N300 Wi-Fi xPON ONT
User Guide

V1.0

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Preface

Thank you for choosing Tenda!

This user guide walks you through all functions of the N300 Wi-Fi xPON ONT (HG3 used for illustration). All the screenshots herein, unless otherwise specified, are taken from HG3.

TIP

Web UI of different models may differ. The Web UI displayed shall prevail.

Conventions

The typographical elements that may be found in this document are defined as follows.

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

The symbols that may be found in this document are defined as follows.

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

For more documents

If you want to get more documents of the device, visit www.tendacn.com and search for the corresponding product model.

The related documents are listed as below.

Document	Description
Data Sheet	It introduces the basic information of the device, including product overview, selling points, and specifications.
Quick Installation Guide	It introduces how to set up the device quickly for internet access, the descriptions of LED indicators, ports, and buttons, FAQ, statement information, and so on.
User Guide	It introduces how to set up more functions of the device for more requirements, including all functions on the web UI of the device.

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.com.cn
 Website	www.tendacn.com		

Revision History

Tenda is constantly searching for ways to improve its products and documentation. The following table indicates any changes that might have been made since this guide was first published.

Version	Date	Description
V1.0	2022-04-20	Original publication.

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1 Get to know your device

1.1 Overview

The N300 Wi-Fi xPON ONT is a Fiber to the Home (FTTH) device that provides internet access and other services with a fiber cord connected. You can enjoy internet access and make phone calls simultaneously by connecting your devices and landline phones to the ONT.

1.2 Appearance

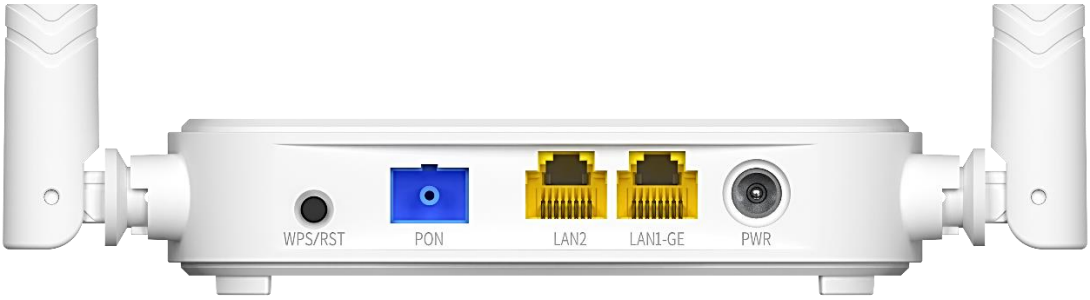
1.2.1 Indicators, ports, and buttons

- **LED indicators**

LED indicator	Color	Status	Description
PWR	Green	Solid on	The ONT is powered on properly.
		Off	The ONT is powered off or not powered on properly.
PON	Green	Solid on	The ONT is registered successfully.
		Blinking	The registration is not completed (unregistered or registering).
		Off	The received optical power is lower than the optical receiver sensitivity, or no fiber cord is connected.
LOS	Red	Blinking	The received optical power is lower than the optical receiver sensitivity.
		Off	The received optical power is within the optical receiver sensitivity.
LAN	Green	Solid on	There is at least one LAN port connected properly, but no data is being transmitted over the corresponding port.
		Blinking	There is at least one LAN port connected properly, and data is being transmitted over the corresponding port.

LED indicator	Color	Status	Description
		Off	No Ethernet device is connected or the Ethernet device is not connected to any LAN port properly.
WLAN	Green	Solid on	The Wi-Fi network is enabled, but no data is being transmitted wirelessly.
		Blinking slowly (0.5s)	The Wi-Fi network is enabled, and data is being transmitted wirelessly.
		Blinking quickly (0.25s)	The ONT is performing or pending for WPS negotiation.
		Off	The Wi-Fi network is disabled.

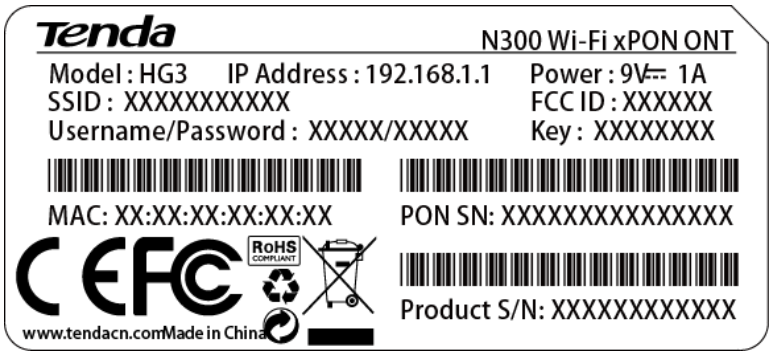
Ports & buttons



Port/Button	Description
WPS/RST	WPS/Reset button. • **WPS:** Wi-Fi-enabled devices can connect to the Wi-Fi networks of the ONT without entering the password through WPS negotiation. Press the button for 1 to 3 seconds to start the WPS negotiation process of the ONT. The **WLAN** LED indicator blink quickly. Within 2 minutes, enable the WPS function on a WPS-supported device to establish a WPS connection. • **Reset**: Restore the ONT to the configurations preset by the ISP. After the ONT completes startup, press the button for more than 10 seconds and release it. All LED indicators will light off in a few seconds. When the **PWR** LED indicator lights solid on again, the ONT is restored to the configurations preset by the ISP.
PON	Optical fiber port. Used to connect to a fiber cord.
LAN1-GE/LAN2	LAN1-GE: 1000 Mbps LAN port LAN2: 100 Mbps LAN port Used to connect to a router, switch, computer or IPTV set-top box.
PWR	Power jack. Please use the included power adapter to connect the ONT to a power source.

1.2.2 Label

The label is located on the bottom panel of the ONT. See the following figure for details.



Model: Model of the ONT

IP Address: Default IP address used to log in to the web UI of the ONT

Power: Power supply for the ONT

SSID & **Key:** Default Wi-Fi name and password of the ONT

Username/Password: Default user name and password used to log in to the web UI of the ONT

MAC Address: MAC address of the ONT

PON SN: PON serial number of the ONT

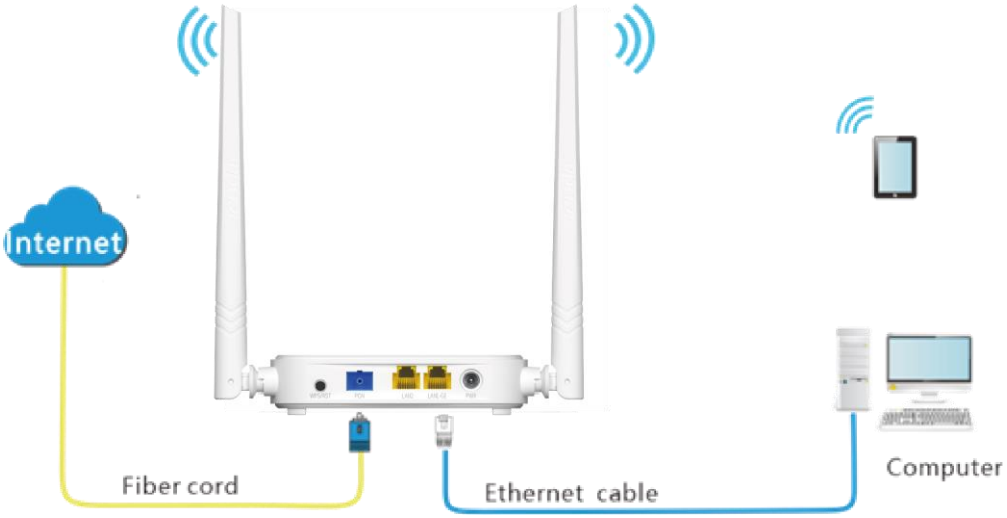
Product S/N: Product serial number

2 Web UI

2.1 Login

Step 1 Connect the ONT to a power source using the provided power adapter.

Step 2 Connect a computer to a LAN port of the ONT using an Ethernet cable, or connect your smartphone to the Wi-Fi network of the ONT.



Step 3 Start a web browser on a connected device and visit the IP address of the ONT (**192.168.1.1** by default). Enter your **User Name** and **Password** (both are **admin** by default), and click **Login**.

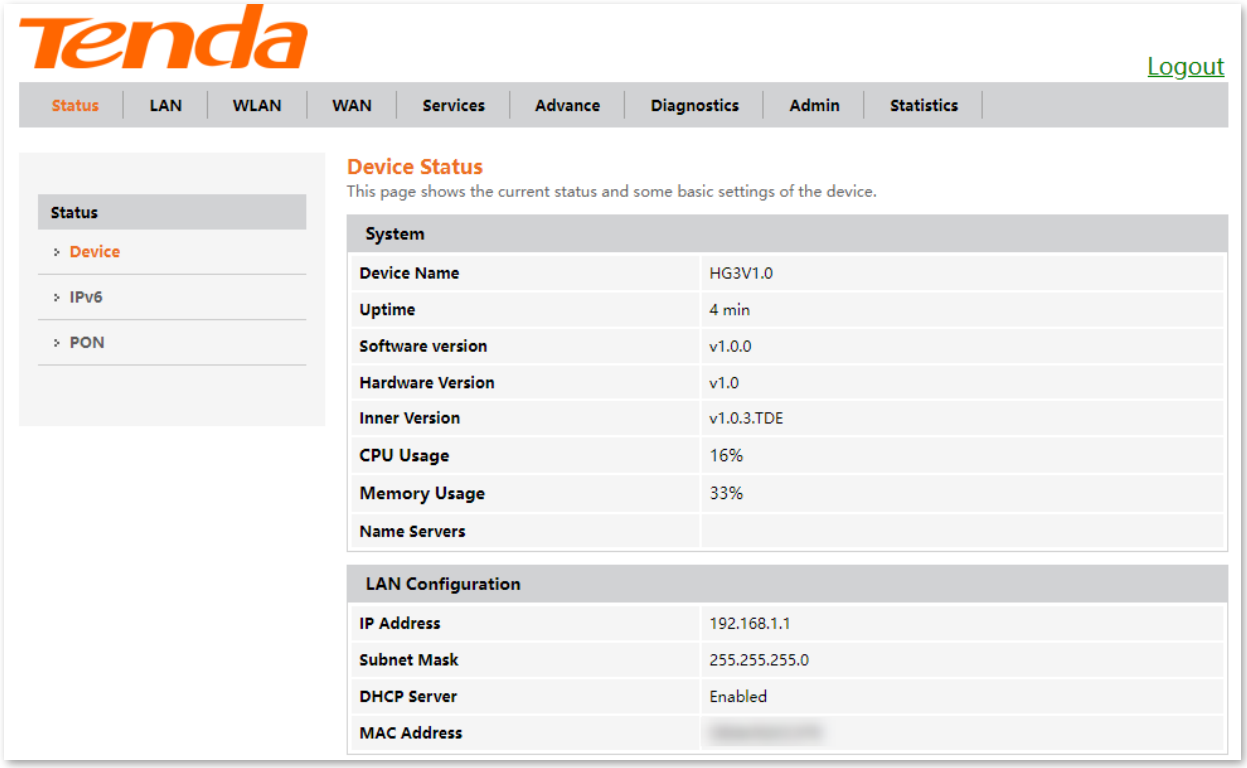
----End

TIP

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

- Ensure that the ONT is powered on properly.
- If a wired device, such as a computer, is used for configuration, ensure that the wired device is connected to a LAN port of the router properly, and is set to obtain an IP address automatically.
- If a wireless device, such as a smartphone, is used for configuration, ensure that the wireless device is connected to the Wi-Fi network of the ONT and the cellular network (mobile data) of the client is disabled.
- Restore the ONT to factory settings and try again.

The following page appears.



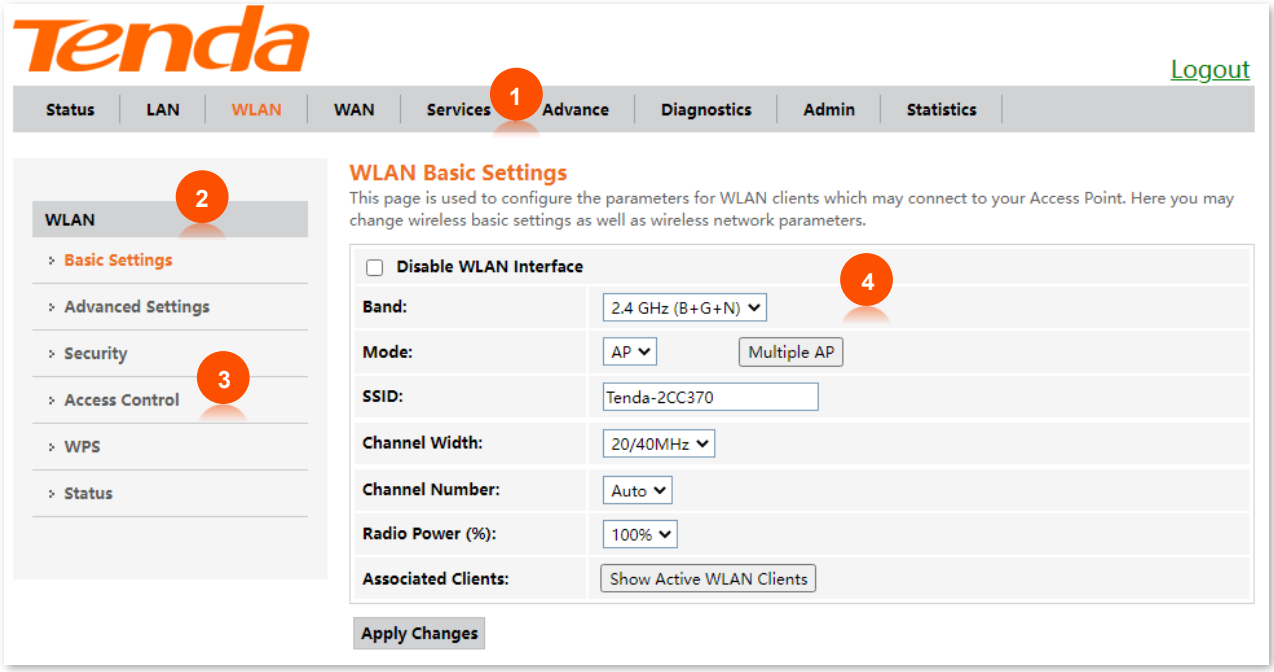
2.2 Logout

The ONT logs you out when you:

- Click the **Logout** button on the upper-right corner of the web UI, or click **Logout** in **Admin** > **Logout**.
- Perform no operation within 20 minutes.

2.3 Web UI layout

The web UI of the ONT is composed of 4 parts, including the level-1 navigation tree, level-2 navigation tree, tab page area, and configuration area. See the following figure.



No.	Name	Description
1	Level-1 navigation tree	The navigation bars and tab pages display the function menu of the ONT. When you select a function in the navigation bar, the configuration of the function appears in the configuration area.
2	Level-2 navigation tree	
3	Tab page area	
4	Configuration area	It enables you to view and modify the configuration.

2.4 Common buttons

Some buttons are commonly used in the web UI of the ONT, and their functions are listed as follows.

Button	Description
Refresh	It is used to refresh the statistics shown on the page.
Add	It is used to add the information that you entered.
Reset	It is used to restore the information that you entered on the page.
Delete	They are used to delete the information that you selected.
Delete Selected	
Delete All	
Modify	It is used to modify the information that you selected.
Remove	It is used to remove the information that you selected.
Apply	They are used to apply the settings configured on the page.
Apply Changes	

3 Status

In this module, you can:

- View device status of the ONT.
- View IPv6 status of the ONT.
- View PON status of the ONT.

3.1 Device status

On this page, you can view the basic system information, LAN configuration and WAN configuration of the ONT.

To access the page, log in to the web UI of the ONT and choose **Status** > **Device**.

System	
Device Name	HG3V1.0
Uptime	2 min
Software version	v1.0.0
Hardware Version	v1.0
Inner Version	v1.0.3.TDE
CPU Usage	8%
Memory Usage	33%
Name Servers	

LAN Configuration	
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
MAC Address	C83A352CC370

WAN Configuration

Interface	VLAN ID	Connection Type	Protocol	IP Address	Gateway	Status
nas0_0	20	INTERNET	Bridged			down

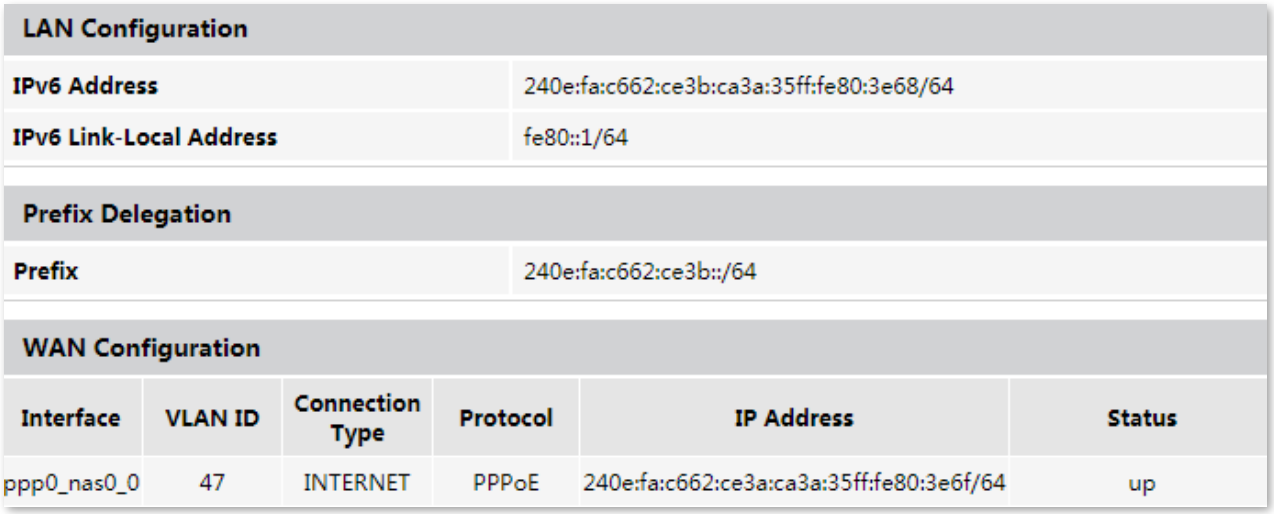
Parameter description

Parameter		Description
System		It displays the basic system information of the ONT, including the device name, uptime, software version, hardware version, CPU usage, memory usage and DNS address information.
LAN Configuration	IP Address	It specifies the LAN IP address of the ONT, which is also the IP address used to log in to the web UI of the ONT.
	Subnet Mask	It specifies the LAN subnet mask of the ONT.
	DHCP Server	It specifies whether the DHCP server of the ONT is enabled.
	MAC Address	It specifies the MAC address of the ONT's LAN port.
WAN Configuration	Interface	It specifies the name of the interface/WAN connection when IPv4 is enabled.
	VLAN ID	It specifies the VLAN ID of the WAN connection.
	Connection Type	It specifies the WAN connection type.
	Protocol	It specifies the channel mode used by the WAN port.
	IP Address	They specify the IP address and gateway address that the ONT obtains after you set up a WAN connection successfully.
	Gateway	
	Status	It specifies the connection status of the WAN connection. • **up**: The WAN connection is successful and currently available. • **down**: The WAN connection failed and is currently unavailable.

3.2 IPv6 status

On this page, you can view the IPv6 connection status of the ONT.

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



LAN Configuration	
IPv6 Address	240e:fa:c662:ce3b:ca3a:35ff:fe80:3e68/64
IPv6 Link-Local Address	fe80::1/64

Prefix Delegation	
Prefix	240e:fa:c662:ce3b::/64

WAN Configuration

Interface	VLAN ID	Connection Type	Protocol	IP Address	Status
ppp0_nas0_0	47	INTERNET	PPPoE	240e:fa:c662:ce3a:ca3a:35ff:fe80:3e6f/64	up

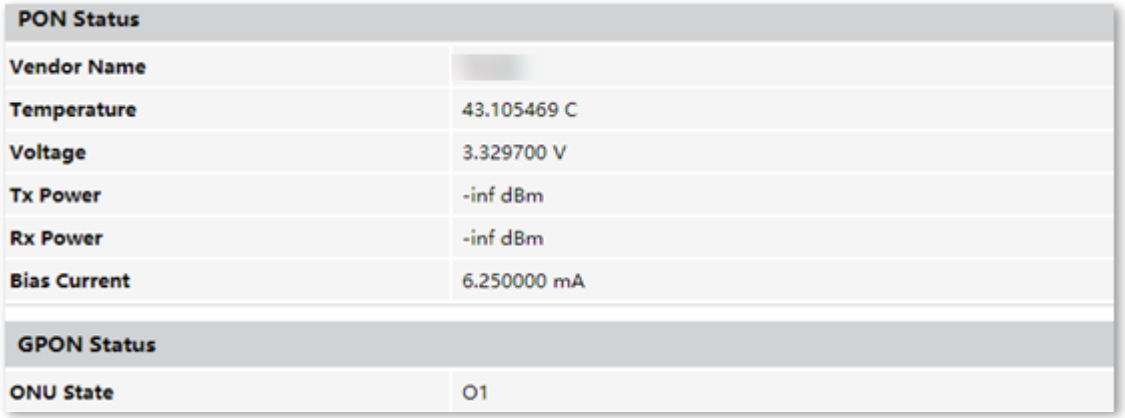
Parameter description

Parameter		Description
LAN Configuration	IPv6 Address	It specifies the LAN IPv6 address of the ONT.
	IPv6 Link-Local Address	It specifies the IPv6 link-local address of the ONT. A link-local address is an IPv6 unicast address that is automatically configured on any interface and is valid only for communications within the network segment.
Prefix Delegation	Prefix	It specifies the IPv6 prefix of the LAN port of ONT.
WAN Configuration	Interface	It specifies the name of the interface/WAN when IPv6 is enabled.
	VLAN ID	It specifies the VLAN ID of the WAN connection.
	Connection Type	It specifies the WAN connection type.
	Protocol	It specifies the channel mode used by the WAN port.
	IP Address	They specify the IP address and gateway address that the ONT obtains after you set up a WAN connection successfully.
	Gateway	
	Status	It specifies the connection status of the WAN connection. • **up**: The WAN connection is successful and currently available. • **down**: The WAN connection failed and is currently unavailable.

3.3 PON status

On this page, you can view the PON status and GPON/EPON connection status of the ONT.

To access the page, log in to the web UI of the ONT and choose **Status** > **PON**.



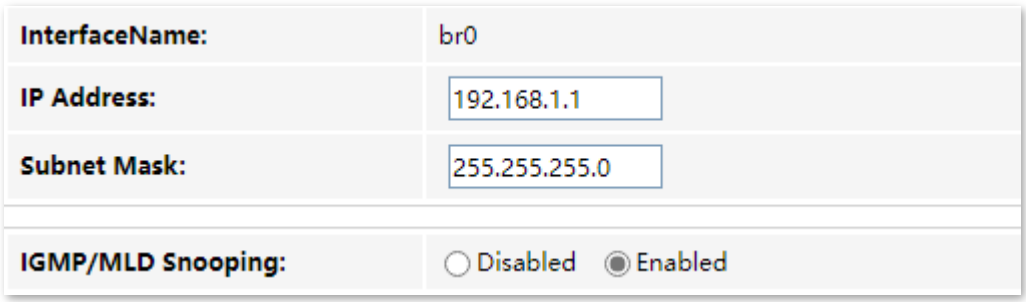
Parameter description

Parameter		Description
PON Status	Vendor Name	It specifies the vendor name of the ONT.
	Temperature	It specifies the current chip temperature of the ONT.
	Voltage	It specifies the current voltage of the optical module of the ONT.
	Tx Power	It specifies the transmitted and received optical power of the ONT over the PON port.
	Rx Power	
	Bias Current	It specifies the current bias current of the optical module of the ONT.
GPON Status	ONU State	It specifies the state of the ONT, ranging from O1 to O7. • **O1** to **O4**: The ONT is registering. • **O5**: The ONT registered successfully and is under normal operation. • **O6**/**O7**: The ONT is in abnormal state and stops transmitting signals.
EPON Status	Auth state	It specifies the state of the ONT.

4 LAN

In this module, you can configure the LAN IPv4 and IGMP/MLD Snooping settings of the ONT.

To access the page, log in to the web UI and choose **LAN**.



Parameter description

Parameter	Description
InterfaceName	It specifies the LAN interface name of the ONT.
IP Address	It specifies the IPv4 LAN address of the ONT, which is also the IPv4 address for logging in to the web UI of the ONT.
Subnet Mask	It specifies the IPv4 LAN subnet mask of the ONT.
IGMP/MLD Snooping	When Internet Group Management Protocol (IGMP) snooping is enabled, multicast data from known IPv4 multicast groups are multicast to the specified LAN ports only, instead of all LAN ports, thus saving link bandwidth. • Standard mode: If no member joins a multicast group, the data of that multicast group is broadcast. If a member joins a multicast group, the data of that multicast group is only forwarded to the LAN port of the member. • Blocking mode: If no member joins a multicast group, the data of that multicast group is discarded. If a member joins a multicast group, the data of that multicast group is only forwarded to the LAN port of the member. MLD is used by IPv6 routers for discovering multicast listeners on a directly attached link. If disabled on layer2 devices, IPv6 multicast data packets will be broadcast on the entire layer2; if enabled, these packets will be multicast to only specified recipient instead of being broadcast on the entire layer2.

5 WLAN

In this module, you can customize your Wi-Fi network, including:

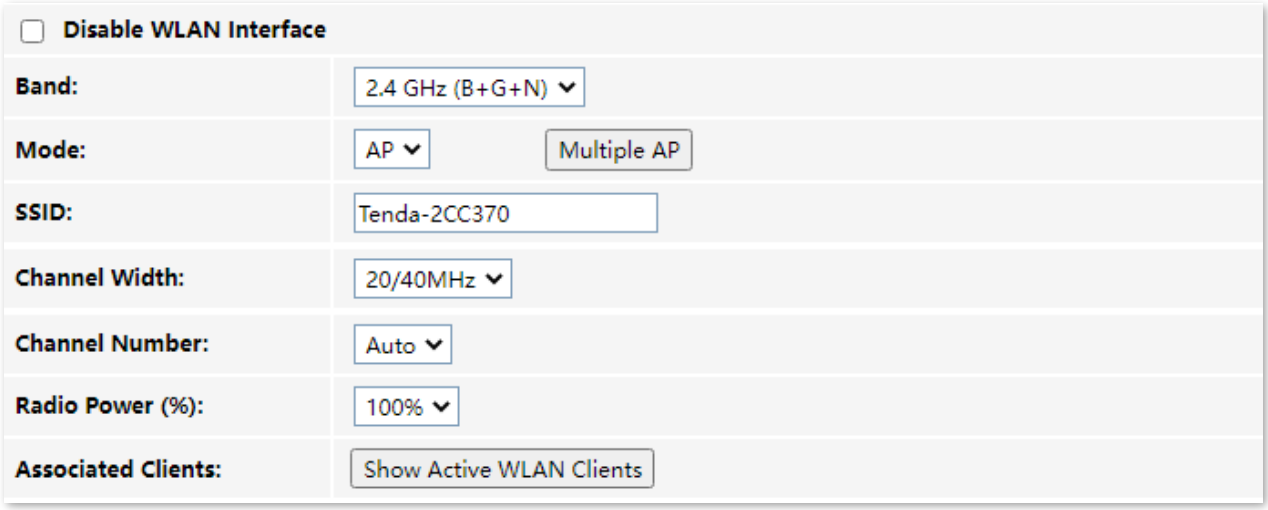
- Customize Wi-Fi name and other basic settings
- Hide Wi-Fi name and set other advanced functions
- Customize Wi-Fi password
- Allow certain clients to access the Wi-Fi network

5.1 Basic settings

5.1.1 Overview

On this page, you can set basic parameters of the Wi-Fi network of the ONT, such as enabling/disabling the Wi-Fi network and setting band and SSID (Wi-Fi name).

To access the page, log in to the web UI of the ONT and choose **WLAN** > **Basic Settings**.



Parameter description

Parameter	Description
Disable WLAN Interface	It specifies whether to enable the Wi-Fi network.

Parameter	Description
Band	It specifies the wireless band and protocol of the Wi-Fi network. • **2.4 GHz (B)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11b protocol can connect to the 2.4 GHz wireless network of the ONT. The maximum wireless rate is 11 Mbps. • **2.4 GHz (G)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11g protocol can connect to the 2.4 GHz wireless network of the ONT. The maximum wireless rate is 54 Mbps. • **2.4 GHz (B+G)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11b or IEEE 802.11g protocol can connect to the 2.4 GHz wireless network of the ONT. • **2.4 GHz (N)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11n protocol can connect to the 2.4 GHz wireless network of the ONT. The maximum wireless rate is 300 Mbps. • **2.4 GHz (G+N)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11g or IEEE 802.11n protocol can connect to the 2.4 GHz wireless network of the ONT. • **2.4 GHz (B+G+N)**: In this mode, the 2.4 GHz wireless devices compliant with IEEE 802.11b, IEEE 802.11g or IEEE 802.11n protocol can connect to the 2.4 GHz wireless network of the ONT.
Mode	It specifies the wireless operation mode of the ONT. **AP**: The ONT serving as a wireless access point provides a wireless network for wireless clients.
Multiple AP	You can click **Multiple AP** to create more wireless networks of the same band. • **No.**: It specifies the No. of the AP Wi-Fi network. • **Enable**: It specifies whether to enable the AP Wi-Fi network. • **Band**: It specifies the wireless band and protocol of the AP Wi-Fi network. • **SSID**: It specifies the Wi-Fi name of the AP Wi-Fi network. • **Broadcast SSID**: It specifies whether to hide the SSID of the AP Wi-Fi network. **Enabled** means that the SSID is displayed. **Disabled** means that the SSID is hidden, and you need to enter the SSID of the Wi-Fi network manually to connect to it. • **Active Client List**: You can click it to view the information of clients connected to the Wi-Fi network. • **Reset**: You can click it to discard the unsaved modifications on this page.
SSID	It specifies the Wi-Fi name of the main Wi-Fi network.
Channel Width	It specifies the bandwidth of the wireless channel of the Wi-Fi network. • **20MHz**: It indicates that the channel bandwidth used by the ONT is 20 MHz. • **40MHz**: It indicates that the channel bandwidth used by the ONT is 40 MHz. • **20/40MHz**: It specifies that the ONT can switch its channel bandwidth between 20 MHz and 40 MHz based on the ambient environment.
Channel Number	It specifies the channel in which the Wi-Fi network works. 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 Wi-Fi signals nearby to understand the channel usage situations. • **Auto**: It indicates that the ONT automatically adjusts its operating channel according to the ambient environment.

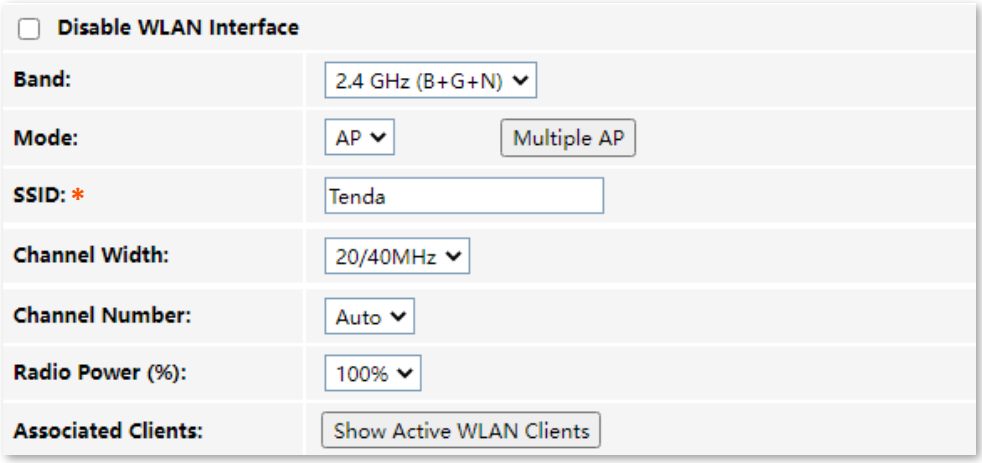
Parameter	Description
Radio Power (%)	You can set the intensity of the radio power of the ONT. A higher radio power brings a wider coverage of Wi-Fi coverage.
Associated Clients	You can view the clients that connect to the Wi-Fi network by clicking **Show Active WLAN Clients**. • **MAC Address**: It specifies the MAC address of the client connected to the Wi-Fi network. • **Tx Packets**: It specifies the number of transmitted packets of the client through the Wi-Fi network. • **Rx Packets**: It specifies the number of received packets of the client through the Wi-Fi network. • **Tx Rate (Mbps)**: It specifies the transmitting rate of the Wi-Fi network. • **RSSI**: It specifies the signal strength of the client received by the AP.

5.1.2 Customize the main Wi-Fi name

Step 1 Choose **WLAN** > **Basic Settings** on the web UI.

Step 2 Set **SSID**.

Step 3 Click **Apply Changes**.



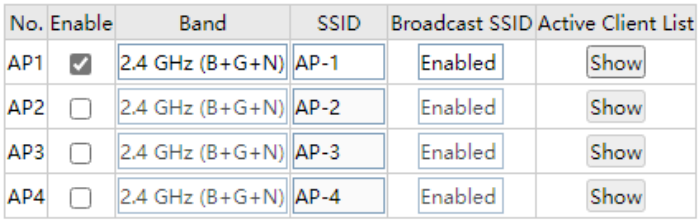
---End

After completing the configuration, you can search the SSID(s) on your Wi-Fi-enabled devices and connect to it to access the internet.

5.1.3 Enable multiple wireless networks

Step 1 Choose **WLAN** > **Basic Settings** on the web UI.

Step 2 Click **Multiple AP**. Select **Enable** to enable any Wi-Fi network as required, set **SSID** (Wi-Fi name), and click **Apply Changes**.



No.	Enable	Band	SSID	Broadcast SSID	Active Client List
AP1	☑	2.4 GHz (B+G+N)	AP-1	Enabled	Show
AP2	☐	2.4 GHz (B+G+N)	AP-2	Enabled	Show
AP3	☐	2.4 GHz (B+G+N)	AP-3	Enabled	Show
AP4	☐	2.4 GHz (B+G+N)	AP-4	Enabled	Show

---End

After completing the configuration, you can search the SSID(s) on your Wi-Fi-enabled devices and connect to it to access the internet.

5.2 Advanced settings

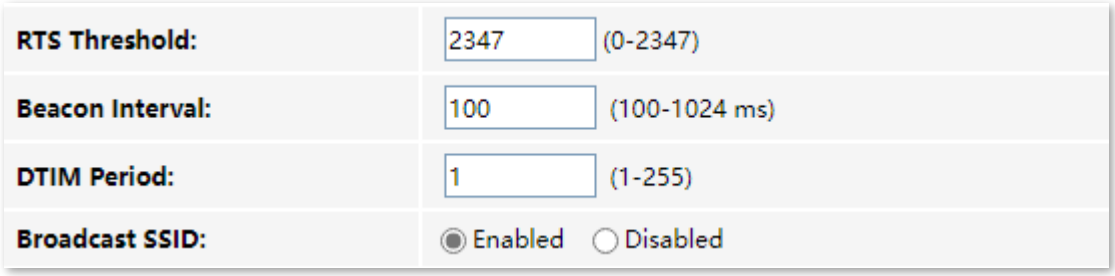
5.2.1 Overview

On this page, you can configure more advanced settings of your Wi-Fi network.

To access the page, log in to the web UI of the ONT and choose **WLAN** > **Advanced Settings**.

NOTE

You are recommended to retain the default settings if without professional guidance.



Parameter description

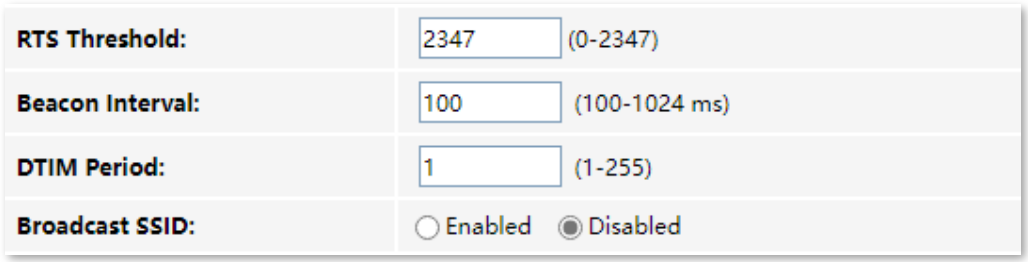
Parameter	Description
RTS Threshold	It specifies the frame length threshold for triggering the RTS/CTS mechanism in the unit of byte. If a frame exceeds this threshold, the RTS/CTS mechanism is triggered to reduce conflicts. Set the RTS threshold based on the actual situation. An excessively small value increases the RTS frame transmission frequency and bandwidth requirement. A higher RTS frame transmission frequency enables a wireless network to recover from conflicts quicker. For a wireless network with high user density, you can lower this threshold to reduce conflicts. The RTS mechanism requires some network bandwidth. Therefore, it is triggered only when frames exceed this threshold.
Beacon Interval	It specifies the interval at which this device sends Beacon frames. Beacon frames are sent at the interval to announce the existence of a wireless network. Generally, a smaller interval allows wireless clients to connect to this device sooner, while a larger interval allows the wireless network to transmit data quicker.
DTIM Period	It specifies the countdown before this device transmits broadcast and multicast frames in its cache. The unit is Beacon interval. For example, if **DTIM Interval** is set to **1**, this device transmits all cached frames at one Beacon interval. It is used when the client is in power-saving mode, and the ONT informs the client about the presence of buffered multicast/broadcast data on the ONT at the specified interval. A proper value helps improve the power efficiency of clients.

Parameter	Description
Broadcast SSID	It specifies whether to broadcast or hide the SSID (Wi-Fi name) of the main Wi-Fi network. If the SSID is hidden, it cannot be found on clients and you need to enter the information of the Wi-Fi network on your clients manually to connect to it.

5.2.2 Hide the main Wi-Fi name

Step 1 Choose **WLAN** > **Advanced Settings** on the web UI.

Step 2 Select **Disabled** for **Broadcast SSID**.



Step 3 Click **Apply Changes**.

---End

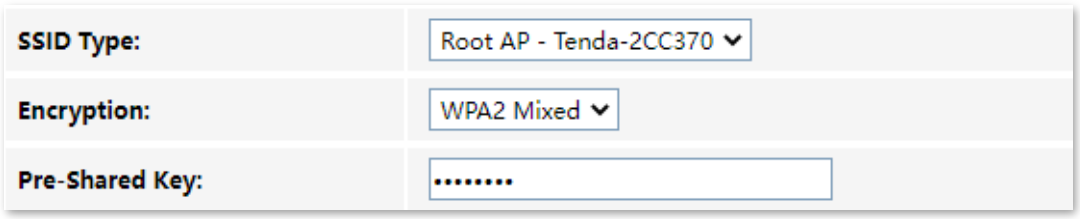
After the configuration is completed, the SSID (Wi-Fi name) of the Wi-Fi network is hidden, but you can connect to the Wi-Fi network by entering its SSID and other required parameters.

5.3 Security

5.3.1 Overview

On this page, you can perform password settings to secure your Wi-Fi network.

To access the page, log in to the web UI of the ONT and choose **WLAN** > **Security**.



Parameter description

Parameter	Description
SSID Type	It specifies the Wi-Fi network to be configured.
Encryption	It specifies the encryption mode of the Wi-Fi network. • **NONE**: It indicates that the Wi-Fi network is not encrypted and clients can connect to it without password. • **WPA**: It indicates that the Wi-Fi network is encrypted using WPA-PSK, which has better compatibility than WPA2-PSK. • **WPA2**: It indicates that the Wi-Fi network is encrypted using WPA2-PSK, which has a higher security level than WPA-PSK. • **WPA2 Mixed**: It indicates that the Wi-Fi network is encrypted using both WPA-PSK and WPA2-PSK, providing both security and compatibility.
Pre-Shared Key	It specifies the password for connecting to the Wi-Fi network.

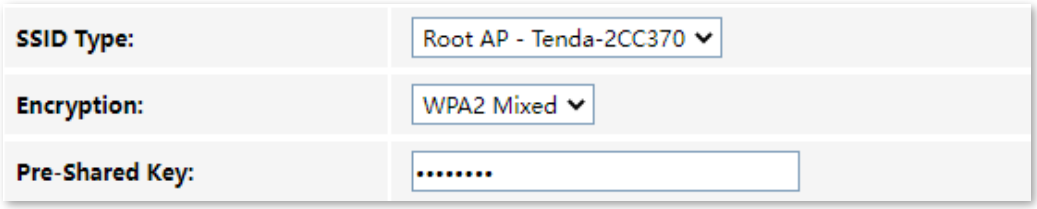
5.3.2 Customize the Wi-Fi password

Step 1 Choose **WLAN** > **Security** on the web UI.

Step 2 Select the SSID (Wi-Fi name) for which you want to customize the password in **SSID Type**.

Step 3 Set **Encryption** as required.

Step 4 Enter the Wi-Fi password in **Pre-Shared Key**.



Step 5 (Optional) Repeat **Step 2** to **Step 4** to set the Wi-Fi password for other SSIDs.

Step 6 Click **Apply Changes**.

---End

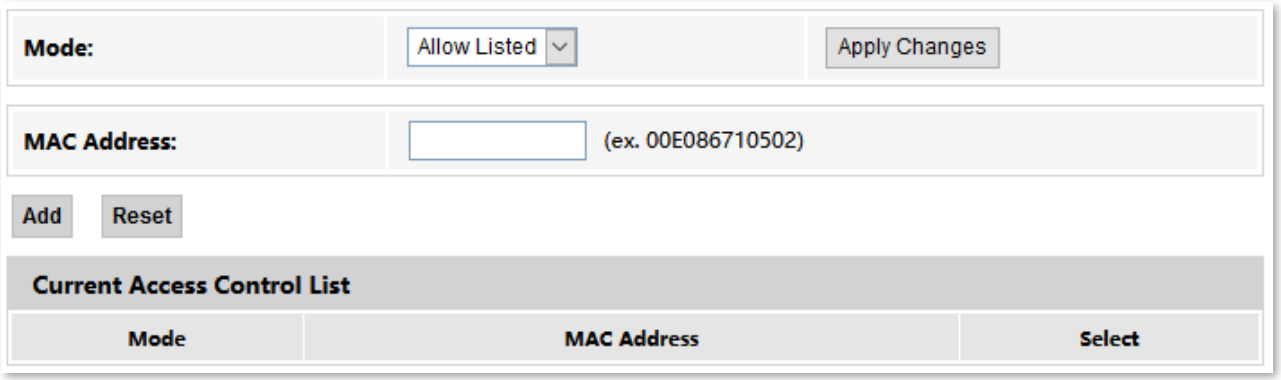
After completing the configuration, you can connect the Wi-Fi networks using the Wi-Fi passwords you set.

5.4 Access control

5.4.1 Overview

On this page, you can add and delete access control rules to decide which clients can or cannot connect to all the Wi-Fi networks in the frequency band.

To access the page, log in to the web UI of the ONT and choose **WLAN** > **Access Control**. Rules added are shown in **Current Access Control List**.



Parameter description

Parameter	Description
Mode	It specifies the control mode. • **Disabled**: It indicates that the access control function is disabled. • **Allow Listed**: It indicates that only clients with the MAC addresses added to the list can connect to the Wi-Fi network. • **Deny Listed**: It indicates that clients with the MAC addresses added to the list cannot connect to the Wi-Fi network.
MAC Address	It specifies the MAC address of the client to be controlled.

5.4.2 Allow certain clients to access the Wi-Fi network

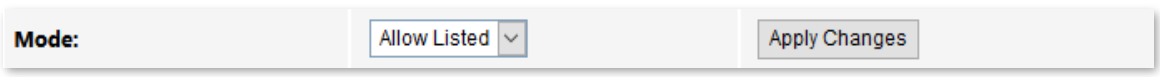
Assume that you only want to enable a smartphone and a tablet to access your Wi-Fi network and prevent misuse of others. The MAC addresses of smartphone and tablet are:

- Smartphone: 8E:5B:54:F6:E1:00
- Tablet: 8C:EC:4B:B3:04:92

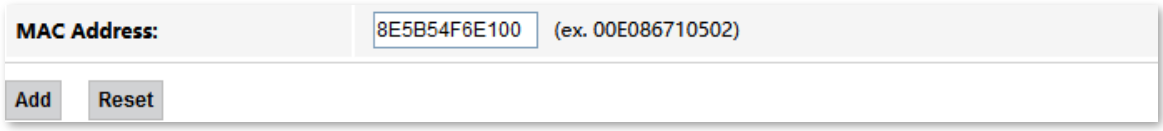
Configuring procedure:

Step 1 Choose **WLAN** > **Access Control** on the web UI.

Step 2 Select **Allow Listed** for **Mode**, and click **Apply Changes**.



Step 3 Enter **8E5B54F6E100** in **MAC Address**, and click **Add**.



Step 4 Enter **8CEC4BB30492** in **MAC Address**, and click **Add**.

---End

After the configuration is completed, the added devices are listed in **Current Access Control List**, and only the smartphone and tablet can connect to the Wi-Fi network.

Current Access Control List

Mode	MAC Address	Select
Allow	8e:5b:54:f6:e1:00	☐
Allow	8c:ec:4b:b3:04:92	☐

TIP

If the MAC address of a device is added in the **Deny Listed** mode, the device will fail to access the Wi-Fi network and a message indicating incorrect password will be displayed on the device.

5.5 WPS

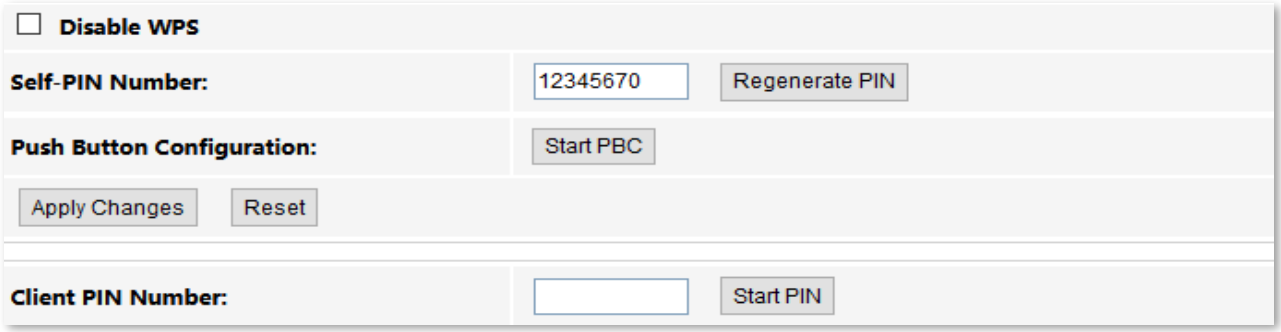
5.5.1 Overview

The Wi-Fi Protected Setup (WPS) function enables wireless clients that support WPS, such as smartphones, to connect to the Wi-Fi network of the ONT quickly and easily.

There are four methods to connect to the Wi-Fi network of the ONT through WPS.

- Connect to the Wi-Fi network using the WPS button
- Connect to the Wi-Fi network using PBC on the web UI
- Connect to the Wi-Fi network by entering PIN code of clients on the ONT
- Connect to the Wi-Fi network by entering PIN code of the ONT on clients

To access the page, log in to the web UI of the ONT and choose **WLAN** > **WPS**.

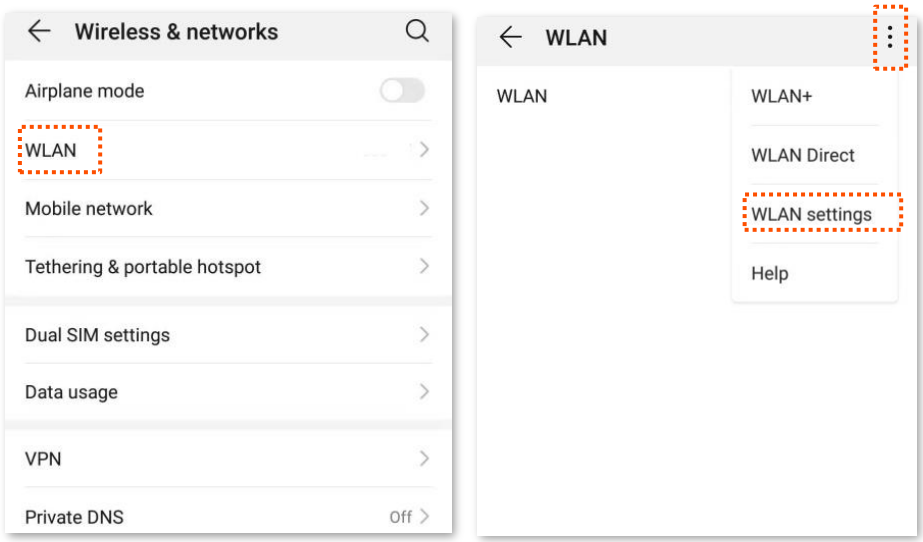


5.5.2 Connect to the Wi-Fi network using the WPS button

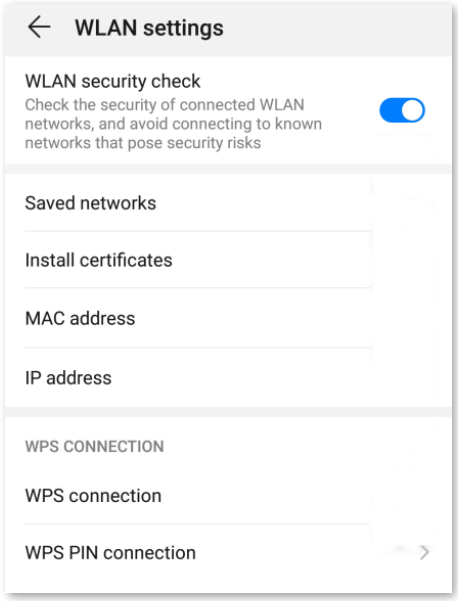
Step 1 Find the **WPS/RST** button on the ONT. Press it once and you can see the **WLAN** LED indicator blinks.

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

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



4. Choose **WPS connection**.

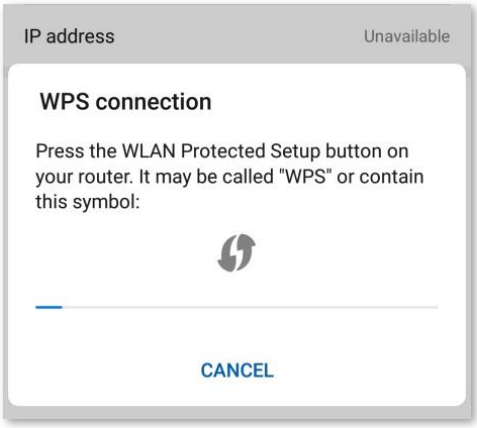


---End

Wait a moment until the WPS negotiation is completed, and the smartphone is connected to the Wi-Fi network.

TIP

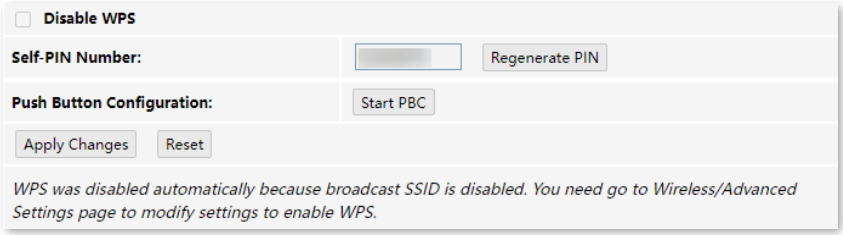
- If multiple wireless networks are enabled in a frequency band, the main network is connected by default.
- To use the WPS function, the encryption mode of the wireless network must be WAP2 or not encrypted.



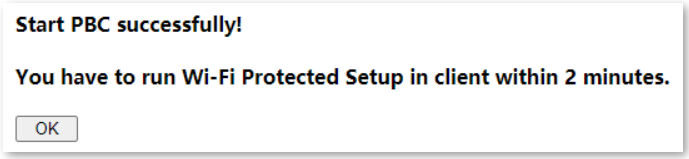
5.5.3 Connect to the Wi-Fi network using PBC on the web UI

Step 1 Get the ONT ready for WPS negotiation.

1. Log in to the web UI of the ONT.
2. Choose **WLAN** > **WPS**.
3. Click **Start PBC**.

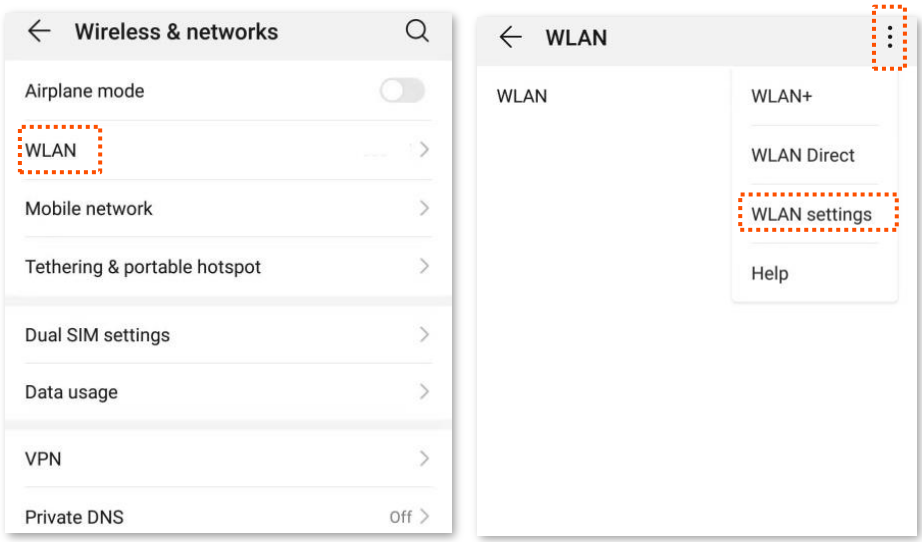


If the following message is displayed, the PBC is started successfully.

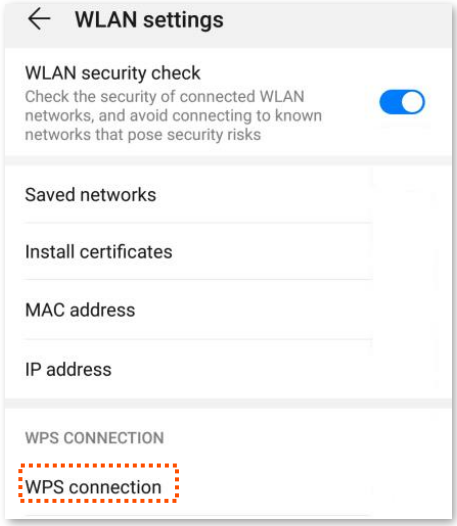


Step 2 Configure the WPS function on your wireless devices **within 2 minutes**. Configuration on various devices may differ (Example: HUAWEI P10 smartphone).

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



4. Choose **WPS connection**.

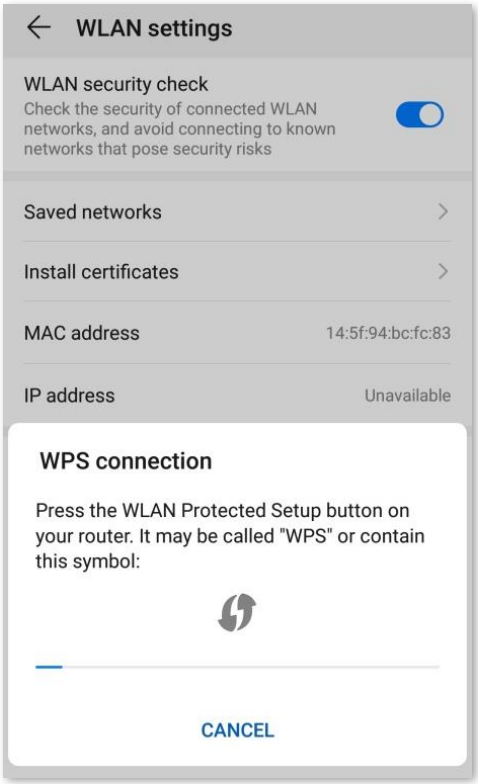


---End

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

TIP

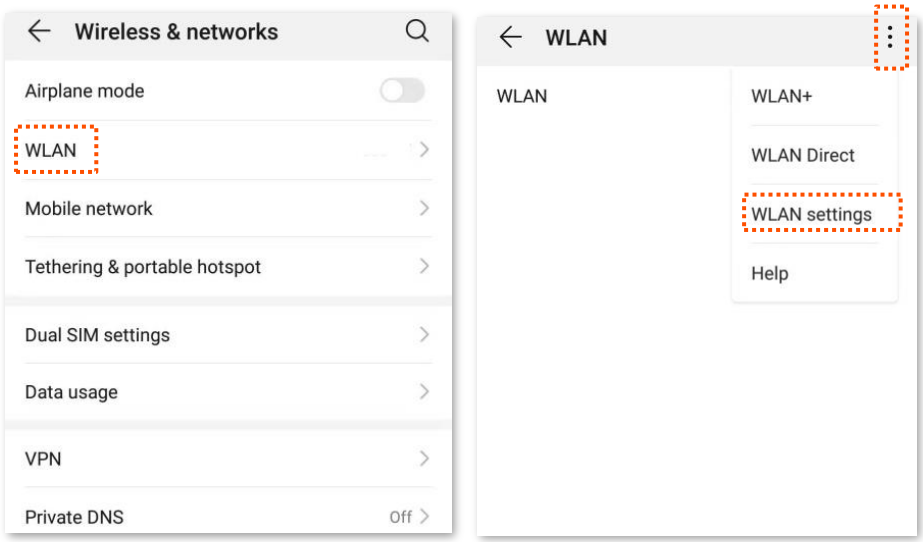
- If multiple wireless networks are enabled in a frequency band, the main network is connected by default.
- To use the WPS function, the encryption mode of the wireless network must be WAP2 or not encrypted.



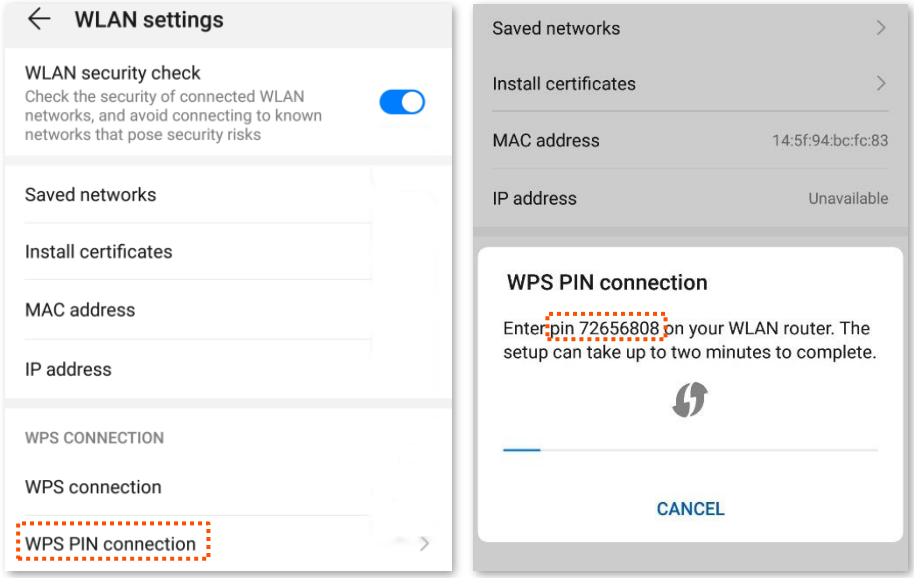
5.5.4 Connect to the Wi-Fi network by entering PIN code of clients on the ONT

Step 1 Find the PIN code of the client. (The method differs with devices. HUAWEI P10 smartphone is used for illustration here.)

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



4. Choose **WPS PIN connection**, and record the PIN code of the client.



Step 2 Start WPS connection on the ONT.

1. Log in to the web UI of the ONT.
2. Choose **WLAN** > **WPS**.
3. Enter the PIN code in **Client PIN Number** and click **Start PIN**.

---End

After the ONT and the client finish WPS negotiation, the client connects to the Wi-Fi network of the ONT successfully.

TIP

- If multiple wireless networks are enabled in a frequency band, the main network is connected by default.
- To use the WPS function, the encryption mode of the wireless network must be WAP2 or not encrypted.

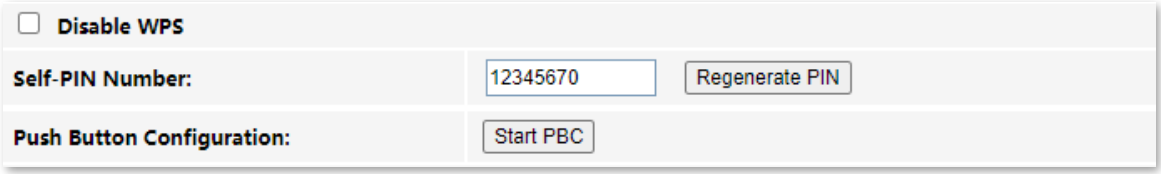
5.5.5 Connect to the Wi-Fi network by entering PIN code of the ONT on clients

TIP

This method is usually used on Wi-Fi network adapters. Please refer to the user guide of the Wi-Fi network adapter for configuration details.

Configuring procedure:

Step 1 Choose **WLAN** > **WPS** on the web UI. Find and record the **Self-PIN Number** of the ONT.



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

---End

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

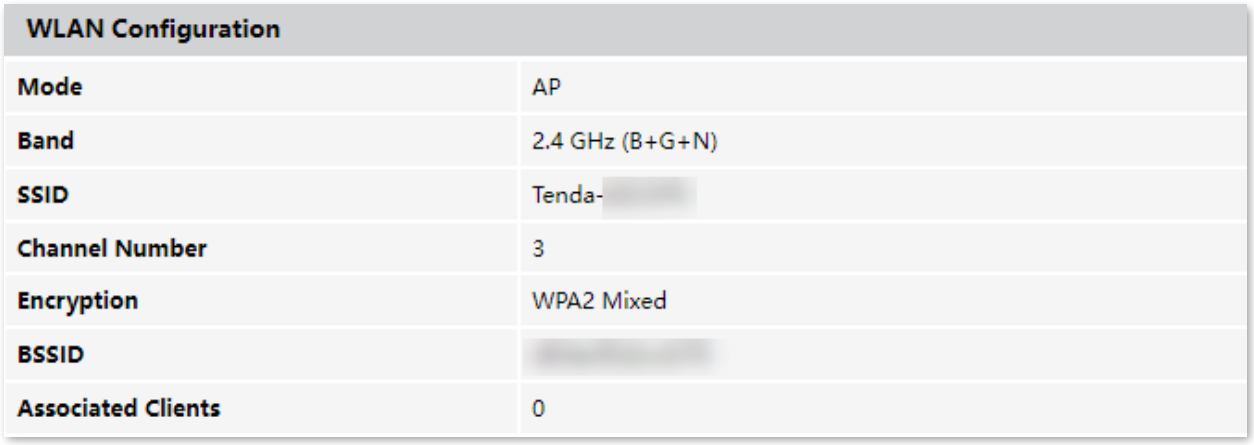
TIP

- If multiple wireless networks are enabled in a frequency band, the main network is connected by default.
- To use the WPS function, the encryption mode of the wireless network must be WAP2 or not encrypted.

5.6 Status

On this page, you can check the information and status of the Wi-Fi network you set up.

To access the page, log in to the web UI of the ONT and choose **WLAN** > **Status**.



Parameter description

Parameter	Description
Mode	It specifies the mode of the Wi-Fi network.
Band	It specifies the wireless band and protocol of the Wi-Fi network.
SSID	It specifies the Wi-Fi name of the Wi-Fi network.
Channel Number	It specifies the channel in which the Wi-Fi network works.
Encryption	It specifies the encryption mode of the Wi-Fi network.
BSSID	Basic Service Set Identifier (BSSID) is used to describe sections of a wireless local area network. This service set is the MAC address of the AP's radio for clients to identify and connect to.
Associated Clients	It specifies the number of connected clients.

6 WAN

6.1 Overview

After you have registered the ONT successfully, you can set up the WAN connection.

TIP

You can set up WAN connections to access different types of services or a combination of them, including internet, TR069, and others. Internet is used for illustration in this chapter unless specified.

The ONT can work under the following two modes:

- Bridge mode: The channel mode is set to **Bridged**. To access the internet, you can set up an internet connection (PPPoE, DHCP, or static IP) on a computer or router connected to the ONT.
- Router mode: The channel mode is set to **IPoE**, **PPPoE** or **6rd**. To access the internet, you can set up WAN connections on the ONT.

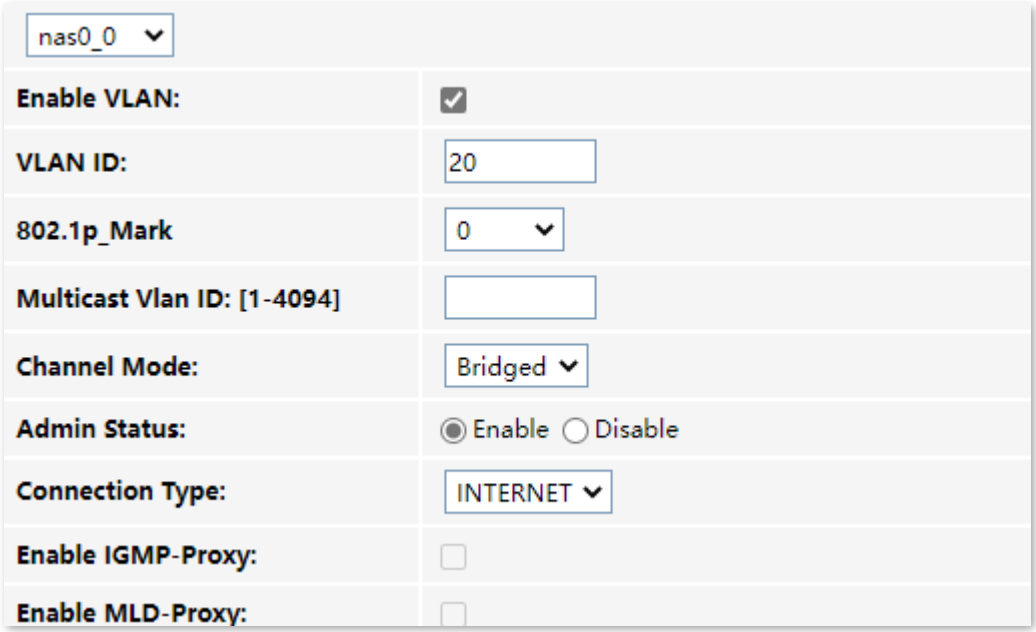
TIP

Under the bridge mode, you can only access the internet through the LAN ports of the ONT. Under the router mode, you can access the internet through both the LAN ports and Wi-Fi networks of the ONT.

To access the configuration page, log in to the web UI of the ONT and choose **WAN** > **PON WAN**. Required settings for WAN connections differ with the channel modes, connection types and IP protocols that you choose.

Common WAN settings

This part shows the common settings in all types of WAN connections.



Parameter description

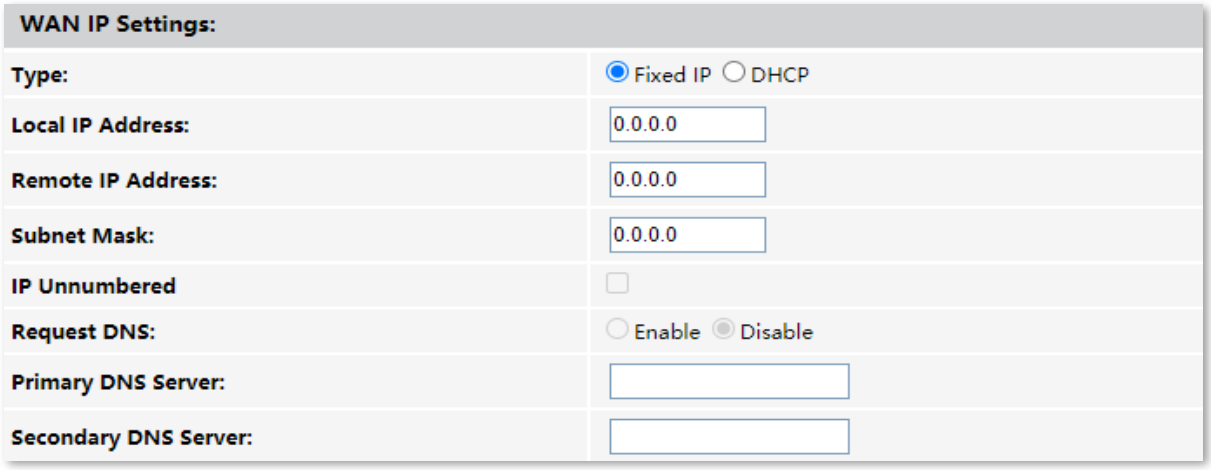
Parameter	Description
nas*0_0*	It specifies the WAN connection name which you set up. You can add multiple WAN connections by clicking the drop-down list and choose **new link**. After configuring required parameters, you can click **Apply Change** to save the connections. This parameter is generated automatically after you create a new link and cannot be customized. A maximum of eight links can be created here.
Enable VLAN	If the WAN connection you want to set up includes VLAN information, you can select **Enable VLAN** and set the **VLAN ID** as required.
VLAN ID	
802.1p_Mark	This parameter is available only when the **Enable VLAN** function is enabled. It specifies the 802.1P priority. Data with a larger priority value takes a higher priority to be processed.
Multicast Vlan ID: [1-4094]	This VLAN ID must already exist in 802.1Q VLAN and only ports in this VLAN can forward multicast packets.

Parameter	Description
Channel Mode	It specifies the mode that you used to set up the WAN connection, including **Bridged**, **IPoE**, **PPPoE** and **6rd**. • **Bridged**: Select this type when this device only serves as a modem, and you want to set up a dial-up connection or enter other internet parameters directly on your computer for internet access. • **IPoE**: Select **DHCP** if your ISP does not provide any parameters to you for internet access, and select **Fixed IP** if your ISP provides a static IP address and other related information to you for internet access. • **PPPoE**: Select this type if your ISP provides a user name and password to you for internet access. • **6rd**: Select this type when you want to deploy the IPv6 network rapidly based on IPv4 infrastructures.
Enable Bridge	It specifies whether to enable the bridge function.
Admin Status	It specifies whether to enable this WAN connection.
Connection Type	It specifies the WAN connection type. Choose the proper connection type as required by your ISP. • Other • TR069 • INTERNET • INTERNET_TR069
MTU	Maximum Transmission Unit (MTU) is the largest data packet transmitted by a network device. When the channel mode is PPPoE, the default MTU value is 1492. When the channel mode is IPoE, the default MTU value is 1500. Do not change the value unless necessary.
Enable IGMP-Proxy	It specifies whether to enable the Internet Group Management Protocol (IGMP) Proxy. If you are not sure, keep the default setting or consult your ISP. IGMP Proxy is used to manage multicast data and reduce traffic replication. IGMP proxy enables a device to issue IGMP host messages on behalf of its users, reducing IGMP messages and the load for the uplink device.
Enable MLD-Proxy	It specifies whether to enable the Multicast Listener Discovery (MLD) Proxy. If you are not sure, keep the default setting or consult your ISP. MLD is the IPv6 equivalent of IGMP.
IP Protocol	It specifies the adopted IP protocol version. • **IPv4:** Select this option if IPv4 is used for communication. • **IPv6:** Select this option if IPv6 is used for communication. • **IPv4/IPv6:** Select this option if both IPv4 and IPv6 are used for communication.

WAN IP settings

You can configure the WAN IPv4 address information in this part.

This part needs to be configured only when **Channel Mode** is set to **IPoE** and **IP Protocol** is set to **IPv4** or **IPv4/IPv6** or when **Channel Mode** is set to **6rd**.



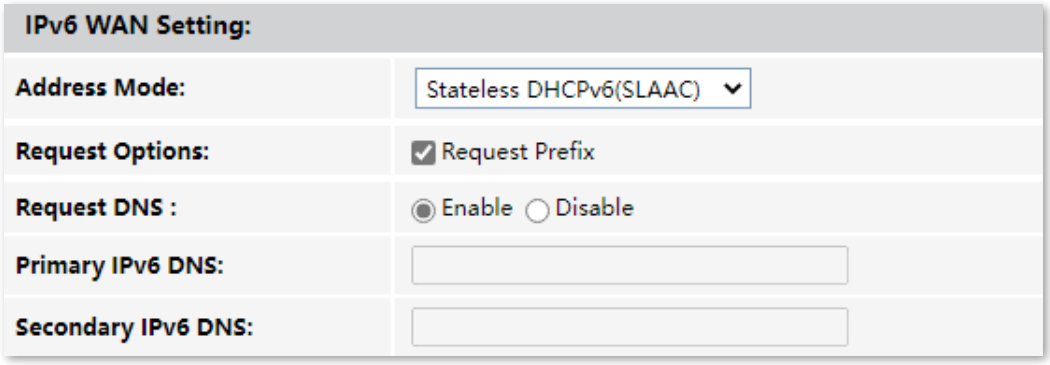
Parameter description

Parameter	Description
Type	It specifies the method used by the ONT to obtain WAN IP address information. • **Fixed IP**: You need to configure the local IP address, remote IP address (gateway address) and other related information manually. • **DHCP**: The ONT obtains WAN IP address information automatically. Choose this type if your ISP does not provide related parameters.
Local IP Address	If you select **Fixed IP** for **Type**, you should manually enter the IP address and related information provided by your ISP.
Remote IP Address	
Subnet mask	
IP Unnumbered	It specifies whether to enable the IP unnumbered function. With it enabled, you can enable IP processing on a serial interface without assigning it a unique IP address. The IP unnumbered interface can "borrow" the IP address of another interface already configured on the router, which conserves network and address space. If it cannot be enabled on the web UI, this function is not supported.
Request DNS	If the IP address is obtained through DHCP, you can select **Request DNS** to obtain the DNS server address automatically.
Primary DNS Server	If the IP address obtaining type is **Fixed IP** or **Request DNS** function is disabled when the IP address obtaining type is **DHCP**, you should enter the DNS server address provided by your ISP. TIP If the ISP only provides one DNS server address, you can leave the secondary DNS blank.
Secondary DNS Server	

IPv6 WAN settings

You can configure the WAN IPv6 address information in this part.

When **IP Protocol** is set to **IPv6** or **IPv4/IPv6**, and **Channel Mode** is set to **IPoE** or **PPPoE**, these parameters are required.



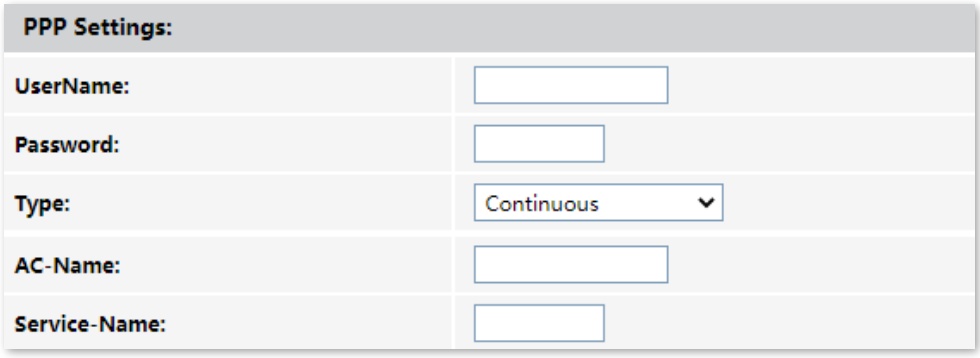
Parameter description

Parameter	Description
Address Mode	It specifies how the WAN IPv6 address of the ONT is obtained, including: • **Stateless DHCPv6 (SLAAC)**: Stateless Address Autoconfiguration (SLAAC) is a dynamic allocation method of IPv6 address, which enables the ONT to auto-generate IPv6 addresses with local information and those from the router advertisement. • **Static**: You need to enter parameters related to IPv6 address manually. • **Stateful DHCPv6**: DHCPv6 status settings are provided. The client obtains complete IPv6 address information (including DNS server address) from the DHCPv6 server. The gateway address is obtained through route advertisement (RA). • **Auto Detect Mode**: The ONT automatically generates the IPv6 addresses based on the mode detected.
Request Options	You can enable the ONT to obtain the IPv6 address and prefix as a DHCPv6 client.
IPv6 Address	It specifies the IPv6 address and prefix length provided by your ISP when you select **Static** for **Address Mode**.
IPv6 Gateway	It specifies the IPv6 gateway address of the ONT when you select **Static** for **Address Mode**.
Request DNS	When **Request DNS** is set to **Enable**, the ONT obtains the IPv6 DNS server address from the DHCPv6 server. When **Request DNS** is set to **Disable**, you need to set the primary and secondary DNS server addresses manually.
Primary IPv6 DNS	
Secondary IPv6 DNS	

PPP settings

You can configure the PPPoE parameters to access the internet in this part.

When **Channel Mode** is set to **PPPoE**, these parameters are required.



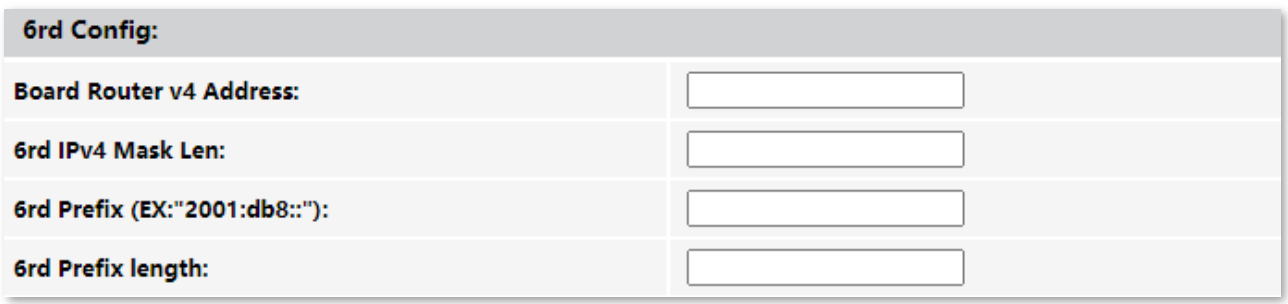
Parameter description

Parameter	Description
UserName Password	They specify the PPPoE user name and password for settings up the WAN connection.
Type	It specifies the PPPoE connection type. • **Continuous**: The ONT keeps connected to the internet. • **Connect on Demand**: The ONT disconnects from the internet after a certain period and establishes the connection as soon as you attempt to access the internet. • **Manual**: Users should manually connect and disconnect the network connection.
AC-Name	It specifies the PPPoE server name, for the ONT to verify the legitimacy of the PPPoE server. TIP If your ISP did not provide a service name, leave this field blank. Otherwise, a dial failure may occur.
Service-Name	It specifies the PPPoE service name used by the PPPoE server to verify the legitimacy of the ONT. TIP If your ISP did not provide a service name, leave this field blank. Otherwise, a dial failure may occur.

6rd configuration

When you want to access a certain IPv6 network or service of your service provider through an IPv4 network and you are provided with related parameters, you can set up a 6rd connection.

When **Channel Mode** is set to **6rd**, these parameters are required.

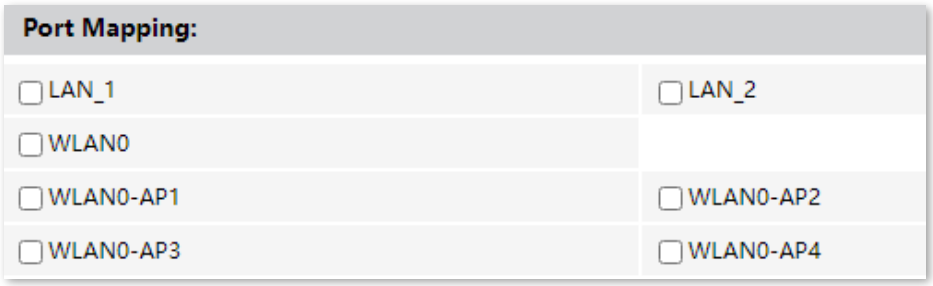


Parameter description

Parameter	Description
Board Router v4 Address	It specifies the IPv4 address of the remote border relay router.
6rd IPv4 Mask Len	It specifies the length of the IPv4 subnet mask used for 6rd connection. The WAN IPv4 addresses of both ends must be in the same segment.
6rd Prefix (EX:"2001:db8::")	It specifies the IPv6 prefix of the current network. • If the 6rd channel is used for communication between IPv6 islands, you can customize the IPv6 prefix here. • If the 6rd channel is used for accessing the ISP's IPv6 network, the IPv6 prefix must be provided by the ISP.
6rd Prefix length	It specifies the 6rd prefix length.

Port mapping

You can configure the port mapping options in this part. When certain interfaces are selected for the WAN connection, devices connected to these interfaces use the WAN connection to access the internet preferentially.



6.2 Bridge mode

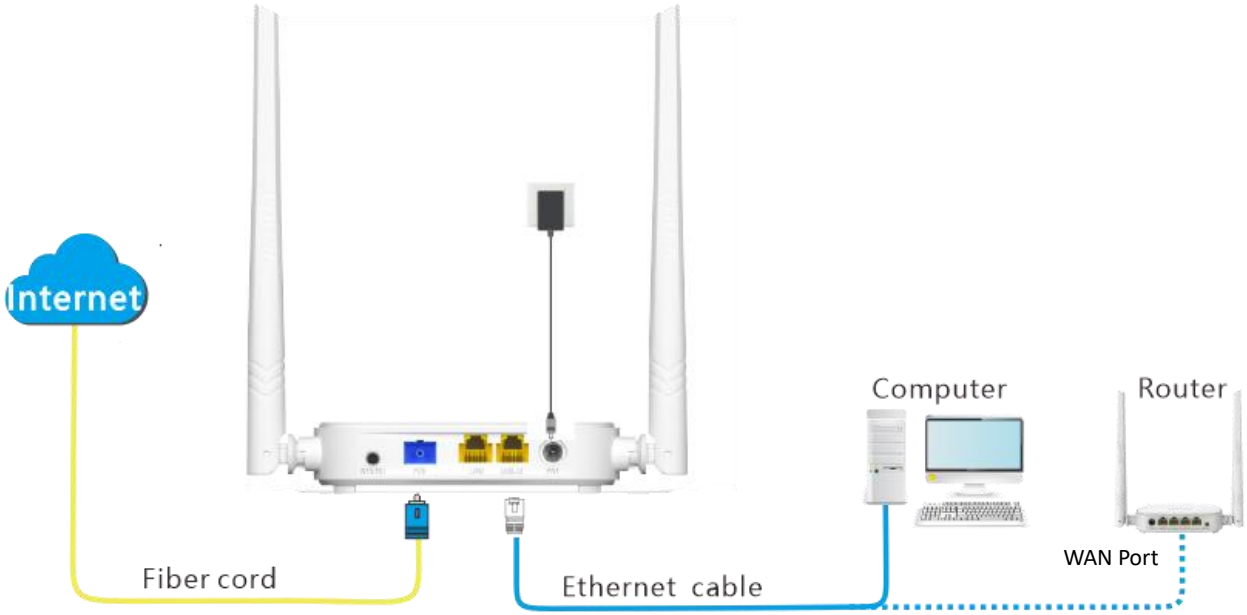
If you have a router and want to set up internet access on it, or you only want to access the internet on a certain computer, you can use the ONT under bridge mode.

TIP

When the ONT is under bridge mode, you can only access the internet through the downstream device used for setting up internet access.

Under bridge mode, the ONT acts as a bridging device between your LAN and your ISP. The ONT works under bridge mode by default.

The network topology of the scenario is shown as follows.



6.2.1 Configure internet access on a computer

TIP

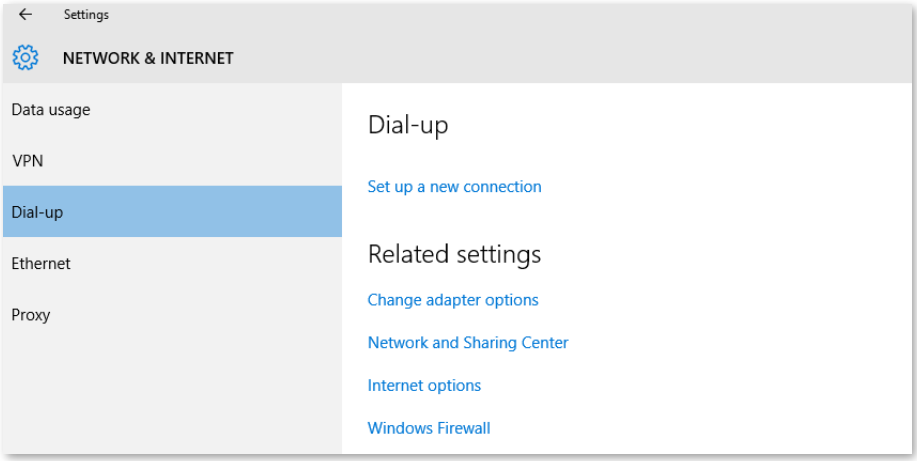
Configure your computer to access the internet according to the parameters provided by your ISP. PPPoE is used for illustration here.

Configuring procedure:

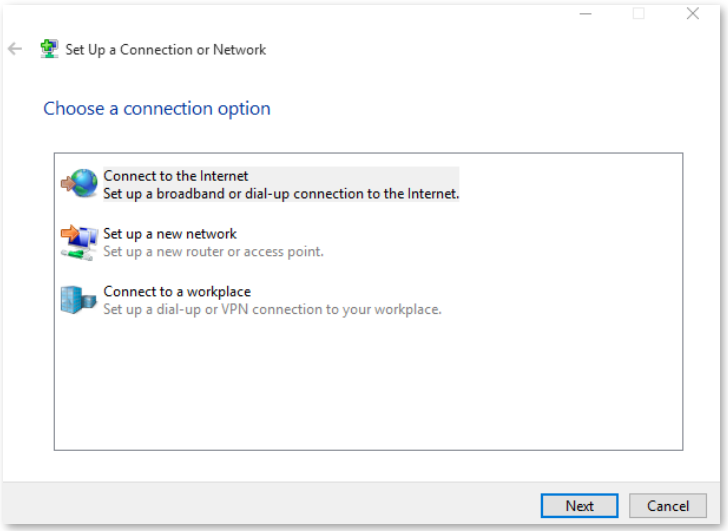
Step 1 Connect your computer to a LAN port of the ONT.

Step 2 Right-click on the desktop and choose **Network Connections**.

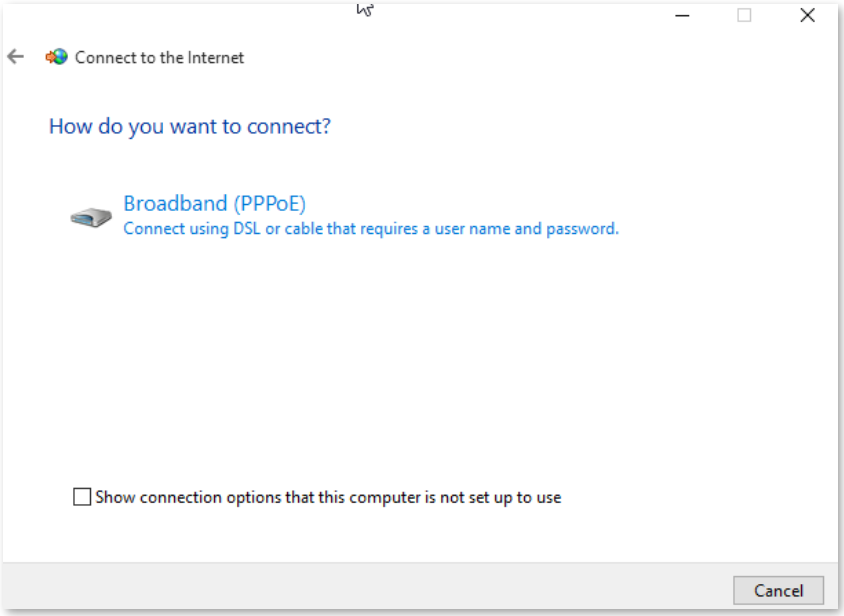
Step 3 Choose **Dial-up** and click **Set up a new connection**.



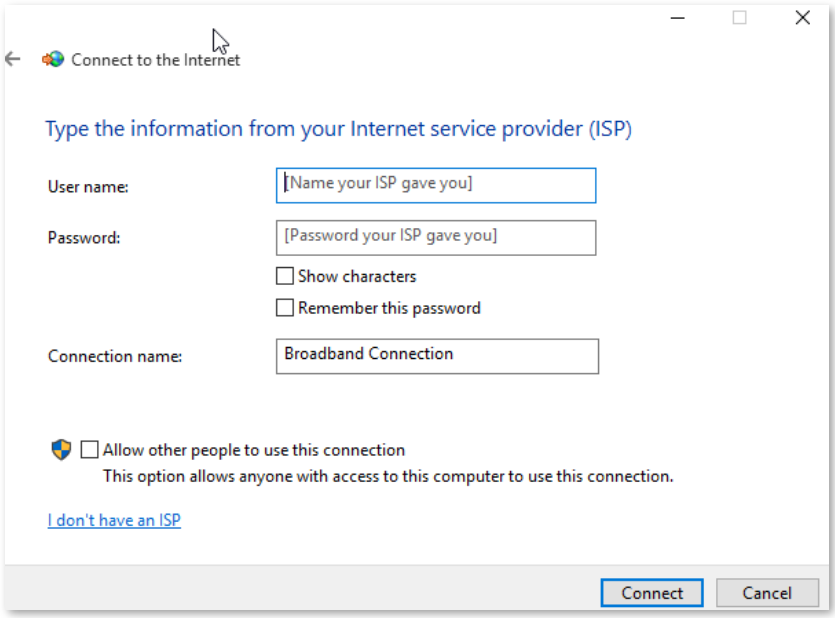
Step 4 Click **Connect to the Internet** and click **Next**.



Step 5 Click **Broadband (PPPoE)**.



Step 6 Enter the PPPoE **User name** and **Password** provided by your ISP and click **Connect**.



---End

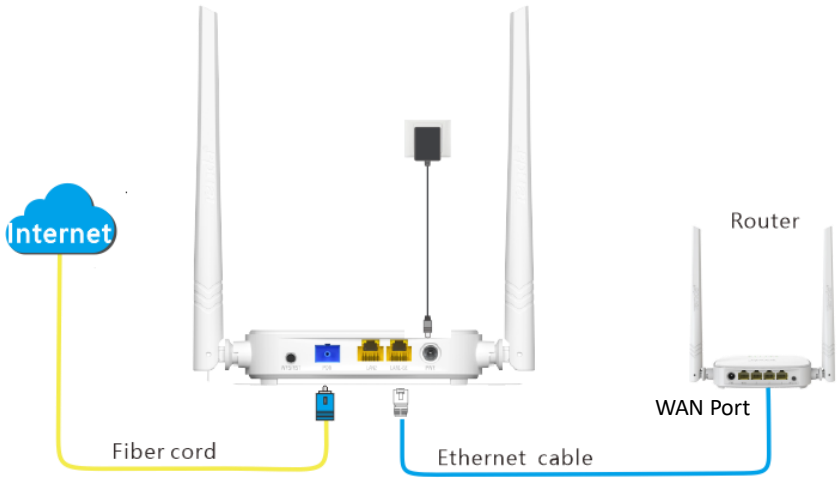
After the configuration, you can access the internet on the computer.

6.2.2 Configure internet access on a router

Assume that your ISP provides you with the PPPoE user name and password.

Configuring procedure:

Step 1 Connect the WAN port of router to a LAN port of the ONT using an Ethernet cable.



Step 2 Refer to the quick installation guide or user guide of your router to configure the internet access.

---End

After the configuration, you can access the internet through the router.

6.3 Router mode

If you want to set up WAN connections for one or multiple services on the ONT, and access the WAN connection through both the Wi-Fi networks of the ONT and LAN ports, you can set the ONT to router mode. Based on the information provided by your ISP, you need to complete different configurations on the web UI.

6.3.1 Set up a fixed IP connection

When your ISP provides fixed IP address (IPv4 or IPv6, or both) information, which may include the IP address, subnet mask and DNS server, you can set up a fixed IP connection.

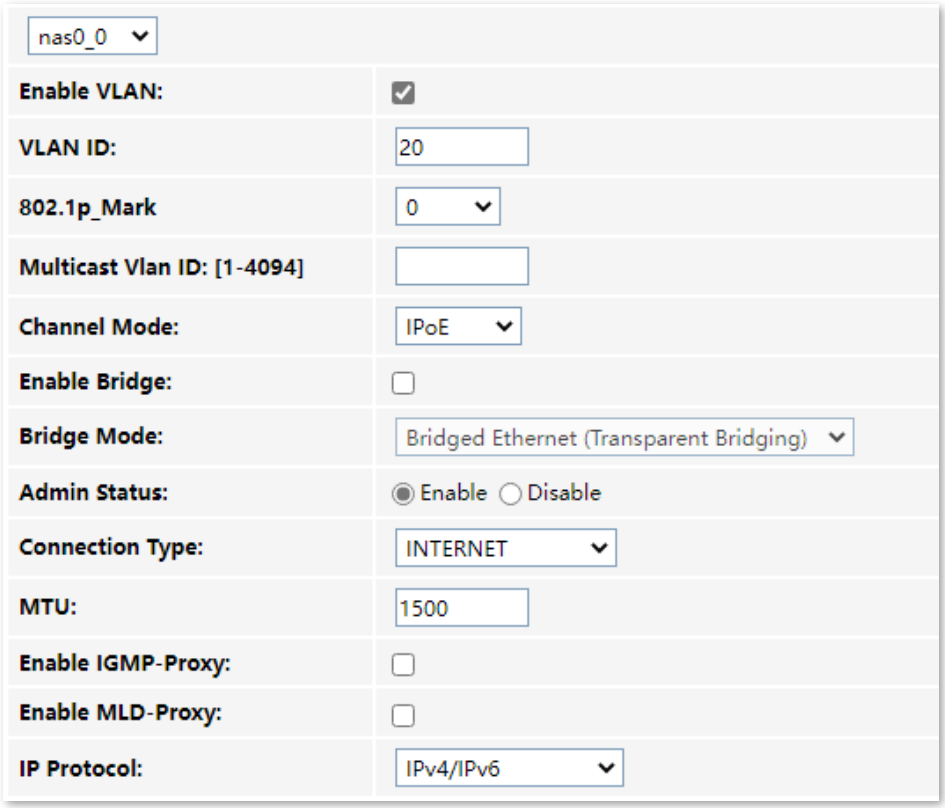
Configuring procedure:

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

Step 2 Choose **WAN** > **PON WAN**.

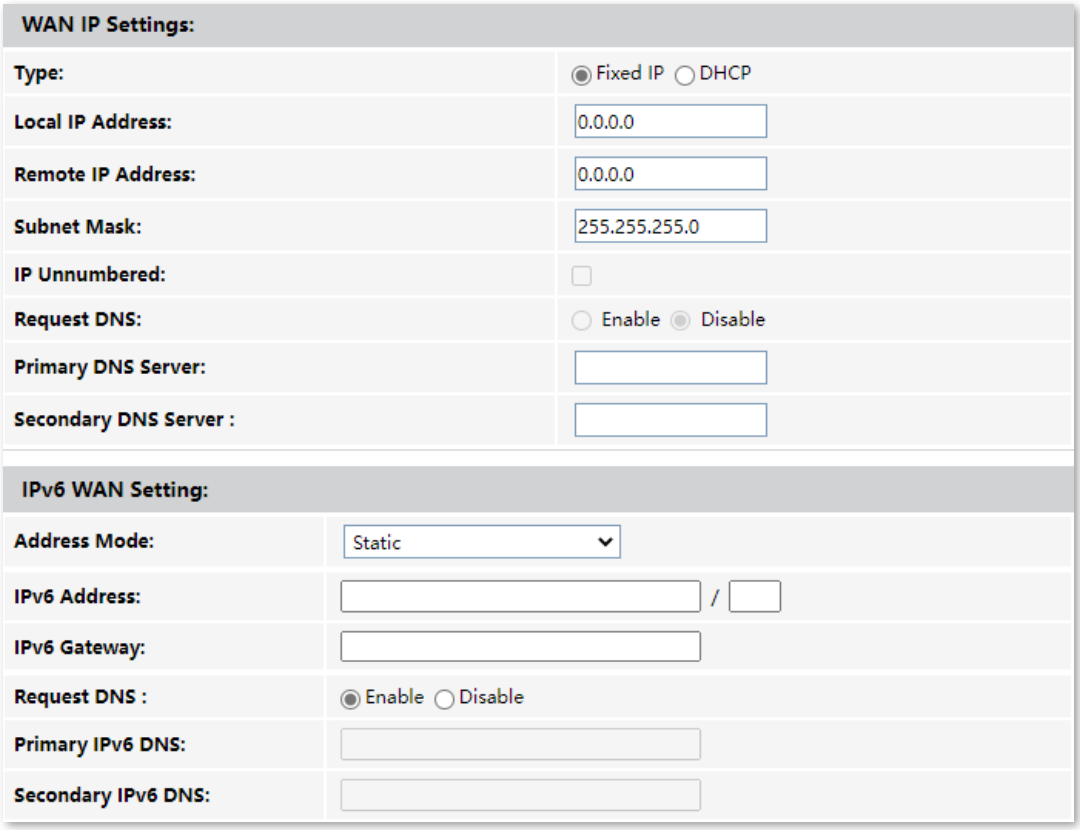
Step 3 Set **Channel Mode** to **IPoE**.

Step 4 Set other common WAN parameters as required by your ISP.

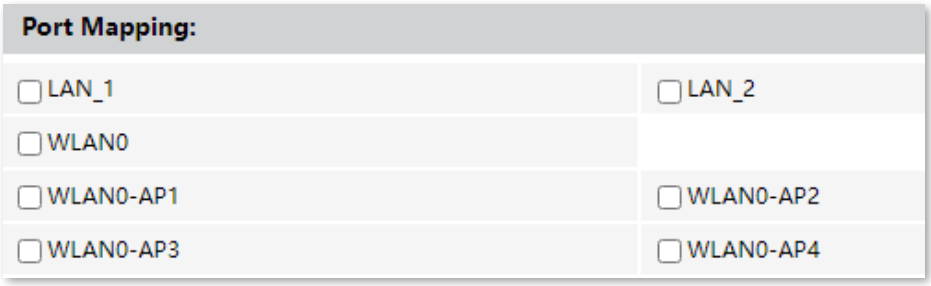


Step 5 Configure **WAN IP Settings** or/and **IPv6 WAN Setting** based on the IP protocol you choose.

- In the **WAN IP Settings** part, set **Type** to **Fixed IP** and configure other parameters as required.
- In the **IPv6 WAN Setting** part, set **Address Mode** to **Static** and configure other parameters as required.



Step 6 (Optional) Configure **Port Mapping** as required.



Step 7 Click **Apply Changes**.

---End

After the configuration, you can access the internet through the LAN ports or Wi-Fi networks of the ONT, or by connecting a router (connection type: DHCP/dynamic IP) to a LAN port of the ONT.

6.3.2 Set up a dynamic IP connection

If your ISP does not provide any parameters, you can try to set up a DHCP connection.

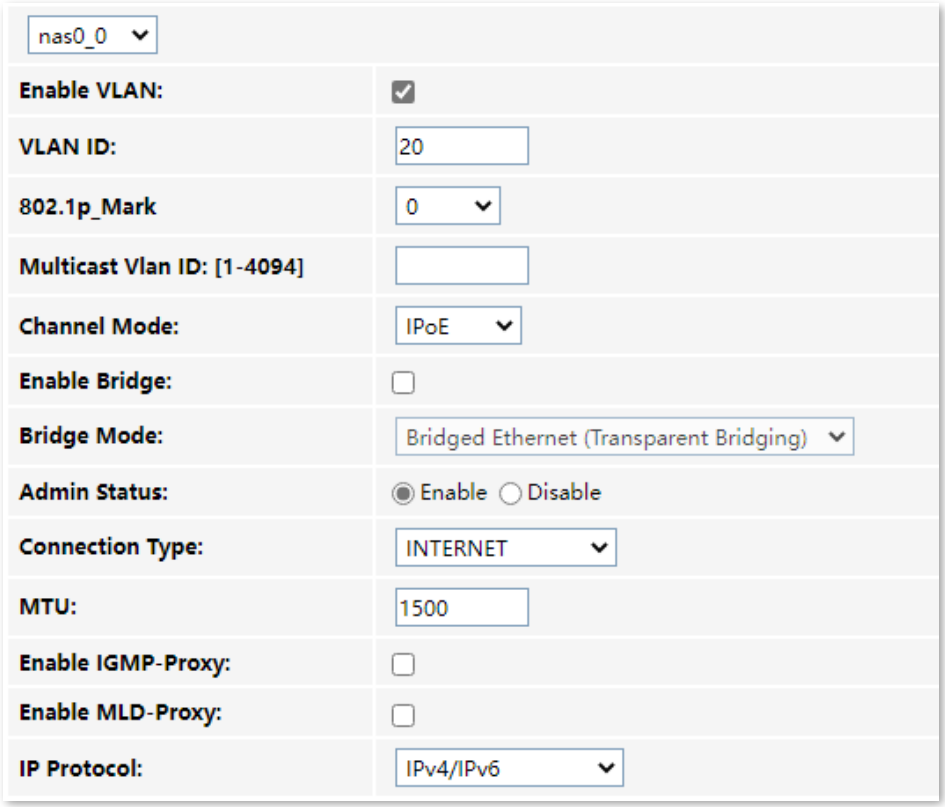
Configuring procedure:

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

Step 2 Choose **WAN** > **PON WAN**.

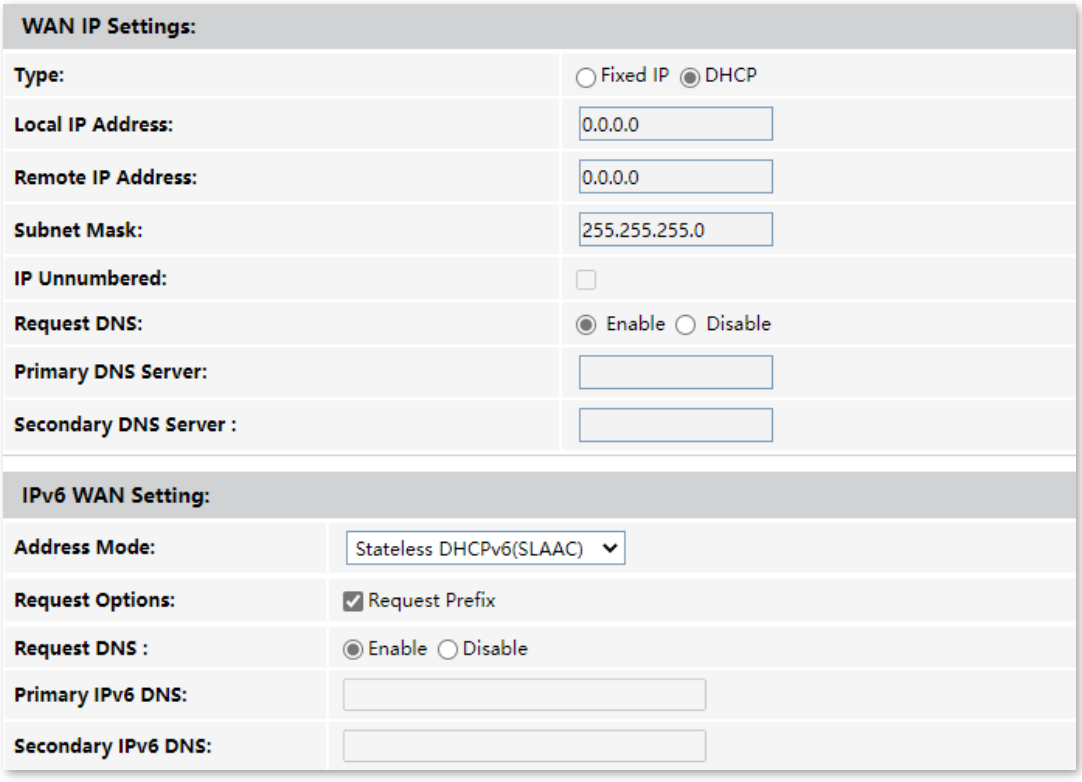
Step 3 Set **Channel Mode** to **IPoE**.

Step 4 Set other common WAN parameters as required by your ISP.

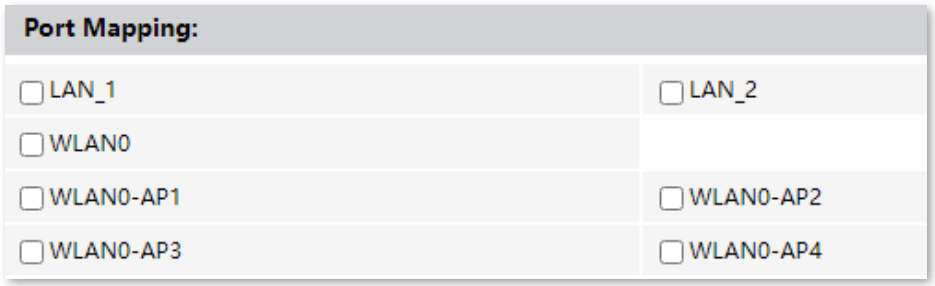


Step 5 Configure **WAN IP Settings** or/and **IPv6 WAN Setting** based on the IP protocol you choose.

- In the **WAN IP Settings** part, set **Type** to **DHCP** and configure other parameters as required.
- In the **IPv6 WAN Setting** part, set **Address Mode** to **Stateless DHCPv6(SLAAC)** and configure other parameters as required.



Step 6 (Optional) Configure **Port Mapping** as needed.



Step 7 Click **Apply Changes**.

---End

After the configuration, you can access the internet through the LAN ports or Wi-Fi networks of the ONT, or by connecting a router (connection type: DHCP/dynamic IP) to a LAN port of the ONT.

6.3.3 Set up a PPPoE connection

If your ISP provides the PPPoE user name, password, and other related parameters (if any), you can set up a PPPoE connection.

Configuring procedure:

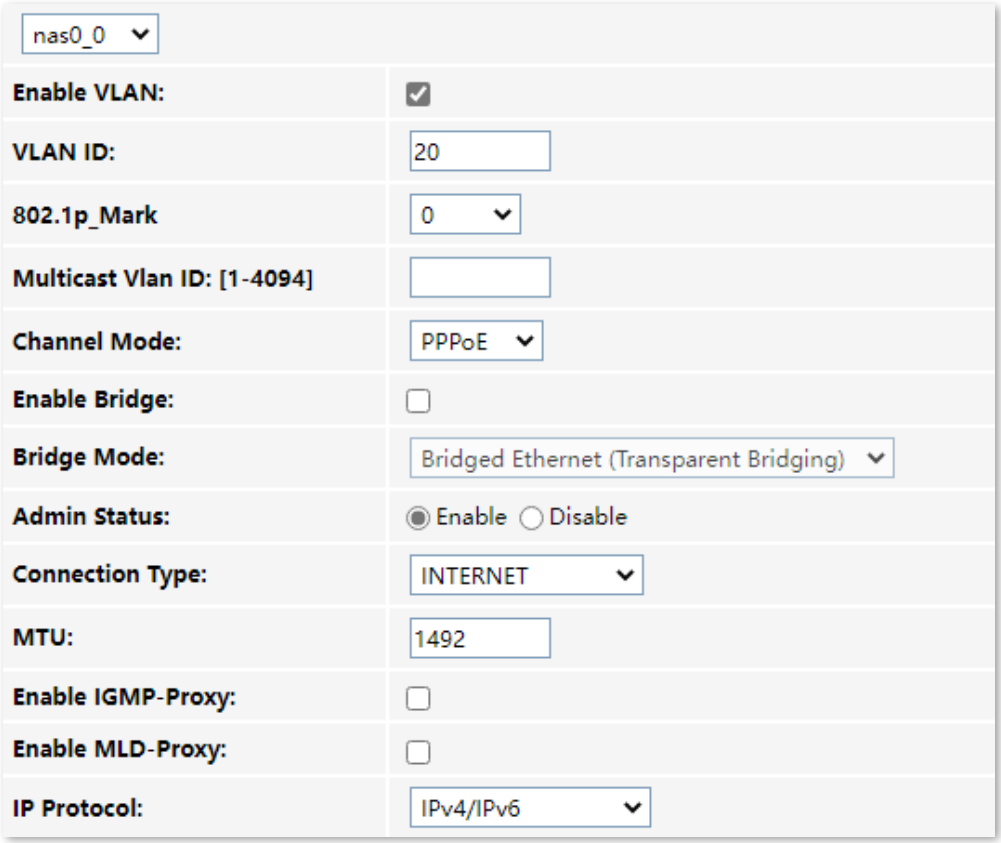
Step 1 Log in to the web UI of the ONT.

Step 2 Choose **WAN** > **PON WAN**.

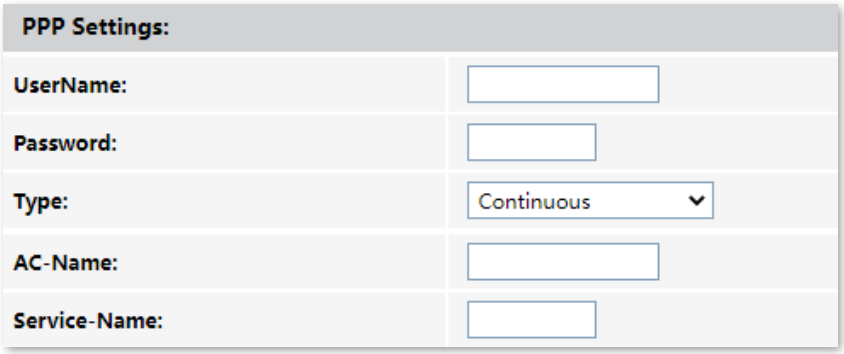
Step 3 Set **Channel Mode** to **PPPoE**.

Step 4 Choose an **IP Protocol** in the drop-down list.

Step 5 Set other common WAN parameters as required by your ISP.

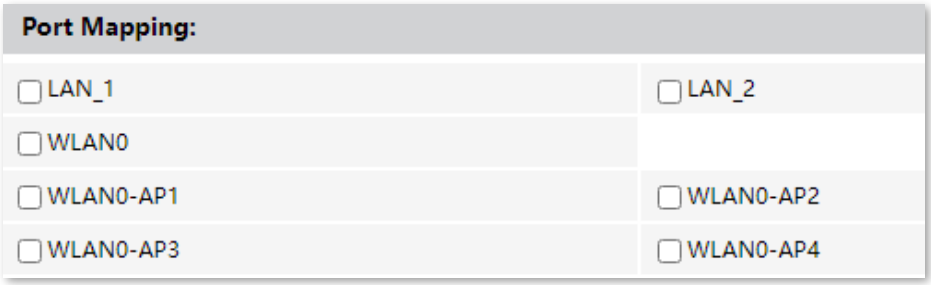


Step 6 Enter the PPPoE **UserName** and **Password** provided by your ISP in **PPP Settings**.



Step 7 (Optional) If you set **IP Protocol** to **IPv6** or **IPv4/IPv6**, enter required parameters in **IPv6 WAN Setting**.

Step 8 (Optional) Configure **Port Mapping** as needed.



Step 9 Click **Apply Changes**.

---End

After the configuration, you can access the internet through the LAN ports or Wi-Fi networks of the ONT, or by connecting a router (connection type: DHCP/dynamic IP) to a LAN port of the ONT.

6.3.4 Set up a 6rd connection

When you want to access a certain IPv6 network or service of your service provider through an IPv4 network and you are provided with related parameters, you can set up a 6rd connection.

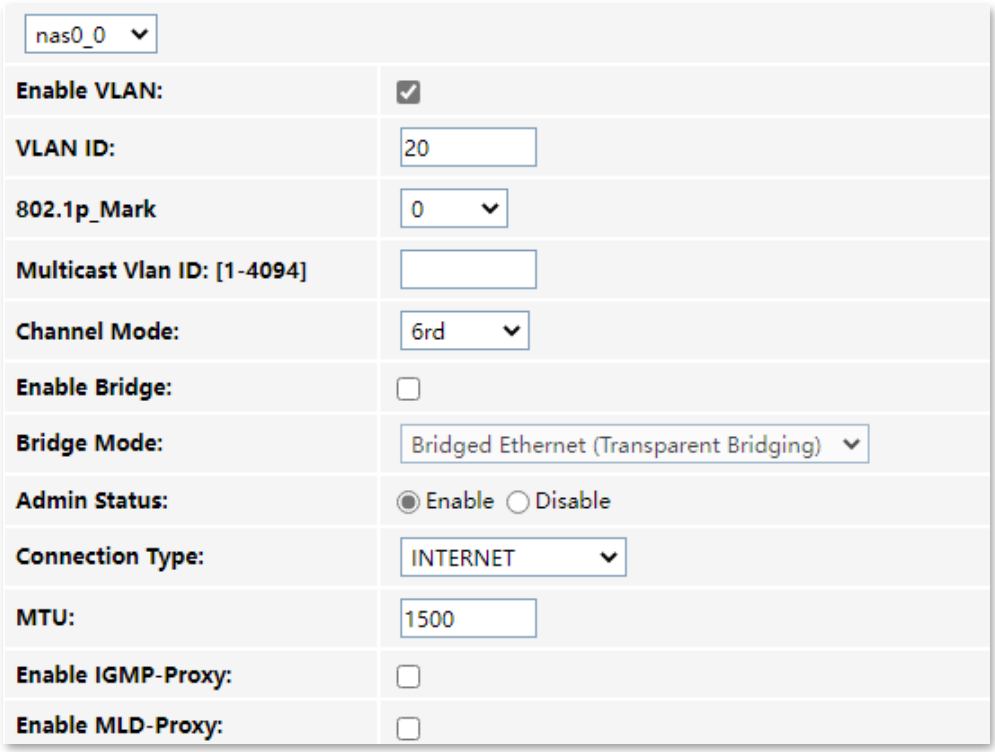
Configuring procedure:

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

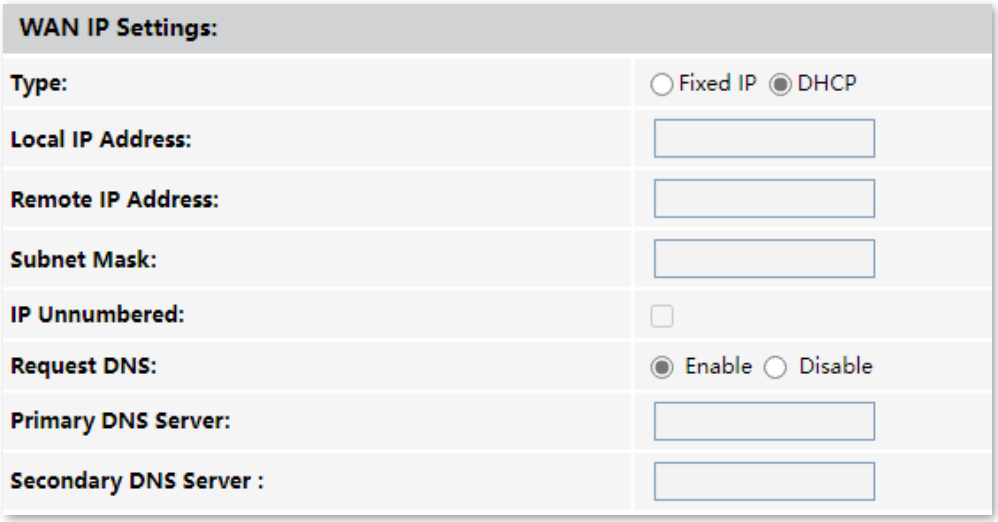
Step 2 Choose **WAN** > **PON WAN**.

Step 3 Set **Channel Mode** to **6rd**.

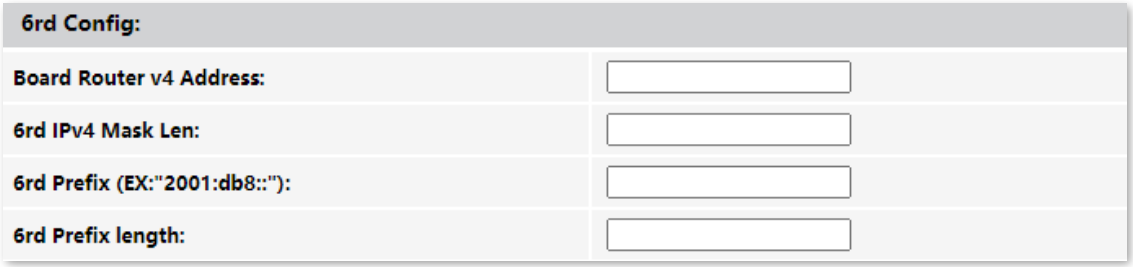
Step 4 Set other common WAN parameters as required by your ISP.



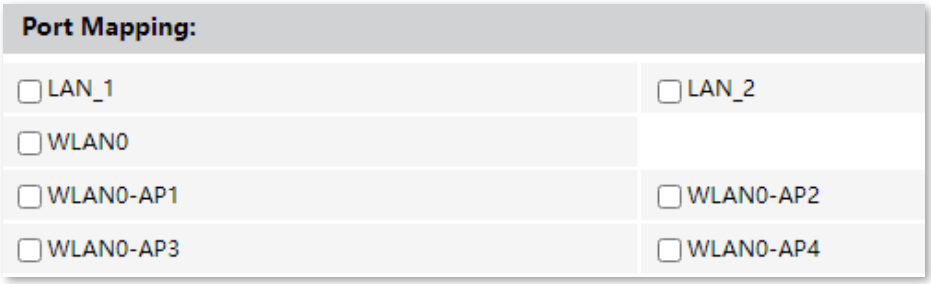
Step 5 Set parameters in the **WAN IP Settings** part using the parameters provided by your ISP.



Step 6 Set parameters in the **6rd Config** part using the parameters provided by your ISP.



Step 7 (Optional) Configure **Port Mapping** as required.



Step 8 Click **Apply Changes**.

---End

After the configuration, you can access the internet through the LAN ports or Wi-Fi networks of the ONT, or by connecting a router (connection type: DHCP/ dynamic IP) to a LAN port of the ONT.

7 Services

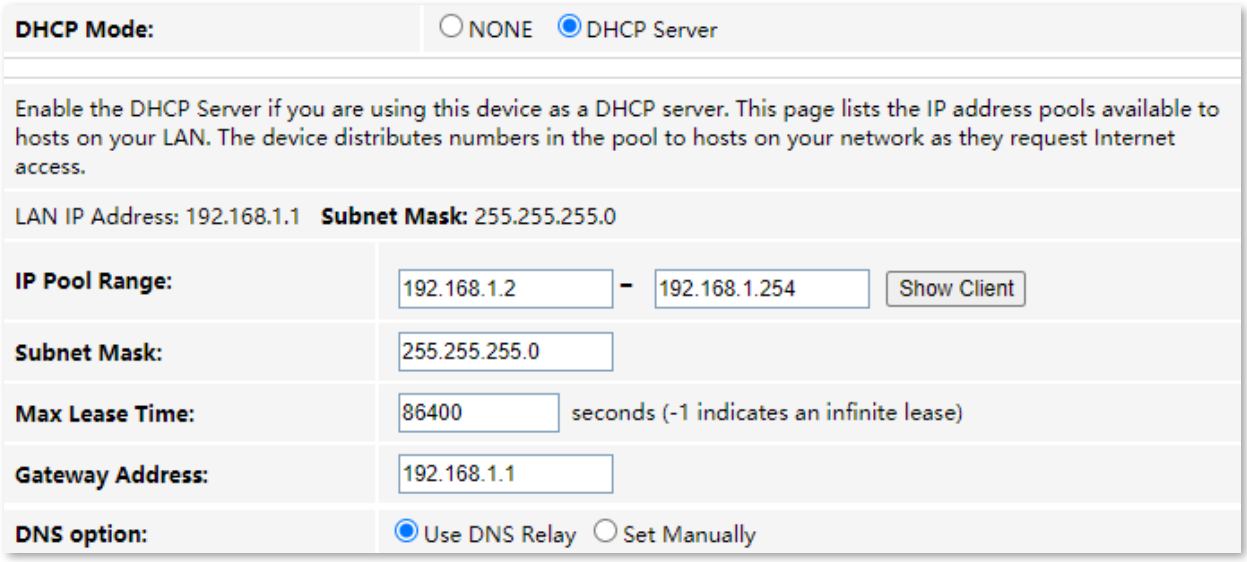
7.1 Service

7.1.1 DHCP

Overview

The DHCP server can automatically assign IP addresses, subnet masks, gateway addresses and DNS to LAN clients. When it is disabled, you need to manually configure the IP address information on the LAN device to access the internet. Disable it only when necessary.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Service** > **DHCP**.



Parameter description

Parameter	Description
DHCP Mode	It specifies the status of the DHCP server. • **NONE**: The DHCP server is disabled. • **DHCP Server**: The DHCP server is enabled.
LAN IP address	It specifies the current LAN IP address of the ONT, which is also the IP address used to log in to the web UI of the ONT.
Subnet Mask	It specifies the current subnet mask of the LAN.
IP Pool Range	It specifies the range of IP addresses that a DHCP server can assign to LAN clients.

Parameter	Description
Show Client	It shows information of the active DHCP clients, including: • **IP Address**: It specifies the IP address assigned to the DHCP leased client. • **MAC Address**: It specifies the MAC address of the DHCP leased client. • **Expired Time (sec)**: It specifies the time expired for the DHCP leased client.
Subnet Mask	It specifies the subnet mask of the DHCP clients.
Max Lease Time	It specifies the valid time of the IP addresses assigned by the DHCP server of the ONT to the DHCP clients.
Gateway Address	It specifies the gateway IP address of DHCP clients.
DNS option	It specifies how the ONT assigns DNS server addresses to LAN clients. • **Use DNS Relay**: The ONT forwards the DNS query packets from LAN clients to an external DNS server. • **Set Manually**: You need to set the DNS server address manually. You can set three DNS servers at most, and at least one is required.
MAC-Based Assignment	It is used to assign fixed IP addresses to certain LAN clients based on their MAC addresses. Devices with the MAC address connected to the ONT get the same IP address every time. TIP Please note the format of the MAC address. Use "-" to separate every two characters in the MAC address.

Reserve IP addresses for certain devices

Scenario: You have an FTP server at home under the LAN of the ONT.

Requirement: You want to visit resources on the FTP server when you are not at home and avoid instability of services resulted from the dynamic IP address assigned by the ONT.

Solution: You can reserve a fixed IP address for the FTP server to reach the goal.

Assume that:

- Fixed IP address reserved for the FTP server: 192.168.1.136
- MAC address of the FTP server host: D4:61:DA:1B:CD:89

Configuring procedure:

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

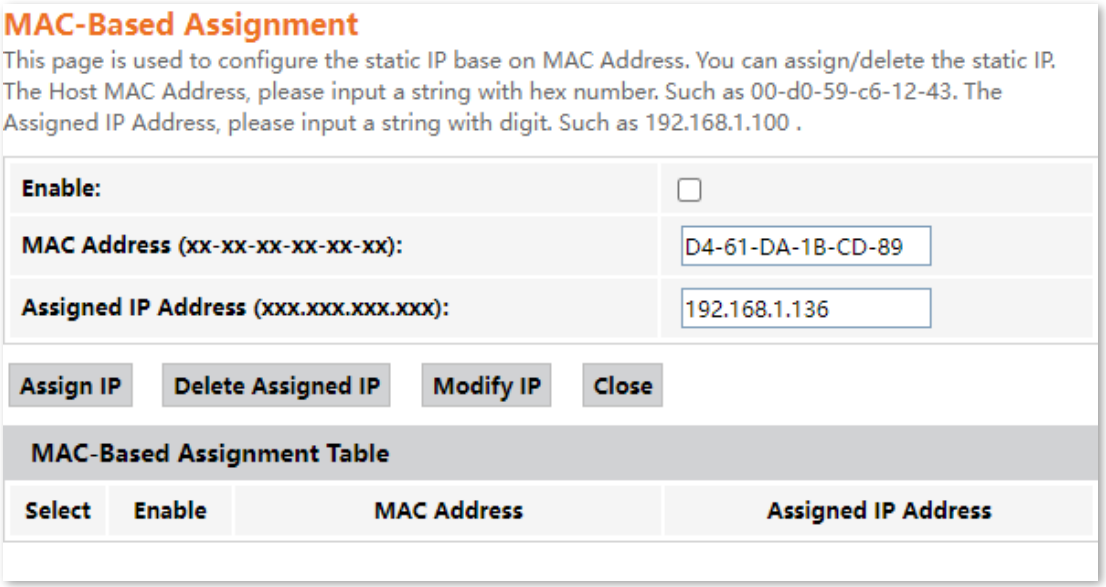
Step 2 Choose **Services** > **Service** > **DHCP**.

Step 3 Click **MAC-Based Assignment**.

Step 4 Set **MAC Address** in the format of **D4-61-DA-1B-CD-89**.

Step 5 Enter **192.168.1.136** in **Assigned IP Address**.

Step 6 Click **Assign IP**.



----End

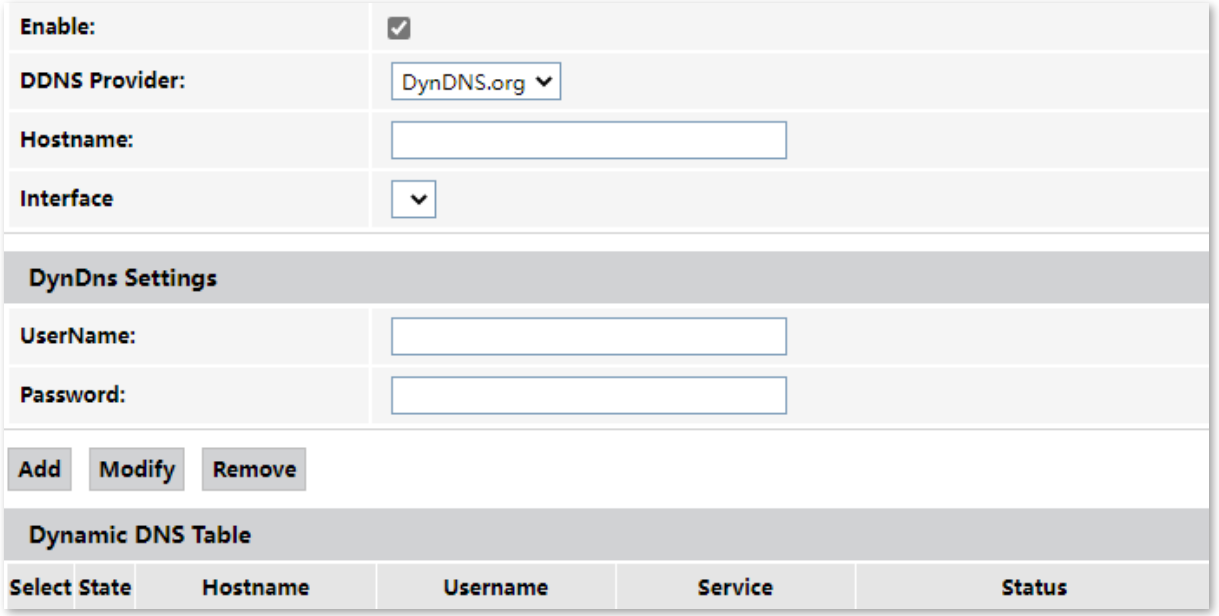
Now you can access resources on the FTP server free from the influence of the dynamic IP address.

7.1.2 Dynamic DNS

Overview

The Dynamic DNS (DDNS) maps the WAN IP address (changeable public IP address) of the ONT to a domain name for dynamic domain name resolution. This ensures proper operation of functions that involve the WAN IP address of the ONT, such as port forwarding and DMZ.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Service** > **Dynamic DNS**.



Parameter description

Parameter		Description
Enable		It specifies whether the rule takes effect after being added.
DDNS Provider		It specifies the DDNS service provider. The ONT supports **DynDNS.org** and **NO-IP**. You need to register and purchase services from one of these service providers and use the parameters provided by the service provider to configure the function on the ONT.
Hostname		It specifies the hostname registered with the DDNS service.
Interface		It specifies the WAN interface on which the dynamic DNS rule takes effect.
DynDns Settings	UserName	They specify the user name and password registered on a DDNS service provider for logging in to the DDNS service.
	Password	
Add/Modify/Remove		• **Add**: It is used to add a new dynamic DNS rule. • **Modify**: It is used to modify existing dynamic DNS rules. • **Remove**: It is used to delete existing dynamic DNS rules.

Enable internet users to access LAN resources using a domain name

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

Goal: Open the FTP server to internet users and enable yourself to access the resources of the FTP server from the internet using a domain name when you are not at home.

Solution: You can configure the DDNS plus port forwarding functions to reach the goal.

Assume that the information of the FTP server includes:

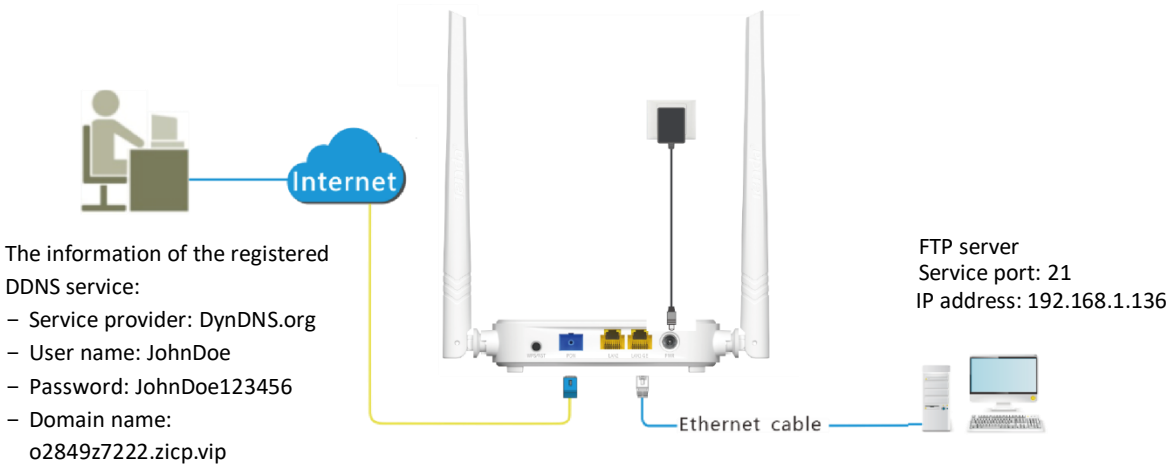
- IP address: 192.168.1.136
- Service port: 21

The information of the registered DDNS service:

- Service provider: DynDNS.org
- User name: JohnDoe
- Password: JohnDoe123
- Domain name: o2849z7222.zicp.vip

TIP

Please ensure that the ONT obtains a public IP address. 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 to 172.31.255.255. Private IP addresses of class C range from 192.168.0.0 to 192.168.255.255.

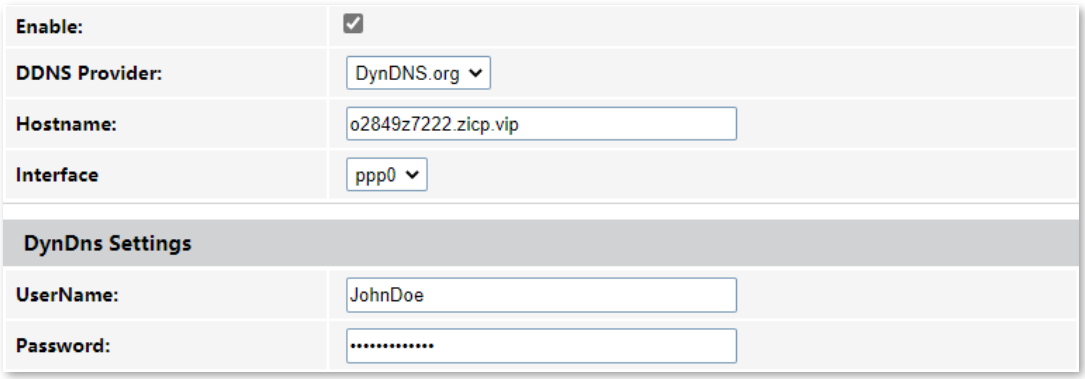


Configuring procedure:

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

Step 2 Add a Dynamic DNS rule.

1. Choose **Services** > **Service** > **Dynamic DNS**.
2. Select **Enable**.
3. Choose a service provider in **DDNS Provider**, which is **DynDNS.org** in this example.
4. Enter the **Hostname**, which is **o2849z7222.zicp.vip** in this example.
5. Select the WAN interface that the port forwarding rule applies to.
6. Enter the user name and password in the **DynDns Settings** part, which are **JohnDoe** and **JohnDoe123456** in this example.
7. Click **Add**.



Step 3 Configure the port forwarding function (refer to port forwarding).

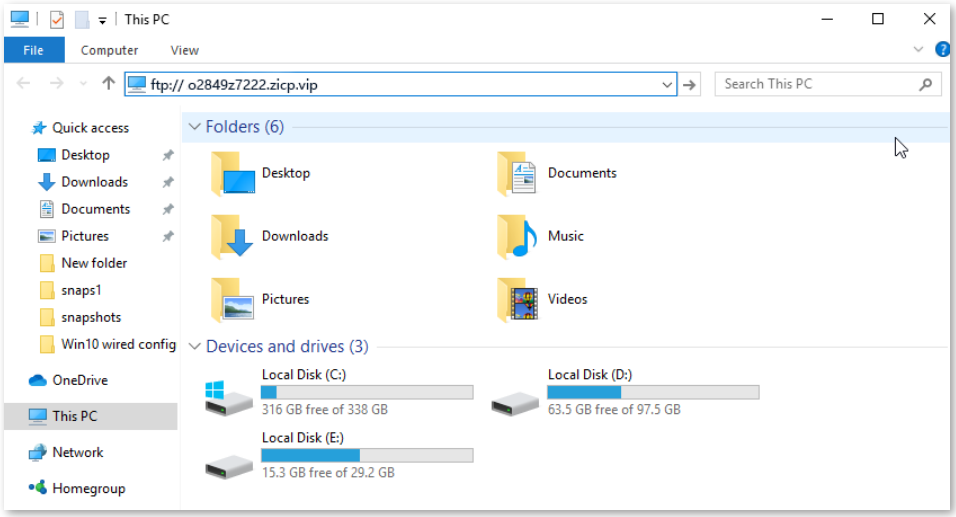
---End

After the configuration, users from the internet can access the FTP server by visiting "*Intranet service application layer protocol name*://*Domain name*". If the remote port number is not the same as the default intranet service port number, the accessing address should be: "*Intranet service application layer protocol name*://*Domain name*:*Remote port number*".

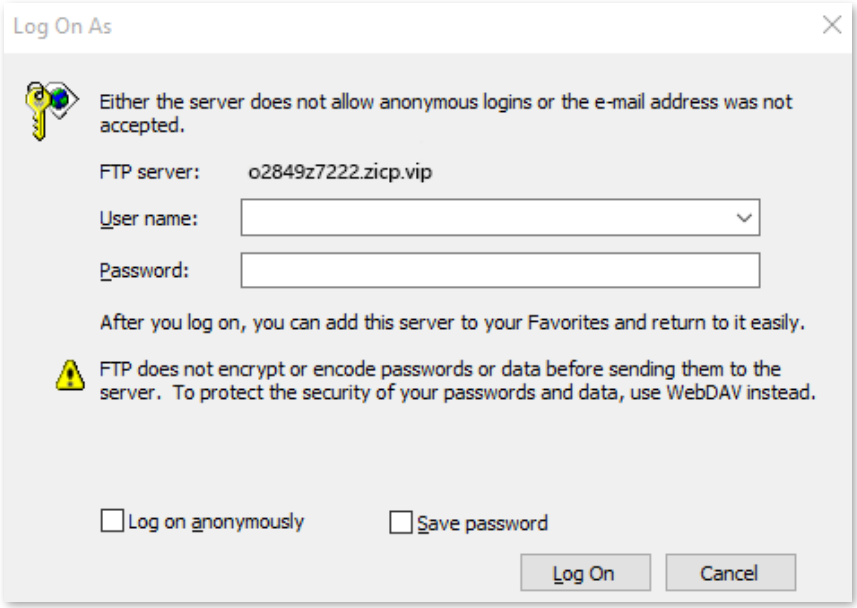
In this example, the address is **ftp://o2849z7222.zicp.vip**.

To access the FTP server from the internet with a domain name:

Open the file explorer on a computer that can access the internet, and visit **ftp://o2849z7222.zicp.vip**.



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



TIP

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

- Ensure that the local port number configured in the port forwarding function is the same as the intranet 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.

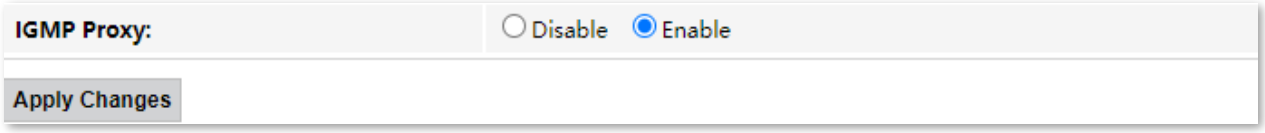
7.1.3 IGMP Proxy

IGMP proxy enables a device to issue IGMP host messages on behalf of its users, and reduces IGMP messages and the load for uplink device. The ONT with IGMP proxy enabled intercepts and processes the IGMP messages of its users, and then forward them to its uplink device. It assumes the role of router on the user side, queries user information regularly, and assumes the role of client on the network routing side, and sends the current user information to it when needed. Therefore, a multicast routing table is formed in the ONT with IGMP Proxy enabled.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Service** > **IGMP Proxy**.

TIP

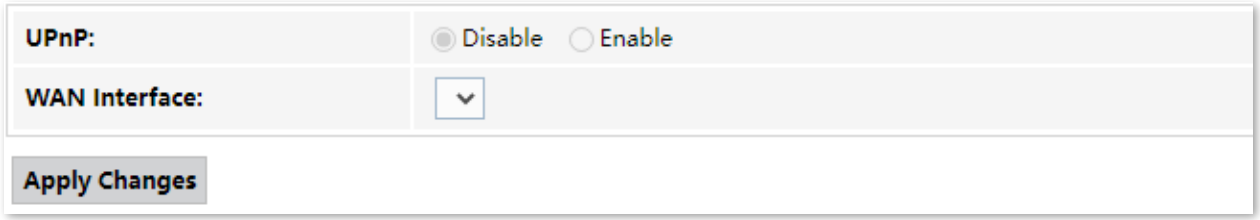
The IGMP proxy function can only be edited when there is at least one WAN connection with IGMP proxy enabled.



7.1.4 UPnP

UPnP is short for Universal Plug and Play. This function enables the ONT to 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 ONT and choose **Services** > **Service** > **UPnP**.



7.2 Firewall

7.2.1 ALG

Application Layer Gateway (ALG) is a software component that manages specific application protocols such as Session Initiation Protocol (SIP) and File Transfer Protocol (FTP). The ALG acts as an intermediary between the internet and an application server and allows or denies traffic of certain types to the application server. It does this by intercepting and analyzing the specified traffic, allocating resources, and defining dynamic policies to allow traffic to pass through.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Firewall** > **ALG**.

Parameter description

Parameter	Description
FTP	The File Transfer Protocol (FTP) is a standard network protocol used for the transfer of computer files between a client and server on a computer network. The users on LAN can share resources on the FTP server on WAN only when it is selected.
TFTP	The Trivial File Transfer Protocol (TFTP) is a simple file transfer protocol that allows a client to get a file from or put a file onto a remote host.
H323	H.323 is a recommendation from the ITU Telecommunication Standardization Sector (ITU-T) that defines the protocols to provide audio-visual communication sessions on any packet network. The H.323 standard addresses call signaling and control, multimedia transport and control, and bandwidth control for point-to-point and multi-point conferences. The IP phone and network conference function can be used on the computers connected to the ONT only when this function is enabled.
RTSP	The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. The protocol is used for establishing and controlling media sessions between end points. The users on LAN can view videos on demand when this function is enabled.

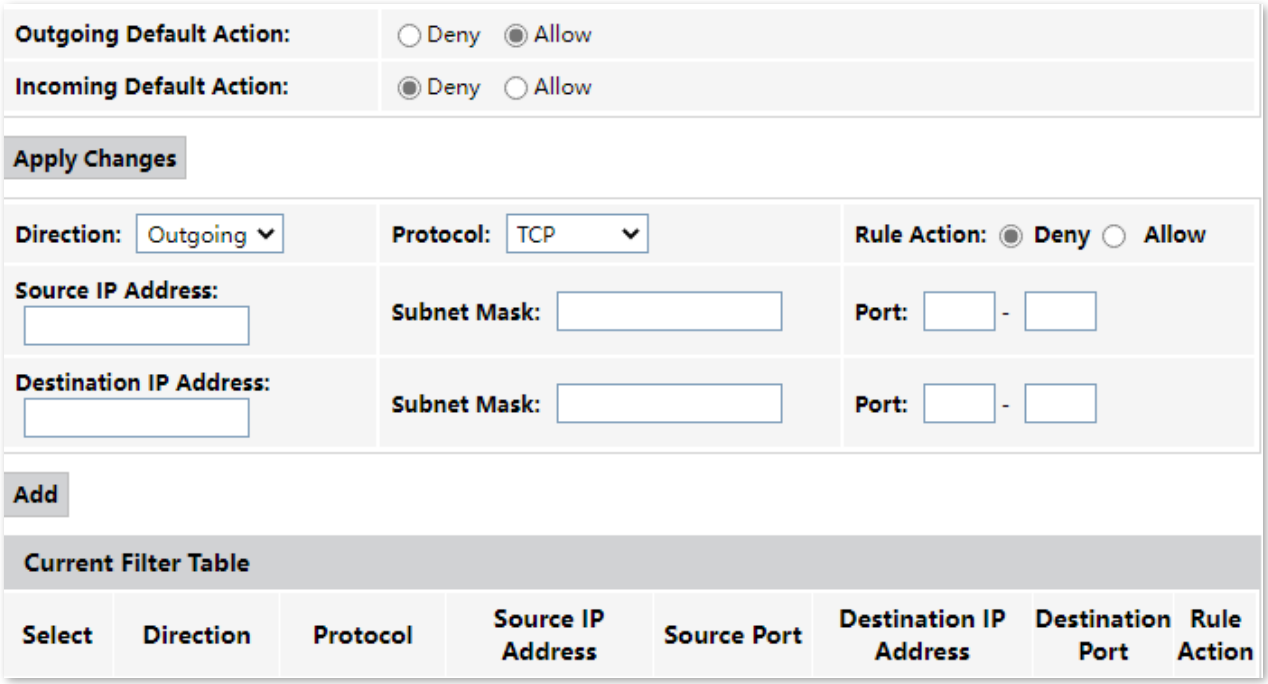
Parameter	Description
L2TP	The Layer Two Tunneling Protocol (L2TP) is an extension of the Point-to-Point Tunneling Protocol (PPTP) used by an Internet Service Provider (ISP) to enable the operation of a Virtual Private Network (VPN) over the Internet. If you select L2TP protocol when you create a VPN connection on your computer in the LAN of the ONT, it takes effect only when this function is enabled.
IPSec	The Internet Protocol Security (IPsec) is a secure network protocol suite that authenticates and encrypts the packets of data to provide secure encrypted communication between two computers over an IP network. It is used in Virtual Private Networks (VPNs). If you select IPsec protocol when you create a VPN connection on your computer in the LAN of the ONT, it takes effect only when this function is enabled.
SIP	The Session Initiation Protocol (SIP) is a signaling protocol used for signaling and controlling multimedia communication sessions in applications of internet telephony for voice and video calls, in private IP telephone systems, in instant messaging over IP networks as well as mobile phone calling over LTE (VoLTE). The IP phone function can be used on the computers connected to the ONT only when this function is enabled.
PPTP	The Point-to-Point Tunneling Protocol (PPTP) is an obsolete method for implementing virtual private networks. PPTP has many well-known security issues. If you select the PPTP protocol when you create a VPN connection on your computer in the LAN of the ONT, it takes effect only when this function is enabled.

7.2.2 IP/Port filtering

In this section, you can configure filtering rules to restrict certain types of data packets from passing through the ONT. The use of such filters can be helpful in securing or restricting your local network.

- LAN→WAN: By default, all outgoing traffic from LAN is allowed, but some can be blocked by specific filtering rules. Outgoing filtering rules can block outgoing traffic by some conditions.
- WAN→LAN: By default, all incoming traffic is blocked. However, some traffic can access by specific filtering rules. The incoming filtering rules allow traffic to pass in some conditions.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Firewall** > **IP/Port Filtering**. The rules added are shown in the **Current Filter Table**.



Parameter description

Parameter	Description
Outgoing Default Action	They specify the default action for the outgoing (LAN→WAN) or incoming (WAN→LAN) data.
Incoming Default Action	• **Deny**: Denies traffic which does not match the filter rule in the **Current Filter Table**. • **Allow**: Allows traffic which does not match the filter rule in the **Current Filter Table**.
Direction	It specifies the forwarding direction of data to be filtered.
Protocol	It specifies the protocol adopted by packets to be filtered. • **TCP**: TCP protocol. • **UDP**: UDP protocol. • **ICMP**: ICMP protocol. • **TCP/UDP**: TCP protocol and UDP protocol. • **ANY**: Any protocol.
Rule Action	It specifies whether to deny or allow the data to pass through. • **Deny**: Packets that comply with the rule are denied, while others are treated with the default action. • **Allow**: Only packets that comply with the rule are allowed, while others are treated with the default action.
Source IP Address	It specifies the source IP address of the packets. The settings of **Source IP Address** and **Subnet Mask** determine which computers are affected by this rule. • When **Direction** is set to **Outgoing**, this parameter specifies the LAN computer's IP address to be affected. • When **Direction** is set to **Incoming**, this parameter specifies the internet computer's IP address to be affected. • When this parameter is left blank, all IP addresses are covered.

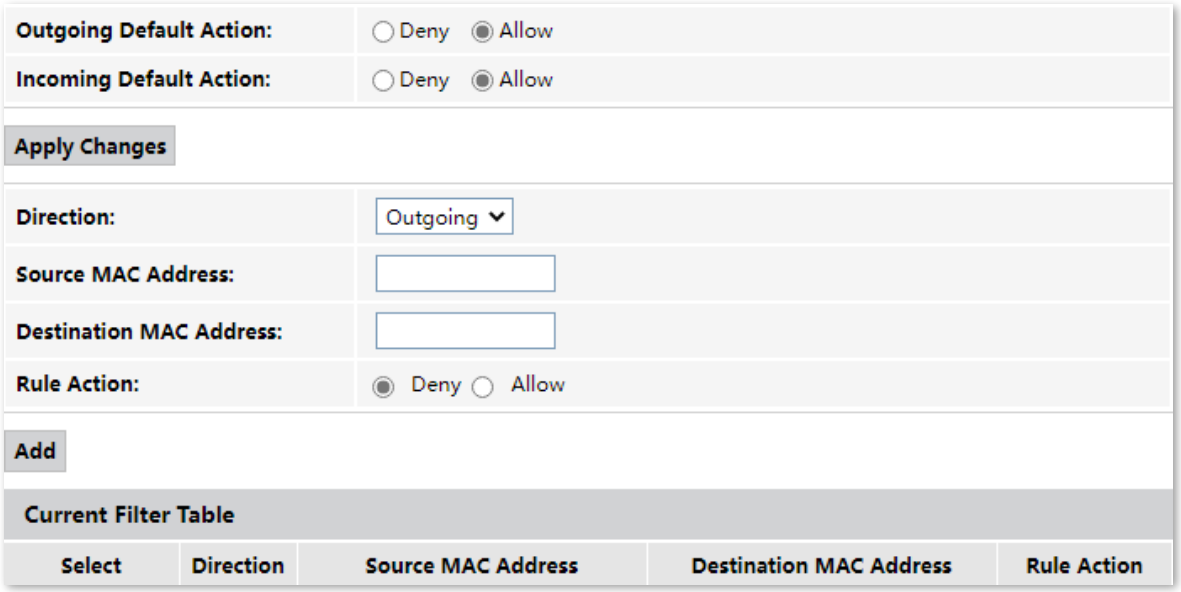
Parameter	Description
Subnet Mask	It specifies the subnet mask of the source IP address.
Port	It specifies the source port of the packets. The source port is only available for the TCP/UDP protocol. If **ICMP** or **ANY** is selected for **Protocol**, this field is not required. TIP Since the source port of the data packet is changeable, it is recommended that the port be set to 1 to 65535 or left blank.
Destination IP Address	It specifies the destination IP address of the packets. The settings of **Destination IP Address** and **Subnet Mask** determine which servers are affected by this rule. • When **Direction** is set to **Outgoing**, this parameter specifies the internet server's IP address to be affected. • When **Direction** is set to **Incoming**, this parameter specifies the LAN server's IP address to be affected. • When this parameter is left blank, all IP addresses are covered.
Subnet Mask	It specifies the subnet mask of the destination IP address. The settings of **Destination IP Address** and **Subnet Mask** determine which servers are affected by this rule.
Port	It specifies the destination port of the packets. Its setting determines which services are affected by this rule. The destination port is only available for the TCP and UDP protocol. If **ICMP** or **ANY** is selected for **Protocol**, this field is not required.

7.2.3 MAC filtering

Overview

The MAC filtering function enables you to filter data packets from your local network to the internet to disallow clients with certain MAC addresses to access the internet and helps you to manage your network.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Firewall** > **MAC Filtering**. The rule added are shown in **Current Filter Table**.



Parameter description

Parameter	Description
Outgoing Default Action	They specify the default action for the outgoing or incoming data. • **Deny**: Denies traffic which does not match the filter rule in the **Current Filter Table**. • **Allow**: Allows **traffic** which does not match the filter rule in the **Current Filter Table**.
Incoming Default Action	
Direction	It specifies the forwarding direction of data to be filtered.
Source MAC Address	They specify the source and destination MAC addresses of data packets. You can only enter one source MAC address and destination MAC address in one MAC filtering rule. TIP The MAC address cannot contain any special characters. An example in the correct format is cc3a61711b6e.
Destination MAC Address	
Rule Action	It specifies whether to deny or allow the data to pass through. • **Deny**: Packets that comply with the rule are denied, while others are treated with the default action. • **Allow**: Only packets that comply with the rule are allowed, while others are treated with the default action.

Allow only specified devices to access the internet

Scenario: The Wi-Fi network at 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:B3:04:93	Connected
Family member's phone 1	94:C6:91:29:C2:12	Disconnected
Family member's phone 2	98:9C:57:19:D0:1B	Disconnected

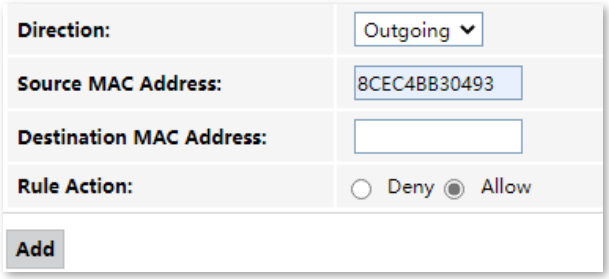
Configuring procedure:

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

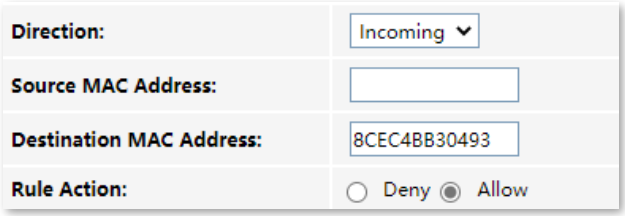
Step 2 Choose **Services** > **Firewall** > **MAC Filtering**.

Step 3 Set both **Outgoing Default Action** and **Incoming Default Action** to **Deny**.

Step 4 Set **Direction** to **Outgoing**. Enter **8CEC4BB30493** in the **Source MAC Address** field, set **Rule Action** to **Allow**, and click **Add**.



Step 5 Set **Direction** to **Incoming**. Enter **8CEC4BB30493** in the **Destination MAC Address** field, set **Rule Action** to **Allow**, and click **Add**.



Step 6 Repeat **Step 4** to **Step 5** to add the other two MAC addresses.

After the MAC addresses are added, they are displayed in **Current Filter Table**.

Current Filter Table

Select	Direction	Source MAC Address	Destination MAC Address	Rule Action
☐	Outgoing	8c-ec-4b-b3-04-93	------	Allow
☐	Outgoing	94-c6-91-29-c2-12	------	Allow
☐	Outgoing	98-9c-57-19-d0-1b	------	Allow
☐	Incoming	------	8c-ec-4b-b3-04-93	Allow
☐	Incoming	------	94-c6-91-29-c2-12	Allow
☐	Incoming	------	98-9c-57-19-d0-1b	Allow

---End

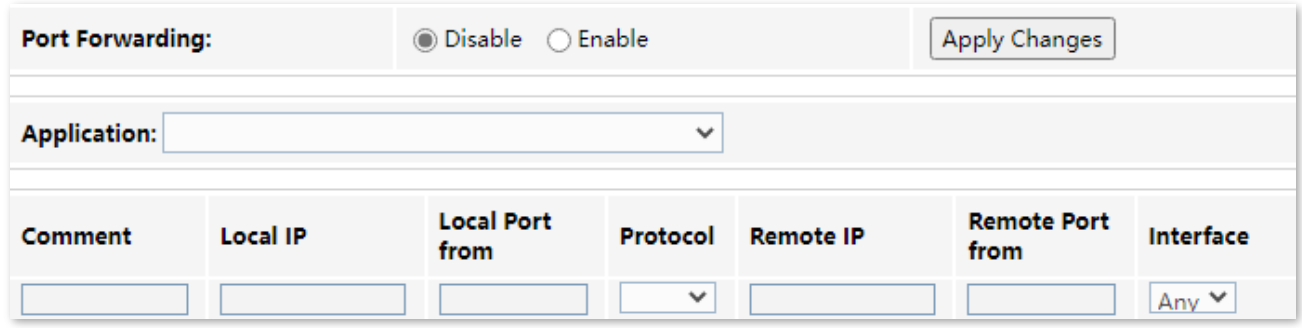
In this example, after the configuration is completed, only the three devices added can access the internet through the ONT.

7.2.4 Port forwarding

Overview

By default, internet users cannot access any service on any of their local hosts. The port forwarding function enables you to open certain ports of a local host to internet users and allow them to access the corresponding services. This function can allow access and prevent the local network from being attacked at the same time.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Firewall** > **Port Forwarding**. The rules added are shown in **Current Port Forwarding Table**.



Parameter description

Parameter	Description
Port Forwarding	It specifies whether to enable the port forwarding function.
Application	It includes some common services. When you choose a service from the list, some parameters of the rule are filled automatically, including **Comment**, **Local Port from**, **Protocol** and **Remote Port from**.
Comment	You can specify a comment for the rule for easy retrieval.
Local IP	It specifies the IP address of the LAN host which runs the service to be accessed.

Parameter	Description
Local Port from	It specifies a port or a range of ports used for the LAN service.
Protocol	It specifies the service protocol. Select **Both** if you are uncertain about the service type.
Remote IP	It specifies the IP address of the host which needs to access the local service. When it is left blank, users with any IP address can access the local server.
Remote Port from	It specifies a port or a range of ports that internet users use to access the local service.
Interface	It specifies the WAN interface through which internet users access the local service.

Enable internet users to access local services

Scenario: You have set up an 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.

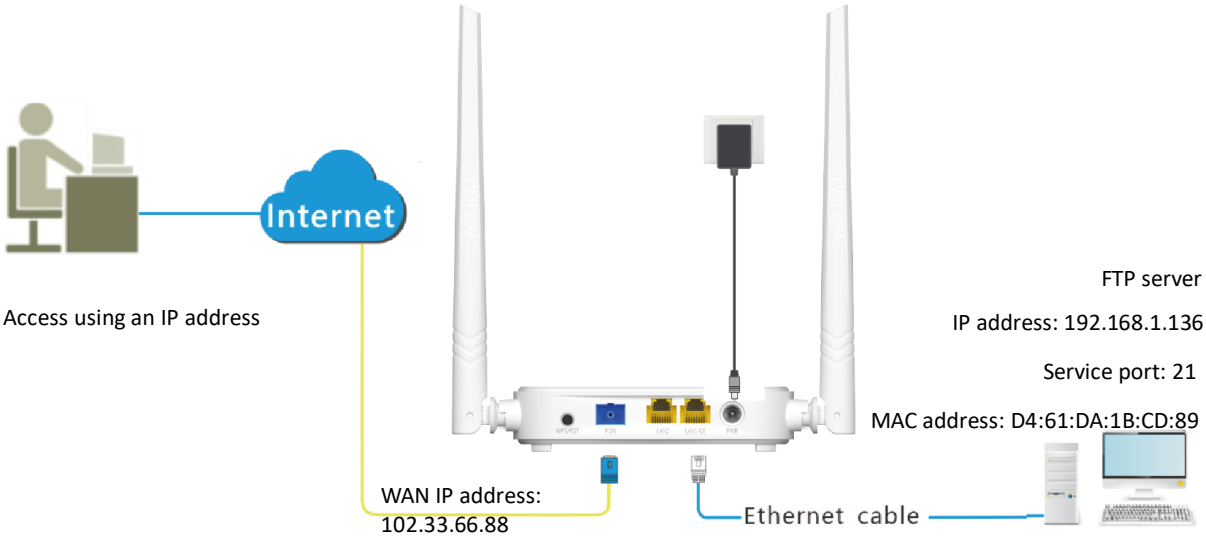
Solution: You can configure the port forwarding function to reach the goal.

Assume that the information of the FTP server includes:

- IP address: 192.168.1.136
- 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 the 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 to 172.31.255.255. Private IP addresses of class C range from 192.168.0.0 to 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 manually change it to an uncommon port number (1024–65535), such as 9999.
- The LAN port number can be different from the WAN port number.

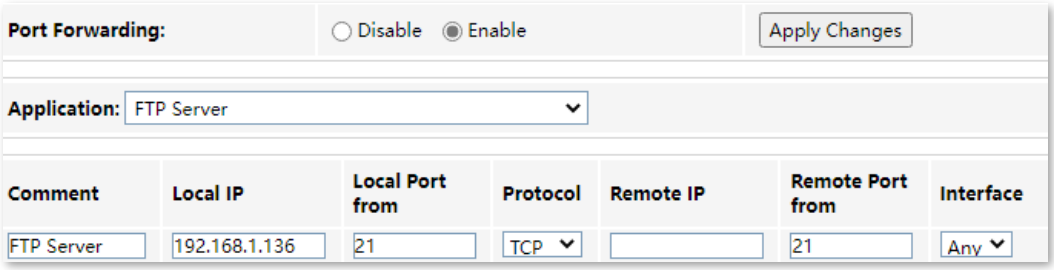


Configuring procedure:

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

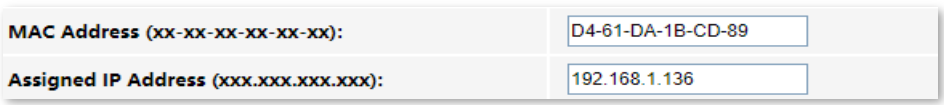
Step 2 Add a port forwarding rule.

1. Choose **Services** > **Firewall** > **Port Forwarding**.
2. Set **Port Forwarding** to **Enable**, and click **Apply Changes.**
3. Select **FTP Server** from the **Application** drop-down list.
4. (Optional) Modify **Comment** for the rule, which is **FTP server** in this example.
5. Set **Local IP**, which is **192.168.1.136** in this example, and leave **Remote IP** blank.



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

1. Choose **Services** > **Service** > **DHCP**.
2. Click **MAC-Based Management**.
3. Set **MAC Address** of the host of the server, which is **D4-61-DA-1B-CD-89** in this example.
4. Set **Assigned IP Address** for the server host, which is **192.168.1.136** in this example.



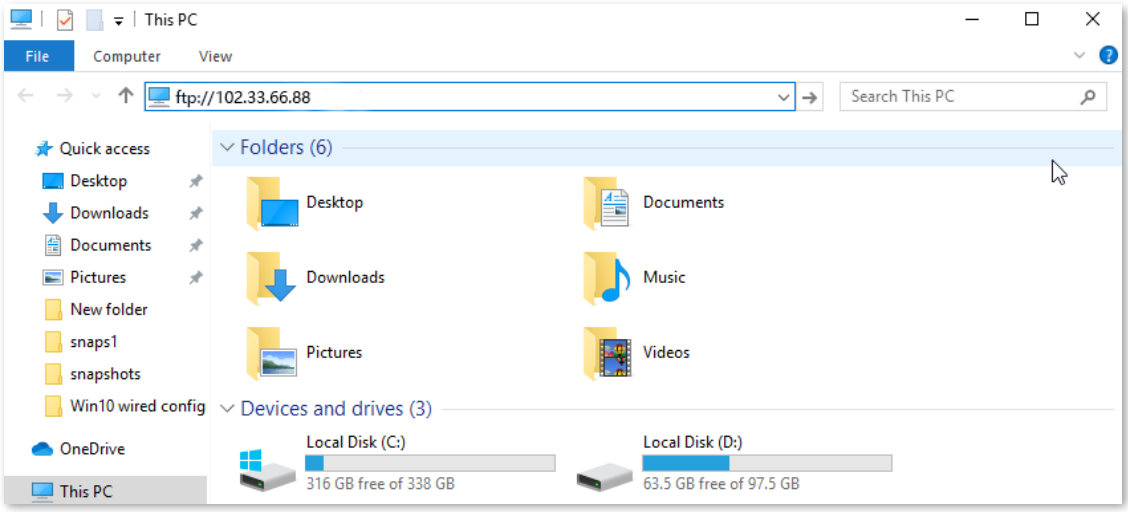
5. Click **Assign IP**.

---End

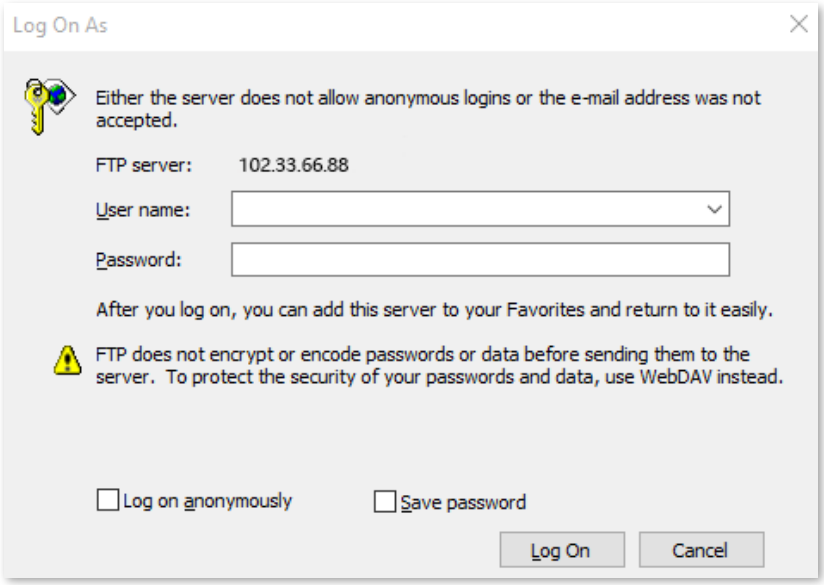
After the configuration, users from the internet can access the FTP server by visiting "*Intranet service application layer protocol name*://*WAN IP address of the ONT*". If the remote port number is different from the default intranet service port number, the visiting address should be: "*Intranet service application layer protocol name*://*WAN IP address of the ONT:Remote port number*". In this example, the address is "**ftp://102.33.66.88**". You can find the WAN IP address of the ONT in Device status.

To access the FTP server from the internet:

Open the file explorer on a computer that can access the internet, and visit **ftp://102.33.66.88**.



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 Dynamic DNS + Port Forwarding.

TIP

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

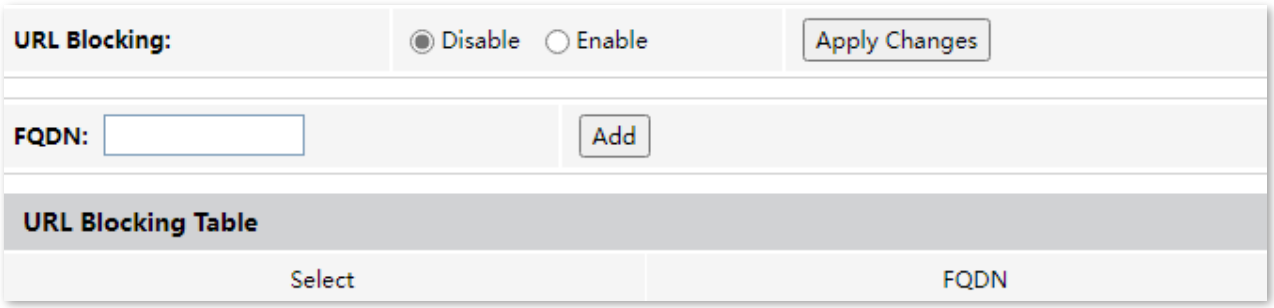
- Ensure that the LAN port number configured in the port forwarding function is the same as the service port number set on the server.
- Close the firewall, antivirus software and security guards on the host of the FTP server and try again.

7.2.5 URL Blocking

Overview

The URL blocking function enables you to block LAN clients from accessing certain websites by specifying a Fully Qualified Domain Name (FQDN) or keyword.

To access the configuration page, log in to the web UI of the ONT and choose **Services** > **Firewall** > **URL Blocking**. The rule added are shown in the **URL Blocking Table**.



Parameter description

Parameter	Description
URL Blocking	It specifies whether to enable the URL blocking function.
FQDN	It specifies the domain name that you want to block LAN clients from accessing. An FQDN, sometimes also referred to as an absolute domain name, is a domain name that specifies its exact location in the tree hierarchy of the Domain Name System (DNS). It specifies all domain levels, including the top-level domain and the root zone.

Block clients from accessing certain websites

Assume that you use the ONT to provide internet access at your home. You want your children to focus on study rather than social media, such as Facebook, Twitter, or Instagram. You can use URL blocking to reach the goal.

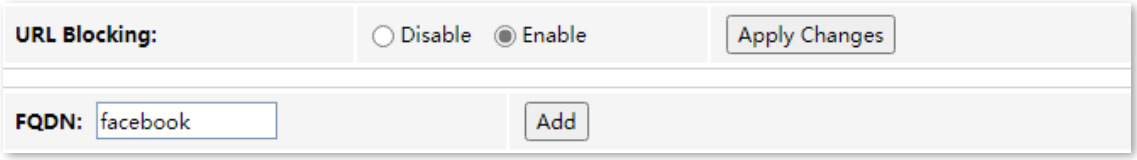
Configuring procedure:

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

Step 2 Choose **Services** > **Firewall** > **URL Blocking.**

Step 3 Select **Enable** for **URL Blocking**, and click **Apply Changes**.

Step 4 Enter **facebook** in **FQDN** and click **Add**. Repeat this step for blocking Twitter and Instagram.



---End

After the configuration, Facebook, Twitter, and Instagram are not accessible through the ONT.

7.2.6 DMZ

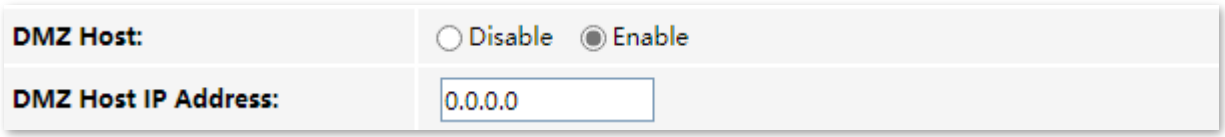
Overview

A DMZ host on a LAN is free from restrictions in communicating with the internet. It is useful for getting better and smoother experiences 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. Hackers may leverage the DMZ host to attack your LAN. Therefore, enable the DMZ function only when necessary.
- Hackers may leverage the DMZ host to attack the local network. Do not use the DMZ host function randomly.
- 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 ONT and choose **Services** > **Firewall** > **DMZ**.



Parameter description

Parameter	Description
DMZ Host	It specifies whether to enable the DMZ host function.
DMZ Host IP Address	It specifies the IP address of the LAN host to be set as the DMZ host.

Enable internet users to access LAN resources

Scenario: You have set up an 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.

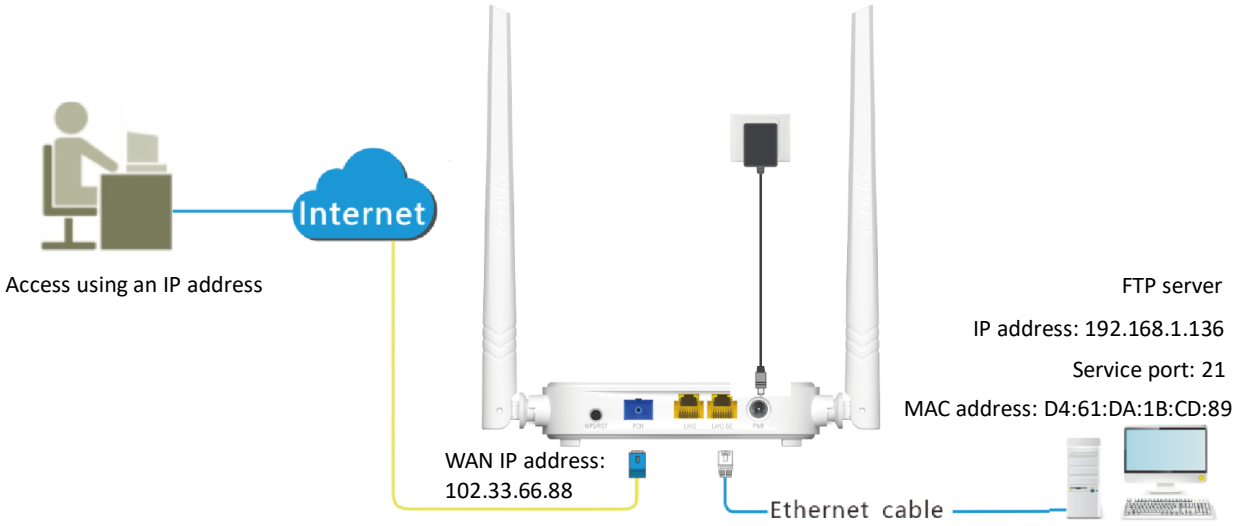
Solution: You can configure the DMZ host function to reach the goal.

Assume that the information of the FTP server includes:

- IP address: 192.168.1.136
- MAC address: D4:61:DA:1B:CD:89
- Service port: 21
- WAN IP address of the router: 102.33.66.88

TIP

Please ensure that the router obtains a public IP address public. 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 to 172.31.255.255. Private IP addresses of class C range from 192.168.0.0 to 192.168.255.255.

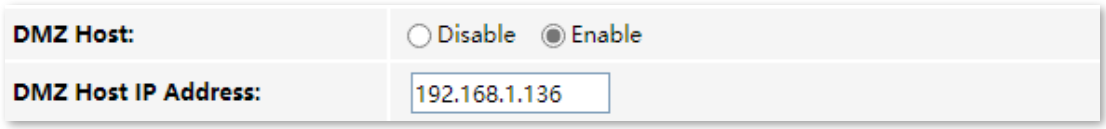


Configuring procedure:

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

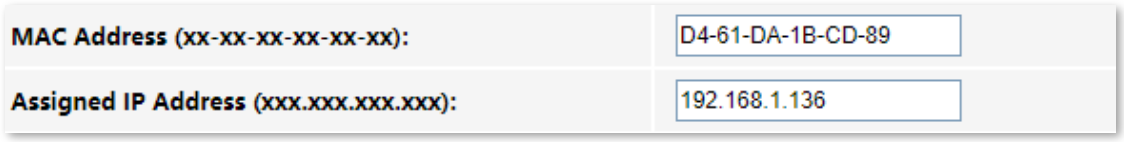
Step 2 Set the server host as the DMZ host.

1. Choose **Services** > **Firewall** > **DMZ**.
2. Select **Enable** for **DMZ Host**.
3. Enter the IP address of the server host, which is **192.168.1.136** in this example.
4. Click **Apply Changes**.



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

1. Choose **Services** > **Service** > **DHCP**.
2. Click **MAC-Based Management**.
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 assigned IP Address for the server host, which is **192.168.1.136** in this example.



5. Click **Assign IP**.

---End

After the configuration, users from the internet can access the FTP server by visiting "*Intranet service application layer protocol name*://*WAN IP address of the ONT*". If the intranet service port number is not the default number, the accessing address should be: "*Intranet service application layer protocol name*://*WAN IP address of the ONT*:*Intranet service port number*".

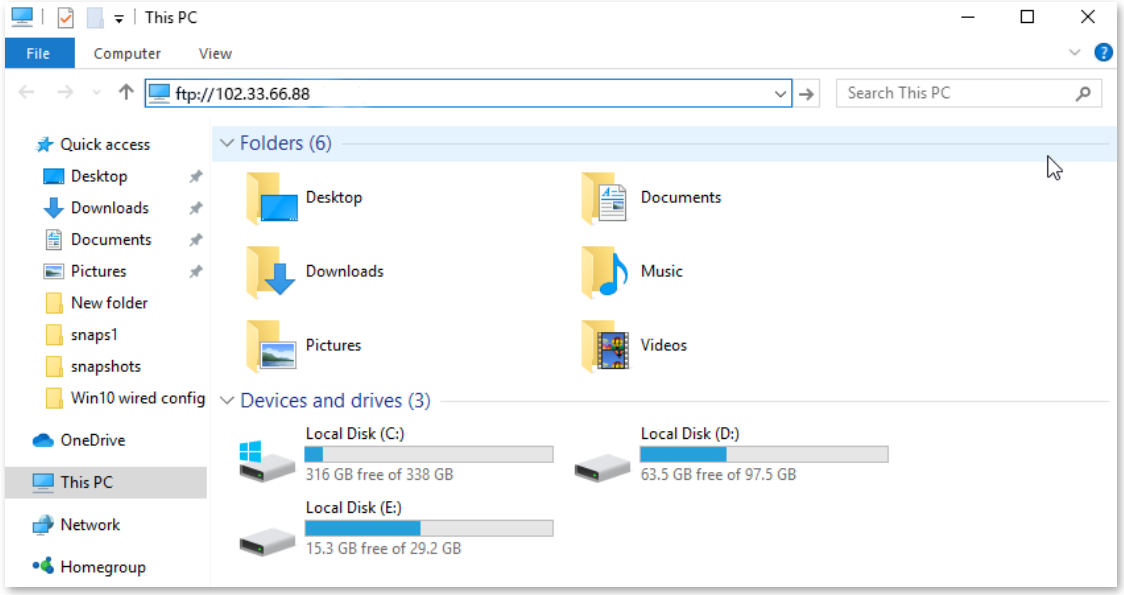
TIP

If the default intranet service port number is 80, please change the service port number to an uncommon one (1024–65535), such as 9999.

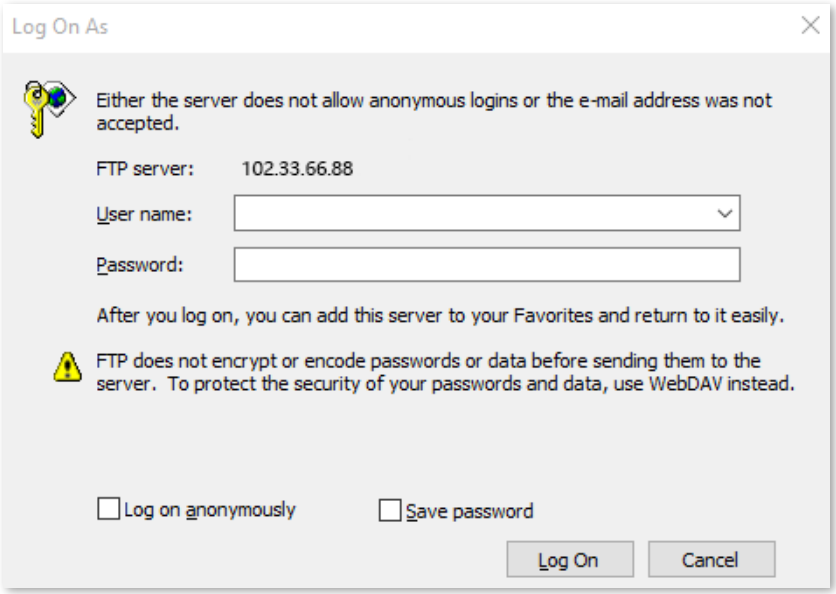
In this example, the address is "**ftp://102.33.66.88**". You can find the WAN IP address of the ONT in Device status.

To access the FTP server from the internet:

Open the file explorer on a computer that can access the internet, and visit **ftp://102.33.66.88**.



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 + Dynamic DNS.

TIP

After the configuration, if internet users still cannot access the FTP server, close the firewall, antivirus software and security guards on the host of the FTP server and try again.

8 Advance

8.1 Advanced settings

8.1.1 ARP table

On this page, you can view the IP address and MAC address of devices connected to the ONT in a wireless and wired manner.

To access the page, log in to the web UI of the ONT and choose **Advance** > **Advance** > **ARP Table**.

IP Address	MAC Address
192.168.1.2	8c-ec-4b-b3-04-92

8.1.2 Routing

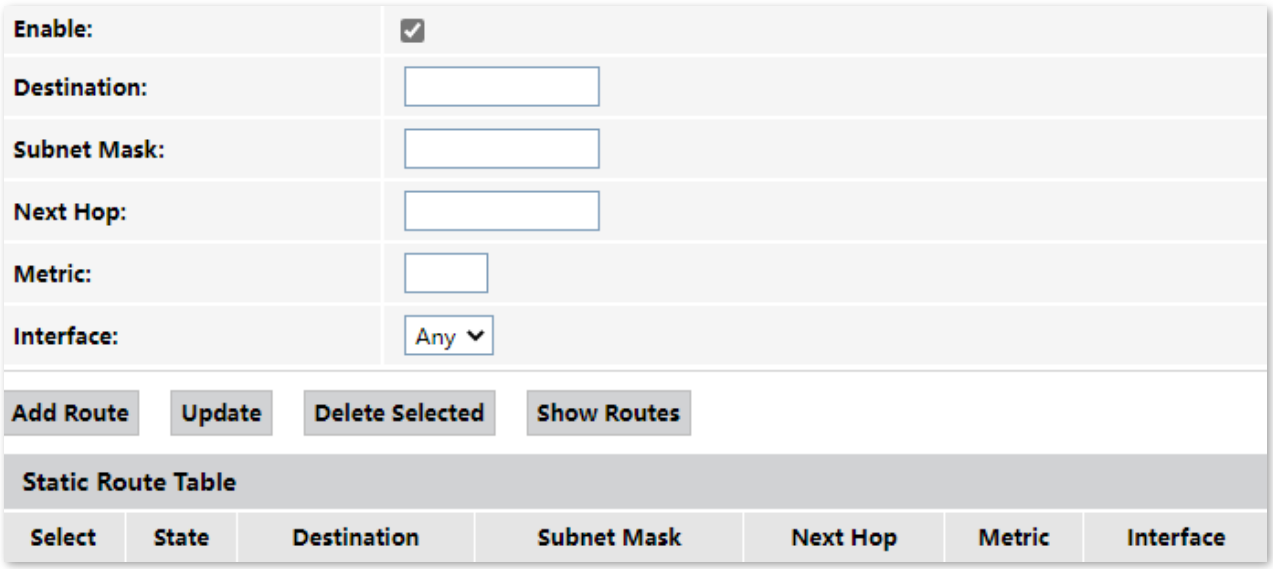
Overview

On this page, you can add, modify, and delete static route rules. In addition, you can view the route table of the ONT.

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.

After the static route is established, all data whose destination address is the destination network of the static route are directly forwarded to the next hop through the static route interface.

To access the page, log in to the web UI of the ONT and choose **Advance** > **Advance** > **Routing**.



Parameter description

Parameter	Description
Add Route	It is used to add a new static route rule.
Update	It is used to update your modification to an existing rule.
Delete Selected	It is used to delete the selected rule.
Show Routes	It is used to display the commonly used routes of the ONT.
Select	Select existing rules to update or delete them.
State	It specifies the status of a rule, including **Enable** and **Disable**.
Destination	It specifies the IP address of the destination network.
Subnet Mask	It specifies the subnet mask of the destination network.
Next Hop	It specifies the ingress IP address of the next hop route after the data packet exits from the WAN interface of the ONT.
Metric	It specifies the priority of the routing rule. The smaller the number, the higher the priority. When the destination networks of two rules are the same, packets will be forwarded according to the rule with smaller metric.
Interface	It specifies the interface of the ONT that the packet exits from.

Add a new static route rule

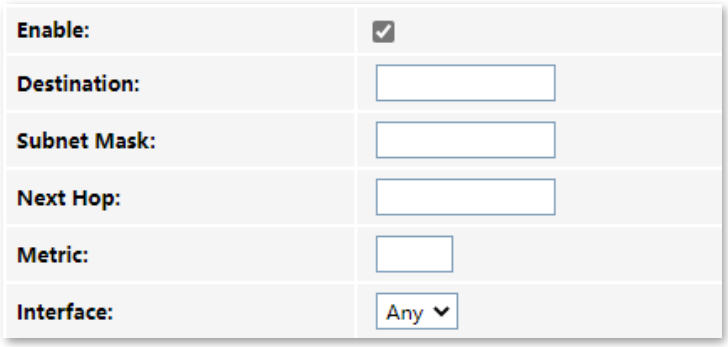
Step 1 Log in to the web UI of the ONT.

Step 2 Choose **Advance** > **Advance** > **Routing**.

Step 3 Select **Enable** as required.

Step 4 Set **Destination**, **Subnet Mask**, **Next Hop**, **Metric**, and **Interface**.

Step 5 Click **Add Route**.



---End

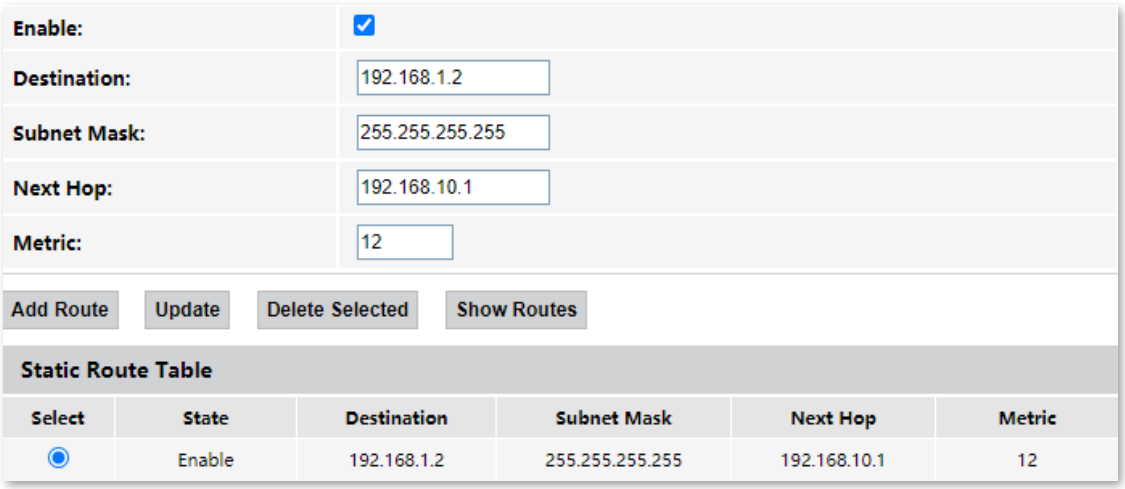
After the configuration succeeds, the static rule will be displayed in **Static Route Table**.

Modify a static rule

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

Step 2 Choose **Advance** > **Advance** > **Routing**.

Step 3 Select a static route rule, and it will appear in the configuring part.

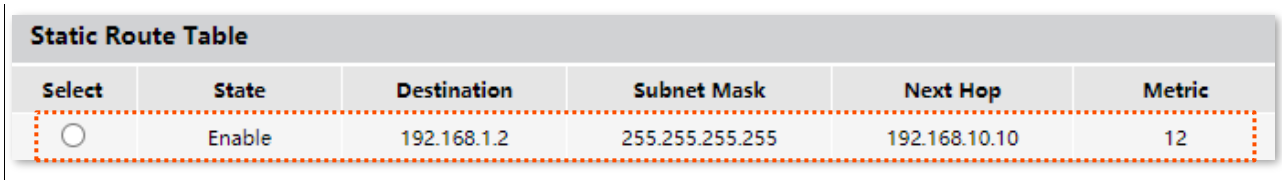


Step 4 Modify the parameters of the rule as required.

Step 5 Click **Update**.

---End

After the configuration succeeds, the updated parameters of the static rule will be displayed in **Static Route Table**.

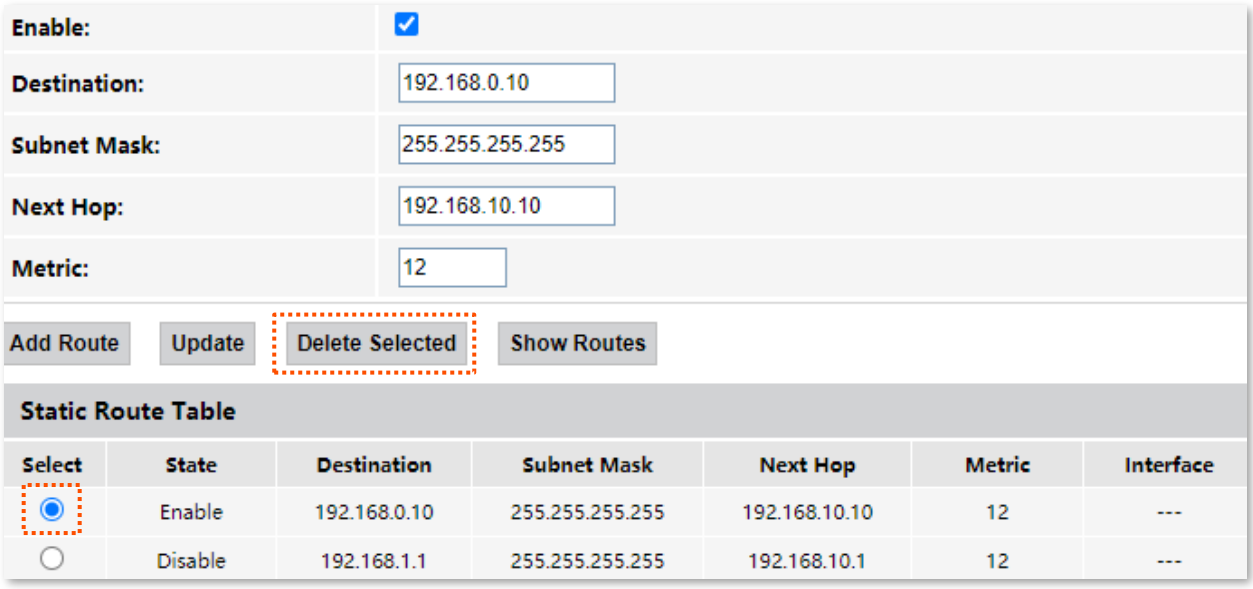


Static Route Table

Select	State	Destination	Subnet Mask	Next Hop	Metric
○	Enable	192.168.1.2	255.255.255.255	192.168.10.10	12

Delete an existing rule

To delete an existing rule, select the rule in **Static Route Table** and click **Delete Selected**.



Enable:	☑
Destination:	192.168.0.10
Subnet Mask:	255.255.255.255
Next Hop:	192.168.10.10
Metric:	12

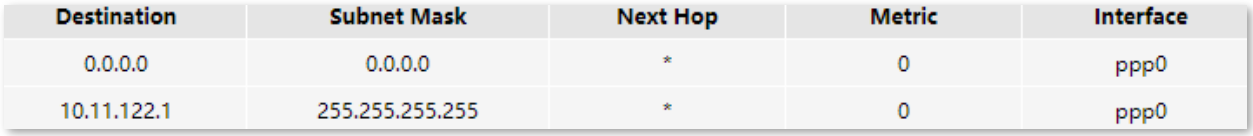
Add Route | Update | Delete Selected | Show Routes

Static Route Table

Select	State	Destination	Subnet Mask	Next Hop	Metric	Interface
◉	Enable	192.168.0.10	255.255.255.255	192.168.10.10	12	---
○	Disable	192.168.1.1	255.255.255.255	192.168.10.1	12	---

Show commonly used routes

Click **Show Routes**, and you will find the commonly used routes in the prompt window.



Destination	Subnet Mask	Next Hop	Metric	Interface
0.0.0.0	0.0.0.0	*	0	ppp0
10.11.122.1	255.255.255.255	*	0	ppp0

TIP

- The route with 0.0.0.0 as both destination and subnet mask is the default route. When no perfectly matched route is found for a packet, the packet will be forwarded through the default route.
- 0.0.0.0 as the next hop indicates that the ONT is directly connected to the destination network.

8.1.3 SNMP

The Simple Network Management Protocol (SNMP) is the most widely used network management protocol in TCP/IP networks. SNMP enables you to remotely manage all your network devices compliant with this protocol, such as monitoring the network status, changing network device settings, and receiving network event alarms.

SNMP allows automatic management of devices from various vendors regardless of physical differences among the devices.

SNMP management framework

The SNMP management framework consists of the SNMP manager, SNMP agent, and Management Information Base (MIB).

- SNMP manager: It is a system that controls and monitors network nodes using the SNMP protocol. The SNMP manager most widely used in network environments is Network Management System (NMS). An NMS can be a dedicated network management server, or an application that implements management functions in a network device.
- SNMP agent: It is a software module in a managed device. The module is used to manage data about the device and report the management data to an SNMP manager.
- MIB: It is a collection of managed objects. It defines a series of attributes of managed objects, including names, access permissions, and data types of objects. Each SNMP agent has its MIB. An SNMP manager can read and/or write objects in the MIB based on the permissions assigned to the SNMP manager.

SNMP operations

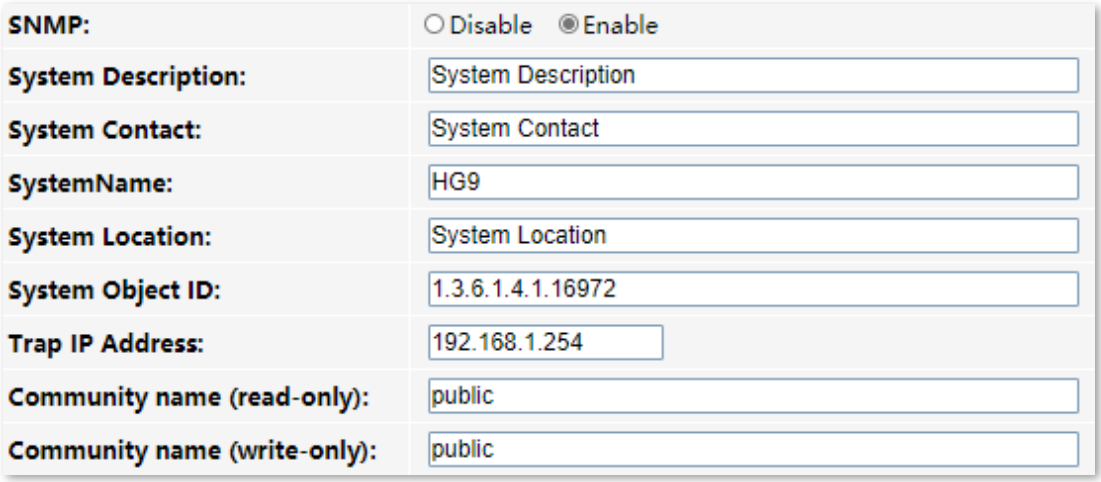
There are mainly three operations based on SNMP:

- Get: The SNMP manager sends a request to retrieve the value of a variable or list of variables.
- Set: The SNMP manager sends a request to change the value of a variable or list of variables.
- Trap: The SNMP agent notifies the SNMP manager of significant events by an unsolicited SNMP message.

An SNMP manager manages SNMP agents in an SNMP network. The SNMP manager exchanges management information with the SNMP agents using the SNMP protocol. The ONT functions as an SNMP agent.

The ONT is compatible with SNMP V1 and SNMP V2C and adopts the community authentication mechanism.

To access the page, log in to the web UI of the ONT and choose **Advance** > **Advance** > **SNMP**.



Parameter description

Parameter	Description
SNMP	It specifies whether to enable the SNMP agent function.
System Description	It specifies a description of the ONT, which can be anything you like and is used for identification.
System Contact	It specifies the contact information of the ONT.
SystemName	It specifies the name of ONT.
System Location	It specifies the place where the ONT is located.
System Object ID	It specifies the object ID of the ONT in the MIB, which can be used by the SNMP manager to identify and manage the ONT.
Trap IP Address	It specifies the destination IP address of the SNMP trap. Make sure that the ONT and the SNMP manager are reachable to each other.
Community name (read-only)	They specify the community names which act as passwords for the interaction between the SNMP manager and SNMP agent. • **Community name (read-only)**: It is used to authenticate the Get request. • **Community name (write-only)**: It is used to authenticate the Set request.
Community name (write-only)	

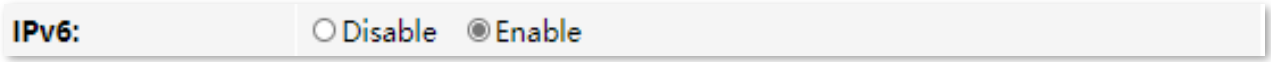
8.2 IPv6 settings

The ONT supports both IPv4 and IPv6 for internet access. In this module, you can enable and disable IPv6 of the ONT, and perform other IPv6-related configurations on the ONT.

8.2.1 IPv6 status

On this page, you can enable or disable the IPv6 function of the ONT.

To access the page, log in to the web UI of the ONT and choose **Advance** > **IPv6** > **IPv6 Enable/Disable**. Select **Enable** or **Disable** and click **Apply Changes**.

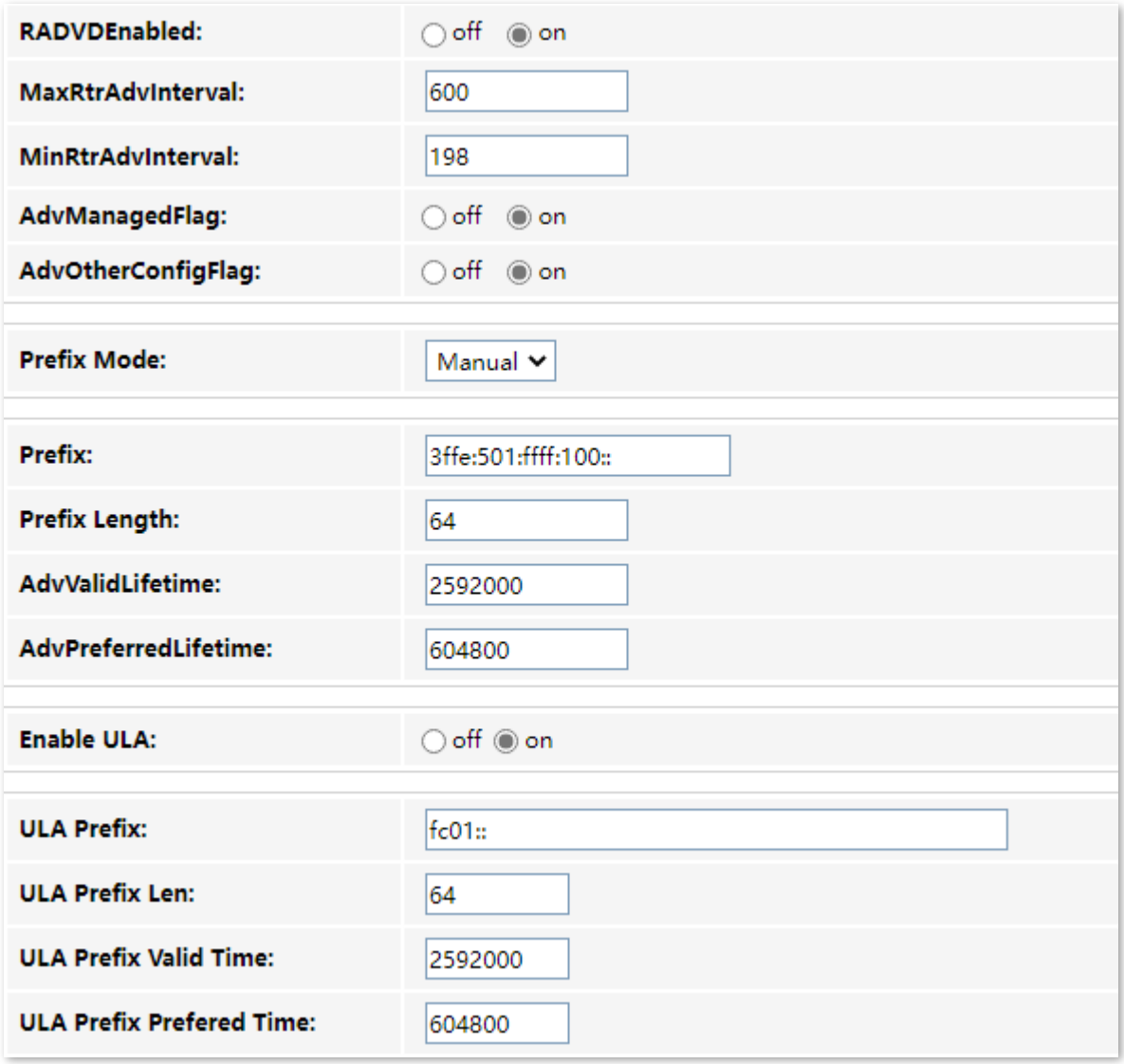


8.2.2 RADVD

The Router Advertisement Daemon (RADVD) is used by system administrators in stateless auto-configuration methods of network hosts on IPv6 networks.

When IPv6 hosts configure their network interfaces, they broadcast Router Solicitation (RS) requests onto the network to discover available devices. The RADVD software answers requests with Router Advertisement (RA) messages. In addition, RADVD periodically broadcasts RA packets to the attached link to update network hosts.

To access the page, log in to the web UI of the ONT and choose **Advance** > **IPv6** > **RADVD**.



Parameter description

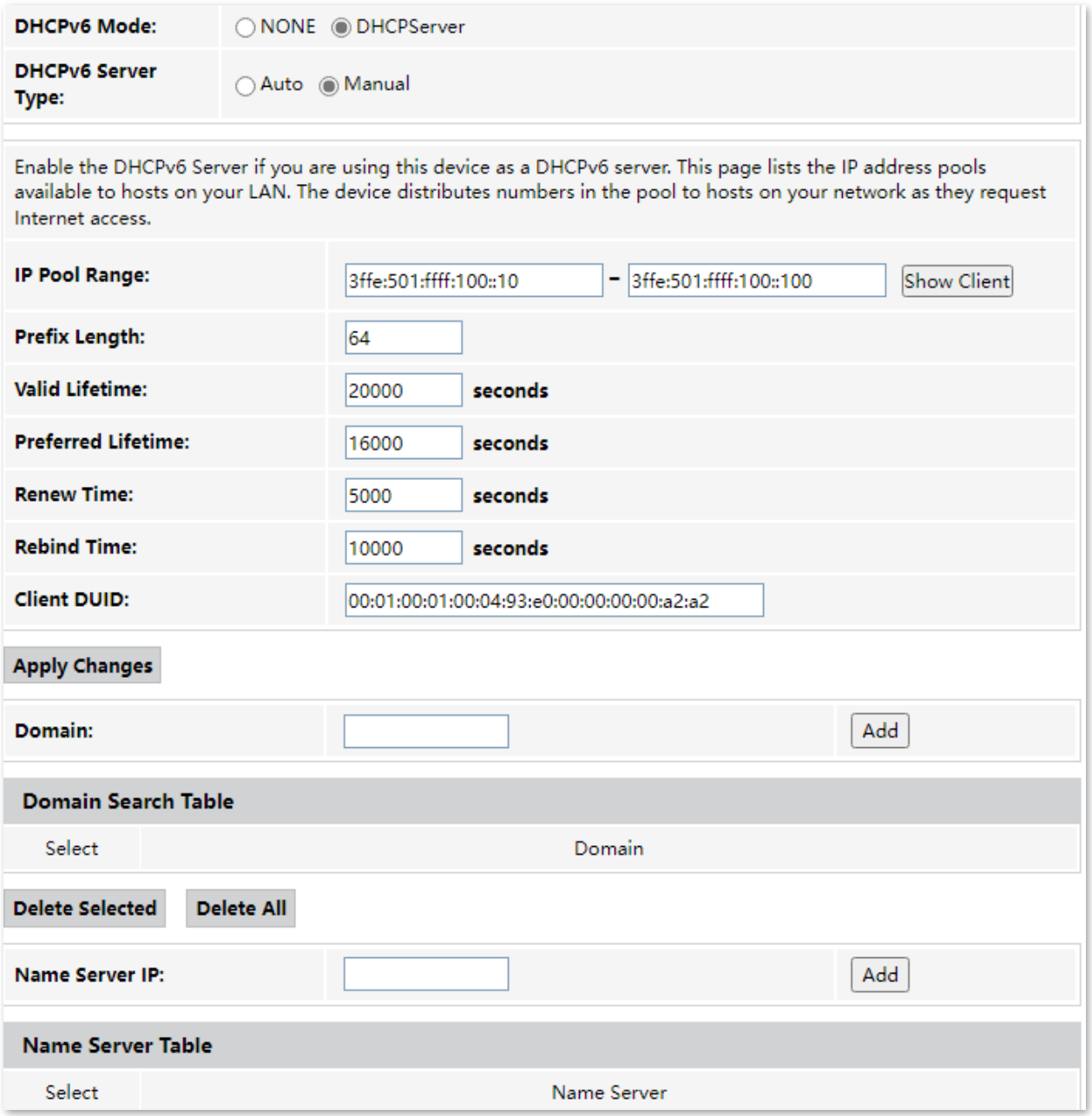
Parameter	Description
MaxRtrAdvInterval	They specify the Maximum and Minimum Router Advertisement Intervals. They are the intervals between each router advertisement message. The router sends these messages periodically. The actual interval used is randomly selected from a value between the minimum and maximum values.
MinRtrAdvInterval	
AdvManagedFlag	They specify the Advertisement Managed Flag and Advertisement Other Configuration Flag. • **Advertisement Managed Flag**: This flag indicates that hosts retrieve managed IPv6 addresses from a DHCPv6 server for their interfaces.
AdvOtherConfigFlag	• **Advertisement Other Configuration Flag**: This flag indicates that hosts use SLAAC to generate their IPv6 address and obtain other configuration information using DHCPv6, such as DNS information.
Prefix Mode	It specifies the configuring mode of the prefix which is assigned to the IPv6 host, including **Auto** and **Manual**. • **Auto**: The ONT automatically assigns a prefix to the IPv6 host. • **Manual**: You need to set the prefix manually.

Parameter	Description
Prefix	They specify the prefix information included in the RA message to hosts for generating their IPv6 address.
Prefix Length	
AdvValidLifetime	They specify the Advertisement Valid Lifetime and Advertisement Preferred Lifetime. When the preferred lifetime expires, the use of the prefix is not encouraged, but not prohibited. When the valid lifetime expires, the prefix becomes invalid. TIP The valid lifetime must be greater than or equal to the preferred lifetime.
AdvPreferredLifetime	
Enable ULA	It specifies whether to enable the Unique Local Address (ULA). The purpose of ULA resembles that of the private network address in IPv4. It is only used within the private network and increases stability for the IPv6 host and its use of services.
ULA Prefix	They specify the ULA prefix information advertised by the ONT to hosts for generating unique local addresses.
ULA Prefix Len	
ULA Prefix Valid Time	They specify the valid lifetime and preferred lifetime of ULA prefix. When the preferred lifetime expires, the use of the ULA prefix is not encouraged, but not prohibited. When the valid lifetime expires, the ULA prefix becomes invalid. TIP The valid lifetime must be greater than or equal to the preferred lifetime.
ULA Prefix Preferred Time	

8.2.3 DHCPv6

IPv6 hosts may automatically generate IP addresses internally using Stateless Address Autoconfiguration (SLAAC), or they may be assigned configuration with Dynamic Host Configuration Protocol version 6 (DHCPv6). When the DHCPv6 server is enabled, the ONT can assign IPv6 hosts with IP addresses, IP prefixes and other configurations required for IPv6 internet access.

To access the page, log in to the web UI of the ONT and choose **Advance** > **IPv6** > **DHCPv6**.



Parameter description

Parameter	Description
DHCPv6 Mode	You can select a DHCPv6 server mode or disable it. • **NONE**: The DHCPv6 server of the ONT is disabled. • **DHCPServer**: The DHCPv6 server of the ONT is enabled.
DHCPv6 Server Type	It specifies whether the DHCPv6 Server is configured automatically or manually. • **DHCPServer(Manual)**: You need to define the IP address pool, prefix length and other required parameters for IPv6 addresses to be assigned to IPv6 hosts. • **DHCPServer(Auto)**: The ONT defines the IPv6 addresses to be assigned to the IPv6 host automatically.
IP Pool Range	It specifies the IP address range within which the ONT can assign IPv6 addresses to the IPv6 host.

Parameter	Description
Show Client	It shows information of the active DHCPv6 clients, including: • **IP Address**: It specifies the IP address assigned to the DHCP leased client. • **DUID**: It specifies the DHCP Unique Identifier (DUID) of the DHCP leased client. • **Expired Time (sec)**: It specifies the time expired for the DHCP leased client.
Prefix Length	It specifies the length of IPv6 prefix.
Valid Lifetime	They specify the valid lifetime and preferred lifetime of the IPv6 address assigned to IPv6 hosts. When the preferred lifetime expires, communication using the IPv6 address is not encouraged, but allowed. When the valid lifetime expires, the IPv6 address becomes invalid.
Preferred Lifetime	
Renew Time	It specifies the time before expiration when the host is expected to contact the DHCPv6 server that did the assignment to renew the lifetimes of the addresses assigned to the client.
Rebind Time	It specifies the new valid time after the IPv6 address is renewed.
Client DUID	It specifies the DHCP Unique Identifier (DUID) assigned to clients. The DUID is used by a client to get an IP address from a DHCPv6 server, and the server compares the DUID with its database and delivers configuration data (such as the address and DNS servers) to the client.
Domain	It is used to configure the domain.
Domain Search Table	It displays all domain settings.
Name Server IP	You can add a DNS server address to obtain DNS information for address resolution.
Name Server Table	

9 Diagnostics

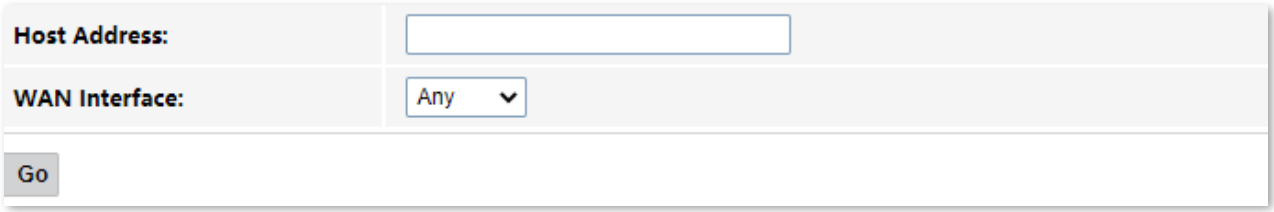
9.1 Overview

The ONT provides connectivity diagnosis tools, which include Ping and Tracert. You can use these tools to test the connectivity to the internet, a certain IP address or domain name.

- **Ping**: It is a utility that helps to check if an IP address or domain name is accessible or not. Ping works by sending a packet to the specified address and waits for the reply. It also measures round trip time and reports errors.
- **Tracert**: It is a utility that traces a packet from your computer to the host, and will also show the number of steps (hops) required to reach there, along with the time by each step.

To access the page, log in to the web UI of the ONT and choose **Diagnostics**. Both tools include IPv4 (**Ping/Tracert**) and IPv6 (**Ping6/Tracert6**) versions. The IPv4 version is used for illustration.

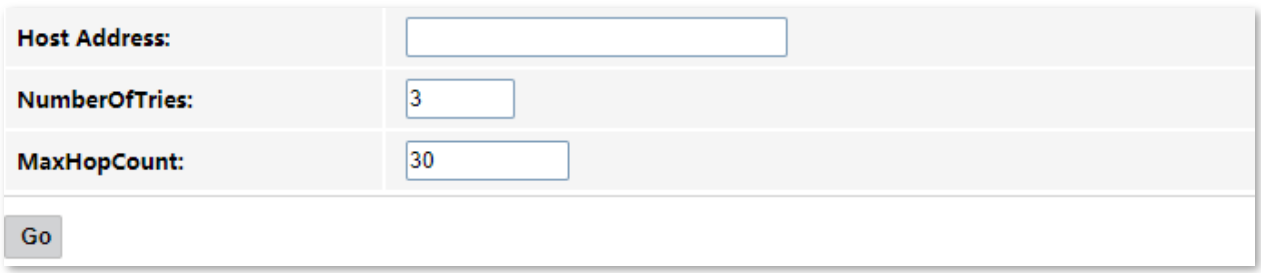
Ping



Parameter description

Parameter	Description
Host Address	It specifies the IP address or domain name whose connectivity with the ONT is to be diagnosed.
WAN Interface	It specifies the WAN interface through which the packet for diagnosis is forwarded.

Tracert



Parameter description

Parameter	Description
Host Address	It specifies the IP address or domain name of the tracert target.
Number Of Tries	It specifies the maximum number of times that the host tries to reach the host address. If all the attempts fail, it denotes network congestion and a reason for slow loading Web pages and dropped connections.
Max HopCount	It specifies the hops of the packet for diagnosis. When a packet cannot reach the destination and expires at an intermediate step, that node returns the packet and identifies itself. It denotes network congestion and a reason for slow loading web pages and dropped connections.

9.2 Execute Ping to test connectivity

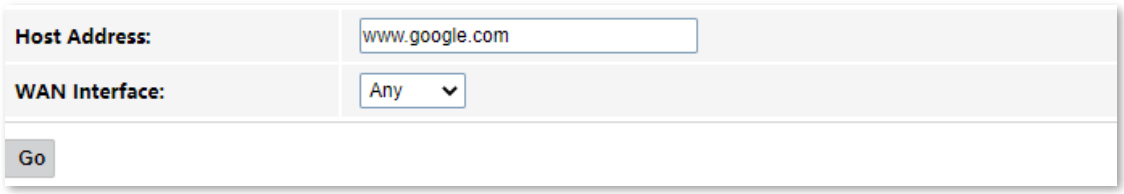
Step 1 Log in to the web UI of the ONT.

Step 2 Choose **Diagnostics** > **Ping**.

Step 3 Enter the IP address or domain name in Host Address, such as **www.google.com**.

Step 4 Choose any interface from **WAN Interface**.

Step 5 Click **Go**.



Wait a moment. The result appears when the diagnosis finishes.

---End

9.3 Execute Traceroute to test routing

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

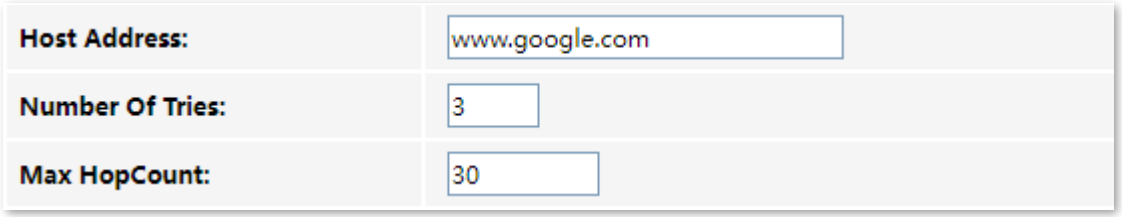
Step 2 Choose **Diagnostics** > **Tracert**.

Step 3 Enter the IP address or domain name in **Host Address**, such as **www.google.com**.

Step 4 Specify the number of attempts in **Number Of Tries**.

Step 5 Specify the number of hops in **Max HopCount**.

Step 6 Click **Go**.

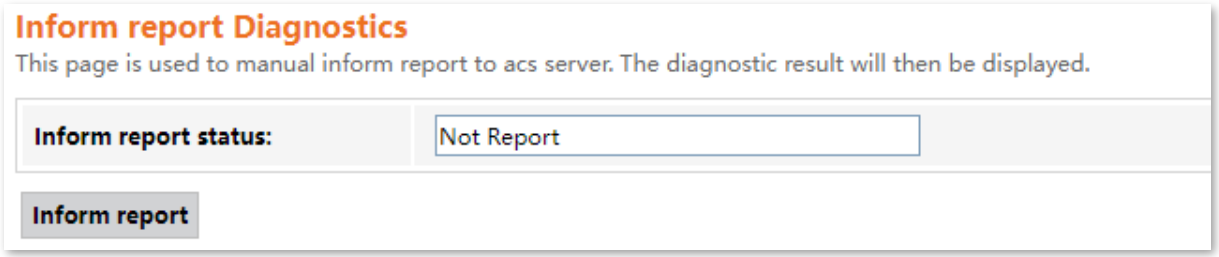


Wait a moment. The result appears when the diagnosis finishes.

---End

9.4 Manual inform report

On this page, you can manually inform reports to the Auto-Configuration Server (ACS). To access this page, log in to the web UI of the ONT and choose **Diagnostics** > **Inform report**.



10 Admin

10.1 GPON/EPON settings

On this page, you can register your ONT for internet access.

The ONT may register itself automatically after you connect a fiber cord to it and power it on. Under some circumstances, you may need to manually register the ONT with parameters provided by your ISP on this page.

To access the page, log in to the web UI of the ONT and choose **Admin** > **GPON Settings** (or **EPON Settings**). Enter the parameters provided by your ISP and click **Apply Changes** to register the ONT.

You can view the registration status of the ONT on the PON status page.

10.2 OMCI information

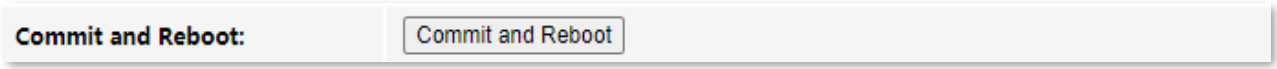
ONU Management Control Interface (OMCI) defines a mechanism and message format that is used by the Optical Line Termination (OLT) to configure, manage, and monitor ONTs.

To access the page, log in to the web UI of the ONT and choose **Admin** > **OMCI Information**. You can click **Refresh** to update the information.

10.3 Commit/Reboot

This page is used to commit any configuration changes you have made and reboot the ONT to put the changes into effect. Click **Commit and Reboot** to save settings and reboot the ONT.

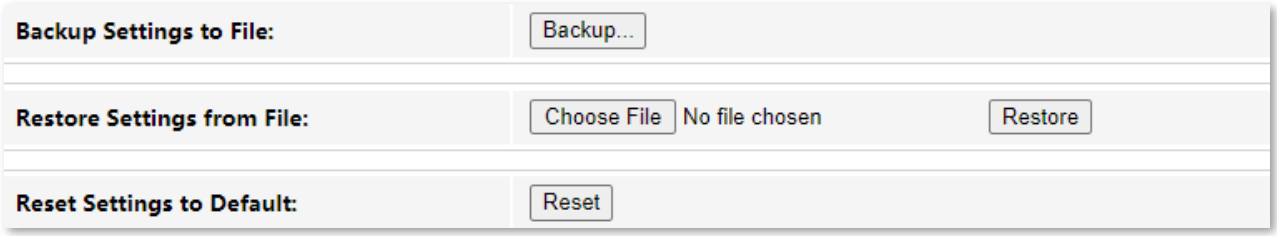
To access the page, log in to the web UI of the ONT and choose **Admin** > **Commit/Reboot**.



10.4 Backup/Restore

On this page, you can back up the configuration of the ONT, restore the configuration from a backup file, and reset the ONT.

To access the page, log in to the web UI of the ONT and choose **Admin** > **Backup/Restore**.



10.4.1 Back up the configuration of the ONT

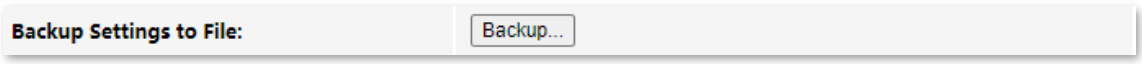
You can back up the configuration of the ONT at a certain time for future restoration after you change the settings or reset the ONT.

Configuring procedure:

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

Step 2 Choose **Admin** > **Backup/Restore**.

Step 3 Click **Backup…**.



The configuration file (**config.xml**) is automatically downloaded to the local host.

---End

10.4.2 Restore previous configuration of the ONT

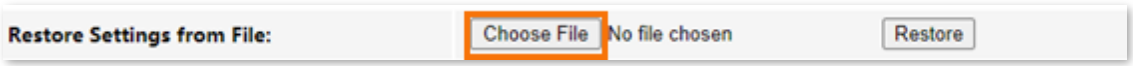
You can restore the previous configuration of the ONT using the backup file that you have downloaded.

Configuring procedure:

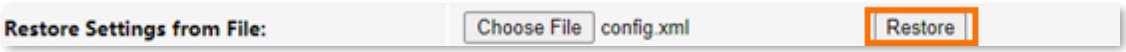
Step 1 Log in to the web UI of the ONT.

Step 2 Choose **Admin** > **Backup/Restore**.

Step 3 Click **Choose File**, and select the configuration file.



Step 4 Click **Restore**.



The ONT reboots to enable the configuration to take effect.

---End

10.4.3 Reset the ONT

When the ONT malfunctions and you cannot find a solution, you can try to reset the ONT. If your ISP has preset the ONT, the ONT will be restored to the configurations preset by the ISP. Otherwise, the ONT will be restored to factory settings.

TIP

Resetting the ONT will clear all previous personalized configurations. It is recommended to back up the configuration of the ONT in advance.

Configuring procedure:

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

Step 2 Choose **Admin** > **Backup/Restore**.

Step 3 Click **Reset**.

The ONT starts rebooting. Wait until it finishes rebooting, and then you can log in to the ONT again and perform settings.

---End

10.5 Password

On this page, you can change the login password for the ONT. The default login user name and password are **admin**. You can only change the password, and the original password is required during the process.

Configuring procedure:

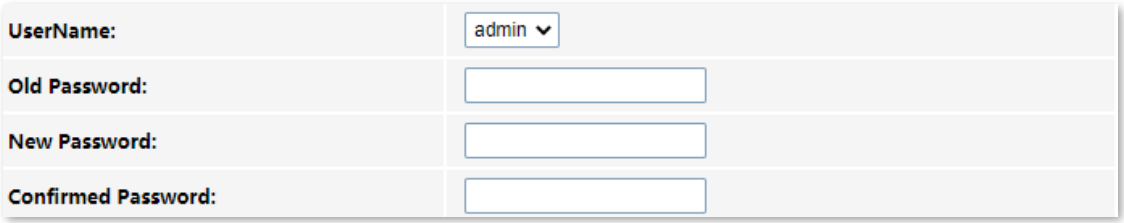
Step 1 Log in to the web UI of the ONT.

Step 2 Choose **Admin** > **Password**.

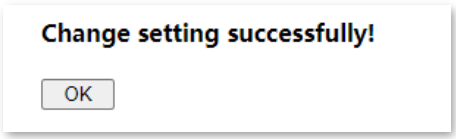
Step 3 Enter the original password in **Old Password**.

Step 4 Enter your new password in **New Password** and **Confirmed Password**.

Step 5 Click **Apply Changes**.



The following message is displayed, indicating that the password is changed successfully.



---End

10.6 Firmware upgrade

To get new features and improve performance and operating stability, you can upgrade the firmware of the ONT when a new version is available.

Configuring procedure:

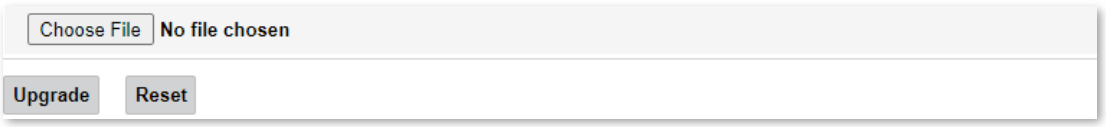
Step 1 Go to www.tendacn.com. Download an applicable firmware of the ONT to your local computer and unzip it.

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

Step 3 Choose **Admin** > **Firmware Upgrade**.

Step 4 Click **Choose File**, and select the upgrade file.

Step 5 Click **Upgrade**.



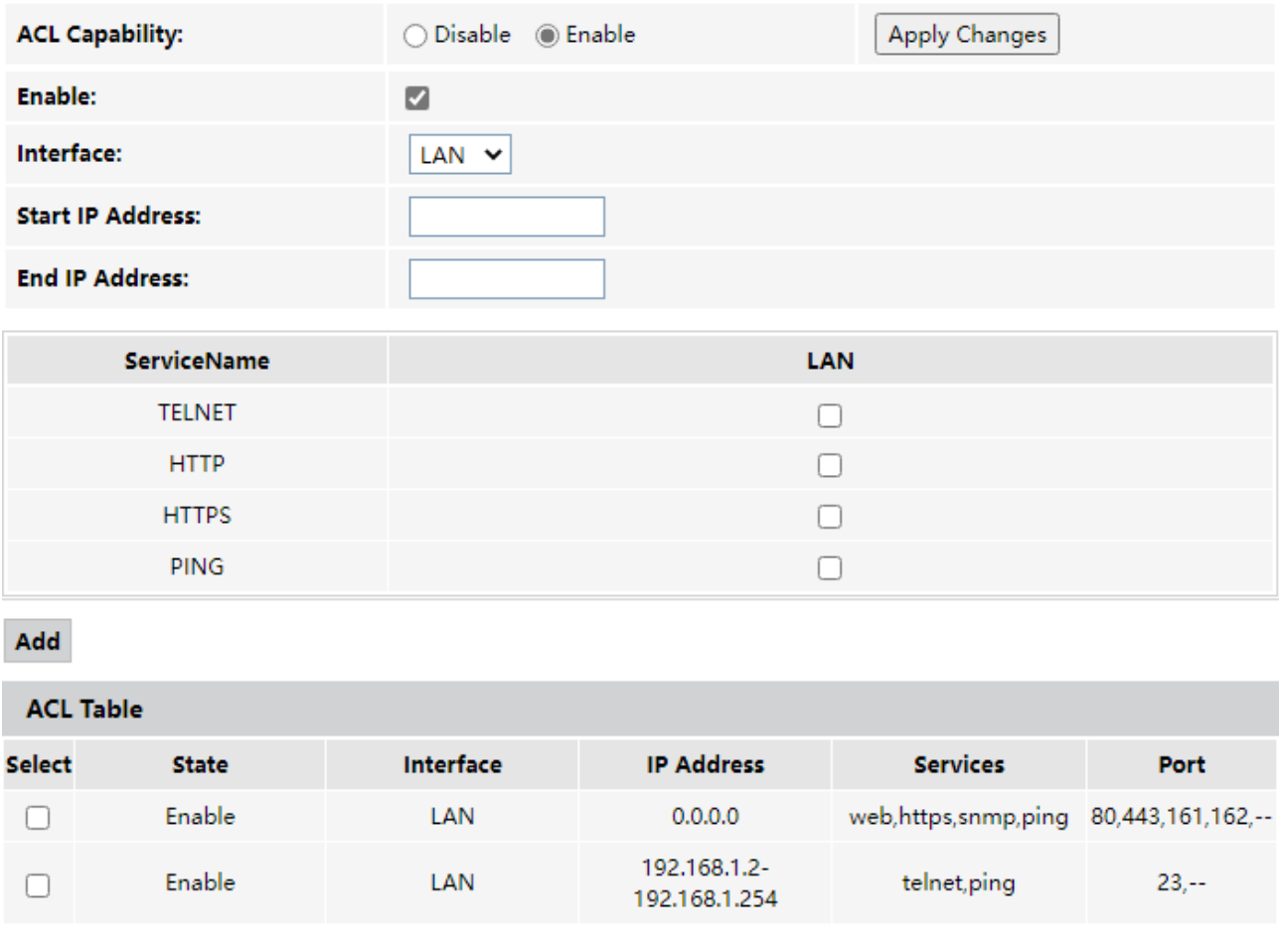
The ONT reboots automatically.

---End

10.7 ACL

Access Control List (ACL) is a collection of permit and deny rules that ensure security by blocking unauthorized users from and allowing authorized users to access ONT.

To access the page, log in to the web UI of the ONT and choose **Admin** > **ACL**.



Parameter description

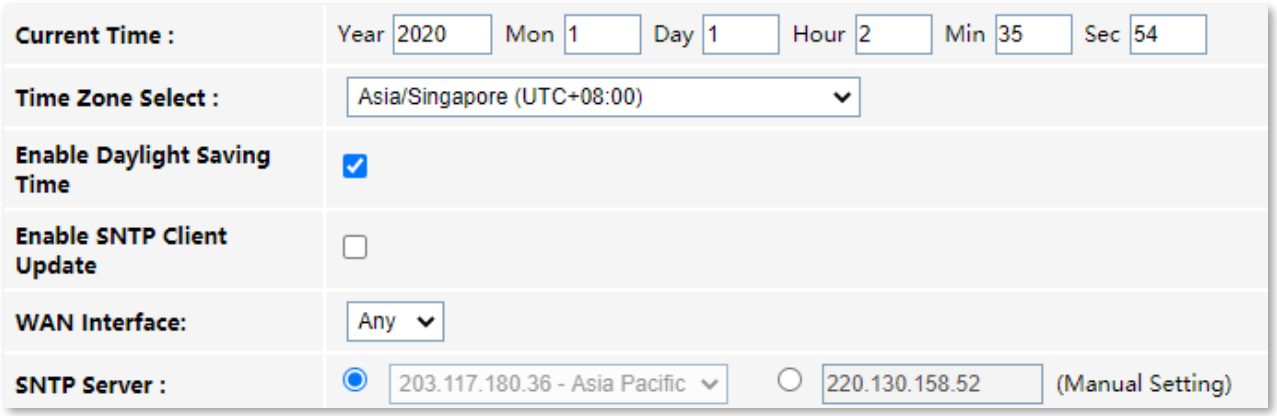
Parameter	Description
ACL Capability	It specifies whether to enable the ACL function of the ONT.
Enable	It specifies the control mode of the function. • When **Enable** is selected, traffic that meets the criteria of the rule can pass through the specified port of the ONT. • When **Enable** is deselected, traffic that meets the criteria of the rule is discarded at the specified port of the ONT.
Interface	It specifies the interface that the access control rule applies to, including LAN and WAN. • **LAN**: The ONT checks traffic from the LAN side according to the rule and decides to pass it or discard it. • **WAN**: The ONT checks traffic from the WAN side according to the rule and decides to pass it or discard it.
Start IP Address	They specify the IP address range or a certain IP address that is controlled by the rule.

Parameter	Description
End IP Address	
ServiceName	It specifies the protocol adopted by the traffic, or the types of traffic. • **TELNET**: Telnet is a protocol that provides a command line interface for communication with a remote device or server, sometimes employed for remote management but also for initial device setup like network hardware. • **HTTP**: Hypertext Transfer Protocol (HTTP) is an application protocol and the foundation of data communication for the World Wide Web, where hypertext documents include hyperlinks to other resources that the user can easily access. • **HTTPS**: Hypertext Transfer Protocol Secure (HTTPS) is an extension of HTTP. SNMP is used for secure communication over a computer network, and is widely used on the Internet. • **PING**: Ping is a computer network administration software utility used to test the reachability of a host on an IP network.
WAN	It specifies the interface to which the rule applies. It changes as you choose an interface.
LAN	
ACL Table	It displays all the ACL rules that are added.
Select	It is used to select multiple ACL rules.
State	It specifies the control mode of the rule. If you deselect **Enable** when setting an ACL rule, the **State** shows **Disable**.
Interface	It specifies the interface that the access control rule applies to, including LAN and WAN.
IP Address	It specifies the IP address range or a certain IP address that is controlled by the rule.
Services	It specifies the protocols adopted by the traffic, or the types of traffic.
Port	It specifies the default ports adopted by the corresponding services.

10.8 Time Zone

On this page, you can change the system time of the ONT, or enable the ONT to update its system time with the Simple Network Time Protocol (SNTP) server.

To access the page, log in to the web UI of the ONT and choose **Admin** > **Time Zone**.



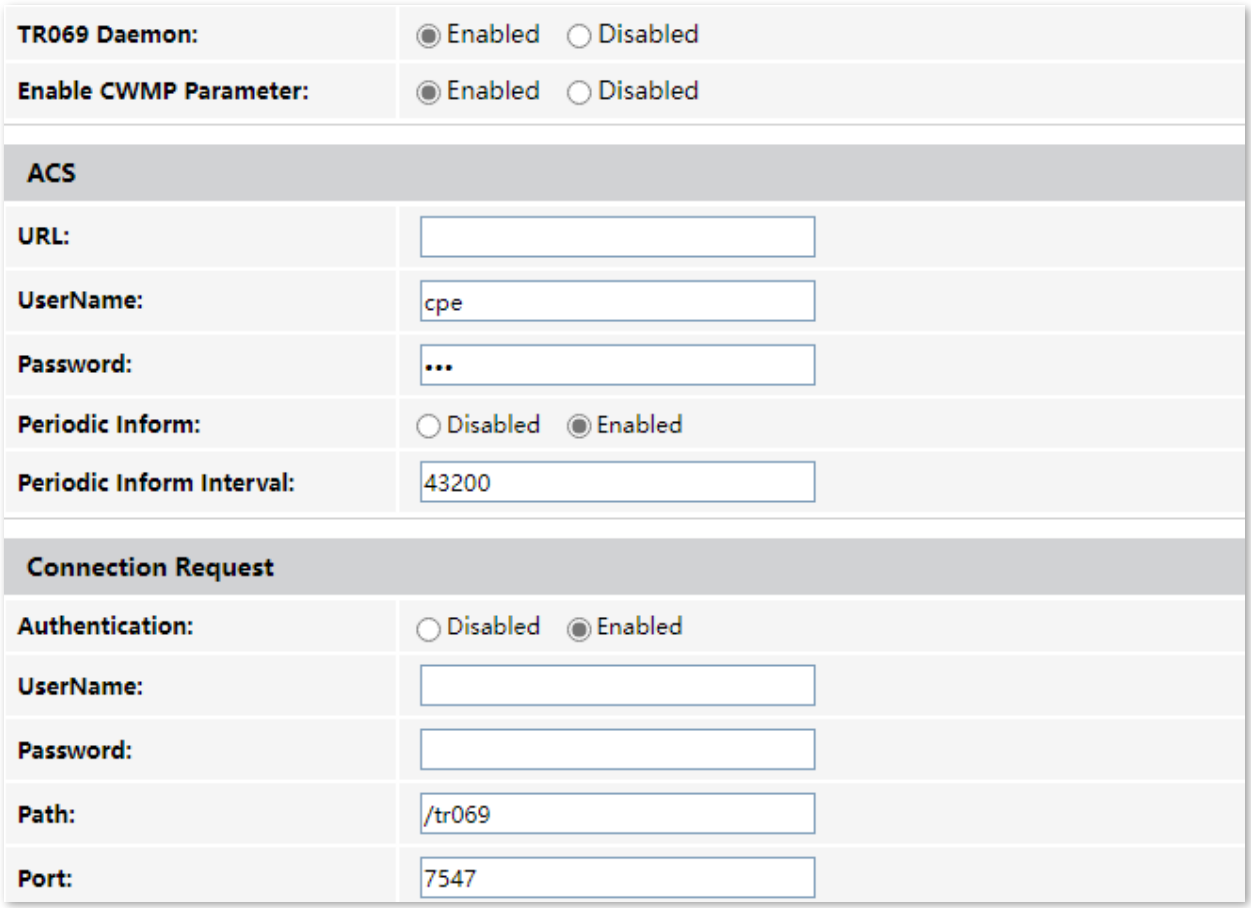
Parameter description

Parameter	Description
Current Time	It specifies the current system time of the ONT. You can change it manually.
Time Zone Select	It specifies the time zone where the ONT locates.
Enable Daylight Saving Time	Daylight Saving Time (DST) is the practice of advancing clocks during warmer months so that darkness falls later each day according to the clock. With it is enabled, the ONT sets the time forward by one hour in the spring ("spring forward") and set the time back by one hour in autumn ("fall back") to return to standard time. In other words, there is one 23-hour day in late winter or early spring and one 25-hour day in the autumn.
Enable SNTP Client Update	It specifies whether to enable automatic update of system time through synchronization with SNTP server. The SNTP is a time synchronization protocol of the TCP/IP protocol family. It is based on the connectionless User Datagram Protocol (UDP) and can be used on all supporting devices to synchronize system time in IP networks.
WAN Interface	It specifies the interface through which the ONT updates its system time with the SNTP server.
SNTP Server	You can choose a preset SNTP server, or manually set the IP address for updating system time.

10.9 TR-069

The Customer Premise Equipment (CPE) WAN Management Protocol (TR-069) allows an ACS (Auto-Configuration Server) to perform auto-configuration, provision, collection, and diagnostics to the ONT from the internet. Generally, it is used by the ISP to manage the ONT.

To access the page, log in to the web UI of the ONT and choose **Admin** > **TR-069**.



Parameter description

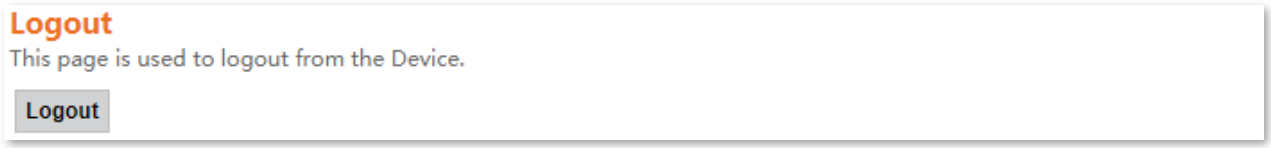
Parameter		Description
TR069 Daemon		It specifies whether to enable the TR069 function.
Enable CWMP Parameter		It specifies whether to enable the CPE WAN management protocol.
ACS	URL	It specifies the URL of the ACS.
	UserName	They specify the user name and password used to authenticate the ONT when the ONT connects to the ACS using the CPE WAN management protocol.
	Password	
	Periodic Inform	It is used to enable or disable the ONT to periodically inform ACS.
	Periodic Inform Interval	It specifies the interval that the ONT to inform the ACS.

Parameter		Description
Connection Request	Authentication	It specifies whether to authenticate the connection request sent by the ACS.
	UserName	They specify the user name and password used to authenticate the ACS when it sends the connection request to the CPE.
	Password	
	Path	It specifies the path used to receive the connection request sent by the ACS. Keep the default value if you are not sure.
	Port	It specifies the port used to receive the connection request sent by the ACS.

10.10 Logout

To access the page, choose **Admin** > **Logout**.

You can log out of the web UI of the ONT by clicking **Logout** on this page, or click **Logout** at the upper-right corner of the web UI.



11 Statistics

In this part, you can view the packet statistics of the ports and interfaces of the ONT.

Interface statistics

This page displays the received and transmitted packets statistics, including the received packets (Rx pkt), received packets error (Rx err), dropped received packets (Rx drop), transmitted packets (Tx pkt), transmitted packets error (Tx err), dropped transmitted packets (Tx drop).

To access the page, log in to the web UI of the ONT and choose **Statistics** > **Interface**.

Interface	Rx pkt	Rx err	Rx drop	Tx pkt	Tx err	Tx drop
LAN1	0	0	0	0	0	0
LAN2	32421	2	0	23607	0	0
wlan0	175248	0	0	0	0	0
nas0_0	0	0	0	0	0	0

PON statistics

The page displays the data statistics transmitted and received through the PON port.

To access the page, log in to the web UI of the ONT and choose **Statistics** > **PON Statistics**.

Bytes Sent:	0
Bytes Received:	0
Packets Sent:	0
Packets Received:	0
Unicast Packets Sent:	0
Unicast Packets Received:	0
Multicast Packets Sent:	0
Multicast Packets Received:	0
Broadcast Packets Sent:	0
Broadcast Packets Received:	0
FEC Errors:	0
HEC Errors:	0
Packets Dropped:	0
Pause Packets Sent:	0
Pause Packets Received:	0

Appendixes

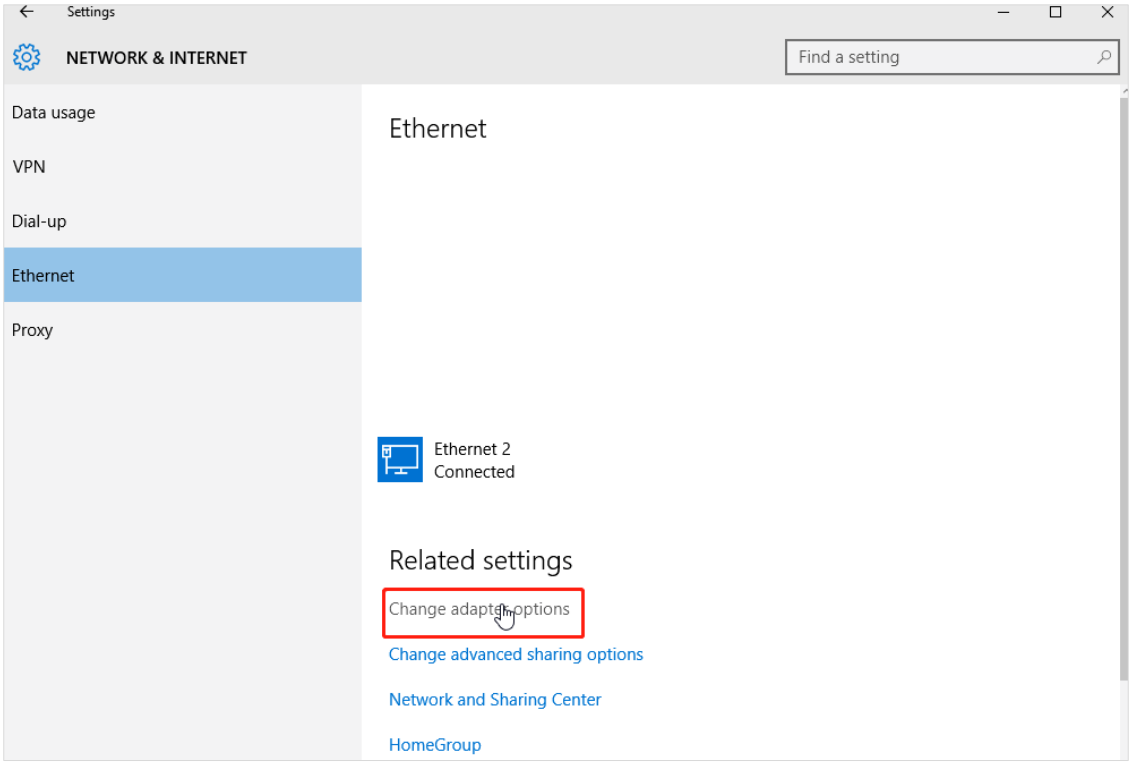
A.1 Configure the computer to obtain an IPv4/IPv6 address automatically

Perform the configuration procedure in 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 procedure. The procedures for configuring computers installed with WiFi network adapters are similar.

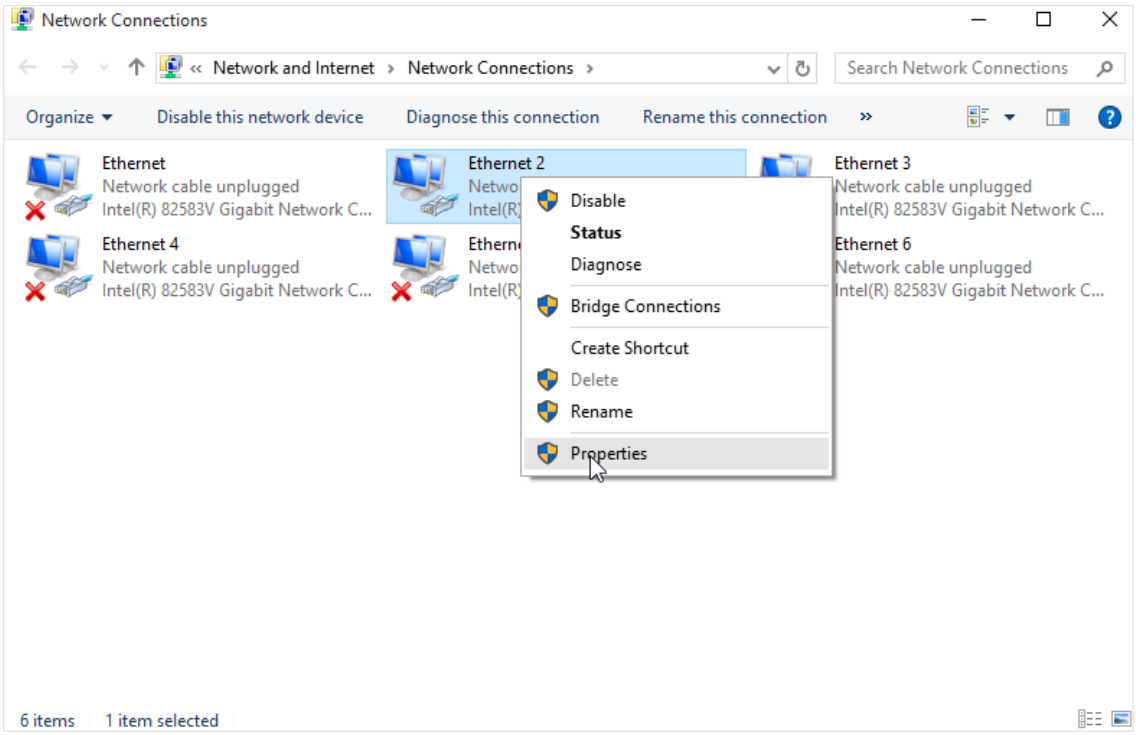
A.1.1 Windows 10

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

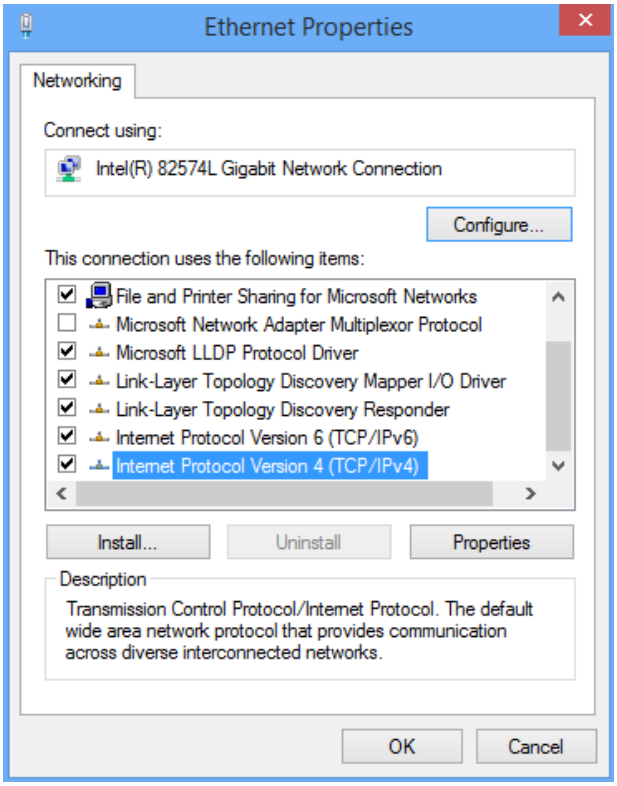
Step 2 Click **Change adapter options**.



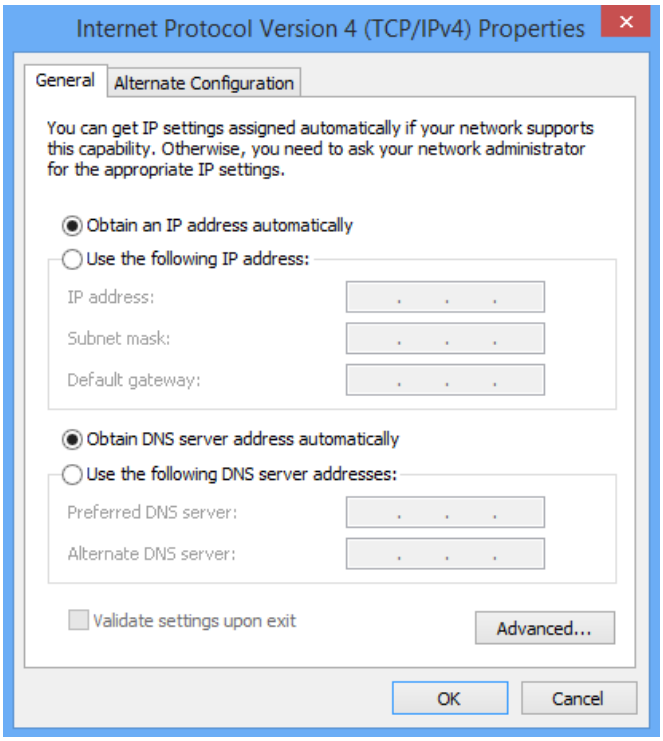
Step 3 Right-click on the connection in use, and then click **Properties**.



Step 4 Double-click **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**.



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

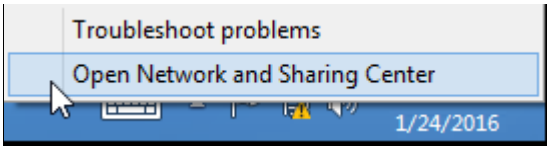


Step 6 Click **OK** in the **Ethernet Properties** window.

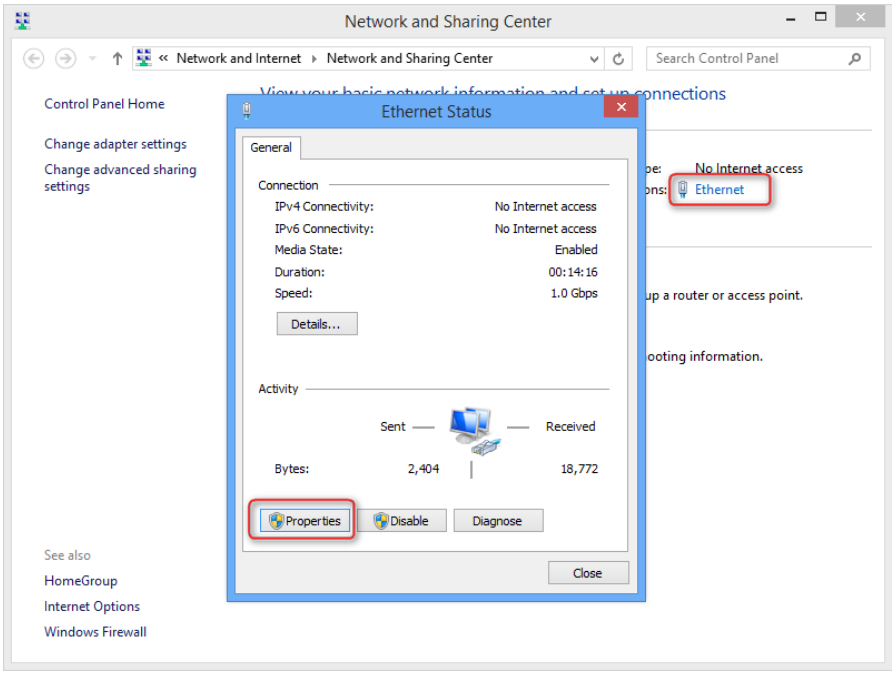
---End

A.1.2 Windows 8

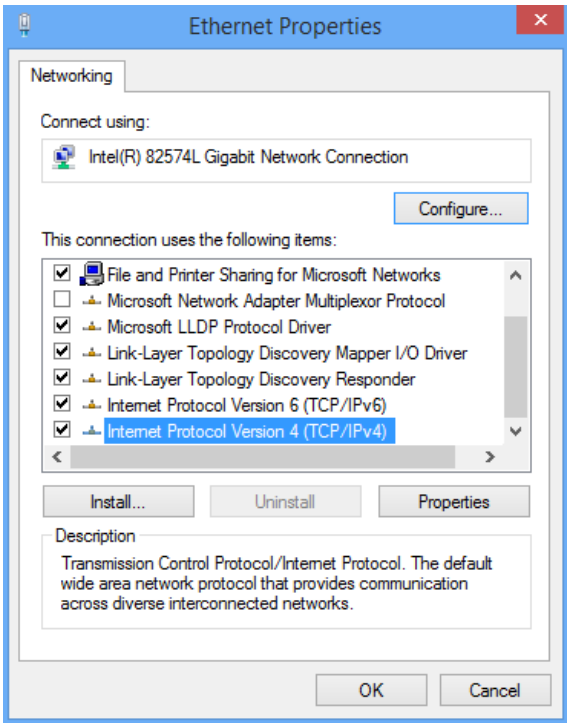
Step 1 Right-click in the bottom right corner of the desktop and choose **Open Network and Sharing Center**.



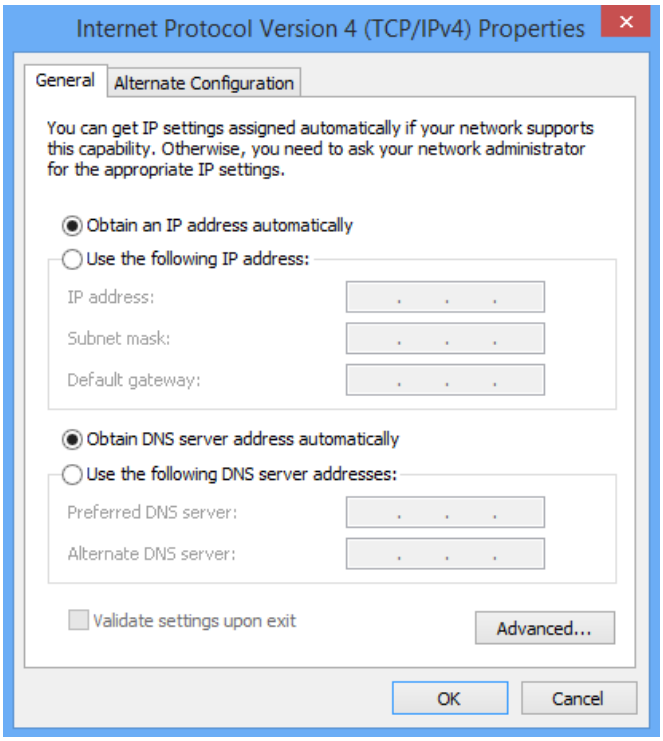
Step 2 Click **Ethernet** and then **Properties**.



Step 3 Double-click **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**.



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

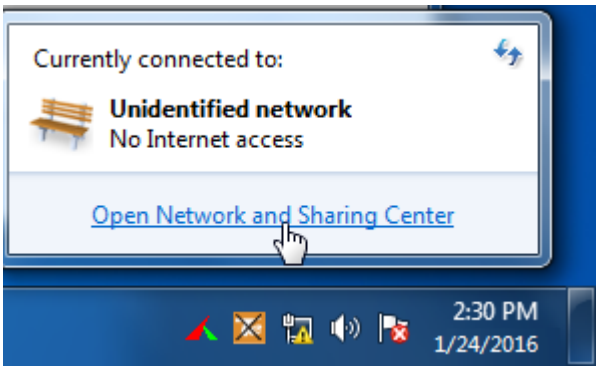


Step 5 Click **OK** in the **Ethernet Properties** window.

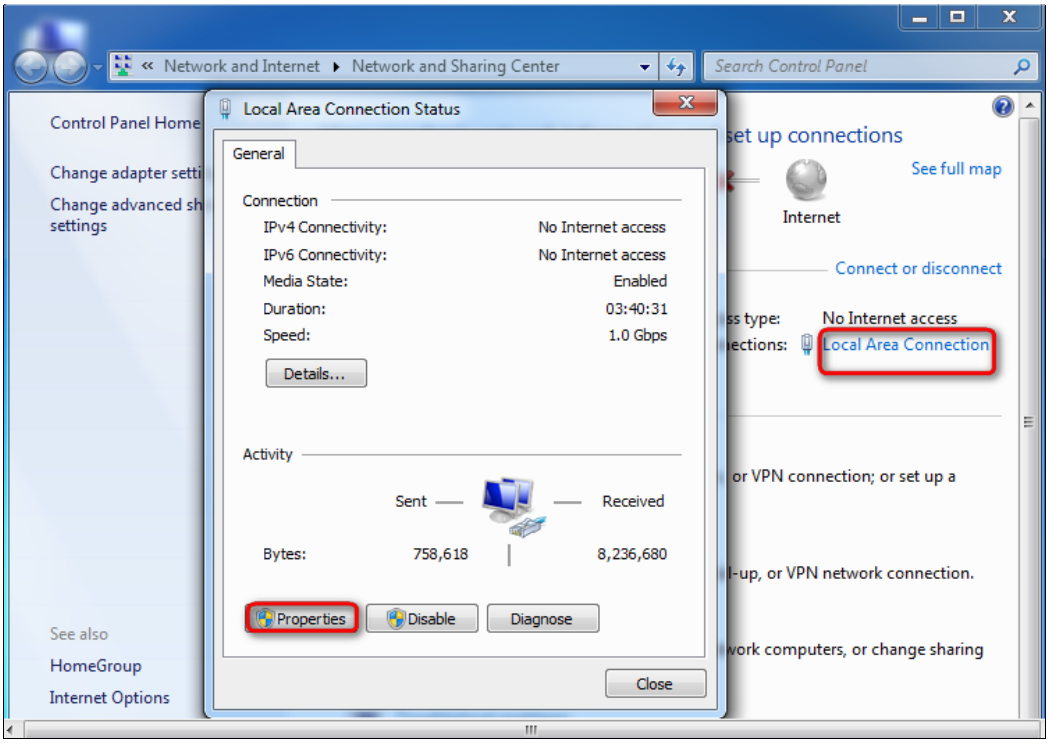
---End

A.1.3 Windows 7

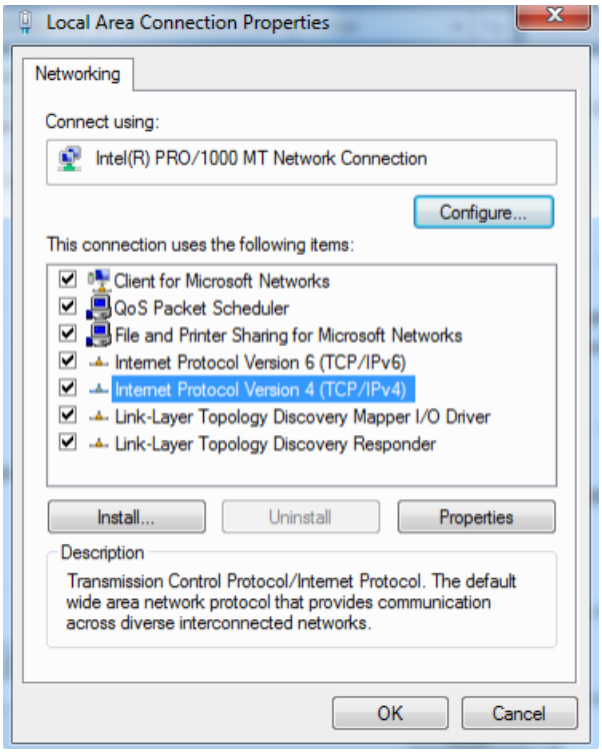
Step 1 Click in the bottom right corner of the desktop and choose **Open Network and Sharing Center**.



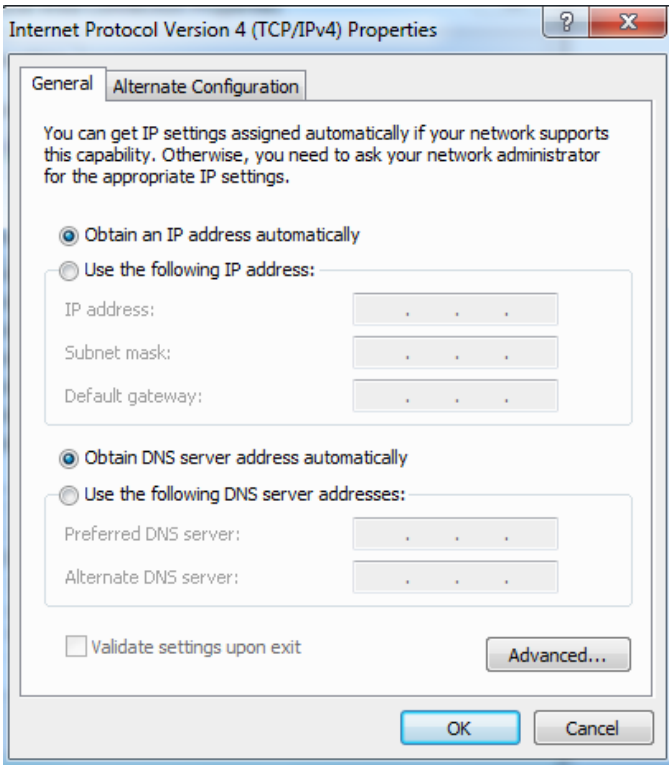
Step 2 Click **Local Area Connection** and then **Properties**.



Step 3 Double-click **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**.



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 Acronyms and abbreviations

Acronym or Abbreviation	Full Spelling
ACL	Access control list
ACS	Auto-Configuration Server
AES	Advanced Encryption Standard
ALG	Application Layer Gateway
AP	Access Point
APC	Angled Physical Contact
ARP	Address Resolution Protocol
ASCII	American Standard Code for Information Interchange
BSSID	Basic Service Set Identifiers
CPE	Customer Premise Equipment
CPU	Central processing unit
CTS	Clear To Send
CWMP	CPE WAN Management Protocol
DDNS	Dynamic Domain Name System
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol version 6
DMZ	Demilitarized zone
DND	Don't Disturb
DNS	Domain Name System
DTMF	Dual tone multi-frequency
DUID	DHCP unique identifier
EPON	Ethernet passive optical network
FQDN	Fully qualified domain name
FTP	File Transfer Protocol
FTTH	Fiber to the Home
HTTP	Hypertext Transfer Protocol

Acronym or Abbreviation	Full Spelling
HTTPS	Hypertext Transfer Protocol Secure
ICMP	Internet Control Message Protocol
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IMS	IP Multimedia Subsystem
IP	Internet Protocol
IPoE	Internet Protocol Over Ethernet
IPsec	Internet Protocol Security
IPTV	Internet Protocol television
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISP	Internet service provider
ITU	International Telecommunication Union
L2TP	Layer 2 Tunneling Protocol
LAN	Local Area Network
LTE	Long Term Evolution
MAC	Medium access control
MIB	Management information base
MLD	Multicast Listener Discovery
MPPE	Microsoft Point-to-Point Encryption
MTU	Maximum Transmission Unit
NAPT	Network Address Port Translation
NMS	Network Management System
OLT	Optical line termination
OMCI	ONU Management Control Interface
ONT	Optical Network Terminal
ONU	Optical network unit

Acronym or Abbreviation	Full Spelling
OS	Operating system
P2P	Peer-to-peer
PBC	Push Button Configuration
PIN	Personal Identification Number
PON	Passive optical network
PPP	Point-to-Point Protocol
PPPoE	Point-to-Point Protocol over Ethernet
PPTP	Point-to-Point Tunneling Protocol
RA	Router Advertisement
RADVD	Router Advertisement Daemon
RDNSS	Recursive DNS Server
RS	Router Solicitation
RSSI	Received Signal Strength Indicator
RTP	Real-time Transport Protocol
RTS	Request To Send
RTSP	Real Time Streaming Protocol
SC	Subscriber connector
SIP	Session Initiation Protocol
SLAAC	Stateless address autoconfiguration
SNMP	Simple Network Management Protocol
SNTP	Simple Network Time Protocol
SSID	Service set identifier
STB	Set-top box
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TKIP	Temporal Key Integrity Protocol
TR-069	Technical Report - 069

Acronym or Abbreviation	Full Spelling
UDP	User Datagram Protocol
UI	User interface
ULA	Unique Local Address
UPnP	Universal Plug and Play
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
VoLTE	Voice over Long-Term Evolution
WAN	Wide Area Network
WEP	Wired Equivalent Privacy
WLAN	Wireless Local Area Network
WPA	Wi-Fi Protected Access
WPA-PSK	WPA-Preshared Key
WPS	WiFi Protected Setup