GEPON OLT OT-2000S CLI User Manual

(V1)

Unotrade Technologia Ltda.

Contents

1. Preface

1.1. Introduction

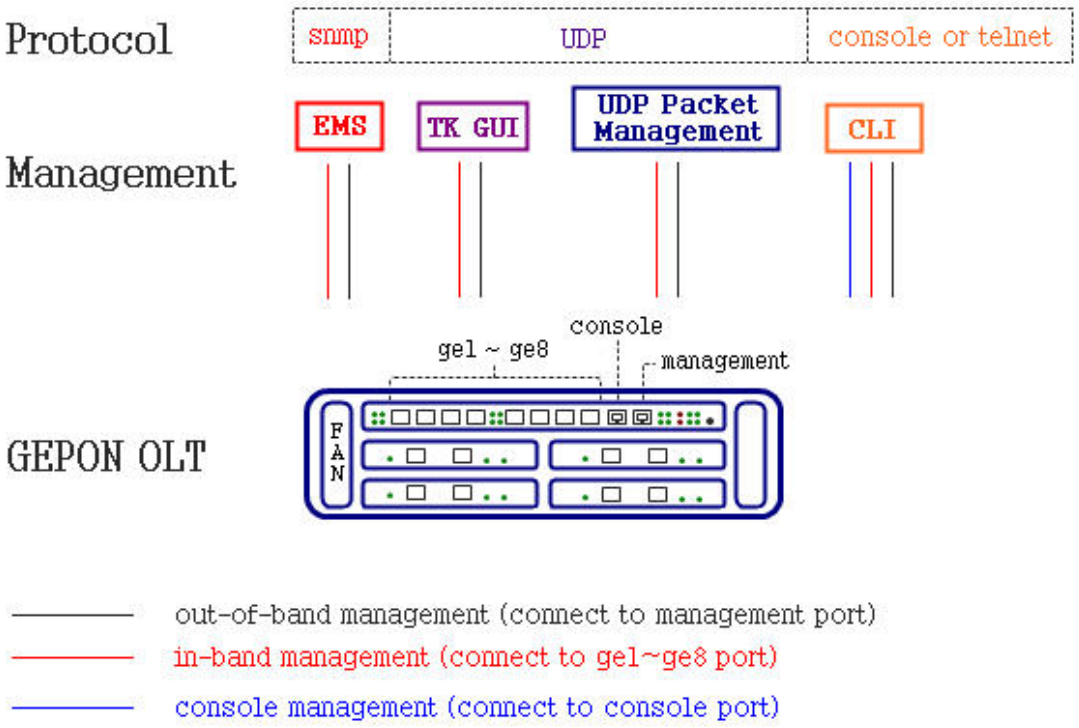
Unotrade OLT OT-2000S system could support inband and outband network management mode and EMS network management based on SNMP ， which we would provide our EMS software along with the parcel for shipping .Besides, we could also support CLI management for user to get access to our EPON system with more option. Herein ,we would like to introduce our CLE user manual .However ,we would still highly recommend users to use our EMS management to monitor and configure the whole EPON system via EMS since we have offered very powerful function and simple operation in the EMS interface .

1.2. Definition

Product/Abbreviation	Description
GEPON	Gigabit Ethernet Passive Optical Network
OLT	Optical Line Terminal
ONU	Optical Network Unit

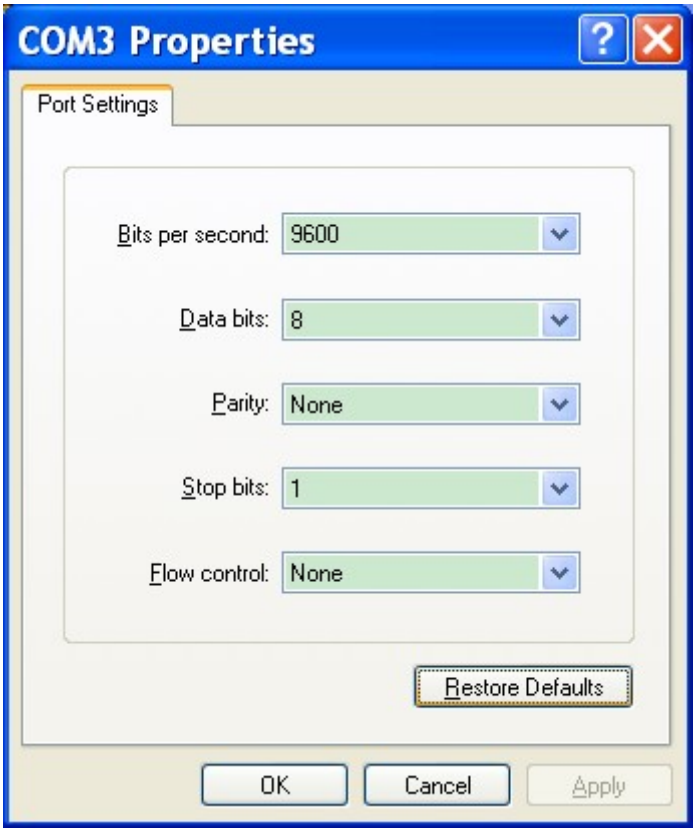
2. Configuration Preparation

2.1. Management Model



2.2. Console Port Connection

There is a Console port in the front panel of Switch Control Card .The command line configuration interface is enabled via console port connecting to the NMS's superior terminal .Super terminal's basic configuration is as follows :



2.3. Network Connection

FD2100S support inband management (CAT5 connect to ge1-ge8 port) and outband management (CAT4 cable to management port).After Telnet to CLI interface ,we can manage the GEPON products.

Defualt outband network management IP:**192.168.120.100**

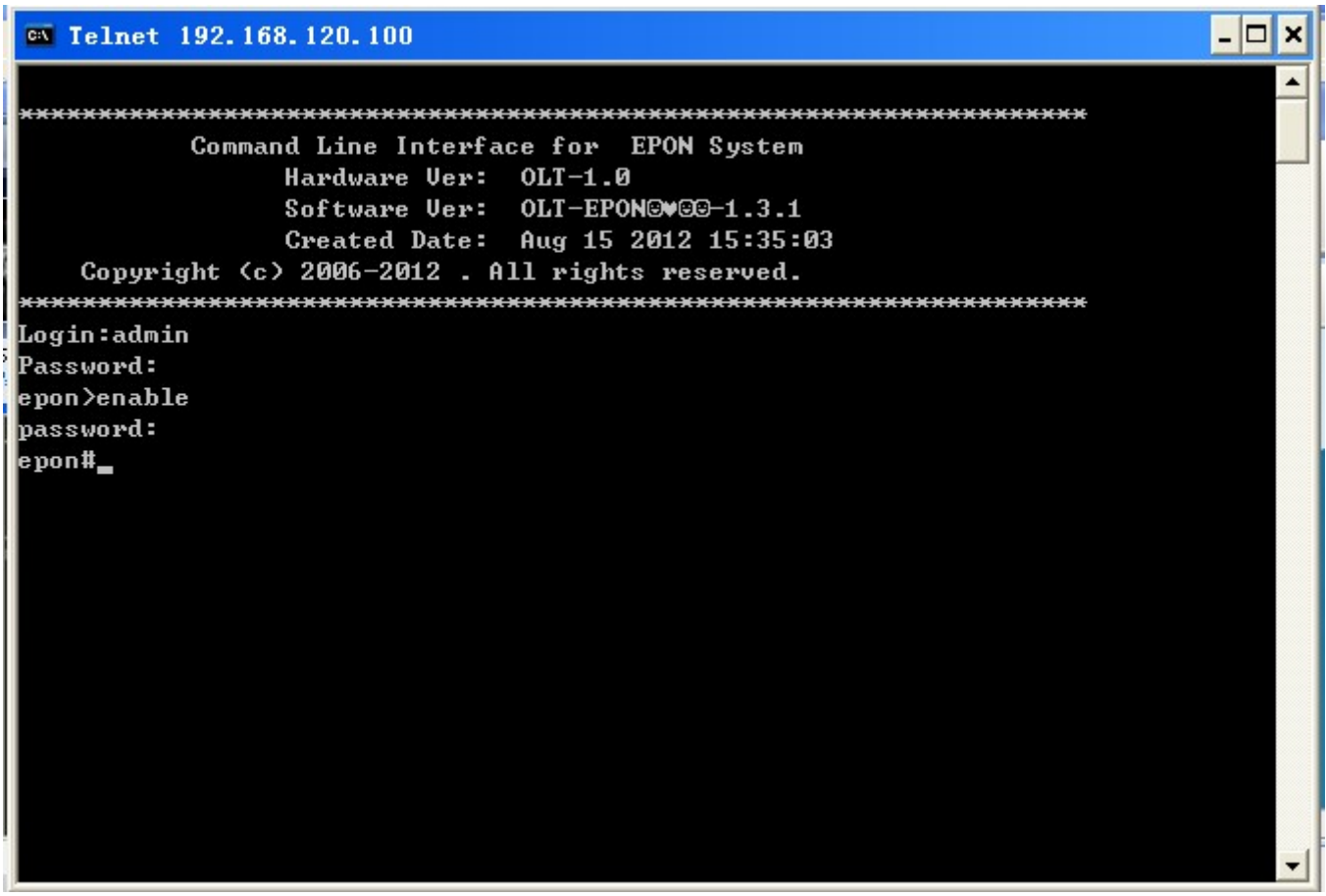
Default inband network management IP: **192.168.1.100**

2.4. User Login EPON CLI System

System provide two login accounts default as follows:

User	Password
admin	Admin
guest	Blank

After you log in successfully, the following interface pops up :



When the command lines shows : epon> ,user can input the configuration command to mange or inquire the configuration information .

3. Command Format Illustration

3.1. Command Format

1 Command Conventions
2 Keyboard Operation Conventions
3 Symbols

Convention	Description
Boldface	Used to highlight the key words (inportant words that should never be modified when input).

italic	Used to denote the parameters that should be replaced by actual values when practical use in command line.
[ ]	Items(keywords or arguments) in square brackets [ ] are optional.
(x | y | ...)	Alternative items are grouped in braces and separated by vertical bars. One is selected.
[x|y|…]	Optional alternative items are grouped in square brackets and separated by vertical bars. One or none is selected.
<x-y>	Values range from x to y. One is selected.
$	A line starting with the $ sign is comments.

Format	Description
<key>	Press the key with the key name inside angle brackets. For example, <Enter>, <Tab>, <Backspace>, or <A>.
<key1 + key2>	Press the keys concurrently. For example, <Ctrl+Alt+A> means the three keys should be pressed concurrently.
<key1, key2>	Press the keys in turn. For example, <Alt, A> means the two keys should be pressed in turn.

Eye-catching symbols are also used in the manual to highlight the points worthy of special attention during the operation. They are defined as follow:

 Caution: Means reader be extremely careful. Improper operation may cause data loss or damage to equipment

 Warning: Means reader be extremely careful. Improper operation may cause bodily injury.

 Note: Means a complementary description.

4. Hints Commands in this mannual is case sensitive.

3.2. Typical Parameter Category

When configure the system with CLI(command lines) ,we will meet with some data types with fixed format ,which embody some index's meaning ,expression mode and value range.

Herein,we list some repeated commands to explain their meaning and use.

vlanid	Vlan index with valid integer value from 1 to 4094 .
port	Port number including gigabitethernet ports from 1 to 16, short for ge1 to ge16 . To mention that ge9 to ge16 can't be seen, corresponding with 8 PON ports in 4 pon cards .We can say that ge9~ge16 is for PON1-PON8 configuration. While ge1~ge8 is for switch control card's 8 uplink port configuration.
portlist	Port list such as "ge1,ge5"(2 ports) ,"ge1-ge5"(meaning 5 ports from ge1 to ge5.)
ifx-name	Ip port name includes inband and outband.inband interfaces is embodyed with vi+number (vi means virtual interface).for example: "vi0" means the first inband IP interface(it's the only one interface to support inband ip interface.);outband interface is embody with "cpm+number".cpm is the outband interface's device name .For example, cmp0 means the first outband ip nterface .(this is the only one interface to support outband ip interface .)
ip-addr	Ip address such as 192.168.1.1
ip-mask	Ip mask with 4 segments of algorism bytes ,such as 255.255.255.0
mac	MAC address such as 00:01:02:02:04:05
moduleId	Module ID number moduleId module name 3 common mbuf pool 4 HDLC driver 5 inter-board communicaiton protocol 9 device online status maintenance 10 system basic configuration 11 user manager 12 switch port attribute management 13 switch port status poll task 14 switch port statistics poll task

	15	trunk module
	16	mirroring module
	17	normal vlan module
	18	protocol type based VLAN
	19	rapid spanning tree module
	20	IP network interface
	21	misc configuration on switch card
	22	ONU base manage configuration
	23	ONU advanced manage configuration
	24	ONU UNI port configuration
	25	ONU Queue configuration
	26	ONU ACL Rules configuration
	27	ONU port VLAN configuration
	28	ONU authentication
	29	ONU port QoS configuration
	30	ONU IGMP Snooping configuration
	31	ONU loopback test configuration
	32	ONU dynamic mac table configuration
	33	Extern network management module
	34	OLT basic configuration
	35	OLT advanced configuration
	36	OLT bridge configuration
	37	OLT DBA configuration
	38	OLT aggregate bandwidth configuration
	39	OLT acl rules configuration
	40	OLT priority copy mapping configuration
	41	OLT IGMP configuration
	42	OLT PPPOE configuration
	43	Logical Link basic configuration
	44	Logical Link advanced configuration
	45	Logical Link SLA configuration
	46	Logical Link VLAN configuration
	47	Logical Link blocked link configuration
	48	Logical Link dynamic and static MAC
	50	on-line upgrade module
	51	port statistics alarm and threshold

4. System Root Directory

Ater you log in successfully , input "？"or "help"to show the current directory

```
epon> ?
  [no] copy-log              - print log messages on the current shell.
  debug                      - enter debug mode
  enable                     - enter privileged mode
  exe                        - Execute raw commands(global C functions).
  show                       - show various parameters
```

4.1. Enable System Log Printed to Super Terminal

Command Grammar	[epon>**[no] copy-log**
Function	Show current System Log

4.2. System Debug Mode

Command Grammar	epon>**debug**
Function	enter debug mode ，

【Remark】

entering"exit"could return to the current mode .

You will find the command as follows after entering debug mode :

```
epon%  ?                   input "？"or "help"to show the current directory
   debug                   - debug specific module
   dump                    - show module internal data
   log-lvl                 - set log level for specific module
```

4.2.1.debug

Command Grammar	epon%**debug module** ***<moduleId>***
Function	Configure the module's **debug** functions

【Remark】

This command isn't valid yet .

4.2.2.dump

Command Grammar	epon%**dump module** ***<moduleId>***
Function	Configure the module's **dump** functions
<moduleId>	Module ID ,format please refer to 3.3 typcial Parameter category

4.2.3.log-lvl

Command Grammar	epon%**Log-lvl module** ***<moduleId> <level>***
Function	Change module's LOG level
<moduleId>	Module ID , definition format refer to typical Parameter category illustration .
<level>	There are 5 level for LOG level, marked from 0 to 4 .0 is the highest level. 0:critical event 1:important event 2:general event 3:trivial event 4:debug message

4.3. Enable Mode

Command Grammar	epon>**enable**
Function	Enter “enable management mode and provides enable password.

【Example】

1. enter enable management mode:

```
epon>enable
password:
epon#
```

The password to enter enable mode is blank defaultly .

epon# ？ Input“？ ” or “help”to show the follwing directory:

mirror - **mirroring configuration**
network - **configure network parameters**
olt - **enter olt config mode**
passwd - **change enable password**
prot-vlan - **enter protocol based vlan config mode**
rate-ctrl - **set switch port ingress rate limit global parameters**
rstp - **enter rapid spanning tree config mode**
show - **dislpay configuration**
swmode - **set basic switch mode**
swport - **enter switch port config mode**
system - **configure system basic parameters**
trunk - **enter trunk config mode**
user - **User configuration**
vlan - **enter vlan config mode**

4.3.1.Switch Control Card MAC Address Management

4.3.1.1. Configure Switch Control Card’s MAC Aging Time

Command Grammar	epon#**mac-address aging** ***<timeout>***

Function	Configure switch control card's MAC address aging time
<timeout>	MAC aging time ,with value range from 10 to 630 seconds .step length is 10 seconds.

4.3.1.2. Show Switch Control Card's MAC Address List

Command Grammar	epon#**mac-address show *<port>***
Function	Show switch control card's MAC address list of appointed port. When ***<port>*** is ignored, it will show all ports' MAC address.
<port>	Optional index .only show appointed port's MAC address list with value range from ge1 to ge16.

4.3.2. Port mirror Management

4.3.2.1. Mirror Destination Port

Command Grammar	epon#**mirror destination port *< port >***
Function	Configure the designated port for the switch control card as the mirror destination port
< port >	Designate a port as the mirror destination port with value range from gel to ge8.

4.3.2.2. Add Mirror Source Port

Command Grammar	epon#**mirror source add port *< portlist > < direction >***

Function	Configure added mirror source port ,available for designating some port's uplink ,downlink or bidirectional data flow as mirror source .
< *port list*>	Designate some port as mirror source port .Designation means could refer to 3.3 Typical Parameter category Illustration.
< *direction* >	Designate mirror source's data flow direction with vale as follows: ingress egress both

4.3.2.3. Delete Mirror Source Port

Command Grammar	epon#**mirror source delete port < *portlist* > < *direction* >**
Function	Delete mirror source port ,which could appoint one direction's data flow as mirror source .
< *port list*>	Port list
< *direction* >	Appoint deleted mirror sour's data flow direction: ingress egress both

4.3.2.4. Add Mirror Source VLAN

Command Grammar	epon#**mirror source add vlan < *vlanid*>**
Function	Configure added mirror source VLAN .All the packet in the VLAN domain will arrive the designated mirror port. Mirror source doesn't support data flow in the direction of VLAN domain
< *vlanid*>	Designate the VLAN as mirror source with the value range from1to 4094

4.3.2.5. Delete Mirror Source VLAN

Command Grammar	epon#**mirror source delete vlan < *vlanid*>**
Function	Configure deleting mirror source VLAN
< *vlanid*>	Appoint the deleted mirror source VLAN with value range from 1 to 4094

4.3.2.6. Clear Mirror Source

Command Grammar	epon#**mirror source clear**
Function	Clear all mirror source including all source port and source VLAN.

4.3.3. Network Configuration Mode

Command Grammar	epon#**network**
Function	Configure inband and outband management port's IP address.

【Example】

1.Enter network management mode

```
epon#network
epon(net)#
```

epon(net)# input"？"or "help"to show the following directory

[no] address - set network interface address

[no] gateway - configure network default gateway

4.3.3.1. Configure Management Port's IP and Sub Mask

Command Grammar	epon(net)#**address** ***<ifx-name> <ip-addr> <ip-mask>***
Function	Configure network port's IP address and submask. Currently our network management port includes inband network management port vi0 and outband network management port cpm0. input **address** ***<ifx-name>*** *could show the current networking configuration.*
< ifx-name e>	Appointed ip port name ,which could be vi0 or cpm0 ,port format expression mode refer to typical Parameter category.
<ip-add>	Configure IP address
< ip-mask >	Configure appointed IP address's network mask.

【Example】

1.Enquiry the current inband network management port's network configuration:

```
epon(net)#address vi0
Interface vi0:
        Ip address          :192.168.1.100
        Netmask             :255.255.255.0
        associated vlan :1
        admin status        :operational
```

Example 2:Configure inband management IP as 192.168.1.1 ,mask is 255.155.155.0

```
epon(net)#address vi0 192.168.1.1 255.255.255.0
```

Example 3:Configure outband management IP as 192.168.1.2 and mask is 255.255.255.0

```
epon(net)#address cpm0 192.168.1.2 255.255.255.0
```

4.3.3.2. Configure NMS Port Gateway

Command Grammar	epon(net)#**gateway** ***<ip-addr>***

Function	Configure NMS port's gateway. Input command gateway to show the current gateway information.
<ip-addr>	Configure the appointed gateway address.

4.3.4. OLT Management Mode

4.3.4.1. Enter OLT Management Mode

Command Grammar	epon#**olt** ***<slotid> <oltid>***
Function	Enter OLT management mode to configure OLT,downplink and ONU . just input "olt" could show the current online OLT .
<slotid>	olt pon card slot with value marked from 1 to 4 .
<oltid>	Pon ID with valid value 1 and 2 .

【Example】

1.Show current online OLT :

```
epon#olt
Following is online olt list:
   Slot   Olt   Mac Address          Online Status
   1      1     00:a1:02:01:01:26    Online
   1      2     00:a1:02:01:01:27    Online
   3      1     00:0d:b6:37:23:00    Online
   3      2     00:0d:b6:37:23:01    Online
```

2. Manage PON-1 of PON card under OLT Slot-3 .

```
epon#olt 3 1
epon(slot3-olt1)#
```

epon(slot3-olt1)# ? input"? "or "help" to show the command directory :

admin **- set olt administrate status**
bridge **- set olt bridge configuration**
default **- reset olt default configuration**
ext-mgmt **- extern network management**
link **- enter link config mode**

onu	**- enter onu config mode**
overwrite-linkid	**- overwrite linkid when linkid is exhausted**
overwrite-onuid	**- overwrite onuid when onuid is exhausted**
reboot	**- reboot pon card**
restore	**- restore to saved configuration**
save	**- save pon card configuration**
show	**- show olt base configuration**

4.3.4.2. Enable OLT

Command Grammar	epon(slot3-olt1)#**admin** ***<enable | disable>***
Function	Enable/disable OLT
<enable>	Enable OLT
<disable>	Disable OLT

4.3.4.3. OLT Bridge Configuration

Command Grammar	epon(slot3-olt1)#**bridge**
Function	Show current bridge setting

【example】

1. Show OLT's current bridge setting

```
epon(slot3-olt1)#bridge
Bridge Configuration:
   learned mac age limit    :0       (ms)
   bridge vlan number         :64     (bridges)
   allow simple bridge        :YES
   mac learn overwrite        :NO
   discard unknown mac        :NO
   allow tagged frame         :YES
```

4.3.4.3.1. MAC Address Aging Time

Command Grammar	epon(slot3-olt1)#**bridge limit** ***<limit>***
Function	Change MAC address's aging time .0 means not to learn MAC , the unit is 1ms .
<limit>	Parameterrange 0-2516582400(about 29 days)

4.3.4.3.2. Bridge VLAN Number Configuration

Command Grammar	epon(slot3-olt1)#**bridge vlan-num** ***<vlanNum>***
Function	Set bridge vlan number(tk3723 chipset OLT 's fixed number is 64)
<vlanNum>	Fix number is 64

4.3.4.3.3. MAC Address Overwrite Configuration

Command Grammar	epon(slot3-olt1)#**bridge overwrite** ***<enable | disable>***
Function	Set overwrite MAC address mode
<enable | disable>	Parameters <enable|disable> with the meaning as follows: enable:When MAC address is full ,new MAC overwrite existing MAC address . disable:When MAC address is full ,ignore the new MAC address .

4.3.4.3.4. Unknown MAC Restriction Configuration

Command Grammar	epon(slot3-olt1)#**bridge dsc-unk-mac** ***<enable | disable>***
Function	Set unknown MAC restriction mode
<enable | disable>	enable:unknown DA downlink packet deliver the broadcast to all

	ports . disable:unknown DA downlink packet is abandon

4.3.4.4.3.5. Forward Tag Frame Configuration

Command Grammar	epon(slot3-olt1)#**bridge tag-on-sbrg** ***<enable | disable>***
Function	Set tag forwarding rules under simple bridge mode.
<enable | disable>	enable:allow forwarding tag frame disable:dump tag frame

4.3.4.4. Restore PON Default Setting

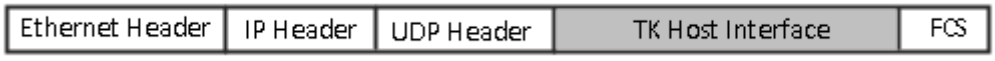
Command Grammar	epon(slot3-olt1)#**default**
Function	Restore PON Default Setting

【Remark】

The command will delete PON card's all setting and restore the ex-factory default setting .And the PON card will reboot automatically.

4.3.4.5. External UDP Management Function

The third party network management software could manage the GEPON system via the original Teknovous Host Interface with UDP packet package .



Since FD2102T's PON card has only one OLT chipset ,the configuration for (slotX-olt2)is the same as that for (slotX-olt2).

4.3.4.5.1. Configure management host's IP and UDP Port

Command Grammar	pon(slot3-olt1)#**ext-mgmt host** ***< ip-add > <port>***

Function	Configure management host's IP and UDP port ,GEPON system receive the management UDP packet from the management IP and UDP port and deliver the responded packet back to the management IP and UDP port .
< ip-add >	Configure management host's IP address
<port>	Configure management host's management UDP port number with the value range from 0 to 65535

【Example】

1.Configure management host IP as 192.168.120.1 ,port as 14115:

```
epon(slot3-olt1)#ext-mgmt host 192.168.120.1 14115
```

4.3.4.5.2. Configure OLT's management Port

Command Grammar	epon(slot3-olt1)# **ext-mgmt mgmt-port *<port>***
Function	Configure OLT's UDP management port ,where the OLT process and respond the management packet .
	Configure management host's UDP port with value range from 0 to 65535. OLT's default management port as follows: OLT1(slot1) 14113 OLT2(slot2) 14114 OLT3(slot3) 14115 OLT4(slot4) 14116

4.3.4.5.3. Enable/Disable OLT's UDP Management Function

Command Grammar	epon(slot3-olt1)# **ext-mgmt *<enable | disable>***
Function	Enable/disable OLT's UDP management port
<enable | disable>	enable:enable OLT' UDP management function

	disable:Disable OLT's UDP management function

4.3.4.5.4. Show OLT's UDP Management Information

Command Grammar	epon(slot3-olt1)# **ext-mgmt show**
Function	Show OLT's UDP management function information

【Example】

1.Show the current OLT's UDP management information:

```
epon(slot3-olt1)# ext-mgmt show
Olt Extern Network Management Configurations:
   admin                              :enable
   host ip address                 :192.168.120.1
   host udp port                     :14115
   olt management udp port    :14115
```

4.3.4.6. Link Management Mode

Command Grammar	epon(slot3-olt1)#**link <*linkid*>**
Function	Enter LINK management mode and configure link Parameter. ,
<linkid>	Designated linked with value range from 1 to 256 .

【Example】

1.Show the current online LINK :

```
epon(slot3-olt1)#link
Following is online link list:
    Link Id    Mac Address             Online Status
    1             00:a1:02:0a:a1:08    Online
```

2.Enter Link1 management interface :

```
epon(slot3-olt1)#link 1
epon(slot3-olt1-link1)#
```

epon(slot3-olt1-link1)# ？ input“？”or “help”to show command directory:

[no] block - block link
dynamic-mac-clear - clear dynamic mac table
dynamic-mac-list - show all dynamic mac table
dynamic-mac-refresh - refresh dynamic mac table
rediscover - force link rediscovery
show - show link basic configuration
sla - set link SLA parameters
static-mac-add - add a static mac
static-mac-del - delete a static mac
static-mac-list - show all static mac table

4.3.4.6.1. Block Current Link

Command Grammar	epon(slot3-olt1-link1)#**block**
Function	Block current link to stop the link’s data flow.

4.3.4.6.2. Remove the Current Link Block

Command Grammar	epon(slot3-olt1-link1)#**no block**
Function	Remove the current link block to restore the link’s data flow.

4.3.4.6.3. Clear Link’s Dynamic MAC Address List

Command Grammar	epon(slot3-olt1-link1)#**dynamic-mac-clear**
Function	Clear link’s dynamic MAC address list

4.3.4.6.4. Show Link's Dynamic MAC Address List

Command Grammar	epon(slot3-olt1-link1)#**dynamic-mac-list**
Function	Show all the MAC address list learned from the link

【Remark】

Please use the command " dynamic-mac-refresh" to refresh the link's dynamic MAC address before showing the link's dynamic MAC address .

4.3.4.6.5. Refresh Link's Dynamic MAC Address List

Command Grammar	epon(slot3-olt1-link1)#**dynamic-mac-refresh**
Function	Refresh link's dynamic MAC Address

4.3.4.6.6. Force Rediscovering Link

Command Grammar	epon(slot3-olt1-link1)#**rediscover**
Function	Force the link rediscovering to OLT

4.3.4.6.7. Show LINK Basic Information

Command Grammar	epon(slot3-olt1-link1)#**show**
Function	Show the link's current basic configuration information

【Example 】

1.Show the current link's basic configuration information :

```
epon(slot3-olt1-link1)#show
Link Basic Configurations:
   associated onu id          :1
   assigned link id by olt    :0
   mac address                :00:a1:02:0a:a1:08
   online status              :Online
   key exchange timer         :0      (sec)
   bridging type              :simple-bridge
   mac table entry limit      :64     (entries)
   cross connected link id    :NO
```

4.3.4.6.8. Link SLA Configuration

4.3.4.6.8.1. Configure Link's Minimum Guaranteed Bandwidth

Command Grammar	epon(slot3-olt1-link1)#**sla *<dir>* min-bw *<min-bw>***
Function	Configure the link's uplink or downlink's minimum guaranteed bandwidth
<dir>	Appoint the link sla's direction : downstream upstream
<min-bw>	Appoint the link 's minimum guaranteed bandwidth with valid value from 0,256 to 1000000. 0 means disabling the minimum guaranteed bandwidth function.

【Remark】

The minimum bandwidth much be lower than or equal to the maximum allowed bandwidth .

4.3.4.6.8.2. Configure Link's Maximum Allowed Bandwidth

Command Grammar	epon(slot3-olt1-link1)#**sla *<dir>* max-bw *<max-bw>***

Function	Configure the link's uplink or downlink maximum allowed bandwidth .
<dir>	Appoint the link SLA's configuration direction : downstream upstream
<max-bw>	Appoint the link 's maximum allowed bandwidth with valid value from 256 to 1000000. 0 means disabling the minimum guaranteed bandwidth function.

【Remark】

The maximum bandwidth must higher than or equal to the minimum guaranteed bandwidth .

4.3.4.6.8.3. Configure Link Transmission Time Delayed Level

Command Grammar	epon(slot3-olt1-link1)#**sla *<dir>* level *<level>***
Function	Configure uplink or downlink's transmission delayed time level.
<dir>	Two direction Parameter optional : downstream upstream
<level>	Appoint downlink or uplink's transmission delayed time level with the valid value as follows : **Sensitive**: sensitive service could be given the priority to transmit . tolerant : non-sensitive service

4.3.4.6.8.4. Configure Link's Maximum Burst Flow

Command Grammar	epon(slot3-olt1-link1)#**sla *<dir>* burst-size *<burst>***
Function	Configure uplink or downlink's maximum burst flow .
<dir>	Two configuration direction as follows : downstream upstream
<burst>	Appoint the link 's maximum burst flow with the valid value range from 1 to 256.

4.3.4.6.8.5. Show LINK SLA Configuration

Command Grammar	epon(slot3-olt1-link1)#**sla** ***<dir>***
Function	Show uplink or downlink's SLA configuration information
<dir>	downstream or upstream

【Example】

1.Show current uplink's SLA configuration information :

```
epon(slot3-olt1-link1)#sla upstream
Current Link SLA configuration(Upstream):
   minimum guaranteed bandwidth    :0          (Kbps)
   maximum allowed bandwidth           :1000000(Kbps)
   delay sensitive                     :Tolerant
   max burst size                      :100       (KBytes)
   sla state                           :Enable
```

2.Show downlink's SLA configuration information :

```
epon(slot3-olt1-link1)#sla downstream
Current Link SLA configuration(Downstream):
   minimum guaranteed bandwidth    :0          (Kbps)
   maximum allowed bandwidth           :1000000(Kbps)
   delay sensitive                     :Tolerant
   max burst size                      :100       (KBytes)
   sla state                           :Enable
```

4.3.4.6.9. Add Link's Static MAC Address

Command Grammar	epon(slot3-olt1-link1)#**static-mac-add** ***<mac>***
Function	Add link's static MAC address
<mac>	Input MAC address

4.3.4.6.10. Delete Link's Static MAC Address

Command Grammar	epon(slot3-olt1-link1)#**static-mac-del** ***<mac>***
Function	Delete Appointed Link's Static MAC Address
<mac>	Input the deleted MAC address

4.3.4.6.11. Show Link's Static MAC Address List

Command Grammar	epon(slot3-olt1-link1)#**static-mac-list**
Function	Show the link's static MAC address

4.3.4.7. ONU Management Mode

Command Grammar	epon(slot3-olt1)#**onu** ***<onuid>***
Function	Enter ONU management mode and configure the ONU Parameter.
<onuid>	Input onuid with the valid value range from 1 to 64

【Example】

1.Show current online ONU

```
epon(slot3-olt1)#onu
Following is online onu list:
slotId   oltId   onuId   deviceType      basedMac              hWRev   fwRev
3        1       1       FD104H          00:a1:02:0a:a1:08     V01     v2.24
3        1       2       FD104H          00:a1:02:0a:a1:10     V01     v2.24
```

2. Enter ONU1 management interface

```
epon(slot3-olt1)#onu 1
epon(slot3-olt1-onu1)#
```

```
epon(slot3-olt1-onu1)# ？          input“？”or “help” to show command directory
  default          - restore to default setting
  igmp             - onu igmp snooping configuration
  info             - onu device user information
  loopback-test    - loopback test
  ponport          - onu pon port configuration
  port             - enter onu port config mode
  reboot           - reboot the system
  restore          - restore to saved configuration
  rstp             - onu rapid spanning tree config
  save             - save onu configuration
  user-traffic     - enable or disable user traffic
  vlan-type        - set onu additional vlan ethertype
```

4.3.4.7.1. Restore ONU Default Configuration

Command Grammar	pon(slot3-olt1-onu1)#**default**
Function	Restore ONU default configuration

【Remark】

The command will delete all ONU's configuration to restore default configuration .The ONU will reboot automatically .

4.3.4.7.2. ONU IGMP Snooping

4.3.4.7.2.1. Configure ONU Port's IGMP Number

Command Grammar	epon(slot3-olt1-onu1)#**igmp port <*port*> groups <*groupnum*>**
Function	Configure ONU port's supported IGMP number. 0 means to disable IGMP Snooping function.
<*port*>	Appoint ONU's port number with value range from fe1 to fe8..
<*groupnum*>	Set ONU port's IGMP number with valid value range from 0 to 64.

4.3.4.7.2.2. Add IGMP Address and Port List

Command Grammar	epon(slot3-olt1-onu1)#**igmp add <*ipaddr*> <*portlist*>**
Function	Add a IGMP address and a port number
<*ipaddr*>	Input IGMP address ,such as 224.0.0.1。
<*portlist*>	Input port number with valid value range from fe1 to fe8 .

4.3.4.7.2.3. Delete IGMP Address

Command Grammar	epon(slot3-olt1-onu1)#**igmp delete <*ipaddr*>**
Function	Delete IGMP address
<*ipaddr*>	Input IGMP address such as 224.0.0.1

4.3.4.7.2.4. The Last Member Enquiry Times

Command Grammar	pon(slot3-olt1-onu1)#**igmp lmqc <*value*>**
Function	Set the last member enquiry times
<*value*>	value range from 0 to 12

4.3.4.7.2.5. Re-Delivery Times

Command Grammar	pon(slot3-olt1-onu1)#**igmp rc<*value*>**
Function	Set IGMP packet's re-delivery times
<*value*>	Value range from 0 to 12

4.3.4.7.2.6. Show Current IGMP Configuration Information

Command Grammar	epon(slot3-olt1-onu1)#**igmp show**

Function	Show current IGMP information

4.3.4.7.3. Configure ONU User Information

Command Grammar	epon(slot3-olt1-onu1)#**info** ***<info>***
Function	Configure ONU user information; Just input "info" to show the current ONU user's information .
<info>	User information bytes with longest bytes 64

4.3.4.7.4. ONU Link Loopback Test

Command Grammar	epon(slot3-olt1-onu1)#**loopback-test**
Function	Test ONU link status and this command is interactive command which need the user to provide the following Parameterstep by step . loopback location: mac 或 phy number of frames:1-65535 payload length:64-1500 vlan tag:0-4094

【Example 】

1.Test ONU Link

```
epon(slot3-olt1-onu1)#loopback-test
please offer the loopback test parameter:
loopback location[mac|phy]:mac
number of frames[1~65535]:100
payload length[64~1500]:64
vlan tag[0~4094]:0
testing...
result:
frames sent                    :100
frames received                :100
corrupted frames receiv   :0
minimum Delay (us)             :2512
```

maximum Delay (us) :5788 mverage Delay (us) :4135

4.3.4.7.5. Show ONU Dynamic MAC Address List

Command Grammar	epon(slot3-olt1-onu1)# **mac-address-show**
Function	Show ONU's dynamic learning MAC address gloably.

4.3.4.7.6. ONU Port Management Mode

Command Grammar	epon(slot3-olt1-onu1)#**port < *uni-port*>**
Function	Enter ONU port management mode and configure the ONU port's Parameter.
< uni-port >	Appoint onu port number with valid value range from fe1 to fe8.

【Example】

1.Enter ONU1's port 1 interface

```
epon(slot3-olt1-onu1)#port fe1
epon(slot3-olt1-onu1-fe1)#
```

epon(slot3-olt1-onu1-fe1)# ？ input "？"or "help" to show the command directory

attribute - onu port attribute config
bridge - onu port bridge parameter config
dynamic-mac-clear - clear dynamic mac table
dynamic-mac-list - show all dynamic mac table
[no] enable - enable onu port
info - set onu port user information
qos - onu port qos config
vlan - onu port vlan configuration

4.3.4.7.6.1. Configure ONU port's Parameter Attribute

4.3.4.7.6.1.1. Show ONU Port Parameter

Command Grammar	epon(slot3-olt1-onu1-fe1)#**attribute**
Function	Show ONU port's Parameter attribute.

【Example】

1:Show ONU1 's port 1 attribute

```
ONU(3/1/1) Port fe1 attribute:
   auto negotiation   :enable
   speed                        :10m
   duplex                       :half
   flow control         :disable
```

4.3.4.7.6.1.2. Configure ONU Port Auto-Negotiation

Command Grammar	epon(slot3-olt1-onu1-fe1)#**attribute auto-nego *<oper>***
Function	Configure ONU port to be auto-negotiable
<oper>	Value input is <enable | or disable>: enable : enable the port's auto-negotiation function disable : Disable the port's auto-negotiation function

4.3.4.7.6.1.3. Configure ONU Port Speed

Command Grammar	epon(slot3-olt1-onu1-fe1)#**attribute speed *<speed>***
Function	Configure ONU port's speed
<speed>	ONU port speed with valid value as follows:10m，100m，1000m

4.3.4.7.6.1.4. Configure ONU Port's Duplex Function

Command Grammar	epon(slot3-olt1-onu1-fe1)#**attribute duplex** < ***duplex***>
Function	Configure ONU port's duplex status
< *duplex*>	ONU port's duplex status with value "half" or full

4.3.4.7.6.1.5. Configure ONU Port Flow Control Function

Command Grammar	epon(slot3-olt1-onu1-fe1)#**attribute flow-ctrl** <***oper***>
Function	Configure ONU port's flow control function
< *oper*>	Enable/disable ONU port flow control function Enable: enable ONU port flow control function Disable:disable ONU port flow control function

4.3.4.7.6.2. Configure ONU port's Bridge Parameter

4.3.4.7.6.2.1. Show ONU Port Bridge Parameter

Command Grammar	pon(slot3-olt1-onu1-fe1)#**bridge**
Function	Show ONU port bridge Parameter

【example】

1:Show ONU port-1's bridge Parameter

```
epon(slot3-olt1-onu1-fe1)#bridge
ONU(3/1/1) Port fe1 bridge parameter:
   automatic learning entry limit      :16
   learned entry age limit                    :0
   forwarding mode                                 :802.1d mode
```

4.3.4.7.6.2.2. Configure ONU Port's Dynamic MAC Limits

Command	epon(slot3-olt1-onu1-fe1)#**bridge** < ***entry-limit***>

Grammar	
Function	Configure ONU port's dynamic learning MAC number
< entry-limit>	Maximum learning MAC number with valid value from 0 to 64;0 means not to learn MAC address

4.3.4.7.6.2.3. Configure ONU Port's MAC Aging Time

Command Grammar	epon(slot3-olt1-onu1-fe1)#**bridge age-time** ***< age-time>***
Function	Configure ONU port's Aging time of MAC address
< age-time >	MAC address aging time with valid value from 0 to 32768; 0 means not to age MAC address

4.3.4.7.6.2.4. Configure ONU Port's Forward Mode

Command Grammar	epon(slot3-olt1-onu1-fe1)#**bridge forward-mode** ***< forward-mode>***
Function	Configure ONU port's forward mode
<forward-mode>	Forward mode with valid value such as 8021d,drop-until-learned; 8021d mode :unknown MAC packet broadcast to all ports ; Drop-until-learned mode: drop unknown MAC packet

4.3.4.7.6.3. Clear ONU Port's Dynamic MAC List

Command Grammar	epon(slot3-olt1-onu1-fe1)#**dynamic-mac-clear**
Function	Clear ONU port's dynamic MAC list

4.3.4.7.6.4. Show ONU Port's Dynamic MAC List

Command Grammar	epon(slot3-olt1-onu1-fe1)#**dynamic-mac-list**
Function	Show ONU port's dynamic MAC List

4.3.4.7.6.5. Enable ONU UNI Port

Command Grammar	epon(slot3-olt1-onu1-fe1)#**enable**
Function	Enable ONU port to make sure normal communication

4.3.4.7.6.6. Disable ONU UNI Port

Command Grammar	epon(slot3-olt1-onu1-fe1)#**no enable**
Function	Disable ONU port to stop the data flow communication

4.3.4.7.6.7. Configure ONU Port's User Information

Command Grammar	epon(slot3-olt1-onu1-fe1)#**info <*info*>**
Function	Set ONU port's user information; Input "info" to show ONU port's user information
<*info*>	User information bytes length ,with the longest length 64 bytes

4.3.4.7.6.8. Configure ONU Port's Uplink Speed Limit

Command Grammar	epon(slot3-olt1-onu1-fe1)#**qos ingress-policing < *max-rate*>** **< *traffic-type*>**
Function	Set ONU port's uplink bandwidth limits. Input "qos ingress-policing" to show the current uplink speed limit configuration information .
< *max-rate*>	Maximum uplink bandwidth ;unit :kbps ;valid value:0-100000;
< *traffic-type*>	Appoint speed limit's packet type with value as follows: Broadcast; broadcastAndMulticast; broadcastMulticastAndFloodedUnicast; all

4.3.4.7.6.9. Configure ONU Port's Downlink Speed Limit

Command Grammar	epon(slot3-olt1-onu1-fe1)#**qos egress-shapping < *max-rate*> *<schedule-algorithm>***
Function	**Set ONU port's downlink bandwidth limits.** **Input "qos egress-shapping" to show the current downlink speed limit configuration information .**
< *max-rate*>	**Maximum downlink bandwidth ;unit :kbps ;valid value:0-100000;**
<schedule-algorithm>	Port's output flow shaping 's adjusty calculation method with valid value :: weighted-fair strict-priority

4.3.4.7.7. ONU Port's VLAN Configuration

4.3.4.7.7.1. ONU PON Port VALN Configuration

4.3.4.7.7.1.1. Add Vlan

Command Grammar	epon(slot3-olt1-onu1)#**ponport vlan add *<vlanid>* *<tagModify>***
Function	Add valn for onu PON port and set output tag rule
< *vlanid* >	Appoint added vlan with value range from 0 to 4094.
<tagModify>	Output rule :frames from this port could be changed based on the optional index below: pass：mo modification addtag： add vlan tag to untag frames deltag：remove the outward tag if vlan tag exsit

【Example】

1.Add vlan100 to ONU PON port and output rule is to add tag.

```
epon(slot3-olt1-onu1)#ponport vlan add 100 addtag
```

4.3.4.7.7.1.2. Delete VLAN

Command Grammar	epon(slot3-olt1-onu1)#**ponport vlan delete<*vlanid*>**
Function	Delete appointed ONU UNI port VLAN
< *vlanid* >	Appoint vlan to be deleted with valid value from 0 to 4094.

4.3.4.7.7.1.3. Configure VLAN Forward Policy

Command Grammar	epon(slot3-olt1-onu1)#**ponport vlan policy <*policy*>**
Function	Configure ONU PON port's VLAN forward policy
< *policy*>	Appoint onu pon port's VLAN forward policy with the index below : policy0：Switch frames on default vlan domain frames and ignore frame VID. policy1：Switch VID frame ,unknown VID treated as untagged policy2：switch VID frame and ignore unkown VID frames policy3：switch VID frames on the vlan domain appointed by the UNI port .

【Example】

1.Configure ONU PON port's forward policy 3

```
epon(slot3-olt1-onu1)#ponport vlan policy policy3
```

【Illustration】

Different VLAN forward policy deal with different frame types.

1. Policy0:Switch frames on default vlan domain and ignore frame VID.

Frame Type	Approach
Untagged Frame	Switch frames on default vla(PVID)n domain
Tagged Frame	Ignore frame's VID ,treated as untagged frame

2. policy1：Switch VID frame ,unknown VID treated as untagged

Frame Type	Approach

Untagged frame	Switch frames on port's default Vlan domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	Switch frames on port's default VLAN(PVID) domain
Tagged Frame：VLAN doesn't exsit	Switch frames on port's default VLAN(VPID) domain

3. policy2：switch VID frame and dump unkown VID frames

Frame Type	Approach
Untagged frame	Switch frames on port's default VLAN(VPID) domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	add the port to the VLAN domain temporialy and forward frames on fram VID's VLAN domain
Tagged Frame：VLAN doesn't exsit	Ignore the frame

4. policy3：switch VID frames on the vlan domain appointed by the UNI port

Frame Type	Approach
Untagged frame	Switch frames on port's default VLAN(VPID) domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	Ignore the frame
Tagged Frame：VLAN doesn't exsit	Ignore the frame

4.3.4.7.7.1.4. Configure ONU PON Port's PVID

Command Grammar	epon(slot3-olt1-onu1)#**ponport vlan pvid <*vlanid*>**
Function	Configure ONU pon port's default VLAN ID(PVID)
< *vlanid* >	Appoint Vlan ID with valid value range from 0 to 4094

【Example】

1.Configure ONU UNI port1's PVID as 100:

```
epon(slot3-olt1-onu1)#ponport vlan pvid 100
```

4.3.4.7.7.1.5. Show ONU PON port's VLAN configuration

Command Grammar	epon(slot3-olt1-onu1)#**ponport vlan show**
Function	Show ONU PON port's Vlan configuration information

【Example】

1.Show ONU PON port's VLAN configuration

```
epon(slot3-olt1-onu1)# ponport vlan show
ONU(3/1/1) pon port vlan information:
pvid                :100
forward policy      :policy3
number of vlans     :1
1   vlanid :100     tag modification :addtag
```

4.3.4.7.8. ONU UNI Port VLAN Configuration

4.3.4.7.8.1.1. Add VLAN

Command Grammar	epon(slot3-olt1-onu1-fe1)#**vlan add <*vlanid*> <*tagModify*>**
Function	Add appointed ONU UNI port's VLAN and set tag rules.
< *vlanid* >	Appoint added Vlan with valid value from 0 to 4094 .
<*tagModify*>	Output rule :frames from this port could be changed based on the optional index below: pass：mo modification addtag： add vlan tag to untag frames

【Example】

1.Add vlan100 to ONU UNI port 1 and output rule is to remove the tag:

```
epon(slot3-olt1-onu1-fe1)#vlan add 100 deltag
```

4.3.4.7.8.1.2. Delete VLAN

Command Grammar	pon(slot3-olt1-onu1-fe1)#**vlan delete<*vlanid*>**
Function	Delete appointed ONU UNI port's Vlan
< *vlanid* >	Appointed vlan to be deleted with valid value range from 0 to 4094

4.3.4.7.8.1.3. Configure ONU UNI Port's VLAN Forward Policy

Command Grammar	epon(slot3-olt1-onu1-fe1)#**vlan policy <*policy*>**
Function	Configure ONU UNI port's VLAN forward policy
< *policy*>	ppoint onu UNI port's VLAN forward policy with the index below : policy0 : Switch frames on default vlan domain frames and ignore frame VID. policy1 : Switch VID frame ,unknown VID treated as untagged policy2 : switch VID frame and ignore unkown VID frames policy3 : switch VID frames on the vlan domain appointed by the **PON port** .

【Example】

1.**Configure ONU UNI port 1 's VLAN with strategy 3**

```
epon(slot3-olt1-onu1-fe1)#vlan policy policy3
```

【Illustration】

Different VLAN forward policy deal with different frame types.

5. Policy0:Switch frames on default vlan domain and ignore frame VID.

Frame Type	Approach
Untagged Frame	Switch frames on default vla(PVID)n domain
Tagged Frame	Ignore frame's VID ,treated as untagged frame

6. policy1：Switch VID frame ,unknown VID treated as untagged

Frame Type	Approach
Untagged frame	Switch frames on port's default Vlan domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	Switch frames on port's default VLAN(PVID) domain
Tagged Frame：VLAN doesn't exsit	Switch frames on port's default VLAN(VPID) domain

7. policy2：switch VID frame and ignore unkown VID frames

Frame Type	Approach
Untagged frame	Switch frames on port's default VLAN(VPID) domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	add the port to the VLAN domain temporialy and forward frames on fram VID's VLAN domain
Tagged Frame：VLAN doesn't exsit	Ignore the frame

8. policy3：switch VID frames on the vlan domain appointed by the PON port

Frame Type	Approach
Untagged frame	Switch frames on port's default VLAN(VPID) domain
Tagged frame:the ONU port is on the vlan domain	Switch frames on frame VID's VLAN domain
Tagged frame:the onu port is not on the vlan domain	Ignore the frame
Tagged Frame：VLAN doesn't exsit	Ignore the frame

4.3.4.7.8.1.4. Configure ONU UNI Port's PVID

Command Grammar	epon(slot3-olt1-onu1-fe1)#**vlan pvid <*vlanid*>**
Function	Configure ONU UNI port's default VLAN ID(PVID)
< *vlanid* >	Appoint Vlan ID with valid value range from 0 to 4094

【Example】

1.Configure ONU UNI port1's PVID as 100:

epon(slot3-olt1-onu1-fe1)#vlan pvid 100

4.3.4.7.8.1.5. Show ONU UNI Port's VLAN Configuration

Command Grammar	epon(slot3-olt1-onu1-fe1)#**vlan show**
Function	Show ONU UNI port's Vlan configuration information

4.3.4.7.9. Reboot ONU

Command Grammar	epon(slot3-olt1-onu1)#**reboot**
Function	Reboot onu

4.3.4.7.10. Configure RSTP Function

Command Grammar	epon(slot3-olt1-onu1)#**rstp** ***<oper>***
Function	Configure ONU's rapd spanning tress protocol (RSTP) function; Input "rstp" to show current RSTP status
<oper>	Enable/disable ONU RSTP function with valid value as follows: Enable: enable ONU RSTP function Disable: disable ONU RSTP function

4.3.4.7.11. Save ONU configuration

Command Grammar	pon(slot3-olt1-onu1)#**save**

Function	Save ONU's all configuration .

4.3.4.7.12. Configure ONU's Traffic Flow Management

Command Grammar	epon(slot3-olt1-onu1)#**user-traffic** ***<oper>***
Function	Configure ONU user's traffic flow management When input "user" to show the onu user's current traffic flow
<oper>	enable :enable onu user's traffic flow Disable: disable onu user's traffic flow

4.3.4.7.13. Configure ONU VLAN's Ethernet Parameter

Command Grammar	epon(slot3-olt1-onu1)#**vlan-type ethtype** ***<type>*** **upstream** ***<uptag>*** **downstream** ***<dntag>***
Function	Configure onu vlan's Ethernet type and set this vlan's Ethernet traffic direction; Input " vlan-type " to show onu's current VLAN Ethernet information.
<type>	VLAN's Ethernet type with default value as 0x8100 and the valid value range from 0 to 65535
<uptag>	Whether add the vlan tag of the vlan Ethernet type for the uplink traffic ; tag : add tag Untag: do not add tag
<dntag>	Whether add the vlan tag of the vlan Ethernet type for the downlink traffic ; tag : add tag Untag: do not add tag

4.3.4.8. Configure Link ID Overwrite Function

Command Grammar	epon(slot3-olt1)#**overwrite-linkid <*oper*>**
Function	Whether new authorized link overwrites the existing link ID after the Link ID is set .
<oper>	Enable: new Link overwrites existing Link ID. Disable: new Link does not overwrite existing Link ID.

4.3.4.9. Configure ONU ID Overwrite Function

Command Grammar	epon(slot3-olt1)#**overwrite-onuid < *oper* >**
Function	Whether new authorized ONU overwrites the existing ONU ID after the ONU ID is set .
<oper>	Enable: new ONU overwrites existing ONU ID. Disable: new ONU doesn't overwrites existing ONU ID .

4.3.4.10. Reboot PON Card

Command Grammar	epon(slot3-olt1)#**reboot**
Function	Reboot PON card

4.3.4.11. Save PON card configuration

Command Grammar	epon(slot3-olt1)#**save**
Function	Save PON card's all configuration

4.3.4.12. Show OLT's Basic Information

Command Grammar	epon(slot3-olt1)#**show**
Function	Show OLT's basic configuration

【Example】

1.Show OLT's current basic configuration

```
epon(slot3-olt1)#show
Olt Basic Configurations:
   mac address                  :00:0d:b6:37:23:00
   work state                   :Online
   enable status                :Enable
   max permitted link number  :210
   registered link number       :1
   accessed onu number          :1
   link id exhausted            :NO
   onu id exhausted             :NO
   link id overwrite            :NO
   onu id overwrite             :NO
```

4.3.5. Configure Enable Password Management

Command Grammar	epon#**passwd**
Function	Enter the enable password changing mode .

【Example】

1.Change enable password :

```
epon#passwd
Enter new enable password:
Confirm new enable password:
```

```
epon#
```

【Remark】

Please do save the configuration under the system directory after changing the password and reboot the system to make the setting valid .

4.3.6. Protocol VLAN Configuration Mode

Command Grammar	epon#**prot-vlan**
Function	Enter switch control card's protocol based vlan managmenet mode, where you can configure supported protocol pool ,port and bind relation between protocol and Vlan.

【Example】

1.Enter protocol based VLAN management mode

```
epon#prot-vlan
epon(prot-vlan)#
```

```
epon(prot-vlan)# ?          input"？"or "help" to show the current directory
  add                       - add a protocol type
  [no] bind                 - bind or unbind portlist, protocol type to vlanid
  clean                     - delete all protocol type
  delete                    - delete a protocol type
  [no] enable               - enable protocol vlan for ports
  show                      - show protocol vlan config
```

4.3.6.1. Add Protocol

Command Grammar	epon(prot-vlan)#**add prot-type *<protocol-type>***
Function	Add a protocol for the globalallowed protocol pool .Only the protocol added to the protocol pool can bind the port-protocol-vlan .Protocol pool can add 8 protocols at most now. Alarm is show when adding more than 8 protocol vlans .

<protocol-type>	Appoint added protocol type with valid value hex-based 0x as prefix or protocol name's bytes series .common protocol name could only support ip,arp and pppoe ,such as 0x8863,pppoe,etc.

【Example】

1.Add pppoe protocol by means of hex-based protocol number.

```
epon(prot-vlan)#add prot-type 0x8863
```

2.Add ip protocol based on protocol name .

```
epon(prot-vlan)#add prot-type ip
```

4.3.6.2. Delete Protocol

Command Grammar	epon(prot-vlan)#**delete prot-type *<protocol-type>***
Function	delete a protocol from the globalallowed protocol pool .Only the protocol added to the protocol pool can bind the port-protocol-vlan. When a protocol is deleted ,all protocol's bind rules are deleted at the same time .If the protocol to be deleted is not in the protocol pool , no need to take any actions but the protocol is still valid .
<protocol-type>	Appoint deleted protocol type with valid value hex-based 0x as prefix or protocol name's bytes series .common protocol name could only support ip,arp and pppoe ,such as 0x8863,pppoe,etc.

4.3.6.3. Clear Protocol Pool

Command Grammar	epon(prot-vlan)#**clean**
Function	Clear globalallowed protocol pool and all port-protocol-vlan bind rules are deleted at the same time .You need to add new protocol and bind rules when protocol based vlan is needed.

4.3.6.4. Add Bind Rule

Command Grammar	epon(prot-vlan)#**prot-vlan bind *<portlist> <protocol-type> <vlanid>***
Function	Create protocol-vlan bind rule for the appointed port .The bind rule is based on port ,so the same port's protocol could only bind only one VLAN ID .Different protocols could bind the same VLAN ID. Only the protocol in the protocol pool could be used to bind port-protocol-vlan .
<portlist>	Appointed port list from ge1 to ge16 .
<protocol-type>	Appoint the bonded protocol type with hex-based 0x as prefix such as 0x0800 0x0806 or the regular protocol name ,bytes value .The current protocol name only support ip,arp and pppoe .
<vlanid>	Appoint the bonded VLAN ID with integer value from 1 to 4094.

【Example】

1.Confiugre ip protocol to vlan2000 in port ge1 .

```
epon(prot-vlan)#bind ge1 ip 2000
```

4.3.6.5. Remove Bind Rule

Command Grammar	epon(prot-vlan)#**no prot-vlan bind *<portlist> <protocol-type>***
Function	Remove protocol-vlan bind rules in the appointed port .
<portlist>	Appointed port list ,which could be anyone from gel to ge16.
<protocol-type>	Appoint the bonded protocol type to be removed with hex-based 0x as prefix such as 0x0800 0x0806 or the regular protocol name ,bytes value .The current protocol name only support ip,arp and pppoe .

4.3.6.6. Enable Port Protocol VLAN Function

Command Grammar	epon(prot-vlan)#**enable** ***<portlist>***
Function	Enable appointed port's protocol based vlan function.only enable the port's protocol based vlan function could make the port-protocol-vlan bind rules valid .
<portlist>	Appointed port list ,which could be any one from ge1 to ge16 .

【Example】

1.Enable port ge1 ,ge2 ,ge3 and ge6 's protocol based vlan function

```
epon(prot-vlan)#enable ge1-ge3,ge6
```

4.3.6.7. Disable Port Protocol VLAN Function

Command Grammar	epon(prot-vlan)#**no enable** ***<portlist>***
Function	Disable appointed port's protocol based vlan function.After disabling port's protocol based vlan,port-protocol-vlan 's bind rules become invalid.
<portlist>	Appointed port list ,which could be any one from ge1 to ge16 .

4.3.6.8. Show Protocol VLAN's Configuration Information

Command Grammar	epon(prot-vlan)#**show**
Function	Show protocol based vlan's configuration information

【example】

1.Show protocol based vlan's configuration information :

```
epon(prot-vlan)#show
Enabled protocols:
  1:8863h(pppoe)
  2:0800h(ip)
Protocol based VLAN on ge1 is enabled
Configured protocols:
                0800h(ip)            bind to vlan 2000
Protocol based VLAN on ge2 is enabled
Protocol based VLAN on ge3 is enabled
Protocol based VLAN on ge4 is disabled
Protocol based VLAN on ge5 is disabled
Protocol based VLAN on ge6 is enabled
Protocol based VLAN on ge7 is disabled
Protocol based VLAN on ge8 is disabled
Protocol based VLAN on ge9 is disabled
Protocol based VLAN on ge10 is disabled
Protocol based VLAN on ge11 is disabled
Protocol based VLAN on ge12 is disabled
Protocol based VLAN on ge13 is disabled
Protocol based VLAN on ge14 is disabled
Protocol based VLAN on ge15 is disabled
Protocol based VLAN on ge16 is disabled
```

4.3.7. Configure Switch Control Card's Global Parameter of Port Limit

Command Grammar	epon#**rate-ctrl mode <*bps*|*pps*>**
Function	Set control card's globalParameterof input switch speed
<bps|pps>	Globalindex's speed unit : bps: bytes per second pps: frames per second

4.3.8. RSTP Configuration Mode

Command	epon#**rstp**

Grammar	
Function	Enter switch control card's RSTP management mode 进

【Example】

1.Enerer RSTP Management Mode

```
epon#rstp
epon(rstp)#
```

epon(rstp)# ? input"？ " or "help" to show current directory

bridge - **bridge**
disable - **disable rstp**
enable - **enable rstp**
hold-count - **set rstp transmit hold count**
port - **rstp port parameter configuration**
show - **show rstp configuration**

4.3.8.1. Configure RSTP Bridge Parameter

4.3.8.1.1. Bridge Forward Delay

Command Grammar	epon(rstp)#**bridge fdelay < *fdelay* >**
Function	Set RST Bridge delayed forward
< *fdelay* >	Value range : 4-30 ;must demand the following bind relation: 2×（ ForwardDelay – 1.0second ） >= MaxAge MaxAge is bridge infomration's maximum valid time ; ForwardDelay: forward delay

4.3.8.1.2. Bridge Maximum Valid Age

Command Grammar	epon(rstp)#**bridge maxage < *maxage*>**

Function	Configure RSTP bridge's maximum valid age which is the valid time for receiving BPDU packet from appointed port's bridge.
< *maxage*>	Value range : 6-40 ;must demand the following bind relation: 2× (ForwardDelay – 1.0second) >= MaxAge MaxAge is bridge infomration's maximum valid time ; ForwardDelay: forward delay

4.3.8.1.3. Bridge Priority

Command Grammar	epon(rstp)#**bridge priority <*priority*>**
Function	Set RSTP bridge priority
<*priority*>	Appointed bridge priority integer value from 1 to 61440,and step length is 4096 ,meaning 4096xN(N is from 0 to 15) .

4.3.8.2. Enable RSTP Function

Command Grammar	epon(rstp)#**enable**
Function	Enable switch control card's uplink port 's RSTP function

【Example】

1.Enable switch control card's uplink port 's RSTP function

```
epon(rstp)#enable
```

4.3.8.3. Disable RSTP Function

Command Grammar	epon(rstp)#**disable**
Function	disable switch control card's uplink port 's RSTP function

4.3.8.4. Hold Bridge Forwarding Frame Count

Command Grammar	epon(rstp)#**hold-count *<holdcount>***
Function	Configure RSTP's deliving BPDU packet limit and appoint the maximum delivering BPDU packet within 1 second .
<holdcount>	Value range from 1 to 10.

4.3.8.5. Configure RSTP Port Parameter

4.3.8.5.1. Set RSTP's Edge port Management

Command Grammar	epon(rstp)#**port *<portlist>* edgecfg *<edge>***
Function	Configure RSTP port's managed edge port attribute. Appoint the port whether to be edge port or not .Edge port does not go through "discarding-learning-forwarding " step but transfer to switch status directly .
<portlist>	Appointed port list ,any one from ge1 to ge8 .
<edge>	Configure appointed RSTP port's edge port attribute with byte value such as edge ,non-edge and auto .

4.3.8.5.2. Set RSTP Port's Protocol Version Checkout

Command Grammar	epon(rstp)#**port *<portlist>* mcheck**
Function	Configure RSTP port's protocol version check out .When executing this command ,the appointed port's mode is force to be the same as next received BPDU packet version.If the next packet is STP BPDU packet ,the port's mode is STP .If it's RSTP BPDU packet ,the port's mode is RSTP. RSTP port's protocol version is a booting command, not available to preserve the attributed value continually .
<portlist>	Appointed port list ,any one from ge1 to ge8 .

4.3.8.5.3. Set RSTP Port's Point-to-Point Attribution

Command Grammar	epon(rstp)#**port *<portlist>* p2pcfg *<p2p>***
Function	Configure RSTP port's point to point index . whether the appointed port is point-to-point port.Point to point port could allow to switch to forward status rapidly .Non-point to point port needs to go through step of discarding-learning-forwarding first before switching to forward status .
<portlist>	Port list from ge1 to ge8 .指
<p2p>	Appointed RSTP port index with bytes value such as p2p,shared and auto .

4.3.8.5.4. Set RSTP Port's Link Cost

Command Grammar	epon(rstp)#**port *<portlist>* path-cost *<pathcost>***
Function	Configure RSTP port's link cost .It's used to calculate the root link's cost .The port with the lowest root link cost will change to forward port when delivering the same bridge ID .
<portlist>	Appointed port list, any one from ge1 to ge8.
<pathcost>	Appointed RSTP port's link cost with integer value from 1 to 200000000.

4.3.8.5.5. Set RSTP Port's Priority Level

Command Grammar	epon(rstp)#**rstp port *<portlist>* priority *<priority>***
Function	Configure RSTP port's priority level. The port with priority will change to forward port when delivering the same bridge ID and having the same link cost .
<portlist>	Port list ,any one from ge1 to ge8 .

<priority>	Configure appointed RSTP port's priority level with integer value valid from 1 to 240 ,step length 16 ,meaning 16xN(n is from 0 to 15) .

4.3.8.6. Show RSTP Configuration Information

Command Grammar	epon(rstp)#**show**
Function	Show RSTP bridge and port's configuration information

【Example】

1.show switch control card's RSTP configuration information :

```
epon(rstp)#show
RSTP Bridge Status:
   RSTP Setting              :Enable
   Bridge ID [PRI-MAC]       :32768-00:a1:02:22:11:89
   Bridge Hello Time         :2 sec
   Bridge Max Age            :20 sec
   Bridge Forward Delay      :15 sec
   Transmit Hold Count       :6
   Root Bridge ID            :32768-00:a1:02:22:11:89
   Root Path Cost            :0
RSTP Port Status:
   PID Mode   Pri  PathCost  EdgeCfg   OperEdge   P2PCfg   OperP2P State
   1   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   2   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   3   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   4   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   5   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   6   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   7   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
   8   RSTP   128  20000     Auto      Non-Edge   Auto     Shared   LinkDown
Total 8 RSTP ports dumped.
```

4.3.9. Configure Switch Control Card's Switching Mode

4.3.9.1. Set Private Vlan Mode

Command Grammar	epon#**swmode pve** ***<mode> <net-port>***
Function	Configure private vlan mode for uplink port of switch control card
< *mode* >	Private vlan mode : <disable | onebyone | trunk>。 disable:normal switch mode ,where the uplink port of switch control card doesn't has VLAN limitation . Onebyone: switch control card's uplink port is corresponding with PON port -----corresponding mode ,such as ge1-ge9,ge2-ge10…ge8-ge16 . Trunk: port convergence mode
< *net-port* >	When mode is trunk mode ,that means to converge the uplink ports .port from ge1 to ge8 .

4.3.9.2. Show Switch Control Card's Switch Mode Configuration

Command Grammar	epon#**swmode show**
Function	Show switch control card's switch mode

【Example】

1. Show switch control card's switch mode configuration information

```
epon#swmode show
Current basic switch mode          :vlan-unaware
Current private vlan mode          :disabled
```

4.3.9.3. Enable Switch Control Card's Vlan Function

Command Grammar	epon#**swmode vlan** ***<mode>***
Function	Enable Switch Control Card's Vlan Function
<mode>	aware: eable vlan (vlan aware) unaware: disable vlan (vlan unaware)

4.3.10. Uplink Port Management mode of Switch Control Card

Command Grammar	epon#**swport** ***<port>***
Function	Enter port management mode of switch control card .under this mode , you can configure several index function.
<port>	Appointed port list ,any one from ge1 to ge16.

【example】

1.Enter switch control card's port 1 management mode

```
epon#swport ge1
epon(ge1)#
```

epon(ge1)# ? input"？"or "help"to show directory :

acc-frame	**- set port access frame type**
def-pri	**- set port default priority**
duplex	**- set port duplex**
[no] enable	**- set port enable**
flow-ctrl	**- set port flow control**
ingr-filter	**- set port ingress filter**
mode	**- set port mode**
nest-vlan	**- set port nest vlan enable or disable**
prot-vlan	**- set port protocol based vlan enable or disable**
pvid	**- set port pvid**

rate-ctrl	**- set port ingress rate limit parameters**
reautonego	**- set port reautonegotiation**
show	**- show port attribute information**
[no] shutdown	**- shut down a port**
speed	**- set port speed**

4.3.10.1. Set Port's RX Frames Types

Command Grammar	epon(ge1)#**acc-frame <*type*>**
Function	Set switch control card port's RX packet frame types
<type>	Packet frame types : tagged:receive tagged packet only untagged: receive untagged packet only all:receive all types of packet frame

【Remark】

Our OTL system can't set untagged type mode yet .

4.3.10.2. Set Port's Default Priority Level

Command Grammar	epon(ge1)#**def-pri < *privalue* >**
Function	Set switch control card's default priority level ,similar to PVID .When port received untagged vlan packet ,the packet is set by priority .The priority level is port's default 802.1P priority .The data packet will enter different priority queue to receive different service according to corresponding priority level and flow category .
< privalue>	Set configured port's priority level value from 0 to 7

4.3.10.3. Configure Port's Duplex Mode

Command Grammar	epon(ge1)#**duplex < *duplex* >**

Function	Set switch control card port's duplex mode
< duplex>	full:full duplex mode half:half duplex mode auto:auto-negotiation mode

4.3.10.4. Enable Port

Command Grammar	epon(ge1)#**enable**
Function	Enable the switch control card port to deliver and receive packet. Under some circumstance, user can use this function to test the networking performance.

4.3.10.5. Disable Port

Command Grammar	epon(ge1)#**no enable**
Function	Disable the switch control card port to deliver and receive packet. Under some circumstance, user can use this function to test the networking performance.

4.3.10.6. Configure Port's Flow Control Mode

Command Grammar	epon(ge1)#**flow-ctrl *<ctrl>***
Function	Configure switch control card port's flow control mode. Both optical port mode and electrical mode could support flow control configuration enforcedly and auto-negotiation; Under the half-duplex mode ,the port enable the back flow control function default; Under the full-duplex mode, you can enable or disable flow control in compliant with 802.x standard.
<ctrl>	enable: enable flow control function disable:disable flow control function

	auto:auto-negotiation mode

4.3.10.7. Set Port's RX Filter Function

Command Grammar	epon(ge1)#**ingr-filter** ***<operator>***
Function	Configure switch control card port's RX packet filtering function. When the port is not the vlan member appointed by frame VID ,the packet is dumped at the time of receiving the frame .
<operator>	Enable: enable switch control card port's RX frame filter function Disable: disable switch control card port's RX frame filter function

4.3.10.8. Configure Port Mode

Command Grammar	epon(ge1)#**mode** ***<mode>***
Function	Configure switch control card port's port mode,including copper and fiber modes .
<mode>	Copper: copper mode fiber :fiber mode

4.3.10.9. Enable Port's Nest-Vlan Function

Command Grammar	epon(ge1)#**nest-vlan** ***<operator>***
Function	Configure switch control card port's nest vlan function
<operator>	enable :enable port nest's vlan function Disable: disable port nest's vlan function

4.3.10.10. Enable Port's Protocol Vlan

Command Grammar	epon(ge1)#**prot-vlan** ***<operator>***

Function	Configure switch control card port's protocol vlan function
<operator>	Enable: enable port's protocol vlan function Disable: disable port's protocol vlan function

【Remark】

This command's effect is the same as "[no] enable *<portlist>" under*the protocol vlan configuration mode .

4.3.5.6.Enable Port Protocol VLAN Function
4.3.5.7.Disable Port Protocol Vlan Function

4.3.10.11. Set Port's PVID

Command Grammar	epon(ge1)#**pvid *<pvid>***
Function	Configure switch control card port's default vlan ID .
<pvid>	Vale range from 0 to 4094

4.3.10.12. Configure Port's Rate Limits

4.3.10.12.1. Enable Broadcast Restriction Function

Command Grammar	epon(ge1)#**rate-ctrl broadcast *<status>***
Function	Enable switch control card port's broadcasting restriction function
<status>	enable disable

4.3.10.12.2. Enable IGMP Restriction Function

Command Grammar	epon(ge1)#**rate-ctrl multicast *<status>***

Function	Enable switch control port's IGMP function
<status>	enable disable

4.3.10.12.3. Set Restriction Rate

Command Grammar	epon(ge1)#**rate-ctrl threshold <*threshold*>**
Function	Set switch control card port's restricted packet rate limits
<threshold>	Vale range :0-1000000

4.3.10.12.4. Enable Unknown Unicast Restriction Function

Command Grammar	epon(ge1)#**rate-ctrl unkown-uc <*status*>**
Function	Enable unknown unicast restriction function
<status>	enable disable

4.3.10.13. Configure Port's Reauto-Negotiation Function

Command Grammar	epon(ge1)#**reautoneg**
Function	Configure switch control card port's auto-negotiation function, which is needed on the purpose of networking debugging. This function could be replaced by means of plug in and out of the cable ,but if the cable/fiber is too complicated or too far ,it is better to realize it via software .Therefore ,port configuration management module must provide a command port for reauto-negotiation command ,which doesn't preserve the attributed value continually.

4.3.10.14. Show Port Information

Command Grammar	epon(ge1)#**show**
Function	Show switch control card port's configuration information

【Example】

1.Show switch control card port 1 's configuration information

```
epon(ge1)#show
---------------     PortId   1   Attribution     ------------
Mode                  :copper    AdminStatus          :enable
PVID                  :1                 DefaultPriority       :0
IngressFilter    :disable     AccFrameType       :all
CfgSpeed         :auto              CfgDuplex             :auto
CfgFlwCtrl       :auto              shutDown              :no
BcRateCtrl       :disable    McCtrlMode           :disable
UnkUcRateCtrl :disable    RateCtrlMode         :BPS
BcRateThrs       :0                 ProtStatus            :down
WorkSpeed            :10m               WorkDuplex            :half
WorkFlwCtrl     :enable     LinkStatus             :down
----------------------   End    ------------------------
```

4.3.10.15. Configure Port's Compulsive Shutdown Function

Command Grammar	epon(ge1)#**shutdown**
Function	Configure switch control card port's compulsive shutdown function. In an exceptional case, such as attached by virus or hacker and can't take any actions ASAP , the shutdown port function is recommended .

4.3.10.16. Remove Compulsive Shutdown Port

Command Grammar	epon(ge1)#**no shutdown**

Function	Remove switch control card port's compulsive shutdown function. In an exceptional case, such as attached by virus or hacker and can't take any actions ASAP , the shutdown port function is recommended .

4.3.10.17. Configure Current Port Rate

Command Grammar	epon(ge1)#**speed <*speed*>**
Function	Configure switch control card port's speed.Under fiber port mode ,the port could only work at the speed of 1000Mbps;Under the copper port mode ,the port can work at different speed and available for auto-negotiation function configuration .
<speed>	10m: 10mbps 100m: 100mbps 1g: 1gbmp(1000mbps) 10g: 10gbps Auto: auto-negotiation

4.3.11. System Configuration Mode

Command Grammar	epon#**system**
Function	Enter GEPON system's management mode

【Example】

1.Enter system management mode

```
epon#system
epon(sys)#
```

```
epon(sys)# ?          input "？"or "help" to show current directory
  cfg-sync            - synchronize onu config with its config file
  console             - configure console parameters
  onu-auth            - configure ONU authentication parameters
  read-comm           - set snmp read community string
  reboot              - reboot the system
```

restore	- restore to saved configuration
save	- save system configuration
trap-addr	- set trap destination IP address
write-comm	- set snmp write community string

4.3.12. Synchrony with ONU Configuration

Command Grammar	epon(sys)#**cfg-sync** ***<slot>*** ***<status>***
Function	Configure OLT's setting is synchronous with ONU configuration. When this function is enabled , ONU will remove its own nvs automatically before ONU authorized to OLT .All configuration under the ONU will be cleared .All ONU's configuration is valid after authorized under the OLT .
<slot>	PON card slot with integer value from 1 to 4 .
<timeout>	Optional index:<enable|disable>。

【Remark】

This function default is close because enabling it will make ONU's saved configuration lost ,needing to configure it again undet the OLT .Please use this function properly .

4.3.12.1. Backup EPON System Configuration

Command Grammar	epon(sys)#**config backup*<host>***
Function	Put all EPON sytems's configuration file backup to TFTP server.
<host>	Appointed TFTP server's IP address

4.3.12.2. Restore EPON System Configuration

Command Grammar	epon(sys)#**config upgrade** ***<host>***

Function	Download system's configuration file from TFTP server and restore EPON system's configuration.
<host>	Appointed TFTP server's IP address

4.3.12.3. Configure Console Port Speed

Command Grammar	e pon(sys)#**console speed*<speed>***
Function	Set OLT system's console port speed
<speed>	Value range:bps2400-bps115200。 Remark: value should be 2400*2^n (n is integer)

4.3.12.4. ONU Authorization Management Mode

Command Grammar	epon(sys)#**onu-auth**
Function	Enter onu authorization management mode

【Example】

1.enter onu authorization management mode

```
epon(sys)#onu-auth
epon(sys-onuauth)#
```

```
epon(sys-onuauth)# ?          input"？"or"help"to show directory:
  inv-onu                 - process invalid ONU list
  list                    - configure ONU address range
  type                    - set authentication type
```

4.3.12.4.1. Illegal ONU List Operation

4.3.12.4.1.1. Clear Illegal ONU List

Command Grammar	epon(sys-onuauth)#**inv-onu clear**
Function	Clear current illegal ONU list ,then the illegal onu can get a new chance to be authorized under OLT .

4.3.12.4.1.2. Show Illegal ONU List

Command Grammar	epon(sys-onuauth)#**inv-onu show**
Function	Show illegal ONU list and list all illegal ONU's MAC address

4.3.12.4.2. Configure ONU Authorized Address List

4.3.12.4.2.1. Add ONU Authorized Address List

Command Grammar	epon(sys-onuauth)#**list add *<start> <end> <type>***
Function	Add an ONU address list and appoint its authorization type
<start>	ONU starting MAC address: such as 00:A1:02:02:01:B0
<end>	ONU ending MAC address: such as:00:A1:02:02:01:F0
<type>	Set onu authorization type under address list with following value: Blacklist: the ONU with this type of MAC address can't be authorized to OLT . Whitelist: the onu beyond this MAC address range can't be authorized .

【Example】

1.Add the ONU with the MAC address : 00:A1:02:01:12:B0 to the blacklist

```
epon(sys-onuauth)#list add 00:A1:02:01:12:B0 blacklist
```

4.3.12.4.2.2. Delete ONU Authorized Address List

Command Grammar	epon(sys-onuauth)#**list delete <*index*>**
Function	Delete an ONU address list
<index>	MAC address list index

4.3.12.4.2.3. Show Current MAC Address List

Command Grammar	epon(sys-onuauth)#**list show**
Function	Show current ONU authorized address list and distribute an index directory for all the MAC address automatically

【Example】

1.Show current ONU authorized MAC address list:

```
epon(sys-onuauth)#list show
NO.    Start Address        End Address          Type
1      00:a1:02:01:12:b0    00:a1:02:01:12:b0    blacklist
```

4.3.12.4.3. Configure ONU Authorized Type

Command Grammar	epon(sys-onuauth)#**type <*type*>**
Function	Set GEPON system ONU's authorized type
<type>	Valid value:<blacklist | whitelist | none>。 Blacklist: All onu in the MAC address type can't be authorized . Whitelist: All ONU beyond the MAC address type can't be authorized. None: non-authorization ,all ONU could be authorized .

4.3.12.5. Set SNMP Read Community

Command Grammar	epon(sys)#**read-comm** ***<community>***
Function	Set EMS software SNMP's read community
< *community* >	Read community with bytes serial ,the longest length couln't be over 26 bytes ,such as public .

4.3.12.6. Reboot OLT

Command Grammar	epon(sys)#**reboot** ***<device> <slot> <olt> <onu>***
Function	Reboot EPON device;This command will reboot switch control card , some PON card ,some ONU or the equipment under the EPON system . Input command " reboot " will only reboot the switch control card .
<device>	Appoint the device to be rebooted with following index: ctrl-card: reboot switch control card ***<slot><olt> <onu>*** is ignored . pon-card :reboot appointed pon card with index <slot) ***<olt> <onu>*** is ignored . Onu:reboot appointed onu under the index ***<slot> <olt> <onu>*** all : reboot the whole EPON system including OLT and ONU . ***<slot><olt> <onu> is ignored.***
<slot>	Appoint PON card's slot number with valid value from 1 to 4 .
<olt>	Appoint PON port number under a pon card slot with valid value from 1 to 2 .
<onu>	Appoint ONU number with valid value from 1 to 64 .

【Example】

1.Reboot switch control card

```
epon(sys)#reboot
```

Or

```
epon(sys)#reboot ctrl-card
```

2.Reboot PON card 2 :

```
epon(sys)#reboot pon-card 2
```

3.Reboot the ONU1 under PON -2 of slot3

```
epon(sys)#reboot onu 3 2 1
```

3.Reboot the whole EPON system including switch control card ,all online PON card and all online ONU)

```
epon(sys)#reboot all
```

4.3.12.7. Restore Default Configuration and Reboot Equipment

Command Grammar	epon(sys)#**restore** ***<device> <slot> <olt> <onu>***
Function	Restore ex-factory default configuration and reboot the device . When ***<device> <slot> <olt> <onu> is ignord ,the command just restore switch control card configuration .***
<device>	Appoint the device to restore default configuration with valid index : ctrl-card: restore switch control card's default configuration ***<slot><olt> <onu>*** is ignored pon-card: restore appointed PON card under ***<slot>*** configuration ***<olt> <onu>*** is ignored. onu :restore default configuration for appointed onu with index : ***<slot> <olt> <onu>*** all: restore system's all default configuration and command **<slot><olt> <onu> is ignored .**
<slot>	Appoint PON card's slot number with valid value from 1 to 4 .
<olt>	Appoint PON port number with valid value from 1 to 2 .
<onu>	Appoint ONU number with valid value from 1 to 64 .

4.3.12.8. Save Current Configuration

Command Grammar	epon(sys)#**save** ***<device> <slot> <olt> <onu>***
Function	Save current configuration. Just input " save " command to save the switch control card's current configuration .
<device>	Appoint the device to save current configuration with valid index : ctrl-card: save switch control card's current configuration ***<slot><olt> <onu>*** is ignored pon-card: save appointed PON card under ***<slot>*** configuration ***<olt> <onu>*** is ignored. onu :save configuration for appointed onu with index : ***<slot> <olt> <onu>*** all: save system's all default configuration and command **<slot><olt> <onu> is ignored .**
<slot>	Appoint PON card slot number with valid value from 1 to 4 .
<olt>	Appoint PON port number with valid value from 1 to 2 .
<onu>	Appoint ONU number with valid value from 1 to 64 .

4.3.12.9. Set Trap Receiving IP Address

Command Grammar	epon(sys)#**trap-addr** ***<index> <ip-addr>***
Function	Configure GEPON's receiving trap IP address with 4 IP at most.
<index>	Trap receiving IP index with valid value from 1 to 4 .
<ip-addr>	Set trap receiving IP address ,such as 192.168.0.1.

4.3.12.10. Set SNMP Written Community

Command	epon(sys)#**write-comm** ***<community>***

Grammar	
Function	Set SNMP's written community of EMS software
< *community* >	Written community with bytes serial ,longest length 26 bytes ,such as : private .

4.3.13. Trunk Management Mode

Command Grammar	epon#**trunk <*trunkid*>**
Function	Create a trunk group and enter the trunk management mode for configuration .
< *trunkid* >	Trunk number with valid value from 1 to 8

【Example】

1.Create trunk 1 and enter trunk 1's management mode

```
epon#trunk 1
epon(trunk1)#
```

epon(trunk1)# ? input "？"or"help"to show current directory

balance-algorithm - set trunk balance algorithm

delete - delete the specifically trunk

member - Set trunk member

4.3.13.1. Configure Trunk Balance Algorithm

Command Grammar	epon(trunk1)#**balance-algorithm < *balance*>**
Function	Configure trunk's balance algorithm.All balance algorithm is the same when all trunk group adopts the same balance algorithm. Trunk group's packet can be shared among trunk member poprts .GEPON system support several balance algorithm ,such as based on MAC address ,IP address ,transmission port number, MAC+IP, MAC+ transmission port number

<balance >	Trunk algorithm with valid index : mac :based on MAC address's KE balance algorithm. Ip: based on IP address's balance algorithm l4port: based on transmission port's balance algorithm ip-mac: based on MAC+IP address's balance algorithm l4port-mac inl2if :based on packet receiving port's balance algorithm

4.3.13.2. Delete Trunk Group

Command Grammar	epon(trunk1)#**delete**
Function	Delete trunk group and its member

4.3.13.3. Add Trunk Member

Command Grammar	epon(trunk1)#**member *<portlist>***
Function	Add trunk group's member pot
<portlist>	Appoint trunk member port list from ge1 to ge8

【Example】

1.Add member port ge1,ge3,ge4 and ge8 to trunk 1 .

```
epon(trunk1)#member ge1,ge3-ge4,ge8
```

4.3.14. Show Trunk Configuration Information

Command Grammar	epon#**show trunk**
Function	Show switch control card's current trunk configuration

【Example】

1.Show switch control card's current trunk configuration

```
epon#show trunk
Traffic balance algorithm: 1 (based on mac address)
Trunk    1:
member ports        :ge1,ge3-ge4,ge8
```

4.3.15. User Management

4.3.15.1. Set User Authority

Command Grammar	epon#**user access *<name> < access >***
Function	Change appointed user's priority mode to limit use to access to system or limit the user right .
<name>	Appointed user name under the priority mode with the length from 4 to 15 bytes.
<access>	admin : manager who has all the configuration and operation rights . Guest: guest who could only ready the operation. Configuration

【Remark】

Only the system administer has the rights to change the system user's priority.

4.3.15.2. Add User

Command Grammar	epon#**user add *<name> <passwd> < access >***
Function	Add a user
<name>	User name with the length from 4 to 15 bytes.
<passwd>	Optional index to change new password .if there is no index ,the user's password is blank ;if index is provided ,it could be any obvious bytes combination with the length from 6 to 31 bytes .
<access>	admin : administer who has all the configuration and operation rights .

	Guest: guest who could only ready the operation. Configuration

4.3.15.3. Delete User

Command Grammar	epon#**user delete *<name>***
Function	Delete appointed user from logging in the system
<name>	Appoint the user name to be deleted with the bytes length from 4 to 15

【Remark】

Only the system's administer(the user priority level is 1) has the rights to add and delete system users .

4.3.15.4. Change User Password

Command Grammar	epon#**user passwd *<name>* [*<password>*]**
Function	Change appointed user's log in password . If ***<password>*** is ignored **,** the log in password is blank.
<name>	User name with the bytes length from 4 to 15 bytes .
<password>	Optional index to input new password . If the index is not provided ,the password is blank ;if the index is provided ,the password length can be from 6 to 31 bytes.

4.3.15.5. Show Current User's Information

Command Grammar	epon#**user show**
Function	Show system's all user list

【Example】

1.**Show System's Current User List**

```
epon#user show
User: admin        Access: administrator|0        Timeout: 1800
User: guest        Access: guest|0                Timeout: 600
```

4.3.15.6. Change User's Timeout

Command Grammar	epon#**user timeout *<name>* *<timeout>***
Function	Change appointed user's timeout time. Within the timeout time ,user can't make any operation and log out the system automatically.
<name>	Change timeout user name with the byte length from 4 to 15 bytes.
<timeout>	Appointed user's timeout time with the valid index range from 1to 3600 and unit is second.

【Remark】

Change user's timeout function ,which is valid after logging in the system again .

4.3.16. VLAN Management Mode

Command Grammar	epon#**vlan *<vlanid>***
Function	Create a vlan and enter vlan management mode for configuration .
< *vlanid* >	Vlan ID to be modified or created with valid value from 1 to 4094.

【Example】

1.Create Vlan100 and enter vlan100's management mode

```
epon#vlan 100
epon(vlan100)#
```

epon(vlan100)# ? input"？"or "help" to show current directory:
delete **- delete vlan members or vlan**
member **- add vlan member**

4.3.16.1. Delete Vlan Member

Command Grammar	epon(vlan100)#**delete member** ***<portlist>***
Function	Delete vlan member port. Input “delete member” to to delete this vlan and member port.
<portlistt>	Appoint vlan member port list ,any port from ge1 to ge16.

4.3.16.2. Delete Vlan

Command Grammar	epon(vlan100)#**delete**
Function	Delete current vlan and all member ports under this vlan.

4.3.16.3. Add Vlan Member Port list

Command Grammar	epon(vlan100)#**member** ***<portlist> <tag>***
Function	Add vlan member port and set its tag mode.
<portlistt>	Added vlan member port list ,from ge1 to ge16.
<tag>	Tag mode with fixed index “tag” . When the member port is marked with tag .The packet from the port is added with vlan tag . When tag is deleted ,this port is not marked with tag .

【Example】

1.add switch control card port ge1,ge2,ge3 with vlan 100 to the tag member ports ,while port ge4,ge5,ge16 are member ports with vlan100 without tag .

```
epon(vlan100)#member ge1-ge3 tag
epon(vlan100)#member ge4-ge5,ge16
```

4.3.17. Show Vlan Configuration Information

Command Grammar	epon#**show vlan**
Function	Show switch control card's vlan configuration information .

【Example】

1.Show switch control card's valn configuration:

```
epon#show vlan
vlan       1:
tagged ports       :
untagged ports    :ge1-ge16
vlan    100:
tagged ports       :ge1-ge3
untagged ports    :ge4-ge5,ge16
```

4.4. Show System Running Information

4.4.1. Show System's Current CPU Running Status

Command Grammar	epon>**show cpu**
Function	Show system's CPU running status information

【Example】

1.Show system's CPU Running Information:

```
epon>show cpu
      NAME              ENTRY          TID         PRI     total % (ticks)    delta % (ticks)
------------ ------------ ----------    ---     ----------------    ----------------
tJobTask             0xd19a4             0x8ac158         0       0% (          0)      0% (          0)
mTrAging     0x43975c            0xf7c350         5       0% (          0)      0% (          0)
tErfTask     0xb46bc             0x8b5a30         10      0% (          0)      0% (          0)
intSched0    0x31a72c            0xf0b5e0         10      0% (          0)      0% (          0)
intSched1    0x31a72c            0xf16880         10      0% (          0)      0% (          0)
tNetTask     0x363c0             0x945d00         40      0% (          0)      0% (          0)
tIbcpPoll    0x13dc7c            0x1243cd0        45      0% (          0)      0% (          0)
tIbcpRx          0x13e74c            0x1241338        46      13% (         2)      13% (         2)
tXbdService  0xccba0             0xa1af80         50      0% (          0)      0% (          0)
tFtp6d               0x2f97c         0xa16ef0         56      0% (          0)      0% (          0)
tUserLog             0x16a9c0            0xf826a8         60      0% (          0)      0% (          0)
tUpgradeTask 0x167174            0x1348aa8        64      0% (          0)      0% (          0)
KERNEL                                                                   0% (          0)      0% (          0)
INTERRUPT                                                                0% (          0)      0% (          0)
IDLE                                                                     86% (         13)     86% (         13)
TOTAL                                                                    99% (         15)     99% (         15)
```

4.4.2.Show System's Memory Use Status

Command Grammar	epon>**show mem**

Function	Show system's memory use status information

【Example】

1.Show system's current memory user information:

```
epon>show mem
  status          bytes          blocks      avg block    max block
  -------- -------------- ---------- ---------- ----------
current
  free          12695080               4        3173770     12681624
  alloc         12055336            1185          10173            -
  internal           408               2            204            -
cumulative
  alloc         12702512            1795           7076            -
peak
  alloc         12059424               -              -            -
```

4.4.3. Show System's Task Status

Command Grammar	epon>**show task**
Function	Show system's current task information

4.4.4. Enable CATV (RF) Function

Current ,Unotrade has developed and produced a wide range of ONU models ,such as only data ONU FD101H,FD111H,FD112H,FD104H,FD104B,FD108B ,and ONU of various service function, such as FD304H(4FE+RF),FD204H(4FE+2POTS_,FD404H(4FE+2POTS+RF).So far ,our EMS and CLI NMS could both support data and RF-cutoff function in our EMS or in our CLI management interface. As for VOIP function, we could only support CLI management on the console port of the ONU .

Command Grammar	epon(slot3-olt2-onu9)#catv enable
Function	Enable ONU's RF function

4.4.5. disable CATV (RF) Cut-Off Function

Command Grammar	epon(slot3-olt2-onu9)#catv disable
Function	Disable ONU's RF function if subscriber don't pay CATV cost on time from the OLT management interface .

4.5. Global Command

Global command can be used under any command mode.

4.5.1. Create Command Alias

Command Grammar	alias ***<alias> <cmd>***
Function	Create appointed command's alias
<alias>	Input command's alias
<cmd>	Original command

4.5.2. Change Directory

Command Grammar	cd ***<directory>***
Function	Enter appointed directory
<directory>	Input directory

4.5.3. Clear Screen

Command Grammar	**clear**
Function	Clear screen

4.5.4. Copy File

Command Grammar	**copy *<scr-file> <dest-file>***
Function	Copy file ; When <dest-file> is ignored , <scr-file> 's contents is printed on the screen.
< scr-file >	Source file
<dest-file>	destined file

4.5.5. Show System's Date

Command Grammar	**date**
Function	Show system's current date and time .

4.5.6. Delete File

Command Grammar	**del *<filename>***
Function	Delete appointed file
< filename >	Appoint deleted file name

4.5.7. Exit From The Current Command Mode

Command Grammar	**exit**
Function	Exit from the current command mode and return to the previous command mode .

4.5.8. Return to System Main Directory

Command Grammar	**end**
Function	Return to the system's main directory

4.5.9. Help

Command Grammar	**help**
Function	Command help

4.5.10. Command History

Command Grammar	**history**
Function	Show current input command history

4.5.11. Log Out System

Command Grammar	**logout**

Function	Log out system。

4.5.12. Show Current File List

Command Grammar	**ls**
Function	Show current directory's file list

4.5.13. PING

Command Grammar	**ping *<host>***
Function	Test remote host's connection
< host>	Remote host's ip address

4.5.14. Show Directory Route

Command Grammar	**pwd**
Function	Show directory route

4.5.15. TFTP

Command Grammar	**tftp *<cmd> <filename> < mode>***
Function	Upload/download file through TFTP
< cmd>	TFTP command: get : download file

	Put: upload file
<filename>	File name
<mode>	File format : ascii file format binary format