

ZTE EPON SFU Products

1GE/1GE+CATV

User Manual

Version : V1.1

Contents

1	Note	1
1.1	Installation Precautions	1
1.2	Precautions for Use	1
2	Introduce	3
2.1	Product Feature	3
2.2	Environmental Requirements	4
2.3	Product Interface Definitions	5
2.4	Product LED Definitions	5
2.5	Device Connection	5
2.6	Network Application	6
3	ONU Local WEB login	6
3.1	ONU and PC physical Connection	6
3.2	Computer Access ONU Local WEB	7
4	ONU Registration Information Configuration	8
4.1	ONU Registration Status View	8
4.2	ONU Optical Power Information View	8
4.3	ONU Registration LOID Configuration	9
5	Internet Basic Configuration	10
5.1	Routing mode broadband Internet settings	10
5.2	Broadband Internet Access In Bridge Mode	15
5.3	View Broadband WAN Status	15
5.4	Delete Internet WAN Connection	15
6	ONU LAN configuration	16
6.1	LAN IP Address Configuration	16
7	Multicast / IPTV Service Basic Settings	17
8	CATV Management	18
8.1	CATV Parameter Configuration	18
8.2	CATV Information View	18
9	ONU Device Management	19
9.1	ONU Device Remote Access Settings	19
9.2	Restore Default	19
9.3	Software Upgrade	20
9.4	Reboot Device	20
	Concluding Remarks	21

1 Note

1.1 Installation Precautions

- Do not near flammable or conductive items, high temperature, direct sunlight or moist environment, or on PC chassis, and check whether other home equipment placed around stability
- Check the cable line. Test and confirm the ac or dc input voltage in the range of allowable, and direct current (dc) correct polarity.
- Unless the manufacturer has given permission, please use the volume and the types of the power supply with Ming products attached adapter
- To prevent lightning damage to the product, make sure that the power outlet and the power adapter ground are securely grounded. In the thunderstorm, be sure to unplug the power and all the connections.
- Equipment shall be less than 10% of the input voltage fluctuations, power plug with a refrigerator, hair dryer, electric iron not use the same socket.
- To avoid any damage to body by power socket overload, or damage to cause electric shock or fire plug, please check the power cord, if found damaged, please change immediately.
- Please place the equipment on the smooth plane and equipment cannot be placed on other items.
- Equipment is easy heat when working, should maintain the appropriate cooling space to avoid damage caused by overheating products. The elongated holes on the housing are designed for heat dissipation. Keep the ventilation clean and prevent the items from falling into the inside of the equipment. Doing so may cause damage or fire to the equipment. Do not spill liquid onto the surface of the equipment.

1.2 Precautions for Use

- Please read the user manual carefully before using the equipment and follow all the precautions on the user manual.
- Do not look straight at fiber which may damage the eyes. Please wear safety glasses to effectively protect your eyes from damage. Wear the fiber cap when fiber no in use.
- Power off the device when it not in use.
- Please make sure the power switch is closed before plug the power supply, to avoid surge. Please be careful when remove the power supply, transformer temperature may be higher.
- For safety, please do not open the shell of equipment, especially equipment power on.

- Unplug the power supply before cleaning equipment. Use a soft dry cloth cleaning equipment, do not use the liquid or spray.
- Do not use this product connected to any electronic products unless got our engineer allow. because any wrong connection may cause electricity or fire danger.

2 Introduce

ZTE EPON SFU series of terminal equipment is based on EPON technology based on the broadband access market, to meet the broadcaster operators broadband access and FTTH, and design passive optical network terminal products that integrate CATV optical receiver and achieve broadband, CATV dual network integration. It is based on mature and stable, cost-effective Gigabit EPON technology and integrate Gigabit Ethernet switching technology, WDM technology and HFC light reception technology, with high reliability, easy management and good quality of service (QoS) and so on. Technical performance of equipment meet the IEEE802.3ah, China Telecom EPON equipment technical requirements (V2.1 / V3.0) and other requirements.

EPON technology is a combination of PON technology and Ethernet technology advantages of emerging technologies, is a point to multi-point networking technology, with high bandwidth, high efficiency, large coverage, rich user interface and many other advantages, is the operator to achieve access network business broadband, integrated transformation of the ideal technology.

ZTE chipset EPON SFU series also integrates powerful routing and forwarding functions by default in the case of SFU (pure data). It is easy to manage and can be flexibly upgraded, expanded, and networked. The equipment has been implemented with EPON central office equipment (Huawei / ZTE / FiberHome / Alcatel-Lucent) OLT) interoperability, composed of Gigabit systems, to meet access needs of the two-in-one video, data services, FTTH / FTTO.

2.1 Product Feature

- Internet, CATV, IPTV service access
- Equipment technical performance meets IEEE802.3ah, China Telecom CTC 2.1 & CTC3.0 standard
- Support bidirectional FEC, supports the RS (255, 239) FEC decoding
- Supports default SFU (pure bridged data) access

- Support PPPoE, DHCP, static IP broadband service access
- Support NAT, static routing, port forwarding
- Support data encryption, VLAN transparent, vlan tag, vlan trunk
- Support up and down traffic limit function
- Supports port loop detection / port link status detection / power dying gasp alarm
- Support OLT remote upgrade / WEB local upgrade function
- Supports broadcast storm suppression
- Support port isolate between different port.
- Support port flow control
- Support managed by different manufacturers OLT work as SNMP-agent. Easy to install and maintain
- Provide a variety of fault alarm function, easy to fault diagnosis
- Support AES-128 decryption, support key generation and switching
- Support DBA technology and priority Dual management model to ensure minimum bandwidth requirements for users
- Support CATV service remote shutdown function
- Working wavelength: 1100 - 1650nm
- Optical reflection loss:> 45dB
- Input optical power: -18dBm ~ 0dBm

2.2 Environmental Requirements

Operation temperature: -0°C~50°C

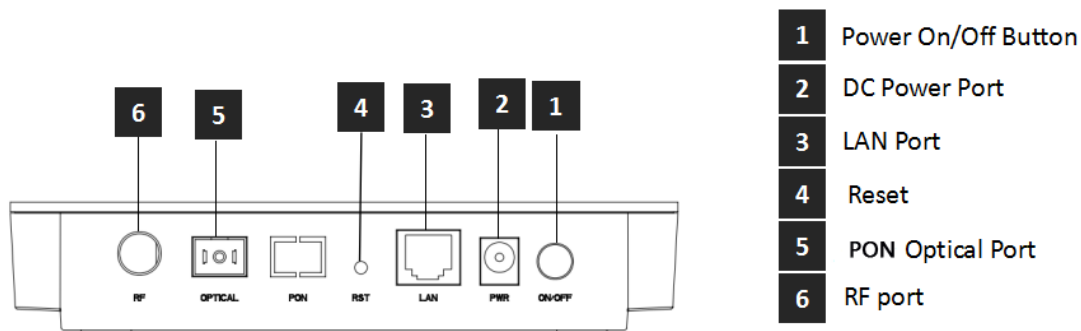
Operation humidity: 10%—90%(Non-condensing)

Power adapter input: 12V / 0.5A

Transmitted optical power: 0~4dBm

Input optical power: -3 ~ -27dBm

2.3 Product Interface Definitions



2.4 Product LED Definitions



Indicator			Description
1	PWR	Power status	On: The ONU is power on Off: The ONU is Power off
2	LANn	LAN port status	On: Ethernet connection is normal Blinking: Data is being transmitted through the Ethernet port Off: Ethernet connection is not set up
3	PON	ONU Register	On: Success to register to OLT Blinking: In process of registering to OLT Off: Failed to register to OLT;
4	LOS	GPON optical signals	On: Optical power lower than receiver sensitivity ; Off: Optical in normal
5	CATV	CATV status	On : CATV optical normal Off : The CATV signals are not received

2.5 Device Connection

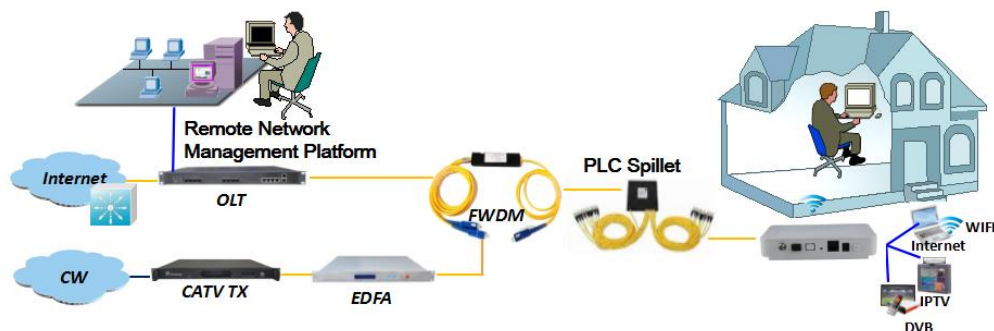
- Connecting the fiber: Insert the SC fiber connector into the PON connector on the rear panel of the ONU.
- Connect the Ethernet cable: Connect the RJ-45 Ethernet cable to any LAN port

of the ONU and the home device, ie, the computer, IPTV set-top box.

- Connecting the coaxial cable: Connect the coaxial cable to the RF connector of the ONU.
- Connect the AC adapter: Plug the AC / DC adapter into the AC wall jack and the ONU 12V DC power jack.

2.6 Network Application

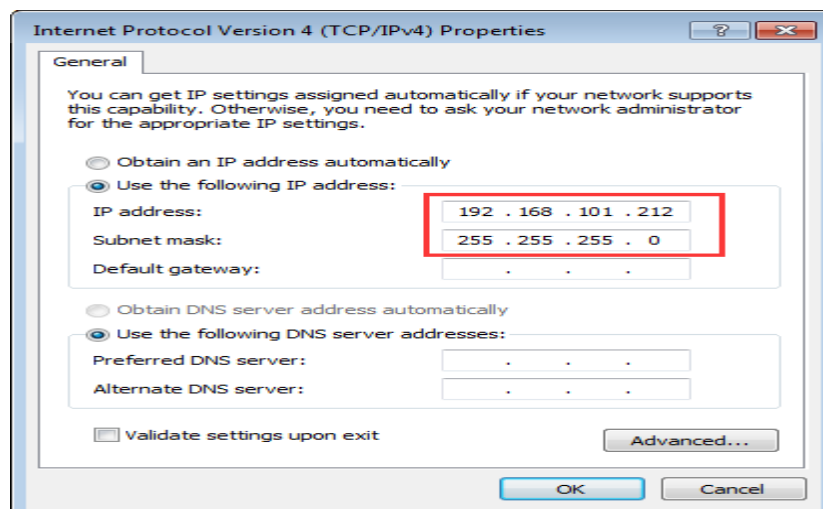
【1GE + CATV ONU networking applications】



3 ONU Local WEB login

3.1 ONU and PC physical Connection

- Connect your computer's local network card to the LAN port or ETH port of the ONU via a network cable.
- Set the IP address of the computer's local network card to **192.168.101.X (X: 2-254)**.



- The computer opens the cmd window. To ensure that the computer can ping ONU

management ip address **192.168.101.1**

```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\tcll>ping 192.168.101.1

Pinging 192.168.101.1 with 32 bytes of data:
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.101.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\tcll>
```

3.2 Computer Access ONU Local WEB

In the case # 3.1 computer can communicate with the ONU, open the computer's **Web browser (IE, Firefox, google)**, copy and paste the ONU access URL: <http://192.168.101.1>, pop-up as follows ONU prompt landing page:



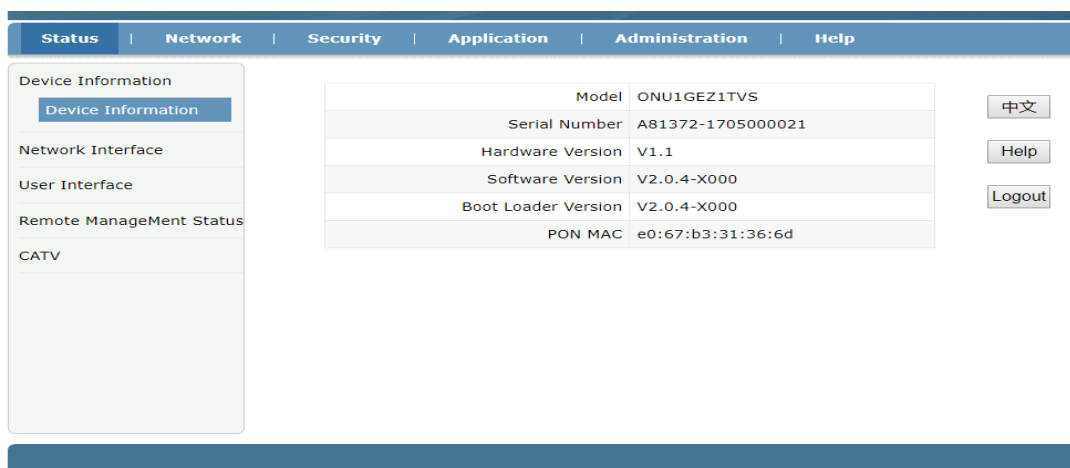
Please login to continue... 中文

Username

Password

Login Reset

Enter the ONU super login user: **adminisp** password: **adminisp** Click "Login" button, there will be the following ONU main login interface:

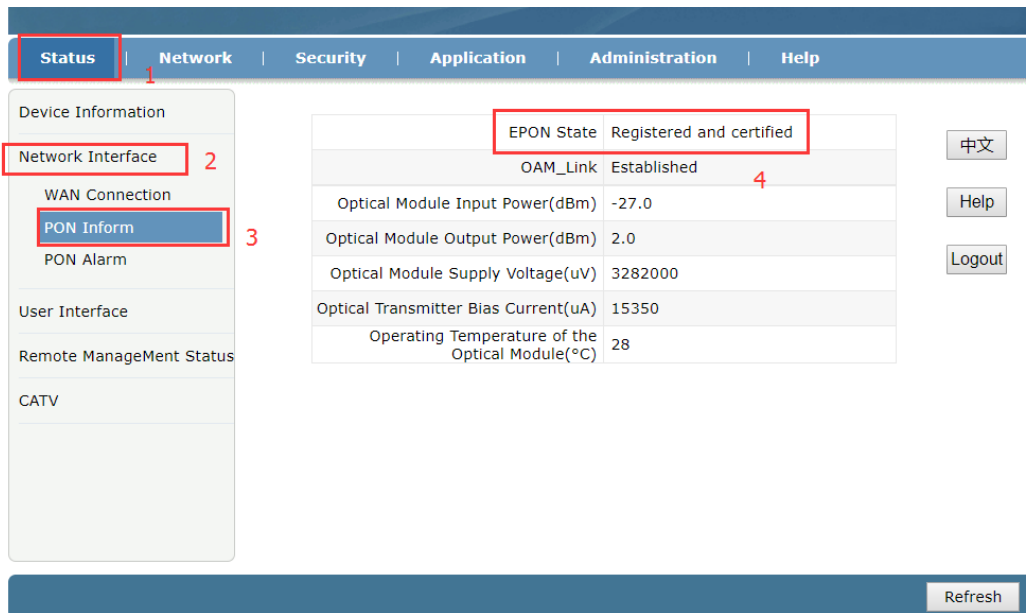


After entering the main interface of the ONU, the ONU can be set up further. For details, see the following setup guide.

4 ONU Registration Information Configuration

4.1 ONU Registration Status View

web login ONU select the **Status ->Network interface -> PON inform**, you can check whether the ONU registered successfully:



EPON State	Registered and certified
OAM_Link	Established
Optical Module Input Power(dBm)	-27.0
Optical Module Output Power(dBm)	2.0
Optical Module Supply Voltage(uV)	3282000
Optical Transmitter Bias Current(uA)	15350
Operating Temperature of the Optical Module(°C)	28

4.2 ONU Optical Power Information View

web login ONU select the **Status -> Network interface -> PON inform**, you can view the ONU input and output optical power information:

EPON State	Registered and certified
OAM_Link	Established
Optical Module Input Power(dBm)	-27.0
Optical Module Output Power(dBm)	2.0
Optical Module Supply Voltage(uV)	3282000
Optical Transmitter Bias Current(uA)	15350
Operating Temperature of the Optical Module(°C)	28

4.3 ONU Registration LOID Configuration

The LOID of the ONU is mainly applicable to the authentication mode of LOID and LOID + Password. General EPON ONU authentication method is MAC address, and rarely use the LOID authentication mode, so normal circumstances do not need to configure the LOID. The LOID of the ONU is configured as follows:

1.web login ONU select the **Network -> PON -> LOID**, you can set and view the ONU LOID and password:

2.After completing the LOID and password settings, you can click the "**Submit**" button below to complete the setup.

5 Internet Basic Configuration

ZTE ONU series of products support route function, Internet can work by route mode or bridge mode, the difference between the two modes are as follows:

Routing mode Broadband Internet access: ONU as a home gateway equipment, ONU on route mode can obtained IP address in three ways: **DHCP**, **static IP** and **PPPoE**. The IP address of the user terminal device (PC, etc.) obtained by the ONU own DHCP address pool or manually set the static IP address the same as DHCP address pool.

Bridging mode broadband Internet access: ONU itself will not get the IP address assigned by the upper device, or can not manually set the static IP address, then ONU as a relay device. The IP address of the user device (PC) connecting the ONU LAN port obtained by the OLT upper layer server. The PC is connected to the Internet through DHCP, PPPoE, and static ip address.

5.1 Routing mode broadband Internet settings

5.1.1 PPPoE broadband Internet access in routing mode

1. web login ONU and select **Network -> WAN -> WAN Connection**, and then set the following parameters:

【Connection name】 Select "Create WAN Connection".

【New Connection name】 According to own convenience to specify.

【Enable Vlan】 This one can be set according to the network planning situation, if the network planning Internet vlan, this one need to check the "Enable vlan"; If the network is not planning Internet vlan, this one does not need to check, then ONU is vlan transparent mode.

【Vlan ID】 The same as "Enable Vlan", Setting depending on the network vlan planning.

【802.1p】 Set the priority of vlan, The same as "enable Vlan", depending on the network vlan planning to configure. The default priority is 0.

【Type】 select "Route".

【Service List】 Select internet. route mode access internet are generally select

internet.

【MTU】 The default is 1492 does not need to modify; if you meet can ping DNS but the web browser can not access the site. Modify MTU smaller, such as: 1400.

【Link Type】 Select "PPPoE".

【Username】 Enter the PPPoE Internet PPPoE account provided by the network operator.

【Password】 Enter the PPPoE password provided by the network operator.

【Authentication Type】 Select "Auto".

【IP Version】 The default is "Ipv4". ONU itself does not support IPV6.

【Enable NAT】 Check the "Enable NAT" function; NAT function is mainly used for internal network and external network communication address translation function, the default is checked enabled state, if not check the network ONU not get the network.

Note: ZTE solution ONU series of products is no port binding function, because the ONU is SFU (pure data)+ Routing, the ONU either works in SFU mode, or is working in routing mode.

2. After the above configuration, click "**create**" button to complete the PPPoE broadband Internet access settings.

5.1.2 DHCP broadband Internet access in routing mode

1. web login ONU and select **Network -> WAN -> WAN Connection**, and then set the following parameters:

【Connection name】 Select "Create WAN Connection".

【New Connection name】 According to own convenience to specify.

【Enable Vlan】 This one can be set according to the network planning situation, if the network planning Internet vlan, this one need to check the "Enable vlan"; If the network is not planning Internet vlan, this one does not need to check, then ONU is vlan transparent mode.

【Vlan ID】 The same as "Enable Vlan", Setting depending on the network vlan planning.

【802.1p】 Set the priority of vlan, The same as "enable Vlan", depending on the network vlan planning to configure. The default priority is 0.

【Type】 Select "Route".

【Service List】 Select internet. route mode access internet are generally select internet.

【MTU】 The default is 1492 does not need to modify; if you meet can ping DNS but the web browser can not access the site. Modify MTU smaller, such as: 1400.

【Link Type】 Select "IP".

【IP Version】 The default is "Ipv4". ONU itself does not support IPV6.

【IP Type】 Select "DHCP".

【Enable NAT】 Check the "Enable NAT" function; NAT function is mainly used for internal network and external network communication address translation function, the default is checked enabled state, if not check the network ONU not get the network.

Note: ZTE solution ONU series of products is no port binding function, because

the ONU is SFU (pure data)+ Routing, the ONU either works in SFU mode, or is working in routing mode.

2.After the above configuration, click "create" button to complete the DHCP broadband Internet access settings.

5.1.3 Static IP Broadband Internet Access In Routing Mode

1.web login ONU and select **Network -> WAN -> WAN Connection**, and then set the following parameters:

【Connection name】 Select "Create WAN Connection".

【New Connection name】 According to own convenience to specify.

【Enable Vlan】 This one can be set according to the network planning situation, if the network planning Internet vlan, this one need to check the "Enable vlan"; If the network is not planning Internet vlan, this one does not need to check, then ONU is vlan transparent mode.

【Vlan ID】 The same as "Enable Vlan", Setting depending on the network vlan planning.

【802.1p】 Set the priority of vlan, The same as "enable Vlan", depending on the network vlan planning to configure. The default priority is 0.

【Type】 Select "Route".

【Service List】 Select internet. route mode access internet are generally select

internet.

【MTU】 The default is 1492 does not need to modify; if you meet can ping DNS but the web browser can not access the site. Modify MTU smaller, such as: 1400.

【Link Type】 Select "IP".

【IP Version】 The default is "Ipv4". ONU itself does not support IPV6.

【IP Type】 Select "static".

【Enable NAT】 Check the "Enable NAT" function; NAT function is mainly used for internal network and external network communication address translation function, the default is checked enabled state, if not check the network ONU not get the network.

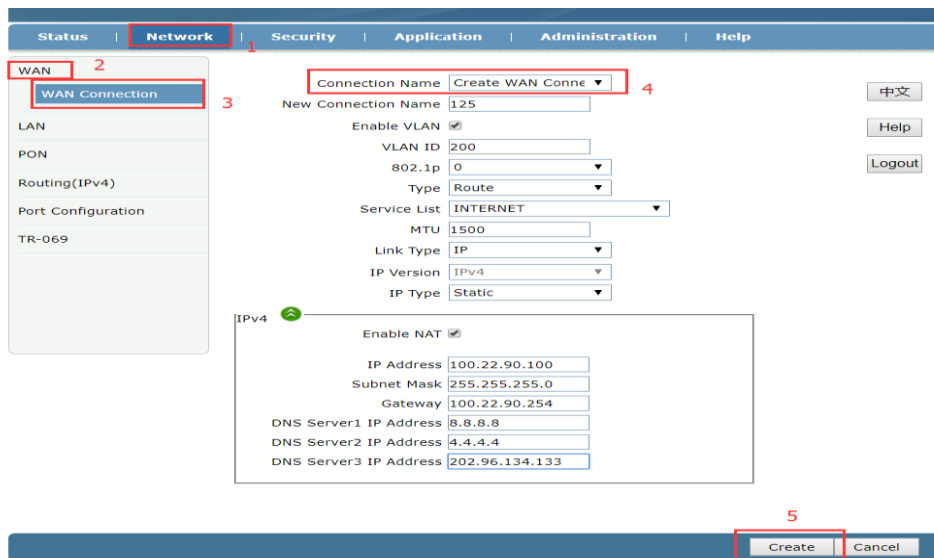
【Ip Address】 Static ip address access Internet.

【Subnet Mask】 Subnet Mask of Static ip address.

【Gateway】 The default gateway for static ip address Internet access.

【DNS Server1 IP Address/DNS Server2 IP Address/DNS Server3 IP Address】 The first DNS, the second DNS and the third DNS for for static ip address Internet access.

Note: ZTE solution ONU series of products is no port binding function, because the ONU is SFU (pure data)+ Routing, the ONU either works in SFU mode, or is working in routing mode.



2. After the above configuration, click **"create"** button to complete the Static IP broadband Internet access settings.

5.2 Broadband Internet Access In Bridge Mode

ZTE solution ONU series products factory default mode in the bridge (pure data SFU), ONU bridge mode Internet does not need to do any configuration in the web interface. Just configure the correct ONU port vlan (eg access, trunk, transparent) in the OLT

Note: If ONU was in route mode for Internet. Please disable ONU's DHCP function if need change to bridge mode. It is best to delete route WAN configuration.

5.3 View Broadband WAN Status

web login ONU and select the **status -> Network interface -> WAN Connection**, you can see the status of the WAN connection in the routing mode, check whether the routing WAN has the correct IP address, and whether the bridge WAN status is "UP"

The screenshot shows the ONU web interface. The top navigation bar includes **Status**, **Network**, **Security**, **Application**, **Administration**, and **Help**. The left sidebar menu has **Device Information**, **Network Interface**, **WAN Connection**, **PON Inform**, **User Interface**, **Remote Management Status**, and **CATV**. The main content area displays the WAN Connection status table.

Type	DHCP
Connection Name	124
IP Version	IPv4
NAT	Enabled
IP	192.168.5.169/255.255.255.0
DNS	192.168.5.1/0.0.0.0/0.0.0.0
IPv4 Gateway	192.168.5.1
IPv4 Connection Status	Connected
IPv4 Disconnect Reason	None
IPv4 Online Duration	11 sec
Remaining Lease Time	1789 sec
WAN MAC	e0:67:b3:51:4e:92

On the right side of the interface, there are buttons for **中文**, **Help**, and **Logout**. At the bottom right, there is a **Refresh** button.

5.4 Delete Internet WAN Connection

web login ONU and select the **Network -> WAN -> WAN Connection**, select a WAN connection in the **"Connection Name"**, and then click the **"Delete"** button at the bottom of the page to complete the deletion:

The screenshot displays the WAN configuration page of a ZTE ONU. The 'Network' tab is active, and the 'WAN Connection' sub-tab is selected. The configuration fields are as follows:

- Connection Name:** 123
- New Connection Name:** 123
- Enable VLAN:** ☒
- VLAN ID:** 100
- 802.1p:** 0
- Type:** Route
- Service List:** INTERNET
- MTU:** 1492
- Link Type:** PPP
- PPP Configuration:**
 - Username: test
 - Password: ****
 - Authentication Type: Auto
 - Connection Trigger: Always On
- IPv4 Configuration:**
 - IP Version: IPv4
 - PPP TransType: PPPoE
 - Enable NAT: ☒

At the bottom right, there are 'Modify' and 'Delete' buttons.

6 ONU LAN configuration

The LAN side configuration of the ZTE solution ONU is mainly for terminal device when ONU in route mode.

6.1 LAN IP Address Configuration

1.web login ONU and select the **Network -> LAN -> DHCP Server**, And then set the following parameters:

【LAN IP Address】 Set the local management IP address of the ONU. The default is 192.168.101.1

【Subnet Mask】 Set the subnet mask corresponding to the local management IP address of the ONU.

【Enable DHCP Server】 Enable or disable the DHCP server function on the ONU.

【DHCP Start IP Address/DHCP End IP Address】 The IP address interval allocated to the terminal. The address interval must be on the same network

segment as the management IP address of the ONU.

【Assign IspDNS】 Enable or Disable the ONU to allocate the upper ISP's DNS to the terminal.

【DNS Server1 IP Address/DNS Server2 IP Address/DNS Server3 IP Address】 The DNS address to be assigned to the terminal, in default ONU use itself ip 192.168.101.1 work as DNS proxy address, can enter according to network planning

【Default Gateway】 The default gateway address assigned to the terminal

NOTE: 1. The DHCP Start IP Address and DHCP End IP address should be in the same subnet as the LAN IP.

LAN IP Address: 192.168.101.1
Subnet Mask: 255.255.255.0

Enable DHCP Server ☒

DHCP Start IP Address: 192.168.101.2
DHCP End IP Address: 192.168.101.254

Assign IspDNS ☐

DNS Server1 IP Address: 192.168.101.1
DNS Server2 IP Address:
DNS Server3 IP Address:
Default Gateway: 192.168.101.1
Lease Time: 86400 sec

MAC Address	IP Address	Remaining Lease Time	Host Name	Port
There is no data.				

Submit Cancel

2.After the above configuration, click "Submit" button to complete the LAN ip settings:

7 Multicast / IPTV Service Basic Settings

ZTE solution ONU multicast / IPTV service settings are mainly through the OLT to configure, including multicast vlan, snooping configuration can be configured through the OLT. The specific configuration can refer to each manufacturer's OLT to configure.

8 CATV Management

CATV management is mainly applied to ONU products with optical machine, you need to configure the optical machine parameters in ONU web.

ZTE solution GPON 4FE + CATV ONU temporarily does not support CATV control function.

8.1 CATV Parameter Configuration

web login ONU and select the **Administration -> CATV Management -> CATV Config**, In this page you can turn CTAV on and off and configure some parameters for CATV:

Parameter	Value	Unit
VccDead	2	(0~50 Unit: 0.1V)
VccLow	108	(0~200 Unit: 0.1V)
VccHigh	132	(0~200 Unit: 0.1V)
TempDead	50	(0~50 Unit: 0.1C)
TempLow	-100	(-300~1000 Unit: 0.1C)
TempHigh	900	(-300~1000 Unit: 0.1C)
RF Dead	12	(0~50 Unit: 0.1dBuV)
RF Low	600	(500~1000 Unit: 0.1dBuV)
RF High	950	(500~1000 Unit: 0.1dBuV)
InOptPwrDead	9	(0~50 Unit: 0.1dBm)
InOptPwrLow	-180	(-600~100 Unit: 0.1dBm)
InOptPwrHigh	0	(-600~100 Unit: 0.1dBm)
Channels	59	(0~100)

Enable CATV: ☒

Restore Default

Submit Cancel

8.2 CATV Information View

web login ONU and select the **Status -> CATV -> CATV Status**. In this page you can view the CATV switch status and optical parameters:

Status | Network | Security | Application | Administration | Help

Device Information
Network Interface
User Interface
Remote Management Status
CATV
CATV Status

CATV Info

Vcc	121 (0.1V)
Temperature	-2731 (0.1C)
RF OutputPower	483 (0.1dBuV)
InOpticalPower	-347 (0.1dBm)
VccAlarmState	Normal
TempAlarmState	Low Low
RF AlarmState	Low Low
InPwrAlarmState	Low Low
VccDead	2 (0.1V)
VccLow	108 (0.1V)
VccHigh	132 (0.1V)
TempDead	50 (0.1C)
TempLow	-100 (0.1C)
TempHigh	900 (0.1C)
RF Dead	12 (0.1dBuV)
RF Low	600 (0.1dBuV)
RF High	950 (0.1dBuV)
InOptPwrDead	9 (0.1dBm)
InOptPwrLow	-180 (0.1dBm)
InOptPwrHigh	0 (0.1dBm)
Channels	59
AgcLowLimit	-120 (0.1dBm)
AgcHighLimit	-20 (0.1dBm)
OnOff	on

Refresh

9 ONU Device Management

9.1 ONU Device Remote Access Settings

web login ONU and select the **Security -> Service Control -> Service Control**.

In this page you can set the ONU telnet remote access and WEB remote access:

Status | Network | **Security** | Application | Administration | Help

Firewall
Service Control
Service Control
MAC Filter

IP Version: IPv4
Enable: ☒
Ingress: 124
Start Source IP Address:
End Source IP Address:
Mode: Permit
Service List: ☒ HTTP ☒ TELNET
Modify Cancel

Enable	Ingress	Start Source IP Address	End Source IP Address	Mode	Service List	Modify	Delete
✓	WAN			Permit	HTTP,TEL		

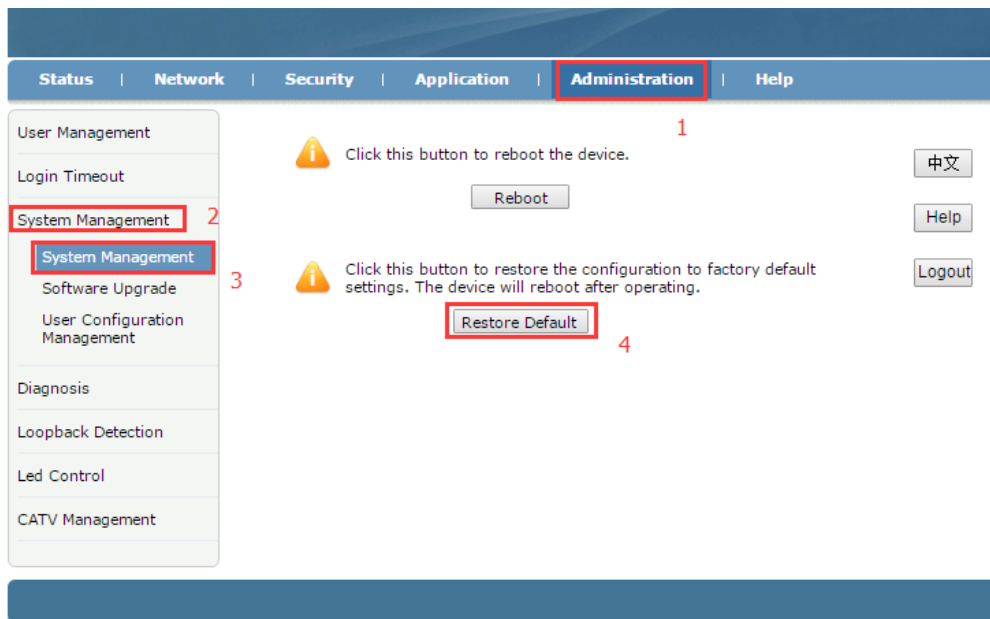
Note: If you need to configure the above remote access ports, please click on the hyperlinks below.
[Modify Remote Access Port](#)

9.2 Restore Default

web login ONU and select the **Administration -> System Management ->**

System Management. Click the **"Restore Default"** button to restore the ONU

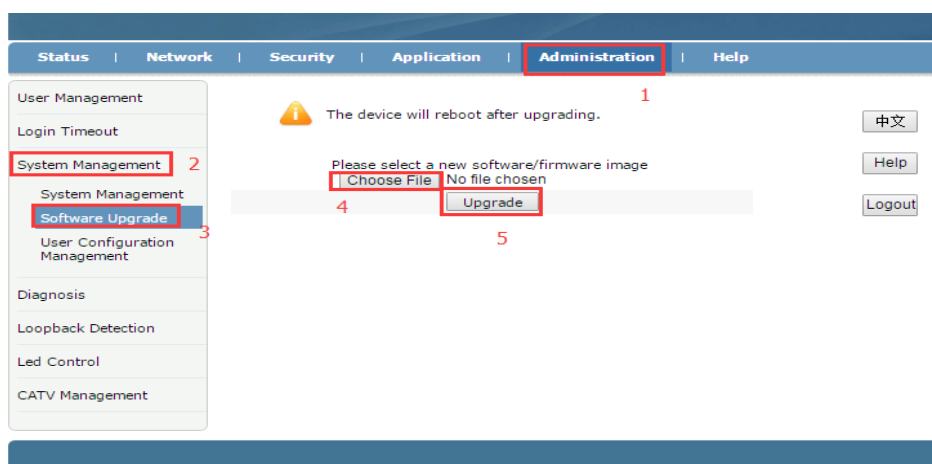
factory settings:



9.3 Software Upgrade

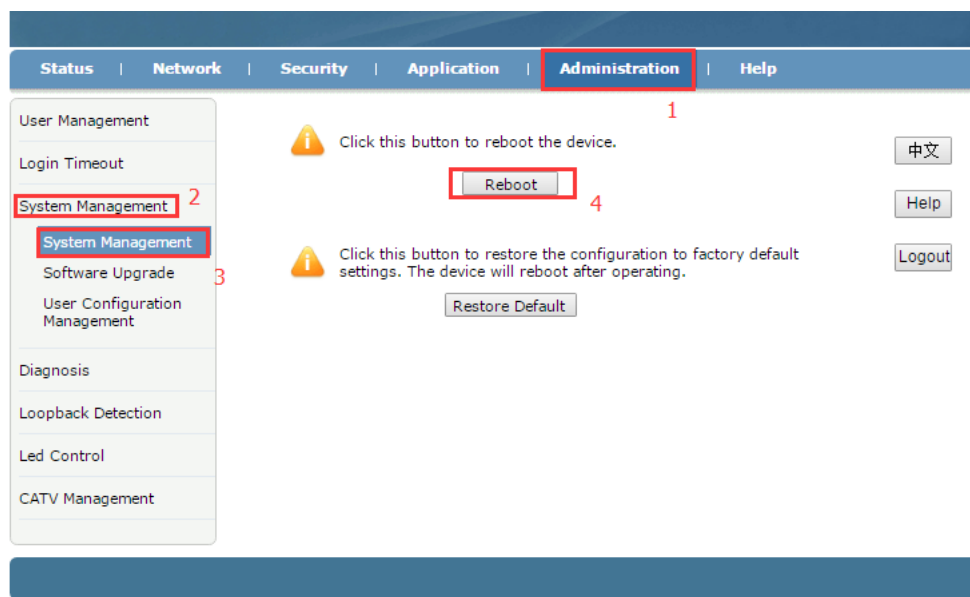
web login ONU and select the **Administration -> System Management -> Software Upgrade**. Click the **"Choose File"** button to select an upgrade file, and then click the **"Upgrade"** button to upgrade:

Note: ONU upgrade will automatically restart, do not need to manually restart the ONU, upgrade time is about 3 minutes.



9.4 Reboot Device

web login ONU and select the **Administration -> System Management -> System Management**. Click the **"Reboot"** button to restart the ONU device:



Concluding Remarks

Thanks for using products of Shenzhen C-Data Technology Co. Ltd.

Contact Information:

Company Address: 6th floor, Building 4 of South Area 2, Honghualing Industrial Park,
Xili Avenue, Nanshan District, Shenzhen, China

Factory Address: 1st floor, Building B, Wentao Industrial Park, Yingrenshi
Community, Shiyan Avenue, Baoan District, Shenzhen, China

Telephone: 0755-26014509/26014710/26014711

Fax: 0755-26014506

Email: Marketing@cdatatec.com

Website: www.cdatatec.com
www.cdatatec.com.cn