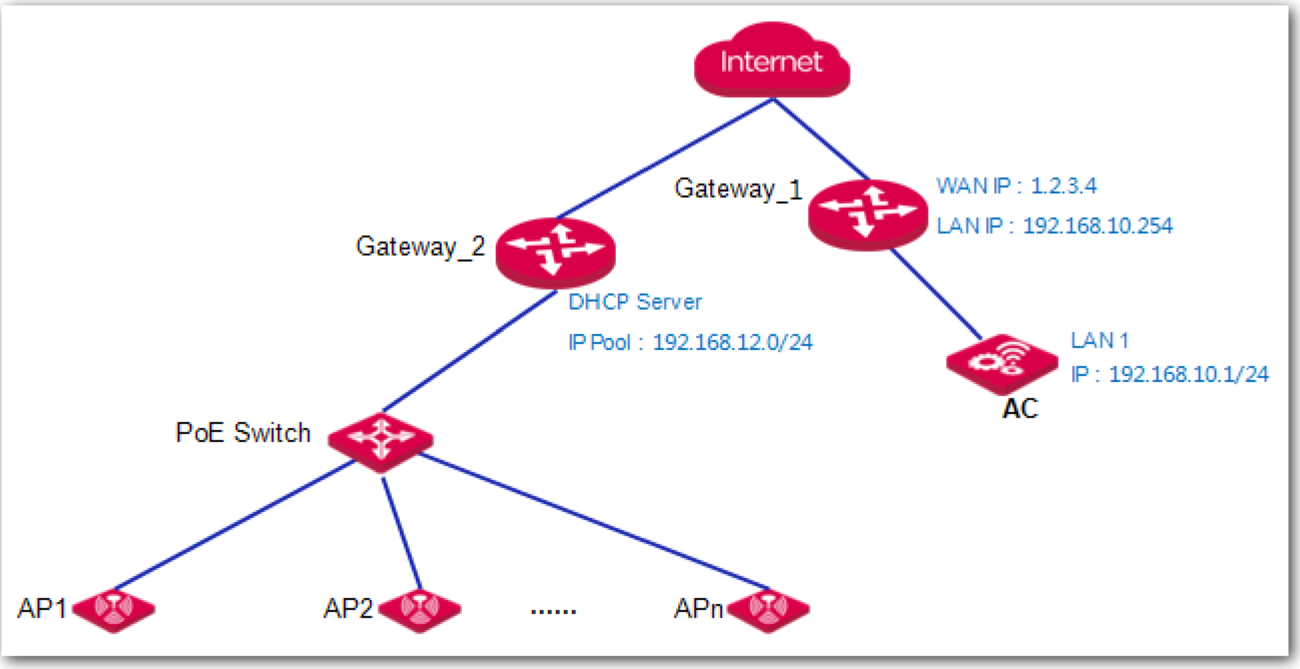
Port	Protocol	Description
12598	TCP	This port is used for fit AP to be managed by AC.
17437	TCP	This port is used for fit AP to be upgraded by AC.
14998	TCP	This port is used for fit AP to discover AC.
60000~62047	UDP	These are the total range of data tunnel ports. Actually, you might use some of them. Go to **System Tool** > **Diagnosis Tool** and select **Tunnel Interface** to get the data tunnels’ ports you are used.
443	TCP	The *https* management port. This port is used by the Administrator to log in to AC’s Web UI and manage AC.

Networking Requirement

The AC needs to manage fit APs from Internet. Assumptions are as follows.

- Gateway_1 is a DNS proxy.
- AC/fit AP system uses distributed forwarding mode.
- All fit APs obtain IP address from Gateway_2.
- Other assumptions are shown on the network topology.

Network Topology



Configuration Guide

1. Manually configure AP1 to discover AC.

2. When AP1 is managed by AC successfully, AP1 will broadcast AC's IP address to other APs.

You don't need to configure other APs.

3. Finally all APs will be managed by AC.

Tip

By default, all fit APs might have the same IP address. To ensure that you can successfully log in to AP1's Web UI, it is recommended to deploy AP1 first. After AP1 is successfully managed by AC, you can deploy other APs.

Configuration Step

Configure AC

To manage APs from Internet, you need to configure AC to make it access the Internet.

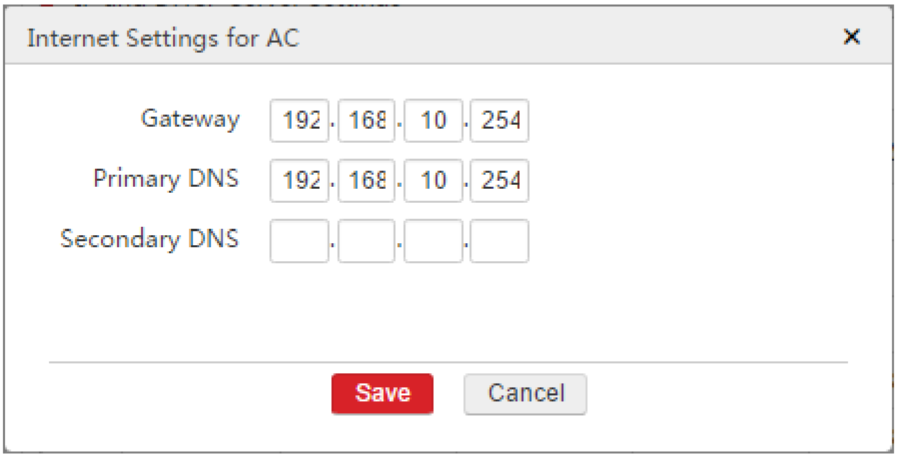
To Configure AC:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **Internet Settings for AC**.

2. Click **Add** to create an Internet setting for AC.

- Gateway: Enter *192.168.10.254* in this example.

- Primary DNS: Enter *192.168.10.254* in this example.
- Click **Save** to apply your settings.



Internet Settings for AC

Gateway: 192 . 168 . 10 . 254

Primary DNS: 192 . 168 . 10 . 254

Secondary DNS: . . .

After finishing above configuration, you can go to **System Tool** > **Diagnosis Tool** and use *Ping* tool to check whether AC is reachable to 192.168.10.254.

Configure Router

Configure *Virtual Server* function on Gateway_1 (gateway_1 is the AC's gateway). In this example, all SSIDs are in distributed forwarding mode, so the router needs to open only three ports: 12598, 17437 and 14998.

For configuration details, refer to the router's user guide.

Configure AP

Here we take AP325 as an example.

To Configure AP:

1. Restore AP1 to factory default.

   Press **RESET** button for 15 seconds and wait for about 45 seconds, the AP will be restored to factory default.

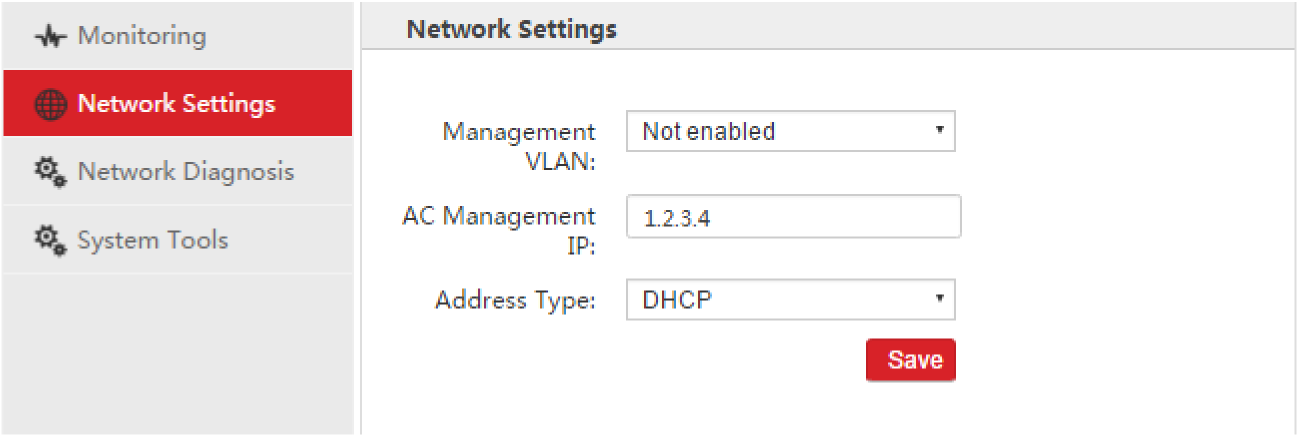
2. Log in to AP1's Web UI with the following information.

   - Address: *http://192.168.0.254:8080*
   - Username: *admin*
   - Password: *admin*

   If you fail to login, it might be caused by IP conflict, please disconnect other APs from PoE switch and retry.

3. Go to **Network Settings** and set up the following parameters.

   - AC Management IP: Enter WAN IP address of AC's gateway. In this example, we enter *1.2.3.4*.
   - Address Type: Select *DHCP*.
   - Click **Save**.



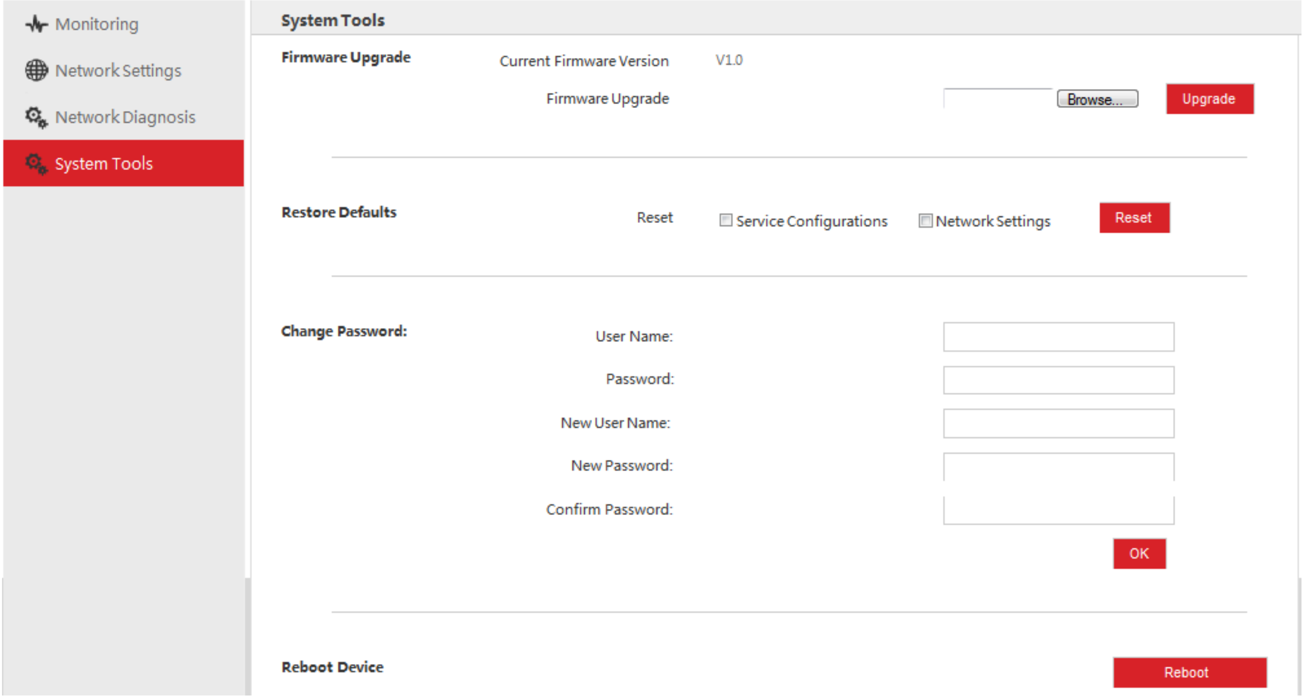
Network Settings

Management VLAN: Not enabled

AC Management IP: 1.2.3.4

Address Type: DHCP

4. Go to **System Tools** > **Reboot Device** and click **Reboot** to make above configurations take effect.



System Tools

Firmware Upgrade — Current Firmware Version: V1.0 — Firmware Upgrade

Restore Defaults — Reset: □ Service Configurations □ Network Settings

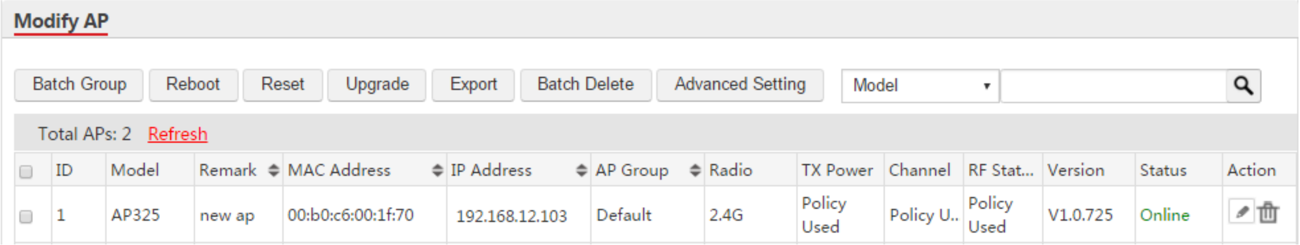
Change Password: User Name: / Password: / New User Name: / New Password: / Confirm Password:

Reboot Device

5. After you finish configuring AP1, connect other APs to PoE switch if necessary.

Verify the Configuration

1. After you configure AC and AP1, log in to AC’s Web UI and go to **AP Management** > **Modify AP**. Click **Refresh** and you will see AP1 (AP325) is online and managed by AC.



Total APs: 2

□	ID	Model	Remark	MAC Address	IP Address	AP Group	Radio	TX Power	Channel	RF Stat...	Version	Status	Action
□	1	AP325	new ap	00:b0:c6:00:1f:70	192.168.12.103	Default	2.4G	Policy Used	Policy U..	Policy Used	V1.0.725	Online	

Tip

If AP1 is not online, please wait for about 1 minute and click **Refresh** to retry.

2. After you connect all APs to PoE switch, you will see all APs will gradually be online on AC’s **AP Management** > **Modify AP** page.

Part 4 Application of AP Forwarding Mode

4.1 Overview

IP-COM AC/fit AP wireless network solution supports centralized forwarding mode, distributed forwarding mode, and mixed forwarding mode. Among them, mixed forwarding mode includes both centralized forwarding mode and distributed forwarding mode.

- If all SSIDs of the APs are set to centralized forwarding mode, the AC can manage up to 512 APs and the AC's total throughput is 8Gbps.
- If all SSIDs of the APs are set to distributed forwarding mode, the AC can manage up to 3000 APs and 50000 users.
- If some APs' SSIDs are set to centralized forwarding mode and the rest APs' SSIDs are set to distributed forwarding mode (mixed forwarding mode), the AC can manage up to 256 APs in centralized forwarding mode and up to 1500 APs in distributed forwarding mode.

  Besides, you can also configure the same AP to mixed forwarding mode, with different SSIDs having different forwarding modes.

Centralized Forwarding Mode

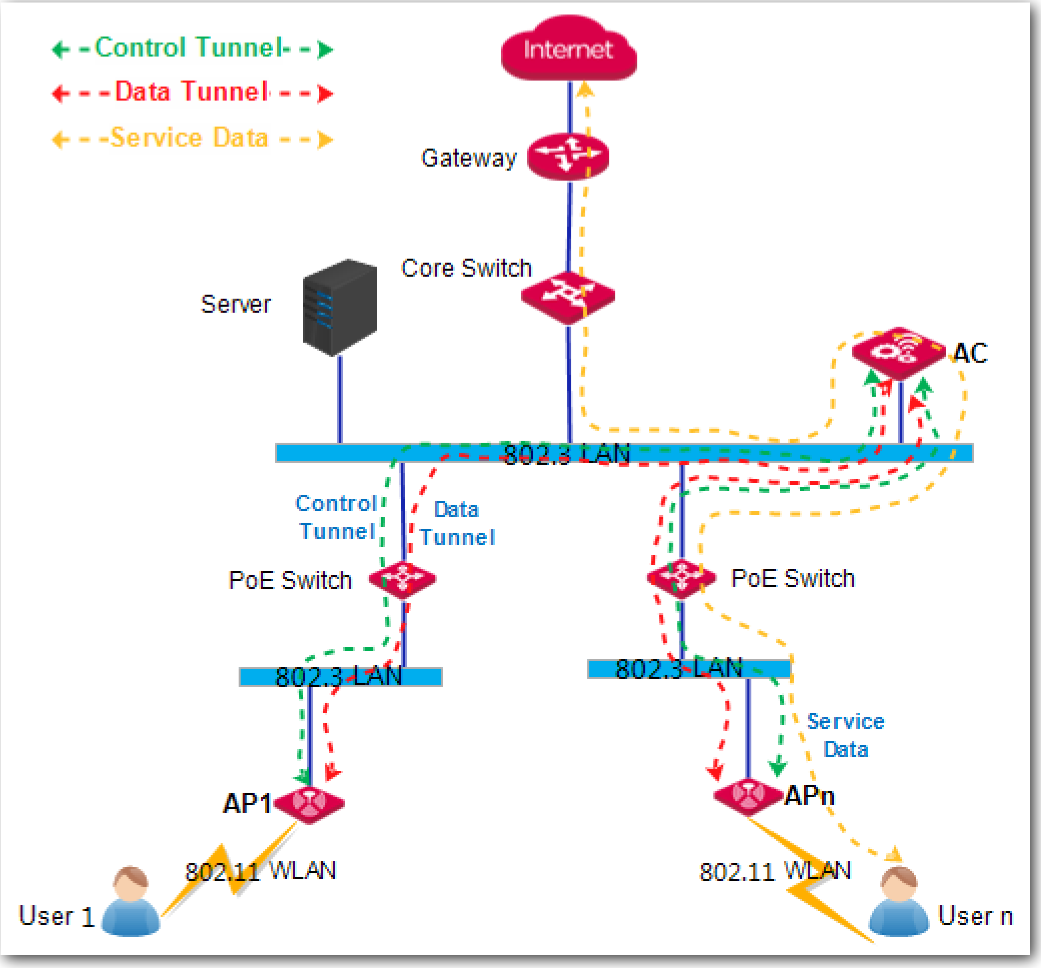
In this mode, AC and AP establish two tunnels: control tunnel and data tunnel.

In control tunnel, AC and AP communicate with each other by management packets and control packets. The AC can control and deliver configurations to AP.

In data tunnel, AC and AP forward user's service data. After a user connects to an AP's SSID, the following procedure occurs:

1. The AP converts 802.11 protocol packets to 802.3 protocol packets.
2. The AP encapsulates the 802.3 protocol packets.
3. The encapsulated packets are forwarded to the AC in the data tunnel.
4. The AC decapsulates the packets to 802.3 protocol packets.
5. The AC checks its own routing table and forwards the packets to its destination.

   (The destination may be a host or a gateway.)
6. When the AC receives response packets from the destination, the AC will encapsulate the packets and forward the packets to AP in the data tunnel.



Distributed Forwarding Mode

In this mode, AC and AP only establish one tunnel: control tunnel.

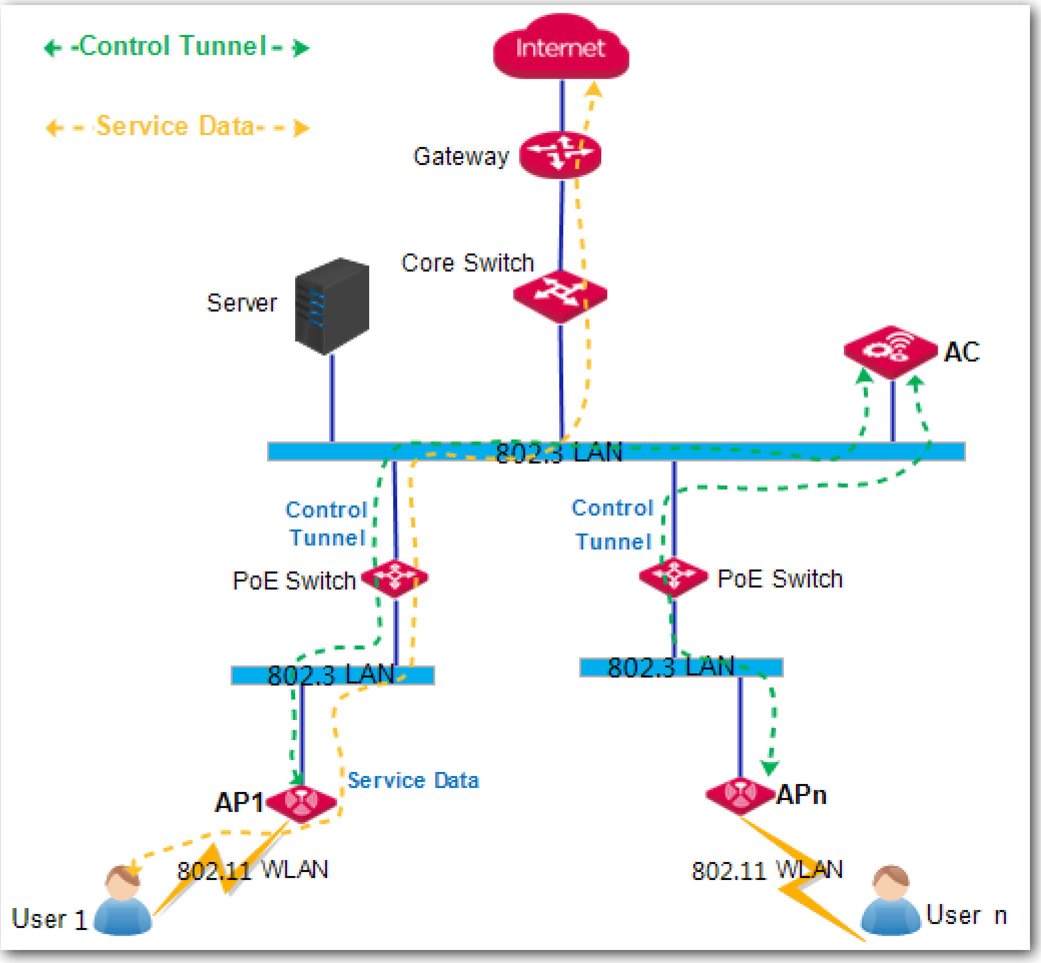
In control tunnel, AC and AP communicate with each other by management packets and control packets. The AC can control and deliver configurations to AP.

After a user connects to an AP's SSID, the following procedure occurs:

1. The AP converts 802.11 protocol packets to 802.3 protocol packets.
2. The AP checks FIB table of its own and forwards the packets to its destination.

   (The destination may be a host or a gateway.)

In distributed forwarding mode, data packets will not get through AC so that AC can manage much more APs and users, the maximum is 3000 APs and 50000 users.



Application Example

Scenario 1: ISP WLAN Network

In this scenario, the fit AP is always set to centralized forwarding mode. Because the ISP need to monitor each user's traffic usage.

Scenario 2: Enterprise Network

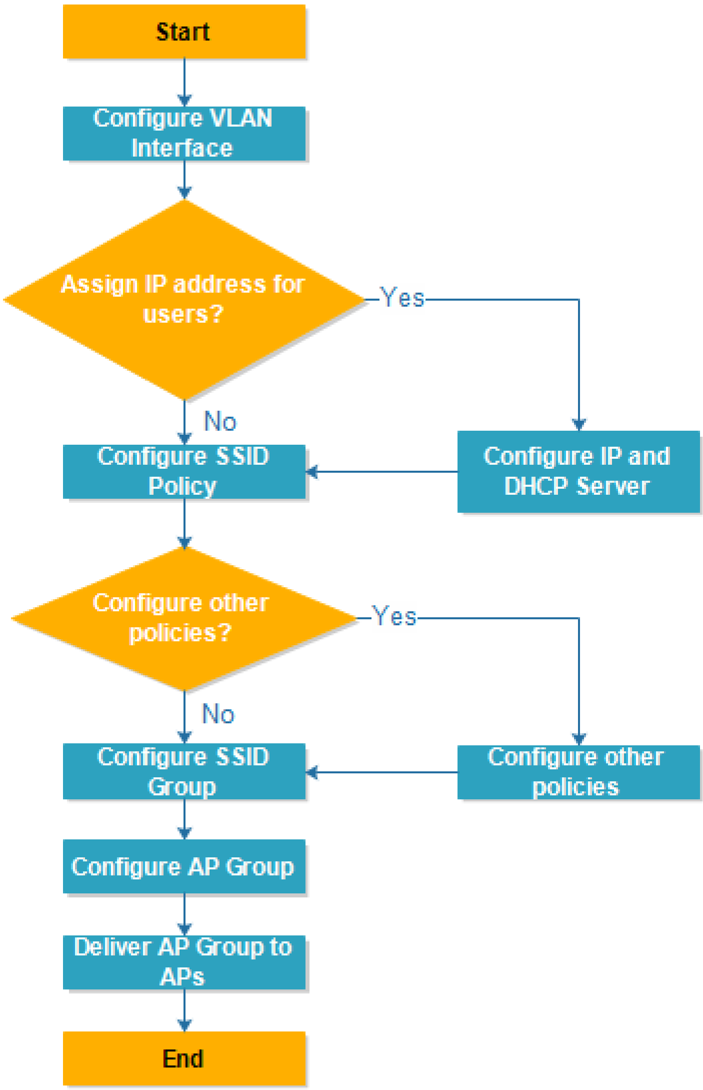
In this scenario, the fit AP is always set to distributed forwarding mode.

Scenario 3: Campus WLAN Network

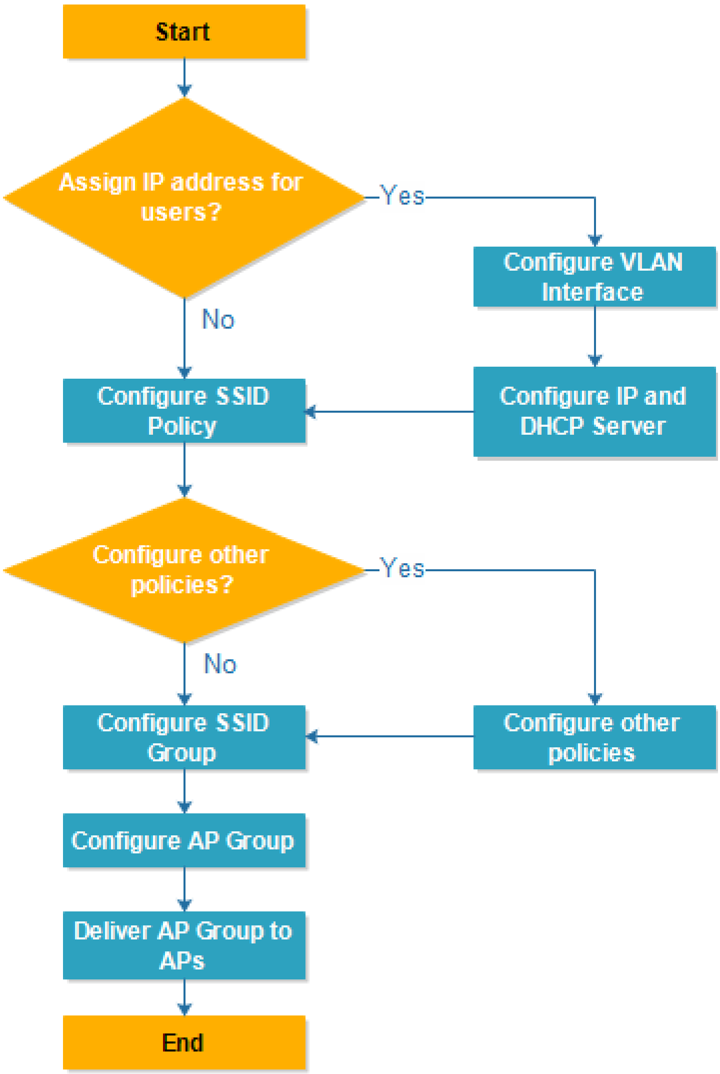
In this scenario, it is recommended to use mixed forwarding mode. Some fit APs are set to centralized forwarding mode to forward the Internet service data, and the other fit APs are set to distributed forwarding mode to forward the internal service data.

4.2 Configuration Guide

Centralized Forwarding Mode



Distributed Forwarding Mode



4.3 Application Example

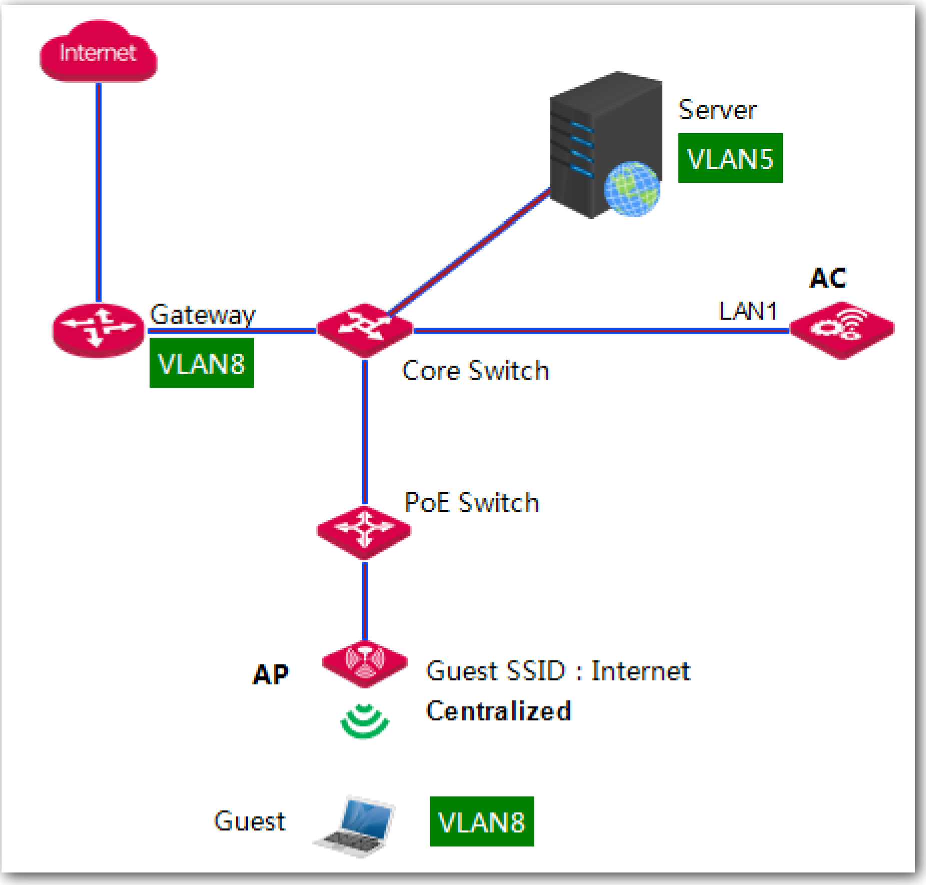
Centralized Forwarding Mode Application

Networking Requirement

An enterprise needs to establish a wireless network. For guests, the requirements are described below:

- Guests connected to the WiFi can only access the Internet.
- WiFi password is not required when the guests connect to the WiFi.
- For network's security, the enterprise needs to use AC to control guests' traffic data, so the SSID for guests should be set to *centralized forwarding mode*.

Network Topology

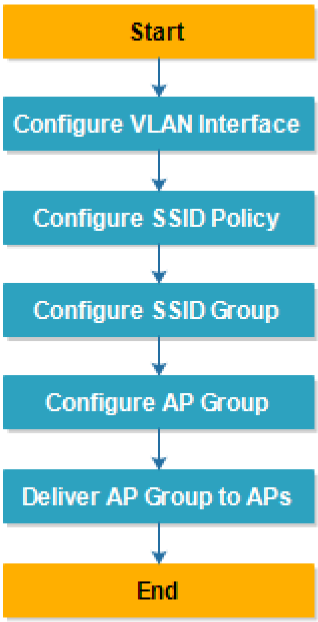


Assumption

- By default, the AP has no management VLAN and is managed by the AC.
- By default, all switches have enabled IEEE 802.1Q VLAN feature and all ports are in *VLAN 1*.
- In this example, the SSID for guests is *Internet*.
- In this example, the gateway is in *VLAN 8* and provides a DHCP server, which can assign IP addresses for guests.

Configuration Step

Configure AC



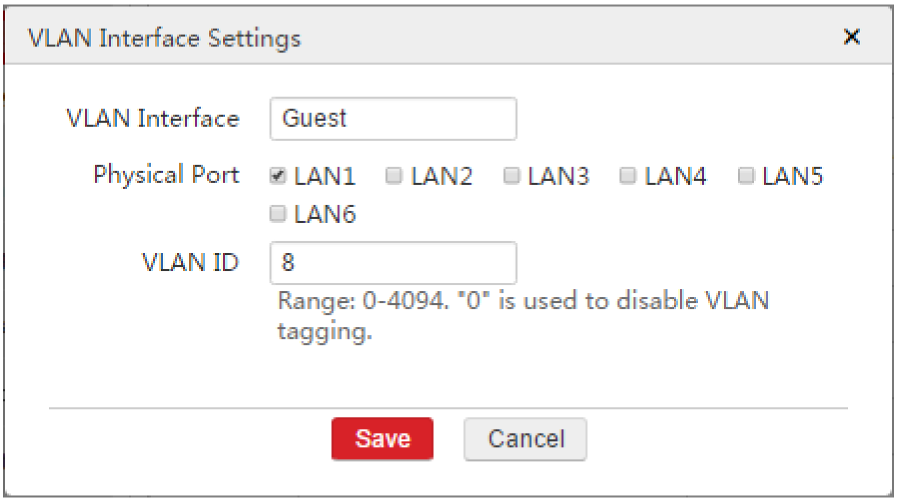
Step 1: Configure VLAN Interface

To configure VLAN interface:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings**.

2. Click **Add** to create a VLAN interface. This VLAN interface is used by centralized forwarding mode.

- VLAN Interface: Enter a name for the VLAN Interface. Here we enter *Guest*.
- Physical Port: Select one or more physical ports belonging to the VLAN Interface. Here we select *LAN1*.
- VLAN ID: Enter a VLAN ID for the VLAN interface. Here we enter *8*.
- Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Guest

Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 8

Range: 0-4094. "0" is used to disable VLAN tagging.

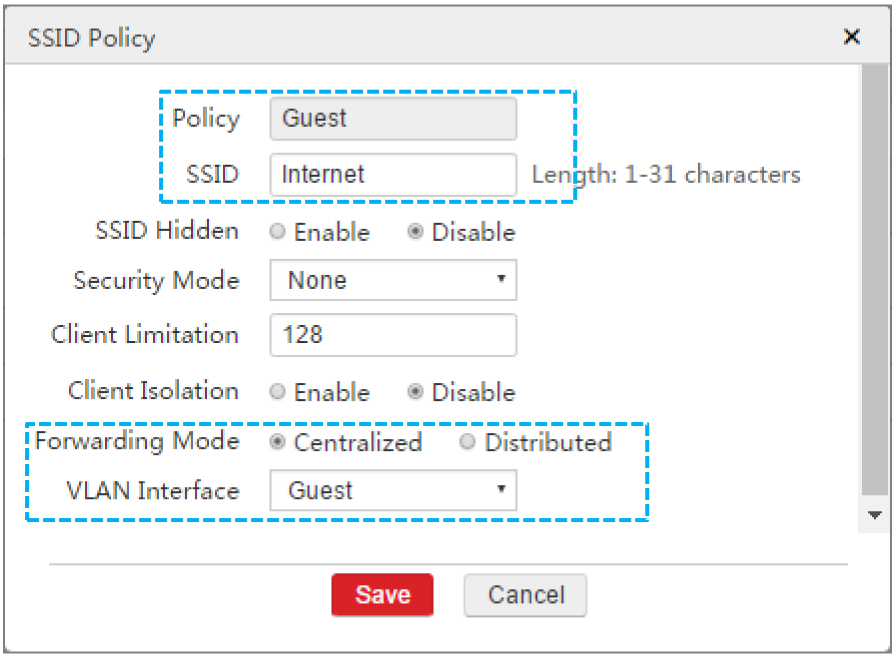
Step 2: Configure SSID Policy

To Configure SSID Policy:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.

2. Click **Add** to create a SSID policy.

- Policy: Enter a policy name for the SSID policy. Here we enter *Guest*.
- SSID: Enter a SSID name for guests. Here we enter *Internet*.
- Forwarding Mode: Select *Centralized*.
- VLAN Interface: Select *Guest*.
- Click **Save** to apply your settings.



SSID Policy

Policy	Guest	
SSID	Internet	Length: 1-31 characters
SSID Hidden	○ Enable ● Disable	
Security Mode	None	
Client Limitation	128	
Client Isolation	○ Enable ● Disable	
Forwarding Mode	● Centralized ○ Distributed	
VLAN Interface	Guest	

Step 3: Configure SSID Group

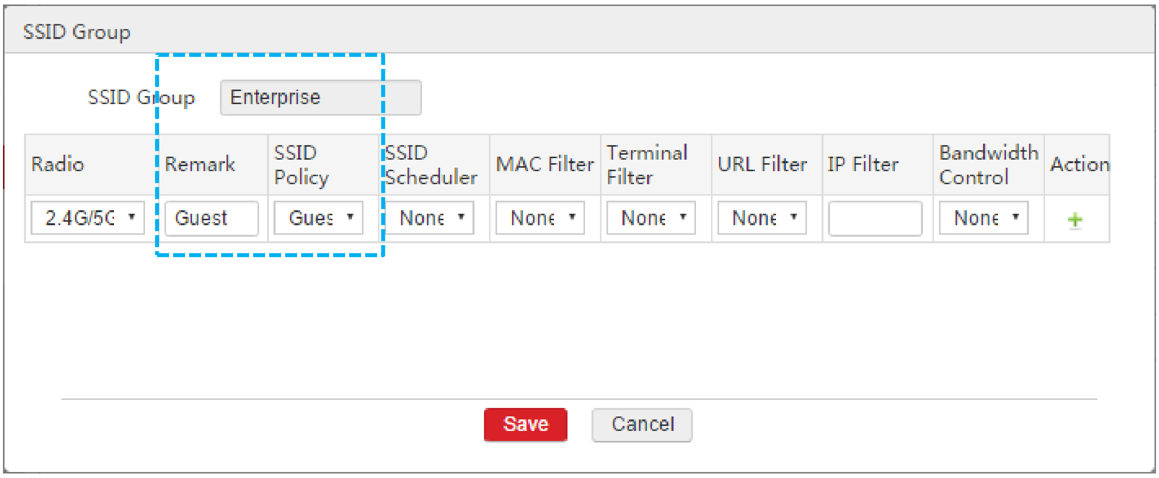
For better management of SSID-related policies (such as SSID policy, SSID Scheduler, MAC Filter, and so on), add all the SSID-related policies into a SSID group. In this way, you don't need to deliver policies one by one. Besides, you can add several SSID policies into one SSID group and all the added SSID policies will be delivered to APs.

To Configure SSID group:

1. Log in to AC's Web UI and go to **AP Management** > **SSID Group**.

2. Click **Add** to create a SSID group. The SSID group is used to contain the above SSID policy and will be used by AP group.

- SSID Group: Enter a SSID group name. Here we enter *Enterprise*.
- Remark: Enter a remark for the SSID policy. Here we enter *Guest*.
- SSID Policy: Select a SSID Policy. Here we select *Guest*.
- Click **Save** to apply your settings.



SSID Group: Enterprise

Radio	Remark	SSID Policy	SSID Scheduler	MAC Filter	Terminal Filter	URL Filter	IP Filter	Bandwidth Control	Action
2.4G/5G	Guest	Gues	None	None	None	None		None	+

Step 4: Configure AP Group

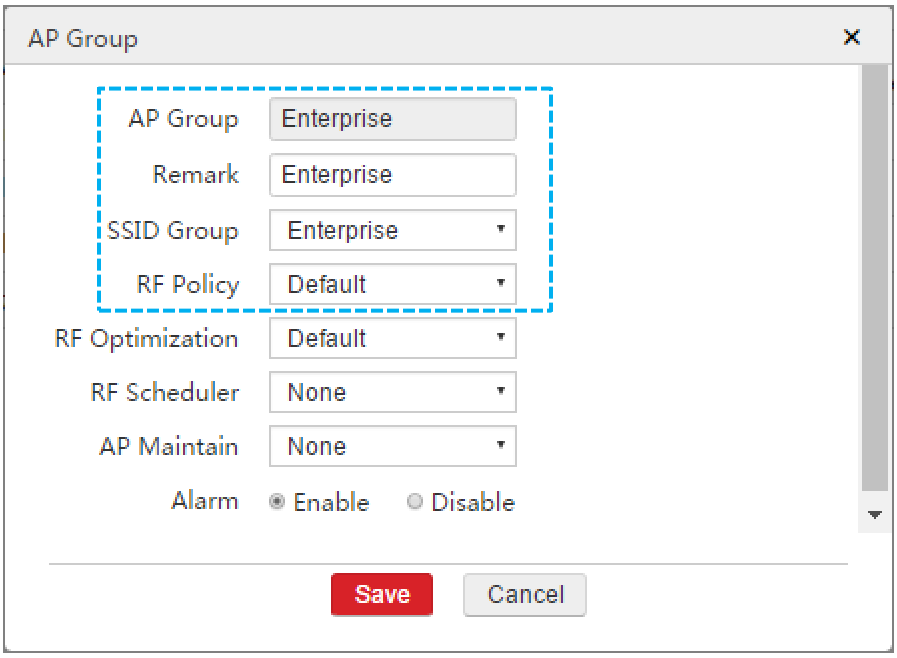
For better management of all policies (including SSID group, RF policy, RF Optimization, AP Maintain, and so on), add the policies into an AP group. In this way, you can deliver an AP group to APs instead of delivering policies one by one.

To Configure AP group:

1. Log in to AC’s Web UI and go to **AP Management** > **AP Group**.

2. Click **Add** to create an AP group. This AP group is used to contain above SSID group and a RF policy, and will be delivered to APs.

- AP Group: Enter a name for the AP group. Here we enter *Enterprise*.
- Remark: Enter a remark for the AP group. Here we enter *Enterprise*.
- SSID Group: Select a SSID group. Here we select *Enterprise*.
- RF Policy: Select a RF policy. Here we take the default RF policy as an example.
- Click **Save** to apply your settings.



AP Group: Enterprise

Remark: Enterprise

SSID Group: Enterprise

RF Policy: Default

RF Optimization: Default

RF Scheduler: None

AP Maintain: None

Alarm: ● Enable ○ Disable

Step 5: Deliver AP Group to APs

To Deliver AP Group to APs:

1. Log in to AC’s Web UI and go to **AP Management** > **Modify AP**.

2. Select all APs.

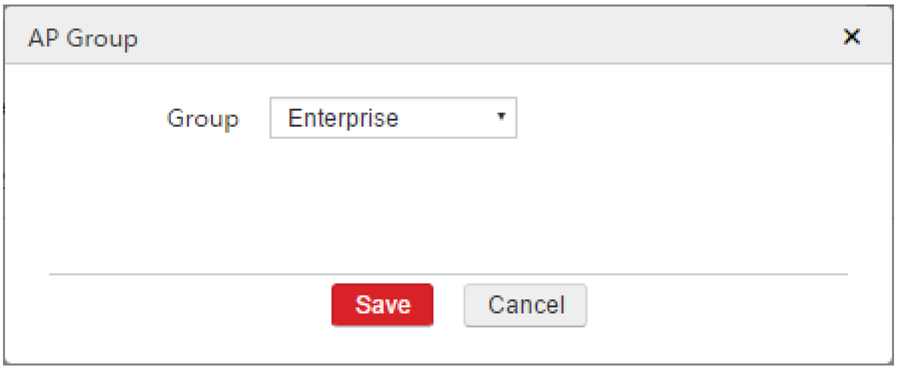
3. Click **Batch Group**.

4. In the pop-up window, select *Enterprise*.

5. Click **Save**.

Then APs will get all configurations in the AP group.

The selected APs may reboot to make the settings take effect. Please wait for 1~2 minutes, then the APs will get online automatically and you can see that the new AP group has been delivered to these APs.



Group: Enterprise

Configure Core Switch

Set up the switch’s VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
PoE Switch	1	Access	1
AC	1,8	Trunk	1
Gateway	8	Access	8

Please keep other ports’ VLAN value default. For configuration details, refer to the switch’s user guide.

Configure PoE Switch

No configuration is required for PoE switch. Because in this example, we use centralized forwarding mode, the AP will encapsulate user packets so that intermediate devices don’t need to deal with the VLAN data.

Verify the Configuration

After guests connect to the SSID *Internet* successfully, they can surf the Internet but can’t access the enterprise’s server.

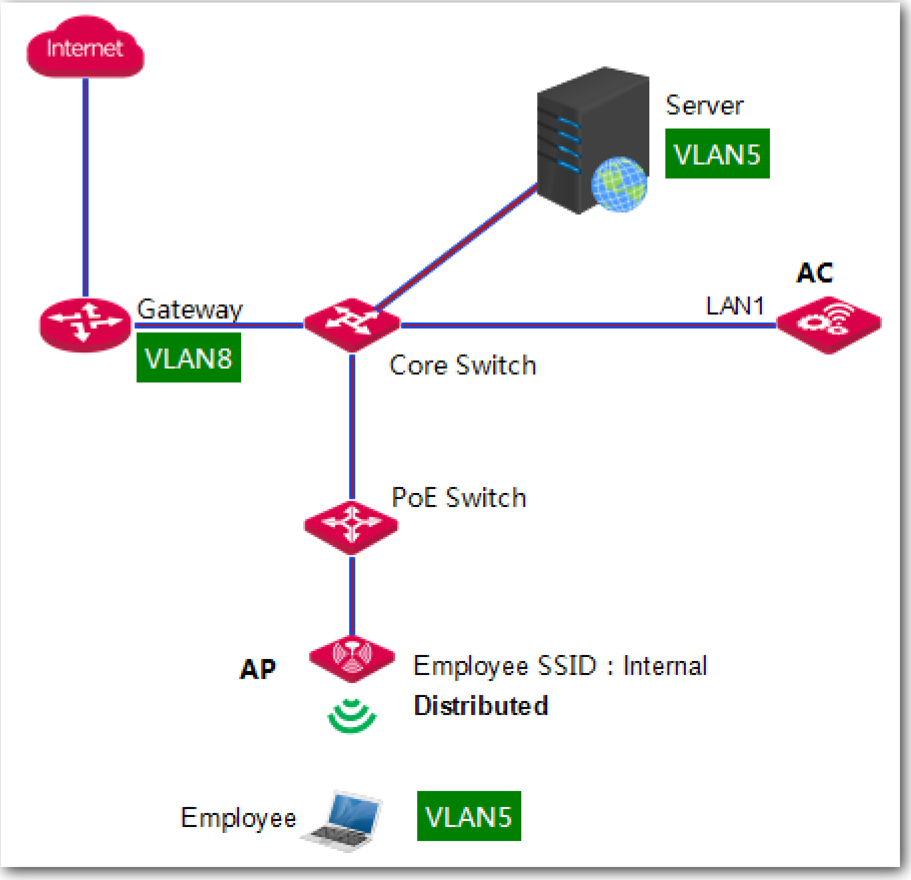
Distributed Forwarding Mode Application

Networking Requirement

An enterprise needs to establish a wireless network. For employees, the requirements are described below:

- Employees can only access the enterprise's server.
- The wireless network is encrypted with WPA2-PSK/AES security mode.
- To save network bandwidth, the SSID for employees is set to *distributed forwarding mode*.

Network Topology

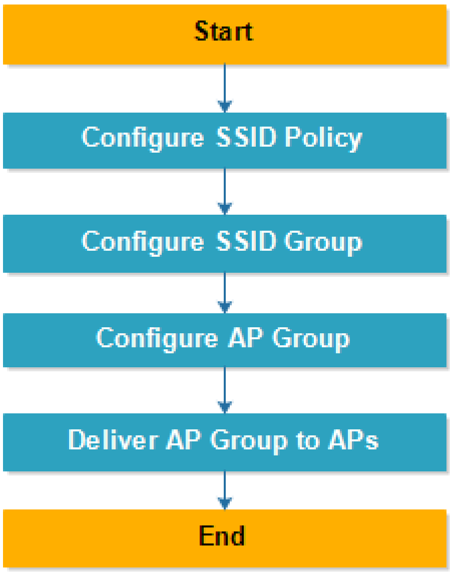


Assumption

- By default, the AP has no management VLAN and is managed by the AC.
- By default, all switches have enabled IEEE 802.1Q VLAN feature and all ports are in VLAN 1.
- In this example, the SSID for employees is *Internal*.
- In this example, the server is in *VLAN 5* and provides a DHCP server, which can assign IP address for employees.

Configuration Step

Configure AC



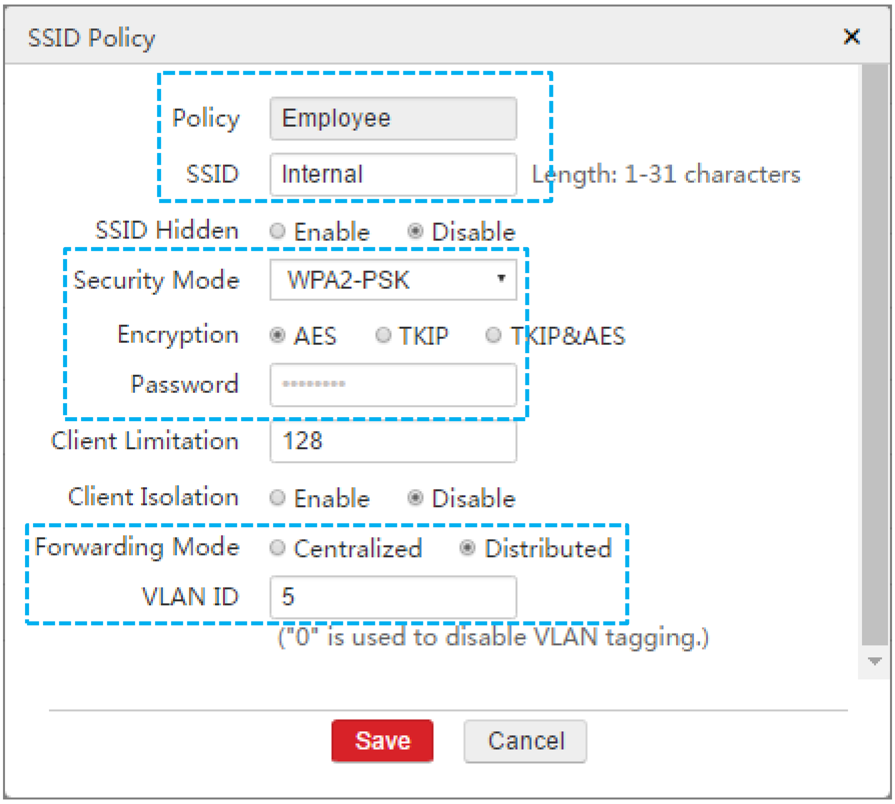
Step 1: Configure SSID Policy

To Configure SSID Policy:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.

2. Click **Add** to create a SSID policy.

- Policy: Enter a policy name for the SSID policy. Here we enter *Employee*.
- SSID: Enter a SSID name for employees. Here we enter *Internal*.
- Security Mode: Select *WPA2-PSK*.
- Encryption: Select *AES*.
- Password: Enter a password, such as *87654321*.
- Forwarding Mode: Select *Distributed*.
- VLAN ID: Enter *5*.
- Click **Save** to apply your settings.



SSID Policy

Policy: Employee

SSID: Internal — Length: 1-31 characters

SSID Hidden: ○ Enable ● Disable

Security Mode: WPA2-PSK

Encryption: ● AES ○ TKIP ○ TKIP&AES

Password: •••••••••

Client Limitation: 128

Client Isolation: ○ Enable ● Disable

Forwarding Mode: ○ Centralized ● Distributed

VLAN ID: 5

("0" is used to disable VLAN tagging.)

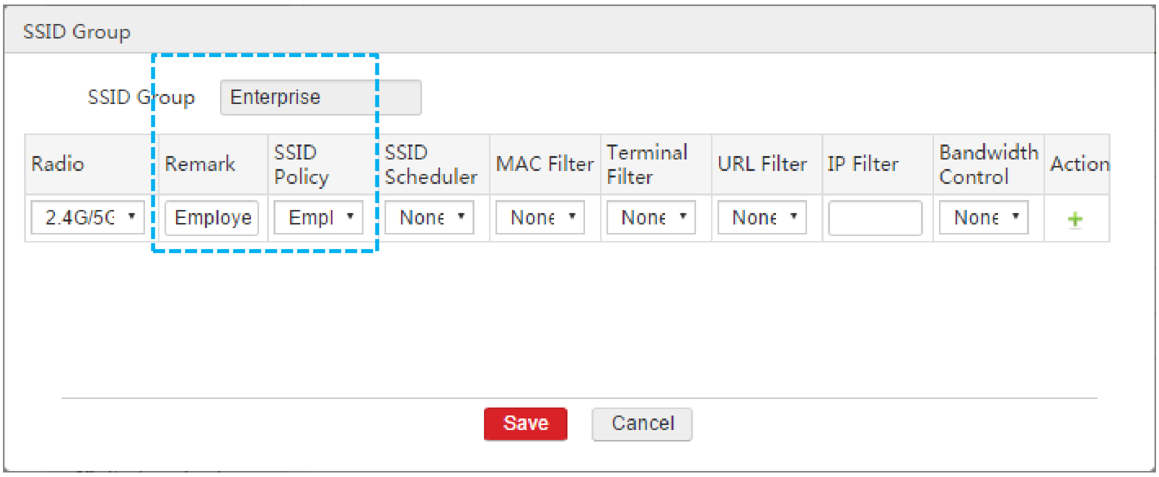
Step 2: Configure SSID Group

For better management of SSID-related policies (such as SSID policy, SSID Scheduler, MAC Filter, and so on), add all the SSID-related policies into a SSID group. In this way, you don't need to deliver policies one by one. Besides, you can add several SSID policies into one SSID group and all the added SSID policies will be delivered to APs.

To Configure SSID group:

1. Log in to AC's Web UI and go to **AP Management** > **SSID Group**.
2. Click **Add** to create a SSID group. The SSID group is used to contain the above SSID policy and will be used by AP group.

- SSID Group: Enter a SSID group name. Here we enter *Enterprise*.
- Remark: Enter a remark for the SSID policy. Here we enter *Employee*.
- SSID Policy: Select a SSID Policy. Here we select *Employee*.
- Click **Save** to apply your settings.



SSID Group

SSID Group: Enterprise

Radio	Remark	SSID Policy	SSID Scheduler	MAC Filter	Terminal Filter	URL Filter	IP Filter	Bandwidth Control	Action
2.4G/5G	Employe	Empl	None	None	None	None		None	+

Step 3: Configure AP Group

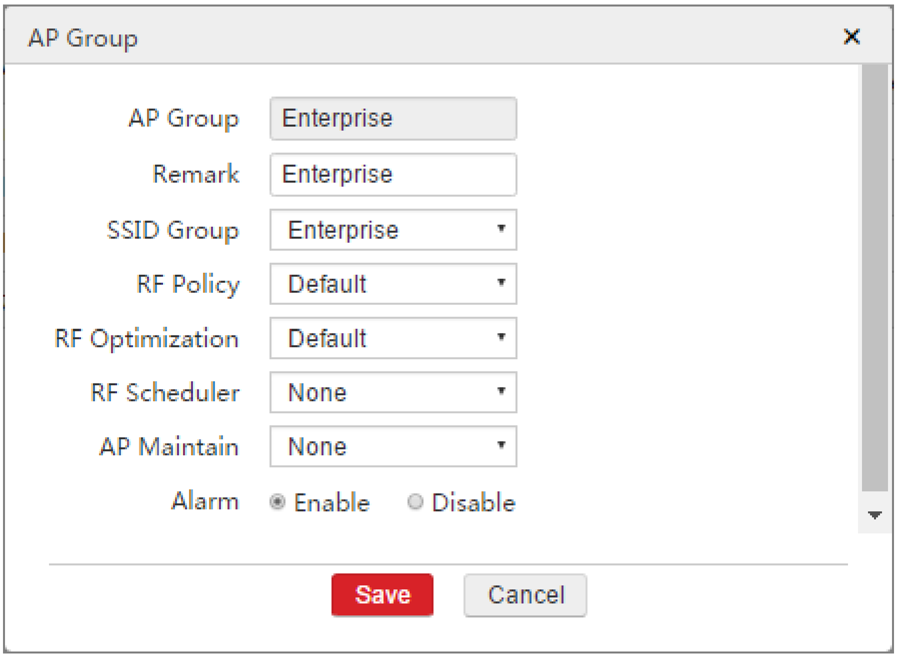
For better management of all policies (including SSID group, RF policy, RF Optimization, AP Maintain, and so on), add the policies into an AP group. In this way, you can deliver an AP group to APs instead of delivering policies one by one.

To Configure AP group:

1. Log in to AC's Web UI and go to **AP Management** > **AP Group**.

2. Click **Add** to create an AP group. This AP group is used to contain above SSID group and a RF policy, and will be delivered to APs.

- AP Group: Enter a name for the AP group. Here we enter *Enterprise*.
- Remark: Enter a remark for the AP group. Here we enter Enterprise.
- SSID Group: Select a SSID group. Here we select *Enterprise*.
- RF Policy: Select a RF policy. Here we take the default RF policy as an example.
- Click **Save** to apply your settings.



AP Group

AP Group: Enterprise

Remark: Enterprise

SSID Group: Enterprise

RF Policy: Default

RF Optimization: Default

RF Scheduler: None

AP Maintain: None

Alarm: ● Enable ○ Disable

Step 4: Deliver AP Group to APs

To Deliver AP Group to APs:

1. Log in to AC's Web UI and go to **AP Management** > **Modify AP**.

2. Select all APs.

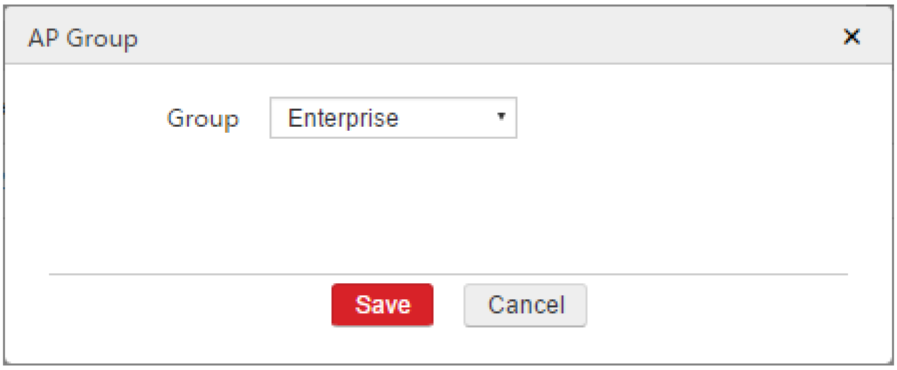
3. Click **Batch Group**.

4. In the pop-up window, select *Enterprise*.

5. Click **Save**.

Then APs will get all configurations in the AP group.

The selected APs may reboot to make the settings take effect. Please wait for 1~2 minutes, then the APs will get online automatically and you can see that the new AP group has been delivered to these APs.


AP Group

Group: Enterprise

Configure Core Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
PoE Switch	1,5	Trunk	1
AC	1	Access	1
Server	5	Access	5

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Configure PoE Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
Core Switch	1,5	Trunk	1
AP	1,5	Trunk	1

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Verify the Configuration

After employees connect to the SSID *Internal* successfully, they can access the server but can't surf the Internet.

Mixed Forwarding Mode Application 1

Networking Requirement

An enterprise needs to establish a wireless network.

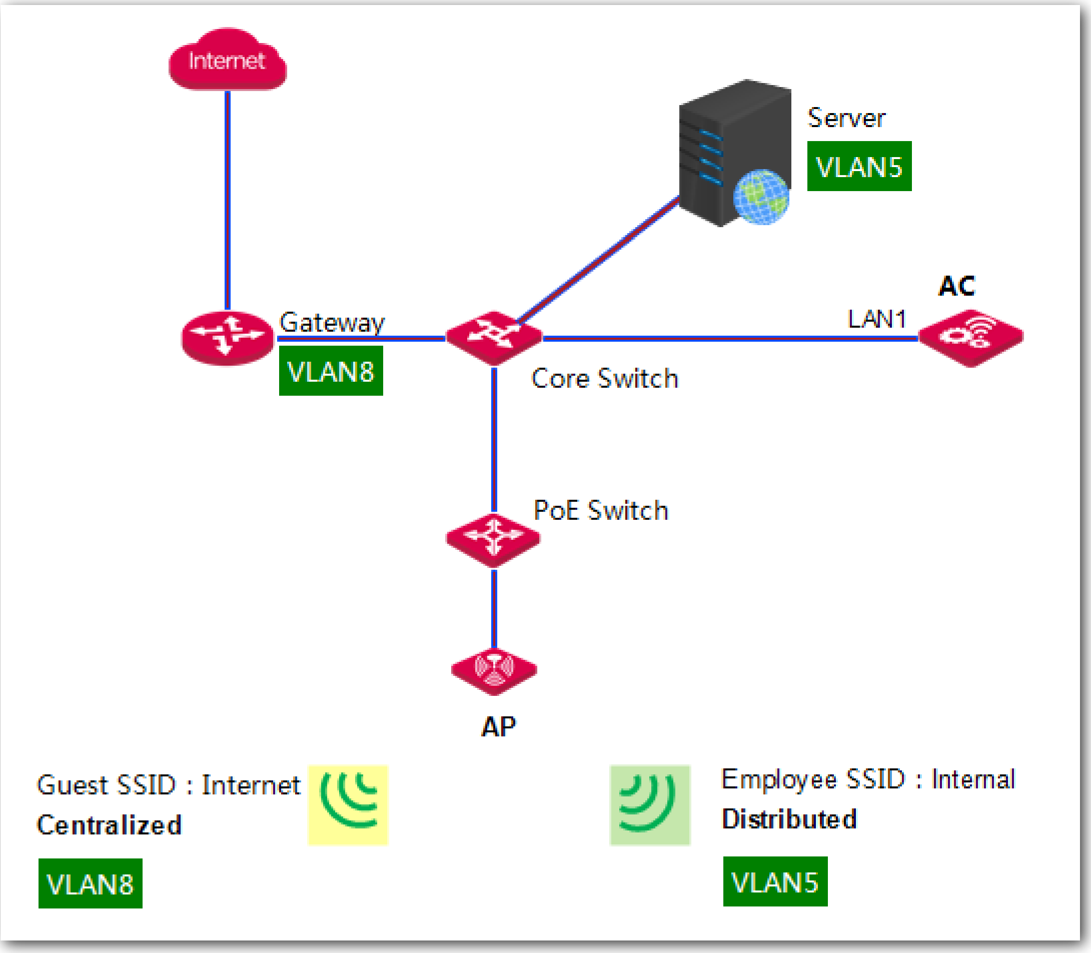
For guests, the requirements are described below:

- Guests connected to the WiFi can only access the Internet.
- WiFi password is not required when the guests connect to the WiFi.
- For network's security, the enterprise needs to use AC to control guests' traffic data, so the SSID for guests should be set to centralized forwarding mode.

For employees, the requirements are described below:

- Employees can only access the enterprise's server.
- The wireless network is encrypted with WPA2-PSK/AES security mode.
- To save network bandwidth, the SSID for employees is set to distributed forwarding mode.

Network Topology

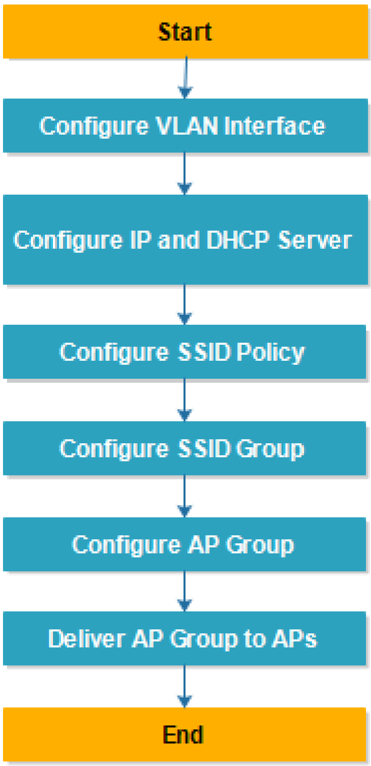


Assumption

- The AP works at 2.4G band. By default, the AP has no management VLAN and is managed by the AC.
- By default, all switches have enabled IEEE 802.1Q VLAN feature and all ports are in VLAN 1.In this example, the SSID for guests is Internet.
- In this example, the gateway is in *VLAN 8* and provides a DHCP server, which can assign IP addresses for guests.
- In this example, the server is in *VLAN 5* and is a DNS proxy.
- In this example, employee’s IP address is assigned by AC.
- In this example, the SSID for guests is Internet.
- In this example, the SSID for employees is Internal.

Configuration Step

Configure AC



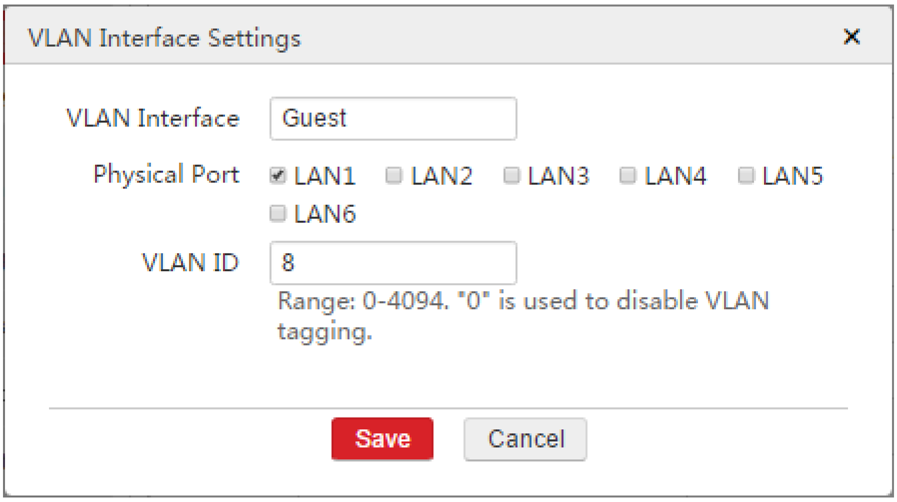
Step 1: Configure VLAN Interface

To configure VLAN interface:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings**.

2. Click **Add** to create a VLAN interface. This VLAN interface is used by centralized forwarding mode.

- VLAN Interface: Enter a name for the VLAN Interface. Here we enter *Guest*.
- Physical Port: Select one or more physical ports belonging to the VLAN Interface. Here we select *LAN1.*
- VLAN ID: Enter a VLAN ID for the VLAN interface. Here we enter *8.*
- Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Guest

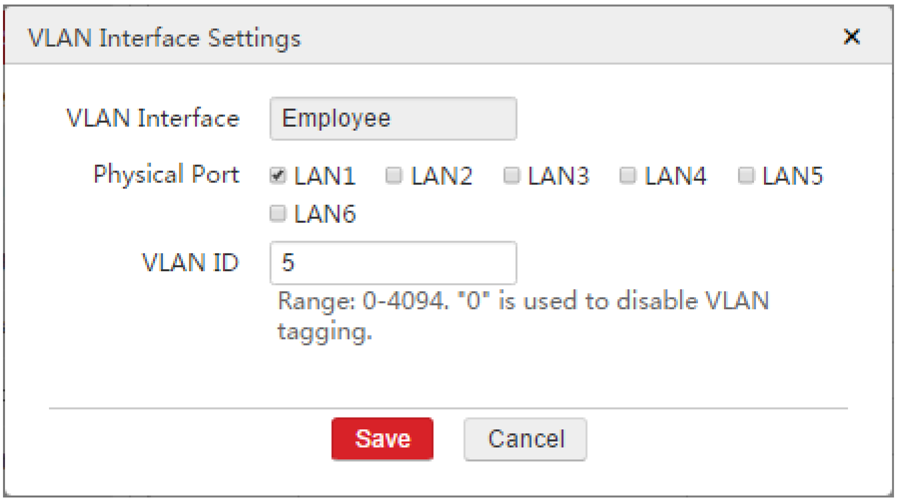
Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 8

Range: 0-4094. "0" is used to disable VLAN tagging.

3. Click **Add** to create another VLAN interface. This VLAN interface is used to create a DHCP server for employees.

- VLAN Interface: Enter the name for the VLAN Interface. Here we enter *Employee*.
- Physical Port: Select one or more physical ports belonging to the VLAN Interface. Here we select *LAN1*.
- VLAN ID: Enter a VLAN ID for the VLAN interface. Here we enter *5*.
- Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Employee

Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 5

Range: 0-4094. "0" is used to disable VLAN tagging.

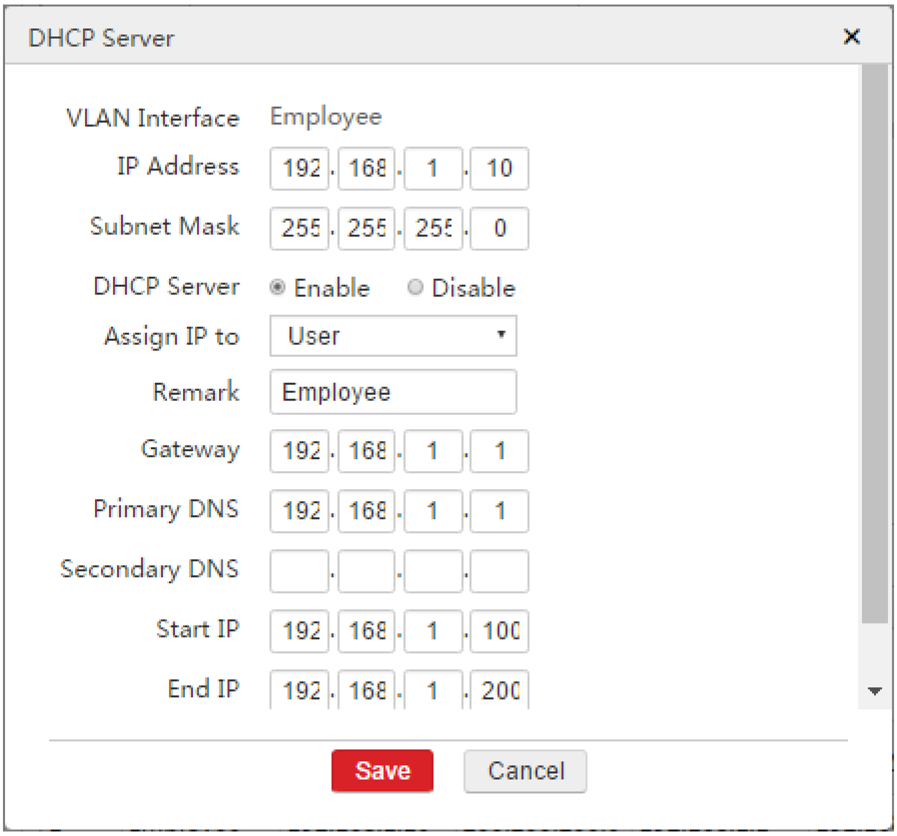
Step 2: Configure IP and DHCP Server Settings

In this example, employees obtain IP addresses from AC so that we need to create a DHCP server for employees.

To Configure IP and DHCP Server Settings:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **IP and DHCP Server Settings**.
2. Click **Add** to create an IP address and a DHCP server.
   - VLAN Interface: Select *Employee*.
   - IP Address: Enter an IP address on the same IP segment with server's IP address. Here we enter *192.168.1.10*.
   - Subnet Mask: Enter the server's subnet mask. Here we enter *255.255.255.0*.
   - DHCP Server: Select *Enable*.
   - Assign IP to: Select *User*.
   - Remark: Enter a remark for this DHCP server. Here we enter *Employee*.
   - Gateway: Enter a gateway which will be assigned to employees. Here we enter the server's IP address: *192.168.1.1*.
   - Primary DNS: Enter a DNS address which will be assigned to employees. Here we enter the server's IP address: *192.168.1.1*.
   - Start IP: Enter a start IP of the DHCP server, such as 192.168.1.100.
   - End IP: Enter an end IP of the DHCP server, such as 192.168.1.200.

     Make sure that the amount of IP is more than the amount of employee.
   - Click **Save** to apply your settings.



DHCP Server

VLAN Interface Employee
IP Address 192 . 168 . 1 . 10
Subnet Mask 255 . 255 . 255 . 0
DHCP Server ● Enable ○ Disable
Assign IP to User
Remark Employee
Gateway 192 . 168 . 1 . 1
Primary DNS 192 . 168 . 1 . 1
Secondary DNS . . .
Start IP 192 . 168 . 1 . 100
End IP 192 . 168 . 1 . 200

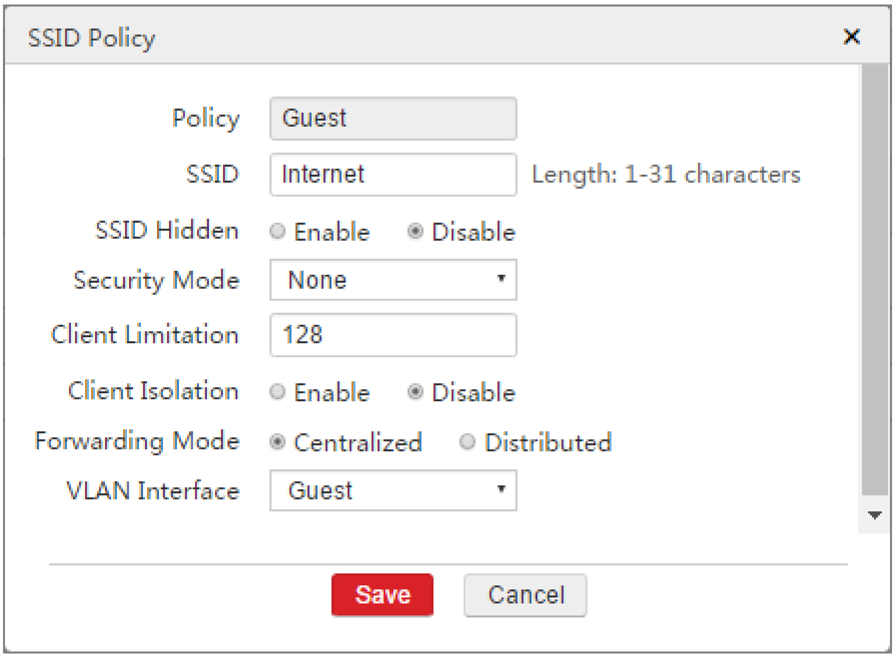
Step 3: Configure SSID Policy

To Configure SSID Policy:

1. Log in to AC's Web UI and go to **Policy Management > SSID Policy**.

2. Click **Add** to create a SSID policy.

- Policy: Enter a policy name for the SSID policy. Here we enter *Guest*.
- SSID: Enter a SSID name for guests. Here *we* enter Internet.
- Forwarding Mode: Select *Centralized*.
- VLAN Interface: Select *Guest*.
- Click **Save** to apply your settings.

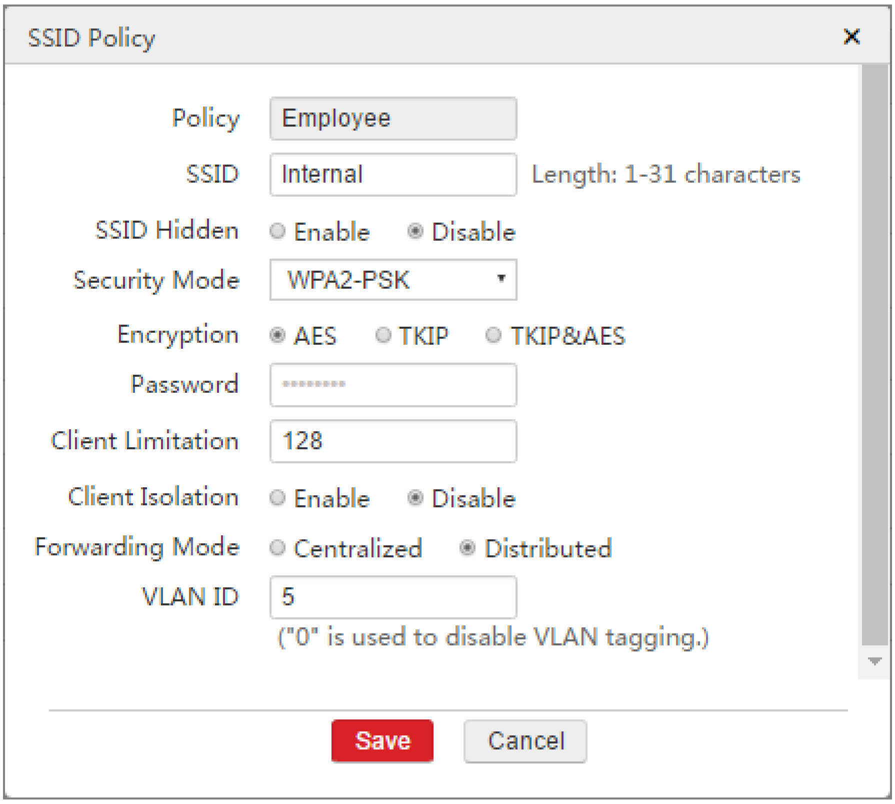


SSID Policy

Policy	Guest
SSID	Internet Length: 1-31 characters
SSID Hidden	○ Enable ● Disable
Security Mode	None
Client Limitation	128
Client Isolation	○ Enable ● Disable
Forwarding Mode	● Centralized ○ Distributed
VLAN Interface	Guest

3. Click **Add** to create another SSID policy.

- Policy: Enter a policy name for the SSID policy. Here we enter *Employee*.
- SSID: Enter a SSID name for employees. Here we enter Internal.
- Security Mode*:* Select *WPA2-PSK.*
- Encryption: Select AES.
- Password: Enter a password, such as *87654321.*
- Forwarding Mode: *Select* Distributed.
- VLAN ID: Enter 5.
- Click **Save** to apply your settings.



SSID Policy

Policy: Employee

SSID: Internal Length: 1-31 characters

SSID Hidden: ○ Enable ● Disable

Security Mode: WPA2-PSK

Encryption: ● AES ○ TKIP ○ TKIP&AES

Password: ••••••••

Client Limitation: 128

Client Isolation: ○ Enable ● Disable

Forwarding Mode: ○ Centralized ● Distributed

VLAN ID: 5 ("0" is used to disable VLAN tagging.)

Step 4: Configure SSID Group

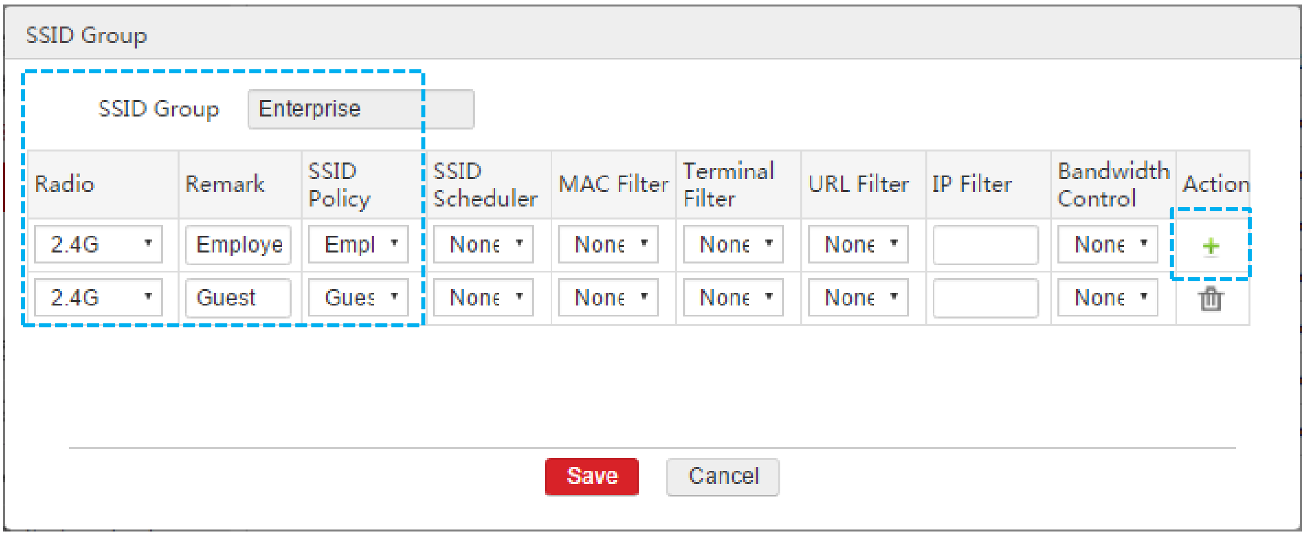
For better management of SSID-related policies (such as SSID policy, SSID Scheduler, MAC Filter, and so on), add all the SSID-related policies into a SSID group. In this way, you don’t need to deliver policies one by one. Besides, you can add several SSID policies into one SSID group and all the added SSID policies will be delivered to APs.

To Configure SSID group:

1. Log in to AC’s Web UI and go to **AP Management > SSID Group**.

2. Click **Add** to create a SSID group. The SSID group is used to contain the above SSID policy and will be used by AP group.

- SSID Group: Enter a SSID group name. Here we enter *Enterprise*.
- Add the SSID policy *Guest* to this SSID group.
  - Radio: Select a radio band. Here we select *2.4G*.
  - Remark: Enter a remark for the SSID policy of *Guest*. Here we enter *Guest*.
  - SSID Policy: Select *Guest*.
- Click ➕ to add the other SSID policy.
  - Radio: Select *2.4G*.
  - Remark: Enter a remark for the SSID policy of *Employee*. Here we enter *Employee*.
  - SSID Policy: Select *Employee*.
- Click **Save** to apply your settings.



SSID Group

SSID Group: Enterprise

Radio	Remark	SSID Policy	SSID Scheduler	MAC Filter	Terminal Filter	URL Filter	IP Filter	Bandwidth Control	Action
2.4G	Employe	Empl	None	None	None	None		None	+
2.4G	Guest	Gues	None	None	None	None		None	🗑

Step 5: Configure AP Group

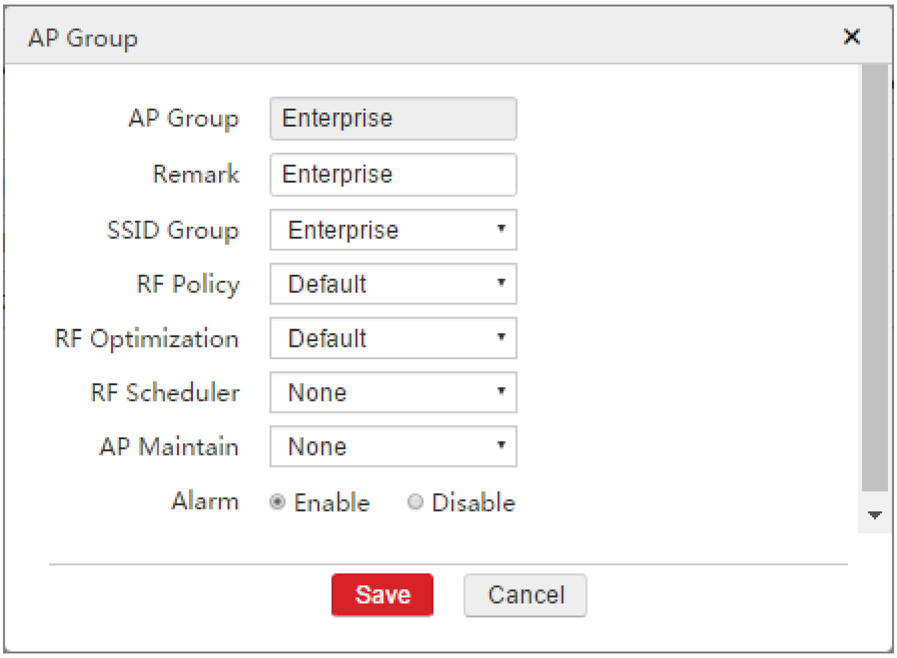
For better management of all policies (including SSID group, RF policy, RF Optimization, AP Maintain, and so on), add the policies into an AP group. In this way, you can deliver an AP group to APs instead of delivering policies one by one.

To Configure AP group:

1. Log in to AC's Web UI and go to **AP Management > AP Group**.

2. Click **Add** to create an AP group. This AP group is used to contain above SSID group and a RF policy, and will be delivered to APs.

   - AP Group: Enter a name for the AP group. Here we enter *Enterprise*.
   - Remark: Enter a remark for the AP group. Here we enter Enterprise.
   - SSID Group: Select a SSID group. Here we select *Enterprise*.
   - RF Policy: Select a RF policy. Here we take the default *RF* policy as an example.
   - Click **Save** to apply your settings.



AP Group

AP Group: Enterprise

Remark: Enterprise

SSID Group: Enterprise

RF Policy: Default

RF Optimization: Default

RF Scheduler: None

AP Maintain: None

Alarm: ● Enable ○ Disable

Step 6: Deliver AP Group to APs

To Deliver AP Group to APs:

1. Log in to AC's Web UI and go to **AP Management > Modify AP**.

2. Select all APs.

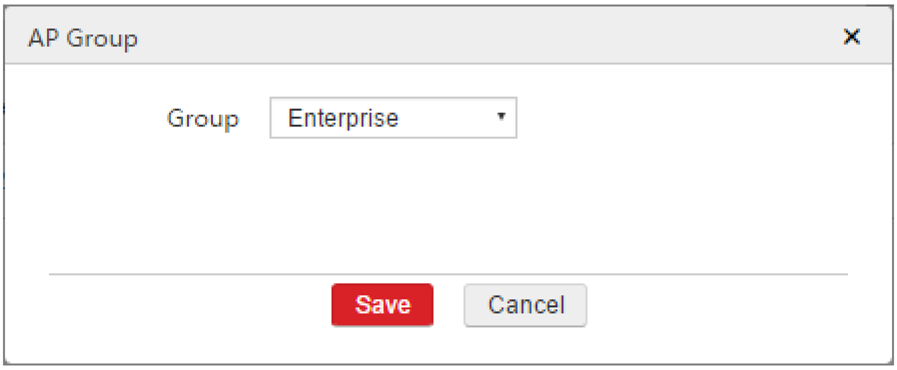
3. Click **Batch Group**.

4. In the pop-up window, select *Enterprise*.

5. Click **Save**.

Then APs will *get* all configurations in the AP group.

The selected APs may reboot to make the settings take effect. Please wait for 1~2 minutes, then the APs will get online automatically and you can see that the new AP group has been delivered to these APs.



Group: Enterprise

Configure Core Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
PoE Switch	1,5	Trunk	1
AC	1,5,8	Trunk	1
Server	5	Access	5
Gateway	8	Access	8

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Configure PoE Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
Core Switch	1,5	Trunk	1
AP	1,5	Trunk	1

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Verify the Configuration

After guests connect to the SSID *Internet* successfully, they can surf the Internet but can’t access the enterprise’s server.

After employees connect to the SSID *Internal* successfully, they can access the server but can’t surf the Internet.

Mixed Forwarding Mode Application 2

A hotel needs to establish a wireless network. The hotel has purchased the following devices:

- A gateway
- A core switch and several PoE switches
- A server
- An IP-COM AC3000
- Several IP-COM fit APs

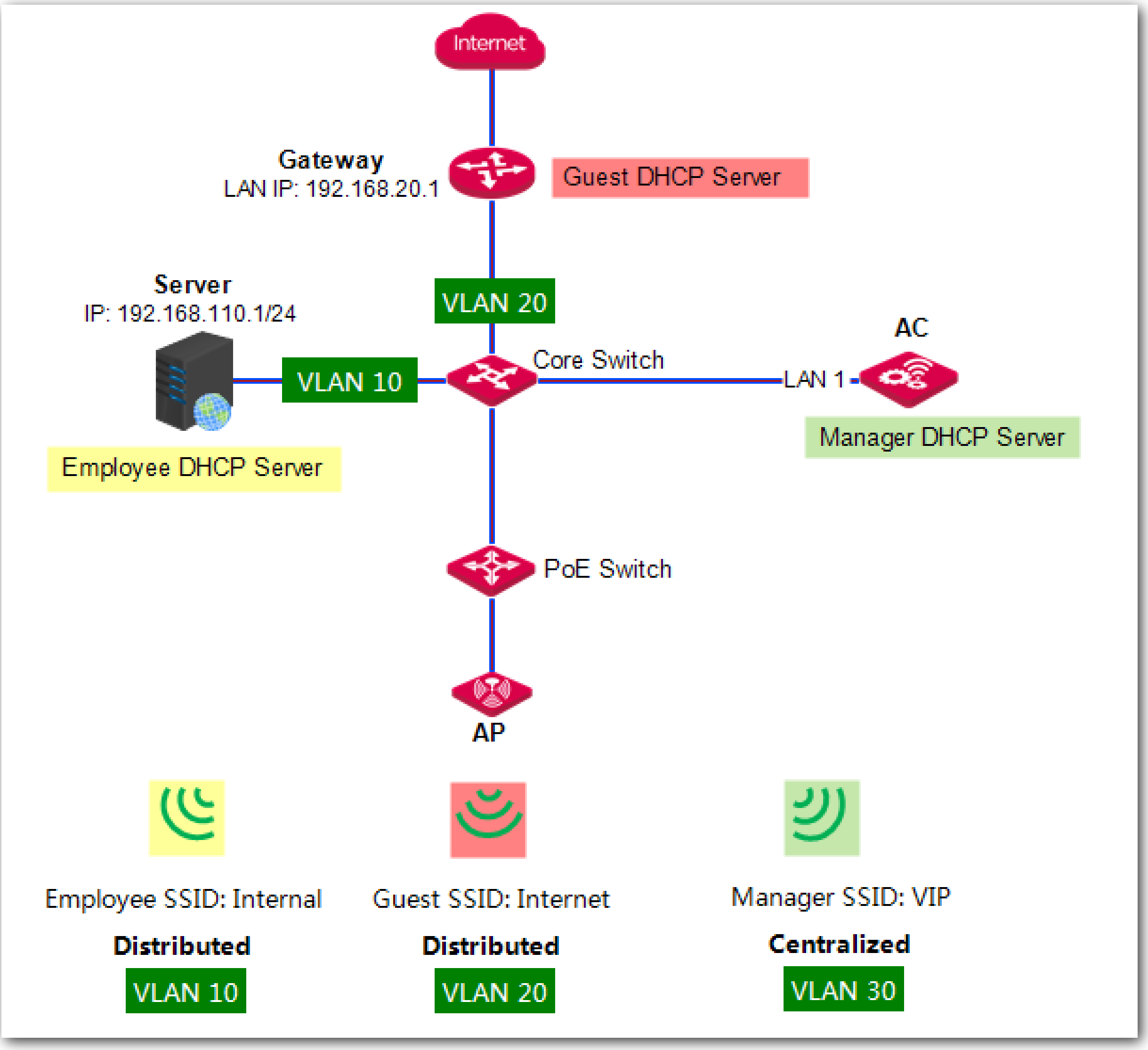
Among them, the gateway and server don't support IEEE 802.1Q VLAN but both have a build-in DHCP server which can assign IP address for user. The PoE switch supports IEEE 802.1Q VLAN.

Networking Requirement

There are three types of user: Employee, Guest and Manager. Any two types of user can't communicate with each other. The requirements are described below:

- Employees only have permission to access internal server. The SSID for employees is *Internal* and use WPA2-PSK/AES security encryption.
- Guests can only surf the Internet. The SSID for guests is *Internet* and use no security encryption.
- Managers have both the permission to access internal server and to surf the Internet. The SSID for managers is *VIP* and use WPA2-PSK/AES security encryption.

Network Topology



Assumption

- By default, the connected ports of all switches are in VLAN 1 and the port mode is access.
- The DNS server address used to surf the Internet is *8.8.8.8*.
- APs obtain IP address on IP setment *192.168.80.0/24* from AC.
- Managers obtain IP address on IP setment *192.168.30.0/24* from AC.
- Other assumptions are shown on the network topology.

Configuration Step

Configure AC

Step 1: Configure VLAN Interface

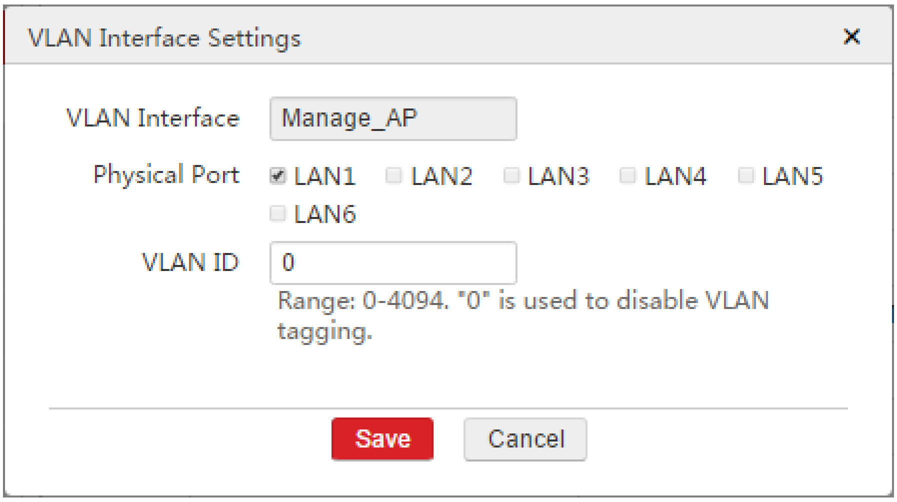
In order to manage AP, communicate with internal server, communicate with gateway, and be used for centralized forwarding by the manager’s SSID, you need to add four VLAN interfaces respectively.

To Configure VLAN Interface:

1. Log in to AC’s Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings**.
2. Click **Add** to create a VLAN interface. This VLAN interface is used to manage AP.
   - VLAN Interface: Enter *Manage_AP.*
   - Physical Port: Select *LAN1*.

   If LAN1 port has been in VLAN 0, it is recommended to remove LAN1 port from this VLAN interface first.

   - VLAN ID: Enter *0*.
   - Click **Save** to apply your settings.



VLAN Interface Settings

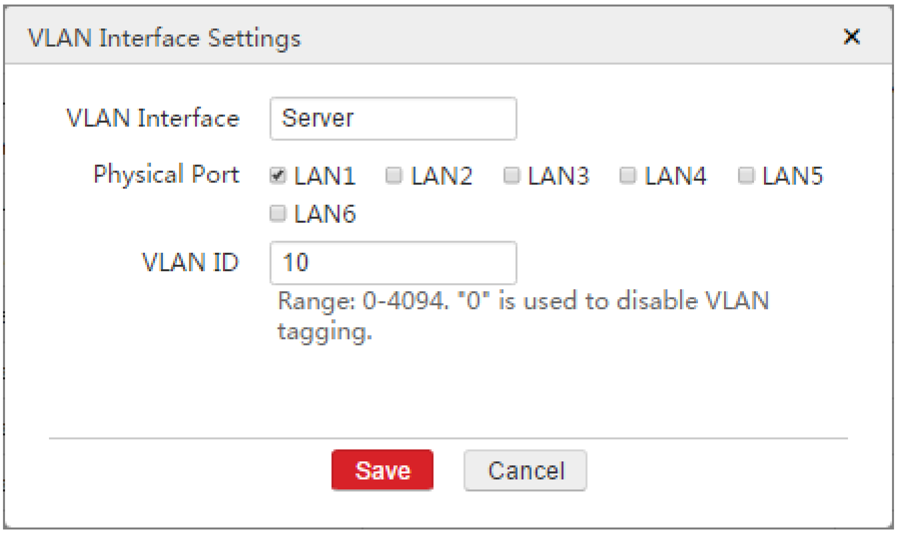
VLAN Interface: Manage_AP

Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 0

Range: 0-4094. "0" is used to disable VLAN tagging.

3. Click **Add** to create a VLAN interface. This VLAN interface is used to communicate with the internal server.
   - VLAN Interface: Enter *Server*.
   - Physical Port: Select *LAN1*.
   - VLAN ID: Enter *10*.
   - Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Server

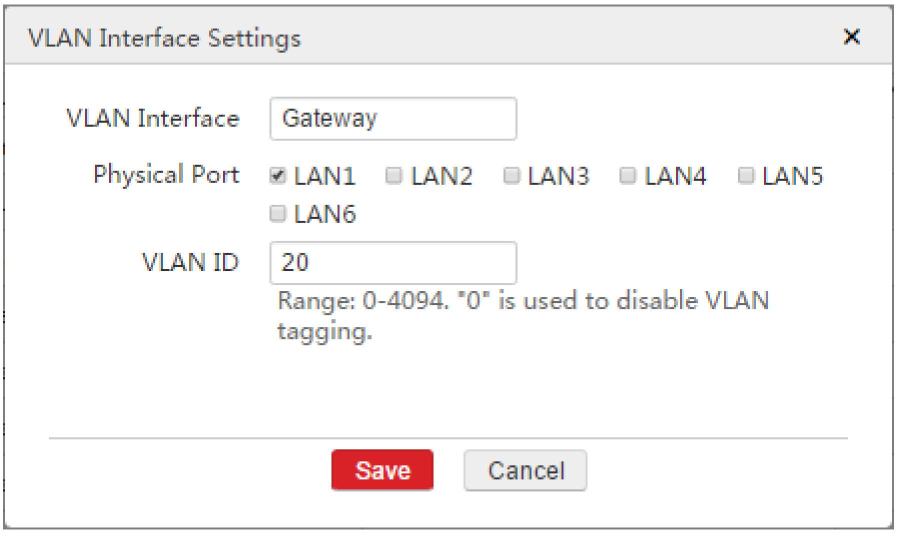
Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 10

Range: 0-4094. "0" is used to disable VLAN tagging.

4. Click **Add** to create a VLAN interface. This VLAN interface is used to communicate with the gateway.

- VLAN Interface: Enter *Gateway*.
- Physical Port: Select *LAN1*.
- VLAN ID: Enter *20*.
- Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Gateway

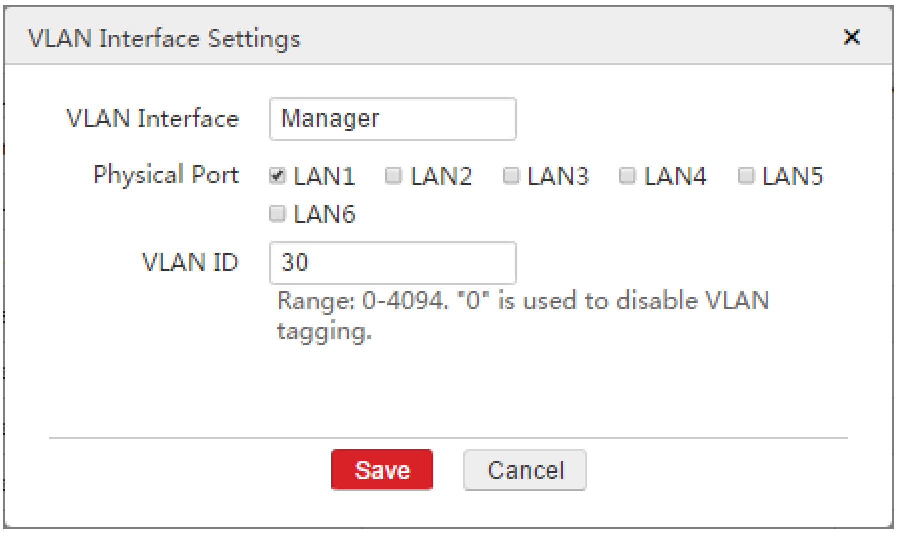
Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 20

Range: 0-4094. "0" is used to disable VLAN tagging.

5. Click **Add** to create a VLAN interface. This VLAN interface is used for centralized forwarding by the manager’s SSID.

- VLAN Interface: Enter *Manager*.
- Physical Port: Select *LAN1*.
- VLAN ID: Enter *30*.
- Click **Save** to apply your settings.



VLAN Interface Settings

VLAN Interface: Manager

Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6

VLAN ID: 30

Range: 0-4094. "0" is used to disable VLAN tagging.

Step 2: Configure IP and DHCP Server Settings

In this example, we need to create four IP and DHCP server settings:

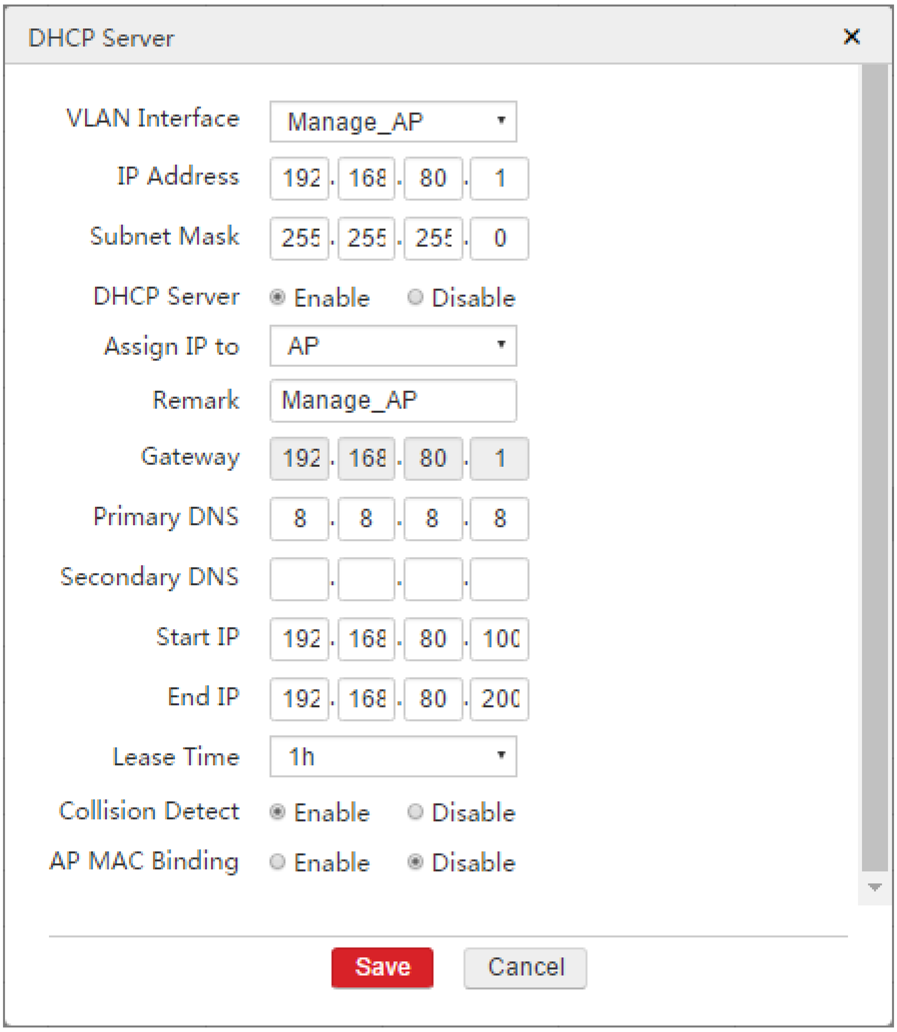
- One is to communicate with AP and assign IP address to AP.
- One is to communicate with internal server.
- One is to communicate with gateway.
- One is to communicate with manager and assign IP address to manager.

To Configure IP and DHCP Server Settings:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **IP and DHCP Server Settings**.
2. Click **Add** to create an IP and DHCP Server rule. This rule is used to communicate with AP and assign IP address to AP.
   - VLAN Interface: Select Manage_AP.
   - IP Address: Enter an IP address. Here we enter *192.168.80.1*.
   - Subnet Mask: Enter a subnet mask. Here we enter *255.255.255.0*.
   - DHCP Server: Select *Enable*.
   - Assign IP to: Select *AP*.
   - Remark: Enter a remark for this DHCP server, such as *Manage_AP*.
   - Primary DNS: Enter a DNS address which will be assigned to AP, such as *8.8.8.8*.
   - Start IP: Enter a start IP of the DHCP server, such as *192.168.80.100*.
   - End IP: Enter an end IP of the DHCP server, such as *192.168.80.200*.

   Make sure that the amount of IP is more than the amount of AP.

   - Click **Save** to apply your settings.



DHCP Server ×

VLAN Interface: Manage_AP

IP Address: 192 . 168 . 80 . 1

Subnet Mask: 255 . 255 . 255 . 0

DHCP Server: ● Enable ○ Disable

Assign IP to: AP

Remark: Manage_AP

Gateway: 192 . 168 . 80 . 1

Primary DNS: 8 . 8 . 8 . 8

Secondary DNS: . . .

Start IP: 192 . 168 . 80 . 100

End IP: 192 . 168 . 80 . 200

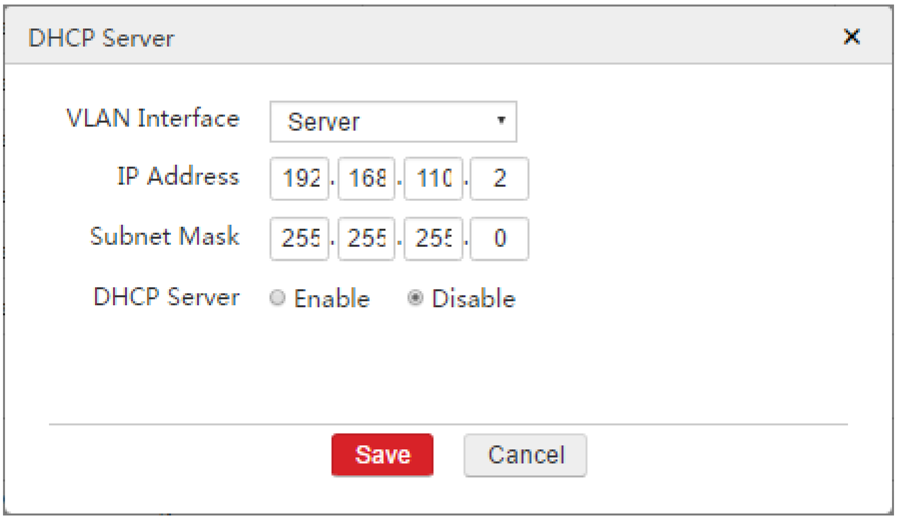
Lease Time: 1h

Collision Detect: ● Enable ○ Disable

AP MAC Binding: ○ Enable ● Disable

3. Click **Add** to create an IP and DHCP Server rule. This rule is used to communicate with internal server.

- VLAN Interface: Select *Server*.
- IP Address: Enter an IP address on the same IP segment with server's IP address. Here we enter *192.168.110.2*.
- Subnet Mask: Enter a subnet mask which should be the same with server's subnet mask. Here we enter *255.255.255.0*.
- Click **Save** to apply your settings.



DHCP Server ×

VLAN Interface: Server

IP Address: 192 . 168 . 110 . 2

Subnet Mask: 255 . 255 . 255 . 0

DHCP Server: ○ Enable ● Disable

4. Click **Add** to create an IP and DHCP Server rule. This rule is used to communicate with gateway.
    - VLAN Interface: Select *Gateway*.
    - IP Address: Enter an IP address on the same IP segment of gateway's LAN IP address. Here we enter *192.168.20.2*.
    - Subnet Mask: Enter a subnet mask which should be the same with gateway's subnet mask. Here we enter *255.255.255.0*.
    - Click **Save** to apply your settings.
5. Click **Add** to create an IP and DHCP Server rule. This rule is used to communicate with manager and assign IP address to manager.
    - VLAN Interface: Select *Manager*.
    - IP Address: Enter an IP address. Here we enter *192.168.30.1*.
    - Subnet Mask: Enter a subnet mask. Here we enter *255.255.255.0*.
    - DHCP Server: Select *Enable*.
    - Assign IP to: Select *User*.
    - Remark: Enter a remark for this DHCP server, such as *Manager*.
    - Gateway: Enter a gateway. In this example, we enter this interfaces's IP address: *192.168.30.1*.
    - Primary DNS: Enter a DNS address which will be assigned to manager. In this example, we enter *8.8.8.8*.
    - Start IP: Enter a start IP of the DHCP server, such as *192.168.30.100*.
    - End IP: Enter an end IP of the DHCP server, such as *192.168.30.120*.

    Make sure that the amount of IP is more than the amount of manager.

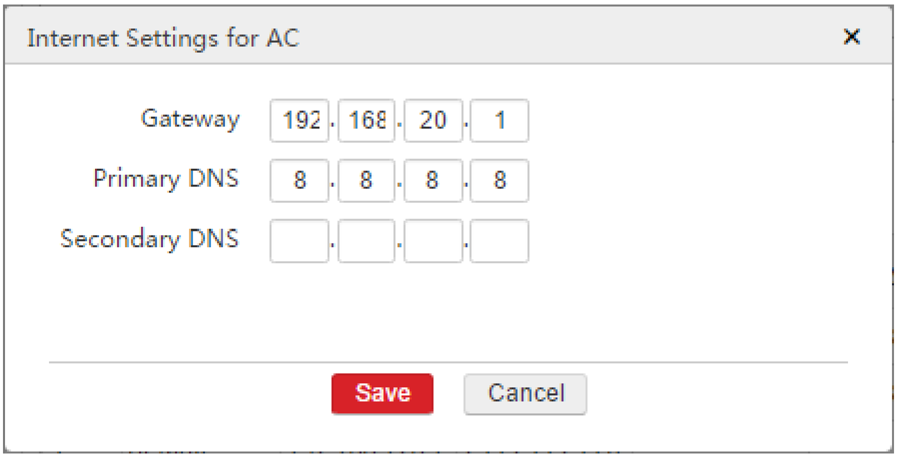
    - Click **Save** to apply your settings.

Step 3: Configure Internet Settings for AC

In this example, managers surf the Internet through the AC, so we need to add a default route for the AC to access the Internet.

To Configure Internet Settings for AC:

1. Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **Internet Settings for AC**.
2. Click **Add** to create a default route for the AC.
    - Gateway: Enter the next hop's IP address. Here we enter the gateway's LAN IP address: *192.168.20.1*.
    - Primary DNS: Enter a DNS server address. Here we enter *8.8.8.8*.
    - Click **Save** to apply your settings.



Internet Settings for AC

Gateway 192 . 168 . 20 . 1

Primary DNS 8 . 8 . 8 . 8

Secondary DNS . . .

After finishing the above configuration, you can go to **Network Setting** > **IP Routing** to view the default IP route.

Step 4: Configure SSID Policy

In this example, we need to create three SSID policies:

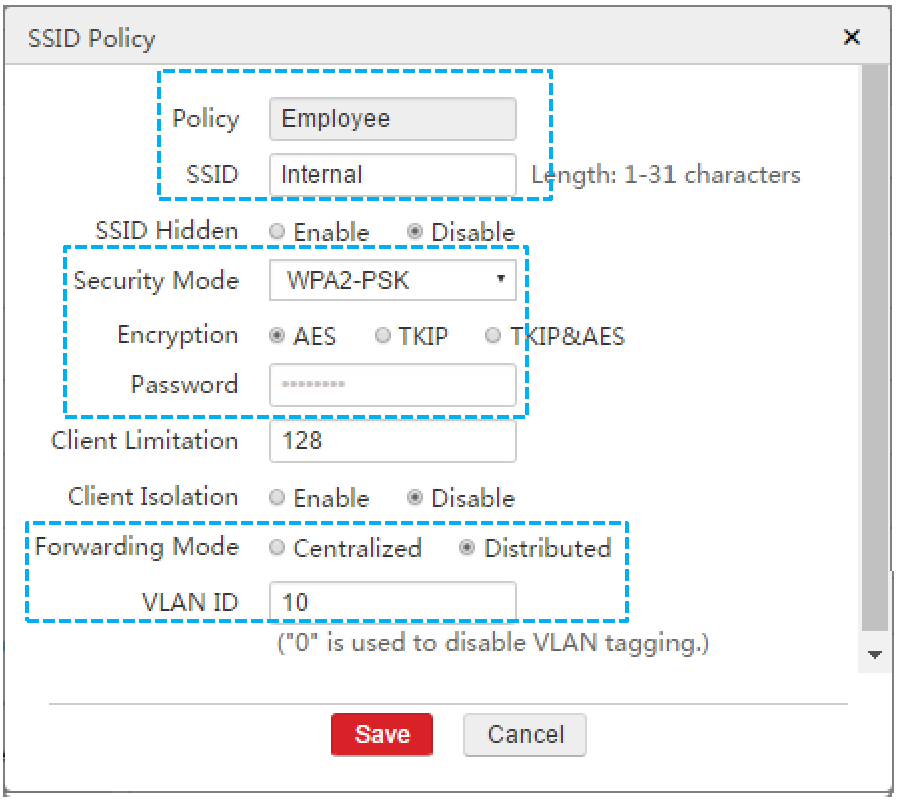
- One SSID is for employees.
- One SSID is for guests.
- One SSID is for managers.

To Configure SSID Policy:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.

2. Click **Add** to create a SSID policy. The SSID in this policy is for employees.

- Policy: Enter a policy name for the SSID policy. Here we enter *Employee*.
- SSID: Enter a SSID name. Here we enter *Internal*.
- Security Mode: Select *WPA2-PSK*.
- Encryption: Select *AES*.
- Password: Enter a password, such as *87654321*.
- Forwarding Mode: Select *Distributed*.
- VLAN ID: Enter *10*.
- Click **Save** to apply your settings.



SSID Policy ×

Policy: Employee

SSID: Internal Length: 1-31 characters

SSID Hidden: ○ Enable ● Disable

Security Mode: WPA2-PSK

Encryption: ● AES ○ TKIP ○ TKIP&AES

Password: ••••••••

Client Limitation: 128

Client Isolation: ○ Enable ● Disable

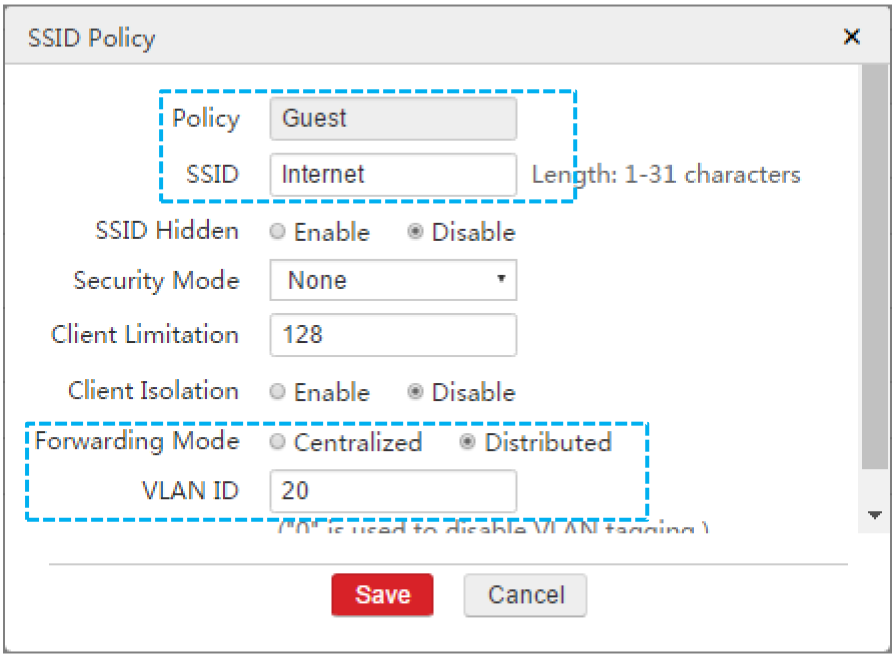
Forwarding Mode: ○ Centralized ● Distributed

VLAN ID: 10

("0" is used to disable VLAN tagging.)

3. Click **Add** to create a SSID policy. The SSID in this policy is for guests.

- Policy: Enter a policy name for the SSID policy. Here we enter *Guest*.
- SSID: Enter a SSID name. Here we enter Internet.
- Forwarding Mode: Select *Distributed*.
- VLAN ID: Enter *20*.
- Click **Save** to apply your settings.



SSID Policy ×

Policy: Guest

SSID: Internet Length: 1-31 characters

SSID Hidden: ○ Enable ● Disable

Security Mode: None

Client Limitation: 128

Client Isolation: ○ Enable ● Disable

Forwarding Mode: ○ Centralized ● Distributed

VLAN ID: 20

("0" is used to disable VLAN tagging.)

4. Click **Add** to create a SSID policy. The SSID in this policy is for managers.

- Policy: Enter a policy name for the SSID policy. Here we enter *Manager*.
- SSID: Enter a SSID name. Here we enter *VIP*.
- Security Mode: Select *WPA2-PSK*.
- Encryption: Select *AES*.
- Password: Enter a password, such as *1234567890*.
- Forwarding Mode: Select *Centralized*.
- VLAN Interface: Select *Manager*.
- Click **Save** to apply your settings.

Step 5: Configure SSID Group

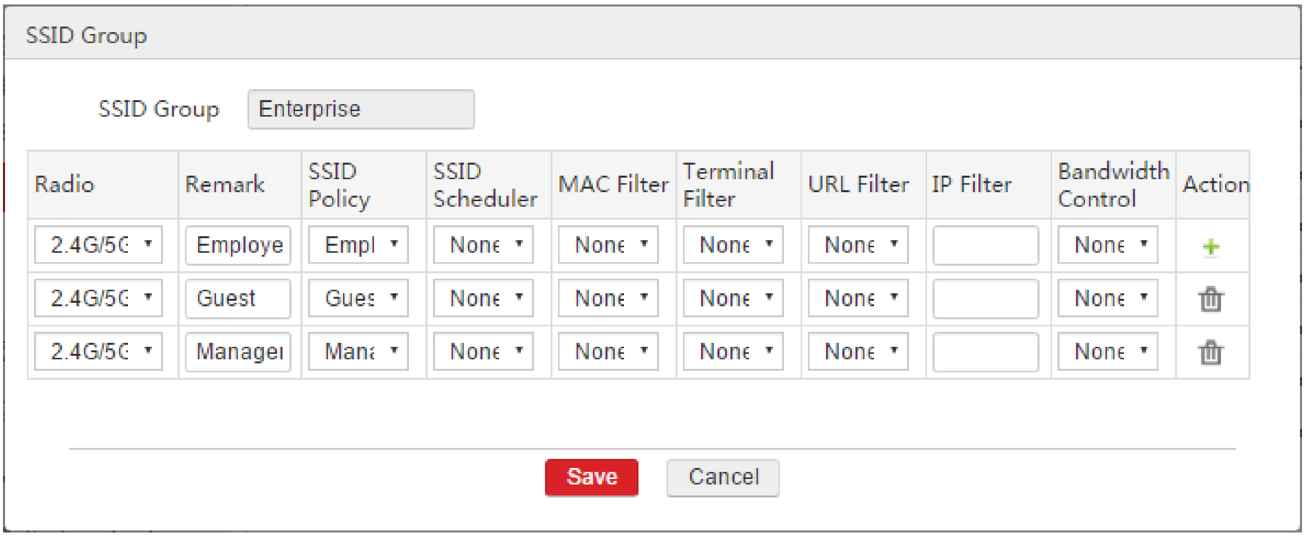
For better management of SSID-related policies (such as SSID policy, SSID Scheduler, MAC Filter, and so on), add all the SSID-related policies into a SSID group. In this way, you don't need to deliver policies one by one. Besides, you can add several SSID policies into one SSID group and all the added SSID policies will be delivered to APs.

To Configure SSID group:

1. Log in to AC's Web UI and go to **AP Management > SSID Group**.

2. Click **Add** to create a SSID group. The SSID group is used to contain the above SSID policy and will be used by AP group.

- SSID Group: Enter a SSID group name. Here we enter *Enterprise*.
- Add the SSID policy *Employee* to this SSID group.
  - ■ Remark: Enter a remark for the SSID policy of *Employee*. Here we enter *Employee*.
  - ■ SSID Policy: Select *Employee*.
- Click + to add the SSID policy *Guest* to this SSID group.
  - ■ Remark: Enter a remark for the SSID policy of *Guest*. Here we enter *Guest*.
  - ■ SSID Policy: Select *Guest*.
- Click + to add the SSID policy *Manager* to this SSID group.
  - ■ Remark: Enter a remark for the SSID policy of *Manager*. Here we enter *Manager*.
  - ■ SSID Policy: Select *Manager*.
- Click **Save** to apply your settings.



SSID Group

SSID Group: Enterprise

Radio	Remark	SSID Policy	SSID Scheduler	MAC Filter	Terminal Filter	URL Filter	IP Filter	Bandwidth Control	Action
2.4G/5G ▾	Employe	Empl ▾	None ▾	None ▾	None ▾	None ▾		None ▾	+
2.4G/5G ▾	Guest	Gues ▾	None ▾	None ▾	None ▾	None ▾		None ▾	🗑
2.4G/5G ▾	Manage	Mana ▾	None ▾	None ▾	None ▾	None ▾		None ▾	🗑

Step 6: Configure AP Group

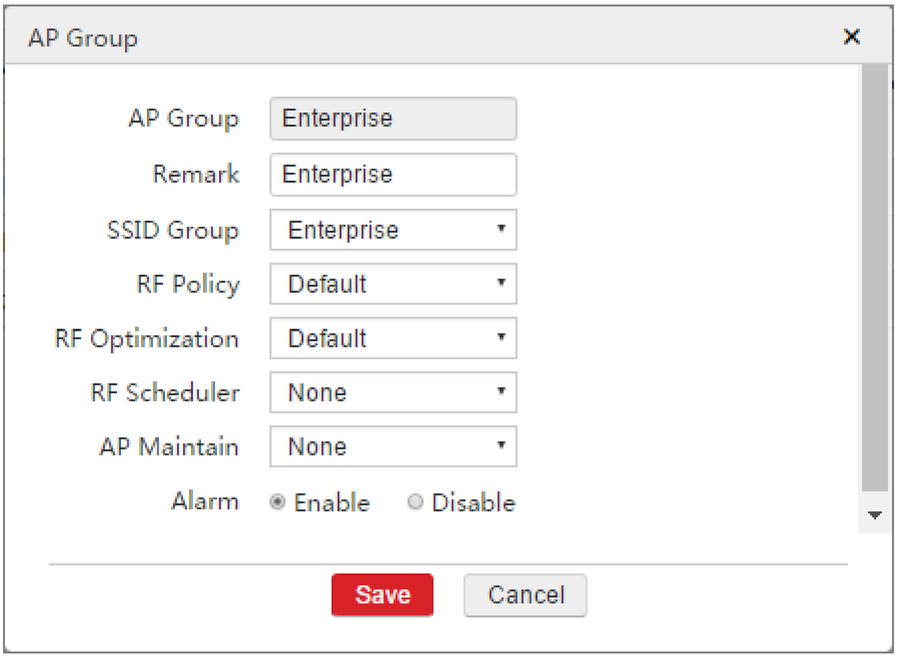
For better management of all policies (including SSID group, RF policy, RF Optimization, AP Maintain, and so on), add the policies into an AP group. In this way, you can deliver an AP group to APs instead of delivering policies one by one.

To Configure AP group:

1. Log in to AC’s Web UI and go to **AP Management > AP Group**.

2. Click **Add** to create an AP group. This AP group is used to contain above SSID group and a RF policy, and will be delivered to APs.

- AP Group: Enter a name for the AP group. Here we enter *Enterprise*.
- Remark: Enter a remark for the AP group. Here we enter Enterprise.
- SSID Group: Select a SSID group. Here we select *Enterprise*.
- RF Policy: Select a RF policy. Here we take the default RF policy as an example.
- Click **Save** to apply your settings.



AP Group

AP Group: Enterprise

Remark: Enterprise

SSID Group: Enterprise ▾

RF Policy: Default ▾

RF Optimization: Default ▾

RF Scheduler: None ▾

AP Maintain: None ▾

Alarm: ● Enable ○ Disable

Step 7: Deliver AP Group to APs

To Deliver AP Group to APs:

1. Log in to AC's Web UI and go to **AP Management > Modify AP**.

2. Select all APs.

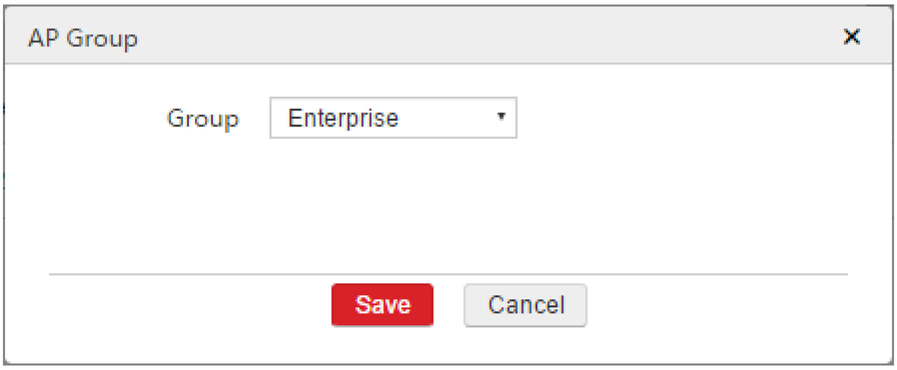
3. Click **Batch Group**.

4. In the pop-up window, select *Enterprise*.

5. Click **Save**.

Then APs will get all configurations in the AP group.

The selected APs may reboot to make the settings take effect. Please wait for 1~2 minutes, then the APs will get online automatically and you can see that the new AP group has been delivered to these APs.



Group: Enterprise

Configure Core Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
PoE Switch	1,10,20	Trunk	1
AC	1,10,20	Trunk	1
Server	10	Access	10
Gateway	20	Access	20

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Configure PoE Switch

Set up the switch's VLAN value. The corresponding port is set as follows:

The port connects to	VLAN ID	Port Mode	PVID
Core Switch	1,10,20	Trunk	1
AP	1,10,20	Trunk	1

Please keep other ports' VLAN value default. For configuration details, refer to the switch's user guide

Configure Gateway

Tip

The following configuration is just a guideline. For configuration details, please refer to the device's user guide.

Step 1: Configure NAT

On the gateway's Web UI, create a NAT rule to ensure that managers can surf the Internet.

The rule description is as follows:

- IP address: Enter the IP segment of managers. In this example, we enter *192.168.30.0/24*.
- Interface: Select the gateway's interface which connects to the Internet.

Step 2: Configure IP routing

On the gateway's Web UI, create an IP route to ensure that the gateway is reachable to the managers' network.

The rule description is as follows:

- Destination Network: Enter the IP segment of managers. In this example, we enter *192.168.30.0/24*.
- Gateway: Enter a gateway to reach destination network. In this example, we enter the AC's IP address on the *Gateway* interface, the IP address is *192.168.20.2*.
- Interface: Select the interface which connects to core switch.

Step 3: Configure DHCP Server

On the gateway's Web UI, enable DHCP server to assign IP address to guests.

The DHCP server is configured as follows:

- DHCP server's start IP and end IP: Both are on the IP segment *192.168.20.0/24*.
- Gateway: Enter the gateway's LAN IP address *192.168.20.1*.
- Primary DNS: In this example, enter *8.8.8.8*.

Configure Server

Tip

The following configuration is just a guideline. For configuration details, please refer to the device's user guide.

Step 1: Configure IP routing

On the server's Web UI, create an IP route to ensure that the server is reachable to the managers' network.

The rule description is as follows:

- Destination Network: Enter the IP segment of managers. In this example, we enter *192.168.30.0/24*.
- Gateway: Enter a gateway to reach destination network. In this example, we enter the AC's IP address on the *Server* interface, the IP address is *192.168.110.2*.
- Interface: Select the interface which connects to core switch.

Step 2: Configure DHCP Server

On the server's Web UI, enable DHCP server to assign IP address to employees.

The DHCP server is configured as follows:

- DHCP server's start IP and end IP: Both are on the IP segment *192.168.110.0/24*.
- Gateway: Enter the server's LAN IP address *192.168.110.1*.
- Primary DNS: In this example, enter *192.168.110.1*.

Verify the Configuration

If you connect to the SSID *Internal*, you will obtain an IP address from the IP segment *192.168.110.0/24* and can only access the server.

If you connect to the SSID *Internet*, you will obtain an IP address from the IP segment *192.168.20.0/24* and can only surf the Internet.

If you connect to the SSID *VIP*, you will obtain an IP address from the IP segment *192.168.30.0/24* and can access the server and surf the Internet at the same time.

Part 5 Application of Network Settings

By configuring network settings, you can:

- Manage cross-VLAN APs and users by creating multiple VLAN interfaces.
- Communicate with other devices by setting up IP address on appropriate VLAN interfaces.
- Assign IP address to AP or user by enabling DHCP server on appropriate VLAN interfaces.
- Make the AC access Internet by setting up Internet parameters.
- Make the AC reach different destination networks by setting up different IP routing rules.

This part shows how to configure network settings through an example.

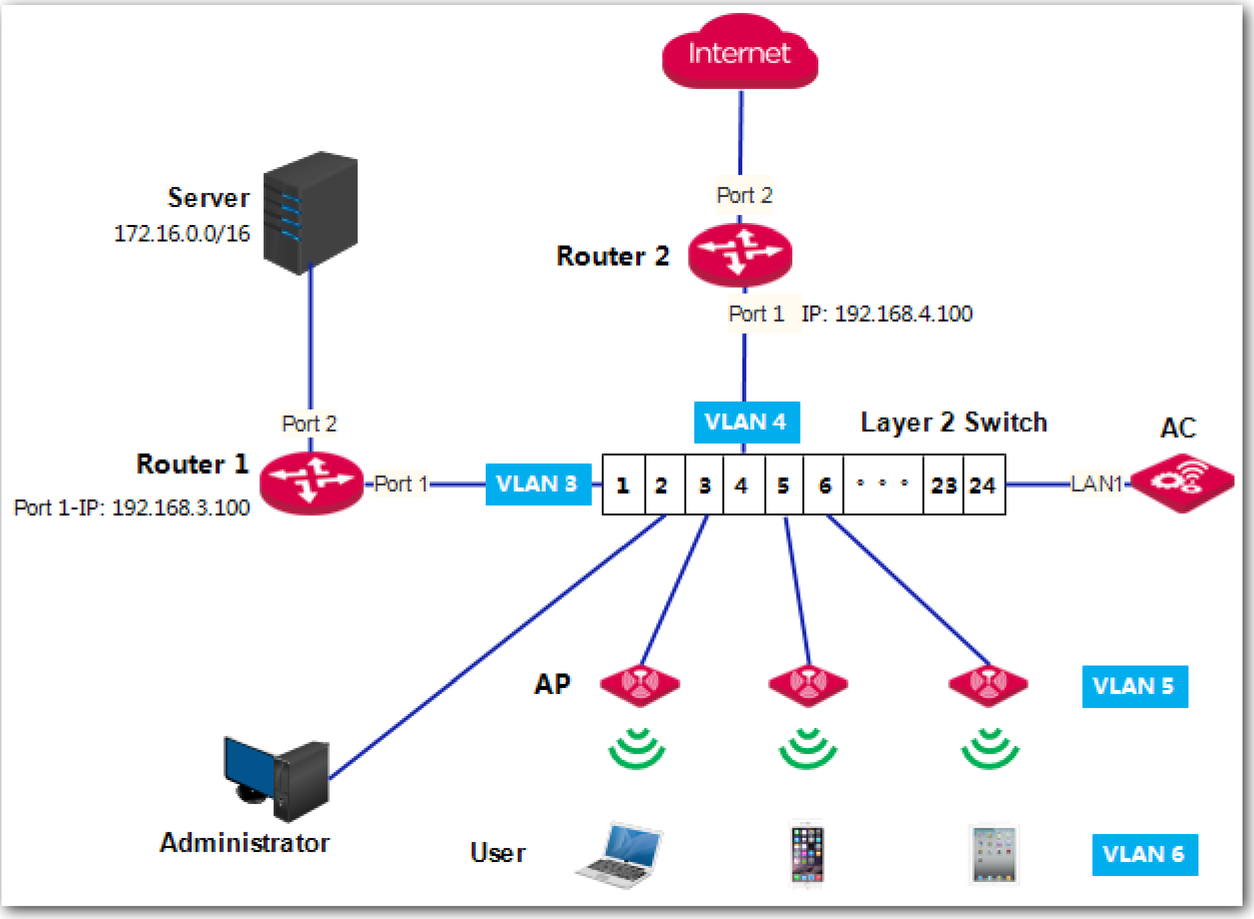
Networking Requirement

In this example, each device is divided into a certain VLAN network.

Networking Requirement is as follows.

- Router 1 is in VLAN 3 and Router 2 is in VLAN 4.
- All fit APs’ management VLAN is VLAN 5.
- All users are in VLAN 6 and can access the Internet and server at the same time.

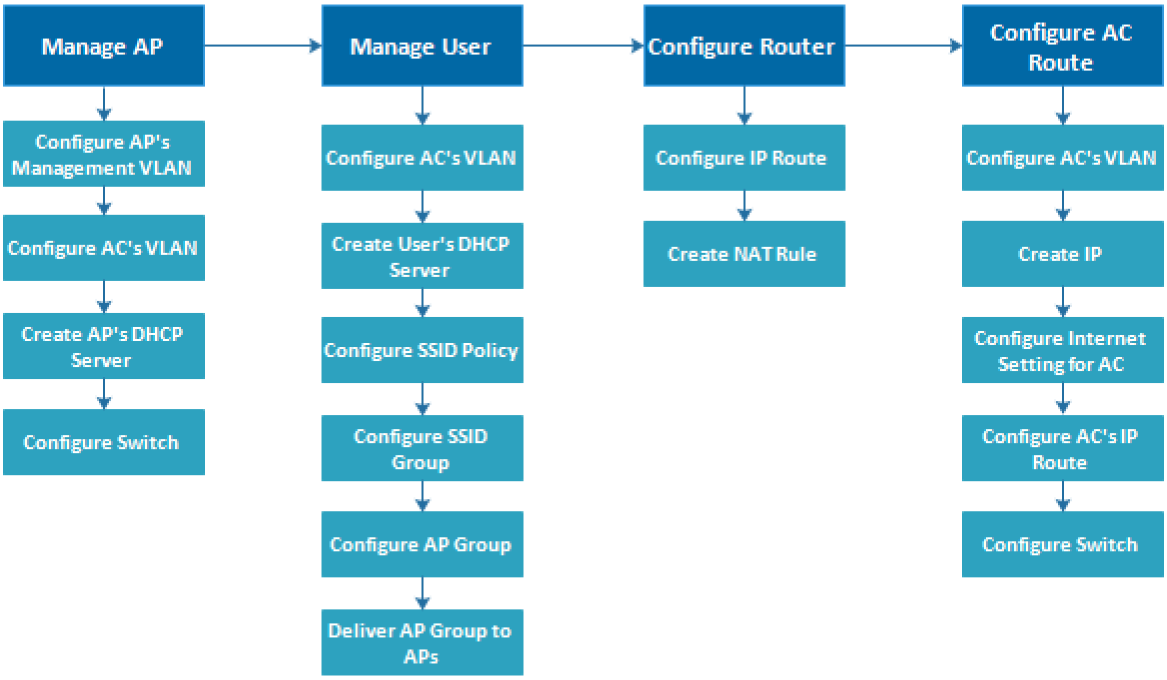
Network Topology



Assumption

- By default, AC's LAN1 port is in VLAN 0 and AC's IP address is 192.168.10.1.
- By default, Administrator can manage AC with a manually configured IP address 192.168.10.X/24 (X is between 2~254).
- Router 2 is a DNS proxy.
- All APs and users obtain IP address from AC.
- Other assumptions are shown on the network topology.

Configuration Step



Manage AP in VLAN 5

To Manage AP in VLAN 5:

1. Restore all APs to factory default.

   Wait for 2~3 minutes, all APs will be managed by AC.

2. Configure AP's "Management VLAN".

   1) Log in to AC's Web UI and go to **AP Management** > **Modify AP**.

   2) Select all APs and click **Advanced Setting**.

   3) Set up "Management VLAN" to *5* and click **Save**.

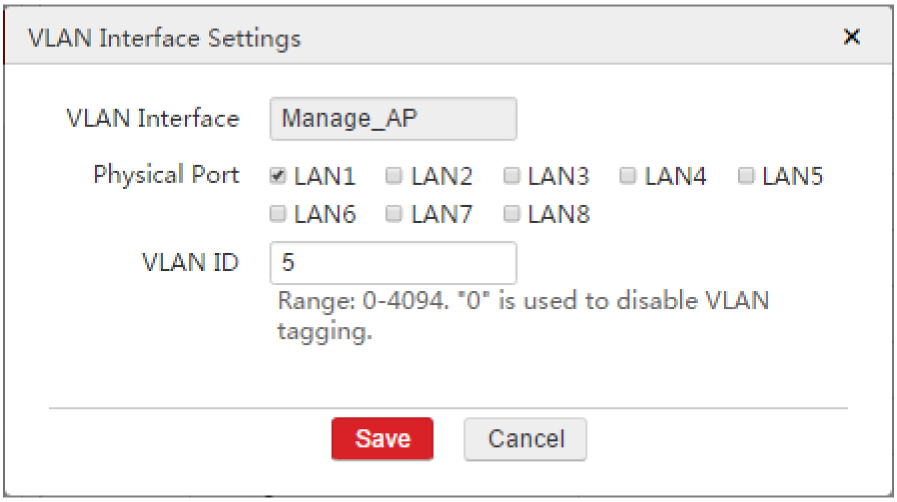
   4) Select all APs and click **Reboot** to make this configuration take effect.

3. Configure VLAN Interface.

   1) Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings.**

   2) Click **Add** to create a VLAN setting.

      - VLAN Interface: Enter a name for the VLAN Interface. Here we enter *Manage_AP*.
      - Physical Port: Select one or more physical ports belonging to the VLAN Interface. Here we select *LAN1*.
      - VLAN ID: Enter a VLAN ID for the VLAN Interface. Here we enter *5*.
      - Click **Save** to apply your settings.



VLAN Interface Settings ×

VLAN Interface: Manage_AP

Physical Port: ☑ LAN1 □ LAN2 □ LAN3 □ LAN4 □ LAN5 □ LAN6 □ LAN7 □ LAN8

VLAN ID: 5

Range: 0-4094. "0" is used to disable VLAN tagging.

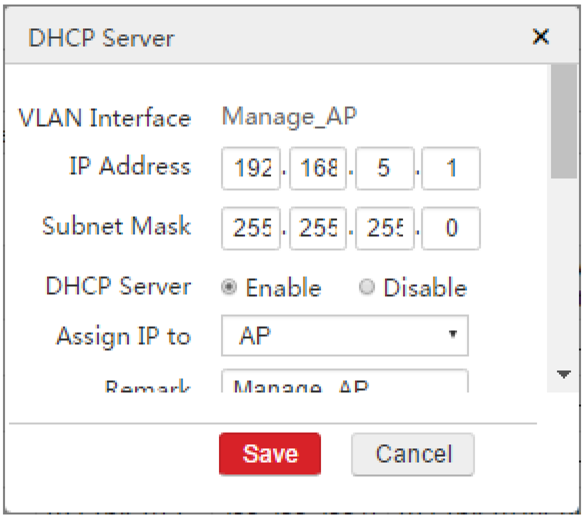
4. Configure IP and DHCP Server Settings**.**

   1) Log in to AC’s Web UI and go to **Network Setting** > **Network Setting** > **IP and DHCP Server Settings**.

   2) Click **Add** to create an IP and DHCP setting as follows.

      - VLAN Interface: In this example, select *Manage_AP*.
      - IP Address: In this example, enter *192.168.5.1*.
      - DHCP Server: Select *Enable*.
      - Assign IP to: Select *AP*.
      - Remark: Enter a name for this setting, such as *Manage_AP*.
      - Primary DNS: Enter a valid DNS address. In this example, enter *192.168.4.100*.

        Note: AC3000 is not a DNS proxy. Please enter an effective DNS address.
      - Start IP: Enter a start IP address, such as *192.168.5.100*.
      - End IP: Enter a end IP address, such as *192.168.5.200*.



DHCP Server ×

VLAN Interface: Manage_AP

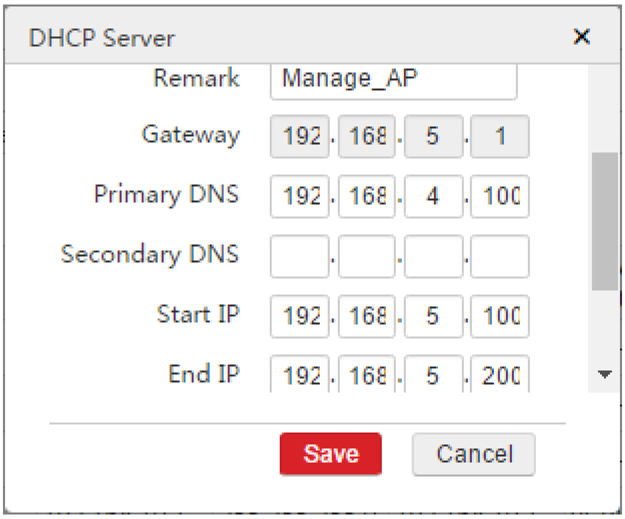
IP Address: 192 . 168 . 5 . 1

Subnet Mask: 255 . 255 . 255 . 0

DHCP Server: ● Enable ○ Disable

Assign IP to: AP

Remark: Manage_AP



DHCP Server ×

Remark: Manage_AP

Gateway: 192 . 168 . 5 . 1

Primary DNS: 192 . 168 . 4 . 100

Secondary DNS: . . .

Start IP: 192 . 168 . 5 . 100

End IP: 192 . 168 . 5 . 200

5. Set up the switch's VLAN value. The corresponding port is set as follows:

Port No.	The port connects to	VLAN ID	Port Mode	PVID
3	AP	1,5	Trunk	1
5	AP	1,5	Trunk	1
6	AP	1,5	Trunk	1
24	AC	1,5	Trunk	1

After you finish above settings, the AC can manage all APs in VLAN 5.

Manage User in VLAN 6

To Manage User in VLAN 6, configure settings on the AC as follows.

To Manage User in VLAN 6:

1. Configure VLAN Interface.
   1) Log in to AC's Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings.**
   2) Click **Add** to create a VLAN setting as follows.

VLAN Interface	Physical Port	VLAN ID
Manage_User	LAN1	6

2. Configure IP and DHCP Server Settings**.**
   1) Go to **Network Setting** > **Network Setting** > **IP and DHCP Server Settings**.
   2) Click **Add** to create an IP and DHCP setting as follows.

   Note: AC3000 is not a DNS proxy. Please enter an effective DNS address.

VLAN Interface	IP Address	Assign IP to	Gateway	Primary DNS	IP Range
Manage_User	192.168.6.1/24	User	192.168.6.1	192.168.4.100	192.168.6.0/24

3. Configure SSID Policy
   1) Go to **Policy Management** > **SSID Policy**.
   2) Click **Add** to create a SSID policy as follows.

Policy/SSID	Security Mode	Password	Forwarding Mode	VLAN Interface
Manage_User	WPA2-PSK	********	Centralized	Manage_User

4. Configure SSID Group

   1) Go to **AP Management** > **SSID Group**.

   2) Click **Add** to create a SSID group as follows.

SSID Group	SSID Policy	Other Parameters
Manage_User	Manage_User	Keep the default value.

5. Configure AP Group

   1) Go to **AP Management** > **AP Group**.

   2) Click **Add** to create an AP group as follows.

AP Group	SSID Group	Other Parameters
Manage_User	Manage_User	Keep the default value.

6. Deliver AP Group to APs

   1) Go to **AP Management** > **Modify AP**.

   2) Select all APs and click **Batch Group**.

   3) In the pop-up window, select Manage_User and click **Save**.

After you finish above settings, wireless users can obtain IP addresses from AC. IP information is as follows.

- IP address: 192.168.6.0/24
- Gateway: 192.168.6.1
- Primary DNS: 192.168.4.100

Configure Router

To Configure Router:

1. On each router, create a route to reach users' network.

The Configured Router	Destination Network	Gateway	Interface
Router 1	192.168.6.0/24	192.168.3.1	Port 1
Router 2	192.168.6.0/24	192.168.4.1	Port 1

2. On each router, create a NAT rule to ensure that users can access the Internet and server at the same time.

   Note: In this example, you need to purchase routers which support creating NAT rule.

The Configured Router	IP Address	Subnet Mask	Interface
Router 1	192.168.6.0	255.255.255.0	Port 2
Router 2	192.168.6.0	255.255.255.0	Port 2

Configure AC Route

To Configure AC Route:

1. Configure VLAN Interface
   1) Log in to AC’s Web UI and go to **Network Setting** > **Network Setting** > **VLAN Interface Settings**.
   2) Click **Add** to create two VLAN interfaces as follows.

VLAN Interface	Physical Port	VLAN ID
Router 1	LAN1	3
Router 2	LAN1	4

2. Configure IP and DHCP Server Settings
   1) Log in to AC’s Web UI and go to **Network Setting** > **Network Setting** > **IP and DHCP Server Settings**.
   2) Click **Add** to create two IP and DHCP settings as follows.

VLAN Interface	IP Address	DHCP Server
Router 1	192.168.3.1/24	Disable
Router 2	192.168.4.1/24	Disable

3. Configure Internet Settings for AC
   1) Log in to AC’s Web UI and go to **Network Setting** > **Network Setting** > **Internet Settings for AC.**
   2) Click **Add** to create an Internet setting for AC.

Gateway	Primary DNS
192.168.4.100	192.168.4.100

4. Configure IP routing
   1) Log in to AC’s Web UI and go to **Network Setting** > **IP Routing.**
   2) Click **Add** to create a route as follows.

Remark	Destination Network	Subnet Mask	Next Hop	VLAN Interface
Server	172.16.0.0	255.255.0.0	192.168.3.100	Router 1

5. Set up the switch’s VLAN value. The corresponding port is set as follows:

Port No.	The port connects to	VLAN ID	Port Mode	PVID
1	Router 1	3	Access	3
4	Router 2	4	Access	4
24	AC	3,4	Trunk	1

Verify the Configuration

After you finish all configurations above, both AC and users can access the Internet and server at the same time.

In Sum: All settings on Each Device

After finishing all configurations above, you can check corresponding settings on each device, shown as follows.

All Settings on AC

VLAN interface and IP/DHCP setttings:

VLAN Interface	Physical Port	VLAN ID	IP Address	DHCP Pool	Gateway	Primary DNS
Manage_AP	LAN1	5	192.168.5.1	192.168.5.0/24	192.168.5.1	192.168.4.100
Manage_User	LAN1	6	192.168.6.1	192.168.6.0/24	192.168.6.1	192.168.4.100
Router 1	LAN1	3	192.168.3.1	Disable DHCP		
Router 2	LAN1	4	192.168.4.1	Disable DHCP		

IP Routes: (Go to **Network Setting** > **IP Routing** to check the following items.)

Remark	Destination Network	Subnet Mask	Next Hop	VLAN Interface	Status
Default	0.0.0.0	0.0.0.0	192.168.4.100	Router 2	Valid
Server	172.16.0.0	255.255.0.0	192.168.3.100	Router 1	Valid

All Settings on AP (Delivered by AC)

SSID Name	SSID VLAN ID	Management VLAN ID
Manage_User	6	5

All Settings on Router

IP Routes:

The Configured Router	Destination Network	Gateway	Interface
Router 1	192.168.6.0/24	192.168.3.1	Port 1
Router 2	192.168.6.0/24	192.168.4.1	Port 1

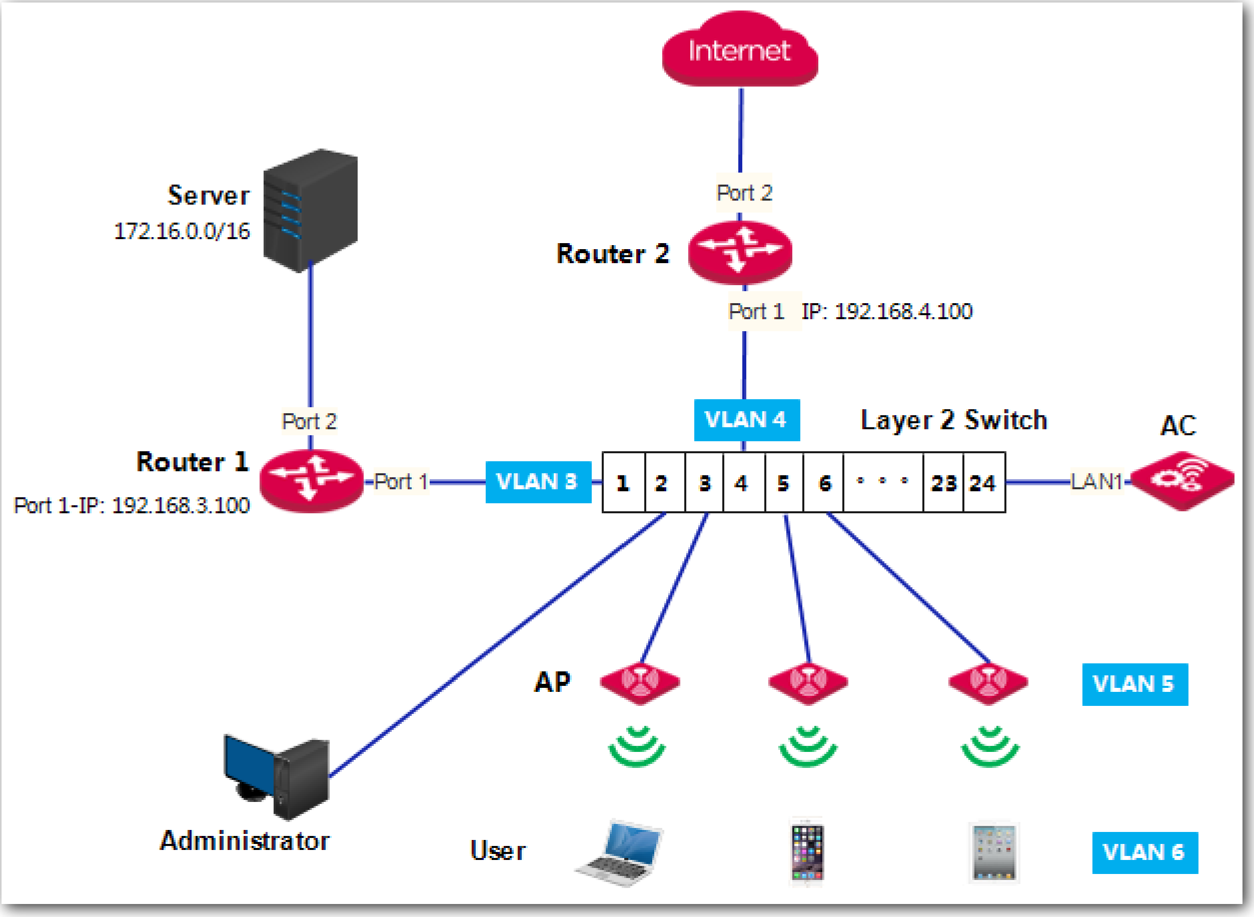
NAT Rule:

The Configured Router	IP Address	Subnet Mask	Interface
Router 1	192.168.6.0	255.255.255.0	Port 2
Router 2	192.168.6.0	255.255.255.0	Port 2

All Settings on Switch

VLAN information on each port is configured as follows.

Port No.	The port connects to	VLAN ID	Port Mode	PVID
1	Router 1	3	Access	3
2	Administrator	1	Access	1
3	AP	1,5	Trunk	1
4	Router 2	4	Access	4
5	AP	1,5	Trunk	1
6	AP	1,5	Trunk	1
24	AC3000	1,3,4,5	Trunk	1



Part 6 Application of Advertising

By creating advertisements and deliver them to your customers, you can promote your products.

And to enhance wireless network's security, you can set up authorization method for customers.

AC3000 English version supports three authorization methods: No Password, Portal and Facebook.

This part shows:

- In *No Password* authorization, how to create and deliver advertisements.
- In *Portal* authorization, how to create and deliver advertisements.
- In *Facebook* authrization, how to create and deliver advertisements.

Besides, you can use these three authorization methods together. For example, on the same AP, you can deliver a *No Password* advertisement to some SSIDs and deliver a *Portal* advertisement to rest SSIDs. Even for the same SSID, you can deliver a *No Password* advertisement to some terminals and deliver a *Portal* advertisement to other terminals, or you can deliver both portal and Facebook authorizations to the same SSID.

6.1 Application of No Password Authorization

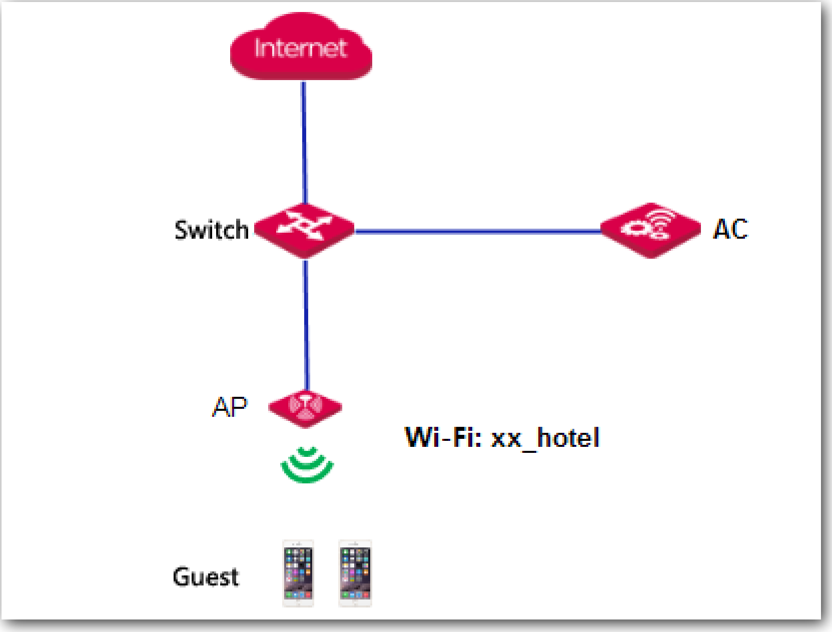
Networking Requirement

A hotel needs to establish a wireless network and has the following expectations:

- Guests in the hotel hall can surf the Internet with the wireless network.
- Guests can see the advertisement about the hotel.
- Guests don't need to enter any password before they surf the Internet.

Assume that WiFi name is *xx_hotel*.

Network Topology



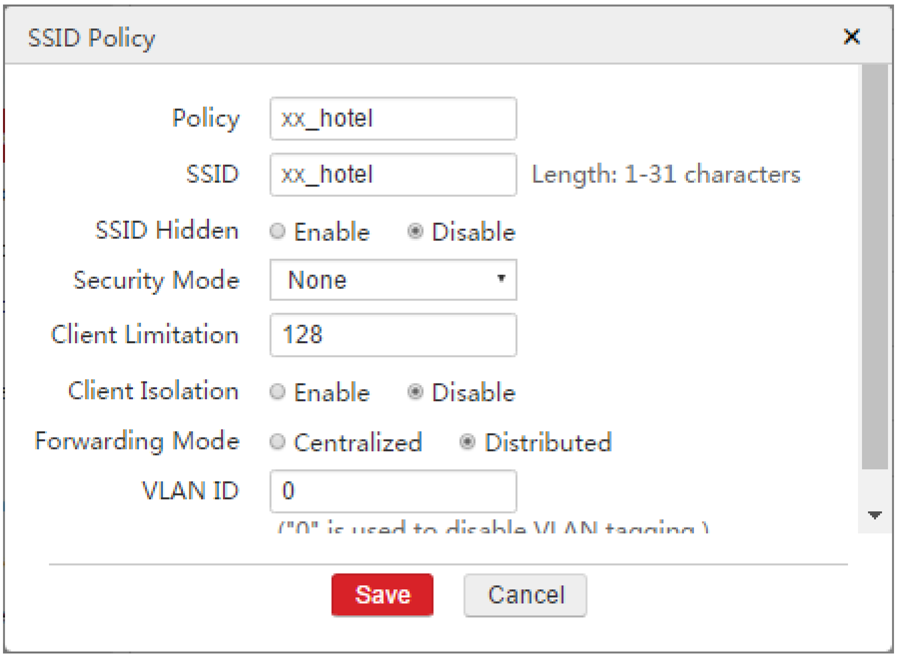
Configuration Step

Step 1: Create and deliver SSID to fit AP (Optional)

If you have delivered a SSID to fit AP, please directly skip to Step 2: Create Advertisement.

To Create and deliver SSID to fit AP:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.
2. Click **Add** to create a SSID policy.
   - Policy: Enter *xx_hotel*.
   - SSID: Enter *xx_hotel*.
   - Click **Save** to apply your settings.



SSID Policy

Policy: xx_hotel

SSID: xx_hotel Length: 1-31 characters

SSID Hidden: ○ Enable ● Disable

Security Mode: None

Client Limitation: 128

Client Isolation: ○ Enable ● Disable

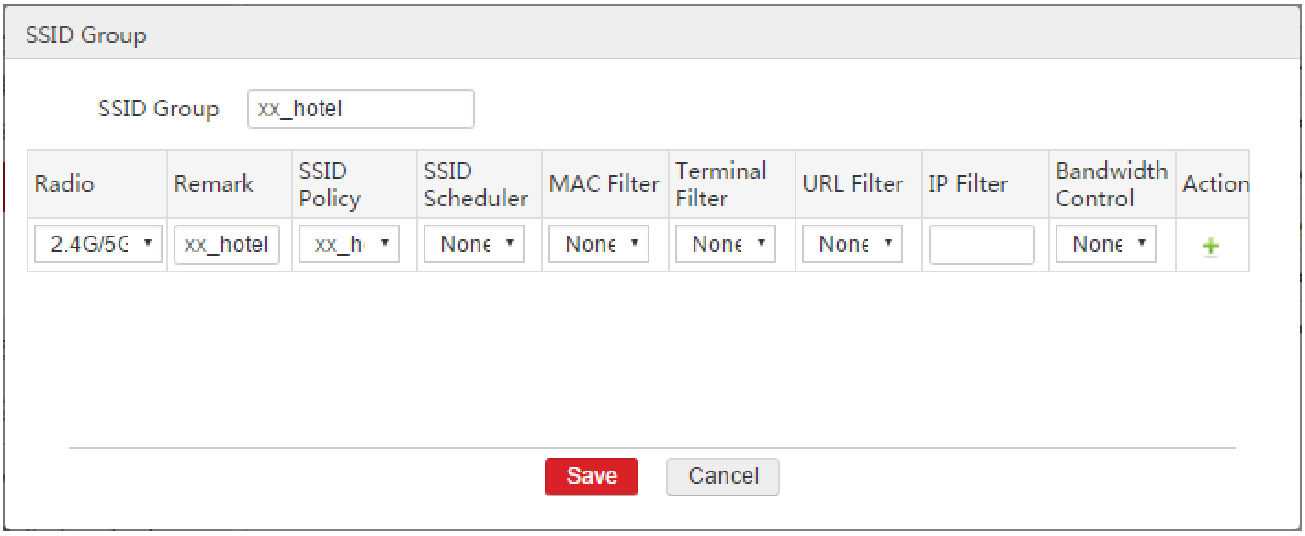
Forwarding Mode: ○ Centralized ● Distributed

VLAN ID: 0

("0" is used to disable VLAN tagging.)

3. Go to **AP Management** > **SSID Group** and click **Add** to create a SSID group.

- SSID Group: Enter *xx_hotel*.
- Remark: Enter *xx_hotel*.
- SSID Policy: Select *xx_hotel*.
- Click **Save** to apply your settings.



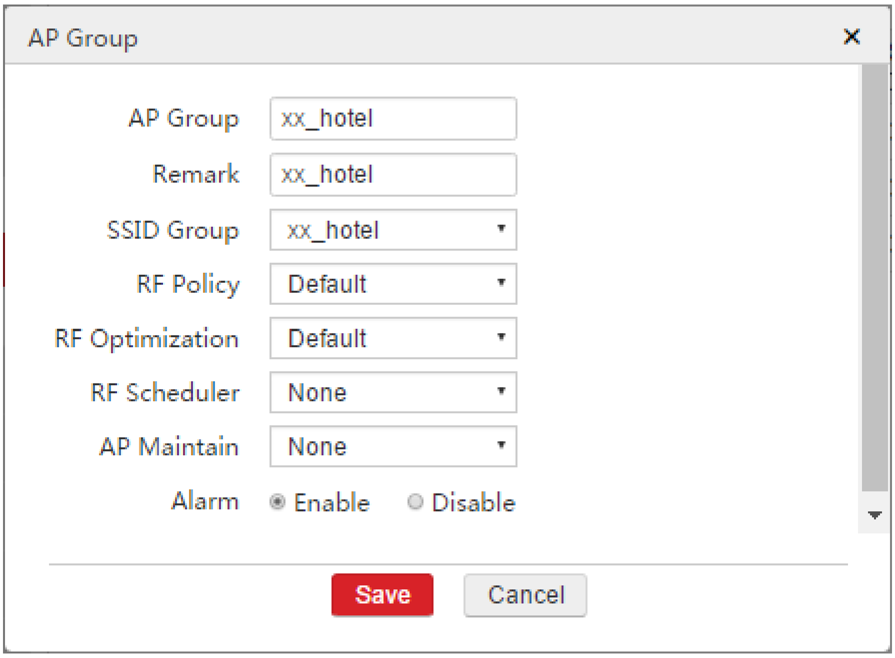
SSID Group

SSID Group: xx_hotel

Radio	Remark	SSID Policy	SSID Scheduler	MAC Filter	Terminal Filter	URL Filter	IP Filter	Bandwidth Control	Action
2.4G/5G	xx_hotel	xx_h	None	None	None	None		None	+

4. Go to **AP Management** > **AP Group** and click **Add** to create a AP group.

- AP Group: Enter *xx_hotel*.
- Remark: Enter *xx_hotel*.
- SSID Group: Select *xx_hotel*.
- Click **Save** to apply your settings.



AP Group

AP Group: xx_hotel

Remark: xx_hotel

SSID Group: xx_hotel

RF Policy: Default

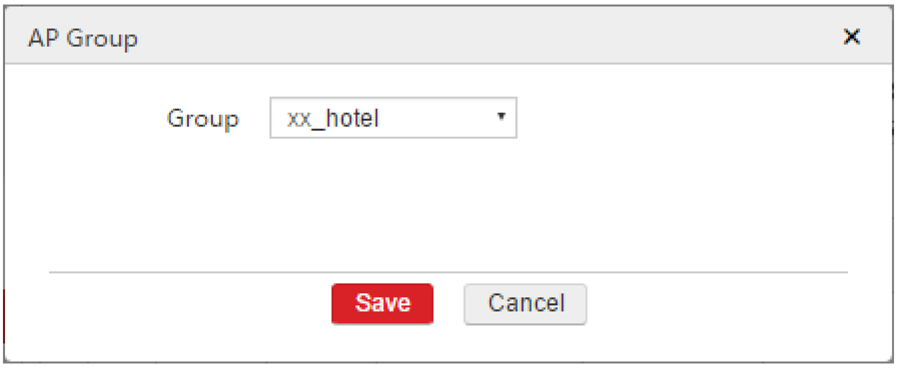
RF Optimization: Default

RF Scheduler: None

AP Maintain: None

Alarm: ● Enable ○ Disable

5. Go to **AP Management** > **Modify AP**, select all fit APs and click **Batch Group**.
   - Group: Select *xx_hotel*.
   - Click **Save** to apply your settings.



AP Group

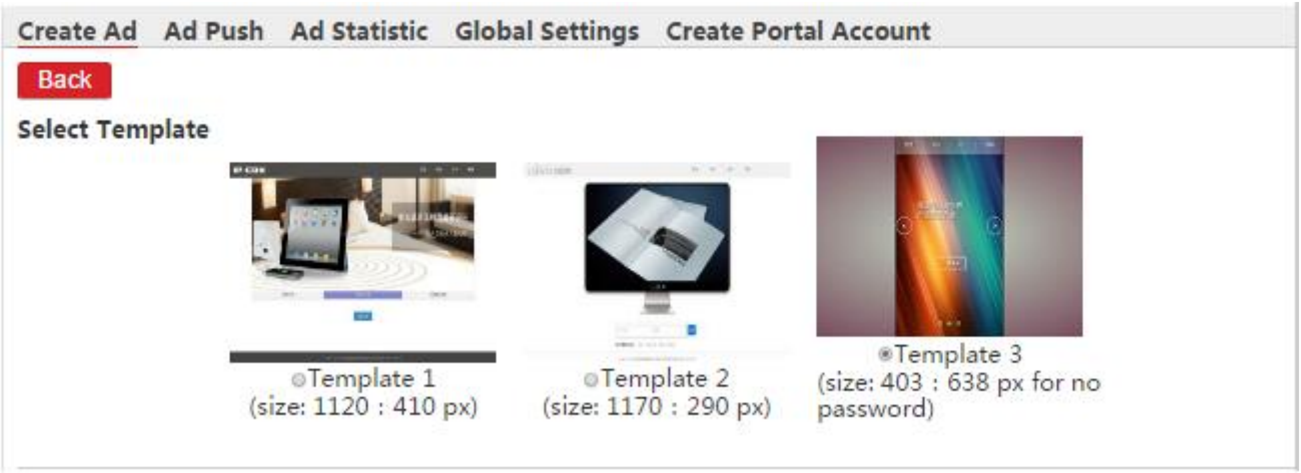
Group: xx_hotel

After finishing above settings, you can connect to SSID *xx_hotel* successfully.

Step 2: Create Advertisement

To Create Advertisement:

1. Log in to AC's Web UI and go to **Captive Portal** > **Create Ads** > **Create Ad**.
2. Click **Create Ad** and configure the advertisement.
   - Select Template: Select *Template 3*. (Only Template 3 supports *No Password* authorization.)



Select Template

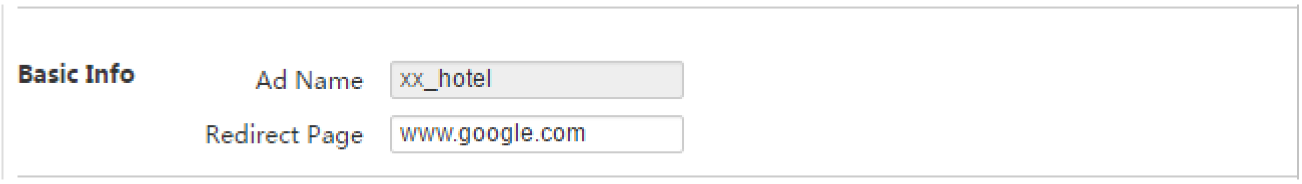
○Template 1
(size: 1120 : 410 px)

○Template 2
(size: 1170 : 290 px)

●Template 3
(size: 403 : 638 px for no password)

- Basic Info
  - Ad Name: Enter a name for this advertisement, such as *xx_hotel*.
  - Redirect Page: Enter a valid URL, such as *www.google.com*.

    Users will be redirected to this page after they are authorized successfully.

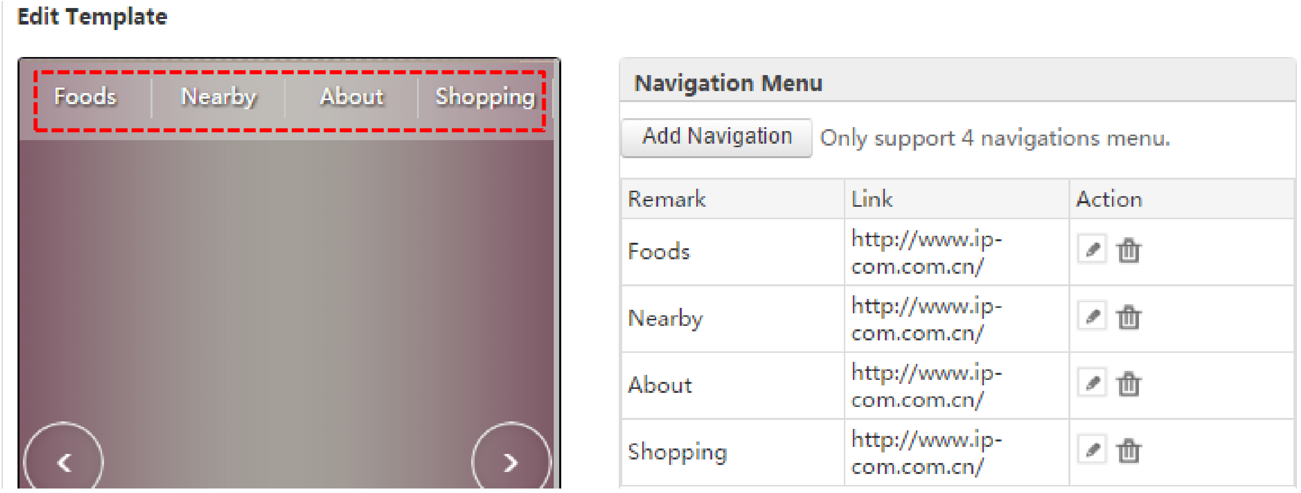


Basic Info

Ad Name: xx_hotel

Redirect Page: www.google.com

- Set Up Navigation: Click the navigation bar on the left and configure the navigation on the right.
  - Click **Add Navigation** to add a new navigation item.
  - Remark: Enter a name for the current navigation item.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this navigation item.
  - Click ✓ to save the current navigation item and click ✎ to edit the current navigation item.
  - Click 🗑 to delete the current navigation item.



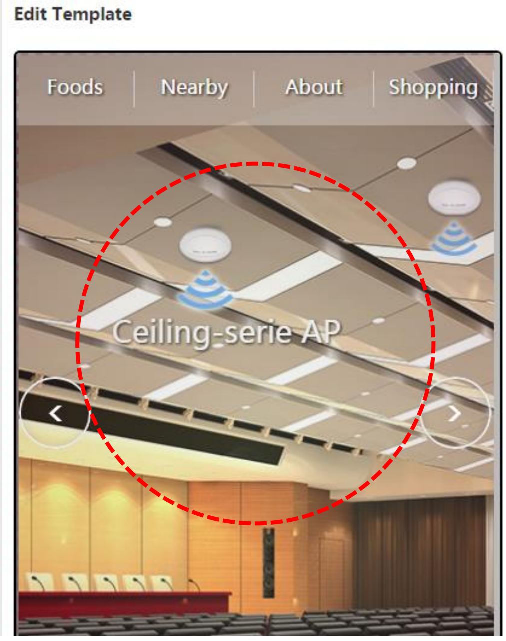
Edit Template

Navigation Menu

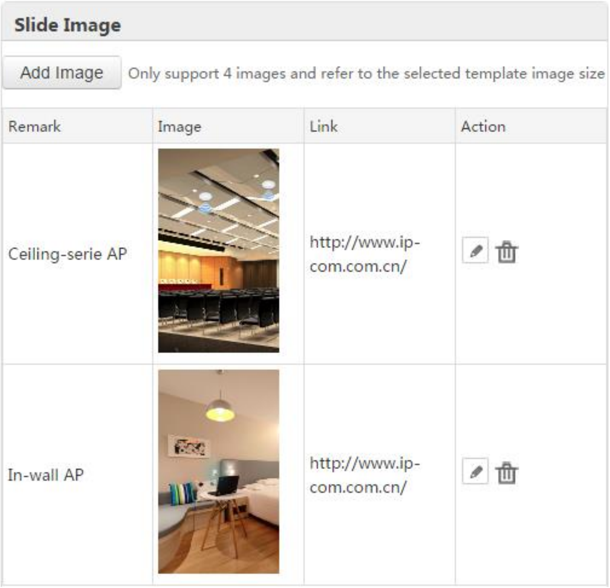
Only support 4 navigations menu.

Remark	Link	Action
Foods	http://www.ip-com.com.cn/	✎ 🗑
Nearby	http://www.ip-com.com.cn/	✎ 🗑
About	http://www.ip-com.com.cn/	✎ 🗑
Shopping	http://www.ip-com.com.cn/	✎ 🗑

- Set Up Slide Image: Click the image on the left and configure the image on the right.
  - Click **Add Image** to add a new slide image.
  - Remark: Enter a name for the current image.
  - Image: Upload an image.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this image.
  - Click ✓ to save the current image and click ✎ to edit the current image.
  - Click 🗑 to delete the current image.



Edit Template



Slide Image

Add Image Only support 4 images and refer to the selected template image size

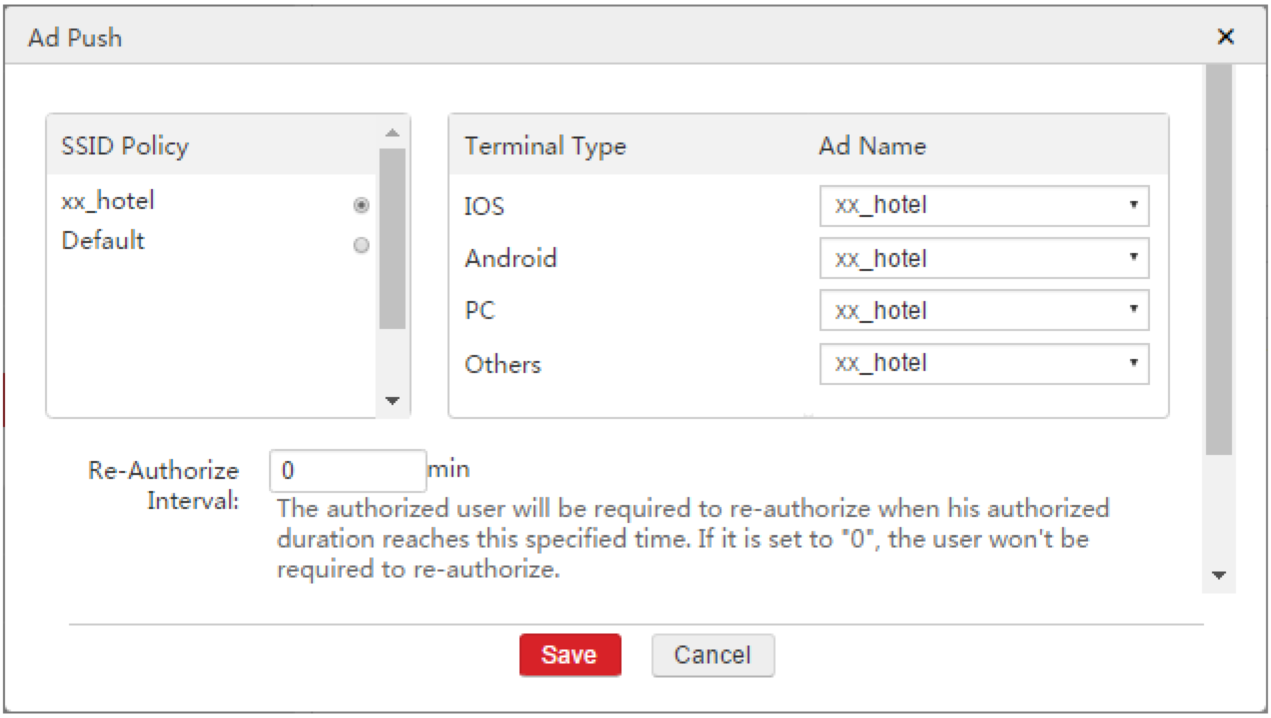
Remark	Image	Link	Action
Ceiling-serie AP		http://www.ip-com.com.cn/	✎ 🗑
In-wall AP		http://www.ip-com.com.cn/	✎ 🗑

- Click **Save** to apply your settings.

Step 3: Deliver Advertisement

To Deliver Advertisement:

1. Log in to AC’s Web UI and go to **Captive Portal** > **Create Ads** > **Ad Push**.
2. Click **Add** to deliver the above advertisement to terminals.
   - SSID Policy: Select *xx_hotel*.
   - Ad Name: In this example, select *xx_hotel* for corresponding terminals.
   - Click **Save** to apply your settings.



Ad Push

SSID Policy	
xx_hotel	●
Default	○

Terminal Type	Ad Name
IOS	xx_hotel
Android	xx_hotel
PC	xx_hotel
Others	xx_hotel

Re-Authorize Interval: 0 min

The authorized user will be required to re-authorize when his authorized duration reaches this specified time. If it is set to "0", the user won't be required to re-authorize.

Verify the Configuration

After you connect to SSID *xx_hotel* and launch a browser, the *xx_hotel* advertisement will appear. Wait until the countdown finishes, then click **Click to Access Internet** to surf the Internet.

6.2 Application of Portal Authorization

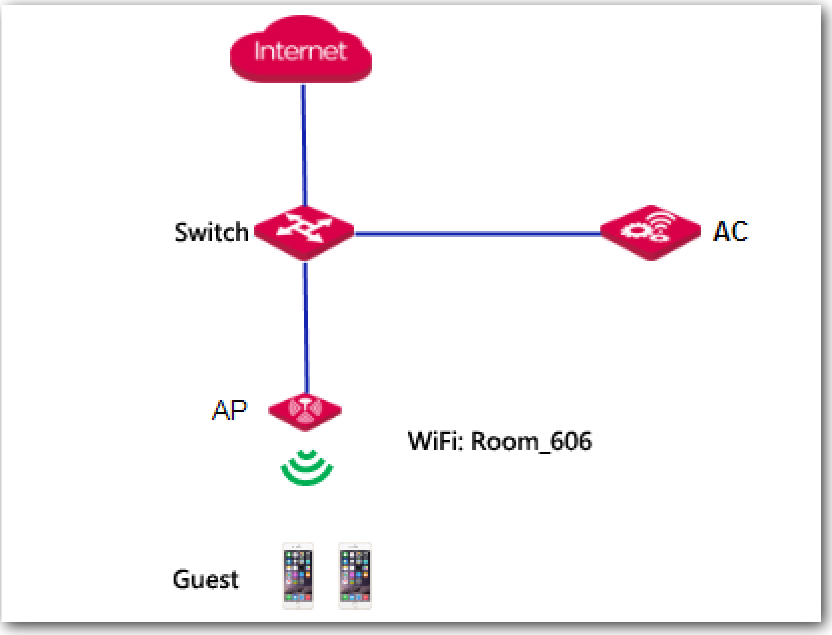
Networking Requirement

A hotel needs to establish a wireless network and has the following expectations:

- Guests in a hotel room can surf the Internet with the wireless network.
- These guests can see the advertisement about the hotel.
- These guests need to enter portal account before they surf the Internet.

Assume that WiFi name is *Room_606*.

Network Topology



Configuration Step

Step 1: Create and deliver SSID to fit AP (Optional)

If you have delivered a SSID to fit AP, please directly skip to Step 2: Create Advertisement.

To Create and deliver SSID to fit AP:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.
2. Click **Add** to create a SSID policy.
   - Policy: Enter *Room_606*.
   - SSID: Enter *Room_606*.
   - Click **Save** to apply your settings.
3. Go to **AP Management** > **SSID Group** and click **Add** to create a SSID group.
   - SSID Group: Enter *Room_606*.
   - Remark: Enter *Room_606*.
   - SSID Policy: Select *Room_606*.
   - Click **Save** to apply your settings.
4. Go to **AP Management** > **AP Group** and click **Add** to create an AP group.
   - AP Group: Enter *Room_606*.
   - Remark: Enter *Room_606*.
   - SSID Group: Select *Room_606*.
   - Click **Save** to apply your settings.

5. Go to **AP Management** > **Modify AP**, select fit APs and click **Batch Group**.
   - Group: Select *Room_606*.
   - Click **Save** to apply your settings.

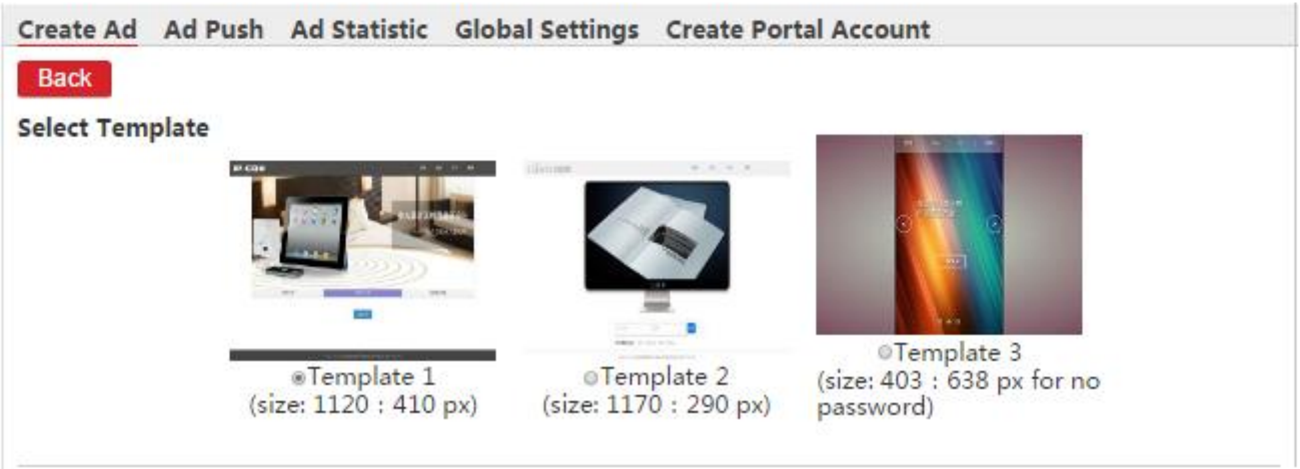
After finishing above settings, you can connect to SSID *Room_606* successfully.

Step 2: Create Advertisement

To Create Advertisement:

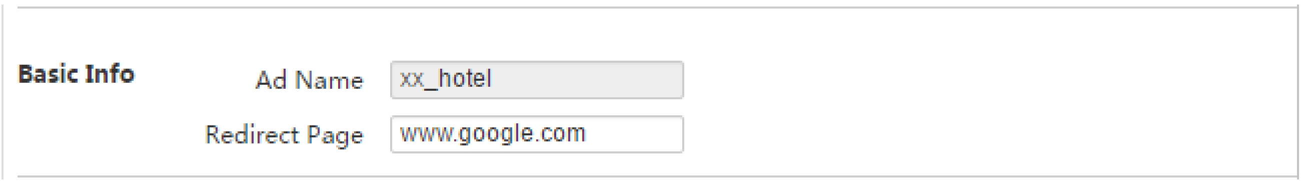
1. Log in to AC's Web UI and go to **Captive Portal** > **Create Ads** > **Create Ad**.
2. Click **Create Ad** and configure the advertisement.
   - Select Template: Select *Template 1* or *Template 2*.

     (These two templates support *Portal* authorization.)



- Basic Info
  - Ad Name: Enter a name for this advertisement, such as *xx_hotel*.
  - Redirect Page: Enter a valid URL, such as *www.google.com*.

    Users will be redirected to this page after they are authorized successfully.

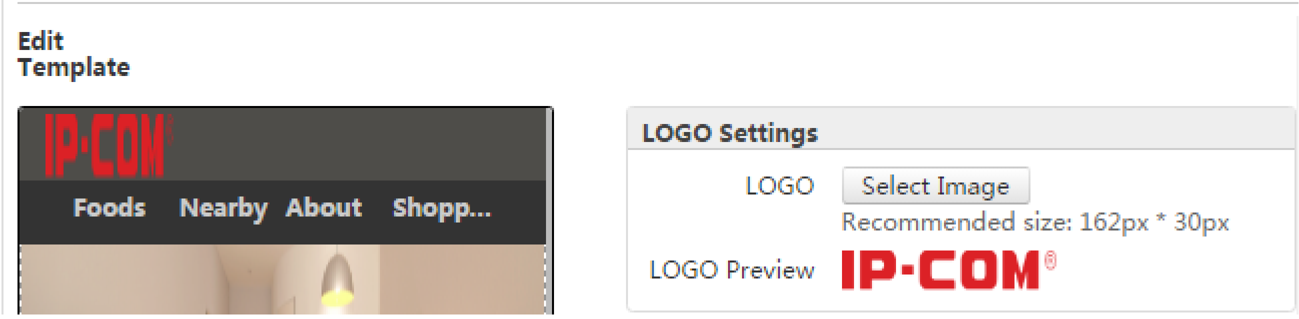


Basic Info

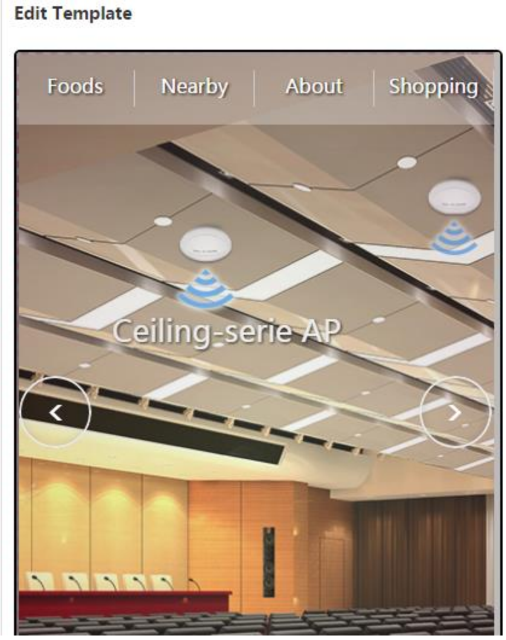
Ad Name: xx_hotel

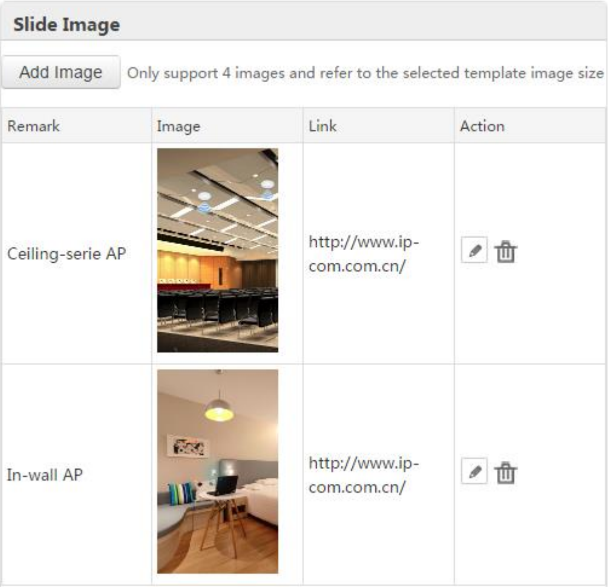
Redirect Page: www.google.com

- Set Up Logo: Click the left logo and upload a logo image for this Ad.



- Set Up Navigation: Click the navigation bar on the left and configure the navigation on the right.
  - Click **Add Navigation** to add a new navigation item.
  - Remark: Enter a name for the current navigation item.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this navigation item.
  - Click ✓ to save the current navigation item and click ✎ to edit the current navigation item.
  - Click 🗑 to delete the current navigation item.
- Set Up Slide Image: Click the image on the left and configure the image on the right.
  - Click **Add Image** to add a new slide image.
  - Remark: Enter a name for the current image.
  - Image: Upload an image.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this image.
  - Click ✓ to save the current image and click ✎ to edit the current image.
  - Click 🗑 to delete the current image.





Slide Image

Add Image Only support 4 images and refer to the selected template image size

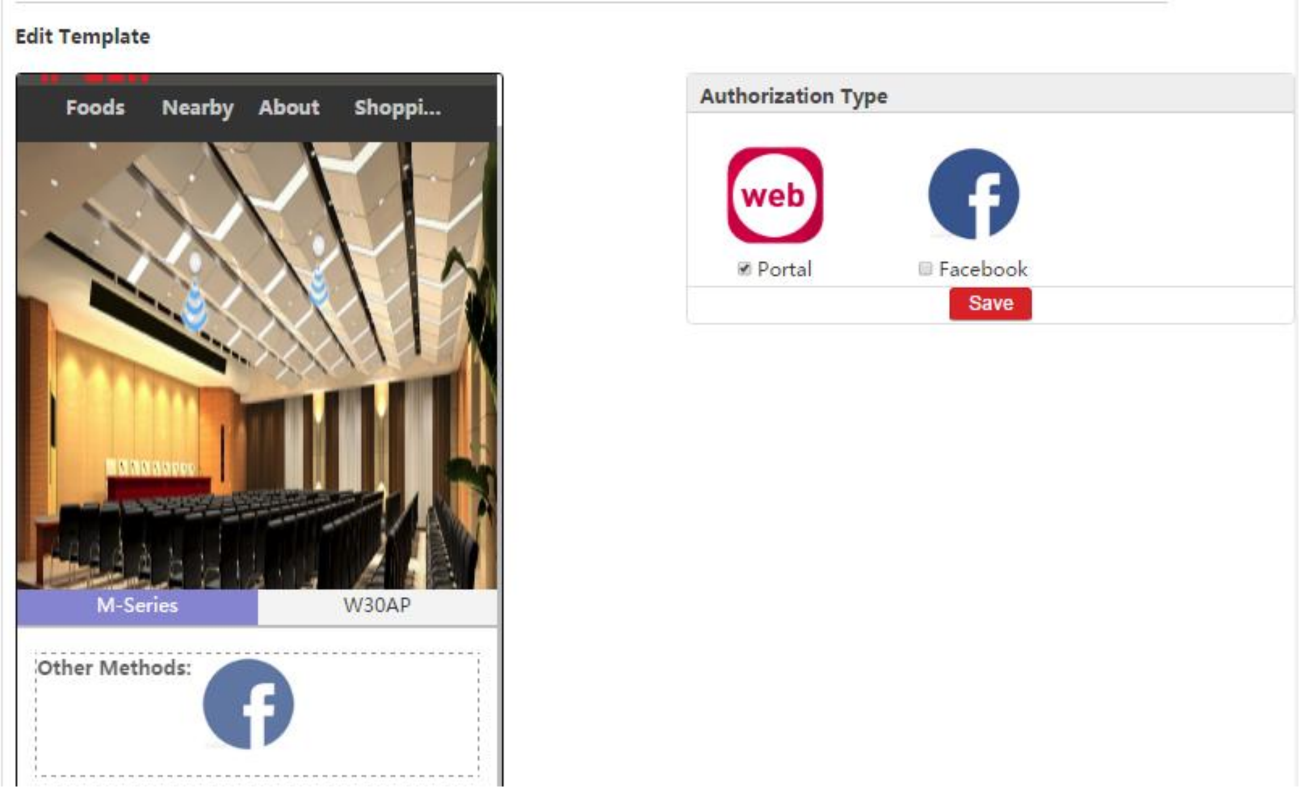
Remark	Image	Link	Action
Ceiling-serie AP		http://www.ip-com.com.cn/	✎ 🗑
In-wall AP		http://www.ip-com.com.cn/	✎ 🗑

- Set up Authorization Method

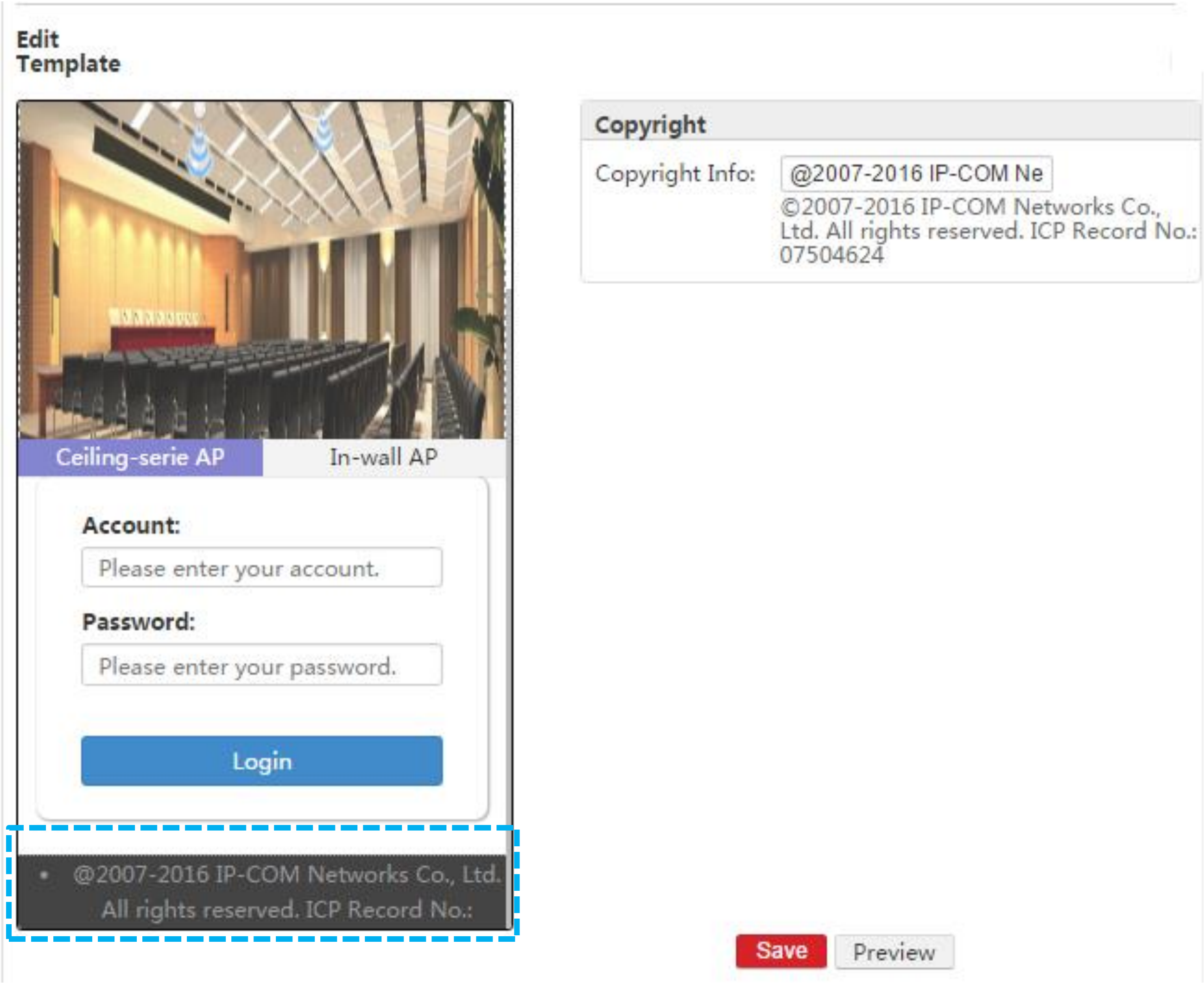
  (Template 1 and template 2 support Portal and Facebook authorizations.

  Template 3 supports no password authorization.)

  - Slide down the mouse and click **Other Methods**.
  - On the pop-up page on the right, select Portal.
  - Click **Save**.



- Set up copyright information: Click the left copyright information and enter new copyright information on the right area.



Edit Template

Copyright

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Ceiling-serie AP
In-wall AP
Account:
Please enter your account.
Password:
Please enter your password.
Login
@2007-2016 IP-COM Networks Co., Ltd.
All rights reserved. ICP Record No.:
Save
Preview

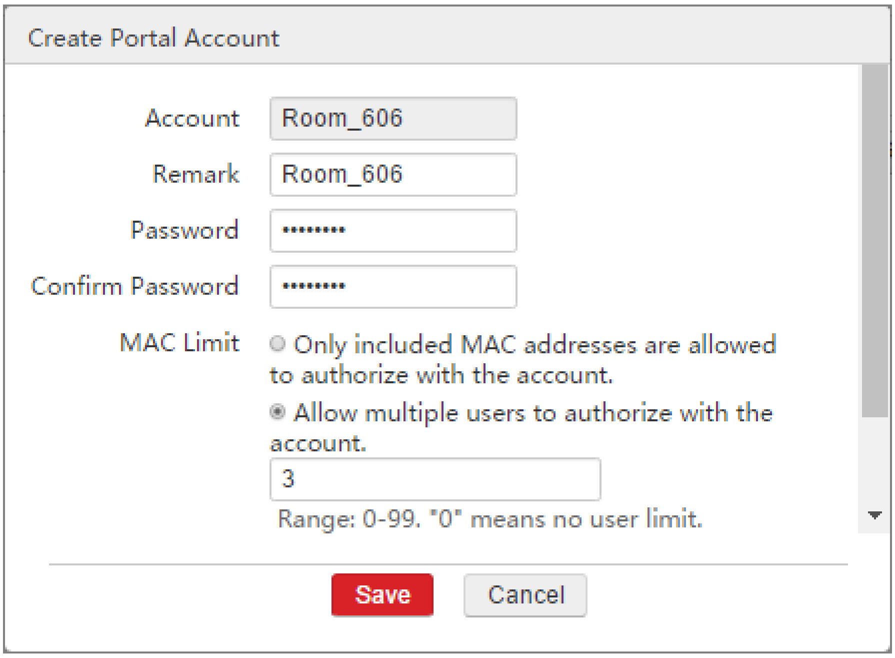
- Click **Save** to apply your settings.

Step 3: Create Portal Account

If you select Facebook authorization, please ignore this step.

To Create Portal Account:

1. Log in to AC's Web UI and go to **Captive Portal** > **Create Ads** > **Create Portal Account**.
2. Click **Add** to create a Portal account.
   - Account: Enter an account name, such as *Room_606*.
   - Remark: Enter *Room_606*.
   - Password: Enter a password for this account.
   - Confirm Password: Enter the password again.
   - MAC Limit: It is recommended to select "Allow multiple users to authorize with the account" and enter *3*.
   - Valid Period: It is recommended to select *Permanently*.
   - Click **Save** to apply your settings.


Create Portal Account

Account: Room_606

Remark: Room_606

Password: ••••••••

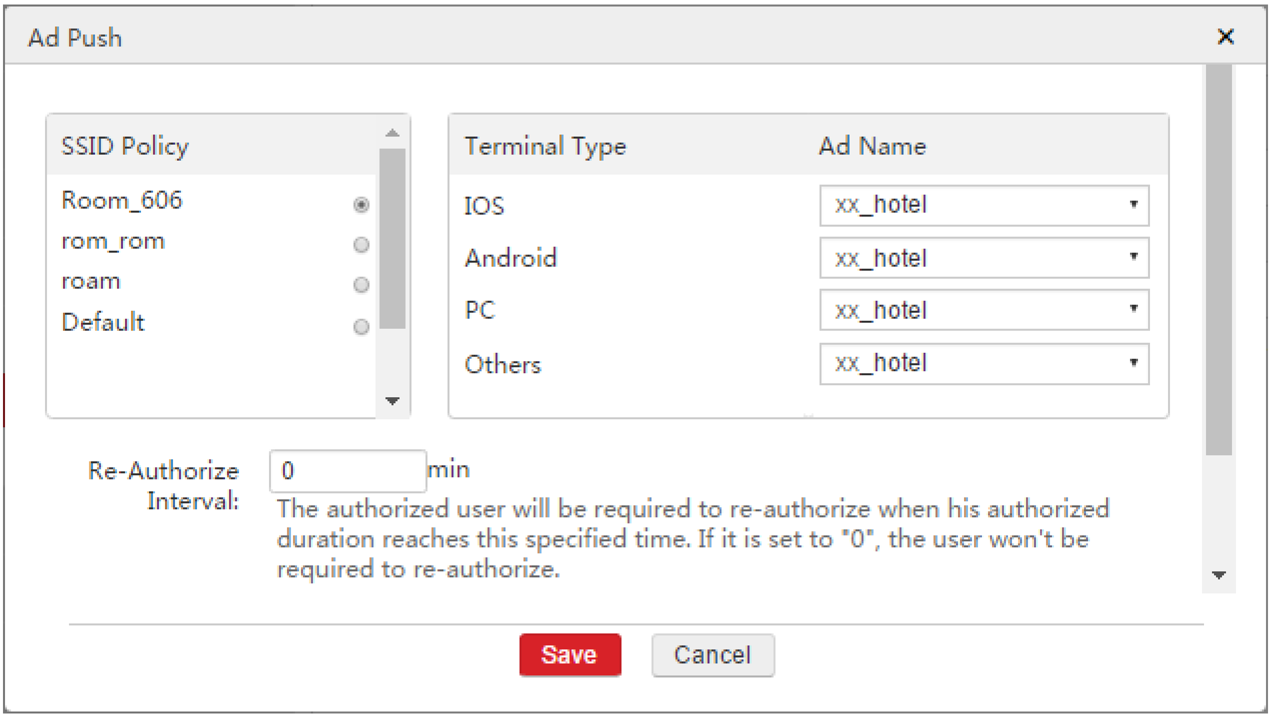
Confirm Password: ••••••••

MAC Limit: ○ Only included MAC addresses are allowed to authorize with the account.
● Allow multiple users to authorize with the account.
3
Range: 0-99. "0" means no user limit.

Step 4: Deliver Advertisement

To Deliver Advertisement:

1. Log in to AC’s Web UI and go to **Captive Portal** > **Create Ads** > **Ad Push**.
2. Click **Add** to deliver the above advertisement to terminals.
   - SSID Policy: Select *Room_606*.
   - Ad Name: In this example, select *xx_hotel* for corresponding terminals.
   - Click **Save** to apply your settings.


Ad Push

SSID Policy	
Room_606	●
rom_rom	○
roam	○
Default	○

Terminal Type	Ad Name
IOS	xx_hotel
Android	xx_hotel
PC	xx_hotel
Others	xx_hotel

Re-Authorize Interval: 0 min
The authorized user will be required to re-authorize when his authorized duration reaches this specified time. If it is set to "0", the user won't be required to re-authorize.

Verify the Configuration

After you connect to SSID *Room_606* and launch a browser, the *xx_hotel* advertisement will appear. Enter the portal account to surf the Internet.

6.3 Application of Facebook Authorization

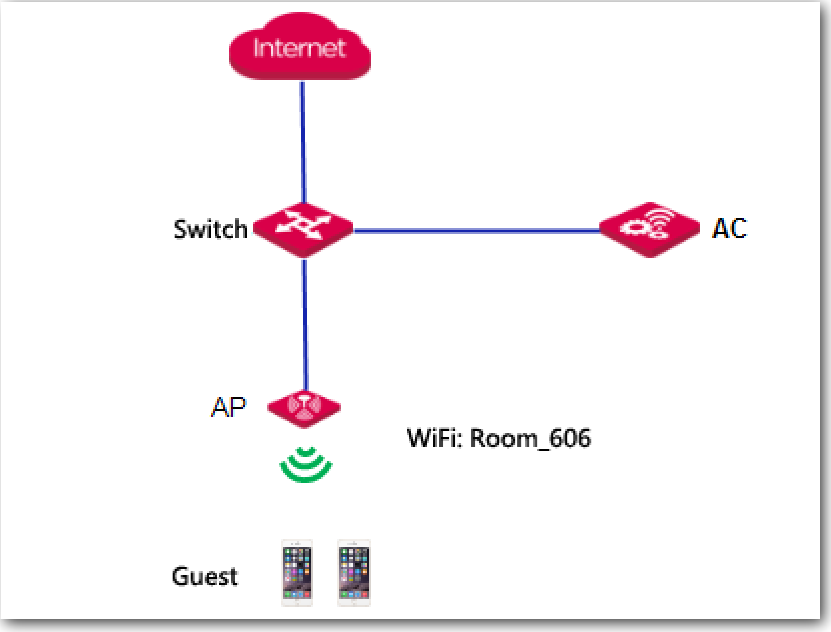
Networking Requirement

A hotel needs to establish a wireless network and has the following expectations:

- Guests in a hotel room can surf the Internet with the wireless network.
- These guests can see the advertisement about the hotel.
- These guests need to enter Facebook account before they surf the Internet.

Assume that WiFi name is *Room_606*.

Network Topology



Configuration Step

Step 1: Create and deliver SSID to fit AP (Optional)

If you have delivered a SSID to fit AP, please directly skip to Step 2: Create Advertisement.

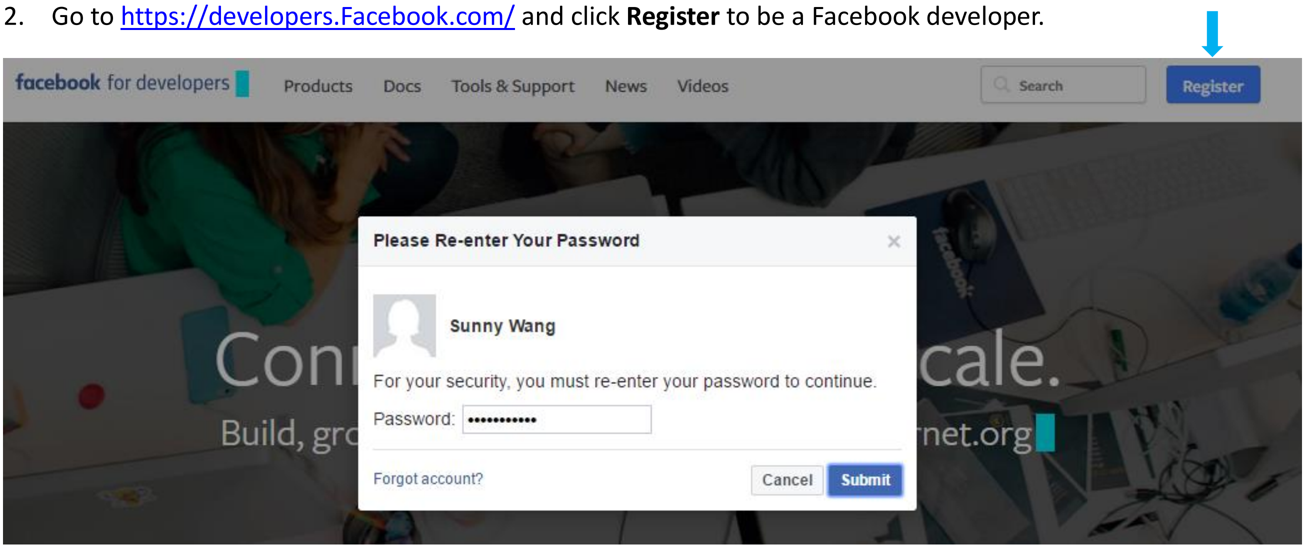
To Create and deliver SSID to fit AP:

1. Log in to AC's Web UI and go to **Policy Management** > **SSID Policy**.
2. Click **Add** to create a SSID policy.
    - Policy: Enter *Room_606*.
    - SSID: Enter *Room_606*.
    - Click **Save** to apply your settings.
3. Go to **AP Management** > **SSID Group** and click **Add** to create a SSID group.
    - SSID Group: Enter *Room_606*.
    - Remark: Enter *Room_606*.
    - SSID Policy: Select *Room_606*.
    - Click **Save** to apply your settings.
4. Go to **AP Management** > **AP Group** and click **Add** to create an AP group.
    - AP Group: Enter *Room_606*.
    - Remark: Enter *Room_606*.
    - SSID Group: Select *Room_606*.
    - Click **Save** to apply your settings.
5. Go to **AP Management** > **Modify AP**, select fit APs and click **Batch Group**.
    - Group: Select *Room_606*.
    - Click **Save** to apply your settings.

After finishing above settings, you can connect to SSID *Room_606* successfully.

Step 2: Create a Facebook APP ID

1. Go to https://www.Facebook.com/ to sign up a Facebook account if you don't have one.
2. Go to https://developers.Facebook.com/ and click **Register** to be a Facebook developer.



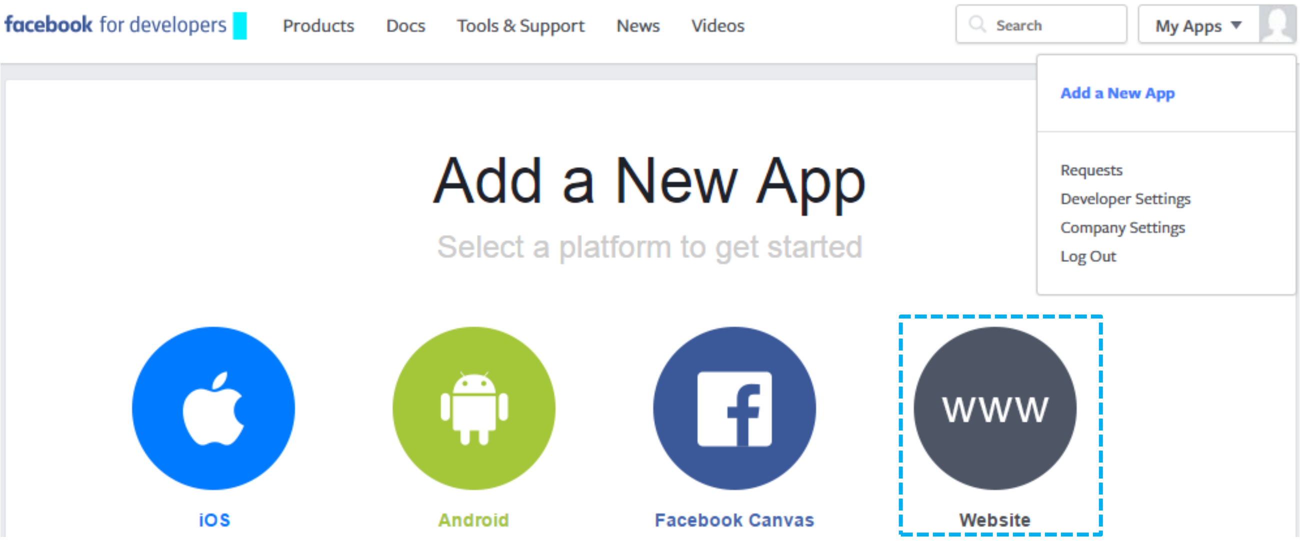
Please Re-enter Your Password

Sunny Wang

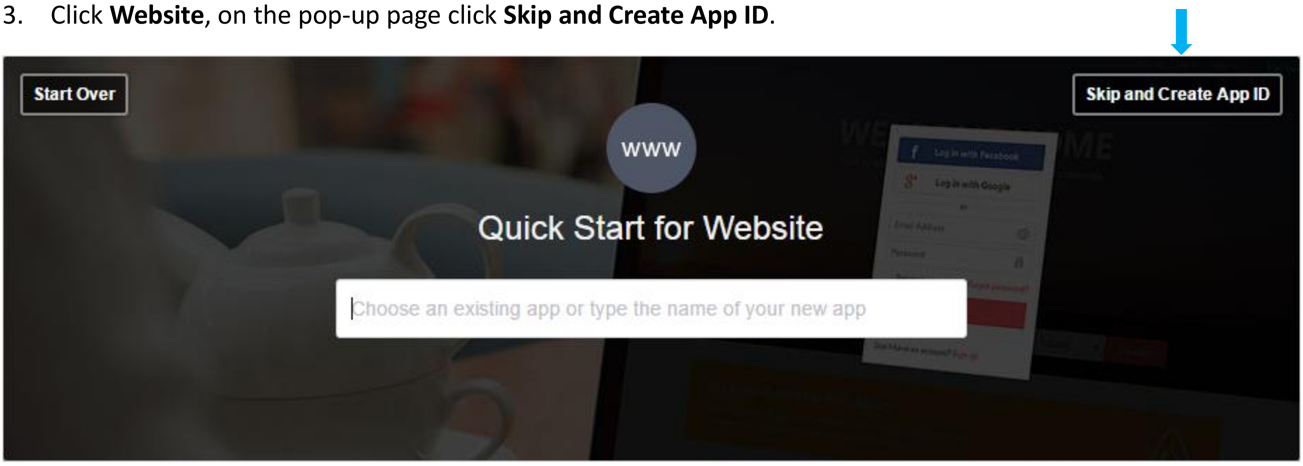
For your security, you must re-enter your password to continue.

Password: •••••••••••

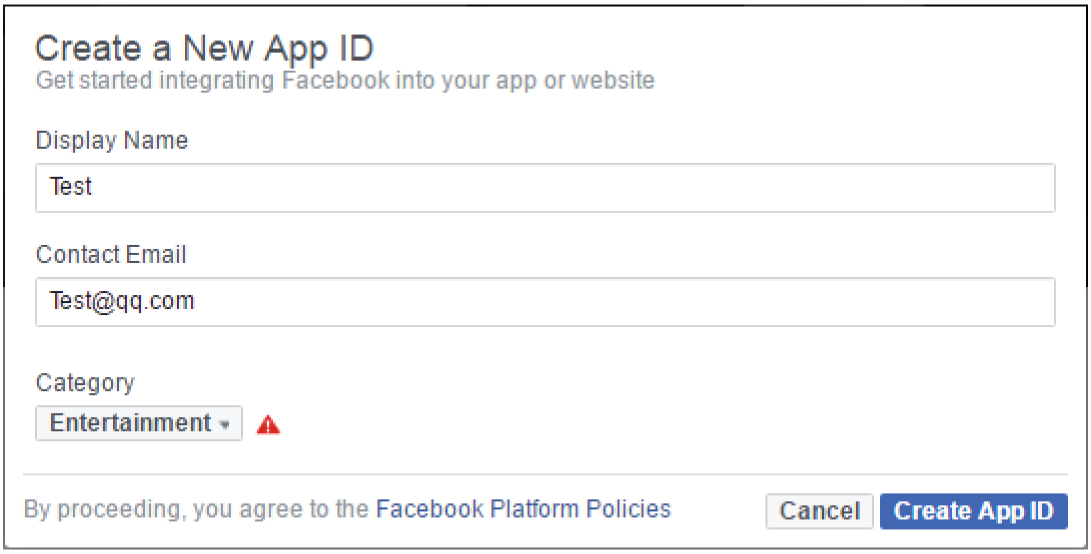
Then the following page appears.(If not, click **My Apps** > **Add a New App** on the developer page.)



3. Click **Website**, on the pop-up page click **Skip and Create App ID**.



4. After you enter **Display Name** and **Contact Email** and select a **Category**, click **Create App ID**, and then follow onscreen instructions to create an App ID.


Create a New App ID

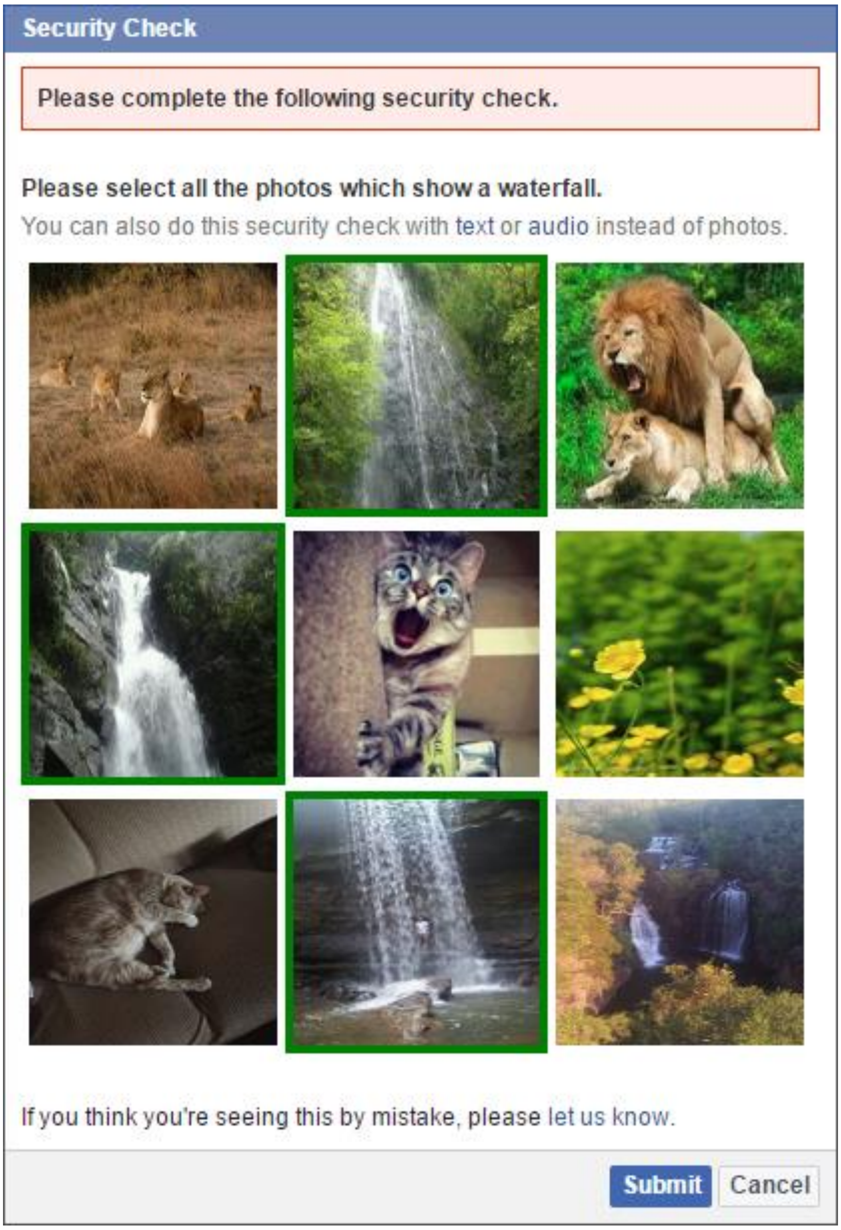
Get started integrating Facebook into your app or website

Display Name: Test

Contact Email: Test@qq.com

Category: Entertainment

By proceeding, you agree to the Facebook Platform Policies



Security Check

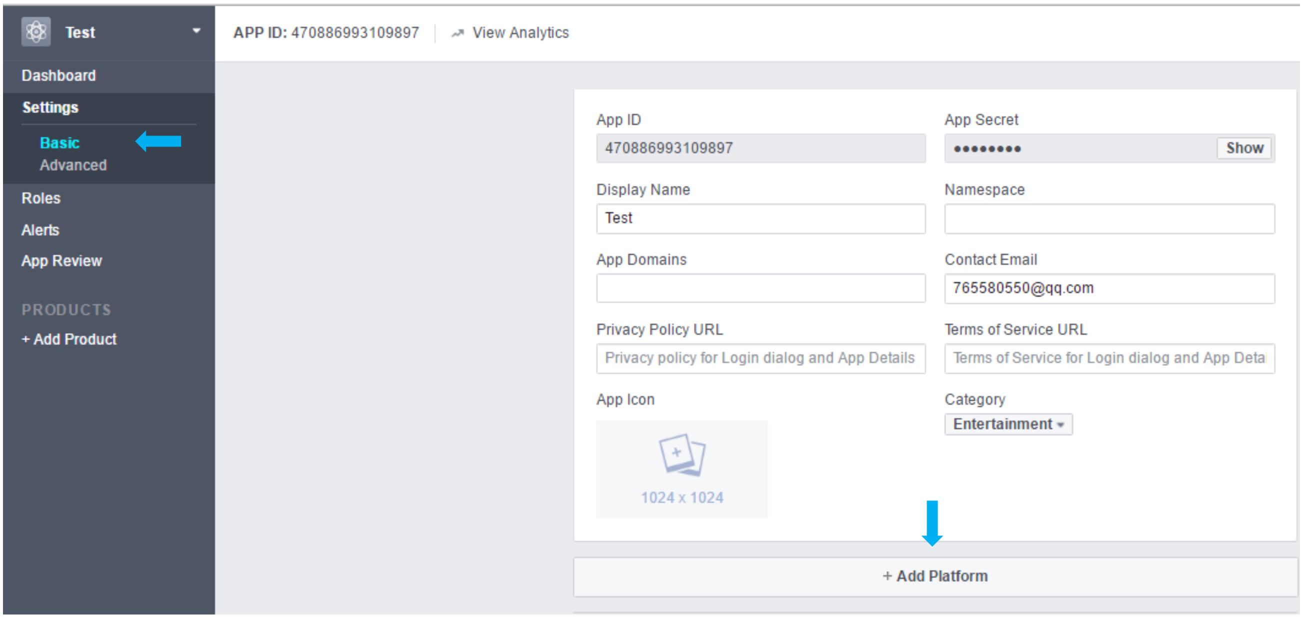
Please complete the following security check.

Please select all the photos which show a waterfall.

You can also do this security check with text or audio instead of photos.

If you think you're seeing this by mistake, please let us know.

5. Click **Settings** > **Basic**, and then click **Add Platform**.



APP ID: 470886993109897

App ID: 470886993109897

App Secret: ••••••••

Display Name: Test

Namespace:

App Domains:

Contact Email: 765580550@qq.com

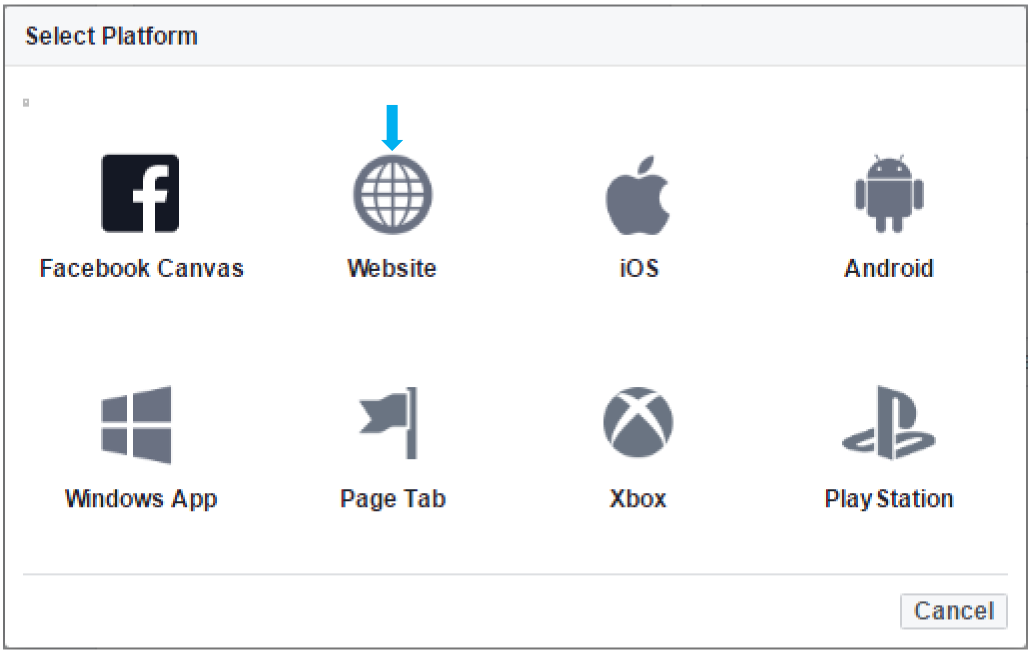
Privacy Policy URL: Privacy policy for Login dialog and App Details

Terms of Service URL: Terms of Service for Login dialog and App Deta

App Icon

Category: Entertainment

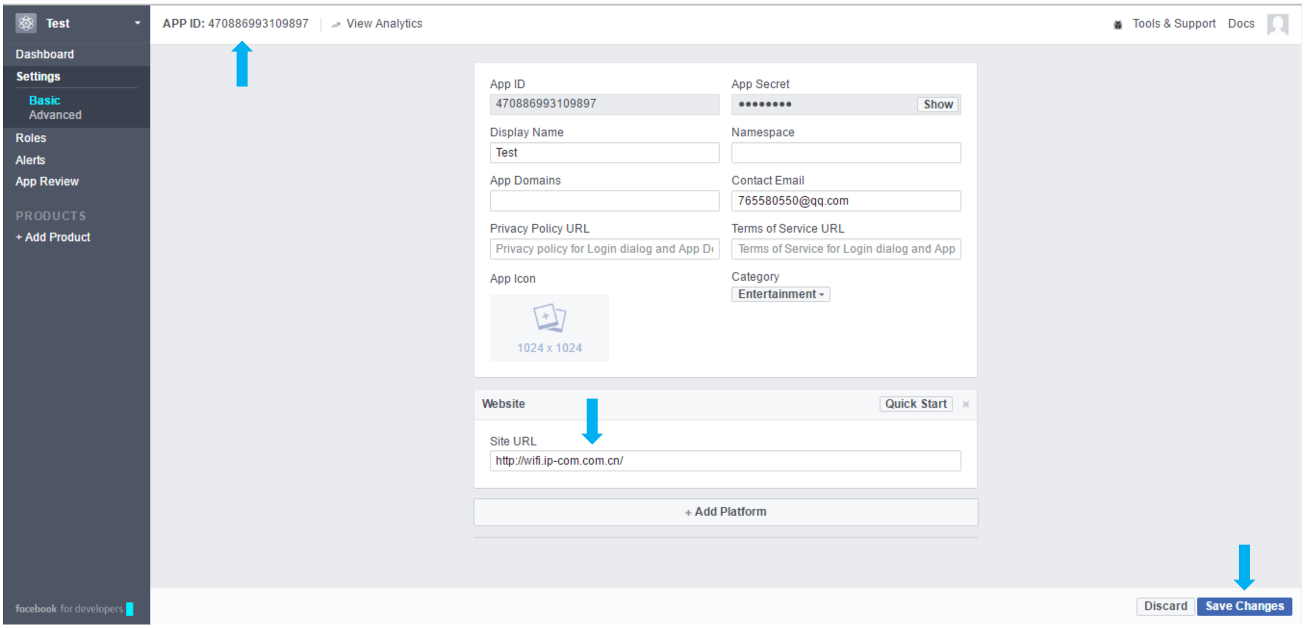
6. On the pop-up window, select **Website**.



7. On the website box, enter http://wifi.ip-com.com.cn/, which is used for advertising of AC3000.

8. Click **Save Changes** and note down APP ID.

   This APP ID will be used when you set up Facebook authrization, refer to Set up Authorization Method.



APP ID: 470886993109897

App ID: 470886993109897

App Secret: ••••••••

Display Name: Test

Namespace:

App Domains:

Contact Email: 765580550@qq.com

Privacy Policy URL: Privacy policy for Login dialog and App D

Terms of Service URL: Terms of Service for Login dialog and App

App Icon

Category: Entertainment

Website

Site URL: http://wifi.ip-com.com.cn/

Step 3: Create Advertisement

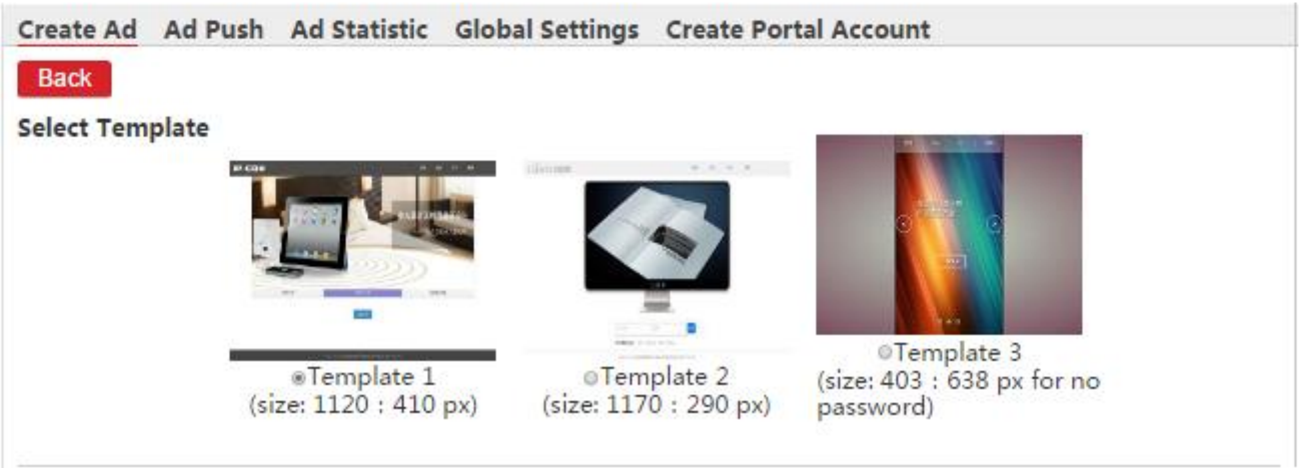
To Create Advertisement:

1. Log in to AC's Web UI and go to **Captive Portal** > **Create Ads** > **Create Ad**.

2. Click **Create Ad** and configure the advertisement.

   - Select Template: Select *Template 1* or *Template 2*.

     (These two templates support *Portal/Facebook* authorization.)



Select Template

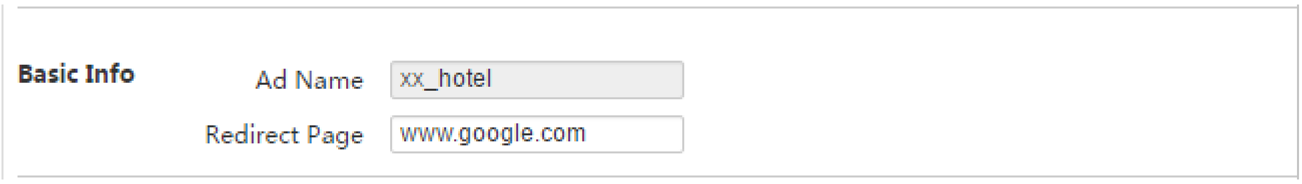
● Template 1
(size: 1120 : 410 px)

○ Template 2
(size: 1170 : 290 px)

○ Template 3
(size: 403 : 638 px for no password)

- Basic Info
  - Ad Name: Enter a name for this advertisement, such as *xx_hotel*.
  - Redirect Page: Enter a valid URL, such as *www.google.com*.

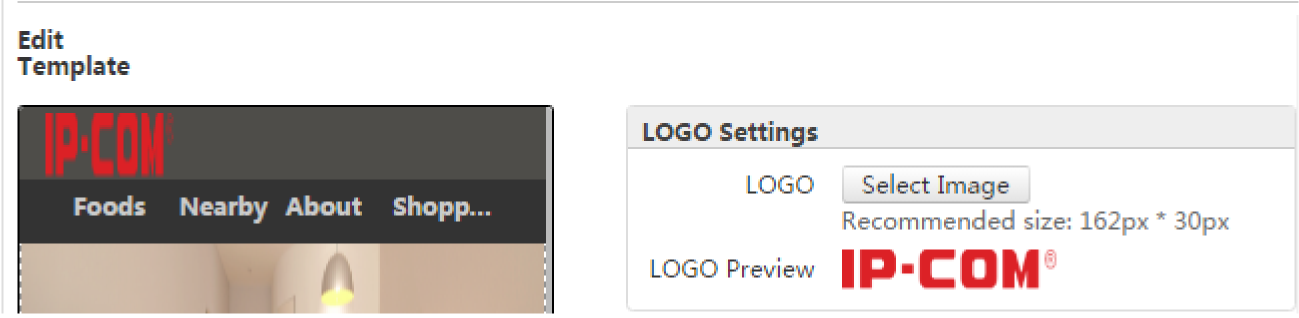
    Users will be redirected to this page after they are authorized successfully.



Basic Info

Ad Name	xx_hotel
Redirect Page	www.google.com

- Set Up Logo: Click the left logo and upload a logo image for this Ad.



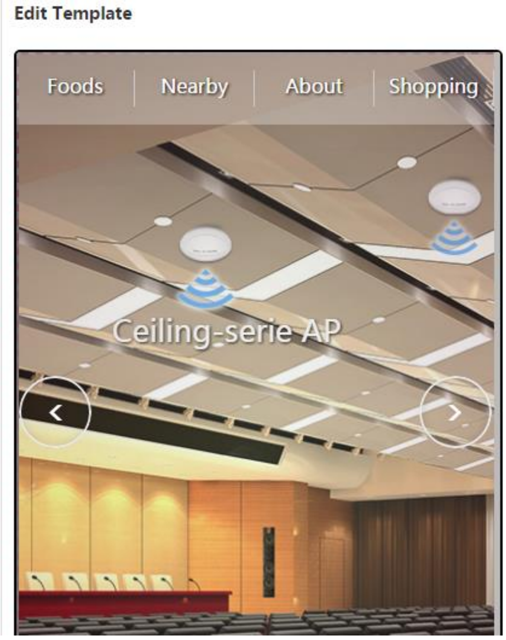
Edit Template

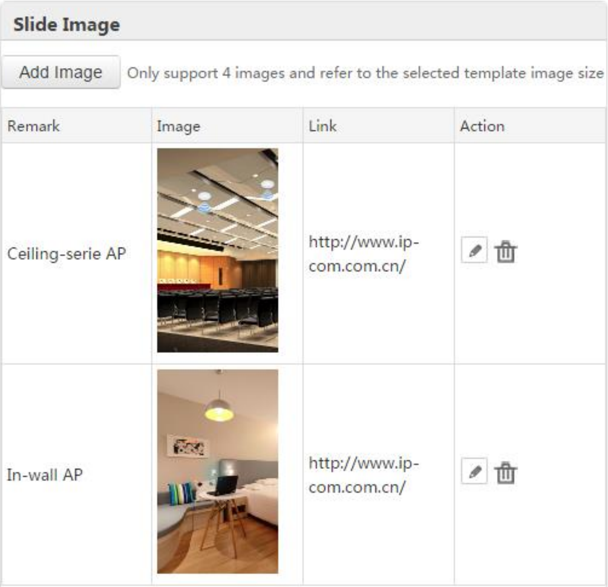
LOGO Settings

LOGO Select Image
Recommended size: 162px * 30px

LOGO Preview IP-COM®

- Set Up Navigation: Click the navigation bar on the left and configure the navigation on the right.
  - Click **Add Navigation** to add a new navigation item.
  - Remark: Enter a name for the current navigation item.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this navigation item.
  - Click ✓ to save the current navigation item and click ✎ to edit the current navigation item.
  - Click 🗑 to delete the current navigation item.
- Set Up Slide Image: Click the image on the left and configure the image on the right.
  - Click **Add Image** to add a new slide image.
  - Remark: Enter a name for the current image.
  - Image: Upload an image.
  - Link: Enter a valid URL. Users will be redirected to the URL after they click this image.
  - Click ✓ to save the current image and click ✎ to edit the current image.
  - Click 🗑 to delete the current image.




Slide Image

Add Image Only support 4 images and refer to the selected template image size

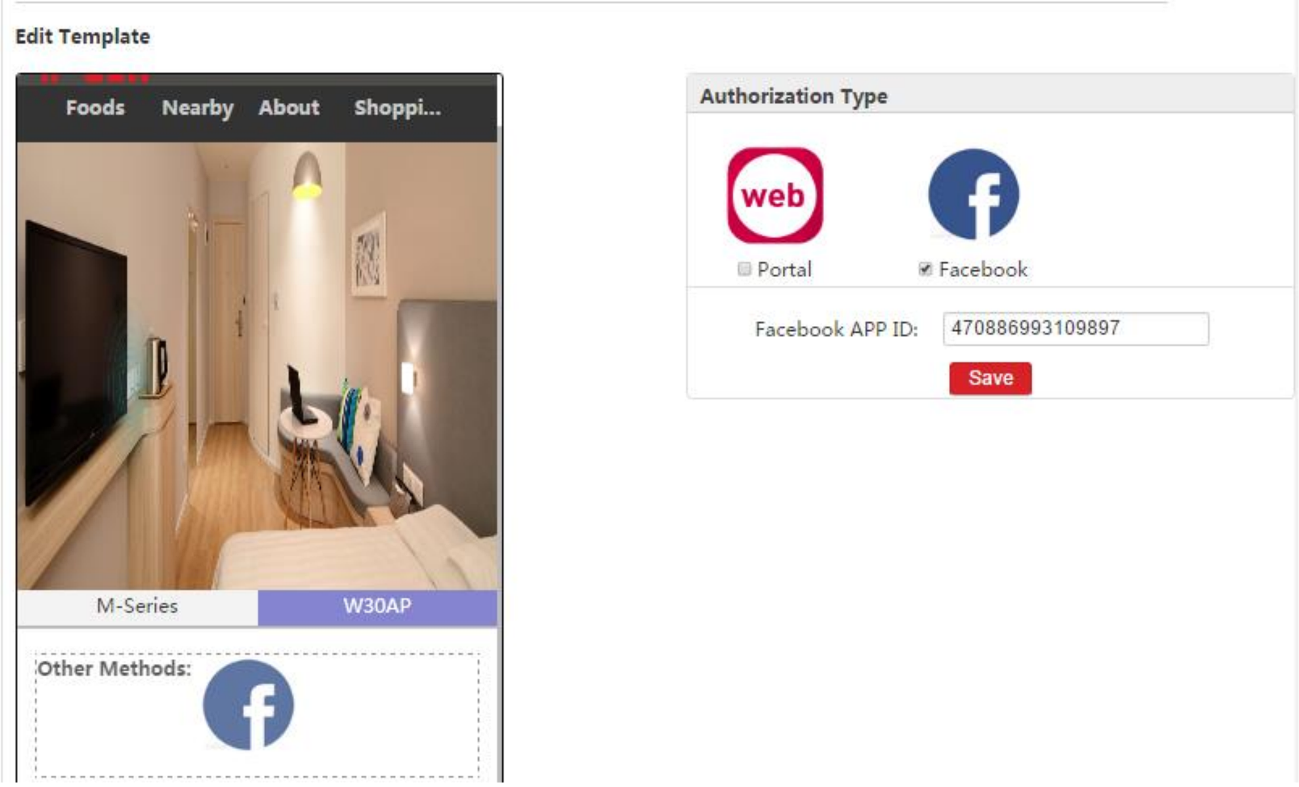
Remark	Image	Link	Action
Ceiling-serie AP		http://www.ip-com.com.cn/	✎ 🗑
In-wall AP		http://www.ip-com.com.cn/	✎ 🗑

- Set up Authorization Method

  (Template 1 and template 2 support Portal and Facebook authorizations.

  Template 3 supports no password authorization.)

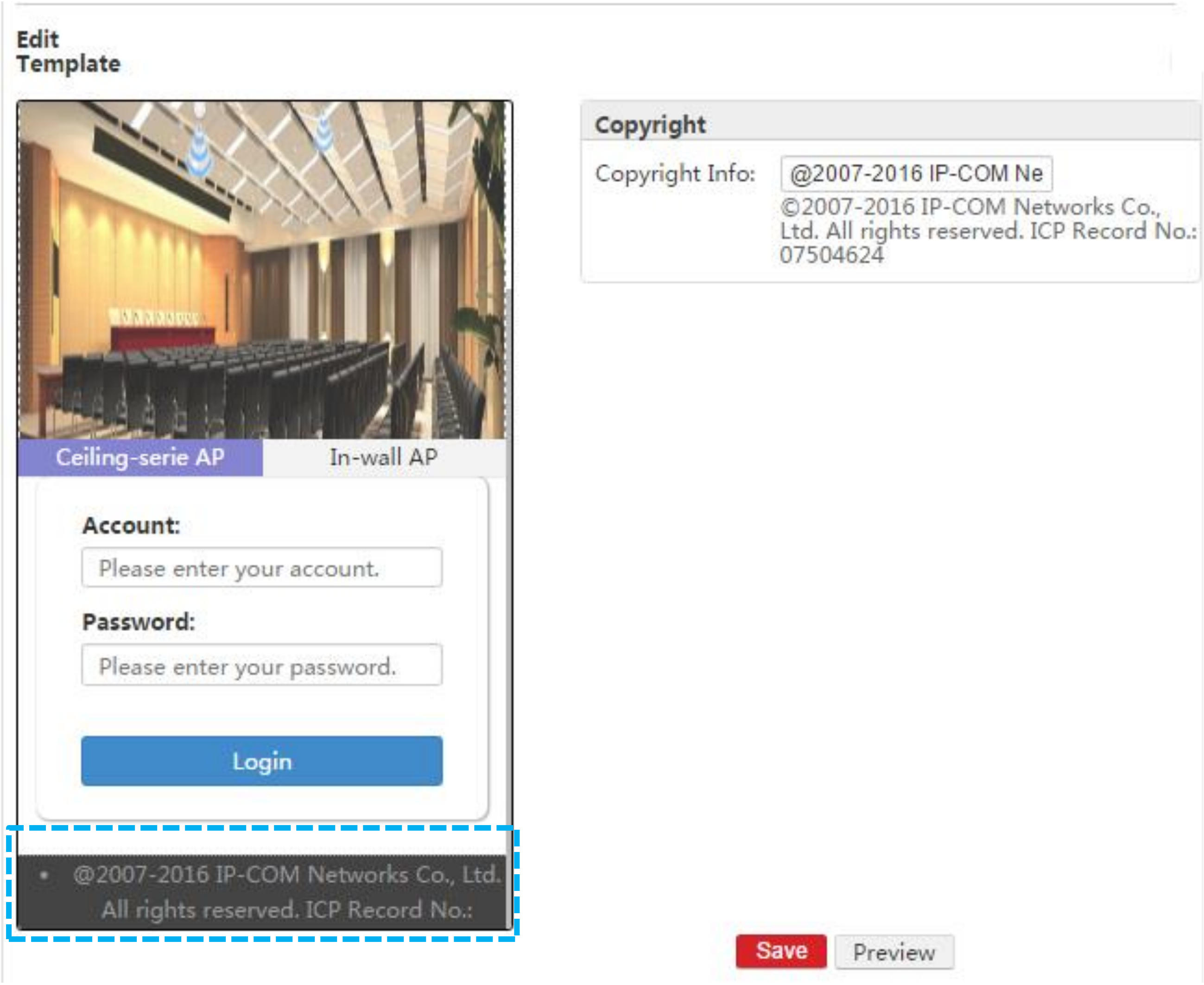
  - Slide down the mouse and click **Other Methods**.
  - On the pop-up page on the right, select Facebook and enter Facebook APP ID: 470886993109897.
  - Click **Save**.



□ Portal ☑ Facebook

Facebook APP ID: 470886993109897

- Set up copyright information: Click the left copyright information and enter new copyright information on the right area.



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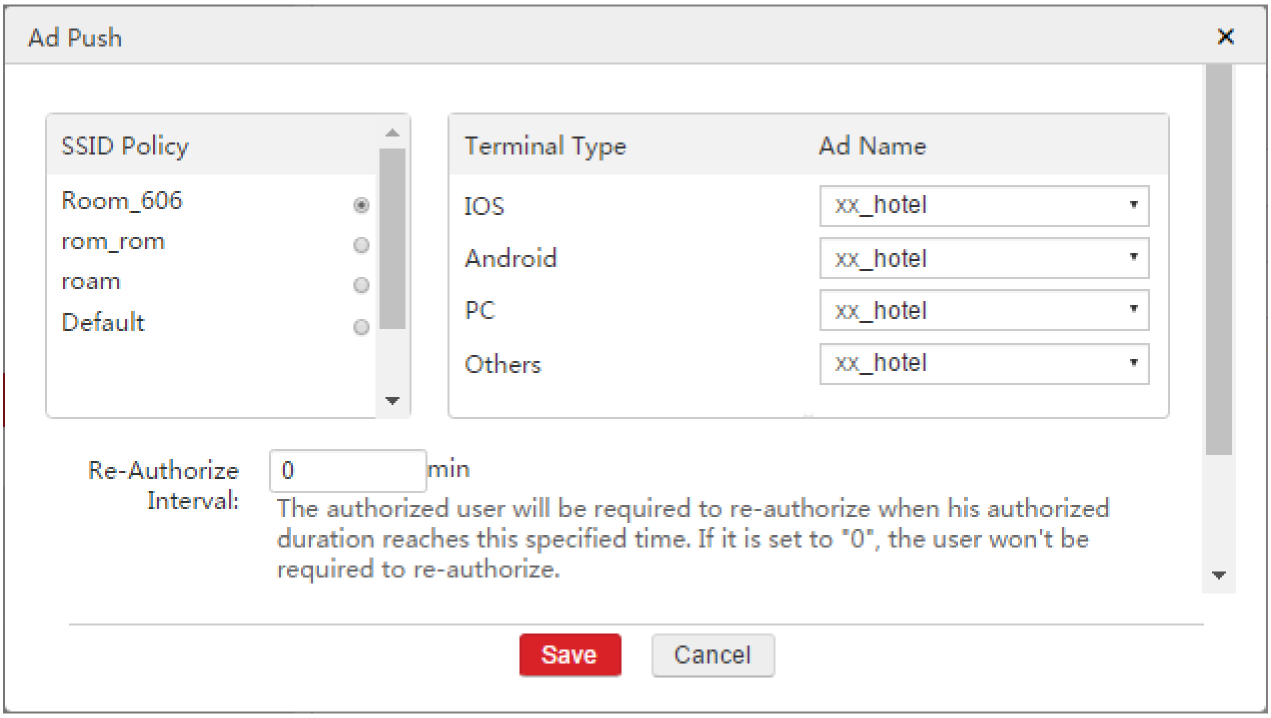
- Click **Save** to apply your settings.

Step 4: Deliver Advertisement

To Deliver Advertisement:

3. Log in to AC's Web UI and go to **Captive Portal** > **Create Ads** > **Ad Push**.
4. Click **Add** to deliver the above advertisement to terminals.
   - SSID Policy: Select *Room_606*.
   - Ad Name: In this example, select *xx_hotel* for corresponding terminals.
   - Click **Save** to apply your settings.



Ad Push

SSID Policy	
Room_606	●
rom_rom	○
roam	○
Default	○

Terminal Type	Ad Name
IOS	xx_hotel
Android	xx_hotel
PC	xx_hotel
Others	xx_hotel

Re-Authorize Interval: 0 min

The authorized user will be required to re-authorize when his authorized duration reaches this specified time. If it is set to "0", the user won't be required to re-authorize.

Verify the Configuration

After you connect to SSID *Room_606* and launch a browser, the *xx_hotel* advertisement will appear. Click on the Facebook icons and then enter Facebook account to surf the Internet.