WAVLINK

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User Manual

WiFi 6 AX6000 Dual Band AI Mesh Router

Model: Giant Stream6

@WavlinkOfficial

@WavlinkTechSupport

Table of 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.

When using this guide, please notice that features of the router 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	The content and text that needs to be emphasized on the web page is the theme color `#1D428A` , including menus, items, buttons, etc.
>	The menu structures to show the path to load the corresponding page. For example,**More > Network > Mode Selection** means the Mode Selection function page is under the Network menu that is located in the More tab.
Note:	Do not ignore this type of comment, it is to remind you to better use the device, to avoid the operation of the error that will cause the function to be invalid.
Tips:	Indicates important information that helps you make better use of your device.

More Info

The latest software, management app and utility are available from the Download Center at **https://docs.wavlink.xyz/Firmware/** .

A quick installation guide can be found in this guide.

Specifications can be found on the product page at **https://docs.wavlink.xyz/**.

If you encounter any issues, please don’t hesitate to email **contact@wavlink.com** to provide feedbacks or contact online customer service, thank you !

Speed/Coverage Disclaimer

*Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of 1) environmental factors, including building materials, physical objects, and obstacles, 2) network conditions, including local interference, volume and density of traffic, product location, network complexity, and network overhead, and 3) client limitations, including rated performance, location, connection, quality, and client condition.

Chapter 1 Network Management

This chapter contains the following sections :

Network Setting

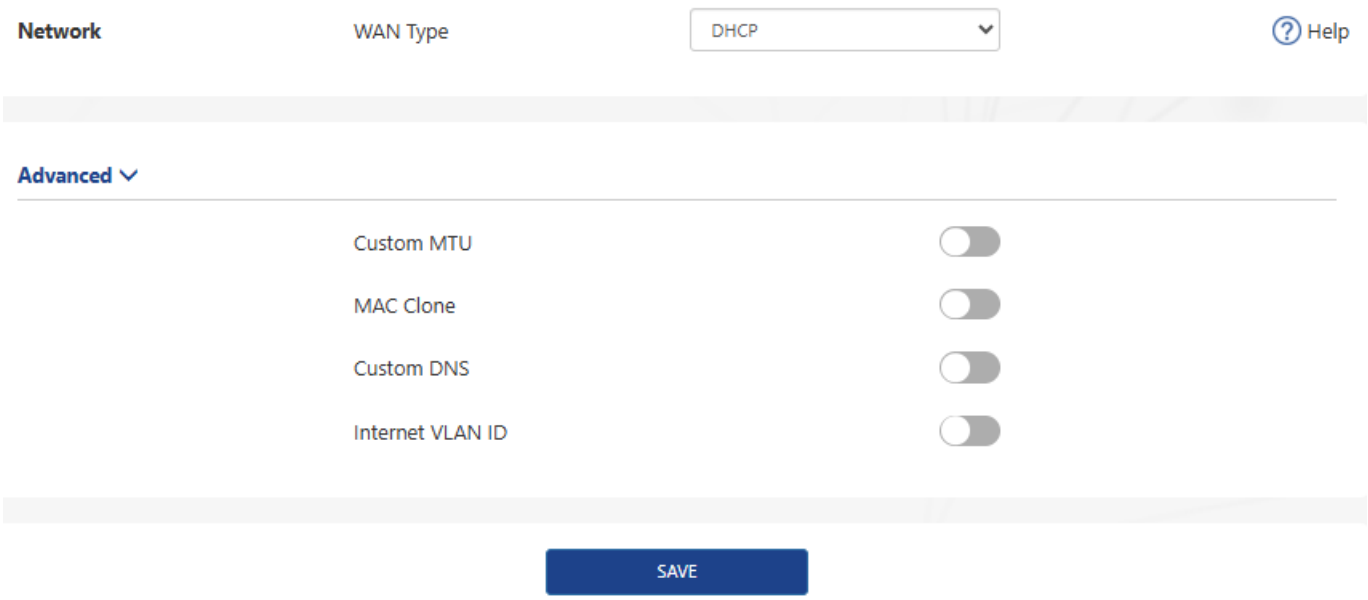
The way of network access can be changed as your requirement through configurating the network setting.

1 . Access **Network** setting or **More>Network>Network Setting**.

2 . Select your network connection way from the **WAN Type** list.

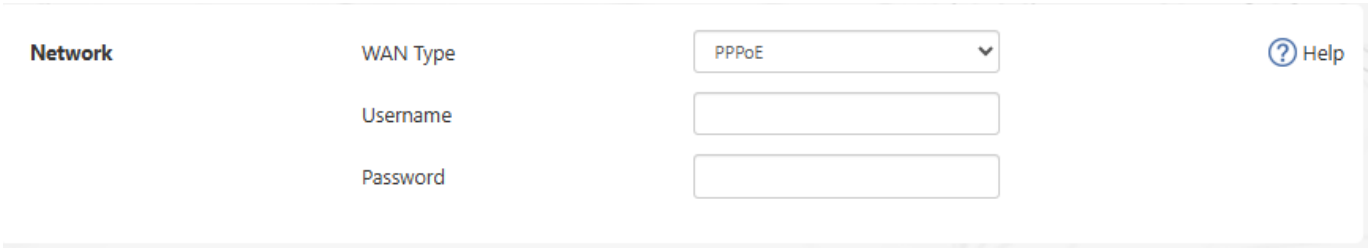
1）DHCP(Dynamic Host Configuration Protocol)

- It assigns network information including IP, Subnet Mask, default Gateway and others for the computer, designed for small network environments such as a home or a small office, managing and assigning IP without manual configuration.
- If the ISP(Internet Service Provider) has provided Auto Assign Feature for you, select DHCP from the WAN Type list.



2）PPPoE(Point-to-Point Protocol over Ethernet)

- It functions as a secure connection constructor, including verifying user identity, assigning IP, and others. It is designed for broadband access methods such as ADSL, fiber optics and others to provide a secure network connection.
- If the ISP has provided a **Username** and **Password** for you, enter them after selecting PPPoE from **WAN Type** list.

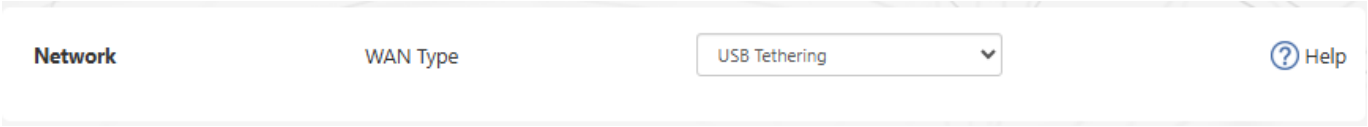


3）Static IP

- It assigns fixed IP address for the computer automatically. It is designed for network connections, servers, remote access, etc., which require long-term stability to ensure the stability of network connections.
- If the ISP has provided a specificed IP parameters including IP address, Subnet Mask, Gateway, DNS1 and DNS2, select Static IP from the list and enter the information provided by the ISP.

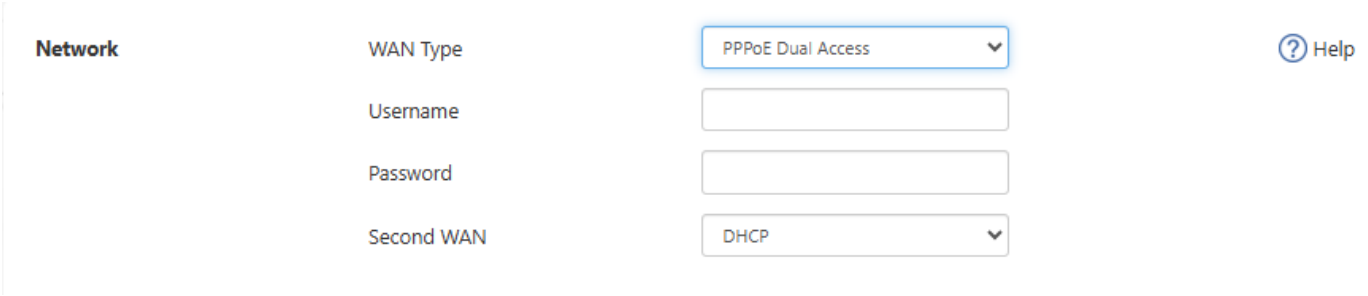
4）USB Tethering

- It works to share network connection after connecting the USB devices to the router.



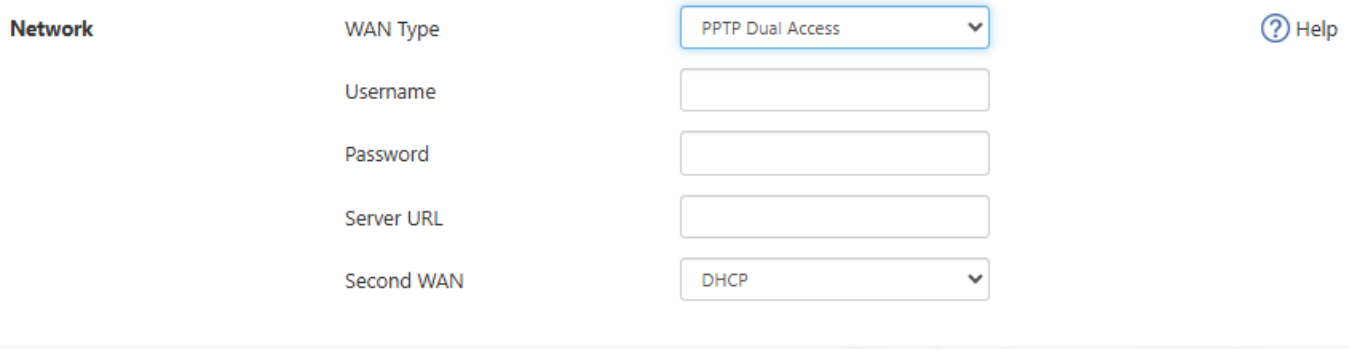
5）PPPoE Dual Access

- Using dual PPPoE broadband lines, PPPoE Dual Access achieves balanced distribution via the technology of Load Balancing. Designed for improving the network bandwidth and stability, so it is for the occassion that requires large data transmission.
- Enter the account and password provided by the ISP in **Username** and **Password**. Then select **DHCP** or **Static IP** from **Second WAN** list, one note is that **IP** and **Subnet Mask** are required for **Static IP**.



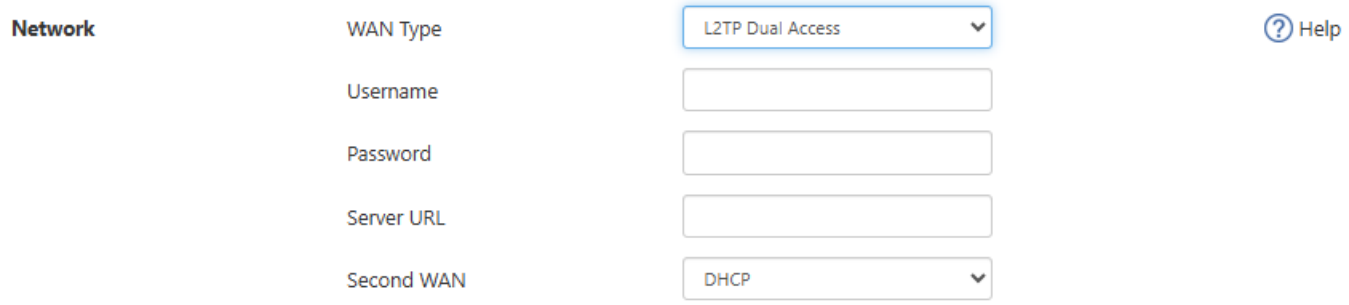
6）PPTP Dual Access

- PPTP Dual Access refers to the dual-network accessing method of using two PPTP VPNs. With it, users can configure two PPTP VPN to simultaneously access the Internet, enhancing the reliability of bandwidth and network.
- Enter **Username**, **Password**, **Server URL**, then select **DHCP** or **Static IP**, one note is that **IP** and **Subnet Mask** are required for selecting **Static IP**.

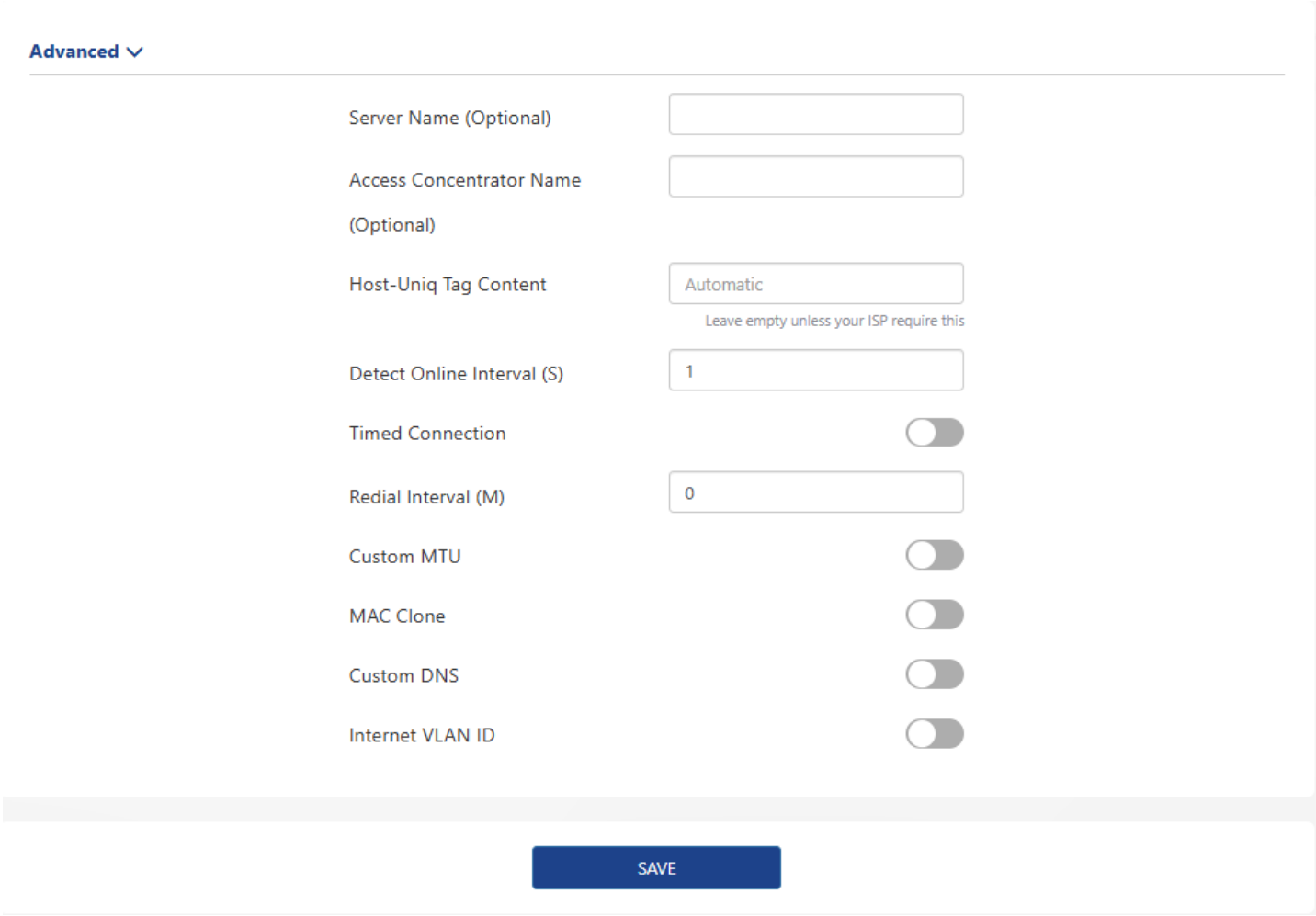


7）L2TP Dual Access

- L2TP Dual Access uses two L2TP VPN connections to access the Internet. it allows users to use two VPNs to access the Internet, enhancing the reliability of bandwidth and network.
- Enter **Username**, **Password** and **Server URL**, then select **DHCP** or **Static IP**, one note is that **IP** and **Subnet Mask** are required for **Static IP**.



3 . In **Advanced**, open and configure **Custom MTU**, **MAC Clone**, **Internet VLAN ID** and others as your requirements.



- **Server Name**
  - The Server name, provided by ISP, indicates the name or address of PPPoE server.
- **AC(Access Concentrator) Name**
  - The AC name, typically designated by the ISP, identifies the Access Concentrator and distinguishes different access points.
- **Host-Uniq**
  - In PPPoE protocol, the Host-Uniq field is optional, used to uniquely identify requests from a host. In the same network, it ensures every request connected is unique while using PPP to connect to multi-users, avoiding confusion and conflicts.
- **Detect Online Interval**
  - The detect online interval is used to set the time interval for sending LCP(cLink Control Protocol) Echo request, which is a message from LCP of PPP protocol, used to verify whether the line is still valid or capable of transferring data.The appropriate interval is helpful for timely detecting and addressing link issue.
- **Custom MTU(MaximumTransmission Unit)**

- The Ethernet MTU(MaximumTransmission Unit) is the largest size of a data packet that can be transmitted over the network. If your ISP requires you to adjust the MTU size, enable this option. Otherwise, we recommend you to keep it disabled for optimal network performance.

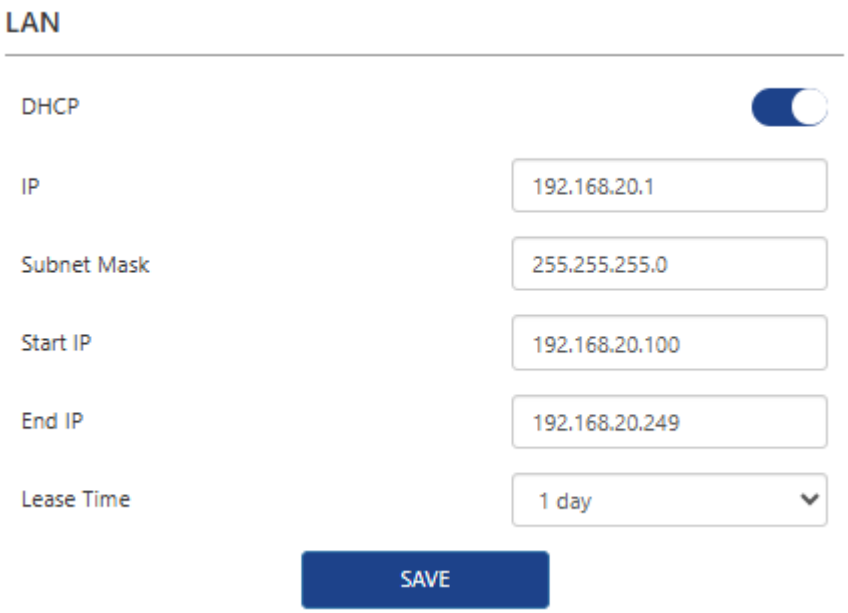
- **MAC Clone**
  - The MAC clone allows you to copy the MAC address from the computer to the WAN interface of the router. When an ISP restricts internet access to a single MAC address, by cloning the MAC address of the device, the router will appear as the original device, ensuring an uninterrupted internet connection.
- **Custom DNS**
  - The custom DNS allows you to configure optimal DNS server for the network manually, instead of using the default DNS provided by the ISP.
- **Internet VLAN ID**
  - The Internet VLAN ID is setted to recognizing the feature of Internet data. For specific settings, please consult your network operator's customer service or technical support staff.

4 . Click **SAVE** to finish configuration.

LAN Setting

DHCP server automatically assigns IP for the devices in the LAN. If it is required, you can change its setting.

1 . Click **More**>**Network**>**LAN**.
2 . Click to enable **DHCP**.

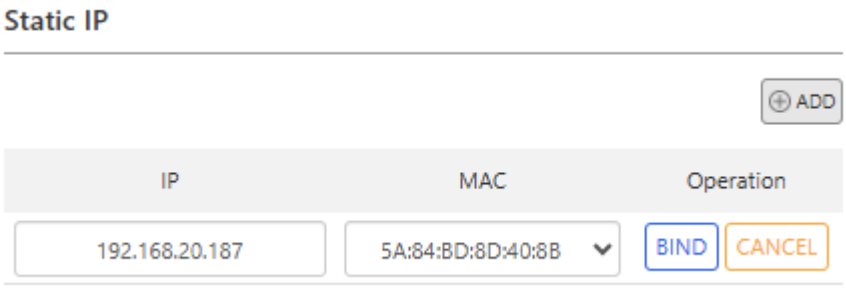


- **IP Address**: The IP address from which the router connects to the LAN. This can be used to log in to the router's network management page.
- **Subnet Mask**: The subnet mask that the router connects to the LAN.
- **Set IP Address Pool**: When DHCP is enabled, the router automatically assigns IP addresses to devices in the LAN from the address pool. If you need to change the address pool range, modify the Start Address and End Address.
- **Lease Time**: This is the lease time of the IP address that the device obtains when accessing the router. If you need to modify it, please select it again in the Lease Time drop-down list.

3 . Click **SAVE** to finish the configuration.

Setting Static IP Binding

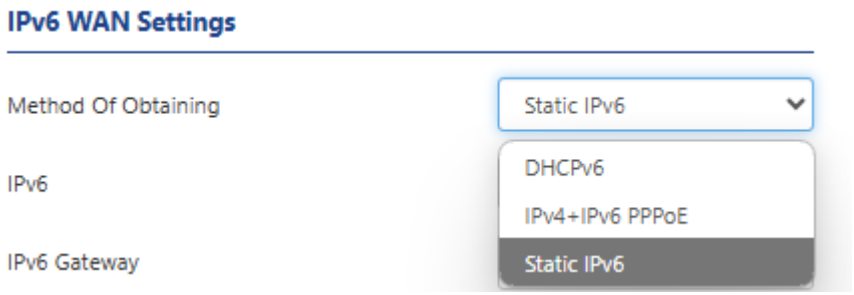
It allows you to link the specific IP to the MAC address of customer devices. Using it, you can assign a fixed IP for the specific device so that the device can automatically obtain the same IP everytime it connects to the network.



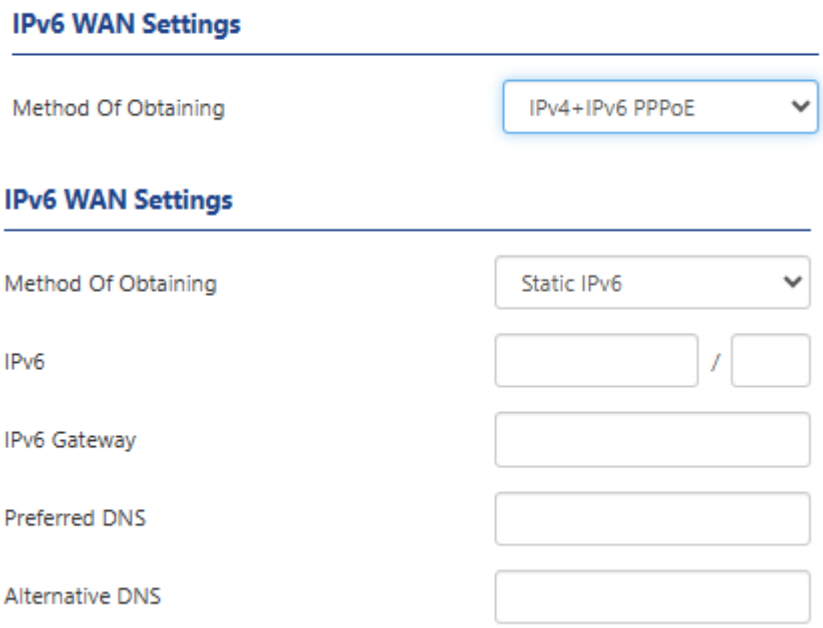
1 . Click **More**>**Network**>**Static IP Binding**.
2 . Click **ADD** in the top right corner to add a binding rule.
3 . Input the **IP** and **MAC**, then click **BIND**.

Setting IPv6

The IPv6 is the next generation Internet protocol, has more space for address, more advanced functions and enhanced security. It aims to solve more issues on interconnectio devices and provide better network performance and security.



1 . Click **More**>**Network**>**IPv6**.
2 . Click once to enable **IPv6**.
3 . **IPv6 WAN Settings**.

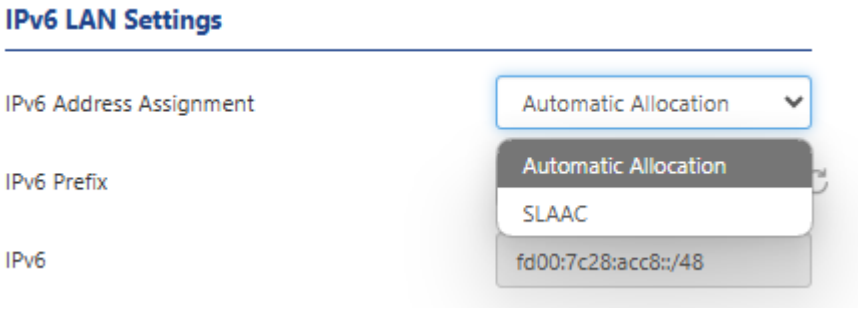


- 3.1 Select corresponding **Method Of Obtaining** from the list, then input corresponding information:
  - **DHCPv6**: The router automatically obtains the parameters such as IPv6 address. No manual requirements.
  - **IPv4+IPv6 PPPoE**: When IPv4 Internet access is also PPPoE, you can select IPv4+IPv6 PPPoE. After enabled, IPv6 will use the IPv4 account and password to

dial the number, and you do not need to manually enter the IPv6 account and password. Please note that this requires operator's support.

- **Static IPv6**: Manually input **IPv6(address)**, **IPv6 Gateway**, **Preferred DNS** and **Alternative DNS**.

4 . **IPv6 LAN Settings**.

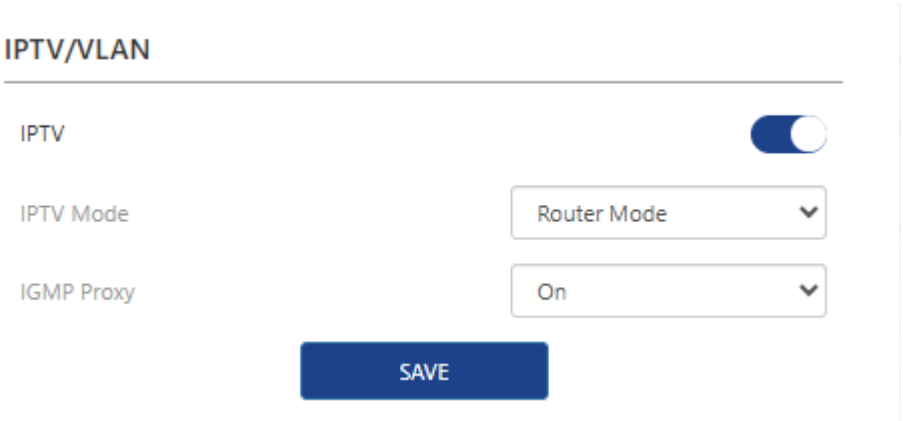


- Selecting appropriate address assignment method from the **IPv6 Address Assignment** list:
  - **Automatic Allocation**: It will automatically assign IPv6 addresses to devices on the LAN network.
  - **SLAAC**: In the SLAAC, The terminals on the LAN will automatically create IPv6 addresses according to the router. 5 . Click **SAVE** to finish the configuration.

IPTV Setting

Setting IPTV allows you to enjoy multimedia service while using the network. You should consult IPTV's service provider about **VLAN ID** and how to select **IPTV Mode**. Then you can select the corresponding VLAN Port, and connect IPTV's cable to the corresponding LAN port on the router.

Configuring IPTV

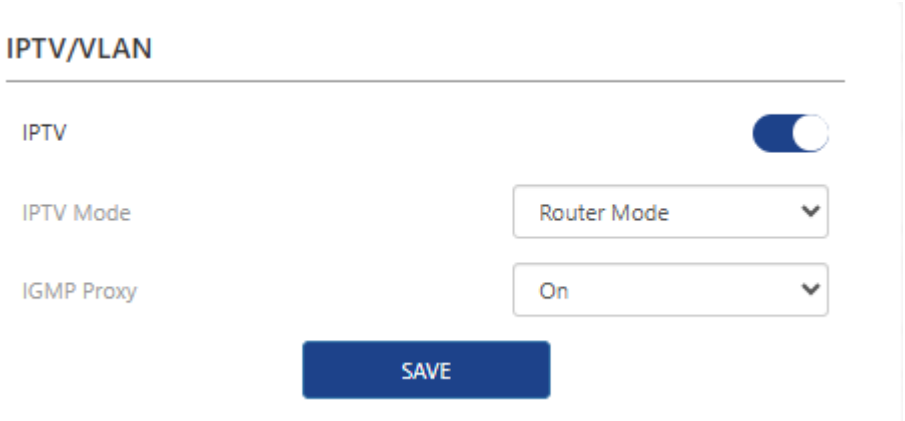


1 . Enter **More**>**Network**>**IPTV/VLAN**.

2 . Click once to enable **IPTV**.

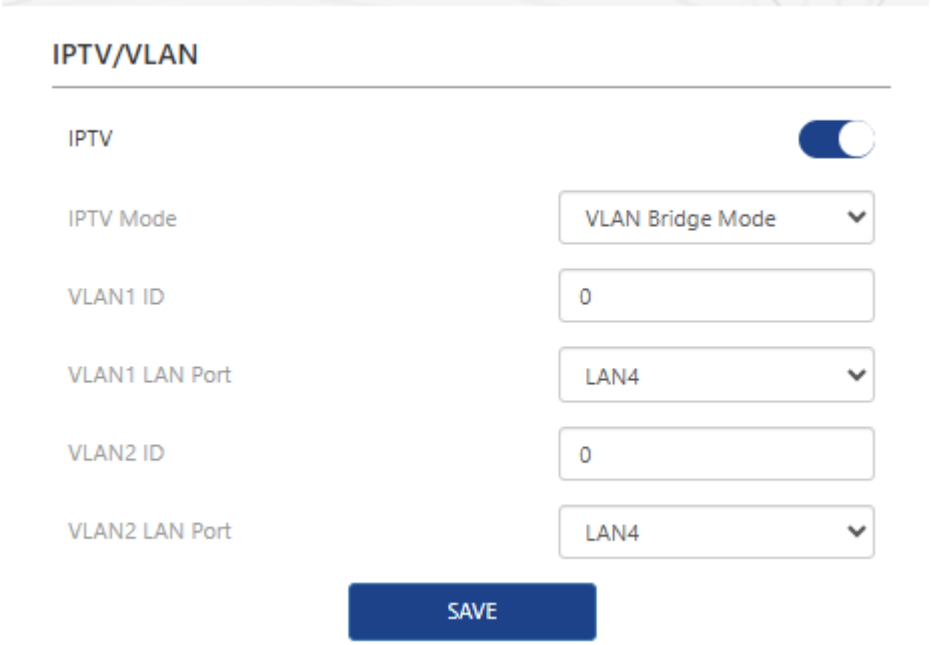
3 . Select appropriate working mode from the **IPTV Mode** list.

3.1 Router Mode



Enable **IGMP Proxy** if you use IPTV service on multiple devices at the same time.

3.2 VLAN Bridge Mode: Enter **VLAN ID** and select **VLAN Port**.

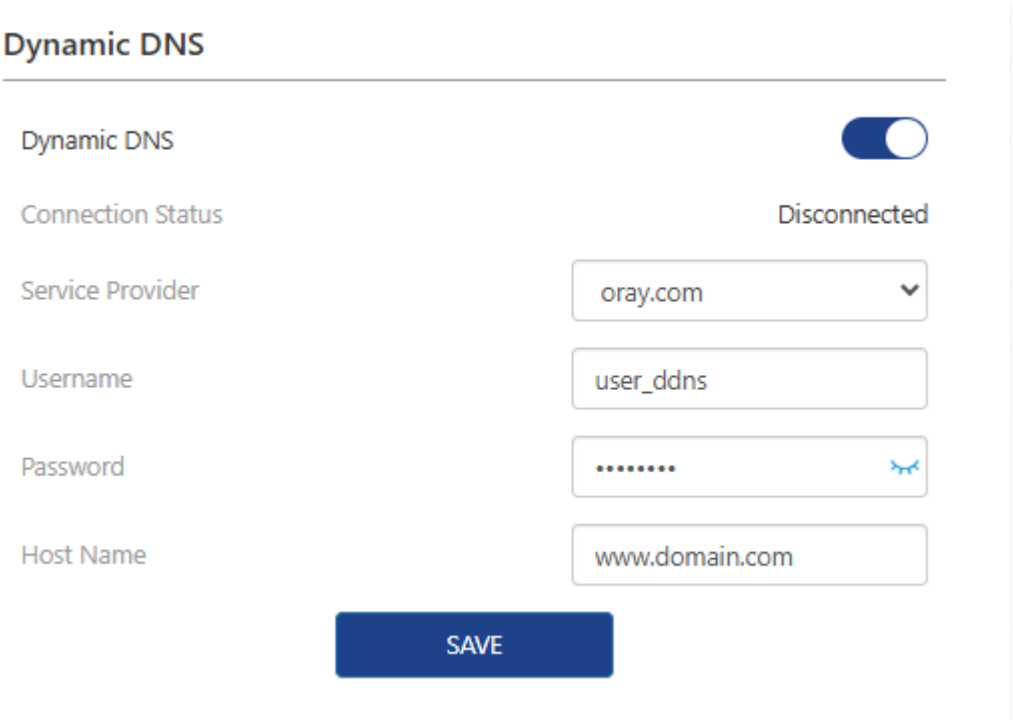


4 . Click **SAVE** to finish the configuration.

- **VLAN1 ID and VLAN1 LAN Port**: The VLAN1 ID indicates the VLAN1, and the VLAN1 LAN Port indicates the LAN port associated with VLAN1.
- **VLAN2 ID and VLAN2 LAN Port**: The VLAN2 ID indicates the VLAN2, and the VLAN2 LAN Port indicates the LAN port associated with VLAN2.

Setting Dynamic DNS

Dynamic DNS(DDNS, Dynamic Domain Name System) is a function of mapping dynamic IP addresses to fixed domain names. After enabling it, the router bind dynamic WAN IP with the fixed domain so that you can connect to the router using the domain remotely. In order to use this service, you need to register for the DDNS service with your service provider.



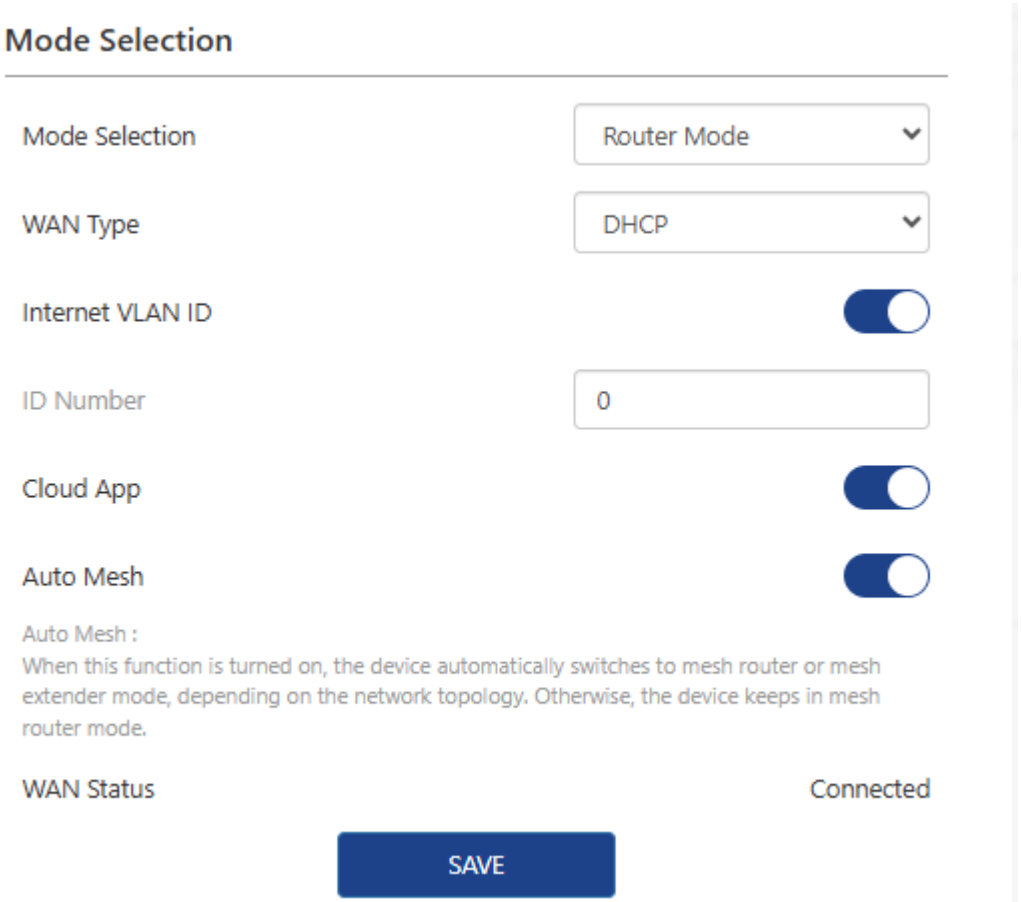
1 . Enter **More**>**Network**>**Dynamic DNS**.
2 . Click once to enable **Dynamic DNS**.
3 . Select **oray.com** or **NO-IP** from the **Service Provider** list.
4 . Input corresponding **Username**, **Password** and **Host Name** from your DNS registration information.
5 . Click **SAVE** to finish configuration.
Note: Different dynamic DNS service provider may provide various parameters, and the name or indication may vary. Therefore, you should look up the corresponding explanation so that the correct parameters are inputed.

Mode Selection

Configure router's working mode according to your actual requirement.
1 . Enter **More**>**Network**>**Mode Selection**.
2 . Select appropriate working mode from the **Mode Selection** list: **Router Mode**, **LAN Bridge(AP Mode)** or **Repeater Mode**。

Router Mode

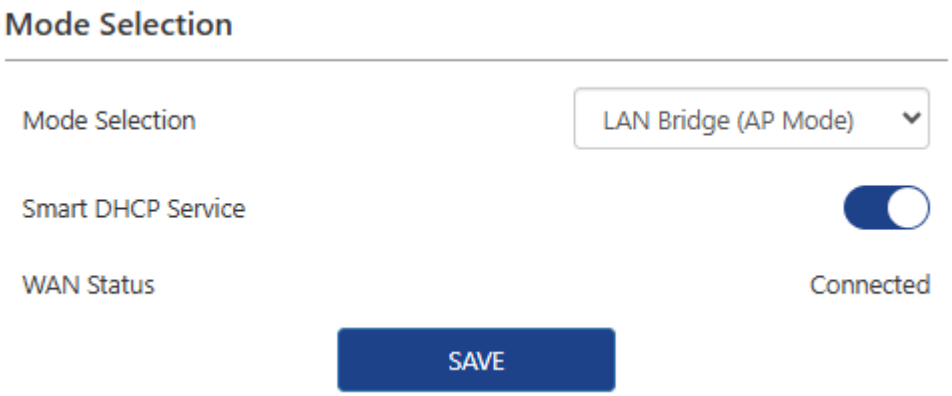
- In routing mode, the router converts Wi-Fi signals to wireless Internet access for devices by connecting to the network operator's wired network, and provides wired Internet access for devices through a wired port.



  - **WAN Type: DHCP, PPPoE or Static IP**, inputting the corresponding parameters is required for PPPoE or Static IP.
  - **Internet VLAN ID**: After enabling it, input **ID Number**.You should consult the ISP about the detailed configurations.
  - **Cloud App**: It allows you to control devices remotely from the cloud using the APP.
  - **Auto Mesh**: If it is enabled, the device will automatically switch to Mesh Router Mode or Mesh Extender Mode depending on the network topology; If it is diabled, the device will keep Mesh Router Mode.

LAN Bridge(AP Mode)

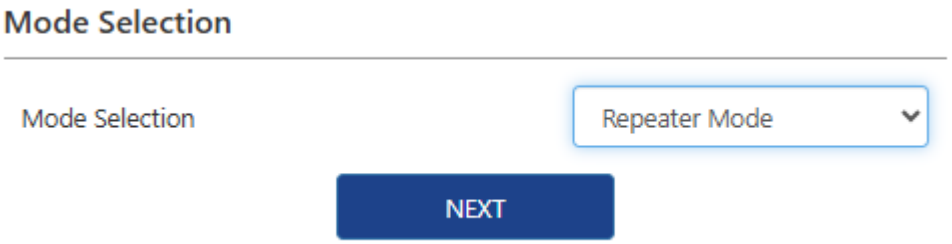
- In the AP mode of extending the existing network, you should confirm your device's WAN port has connected to the Internet using the Ethernet cable. One note is that some functions are not available in this mode.



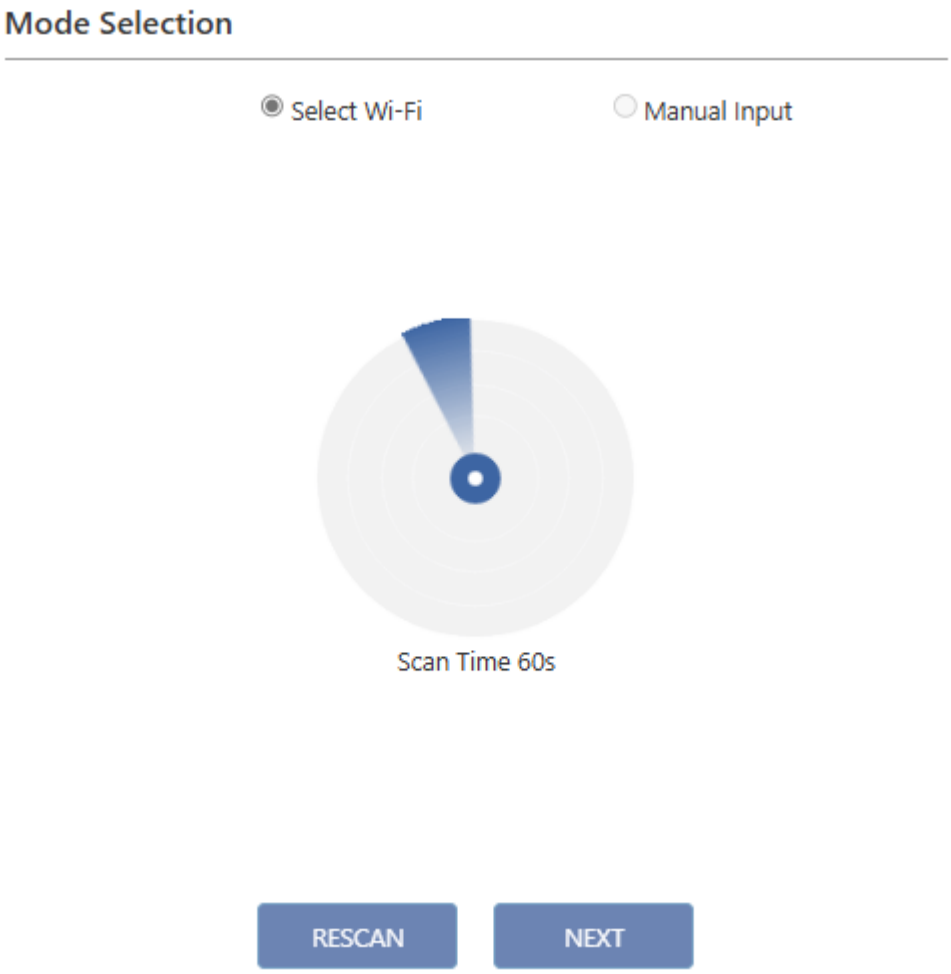
- **Smart DHCP Service**: If it is enabled, the router will configure IP service without connecting to the upper router. Please disable it if it is not required.

Repeater Mode

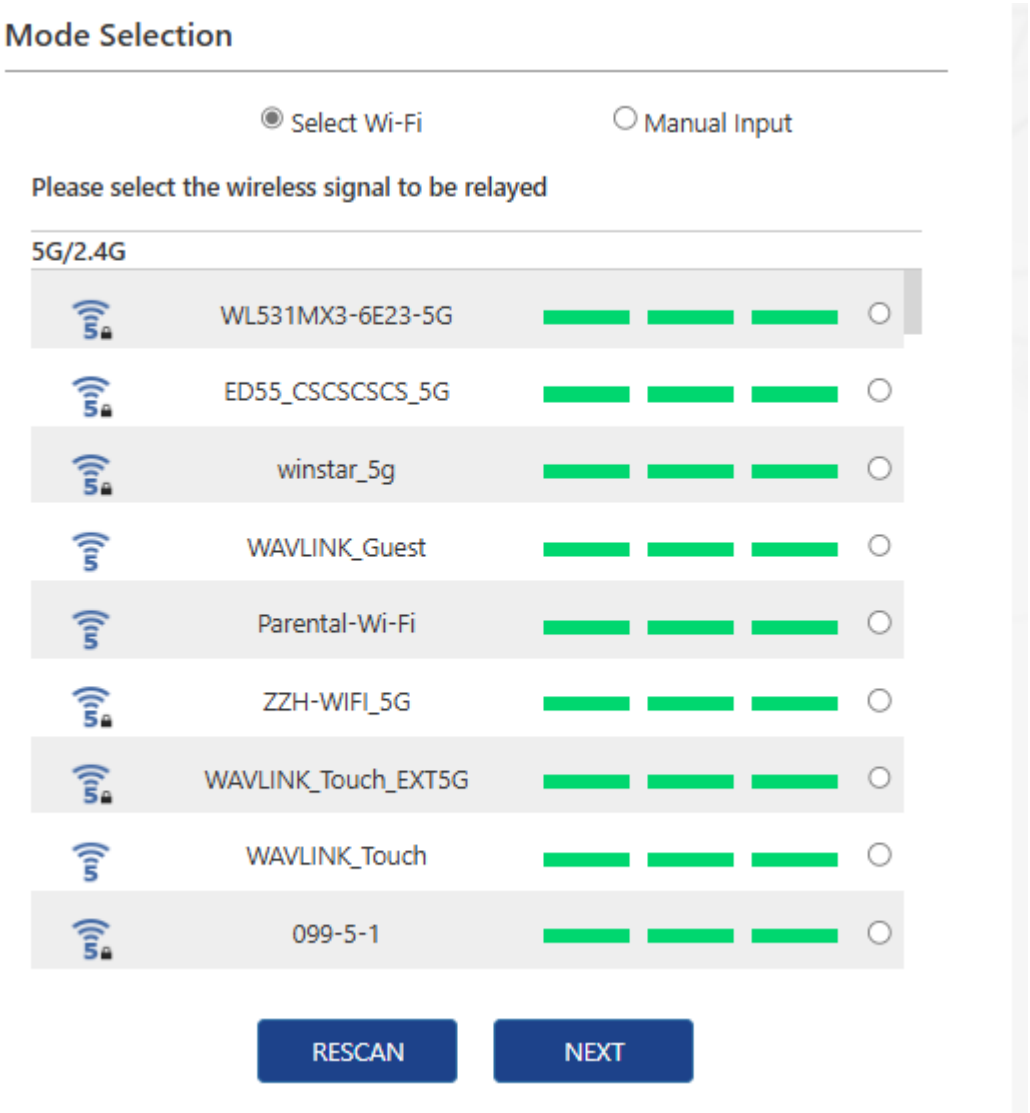
- In the repeater mode, to extend the Wi-Fi coverage, this router works as a wireless repeater of the upper router. One note is that some functions are not available in this mode.



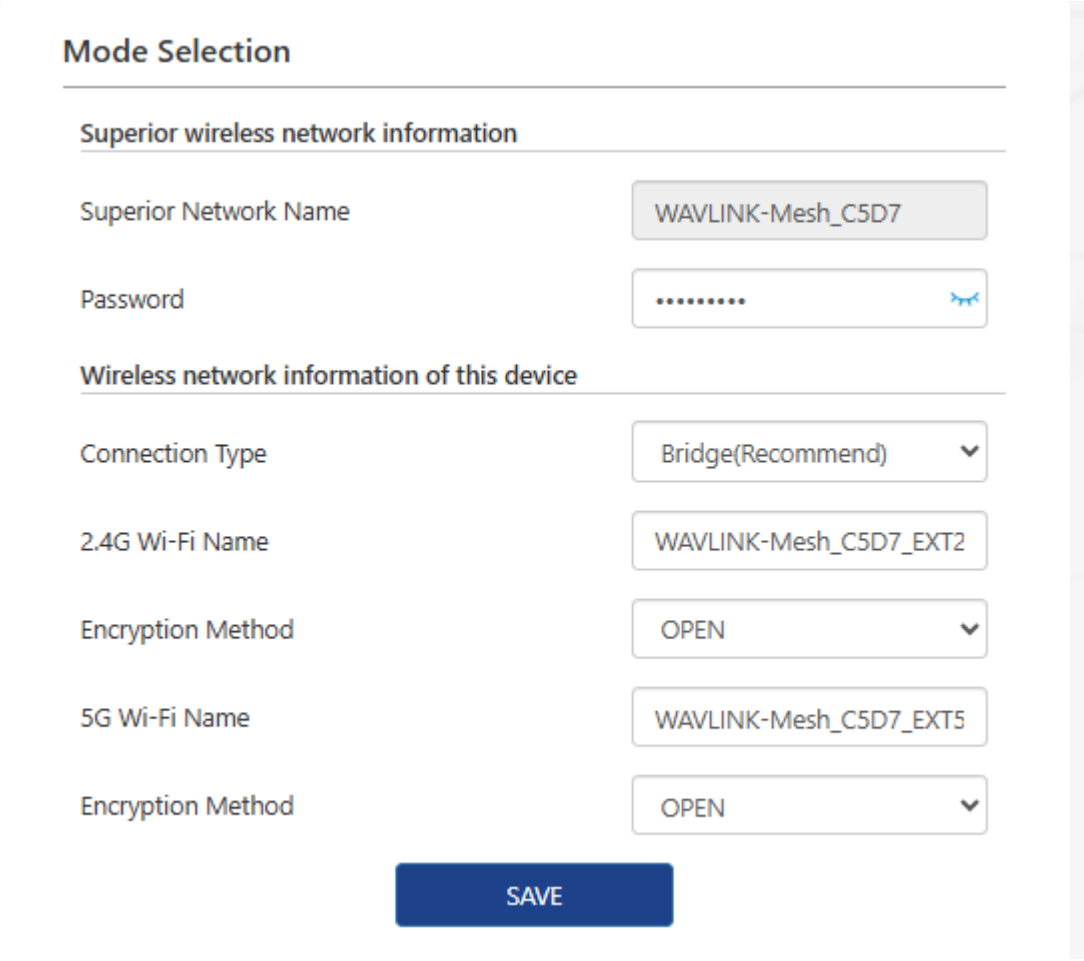
  - 1）Click **NEXT** to rescan the Wi-Fi signal.



- 2） Select the wireless signal to be relayed, click **NEXT**.
- 3） If the network to be added is not found, click **Rescan** to rediscover the network.Or select **Manual Input** to set it up.

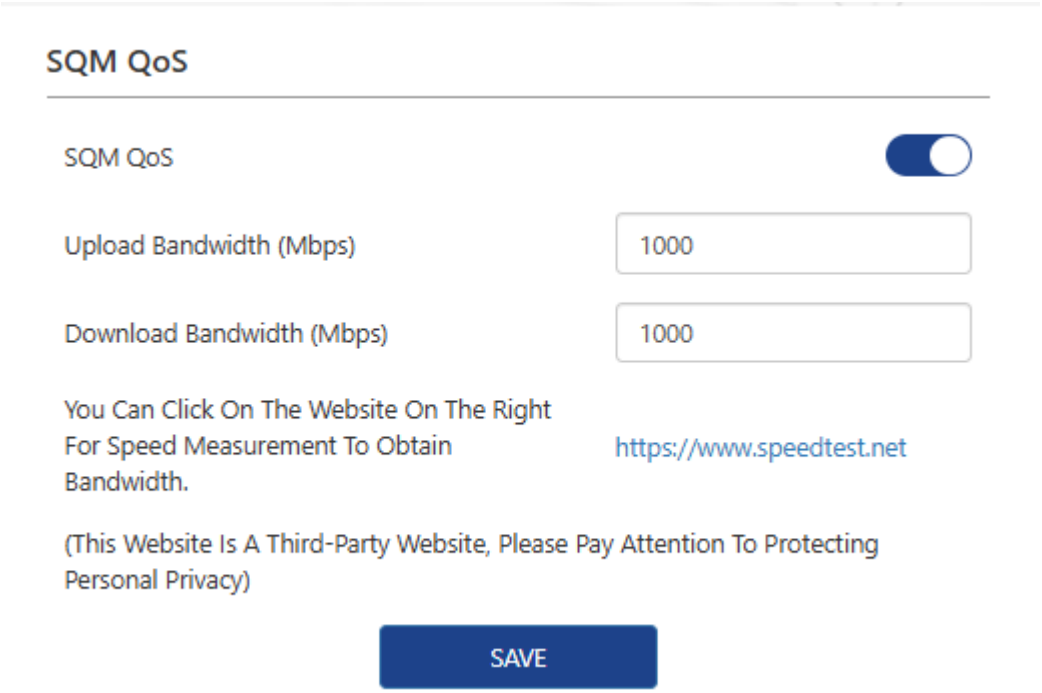


- 4）Enter the password of the superior wireless network and the wireless network information of this device. Click **Save** to complete the setup.



SQM QoS

SQM QoS uses smart queue management to classify, schedule, and prioritize network traffic, effectively controlling network congestion, ensuring bandwidth for critical applications, reducing latency, suppressing jitter, and minimizing packet loss, thereby enhancing network service quality.



1. Navigate to **More** > **Network** > **SQM QoS**.
2. Click to enable **SQM QoS**.
3. Set the maximum **Upload Bandwidth** and the maximum **Download Bandwidth**.
4. Click **SAVE** to complete the configuration.

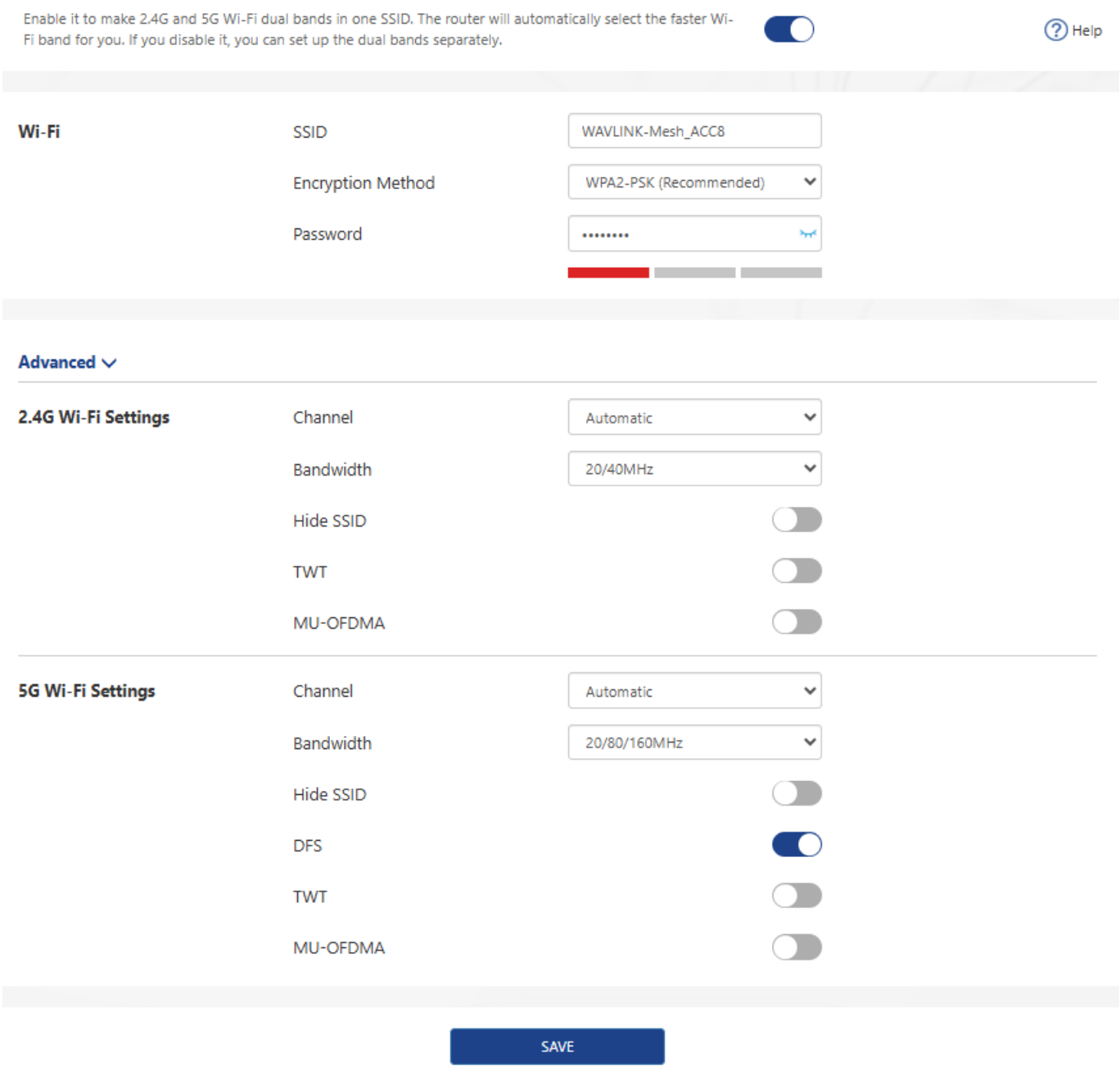
Chapter 2 Managing Wireless Network

This chapter contains the following sections:

Wireless

Configure the SSID, encryption method, password, and other wireless parameters for both the 2.4G and 5G networks.

1. Navigate to **Wireless** or go to **More** > **Wireless** > **Wireless**.



Configuring Wireless Network

1）Dual Frequency Selection

Enabling Dual Frequency Selection combines the 2.4GHz and 5GHz Wi-Fi bands into a single network to provide a better overall network experience. Disabling this feature allows for separate configuration of the 2.4G and 5G networks.

1. Navigate to **Wireless** or go to **More** > **Wireless** > **Wireless**.
2. Click to enable/disable **Dual Frequency Selection**.

2）Setting Wi-Fi SSID and Password

1. Navigate to **Wireless** or go to **More** > **Wireless** > **Wireless**.
2. Set a new wireless network name in the **SSID**.
3. In the **Encryption Method**, select an encryption method from the dropdown list.(It is recommended to choose **WPA3-SAE** or **WPA2-PSK**)
4. Set a new password for your wireless network in the **Password**.

Note: After setting up the new network, you will need to reconnect to the WiFi network using the new password.

Advanced Settings

1）Setting Channel and Bandwidth

1. Navigate to **Wireless** > **Advanced** or go to **More** > **Wireless** > **Wireless** > **Advanced**.
2. From the **Channel** dropdown list, select the operating channel for your wireless network. (If you are unsure about which channel to choose, it is recommended to select **Automatic**, so the device can automatically select the optimal channel based on the surrounding environment for your better network experience.)
3. From the **Bandwidth** dropdown list, select the bandwidth for the router's wireless data transmission.

2）Setting Hide SSID

1. Navigate to **Wireless** > **Advanced** or go to **More** > **Wireless** > **Wireless** > **Advanced**.
2. Click to enable **Hide SSID**. After enabling this, the wireless signal for the corresponding network will be hidden.

3）Setting DFS

After enabling this, the device will automatically avoid channels that are restricted in your region.

1. Navigate to **Wireless** > **Advanced** or go to **More** > **Wireless** > **Wireless** > **Advanced**.
2. Click to enable **DFS**.

4）Setting TWT

After enabling this feature, the router will automatically optimize resource scheduling between devices, negotiate target wake time to reduce contention, increase device sleep time, and ultimately extend the lifespan of the router.

1. Navigate to **Wireless** > **Advanced** or go to **More** > **Wireless** > **Wireless** > **Advanced**.
2. Click to enable **TWT**.

Note: This feature requires terminal devices that support Wi-Fi 6. If the terminal device is inactive for a long time, it may disconnect from the router.

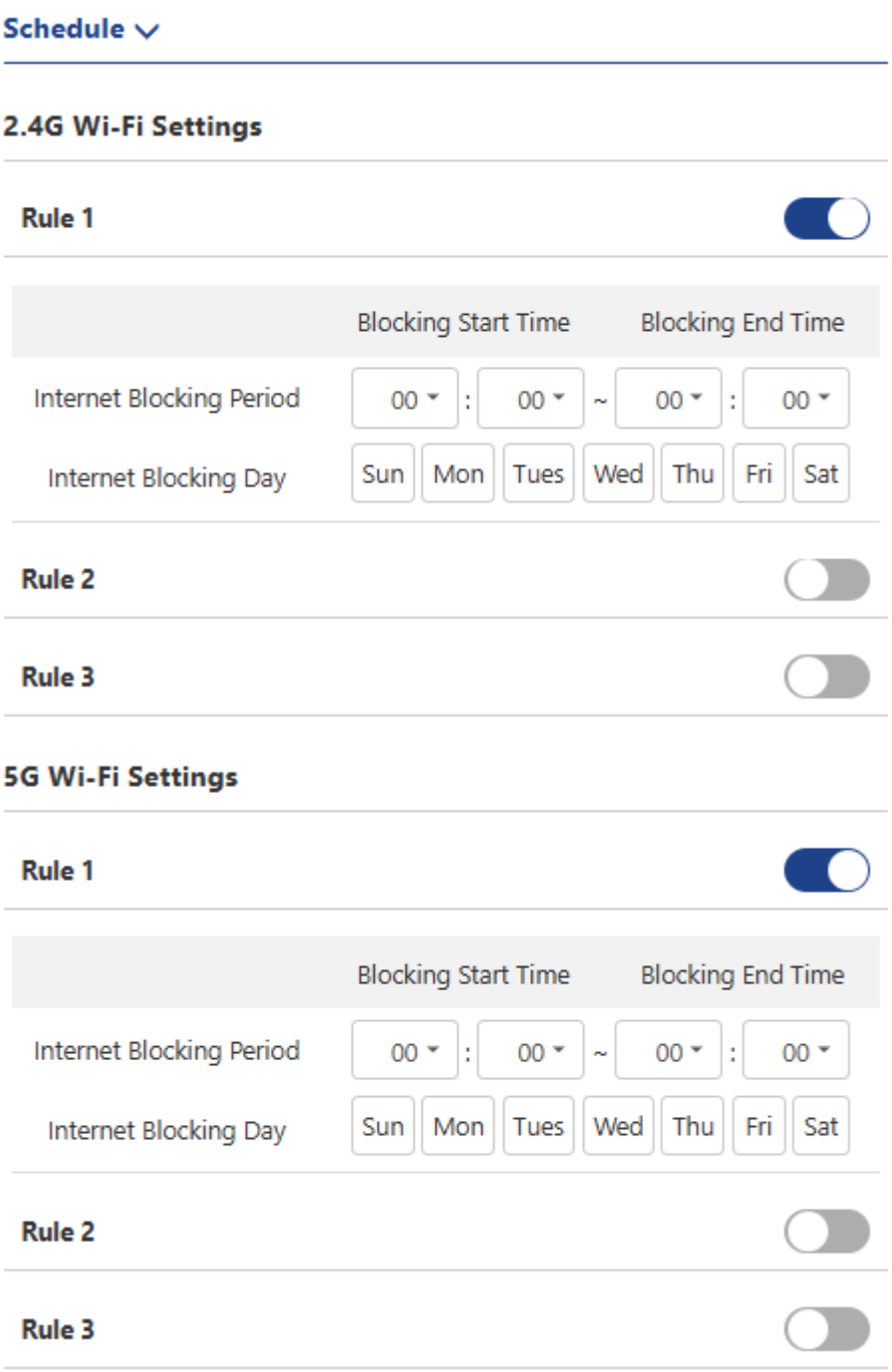
5）Setting MU-OFDMA

After enabling this feature, the router will multiplex multiple users to improve transmission efficiency and reduce network latency in multi-user internet environments.

1. Navigate to **Wireless** > **Advanced** or go to **More** > **Wireless** > **Wireless** > **Advanced**.
2. Click to enable **MU-OFDMA**.

Schedule (Wireless Timer Switch)

The schedule function allows you to customize event rules to control the wireless network switch, with up to three rules definable. This feature only takes effect after obtaining the network time and only affects the main network. For the guest network, you need to manually enable or disable this feature or define separate rules within the guest network settings.



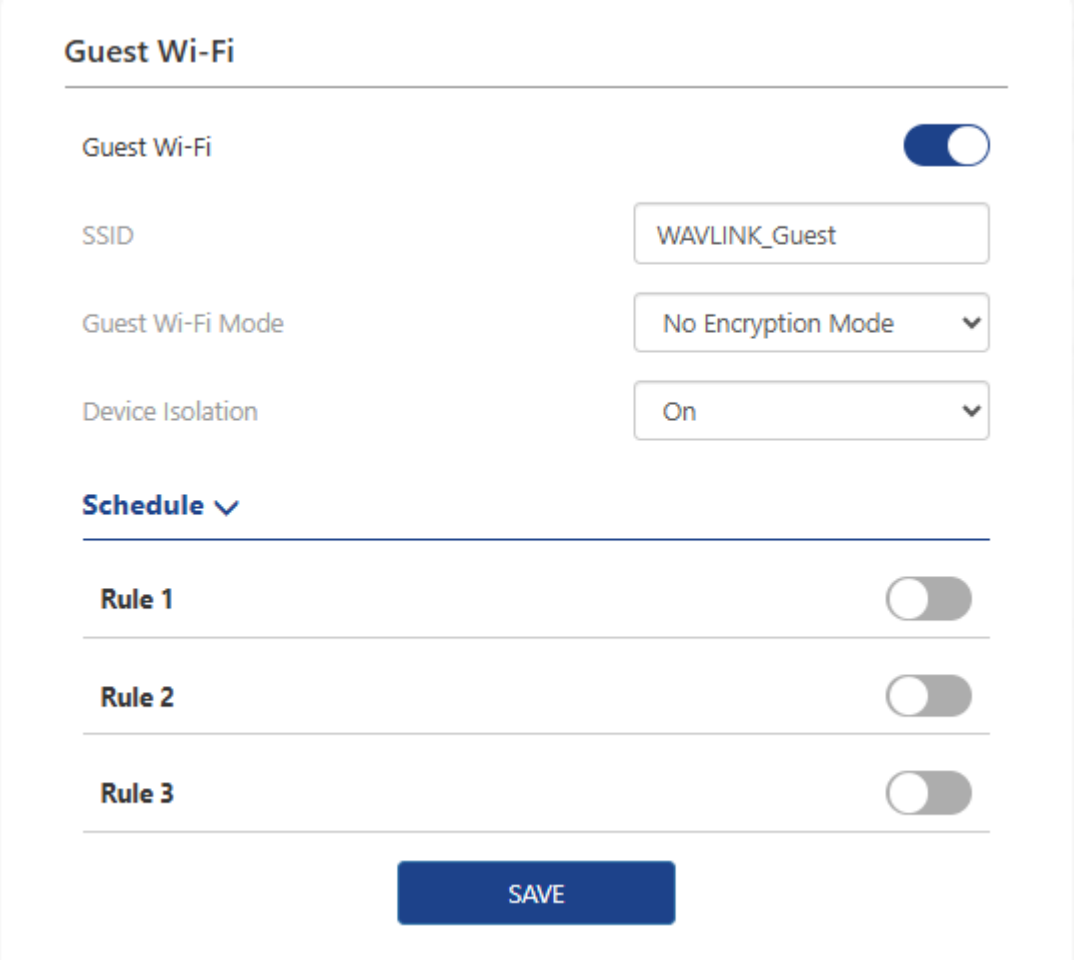
1. Navigate to **Wireless** > **Schedule** or go to **More** > **Wireless** > **Wireless** > **Schedule**.
2. Click on **Rule 1/2/3** under either the **2.4G Wi-Fi Settings** or **5G Wi-Fi Settings** to set the timing rules.
3. Click **SAVE** to complete the settings.

Note:

- The schedule is based on the router's time. You can modify the time by going to **More** > **System** > **Time Zone**.
- The wireless network will automatically turn on after the set time period.

Guest Wi-Fi

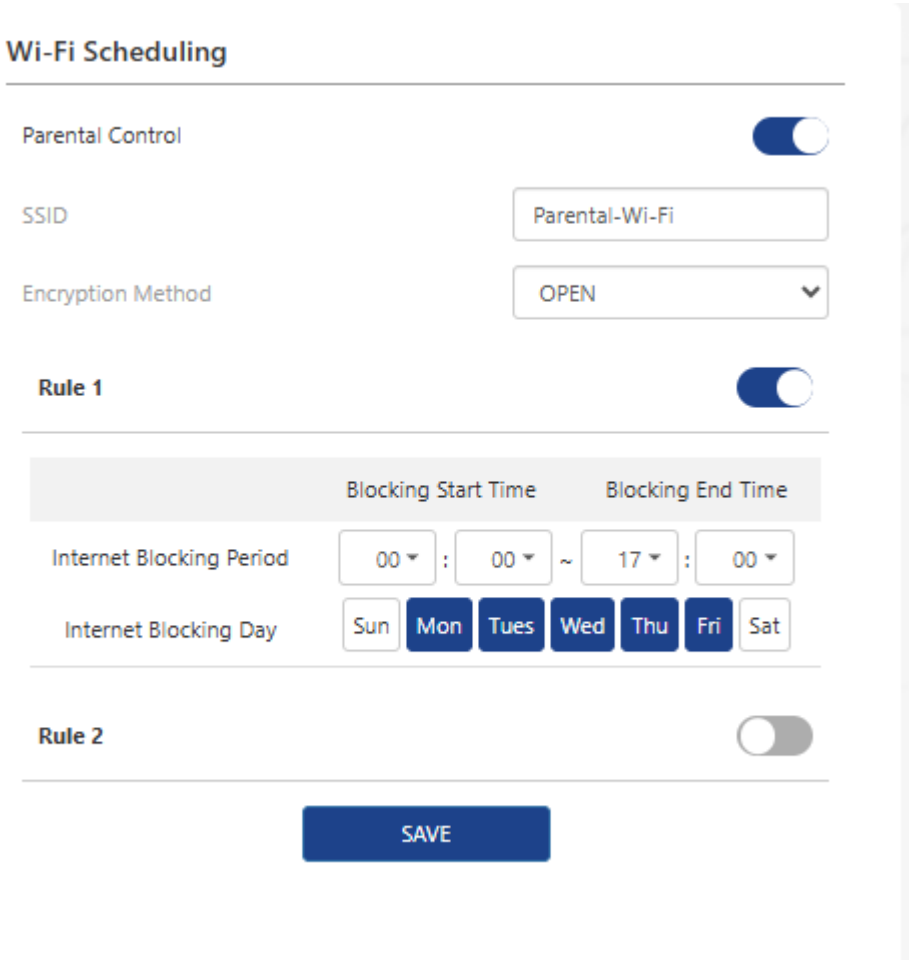
This feature allows you to provide Wi-Fi to guests without exposing your main network. When you have visitors at your home, apartment, or workplace, you can create a guest Wi-Fi for them. Additionally, you can customize guest Wi-Fi settings to ensure security and privacy.



1. Navigate to **More** > **Wireless** > **Guest Wi-Fi**.
2. Click to enable **Guest Wi-Fi**.
3. Set the **SSID**.
4. In the **Guest Wi-Fi Mode**, set the encryption method: Encryption Mode, No Encryption Mode, and WPA/WPA2. If you select WPA/WPA2, you will need to set the RADIUS server IP, RADIUS port, and RADIUS password.
5. Set the **Device Isolation**. Once on, this feature will isolate devices connected to the same LAN from each other, enhancing network security and privacy protection.
6. Set the guest Wi-Fi open time in the **Schedule**.
7. Click **SAVE** to complete the settings.

Parental Wi-Fi

Parental Wi-Fi allows you to set up a separate wireless network for family members. You can configure its SSID, encryption method, and rules.



1. Navigate to **More** > **Wireless** > **Parental Wi-Fi**.
2. Click to enable **Parental Control**.
3. Set the **SSID, Encryption Method, and Password**.
4. Set the Internet Blocking Period and Internet Blocking Day in **Rule 1/2/3** to control your child's internet access time.
5. Click **SAVE** to complete the settings.

Chapter 3 Mesh

This chapter contains the following section:

Mesh Configuration

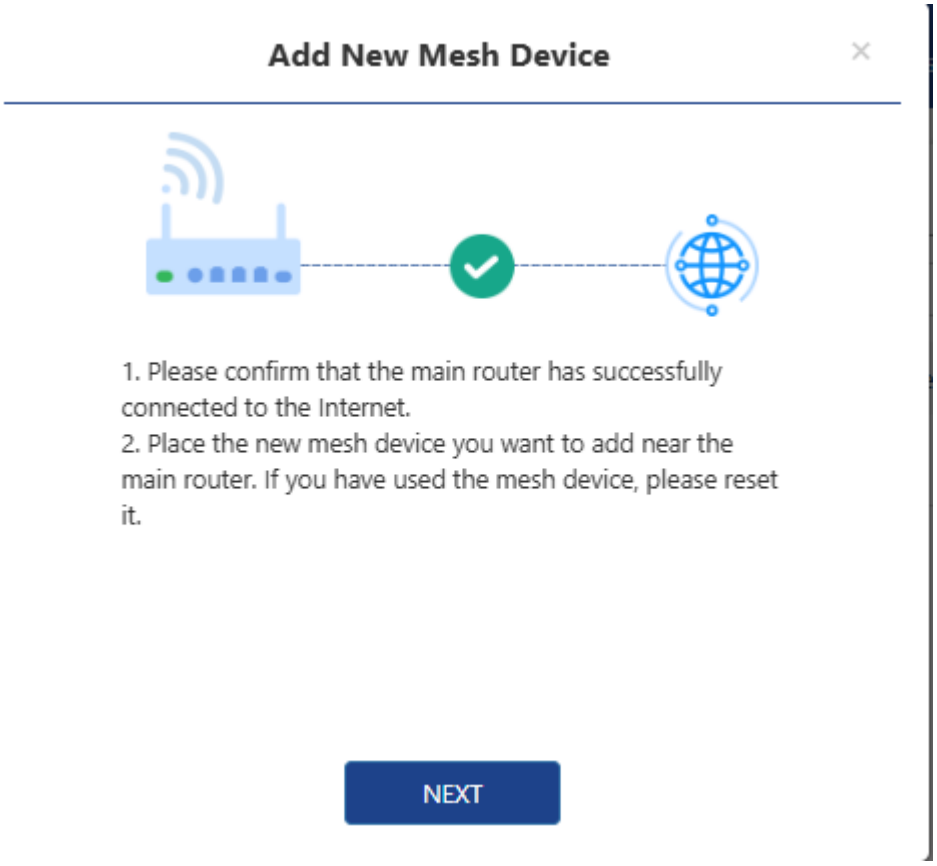
If a single router cannot provide adequate wireless coverage for large homes, you can purchase multiple WAVLINK routers that support Mesh networking to achieve full Wi-Fi coverage throughout your home.

Adding New Mesh Device

Before setting up the Mesh network, ensure that:

The main router is connected to the internet and the setup wizard is completed, with the indicator light showing solid blue.

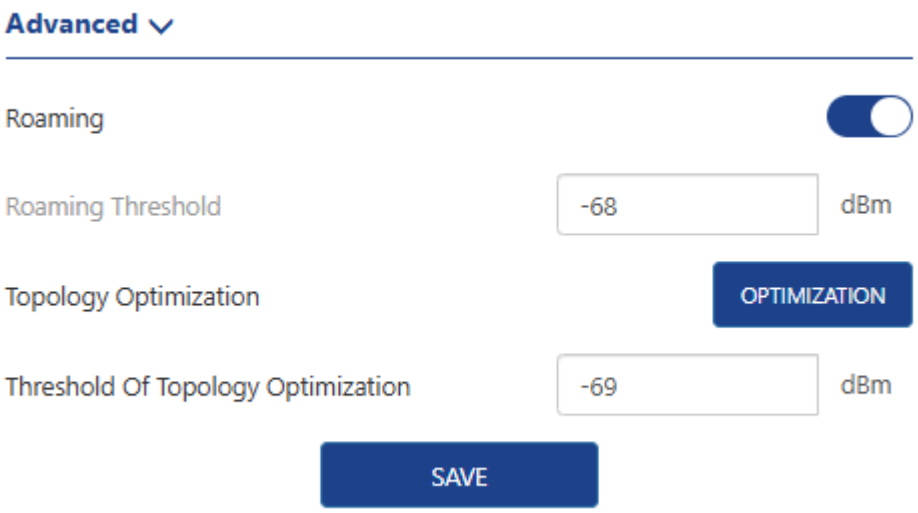
1. Navigate to **More** > **Mesh** > **Mesh Devices**.
2. Click on **⊕Add**. Follow the on-screen instructions to prepare your mesh device, then click **NEXT**.



3. Follow the on-screen instructions to power on the mesh device and press the pair button when the mesh device starts operating. Click **“SCAN”**. The main router will automatically scan the mesh device that is attempting to pair.

4. Once the scan is completed, select the mesh device you want to add.

Advanced Settings



1）Roaming (Wireless Roaming Technology)

Enabling Roaming allows devices to seamlessly switch between two Mesh routers. As you move away from one router and get closer to another, the device will automatically disconnect from the current router and connect to the nearer one to provide a smoother network experience.

1. Navigate to **More** > **Mesh** > **Mesh Devices** > **Advanced**.
2. Click to enable **Roaming**.
3. Set the **Roaming Threshold** to an appropriate parameter.

Note: The wireless roaming trigger threshold should only be set by experienced professionals. If you lack professional experience in setting this, it is recommended to keep the default settings to avoid negatively impacting the network user experience.

2）Topology Optimization

When you have three or more paired devices and all devices have completed pairing, you can enable the topology optimization feature. This function can automatically adjust the optimal path based on the signal strength between devices to ensure that all sub-routers and corresponding upper-level devices have the best signal connection status, achieving optimal network coverage.

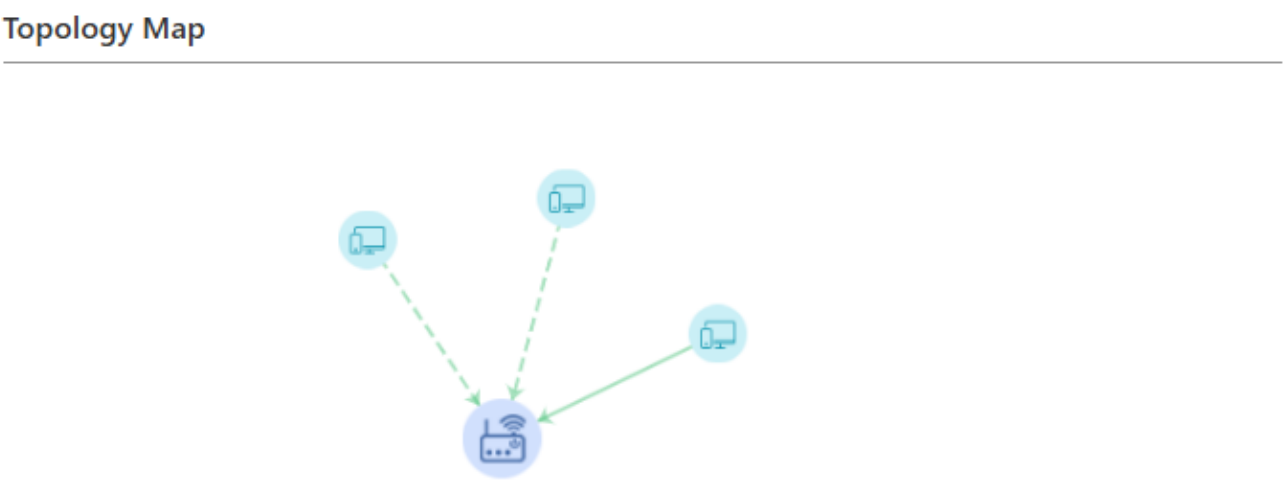
1. Navigate to **More** > **Mesh** > **Mesh Devices** > **Advanced**.
2. Click the **OPTIMIZATION** button after **Topology Optimization**.
3. Ensure the **Threshold Of Topology Optimization** is set to an appropriate parameter.

Note: You can adjust the signal threshold that triggers topology optimization to achieve the best mesh network coverage. If you do not have professional setup experience, it is recommended to use the default settings.

Topology Map

In this interface, you can see the network topology map, which shows the device access relationships and network connection status. It will also display the MAC address of each connected device, making it easier to see which terminals the devices are connected to.

1. Navigate to **More** > **Mesh** > **Topology Map**.



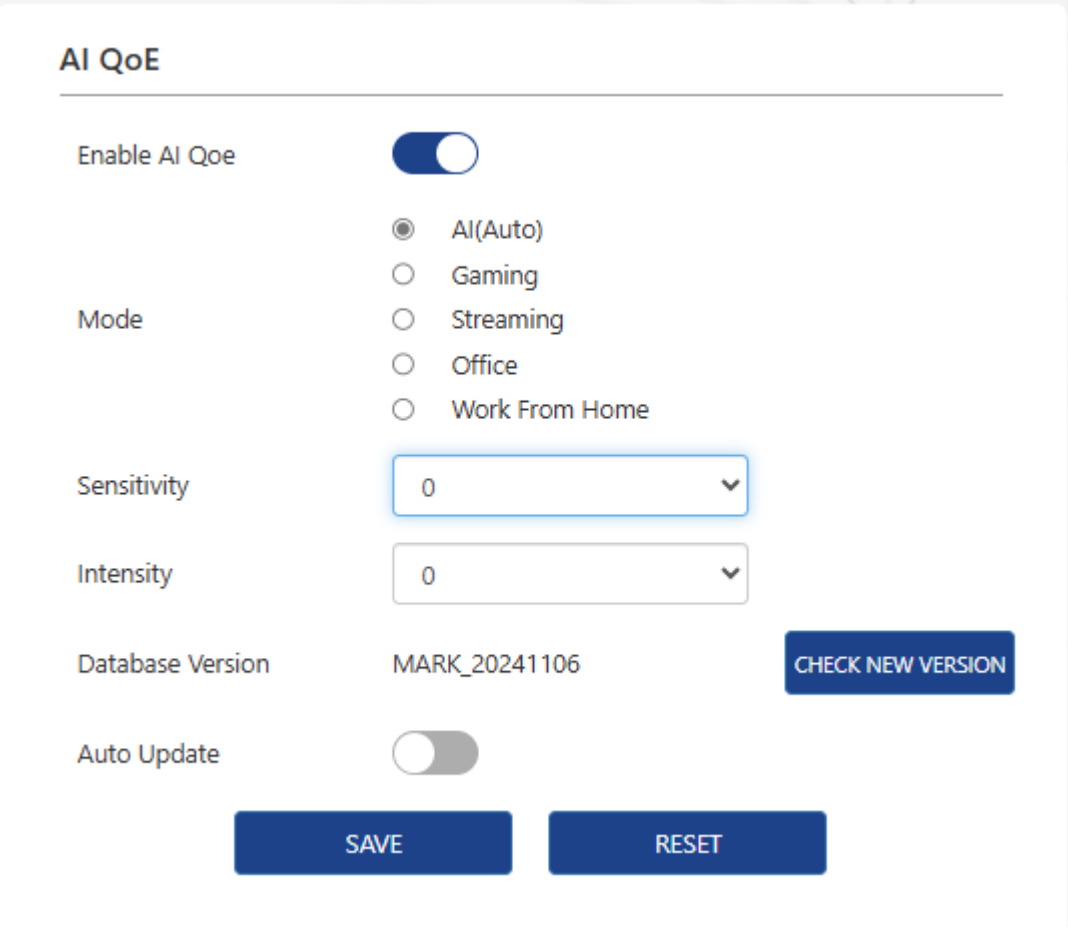
Chapter 4 Net Guardian

This chapter contains the following sections:

AI QoE

The AI-based Network QoE (Quality of Experience) engine integrates three core AI technologies - packet classification, traffic prioritization, and bandwidth detection. These technologies work seamlessly together to maximize critical throughput, minimize latency, and automatically prioritize traffic.

1. Navigate to **More** > **Net Guardian** > **AI QoE**.
2. Click **Enable AI Qoe**.
3. Select an operating mode. It is recommended to select **AI Mode**, or you can also select a mode that best fits your usage scenario: **Gaming, Streaming, Office, Work From Home**.
4. Set the **Sensitivity** and **Intensity** parameters according to your needs.

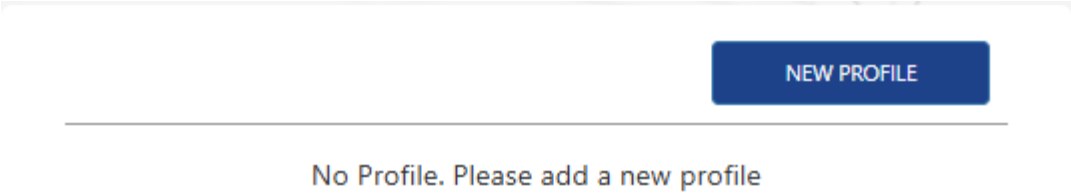


Parental Control

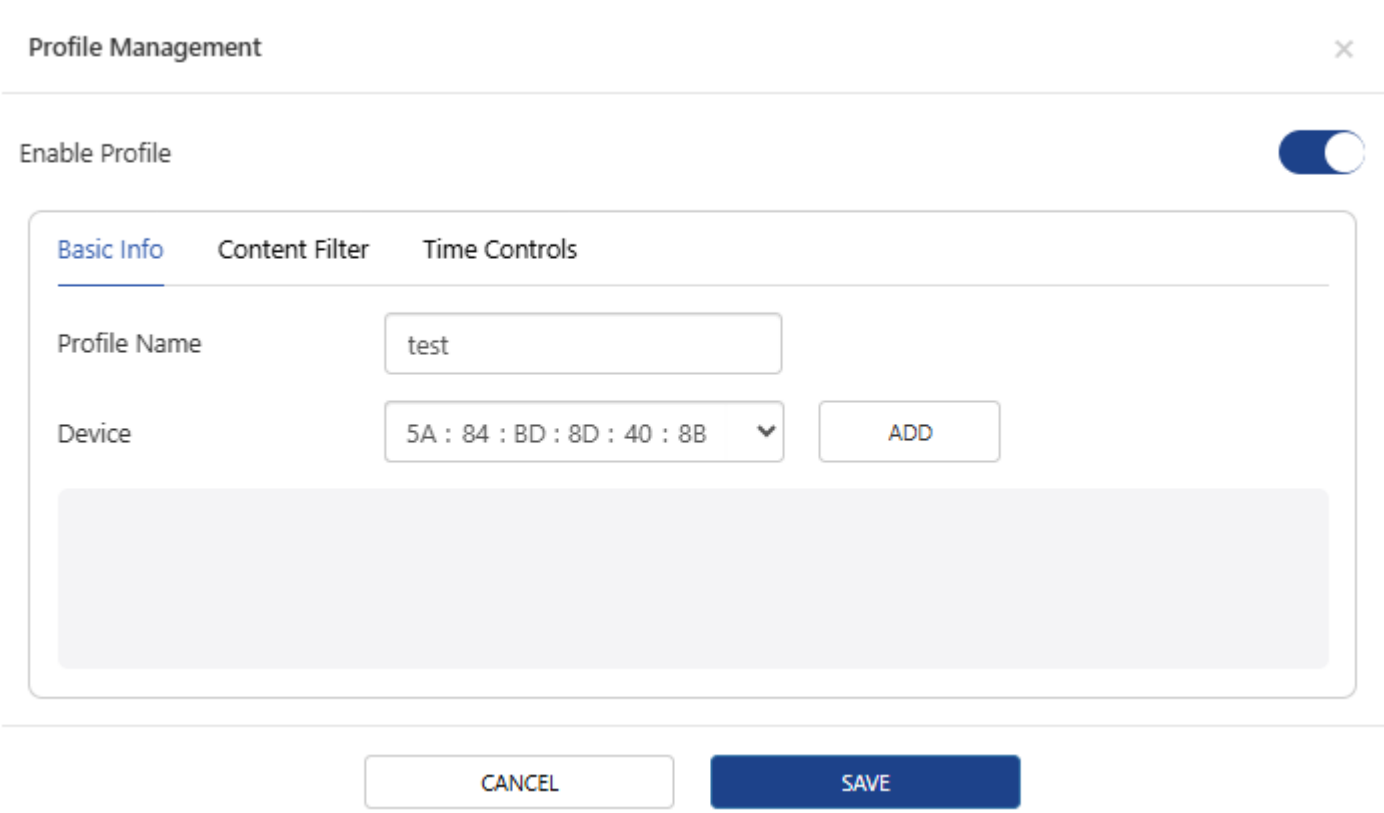
Parental Control allows you to set unique internet access restrictions for each family member. You can block inappropriate content and set daily total online time limits, restricting internet access to specific times of the day.

1 . Navigate to **More** > **Net Guardian** > **Parental Control**.

2 . Click **NEW PROFILE** to create profiles for family members.



3 . Add **Basic Info**.

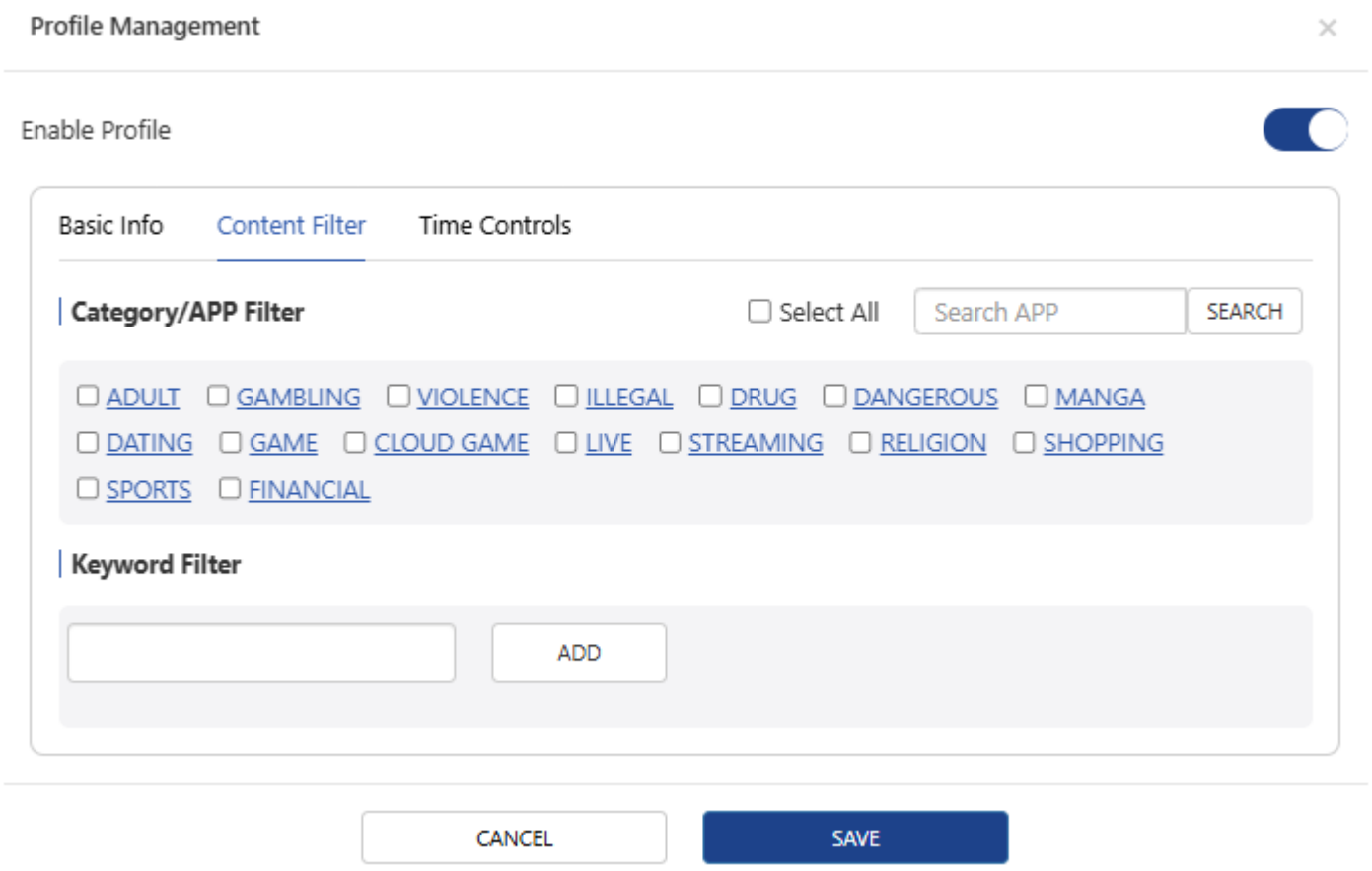


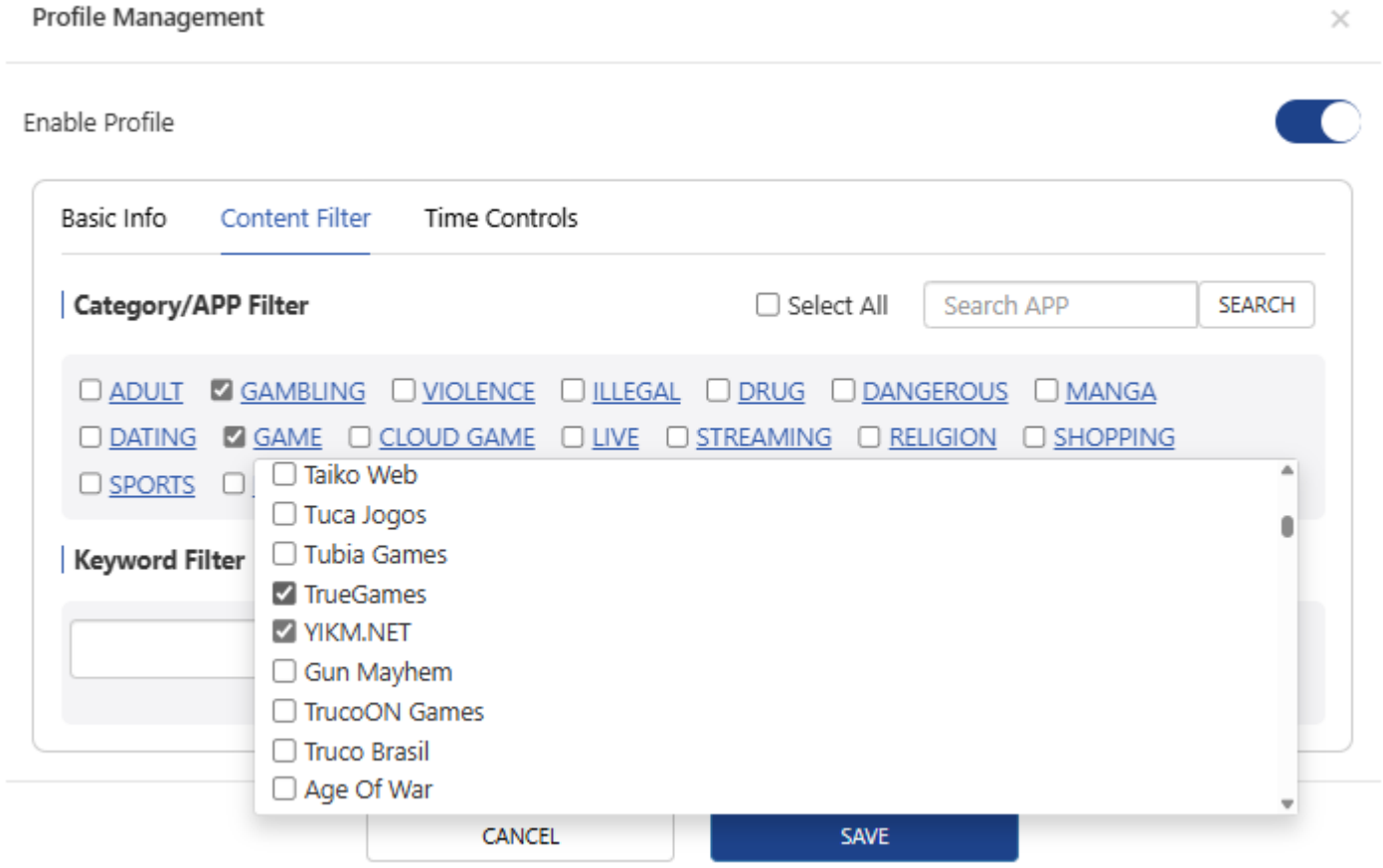
1）Enter the **Profile Name**.

2）In the **device** dropdown menu, select or manually enter the MAC address of the family member's device, then click **ADD**.

- **Note**: Only devices currently connected to the router’s network are listed here. If you cannot find the device you want to add, connect it to your network and try again.

4 . Set Blocked Content.



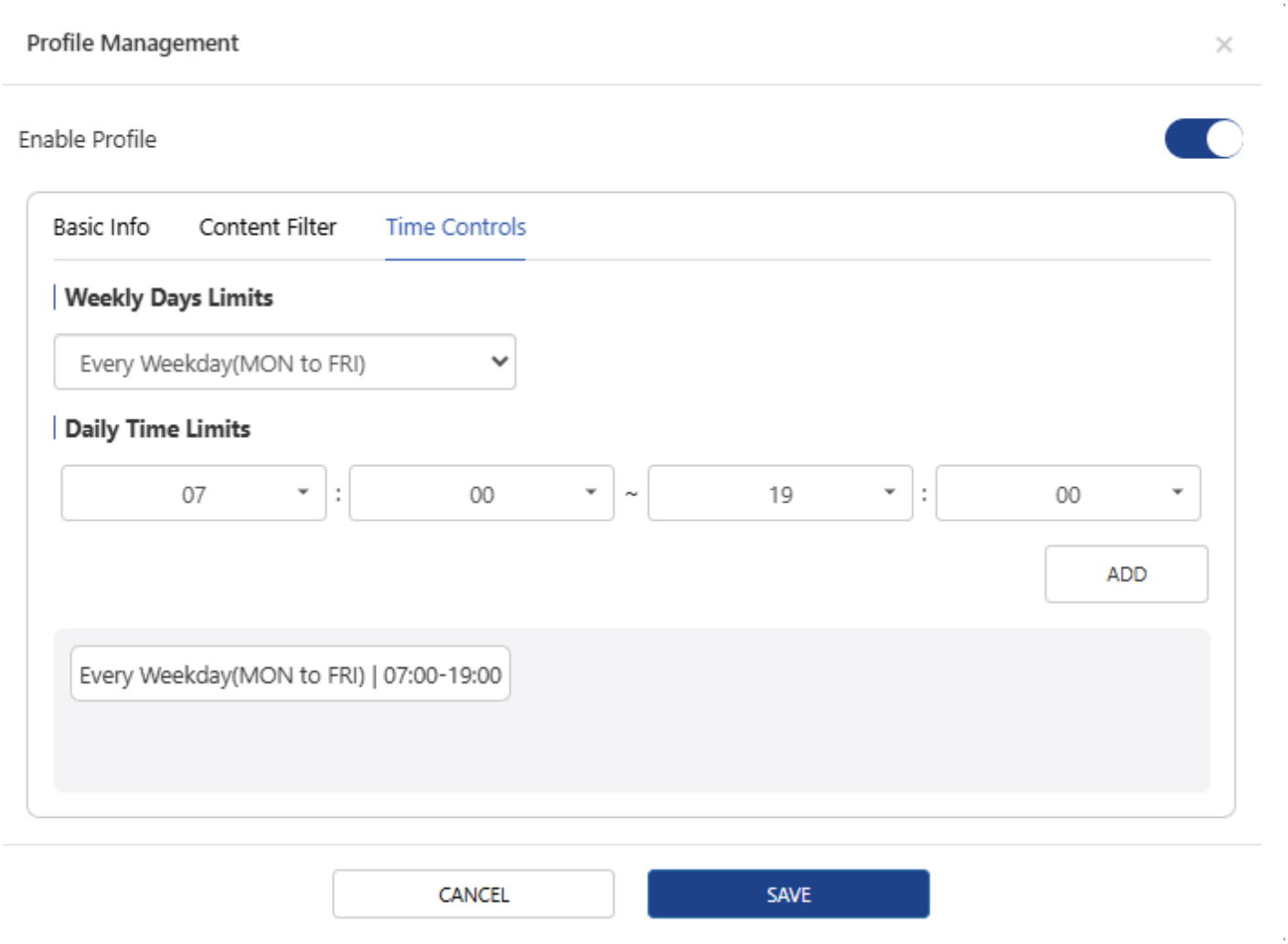


1) Click **Content Filter**.

2) In the **Category/App Filter** list, check the content categories you want to block.

3）You can also block specific websites. In the **Keyword Filter**, enter keywords (e.g., “Amazon”) or URLs (e.g., “www.Amazon.com”) and then click **ADD**.

5 . Set time rules for Internet access restrictions.



1）Click **Time Controls**.

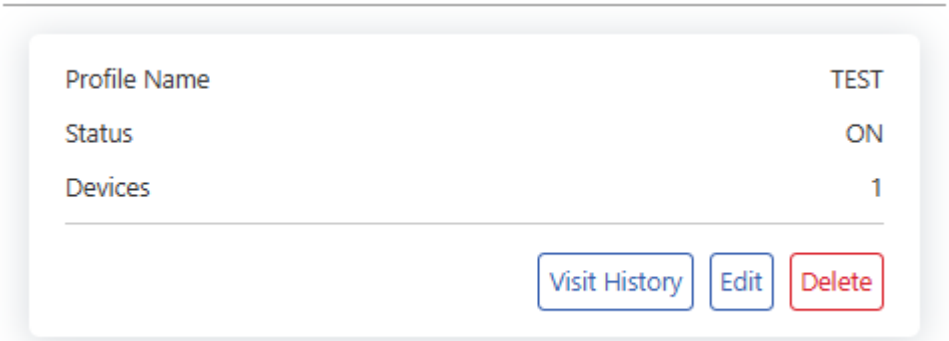
2）In **Weekly Days Limits** dropdown list, select the days of the week when the rule will repeat.

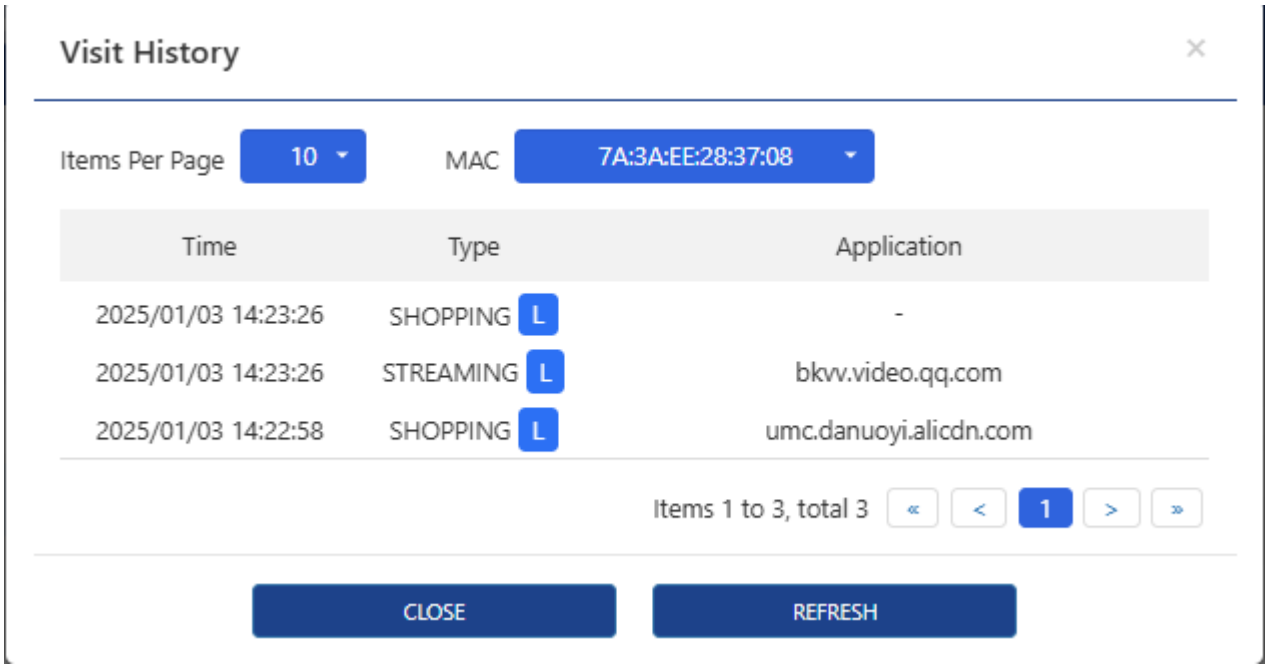
3）In **Daily Time Limits**, select the start time and end time.

4）Click **ADD** to generate the time rule.

6 . Click **SAVE** to complete the configuration.

7 . After adding the profile, you can check detailed access history by clicking **Visit History** and modify the profile’s restrictions at any time by clicking **Edit**.

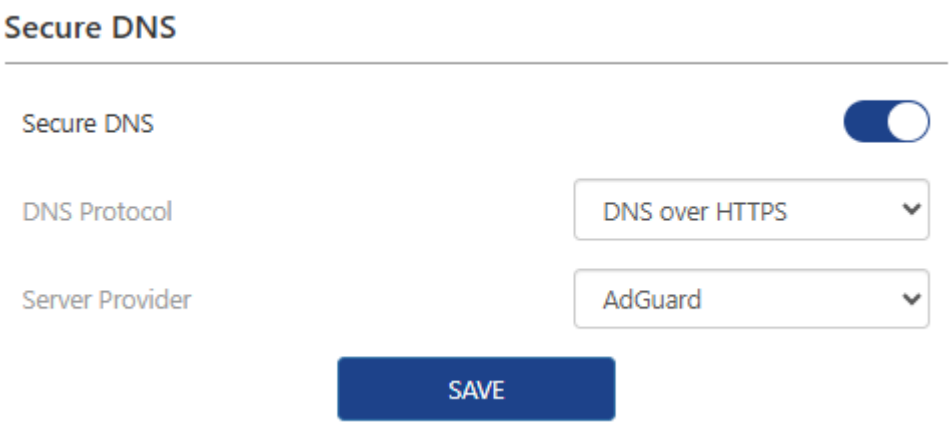




Secure DNS

This feature encrypts your DNS traffic to enhance security and privacy, preventing DNS leaks and DNS hijacking.

1. DNS Navigate to **More** > **Net Guardian** > **Secure DNS**
2. Click to enable **Secure DNS**.
3. Set the **DNS Protocol** and **Server Provider**.
4. Click **SAVE** to complete the configuration.



AdGuard Home

AdGuard Home acts as a global DNS blocker to filter harmful content from the network, such as ads, malwares, trackers, and more.

AdGuard Home also offers advanced functions such as parental control, statistics, custom rule, and more so you can better manage network traffic and protect privacy. By running AdGuard Home on your router, you can have one-stop ad blocking and privacy protection for your entire network without installing separate software or browser plug-ins on each device.

Initial Settings

1 . Access **More> Net Guardian > AdGuard Home**.

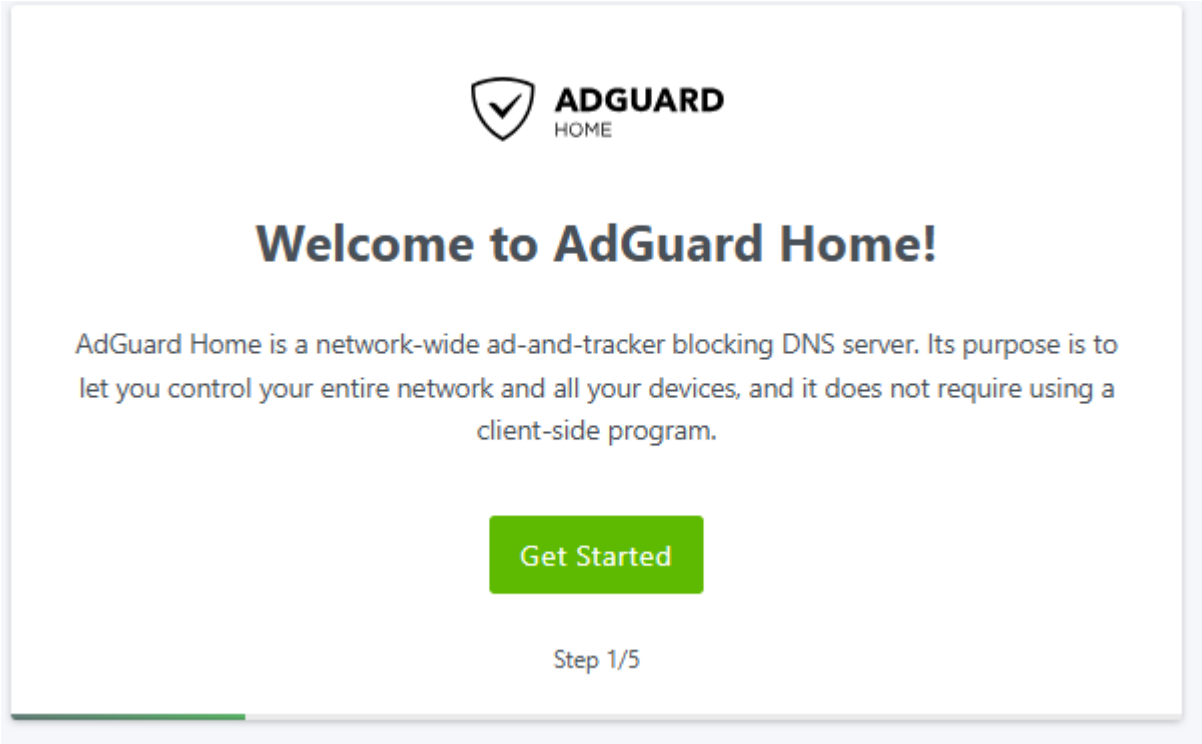
2 . Open **AdGuard Home**.

3 . Click **the URL** behind Manage Page or enter http://192.168.20.1:3000 manually on the browser. Access the AdGuard Home manage page and enter the installation guard page.

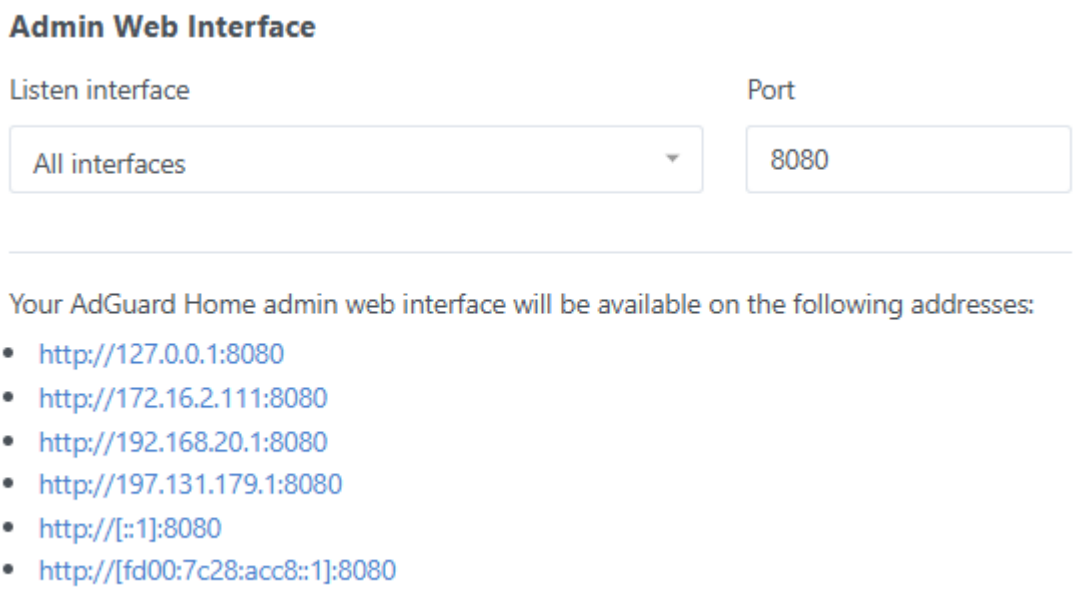
NOTE

If your router IP is not 192.168.20.1, please change 192.168.20.1 to your router IP.

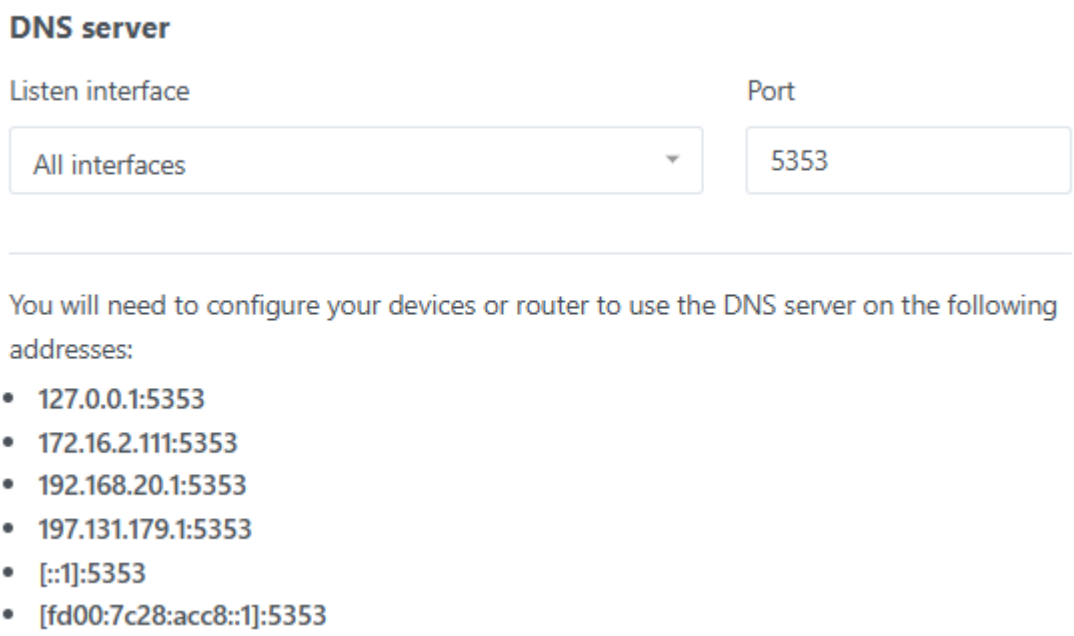
1） Enter the AdGuard Home manage page, and click **Get Started**.



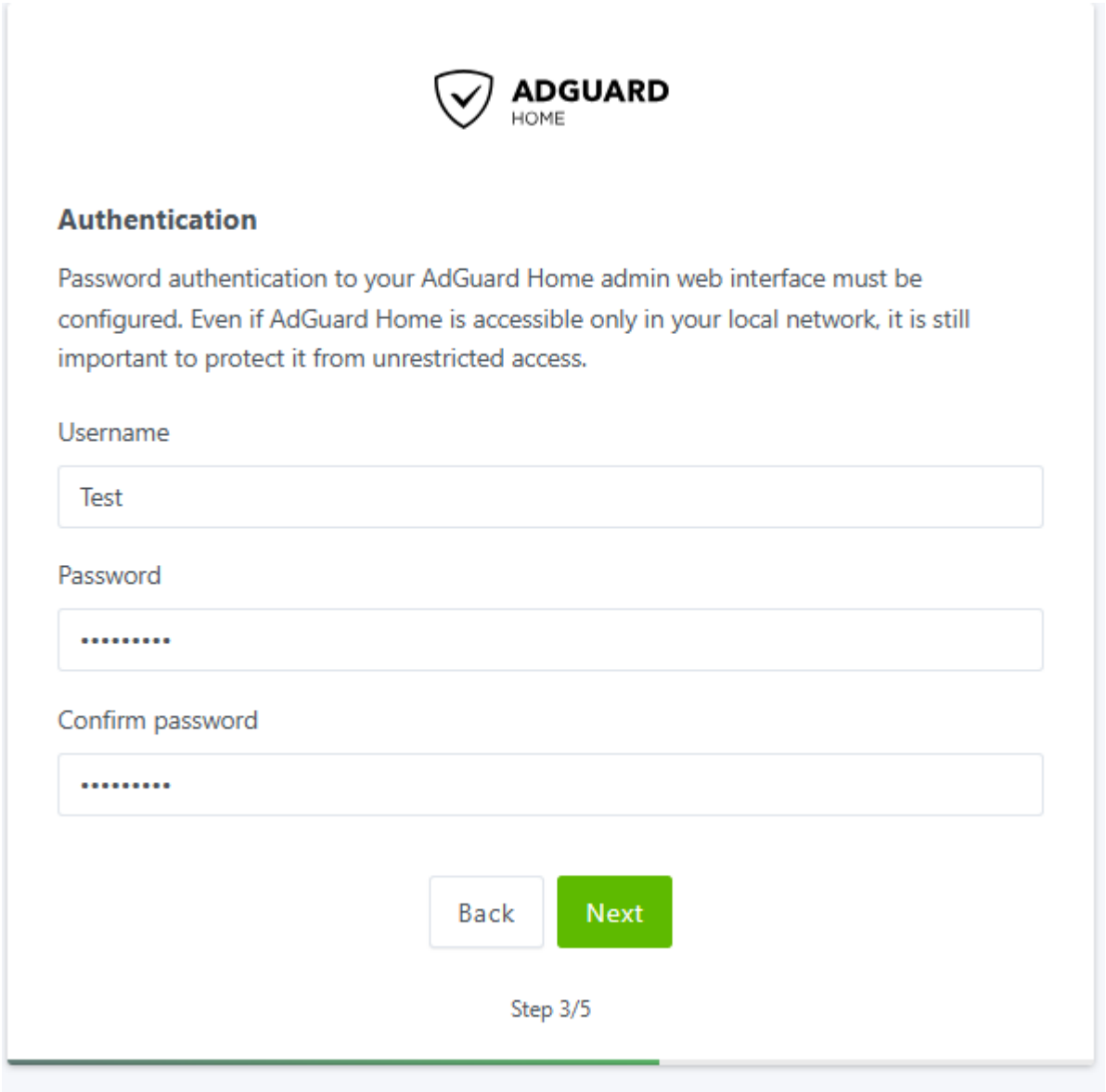
2） Select the **Listen interface** and bind **Port** on the Admin Web Interface.



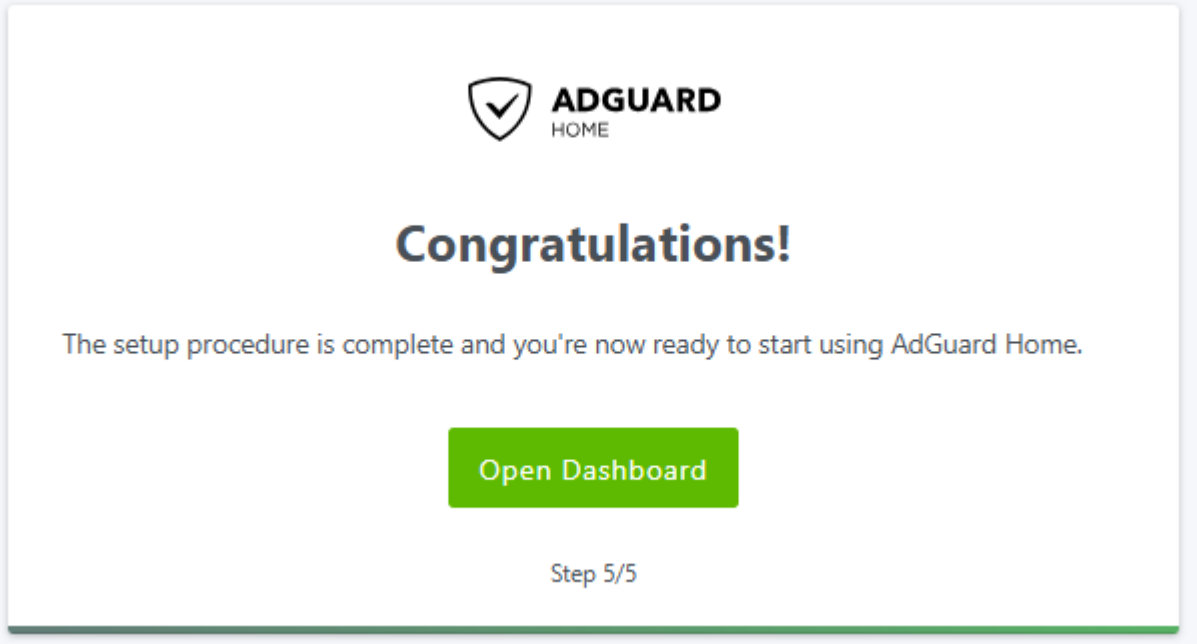
3） Select the **Listen interface** and bind **Port** on the DNS server.



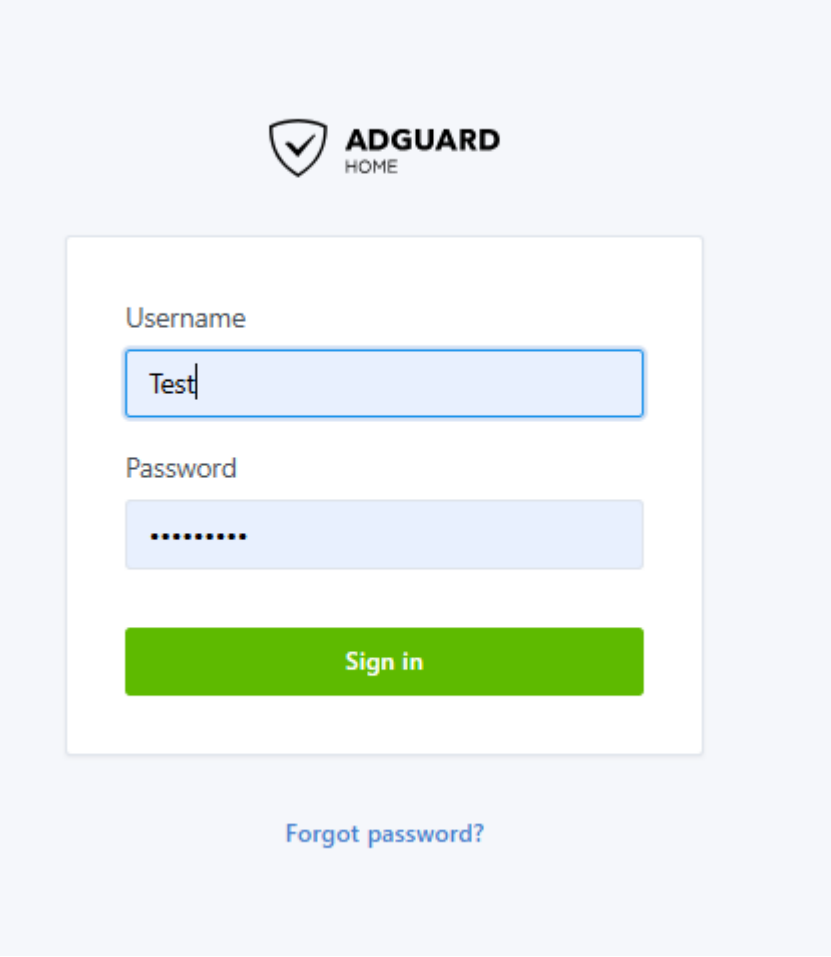
4） Set the username and password for AdGuard Home login. Click **Next**.



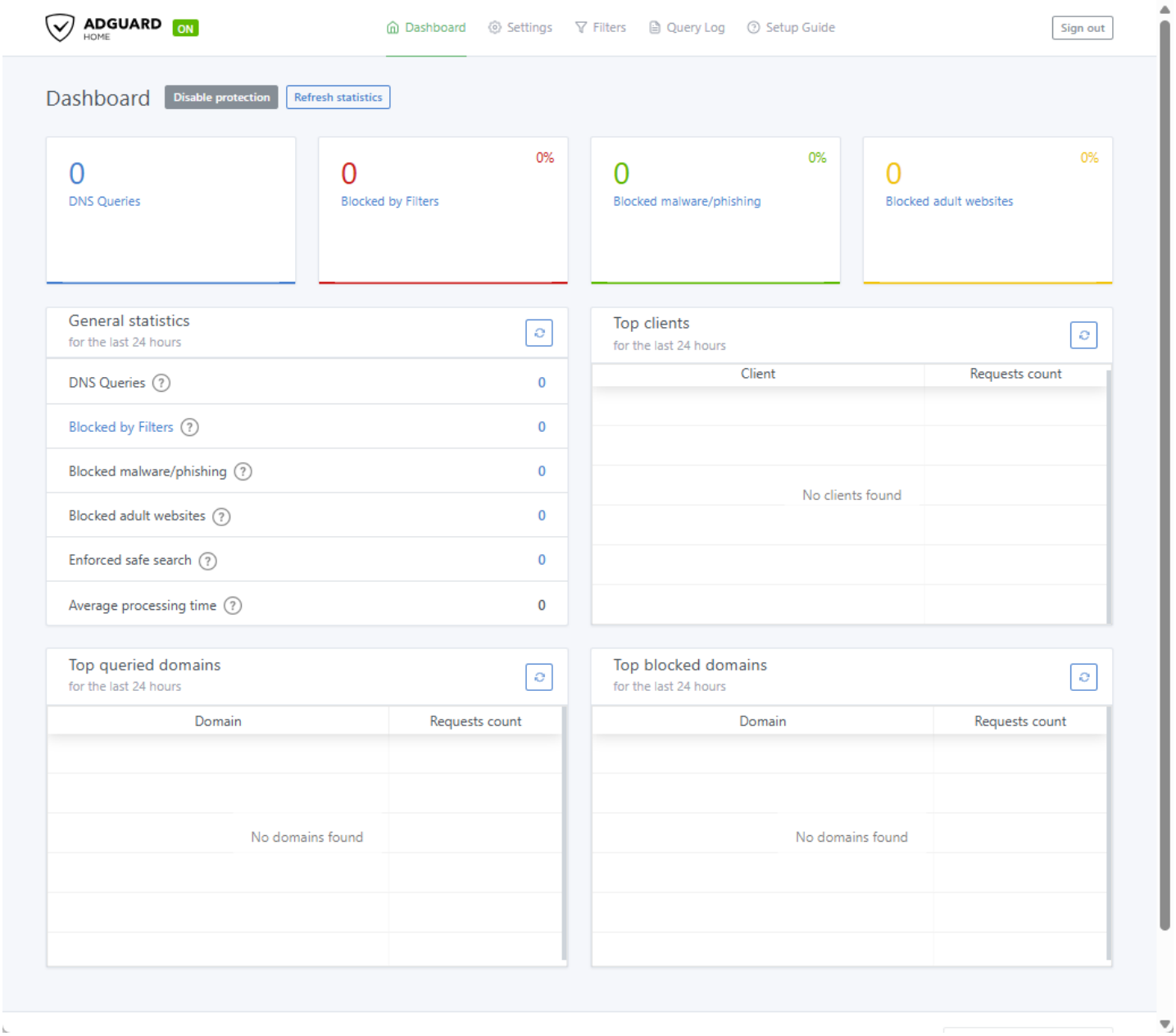
5) Click **Open Dashboard**.



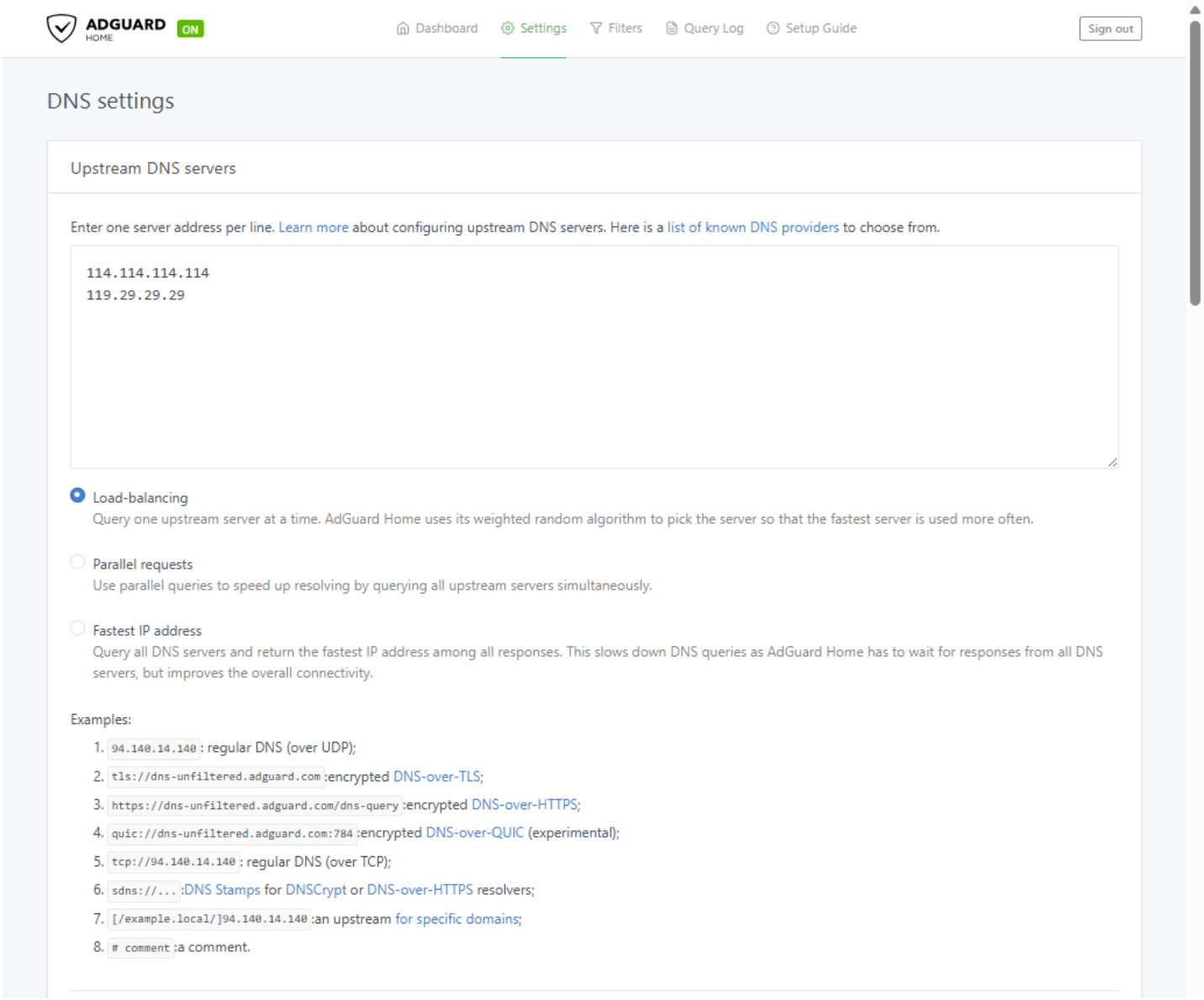
6) Enter your **Username and Password** to log in to the dashboard.



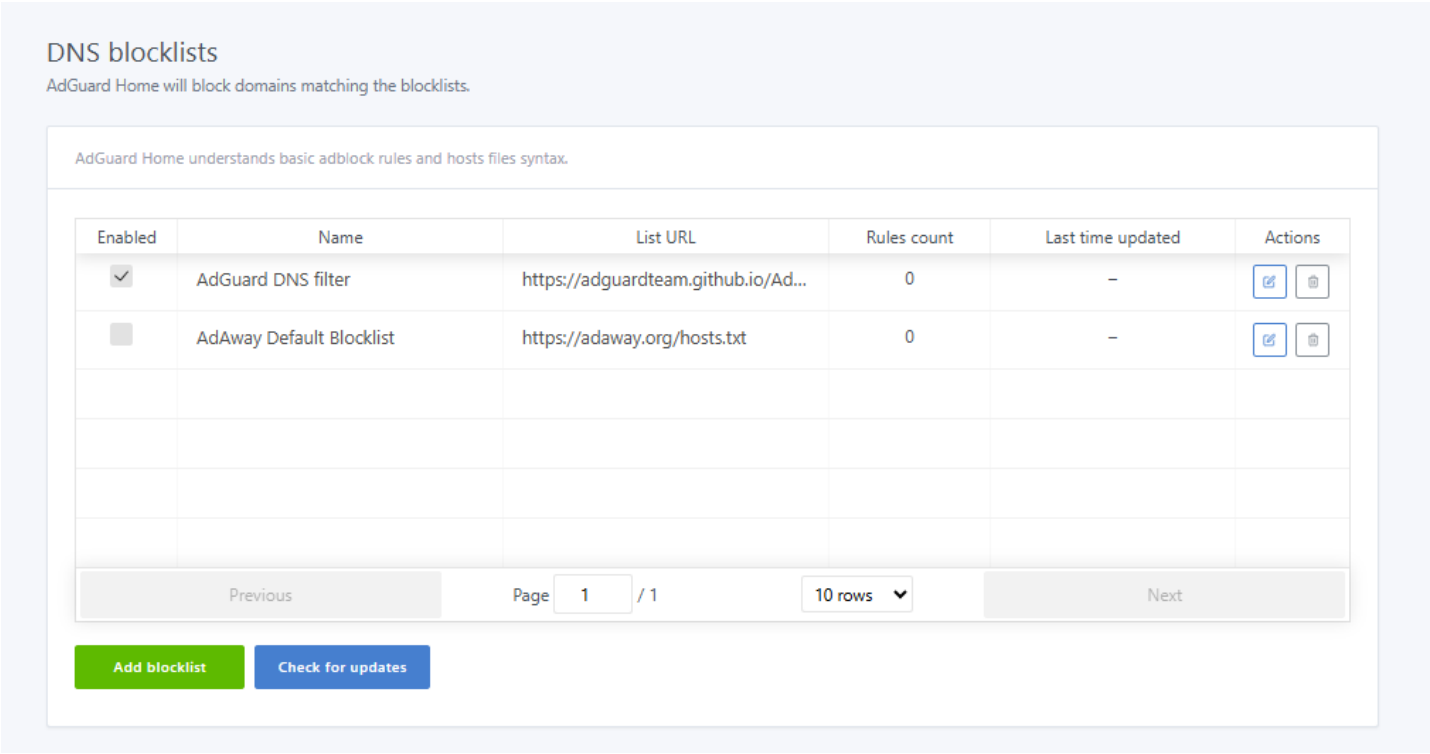
7) In the dashboard, you can monitor the number of DNS blocks and some lists in real time.



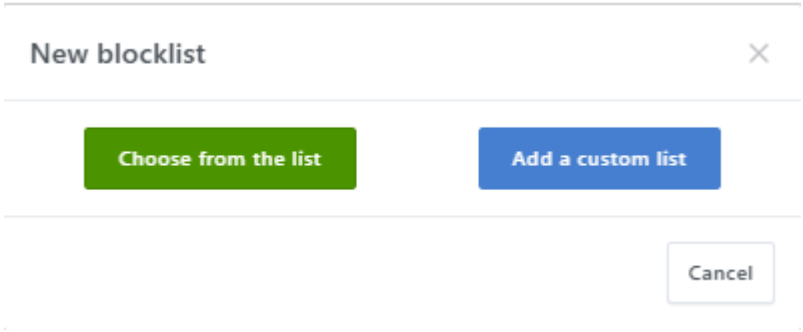
8) If you can not use a default DNS server, you can add a new DNS in **Settings**.



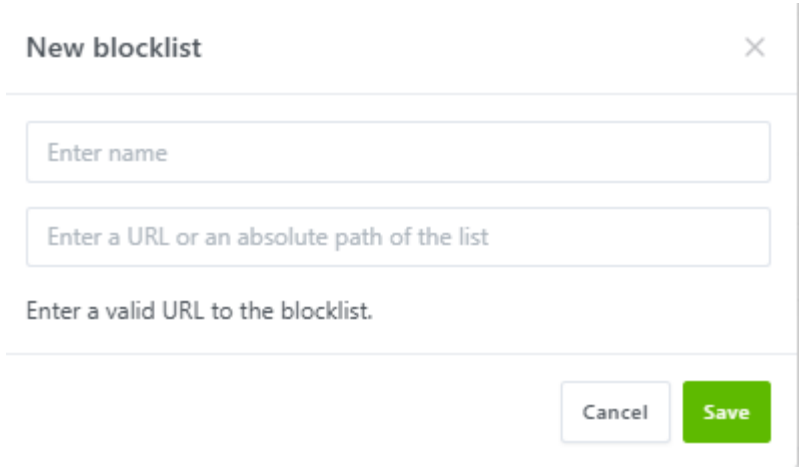
9） If you set DNS blacklists, please access **Filter>DNS blocklists**.



10) Click **New blocklist>Add a custom list**.



11) Enter the name and URL of the new blocklist. Click **Save**.



Chapter 5 NAT Forwarding

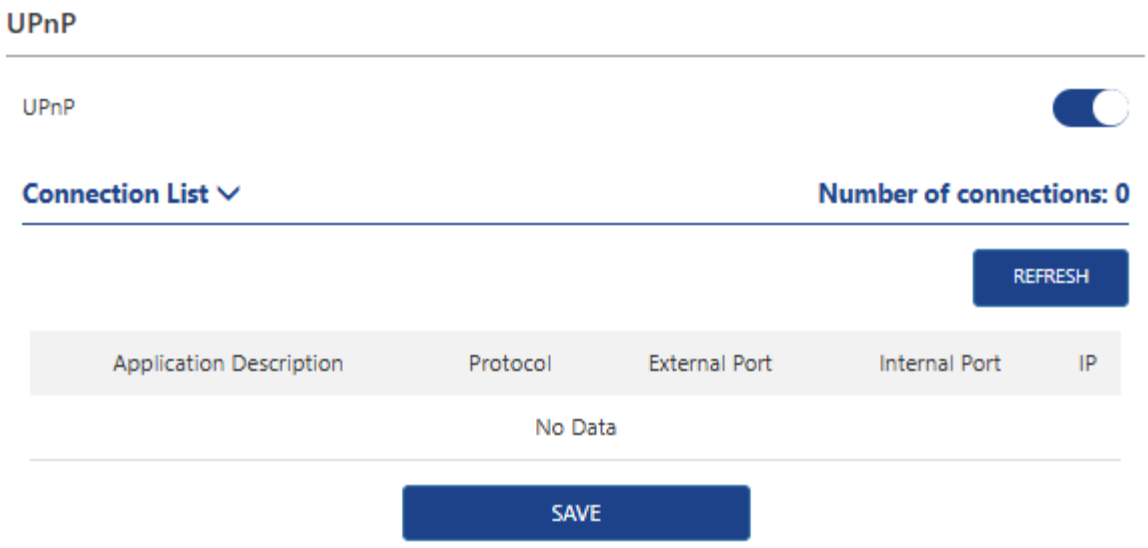
This chapter contains the following sections:

UPnP Settings

UPnP (Universal Plug and Play) is a network protocol designed to make connecting devices simpler and more automated. Using the UPnP protocol, devices can automatically discover each other on the network and establish communication connections without requiring manual configuration or setup.

UPnP allows devices to share resources such as files, printers, and other multimedia content. The UPnP protocol is widely used in home networks and office environments to facilitate communication and interaction between devices.

1. Access **More>NAT Forwarding>UPnP**.
2. Set **ON/OFF UPnP**.
3. Click **SAVE** to finish configuration.

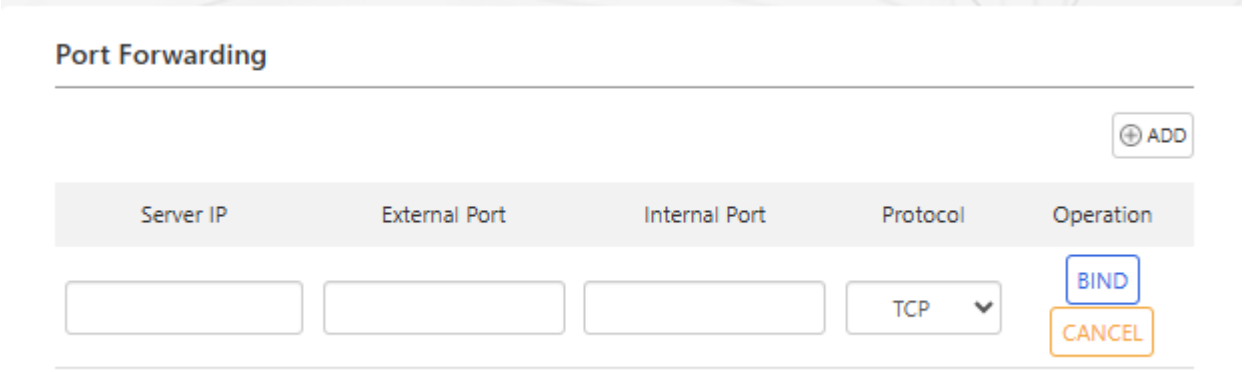


NOTE

The computer operation system and application program you used need to support the UPnP function.

Port Forwarding

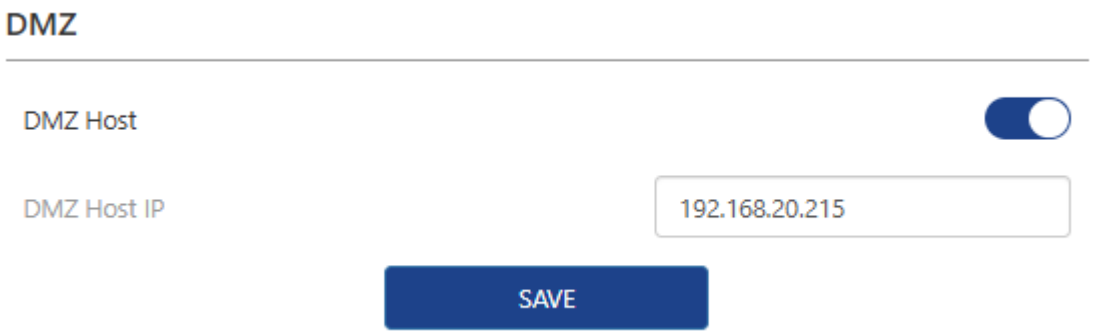
Port forwarding is a network technology. It maps a specific port on a public network to a specified server on the local network, allowing Internet users to access the local network server’s service by accessing the port.



1. Access **More>NAT Forwarding>Port Forwarding**.
2. Click **Add**.
3. Enter the parameters of **Server IP, External Port**, and **Internal Port**.
4. Select **Communication Protocol**.
5. Click **Bind** to finish the configuration.

DMZ

Enable DMZ（Demilitarized Zone）management function, only enter one IP address that connects this device, then this device can be DMZ host. So this device can be accessed via external network and open all ports to improve fluency of corresponding communication. Please note security software and firewall on this host need to be closed temporarily when you use this function. So please consider using this function carefully.



NOTE

DMZ is suitable for use when you are not sure of the ports that need to be opened. Computers will be completely exposed to the WAN after opening DMZ Host, which may bring security risks to computers. So please do not open it easily. Close it in time if you do not need to use DMZ Host.

1. Set the computer to a Static IP such as 192.168.20.215.
2. Access **More>NAT Forwarding>DMZ**.
3. Open **DMZ Host**.
4. Enter the **IP address** of the corresponding computer (192.168.20.215).
5. Click **SAVE** to finish the configuration.

Hardware NAT

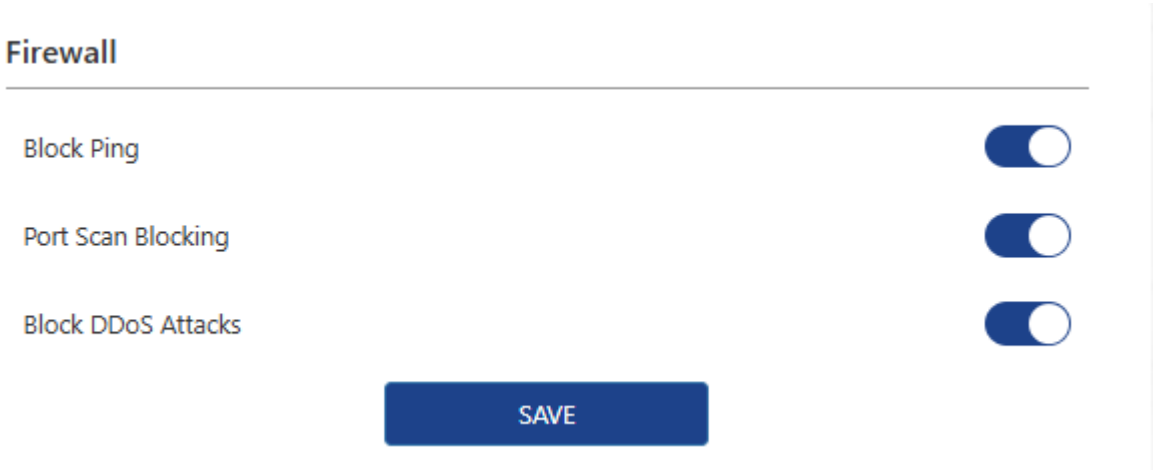
Data is forwarded by hardware instead of being processed by the CPU after enabling Hardware NAT, which can improve the device's performance. Turn off NAT if you need to calculate throughput rate, usage statistics of CPU and RAM.

1. Access **More>NAT Forwarding>Hardware NAT**.
2. Open **Hardware NAT**.
3. Click **SAVE** to finish the configuration.

Chapter 6 Network Security

This chapter contains the following sections:

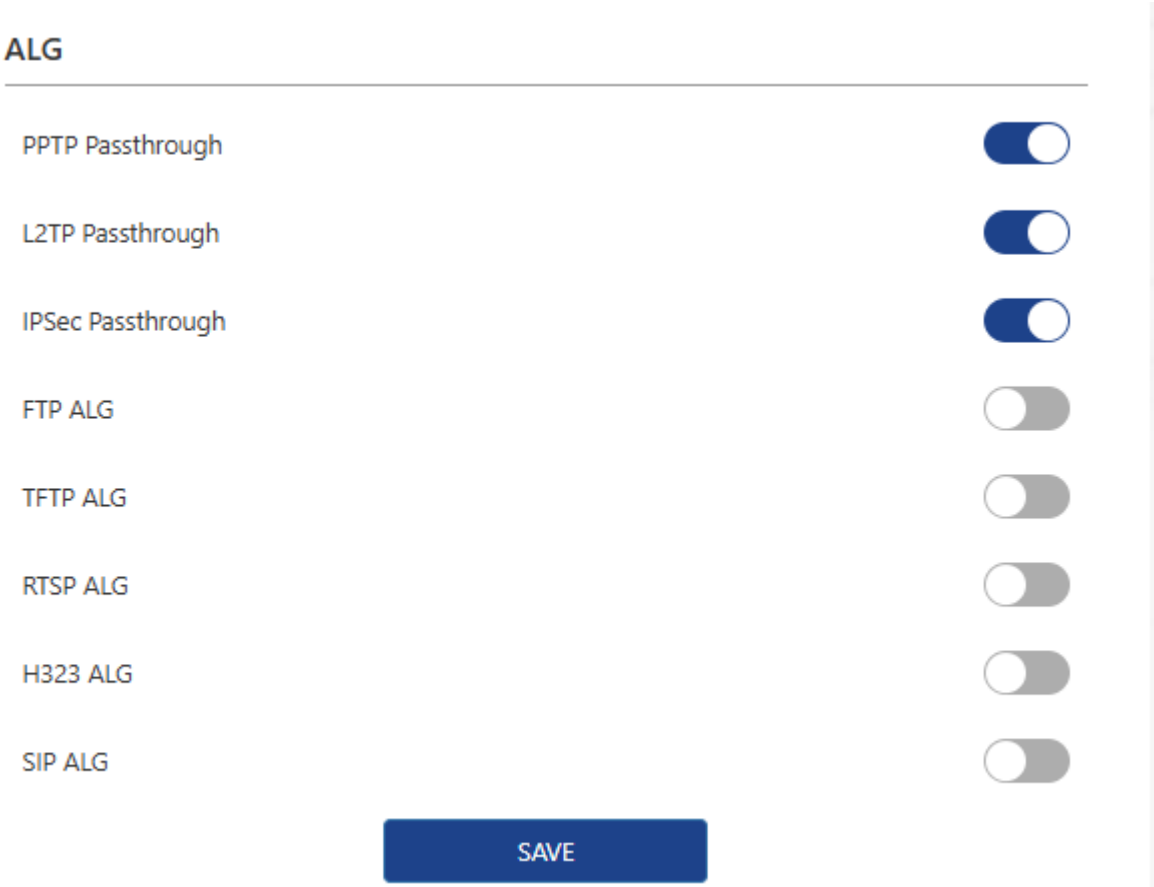
Firewall



1 . Access **More settings>Security>Firewall**.
2 . Open **Block Ping**: It can prevent ping attacks and scanning and reduce the risk of network attacks on this device.
3 . Open **Port Scan Blocking**: It can protect server ports on devices from attacks.
4 . Open **Block DDoS Attacks**: It enables the router to avoid the massive resource consumption caused by DDoS attacks and ensures normal services.
5 . Click **SAVE** to finish the configuration.

ALG Configuration

ALG（Application Layer Gateway）allows a custom NAT traversal filter to be inserted into the gateway to support the address and port translation of certain application layer “control/data” protocols. Keeping default settings is recommended. When you use voice and video applications to create or receive calls through the router, you may need to disable SIP ALG because some voice and video applications do not work well with SIP ALG.



1 . Access **More>Security>ALG**.

2 . After configuration, please click **SAVE** to finish.

Chapter 7 VPN Server and Client

This chapter contains the following sections:

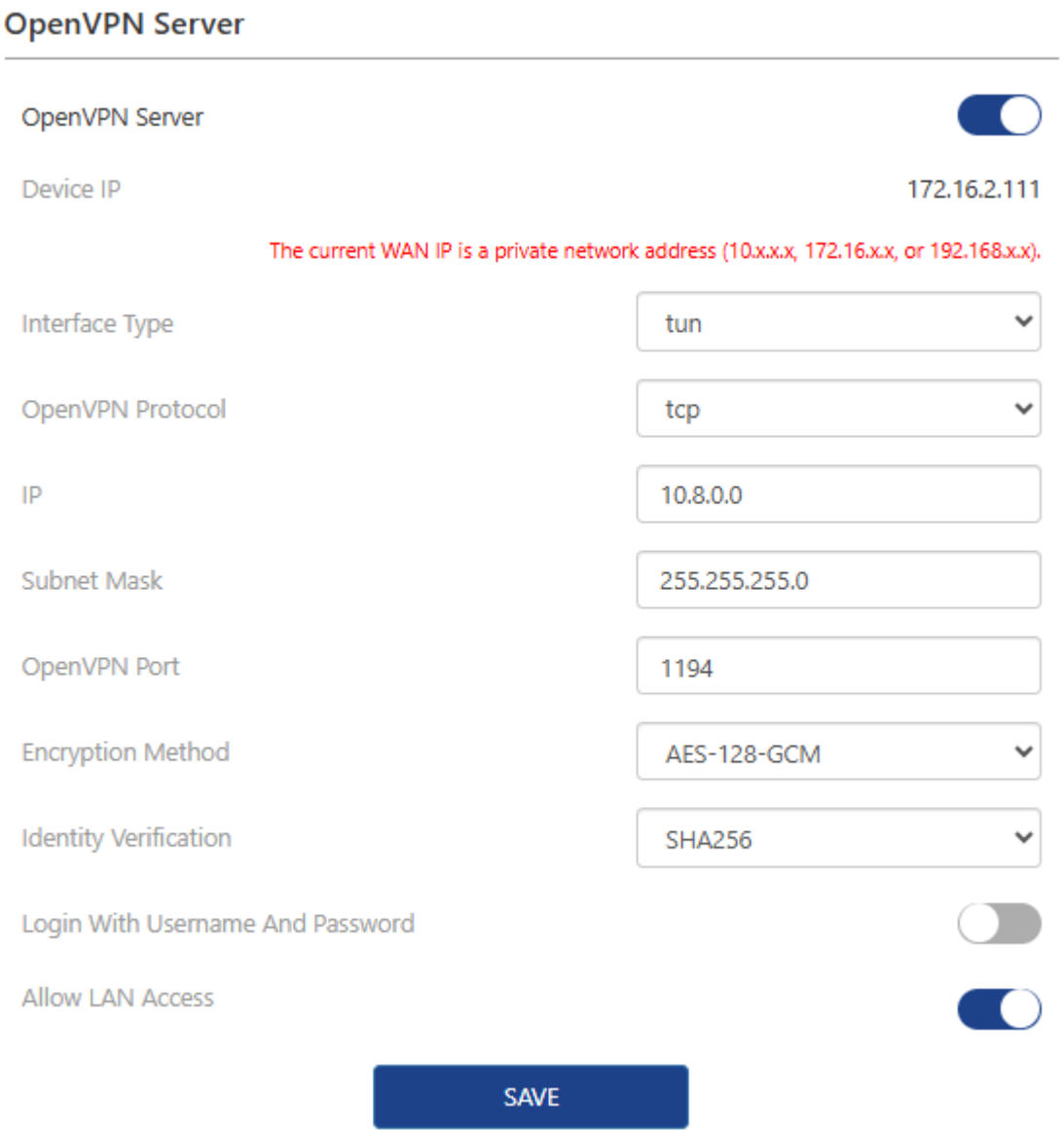
VPN Server and Client

VPN (Virtual Private Network) can encrypt your network connection to ensure the safe transfer of important data and avoid information stealing. Remote users (VPN clients) can safely connect VPN server.

VPN Server Configuration

Open VPN Server Configuration

OpenVPN Server is used for remote devices to establish an OpenVPN connection to access your home network. If you use VPN function, you need to enable the OpenVPN server on a router and then install and run VPN client apps on remote devices.



1 . Access **More>VPN>OpenVPN Server**.

2 . Open **OpenVPN Server**.

3 . Select **Interface Type**.

4 . Select **OpenVPN Protocol**.

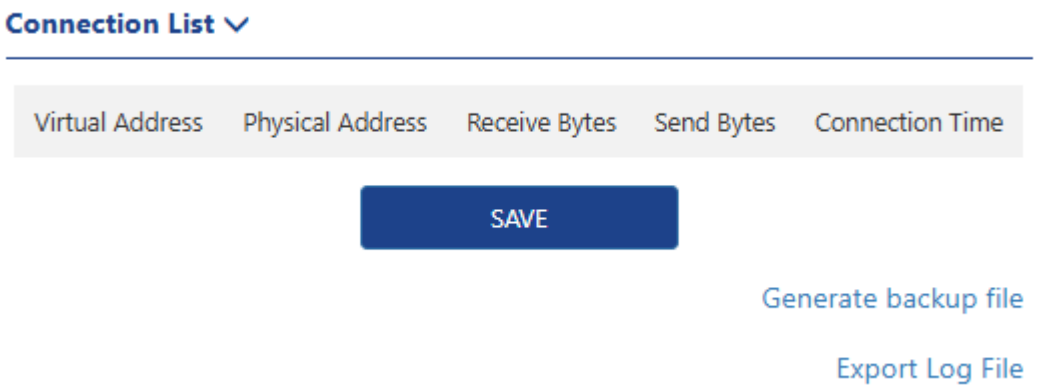
5 . In **IP** and **Subnet Mask**, enter the range of IP addresses the OpenVPN server can lease to devices.

6 . Enter **OpenVPN Port**. 1024~65535 is recommended.

7 . Select **Encryption Method** and **Identity Verification**.

8 . Open **Login With Username And Password** to customize username and password. If turned off, you can connect without a username and password.

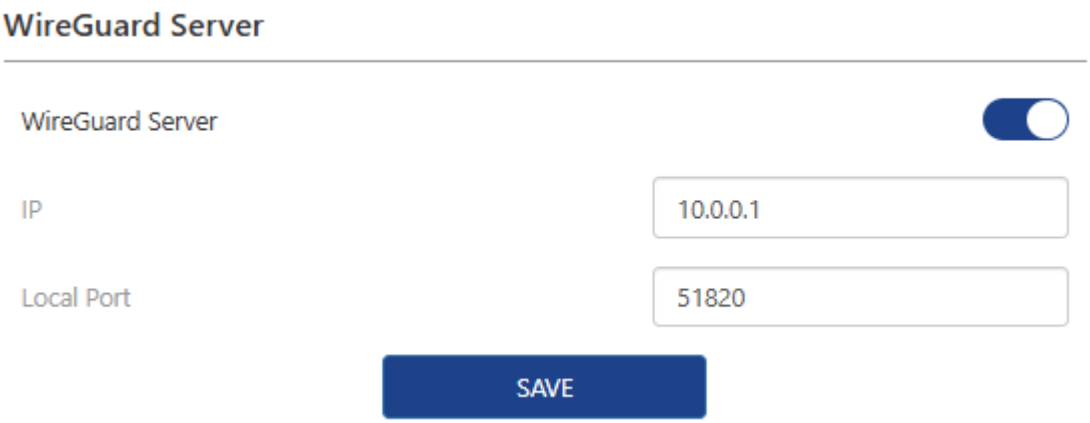
9 . Set whether to enable **Allow LAN Access**.



10 . Click **SAVE**.
11 . Click **Generate backup file** to save it. VPN client device will establish VPN connection by using the file.

Use WireGuard VPN Server

WireGuard is a concise, efficient, and secure VPN protocol with advanced encryption algorithms, low latency, high throughput, simple and easy-to-use configuration, and cross-platform support.



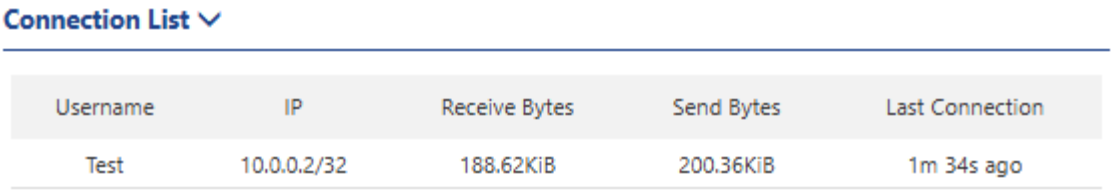
1 . Access **More>VPN>WireGuard Server**.
2 . Open **WireGuard Server**.
3 . Enter **IP** and **Local Port**.
4 . Click **SAVE**, then click **REFRESH**.

5 . Enter **Password** again to access router manage page. Access **More>VPN>WireGuard Server**.

6 . Click **ADD USER**. Set **Username** and click **APPLY**.

7 . Click **download icon** to export the configuration file. VPN client device will establish VPN connection by using the file.

8 . If the client connects successfully. You can view this client in the **connection list**.

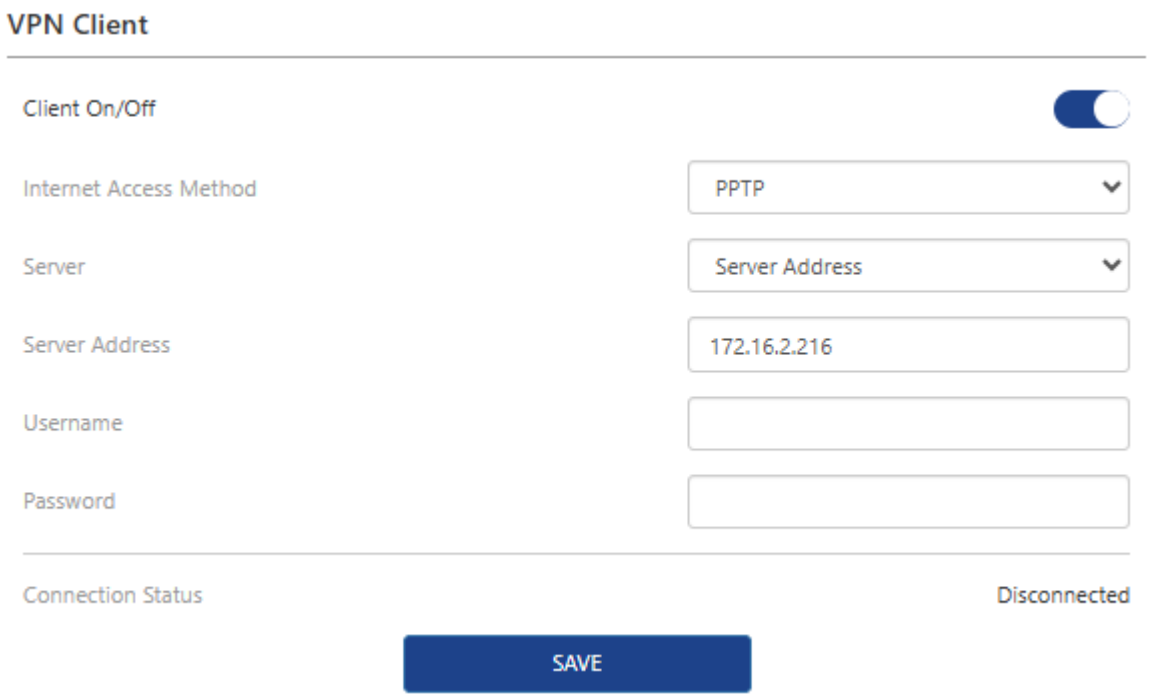


VPN Client Configuration

VPN client can establish VPN connection for devices in your home network to access remote a VPN server.

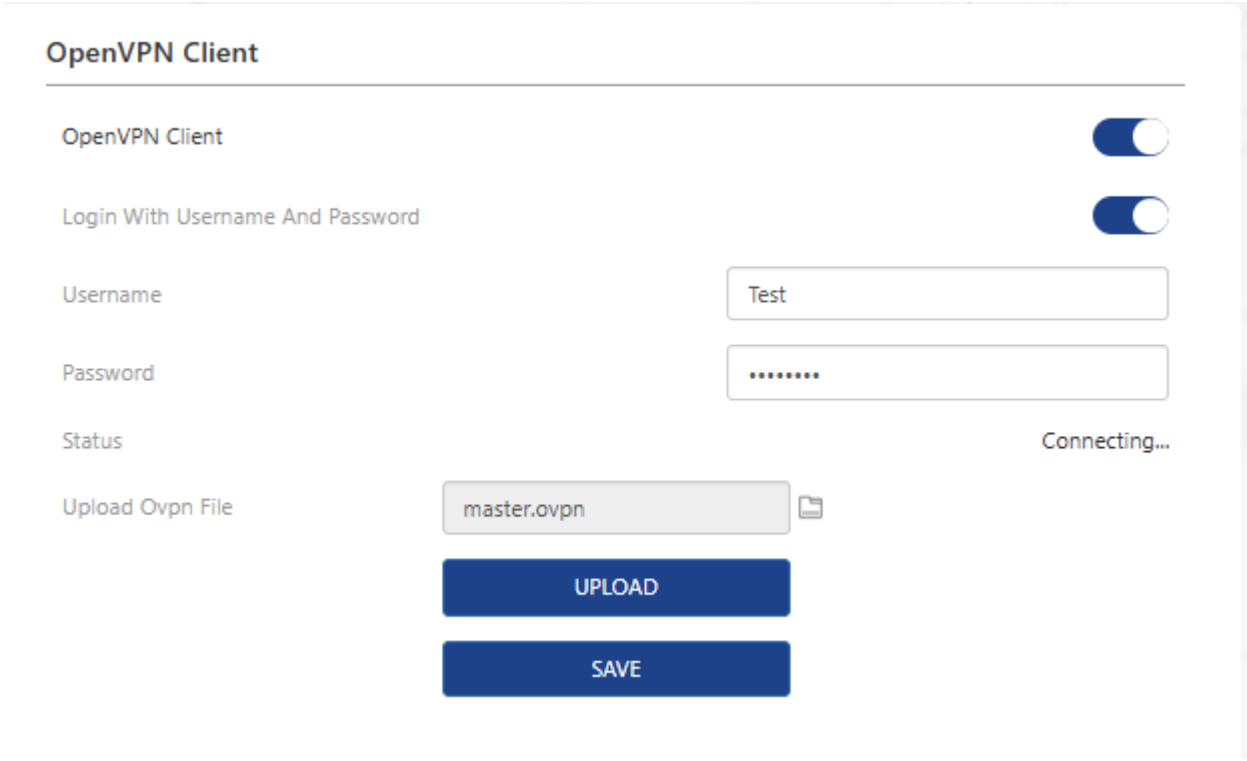
PPTP/L2TP VPN Client Configuration

VPN converts public networks (Internet, etc.) into private networks using encryption technology to offer greater security and privacy protection.



1. Access **More>VPN>VPN Client**.
2. Open **VPN Client**.
3. Select **Internet Access Method**.
4. Select Server Address in **Server** or enter corresponding information in **Server Address**.
5. Enter **Username** and **Password**.
6. Click **SAVE** to finish the configuration.

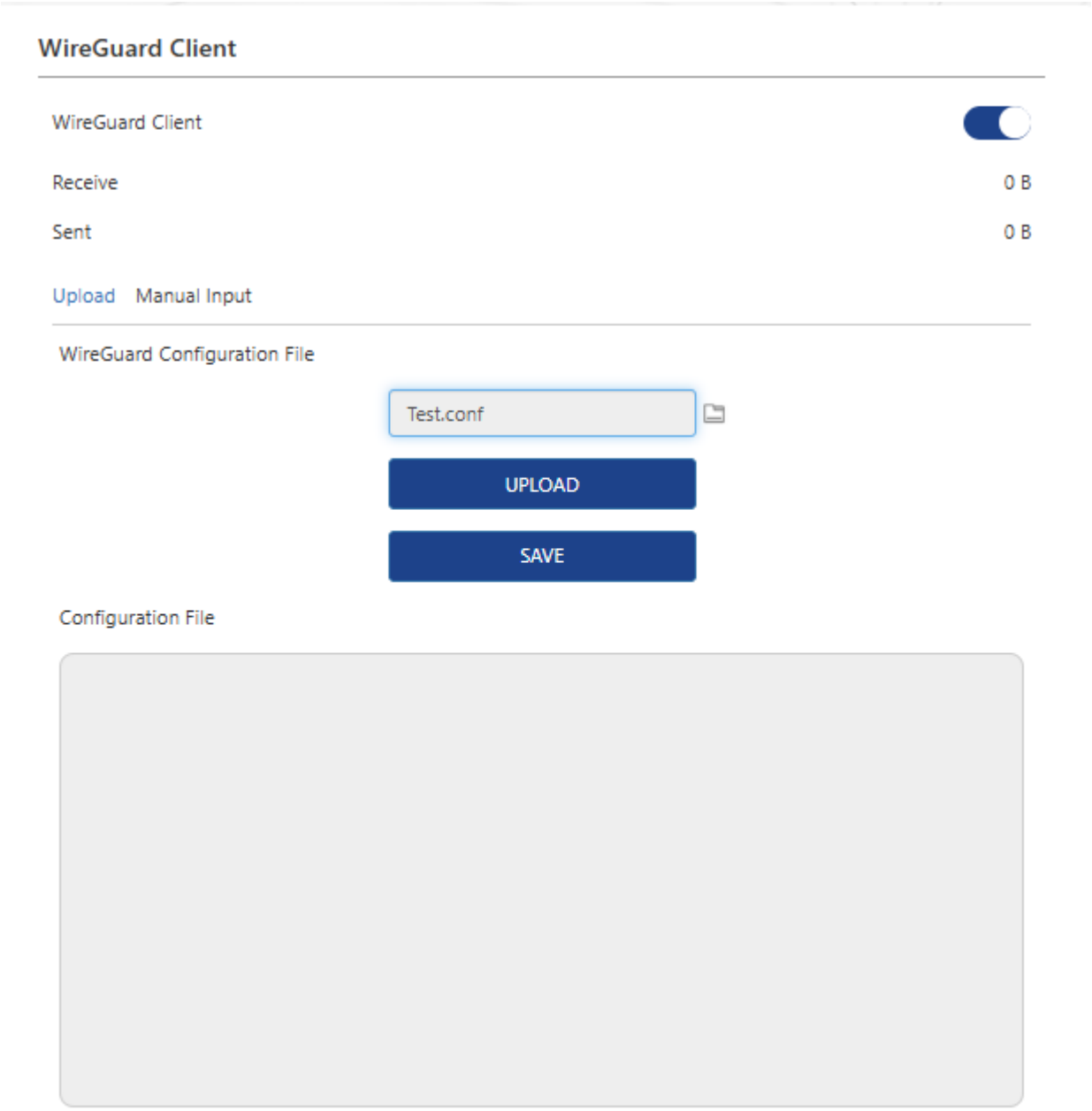
OpenVPN Client Configuration



1. Access **More>VPN>OpenVPN Client**.
2. Open **OpenVPN Client**.
3. If your VPN supplier requires **Login With Username And Password**, open it and enter VPN **Username** and **Password**.
4. Click **file icon** to import **“.ovpn file”**, then click **UPLOAD**.
5. Click **SAVE** to finish the configuration.

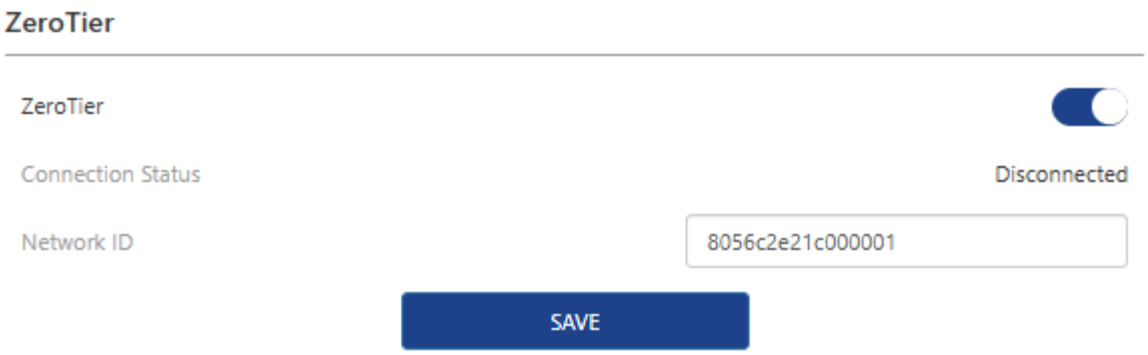
WireGuard VPN Client Configuration

1. Access **More>VPN>WireGuard VPN Client**.
2. Open **WireGuard VPN Client**.
3. Import the WireGuard Configuration File supplied by the VPN supplier, then click **UPLOAD**. Or click **Manual Input** to enter the parameters of WireGuard VPN.



4. Click **SAVE** to finish the configuration.

ZeroTier Configuration



1. Access **More>VPN>ZeroTier**.

2. Open **ZeroTier**.
3. Enter **Network ID** obtained on the Zerotier manage page.
4. Click **SAVE** to finish the configuration.

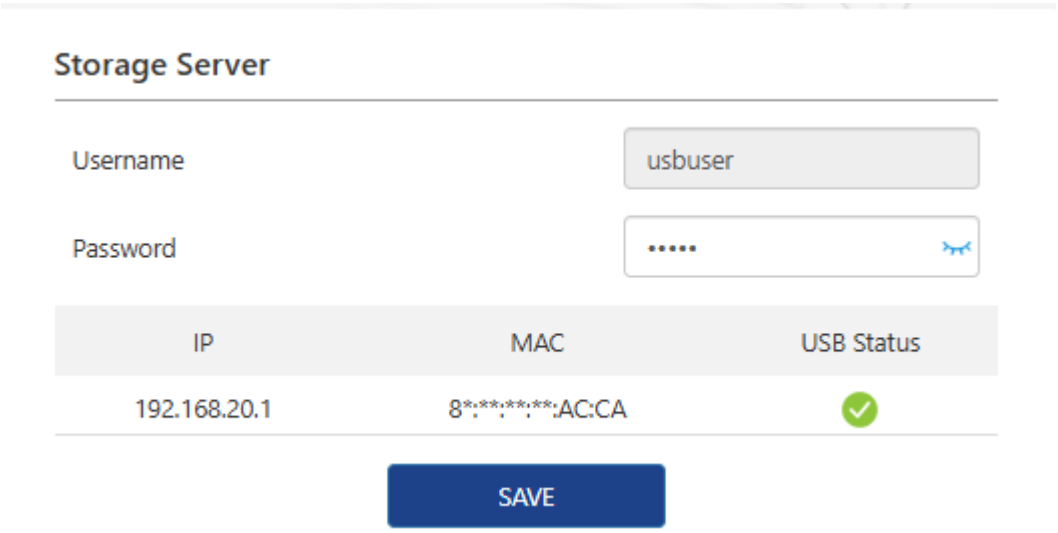
Chapter 8 USB Setting

This chapter introduces USB storage service, USB tethering, and print service.

It contains the following sections:

Storage Server

Please plug your USB storage device into the router's USB port, then you can access the storaged file locally and remotely.



1. Plug the USB storage device into the router's USB port.
2. Windows PC: Input the IP address (for example:\192.168.20.1)in the address bar of the file explorer.

MAC PC: Enter Connect to Server, and input IP address(for example:\192.168.20.1).

NOTE: ONLY EXFAT, FAT32, AND NTFS FILE FORMAT SUPPORTED.

3. Use the username and password you set before to access it. If you need to change your password, please click **More**>**USB**>**Storage Server**.

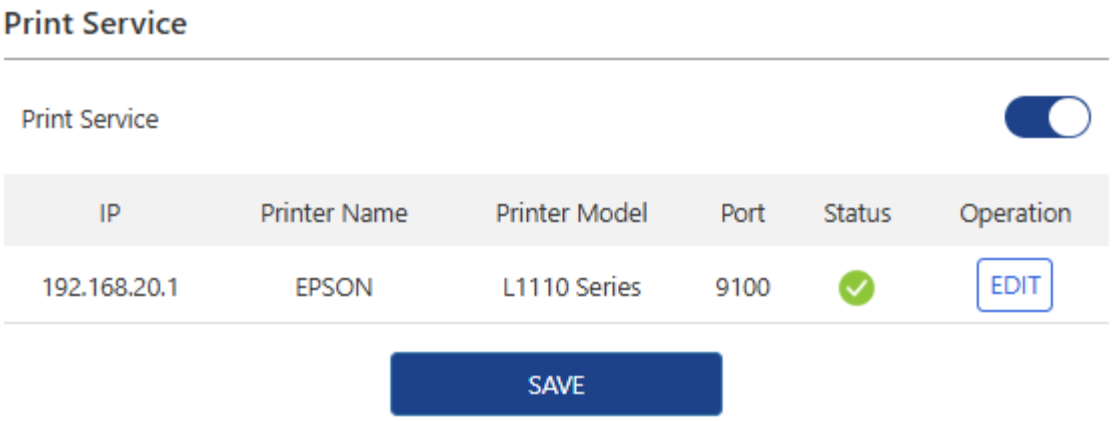
USB Tethering

You can connect your phone to this router via the USB port to enable the USB network tethering feature, which allows network communication between other devices and this router.

1. Choose **More**>**USB**>**Storage Server**.
2. Click to open **USB Tethering**.
3. Click on "**SAVE**" to complete setting.

Print Service

USB print service function allows your devices to connect to the USB printer. Within this router's range, multiple devices can access and use the printer simultaneously to print.



1. Connect the printer to the USB port of this router, the system can detect the printer automatically.
2. Install the printer's driver and software application on your device(such as a laptop or mobile phone).
3. Connect your device to this router's wireless network or its LAN port and ensure the device is connected to the router's network.
4. Click on **More**>**USB**>**Print Service**.

5. Click on **Print Service** to enable it.
6. Click on **SAVE** to complete.

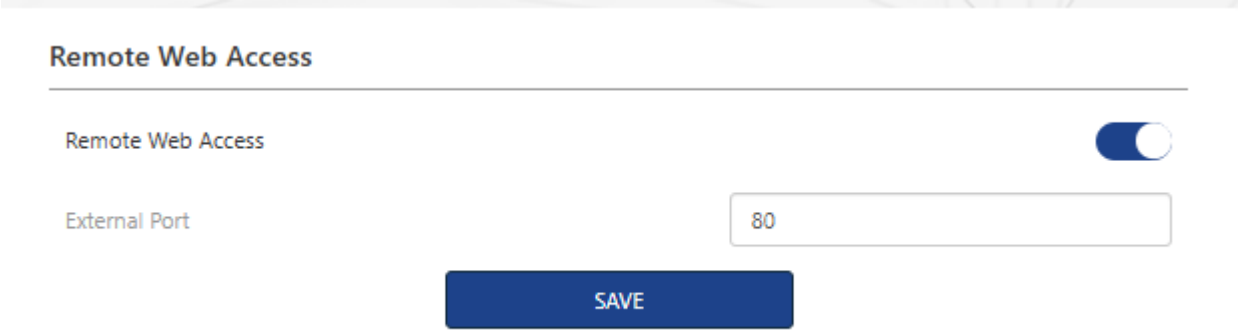
Chapter 9 Remote Access

This chapter introduces remote web access and cloud APP.

It contains the following sections:

Remote Web Access

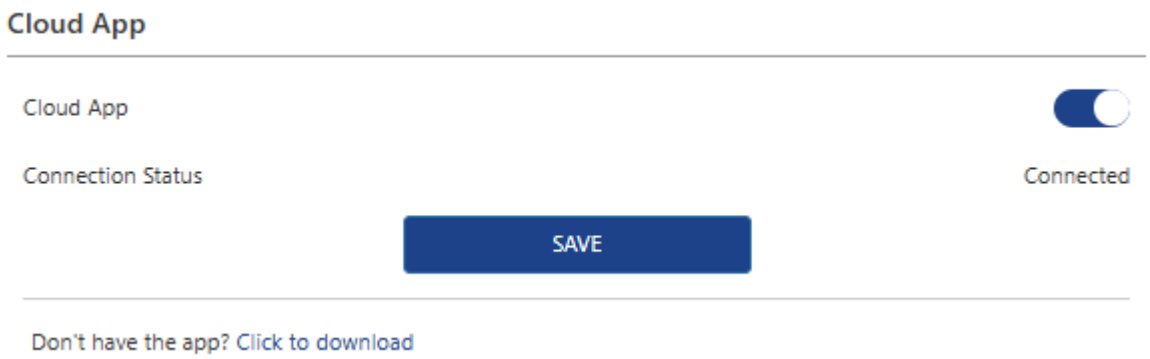
With this function, you can manage this router remotely via the Internet. Input "http://WAN IP: port number" for remotely accessing this device. We recommend you write this router's WAN port number down before using this function.



1. Access to **More**>**Remote Access**>**Remote Web Access**.
2. Turn on **Remote Web Access**.
3. Set **External Port**.
4. Click on **SAVE** to complete settings.

Cloud APP

With this function, you can control this router remotely from the cloud with the APP.



1. Access to **More**>**Remote Access**>**Cloud APP**.
2. Click on **Cloud APP** to enable the function.
3. Click on "**SAVE**" to complete settings.

NOTE:

If you didn't download APP, please click on **Click to download** to scan the pop-up QR code for downloading. You can also scan the QR code directly to obtain APP.

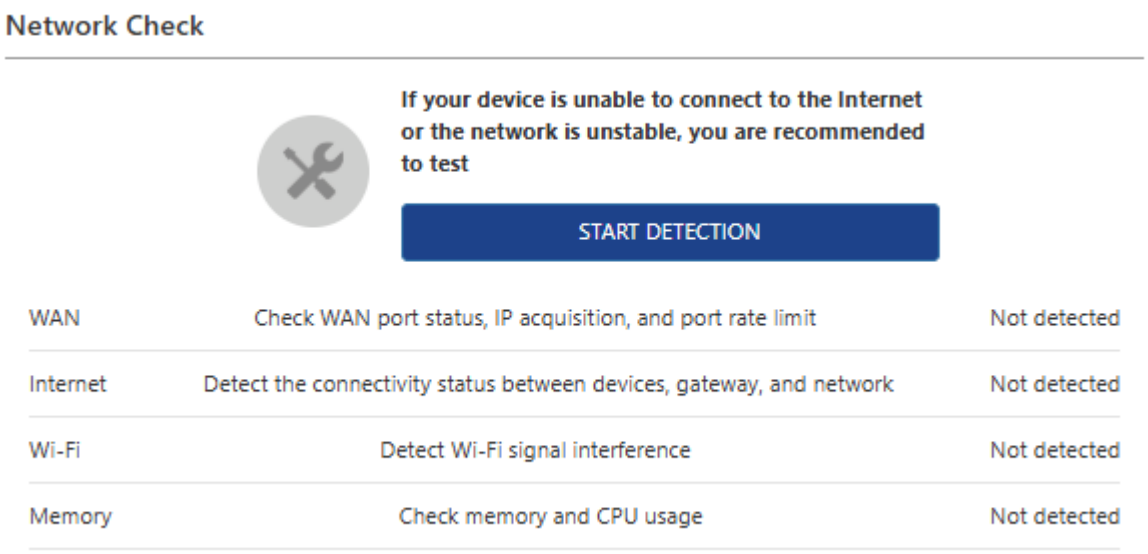
Chapter 10 NET Tools

This chapter introduces how to check network status, test network connection, and enable Wake-on-LAN function.

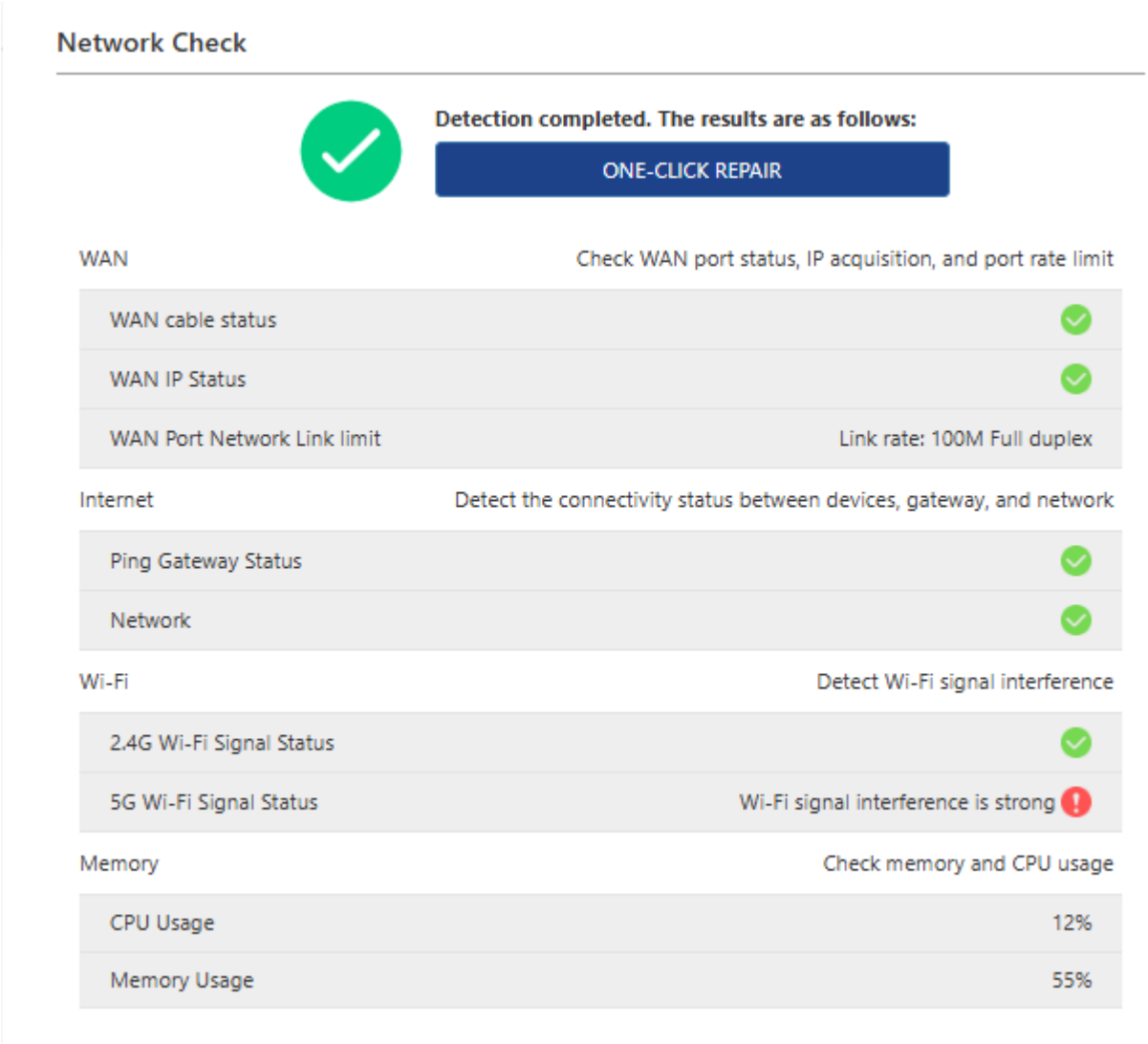
It contains the following sections:

Network Check

You can scan the entire network to analyse and optimize network status via network check.

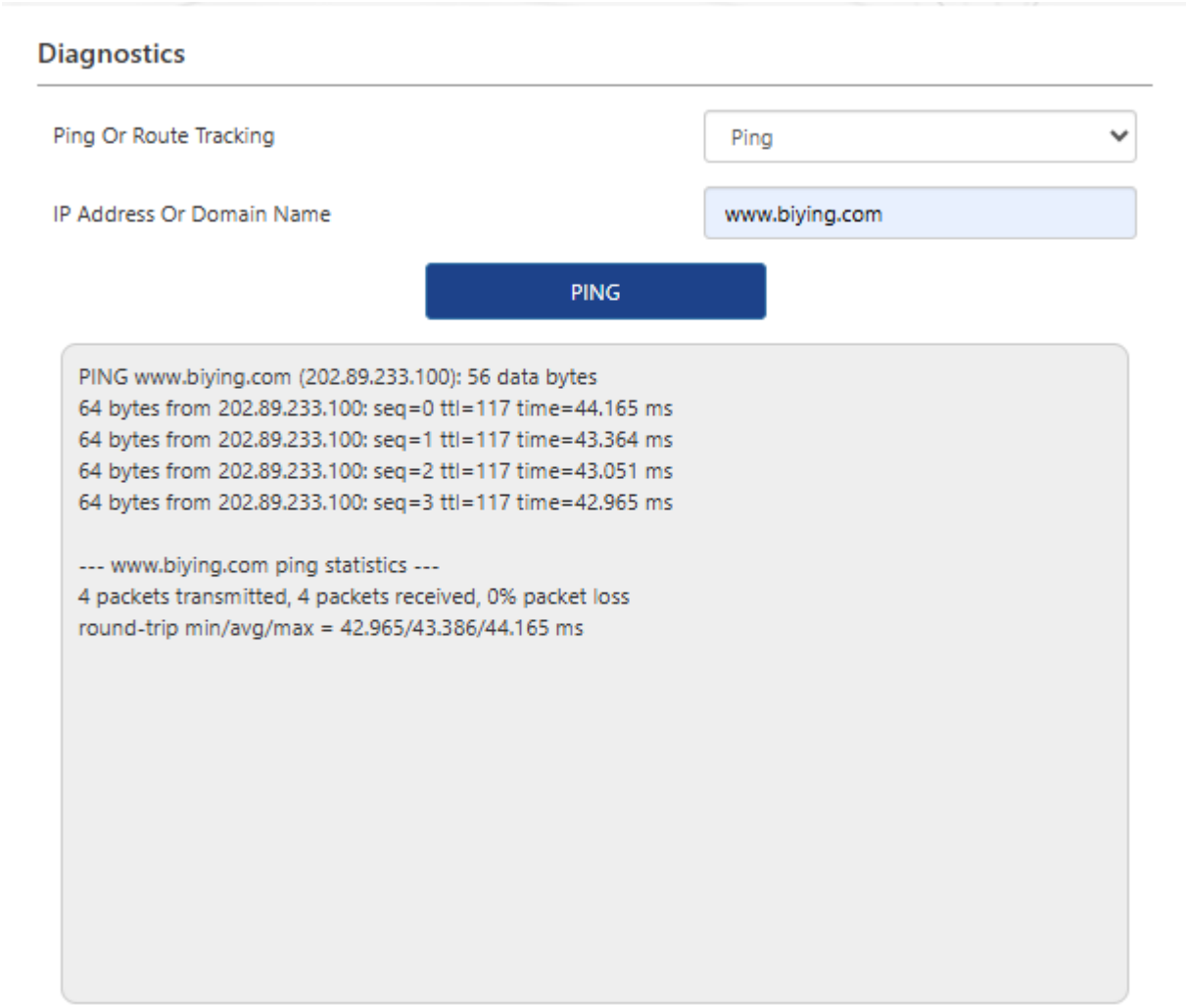


1. Access to **More**>**NET Tools**>**Network Check**.
2. Click on **START DETECTION**.



3. Click on "**ONE-CLICK REPAIR**" or manually optimize your network with prompts.

Diagnostics



1. Access to **More**>**NET Tools**>**Diagnostics**.
2. In the dropdown list **Ping Or Route Tracking**, choose **Ping** or **Tracert**.

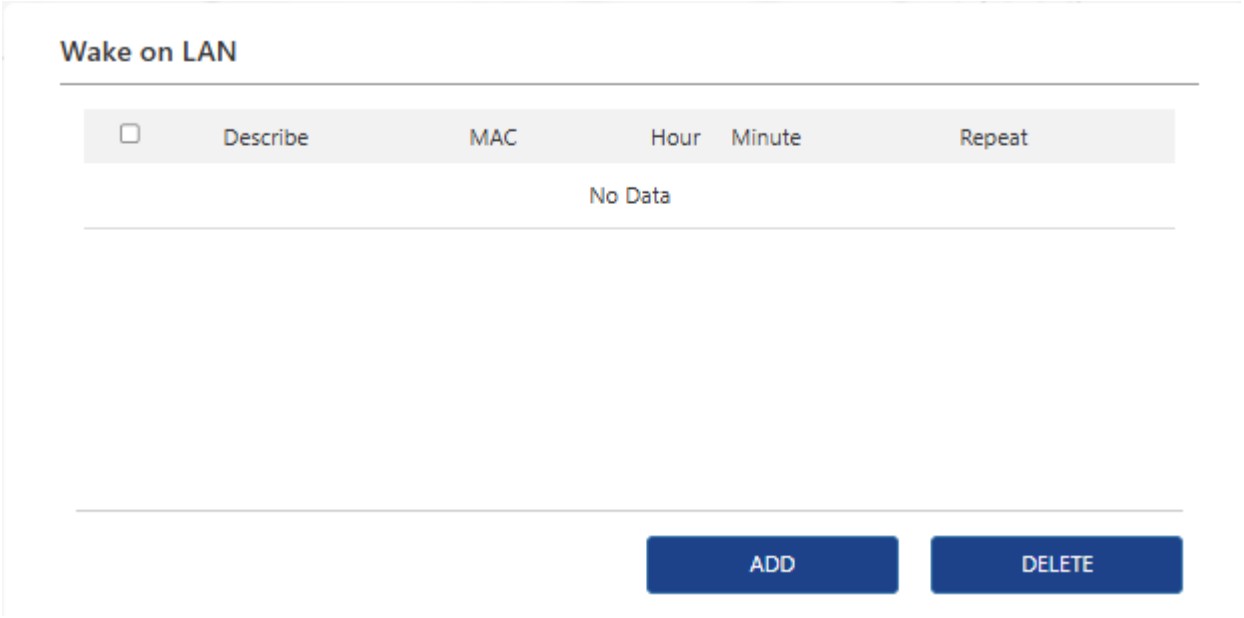
- **Ping** : used for checking the connection between the router and the target device whether normal or not.
- **Tracert** : used for checking the node information between the router and the target device.

3. Input the **IP Address Or Dormain Name** that you want to test.
4. Click on **PING** or **TRACETOUTE** button for testing.

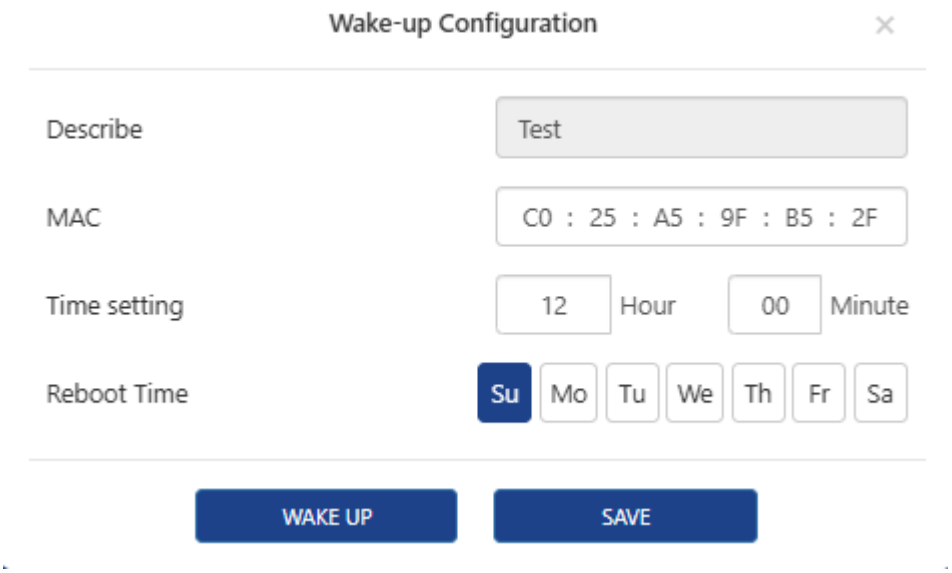
Wake-On-LAN

Wake-On-LAN (WOL) is a technology where the network interface card (NIC), along with other software and hardware, sends a specific data frame to the NIC that is in standby mode, enabling the computer to start up from a powered-off state.

1 . Access to **More**>**NET Tools**>**Wake-On-LAN**.



2 . Click on **Add** to start Wake-On-LAN setting.



3 . Add the **Discribe** of the configuration.

4 . Input the **Mac Address** of the device that you want to remotely wake up.

5 . Set **Time setting** and **Reboot Time**.

6 . Click on **SAVE**, complete the configuration.

Chapter 11 System Setting

This chapter introduces firmware update, password change, system log, system time setting, indicator setting, backup and restore, and how to restart router.

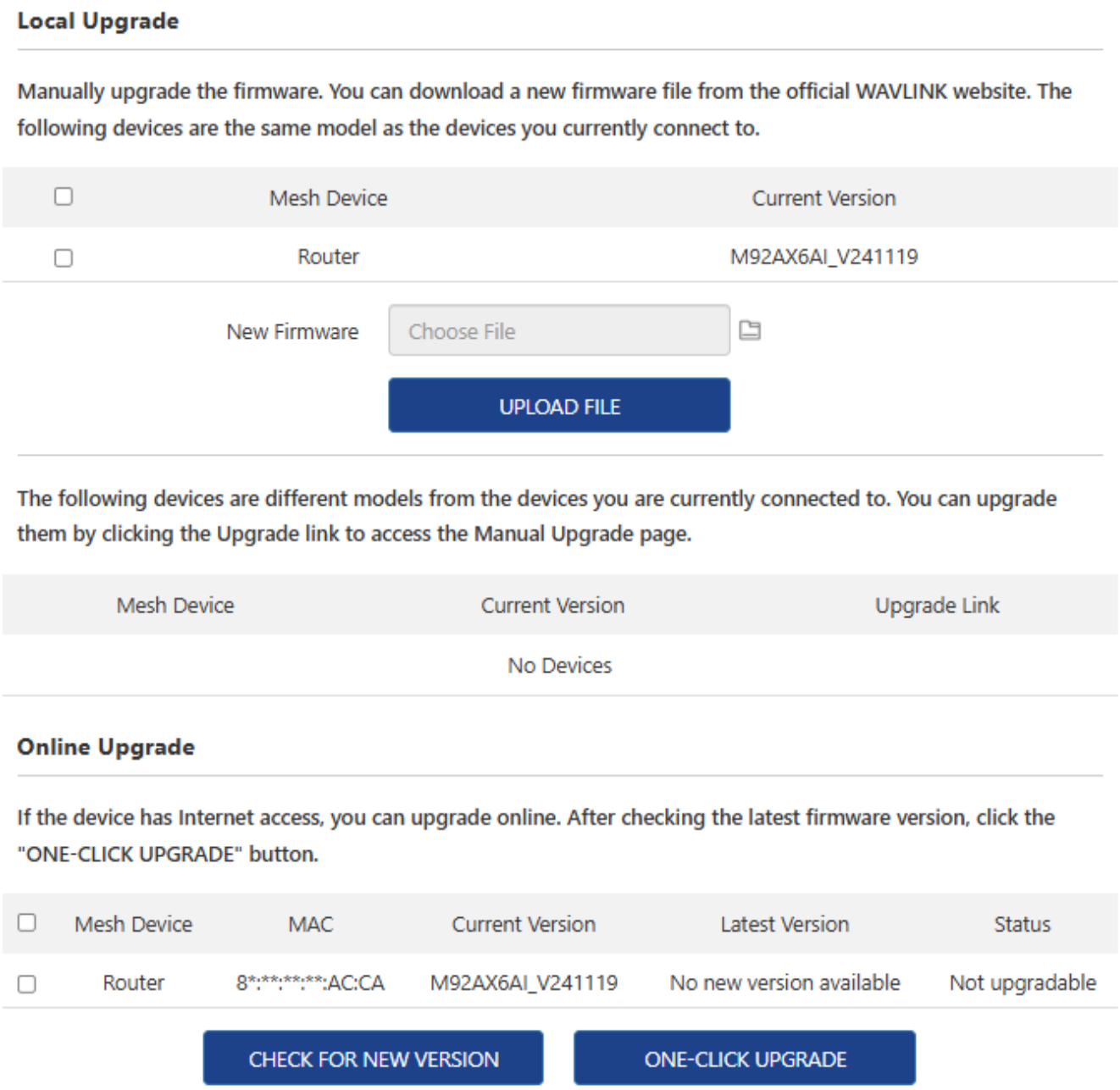
It contains the following sections:

Firmware Upgrade

Regular firmware upgrade can obtain the newest functions and security patches, improving the performance and stability of the router, and fixing possible bugs and security risks.

WAVLINK provides two ways to upgrade your firmware: local upgrade and online upgrade. You can choose one of them to update your firmware.

Access to **More**>**System**>**Firmware Upgrade**.



Local Upgrade

1. Access to WAVLINK official website: **www.wavlink.com**. Download the corresponding upgraded software of the current hardware version.
2. Select the device that needs to be updated.
3. Click on **Choose File** or **File** icon, and select the firmware file that needs to be uploaded. Click on **UPLOAD FILE**.
4. Wait for the completion of updating.

NOTE:

- After updating, the router will automatically reboot to apply new firmware. The process will take few minutes to complete, please wait patiently.
- During updating, the router can't be powered off in case the router's firmware gets damaged.

Online Upgrade:

1. Choose the device that needs to be updated.
2. Click on **CHECK FOR NEW VERSION** to view the upgradable version to update. Or directly use **ONE-CLICK UPGRADE**.
3. Wait for the update completion.

NOTE:

- After updating, the router will automatically reboot to apply new firmware. The process will take few minutes to complete, please wait patiently.
- During updating, the router can't be powered off in case the firmware gets damaged.
- When CHECK FOR NEW VERSION, if the prompts show that the firmware is the newest version, there is no need to upgrade the router.

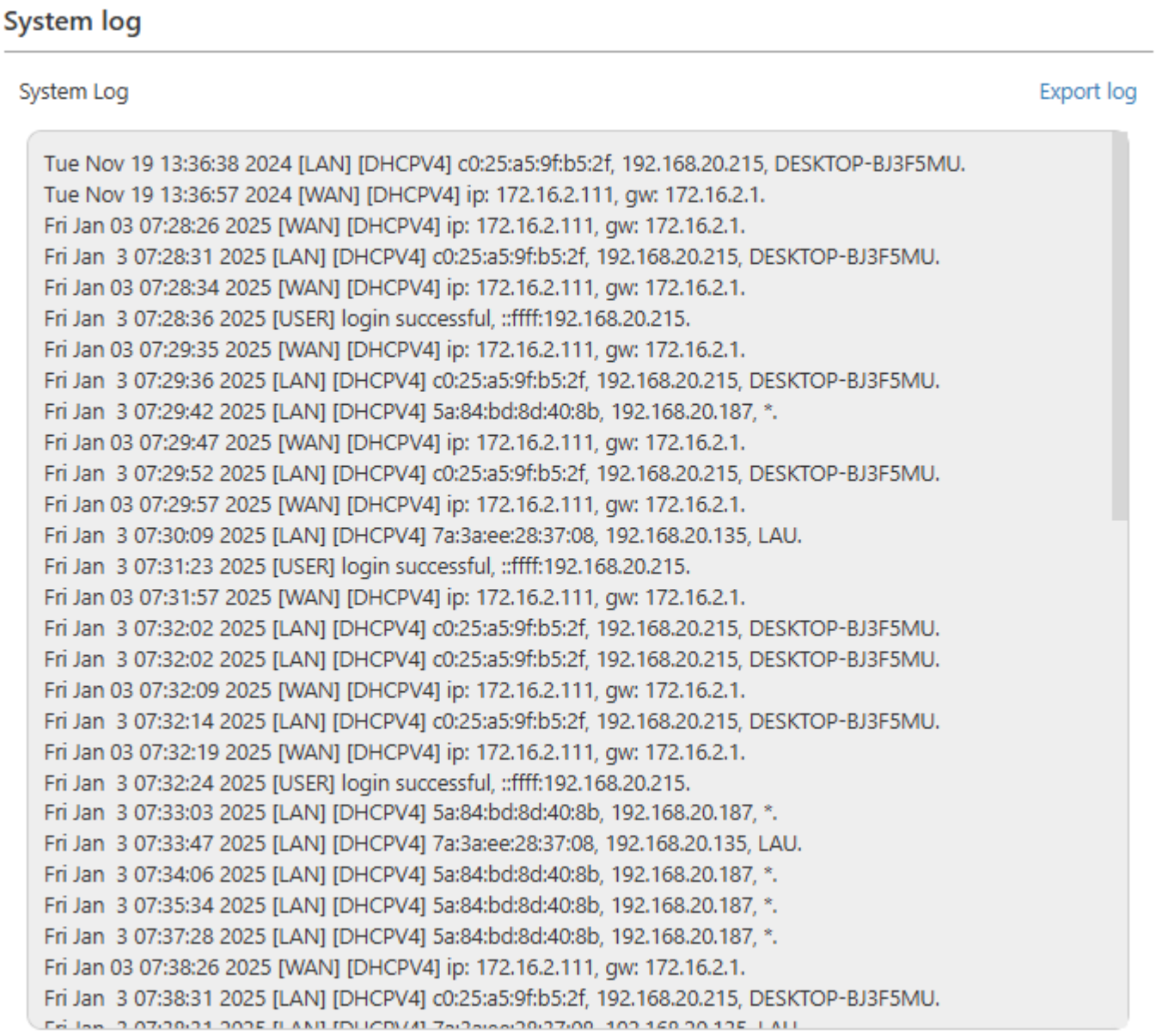
Change Password

1. Access to **More**>**System**>**Change Password**.
2. Input the current one on the **Old Password** text field.
3. Input the new one on the **New Passowrd** text field.

4. Input the new one on the **Confirm New Password** text field, ensuring the inputed password is the same as the new password.
5. Click on **SAVE** to complete password changing.

System Log

When it comes to malfunction, reserve the system log and send it to technical support for trouble shooting.



1. Access to **More**>**System**>**System Log**.
2. Click on **Export log** to save the log to the computer.

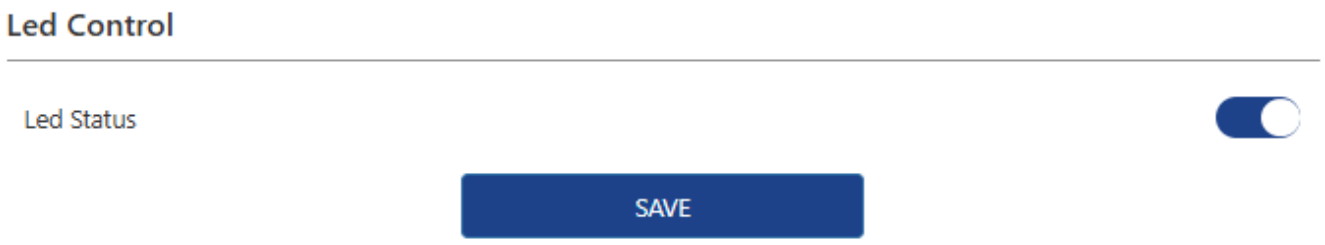
Time Zone

The system time is the time displayed when the router is running. The system time you set here is used for other time-based features, like Parental Control.

1. Access to **More**>**System**>**Time Zone**.
2. Choose the right time zone in the dropdwon list of **Time Zone**.
3. Turn on/off **Daylight Saving Time(DST)**.
4. Click on **SAVE** to complete the configuration.

Led Control

The router's indicators are used for indicating the device's status or running. By setting the indicator, you can know the device's working status more clearly, find and ban machine problems in time.

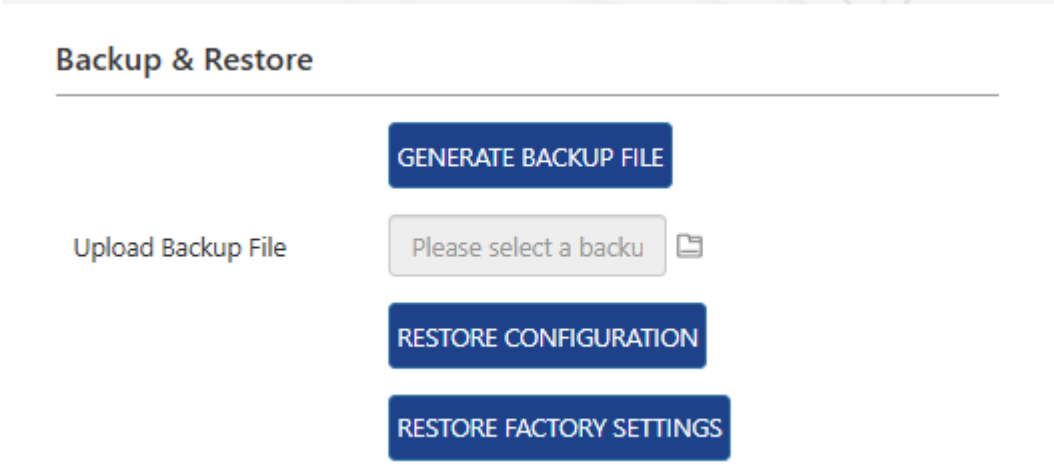


1. Access to **More**>**System**>**Led Control**.
2. Turn on/off **LED Status**.
3. Click on **SAVE** to complete the configuration.

Backup & Restore

Please configure settings as a configuration file stored in the router. You can backup this configuration file into your computer for future use, and restore the router to the previous setting with this backup file. Furthermore, if necessary, you can delete the current system setting and reset the router to the default factory settings.

Access to **More**>**System**>**Backup & Restore**.



Backup the current configuration of the router

Click on **GENERATE BACKUP FILE** to store the copy of current setting on the local computer, and name the file **backupsettings**.

Restore the router's configuration:

1. Click on **UPLOAD**, and choose the backup configuration file that was stored on the computer.
2. Click on **RESTORE CONFIGURATION**, and wait a few minutes to restore the configuration and restart the router.

Reset the router to the default factory settings

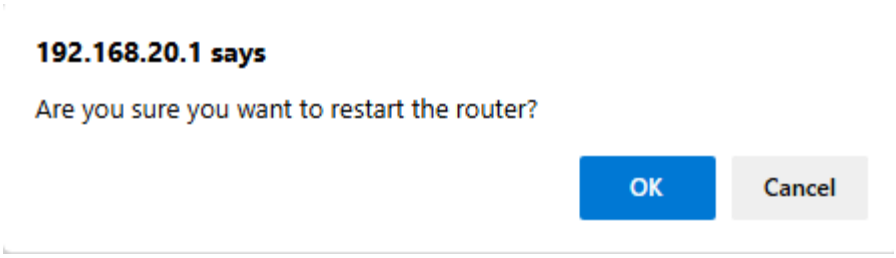
1. Click on **RESTORE FACTORY SETTINGS** to reset the router.
2. Wait a few minutes for the reset and reboot.

Scheduled Reboot

When your router has a network malfunction, you can try to use the reboot function to solve the problem. Sometimes, the router may experience software errors or memory overflow issues, leading to network instability. Under these circumstances, you can reboot the router to solve this problem and get the network back up.

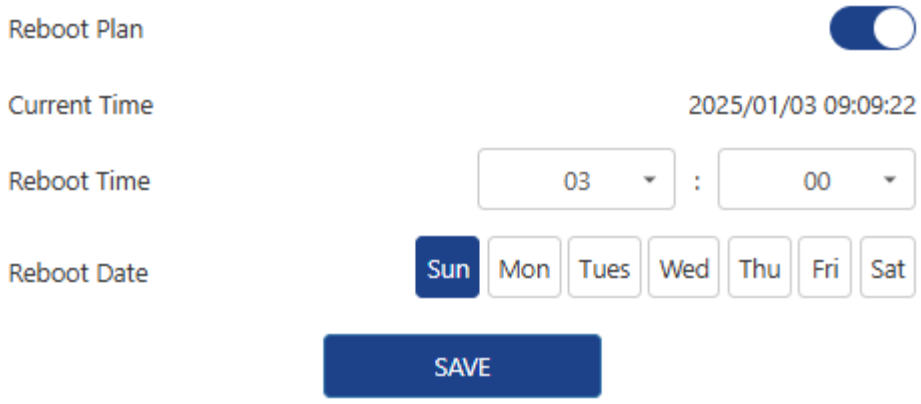
After modifying some settings of this router, you need to reboot the router to make the settings valid. Using the reboot function can quickly update the router's settings and make it valid.

1. Access to **More**>**System**>**Scheduled Reboot**.
2. Click on **ROUTER REBOOT**.



3. After clicking, a window will pop up, in which you will be asked whether to restart the router or not. If you want to reboot the router, choose **OK**. If not, choose **Cancel**.

Set Scheduled Reboot Plan



The automatic reboot function can clear unnecessary data in the router and automatically choose the best wireless channel.

Before turning on Reboot Plan, please ensure the system time is right. If the router's designated reboot time is less than 60 minutes, some unnecessary reboots won't be executed.

1.Access to **More**>**System**>**Scheduled Reboot**.

2.Turn on **Reboot Plan**.

3.Choose the router's **Reboot Time**, and the **Reboot Date** to decide on reboot frequency.

4.Click on **SAVE** to complete the configuration.

Chapter 12 Logoff

Logoff

If you need to log out, please access to **More** on the management page, then click on **Logout**.