




Configuration Guide

GPON OLT P1200-08

Version: V1.0

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1 Intended Audience

This document helps to learn configuration procedures of various services of TP-Link P1200-08 GPON OLT.

1.1 Command Conventions

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

| Convention | Description |
|-----------------|---|
| Boldface | The keywords of a command line are in boldface . |
| <i>Italic</i> | Command arguments are in <i>italics</i> . |
| [] | Items (keywords or arguments) in brackets [] are optional. |
| (x y ...) | Optional items are grouped in braces and separated by vertical bars. One item is selected. |
| [x y ...] | Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected. |
| <x-y> | One number from x to y can be selected |
| \$ | A line starting with the \$ sign is comments. |

1.2 Keyword Operation Conventions

| Convention | Description |
|-----------------|---|
| String with < > | It is key name. For example, <Enter>, <Tab>, <Backspace>, <a>, <?> etc, it means to press the key button |
| <Key 1 + Key 2> | It means to press the key at same time. For example <Ctrl+Alt+A> means to press “Ctrl”, “Alt”, “A” button together. |
| <Key 1 , Key 2> | It means to press the first button, then release, and press the second button. For example <Alt, F> means to press “Alt” first, then release “Alt” button, and then press “A” button. |

1.3 Symbol Conventions

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



This warning symbol means danger. You are in a situation that could cause bodily injury or broke the equipment. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents by making quick guide based on this guide.



Indicates a hazard with a high level of risk, which if not avoided, it will result in death or serious injury on human body.



Provides additional information to emphasize or supplement important points of the main text.

2 Overview of the System

This section describes each of the devices in our GPON environment. The GPON FTTx system is an all-optical, fiber-to-the-x system that can deliver triple-play services such as data, voice, video to residential and business subscribers.

The GPON FTTx system consists of the following network components.

- Optical Line - the optical line termination unit, located in the central office and provide GPON interface for access service.

The model number is P1200-08

- Optical Network Terminals - the optical network terminal located at the subscriber premises. The model numbers are:

- TX-6610, GPON SFU with 1 GE port
- TX-6961, 300Mbps Wireless N GPON Router
- TX-VG1530, 300Mbps Wireless N GPON HGU with VoIP
- XR500v, AC1200 Wireless GPON HGU with VoIP

- Optical passives

- PLC passive splitters
- FWDM for 1550nm video overlay GPON

3 System Access

3.1 Overview

The CLI of OLT can be used via local terminal connection or a remote session using Telnet. The OLT supports three methods users to use CLI to do the configuration:

- 1、Local access to the OLT through the RS232 console port on front panel.
- 2、Dedicated local Telnet connection to the OLT by using the management port on OLT front panel (outband interface).
- 3、Remote access over the provider's Ethernet/IP network by using Telnet. Therefore, an inband management channel, i.e., a specific management VLAN has to be configured.

3.2 Console Access

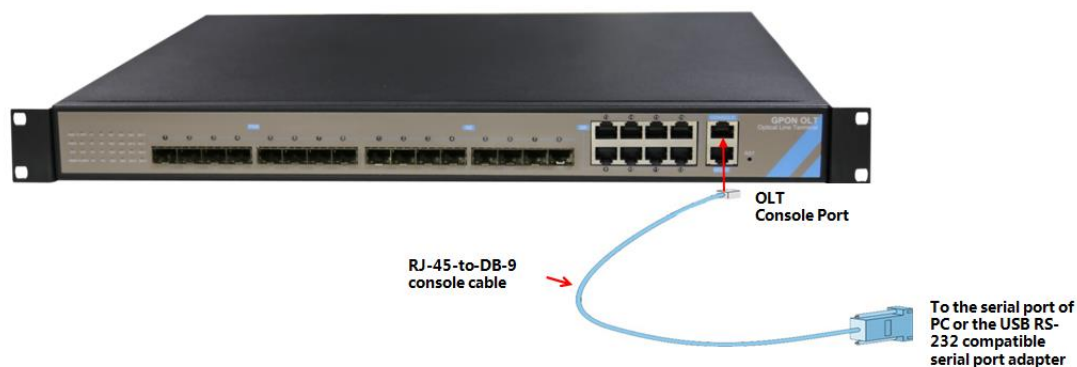
OLT provides a RJ45 type console interface marked as "CONSOLE".

Console access requires:

- Console cable: RJ45-to-DB9 console cable.
- Terminal emulation software: HyperTerminal, or some other tools with the same function.

The console cable is connected between the serial port of the host and the console port on the device. Most computers and notebooks no longer include built-in serial ports. If the host does not have a serial port, you can use a USB-to-RS232 convertor to expand a serial port for your

computer.



Run a VT terminal emulation software (e.g. HyperTerminal) with the attributes

Band Rate: 9600

Data Bit:8

Parity Check: NO

Stop Bit: 1

Flow Control: NO

When the OLT start up, the terminal program will display the login prompt automatically.

Access the OLT as follows:

1、 After starting the terminal session, the login prompt is displayed:

OLT>username:

2、 Enter the username and the password to move into the User mode. The default username is “root” and the default password is “admin”.

OLT>username: root

Password: (entered characters are hidden)

OLT>

3、 To configure and manage the system, enter the enable mode with command **enable**:

OLT>enable

OLT#

3.3 Telnet Access

There are two ways for TELNET access.

Outband Interface Access: You should configure your PC IP to 192.168.1.X (Except 192.168.1.100), connect to the MGMT port of OLT with ethernet, login the OLT with the default OLT management IP (Default IP : 192.168.1.100). Default username is “root” and the password is “admin”.

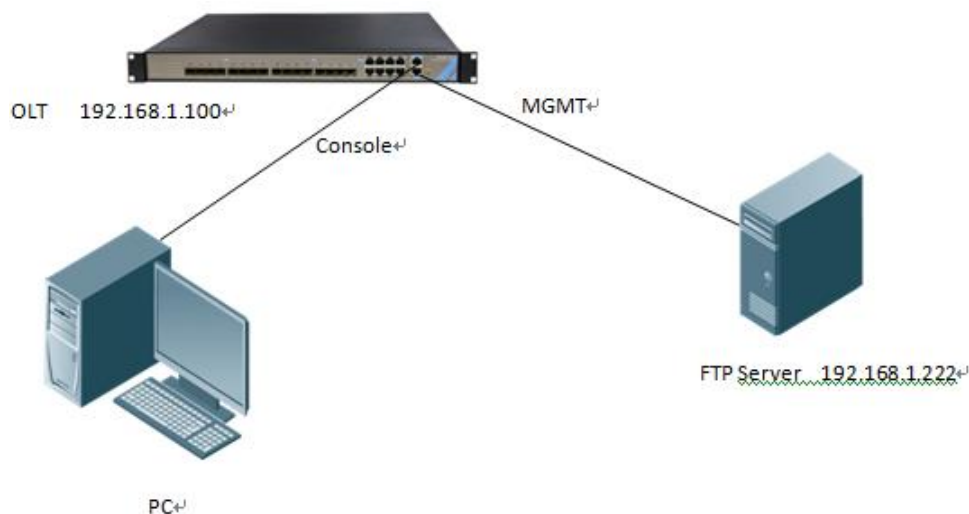
Inband Interface Access: You should login via console, and create a dedicated management VLAN for inband management, assigned an IP address to this interface, add the uplink port which the management PC is connected to this management VLAN. In the following example, the management PC will connect to the GE9 port and access the OLT through VLAN 100.

```
OLT> enable
OLT# config
OLT(config)# vlan 100
OLT(config)# interface vlanif 100
OLT(interface-vlanif-100)# ip address 192.168.1.99 255.255.255.0
OLT(interface-vlanif-100)# exit
OLT(config)# interface ge
OLT(interface-ge)# vlan access 9 100
OLT(interface-ge)# exit
```

4 Upgrade OLT Firmware

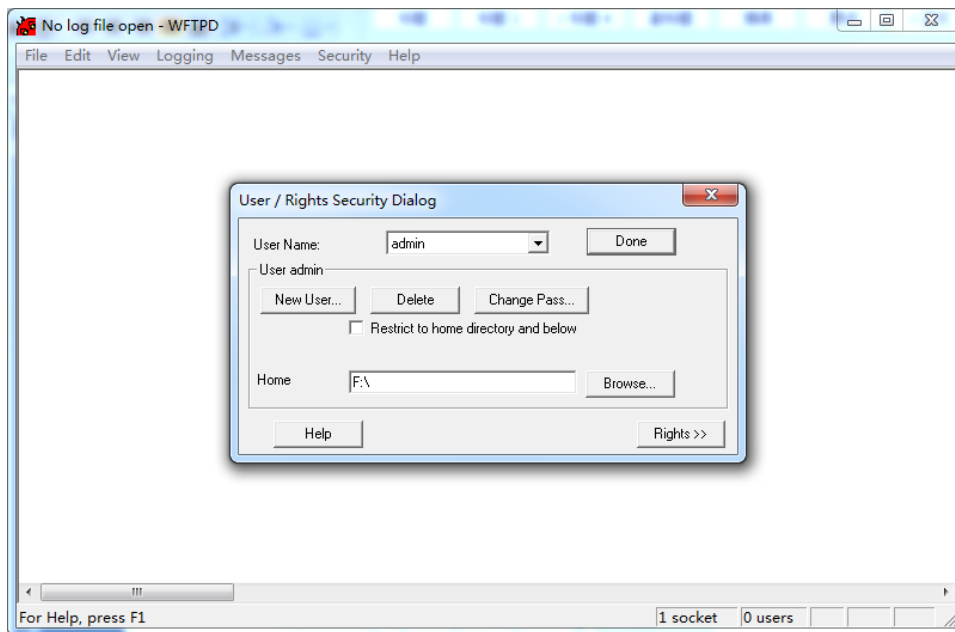
For OLT firmware upgrade, you need a FTP server (we use WFTPD as FTP Server in the following example) for FW download. Connects PC with the OLT's console port, the FTP server connects with MGMT port. FTP default login name and password is admin/admin, FTP server IP set to 192.168.1.222.

Checks the FTP server connected well by PING FTP server through the OLT.



FTP server configuration:

Security -> User/Rights Security Dialog -> User Name (set to admin) -> Change Password (set to admin) -> Home (choice the file folder of the upgrade software).



Use the command “**load packetfile ftp server-ip-address user-name user-password filename**” in Config Mode to upgrade the OLT as below.

```
OLT(config)# load packetfile ftp 192.168.1.222 admin admin
P1200-08_FW_V1.0.3_151015_1420.img
```

Broadcast message from root:

Upgrade is in process.

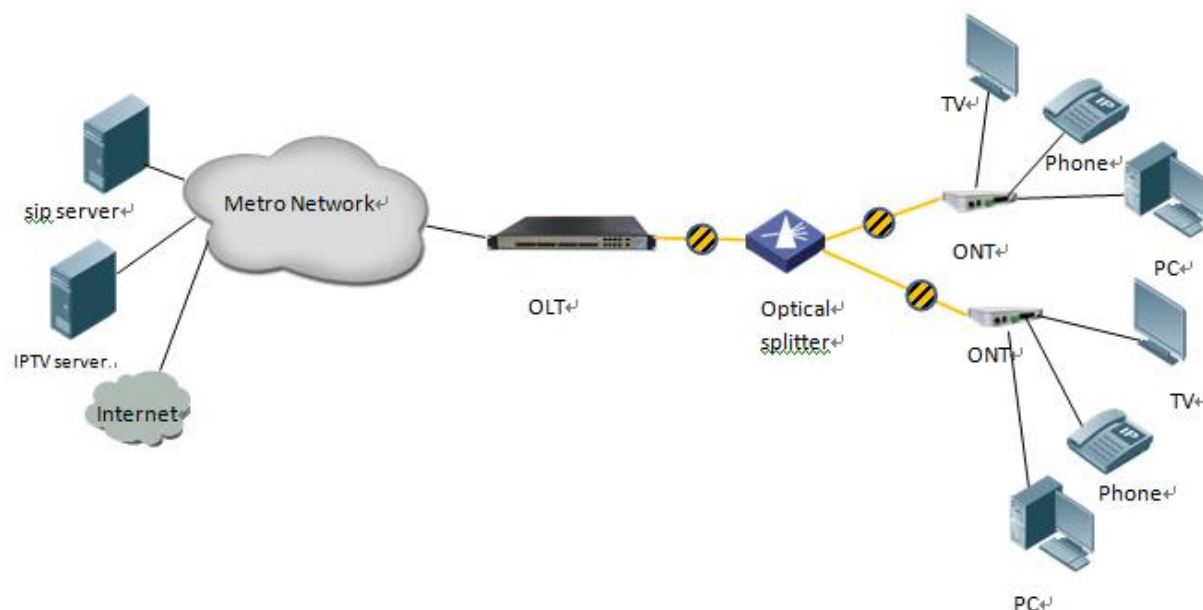
File [P1200-08_FW_V1.0.3_151015_1420.img] download OK

File [P1200-08_FW_V1.0.3_151015_1420.img] upgrade OK

5 Application Example

This section describes basic concepts related to the fiber to the home (FTTH) solution from the user side to the network side in FTTH networking using PON transmission.

We will give two examples of the configuration. One is layer 2 configuration, another is the layer 3 configuration.



5.1 Data Plan

The subsequent examples are configured based on the following data plan.

| Data Plan | |
|------------------------|---|
| Service Classification | Data |
| DBA Profile | Profile ID: 10 Profile Type: Type3 Assured Bandwidth: 8Mbit/s Maximum Bandwidth: 20Mbit/s |
| ONT Line Profile | Profile ID: 10 T-CONT ID: 1 Internet access service GEM Port ID: 11 VoIP service GEM Port ID: 12 IPTV service GEM Port ID: 13 |
| ONT Service Profile | Service Profile: 10 ONT Capacity: 4 Eth Port, 1 POTS |
| Network Data | PON Port: 1 ONT ID: 1、2 |

5.2 Create the GPON ONT profile

GPON ONT profiles include the DBA profile, line profile, service profile, traffic profile.

- DBA profile: A DBA profile describes GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving upstream bandwidth utilization.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed by using optical network terminal management and control interface (OMCI).
- Traffic profile: A traffic profile on GPON OLT is mainly applied to the ONU port for the port speed limit. Applying to an ACL for speed limits for a particular message. This profile can

restrict both upstream and downstream data.

➤ **Configure a DBA profile**

Run the **show dba-profile** command to query existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirements, run the **dba-profile** command to add a DBA profile.

Create the same DBA profile for different types of services. Set the profile ID to 10, profile type to type3, assured bandwidth to 8 Mbit/s, and maximum bandwidth to 20 Mbit/s.

```
OLT(config)# dba-profile profile-id 10
OLT(dba-profile-0)# type3 assure 8192 max 20480
OLT(dba-profile-0)# commit
```



NOTE:

The DBA implementation is based on an ONT. Therefore, select a DBA profile of the proper bandwidth type and configure proper bandwidth according to the service types and total user count of the ONT. Note that the sum of the fixed bandwidth and the assured bandwidth must not be greater than the total bandwidth of the PON port.

a. Configure an ONT line profile

Create a GPON ONT line profile, ID is 10, and bind T-CONT 1 to the DBA profile 10 in this line profile.

```
OLT(config)# ont-lineprofile profile-id 10
OLT(ont-lineprofile-10)# tcont 1 dba-profile-id 10
```

Create different GEM ports according to different service types, in which

- GEM port 11 is used to carry voice service.
- GEM port 12 is used to carry video service.
- GEM port 13 is used to Internet access services.

```
OLT(ont-lineprofile-10)# gem add 11 tcont 1
OLT(ont-lineprofile-10)# gem add 12 tcont 1
OLT(ont-lineprofile-10)# gem add 13 tcont 1
```

Use **commit** command to apply the parameters settings.

```
OLT(ont-lineprofile-10)# commit
OLT(ont-lineprofile-10)# exit
```

➤ **Configure an ONT service profile**

Create a GPON ONT service profile, ID 10. **Configure the capability set of the ETH port and POTS port to adaptive.** Then the system automatically adapts to the ONT according to the actual capability of the online ONT.

```
OLT(config)# ont-srvprofile profile-id 10
OLT(ont-srvprofile-10)# ont-port eth 4 pots 1
```

After the configurations are complete, run the commit command to apply the parameters setting.

```
OLT(ont-srvprofile-10)# commit
```

```
OLT(ont-srvprofile-10)# exit
```

➤ **Configure an ONT traffic profile**

Create a traffic profile, profile ID is 123, profile name is test, cir is 10240, pir is 409600, cbs is 20000, pbs is 20001.

```
OLT(config)# traffic-profile profile-id 123 profile-name test cir 10240 pir 409600 cbs 20000 pbs 20001
```

5.3 Add an ONT to OLT

Only when the ONT register to the OLT successfully, you can configure the service of the ONT. So, it is important to add and register the ONT to the OLT.

Connect two ONTs to GPON port 4. Set the ONT IDs to 1 and 2, SNs to DB1920223344 and AC120745660A. Bind the two ONTs to ONT line profile 10 and ONT service profile 10.

There are two methods of adding an ONT: add an ONT offline and confirm an automatically discovered ONT.

➤ **Add ONT one by one**

```
OLT(config)# interface gpon
```

```
OLT(interface-gpon)# ont autofind 4 enable
```

```
OLT(interface-gpon)# show ont autofind 4
```

//Uses this command to display all the ONT connected on that PON port.

```
OLT(interface-gpon)# ont add 4 1 sn-auth DB1920223344 ont-lineprofile-id 10 ont-srvprofile-id 10
```

Add pon 4 onu 1 successfully.

```
OLT(interface-gpon)# ont add 4 2 sn-auth AC120745660A ont-lineprofile-id 10 ont-srvprofile-id 10
```

Add pon 4 onu 1 successfully.

➤ **Add ONT in batch**

Uses **ont confirm** command to add ONT in batch.

```
OLT(config)# interface gpon
```

```
OLT(interface-gpon)# ont autofind 4 enable
```

```
OLT(interface-gpon)# show ont autofind 4
```

//Uses this command to display all the ONT connected on that PON port.

```
OLT(interface-gpon)# ont confirm 4 sn-auth HWTC56A88A28 ont-lineprofile-id 10 ont-srvprofile-id 10
```

Add pon 4 onu 1 successfully.

```
OLT(interface-gpon)# ont confirm 4 sn-auth ZTEGC13F0071 ont-lineprofile-id 10 ont-srvprofile-id 10
```

Add pon 4 onu 1 successfully.



NOTE:

If multiple ONTs of the same type bound to the same line profile or service profile are connected to the same port, you can add ONTs in bulk by confirming all the automatically discovered ONTs to make configuration easier and more efficient. To do so, the preceding command can be modified as follows::

```
OLT(interface-gpon)# ont confirm 4 all sn-auth ont-lineprofile-id 10 ont-srvprofile-id 10.
```

5.4 Check ONT Status

After an ONT is added, run the **show ont info** command to query the current status of the ONT. Ensure that **Config flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **success**, and **Match state** is **match**.

```
OLT(interface-gpon)# show ont info 4 2
```

```
-----  
PORT-ID: 4
```

```
ONT-ID : 2
```

```
Control flag : Active
```

```
Run state : Online
```

```
Config state : Success
```

```
Match state : Match
```

```
...// he rest of the response information is omitted.
```

When **Config state** is **failed**, **Run state** is **offline**, or **Match state** is **mismatch**:

- If Control flag is **deactive**, run the **ont active** command in GPON mode to activate the ONU.
- If **Run state** is **offline**, a physical line may be broken or the optical module may be damaged. Check the line and the optical module.
- If **Config state** is **failed**, the configured ONU capability exceeds the actual ONU capability.
- If the ONU does not match, that is, **Match state** is **mismatch**, the port types and number of ports do not match the actual port types and number of ports supported by the ONU. In this case, run the **show ont capability** command to query the actual capability of the ONU, and then select right one.

5.5 Configuring SFU (Bridge ONT)

This topic describes how to configure Internet access service when SFU is used to build an FTTH network.

Prerequisites

- The OLT is connected to the uplink device successfully
- The ONT has been added to the OLT. For details, see chapter 4.3.
- The VLAN of the LAN switch port connected to the OLT uplink port is the same as the uplink VLAN of the OLT.

Data Plan

| Item | Data |
|------------------|------------------|
| ONT Line Profile | Line Profile: 10 |

| | |
|--------------------------------|---|
| | T-CONT ID: 1 Internet Access Service GEM Port ID: 11 |
| Network topology and VLAN Plan | Upstream Port: GE9 VLAN: 100 PON Port: PON4 VLAN: 100 ONT1: Eth1 VLAN: 100 |

Configuration Process

➤ Configure the OLT:

- 1、 Configure the mapping between a GEM port and a VLAN

The service flow of C-VLAN 100 is mapped to GEM port 11 in the ONT line profile.

```
OLT(config)# ont-lineprofile profile-id 10
OLT(ont-lineprofile-10)# gem mapping 11 1 vlan-id 100
OLT(ont-lineprofile-10)# commit
OLT(ont-lineprofile-10)# exit
```

2. Configure the VLAN of the Ethernet port on the ONT

If the ONT is connected to the PC through Ethernet port 1, add Ethernet port 1 to VLAN 100 in the ONT service profile.

```
OLT(config)# ont-srvprofile profile-id 10
OLT(ont-srvprofile-10)# port vlan eth 1 100
OLT(ont-srvprofile-10)# commit
OLT(ont-srvprofile-10)# exit
```

3. Create an Internet access service VLAN and add an uplink port to it.

Add uplink port GE9 to VLAN 100.

```
OLT(config)# vlan 100
OLT(config)# interface ge
OLT(interface-ge)# vlan mode 9 hybrid
OLT(interface-ge)# vlan hybrid 9 tagged 100
ge9 : hybrid add tag vlan:
Fail: 0, Success: 1
```

4. Configure PON port vlan

Add PON port PON4 to VLAN 100 and set Ethernet port 1 native-vlan as 100.

```
OLT(config)# interface gpon
OLT(interface-gpon)# vlan mode 4 hybrid
OLT(interface-gpon)# vlan hybrid 4 tagged 100
OLT(interface-gpon)# port vlan native-vlan 4 1 eth 1 vlan 100
```

5. Binding the traffic profile

To restrict the Ethernet port 1's upstream and downstream data as the traffic profile set before.

```
OLT(interface-gpon)# ont port car 4 1 eth 1 inbound 123 outbound 123
```

6. Save the data

```
OLT(config)# save
```

➤ **The ONT does not need to be configured.**

----End

5.6 Configuring service on HGU (Gateway ONT)

This topic describes how to configure Internet access service, voice service, BTV service and VoD service when HGU is used to build an FTTH network.

The ONT integrating an IAD provides Internet, VoIP, and IPTV services to users. The HGU facilitates interconnection of home devices by providing Layer 3 services, such as Point-to-Point Protocol over Ethernet (PPPoE)/DHCP dial-up, network address translation (NAT), and Internet Group Management Protocol (IGMP) snooping. This scenario provides fine-grained management channels and service control, and mainly applies to Layer 3 networking.

4.6.1 Configuring the Internet Access Service

Prerequisites

- The OLT is connected to the uplink device successfully
- The ONT has been added to the OLT. For details, see chapter 4.3
- The VLAN of the LAN switch port connected to the OLT uplink port is the same as the uplink VLAN of the OLT

Data Plan

| Item | Data |
|--------------------------------|--|
| ONT Line Profile | Line Profile: 10 T-CONT ID: 1 Internet Access Service GEM Port ID: 11 |
| Network topology and VLAN Plan | Uplink Port: GE9 VLAN: 100 PON Port: PON4 VLAN: 100 ONT2 WAN: veip0.2 VLAN: 100 |

Configuring Process

➤ **Configure OLT:**

1、Configure the mapping between a GEM port and a VLAN.

The service flow of C-VLAN 100 is mapped to GEM port 11 in the ONT line profile.

```
OLT(config)# ont-lineprofile profile-id 10
```

```
OLT(ont-lineprofile-10)# gem mapping 11 1 vlan-id 100
```

```
OLT(ont-lineprofile-10)# commit
```

```
OLT(ont-lineprofile-10)# exit
```

2、Create an Internet access service VLAN and add an uplink port to it.

Add uplink port GE9 to VLAN 100.

```
OLT(config)# vlan 100
```

```
OLT(config)# interface ge
OLT(interface-ge)# vlan mode 9 hybrid
OLT(interface-ge)# vlan hybrid 9 tagged 100
ge9: hybrid add tag vlan:
Fail: 0, Success: 1
```

3、Configure PON port vlan

Add PON port PON4 to VLAN 100 and set Ethernet port 1 native-vlan as 100.

```
OLT(config)# interface gpon
OLT(interface-gpon)# vlan mode 4 hybrid
OLT(interface-gpon)# vlan hybrid 4 tagged 100
OLT(interface-gpon)# port vlan native-vlan 4 1 eth 1 vlan 100
```

4、Binding the traffic profile

To restrict the Ethernet port 1's upstream and downstream data as the traffic profile set before.

```
OLT(interface-gpon)# ont port car 4 1 eth 1 inbound 123 outbound 123
```

5、Save the data.

```
OLT(config)# save
```

➤ **Configure the ONT on the Web page. (Please reference of the user manual of 4FE+1POTS+WIFI)**

Log in to the Web page and then configure the ONT on the Web page:

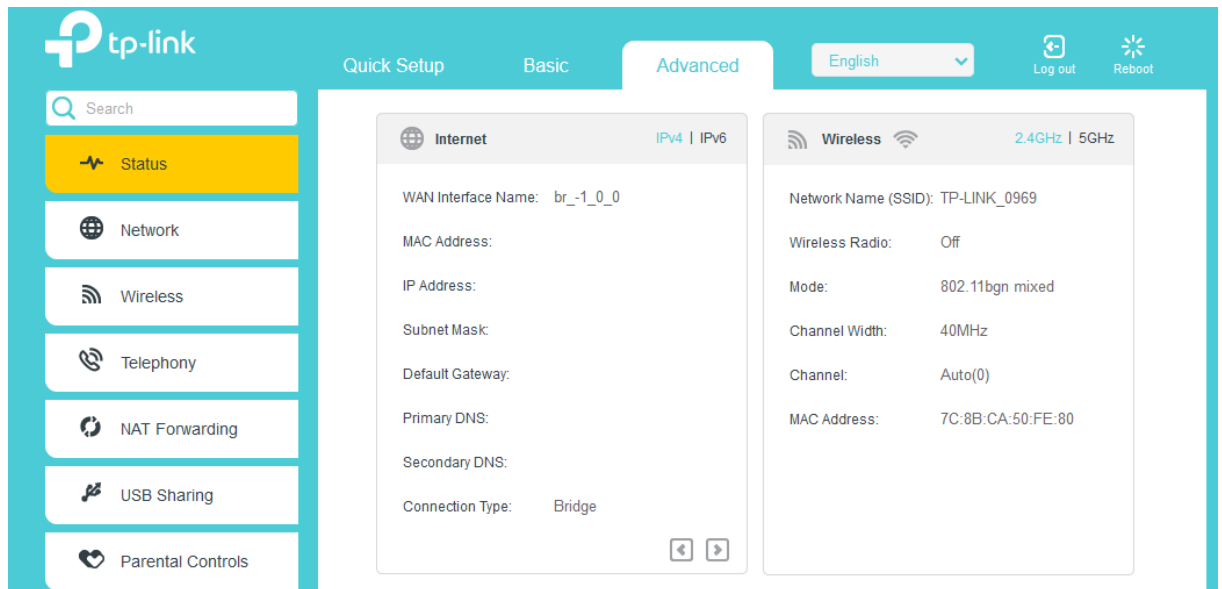
1、Configure the IP address of the PC network adapter to be in the same network segment with the IP address of the local maintenance Ethernet port on the ONT (default: 192.168.100.1).

2、Open the Web browser, and enter the IP address of the local maintenance Ethernet port on the ONT. In the login window, enter the user name (default: CUAdmin) and password (default: CUAdmin) of the administrator. After the password is authenticated, the Web configuration window is displayed.

3、Configure parameters of a WAN port.

4、Click Advance Setup→WAN→ADD, to add a WAN connection

- Select an interface in WAN service interface configuration(For example: veip0.2), then click next.



- Set WAN service type to **IPoE**.
- Set service description to **INTERNET**.
- Set 802.1Q VLAN ID to **100** (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)

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Quick Setup Basic **Advanced** English Log out Reboot

Search

Network

- Internet
- LAN Settings
- GPON Settings
- Dynamic DNS
- Static Routing
- IPv6 Tunnel

Wireless

Telephony

NAT Forwarding

USB Sharing

Parental Controls

Quality of Service

Security

Internet Connections

Refresh Add Delete All

| WAN Interface Name | VLAN ID | Status | Operation | Modify |
|--------------------|---------|--------|-----------|--------|
| -- | -- | -- | -- | -- |

VLAN Settings

VLAN: ☒ Enable

☐ Auto ☒ Manual

VLAN ID(0-4094):

Priority(0-7):

Multicast VLAN (0-4094):

Connection Type:

Username:

Password:

Confirm Password:

Connection Mode: ☒ Auto ☐ On Demand ☐ Manually

Authentication Type:

IPv4: ☒ Enable

Default Gateway:

IPv6: ☐ Enable

- Set WAN IP Mode to **Obtain an IP auto**.

Connection Type:

IPv4:

IP Address:

Subnet Mask:

Gateway:

Default Gateway:

IPv6: ☐ Enable

Static IP

Dynamic IP

PPPoE

Bridge

- Set **Enable NAT** to enable the NAT function.

⬆ Advanced

MTU Size: bytes.(The default is 1500, do not change unless necessary.)

NAT: ☒ Enable

Full-cone NAT: ☐ Enable

IGMP Proxy: ☒ Enable

Get IP Using Unicast DHCP: ☐ (It is usually not required.)

Use the Following DNS Addresses: ☐ Enable

Host Name:

- Set the default Gateway is **veip0.2**

Connection Mode: ☒ Auto ☐ On Demand ☐ Manually

Authentication Type:

IPv4: ☒ Enable

Default Gateway:

IPv6:

-   

- Set the DNS server interface to **veip0.2**.

IGMP Proxy: ☒ Enable

Use the IP Specified by ISP: ☐ Enable

Echo Request Interval: seconds. (0-120. The default value is 30.)



Use the Following DNS Addresses: ☒ Enable

Primary DNS:

Secondary DNS:

- Click **APPLY/Save** button in WAN Setup Summary window
- Check the WAN Connection, the **veip0** status is **Connected**, and get the IPv4 address success.

 Refresh  Add  Delete All

| WAN Interface Name | VLAN ID | Status | Operation | Modify |
|--------------------|---------|------------|------------|---|
| pppoe_100_0_3_d | 100 | Connecting | Disconnect |   |

4.6.2 Configuring Voice Service

Prerequisites

- The SIP interface data and POTS user data corresponding to the MG interface have been configured on the SIP server.
- The connection between the OLT and the SIP server is set up. The OLT can ping the IP address of the SIP server successfully.
- The ONT has been added to the OLT. For details, please refer chapter 4.2.
- Different voice services require different ONT software versions. Before the configuration, ensure that the current ONT software version supports SIP. For details, see relevant ONT manuals.

Data Plan

| Item | Data |
|--------------------------------|---|
| ONT Line Profile | Line Profile: 10 T-CONT ID: 1 VoIP Service GEM Port ID: 12 |
| Network topology and VLAN Plan | Upstream Port: GE9 VLAN: 200 PON Port: PON4 VLAN: 200 ONT2 WAN: veip0.3 VLAN: 200 |
| Voice Parameter | IP address of the SIP server: 200.200.200.200/24 Port of the SIP server: 5060 User phone number 1: 88880001 |

Configuration Process

➤ Configure the OLT

1. Configure the mapping relationship between a GEM port and a VLAN.

The service flow of C-VLAN 200 is mapped to GEM port 12 in the ONT line profile.

```
OLT(config)# ont-lineprofile profile-id 10
OLT(ont-lineprofile-10)# gem mapping 12 2 vlan-id 200
OLT(ont-lineprofile-10)# commit
OLT(ont-lineprofile-10)# exit
```

2. Create a service VLAN and add an uplink port to it.

Add uplink port GE9 VLAN 200

```
OLT(config)# vlan 200
```

```
OLT(config)# interface ge
OLT(interface-ge)# vlan hybrid 9 tagged 200
ge9: hybrid add tag vlan:
Fail: 0, Success: 1
```

3、Configure PON port VLAN

```
OLT(config)# interface gpon
OLT(interface-gpon)# vlan mode 4 hybrid
OLT(interface-gpon)# vlan hybrid 4 tagged 200
```

4、Save the data

```
OLT(config)# save
```

➤ **Configure the ONT on the Web page. (Please reference of the user manual of 4FE+1POTS+WIFI)**

Log in to the Web page and then configure the ONT on the Web page:

- 1、Configure the IP address of the PC network adapter to be in the same network segment with the IP address of the local maintenance Ethernet port on the ONT (default: 192.168.100.1).
- 2、Open the Web browser, and enter the IP address of the local maintenance Ethernet port on the ONT. In the login window, enter the user name (default: CUAdmin) and password (default: CUAdmin) of the administrator. After the password is authenticated, the Web configuration window is displayed.
- 3、Configure parameters of a WAN port.
 - a、Click Advance Setup→WAN→ADD, to add a WAN connection.
 - Set WAN service type to **lpoE**.
 - Set service description to **VOICE**.
 - Set 802.1Q VLAN ID to **200** (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)

| WAN Interface Name | VLAN ID | Status | Operation | Modify |
|--------------------|---------|--------|-----------|--------|
| -- | -- | -- | -- | -- |

VLAN Settings

VLAN: ☒ Enable

☐ Auto ☒ Manual

VLAN ID(0-4094):

Priority(0-7):

Multicast VLAN (0-4094):

Connection Type: PPPoE ▼

Static IP

Dynamic IP

PPPoE

Bridge

Username:

Password:

Confirm Password:

Connection Mode:

Authentication Type: Auto ▼

IPv4: ☒ Enable

Default Gateway: Current Connection ▼

IPv6: ☐ Enable

- Set WAN IP Mode to Obtain an IP auto.

Connection Type: Dynamic IP ▼

Static IP

Dynamic IP

PPPoE

Bridge

IPv4:

IP Address:

Subnet Mask:

Gateway:

- Set Enable NAT to enable the NAT function.

⬆ Advanced

| | | |
|----------------|--|--|
| MTU Size: | <input type="text" value="1500"/> | bytes.(The default is 1500, do not change unless necessary.) |
| NAT: | <input checked="" type="checkbox"/> Enable | |
| Full-cone NAT: | <input type="checkbox"/> Enable | |
| IGMP Proxy: | <input checked="" type="checkbox"/> Enable | |

- Set the default Gateway is **veip0.3**.

| | |
|------------------|---|
| Subnet Mask: | <input type="text" value="0.0.0.0"/> |
| Gateway: | <input type="text" value="0.0.0.0"/> |
| Default Gateway: | <input type="text" value="pppoe_100_0_3_d"/> |
| IPv6: | <input type="text" value="pppoe_100_0_3_d"/> |
| | <input type="text" value="Current Connection"/> |

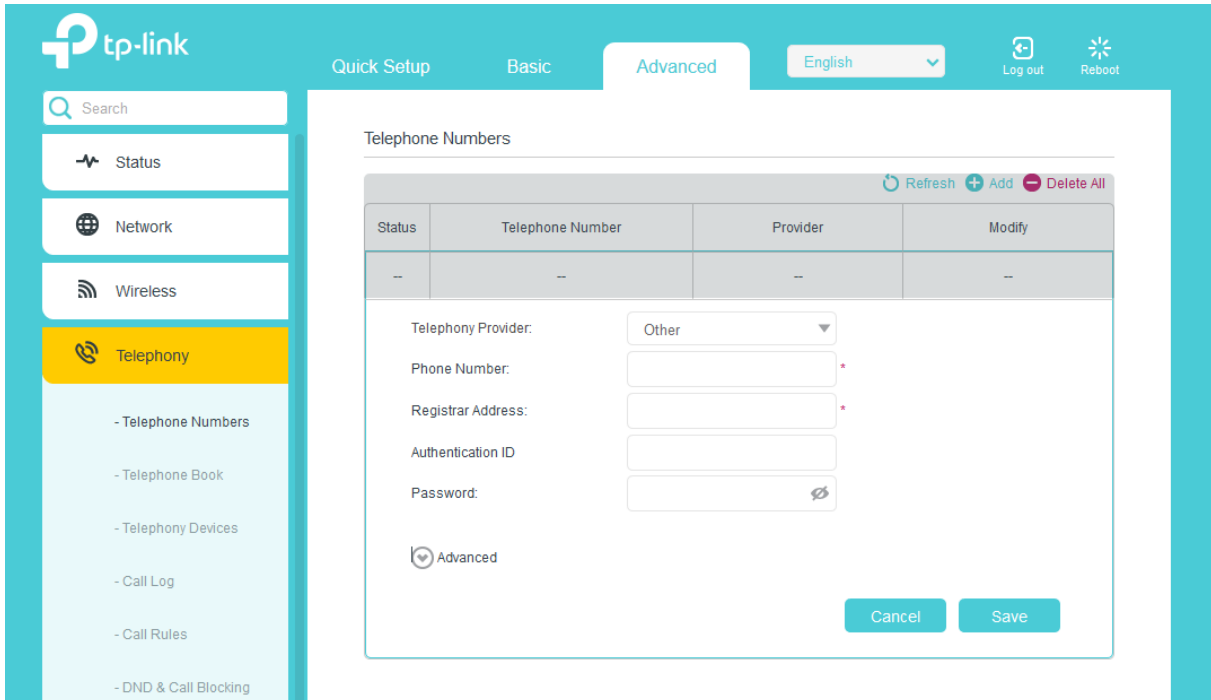
⬆ Advanced

- Set the DNS server interface to **veip0.3**.

| | |
|----------------------------------|--|
| Use the Following DNS Addresses: | <input checked="" type="checkbox"/> Enable |
| Primary DNS: | <input type="text" value="0 . 0 . 0 . 0"/> |
| Secondary DNS: | <input type="text" value="0 . 0 . 0 . 0"/> |
| Host Name: | <input type="text" value="Archer_XR500v"/> |

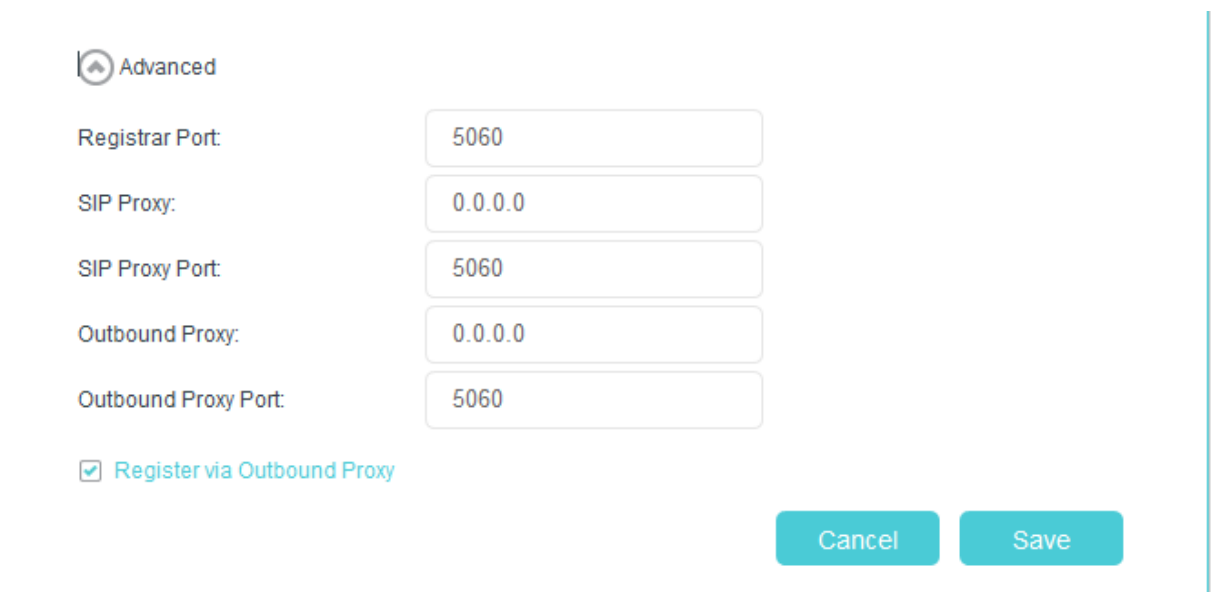
- Click **APPLY/Save** button in WAN Setup Summary window.

4、Configure parameters for the SIP-based voice interface



The screenshot shows the TP-Link web interface with the 'Advanced' tab selected. The left sidebar has 'Telephone' highlighted, with 'Telephone Numbers' as the active sub-menu. The main content area is titled 'Telephone Numbers' and contains a table with columns: Status, Telephone Number, Provider, and Modify. Below the table are input fields for 'Telephony Provider' (set to 'Other'), 'Phone Number', 'Registrar Address', 'Authentication ID', and 'Password'. There is also an 'Advanced' checkbox and 'Cancel' and 'Save' buttons at the bottom right.

a、Click Voice→Global parameters to choice the SIP protocol.



The screenshot shows the 'Advanced' tab in the TP-Link web interface. It displays configuration fields for SIP: 'Registrar Port' (5060), 'SIP Proxy' (0.0.0.0), 'SIP Proxy Port' (5060), 'Outbound Proxy' (0.0.0.0), and 'Outbound Proxy Port' (5060). A checkbox labeled 'Register via Outbound Proxy' is checked. 'Cancel' and 'Save' buttons are at the bottom right.

b、Click Voice > SIP Basic Seething> Service Provider0, configuring the SIP Registrar, SIP Proxy, SIP Account, Password etc.

c、Click Apply/Save

4.6.3 Configuring IPTV Service

The OLT is connected to the remote HGU device through a PON port, and provide users with the multicast service through the bridge WAN of the HGU.

Prerequisites

- The OLT has been connected to the uplink device and the program source.
- The VLAN of the LAN switch port connected to the OLT uplink port is the same as the uplink VLAN of the OLT.

Data plan

| Item | Data |
|--------------------------------|--|
| ONT Line Profile | Line Profile: 10 T-CONT ID: 1 IPTV GEM Port ID: 13 |
| Network topology and VLAN Plan | Uplink Port: GE9 VLAN: 300 PON Port: PON4 VLAN: 300 ONT2 WAN: Bridging VLAN: 300 Multicast VLAN: 300 |
| IPTV Service protocols | IGMPv3, IGMP Snooping |

Procedure

➤ Configuring the OLT

- Configure the mapping relationship between a GEM port and an Ethernet port on the ONT

```
OLT(config)# ont-lineprofile profile-id 10
OLT(ont-lineprofile-10)# gem mapping 13 3 vlan-id 300
OLT(ont-lineprofile-10)# commit
OLT(ont-lineprofile-10)# exit
```

- Create a multicast VLAN.

Create a multicast VLAN 300. Add the uplink port GE9 and PON port PON4 to the Multicast VLAN.

```
OLT(config)# vlan 300
OLT(config)# multicast-vlan 300
OLT(config)# multicast-unknown policy discard
OLT(multicast-vlan-300)# port ge 9
OLT(multicast-vlan-300)# port gpon 4
```

- Enable igmp-snooping.

```
OLT(config)# igmp-snooping enable
```

- Enable igmp-snooping querier.

```
OLT(config)# igmp-snooping querier enable
```

- Creating VLAN300 and add GE9 and PON4 to the VLAN.

```
OLT(config)# vlan 300
OLT(config)# interface ge
OLT(interface-ge)# vlan mode 9 hybrid
OLT(interface-ge)# vlan hybrid 9 tagged 300
ge9 : hybrid add tag vlan:
```

```

Fail: 0, Success: 1
OLT(interface-ge)# exit
OLT(config)# interface gpon
OLT(interface-gpon)# vlan hybrid 4 tagged 300
p4 : hybrid add tag vlan:
Fail: 0, Success: 1

```

- Save the data.

```
OLT(config)# save
```

➤ Configure the ONT

- Set Wan service to “Bridging”;
- Set WAN service type to “INTERNET”, select the check box of “Allow as IGMP Multicast Source”
- Set 802.1Q VLAN ID to 300, set Multicast VLAN to 300 (The VLAN ID of the ONT must be the same as the VLAN ID configured on the OLT)

VLAN Settings

VLAN: ☒ Enable

☐ Auto ☒ Manual

VLAN ID(0-4094):

Priority(0-7):

Multicast VLAN (0-4094):

Connection Type: Bridge ▼

Interface Binding

DHCP service:

☐ LAN1 ☐ LAN2 ☐ LAN3

Static IP

Dynamic IP

PPPoE

Bridge

LAN(s)

Cancel Save

- Click **Apply/Save**.
- Click Advance Setup→ LAN, select check box **Enable IGMP Snooping**.

Search

Network

- Internet
- LAN Settings
- GPON Settings
- Dynamic DNS
- Static Routing
- IPv6 Tunnel

Wireless

Telephony

NAT Forwarding

USB Sharing

DHCP Server

IP Version:

☒ IPv4
☐ IPv6

MAC Address:

7C-8B-CA-50-FE-80

IP Address:

192 . 168 . 1 . 1

Subnet Mask:

255.255.255.0

IGMP Snooping:

☒ Enable

Second IP:

☐ Enable

DHCP:

☒ Enable

☒ DHCP Server
☐ DHCP Relay

IP Address Pool:

192 . 168 . 1 . 100 - 192 . 168 . 1 . 199

Address Lease Time:

1440

minutes. (1-2880. The default value is 1440.)

Default Gateway:

192 . 168 . 1 . 1

(Optional)

Default Domain:

(Optional)

Primary DNS:

0 . 0 . 0 . 0

(Optional)

Secondary DNS:

0 . 0 . 0 . 0

(Optional)

Save

- Click Advance Setup→ LAN, Default version is 3.