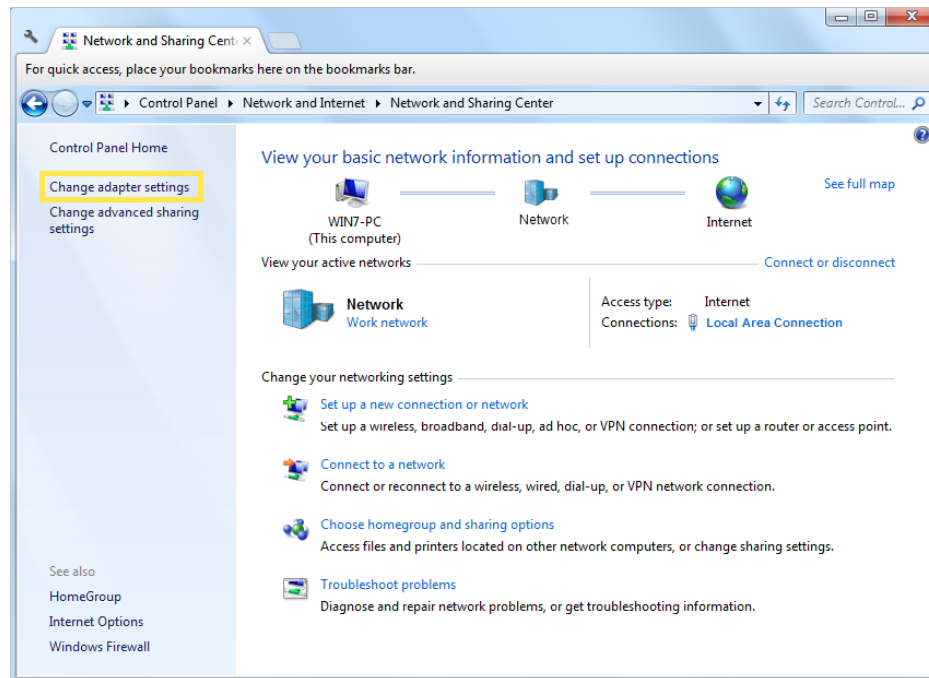
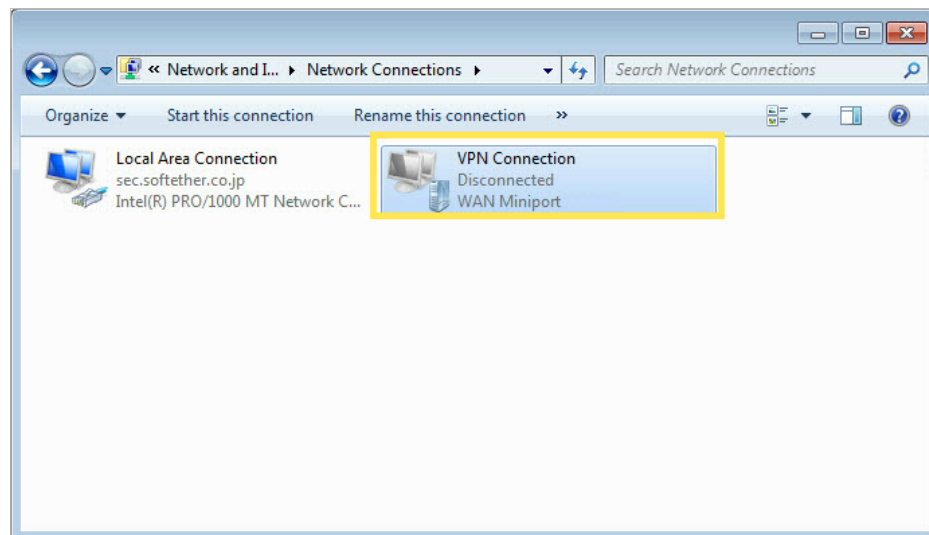
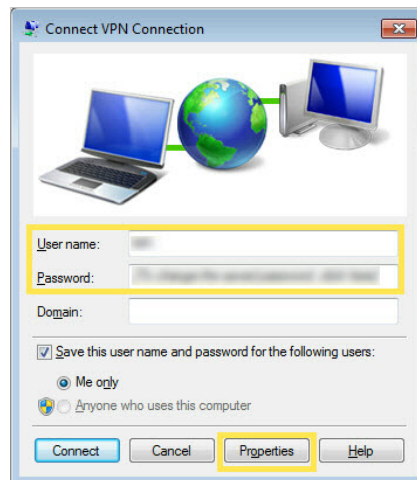




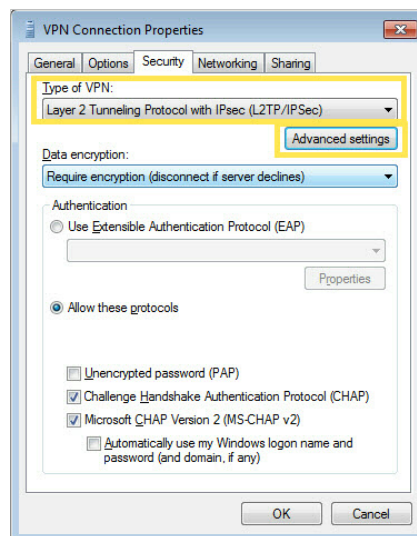
9. Find the VPN connection you created, then double-click it.



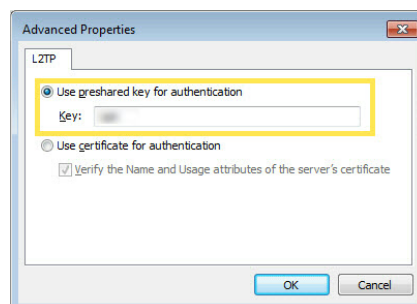
10. Enter the **User name** and **Password** you have set for the IPSec VPN server on your mesh device, and click **Properties**.



11. Switch to the **Security** tab, select **Layer 2 Tunneling Protocol with IPsec (L2TP/IPSec)** and click **Advanced settings**.



12. Select **Use preshared key for authentication** and enter the IPsec Pre-Shared Key you have set for the IPsec VPN server on your mesh device. Then click **OK**.



Done! Click **Connect** to start VPN connection.



15.4. VPN Connections

VPN Connections page displays the clients that are currently connected to the OpenVPN servers, PPTP VPN servers and IPsec VPN hosted on the mesh device.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
2. Go to **Advanced > VPN > VPN connections**.

VPN Connections

OpenVPN Connection

ID	Client IP Address	Modify
--	--	--

PPTP VPN Connection

ID	Client IP Address	Modify
--	--	--

IPSec VPN Connection

☐	Connection Name	Remote Gateway	Local Address	Remote Address	Status	Enable	Modify
--	--	--	--	--	--	--	--

Chapter 16

Manage Your Mesh Device

This chapter introduces how to change the system settings and administrate your mesh device's network.

This chapter contains the following sections:

- [Set System Time](#)
- [Control the LED](#)
- [Test Internet Connectivity](#)
- [Update the Firmware](#)
- [Back Up and Restore Configuration Settings](#)
- [Reboot the Mesh Device](#)
- [Administration Management](#)
- [System Log](#)
- [CWMP Settings](#)
- [SNMP Settings](#)
- [Monitor the Internet Traffic Statistics](#)
- [Port Mirror](#)

16.1. Set System Time

System time is the time displayed while the mesh device is running. The system time you configure here will be used for other time-based functions like Parental Controls and Wireless Schedule. You can manually set how to get the system time.

Follow the steps below to set your system time.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Time Settings](#) page.

The screenshot shows the 'System Time' configuration page. It includes a 'Time Zone' dropdown menu set to '(GMT-08:00) Pacific Time (US & Canada); Tijuana'. The 'Date' field is set to '1/7/2016' with a '(MM/DD/YY)' label. The 'Time' field is set to '23 : 59 : 13'. The 'NTP' checkbox is checked and labeled 'Enable'. Below it, 'NTP Server I' and 'NTP Server II' are both set to '0.0.0.0' with '(Optional)' labels. At the bottom, there are three buttons: 'Get from PC', 'Get from the Internet', and 'Save'.

3. Configure the system time using the following methods:
[Get from PC](#): Click this button if you want to use the current time of your PC.
[Get from the Internet](#): Click this button if you want to get time from the internet. Make sure your mesh device can access the internet before you select this way to get system time.
4. Click [Save](#).
5. After setting the system time, you can set [Daylight Saving Time](#) according to your needs. Enable [Daylight Saving Time](#), and set the start and end time and then click [Save](#) to make the settings effective.

The screenshot shows the 'Daylight Saving Time' configuration page. It features a checkbox labeled 'Enable Daylight Saving Time'. Below this, there are two rows for 'Start' and 'End' times. The 'Start' row is set to '2016', 'Jan', 'M', 'Last', 'W', 'Tue', 'T', and '00:00'. The 'End' row is set to '2016', 'Oct', 'M', 'Last', 'W', 'Sun', 'T', and '03:00'. A 'Save' button is located at the bottom right.

16.2. Control the LED

The LED of the mesh device indicates its activities and status. You can enable the Night Mode feature to specify a time period during which the LED is off.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
2. Go to [Advanced](#) > [System](#) > [LED Control](#).
3. Enable [Night Mode](#).
4. Specify the LED off time, and the LED will be off during this period every day.
5. Click [SAVE](#).

LED Control

Night Mode: ☒ Enable

Night Mode Period: 22 : 0 to 6 : 0 (HH:MM)

Note: The night mode period takes effect based on the router's system time. Please make sure you have already set up the time of the router.

Save

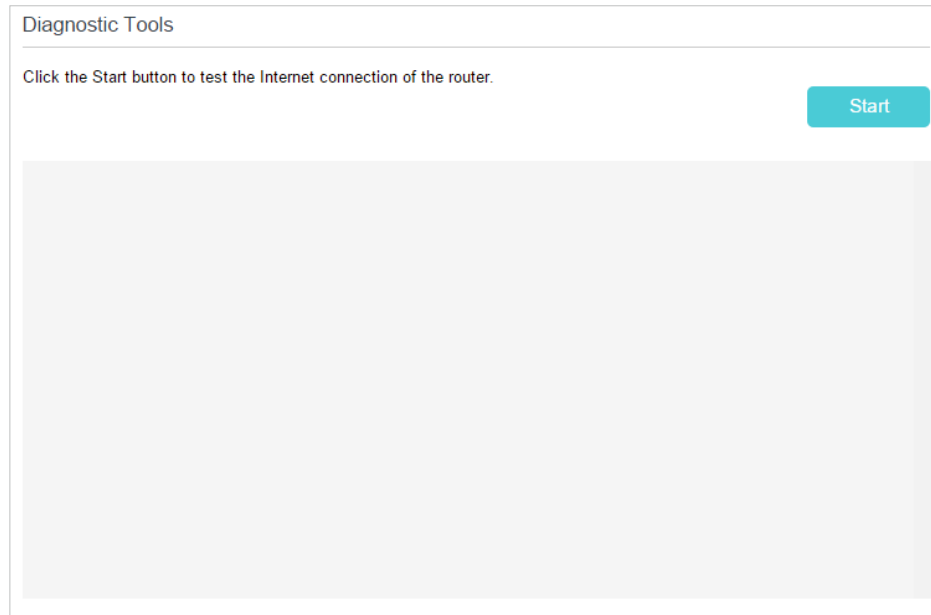
16.3. Test Internet Connectivity

Diagnostics function is used to test the connectivity between the mesh device and the host or other network devices.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Diagnostics](#) page.

➤ **To test the internet connection of the mesh device:**

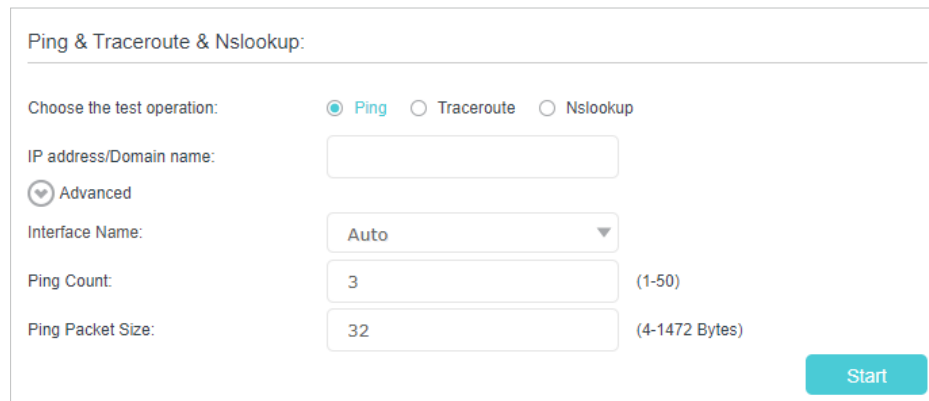
Locate the [Diagnostic Tools](#) section, and click the [Start](#) to test the internet connectivity and you will find the test results in the gray box.



The screenshot shows a web interface titled "Diagnostic Tools". Below the title, there is a text instruction: "Click the Start button to test the Internet connection of the router." To the right of this text is a teal "Start" button. Below the instruction is a large, empty light gray rectangular area, likely for displaying test results.

➤ **To run ping and traceroute tools:**

- 1) Locate the [Diagnostic Tools](#) section.



The screenshot shows a configuration form titled "Ping & Traceroute & Nslookup:". It contains several fields and options for configuring a network test:

- Choose the test operation:** Three radio buttons are present: "Ping" (selected), "Traceroute", and "Nslookup".
- IP address/Domain name:** A text input field.
- Advanced:** A dropdown menu currently showing "Advanced".
- Interface Name:** A dropdown menu currently showing "Auto".
- Ping Count:** A text input field with the value "3". To its right, the range "(1-50)" is displayed.
- Ping Packet Size:** A text input field with the value "32". To its right, the range "(4-1472 Bytes)" is displayed.
- A teal "Start" button is located at the bottom right of the form.

- 2) Select [Ping](#) or [Traceroute](#) or [Nslookup](#) as the diagnostic tool to test the connectivity.
 - [Ping](#) is used to test the connectivity between the mesh device and the tested host, and measure the round-trip time.
 - [Traceroute](#) is used to display the route (path) your mesh device has passed to reach the tested host, and measure transit delays of packets across an internet Protocol network.
 - [Nslookup](#) is used to queries the Domain Name System (DNS) to obtain the mapping between a domain name and IP address, or other DNS records.
- 3) Enter the [Target IP Address/Domain Name](#) of the tested host. You can change the default test options if necessary.

- 4) Click [Start](#) to begin the diagnostics, and you will find the test results in the gray box.

16.4. Update the Firmware

TP-Link is dedicated to improving product features, giving you a better network experience.

We will inform you through the web management page if there's any update firmware available for your mesh device. The latest firmware can also be downloaded from the [Support](#) page of our website www.tp-link.com for free.

Note:

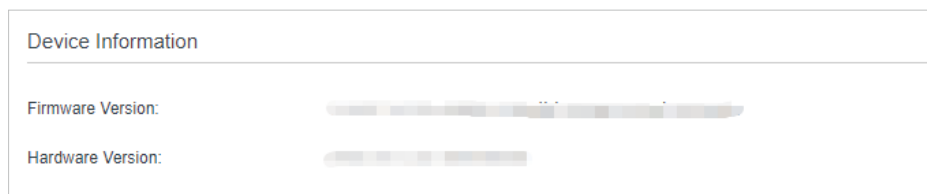
1. Make sure that you have a stable connection between the mesh device and your computer. It is NOT recommended to upgrade the firmware wirelessly.
2. Back up your mesh device configuration before upgrading the firmware.
3. DO NOT turn off the mesh device during the firmware upgrade.

➤ **Follow the steps below to upgrade the firmware online:**

1. Click Check for Upgrades.
2. If a new firmware is displayed, click Upgrade and click Yes when prompted, then the mesh device will automatically download the latest firmware file and upgrade.

➤ **Follow the steps below to manually update the firmware:**

1. Download the latest firmware file for the mesh device from our website www.tp-link.com.
2. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
3. Go to [Advanced](#) > [System Tools](#) > [Firmware Upgrade](#).
4. Focus on the [Device Information](#) section. Make sure the downloaded firmware file matches with the [Hardware Version](#).



5. Focus on the [Local Upgrade](#) section. Click [Browse](#) to locate the downloaded new firmware file, and click [Upgrade](#).

Local Upgrade

-	ID	Device Name	Model Name	MAC Address	Firmware Version
☒	1	living_room	HX220		

New firmware file:

6. Wait a few minutes for the upgrading and rebooting.

16.5. Back Up and Restore Configuration Settings

The configuration settings are stored as a configuration file in the mesh device. You can back up the configuration file to your computer for future use and restore the mesh device to a previous settings from the backup file when needed. Moreover, if needed you can erase the current settings and reset the mesh device to its default factory settings.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Backup & Restore](#).

➤ **To back up configuration settings:**

Click [Backup](#) to save a copy of the current settings to your local computer. A conf.bin file will be stored to your computer.

Backup

Save a copy of your current settings.

➤ **To restore configuration settings:**

- 1) Click [Browse](#) to locate the previous backup configuration file, and click [Restore](#).

Restore

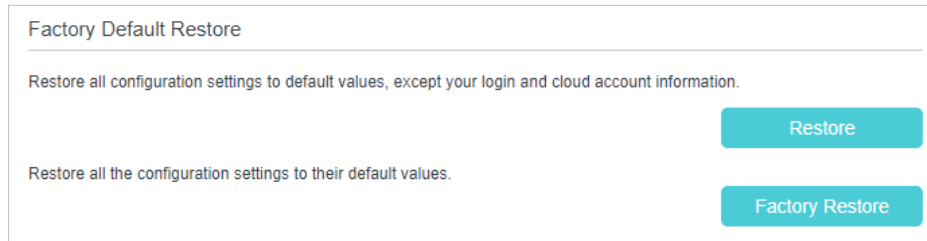
Restore previous settings from a saved file.

File:

- 2) Wait a few minutes for the restoring and rebooting.

➤ **To reset the mesh device to factory default settings:**

- 1) Locate the [Factory Default Restore](#) section, and click [Factory Restore](#) to reset the mesh device.



The screenshot shows a web interface titled "Factory Default Restore". Below the title, there is a line of text: "Restore all configuration settings to default values, except your login and cloud account information." To the right of this text is a blue button labeled "Restore". Below this, there is another line of text: "Restore all the configuration settings to their default values." To the right of this text is a blue button labeled "Factory Restore".

- 2) Wait a few minutes for the resetting and rebooting.

Note:

1. During the resetting process, do not turn off the mesh device.
2. We strongly recommend you back up the current configuration settings before resetting the mesh device.

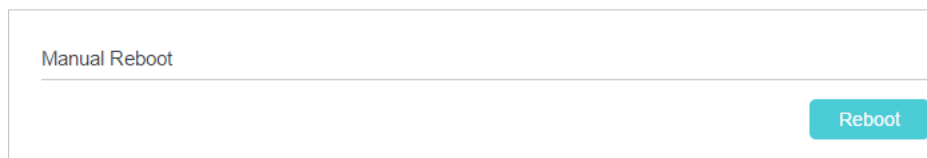
16.6. Reboot the Mesh Device

The Reboot feature cleans the cache to enhance the running performance of the mesh device. You can reboot the mesh device manually or set it to reboot regularly.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Reboot Schedule](#), and you can restart your mesh device.

➤ **To reboot the mesh device manually:**

Click [Reboot](#), and wait a few minutes for the mesh device to rebooting.



The screenshot shows a web interface titled "Manual Reboot". Below the title, there is a blue button labeled "Reboot".

➤ **To schedule the mesh device to reboot at a specific time:**

- 1) Enable [Auto Reboot](#).
- 2) Specify the [Time](#) when the mesh device reboots.

Reboot Schedule

Note: Before enabling Reboot Schedule, please make sure your router is connected to the internet. Then go to [Time Settings](#) and choose **Get from the Internet** to get the correct network time.

Current Time: 01/08/2016 00:10:57

Reboot Schedule: ☐ Enable

Repeat: Every day

Reboot Time: 3 : 0

[Save](#)

3) Click [Save](#) to make the settings effective.

Some settings of the mesh device may take effect only after rebooting, including:

- Change the LAN IP Address (system will reboot automatically).
- Change the Operation Mode (system will reboot automatically).
- Upgrade the firmware of the mesh device (system will reboot automatically).
- Restore the mesh device to its factory defaults (system will reboot automatically).
- Update the configuration with the file (system will reboot automatically).

Note:

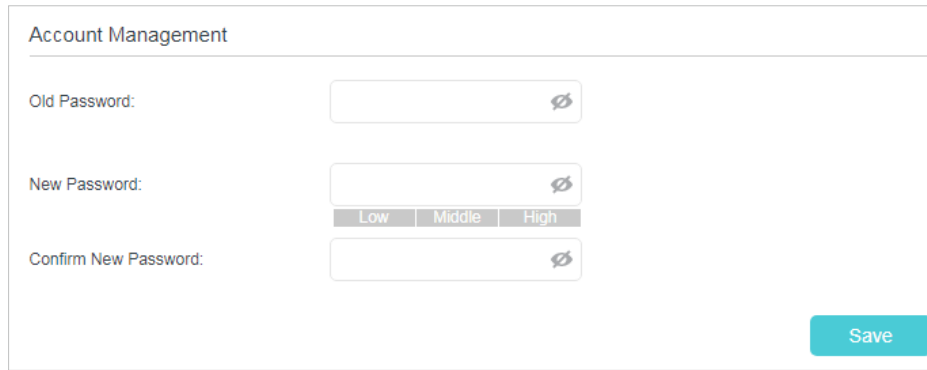
The Auto Reboot feature takes effect based on the mesh device's system time. Please make sure you have already set up the time of the mesh device.

16.7. Administration Management

16.7.1. Change the Login Password

A login password is required to log in to the mesh device's web management page. You are asked to set a login password at first login. You can change it with the account management feature.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Administration](#), and locate the [Account Management](#) section.

The screenshot shows the 'Account Management' section of a web interface. It contains three password input fields: 'Old Password:', 'New Password:', and 'Confirm New Password:'. Each field has a toggle icon to its right. Below the 'New Password:' field, there are three tabs labeled 'Low', 'Middle', and 'High'. A teal 'Save' button is located at the bottom right of the form.

Account Management

Old Password:

New Password:

Low Middle High

Confirm New Password:

Save

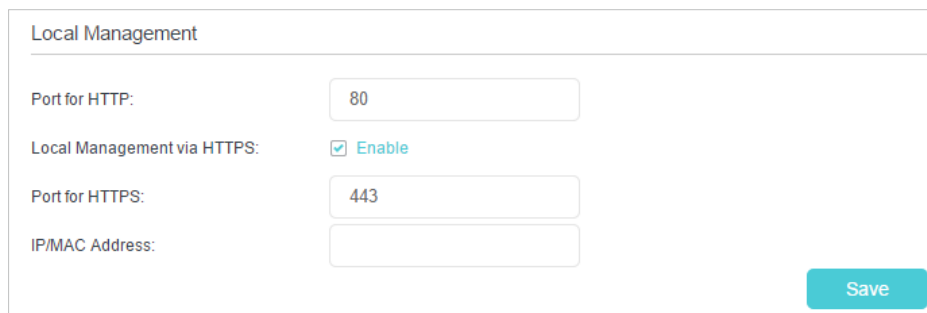
3. Enter the old password and a new password twice (both case-sensitive).
4. Click [Save](#) to make the settings effective.

16.7.2. Local Management

You can control the local devices' authority to manage the mesh device via Local Management feature. By default all local connected devices are allowed to manage the mesh device. You can also specify one device to manage the mesh device and enable local management over a more secure way, HTTPS.

Follow the steps below to allow only the specific device to manage the mesh device via the local management over HTTPS.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Administration](#), and locate the [Local Management](#) section.
3. Enable [Local Management over HTTPS](#) and keep the [Port for HTTP](#) and [Port for HTTPS](#) as the default settings. Enter the [IP address](#) or [MAC address](#) of the local device to manage the mesh device.

The screenshot shows the 'Local Management' section of a web interface. It contains four settings: 'Port for HTTP:' with a value of 80, 'Local Management via HTTPS:' with a checked checkbox and the word 'Enable', 'Port for HTTPS:' with a value of 443, and 'IP/MAC Address:' with an empty input field. A teal 'Save' button is located at the bottom right of the form.

Local Management

Port for HTTP:

Local Management via HTTPS: ☒ Enable

Port for HTTPS:

IP/MAC Address:

Save

4. Click [Save](#).

Now, you can manage the mesh device over both HTTP (<http://tplinkwifi.net>) and HTTPS (<https://tplinkwifi.net>).

Note:

If you want all local devices can manage the mesh device, just leave the [IP/MAC Address](#) field blank.

16.7.3. Remote Management

By default, the remote devices are not allowed to manage the mesh device from the internet. You can enable remote management over HTTP and/or HTTPS if needed. HTTPS is a more secure way to access the mesh device.

Note:

If your ISP assigns a private WAN IP address (such as 192.168.x.x or 10.x.x.x), you cannot use the remote management feature because private addresses are not routed on the internet.

Follow the steps below to allow remote devices to manage the mesh device over HTTPS.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Administration](#), and locate the [Remote Management](#) section.

The screenshot shows the 'Remote Management' configuration page. It includes the following fields and options:

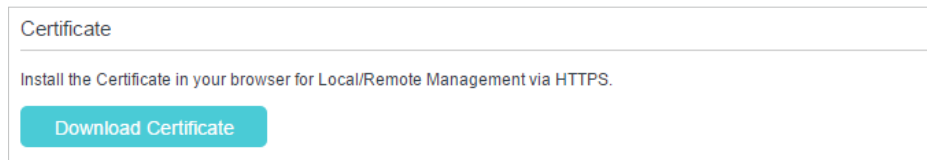
- Remote Management:** A checkbox labeled 'Enable' which is currently unchecked.
- Port for HTTP:** A text input field containing the value '80'.
- Remote Management via HTTPS:** A checkbox labeled 'Enable' which is currently unchecked.
- Port for HTTPS:** A text input field containing the value '443'.
- Manage This Router via the Address:** A text input field containing the message 'Your router is not connected to the Internet.'
- Client Device Allowed for Remote Management:** A section with two radio button options:
 - Only the Following IP Addresses:** This option is selected. Below it is a '+ Add a new IP' link and a form with an empty text input, a dropdown menu showing '32', and a red minus button.
 - All:** An unselected radio button option.
- Save:** A blue button located at the bottom right of the form.

3. Enable [Remote Management](#) and [Remote Management via HTTPS](#) to allow for HTTPS connection. Keep the [Port](#) as the default setting.
4. Set the client device allowed for remote management. Select [All](#) to allow all remote devices to manage the mesh device. If you just want to allow a specific device to manage the mesh device, select [Only the Following IP/MAC Address](#) and enter the IP/MAC address of the remote device.
5. Click [Save](#).

All devices or the specific device on the internet can log in to your mesh device using the address displayed on the [Manage This Mesh Device via the Address](#) field to manage the mesh device.

 Tips:

1. If you were warned about the certificate when visiting the web management page remotely, click [Trust](#) (or a similar option) to continue. To avoid this warning, you can download and install the certificate on the mesh device's web management page at [Advanced > System Tools > Administration](#).

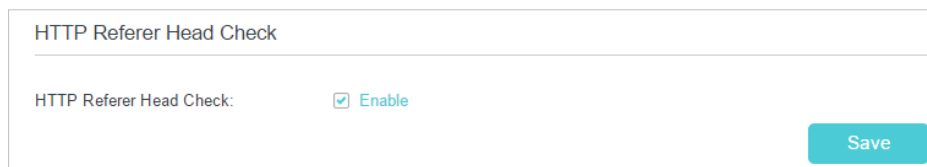


2. The mesh device's WAN IP is usually a dynamic IP. Please refer to [Configure IPv6 LAN Settings](#) if you want to log in to the mesh device through a domain name.

16.7.4. HTTP Referer Head Check

HTTP referer header check function can protect your networks against CSRF attacks. This function is enabled by default. You can disable this function if needed.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced > System Tools > Administration](#), and locate the [HTTP Referer Head Check](#) section.
3. Clear the [Enable](#) check box and click [Save](#) if you want to disable this function.

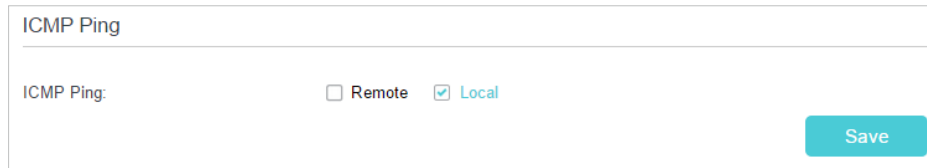


16.7.5. ICMP Ping

ICMP (Internet Control Message Protocol) Ping is used to diagnose the network by sending ICMP echo request packets to the target remote or local host and waiting for an ICMP response.

You can control the mesh device's replies to ICMP Ping requests.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced > System Tools > Administration](#), and locate the [ICMP Ping](#) section.

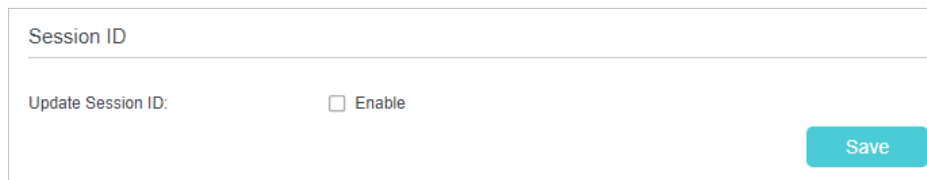


3. Specify the ICMP Ping reply options.
 - **Remote:** Select it if you want the computers on a public network to ping the mesh device's WAN IP address.
 - **Local:** Enabled by default, if enabled, the computers on a private network can ping the mesh device's LAN IP address.
4. Click **Save** to make the settings effective.

16.7.6. Session ID

When Session ID function is enabled, it will be saved into Flash every time the PPP connection is updated. This can prevent some problems of PPPoE/L2TP/PPTP connection being rejected to reconnect to servers when the device is powered off or the network disconnect accidentally.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to **Advanced > System Tools > Administration**, and locate the **Session ID** section.



3. Enable the **Update Session ID** and Click **Save** to make the settings effective.

16.8. System Log

System Log can help you know what happened to your mesh device, facilitating you to locate the malfunctions. For example when your mesh device does not work properly, you may need to save the system log and send it to the technical support for troubleshooting.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to **Advanced > System Tools > System Log** page.

System Log

Type: ALL
Level: Notice

Refresh Delete All

ID	Time	Type	Level	Log Content
1	2016-01-01 02:43:34	HTTPD	Notice	Clear log.

Log Settings Save Log

➤ **To view the system logs:**

You can view specific system logs by selecting the log type and level.

Click [Refresh](#) to refresh the log list.

➤ **To save the system logs:**

You can save the system logs to your local computer or a remote server.

Click [Save Log](#) to save the logs in a txt file to your computer.

Click [Log Settings](#) to set the storage path of logs.

Log Settings

☒ Save Locally

Minimum Level: Information

☒ Save Remotely

Minimum Level: Warning

Server IP: 192.168.1.100

Server Port: 514

Local Facility Name: User

Back Save

- **Save Locally:** Select this option to cache the system log to the mesh device's local memory, select the minimum level of system log to be saved from the drop-down list. The logs will be shown in the table in descending order on the System Log page.
- **Save Remotely:** Select this option to send the system log to a remote server, select the minimum level of system log to be saved from the drop-down list and enter the information of the remote server. If the remote server has a log viewer client or a sniffer tool implemented, you can view and analyze the system log remotely in real-time.

16.9. CWMP Settings

The mesh device supports CWMP (CPE WAN Management Protocol), also called TR-069. This collects information, performs diagnostics and configures the devices automatically via ACS (Auto-Configuration Server).

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [CWMP Settings](#) page.

CWMP Settings

CPE WAN Management Protocol (also called TR-069) allows Auto-Configuration Server (ACS) to perform auto-configuration, provision, connection, and diagnostics to this device. You may configure this function under your ISP's instructions.

CWMP: ☒

Inform: ☒

Inform DataModel with TR098: ☐

Inform Interval:

ACS URL:

ACS Username:

ACS Password:

Interface used by TR-069 client:

CPE ID: ☒ SN ☐ LAN MAC ☐ WAN MAC

☒ Connection Request Authentication

Username:

Password:

Path: ☒ Manual ☐ Random

Port:

URL:

☐ Simple Traversal of UDP over NATs:

Save

- **CWMP:** Enable or disable the CWMP (CPE WAN Management Protocol) function.
- **Inform:** Enable or disable the function of sending an inform message to the ACS (Auto Configuration Server) periodically.
- **Inform Interval:** Set the time interval in seconds when the Inform message will be sent to the ACS.
- **ACS URL:** Enter the web address of the ACS which is provided by your ISP.

- **ACS Username/Password:** Enter the username/password to log in to the ACS server.
- **Interface used by TR-069 client:** Select which interface to be used by the TR-069 client.
- **Display SOAP messages on serial console:** Enable or disable this function.
- **Connection Request Authentication:** Select this check box to enable authentication for the connection request.
- **Username/Password:** Enter the username/password for the ACS server to log in to the mesh device.
- **Path:** Enter the path for the ACS server to log in to the mesh device.
- **Port:** Enter the port that connects to the ACS server.
- **URL:** Enter the URL that connects to the ACS server.
- **Simple Traversal of UDP over NATs:** Select this check box to enable STUN for the connection request and set the STUN maximum and minimum keep alive period, server address and port.

Click **Save** to make the settings effective.

16. 10. SNMP Settings

SNMP (Simple Network Management Protocol) is widely used in network management for network monitoring. It allows management applications to retrieve status updates and statistics from the SNMP agent within this device. In this way, network administrators can easily search and modify the information on any node on the network. Meanwhile, they can locate faults promptly and implement the fault diagnosis, capacity planning and report generating.

The **SNMP Agent** is an application running on the mesh device that performs the operational role of receiving and processing SNMP messages, sending responses to the SNMP manager, and sending traps when an event occurs. So a mesh device contains SNMP "agent" software can be monitored and/or controlled by SNMP Manager using SNMP messages.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to **Advanced > System Tools > SNMP Settings** page.

SNMP Settings

Simple Network Management Protocol (SNMP) allows management applications to retrieve status updates and statistics from the SNMP agent within this device.

Enable SNMP Agent: ☒

SNMP Agent for WAN: ☐

Read-only Community:

Write Community:

System Name:

System Description:

System Location:

System Contact:

Trap Manager IP:

[Save](#)

- **SNMP Agent/SNMP Agent for WAN:** Turn on to enable the built-in SNMP agent that allows the mesh device to operate as the operational role in receiving and processing of SNMP messages, sending responses to the SNMP manager, and triggering SNMP traps when an event occurs.
- **Read-only Community:** Displays the default public community string that protects the mesh device from unauthorized access.
- **Write Community:** Displays the default write community string that protects the mesh device from unauthorized changes.
- **System Name:** Displays the administratively-assigned name for this managed device.
- **System Description:** Displays the textual description of the managed device. This value should include the full name and version identification of the system's hardware type, software operating-system, and networking software.
- **System Location:** Displays the physical location of this device (for example, the telephone closet, 3rd floor).
- **System Contact:** Displays the textual identification of the contact person for this managed device, together with information on how to contact this person.
- **Trap Manager IP:** Displays the IP address of the host to receive the traps.

You are suggested to keep the default settings. Click [Save](#) to make the settings effective.

16. 11. Monitor the Internet Traffic Statistics

The traffic statistics function allows you to monitor the volume of internet traffic statistics. You can view the network traffic of the LAN, WAN and WLAN sent and received packets.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Traffic Statistics](#).
3. Turn on [Enable Traffic Statistics](#) to enable traffic statistics function, you can view the total number of packets and bytes received and transmitted by the mesh device within the selected [Statistics Interval](#). This function is disabled by default.

Traffic Statistics

Enable Traffic Statistics: ☒

Traffic Statistics and NAT Boost cannot be enabled at the same time.

Statistics Interval: seconds

[Save](#)

4. You can refer to [Traffic Statistics List](#) for the detailed information about the traffic usage of all devices.

Traffic Statistics List

[Refresh](#) [Reset All](#) [Delete All](#)

IP Address/ MAC Address	Total Packets	Total Bytes	Current Packets	Current Bytes	Current ICMP Tx	Current UDP Tx	Current SYN Tx	Modify
--	--	--	--	--	--	--	--	--

16. 12. Port Mirror

This feature copies network packets of the WAN port to a specific LAN port for data analysis and network monitoring.

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with the password you set for the mesh device.
2. Go to [Advanced](#) > [System Tools](#) > [Port Mirror](#)

Port Mirror

Enable: ☒ Enable

Lan Interface: LAN1 ▼

Timeout: 0 (seconds)

Save

3. Enable Port Mirroring.
4. Select a LAN port to mirror network packets of the WAN port.
5. Set a Timeout duration after which Port Mirroring will disable automatically. If you set Timeout to 0 seconds, Port Mirroring will not disable automatically.
6. Save the settings.

FAQ

Q1. What should I do if I forget my wireless password?

The default wireless password is printed on the label of the mesh device. If the password has been altered:

1. Connect your computer to the mesh device using an Ethernet cable.
2. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
3. Go to [Wireless](#) to retrieve or reset your wireless password.

Q2. What should I do if I forget my web management password?

- If you are using a TP-Link ID to log in, or you have enabled the Password Recovery feature of the mesh device, click [Forgot password](#) on the login page and then follow the instructions to reset it.
- Alternatively, press and hold the [Reset](#) button of the mesh device until the Power LED blinks to restore factory default settings, and then visit <http://tplinkwifi.net> or <http://192.168.88.1> to create a new login password.

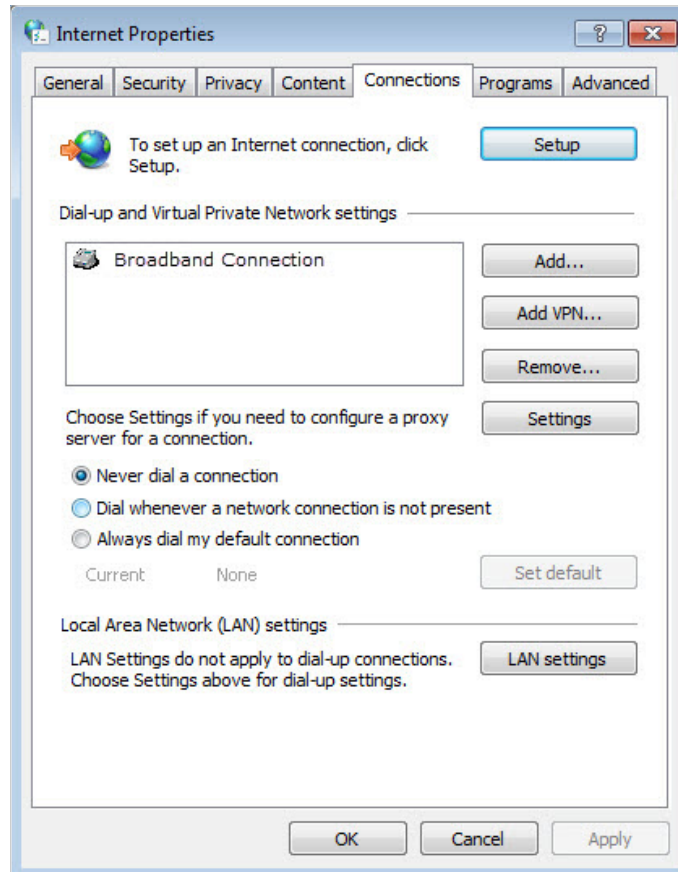
Note:

- You'll need to reconfigure the mesh device to surf the internet once the mesh device is reset, and please mark down your new password for future use.

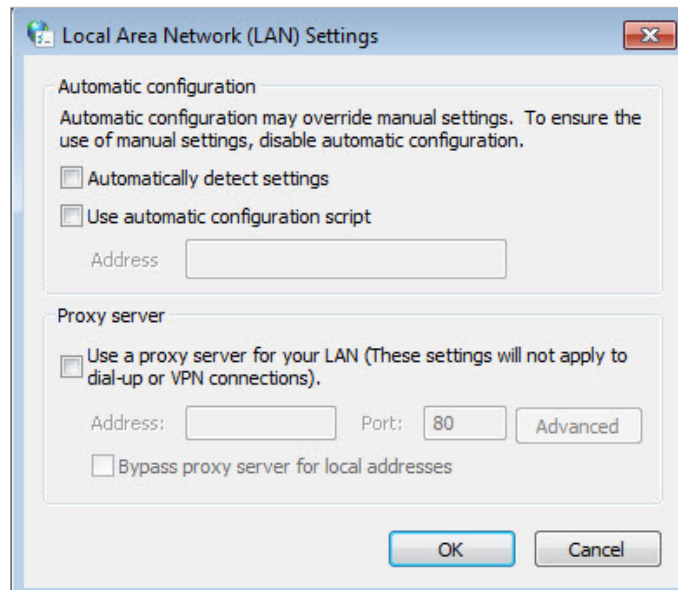
Q3. What should I do if I can't log in to the mesh device's web management page?

This can happen for a variety of reasons. Please try the methods below to log in again.

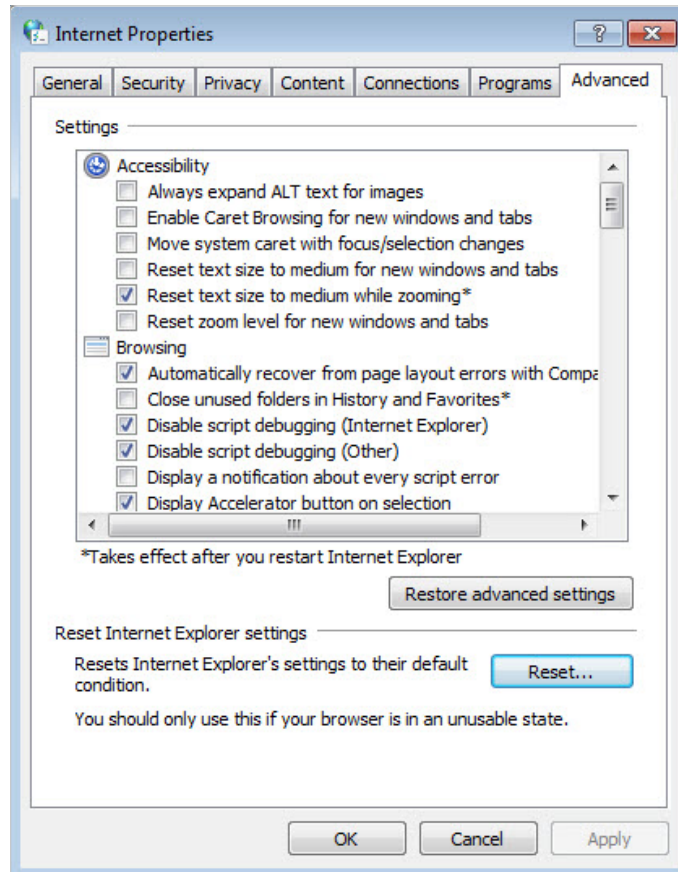
- Make sure your computer is connected to the mesh device correctly and the corresponding LED indicator(s) light up.
- Make sure the IP address of your computer is configured as [Obtain an IP address automatically](#) and [Obtain DNS server address automatically](#).
- Make sure <http://tplinkwifi.net> or <http://192.168.88.1> is correctly entered.
- Check your computer's settings:
 - 1) Go to [Start](#) > [Control Panel](#) > [Network and Internet](#), and click [View network status and tasks](#).
 - 2) Click [Internet Options](#) on the bottom left.
 - 3) Click [Connections](#) and select [Never dial a connection](#).



4) Click [LAN settings](#) and deselect the following three options and click [OK](#).



5) Go to [Advanced](#) > [Restore advanced settings](#), click [OK](#) to save the settings.



- Use another web browser or computer to log in again.
- Reset the mesh device to factory default settings and try again. If login still fails, please contact the technical support.

Note: You'll need to reconfigure the mesh device to surf the internet once the mesh device is reset.

Q4.What should I do if I can't access the internet even though the configuration is finished?

1. Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
2. Go to **Advanced > Network > Status** to check internet status:

If IP Address is a valid one, please try the methods below and try again:

- Your computer might not recognize any DNS server addresses. Please manually configure the DNS server.
 - 1) Go to **Advanced > Network > LAN Settings > DHCP Server**.
 - 2) Enter 8.8.8.8 as Primary DNS, click **SAVE**.

Tips: 8.8.8.8 is a safe and public DNS server operated by Google.

☒ DHCP Server ☐ DHCP Relay

IP Address Pool: 192 . 168 . 88 . 2 - 192 . 168 . 88 . 249

Address Lease Time: 120 minutes. (1-2880. The default value is 1440.)

Default Gateway: 192 . 168 . 88 . 1 (Optional)

Default Domain: (Optional)

Primary DNS: 8 . 8 . 8 . 8 (Optional)

Secondary DNS: 0 . 0 . 0 . 0 (Optional)

Save

- Restart the modem and the mesh device.
 - 1) Power off your modem and mesh device, and leave them off for 1 minute.
 - 2) Power on your modem first, and wait about 2 minutes until it gets a solid cable or Internet light.
 - 3) Power on the mesh device.
 - 4) Wait another 1 or 2 minutes and check the internet access.
- Reset the mesh device to factory default settings and reconfigure the mesh device.
- Upgrade the firmware of the mesh device.
- Check the TCP/IP settings on the particular device if all other devices can get internet from the mesh device.

As the picture below shows, if the IP Address is 0.0.0.0, please try the methods below and try again:

Status

Internet status overview is displayed on this page.

Internet

Status: WAN port is unplugged

Internet Connection Type: Dynamic IP

IP Address: 0.0.0.0

Subnet Mask: 0.0.0.0

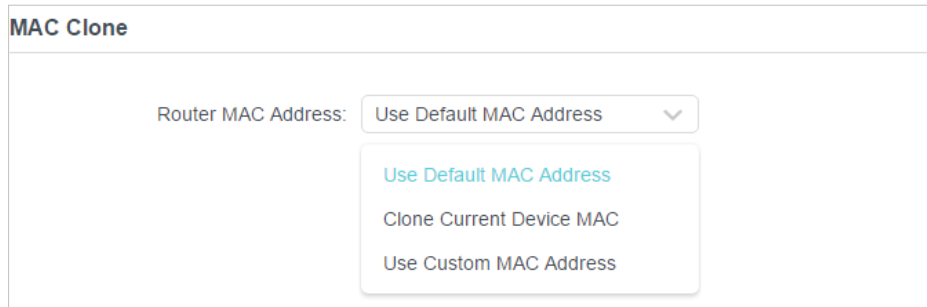
Default Gateway: 0.0.0.0

Primary DNS: 0.0.0.0

Secondary DNS: 0.0.0.0

- Make sure the physical connection between the mesh device and the modem is proper.
- Clone the MAC address of your computer.

- 1) Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
- 2) Go to [Internet](#) or [Advanced](#) > [Network](#) > [Internet](#) and focus on the [MAC Clone](#) section.
- 3) Choose an option as needed (enter the MAC address if [Use Custom MAC Address](#) is selected), and click [SAVE](#).



 Tips:

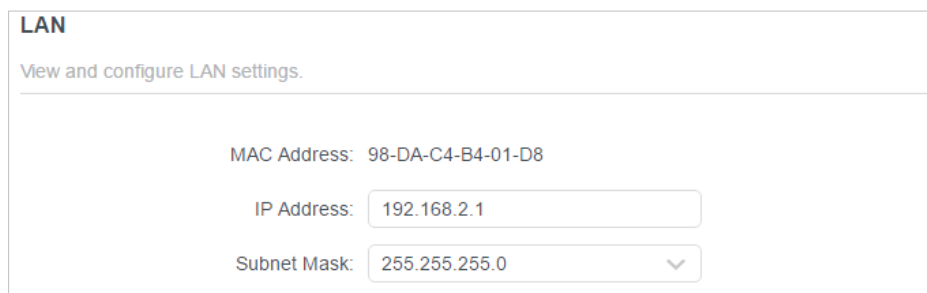
- Some ISP will register the MAC address of your computer when you access the internet for the first time through their Cable modem, if you add a mesh device into your network to share your internet connection, the ISP will not accept it as the MAC address is changed, so we need to clone your computer's MAC address to the mesh device.
- The MAC addresses of a computer in wired connection and wireless connection are different.

- **Modify the LAN IP address of the mesh device.**

 Note:

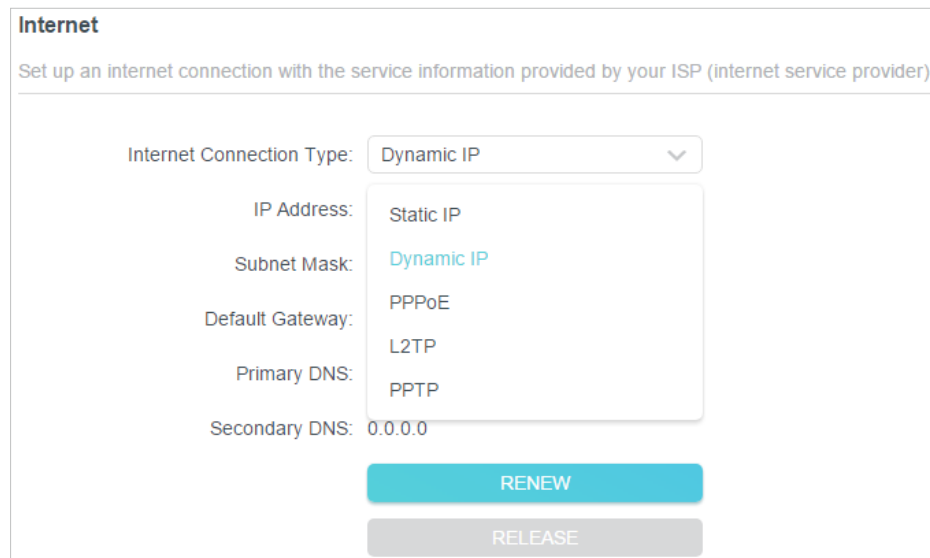
Most TP-Link mesh devices use 192.168.88.1 as their default LAN IP address, which may conflict with the IP range of your existing ADSL modem/router. If so, the mesh device is not able to communicate with your modem and you can't access the internet. To resolve this problem, we need to change the LAN IP address of the mesh device to avoid such conflict, for example, 192.168.2.1.

- 1) Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
- 2) Go to [Advanced](#) > [Network](#) > [LAN](#).
- 3) Modify the LAN IP address as the follow picture shows. Here we take 192.168.2.1 as an example.
- 4) Click [Save](#).



- Restart the modem and the mesh device.

- 1) Power off your modem and mesh device, and leave them off for 1 minute.
 - 2) Power on your modem first, and wait about 2 minutes until it get a solid cable or Internet light.
 - 3) Power on the mesh device.
 - 4) Wait another 1 or 2 minutes and check the internet access.
- Double check the internet connection type.
 - 1) Confirm your internet connection type, which can be learned from the ISP.
 - 2) Visit <http://tplinkwifi.net> or <http://192.168.88.1>, and log in with your TP-Link ID or the password you set for the mesh device.
 - 3) Go to [Advanced](#) > [Network](#) > [Internet](#).
 - 4) Select your [Internet Connection Type](#) and fill in other parameters.
 - 5) Click [Save](#).



Internet

Set up an internet connection with the service information provided by your ISP (internet service provider).

Internet Connection Type: Dynamic IP

IP Address: Static IP

Subnet Mask: Dynamic IP

Default Gateway: PPPoE

Primary DNS: L2TP

Secondary DNS: PPTP

0.0.0.0

[RENEW](#)

[RELEASE](#)

- 6) Restart the modem and the mesh device again.
- Please upgrade the firmware of the mesh device.
- If you've tried every method above but still cannot access the internet, please contact the technical support.

Q5.What should I do if I can't find my wireless network or I cannot connect the wireless network?

If you fail to find any wireless network, please follow the steps below:

- Make sure the wireless function of your device is enabled if you're using a laptop with built-in wireless adapter. You can refer to the relevant document or contact the laptop manufacturer.

- Make sure the wireless adapter driver is installed successfully and the wireless adapter is enabled.

- **On Windows 7**

- 1) If you see the message [No connections are available](#), it is usually because the wireless function is disabled or blocked somehow.
- 2) Click [Troubleshoot](#) and windows might be able to fix the problem by itself.

- **On Windows XP**

- 1) If you see the message [Windows cannot configure this wireless connection](#), this is usually because windows configuration utility is disabled or you are running another wireless configuration tool to connect the wireless.
- 2) Exit the wireless configuration tool (the TP-Link Utility, for example).
- 3) Select and right click on [My Computer](#) on desktop, select [Manage](#) to open Computer Management window.
- 4) Expand [Services and Applications](#) > [Services](#), find and locate [Wireless Zero Configuration](#) in the Services list on the right side.
- 5) Right click [Wireless Zero Configuration](#), and then select [Properties](#).
- 6) Change [Startup type](#) to [Automatic](#), click on Start button and make sure the Service status is [Started](#). And then click [OK](#).

If you can find other wireless network except your own, please follow the steps below:

- Check the WLAN LED indicator on your mesh device/modem.
- Make sure your computer/device is still in the range of your mesh device/modem. Move it closer if it is currently too far away.
- Go to [Wireless](#) or [Advanced](#) > [Wireless](#) > [Wireless Settings](#), and check the wireless settings. Double check your wireless Network Name and SSID is not hidid.

If you can find your wireless network but fail to connect, please follow the steps below:

- **Authenticating problem/password mismatch:**

- 1) Sometimes you will be asked to type in a PIN number when you connect to the wireless network for the first time. This PIN number is different from the Wireless Password/Network Security Key, usually you can only find it on the label of your mesh device.



- 2) If you cannot find the PIN or PIN failed, you may choose [Connecting using a security key instead](#), and then type in the [Wireless Password/Network Security Key](#).
- 3) If it continues to show note of [Network Security Key Mismatch](#), it is suggested to confirm the wireless password of your mesh device.

■ Note: Wireless Password/Network Security Key is case sensitive.

- **Windows unable to connect to XXXX / Can not join this network / Taking longer than usual to connect to this network:**
 - Check the wireless signal strength of your network. If it is weak (1~3 bars), please move the mesh device closer and try again.
 - Change the wireless Channel of the mesh device to 1, 6 or 11 to reduce interference from other networks.
 - Re-install or update the driver for your wireless adapter of the computer.

FCC compliance information statement



Product Name: BBA Mesh

Model Number: BBA Mesh

Component Name	Model
I.T.E. Power	T120200-2B1

Responsible party:

TP-Link USA Corporation

Address: 10 Mauchly, Irvine, CA 92618

Website: <http://www.tp-link.com/us/>

Tel: +1 626 333 0234

Fax: +1 909 527 6804

E-mail: sales.usa@tp-link.com

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

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

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

We, **TP-Link USA Corporation**, has determined that the equipment shown as above has been shown to comply with the applicable technical standards, FCC part 15. There is no unauthorized change is made in the equipment and the equipment is properly maintained and operated.

Issue Date: 2022.09.06

FCC compliance information statement

Product Name: I.T.E. Power Supply

Model Number: T120200-2B1

Responsible party:

TP-Link USA Corporation

Address: 10 Mauchly, Irvine, CA 92618

Website: <http://www.tp-link.com/us/>

Tel: +1 626 333 0234

Fax: +1 909 527 6804

E-mail: sales.usa@tp-link.com

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

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

We, **TP-Link USA Corporation**, has determined that the equipment shown as above has been shown to comply with the applicable technical standards, FCC part 15. There is no unauthorized change is made in the equipment and the equipment is properly maintained and operated.

Issue Date: 2022.09.06

Canadian Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage;
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

Caution:

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

DFS (Dynamic Frequency Selection) products that operate in the bands 5250-5350 MHz, 5470-5600MHz, and 5650-5725MHz.

Avertissement:

Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

Les produits utilisant la technique d'atténuation DFS (sélection dynamique des fréquences) sur les bandes 5250- 5350 MHz, 5470-5600MHz et 5650-5725MHz.

Radiation Exposure Statement:

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

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Industry Canada Statement

CAN ICES-3 (B)/NMB-3(B)

NCC Notice & BSMI Notice:

注意！

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規定作業之無線電通信。

低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

應避免影響附近雷達系統之操作。

高增益指向性天線只得應用於固定式點對點系統。

安全諮詢及注意事項

- 安全諮詢及注意事項
- 請使用原裝電源供應器或只能按照本產品注明的電源類型使用本產品。
- 清潔本產品之前請先拔掉電源線。請勿使用液體、噴霧清潔劑或濕布進行清潔。
- 注意防潮，請勿將水或其他液體潑灑到本產品上。
- 插槽與開口供通風使用，以確保本產品的操作可靠並防止過熱，請勿堵塞或覆蓋開口。
- 請勿將本產品置放於靠近熱源的地方。除非有正常的通風，否則不可放在密閉位置中。
- 不要私自拆開機殼或自行維修，如產品有故障請與原廠或代理商聯繫。

限用物質含有情況標示聲明書

設備名稱：Whole Home Mesh Wi-Fi AP Equipment name				型號（型式）：HX510/HX220/... Type designation (Type)		
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
PCB	○	○	○	○	○	○
外殼	○	○	○	○	○	○
電源供應器	—	○	○	○	○	○

天線	○	○	○	○	○	○
備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值 Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition. 備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2: “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence. 備考3. “—” 係指該項限用物質為排除項目。 Note 3: The “—” indicates that the restricted substance corresponds to the exemption.						

Safety Information

- Keep the device away from water, fire, humidity or hot environments.
- Do not attempt to disassemble, repair, or modify the device. If you need service, please contact us.
- Do not use damaged charger or USB cable to charge the device.
- Do not use any other chargers than those recommended
- Do not use the device where wireless devices are not allowed.
- Adapter shall be installed near the equipment and shall be easily accessible.
- Use only power supplies which are provided by manufacturer and in the original packing of this product. If you have any questions, please don't hesitate to contact us.
- This product uses radios and other components that emit electromagnetic fields. Electromagnetic fields and magnets may interfere with pacemakers and other implanted medical devices. Always keep the product and its power adapter more than 15 cm (6 inches) away from any pacemakers or other implanted medical devices. If you suspect your product is interfering with your pacemaker or any other implanted medical device, turn off your product and consult your physician for information specific to your medical device.
- Operating Temperature: 0℃~40℃

Please read and follow the above safety information when operating the device. We cannot guarantee that no accidents or damage will occur due to improper use of the device. Please use this product with care and operate at your own risk.

Explanations of the symbols on the product label

Symbol	Explanation
— — —	DC voltage
~	AC voltage
	Class II equipment

Symbol	Explanation
	Polarity of output terminals
	Energy efficiency Marking
	Indoor use only
	Caution
	Operator's manual
	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 a new electrical or electronic equipment.