Optical line terminals

LTP-8X, LTP-4X

Application to the user manual
OLT configuration and monitoring via SNMP
Версия ПО 3.38.0

Содержание

Notes and warnings

Notes contain important information, tips, or recommendations on device operation and setup.

Warnings are used to inform the user about harmful situations for the device and the user alike, which could cause malfunction or data loss.

1 Operation with ONT

⚠ Matches between parameter names and digital OIDs are described in the MIB files.

If the command has ONT serial number (dec_serial), this serial number should be specified by 8 decimal digits separated by dots.

Examples:

Serial number	Snmp command parameter
ELTX24A80012	69.76.84.88.36.168.0.18
45-4C-54-58-00-00-00-01	69.76.84.88.0.0.0.1

ONT profiles are specified by the profile index for corresponding OID of the ONT configuration. To know profile index using its name , use the following profile tables:

Profile type	Table
Management	ltp8xONTManagementProfileTable
Ports	ltp8xONTPortsProfileTable
Shaping	ltp8xONTShapingProfileTable
Scripting	ltp8xONTScriptingProfileTable
DBA	ltp8xONTAllocProfileTable
Cross-connect	ltp8xONTCrossConnectProfileTable

To set *unassigned* value, if it is allowed, number 65535 will be transmitted instead profile index.

1.1 Configuration

ONT is configured by the following tables:

- ltp8xONTConfigTable – general parameters;
- ltp8xONTCustomCrossConnectTable – custom parameters;
- ltp8xONTFullServicesConfigTable – Cross-Connect and DBA profiles;
- ltp8xONTSelectiveTunnelTable – selective-tunnel uvids.

1.1.1 Adding

When adding ONT It is necessary to specify serial number, gpon-port number and ONT ID.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
```

ltp8xONTConfigRowStatus.1.8.<dec_serial> i 4

ltp8xONTConfigChannel.1.8.<dec_serial> u <gpon_port>

ltp8xONTConfigID.1.8.<dec_serial> u <ont_id>

where:

- <gpon_port> – the real value of the port number;

Example

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTConfigRowStatus.1.8.69.76.84.88.36.168.0.18 i 4
ltp8xONTConfigChannel.1.8.69.76.84.88.36.168.0.18 u 6
ltp8xONTConfigID.1.8.69.76.84.88.36.168.0.18 u 0
```

This command creates ONT 6/0 with serial number ELTX24A80012

1.1.2 Editing

1.1.2.1 ONT General Parameters

General parameters of ONT are configured by using *ltp8xONTConfigTable*.

Command format:

snmpset -v2c -c <rw_community> <ipaddr> <parameter_oid_1>.1.8.<dec_serial> <par1_type> <par1_value>

<parameter_oid_2>.1.8.<dec_serial> <par2_type> <par2_value>

……

<parameter_oid_N>.1.8.<dec_serial> <parN_type> <parN_value>

where:

- <parameter_oid_N> – the names of specific MIB parameters;
- <parN_type> – value type of a parameter;
- <parN_value> – parameter value.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTConfigDescription.1.8.69.76.84.88.36.168.0.18 s
"ont_description"
ltp8xONTConfigManagementProfile.1.8.69.76.84.88.36.168.0.18 u 1
ltp8xONTConfigFecUp.1.8.69.76.84.88.36.168.0.18 i 1
```

This command sets the *decription* value, specifies Management profile, and enables error correction for ONT with serial number ELTX24A80012.

1.1.2.2 Cross-Connect and DBA profiles

Cross-Connect and DBA profiles are configured by using *ltp8xONTFullServicesConfigTable*. Similarly to the custom parameters, additional index (service number) and value increased by 1 should be specified.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTFullServicesConfigCrossConnectProfile.1.8.<dec_serial>.<service> u <value>
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTFullServicesConfigCrossConnectProfile.1.8.69.76.84.88.36.168.0.18.8 u 1
ltp8xONTFullServicesConfigDBAProfile.1.8.69.76.84.88.36.168.0.18.8 u 2
```

For ONT with serial number ELTX24A80012, this command sets Cross-Connect profile with index 1, and DBA profile with index 2 for service 7.

1.1.2.3 Custom Cross-Connect parameters

Custom Cross-Connect parameters are configured by using *ltp8xONTCustomCrossConnectTable*. Introduces additional index (service number) including service number increased by 1

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTCustomCrossConnectEnabled.1.8.<dec_serial>.<service> i <value>

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTCustomCrossConnectEnabled.1.8.69.76.84.88.36.168.0.18.3 i 1
ltp8xONTCustomCrossConnectVID.1.8.69.76.84.88.36.168.0.18.3 i 100
ltp8xONTCustomCrossConnectCOS.1.8.69.76.84.88.36.168.0.18.3 i 1
ltp8xONTCustomCrossConnectSVID.1.8.69.76.84.88.36.168.0.18.3 i 200
```

For ONT with serial number ELTX24A80012, this command activates Custom Cross Connect parameters for service 2 and sets values cvid=100, svid = 200, cos = 1.

1.1.2.4 Selective-tunnel uvids

Selective-tunnel uvids are configured by using *ltp8xONTSelectiveTunnelTable*. In addition to the service number, an index should be entered – the *selective-tunnel uvid* number. Index takes the values from 1 to 42. The indexes of the assigned *uvid* must follow sequentially without order interruption. For example, if uvid are determined with indexes 1 and 2 the next assigned uvid must have index 3.

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTSelectiveTunnelUVID.1.8.<dec_serial>.<service>.<uvid_id> i

<SelectiveTunnelUVID_value>

where:

- <SelectiveTunnelUVID_value> – selective-tunnel uvid value.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTSelectiveTunnelUVID.1.8.69.76.84.88.36.168.0.18.8.1
i 200
```

For ONT with serial number ELTX24A80012, this command adds selective-tunnel uvid = 200 for service 7.

1.1.3 ONT Deletion

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
ltp8xONTConfigRowStatus.1.8.<dec_serial> i 6
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTConfigRowStatus.1.8.69.76.84.88.36.168.0.18 i 6
```

This command deletes ONT configuration with serial number ELTX24A80012.

1.1.4 ONT replacement

You can change ONT by using subsequent commands for deleting and creating configurations with new parameters.

1.2 Configuration

1.2.1 Reconfiguration

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTStateReconfigure.1.8.<dec_serial> u 1
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTStateReconfigure.1.8.69.76.84.88.36.168.0.18 u 1
```

1.2.2 Reboot

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
```

ltp8xONTStateReset.1.8.<dec_serial> u 1

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTStateReset.1.8.69.76.84.88.36.168.0.18 u 1
```

1.2.3 Reset the device to the factory settings

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTStateResetToDefaults.1.8.<dec_serial> u 1

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTStateResetToDefaults.1.8.69.76.84.88.36.168.0.18 u 1
```

1.2.4 Deactivation

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xONTDisableONTSerial.0 x

<hex_serial> ltp8xONTDisableChannel.0 u <gpon_port>

ltp8xONTDisableActionDisable.0 u 1

where:

- <hex_serial> – serial number in hex format;
- <gpon_port> – the real value of the port number;

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTDisableONTSerial.0 x
"454C545824A80012" ltp8xONTDisableChannel.0 u 6
ltp8xONTDisableActionDisable.0 u 1
```

The command performs ONT ELTX24A80012 deactivation on channel 6.

1.2.5 Activation

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xONTDisableONTSerial.0 x

<hex_serial> ltp8xONTDisableChannel.0 u <gpon_port>

ltp8xONTDisableActionEnable.0 u 1

where:

- <hex_serial> – serial number in hex format;
- <gpon_port> – the real value of the port number;

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTDisableONTSerial.0 x
"454C545824A80012" ltp8xONTDisableChannel.0 u 6
ltp8xONTDisableActionEnable.0 u 1
```

The command performs ONT ELTX24A80012 activation on channel 6.

1.2.6 ONT firmware updating via OMCI protocol

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTFirmwareUpdateViaOMCISerial.0 x <hex_serial>

ltp8xONTFirmwareUpdateViaOMCIFilename.0 s <firmware_name>

ltp8xONTFirmwareUpdateViaOMCIAction.0 u 1
```

where:

- <hex_serial> – serial number in hex format;
- <firmware_name> – the file name of the ONT firmware saved on OLT.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTFirmwareUpdateViaOMCISerial.0 x
"454C545824A80012" ltp8xONTFirmwareUpdateViaOMCIFilename.0 s "ntp-rg-revc
3.24.3.41.fw.bin" ltp8xONTFirmwareUpdateViaOMCIAction.0 u 1
```

Команда запускает обновление ONTELTX24A80012 файлом прошивки "ntp-rg-revc-3.24.3.41.fw.bin".

1.3 Requests

1.3.1 Common ONT state

The parameters of ONT state can be requested by using *ltp8xONTStateTable*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <parameter_oid>.1.8.<dec_serial>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xONTStateState.1.8.69.76.84.88.36.168.0.18
ltp8xONTStateVersion.1.8.69.76.84.88.36.168.0.18
```

The command requests the status and firmware version for the ONT ELTX24A80012.

1.3.2 PPP session state

To obtain the session list for selected ONT as the list of client MAC addresses, use the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr>

ltp8xOLTPPPoESessionsClientMac.1.<gpon_port>.<ont_id>

where:

- <gpon_port> – port number increased by 1.

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xOLTPPPoESessionsClientMac.1.7.0
```

The command requests the session list as the list of clients' MAC addresses for ONT 6/0.

To request information about specific PPPoE session, specify gpon port, ONT ID and client MAC address.

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

ltp8xOLTPPPoESessionsPort.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsSessionID.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsDuration.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsUnblock.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsSerial.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

where:

- <gpon_port> – port number increased by 1;
- <Dec_client_mac> is a client MAC address in decimal notation.

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xOLTPPPoESessionsPort.1.6.0.6.152.222.208.0.205.252
ltp8xOLTPPPoESessionsSessionID.1.6.0.6.152.222.208.0.205.252
ltp8xOLTPPPoESessionsDuration.1.6.0.6.152.222.208.0.205.252
ltp8xOLTPPPoESessionsUnblock.1.6.0.6.152.222.208.0.205.252
ltp8xOLTPPPoESessionsSerial.1.6.0.6.152.222.208.0.205.252
```

The command requests PPP session parameters with client MAC address 98:de:d0:00:cd:fc для ONT 6/0.

1.3.3 MAC table

Ltp8xONTAddressTable is used. To obtain the record list of the selected ONT, use the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr>

ltp8xONTAddressEntryID.1.8.<dec_serial>

Example:

```
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTAddressEntryID.1.8.69.76.84.88.36.168.0.18
```

The command requests MAC table record list of ONT ELTX24A80012.

To request MAC address table, specify ONT serial number and entry ID in the address table of the current ONT.

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

<parameter_oid>.1.8.<dec_serial>.<entry_id>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xONTAddressMacAddress.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTAddressCVID.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTAddressSVID.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTAddressUVID.1.8.69.76.84.88.36.168.0.18.1
```

The command requests MAC address, CVID, SVID, UVID for the first record in the MAC address table of ONT ELTX24A80012.

1.3.4 IGMP group table

ltp8xONTMulticastStatsTable is used. To obtain the record list of the selected ONT, use the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr>

ltp8xONTMulticastStatsRecordID.1.8.<dec_serial>

Example:

```
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTMulticastStatsRecordID.1.8.69.76.84.88.36.168.0.18
```

The command requests the record list of the IGMP group table for ONT ELTX24A80012.

To request the records of the IGMP group table, specify ONT serial number and entry ID in the IGMP-group table of the current ONT.

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

<parameter_oid>.1.8.<dec_serial>.<entry_id>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xONTMulticastStatsMulticastAddress.1.8.69.76.84.88.36.168.0.18.153
ltp8xONTMulticastStatsStop.1.8.69.76.84.88.36.168.0.18.153
ltp8xONTMulticastStatsStart.1.8.69.76.84.88.36.168.0.18.153
```

The command requests the IP address of the group, the broadcasting start and stop time for the 153rd entry in the ONT ELTX24A80012 IGMP group table.

1.3.5 ONT connection log

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

ltp8xONTConnectionLogText.1.8.<dec_serial>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xONTConnectionLogText.1.8.69.76.84.88.36.168.0.18
```

The command requests the connection log for ONT ELTX24A80012.

1.3.6 ONT counters

To obtain information about counters, use *ltp8xONTStatistics* table.

1.3.6.1 Counters for Cross-connect

Matches between counters and OIDs are given in the table below.

Table 1 – Matches between ONT and OID counters

Counter	OID	Description
CrossConnect in the downstream direction	ltp8xONTCrossConnectDSCounterName	CrossConnect c
	ltp8xONTCrossConnectDSCounterValue	CrossConnect c
CrossConnect in the upstream direction	ltp8xONTCrossConnectUSCounterName	CrossConnect c
	ltp8xONTCrossConnectUSCounterValue	CrossConnect c
GEM in the downstream direction	ltp8xONTGEMPortPerformMonitoringDSCounterName	GEM counter na
	ltp8xONTGEMPortPerformMonitoringDSCounterValue	GEM counter va
GEM in the upstream direction	ltp8xONTGEMPortPerformMonitoringUSCounterName	GEM counter na
	ltp8xONTGEMPortPerformMonitoringUSCounterValue	GEM counter va
GAL	ltp8xONTGalEthPerformMonitoringHistDataCounterName	GAL counter nar
	ltp8xONTGalEthPerformMonitoringHistDataCounterValue	GAL counter valu
FEC	ltp8xONTFecPerformMonitoringHistDataCounterName	FEC counter nar
	ltp8xONTFecPerformMonitoringHistDataCounterValue	FEC counter valu
Service utilization in the last 30 seconds	ltp8xONTServicesUtilizationLastUpstream	Upstream count
	ltp8xONTServicesUtilizationLastDownstream	Downstream cou
Service utilization in the last 5 minutes	ltp8xONTServicesUtilizationAverageUpstream	Upstream count
	ltp8xONTServicesUtilizationAverageDownstream	Downstream cou

Command format:

```
snmpwalk -v2c -c <ro_community> <ipaddr>

<parameter_oid>.1.8.<dec_serial>.<cross_connect_id>
```

Example:

```
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTCrossConnectDSCounterName.1.8.69.76.84.88.36.168.0.18.1
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTCrossConnectDSCounterValue.1.8.69.76.84.88.36.168.0.18.1
```

The command requests the name list of Cross-Connect counters for the downstream direction and their values for service 1 of ONT ELTX24A80012.

1.3.6.2 ETH ports state

To obtain information about ports, use *ltp8xONTUNIPortsStateTable*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

ltp8xONTUNIPortsStateAvailable.1.8.<dec_serial>.<eth_port_id>

ltp8xONTUNIPortsStateLinkUp.1.8.<dec_serial>.<eth_port_id>

ltp8xONTUNIPortsStateSpeed.1.8.<dec_serial>.<eth_port_id>

ltp8xONTUNIPortsStateDuplex.1.8.<dec_serial>.<eth_port_id>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xONTUNIPortsStateAvailable.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTUNIPortsStateLinkUp.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTUNIPortsStateSpeed.1.8.69.76.84.88.36.168.0.18.1
ltp8xONTUNIPortsStateDuplex.1.8.69.76.84.88.36.168.0.18.1
```

The command requests the status of the 1st ETH port for the ONT ELTX24A80012.

1.3.6.3 ETH port counters

Matches between counters and OIDs are given in the table below.

Table 2 – Matches between ETH port and OID counters

Counter	OID	Descripti
ETH extended in the downstream direction	ltp8xONTEthFrameExtendedPerformMonitoringDSCounterName	ETH exte
	ltp8xONTEthFrameExtendedPerformMonitoringDSCounterValue	ETH exte
ETH extended in upstream direction	ltp8xONTEthFrameExtendedPerformMonitoringUSCounterName	ETH exte

Counter	OID	Descripti
	ltp8xONTEthFrameExtendedPerformMonitoringUSCounterValue	ETH exte
ETH	ltp8xONTEthPerformMonitoringHistDataCounterName	ETH cour
	ltp8xONTEthPerformMonitoringHistDataCounterValue	ETH cour

Command format:

```
snmpwalk -v2c -c <ro_community> <ipaddr>

<parameter_oid>.1.8.<dec_serial>.<eth_port_id>
```

Example:

```
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTEthFrameExtendedPerformMonitoringDSCounterName.1.8.69.76.84.88.36.168.0.18.1
snmpwalk -v2c -c public 192.168.0.1
ltp8xONTEthFrameExtendedPerformMonitoringDSCounterValue.1.8.69.76.84.88.36.168.0.18.1
```

The command requests the name list of ETH extended counters for the downstream direction and their values for the first ETH port of ONT ELTX24A80012.

1.3.6.4 Downstream BER counters

To obtain information about counters, use *ltp8xONTDownstreamBerTable*.

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> <parameter_oid>.1.<gpon_port>.8.<dec_serial>

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTDownstreamBerErrors.1.1.8.69.76.84.88.36.168.0.18
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTDownstreamBerIntervals.
1.1.8.69.76.84.88.36.168.0.18
```

The command queries the BER Errors and BER Intervals counters for the ONT ELTX24A80012 at 0 gpon port.

To display the downstream BER counts for all connected ONTs, use the same command without specifying '. 1.8. <dec_serial>'. In the example below, the command requests the BER Errors counters for all connected ONTs.

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTDownstreamBerErrors
```

1.3.6.5 Service utilization counters

To disable use the ltp8xONTServicesUtilizationSettingsRowStatus table

Command format:

snmpset -v2c -c <rw_community> <ipaddr> <parameter_oid>.1.8.<dec_serial>.<serviceID> i 4

Where <serviceID> – service number +1.

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationSettingsRowStatus.
1.8.69.76.84.88.92.9.8.120.1 i 4
```

The command enables the utilization-enable parameter for service 0, ONT 454C54585C090878

1.3.6.6 Request metrics for service-utilization counters

To get the values OIDs used:

ltp8xONTServicesUtilizationLastUpstream Upstream counter for last 30 seconds

ltp8xONTServicesUtilizationLastDownstream Downstream counter for last 30 seconds

ltp8xONTServicesUtilizationAverageUpstream Upstream counter for last 5 minutes

ltp8xONTServicesUtilizationAverageDownstream Downstream counter for last 5 minutes

Command format:

snmpwalk -v2c -c <rw_community> <ipaddr> <parameter_oid>.1.8.<dec_serial>.<serviceID>

Where <serviceID> – service number +1.

Example:

```
snmpwalk -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationLastUpstream.
1.8.69.76.84.88.92.9.8.120.2
snmpwalk -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationLastDownstream.
1.8.69.76.84.88.92.9.8.120.2
snmpwalk -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationAverageUpstream.
1.8.69.76.84.88.92.9.8.120.2
snmpwalk -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationAverageDownstream.
1.8.69.76.84.88.92.9.8.120.2
```

Commands request the counters for each parameter for service 1.

1.3.6.7 Service-utilization counters disabling

Command format:

snmpset -v2c -c <rw_community> <ipaddr> <parameter_oid>.1.8.<dec_serial>.<serviceID> i 6

Where <serviceID> – service number +1.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTServicesUtilizationSettingsRowStatus.
1.8.69.76.84.88.92.9.8.120.1 i 6
```

The command disables the utilization-enable parameter for service 0, ONT 454C54585C090878

1.3.7 Counter reset on ONT

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTResetCountersAction.1.8.<dec_serial> u 1

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTResetCountersAction.1.8.69.76.84.88.36.168.0.18 u 1
```

The command resets ONT ELTX24A80012 counters.

1.3.8 GPON port counter reset

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xPONChannelResetCounters.1.<gpon_port> u 1

where:

- <gpon_port> – port number increased by 1.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xPONChannelResetCounters.1.7 u 1
```

The command resets the GPON port 6 counters.

2 OLT configuration:

Connection to LTP is possible either with a console cable or with an Ethernet cable to the GE port.

2.1 Applying and confirming configuration

A configuration commit occurs automatically when configuration changes are made.

2.1.1 Save configuration into non-volatile memory

Command format:

```
snmpset -v2c -c <rw_community> -t 20 <ipaddr> ltp8xSaveConfig.0 u 1
```

Example:

```
snmpset -v2c -c private -t 20 192.168.0.1 ltp8xSaveConfig.0 u 1
```

2.1.2 Reread configuration from non-volatile memory

Command format:

```
snmpset -v2c -c <rw_community> -t 20 <ipaddr> ltp8xRereadConfig.0 u 1
```

Example:

```
snmpset -v2c -c private -t 20 192.168.0.1 ltp8xRereadConfig.0 u 1
```

2.2 VLAN Configuration

VLAN configuration is done using the *ltp8xSwitchVLANTable*.

2.2.1 Adding VLAN

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchVLANRowStatus.1.<vlan_id> i 4
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchVLANRowStatus.1.156 i 4
```

The command creates VLAN 156.

2.2.2 VLAN editing

VLAN port membership is specified by two bitmasks each of them has value 1 in the N-th bit (big-endian). It means including a port with Index N into this variety. You can check port index distribution in *ltp8xSwitchPortsTable*. Convert bit masks into hex format to substitute them in **snmpset** commands.

There are two varieties: *TaggedPorts* and *UntaggedPorts*.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchVLANName.1.<vlan_id> s

 "vlan_name" ltp8xSwitchVLANTaggedPorts.1.<vlan_id> x "<ports_mask>"

 ltp8xSwitchVLANUntaggedPorts.1.<vlan_id> x "<ports_mask>"

 ltp8xSwitchVLANIGMPSnoopingEnabled.1.<vlan_id> i 1/2

 ltp8xSwitchVLANMLDSnoopingEnabled.1.<vlan_id> i 1/2

 ltp8xSwitchVLANIGMPQueryInterval.1.<vlan_id> u <value>

 ltp8xSwitchVLANMLDQueryInterval.1.<vlan_id> u <value>

 ltp8xSwitchVLANIGMPMrouterPorts.1.<vlan_id> x <ports_mask>

 ltp8xSwitchVLANMLDMrouterPorts.1.<vlan_id> x <ports_mask>

 ltp8xSwitchVLANIsolationEnabled.1.<vlan_id> i 1/2

 ltp8xSwitchVLANIsolationGroup.1.<vlan_id>.<group_id> u <port_id>
```

where:

- <ports_mask> – bitmask values;
- <group_id> – insulation group number value increased by 1;
- <port_id> – port index value according to *ltp8xSwitchPortsTable*.

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xSwitchVLANName.1.156 s "edited_by_snmp"
ltp8xSwitchVLANTaggedPorts.1.156 x "40000000"
ltp8xSwitchVLANUntaggedPorts.1.156 x "20000000"
ltp8xSwitchVLANIGMPSnoopingEnabled.1.156 i 1
ltp8xSwitchVLANMLDSnoopingEnabled.1.156 i 1
ltp8xSwitchVLANIGMPQueryInterval.1.156 u 300
ltp8xSwitchVLANMLDQueryInterval.1.156 u 400
ltp8xSwitchVLANIGMPMrouterPorts.1.156 x "FF000000"
ltp8xSwitchVLANMLDMrouterPorts.1.156 x "FF000000"
ltp8xSwitchVLANIsolationEnabled.1.156 i 1
ltp8xSwitchVLANIsolationGroup.1.156.2 u 3
```

The command sets the name 'edited_by_snmp' for VLAN 156, adds pon-port 1 tagged, pon-port 2 untagged, enables IGMP and MLD snooping, sets IGMPQueryInterval=300 and MLDQueryInterval=400, removes IGMP and MLD snooping mrouter 10G-front-port 0-1 interfaces, enables isolation and assigns vlan to isolation group 2.

2.2.3 VLAN Deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchVLANRowStatus.1.<vlan_id> i 6

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchVLANRowStatus.1.156 i 6
```

The command deletes VLAN 156 from the configuration.

2.2.4 Requesting the VLAN list and configuration of the specific VLAN

To request VLAN list, use the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xSwitchVLANName.1

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xSwitchVLANName.1
```

The command lists VLAN

To obtain configuration of the specific VLAN, you can use the following request:

Command format:

snmpget -v2c -c <ro_community> <ipaddr> ltp8xSwitchVLANName.1.<vlan_id>

ltp8xSwitchVLANTaggedPorts.1.<vlan_id> ltp8xSwitchVLANUntaggedPorts.1.<vlan_id>

ltp8xSwitchVLANIGMPSnoopingEnabled.1.<vlan_id>

ltp8xSwitchVLANIGMPSnoopingQuerierEnabled.1.<vlan_id>

ltp8xSwitchVLANIGMPQueryInterval.1.<vlan_id>

ltp8xSwitchVLANMLDSnoopingEnabled.1.<vlan_id>

ltp8xSwitchVLANMLDSnoopingQuerierEnabled.1.<vlan_id>

ltp8xSwitchVLANMLDQueryInterval.1.<vlan_id>

ltp8xSwitchVLANIGMPMrouterPorts.1.<vlan_id>

ltp8xSwitchVLANMLDMrouterPorts.1.<vlan_id>

ltp8xSwitchVLANIsolationEnabled.1.<vlan_id>

ltp8xSwitchVLANIsolationGroup.1.<vlan_id>.<group_id>

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xSwitchVLANName.1.156
ltp8xSwitchVLANTaggedPorts.1.156 ltp8xSwitchVLANUntaggedPorts.1.156
ltp8xSwitchVLANIGMPSnoopingEnabled.1.156
ltp8xSwitchVLANIGMPSnoopingQuerierEnabled.1.156
ltp8xSwitchVLANIGMPQueryInterval.1.156
ltp8xSwitchVLANMLDSnoopingEnabled.1.156
ltp8xSwitchVLANMLDSnoopingQuerierEnabled.1.156
ltp8xSwitchVLANMLDQueryInterval.1.156 ltp8xSwitchVLANIGMPMrouterPorts.1.156
ltp8xSwitchVLANMLDMrouterPorts.1.156 ltp8xSwitchVLANIsolationEnabled.1.156
ltp8xSwitchVLANIsolationGroup.1.156.2
```

The command displays the configuration of a specific VLAN.

2.3 Terminal VLAN Configuration

2.3.1 Adding

Use *ltp8xOLTTerminalVLANsNamesTable* to add Terminal VLAN.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xOLTTerminalVLANsNamesRowStatus.<t_vlan_id> i 4

ltp8xOLTTerminalVLANsNamesName.<t_vlan_id> s "<t_vlan_name>"
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xOLTTerminalVLANsNamesRowStatus.1 i 4
ltp8xOLTTerminalVLANsNamesName.1 s "created_by_snmp"
```

The command creates Terminal VLAN with index 1 and name 'created_by_snmp'.

2.3.2 Editing

Use *ltp8xOLTTerminalVLANsTable* to edit Terminal VLAN parameters.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xOLTTerminalVLANsVID.1.<t_vlan_id> u <vlan_id>

ltp8xOLTTerminalVLANsCOS.1.<t_vlan_id> i <cos>
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xOLTTerminalVLANsVID.1.1 u 80
ltp8xOLTTerminalVLANsCOS.1.1 i 255
```

The command sets the Terminal VLAN with index 1 to vlan_id = 80, cos = unused.

2.3.3 Deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xOLTTerminalVLANsNamesRowStatus.<t_vlan_id> i 6

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xOLTTerminalVLANsNamesRowStatus.1 i 6
```

The command deletes Terminal VLAN with index 1 from configuration.

2.3.4 Requesting the Terminal VLAN list and configuration of the specific Terminal VLAN

To get the Terminal VLAN list, use the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr>

ltp8xOLTTerminalVLANsNamesName

Example:

```
snmpwalk -v2c -c public 192.168.0.1
ltp8xOLTTerminalVLANsNamesName
```

The command lists Terminal VLAN

To obtain configuration of the specific VLAN, you can use the following request:

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

ltp8xOLTTerminalVLANsName.1.<t_vlan_id>

ltp8xOLTTerminalVLANsVID.1.<t_vlan_id>

ltp8xOLTTerminalVLANsCOS.1.<t_vlan_id>

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xOLTTerminalVLANsName.1.1
ltp8xOLTTerminalVLANsVID.1.1
ltp8xOLTTerminalVLANsCOS.1.1
```

The command displays the configuration of a specific Terminal VLAN.

2.4 IGMP/MLD Configuration

2.4.1 Global settings for enabling IGMP/MLD Snooping

To configure IGMP/MLD, use *ltp8xSwitchIGMPSnoopingTable*. OIDs for configuring global parameters are listed in the table below:

Table 3 – OID compliance for global settings

Parameter	OID	Description
IGMP Snooping	ltp8xSwitchIGMPSnoopingEnabled	Possible values: 1 – Enable 2 – Disable
MLD Snooping	ltp8xSwitchMLDSnoopingEnabled	

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr> <parameter_oid>.1 i <value>
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchIGMPSnoopingEnabled.1 i 1
```

The command enables IGMP Snooping.

2.4.2 IGMP Snooping and VLAN Querier configuration

This setting is carried out similarly to the VLAN Editing section.

2.5 OLT, ONT profiles configuration

2.5.1 Address-table

Operation with address-table profiles is performed using *ltp8xOLTAddressTableProfilesTable* and *ltp8xOLTAddressTableProfileSVLANTable*. Profiles and each S-VLAN for the profile are configured separately.

2.5.1.1 Adding

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xOLTAddressTableProfilesRowStatus.<profile_index> i 4

snmpset -v2c -c <rw_community> <ipaddr> ltp8xOLTAddressTableProfileSVLANRowStatus.<profile_index>.<vlan_id> i 4

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xOLTAddressTableProfilesRowStatus.2 i 4
snmpset -v2c -c private 192.168.0.1 ltp8xOLTAddressTableProfileSVLANRowStatus.2.1234 i 4
```

The command adds an address-table profile with index 2. Sets this profile to s-vlan 1234.

2.5.1.2 Configuration

To configure profile and s-vlan parameters use *ltp8xOLTAddressTableProfilesTable* and *ltp8xOLTAddressTableProfileSVLANTable*.

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

<parameter_oid_ProfilesTable>.<profile_id> <par_type> <par_value>

<parameter_oid_ProfileSVLANTable>.<profile_id>.<vlan_id> <par_type> <par_value>

where:

<parameter_oid_ProfilesTable> – names of specific parameters in the MIB from ltp8xOLTAddressTableProfilesTable;
<parameter_oid_ProfileSVLANTable> – names of specific parameters in the MIB from ltp8xOLTAddressTableProfileSVLANTable ;
<profile_id> – profile index;
<par_type> – parameter value type;
<par_value> – parameter value.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xOLTAddressTableProfilesDescription.2 s
"edited_by_snmp"
```

The command sets the address-table profile with index 2 to 'edited_by_snmp'.

2.5.1.3 Deletion

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
ltp8xOLTAddressTableProfilesRowStatus.<profile_index> i 6
```

```
snmpset -v2c -c <rw_community> <ipaddr>
ltp8xOLTAddressTableProfileSVLANRowStatus.<profile_index>.<vlan_id> i 6
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xOLTAddressTableProfilesRowStatus.2 i 6
snmpset -v2c -c private 192.168.0.1 ltp8xOLTAddressTableProfileSVLANRowStatus.2.1234 i 6
```

The commands remove the address-table profile with index 2, and the S-VLAN 1234 binding to the address-table profile with index 2.

2.5.2 Cross-connect

For operation with cross-connect profile, use *ltp8xONTCrossConnectProfileTable*.

2.5.2.1 Adding

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
```

```
ltp8xONTCrossConnectRowStatus.<profile_index> i 4
```

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTCrossConnectRowStatus.2 i 4
```

The command adds Cross-connect profile with index 2.

2.5.2.2 Editing

A feature of Cross-connect profiles is that if you specify a link to terminal-vlan as vlan_id, the value is passed from -100 (terminal-vlan-0) to -131 (terminal-vlan-31)

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>
```

<parameter_oid_1>.<profile_id> <par1_type> <par1_value>

<parameter_oid_2>.<profile_id> <par2_type> <par2_value>

...

<parameter_oid_N>.<profile_id> <parN_type> <parN_value>

where:

- <parameter_oid_N> – the names of specific MIB parameters;
- <profile_id> – profile index;
- <parN_type> – value type of a parameter;
- <parN_value> – parameter value.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTCrossConnectName.2 s
"edited_by_snmp" ltp8xONTCrossConnectModel.2 i 1
ltp8xONTCrossConnectBridgeGroup.2 u 5 ltp8xONTCrossConnectUVID.2 i -101
```

For Cross-connect with index 2, the command sets name 'edited_by_snmp', bridge group = 5 and UVID linking on terminal-vlan-1.

2.5.2.3 Deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTCrossConnectRowStatus.<profile_index> i 6

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTCrossConnectRowStatus.2 i 6
```

The command deletes Cross-connect profile with index 2.

2.5.2.4 Profile list request

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xONTCrossConnectName

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTCrossConnectName
```

2.5.3 DBA

For operation with DBA profiles, use *ltp8xONTAllocProfileTable*.

2.5.3.1 Addition

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTAllocRowStatus.<profile_index> i 4

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTAllocRowStatus.3 i 4
```

The command adds DBA profile with index 3.

2.5.3.2 Editing

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

<parameter_oid_1>.<profile_id> <par1_type> <par1_value>

<parameter_oid_2>.<profile_id> <par2_type> <par2_value>

.....

<parameter_oid_N>.<profile_id> <parN_type> <parN_value>
```

where:

- <parameter_oid_N> – the names of specific MIB parameters;
- <profile_id> – profile index;
- <parN_type> – value type of a parameter;
- <parN_value> – parameter value.

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xONTAllocName.3 s "edited_by_snmp"
ltp8xONTAllocServiceClass.3 i 3
ltp8xONTAllocFixedBandwidth.3 u 269248
```

The command sets the name 'edited_by_snmp', service class = cbr and fixed bandwidth 269248 for DBA profile with index 3.

2.5.3.3 Deletion

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTAllocRowStatus.<profile_index> i 6
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTAllocRowStatus.3 i 6
```

The command deletes DBA profile with index 3.

2.5.3.4 Profile list request

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xONTAllocName

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTAllocName
```

2.5.4 Ports

For operation with Ports profile, use the following tables:

- ltp8xONTPortsProfileTable – general profile parameters;
- ltp8xONTPortsProfileUNITable – UNI ports;
- ltp8xONTPortsProfileMCDynamicEntriesTable – IGMP multicast dynamic entries;
- ltp8xONTPortsProfileMLDDynamicEntriesTable – MLD multicast dynamic entries.

2.5.4.1 Adding

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTPortsRowStatus.<profile_index> i 4
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsRowStatus.4 i 4
The command adds Ports profile with index 4.
```

2.5.4.2 Editing

General Parameters

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr> <parameter_oid_1>.<profile_id>

<par1_type> <par1_value> <parameter_oid_2>.<profile_id> <par2_type>

<par2_value> ... <parameter_oid_N>.<profile_id>

<parN_type> <parN_value>
```

where:

- <parameter_oid_N> – the names of specific MIB parameters;
- <profile_id> – profile index;
- <parN_type> – value type of a parameter;
- <parN_value> – parameter value.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsName.4 s
"edited_by_snmp" ltp8xONTPortsMulticastIPVersion.4 i 1
ltp8xONTPortsMLDVersion.4 u 1 ltp8xONTPortsMLDQueryInterval.4 u 120
```

The command sets name 'edited_by_snmp', IPv6 usage, MLDv1 version and MLD query interval 120 for Ports profile with index 4.

The parameters of UNI ports:

In addition to profile index, you should specify port index (0-3)

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsUNIBridgeGroup.4.0 i
100 ltp8xONTPortsUNIMulticastEnabled.4.0 i 1
ltp8xONTPortsUNIMaxGroups.4.0 u 500
```

For Port profile with index 4 on port with index 0, the command sets parameters, bridge group = 100 and max groups = 500 , and enables multicast.

IGMP multicast dynamic entries:

In addition to profile index, you should specify dynamic entry index (0-19).

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsMCVLANID.4.14 u 200
ltp8xONTPortsMCFirstGroupIP.4.14 a 224.0.0.0
ltp8xONTPortsMCLastGroupIP.4.14 a 239.255.255.255
```

The command sets for the multicast dynamic entry parameter (with index 14) of the Ports profile (with index 4) the following values: vlan_id = 200, first group ip = 224.0.0.0, last group ip = 239.255.255.255.

MLD multicast dynamic entries:

In addition to profile index, you should specify dynamic entry index (0-19).

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsMLDVLANID.4.12 u 30
ltp8xONTPortsMLDMCFirstGroupIP.4.12 x "FF010000000000000000000000000FC"
ltp8xONTPortsMLDMCLastGroupIP.4.12 x "FF010000000000000000000000000FD"
ltp8xONTPortsMLDMCPreviewLength.4.12 u 1024
```

The command sets for the multicast dynamic entry parameter (with index 12) of the Ports profile (with index 4) the following values: vlan_id = 30, first group ip = FF01:0:0:0:0:0:0:FC, last group ip = FF01:0:0:0:0:0:0:FD и preview length = 1024

2.5.4.3 Deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTPortsRowStatus.<profile_index> i 6

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTPortsRowStatus.4 i 6
Команда удаляет профиль Ports с индексом 4.
```

2.5.4.4 Profile list request

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xONTPortsName

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTPortsName
```

2.6 PON channels

2.6.1 Enabling/disabling PON channels

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xPONChannelEnabled.1.<gpon_port> i <value>

where:

- <gpon_port> – port number increased by 1;
- <value> – possible values: 1 – Enable; 2 – Disable.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xPONChannelEnabled.1.1 i 2
```

The command disables gpon-port 0.

2.6.2 Reconfiguration

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xPONChannelReconfigure.1.<gpon_port> u 1

where:

- <gpon_port> – port number increased by 1.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xPONChannelReconfigure.1.1 u 1
```

The command reconfigures gpon-port 0.

2.6.3 Unknown multicast forwarding enabling

This command allows you to pass unknown multicast traffic on the gpon port.

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xPONChannelUnknownMulticastForwardEnabled.1.<GPON-port-id>

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xPONChannelUnknownMulticastForwardEnabled.1.1 i 1
```

The command enables unknown multicast forwarding on the port gpon 1.

2.6.4 Viewing counters

Viewing the counter of pon channel is performed by request of the corresponding switch pon port.

Correspondence of pon-channels to port indexes in switch are listed in the *ltp8xSwitchPortsName* table.

2.6.4.1 Ethernet counters

Request is performed by using *ltp8xSwitchPortCountersTable*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <counter_oid>.1.<port_index>

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xSwitchPortGoodOctetsRcv.1.16
ltp8xSwitchPortGoodPktsRcv.1.16
```

The command requests the number of received octets and packets for the 3rd pon channel.

2.6.4.2 Interface utilization

Request is performed by using *ltp8xSwitchPortsUtilization*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <utilization_oid>.1.<port_index>

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xPortsUtilizationLastKbitsSent.1.20
ltp8xPortsUtilizationLastKbitsRecv.1.20
ltp8xPortsUtilizationLastFramesSent.1.20
ltp8xPortsUtilizationLastFramesRecv.1.20
ltp8xPortsUtilizationAverageKbitsSent.1.20
ltp8xPortsUtilizationAverageKbitsRecv.1.20
ltp8xPortsUtilizationAverageFramesSent.1.20
ltp8xPortsUtilizationAverageFramesRecv.1.20
```

The command requests utilization parameters for the 7th pon channel.

2.7 Switch interfaces configuration

Pvid assigning, bridging configuration

2.7.1 PVID assigning

PVID configuration is done using the *ltp8xSwitchPortConfigPVID* table.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xSwitchPortConfigPVID.1.<port_index> u <vlan_id>
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortConfigPVID.1.2 u 156
```

The command will set the value pvid=156 for front-port 1.

2.7.2 Bridging configuration

Bridging ports configuration performed using the *ltp8xSwitchPortConfigBridging* table. Configuration is performed using two bitmasks, each of them has value 1 in the N-th bit (big-endian). It means including a port with ifIndex = N into this variety. You can check port index distribution in *ltp8xSwitchPortsTable*. Convert bit masks into hex format to substitute them in **snmpset** commands.

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr>

ltp8xSwitchPortConfigBridging.1.<port_index> x <ports_mask>
```

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortConfigBridging.1.6 x 0033F000
```

The command will set bridging on pon-port 0-7 for front-port 5 interface.

2.7.3 Port Channel configuration

Port-Channel configuration is performed using *ltp8xSwitchPortGroupTable* and *ltp8xSwitchPortConfigGroup*.

2.7.3.1 Adding

Command format:

```
snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchPortConfigGroup.
```

1.<port_channel_index> i 4

where:

- <port_channel_index> – Channel Group index.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortGroupRowStatus.1.3 i 4
```

The command adds Channel Group with index 3.

2.7.3.2 Editing

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchPortConfigGroup.1.<interface_id> u <port_channel_index>

where:

- <interface_id> – interface index, in accordance with *ltp8xSwitchPortsTable*.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortConfigGroup.1.8 u 3
```

The command includes Front-Port 7 in Channel Group with index 3.

2.7.3.3 Deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchPortConfigGroup. 1.<port_channel_index> i 6

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortGroupRowStatus.1.3 i 6
```

The command deletes Channel Group with index 3.

2.7.4 Multicast loopback configuration

Multicast loopback configuration is performed using *ltp8xSwitchVLANTable* and *ltp8xSwitchPortConfigTable*. You can check port index distribution in *ltp8xSwitchPortsTable*.

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchVLANMulticastLoopbackEnabled. 1.<vlan_id>

snmpset -v2c -c <rw_community> <ipaddr> ltp8xSwitchPortConfigMulticastLoopbackPonEnabled.1.<interface_pon_port_id>

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchVLANMulticastLoopbackEnabled.1.205
snmpset -v2c -c private 192.168.0.1 ltp8xSwitchPortConfigMulticastLoopbackPonEnabled.1.15
```

The commands activate multicast loopback for VLAN id 205 and pon-port 2.

2.8 IP Source Guard configuration

IP Source Guard configuration is performed using *ltp8xIPSourceGuard* table.

2.8.1 Operating mode enabling and configuration

Enabling and configuring the IP Source Guard operating mode is done using the *ltp8xIPSourceGuardConfigTable*.

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xIPSourceGuardEnabled.1 i

1/2 ltp8xIPSourceGuardMode.1 u 0/1 ltp8xIPSourceGuardDatabaseEnabled.1 i

1/2 ltp8xIPSourceGuardDatabaseUpdateFreq.1 u <value>

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xIPSourceGuardEnabled.1 i 1
ltp8xIPSourceGuardMode.1 u 0 ltp8xIPSourceGuardDatabaseEnabled.1 i 1
ltp8xIPSourceGuardDatabaseUpdateFreq.1 u 1020
```

The command activates IP Source Guard, sets the mode to static, activates IP Source Guard Database and sets the retention period to 1020 seconds.

2.8.2 IP Source Guard Bind configuration

IP Source Guard Bind configuration is performed using *ltp8xIPSourceGuardBindTable*.

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xIPSourceGuardBindRowStatus.1.1.2.3.4 i <value>

ltp8xIPSourceGuardBindMAC.1.1.2.3.4 s "<MAC-addr>"

ltp8xIPSourceGuardBindONTChannel.1.1.2.3.4 u <gpon-port>

ltp8xIPSourceGuardBindONTID.1.1.2.3.4 u <ONT-id>

ltp8xIPSourceGuardBindService.1.1.2.3.4 u <ONT-service-id>

Example:

```
snmpset -v2c -c private 192.168.0.1
ltp8xIPSourceGuardBindRowStatus.1.1.2.3.4 i 4
ltp8xIPSourceGuardBindMAC.1.1.2.3.4 s "33:33:33:22:22:22"
ltp8xIPSourceGuardBindONTChannel.1.1.2.3.4 u 1 ltp8xIPSourceGuardBindONTID.1.1.2.3.4 u 1
ltp8xIPSourceGuardBindService.1.1.2.3.4 u 2
```

The command creates a static binding of the source IP address 1.2.3.4 to the MAC address 33:33:33:22:22:22 and service 2 on the ONT.

2.8.3 IP Source Guard Ignored Vlan configuration

IP Source Guard Ignored Vlan configuration is performed using *ltp8xIPSourceGuardIgnoredVlanTable*.

Command format:

```
snmpset -v2c -c private 192.168.0.1 ltp8xIPSourceGuardIgnoredVlanRowStatus.1.222 i 4
```

The command will disable IPSG in the specified VLAN 222.

3 Operations for uploading/downloading

3.1 OLT firmware (tftp/http)

3.1.1 OLT firmware download

Command format:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationBinaryCfg.0 s

"<server_ip> <file_path> <download_protocol>"

Where

- <server_ip> – IP address of the tftp/http server with firmware file;
- <file_path> – full path to the file on the server;
- <download_protocol> – takes the values of download/httpdownload for downloading by tftp/http, respectively.

Example:

```
snmpset -v2c -c private -t 20 -r 0 192.168.0.1
cmdFileOperationBinaryCfg.0 s "192.168.16.55:8080 station_images/ltp-8x
revc-3.32.0.1260.fw.bin httpdownload"
```

The command downloads the firmware file station_images/ltp-8x-revc-3.32.0.1260.fw.bin from the http server 192.168.0.55, a device reboot is required to apply the firmware.

3.1.2 Current LTP firmware request

Command format:

snmpget -v2c -c <ro_community> <ipaddr> ltp8xFirmwareRevision.0

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xFirmwareRevision.0
```

3.2 Reboot

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xRebootTimeout.0 u <value>

where:

- <value> – value of the timeout before device reboot, in seconds.

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xRebootTimeout.0 u 0
```

The command immediately reboots the device.

3.3 ONT firmware

3.3.1 Firmware load

To download the ONT firmware, use the *ltp8xONTFirmwaresDownload* group of parameters.

Parameter	Description
ltp8xONTFirmwaresDownloadPath	The name of the ONT FW file
ltp8xONTFirmwaresDownloadIPAddress	IP address of the server storing firmware file.
ltp8xONTFirmwaresDownloadProtocol	The protocol for access to http/tftp file.
ltp8xONTFirmwaresDownloadPort	A server port with firmware file.
ltp8xONTFirmwaresDownloadAction	Initiate update process

Command format:

snmpset -v2c -c <rw_community> <ipaddr> ltp8xONTFirmwaresDownloadPath.0 s "<file_name>" ltp8xONTFirmwaresDownloadIPAddress.0 a <server_ip>

ltp8xONTFirmwaresDownloadProtocol.0 i <download_protocol>

ltp8xONTFirmwaresDownloadPort.0 u <server_port>

ltp8xONTFirmwaresDownloadAction.0 u 1

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTFirmwaresDownloadPath.0 s
"ntp-rg-revb-3.24.3.87.fw.bin" ltp8xONTFirmwaresDownloadIPAddress.0 a
192.168.0.55 ltp8xONTFirmwaresDownloadProtocol.0 i 2
ltp8xONTFirmwaresDownloadPort.0 u 8080 ltp8xONTFirmwaresDownloadAction.0 u 1
```

The command loads firmware file ntp-rg-revb-3.24.3.87.fw.bin from port 8080 of http server 192.168.0.55.

3.3.2 Requesting the list of downloaded firmware

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xONTFirmwaresFilesName

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xONTFirmwaresFilesName
```

3.3.3 Uploaded firmware deletion

Command format:

snmpset -v2c -c <rw_community> <ipaddr>

ltp8xONTFirmwaresFilesDelete.<file_id> u 1

where:

- <file_id> – ONT firmware file ID in the list (see section 3.3.2).

Example:

```
snmpset -v2c -c private 192.168.0.1 ltp8xONTFirmwaresFilesDelete.2 u 1
```

The command deletes firmware file with index 2.

3.4 Uploading/downloading configuration

3.4.1 Downloading backup configuration

Command format:

Via TFTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<tftp_server_ip> <tftp_path> upload"

Via HTTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<http_sever_ip> <http_path> httpupload"

where:

- <tftp_path>, <http_path> – full path for uploading file on the server.

Example:

```
snmpset -v2c -c private 192.168.0.1 cmdFileOperationPrivateCfg.0 s
"192.168.0.55 new_config.cfg upload"
```

The command uploads the configuration via TFTP to the server 192.168.0.55 in a file named new_config.cfg.

3.4.2 Uploading backup configuration

Command format:

Via TFTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<tftp_ip> <tftp_path> download"

Via HTTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<http_ip> <http_path> httpdownload"

where:

- <tftp_path>, <http_path> – full path for downloading file from the server.

Example:

```
snmpset -v2c -c private 192.168.0.1 cmdFileOperationPrivateCfg.0 s
"192.168.0.55:8080 config/new_config.cfg httpdownload"
```

The command downloads configurations via TFTP from config/new_config.cfg. file locating on the server 192.168.0.55. After the upload is complete, you need to apply the configuration using the following commands:

Command format:

Via TFTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<tftp_ip> <tftp_path> apply"

Via HTTP:

snmpset -v2c -c <rw_community> <ipaddr> cmdFileOperationPrivateCfg.0 s

"<http_ip> <http_path> apply"

where:

- <tftp_path>, <http_path> – full path for downloading file from the server.

Example:

```
snmpset -v2c -c private 192.168.0.1 cmdFileOperationPrivateCfg.0 s
"192.168.0.55:8080 config/new_config.cfg apply"
```

4 OLT monitoring

4.1 Active alarms

Getting the number of active alarms

Command format:

snmpget -v2c -c <ro_community> <ipaddr> omsActiveAlarms.0

Example:

```
snmpget -v2c -c public 192.168.0.1 omsActiveAlarms.0
```

Getting the active alarms in trap forms

Command format:

snmpset -v2c -c <rw_community> <ipaddr> omsActiveAlarms.0 u 1

Example:

```
snmpset -v2c -c private 192.168.0.1 omsActiveAlarms.0 u 1
```

The command sends request to display all the device active alarms by snmp-trap messages.

4.2 LTP general information

General information about LTP is collected in the *ltp8xSystem and ltp8xBoardStatus* groups.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <parameter_oid>.0

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xSystemMacAddress.0
ltp8xFan1RPM.0 ltp8xRAMFree.0
```

The command displays the LTP MAC address and current Fan1 fan speed, and the amount of free memory in bytes.

4.3 Power supply

General information about LTP power modules is collected in the *ltp8xPowerSupplyTable*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <parameter_oid>.<module_id>

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xPowerSupplyModulePresent.1
ltp8xPowerSupplyModuleName.1 ltp8xPowerSupplyModuleType.1
ltp8xPowerSupplyModuleIntact.1
```

The command displays the presence of the power module with id=1, its name and type of input voltage.

4.4 Port and PON channel state

The *ifTable* is used to display port status.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> ifOperStatus.<ifIndex>

Example:

```
snmpget -v2c -c public 192.168.0.1 ifOperStatus.11
```

The command displays the front-port 2 state.
To display the status of pon channels, use the *ltp8xPONChannelStateTable*.

Command format:

snmpget -v2c -c <ro_community> <ipaddr> <parameter_oid>.1.<pon_channel_id>

Example:

```
snmpget -v2c -c public 192.168.0.1 ltp8xPONChannelONTCount.1.4
ltp8xPONChannelSFPVendor.1.4
ltp8xPONChannelSFPProductNumber.1.4 ltp8xPONChannelSFPRevision.1.4
```

The command displays the number of ONTs and SFP data for channel 3.

4.5 MAC Table

To display switch MAC addresses, use the *ltp8xSwitchMacListTable*.

Switch MAC address table

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr>

ltp8xSwitchMacListMacAddressString.1

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xSwitchMacListMacAddressString.1
```

The command displays the MAC address table in a list.

After that, if you know the parameters of a particular record, you can additionally request an interface and type for it:

Command format:

```
snmpget -v2c -c <ro_community> <ipaddr>

ltp8xSwitchMacListInterface.1.<vlan_id>.<dec_macaddress>

ltp8xSwitchMacListStatic.1.<vlan_id>.<dec_macadress>
```

where:

- <dec_macadress> – MAC address, in a sequence of decimal numbers format.

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xSwitchMacListInterface.1.236.152.222.208.0.205.252
ltp8xSwitchMacListStatic.1.236.152.222.208.0.205.252
```

The command requests the interface and the type of the entry, with a MAC address 98:de:d0:00:cd:fc in 236 VLAN.

4.6 Multicast

See section IGMP group table.

4.7 PPPoE sessions

PPPoE sessions information is available in the *ltp8xOLTPPPoESessionsTable*.

You can obtain a list of client MAC addresses for sessions by the following request:

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xOLTPPPoESessionsClientMac.1

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xOLTPPPoESessionsClientMac.1
```

The command displays a table of correspondence between client MAC addresses and GPON-PORT/ONT ID.

If you know the information about a particular record in the table, you can request additional data for it (ONT GEM port, PPPoE session ID, PPPoE session duration, ONT port unlock time. ONT port unlock time is not equals to zero in case of blocking when the limit of PPPoE packets is exceeded. The limit value is configured in profile pppoe-ia., ONT serial number):

Command format:

snmpget -v2c -c <ro_community> <ipaddr>

ltp8xOLTPPPoESessionsPort.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsSessionID.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsDuration.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsUnblock.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

ltp8xOLTPPPoESessionsSerial.1.<gpon_port>.<ont_id>.6.<dec_client_mac>

where:

- <gpon_port> – port number increased by 1.

Example:

```
snmpget -v2c -c public 192.168.0.1
ltp8xOLTPPPoESessionsPort.1.7.0.6.168.249.75.90.189.124
ltp8xOLTPPPoESessionsSessionID.1.7.0.6.168.249.75.90.189.124
ltp8xOLTPPPoESessionsDuration.1.7.0.6.168.249.75.90.189.124
ltp8xOLTPPPoESessionsUnblock.1.7.0.6.168.249.75.90.189.124
ltp8xOLTPPPoESessionsSerial.1.7.0.6.168.249.75.90.189.124
```

The command displays PPPoE session information for ONT 6/0 with MAC a8:f9:4b:5a:bd:7c.

4.8 Licensing information

Information about the installed license is available in the *ltp8xLicense* table.

Command format:

snmpwalk -v2c -c <ro_community> <ipaddr> ltp8xLicense

Example:

```
snmpwalk -v2c -c public 192.168.0.1 ltp8xLicense
```

The command displays information about the installed license.

5 The list of changes

Document version	Issue data	Firmware version	Revisions
Version 2.1.0	20.12.2019	3.38.0	Synchronization with firmware version 3.38.0 Chapter added: • Enabling service utilization counters; • Request metrics for service-utilization counters; • Service-utilization counters disabling; • Unknown multicast forwarding enabling.
Version 2.1.0	08.10.2019	3.36.2	Synchronization with firmware version 3.36.2
Version 2.1.0	25.02.2019	3.36.0	Commands added: • Channel Group configuration; • address-table profiles configuration; • multicast loopback configuration; • display downstream-ber counters for interface.
Version 2.1.0	03.07.2018	3.32.0	First issue