TP-LINK®
The Reliable Choice

User Guide

EAP Controller Software

REV1.0.0

1910011273

CONTENTS

Chapter 1 System Setup

The EAP Controller is a management software specially designed for the TP-LINK EAP devices on a business wireless network. It allows you to centrally manage masses of EAP devices using a web browser on your PC. Moreover, it is particularly worth mentioning that it allows you to configure EAPs in batches. The EAP Controller has sufficient monitoring features. Graphically displaying the location and visual coverage of the managed EAP devices, the Controller can also real-time monitor the running condition of each EAP in the LAN.

This User Guide is applicable to the EAP Controller software and all of the EAP series Business Wi-Fi Access Point models.

1.1 System Requirements

The computer that installs the EAP Controller software has the following requirements:

- Operating System

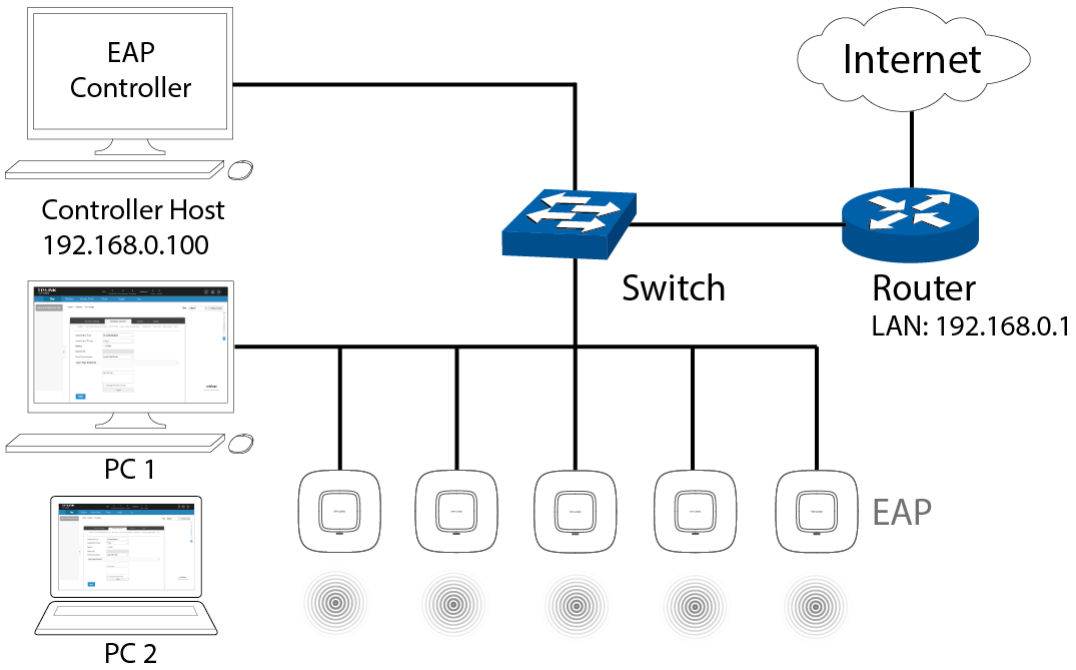
Microsoft Windows XP/Vista/7/8.

- Web Browser

Mozilla Firefox 32 (or above), Google Chrome 37 (or above), Opera 24 (or above), or Microsoft Internet Explorer 8-11.

1.2 Network Topology

Typical network topology is shown below.



- A DHCP Server

To deploy EAPs in your local network, a DHCP server is required to assign IP addresses to the EAP devices and clients. Typically, a router acts as the DHCP server. It's assumed that the IP address of the LAN of the router is 192.168.0.1.

- Management Hosts

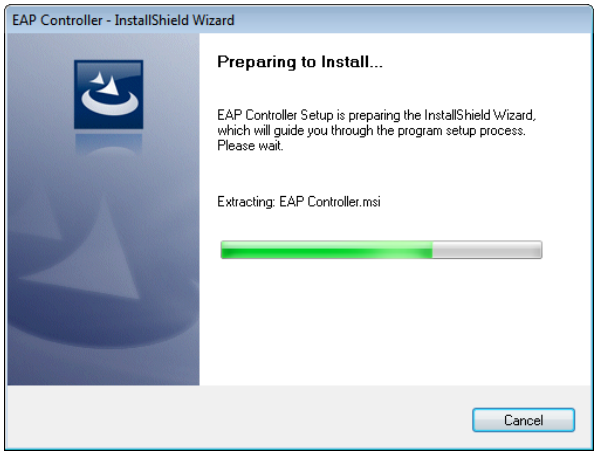
In the LAN, only one management host needs to install the EAP Controller software, called Controller Host. For other hosts' convenient login to the EAP Controller interface, it's recommended to set a static IP address to the Controller Host. The IP address must be in the same subnet with the DHCP server. We take 192.168.0.100 as an example in the topology figure.

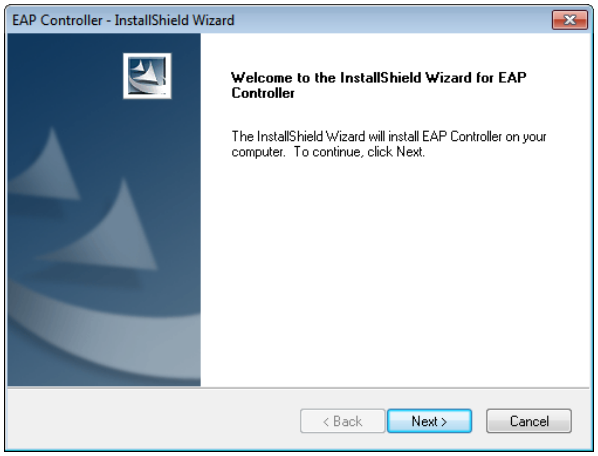
PC 1 and PC 2 do not need to install the EAP Controller software. After you have configured the wireless network with the EAP Controller on the Controller Host, other computers (PC 1 and PC 2) in the same LAN can use the way of "IP:port" to log into the EAP Controller to monitor the wireless network. For the details, please refer to the note of **Step 6** at Quick Setup.

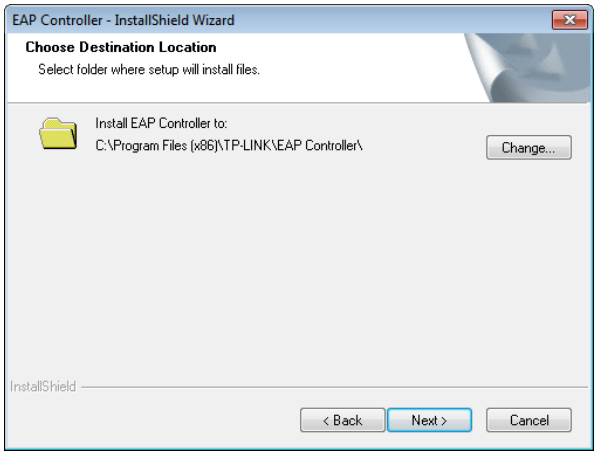
1.3 Software Installation

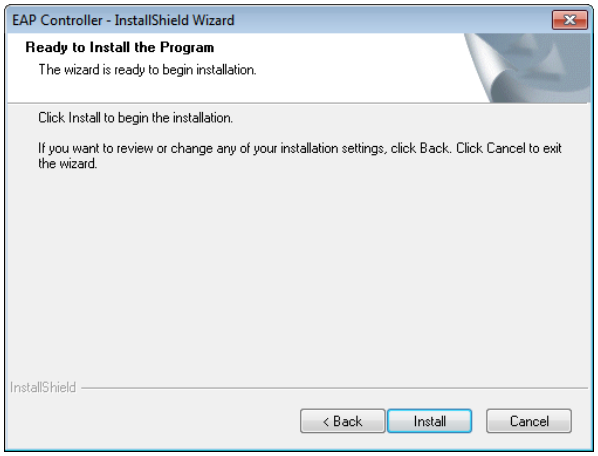
The EAP Controller software just needs to be installed once when you initially create an EAP network. You can get the installation software of EAP Controller on the resource CD provided with your EAP device or download it from our website http://www.tp-link.com/en/support/download/. Perform the following installation steps to properly install the EAP Controller software:

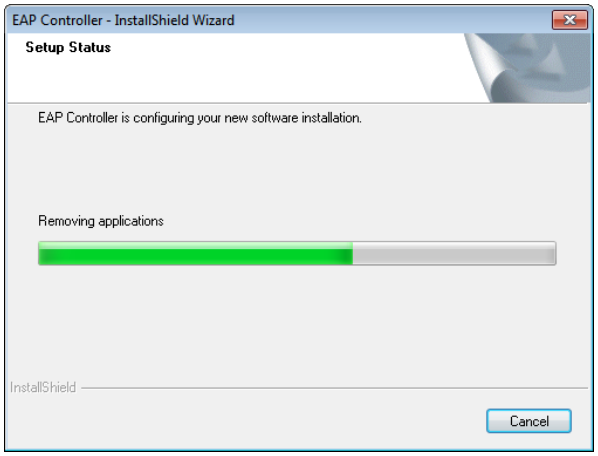
Step 1: Launch  **EAP Controller.exe**. The InstallShield Wizard will install the EAP Controller shown as the following windows.




EAP Controller - InstallShield Wizard
Welcome to the InstallShield Wizard for EAP Controller
The InstallShield Wizard will install EAP Controller on your computer. To continue, click Next.
< Back
Next >
Cancel


EAP Controller - InstallShield Wizard
Choose Destination Location
Select folder where setup will install files.
Install EAP Controller to:
C:\Program Files (x86)\TP-LINK\EAP Controller\
Change...
InstallShield
< Back
Next >
Cancel


EAP Controller - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel


EAP Controller - InstallShield Wizard
Setup Status
EAP Controller is configuring your new software installation.
Removing applications
InstallShield
Cancel

Step 2: When the InstallShield Wizard window disappears and a shortcut icon 

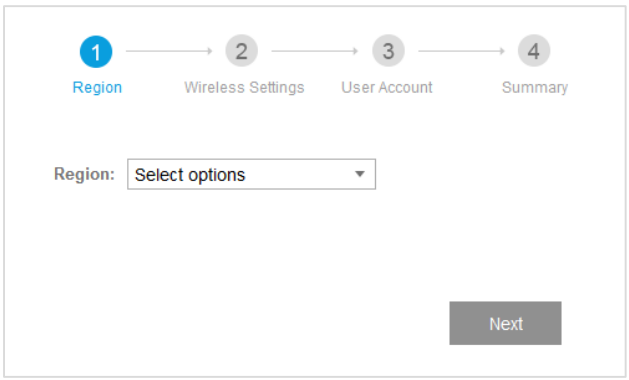
of the EAP Controller is created on your desktop, you have succeeded in installing the EAP Controller.

1.4 Quick Setup

Perform the following steps to log into the EAP Controller interface:

Step 1: Launch the EAP Controller on Controller Host and the following window will pop up. You can click **Hide** to hide this window into the tray but **DO NOT** close it.

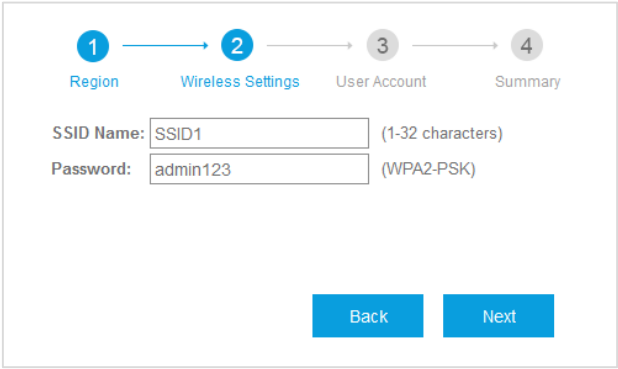
Step 2: After a while, your web browser will automatically open shown as the following screen. If it opens but prompts a problem with this website's security certificate, please **continue to this website**. Select your country or region and click **Next**.



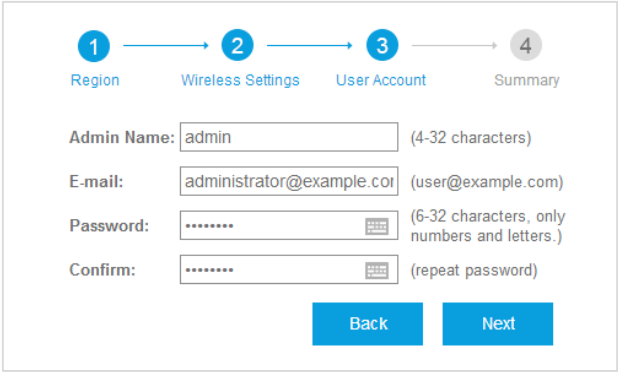
NOTE:

- If your browser does not open, please click **Launch a Browser to Manage Wireless Network**.
- Ensure that you select a correct Country/Region to comply with local laws.

Step 3: Set an SSID name (wireless network name) and password. The EAP Controller will simultaneously create two wireless networks, a 2.4GHz one and a 5GHz one both encrypted in the WPA2-PSK mode. Click **Next**.



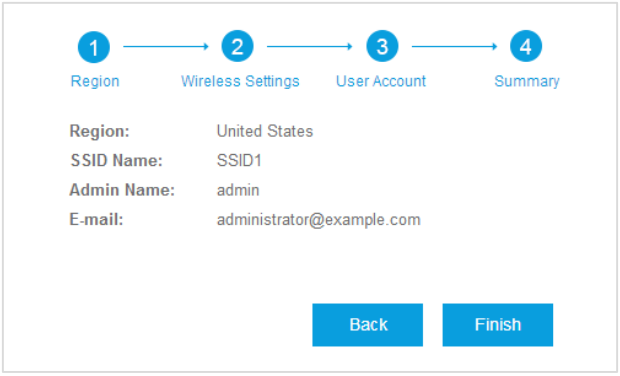
Step 4: Configure an admin name and password for login to the EAP Controller. Specify an email address to receive the notification emails and reset your password if necessary. Click **Next** to continue.



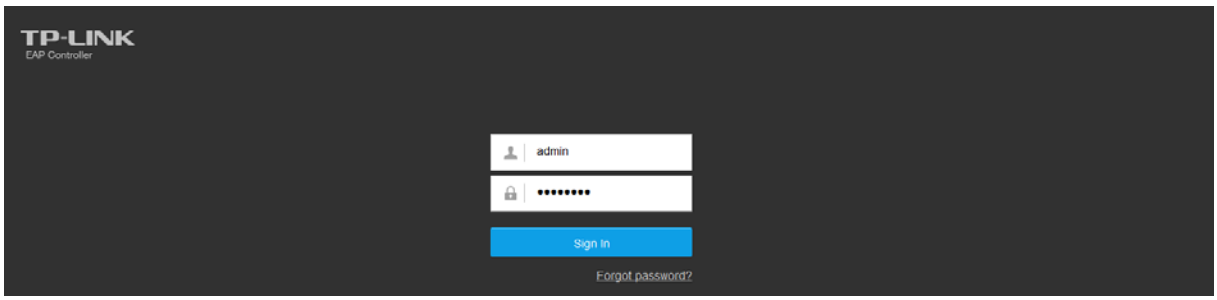
NOTE:

- Please remember well your password. After logging into the Controller, please set **Mail Server** on the Controller Settings page so that you can reset the password if necessary.
- The configured admin name and password will respectively serve as the username and password of the adopted EAP devices for the first time. You can change the username and password of each EAP device on the **Device Account** page.

Step 5: Review your settings. Once the wizard is finished, the browser will be redirected to the management interface.



Step 6: A login screen will appear for the EAP Controller management interface. Enter the admin name and password you created and click **Sign In**. Then you will successfully log in the management interface.



NOTE:

In addition to the Controller Host, other computers in the same LAN can also log into the management interface to manage EAP devices. Before the login, the EAP Controller software must first keep running on Controller Host. For example, when the IP address of the Controller Host is 192.168.0.100, enter **https://192.168.0.100:8043/login**, or **https://192.168.0.100:8043**, or **http://192.168.0.100:8088** in the web browser for logging into the management interface.

Chapter 2 Interface

The EAP Controller software has a web-based interface for easy configuration and management.

To access the interface, perform the following steps:

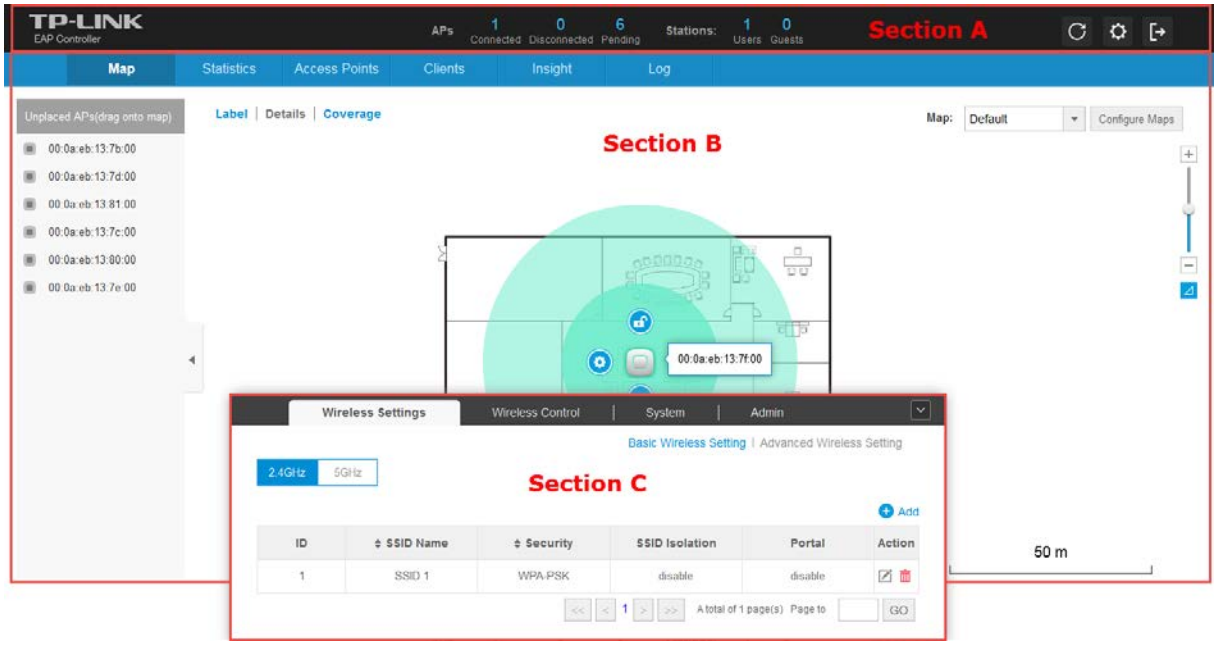
Step 1: Double click  from your windows desktop and the following screen will pop up.

NOTE:

Please do not close the EAP Controller window during configuring the EAP Controller and managing your wireless network. Otherwise, the EAP devices cannot be managed.

Step 2: Your web browser will automatically open the EAP Controller login screen. Enter the admin name and password you created and click **Sign In**.

Step 3: The EAP Controller's management interface mainly divides into three sections as the following screen.



➢ **Section A**

Section A provides two common options: **APs** and **Stations**, accessible from all tabs on the EAP Controller interface.

- The **APs** option respectively displays the number of the EAPs that are connected, disconnected and pending. You can click the number to go to the corresponding page on the **Access Points Tab**.
- The **Stations** option separately displays the total number of users and guests. You can click the number to go to the corresponding page on the **Clients Tab**.

On the right side of Section A, (**Refresh**), (**Settings**), and (**Sign out**) allow you to refresh the current page, globally configure the wireless network, and sign out from the management interface.

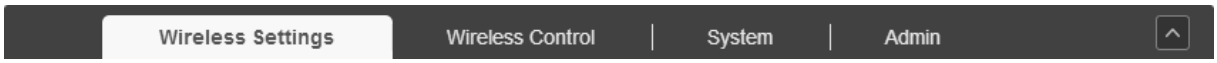
➢ **Section B**

Section B divides into the monitor menu area (providing six monitor tabs) and the monitor display area (where the detailed information under each tab displays).

- **Map Tab** allows you to monitor the running condition of each EAP device.
- **Statistics Tab** displays a visual representation of the network traffic of the managed EAPs.
- **Access Points Tab** displays all the EAP devices on the local network for your management.
- **Clients Tab** displays all the clients connected to the EAP wireless network.
- **Insight Tab** displays the detailed information of all the previously connected clients and the detected rogue APs.
- **Log Tab** records the detailed information of the system logs for your troubleshooting.

➢ **Section C**

Section C is the global setting area including four global setting pages.



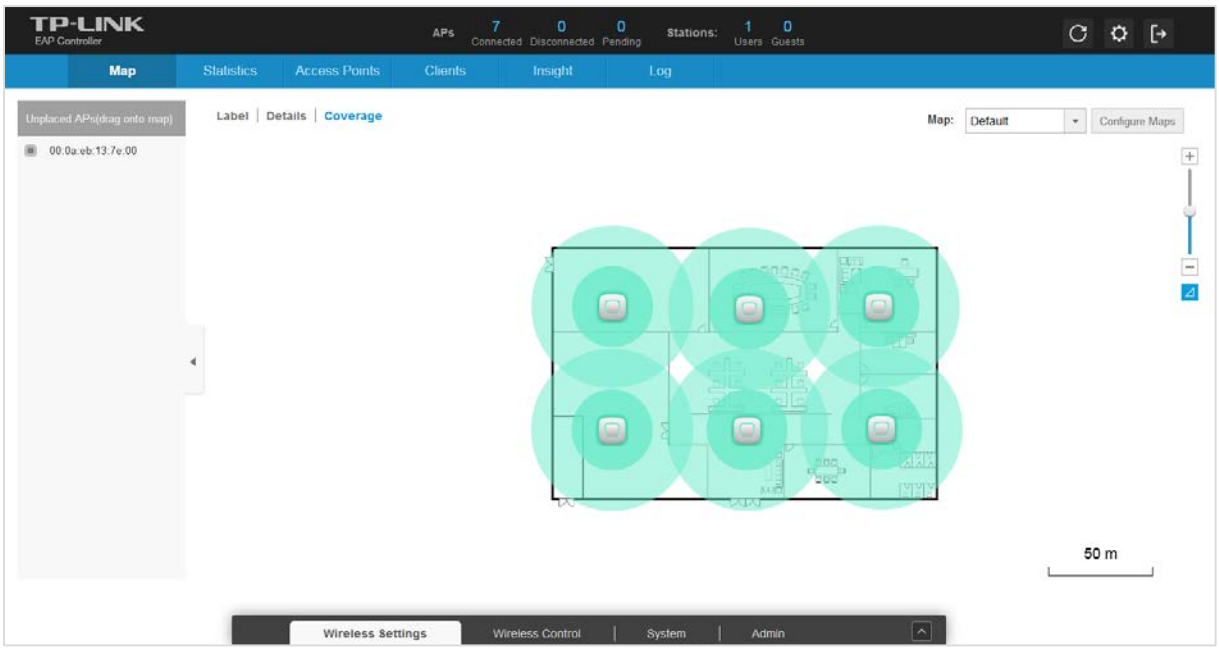
- **Wireless Settings** allows you to change the basic and advanced wireless setting. You can add the 2.4GHz or 5GHz wireless network and also configure their wireless parameters in details.
- **Wireless Control** allows you to control the access of clients to your wireless networks.
- **System** allows you to perform some configurations to the managed EAPs' system, including Log Setting, User Account, LED, Backup&Restore and Batch Upgrade. And you can also view the version information of the EAP Controller on the **About** page.
- **Admin** allows you to set permissions for the login accounts. You can also set mail server on the **Controller Settings** page to reset your password.

Chapter 3 Monitor

3.1 Map Tab

The EAP Controller software allows you to upload custom map images of your location(s) for a visual representation of your wireless network. When you initially launch the EAP Controller application, a default map is displayed. The legend at the bottom of the map shows the scale of the map.

The Map Tab can visually monitor the running condition and visual coverage range of each EAP device.

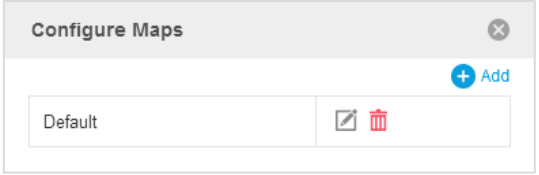


3.1.1 Add Custom Maps

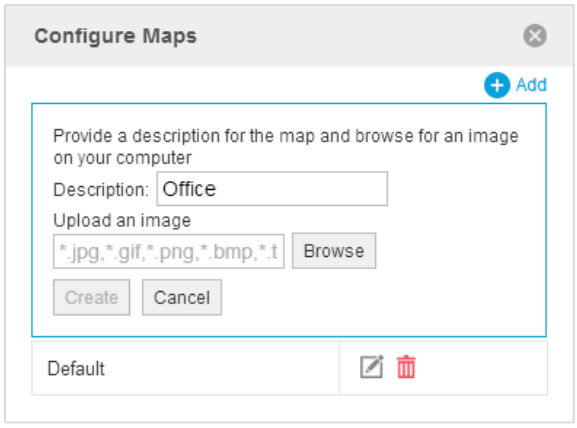
The image formats that the EAP Controller software supports include .jpg, .gif, .png, .bmp and .tiff.

To upload a map to the EAP Controller, please perform the following steps:

Step 1: Click **Configure Maps** on the upper right corner of map area to open the following window.



Step 2: Click Add. Give a map description, select your customized map image, and click **Create**.

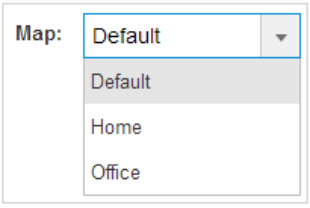


Step 3: Click to close the window.

3.1.2 Set the Map Scale

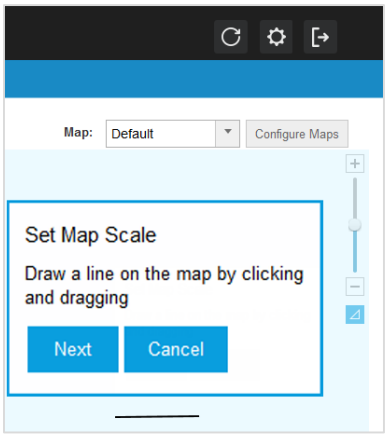
To set the map scale, perform the following steps:

Step 1: Select a map from the drop-down list.

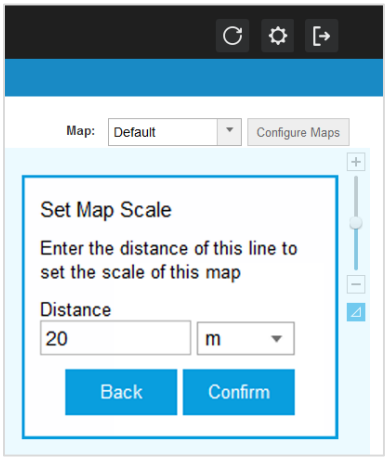


Step 2: Use the zoom slider to zoom the map detail in and out.

Step 3: Click . Then draw a line on the map by clicking and dragging the mouse. If you need to redraw the line, just click and draw the mouse again to draw a new line. Once you are satisfied with the line, click **Next**.



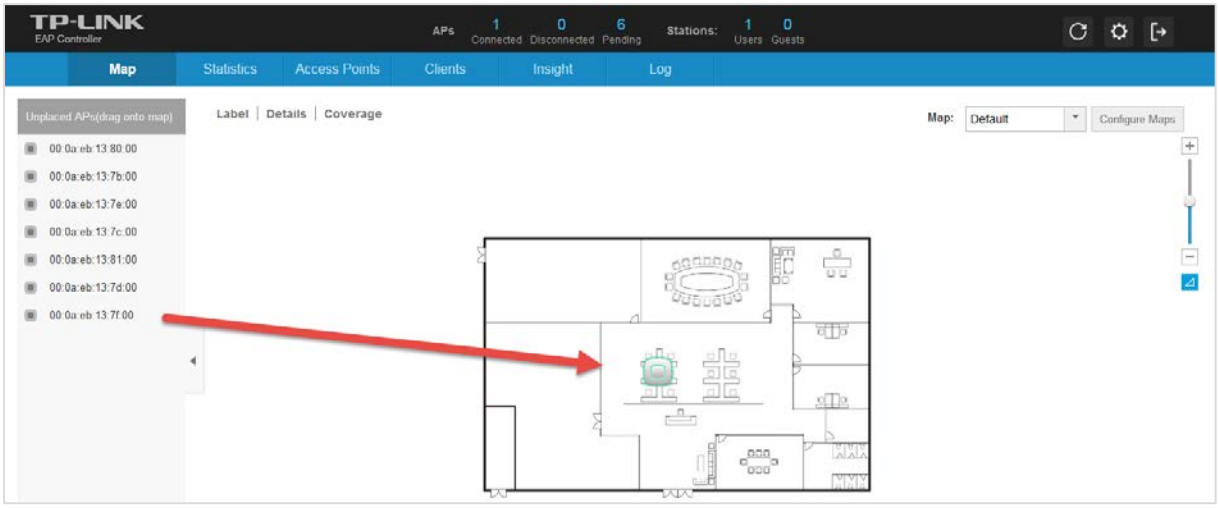
Step 4: Enter the distance that the line represents in the Distance field to set the scale of this map. The distance is specified in meters by default but you can switch to feet using the drop-down selection menu on the right. Click **Confirm**.



3.1.3 Place APs onto the Map

Place APs onto the Map

Drag the unplaced APs from the Unplaced APs list to the appropriate location on the map according to its actual location.



Reveal Additional Options

➢ Click to reveal additional options.

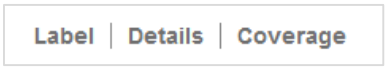
Click to lock the selected EAP in the current location on the map.

Click to unlock the selected EAP and you can drag it to another location.

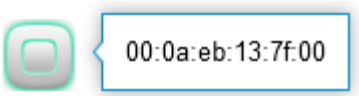
Click to display the Details window that allows you to view AP's details and configure the wireless parameters. For more detailed information, please refer to **AP Details**.

Click to remove the selected EAP from the map and it will back into the Unplaced APs list.

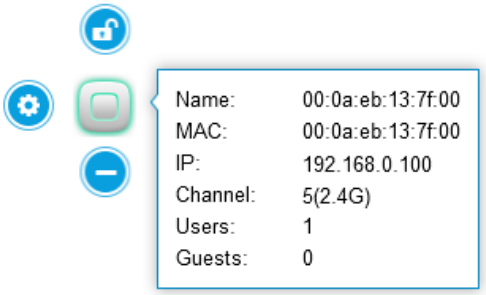
➢ Click any of the following options to display EAP Label, Details, and Coverage on the map.



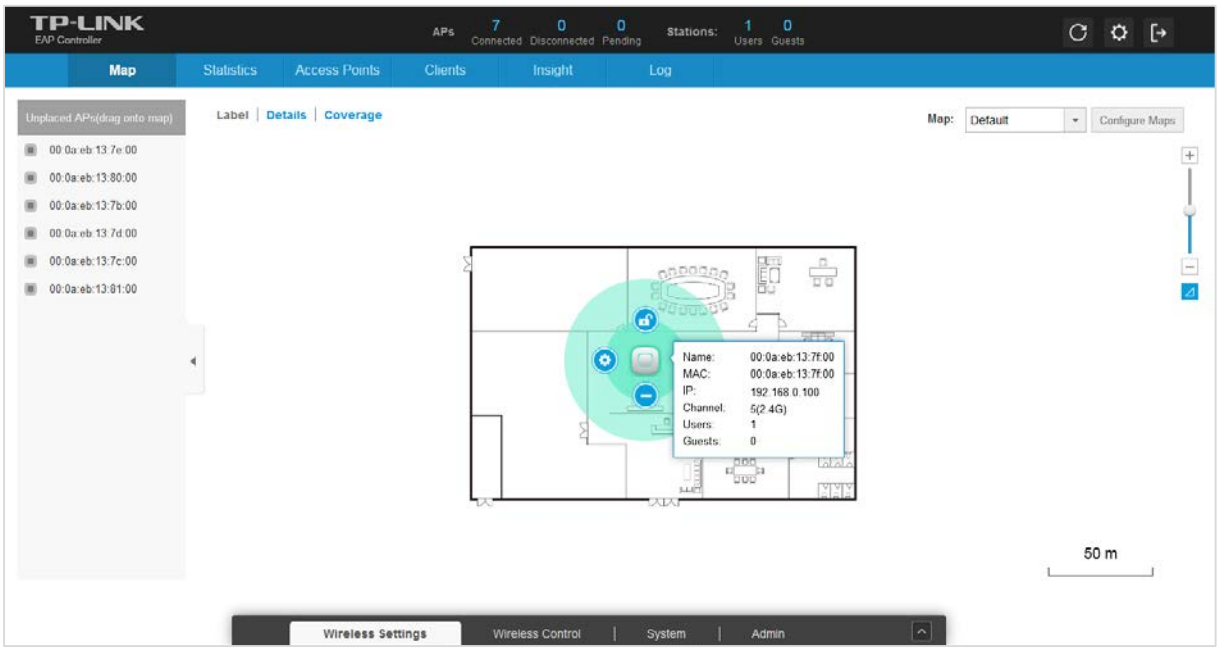
Click **Label** to only display EAP's name. The default name is EAP's MAC address.



Click **Details** to display EAP's name, MAC address, IP address, transmitting/receiving channel, number of connected users, and number of connected guests.



Click **Coverage** to display a visual representation of the wireless range covered by EAPs.



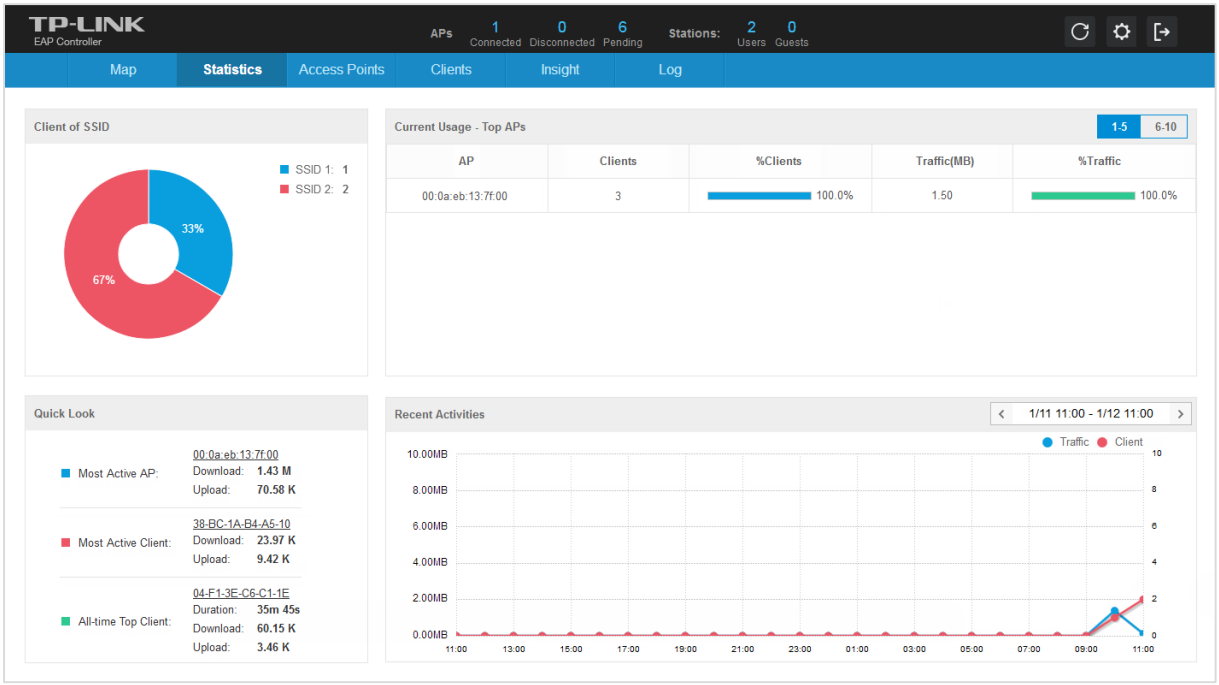
NOTE:

- The visual range covered by EAPs will appear only after you set the map scale. The visual coverage has some differences from the actual situations.
- The observer user cannot drag EAPs, upload/edit the map, or set the map scale, but can only view the interface.

3.2 Statistics Tab

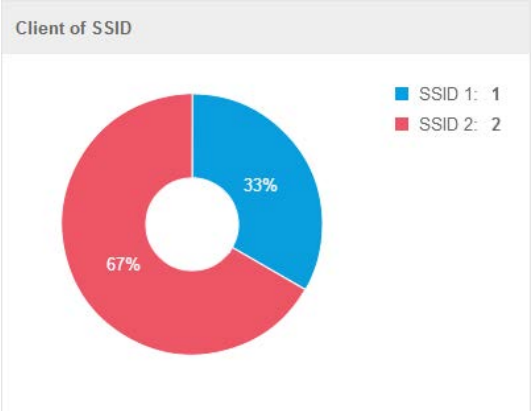
The Statistics tab provides a visual representation of the network traffic of your managed EAPs.

Charts represent the number and distribution of clients over each SSID. An hour-by-hour graph of the usage over the specific 24 hours or one day-by-day graph of the usage over the specific 30 days is also displayed on this screen.



3.2.1 View the Client Distribution on SSID

A visual pie chart represents the client distribution on each SSID. For example, the SSID 2 has 2 clients, which occupies 67% of all the clients.

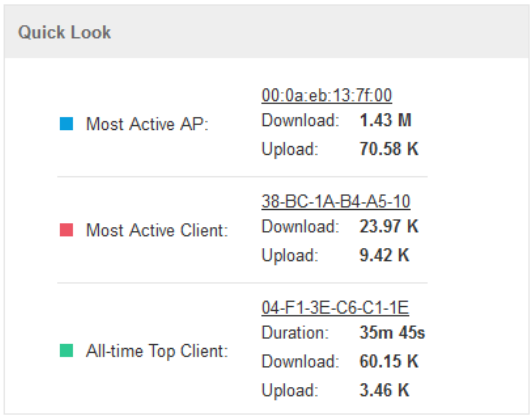


3.2.2 Quick Look

Most Active AP refers to the current connected AP with the maximum traffic. Its MAC address and total amount of data downloaded/uploaded will be displayed. You can click the MAC address to open the **AP Details** page.

Most Active Clients refer to the current connected client with the maximum traffic. Its MAC address and total amount of data downloaded/uploaded will be displayed. You can click the MAC address to open the connection history page. See **Clients** for additional information.

All-Time Top Client refers to the client with the maximum traffic among all the clients that have accessed the EAP network before. Its MAC address, duration and total amount of data downloaded/uploaded will be displayed. You can click the MAC address of to open the connection history page. See **Clients** for additional information.

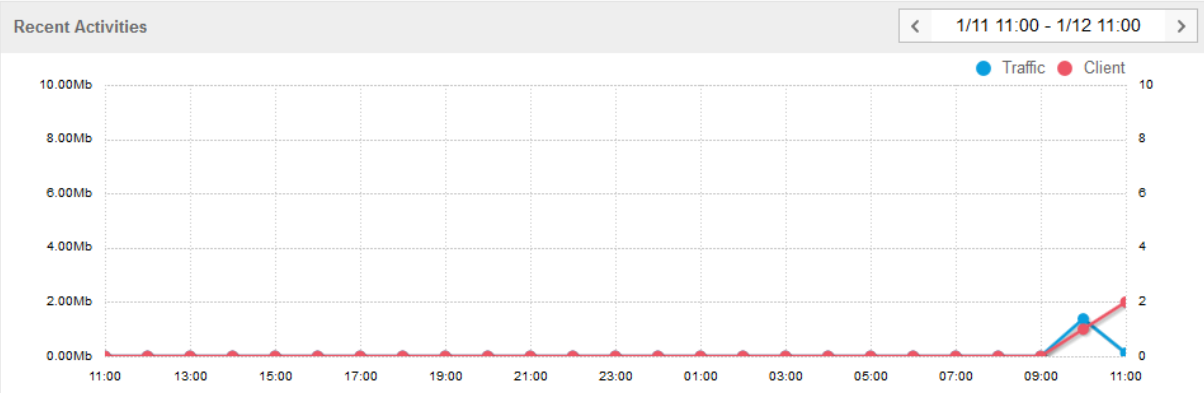


3.2.3 View Current Usage-Top APs

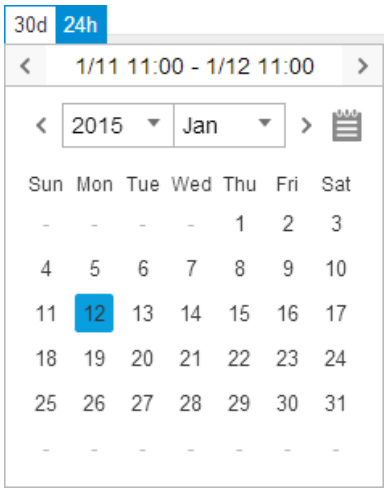
This tab displays the hostname, connected client amount and traffic of ten APs with the top current usage. **%Clients** indicates the proportion of current connected clients to the Top APs' acceptable client capacity. **%Traffic** indicates the proportion of the AP's current data transmission amount to the Top APs' total transmission amount. The AP's transmission amount equals the sum of the transmission traffic of all the current clients that connect to the AP. Its maximum transmission capacity depends on its radio configuration.

3.2.4 View Recent Activities

The Recent Activities statistics can be toggled between a view for the past specific 24 hours and one for the past specific 30 days. The left ordinate axis indicates the traffic and the right ordinate axis represents the number of the clients. The bottom abscissa axis shows the selected time period. **Traffic** indicates a visual graph of the network traffic during the selected time period. **Client** indicates a visual graph of the number of the connected clients during the selected time period. For example, the statistics information at 8:00 indicates the traffic size and client number from 7:00 to 8:00.



At the top right of the screen, you can filter the statistics by date and time period. You can also change the duration interval by toggling between *24h* (24 hours) and *30d* (30 days). The statistics information of Traffic and Client will never be cleared.



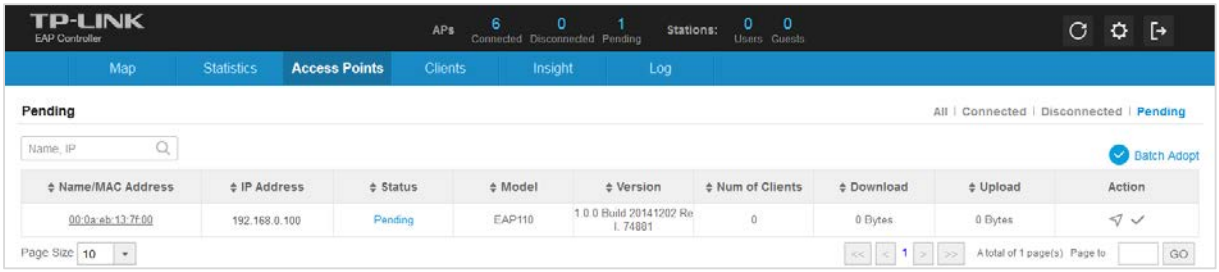
3.3 Access Points Tab

The EAP Controller software can detect all the EAP devices in the LAN and list them on the Access Points page. The clickable list displays the EAP's name/MAC address, IP address, status, model, software version, number of connected clients and download/upload bytes.

According to their connection status, all the EAP devices are divided into three categories: **Connected**, **Disconnected** and **Pending**.

Only after you adopt a pending EAP, it can be connected and managed. If a connected EAP powers off, it will be disconnected. If you reset or forget a connected/disconnected EAP, it will change into a pending one again. The following orderly introduces three statuses of an EAP from Pending to Disconnected.

- **Pending** displays that the EAP is in the default state and available for adoption. You can locate and adopt pending EAPs. Only after they are adopted and connected, you can upgrade them. When EAPs are connected and managed by the EAP Controller, you cannot log into their own web interface until you **Forget this AP**.



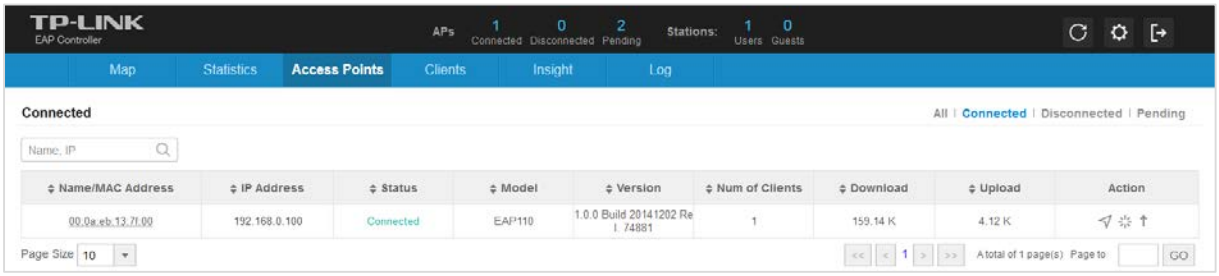
In the **Action** column, select an icon to execute the corresponding operation:

Click to locate the AP on the map. It will redirect to the Map tab. If the AP is not on the map but in the Unplaced APs list, it will be highlighted in red.

Click to adopt the pending APs and the following window will pop up. Enter the username and password and click **Apply**. After adopted at the first time, this AP's username and password are separately the admin name and password that you configured at Quick Setup. And you can change them on the **Device Account** page.

On the condition that there are many EAPs to be adopted, you can click Batch Adopt to achieve the batch adoption for these EAPs.

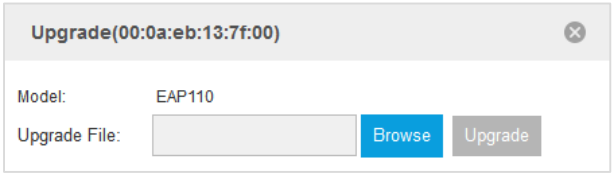
- **Connected** displays that the EAP is being managed. After you adopt it, the *Status* will be *Provisioning* until the AP is connected. Connected AP can be located, reboot and upgraded. A connected EAP will turn into a pending one only after you **Forget this AP**.



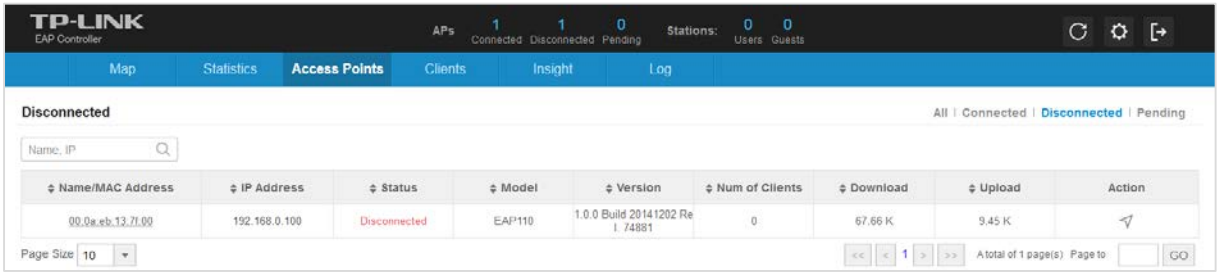
In the **Action** column, select an icon to execute the corresponding operation:

Click to reboot the connected APs.

Click ↑ to upgrade the connected APs and the following window will pop up. Click **Browse** to locate and choose the upgrade file in your computer, then click **Upgrade** to install the latest EAP firmware. The *Status* will appear as *Upgrading* until the process is complete and the EAP reconnects to the EAP Controller software. You can upgrade the EAP devices in batches on the **Batch Upgrade** page.



- **Disconnected** displays that the EAP is unreachable by the EAP Controller software. Disconnected EAP can only be located the position on the map. When a disconnected EAP is reset to factory default settings or you forget it, it will turn into a pending one.



3.4 Clients Tab

The Clients tab displays a list of users and guests that connect to the EAP network. The clients are divided into two types: **User** and **Guest**. The client connecting to the EAP wireless network without the Portal authentication is User while the client connecting to the wireless network with the Portal authentication is Guest.

The Clients tab displays the client's MAC address, connected AP and connected SSID, the level (User or Guest), download/upload bytes, active time and signal strength.

If the client is Guest, you can click ⛉ in the **Action** column to cancel the authorization for it.

In the **MAC Address** column, click the MAC address to get the client's connection history. This connection history window displays the connection date/time, duration and the client's download/upload bytes.

3.5 Insight Tab

The Insight tab displays a list of clients that have connected to the EAPs network during the specified period. Clients Statistics tab and Untrusted/Trusted Rogue APs tab will be introduced separately.

3.5.1 Clients Statistics

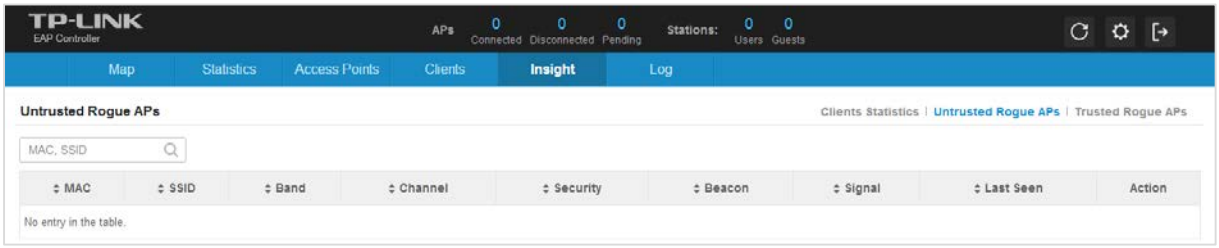
The Clients Statistics page displays all the previously connected clients and their MAC address, download/upload bytes, duration and the time of last seen. You click the MAC address to get its connection history.

3.5.2 Untrusted Rogue APs

A Rogue AP is an access point that has been installed on a secure network without explicit authorization from a system administrator.

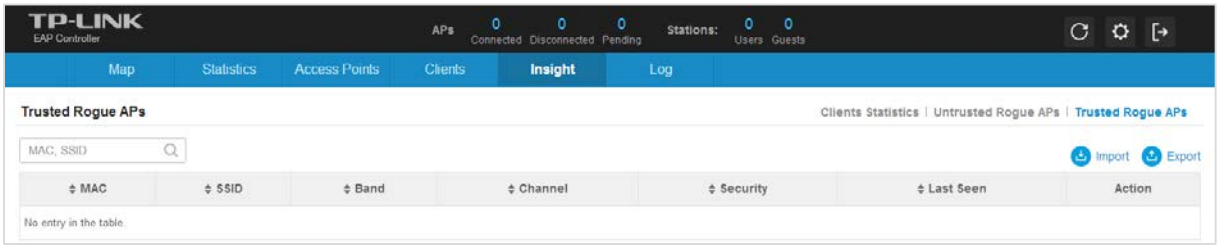
The EAP Controller can scan all channels to detect all APs in the vicinity of the network. During the detection, clients will disconnect with EAPs. If rogue APs are detected, they will be shown on the Untrusted Rogue APs list.

The Untrusted Rogue APs page displays the untrusted rogue APs' MAC address, SSID, band, channel, security mode, total number of Beacon, signal strength and the time of last seen. If you want to move an untrusted rogue AP to the Trusted Rogue AP list, click in the **Action** column.



3.5.3 Trusted Rogue APs

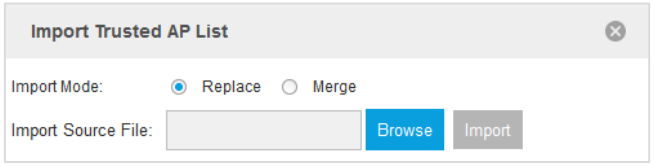
The Trusted Rogue APs page displays the trusted rogue APs' MAC address, SSID, band, channel, security mode and the time of last seen. If you want to move a trusted rogue AP to the Untrusted Rogue AP list, click in the **Action** column.



Import/Export Trusted AP List

You can import a list of trusted APs, a saved list acquired from another AP or created from a text file. If the MAC address of an AP appears in the Trusted AP List, it will not be detected as a rogue.

Click Import to import the trusted AP list and the following window will pop up.



Select an import mode:

- **Replace**: Select to import the list and replace the contents of the current Trusted AP List.
- **Merge**: Select to import the list and add the APs in the imported file to the APs currently shown in the Trusted AP List.

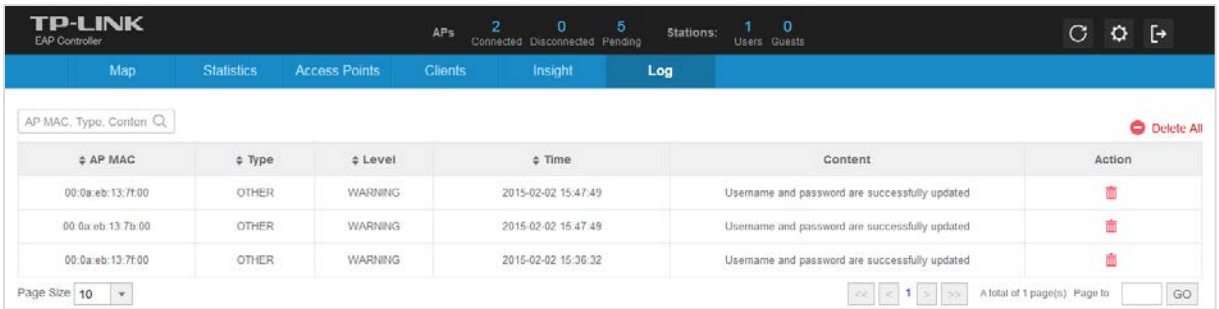
Click **Browse** to locate the imported file and choose it. Then click **Import** to import the Trusted AP List.

You can also export a list and save it in your PC. Click Export to export and download the trusted AP list.

3.6 Log Tab

The logs of the EAP Controller can effectively record, classify and manage the system information of the managed EAPs, providing powerful support for network administrator to monitor network operation and diagnose malfunctions.

The Log tab displays AP's MAC address, log type, level, occurred time and content.



Chapter 4 Global Setting

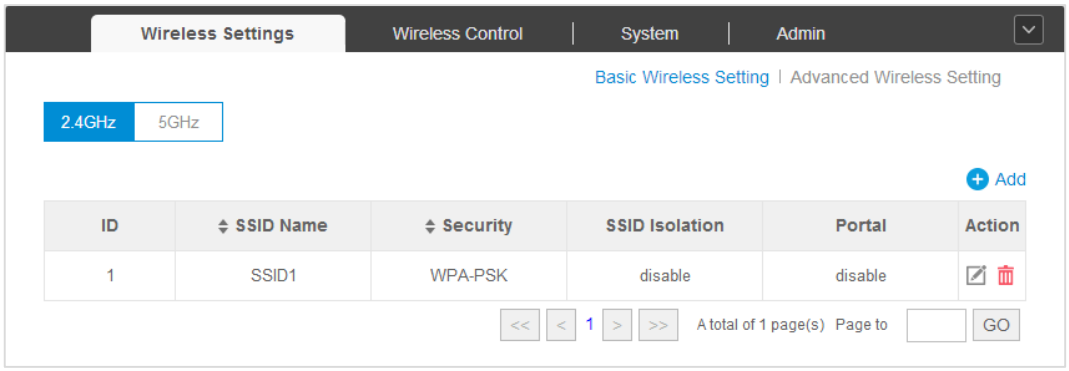
This chapter consists of four configuration subpages: Wireless Settings, Wireless Control, System and Admin. The configurations on the first three subpages will be applied to all the EAPs in the LAN. While Admin is used to configure the user account for login to the EAP Controller.

4.1 Wireless Settings

Wireless Settings page allows you to add wireless networks and configure wireless parameters. Please carefully read the details before configuring your networks.

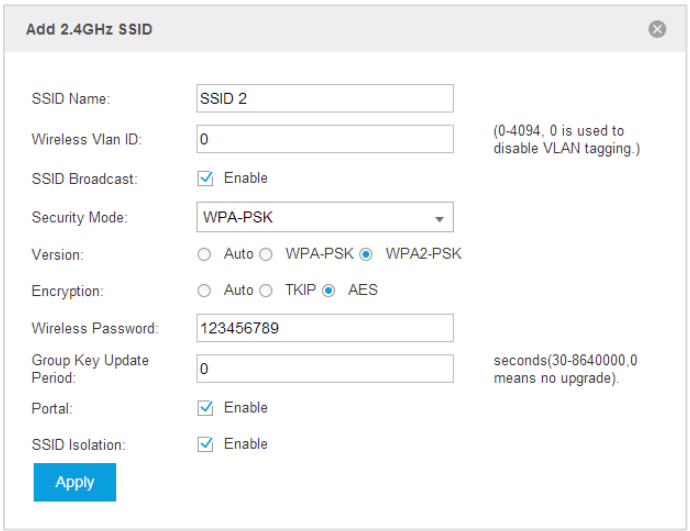
4.1.1 Basic Wireless Setting

The Basic Wireless Settings page allows you to add and edit wireless networks.



Add Wireless Netwok

Step 1: Click Add to add a 2.4GHz/5GHz wireless network. The following window will pop up.



Step 2: Specify the SSID name and wireless VLAN ID. Select whether to broadcast this SSID and whether to enable the Portal authentication. If the Portal authentication is enabled, you can configure it on the **Portal** page. Select whether to enable the SSID Isolation feature. Enabling this feature means that all the clients connecting to this added wireless network cannot communicate with each other.

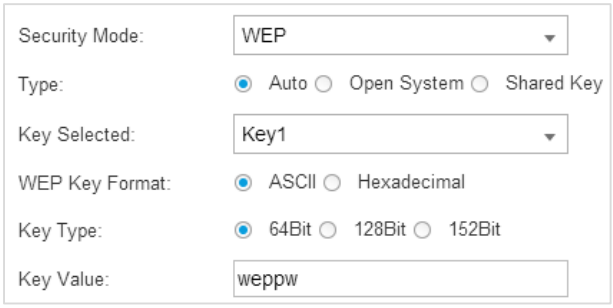
Step 3: Select the security mode of the wireless network.

Three security modes are provided: **WEP** (Wired Equivalent Privacy), **WPA-Enterprise**, and **WPA-PSK** (WPA Pre-Shared Key). (WPA stands for Wi-Fi Protected Access, a security standard compatible with IEEE 802.11e. Enterprise refers to using Radius Server for authentication, while Radius stands for Remote Authentication Dial-In User Service.) Settings vary in different modes as the details are in the following introduction. If you select **None**, any client can be allowed to access the wireless network.

- **WEP**: Based on the IEEE 802.11 standard, this security mode is less safe than WPA-Enterprise and WPA-PSK.

NOTE:

WEP is not supported in 802.11n mode. If WEP is applied in 802.11n mode, the clients may not be able to access the wireless network. If WEP is applied in 11b/g/n mode (2.4GHz) or 11a/n (5GHz), the EAP device may work at a low transmission rate.



Type: Select the authentication type of WEP.

- **Auto**: The default setting is Auto, which can select Open System or Shared Key automatically based on the wireless client's capability and request.
- **Open System**: After you select Open System, client in the wireless network can pass the authentication and associate with the wireless network without password. However, correct password is necessary for data transmission.
- **Shared Key**: After Shared Key is selected, you have to enter password for client to pass the authentication, or it cannot associate with the wireless network or transmit data.

Key Selected: You can configure four keys in advance and select one as the present valid key.

WEP Key Format: Select the WEP key format ASCII or Hexadecimal.

- **ASCII**: ASCII format stands for any combination of keyboard characters in the specified length.

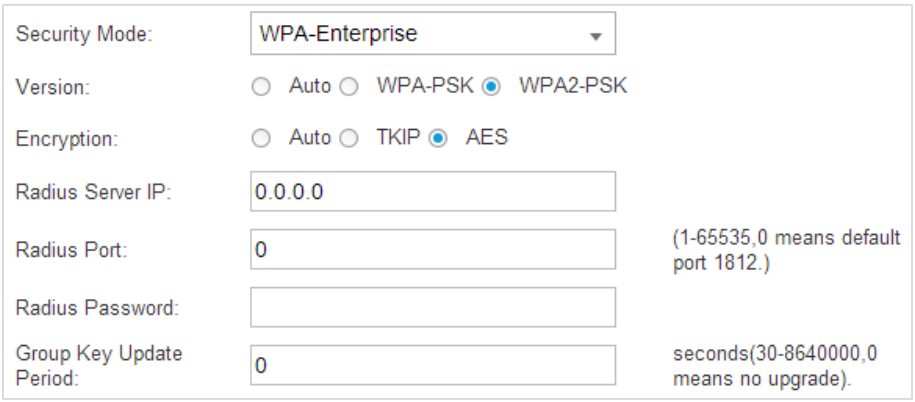
- **Hexadecimal**: Hexadecimal format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length.

Key Type: Select the WEP key length (64-Bit, 128-Bit, or 152-Bit) for encryption.

- 64Bit - Enter 10 hexadecimal digits or 5 ASCII characters.
- 128Bit - Enter 26 hexadecimal digits or 13 ASCII characters.
- 152Bit - Enter 32 hexadecimal digits or 16 ASCII characters.

Key Value: Enter the WEP keys. The length and valid characters are affected by key type.

➢ **WPA-Enterprise**: Based on Radius Server, WPA-Enterprise can assign different passwords for different users and it is much safer than WPA-PSK. WPA-Enterprise with Radius is an implementation of the Wi-Fi Alliance IEEE 802.1i standard, which includes AES and TKIP mechanisms. Encryption type TKIP is not supported in the 802.11n mode. At present, WPA has two versions: WPA and WPA2.



Version: Select the version of WPA-Enterprise.

- **Auto**: Select WPA or WPA2 automatically based on the wireless client's capability and request.
- **WPA-PSK**: Pre-shared key of WPA.
- **WAP2-PSK**: Pre-shared key of WPA2.

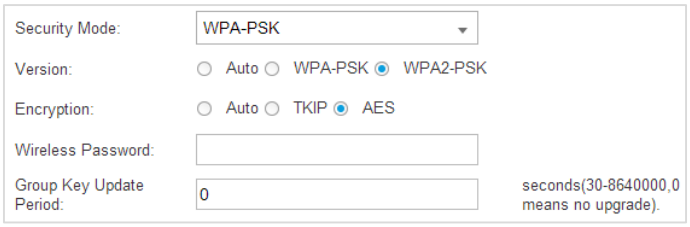
Encryption: Select the Encryption type, including **Auto**, **TKIP**, and **AES**. The default setting is Auto, which can select TKIP (Temporal Key Integrity Protocol) or AES (Advanced Encryption Standard) automatically based on the wireless client's capability and request. AES is more secure than TKIP that is not supported in 802.11n mode. We recommend you select AES as the encryption type.

Radius Server IP/Port: Enter the IP address/port of the Radius Server.

Radius Password: Set the shared secret of the Radius Server.

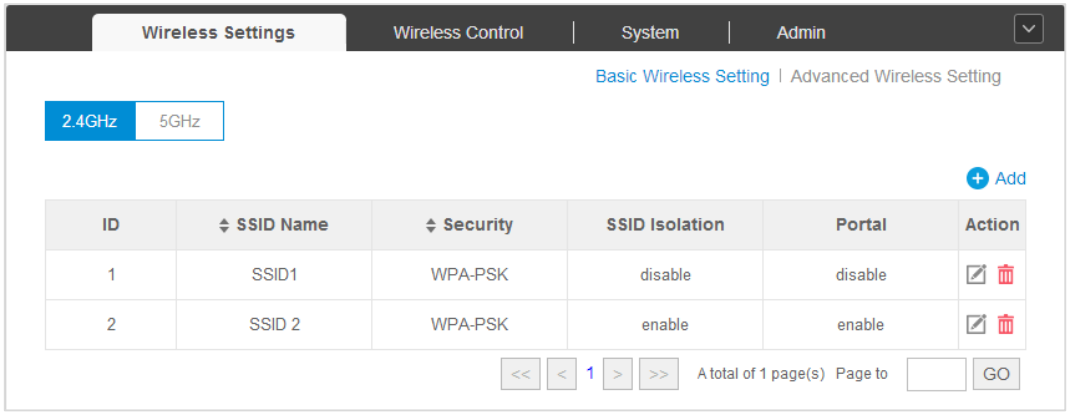
Group Key Update Period: Specify the group key update period in seconds.

- **WPA-PSK**: Based on pre-shared key, it is characterized by higher safety and simple settings, which suits for common households and small business. WPA-PSK has two versions: WPA-PSK and WPA2-PSK.



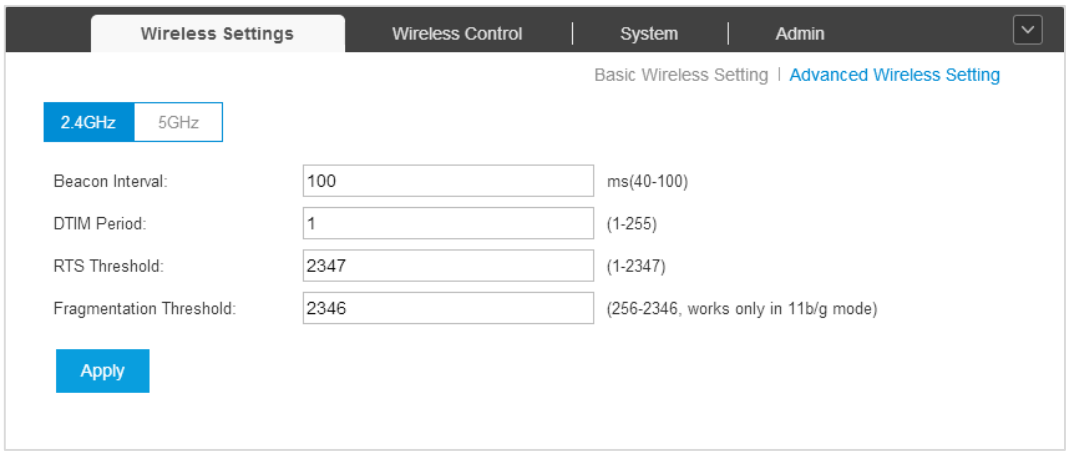
Please refer to **WPA-Enterprise** to configure **Version**, **Encryption**, and **Group Key Update Period**. Set your wireless password in the **Wireless Password** field.

Step 4: Click **Apply** to successfully add the wireless network into the list.



4.1.2 Advanced Wireless Setting

On the Advanced Wireless Setting page, you can configure Beacon Interval, DTIM Period, RTS Threshold and Fragmentation Threshold.



Beacon Interval: Beacons are transmitted periodically by the EAP device to announce the presence of a wireless network for the clients. Beacon Interval value determines the time interval of the beacons sent by the device. You can specify a value from 40 to 100. The default value is 100.

DTIM Period: This value indicates the number of beacon intervals between successive Delivery Traffic Indication Messages (DTIMs) and this number is included in each Beacon frame. A DTIM is contained in Beacon frames to indicate whether the access point has buffered broadcast and/or multicast data for the client devices. Following a Beacon frame containing a DTIM, the access point will release the buffered broadcast and/or multicast data, if any exists. You can specify the value between 1-255 Beacon Intervals. The default value is 1, indicating the DTIM Interval is the same as Beacon Interval. An excessive DTIM interval may reduce the performance of multicast applications. We recommend you keep it by default.

RTS Threshold: When the RTS Threshold is activated, all the clients and EAPs follow RTS (Request to Send) protocol. If the client is to send packets, it will send a RTS packet to EAP to inform that it will send data. After receiving the RTS packet, the EAP notices other clients in the same wireless network to delay their transmitting of data. At the same time, the EAP informs the requesting client to send data. The default is 2347. If you specify a low threshold value, RTS packets are sent more frequently, which consumes more bandwidth and reduces the throughput of the packet.

Fragmentation Threshold: Specify the fragmentation threshold for packets. If the size of packet is larger than the fragmentation threshold, the packet will be fragmented into several packets. Too low fragmentation threshold may result in poor wireless performance caused by the excessive packets. The recommended and default value is 2346 bytes.

4.2 Wireless Control

4.2.1 Portal

Portal authentication enhances the network security by providing authentication service to the clients that want to access the wireless local network. The clients have to log into a web page to establish verification, after which the clients will be guests.

Before passing the portal authentication, different clients can get different network resources through setting authentication policy. Part of network resources can be accessed by the specific unauthorized clients, who can access other unspecific resources only after authorized. What's more, you can customize the authentication login page and specify a URL which the newly authenticated clients will be redirected to. Please refer to **Configure Portal** or **Free Authentication Policy** according to your needs.

NOTE:

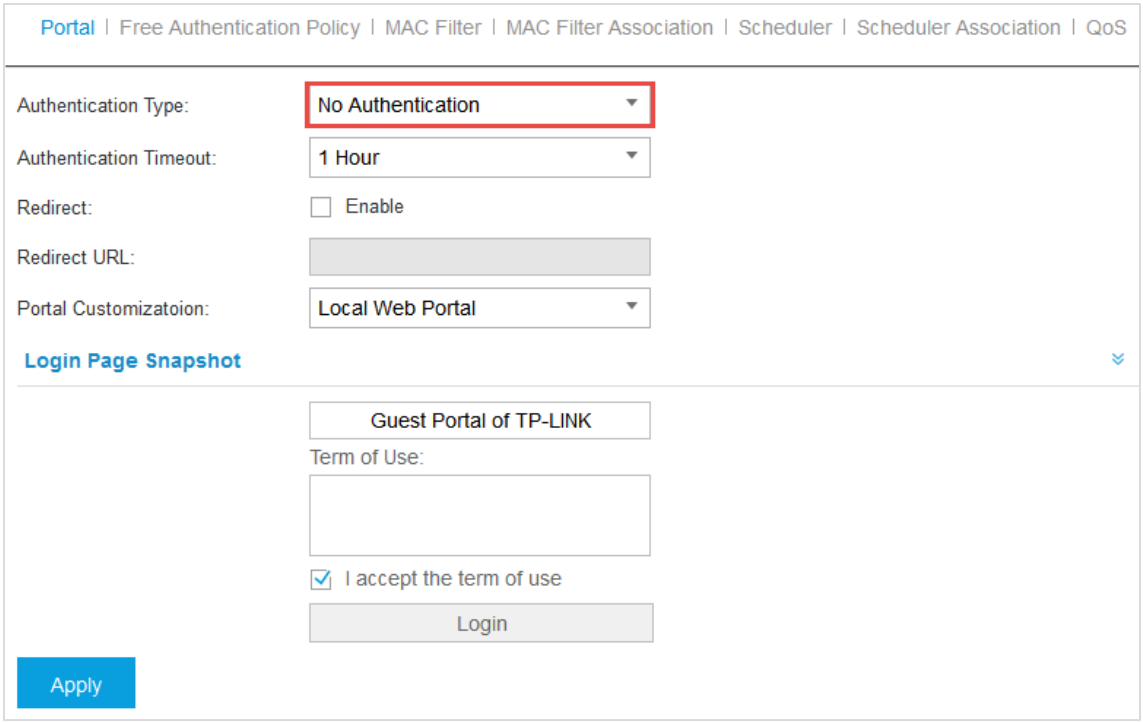
To apply Portal on a wireless network, please go to **Wireless Settings→Basic Setting** to enable Portal of a selected SSID.

Configure Portal

Three different types of authentication methods are available: **No Authentication**, **Local Password** and **External Radius Server**. Please refer to the following contents to configure Portal according to your needs.

➢ No Authentication

When this option is selected, clients just need to accept the term of use.



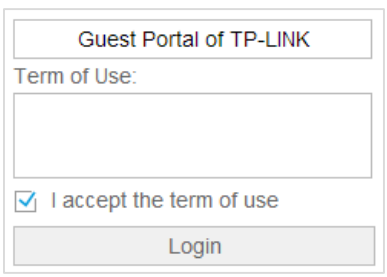
Authentication Type: Select **No Authentication**.

Authentication Timeout: Specify a designated period of time for client's access to the Internet. Options include: **1 Hour**, **8 Hours**, **24 Hours**, **7 Days**, and **Custom**. Custom allows users to define the time in days, hours, and minutes. By default authentication timeout is one hour. If a timeout occurs, the client will disconnect with the Internet.

Redirect: Disabled by default. Check the box to enable Redirect if you hope that the portal redirects the newly authenticated clients to the configured URL.

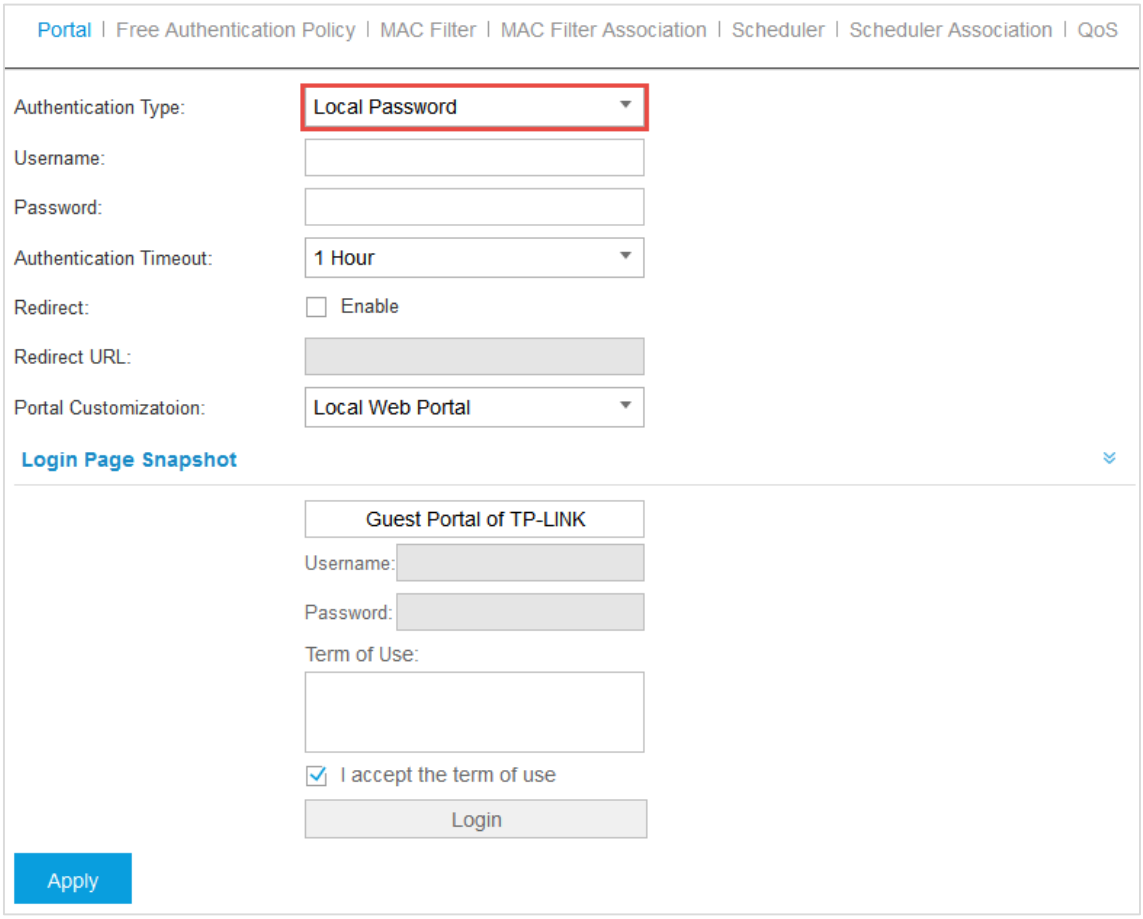
Redirect URL: Enter the URL that a newly authenticated client will be redirected to.

Portal Customization: Select **Local Web Portal**. The authentication login page will be provided by the built-in portal server. Configure the title and terms of the authentication login page.



➢ Local Password

When this option is selected, clients are required to enter the local username and password and accept the term of use.



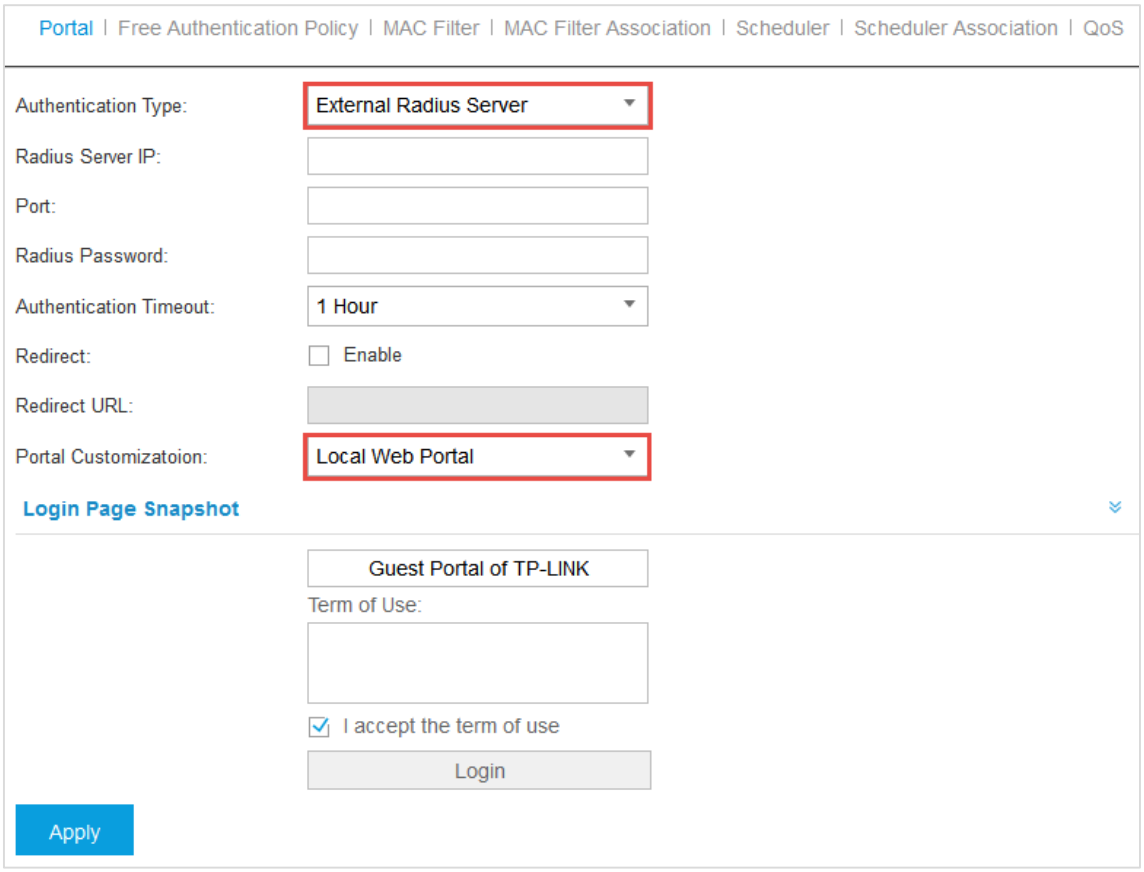
Authentication Type: Select **Local Password**.

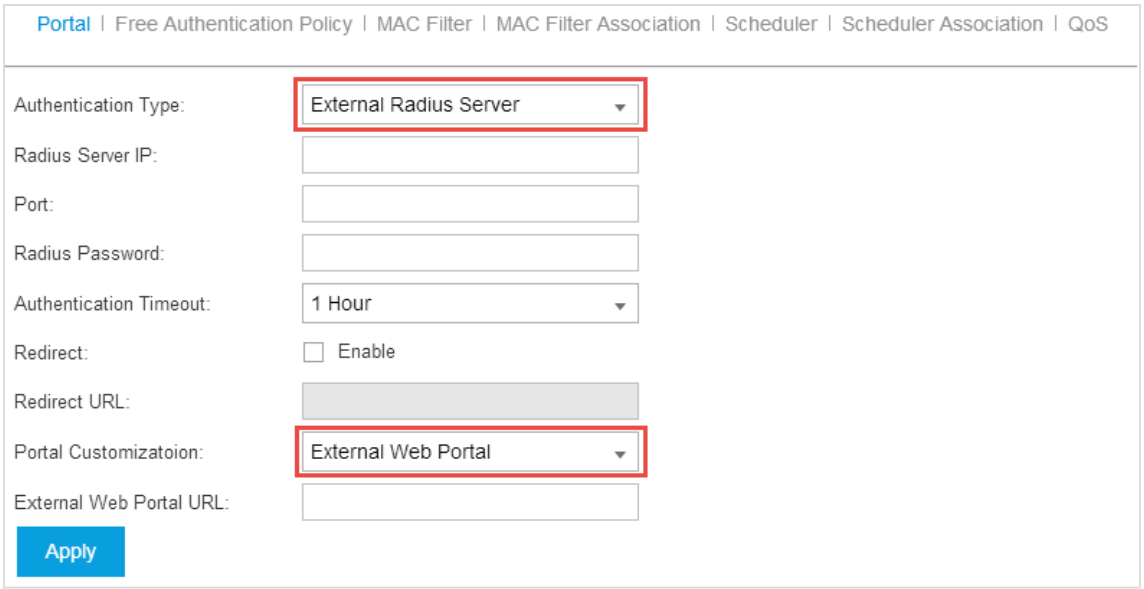
Username/Password: Specify the username/password for local authentication.

Please refer to **No Authentication** to configure **Authentication Timeout**, **Redirect**, **Redirect URL**, and **Portal Customization**.

➢ External Radius Server

If you have a Radius Server, select **External Radius Server** and you can get two types of portal customization: **Local Web Portal** and **External Web Portal**. The authentication login page of Local Web Portal is provided by the built-in portal server of the EAP. The External Web Portal is provided by external portal server.





Authentication Type: Select **External Radius Server**.

Radius Server IP/Port: Enter the IP address/port of Radius Server.

Radius Password: Specify the password of Radius Server.

Portal Customization:

- **Local Web Portal**

Configure the Login Page Snapshot.

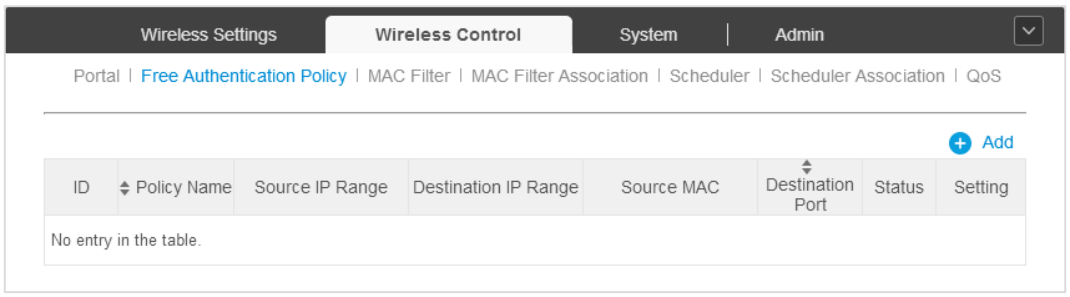
- **External Web Portal**

When **External Radius Server** is configured and **External Web Portal** is selected, you also need to put the external web portal server to a whitelist of **Free Authentication Policy**, otherwise clients cannot access it before authenticated. Enter the authentication login page's URL provided by the remote portal server.

Please refer to **No Authentication** to configure **Authentication Timeout**, **Redirect,** and **Redirect URL**.

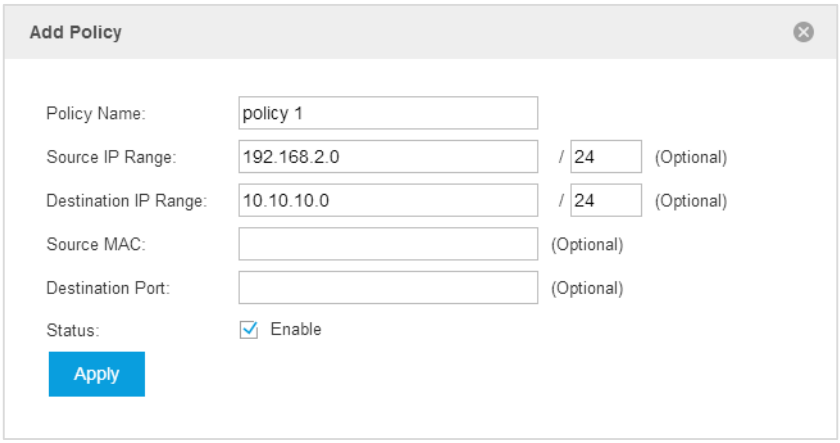
4.2.2 Free Authentication Policy

Free Authentication Policy allows some specified clients to access specific network resources without authentication. On the Free Authentication Policy tab, you can add and view free authentication policy.



Add Free Authentication Policy

Step 1: Click Add to add a new authentication policy and configure its parameters.

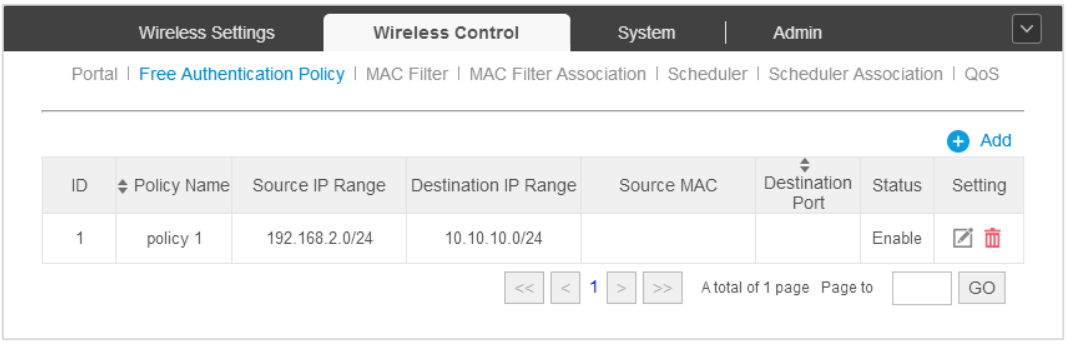


Step 2: Specify the policy name. And set either **Source IP Range** with the subnet/mask of the clients or **Source MAC**. Then set the **Destination IP Range** with the destination IP address and subnet mask for free authentication policy. Assign the service port as the **Destination Port**. Check the **Status** box to enable the policy.

NOTE:

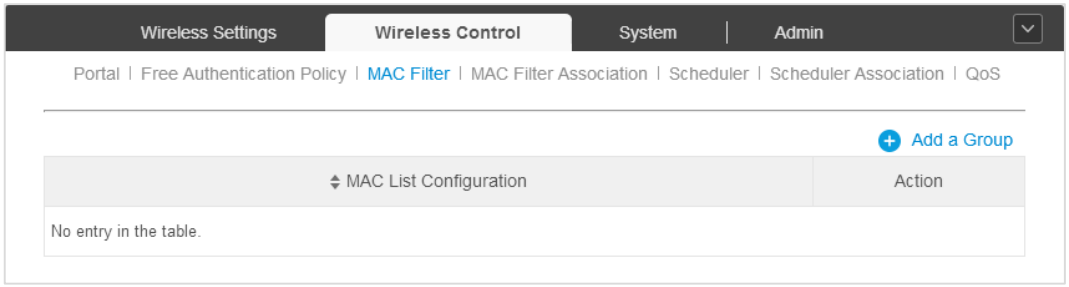
When External Radius Server is configured and External Web Portal is selected, please set the IP address and subnet mask of your external web portal server as the Destination IP Range. Otherwise, clients cannot access it before authenticated

Step 3: Click **Apply** and the policy is successfully added as the following screen.



4.2.3 MAC Filter

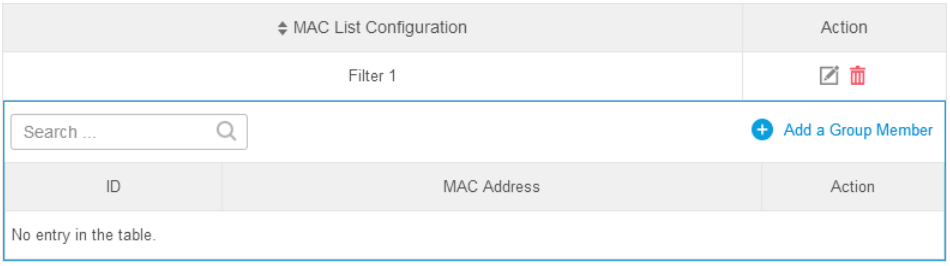
MAC filter can be used to allow or exclude the listed clients to authenticate with the access point. Thereby it can effectively control client's access to the wireless network.



Add MAC Filter Group

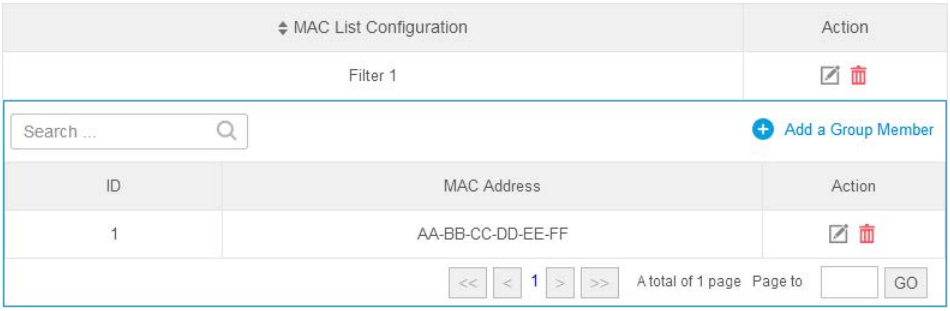
Step 1: Click Add a Group and specify a name for the group.

Click **Apply** and the MAC Filter group will be successfully added as the following screen.



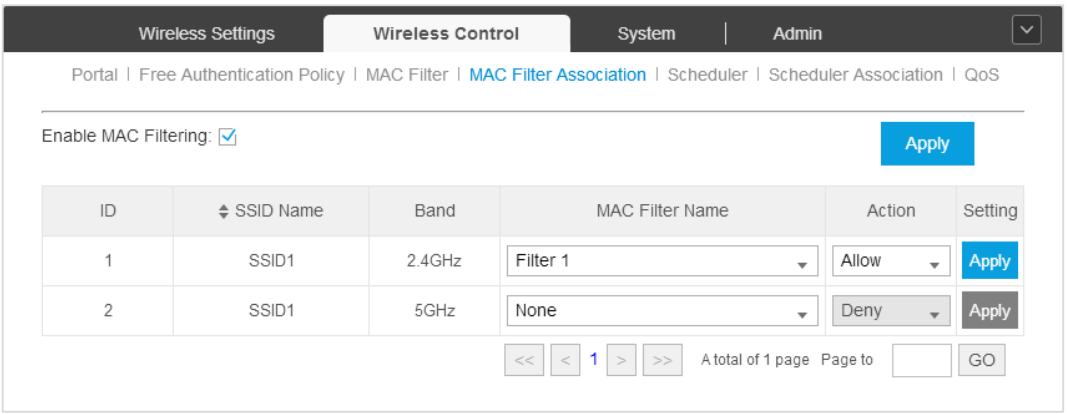
Step 2: Click Add a Group Member and specify a MAC Filter address.

Click **Apply** and the MAC address you specified will be successfully added as the following screen.



4.2.4 MAC Filter Association

You can associate the added MAC Filter group with SSID.

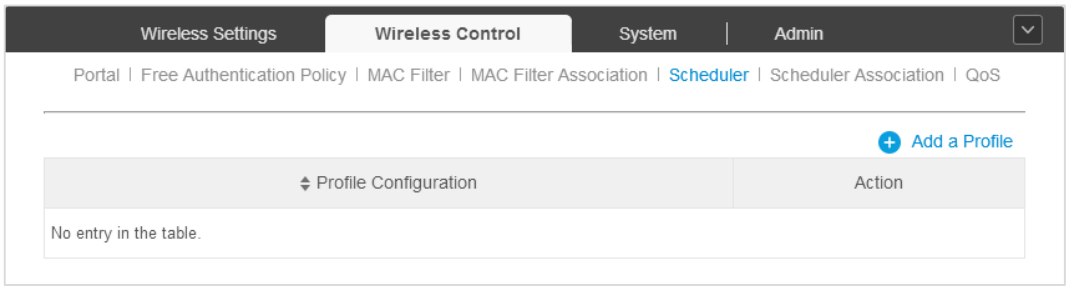


Check the **Enable MAC Filtering** box and click **Apply** to enable the MAC Filtering feature. In the **MAC Filter Name** column, select a MAC Group from the drop-down list and allow or deny its members to access the wireless network. Click **Apply** to enforce this MAC Filter Association entry in the **Setting** column.

4.2.5 Scheduler

Scheduler allows you to configure rules with specific time interval for EAPs, which automates the enabling or disabling of the EAP or radio. When **Associated with SSID** is selected, you can configure rules for a certain radio. When **Associated with AP** is selected, you can configure rules for an EAP device.

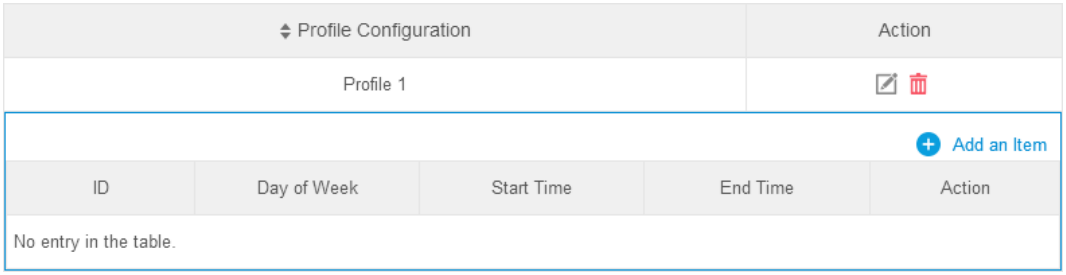
One way you can use this feature is to schedule the radio to operate only during the office working time in order to achieve security and reduce power consumption. You can also use the Scheduler to allow access to EAPs for wireless clients only during the specific time in the day.



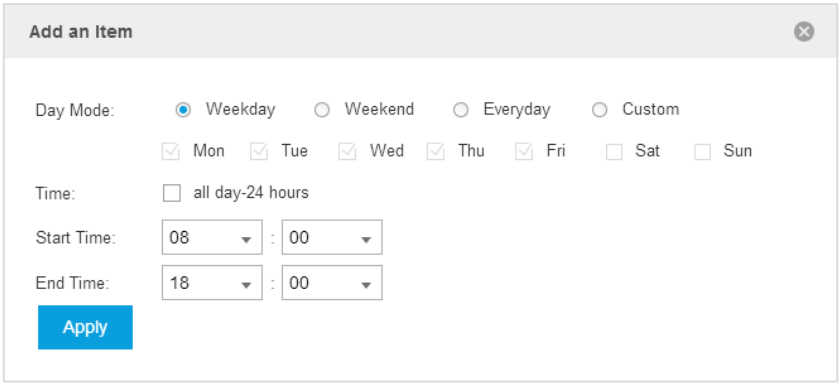
Add Scheduler Profile

Step 1: Click Add a Profile and specify a name for the profile rule.

Click **Apply** and the profile is added in the list and the following screen will be shown.

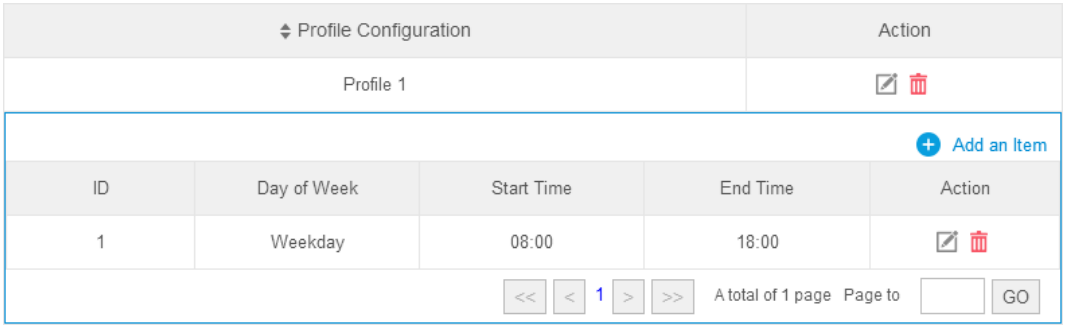


Step 2: Click Add an Item to add a profile item.



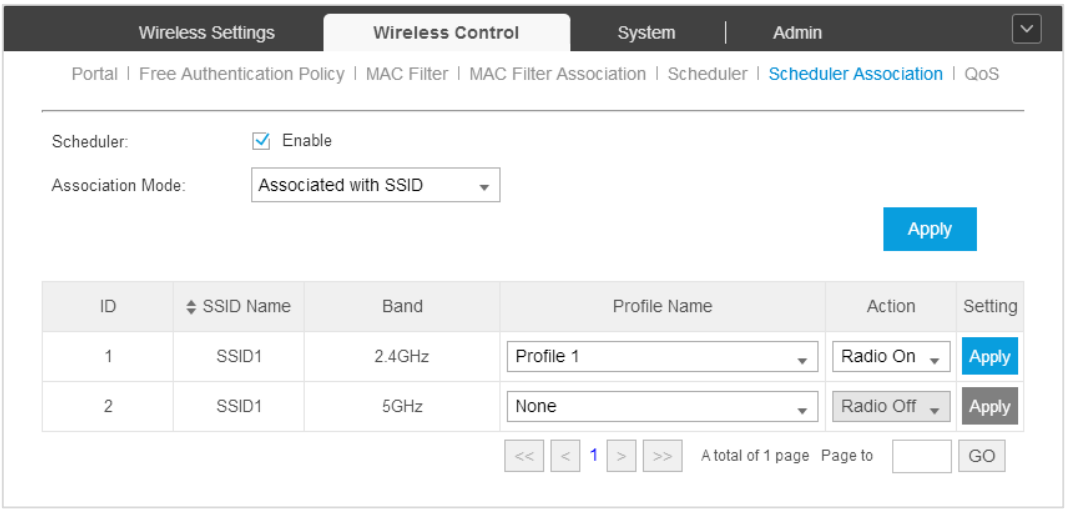
Select the day mode and **Custom** allows you to choose the desired days, such as Mon and Fri. If you select **all day-24 hours**, **Start Time** or **End Time** cannot be specified.

Click **Apply** and the profile item is successfully added in the list.



4.2.6 Scheduler Association

You can associate the profile item you added with SSID/AP.



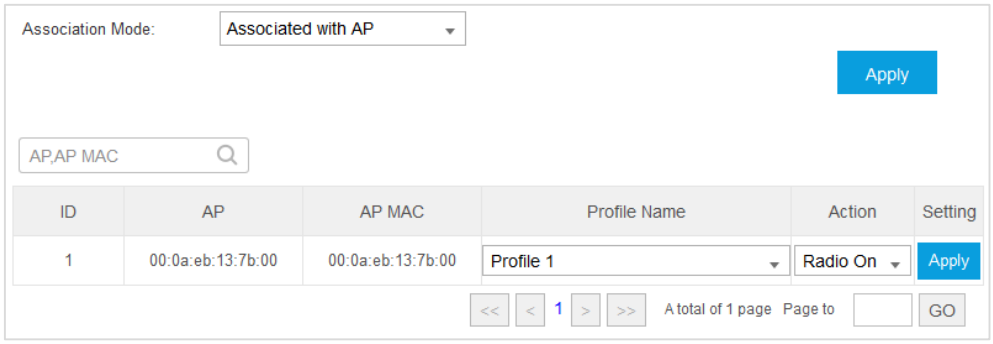
Check the **Scheduler** box to enable the Scheduler feature, select **Associated with SSID/AP** and click **Apply** to enable your association.

The list entries will be different according to your selection of association mode.

Associated with SSID

In the **Profile Name** column, select a profile name from the drop-down list. Select **Radio On/Off** to turn on/off the wireless network during the time interval set for the profile. Click **Apply** to enforce this Scheduler Association entry in the **Setting** column.

Associated with AP



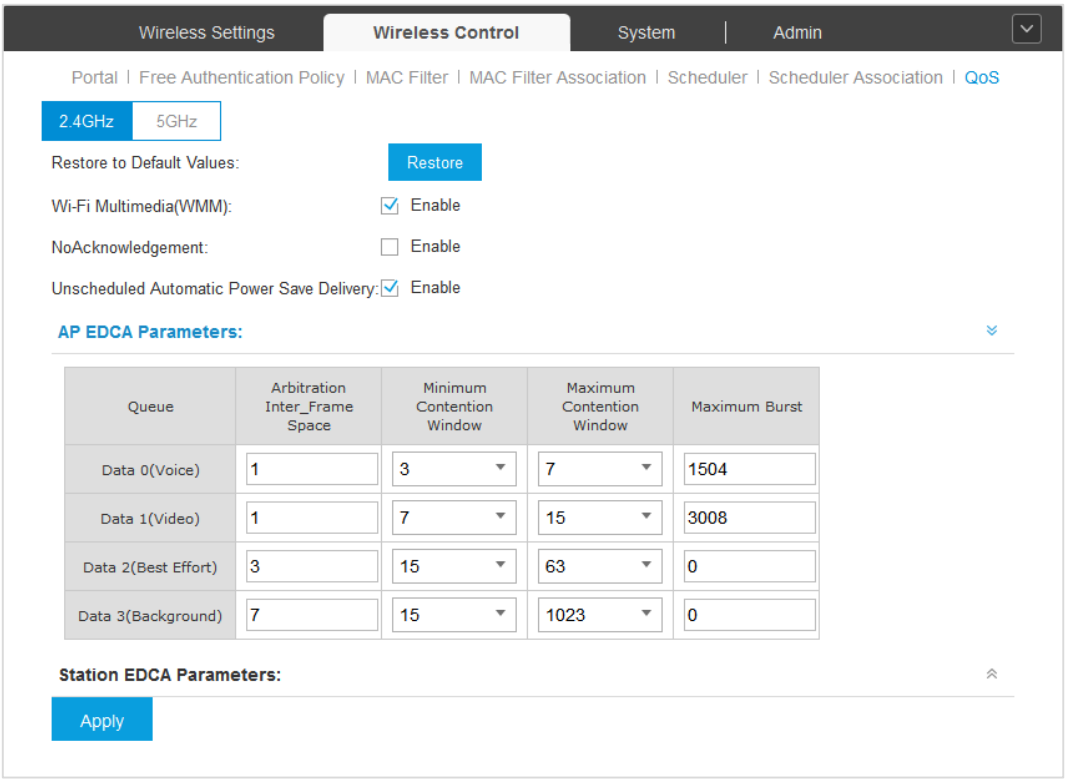
In the **Profile Name** column, select a profile name from the drop-down list. Select **Radio On/Off** to turn on/off all the wireless network on the selected Access Point during the time interval set for the profile. Click **Apply** to enforce this Scheduler Association entry in the **Setting** column.

4.2.7 QoS

The EAP Controller software allows you to configure the quality of service (QoS) on the EAP device for optimized throughput and better performance when handling differentiated wireless traffic, such as Voice-over-IP (VoIP), other types of audio, video, streaming media, and traditional IP data.

To configure QoS on the EAP device, you should set parameters on the transmission queues for different types of wireless traffic and specify minimum and maximum wait times (through contention windows) for transmission.

In normal use, the default values for the EAP device and station EDCA (Enhanced Distributed Channel Access) should not be changed. Changing these values affects the QoS provided.



Restore to Default Values: Click **Restore** to restore all the QoS parameters to factory default settings.

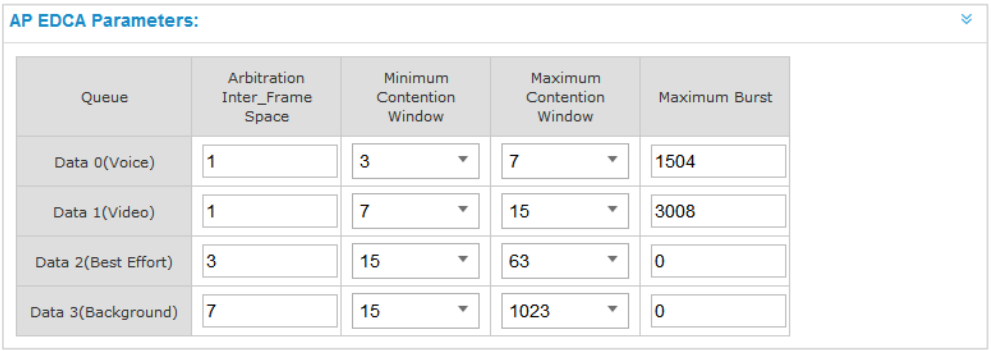
Wi-Fi Multimedia (WMM): By default enabled. With WMM enabled, the EAP devices have the QoS function to guarantee the transmission of audio and video packets with high priority. Disenabling WMM is not allowed if you set the **802.11n only** or **802.11b/g/n mixed** mode on the EAPs. If WMM is disenabled, you cannot set the **802.11n only** or **802.11b/g/n mixed** mode on the EAPs.

NoAcknowledgement: Select **Enable** to specify that the EAP devices should not acknowledge frames with QosNoAck as the service class value.

Unscheduled Automatic Power Save Delivery: By default enabled. A power management method, APSD is recommended if VoIP phones access the network through the EAP device.

AP EDCA Parameters

AP EDCA parameters affect traffic flowing from the EAP device to the client station.



Queue displays the transmission queue: Data 0>Data 1>Data 2>Data 3.

- Data 0 (Voice)—High priority queue, minimum delay. Time-sensitive data such as VoIP and streaming media are automatically sent to this queue.
- Data 1 (Video)—High priority queue, minimum delay. Time-sensitive video data is automatically sent to this queue.
- Data 2 (Best Effort)—Medium priority queue, medium throughput and delay. Most traditional IP data is sent to this queue.
- Data 3 (Background)—Lowest priority queue, high throughput. Bulk data that requires maximum throughput and is not time-sensitive is sent to this queue (FTP data, for example).

Arbitration Inter-Frame Space: A wait time for data frames. The wait time is measured in slots. Valid values for AIFS are from 0 to 15.

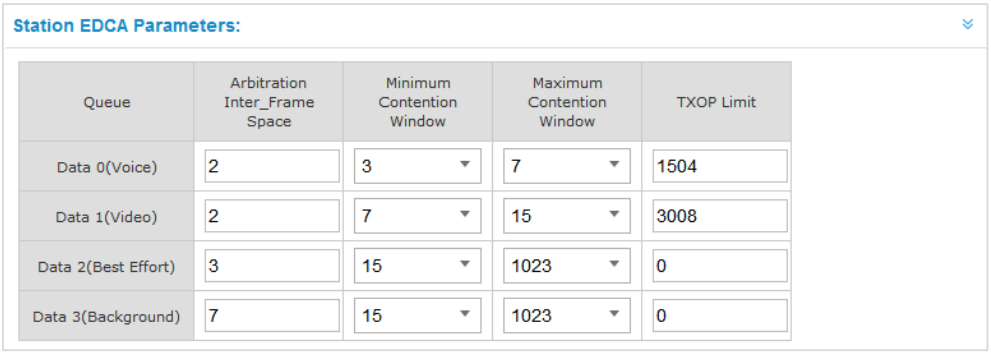
Minimum Contention Window: A list to the algorithm that determines the initial random backoff wait time (window) for retry of a transmission. This value must be lower than or equal to the value for the Maximum Contention Window.

Maximum Contention Window: The upper limit (in milliseconds) for the doubling of the random backoff value. This doubling continues until either the data frame is sent or the Maximum Contention Window size is reached.

Maximum Burst: An EAP EDCA parameter that applies only to traffic flowing from the EAP to the client station. This value specifies (in milliseconds) the maximum burst length allowed for packet bursts on the wireless network. A packet burst is a collection of multiple frames transmitted without header information. The decreased overhead results in higher throughput and better performance. The valid values are multiples of 32 between 0 and 8192.

Station EDCA Parameters

Station EDCA parameters affect traffic flowing from the client station to the EAP device.

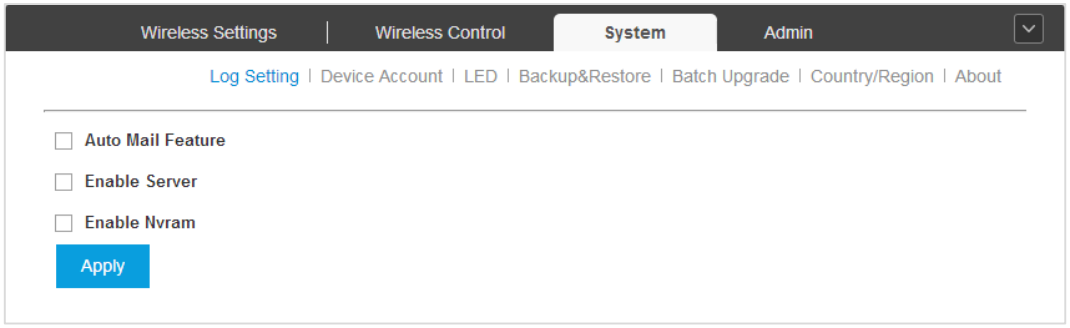


TXOP Limit: The TXOP Limit is a station EDCA parameter and only applies to traffic flowing from the client station to the EAP device. The Transmission Opportunity (TXOP) is an interval of time, in milliseconds, when a WME client station has the right to initiate transmissions onto the wireless medium (WM) towards the EAP device. The valid values are multiples of 32 between 0 and 8192.

4.3 System

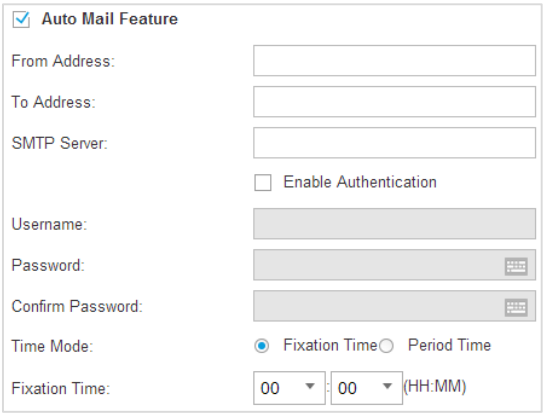
4.3.1 Log Setting

You can choose the way to receive system logs on Log Setting page. These parameters can be configured: Auto Mail Feature, Enable Server and Enable Nvram.



Auto Mail Feature

If Auto Mail Feature is enabled, system logs will be sent to a specified mailbox. After checking the **Auto Mail Feature** box, the following screen will appear.

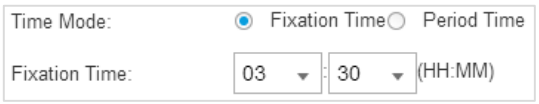


Enter the sender's mail address, the receipt's address and the IP address of the SMTP server.

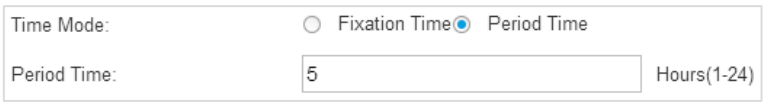
You can check the **Enable Authentication** box to enable mail server authentication. Enter the sender's mail account name and password.

System logs can be sent at specific time or time interval. Select **Time Mode**:

- **Fixation Time**: Specify a fixed time to send the system log mails. You can respectively select the hour number and the minute number.

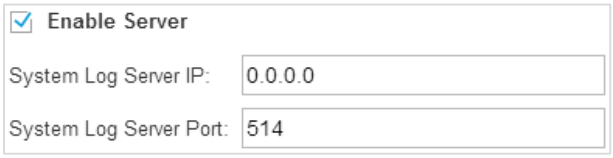


- **Period Time**: Specify a period time to regularly send the system log mail. For example, 5 indicates that the mail will be sent once every five hours.



Enable Server

System logs can also be sent to a server. You can enable the system log server and enter its IP address and port.



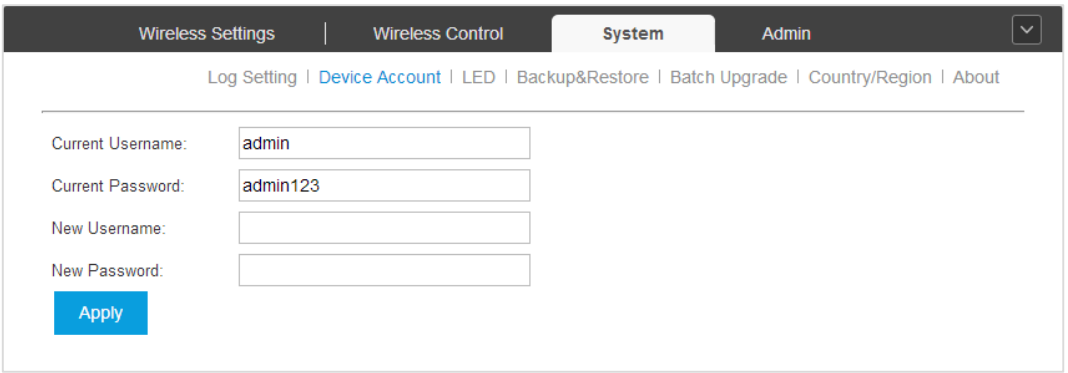
Enable NVRAM

NVRAM (Non-volatile Random Access Memory) is a RAM that can still save data even if a device powers off. The Nvram feature can help reserve the system logs when an EAP device powers off. By default, it is disabled.

4.3.2 Device Account

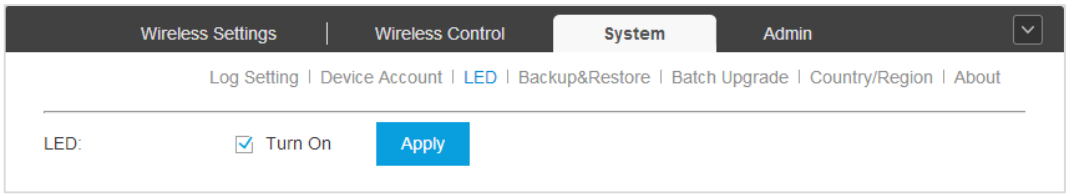
You can change the EAP devices' username and password to protect them from being illegally adopted.

After the EAP devices are adopted at the first time, their username and password will change into the username/password (current username/password) of the admin account created at Quick Setup. You can directly specify a new username and password for them. If these EAPs have already been adopted, the Controller will push configuration of the new specified username and password to each EAP device.



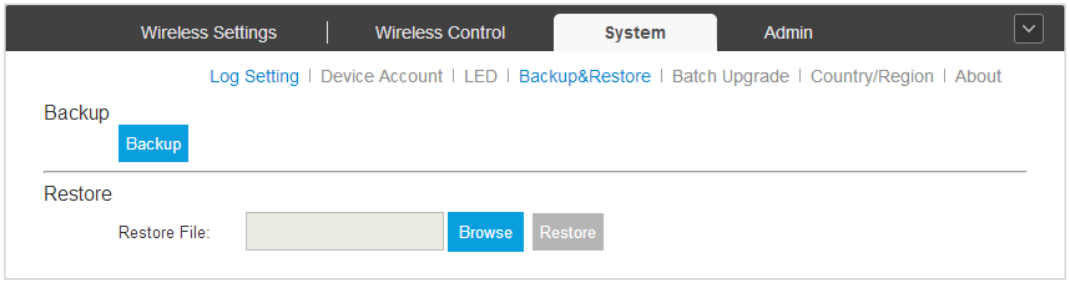
4.3.3 LED

The LED page allows you to turn on/off the LED lights of EAPs.



4.3.4 Backup&Restore

You can save the current configuration of the EAPs as a backup file and if necessary, restore the configuration using the backup file. It is recommended to back up the settings before you upgrade the device.

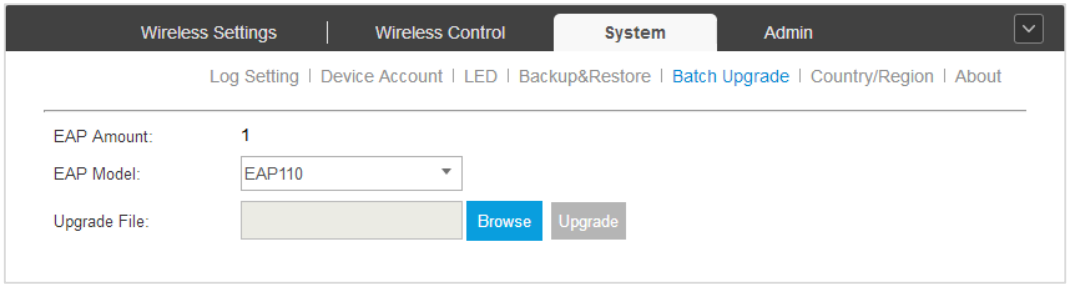


NOTE:

The format of the restore file is ".cfg".

4.3.5 Batch Upgrade

On the Batch Upgrade page, you can upgrade the EAP devices in batches according to their model.



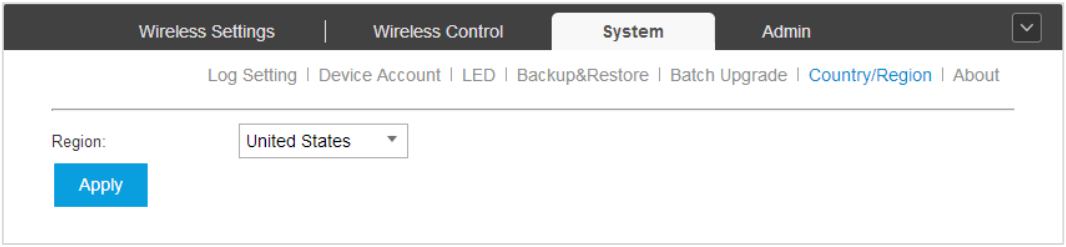
Select the EAP model and display the EAP amount. Click **Browse** to locate and choose the upgrade file in your PC. Then click **Upgrade** to finish the batch upgrading.

NOTE:

- Please visit http://www.tp-link.com/en/support/download/ to download the latest firmware file of the corresponding model.
- Please select the proper software version that matches your hardware to upgrade.
- To avoid damage, please do not turn off the device while upgrading.
- After upgrading, the device will reboot automatically.

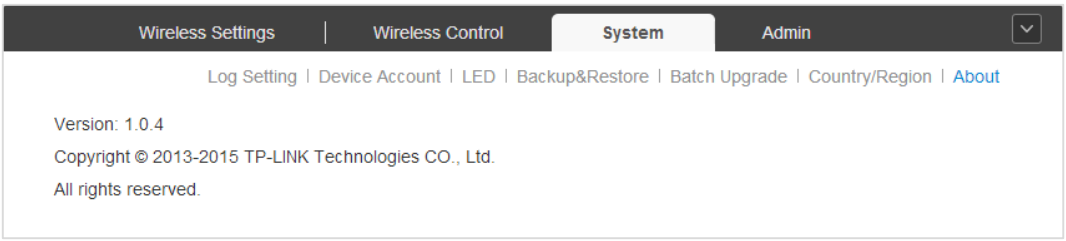
4.3.6 Country/Region

On the Country/Region page, you can re-select your country or region. Please comply with local laws. Incorrect selection may violate local regulations.



4.3.7 About

This page displays the EAP Controller software's version and copyright information.



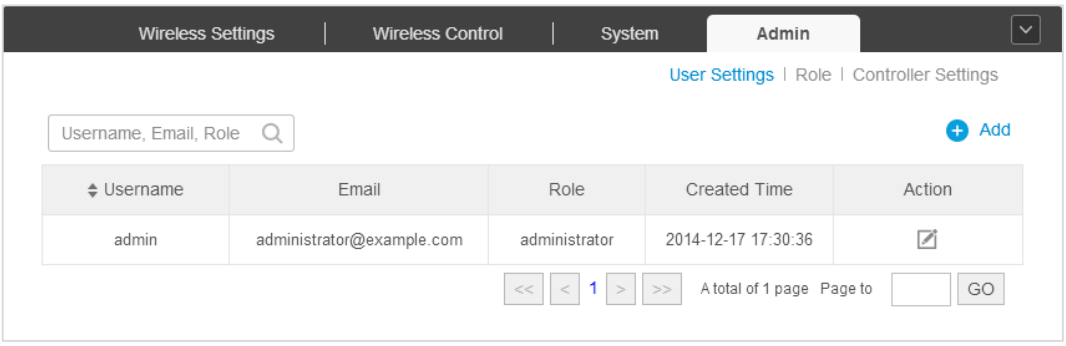
4.4 Admin

On the Admin page you can configure the user account for login to the EAP Controller. User has three roles: administrator, operator or observer. The administrator user was created at the Quick Setup. It can change the settings of the EAP network and even administrate other users. The operator can only write and read. The observer can just read system information.

When you log into the EAP Controller with the administrator account, the Admin page includes three sub-pages: **User Settings**, **Role** and **Controller Settings**. Logging with the operator or observer account, you can only view User Info on the Admin page.

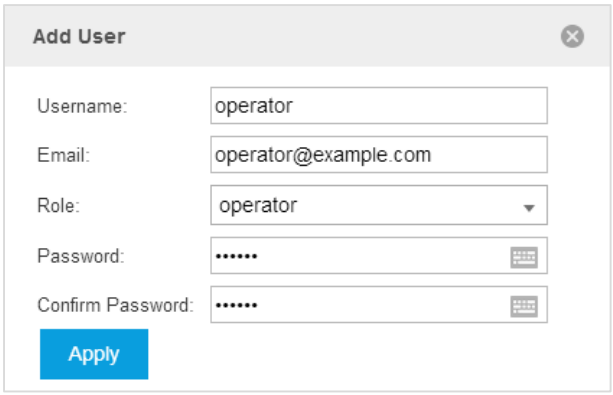
4.4.1 User Settings

The User Settings page displays user's name, email address, role and created time.

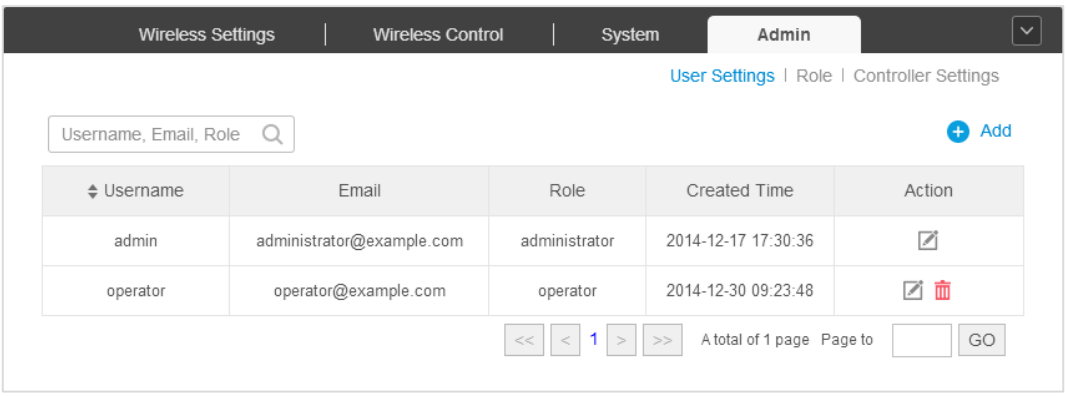


Add User

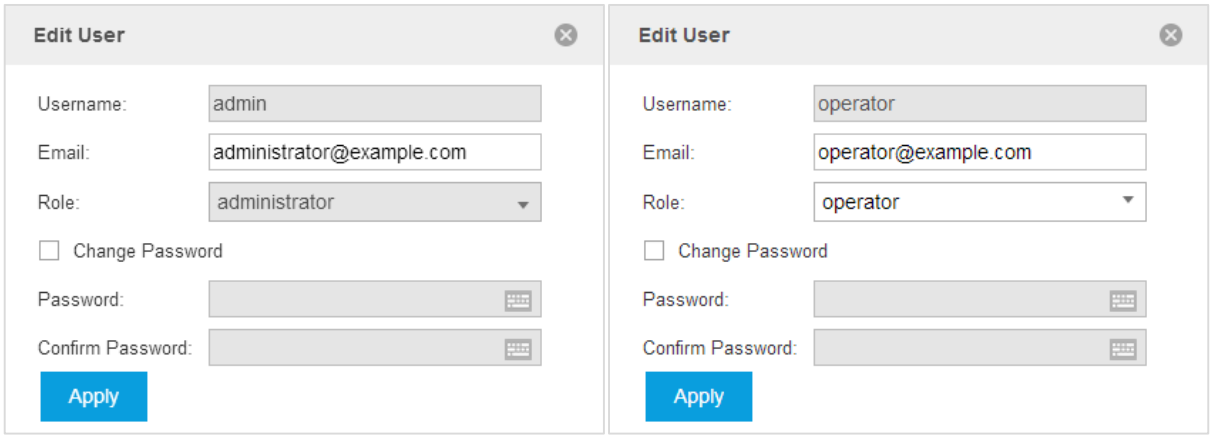
Step 1: Click Add and specify the name, email address, role and password for a new user.



Click **Apply** and the new user will successfully be added in the list.



Step 2: In the **Action** column, click to edit the user and a window will appear as below.

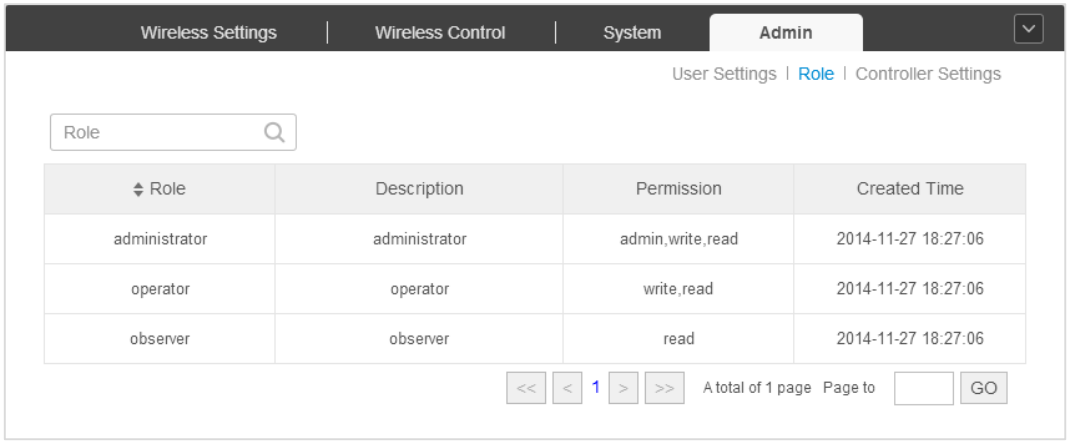


You can specify a new email address for the admin user and change the current password. For the **added** administrator, operator and observer users, you can also change their roles and even delete them. But the admin user created at the Quick Setup cannot be deleted and even its username/role cannot be changed.

4.4.2 Role

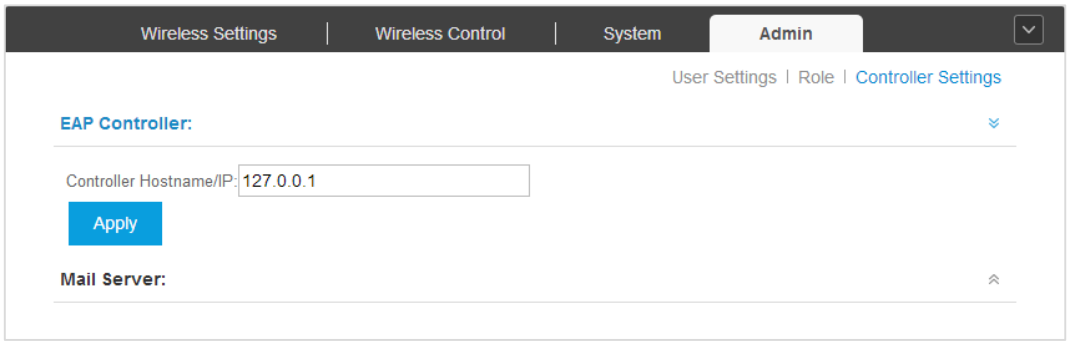
The Role page displays user role's type, description information, permission scope, and created time.

The observer user can only view the settings of the EAPs. The operator user cannot only view the settings, but it can also configure the EAPs. However, the administrator user can even manage the operator and observer user besides writing and reading.



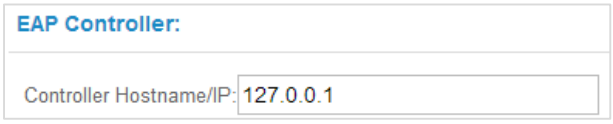
4.4.3 Controller Settings

The Controller Settings page is used for configuring the system settings of the EAP Controller.



EAP Controller

Controller Hostname/IP: Enter the hostname or IP address of the EAP Controller.



NOTE:

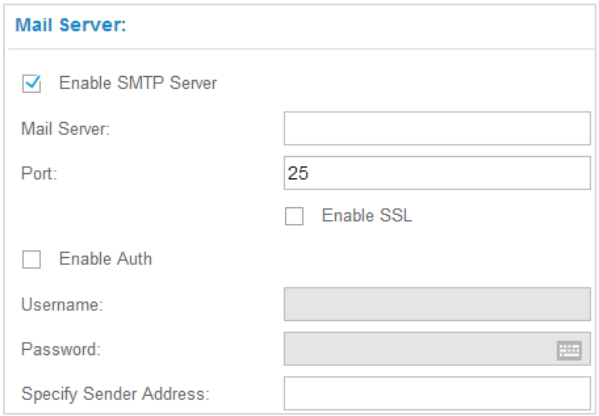
When you reset the admin password, the Controller will send alert emails to your email box. In every message there is a *Controller URL*, in which the *Controller Hostname/IP* will be specified.

Mail Server

NOTE:

Here set the Mail Server for sending the notifications and resetting the user login password, different from the SMTP Server setting just for sending and receiving the syslog emails.

When enabled, EAP will send email alerts triggered by Pending APs and Disconnected APs. Specify the administrator email address when you create an account under *Admin* > *User Settings*.



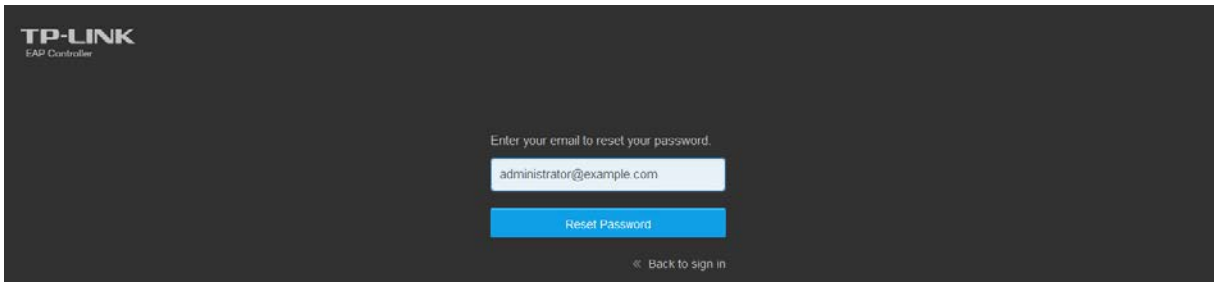
Enable SMTP Server: Select this option to enable emails.

- **Mail Server**: Enter the IP address or domain of SMTP Server.
- **Port**: The default is *25*. If Security Socket Layer (SSL) is enabled, then the port number will automatically change to *465*.
- **Enable SSL**: You can enable SSL to enhance secure communications over the Internet.

Enable Auth: Select this option to enable authentication.

- **Username**: Enter the username required by the mail server.
- **Password**: Enter the password required by the mail server.
- **Specify Sender Address**: Specify the sender's mail address. Enter the email address that will appear as the sender of the email alert.

After setting the Mail Server, you can reset the password when you forget it. Click **Forgot password?** on the login page of the EAP Controller, then the following screen will appear.



Enter your email address registered when creating the user account. Click **Reset Password** and go to your email box to reset your password.

Chapter 5 AP Details

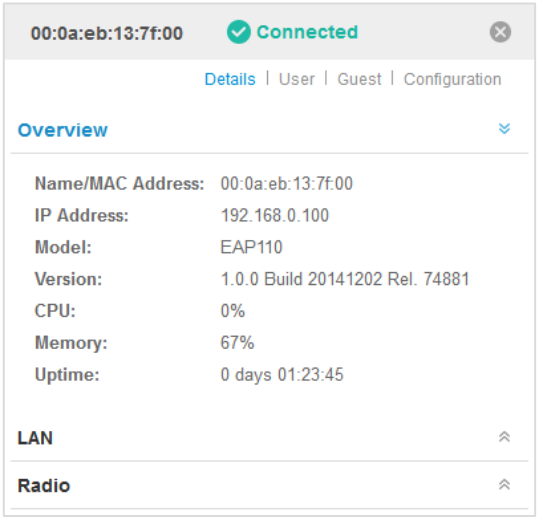
Clicking the AP's name on the Access Points tab or clicking of connected AP on the map will open a window displaying the **Details**, **User**, **Guest**, and **Configuration** information of the AP.

5.1 Details

The Details tab displays the detailed information about the AP.

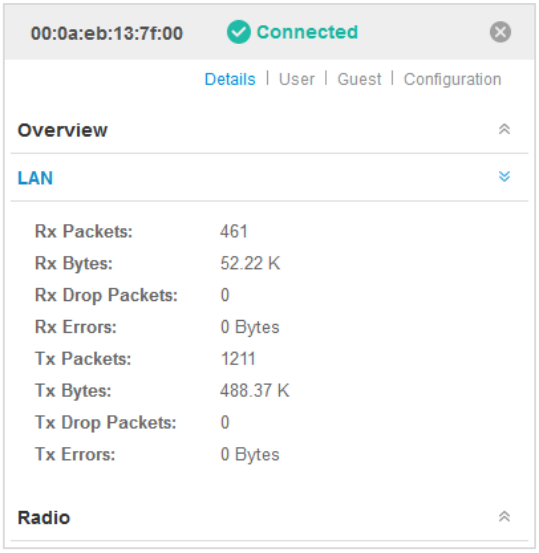
5.1.1 Overview

Click **Overview** to view the basic information including AP's name/MAC address, IP address, model, software version, the usage rate of CPU/Memory and uptime (the amount of time the AP has been running without interruption).



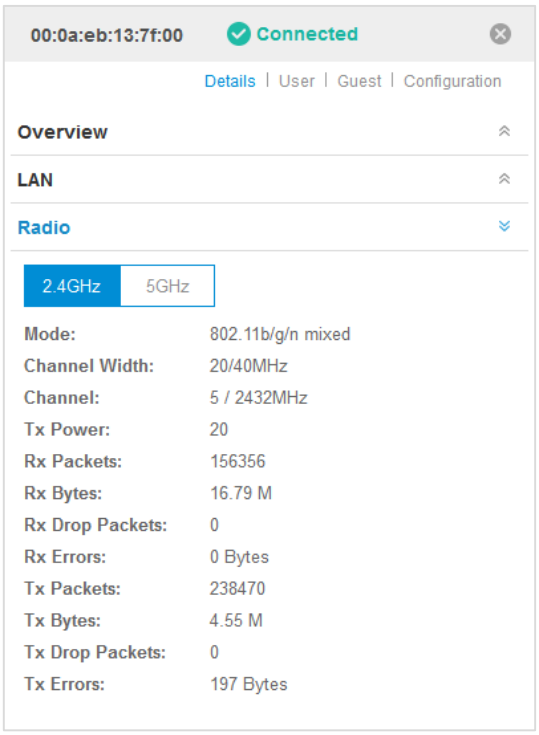
5.1.2 LAN

Click **LAN** to view the traffic information of receiving/transmitting, including the total number of packets received/transmitted, the total size of data received/transmitted, the total number of packets loss on the AP during receiving/transmitting, and the total size of error data on the AP during receiving/ transmitting.



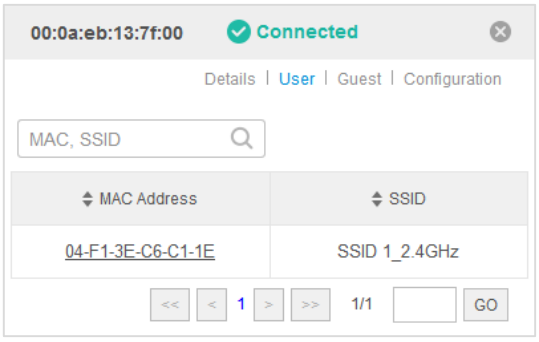
5.1.3 Radio

Click **Radio** to view the radio information including the frequency band, the wireless mode, the channel width, the channel, and the transmitting power. At 2.4GHz, you can also view parameters of receiving/transmitting data.



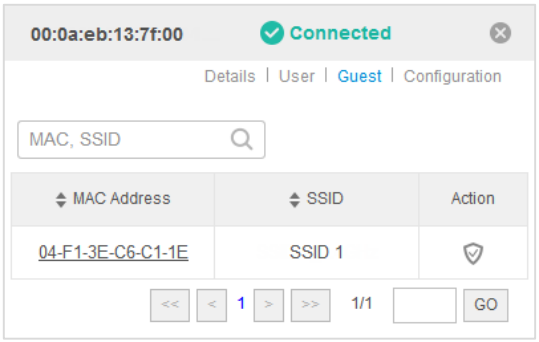
5.2 User

The User tab displays the information of client connecting to the EAP wireless network, including its MAC address and connected SSID. You can click the MAC address to get its connection history.



5.3 Guest

The Guest tab displays the information of clients connecting to the EAP wireless network with the Portal authentication, including their MAC addresses and connected SSID. You can click to cancel the authentication for it.

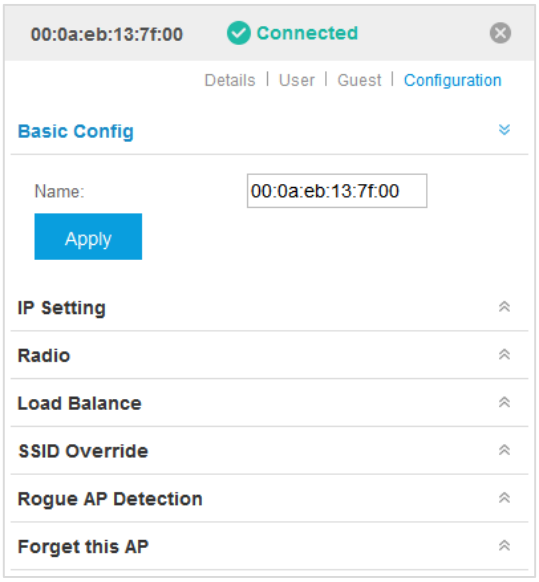


5.4 Configuration

The Configuration tab allows you to modify this AP's name, set the IP address, select the radio mode, enable the load balance function, set new SSID overriding the old one, enable Rogue AP detection feature, and forget this AP. All the configurations on this AP will only take effect on this device.

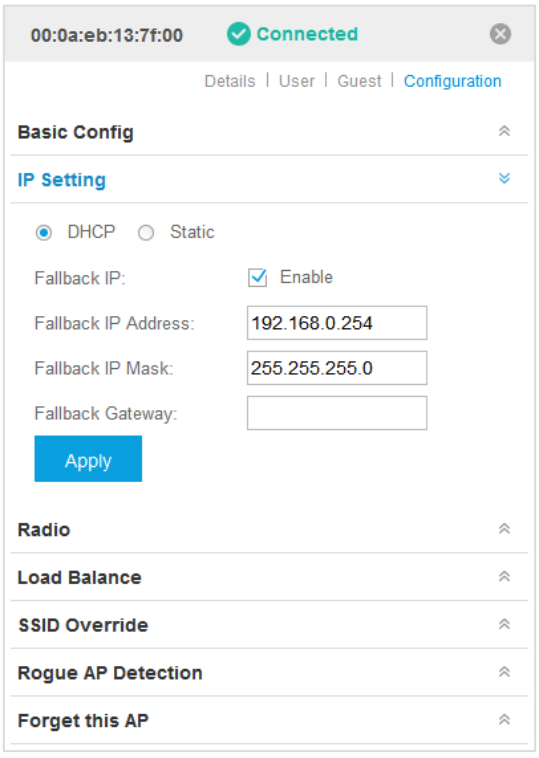
5.4.1 Basic Config

You can change the name of this EAP.



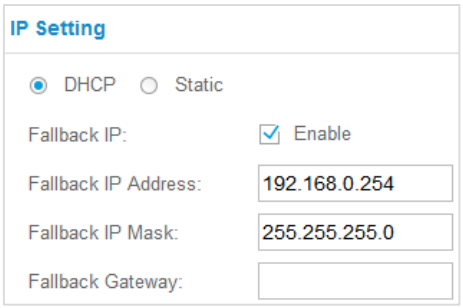
5.4.2 IP Setting

You can configure an IP address and subnet mask for this EAP.



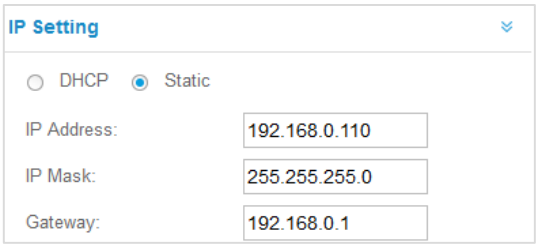
Select **DHCP/Static** to set the IP address.

- **DHCP**: Select to get a dynamic IP address from the DHCP server.



- **Fallback IP**: Select whether to enable the Fallback IP feature.
- **Fallback IP Address**: Configure a fallback IP address for the AP. Fallback IP address is a secondary address.
- **Fallback IP Mask**: Set a subnet mask for the fallback IP address.
- **Fallback Gateway**: Set a gateway for the fallback IP address.

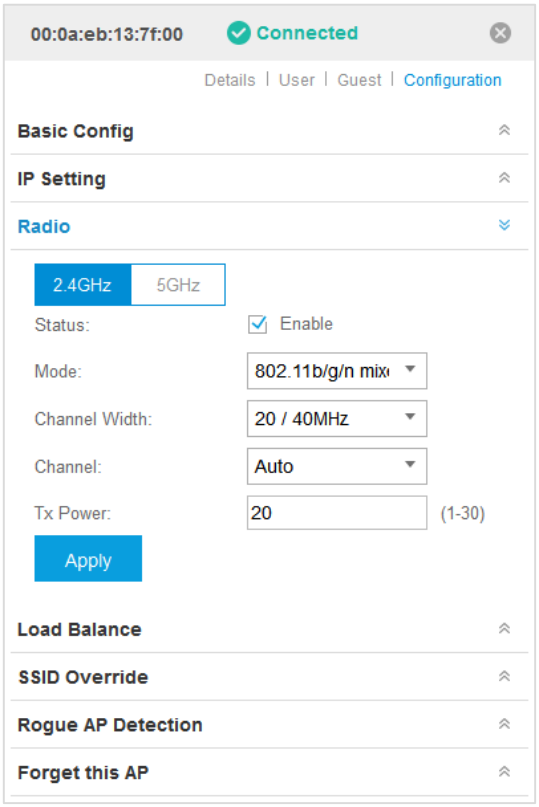
➢ **Static**: Select to manually configure a static IP address.



- **IP Address**: Configure an IP address for the AP.
- **IP Mask**: Set an IP mask for the static address you configured.
- **Gateway**: Set a gateway for the static address you configured.

5.4.3 Radio

Radio settings directly control the access of wireless clients to the EAP device.



Select the frequency band (**2.4GHz**/**5GHz**) you want to configure. By default, the radio of this AP is enabled.

Select the IEEE 802.11 **Mode** the radio uses. When selecting the frequency of **2.4GHz**, three modes are available:

- **802.11b/g/n mixed**: All of 802.11b, 802.11g, and 802.11n clients operating in the 2.4GHz frequency can connect to the EAP device. It is recommended to select the 802.11b/g/n mixed mode.
- **802.11b/g mixed**: Both 802.11b and 802.11g clients can connect to the EAP device.
- **802.11n only**: Only 802.11n clients can connect to the EAP device.

When the frequency of **5GHz** is selected, 802.11a/n mixed, 802.11a only, and 802.11n only modes are selectable.

- **802.11a/n mixed**: Both 802.11a clients and 802.11n clients operating in the 5GHz frequency can connect to the EAP device. It is recommended to select the 802.11a/n mixed mode.
- **802.11a only**: Only 802.11a clients can connect to the EAP device.
- **802.11n only**: Only 802.11n clients can connect to the EAP device.

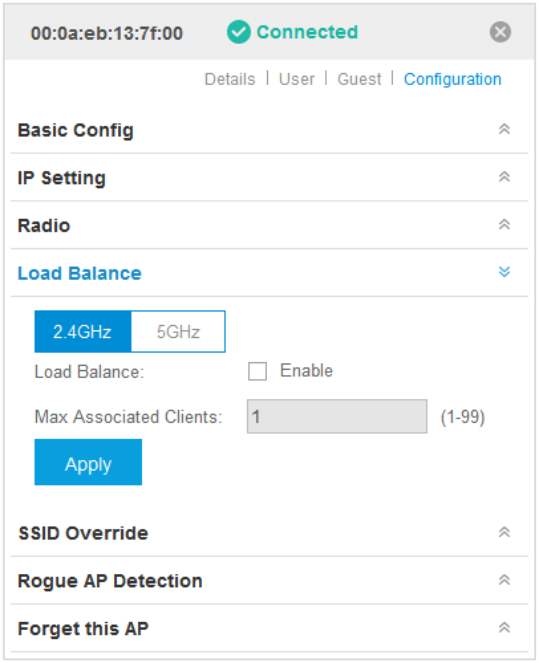
Select the **Channel Width** of the EAP device. The 20/40 MHz channel enables higher data rates but leaves fewer channels available for use by other 2.4GHz and 5GHz devices. By default, when the radio mode includes 802.11n, the channel bandwidth is set to 20/40 MHz to enable both channel widths.

Select the **Channel** used by the EAP device to improve wireless performance. The range of available channels is determined by the radio mode and the country setting. If you select **Auto** for the channel setting, the EAP device scans available channels and selects a channel where the least amount of traffic is detected.

Enter the **Tx Power** (transmit power) value. The maximum transmit power may vary among different countries and regions.

5.4.4 Load Balance

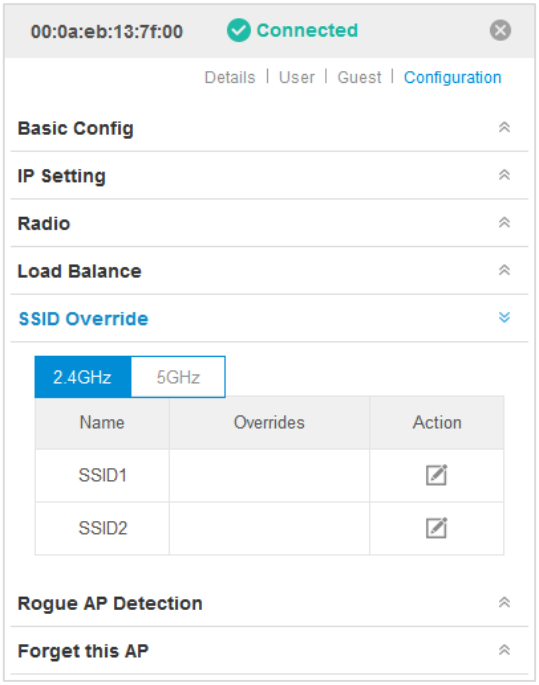
By restricting the maximum number of clients accessing the EAPs, Load Balance helps to achieve rational use of network resources.



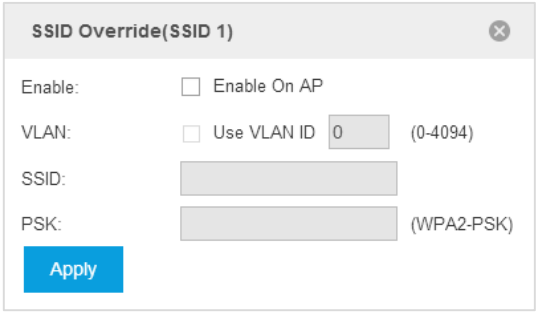
Select the frequency band (**2.4GHz**/**5GHz**) and enable the **Load Balance** function. If this function is enabled, you can specify the maximum number of connected clients. While more clients want to connect, the EAP will begin to check those with lower signals and disconnect them.

5.4.5 SSID Override

Click **SSID Override**, select the frequency band and the table will display the previous network name.



In the **Action** column, click to configure a new SSID to override the previous one.

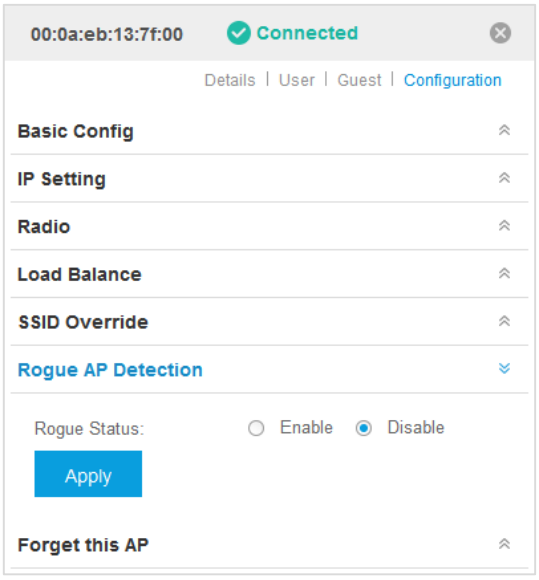


- **Enable**: Select whether to enable the SSID override feature.
- **VLAN**: You can allow the overridden SSID to join a VLAN. Check the **User VLAN ID** box and specify a VLAN ID.
- **SSID**: Specify a new network name.
- **PSK**: Specify a password to encrypt the new SSID.

Click **Apply** to save your configurations.

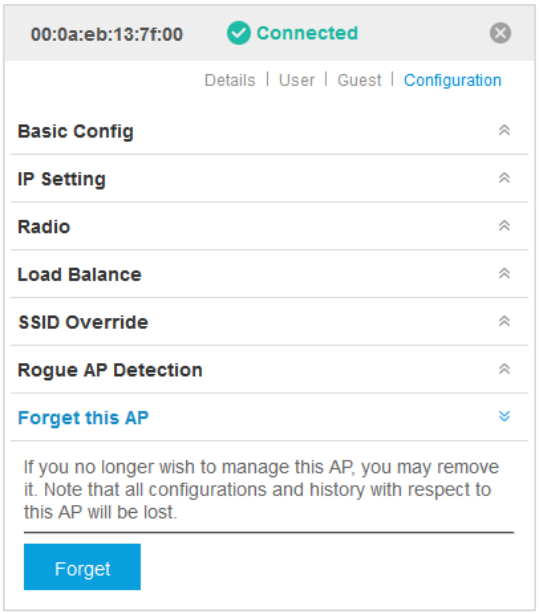
5.4.6 Rogue AP Detection

You can enable or disable the **Rogue Status** of the AP. All channels will be detected and connected clients will disconnect with the AP during the detection time.



5.4.7 Forget this AP

If you no longer want to manage this AP, you may remove it. But all the configurations and history about this AP will be lost. It is recommended to back up the configurations of this AP.

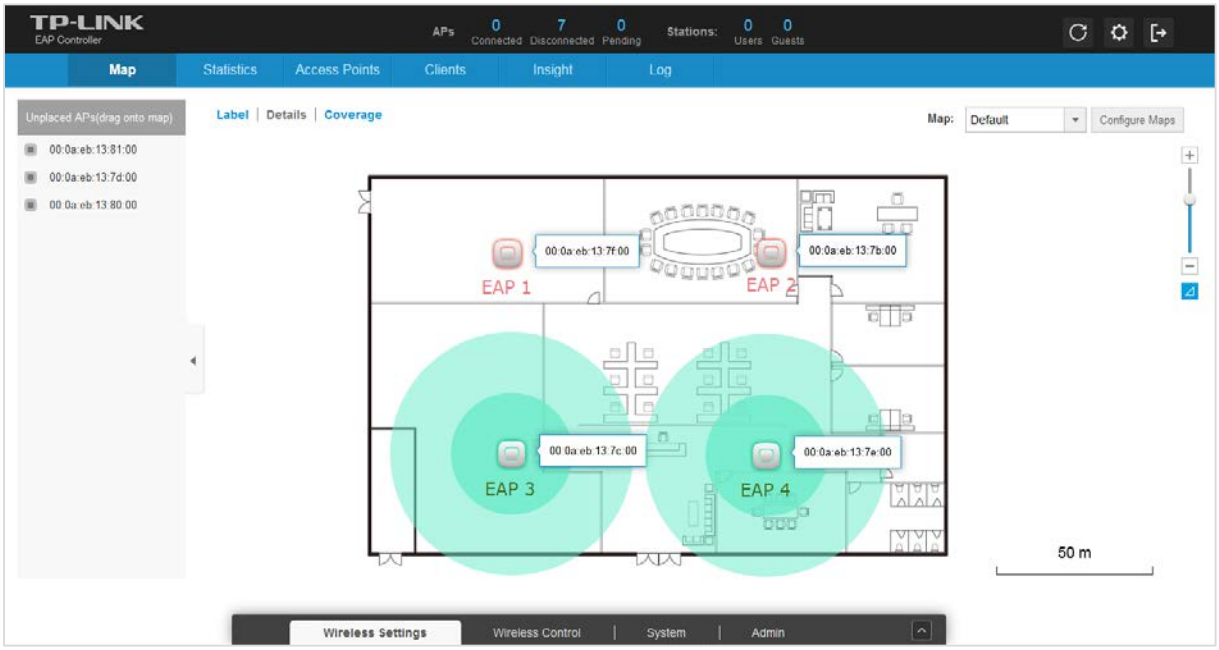


Chapter 6 Application Example

6.1 Map Monitor

The distinctive function of the EAP Controller is monitoring the running situation of all the EAPs and vividly presenting it on the map. The following is a simple but typical example.

In a small enterprise, the network administrator deploys four EAP devices according to the preceding part of the UG. On the top of the interface apparently displays two devices being disconnected. And we can see that EAP1 and EAP2 are disconnected on the map. In this case, the network administrator can quickly locate them and find out the causes with the help of the log feature.



6.2 Portal Authentication

The portal authentication, also known as web authentication, is an effective way to manage the large wireless network in the places such as hotel, community, company or some other public places. The administrator can provide each user with an individual account. Furthermore, the web portal can be used to announce ads, notices and some other personalized information. The following is a supposed example that the portal authentication is used on a supermarket network.

Supermarket A has a large EAP wireless network. The network administrator wants to drive customers' attention to the promotion information of Supermarket A. So he decides to employ the portal authentication.

Here are the network parameters of Supermarket A:

SSID Name: TP-LINK_Supermarket A,

Website: www.supermarketa.com,

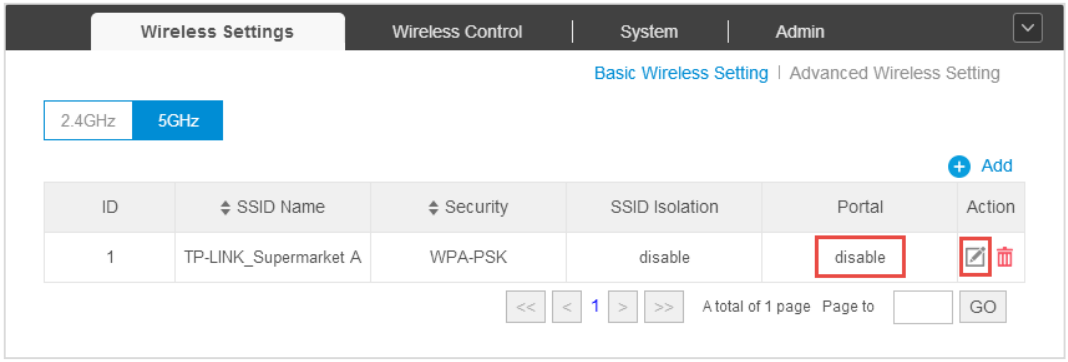
IP of External Radius Server: 192.168.1.103, port: 1812,

External Web Portal URL: www.supermarketa.net,

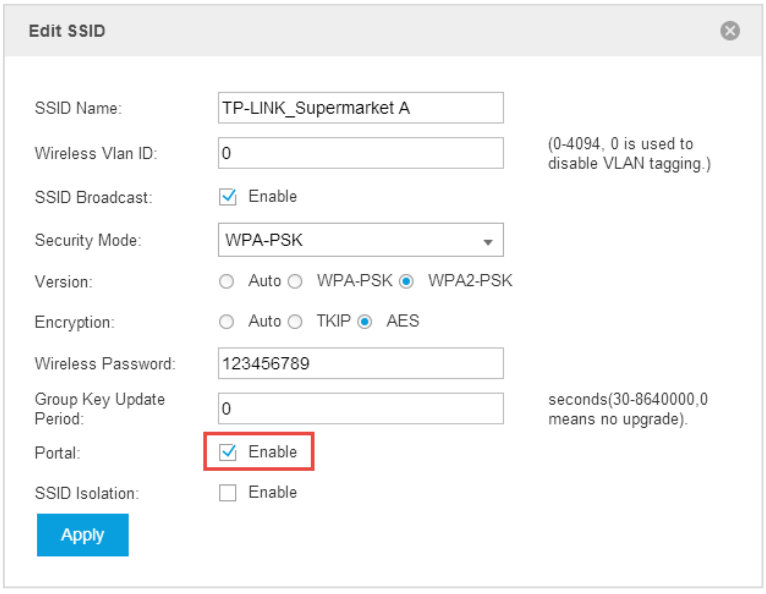
IP/subnet mask of External Web Server: 175.20.20.115/32, port: 80.

The network administrator can perform the following steps to set the Portal authentication for the EAP network.

Step 1: Sign in to the EAP Controller management interface and go to **Wireless Settings** > **Basic Wireless Setting**.



Step 2: Select the SSID you want to enable the portal authentication and click . Then the following window will pop up. Check the **Portal Enable** box.

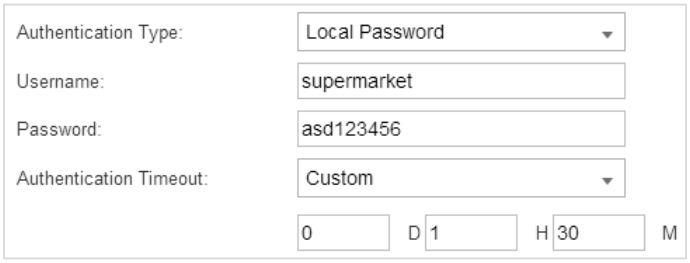


Step 3: Go to **Wireless Control** > **Portal**.

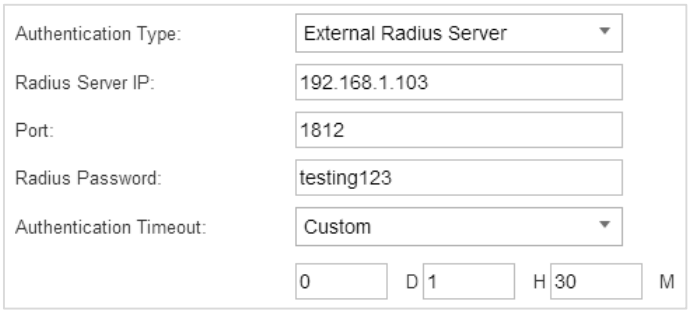
There are three authentication types available.

- Select **No Authentication** in **Authentication Type**. Users can access the network without the username and password on the web portal page.

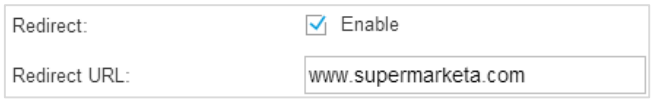
- It is recommended to select **Local Password** as shown below. Specify a username and password that will be stored on the EAPs and all users are required to enter the username and password to access the wireless network. You can set a proper authentication timeout that determines how long the users can stay online once they authenticate with the EAPs.



- Select **External Radius Server** as shown below. Enter the **Radius Server IP**, **Port** and **Radius Password** of Radius server. The Radius password is the secret key between the Radius server and the Radius client. The Radius password is always specified by the administrator of Radius server. You can also set a proper **Authentication Timeout**.

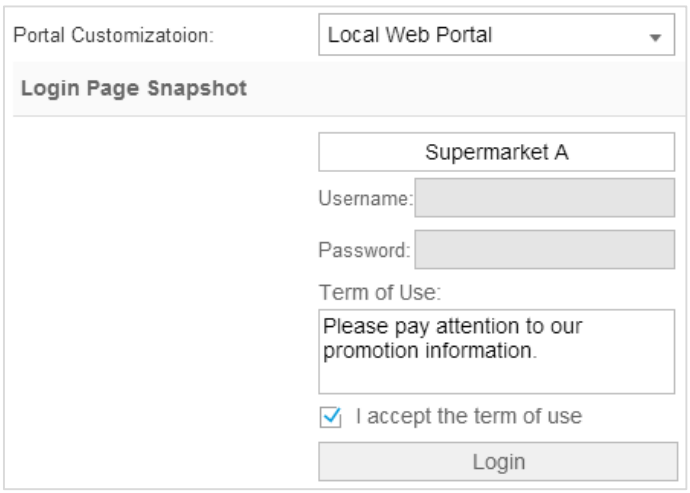


Step 4: This feature is optional. If you want to lead users to pre-defined web pages (for instance, your official website or supermarket promotion pages) after users pass the web authentication, check the **Redirect** box and enter the **Redirect URL**.



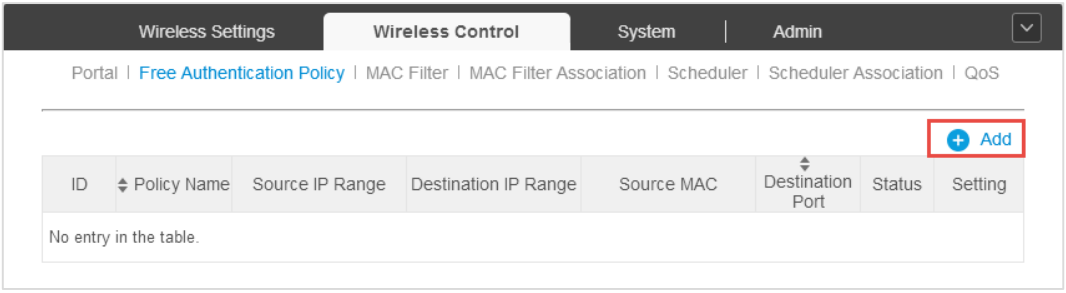
Step 5: Customize the web portal page. You can either select the built-in **Local Web Portal** or the **External Web Portal**.

- It is recommended to select **Local Web Portal** in the **Portal Customization** list. Then the following page will be shown. The web portal title and Term of Use are customizable.

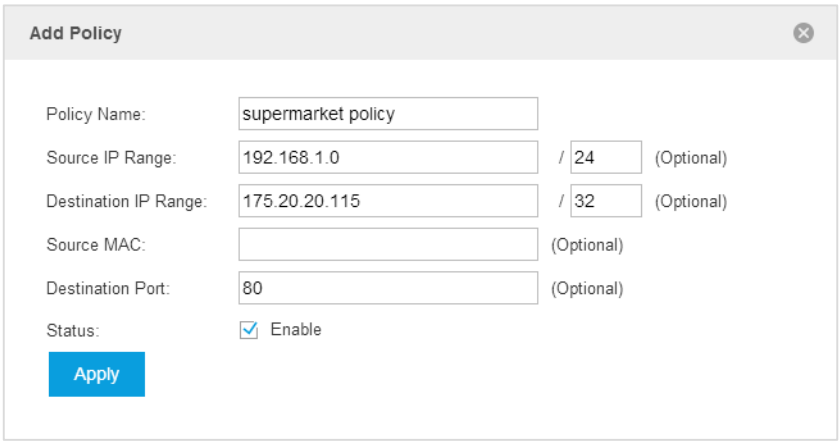


- If **External Radius Server** is configured above, select **External Web Portal**. Enter **External Web Portal URL** as shown below.

Moreover, you must put the external Web portal server to a whitelist of **Free Authentication Policy**, otherwise clients cannot access the external Web server before authentication.



Click Add on the **Free Authentication Policy** page and the following window will pop up.



Specify the policy name and enter the **Source IP Range** with the subnet and mask of the clients. Then set the IP address and subnet mask of external Web server as **Destination IP Range**. The default **Destination Port** is 80. You should assign the service port of external Web server if the port number is not 80. Check the **Status** box to enable the policy.

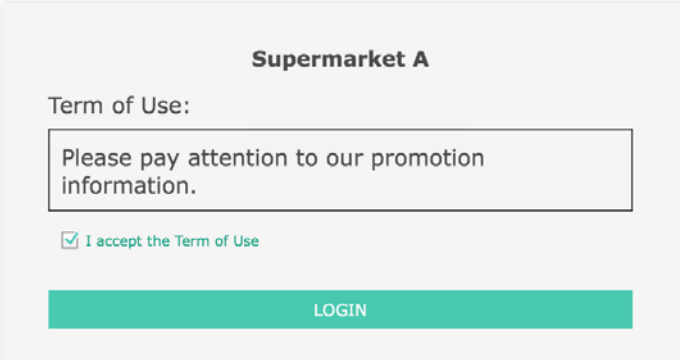
Click **Apply** to finish the configuration of policy.

Step 6: Click **Apply** on the Portal page to finish your configuration.

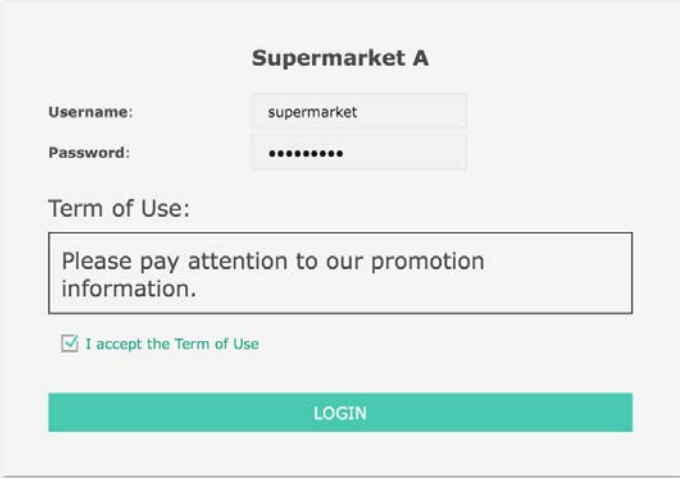
The following are the visual effect how users log into the wireless network after finishing the above configurations.

Connect your wireless devices to the wireless network **TP-LINK_Supermarket A**. Open your browser and try to visit any website, you will be directed to the web portal page.

- **No Authentication** is selected in Step 3. The page will show as below. Users need to read the Term of Use and check the box to log in.



- When the **Local Password** or the **External Radius Server** is configured, and the **Local Web Portal** is selected, the following page will show. Users need to input the username and password and accept the Term of Use.



- When **External Radius Server** is configured and **External Web Portal** is selected, the browser will be directed to the **External Web Portal URL**. Users can refer to the page to access more resources by an authentication or in other way. The following is a simple example.

Click **LOGIN** and the web browser will be redirected to the Redirect URL. And then users can surf the Internet freely.