

- **Intrusion Prevention System**

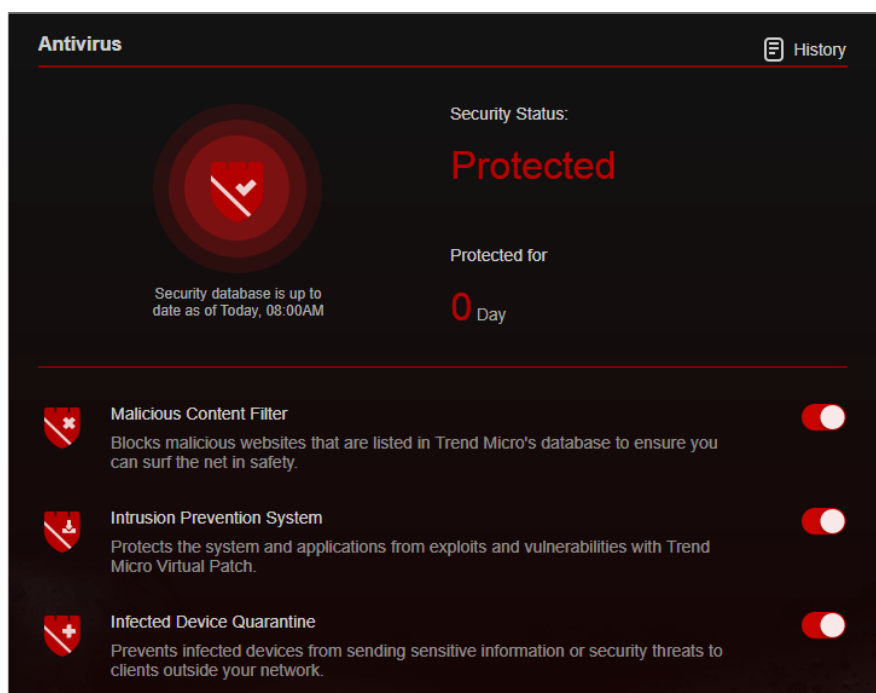
Identifies and blocks potential threats from attackers and fixes vulnerabilities in the network.

- **Infected Device Quarantine**

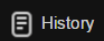
Prevents infected devices from sending your sensitive information to clients outside your network or spreading security threats.

- **To access your router's Antivirus settings:**

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced](#) > [HomeCare](#) > [Antivirus](#) or [Game Center](#) > [Game Protector](#) > [Antivirus](#).



3. Choose the protection types you want to enable. It is recommended to keep them all enabled to ensure the best protection for your network.

4. Click  to view threats that have been detected and resolved.

## Chapter 9

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# Network Security

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This chapter guides you on how to protect your home network from cyber attacks and unauthorized users by implementing these three network security functions. You can protect your home network against DoS (Denial of Service) attacks from flooding your network with server requests using DoS Protection, block or allow specific client devices to access your network using Access Control, or you can prevent ARP spoofing and ARP attacks using IP & MAC Binding.

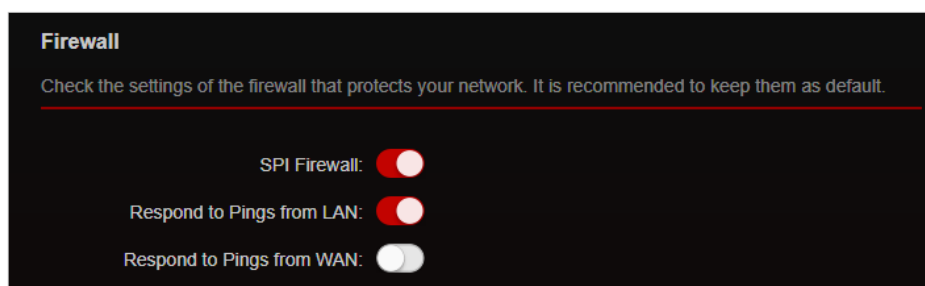
It contains the following sections:

- [Protect the Network from Cyber Attacks](#)
- [Access Control](#)
- [IP & MAC Binding](#)

## 9.1. Protect the Network from Cyber Attacks

The SPI (Stateful Packet Inspection) Firewall protects the router from cyber attacks and validate the traffic that is passing through the router based on the protocol. This function is enabled by default.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > Security > Firewall**. It's recommended to keep the default settings.



## 9.2. 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:

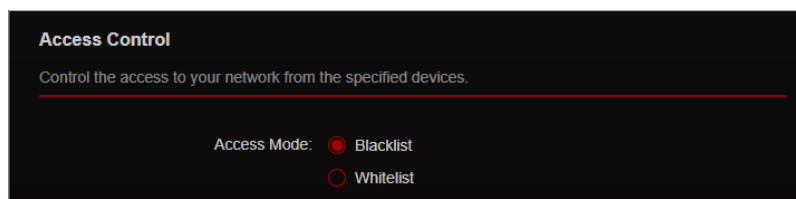
Block or allow specific client devices to access my network (via wired or wireless).

### How can I do that?

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > Security > Access Control**.
3. Select the access mode to either block (recommended) or allow the device(s) in the list.

### To block specific device(s):

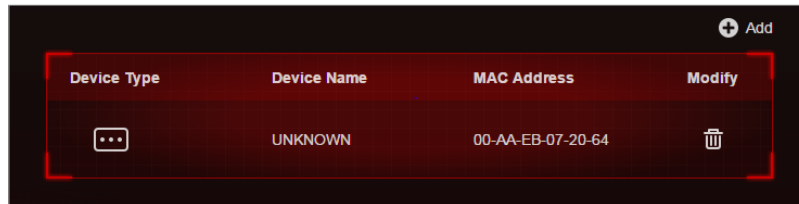
- 1) Select **Blacklist**.



- 2) Click  **Add**.

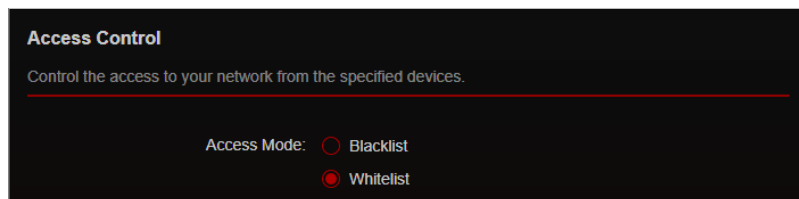


- 3) Select devices you want to be blocked and Click [ADD](#).
- 4) The [Operation Succeeded](#) message will appear on the screen, which means the selected devices have been successfully added to the blacklist.

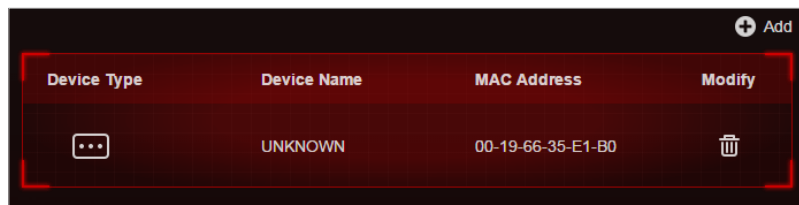


To allow specific device(s):

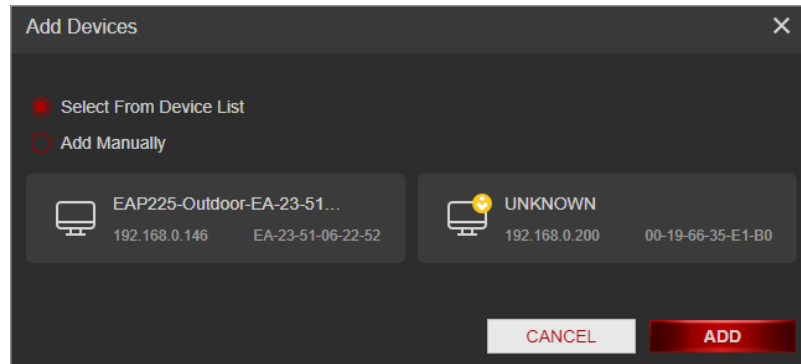
- 1) Select [Whitelist](#) and click [SAVE](#) in the lower page.



- 2) Your own device is in the whitelist by default and cannot be deleted. Click [Add](#) to add other devices to the whitelist.



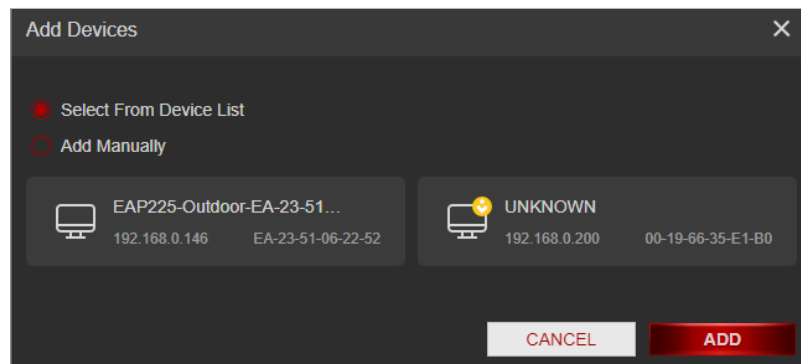
- **Add connected devices**
  - 1) Click [Select From Device List](#).
  - 2) Select the devices you want to be allowed and click [ADD](#).



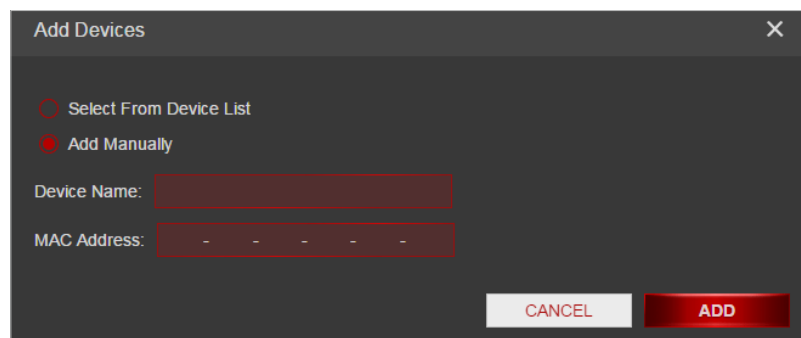
3) The **Operation Succeeded** message will appear on the screen, which means the selected devices have been successfully added to the whitelist.

- **Add unconnected devices**

1) Click **Add Manually**.



2) Enter the **Device Name** and **MAC Address** of the device you want to be allowed and click **ADD**.



3) The **Operation Succeeded** message will appear on the screen, which means the device has been successfully added to the whitelist.

## Done!

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

## 9.3. IP & MAC Binding

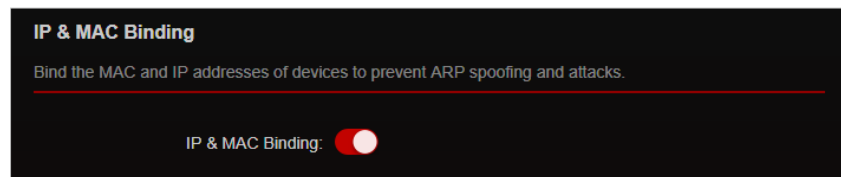
IP & MAC Binding, namely, ARP (Address Resolution Protocol) Binding, is used to bind network device's IP address to its MAC address. This will prevent ARP Spoofing and other ARP attacks by denying network access to an device with matching IP address in the Binding list, but unrecognized MAC address.

### I want to:

Prevent ARP spoofing and ARP attacks.

### How can I do that?

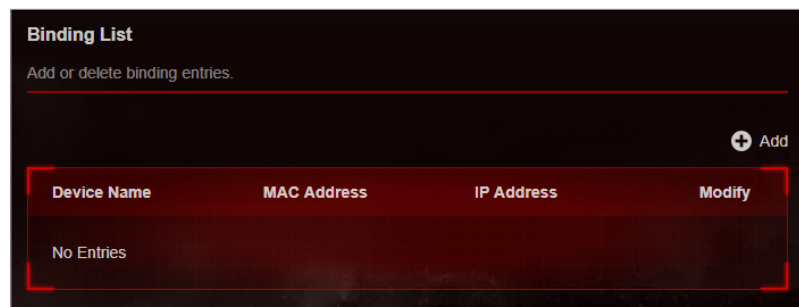
1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced](#) > [Security](#) > [IP & MAC Binding](#).
3. Enable [IP & MAC Binding](#).



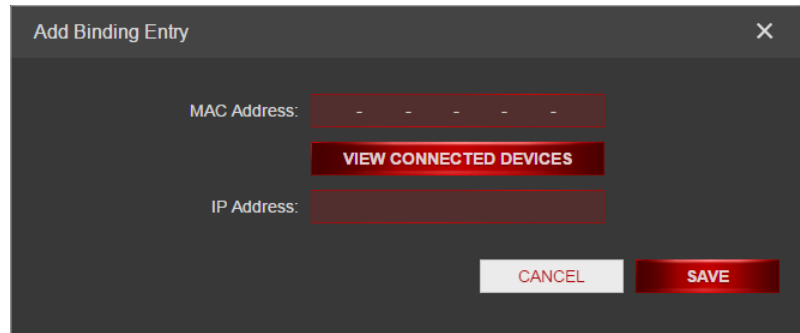
4. Bind your device(s) according to your need.

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

- 1) Click [+ Add](#) in the [Binding List](#) section.



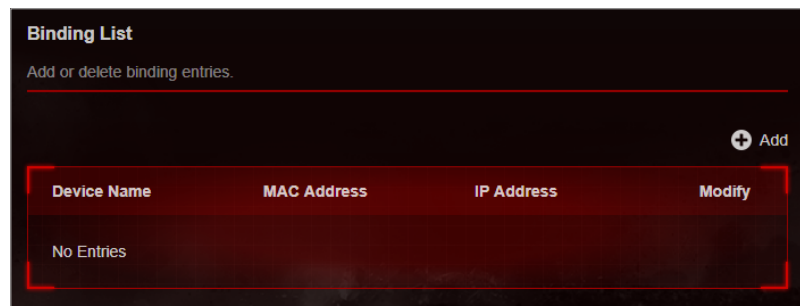
- 2) Click [VIEW CONNECTED DEVICES](#) and select the device you want to bind. The [MAC Address](#) and [IP Address](#) fields will be automatically filled in.



3) Click [SAVE](#).

**To bind the unconnected device:**

1) Click  [Add](#) in the [Binding List](#) section.



Device Name	MAC Address	IP Address	Modify
No Entries			

2) Enter the [MAC Address](#) and [IP Address](#) that you want to bind.

3) Click [SAVE](#).

**Done!**

Now you don't need to worry about ARP spoofing and ARP attacks!

## Chapter 10

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# NAT Forwarding

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

With the forwarding feature the router can penetrate the isolation of NAT and allows devices on the internet to initiatively communicate with devices on the local network, thus realizing some special functions.

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

It contains the following sections:

- [Share Local Resources on the Internet by Port Forwarding](#)
- [Open Ports Dynamically by Port Triggering](#)
- [Make Applications Free from Port Restriction by DMZ](#)
- [Make Xbox Online Games Run Smoothly by UPnP](#)



## 10.1. Share Local Resources on the Internet by Port Forwarding

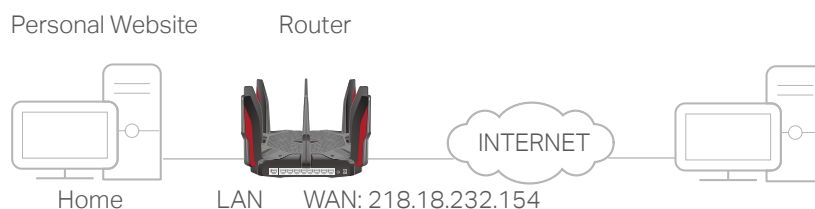
When you build up a server on the local network and want to share it on the internet, Port Forwarding can realize the service and provide it to internet users. At the same time Port Forwarding can keep the local network safe as other services are still invisible from the internet.

Port Forwarding can be used for setting up public services on your local network, such as HTTP, FTP, DNS, POP3/SMTP and Telnet. Different services use different service ports. 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 the configuration.


### I want to:

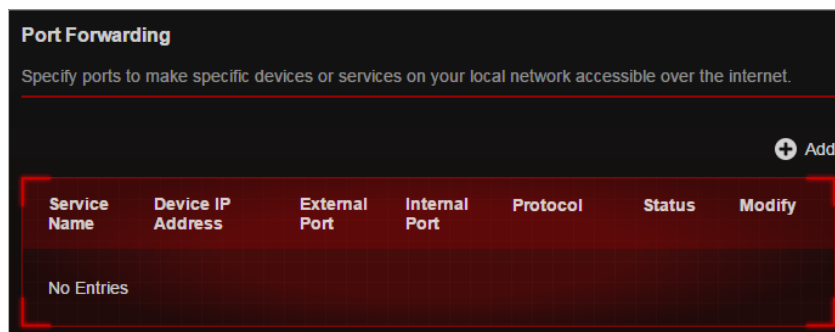
Share my personal website I've built in local network with my friends through the internet.

**For example**, the personal website has been built on my home PC (192.168.0.100). I hope that my friends on the internet can visit my website in some way. The PC is connected to the router 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>, and log in with your TP-Link ID or the password you set for the router.
3. Go to **Advanced > NAT Forwarding > Port Forwarding** or **Game Center > Port Forwarding**.
4. Click  **Add**.



5. Click [VIEW COMMON SERVICES](#) and select [HTTP](#). The [External Port](#), [Internal Port](#) and [Protocol](#) will be automatically filled in.
6. Click [VIEW CONNECTED DEVICES](#) and select your home PC. The [Device IP Address](#) will be automatically filled in. Or enter the PC's IP address 192.168.0.100 manually in the [Device IP Address](#) field.
7. Click [SAVE](#).

**Tips:**

- 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.
- If the service you want to use is not in the common services list, you can enter the corresponding parameters manually. You should verify the port number that the service needs.
- You can add multiple port forwarding rules if you want to provide several services in a router. Please note that the [External Port](#) should not be overlapped.

## Done!

Users on the internet can enter [http:// WAN IP](#) (in this example: [http:// 218.18.232.154](#)) to visit your personal website.


**Tips:**

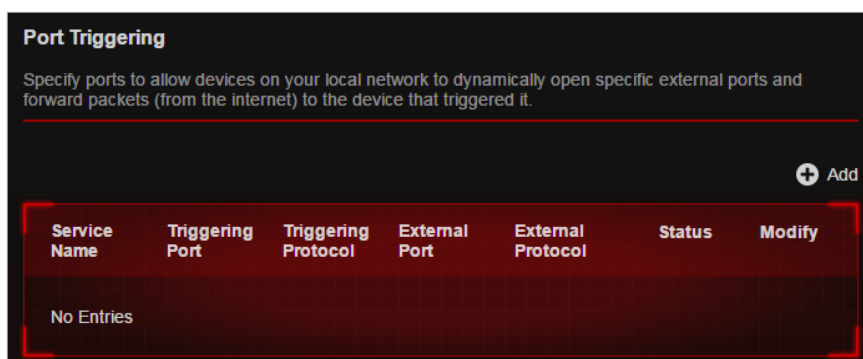
- The WAN IP should be a public IP address. For the WAN IP is assigned dynamically by the ISP, it is recommended to apply and register a domain name for the WAN referring to [Set Up a Dynamic DNS Service Account](#). Then users on the internet can use [http:// domain name](#) to visit the website.
- 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.

## 10.2. Open Ports Dynamically by Port Triggering

Port Triggering can specify a triggering port and its corresponding external ports. When a host on 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 return to the external ports, the router can forward them to the corresponding host. Port Triggering is mainly applied to online games, VoIPs, video players and common applications including MSN Gaming Zone, Dialpad and Quick Time 4 players, etc.

Follow the steps below to configure the Port Triggering rules:

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > NAT Forwarding > Port Triggering** and click .



3. Click **VIEW COMMON SERVICES**, and select the desired application. The **Triggering Port**, **Triggering Protocol** and **External Port** will be automatically filled in. The following picture takes application **MSN Gaming Zone** as an example.

#### 4. Click **SAVE**.

##### Tips:

- You can add multiple port triggering rules according to your network need.
- The triggering ports can not be overlapped.
- If the application you need is not listed in the Existing Applications list, please 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 the page displays.

## 10.3. Make Applications Free from Port Restriction by DMZ

When a PC is set to be a DMZ (Demilitarized Zone) host on 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, such as IP camera and database software, you can set the PC to be a DMZ host.

##### Note:

When DMZ 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.

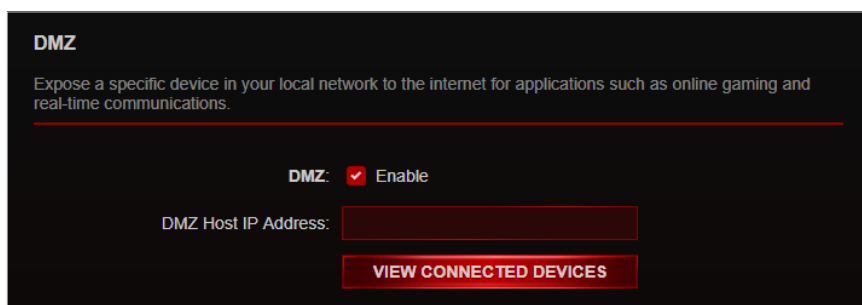
### I want to:

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 login normally but cannot join a team with other players. To solve this problem, set your PC as a DMZ host with all ports open.

### 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 your TP-Link ID or the password you set for the router.
3. Go to **Advanced > NAT Forwarding > DMZ** and select **Enable DMZ**.
4. Click **VIEW CONNECTED DEVICES** and select your PC. The **Device IP Address** will be automatically filled in. Or enter the PC's IP address 192.168.0.100 manually in the **DMZ Host IP Address** field.



**DMZ**

Expose a specific device in your local network to the internet for applications such as online gaming and real-time communications.

---

DMZ:  Enable

DMZ Host IP Address:

**VIEW CONNECTED DEVICES**

5. Click **SAVE**.

### Done!

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

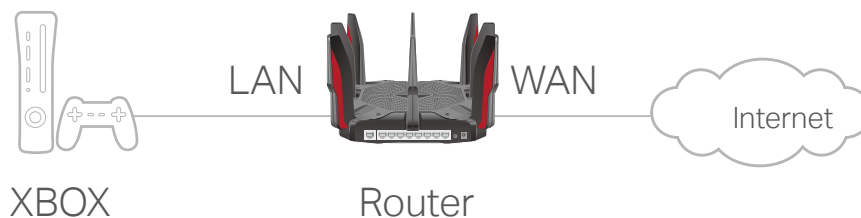
## 10.4. Make Xbox Online Games Run Smoothly by UPnP

The UPnP (Universal Plug and Play) protocol allows 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 on the local network and the internet can freely communicate with each other thus realizing the seamless connection of the network. You may need to enable the UPnP if you want to use applications for multiplayer gaming, peer-to-peer connections, real-time communication (such as VoIP or telephone conference) or remote assistance, etc.

#### ☞ Tips:

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

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



If necessary, you can follow the steps to change the status of UPnP.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > NAT Forwarding > UPnP** and toggle on or off according to your needs.

**UPnP**

Enable UPnP (Universal Plug and Play) to allow devices on your local network to dynamically open ports for applications such as multiplayer gaming and real-time communications.

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UPnP:

**UPnP Client List**

Displays the UPnP device information.

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Total Clients: 0 Refresh

Service Description	External Port	Protocol	Client IP Address	Internal Port
No Entries				

## Chapter 11

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# VPN Server

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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.

It contains the following sections, please choose the appropriate VPN server connection type as needed.

- [Use OpenVPN to Access Your Home Network](#)
- [Use PPTP VPN to Access Your Home Network](#)

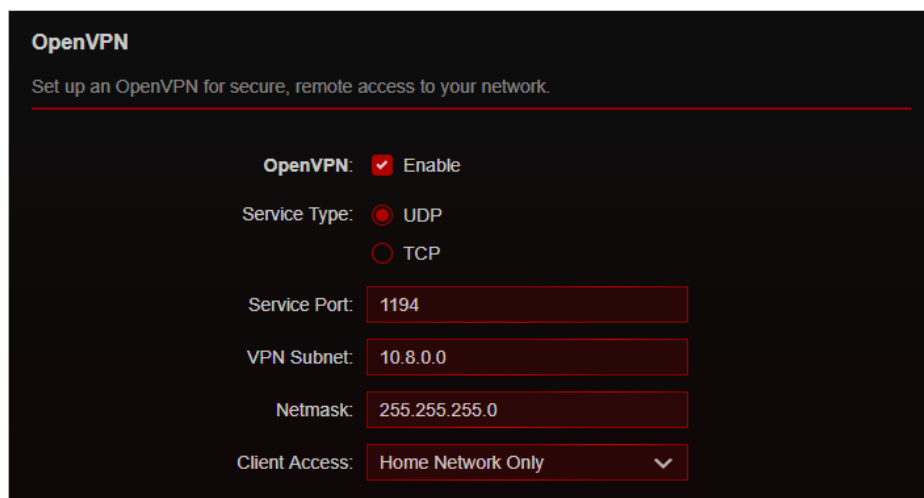
## 11.1. Use OpenVPN to Access Your Home Network

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 Router

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > VPN Server > OpenVPN** or **Game Center > VPN Server > OpenVPN**, and tick the **Enable** box of **VPN Server**.



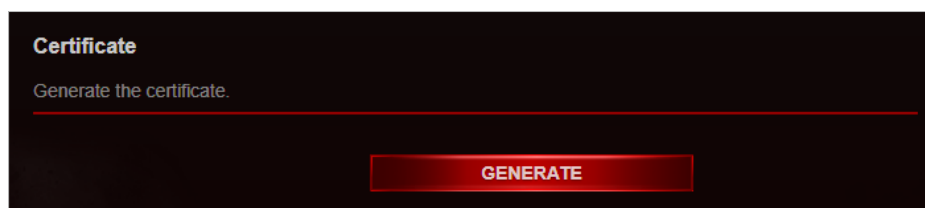
#### Note:

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

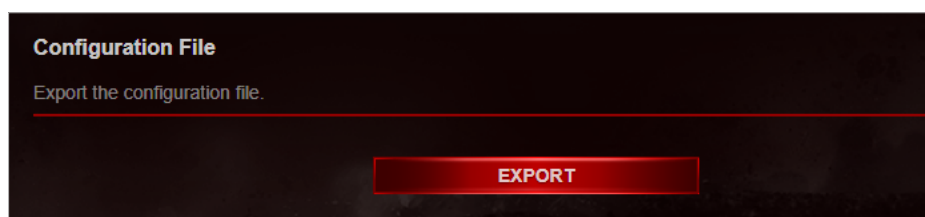


6. Select your **Client Access** type. Select **Home Network Only** if you only want the remote device to access your home network; select **Internet and Home Network** if you also want the remote device to access internet through the VPN Server.
7. Click **SAVE**.
8. Click **GENERATE** to get a new certificate.



**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 router.



## 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 router. Mobile devices should download a third-party app from Google Play or Apple App Store.

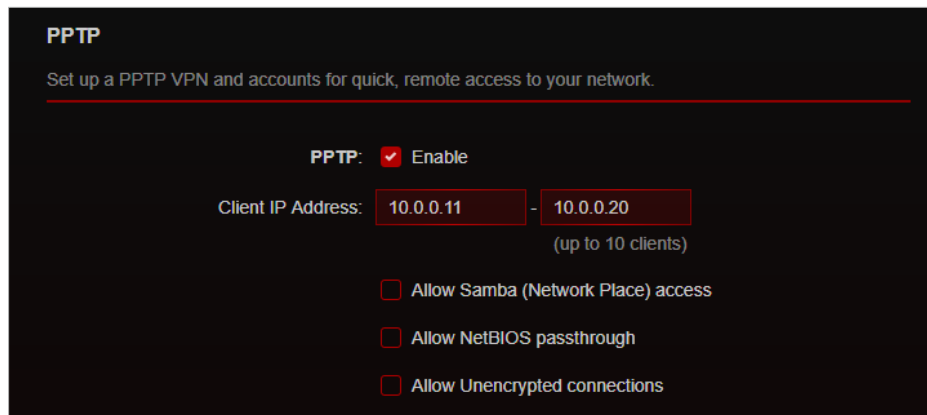
2. After the installation, copy the file exported from your router to the OpenVPN client utility's "config" folder (for example, **C:\Program Files\OpenVPN\config** on Windows). The path depends on where the OpenVPN client utility is installed.
3. Run the OpenVPN client utility and connect it to OpenVPN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

## 11.2. 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.

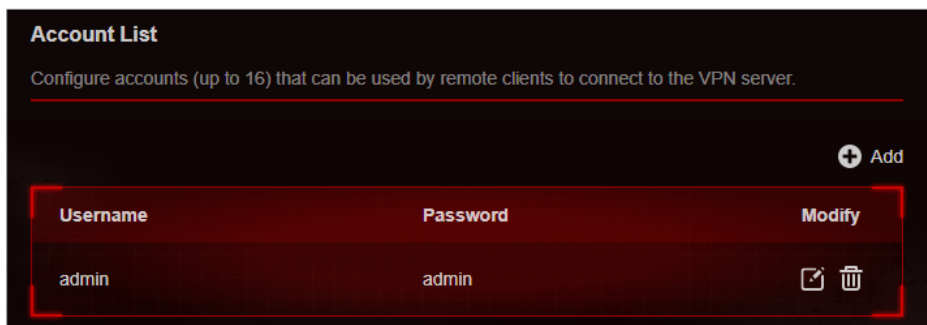
### Step 1. Set up PPTP VPN Server on Your Router

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced](#) > [VPN Server](#) > [PPTP](#) or [Game Center](#) > [VPN Server](#) > [PPTP](#), and tick the [Enable](#) box of [PPTP](#).



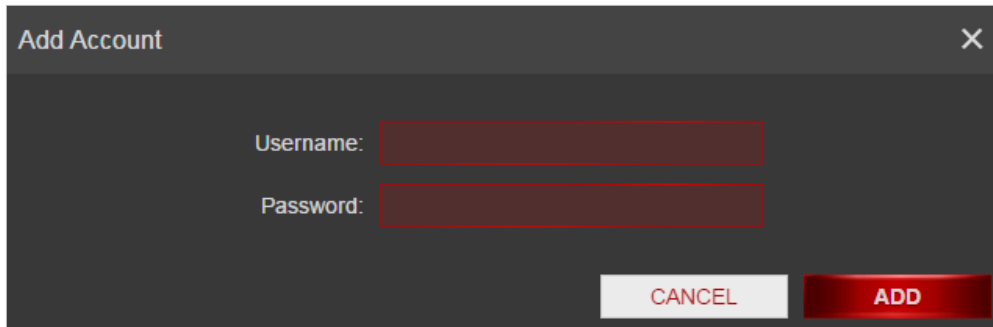
**Note:** Before you enable [VPN Server](#), we recommend you configure Dynamic DNS Service (recommended) or assign a static IP address for router's WAN port and synchronize your [System Time](#) with internet.

3. In the [Client IP Address](#) field, enter the range of IP addresses (up to 10) that can be leased to the devices by the PPTP VPN server.
4. Set the PPTP connection permission according to your needs.
  - Select [Allow Samba \(Network Place\) access](#) to allow your VPN device to access your local Samba server.
  - Select [Allow NetBIOS passthrough](#) to allow your VPN device to access your Samba server using NetBIOS name.
  - Select [Allow Unencrypted connections](#) to allow unencrypted connections to your VPN server.
5. Click [SAVE](#).
6. Configure the PPTP VPN connection account for the remote device. You can create up to 16 accounts.



- 1) Click .

- 2) Enter the **Username** and **Password** to authenticate devices to the PPTP VPN Server.

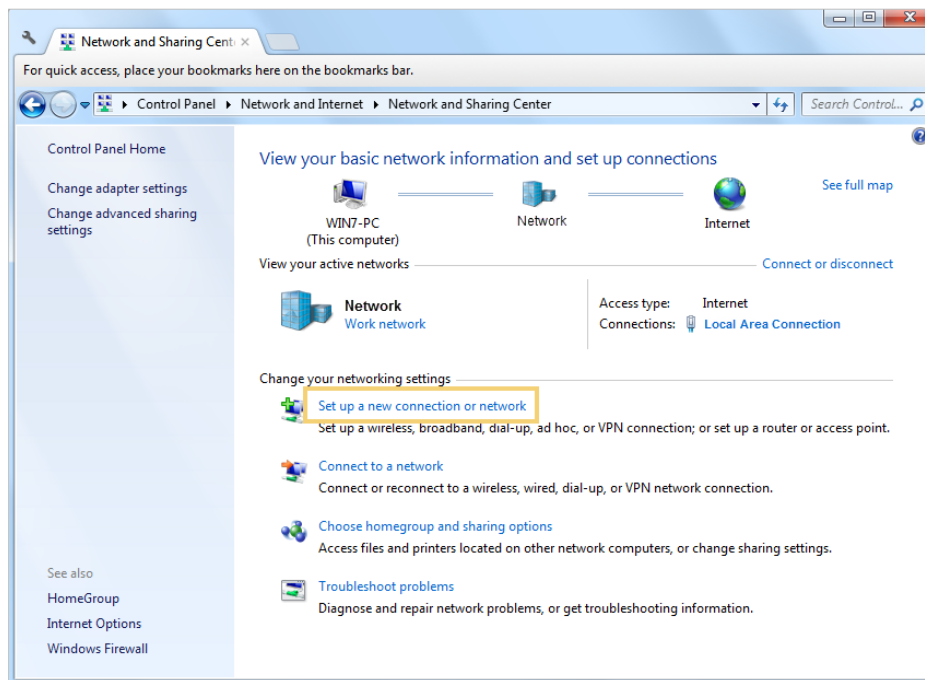


- 3) Click **ADD**.

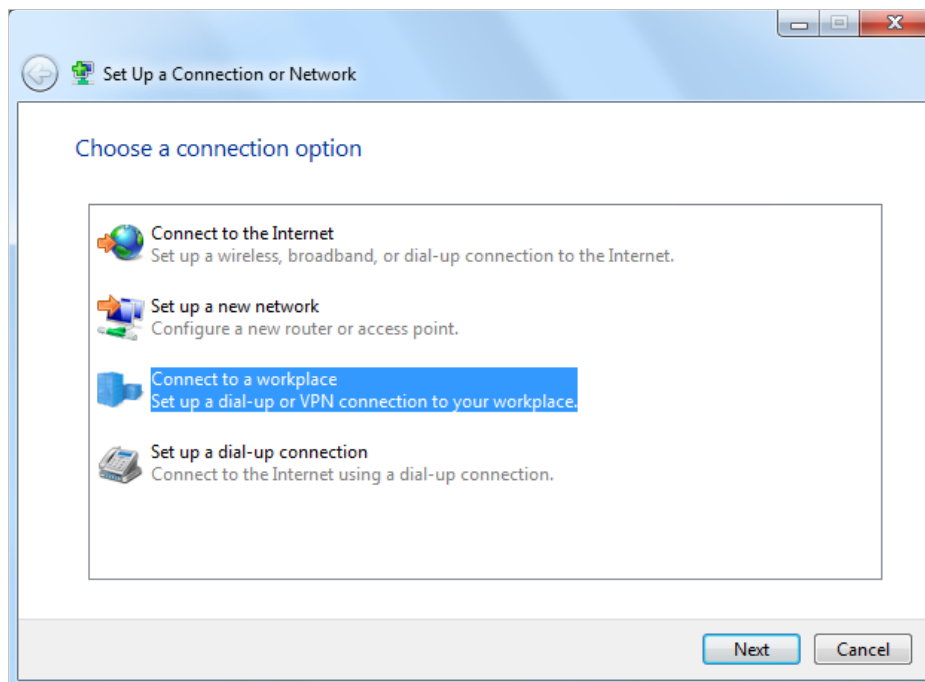
## Step 2. Configure PPTP VPN Connection on Your Remote Device

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.

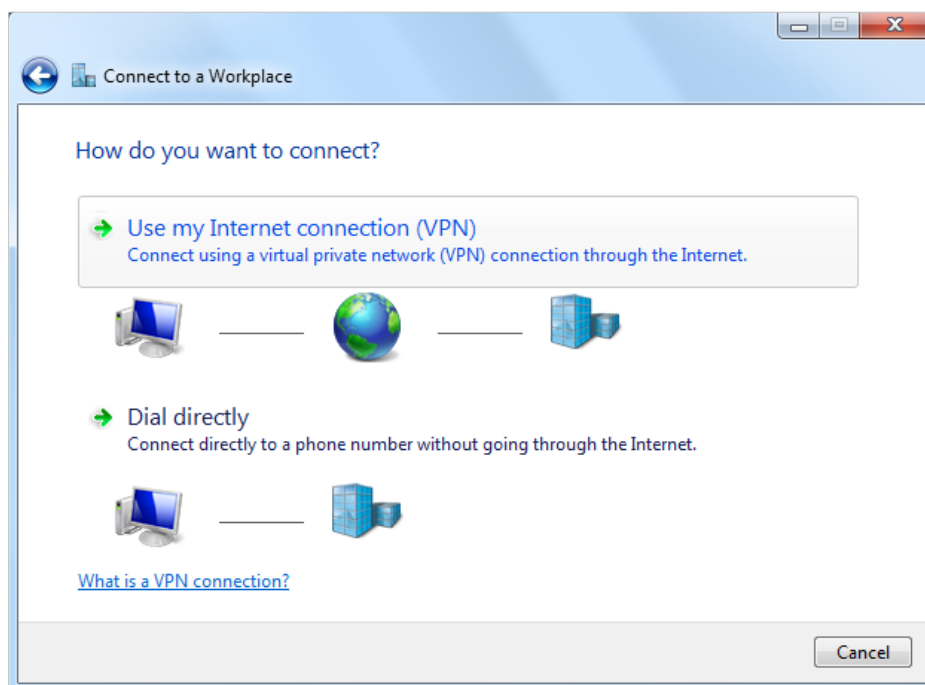
1. Go to **Start > Control Panel > Network and Internet > Network and Sharing Center**.
2. Select **Set up a new connection or network**.



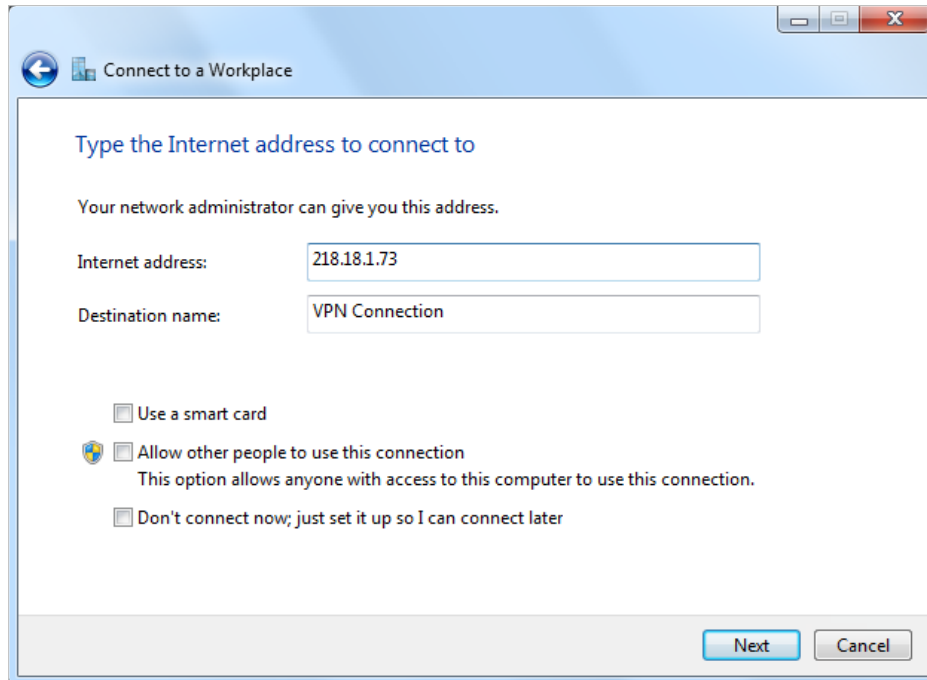
3. Select **Connect to a workplace** and click **Next**.



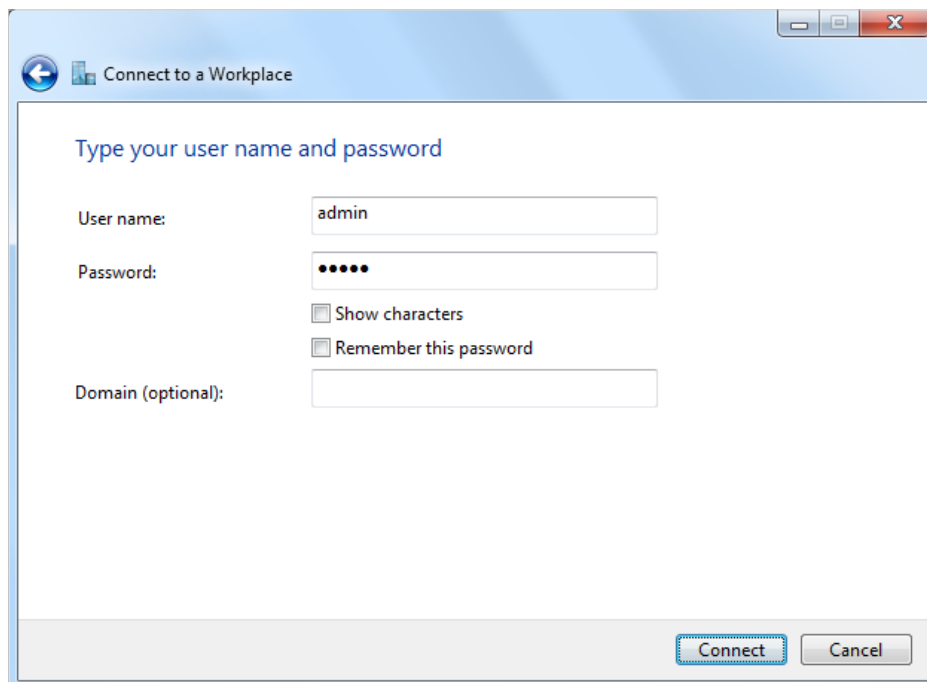
4. Select **Use my Internet connection (VPN)**.



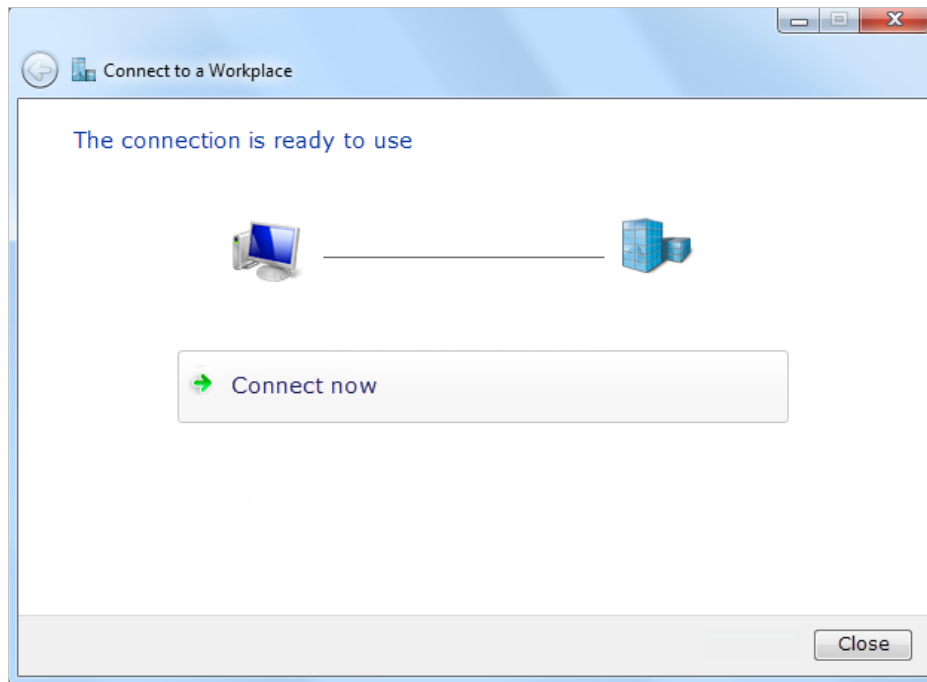
5. Enter the internet IP address of the router (for example: 218.18.1.73) in the **Internet address** field. Click **Next**.



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



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



## Chapter 12

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# Customize Your Network Settings

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This chapter guides you on how to configure advanced network features.

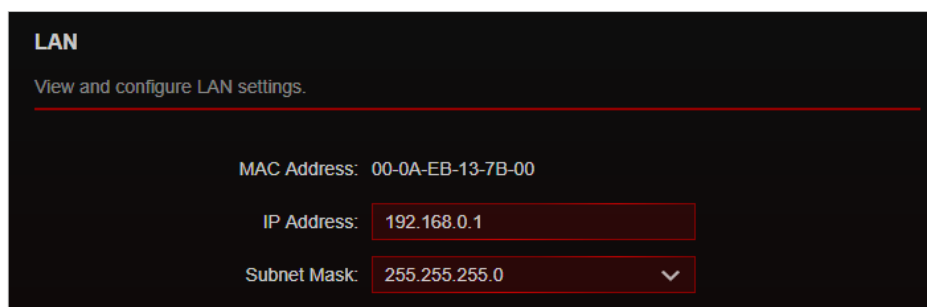
It contains the following sections:

- [Change the LAN Settings](#)
- [Set Up Link Aggregation](#)
- [Configure to Support IPTV Service](#)
- [Specify DHCP Server Settings](#)
- [Set Up a Dynamic DNS Service Account](#)
- [Create Static Routes](#)
- [Specify Wireless Settings](#)
- [Schedule Your Wireless Function](#)
- [Use WPS for Wireless Connection](#)
- [Use WDS to Extend Network](#)
- [Advanced Wireless Settings](#)

## 12.1. Change the LAN Settings

The router is preset with a default LAN IP 192.168.0.1, 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 on your local network or your network requires a specific IP subnet, you can change it.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Network > LAN](#).
3. Type in a new IP Address appropriate to your needs. And leave the [Subnet Mask](#) as the default settings.



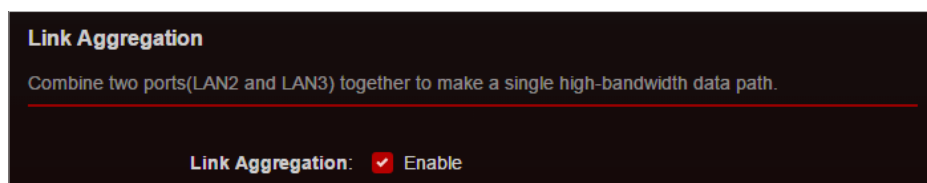
4. Click [SAVE](#).

**Note:** If you have set the Port Forwarding, DMZ or DHCP address reservation, and the new LAN IP address is not in the same subnet with the old one, then you should reconfigure these features.

## 12.2. Set Up Link Aggregation

The Link Aggregation feature combines two ports together to make a single highbandwidth data path, thus sustaining a higher-speed and more stable wired network.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Network > LAN](#).
3. Enable [Link Aggregation](#). The router will reboot to apply the settings and the LAN ports 2 and 3 will be used for Link Aggregation.





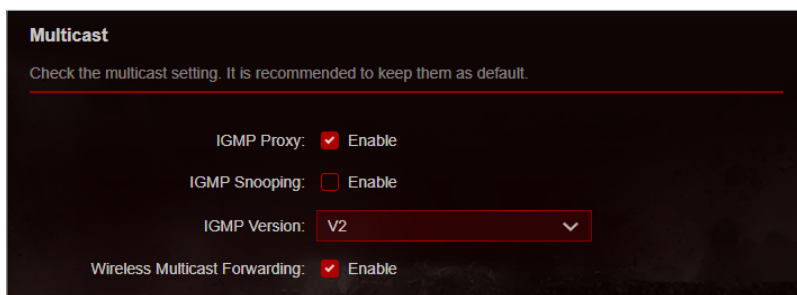
## 12.3. Configure to Support IPTV Service

### I want to:

Configure IPTV setup to enable Internet/IPTV/Phone service provided by my internet service provider (ISP).

### How can I do that?

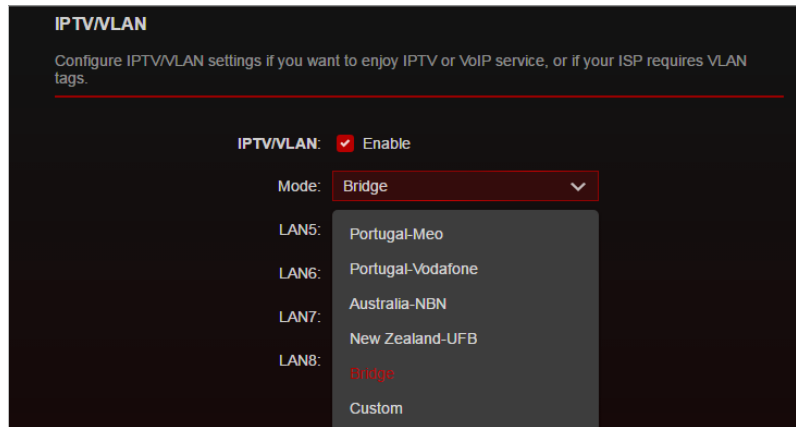
1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced](#) > [Network](#) > [IPTV/VLAN](#).
3. If your ISP provides the networking service based on IGMP technology, e.g., British Telecom(BT) and Talk Talk in UK:
  - 1) Tick the [IGMP Proxy](#) checkbox and select the [IGMP Version](#), either V2 or V3, as required by your ISP.



- 2) Click [SAVE](#).
- 3) After configuring IGMP proxy, IPTV can work behind your router now. You can connect your set-top box to any of the router's Ethernet port.

### If IGMP is not the technology your ISP applies to provide IPTV service:

- 1) Tick [Enable IPTV/VLAN](#).
- 2) Select the appropriate [Mode](#) according to your ISP.
  - Select [Bridge](#) if your ISP is not listed and no other parameters are required.
  - Select [Custom](#) if your ISP is not listed but provides necessary parameters.



- 3) After you have selected a mode, the necessary parameters, including the LAN port for IPTV connection, are predetermined. If not, select the LAN type to determine which port is used to support IPTV service.
- 4) Click [SAVE](#).
- 5) Connect the set-top box to the corresponding LAN port which is predetermined or you have specified in Step 3.

## Done!

Your IPTV setup is done now! You may need to configure your set-top box before enjoying your TV.

## 12.4. Specify DHCP Server Settings

By default, the DHCP (Dynamic Host Configuration Protocol) Server is enabled and the router acts as a DHCP server; it dynamically assigns TCP/IP parameters to client devices from the IP Address Pool. You can change the settings of the DHCP Server if necessary, and you can reserve LAN IP addresses for specified client devices.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Network > DHCP Server](#).

- **To specify the IP address that the router assigns:**

1. Tick the [Enable](#) checkbox.
2. Enter the starting and ending IP addresses in the [IP Address Pool](#).
3. Enter other parameters if the ISP offers. The [Default Gateway](#) is automatically filled in and is the same as the LAN IP address of the router.
4. Click [SAVE](#).

- **To reserve an IP address for a specified client device:**

1. Click [Add](#) in the [Address Reservation](#) section.

2. Click [VIEW CONNECTED DEVICES](#) and select the you device you want to reserve an IP for. Then the [MAC Address](#) will be automatically filled in. Or enter the [MAC address](#) of the client device.
3. Enter the [IP address](#) to reserve for the client device.
4. Click [SAVE](#).

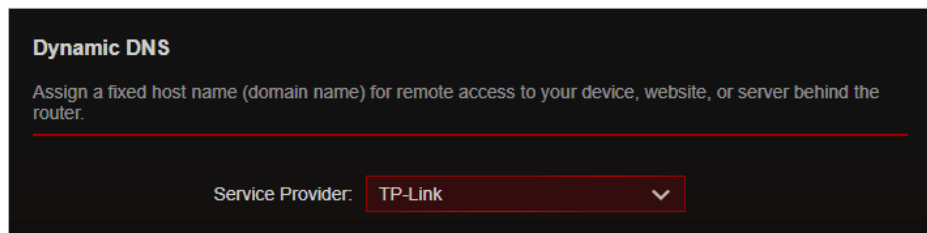
## 12.5. Set Up a Dynamic DNS Service Account

Most ISPs assign a dynamic IP address to the router and you can use this IP address to access your router remotely. However, the IP address can change from time to time

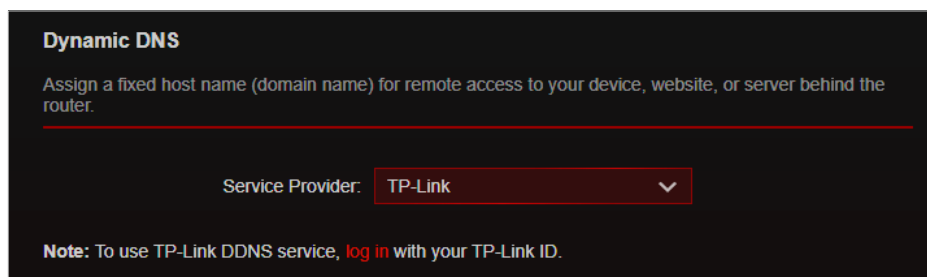
and you don't know when it changes. In this case, you might apply the DDNS (Dynamic Domain Name Server) feature on the router to allow you and your friends to access your router and local servers (FTP, HTTP, etc.) using a domain name without checking and remembering the IP address.

**Note:** DDNS does not work if the ISP assigns a private WAN IP address (such as 192.168.1.x) to the router.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Network > Dynamic DNS](#).
3. Select the DDNS **Service Provider**: TP-Link, NO-IP or DynDNS. It is recommended to select TP-Link so that you can enjoy TP-Link's superior DDNS service. Otherwise, please select NO-IP or DynDNS. If you don't have a DDNS account, you have to register first by clicking [Register Now](#).



**Note:** To enjoy TP-Link's DDNS service, you have to log in with a TP-Link ID. If you have not logged in with one, click [log in](#).



4. Click [Register](#) in the [Domain Name List](#) if you have selected TP-Link, and enter the [Domain Name](#) as needed.

**Dynamic DNS**

Assign a fixed host name (domain name) for remote access to your device, website, or server behind the router.

---

Service Provider: TP-Link ▼

Current Domain Name:

**Domain Name List**

+ Register

Domain Name	Registered Date	Status	Operation	Delete
No Entries				

If you have selected NO-IP or DynDNS, enter the username, password and domain name of your account.

**Dynamic DNS**

Assign a fixed host name (domain name) for remote access to your device, website, or server behind the router.

---

Service Provider: NO-IP ▼ Register Now

Username:

Password:  🔑

Domain Name:

WAN IP binding:  Enable

Status: Not launching

5. Click **SAVE**.

🔗 **Tips:** If you want to use a new DDNS account, please click **Logout** first, and then log in with a new account.

## 12.6. Create Static Routes

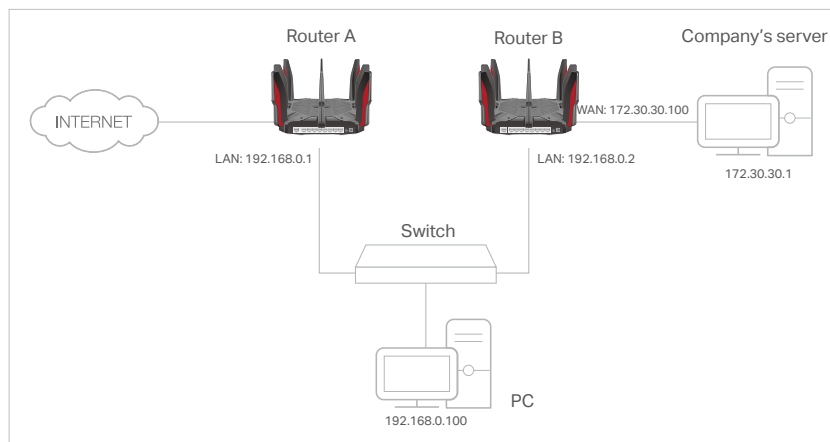
Static routing is a form of routing that is configured manually by a network administrator or a user by adding entries into a routing table. The manually-configured routing information guides the router in forwarding data packets to the specific destination.

### I want to:

Visit multiple networks and servers at the same time.

**For example**, in a small office, my PC can surf the internet through Router A, but I also

want to visit my company's network. Now I have a switch and Router B. I connect the devices as shown in the following figure so that the physical connection between my PC and my company's server is established. To surf the internet and visit my company's network at the same time, I need to configure the static routing.



### How can I do that?

1. Change the routers' LAN IP addresses to two different IP addresses on the same subnet. Disable Router B's DHCP function.
2. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for Router A.
3. Go to **Advanced > Network > Routing**.
4. Click **Add** and finish the settings according to the following explanations:

The screenshot shows a dialog box titled 'Add a Routing Entry' with a close button (X) in the top right corner. The dialog contains the following fields:

- Network Destination: [Empty text box]
- Subnet Mask: [Empty text box]
- Default Gateway: [Empty text box]
- Interface: [- Please Select -] (dropdown menu)
- Description: [Empty text box]

At the bottom of the dialog, there are two buttons: 'CANCEL' and 'SAVE'.

**Network Destination:** The destination IP address that you want to assign to a static route. This IP address cannot be on the same subnet with the WAN IP or LAN IP of Router A. In the example, the IP address of the company network is the destination IP address, so here enter 172.30.30.1.

**Subnet Mask:** Determines the destination network with the destination IP address.

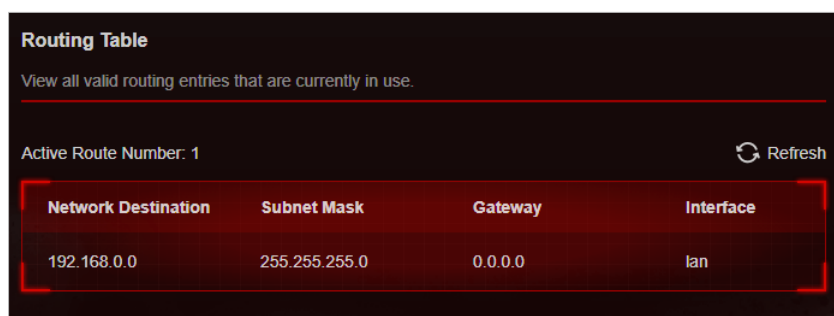
If the destination is a single IP address, enter 255.255.255.255; otherwise, enter the subnet mask of the corresponding network IP. In the example, the destination network is a single IP, so here enter 255.255.255.255.

**Default Gateway:** The IP address of the gateway device to which the data packets will be sent. This IP address must be on the same subnet with the router's IP which sends out data. In the example, the data packets will be sent to the LAN port of Router B and then to the Server, so the default gateway should be 192.168.0.2.

**Interface:** Determined by the port (WAN/LAN) that sends out data packets. In the example, the data are sent to the gateway through the LAN port of Router A, so **LAN** should be selected.

**Description:** Enter a description for this static routing entry.

5. Click **SAVE**.
6. Check the **Routing Table** below. If you can find the entry you've set, the static routing is set successfully.



The screenshot shows a 'Routing Table' interface with a dark background. At the top, it says 'View all valid routing entries that are currently in use.' Below this, it indicates 'Active Route Number: 1' and a 'Refresh' button. A table with a red border contains the following data:

Network Destination	Subnet Mask	Gateway	Interface
192.168.0.0	255.255.255.0	0.0.0.0	lan

## Done!

Open a web browser on your PC. Enter the company server's IP address to visit the company network.

## 12.7. Specify Wireless Settings

The router's wireless network name (SSID) and password, and security option are preset in the factory. The preset SSID and password can be found on the label of the router. You can customize the wireless settings according to your needs.

Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.

- **To enable or disable the wireless function:**

1. Go to **Wireless** or **Advanced > Wireless > Wireless Settings**.

2. The wireless function is enabled by default. If you want to disable the wireless function of the router, just untick the **Enable** checkbox of each wireless network. In this case, all the wireless settings will be invalid.

- **To change the wireless network name (SSID) and wireless password:**

1. Go to [Wireless](#) or [Advanced](#) > [Wireless](#) > [Wireless Settings](#).

2. Create a new SSID in [Network Name \(SSID\)](#) and customize the password for the network in [Password](#). The value is case-sensitive.

**Note:**

If you change the wireless settings with a wireless device, you will be disconnected when the settings are effective. Please write down the new SSID and password for future use.

- **To hide SSID:**

1. Go to [Wireless](#) or [Advanced](#) > [Wireless](#) > [Wireless Settings](#).

2. Select [Hide SSID](#), and your SSID won't display when you scan for local wireless networks on your wireless device and you need to manually join the network.

- **To use OFDMA function:**

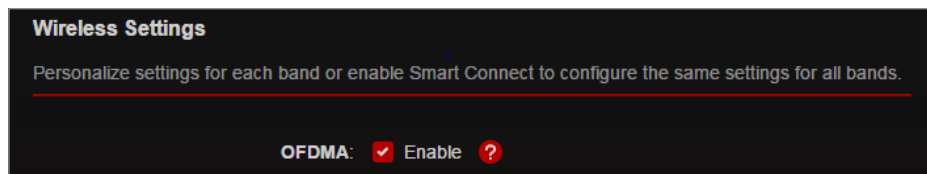
The OFDMA feature enables multiple users to transmit data simultaneously, and thus greatly improves speed and efficiency.

**Note:**

Only when your clients also support OFDMA can you fully enjoy the benefits.

1. Go to [Wireless](#) or [Advanced](#) > [Wireless](#) > [Wireless Settings](#).

2. Enable [OFDMA](#).



- **To use the smart connect function:**

The smart connect function lets you to enjoy a more high-speed network by assigning your devices to best wireless bands based on actual conditions to balance network demands.

1. Go to [Wireless](#) or [Advanced](#) > [Wireless](#) > [Wireless Settings](#).

2. Enable [Smart Connect](#).



**Wireless Settings**

Personalize settings for each band or enable Smart Connect to configure the same settings for all bands.

OFDMA:  Enable ?

Smart Connect:  Enable ? [Sharing Network](#)

Wireless Radio:  Enable

Network Name (SSID):   Hide SSID

Security:  ▼

Version:  ▼

Encryption:  ▼

Password:

Transmit Power:  ▼

3. Keep the default values or set a new SSID and password, and click **SAVE**. This SSID and password will be applied for the 2.4GHz and 5GHz wireless networks.

- **To change the security option:**

1. Go to [Advanced](#) > [Wireless](#) > [Wireless Settings](#).
2. Select an option from the [Security](#) drop-down list. We recommend you don't change the default settings unless necessary. If you select other options, configure the related parameters according to the help page.

**In addition**

- [Transmit Power](#) - Select either [High](#), [Middle](#) or [Low](#) to specify the data transmit power. The default and recommended setting is [High](#).
- [Channel Width](#) - Select a channel width (bandwidth) for the wireless network.
- [Channel](#) - Select an operating channel for the wireless network. It is recommended to leave the channel to [Auto](#), if you are not experiencing the intermittent wireless connection issue.
- [Mode](#) - Select a transmission mode according to your wireless client devices. It is recommended to just leave it as default.

- **To enable the MU-MIMO feature:**

A router with the MU-MIMO feature serves multiple devices simultaneously while a traditional router serves only one user at a time. That means MU-MIMO can provide a faster, more efficient Wi-Fi network for multiusers.

**Note:**

Devices supporting 5GHz wireless band can enjoy the MU-MIMO service.

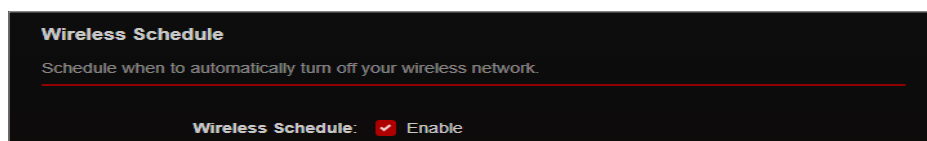
1. Go to [Advanced](#) > [Wireless](#) > [Wireless Settings](#).

2. Locate the **5GHz-1** or **5GHz-2** network.
3. Tick the **Enable** box for **MU-MIMO**.
4. Click **SAVE**.

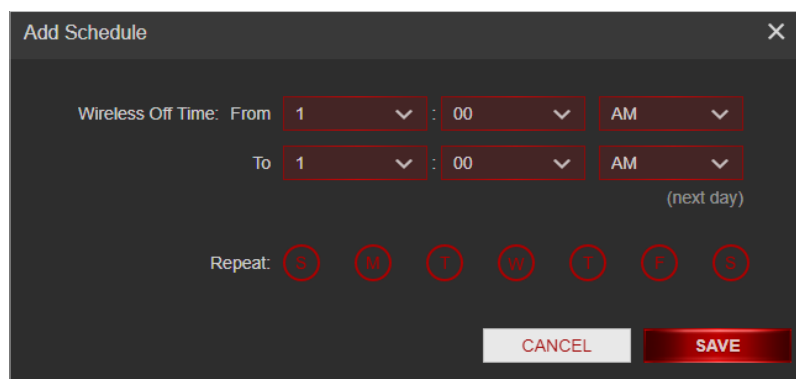
## 12.8. Schedule Your Wireless Function

The wireless network can be automatically off at a specific time when you do not need the wireless connection.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > Wireless > Wireless Schedule**.
3. Enable the **Wireless Schedule** feature.



4. Click **Add** to specify a wireless off period during which you need the wireless off automatically, and click **SAVE**.



### Note:

- The Effective Time Schedule is based on the time of the router. You can go to **Advanced > System > Time & Language** to modify the time.
- The wireless network will be automatically turned on after the time period you set.

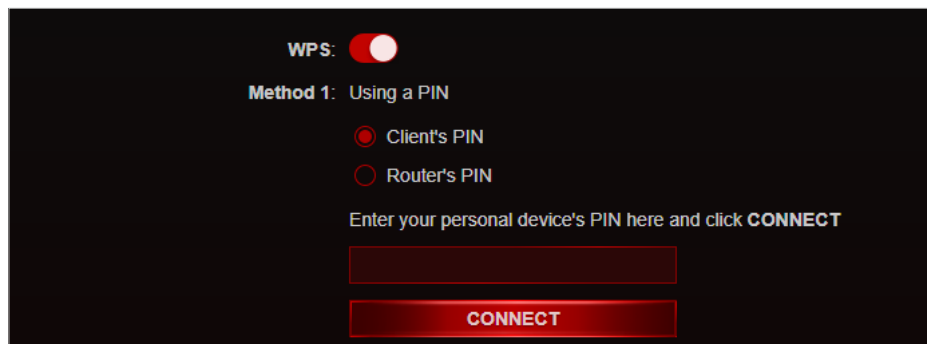
## 12.9. Use WPS for Wireless Connection

Wi-Fi Protected Setup (WPS) provides an easier approach to set up a security-protected Wi-Fi connection.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Make sure the Wi-Fi of your router is on and go to **Advanced > Wireless > WPS**.

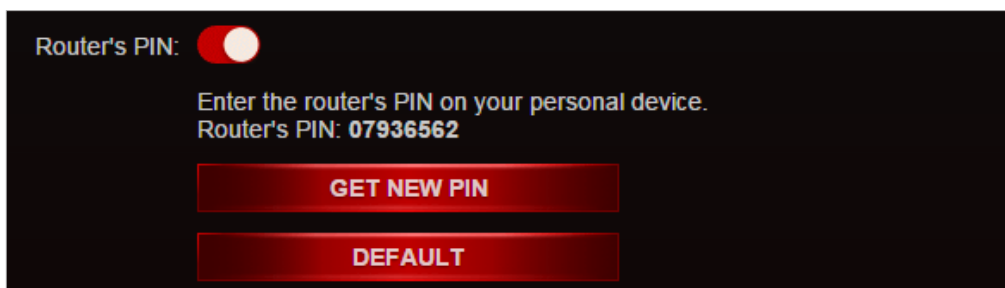
### 12.9.1. Connect via the Client's PIN

Enter the PIN of your device and click **Connect**. Then your device will get connected to the router.



### 12.9.2. Connect via the Router's PIN

Select **Router's PIN** in Method 1 to enable **Router's PIN**. You can use the default PIN or generate a new one.

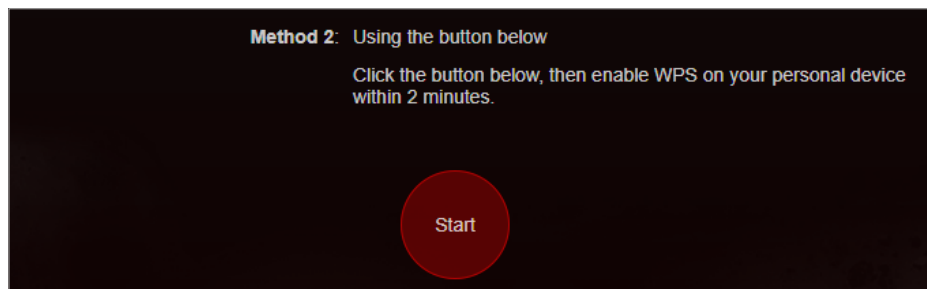


**Note:**

PIN (Personal Identification Number) is an eight-character identification number preset to each router. WPS supported devices can connect to your router with the PIN. The default PIN is printed on the label of the router.

### 12.9.3. Push the WPS Button

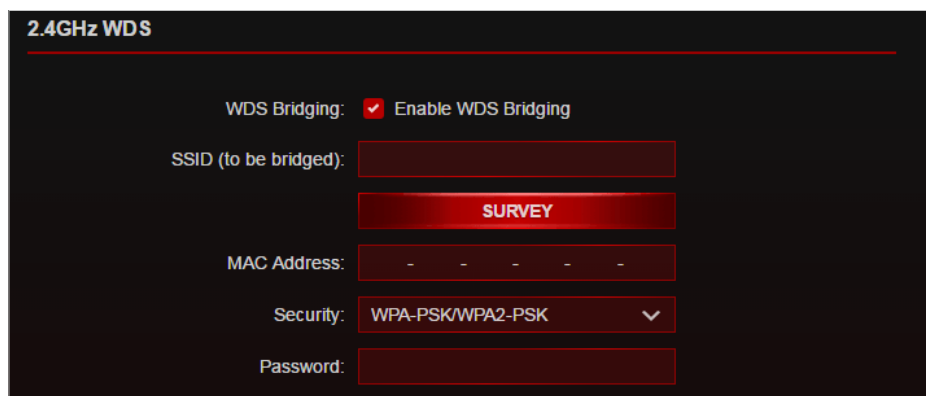
Click **Start WPS** on the screen. Within two minutes, press the WPS button on your device. **Success** will appear on the above screen and the **WPS** LED of the router should change from pulsing white to solid on, indicating successful WPS connection.



## 12. 10. Use WDS to Extend Network

WDS (Wireless Distribution System) Bridging feature allows you to bridge a router with an access point to extend the wireless network coverage. The access point should also support the WDS Bridging feature.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Wireless > WDS](#).
3. Select [Enable WDS Bridging](#) of [2.4GHz WDS](#), [5GHz-1 WDS](#) or [5GHz-2 WDS](#).



4. Survey the SSID to be bridged.
  - Click [SURVEY](#) to scan all available networks and select the network you want to bridge. The SSID (network name) and MAC Address will be automatically populated. you can also manually fill in these parameters.
  - Manually enter these parameters.
5. Select a [Security](#) type and enter the related parameters, which should be the same as the network to be bridged.
6. Click [SAVE](#).

**Note:**

- The IP address of the extended router needs to be in the same subnet with the root router.
- You need to enable and configure the WDS Bridging feature for the access point as well.
- WDS and Guest Network cannot be enabled at the same time.

## 12. 11. Advanced Wireless Settings

Check advanced wireless settings for your device.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced > Wireless > Additional Settings](#).
3. Configure advanced wireless settings.

**Additional Settings**

Check advanced wireless settings for your device.

WMM:  Enable

Short GI:  Enable

AP Isolation:  Enable

Airtime Fairness:  Enable

Zero Wait DFS:  Enable

Beacon Interval: 100

RTS Threshold: 2346

DTIM Interval: 1

Group Key Update Period: 0 s

- **WMM** - WMM function can guarantee the packets with high-priority messages being transmitted preferentially.
- **Short GI** - It is recommended to enable this function, for it will increase the data capacity by reducing the guard interval time.
- **AP Isolation** - This function isolates all connected wireless stations so that wireless stations cannot access each other through WLAN.
- **Airtime Fairness** - This function can improve the overall network performance by sacrificing a little bit of network time on your slow devices.
- **Zero Wait DFS** - Zero Wait DFS (Dynamic Frequency Selection) allows the router to immediately reselect a new channel once the radar signal is detected on a channel allocated to radar devices to ensure lag-free network experience.
- **Beacon Interval** - Enter a value between 40 and 1000 in milliseconds to determine the duration between beacon packets that are broadcasted by the router to synchronize the wireless network. The default value is 100 milliseconds.
- **RTS Threshold**- Enter a value between 1 and 2346 to determine the packet size of data transmission through the router. By default, the RTS (Request to Send) Threshold size is 2346. If the packet size is greater than the preset threshold, the router will send RTS frames to a particular receiving station and negotiate the sending of a data frame.
- **DTIM Interval** - The value determines the interval of DTIM (Delivery Traffic Indication Message). Enter a value between 1 and 15 intervals. The default value is 1, which indicates the DTIM Interval is the same as Beacon Interval.
- **Group Key Update Period** - Enter a number of seconds (minimum 30) to control the time interval for the encryption key automatic renewal. The default value is 0, meaning no key renewal.

## Chapter 13

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# Manage the Router

---

This chapter will show you the configuration for managing and maintaining your router.

It contains the following sections:

- [Upgrade the Firmware](#)
- [Backup and Restore Configuration Settings](#)
- [Change the Login Password](#)
- [Backup and Restore Configuration Settings](#)
- [Password Recovery](#)
- [Local Management](#)
- [Remote Management](#)
- [System Log](#)
- [Test the Network Connectivity](#)
- [Set Up System Time](#)
- [Set the Router to Reboot Regularly](#)
- [Control the LED](#)
- [Test Your Internet Speed](#)

## 13.1. Upgrade the Firmware

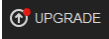
TP-Link aims at providing better network experience for users.

We will inform you through the web management page if there's any update firmware available for your router. Also, the latest firmware will be released at the TP-Link official website [www.tp-link.com](http://www.tp-link.com), and you can download it from the [Support](#) page for free.

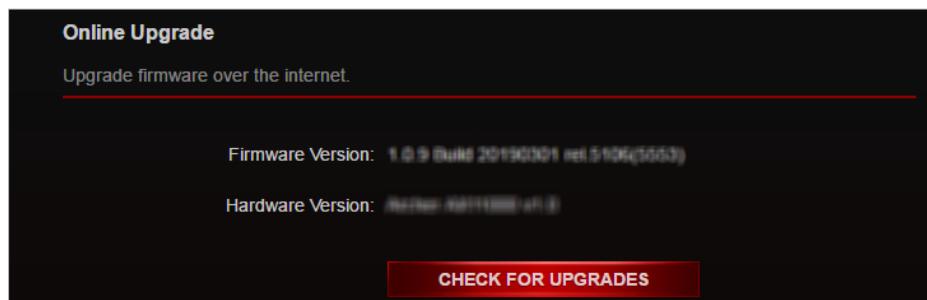
### Note:

- Make sure you remove all attached USB devices from the router before the firmware upgrade to prevent data loss.
- Backup your router configuration before firmware upgrade.
- Do NOT turn off the router during the firmware upgrade.

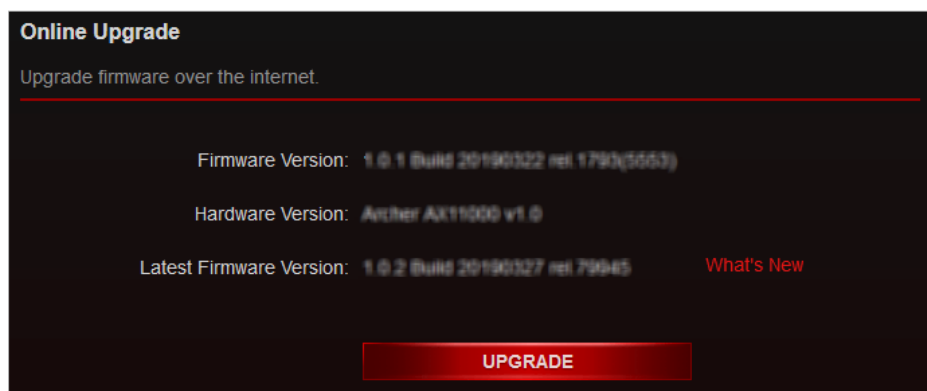
### 13.1.1. Online Upgrade

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. When the latest firmware is available for your router, the upgrade icon  will display in the top-right corner of the page. Click the icon to go to the [Firmware Upgrade](#) page.

Alternatively, you can go to [Advanced](#) > [System](#) > [Firmware Upgrade](#), and click [CHECK FOR UPGRADES](#) to see whether the latest firmware is released.

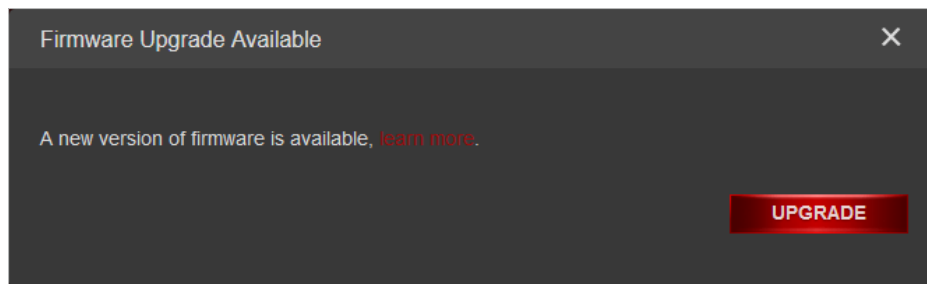


3. Focus on the [Online Upgrade](#) section, and click [UPGRADE](#).



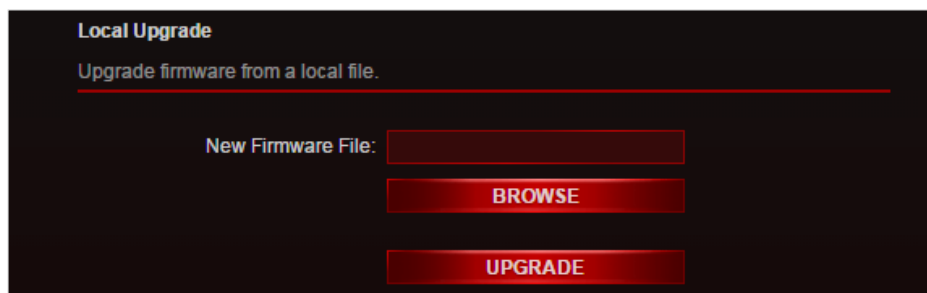
4. Wait a few minutes for the upgrade and reboot to complete.

🔗 **Tips:** If there's a new and important firmware update for your router, you will see the notification (similar as shown below) on your computer as long as a web browser is opened. Click **UPGRADE**, and log into the web management page with the username and password you set for the router. You will see the [Firmware Upgrade](#) page.



### 13.1.2. Local Upgrade

1. Download the latest firmware file for the router from [www.tp-link.com](http://www.tp-link.com).
2. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
3. Go to [Advanced](#) > [System](#) > [Firmware Upgrade](#).
4. Focus on the [Local Upgrade](#) section. Click **BROWSE** to locate the downloaded new firmware file, and click **UPGRADE**.



5. Wait a few minutes for the upgrade and reboot to complete.

📌 **Note:** If you fail to upgrade the firmware for the router, please contact our [Technical Support](#).

## 13.2. Backup and Restore Configuration Settings

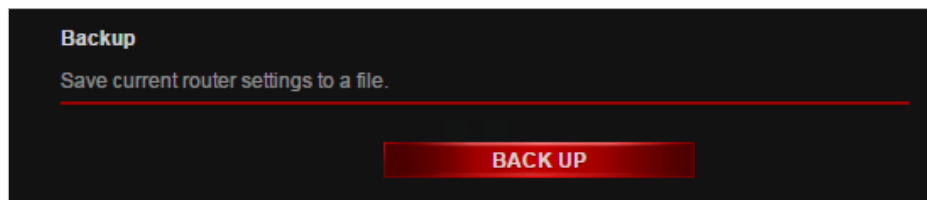
The configuration settings are stored as a configuration file in the router. You can backup the configuration file to your computer for future use and restore the router to a previous settings from the backup file when needed. Moreover, if necessary you can erase the current settings and reset the router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

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to [Advanced](#) > [System Tools](#) > [Backup & Restore](#).



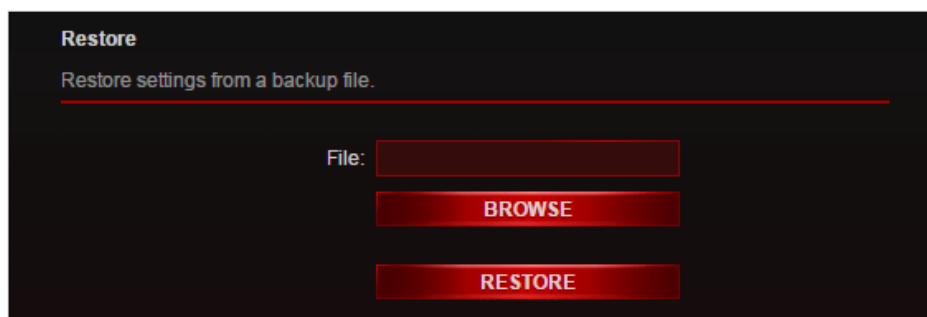
- **To backup configuration settings:**

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



- **To restore configuration settings:**

1. Click [BROWSE](#) to locate the backup configuration file stored on your computer, and click [RESTORE](#).

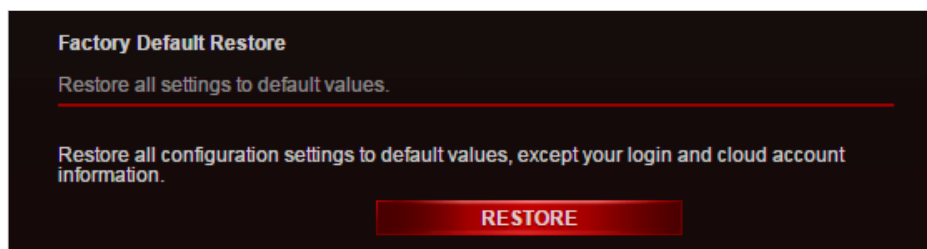


2. Wait a few minutes for the restoring and rebooting.

**Note:** During the restoring process, do not turn off or reset the router.

- **To reset the router except your login password and TP-Link ID:**

1. In the [Factory Default Restore](#) section, click [RESTORE](#).



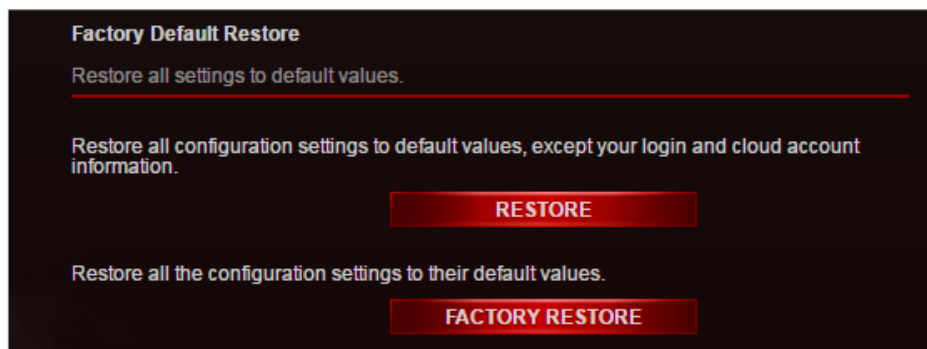
2. Wait a few minutes for the resetting and rebooting.

**Note:**

- During the resetting process, do not turn off the router.
- After reset, you can still use the current login password or the TP-Link ID to log in to the web management page.

- **To reset the router to factory default settings:**

1. Click [FACTORY RESTORE](#) to reset the router.



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

**Note:**

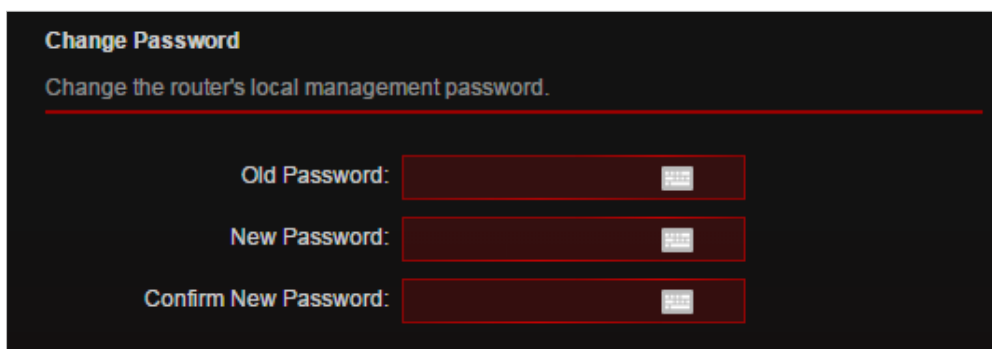
- During the resetting process, do not turn off or reset the router.
- We strongly recommend you backup the current configuration settings before resetting the router.

### 13.3. Change the Login Password

The account management feature allows you to change your login password of the web management page.

**Note:** If you are using a TP-Link ID to log in to the web management page, the account management feature will be disabled. To manage the TP-Link ID, go to [Advanced > TP-Link ID](#).

1. Visit <http://tplinkwifi.net>, and log in with the password you set for the router.
2. Go to [Advanced > System > Administration](#) and focus on the [Change Password](#) section.



3. Enter the old password, then a new password twice (both case-sensitive). Click [SAVE](#).
4. Use the new password for future logins.

### 13.4. Password Recovery

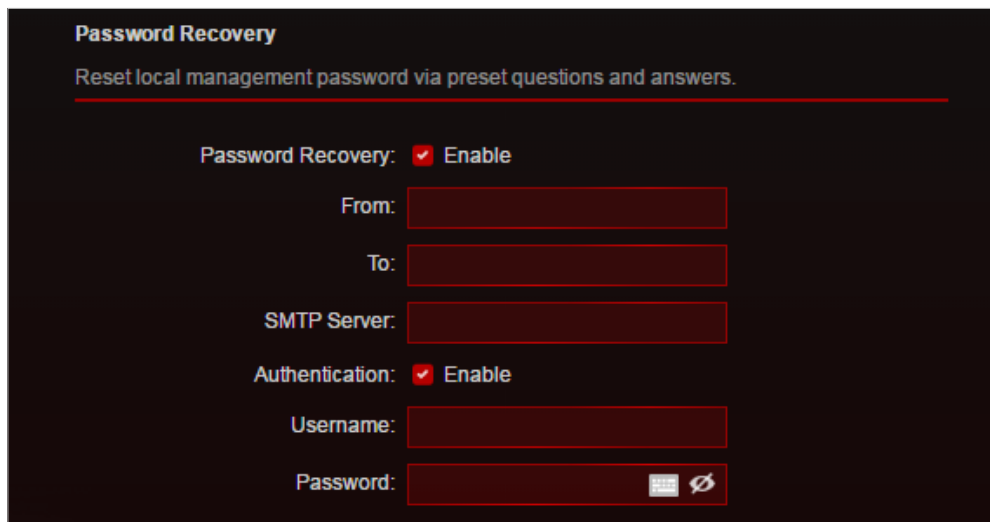
This feature allows you to recover the login password you set for you router in case you forget it.

**Note:** If you are using a TP-Link ID to log in to the web management page, the Password Recovery feature will be disabled. To manage the TP-Link ID, go to [Advanced > TP-Link ID](#).

1. Visit <http://tplinkwifi.net>, and log in with the password you set for the router.
2. Go to **Advanced > System > Administration** and focus on the **Password Recovery** section.
3. Tick the **Enable** box of **Password Recovery**.
4. Specify a **mailbox (From)** for sending the recovery letter and enter its **SMTP Server** address. Specify a **mailbox (To)** for receiving the recovery letter. If the mailbox (From) to send the recovery letter requires encryption, Tick the **Enable** box of **Authentication** and enter its username and password.

🔗 Tips:

- SMTP server is available for users in most webmail systems. For example, the SMTP server address of Gmail is smtp.gmail.com.
- Generally, Authentication should be enabled if the login of the mailbox requires username and password.



The screenshot shows the 'Password Recovery' configuration page. At the top, it says 'Reset local management password via preset questions and answers.' Below this, there are several settings:

- Password Recovery:**  **Enable**
- From:** [Text input field]
- To:** [Text input field]
- SMTP Server:** [Text input field]
- Authentication:**  **Enable**
- Username:** [Text input field]
- Password:** [Text input field with a toggle icon]

5. Click **SAVE**.

To recover the login password, please visit <http://tplinkwifi.net>, click **Forgot Password?** on the login page and follow the instructions to set a new password.

## 13.5. Local Management

This feature allows you to limit the number of client devices on your LAN from accessing the router by using the MAC address-based authentication.

1. Visit <http://tplinkwifi.net>, and log in with your TP-Link ID or the password you set for the router.
2. Go to **Advanced > System > Administration** and complete the settings In **Local Management** section as needed.

- **Access the router via HTTPS and HTTP:**

Tick the **Enable** box of **Local Management via HTTPS** to access the router via HTTPS and HTTP, or keep it disabled to access the router only via HTTP.

**Local Management**  
Access and manage the router from local network devices.

---

Local Management via HTTPS:  Enable

- **Allow all LAN connected devices to manage the router:**

Select **All Devices** for **Local Managers**.

**Local Management**  
Access and manage the router from local network devices.

---

Local Management via HTTPS:  Enable

Local Managers: **All Devices** ▼

- **Allow specific devices to manage the router:**

1. Select **All Devices** for **Local Managers** and click **SAVE**.

**Local Management**  
Access and manage the router from local network devices.

---

Local Management via HTTPS:  Enable

Local Managers: **Specified Devices** ▼

+ Add Device

Description	MAC Address	Operation
No Entries		

2. Click **Add Device**.

**Add Device** [X]

Description:

**VIEW CONNECTED DEVICES**

MAC Address:

[CANCEL] [SAVE]