Tenda

i12 Wireless Access Point

User Guide

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Preface

Thank you for choosing Tenda! Please read this user guide before you start with i12.

Conventions

The typographical elements that may be found in this document are defined as follows.

Item	Presentation	Example
Cascading menus	>	**System** > **Live Users**
Parameter and value	Bold	Set **User Name** to **Tom**.
Variable	Italic	Format: *XX*:*XX*:*XX*:*XX*:*XX*:*XX*
UI control	Bold	On the **Policy** page, click the **OK** button.
Message	“ ”	The “Success” message appears.

The symbols that may be found in this document are defined as follows.

Symbol	Meaning
NOTE	This format is used to highlight information of importance or special interest. Ignoring this type of note may result in ineffective configurations, loss of data or damage to device.
TIP	This format is used to highlight a procedure that will save time or resources.

Acronyms and Abbreviations

Acronym or Abbreviation	Full Spelling
AP	Access Point
DDNS	Dynamic Domain Name System
DHCP	Dynamic Host Configuration Protocol
DLNA	Digital Living Network Alliance
DMZ	Demilitarized Zone
DNS	Domain Name System
IPTV	Internet Protocol Television
ISP	Internet Service Provider
L2TP	Layer 2 Tunneling Protocol

Acronym or Abbreviation	Full Spelling
MPPE	Microsoft Point-to-Point Encryption
PPP	Point To Point Protocol
PPPoE	Point-to-Point Protocol over Ethernet
PPTP	Point to Point Tunneling Protocol
SSID	Service Set Identifier
STB	Set Top Box
URL	Uniform Resource Locator
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
WISP	Wireless Internet Service Provider
WPS	WiFi Protected Setup

Additional Information

For more information, search this product model on our website at http://www.tendacn.com.

Technical Support

If you need more help, contact us by any of the following means. We will be glad to assist you as soon as possible.

<table>
<tr><td rowspan="5"> 
Hotline</td><td>Global: (86) 755-27657180</td><td rowspan="5"> 
Email</td><td rowspan="5">support@tenda.cn</td></tr>
<tr><td>United States: 1-800-570-5892</td></tr>
<tr><td>Canada: 1-888-998-8966</td></tr>
<tr><td>Hong Kong: 00852-81931998</td></tr>
<tr><td>Australia: 1300787922
New Zealand: 800787922</td></tr>
<tr><td> 
Website</td><td>http://www.tendacn.com</td><td> 
Skype</td><td>tendasz</td></tr>
</table>

Contents

1 Get to Know Your Device

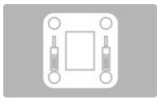
1.1 Overview

i12 is a Tenda ceiling-mounted wireless access point (AP) that offers a wireless transmission capacity of up to 300 Mbps. It supports DC and PoE power supplies, and can be managed using the web UI of the AP or a Tenda AP controller (AC) such as M3. The AP is an optimum choice for providing wireless coverage in indoor areas such as enterprises, hotels, and restaurants.

The following table provides the specifications of i12.

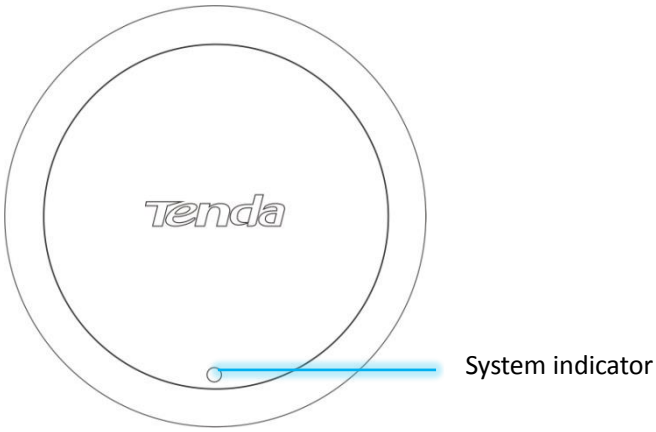
Model	Product Name	Power Supply	
		DC	PoE
i12	Wireless access point (25 clients)	12V 1A	IEEE 802.3at PoE

1.2 Packing List

	Ceiling-mounted AP		Mounting bracket		Ethernet cable
	Installation guide		Screw x 4		Sleeve anchor x 4

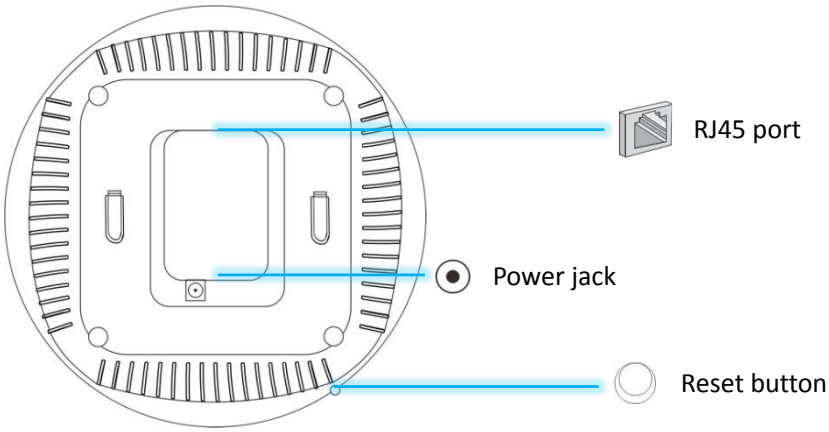
1.3 Appearance

1.3.1 LED Indicator



LED Indicator	Status	Description
System indicator	Solid on	The system is booting or faulty.
	Blinking	The system is running properly.
	Off	The system is powered off or the LED indicator is turned off.

1.3.2 Button and Port



- Reset button

  After the AP is powered on, you can hold down this button for 8 seconds to restore the factory settings.

- RJ45 port

  This port is used to connect to a PoE power supply and exchange data.

Model	Rate	Connection Description
i12	10/100/1000 Mbps auto negotiation	If the AP is powered using a DC adapter, connect this port to a switch. If the AP must be powered through PoE, connect this port to an

Model	Rate	Connection Description
		IEEE 802.3at PoE switch. The AP allows a PoE power supply distance of not longer than 100 meters.

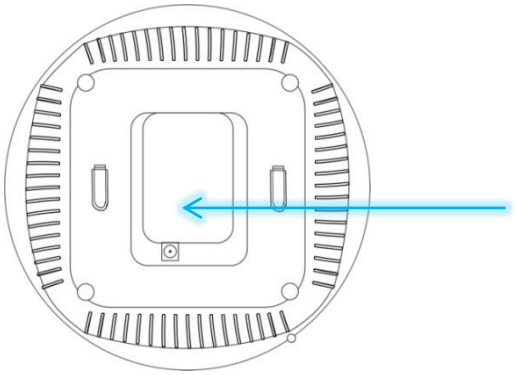
- Power jack

  The power jack is used to connect to a DC adapter for supplying power to the AP.

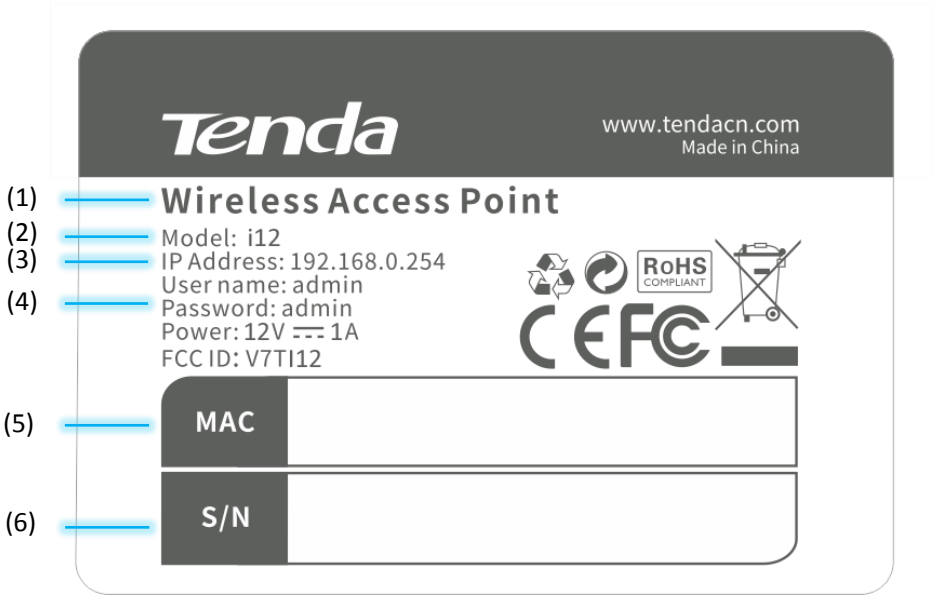
Model	Power Specifications	
	Input	Output
i12	100V-240V, 50/60Hz AC	12V 1A DC

1.3.3 Label

The label is located on the rear panel of the AP. For details of the label, see the following figure.



Position of the label



- (1): Name of the AP.
- (2): Model of the AP.

- (3): Default IP address of the AP. You can use this IP address to log in to the web UI of the AP.
- (4): Default user name and password of the web UI of the AP.
- (5): MAC address of the AP. The default primary SSID of the AP is Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters of this MAC address.
- (6): Serial number of the AP. If the AP is faulty, you need to provide this serial number when sending the AP for repair.

2 Installing the AP

2.1 Preparing for Installation

Before installing the AP, follow the instructions in this section to make preparation.

2.1.1 Precautions

To prevent damaging the AP or causing a personal injury, pay attention to the following precautions:

- Ensure that the temperature and humidity requirements specified in the following table are met.

Environment	Temperature	Humidity
Operating environment	0°C - 45°C	10%RH - 90%RH (non-condensing)
Storage environment	-40°C - 70°C	5%RH - 90%RH (non-condensing)

- Ensure that the AP is mounted on a place free of accumulated water and water drips. Do not install the AP in a wet environment.
- Do not open or remove the housing of the AP.
- Keep the AP clean.
- Before cleaning the AP, disconnect it from the power supply. Do not scrub the AP with any liquid.

2.1.2 Preparing Tools

You may need a rubber hammer, a marker, a hammer drill, a spirit level, a measuring tape, a 6 mm drill bit, a Phillips screwdriver, ESD gloves, and a ladder during installation. Prepare them yourself.

	Rubber hammer		Marker		Hammer drill
	Spirit level		Measuring tape		6 mm drill bit
	Phillips screwdriver		ESD gloves		Ladder

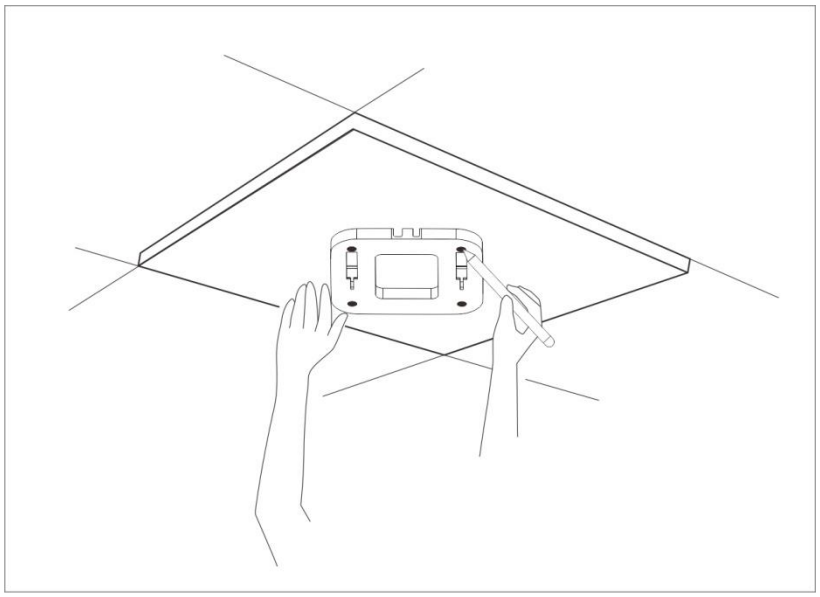
2.2 Installing the AP

Step 1 Place the mounting bracket onto the target position of the ceiling and mark the positions of the screw

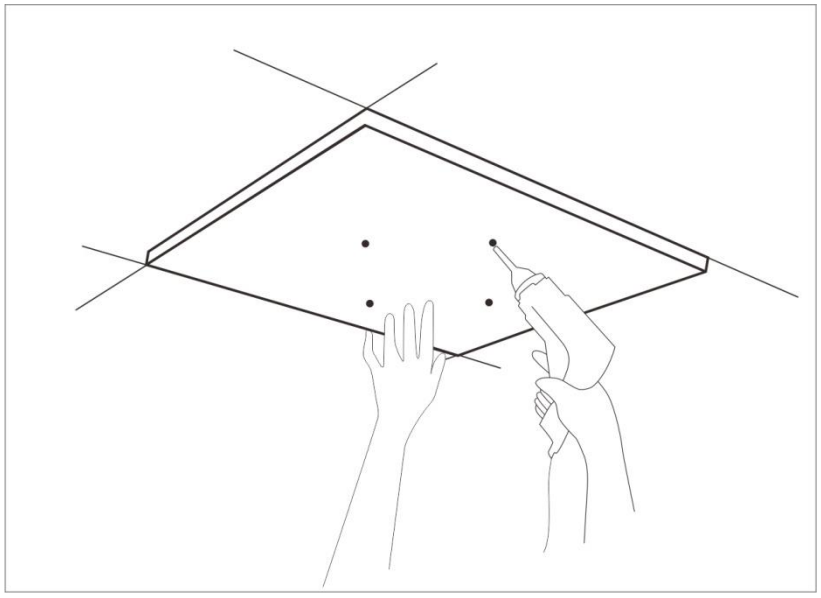
holes.

NOTE

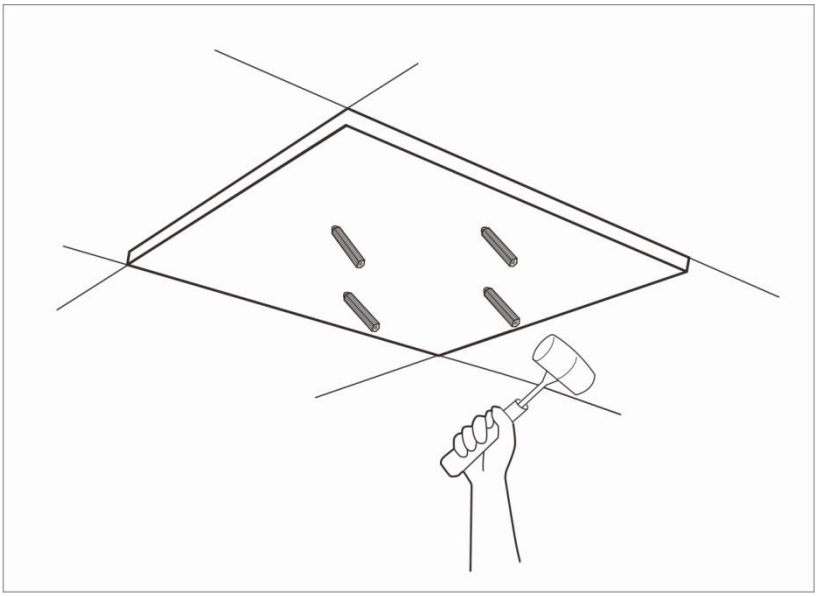
If the AP is powered using a DC adapter, a receptacle must be available within 1 meter from the mounting position on the ceiling.



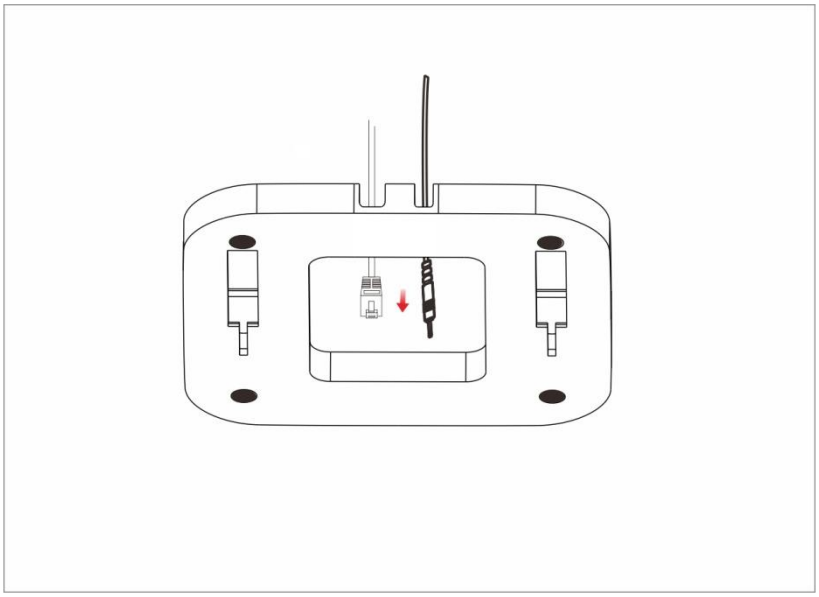
Step 2 Create holes in the marked positions. Each hole measures at 6 mm in diameter and 25 mm to 30 mm in depth.



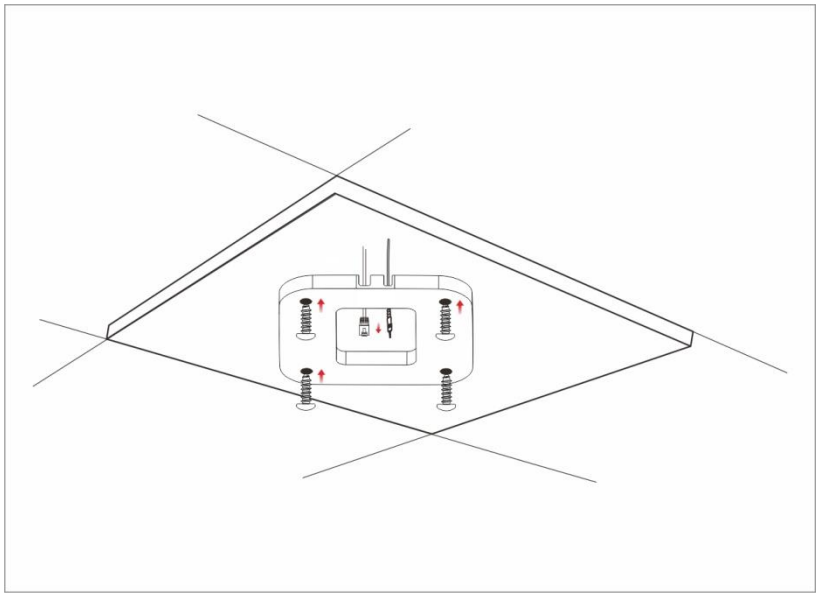
Step 3 Use the rubber hammer to knock the sleeve anchors into the holes.



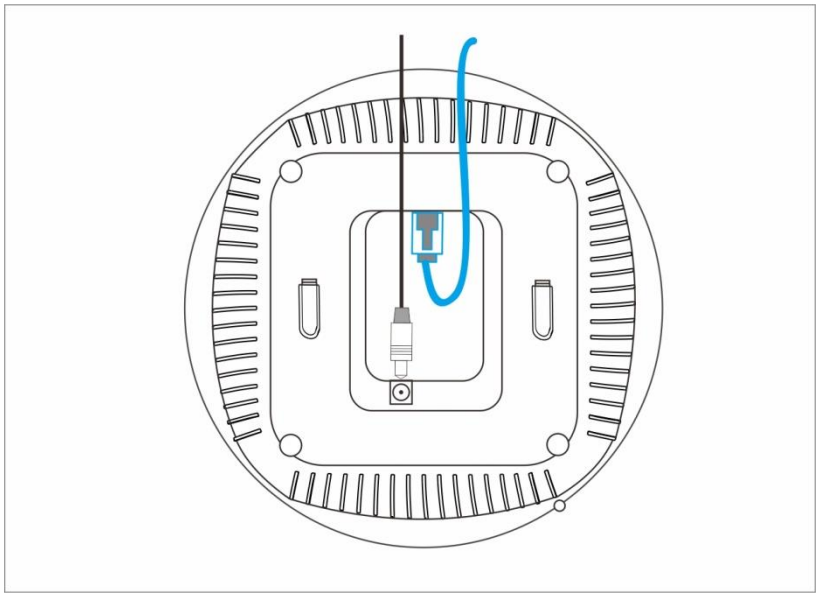
Step 4 Place the Ethernet cable (CAT5 or better cable) to be connected to the AP into the cable tray. If you use a DC adapter to supply power to the AP, place the power cable into the cable tray as well.



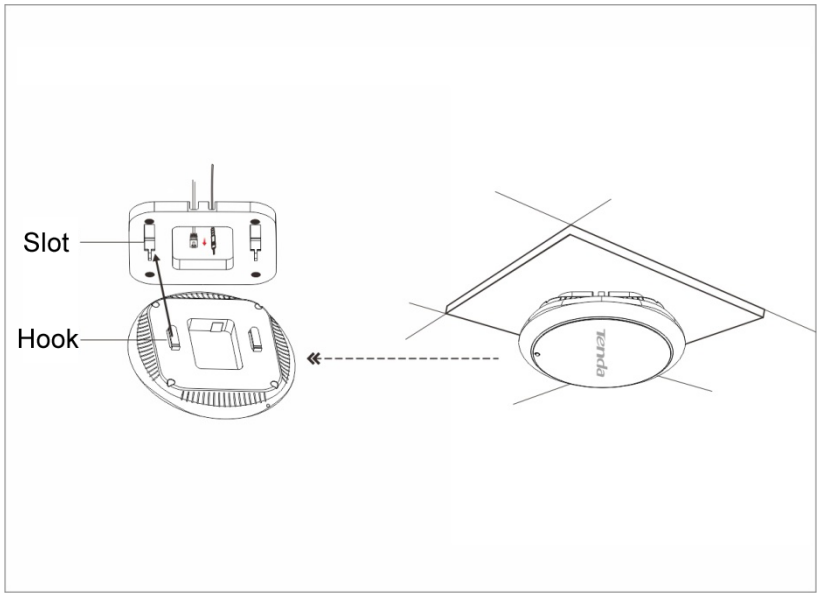
Step 5 Lead the screws through the screw holes of the mounting bracket into the sleeve anchors and use the Phillips screwdriver to fasten the screws.



Step 6 Connect the Ethernet cable to the RJ45 port. If you use a DC adapter to supply power to the AP, connect the power cable to the power jack of the AP.



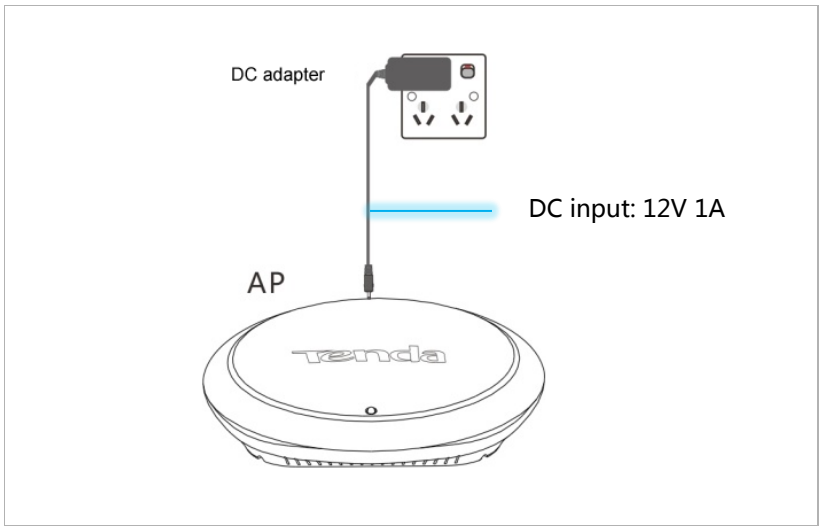
Step 7 Insert the hooks of the AP inside the slots of the mounting bracket to fix the AP onto the mounting bracket.



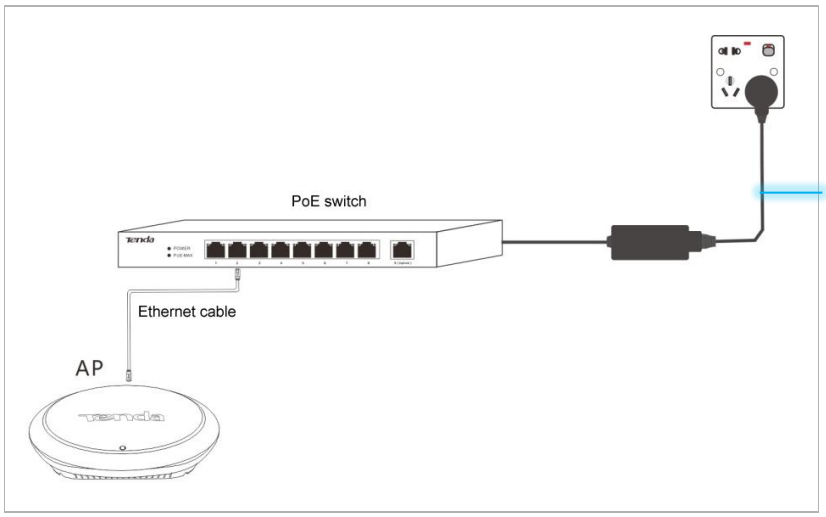
---End

2.3 Connecting the Power Supply

The AP can be powered using the DC adapter accompanying the AP or a piece of IEEE 802.3at PoE power supply equipment.



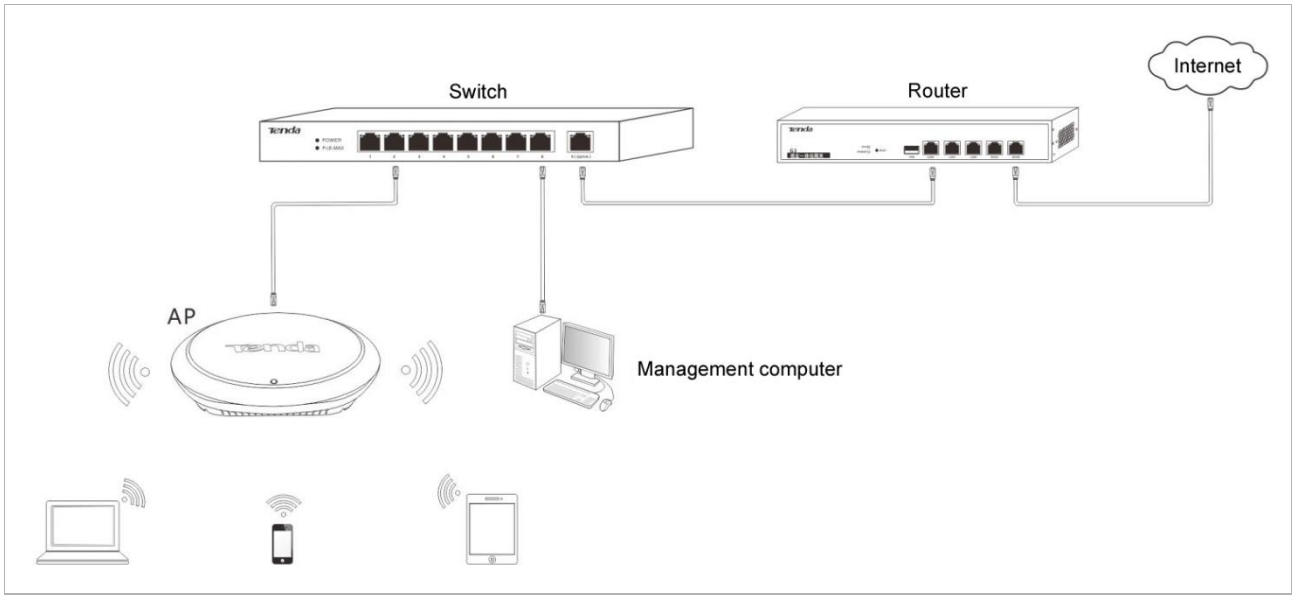
If you power the AP through PoE, connect the Ethernet cable (≤ 100 meters) connected to the RJ45 port of the AP to an IEEE 802.3at PoE switch.



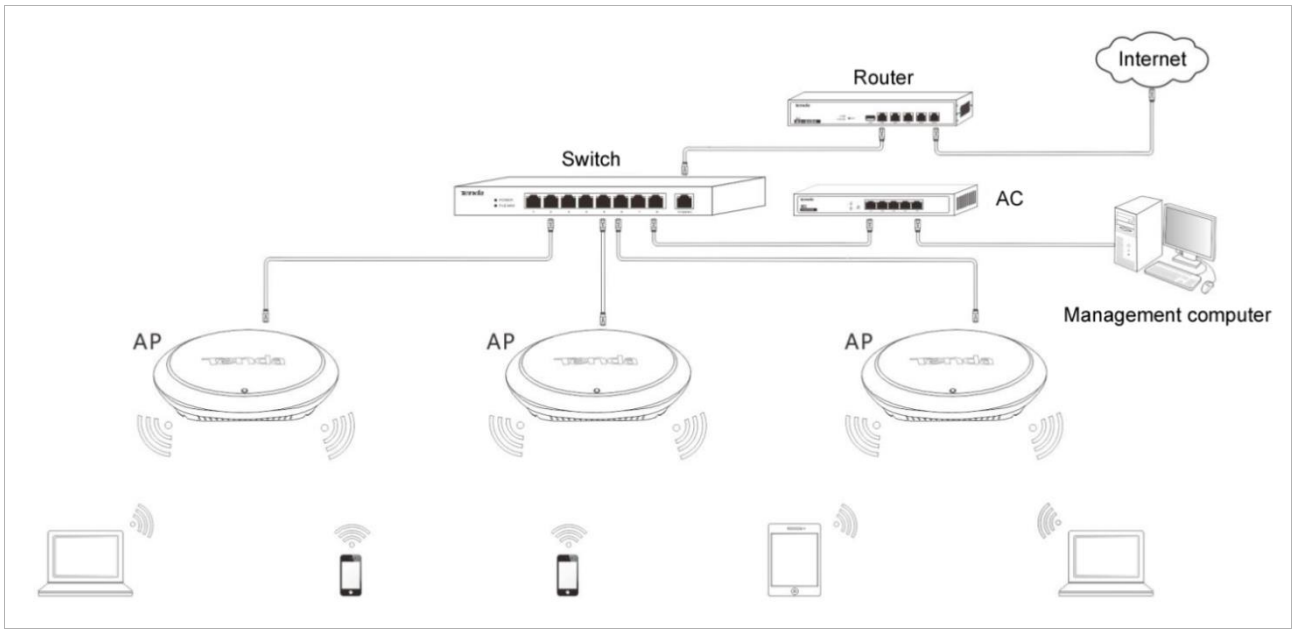
After the AP is connected to a power supply, it initializes. During initialization, the LED indicator turns solid on for 5 to 7 seconds, and then blinks. When the indicator blinks, the AP is working properly.

2.4 Connecting the AP

If you need to install only a small number of APs, connect the APs using the following topology, which allows you to log in to the web UI of each AP to manage the AP.



If you need to install a large number of APs, connect the APs to an M3 (Tenda AC) using the following topology so that you can manage all the APs in a centralized manner.


Internet
Router
Switch
AC
Management computer
AP
AP
AP

3 Managing the AP

3.1 Management Modes

The AP can be managed on the web UI of the AP or using M3 (Tenda AC).

When the AP is connected to a network with M3, the AC automatically detects the AP. The AP can be used without being configured. You can log in to the web UI of the AC to manage the AP.

You can download the user guide for M3 from http://www.tendacn.com.

The following sections describe how to log in to the web UI of the AP to manage the AP.

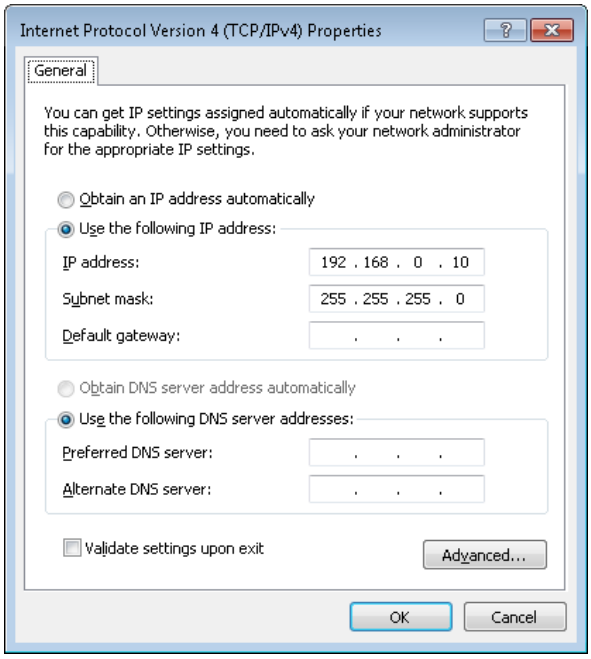
3.2 Logging In to the Web UI of the AP

You can use a web browser to log in to the web UI of the AP. The following table provides default login information of the AP.

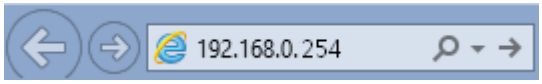
Parameter	Default Value
IP address	192.168.0.254
User name	admin
Password	admin

Procedure for logging in to the web UI using the default login information:

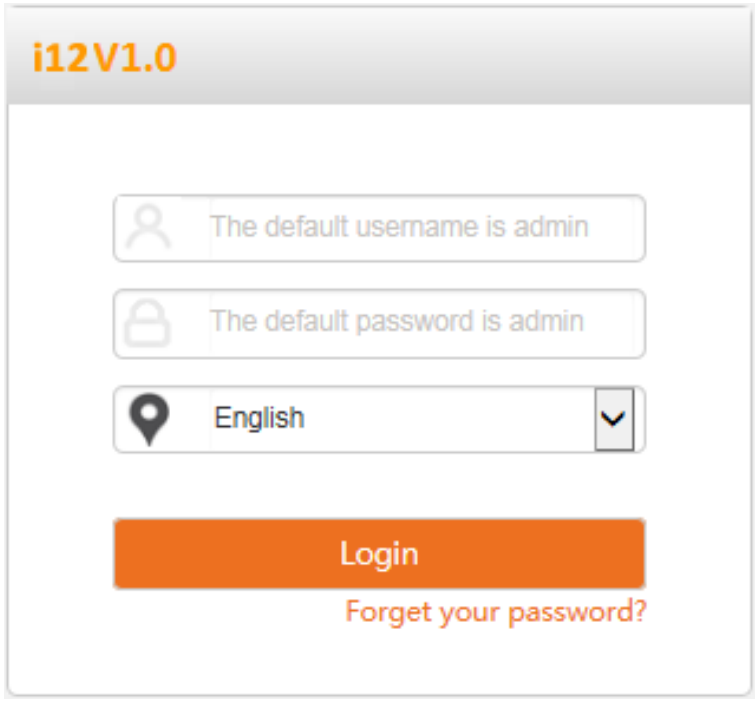
Step 1 Set **IP address** of your local area connection to **192.168.0.*X*** (*X*: 2 - 253) and **Subnet mask** to **255.255.255.0**.



Step 2 Access **192.168.0.254** using a web browser.



Step 3 Enter **admin** as the user name and password and click **Login**.

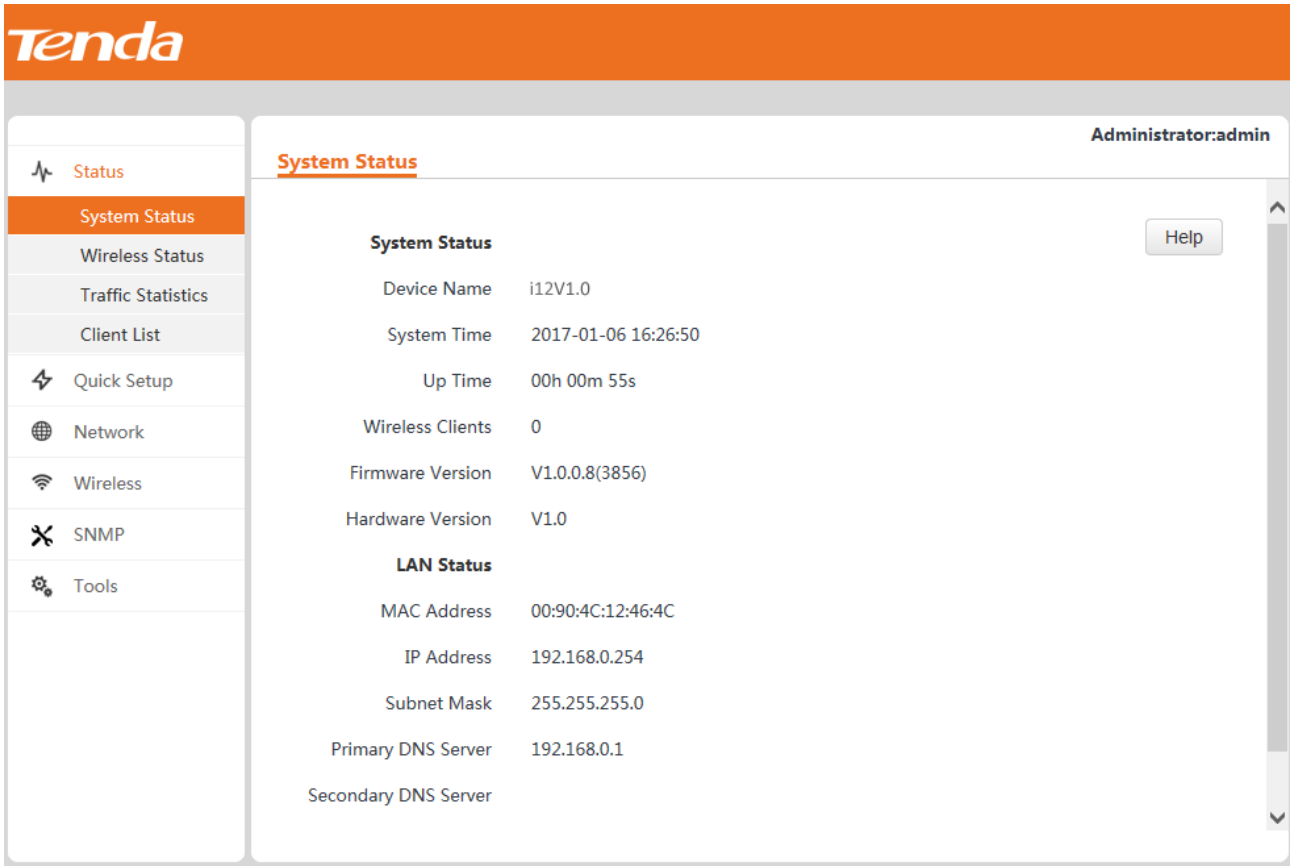


NOTE

If this page is not displayed, refer to Q1 in Appendix A "FAQ."

---End

You can view and modify the configuration of the AP on the web UI. For details about how to configure the AP, see Chapter 4 "Functions."



3.3 Logging Out of the Web UI of the AP

After you log in to the web UI of the AP, the system logs you out if you perform no operation on the web UI within the client timeout interval. (The default interval is 5 minutes and can be changed.)

When you close the web browser, the system logs you out as well.

When you are logged out, the system does not save the current configuration. Therefore, it is recommended that you save the current configuration before logging out.

NOTE

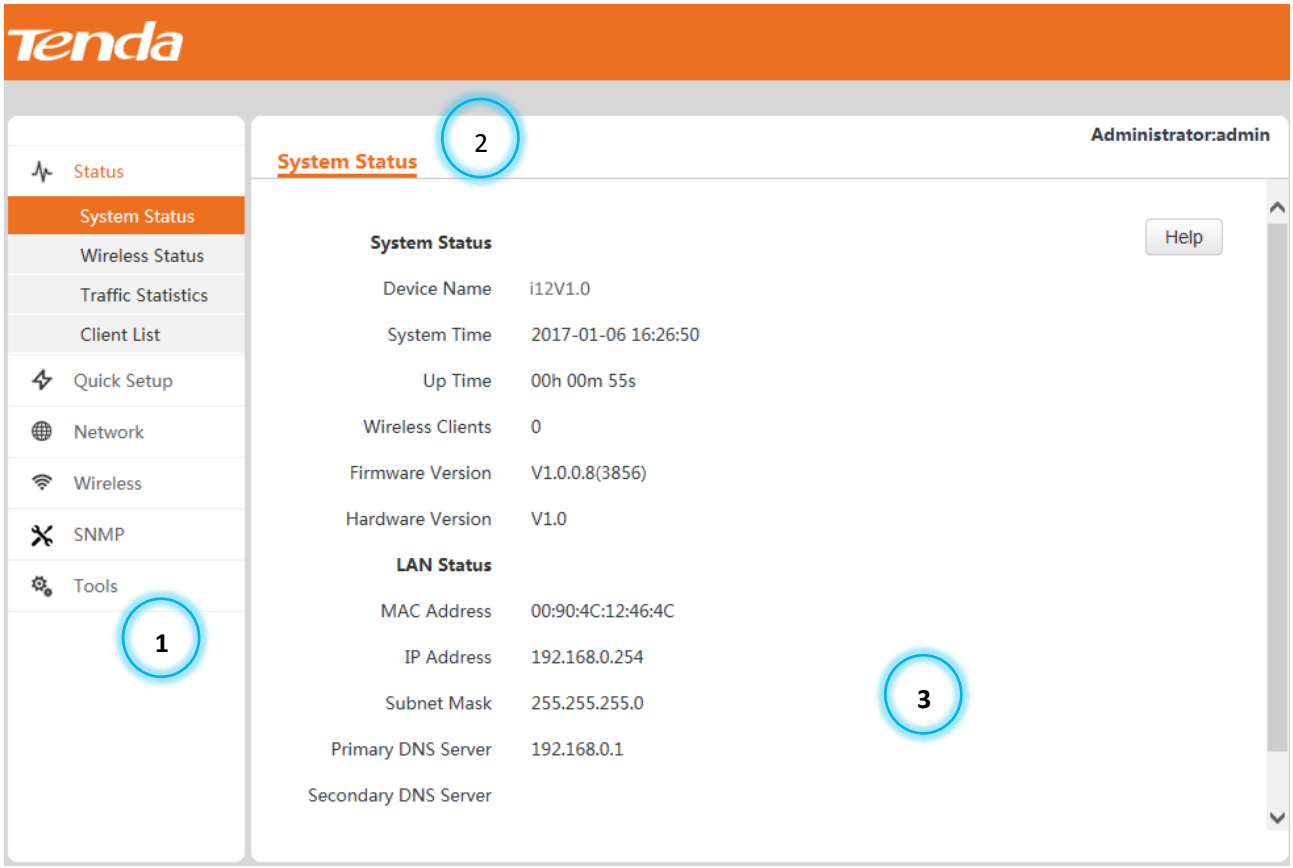
If you close the web browser tab page used to log in to the web UI of the AP instead of the web browser, you are not logged out.

Web UI Layout

The web UI is composed of three parts, including the level-1 and level-2 navigation bar, level-3 navigation bar, and configuration area. See the following figure.

NOTE

The functions and parameters dimmed on the web UI indicates that they are not supported by the AP or cannot be changed in the current configuration.



No.	Name	Description
1	Level-1 and level-2 navigation bar	The navigation bars display the function menu of the AP. When you select a function in navigation bar, the configuration of the function appears in the configuration area.
2	Level-3 navigation bar	
3	Configuration area	It enables you to view and modify configuration.

3.4 Common Buttons on the Web UI

Description of common buttons

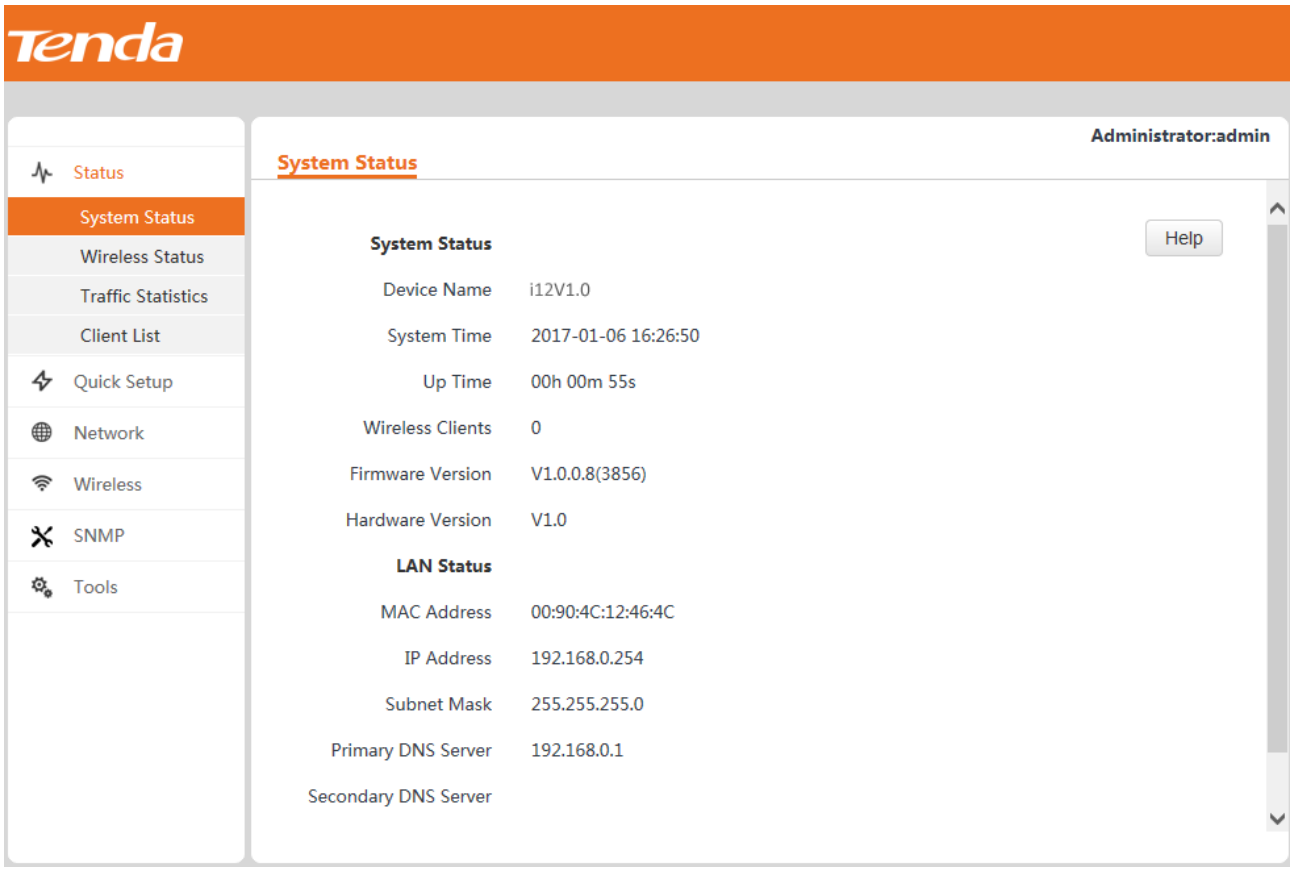
Button	Description
Refresh	It is used to update the content of the current page.
Save	It is used to save the configuration on the current page and enable the configuration to take effect.
Restore	It is used to change the current configuration on the current page back to the original configuration.
Help	It is used to view help information corresponding to the settings on the current page.

4 Functions

4.1 Status

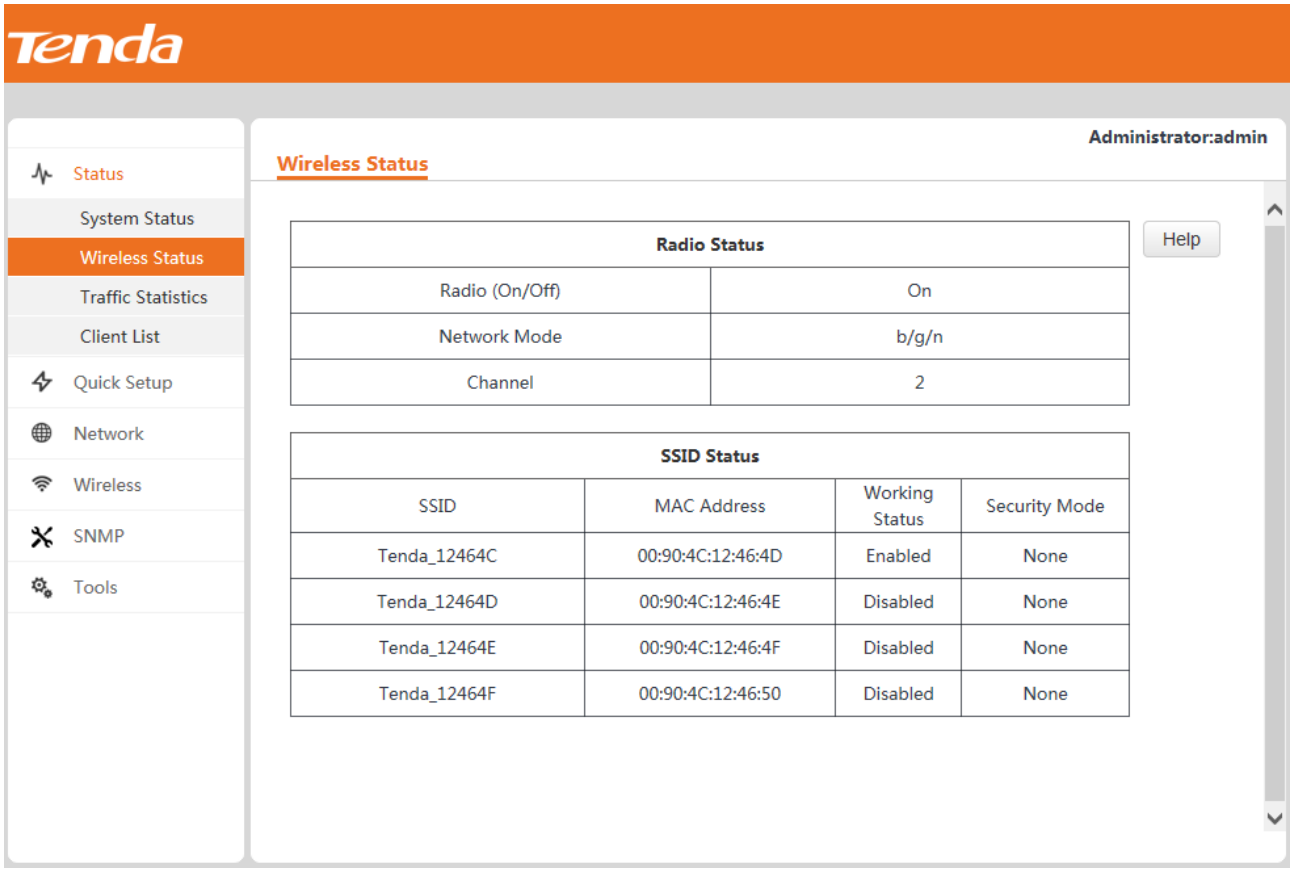
4.1.1 System Status

To view the system status and LAN status of the AP, choose **Status** > **System Status**.



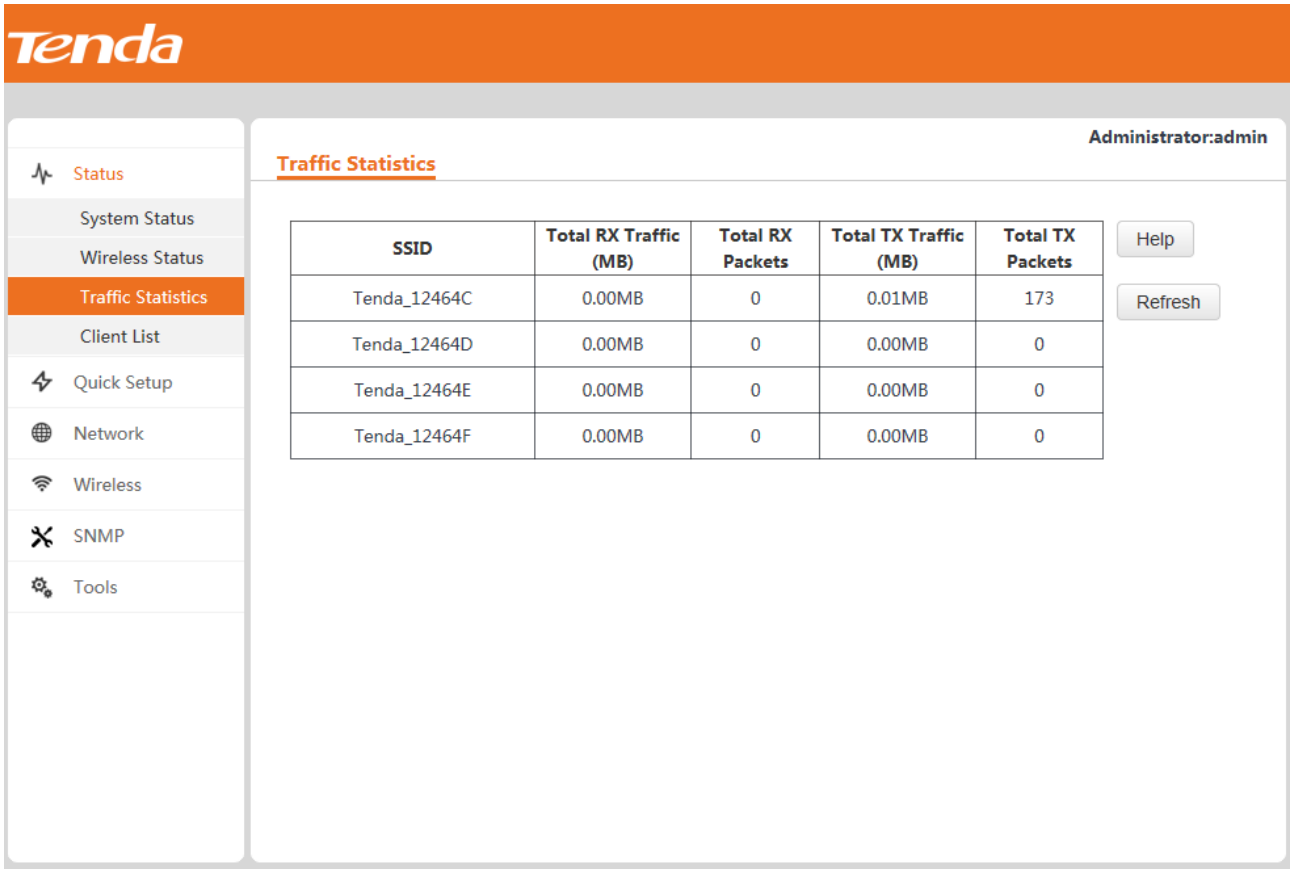
4.1.2 Wireless Status

To view the radio status, SSID status, and WDS status (available when the AP works in WDS mode) of the AP, choose **Status** > **Wireless Status**.



4.1.3 Traffic Statistics

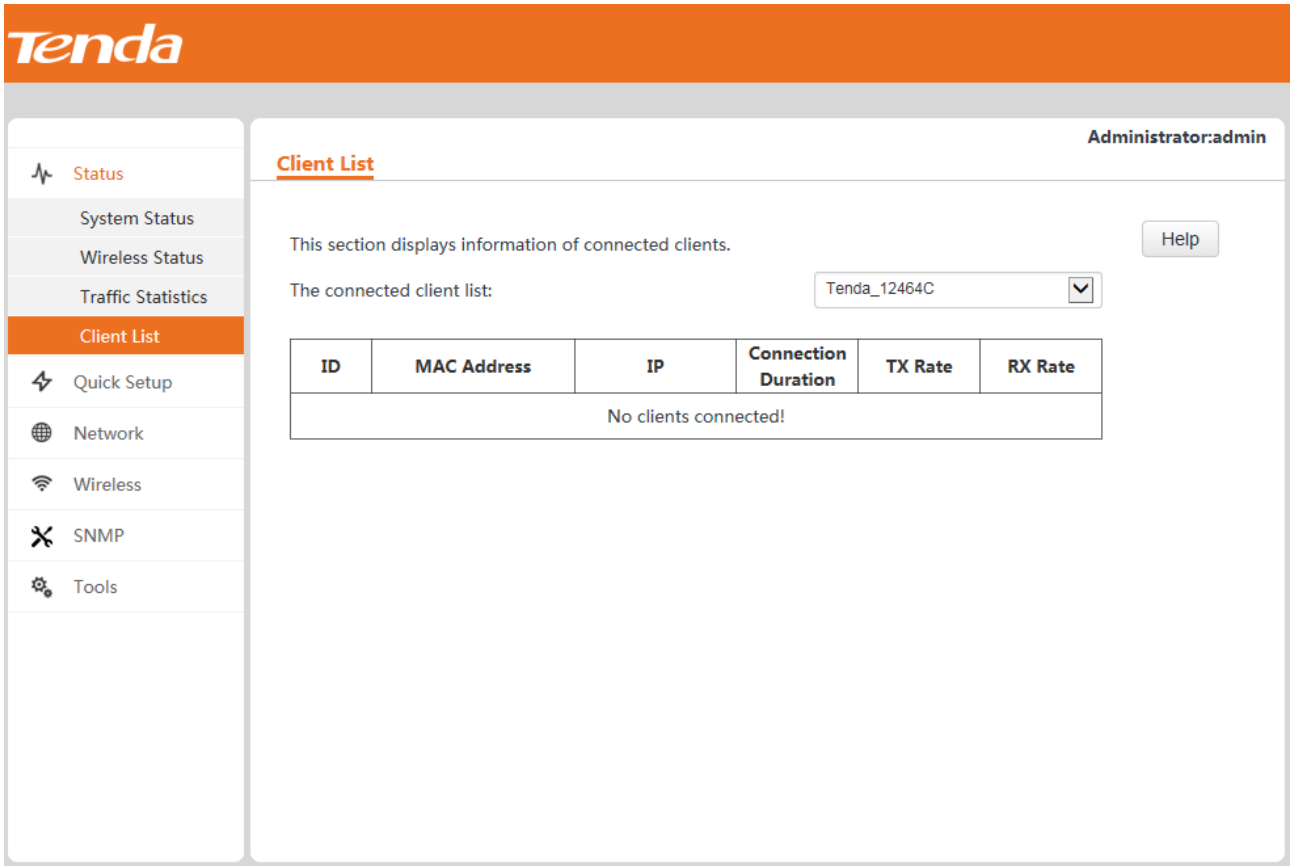
To view the total transmitted traffic, total received traffic, total number of transmitted packets, and total number of received packets corresponding to each SSID of the AP, choose **Status** > **Traffic Statistics**.



You can click **Refresh** to view the latest traffic statistics.

4.1.4 Client List

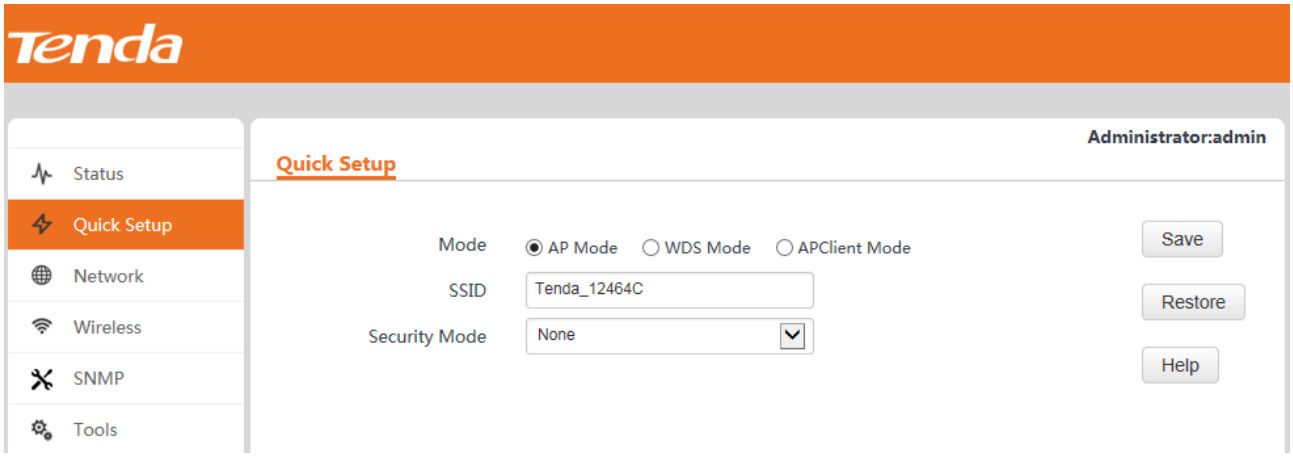
To view the MAC address, IP address, connection uptime, transmit speed, and receive speed of each wireless client connected to the AP, choose **Status** > **Client List**.



You can select an SSID from the drop-down list box in the upper-right corner to view information about the wireless clients connected to the AP using the SSID.

4.2 Quick Setup

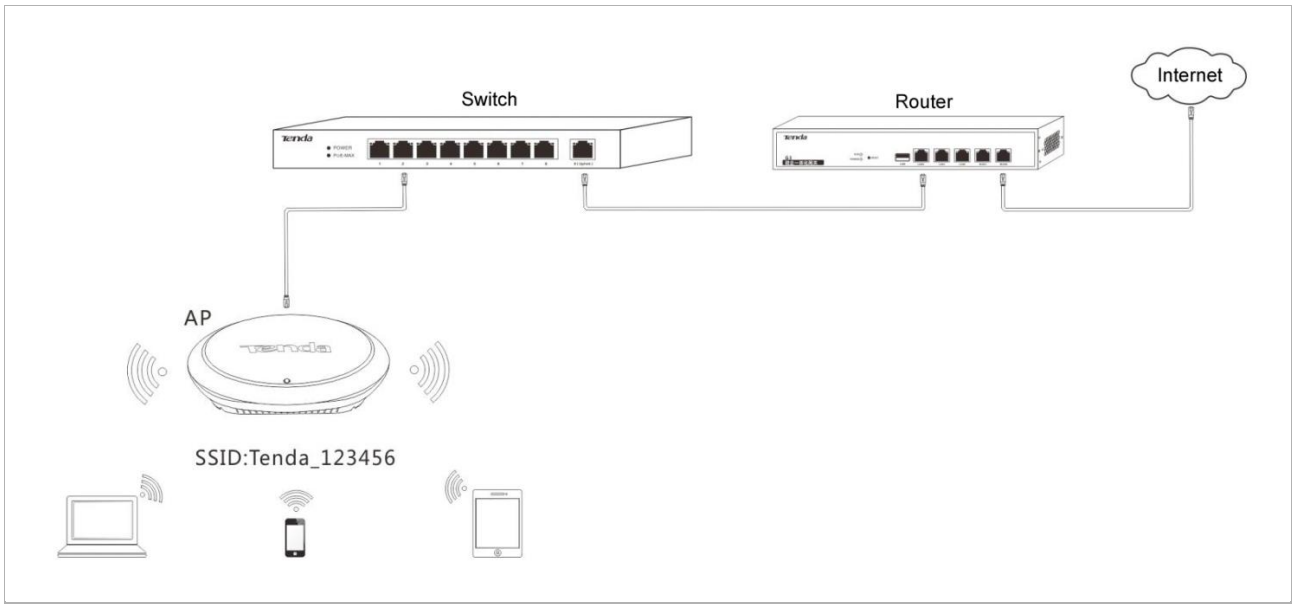
Choose **Quick Setup**. The page displays the parameters that enable you to quickly configure the AP so that wireless clients can connect to the WiFi network of the AP and access the internet through the AP



The AP can work in AP, WDS, or AP+Client mode. By default, it works in AP mode.

4.2.1 AP Mode

In this mode, the AP connects to the internet using an Ethernet cable and converts wired signals into wireless signals to provide wireless network coverage. The following figure shows the topology.



Procedure:

NOTE

The Mixed WPA/WPA2-PSK security mode and AES encryption algorithm are used as an example to describe the configuration procedure. If you need to use another security mode, refer to Section 4.4.1 "Basic Settings."

Step 1 Set **Mode** to **AP Mode**.

Step 2 (Optional) Set **SSID** to a wireless network name.

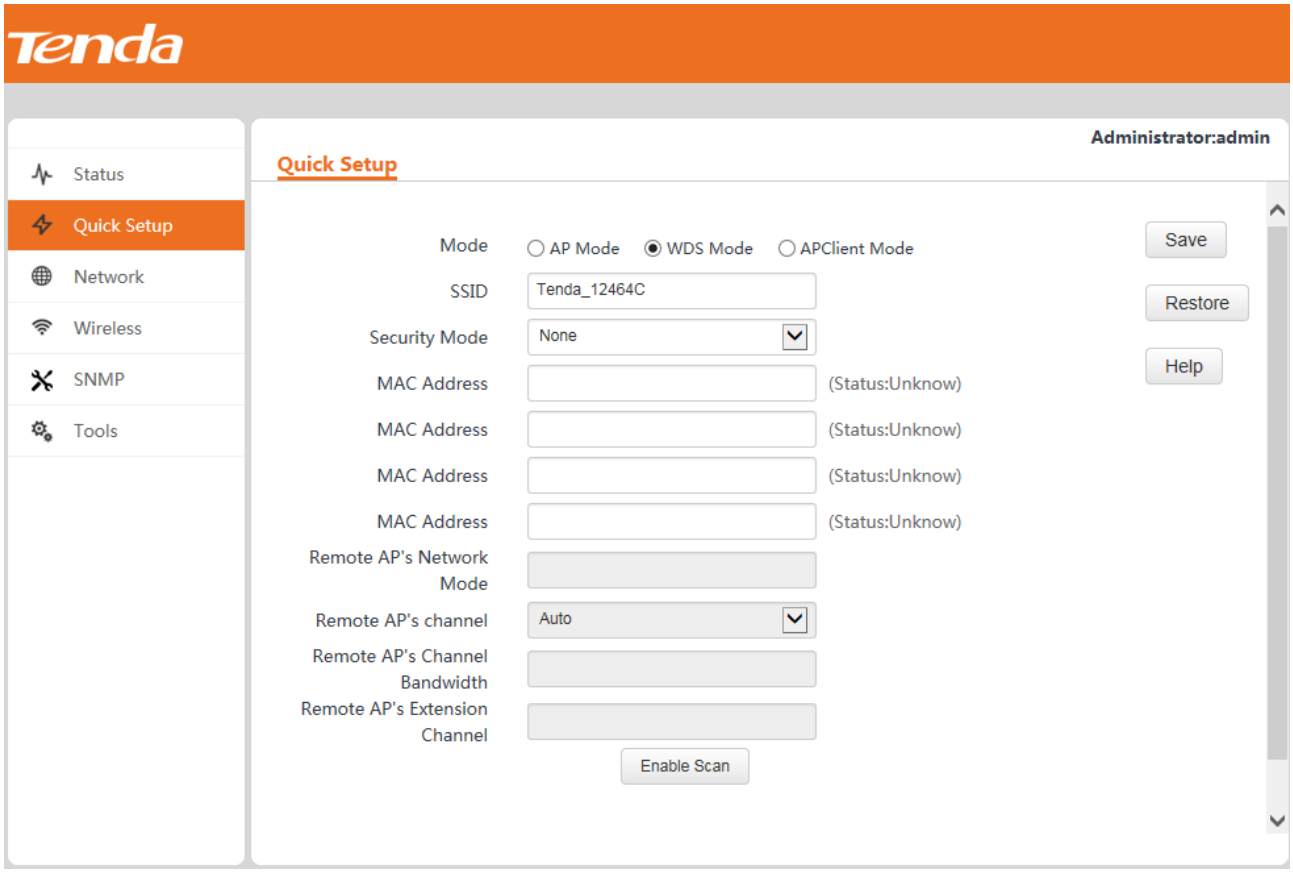
Step 3 Set **Security Mode** to **Mixed WPA/WPA2-PSK**, **Cipher Type** to **AES**, and **Security Key** to the password of the wireless network.

Step 4 Click **Save**.

---End

4.2.2 WDS Mode

In this mode, the AP is used to set up a distributed wireless system that features broader wireless network coverage.



WDS mode parameter description

Parameter	Description
Mode	It specifies the working mode of the AP. In WDS mode, the AP can be bridged with a maximum of 4 APs at the same time.
SSID	It specifies the SSID of a peer AP. You can click **Enable Scan** and select the SSID of the peer AP from the detected SSIDs.
Security Mode	It specifies the security mode of a peer AP. When you click **Enable Scan** and select the SSID of the peer AP from the detected SSIDs, the local AP automatically obtains related security settings (including **Security Mode**, **Cipher Type**, **Authentication Type**, and **Default Key**) of the peer AP except **Security Key**.
MAC Address	It specifies the MAC address corresponding to the SSID of a peer AP. When you click **Enable Scan** and select the SSID of the peer AP from the detected SSIDs, the local AP automatically sets the corresponding **MAC Address** parameter to the SSID of the peer AP.
Remote AP's channel	It specifies the channel of a peer AP. When you click **Enable Scan** and select the SSID of the peer AP from the detected SSIDs, the local AP automatically obtains related channel settings (including **Remote AP's Network Mode**, **Remote AP's channel**, **Remote AP's Channel Bandwidth**, and **Remote AP's Extension Channel**) of the peer AP.

Enable Scan	It is used to detect information about nearby wireless signals of wireless devices, including SSIDs, MAC addresses, network modes, signal bandwidth, channels, extension channels, security modes, and signal strength.

NOTE

- The WDS function must be configured on all the APs to be bridged in WDS mode. All the APs must share the same SSID, channel, security mode, and security key.
- The APs to be bridged in WDS mode must be assigned different IP addresses belonging to the same network segment.

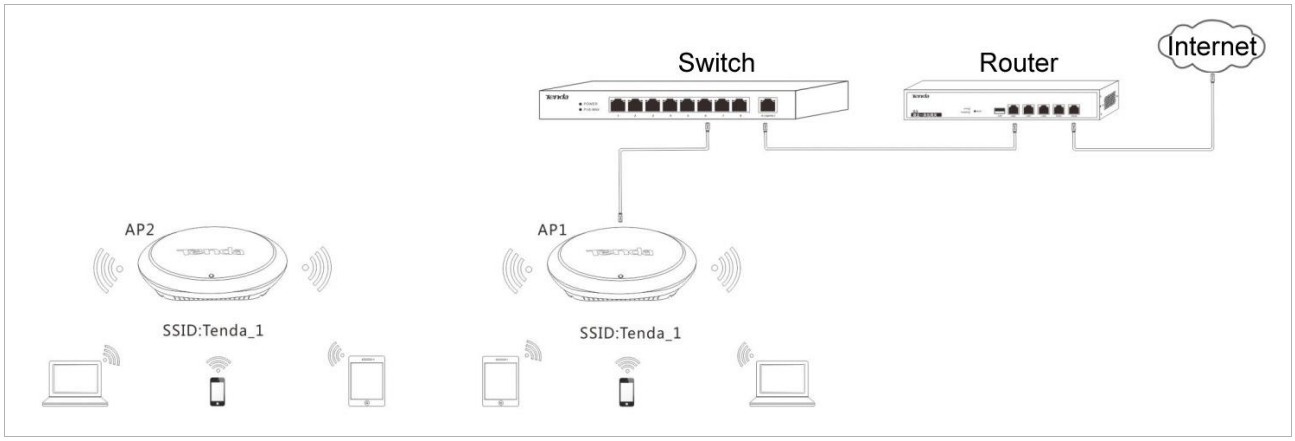
Example Application of the WDS Mode

An AP has been installed in a hotel. Nevertheless, the signal of the AP is weak in some rooms because of limited wireless coverage of the AP and blockage such as walls. As a result, guests in the rooms are unable to properly access the internet through the AP.

To improve the signal in the other rooms, you can install one AP in each room and use the additional APs to repeat the wireless signal of the original AP in WDS mode, so as to extend wireless coverage and enable guests in the rooms to properly access the internet.

1-to-1 WDS bridging

The following figure shows the topology.



Procedure:

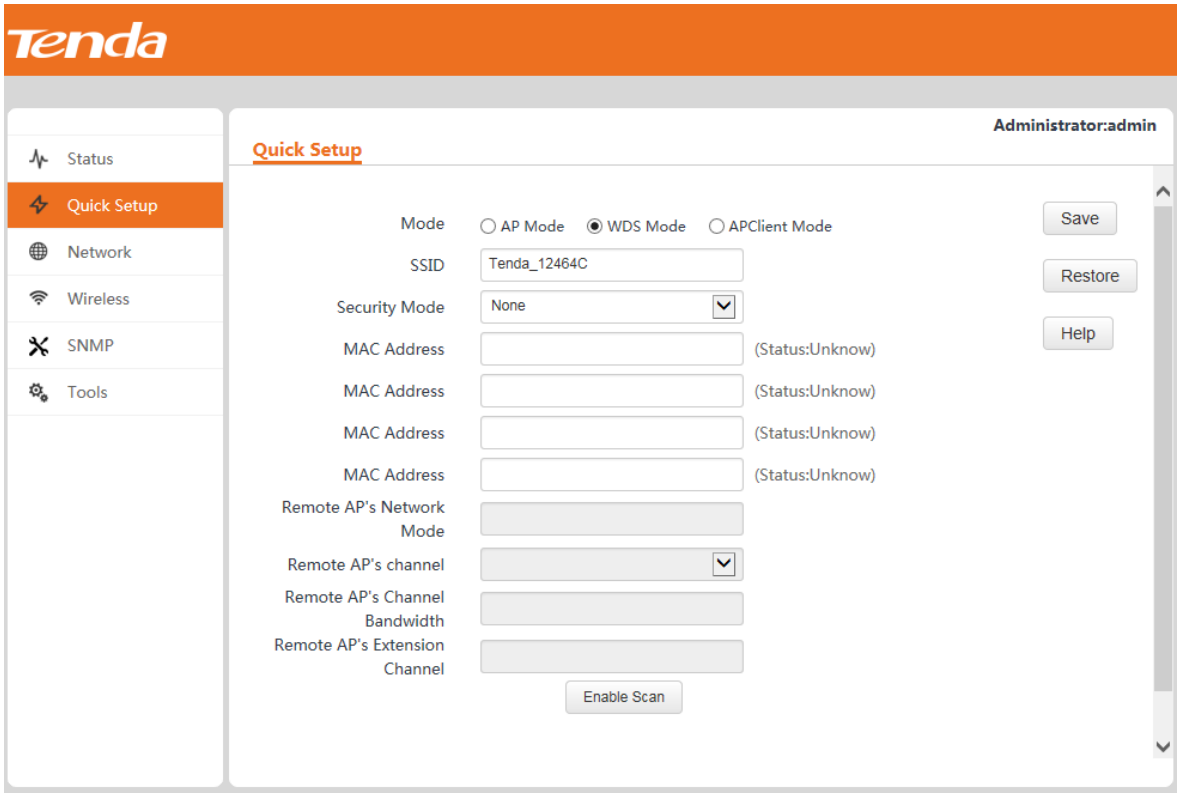
Step 1 Log in to the web UI of AP1 and check the basic information about AP1. Assume that AP1 has the basic information described in the following table.

IP Address	SSID	Security Mode	Security Key (Wireless Network Password)
192.168.0.254	Tenda_1	Mixed WPA/WPA2-PSK	87654321

Step 2 Log in to the web UI of AP2, change its IP address to an IP address that is different from the IP address of AP1 but belongs to the same network segment of AP1, such as 192.168.0.253. For details, refer to Section 4.3.1 "LAN Setup."

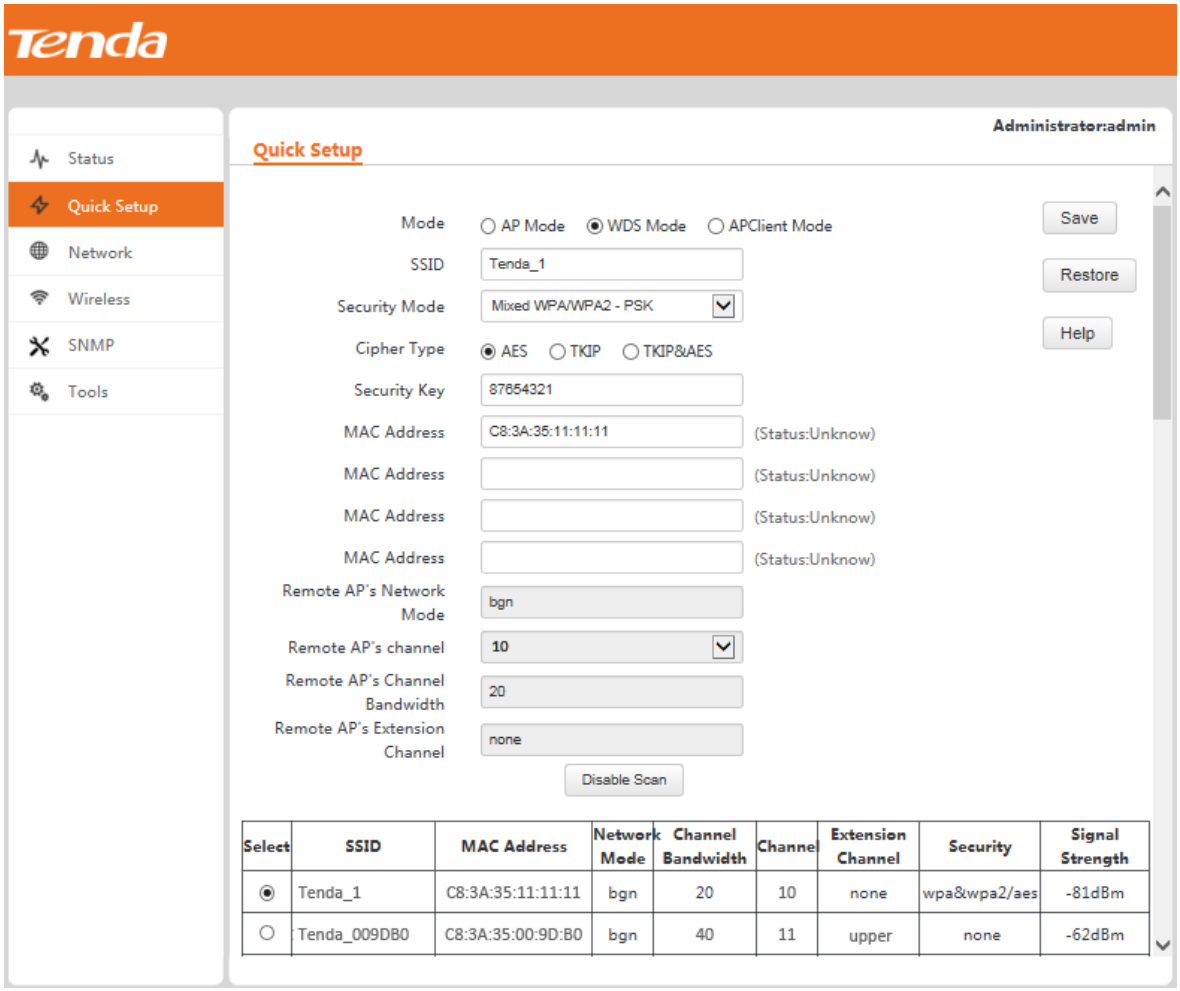
Step 3 Use the new IP address to log in to the web UI of AP2, and configure AP2 to repeat the wireless signal of AP1 in WDS mode.

1. Choose **Quick Setup**, set **Mode** to **WDS Mode**, and click **Enable Scan**.

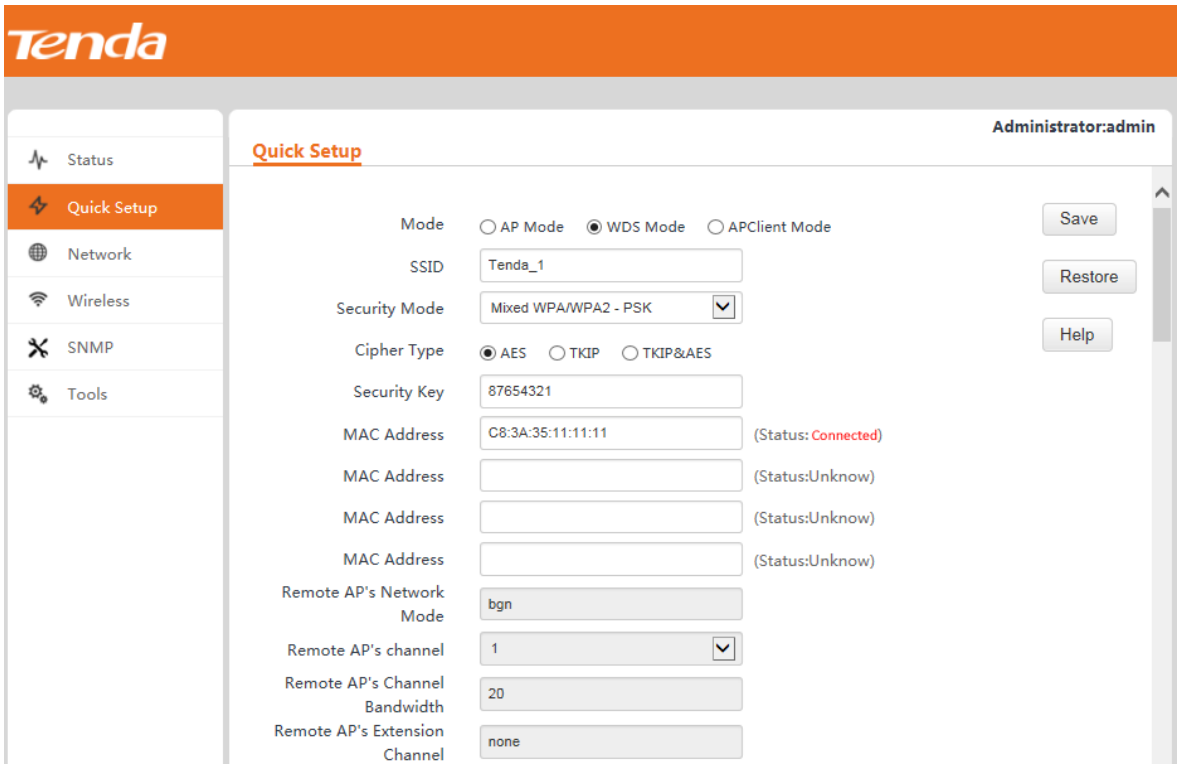


2. Select the SSID of AP1 from the detected SSIDs. In this example, the SSID of AP1 is Tenda_1.
3. Set **Security Key** to the wireless network password of AP1. In this example, the security key is 87654321.
4. Click **Save**.

   The SSID of AP2 changes to the SSID of AP1 when the configuration is saved.



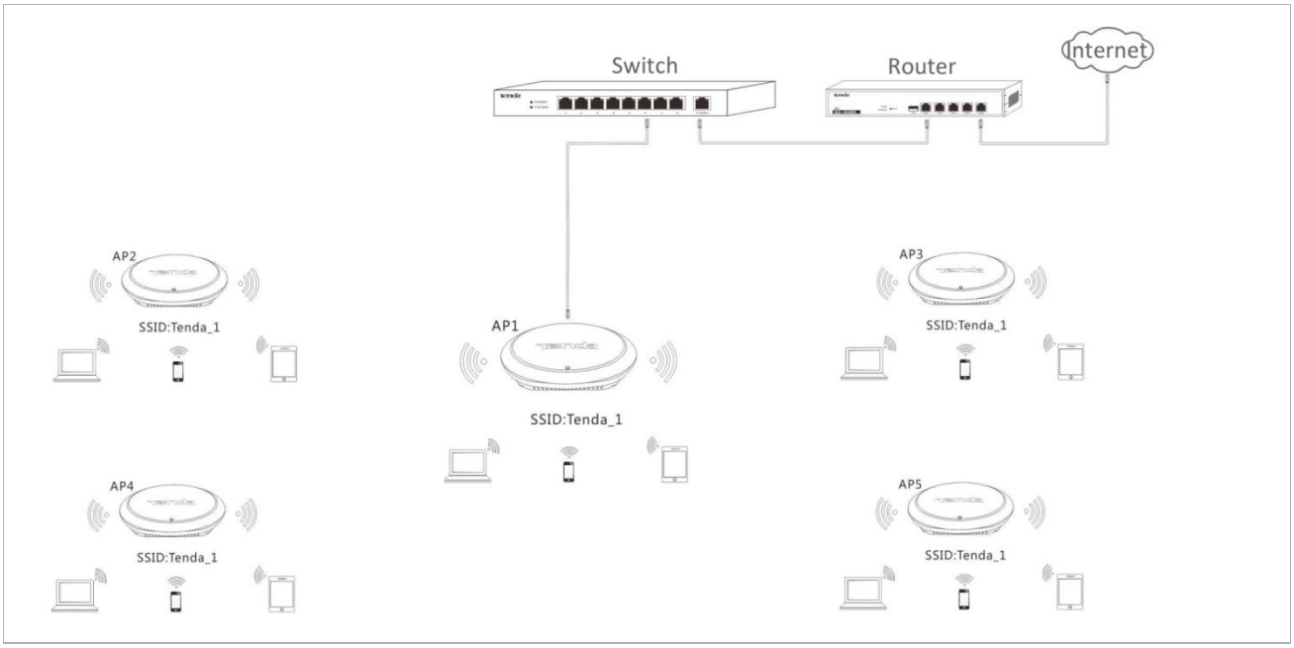
Step 4 Log in to the web UI of AP1 and perform step 3 to configure AP1 to repeat the wireless signal of AP2 in WDS mode. After configuration is complete, Connected appears to the right of the corresponding MAC address, indicating that bridging is successful. See the following figure.



---End

1-to-many (maximum: 4) WDS bridging

The following figure shows the topology.



Procedure:

Step 1 Log in to the web UI of AP1 and check the basic information about AP1. Assume that AP1 has the basic information described in the following table.

IP Address	SSID	Security Mode	Security Key (Wireless Network Password)
192.168.0.254	Tenda_1	Mixed WPA/WPA2-PSK	87654321

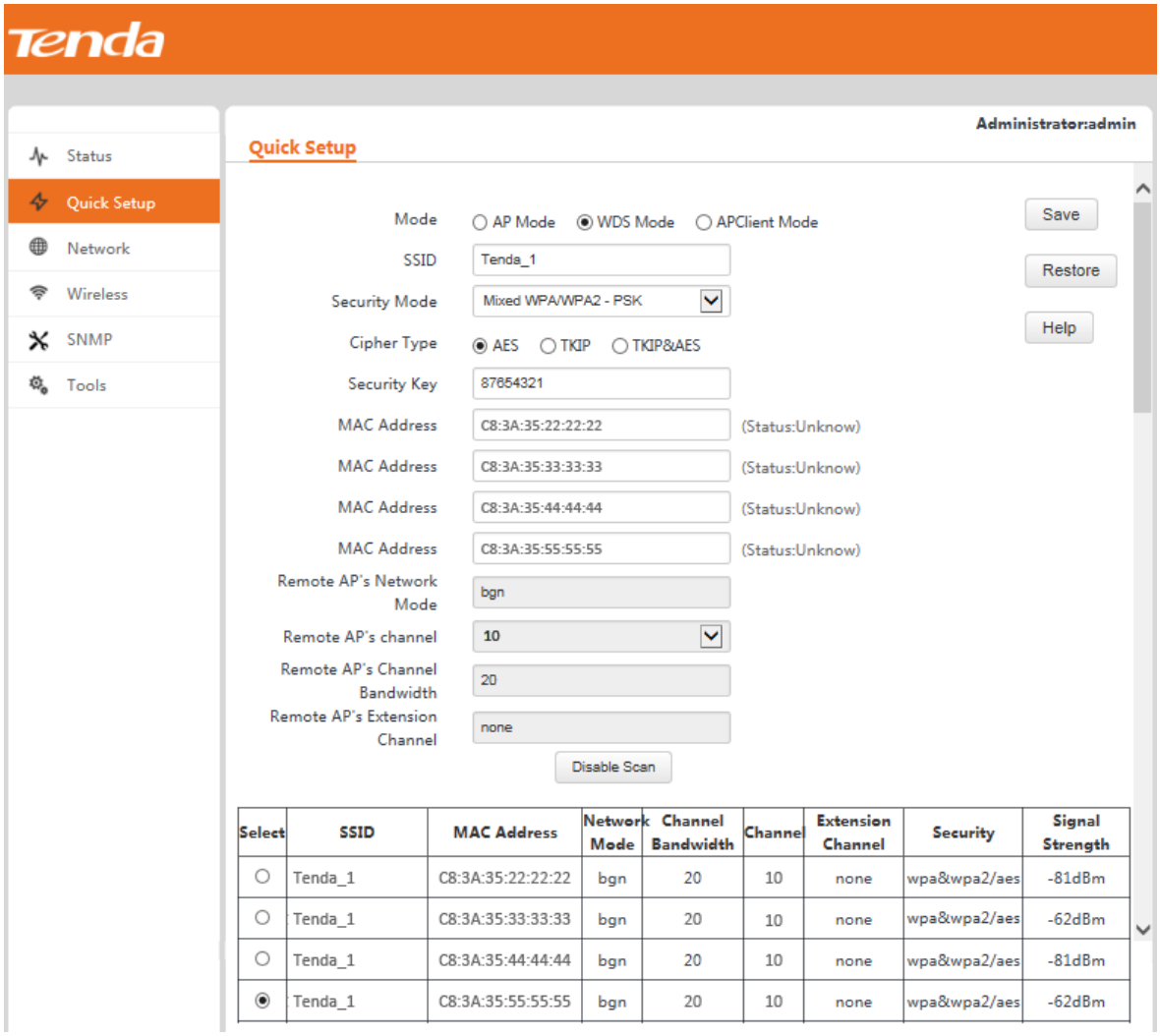
NOTE

The IP addresses of AP2, AP3, AP4, and AP5 must be different from the IP address of AP1 but belong to the same network segment as the IP address of AP1. For example, you can set them to 192.168.0.2, 192.168.0.3, 192.168.0.4, and 192.168.0.5.

Step 2 Log in to the web UIs of AP2, AP3, AP4, and AP5, change the LAN port IP addresses of the APs, and configure the APs to repeat the wireless signal of AP1 in WDS mode. For details about the wireless signal repeating, refer to step 3 in 1-to-1 WDS bridging.

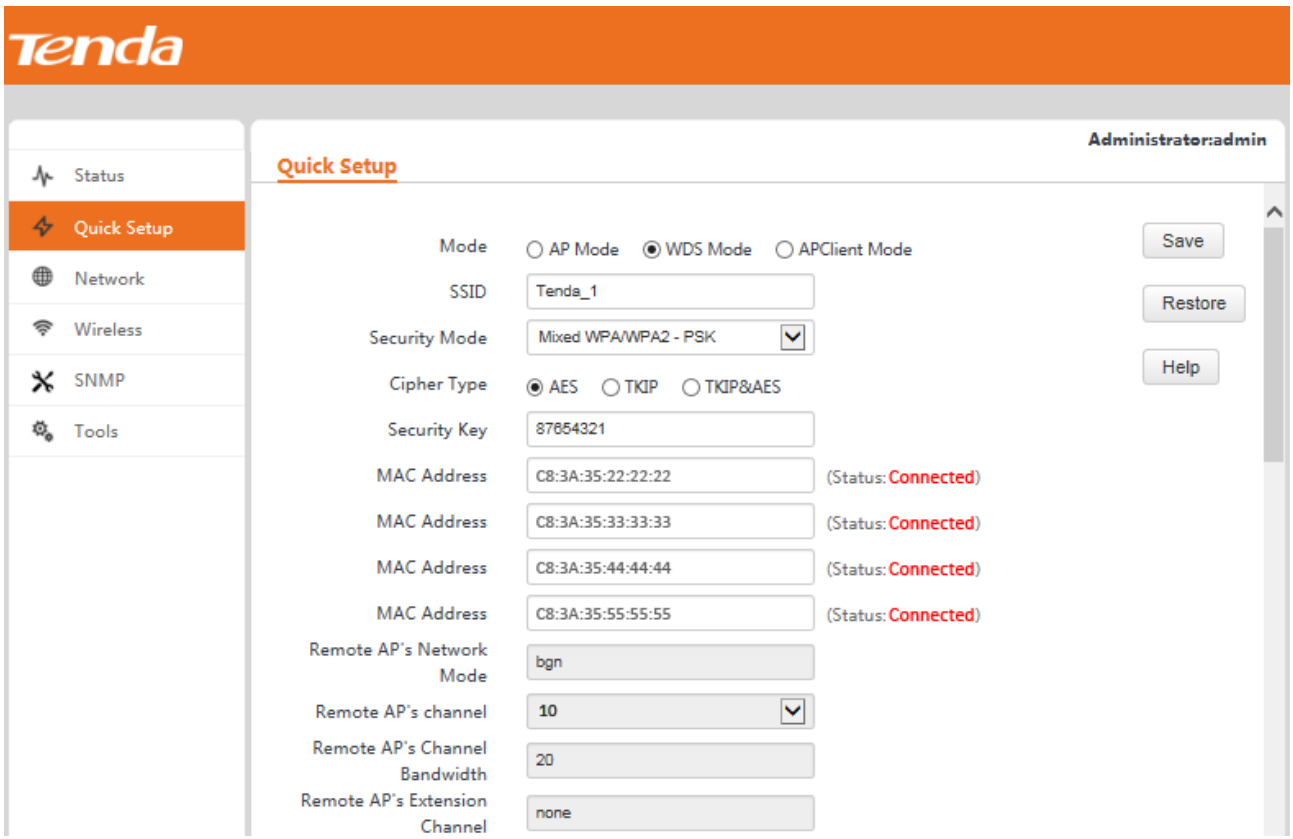
Step 3 Log in to the web UI of AP1 and configure AP1 to repeat the wireless signals of the other APs.

1. Choose **Quick Setup**, set **Mode** to **WDS Mode**, and click **Enable Scan**.
2. Select the entries of AP2, AP3, AP4, and AP5 on the scan result list. (The SSIDs of the APs on the list are the same as the SSID of AP1, which is Tenda_1 in this example.)
3. Set **Security Key** to the wireless network password of AP1, which is **87654321** in this example.
4. Click **Save**.



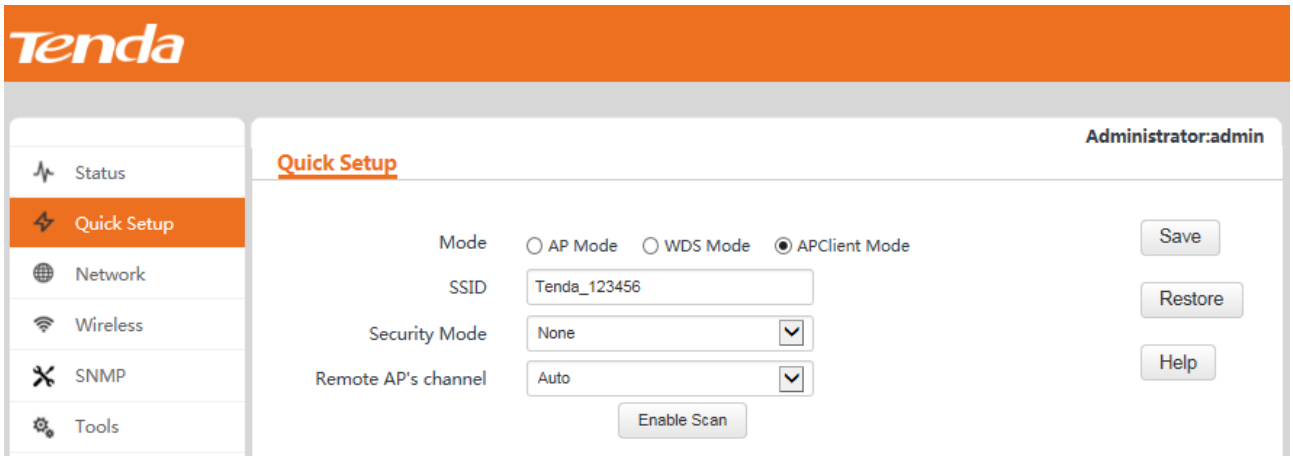
---End

After configuration is complete, Connected appears to the right of the corresponding MAC addresses, indicating that bridging is successful. See the following figure.



4.2.3 AP+Client Mode

In this mode, you can enable this AP to repeat the wireless signal of a peer AP for broader wireless network coverage simply by configuring this AP.

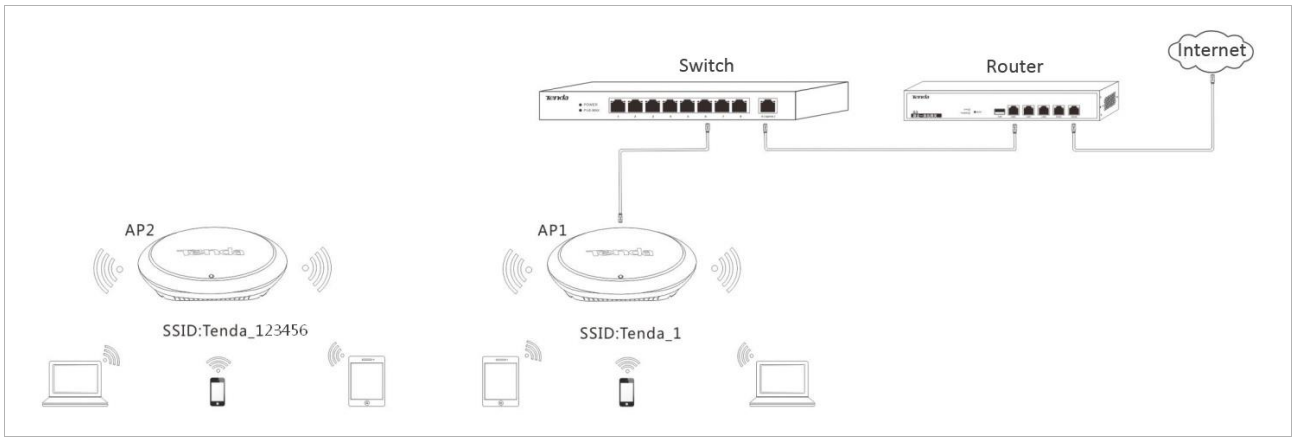


Example Application of the AP+Client Mode

An AP has been installed in a restaurant. Nevertheless, the signal of the AP is weak in some rooms because of limited wireless coverage of the AP and blockage such as walls. As a result, guests in the rooms are unable to properly access the internet through the AP.

To improve the signal in the rooms, you can install one or more APs and use the additional APs to repeat the wireless signal of the original AP in AP+Client mode, so as to extend wireless coverage and enable guests in the rooms to properly access the internet.

The following figure shows the topology.



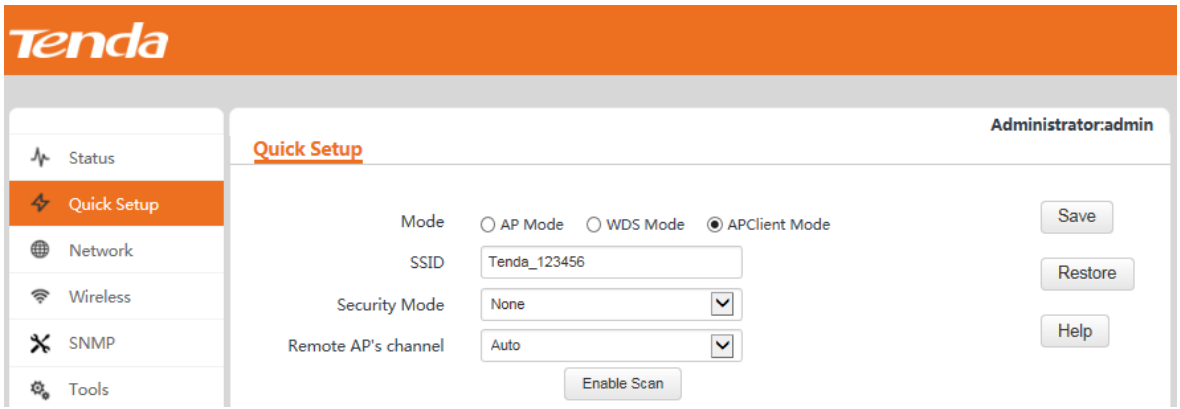
Procedure:

Step 1 Log in to the web UI of AP1 and check the basic information about AP1. Assume that AP1 has the basic information described in the following table.

IP Address	SSID	Security Mode	Security Key (Wireless Network Password)
192.168.0.254	Tenda_1	Mixed WPA/WPA2-PSK	87654321

Step 2 Log in to the web UI of AP2, change its IP address to an IP address that is different from the IP address of AP1 but belongs to the same network segment of AP1, such as 192.168.0.253. For details, refer to Section 4.3.1 "LAN Setup."

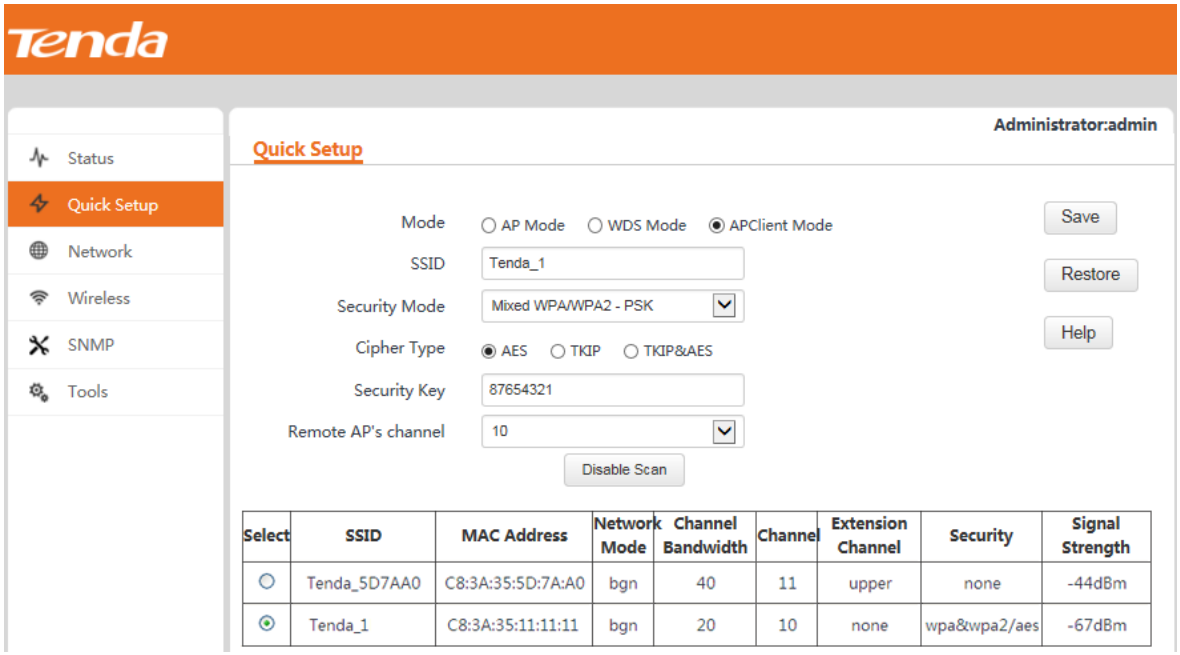
Step 3 Use the new IP address to log in to the web UI of AP2, choose **Quick Setup**, set **Mode** to **APClient** mode, and click **Enable Scan**.



Step 4 Select the SSID of AP1 from the detected SSIDs. In this example, the SSID of AP1 is Tenda_1.

Step 5 Set **Security Key** to the wireless network password of AP1, which is **87654321** in this example.

Step 6 Click **Save**.



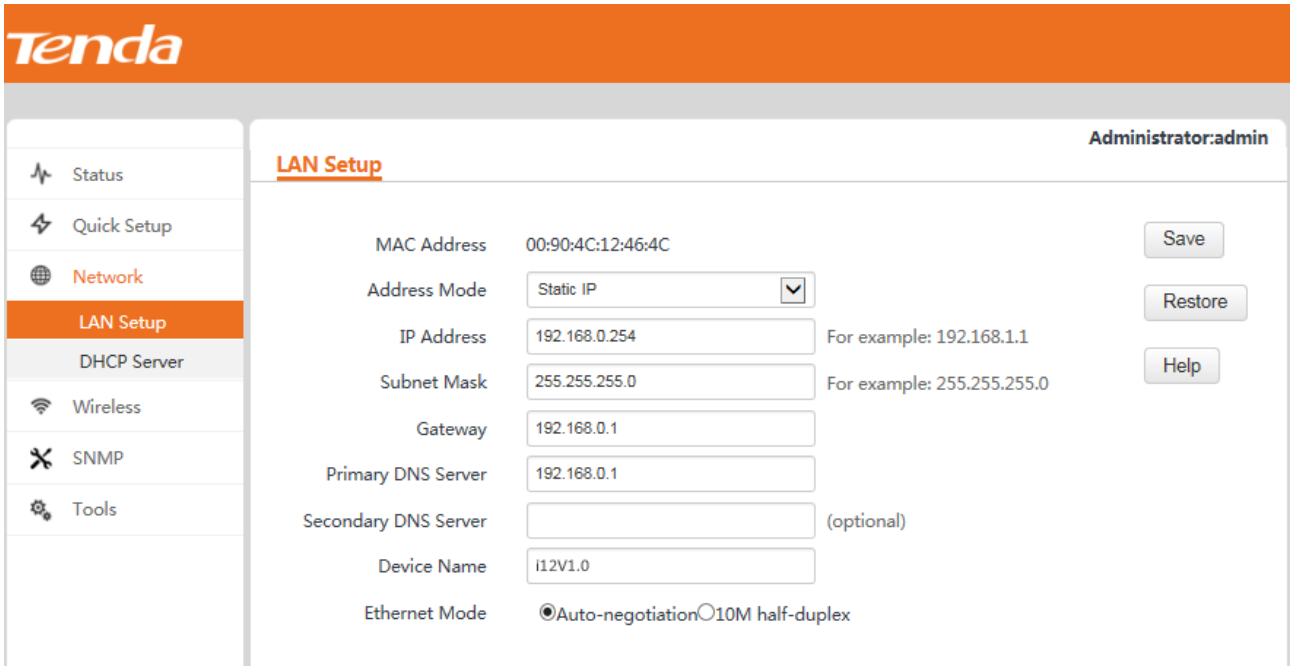
---End

After AP2 repeats the wireless signal of AP1, wireless devices such as smart phones can search for and connect to the wireless signal of AP2, and access the internet through AP2. (In this example, the SSID of AP2 is Tenda_123456.)

4.3 Network Settings

4.3.1 LAN Setup

To view the MAC address, device name, IP address obtaining mode, and other related information of the LAN port of the AP, choose **Network** > **LAN Setup**.



The AP supports the Static IP and Dynamic IP modes for obtaining an IP address for the LAN port.

NOTE

If you change the IP address of the LAN port, change the IP address of your management computer as well so that the two IP addresses belong to the same network segment. Then, use the new IP address of the LAN port to log in to the web UI of the AP.

IP Address Obtaining Mode – Static IP

This mode enables you to set the IP address, subnet mask, gateway IP address, primary DNS server, and secondary DNS server of the AP. It is applicable to a scenario with only one or a few APs.

Procedure:

NOTE

Assume that the AP IP address is 192.168.1.254, and the default gateway IP address and DNS server IP address are 192.168.1.1.

Step 1 Set **Address Mode** to **Static IP**.

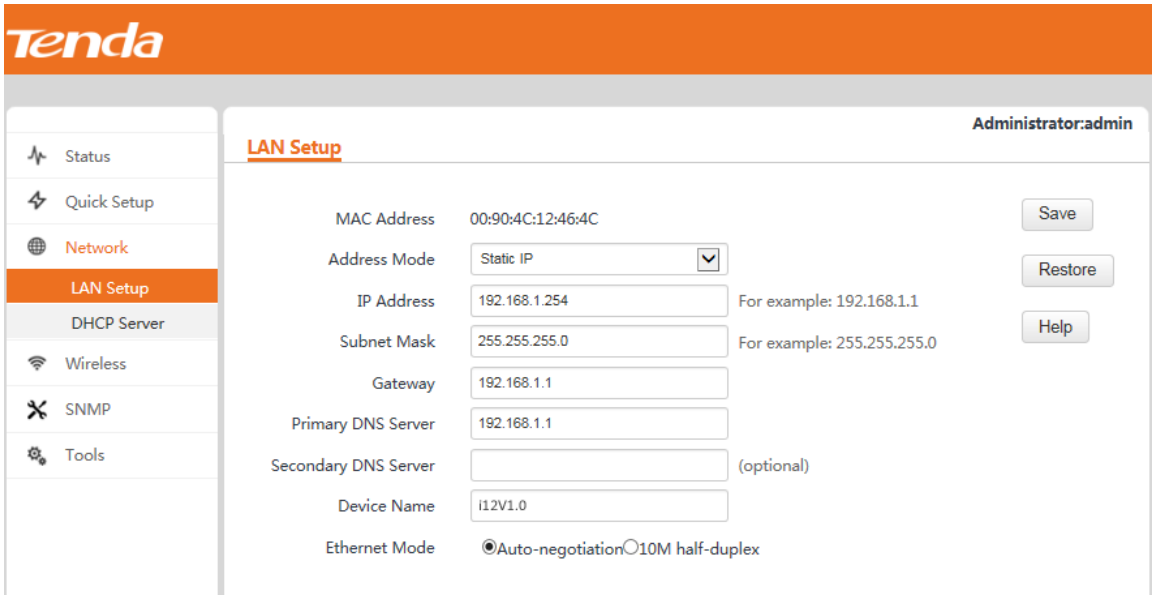
Step 2 Set **IP Address**.

Step 3 Set **Subnet Mask** to the subnet mask of the IP address. Generally the subnet mask is 255.255.255.0.

Step 4 Set **Gateway** to the IP address of the gateway of the AP.

Step 5 Set **Primary DNS Server** to the IP address of the primary DNS server of the AP. If another DNS server is available, set **Secondary DNS Server** to the IP address of the additional DNS server.

Step 6 Click **Save**.



---End

IP Address Obtaining Mode – Dynamic IP

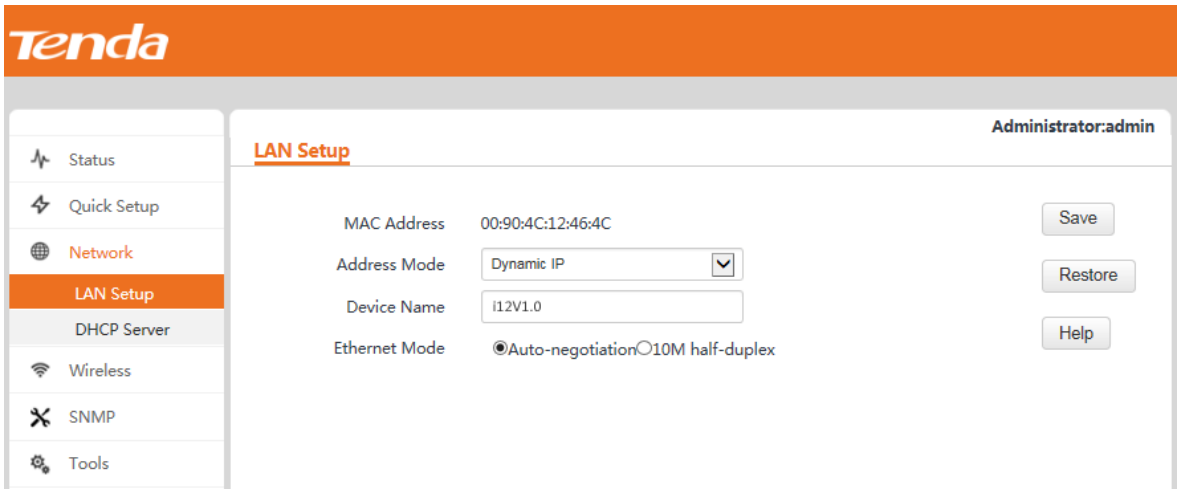
This mode enables the AP to automatically obtain an IP address, subnet mask, gateway IP address, primary DNS server IP address, and secondary DNS server IP address from a DHCP server in the network. If a large number of

APs are deployed, you can adopt this mode to prevent IP address conflicts and effectively reduce your workload.

Procedure:

Step 1 Set **Address Mode** to **Dynamic IP**.

Step 2 Click **Save**.



---End

Parameter Description

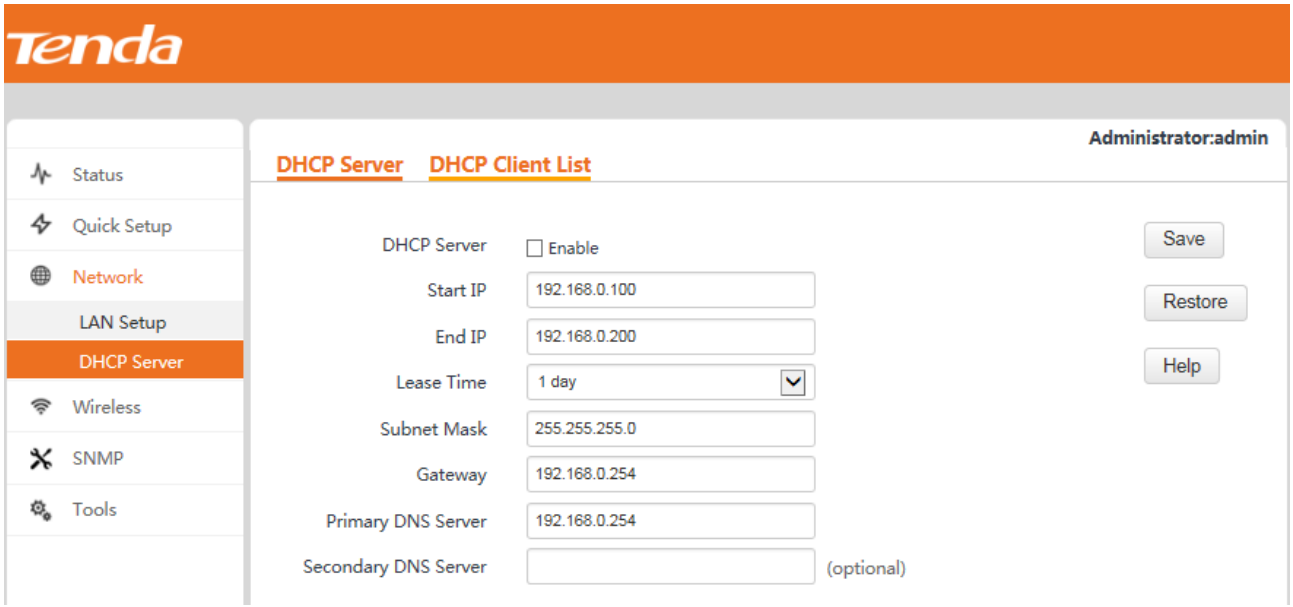
Parameter	Description
MAC Address	It specifies the MAC address of the LAN port of the AP. The default primary SSID of the AP is Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters of this MAC address.
Address Mode	It specifies the IP address obtaining mode of the AP. The default option is **Static IP**. • **Static IP**: It indicates that the IP address, subnet mask, gateway, and DNS server information of the AP is set manually. • **Dynamic IP**: It indicates that the IP address, subnet mask, gateway, and DNS server information of the AP is obtained from a DHCP server in your LAN. If **Address Mode** is set to **Dynamic IP**, you can log in to the web UI of the AP only with the IP address assigned to the AP by the DHCP server. The IP address is specified on the client list of the DHCP server.
IP Address	It specifies the IP address of the AP if **Address Mode** is set to **Static IP**. The default IP address is 192.168.0.254 and you can change it as required. NOTE This IP address also functions as the management IP address of the AP. You can use this IP address to log in to the web UI of the AP to manage the AP.
Subnet Mask	It specifies the subnet mask of the IP address of the AP if **Address Mode** is set to **Static IP**. The default subnet mask is 255.255.255.0 and you can change it as required.
Gateway	It specifies the gateway of the AP if **Address Mode** is set to **Static IP**. The default

Parameter	Description
	gateway IP address is 192.168.0.1 and you can change it as required.
Primary DNS Server	It specifies the primary DNS server of the AP if **Address Mode** is set to **Static IP**. The default IP address of the primary DNS server is 192.168.0.1 and you can change it as required.
Secondary DNS Server (optional)	It specifies the secondary DNS server of the AP if **Address Mode** is set to **Static IP**. This IP address is optional.
Device Name	It specifies the device name of the AP. The default device name is in the format of *Model+Hardware version number*. You are recommended to change the device name so that you can quickly locate the AP when managing the AP remotely.

4.3.2 DHCP Server

DHCP Server

The DHCP server function of the AP can automatically assign IP addresses to clients connected to the AP. To configure the function, choose **Network** > **DHCP Server**.



Procedure for enabling and configuring the DHCP server function:

Step 1 Select the **Enable** check box of **DHCP Server**.

Step 2 Set **Start IP** to the start IP address of the IP address pool, which contains the IP addresses that can be assigned by the DHCP server to clients.

Step 3 Set **End IP** to the end IP address of the IP address pool.

Step 4 Set **Lease Time** to the time when an IP address is available to a client. The default option **1 day** is recommended.

Step 5 Set **Subnet Mask** to the subnet mask of the IP addresses. The default value **255.255.255.0** is recommended.

Step 6 Set **Gateway** to the gateway IP address to be assigned by the DHCP server to clients.

Step 7 Set **Primary DNS Server** to the IP address of the primary DNS server assigned by the DHCP server to clients. If another DNS server IP address is available, set **Secondary DNS Server** to that IP address.

Step 8 Click **Save**.

---End

NOTE

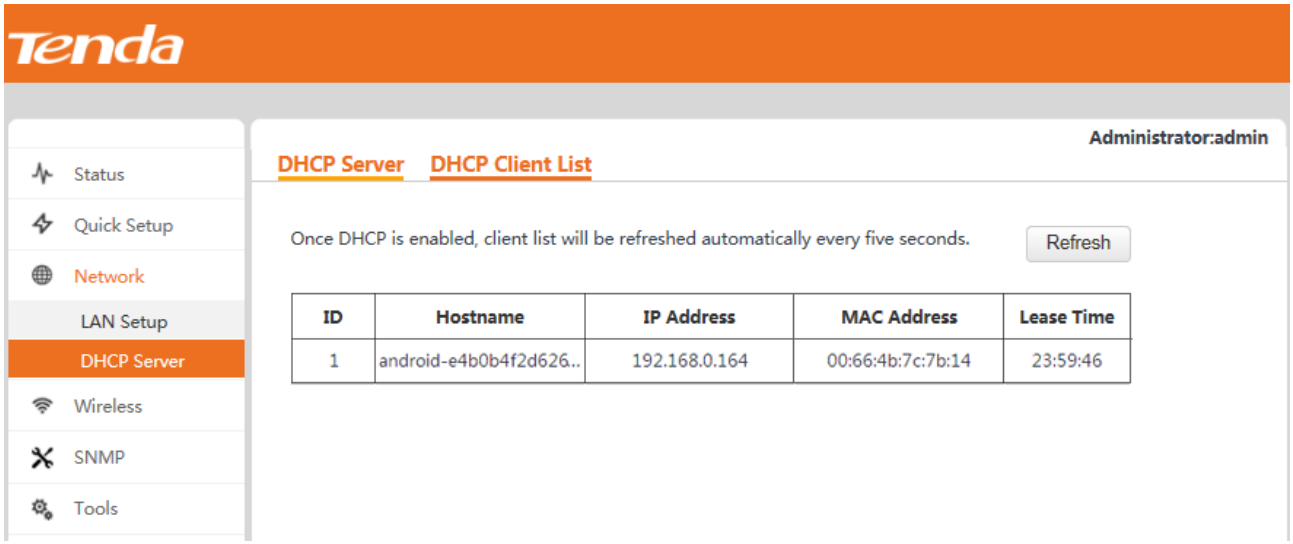
If another DHCP server is available in your LAN, ensure that the IP address pool of the AP does not overlap the IP address pool of that DHCP server. Otherwise, IP address conflicts may occur.

Parameter description

Parameter	Description
DHCP Server	It specifies whether to enable the DHCP server function. To enable it, select the check box. To disable it, deselect the check box. By default, it is disabled.
Start IP	It specifies the first IP address that can be assigned by the DHCP server to a client. The default value is **192.168.0.100**.
End IP	It specifies the last IP address that can be assigned by the DHCP server to a client. The default value is **192.168.0.200**.
Lease Time	It specifies the validity period of an IP address assigned by the DHCP server to a client. The default value is **1 day**.
Subnet Mask	It specifies the subnet mask assigned by the DHCP server to clients. The default value is **255.255.255.0**.
Gateway	It specifies the gateway IP address assigned by the DHCP server to clients. The default value is **192.168.0.254**. NOTE When a client accesses a server or host located outside the network segment where the client resides, the data from and to the client must be forwarded by the gateway. Generally, the IP address of the gateway is the LAN IP address of the router in your LAN.
Primary DNS Server	It specifies the primary DNS server IP address assigned by the DHCP server to clients. The default value is **192.168.0.254**. NOTE To enable clients to access web pages using domain names, set this parameter to a correct DNS server IP address or DNS proxy IP address.
Secondary DNS Server (optional)	It specifies the secondary DNS server IP address assigned by the DHCP server to clients. This IP address is optional.

DHCP Client List

To view information about the clients that obtain IP addresses from the DHCP server function of the AP, choose **Network** > **DHCP Server** and click the **DHCP Client List** tab.

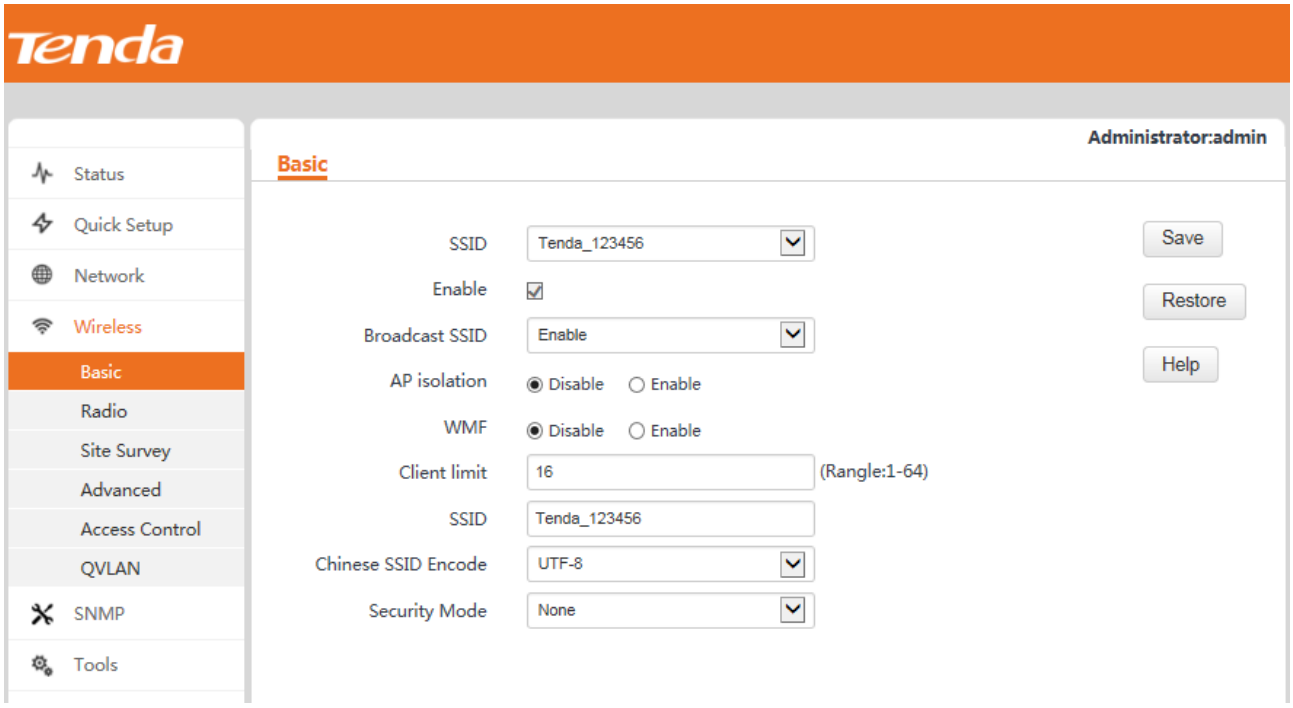


You can click **Refresh** to view the latest client information.

4.4 Wireless Settings

4.4.1 Basic Settings

To view basic wireless settings of the AP, choose **Wireless** > **Basic**.



Procedure:

NOTE

If there is no special requirement regarding the parameters not described in this procedure, retain the default settings.

Step 1 Select the SSID to be configured from the **SSID** drop-down list box.

Step 2 Select the **Enable** check box to enable the selected SSID.

Step 3 Set **Client limit** to the maximum number of wireless clients that can be connected to the AP using the selected SSID.

Step 4 Change the value of the **SSID** text box to a required wireless network name.

Step 5 (Skip this step if your SSID does not include Chinese characters.) Set **Chinese SSID Encode** to an encoding format of the Chinese characters in your SSID.

Step 6 Select a security mode from the **Security Mode** drop-down list box for your SSID. For the detailed security mode configuration procedure, refer to Security Mode.

Step 7 Click **Save**.

---End

Parameter description

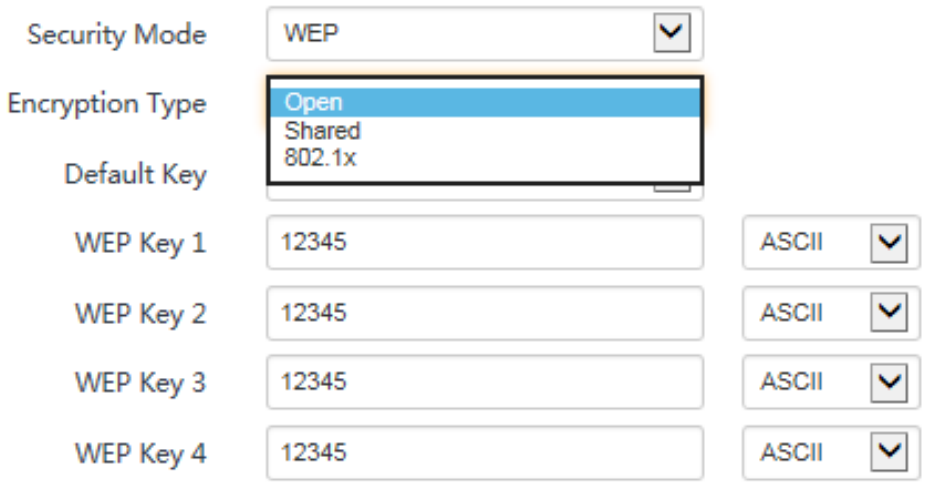
Parameter	Description
SSID	It specifies the SSID to be configured. The AP allows 4 SSIDs. The default SSID is the primary SSID of the AP, which is Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters in the MAC address specified on the label on the external surface of the AP.
Enable	It specifies whether to enable the selected SSID. By default, the primary SSID is enabled and the other SSIDs are disabled. You can enable them as required.
Broadcast SSID	It specifies whether to broadcast the selected SSID. • **Enable**: It indicates that the AP broadcasts the SSID and the SSID can be detected by clients. • **Disable**: It indicates that the AP does not broadcast the SSID and the SSID cannot be detected by clients. If a user wants to connect to the wireless network corresponding to this SSID, the user must enter the SSID manually. NOTE This AP can automatically hide its SSID. When the number of clients connected to the AP with an SSID of the AP reaches the upper limit, the AP stops broadcasting the SSID.
AP isolation	It specifies whether to isolate the wireless clients connected to the AP with the selected SSID. • **Enable**: It indicates that the wireless clients connected to the AP with the selected SSID cannot communicate with each other. This improves wireless network security. • **Disable**: It indicates that the wireless clients connected to the AP with the selected SSID can communicate with each other.
WMF	It specifies whether to forward multicast packets through unicast tunnels. Generally, multicast packets are usually transmitted at the lowest rate, such as 1 Mbps, leading to poor transmission efficiency. WMF leverages the high auto-negotiated rate, reliable feedback mechanism, and other advantages of unicast packets to address multicast problems such as video playback stalls caused by packet loss and long delays over a

Parameter	Description
	wireless network.
Client limit	It specifies the maximum number of wireless clients that can connect to the AP with the selected SSID. After this upper limit is reached, the AP rejects new connection requests from clients.
SSID	It enables you to change the selected SSID. Chinese characters are allowed in an SSID.
Chinese SSID Encode	It specifies the encoding format of Chinese characters in an SSID. The default value is **UTF8**. If 2 or more SSIDs of the AP are enabled, you are recommended to set this parameter to **UTF-8** for some SSIDs and to **GB2312** for the other SSIDs, so that any wireless client can identify one or both SSIDs that contain Chinese characters.
Security Mode	It specifies the encryption type of the selected SSID. **None** indicates that any wireless client can connect to the AP using the selected SSID. This option is not recommended because it affects network security. The AP supports the WEP, WPA-PSK, WPA2-PSK, Mixed WPA/WPA2-PSK, WPA, and WPA2 security modes, which are elaborated in the following section.

WEP

Wired Equivalent Privacy (WEP) uses a static key to encrypt all exchanged data, and ensures that a wireless LAN has the same level of security as a wired LAN. If this encryption algorithm is used, the AP can reach a maximum wireless transmission rate of 54 Mbps.

WEP supports the Open, Shared, and 802.1x encryption types.



NOTE

Many smart phones can use only WEP key 1 to connect to a WEP-encrypted wireless network with the encryption type being Open or Shared. Therefore, if **Security Mode** is set to **WEP** and **Encryption Type** is set to **Open** or **Shared**, set **Default Key** to the value of **WEP Key 1**.

Procedure for configuring the basic wireless settings with the authentication type being Open or Shared:

NOTE

Assume that WEP key 1 is the default WEP key and the key is set to **54321** and **ASCII**.

Step 1 Select the SSID to be configured from the SSID drop-down list box, such as **Tenda_123456**.

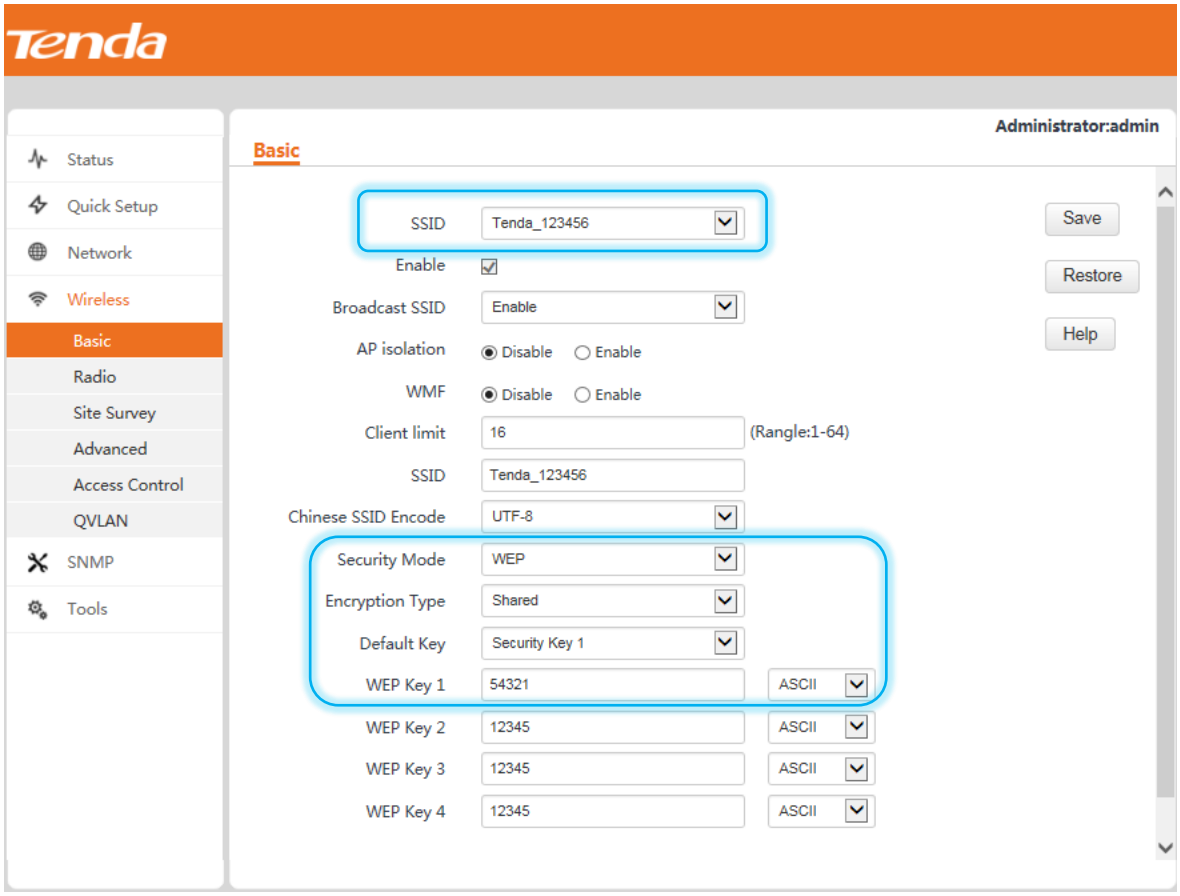
Step 2 Set **Security Mode** to **WEP**.

Step 3 Set **Encryption Type** to **Open** or **Shared**.

Step 4 Set **Default Key** to **Security Key 1**.

Step 5 Set **WEP Key 1** to **54321** and **ASCII**.

Step 6 Click **Save**.



----End

Procedure for configuring the basic wireless settings with the authentication type being 802.1x:

NOTE

Assume that the IP address, port number, and password of the RADIUS server are 192.168.0.88, 1812, and 12345678 respectively.

Step 1 Select the SSID to be configured from the SSID drop-down list box, such as **Tenda_123456**.

Step 2 Set **Security Mode** to **WEP**.

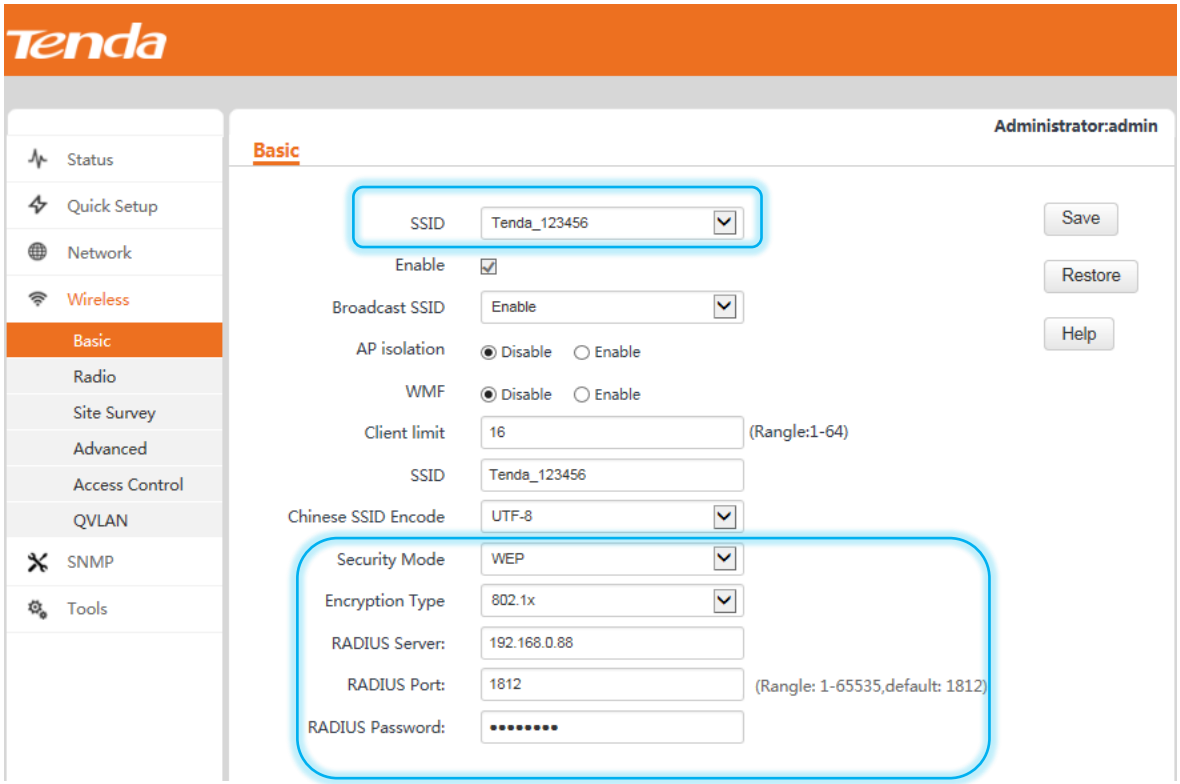
Step 3 Set **Encryption Type** to **802.1x**.

Step 4 Set **RADIUS Server** to the IP address **192.168.0.88** of the RADIUS server.

Step 5 Set **RADIUS Port** to the authentication port number **1812** of the RADIUS server.

Step 6 Set **RADIUS Password** to the password **12345678** of the RADIUS server.

Step 7 Click **Save**.



---End

WEP parameter description

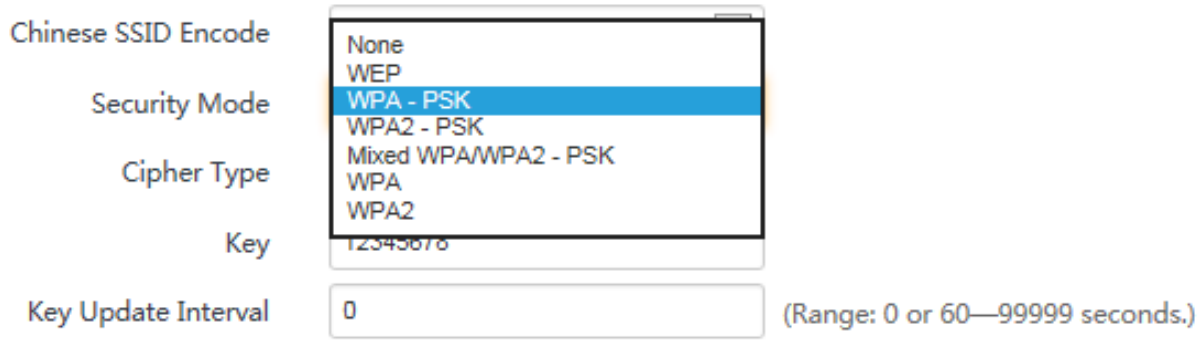
Parameter	Description
Encryption Type	It specifies the encryption type for the WEP security mode of the AP. The options include **Open**, **Shared**, and **802.1x**. The options share the same encryption process.
Open	It specifies that authentication is not required if the WEP security mode is used. In this case, a wireless client can connect to the AP without being authenticated, and the data exchanged between them is encrypted in WEP security mode.
Shared	It specifies that a shared key is used for authentication if the WEP security mode is used. In this case, a wireless client must use a preset WEP key to connect to the AP. The wireless client can be connected to the AP only if the WEP key is the same as that of the AP.
802.1x	It specifies that 802.1x authentication is required if the WEP security mode is used. In this case, ports are enabled when authenticated clients connect to the AP, and disabled when non-authenticated users connect to the AP.
Default Key	It specifies the default WEP key for the Open and Shared encryption types. For example, if the default key is set to WEP key 2, a wireless client can connect to the

Parameter	Description
	AP only with WEP key 2.
ASCII	It allows 5 or 13 ASCII characters in a WEP key.
Hex	It allows 10 or 26 hexadecimal characters in a WEP key.
RADIUS Server	It specifies the IP address of the RADIUS server for authentication.
RADIUS Port	It specifies the port number of the RADIUS server for authentication.
RADIUS Password	It specifies the password of the RADIUS server for authentication.

WPA-PSK, WPA2-PSK, and Mixed WPA/WPA2-PSK

WPA-PSK is formulated based on IEEE 802.11i draft 3, whereas WPA2-PSK is formulated based on the final IEEE 802.11i release. Therefore, WPA2-PSK features higher security than WPA-PSK.

Both WPA-PSK and WPA2-PSK adopt a preshared key for authentication, while the AP generates another key for data encryption. This prevents the vulnerability caused by static WEP keys, and makes WPA-PSK and WPA2-PSK suitable for ensuring security of home wireless networks. Nevertheless, because the initial preshared key for authentication is manually set and all clients use the same key to connect to the same AP, the key may be disclosed unexpectedly. This makes WPA-PSK and WPA2-PSK not suitable for scenarios where high security is required.



Procedure for configuring the WPA-PSK, WPA2-PSK, or Mixed WPA/WPA2-PSK security mode:

NOTE

Assume that **Cipher Type** and **Key** are **AES** and **87654321** respectively.

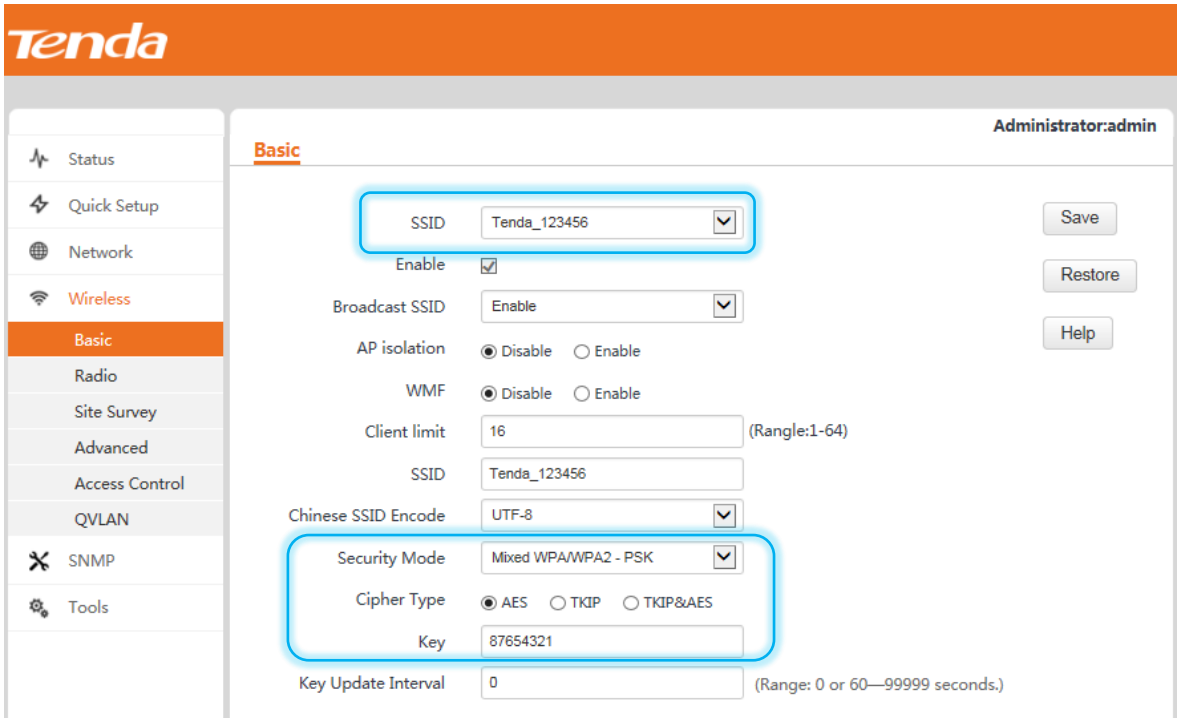
Step 1 Select the SSID to be configured from the SSID drop-down list box, such as **Tenda_123456**.

Step 2 Set **Security Mode** to **Mixed WPA/WPA2-PSK**, **WPA-PSK**, or **WPA2-PSK**.

Step 3 Set **Cipher Type** to **AES**.

Step 4 Set **Key** to **87654321**.

Step 5 Click **Save**.



---End

Parameter description

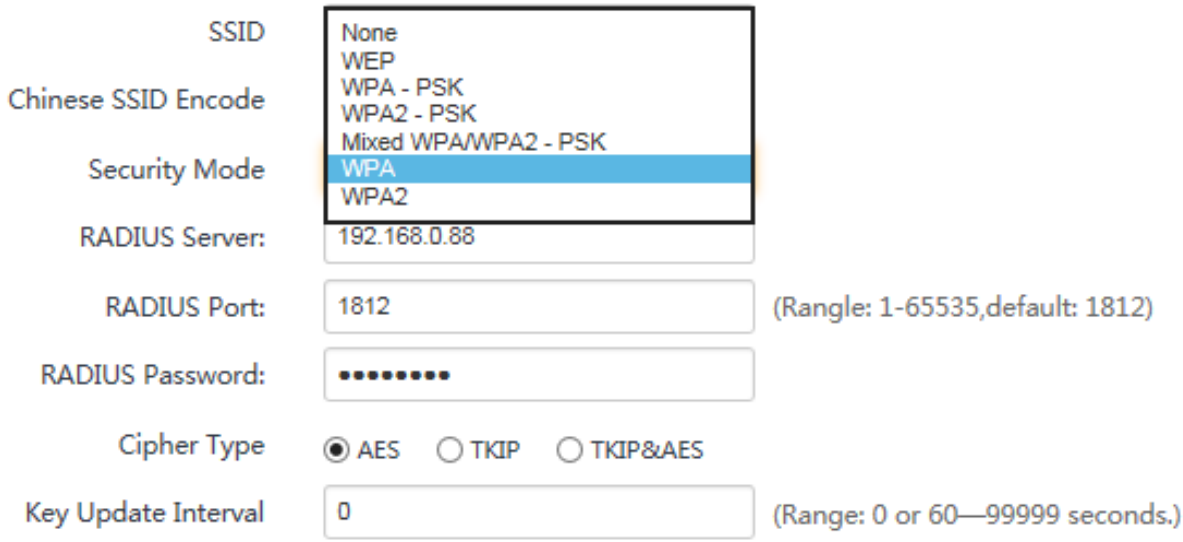
Parameter	Description
Security Mode	It specifies the encryption type of the selected SSID. Select **WPA-PSK**, **WPA2-PSK**, or **Mixed WPA/WPA2-PSK**.
WPA-PSK	This encryption type supports the AES and TKIP encryption algorithms.
WPA2-PSK	This encryption type supports the AES, TKIP, and TKIP&AES encryption algorithms.
Mixed WPA/WPA2-PSK	It indicates that the AP works in the Mixed WPA/WPA2-PSK security mode, and wireless clients adopting the WPA-PSK or WPA2-PSK security mode can connect to the AP.
Cipher Type	It specifies the encryption algorithm corresponding to the selected security mode. If **Security Mode** is set to **WPA-PSK**, this parameter has the **AES** and **TKIP** values. If **Security Mode** is set to **WPA2-PSK** or **Mixed WPA/WPA2-PSK**, this parameter has the **AES**, **TKIP**, and **TKIP&AES** values.
AES	It is short for Advanced Encryption Standard. If this encryption algorithm is used, the AP can reach a maximum wireless transmission rate of 300 Mbps.
TKIP	It is short for Temporal Key Integrity Protocol. If this encryption algorithm is used, the AP can reach a maximum wireless transmission rate of 54 Mbps.
TKIP&AES	It indicates that both TKIP and AES encryption algorithms are supported. Wireless clients can connect to the AP based on TKIP or AES.
Key	It specifies a preshared WPA key. A WPA key can contain 8 to 63 ASCII characters or 8 to 64 hexadecimal characters.

Parameter	Description
Key Update Interval	It specifies the automatic update interval of the key for data encryption. A shorter interval results in higher data security.

WPA and WPA2

To address the key management weakness of WPA-PSK and WPA2-PSK, the WiFi Alliance puts forward WPA and WPA2, which use 802.1x to authenticate clients and generate data encryption–oriented root keys. WPA and WPA2 use the root keys to replace the preshared keys that set manually, but adopt the same encryption process as WPA-PSK and WPA2-PSK.

WPA and WPA2 uses 802.1x to authenticate clients and the login information of a client is managed by the client. This effectively reduces the probability of information leakage. In addition, each time a client connects to the AP that adopts the WPA or WPA2 security mode, the RADIUS server generates a data encryption key and assigns it to the client. This makes it difficult for attackers to obtain the key. These features of WPA and WPA2 help significantly increase network security, making WPA and WPA2 the preferred security modes of wireless networks that require high security.



Procedure for configuring the WPA or WPA2 security mode:

> NOTE
>
> Assume that the IP address, port number, and password of the RADIUS server are 192.168.0.88, 1812, and 12345678 respectively, and the encryption algorithm is AES.

Step 1 Select the SSID to be configured from the SSID drop-down list box, such as **Tenda_123456**.

Step 2 Set **Security Mode** to **WPA** or **WPA2**.

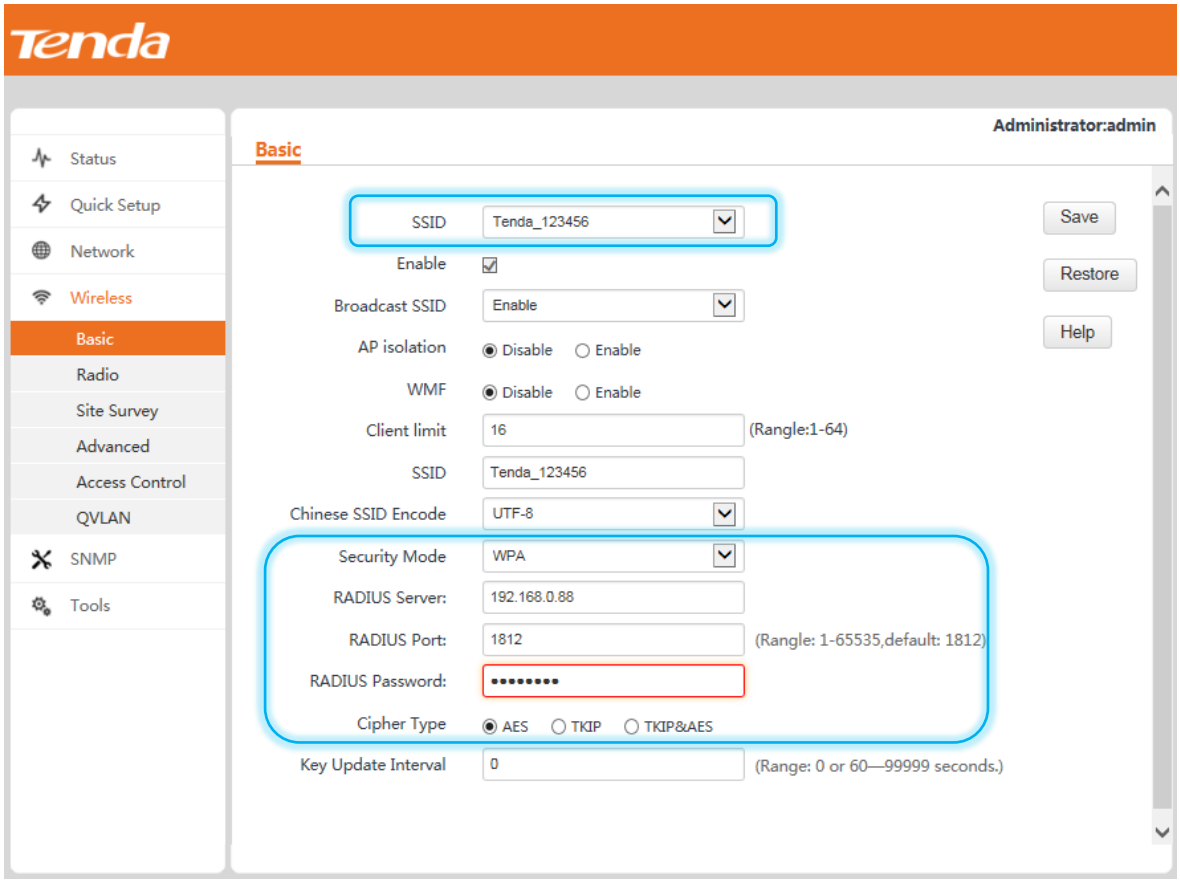
Step 3 Set **RADIUS Server** to the IP address **192.168.0.88** of the RADIUS server.

Step 4 Set **RADIUS Port** to the authentication port number **1812** of the RADIUS server.

Step 5 Set **RADIUS Password** to the password **12345678** of the RADIUS server.

Step 6 Set **Cipher Type** to **AES**.

Step 7 Click **Save**.



---End

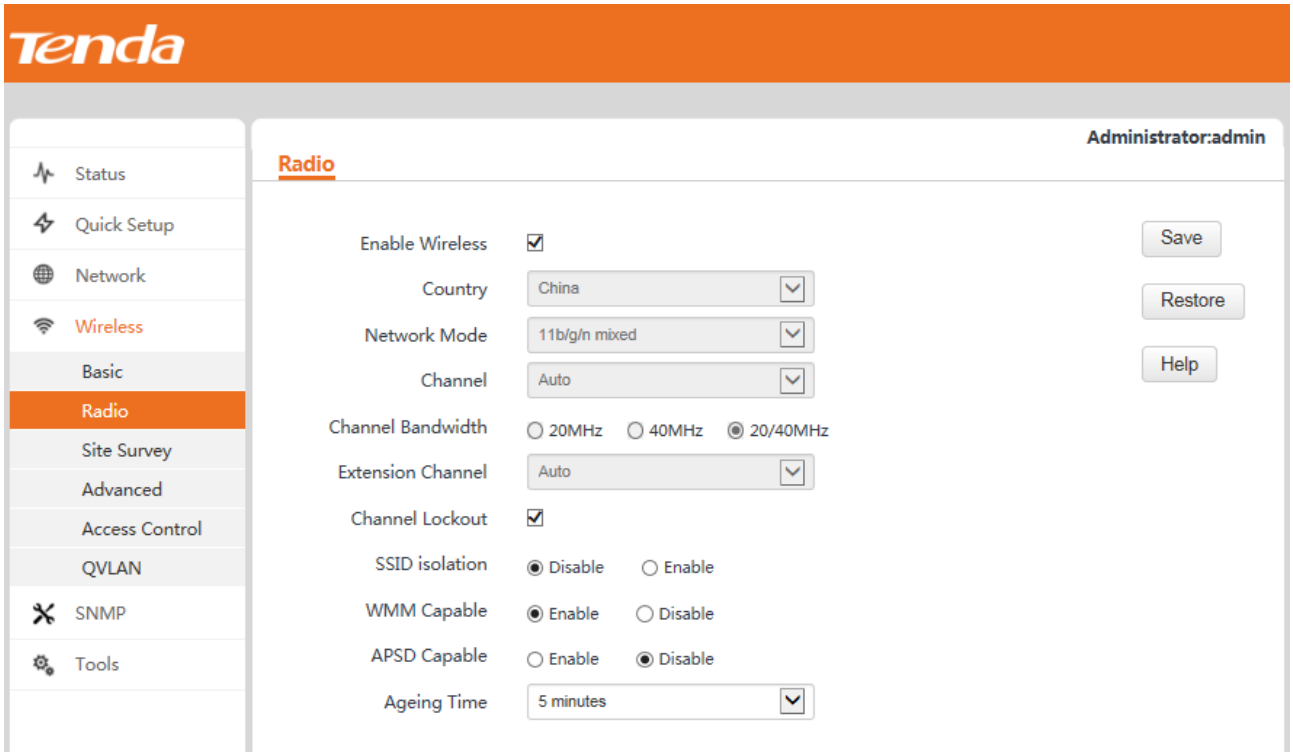
Parameter description

Parameter	Description
Security Mode	It specifies the security mode of the selected SSID. Select **WPA** or **WPA2**.
WPA	This encryption type supports the AES and TKIP encryption algorithms.
WPA2	This encryption type supports the AES, TKIP, and TKIP&AES encryption algorithms.
RADIUS Server	It specifies the IP address of the RADIUS server for authentication.
RADIUS Port	It specifies the port number of the RADIUS server for authentication.
RADIUS Password	It specifies the password of the RADIUS server for authentication.
Cipher Type	It specifies the encryption algorithm corresponding to the selected security mode. The available options include AES, TKIP, and TKIP&AES.
AES	It is short for Advanced Encryption Standard. If this encryption algorithm is used, the AP can reach a maximum wireless transmission rate of 300 Mbps.
TKIP	It is short for Temporal Key Integrity Protocol. If this encryption algorithm is used, the AP can reach a maximum wireless transmission rate of 54 Mbps.
TKIP&AES	It indicates that both TKIP and AES encryption algorithms are supported. Wireless clients can connect to the AP based on TKIP or AES.

Parameter	Description
Key Update Interval	It specifies the automatic update interval of a WPA key for data encryption. A shorter interval results in higher data security.

4.4.2 Radio Settings

To view the radio parameters of the AP, choose **Wireless** > **Radio**. If the AP works in AP+Client or WDS mode, the radio parameters cannot be changed.



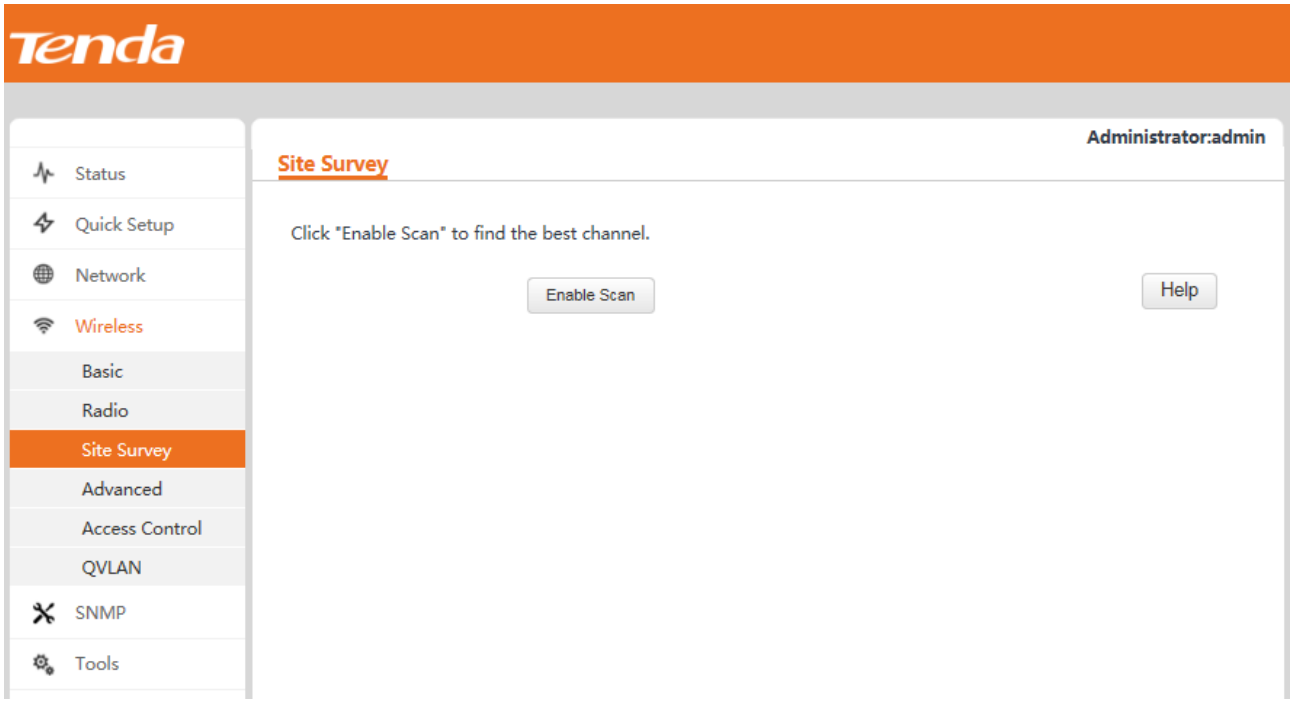
Parameter description

Parameter	Description
Enable Wireless	It specifies whether to enable the wireless function of the AP.
Country	It specifies the country or region where the AP is used. Different countries or regions have different channel regulations.
Network Mode	It specifies the 802.11 network mode of the AP. By default, the AP works in 11b/g/n mixed mode. • **11b**: It indicates that only clients working in the 11b network mode can connect to the AP. In this network mode, the AP can reach a maximum wireless transmission rate of 11 Mbps. • **11g**: It indicates that only clients working in the 11g network mode can connect to the AP. In this network mode, the AP can reach a maximum wireless transmission rate of 54 Mbps. • **11b/g mixed**: It indicates that only clients working in the 11b or 11g network mode can connect to the AP. In this network mode, the AP can reach a maximum wireless

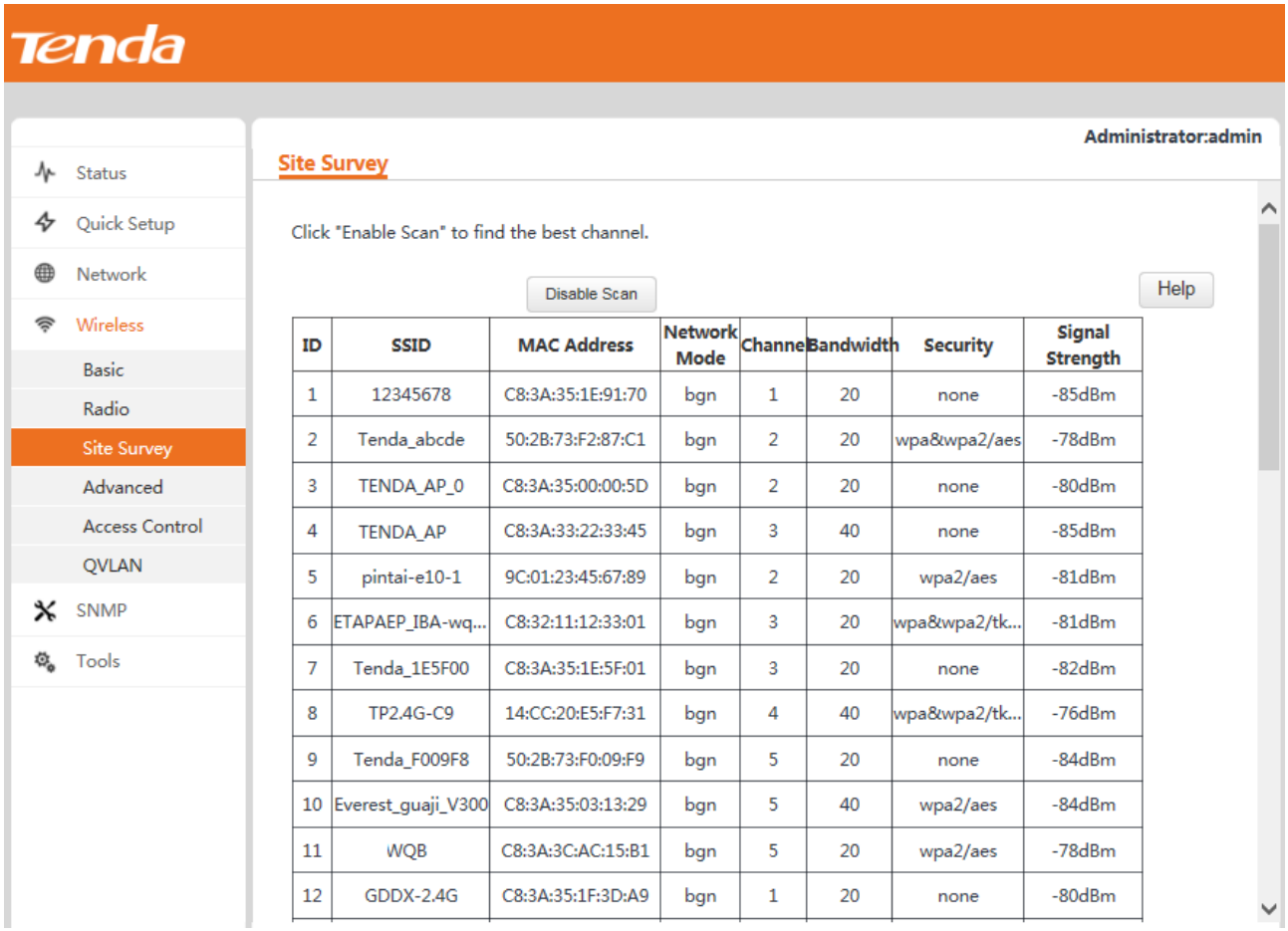
Parameter	Description
	transmission rate of 54 Mbps. • **11b/g/n mixed**: It indicates that only clients working in the 11b, 11g, or 11n network mode can connect to the AP. In this network mode, the AP can reach a maximum wireless transmission rate of 300 Mbps.
Channel	It specifies the operating channel of the AP.
Channel Bandwidth	It specifies the bandwidth of the operating channel of the AP. This parameter is effective only for the 802.11b/g/n mixed network mode. The **20/40** option offers a maximum wireless transmission rate almost twice of that offered by the **20** option.
Expansion Channel	It specifies an additional channel used to increase the channel bandwidth if the AP works in the 802.11b/g/n mixed network mode and the channel bandwidth option **20/40** is selected.
Channel Lockout	It is used to lock the selected channel. After a channel is locked, parameters of the channel cannot be changed, including **Country**, **Network Mode**, **Channel**, **Channel Bandwidth**, and **Expansion Channel**.
SSID Isolation	It specifies whether to isolate the wireless clients connected to the AP with different SSIDs. • **Disable**: It indicates that the wireless clients connected to the AP with different SSIDs can communicate with each other. • **Enable**: It indicates that the wireless clients connected to the AP with different SSID cannot communicate with each other. This improves wireless network security.
WMM Capable	It is short for Wi-Fi Multimedia, which helps improve multimedia data (such as data of online videos) transmission performance of wireless networks. It is recommended that you enable this function.
APSD Capable	It is short for Automatic Power Save Delivery, and is effective only if the WMM function is enabled. It is recommended that you disable this function.

4.4.3 Channel Scan

This function is used to detect nearby wireless networks of the AP, as well as the MAC addresses, network modes, channels, channel bandwidths, security modes, and signal strengths of the wireless networks. To use the function, choose **Wireless** > **Site Survey**.



By default, the channel scan function of the AP is disabled. You can click **Enable Scan** and wait a moment for the scan result. See the following figure.



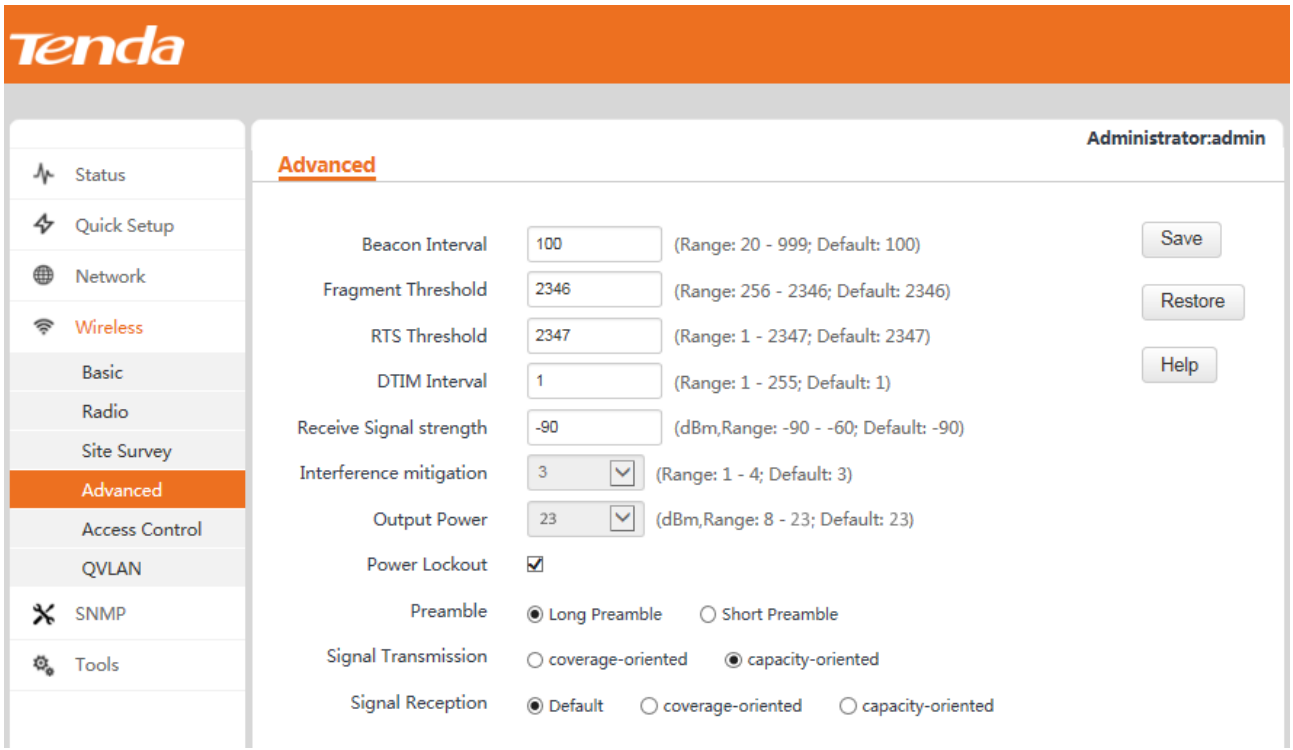
According to the scan result, you can select the least-used channel as the operating channel of the AP for better wireless transmission efficiency.

4.4.4 Advanced Settings

To view the advanced parameters for configuring the wireless performance of the AP, choose **Wireless** > **Advanced**.

NOTE

It is recommended that you change the settings only under the instruction of professional personnel, so as to prevent decreasing the wireless performance of the AP.



Parameter description

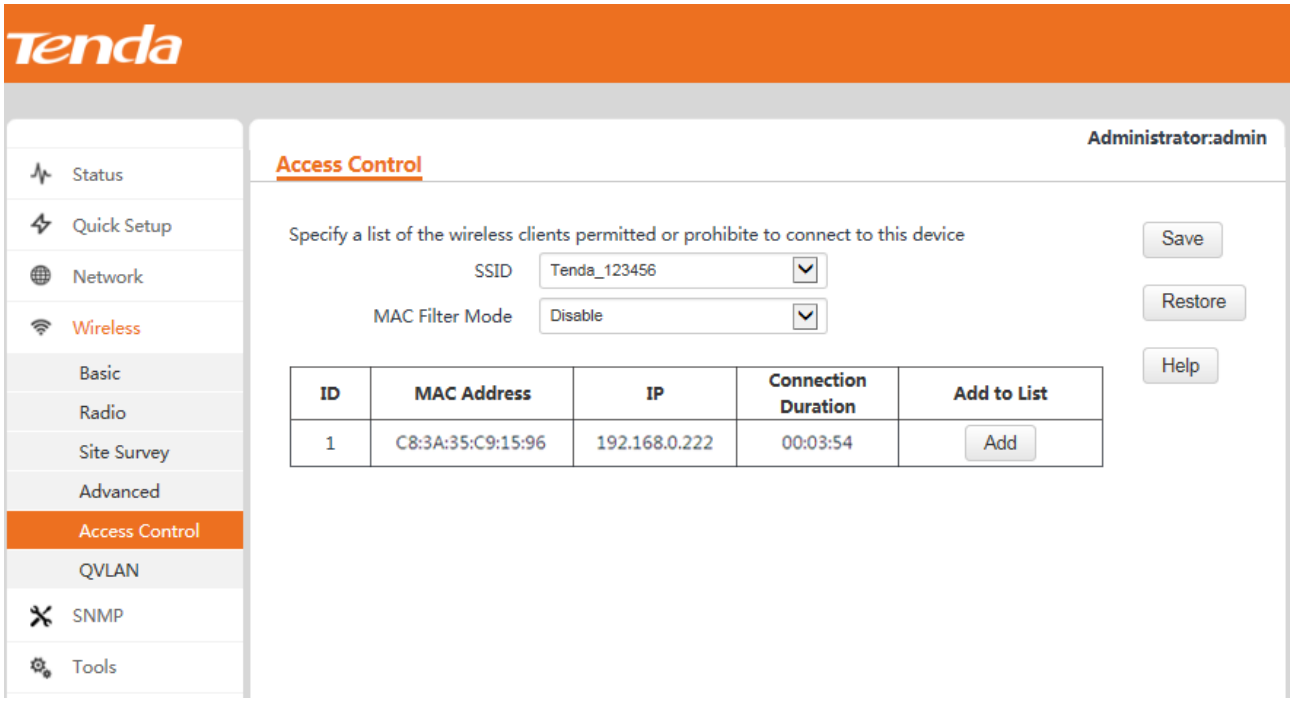
Parameter	Description
Beacon Interval	It specifies the interval for transmitting the Beacon frame. The value range is 20 to 999. The unit is millisecond. The Beacon frame is transmitted at the specified interval to announce the presence of a wireless network. Generally, a smaller interval enables wireless clients to connect to the AP more quickly, while a larger interval ensures higher data transmission efficiency.
Fragment Threshold	It specifies the threshold of a fragment. The value range is 256 to 2346. The unit is byte. Fragmenting is a process that divides a frame into several fragments, which are transmitted and acknowledged separately. If the size of a frame exceeds this threshold, the frame is fragmented. • In case of a high error rate, you can reduce the threshold to enable the AP to resend only the fragments that have not been sent successfully, so as to increase the frame throughput. • In an environment without interference, you can increase the threshold to reduce the number of acknowledgement times, so as to increase the frame throughput.

Parameter	Description
RTS Threshold	It specifies the frame length threshold for triggering the RTS/CTS mechanism. If a frame exceeds this threshold, the RTS/CTS mechanism is triggered to reduce conflicts. The value range is 1 to 2347. The unit is byte. Set the RTS threshold based on the actual situation. An excessively small value increases the RTS frame transmission frequency and bandwidth requirement. A higher RTS frame transmission frequency enables a wireless network to recover from conflicts quicker. For a wireless network with high user density, you can reduce this threshold for reducing conflicts. The RTS mechanism requires some network bandwidth. Therefore, it is triggered only when frames exceed this threshold.
DTIM Interval	It is short for Delivery Traffic Indication Message, and specifies the countdown before the AP transmits broadcast and multicast frames in its cache. The value range is 1 to 255. The unit is Beacon interval. For example, if **DTIM Interval** is set to **1**, the AP transmits all cached frames at the Beacon interval.
Receive Signal Strength	It specifies the minimum strength of received signals acceptable to the AP. If the strength of the signals transmitted by a wireless device is weaker than this threshold, the wireless device cannot connect to the AP. An appropriate value of this parameter ensures that wireless clients connect to APs with strong signals.
Output Power	It specifies the transmit power of the AP. The unit is dBm. The value range is 8 dBm to 23 dBm. A greater transmit power of the AP offers broader network coverage. You can slightly reduce the transmit power to improve the wireless network performance and security.
Power Lockout	It specifies whether the current transmit power settings of the AP can be changed.
Preamble	It specifies the time when data is transmitted between a wireless client and the AP. The time is notified to other wireless clients to prevent conflicts. During transmission, the preamble as well as the synchronization signal and frame interval is transmitted before working data. In data frames for wireless transmission, a long preamble results in short working data. Therefore, a short preamble can be used to improve wireless transmission efficiency. It is optional for 802.11b devices to support short preambles. It is mandatory for 802.11g devices to support short preambles.
Signal Transmission	It specifies the signal transmission mode for a specific scenario. • **Coverage-oriented**: This mode enables the AP to provide broader coverage when the AP is deployed in an area with low AP density, such as an office, a warehouse, or a hospital. • **Capacity-oriented**: This mode reduces inter-AP interference when the AP is deployed in an area with high AP density, such as a venue, an exhibition hall, a banquet hall, a stadium, a college classroom, or a departure lounge.
Signal Reception	It specifies the signal reception mode for a specific scenario. • **Coverage-oriented**: This mode enables more wireless devices to connect to the AP in an

Parameter	Description
	area with low AP density. • **Capacity-oriented**: This mode ensures that each wireless device in an area with high AP density connects to the AP with the strongest signal. • **Default**: This mode enables the AP to achieve a balance between the other two modes.

4.4.5 Access Control

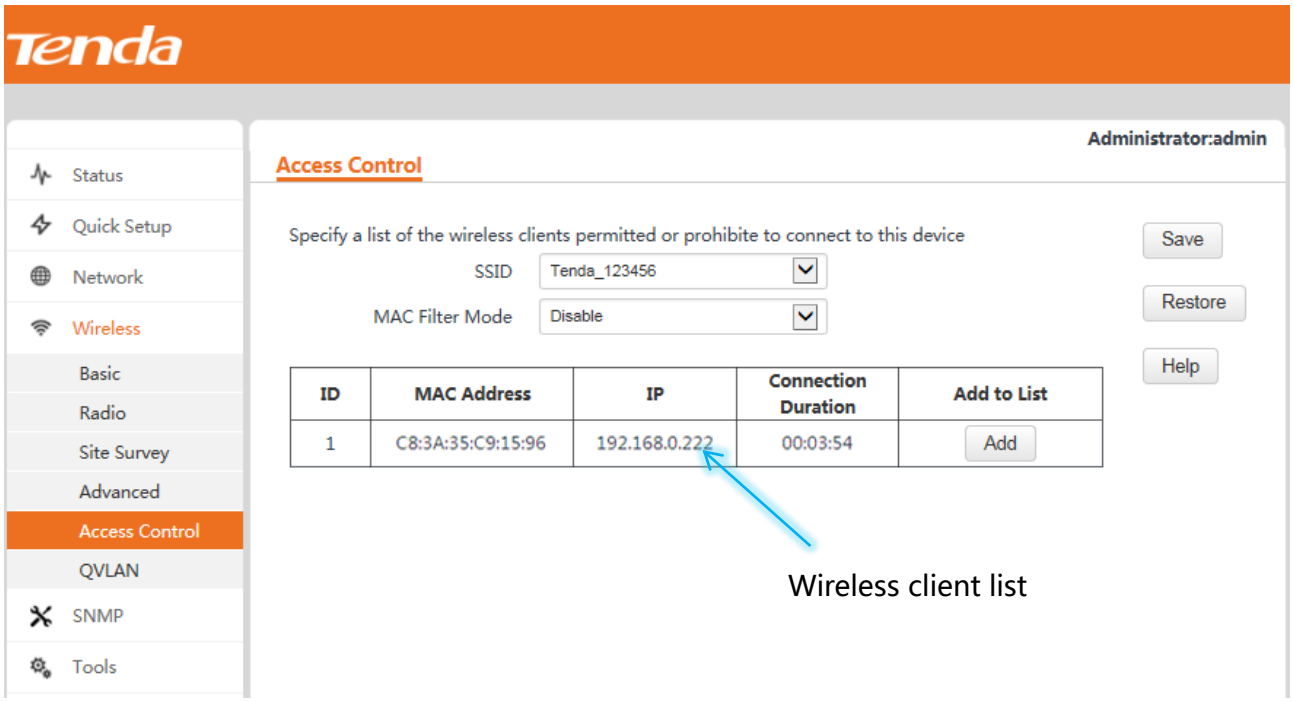
To control access of wireless clients to the AP by MAC address, choose **Wireless** > **Access Control**.



Parameter description

Parameter	Description
SSID	It specifies the SSID that requires wireless client access control.
MAC Filter Mode	It specifies the mode for filtering MAC addresses. • **Disable**: It indicates that access control is disabled. • **Allow**: It indicates that only the wireless clients on the access control list can connect to the AP with the selected SSID. • **Deny**: It indicates that only the wireless clients on the access control list cannot connect to the AP with the selected SSID.

This page also displays a list of wireless clients that have connected to the AP with the selected SSID. You can select wireless clients from the list to implemented access control.



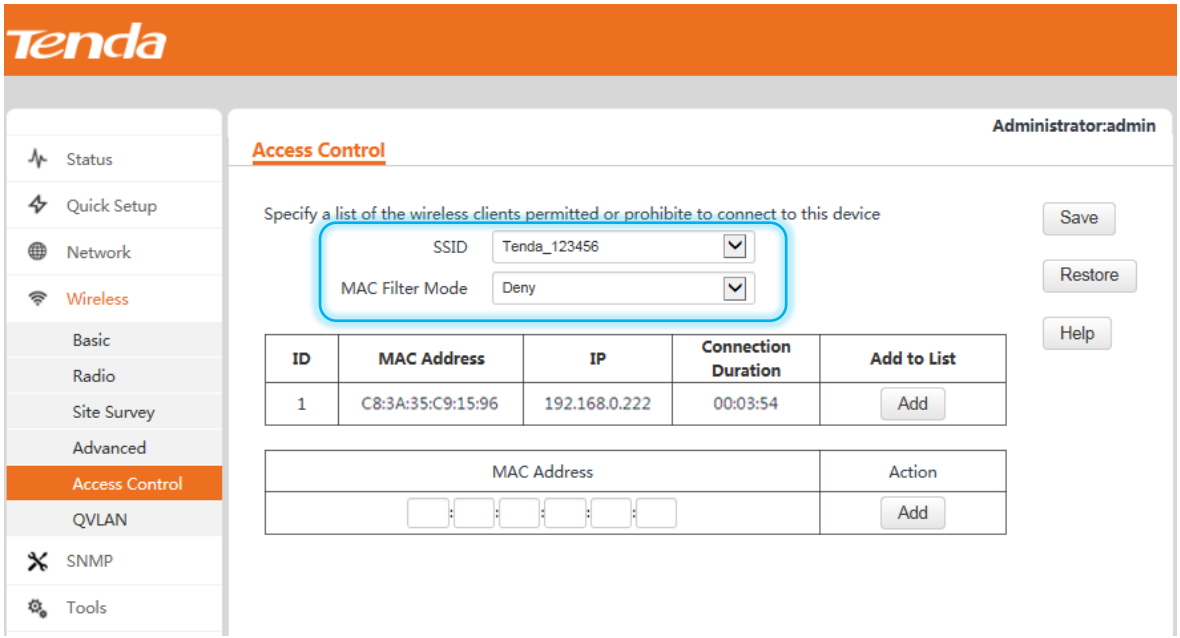
Example Application of Wireless Control

- Networking requirement

  The laptops whose MAC addresses are C8:3A:35:12:12:12 and C8:3A:35:14:14:14 are not allowed to connect to the AP with the SSID Tenda_123456.

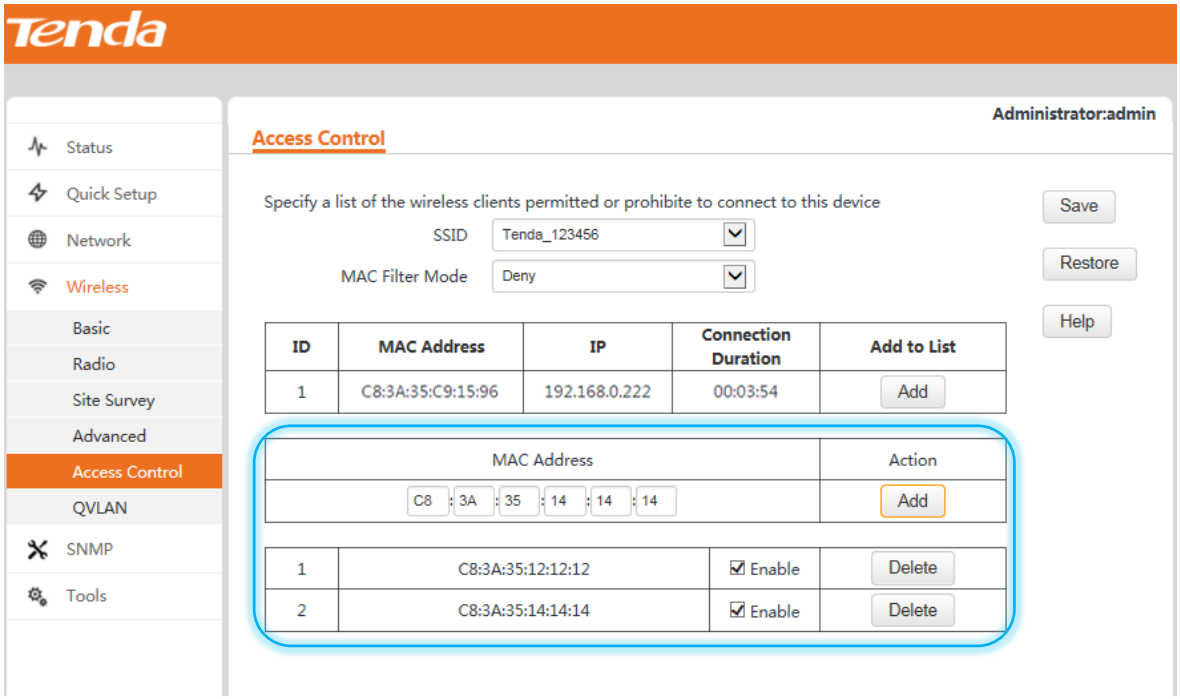
- Procedure

Step 1 Set SSID to Tenda_123456 and MAC Filter Mode to Deny.

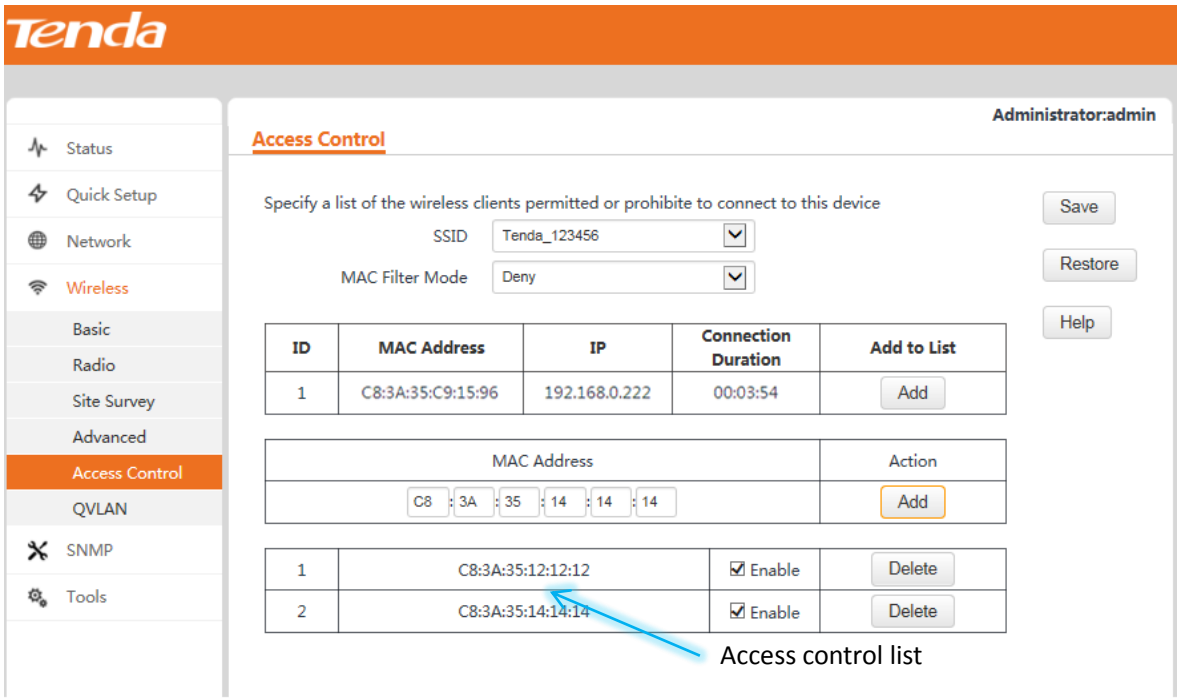


Step 2 Enter **C8:3A:35:12:12:12** in the **MAC Address** text box and click **Add**.

Step 3 Change the value of the **MAC Address** text box to **C8:3A:35:14:14:14** and click **Add**.



Step 4 Click **Save**.

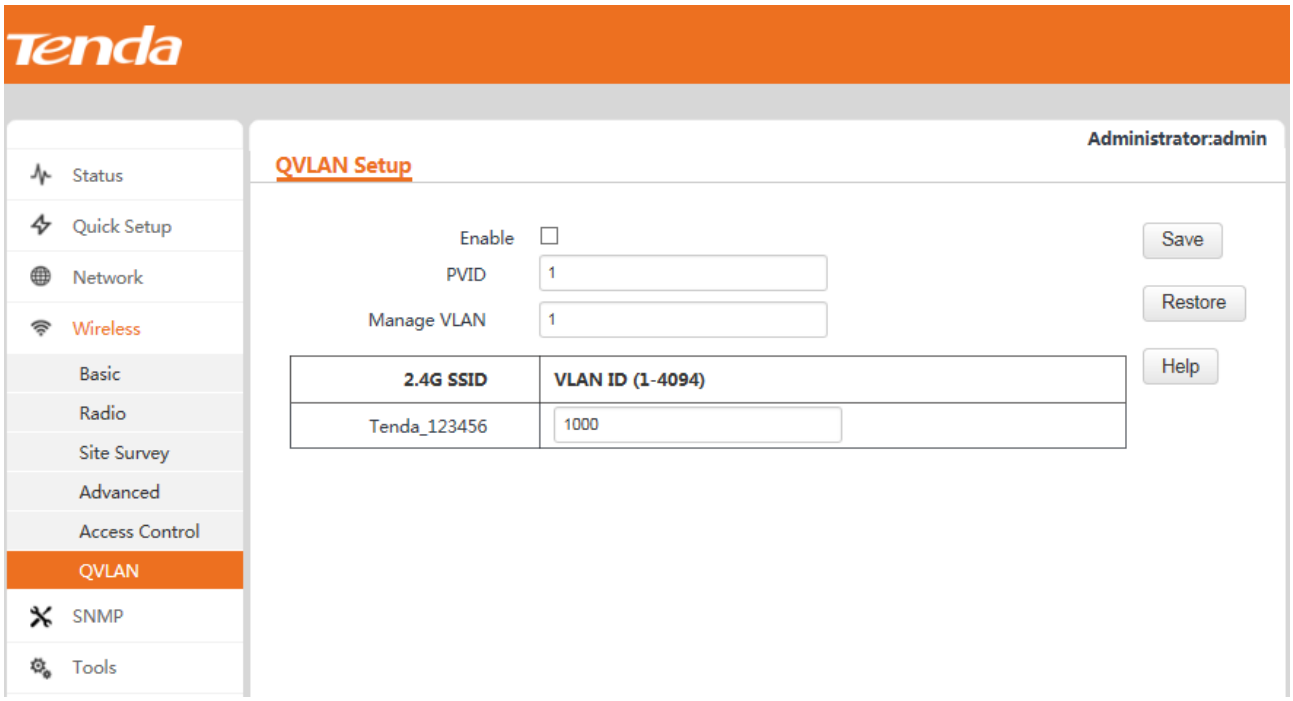


---End

4.4.6 QVLAN Settings

This AP supports IEEE 802.1Q VLANs. After the QVLAN function is enabled, the AP can work with a switch that supports the QVLAN function to set up multiple wireless VLANs. Wireless clients connected to different VLANs cannot communicate with each other.

To configure the function, choose **Wireless** > **QVLAN**.



Parameter description

Parameter	Description
Enable	It specifies whether to enable the QVLAN function. By default, it is disabled.
PVID	It specifies the ID of the default native VLAN of the trunk port. The default ID is 1.
Manage VLAN	It specifies the ID of the AP management VLAN. The default ID is 1. After changing the management VLAN, you can manage the AP only after connecting your computer to the new management VLAN.
SSID	It specifies the wireless network names of the AP.
VLAN ID	It specifies VLAN IDs corresponding to SSIDs. The default VLAN ID is 1000. The VLAN ID range is 1 to 4094.

Example Application of QVLAN Configuration

- Requirement

  A hotel needs to enable its guests to access the internet by both wired and wireless means in the lounge and rooms, its employees to access its LAN server, and its senior managers to access both the internet and LAN server.

- Solution

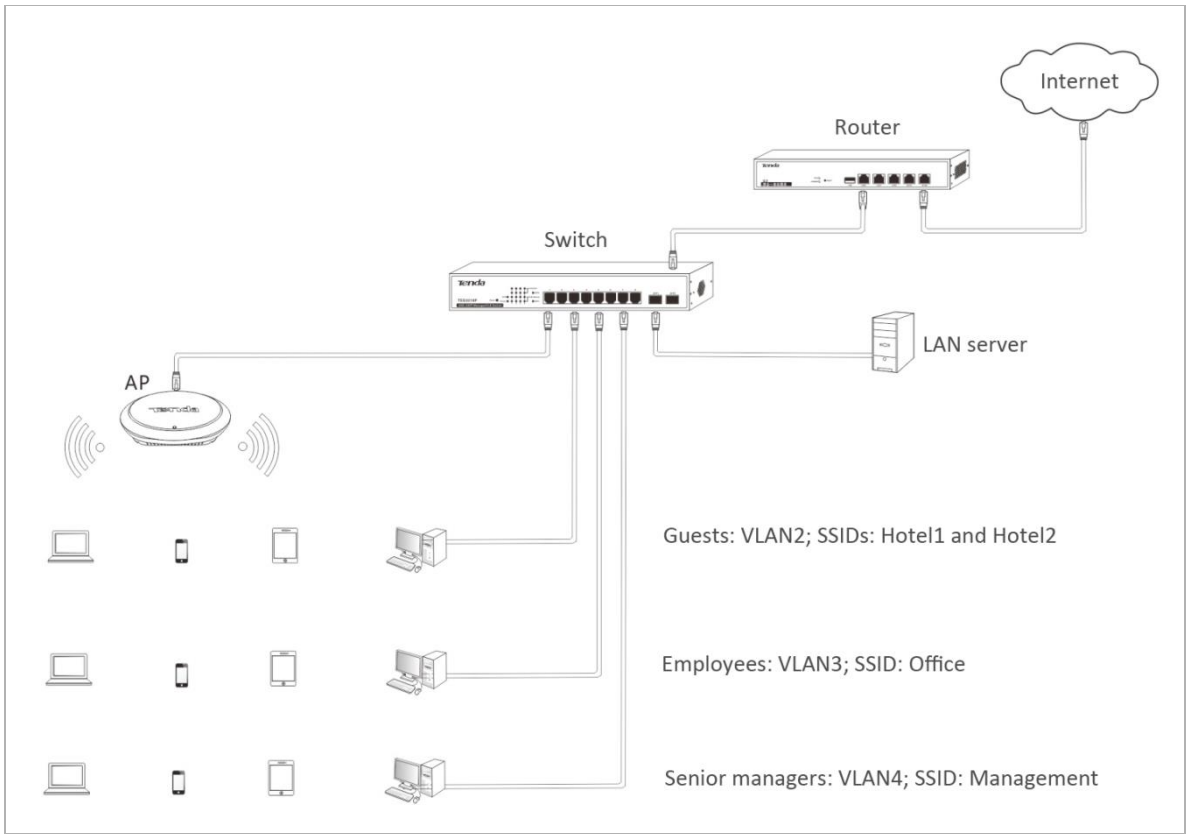
  Define 802.1Q VLANs on its core switch to isolate the three groups of users.

  - Deploy i12 and configure multiple SSIDs and the QVLAN function to enable the AP to interwork with the VLANs defined on the core switch.
  - Separately implement wireless network encryption for each SSID and assign different SSIDs to different groups of users.

- There are three groups of users and the AP has four SSIDs. The SSID not assigned to the users can be handled using either of the following methods:
  - Assign the SSID to the largest group of users, such as the group of guests. This SSID must adopt the same security mode and VLAN ID as the SSID originally assigned to the group. The SSIDs must be different. (This method is used as an example for description in this document.)
  - Disable the SSID.

- Network topology

See the following figure.



- Configuration description

VLANs defined on the core switch

Port Connected To	VLAN	Link Type	PVID
Guests	2	Access	2
Employees	3	Access	3
Senior managers	4	Access	4
AP	1,2,3,4	Trunk (Traffic of all the VLANs can pass through the port.)	1
LAN server	3,4	Trunk (Only traffic of VLAN3 and	1

Port Connected To	VLAN	Link Type	PVID
		VLAN4 can pass through the port.)	
Gateway with internet connectivity	2,4	Trunk (Only traffic of VLAN3 and VLAN4 can pass through the port.)	1

SSIDs and VLANs defined on the AP

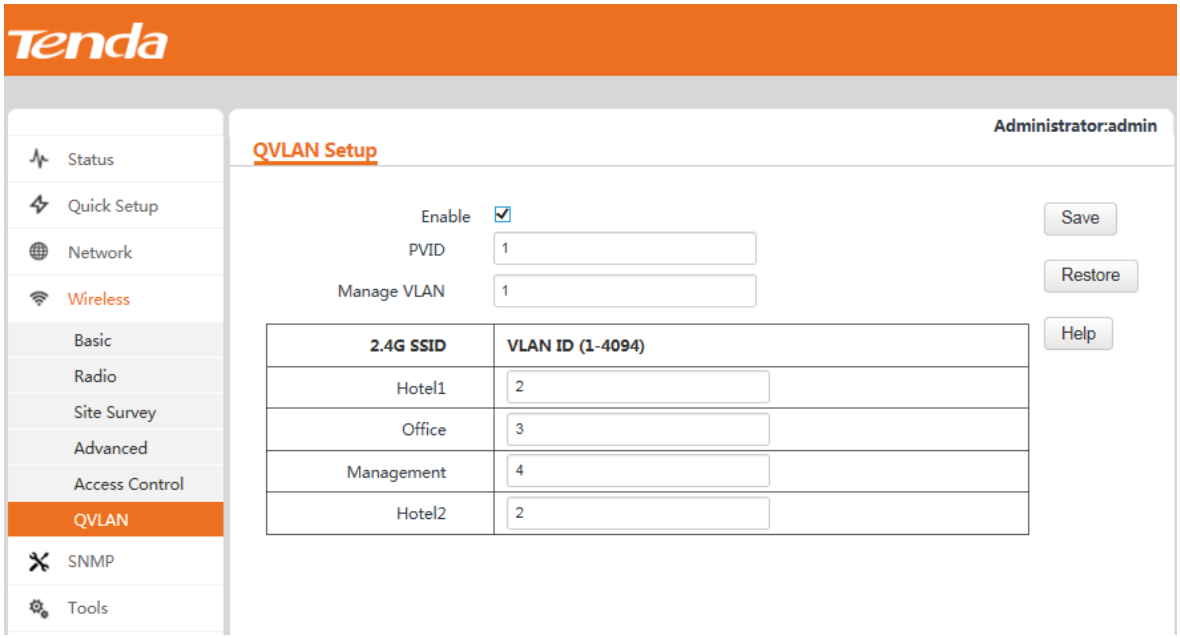
User Group	SSID	VLAN ID
Guests	Hotel1	VLAN2
Employees	Office	VLAN3
Senior managers	Management	VLAN4
Guests	Hotel2	VLAN2

- AP configuration

Step 1 Log in to the web UI of the AP and choose **Wireless** > **Basic**.

Step 2 Enable the 4 SSIDs, change the SSIDs to **Hotel1**, **Office**, **Management**, and **Hotel2**, configure security modes for the SSIDs, and save the change.

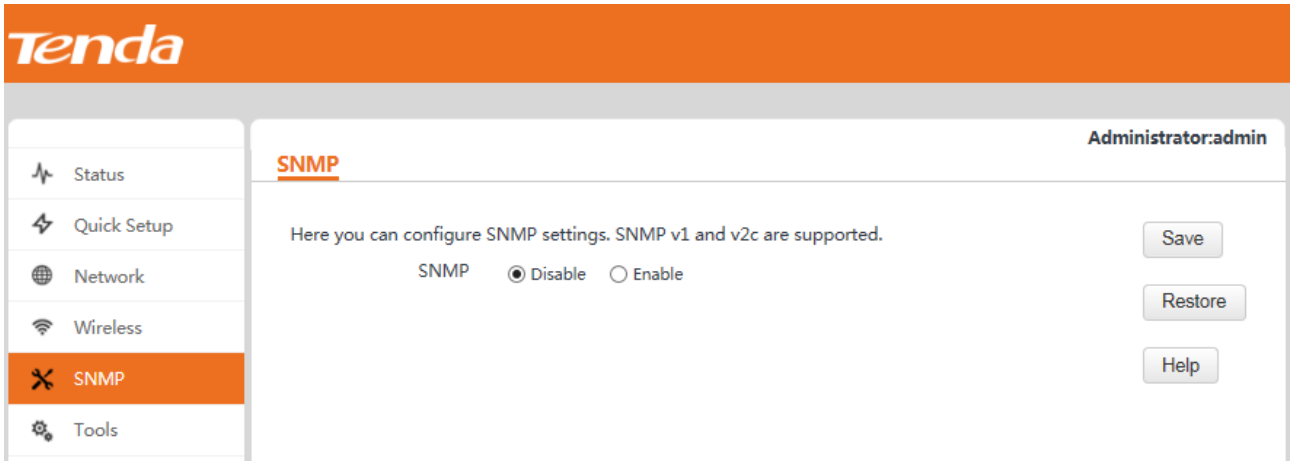
Step 3 Choose **Wireless** > **QVLAN**, enable the QVLAN function, change the VLAN IDs of the SSIDs, and click **Save**.



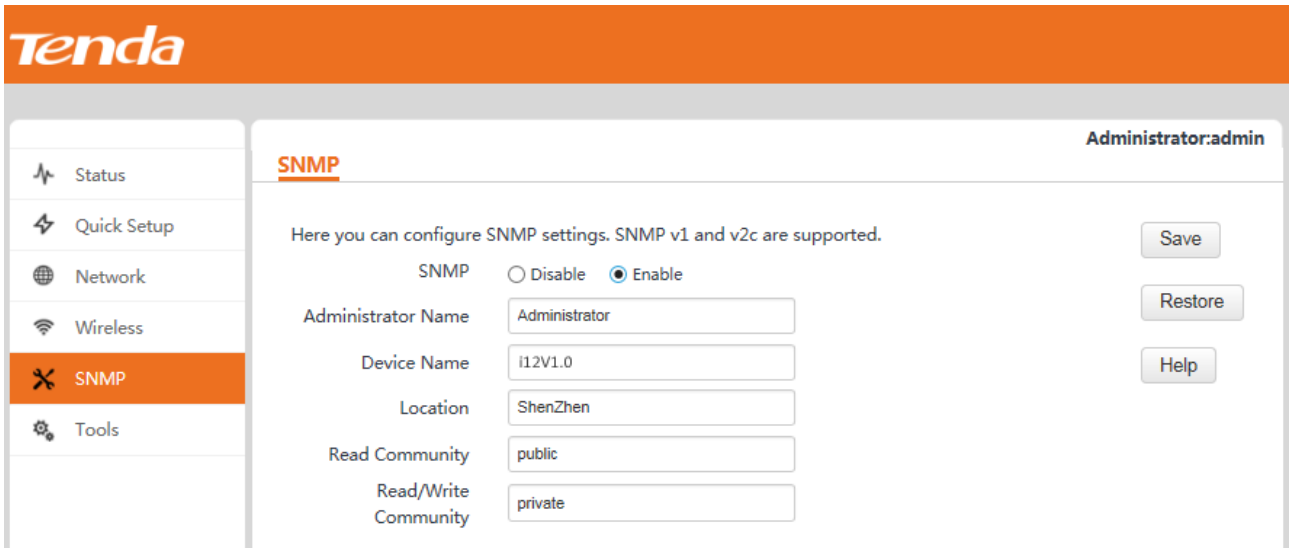
---End

4.5 SNMP

This AP supports the SNMP agent function. Therefore, you can use SNMP management software to manage the AP. To configure the function, choose **SNMP**.



By default, the SNMP agent function is disabled. To enable it, set **SNMP** to **Enable**.



Parameter description

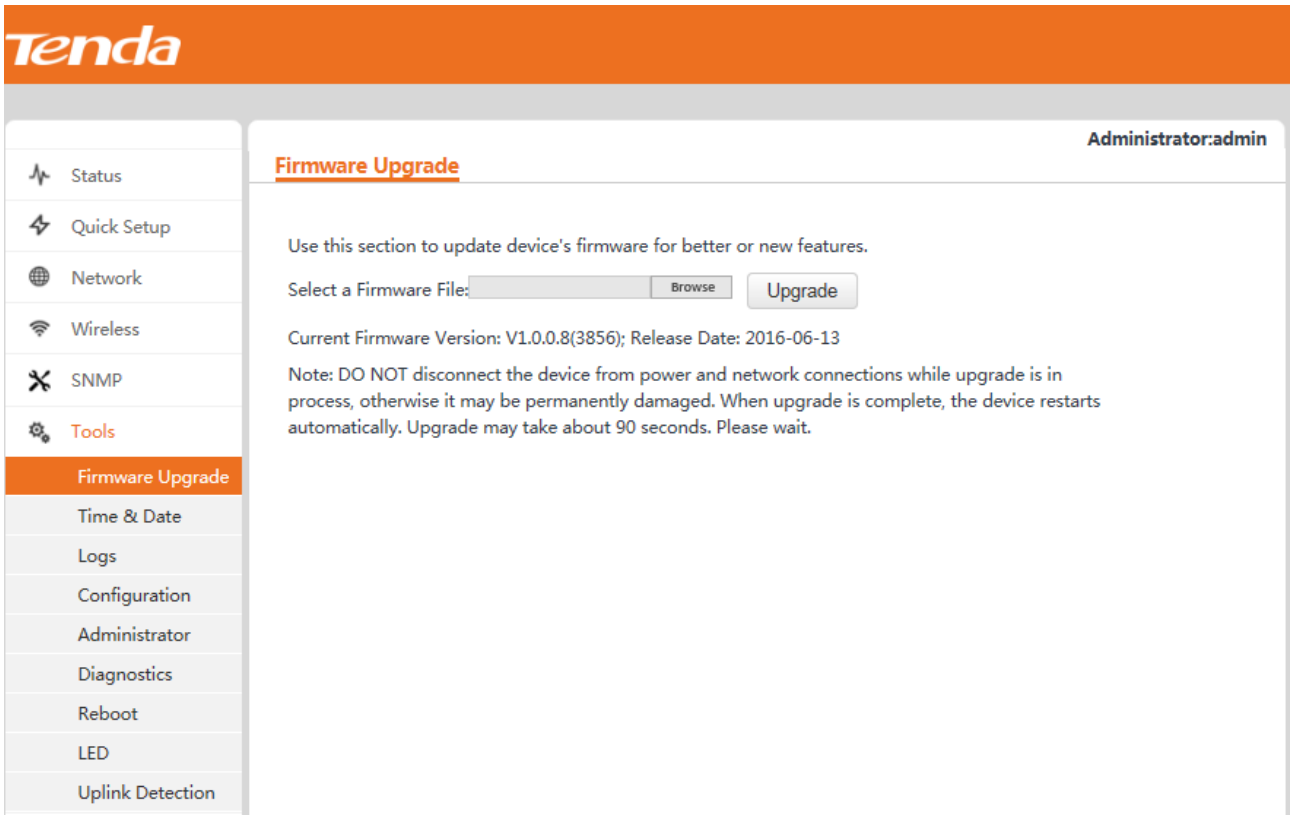
Parameter	Description
SNMP	It specifies whether to enable the SNMP agent function of the AP. By default, it is disabled.
Administrator Name	It specifies the name of the administrator of the AP. The default name is Administrator.
Device Name	It specifies the device name of the AP. The default device name is in the format of *Model+Hardware version number*. For example, the device name of i12 is i12V1.0.
Location	It specifies the location where the AP is used.
Read Community	It specifies the read password shared between the SNMP manager and SNMP agent. The

	default password is public. The SNMP agent function of the AP allows an SNMP manager to use the password to read variables in the MIB of the AP.
Read/Write Community	It specifies the read/write password shared between the SNMP manager and SNMP agent. The default password is private. The SNMP agent function of the AP allows an SNMP manager to use the password to read/write variables in the MIB of the AP.

4.6 Tools

4.6.1 Firmware Upgrade

You can download a later firmware version for the AP from http://www.tendacn.com to upgrade the firmware of the AP for more functions and higher stability. To upgrade the firmware, choose **Tools**.



NOTE

Do not power off the AP during an upgrade. Otherwise, the AP may be damaged. If a power failure occurs during an upgrade, perform the upgrade again. If you cannot access the web UI of the AP after the power failure, contact the aftersales service for a repair.

Procedure:

Step 1 Download the package of a later firmware version for the AP from http://www.tendacn.com to your local computer, and decompress the package.

Step 2 Log in to the web UI of the AP and choose **Tools**.

Step 3 Click **Browse** and choose the AP upgrade file.

Step 4 Click **Upgrade**.

---End

Wait until the upgrade and reboot process is complete. Choose **Tools** and check whether the upgrade is successful based on **Current Firmware Version**.

4.6.2 Date & Time

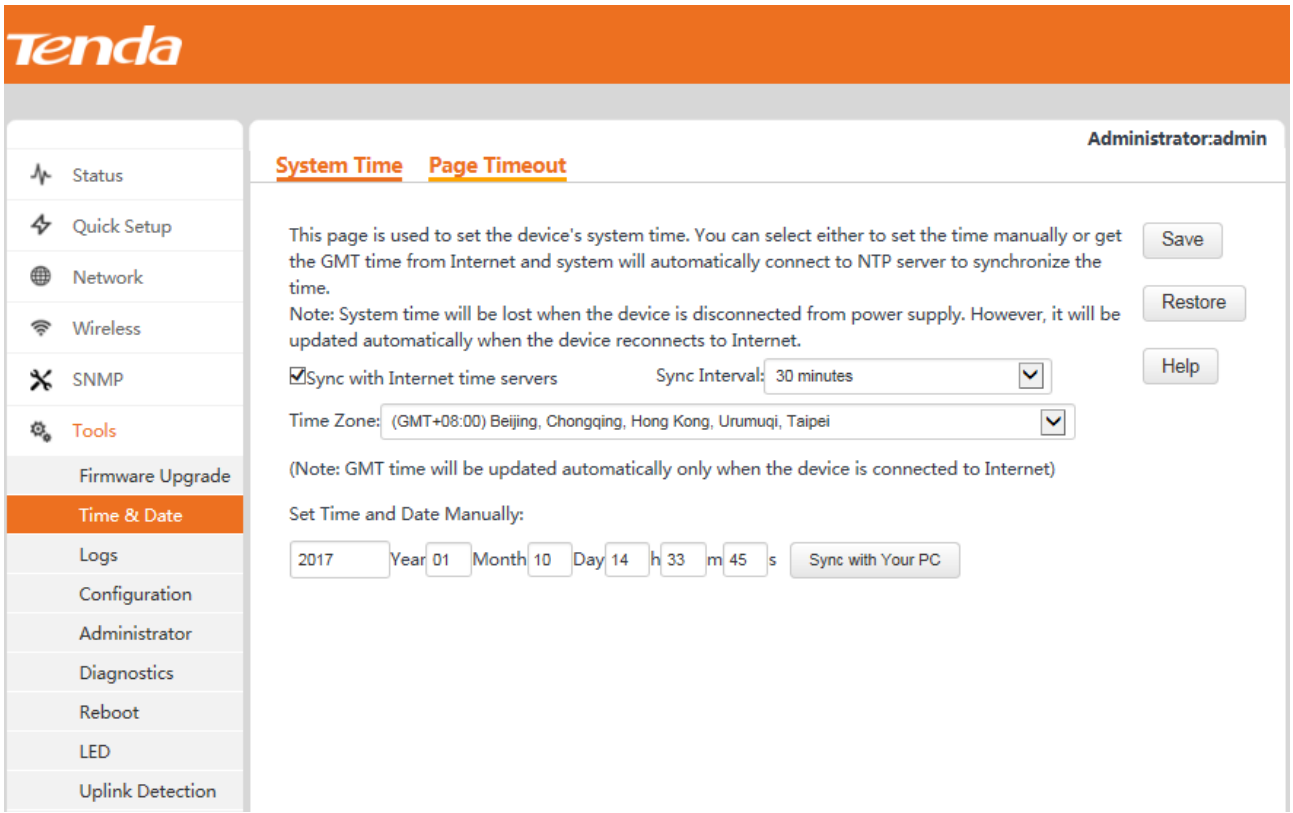
The AP provides the system time and login timeout modules for time management.

NOTE

The time information of the AP is lost when the AP is powered off. If the function for synchronizing the system time through the internet is enabled, the AP synchronizes the system time after being reconnected to the internet. Logs can be recorded correctly and the reboot schedule can be executed correctly only when the system time is correct.

System Time

To configure the system time of the AP so that logs can be recorded correctly and the reboot schedule can be executed correctly, choose **Tools** > **Time & Date**.



You can choose whether to synchronize the system time through the internet or manually set the system time. By default, the AP synchronizes the system time through the internet.

- Synchronizing the system time with internet time servers

The AP synchronizes the system time at a specified interval with the time server over the internet.

The AP can perform synchronization only after being connected to the internet. To connect the AP to the internet, choose **Network** > **LAN Setup** and set the IP address, subnet mask, gateway, and DNS server of the AP.

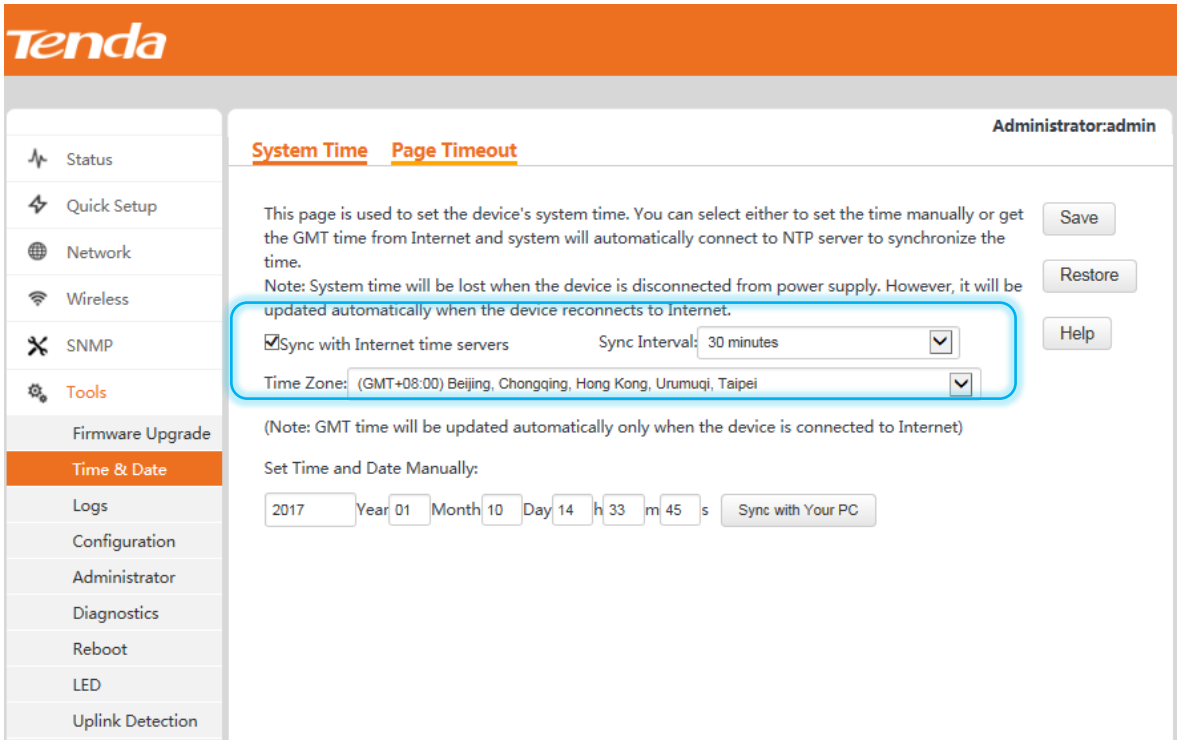
Procedure:

Step 1 Select Sync with Internet time servers.

Step 2 Set **Sync Interval** to the synchronization interval. **30 minutes** is recommended.

Step 3 Set **Time Zone** to your time zone.

Step 4 Click **Save**.



---End

- Manually setting the system time

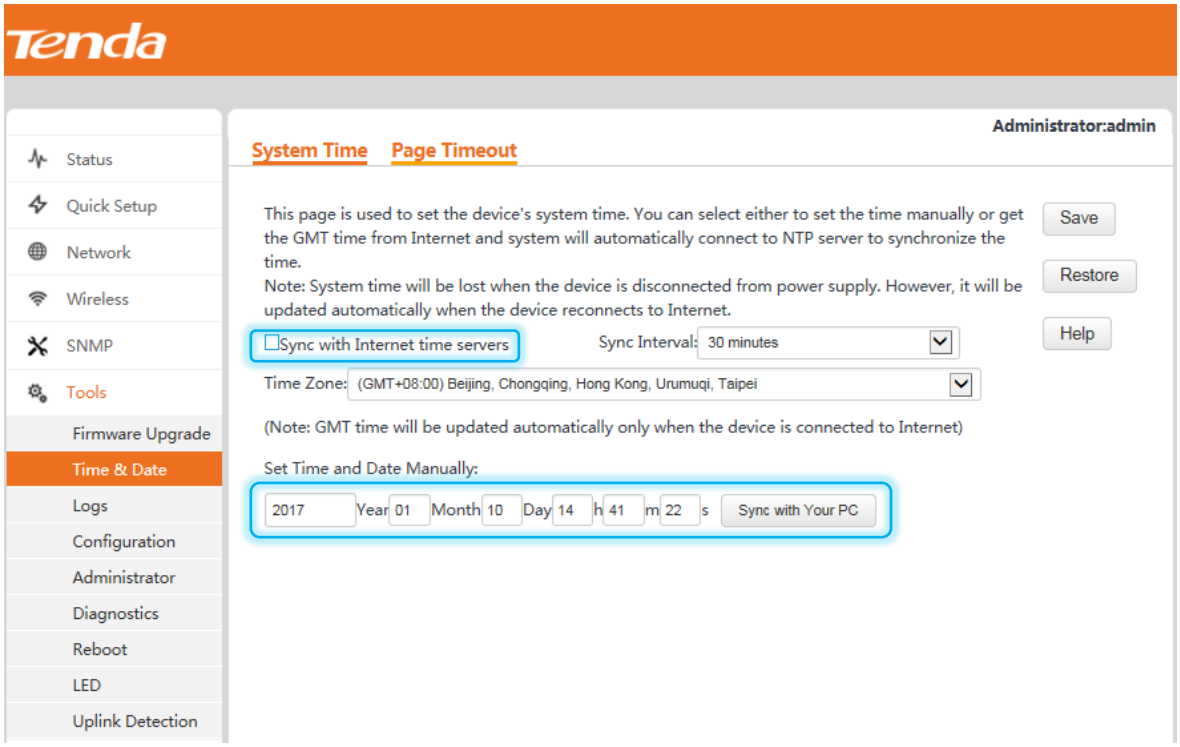
You can manually set the system time of the AP.

Procedure:

Step 1 Deselect **Sync with Internet time servers**.

Step 2 Enter a correct date and time, or click **Sync with Your PC** to synchronize the system time of the AP with the system time (ensure that it is correct) of the computer being used to manage the AP.

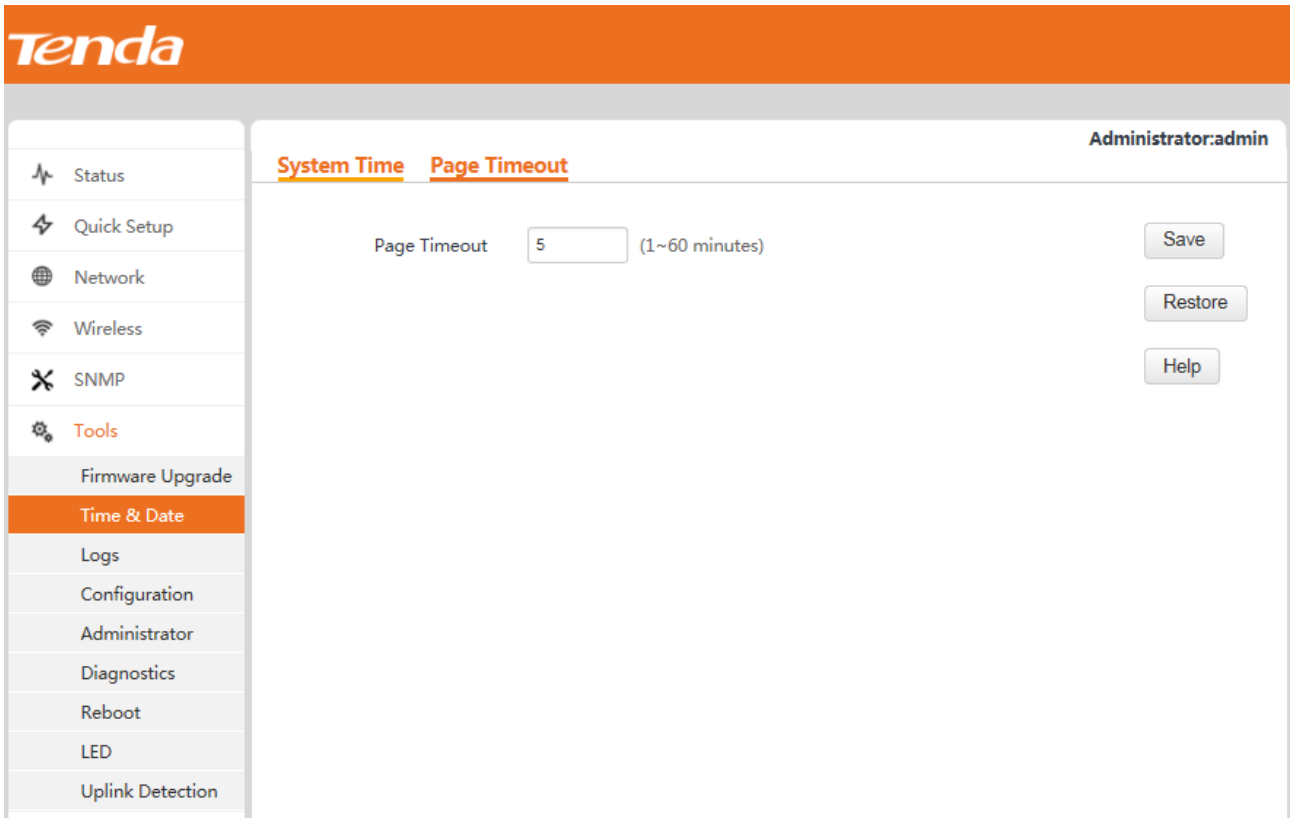
Step 3 Click **Save**.



---End

Page Timeout

If a user logs in to the web UI of the AP and performs no operation within the login timeout interval, the AP logs the user out. To set the interval, choose **Tools** > **Time & Date** > **Page Timeout**.



The default interval is 5 minutes. You can change it as required within the range from 1 minute through 60

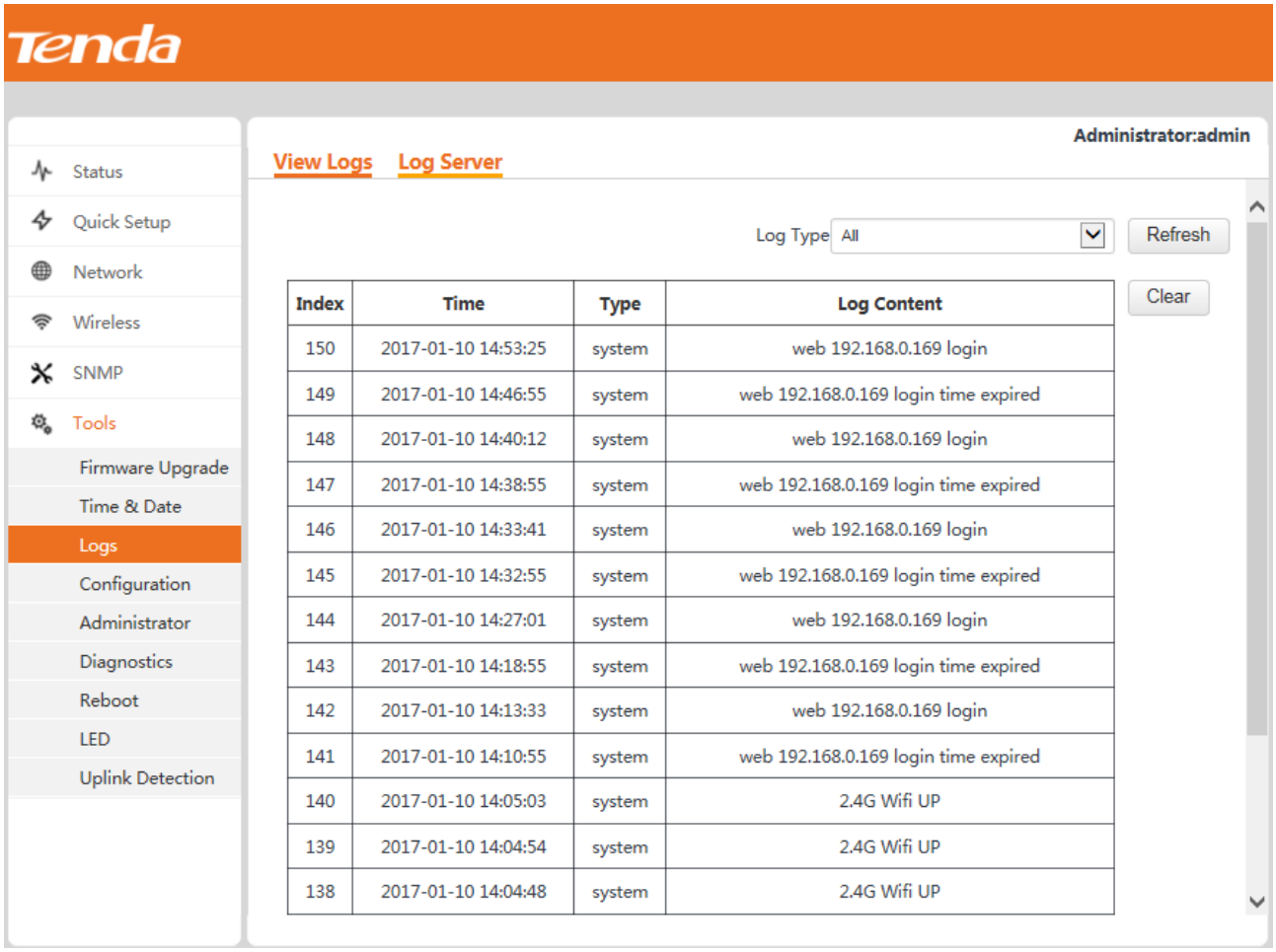
minutes.

4.6.3 Logs

View Logs

To view the logs of events that occur after the startup of the AP, choose **Tools** > **Logs**.

You are recommended to choose **Tools** > **Time & Date** and verify the system time of the AP to ensure that the times of logs are correct. This facilitates real-time network condition monitoring and network fault diagnosis.



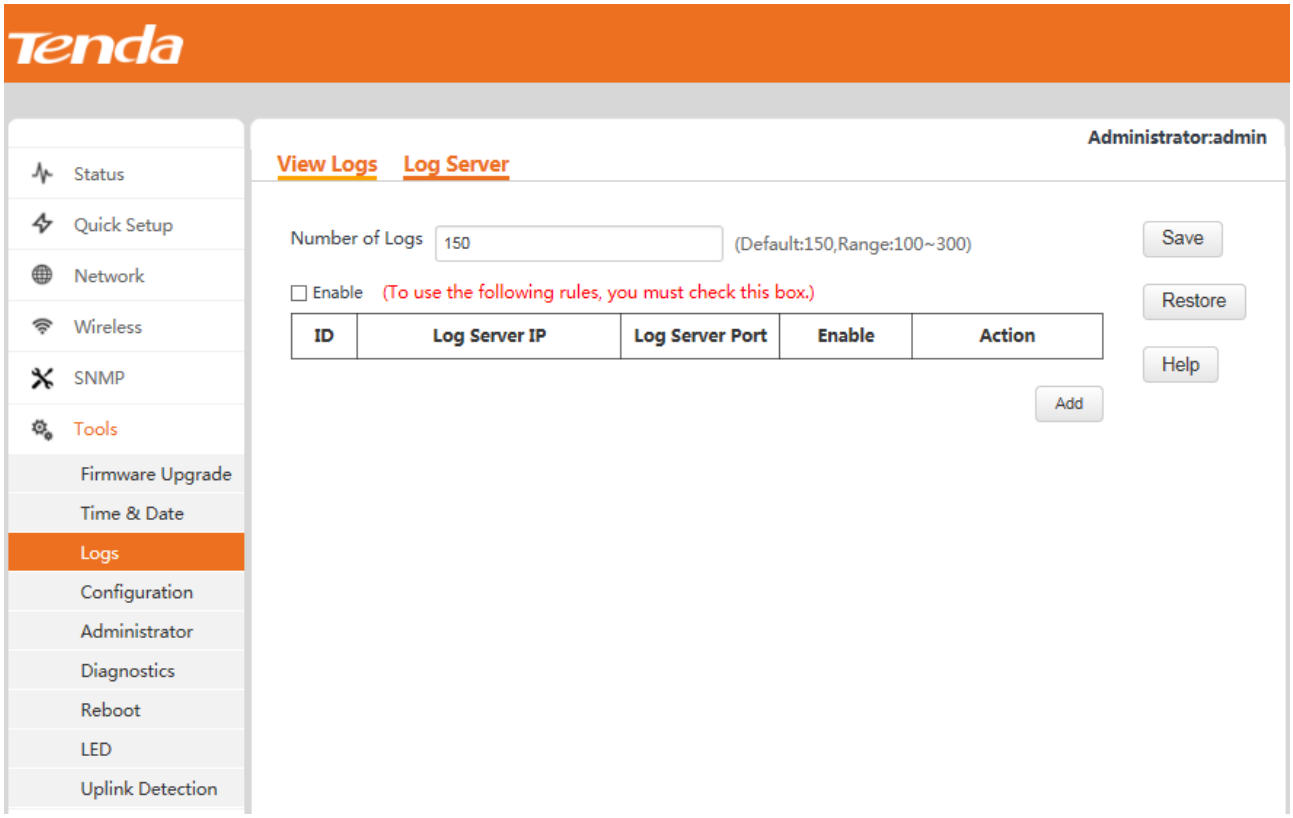
To view the latest logs of the AP, click **Refresh**. To clear the logs on the page, click **Clear**.

NOTE

- When the AP reboots, the previous logs are lost.
- The AP reboots when the AP is powered on after a power failure, the QVLAN function is configured, the firmware is upgraded, an AP configuration is backed up or restored, or the factory settings are restored.

Log Server

To set the number of logs and log servers, choose **Tools** > **Logs**.



- Number of logs

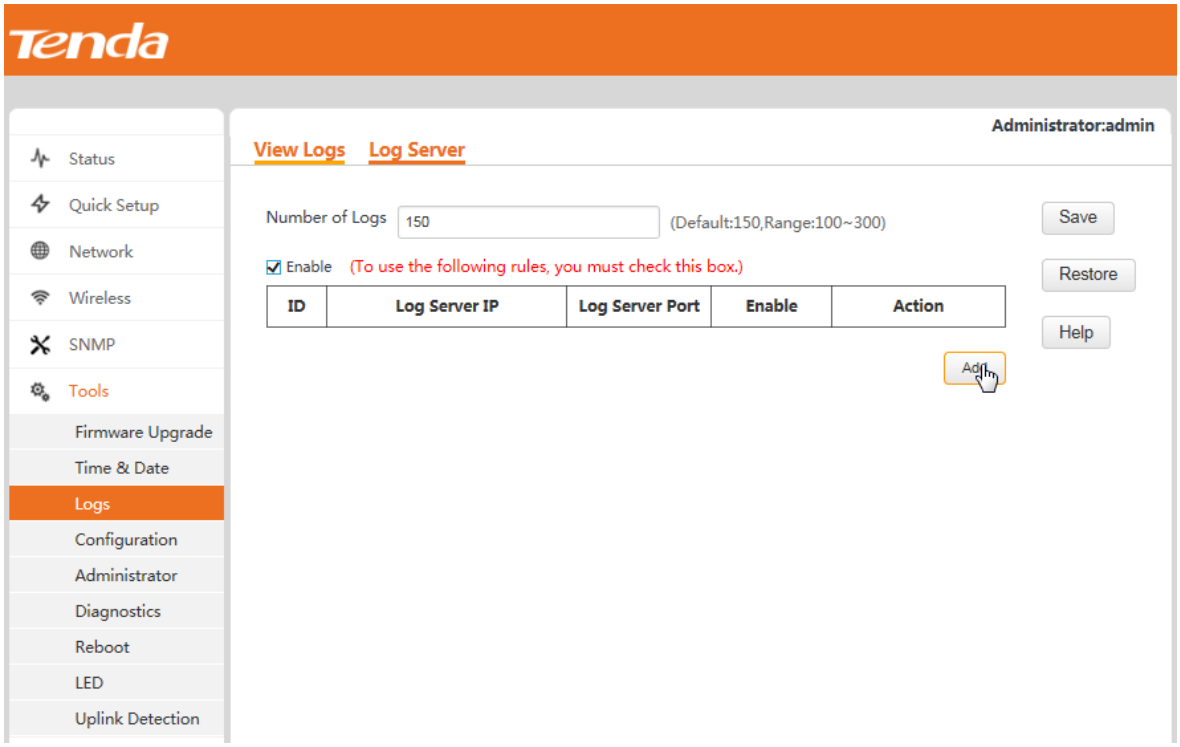
  You can set the maximum number of logs that can be displayed on the page. The value range is from 100 to 300. By default, a maximum of 150 logs can be displayed.

- Log server settings

  After a log server is specified, the AP sends its logs to the log server. You can view all the historical logs of the AP on the log server.

Procedure for adding a log server:

Step 1 Click **Add**.

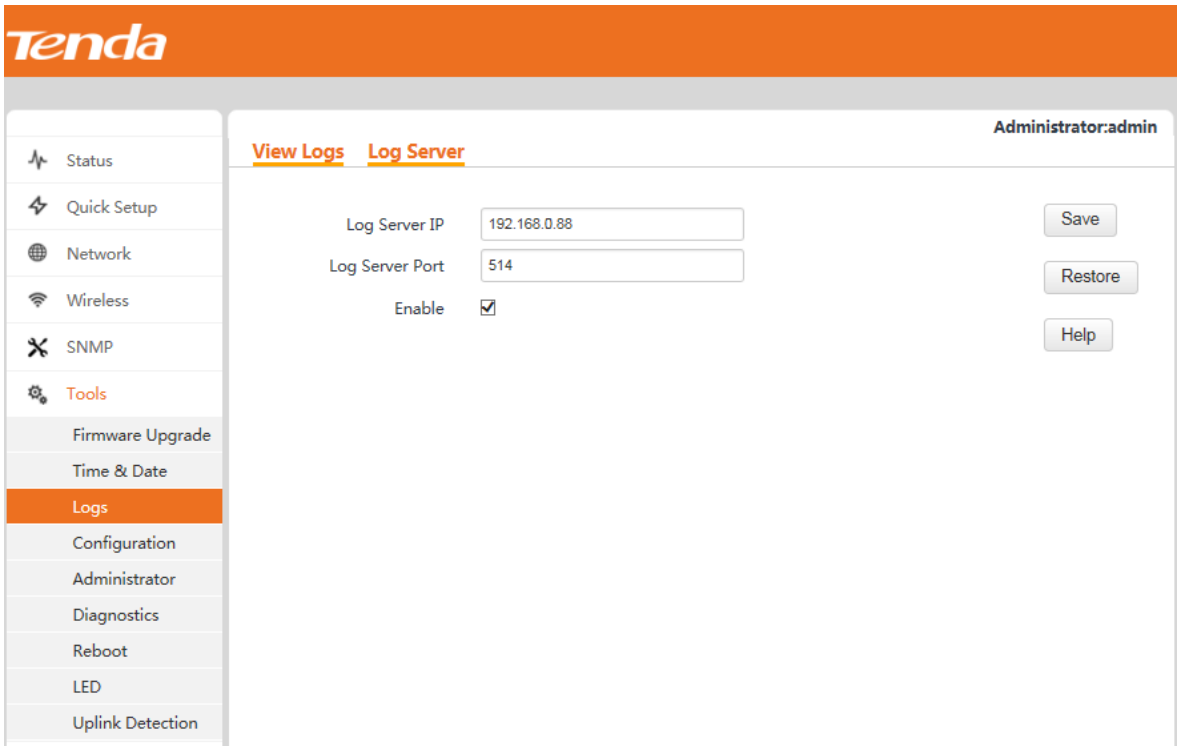


Step 2 Set **Log Server IP** to the IP address of a log server (192.168.0.88 in this example) over the network.

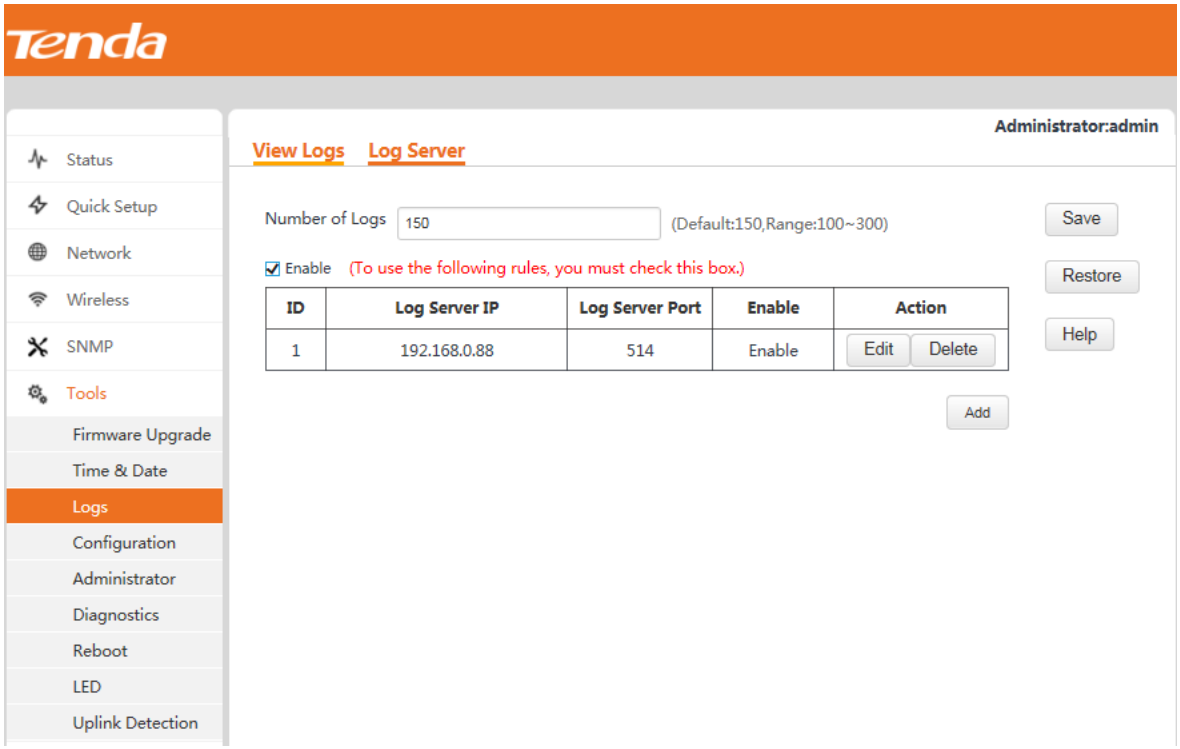
Step 3 Set **Log Server Port** to the UDP port number used to send and receive system logs. The default port number 514 is recommended.

Step 4 Select **Enable** to enable the log server function.

Step 5 Click **Save**.



Step 6 Select **Enable (To use the following rules, you must check this box.)** and click **Save**.



---End

To change the settings of a log server, click **Edit** corresponding to the log server. To delete the settings of a log server, click **Delete** corresponding to the log server.

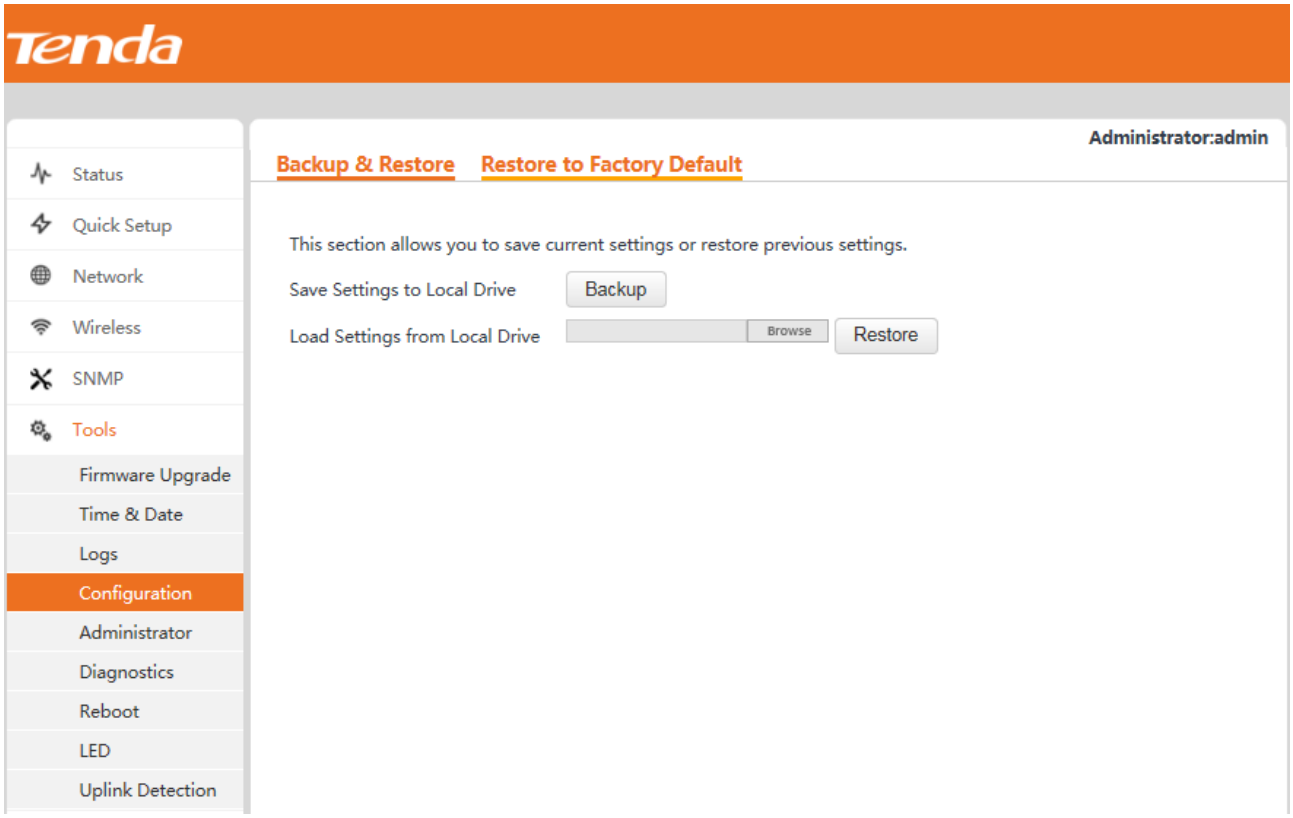
NOTE

To ensure that system logs can be sent to a log server, choose **Network** > **LAN Setup** and set the IP address, subnet mask, and gateway of the AP for communicating with the log server.

4.6.4 Configuration Management

Backup & Restore

To access the page for backing up or restoring a configuration, choose **Tools** > **Configuration**.



- Backing up the current configuration

  After the AP enters the optimum condition after you greatly change the configuration of the AP, you are recommended to back up the new configuration.

  To back up the configuration, click **Backup** and follow the on-screen instructions to perform operations.

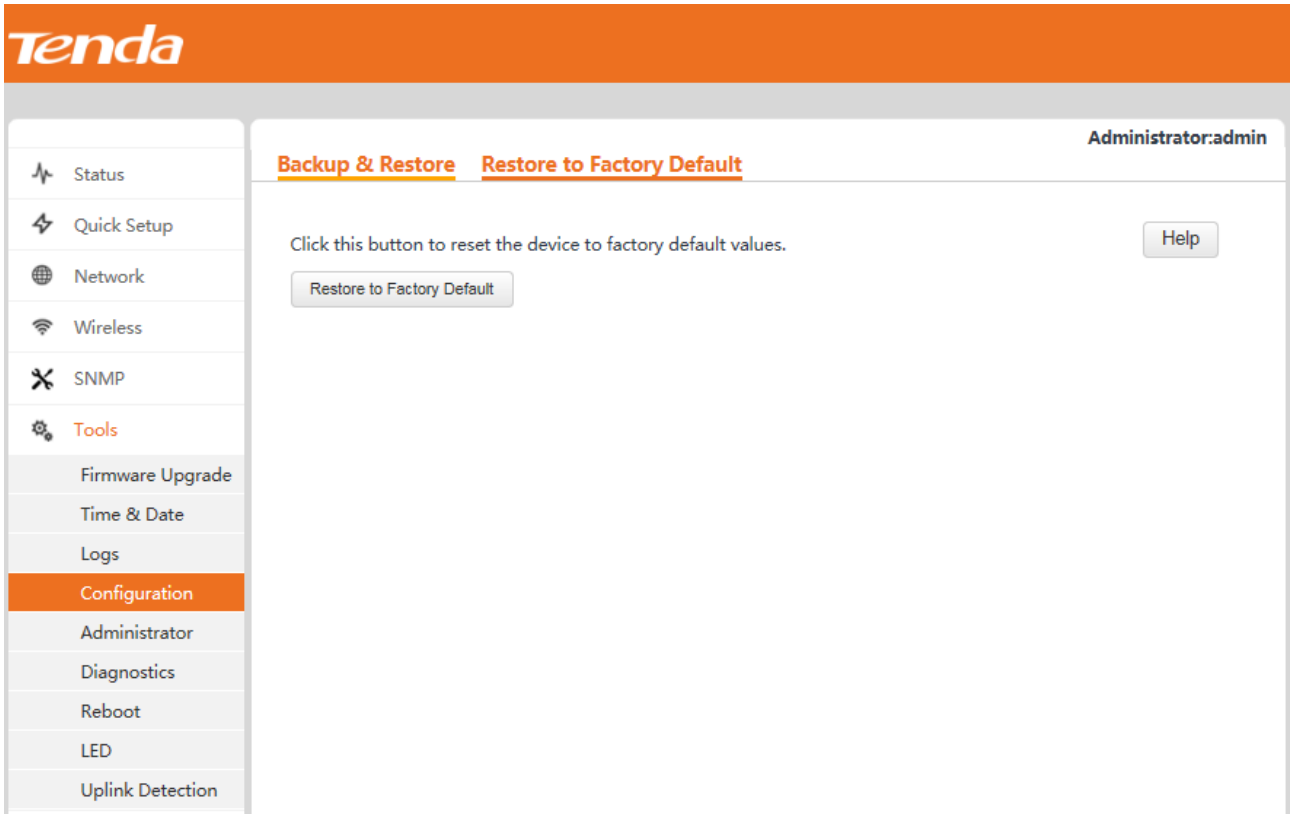
- Restoring a configuration

  By restoring an earlier configuration that has been backed up, you can apply the same configuration to multiple APs or recover an AP after the configuration of the AP is changed unexpectedly.

  To restore a configuration, click **Browse**, select the backup file of the configuration, click **Restore**, and follow the on-screen instructions to perform operations.

Restore to Factory Default

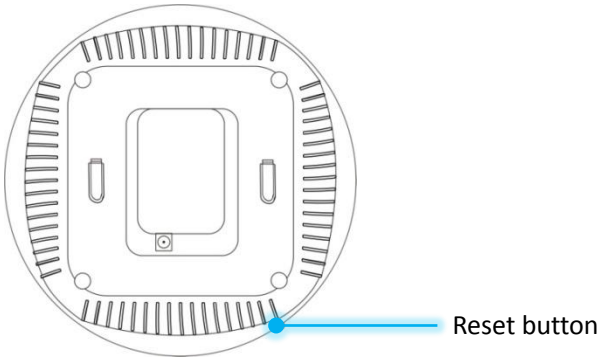
If you cannot locate the cause for a failure to access the internet, you can restore the factory settings of the AP to address the problem. To restore the factory, choose **Tools** > **Configuration** > **Restore to Factory Default** and click **Restore to Factory Default**.



You can also use the reset button on the AP to restore the factory settings. If you forget your login information, such as the IP address, user name, or password for the AP, you are recommended to use the reset button to restore the factory settings.

Procedure:

Step 1 After the AP is powered on, hold down the reset button for 8 seconds.



Step 2 Wait about 45 seconds.

---End

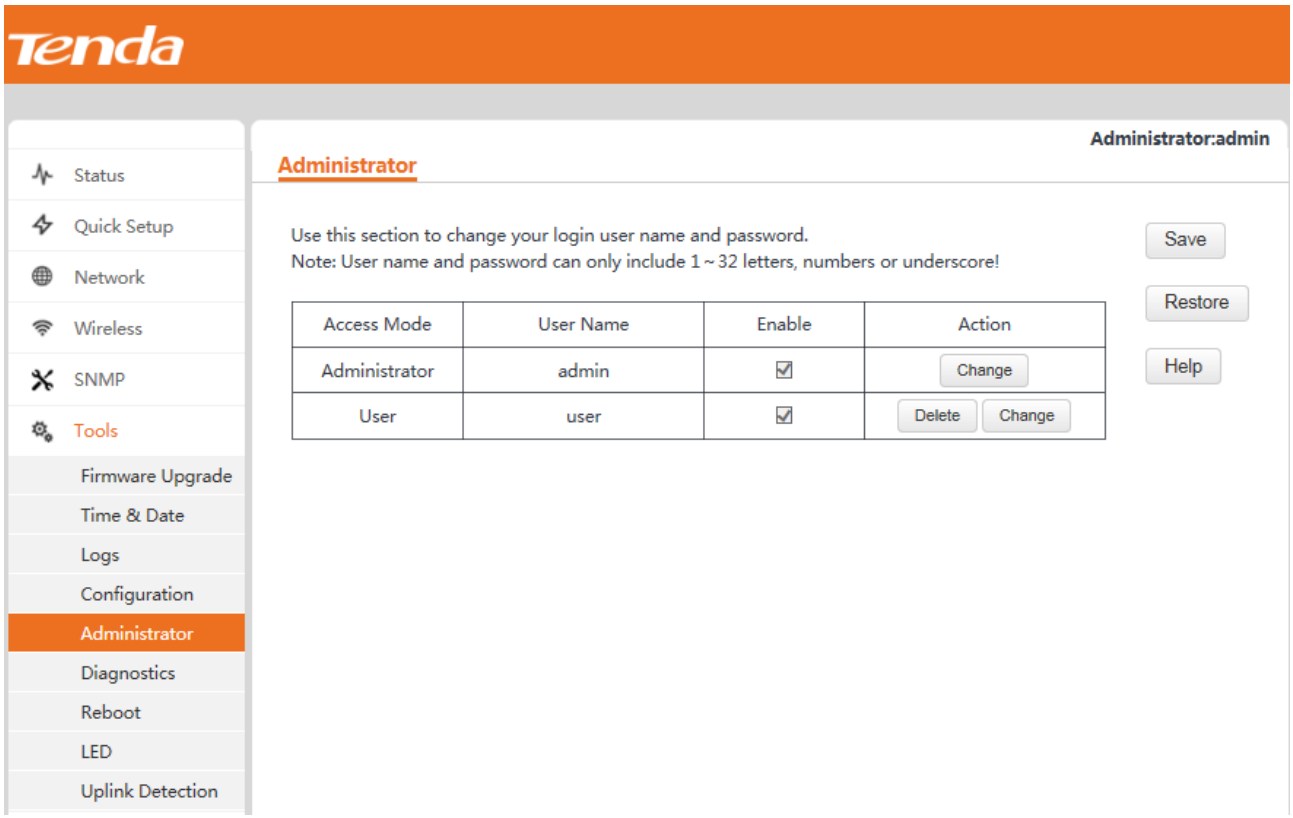
NOTE

After the factory settings are restored, the IP address of the web UI of the AP changes to 192.168.0.254 and the login user name and password change to **admin**. For other default settings, refer to Appendix C Default Parameter Settings.

4.6.5 Accounts

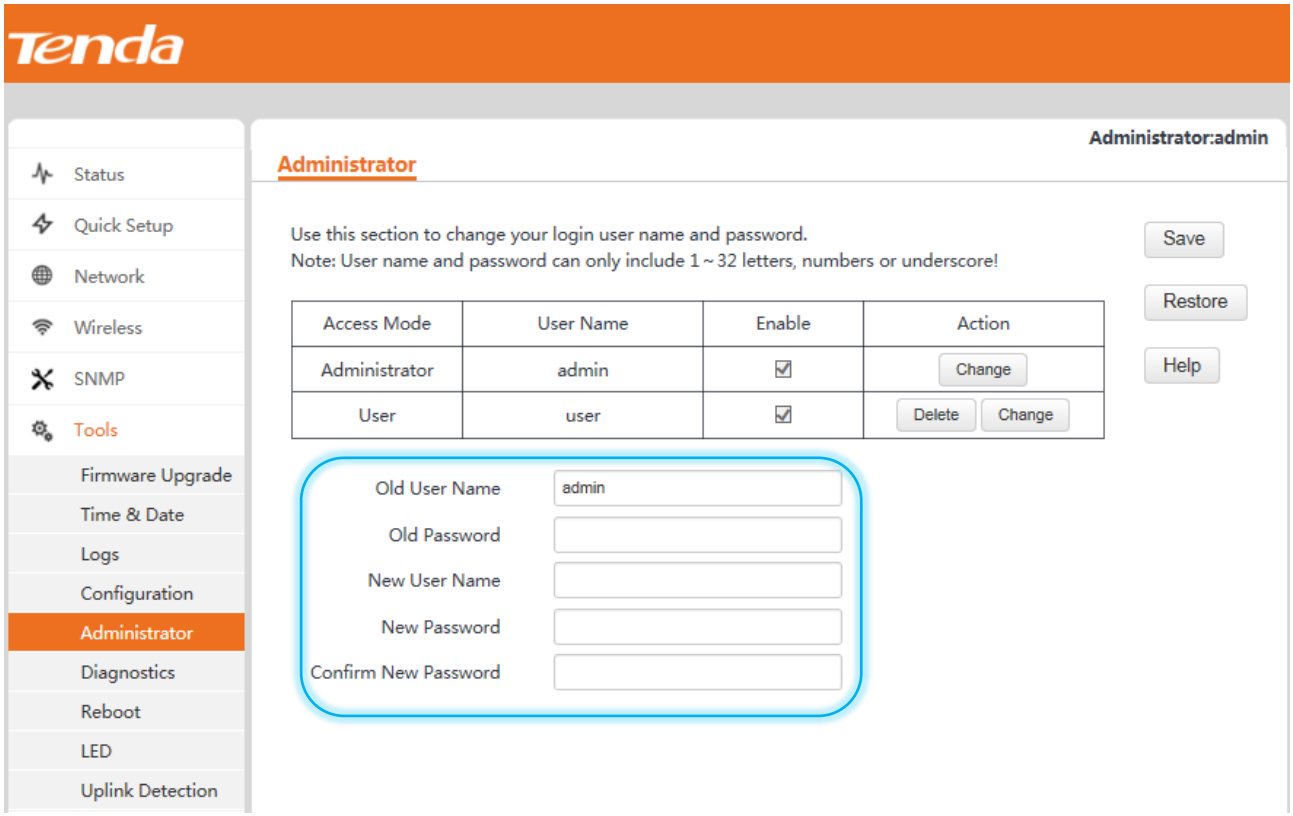
You are recommended to change the default user name and password of the Administrator account to prevent unauthorized users from logging in to the web UI of the AP as the administrator and changing the AP configuration. To manage accounts, choose **Tools** > **Administrator**.

The AP allows an administrator account and a user account. The administrator account is assigned all AP management permissions. The user account is allowed only to view AP settings.



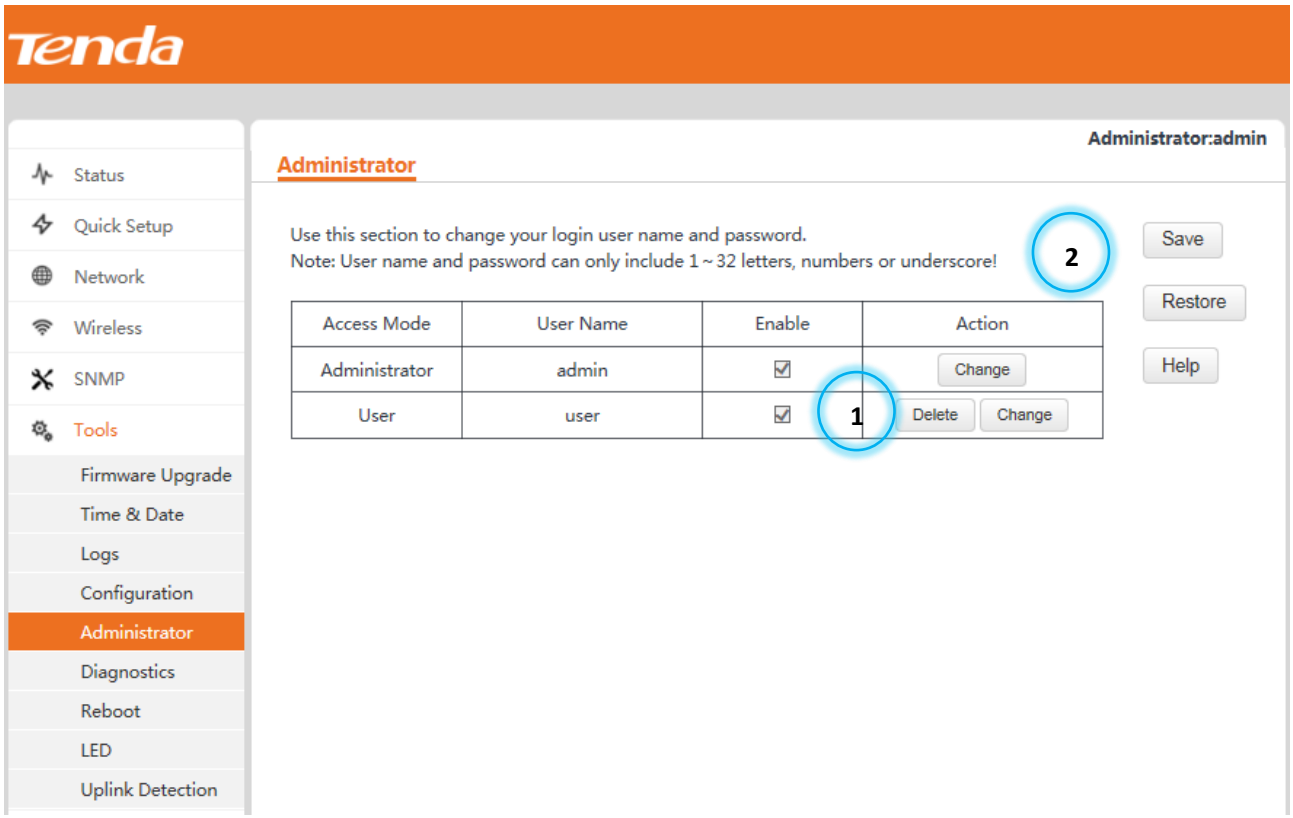
By default, the AP has one administrator account and one user account. Both the user name and password of the administrator account are **admin**. Both the user name and password of the user account are **user**.

To change the user name and password of an account, click **Change** corresponding to the account. For example, you can click **Change** corresponding to the administrator account.



Change the user name and password as required and click **Save**. The AP displays the login page. Use the new user name and password to log in.

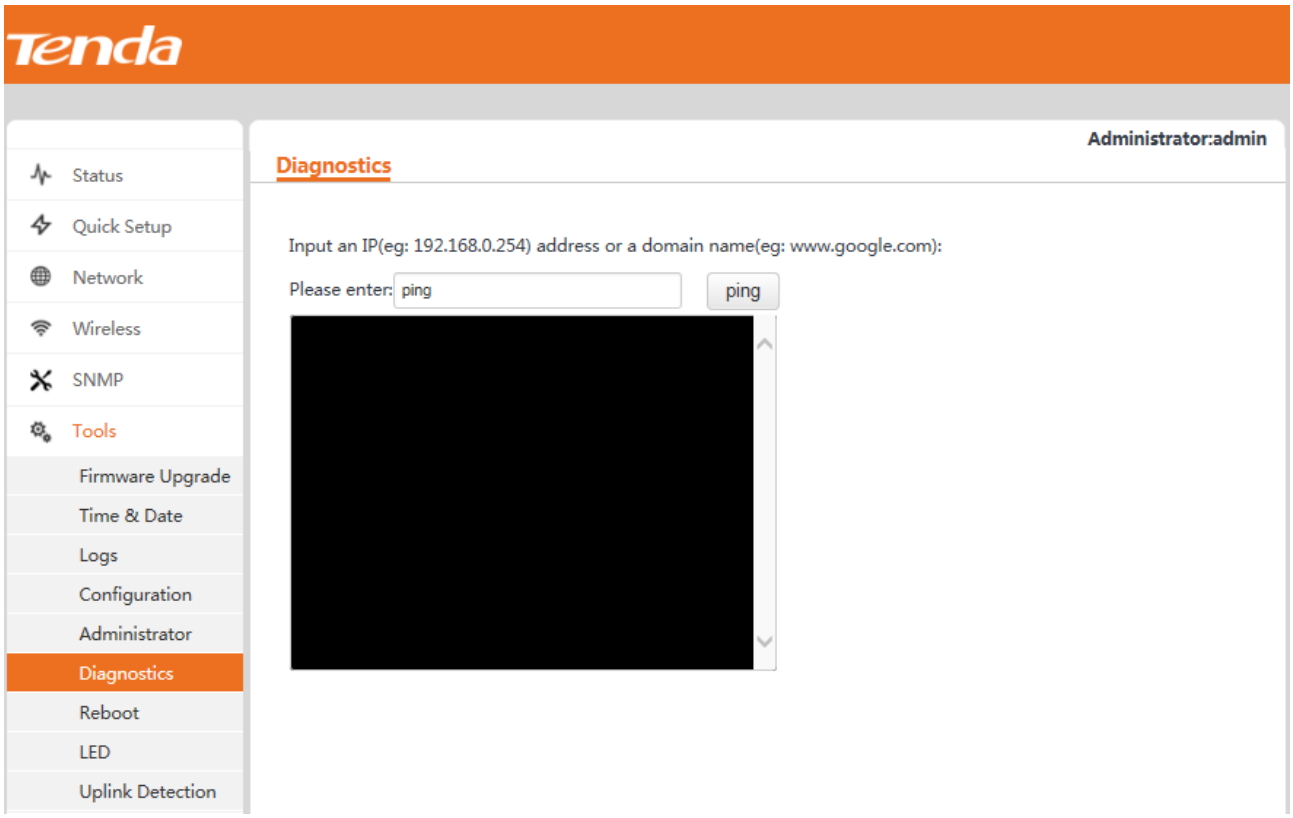
To delete the user account, click **Delete** corresponding to the account, and click **Save**.



To add the user account after deleting it, click **Change** corresponding to the account.

4.6.6 Diagnostics

If a network connection fails, you can use the Ping tool included with the AP to locate the faulty node. To use the tool, choose **Tools** > **Diagnostics**.



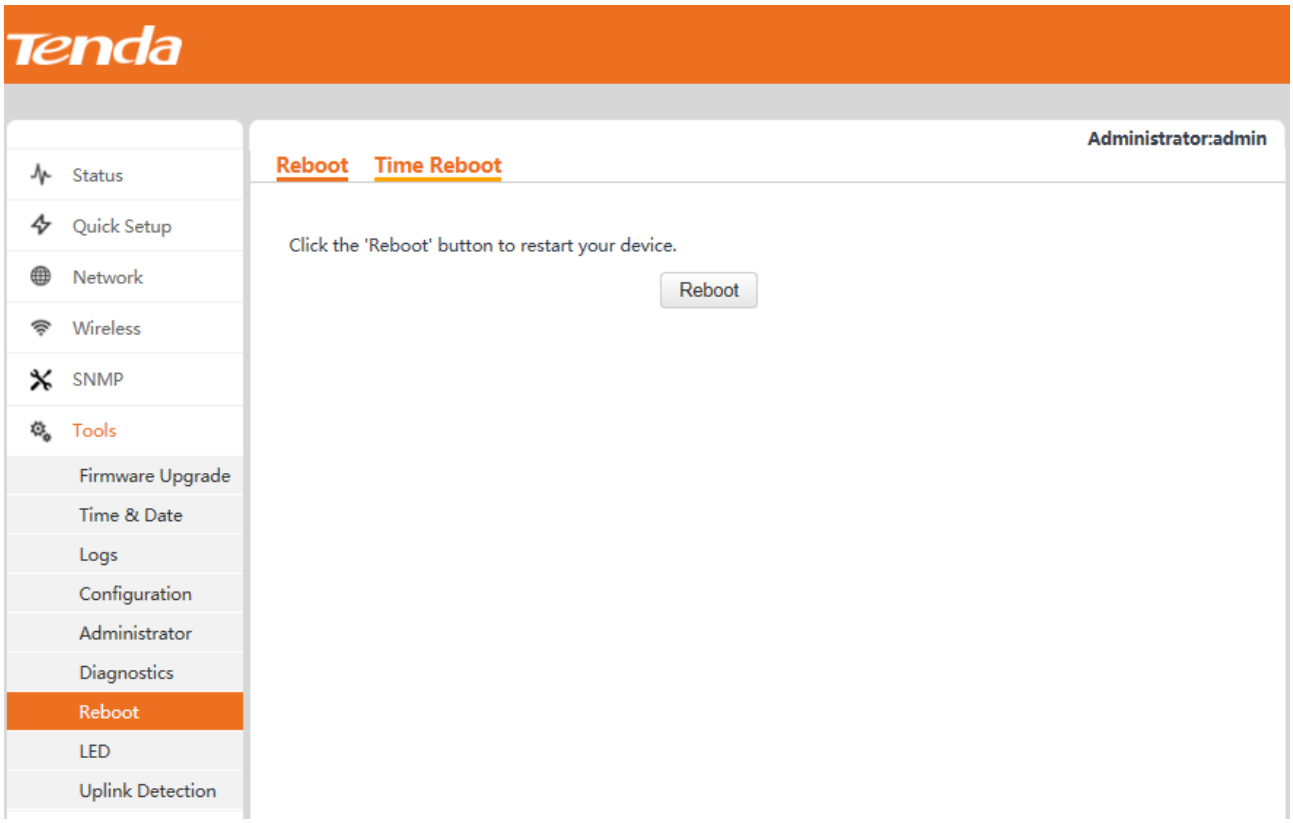
4.6.7 Reboot

Reboot

To manually reboot the AP, choose **Tools** > **Reboot**, and click **Reboot**.

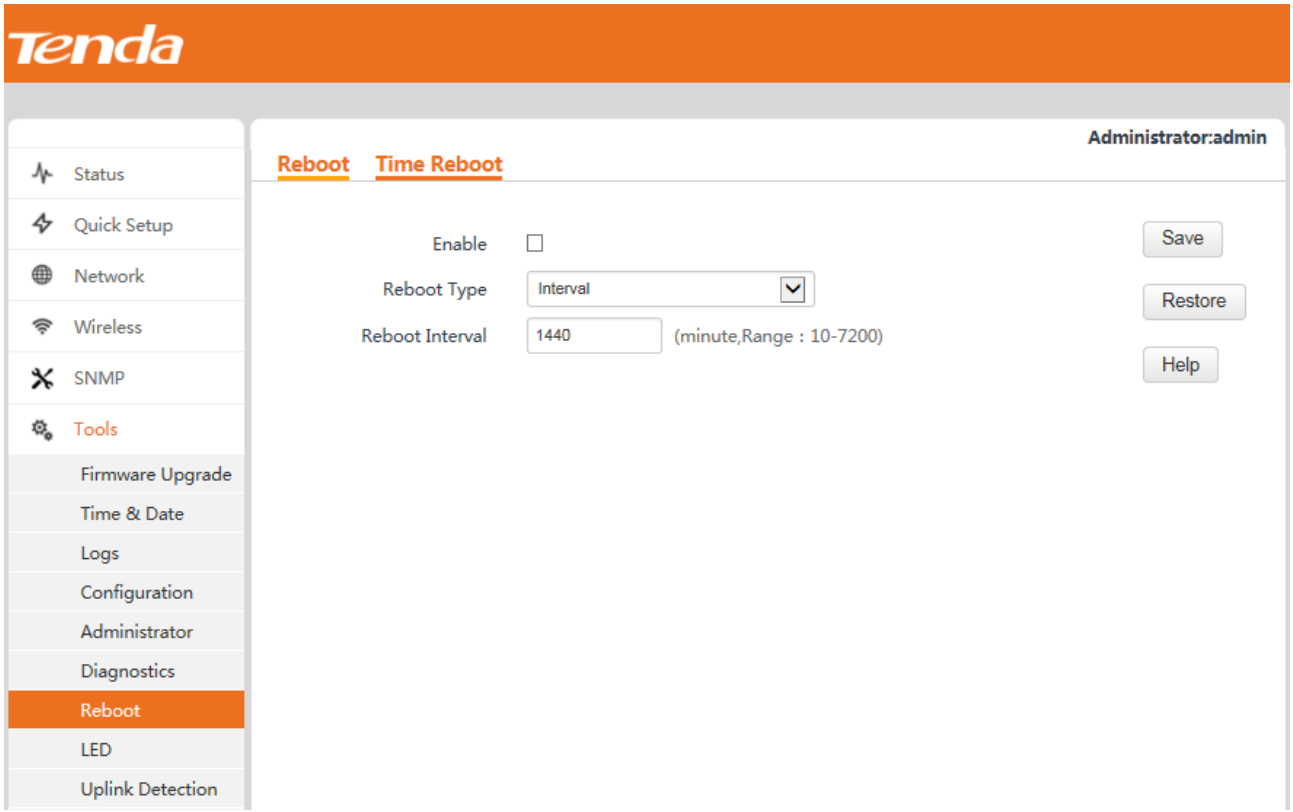
NOTE

When the AP reboots, all wireless connections are released. You are recommended to reboot the AP at an idle hour.



Time Reboot

You can specify an AP reboot schedule to enable the AP to reboot at an idle hour to ensure AP performance. To specify a reboot schedule, choose **Tools** > **Reboot** and click the **Time Reboot** tab.



The AP can reboot at an interval or at a specified time. Choose either as required.

- Rebooting the AP at an interval

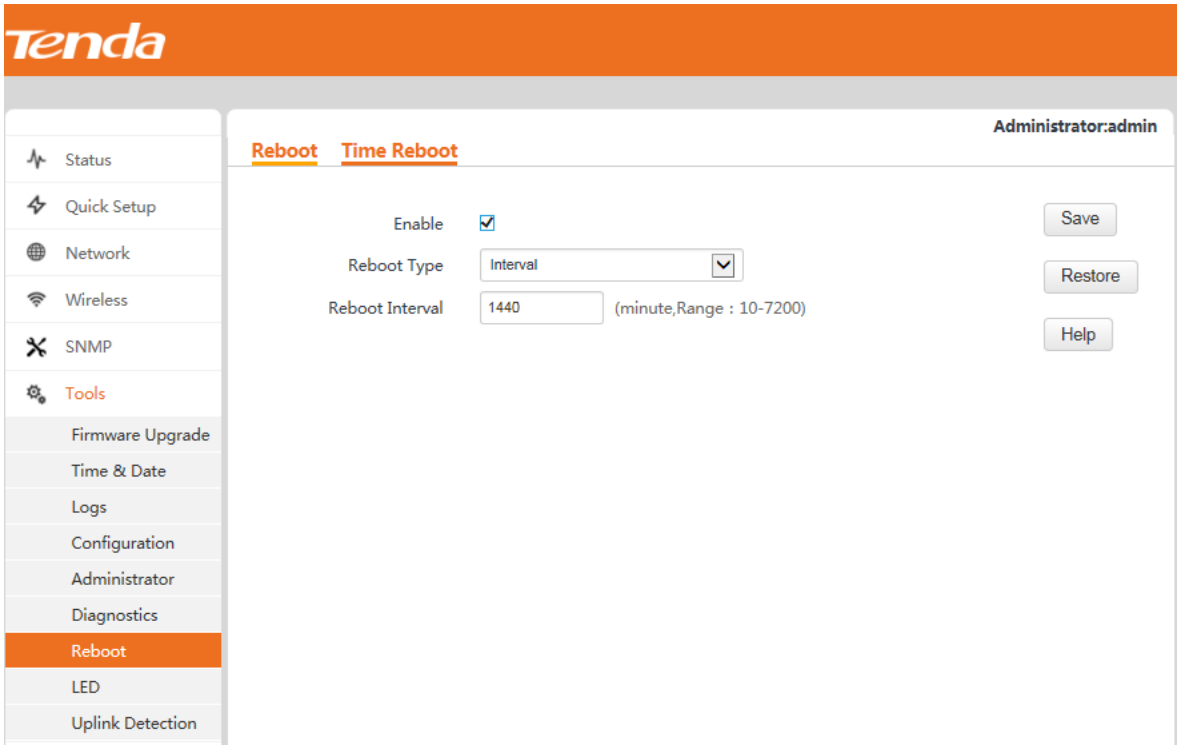
  Configuration procedure:

Step 1 Select the **Enable** check box.

Step 2 Set **Reboot Type** to **Interval**.

Step 3 Set **Reboot Interval** to **1440**.

Step 4 Click **Save**.



---End

- Rebooting the AP at specified time

  Procedure:

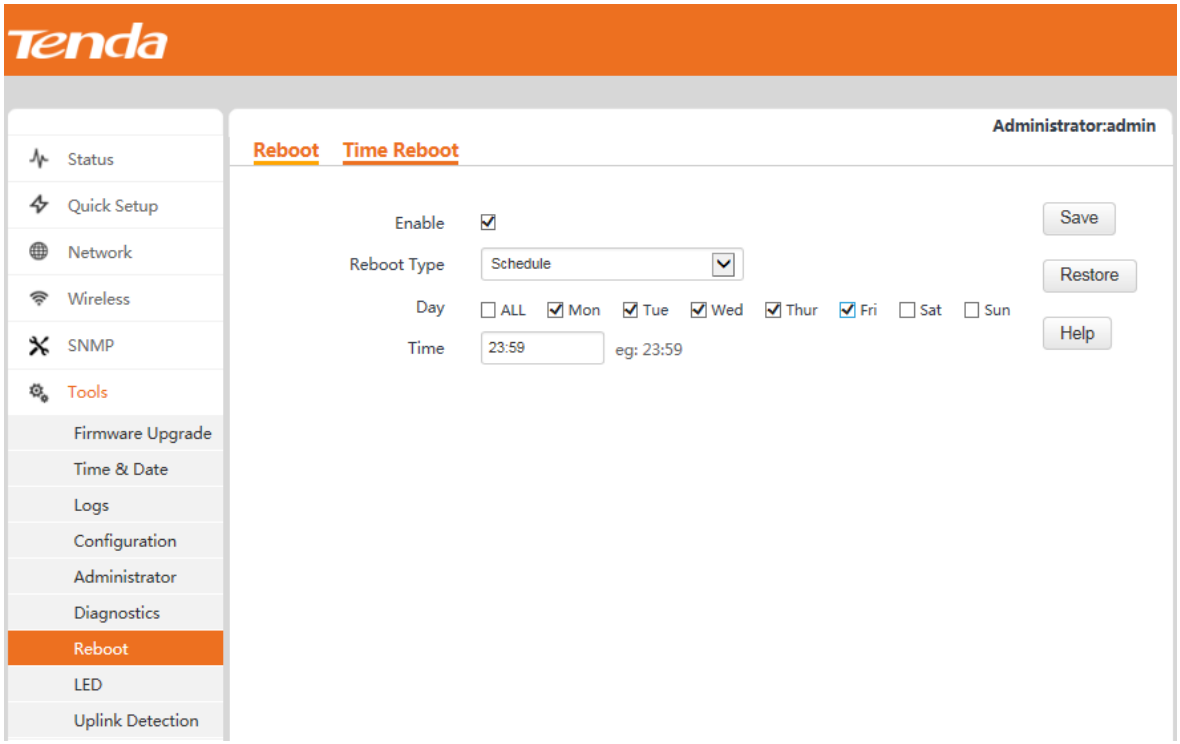
Step 1 Select the **Enable** check box.

Step 2 Set **Reboot Type** to **Schedule**.

Step 3 Select the day or days when the AP reboots.

Step 4 Set the time when the AP reboots, such as **23:59**.

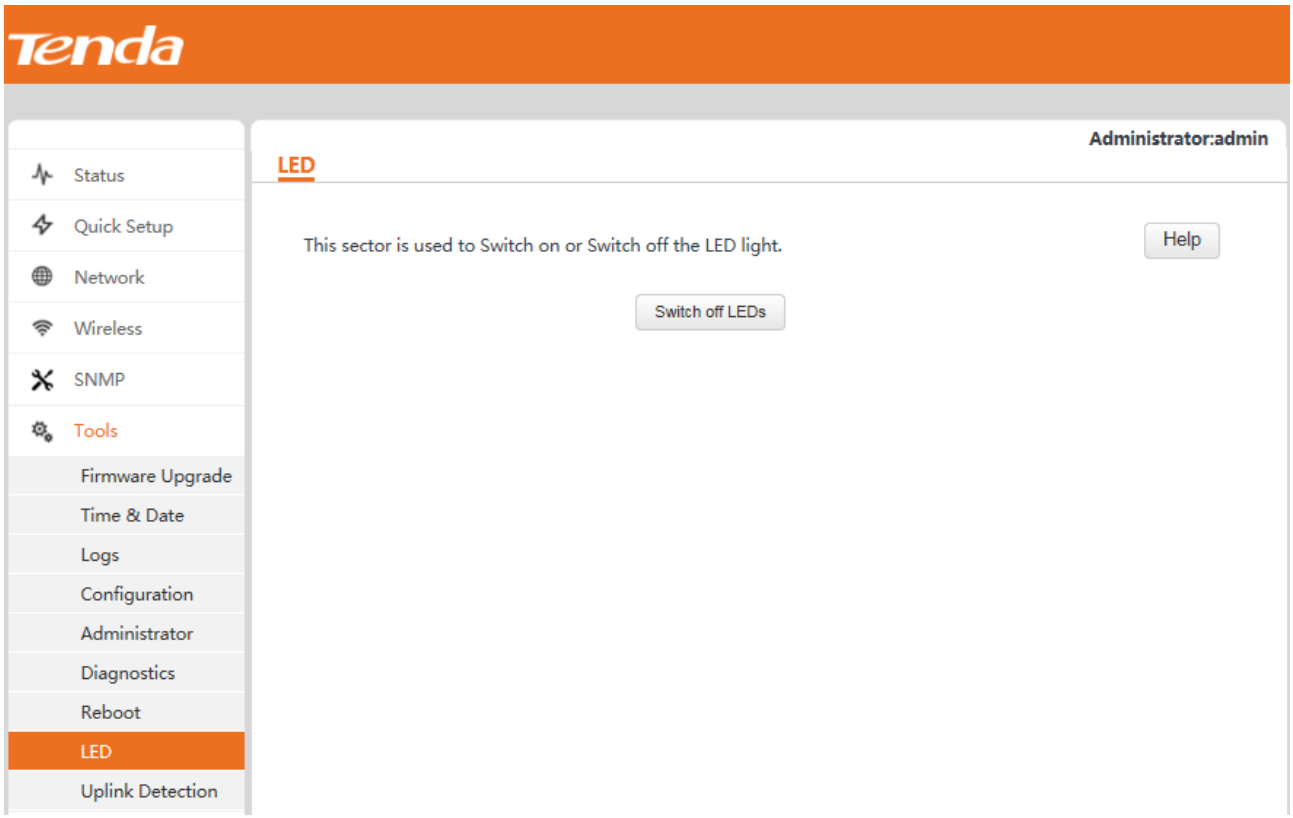
Step 5 Click **Save**.



---End

4.6.8 LED Control

To turn on or off the LED indicator, choose **Tools** > **LED**.



When you click **Disable all LEDs**, the LED indicator of the AP turns off.

Appendixes

A. FAQ

Q1. I cannot access the web UI of the AP after entering 192.168.0.254. What should I do?

A1. Check the following items:

- Verify that the IP address of your computer is 192.168.0.*X* (*X*: 2~253).
- Clear the cache of your web browser or replace the web browser, and try login again.
- Disable the firewall of your computer or replace the computer, and try login again.
- If two or more APs are connected to your network without an AP controller, connect one of the APs to your network and change the IP address of the AP. Repeat this procedure to change the IP addresses of the other APs.
- The AP may be being managed by an AP controller and therefore its IP address is no longer 192.168.0.254. In that case, log in to the web UI of the AP controller to view the new IP address of the AP, and log in to the AP using the new IP address.
- If you have manually changed the IP address of the AP, change the IP address of your computer to another IP address that belongs to the same network segment as the new IP address of the AP and log in again using the new IP address of the AP.
- If the problem persists, restore the factory settings of the AP and try login again.

Q2. My wireless AP controller cannot find the AP. What should I do?

A2. Check the following items:

- Verify that the devices are connected properly and the AP has started.
- If VLANs have been defined on your network, verify that the corresponding VLAN has been added to your AP controller.
- Restart the AP or restore the factory settings of the AP, and try scanning the AP again.

Q3. Can I log in to the web UI of the AP to configure the AP after using an AC to manage the AP?

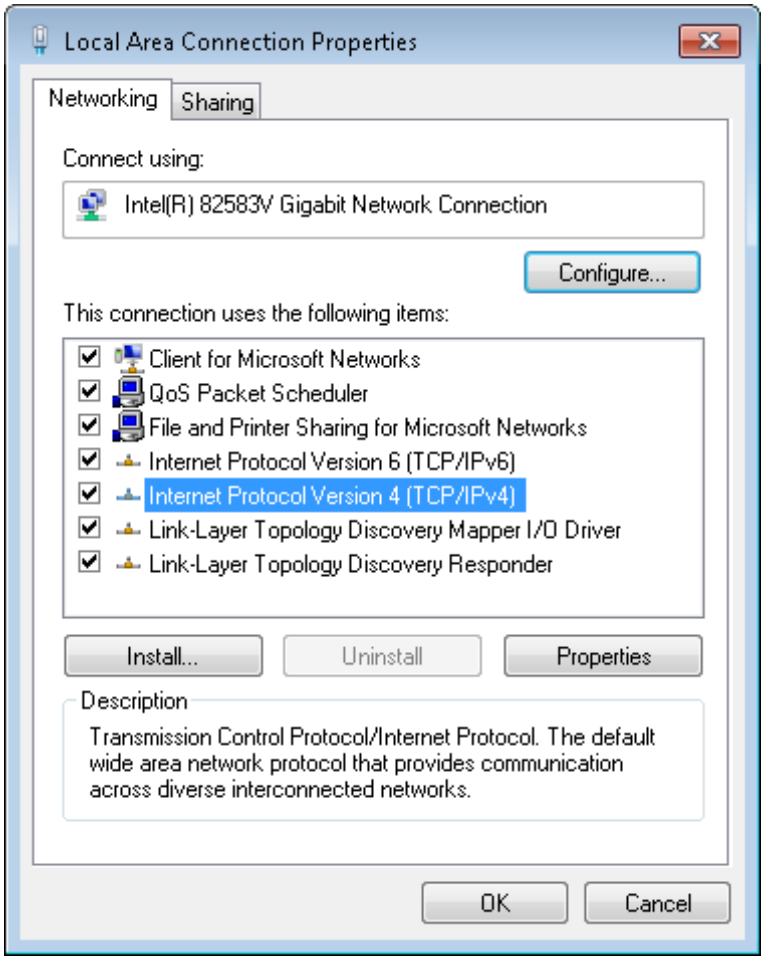
A3. Yes. You are recommended to change the user name and password of the administrator account (see Section 4.6.5 "Accounts.") if you use an AC to manage the AP. This improves network security.

For more technical assistance, visit our website at http://www.tendacn.com or send your question to support@tenda.cn. We will help you resolve your problem as soon as possible.

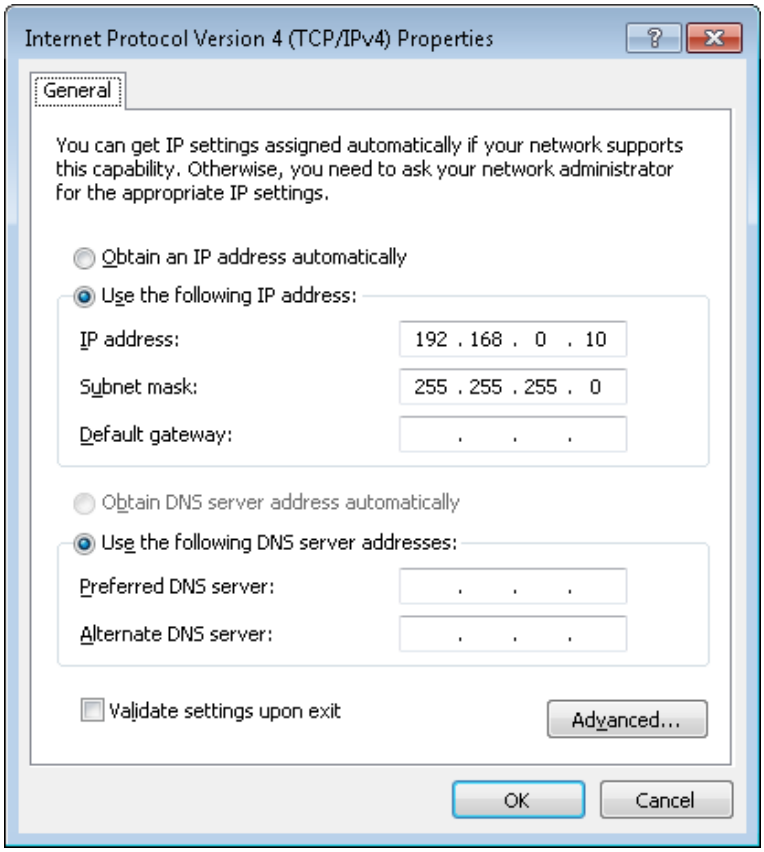
B. Setting the IP Address of Your Computer (Example: Windows 7)

Step 1 Choose **Start** > **Control Panel**, click **Network and Internet**, click **Network and Sharing Center**, and click **Change adapter settings**.

Step 2 Right-click **Local Area Connection** and choose **Properties**. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



Step 3 Select **Use the following IP address**. Set **IP address** to an IP address that is different from the IP address of the LAN port of the AP but belongs to the same network segment as the IP address of the LAN port of the AP. Set **Subnet mask** to **255.255.255.0**. Click **OK**.



The **Local Area Connection Properties** dialog box appears.

Step 4 Click **OK**.

---End

C. Default Parameter Settings

The following table lists the factory settings of the AP.

Parameter			Default Value
Login	IP		192.168.0.254
	User Name/Password	Administrator	admin/admin
		User	user/user
LAN Setup	Address Mode		Static IP
	IP Address (management IP address)		192.168.0.254
	Subnet Mask		255.255.255.0
	Gateway		192.168.0.1
	Primary DNS Server		192.168.0.1
	Secondary DNS Server		None

Parameter				Default Value
	Device Name			*Model+Hardware version number*, such as i12V1.0
DHCP Server				Disable
SNMP	SNMP Agent			Disable
	SNMP Parameters		Administrator Name	Administrator
			Device Name	*Model+Hardware version number*, such as i12V1.0
			Location	ShenZhen
			Read Community	public
			Read/Write Community	private
Tools	System Time		Sync with Internet Time Servers	Enable
			Time Zone	(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi, Taipei
	Page Timeout			5 minutes
	Number of Logs			150
	Time Reboot			Disable
	LED Control			Switch on LEDs
Wireless Settings	Radio Settings	Enable Wireless		Enable
		Country		China
		Network Mode		11/b/g/n mixed
		Channel		Auto
		Channel Bandwidth		20/40
		Expansion Channel		Auto
		Channel Lockout		Enable
		SSID Isolation		Disable
		WMM Capable		Enable
		APSD Capable		Disable

Parameter				Default Value
	Basic Settings	SSID	Primary SSID	Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters in the MAC address specified on the label on the external surface of the AP
			Secondary SSID 1	Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters in the MAC address specified on the label on the external surface of the AP plus 1
			Secondary SSID 2	Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters in the MAC address specified on the label on the external surface of the AP plus 2
			Secondary SSID 3	Tenda_*XXXXXX*, where *XXXXXX* indicates the last 6 characters in the MAC address specified on the label on the external surface of the AP plus 3
		SSID Status	Primary SSID	Enable
			Secondary SSID	Disable
		Broadcast SSID		Enable
		AP Isolation		Disable
		Client Limit		16
		WMF		Disable
		Chinese SSID Encode		UTF-8
		Security Mode		None
	Advanced Settings	Beacon Interval		100ms
		Fragment Threshold		2346
		RTS Threshold		2347
		DTIM Interval		1
		Receive Signal Strength		-80dBm

Parameter			Default Value
		Output Power	23dBm
		Power Lockout	Enable
		Preamble	Long Preamble
	Access Control		Disable
	QVLAN		Disable

Safety and Emission Statement

CE

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

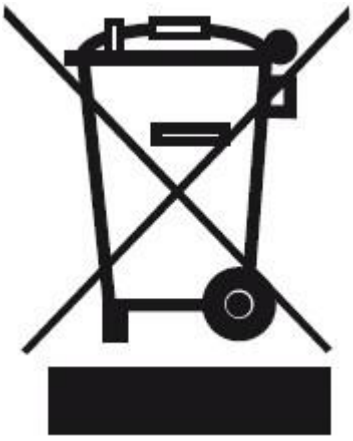
NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

Declaration of Conformity

Hereby, SHENZHEN TENDA TECHNOLOGY CO., LTD. declares that the radio equipment type i12 is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:
http://www.tendacn.com/en/service/page/ce.html

Operate Frequency: 2412-2472 MHz EIRP Power (Max.): 19.8 dBm Software Version: V1.0.0



RECYCLING

This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that this product must be handled pursuant to European directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment.

User has the choice to give his product to a competent recycling organization or to the retailer when he buys new electrical or electronic equipment.

FCC Statement

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

— Reorient or relocate the receiving antenna.

— Increase the separation between the equipment and receiver.

— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

— Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your

body.

Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.