ZXA10 C320 Operation

V2.0

Bringing you closer

Contents

Overview of ZXA10 C320 Operation

- ZXA10 C320 operation includes system configuration, physical configuration, service commissioning, and protocol configuration.
  - Physical configuration: when commissioning C320, you need to configure the hardware such as racks, shelves, and cards
  - System configuration: introduces how to configure and manage C320
  - Service commissioning: introduces the service commissioning methods of C320

Configuration Mode

- Console Port Configuration → Local Maintenance
- Telnet Configuration
- SNMP Configuration

} Network Management

Out-of-band NM: The data flow is separated from the control flow

In-band NM: Both data and control flow over the same path

Management Mode of ZXA10 C320

- ZXA10 C320 supports the following three management modes:
  - Hyper terminal mode.

    Use a serial port cable to log in without considering inband/out-of-band address of the device.

  - Telnet Mode

    When a PC can ping through the inband/out-of-band address, log in via Telnet.

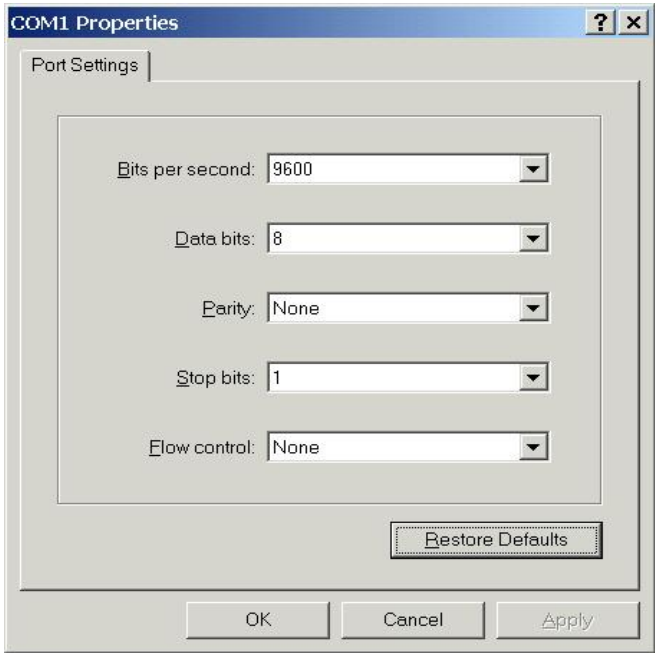
  - Netnumen mode

    After setting the inband/out-of-band address of the device, you can log in to the device through Netnumen.

Local maintenance- serial port operation steps

1. **Connect the COM port of computer system to console port on main control &switch card using serial cable.**

2.Select start → Programs → Accessories → Communications → HyperTerminal in Microsoft Windows.



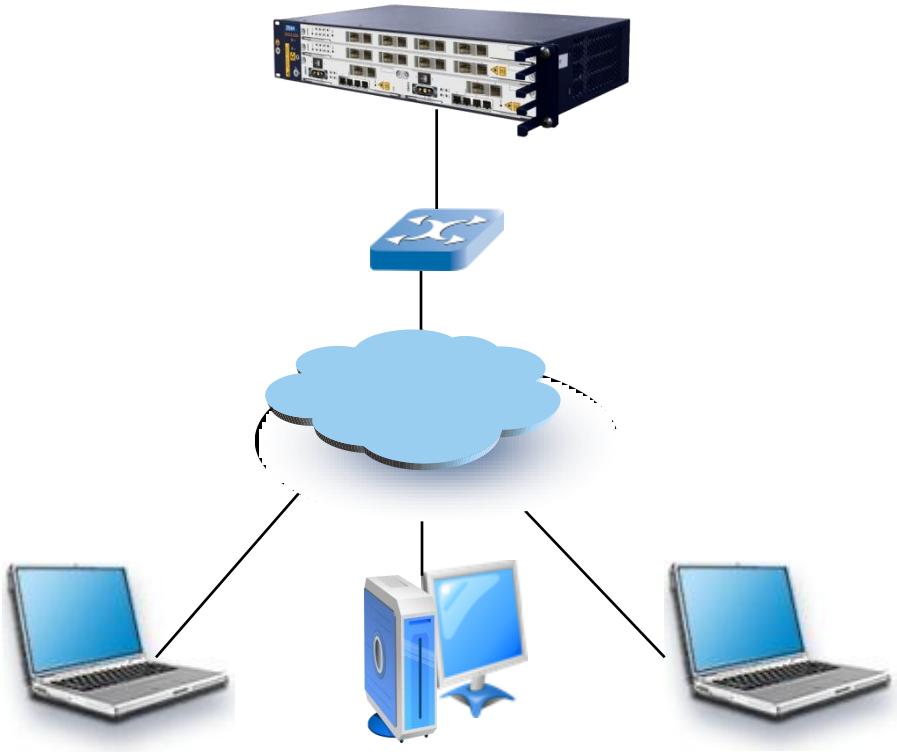
Username & Password: enable:zxr10

to login administration mode "*ZXAN#* "

Configuring TELNET

- Out-of-band NM

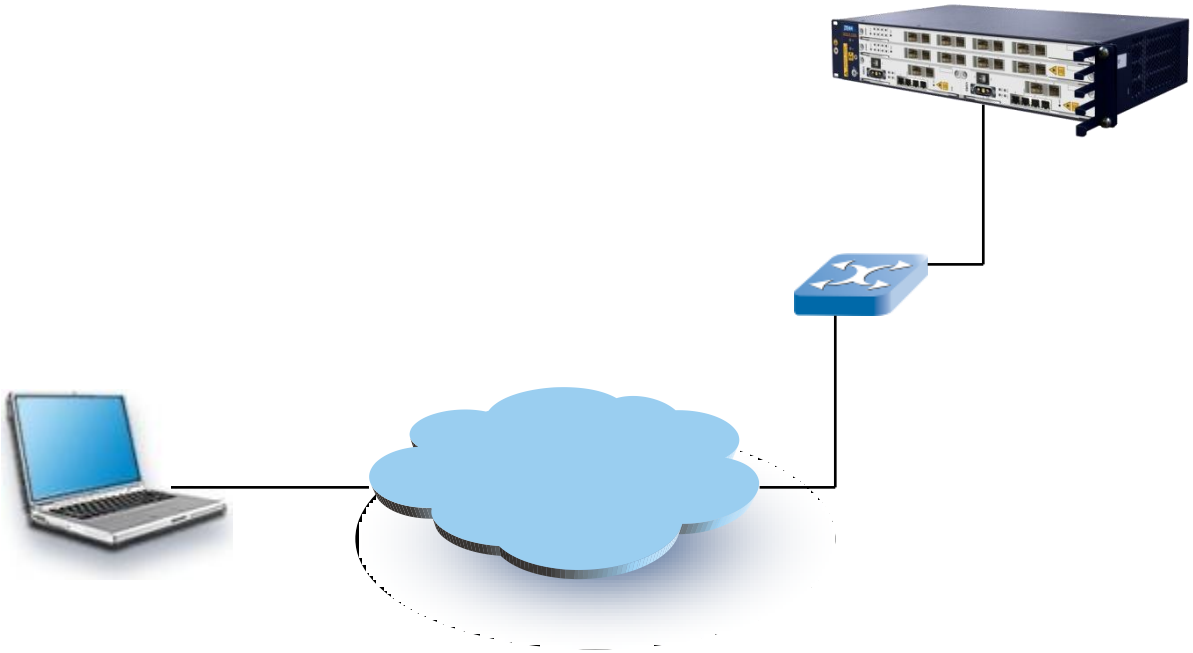
  Connect the Ethernet port of computer system to 10/100M port via switch on main control &switch card.



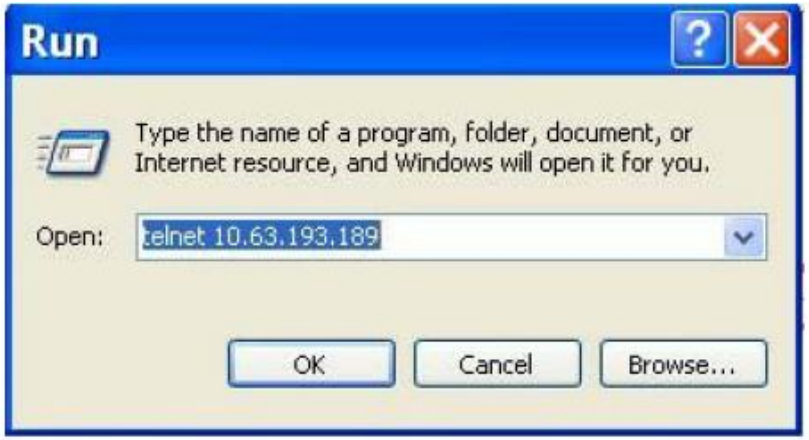
Configuring TELNET

- In-band NM

  Connect the Ethernet port of computer system to port of Ethernet uplink card via IP network

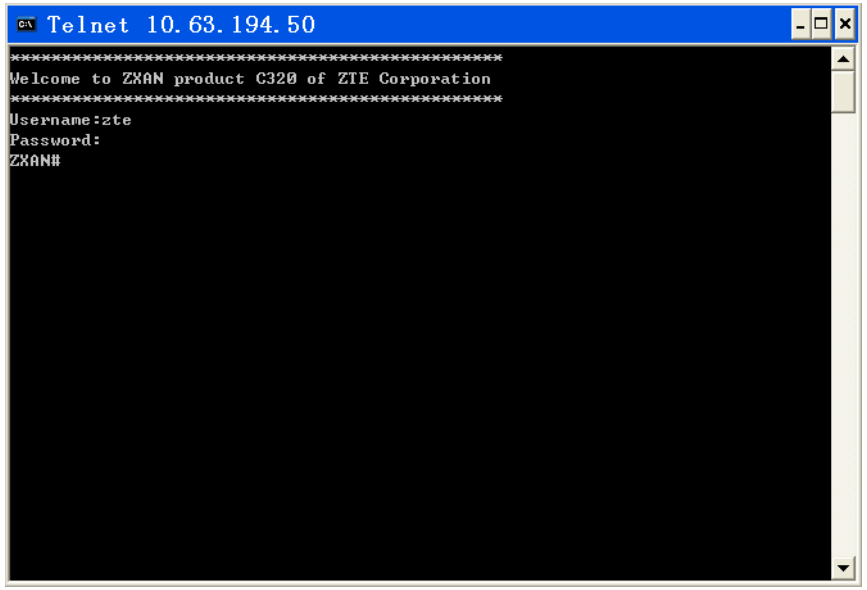


Telnet Steps



Input **Username** and **Password** to login the system (zte:zte)

To run **Telnet** application on the telnet PC system



Operator Management

- Creating a User & Modifying user password

  Command: ***username***

  Example: *ZXAN(config)#* username *admin* password *admin* privilege *15*

  Related Commands: show username

- Deleting a user

  Command: ***no username***

  Example: *ZXAN(config)#*no username *admin* password *admin*

  Related Commands: show username

Operator Management

```
ZXAN#show users
   Line       User          Host(s)                Idle         Location
   0  con 0                 idle                   00:00:00
   66 vty 0   zte           idle                   00:00:04     10.32.64.19
 * 67 vty 1   zte           idle                   00:00:00     10.32.64.63
   68 vty 2   zte           idle                   00:00:01     10.32.64.40
ZXAN#
ZXAN#
ZXAN#
ZXAN#
```

```
ZXAN#show users
   Line       User          Host(s)                Idle         Location
   0  con 0                 idle                   00:00:00
 * 66 vty 0   zte           idle                   00:00:00     10.32.64.63
   68 vty 2   zte           idle                   00:00:24     10.32.64.40
ZXAN#
ZXAN#
ZXAN#clear tc
ZXAN#clear tcp tt
ZXAN#clear tcp tty 66
```

Command Auxiliary Functions

- It is not necessary to input a command completely . Press the Tab key for filling the whole command.
- Press the space + ? key to view the command help information.
- Press the ↑ key to recall an already issued command.
- Type ? key in any specific mode to view all available commands.
- Enter first letter of the command and type ? key to search the required command.
- After parameter press spacebar and type ? key to get a brief description of the parameter values.

NMS Configuration of ZXA10 C320

- To log in through the Netnumen N31, you must set the IP address for inband/out-of-band management first.
- Inband network management is performed through the uplink service channel
- Out-of-band network management is performed through the out-of-band NMS port on the front panel.

Notes: The inband network management mode is widely used in engineering, while the out-of-band network management mode is typically used in local maintenance.

Contents

Adding a Rack

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Add the rack.

  ZXAN(config)#add-rack rackno 1 racktype C320Rack
- 3. Query the rack configuration.

  ZXAN(config)#show rack

Rack	RackType	SupShelfNum	CfgShelfNum
1	C320Rack	1	1

***NOTE**:The ZXA10 C320 supports only one rack currently, and thus rackno can only be 1*

Adding a Shelf

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Add the Shelf.

  ZXAN(config)#add-shelf shelfno 1 shelftype C320_SHELF
- 3. Query the shelf configuration.

  ZXAN#show shelf

Rack	Shelf	ShelfType	ConnectId	CleiCode	Serial-Number
1	1	C320_SHELF	0	UnKnowCleiCode	

***NOTE**:The ZXA10 C320 supports only one shelf currently, and thus shelfno can only be 1*

Adding a Daughter-Card

- 1. Enter global configuration mode
- ZXAN#configure terminal Enter configuration commands， one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Add daughter-cards

  ZXAN(config)#add-subcard slotno 3 subcardno 1 UCDC/3
  ZXAN(config)#add-subcard slotno 4 subcardno 1 UCDC/3
- 3. (Optional) Query the daughter-card configuration
- ZXAN#show subcard

Rack	Shelf	Slot	Subcard	CfgType	RealType	Port	HardVer	SoftVer	Status- 1
1	3	1	UCDC/3	UCDC/3	3	N/A.	N/A		INSERVICE
1	1	4	1	UCDC/3	UCDC/3	3	N/A.	N/A.	INSERVICE

Adding a Card

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Add a card.

  ZXAN(config)#add-card slotno 1 GTGO

  ZXAN(config)#add-card slotno 2 GTGO
- 3. Query the card configuration.

```
ZXAN#show card
Rack  Shelf  Slot  CfgType  RealType  Port  HardVer  SoftVer   Status
-----------------------------------------------------------------------------------------
1     1      1     GTGO     GTGOG     8     120301   V2.0.0  INSERVICE
1     1      2     GTGO     GTGOG     8     120301   V2.0.0 INSERVICE
1     1      3     SMXA     SMXA      0     110702   V2.0.0  INSERVICE
1     1      4     SMXA     SMXA      0     110702   V2.0.0  STANDBY
```

Deleting a Card

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Delete the card.

  ZXAN(config)#del-card slotno 2

  Confirm to delete card? [yes/no]:y

  3. Delete the daughter-card

  ZXAN(config)#del-subcard slotno 4 subcardno 1

  Confirm to delete subcard? [yes/no]:y

Enabling the PnP Function

- The ZXA10 C320 supports the plug and play (PnP) function of the card.
- 1. Check whether the PnP function of the card is enabled.

  ZXAN#show pnp

  pnp function is enable. //By default, the PnP function of the ZXA10 C320 is enabled.
- 2. In global configuration mode, enable the PnP function.

  ZXAN(config)#set-pnp enable

Resetting a Card

- In administrator mode, reset the card.

  ZXAN#reset-card slotno 2

  Confirm to reset card? [yes/no]:y

Swapping the Main Control Cards

- In administrator mode, swap the active and standby switching and control cards.

  ZXAN#swap

  Confirm to master swap? [yes/no]:y

Setting system date and time

- In global configuration mode, configure the time zone.

  ZXAN(config)#clock timezone utc 8

  ZXAN(config)#exit
- In administrator mode, configure the system time.

  ZXAN#clock set 08:00:00 mar 7 2011
- Query the system time.

  ZXAN#show clock

  08:01:55 Mon Mar 7 2011 utc

Contents

Configuring the Inband Network Management

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Add the uplink port to the in-band NM VLAN.

  ZXAN(config)#interface gei_1/3/1

  ZXAN(config-if)#switchport vlan 1000 tag

  ZXAN(config-if)#exit
- 3. Configure the in-band NM IP address.

  ZXAN(config)#interface vlan 1000

  ZXAN(config-if)#ip address 10.1.1.1 255.255.255.0

  ZXAN(config-if)#exit

Configuring the Inband Network Management

- 4. Configure the in-band NM route.

  ZXAN(config)#ip route 10.2.1.0 255.255.255.0 10.1.1.254

- 5. Configure the IP address of the SNMP server (trap server).

  ZXAN(config)#snmp-server host 10.2.1.1 trap version 2c public enable NOTIFICATIONS target-addr-name zte target-param-name zte udp-port 162

- 6. Save the configuration data.

  ZXAN(config)#exit

  ZXAN#write

  Building configuration...

  ..[OK]

Configuring the Out-of-band Network Management

- 1. Enter global configuration mode.

  ZXAN#configure terminal

  Enter configuration commands, one per line. End with CTRL/Z.

  ZXAN(config)#
- 2. Configure the out-of-band NM IP address.

  ZXAN(config)#interface mng1

  ZXAN(config-if)#ip address 11.1.1.1 255.255.255.0

  ZXAN(config-if)#exit
- 3. Configure the out-of-band NM route.

  ZXAN(config)#ip route 10.2.1.0 255.255.255.0 11.1.1.254

Configuring the Out-of-band Network Management

- 4. Configure the IP address of the SNMP server (trap server).

  ZXAN(config)#snmp-server host 10.2.1.1 trap version 2c public enable NOTIFICATIONS target-addr-name zte target-param-name zte udp-port 162

  5. Configure the SNMP community name

  ZXAN(config)#snmp-server community public view allview rw

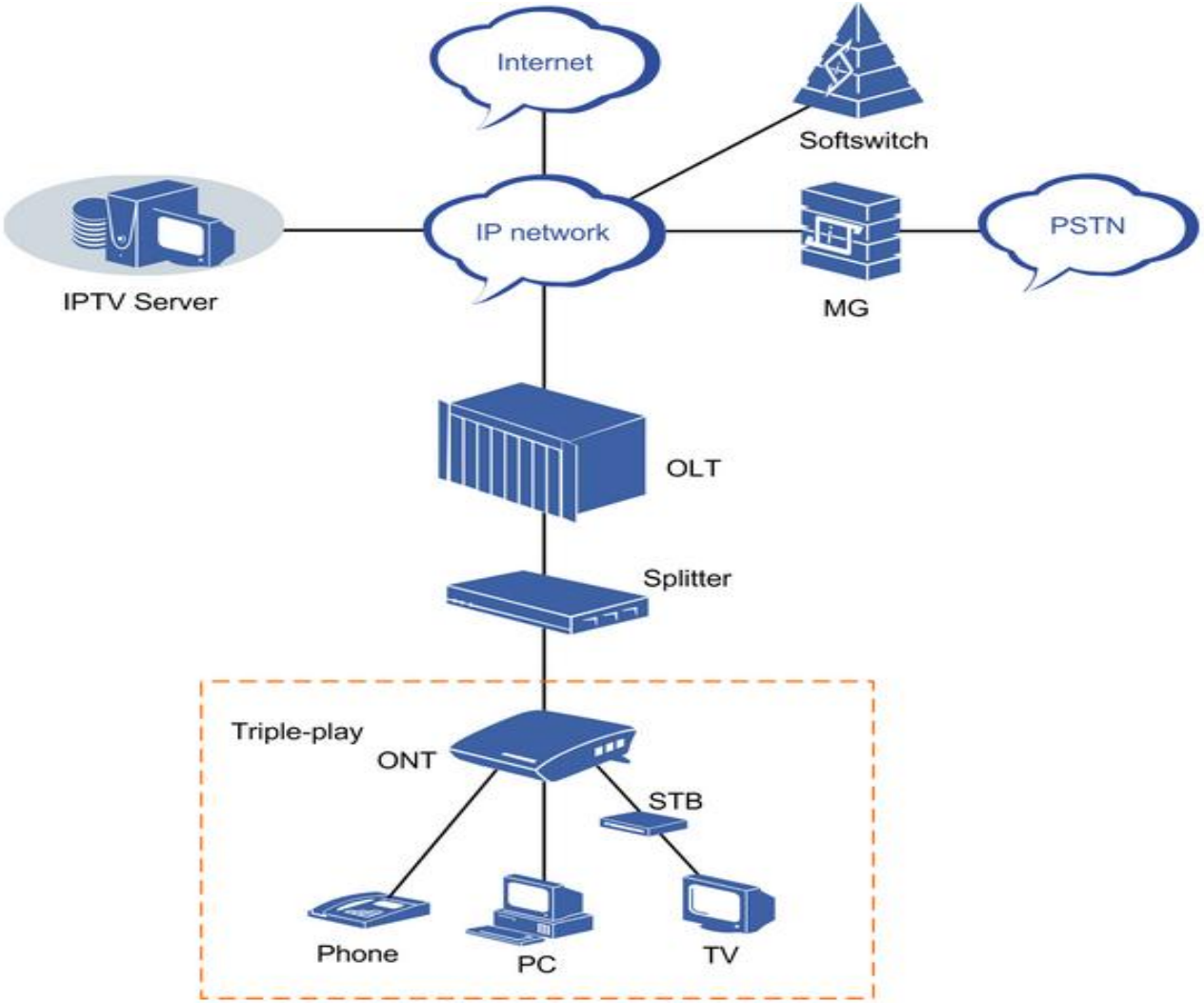
- 6. Save the configuration data.

  ZXAN(config)#exit

  ZXAN#write

Contents

Topology of GPON network



GPON Service Configuration

- 1. Configure the ONU type profile.

```
ZXAN(config)#pon
ZXAN(config-pon)#onu-type ZTEG-F620 gpon description
    4ETH,2POTS max-tcont 7  max-gemport 32 max-switch-perslot 1
    max-flow-perswitch 8
ZXAN(config-pon)#onu-type-if ZTEG-F620 eth_0/1-4
ZXAN(config-pon)#onu-type-if ZTEG-F620 pots_0/1-2
ZXAN(config-pon)#exit
ZXAN(config)#
```

- 2.Authenticate the ONU.

```
ZXAN(config)#show gpon onu uncfg gpon-olt_1/1/1
OnuIndex                    Sn                    State
-----------------------------------------------------------------------
gpon-onu_1/1/1:1 ZTEG00000002        unknown
```

GPON Service Configuration

```
ZXAN(config)#interface gpon-olt_1/1/1
ZXAN(config-if)#onu 1 type ZTEG-F620 sn ZTEG00000002
[Successful]
ZXAN(config-if)#exit
```

- 3.Configure the T-CONT bandwidth profile.

```
ZXAN(config)#gpon
ZXAN(config-gpon)#profile tcont 10M type 4 maximum 10000
ZXAN(config-gpon)#exit
ZXAN(config)#
```

- 4.Configure the T-CONT.

```
ZXAN(config)#interface gpon-onu_1/1/1:1
ZXAN(config-if)#tcont 1 name T1 profile 10M
```

- 5.Configure the GEM port.

```
ZXAN(config-if)#gemport 1 name gemport1 unicast tcont 1
ZXAN(config-if)#exit
```

GPON Service Configuration

- 6.Configure the uplink port VLAN.

  ZXAN(config)#interface gei_1/3/1

  ZXAN(config-if)#switchport vlan 100 tag

  ZXAN(config-if)#exit
- 7.In ONU interface mode, configure the service port VLAN.

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#service-port 1 vport 1 user-vlan 100 vlan 100

  ZXAN(config-if)#exit
- 8.In ONU remote management mode, configure the service channel.

  ZXAN(config)#pon-onu-mng gpon-onu_1/1/1:1

  ZXAN(gpon-onu-mng)#service HSI type internet gemport 1 cos 0 vlan 100

GPON Service Configuration

- 9. Configure the user port VLAN.

  ZXAN(gpon-onu-mng)#vlan port eth_0/1 mode tag vlan 100 priority 0

  ZXAN(gpon-onu-mng)#end

- 10. Save the configuration data.

  ZXAN#write

Contents

GPON Multicast Service Configuration

- Prerequisite:
  - The GPON ONU has been authenticated.
  - The T-CONT bandwidth profile has been configuration.
- Steps:
- 1. In ONU interface mode, configure the T -CONT .

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#tcont 2 name T2 profile 5M
- 2. Configure the GEM port.

  ZXAN(config-if)#gemport 2 name gemport2 tcont 2

  ZXAN(config-if)#exit

GPON Multicast Service Configuration

- 3. In uplink interface configuration mode, configure the uplink port VLAN.

  ZXAN(config)#interface gei_1/3/1

  ZXAN(config-if)#switchport vlan 200 tag

  ZXAN(config-if)#exit

- 4. In ONU interface mode, configure the service port VLAN.

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#service-port 2 vport 2 user-vlan 200 vlan 200

  ZXAN(config-if)#exit

- 5. (Optional) Enable IGMP globally .

  ZXAN(config)#igmp enable

GPON Multicast Service Configuration

- 6. Configure the port IGMP parameters.

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#igmp fast-leave enable vport 2

  ZXAN(config-if)#exit
- 7. Configure the MVLAN.

  ZXAN(config)#igmp mvlan 200
- 8. (Optional) Configure the MVLAN working mode.

  ZXAN(config)#igmp mvlan 200 work-mode proxy
- 9. Configure the MVLAN multicast group.

  ZXAN(config)#igmp mvlan 200 group 224.1.1.1 to 224.1.1.3
- 10. Configure MVLAN source port.

  ZXAN(config)#igmp mvlan 200 source-port gei_1/3/1
- 11. Configure the MVLAN receive port.

  ZXAN(config)#igmp mvlan 200 receive-port gpon-onu_1/1/1:1 vport 2

GPON Multicast Service Configuration

- 12. In ONU remote management mode, configure the service channel.

  ZXAN(config)#pon-onu-mng gpon-onu_1/1/1:1

  ZXAN(gpon-onu-mng)#service multicast gemport 2 cos 5 vlan 200
- 13. Configure the user port MVLAN.

  ZXAN(gpon-onu-mng)#mvlan 200

  ZXAN(gpon-onu-mng)#mvlan tag-strip eth_0/2 enable
- 14. Configure the user port VLAN.

  ZXAN(gpon-onu-mng)#vlan port eth_0/2 mode tag vlan 200 priority 5

  ZXAN(gpon-onu-mng)#end
- 15. Save the configuration data.

  ZXAN#write

Contents

GPON VoIP IP Profile Configuration

- The ZXA10 C320 supports the following three IP address allocation modes:
  - Static allocation mode
  - Dynamic Host Configuration Protocol (DHCP) mode
  - Point to Point Protocol over Ethernet (PPPoE) mode
- One ONU can use only one IP address allocation mode.
- The VoIP IP profile is applicable to only the static allocation mode.

GPON VoIP IP Profile Configuration

- Steps:
- 1. Enter global configuration mode.
- 2. In GPON configuration mode, configure the VoIP IP profile.

  ZXAN(config)#gpon

  ZXAN(config-gpon)#onu profile ip ip-test gateway 1.2.3.1
- 3. (Optional) Query the VoIP IP profile.

  ZXAN(config-gpon)#show gpon onu profile voip-ip

  Profilename: ip-test

  Gateway: 1.2.3.1

  Primary DNS: 0.0.0.0

  Secondary DNS: 0.0.0.0

GPON VoIP VLAN Profile Configuration

- Steps:
- 1. Enter global configuration mode.
- 2. In GPON configuration mode, configure the VoIP VLAN profile.

  ZXAN(config)#gpon

  ZXAN(config-gpon)#onu profile vlan vlan-test tag-mode tag cvlan 300 priority 7
- 3. (Optional) Query the VoIP VLAN profile.

  ZXAN(config-gpon)#show gpon onu profile voip-vlan

  Profile name: vlan-test

  Tag mode: tag

  CVLAN: 300

  CVLAN priority:7

VoIP Access Code Profile Configuration

- The VoIP access code profile can be used to configure access codes for VoIP advanced services, which are based on SIP, for GPON ONUs in batches.
- Steps:
- 1. Enter global configuration mode.
- 2. In GPON configuration mode, configure the VoIP access code profile.

  ZXAN(config)#gpon

  ZXAN(config-gpon)#onu profile voip-accesscode abc call-hold ***

VoIP Service Application Profile Configuration

- The VoIP service application profile can be used to configure VoIP advanced services, which are based on SIP , for GPON ONUs in batches.
- Steps:
- 1. Enter global configuration mode.
- 2. In GPON configuration mode, configure the VoIP service application profile.

```
ZXAN(config)#gpon
ZXAN(config-gpon)#onu profile voip-appsrv voip-service call-waiting
    enable call-transfer enable call-hold enable 3way enable
```

Dial Plan Table Configuration

- A dial plan establishes the expected number and pattern of digits for a telephone number, which includes country codes. Access codes, area codes and all combinations of digits dialed.
- Steps:
- 1. Create the dial plan table.

  ZXAN(config-gpon)# onu profile dial-plan-table test
- 2. Configure the dial plan token.

  ZXAN(config-gpon)# onu profile dial-plan test 1 token X*.X.#|#X.*.X.##

Dial Plan Table Configuration

- 3. (Optional) Query the dial plan table configuration.

```
ZXAN(config-gpon)#show gpon onu profile dial-plan test
Profile name: test
Critical timeout:4000
Partial timeout: 16000
Format: H.248
Digit map: X*.X.#|#X.*.X.##
ZXAN(config-gpon)#show gpon onu profile dial-plan test
Dial plan id                    Dial plan token
-------------------------------------
1                               X*.X.#|#X.*.X.##
```

GPON SIP Profile Configuration

- Prerequisite:
  - The access code profile is configured.
  - The service application profile is configured.
  - The dial plan table is configured.
- Steps:
- 1. Enter global configuration mode.
- 2. In GPON configuration mode, configure the SIP profile.

```
ZXAN(config)#gpon
ZXAN(config-gpon)#onu profile sip sip-test proxy 1.2.3.1
ZXAN(config-gpon)#onu profile sip sip-test accesscode abc
ZXAN(config-gpon)#onu profile sip sip-test appsrv voip-service
ZXAN(config-gpon)#onu profile sip sip-test dial-plan test
```

GPON VoIP Service (SIP) Configuration

- Prerequisite
  - The GPON ONU has been authenticated.
  - The T-CONT bandwidth profile has been configured.
  - The GPON VoIP IP profile has been configured.
  - The GPON VoIP VLAN profile has been configured.
  - The GPON SIP profile has been configured.

GPON VoIP Service (SIP) Configuration

- 1. In ONU interface configuration mode, configure the T -CONT .

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#tcont 3 name voip profile 2M
- 2. Configure the GEM port.

  ZXAN(config-if)#gemport 3 name gemport3 tcont 3

  ZXAN(config-if)#exit
- 3. In uplink interface configuration mode, configure the uplink port VLAN.

  ZXAN(config)#interface gei_1/3/1

  ZXAN(config-if)#switchport vlan 300 tag

  ZXAN(config-if)#exit

GPON VoIP Service (SIP) Configuration

- 4. In ONU interface configuration mode, configure the service port VLAN.

  ZXAN(config)#interface gpon-onu_1/1/1:1

  ZXAN(config-if)#service-port 3 vport 3 user-vlan 300 vlan 300

  ZXAN(config-if)#exit
- 5. In ONU remote management mode, configure the service channel.

  ZXAN(config)#pon-onu-mng gpon-onu_1/1/1:1

  ZXAN(gpon-onu-mng)#service voip-sip gemport 3 cos 7 vlan 300
- 6. (Optional) Configure the VoIP protocol type.

  ZXAN(gpon-onu-mng)#voip protocol sip

GPON VoIP Service (SIP) Configuration

- 7. Configure the VoIP address.

  ZXAN(gpon-onu-mng)#voip-ip mode static ip-profile ip-test ip-address 1.2.3.4 mask 255.255.255.0 vlan-profile vlan-test

- 8. Configure the VoIP service.

  ZXAN(gpon-onu-mng)#sip-service pots_0/1 profile sip-test userid 12345 username 12345 password 12345

  ZXAN(gpon-onu-mng)#end

- 9. Save the configuration data.

  ZXAN#write

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Thanks!

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