

The logo for EXTRALINK features three stylized blue vertical bars of varying heights on the left, with the word "EXTRALINK" in a bold, blue, sans-serif font to their right. The "E" is significantly larger than the other letters.

NEW OLTS BY EXTRALINK

We present the latest EPON OLTs by EXTRALINK. They are small (size- 19), convenient and easy to implement 1U devices. First of all, these devices stand out by their high performance and compatibility with the majority of CPEs available on the market.

They are available in two versions:

RAPTOR

4X GIGABIT PON PORTS/4X GIGABIT UPLINK PORTS/4X SFP PORTS



- **4 PON ports**
- **Connects to 256 ONU (with 1:64 splitter)**
- **4 GE ports and 4 SFP ports serving as uplink and operating in combo mode**
- **Layer 2 aggregation**
- **Supports MAC Address: 8K**
- **Support for VLANs: 4096**
- **Supports 256 multicast groups**
- **Automatic detection and registration of ONU**
- **Dynamic bandwidth allocation**
- **Management: TELNET, CLI**
- **Management via EMS (Element Management System) based on standard SNMP protocol**

PREDATOR

8X GIGABIT PON PORTS/ 8X GIGABIT UPLINK PORTS/ 8X SFP PORTS



- **8 PON ports**
- **Connects to 512 ONU (with 1:64 splitter)**
- **8 GE ports and 8 SFP ports serving as uplink and operating in combo mode**
- **Layer 2 aggregation**
- **Supports MAC Address: 8K**
- **Support for VLANs: 4096**
- **Supports 256 multicast groups**
- **Automatic detection and registration of ONU**
- **Dynamic bandwidth allocation**
- **Management: TELNET, CLI**
- **Management via EMS (Element Management System) based on standard SNMP protocol**
- **Two power supplies for redundancy**

Detailed technical specifications of OLTs are presented in the table below:

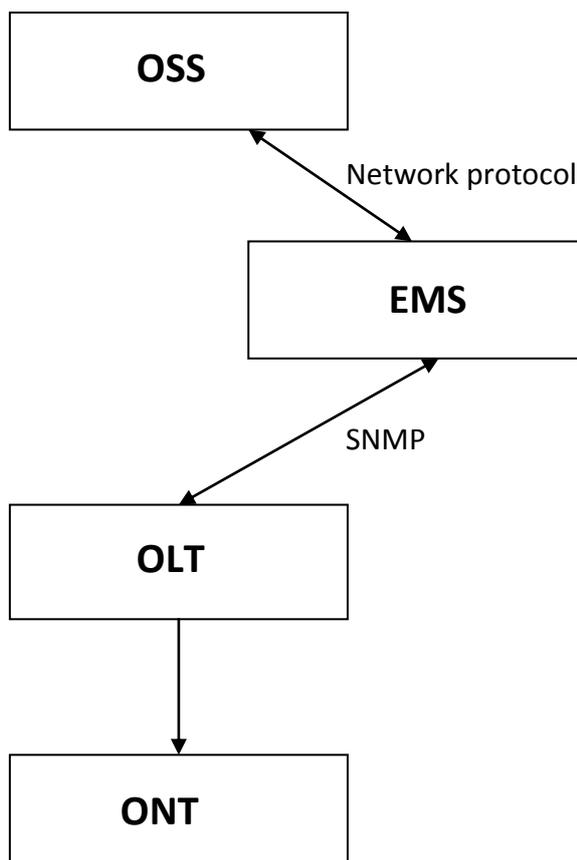
Model	RAPTOR 4 PON	PREDATOR 8 PON
PON Chipset	Cortina-CS8022	Cortina-CS8022
PHY Chipset	Broadcom-BCM54685	Broadcom-BCM54685
FLASH	Spansion-S29GL128P10TFI01	Spansion-S29GL128P10TFI01
RAM	HYNIX-H5PS1G63JFR---128MB	HYNIX-H5PS1G63JFR---128MB
CPU Chipset	BCM53314	BCM53314

The most interesting feature of these OLTs is that they have the ability of managing the entire structure of devices via EMS (Element Management System). EMS is an integrated platform of devices management designed on the basis of standard SNMP protocol. Thanks to EMS system, administrators can efficiently manage and configure network devices - for example, you can quickly add or remove further ONU units.

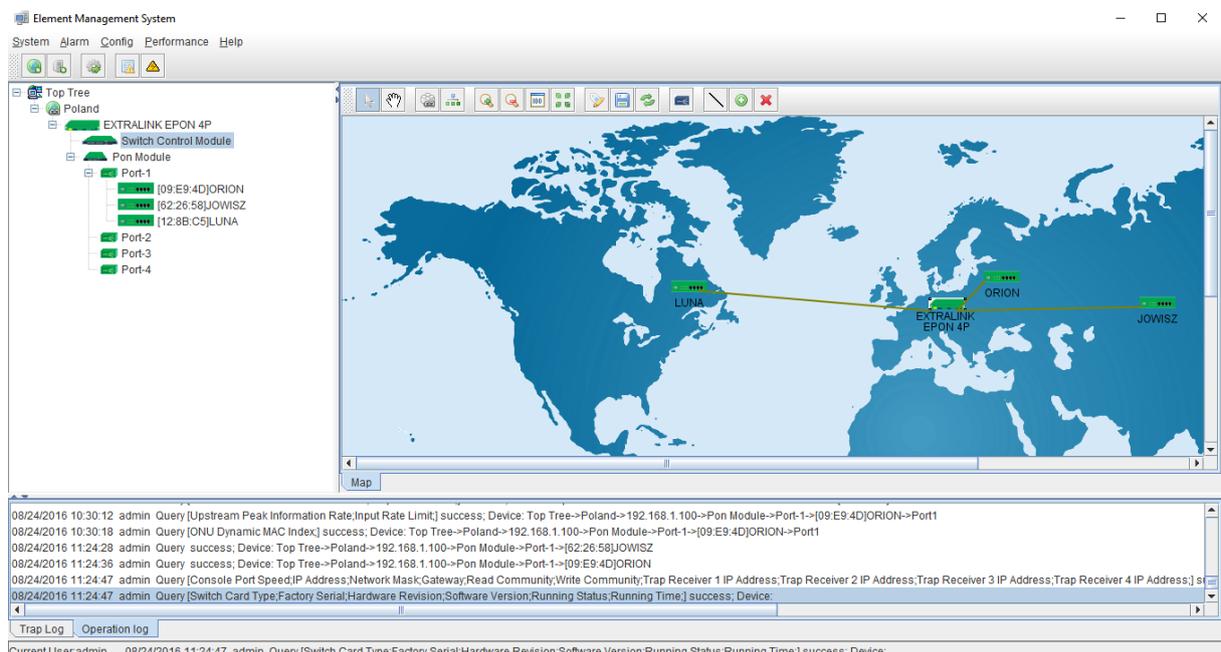
In addition, the EMS has:

- Automatic detection of ONU / OLT
- Automatic registration
- Option of connections testing
- Attribution of MAC addresses
- Loopback test and filter
- Bandwidth control
- Control of multicast stream

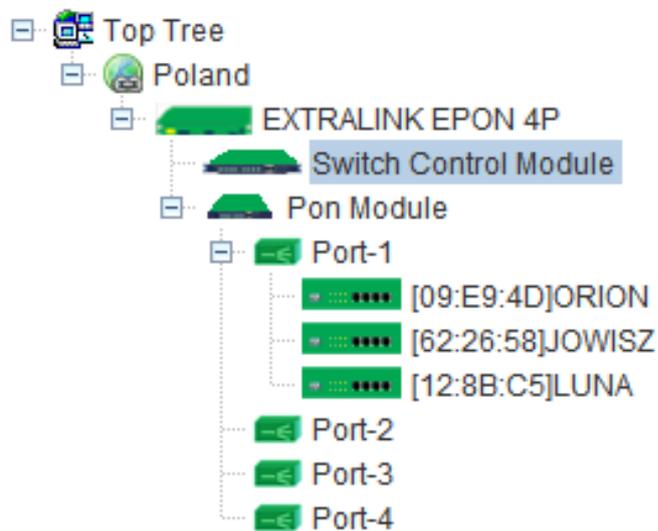
The way of service distribution via EMS and the ideas of its operation are illustrated by this diagram:



EMS also supports TR-069 standard (WAN Management Protocol), by which the ACS server can perform automatic remote configuration and collect the data necessary for network diagnostics.



Device management via EMS platform is user friendly because the interface is very clear and you can easily find all the connected devices.



EMS system enables you to get access to detailed configuration of OLT:

Basic Information

Control Module Management X

P1P2P3P4



GE1GE2GE3GE4



CON



OLT Device: EXTRALINK E...

- Basic Information
- Net Interface Manage
- User Manage
- Trunk Management
- VLAN Management
- RSTP
- ONU Authority
- Port Mirror
- IGMP Snooping Config
- SysAutoBackUp
- SysLog
- Port
- Port Property
- Port Status

Basic Information

Switch Card Type: OLT	Factory Serial: A72001-16080069
Hardware Revision: V1.0	Software Version: 2.2.07_000(May 26 2016)
Running Status: normal	Running Time: 4 hours, 13 minutes, 27 seconds.

System Config

Console Port Speed: bps9600	IP Address: 192.168.1.100
Network Mask: 255.255.255.0	Gateway: 192.168.1.1
Read Community: public	Write Community: private
Trap Receiver 1 IP Address: 0.0.0.0	Trap Receiver 2 IP Address: 0.0.0.0
Trap Receiver 3 IP Address: 0.0.0.0	Trap Receiver 4 IP Address: 0.0.0.0

Switch Mode Configure

Switch Mode: normal

Net Interface Manage

Control Module Management X

P1P2P3P4



GE1GE2GE3GE4



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Net Interface Table

Index	Name	IP Address	Network mask	Default Gateway	VLAN[1~4094]	Shut Down	Status
1	eth1	192.168.1.100	255.255.255.0	192.168.1.1	1	operational	up

IP Address	192.168.1.100	Network mask	255.255.255.0
Default Gateway	192.168.1.1	VLAN[1~4094]	1
Shut Down	operational		

Trunk Management

The screenshot shows the 'Trunk Management' configuration page. At the top, there are status indicators for ports P1-P4 and GE1-GE4, along with a physical port diagram. The left sidebar contains a navigation menu with 'Trunk Management' selected. The main area features a 'Trunk Table' with the following data:

Trunk Group ID	Trunk Group Members
1	{ge1}
2	{ge2}

Below the table, there is a 'Trunk ID' field set to 2 and a 'Trunk Member' section with checkboxes for ge1, ge2, ge3, and ge4. At the bottom right, there are 'Refresh', 'Add', and 'Delete' buttons.

VLAN Management

The screenshot shows the 'VLAN Management' configuration page. The left sidebar has 'VLAN Management' selected. The main area displays a table of VLAN configurations:

Vlan ID	Egress Ports	Untagged Ports
1	{Ge1;Ge2;Ge3;Ge4;Pon1;Pon2;Pon3;Pon4}	{Ge1;Ge2;Ge3;Ge4;Pon1;Pon2;Pon3;Pon4}

Below the table, there are controls for 'VLAN Enable' (checked), 'Vlan ID' (set to 2), and checkboxes for 'Egress Ports' (ge1-ge4, pon1-pon4) and 'Untagged Ports' (ge1-ge4, pon1-pon4). 'Add', 'Delete', and 'Set' buttons are present. At the bottom, there are 'Refresh', 'First', 'Prior', 'Next', and 'Last' navigation buttons.

ONU Authority

The screenshot shows the 'ONU Authority' configuration page. On the left is a navigation tree with 'ONU Authority' selected. The main area contains a configuration form for 'authMethodV2' (set to 'Mac') and 'PON Port' (set to 'Pon Port-1'). Below this is a 'White MAC Address List' table with columns 'authWhitelistMacEntryId' and 'onuAuthWhitelistMacAddr'. There are 'Add' and 'Delete' buttons for this list. At the bottom is a 'Non Auth Onu List' table with columns 'Index', 'Non-Authority ONU MAC', and 'Tries'.

Index	Non-Authority ONU MAC	Tries
1	E0-67-B3-12-8B-C5	4
2	C0-7E-40-62-26-58	15
3	E0-67-B3-09-E9-4D	4

Port Mirror

The screenshot shows the 'Port Mirror' configuration page. The left navigation tree has 'Port Mirror' selected. The main area is divided into three sections: 'Source Port', 'Egress Direct', and 'Source VLAN (Ingress Direct)'. The 'Source Port' section has sub-sections for 'Ingress Direct' and 'Egress Direct', each with checkboxes for ports ge1-ge4 and pon1-pon4. The 'Source VLAN (Ingress Direct)' section has 'Add' and 'Delete' buttons. At the bottom, there are fields for 'Destination Port' and 'Operation', and 'Refresh', 'Set', and 'Clear' buttons.

IGMP Snooping

Control Module Management

OLT Device: EXTRALINK E...

Basic Information
Net Interface Manage
User Manage
Trunk Management
VLAN Management
RSTP
ONU Authority
Port Mirror
IGMP Snooping Config
SysAutoBackUp
SysLog
Port
Port Property
Port Status

IGMP Snooping Config

IGMP Snooping: enable

Router Aging Time(sec)[1~1000]: 130

Host Aging Time(sec)[200~1000]: 260

IGMP Query Proxy: enable

Refresh Set

Auto Backup

Control Module Management

OLT Device: EXTRALINK E...

Basic Information
Net Interface Manage
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Trunk Management
VLAN Management
RSTP
ONU Authority
Port Mirror
IGMP Snooping Config
SysAutoBackUp
SysLog
Port
Port Property
Port Status

AutoBackup

sysAutoBackupEnable: enable

sysAutoBackupType: all

sysAutoBackupInterval(DAYS)[1~365]: 1

sysAutoBackupServer: 192.168.0.168

Refresh Set

System Log

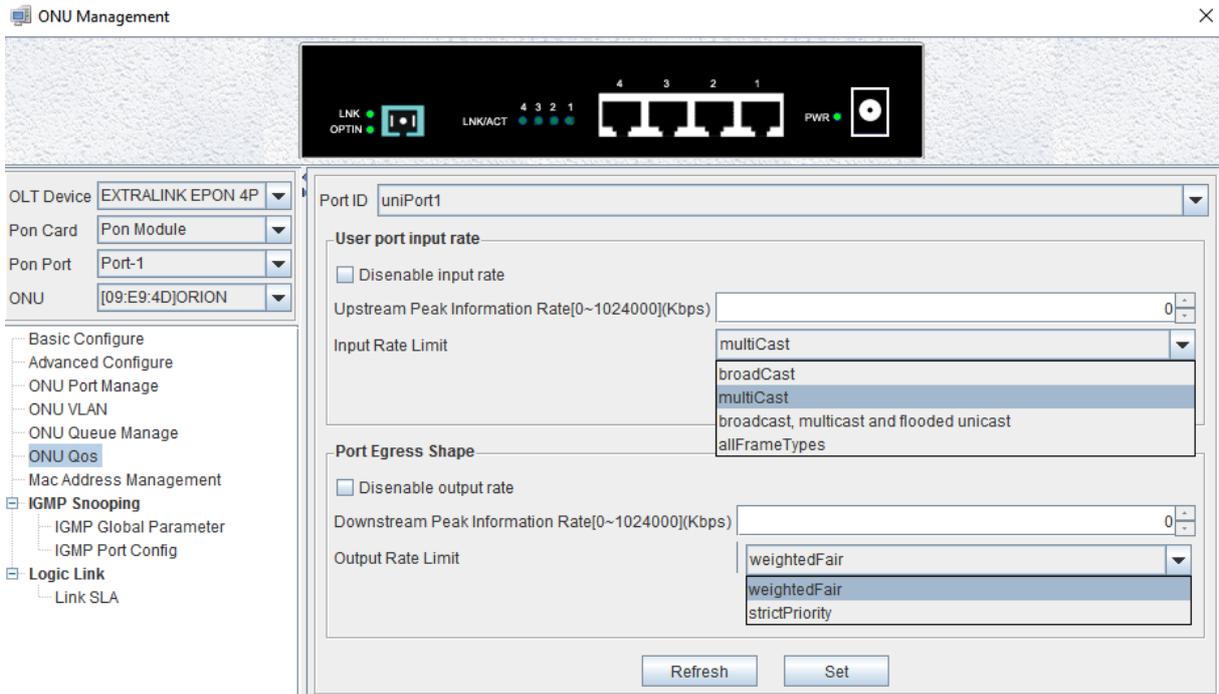
The screenshot shows the 'Control Module Management' interface. On the left is a navigation tree with 'SysLog' selected under the 'Port' category. The main area displays the 'sysLog' configuration. A dropdown menu for 'sysLogEntryIndex' is open, showing options: 'onuOnOffLine', 'onuDyingGaspAlarm', 'onuUniLoopBackAlarm', and 'all'. The 'sysLogEntryEnable' is set to 'enable'. A 'Set' button is visible.

Port Property

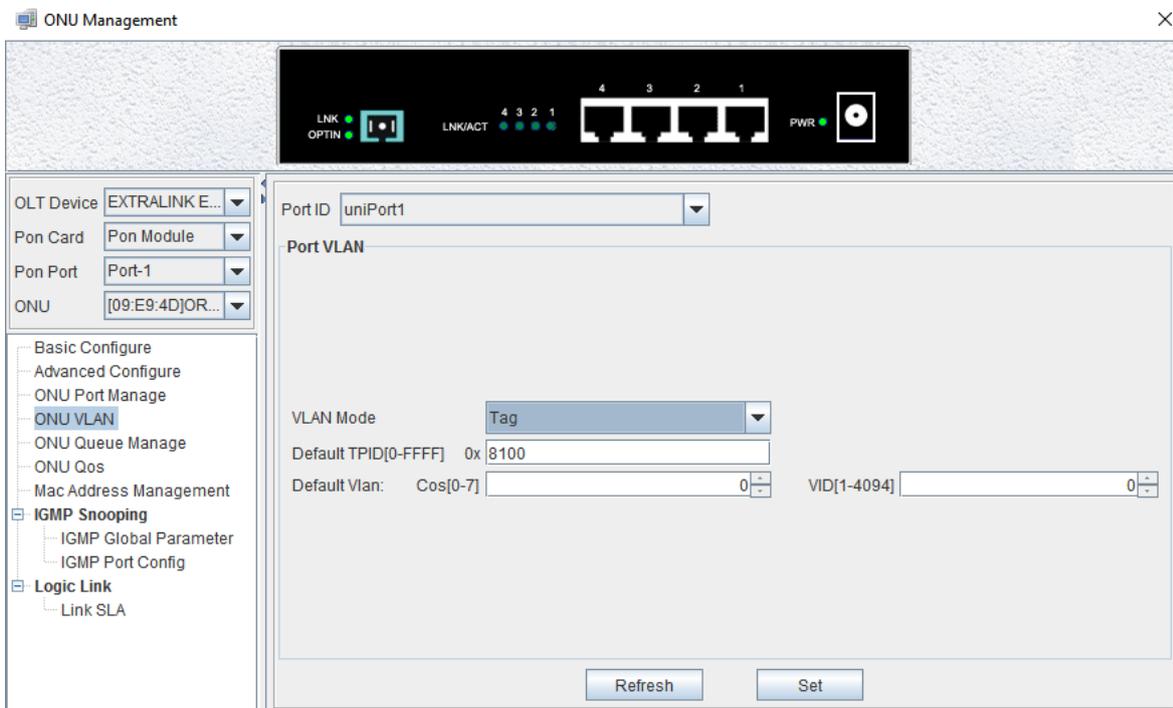
The screenshot shows the 'Control Module Management' interface with 'Port Property' selected in the navigation tree. The main area displays a table of port properties. A dropdown menu for 'Broadcasting Inhibition Rate Unit' is open, showing options: 'KBps', 'Kbps', and 'Kpps'. The table below lists properties for ports ge1 through ge8.

Port ID	Mode Config	Speed Config	Duplex Config	Flow Control	Port Priority [0-7]	Port VID [1-4094]	Port Enable	Ingress Filter	Frame Type	N Enable	Protocol VLAN	Broadcast Rate Control	Multicast Rate Control	Unknown Unicast Rate Control	Inhibition Rate [0~10000]
ge1	fiber	bps1G	full	disable	0	1	enable		a...			disable	disable	disable	100
ge2	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge3	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge4	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge5	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge6	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge7	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100
ge8	fiber	bps1G	full	disable	0	1	enable		allType			disable	disable	disable	100

Apart from configuration of the OLT you have access to detailed configuration of ONU's CPEs, where you can remotely configure all essential functions. For example, you can remotely adjust the speed of the input port for a specific group of packets: broadcast, multicast, unicast flooded etc.



You can remotely configure VLAN network with the help of proper modes: Transparent, Tag, Translate and Trunk:



ONU Management X



OLT Device: EXTRALINK E...
 Pon Card: Pon Module
 Pon Port: Port-1
 ONU: [09:E9:4D]OR...

Basic Configure
 Advanced Configure
 ONU Port Manage
ONU VLAN
 ONU Queue Manage
 ONU Qos
 Mac Address Management
 IGMP Snooping
 IGMP Global Parameter
 IGMP Port Config
 Logic Link
 Link SLA

Port ID: uniPort1

Port VLAN

VLAN Mode: Translate

Default TPID[0-FFFF] 0x: 8100

Default Vlan: Cos[0-7] 0 VID[1-4094] 0

Client TPID(Hex)	CVLAN ID	Service TPID(Hex)	SVLAN ID

Refresh Add Delete Set

ONU Management X



OLT Device: EXTRALINK E...
 Pon Card: Pon Module
 Pon Port: Port-1
 ONU: [09:E9:4D]OR...

Basic Configure
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 ONU Port Manage
ONU VLAN
 ONU Queue Manage
 ONU Qos
 Mac Address Management
 IGMP Snooping
 IGMP Global Parameter
 IGMP Port Config
 Logic Link
 Link SLA

Port ID: uniPort1

Port VLAN

VLAN Mode: Trunk

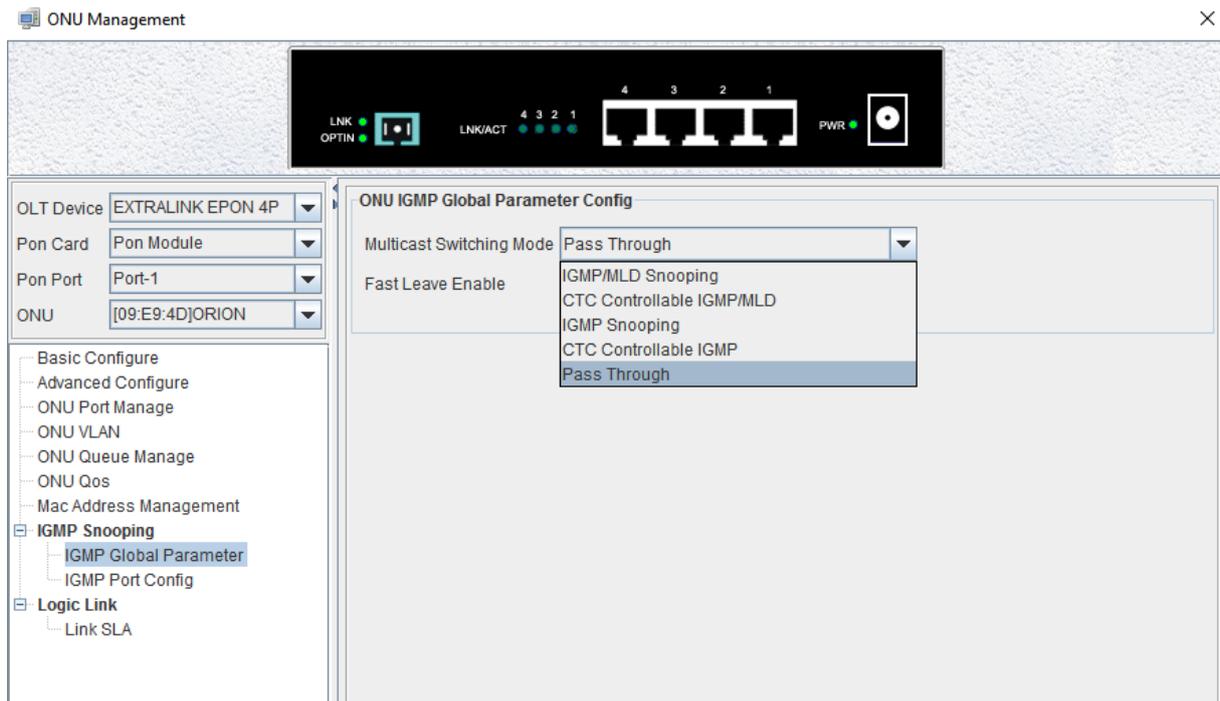
Default TPID[0-FFFF] 0x: 8100

Default Vlan: Cos[0-7] 0 VID[1-4094] 0

TPID(Hex)	VLAN ID

Refresh Add Delete Set

You can also configure the IGMP protocol in detail:



Thanks to EMS platform anyone can efficiently manage the entire network structure, which simplifies the process of administration.

Admin can monitor the port statuses in devices. He also has the ability to:

- configure VLANs, IGMP, QoS
- manage ONU

Support for remote upgrade of ONU's software, auto-discovery option and detection is also priceless. EMS is a great alternative for management via CLI, which allows less advanced users to quickly configure all EPON devices in the network.

Nowadays, this is the cheapest EPON solution available on the market:

RAPTOR 4X GIGABIT PON PORTS/4X GIGABIT UPLINK PORTS/4X SFP PORTS- around 560 USD

or

PREDATOR 8X GIGABIT PON PORTS/ 8X GIGABIT UPLINK PORTS/ 8X SFP PORTS- around 800 USD

The cost of CPEs cooperating with OLT is nearly about 20 USD.