Tenda



AC2100 Dual Band Gigabit WiFi Router

User Guide

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Preface

Thank you for choosing Tenda! Please read this user guide before you start.

Conventions

This user guide is applicable to the following routers. AC23 is used for illustration in this guide unless it is specified. The contained images and UI screenshots are subject to the actual products.

Product model	Description
AC23	AC2100 Dual Band Gigabit WiFi Router
AC21	AC2100 Dual Band Gigabit WiFi Router
AC19	AC2100 Dual Band Gigabit WiFi Router

Typographical conventions in this User Guide:

Item	Presentation	Example
Cascading Menus	>	Click **Status** > **Device Status**
Parameter and value	Bold	Set **User Name** to **Tom**.
UI control	Bold	On the **Policy** page, click the **OK** button.
Variable	Italic	Format: *XX:XX:XX:XX:XX:XX*
Message	“ ”	The “Success” message appears.

Symbols in this User Guide:

Item	Meaning
NOTE	This format is used to highlight information of importance or special interest. Ignoring this type of note may result in ineffective configurations, loss of data or damage to device.
TIP	This format is used to highlight a procedure that will save time or resources.

Technical Support

If you need more help, contact us by any of the following means. We will be glad to assist you as soon as possible.

 **Hotline**	Global: (86) 755-27657180 (China Time Zone) United States: 1-800-570-5892 (Toll Free: 7 x 24 hours) Canada: 1-888-998-8966 (Toll Free: Mon - Fri 9 am - 6 pm PST) Hong Kong: 00852-81931998	 **Email**	support@tenda.cn

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1 Get to know your device

1.1 Introduction

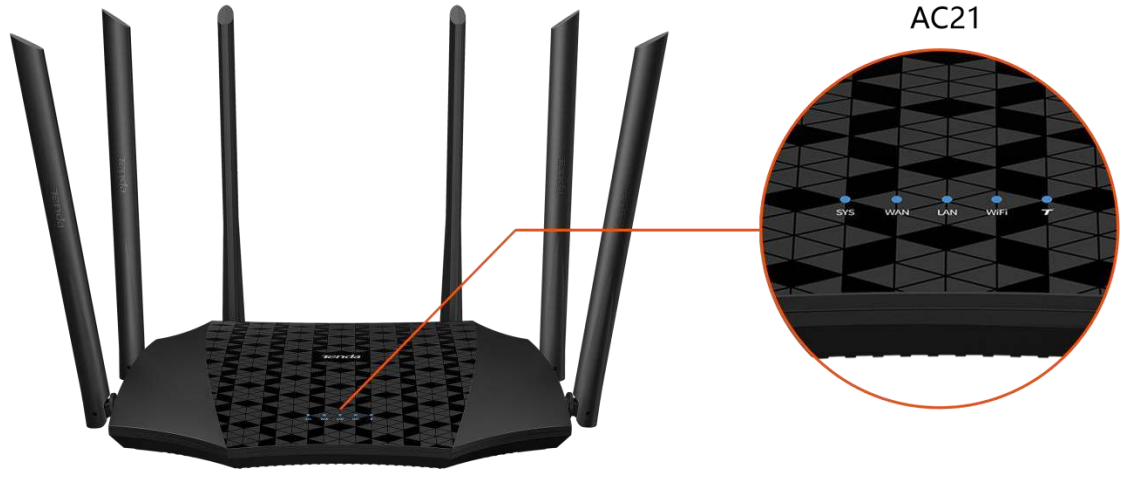
The AC2100 dual band gigabit WiFi router works at both 2.4 GHz and 5 GHz and supports the 802.11ac wave2 technology, realizing the dual-band concurrent wireless rate of 2033 Mbps. It supports PPPoE user name and password migration for instance internet access, and IPv6 for smoother internet experience without network address translation (NAT).

TIP

The wireless rate is illustrated with AC23 as the example. Please refer to package for the actual wireless rate for each model.

1.2 LED indicator

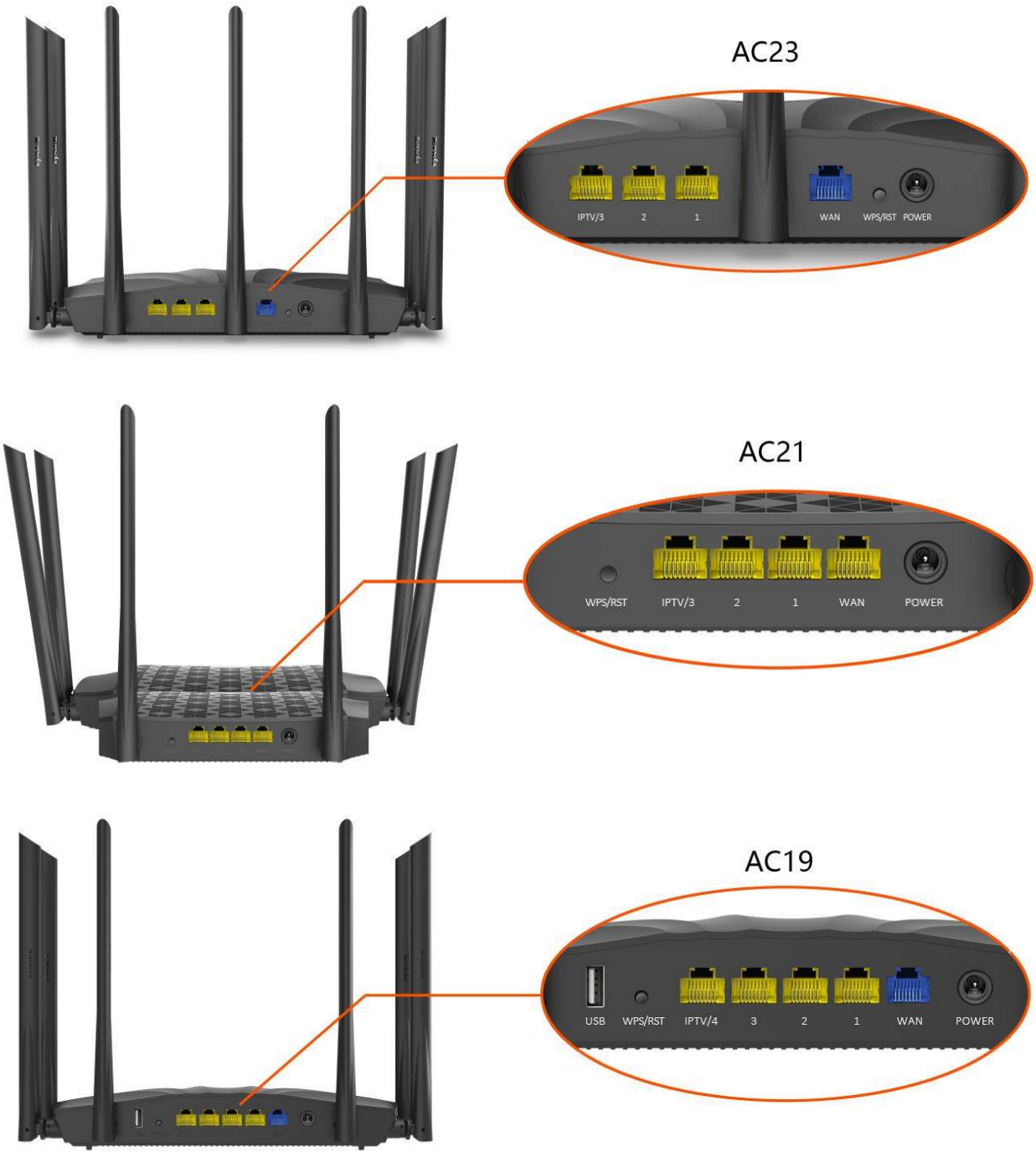






LED indicator	Status	Description
SYS	Solid on	• The router is starting. • If the indicator still lights solid on after the router completes startup, it indicates that the router is connected to the internet successfully.
	Blinking	The router works properly.
	Off	The system is faulty.
WAN	Solid on	The WAN port is connected properly, but no data is being transmitted.
	Blinking	Data is being transmitted over the WAN port.
	Off	The WAN port is disconnected or improperly connected.
LAN	Solid on	At least one LAN port is connected properly.
	Blinking	A new wired device is connected to the router.
	Off	No device is connected to any LAN port of the router properly.
WiFi	Solid on	At least the 2.4 GHz or 5 GHz WiFi network is enabled.
	Fast blinking	Data is being transmitted wirelessly.
	Slow blinking	The router is performing WPS negotiation.
	Off	Both 2.4 GHz and 5 GHz WiFi networks are disabled.
T	This LED is reserved.	

1.3 Ports and buttons

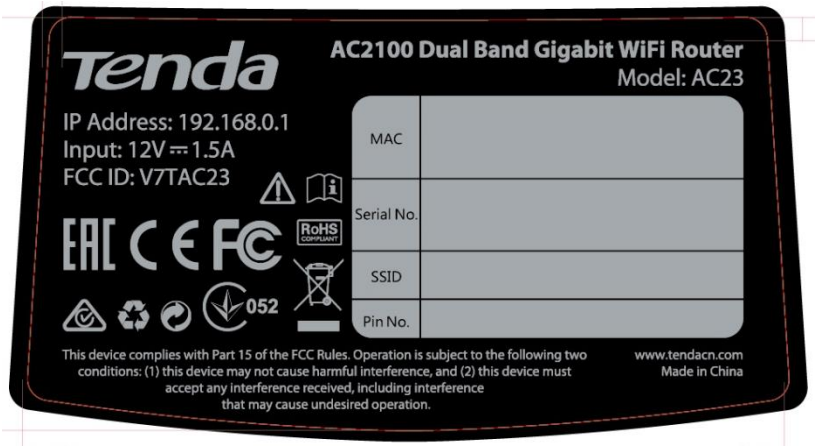


Port/Button	Description
POWER	Power jack. It is used to connect to the included power adapter.
WPS/RST	It is used to start the WPS negotiation process, or to reset the router. • **WPS**: Press the button of the router for 1 to 3 seconds. Within 2 minutes, enable the WPS function of the other WPS-supported device to establish a WPS connection. • **Reset**: Hold down the button for about 8 seconds. Release it when all the LED

Port/Button	Description
	indicators blink once. The router is reset successfully.
WAN	It is gigabit auto-negotiation Ethernet port, used to connect this router to the internet, such as a LAN port from the modem or the Ethernet jack provided by your ISP.
1/2 (AC21 & AC23) 1/2/3 (AC19)	They are gigabit auto-negotiation LAN ports, used to connect to the wired devices such as computers or switches.
IPTV/3 (AC21 & AC23) IPTV/4 (AC19)	It is a gigabit auto-negotiation Ethernet port. By default, it is a LAN port. If the IPTV function of the router is enabled, it serves only as an IPTV port used to connect to a set-top box.
USB (AC19)	It is USB 2.0 port, used to connect to USB device.

1.4 Label

The bottom label shows the login IP address, MAC address of the router, serial number, SSID and Pin No. See the following figure. Here AC23 is used for illustration.



IP Address: It specifies the default address used to log in to the web UI of the router.

MAC: It specifies the MAC address of the router.

Serial No.: It is required if you need technical assistance to repair your device.

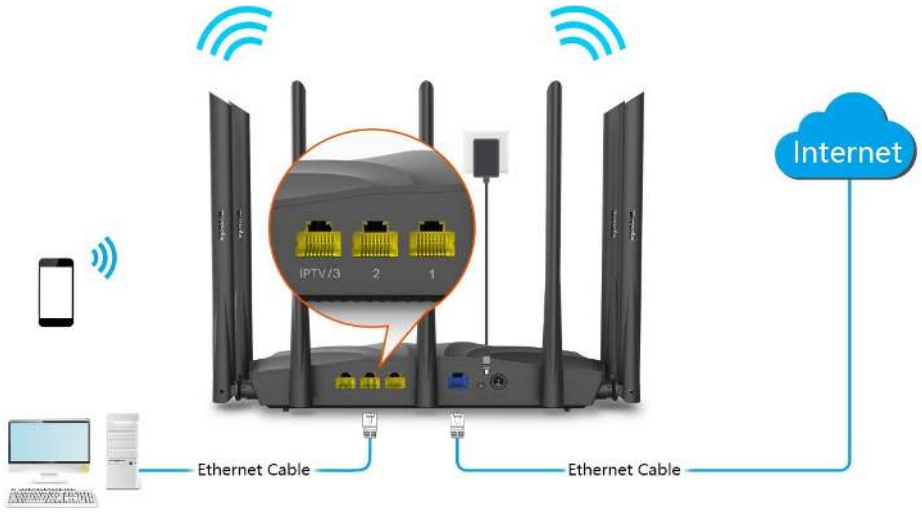
SSID: It specifies the default WiFi name of the router.

Pin No.: It specifies the PIN code of the router.

2 Web UI

2.1 Log in to the web UI

Step 1 Connect your smartphone to the WiFi network, or connect your computer to a LAN port (1, 2 and IPTV/3 for AC23 and AC21, and 1, 2, 3 and IPTV/4 for AC19) of the router (AC23 is used for illustration here).



Step 2 Start a web browser on the device connected to the router and visit **tendawifi.com**.



Step 3 Enter the login password, and click **Login**.



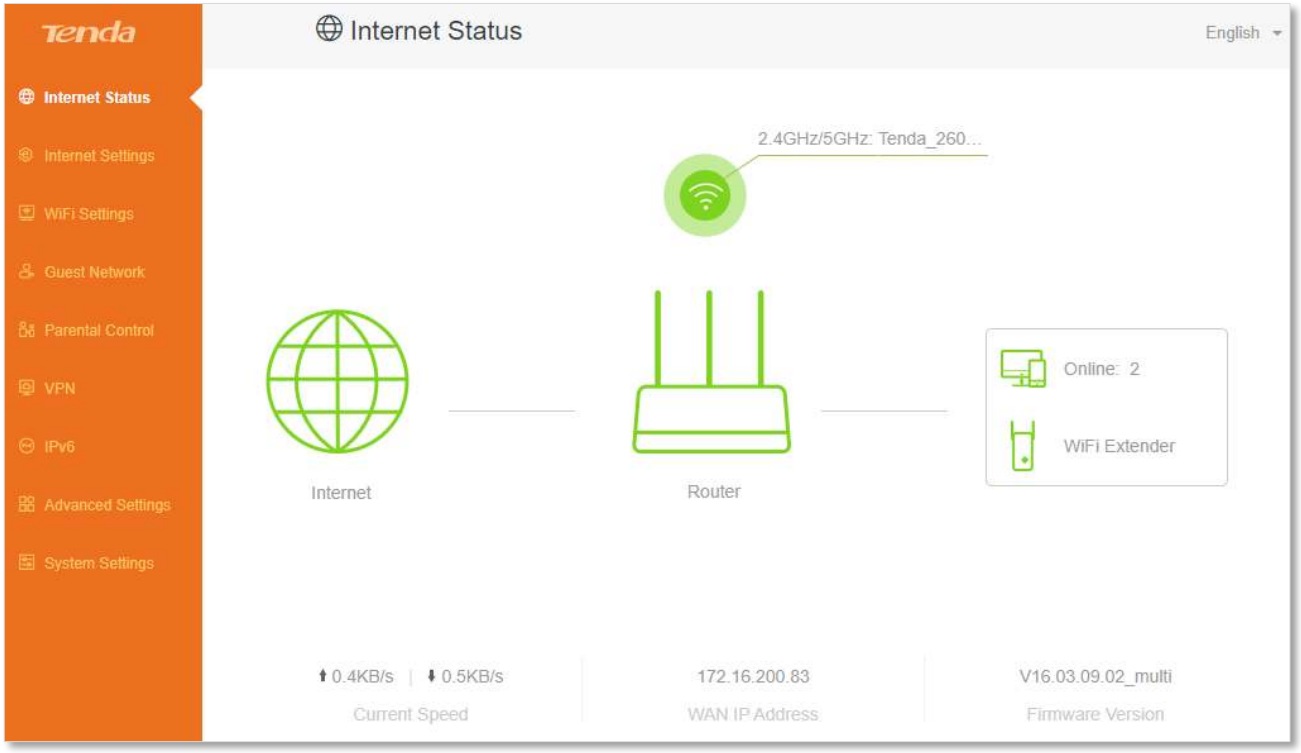
---End

TIP

If the above page does not appear, try the following solutions:

- Ensure that the router is powered on properly.
- Ensure that the computer is connected to a LAN port (1, 2 and IPTV/3 for AC23 and AC21, and 1, 2, 3 and IPTV/4 for AC19) of the router, and Configuring the computer to obtain an IP address automatically.
- Restore the router to factory settings and try again.

The following page appears.

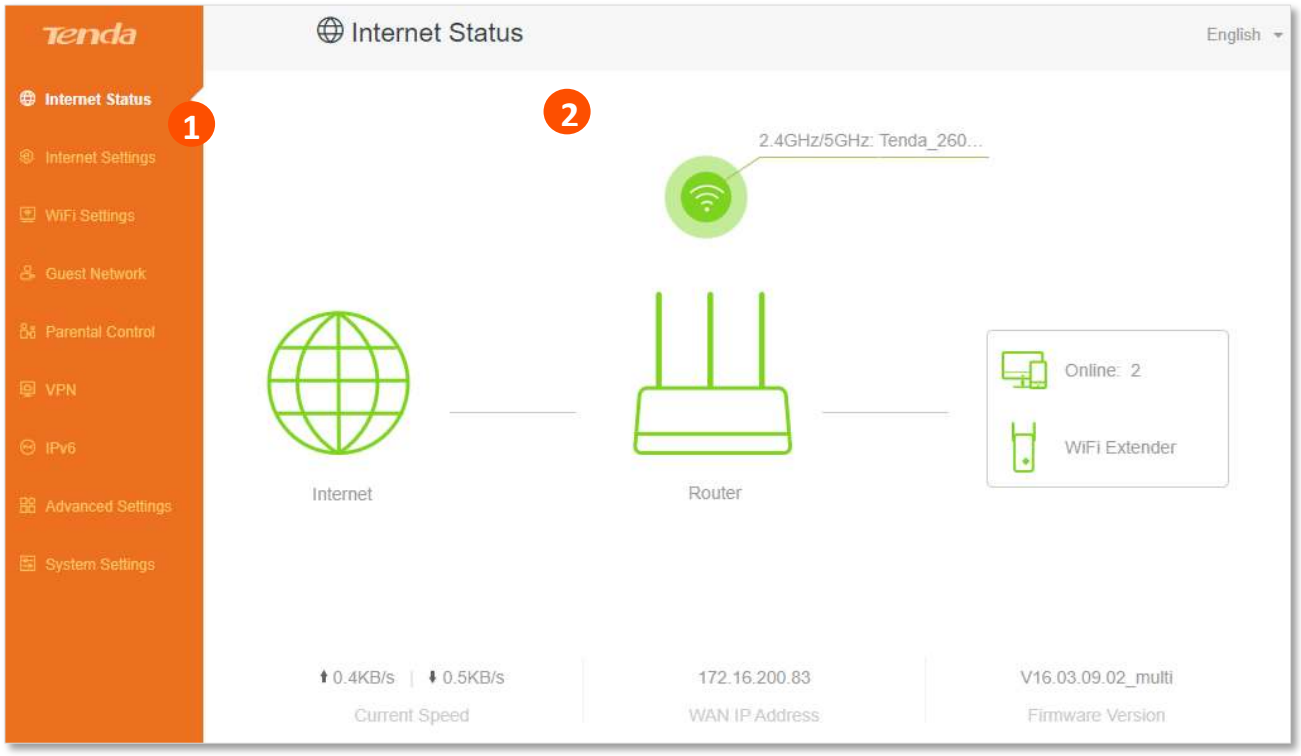


2.2 Log out of the web UI

If you log in to the web UI of the router and perform no operation within 5 minutes, the router logs you out automatically. You can also log out by clicking **Logout** at the top right corner of the web UI.

2.3 Web UI layout

The web UI of the router consists of two sections, including the navigation bar and the configuration area. See the following figure.



SN	Name	Description
1	Navigation bar	It is used to display the function menu of the router. Users can select functions in the navigation bar and the configuration page appears in the configuration area.
2	Configuration area	It is used to modify or view your configurations.

3 Internet status

Log in to the web UI of the router and choose **Internet Status** to enter the page. On this page, you can find the following information.

- Internet status
- Wireless information
- System information
- Online devices information
- USB information

3.1 Internet status

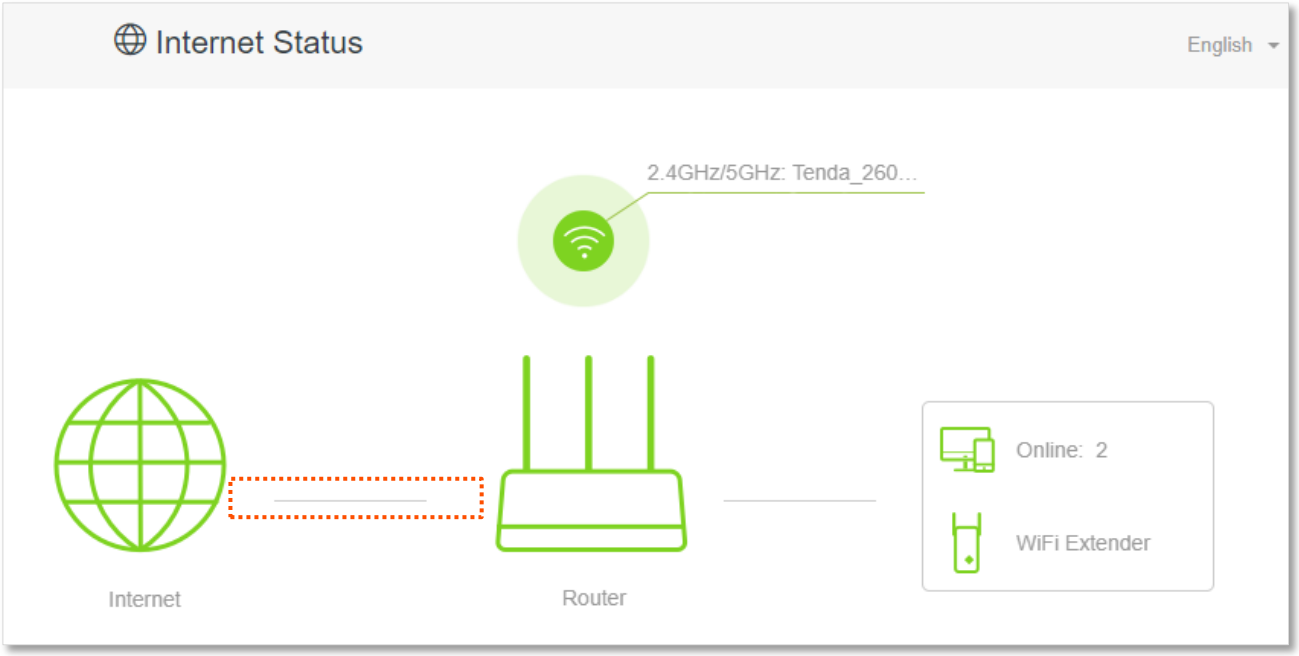
To view internet status:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

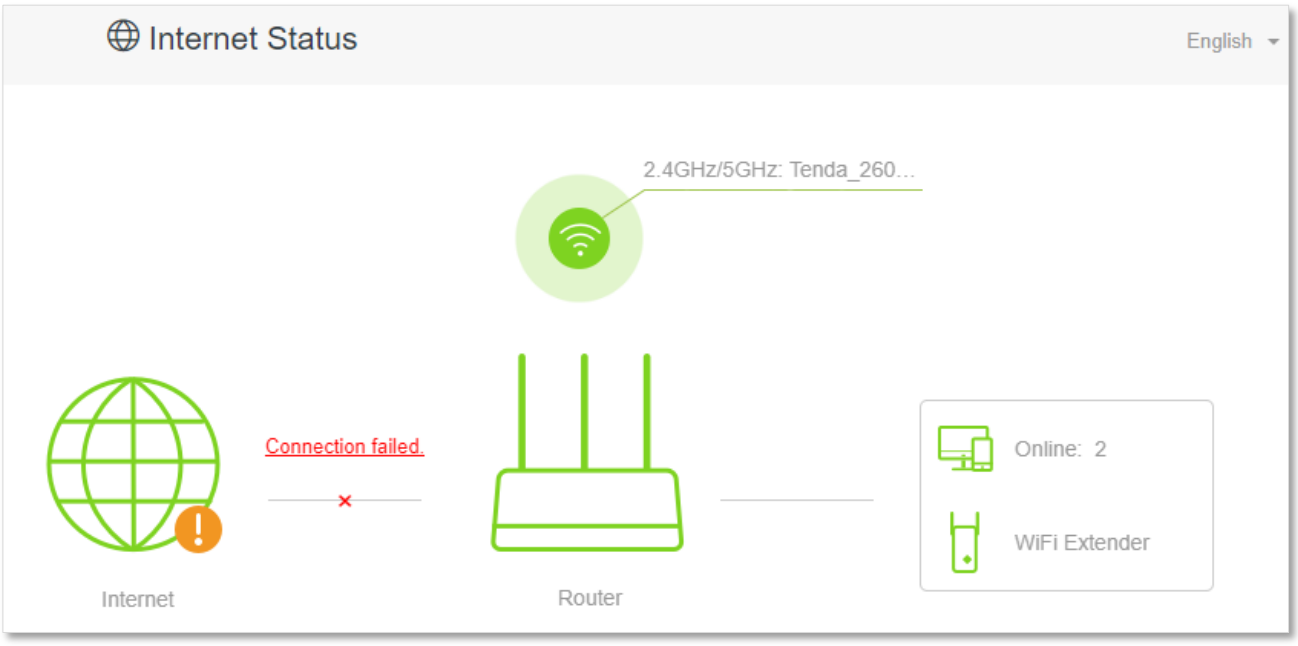
Step 2 Choose **Internet Status**.

---End

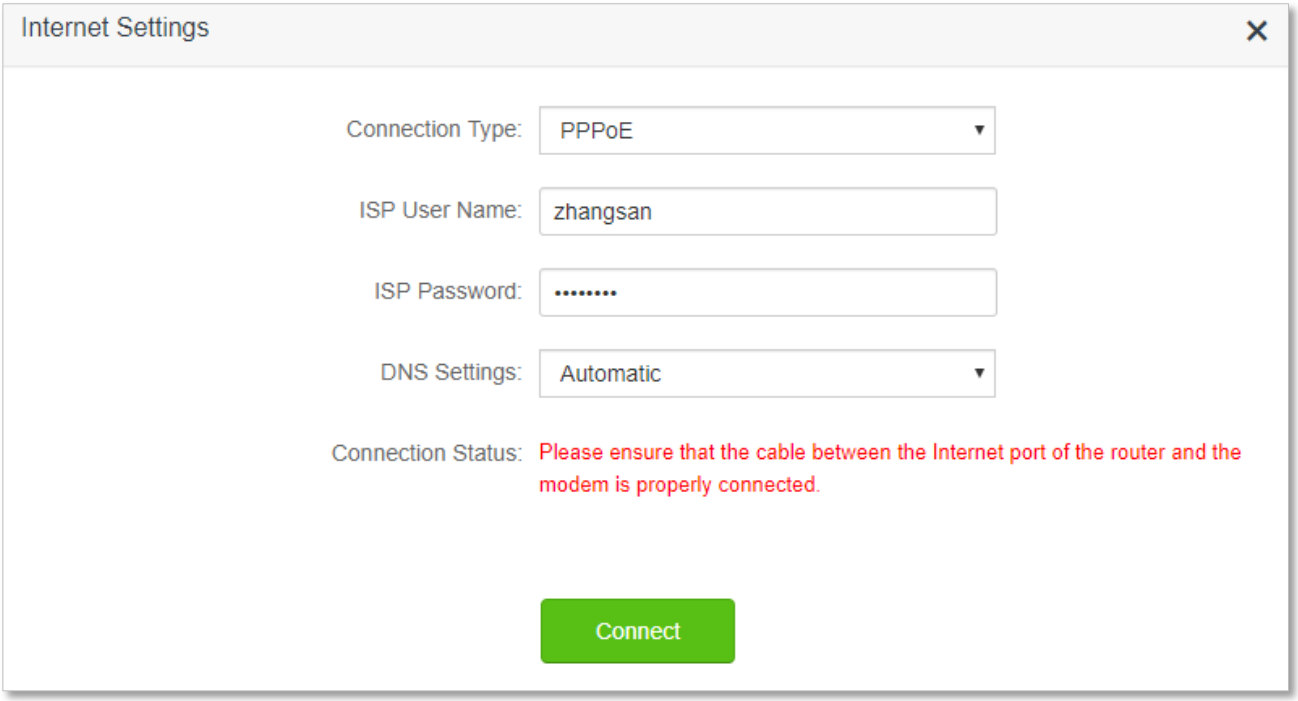
When the link between the Internet and the Router is clear as shown below, the router is connected to the internet successfully and you can access the internet via the router.



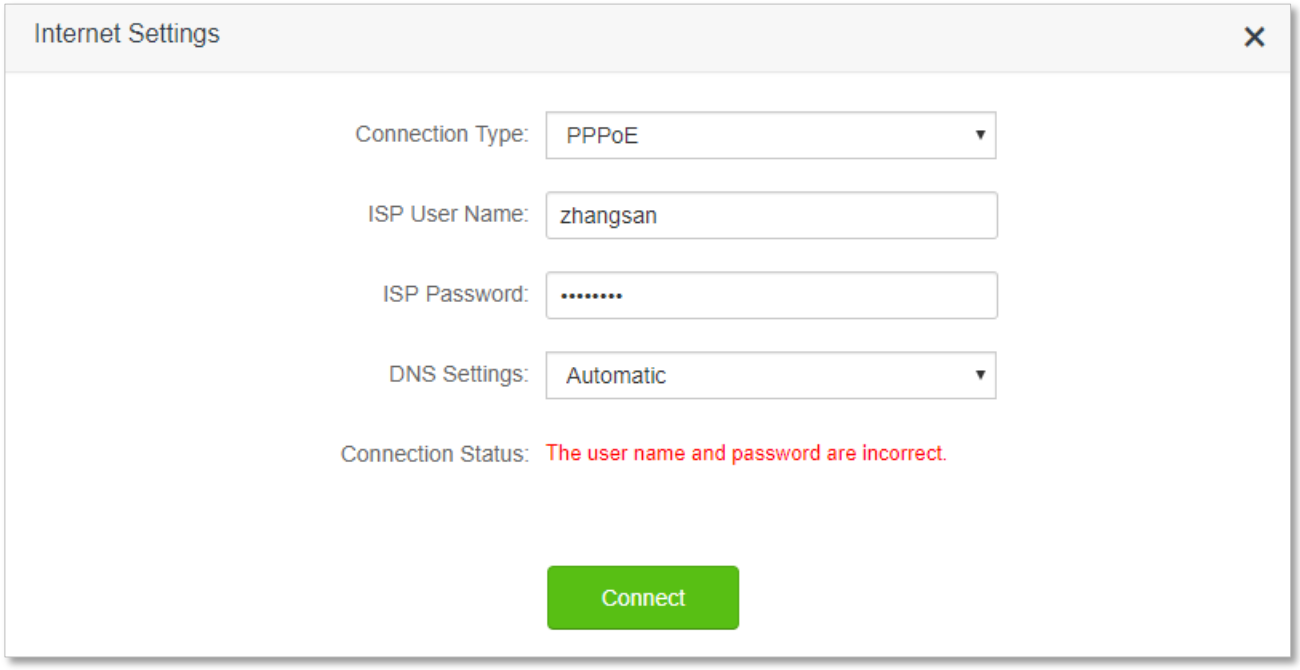
When a red cross and "Connection failed." are shown between the **Internet** and the **Router**, it indicates that the internet connection is abnormal. Please click Connection failed. to navigate to the **Internet Settings** page and follow the instructions to solve the problem.



When "Please ensure that the cable between the Internet port of the router and the modem is properly connected" is shown on the page, ensure that the WAN port of the router and the LAN port of the modem or the Ethernet jack are connected properly. If the problem persists, contact the technical support for help.



When “The user name and password are incorrect.” is shown on the page, it indicates that the user name and password you entered are incorrect. Please re-enter the user name and password.



NOTE

Please consider the following tips when entering the user name and password:

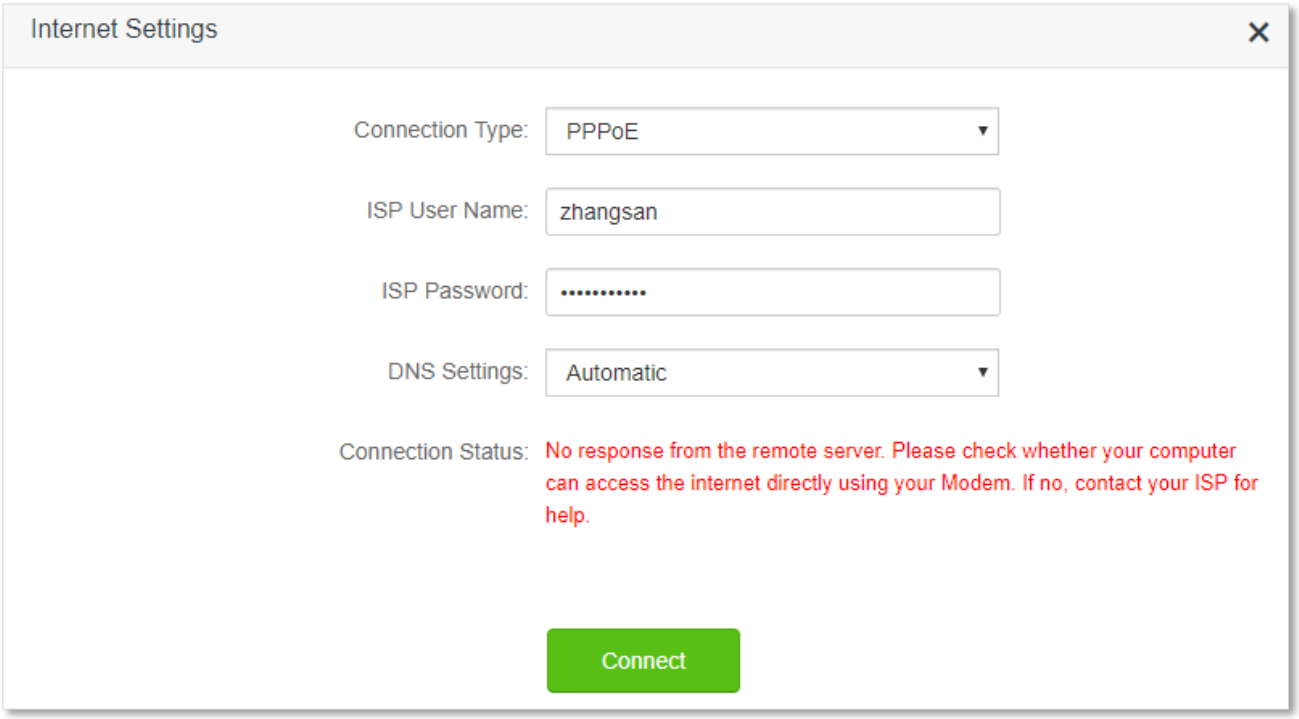
- Pay attention to case sensitivity, such as “Z” and “z”.
- Pay attention to similar letters and numbers, such as “I” and “1”.
- Ensure the completeness of account parameters, such as “0755000513@163.gd”, rather than “0755000513”

If the problem persists, contact your ISP for help.

When “No response from the remote server. Please check whether your computer can access the internet directly using your Modem. If no, contact your ISP for help.” is shown on the page as below, try the following methods:

- Ensure that the Ethernet cable in connected properly.
- Ensure that you choose the proper connection type. Contact your ISP for any doubt about the connection type.
- Power off the router for several minutes, then power it on and try again.

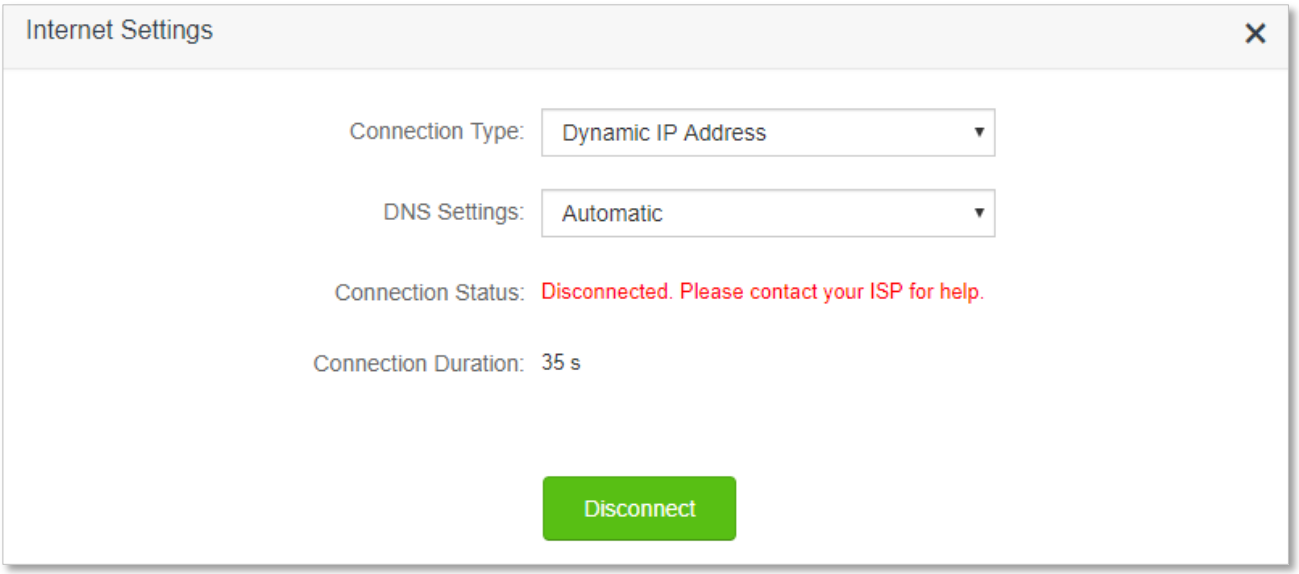
If the problem persists, contact your ISP for help.



When "Disconnected. Please contact your ISP for help." is shown on the page as below, try the following methods:

- Modify the MAC address of WAN port by referring to Change the MAC address of the WAN port.
- Use another device to configure the router again.
- Ensure that your internet service does not expire.

If the problem persists, contact Tenda technical support.



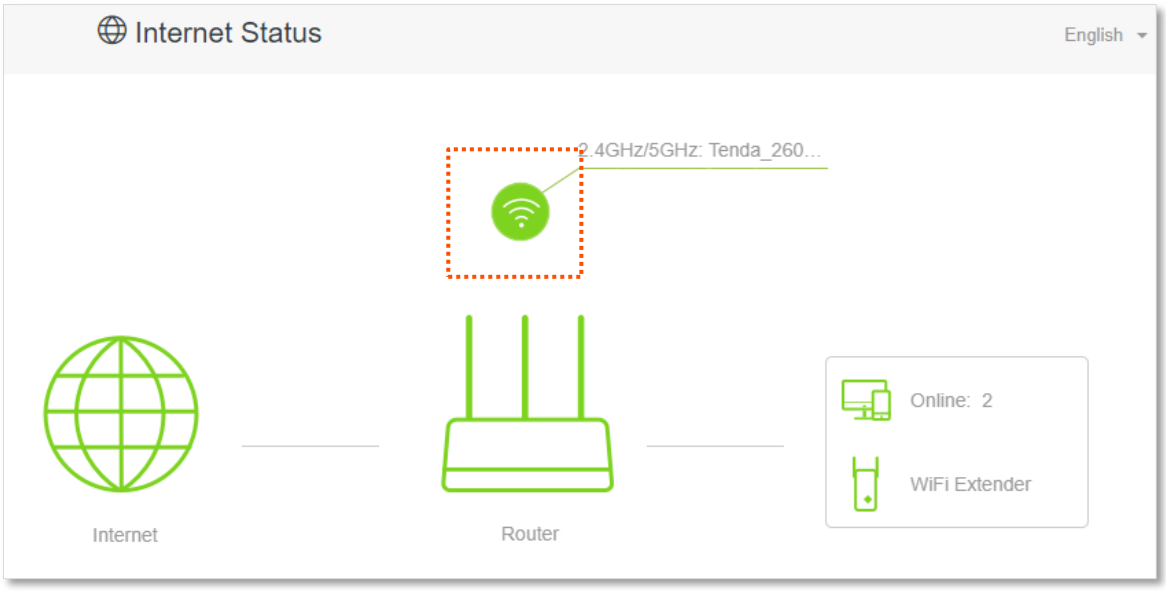
3.2 Wireless information

To view or configure the wireless information:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

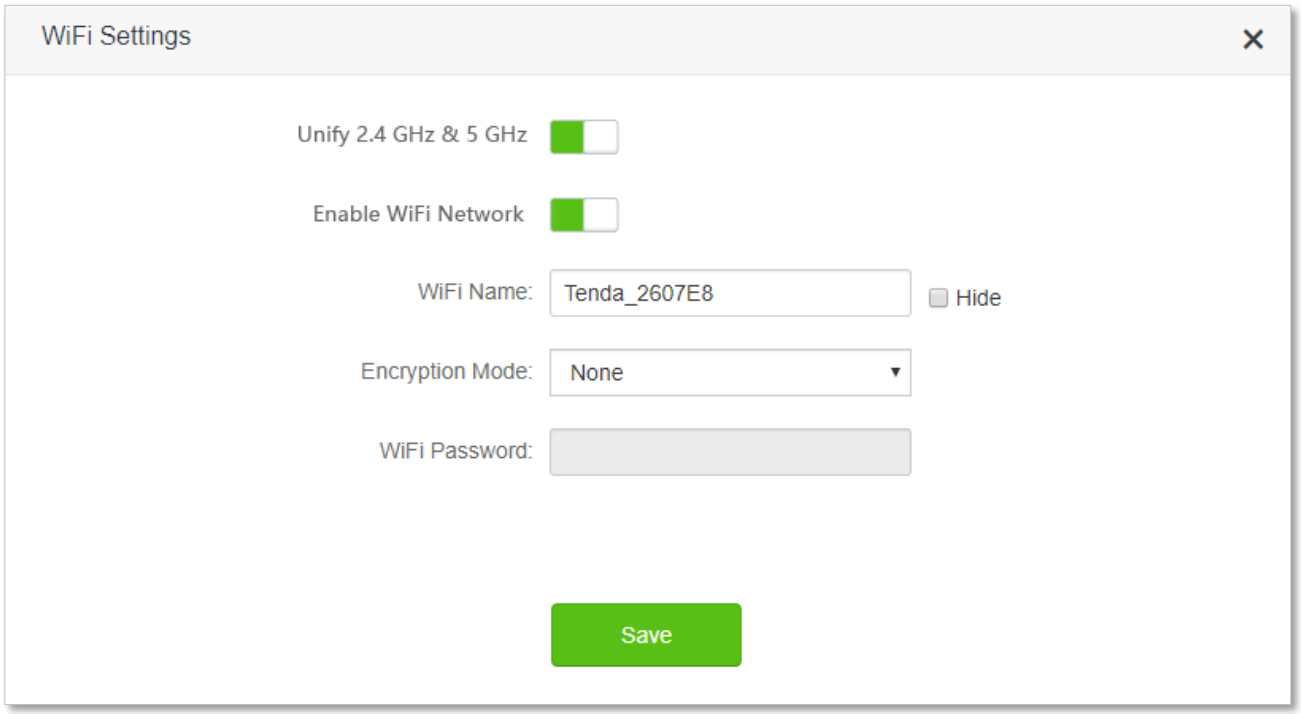
Step 2 Choose **Internet Status**.

Step 3 Click .



---End

You can change wireless parameters as required.



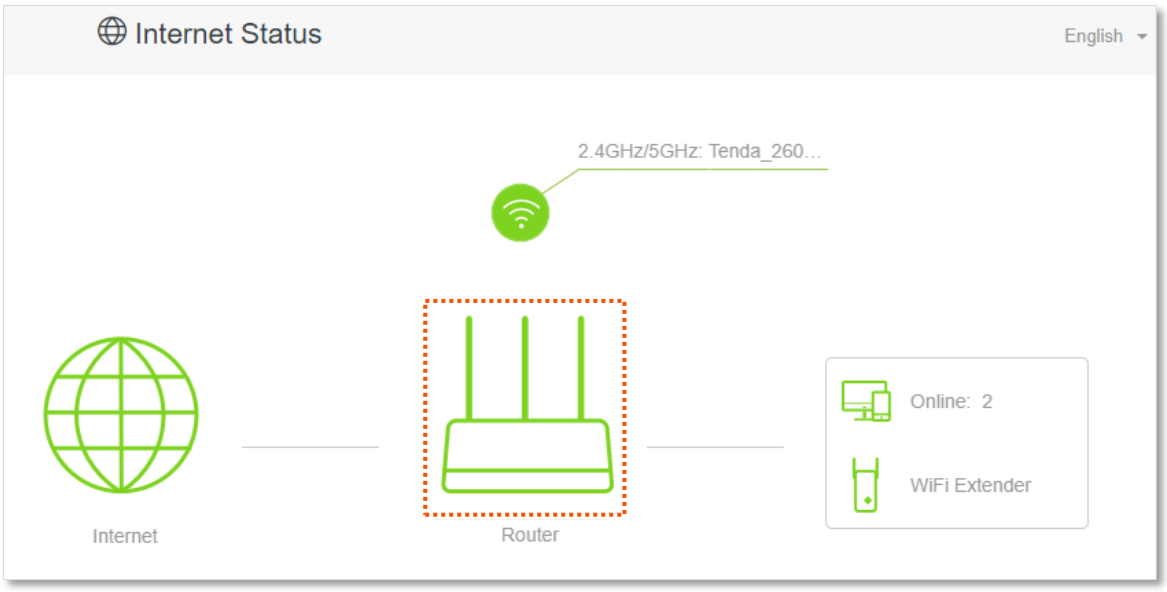
3.3 System information

To view the wireless information:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Internet Status**.

Step 3 Click .



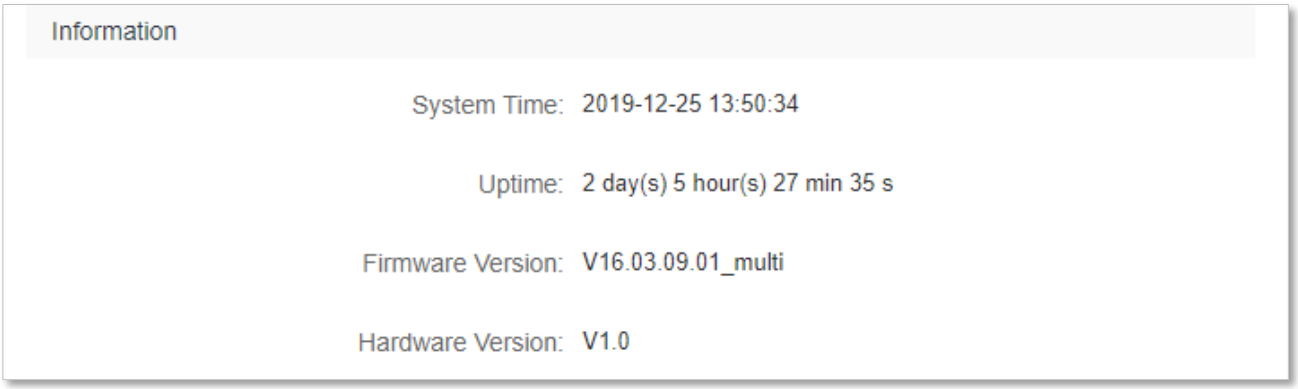
---End

TIP

For detailed description of parameters on this page, refer to System status.

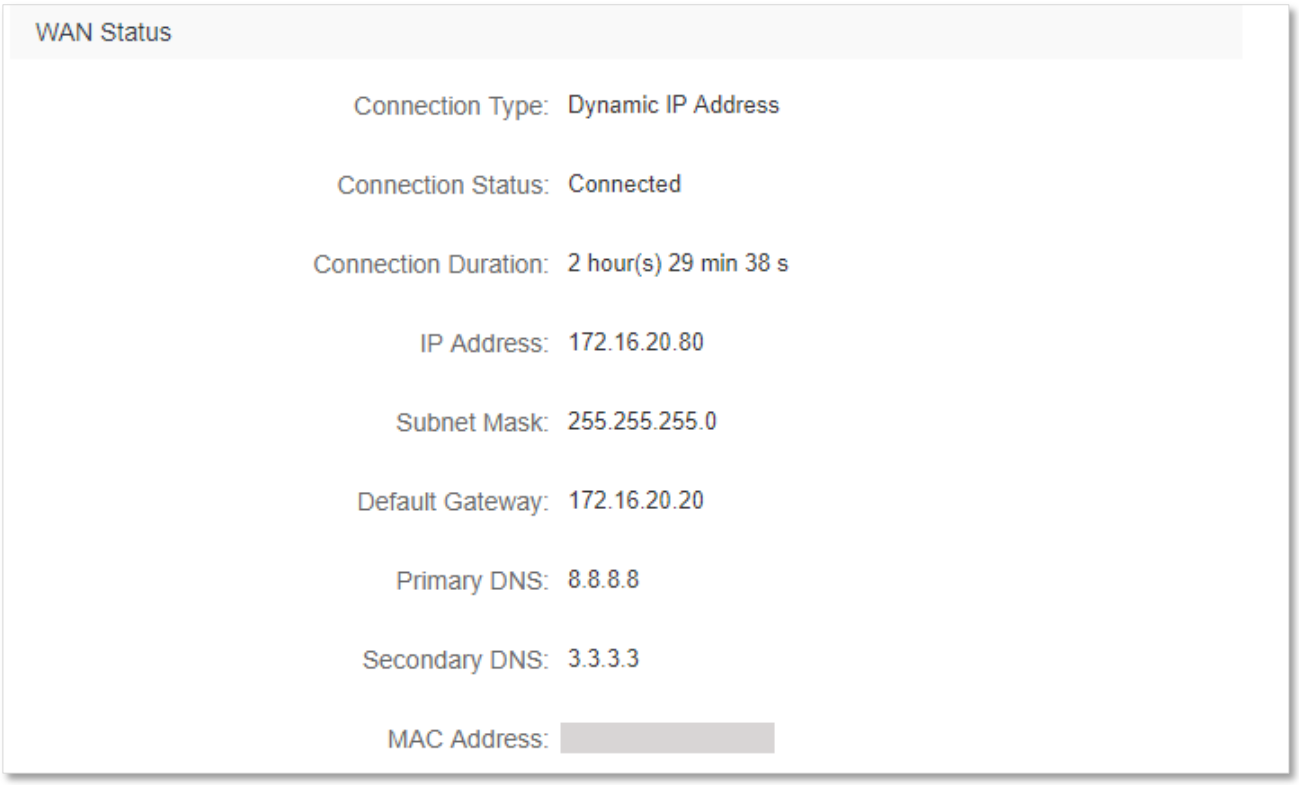
3.3.1 Basic information

In this part, you can view the basic information of the router, such as system time, uptime and firmware version, etc.



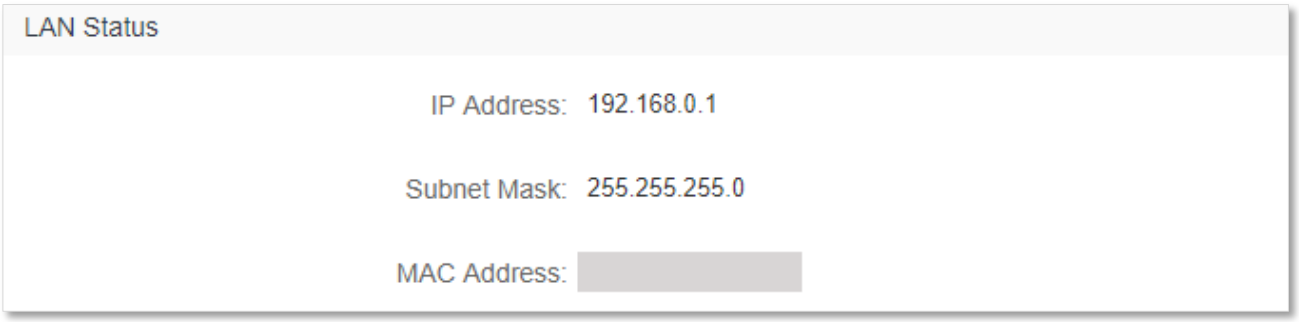
3.3.2 WAN status

In this part, you can view the information of the WAN port, including connection type, connection status and connection duration, etc.



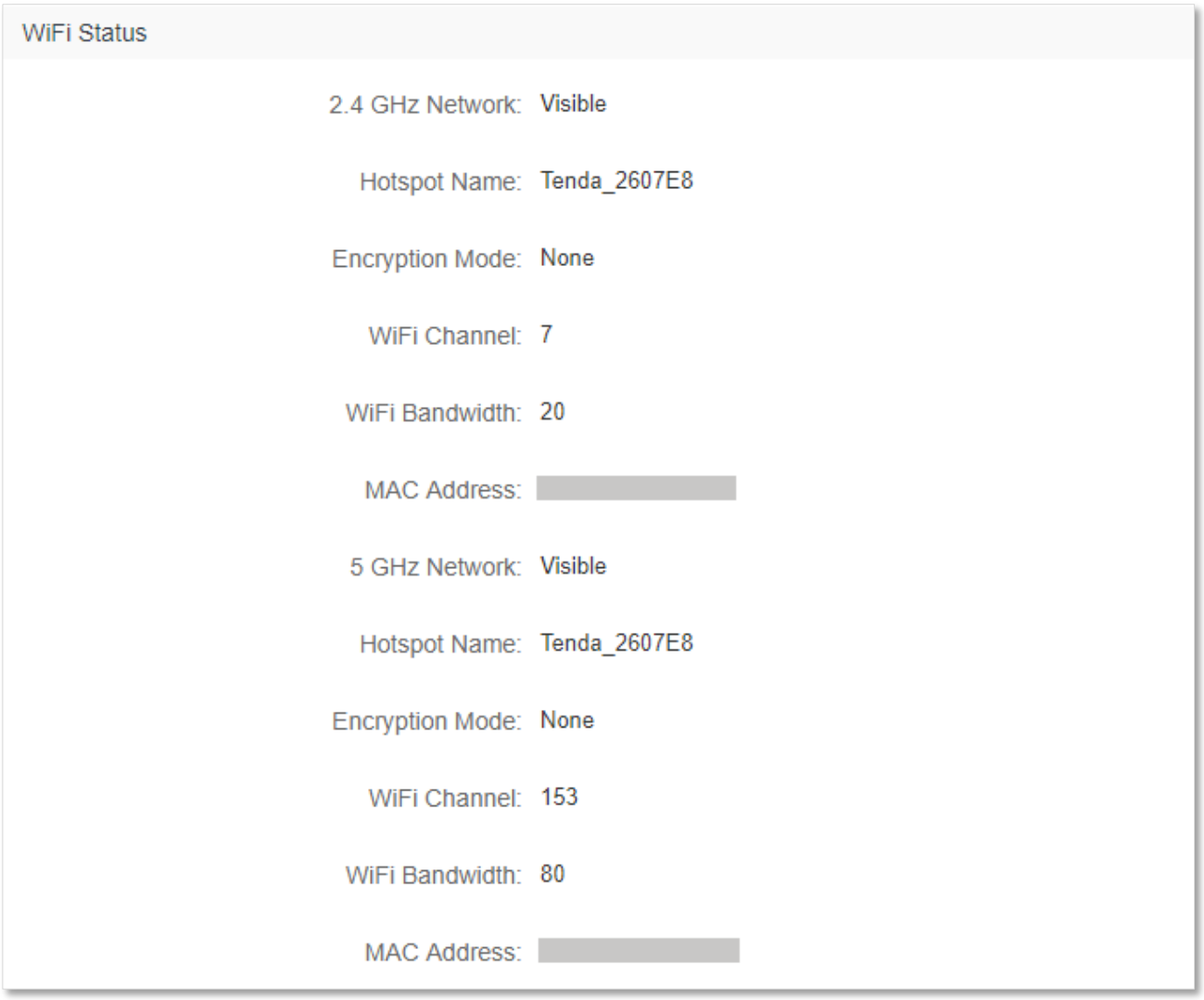
3.3.3 LAN status

In this part, you can view the LAN information such as LAN IPv4 address, subnet mask and MAC address.



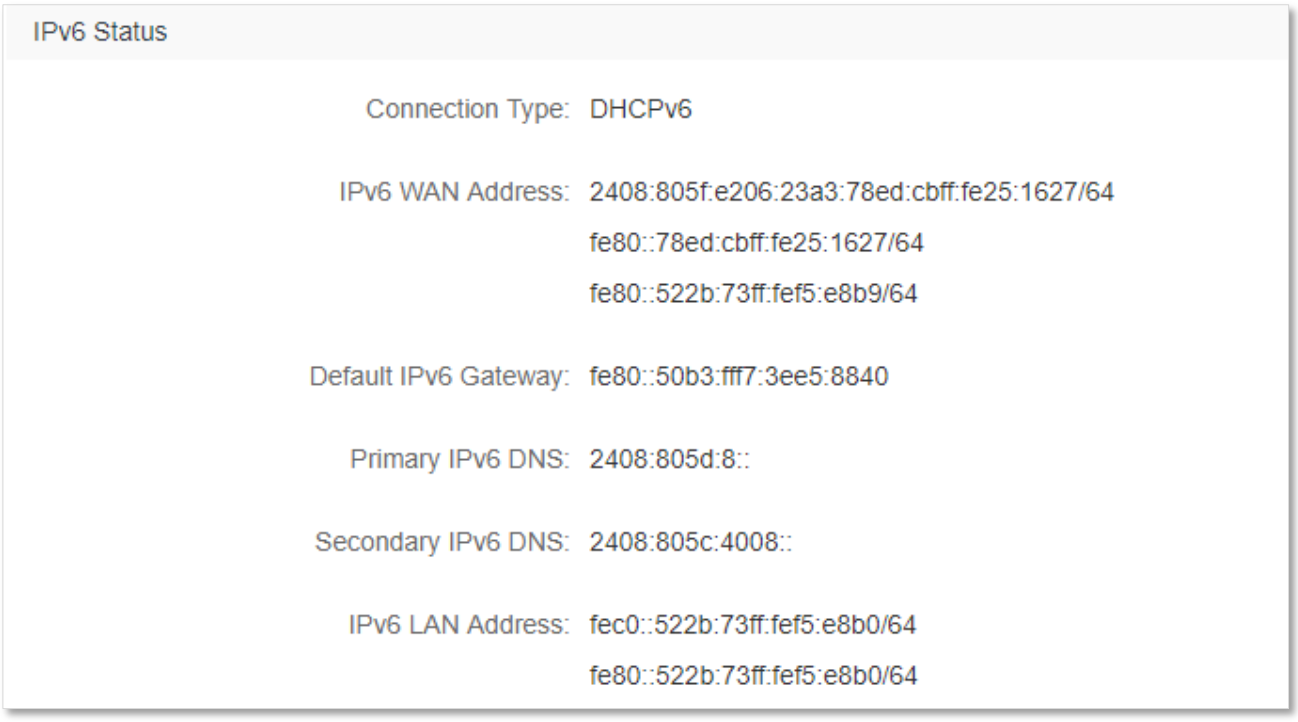
3.3.4 WiFi status

In this part, you can view the information of 2.4 GHz and 5 GHz WiFi network, including the status, visibility, hotspot name and encryption mode, etc.



3.3.5 IPv6 status

This part is only displayed when the IPv6 function is enabled. You can view the information of IPv6 connection, including connection type, IPv6 WAN address and IPv6 LAN address.



3.4 Online device information

On this page, you can view the information of devices connected to the router, including the upload speed, download speed and access type, etc. You can also add devices to the blacklist.

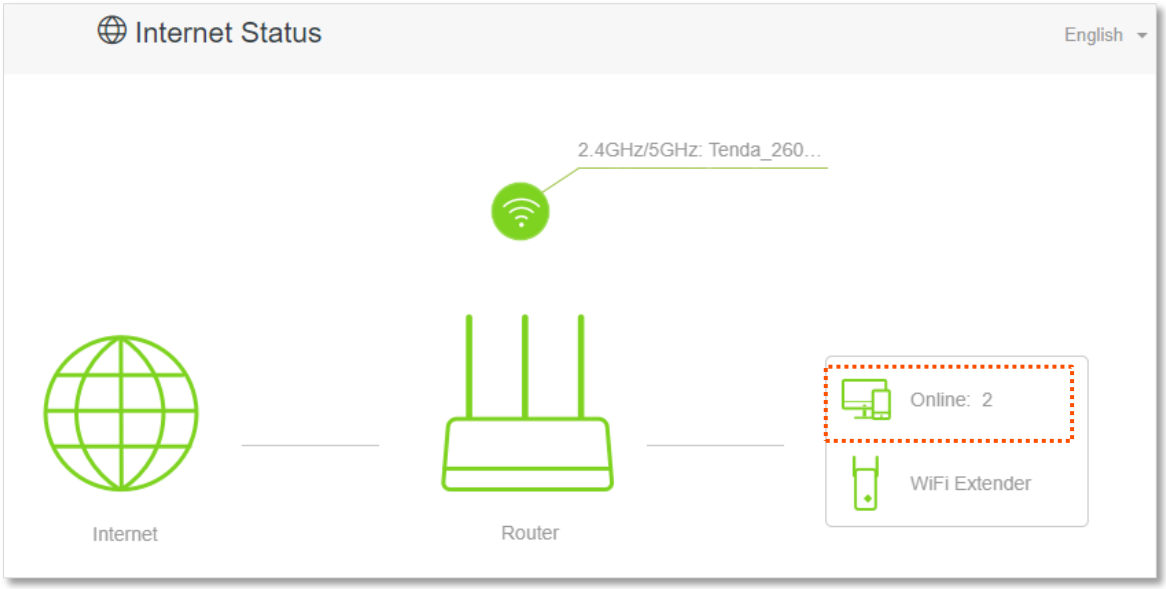
To access the page:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Internet Status**.

Step 3 Click 

.

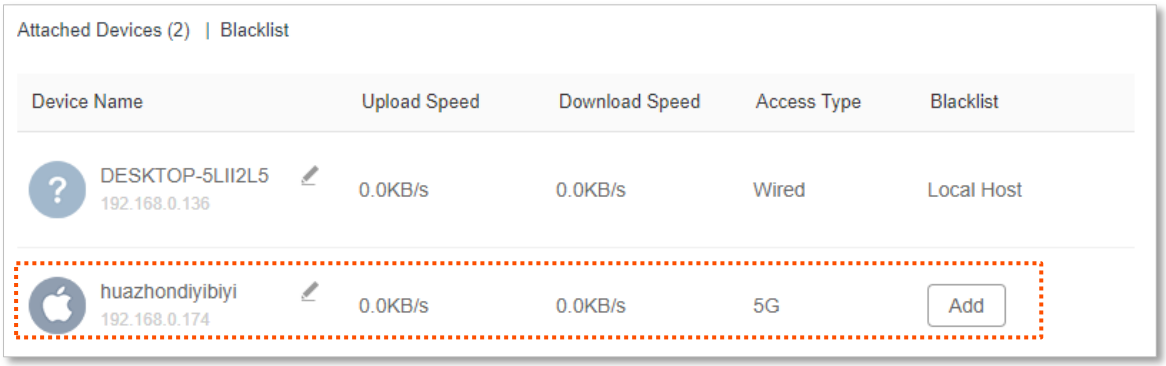


---End

3.4.1 Add devices to the blacklist

Add devices to the blacklist to block the internet access:

Step 1 Choose **Attached Devices**, and target the device to be added.



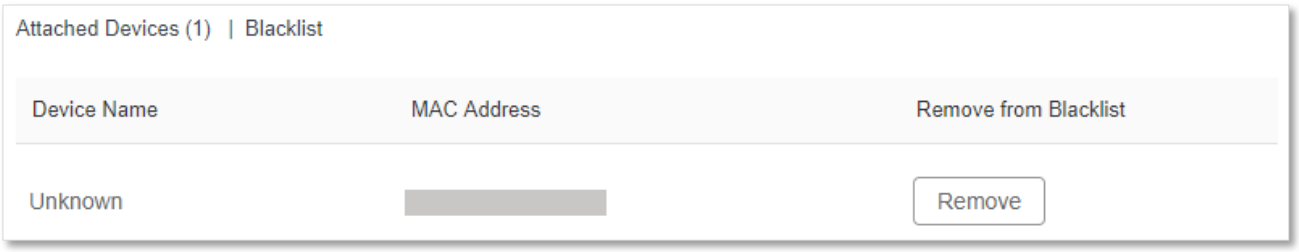
Step 2 Click **Add**.

---End

On the **Internet Status** page, click 

, and then click **Blacklist**, you can view devices that are

added to the blacklist.

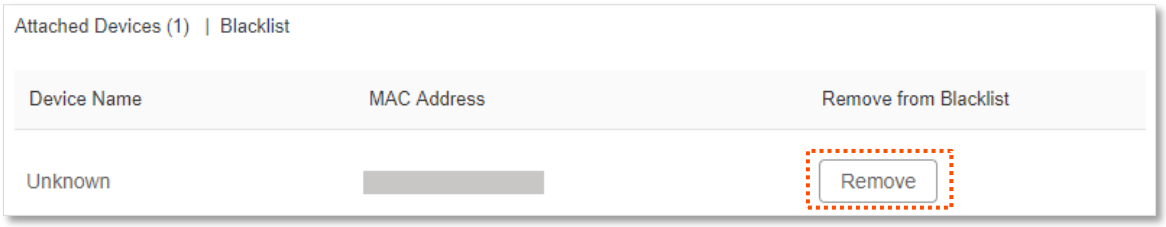


3.4.2 Remove devices from the blacklist

To remove devices from the blacklist as required:

Step 1 Choose **Blacklist**, and target the device to be removed from the blacklist.

Step 2 Click **Remove**.



---End

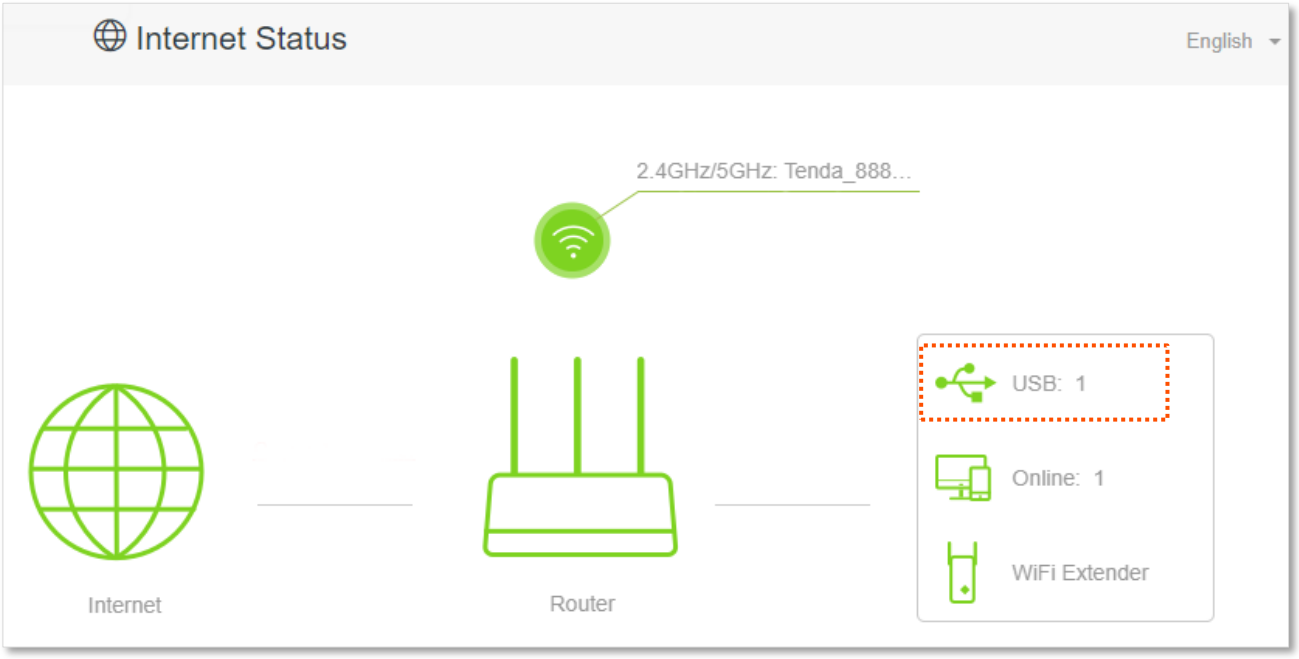
3.5 USB information

TIP

This page and function are only available in AC19, which has a USB port.

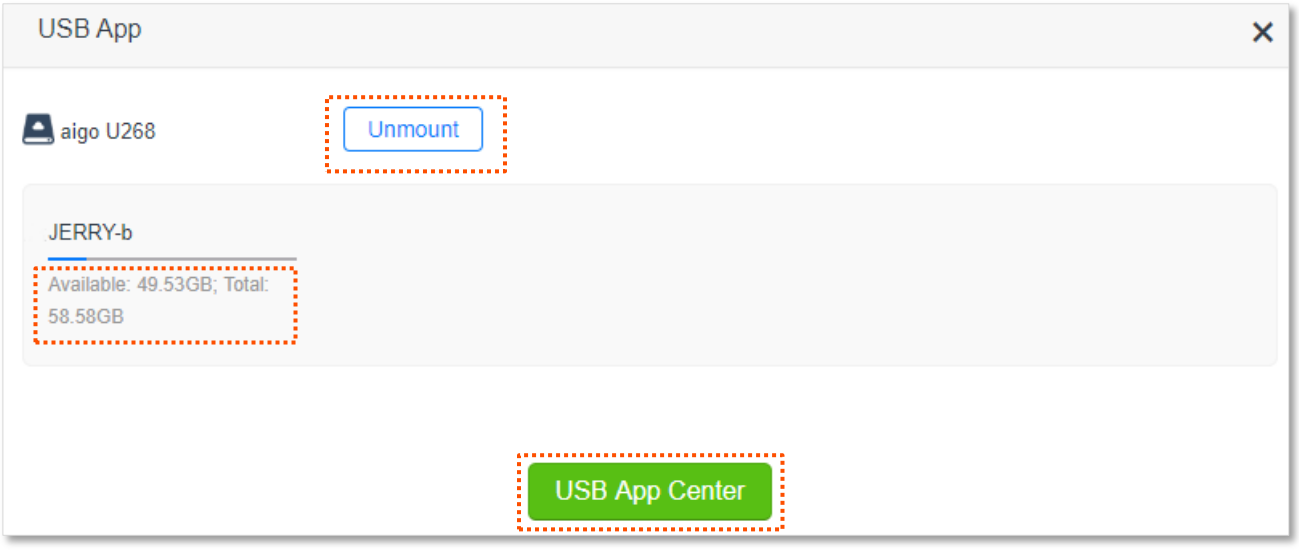
On this page, you can view the information of the USB storage device connected to the router.

When you connect a USB storage device to the USB port, the Internet Status page is shown as below.



Click **USB**, and you can view the storage information of the USB storage device and perform the following operations:

- Unmount the USB storage device from the router.
- Redirect to the USB App page.



4 Internet settings

By configuring the internet settings, you can achieve the shared internet access (IPv4) for multiple users within the LAN.

If you are configuring the router for the first time or after restoring it to factory settings, refer to the quick installation guide to configure the internet access. After then, you can change the internet settings by following the instructions in this chapter.

TIP

Parameters for accessing the internet are provided by your ISP. Contact your ISP for any doubt.

4.1 Access the internet with a PPPoE account

If the ISP provides you with PPPoE user name and password, you can choose this connection type to access the internet. The application scenario is shown below (AC23 is used for illustration here).



Configuring procedure:

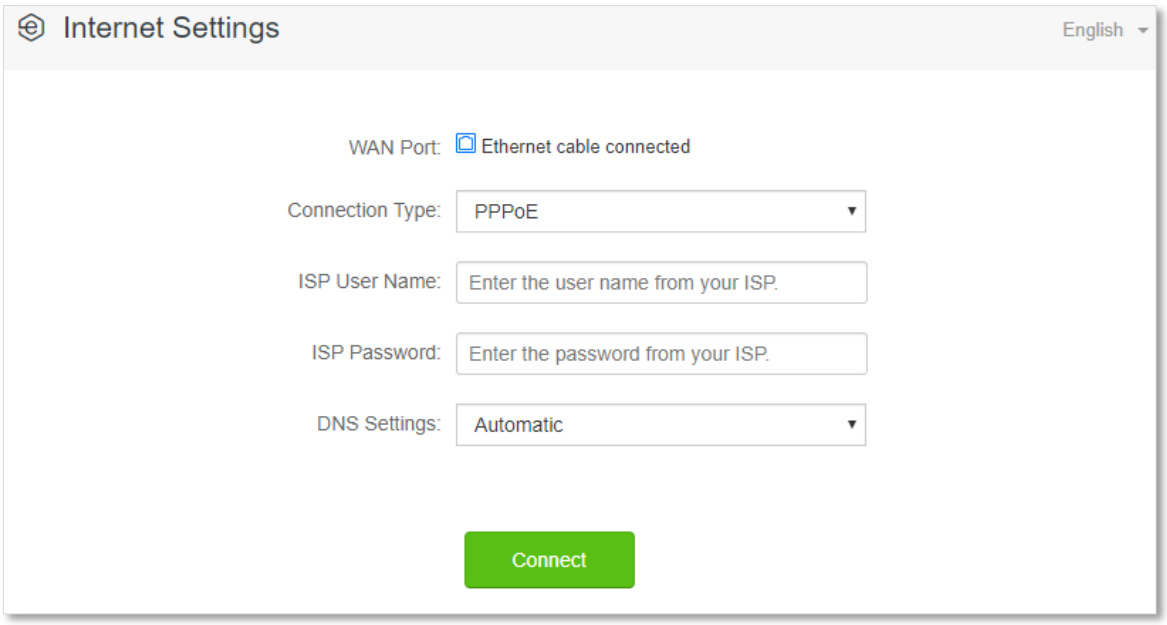
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Internet Settings**.

Step 3 Set **Connection Type** to **PPPoE**.

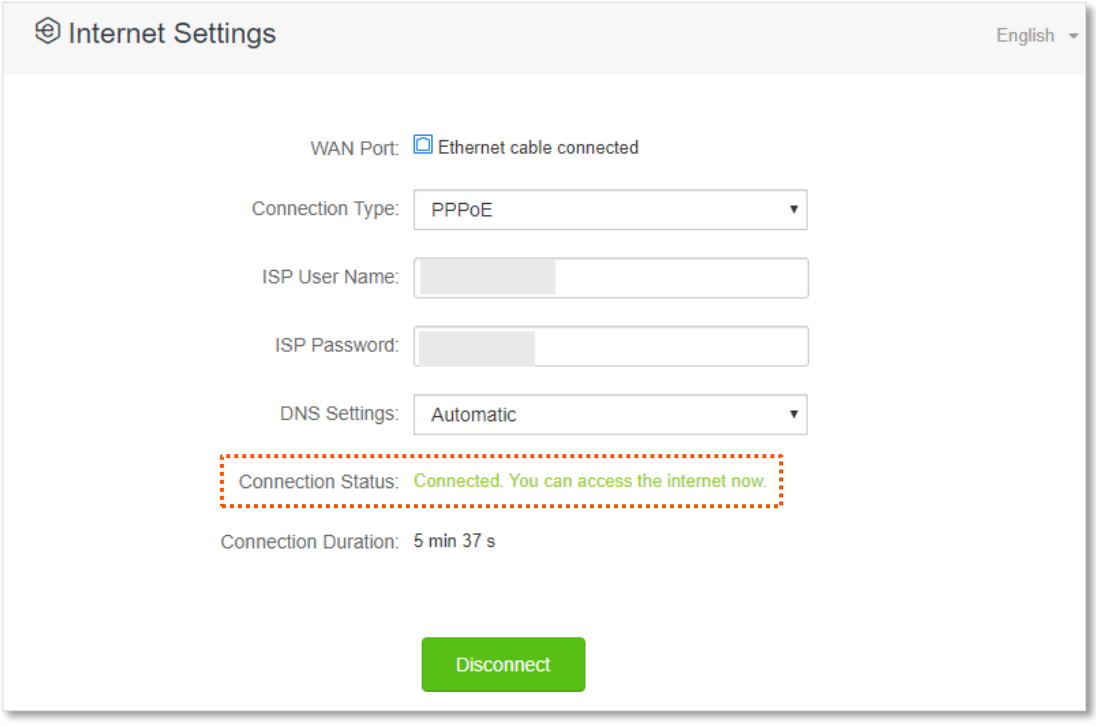
Step 4 Enter the **ISP User Name** and **ISP Password**.

Step 5 Click **Connect**.



---End

Wait a moment until "Connected. You can access the internet now." is shown on the page, and you can access the internet.



If you fail to access the internet, try the following methods:

- If "No response from the remote server. Please check whether your computer can access the internet directly using your Modem. If no, contact your ISP for help." is shown on the page, you are recommended to choose Dynamic IP Address to access the internet.
- If the problem persists, refer to View the internet status to find a solution.

Parameter description

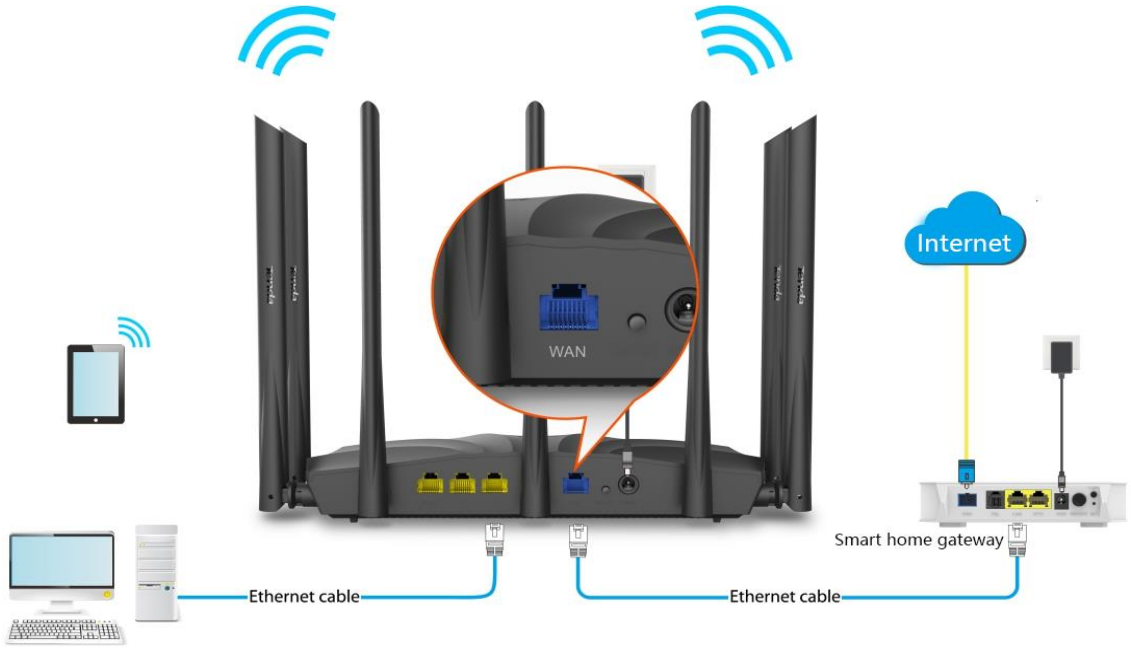
Parameter	Description
ISP User Name	When PPPoE is chosen as the connection type, you need to enter the user name and password provided by your ISP to access the internet.
ISP Password	
DNS Settings	It specifies the obtaining method of WAN port DNS address, which is **Automatic** by default. • Automatic: The router obtains a DNS server address from the DHCP server of the upstream network automatically. • Manual: The DNS server address is configured manually.
Connection Status	It specifies the internet connection status. • When "Connected. You can access the internet now." is shown here, the router is connected to the internet successfully. • When other information is shown here, the router fails to connect to the internet. Please take corresponding measures according to the tips provided.
Connection Duration	It specifies the duration since the router is connected to the internet.

4.2 Access the internet through dynamic IP address

Generally, accessing the internet through dynamic IP address is applicable in the following situations:

- Your ISP does not provide PPPoE user name and password, or any information including IP address, subnet mask, default gateway and DNS server.
- You have a router with internet access and want to add an AC23 as the other one.

The application scenario is shown below.



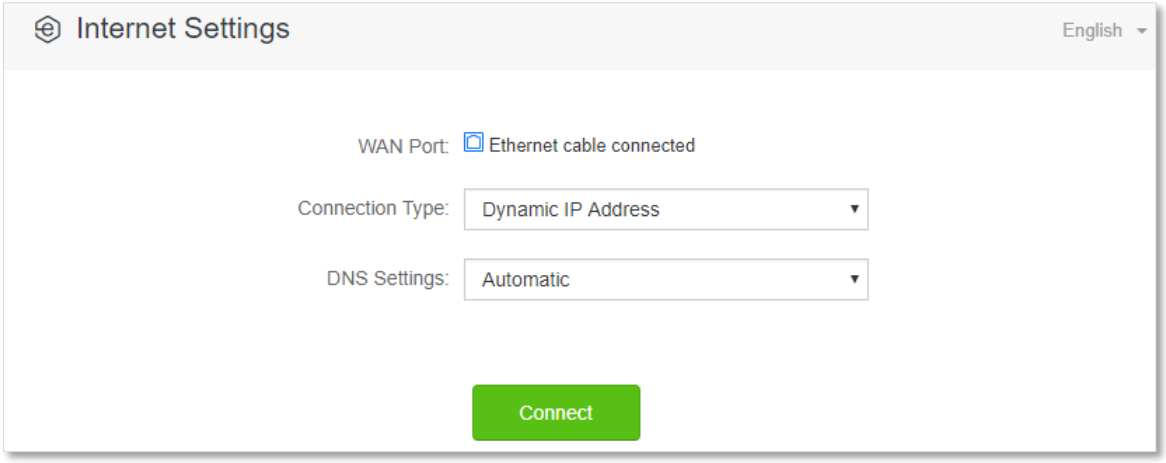
Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Internet Settings**.

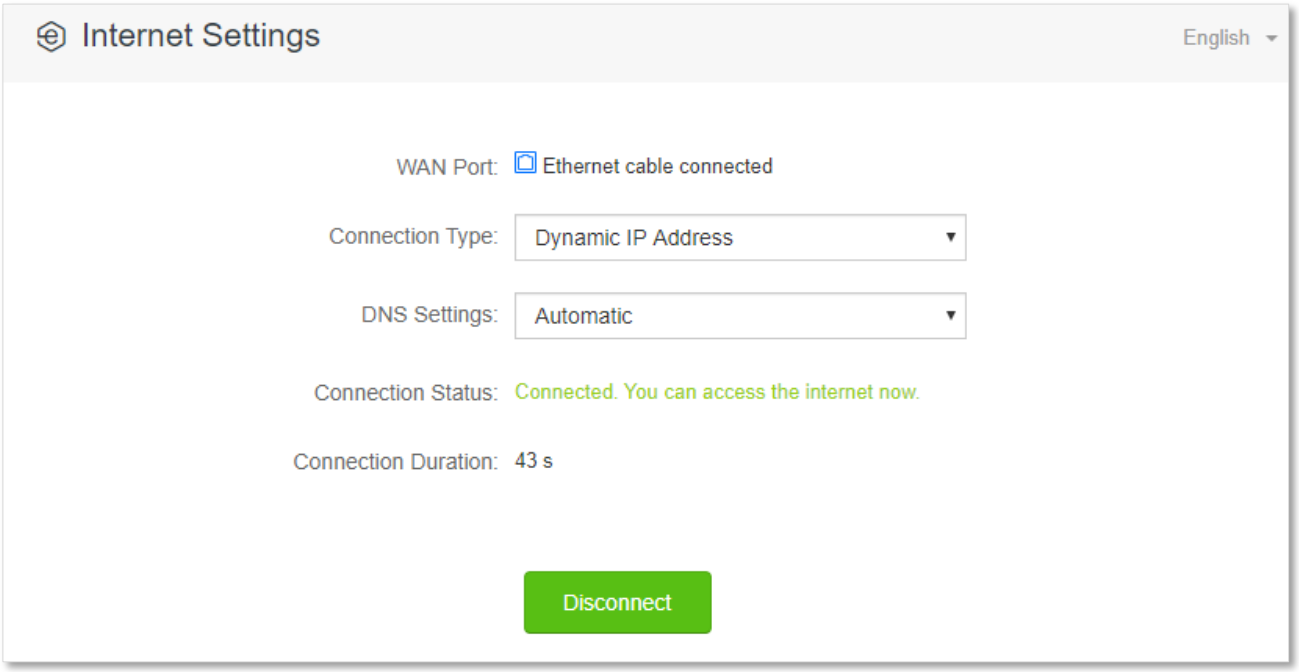
Step 3 Set **Connection Type** to **Dynamic IP Address**.

Step 4 Click **Connect.**



---End

Wait a moment until "Connected. You can access the internet now." is shown on the page, and you can access the internet.



If you fail to access the internet, refer to refer to View the internet status to find a solution.

Parameter description

Parameter	Description
DNS Settings	It specifies the obtaining method of WAN DNS address, which is **Automatic** by default. • **Automatic**: Obtain a DNS server address from the DHCP server of the upstream network. • **Manual**: Configure the DNS server address manually.
Connection Status	It specifies the internet connection status. • When "Connected. You can access the internet now." is shown here, the router is connected to the internet successfully. • When other information is shown here, the router fails to connect to the internet. Please take corresponding measures according to the tips provided.
Connection Duration	It specifies the duration since the router is connected to the internet.

4.3 Access the internet with a set of static IP address information

When your ISP provides you with information including IP address, subnet mask, default gateway and DNS server, you can choose this connection type to access the internet.

Configuring procedure:

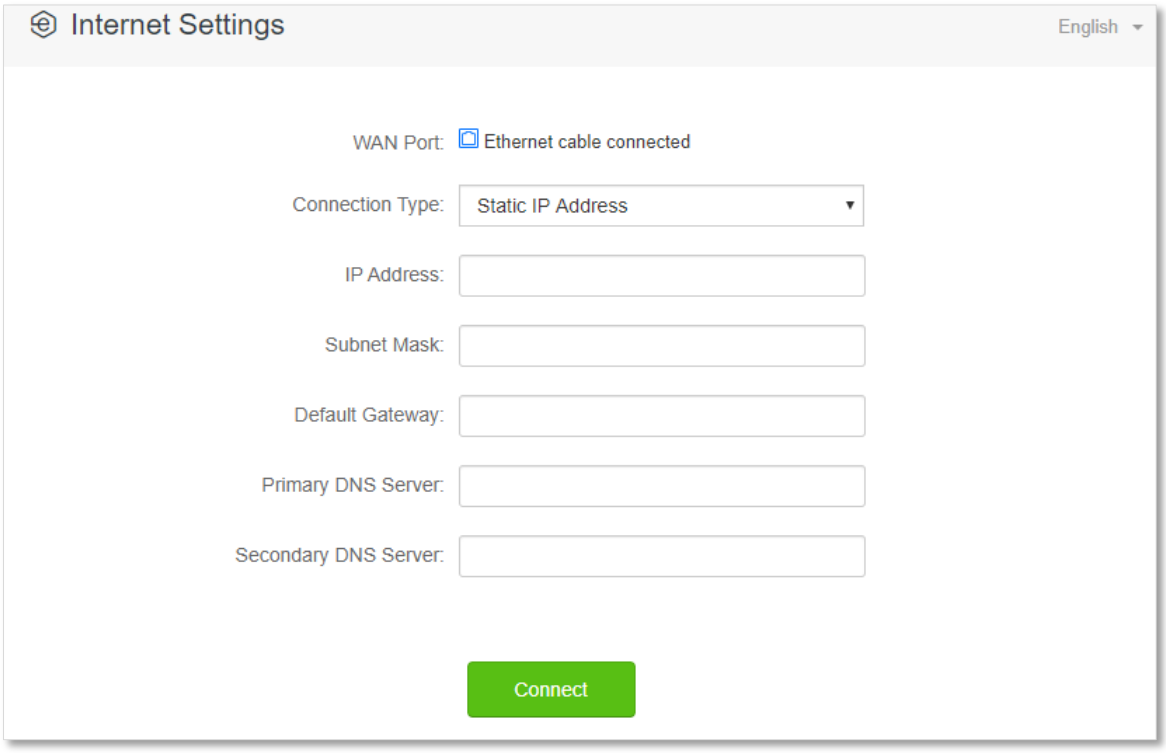
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Internet Settings**.

Step 3 Set **Connection Type** to **Static IP Address**.

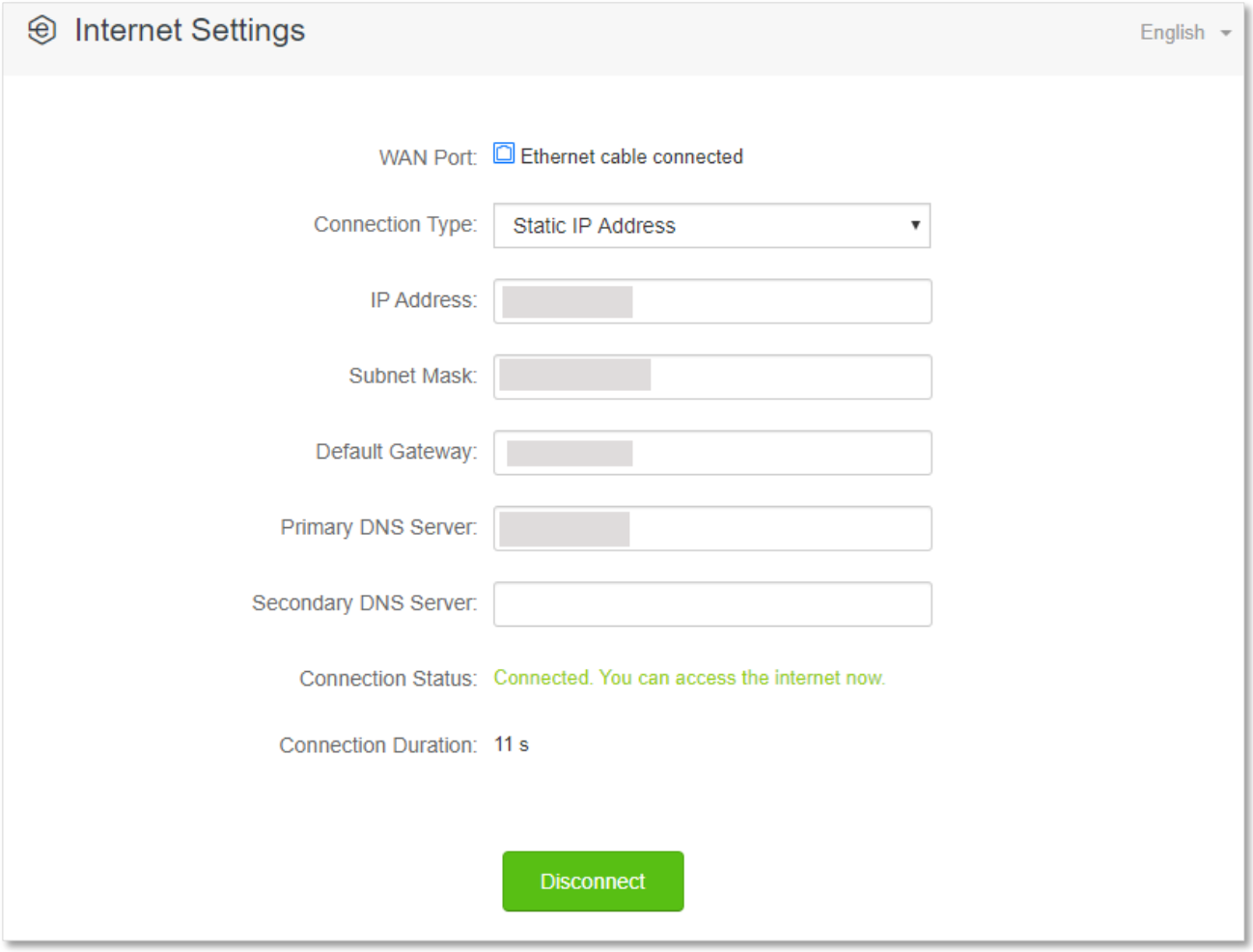
Step 4 Enter **IP Address**, **Subnet Mask**, **Default Gateway** and **Primary/Secondary DNS server**.

Step 5 Click **Connect**.



---End

Wait a moment until "Connected. You can access the internet now." is shown on the page, you can access the internet.



If you fail to access the internet, refer to refer to View the internet status to find a solution.

Parameter description

Parameter	Description
IP Address	When static IP address is chosen as the connection type, enter the fixed IP address information provided by your ISP. TIP If your ISP only provides one DNS server, you can leave the secondary DNS server blank.
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server	
Connection Status	It specifies the internet connection status. • When "Connected. You can access the internet now." is shown here, the router is connected to the internet successfully. • When other information is shown here, the router fails to connect to the internet. Please take corresponding measures according to the tips provided.
Connection Duration	It specifies the duration since the router is connected to the internet.

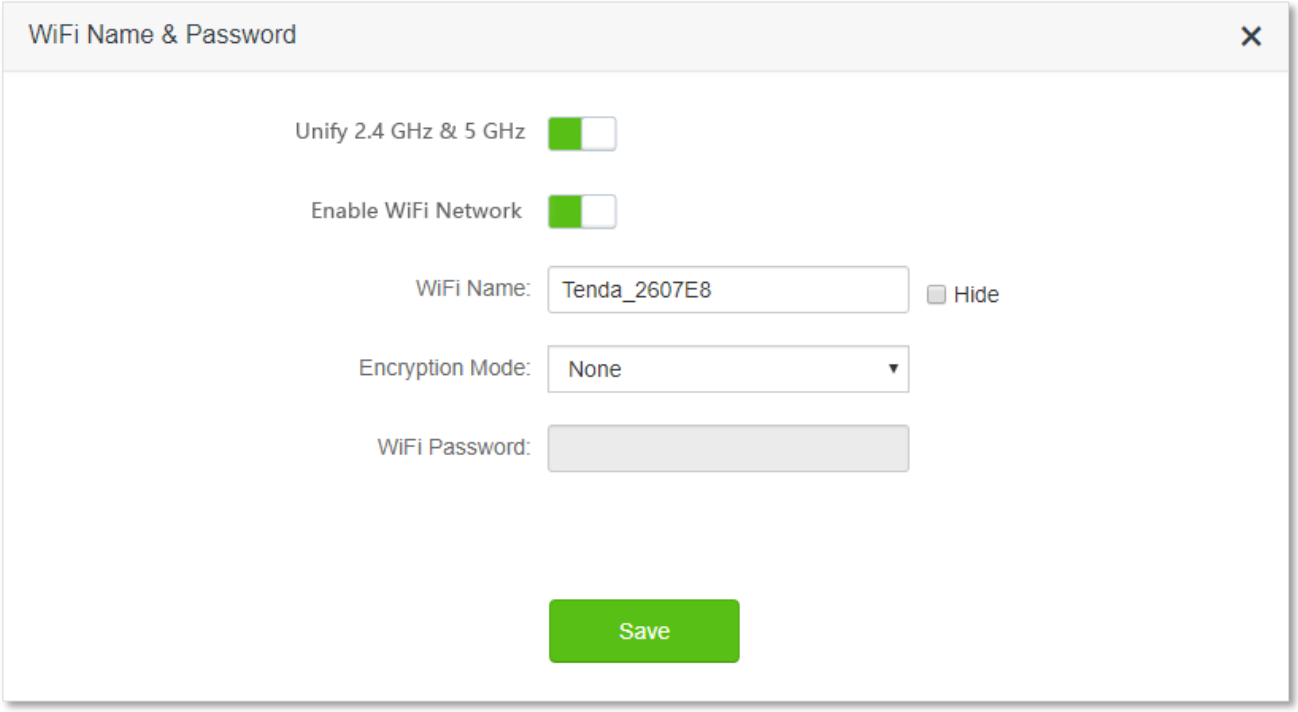
5 WiFi settings

5.1 WiFi name & password

5.1.1 Overview

To access the configuration page, log in to the web UI of the router, and navigate to **WiFi Settings** > **WiFi Name & Password**.

On this page, you can configure basic WiFi parameters, such as the WiFi name and password.



Parameter description

Parameter	Description
Unify 2.4 GHz & 5 GHz	It is used to enable or disable the Unify 2.4 GHz & 5 GHz function, which is enabled by default. When this function is enabled, the 2.4 GHz and 5 GHz WiFi networks share the same SSID and password. Devices connected to the WiFi network will use the network with better connection quality automatically.
Enable WiFi Network	It is used to enable or disable the WiFi networks of the router.

Parameter	Description
2.4 GHz Network	You can enable or disable the 2.4 GHz network and 5 GHz network separately when the Unify 2.4 GHz & 5 GHz function is disabled. • If the wireless devices such as mobile phones are far away from the router, or blocked from the router by a wall, it is recommended to connect to the 2.4 GHz network. • If the wireless devices are close to the router, it is recommended to connect to the 5 GHz network.
5 GHz Network	
WiFi Name	It specifies the WiFi network name (SSID) of the corresponding WiFi network.
Hide	It is used to hide the WiFi name of the WiFi network, so as to improve the security level of the WiFi network. When this function is enabled, the WiFi network is invisible to wireless devices. You need to enter the WiFi name of the network on your wireless devices (such as a smart phone) manually if you want to join the WiFi network.
Encryption Mode	It specifies the encryption modes supported by the router, including: • **None**: It indicates that the WiFi network is not encrypted and any clients can access the network without a password. This option is not recommended as it leads to low network security. • **WPA-PSK**: The network is encrypted with WPA-PSK/AES, which has a better compatibility than WPA2-PSK. • **WPA2-PSK**: The network is encrypted with WPA2-PSK/AES, which has a higher security level than WPA-PSK. • **WPA/WPA2-PSK (recommended):** It indicates that WPA-PSK and WPA2-PSK are adopted to encrypt the network, providing both security and compatibility.
WiFi Password	It specifies the password for connecting to the WiFi network. You are strongly recommended to set a WiFi password for security. TIP It is recommended to use the combination of numbers, uppercase letters, lowercase letters and special symbols in the password to enhance the security of the WiFi network.

5.1.2 Separate the 2.4 GHz Wi-Fi name from 5 GHz Wi-Fi name

The router supports both 2.4 GHz and 5 GHz WiFi networks, which are unified and only one WiFi name is displayed by default. If you want to separate the WiFi names of the two networks, follow the procedures below.

Configuring procedure:

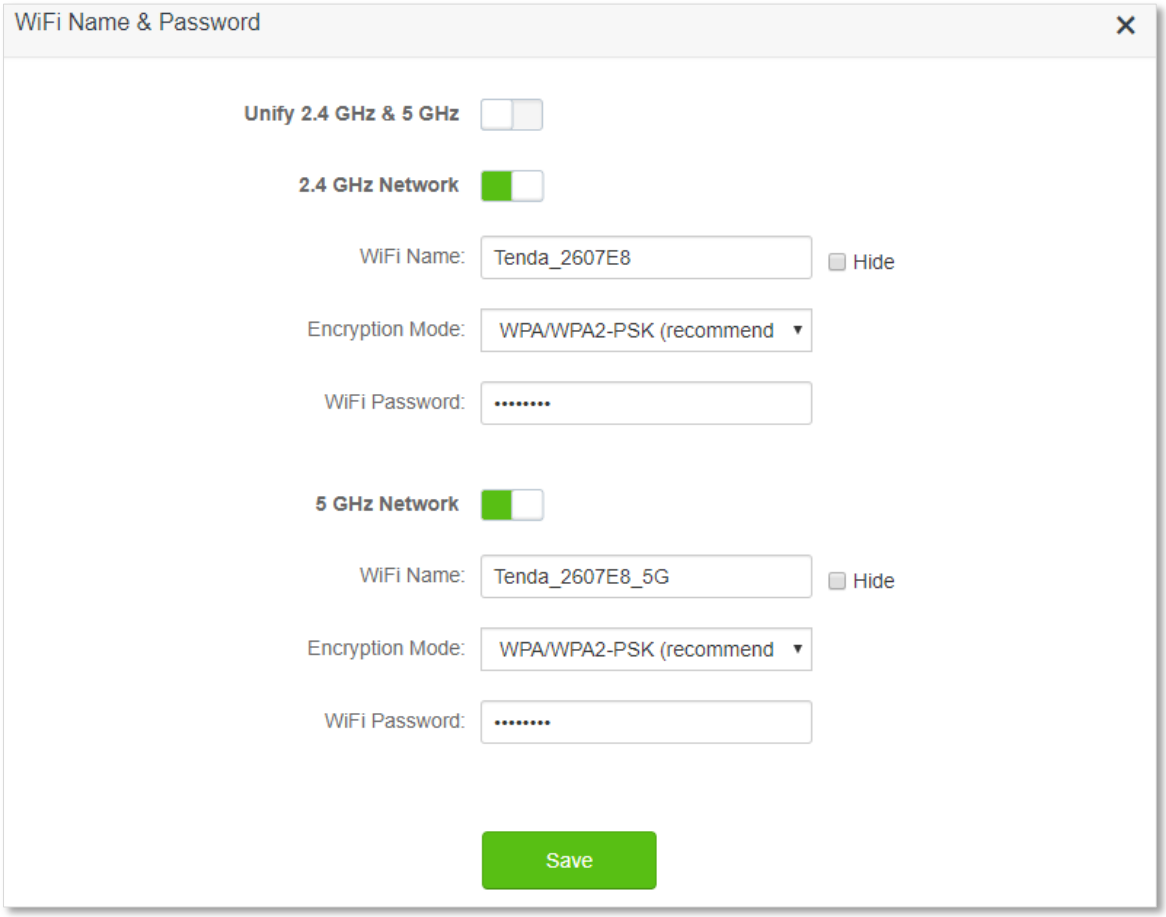
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **WiFi Settings** > **WiFi Name & Password.**

Step 3 Disable **Unify 2.4 GHz & 5 GHz**.

Step 4 Customize the **WiFi Name** and **WiFi Password** of each WiFi network.

Step 5 Click **Save**.



---End

When completing the configurations, you can connect to the WiFi networks of the router to access the internet.

5.1.3 Change the WiFi name and WiFi password

The router supports both 2.4 GHz and 5 GHz WiFi networks.

Assume that you want to change the 2.4 GHz WiFi name and password to **John_Doe_2.4GHz** and **Tenda+Wireless24,** and the 5 GHz WiFi name and password to **John_Doe_5GHz** and **Tenda+Wireless5**. Both networks adopt **WPA/WPA2-PSK (recommended)** as the encryption type.

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **WiFi Settings** > **WiFi Name & Password.**

Step 3 Disable **Unify 2.4 GHz & 5 GHz**.

Step 4 Change the parameters of the 2.4 GHz network.

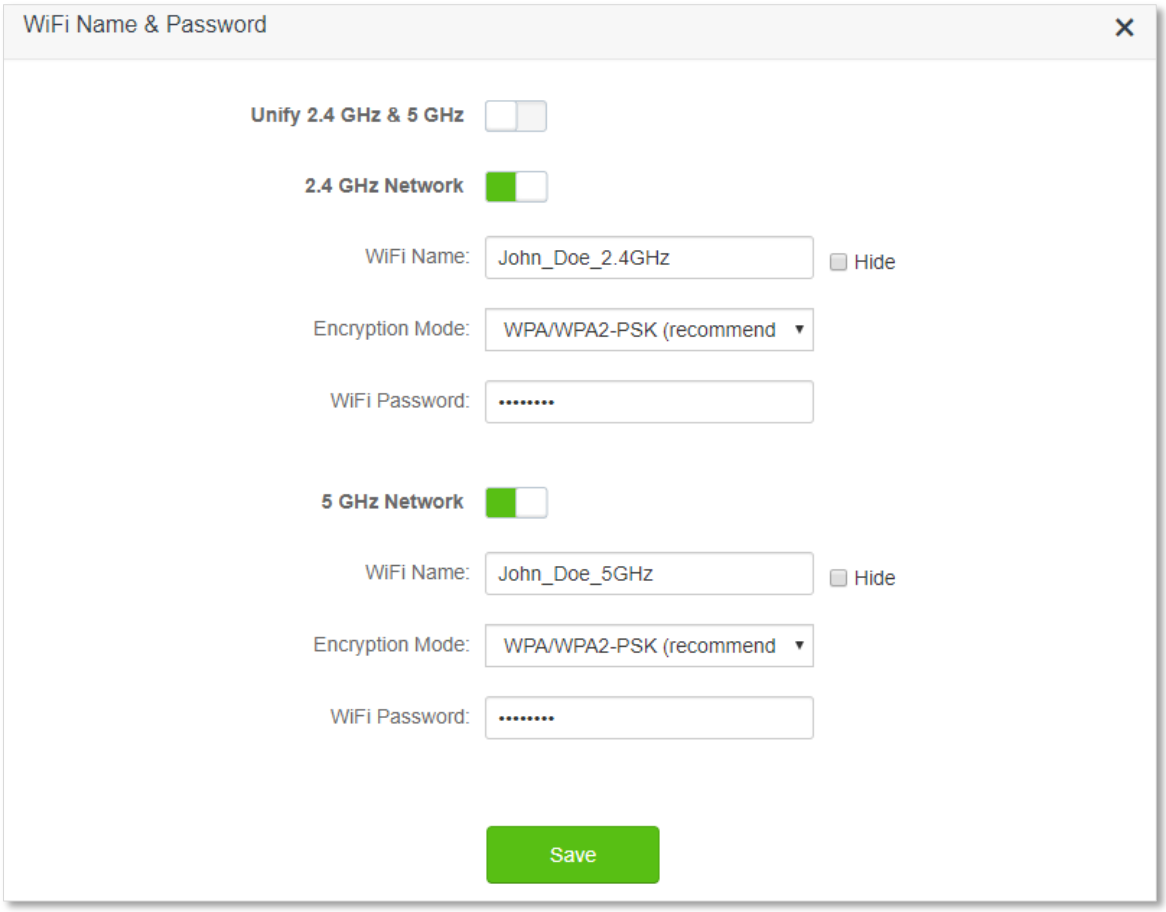
1. Change the **WiFi Name** of the 2.4 GHz network, which is **John_Doe_2.4GHz** in this example.

2. Choose an **Encryption Mode**, which is **WPA/WPA2-PSK (recommended)** in this example.
3. Change the **WiFi Password** of the 2.4 GHz network, which is **Tenda+Wireless24** in this example.

Step 5 Change the parameters of the 5 GHz network.

1. Change the **WiFi Name** of the 5 GHz network, which is **John_Doe_5GHz** in this example.
2. Choose an **Encryption Mode**, which is **WPA/WPA2-PSK (recommended)** in this example.
3. Change the **WiFi Password** of the 5 GHz network, which is **Tenda+Wireless5** in this example.

Step 6 Click **Save**.



---End

When completing the configurations, you can connect your wireless devices to the WiFi networks of the router to access the internet.

5.1.4 Hide the WiFi network

The hidden WiFi networks are invisible to wireless devices, thus improving the security of the networks.

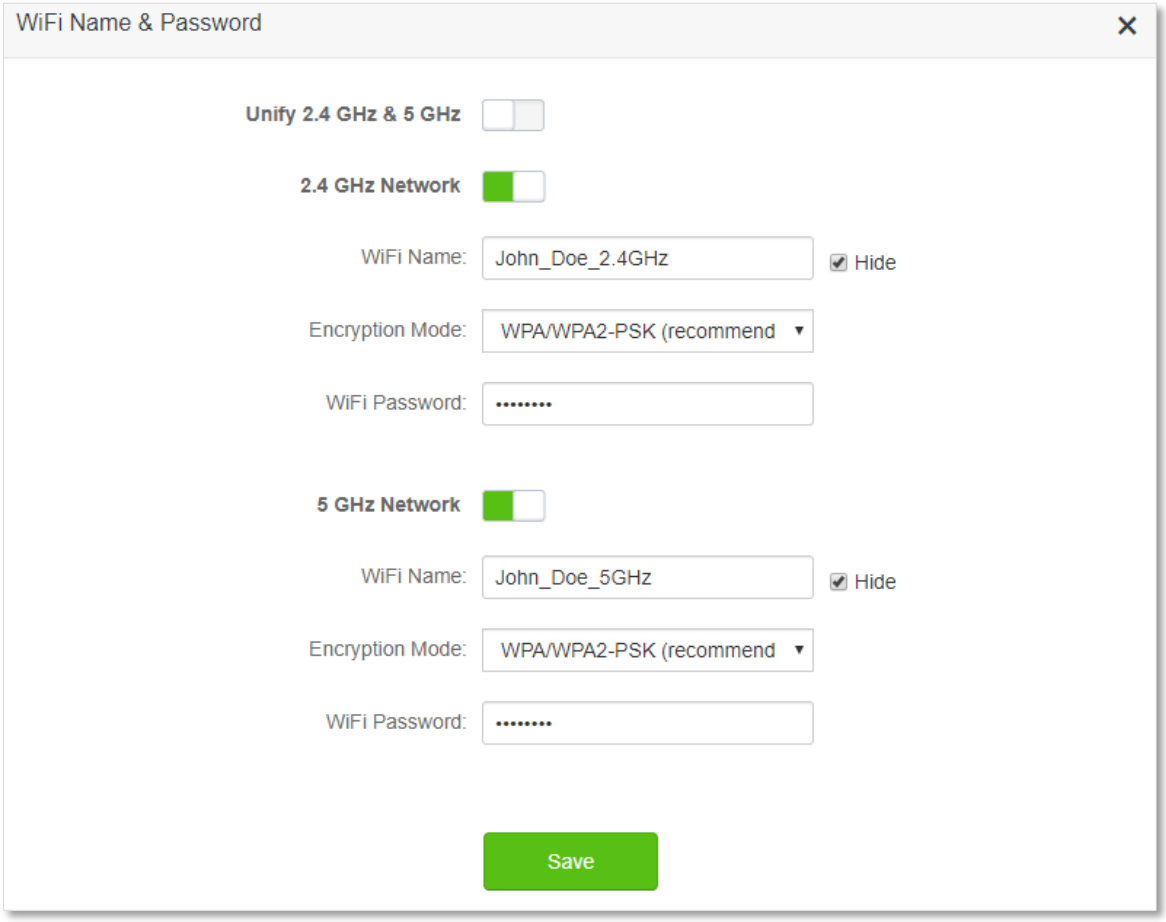
Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **WiFi Settings** > **WiFi Name & Password.**

Step 3 Tick **Hide** of the target network.

Step 4 Click **Save**.



---End

When completing the configurations, the corresponding WiFi network is invisible to wireless devices.

5.1.5 Connect to a hidden WiFi network

When a WiFi network is hidden, you need to enter the WiFi name manually and connect to it.

Assume that the Unify 2.4 GHz & 5 GHz function is enabled and the parameters are:

- WiFi name: Jone_Doe
- Encryption type: WPA/WPA2-PSK (recommended)
- WiFi password: Tenda+Wireless245

TIP

If you do not remember the wireless parameters of the Wi-Fi network, log in to the web UI of the router and navigate to **Wi-Fi Settings** > **Wi-Fi Name & Password** to find it.

Procedures for connecting to the Wi-Fi network on your wireless device (Example: iPhone).

Step 1 Tap **Settings** on your phone, and find **WLAN**.

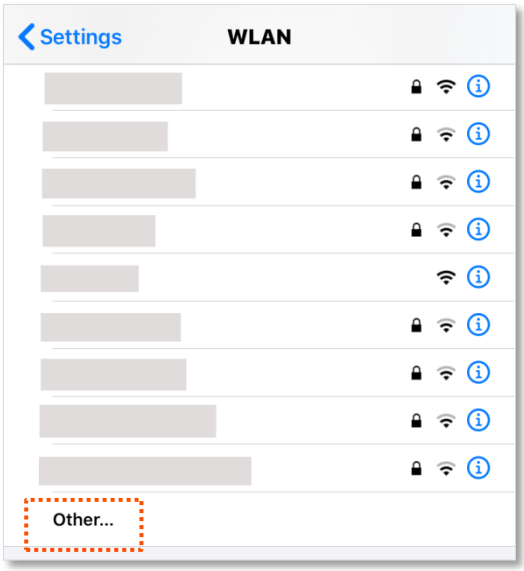
Step 2 (Optional) Enable **WLAN**.

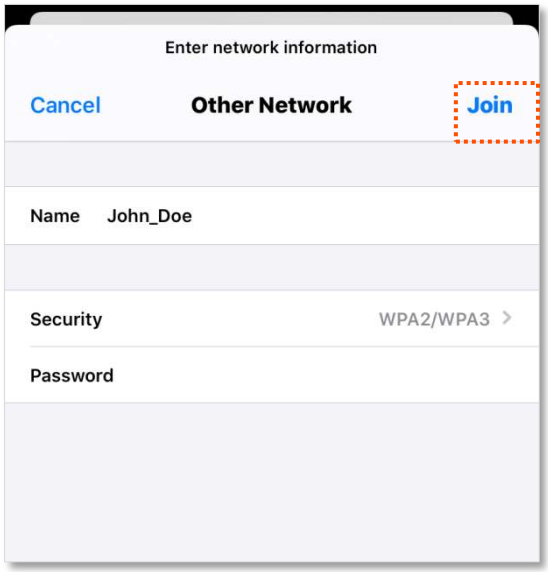
Step 3 Scroll the WiFi list to the bottom, and tap **Other…**.

Step 4 Enter the WiFi name and password, which are **John_Doe** and **Tenda+Wireless245** in this example.

Step 5 Set security to **WPA2/WPA3** (If WPA2/WPA3 is not available, choose WPA2).

Step 6 Tap **Join**.





---End

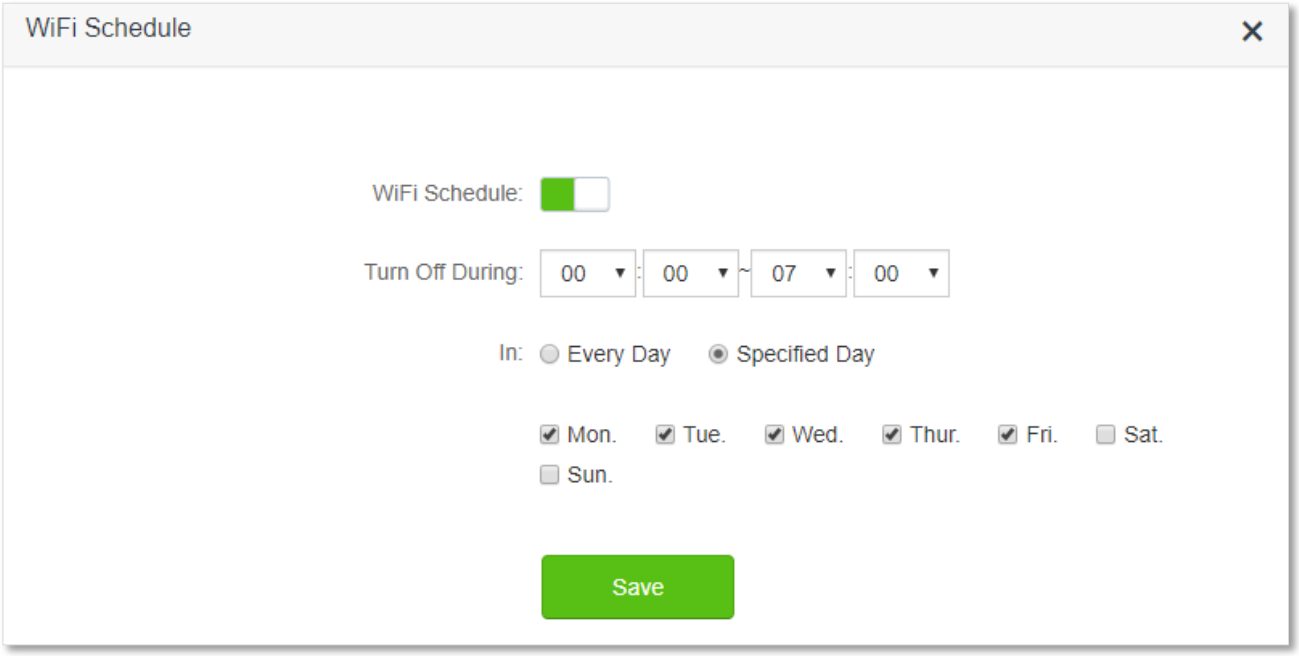
When completing the configurations, you can connect to the hidden WiFi network to access the internet.

5.2 WiFi schedule

5.2.1 Overview

This WiFi Schedule function allows you to disable the WiFi networks of the router at specified period of time. By default, this function is disabled.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **WiFi Schedule**.



NOTE

To make the WiFi schedule work properly, please ensure the system time is synchronized with the internet time. Refer to Sync the system time with the internet time for configuration.

Parameter description

Parameter	Description
WiFi Schedule	It is used to enable/disable the WiFi schedule function.
Turn Off During	It specifies the period when the Wi-Fi networks are disabled.
In	It specifies the day(s) on which the Wi-Fi networks are disabled during the specified period.

5.2.2 An example of configuring WiFi schedule

Assume that you want to disable the WiFi network from 22:00 to 7:00 every day.

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

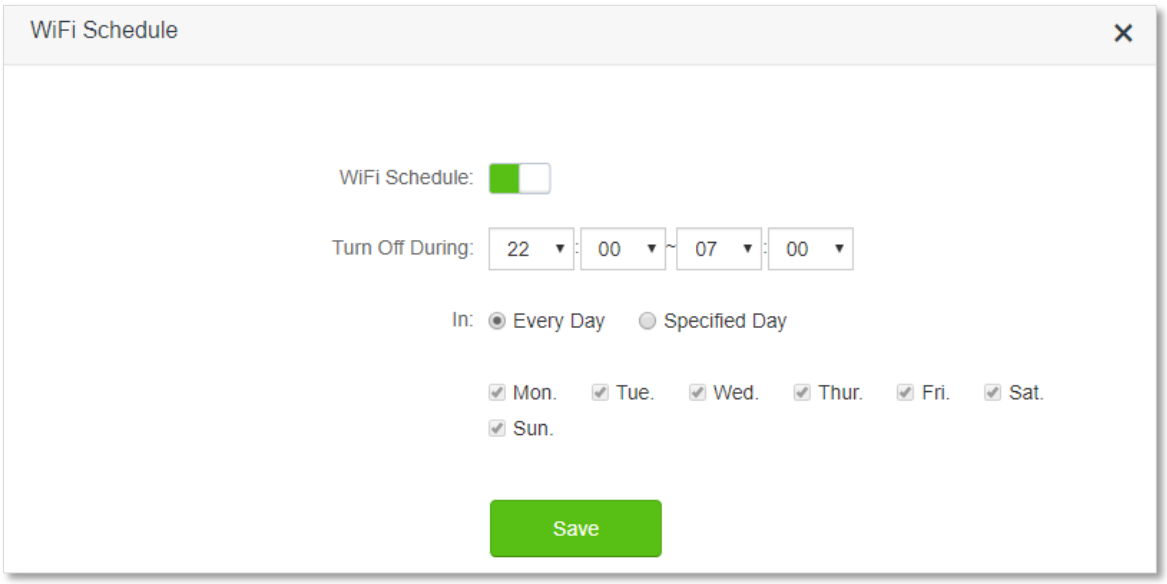
Step 2 Choose **WiFi Settings** > **WiFi Schedule.**

Step 3 Enable **WiFi Schedule.**

Step 4 Set a period for the WiFi networks to be disabled, which is **22:00~07:00** in this example.

Step 5 Set the days when the functions works, which is **Every Day** in this example.

Step 6 Click **Save**.



---End

When the configuration is completed, the WiFi networks will be disabled from 10 pm to 7 am every day.

5.3 Wireless repeating

5.3.1 Overview

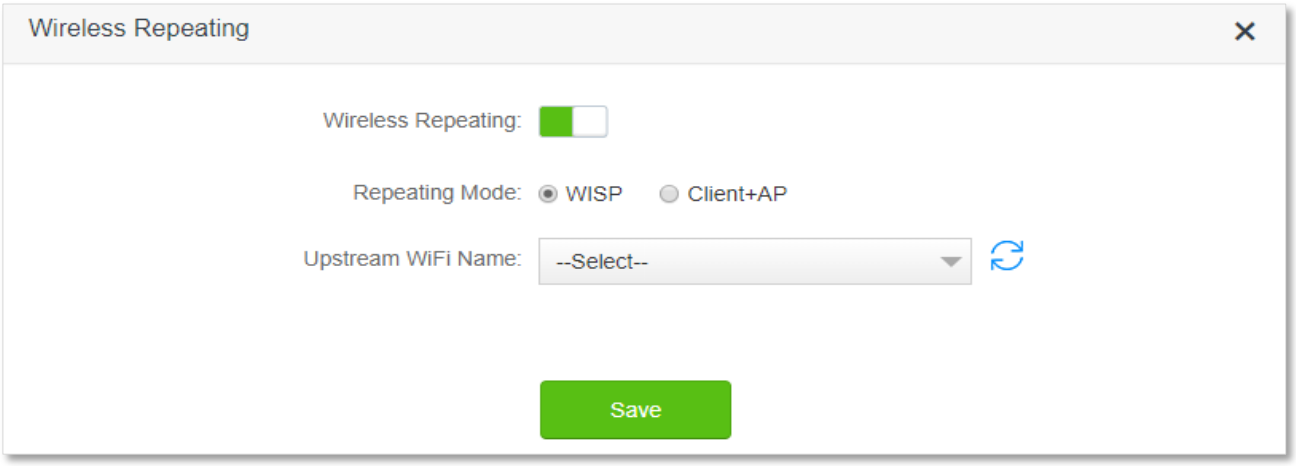
By configuring the wireless repeating function, you can extend the coverage of an existing network.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **Wireless Repeating**.

This function is disabled by default. When it is enabled, the page is shown as below.

NOTE

- When the wireless repeating function is enabled, some other functions will be unavailable, such as WiFi schedule, guest network, WPS and IPTV.
- When wireless repeating is enabled, do not connect any device to the WAN port of the router.



Parameter description

Parameter	Description
Wireless Repeating	It is used to enable/disable the Wireless Repeating function.
Repeating Mode	Two repeating modes are available: • WISP mode: Generally used to bridge the hotspot of ISPs. • Client+AP mode: Able to bridge all kinds of WiFi network. TIP • When WISP mode is chosen and the LAN IP of the router is at the same network segment as that of the upstream device, the router will change the LAN IP address to a different network segment to avoid conflict. • After the router is set to WISP mode, you are required to access the internet by referring to the configuring procedures in Internet Settings according to the connection type you choose.
Upstream WiFi Name	It specifies the WiFi name that you want to bridge. If you choose **Enter a WiFi name manually**, you are required to enter the **WiFi Name**, **Frequency Band** and **Encryption Mode, Encryption Algorithm** and **Upstream WiFi Password** manually.

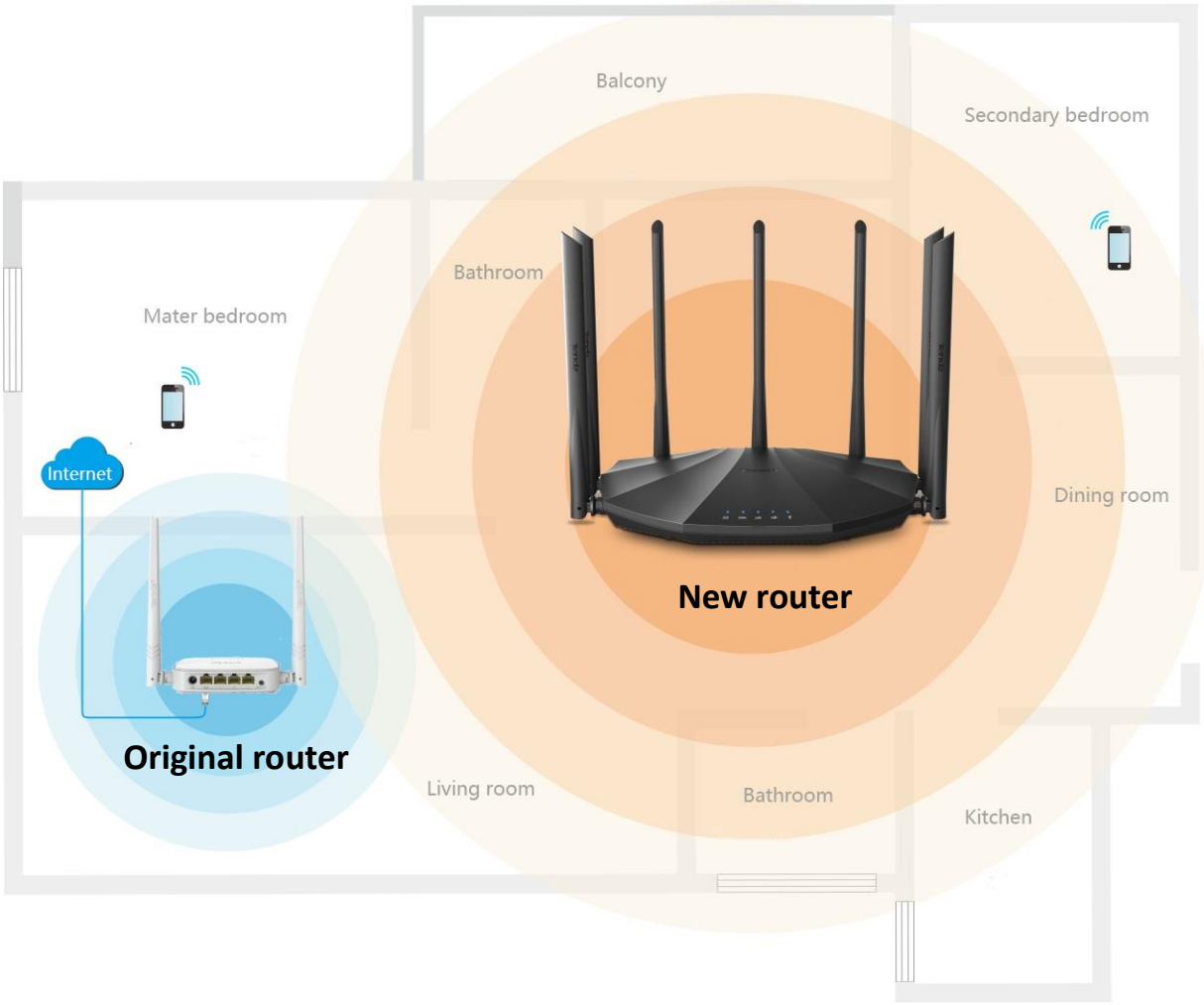
Parameter	Description
Upstream WiFi Password	It specifies the WiFi password of the WiFi name that you want to bridge.

5.3.2 Extend the existing WiFi network

When there is already a router with internet access in your home, you can refer to the configurations in this part to extend the WiFi network coverage. AC23 is used for illustration here.

Assume that your existing WiFi name and password are:

- WiFi name: Home_WiFi
- WiFi password: Tenda+245



Method 1: Set the new router to WISP mode

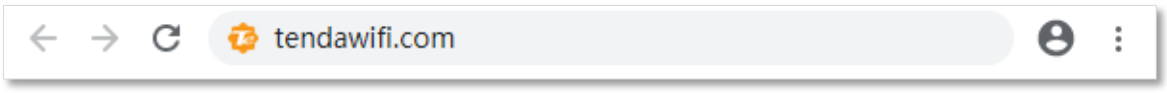
Configuring procedure:

TIP

If you have finished the quick setup wizard before, start a web browser and visit **tendawifi.com**, then start from **Step 2**.

Step 1 Log in to the web UI of the router.

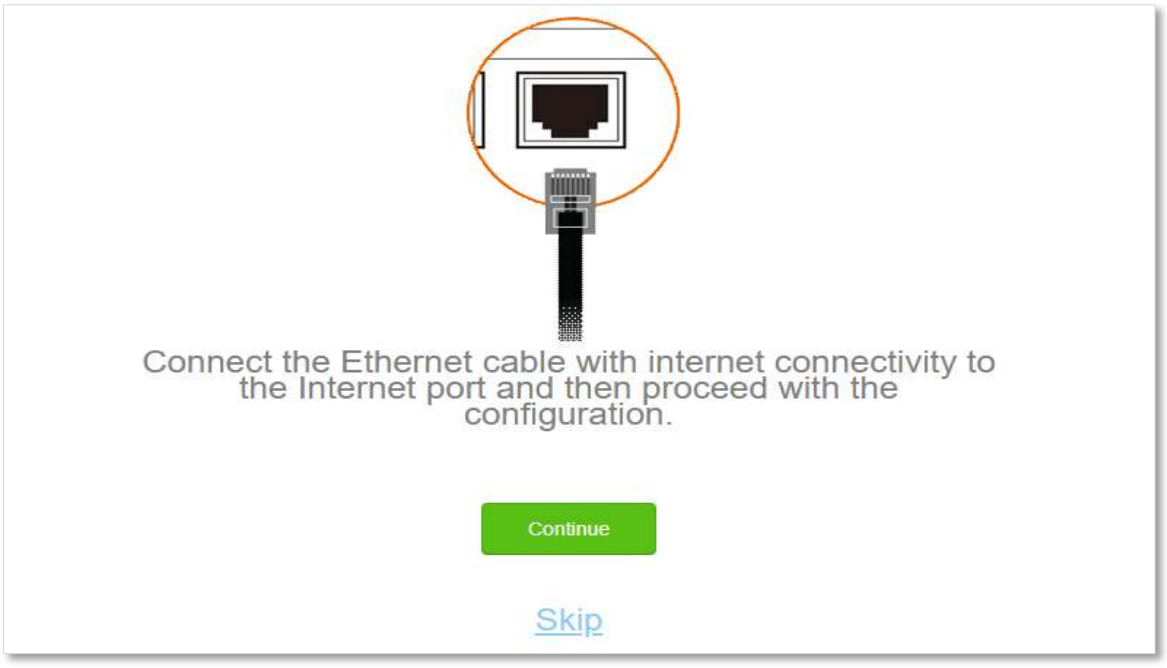
1. Place the new router near the existing router and power it on. Connect your wireless device to the WiFi network of your new router, or connect a computer to a LAN port of the router (1, 2, IPTV/3 for AC21 and AC23; 1, 2, 3, IPTV/4 for AC19). Do not connect any device to the WAN port of the new router.
2. Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router. A computer is used for illustration below.



3. Click **Start**.



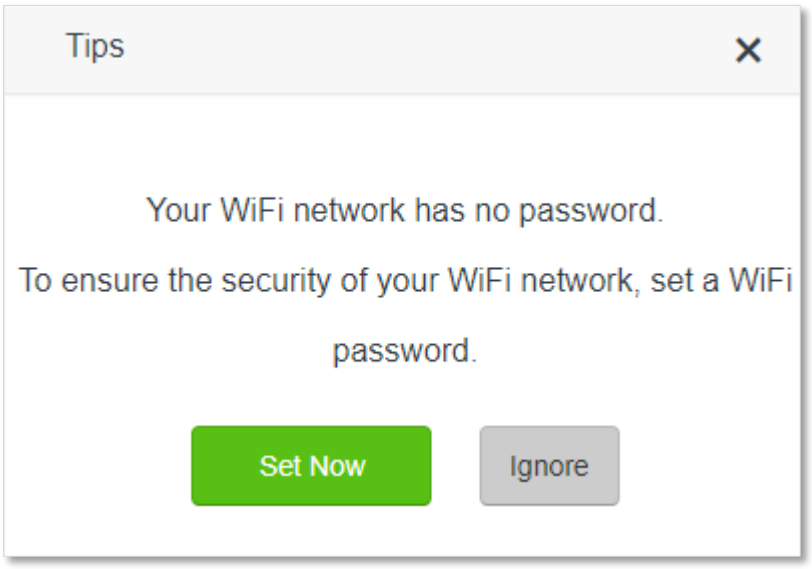
4. Click **Skip**.



5. Do not set login and WiFi password now by ticking **Not Required**, and click **Next**.

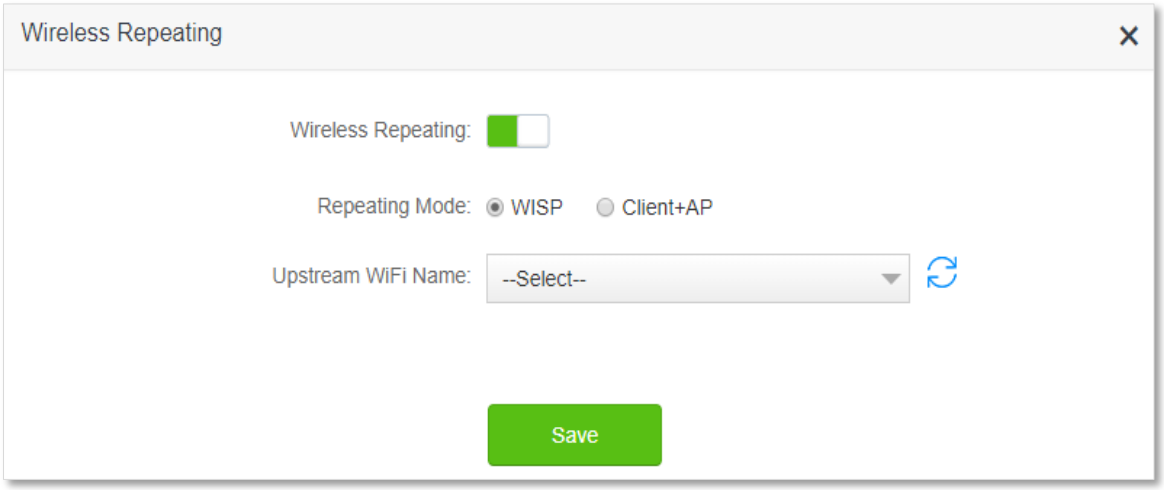


6. Click **Ignore**.



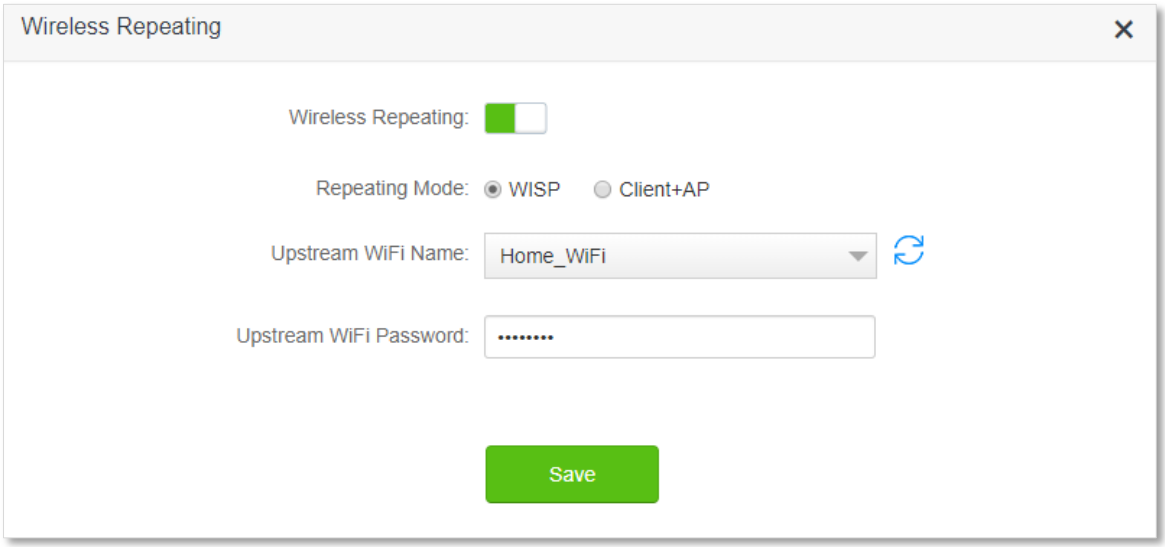
Step 2 Set the new router to WISP mode.

1. Choose **WiFi Settings** > **Wireless Repeating**.
2. Enable **Wireless Repeating**, and choose **WISP**.
3. Click **Select** to select an existing WiFi network, which is **Home_WiFi** in this example.

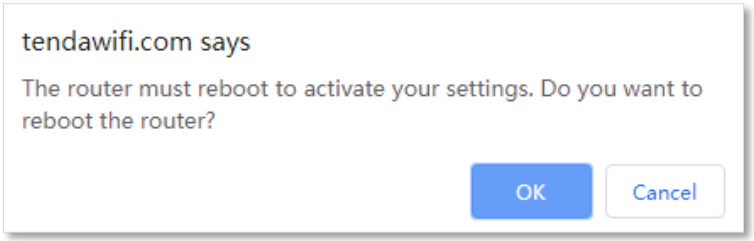


Step 3 Enter the **Upstream WiFi Password**, which is **Tenda+245** in this example.

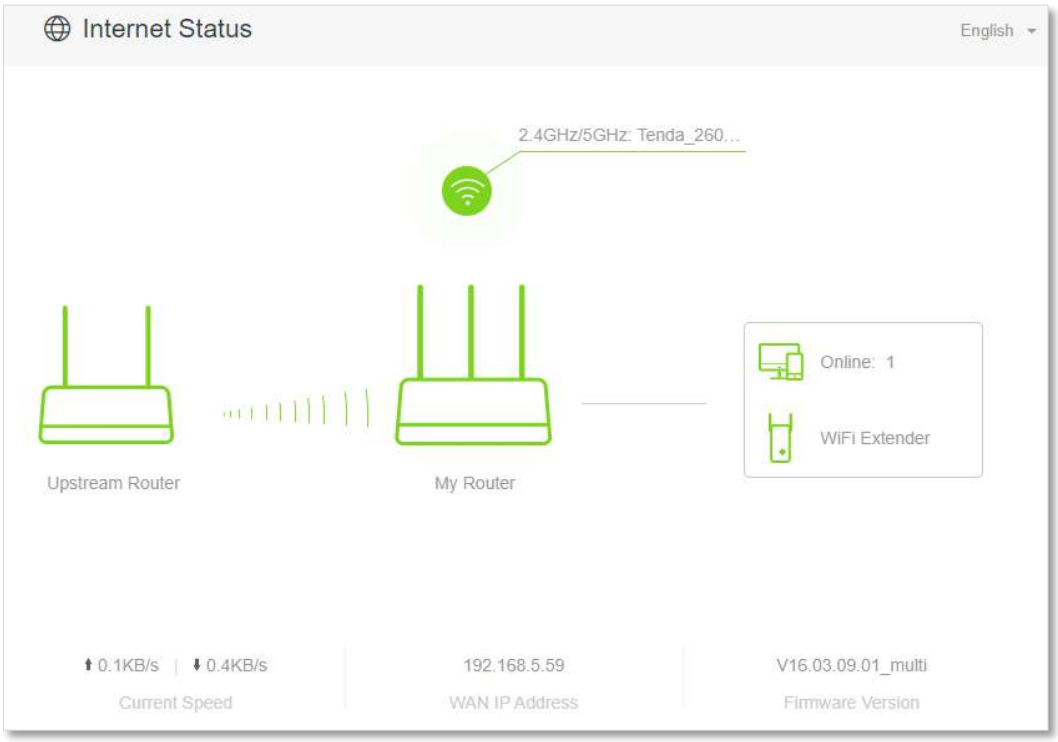
Step 4 Click **Save**.



Step 5 Click **OK**, and wait for the router to reboot.



Step 6 Log in to the web UI of the router again, navigate to **Internet Status** to check if the wireless repeating succeeds. Locate the new router in the area with weak WiFi signal and power it on again.



Step 7 Relocate the new router and power it on by referring to the following suggestions.

- Between the original router and the uncovered area, but within the coverage of the original router.
- Away from the microwave oven, electromagnetic oven, refrigerator.
- Above the ground with few obstacles.

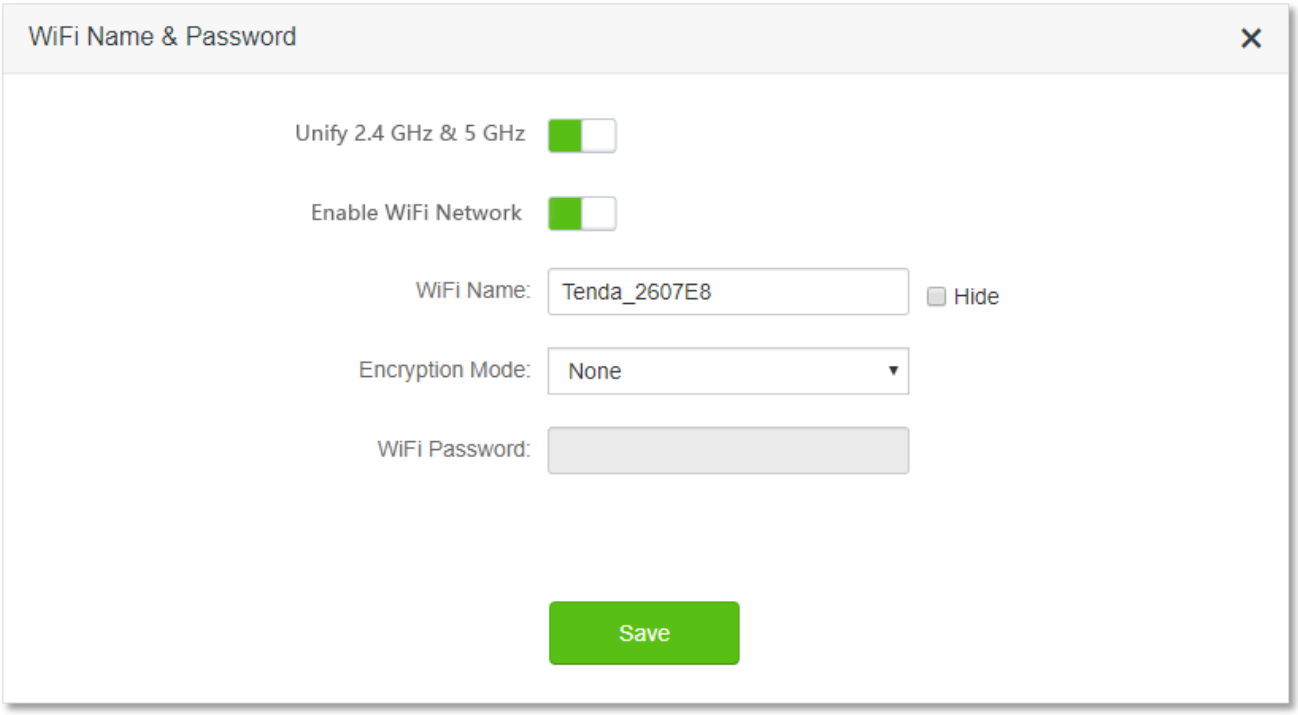
NOTE

Do not connect any device to the WAN port of the new router after setting the router to WISP mode.

---End

To access the internet, connect your computer to a LAN port of the new router (1, 2, IPTV/3 for AC21 and AC23; 1, 2, 3, IPTV/4 for AC19), or connect your smart phone to the WiFi network of the new router.

You can find the WiFi name and password on the **WiFi Settings** > **WiFi Name & Password** page. If the network is not encrypted, you can also set a WiFi password on this page for security.



TIP

If you cannot access the internet, try the following solutions:

- Ensure that the existing router is connected to the internet successfully.
- Ensure that your wireless devices are connected to the correct WiFi network of the new router.
- If the computer connected to the router for repeating cannot access the internet, ensure that the computer is configured to obtain an IP address and DNS sever automatically.

Method 2: Set the new router to Client+AP mode

Configuring procedure:

TIP

If you have finished the quick setup wizard before, start a web browser and visit **tendawifi.com**, and start from **Step 2**.

Step 1 Log in to the web UI of the router.

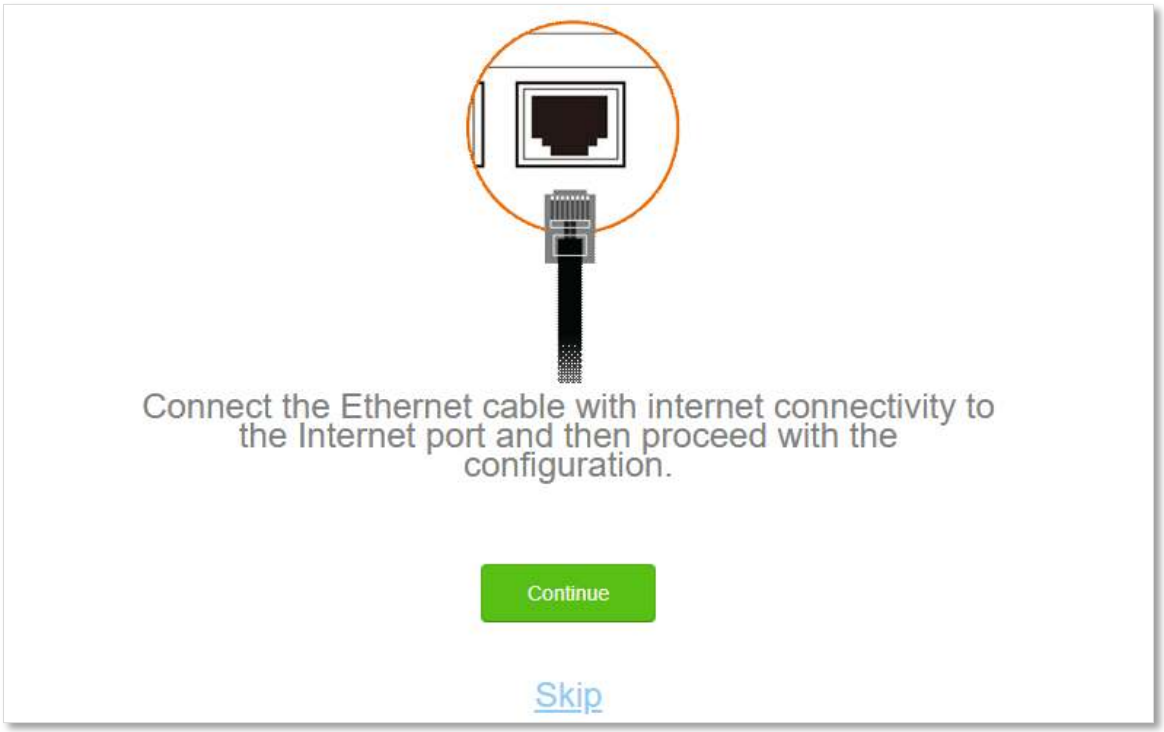
1. Put the new router near the existing router and power it on. Connect your wireless device to the WiFi network of your new router, or connect a computer to a LAN port of the router (1, 2, IPTV/3 for AC21 and AC23; 1, 2, 3, IPTV/4 for AC19). Do not connect any device to the WAN port of the new router.
2. Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router. A computer is used for illustration below.



3. Click **Start**.



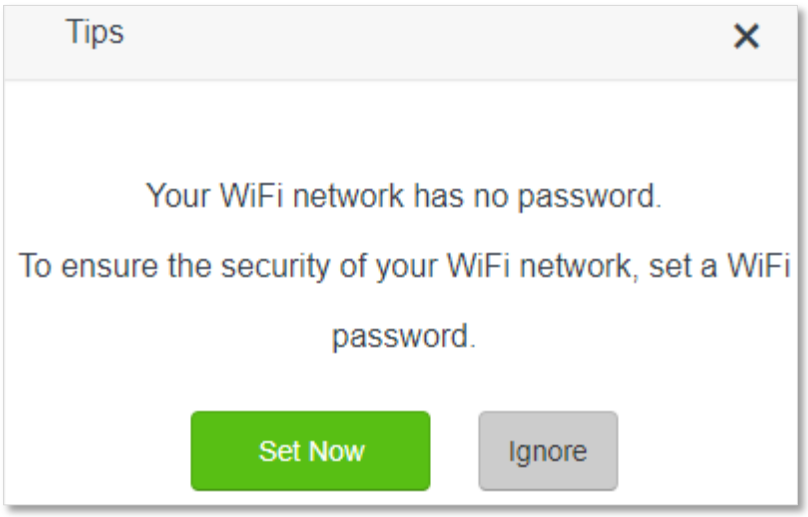
4. Click **Skip**.



5. Do not set login and WiFi password now by ticking **Not Required**, and click **Next**.

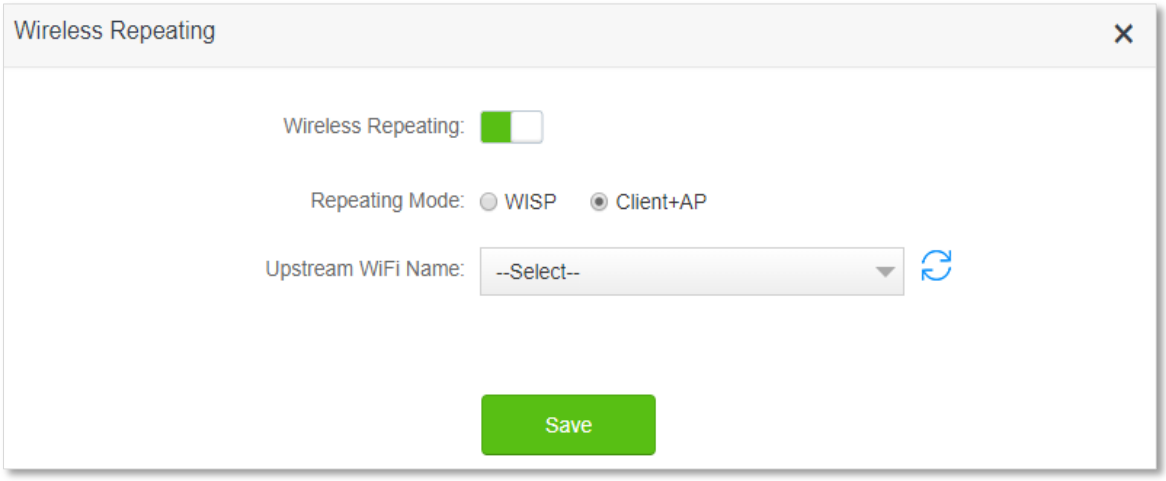


6. Click **Ignore**.



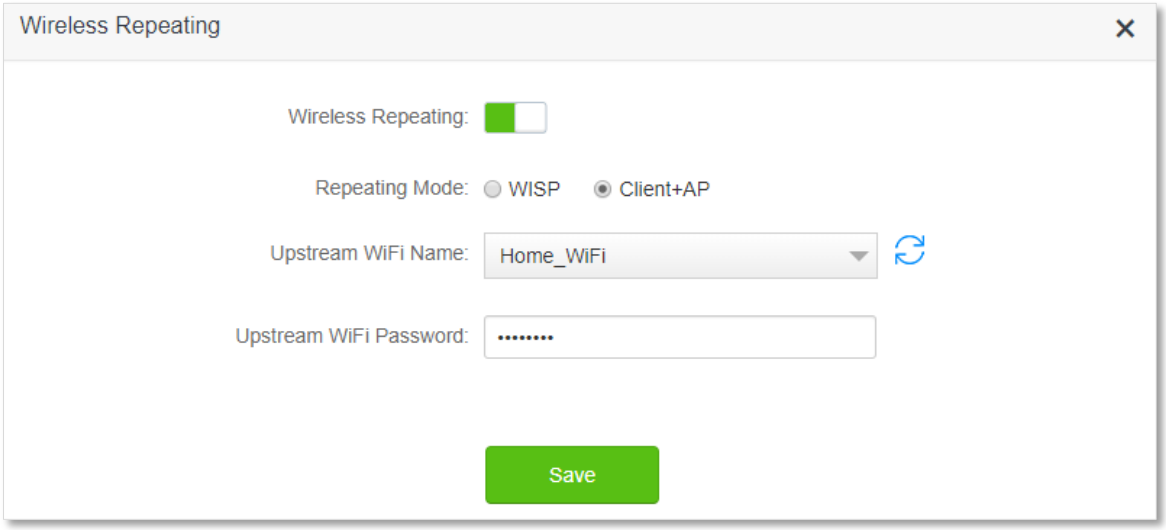
Step 2 Set the new router to **Client+AP** mode.

1. Choose **WiFi Settings** > **Wireless Repeating**.
2. Enable **Wireless Repeating**, and choose **Client+AP**.
3. Click **Select** to select the existing WiFi network, which is **Home_WiFi** in this example.

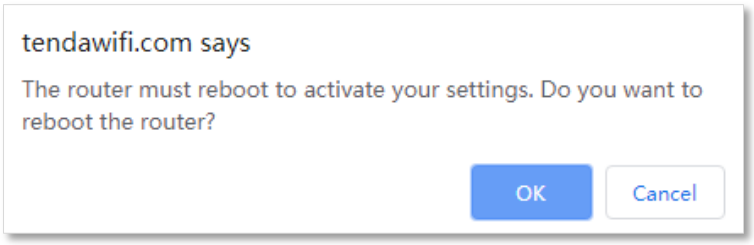


Step 3 Enter the **Upstream WiFi Password**, which is **Tenda+245** in this example.

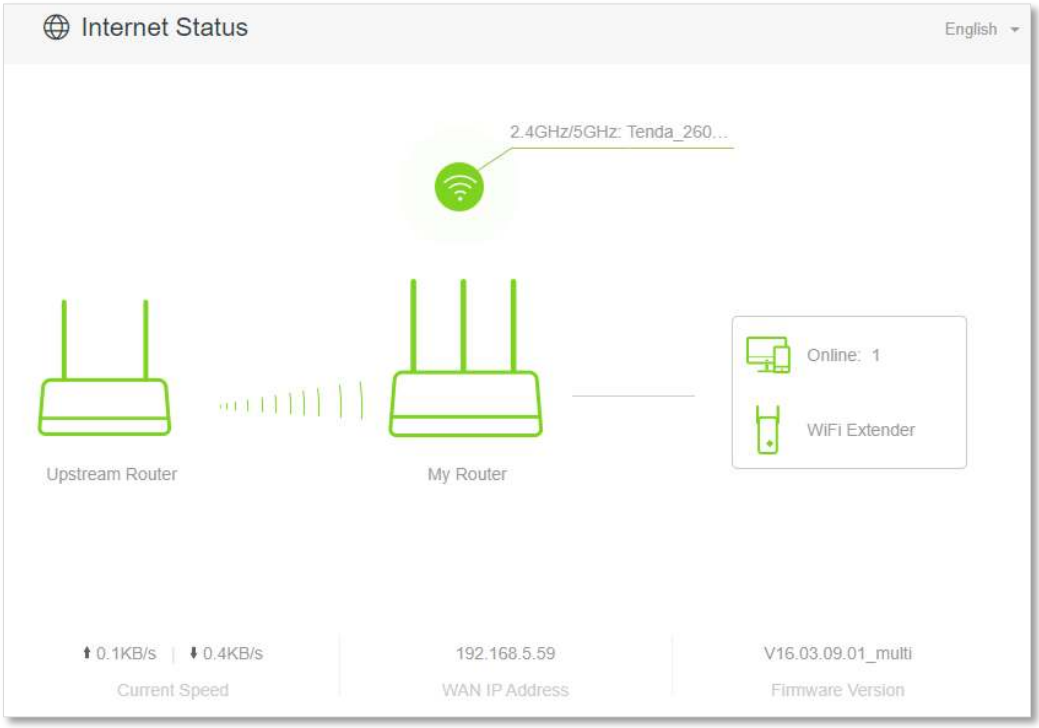
Step 4 Click **Save**.



Step 5 Click **OK**, and wait for the router to reboot.



Step 6 Log in to the web UI of the router again, navigate to **Internet Status** to check if the wireless repeating succeeds. Locate the new router in the area with weak WiFi signal and power it on again.



Step 7 Relocate the new router and power it on by referring to the following suggestions to r.

- Locate the new router between the original router and the uncovered area, but within the coverage of the original router.
- Away from the microwave oven, electromagnetic oven, refrigerator.
- Above the ground with few obstacles.

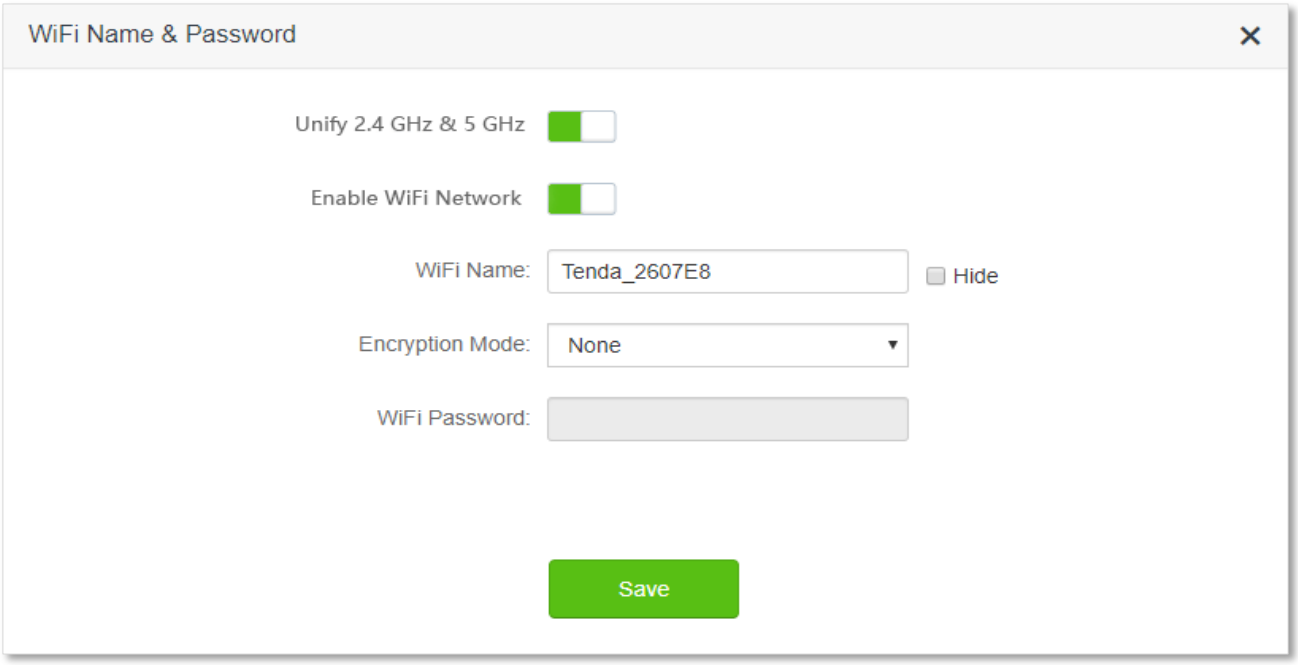
NOTE

After the new router is set to Client+AP mode:

- Do not connect any device to the WAN port of the new router.
- The LAN IP address of the router will change. Please log in to the web UI of the router by visiting **tendawifi.com**. If there is another network device with the same login domain name (tendawifi.com) with the router, log in to the upstream router and find the IP address obtained by the new router in the client list. Then you can log in to the web UI of the router by visiting the IP address.

To access the internet, connect your computer to a LAN port of the new router (1, 2, IPTV/3 for AC21 and AC23; 1, 2, 3, IPTV/4 for AC19), or connect your smart phone to the WiFi network of the new router.

You can find the WiFi name and password on the **WiFi Settings** > **WiFi Name & Password** page. If the network is not encrypted, you can also set a WiFi password on this page for security.



TIP

If you cannot access the internet, try the following solutions:

- Ensure that the existing router is connected to the internet successfully.
- Ensure that your wireless devices are connected to the correct WiFi network of the new router.
- If the computer connected to the router cannot access the internet, ensure that the computer is configured to obtain an IP address and DNS sever automatically.

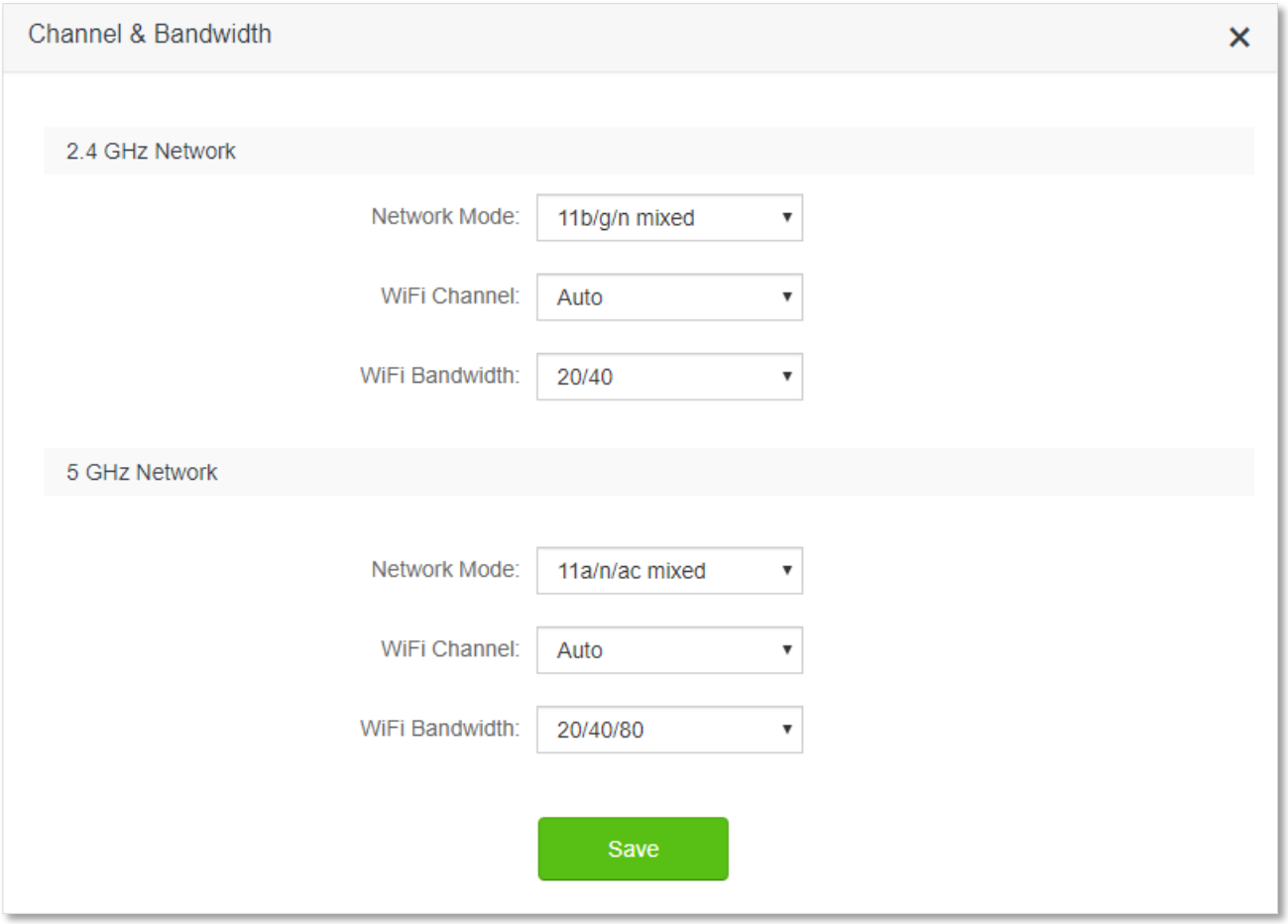
5.4 Channel & bandwidth

In this section, you are allowed to change network mode, wireless channel, and wireless bandwidth of 2.4 GHz and 5 GHz WiFi networks.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **Channel & Bandwidth**.

TIP

In order not to influence the wireless performance, it is recommended to maintain the default settings on this page without professional instructions.



Parameter description

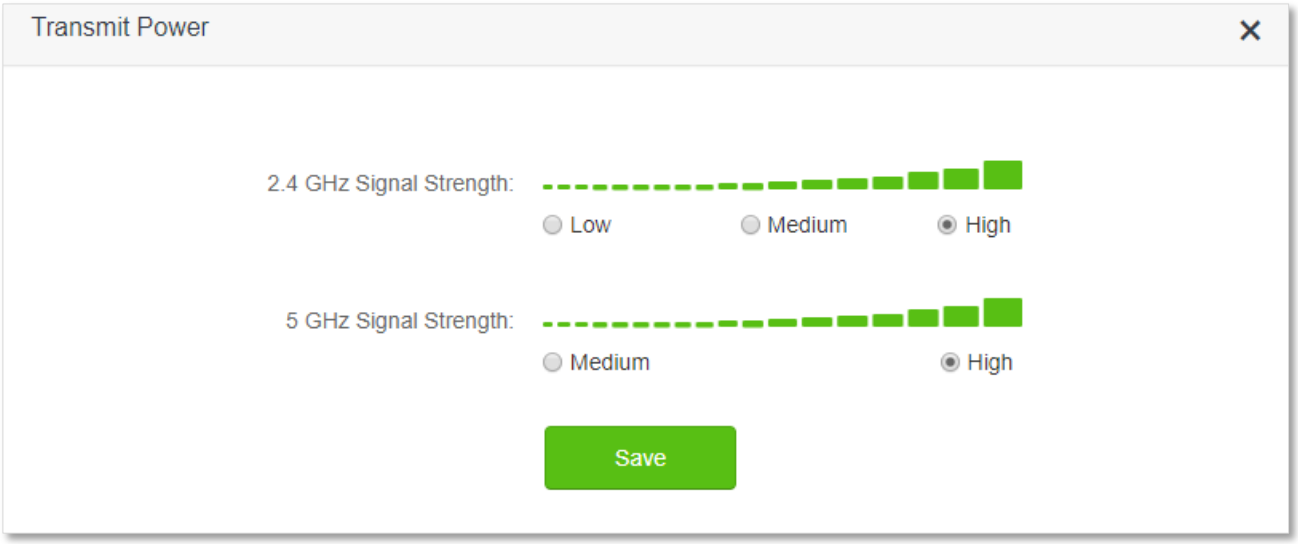
Parameter	Description
Network Mode	It specifies various protocols adopted for wireless transmission. 2.4 GHz WiFi network supports 11n, 11b/g mixed and 11b/g/n mixed modes. • **11n**: It indicates that devices compliant with IEEE 802.11n protocol can connect to the 2.4 GHz WiFi network of the router, enjoying a maximum transmission rate of 11 Mbps. • **11b/g mixed**: It indicates that devices compliant with IEEE 802.11b or IEEE 802.11g protocol can connect to the 2.4 GHz WiFi network of the router, enjoying a maximum transmission rate of 54 Mbps. • **11b/g/n mixed**: It indicates that all devices can connect to the router if they are compliant with

Parameter	Description
	IEEE 802.11b or IEEE 802.11g protocol, or work at 2.4 GHz with IEEE 802.11n protocol, therefore enjoying a maximum transmission rate of 300 Mbps. 5 GHz WiFi network supports 11ac, 11a/n/ac mixed modes. • **11ac**: It indicates that devices complaint with IEEE 802.11ac protocol can connect to the router, enjoying a maximum transmission rate of 866 Mbps. • **11a/n/ac mixed**: It indicates that all devices that are compliant with IEEE 802.11a or IEEE 802.11ac protocol, or work at 5 GHz with IEEE 802.11n protocol can connect to the router, enjoying a maximum transmission rate of 866 Mbps.
WiFi Channel	It specifies the channel in which the WiFi network works. By default, the wireless channel is **Auto**, which indicates that the router selects a channel for the WiFi network automatically. You are recommended to choose a channel with less interference for better wireless transmission efficiency. You can use a third-party tool to scan the WiFi signals nearby to understand the channel usage situations.
WiFi Bandwidth	It specifies the bandwidth of the wireless channel of a WiFi network. Please change the default settings only when necessary. • **20**: It indicates that the channel bandwidth used by the router is 20 MHz. • **40**: It indicates that the channel bandwidth used by the router is 40 MHz. • **20/40**: It specifies that a router can switch its channel bandwidth between 20 MHz and 40 MHz based on the ambient environment. This option is available only at 2.4 GHz. • **80**: It indicates that the channel bandwidth used by the router is 80 MHz. This option is available only at 5 GHz. • **20/40/80**: It specifies that a router can switch its channel bandwidth among 20 MHz, 40 MHz, and 80 MHz based on the ambient environment. This option is available only at 5 GHz.

5.5 Transmit power

In this module, you can adjust the wall-penetration capability and wireless coverage of the router by setting the transmit power.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **Transmit Power**.



Parameter	Description
Signal Strength	It specifies the mode of signal strength. The default mode is **High**. • **High**: It is typically used to meet wireless coverage requirements in large or multi-barrier environments. • **Medium**: It is typically used to meet wireless coverage requirements in medium-area or less-obstacle environments. • **Low**: It is typically used to meet wireless coverage requirements in small area or barrier-free environments. TIP It is recommended to choose the Low mode if the network experience is satisfactory enough under this mode.

5.6 WPS

5.6.1 Overview

The WPS function enables wireless devices, such as smartphones, to connect to WiFi networks of the router quickly and easily.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **WPS**.

NOTE

This function is only applicable to WPS-enabled wireless devices.

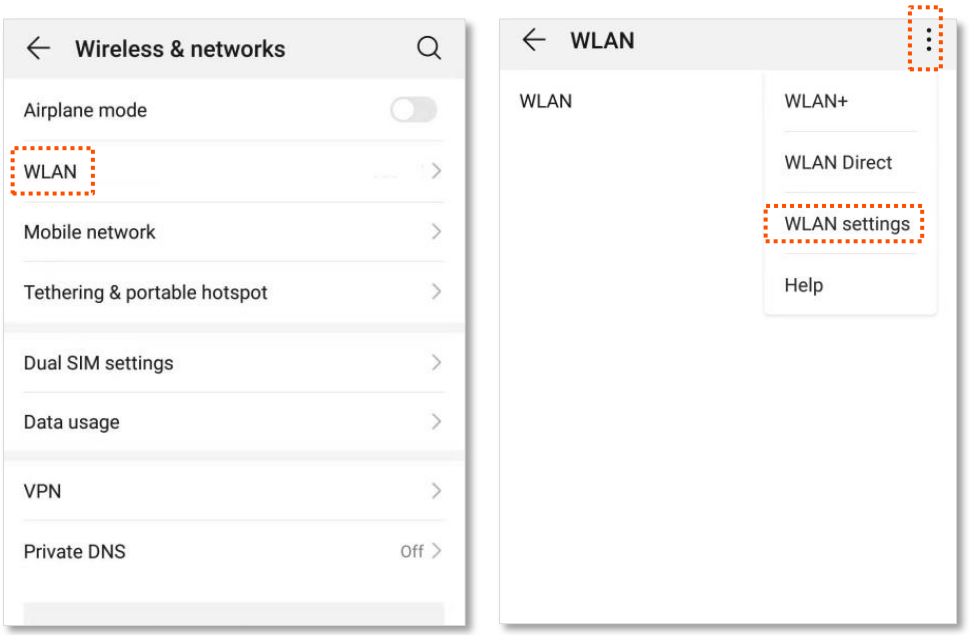
5.6.2 Connect devices to the WiFi network using the WPS button

Configuring procedure:

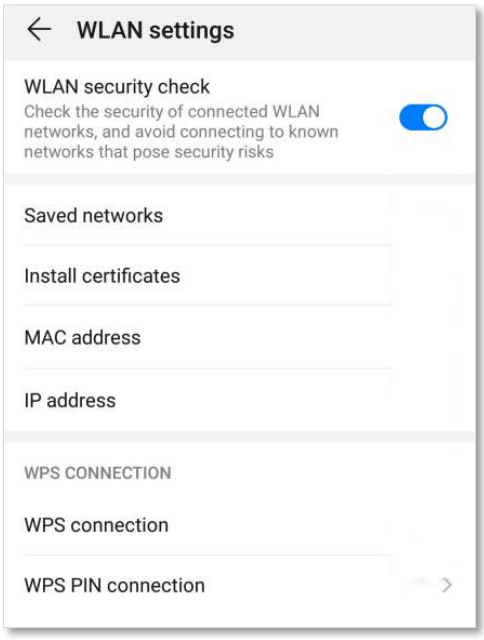
Step 1 Find the **WPS/RST** button (the button may be named: RST, WPS/RST, WiFi/RST, WPS/Reset or RST/WPS) on the rear panel of the router, and hold it down for 1 to 3 seconds. The WiFi indicator blinks slow.

Step 2 Configure the WPS function on your wireless devices **within 2 minutes**. Configurations on various devices may differ (Example: HUAWEI P10).

1. Find **WLAN** settings on the phone.
2. Tap ⋮, and choose **WLAN settings**.

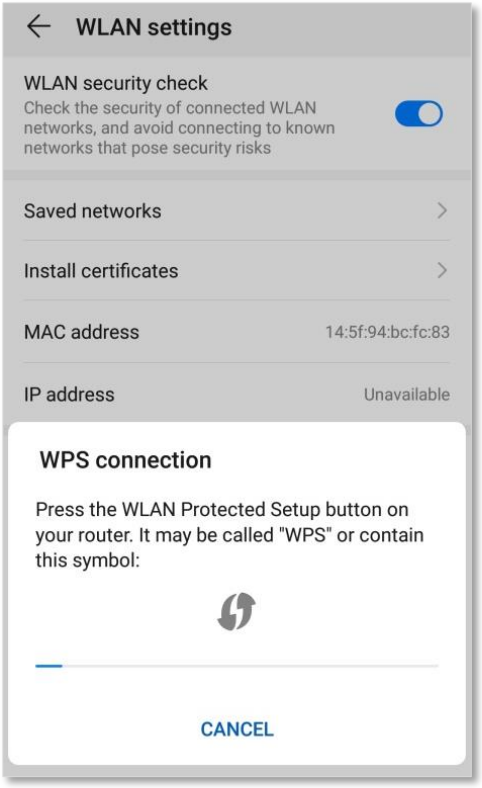


3. Choose **WPS connection**.



---End

Wait a moment until the WPS negotiation is completed, and the phone is connected to the WiFi network.



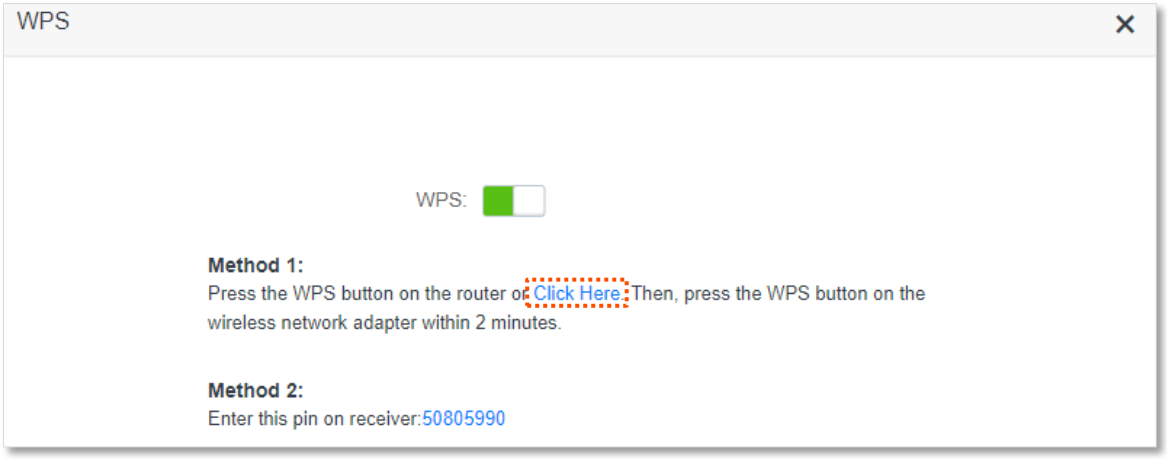
5.6.3 Connect devices to the WiFi network through the web UI of the router

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

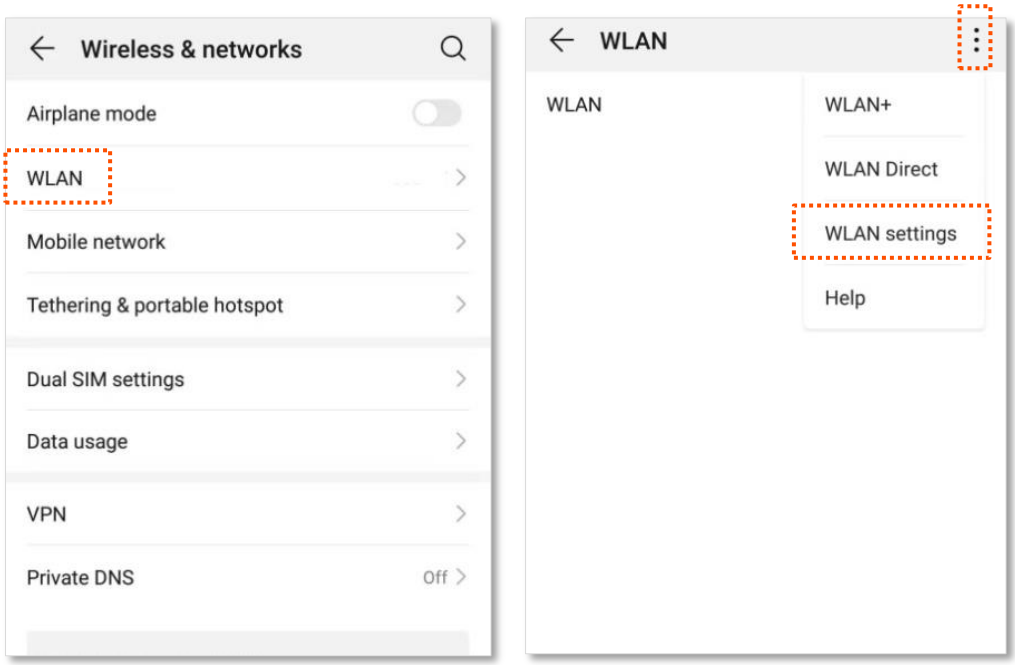
Step 2 Choose **WiFi Settings** > **WPS.**

Step 3 Click **Click Here** under **Method 1**.

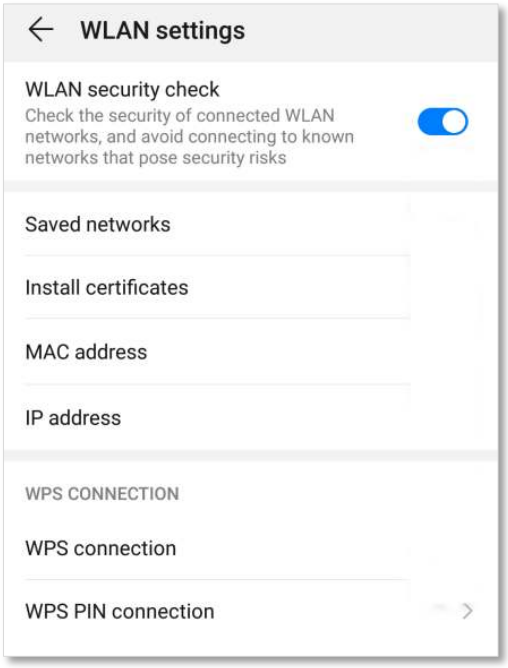


Step 4 Configure the WPS function on your wireless devices **within 2 minutes**. Configurations on various devices may differ (Example: HUAWEI P10).

1. Find **WLAN** settings on the phone.
2. Tap ⋮, and choose **WLAN settings**.

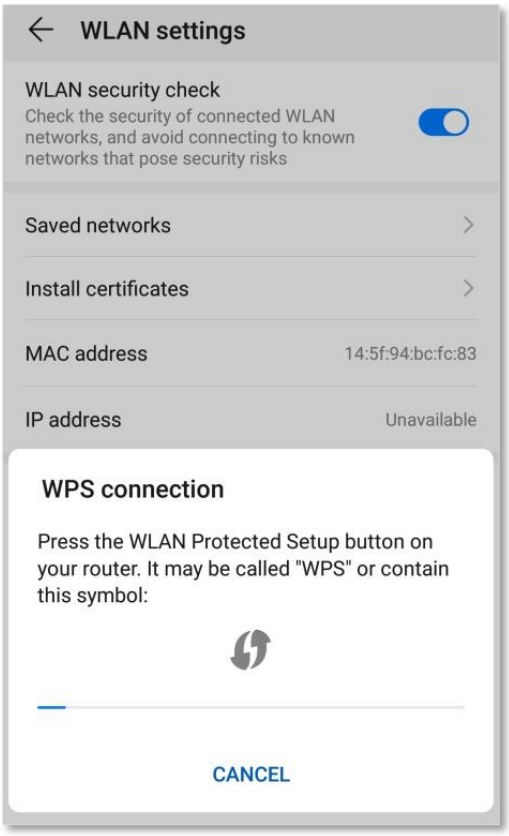


3. Choose **WPS connection**.



---End

Wait a moment until the WPS negotiation is completed, and the phone is connected to the WiFi network.



5.6.4 Connect devices to the WiFi network using the PIN code of the router

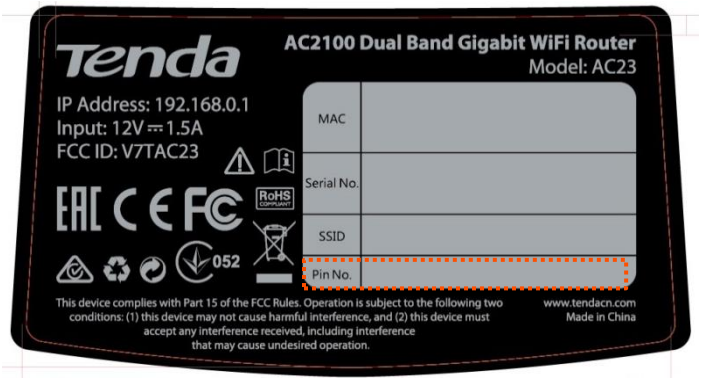
NOTE

The router only supports WPS connection by entering the PIN code on wireless devices, which is usually used on WiFi network adapters. Please refer to the user guide of the WiFi network adapter for configuration details.

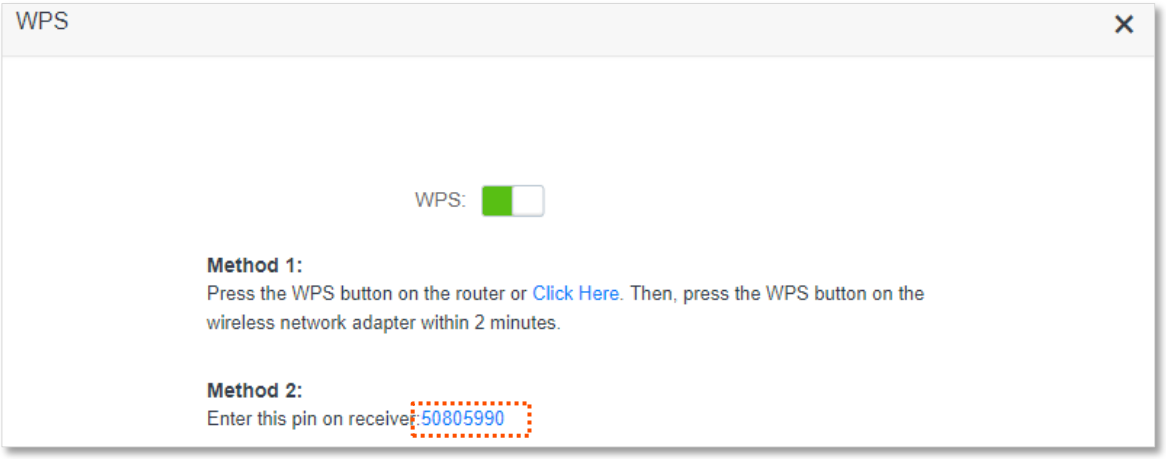
Configuring procedure:

Step 1 Find the PIN code of the router.

You can find the PIN code on the label on the bottom panel of the router.



You can also log in to the web UI of the router, and navigate to **WiFi Settings** > **WPS**. The PIN code is shown under **Method 2**.



Step 2 Enter the PIN code on the wireless device that supports WPS connection using the PIN code.

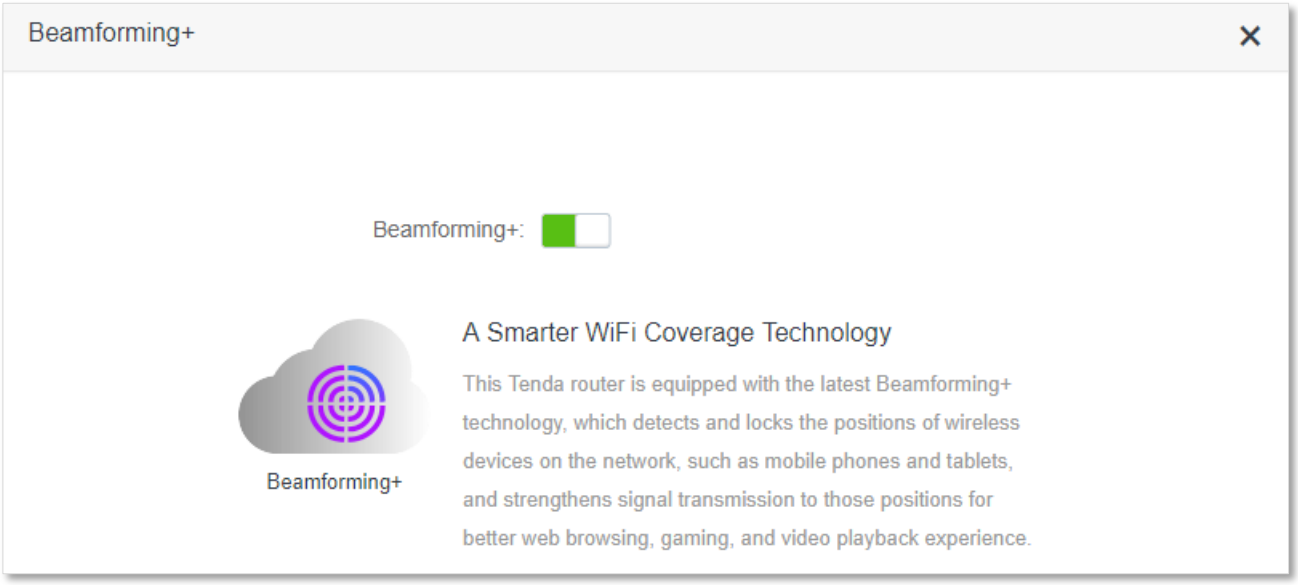
---End

Wait a moment until the WPS negotiation is completed, and the wireless device is connected to the WiFi network.

5.7 Beamforming+

Beamforming+ is a radio wave technology written into IEEE 802.11ac standard. Traditionally, the router broadcasts the data in all directions when broadcasting a WiFi signal. With beamforming, the router transmits radio signal in the direction of the client, thus creating a stronger, faster and more reliable wireless communication. This function is enabled by default.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **Beamforming+**.



The following figure shows the wireless transmission when Beamforming+ is enabled.



The following figure shows the wireless transmission when Beamforming+ is disabled.



5.8 AP mode

When you have a smart home gateway which only provides wired internet access, you can set the router to work in AP mode to provide wireless coverage.

TIP

When the router is set to AP mode:

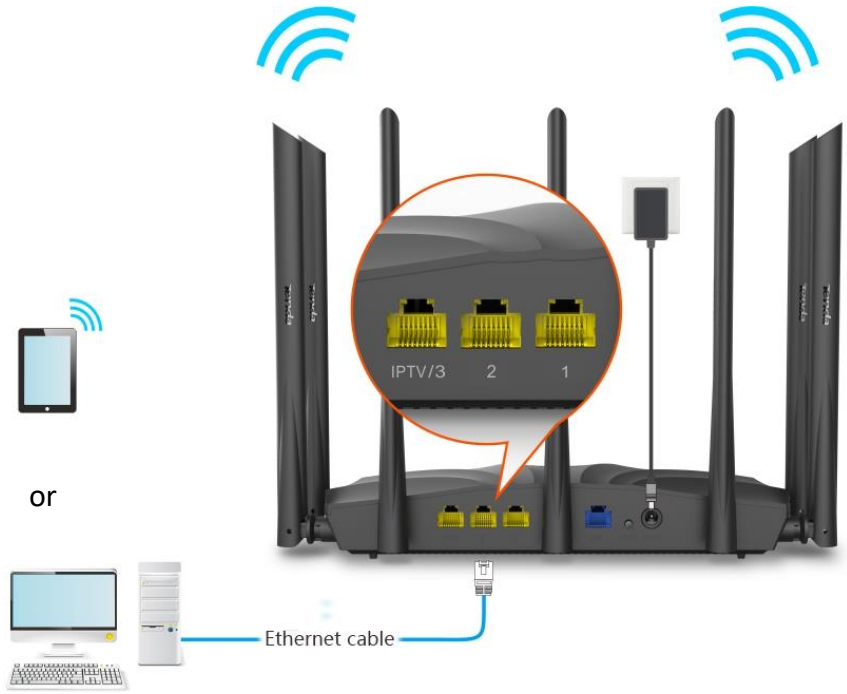
- Every physical port can be used as a LAN port.
- The LAN IP address of the router will be changed. Please log in to web UI of the router by visiting **tendawifi.com**.
- Functions, such as bandwidth control and virtual server will be unavailable. Refer to the web UI for available functions.

Configuring procedure:

TIP

If you have finished the quick setup wizard before, start a web browser and visit **tendawifi.com**, then start from **Step 2**.

Step 1 Power on the router. Connect a computer to a LAN port (1, 2 and IPTV/3 for AC23 and AC21, and 1, 2, 3 and IPTV/4 for AC19) of the router (AC23 is used for illustration here), or connect your smart phone to the WiFi network of the router.



Step 2 Log in to the web UI of the router.

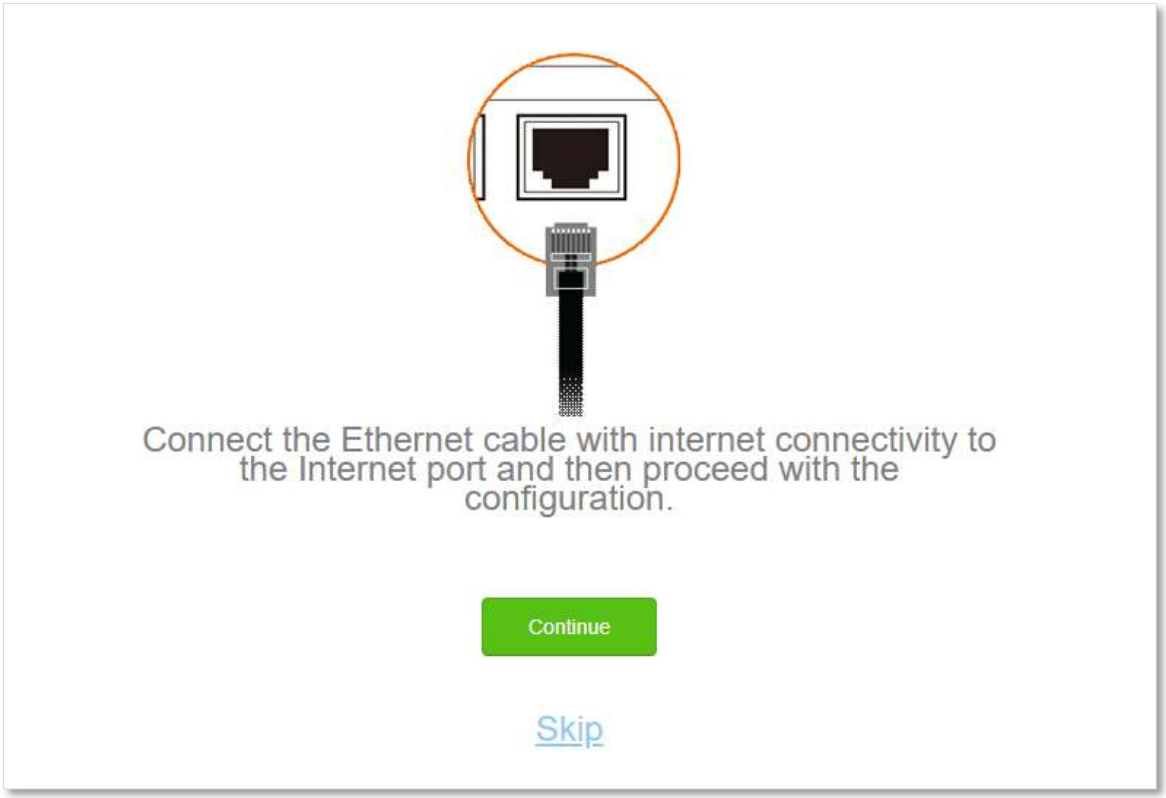
1. Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router. A computer is used for illustration below.



2. Click **Start**.



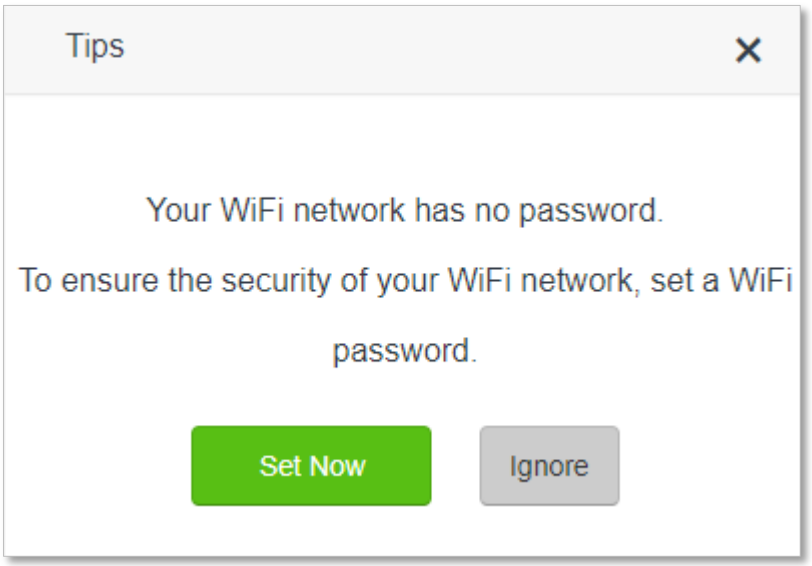
3. Click **Skip**.



4. Do not set login and WiFi password now by ticking **No Password**, and click **Next**.



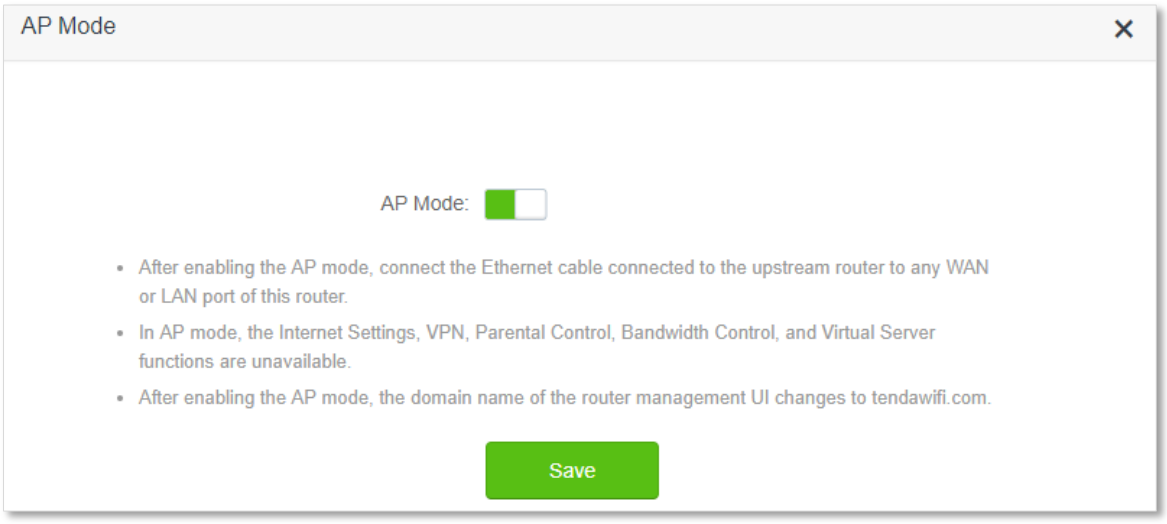
5. Click **Ignore**.



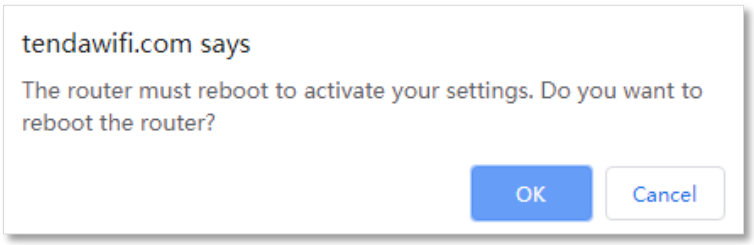
Step 3 Set the router to AP mode.

1. Navigate to **WiFi Settings** > **AP Mode**.
2. Enable **AP Mode**.

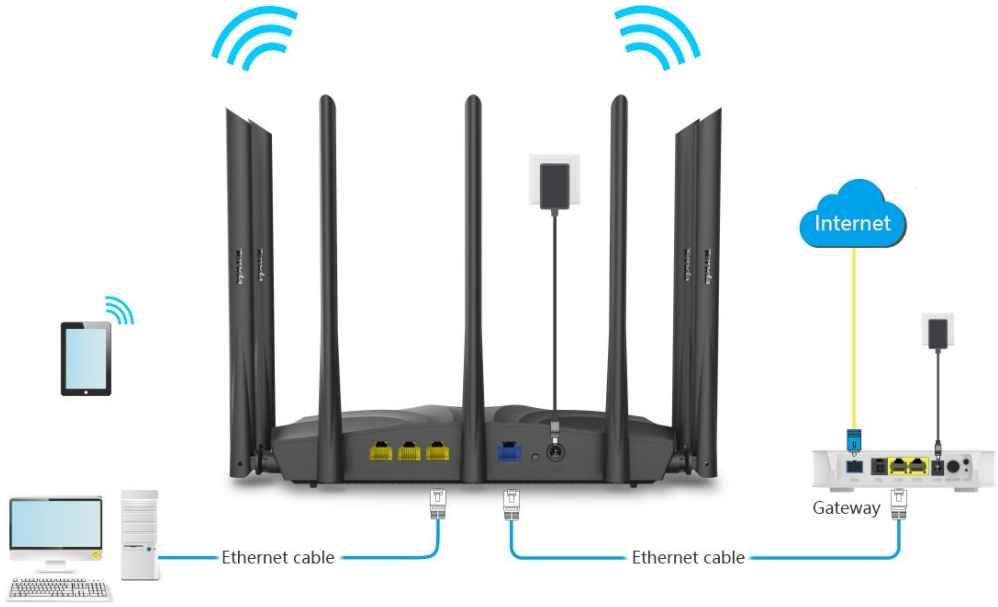
3. Click **Save**.



Step 4 Click **OK**, and wait for the router to reboot.

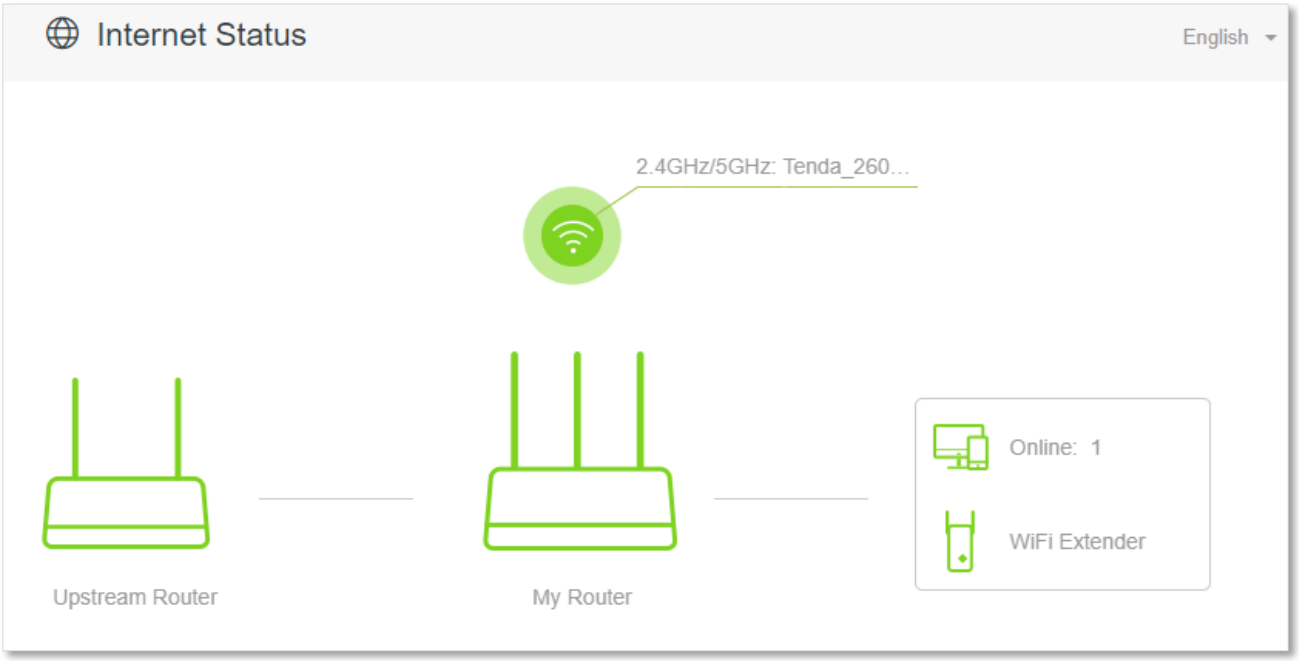


Step 5 Connect the upstream device, such as a gateway, to any port of the router.



---End

Log in to the web UI of the router again, and navigate to **Internet Status** to check if the AP mode is configured successfully.

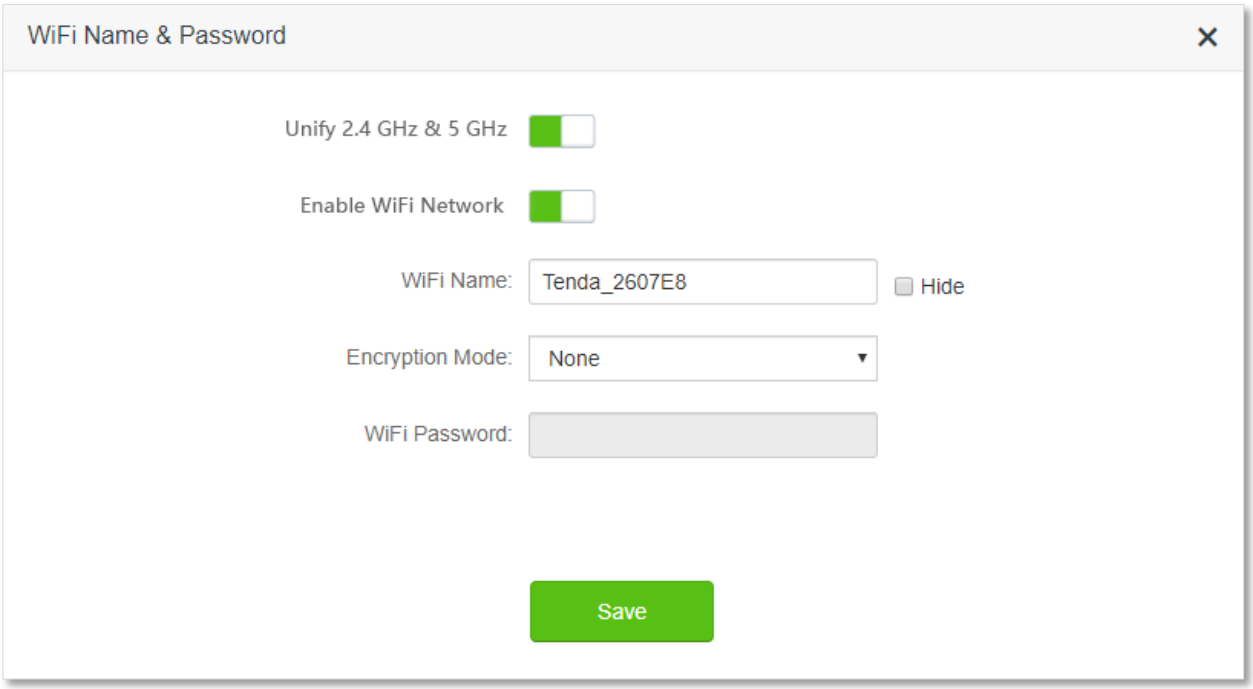


NOTE

If there is another network device with the same login domain name (tendawifi.com) with the router, log in to the upstream router and find the IP address obtained by the new router in the client list. Then you can log in to the web UI of the router by visiting the IP address.

To access the internet, connect your computer to physical port, or connect your smart phone to the WiFi network.

You can find the WiFi name and password on the **WiFi Settings** > **WiFi Name & Password** page. If the network is not encrypted, you can also set a WiFi password on this page for security.



TIP

If you cannot access the internet, try the following solutions:

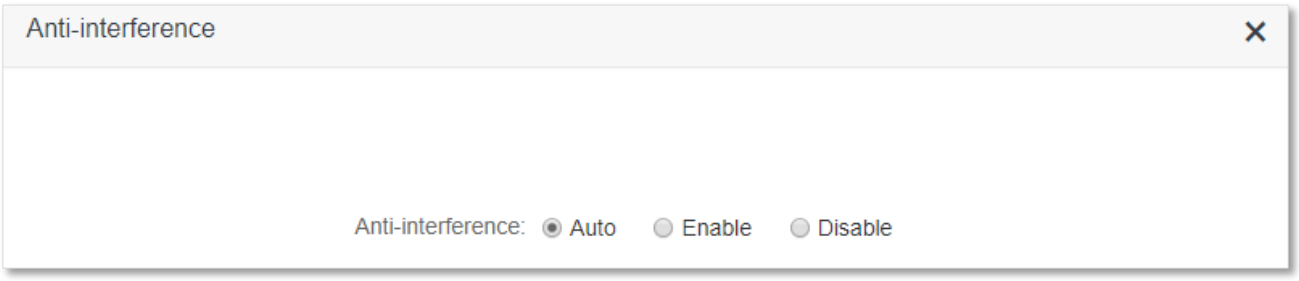
- Ensure that the existing router is connected to the internet successfully.
- Ensure that your wireless devices are connected to the correct WiFi network of the new router.
- If the computer connected to the router cannot access the internet, ensure that the computer is configured to obtain an IP address and DNS sever automatically.

5.9 Anti-interference

The router supports anti-interference function. When you are experiencing unsatisfactory internet access, you can try to change the anti-interference settings to improve it.

To access the configuration page, log in to the web UI of the router, and choose **WiFi Settings** > **Anti-interference**.

The default setting is **Auto**.



- **Auto**: It indicates that the router will automatically adjust the receiving sensitivity according to the interference of the current environment. It is recommended to keep **Auto**.
- **Enable**: It indicates that the anti-interference ability of the router improves, but the WiFi network coverage is reduced.
- **Disable**: It indicates that the wireless coverage of the router is improved. If the wireless interference in the environment is strong, it is recommended to select **Auto** or **Enable**.

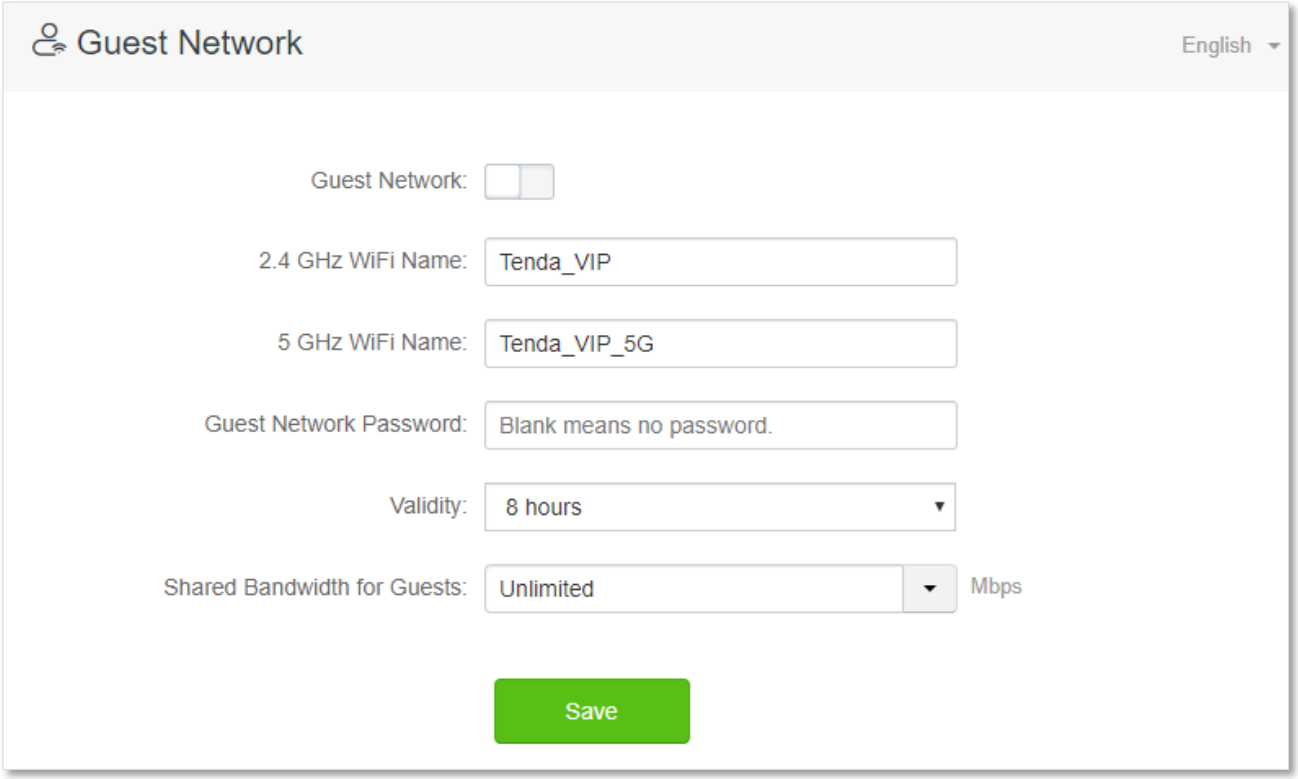
6 Guest network

6.1 Overview

In this module, you can enable/disable the guest network function and change the WiFi name and password of the guest network.

A guest network can be set up with a shared bandwidth limit for visitors to access the internet, and isolated from the main network. It protects the security of the main network and ensures the bandwidth of your main network.

To access the configuration page, log in to the web UI of the router and navigate to the **Guest Network**. This function is disabled by default.



Parameter description

Parameter	Description
Guest Network	It is used to enable or disable the guest network function.
2.4 GHz WiFi Name	It specifies the WiFi name of the router's guest network. By default, Tenda_VIP is for the 2.4 GHz WiFi network and Tenda_VIP_5G for the 5 GHz WiFi network. You can change the SSIDs (WiFi names) as required. To distinguish the guest network from the main network, you are recommended to set different WiFi network names.
5 GHz WiFi Name	

Parameter	Description
Guest Network Password	It specifies the password for the router’s two guest networks.
Validity	It specifies the validity of the guest networks. The guest network function will be disabled automatically out of the validity period.
Shared Bandwidth for Guests	It allows you to specify the maximum upload and download speed for all devices connected to the guest networks. By default, the bandwidth is not limited.

6.2 An example of configuring the guest network

Scenario: A group of friends are going to visit your home and stay for about 8 hours.

Goal: Prevent the use of WiFi network by guests from affecting the network speed of your computer for work purposes.

Solution: You can configure the guest network function and let your guests to use the guest networks.

Assume that the parameters you are going to set for the guest WiFi network:

- WiFi names for 2.4 GHz and 5 GHz networks: John_Doe and John_Doe_5G.
- WiFi password for 2.4 GHz and 5 GHz networks: Tenda+245.
- The shared bandwidth for guests: 2 Mbps.

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Guest Network**.

Step 3 Enable the **Guest Network**.

Step 4 Set the **2.4 GHz WiFi Name**, which is **John_Doe** in this example.

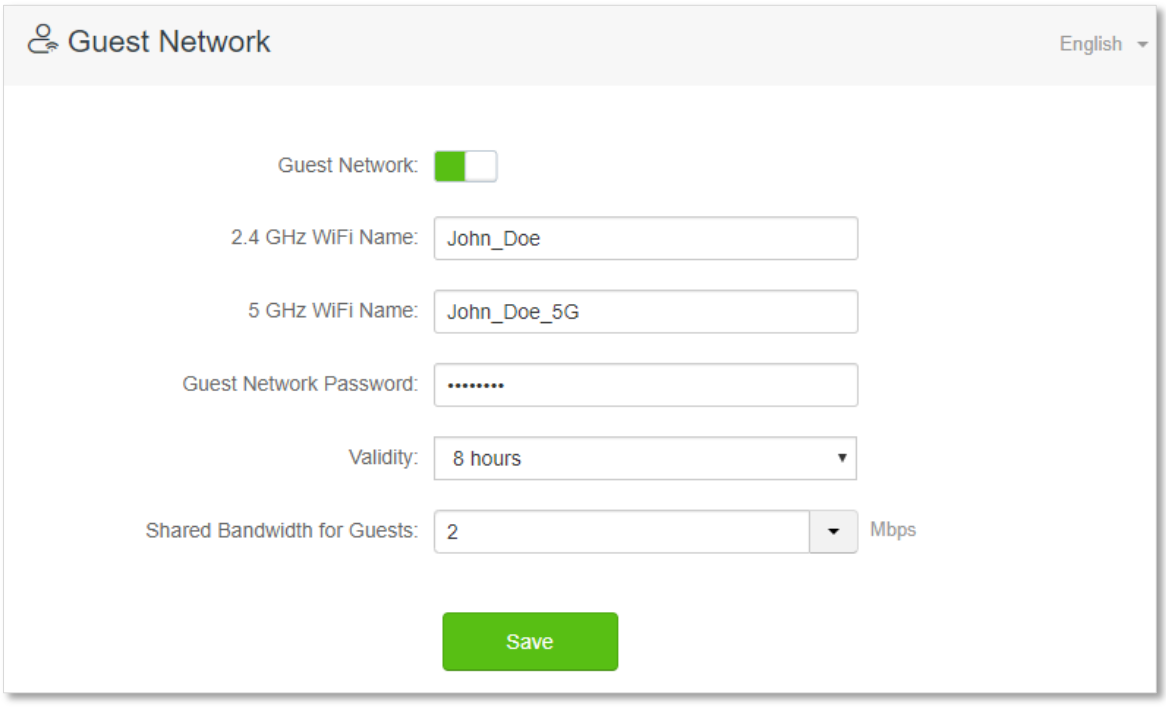
Step 5 Set the **5 GHz WiFi Name**, which is **John_Doe_5G** in this example.

Step 6 Set **Guest Network Password**, which is **Tenda+245** in this example.

Step 7 Select a validity time from the **Validity** drop-down box, which is **8 hours** in this example.

Step 8 Set the bandwidth in the **Shared Bandwidth for Guests** drop-down box, which is **2** in this example.

Step 9 Click **Save**.



---End

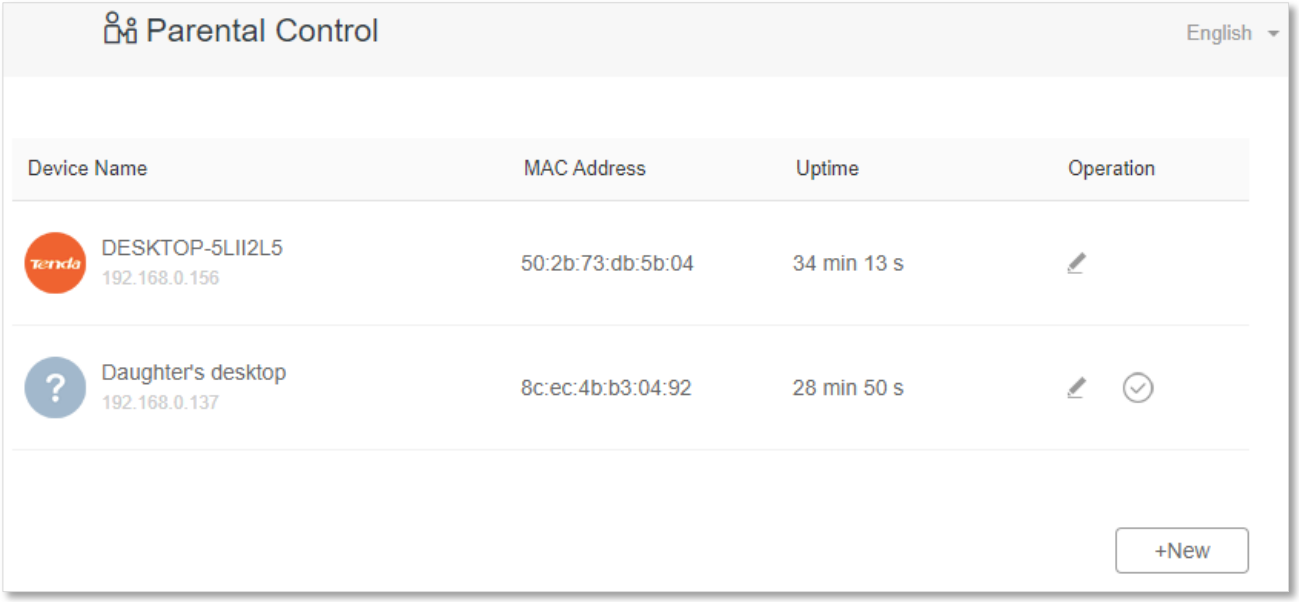
During the 8 hours after the configuration, guests can connect their wireless devices, such as smartphones, to **John_Doe** or **John_Doe_5G** to access the internet and enjoy the shared bandwidth of 2 Mbps.

7 Parental control

7.1 Overview

On the parental control page, you can view the information of online devices and configure their internet access options.

To access the configuration page, log in to the web UI of the router, and navigate to the **Parental Control** page.

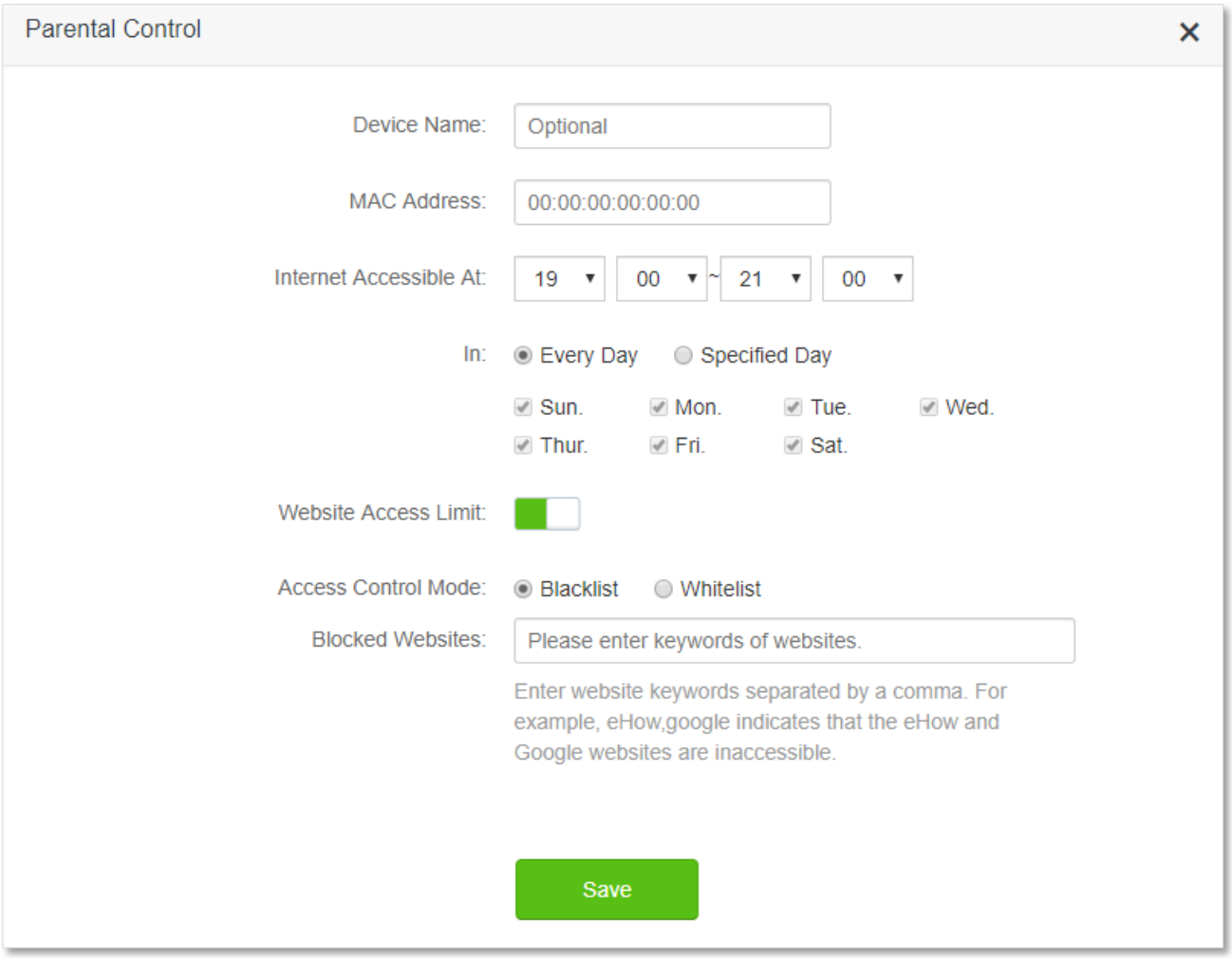


Parameter description

Parameter	Description
Device Name	It specifies the name of the online device.
MAC Address	It specifies the MAC address of the online device.
Uptime	It specifies the online duration of the device.
Operation	Click to configure the parental control rule for the device. After you have configured the parental control rule for the device, there should be a or button, which is used to enable or disable the configured rule.
+New	Click +New to add parental control rules for devices that are not connected to the router at the time.

7.2 Configure the parental control rule

Click or **+New** to edit or add a parental control rule. **+New** is used for illustration here.



Parameter	Description
Device Name	It specifies the name of the device that the parental control rule applies to.
MAC Address	It specifies the MAC address of the device that the parental control rule applies to.
Internet Accessible At	It specifies the period during which the device can access the internet.
In	It specifies the days when the rule takes effect.
Website Access Limit	It is used to enable or disable the website access limit function.
Access Control Mode	When the website access limit function is enabled, there are two access control modes available. • **Blacklist**: The device is blocked from accessing the websites specified in the rule during the specified period, but can access other websites. The device cannot access the internet out of the specified period. • **Whitelist**: The device is allowed to access the websites specified in the rule during the specified period, but cannot access other websites. The device cannot access any website out of the specified period.

Parameter	Description
Blocked Websites	It specifies the websites that the device is blocked from accessing or allowed to access during the specified period.
Unblocked Websites	

7.3 An example of adding parental control rules

Scenario: The final exam for your daughter is approaching and you want to configure her internet access through the router.

Goal: Websites, such as facebook, twitter, youtube and Instagram, are inaccessible during 8:00 to 22:00 on weekends using the computer in her room, and no internet access is available from 22:00 to 8:00.

Solution: You can configure the parental control function to reach the goal.

Configuring procedure:

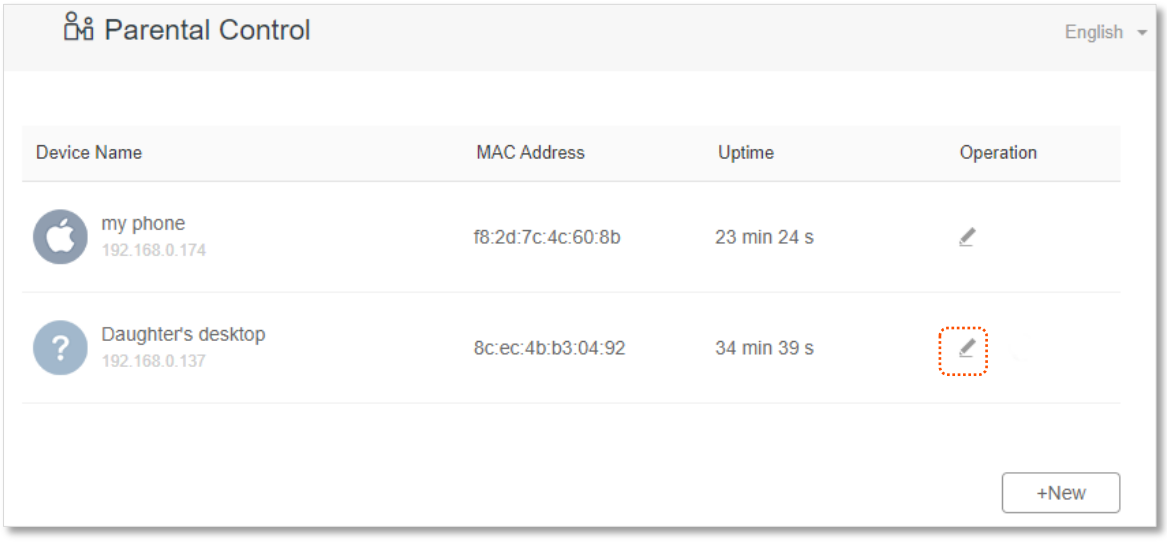
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Parental Control**.

Step 3 Find the device to which the rule applies, and click .

TIP

If the device to which the rule applies is not online at the time, you can click **+New** to add a parental control rule for the device.



Step 4 Specify the period when the target websites cannot be accessed, which is **8:00 ~ 22:00** in this example.

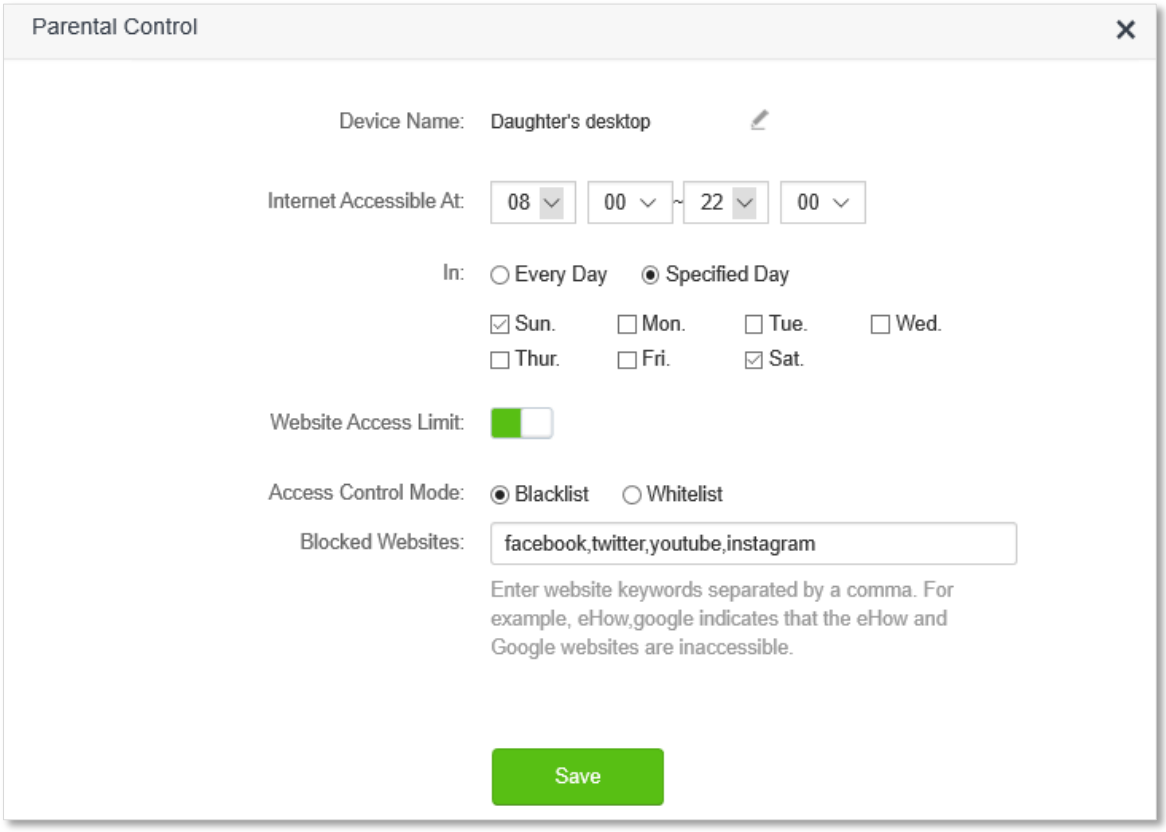
Step 5 Choose **Specified Day**, and tick the days when the rule is applied, which are **Sun.** and **Sat.** in this example.

Step 6 Enable **Website Access Limit**.

Step 7 Choose **Blacklist**.

Step 8 Set **Blocked Websites**, which is **facebook,twitter,youtube,instagram**.

Step 9 Click **Save**.



---End

After the configuration is completed, your daughter can access any websites except for facebook, twitter, youtube and instagram from 8:00 to 22:00 on weekends, and she cannot access the internet at all between 22:00 to 8:00.

8 VPN

A VPN (Virtual Private Network) is a private network built on a public network (usually the Internet). This private network exists only logically and has no actual physical lines. VPN technology is widely used in corporate networks to share resources between corporate branches and headquarters, while ensuring that these resources are not exposed to other users on the internet.

The typology of a VPN network is shown below.

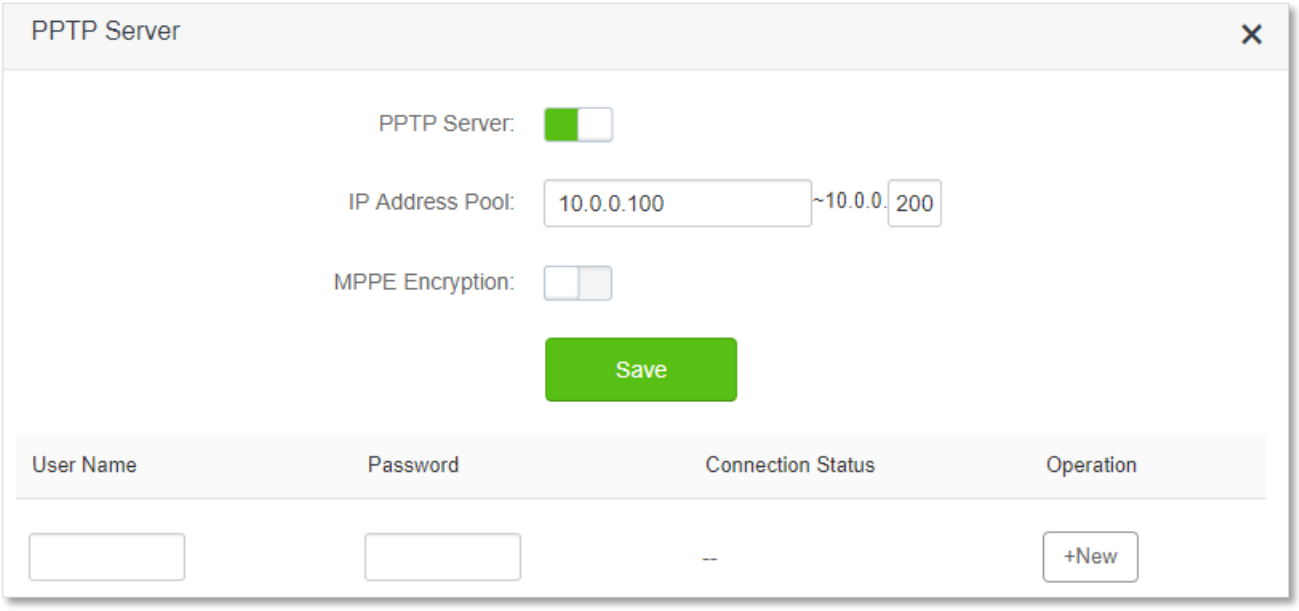


8.1 PPTP server

8.1.1 Overview

This series of routers can function as a PPTP server and accept connections from PPTP clients.

To access the configuration page, log in to the web UI of the router, and choose **VPN** > **PPTP Server**. This function is disabled by default. When it is enabled, the page is shown as below.



Parameter description

Parameter	Description
PPTP Server	It is used to enable or disabled the PPTP server. When it is enabled, the router functions as a PPTP server, which can accept the connections from PPTP clients.
IP Address Pool	It specifies the range of IP address range within which the PPTP server can assign to PPTP clients. It is recommended to keep the default settings.
MPPE Encryption	It is used to enable or disable 128-bit data encryption. The encryption settings should be the same between the PPTP server and PPTP clients. Otherwise, the communication cannot be achieved normally.
User Name Password	It specifies the VPN user name and password, which the VPN user needs to enter when making PPTP dial-ups (VPN connections).
Connection Status	It specifies the connection status of the VPN connection.
Operation	The available operations include: • +New : It is used to add new PPTP user accounts. • : It is used to disable the PPTP user account. • : It is used to enable the PPTP user account. • : It is used to delete the PPTP user account.

8.1.2 Enable internet users to access resources of the LAN

Scenario: You have set up a FTP server within the LAN of the router.

Goal: Open the FTP server to internet users and enable them to access the resources of the FTP server from the internet.

Solution: You can configure the PPTP server function to reach the goal. Assume that:

- The user name and password that the PPTP server assigns to the client are both admin1.
- The WAN IP address of router is 113.88.112.220.
- The IP address of the FTP server is 192.168.0.136.
- The FTP server port is 21.
- The FTP login user name and password are both: JohnDoe

TIP

Please ensure the WAN IP address of router is a public network. This function may not work on a host with an IP address of a private network. Common IPv4 addresses are classified into class A, class B and class C. Private IP addresses of class A range from 10.0.0.0 to 10.255.255.255; Private IP addresses of class B range from 172.16.0.0-172.31.255.255; Private IP addresses of class C range from 192.168.0.0-192.168.255.255.

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **VPN** > **PPTP Server**.

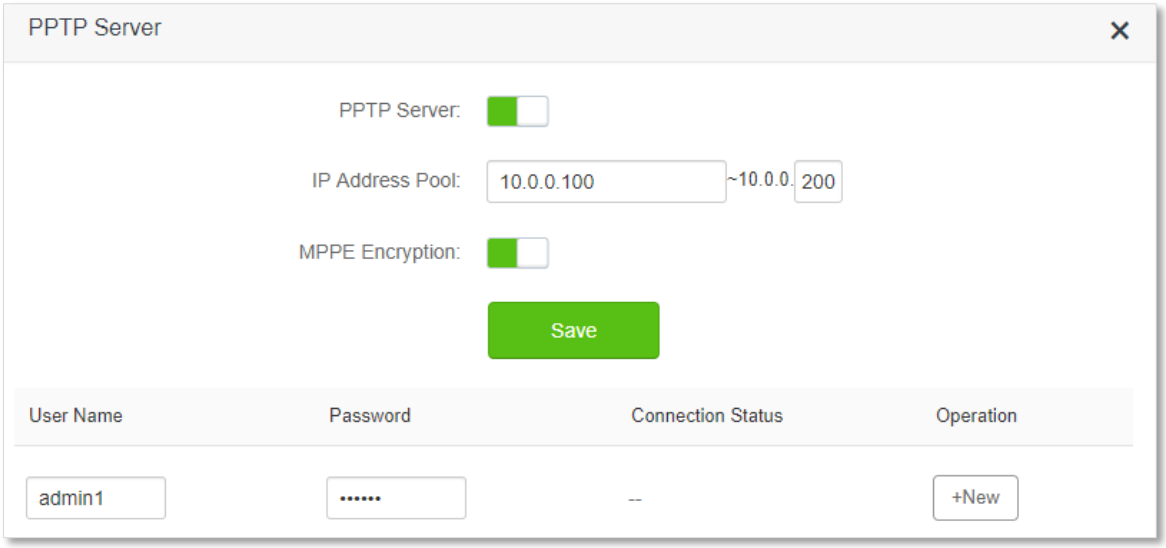
Step 3 Enable the **PPTP Server**.

Step 4 Enable the **MPPE Encryption**, which means that the encryption digit remains the default value “128”.

Step 5 Set the **User Name** and **Password** of the PPTP server, which are **admin1** in this example.

Step 6 Click **+New**.

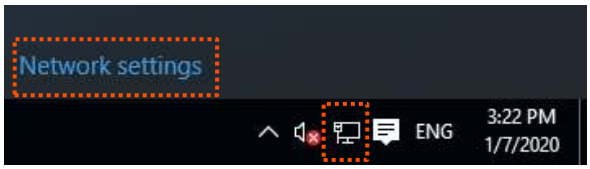
Step 7 Click **Save.**



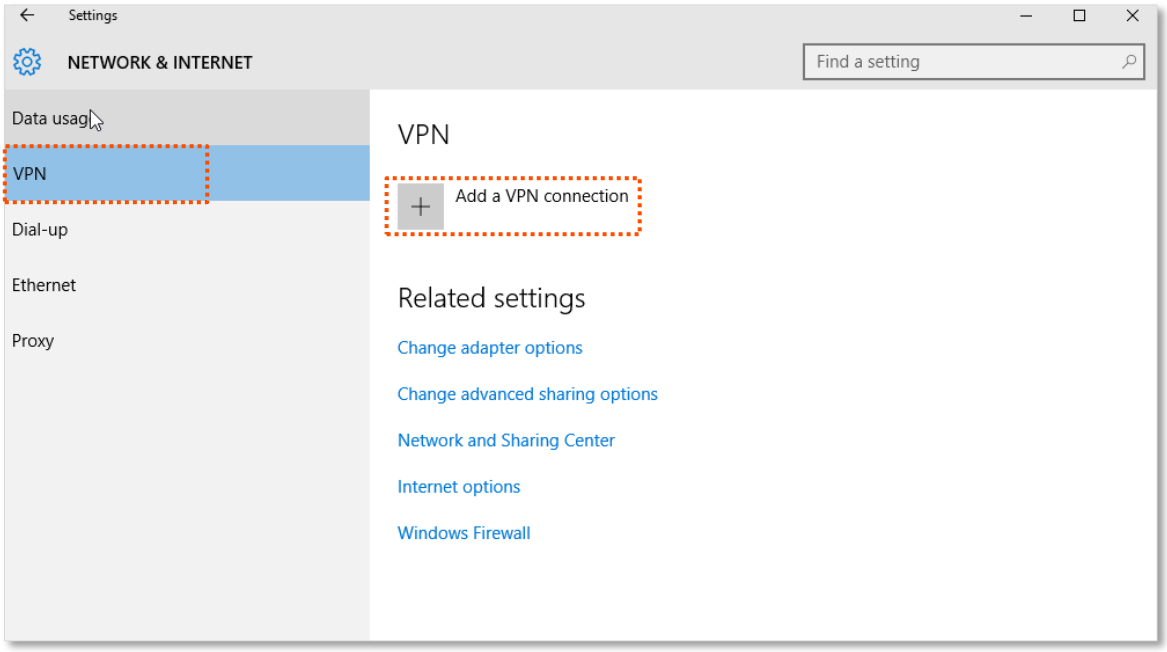
---End

When completing the configurations, internet users can access the FTP server by following these steps:

Step 1 Click the  icon at the bottom right corner on the desktop, and then click **Network settings**.

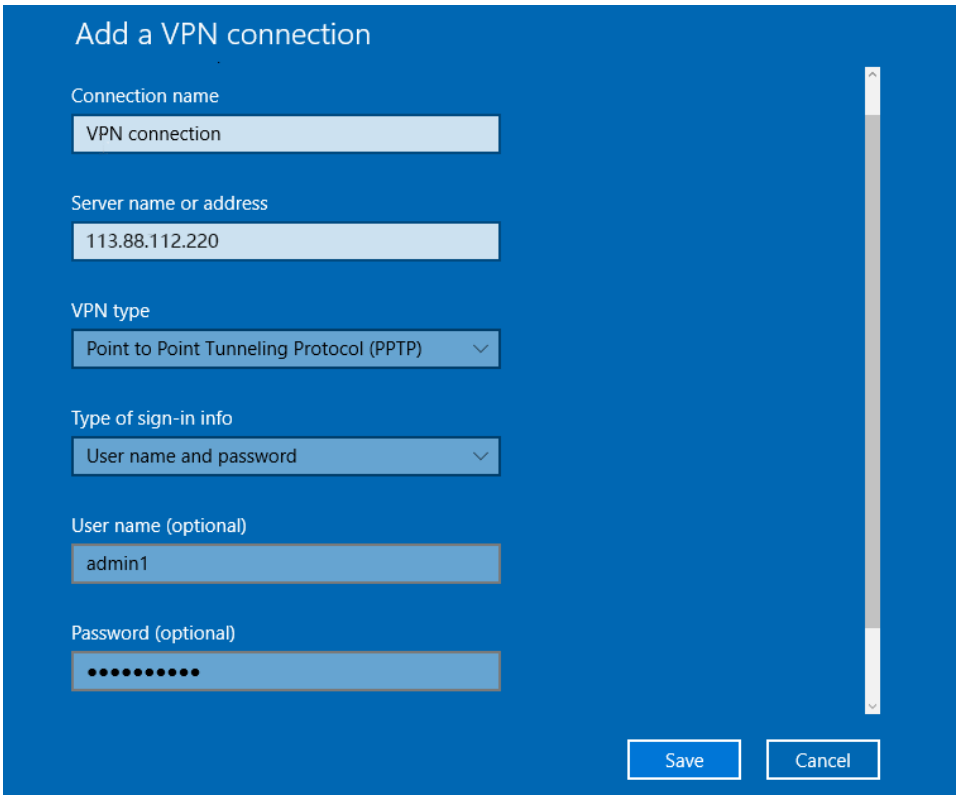


Step 2 Choose **VPN** on the left side, and click **Add a VPN connection**.

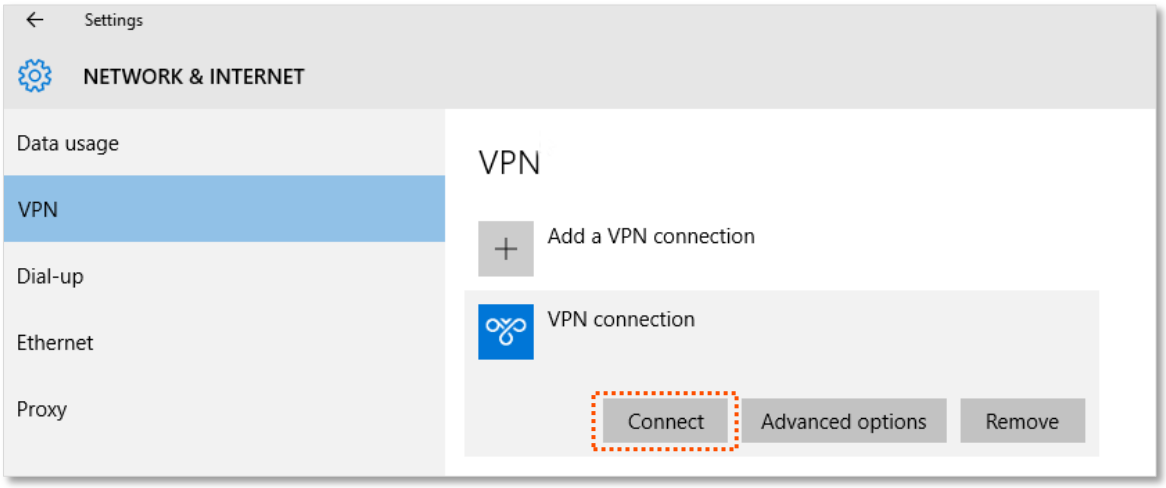


Step 3 Configure the VPN parameters.

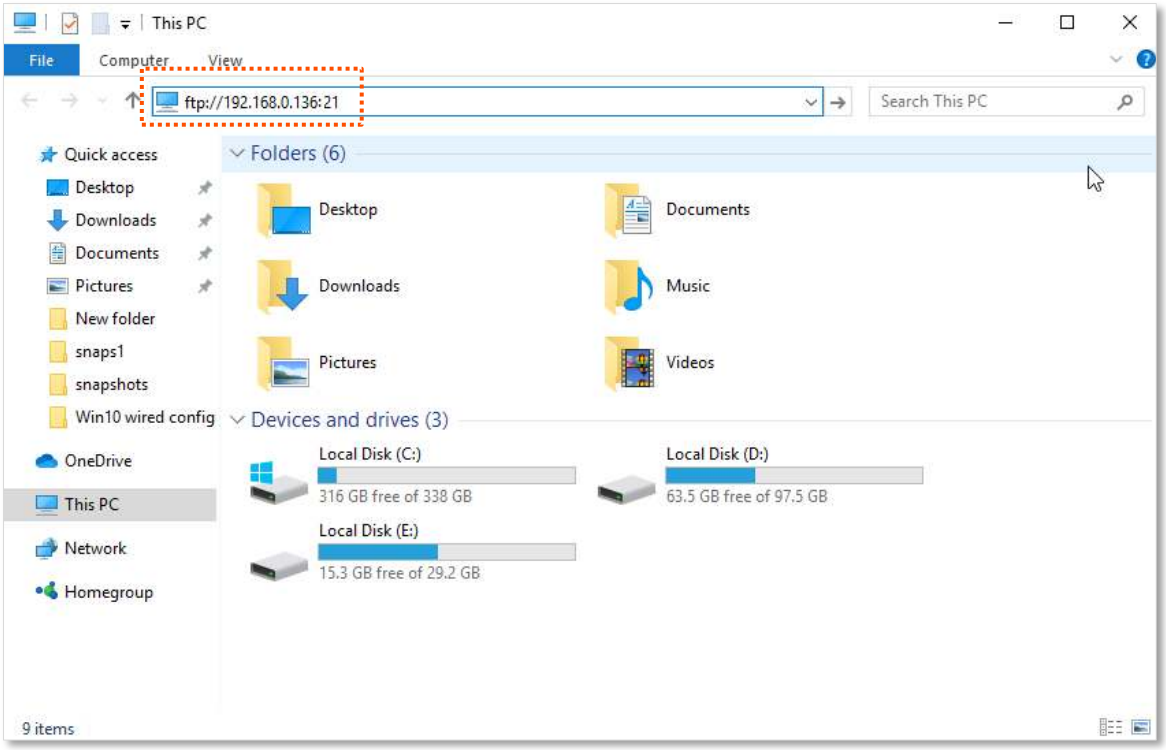
1. Enter a connection name, such as **VPN connection**.
2. Enter the server address, which is **113.88.112.220** in this example.
3. Select a VPN type, which is **Point to Point Tunneling Protocol (PPTP)** in this example.
4. Select a type of sign-in info, which is **User name and password** in this example.
5. Enter the user name and password, which are both **admin1** in this example.
6. Click **Save**.



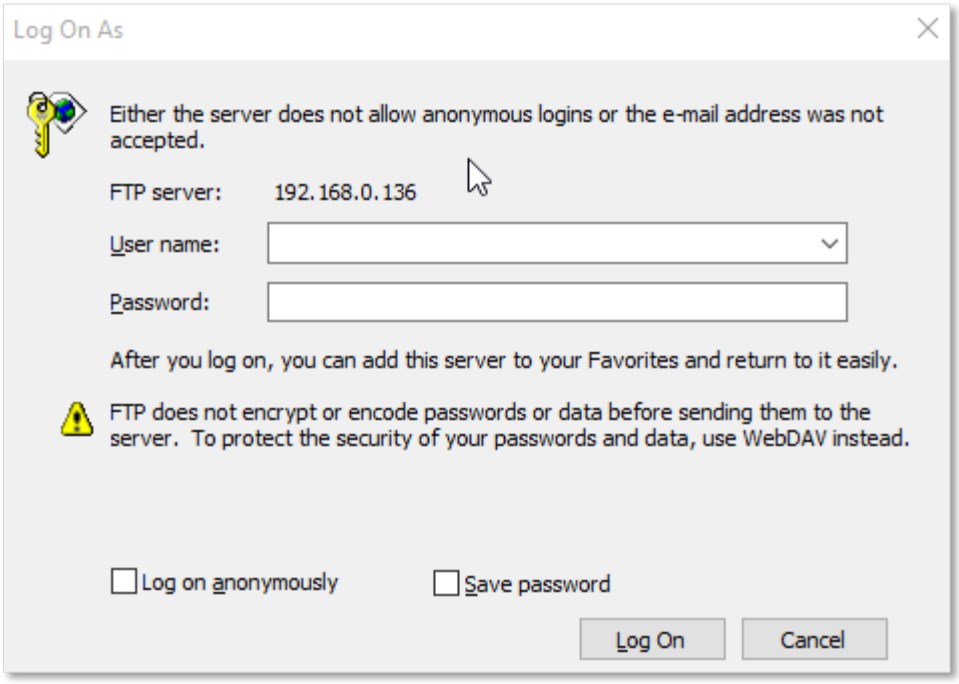
Step 4 Target the VPN connection added, and click **Connect**.



Step 5 Click the icon on the desktop, and enter the address in the address bar to access the FTP server, which is **ftp://192.168.0.136:21** in this example.



Step 6 Enter the user name and password for logging in to the FTP server, which are both JohnDoe in this example, and click **Log On**.



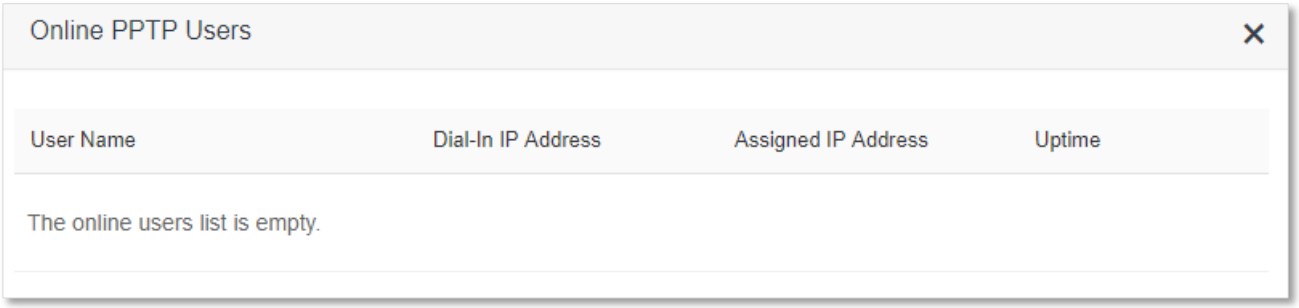
---End

By performing the steps above, you can access the resources on the FTP server.

8.2 Online PPTP users

When the PPTP server function is enabled, you can view the detailed information of VPN clients that establish connections with the PPTP server.

To access the configuration page, log in to the web UI of the router, and choose **VPN** > **Online PPTP Users**.



Parameter description

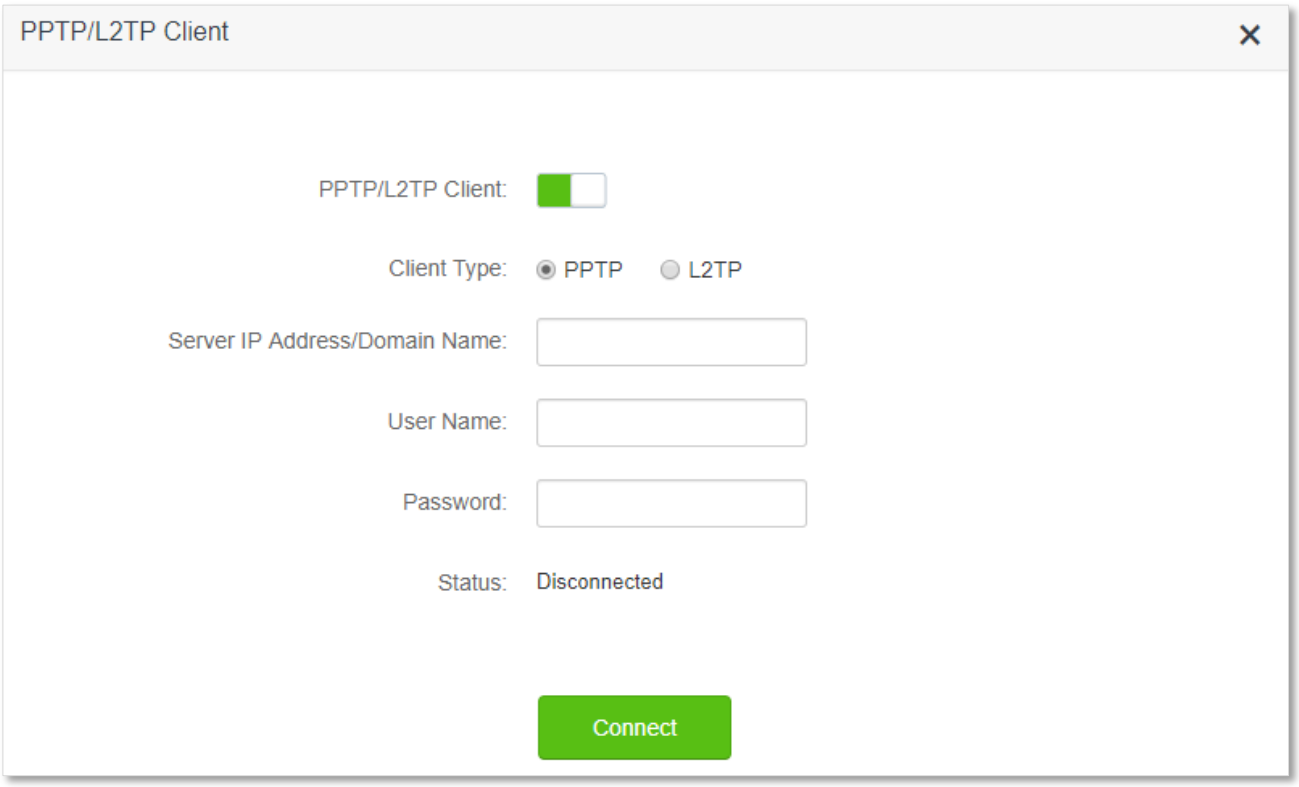
Parameter	Description
User Name	It specifies the VPN user name, which the VPN user uses when making PPTP dial-ups (VPN connection).
Dial-In IP Address	It is specifies the IP address of the PPTP client. If the client is a router, it will be the IP address of the WAN port whose VPN function is enabled.
Assigned IP Address	It specifies the IP address that the PPTP server assigns to the client.
Uptime	It specifies the online time since the VPN connection succeeds.

8.3 PPTP/L2TP client

8.3.1 Overview

This series of router can function as a PPTP/L2TP client and connect to PPTP/L2TP servers.

The PPTP/L2TP client function is disabled by default. When it is enabled, the page is show as below.



Parameter description

Parameter	Description
PPTP/L2TP Client	It is used to enable or disable the PPTP/L2TP client function.
Client Type	It is specifies the client type that the router serves as, either PPTP or L2TP. • PPTP: When the router is connecting to a PPTP server, choose this option. • L2TP: When the router is connecting to a L2TP server, choose this option.
Server IP Address/Domain Name	It specifies the IP address or domain name of the PPTP/L2TP server that the router connects to. Generally, when a router serves as the PPTP/L2TP server at the peer side, the domain name or IP address should be that of the WAN port whose PPTP/L2TP server function is enabled.
User Name	It specifies the user name and password that the PPTP/L2TP server assigns to the PPTP/L2TP clients.
Password	
Status	It specifies the connection status of the VPN connection.

8.3.2 Access VPN resources with the router

Scenario: You have subscribed the PPTP VPN service when purchasing the broadband service from your ISP.

Goal: Access the VPN resources of your ISP.

Solution: You can configure the PPTP/L2TP client function to reach the goal. Assume that:

- The IP address of the PPTP server is 113.88.112.220.
- The user name and password assigned by the PPTP server are both admin1.

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **VPN** > **PPTP/L2TP Client**.

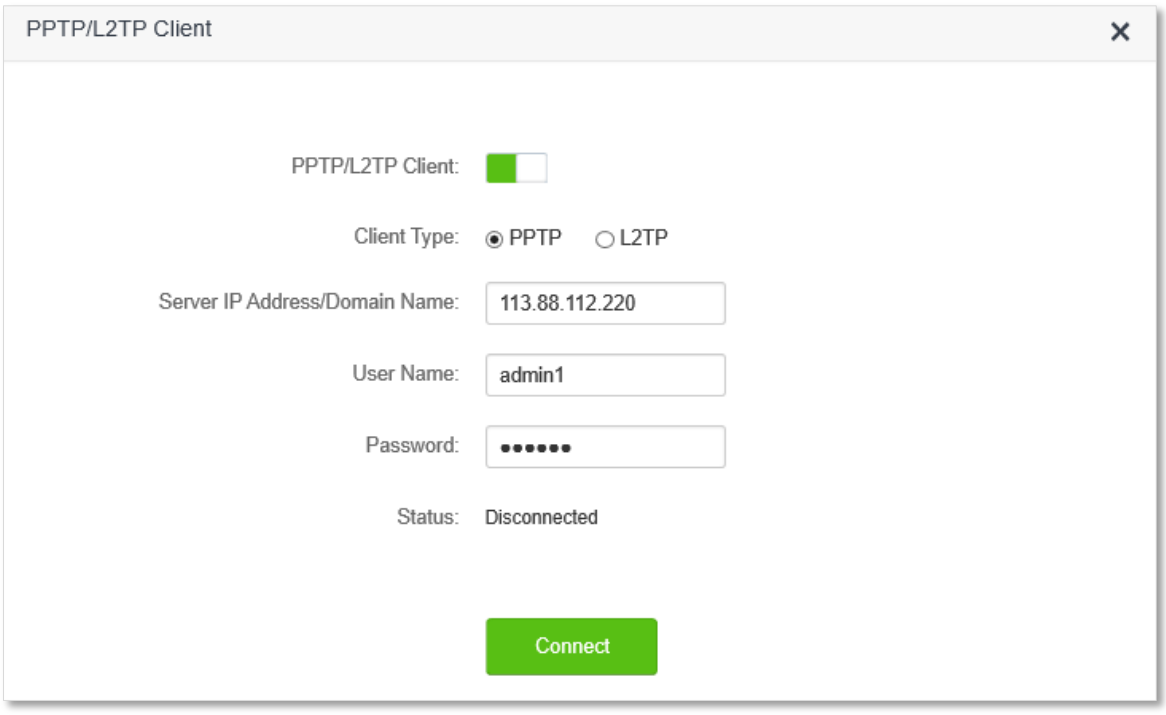
Step 3 Enable the **PPTP/L2TP Client**

Step 4 Choose **PPTP** as the client type.

Step 5 Enter the **Server IP Address/Domain Name**, which is **113.88.112.220** in this example.

Step 6 Enter the **User Name** and **Password**, which are both **admin1** in this example.

Step 7 Click **Connect**.



---End

When Connected is shown behind **Status**, you can access the VPN resources of your ISP.

9 USB app

NOTE

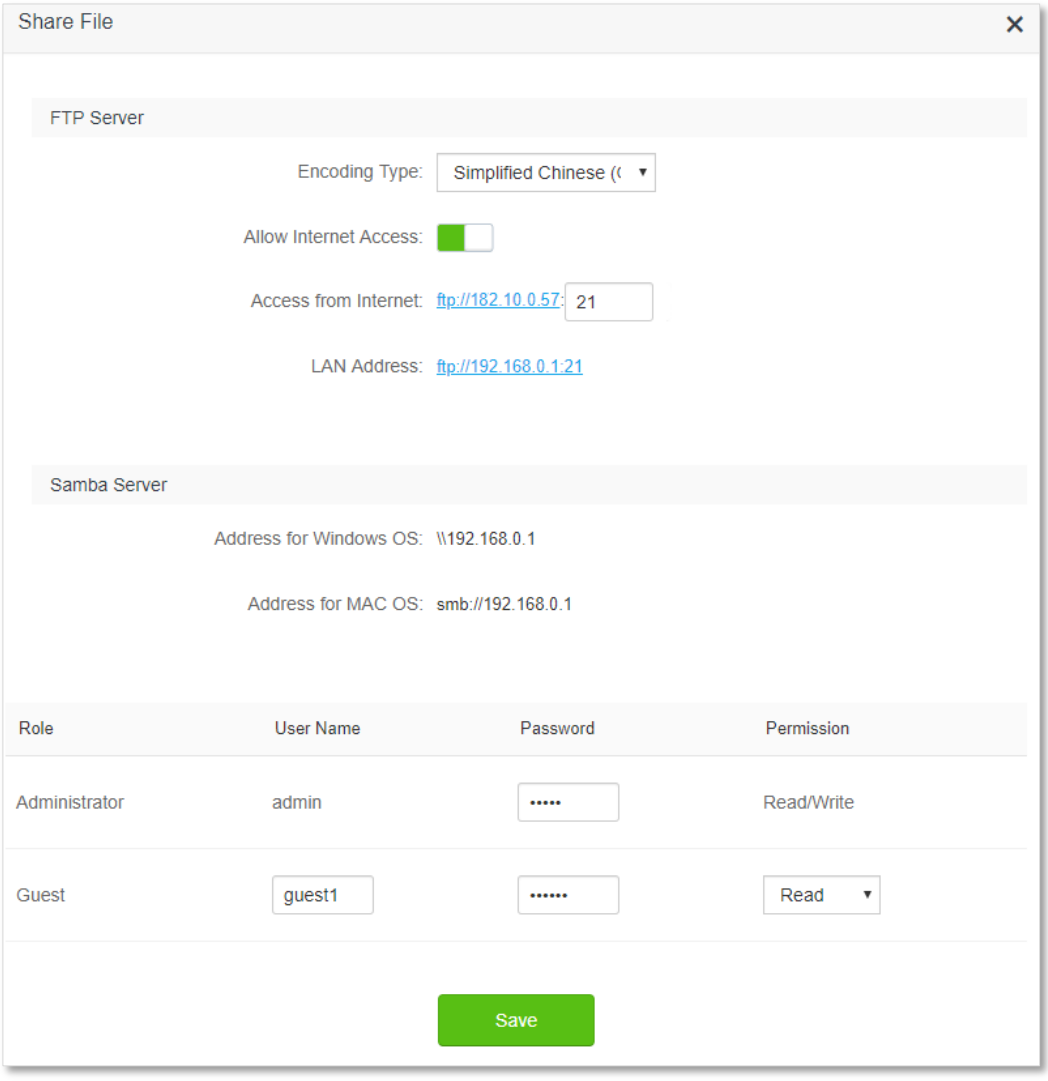
All functions in this chapter are only available on AC19, which is equipped with a USB port.

9.1 Overview

AC19 is equipped with a USB 2.0 port for a USB storage device, which can be either a USB drive or a portal hard disk. The USB storage device connected can function as a FTP or Samba server for file sharing and be accessed with a computer or the Tenda WiFi App. You can also manage the resources on the USB storage device with a computer and through the Tenda WiFi App.

To access the USB configuration page, log in to the web UI of the router and choose **USB App** > **Share File**.

On this page, you can manage the parameters for logging in to the USB storage device.



Parameter description

Parameter		Description
FTP Server	Encoding Type	It specifies the encoding type for the text content on the FTP server. • Unicode (utf-8): It is an encoding type for international use, which is compatible for most languages in the world. It is recommended when there are more English texts. • Simplified Chinese (GBK): It is a simplified Chinese character encoding standard. It is recommended when there are more simplified Chinese texts. • Traditional Chinese (Big5): It is a traditional Chinese character encoding standard, which is widely used in Taiwan and Hong Kong. It is recommended when there are more traditional Chinese texts.
	Allow Internet Access	It is used to allow or block the access to the FTP server on the USB storage device from the internet.
	Access from Internet	It specifies the address for internet users to access the FTP server on the USB storage device and will be automatically generated according to the WAN IP address of the router when the **Allow Internet Access** function is enabled. TIP • Please ensure that the WAN IP address of the router is a public IP address. Otherwise the access could fail. • Change the port number in the address if necessary.
	LAN Address	It specifies the address for users within the LAN of the same router to access the FTP server.
Samba Server	Address for Windows OS	It specifies the address for users within the LAN of the same router to access the Samba server, using a computer of Windows OS.
	Address for MAC OS	It specifies the address for users within the LAN of the same router to access the Samba server, using a computer of MAC OS.
Role		It specifies the role you use when logging in to the FTP or Samba server. Two roles are available for logging in, whose permissions differ. • Administrator: Log in to the FTP or Samba server as an administrator, who is able to read and write files. • Guest: Log in to the FTP or Samba server as a guest, whose permission can be set to either Read or Read/Write.
User Name		It specifies the user name and password for logging in to the FTP or Samba server. The user name of the administrator account cannot be changed.
Password		
Permission		It specifies the permission for the respective role. The administrator is pre-set with the read/write permission and cannot be changed. • Read/Write: Users with such permission can both view and edit the files on the FTP or Samba server (To edit means to upload, download, delete or rename). • Read: Users with such permission can only view and download the files on the FTP or Samba server.

9.2 Access USB resources on a computer within the LAN

If you have a USB storage device which stores resources to be shared, AC19 allows you to share the resources through the router to personal computer (PC) users within the LAN of the router.

TIP

- The following steps are performed on a Windows PC by visiting the FTP server. If you want to access the resources by visiting the Samba server of the router, use the address under the Samba server for the corresponding operating system and proceed with the steps.
- Access the FTP server through the file explorer is used for illustration above. You can modify, rename, download and upload in the file explorer using the administrator account. If you log in through a web browser, you can only view and download files on the server.

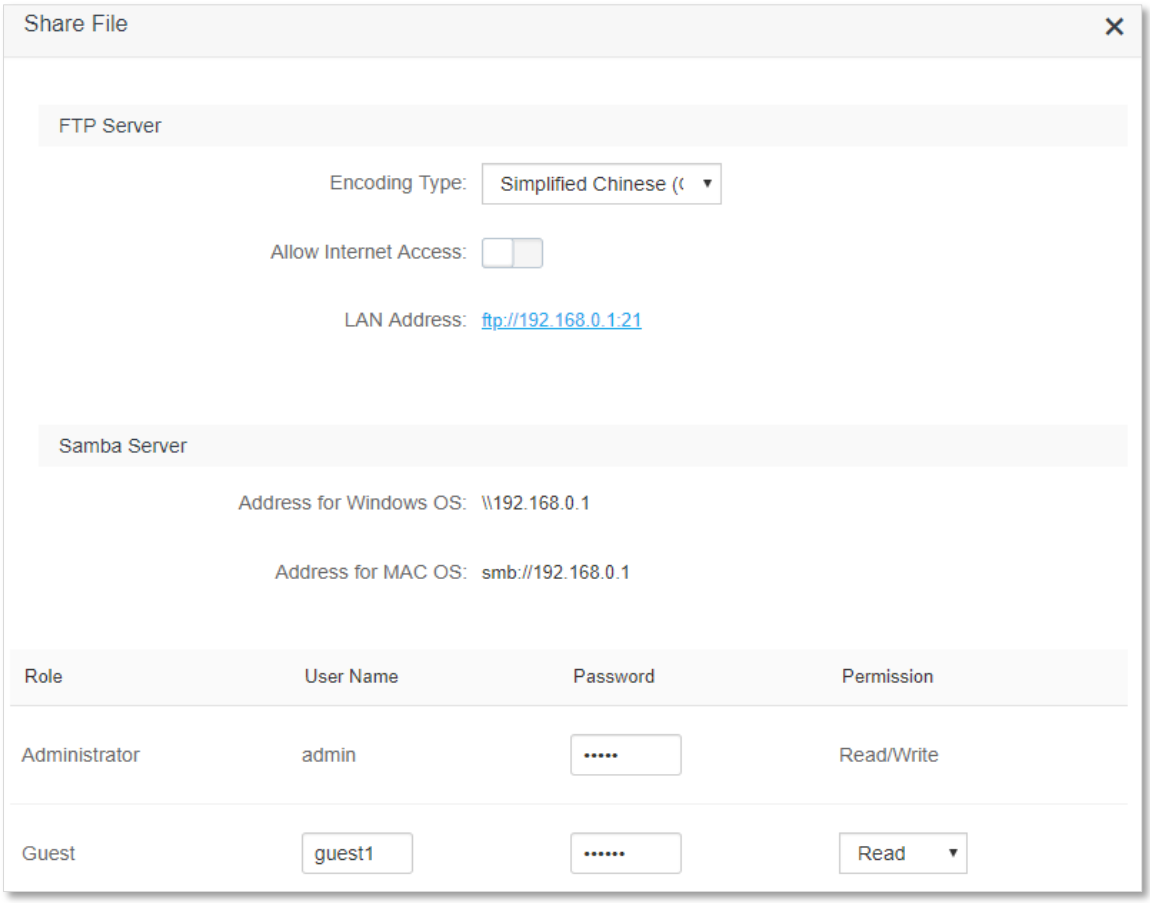
Configuring procedures:

Step 1 Connect the USB storage device to the USB port of the router.

Step 2 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 3 Choose **USB App** and click **Share File**.

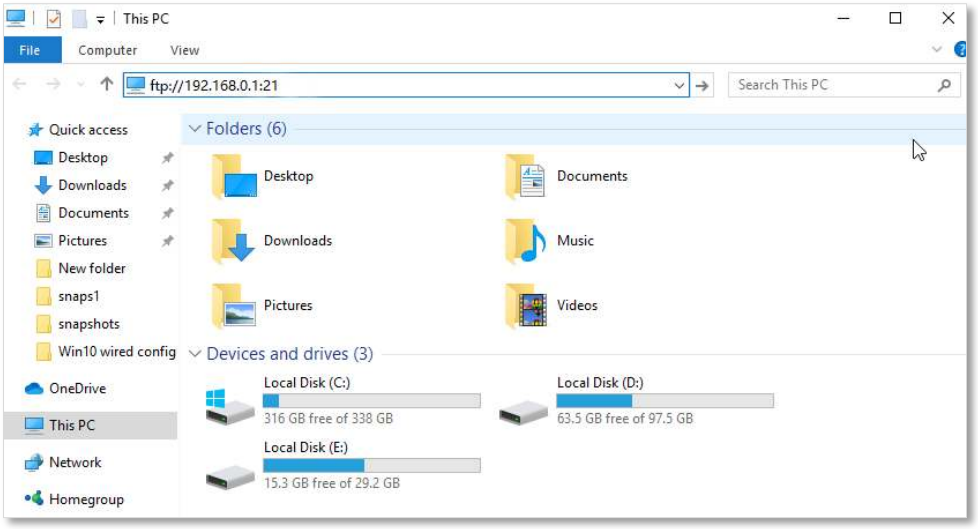
Step 4 Record the LAN address and a pair of user name and password, which is **ftp://192.168.0.1:21** and **admin** in this example.



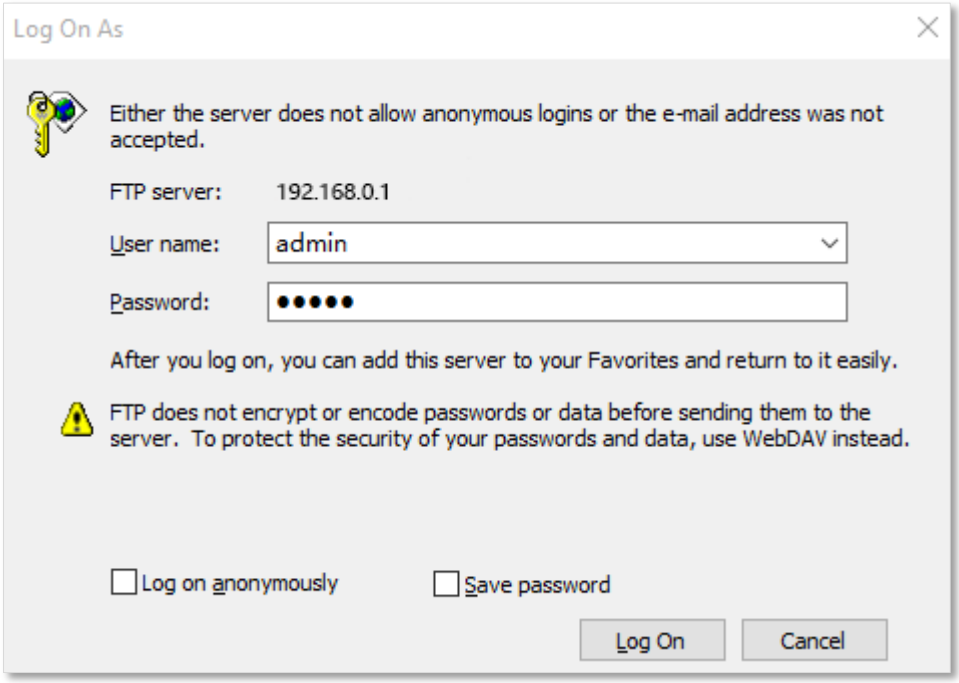
---End

To access the USB resources:

Step 1 Click the icon on the desktop of any computer connected to the router in a wireless or wired manner. Enter the **ftp://192.168.0.1:21** in the address field and press **Enter**.



Step 2 Enter the user name and password recorded, which are both **admin** in this example, and click **Log On**.



---End

After successful login, users within the LAN can access and manage the resources on the USB storage device according to the permission of the account used.

9.3 Access USB resources on a computer from the internet

If you want to access the resources in the USB storage device when you are out of the LAN of the router, or allow internet users to access the resources, AC19 also allows you to share the USB resources through the internet.

TIP

- To achieve successful access to the resources from the internet, ensure that the router is successfully connected to the internet. To configure internet access, refer to Internet Settings.
- Logging in the FTP server through the file explorer is used for illustration above. You can modify, rename, download and upload in the file explorer using the administrator account. If you log in through a web browser, you can only view and download files on the server.

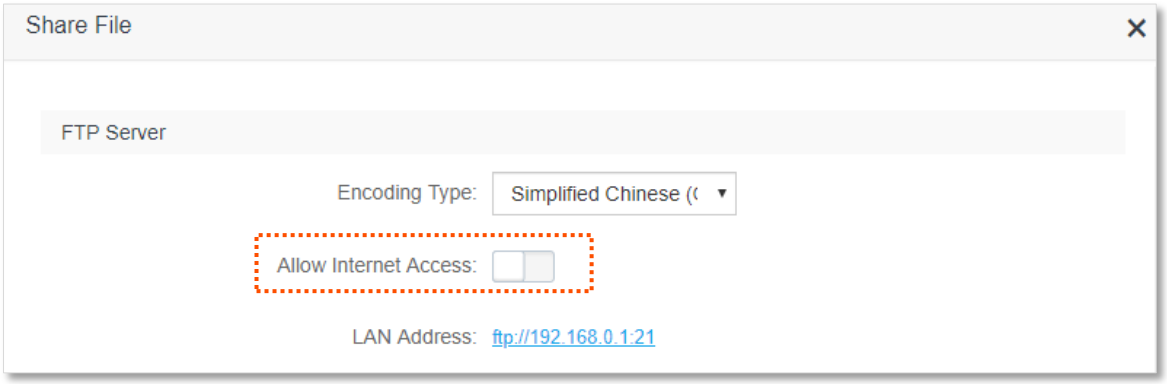
Configuring procedure:

Step 1 Connect the USB storage device to the USB port of the router.

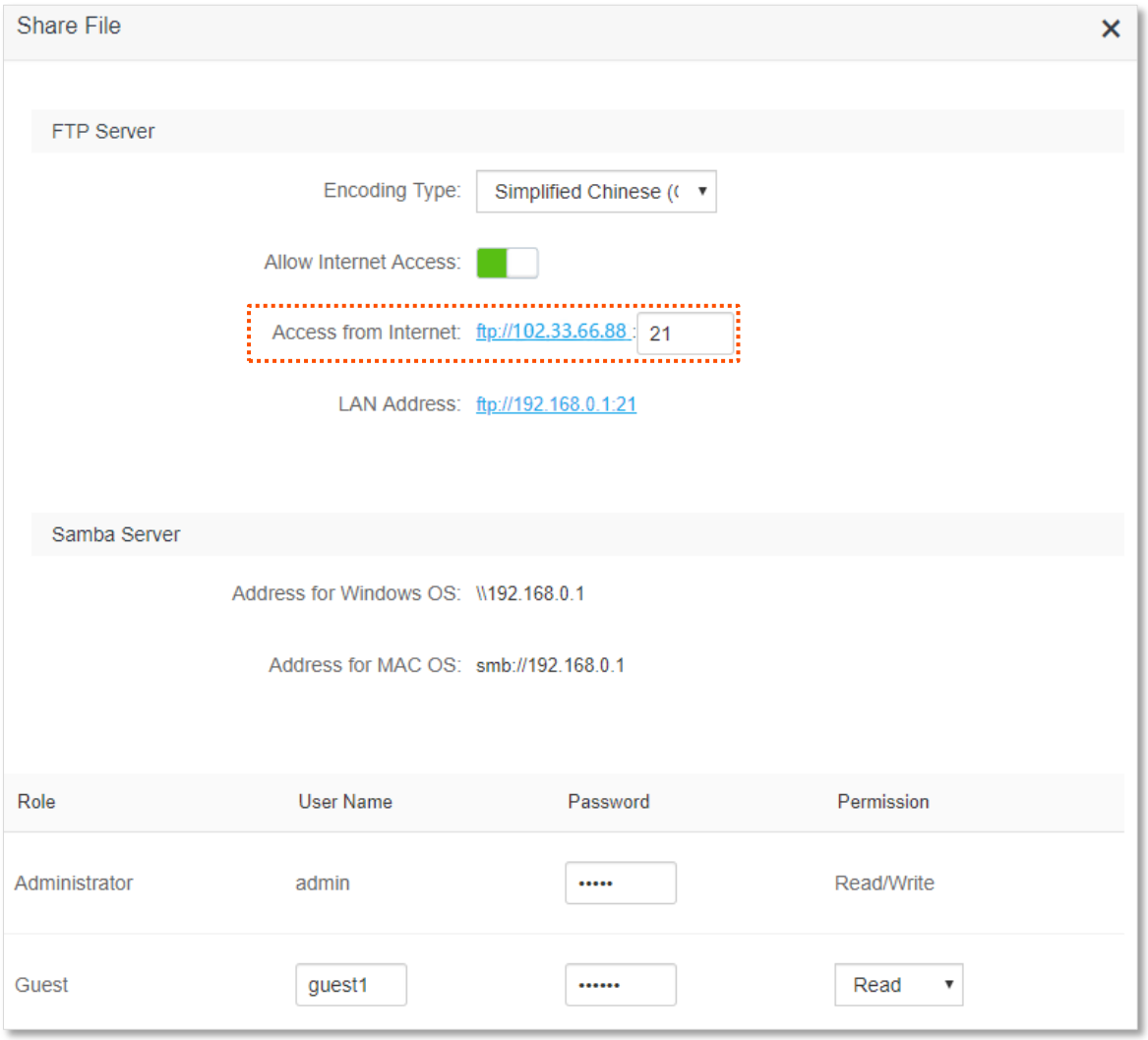
Step 2 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 3 Choose **USB App** and click **Share File**.

Step 4 Enable **Allow Internet Access**, and click **Save** on the bottom of the page.



Step 5 Record the address for internet access generated automatically according to the WAN IP address of the router, which is **ftp://102.33.66.88:21** in this example, and any pair of user name and password.



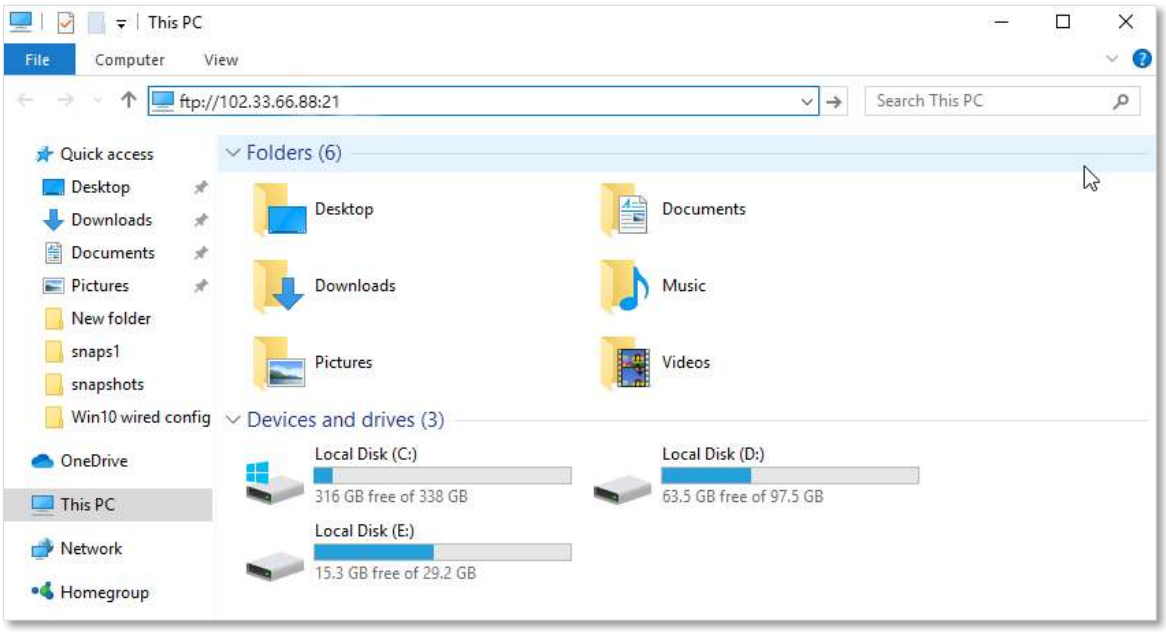
TIP

Please ensure that the WAN IP address of the router is a public IP address. Otherwise the access to the USB resources could fail.

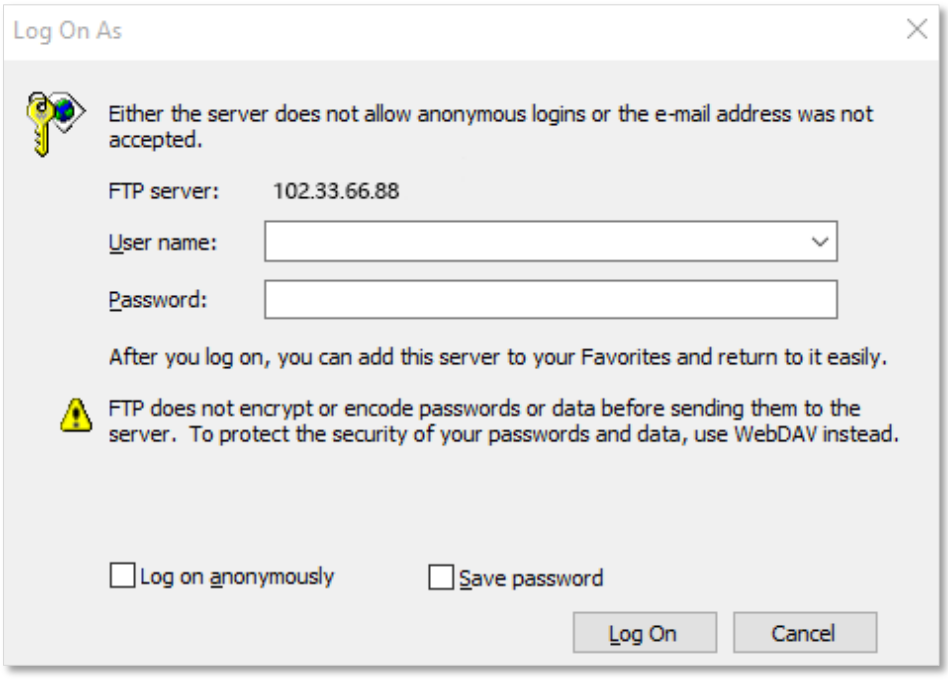
---End

To access the USB resources:

Step 1 Click the icon on the desktop of any computer with internet access. Enter the **ftp://102.33.66.88:21** in the address field and press **Enter**.



Step 2 Enter the user name and password recorded previously, which are both **admin** in this example, and click **Log On**.



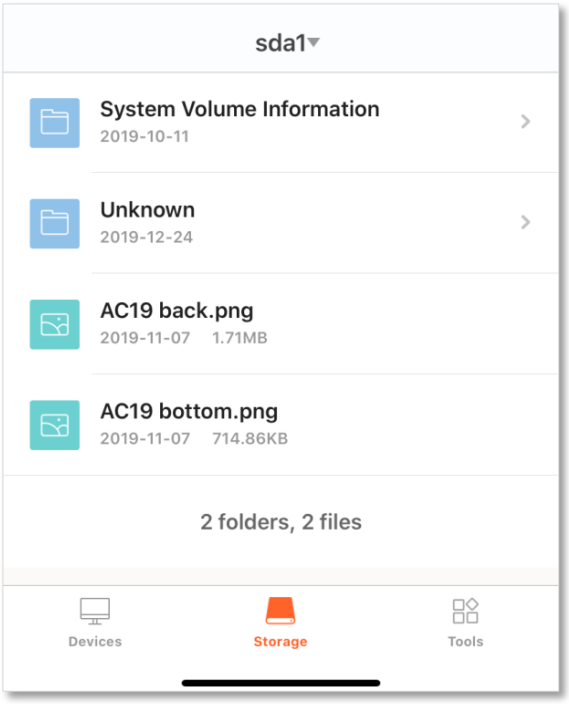
---End

After successful login, users can view and manage the resources on the USB storage device through the internet.

9.4 Access USB resources with the Tenda WiFi App

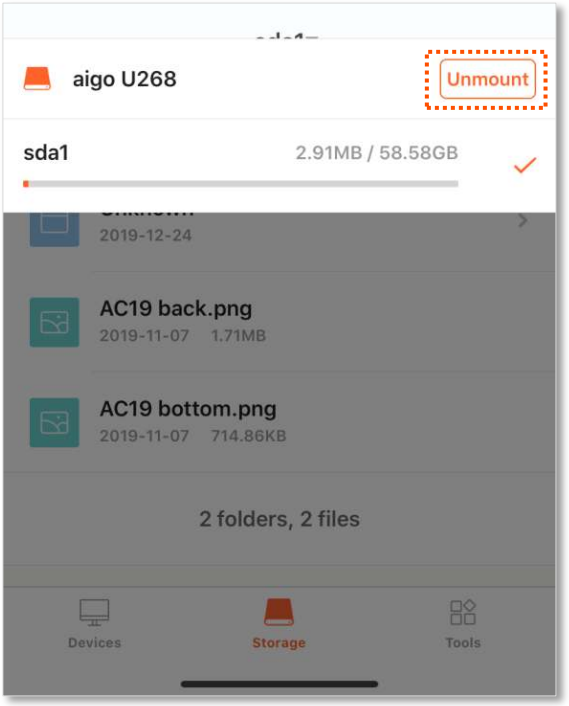
With Tenda WiFi App installed on your phone, you are enabled to access the resources on the USB storage device on the App within the LAN or through the internet.

To access the page on the Tenda WiFi App, refer to Tenda WiFi App to bind your router with your smart phone. Open the App and tap **Storage** at the bottom.



- **View storage information of the USB storage device or unmounts it**

Tap the name of the USB storage device at the top. You can find the storage information of the USB storage device. Tap **Unmount** to disconnect the USB storage device from the router.

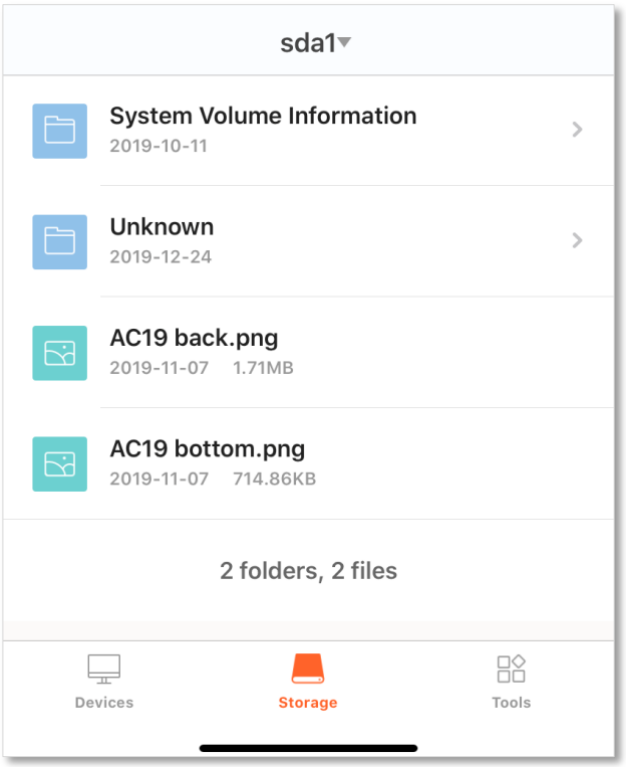


View and download files with the App

Tap the desired files to view and perform further operations.

TIP

- Only files of the types supported by the smart phone can be opened and further operated, and the supported file types differ with smart phones.
- The operation of files may require third party Apps on the phone.



10 IPv6

This router supports IPv4 and IPv6 dual stack protocols. In the IPv6 part, you can:

- Connect to the IPv6 network of ISPs
- Configure the IPv6 tunnel and achieve communications between IPv6 islands
- Change IPv6 LAN settings

10.1 IPv6 WAN settings

10.1.1 Connect to the IPv6 network of ISPs

The router can access the IPv6 network of ISPs through three connection types. Choose the connection type by referring to the following chart.

Scenario	Connection Type
• The ISP does not provide any PPPoEv6 user name and password. • The ISP does not provide information about IPv6 address. • You have a router that can access IPv6 network.	DHCPv6
IPv6 service is included in the PPPoE user name and password.	PPPoEv6
The ISP provides you with a set of information including IPv6 address, subnet mask, default gateway and DNS server, etc.	Static IPv6 address

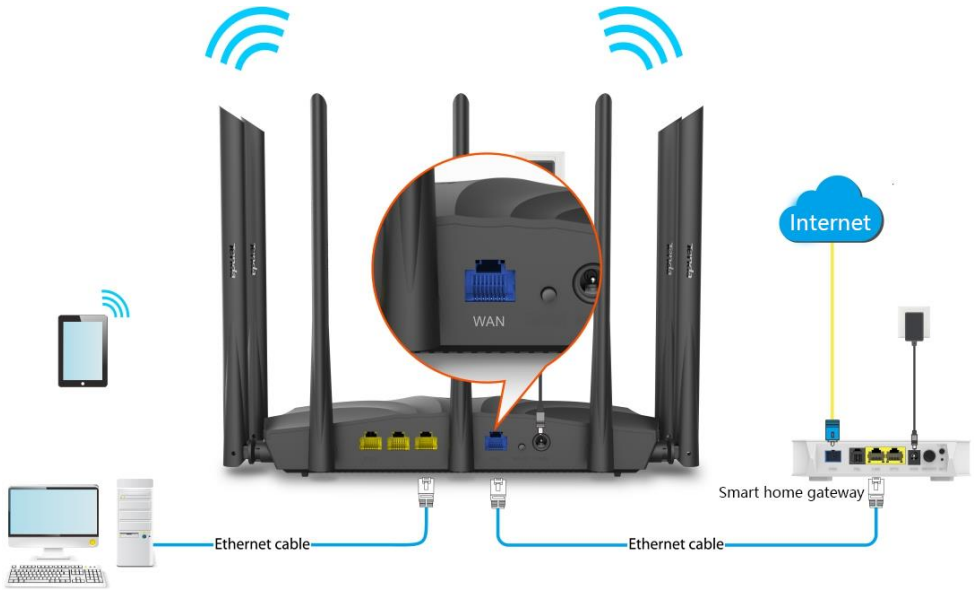
TIP

Before configuring the IPv6 function, please ensure that you are within the coverage of IPv6 network and already subscribe the IPv6 internet service. Contact your ISP for any doubt about it.

DHCPv6

DHCPv6 enables the router to obtain IPv6 address from DHCPv6 server to access the internet, which is applicable in the following scenarios.

- The ISP does not provide any PPPoEv6 user name and password.
- The ISP does not provide information about IPv6 address.
- You have a router that can access IPv6 network.



Configuring procedure:

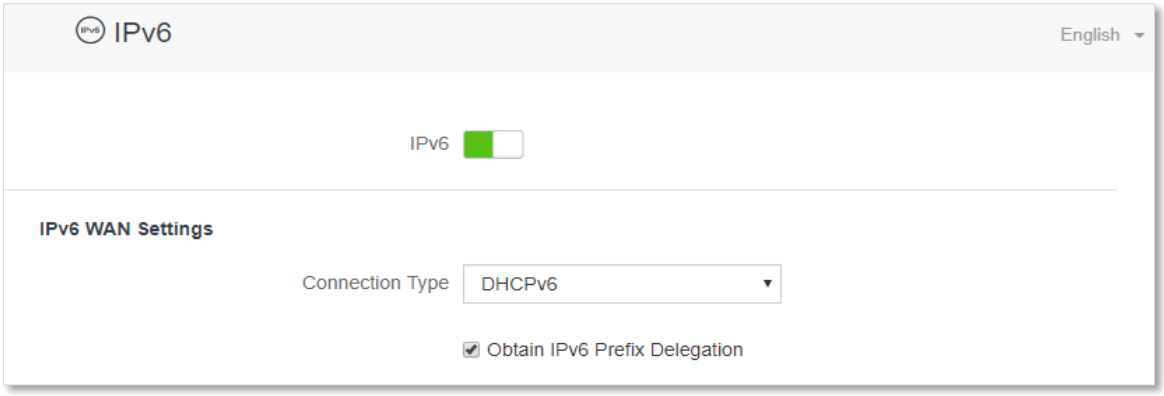
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **IPv6**.

Step 3 Enable the **IPv6** function.

Step 4 Set the connection type to **DHCPv6**.

Step 5 Click **Save**.



---End

Parameter description

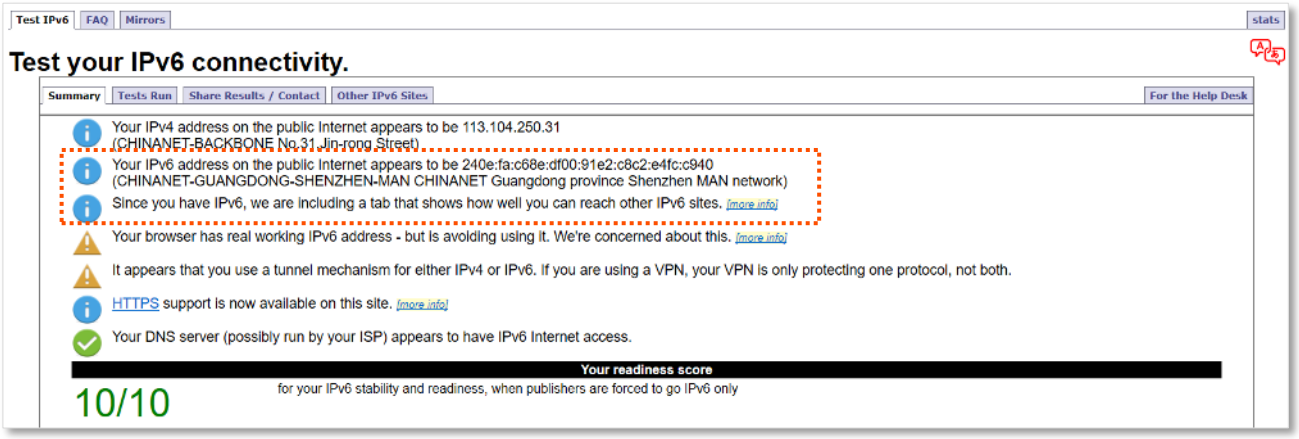
Parameter	Description
Obtain IPv6 Prefix Delegation	When the option is selected, the LAN port of router obtains IPv6 prefix from it upstream device. It is recommended to keep the default setting (Selected). If the LAN port cannot obtain the PD prefix, it is because the upstream device does not support PD prefix delivery. Contact your ISP to solve this problem.

IPv6 network test:

Start a web browser on a phone or a computer that is connected to the router, and visit

test-ipv6.com. The website will test your IPv6 connection status.

When “You have IPv6” is shown on the page, it indicates that the configuration succeeds and you can access IPv6 services.



If the IPv6 network test fails, try the following solutions:

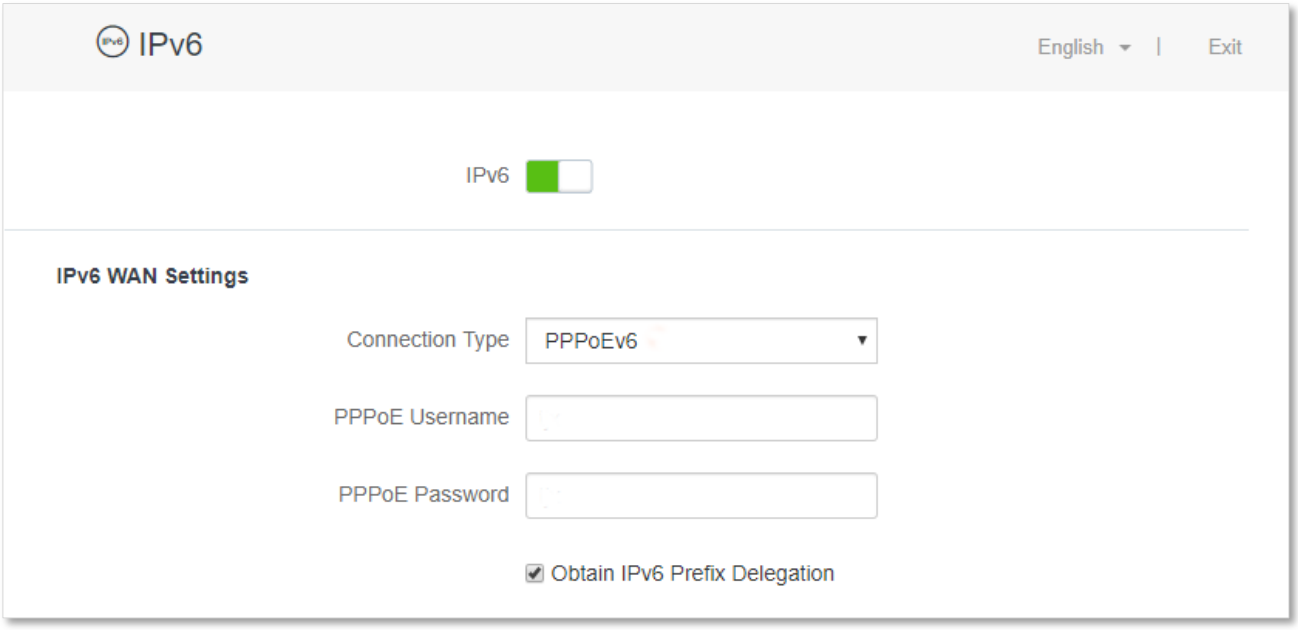
- Navigate to the **System Settings** > **System Status**, and move to the **IPv6 Status** part. Ensure that the IPv6 WAN address is a global unicast address.
- Ensure that devices connected to router obtain their IPv6 address through DHCPv6.
- Consult your ISP for help.

PPPoEv6

Overview

If your ISP provides you with the PPPoE user name and password with IPv6 service, you can choose PPPoEv6 to access the internet.

Log in to the web UI of the router, and navigate to the **IPv6**. When the connection type is set to **PPPoEv6**, the page is shown as below.



Parameter description

Parameter	Description
PPPoE Username	It specifies the PPPoE user name and password provided by your ISP.
PPPoE Password	TIP IPv4 and IPv6 services share the same PPPoE account.
Obtain IPv6 Prefix Delegation	When the option is selected, the LAN port of router obtains IPv6 prefix from it upstream device. It is recommended to keep the default setting (Selected). If the LAN port cannot obtain the PD prefix, it is because the upstream device does not support PD prefix delivery. Contact your ISP to solve this problem.

Access the internet through PPPoEv6

If the PPPoE account provided by your ISP includes IPv6 service, you can choose PPPoEv6 to access the IPv6 service. The application scenario is shown as below.



Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

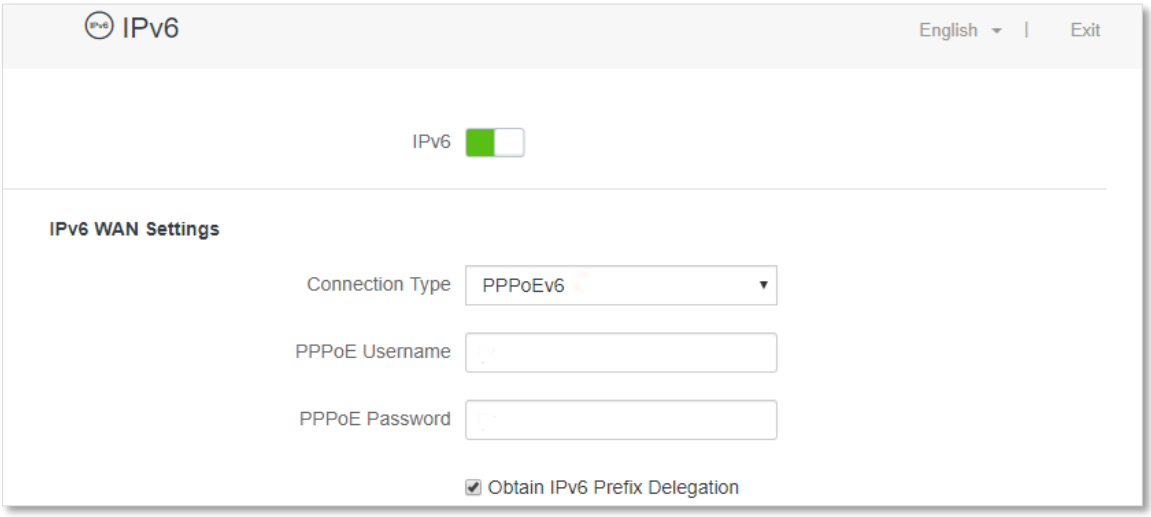
Step 2 Choose **IPv6**.

Step 3 Enable the **IPv6** function.

Step 4 Set the connection type to **PPPoEv6**.

Step 5 Enter the **PPPoE Username** and **PPPoE Password**.

Step 6 Click **Save**.

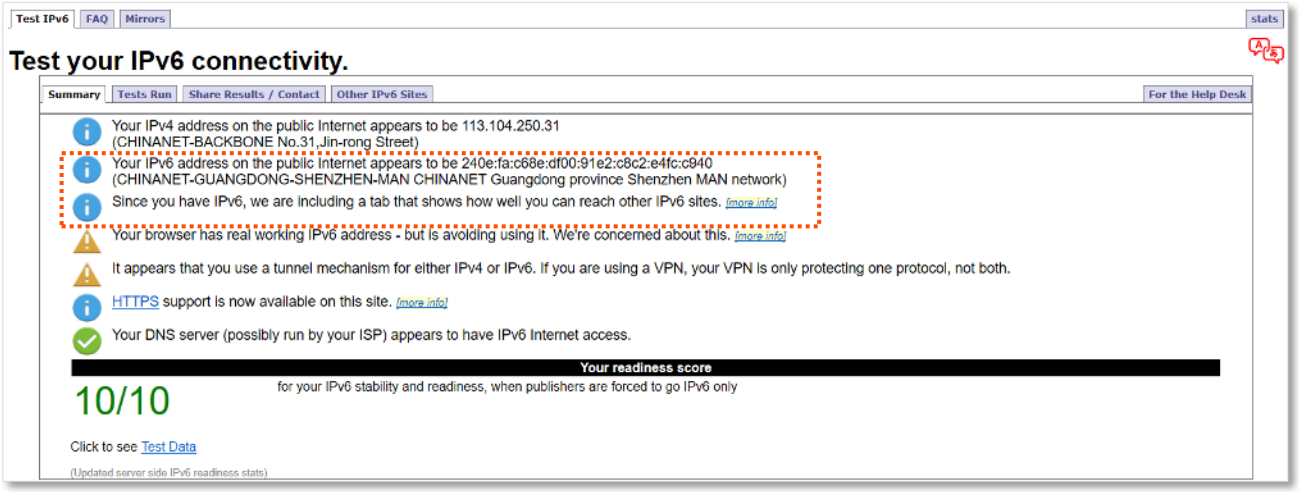


---End

IPv6 network test:

Start a web browser on a phone or a computer that is connected to the router, and visit **test-ipv6.com**. The website will test your IPv6 connection status.

When “You have IPv6” is shown on the page, it indicates that the configurations succeed and you can access IPv6 services.



If the IPv6 network test fails, try the following solutions:

- Navigate to the **System Settings** > **System Status**, and move to the **IPv6 Status** part. Ensure that the IPv6 WAN address is a global unicast address.
- Ensure that devices connected to router obtain their IPv6 address through DHCPv6.
- Consult your ISP for help.

Static IPv6 Address

Overview

When your ISP provides you with information including IPv6 address, subnet mask, default gateway and DNS server, you can choose this connection type to access the internet with IPv6.

Log in to the web UI of the router, and navigate to the **IPv6**. When the connection type is set to **Static IPv6 Address**, the page is shown as below.



Parameter description

Parameter	Description
IPv6 Address	It specifies the fixed IP address information provided by your ISP. TIP If your ISP only provides one DNS address, leave the secondary IPv6 DNS blank.
Default IPv6 Gateway	
Primary IPv6 DNS	
Secondary IPv6 DNS	

Access the internet through PPPoEv6

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **IPv6**.

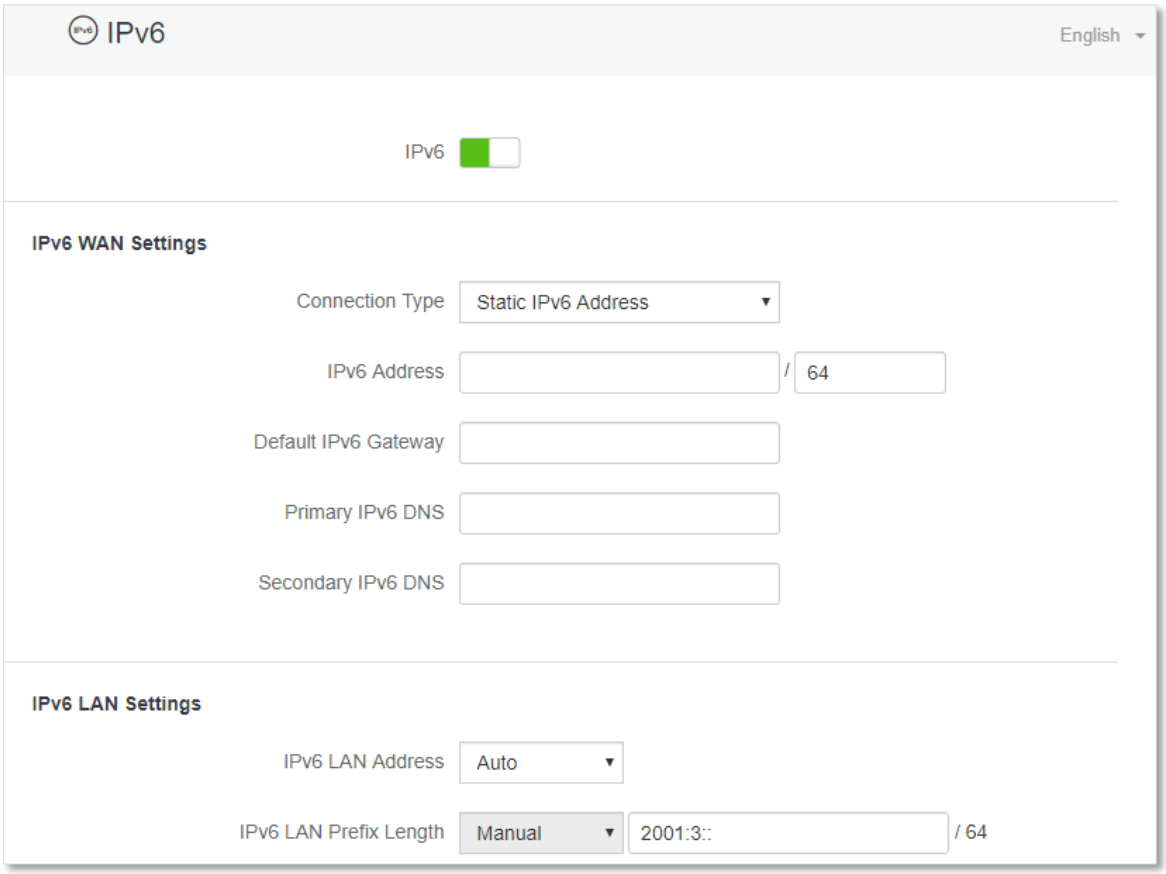
Step 3 Enable the **IPv6** function.

Step 4 Set the connection type to **Static IPv6 Address**.

Step 5 Enter the required parameters under IPv6 WAN settings.

Step 6 Enter the IPv6 LAN prefix provided by your ISP in **IPv6 LAN Prefix Length**.

Step 7 Click **Save**.

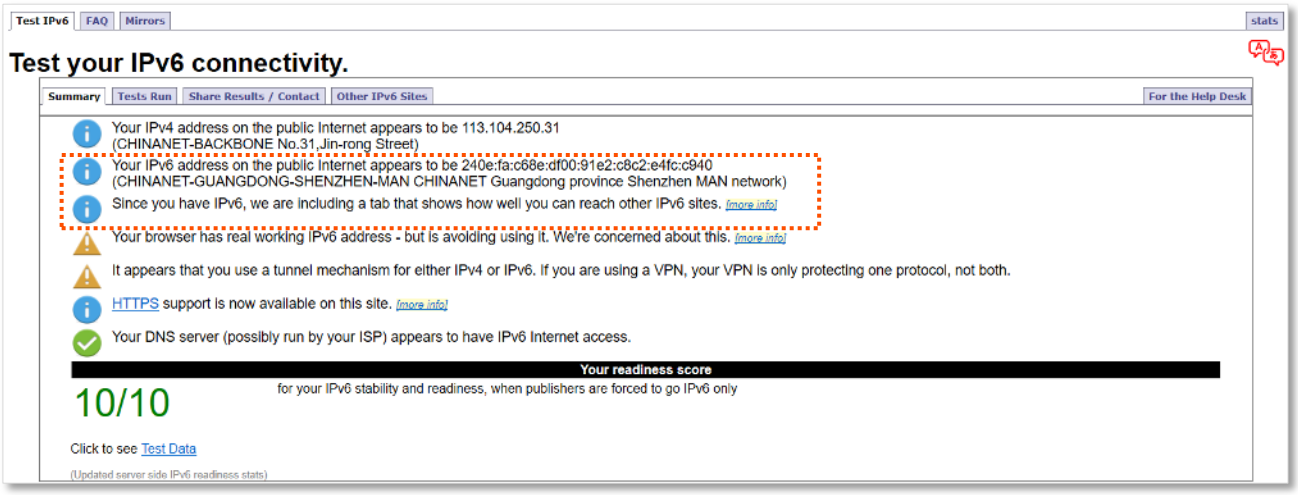


---End

IPv6 network test:

Start a web browser on a phone or a computer that is connected to the router, and visit **test-ipv6.com**. The website will test your IPv6 connection status.

When “You have IPv6” is shown on the page, it indicates that the configurations succeed and you can access IPv6 services.



If the IPv6 network test fails, try the following solutions:

- Ensure that you have entered the correct WAN IPv6 address.

- Ensure that devices connected to router obtain their IPv6 address through DHCPv6.
- Consult your ISP for help.

10.1.2 IPv6 tunnel

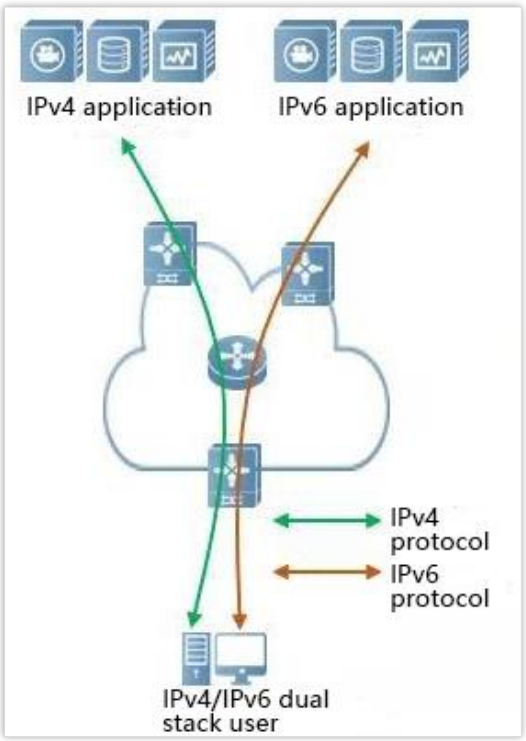
Overview

IPv6 transition mechanism

Before the IPv6 network is widely deployed, IPv6 stations are like isolated islands. Therefore, the dual stack and tunneling technologies are developed to achieve the communications between IPv6 islands.

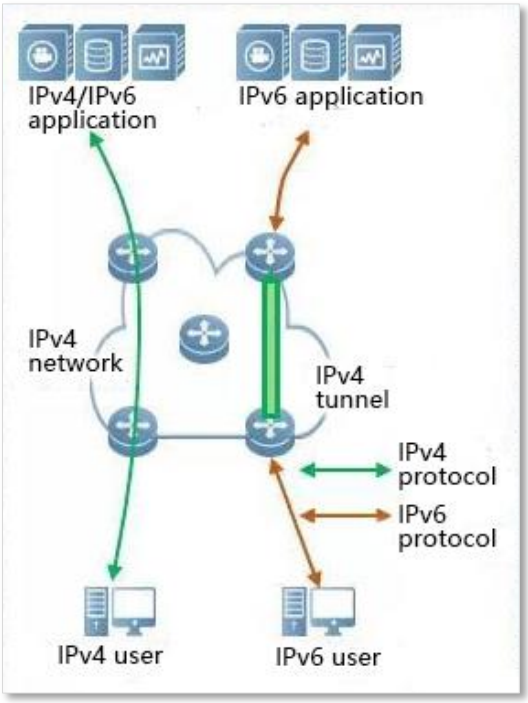
- **Dual stack technology**

  With the dual stack technology, nodes within the network support both IPv4 and IPv6 protocol stack. The source node selects different protocol stacks according to the different destination nodes, and the network device selects different protocol stacks for processing and forwarding according to the protocol type of the message. The dual-stack technology can realize the coexistence of IPv4 and IPv6 networks, but it cannot solve the problem of interoperability between IPv4 and IPv6 networks, nor can it solve the problem of IPv4 address exhaustion.



- **Tunneling technology**

  Tunneling technology is a technology for network transmission by encapsulating one IP protocol data packet in another IP protocol data packet, including data encapsulation, transmission, and decapsulation. IPv6 tunnel technology encapsulates IPv6 packets as data in IPv4 packets and communicates across IPv4 networks. With tunneling technology, you do not need to upgrade all devices to dual stacks. You only need the border devices of IPv4 / IPv6 networks to implement dual stack and tunnel functions.



Manual and automatic tunnels

Generally, a tunnel consists of three parts: the tunnel start node, which encapsulates IPv6 packets; the tunnel end point, which decapsulates IPv6 packets; the tunnel, which is actually an IPv4 path, starts the encapsulated IPv6 packets from the tunnel The node is transported to the end of the tunnel.

When the tunnel start node encapsulates an IPv6 packet in an IPv4 packet, it must determine the source and destination addresses of IPv4. The source address is the IPv4 address of the start node of the tunnel, and the destination address is the IPv4 address of the end of the tunnel.

Tunnels can be divided into manual tunnels and automatic tunnels based on how the tunnel end address is obtained.

- **Manual tunnel**

  The network boundary device cannot automatically obtain the IPv4 address of the tunnel endpoint. You need to manually configure the IPv4 address of the tunnel endpoint so that the packets can be sent to the tunnel endpoint correctly. It is usually used in the tunnel between routers.

- **Automatic tunnel**

  Network border devices can automatically obtain the IPv4 address of the tunnel endpoint, without the need to manually configure the IPv4 address of the endpoint. In general, the IPv6 addresses at both ends of the tunnel are in the form of special IPv6 addresses with embedded IPv4 addresses. In this way, routing devices can extract IPv4 addresses from the destination IPv6 addresses in IPv6 packets. Automatic tunnels can be used from host to host, or from host to router.

6in4 tunnel

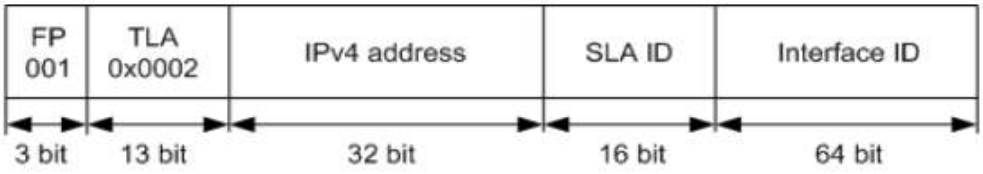
6in4 is a manual tunneling technology. It can implement IPv6 isolated island communication through manually configured tunnels without the network operator providing IPv6 interconnection services.

6to4 tunnel

6to4 is an automatic tunneling technology that enables communication between isolated IPv6 islands and between sites within the IPv6 backbone and IPv6 backbone networks without the network operator providing IPv6 interconnection services.

The 6to4 tunnel technology is used to establish a tunnel between border routers at an IPv6 site. The border router at the source site is the start node of the tunnel, and the border router at the destination site is the end point of the tunnel.

The 6to4 tunnel technology uses a special IPv6 address, that is, a 6to4 address, which starts with 2002. The IPv4 address of the border router is embedded in the prefix of this address. The address structure is shown in the figure below.

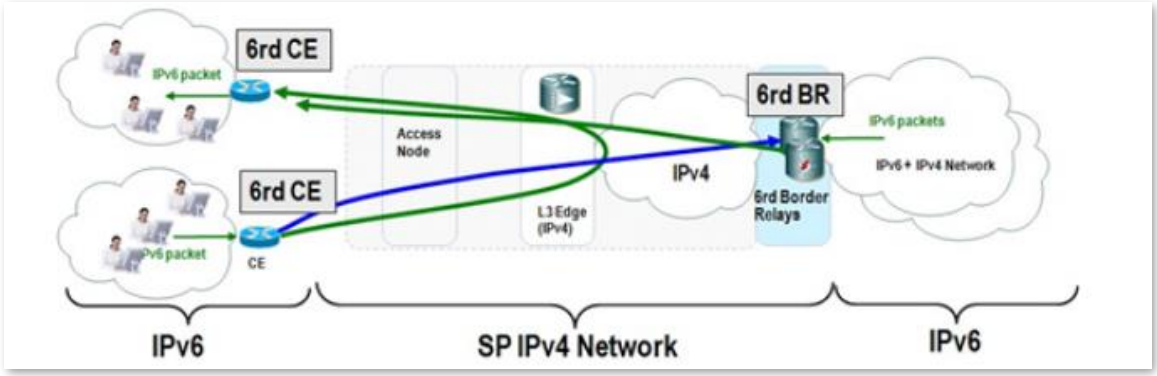


- FP: Format Prefix, which is 001
- TLA: Top Level Aggregator, which is 0x0002
- IPv4 address: The IPv4 address of the border router
- SLA ID: Site Level Aggregator, namely the ID of subnet
- Interface ID: The ID of the interface

6rd tunnel

6RD (IPv6 Rapid Deployment) is an IPv6 network transition technology solution developed on the basis of 6to4. It adds a 6RD BR (Border Relay, Border Relay Device) to an existing IPv4 network, establishes a 6in4 tunnel at the home gateway (6RD CE (Customer Edge)) and 6RD BR of IPv6 users, and provides IPv6 access to users.

The 6RD network typology is as follows.



As shown in the figure above, the 6RD tunnel technology is used to implement mutual access between IPv6 islands, and the BR can also be used to access the IPv6 network after the BR.

The main differences between 6RD and 6to4:

6RD does not need to use a specific address 2002::/16, it can use the network operator's own address block, which greatly increases the convenience of implementation.

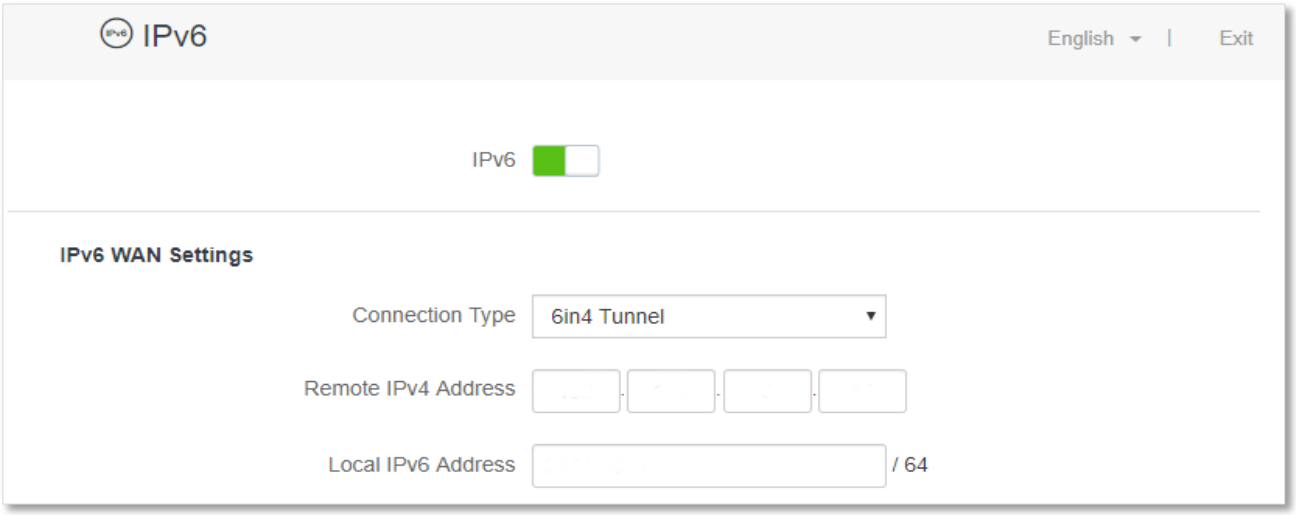
Configure IPv6 tunnel

TIP

- Devices at both ends of the tunnel must support the dual stack protocol.
- The WAN IPv4 address of the routers must be a public IP address.

6in4 tunnel

Log in to the web UI of the router, and navigate to **IPv6**. Set the connection type to **6in4 Tunnel**, enter required parameters and save the configurations.

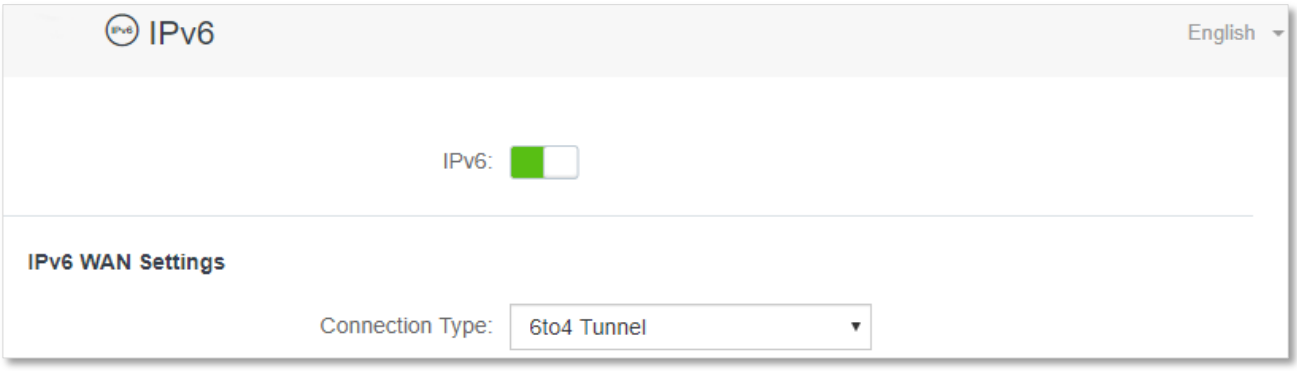


Parameter description

Parameter	Description
Remote IPv4 Address	It specifies the WAN IPv4 address of the dual stack router at the peer side.
Local IPv6 Address	It specifies the IPv6 address of the LAN, which needs to be customized.

6to4 tunnel

Log in to the web UI of the router, and navigate to **IPv6**. Set the connection type to **6to4 Tunnel** and save the configurations.



6rd tunnel

Log in to the web UI of the router, and navigate to **IPv6**. Set the connection type to **6rd Tunnel**, enter required parameters and save the configurations.



Parameter description

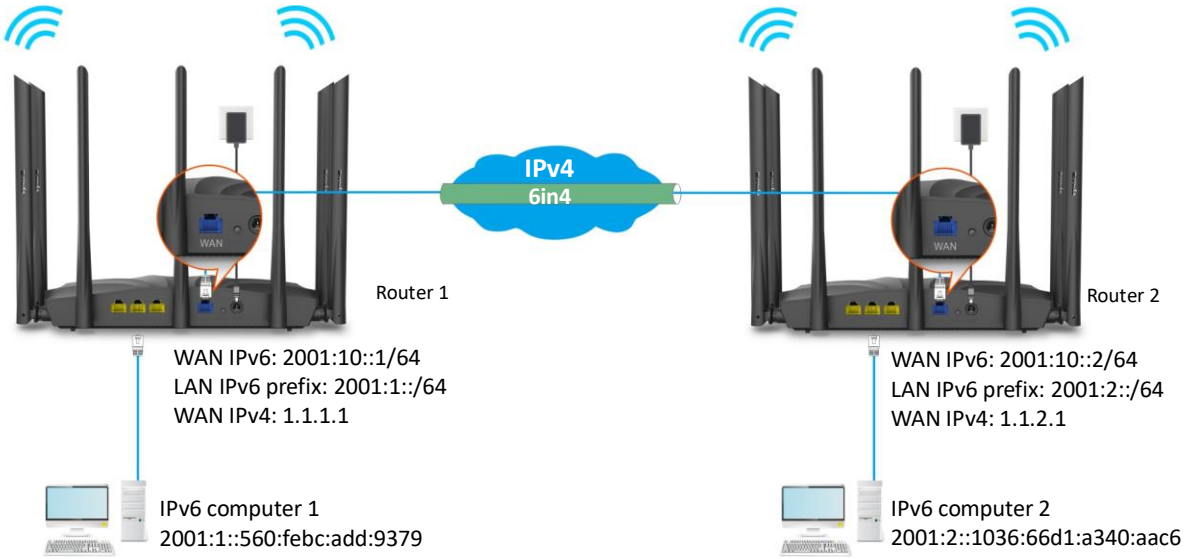
Parameter	Description
Remote IPv4 Address	It specifies the WAN IPv4 address of the dual stack router or 6rd BR at the peer side.
Subnet Mask	It specifies the subnet mask of the IPv4 network. The IPv4 network at both sides should be at the same network segment.
IPv6 Prefix	It specifies the IPv6 prefix of the network. • When the 6rd tunnel is used to achieve the communication between isolated islands, users can customize the IPv6 prefix. • If the 6 re tunnel is used to connect to the network of ISPs, contact your ISP for the IPv6 prefix.

Examples of IPv6 tunnel configuration

6in4 tunnel

As shown below, the two routers support dual stack protocol. To achieve the communication between the two hosts, you can configure the 6in4 tunnel.

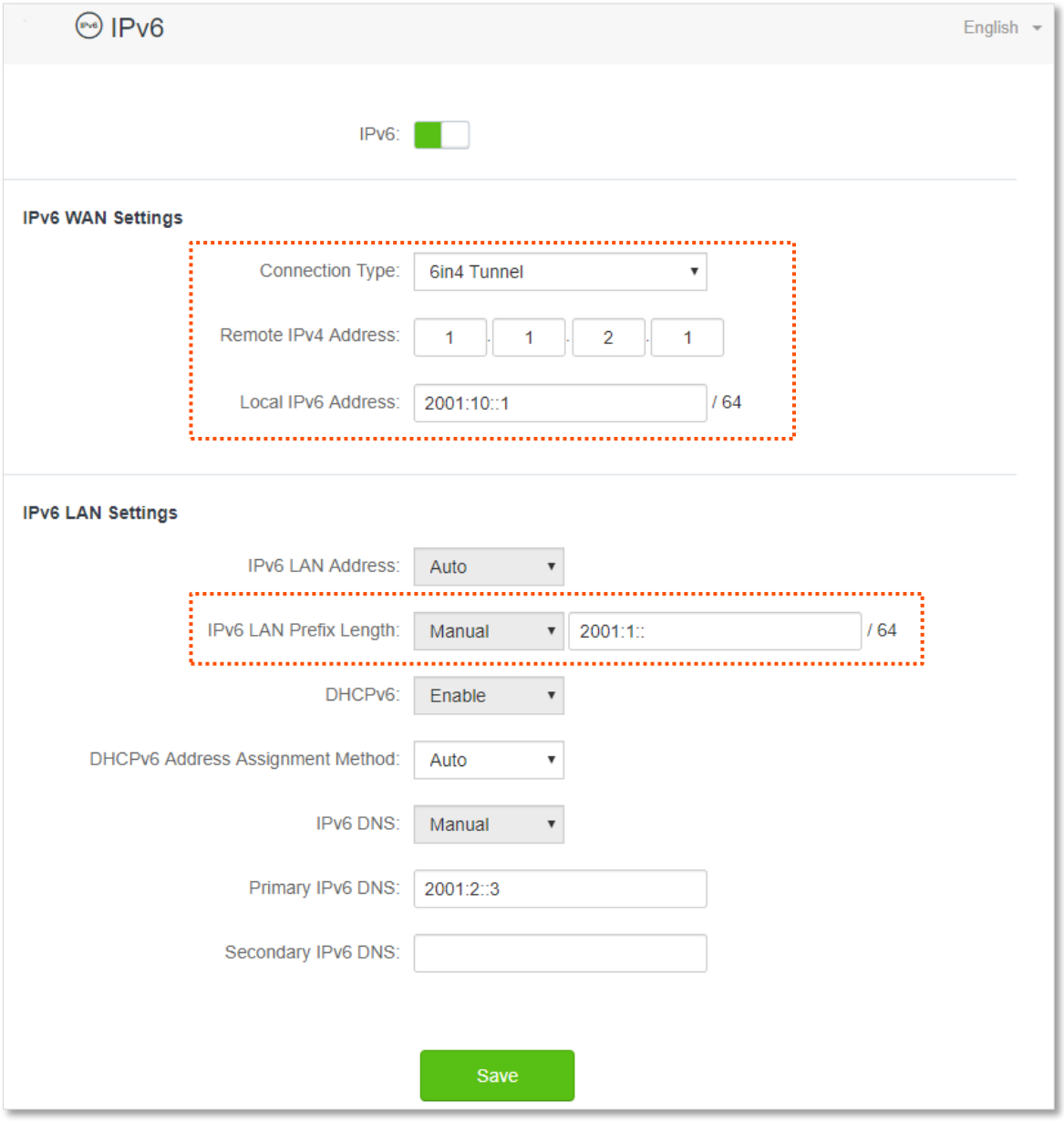
Assume that the two routers are connected to IPv4 network and obtain public IPv4 addresses.



Configuring procedure:

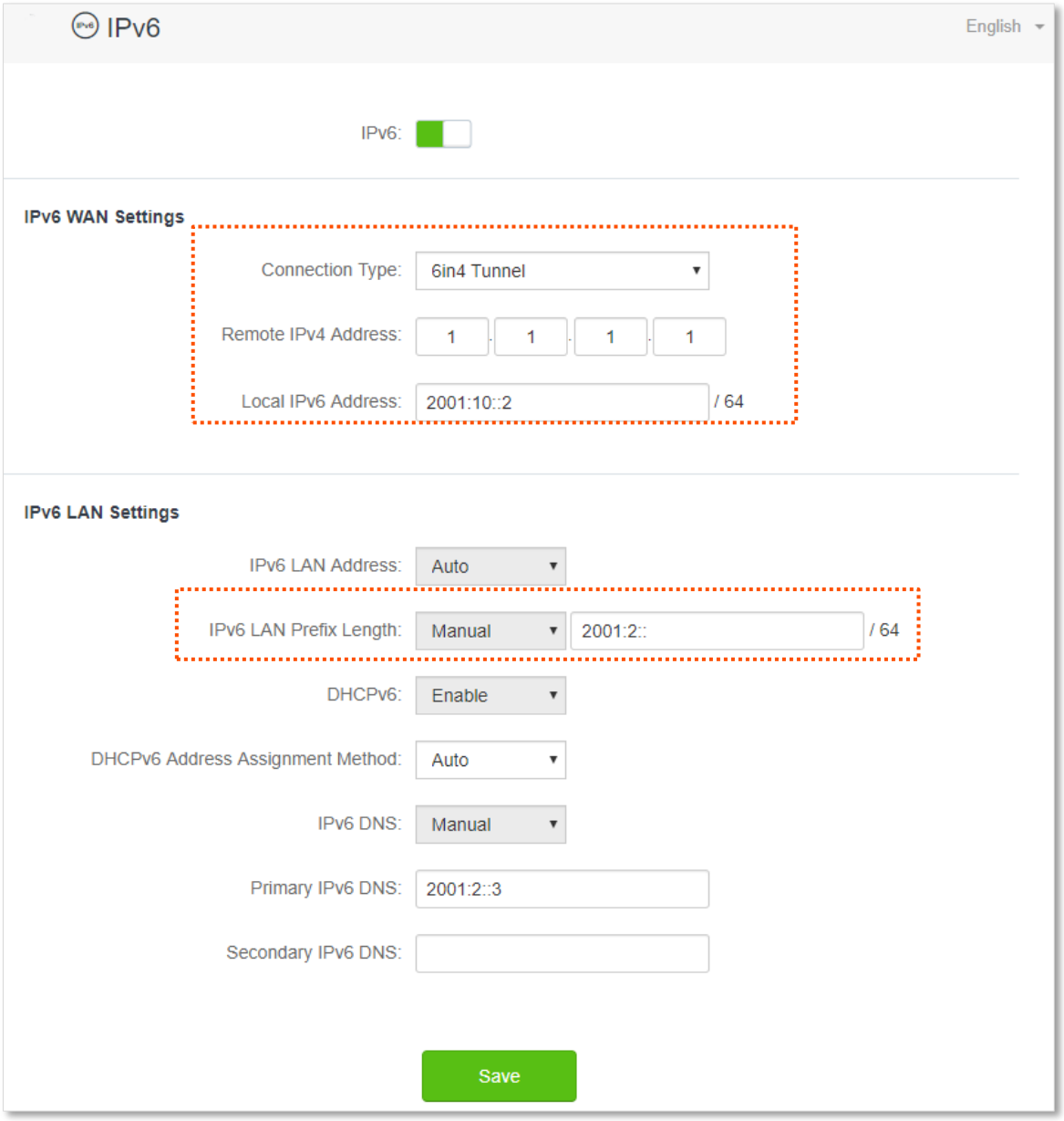
Step 1 Configure the **Router 1**.

1. Start a web browser on a device connected to the router 1 and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **IPv6**.
3. Enable the **IPv6** function.
4. Set the connection type to **6in4 Tunnel.**
5. Enter the WAN IPv4 address of the device at the peer side, which is **1.1.2.1** in this example.
6. Customize the local IPv6 address, which is **2001:10::1**/64 in this example.
7. Set the IPv6 LAN prefix length, which is **2001:1::**/64 in this example.
8. Click **Save**.



Step 2 Configure the **Router 2**.

1. Start a web browser on a device connected to the router 2 and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **IPv6**.
3. Enable the **IPv6** function.
4. Set the connection type to **6in4 Tunnel.**
5. Enter the WAN IPv4 address of the device at the peer side, which is **1.1.1.1** in this example.
6. Customize the local IPv6 address, which is **2001:10::2**/64 in this example.
7. Set the IPv6 LAN prefix length, which is **2001:2::**/64 in this example.
8. Click **Save**.



---End

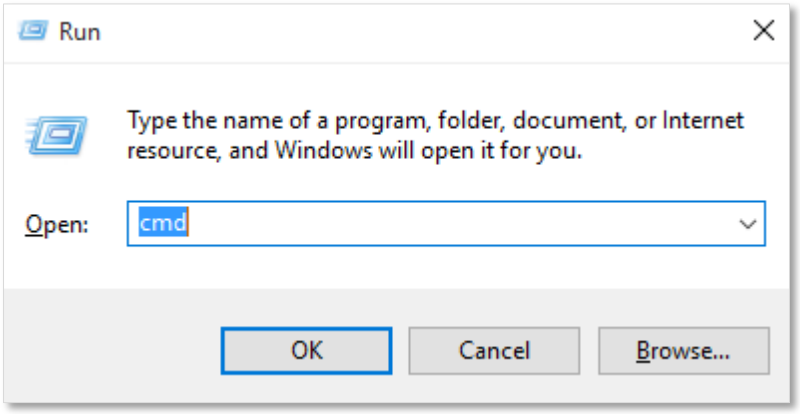
Verification

To verify whether the 6in4 tunnel is established successfully, you can ping each other on the two computers.

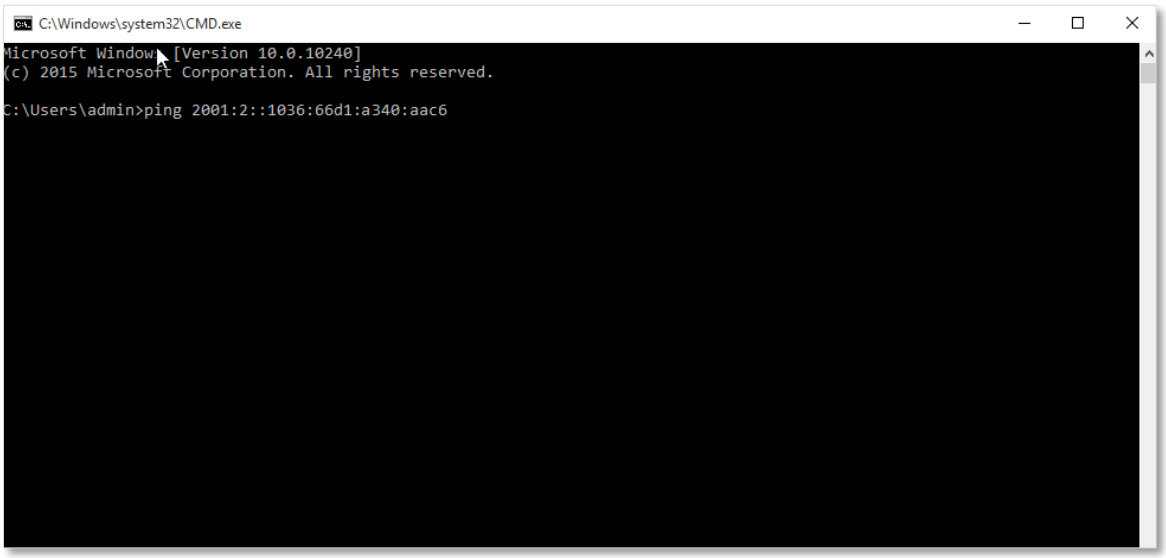
Now, ping computer 2 (IPv6 address: 2001:2::1036:66d1:a340:aac6) on computer 1.

Step 1 Use **Windows** + **R** shortcut to open the **Run** dialog window.

Step 2 Enter **cmd**, and click **OK**.

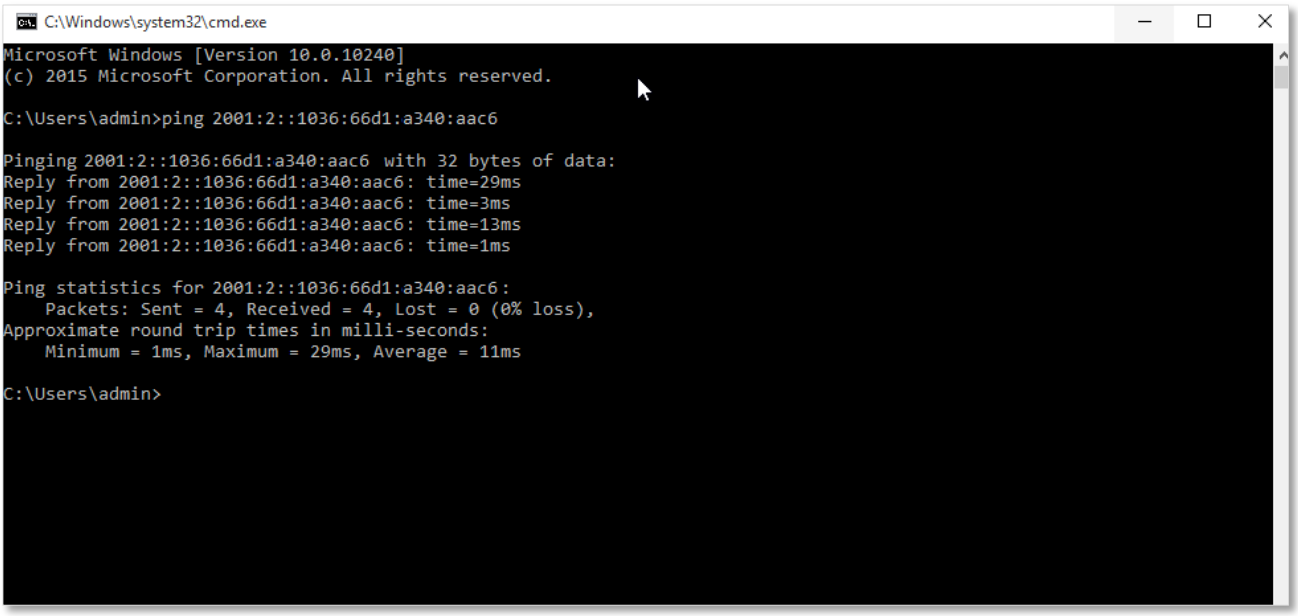


Step 3 Enter the ping command, which is **ping 2001:2::1036:66d1:a340:aac6** in the example, and press **Enter**.



---End

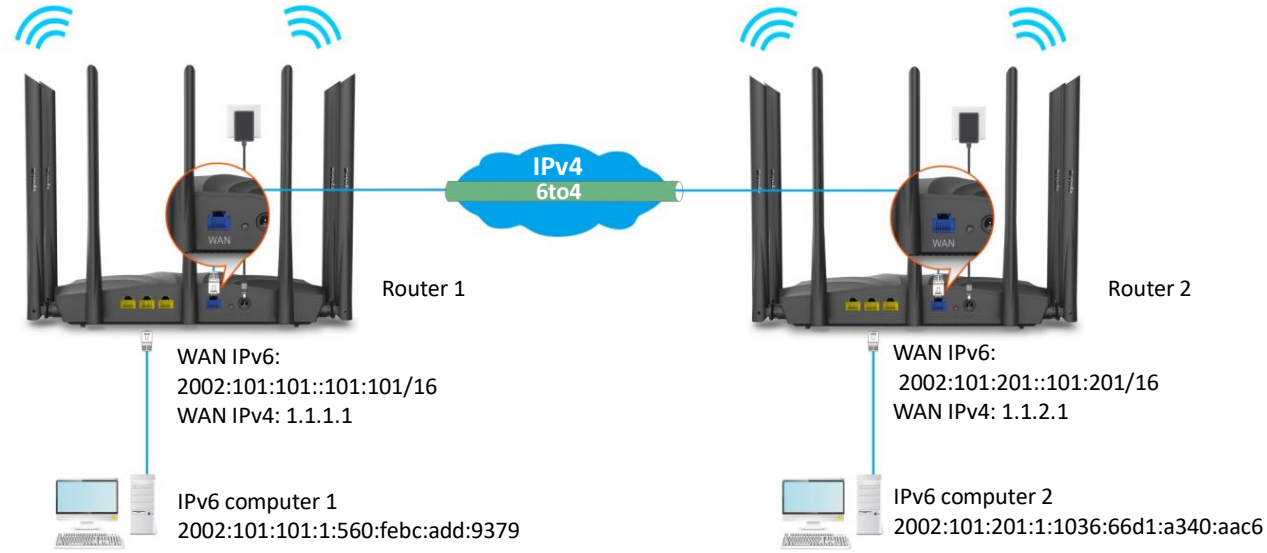
Wait a moment. The 6in4 tunnel configuration succeeds when the result is shown as below.



6to4 tunnel

As shown below, the two routers support dual stack protocol. To achieve the communication between the two hosts, you can configure the 6to4 tunnel.

Assume that the two routers are connected to IPv4 network and obtain public IPv4 addresses.



Configuring procedure:

Step 1 Configure Router 1.

1. Start a web browser on a device connected to the router 1 and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **IPv6**.
3. Enable the **IPv6** function.
4. Set the connection type to **6to4 Tunnel.**
5. Click **Save**.



Step 2 Repeat **Step 1** to set the connection type of Router 2 to **6to4**.

---End

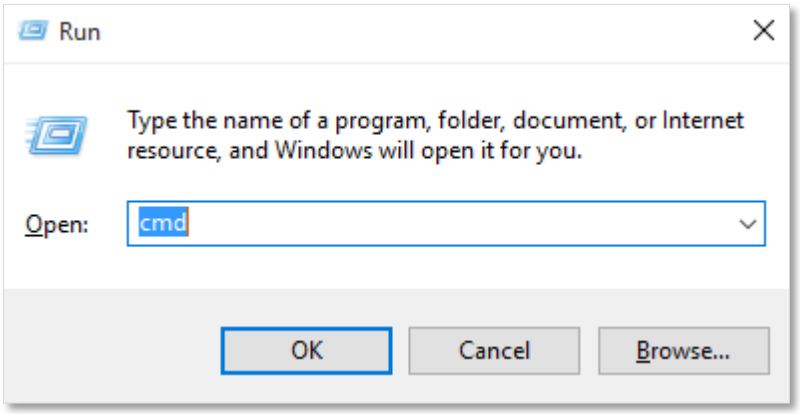
Verification

To verify whether the 6to4 tunnel is established successfully, you can ping each other on the two computers.

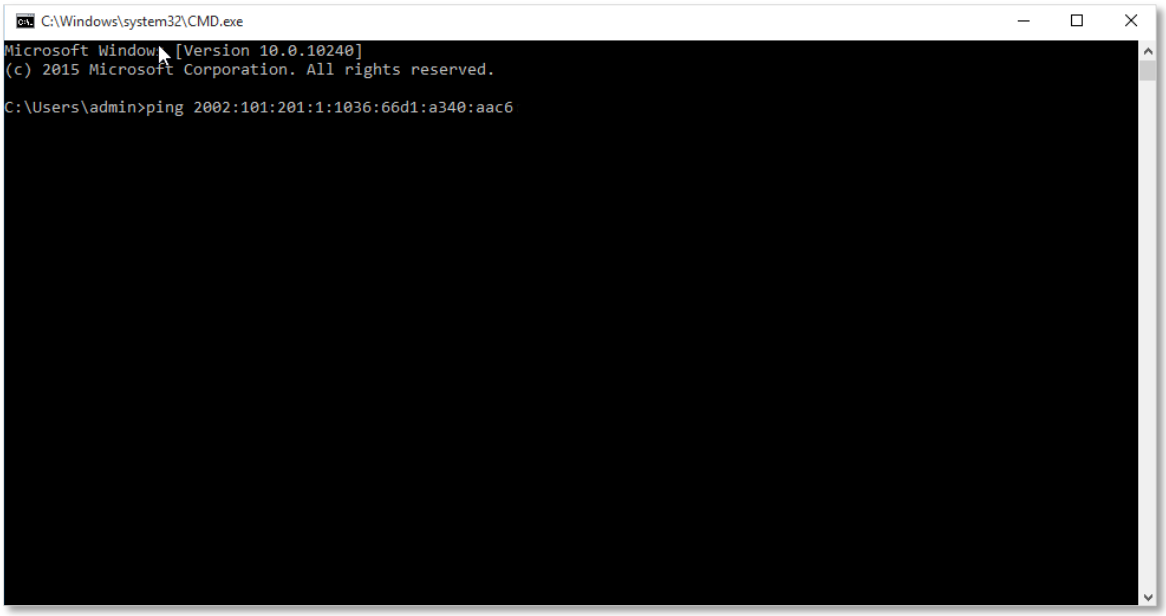
Now, ping computer 2 (IPv6 address: 2002:101:201:1:1036:66d1:a340:aac6) on computer 1.

Step 1 Use **Windows** + **R** shortcut to open the **Run** dialog window.

Step 2 Enter **cmd**, and click **OK**.

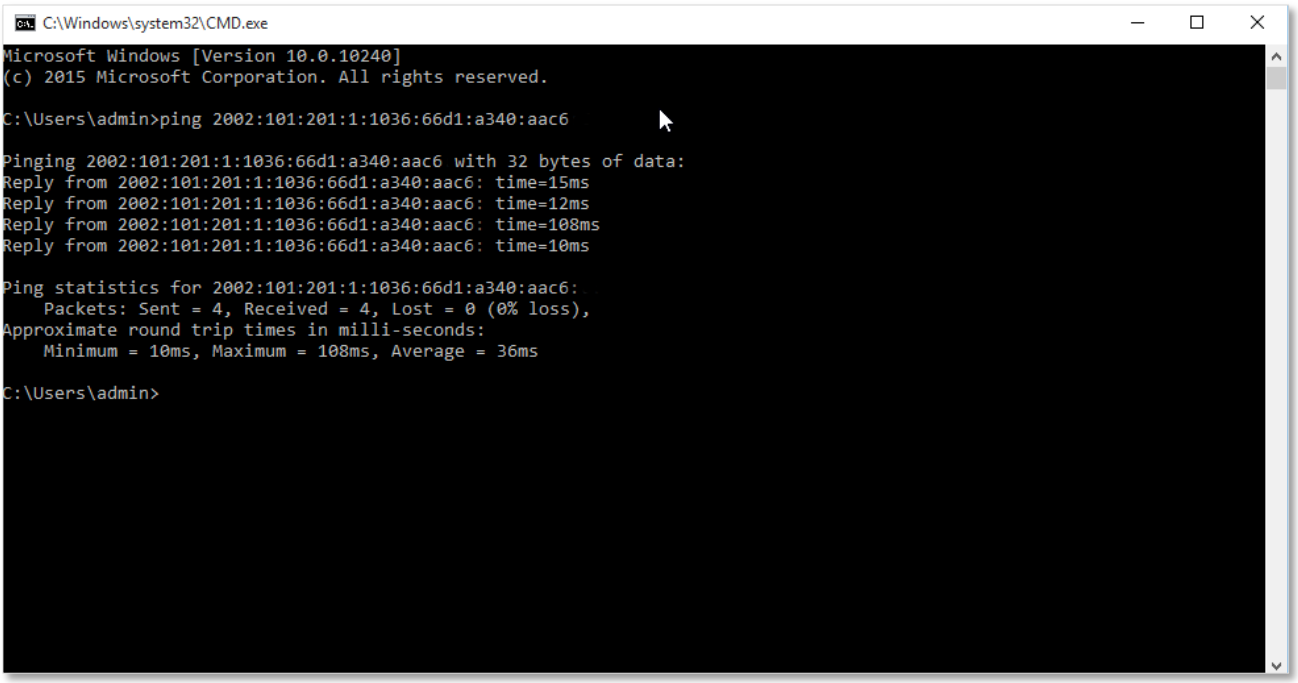


Step 3 Enter the ping command, which is **ping 2002:101:201:1:1036:66d1:a340:aac6** in the example and press **Enter**.



---End

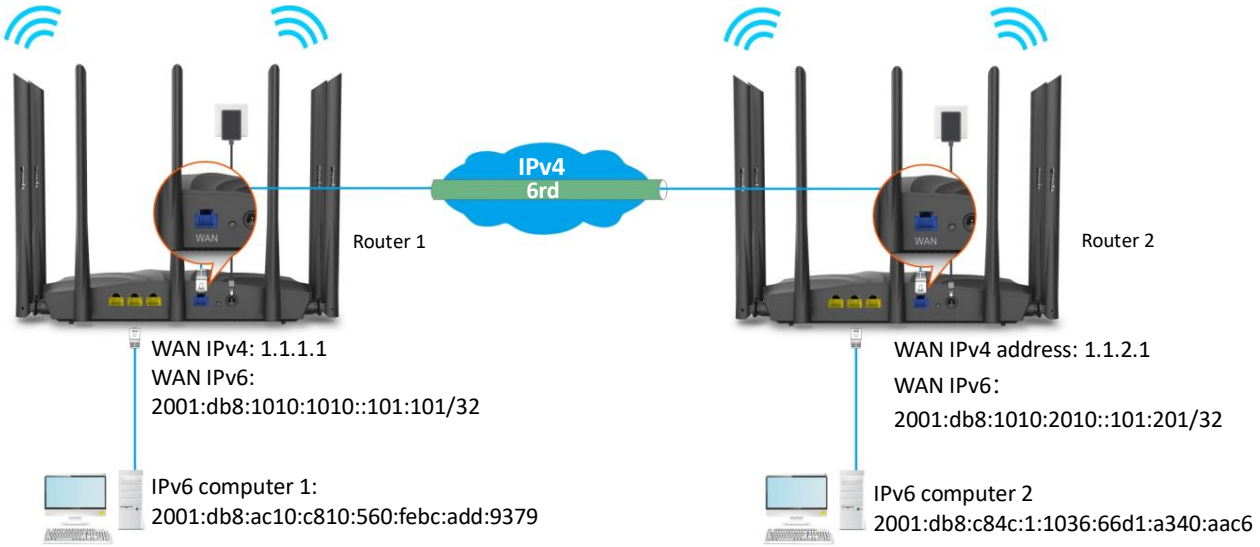
Wait a moment. The 6to4 tunnel configuration succeeds when the result is shown as below.



6rd tunnel

As shown below, the two routers support dual stack protocol. To achieve the communication between the two hosts, you can configure the 6rd tunnel.

Assume that the two routers are connected to IPv4 network and obtain public IPv4 addresses.



Configuring procedure:

TIP

Before configuring the 6rd tunnel, navigate to View system information to find the WAN IPv4 address of the router.

Step 1 Configure Router 1.

1. Start a web browser on a device connected to the router 1 and visit **tendawifi.com** to log in to the web UI of the router.

2. Choose **IPv6**.
3. Enable the **IPv6** function.
4. Set the connection type to **6rd Tunnel.**
5. Enter the WAN IPv4 address of the device at the peer side in **Remote IPv4 Address**, which is **1.1.2.1** in this example.
6. Enter the Subnet Mask of the IPv4 network. **240.0.0.0** is recommended.
7. Customize the **IPv6 Prefix** (the default is recommended).
8. Click **Save**.



Step 2 Configure Router 2.

1. Start a web browser on a device connected to the router 2 and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **IPv6**.
3. Enable the **IPv6** function.
4. Set the connection type to **6rd Tunnel**.
5. Enter the WAN IPv4 address of the device at the peer side in **Remote IPv4 Address**, which is **1.1.1.1** in this example.
6. Enter the **Subnet Mask** of the IPv4 network. **240.0.0.0** is recommended.
7. Customize the **IPv6 Prefix**.
8. Click **Save**.



---End

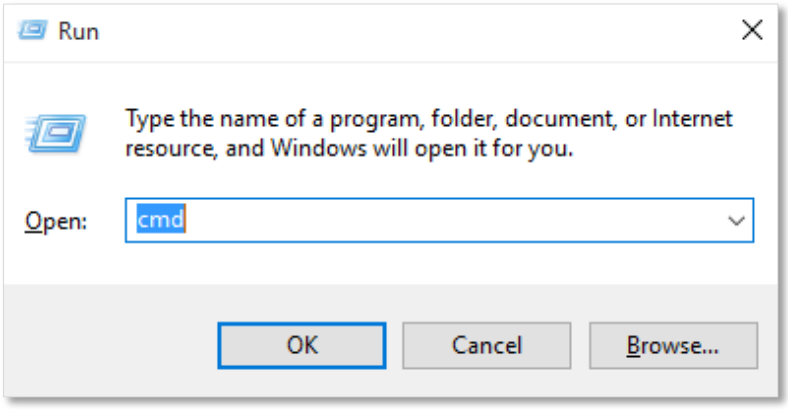
Verification

To verify whether the 6rd tunnel is established successfully, you can ping each other on the two computers.

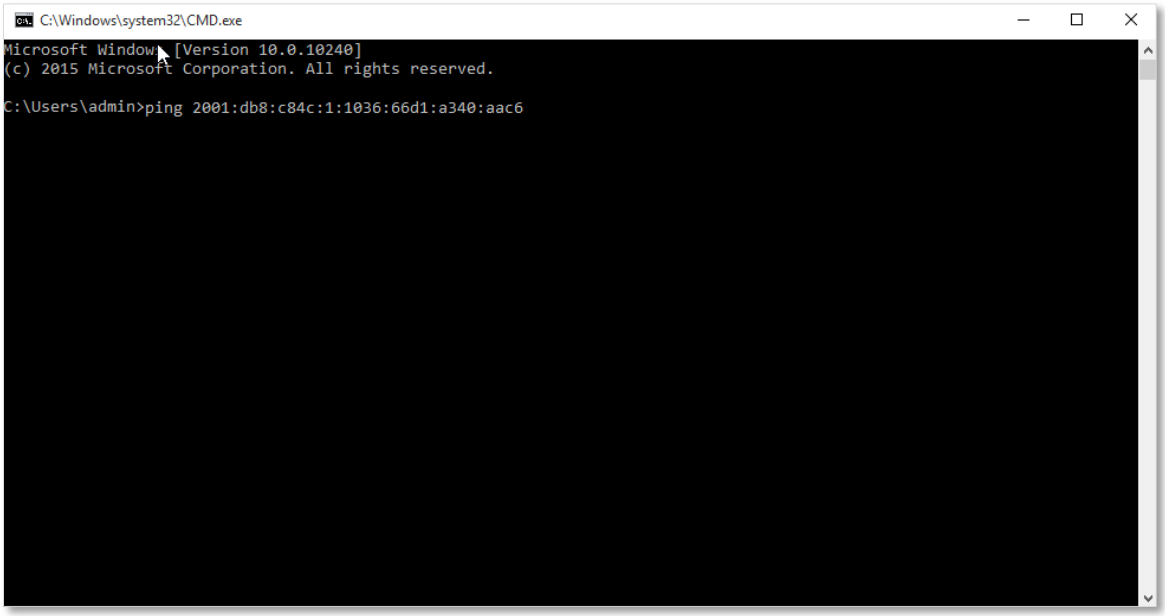
Now, ping computer 2 (IPv6 address: 2001:db8:c84c:1:1036:66d1:a340:aac6) on computer 1.

Step 1 Use **Windows** + **R** shortcut to open the **Run** dialog window.

Step 2 Enter **cmd**, and click **OK**.

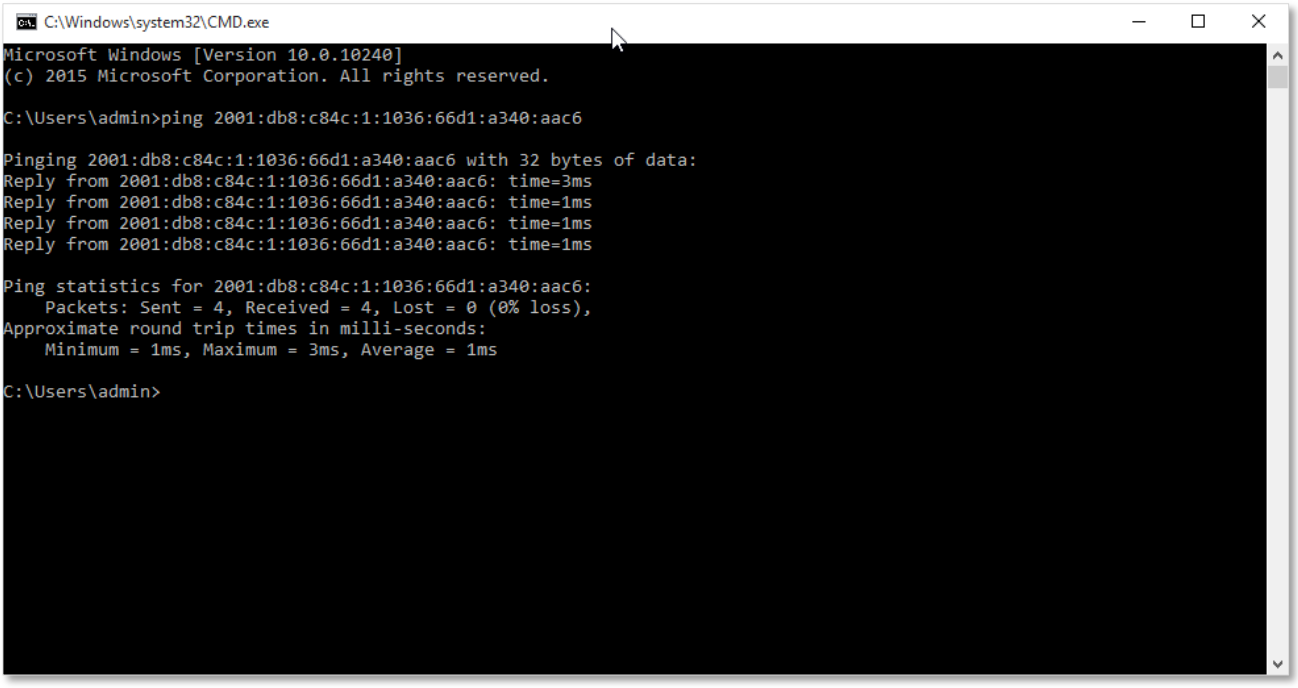


Step 3 Enter the ping command, which is **ping 2001:db8:c84c:1:1036:66d1:a340:aac6** in the example and press **Enter**.



---End

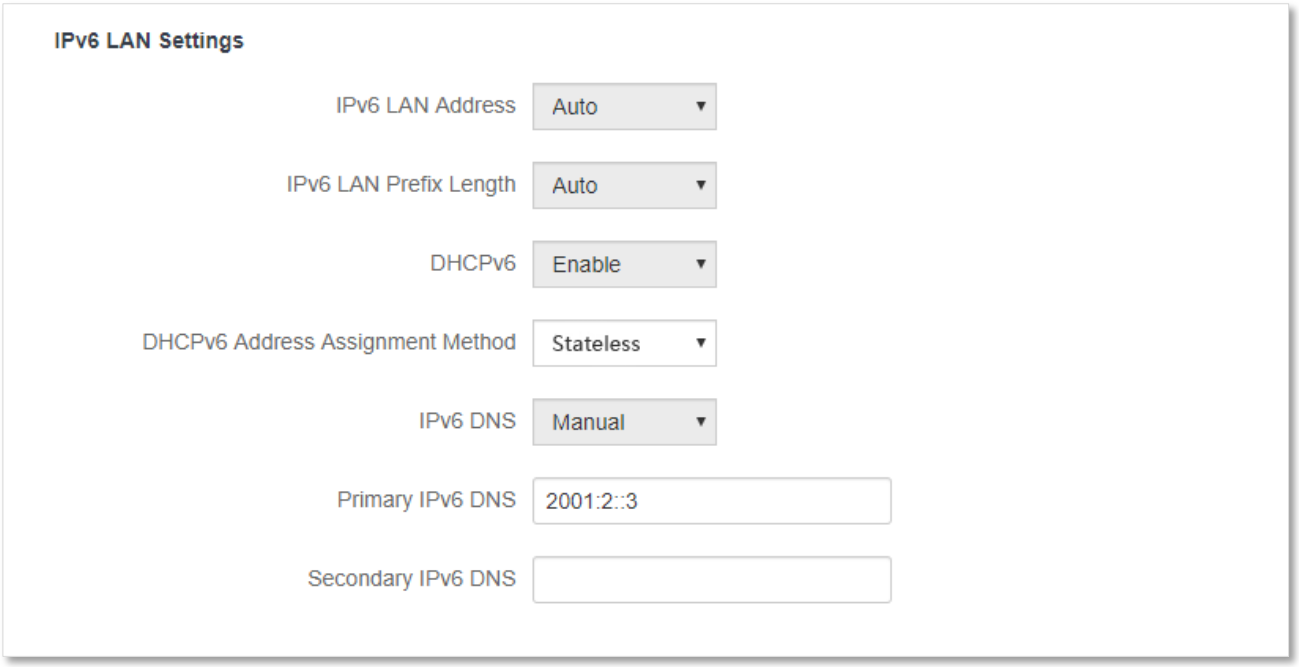
Wait a moment. The 6rd tunnel configuration succeeds when the result is shown as below.



10.2 IPv6 LAN settings

To access the page, log in to the web UI of the router and choose **IPv6**.

You can change the IPv6 LAN settings here.



Parameter description

Parameter	Description
IPv6 LAN Address	It specifies two types of IPv6 LAN address assignment. • **Auto**: The router generates the IPv6 address according to its LAN IP address. By default, the prefix has 64 digits. • **Manual**: You need to set the IPv6 LAN address manually.
IPv6 LAN Prefix Length	It specifies two types IPv6 LAN prefix address assignment. • **Auto**: The router obtains an LAN prefix from the upstream device. • **Manual**: You need to set the IPv6 LAN prefix manually.
DHCPv6	DHCPv6 (Dynamic Host Configuration Protocol for IPv6) is used to assign IP addresses and prefix to IPv6 hosts on a network. It is the IPv6 equivalent of the DHCP for IPv4. This is also known as a stateful autoconfiguration.
DHCPv6 Address Assignment Method	It specifies the assignment type of IPv6 address information by the DHCPv6 server. • **Stateless**: DHCPv6 stateless configuration. Clients obtain their IPv6 address through Router Advertisement (Stateless Address Auto Configuration) and other parameters are allocated by the DHCPv6 server. • **Stateful**: DHCPv6 stateful configuration. The DHCPv6 server automatically assigns IPv6 addresses/prefixes and other network configuration parameters (e.g. DNS server addresses, etc.) to clients. The user needs to manually configure the start ID and the end ID.

Parameter	Description
Start ID	The configuration is required when the DHCPv6 address assignment method is set to stateful.
End ID	It specifies the range of the last segment of the IPv6 address that the DHCPv6 server assigns to the devices. Range: 1-ffff.
IPv6 DNS	It specifies the LAN IPv6 DNS configuration method. • **Auto**: Obtain the IPv6 DNS address from the upstream device. • **Manual**: Configure the IPv6 DNS address manually.
Primary IPv6 DNS	Enter the fixed IPv6 DNS address provided by your ISP. TIP If your ISP only provides one DNS server address, you can leave the secondary IPv6 DNS blank.
Secondary IPv6 DNS	

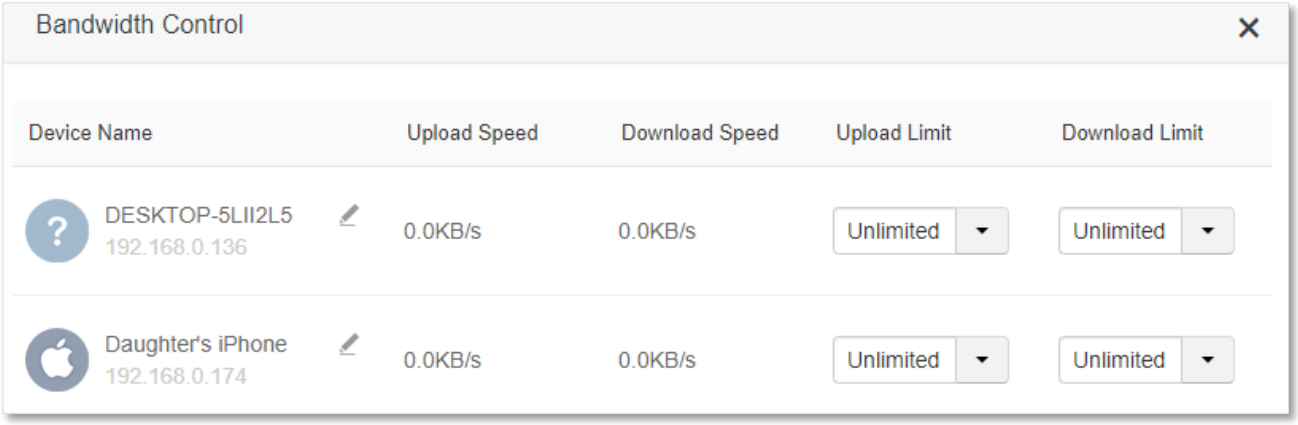
11 Advanced settings

11.1 Bandwidth control

11.1.1 Overview

By configuring this function, you can limit the upload and download speed of devices connected to the router and allocate the bandwidth reasonably.

To access the configuration page, log in to the web UI of the router and choose **Advanced Settings** > **Bandwidth Control**.



Parameter description

Parameter	Description
Device Name	It specifies the name and IP address of the device. You can click to change the name of the device.
Upload Speed	It specifies the current upload and download speed of the device.
Download Limit	
Upload Limit	It specifies the upload and down load speed limit for the device. You can click the drop-down box to choose a number or set it manually.
Download Limit	

11.1.2 Set the upload and download speed limit for users

Scenario: You want to allocate bandwidth equally among connected and enable all connected devices to enjoy smooth 720p videos.

Solution: Configure the bandwidth control function to meet the requirement.

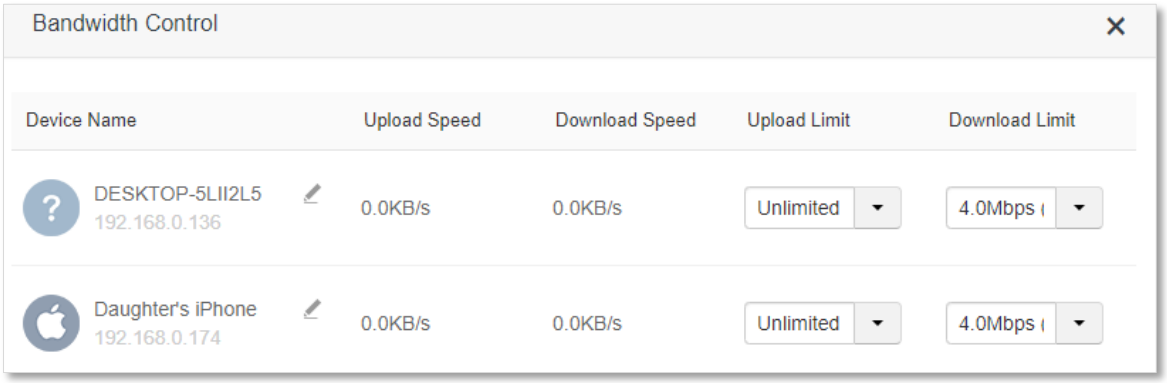
Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Advanced Settings** > **Bandwidth Control**.

Step 3 Target the devices to be controlled, and set the **Download Limit** to **4.0 Mbps (For HD Video).**

Step 4 Click **Save**.



---End

After the configuration, the highest speed for the device is 4 Mbps (or 512 KB/s) and satisfies the requirement of 720p videos.

11.2 IPTV

11.2.1 Overview

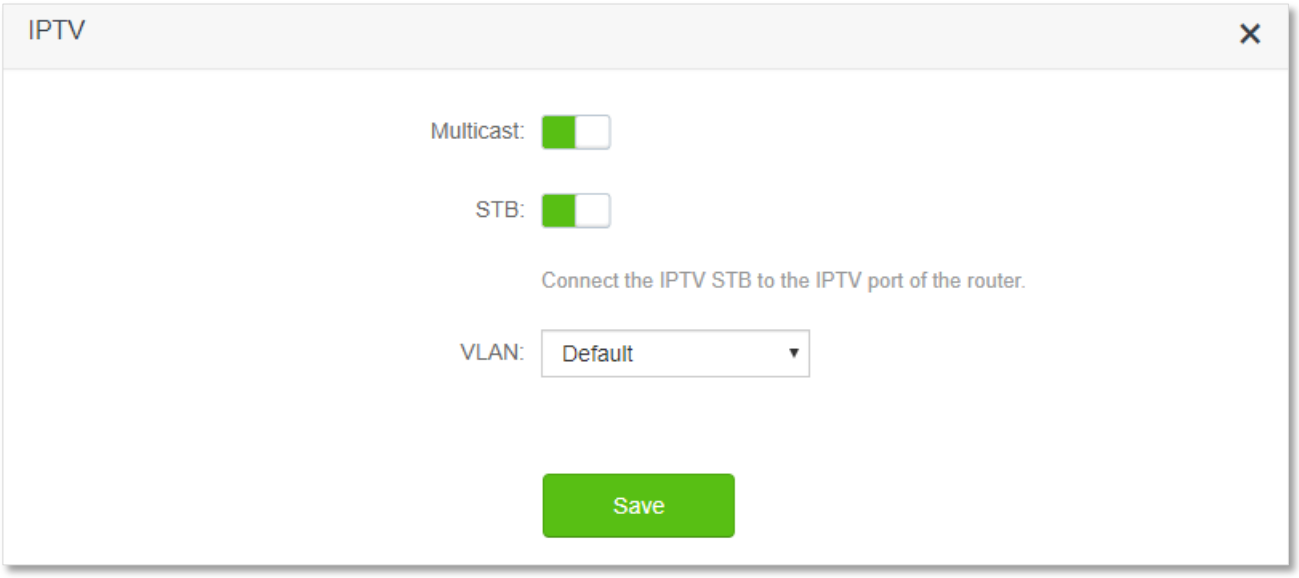
IPTV is the technology integrating internet, multimedia, telecommunication and many other technologies, providing interactive services, including digital TV, to family users by internet broadband lines.

You can set the multicast and STB functions here.

- **Multicast**: If you want to watch multicast videos from the WAN side of the router on your computer, you can enable the multicast function of the router.
- **STB** (Set Top Box): If the IPTV service is included in your broadband service, you are enabled to enjoy both internet access through the router and rich IPTV contents with a set top box.

To access the configuration page, log in to the web UI of the router and choose **Advanced Settings** > **IPTV**.

The IPTV function is disabled by default. When it is enabled, the page is shown below.



Parameter description

Parameter	Description
STB	It is used to enable and disable the IPTV function of the router. When this function is enabled, the port **IPTV/3** or **IPTV/4** port can be used only as an IPTV port and be connected to an IPTV set top box.
VLAN	It specifies the VLAN ID of your IPTV service. • If your ISP does not provide any VLAN ID information when the IPTV service is available, please keep **Default**. • If you have obtained VLAN ID from your ISP when the IPTV service is available, please

Parameter	Description
	choose **Custom** VLAN and enter the VLAN value. • If you purchased the IPTV service in Shanghai, choose Shanghai VLAN and the desired VLAN ID.

11.2.2 Watch IPTV programs through the router

Scenario: The IPTV service is included in your broadband service. You have obtained the IPTV account and password from your ISP, but no VLAN information.

Goal: Be able to watch IPTV programs through the router.

Solution: You can configure the IPTV function to reach the goal (AC23 is used for illustration here).

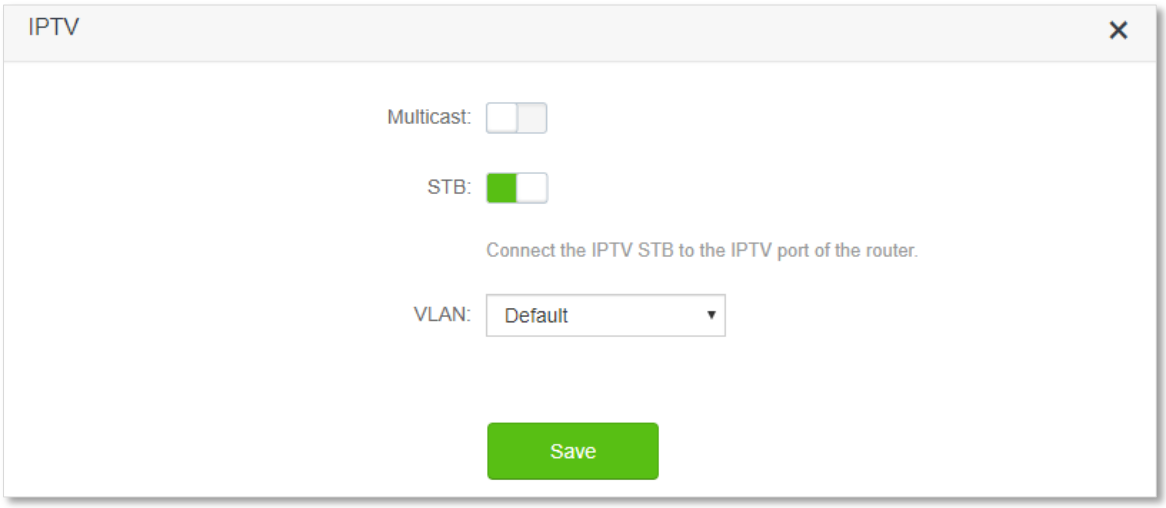


Configuring procedure:

Step 1 Set you router.

1. Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **Advanced Settings** > **IPTV**.
3. Enable the **STB** function.

4. Click **Save**.



Step 2 Configure the set top box.

Use the IPTV user name and password to dial up on the set top box.

---End

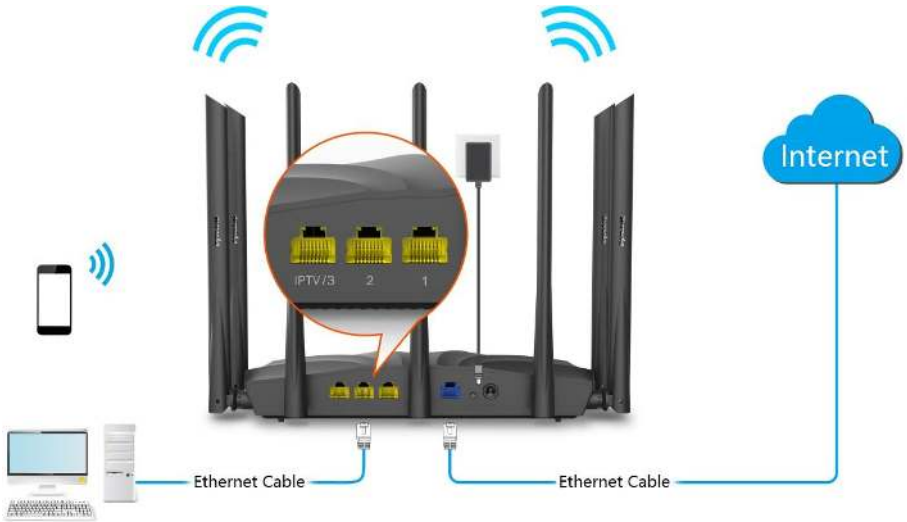
When completing the configurations, you can watch IPTV programs on your TV.

11.2.3 Watch multicast videos through the router

Scenario: You have the address of multicast videos.

Goal: You are able to watch multicast videos.

Solution: You can configure the multicast function to reach the goal.



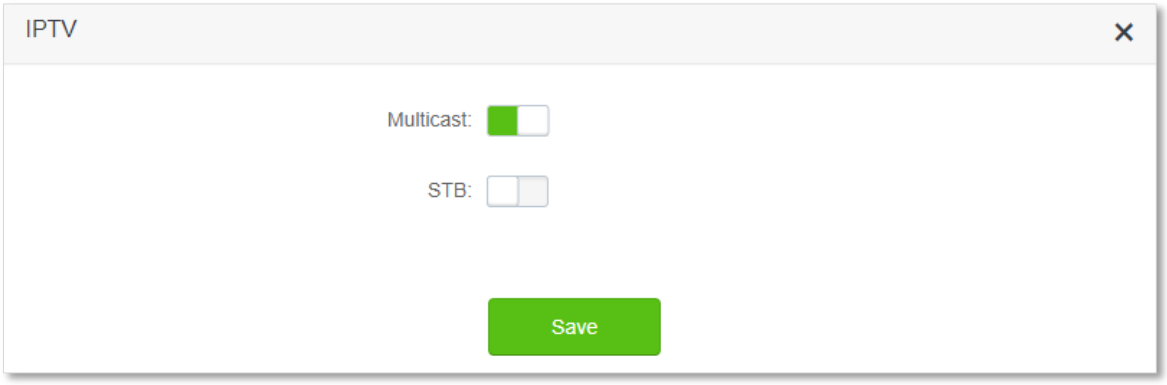
Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **Advanced Settings** > **IPTV**.

Step 3 Enable the **Multicast** function.

Step 4 Click **Save**.



---End

When completing the configurations, you can watch multicast videos on your computer.

11.3 Tenda WiFi App

The router supports management through the Tenda WiFi App. With the App, you can:

- Manage your router within the LAN or through the internet.
- View and download resources on the USB storage device within the LAN and through the internet (only available on AC19).



To manage the router with Tenda WiFi App, follow the steps below (Example: iPhone).

Configuring procedure:

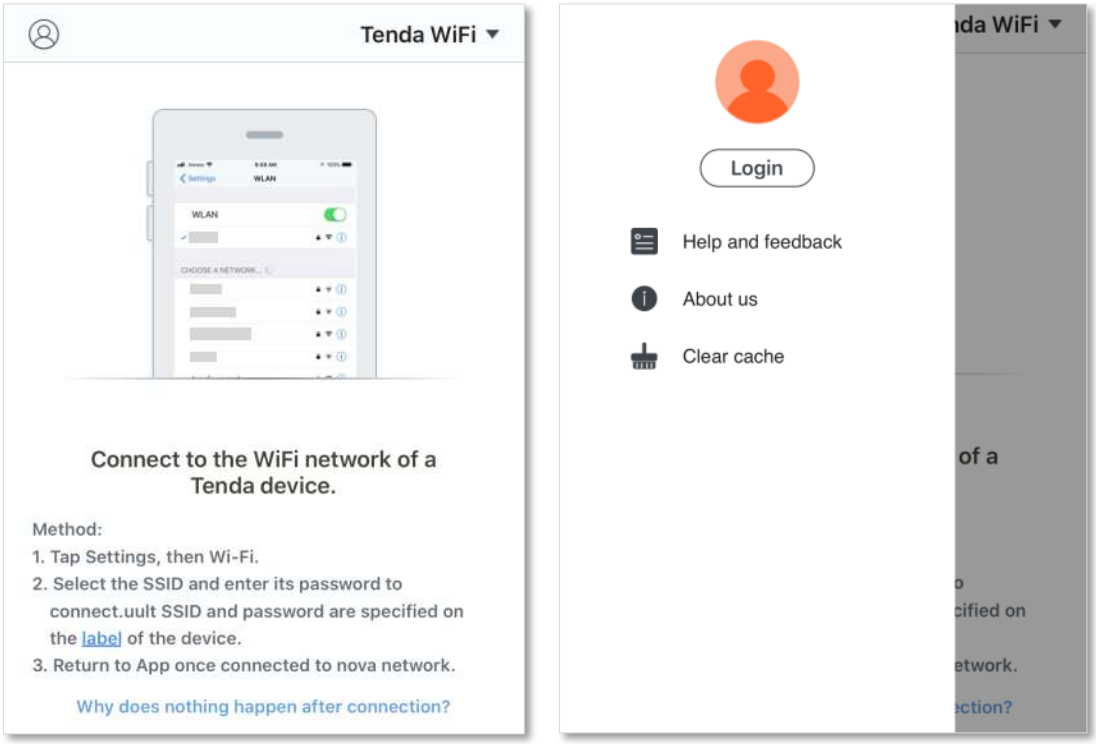
Step 1 Go to the App store and search for the **Tenda WiFi** App. Download and install it on your phone.

TIP

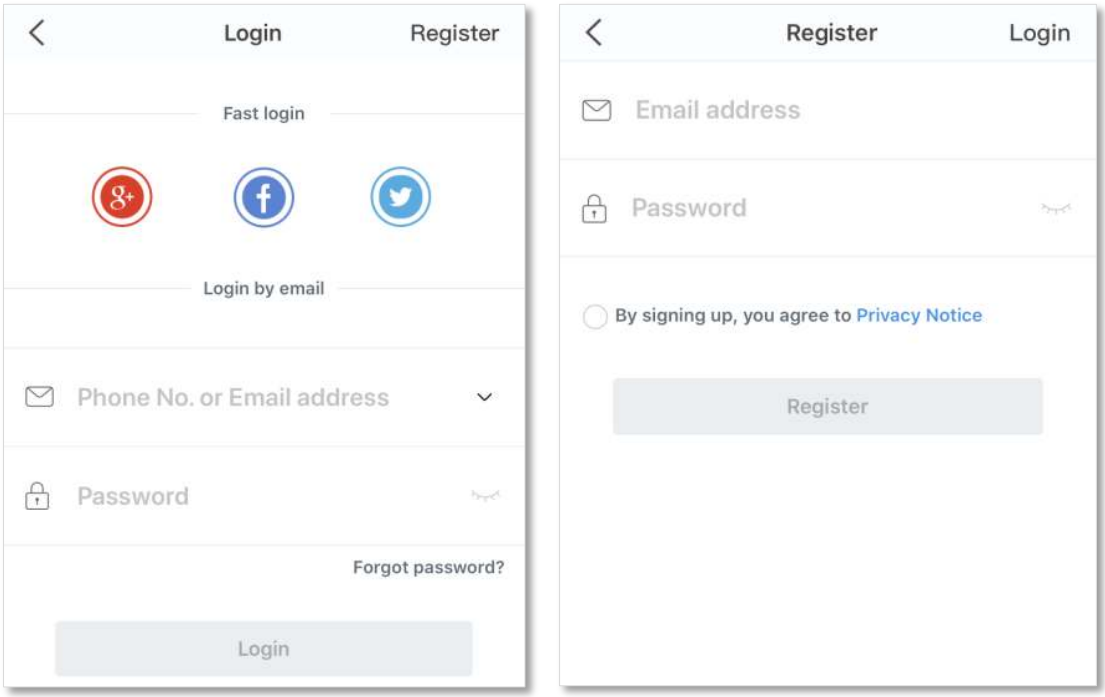
If you already have a Tenda WiFi App account or want to use the fast login approach, skip to **Step 3** and proceed with the settings.

Step 2 (Optional) Register an account in the Tenda WiFi App.

1. Open the Tenda WiFi App, tap the at the top left corner and tap **Login**.

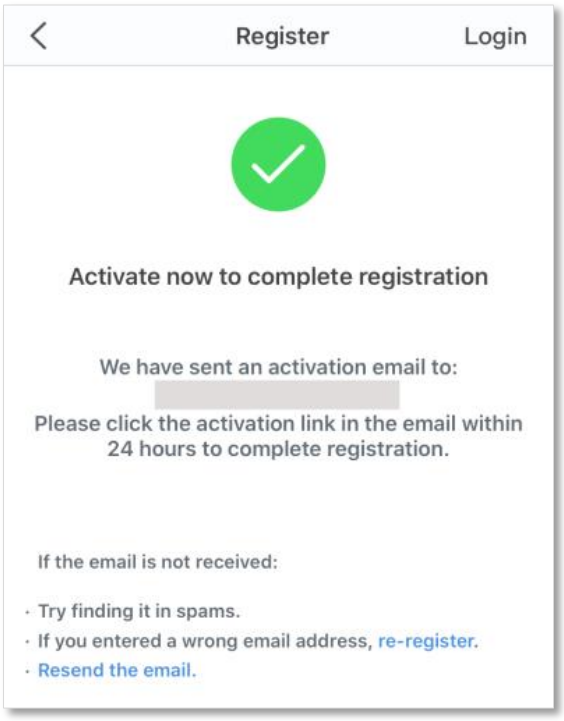


2. Tap **Register** at the top right corner, and register with an Email account.



3. Check the Email sent to your Email account and follow the instruction to finish the Email account confirmation process.

4. Click **Login** at the top right corner of the registration page.

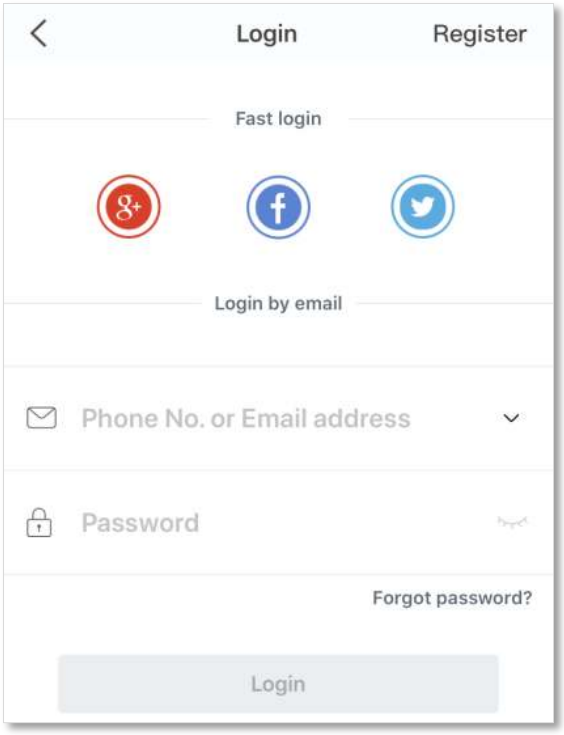


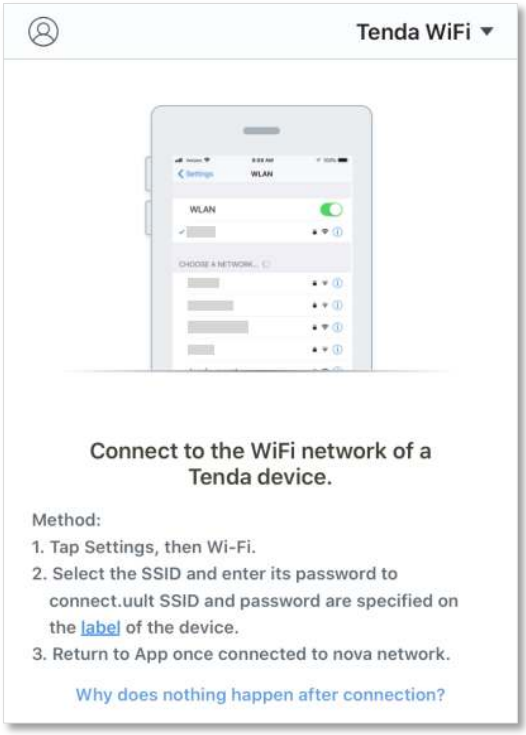
Step 3 Log in with the confirmed account.

Follow the instructions on the home page of the Tenda WiFi App to add the router.

TIP

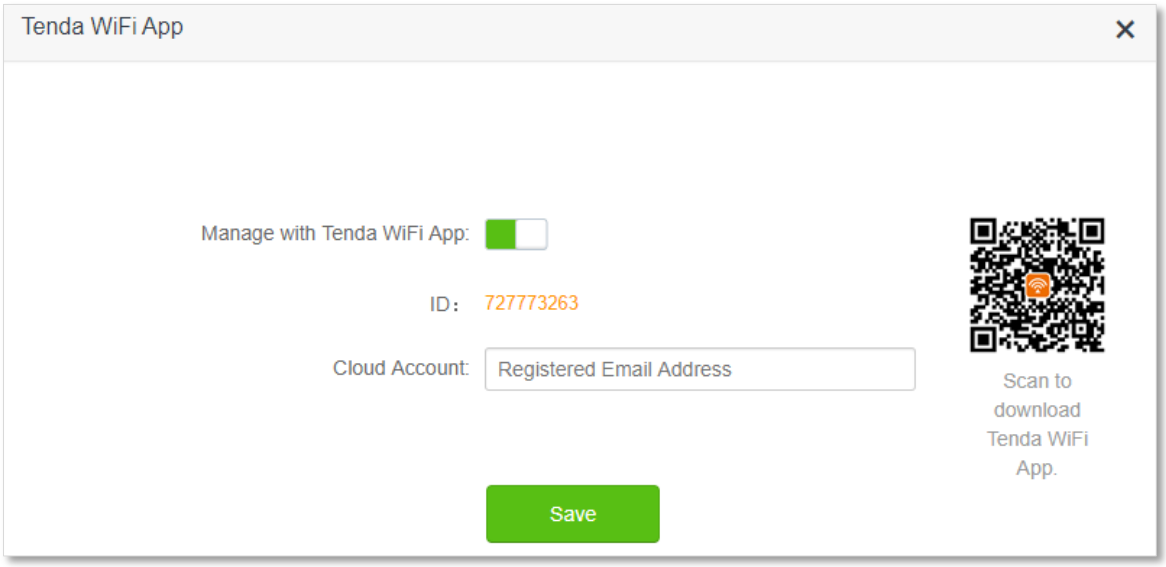
You can also choose to log in with your google, facebook and twitter account without registering a Tenda WiFi App account. Choose an option in **Fast login**.





Step 4 Bind your router with your smart phone.

1. Start a web browser on the phone connected to the router and visit **tendawifi.com** to log in to the web UI of the router.
2. Choose **Advanced Settings** > **Tenda WiFi App**.
3. Enable **Manage with Tenda WiFi App**.
4. Enter an account registered in the Tenda WiFi App in **Cloud Account**.
5. Click **Save**.



---End

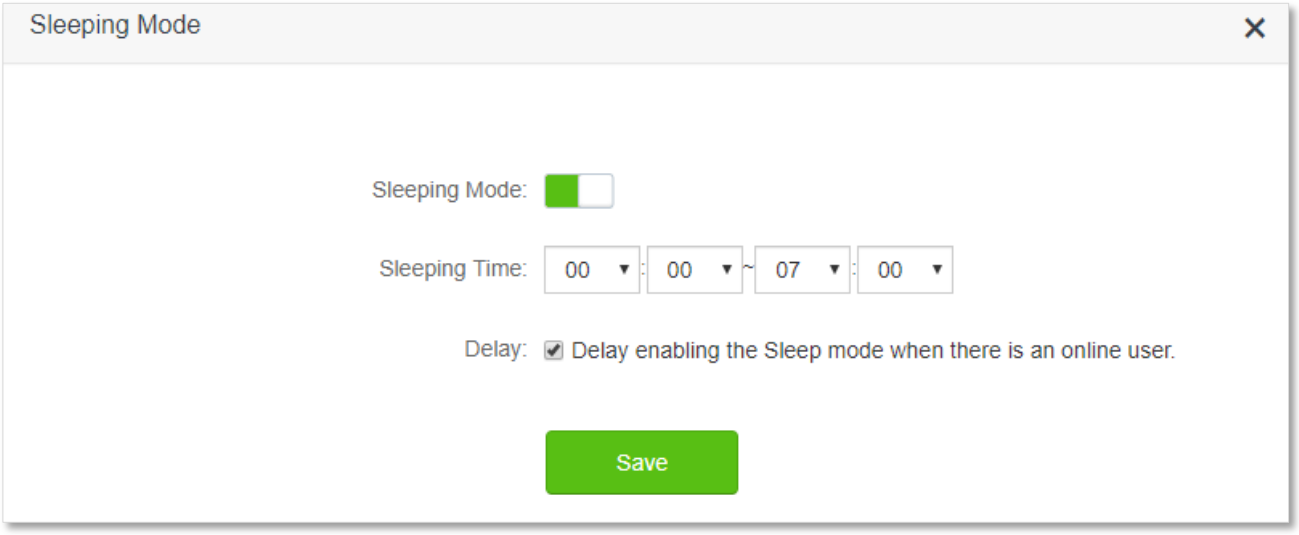
When completing the configurations, you can manage your router with Tenda WiFi App on your phone anywhere and anytime through the internet.

11.4 Sleeping mode

When the sleeping mode function is enabled, the router turns off its LED indicators and disables the WiFi network during the specified period.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **Sleeping Mode**.

This function is disabled by default. When it is enabled, the page is shown as below.



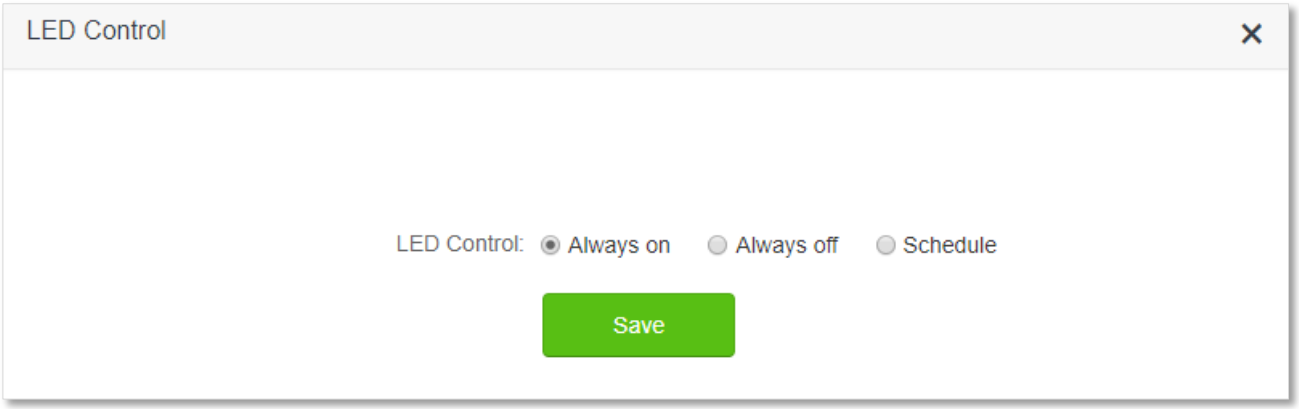
Parameter description

Parameter	Description
Sleeping Mode	It is used to enable or disable the function. When the router is under sleeping mode and you want to use the WiFi network, use the Tenda WiFi App to wake up the router.
Sleeping Time	It specifies the period during which the router is under the sleeping mode.
Delay	It is used to enable or disable the Delay function. • Ticked: The function is enabled. During the sleeping time, if there is any user connected to the router and the traffic over the router's WAN port exceeds 3 KB/s within 30 minutes, the router will delay entering the sleeping mode. If there is no user connected to the router and the traffic over the router's WAN port is slower than 3 KB/s within 3 minutes, the router will enter the sleeping mode. • Unticked: The function is disabled. The router enters the sleeping mode during the sleeping time.

11.5 LED control

With the LED control function, you can control the status of the LED indicators.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **LED Control**.



Parameter description

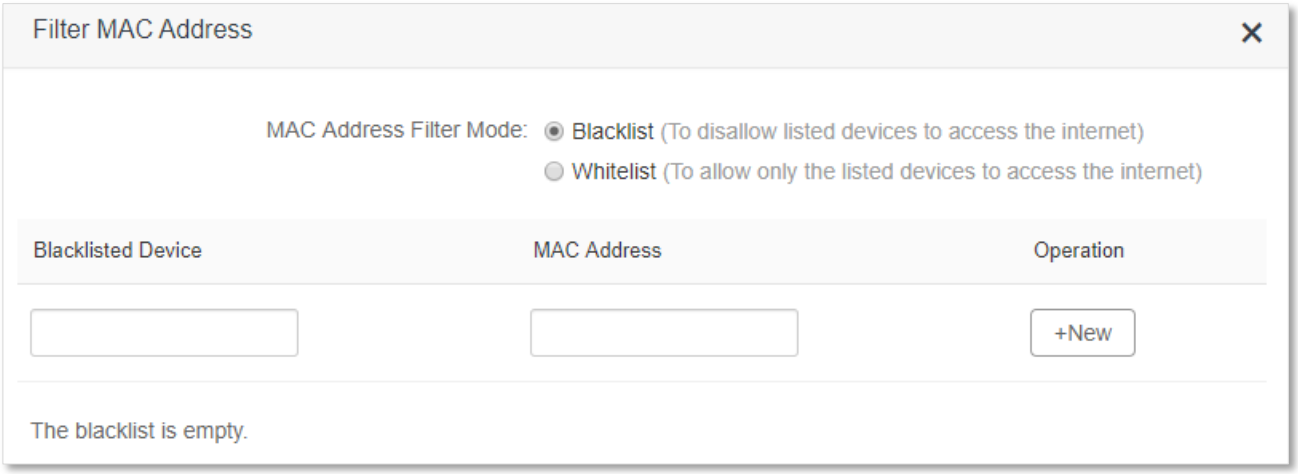
Parameter	Description
Always on	All LED indicators stay in their normal status.
Always off	All LED indicators are turned off.
Schedule	LED indicators are only turned off during the specified period.

11.6 Filter MAC address

11.6.1 Overview

This function enables you to add devices to the whitelist or blacklist to enable or disable specified users to access the internet through the router.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **Filter MAC address**.



Parameter description

Parameter	Description
MAC Address Filter Mode	It specifies the MAC address filter mode. • **Blacklist**: Wireless devices listed are unable to connect to the WiFi network of the router, and wired devices listed are unable to access the internet. • **Whitelist**: Wireless devices listed are able to connect to the WiFi network of the router, and wired devices listed are able to access the internet.
Blacklisted Device	It specifies the name or remark for the device.
Whitelisted Device	
MAC Address	It specifies the MAC addresses of devices added to the list.
Operation	+New: It is used to add new devices the blacklist or whitelist. : It is used to remove devices from the blacklist or whitelist.
Add all online devices to the whitelist	It is only available when you set the whitelist for the first time. By clicking it, you can add all currently connected devices to the whitelist.

11.6.2 Only allow specified device to access the internet

Scenario: The Wi-Fi in your home is misused by unknown users sometimes.

Goal: Only allow certain devices of family members to access the internet.

Solution: You can configure the MAC address filter function to reach the goal.

Assume that:

Device	MAC address	Status
Your own phone	8C:EC:4B:B3:04:92	Connected
Wife’s phone	94:C6:91:29:C2:12	Disconnected
Daughter’s phone	98:9C:57:19:D0:1B	Disconnected

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

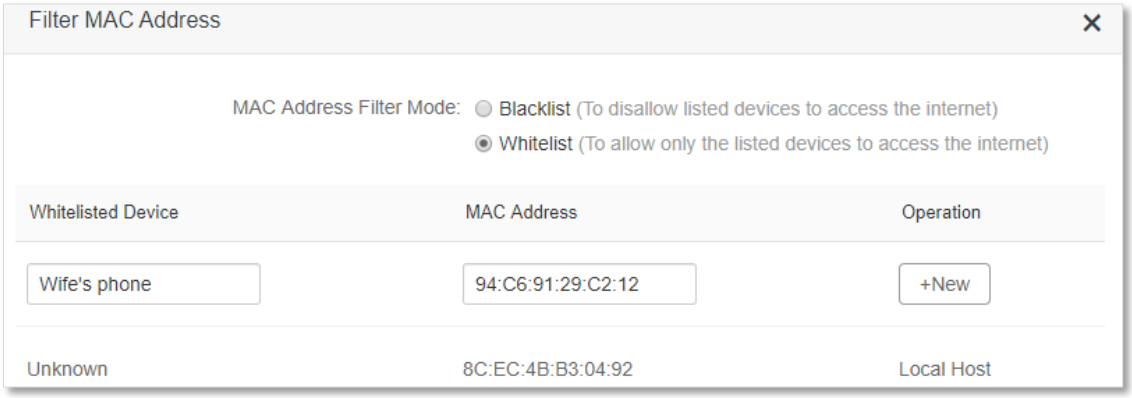
Step 2 Choose **Advanced Settings** > **Filter MAC Address**.

Step 3 Set the **MAC Address Filter Mode** to **Whitelist**.

Step 4 (Optional) Enter the device name in the **Whitelist Device** field, which is **Wife’s phone** in this example.

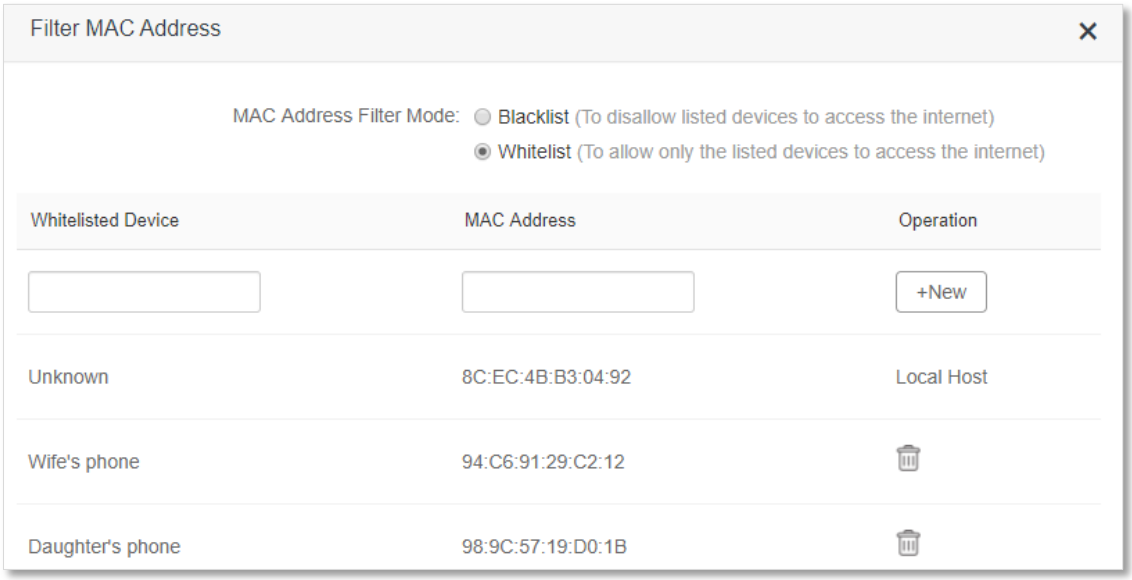
Step 5 Enter the **MAC Address** of the device, which is **94:C6:91:29:C2:12** in this example.

Step 6 Click **+New**.



Step 7 Repeat **Step 4** to **Step 6** to add **Daughter’s phone** (**98:9C:57:19:D0:1B**) to the whitelist.

Step 8 Click **Save**.



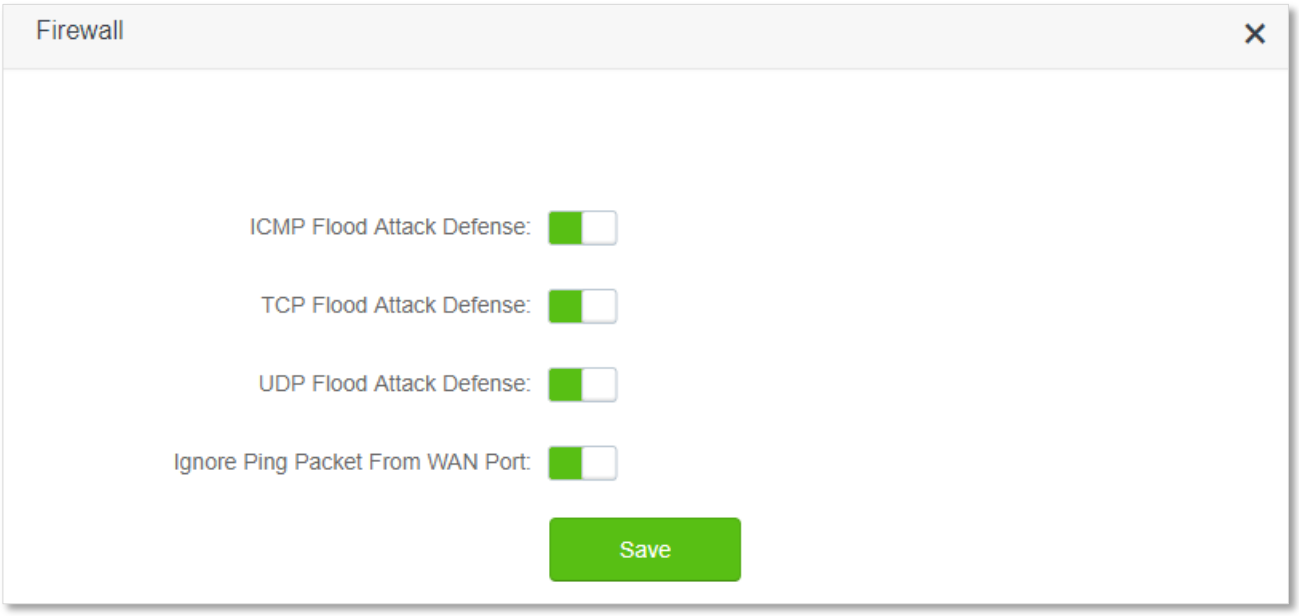
---End

When configuration is completed, only the three devices added are able to access the internet through the router.

11.7 Firewall

The firewall function helps the router detect and defend ICMP flood attack, TCP flood attack and UDP flood attack, and ignore Ping packet from WAN port. It is recommended to keep the default settings.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **Firewall**.



Parameter description

Parameter	Description
ICMP Flood Attack Defense	It is used to enable or disable the ICMP flood attack defense. The ICMP flood attack means that, to implement attacks on the target host, the attacker sends a large number of ICMP Echo messages to the target host, which causes the target host to spend a lot of time and resources on processing ICMP Echo messages, but cannot process normal requests or responses.
TCP Flood Attack Defense	It is used to enable or disable the TCP flood attack defense. The TCP flood attack means that, to implement attacks on the target host, the attacker quickly initiates a large number of TCP connection requests in a short period of time, and then suspends in a semi-connected state, thereby occupying a large amount of server resources until the server denies any services.
UDP Flood Attack Defense	It is used to enable or disable the UDP flood attack defense. The UDP flood attack is implemented in a similar way with ICMP flood attack, during which the attacker sends a large number of UDP packets to the target host, causing the target host to be busy processing these UDP packets, but unable to process normal packet requests or responses.
Ignore Ping Packet From WAN Port	It is used to enable or disable the Ignore Ping packet from WAN Port function. When it is enabled, the router automatically ignores the ping to its WAN from hosts from the internet and prevent itself from being exposed, while preventing external ping attacks.

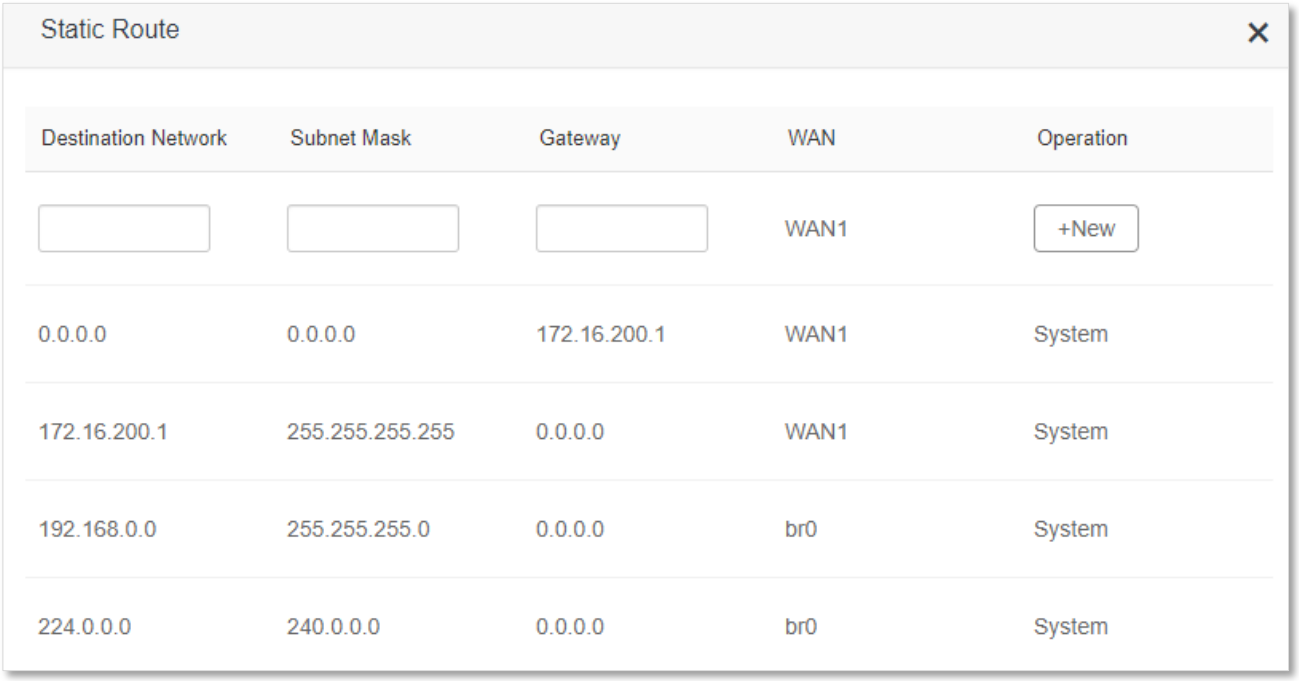
11.8 Static route

11.8.1 Overview

Routing is the act of choosing an optimal path to transfer data from a source address to a destination address. A static route is a special route that is manually configured and has the advantages of simplicity, efficiency, and reliability. Proper static routing can reduce routing problems and overload of routing data flow, and improve the forwarding speed of data packets.

A static route is set by specifying the target network, subnet mask, default gateway, and interface. The target network and subnet mask are used to determine a target network or host. After the static route is established, all data whose destination address is the destination network of the static route are directly forwarded to the gateway address through the static route interface.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **Static Route**.



Parameter description

Parameter	Description
Destination Network	It specifies the IP address of the destination network. When the Destination Network and Subnet Mask are both 0.0.0.0, it indicates that this is the default route. TIP When the route of packets cannot be found in the routing table, the router will forward the packets using the default route.
Subnet Mask	It specifies the subnet mask of the destination network.

Parameter	Description
Gateway	It specifies the ingress IP address of the next hop route after the data packet exits from the interface of the router. 0.0.0.0 indicates that the destination network is directly connected to the router.
WAN	It specifies the interface that the packet exits from.
Operation	It is used to add or delete static route rules.

11.8.2 Add a static route rule

Scenario: You have an AC23 and another two routers. Router1 is connected to the internet and its DHCP server is enabled. Router2 is connected to an intranet and its DHCP server is disabled.

Goal: You are able to access both the internet and intranet at the same time.

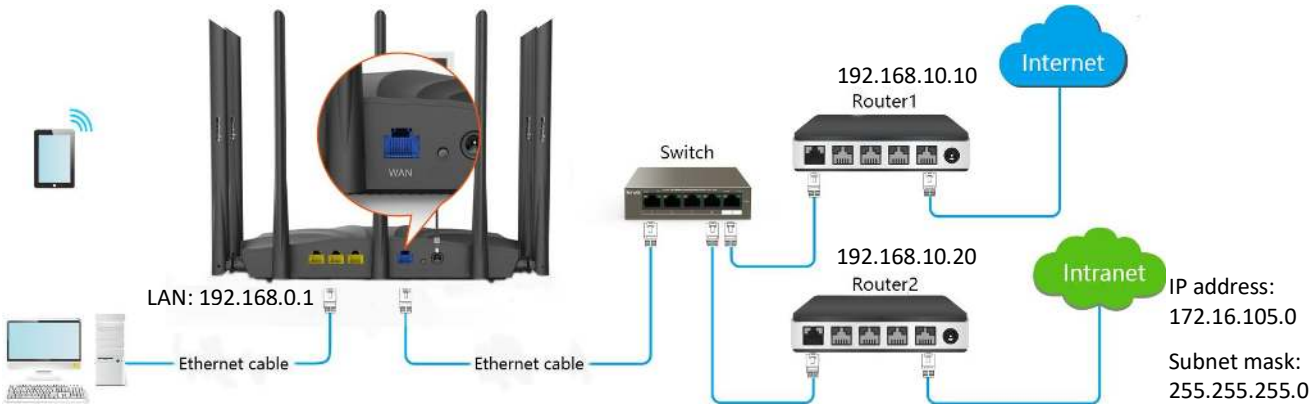
Solution: You can configure the static route function to reach the goal.

Assume the LAN IP addresses of these devices are:

- AC23: 192.168.0.1
- Router1: 192.168.10.10
- Router2: 192.168.10.20

The information about the intranet:

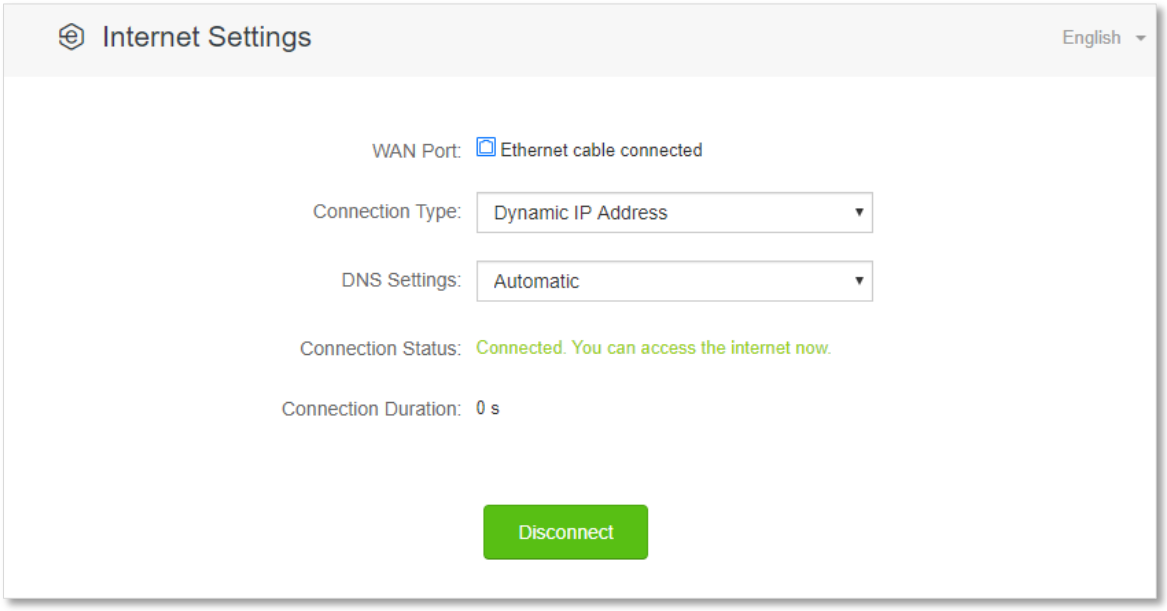
- IP address: 172.16.105.0
- Subnet mask: 255.255.255.0



Configuring procedure:

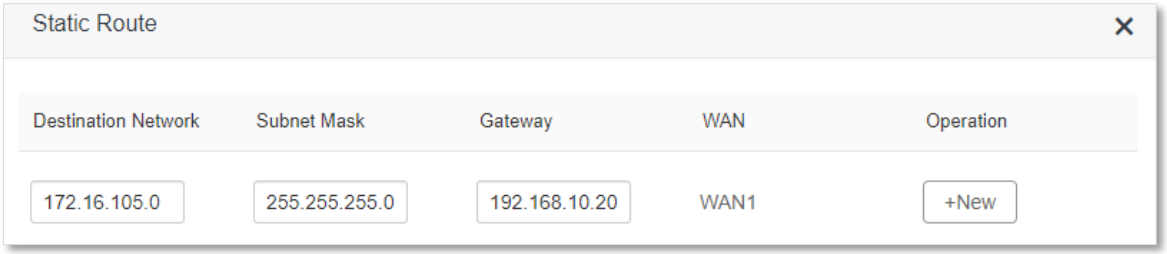
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Refer to Access the internet with a dynamic IP address to configure the internet access for AC23.



Step 3 Add a static route rule on AC23.

1. Choose **Advanced Settings** > **Static Route**.
2. Enter the IP address of the destination network, which is **172.16.105.0** in this example.
3. Enter the subnet mask of the destination network, which is **255.255.255.0** in this example.
4. Enter the ingress IP address of the next hop route, which is **192.168.10.20** in this example.
5. Click **+New**.



---End

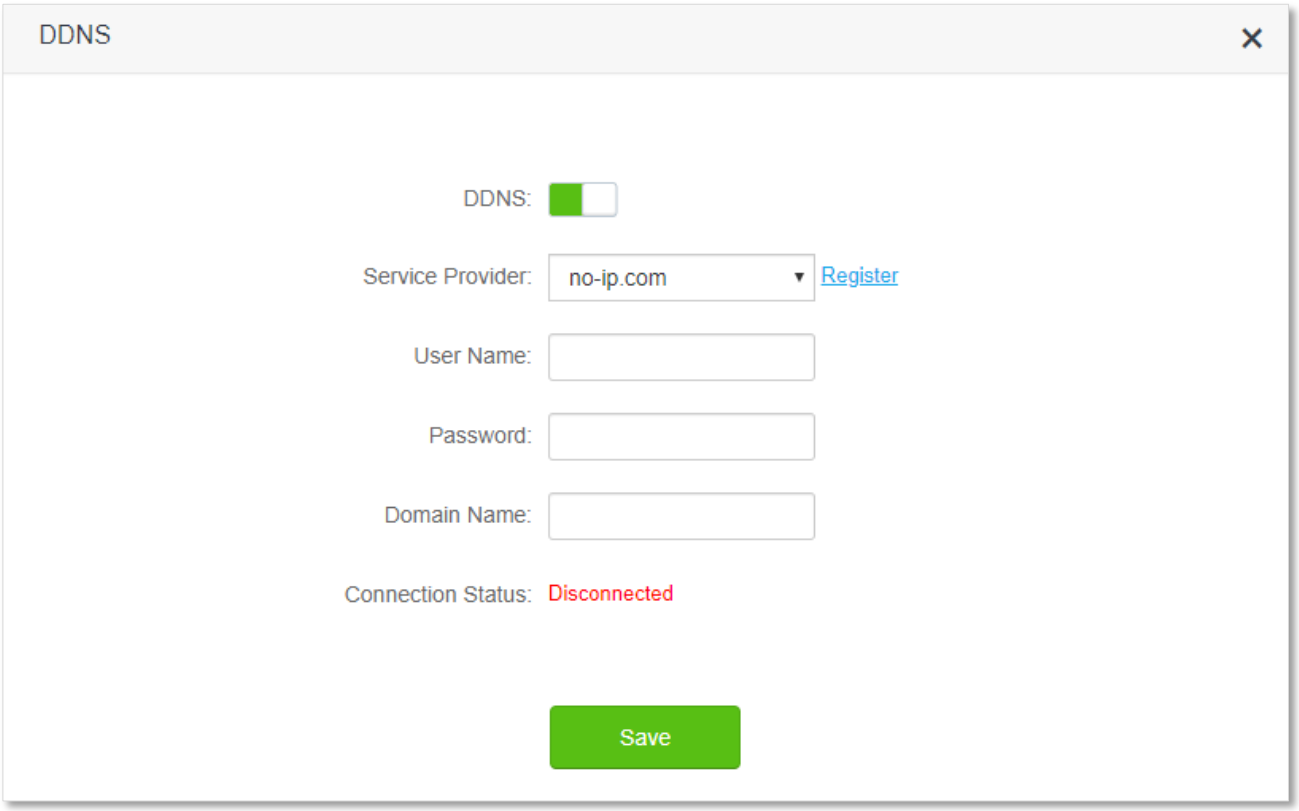
When completing the configurations, you can access both the internet and intranet through AC23 at the same time.

11.9 DDNS

11.9.1 Overview

DDNS normally interworks with virtual server, DMZ host and remote management, so that the internet users can be free from the influence of dynamic WAN IP address and access the internal server or the router's web UI with a fixed domain name.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **DDNS**.



Parameter description

Parameter	Description
DDNS	It is used to enable or disable the DDNS function.
Service Provider	It specifies the DDNS service provider.
User Name	It specifies the user name and password registered on a DDNS service provider's website for logging in to the DDNS service.
Password	
Domain Name	It specifies the domain name registered on the DDNS service provider's website. If this field is invisible after choosing the service provider, it is not required.
Connection Status	It specifies the current connection status of the DDNS service.

11.9.2 Enable internet users to access LAN resources using a domain name

Scenario: You have set up a FTP server within your LAN.

Goal: Open the FTP server to internet users and enable family members who are not at home to access the resources of the FTP server from the internet with a domain name.

Solution: You can configure the DDNS plus virtual server functions to reach the goal.

Assume that the information of the FTP server includes:

- IP address: 192.168.0.136
- MAC address of the host: D4:61:DA:1B:CD:89
- Service port: 21

The information of the registered DDNS service:

- Service provider: oray.com
- User name: JohnDoe
- Password: JohnDoe123456
- Domain name: o2849z7222.zicp.vip

TIP

Please ensure that router obtains an IP address from the public network. This function may not work on a host with an IP address of a private network or an intranet IP address assigned by ISPs that start with 100. Common IPv4 addresses are classified into class A, class B and class C. Private IP addresses of class A range from 10.0.0.0 to 10.255.255.255; Private IP addresses of class B range from 172.16.0.0-172.31.255.255; Private IP addresses of class C range from 192.168.0.0-192.168.255.255.



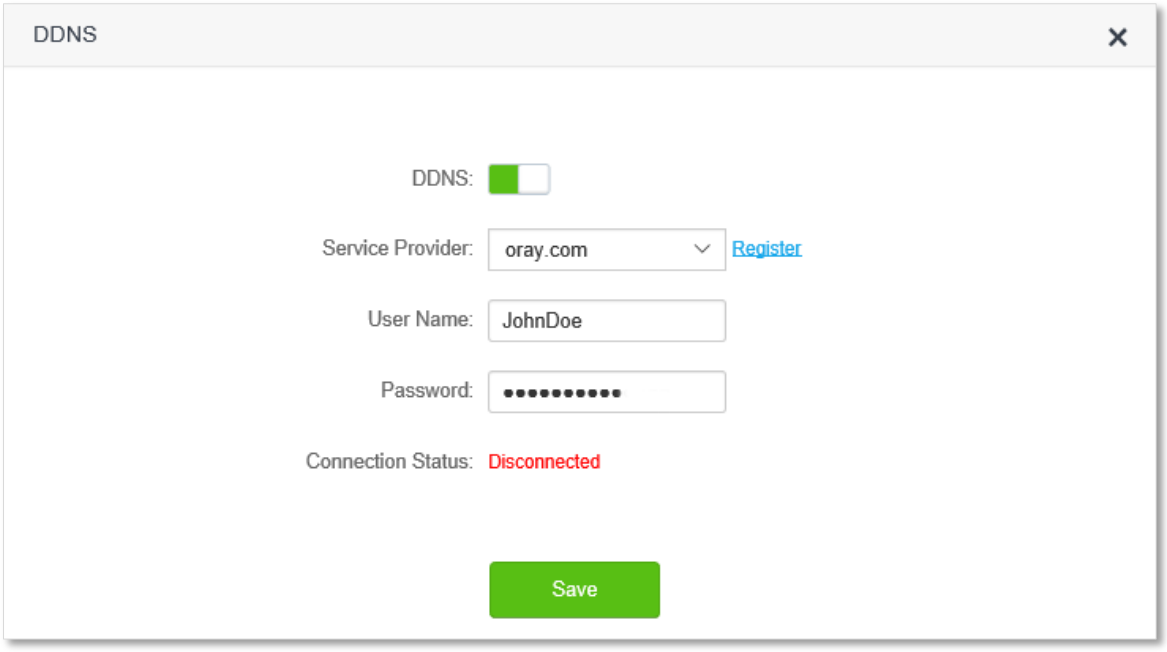
MAC address of the host: D4:61:DA:1B:CD:89
FTP server IP address: 192.168.0.136
Service port: 21

Configuration procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Configure the DDNS function.

1. Choose **Advanced Settings** > **DDNS**.
2. Enabled the **DDNS** function.
3. Choose a service provider, which is **oray.com** in this example.
4. Enter the user name and password, which are **JohnDoe** and **JohnDoe123456** in this example.
5. Click **Save**.

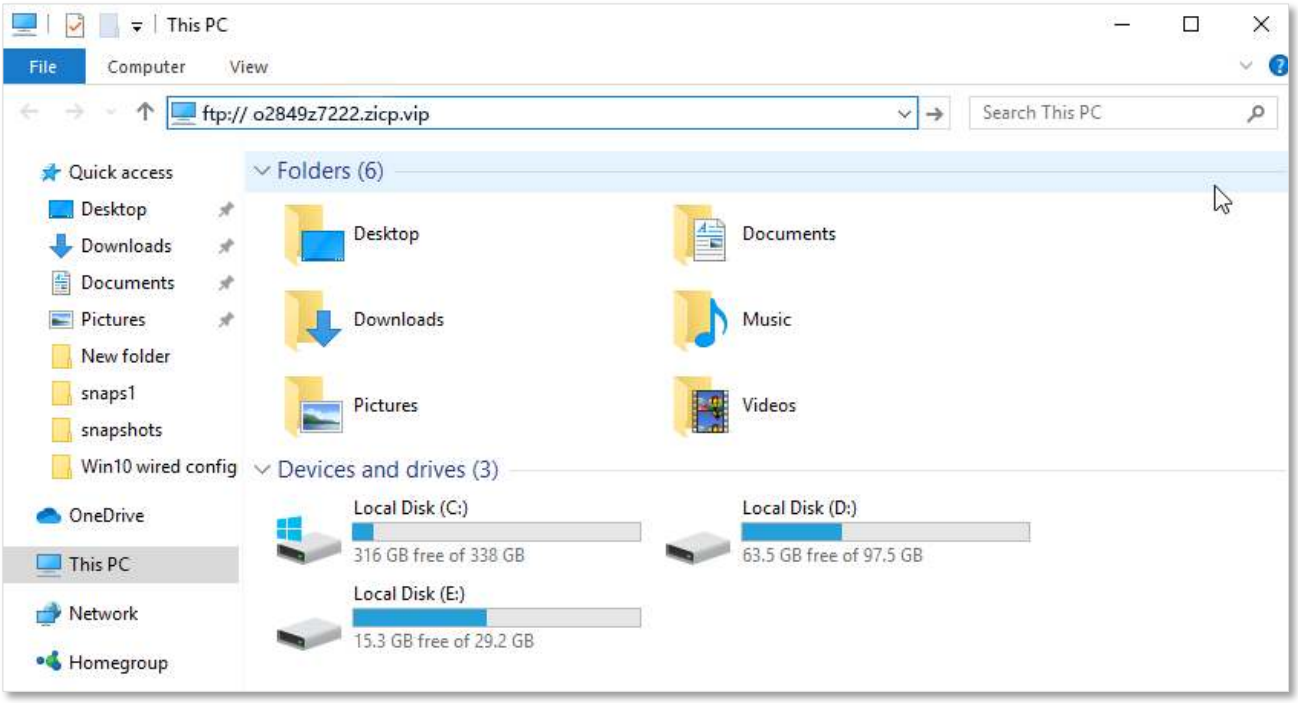


Wait a moment, when the Connection Status turns Connected, the configurations succeed.

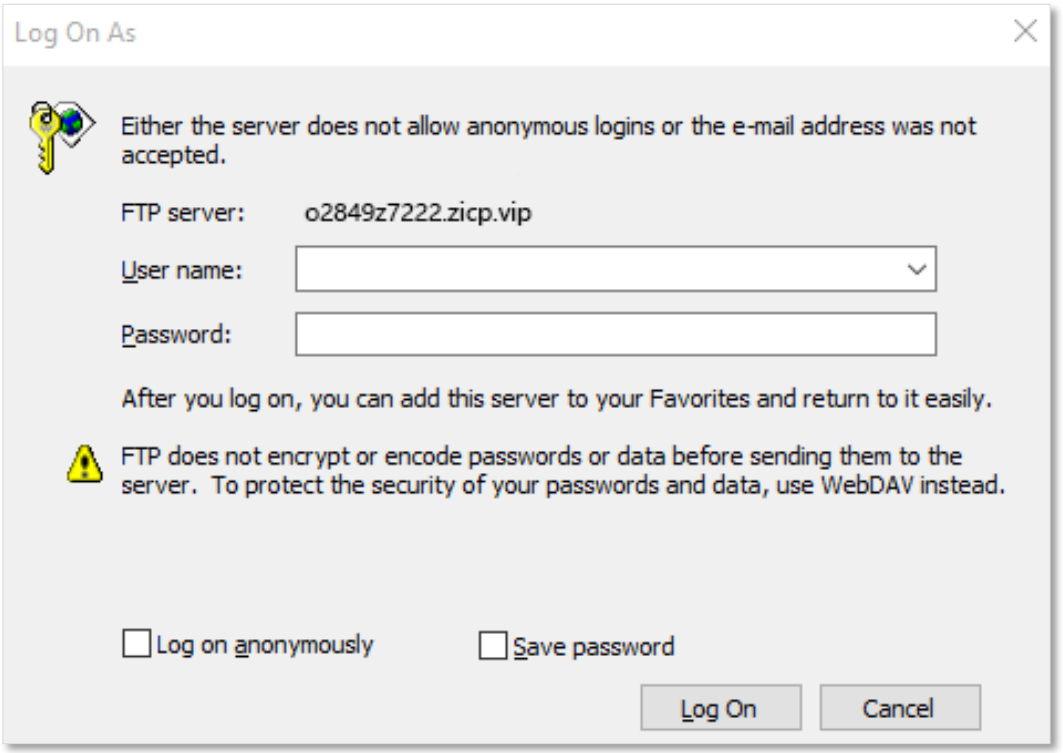
Step 3 Configure the virtual server function (refer to Virtual server)

---End

When completing the configurations, users from the internet can access the virtual server by visiting "*Intranet service application layer protocol name*://*the domain name*". If the WAN port number is not the same as the default intranet service port number, the visiting address should be: "*Intranet service application layer protocol name*://*the domain name:WAN port number*". In this example, the address is **ftp://o2849z7222.zicp.vip**.



Enter the user name and password to access the resources on the FTP sever.



TIP

After the configurations, if internet users still cannot access the FTP server, try the following methods:

- Ensure that the LAN port number configured in the virtual server function is the same as the service port number set on the server.
- Close the firewall, antivirus software and security guards on the host of the FTP server and try again.

11.10 Virtual server

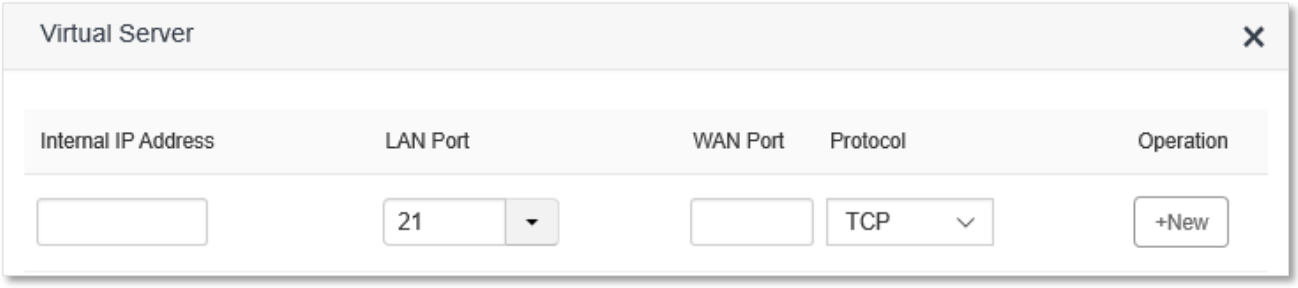
11.10.1 Overview

By default, internet users cannot actively access the LAN of the router.

The virtual server function opens a port of the router, and binds the LAN server to the port using the server's IP address and intranet service port. All access requests to the WAN port of the router will be directed to the server. Therefore, the server within the LAN can be accessed by internet users and the LAN can be free from attacks from the internet.

For example, the virtual server function enables internet users to access web servers or FTP servers within the LAN.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **Virtual Server**.



Parameter description

Parameter	Description
Internal IP Address	It specifies the IP address of the server within the LAN of the router.
LAN Port	It specifies the service port number of the server under the LAN of the router. You can either choose a service port number in the drop-down box, or enter a service port number manually.
WAN Port	It specifies the port of the router which is opened and accessible to internet users.
Protocol	It specifies the transport layer protocol of the service. If you are not sure about this parameter, TCP&UDP is recommended.
Operation	Available operations include: • +New: It is used to add a new virtual server rule. • : It is used to delete existing virtual server rules.

11.10.2 Enable internet users to access LAN resources

Scenario: You have set up a FTP server within your LAN.

Goal: Open the FTP server to internet users and enable family members who are not at home to

access the resources of the FTP server from the internet.

Solution: You can configure the virtual server function to reach the goal.

Assume that the information of the FTP server includes:

- IP address: 192.168.0.136
- MAC address: D4:61:DA:1B:CD:89
- Service port: 21
- The WAN IP address of the router: 102.33.66.88.

TIP

- Please ensure that router obtains an IP address from the public network. This function may not work on a host with an IP address of a private network or an intranet IP address assigned by ISPs that start with 100. Common IPv4 addresses are classified into class A, class B and class C. Private IP addresses of class A range from 10.0.0.0 to 10.255.255.255; Private IP addresses of class B range from 172.16.0.0-172.31.255.255; Private IP addresses of class C range from 192.168.0.0-192.168.255.255.
- ISPs may block unreported web services to be accessed with the default port number 80. Therefore, when the default LAN port number is 80, please change it to an uncommon port number (1024-65535) manually, such as 9999.
- The LAN port number can be different from the WAN port number.



FTP server IP address: 192.168.0.136
MAC address: D4:61:DA:1B:CD:89
Service port: 21

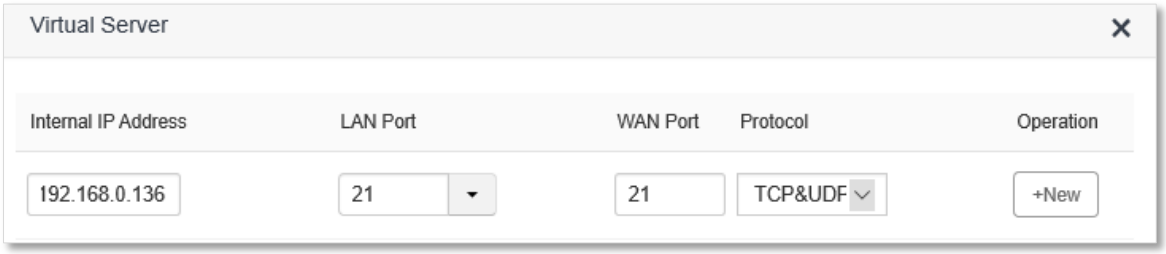
Configuration procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Add a virtual server rule.

1. Choose **Advanced Settings** > **Virtual Server**.
2. Enter the **Internal IP Address**, which is **192.168.0.136** in this example.
3. Choose a **LAN Port** in the drop-down box, which is **21** in this example.

4. Choose a protocol, which is **TCP&UDP** in this example.
5. Click **+New**.



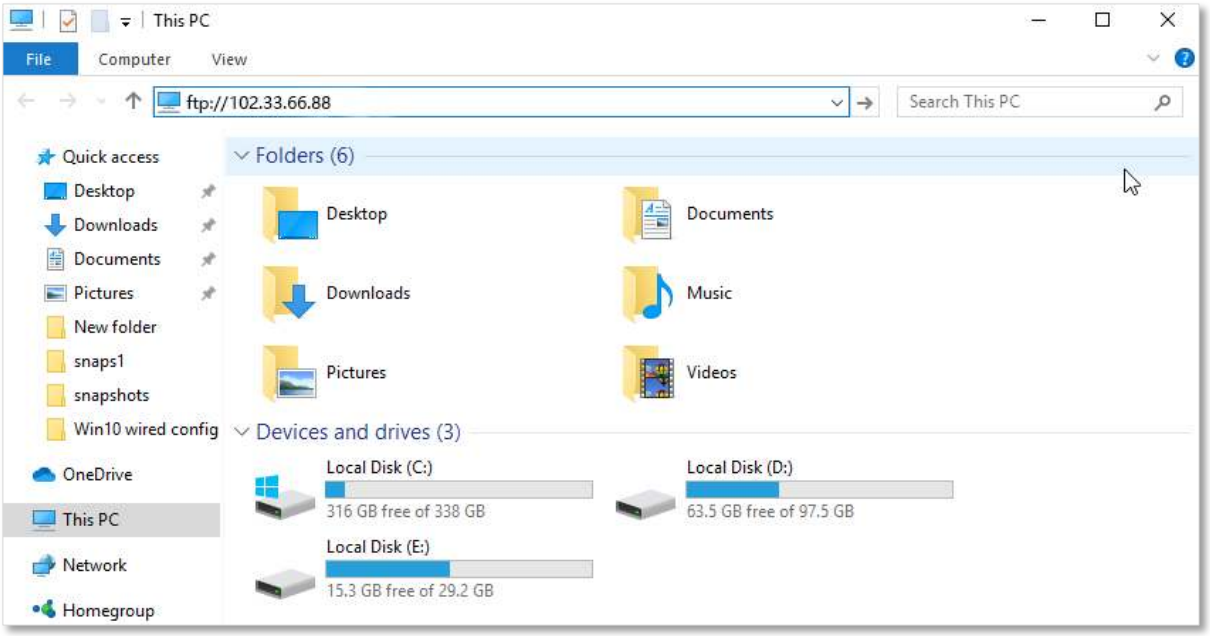
Step 3 Assign a fixed IP address to the host where the server locates.

1. Choose **System Settings** > **DHCP Reservation**.
2. Specifies a **Device Name** for the host of the server, which is **FTP server** in this example.
3. Enter the **MAC Address** of the host of the server, which is **D4:61:DA:1B:CD:89** in this example.
4. Enter the **IP Address** of host of the server, which is **192.168.0.136** in this example.
5. Click **+New**.

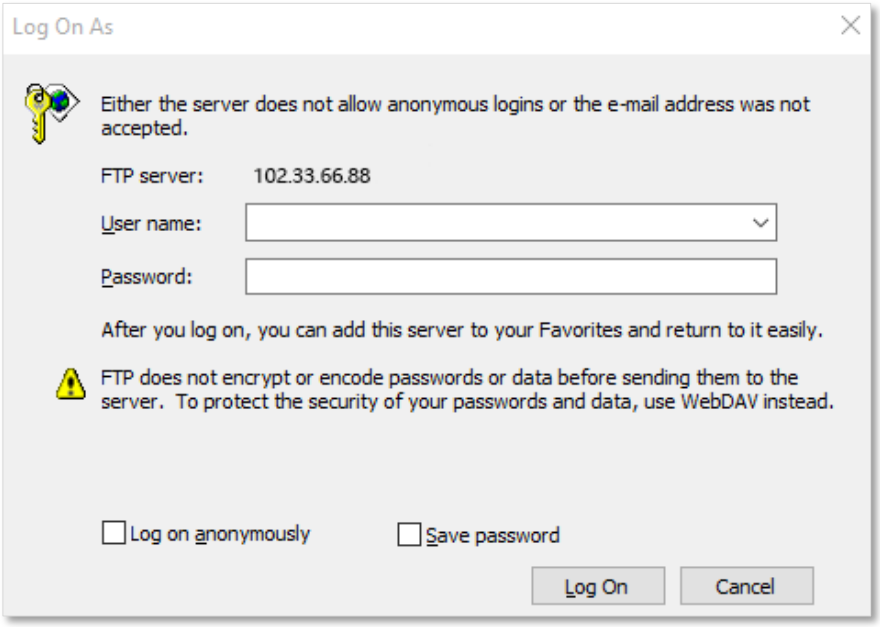


---End

When completing the configurations, users from the internet can access the virtual server by visiting "*Intranet service application layer protocol name*://*WAN IP address of the router*". If the WAN port number is not the same as the default intranet service port number, the visiting address should be: "*Intranet service application layer protocol name*://*WAN IP address of the router*:*WAN port number*". In this example, the address is "**ftp://102.33.66.88**". You can find the WAN IP address of the router in WAN status.



Enter the user name and password to access the resources on the FTP server.



If you want to access the server within a LAN using a domain name, refer to the solution DDNS + Virtual server.

TIP

After the configurations, if internet users still cannot access the FTP server, try the following methods:

- Ensure that the LAN port number configured in the virtual server function is the same as the service port number set on the server.
- Close the firewall, antivirus software and security guards on the host of the FTP server and try again.

11.11 DMZ host

11.11.1 Overview

A DMZ host on a LAN is free from restrictions in communicating with the internet. It is useful for getting better and smoother experience in video conferences and online games. You can also set the host of a server within the LAN as a DMZ host when in need of accessing the server from the internet.

NOTE

- A DMZ host is not protected by the firewall of the router. A hacker may leverage the DMZ host to attack your LAN. Therefore, enable the DMZ function only when necessary.
- Manually set a fixed IP address of the LAN computer that functions as a DMZ host (Refer to DHCP Reservation function), as a changeable IP address may result in DMZ function failures.
- Security software, antivirus software, and the built-in OS firewall of the computer may cause DMZ function failures. Disable them when using the DMZ function. If the DMZ function is not required, you are recommended to disable it and enable your firewall, security, and antivirus software.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **DMZ Host**.



Parameter description

Parameter	Description
DMZ Host	It is used to enable or disable the DMZ host function.
DMZ Host IP Address	It specifies the IP address of the host that is to be set as the DMZ host.

11.11.2 Enable internet users to access LAN resources

Scenario: You have set up a FTP server within your LAN.

Goal: Open the FTP server to internet users and enable family members who are not at home to access the resources of the FTP server from the internet.

Solution: You can configure the DMZ host function to reach the goal.

Assume that the information of the FTP server includes:

- IP address: 192.168.0.136
- MAC address: D4:61:DA:1B:CD:89
- Service port: 21
- The WAN IP address of the router: 102.33.66.88.

TIP

Please ensure that router obtains an IP address from the public network. This function may not work on a host with an IP address of a private network or an intranet IP address assigned by ISPs that start with 100. Common IPv4 addresses are classified into class A, class B and class C. Private IP addresses of class A range from 10.0.0.0 to 10.255.255.255; Private IP addresses of class B range from 172.16.0.0-172.31.255.255; Private IP addresses of class C range from 192.168.0.0-192.168.255.255.



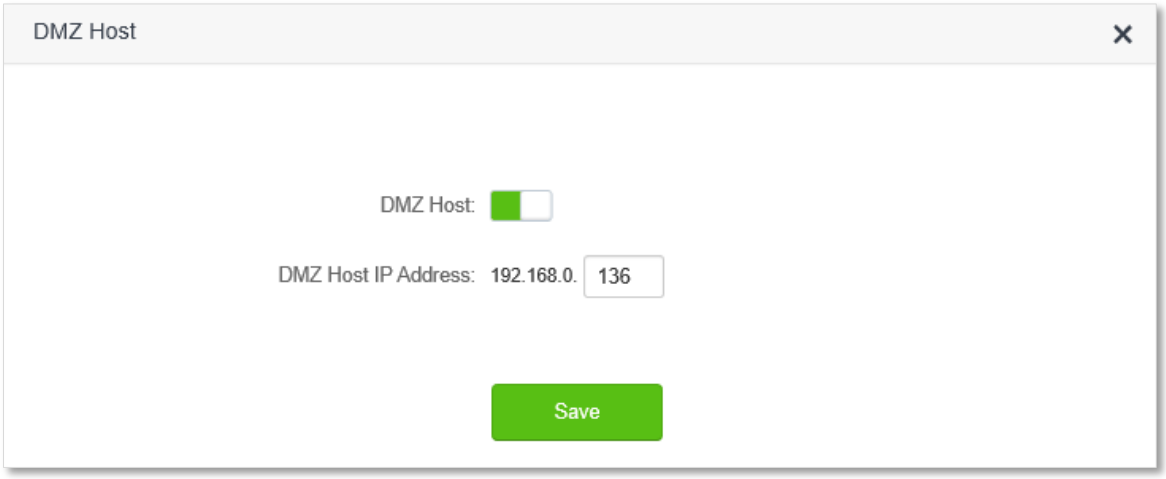
FTP server IP address: 192.168.0.136
MAC address: D4:61:DA:1B:CD:89
Service port: 21

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Set the server host as the DMZ host.

1. Choose **Advanced Settings** > **DMZ Host**.
2. Enable **DMZ Host**.
3. Enter the IP address of the host, which is **192.168.0.136** in this example.
4. Click **Save**.



Step 3 Assign a fixed IP address to the host where the server locates.

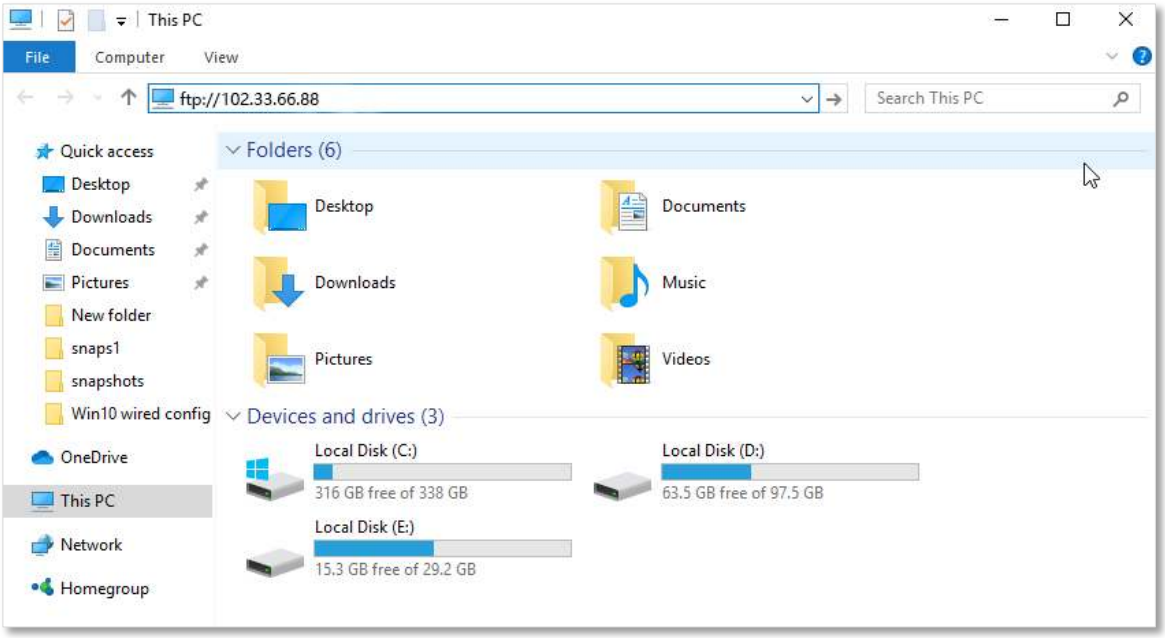
1. Choose **System Settings** > **DHCP Reservation**.
2. Specifies a **Device Name** for the server host, which is **FTP server** in this example.
3. Enter the MAC Address of the host of the server, which is **D4:61:DA:1B:CD:89** in this example.
4. Enter the reserved IP Address for the server host, which is **192.168.0.136** in this example.
5. Click **+New**.



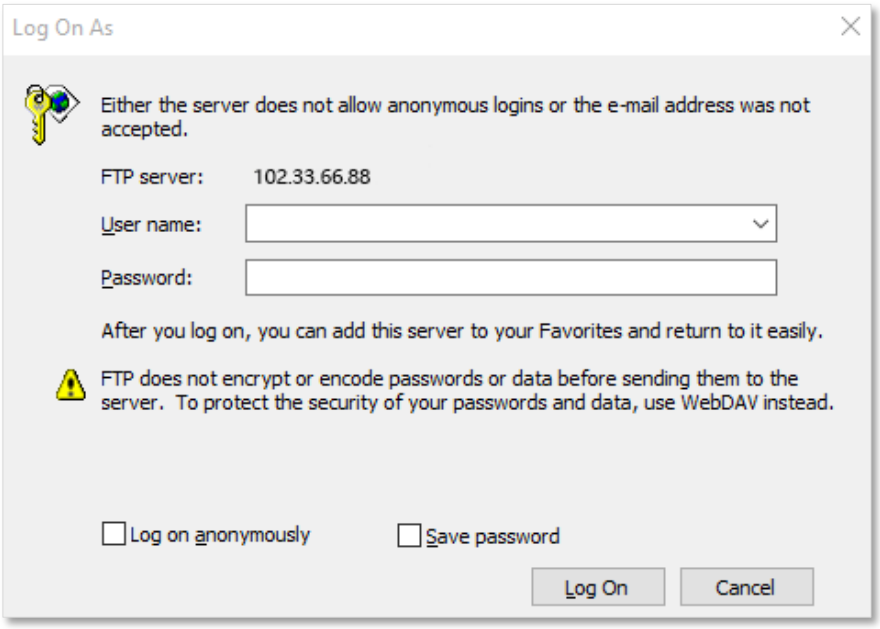
----End

When the configurations are completed, users from the internet can access the DMZ host by visiting "*Intranet service application layer protocol name*://*WAN IP address of the router*". If the intranet service port number is not the default number, the visiting address should be: "*Intranet service application layer protocol name*:// *WAN IP address of the router*:*intranet service port number*".

In this example, the address is "**ftp://102.33.66.88**". You can find the WAN IP address of the router in WAN status.



Enter the user name and password to access the resources on the FTP server.



If you want to access the server within a LAN using a domain name, refer to the solution DMZ + DDNS.

TIP

After the configurations, if internet users still cannot access the FTP server, try the following methods:

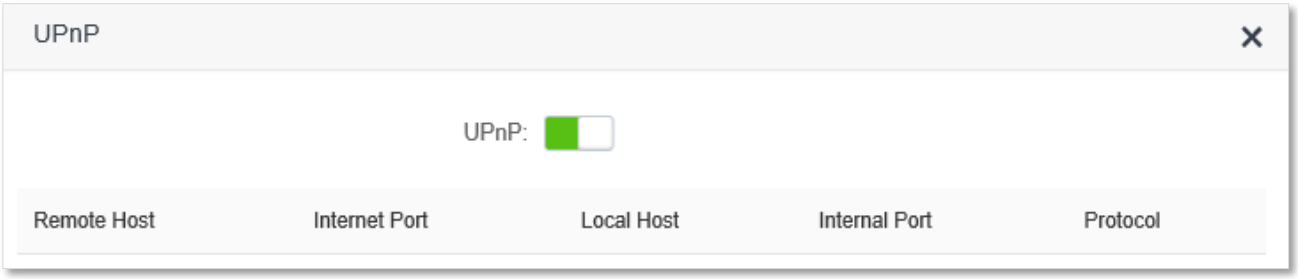
- Ensure that the LAN port number configured in the virtual server function is the same as the service port number set on the server.
- Close the firewall, antivirus software and security guards on the host of the FTP server and try again.

11.12 UPnP

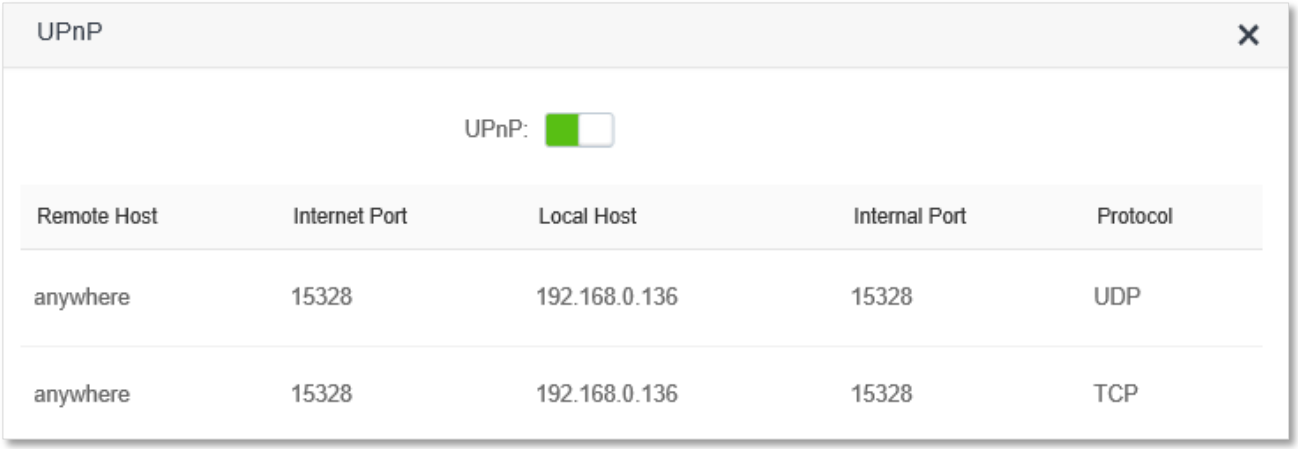
UPnP is short for Universal Plug and Play. This function enables the router open port automatically for UPnP-based programs. It is generally used for P2P programs, such as BitComet and AnyChat, and helps increase the download speed.

To access the configuration page, log in to the web UI of the router, and choose **Advanced Settings** > **UPnP**.

This function is enabled by default.



When any program that supports the UPnP function is launched, you can find the port conversion information on this page when the program sends any requests.



12 System settings

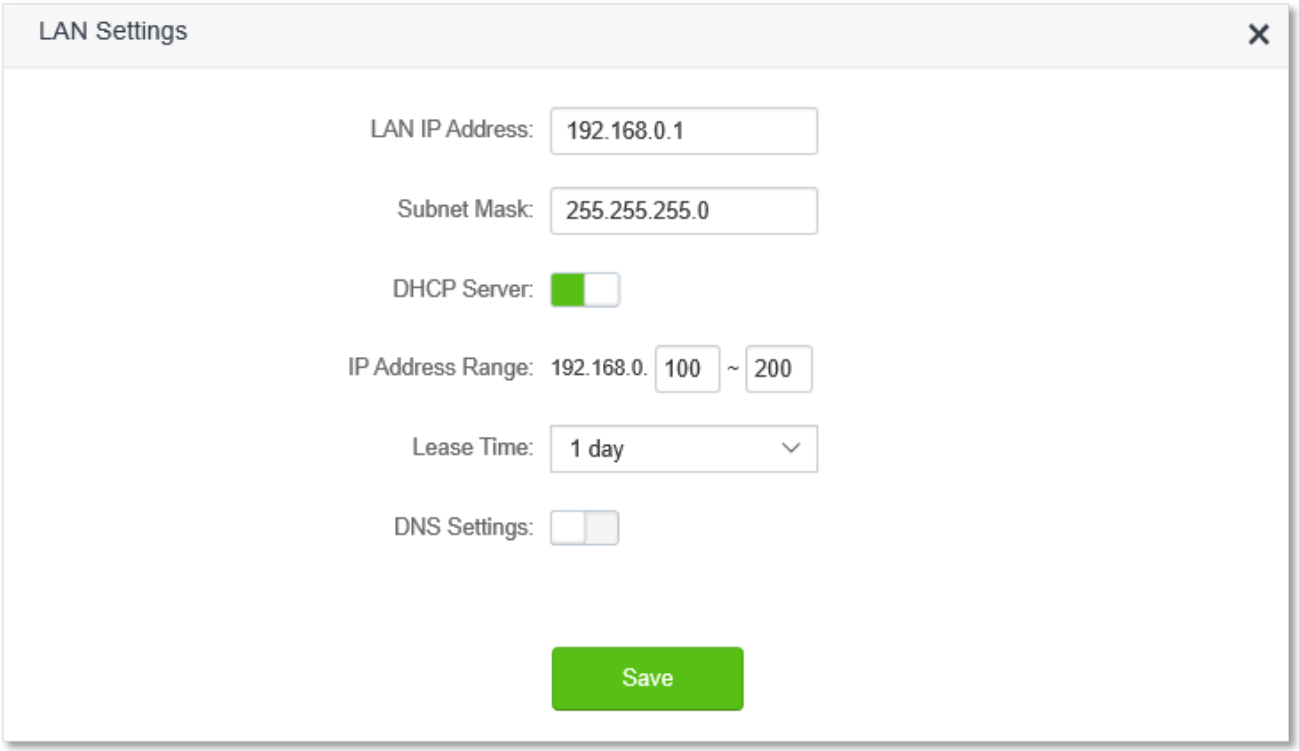
12.1 LAN settings

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **LAN Settings**.

On this page, you can:

- **Change the LAN IP address and subnet mask of the router.**
- **Change the DHCP server parameters of the router.**

  The DHCP server can automatically assign IP address, subnet mask, gateway and other information to clients within the LAN. If you disable this function, you need to manually configure the IP address information on the client to access the Internet. Do not disable the DHCP server function unless necessary
- **Configure the DNS information assigned to clients.**



Parameter description

Parameter	Description
LAN IP Address	It specifies the LAN IP address of the router, which is also the management IP address for logging in to the web UI of the router.
Subnet Mask	It specifies the subnet mask of the LAN port, used to identify the IP address range of the local area network.

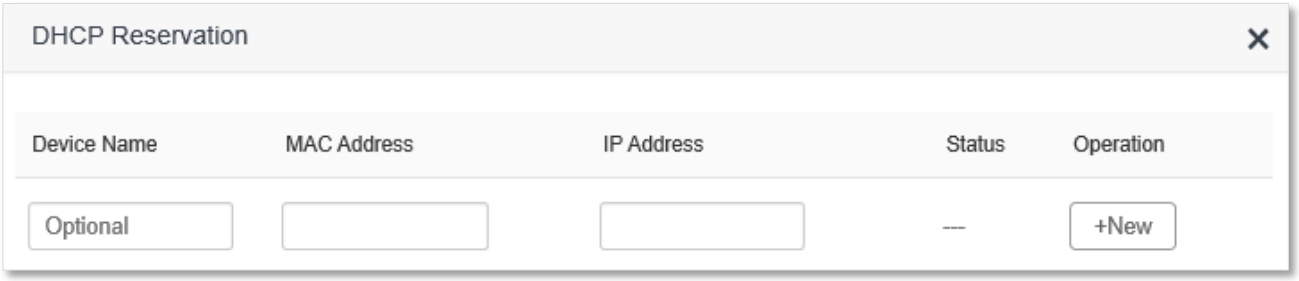
Parameter		Description
DHCP Server	IP Address Range	It specifies the range of IP addresses that can be assigned to devices connected to the router. The default range is 192.168.0.100 to 192.168.0.200.
	Lease Time	It specifies the valid duration of the IP address that is assigned to a client. When the lease time reaches half, the client will send a DHCP Request to the DHCP server for renewal. If the renewal succeeds, the lease is renewed based on the time of the renewal application; if the renewal fails, the renewal process is repeated again at 7/8 of the lease period. If it succeeds, the lease is renewed based on the time of the renewal application. If it still fails, the client needs to reapply for IP address information after the lease expires. It is recommended to keep the default value.
DNS Settings	Primary DNS Server	It specifies the primary DNS address of the router, which is assigned to the clients. You can change it if necessary. TIP Make sure that the primary DNS server is the IP address of the correct DNS server or DNS proxy. Otherwise, you may fail to access the internet.
	Secondary DNS Server	It specifies the secondary DNS address of the router used to assign to the clients. It is an optional field and is left blank by default.

12.2 DHCP reservation

12.2.1 Overview

Through the DHCP reservation function, specified clients can always obtain the same IP address when connecting to the router, ensuring that the router's "Virtual server", "DDNS", "DMZ host" and other functions can function normally. This function takes effect only when the DHCP server function of the router is enabled.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **DHCP Reservation**.



Parameter description

Parameter	Description
Device Name	It specifies the device name of the client.
MAC Address	It specifies the MAC address of the client.
IP Address	It specifies the IP address reserved for the client.
Status	It specifies whether the client is online or not.
Operation	The available options include: • +New: It is used to add a new DHCP reservation rule. • : It is used to bind the MAC address to the reserved IP address. • : It is used to unbind the MAC address from the reserved IP address. • : It is used to delete the DHCP reservation rule.

12.2.2 Assign static IP addresses to LAN clients

Scenario: You have set up a FTP server within your LAN.

Goal: Assign a fixed IP address to the host of the FTP server and prevent the failure of access to the FTP server owing to the change of IP address.

Solution: You can configure the DHCP reservation function to reach the goal.

Assume that the information of the FTP server includes:

- The fixed IP address for the server: 192.168.0.136
- MAC address of the FTP server host: D4:61:DA:1B:CD:89

Configuring procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **DHCP Reservation**.

Step 3 (Optional) Enter the device name for the host.

Step 4 Enter the MAC address of the host, which is **D4:61:DA:1B:CD:89** in this example.

Step 5 Enter the IP address reserved for the host, which is **192.168.0.136** in this example.

Step 6 Click **+New**.



---End

When completing the configurations, the page is shown as below and the FTP server host always gets the same IP address when connecting to the router, which is 192.168.0.136 in this example.



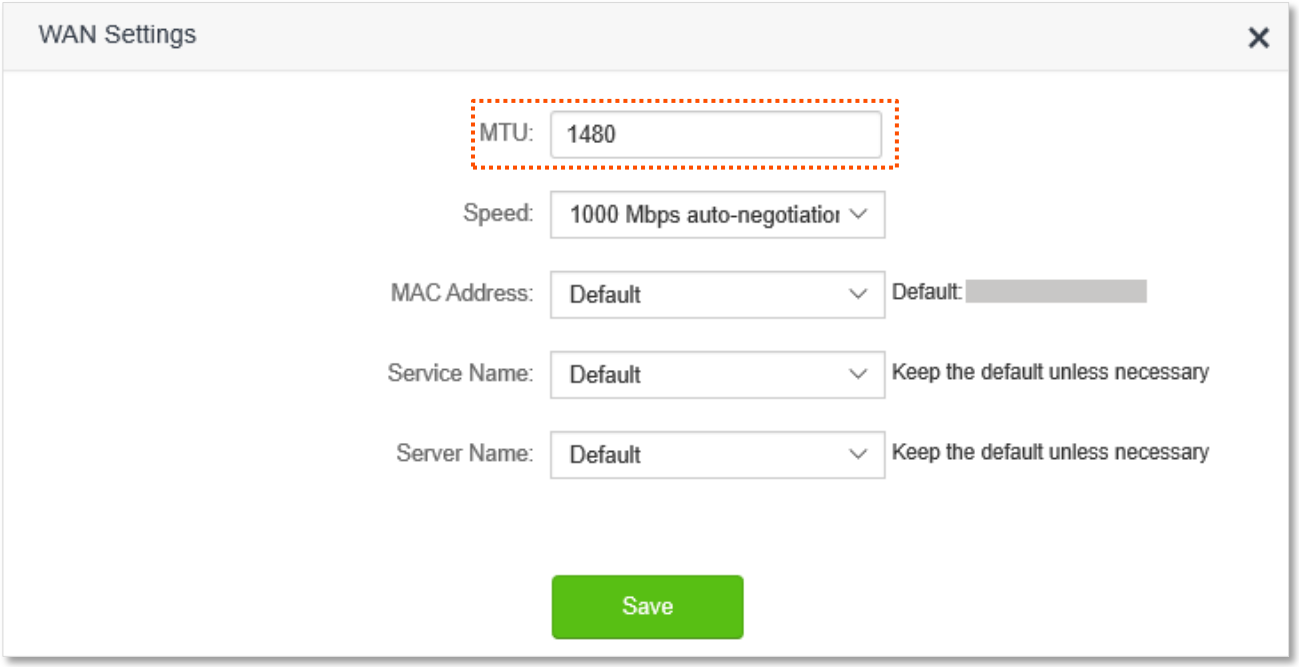
12.3 WAN settings

In the **WAN Parameters** module, you can check and modify MTU value, WAN speed, duplex mode, MAC address, service name and server name.

12.3.1 Change MTU value

MTU (Maximum Transmission Unit) is the largest data packet transmitted by a network device. When the connection type is PPPoE, the default MTU value is 1480. When the connection type is dynamic IP address or static IP address, the default MTU value is 1500. Do not change the value unless necessary. If you need to, please refer to the following instructions.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **WAN Settings**.



Generally, the default value is recommended. Try to change the MTU value when:

- You cannot access some specific websites or encrypted websites (such as E-banking or Paypal websites).
- You cannot receive and send Emails or access a FTP or POP server.

You can try reducing the value of MTU gradually from 1500 until the problem is resolved (The recommended range is 1400 to 1500).

MTU application description

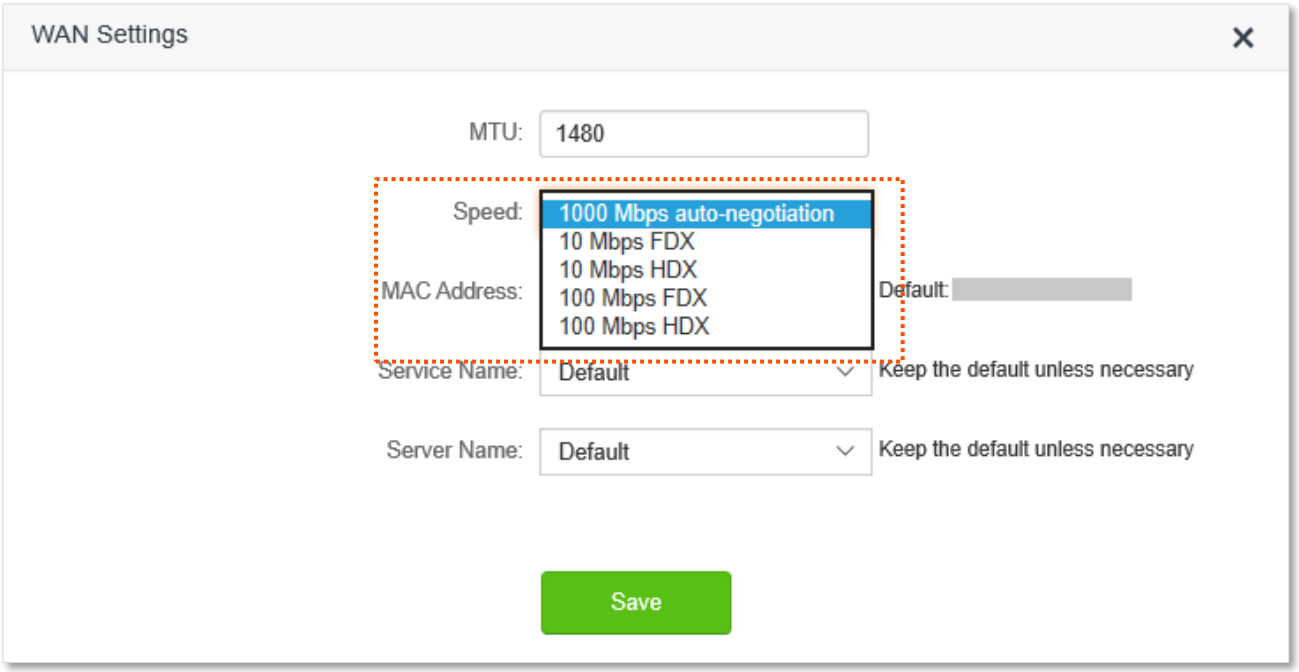
MTU	Application
1500	It is commonly used for non-ADSL and non-VPN dial-up connections.
1492, 1480	It is used for ADSL dial-up connections.
1472	It is the maximum value for the ping command. A packet with a larger size is fragmented.

MTU	Application
1468	It is used for DHCP connections.
1436	It is used for VPN or PPTP connections.

12.3.2 Change the WAN speed and duplex mode

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **WAN Settings**.

When the Ethernet cable is intact and connected to the WAN port properly, but **Ethernet cable disconnected** is still shown on the **Internet Settings** page, you can try to change the **Speed** to **10 Mbps FDX** or **10 Mbps HDX** to solve the problem. Otherwise, keep the default settings.



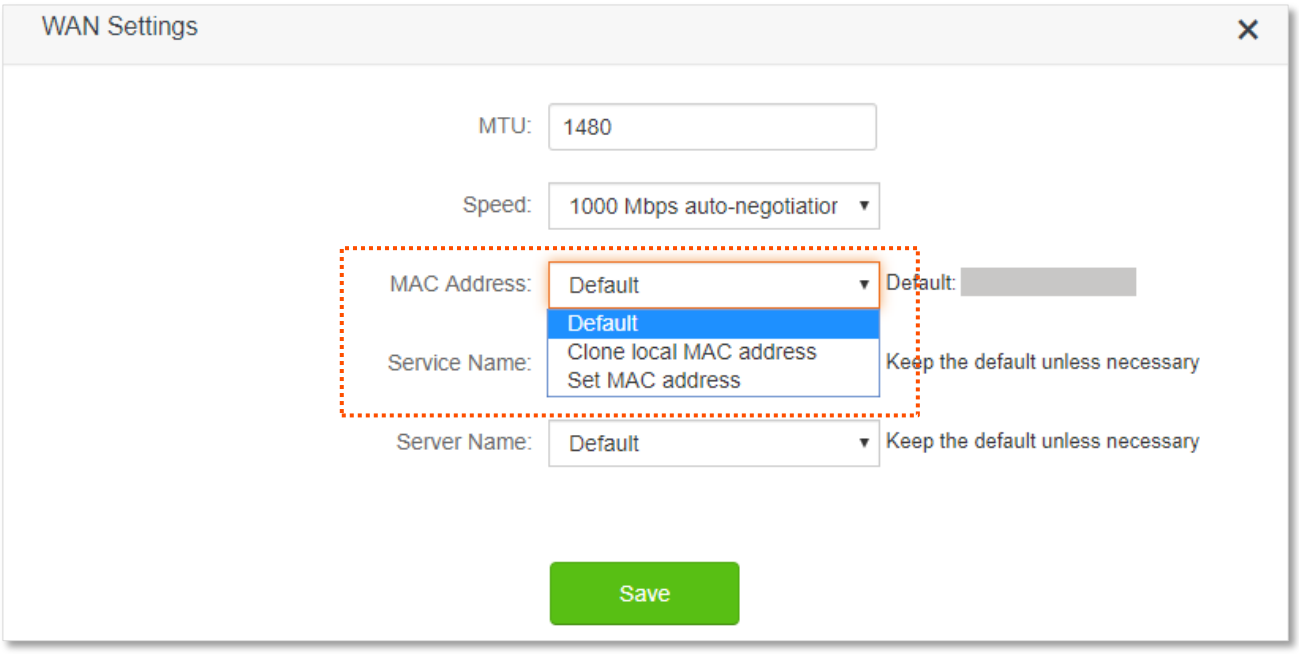
Parameter description

MTU	Application
1000 Mbps auto-negotiation	It indicates that the speed and duplex mode are determined through the negotiation with the peer port.
10 Mbps FDX	10 Mbps Full Duplex. It indicates that the WAN port is working at the speed of 10 Mbps, and the port can receive and send data packets at the same time.
10 Mbps HDX	10 Mbps Half Duplex. It indicates that the WAN port is working at the speed of 10 Mbps, but the port can only receive or send data packets alternately.
100 Mbps FDX	100 Mbps Full Duplex. It indicates that the WAN port is working at the speed of 100 Mbps, and the port can receive and send data packets at the same time.
100 Mbps HDX	100 Mbps Half Duplex. It indicates that the WAN port is working at the speed of 100 Mbps, but the port can only receive or send data packets alternately.

12.3.3 Change the MAC address of the WAN port

If you still cannot access the internet after completing Internet Settings, it could be the result of the ISP's configuration to bind the internet account information with a fixed MAC address. In this case, you can clone and change the MAC address of the router to solve the problem.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **WAN Settings.**



- **Default**: Keep the factory setting of MAC address.
- **Clone local MAC address**: Set the MAC address of the router to the same as that of the device which is configuring the router.
- **Set MAC address**: Manually set an MAC address.

NOTE

Please ensure the cloned MAC address is that of the computer or the router which is already able to access the internet.

Configuration procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **WAN Settings.**

Step 3 Click the drop-down box of **MAC Address**, choose **Clone local MAC address**, or **Set MAC address** and enter the desired MAC address.

Step 4 Click **Save**.

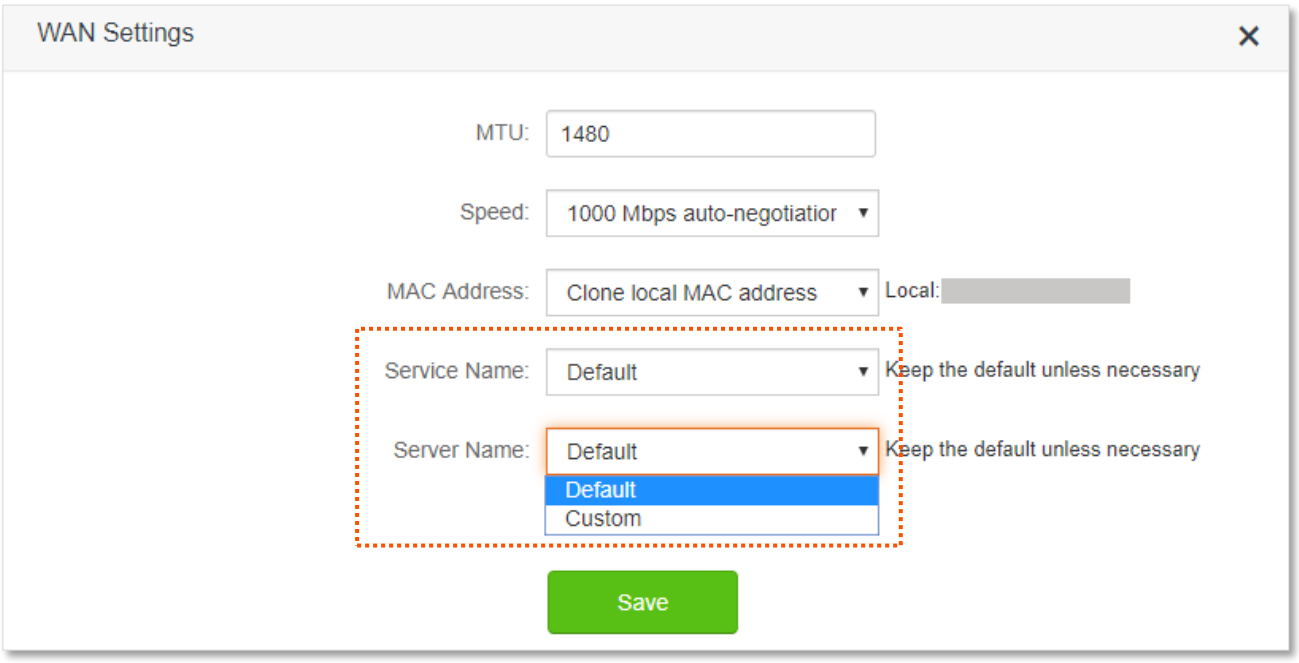
---End

12.3.4 Change the service name and server name

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **WAN Settings.**

Only when the connection type is PPPoE, you may need to change the service name and server name of the broadband service.

If you obtain the service name and server name from your ISP when purchasing the broadband service, you can change them on this page after completing the internet settings. Otherwise, keep the default settings.



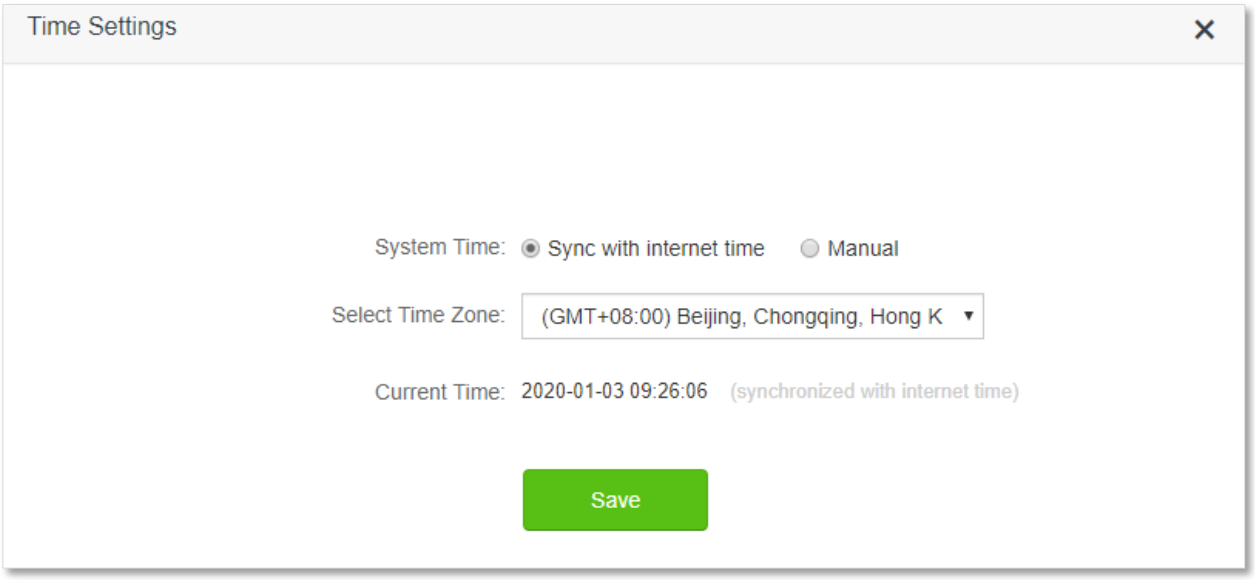
12.4 Time settings

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **Time Settings.**

You can change the time settings on this page. The functioning of functions based on time requires an accurate system time. The system time of the router can be synchronized with the internet or set manually. By default it is synchronized with the internet.

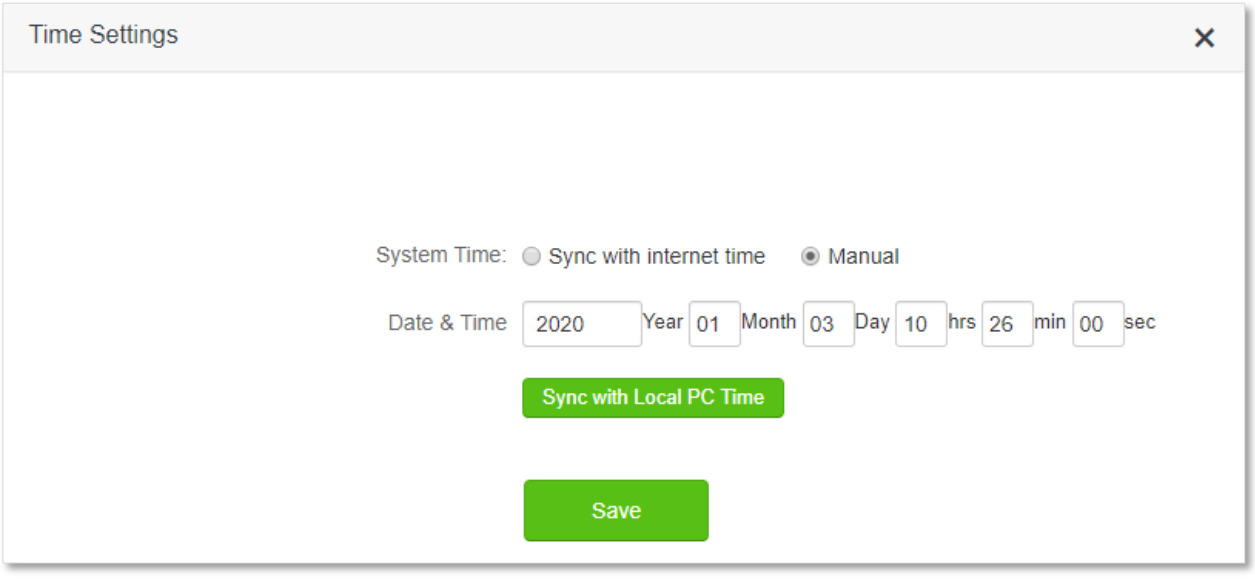
12.4.1 Sync system time with the internet time

Under this mode, the router will automatically sync its time with the internet time when it is connected to the internet. You can also choose the time zone to be synchronized.



12.4.2 Set the time manually

When the system time is set to **Manual**, you can enter a desired time or sync the system time of the router with the device that is configuring the router. Besides, you need to correct it every time after you reboot the router in order to ensure the accuracy of system time.

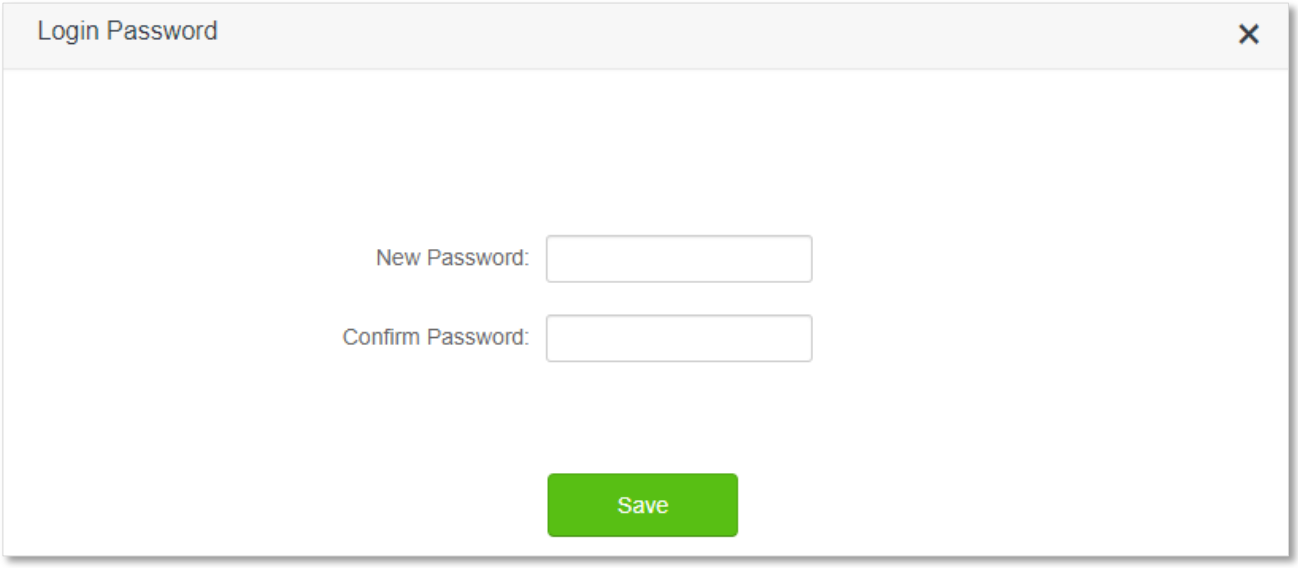


12.5 Login password

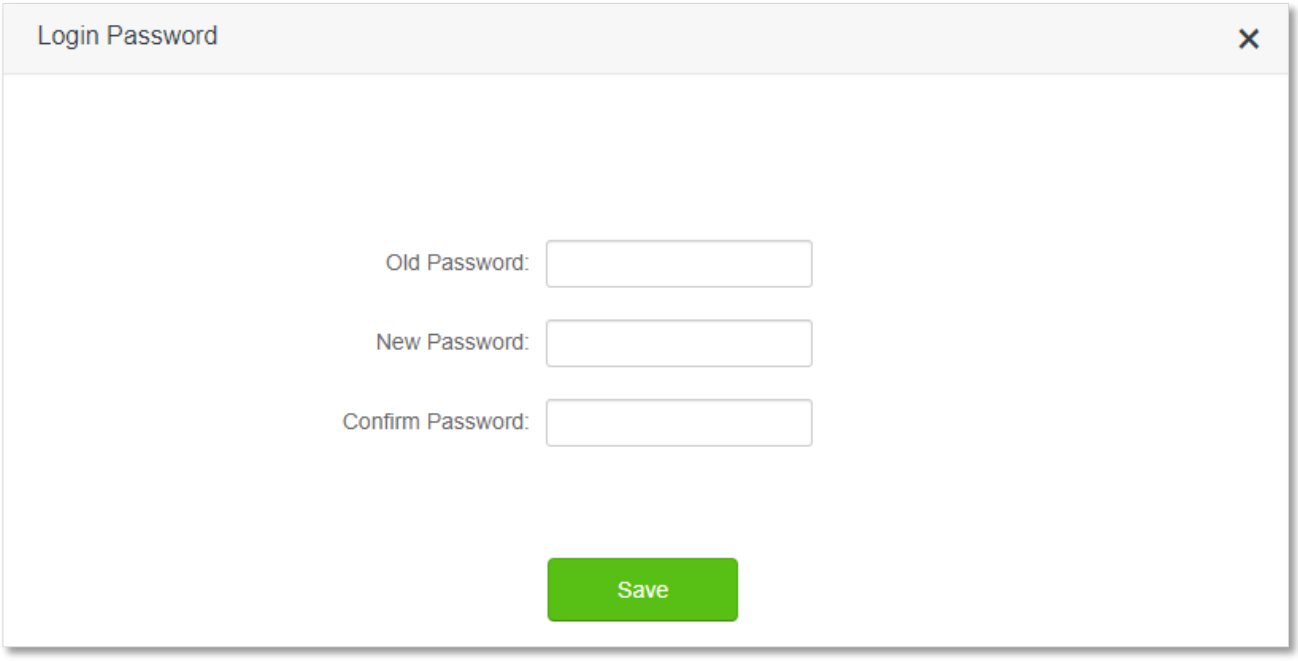
To ensure network security, a login password is recommended. A login password consisting of more types of characters, such as uppercase letters and lowercase letters, brings higher security.

To access the login password configuration page, log in to the web UI and choose **System Settings** > **Login Password**.

When you use the router for the first time, no password is required to log in to the web UI of the router and you can set a login password on this page.



If you have already set a login password, you can change the password on this page and the old password is required.



TIP

If you forget your login password and cannot log in to the web UI of the router, refer to Reset the router to restore the router to factory settings and log in to the web UI without password.

12.6 Reboot and reset

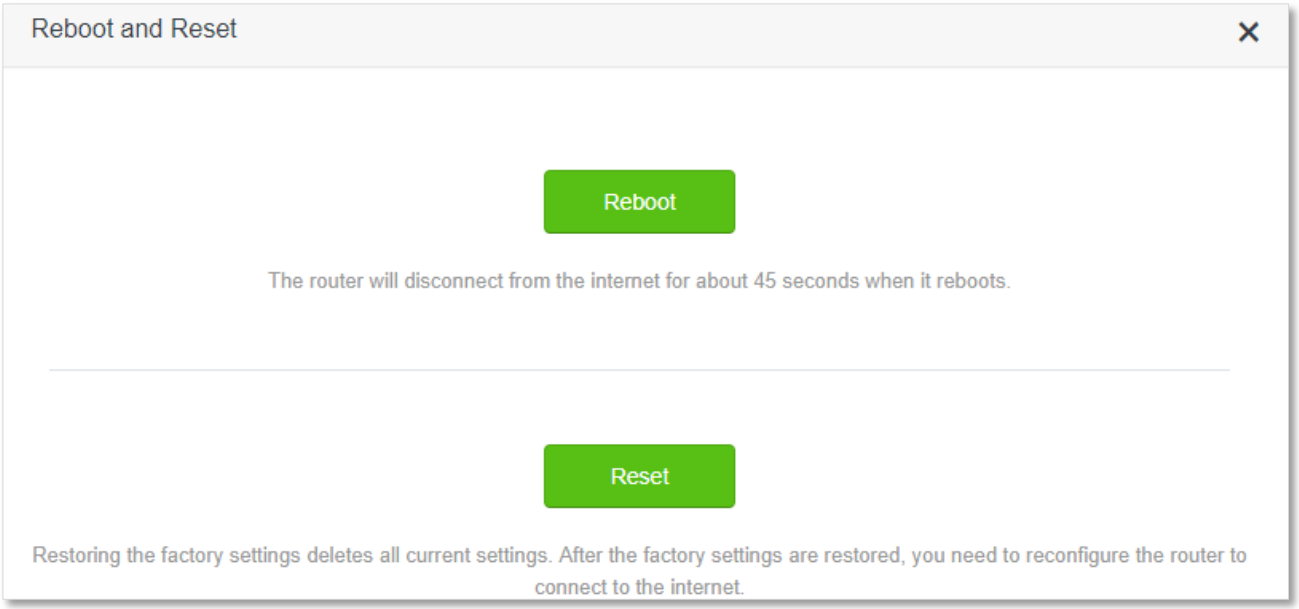
12.6.1 Reboot the router

If any parameter fails to take effect or the router does not work properly, you can try rebooting the router.

TIP

Rebooting the router will disconnect all connections to the router. Reboot the router during leisure times.

To reboot the router, log in to the web UI of the router and choose **System Settings** > **Reboot and Reset**. Click **Reboot** to reboot the router.



Wait for a moment until the ongoing process finishes.

12.6.2 Reset the router

If you are uncertain about why the internet is inaccessible through the router or you forget the login password of the router, you can reset the router.

NOTE

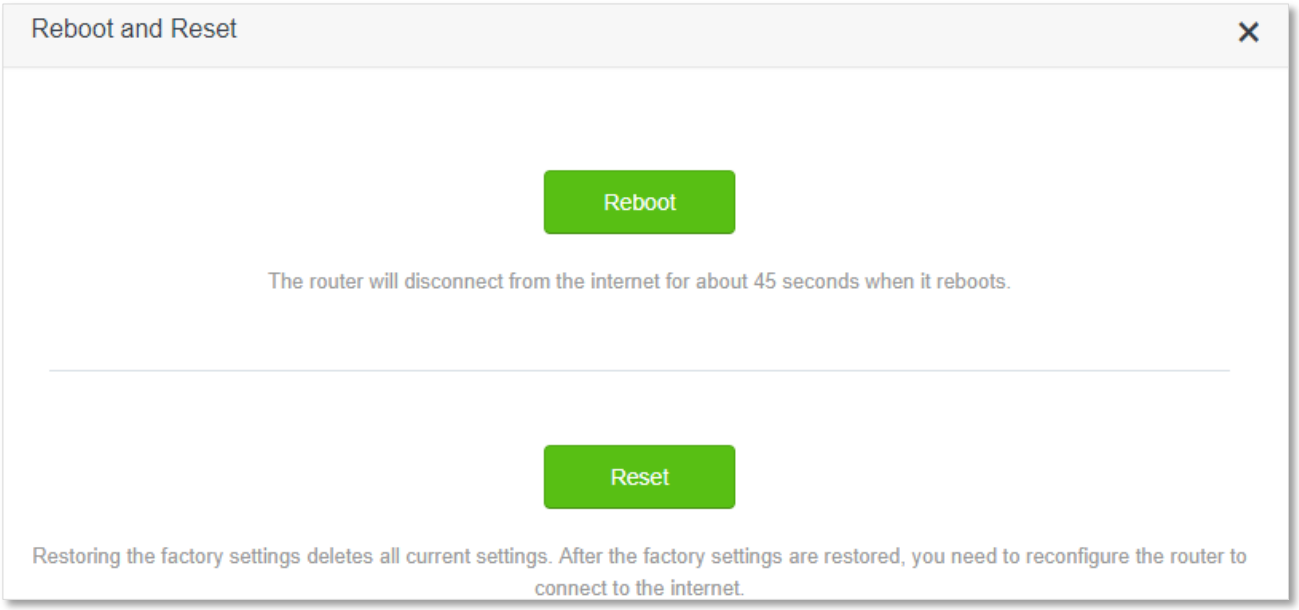
- Resetting the router is not recommended unless you cannot find a solution for the current problem anyway. You need to reconfigure the router after it is reset.
- Ensure that the power supply of the router is normal when the router is reset. Otherwise the router could be damaged.
- The default login IP address is 192.168.0.1 after resetting, and no password is required.

Reset the router using the reset button

Hold down the **WPS/RST** button on the rear panel of the router for about 8 seconds and release when all LED indicators blink once. The router is reset and restored to factory settings.

Reset the router on the web UI

Start a web browser and log in to the web UI of the router. Choose **System Settings** > **Reboot and Reset**, and click **Reset**.



Wait for a moment until the ongoing process finishes.

12.7 Upgrade firmware

This function enables the router to obtain the latest functions and more stable performance. The router supports online firmware upgrade and local firmware upgrade.

12.7.1 Online upgrade

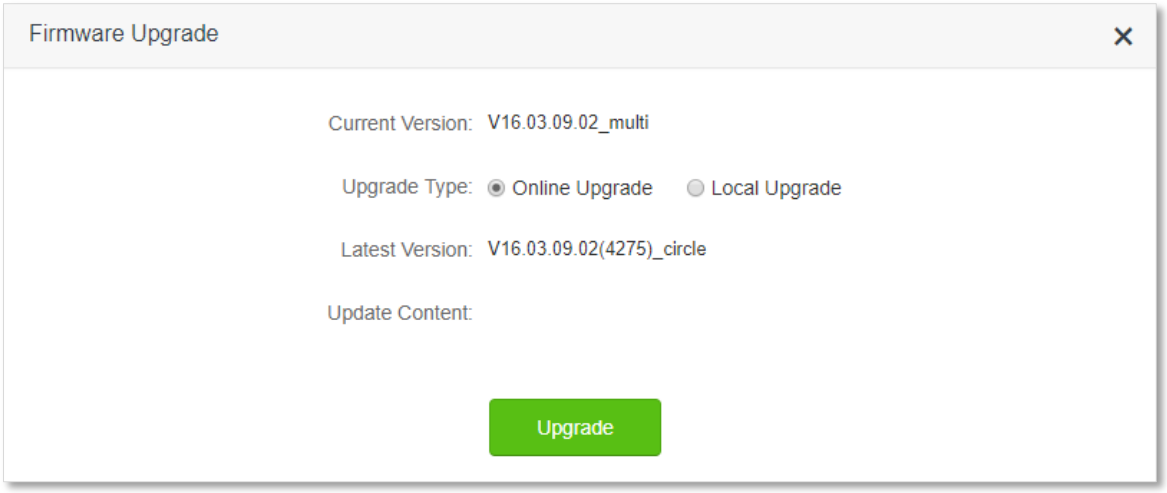
When the router is connected to the internet, it auto-detects whether there is a new firmware and displays the detected information on the page. You can choose whether to upgrade to the latest firmware.

Configuration procedure:

Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **Firmware upgrade**.

Step 3 Wait until a new firmware version is detected.



Step 4 Click **Update**.

---End

Wait for a moment until the ongoing process finishes. Log in to the web UI of the router again. Choose **System Settings** > **System Status** and check whether the upgrade is successful based on the **Firmware Version**.

TIP

For better performance of the new firmware of the router, you are recommended to reset the router to factory default settings and re-configure the router when the upgrading is completed.

12.7.2 Local upgrade

NOTE

In order to prevent the router from being damaged:

- Ensure that the firmware is applicable to the router.
- It is recommended to upgrade the firmware by connecting a LAN port to a computer and performing the upgrade on the web UI.
- When you are upgrading the firmware, do not power off the router.

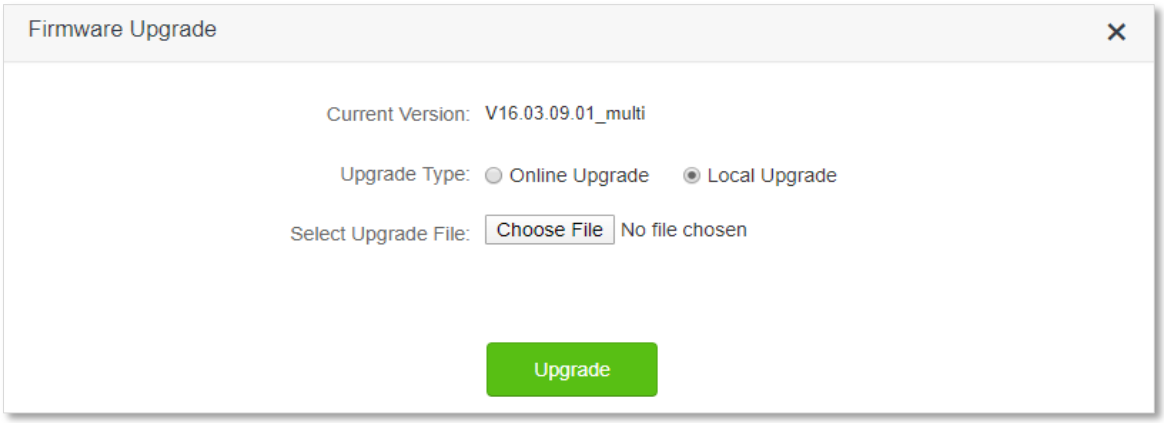
Step 1 Go to www.tendacn.com. Download an applicable firmware of the router to your local computer and unzip it.

Step 2 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

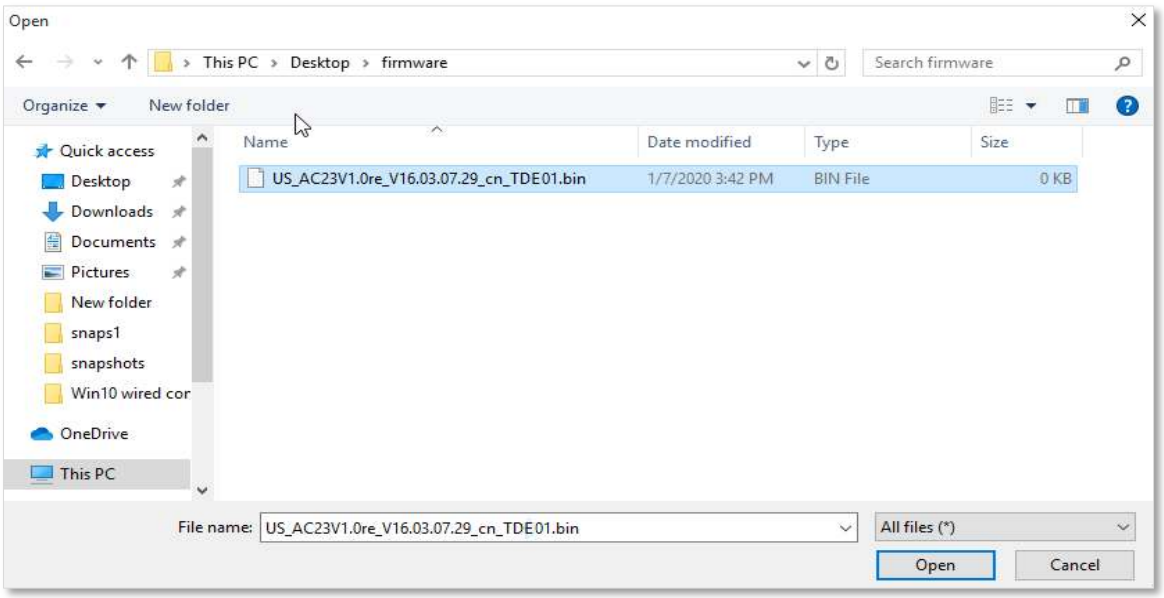
Step 3 Choose **System Settings** > **Firmware Upgrade**

Step 4 Choose **Local Upgrade**.

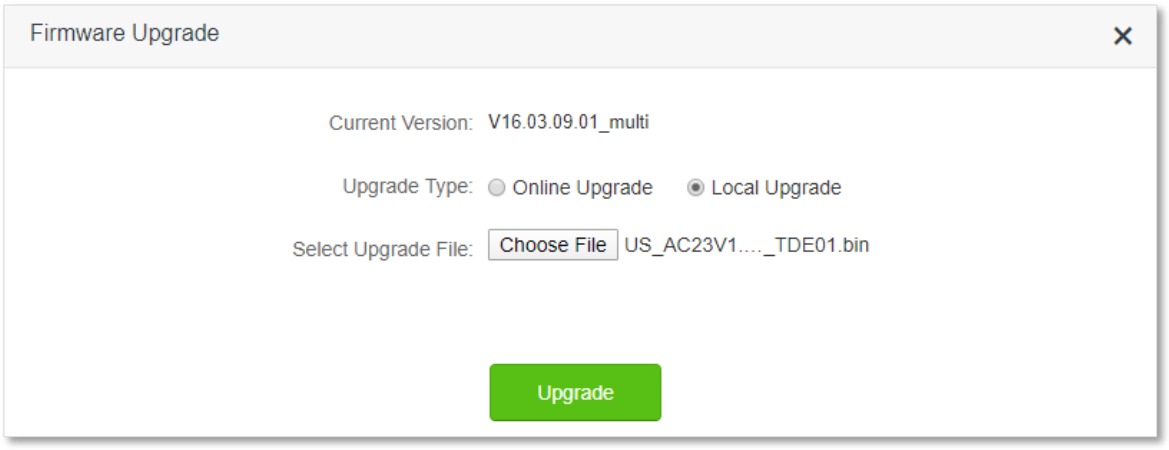
Step 5 Click **Choose File**.



Step 6 Target the firmware file downloaded previously (extension: bin), and click **Open** (AC23 is used for illustration here).



Step 7 Click **Upgrade**.



---End

Wait for a moment until the ongoing process finishes. Log in to the web UI of the router again. Choose **System Settings** > **System Status** and check whether the upgrade is successful based on the **Firmware Version**.

TIP

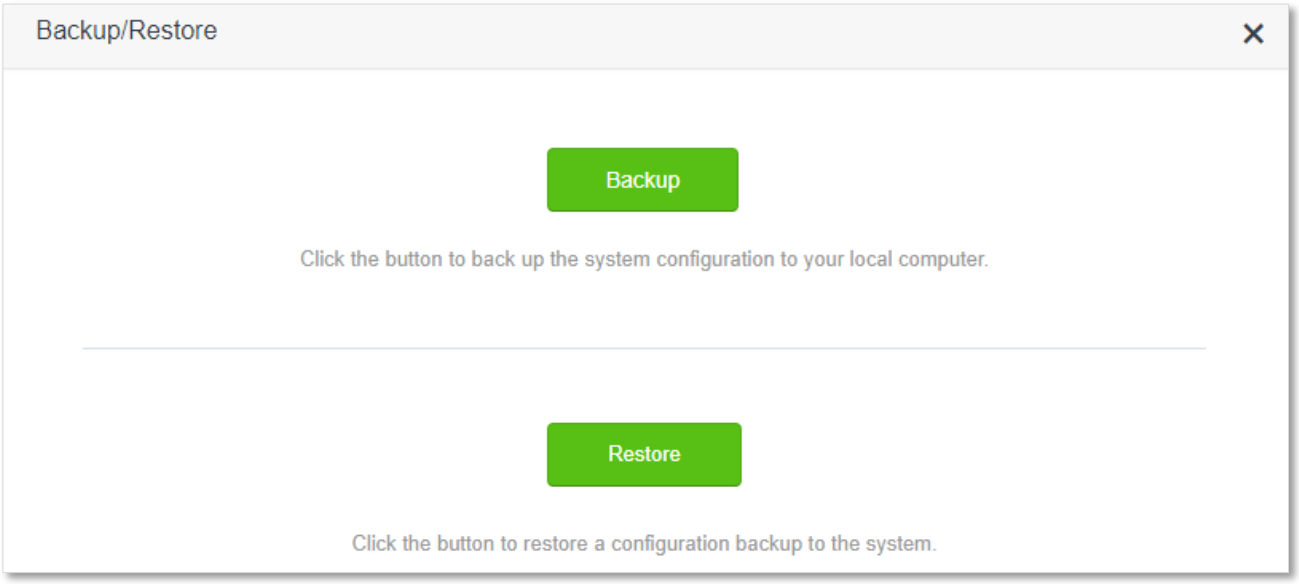
For better performance of the new firmware, you are recommended to reset the router to factory default settings and re-configure the router when the upgrading is completed.

12.8 Backup/Restore

In this module, you can back up the current configurations of the router to your computer. You are recommended to back up the configuration after the settings of the router are significantly changed, or the router works in a good condition.

After you restore the router to factory settings or upgrade it, you can use this function to restore the configurations that have been backed up.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **Backup/Restore.**



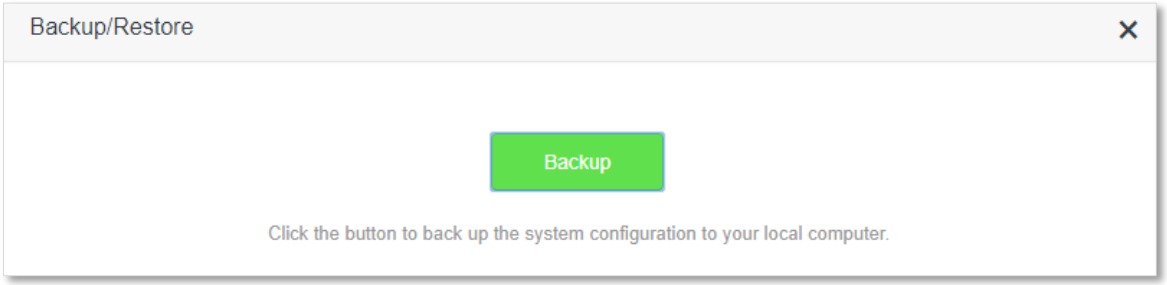
12.8.1 Backup the configurations of the router

To back up the configurations of the router:

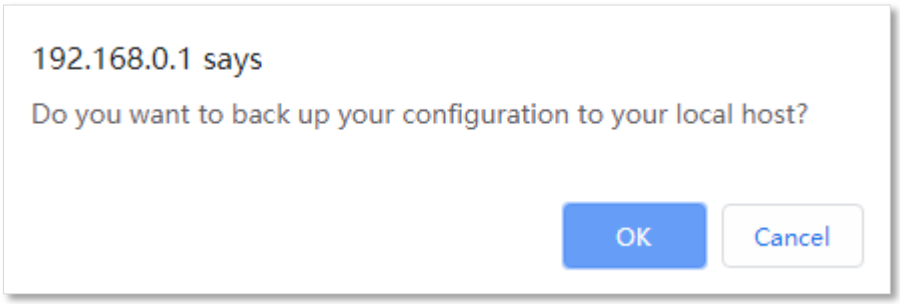
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **Backup/Restore.**

Step 3 Click **Backup**.



Step 4 Click **OK** in the pop-up window.



---End

After the file is downloaded, you can name it **RouterCfm.cfg**.

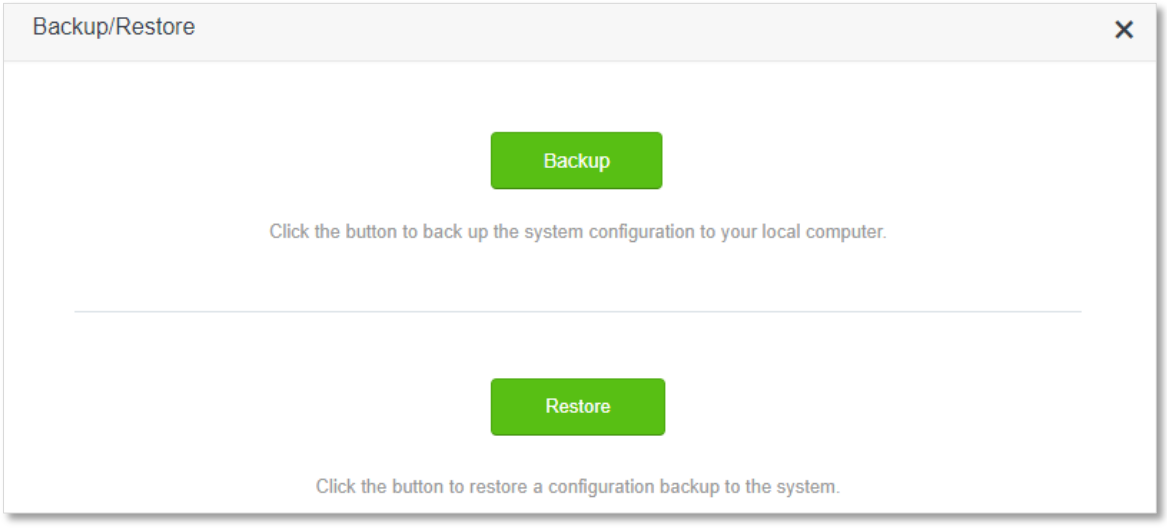
12.8.2 Restore previous configurations of the router

To restore the previous configurations of the router:

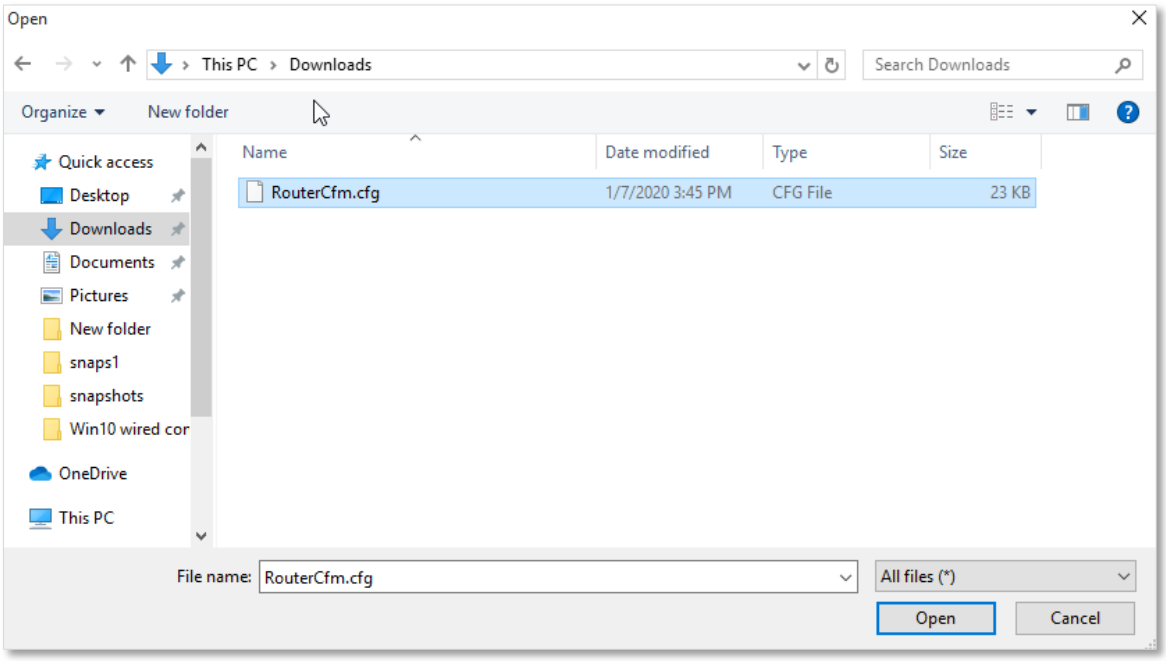
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **Backup/Restore**.

Step 3 Click **Restore**.



Step 4 Choose the configuration file to be restored (extension: cfg), and click **Open**.



---End

Wait for a moment until the ongoing process finishes, and the router restores previous settings.

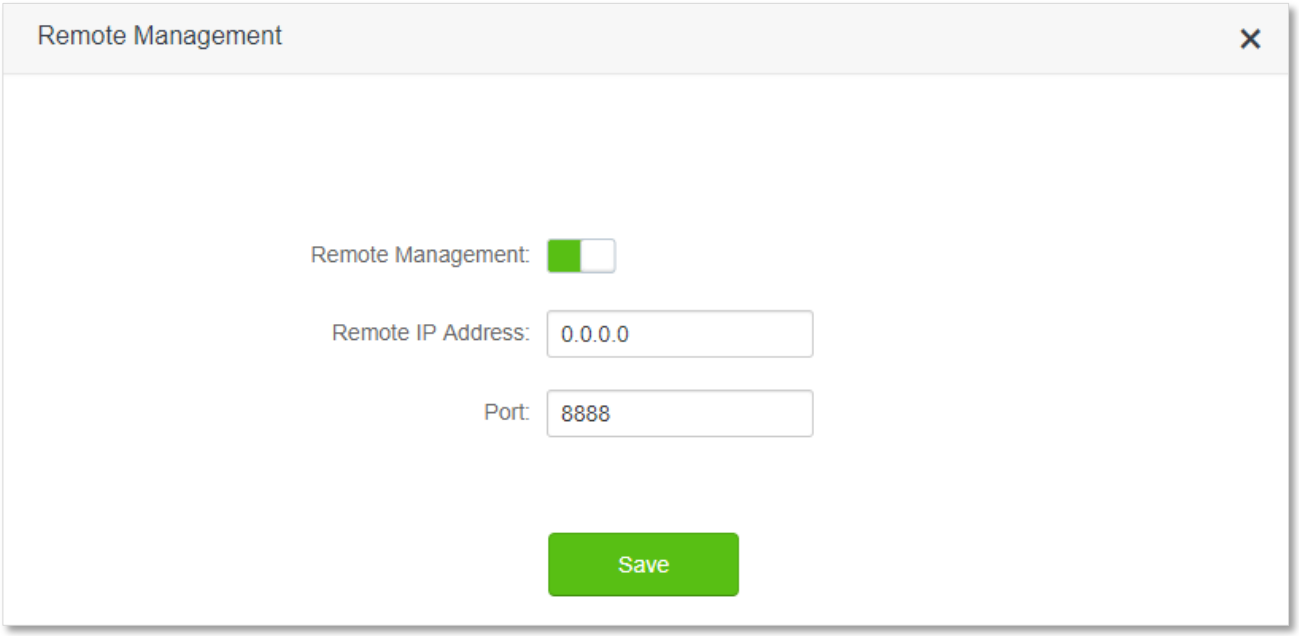
12.9 Remote management

12.9.1 Overview

Generally, the web UI of the router can only be accessed on devices that are connected to the router by a LAN port or wireless connection. When you encounter a network fault, you can ask for remote technical assistance, which improves efficiency and reduces costs and efforts.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **Remote Management.**

By default, this function is disabled. When this function is enabled, the page is shown as below.



Parameter description

Parameter	Description
Remote Management	It is used to enable or disable the remote management function of the router.
Remote IP Address	It specifies the IP address of the host which can access the web UI of the router remotely. • 0.0.0.0: It indicates that hosts with any IP address from the internet can access the web UI of the router. It is not recommended for security. • Other specified IP address: Only the host with the specified IP address can access the web UI of the router remotely. If the host is under a LAN, ensure that the IP address is the IP address of the gateway of the host (a public IP address).
Port	It specifies the port number of the router which is opened for remote management. Change it as required. TIP • The port number from 1 to 1024 has been occupied by familiar services. It is strongly recommended to enter a port number from 1025 to 65535 to prevent confliction • Remote management can be achieved by visiting “http://the WAN IP address of

the router:port number". If the DDNS host function is enabled, the web UI can also be accessed through "http://the domain name of the router's WAN port:port number".

12.9.2 Enable Tenda techical support to acces and manage the web UI

Scenario: You encounter a problem in configuring the router, and the router can access internet access.

Goal: Ask the Tenda technical support to help you configure the router remotely.

Solution: You can configure the remote management function to reach the goal.

Assume that:

- The IP address of Tenda technical support: 210.76.200.101
- The WAN port IP address of the router: 202.105.106.55



Configuring procedure:

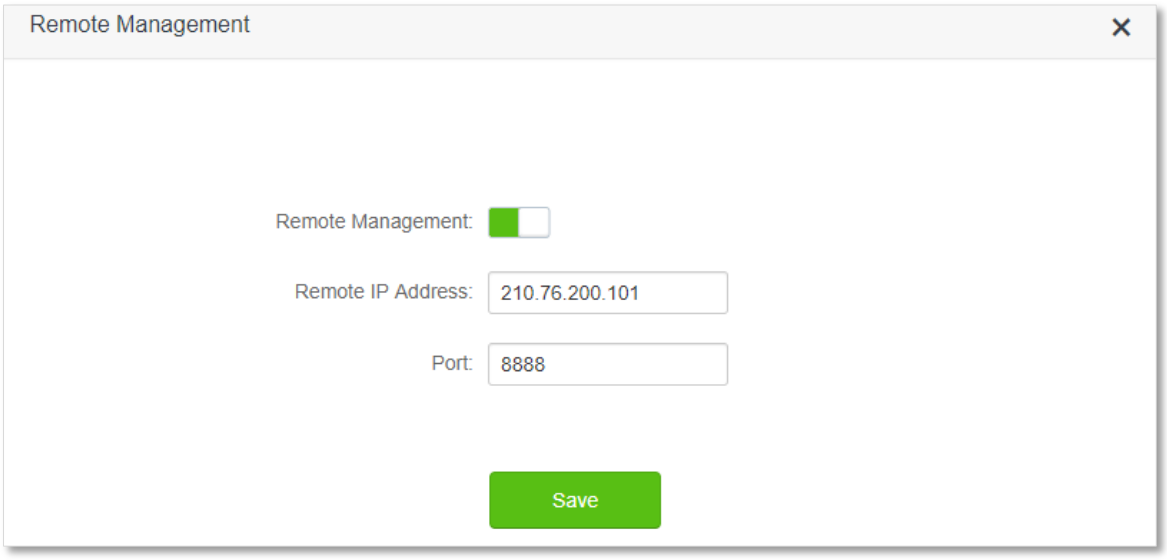
Step 1 Start a web browser on a device connected to the router and visit **tendawifi.com** to log in to the web UI of the router.

Step 2 Choose **System Settings** > **Remote Management**.

Step 3 Enable the **Remote Management**.

Step 4 Enter the IP address that is allowed to access the web UI remotely, which is **210.76.200.101** in this example.

Step 5 Click **Save**.



---End

When completing the configurations, the Tenda technical support can access and manage the web UI of the router by visiting “http://202.105.106.55:8888” on the computer.

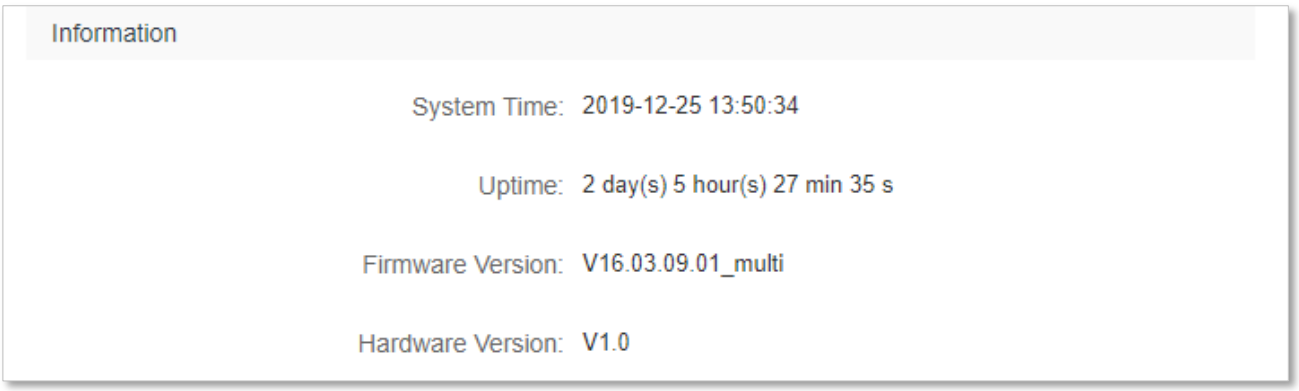
12.10 System status

On this page, you can find the basic information of the router, WAN status, LAN status, WiFi status and IPv6 status.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **System Status.**

12.10.1 Basic information

In this part, you can view the basic information of the router, such as system time, uptime and firmware version, etc.

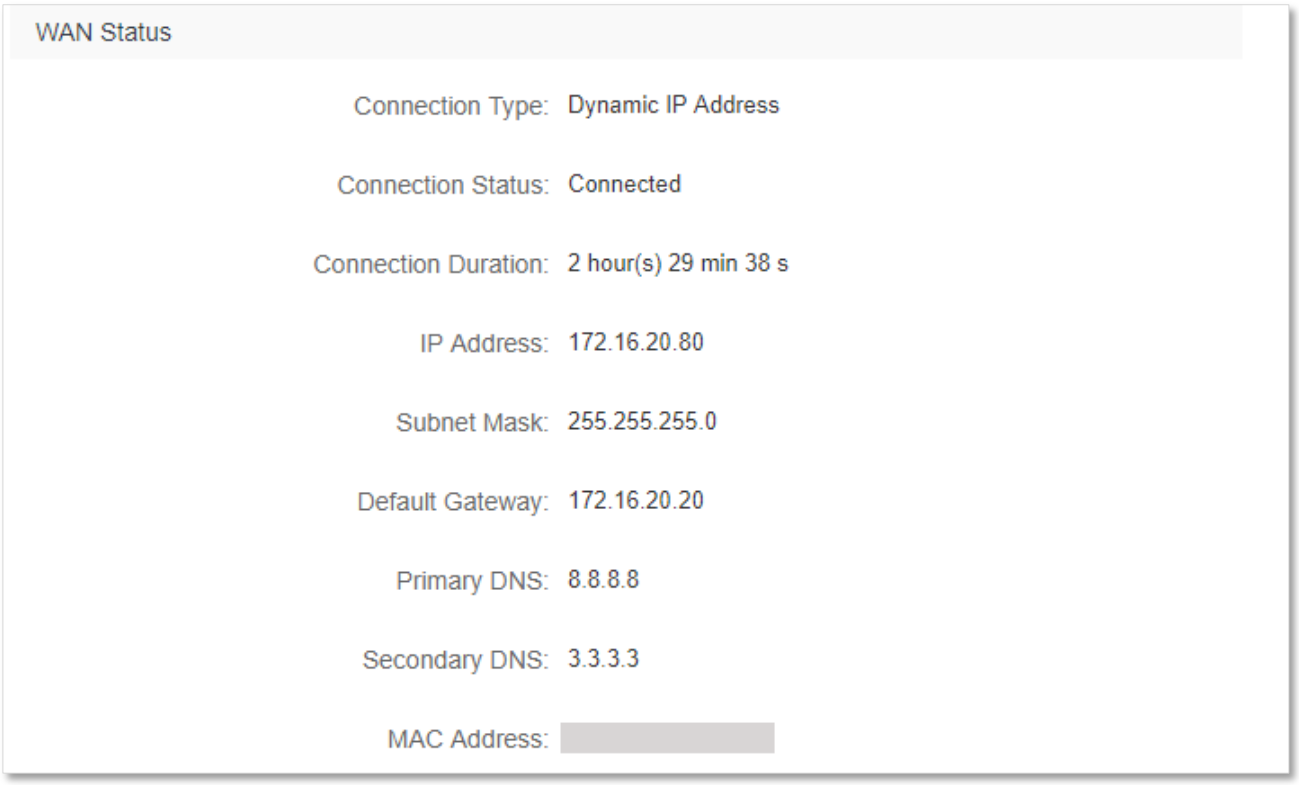


Parameter description

Parameter	Description
System Time	It specifies the system time of the router.
Uptime	It specifies operating time of the router since it is powered on.
Firmware Version	It specifies the firmware version of the router.
Hardware Version	It specifies the hardware version of the router.

12.10.2 WAN status

In this part, you can view the information of the WAN port, including connection type, connection status and connection duration, etc.

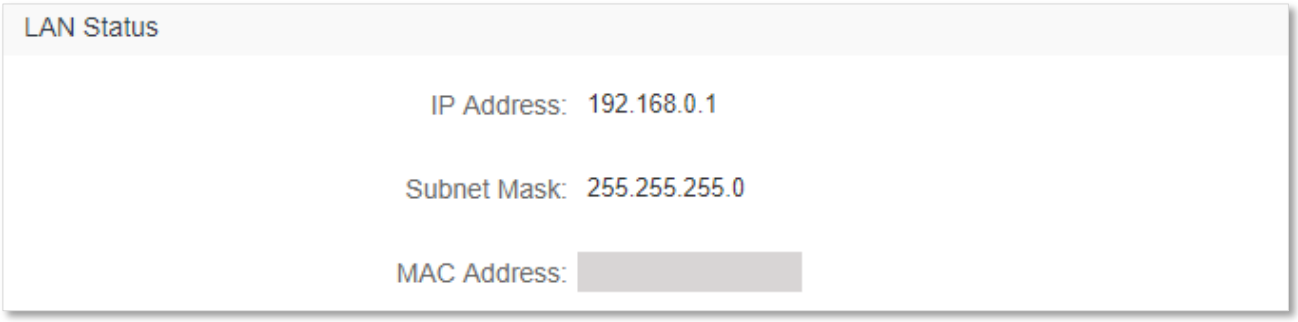


Parameter description

Parameter	Description
Connection Type	It specifies the internet IPv4 connection type of the WAN port.
Connection Status	It specifies internet connection status of the WAN port.
Connection Duratoin	It specifies the duration since the router is connected to the internet.
IP address	It specifies the WAN IP address of the router.
Subnet Mask	It specifies the WAN subnet mask of the router.
Default Gateway	It specifies the gateway IP address of the router.
Primary DNS	It specifies the IP address of primary and secondary DNS servers of the router.
Secondary DNS	
MAC Address	It specifies the WAN MAC address of the router.

12.10.3 LAN status

In this part, you can view the LAN information such as LAN IP address, subnet mask and MAC address.

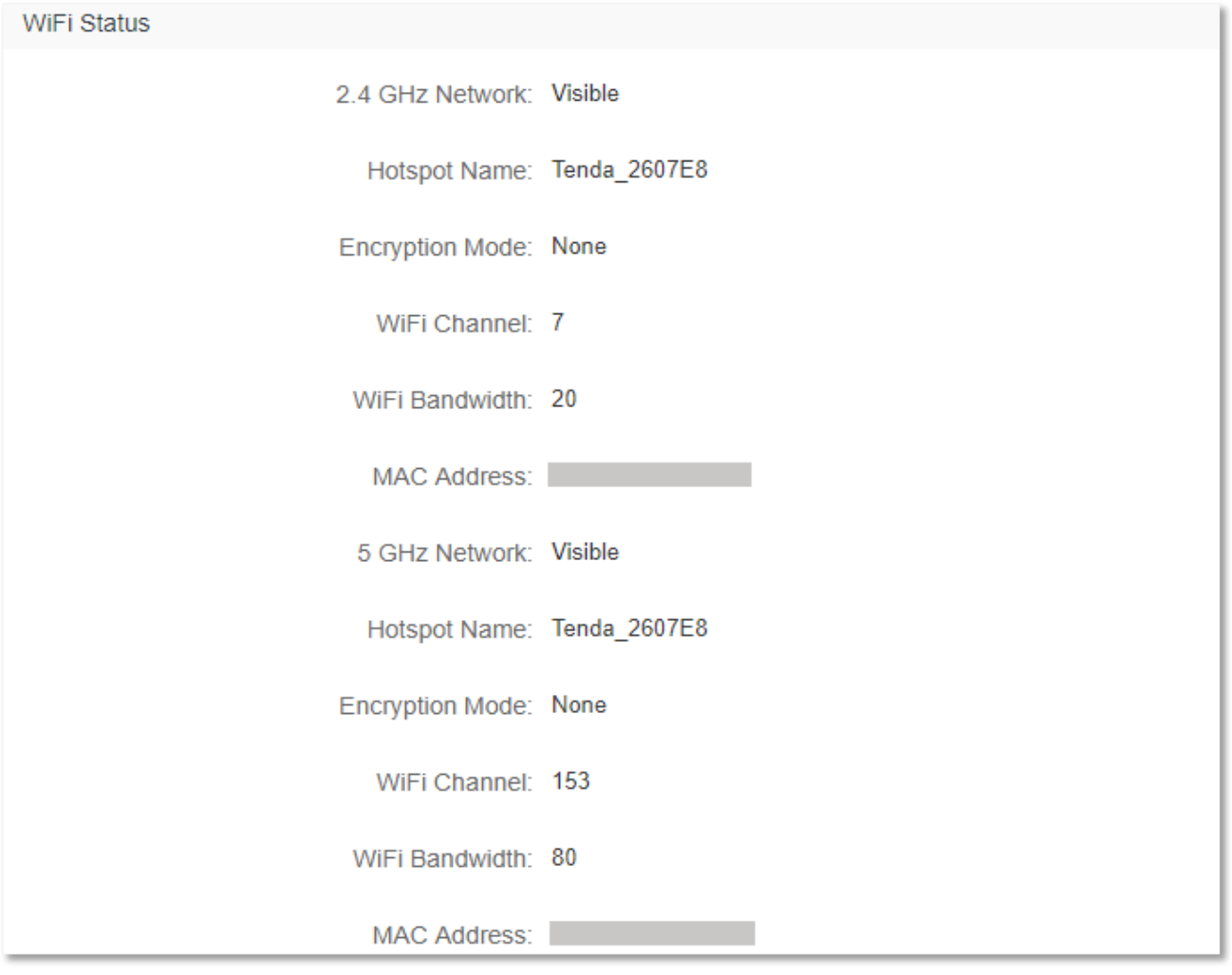


Parameter description

Parameter	Description
IP Address	It specifies the LAN IP address of the router, and also the IP address for logging in to the web UI of the router,
Subnet Mask	It specifies the LAN subnet mask of the router.
MAC Address	It specifies the LAN MAC address of the router.

12.10.4 WiFi status

In this part, you can view the information of 2.4 GHz and 5 GHz WiFi network, including the status, visibility, hotspot name and encryption mode, etc.

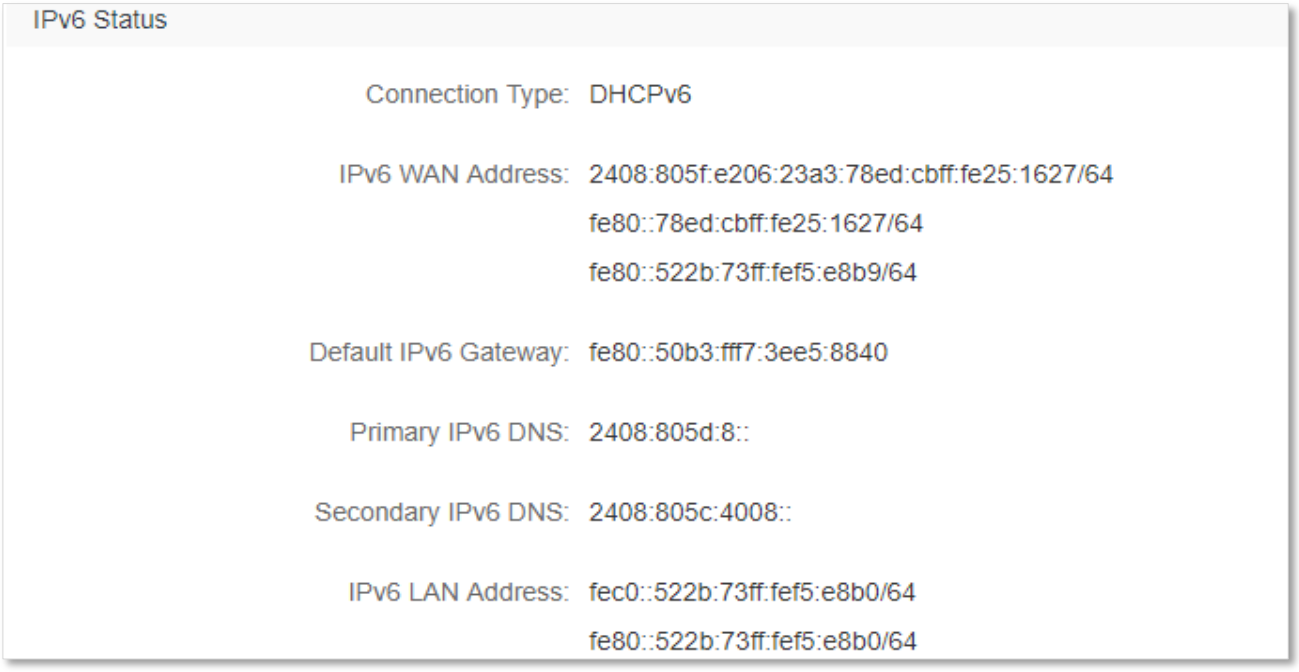


Parameter description

Parameter	Description
2.4 GHz Network	It specifies whether the corresponding WiFi network is enabled or disabled, and the visibility of the WiFi network.
5 GHz Network	
Hotspot Name	It specifies the WiFi name of the respective WiFi network.
Encryption Mode	It specifies the encryption mode of the respective WiFi network.
WiFi Channel	It specifies the channel that the respective WiFi network works in.
WiFi Bandwidth	It specifies the bandwidth of the respective WiFi network.
MAC Address	It specifies the MAC address of the respective WiFi network.

12.10.5 IPv6 status

This part is only displayed when the IPv6 function is enabled. You can view the information of IPv6 connection, including connection type, IPv6 WAN address and IPv6 LAN address.



Parameter description

Parameter	Description
Connection Type	It specifies the IPv6 connection type of the router.
IPv6 WAN Address	It specifies the WAN IPv6 address of the router. After the IPv6 function is configured, the WAN port of the router obtains a global unicast IPv6 address or a tunnel address, and a link local address.
Default IPv6 Gateway	It specifies the default IPv6 gateway address of IPv6 network.
Primary IPv6 DNS	It specifies the primary and secondary DNS server address of IPv6 network.

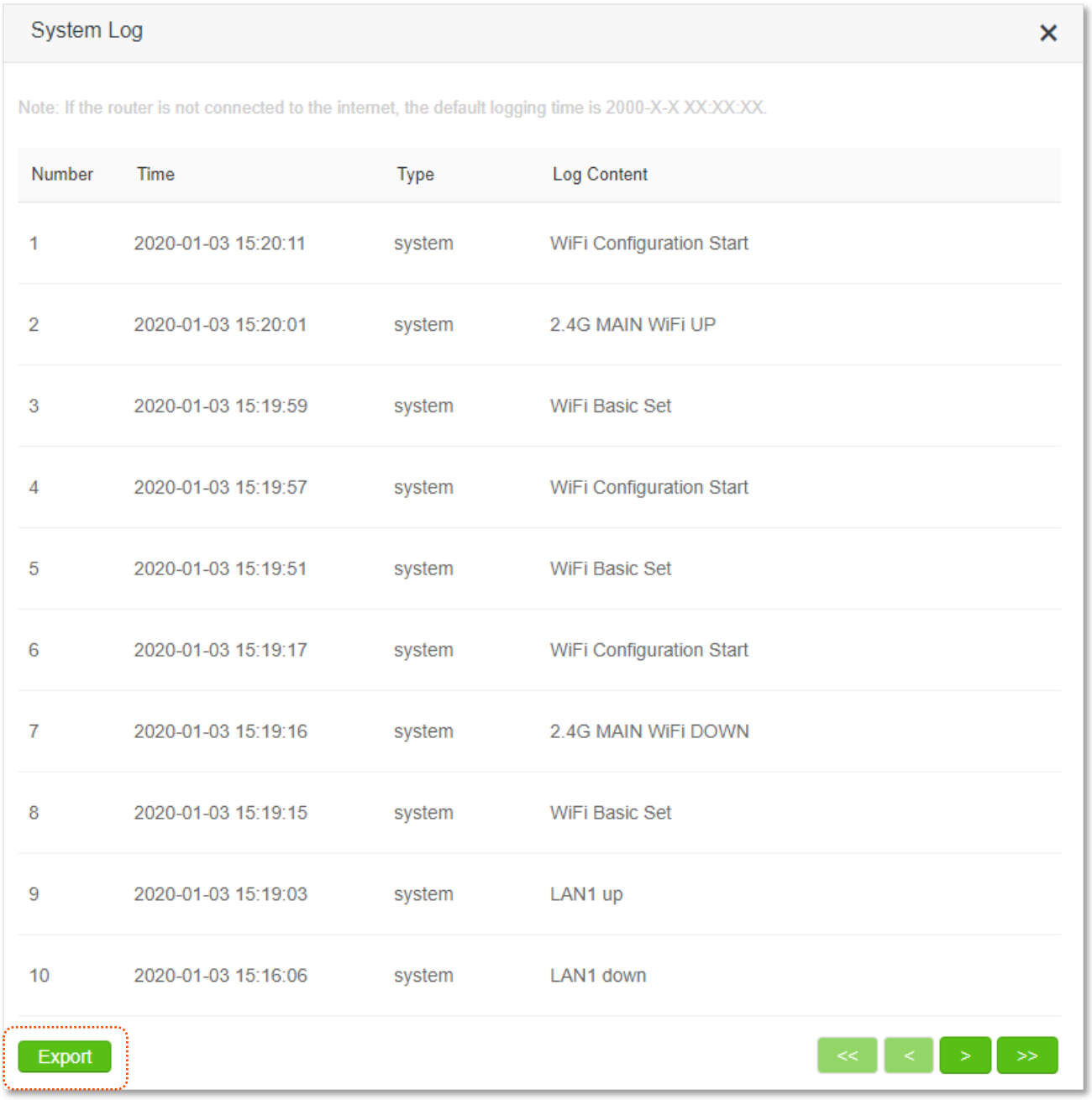
Parameter	Description
Secondary IPv6 DNS	
IPv6 LAN Address	It specifies the LAN IPv6 address of the router. After the IPv6 function is configured, the LAN port of the router obtains a global unicast IPv6 address or a tunnel address, and a link local address.

12.11 System log

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **System Log.**

This function logs all key events that occur after the router is started. If you encounter a network fault, you can turn to system logs for fault rectification.

If necessary, you can also export the system logs to your local computer by clicking **Export**.



TIP

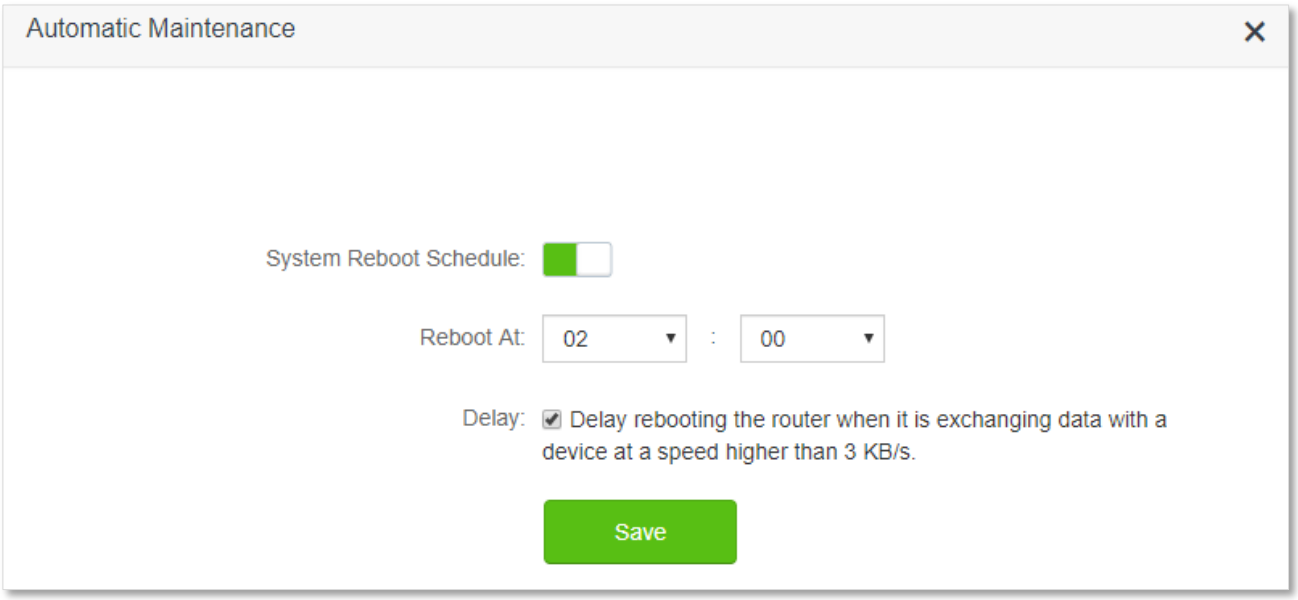
Rebooting the router will clear all previous system logs.

12.12 Automatic Maintenance

Automatic maintenance enables you to make the router restart regularly. It helps improve the stability and service life of the router.

To access the configuration page, log in to the web UI of the router, and choose **System Settings** > **Automatic Maintenance.**

This function is enabled by default.



Parameter description

Parameter	Description
System Reboot Schedule	It is used to enable or disable the automatic reboot function.
Reboot At	It specifies the time when the router reboot automatically every day.
Delay	It is used to enable or disable the delay function. • **Ticked**: The function is enabled. When the time for rebooting approaches, if there is any user connected to the router and the traffic over the router's WAN port exceeds 3 KB/s within 30 minutes, the router will delay rebooting. If there is any user connected to the router and the traffic over the WAN port does not exceed 3 KB/s within 30 minutes, or there is no user connected to the router and the traffic over the router's WAN port is slower than 3 KB/s within 3 minutes, the router will reboot automatically. • **Unticked**: The function is disabled. The router enters the sleeping mode during the sleeping time. TIP When the system reboot schedule function is enabled, the router detects the traffic over the WAN port continuously within 2 hours after the specified reboot time and reboot when the traffic requirement for rebooting is met.

Appendix

A.1 Configuring the computer to obtain an IPv4 address automatically

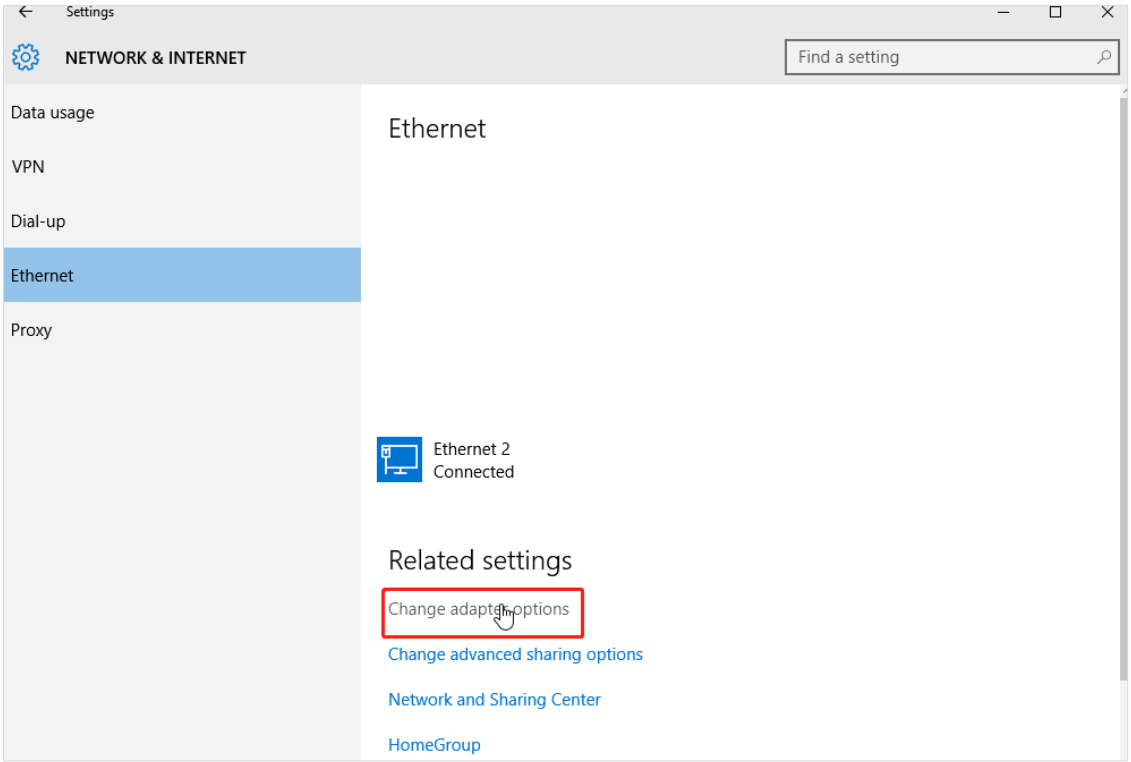
Perform the configuration procedures corresponding to Windows 10, Windows 8 and Windows 7 as required. A computer installed with a wired network adapter is used as an example to describe the procedures. The procedures for configuring computers installed with a WiFi network adapter are similar.

A.1.1 Windows 10

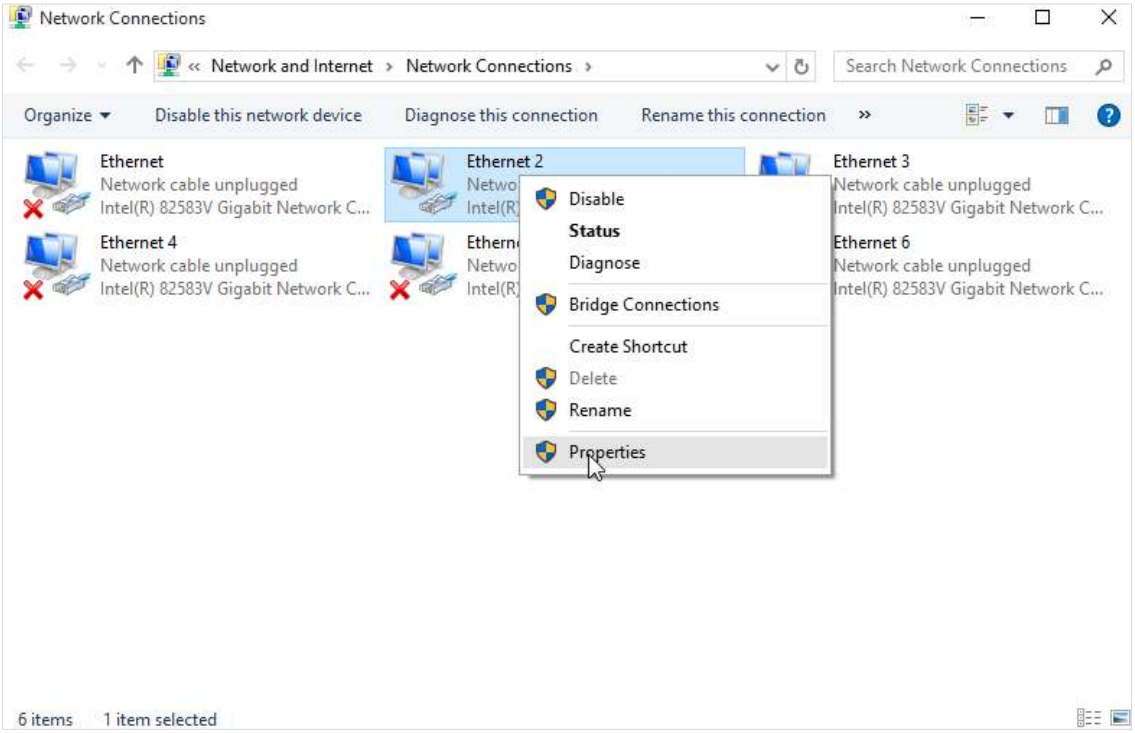
Step 1 Click  in the bottom right corner of the desktop and choose **Network settings**.



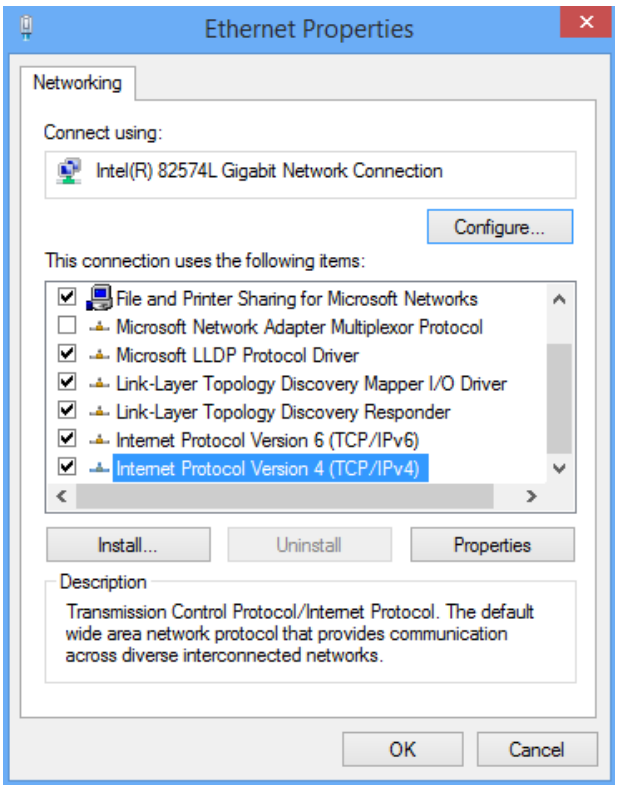
Step 2 Click **Change adapter options**.



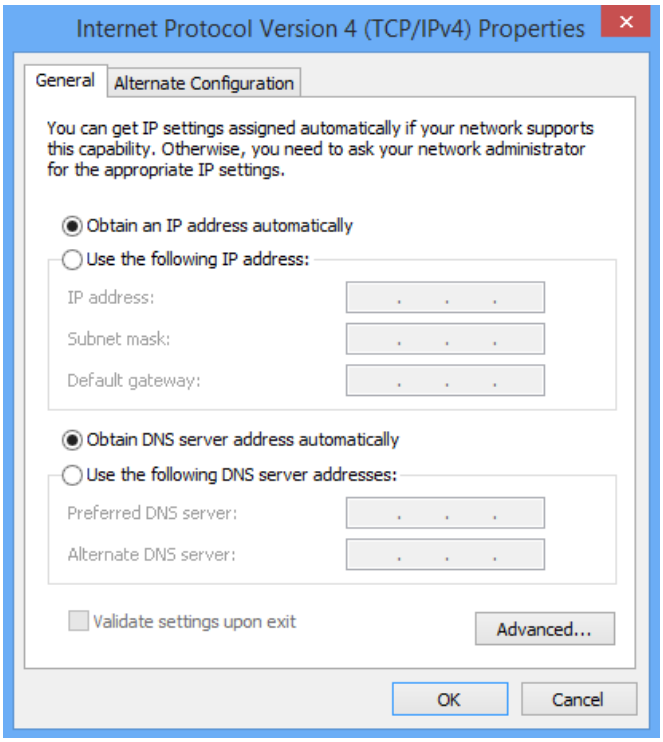
Step 3 Right click on the connection which is being connected, and then click **Properties**.



Step 4 Double-click **Internet Protocol Version 4 (TCP/IPv4)**.



Step 5 Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, and click **OK**.

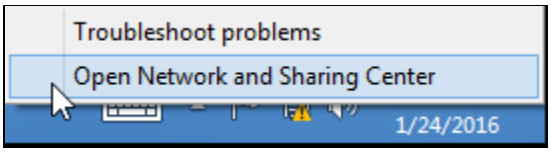


Step 6 Click **Close** in the **Ethernet Properties** window.

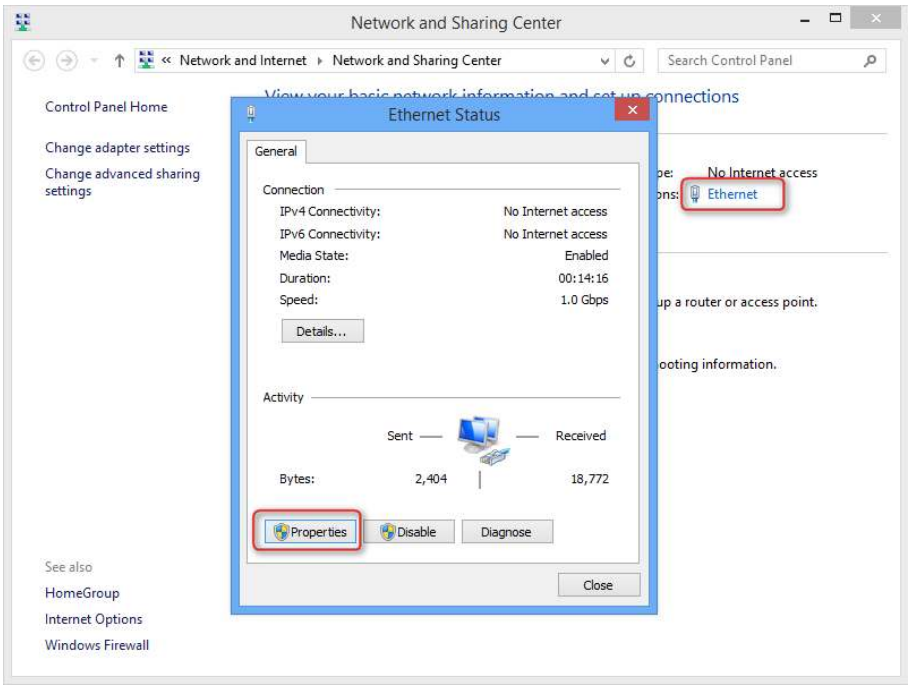
---End

A.1.2 Windows 8

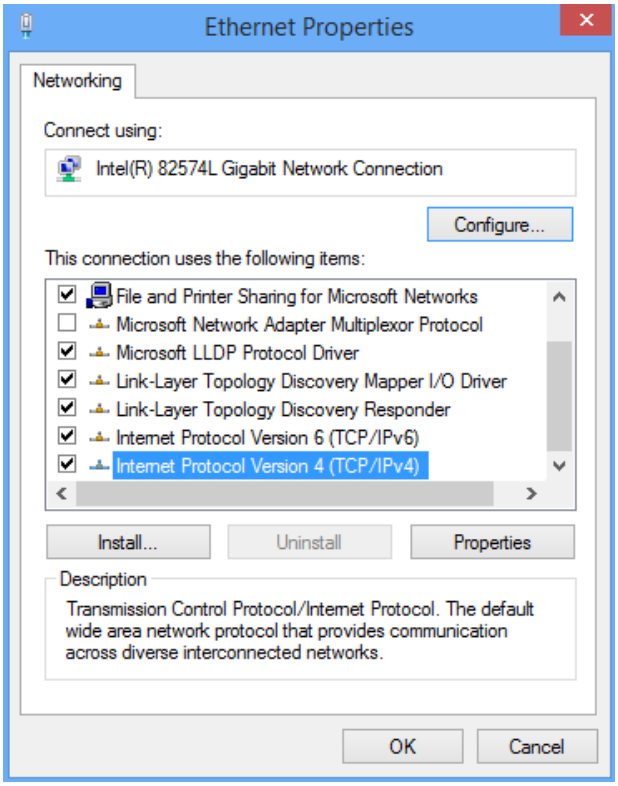
Step 1 Right-click in the bottom right corner of the desktop and choose **Open Network and Sharing Center**.



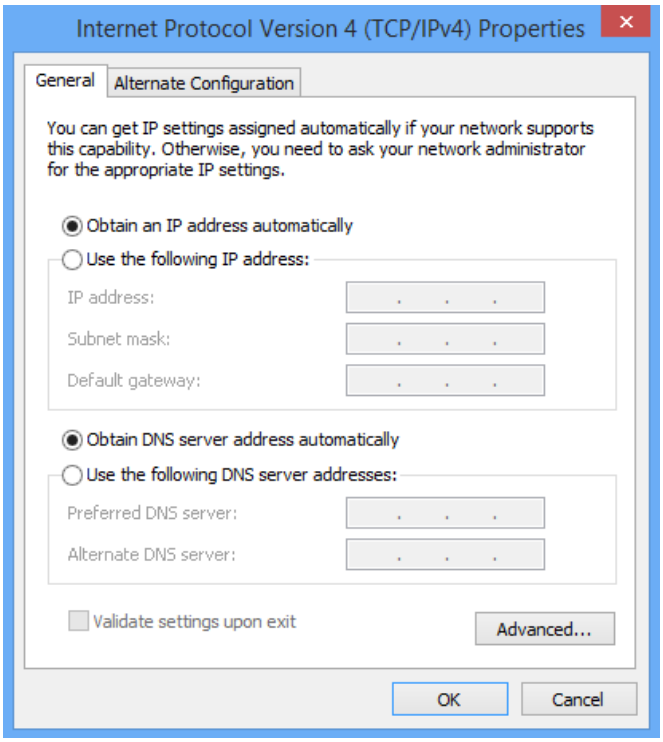
Step 2 Click **Ethernet** and then **Properties**.



Step 3 Double-click **Internet Protocol Version 4 (TCP/IPv4)**.



Step 4 Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, and click **OK**.

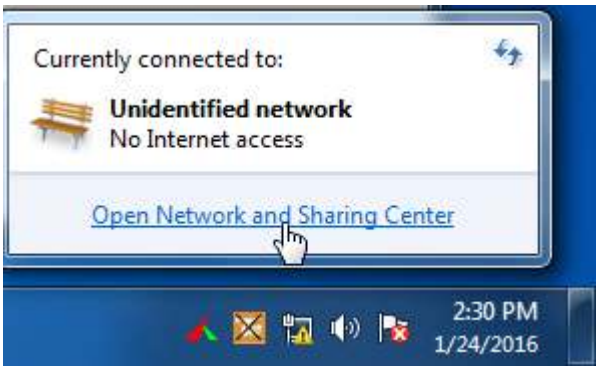


Step 5 Click **OK** in the **Ethernet Properties** window.

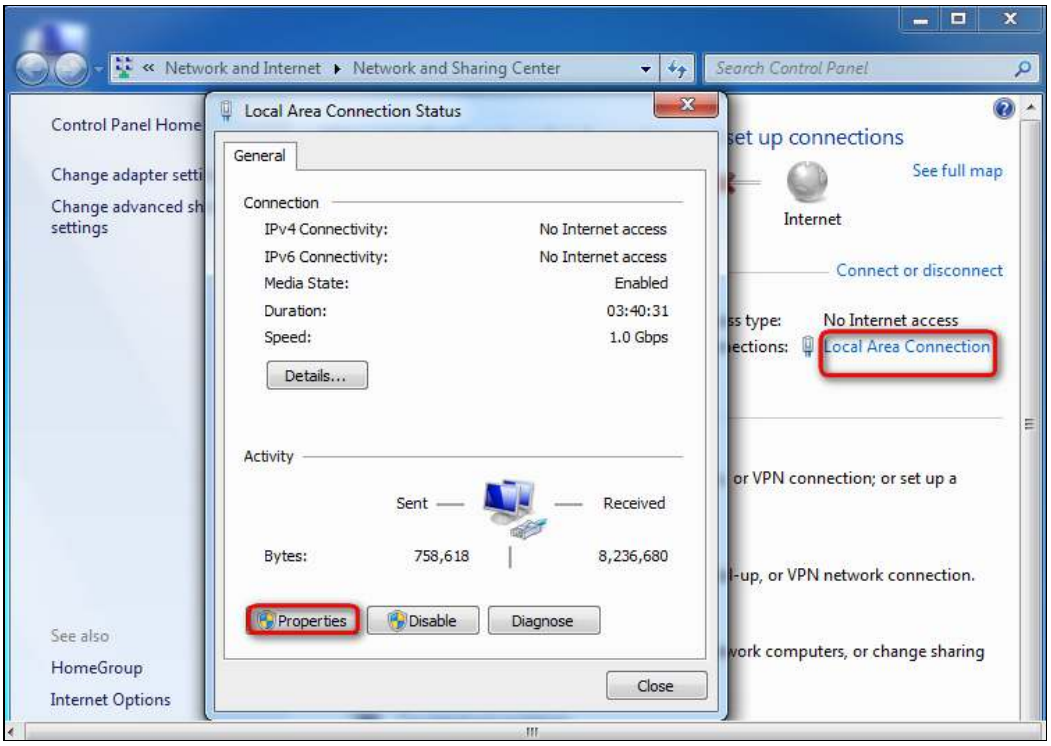
---End

A.1.3 Windows 7

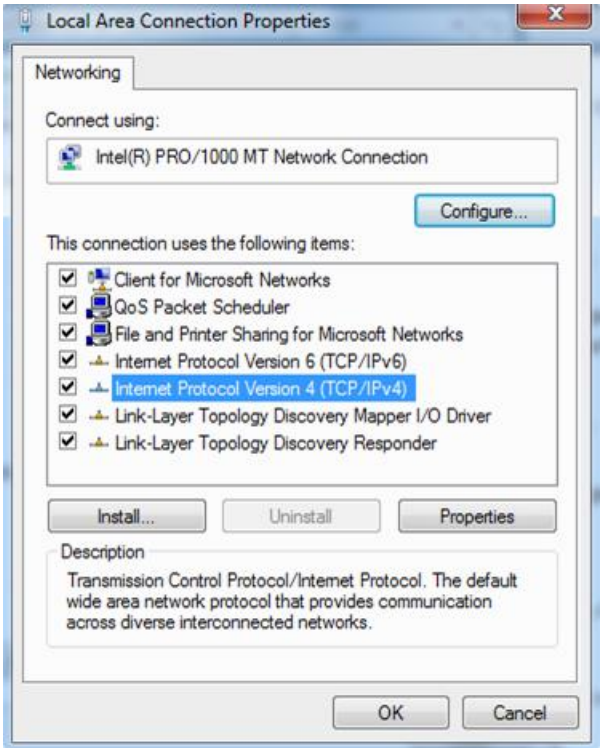
Step 1 Click in the bottom right corner of the desktop and choose **Open Network and Sharing Center**.



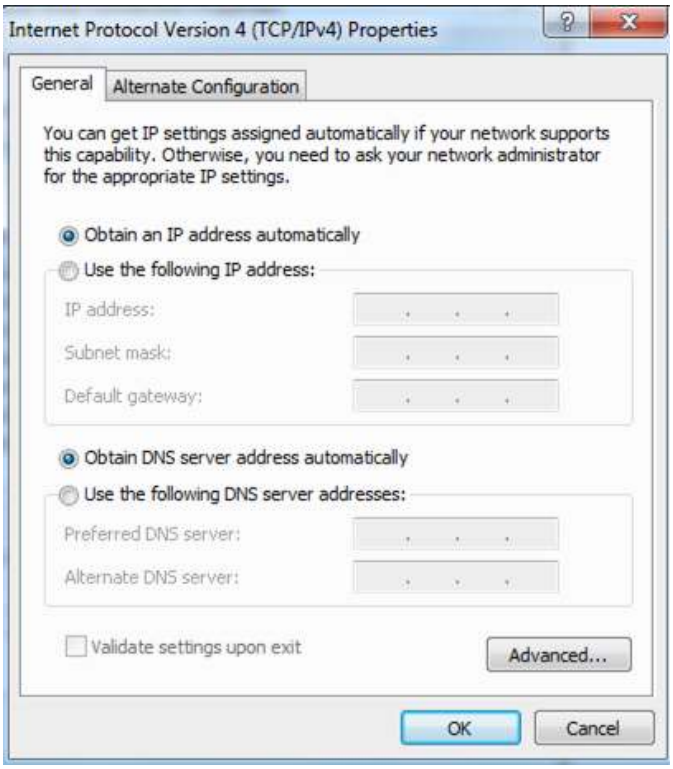
Step 2 Click **Local Area Connection** and then **Properties**.



Step 3 Double-click **Internet Protocol Version 4 (TCP/IPv4)**.



Step 4 Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, and click **OK**.



Step 5 Click **OK** in the **Local Area Connection Properties** window.

---End

A.2 Default parameters

Parameter		AC23/AC21/AC19
Login	IP address	192.168.0.1
	Password	None
LAN Parameters	IP Address	192.168.0.1
	Subnet Mask	255.255.255.0
DHCP Server	DHCP Server	Enabled
	Start IP Address	192.168.0.100
	End IP Address	192.168.0.200
	Preferred DNS Server	192.168.0.1
Operating Mode		Router mode
Wireless Settings	WiFi Name	See the label on the bottom of the router
	WiFi Password	None
	Unify 2.4 GHz & 5 GHz	Enabled
	Beamforming	Enabled
IPv6		Disabled

A.3 Acronyms and Abbreviations

Acronym or Abbreviation	Full Spelling
AES	Advanced Encryption Standard
AP	Access Point
BR	Border Relay
CE	Customer Edge
DDNS	Dynamic Domain Name System
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol for IPv6
DMZ	Demilitarized Zone
DNS	Domain Name System
GMT	Greenwich Mean Time
IP	Internet Protocol
IPTV	Internet Protocol Television
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
ISP	Internet Service Provider
L2TP	Layer 2 Tunneling Protocol
LAN	Local Area Network
MAC	Medium Access Control
MIMO	Multiple Input Multiple Output
MTU	Maximum Transmission Unit
PPPoE	Point-to-Point Protocol over Ethernet
PPTP	Point to Point Tunneling Protocol
SSID	Service Set Identifier
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
UPnP	Universal Plug and Play
WAN	Wide Area Network
WISP	Wireless Internet Service Provider

Acronym or Abbreviation	Full Spelling
WPA-PSK	WPA-Preshared Key