tp-link

# User Guide

AC1200 Whole Home Mesh Wi-Fi AP
HC220-G5

1910020928 REV1.0.0

# Contents

# About This Guide

This guide is a complement to Quick Installation Guide. The Quick Installation Guide provides instructions for quick internet setup, while this guide contains details of each function and demonstrates how to configure them.

Your device supports two operation modes, access point mode and router mode. The access point mode is the default mode, while the router mode has the most functions and features and this guide focus on the router mode trying to give you the whole picture of the functionalities.

When using this guide, please note that features of your device may vary slightly depending on the model and software version you have, and on your location, language, and internet service provider. All screenshots, images, parameters and descriptions documented in this guide are used for demonstration only.

## Conventions

In this guide the following conventions are used:

| Convention | Description |
|---|---|
| Underlined | Underlined words or phrases are hyperlinks. You can click to redirect to a website or a specific section. |
| Teal | Contents to be emphasized and texts on the web page are in teal, including the menus, items, buttons and so on. |
| > | The menu structures to show the path to load the corresponding page. For example, Advanced > Wireless > Wireless Settings means the Wireless Settings page is under the Wireless menu that is located in the Advanced tab. |
| **Note:** | Ignoring this type of note might result in a malfunction or damage to the device. |
| **Tips:** | Indicates important information that helps you make better use of your device. |
| Symbols on the web page | • ✎ click to edit the corresponding entry.<br>• 🗑 click to delete the corresponding entry.<br>• 💡 click to enable or disable the corresponding entry.<br>• ⓘ click to view more information about items on the page. |

## More Info

The Quick Installation Guide can be found where you find this guide or inside the package of the product.

Specifications can be found on the product page at http://www.tp-link.com.

A Technical Support Forum is provided for you to discuss our products at http://forum.tp-link.com.

Our Technical Support contact information can be found at the Contact Technical Support page at www.tp-link.com/support.

Chapter 1

# Get to Know Your Device

This chapter introduces what your device can do and shows its appearance.

It contains the following sections:

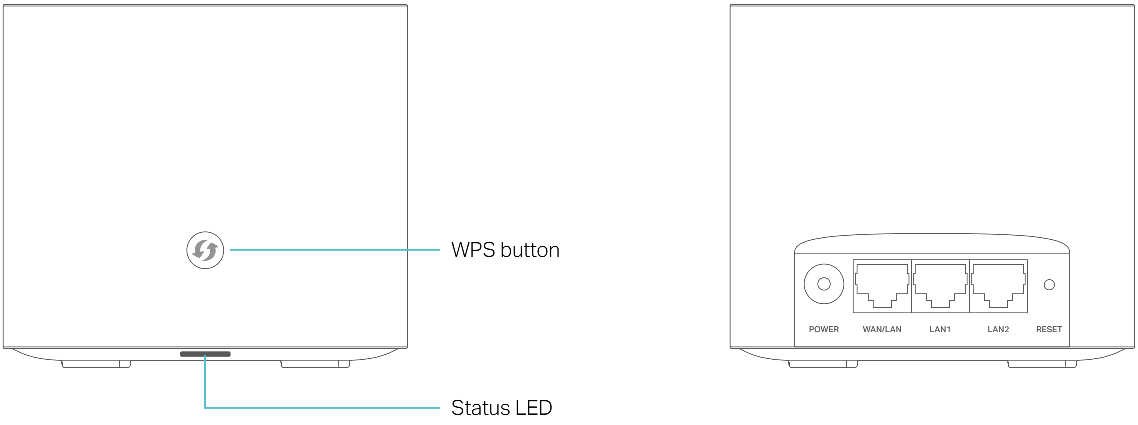
- Product Overview
- Appearance

## 1. 1. Product Overview

The Whole Home Mesh Wi-Fi AP is designed to extend your network coverage. You can use multiple devices to create a seamless, intelligent and easy-to-configure mesh network that covers the entire home. The system consists of a controller, and one or more agents. The controller connects to a wired router, or a modem or gateway, the agent extends the wireless coverage of your network.

## 1. 2. Appearance

The device has an LED that changes its behavior according to its working status, and a WPS button, three RJ-45 Ethernet ports, a power port, and a RESET button.



You can check the device's working status by following the LED Explanation table.

**LED Explanation**

| Status | Indication |
|---|---|
| Yellow | The device is connected to the controller (For agent only). |
| Flashing yellow | The device is starting up or resetting. |
| Flashing blue | The device is ready for configuration. |
| Fast flashing blue | The device is trying to establish a WPS or mesh connection. This process may take up to two minutes. |
| Blue | The device has been set up as controller, or its wireless/wired connection with the controller is good, but the internet is unavailable. |
| Flashing white | The device is upgrading the firmware. |
| White | The device is ready and the internet is available. |
| Flashing red | The device has lost connection with the controller. (For agent only). |

**LED Explanation**

| Status | Indication |
|---|---|
| Red | The device has an issue. |
| Off | Power is off, or the status LED is turned off. |

For information about the button and ports, you can refer to the explanation table below.

| Item | Description |
|---|---|
| ↻ WPS button | Press the button to start a WPS or mesh connection process. |
| Power port | For connecting the device to a power socket via the provided power adapter. |
| WAN/LAN port | For connecting the device to:<br>a) a wired router(AP mode)<br>b) a DSL/Cable modem, the Ethernet outlet or other internet devices(router mode).<br>c) your PC or other Ethernet network devices. |
| LAN1, LAN2 ports | For connecting your PC or other Ethernet network devices. |
| RESET button | Press and hold the button for at least 5 seconds to reset the device into its factory default settings. |

Chapter 2

# Connect the Device

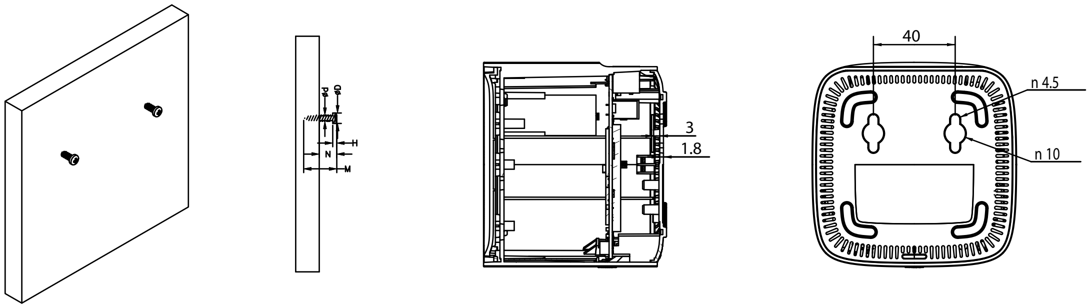
This chapter contains the following sections:

- Position the Device
- Connect Your Device

## 2. 1. Position the Device

- The device should not be located in a place where it will be exposed to moisture or excessive heat.
- Place the device in a location where it can be connected to multiple devices as well as to a power source.
- Make sure the cables and power cord are safely placed out of the way so they do not create a tripping hazard.
- Keep the device away from devices with strong electromagnetic interference, such as Bluetooth devices, cordless phones and microwaves.
- The device can be placed on a shelf or desktop.

Generally, the device is placed on a horizontal surface, such as on a shelf or desktop. The device also can be mounted on the wall as shown in the following image.



NOTE:
4.67 mm < D < 9.85 mm
d < 4.5 mm
H < 3 mm
4.8 mm < N
20 mm ≤ M

Note:

The diameter of the screw should be between 4.67 mm and 9.85 mm, and the center distance of two screws is 40 mm. The screws should be at least 20 mm in length to hold the device, and the screw head raised above the wall surface should be about 4.8 mm.

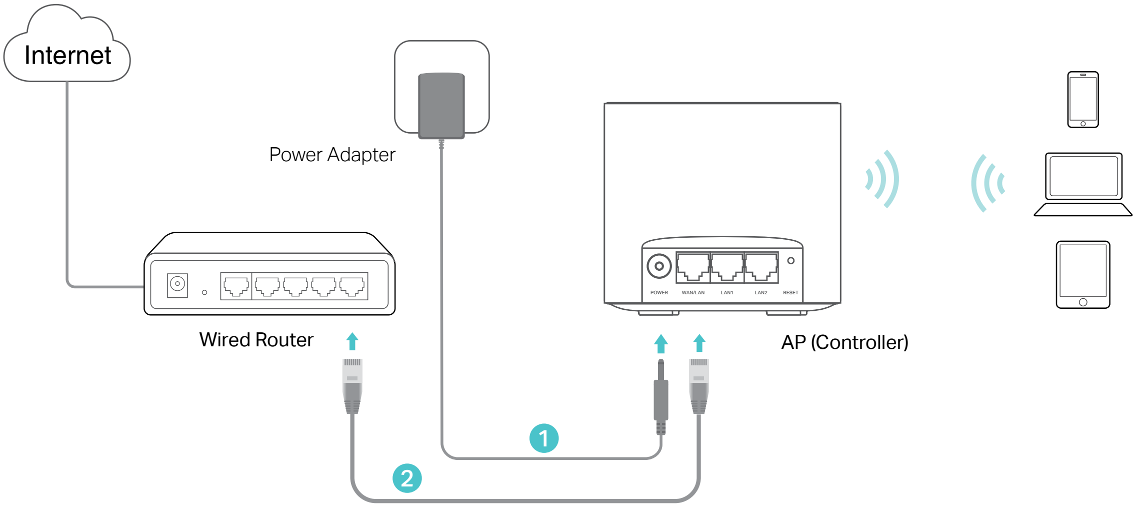
## 2. 2. Connect Your Device

The Whole Home Mesh Wi-Fi AP is designed to extend the Wi-Fi signal and create a mesh wireless network throughout your home.

By default, the AP device is set in access point mode, you can connect the AP device to your exiting wired to extend the wireless coverage of your existing network.

If you want to create a new network, the Whole Home Mesh Wi-Fi AP can act as a regular router, refer to Router Mode Configure the Device in Router Mode section.

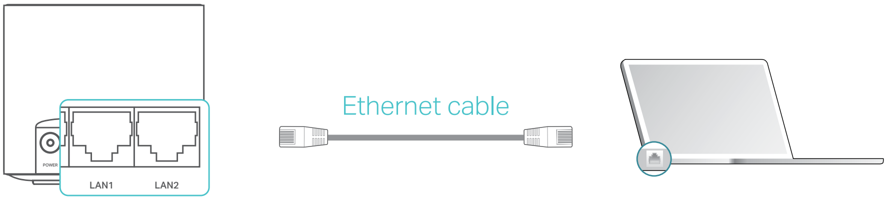
Follow the steps below to connect your device.



1. Connect the power adapter to the AP device.
2. Connect the WAN/LAN port of the AP device to your wired router's Ethernet port via an Ethernet cable.
3. Verify the status LED (on the bottom of the device) is flashing blue before continuing with the configuration.
4. Connect your computer to the router.

- **Method 1: Wired**

  Turn off the Wi-Fi on your computer and connect the computer to the LAN port of the router using an Ethernet cable.

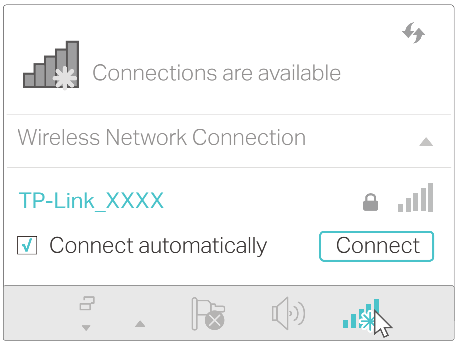


- **Method 2: Wireless**

1 ) Find the SSID (Network Name) and Wireless Password printed on the label at the bottom of the router.

2 ) Click the network icon of your computer or go to Wi-Fi Settings of your smart device, and then select the SSID to join the network.

Computer



Connections are available

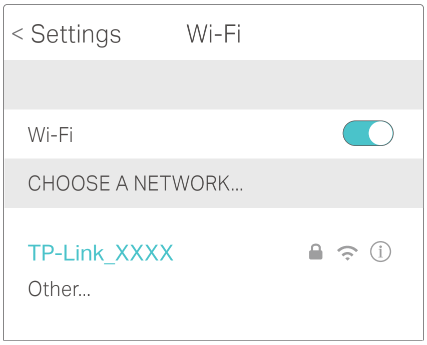
Wireless Network Connection

TP-Link_XXXX

☑ Connect automatically

OR

Smart Device



< Settings Wi-Fi

Wi-Fi

CHOOSE A NETWORK...

TP-Link_XXXX

Other...

**Note:**

In access point mode, functions like NAT, Parental Controls are not supported.

Chapter 3

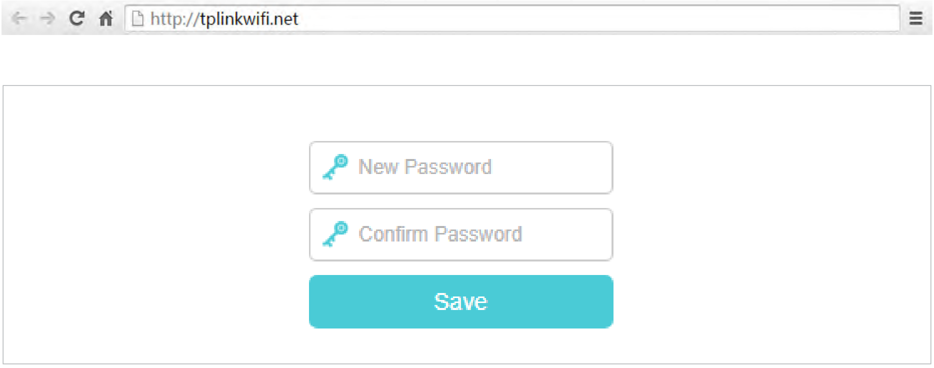
# Log In to Your Device

This chapter introduces how to log in to the web management page of the device.

With the web management page, it is easy to configure and manage your device. The web management page can be used on any Windows, Macintosh or UNIX OS with a Web browser, such as Microsoft the Internet Explorer, Mozilla Firefox or Apple Safari.

Follow the steps below to log in to your device.

1. Set up the TCP/IP Protocol in Obtain an IP address automatically mode on your computer.
2. Launch a web browser and enter http://tplinkwifi.net in the address bar. Create a strong login password for secure management and click Save. Then, enter the password again on the login window and click Log in to log in to your router.



Note:

1. If the dialog boxes shown in the images above do not appear, it suggests that your IE Web-browser has been set to a proxy. You can go to Tools > Internet Options > Connections > LAN Settings, and clear the Using Proxy check box, and click OK.
2. If the login window does not appear, please refer to the FAQ section.

Chapter 4

# Set Up Internet Connection

This chapter introduces how to connect your router to the internet. The router is equipped with a web-based Quick Setup wizard. It includes the necessary configuration options of ISP, automates the setup process and verifies whether those settings have been successfully completed. Furthermore, you can also set up an IPv6 connection if your ISP provides IPv6 service.

It contains the following sections:

- Use Quick Setup Wizard
- Configure the Device in Router Mode

## 4. 1. Use Quick Setup Wizard

The Quick Setup wizard will guide you through the process to set up your device.

Tips:

If you need the IPv6 internet connection, please refer to the section of Set Up an IPv6 Internet Connection.

Follow the steps below to set up your router.

1. Visit http://tplinkwifi.net, and log in with the password you set for your device.
2. Click Quick Setup on the top of the page. Then follow the step-by-step instructions to connect your device to the internet.

Note:

1. If you have changed the preset wireless network name (SSID) and wireless password during the Quick Setup process, all your wireless devices must use the new SSID and password to connect to the router.
2. Once you complete the Quick Setup process, the device become your mesh Wi-Fi controller, you can add agent to create your mesh Wi-Fi system.

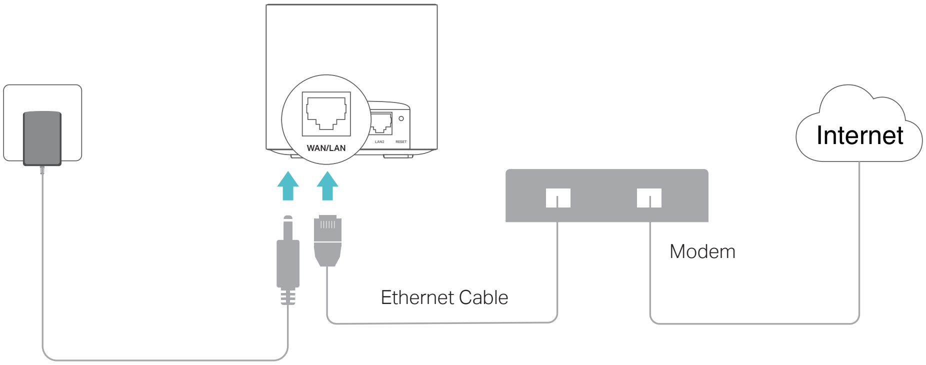
## 4. 2. Configure the Device in Router Mode

### 4. 2. 1. Connect the Hardware

If you already have a modem or your internet comes directly from an Ethernet wall outlet, you can set up the device to work as a regular router.

If your internet connection is through an Ethernet cable directly from the wall instead of through a DSL / Cable / Satellite modem, directly connect the Ethernet cable to WAN/LAN port on the AP device, then follow step 4 and 5 to complete the hardware connection.

To switch to router mode:



1. Unplug your modem, and remove the backup battery if it has one.
2. Connect the powered-off modem to the WAN/LAN port on the AP device with an Ethernet cable.
3. Turn on the modem and then wait about 2 minutes for it to restart.

4. Connect the power adapter to the AP device.
5. Connect a computer to the AP device via an Ethernet cable or wirelessly by using the SSID (network name) and Wireless Password.
6. Launch a web browser and enter http://tplinkwifi.net in the address bar, and log in to your AP device using the password you set.
7. Go to Settings > Operation Mode, select Router and click Save. Wait for the device to reboot, and run the Quick Setup and select router mode to set up the internet connection.

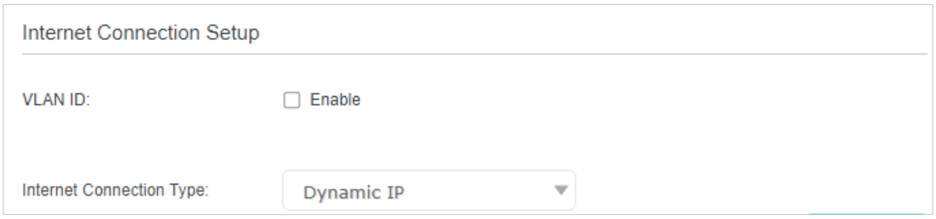
Now, you can set up your network and surf the internet.

### 4. 2. 2. Manually Set Up Your Internet Connection

In this part, you can check your current internet connection settings. You can also modify the settings according to the service information provided by your ISP.

Follow the steps below to check or modify your internet connection settings.

1. Visit http://tplinkwifi.net, and log in with the password you set for the router.
2. Go to Basic > Internet.
3. Select your internet connection type from the drop-down list.



Internet Connection Setup

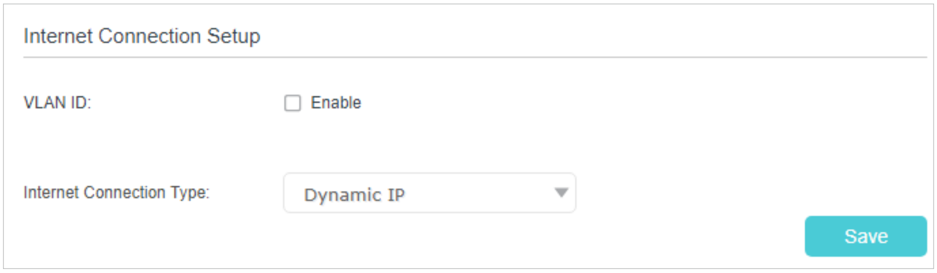
VLAN ID: □ Enable

Internet Connection Type: Dynamic IP

**Note:**

If you are unsure of what your connection type is, please consult your ISP. Since different connection types may require different cables and connection information, please refer to the demonstrations in Step 4 to determine your connection type.

4. Follow the instructions on the page to continue the configuration. Parameters on the images are used for demonstration only.
    1 ) If you choose Dynamic IP, you just need to click Save to make the settings effective. Dynamic IP users are usually equipped with a cable TV or fiber cable.

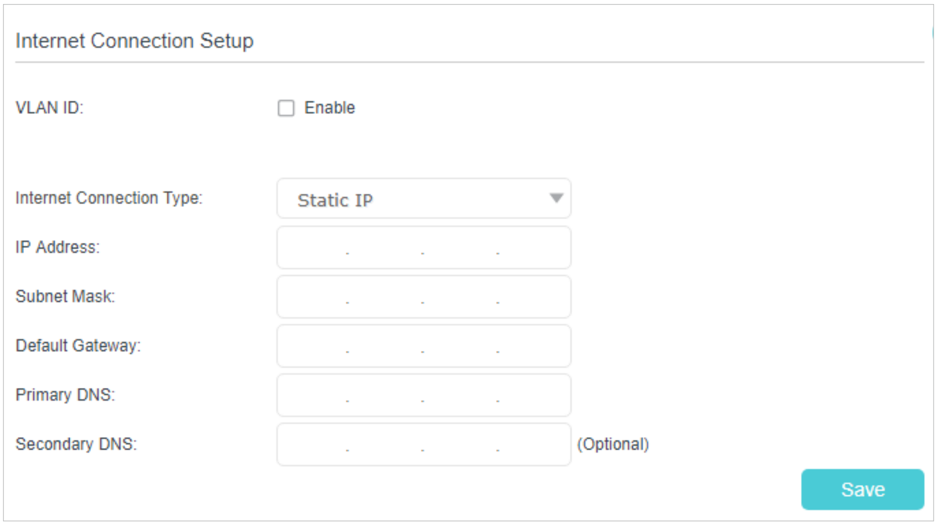


Internet Connection Setup

VLAN ID: □ Enable

Internet Connection Type: Dynamic IP

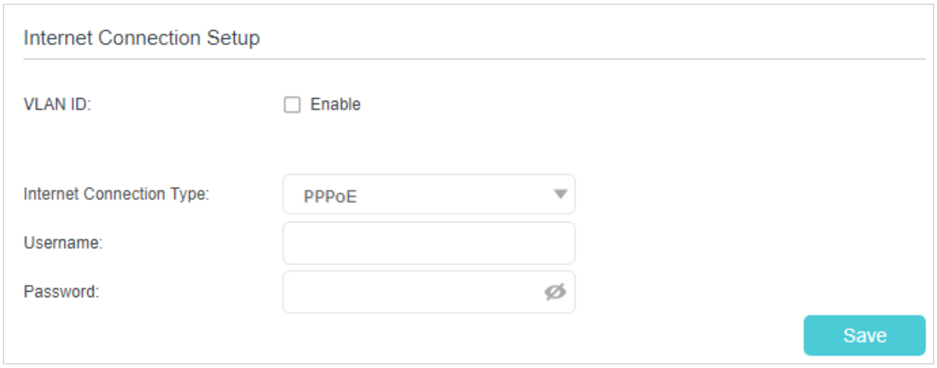
2 ) If you choose Static IP, enter the information provided by your ISP in the corresponding fields.



Internet Connection Setup

| | |
|---|---|
| VLAN ID: | □ Enable |
| Internet Connection Type: | Static IP |
| IP Address: | . . . |
| Subnet Mask: | . . . |
| Default Gateway: | . . . |
| Primary DNS: | . . . |
| Secondary DNS: | . . . (Optional) |

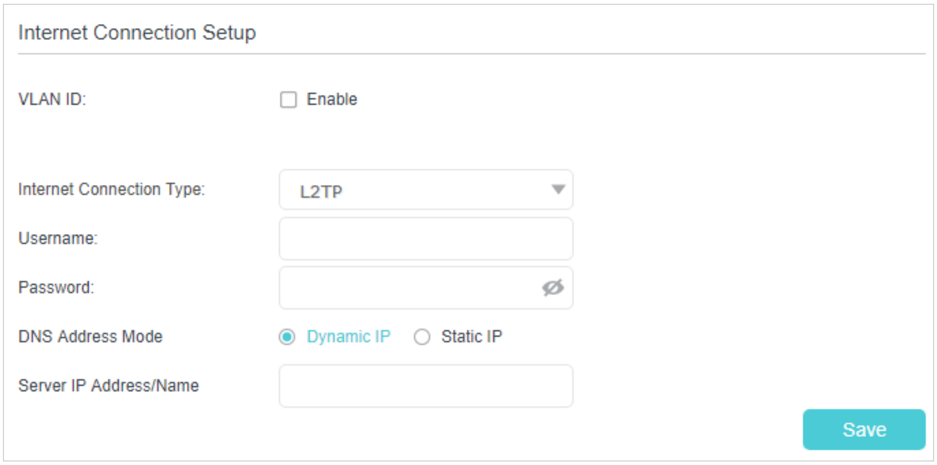
3 ) If you choose PPPoE, enter the Username and Password provided by your ISP. PPPoE users usually have DSL cable modems.



Internet Connection Setup

| | |
|---|---|
| VLAN ID: | □ Enable |
| Internet Connection Type: | PPPoE |
| Username: | |
| Password: | |

4 ) If you choose L2TP, enter the Username and Password, and select the DNS Address Mode provided by your ISP. Different parameters are needed according to the DNS address mode you selected.



Internet Connection Setup

VLAN ID: □ Enable

Internet Connection Type: L2TP

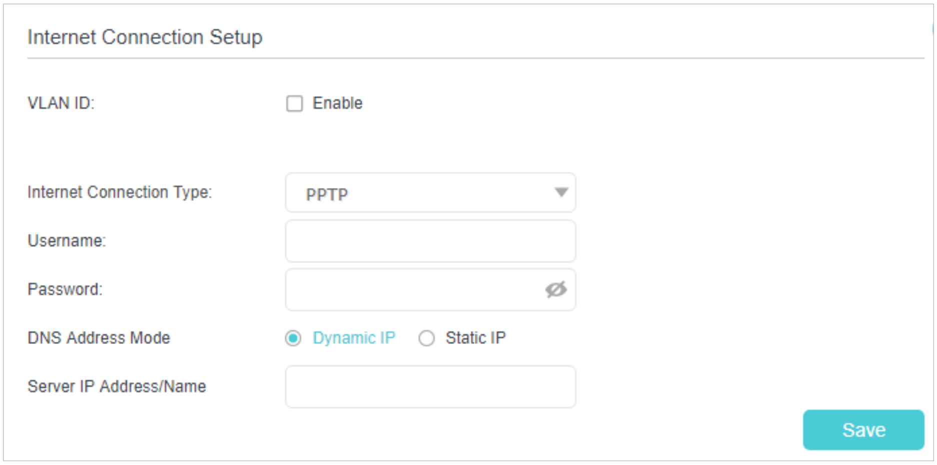
Username:

Password:

DNS Address Mode ● Dynamic IP ○ Static IP

Server IP Address/Name

5 ) If you choose PPTP, enter the Username and Password, and select the DNS Address Mode provided by your ISP. Different parameters are needed according to the DNS address mode you selected.



Internet Connection Setup

VLAN ID: □ Enable

Internet Connection Type: PPTP

Username:

Password:

DNS Address Mode ● Dynamic IP ○ Static IP

Server IP Address/Name

5. Click Save to make the settings effective, and you can refer to Test Internet Connectivity to test if the internet connection works.

**Note:**

It may take 1-2 minutes to save the settings.

**Tips:**

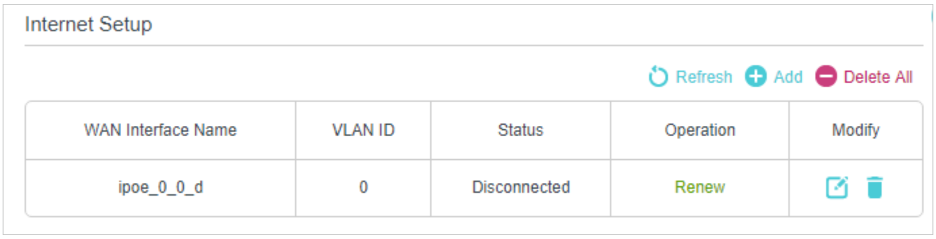
3. You can check your internet connection by clicking Network Map on the left of the page.
4. If you use Dynamic IP and PPPoE and you are provided with any other parameters that are not required on the page, please go to Advanced > Network > Internet to complete the configuration.
5. If you still cannot access the internet, refer to the FAQ section for further instructions.

## 4. 2. 3. Set Up an IPv6 Internet Connection

If your ISP provides information about one of the following IPv6 internet connection types: PPPoE, Dynamic IP(SLAAC/DHCPv6), and Static IP, you can manually set up an IPv6 connection.

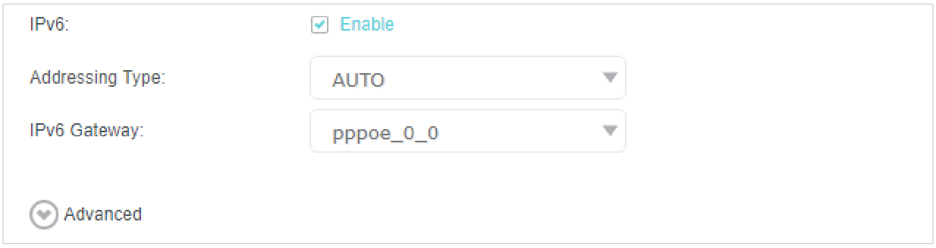
If your ISP provides an IPv4-only connection or IPv6 tunnel service, permit IPv6 connection by referring to Set Up the IPv6 Tunnel.

1. Visit http://tplinkwifi.net, and log in with the password you set for the router.
2. Go to Advanced > Network > Internet.



| WAN Interface Name | VLAN ID | Status | Operation | Modify |
|---|---|---|---|---|
| ipoe_0_0_d | 0 | Disconnected | Renew | ✎ 🗑 |

3. Select your WAN Interface Name (Status should be Connected) and click the ✎ (Edit) icon.
4. Scroll down the page to enable IPv6, and configure the IPv6 parameters.



IPv6: ☑ Enable

Addressing Type: AUTO

IPv6 Gateway: pppoe_0_0

- Addressing Type: Consult your ISP for the addressing type (DHCPv6 or SLAAC). SLAAC is the most commonly used addressing type.
- IPv6 Gateway: Keep it as the default setting.

**Note:**
If your ISP has provided the IPv6 address, click Advanced to reveal more settings.

5. Click OK and IPv6 service is available for your network now.

Chapter 5

# Create Mesh Wi-Fi System

This chapter describes how you can add the agent to create a mesh Wi-Fi system and extend the wireless coverage.

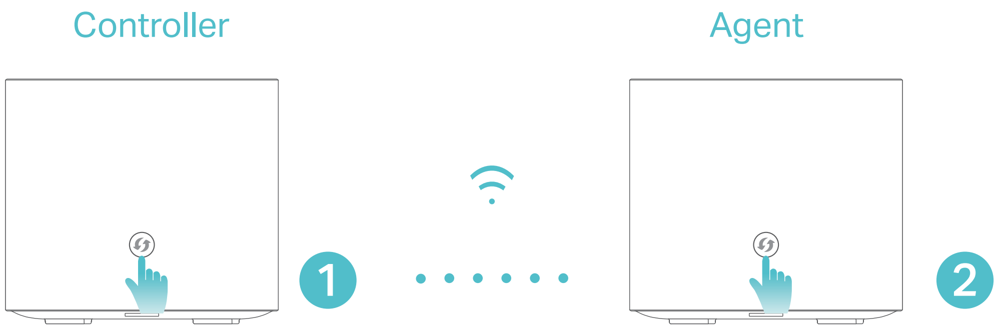
The Whole Home Mesh Wi-Fi System includes a controller, one or more agents. If you have more than one mesh AP devices, you can add the remaining ones as agents to create a mesh Wi-Fi system and extend your Wi-Fi coverage.

Please note that you can only add the AP device as agent when it is in factory default settings.

➢ **To add a agent to your network**

- **Method 1: Wireless Connection**

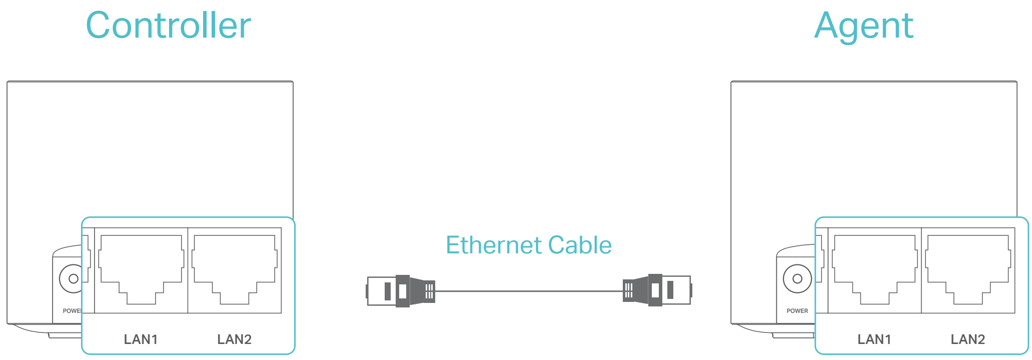
1. Place the agent close to the controller and power it on, wait about two minutes until the status LED turns to flashing blue.
2. Press the WPS button on the controller or the agent in your mesh Wi-Fi system, and within two minutes, press the WPS button on your new agent.



3. The status LED will flash blue fast for about two minutes during the synchronizing process.

- **Method 2: Wired Connection**

1. Place the agent in an open area for best performance and power it on, wait about two minutes for it to get ready for configuration.
2. Connect the LAN ports on the controller and the agent using an Ethernet cable .
3. The agent will automatically synchronize with the  controller to extend your network.



Tips:

1. If the agent's status LED still flashes blue, please repeat the synchronizing process.
2. The agent automatically follows the Wi-Fi settings of the controller.
3. You can also synchronize the add-on agent with the agent in your existing mesh Wi-Fi system.
4. You can log in to the controller if you want to manage your mesh network.

You can place the agent in appropriate places to extend the wireless signal coverage. The specific locations depend on the architectural style, building material, and layout of your house. Please note that the wireless coverage of one agent and the router must be overlapped for synchronization. If you have more than one agent, we recommend that you place the mesh router in the middle of your agents.

You can use the agent' LED status to help you to determine where to place them.

Tips:

After the placement, if the LED status of agent is flashing red, please move it closer to the controller or the other agent, you can check the satellite's connection status on the web management page by clicking the Router icon on Network Map.

Chapter 6

# Multi-SSID

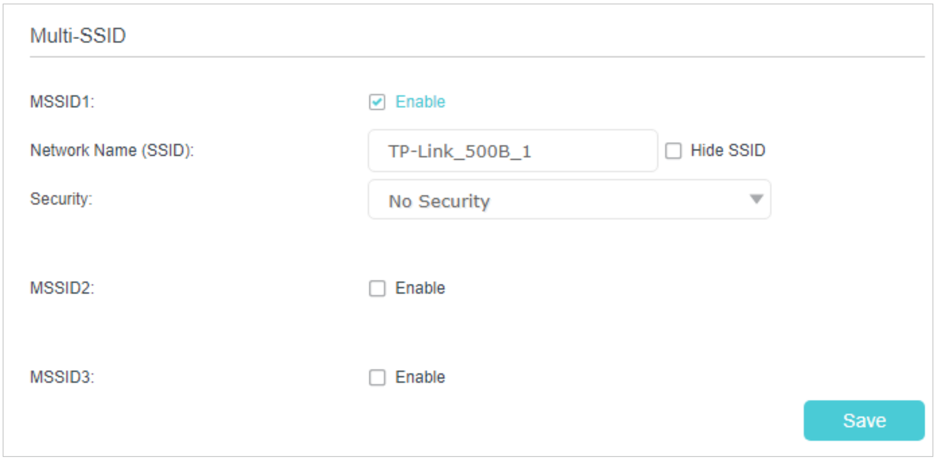
Multi-SSID function allows you to provide Wi-Fi access for your visitors without disclosing your main network. When you have guests in your house, apartment, or workplace, you can create a multi-SSID wireless network for them. In addition, you can customize the network settings to ensure your network security and privacy.

➢ **To create a multi-SSID network:**

1. Visit http://tplinkwifi.net, and log in with the password you set for the router.

2. Go to Basic > Multi-SSID or Advanced > Wireless > Multi-SSID.

3. Create the multi-SSID network as needed.



Multi-SSID

MSSID1: ☑ Enable

Network Name (SSID): TP-Link_500B_1 □ Hide SSID

Security: No Security

MSSID2: □ Enable

MSSID3: □ Enable

1 ) Select the Enable check box to create the corresponding multi-SSID network. You can create three multi-SSID wireless networks at most.

2 ) Enter a new Network Name (SSID) or use the default name, this field is case-sensitive. Don't select Hide SSID unless you want your guests to manually input the SSID for Wi-Fi access.

3 ) Select the Security option for the multi-SSID wireless network, WPA/WPA2/WPA3 Personal (Recommended) is recommended, and you can set a password for the network.

4. Click Save to make the settings effective. Now your guests can access your multi-SSID wireless network using the SSID and password specified.

Chapter 7

# TP-Link Cloud Service

TP-Link Cloud service provides a better way to manage your cloud devices. Log in to your router with a TP-Link ID, and you can easily monitor and manage your home network when you are out and about via the Tether app. To ensure that your router stays new and gets better over time, the TP-Link Cloud will notify you when an important firmware upgrade is available. Surely you can also manage multiple TP-Link Cloud devices with a single TP-Link ID.

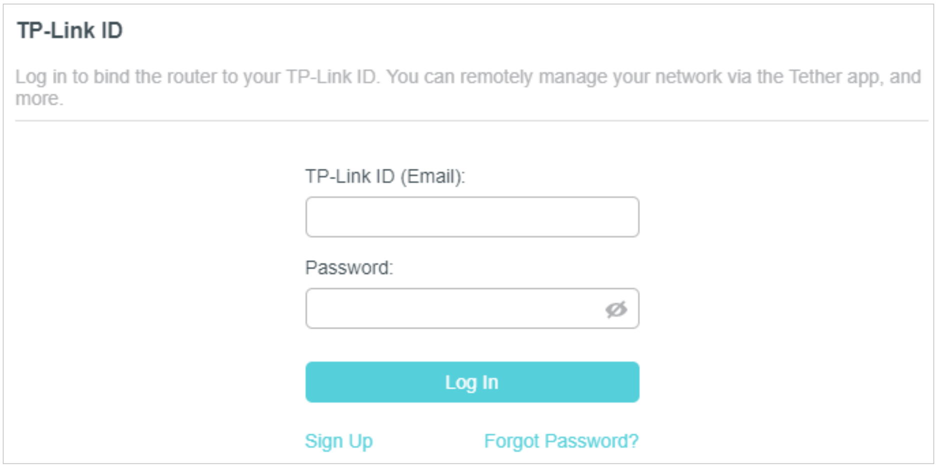
This chapter introduces how to register a new TP-Link ID, bind or unbind TP-Link IDs to manage your router, and the Tether app with which you can manage your home network no matter where you may find yourself.

It contains the following sections:

## 7. 1. Register a TP-Link ID

If you have skipped the registration during the Quick Setup process, you can:

1. Visit http://tplinkwifi.net, and log in with the password you set for the router.
2. Go to Advanced > TP-Link ID or click TP-Link ID on the very top of the page.
3. Click Sign Up and follow the instructions to register a TP-Link ID.



TP-Link ID

Log in to bind the router to your TP-Link ID. You can remotely manage your network via the Tether app, and more.

TP-Link ID (Email):

Password:

4. After activating your TP-Link ID, come back to the TP-Link ID page to log in. The TP-Link ID used to log in to the router for the first time will be automatically bound as an Admin.

**Note:**

- To learn more about the Admin and User TP-Link ID, refer to Manage the User TP-Link IDs.
- Once you have registered a TP-Link ID on the web management page, you can only register another TP-Link ID via the Tether APP. Please refer to Manage the Router via the TP-Link Tether App to install the app.
- If you want to unbind the admin TP-Link ID from your router, please go to Advanced > TP-Link ID, an click Unbind in the Device Information section.

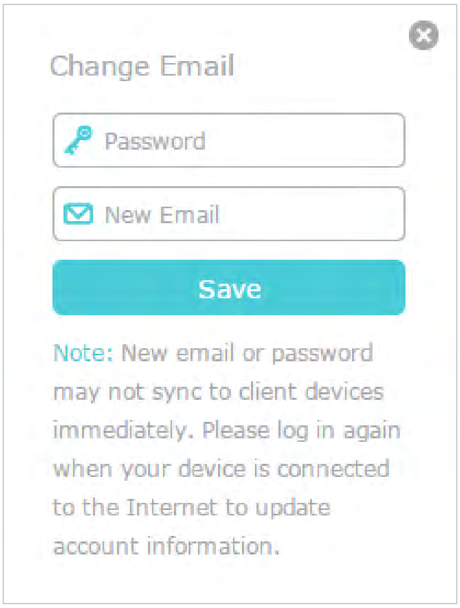
## 7. 2. Change Your TP-Link ID Information

Follow the steps below to change your email address and password of your TP-Link ID as needed.

1. Visit http://tplinkwifi.net, and log in with your TP-Link ID.
2. Go to Advanced > TP-Link ID, and focus on the Account Information section.

- **To change your email address**:

1. Click ✎ behind the Email.
2. Enter the password of your TP-Link ID, then a new email address. And click SAVE.



Change Email

Password

New Email

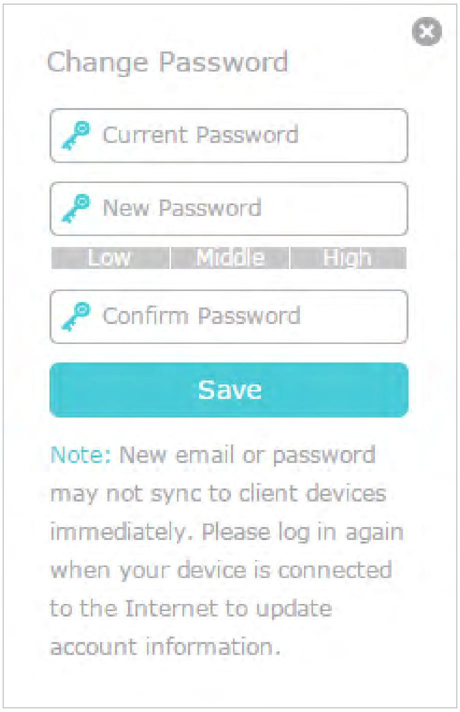
Save

Note: New email or password may not sync to client devices immediately. Please log in again when your device is connected to the Internet to update account information.

- **To change your password:**

1. Click behind the Password.

2. Enter the current password, then a new password twice. And click SAVE.



Change Password

Current Password

New Password

Confirm Password

Save

Note: New email or password may not sync to client devices immediately. Please log in again when your device is connected to the Internet to update account information.

## 7. 3. Manage the User TP-Link IDs

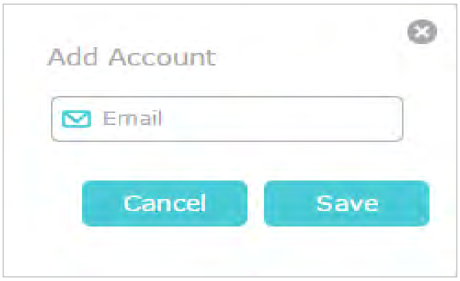
The TP-Link ID used to log in to the router for the first time will be automatically bound as the Admin account. An admin account can add or remove other TP-Link IDs to or from the same router as Users. All accounts can monitor and manage the router locally or remotely, but user accounts cannot:

- Reset the router to its factory default settings either on the web management page or in the Tether app.
- Add/remove other TP-Link IDs to/from the router.

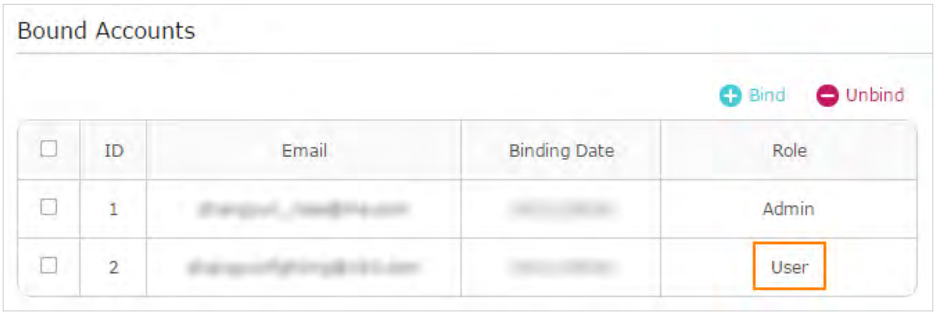
## 7. 3. 1. Add TP-Link ID to Manage the Router

1. Visit http://tplinkwifi.net, and log in with your TP-Link ID.
2. Go to Advanced > TP-Link ID, and focus on the Bound Accounts section.
3. Click ⊕ Bind , enter another TP-Link ID as needed and click SAVE.

**Note:** If you need another TP-Link ID, please register a new one via the Tether app. Refer to Manage the Router via the TP-Link Tether App to install the app and register a new TP-Link ID.



4. The new TP-Link ID will be displayed in the Bound Accounts table as a User.



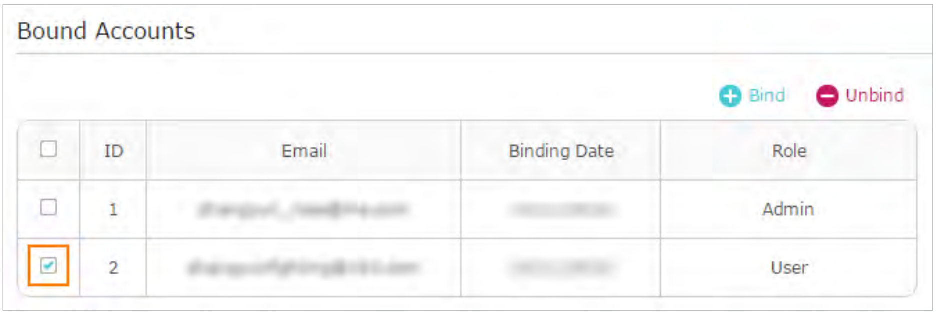
Bound Accounts

⊕ Bind ⊖ Unbind

| □ | ID | Email | Binding Date | Role |
|---|---|---|---|---|
| □ | 1 | [redacted] | [redacted] | Admin |
| □ | 2 | [redacted] | [redacted] | User |

## 7. 3. 2. Remove TP-Link ID(s) from Managing the Router

1. Visit http://tplinkwifi.net, and log in with your TP-Link ID.
2. Go to Advanced > TP-Link ID, and focus on the Bound Accounts section.
3. Tick the checkbox(es) of the TP-Link ID(s) you want to remove and click Unbind.



Bound Accounts

| □ | ID | Email | Binding Date | Role |
|---|---|---|---|---|
| □ | 1 | [redacted] | [redacted] | Admin |
| ☑ | 2 | [redacted] | [redacted] | User |

## 7. 4. Manage the Router via the TP-Link Tether App

The Tether app runs on iOS and Android devices, such as smartphones and tablets.

1. Launch the Apple App Store or Google Play store and search "TP-Link Tether" or simply scan the QR code to download and install the app.

2. Launch the Tether app and log in with your TP-Link ID.

**Note:** If you don't have a TP-Link ID, create one first.

3. Connect your device to the router's wireless network.

4. Go back to the Tether app, select the model of your router and log in with the password you set for the router.

5. Manage your router as needed.

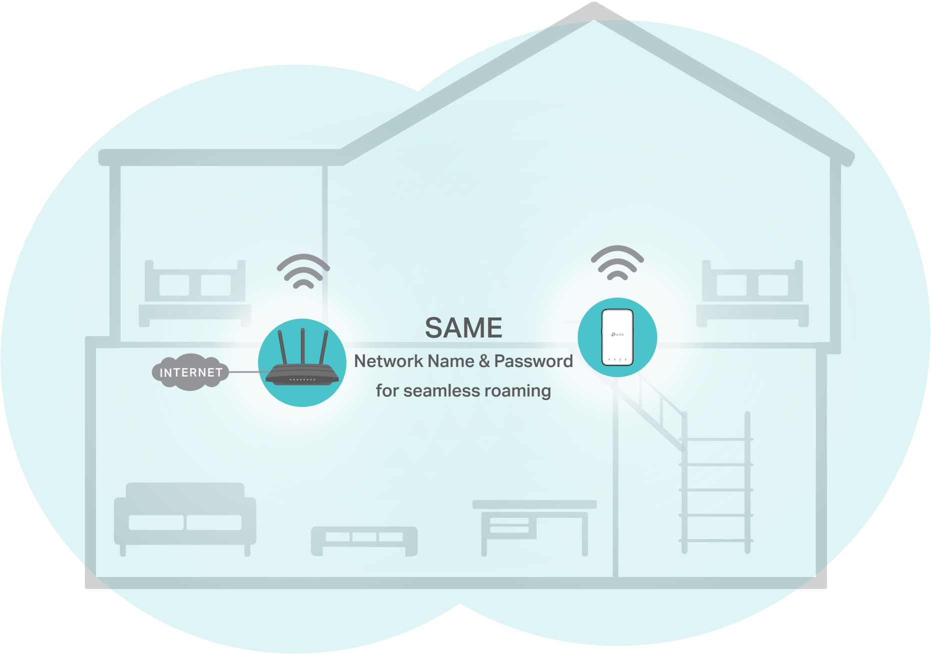
**Note:** If you need to remotely access your router from your smart devices, you need to:

- Log in with your TP-Link ID. If you don't have one, refer to Register a TP-Link ID.
- Make sure your smartphone or tablet can access the internet with cellular data or a Wi-Fi network.

Chapter 8

# EasyMesh with Seamless Roaming

TP-Link EasyMesh router and EasyMesh supported routers or extenders work together to form one unified Wi-Fi network. Walk through your home and stay connected with the fastest possible speeds thanks to its seamless coverage.



## Unified Wi-Fi Network

Router and extenders share the same wireless settings, including network name, password, access control settings and more.

## Seamless Roaming

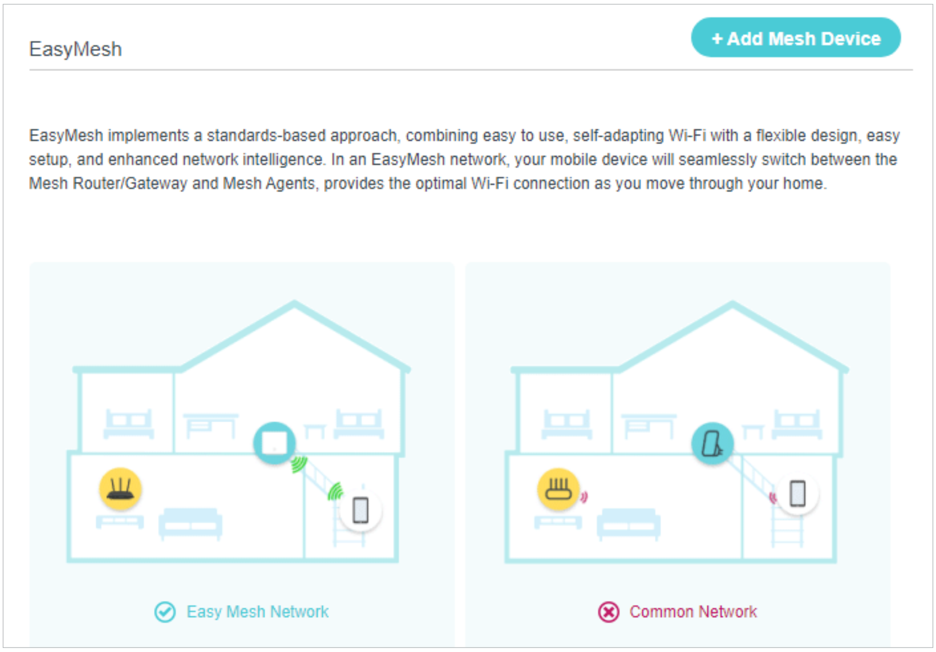
Devices automatically switch between your router and extenders as you move through your home for the fastest possible speeds.

## Easy Setup and Management

Set up a EasyMesh network with a push of WPS buttons. Manage all network devices on the Tether app or at your router's web management page.

- **To set up a EasyMesh network:**

1. Visit http://tplinkwifi.net, and log in with your TP-Link ID or the password you set for the controller.
2. Go to Basic > EasyMesh.



EasyMesh

EasyMesh implements a standards-based approach, combining easy to use, self-adapting Wi-Fi with a flexible design, easy setup, and enhanced network intelligence. In an EasyMesh network, your mobile device will seamlessly switch between the Mesh Router/Gateway and Mesh Agents, provides the optimal Wi-Fi connection as you move through your home.

3. Click Add Mesh Device.

4. Follow the setup instructions on the web page to add the new AP device. Or you can follow the setup instructions in the user manual of the new AP.

   Note:
   Please make sure the new mesh device to be added has not been used in other mesh network.

5. If you have added the mesh device to join the EasyMesh network, it will be listed on the router’s Network Map page.

Chapter 9

# Parental Controls

This function allows you to block inappropriate, explicit and malicious websites, and control access to specified websites at specified time.

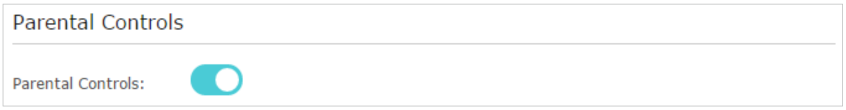
## I want to:

Control what types of websites my children or other home network users can visit and the time of day they are allowed to access the internet.

For example, I want to allow my children's devices (e.g. a computer or a tablet) to access only www.tp-link.com and Wikipedia.org from 18:00 (6 PM) to 22:00 (10 PM) on the weekdays and not other time.

## How can I do that?

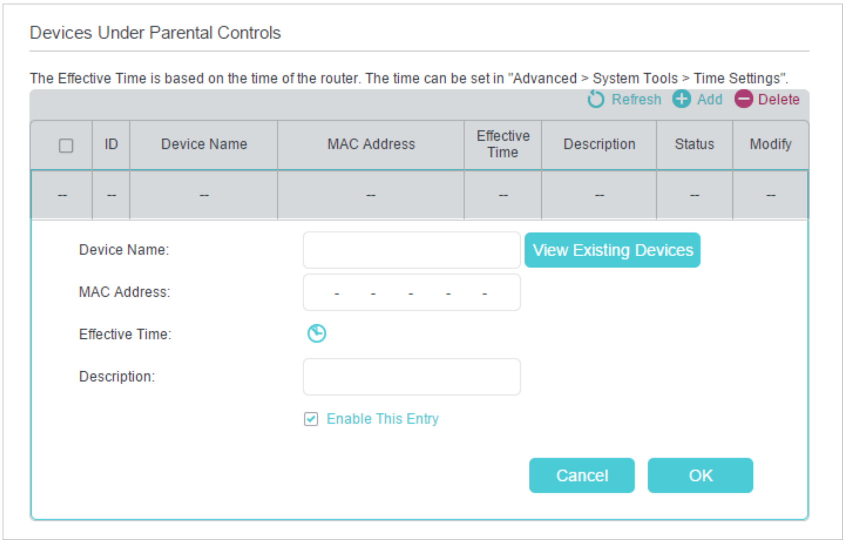
1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Basic or Advanced > Parental Controls and enable Parental Controls.



Parental Controls

Parental Controls: ●

3. Click Add, and then click View Existing Devices to select the connected device(s) to be controlled. Or, input the Device Name and MAC Address manually.



Devices Under Parental Controls

The Effective Time is based on the time of the router. The time can be set in "Advanced > System Tools > Time Settings".

| □ | ID | Device Name | MAC Address | Effective Time | Description | Status | Modify |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |

Device Name:

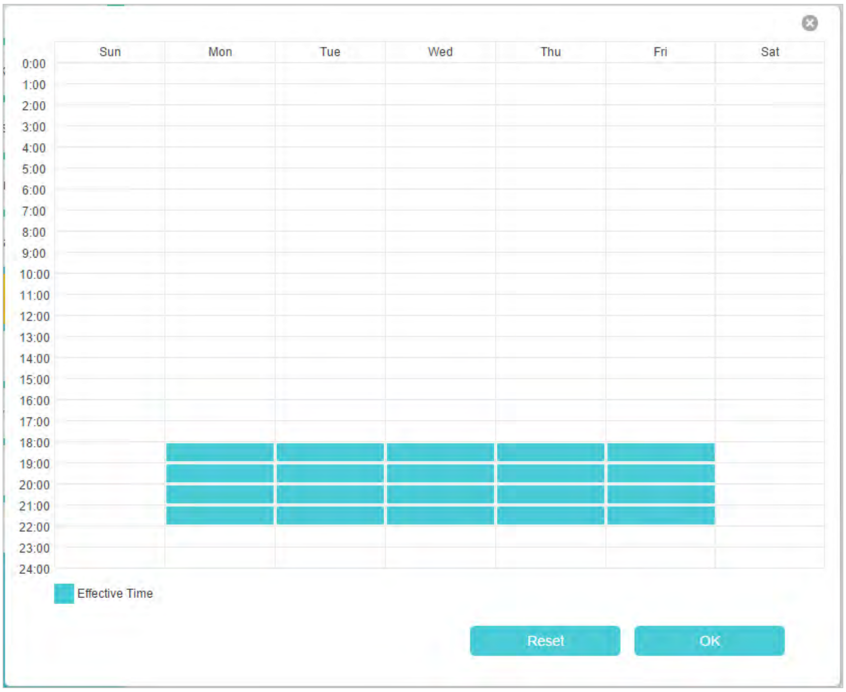
MAC Address: - - - - -

Effective Time:

Description:

☑ Enable This Entry

4. Click the ◷ icon to set the Effective Time. Drag the cursor over the appropriate cell(s) and click OK.

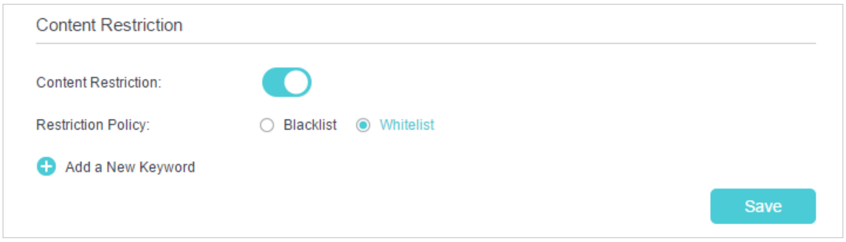


| | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|---|
| 0:00 | | | | | | | |
| 1:00 | | | | | | | |
| 2:00 | | | | | | | |
| 3:00 | | | | | | | |
| 4:00 | | | | | | | |
| 5:00 | | | | | | | |
| 6:00 | | | | | | | |
| 7:00 | | | | | | | |
| 8:00 | | | | | | | |
| 9:00 | | | | | | | |
| 10:00 | | | | | | | |
| 11:00 | | | | | | | |
| 12:00 | | | | | | | |
| 13:00 | | | | | | | |
| 14:00 | | | | | | | |
| 15:00 | | | | | | | |
| 16:00 | | | | | | | |
| 17:00 | | | | | | | |
| 18:00 | | 🟦 | 🟦 | 🟦 | 🟦 | 🟦 | |
| 19:00 | | 🟦 | 🟦 | 🟦 | 🟦 | 🟦 | |
| 20:00 | | 🟦 | 🟦 | 🟦 | 🟦 | 🟦 | |
| 21:00 | | 🟦 | 🟦 | 🟦 | 🟦 | 🟦 | |
| 22:00 | | | | | | | |
| 23:00 | | | | | | | |
| 24:00 | | | | | | | |

🟦 Effective Time

5. Enter a Description for the entry, keep the Enable This Entry check box selected, and then click Save.

6. Enable Content Restriction, and select Whitelist as the restriction policy.



Content Restriction

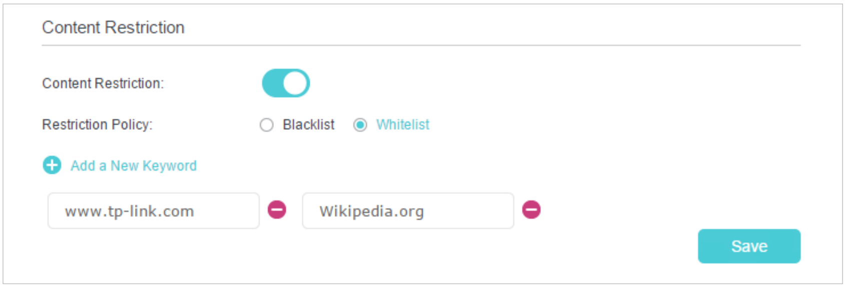
Content Restriction: ●

Restriction Policy: ○ Blacklist ● Whitelist

Tips:

- With Blacklist selected, the controlled devices cannot access any websites containing the specified keywords during the Effective Time period.
- With Whitelist selected, the controlled devices can only access websites containing the specified keywords during the Effective Time period.

7. Click Add a New Keyword and enter “www.tp-link.com” and “Wikipedia.org” as the keywords and click Save.



Content Restriction

Content Restriction: ●

Restriction Policy: ○ Blacklist ● Whitelist

www.tp-link.com

Wikipedia.org

8. You can add up to 32 keywords for either Blacklist or Whitelist. Below are some sample entries for your reference.
   - For Whitelist: Enter a web address (e.g. wikipedia.org) to allow access only to its related websites. If you wish to block all internet browsing access, do not add any keyword to the Whitelist.
   - For Blacklist: Specify a web address (e.g. wikipedia.org), a web address keyword (e.g. wikipedia) or a domain suffix (e.g. .edu or .org) to block access only to the websites containing that keyword or suffix.

**Done!**

Now you can control your children's internet access as needed.

## Chapter 10

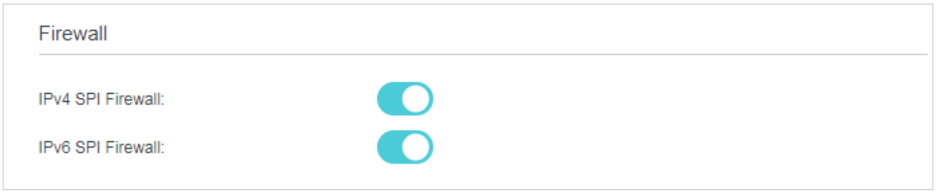
# Network Security

This chapter guides you on how to protect your home network from unauthorized users by implementing network security functions. You can block or allow specific client devices to access your wireless network using MAC Filtering, or using Access Control for wired and wireless networks, or you can prevent ARP spoofing and ARP attacks by using IP & MAC Binding.

## 10. 1. Firewall & DoS Protection

The SPI (Stateful Packet Inspection) Firewall and DoS (Denial of Service) Protection protect the controller from cyber attacks.

The SPI Firewall can prevent cyber attacks and validate the traffic that is passing through the controller based on the protocol. This function is enabled by default, and it is recommended to keep the default settings.

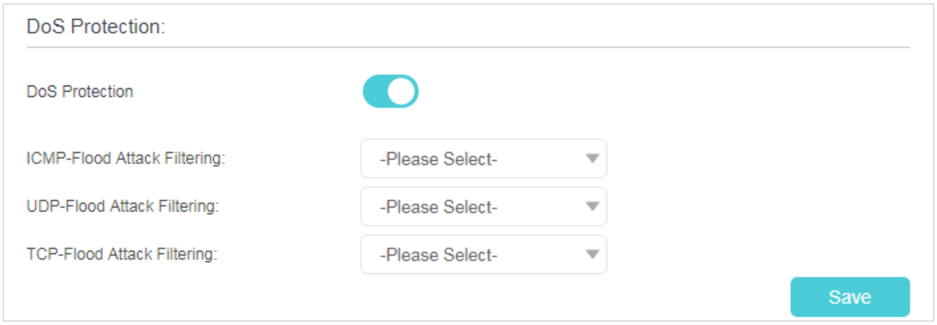

Firewall

IPv4 SPI Firewall:

IPv6 SPI Firewall:

DoS Protection can protect your home network against DoS attacks from flooding your network with server requests. Follow the steps below to configure DoS Protection.

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Security > Firewall & DoS Protection.


DoS Protection:

DoS Protection

ICMP-Flood Attack Filtering: -Please Select-

UDP-Flood Attack Filtering: -Please Select-

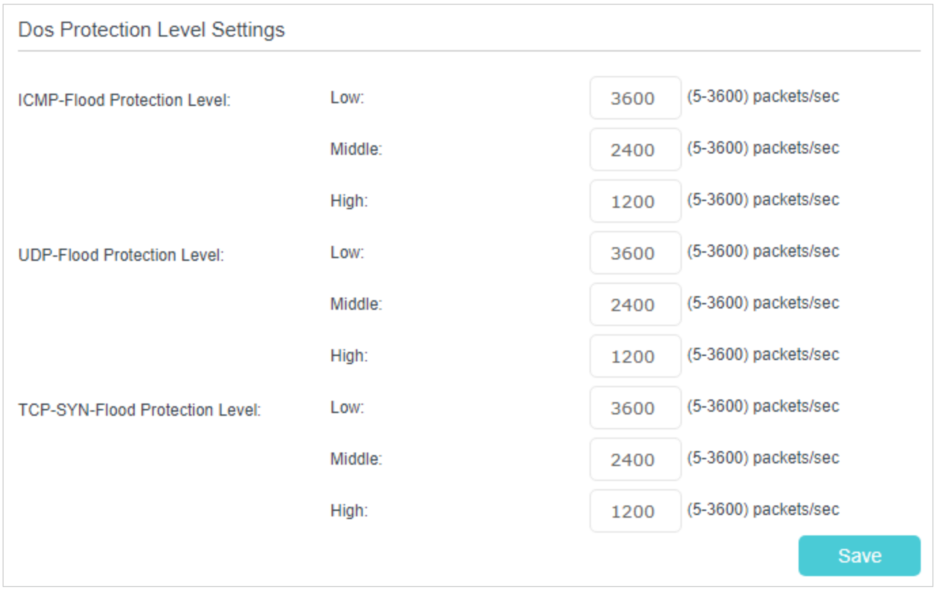
TCP-Flood Attack Filtering: -Please Select-

Note: DoS Protection and Traffic Statistics must be enabled at the same time, you can go to Advanced > System Tools > Traffic Statistics to enable traffic statistics function.

3. Enable DoS Protection.
4. Set the pretection level (Low, Middle or High) for ICMP-Flood Attack Filtering, UDP-Flood Attack Filtering and TCP-Flood Attack Filtering.
   - ICMP-Flood Attack Filtering - Enable to prevent the ICMP (Internet Control Message Protocol) flood attack.
   - UDP-Flood Attack Filtering - Enable to prevent the UDP (User Datagram Protocol) flood attack.
   - TCP-Flood Attack Filtering - Enable to prevent the TCP (Transmission Control Protocol) flood attack.
5. Click Save to make the settings effective.

Tips:

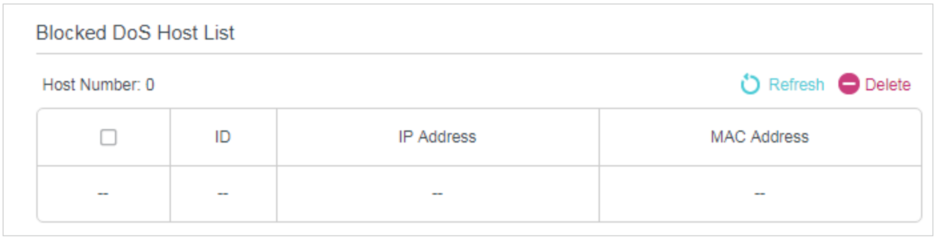
1. The level of protection is based on the number of traffic packets. You can specify the level under DoS Protection Level Settings.



Dos Protection Level Settings

| | | | |
|---|---|---|---|
| ICMP-Flood Protection Level: | Low: | 3600 | (5-3600) packets/sec |
| | Middle: | 2400 | (5-3600) packets/sec |
| | High: | 1200 | (5-3600) packets/sec |
| UDP-Flood Protection Level: | Low: | 3600 | (5-3600) packets/sec |
| | Middle: | 2400 | (5-3600) packets/sec |
| | High: | 1200 | (5-3600) packets/sec |
| TCP-SYN-Flood Protection Level: | Low: | 3600 | (5-3600) packets/sec |
| | Middle: | 2400 | (5-3600) packets/sec |
| | High: | 1200 | (5-3600) packets/sec |

2. The protection will be triggered immediately when the number of packets exceeds the preset threshold value, and the vicious host will be displayed in the Blocked DoS Host List.



Blocked DoS Host List

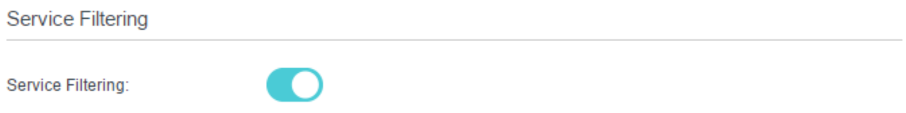
Host Number: 0

| □ | ID | IP Address | MAC Address |
|---|---|---|---|
| -- | -- | -- | -- |

## 10. 2. Service Filtering

With Service Filtering, you can prevent certain users from accessing the specified service, and even block internet access completely.

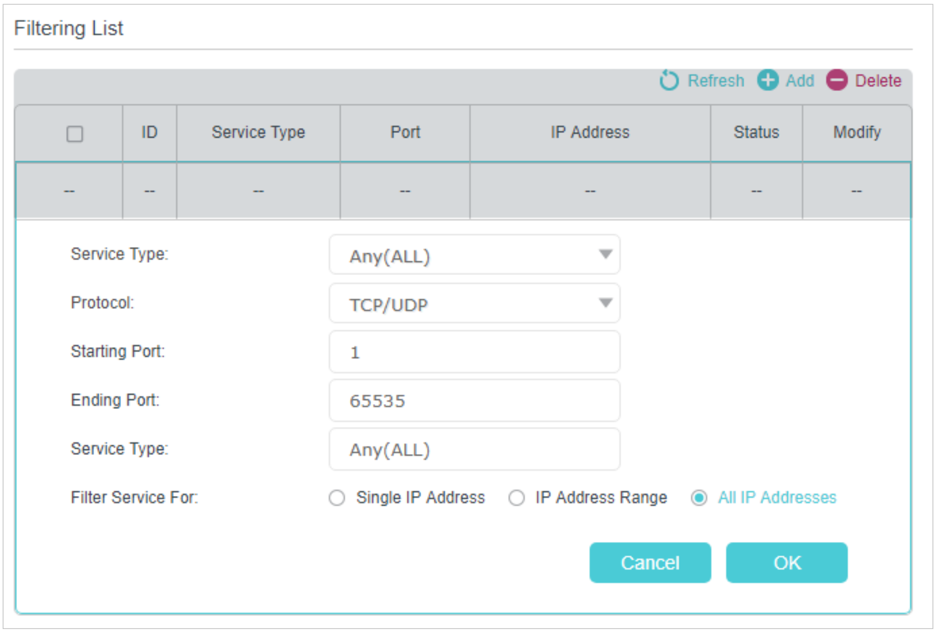
1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Security > Service Filtering.
3. Enable Service Filtering.



Service Filtering

Service Filtering: on

4. Click Add.



Filtering List

Refresh Add Delete

| □ | ID | Service Type | Port | IP Address | Status | Modify |
|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- |

Service Type: Any(ALL)

Protocol: TCP/UDP

Starting Port: 1

Ending Port: 65535

Service Type: Any(ALL)

Filter Service For: ○ Single IP Address ○ IP Address Range ● All IP Addresses

Cancel OK

5. Select a Service Type from the drop-down list and the following four boxes will be automatically filled in. Select Custom when your desired service type is not listed, and enter the information manually.
6. Specify the IP address(es) that this filtering rule will apply to.
7. Click OK to make the settings effective.

Note: If you want to disable an entry, click the 💡 icon.

## 10. 3. Access Control

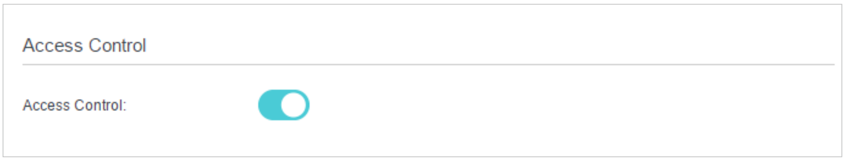
Access Control is used to block or allow specific client devices to access your network (via wired or wireless) based on a list of blocked devices (Blacklist) or a list of allowed devices (Whitelist).

### I want to:

Block or allow specific client devices to access my network (via wired or wireless).

### How can I do that?

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Security > Access Control and enable Access Control.



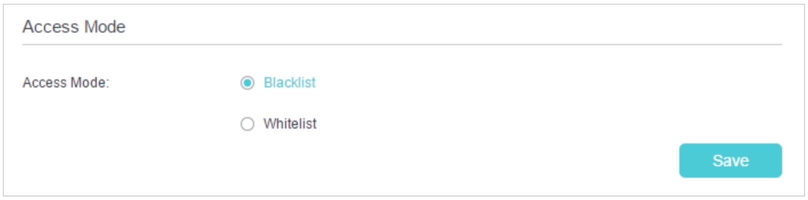
Access Control

Access Control: ●

3. Select the access mode to either block (recommended) or allow the device(s) to access your network.

**To block specific device(s):**

1 ) Select Blacklist and click Save.

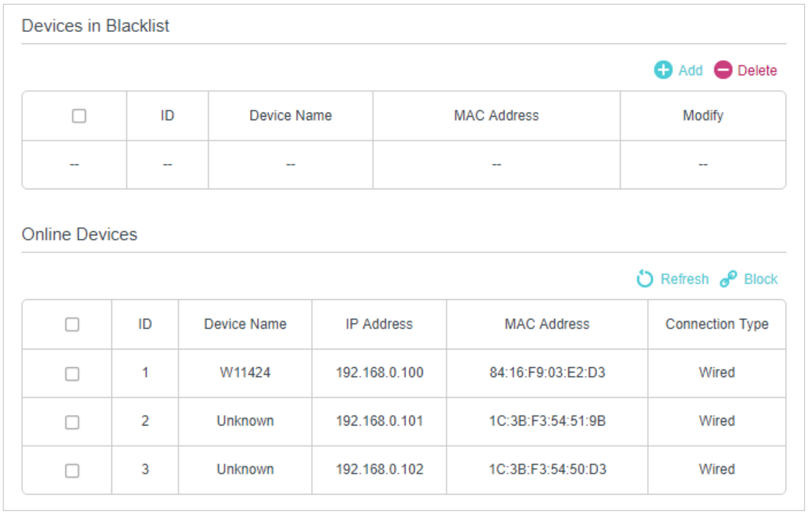


Access Mode

Access Mode: ● Blacklist ○ Whitelist

2 ) Select the device(s) to be blocked in the Online Devices table (or click the Add under the Devices in Blacklist and enter the Device Name and MAC Address manually).

3 ) Click Block above the Online Devices table. The selected devices will be added to Devices in Blacklist automatically.



Devices in Blacklist

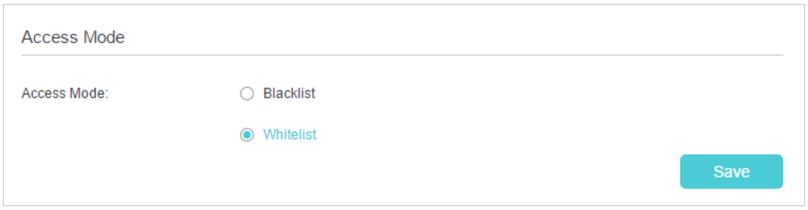
| □ | ID | Device Name | MAC Address | Modify |
|---|---|---|---|---|
| -- | -- | -- | -- | -- |

Online Devices

| □ | ID | Device Name | IP Address | MAC Address | Connection Type |
|---|---|---|---|---|---|
| □ | 1 | W11424 | 192.168.0.100 | 84:16:F9:03:E2:D3 | Wired |
| □ | 2 | Unknown | 192.168.0.101 | 1C:3B:F3:54:51:9B | Wired |
| □ | 3 | Unknown | 192.168.0.102 | 1C:3B:F3:54:50:D3 | Wired |

**To allow specific device(s):**

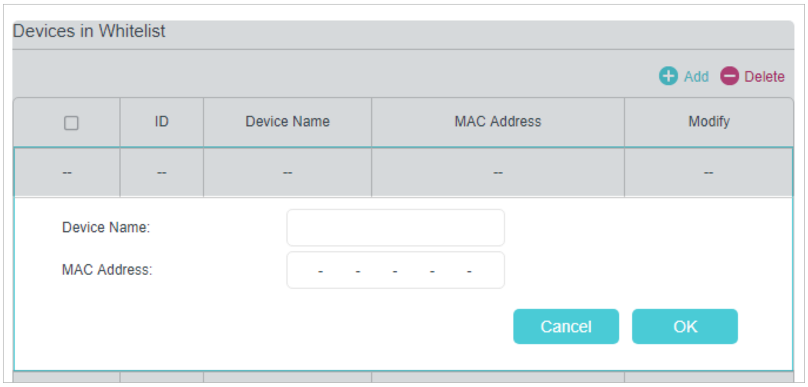
1 ) Select Whitelist and click Save.



Access Mode

Access Mode: ○ Blacklist ● Whitelist

2 ) Click Add in the Devices in Whitelist section.



| □ | ID | Device Name | MAC Address | Modify |
|---|---|---|---|---|
| -- | -- | -- | -- | -- |

Device Name:

MAC Address: - - - - -

3 ) Enter the Device Name and MAC Address. (You can copy and paste the information from Online Devices table if the device is connected to your network.)

4 ) Click OK.

**Done!** Now you can block or allow specific client devices to access your network (via wired or wireless) by Blacklist or Whitelist.

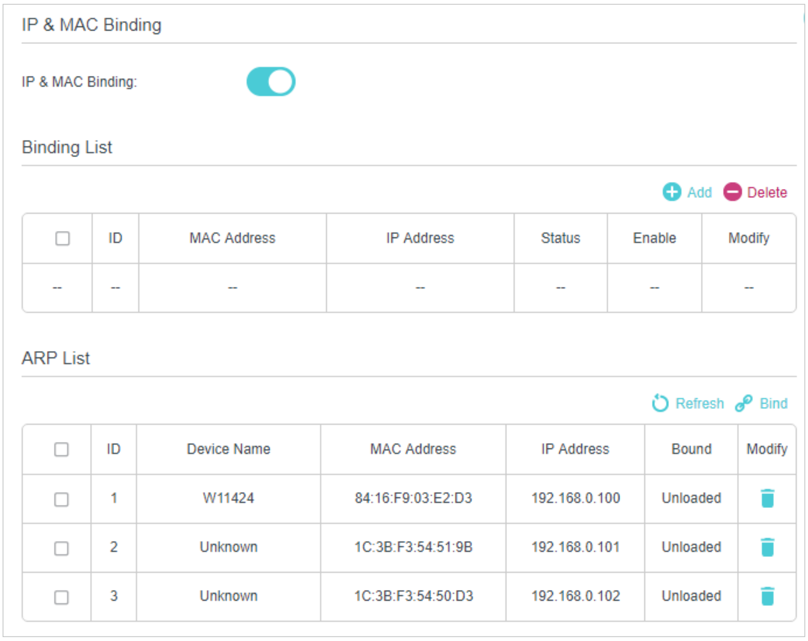
## 10. 4. IP & MAC Binding

IP & MAC Binding, namely, ARP (Address Resolution Protocol) Binding, is used to bind a network device’s IP address to its MAC address. This will prevent ARP spoofing and other ARP attacks by denying network access to a device with a matching IP address in the Binding list, but an unrecognized MAC address.

**I want to:** Prevent ARP spoofing and ARP attacks.

**How can I do that?**

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Security > IP & MAC Binding and enable IP & MAC Binding.



IP & MAC Binding

IP & MAC Binding: ●

Binding List

| □ | ID | MAC Address | IP Address | Status | Enable | Modify |
|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- |

ARP List

| □ | ID | Device Name | MAC Address | IP Address | Bound | Modify |
|---|---|---|---|---|---|---|
| □ | 1 | W11424 | 84:16:F9:03:E2:D3 | 192.168.0.100 | Unloaded | 🗑 |
| □ | 2 | Unknown | 1C:3B:F3:54:51:9B | 192.168.0.101 | Unloaded | 🗑 |
| □ | 3 | Unknown | 1C:3B:F3:54:50:D3 | 192.168.0.102 | Unloaded | 🗑 |

3. Bind your device(s) according to your needs.

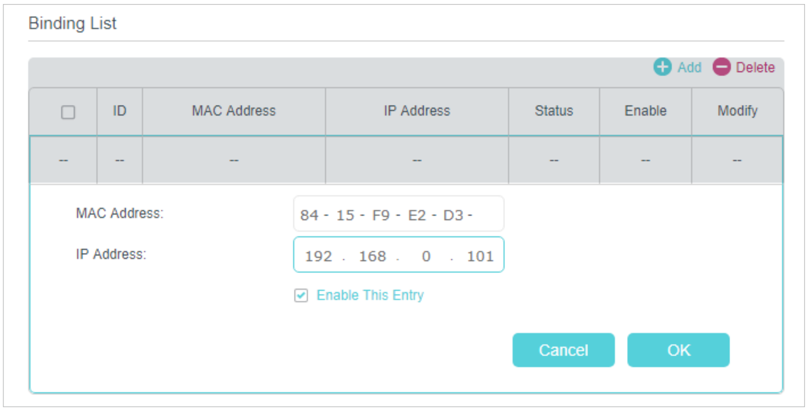
   **To bind the connected device(s):**

   1 ) Select the device(s) to be bound in the ARP List.

   2 ) Click Bind to add to the Binding List.

   **To bind the unconnected device**

   1 ) Click Add.



Binding List

| □ | ID | MAC Address | IP Address | Status | Enable | Modify |
|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- |

MAC Address: 84 - 15 - F9 - E2 - D3 -

IP Address: 192 . 168 . 0 . 101

☑ Enable This Entry

   2 ) Enter the MAC address and IP address that you want to bind.

   3 ) Select the Enable This Entry check box to enable the entry and click OK.

**Done!** Enjoy the internet without worrying about ARP spoofing and ARP attacks.

Chapter 11

# NAT Forwarding

Router's NAT (Network Address Translation) feature makes the devices in the LAN use the same public IP address to communicate in the internet, which protects the local network by hiding IP addresses of the devices. However, it also brings about the problem that external host cannot initiatively communicate with the specified device in the local network.

The router can use a forwarding feature to remove the isolation of NAT and allow external internet hosts to initiatively communicate with the devices in the local network, thus enabling some special features.

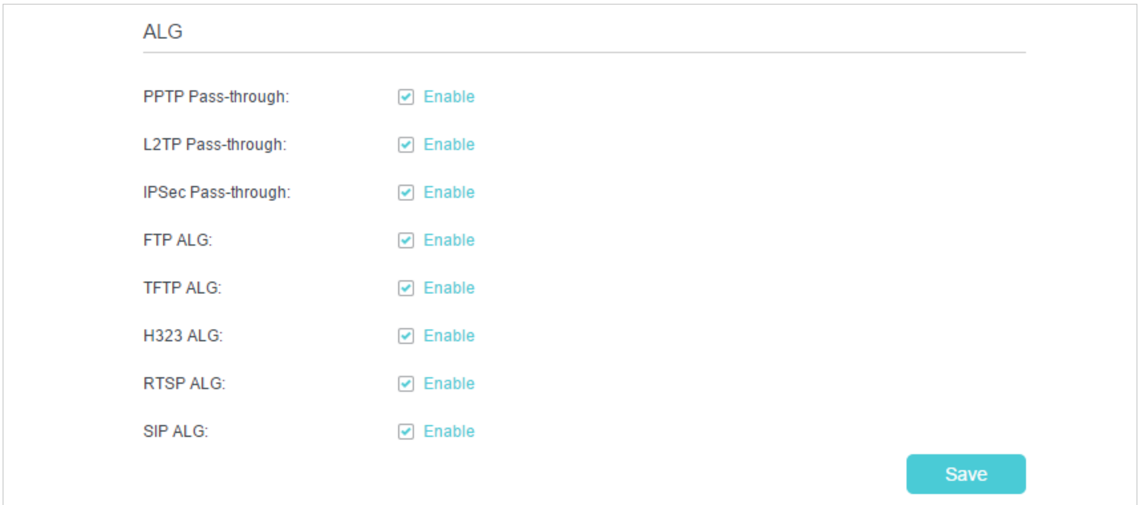
TP-Link router includes four forwarding rules. If two or more rules are set, the priority of implementation from high to low is Virtual Servers, Port Triggering, UPnP and DMZ.

This chapter contains the following sections:

## 11. 1. Translate Address and Port by ALG

ALG (Application Layer Gateway) allows customized NAT (Network Address Translation) traversal filters to be plugged into the gateway to support address and port translation for certain application layer "control/data" protocols: FTP, TFTP etc. Enabling ALG is recommended.

Visit http://tplinkwifi.net, and log in with the password you set for the controller. Go to Advanced > NAT Forwarding > ALG.



ALG

PPTP Pass-through: ☑ Enable

L2TP Pass-through: ☑ Enable

IPSec Pass-through: ☑ Enable

FTP ALG: ☑ Enable

TFTP ALG: ☑ Enable

H323 ALG: ☑ Enable

RTSP ALG: ☑ Enable

SIP ALG: ☑ Enable

- PPTP Pass-through: If enabled, it allows Point-to-Point sessions to be tunneled through an IP network and passed through the controller.
- L2TP Pass-through: If enabled, it allows Layer 2 Point-to-Point sessions to be tunneled through an IP network and passed through the controller.
- IPSec Pass-through: If enabled, it allows IPSec (Internet Protocol Security) to be tunneled through an IP network and passed through the controller. IPSec uses cryptographic security services to ensure private and secure communications over IP networks.
- FTP ALG: If enabled, it allows FTP (File Transfer Protocol) clients and servers to transfer data via NAT.
- TFTP ALG: If enabled, it allows TFTP (Trivial File Transfer Protocol) clients and servers to transfer data via NAT.
- H323 ALG: If enabled, it allows Microsoft NetMeeting clients to communicate via NAT.
- RTSP ALG: If selected, it allows media player clients to communicate with streaming media servers via NAT.
- SIP ALG: If enabled, it allows clients communicate with SIP (Session Initiation Protocol) servers via NAT.

## 11. 2. Share Local Resources over the Internet by Virtual Server

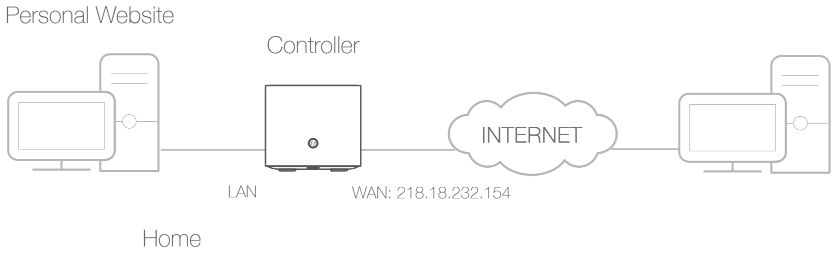
When you build up a server in the local network and want to share it on the internet, Virtual Server can realize the service and provide it to the internet users. At the same time virtual server can keep the local network safe as other services are still invisible from the internet.

Virtual server can be used for setting up public services in your local network, such as HTTP, FTP, DNS, POP3/SMTP and Telnet. Different service uses different service port. Port 80 is used in HTTP service, port 21 in FTP service, port 25 in SMTP service and port 110 in POP3 service. Please verify the service port number before configuration.

**I want to:**

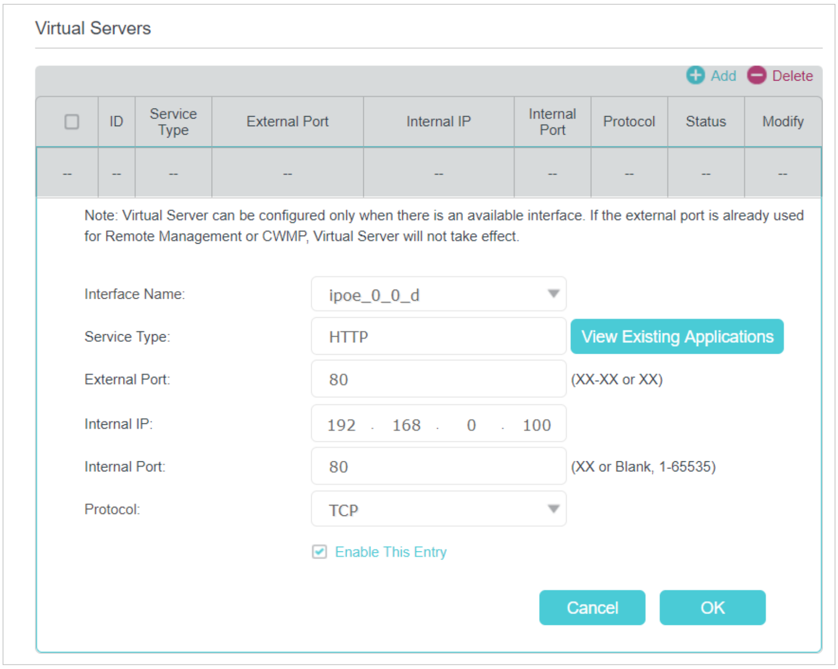
Share my personal website I've built in a local network with my friends through the internet.

For example, the personal website has been built on my home PC (192.168.0.100). I hope that my friends can visit my website. The PC is connected to the controller with the WAN IP address 218.18.232.154.



**How can I do that?**

1. Assign a static IP address to your PC, for example 192.168.0.100.
2. Visit [http://tplinkwifi.net](http://tplinkwifi.net), and log in with the password you set for the controller.
3. Go to Advanced > NAT Forwarding > Virtual Servers, click Add.



Virtual Servers

| □ | ID | Service Type | External Port | Internal IP | Internal Port | Protocol | Status | Modify |
|---|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- | -- |

Note: Virtual Server can be configured only when there is an available interface. If the external port is already used for Remote Management or CWMP, Virtual Server will not take effect.

| | |
|---|---|
| Interface Name: | ipoe_0_0_d |
| Service Type: | HTTP |
| External Port: | 80 (XX-XX or XX) |
| Internal IP: | 192 . 168 . 0 . 100 |
| Internal Port: | 80 (XX or Blank, 1-65535) |
| Protocol: | TCP |

☑ Enable This Entry

4. Click View Existing Applications, and choose HTTP. The external port, internal port and protocol will be automatically filled in. Enter the PC's IP address 192.168.0.100 in the Internal IP field.

5. Click OK to make the settings effective.

Tips:

1. It is recommended to keep the default settings of Internal Port and Protocol if you are not clear about which port and protocol to use.
2. If the service you want to use is not in the Service Type, you can enter the corresponding parameters manually. You should verify the port number that the service needs.
3. You can add multiple virtual server rules if you want to provide several services from a controller. Please note that the External Port cannot be overlapped.

**Done!**

Internet users can enter http://WAN IP (in this example: http://218.18.232.154) to visit your personal website.

Tips:

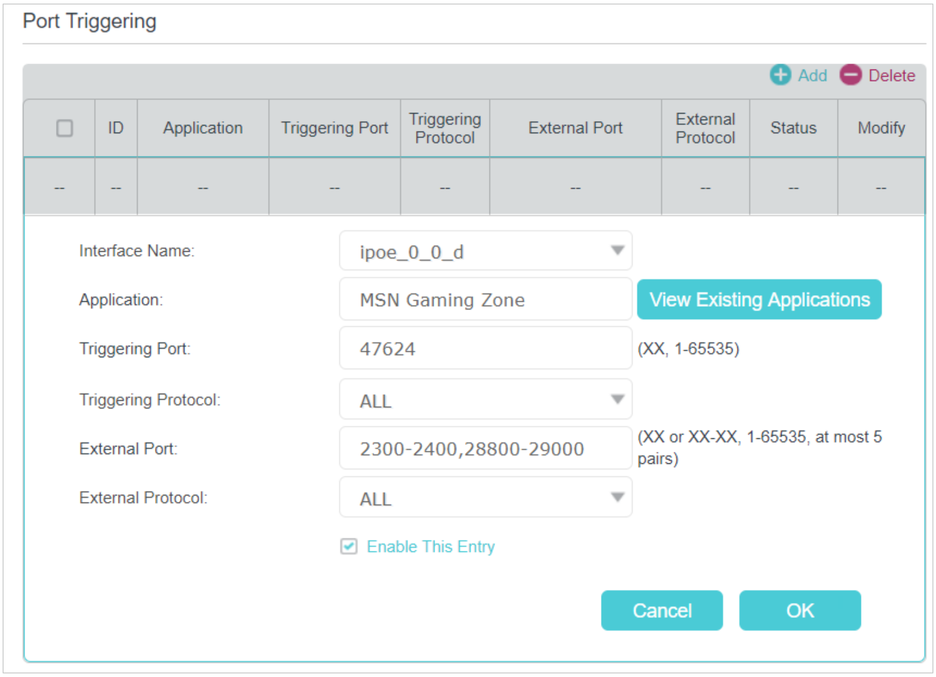
1. For a WAN IP that is assigned dynamically by ISP, it is recommended to apply and register a domain name for the WAN by DDNS, go to Set Up a Dynamic DNS Service Account for more information. Then you can use http://domain name to visit the website.
2. If you have changed the default External Port, you should use http://WAN IP: External Port or http://domain name: External Port to visit the website.

## 11. 3. Open Ports Dynamically by Port Triggering

Port triggering can specify a triggering port and its corresponding external ports. When a host in the local network initiates a connection to the triggering port, all the external ports will be opened for subsequent connections. The router can record the IP address of the host. When the data from the internet returns to the external ports, the router can forward them to the corresponding host. Port triggering is mainly applied to online games, VoIPs and video players. Common applications include MSN Gaming Zone, Dialpad, Quick Time 4 players, and so on.

Follow the steps below to configure the port triggering rules:

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > NAT Forwarding > Port Triggering, and click Add.



Port Triggering

| □ | ID | Application | Triggering Port | Triggering Protocol | External Port | External Protocol | Status | Modify |
|---|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- | -- |

Interface Name: ipoe_0_0_d

Application: MSN Gaming Zone

Triggering Port: 47624 (XX, 1-65535)

Triggering Protocol: ALL

External Port: 2300-2400,28800-29000 (XX or XX-XX, 1-65535, at most 5 pairs)

External Protocol: ALL

☑ Enable This Entry

3. Click View Existing Applications, and select the desired application. The triggering port and protocol, the external port and protocol will be automatically filled in. Here we take MSN Gaming Zone as an example.
4. Click OK to make the settings effective.

Tips:

1. You can add multiple port triggering rules according to your network needs.
2. If the application you need is not listed in the Existing Applications list, you can enter the parameters manually. You should verify the external ports the application uses first and enter them into External Port field according to the format suggested.

## 11. 4. Make Applications Free from Port Restriction by DMZ

When a PC is set to be a DMZ (Demilitarized Zone) host in the local network, it is totally exposed to the internet, which can realize the unlimited bidirectional communication between internal hosts and external hosts. The DMZ host becomes a virtual server with all ports opened. When you are not clear about which ports to open in some special applications, like IP camera and database software, you can set the PC to be a DMZ host.

**Note:**

DMZ is most applicable when you don't know which ports to open. When it is enabled, the DMZ host is totally exposed to the internet, which may bring some potential safety hazards. If DMZ is not in use, please disable it in time.

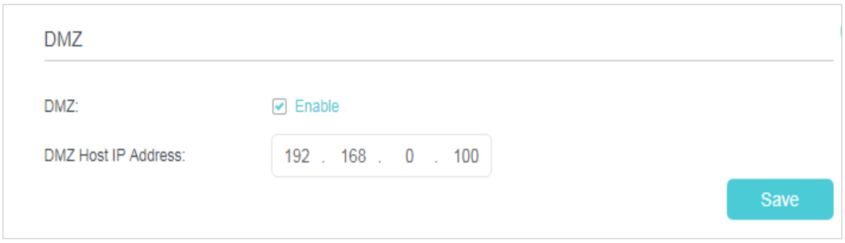
**I want to:**

Make the home PC join the internet online game without port restriction.

For example, due to some port restriction, when playing the online games, you can log in normally but cannot join a team with other players. To solve this problem, set your PC as a DMZ with all ports opened.

**How can I do that?**

1. Assign a static IP address to your PC, for example 192.168.0.100.
2. Visit http://tplinkwifi.net, and log in with the password you set for your controller.
3. Go to Advanced > NAT Forwarding > DMZ and select the Enable check box to turn on DMZ.



DMZ

DMZ: ☑ Enable

DMZ Host IP Address: 192 . 168 . 0 . 100

4. Enter the IP address 192.168.0.100 in the DMZ Host IP Address box.
5. Click Save to make the settings effective.

**Done!**

The configuration is completed. You've set your PC as a DMZ host and now you can join a team to game with other players.

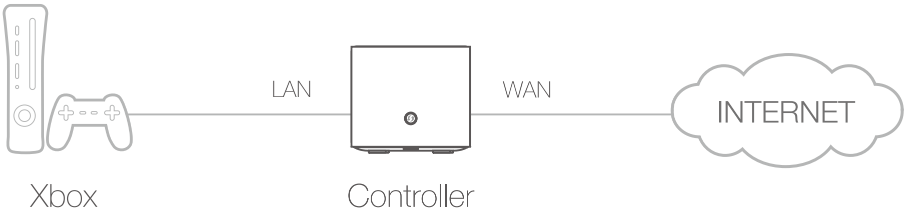
## 11. 5. Make Xbox Online Games Run Smoothly by UPnP

UPnP (Universal Plug and Play) protocol allows the applications or host devices to automatically find the front-end NAT device and send request to it to open the corresponding ports. With UPnP enabled, the applications or host devices in the both sides of NAT device can freely communicate with each other realizing the seamless connection of the network. You need to enable the UPnP if you want to use applications such as multiplayer gaming, peer-to-peer connections, real-time communication (for example, VoIP or telephone conference), or remote assistance.

Tips:

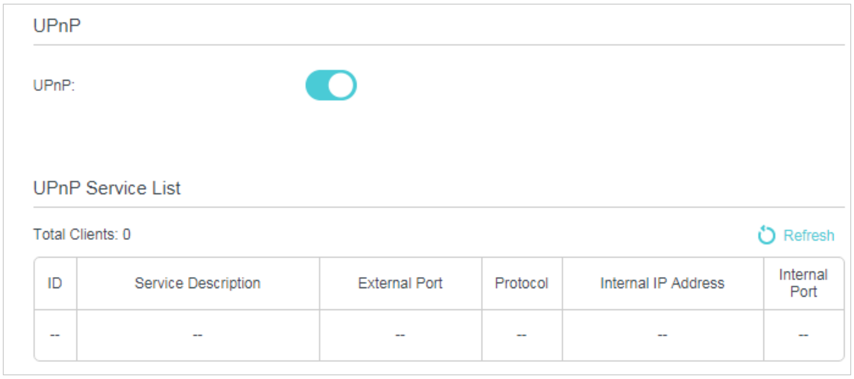
1. UPnP is enabled by default in this device.
2. Only the application supporting UPnP protocol can use this feature.
3. UPnP feature needs the support of operating system (e.g. Windows Vista/ Windows 7/ Windows 8, etc. Some operating systems need to install the UPnP components).

For example, when you connect your Xbox to the controller which has connected to the internet to play online games, UPnP will send request to the controller to open the corresponding ports allowing the following data penetrating the NAT to transmit. Therefore, you can play Xbox online games without a hitch.



You can follow the steps to change the status of UPnP.

1. Visit http://tplinkwifi.net, and log in with the password you set for your controller.
2. Go to Advanced > NAT Forwarding > UPnP, and enable or disable UpnP according to your needs.



UPnP

UPnP: ●

UPnP Service List

Total Clients: 0 Refresh

| ID | Service Description | External Port | Protocol | Internal IP Address | Internal Port |
|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- |

Chapter 12

# VPN Server

The VPN (Virtual Private Networking) Server allows you to access your home network in a secured way through internet when you are out of home. The router offers two ways to setup VPN connection: OpenVPN and PPTP (Point to Point Tunneling Protocol) VPN.

OpenVPN is somewhat complex but with greater security and more stable. It is suitable for restricted environment, such as campus network and company intranet.

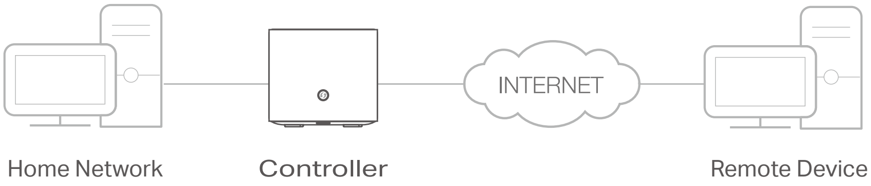
PPTP VPN is more easily used and its speed is faster, it's compatible with most operating systems and also supports mobile devices. Its security is poor and your packets may be cracked easily, and PPTP VPN connection may be prevented by some ISP.

This chapter contains the following sections, you can choose the appropriate VPN server connection type as needed.

- Use OpenVPN to Access Your Home Network
- Use PPTP VPN to Access Your Home Network

## 12. 1. Use OpenVPN to Access Your Home Network

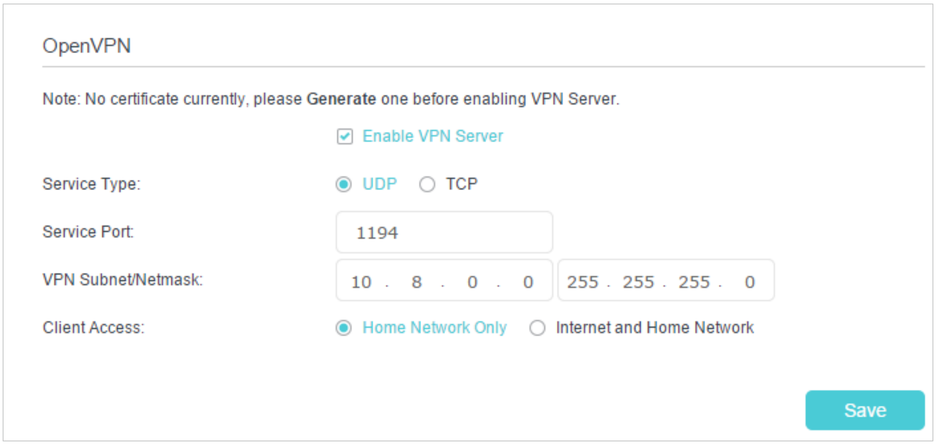
In the OpenVPN connection, the home network can act as a server, and the remote device can access the server through the router which acts as an OpenVPN Server gateway. To use the VPN feature, you should enable OpenVPN Server on your router, and install and run VPN client software on the remote device. Please follow the steps below to set up an OpenVPN connection.



### Step1. Set Up OpenVPN Server on Your Controller

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.

2. Go to Advanced > VPN > OpenVPN, and select Enable VPN Server.



OpenVPN

Note: No certificate currently, please **Generate** one before enabling VPN Server.

☑ Enable VPN Server

Service Type: ● UDP ○ TCP

Service Port: 1194

VPN Subnet/Netmask: 10 . 8 . 0 . 0 255 . 255 . 255 . 0

Client Access: ● Home Network Only ○ Internet and Home Network

**Note:**

1. Before you enable VPN Server, we recommend you configure Dynamic DNS Service (recommended) or assign a static IP address for controller's WAN port and synchronize your System Time with internet.
2. The first time you configure the OpenVPN Server, you may need to Generate a certificate before you enable the VPN Server.

3. Select the Service Type (communication protocol) for OpenVPN Server: UDP, TCP.

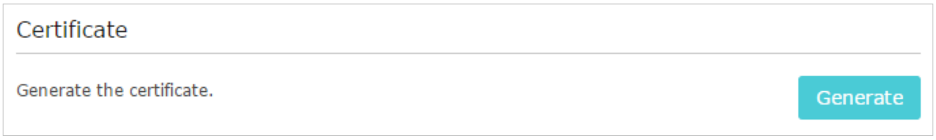
4. Enter a VPN Service Port to which a VPN device connects, and the port number should be between 1024 and 65535.

5. In the VPN Subnet/Netmask fields, enter the range of IP addresses that can be leased to the device by the OpenVPN server.

6. Select your Client Access type. Select Home Network Only if you only want the remote device to access your home network; select Internet and Home Network if you also want the remote device to access internet through the VPN Server.

7. Click Save.

8. Click Generate to get a new certificate.

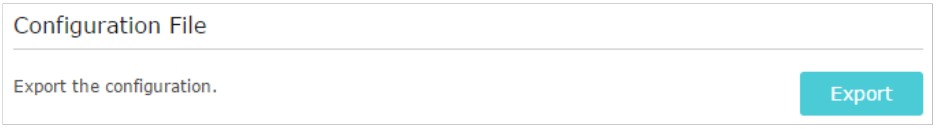

Certificate

Generate the certificate.

**Note:**

If you have already generated one, please skip this step, or click Generate to update the certificate.

9. Click Export to save the OpenVPN configuration file which will be used by the remote device to access your controller.


Configuration File

Export the configuration.

### Step 2. Configure OpenVPN Connection on Your Remote Device

1. Visit http://openvpn.net/index.php/download/community-downloads.html to download the OpenVPN software, and install it on your device where you want to run the OpenVPN client utility.

**Note:**

You need to install the OpenVPN client utility on each device that you plan to apply the VPN function to access your controller. Mobile devices should download a third-party app from Google Play or Apple App Store.

2. After the installation, copy the file exported from your controller to the OpenVPN client utility's "config" folder (for example, C:\Program Files\OpenVPN\config on Windows). The path depends on where the OpenVPN client utility is installed.

3. Run the OpenVPN client utility and connect it to OpenVPN Server.

Tips:

You can go to Advanced > VPN > VPN Connections to view the clients that are currently connected to the OpenVPN servers.

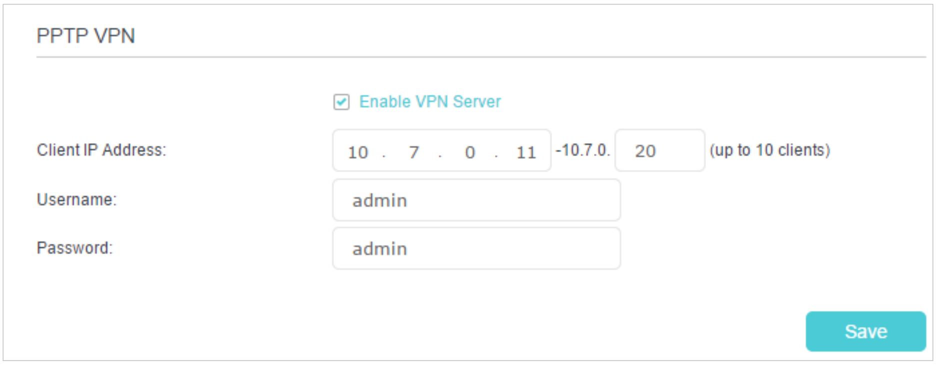
## 12. 2. Use PPTP VPN to Access Your Home Network

PPTP VPN Server is used to create a VPN connection for remote device. To use the VPN feature, you should enable PPTP VPN Server on your router, and configure the PPTP connection on the remote device. Please follow the steps below to set up a PPTP VPN connection.

### Step 1. Set Up PPTP VPN Server on Your Controller

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.

2. Go to Advanced > VPN Server > PPTP VPN, and select Enable VPN Server.



PPTP VPN

☑ Enable VPN Server

Client IP Address: 10 . 7 . 0 . 11 -10.7.0. 20 (up to 10 clients)

Username: admin

Password: admin

**Note:**

Before you enable VPN Server, we recommend you configure Dynamic DNS Service (recommended) or assign a static IP address for controller's WAN port and synchronize your System Time with internet.

3. In the Client IP Address filed, enter the range of IP addresses (up to 10) that can be leased to the devices by the PPTP VPN server.

4. Enter the Username and Password to authenticate clients to the PPTP VPN server.

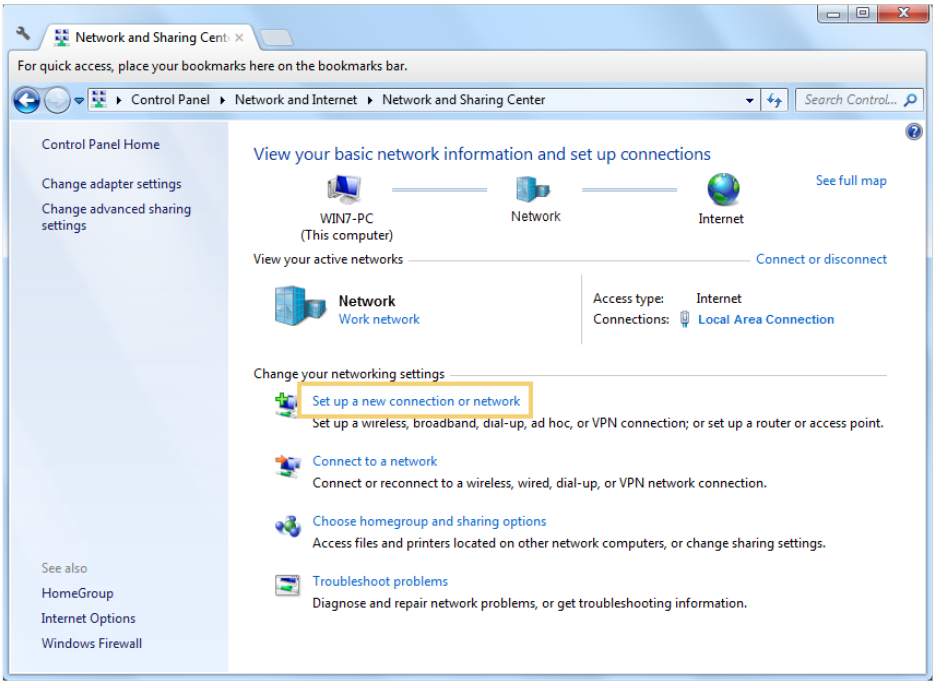
5. Click Save to make the settings effective.

## Step 2. Configure PPTP VPN Connection on Your Remote Device

The remote device can use the Windows built-in PPTP software or a third-party PPTP software to connect to PPTP Server. Here we use the Windows built-in PPTP software as an example.

1. Go to Start > Control Panel > Network and Internet > Network and Sharing Center.

2. Select Set up a new connection or network.



View your basic network information and set up connections

View your active networks

Network
Work network

Access type: Internet
Connections: Local Area Connection

Change your networking settings

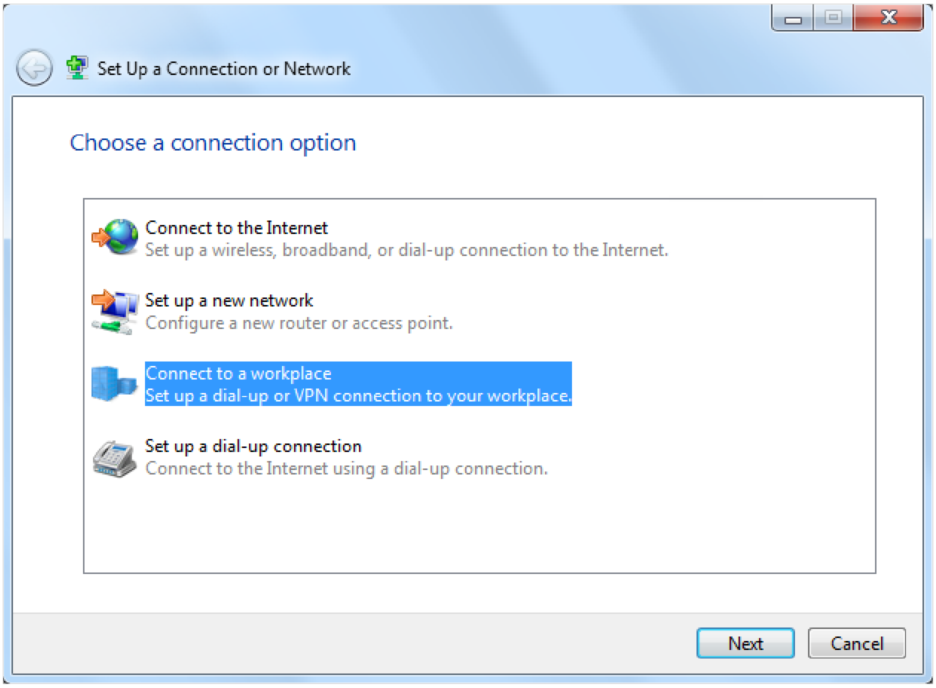
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.

Connect to a network
Connect or reconnect to a wireless, wired, dial-up, or VPN network connection.

Choose homegroup and sharing options
Access files and printers located on other network computers, or change sharing settings.

Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.

3. Select Connect to a workplace and click Next.



Set Up a Connection or Network

Choose a connection option

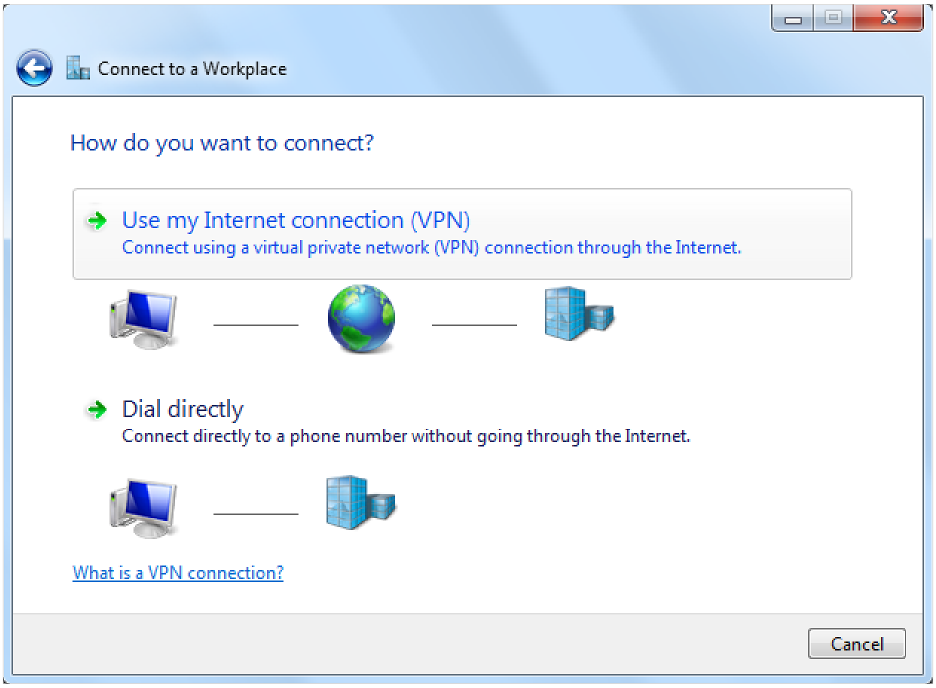
Connect to the Internet
Set up a wireless, broadband, or dial-up connection to the Internet.

Set up a new network
Configure a new router or access point.

Connect to a workplace
Set up a dial-up or VPN connection to your workplace.

Set up a dial-up connection
Connect to the Internet using a dial-up connection.

4. Select Use my Internet connection (VPN).



Connect to a Workplace

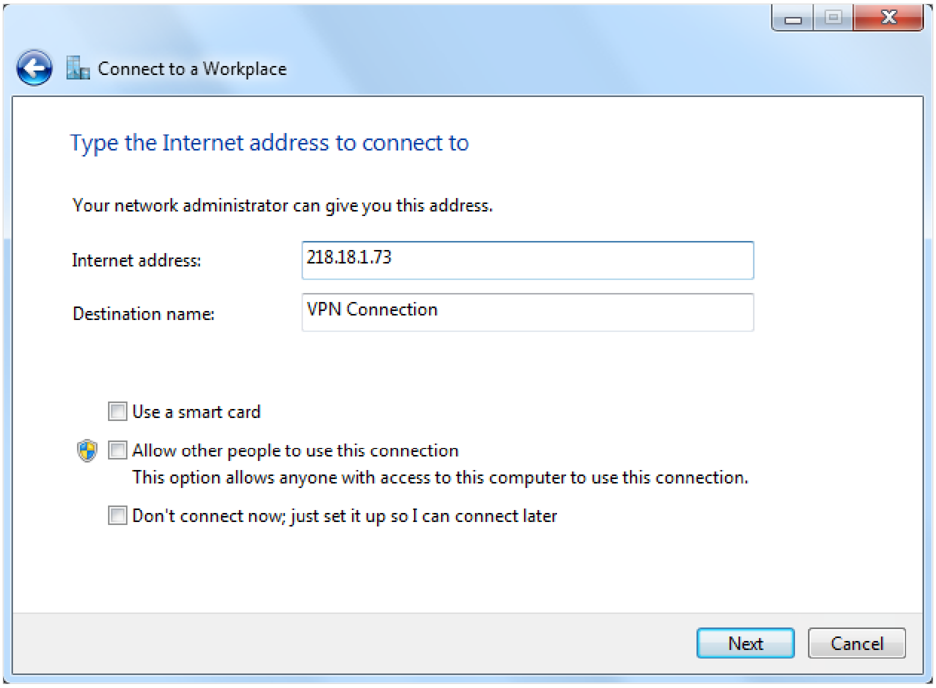
How do you want to connect?

Use my Internet connection (VPN)
Connect using a virtual private network (VPN) connection through the Internet.

Dial directly
Connect directly to a phone number without going through the Internet.

What is a VPN connection?

5. Enter the internet IP address of the controller (for example: 218.18.1.73) in the Internet address field. Click Next.



Connect to a Workplace

Type the Internet address to connect to

Your network administrator can give you this address.

Internet address: 218.18.1.73

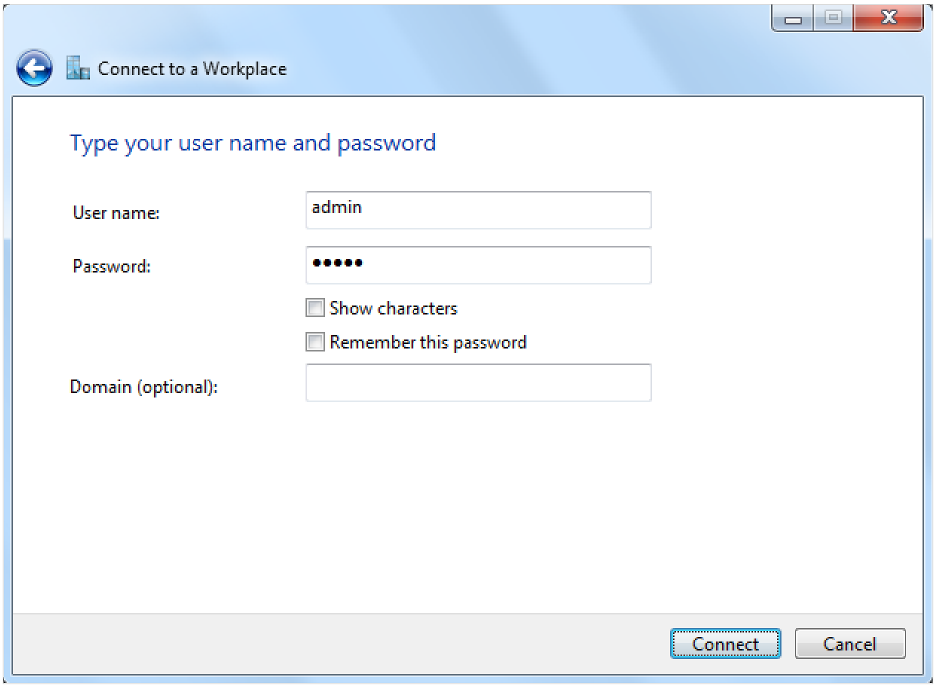
Destination name: VPN Connection

□ Use a smart card

□ Allow other people to use this connection
This option allows anyone with access to this computer to use this connection.

□ Don't connect now; just set it up so I can connect later

6. Enter the User name and Password you have set for the PPTP VPN server on your controller, and click Connect.



Connect to a Workplace

Type your user name and password

User name: admin

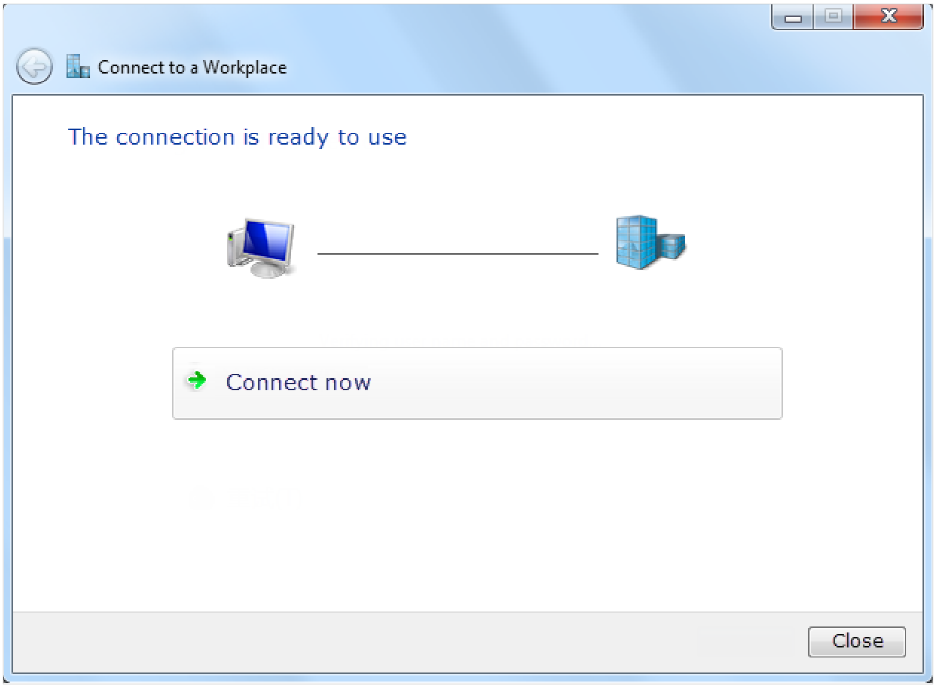
Password: •••••

□ Show characters

□ Remember this password

Domain (optional):

7. The PPTP VPN connection is created and ready to use.



The connection is ready to use

Tips:
You can go to Advanced > VPN > VPN Connections to view the clients that are currently connected to the PPTP VPN servers.

Chapter 13

# Customize Your Network Settings

This chapter introduces how to change the default settings or adjust the basic configuration of the network setting of the controller using the web management page.

It contains the following sections:

- Change LAN Settings
- Configure IPv6 LAN Settings
- Set Up a Dynamic DNS Service Account
- Create Static Routes
- Set Up the IPv6 Tunnel
- Specify Wireless Settings
- Use WPS for Wireless Connection

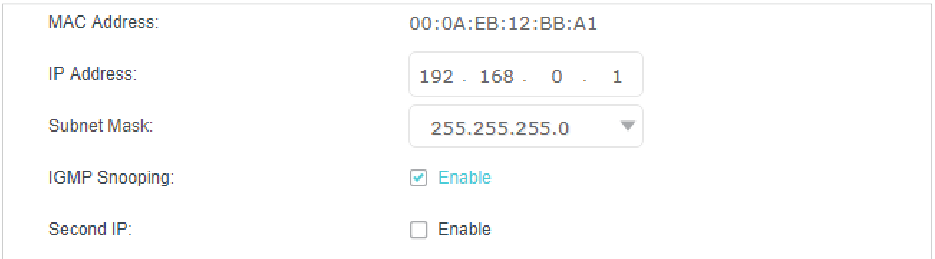
# 13. 1. Change LAN Settings

## 13. 1. 1. Change the LAN IP Address

The controller is preset with a default LAN IP 192.168.0.1 in router mode and three guest IP address, which you can use to log in to its web management page. The LAN IP address together with the Subnet Mask also defines the subnet that the connected devices are on. If the IP address conflicts with another device in your local network or your network requires a specific IP subnet, you can change it.

Follow the steps below to change your IP address.

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Network > LAN Settings, and select IPv4.
3. Click the edit icon in the Modify column.



| | |
|---|---|
| MAC Address: | 00:0A:EB:12:BB:A1 |
| IP Address: | 192 . 168 . 0 . 1 |
| Subnet Mask: | 255.255.255.0 |
| IGMP Snooping: | ☑ Enable |
| Second IP: | □ Enable |

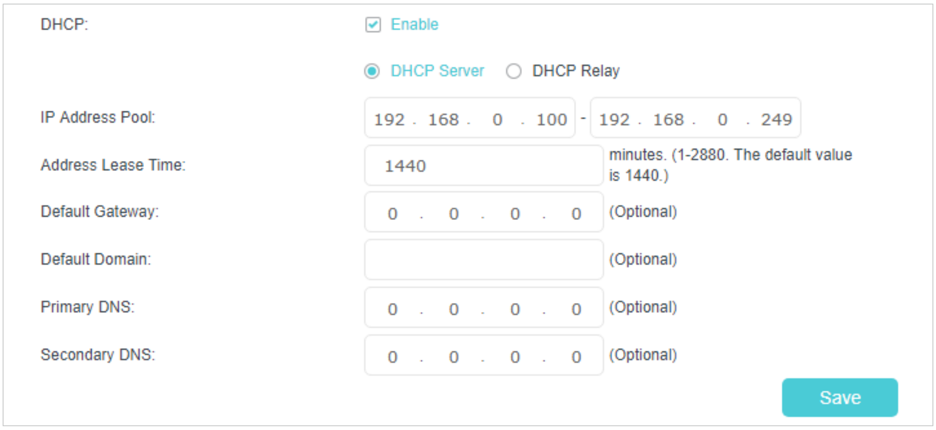
4. Enter a new IP Address appropriate to your needs.
5. Select the Subnet Mask from the drop-down list. The subnet mask together with the IP address identifies the local IP subnet.
6. Keep IGMP Snooping enabled by default. IGMP snooping is the process of listening to IGMP (Internet Group Management Protocol) network traffic. The function prevents hosts on a local network from receiving traffic for a multicast group they have not explicitly joined.
7. You can configure the controller's Second IP and Subnet Mask for LAN interface through which you can also access the web management page.
8. Keep the rest settings as default.
9. Click Save to make the settings effective.

## 13. 1. 2. Use the Controller as a DHCP Server

You can configure the controller to act as a DHCP server to assign IP addresses to its clients. To use the DHCP server function of the controller, you must configure all computers on the LAN to obtain an IP Address automatically.

Follow the steps below to configure DHCP server.

1. Visit http://tplinkwifi.net, and log in with the password you set for the controller.
2. Go to Advanced > Network > LAN Settings page and select IPv4.
3. Enable DHCP function and select DHCP Server.



DHCP: ☑ Enable

● DHCP Server ○ DHCP Relay

IP Address Pool: 192 . 168 . 0 . 100 - 192 . 168 . 0 . 249

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

Default Gateway: 0 . 0 . 0 . 0 (Optional)

Default Domain: (Optional)

Primary DNS: 0 . 0 . 0 . 0 (Optional)

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

4. Specify the IP Address Pool, the start address and end address must be on the same subnet with LAN IP. The controller will assign addresses within this specified range to its clients. It is from 192.168.0.100 to 192.168.0.249 by default.
5. Enter a value for the Address Lease Time. The Address Lease Time is the amount of time in which a DHCP client can lease its current dynamic IP address assigned by the controller. After the dynamic IP address expires, the user will be automatically assigned a new dynamic IP address. The default is 1440 minutes.
6. Keep the rest settings as default and click Save.

Note:

1. The controller can be configured to work as a DHCP Relay. A DHCP relay is a computer that forwards DHCP data between computers that request IP addresses and the DHCP server that assigns the addresses. Each of the device's interfaces can be configured as a DHCP relay. If it is enabled, the DHCP requests from local PCs will be forwarded to the DHCP server that runs on WAN side.
2. You can also appoint IP addresses within a specified range to devices of the same type by using Condition Pool feature. For example, you can assign IP addresses within the range (192.168.0.50 to192.168.0.80) to Camera devices, thus facilitating the network management. Enable DHCP feature and configure the parameters according to your situation on the Advanced > Network > LAN Settings page.

## 13. 1. 3. Reserve LAN IP Addresses

You can view and add a reserved address for a client. When you specify an IP address for a device on the LAN, that device will always receive the same IP address each time when it accesses the DHCP server. If there are some devices in the LAN that require permanent IP addresses, please configure Address Reservation on the controller for the purpose.

Follow the steps below to reserve an IP address for your devices.