

Eltex.EMS

PON Device Family Management Operation Manual v2.0.41

OLT Configuration System



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.

HARDWARE AND SOFTWARE REQUIREMENTS

Eltex.EMS Server. Basic version — up to 10 station-side devices

CPU:	Intel Core 2 Duo E7500 3GHz;
RAM:	4 GB;
HDD:	500 GB;
OS:	Ubuntu 12.04.3 LTS x64.
NET:	Ethernet 100/1000 Mbit/s;

Eltex.EMS Server. 10 to 200 station-side devices (up to 50k ONTs)

Platform:	HP ProLiant DL160 Gen8(DL160R08);
CPU:	Intel® Xeon® E5-2609(HP DL160 Gen8 Intel® Xeon® E5-2609 (2.40GH2/4-core/10MB/80W)
	Processor Kit)
RAM:	8GB (HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage
	Memory Kit);
HDD:	500 GB (HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive);
OS:	Ubuntu Server 12.04.3 LTS x64.

Eltex.EMS Server. More than 200 station-side devices (and/or DHCP server up to 100k ONTs):

Platform:	HP ProLiant DL160 Gen8 (DL160R08);
CPU:	Intel® Xeon® E5-2640 (HP DL160 Gen8 Intel® Xeon® E5-2640 (2.50GHz/6-core/15MB/95W)
	Processor Kit);
RAM:	8GB (HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage
	Memory Kit);
HDD:	500 GB (HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive);
OS:	Ubuntu Server 12.04.3 LTS x64.

Eltex.ACS Server. (up to 100k ONTs) + DHCP server up to 100k ONTs + Eltex.EMS:

Platform:	HP ProLiant DL160 Gen8 (DL160R08);
CPU:	Intel® Xeon® E5-2640 (HP DL160 Gen8 Intel® Xeon® E5-2640 (2.50GHz/6-core/15MB/95W)
	Processor Kit);
RAM:	8GB (HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage
	Memory Kit);
HDD:	500 GB (HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive);
OS:	Ubuntu Server 12.04.3 LTS x64.

Operator station

CPU: Pentium E5700 3.0GHz; RAM: 2 GB; HDD: 80 GB; OS: MS Windows XP/2000/Vista/7 или Linux; NET: Ethernet 100/1000 Mbit/s; Java JRE VM (SUN JRE 6.18 or later) Browser with java plugin support (IE, Firefox, Chrome, Opera).

1366x768 or higher-resolution display

Virtualization

Virtualization technologies can be employed when you need to manage a small device network, e.g. up to 20 OLTs (20k ONTs max.). Thus, EMS system can be installed on the industrial hypervisor's virtual machine (VM). The only restriction applies to Eltex.EMS operation in a Syslog server (debug log collector) mode. In this case load onto network subsystem of the 'hypervisor — VM' bundle will increase significantly, that will result in possible failures of other network protocols. Employment of virtualization in networks with numerous OLTs and ONTs will require adaptation to server hardware capabilities and hypervisor settings.

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1 INTRODUCTION

Eltex.EMS intended use is to establish centralized management of the network elements, manufactured with Eltex company hardware. Data exchange with network equipment is carried out via Customized SNMP manager that performs the most frequent and large scale operations with subscriber ports and other equipment settings.

Eltex.EMS system employs 'client-server' architecture. Unified access server provides the interface that enables simultaneous and independent management of different network elements.

The management is described by the following devices:

Device type	Section
LTE-8ST	7
LTP-8X	8
MA4000-PX	9
PP4X control module	9.7
PLC8 GPON module	9.8

Management automation subsystem (Northbound Interface) enables the connection of the automated subscriber port management system. Particularly, it allows interfacing with the operator billing system via open standardized protocols. This interfacing enables automation of such routine operations as mass subscriber port disconnection when the service is unpaid and subsequent connection when the payment clears, and profile assigning.

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2 SYSTEM STRUCTURE

Eltex.EMS system employs 'client-server' architecture. Multitask SNMP manager core can connect to multiple client applications simultaneously and send independent requests to the hardware.



Fig. 1 — Structure of Eltex EMS management system for networks with information packet switching and routing

The structure of Eltex.EMS network element management system:

- EMS server system core.
- Web Server provides web interface for manual control.
- Web Service service that enables automated management of the subscriber ports (a part of Eltex.EMS).
- SQL database, MySQL-based storage The database contains network topology and individual access settings to each device (snmp parameters). Also, this database stores user accounts, device messages, etc.
- Server ACS automatic configuration server for subscriber devices (for detailed description see Eltex.ACS.GUI Operation Manual and Eltex.ACS Operation Manual). Integration of user interface for PON transport network management and subscriber device configuration are implemented.
- Browser (Web browser) information request, processing, and output software, basic control (a part of operator station).
- Client SOAP automated subscriber port management system (a part of operator's OSS or service activator).

3 INSTALLATION AND CONFIGURATION

Eltex.EMS system employs 'client-server' architecture. Access server can be represented by any computer that have sufficient performance to process multiple requests (server requirements depend on the quantity of network devices and the number of workstations for technical personnel). The system uses Linux Ubuntu operating system. Server operates on Java virtual machine.

MySQL database serves as a storage, thus no license purchase is required. Web access to system functions is provided via Apache Tomcat also without any license fees.

To create a workstation (in order to launch the graphic client application) you will need a PC without any special requirements. PC should come with pre-installed modern Windows OS (Windows 2000, XP, Vista, 7, 8) or Linux OS with graphics subsystem. Java JRE virtual machine (SUN JRE 6.18 or later) and a web browser with java plugin support are mandatory. IE, Firefox, Opera, Google Chrome.

For server installation manual, see **Eltex_EMS_server_install.doc**.

3.1. SETTING EMS-APPLET VERIFYING CERTIFICATES

To improve security in Java has a feature certificate revocation checking to sign your application

If the client machine (the machine on which you run the EMS-applet) is not connected to the Internet, when you try to check certificate errors may occur or application initialization delays that lead to an initialization error.

To solve this problem is proposed in cars without access to the Internet to disable certificate revocation check.

Disable certificate revocation check can be in Java Control Panel tab *«Advanced».* For Java 6 go *«Security General»* and remove the flags in front of the parameters *«Check certificate for revocation using Certificate Revocation List (CRL)»* and *«Enable online certificate validation».* For Java 7 and Java 8 to select «Do not check» in the section *«Perform certificate revocation checks on».*

More detailed information on this process can be found on the site Java: *https://www.java.com/ru/download/help/revocation_options.xml.*

Starting the Java Control Panel in Windows

Startup Control Panel Java - Java 7 Update 40 (7u40) or later:

- 1. Open the menu «Start» Windows.
- 2. Select "Programs".
- 3. Find the list of programs Java.
- 4. Select *«Configure Java»*, to launch the control panel Java Control Panel.

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Starting the Java Control Panel in the earlier version 7u40:

Windows 8

1. You must use the search box to find the control panel.

2. Press the combination of keys with the logo of Windows + W to call a miracle "Search" button and find the settings.

OR

- 1. Move the cursor to the bottom right corner of the screen and click the icon "Search".
- 2. In the search box enter "Control Panel Java".
- 3. Click the icon for Java, to open the control panel Java.

Windows 7, Vista

- 1. In the "Start" menu select "Control Panel".
- 2. In the search panel to enter the "Control Panel Java".
- 3. Click the icon for Java, to open the control panel Java.

Windows XP

- 1. In the "Start" menu select "Control Panel".
- 2. Double-click the icon for Java, to open the control panel Java.

An alternative way to run Java Control Panel in Windows

- 1. In the Windows menu, press "Start" button.
- 2. In the search box enter:
- 32-bit versions of Windows: c:\Program Files\Java\jre7\bin\javacpl.exe.

64-bit versions of Windows: c:\Program Files (x86)\Java\jre7\bin\javacpl.exe.

Starting the Java Control Panel for Linux

1. Open a terminal window.

2. Go to the installation directory of Java. cd /java/jre1.6.0_24 (should change the name of the directory under the installation directory Java).

3. Open the control panel Java, enter: ./ControlPanel.

Starting the Java Control Panel in your browser

Java Control Panel can also be opened in the browser. To do this, launch the browser Netscape or Mozilla, you open the file **ControlPanel.html**, which is usually located in the directory \$ KATALOG_USTANOVKI_JAVA / jre /.

4 GRAPHICS APPLICATION APPEARANCE AND FEATURES

Graphics application interface has a tree-like structure. I.e. the root node can be represented by "Area", for example. For each area you can define districts as subnodes, which will contain location names. Then you can define devices for these locations.

If you need to perform the detailed device configuration, you can open HTTP or Telnet/SSH connection from the application interface (if you have corresponding user rights).

Fig. 2 shows user interface navigation panes.

	ONT ACS COOLINES YNUMINA Addust of the Cooperation	рование Информация Справка
		Kouburynning DOONT Bornm
Поиск	Описание	Het
	IP адрес	192.168.16.219
 Сереисный центр ші ці "lester2" Зо7-гоот 	Таймаут обмена, мс	15000
ELTEX-ACS-16.160	Read Community / User v3	public
Kachaylo Konst	Write Community / Password v3	private
MA4000_Piter	Версия SNMP	<u>vac</u>
• 🙀 Maks • 🏠 STRange network	SNMP nopt	161
 ← 🏤 Sanek ← 😚 Shkaruba 	Тип аутентификации	AUTH_NO_PRIV V
e- dim	Протокол аутентификации	
er ∰ obuch	Протокол вифрования	
9- Ma vova	Peructoalius toatos	Accept
- ♥ LTP-8X [158/00] - ♥ LTP-8X, vova - ♥ LTP-8X, vova - ♥ LTP-16.216 - ♥ ma4000_eburg [12/1] • ♥ ma4000_eburg [12/1] • ♥ ma4000_eburg [12/1] • ♥ ma4000_eburg [12/1] • ♥ ma4000_eburg [12/1]	Генисорации гранов Период опроса устройства (ICMP, SNMP), с	5
— 🏠 варварчаыер • 🏠 Женя	У Редактировать 🦉 Обновить	
 Анагрузочный стенд Найденные 	A.*	
1	Задачи	
	ИД задачи Названию задачи Состояние исполнителя задач: активно 0 из 60	Пользователь. IP пользователя Дата старта Дата завершения Статус Прогресс Сообщение Прервать.
Object tree	,	Task field Settings field

Fig. 2 — EMS.Eltex UI navigation panes

User interface window is divided into three general areas.

- 1. **Control panel** and **menu** allows you to administer the system, perform the most frequent operations and work with the object tree: service functions important for device operation, such as PON Synchronization, Add, Remove, Re-read, Apply and Save Configuration, etc.
- 2. **Object tree** that allows you to manage station-side network devices. Object tree contains the hierarchy of nodes and nested control objects.



Nodes are logically united structures that can be grouped by geographic organization (e.g. area, district, city, etc.) or by equipment type (e.g. PON, DSLAM, ETTH). Both grouping types can be combined.

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- 3. Settings field that is based on the tree object selection. Allows you to view and edit device parameters. Settings field contains tabs that are used as selectors for groups of editable parameters. Some parameters are read-only, others are editable. If the user has sufficient rights for editing of current parameters, Edit button will become active. Otherwise, the button will be inactive, and the action is unavailable. Such system is used in menu items, toolbar and pop-up menu.
- 4. **Task field** shows the progress of asynchronous background tasks which are performed on the server that doesn't block GUI.

You can perform additional actions with objects from the pop-up menu that appears on right mouse click on the selected object.

Fig. 3 shows the example of the user interface with reduced functionality. Access to ACS server is denied for the user n14 ('Show' role). This object is greyed-out in the tree, and the user will not be able to access it.

💡 Eltex.EMS <dope:test></dope:test>			
Applet Devices Management OLT ONT ACS Events Utilities	Administration Information Help		
Synchronize ONT search Save 🗣 Apply		ACS Alerts: 0 0	0 0
No access			
Search Attention: you do not have ri	ghts to the object!		
Found Found Fund Fund			

Fig. 3 — *Example of user interface with reduced functionality*

🕎 Role editor		x .		
Role list Worthbound UpperUser est	Options Role name: [test Description: [Ide time (sec): [0] Allowed actions Edit privileges (0 changes) Registration on alerts Informational Warnings Not so important (Minor) important (Major) Critical	<pre> EMS TE-8X MA000-PXoold Ktp-16.223 </pre>	Edit user Name: Description: Role: Password: Data:	Dope test test test 16-10-2015
Add Delete Edit Save Cancel Copy		√ Allow	E-mail: Traps to e-mail: Log archive to e-mail: ONT problems to e-mail Block user: Multiuser:	- - - - - - - - -
Close	4			V Accept X Cancel

Fig. 3a — Example of reduced functionality role configuration and assigning it to a user

For detailed role and user configuration	see	Chapter	11
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Administration. Rights and users. CONFIGURING USERS AND roles.

5 CONTROLS

5.1.CONTROL PANEL

The control panel is located in the upper part of the interface. It allows you to manage the tree and device configuration, perform synchronization of PON device parameters, search for ONTs and launch external utilities. Table 1 lists description of the control panel basic controls.

Table 1. Controls						
Designation	Button name	Description				
Shortcuts						
💝 Synchronize	Synchronize	State synchronization of PON devices. Used for ONT list state update.				
ONT search	ONT search	Show the ONT search dialog window in a device/node for detailed description see chapter 6.3 . ONT search i device/node				
Save	Save	Save changes into the non-volatile memory for the selected device.				
	Apply	Apply changes made to configuration.				
Editing object tree						
•	Add	Add object into current tree node.				
	Remove	Remove current object or node.				
1	Re-read	Update the tree (the tree is completely re-read from the database)				
Events						
0	WARNING event	The number describes the number of non-closed events of this type for a device.				
0	MINOR event	The total number of non-closed events of each type is shown for every nested device in a node.				
0	MAJOR event	By clicking the icon, you can proceed to Monitoring/Active Events tab for the current device				
0	ALARM event					
ACS server						
acsd	Available	ACS server status				
acsd	Not set					
acsd	Denied (not available)					
acsd	Restart					
Applet	User application configuration	1				
	Authentication [locking]	Block or unblock the applet with a password				
8	Session data	Show the window with the current user session information				
\$	Decor	Applet theme configuration				

Ø	View	Configure the appearance of the elements				
	Pattern of utilities running	Edit startup templates for ping, ssh, web, telnet utilities				
	Save applet settings	Save current applet size and location on the screen				
*	Exit	Close the applet (terminate the current user session)				
Devices	Manage the object tree, dupl	icates the main and pop-up menus of the object tree				
e,	Search for a device	Search for station-side device by the name or IP address. The search is performed through all the object tree.				
Ligo	Reload tree	Load the whole list of the tree objects from EMS server				
•	Add object	Add object into current tree node. For detailed description, see chapter 6.1 Creating monitoring point				
	Delete an object	Remove current object from the tree.				
•	Move object	Move the current object to another node. For detailed description, see chapter 5.2.2 Transferring objects				
1	Group movement	Move the group of objects in the tree structure. For detailed description, see chapter 5.2.2 Transferring objects				
\$	Automatic search for devices in the network	Search devices in the network by defined address range via SNMP protocol. For detailed description, see chapter 10 Automatic Device Discovery in Network				
\	Object properties	Edit address and name if the current object				
Ē.	Copy name	Copy object name into the clipboard				
٩	Import from CSV file	Allows you to import the data from the text file into the object tree				
Management	Basic device control features,	duplicates the pop-up menu of the object tree				
S	Synchronize alerts	Request the current alarms from the device				
•	Apply configuration changes (COMMIT)	Apply changes made to configuration (for MA4000-PX)				
E	Synchronize MA4000 slots	Sync slots (for MA4000-PX)				
	Save configuration to non- volatile memory	Save changes made to configuration into the non-volatile memory for the current device (for LTE-8ST, LTE-8X, and LTP-8X)				
* ??	Reread configuration from non-volatile memory	Load the configuration stored in the non- volatile memory for the current device (for LTE-				

		8ST, LTE-8X, and LTP-8X)				
æ	Upload the configuration to the archive	Upload the current device configuration file to EMS server				
	Download the configuration from the archive	Load the configuration into the non-volatile memory of the selected device				
U	Reboot the device	Reboot the current device				
OLT	Basic OLT operation features,	duplicates the pop-up menu of the object tree				
<u></u>	Synchronize	Synchronize the state of the current device				
	Migrate PON config	Migrate to new format while saving PON configuration settings (for LTE-8ST)				
	Migrate ALL config	Migrate to new format while saving all existing configuration settings (for LTE-8ST)				
<u>Chill</u>	Update firmware for OLT chip in node	Upgrade OLT chip software in the current node				
ONT	Update firmware for all ONTs in device	Upgrade the software for all ONTs in the device (for LTE-8X)				
<u></u>	Reconfigure PON chips	Reconfigure PON chips for the current device (for LTP-8X)				
Ň	XML OLT PON- profile s editor	Text editor for ONT profiles (template for OLT)				
Ň	GUI for OLT PON- profile s editor	Graphics editor for ONT profiles (template for OLT)				
ONT	Basic ONT operation features	, duplicates the pop-up menu of the object tree				
0	ONT Search	Search for ONT in the current node or OLT For detailed description, see chapter 6.3 ONT SEARCH IN DEVICE/NODE				
a	Current statistics	Statistics data on PON trees and quantity of ONTs at the moment for the selected object				
	Search for duplicated ONT by PON MAC	Search for ONT objects in the tree with the same PON MAC				
	Search for duplicated ONT by Description	Search for ONT objects in the tree with the same description				
<u>\</u>	GPON metaprofile s editor	Show the edit dialog of PON network unified profile				
Events	System utilities, duplicates th	e pop-up menu of the object tree				
	Events log	View events of the system objects				
•	Active alerts statistics	View the active event statistics				
Utilities	System utilities, duplicates the pop-up menu of the object tree					

	Run PING from the user to the device	s PC Perform echo test from the user PC to device				
ৰ্ণ্যান্ত্ৰ	Run PING from the serve the device	er to Perform echo test from the server to device				
	Connection to device TELNET	<i>via</i> Launch Telnet client for connection to the current object				
	Connection to device HTTP (WEB)	<i>via</i> Launch the browser for connection to the current object via HTTP				
SSN	Connection to device via	<i>SSH</i> Launch SSH client for connection to the current object				
Administration						
	Rights and users					
2	Configuring user roles	Edit the system users' roles. For detailed description, see chapter 11.2 Configuring roles				
8	Configuring the system users	Edit system users' parameters. For detailed description, see chapter 11.3 Configure system users				
	GUI behaviour					
٢	Settings the colour scheme	Select the colour of the alarm messages. For detailed description, see chapter 12.1 Setting the color scheme				
4	Settings the sound scheme for alerts	Select the audible signal of the alarm messages 12.2 Setting the sound scheme of alerts				
	EMS server configuration					
0	SNMP traps receiving and processing	Edit settings for SNMP trap receiving				
۱	Scheduled tasks (monitors)	View the monitor state and configure monitors				
=	System modules settings	View and edit module parameters				
	Administrator s workstation	Go to Administrator Automated Workstation menu				
Δ	EMS server restart	Reboot the EMS server				
	Device software					
	Station software	Download station-side software files and view active versions on the network				
	Subscriber s software	Download subscriber-side software files and view active versions on the network				
Information						
	State of backup system	View the state of the reservation system				
	Information about system components	View the EMS system state				
	User actions log	View user activity log				
	System notification of users	Send messages to all users connected to the system at the moment				
Help	HELP INFORMATION					
•	About	Information about Eltex.EMS software and supported devices				
6	License	Information about used modules and effective license restrictions				

110	List of changes	Short changelog
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PON device state synchronization can take a long time to complete. The interface will be locked at this time.

5.2.DEVICE TREE

The device tree is located in the left part of the interface. The tree shows the network structure and allows you to select the control device. Users with the following privileges will be able to modify the tree structure: Edit Tree Properties, Add Tree Object, Remove Tree Object

5.2.1. ADDING OBJECTS

You can add objects into the tree structure with (Add) button, located in the object tree area. When adding object, you have to specify its unique name, type and IP address. For nodes (NODE) you have to specify the name only. After adding object, you have to fully configure SNMP parameters in order to access it. If the configuration is incorrect, the system will return 'SNMP Timeout' message each time the device is addressed. Please note that the 'SNMP Timeout' parameter defined in the device settings can be tripled, as the system makes 3 efforts to access the device by default.



When adding or editing device parameters, you have to specify the unique IP address. Duplication of object names is not allowed within the network.

5.2.2. TRANSFERRING OBJECTS

Transferring a single object

To transfer device from the current node to another node, use **Tree/Move Object** menu item in the toolbar or **Edit/Move to Node** menu, which is available by clicking the right mouse button on the object. To transfer the object, select the object from the tree, select **Move to Node** or **Move Object** and specify a new object location in the dialog window. You can transfer any objects and nodes (except for the root node).

Move object 'LTE-8X' to node	x
- 😥 🛣 Found	
Move X Cancel	

Fig. 4 — Tree object transfer menu

Group transfer

To transfer objects as a group in the tree, you can use **Tree/Move Group** menu item in the toolbar, see Fig. 2. In the menu, you can transfer multiple objects simultaneously and transfer objects located in the different source nodes into the one common target node.

厚 Move objects in the tree	x
ACS_16.166 ACS_16.166 ACS_10.101 Mat000-PX-0old [311/0/0] Mat000-PX-0old [311/0/0] Mat000-PX-0old [311/0/0]	P → X EMS 2 Found
	K Close

Fig. 4a — Tree object transfer menu

In the left pane of the edit window, named **Move Objects in a Tree**, select one or multiple objects/nodes to transfer. Target node is located in the right pane. Click => button located between the panes to perform the transfer.

When transferring objects to another node, the rules applying to the target node are taken into account. Also, the following restrictions are implied: the node cannot be transferred into oneself or into its subnodes (OK/-> button will be disabled in the dialog window). You cannot transfer an object into the node, if the object with the same name already exists in this node.

5.2.3. REMOVING OBJECTS, REFRESHING TREE STRUCTURE

Reload button allows you to refresh the tree structure information (re-read it from the database). This button should be used, when tree editing is performed simultaneously in the different interfaces. Also, Re-read function should be used, when the tree structure has been modified by the administrator.

Click *Delete* button in the object tree area to remove the object from the tree, see Fig. 2.



If you remove the object, its data will be deleted permanently and cannot be restored (restoration from the database backup is possible, but it is an exceptional situation). Upon the node removal, its nested objects, subnodes and node objects will also be removed. The root node (RootNode) cannot be deleted.

5.2.4. PON DEVICE SYNCHRONIZATION IN THE OBJECT TREE

State synchronization process is essential for work with OLT object. When synchronization is performed, the system gets the OLT software version data, number and contents of subscriber setting profiles, contents and status of all ONTs, etc.

Synchronization can be performed in manual mode upon the start of work with OLT. Also, automatic recurrent synchronization service is enabled in the typical system supply package (see chapters 'Monitors', 'PON Synchronization Monitor'). Synchronization is a very important process — if it is not performed, the majority of OLT object control and monitoring functions will not be available to the user.

For PON devices, the device tree shows information on tree state synchronization. If data is synchronized, the last synchronization time and ONT quantity in configuration will be shown. ONT quantity is shown in the square brackets in the tree: [Configurations/Active/Alarms]. For example, string [10/8/1] means that OLT 10 ONT configurations, 8 active ONT devices are in operation, and 1 ONT is in error mode.

5.2.5. POP-UP MENU OF THE OBJECT TREE

You can access pop-up menu of the object tree by clicking the right mouse button on the object. This menu allows you to launch external applications (ping, telnet, ssh, web) and edit tree object name and type. Additionally, you can send the following commands to the device: **Synchronize alarms**, **Save configuration into the non-volatile memory**, **Reboot device**, **Reread configuration from the non-volatile memory**. For GPON devices, you can search for ONTs by PON Serial/MAC address, description or tree number and identifier in a tree (if the state is synchronized).

💡 Eltex.EMS <doc:< th=""><th>SuperUser></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></doc:<>	SuperUser>									
Applet Devices N	Management OLT	ONT ACS Eve	ents Utiliti	es Administration Information Help						
🖏 Synchronize 🤇	ONT search 📗 S	ave 🐺 Apply			AC	S Alerts:	0	0	0	0
		Description	ONT list	Monitoring Configuration FW update RRD statistics Access						
Sear	ch	Name		MA4000-PX-0old						1
	?	Туре		MA4000						
P- 112 EMS - → ACS_16.	.166	Lock								
- MA MA4000-	620/16/0]	IP address		192.168.205.234						
- E Itp-16.	Object: MA4000-PX-	Oold	tus	Wrong						
(ONT search	Ctrl-F		16.10.2014 14:45:45						
	System utilities	•		Height 9U						
	Device tools	•	11-1							
1	Fe Conliguration man	iagement 🕨	CFG Upioad	and the configuration from the archive						
	Edit	•	vice slots	16						
]							

Fig. 5 — Pop-up menu of the object tree

5.3.OBJECT PROPERTY CONTROL FIELD (SETTINGS FIELD)

Settings field is located in the right part of the interface (see Fig. 2) and allows you to view and edit the device settings. It contains tabs that are used as selectors for groups of editable parameters and the basic buttons: *Edit, Refresh*. If the user has sufficient rights to change device settings (SNMPset in user role settings), *Edit* button will become enabled automatically.

Description of button actions:

- Edit opens dialog window for editing current parameters
- Reload this button updates the current panel values from the device, database or other sources.

In editing mode, the interface is fully blocked by the modal dialog window until the operation is completed. If the device settings are being edited on another workstation, the program will give you a warning, when editing mode is selected, and will block the operation execution.

💡 Edit 'Access'		x
Description	none	
IP address	192.168.205.234	
Timeout, ms	15000	
Read community / User v3	p15CqTQiRE	
Write community / Password v3	Q5aUBFGRtj	
SNMP version	v2c 💌	-
SNMP port	161	
Authentication type	AUTH_NO_PRIV -	
Authentication protocol	NONE Authentication type (only for snmp v3)	
Privacy key	AUTH_NO_PRIV	-
	AUTH_PRIV	

Fig. 6 — Edit window Authentication type selector is chosen



For data with indexed values (e.g. editing port settings), a selector that allows you to select the element index is located in the upper part of the field.

厚 Eltex.EMS <doc:superuser></doc:superuser>								
Applet Devices Management OLT ONT ACS Events Utilities Administration Information Help								
🖏 Synchronize 😧 ONT search 🕁 Save 🐳 Apply ACS Alerts: 0 3 1								
Bescription ONT list Monitoring Configuration FW ONT RRD statistics Access								
Search	Active alerts Common	Change fields	Channel #0 🗸	Seload				
	Events log	PON serial	All channels	ssion ID	ONT ID	Channel	Duration	Block
← ① EMS	Syslog ICMP statistic SIMP statistic OLT Temperature PPPoE session PON channels		Channel #0 Channel #1 Channel #3 Channel #3 Channel #5 Channel #6 Channel #7					

Fig. 7 — Channel selection in LTP-8X device

In addition to editing tabs, there are tabs for viewing port status, viewing tables, editing configurations and ONT lists, viewing ONT statuses.

Description ONT list Mor	nitoring C	onfiguration	FW ONT	RRD sta	tistics	Access							
Active alerts Common	C Reload	1											
Events log													
Syslog ICMP statistic		🐨 Fan O				762	D rpm	🐨 Fan 1				7620 rpm	
SNMP statistic					(Optical Lir	ne Termi	nal GPON LTP-8X					
OLT Temperature		GE po	rt		Comb	0 GE		10G/1G		PON	port —		
PPPoE session PON channels		0	2	4	6	4	6	0	0	2	4	6	
		€ 1	9 3	9 5	9 7	5	7	1	€ 1	3	⊌ 5	● 7	

Fig. 8 — LTP-8X port state tab

Click *Reload* button to update the state of device ports and show the information in *Port Status* panel.

Help button located in the control field will help you with details for the settings. Tips are shown near the particular editing element to explain the meaning of a parameter or for the control panel in general.

Applet Devices Management OLI ONI ACS Events Utilities Administration Information Help	
🖏 Synchronize 🔞 ONT search 🕞 👰 Help	1 1
ONT table filter	
ACS 16 166 ACS 16 166 ACS 16 167	. Note Note date
If the control of the data field for such fields as OLT, PON Serial, Description, FwVersion,	
Example: ELTX or 02:00:16 or NTE-2 or 3.16.2	
For certain fields additional parameters are available for narrowing the search output:	
slot=	
chan-	
config=	
Examples: slot-4 or config=x.115 A set of logic filters by the device state: online - all connected devices ordine - all connected devices error - all connected but not in the OK state A set of logic filters allowing to select ONT devices of the same type: gpon - GPON only	
Close	

Fig. 9 — Help in ONT List tab for LTP-8X

🕹 ELTEX

6 DEVICE MANAGEMENT

The system is able to manage several groups of devices, each group's management has its own peculiarities.

Device groups:

- PON (LTE-8ST, LTE-8X, LTE-2X, LTP-8X, MA4000-PX);
- DSLAM (MXA-24, MXA-32, MXA-64);
- ETTH (MES1024, MES1124, MES2024, MES2124, MES3108, MES3108(F), MES3116, MES3116(F), MES3124, MES3124F, MES5148, MES5248);
- VoIP (TAU-32M.IP, TAU-36.IP, TAU-72.IP, SMG-1016, SMG-1016M, SMG-1016M-R, SBC, MSR);
- MSAN MC1000-PX;
- ToPGATE;
- MXL2E;
- UEP (UEP2-3, UEP2-5, UEP3-3)
- Wi-Fi access points (WEP-12ac, WOP-12ac).

6.1.CREATING MONITORING POINT

The object of monitoring is defined with Add button on the main menu panel. To create an object in the desired node, select the node and click *Add* button.

0		Active al	erts	ONT lis	it D	evice L	.ist	PON	cha
Sea	rch	Row filter	nge fie	Ids 🥃	Reloa	d 📰	Select	all	š
	6.166	OLT	Slot	Chan	ld	LED	PON	Seria	1
- MA4000	😻 Add object							Х	
- 🛄 🖁 ltp-16.2	Object name		N	lew node	e #4				
	Object type		1	🔓 NODE					-
	IP address		2		,			ľ	•
			R.		х sт			1	= -
	Add		E		(
		LTE-8X	-	LTP8	K				ľ
			1	MA40	00				H
			-		024 424				H
		LIE-8X	- 2		024				1
		LTE-8X	- 2	MES2	124				-
1	13	I TE-9Y	-	-	-	()	02.00	22.01	- h

Type the object name in the appeared menu, select its type and define device IP address.

Click *OK* button and the device will appear in the object tree.

6.2.AUTOMATIC DEVICE DISCOVERY IN NETWORK

Eltex.EMS allows you to search for supported devices in the enterprise network automatically by the defined IP address range. You can configure parameters of automatic search directly in the application interface with **Search Settings** button. The search is performed by querying the devices in the defined IP range via SNMP protocol using the defined parameters. For device discovery, SNMP agent should be enabled on the target device with parameters defined in search settings.

To show automatic search form, select **Devices/ Automatic search for devices in the Network** in the menu bar or go to the root node and select **System Utilities/ Automatic search for devices in the Network** from the pop-up menu.

Automatic	search for devices in the netw	ork		x
The searc	h range, the starting address:	192.168.1.1 final address: 1	192.168.1.255 Start	Stop Stop
waiting:				
		List of fou	und devices	
	IP	Name	Туре	Attendance
Add 💭	d selected Add all			Close

Fig. 10 — *Device discovery by defined range: dialog window*

- Search range, starting address starting address of the IP address range for device discovery
- Final address ending address of the IP address range for device discovery
- Start start the network scan
- Stop force-stop the network scan
- Configure search— edit SNMP access for search purposes
- Waiting scanning activity indicator

Click *Configure search* button to show the window, where you can edit SNMP access parameters for the device discovery.

Setting SNMP access options		x
Exchange timeout, mc	15000	
Read community / User v3	public]
Write community / Password v3	private]
SNMP version	v2c 💌	
SNMP port	161	
Authentification type	AUTH_NO_PRIV -	
Authentification protocol	MD5 💌	
Encryption key	password]
Encryption protocol	DES 🔻	
	Canad	

Fig. 11 — Example of SNMP access parameters configuration

Progress indicator is shown during the network scan. Scanning is performed in multiple simultaneous threads. Also, timeout is defined for each device with *Timeout* parameter in the configuration file. You can stop the process by clicking *Stop* button.

🙏 ειτεχ

Automatic	search for devices in the netw	ork				X
The search	h range, the starting address:	192.168.16.200	final address:	192.168.16.255	Start	Stop 🗞 Configure search
waiting:						
			List of f	ound devices		
	IP	Nam	е		Туре	Attendance
Add 💭	d selected Add all					Close

Fig. 12 — Device discovery by defined range: process

The application generates the table with found devices during the scan. If found device already exists in the object tree, application will display the corresponding warning with the node for this object and the object name. Object match is performed by IP address.

After network scan has been completed, *Add All* (add all found devices) and *Add Selected* (add only selected devices) buttons will become available.

Automatic search for devices in the net	vork		x
The search range, the starting address	: 192.168.16.200 final address:	192.168.16.255 Start	Stop Stop
waiting:			
	List of for	und devices	
IP	Name	Туре	Attendance
192.168.16.220	Eltex UEP3-3-192.168.16.220	UEP33	нет
192.168.16.223	LTP-8X-192.168.16.223	LTP8X	EMS/ltp-16.223
192.168.16.225	ma4000-192.168.16.225	MA4000	нет
192.168.16.217	Ite-101-192.168.16.217	LTE8X	EMS/LTE-8X
192.168.16.221	LTE-8ST-192.168.16.221	LTE8ST	нет
192.168.16.255	Eltex UEP3-3-192.168.16.255	UEP33	нет
Add selected Add all]		Close

Fig. 13 — Device discovery by defined range: results

Click *Add* button to add the selected objects into *Found* node, that will be created automatically in the current node of the object tree. If *Found* node already exists, objects will be added to existing objects in that node (if they are not duplicated by IP address). When adding objects, the application will automatically discard all devices with duplicate IP addresses, even if they were selected in the table. If all object are to be discarded, the application will show a dialog window with a warning. If objects with the same names exist in *Found* node, the application will add '_x' suffix to their names to avoid the name duplication.

To transfer device from the *Found* node to another node, use **Edit/Move to Node** menu item, which is available by clicking the right mouse button. To transfer the object, select the object from the tree, select **Move to Node** and specify a new object location in the dialog window. You can transfer any objects and nodes (except for the root node). Device search and transfer to nodes is possible only for users with rights sufficient for adding objects. When transferring objects to another node, the rules applying to the target node are taken into account. Also, the following restrictions are implied: the node

cannot be transferred into oneself or into its subnodes (*Move* button will be disabled in the dialog window). You cannot transfer an object into the node, if the object with the same name already exists in this node.

Move object 'LTE-8X' to node	×
TA EMS	
Move Cancel	

Fig. 14 — Selection of the node for object transfer

6.3.ONT SEARCH IN DEVICE/NODE



The search is performed only for the nodes that contain PON devices. The search can be performed in PON devices, synchronized with EMS server.

💡 Search ONT in noc	e 'ltp-16.223'	x
All fields	•	
	Accept X Cancel	

You can search by the following parameters:

- PON MAC/ Serial search for ONT by specified PON MAC/ Serial address
- Description -- search for ONT by specified subscriber description or ID
- On tree and ID (through gap) search for ONT by specified tree number or ID, values should be space-separated

Enter the desired value into the field on the right.

6.4. OPERATIONS WITH THE TREE OBJECT

Basic operations with the current tree object are listed in the pop-up menu of the tree. You can access the menu by clicking the right mouse button. Contents of this menu depend on the currently selected object and defined user rights. If you doesn't have the necessary rights to perform an operation, the corresponding menu items become blocked (greyed-out).

Click the right mouse button on the row for the tree object to show the drop-down menu that contains the following items:

Object: LTE-8X	
Q ONT search	Ctrl-F
System utilities	•
🌒 Device tools	•
🚏 FW updating	•
Configuration management	•
M Statistics of ONT	•
🔪 Edit	•

- **System utilities** contains the bundle of utilities:
 - *Re-read hostname* re-read device system name;
 - Send PING from user PC to device echo test from the user PC to device;
 - Send PING from server to device echo test from the server to device;
 - Conne ct to device via Telnet protocol;
 - Connect to device via HTTP (WEB) protocol;
 - Connect to device via SSH protocol;
 - SNMP console show SNMP console;
 - SNMP template allows you to quickly configure any parameters of the device with the text (xml) file via SNMP protocol.
- **Device tools** contains the set of control commands:
 - Synchronize performs the state synchronization of PON device. Used for ONT list configuration status update;
 - Synchronize alerts get list of active alarms from the device;
 - PON chips reconfiguration execute PON chip reconfiguration command;
 - Save configuration to non-volatile memory store performed changes to the internal device memory;
 - Reread configuration from non-volatile memory load configuration stored in the internal device memory;
 - Migrate PON config (only for LTE) migrate to new format while saving PON configuration settings only;

- 😂 Reread Hostname
- Run PING from the user's PC to the device
- Run PING from the server to the device
- Connection to the device via TELNET
- Connection to the device via HTTP (WEB)
- Connection to the device via SSH
- SNMP-console

🍓 Synchronize

🚰 Synchronize alerts

Reboot the device

🖉 PON chipes reconfiguration

Save configuration to non-volatile memory
Reread configuration from non-volatile memory

29

- Migrate ALL config (only for LTE) migrate to new format while saving all existing configuration settings;
- *Reboot the device* execute the reboot command.

MA4000-PX device management:

 Apply configuration changes (COMMIT) — apply changes made to configuration;

🍓 Synchronize

Synchronize alerts

Migrate PON config

Migrate ALL config Reboot the device

Save configuration to non-volatile memory

Reread configuration from non-volatile memory

 Synchronize MA4000 slots performs the state synchronization of MA4000-PX slots;

PP4X device management:

- Apply configuration changes (COMMIT) — apply changes made to configuration;
- Confirm new FW (firmware) for PP4X unit 1;
- Confirm new FW (firmware) for PP4X unit 2;
- Confirm new FW (firmware) for both PP4X units;
- Reboot PP4X unit MASTER reboot the master control module of the device;
- *Reboot PP4X unit SLAVE* reboot the slave control module of the device.
- *FW updating* contains the set of commands to upgrade the firmware:
 - Update device s FW;
 - Update device s FW automatically upgrade device firmware, save and reboot automatically.
- **Configuration management** contains the set of commands to manage the configuration of the managed station-side devices:
 - Upload the configuration to the archive upload (save) the configuration as a file on disk;
 - Download the configuration from the archive load the configuration from the archive into the internal device memory.
- Statistics of ONT show the statistics (current state and dynamics) for subscriber terminals connected to the PON channel/device/node (quantity, Current statistics type)
 - Search for duplicate ONT by Description



Apply configuration changes (COMMIT)

Reboot PP4x unit MASTER

Reboot PP4x unit SLAVE

Confirm new FW (Firmware) for PP4x unit №1

In the provide the provide the provided 🖖 Confirm new FW (Firmware) for both PP4x units



🖞 Update device's FW automatically

🖞 Update device's FW



🚓 Upload the configuration to the archive

Download the configuration from the archive



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Current statistics — shows the statistics for PON channels and quantity of ONTs at the moment;

- Tree #0: 8/0 - Tree #1: 0/0 - Tree #1: 0/0 - Tree #3: 0/0 - Tree #3: 0/0 - Tree #5: 0/0 - Tree #6: 0/0 - Tree #7: 0/0 - Without a bindin	g to the tree: 0.	10	
Statistic on PON trees	[Configured / Conne	ected]:	Statis
of them wifi enab	led RG devices:	5	
- of all BG devices:): 6	6	
- UNKNOWN	: 0		
- NTP-RG-1402GC-W	: 1 v B : 1		
- NTP-RG-1402G-W:rev	.0 : 2		
- NTP-RG-1402G-W:rev	.B : 0		
- NTP-RG-1402G-W 1v3	:B : 0		
- NTP-RG-1402G-W	: 1		
- NTP-RG-1402G	GPON [Connected]: : 1		
- number of ONT in e	mergency condition	. 0	
- number of active O	NT:	0	
- number of configur	ations:	8	
Statistic on th	e number of ONT:		
Information on node: '1	tp-16.223' as of th	ne: 16.10.2014 15:16:56	
m m			

 Search for duplicated ONT by PON MAC — search for ONTs in the object tree with the same PON MAC. The search results page contains the list of duplicated ONT numbers and corresponding devices;

	Start search	
	100/100	
report - 1) Has started the process of searching for du - 2) Verification of PON devices: - 3) ONT records found: - GEPON's type: 0. - GFON's type: 8. - 4) No duplicate ONT t took time : 0 sec	plicate ONT FON-MAC's	

 Search for duplicated ONT by Description — search for ONTs in the object tree with the same description. The search results page contains the list of duplicated ONT numbers and corresponding devices.

	Start search
	Start Kit
	report
1)	Has started the process of searching for duplicate ONT Description
2)	Verification of FON devices:
21	OT meanure founds
31	Capiti Found
	- GPON's type: 311.
4)	Duplicate ONT found:
	- is duplicated '611473027' by ONT: ELIX0800DC51 by "NA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELIX060067CD "MA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN]
	- is duplicated '611476910' by ONT: ELIX0800E7E7 by "MA4000-PX-Oold 07. PLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELIX06006D1D "MA4000-PX-Oold 07. PLC8 (192.168.205.234)" [UNKNOWN]
	- is duplicated '611476622' by ONT: ELTX0800FB11 by "MA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNHKNOWN] and ONT: ELTX06007102 "MA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNHKNOWN]
	- is duplicated '611476723' by ONT: ELTX0800FCC5 by "NA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELTX06006C5C "MA4000-PX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN]
	- is duplicated '611477908' by ONT: ELIX0800FE71 by "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELIX06003915 "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNKNOWN]
	- is duplicated '611474848' by ONT: ELTX08010121 by "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELTX06006B65 "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNKNOWN]
	- is duplicated '611476819' by ONT: ELTX080104FA by "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNRHOWN] and ONT: ELTX06006D65 "MA4000-FX-0old 07. FLC8 (192.168.205.234)" [UNRHOWN]
	- 13 duplicated '611460220' by ONT: ELTX08010654 by "NA4000-FX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN] and ONT: ELTX0800FBF4 "MA4000-FX-0old 07. PLC8 (192.168.205.234)" [UNKNOWN]
	- 18 dupicated '6114/7851' by ONT: ELIXOBID'37 by "MAGUOU-EX-0614 OT. PLCE (192.188.205.234)" [UNKNOWN] and ONT: ELIXOBUBETS "MAGUOU-EX-0614 OT. PLCE (192.188.205.234)" [UNKNOWN]
	- 18 duplicated (0147266) by ONIT ELIXOBIUGER by "RA4000-RA-OLD OF PLS (192.166.20.234)" [URKNOWN] BAG ONIT ELIXOBUBUCH "RA4000-RA-OLD OF PLS (192.166.20.234)" [URKNOWN]
	is duplicated (51474222 by ONI: ElixObildet by Re4000-RA-0010 0. RLS (122.105.20.334) [URNOWN] BIG ONI: ELixObildet RA-0010 0. RLS (122.105.20.334) [URNOWN]
	- is duplicated site (302 by ORT, EINRODIDED by RANDOUTR-FOLD (12:100.20.2.34) [URRADAW] and ORT, EINRODUTR-FOLD (12:100.100.20.34) [URRADAW]
	is duplicated '\$1147980' by ONT- FLEXORDIBEC by TRADOO-FK-COLD OF THE (12116010010512) (CHARONN) and ONT- FLEXOFORERB TRADOO-FK-COLD OF THE (12116205234)" (DIRRONN) AND ONT- FLEXOFORERB TRADOO-FK-COLD OF TRADOO-FK-COLD
	13 duplicated '\$11478577' by ONT: ELTXOBOLDCEB by "NA4000-FX-Dold 07. FLC8 (192,168,205,234)" [UNKNOWN] and ONT: ELTXOBODE979 "NA4000-FX-Dold 07. FLC8 (192,168,205,234)" [UNKNOWN]
	In notal: 15

31

- *Edit* section that allows you to modify object properties, contains the following commands:
 - Move object move objects (and nodes) between the tree nodes;
 - *Change object type* edit current object type;
 - Copy name allows you to copy object name into the clipboard;
 - *Object properties* modify object name or IP address.

6.5. DEVICE STATUS INDICATION

The system supports device connection availability indication in the object tree that is represented by the status icon located next to the device icon. Table 2 shows the correspondence between the different status icons and general device states.

Each device icon can contain up to two status icons. Icon located in the upper right corner describes object availability status. The status is comprised of SNMP polling and ICMP PING polling. If the device is not available on both protocols, the system marks this object as 'lost' and sets the 'red' alarm level. If the device is not available on one of the protocols, it sets the 'yellow' alarm level. If the device is available on both protocols, the status becomes 'green'. If device polling if disabled, white icon will be shown in the tree. If the device is out of service, grey icon will be shown.

Icon located in the lower right corner is used for warning indication. It indicates active device alarms, system time mismatch, wrong trap settings, and other important situations, that should be investigated by the service personnel.

Designation	Appearance in the object tree	Description			
High level icons —	for objects and nodes				
•	🖕 🛤 🎱 ma4000	both ping responses are received			
•	- 🛤 [©] ma4000	one of the ping responses is not received			
•	🖕 🛤 🕈 ma4000	both ping responses are not received			
©	🖕 🛤 ^O ma4000	device is out of service			
0	🖕 鰮 ^O ma4000	waiting for the first response to ping			
empty field	🖕 🛤 ma4000	polling period is not defined or Availability Poll is disabled (system modules)			
Low level icons —	only for nodes				
▲		objects with alarms present for this node			
empty field	∲- 20	no objects with alarms present for this node			
Low level icons — only for objects, not for nodes					

Table 2. Device connection status indication

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T	⊢ ﷺ ₽ LTP-8X_3.20 [10/2/2]	traps	
I	— 🎆 🖁 LTP-8X [9/2/0]	overheat	
Ŕ	— 餐 LTE-8ST [3/0/0]	alarms present	
ħ	∲- 🛤 🎇 MA4000 [7/7/1]	device name doesn't match the node name	
٥		ONT error	
empty field	┝ - ﷺ[©] ma4000 [7/7/1	no alarms (not received yet)	

6.6. GENERAL CONFIGURATION FOR DEVICE OPERATION IN ELTEX.EMS SYSTEM

6.6.1. DESCRIPTION MENU

This tab shows the device name, connection IP address, general physical parameters, availability status, and appearance of this type of devices.

Description ON	T list Monitoring Configuration RRD statistics Access
Name	New node #2
Туре	LTE8ST
Lock	-
IP address	192.168.16.221
Availability status	Available
Access time	13.10.2014 17:08:07
Size	Height 1U
Power, V	3672
Equipment rack	19-inch
Uplink	4 combo-ports 10/100/1000 Base-T /10/100/1000 Base-X (SFP)
Downlink	8 ports 2.5Gbit/s TurboGEPON (SFP)
A . T	

- Name device name;
- Type device model;
- Lock— device block status;
- IP address device IP address;
- Availability status device availability state;
- Access time date and time of the last device access (SNMP);
- Size device dimensions;
- Power, V device power supply voltage;
- Equipment rack device mounting hardware;
- Uplink, Downlink quantity and type of device ports;
- Number of service slots quantity of device slots (for MA4000).

6.6.2. MONITORING MENU, ACTIVE ALERTS TAB

This menu contains the list of current alarms and abnormal situations. Alerts in this list are created by alarm traps received from devices or internal recurrent services activity (e.g. availability control, temperature control, etc.). The copy of each event is saved to event log for the particular device upon its occurrence. If automatic normalization is activated (e.g. upon trap arrival or restoration of exchange channel), the event will be erased from the active events list, but will remain in the log. The log



stores alarm and normalization messages.

Description ONT list Mor	itoring	Configuration FW O	NT RRD s	tatistics Access		
Active alerts	Date: fr	om		to Linewrap Auto-relo	ad 🖌	
Common						
Events log	Row filt	er:		OR		
Syslog	C1 Ch	ange fields 💱 Reload	🚰 Sync 💷	🚺 Turn off		
ICMP statistic						
SNMP statistic	ID 🔻	Create date	Priority	Message	OID	
OLT	182	13.10.2014 17:04:36	MAJOR	Not enough free space: free filesystem space: 7 %	1.3.6.1.4.1.35265.1.22.100.1.11	
Temperature						
PPPoE session						
PON channels						

Click *Reload* button to refresh the information in the tab.

Click Sync button to get the list of current alarms for the device.

Click *Turn off* button to disable active alarm for the device.

Click the right mouse button on the selected row to show the menu, which allows you to edit and manage the active event.

_		Date: fro	m		to Linewrap Auto-r	eload 🖌	
		Row filte	er:		OR		
_		🗔 Cha	inge fields 🥃 Reload	🚰 Sync 🗏	c 📣 Turn off		
-	I	D 🕶	Create date	Priority	Message	OID	
_	18	84	13.10.2014 17:11:51	MA IOP SN	Met character that floatester character 7 %	1.3.6.1.4.1.35265.1.22.100.1.11	
				∖ Ch	ange alert status		
_				🤤 Re	move all active alerts for device or node		

- SNMP traps receiving and processing configure the processing of this trap by the system;
- Change alert status change event status (new/processing/closed);
- *Remove all active alerts for device or node* delete all active events for the device/node.

6.6.2.1. ARRANGING EVENTS

To sort events in the table by the desired parameter, left-click the corresponding column header. The order of arrangement is indicated by the arrow located next to the header:

- arrange from the largest value to the lowest (new ones are on top of the list);
 - arrange from the lowest value to the highest (new ones are on bottom of the list).

Fields located in the upper part of the tab allow you to filter events by date or content.

6.6.2.2. CHANGING EVENT STATUS

You can manually process each event received by the system. Use Edit Status menu to modify the status.

If the event is not critical or important, you can change its status from New to Closed.

If the event is important, you should send it to processing (set Processing status).

When even	t is closed (Closed sta	atus is assigned), it will be d	eleted from t	he active events	s list, but
its record in the e	event log will remain	. Event log reco	ords will not	be affected b	y operations wi	th active
events.						

💡 Edit alert's status

Finished

Processing Finished

V Accept

New

6.6.2.3. GROUP STATUS CHANGING

To change status of multiple events simultaneously, select desired rows in the event table with mouse cursor or directional keys while holding <Shift> (joint selection) or <Ctrl> (disjoint selection) keys, and click the right mouse button on any of the selected rows — group status edit menu will open.

💡 Edit alert's status	x
Total alerts selected: 3	
Finished	
New	
Processing	
Finished	
Accept X Cancel	

Total alerts selected: 1

.

X Cancel

6.6.2.4. EVENT TABLE CONFIGURATION

Click Change Fields button to configure the set of fields for the event

List of displayed fields:

- *ID* record identifier;
- *Creation date* record creation date;
- *Priority* priority of the occurred event; _
- Alert alarm marker; _
- *Type* type of the event (snmp trap, monitor, etc.);
- *Code* internal event code;
- *Message* text message;
- Message ID message identifier;
- OID SNMP OID of the received message;
- Status current message status;
- Par 1 parameter 1, that contains alarm index;
- Par 2 parameter 2, that contains additional alarm index;
- *Par 3* parameter is not used;
- Source ID message source ID;
- Source IP message source IP address;
- Source name name of the source in the object tree;
- Source type;
- Process date event processing start date (when status 'New' changed to 'Processing');
- Process user operator name (login), who started the processing;
- *Max process time* event processing start time;
- Finish mode type of message closure: MANUAL manual, AUTO automatic normalization;
- Finish source in case of automatic normalization this field contains identifier of

itus		x
Total alerts s	selected: 3	
inished		-
ew		
rocessing		
Accept	X Cancel]
table.		
	Change displ D Create date Priority Alert Type	ayed fiel X

Code

Status

🗌 Par 1 Par 2

Par 3

Source ID

Source IP Source name

Source type

Process date

Process user Max process time

Finish mode

Finish date Beginning date

ONT serial

Choose all

V Accept

By default

X Cancel

Finish source

Message Message ID normalizing message;

- Finish date date, when status changed to 'Closed';
- Beginning date;
- ONT serial ONT serial number (filled in for messages, where ONT number is present).

Click *Choose All* button to select all list fields, that you want to add.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

6.6.3. MONITORING MENU, COMMON TAB

The tab shows general data, received from the device. The information is read-only.

Description ONT list Mor	itoring Configuration FW ON	T RRD statistics	Access	
Active alerts	S Reload			
Common				
Events log	Hostname	LTP-8X		
ICMP statistic	Software version	Eltex LTP-8X software	e version 3.20.2 build 3244 on 12.09.2014 12:46	
SNMP statistic	Serial number	GP01000107		
OLT	Hardware Revision	1v3		
Temperature	MAC addross	48-F9-4B-80-39-14		
PPPOE Session	MAC-address	44:45:40:40		
For channels	Uptime (days:hh:mm:ss)	11:15:13:40		
- 111 11 1 1111	Free memory, bytes	106078208		
	Space on disk, kbyte	2227	×	
	Average CPU load (1 min)	0,07	X	
	Average CPU load (5 min)	0,20	×	
	Average CPU load (15 min)	0,30	2	
	Active alerts	4	?	
	Fan №0 state	Ok		
	Fan №0, rpm	7620	X	
	Fan №1 state	Ok		
	Fan №1, rpm	7620	X	
	Temperature of SFP, °C	37	×	
	Temperature of PON, °C	47	X	
	OLT: driver version	1.2.561		
	OLT №0. Firmware version (FW)	2.3.37.1008		
	OLT №0. Hardware version (HW)	5211.2		
	OLT №1. Firmware version (FW)	2.3.37.1008		
	OLT №1. Hardware version (HW)	5211.2		

This menu contains general data for the device:

- Hostname device hostname;
- *Software version* device firmware version;
- Serial number device serial number;
- Uptime device operation time since the last reboot;
- *Free memory, bytes* free device memory in bytes;
- Free on disk free space on disk in percentage;
- Average CPU Load (1 min/5 min/15 min) CPU load in percentage for the last minute/5 minutes/15 minutes;
- Active alerts number of active alarms for the device;

For LTP:

- Hardware Revision board version number;
- MAC-address device MAC address;
- Fan 0/ 1 state fan operation status;

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- Fan #0/#1, rpm fan rotation speed in rpm;
- Temperature of SFP, Temperature of PON, °C thermal sensor readings in Celsius;
- OLT: driver version (LTP) OLT optical chip driver version;
- OLT 0, 1. Firmware version (FW) (LTP) OLT optical chip firmware version;
- OLT 0, 1. Hardware version (HW) (LTP) OLT optical chip hardware version;

For LTE:

- Fan state— fan operation status;
- Temperature, °C thermal sensor readings in Celsius;
- Number of active ONT quantity of active ONTs connected to the device;

For MA400-PX

- Fan X, rpm fan rotation speed in rpm;
- Relative speed, % fan rotation speed in percentage from max;
- Fan X state administrative status of fan operation;
- Unit1/Unit2 firmware version version of firmware for control modules;
- Unit1/Unit2 uptime (days:hh:mm:ss) control module operation time since the last reboot;
- Unit1/Unit2 role control unit role (master/slave);
- Unit1/Unit2 slot control module position in a rack (left/right);
- Unit1/Unit2 Serial number serial numbers of control modules.

Click button to proceed to *RRD Statistics* tab, to add new parameter monitoring task or to view the statistics for the previously assigned task (for detailed information, see Chapter **6.6.10 RRD Statistics menu**).

Click *Reload* button to refresh the information in the tab.

6.6.4. MONITORING MENU, EVENTS LOG TAB

This menu contains the list of events received from the device.

Description ONT list	Monitorii	ng Configuration FW	update RRI	Distatistics Access		
Active alerts Common	Priority: -					
Events log	OID:		Message	essage ONT serial:		
Syslog	Limit 🔶	20 🔶 🖸	26 🗉			
Shelf		Create date	Priority	Message	OID	
ICMP statistic	204	13 10 2014 18:05:00	CLEAR	Temperature sensor 'Switch Junit-21' works correctly	1361413526521129	
Power	203	13 10 2014 18:05:00		Temperature censor 'SEP [unit-2] works correctly	1361413526521129	
Multicast groups	203	13.10.2014 18:05:00		Temperature sensor SFF [unit-2] works correctly	1.3.6.1.4.1.35203.2.1.1.2.9	
The supervision of the supervisi	202	13.10.2014 18.05.00	CLEAR		1.3.0.1.4.1.35205.2.1.1.2.9	
	197	13.10.2014 17:55:00	MAJOR	Temperature sensor 'Switch [unit-2]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	
	196	13.10.2014 17:55:00	MAJOR	Temperature sensor 'Switch [unit-1]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	
A DESCRIPTION OF A DESCRIPTION OF	195	13.10.2014 17:55:00	MAJOR	Temperature sensor 'SFP [unit-2]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	
	194	13.10.2014 17:55:00	MAJOR	Temperature sensor 'SFP [unit-1]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	
	193	13.10.2014 17:55:00	MAJOR	Temperature sensor 'CPU [unit-2]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	
	192	13.10.2014 17:55:00	MAJOR	Temperature sensor 'CPU [unit-1]' failed	1.3.6.1.4.1.35265.2.1.1.1.9	

Click

(Re-read database) button to refresh the information in the tab (with filtering).

Click

button to synchronize current alarms for the device.

Click

button to save the current event table to a local PC.

	ee	snace: free filesystem snace: 7 %	13	6.1.4.
	b/0	SNMP traps receiving and processing	g	614
		Rilter by OID		0.1.4.
	ee	Copy field		6.1.4.
	D/0	Copy ONT serial number		6.1.4.
	ee	space: free filesystem space: 7 %	1.3.	6.1.4.
I				
To select all records in the table, click is button (Select All).

Click the right mouse button on the selected row to show the menu, which allows you to edit and manage the active event.

- SNMP traps receiving and processing — configure the processing of this trap by the system;

厚 Edit object	x
OID	1.3.6.1.4.1.35265.1.22.100.1.11
Name	ltp8xFreeSpaceAlarmTrap
Description	LTP8X: No free space
Source	[LTP8X]
Disabled	
Priority	MAJOR
Always closed	
Disable storing	
× A	ccept X Cancel

- OID trap identifier (cannot be changed);
- Name trap name (cannot be changed);
- Description trap description (cannot be changed);
- Source device name (type) (cannot be changed);
- Disabled this checkbox disables trap processing (processors will ignore this trap, no changes will be made to database);
- Priority set trap priority;
- Always closed when checked, trap will be recorded into the database in Closed state and will not be listed as a new trap in subsystems;
- Disable storing when checked, the trap will not be stored in the database, but it will be processed by appropriate handlers, if they are used.
- Filter by OID filter events by OID identifier;
- Copy field copy the text from this field into the clipboard;
- Copy ONT serial number copy ONT serial number, mentioned in this event, into the clipboard.

For event sorting order and individual and group status changing, see chapters **6.6.2.1**, **6.6.2.2**, **6.6.2.3** respectively.

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6.6.4.1. EVENT FILTERING

You can filter events in the table by one or multiple parameters.

Filter list for active events:

- Priority priority of the occurred event;
- Date: from/to record creation date range in DD.MM.YYYY or DD.MM.YYYY HH.MM format;
- OID SNMP OID of the received message (permitted formats: 1.3.6.*, *.1.6.3.1, *.3.6*, 1.3.6.1.4.1.8072.4);
- Message message text (permitted formats: text, %text, %part of the text%);
- ONT serial serial number or PON MAC ONT (whole or partial).

Use *(Reset Filters)* button to return all filters into their default state.

Use (Modify Fields) button to configure displayed fields of the log records.

6.6.4.2. EVENT TABLE CONFIGURATION

Click (Modify Fields) button to configure the set of fields for the event table.

List of displayed fields:

- *ID* record identifier;
- Create date record creation date;
- Priority priority of the occurred event;
- Alert alarm marker;
- Type type of the event (snmp trap, monitor, etc.);
- Code internal event code;
- Message text message;
- Message ID message identifier;
- OID SNMP OID of the received message;
- Status current message status;
- Par 1 parameter 1, that contains alarm index;
- Par 2 parameter 2, that contains additional alarm index;
- Par 3 parameter is not used;
- Source ID message source ID;
- Source IP message source IP address;
- Source name name of the source in the object tree;
- Source type;
- Process date event processing start date (when status 'New' changed to 'Processing');
- Process user operator name (login), who started the processing;
- Max process time event processing start time;
- Finish mode type of message closure: MANUAL manual, AUTO — automatic normalization;
- Finish source— in case of automatic normalization this field contains identifier of normalizing message;
- Finish date date, when status changed to 'Closed';
- Beginning date;
- ONT serial ONT serial number.



Click Choose All button to select all list fields that you want to add.

To save changes in the set of displayed fields, click Accept button, or click Cancel to discard changes.

6.6.4.3. EXPORT OF RECORDS

For detailed export process description, see chapter 10 Export of RECORDS.

6.6.5. **MONITORING MENU, SYSLOG TAB**

The tab shows device system log records. The information is read-only.

SYSLOG is a protocol, designed for transmission of messages on current system events. EMS system acts as a SYSLOG server and receives messages from devices.

Description ONT list Mor	itoring Configuration FW ONT RRD statistics Access
Active alerts	
Common	Priority All Date: from
Events log	FromHost SysLogTag Message
Syslog	Limit 🔶 1000 🕞 🔂 🔄 🔄 🦉 🔛 Linewrap 🗔 Records count: 0
ICMP statistic	
SNMP statistic	Device report Facil Priority Sysiog tag Message
OLT	
Temperature	
PPPoE session	
PON channels	

Click (*Re-read database*) button to refresh the information in the tab (with filtering).

Click button to save the current event table to a local PC.

To select all records in the table, click is button (Select All).

You can filter events in the log by one or multiple parameters.

Filter list for log records:

- *Priority* priority of the occurred event:
 - -LOG EMERG emergency message;
 - -LOG_ALERT alert message;
 - -LOG_CRIT critical alarm message;
 - -LOG_ERR error message;
 - -LOG_WARNING warning message;
 - -LOG_NOTICE notification;
 - -LOG INFO informational message;
 - -LOG_DEBUG debug message;
- Date: from/to record receiving date range in DD.MM.YYYY or DD.MM.YYYY HH.MM format;
- FromHost message source address (used for devices with module architecture);
- SysLogTag type of process that has sent the message;
- Message message.

Limit field allows you to configure the quantity of messages displayed on the page. Use arrow



buttons located to the left and right from the field to navigate through pages.

Use (*Reset Filters*) button to return all filters into their default state.

Use *Modify Fields* button to configure displayed fields of the log records:

- ID record identifier, always displayed;
- Received at date and time of message receiving notification;
- Device reported Time record receiving date in DD.MM.YYYY or DD.MM.YYYY HH:MM;
- Facility weighted value of the record;
- Priority priority of the occurred event;
- From host hostname of the message source;
- Syslog tag type of process that has sent the message;
- Message message text;
- From host IP IP address of the message source.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

6.6.6. MONITORING MENU, ICMP STATISTICS TAB

This tab shows echo test duration statistics for the last two hours.



Click the right mouse button on the chart field to show the control menu.

- Save as save the current image to a local PC;
- Print print the current image;
- Zoom in/out configure the scale of chart axis;
- Auto Range configure the scale of chart axis automatically.

Click *Reload* button to refresh the information in the tab.



厚 Change displa	yed fiel 🗙
✓ ID	
Received at	
Device reporte	d time
Facility	
Priority	
From host	
Syslog tag	
🖌 Message	
From host IP	
	Dutit
Choose all	By default
V Accept	X Cancel

6.6.7. MONITORING MENU, SNMP STATISTICS TAB

Description ONT list Monitoring Configuration FW ONT RRD statistics Access Active alerts 😂 Reload Common Events log SNMP statistic Syslog (min=1.0ms./max=93.0ms./avr=4.575ms./count=285/err=0) **ICMP statistic** 95 SNMP statistic 90 OLT 85 Temperature 80 PPPoE session 75 PON channels Delay of snmp answers, ms. --------25 20 15 10 5 0 16:45 17:05 17:20 17:30 17:40 17:45 16:40 16:50 16:55 17:00 17:10 17:15 17:25 17:35 Time

This tab shows SNMP response delay statistics for the last two hours.

Click the right mouse button on the chart field to show the control menu.

- Save as save the current image to a local PC;
- Print print the current image;
- Zoom in/out configure the scale of chart axis;
- Auto Range configure the scale of chart axis automatically.

Click *Reload* button to refresh the information in the tab.



6.6.8. MONITORING MENU, TEMPERATURE TAB

This tab contains statistic chart of readings from temperature sensors installed inside the modules.

Temperature statistics is gathered from OLT devices, if the following conditions are met:

- device is available via SNMP protocol;
- device is not 'out of service' on the Access tab;
- automatic temperature data collection service is running: Temperature Control monitor.



Click the right mouse button on the chart field to show the control menu.

- Save as save the current image to a local PC;
- Print print the current image;
- Zoom in/out configure the scale of chart axis;



You can change the scale with the mouse wheel: scroll down to zoom in, scroll up to zoom out.

Save as.

Zoom Out

Auto Range 🕨

Print... Zoom In

- Auto Range — configure the scale of chart axis automatically.

Click Reload button to refresh the information in the tab.



6.6.9. CONFIGURATION MENU, CLI/TELNET, CLI/SSH TABS

In CLI/telnet tab the system emulates the terminal program for connection via Telnet protocol, in CLI/ssh menu — for connection via SSH protocol.

Description ONT list	Monitoring Configuration RRD statistics Access
Traps CLI/telnet	Reconnect S Logout
CLI/ssh	Trying 192.168.16.221
KETTERAKKAN I	* Optical line terminal LTE-8ST * ***********************************
	=
	▼

6.6.10. RRD STATISTICS MENU

This menu allows you to configure the collection of network interface load statistics. The data is output in graphics/tabular format.

Round-robin Database (RRD) is a database, where the amount of stored data remains constant over time. As the number of records remains constant, they are used in cycles when data saving is performed. As a rule, such databases are used for storing information that is rewritten in regular periods of time.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access									
2 🔪 🖻 🗶 🖸 0	😂 🔪 🖬 🗶 🖸 Change fields								
UserName	Start time	Step	Rrd file-path	Device	Parameter	Counter's type			
doc	13.10.2014 17:54:01	300	/rrd/doc_EMS/ltp-16.223/R amFree_1413197381609	EMS.Itp-16.223	EMS/ltp-16.223/RamFree	Gauge			
doc	13.10.2014 17:53:54	300	/rrd/doc_EMS/ltp-16.223/L oadAverage15Minutes_14 13197374609	EMS.ltp-16.223	EMS/ltp-16.223/LoadAver age15Minutes	Gauge			

For adding monitoring tasks, use Monitoring section, Common tab. Settings available for

monitoring are marked with button located to the right of the entry field. Click this button to open Add Task dialog window or go to the record with existing task.

Task editing is performed by clicking

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💡 Rrd monitoring task		x	Ì					
UserName	doc]						
Device	EM S.Itp-16.223]						
Tab name	Monitoring]						
Index value]						
Param name	EM S/ltp-16.223/RamFree							
OID	1.3.6.1.4.1.35265.1.22.1.10.2.0							
Param type	INT]						
Data type	Gauge 🗸							
Period of data getting(in seconds)	300	\mathbf{i}						
To apply generation of user events.				💡 Edit step '300	D'			
Description	event description			Every N seconds		0		
Priority	MAJOR			Every N minutes		5		
Max. value (double)	10.0			Every N hours		0		
	Accept X Cancel				V Acc	cept	X Cancel	

You can edit the following settings:

- Data type select the type of saved data: absolute or increment (difference between values);
- Period of data getting (in seconds) set the polling period in seconds. If polling values are great, you can use the additional editing menu that is available by clicking the button to the right of the entry field. There you can set the polling period in hours, minutes and seconds. For example, every 1h 30min (0 sec), every 2h (0min, 0 sec), every 2min 30sec. At that, the value entered into the field will be automatically converted to seconds;
- To apply generation of user events when checked, the following settings will become available:
 - Event description arbitrary text description;
 - Priority select the event priority from the drop-down list;
 - Max. value (double) maximum value of the monitored parameter; if exceeded, user event will be generated with the defined priority.

Data gathered by the task are shown by clicking



The chart explicitly shows time dependence of the measured parameter. You can adjust the chart type (diagram or line chart), data type (average or maximum), and displayed time period (from the



last two hours to a week) with the corresponding drop-down lists below the chart.

The table lists measured parameter values for each point of time according to the polling period.

You can save the resulting chart into a file — just select its extension and click *Save* button.

Available extensions:

- Bmp;
- Gif;
- Jpeg;
- Jpg;
- Png;
- Wbmp.

Click Reload button to refresh the information.

6.6.10.1. EVENT TABLE CONFIGURATION

Click Change Fields button to configure the set of fields for the event table.

List of displayed fields:

- User Name- record identifier;
- *Start time* record creation date;
- Step— priority of the occurred event;
- *Rrd file-path* path to statistics output file;
- Device name of the device, that statistics is gathered for;
- Parameter monitored parameter;
- Counter s type absolute or increment.



6.6.11. ACCESS MENU

This tab contains general parameters for data exchange between the device and EMS. Click *Edit* button to make them available for editing. All parameters in this tab are available for editing.



The following parameters are essential for gaining access to the device: *Read Community, Write Community.* These settings should be confirmed by the network administrator or checked against the SNMP agent configuration file.

Description ONT list Monitoring C	onfiguration FW ONT RRD statistics Access					
Reload Edit						
Description	none					
IP address	192.168.16.223					
Timeout, ms	15000					
Read community / User v3	public					
Write community / Password v3	private					
SNMP version	v2c 🖵					
SNMP port	161					
Authentication type	AUTH_NO_PRIV -					
Authentication protocol	MD5 👻					
Privacy key	password					
Encoding protocol	DES 🔻					
Traps registration	Accept					
Device response period (ICMP, SNMP), sec	15					
Out of service	Enable					
Telnet/SSH login						
Telnet/SSH password						
Use outside ACS	Enable					
Web login						
Web password						
l						

- Description arbitrary description;
- *IP address* device IP address;
- Timeout, ms timeout of data exchange with the device;



We do not recommend setting the timeout value lower than 5000ms.

- Read Community/User v3 password for read access, for SNMP v3 user login;
- Write Community/Password v3 password for write access, for SNMP v3 user password;
- SNMP version SNMP protocol version (supported versions: v2c, v3);
- SNMP port device IP port number for data exchange via SNMP;
- Authentication type authentication type, specified for SNMP v3;
- Authentication protocol authentication protocol, specified for SNMP v3:
 - *MD5* authorization with MD5 hash;
 - SHA authorization with SHA hash;
- Privacy key specified for SNMP v3, if AUTH_PRIV authentication type is set;
- *Encoding protocol* encryption protocol for SNMP v3:
 - DES symmetric encryption algorithm with 56-bit key;
 - AES symmetric block encryption algorithm with 128/192/256-bit key;
- Traps registration trap registration mode:
 - Accept system will generate traps received from devices;
 - Block system will not generate or show traps;
- Device response period (ICMP, SNMP), sec period of periodic polling via ICMP and SNMP protocols;

- Out of service when checked, automatic services (monitors) will not be able to perform
 operations with the object (availability polling, configuration upload, etc.);
- Telnet/SSH Login set the access login for Telnet/SSH protocols;
- Telnet/SSH Password set the access password for Telnet/SSH protocols;
- Use outside ACS when checked, the device will be able to use the external ACS server;
- Web login;
- Web password.

To discard or save changes made to parameters, click the corresponding buttons — *Cancel* or *Save*.

Click *Reload* button to refresh the information in the tab.

6.7.GROUP OPERATIONS FOR DEVICES IN A NODE

For devices located in a single node, you can group edit some of their parameters. To perform these operations, go to *Device List* tab for the desired node.

Active alerts ONT list Device List PON channels VolP ports RRD statistics Access											
Group operations		Type: All 🔻 All	🔽 Name:		Address:		Firmwa	are version:	Serial:		
Time synchronization		🗔 🗉 🗞 🥰 Reload	Second Seconds co	ount: 3							
Trap targets		Name	Address	Slot	Туре	Subtype	Module	Serial number	Uptime (days:hh	Firmware vers	State
Syslog targets OLT firmware update		ltp-16.223	192.168.16.223		LTP8X			GP01000107	11:14:31:13	3.20.2.3244-Elt	7 cfg. / 6 act. / 0 err. : sync. 16:38 13.1
Poll period		MA4000-PX	192.168.16.225	Unit 2	MA4000		PP4X	OL02000106	00:03:34:55	1.3.2.301 r4047	0 cfg. / 0 act. / 0 err. : Full sync.: 18:02
Out of service		New node #2	192.168.16.221		LTE	8ST		TG01001023	07:06:29:02	3.12.2.13-Eltex	6 cfg. / 2 act. / 0 err. : sync. 16:38 13.1
Add user											
Edit user											
Change user password											
SNMP-script											
The Execute	LT	E-1, LTP8X-1, MA4000-1									

In the right part of the screen there is a table with devices added to this node and their status information. In the left part of the screen there is a list of available group operations. To perform the assignment, select the desired devices from the table, select an operation from the list and click

Execute button. Dialog window, that allows the assignment of group operation parameters, will be opened; choose the desired values and click *Apply* button.

List of group operations

 Time synchronization — perform immediate device synchronization using data from the management system. Also, you can configure time server;

- Trap targets— configure IP address for sending messages via SNMP protocol (trap, inform);
- Syslog targets configure IP address for sending messages via Syslog protocol;

OLT Firmware Upgrade — create packet task to perform the firmware upgrade on the similar selected devices;

- *Poll period* — group configuration of the 'Device polling period (ICMP, SNMP)' parameter in the device access settings;

- Out of service - group configuration of the 'Out of service' parameter in the device access

🕹 ELTEX

settings;

– Use external ACS — group configuration of 'Use external ACS' checkbox in the device access settings;

- Add user group user addition into the selected OLT devices;
- Edit user group user editing in the selected OLT devices;
- Change user password group user password modification in the selected OLT devices;
- Delete user group user deletion from the selected OLT devices;
- *SNMP-script* apply SNMP-script to the selected devices.

7 PON DEVICE MANAGEMENT: LTE-8ST, LTE-8X, LTE-2X

LTE series devices are the station-side devices designed for organization of PON networks based on Turbo GEPON technology.



Hover the cursor over the tree object to see the tooltip with the information on that object:

New r	ode #2 [6/1/0] 223 [7/6/0]	INFORM IP	192.168.1
	IP address: 192.168.16.221 Uptime: 7 d 6 h 29 m 2 s hostname = LTE-85T (The name of device doesn't mat Software version: Eltex LTE software version 3.12.2 buil Sync time: 13.10.2014 16:38:39 Total number of ONT configurations: 6 Active ONT: 1 ONT in error state: 0 ACS mode: not used	h the hostname) Id 13 on 10:34:25 06	5.11.2013

- IP address;
- Uptime;
- Number of active events;
- SNMP trap settings;
- Hostname;

Y

Records representing errors, that prevent the obtaining of the 'green' synchronization status for that object, are marked in blue.

- Software version;
- last synchronization date and time;
- total number of ONT configurations on the device;
- number of active ONTs on the device;
- number of ONTs in the error state in the device;
- ACS mode.

7.1. MAIN OBJECT EDITING AND MONITORING WINDOW

Table 3 lists description of the basic control tabs:

Table 3 —	LTE contro	and r	monitori	ng menu

Menu	Description	Section
Description	Information on the physical properties of the object	6.6.1
ONT list	View and edit ONT configurations	7.2
Monitoring	Monitoring of the object parameters	7.3
Active alerts	Monitoring of active events, received from the device	6.6.2
Common	General device data (firmware version, uptime, CPU load, etc.)	6.6.3
Events log	Monitoring of events, received from the device	6.6.4
Syslog	Network log configuration for the system	6.6.5
ICMP statistics	Echo test duration statistics to the device	6.6.6
SNMP statistics	SNMP response delay statistics	6.6.7
Temperature	Statistic chart of PP4X module temperature variations	6.6.8
OLT	Online monitoring of device port status	7.3.1
PPPoE session	Information on PPPoE session parameters, running on the device	7.3.2
PON channels	Device SFP modules management and monitoring	7.3.3
Configuration	Configuration management	7.4
Traps	Trap settings configuration	7.4.1

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CLI/telnet	Terminal program emulator for connections via Telnet protocol	6.6.9
CLI/ssh	Terminal program emulator for connections via SSH protocol	6.6.9
RRD statistics	Collection of the network interface load statistics	6.6.10
Access	Information on the object hardware parameters, that are stored in the	6.6.11
	database, device SNMP access settings	

7.2.ONT LIST

This section lists information on all ONTs, registered on the device and physically connected to ONT PON channels. In summary, this table shows several types of ONT states:

- ONT is present in OLT configuration, but there is no physical connection;
- ONT is present in OLT configuration, there is a physical connection, but some parameters are not defined, 'Alarm' logical state;
- ONT is present in OLT configuration, there is a physical connection, all parameters are defined correctly, 'In operation' logical state;
- ONT is not present in OLT configuration, but there is a physical connection, 'Alarm' logical state;
- ONT is present in OLT configuration, all parameters are defined correctly, operation is blocked by the operator, 'Blocking' logical state.

Descrip	Description ONT list Monitoring Configuration RRD statistics Access																
Row filte	Row filter. ? Records count: 6																
🗖 Cha	🖸 Change fields 🖉 Reload 🔚 Select all 🗳 Export 💿 😂 🔪 📽 🦨																
OLT	OLT Slot Chan ld LED PON Serial Description CfgChan Cfgld State FwVersion FwRevis., Type Active Create Switch cou., RSSI, dbm Note Note date																
New node	#2 -	-	-		02:00:00:22:22:24		x	104	UNKNOWN	-		NTE-RG-14	n/a	2014-10	0	n/a	
New node	#2 -	-	-		02:00:2B:01:53:B1		3	2	UNKNOWN	-		NTE-RG-14	n/a	2014-10	0	n/a	
New node	#2 -	3	103	0	02:00:2B:01:53:B4		х	103	ок	-	2.60	NTE-RG-14	2014-10	2014-10	0	-21.2	
New node	#2 -	3	1	Θ	02:00:56:00:02:A5		3	1	ОК	3.14.2.22	E1.15	NTE-RG-14	2014-10	2014-10	0	-18.8	
New node	#2 -	-	-		02:22:22:22:22:23		х	102	UNKNOWN	-		NTE-RG-14	n/a	2014-10	0	n/a	
New node	#2 -	-	-		22:22:22:22:22:43	svj test	х	101	UNKNOWN	-		NTE-RG-14	n/a	2014-10	0	n/a	

Click **Click** (*Reload*) button to refresh the information in the tab.

To refresh the information only for particular ONTs, select the desired records in the table and

click 🔛 button — microsynchronization will be performed.

7.2.1. RECORD FILTERING

Filtering by channel number

To apply filter to the particular PON tree, select the PON channel number (chan0..7), where the ONT configuration is set up, from the drop-down menu next to the filter entry field. By default, the search is performed through all the trees.

Types of filters

Key field occurrence filter.

Search for the occurrence in the beginning, the midpoint and the end of the data of OLT, PON Serial, Description, FwVersion, and Type fields.

```
Examples: ELTX or 02:00:16 or NTE-2 or 3.16.2
```

Some fields are provided with adjustments that allow you to narrow the search:

– chan=

- id=

– config= Examples: config=x.115

Logical filters for the device network status:

- online all connected;
- offline all disconnected;
- error all connected, but not in OK state.

Note. The filter input is not case-sensitive.

Joining filters

You can use multiple filters simultaneously by space-separating them.

Example:

NTE-RG-1402F online — all connected NTE-RG-1402F.

Special filters

Click the right mouse button on the **search** field to show the special filters.

In fact, special filters work in the same way, and they just help you to enter key words and values correctly.

tion RRD	statistics /	Access]						
	Filter by:		Records count: 6						
Export 😳	😂 🗌 PON-a	ctivity 🕨		Not active	e more than	hours			
Serial	Description	CfgCha		Not active	e more than	days	on	FwRevis.	
00:22:22:24		x		Not active	e more than	months			
2B:01:53:B1		3	Active within last hours						
2B:01:53:B4		х	Ļ	Active wi	thin last day	s		2.60	
56:00:02:A5		3		Active wi	thin last moi	nths		E1.15	
22:22:22:23		x	L		onknown	-			
22:22:22:43	svj test	x		101	UNKNOWN	-			
	h								

Row filter:							-	▼ ? R	ecords count: 6
🗖 Change	fields	🕃 Reloa	nd 📧 S	Select al	I 🗳 Export 😳	Q \ <	-		
OLT	Slot	Chan	ld	LED	PON Serial	Description	CfgChan1	fgld	State
lew node #2	-	-	-		02:00:00:22:22:24		CfgChan2 CfgChan3	4	UNKNOWN
lew node #2	-	-	-		02:00:2B:01:53:B1		CfgChan4		UNKNOWN
lew node #2	-	3	103	0	02:00:2B:01:53:B4		CfgChan5 CfgChan6	– 3	ок
lew node #2	-	3	1	Θ	02:00:56:00:02:A5		3	1	ОК
lew node #2	-	-	-		02:22:22:22:22:23		х	102	UNKNOWN
lew node #2	-	-	-		22:22:22:22:22:43	svj test	х	101	UNKNOWN

7.2.2. ONT LIST APPEARANCE CONFIGURATION

Click *Change Fields* button to configure the set of the table fields.

List of displayed fields:

- OLT device name;
- Slot MA4000-PX rack slot number, where the module is installed (for MA4000);
- *Chan* channel number;
- ID ONT identifier;
- LED ONT activity indicator:
 - Green OK state normal operation;
 - Red UNACTIVATED state missing or bad configuration;
 - Grey device is configured, but not connected;
 - Purple device is blocked by the operator;
- PON serial ONT serial number in 02:00:xx:xx:xx format;
- Description text description;
- *Cfgid* identifier of the subscriber-side device in the tree in CPE configuration of the station-side device (for ONTs tethered to the tree, in the range from 1 to 99; for ONTs not tethered to the tree (CfgChan =x) in the range from 100 to 4294967295;
- CfgChan number of the tree, that has subscriber-side device tethered to it in CPE configuration of the station-side device (from 0 to 7); for ONTs not tethered to the tree — CfgChan =x;
- State ONT state;
- FwVersion ONT firmware version;
- FwRevision ONT PON chip version;
- *Type* ONT model;
- Active operation status (activity);
- Create date of ONT creation on the server;
- Switch counter ONT state transition counter (increases in reconfiguration, for example);
- RSSI, dbm power level of the received signal in dbm.

Click Choose All button to select all list fields that you want to add.

Click *Remove Old* button to remove records that are more than one month old.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.



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02:00:28:01:53:B4

Configuration

Statistics
Commands

General ONT state

▶ est

7.2.3. CONFIGURING CONNECTED ONTS

Click the right mouse button on the active ONT row to show the device control menu:

General ONT state:



Click the middle mouse button (scroll wheel) on the selected active ONT record to show ONT state window.

💡 ONT state <02:00:56:00:0)2:A5>		x
Device type	NTE-RG-1402G-W:rev.B		
Channel	3		
ld	1		
State	ОК		?
FirmwareRevision	E1.15		
RSSI, dbm	-18,9		
Firmware version	3.14.2.22		
Serial number	TG1B000190		
Hardware Revision	2v7		
Number of MAC-addresses	8		
Base MAC	A8:F9:4B:03:AC:19		
EPON MAC	02:00:56:00:02:A5		
Management IP			
Date of issuance IP	N/a		
Date of PON activity	13.10.2014 16:38:39		
Date of ONT detection	13.10.2014 16:36:13		
Connections counter	0		
	🛛 🎇 Clo	ose	

- Device type device model;
- Channel PON channel number, where the device is listed in configuration
 - Disabled device is not tethered to PON tree;
- ID identifier of the device in the tree; for ONTs not tethered to the PON tree, identifier is assigned in the range from 100 to 9999, for tethered ONTs in the range from 1 to 99;
- State ONT status:

Description of ONT States

ONT State	Description
ALLOCATED	resource allocated
AUTH_FAILED	authorization failed
AUTH_IN_PROGRESS	authorization in progress
AUTH_OK	authentication successfully completed
BLOCKED	blocked
CFG_FAILED	configuration failed to apply
CFG_IN_PROGRESS	configuration application in progress
DISCOVERED	resource not found
FREE	free state (not used)
ОК	normal operation state
REPORT_TIMEOUT	exchange timeout
RESET_IN_PROGRESS	reset in progress
RESET_OK	reset successfully completed
UNAVAILABLE	not used

- Firmware Revision — device firmware revision;

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- RSSI, dbm power level of the received signal in dbm;
- Firmware Version device firmware version Negative values indicate that the version information is not available;
- Serial number device serial number;
- Hardware Revision version of the device board;
- Number of MAC-addresses available MAC address quantity;
- Basy MAC basic MAC address of the device;
- EPON MAC PON MAC address of the device;
- Management IP device IP address in the master network;
- Date of issuance IP lease date of IP address in the master network;
- Date of PON activity last known PON activity date (automatic monitor is running);
- Date of ONT detection last known ONT discovery date (automatic monitor is running);
- Connections counter.

Operation statistics:

- PON port statistics optical port traffic counters:
 - *ReceiveBroadcastFrames* quantity of broadcast frames received;
 - *ReceiveBytes* quantity of bytes received;
 - ReceiveCRCErrors quantity of frames with CRC errors received;



- ReceiveDroppedBytes quantity of bytes received and dropped afterwards;
- ReceiveDroppedFrames quantity of frames received and dropped afterwards;
- ReceiveFCSErrors quantity of frame check sequence (FCS) errors received;
- ReceiveFrames general quantity of frames received;
- ReceiveLine CodeErrors quantity of linear code errors received;
- RecieveMulticastFrames quantity of multicast frames received;
- RecieveUndersizeFrames quantity of undersized frames received;
- RecieveUnicastFrames quantity of unicast frames received;
- TransmitBroadcastFrames quantity of broadcast frames sent;
- TransmitBytes quantity of bytes sent;
- TransmitDroppedBytes quantity of bytes sent and dropped afterwards;
- TransmitDroppedFrames quantity of frames sent and dropped afterwards;
- TransmitFrames quantity of frames sent;
- TransmitMulticastFrames quantity of multicast frames sent;
- TransmitUnicastFrames quantity of unicast frames sent.
- UNIO port statistics ETH0 traffic counters:
 - *ReceiveAlignmentErrors* quantity of synchronization errors received;
 - ReceiveBroadcastFrames quantity of broadcast frames received;
 - *ReceiveBytes* quantity of bytes received;
 - ReceiveCRCErrors quantity of CRC errors received;
 - ReceiveFrames quantity of frames received;
 - ReceiveLengthErrors quantity of runt packets received;
 - RecieveMulticastFrames quantity of multicast frames received;
 - RecieveOversizeFrames quantity of oversized frames received;
 - RecieveUndersizeFrames quantity of undersized frames received;
 - RecieveUnicastFrames quantity of unicast frames received;



- TransmitBroadcastFrames quantity of broadcast frames sent;
- TransmitBytes quantity of bytes sent;
- TransmitDroppedBytes quantity of bytes sent and dropped afterwards;
- TransmitDroppedFrames quantity of frames sent and dropped afterwards;
- TransmitFrames quantity of frames sent;
- TransmitMulticastFrames quantity of multicast frames sent;
- *TransmitUnicastFrames* quantity of unicast frames sent.
- UNIO port state device ETHO physical port state:
 - Link connection state;
 - Speed connection speed;
 - Enabled status (enabled/disabled);
 - *Duplex* duplex mode;
 - FlowControl flow control status;
 - Autonegotiate status of autonegotiation (mode, that supports auto crossover feature; it performs automatic TP port switching between MDI and MDI-X destinations to enable the correct connection regardless of port destination for device connection);
- MAC address table for UNIO table of active MAC addresses on ETHO interface;
- IGMP table table of active multicast groups on the device;
- Switch counter reset reset switch counter, 'Switch counter' table field is stored in the database;
- Go to event log proceed to event monitoring for that ONT.

Commands:

ONT reconfiguration — perform reconfiguration command for the current ONT (available
 button in the edit field).

by clicking 🖾 button in the edit field);

Upgrade PON chip firmware in NTE — perform Upgrade PON firmware command on the current ONT;

 Upgrade NTE-RG software (Linux) — perform manual software update on the router unit of the current ONT.

ONT Reconfiguration Update NTE PON-chip firmware Update RG firmware (Linux)

Operations with configuration:

- Add create configuration for the current ONT;
- Delete delete configuration for the current ONT;
- Edit edit current configuration;
- *Replace ONT* change the serial number for the current ONT.

		RRD	stat	istic	S	Acce	ess					
						-		-	?	Records	count: 6	
е	ort	0	٢	>	C	Ľ	2	2				

Also, you can add, delete and edit configuration and replace ONT serial number by clicking the corresponding buttons in the edit field.

🕹 eltex

ONT configuration contains the following parameters:

💡 Add new configuratio	n 🔀
MAC *	
Description	
PON channel (CfgChan)*	disabled 💌
ld	105
Туре *	NTE-UNKNOWN
Profile Rules	0.Default profile
Profile IpMulticast	0.Default profile
Profile Shaper	0.Default profile
Profile Ports	0.Default profile
Profile Path	0.Default profile
UNIOVID	0
UNI1VID	0
Block	NotBlocked 💌
Block UNI0	NotBlocked 💌
Block UNI1	NotBlocked 💌
Activity monit	oring
Firmware version	-
Management IP	-
Date of issuance IP	-
Date of PON activity	-
Date of ONT detection	-
Password	1234
	V Accept X Cancel

- MAC device MAC address;
- Description arbitrary text description for the object;
- PON channel (CfgChan) number of PON tree the device is tethered to:
 Disabled device is not tethered to PON tree;
- ID identifier of the device in the tree; for ONTs not tethered to the PON tree, identifier is assigned in the range from 100 to 9999, for tethered ONTs in the range from 1 to 99;
- *Type* subscriber-side device model Select values from a drop-down list;
- Profile Rules select rule configuration profile;
- Profile IpMulticast select IGMP configuration profile;
- Profile Shaper select bandwidth shaper profile;
- Profile Ports— select profile for configuring the physical parameters of ports;
- Profile Path select channel routing profile;
- UNIOVID VLAN identifier for UNIO interface;
- UNI1VID VLAN identifier for UNI1 interface;
- Block device operation blocking:
 - Blocked device is blocked;
 - NotBlocked device is operational;
- Block UNIO, UNI1 device port operation blocking;

Activity monitoring:

- Firmware Version device firmware version Negative values indicate that the version information is not available;
- Management IP device IP address in the master network;
- Date of issuance IP lease date of IP address in the master network;
- Date of PON activity last known PON activity date (automatic monitor is running);
- Date of ONT detection last known ONT discovery date (automatic monitor is running);
- Password.

Edit ACS parameters — open window to edit CPE private parameters on ACS server.

For detailed parameter description, see Eltex.ACS.GUI Operation Manual.

Go to ACS — go to ACS object with highlighted CPE in the general list.



ACS server deals with CPE router unit configuration.

For detailed description on operations with ACS object, see Eltex.ACS.GUI Operation Manual.

Click Apply button to save changes made to configuration, or click Cancel to discard them.

7.3.MONITORING

7.3.1. OLT

In this tab you can perform online monitoring of the device port state.

For LTE-8X:



For LTE-8ST:

Description ONT list	lonitoring	Configuration	RRD statistics	Access										
Active alerts	Ca Reload	1												
Common	Weitran	·												
Events log														
Syslog														
ICMP statistic		🐨 Fan 0						🐨 Fan 1						
SNMP statistic		•						•						
Temperature						 Optical Lin 	e Termin	al GEPON LTE-85	т					
OLT		Іг	Comb	o Ports										
PPPoE session				9	9									
PON channels			9 11	9	11	Ch0			-Ch3-	—Ch4 —	-Ch5-	Ch6	-Ch7-	
THE PERSON AND A P														
		Mpg	8 10	8	10	PON	PON	PON	PON	PON	PON	PON	PON	
		ining												

Areas of monitoring

- Fan, rpm fan state and rotation speed data in revolutions per minute (rpm)
- Optical Line Terminal state of the device ports

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Fan state indication:

- operating

- shut down by administrator or in alarm state

Ports indication:

 Image: Control

 Image: Contro

 <

- current interface state, UP — in operation

- current interface state, DOWN - port is not active/not connected

— current interface state is unknown — port is not active/not connected or was shut down by the network administrator

Port status buttons are the active elements. Click them to edit the selected port on *Uplink statistics* tab.

Click *Reload* button to refresh the information in the tab.

7.3.1.1. UPLINK PORTS STATISTICS

The statistics for the current device port will be shown in the pop-up window.

🦻 Port statistic. Type = copper			x
Network interface	Uplink 10		
Mode	1G		?
Interface administrative state	Up 🔻 ?		
Current interface state	Up		
Incoming data, bytes	15988663103		
Outgoing data, bytes	60475867		
Incoming packages 'Broadcast'	15771		
Outgoing 'Broadcast' packages	42311		
Incoming 'Multicast' packages	11681801		
Outgoing 'Multicast' packages	956		
Incoming 'Unicast' packages	136161 🔀		
Outgoing 'Unicast' packages	127379 🔀		
Incoming packages with errors	0		
Outgoing packages with errors	0		
✓ A	ccept 🛛 💥 Cancel 🖬 Online stati	stic 🥰 Update	

- Network interface name of the interface;
- Mode interface operation speed in bit/s;
- Interface administrative state port control administrative status:
 - Up port is physically enabled for operation;
 - Down port is physically disabled for operation;



Before changing administrative state of the UPLINK port, make sure that this port is not used for device management, as it may lead to LOSS OF CONNECTION to the device.

- Current interface state port operation status (Up enabled for operation, Down disabled for operation);
- Incoming data, bytes amount of data received to the interface, in bytes;
- Outgoing data, bytes amount of data sent via the interface, in bytes;
- Incoming Broadcast packages amount of broadcast packets received to the interface;

- Outgoing Broadcast packages amount of broadcast packets sent from the interface;
- Incoming Multicast packages amount of multicast packets received to the interface;
- Outgoing Multicast packages amount of multicast packets sent from the interface.
- Incoming Unicast packages amount of unicast packets received to the interface;
- Outgoing Unicast packages amount of unicast packets sent via the interface;
- Incoming packages with errors amount of received packets with errors;
- Outgoing packages with errors amount of sent packets with errors.

Click Accept button to save entered parameters, or click Cancel to discard them.

Click button to proceed to *RRD Statistics* tab, to add new parameter monitoring task or to view the statistics for the previously assigned task (for detailed information, see chapter **6.6.10 RRD Statistics menu**).

Click *Reload* button to refresh the information in the tab.

7.3.1.2. PON PORTS STATISTICS

For LTE-8X:

The monitoring of device SFP modules is performed in the pop-up window.

Channel 6	x
Channel	6
Link	up
ONT count	16
Enable	on
SFP vendor	Ligent
SFP product	LTE3680M-BC
SFP revision	
TX power, dBm	
SFP temperature, °C	2
SFP voltage, V	
SFP current, mA	
Close 4	OFF 🖉 Reconfiguration



For LTE-8ST:

- Channel PON channel number;
- State operation state of SFP module;
- ONT quantity quantity of connected ONTs;
- Enable PON channel activity (on/off);
- SFP vendor;
- SFP product;
- SFP revision;
- Laser power output, dBm;
- SFP temperature, °C;
- SFP voltage, V;
- SFP bias current, mA.

Click OFF

button to enable or disable the channel for the operation.

Click *Reconfiguration* button to reconfigure the selected PON channel.



Reconfiguration will lead to the loss of connection with all subscribers on the reconfigured PON channel.

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7.3.1.3. MNG PORT STATISTICS FOR LTE-8ST

The monitoring of the control port address is performed in the pop-up window.

厚 Information		x
IP address:		
	✓ Close	

7.3.2. PPPOE SESSIONS

This section contains data on current active PPPoE sessions. The information is read-only.

Click Update button to refresh the information in the tab.

Description ONT list	Description ONT list Monitoring Configuration RRD statistics Access										
Active alerts	Change fields All	channels 🚽 😂	Update								
Common				1	1						
Events log	Client MAC	Link MAC	ONT MAC	ONT port	Channel	Server MAC	Session ID				
Syslog	A8:F9:4B:03:AC:1D	02:00:56:00:02:A5	02:00:56:00:02:A5	UNIO	3	1C:AF:F7:0E:1C:17	59				
ICMP statistic											
SNMP statistic											
Temperature											
OLT											
PPPoE session											
PON channels											
AUGUTANANANA IN											

Use drop-down menu to specify PON tree, which PPPoE sessions you want to view, or to show the statistics for all device trees.

The table lists the following information:

- Client MAC device address of the user that established the session;
- Link MAC for each UNI port, there are four virtual links with individual MAC addresses;
- ONT MAC— address of the subscriber-side device, that has established PPPoE session;
- ONT port UNI port of the subscriber-side device;
- Channel— PON channel, which includes the subscriber-side device, that has established PPPoE session;
- Server MAC MAC address of the upstream server processing PPPoE connections;
- Session ID assigned PPPoE session number.

Click Change Fields button to configure the set of fields for the event table.

Click Choose All button to select all list fields that you want to add.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.



7.3.3. PON CHANNELS

Use this tab to control and monitor SFP modules of the device.

Description ONT list Monitoring Configuration RRD statistics Access									
Active alerts	Seload & Reconfiguration On/Off C Change fields								
Events log	Channel	SFP vendor	SFP product	Enable					
Syslog	0			on					
ICMP statistic	1			on					
Temperature	2			on					
OLT	3	Ligent Photonic	LTE4303M-BC	on					
PPPoE session	- 4			on					
PON channels	5	Ligent Photonic	LTE4303M-BC	on					
ATTETANANANA IN IN	6			off					
	7			off					

Click OFF button to enable or disable the channel for the operation. Its status in *Enabled* column will change.

Click *Reconfiguration* button to reconfigure the selected PON channel.



Reconfiguration will lead to the loss of connection with all subscribers on the reconfigured PON channel.

Click Reload button to refresh the information in the tab.

7.4.CONFIGURATION

7.4.1. TRAPS

This tab shows information on SNMP server IP address configuration for sending SNMP traps.

Description ONT list M	Ionitoring Config	guration RRD statistics Access						
Traps CLI/telnet	Seload 🔪	Reload Lefit						
CLI/ssh	TRAP v1 IP	192.168.16.230						
X	TRAP v2 IP							
	INFORM IP	192.168.16.43						

- Traps v1 IP IP address for sending SNMPv1 traps
- Traps v2 IP IP address for sending SNMPv2 traps
- INFORM IP IP address for sending Inform traps

Click *Edit* button to enable the editing of fields.

Click Save button to save entered parameters, or click Cancel to discard them.

Click *Reload* button to refresh the information in the tab.



If you change trap address, SNMP agent on OLT device will be rebooted; the reboot may take a long time to complete (up to 30–40 seconds); connection between OLT and EMS will not be available at that time.

8 PON LTP-8X DEVICE MANAGEMENT

LTP series devices are the station-side devices designed for organization of PON networks based on GPON technology.



Hover the cursor over the tree object to see the tooltip with the information on that object:

🖵 🚟 🖁 Itp-16.	223 [7/6/0] Poll period MA4000-PA
	IP address: 192.168.16.223
	Uptime: 11 d 14 h 31 m 13 s
	Active events: 2, from them CRITICAL: 1
	hostname = LTP-8X (The name of device doesn't math the hostname)
	Software version: Eltex LTP-8X software version 3.20.2 build 3244 on 12.09.2014 12:46
	Sync time: 13.10.2014 16:38:40
	Total number of ONT configurations: 7
	Active ONT: 6
	ONT in error state: 0
	ACS mode: not used
1	

- IP address;
- Uptime;
- Number of active events;
- SNMP trap settings;
- Hostname;

Records representing ERRORS, that prevent the obtaining of the 'green' synchronization status for that object, are marked in blue.

- Software version;
- last synchronization date and time;
- general number of ONT configurations on the device;
- number of active ONTs on the device;
- number of ONTs in the error state in the device;
- ACS mode.

8.1. MAIN OBJECT EDITING AND MONITORING WINDOW

Table 4 lists description of the basic control tabs:

Menu	Description					
Description	Information on the physical properties of the object	6.6.1				
ONT list	View and edit ONT configurations	8.2				
Monitoring	Monitoring of parameters	8.3				
Active alerts	Monitoring of active events, received from the device	6.6.2				
Common	General device data (firmware version, uptime, CPU load, etc.)	6.6.3				
Events log	Monitoring of events, received from the device	6.6.4				
Syslog	Network log configuration for the system	6.6.5				
ICMP Statistics	Echo test duration statistics to the device	6.6.6				
SNMP statistics	SNMP response delay statistics	6.6.7				
Temperature	Statistic chart of PP4X module temperature variations	6.6.8				
OLT	Online monitoring of device port status	8.3.1				
PPPoE sessions	Information on PPPoE session parameters, running on the device	8.3.2				
PON channels	Device SFP modules management and monitoring	8.3.3				
Configuration	Configuration management	8.4				
Traps	Trap settings configuration	8.4.1				
VLAN	VLAN settings	8.4.2				

Table 4 — LTP control and monitoring menu



Sync Time	device time synchronization	8.4.3		
NTP	NTP server configuration	8.4.4		
IGMP	IGMP snooping feature management			
Syslog	network system log configuration	8.4.6		
Users	View and edit user rights for configuration	8.4.7		
Profiles	View and edit profiles on device	8.4.8		
Log	Configure the output for debug messages	8.4.9		
ONT Discovery	Configure automatic discovery of new ONTs in PON channels	8.4.10		
Terminal VLANs	VLAN identification configuration	8.4.11		
CLI/telnet	Terminal program emulator for connections via Telnet protocol	6.6.9		
CLI/ssh	Terminal program emulator for connections via SSH protocol	6.6.9		
FW ONT	ONT firmware update configuration	8.5		
ONT firmware files	Active firmware files for subscriber-side devices	8.5.1		
ACS scheduler	Settings for firmware update via ACS server	8.5.2		
ACS scheduleв time	Schedule for firmware update via ACS server	8.5.3		
External firmware server	Configure external HTTP server address with the software for subscriber-side devices	8.5.4		
RRD statistics	Collection of the network interface load statistics	6.6.10		
Access	Information on the object hardware parameters, that are stored in the database, device SNMP access settings	6.6.11		

8.2.ONT LIST

For detailed tab description, see chapter 7.2 ONT list.

8.3.MONITORING

8.3.1. OLT

In this tab you can perform online monitoring of the device Uplink port state.

Description ONT list Mor	itoring Configuration	FW ONT RRD sta	atistics Access								
Active alerts Common Events log	Seload										
Syslog ICMP statistic SNMP statistic		😚 Fan O		7620	rpm	😚 Fan 1				7620 rpm	
OLT		GE port-	C	— Optical Line	e Termi	nal GPON LTP-8X-		PON	port		
PPPoE session		•		•			0	9			
PON channels			4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4	6 0 7	0	0 📔 1	2	4 9 5	6 0 7	

Areas of monitoring

- Fan, rpm fan state and rotation speed data in revolutions per minute (rpm);
- Optical Line Terminal state of the device ports.

Fan state indication:

- operating;

- shut down by administrator or in alarm state.



Ports indication:

Θ

– current interface state, UP — in operation;

- current interface state, DOWN - port is not active/not connected;

— current interface state is unknown — port is not active/not connected or was shut down by the network administrator.

Port status buttons are the active elements. Click them to edit the selected port on *Uplink statistics* tab.

Click *Reload* button to refresh the information in the tab.

8.3.1.1. UPLINK PORTS STATISTICS

The statistics for the current device port will be shown in the pop-up window.

Network interface	Uplink 0					
Mode	00M					
Interface administrative state	Up 🔻 ?					
Current interface state	Up					
Incoming data, bytes	5025150	X				
Outgoing data, bytes	1111673	X				
Incoming packages 'Broadcast'	53909					
Outgoing 'Broadcast' packages	0					
Incoming 'Multicast' packages	1265	×				
Outgoing 'Multicast' packages	0	×				
Incoming 'Unicast' packages	8456	2				
Outgoing 'Unicast' packages	8785	×				
Incoming packages with errors	0	×				
Outgoing packages with errors	0	×				

- *Network interface* name of the interface;
- Mode interface operation speed in bit/s;
- Interface administrative state port control administrative status:
 - Up port is physically enabled for operation;
 - *Down* port is physically disabled for operation;



Before changing administrative state of the UPLINK port, make sure that this port is not used for device management, as it may lead to LOSS OF CONNECTION to the device.

- Current interface state port operation status (Up enabled for operation, Down disabled for operation);
- Incoming data, bytes amount of data received to the interface, in bytes;
- Outgoing data, bytes amount of data sent via the interface, in bytes;
- Incoming Broadcast packages amount of broadcast packets received to the interface;
- Outgoing Broadcast packages amount of broadcast packets sent from the interface;
- Incoming Multicast packages amount of multicast packets received to the interface;
- Outgoing Multicast packages amount of multicast packets sent from the interface.
- Incoming Unicast packages amount of unicast packets received to the interface;
- Outgoing Unicast packages amount of unicast packets sent via the interface;
- Incoming packages with errors amount of received packets with errors;

- Outgoing packages with errors — amount of sent packets with errors.

Administrative interface state field is available for editing.

Click *Accept* button to save entered parameters, or click *Cancel* to discard them.

Click button to proceed to *RRD Statistics* tab, to add new parameter monitoring task or to view the statistics for the previously assigned task (for detailed information, see chapter **6.6.10 RRD Statistics menu**).

Click Reload button to refresh the information in the tab.

8.3.1.2. PON PORTS STATISTICS

The monitoring of device SFP modules is performed in the pop-up window.

Channel 0	x
Channel	0
Link	up
ONT count	6
Enable	on
SFP vendor	NEOPHOTONIC S
SFP product	PTB38J0-6538E-SC
SFP revision	1.0
TX power, dBm	3.802
SFP temperature, °C	49
SFP voltage, V	3.2733
SFP current, mA	13.2
🔀 Close 🥥	OFF

- Channel PON channel number;
- Link— operation state of SFP module;
- ONT count quantity of connected ONTs;
- Enable PON channel activity (on/off);
- SFP vendor;
- SFP product;
- SFP revision;
- TX power, dBm;
- SFP temperature, °C;
- SFP voltage, V;
- SFP current, mA.

Click Use of the channel for the operation.

Click *Reconfiguration* button to reconfigure the selected PON channel.



Reconfiguration will lead to the loss of connection with all subscribers on the reconfigured PON channel.

8.3.2. PPPOE SESSIONS

This section contains data on current active PPPoE sessions. The information is read-only.

Click Reload button to refresh the information in the tab.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access								
Active alerts	Change fields All channels 🔍 🖉 Reload							
Common	C Chunge helds		· Weiouu					
Events log	PON serial	Client MAC	Session ID	ONT ID	Channel	Duration	Block	
Syslog	ELTX1A002E79	A8:F9:4B:5C:8C:3F	0x0011	1	0	04:48:03	not blocked	
ICMP statistic	ELTX1A001782	A8:F9:4B:5B:D4:87	0x0013	2	0	04:48:06	not blocked	
SNMP statistic		A9-E0-4P-40-00-06	0x0024	2	0	04:54:04	not blockod	
OLI	ELIX0800000	A0.F9.40.40.00.00	0X0024	3	0	04.04.04	HOLDIOCKEU	
Temperature	ELTX0F0000E5	A8:F9:4B:49:A4:4E	0x002D	7	0	00:03:00	not blocked	
PPPoE session	ELTX1D000001	A8:F9:4B:58:DC:6E	0x0040	23	0	05:51:39	not blocked	
PON channels		1			1			
	-							

Use drop-down menu to specify PON tree, which PPPoE sessions you want to view, or to show the statistics for all device trees.

The table lists the following information:

- PON serial PON serial number;
- *Client MAC* device address of the user that established the session;
- Session ID assigned PPPoE session number;
- ONT ID identifier of the subscriber-side device, that has established PPPoE session;
- Channel PON channel, which includes the subscriber-side device, that has established PPPoE session;
- Duration PPPoE session duration;
- Block subscriber-side device block status.

Click *Change Fields* button to configure the set of fields for the event table.

Click Choose All button to select all list fields, that you want to add.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

🦉 Change displa	yed fiel X				
PON serial					
Client MAC					
Session ID					
ONT ID					
✓ Channel					
Duration					
Block					
Choose all	By default				
V Accept	X Cancel				

8.3.3. **PON CHANNELS**

Use this tab to control and monitor SFP modules of the device.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access											
Active alerts	C Deland & Description On Off C Change Felde										
Common	W Reioau	Z Recomi	jurauon 🔍		lange neius						
Events log	Channel	State	ONT count	SFP vendor	SFP product	SFP revision	TX power,	SFP tempe	SFP voltag	SFP curre	Enable
Syslog	0	Ok	6	NEOPHOT	PTB38J0-6	1.0	3.802	48	3.2744	13.04	on
ICMP statistic	1	Ok	0				N/a	N/a	N/a	N/a	on
SNMP statistic	-		<u> </u>								
OLT	2	Ok	0				N/a	N/a	N/a	N/a	on
Temperature	3	Disabled	0				N/a	N/a	N/a	N/a	off
PPPoE session	4	Disabled	0				N/a	N/a	N/a	N/a	off
PON channels	-		-								
	5	ОК	0				N/a	N/a	N/a	N/a	on
	6	Disabled	0				N/a	N/a	N/a	N/a	off
	7	Ok	0				N/a	N/a	N/a	N/a	on



button to enable or disable the channel for the operation. Its status in Enabled Click column will change.

Click *Reconfiguration* button to reconfigure the selected PON channel¹.



Reconfiguration will lead to the loss of connection with all subscribers on the reconfigured PON channel.

Click *Reload* button to refresh the information in the tab.

8.4.CONFIGURATION

8.4.1. TRAPS

This tab shows information on configuration of SNMP traps.

Description ONT list Mor	oring Configuration FW ONT RRD sta	istics Access
Traps		
VLAN	Edit	
Sync Time	TRAP v1 IP 192.168.16.230	
NTP	100 400 40 400	
IGMP	184P V2 IP 192.108.10.102	
Syslog	NFORM IP 192.168.16.43	
Users		
Profilies		
Log		
ONT Discovery		
Terminal VLANs		
CLI/telnet		
CLI/ssh		

- Traps v1 iP IP address for sending SNMPv1 traps;
- Traps v2 IP IP address for sending SNMPv2 traps;
- INFORM IP IP address for sending Inform traps.

Click *Edit* button to enable the editing of fields.

¹ The current firmware version doesn't support this function.

Click Save button to save entered parameters, or click Cancel to discard them.

Click *Reload* button to refresh the information in the tab.

8.4.2. VLAN

Description ONT list Monitoring Configuration FW ONT RRD statistics Access					
Traps VLAN	• • • •	Current VLAN: 1			
Sync Time					
NIP	1 Name VLAN		VLAN		
IGMP	30	front-port 0	Untagged		
Sysiog	1100	line porto			
Users	1101	front-port 1	Untagged		
Profilies	1102	front-port 2	Untagged 👻		
Log	1212	front next 2	Listanged		
ONT Discovery		Iront-port 5			
Terminal VLANs		front-port 4	Untagged 👻		
CLI/telnet		front-port 5	Untagged		
CLI/ssh		lineporto			
Harrison A		front-port 6	Untagged		
- 11111111		front-port 7	Untagged -		
		10G front-port 0	Untagged -		
		10G front-port 1	Untagged -		
		pon-port 0	Untagged -		
		pon-port 1	Untagged -		
		IGMP Snooping	off 💌		
		IGMP Snooping Querier	off 💌		

To add a new VID, click is button, specify VLAN group name and tagging rules for each port of the device:

- Tagged all packets sent through ports will be tagged;
 - Untagged all packets sent through ports will not be tagged;
 - Not member this port is not a part of the group.



For LTP-8X boards v1.x, pon-port 0, pon-port 1 are available for configuration. For LTP-8X boards v2.x, pon-port 0..7 are available for configuration.

To edit record parameters, select the desired VID from the list and click button, or click

٢

button to delete them.

Click Accept button to save entered parameters, or click Cancel to discard them.

Click (*Re-read VLAN list*) button to update the list of configured VLANs, or click (*Refresh VLAN parameters*) button to refresh parameters for the current VLAN.

HAID

8.4.3. SYNC TIME

Description ONT list Monitoring Configuration FW ONT RRD statistics Access			
Traps			
VLAN	S Reload		
Sync Time			
NTP	Device UTC time 14.10.2014 09:22:54		
IGMP	Device local time 2014-10-14 17:22:54		
Syslog	Device time zone 7		
Users			
Profilies	EMS server UTC time 14.10.2014 09:26:43		
Log	EMS server local time 14.10.2014 16:26:43		
ONT Discovery	EWS server timezone 7		
Terminal VLANs			
CLI/telnet	Time difference (minutes)3		
CLI/ssh	Syncronize		
Reserve	Set TimeZone		
	Set INITEZONE		

System time data

- Device UTC time device time in UTC format;
- Device local time device local time with UTC time offset;
- Device time zone timezone in reference to UTC;
- EMS server UTC time server time in UTC format;
- EMS server local time server local time with UTC time offset;
- EMS server time zone timezone in reference to UTC;
- Time difference (minutes) difference in time on the device and EMS server;
- Synchronize click to synchronize the system time on the device with EMS server;



If NTP service is enabled on the device, manual synchronization will not be performed

- Set TimeZone — set timezone in reference to UTC.

Click *Reload* button to refresh the information in the tab.

8.4.4. NTP¹

Use this tab to configure NTP server that performs device time synchronization.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access			
Traps			
VLAN	Edit Zeload		
Sync Time	Fnabled	on 👻	
NTP			
IGMP	Poll Period	0	
Syslog	Daylight Saving	on 💌	
Users	Timezone	7	
Profilies	Timezone		
Log	NTP Server	192.168.16.102	
ONT Discovery			
Terminal VLANs			
CLI/telnet			
CLI/ssh			

- Enabled — enable/disable NTP;

¹ Only for LTP 3.x

🕹 eltex

- Poll Period time interval between NTP server polling attempts in minutes;
- Daylight indicate whether it should be switched to daylight-saving time;
- *Timezone* set timezone in reference to UTC.
- NTP Server address of time server, that will be used for device time and date synchronization.

Click *Save* button to save changes, or click *Cancel* button to exit from the edit mode without saving.

Click Reload button to refresh the information in the tab.

8.4.5. IGMP

Use this tab to manage IGMP-snooping feature — enable or disable listening to requests of multicast groups.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access				
Traps VLAN	Edit 2 Reload			
Sync Time NTP	IGMP Snooping off			
IGMP				
Syslog				
Users				
Profilies				
Log				
ONT Discovery				
Terminal VLANs				
CLI/telnet				
CLI/ssh				

Click *Reload* button to refresh the information in the tab.

8.4.6. SYSLOG¹

Use this tab to configure the logging level and the address used for sending SYSLOG messages to the external SYSLOG server.

Description ONT list Monitoring Configuration FW ONT RRD statistics Access			
Traps VLAN	Edit 2 Reload		
Sync Time	Enabled	on 👻	
NTP	Curles serves	102 450 45 42	
IGMP	Syslog server	192.100.10.43	
Syslog	Log file size	16384	
Users	Destina	ations	
Profilies	Desure		
Log	System	debug 👻	
ONT Discovery	Console	debug 🗸	
Terminal VLANs	Pomoto cholle	debug -	
CLI/telnet	Nemote sheits		
CLI/ssh	File	debug 👻	

- Enabled enables syslog message transmission to all recipients;
- Syslog server define the IP address of the remote host for log file saving;

¹ Only for LTP 3.x.x



- Log file size maximum size limit for a log file;
- Destinations configure the message level to perform output to different locations:
 - System system log output;
 - Console system console output;
 - Remote shells Telnet or CLI session output;
 - File output to file.

Click *Reload* button to refresh the information in the tab.

8.4.7. USERS¹

Use this tab to view and edit user rights for configuration.

Description ONT list Mor	itoring Configuration FW ONT RRD statistics Access
Traps	
VLAN	
Sync Time	admin 1.
NTP	voot
IGMP	Priority 15
Syslog	
Users	
Profilies	
Log	
ONT Discovery	
Terminal VLANs	
CLI/telnet	
CLI/ssh	



Users admin and root are always present on the device and cannot be deleted.

User rights¹:

- -View config configuration viewing rights;
- -Edit config configuration editing rights;
- -View OLT OLT configuration viewing rights;
- -Edit OLT OLT configuration rights;
- -View ONT ONT configuration viewing rights;
- -Edit ONT ONT configuration rights;
- -View PON PON parameter viewing rights;
- -SNMP read-only access rights for configuration viewing via SNMP;
- -SNMP read-write access rights for configuration editing via SNMP;
- -Switch access integrated switch configuration rights;
- -View System system configuration viewing rights;
- -Edit System system configuration editing rights.

Adding user

To add user, click for button and fill in the following fields:	Ver Add user Name Password Priority	15
– <i>Name</i> — user name;	✓ Accept	X Cancel

¹ Only for LTP 3.20.1

🙏 естех

– Password — user authorization password (at least 8 characters, only Latin);
 – Priority.

Editing user rights

To edit user rights, select the desired record, click button and set up access rights:

Change user password

To change the password, select the desired record, click ______ and fill in the following fields:

- -Current password current user password;
- -New password modified user password;
- -New password (repeat) modified password verification.

Change user password for OLT 'root'				
Old password				
New password				
New password (repeat)				
✓ Accept	X Cancel			

Click *Apply* button to save changes, or click *Cancel* button to exit from the edit mode without saving.

Click	2	(Update user parameters) button to update parameters of a specific user.
Click		(Reload user list) button to refresh the list of users.

8.4.8. $PROFILES^1$

Use this tab to view and edit ONT profiles on the device.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access	
Traps VLAN	ManagementProfile	manag	gement-00:0 💿 😳 🔀 🗎 🍦 🗞
Sync Time	Types of Profiles	Profilies	Name * management-00
IGMP	ManagementProfile	management-00	Description ONT Profile Management 0
Users	DBAProfile PortsProfile	default	URL
Profilies Log	Template CrossConnectProfile		Username
ONT Discovery	ScriptingProfile ShaningProfile		OMCI Configuration
CLI/telnet			
CLI/ssh			
L			

ONT configuration involves the assigning profiles to the configuration and setting up individual ONT parameters. Configuration profiles allow general parameters to be set for all ONTs or for the specific range.

¹ Only for LTP 3.x


8.4.8.1. CONFIGURATION OF MANAGEMENT PROFILE

The **management** profile enables specific configuration of TR-069 management protocol, namely configuration of TR client in ONT.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access	
Traps VLAN Svnc Time	ManagementProfile	manag	rement-00:0
NTP	Types of Profiles	Profilies	Name * management-00
IGMP Syslog	ManagementProfile DBAProfile	management-00 default	Description ONT Profile Management 0
Users Profilies	PortsProfile Template		Username
Log ONT Discovery	CrossConnectProfile ScriptingProfile ShaningProfile		Password OMCL Configuration OI
CLI/telnet			
CLI/ssh			

The **omci-configuration** parameter defines the TR client configuration which can be done: either automatically with DHCP (all other parameters of the profile are not used in this case) or with OMCI using the profile settings.

The **url** parameter corresponds to the address of the auto configuration server (ACS).

ACS access parameters are defined by the **username** and **password** parameters.

8.4.8.2. CONFIGURATION OF DBA PROFILE

This profile configures dynamic bandwidth allocation (DBA). These parameters allow specification of any T-CONT type described in G.984.3.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access		
Traps VLAN	DBAProfile	S	default:0	0 0 2 1 9 0
Sync Time NTP	Types of Profiles	Profilies	Name	* default
IGMP	ManagementProfile	default	Descriptio	n ONT Profile DBA 0
Syslog Users	DBAProfile PortsProfile		ServiceCla	type5 👻
Profilies	Template		StatusRep	orting nsr 🤟
Log	CrossConnectProfile		Size	0
ONT Discovery Terminal VLANs	ScriptingProfile		Period	0
CLI/telnet			FixedBand	lwidth 0
CLI/ssh			Guarantee	dBandwidth 64
			BestEffort	Bandwidth 1244000

The **service-class** parameter defines the basic DBA algorithm.

The status-reporting parameter defines a type of ONT queues status report.

The **fixed-bandwidth**, **guaranteed-bandwidth**, and **besteffort-bandwidth** parameters define the fixed, guaranteed, and best-effort bandwidth correspondingly.

8.4.8.3. CONFIGURATION OF PORTS PROFILE

The *ports* profile allows you to group ports in ONT. The profile also contains IGMP and multicast setting as they are separately adjusted for each port.

You can adjust up to 4 Ethernet ports and a VEIP virtual port which will serve as a link between OMCI and RG domains in ONT.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access]
Traps	Deute Due file	8	
VLAN	Portsprofile	18 ⁴	
Sync Time	Types of Profiles	Drofilios	
NTP	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Name default
IGMP	ManagementProfile	default	Description ONT Profile Ports 0
Syslog	DBAProfile	Splay	IGMP settings
Users	PortsProfile	svj_test	
Profilies	Template	10	Version 3
Log	ScriptingProfile		Upstream Mode snooping 👻
ONT Discovery Terminal VI ANs	ShapingProfile		Immediate Leave off 👻
CLI/telnet	•		Robustness 2
CLI/ssh			Querier IP 0.0.0.0
- 38111 1 1111			Query Interval 125
	-		Query Max Response Time 100
			Last Member Query Interval 30
			Multicast dynamic entry 0
			Vian ID unused
			First group IP 0.0.0.0
			Last group IP 0.0.0.0
			Multicast dynamic entry 1
			Vian ID unused
			First group IP 0.0.0.0
			Last group IP 0.0.0.0
			Multicast dynamic entry 2
	N		

To configure IGMP and multicast specify VLAN ID number, which will be used for multicast traffic transmission, and MC address range.

Version	3	
Upstream Mode	snooping 🤝	
Immediate Leave	off 👻	
Robustness	2	
Querier IP	0.0.0.0	
Query Interval	125	
Query Max Response Time	100	
Last Member Query Interval	10	
Multicast dynamic entr	y 0	
Vlan ID	30	
First group IP	233.7.70.1	
Last group IP	239.255.255.255	

Also, you have to configure VLAN operations rules for downstream multicast+IGMP and upstream IGMP

····· VEIP settings ·····	
Multicast Enable	on 🔫
IGMP Upstream VID	30
IGMP Upstream Priority	0
IGMP Upstream Tag Control	pass 🚽
IGMP Downstream VID	30
IGMP Downstream Priority	0
IGMP Downstream Tag Control	pass
Max Groups	0
Max Multicast Bandwidth	0

Ethernet ports are configured using **bridge-group** parameter. Value 0 means that the port is associated with an RG domain (router). Other values mean port association with an OMCI domain, i.e. the port with OLT can be directly used to establish a data communication channel.

8.4.8.4. CONFIGURATION OF CROSS-CONNECT PROFILE

Cross-connect profile allows to define VLAN parameters — traffic stream transformation for each of services.

Cross-connect profile configuration for RG services (Internet/VoIP/VoD, etc).

Description ONT list Mor	hitoring Configuration FW ONT	RRD statistics Access		
Traps	CrossConnectProfile	e 😹 defa	ult:0	
VLAN				
Sync Time	Types of Profiles	Profilies	Name *	default
IGMP	ManagementProfile	default	Description	ONT Profile Cross Connect 0
Syslog	DBAProfile	ACS	Description	ONT Profile Closs Connect o
Users	PortsProfile	INTERNET	Model	ontRg 👻
Profilies	Template	MULT	BridgeGroup	11
Log	CrossConnectProfile	STB	TagMode	singleTagged 👻
ONT Discovery	ScriptingProfile	VOIP	Outer VID	Custom
Terminal VLANs	ShapingProtite			
CLI/telnet			OuterVID	1
CLI/SSN			OuterCOS	Unused 🗸
			Inner VID	Custom
			InnerVID	1
			10.00	Custam
				Custom
			UVID	0
			UCOS	Unused -
			MacTableEntryLimit	unlimited
			Туре	general 👻
			Iphost Eid	0
			Priority Queue	0
			i nong quouo	
			4	

The **model** parameter defines the type of service: routed (pass through ONT router) or bridged (bridge connection)

The **type** parameter allows to configure OMCI interfaces for TR/multicast traffic transmission to ONT.

VLAN configuration is defined by **tag-mode**, **outer- vid**, **outer-cos**, **inner-vid**, **u-vid**, **u-cos** parameters.

The **outer-vid**, **outer-cos** parameters define the external tag and priority for traffic received from/sent to the network.

The **u-vid** and **u-cos** parameters allow a tag to be specified which will be used on the ONT side.

🕹 ELTEX

The **mac-table-entry-limit** parameter allows restriction of records number in the MAC table of OLT for this service.

The **priority-queue** parameter allows allocation of all services of one T-CONT into queues with priorities (if ONT supports this method).

The **type** parameter defines the type of service provided on the ONT side:

- General transparent traffic transmission between ONT (OMCI) and RG parts of ONT (according to TR-142)
- Multicast transmission of upstream IGMP messages
- Management IPHOST interface configuration on ONT (IP interface for tr-069 client)
- *Voice* configuration of IPHOST interface on ONT (IP interface for VoIP client)

The following screenshots show configured *cross-connect* profiles for several particular tasks.

The cross-connect profile configuration for upstream IGMP traffic transmission (additional configuration for Downstream MC and IGMP is not required traffic goes via MC GEM.)

crossconnect-00	Описание	ONT Profile Cross Connect 4
stk-ppp0 stk-voip	Model	ontRg 🚽
stk-stb	BridgeGroup	255
mc-v30	TagMode	singleTagged 🚽
stk-tr ixia-v1105	Outer VID	Custom -
aa	Custom Outer VID	30
stk-ppp1 stk-ppp2	OuterCOS	Unused 🚽
voip-v1101	Inner VID	Custom
br12	Custom Inner VID	1
	UVID	Custom 🚽
	Custom UVID	30
	ucos	Unused 🚽
	MacTableEntryLimit	unlimited
	Туре	multicast
	lphost Eid	0

The cross-connect profile configuration for ONT control traffic transmission (TR-069)

crossconnect-00	Описание	ONT Profile Cross Connect 5
stk-ppp0 stk-voin	Model	ontRg 👻
stk-stb	BridgeGroup	255
mc-v30	TagMode	singleTagged 🤟
stk-tr ixia-v1105	Outer VID	Custom
aa	Custom Outer VID	1210
stk-ppp1 stk-ppp2	OuterCOS	Unused 🚽
voip-v1101	Inner VID	Custom 🚽
br12	Custom Inner VID	1
	UVID	Custom 🚽
	Custom UVID	9
	ucos	Unused 🚽
	MacTableEntryLimit	unlimited
	Туре	management
	lphost Eid	0



The cross-connect profile configuration for traffic transmission via ONT, configured in ONT mode (LAN ports configuration via OMCI, without TR-142 RG domain).

crossconnect-00	Описание	vlan1105-uvid_untag
stk-ppp0 stk-voip	Model	ont 🚽
stk-stb	BridgeGroup	12
mc-v30 stk-tr	TagMode	singleTagged -
imia-v1105	Outer VID	Custom -
gg	Custom Outer VID	1105
stk-ppp1 stk-ppp2	OuterCOS	Unused -
voip-v1101	Inner VID	Custom 🚽
br12	Custom Inner VID	1
	UVID	Custom 🥪
	Custom UVID	0
	ucos	Unused 🤝
	MacTableEntryLimit	unlimited
	Туре	general
	lphost Eid	0

The **Model** parameter defines the type of bridged service (bridge connection).

The **bridge group** parameter defines the unique OMCI block identifier (MAC bridge service profile).

For correct operation in this mode, in **ports** profile should be defined the same **bridge group**.

UNI #2 settings	
Bridge Group	12
Multicast Enabled	off 👻
IGMP Upstream VID	1
IGMP Upstream Priority	0
IGMP Upstream Tag Control	pass 👻
IGMP Downstream VID	1
IGMP Downstream Priority	0
IGMP Downstream Tag Control	pass 👻
Max Groups	0
Max Multicast Bandwidth	0
Shaping Downstream Enabled	off 👻
Shaping Downstream Commited Rate	1000000
Shaping Downstream Peak Rate	0
Shaping Upstream Enabled	off 👻
Shaping Upstream Commited Rate	1000000
Shaping Upstream Peak Rate	0

8.4.8.5. CONFIGURATION OF SHAPER PROFILE

This profile allows restriction of upstream and downstream services.

Description ONT list Mo	nitoring Configuration FW ONT	RRD statistics Access	
Traps	ShaningProfile	8	default:0
VLAN	Shapingilollio	-45	
Sync Time	Types of Profiles	Profilies	Name * default
	ManagementDrofile	A. 5	DUT Duffe Oberline 0
Syslog	DBAProfile	derault	Description UNI Profile Shaping 0
Users	PortsProfile		Downstream one policer on
Profilies	Template		Settings service #0
Log	CrossConnectProfile		Unstream enable shaper 00 -
ONT Discovery	ScriptingProfile		
Terminal VLANs	ShapingProfile		Upstream committed rate 124410
CLI/telnet	_		Upstream peak rate 1244160
CLI/ssh	-		Downstream enable shaper off
- 31111111			Downstream peak rate 2488320
	-		Settings service #1
			Upstream enable shaper off
			Upstream commited rate 1244160
			Upstream peak rate 1244160
			Downstream enable shaper off
			Downstream peak rate 2488320
			Settings service #2
			Upstream enable shaper off 👻
			Upstream commited rate 1244160
			Upstream peak rate 1244160
			Downstream enable shaper off
			Downstream peak rate 2488320
		N	

Downstream restriction in OLT uses the *policing* algorithm. You can use individual policies for each service or one policy for all services simultaneously. This is specified in the **one-policer** parameter. When one policy for all services is used, only **policer 0** should be specified; otherwise per-service policies should be configured.

Upstream restriction in ONT uses the *shaping* algorithm. You can specify either a global shaper or individual shapers for each type of traffic: *unicast, multicast* and *broadcast* (if they are supported by ONT).

8.4.8.6. CONFIGURATION OF SCRIPTING PROFILE

Use this profile to create ONT and OMCI configuration scenarios with low-level command language.

閺 To edit the Pro	shle'scripting-00:0'	J
Name	scripting-00	1
Description	ONT Profile Scripting 0	
Line 1, column 2.		
	✓ Accept X Cancel	

Profile configuration is performed with support from manufacturer's service centre.

8.4.8.7. SETUP OF CONFIGURATION TEMPLATES

To facilitate the setup process of complex configurations, which include multiple services, you can employ configuration templates.

You can create several templates that will perform the configuration of basic sets of services.



All template settings will have the priority over settings defined in ONT parameters.

Templates include set of profiles, grouped by services, and non-profile settings for ONT configuration.

Several templates may be configured on ONT:

- *3play* internet+voip+stb
- *Voip* voip
- *3play+security* internet+voip+stb+OC etc.

For configuration of templates will be used the same set of cross connect, port and other profiles.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access	
Traps VLAN	Template	31	play:1 💿 💿 🦉 🔪 🖹 🗍 🗞
Sync Time			
NTP	Types of Profiles	Profilies	Name * 3play
IGMP	ManagementProfile	template-00	Description
Syslog	DBAProfile	3play	REport enabled
Users	PortsProfile		Brachum, Charling, M. default ONE Brafile Chaping 0
Profilies	CrossConnectProfile		Tipodivite Straping
ONT Discovery	ScriptingProfile		Профиль Scripting 🔽 unassigned.unassigned
Terminal VLANs	ShapingProfile		Профиль Ports 🕑 3play.ONT Profile Ports 1 👻
CLI/telnet			Профиль Management 🕑 management-00.ONT Profile Management 0 🤟 📑
CLI/ssh			Service [0]
- 301111111			- Cross Connect Profile 🖉 ACS.ACS.1211 🔍
			- DBA Profile 🕑 default.ONT Profile DBA 0 👻
			Service [1]
			- Cross Connect Profile 🕑 INTERNET.INTERNET.1100 👻
			- DBA Profile V default.ONT Profile DBA 0
			Service [2]
			- Cross Connect Profile 🗹 MULT.MULT.30 🔍
			- DBA Profile V default.ONT Profile DBA 0
			Service [3]
			- Cross Connect Profile 🔽 STB.STB.1102
			- DBA Profile 🕑 default.ONT Profile DBA 0 👻
			Service [4]
			- Cross Connect Profile 🕑 VOIP.VOIP.1101 🧹
			DDA Desete default ONIT Drofile DDA 0

When configuring (adding) ONT, all you need to do is select the specific configuration template, and the set of profiles for defined set of services will be assigned automatically.

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Description ONT list Monitoring Configuration FW ONT R	RD statistics Access					
Row filter:						
🖸 Change fields Reload 📰 Select all 🗳 Export 😳 😂 🔪	🖸 Change fields 🦉 Reload 🔲 Select all 🗳 Export 😳 😂 🔪 🗳 🖉 🚉					
OLT Slot Chan Id Jett ONT configuration PON MAC: <fi td="" to<=""><td>0F0000F55</td></fi>	0F0000F55					
Itp-16.223 - 0 9	9					
Itp-16.223 - 0 3 Configuration template unassigned	2					
Itp-16.223 - 0 - Options Options template-00						
Itp-16.223 - 0 7 Serial * 3play	4					
Itp-16.223 Description						
Itp-16.223 - 0 2 PON Channel (CfgChan) * 0 -	8					
Itp-16.223 - 0 1 ONT ID * 7	2					
Itp-16.223 - 0 23 RF port no-change 💌	8					
Profile Shaping default.ONT Pro	file Shaping 0 🔻					
Profile Scripting unassigned.una	assigned					
Profile Ports 3play.ONT Profi	le Ports 1 💌					
Profile Management management-0	0.ONT Profile Management 0 💌					
Service [0]						
- Cross Connect Profile ACS.ACS.1211	▼					
- DBA Profile default.ONT Pro	file DBA 0 🔻					
- Cross Connect Enabled off 💌						
- Tag (VLAN)						
- CoS (class of service) unused 💌						
Service [1]						
- Cross Connect Profile INTERNET.INTE	ERNET.1100 👻					
- DBA Profile default.ONT Pro	file DBA 0 💌					
Tasks	V Accept X Cancel					

8.4.9. LOG¹

Use this tab to configure the logging level for debug messages and OLT system modules.

Description ONT list Mor	itoring Configuration FW ONT RRD statistics	Access					
Traps VLAN	C Change fields 2 Reload L Edit						
Sync Time	Index	Submodule name	Level				
NTP	1	pmchal_gpon	notice				
IGMP	2	pmchal_ipc	notice				
Users	3	pmchal_machine	notice				
Profilies	4	pmchal_olt	notice				
Log	5	pmchal_ont	notice				
ONT Discovery	6	pmchal channel	notice				
CLI/telnet	7	pmchal_scheduler	notice				
CLI/ssh	8	pmchal_dhcpra	notice				
-	9 pmchal_pppoeia		notice				
	10	pmchal_rdn	notice				
	11	snmp	notice				
	12	alarm	notice				

To enable editing, select the desired record and click Letter button:

- Index number of the record;
- *Module name* name of the module;
- Level level of debug messages.

厚 Edit object					
Index	3				
Submodule name	pmchal_machine				
Level	notice 💌				
Accept Xaccel					

¹ Only for LTP 3.x



8.4.10. ONT DISCOVERY

Use this tab to configure automatic discovery of new subscriber-side devices for each PON channel. When enabled (parameter is set to 'on'), new subscriber-side terminals will be automatically shown in the device monitoring section, otherwise they will not be shown.

Description ONT list Mon	itoring Configuration	FW ONT RRD statistics Access
Traps VLAN	🔪 Edit 😂 Reload	
Sync Time	ONT Discovery channel 0	
IGMP	ONT Discovery channel 1	on 👻
Syslog	ONT Discovery channel 2	on 💌
Users	ONT Discovery channel 3	on 👻
Profilies		
Log ONT Discovery	Own Discovery channel 4	
	ONT Discovery channel 5	00
CLI/telnet	ONT Discovery channel 6	on 👻
CLI/ssh	ONT Discovery channel 7	on 👻

8.4.11. TERMINAL VLANS¹

Use this tab to work with VLAN. You can add/remove VLANs, or change the name, VID and CoS priority for existing VLAN. When adding new VLAN, you can use its assigned name instead of VID for further work in Eltex.EMS system.

Description ONT list Mor	nitoring Configuration FV	N ONT RRD statis	stics Access
Traps			
VLAN	😳 🐸 📚 🖬	Current VLA	N: terminal-vlan-1
Sync Time			
NTP	terminal-vlan-1	Name	terminal-vlan-1
IGMP	sdfsdf		
Syslog		VID	111
Users		CoS	unused 👻
Profilies			
Log			
ONT Discovery			
Terminal VLANs			
CLI/telnet			
CLI/ssh			
- 301111111			
		4	

¹ Only for LTP 3.x

8.5.ONT FIRMWARE

8.5.1. ONT FIRMWARE FILES

Use this tab to assign active firmware files for subscriber-side devices.

Description ONT list	Monitoring Configuration F	W ONT RRD statistics Acce	955				
ONT firmware files	Change fields 🖂 Unload firmware file 🙆 Delete firmware file 🎜 Reload						
ACS Scheduler	Change helds opload		i e ille 🖉 Nelodu				
ACS Scheduled time	File name	ONT types	Firmware version	Vendor			
External firmware server		NTP-RG-1400G,					
ONT FW Autoupdate		NTP-RG-1400G-W,					
ONT FW Autoupdate		NTP-RG-1400G-W2,					
ONT updates scheduler		NTP-RG-1402G,					
	ntp-rg-r2.12.2.161.fw.bin	NTP-RG-1402G-W, NTP-RG-1400GC, NTP-RG-1400GC, NTP-RG-1400GC-W, NTP-RG-1400GC-W, NTP-RG-1402GC, NTP-RG-1402GC, NTP-RG-1402GB, NTP-RG-1402GB, NTP-RG-1402GB, NTP-RG-1402GCB, NTP-RG-1402GCB, NTP-RG-1402GCB-W, NTP-RG-1402GCB-W,	2.12.2.161				

To download the firmware, click *Download firmware file* button, and select the desired firmware file in the opened window. Click Accept, and the system will begin the download of the firmware file.

To delete the firmware file, select it in Firmware Files menu and click *Delete file* button.

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8.5.2. ACS SCHEDULER¹ (FOR GPON 2X VERSION)

Use this menu to configure firmware update parameters for subscriber-side devices using ACS server.

Description ONT list	Monitoring Co	onfiguration FW ONT RR	D statistics Access					
ONT firmware files								Ì
ACS Scheduler	Change fi	ields 😳 Add schedule 🥹	Delete 🔪 Edit 🤯 Reload					
ACS Scheduled time	ID	File name	ONT types	FW version	Profilies	Scheduler	Updating after reboot	Updating to low version
External firmware server			NTP-RG-1400G,			1		
ONT FW Autoupdate			NTP-RG-1400G-W,					
ONT FW Autoupdate			NTP-RG-1400G-W2,					
ONT updates scheduler			NTP-RG-1400GC, NTP-RG-1400GC-W					
	2	ntp-rg-r2.12.2.161.fw.bin	NTP-RG-1400GC-W2, NTP-RG-1402G, NTP-RG-1402G-W2, NTP-RG-1402G-W2, NTP-RG-1402GB-W2, NTP-RG-1402GB-W2, NTP-RG-1402GB-W2, NTP-RG-1402GC-W, NTP-RG-1402GC-W, NTP-RG-1402GCB-W2, NTP-RG-1402GCB-W2, NTP-RG-1402GCB-W2,	2.12.2.161	11	V		

🦉 Create A	ICS schedule
FW files	ntp-rg-r2.12.2.161.fw.bin (internal)
	Updating after reboot
	Updating to low version
	Profilies
0 (Default	,
10	
🔲 11 ()	
📄 hpsa ()	
	Accept Xancel

Click *Add schedule* button to proceed to adding rules screen. To edit the rule, select the desired row from the rights list and click *Edit* button, or click *Delete* button to remove it.

Adding/Editing shedules:

- FW files select the firmware from the drop-down list;
- Use scheduler when checked, use the scheduler, otherwise the scheduler will not be used;
- Updating after reboot when checked, perform firmware update after ONT is rebooted, otherwise device will be updated

when ONT gets access to ACS;

- Updating to low version when checked, you can flash previous versions of ONT firmware;
- *Profiles* when checked, the profile will be included into the used profile list.

Click *Apply* button to confirm changes, or click Cancel button to exit from the edit mode without saving.

¹ The tab is active when internal ACS is enabled on LTP, otherwise it will not be shown.

8.5.3. ACS SCHEDULED TIME¹ (FOR GPON 2X VERSION)

Use this menu to configure firmware update schedule for subscriber-side devices using ACS server.

Description ONT list	Monitoring Configuration FW ONT RRD	statistics Access	
ONT firmware files			
ACS Scheduler			
ACS Scheduled time			
External firmware server		Start	Stop
ONT FW Autoupdate	Time of day	0 - : 0 -	23 🔻 : 59 💌
ONT FW Autoupdate	-		
ONT updates scheduler	Day of week	Monday 👻	Sunday 🔍
	Date	31.12.1999	31.12.2099

- Time of day set scheduler operation start/end time;
- Day of week set scheduler operation start/end day of the week in DD.MM.YYYY format;
- Date set scheduler operation start/end date in DD.MM.YYYY format.



To ensure the proper scheduler operation, adjust the system time correctly. If NTP service is enabled for the device, manual time synchronization will not be available.

Click Reload button to refresh the information in the tab.

8.5.4. EXTERNAL FIRMWARE SERVER (FOR GPON 2X VERSION)

Use this menu to configure external HTTP server address with the software for subscriber-side devices.

Description ONT list	Aonitoring Config	Juration FW ONT RRD statistics Access
ONT firmware files ACS Scheduler	🔪 Edit 🥃 Rela	ad
ACS Scheduled time	Server IP	192.168.16.160
External firmware server		
ONT FW Autoupdate	Server Port	9592
ONT FW Autoupdate		
ONT updates scheduler		

- Server IP server IP address;
- Server Port server port.

¹ The tab is active when internal ACS is enabled on LTP, otherwise it will not be shown.

9 MA4000-PX DEVICE MANAGEMENT

9.1.LIST OF OBJECTS IN DEVICE

MA4000-PX multiservice access and aggregation point allows to construct access networks based on GPON technology and aggregation networks based on ETTH (FTTB) technology. This system allows to build scalable and robust 'last mile' networks, that comply with strict security requirements of rural or urban areas. Access points allow to manage subscriber-side devices, switch traffic and establish connection with the transport network.

Given that MA4000-PX has a module construction, MA4000 object in the device tree will be divided into several subobjects:

- PP4X control module
- GPON PLC8 module

For PON modules, the device tree shows information on tree state synchronization. If data is synchronized, the last synchronization time and ONT quantity in configuration will be shown in the separate tab. ONT quantity in the device or slot is shown in the square brackets in the **[CFG/ACTIVE/ALARM**] format.

For example, string [10/8/1] means, that the selected tree has 10 ONT configurations, 8 active devices are in operation, and 1 device is in error mode.

9.2. MAIN OBJECT EDITING AND MONITORING WINDOW

Table 5 lists description of the basic control tabs:

Table 5 — MA4	1000-PX genera	l control	and mo	nitoring	menu	overview
	TOOD I A SCHOLD		and mo	nii toi ing	menu	

Menu	Description	Section
Description	Information on the physical properties of the object	6.6.1
ONT list	View and edit ONT configurations	9.3
Monitoring	Graphical information on states of the device modules, monitoring of power supply parameters	9.4
Active alerts	Monitoring of active events, received from the device	6.6.2
Common	General device data (firmware version, uptime, CPU load, etc.)	6.6.3
Event log	Monitoring of events, received from the device	6.6.4
Syslog	Network log configuration for the system	6.6.5
Shelf	Rack configuration monitoring and control	9.4.1
ICMP Statistics	Echo test duration statistics to the device	6.6.6
SNMP statistics	SNMP response delay statistics	6.6.7
Power	Monitoring of the power supply parameters	9.4.2
Multicast Groups	Monitoring of multicast groups parameters	9.4.3
Configuration	Management of slot configuration, default firmware, control modules' firmware, firmware update, SNMP traps and syslog configuration	9.5
Profiles	View and edit profiles on device	9.5.1
Slot configuration	View and edit general parameters for service modules	9.5.3
IGMP Snooping	IGMP settings management	9.5.4
IGMP Proxy Report range	proxy configuration	9.5.5
Traps filtration	View and filtering traps	9.5.6
SNMP Traps	Information on SNMP trap configuration	9.5.7
Syslog configuration	network system log configuration	9.5.8
Users	View and edit user rights	9.5.9

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Network Time Protocol	NTP service configuration	9.5.10
Time synchronization	Synchronize time on device with EMS server	9.5.10
Stack configuration	Device stack configuration	9.5.11
CLI/telnet	Terminal program emulator for connections via Telnet protocol	6.6.9
CLI/ssh	Terminal program emulator for connections via SSH protocol	6.6.9
Firmware Update	Subscriber-side device firmware management	9.6
Shelf s firmware	Active images for each of the control modules	9.6.1
FW ONT	Active images for subscriber-side devices	9.6.2
ONT AutoUpdate Flags	Configuration of ONT firmware update via OMCI	9.6.3
ONT updates scheduler	Firmware update schedule	9.6.4
ACS scheduler	Settings for firmware update via ACS server	9.6.5
ACS schedule	Schedule for firmware update via ACS server	9.6.6
RRD statistics	Collection of the network interface load statistics	6.6.10
Access	Information on the object hardware parameters, that are stored in the database, device SNMP access settings	6.6.11

9.3.ONT LIST

For detailed tab description, see chapter 8 PON LTP-8X device management paragraph 8.2 ONT list.

9.4. MONITORING

9.4.1. SHELF



Areas of monitoring

-Fan0/1/2 — fan state and rotation speed data in revolutions per minute (rpm);

-Feeder1/2 — state of modules and power supply parameters:

- -*Current* power supply current, Amp;
- -Voltage power supply voltage, V.

Fan and power modules' state indication:

- operating



- shut down by administrator or in alarm state

Rack graphics representation

Table — rack element

Designation	Description	Note				
Slot numbering						
1	Sequence number of PON module slot					
Unit 1	Sequence number of control module slot					
Slot assignment						
PP4X	Control module slot	Editing of the slot is denied				
PLC8	GPON module slot	Click the icon to show object edit window — select the type of module being installed and its firmware version				
	Not assigned slot					
Information on s	lots for control modules					
М	Module in MASTER mode	Click the icon to show the information on the				
В	Module in BACKUP mode	installed module				
Information on s	lots for PON modules					
۲	Slot is empty, the type of the module being installed is not defined					
•	Slot is empty, the type of the module being installed is defined					
0	Slot is occupied	Click the icon to show the information on the installed module				
Presence of the r	nodule in a rack					
	PLC8 slot is occupied					
	Control module slot is occupied					
	Slot is empty, the type of the module being installed is assigned					
	Slot is empty, the type of the module being installed is not assigned					
Uplink interface	status of control modules					
Θ	Connection is available	For control modules, click the icon to show the interface				

0	No connection	information.
Interface status o	of PON modules	
	Operation and administrative port status — DOWN — port is disabled	For PON modules, click the icon to show PON channel information.
Θ	Port is enabled, SFP module is not installed	
۲	Operation and administrative port status — UP — in operation, no active ONTs	
	Operation and administrative port status — UP — in operation, active ONTs available	

Click *Reload* button to refresh the information in the tab.

9.4.2. POWER

Use this tab to monitor the power supply parameters: operation status, activity, polarity, and the current and voltage data for each of the two power supplies of the device.

Description ONT list	Monitoring Configuration	on FW update RRD statistics Access				
Active alerts	ve alerts					
Common	E Reload	/ Reload				
Events log	First PSU status	lowVoltage -				
Syslog						
Shelf	First PSU activity	Dackup				
ICMP statistic	First PSU polarity	mismatch 👻				
SNMP statistic	First PSII amperage A	0.00				
Power	rinoer oo amperage, A					
Multicast groups	First PSU voltage, V	2.23				
	Second PSU status	ok 🚽				
	Second PSU activity	active				
And and a state of the state of	Second PSU polarity	ok 🗸				
	Second PSU amperage, A	1.25				
	Second PSU voltage, V	-55.80				

9.4.3. MULTICAST GROUPS

Use this tab to monitor parameters of multicast groups on the device.

Description ONT list Monitoring Configuration FW update RRD statistics Access					
Active alerts					
Common	Seload	Change fields			
Events log	ID	VLAN	Group address	Member ports	Expires
Syslog					
Shelf					
ICMP statistic					
SNMP statistic					
Power					
Multicast groups					
	List of multica	st groups is empty			

- ID number of the record;
- VLAN VLAN number;
- Group Address group IP address;
- *Member Ports* group ports;
- Expiries amount of time until the group is disbanded on the internal switch.

厚 Изменить отображаемые поля 🔀					
✓ ID					
VLAN					
Group address					
Member ports					
✓ Expires					
Pulipati pco	По умолизиино				
вырать все	поумолчанию				
🗸 Принять	X Отменить				
🗸 Принять	💥 Отменить				



9.5.CONFIGURATION

9.5.1. PROFILES

Use this tab to view and edit profiles on the device. For detailed information, see chapter **8 PON LTP-8X device management**, section **8.4.8 Profiles.**

Description ONT list	Ionitoring Configuration FW up	date RRD statistics Access	
Profilies	ManagementBrofile	8	
Slot configuration	Fianagementerioritie		
IGMP Snooping	Types of Profiles	Drofilion	4
IGMP Proxy Report Range	Types of Promes	Profilies	Name * management-00
Traps filtration	ManagementProfile	management-00	Description ONT Profile Management 0
SNMP Traps	DBAProfile		
Syslog configuration	PortsProfile		
Users	Template		Username
Network Time Protocol	CrossConnectProfile		Password
Time syncronization	ShapingProfile		
Stack configuration	ScriptingProfile		OMCI Configuration on
CLI/telnet			
CLI/ssh			

9.5.2. SLOT CONFIGURATION

Use this tab to view and edit general parameters of the service modules, installed in MA4000-PX.

Description ONT list Monitoring Configuration FW update RRD statistics Access							
Profilies Slot configuration	tun						
IGMP Snooping	Clat State Medule two Two of eat up me Eirmurare version Curr version Seri				Serial number		
IGMP Proxy Report Range	0	Down Absent	None	Linknown		0.0.0.0	unknown
Traps filtration	1	Down Abcont	None	Unknown		0.0.0.0	unknown
SNMP Traps	1	Down Absent	None		-	0.0.0.0	
Syslog configuration	2	Up Operational	PLC8	PLC8	-	1.3.2.301	OL04000034
Users	3	Down Absent	None	Unknown	-	0.0.0.0	unknown
Network Time Protocol	4	Down Absent	None	Unknown	-	0.0.0	unknown
Stack configuration	5	Down Absent	None	Unknown	-	0.0.0.0	unknown
CLI/telnet	6	Down Absent	None	Unknown	-	0.0.0.0	unknown
CLI/ssh	7	Down Absent	None	Unknown	-	0.0.0.0	unknown
	8	Down Absent	None	Unknown	-	0.0.0.0	unknown
	9	Down Absent	None	Unknown	-	0.0.0	unknown
ADDRESS & ROMANNE	10	Down Absent	None	Unknown	-	0.0.0	unknown
	11	Down Absent	None	Unknown	-	0.0.0	unknown
	12	Down Absent	None	Unknown	-	0.0.0	unknown
	13	Down Absent	None	Unknown	-	0.0.0.0	unknown
	14	Down Absent	None	Unknown	-	0.0.0	unknown
	15	Down Absent	None	Unknown	-	0.0.0	unknown
	I						

- Slot slot number in the MA4000-PX rack;
- State module activity status;
- Module type type of the module being installed (none/PLC8/unknown);
- *Module type inst.* type of installed module (none/PLC8/unknown);
- Firmware version expected module firmware version;
- Current version installed module firmware version;
- Device serial number factory serial number of the device.



Slot configuration peculiarities:

If you change the slot type or assign slot to empty position, there will be two possible editing options.

If the current version of firmware differs from the default version:

Step 1

- Go to edit mode.
- Assign the module type in the corresponding column (during this operation, in 'Firmware version' selector will be shown available versions for the *previous* module type).
- Click *Accept* button to save changes.

厚 Edit object		x
Slot	2	
State	Up	
Module type	PLC8	-
Type of set up module	PLC8	
Curr.version	1.3.2.301	
Serial number	OL04000034	
	V Accept X Cancel	

Step 2

- Go to edit mode again.
- Assign the firmware version that differs from the default one.
- If reboot is needed, select *On* value in *Reboot* field.
- Click Accept button to save changes.

If the firmware version matches the default version:

- Go to edit mode.
- Specify the required module type in the *Module type* field.
- Select *default* value in the *Firmware version* field.
- If reboot is needed, select On value in Reboot field.
- Click Accept button to save changes.

Click *Apply* button to save changes, or click Cancel button to exit from the edit mode without saving.

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9.5.3. IGMP SNOOPING¹

Use this tab to manage IGMP settings.

Description ONT list M	Ionitoring Configuration FW update RRD statistics Access
Profilies	
Slot configuration	Edit 💕 Keload
IGMP Snooping	IGMP Second
IGMP Proxy Report Range	
Traps filtration	IGMP Proxy Report of 🔍
SNMP Traps	
Syslog configuration	
Users	
Network Time Protocol	
Time syncronization	
Stack configuration	
CLI/telnet	
CLI/ssh	

To manage IGMP settings, click *Edit* button and select the desired values from the drop-down list:

- IGMP Snooping enable/disable IGMP snooping feature, that allow to manage downlink multicast streams;
- IGMP Proxy Report enable/disable IGMP Proxy Report.

Click *Apply* button to save changes, or click *Cancel* button to exit from the edit mode without saving.

¹ For versions 1.3. x. x

9.5.4. IGMP PROXY REPORT RANGE¹

Use this tab to configure proxy.

Description ONT list Monitoring Configuration FW update RRD statistics Access						
Profilies						
Slot configuration		🛛 🕑 Delete 🛛 🔪 Edit 🛛 🥁 Reio	bad			
IGMP Snooping	ID	lpStart	lpEnd	FromVlan	ToVlan	
IGMP Proxy Report Range	1	23.15.44.2	23.15.222.5	12	18	
Traps filtration						
SNMP Traps						
Syslog configuration						
Users						
Network Time Protocol						
Time syncronization						
Stack configuration						
CLI/telnet						
CLI/ssh						

💡 Edit object

2

0.0.0.0

0.0.0.0

0

0

Accept X Cancel

ID

Ip Start

IpEnd

FromVlan

ToVlan

- ID sequence number of the record;
- *IpStart* starting address of the IP address range;
- IpEnd ending address of the IP address range;
- FromVlan starting address of the VLAN range;
- *ToVlan* ending address of the VLAN range.

Click *Apply* button to save changes, or click Cancel button to exit from the edit mode without saving.

Click *Reload* button to refresh the information in the tab.

9.5.5. TRAPS FILTERING¹

Use this tab to view and filter traps received from the device.

Description ONT list Monitoring Configuration FW update RRD statistics Access					
Profilies	Change Salds C Baland Nov /Off Stration				
Slot configuration			1	1	
IGMP Snooping	OID	Name	Filtered	UniCode	Rule
IGMP Proxy Report Range	1.3.6.1.4.1.35265.3.22.1	PONTEKNOVUSONTAUTH	off	4001	PONTEKNOVUSONTAUTH
Traps filtration	136141352653222		off	4002	
SNMP Traps	1.0.0.1.4.1.052005.0.22.2			1002	
Syslog configuration	1.3.6.1.4.1.35265.3.22.3	PONTEKNOVUSOPTICALA	οπ	4003	PONTEKNOVUSOPTICALA
Users	1.3.6.1.4.1.35265.3.22.4	PONTEKNOVUSFANALAR	off	4004	PONTEKNOVUSFANALAR
Network Time Protocol	1.3.6.1.4.1.35265.3.22.5	PONTEKNOVUSONTCONF	off	4005	PONTEKNOVUSONTCONF
Time syncronization	1.3.6.1.4.1.35265.3.22.6	PONTEKNOVUSFLAPPING	off	4006	PONTEKNOVUSFLAPPING
CLI/telnet	1.3.6.1.4.1.35265.3.22.7	PONTEKNOVUSEPONALA	off	4007	PONTEKNOVUSEPONALA
CLI/ssh	1.3.6.1.4.1.35265.3.22.8	PONTEKNOVUSCONFIGSA	off	4008	PONTEKNOVUSCONFIGSA
Designation of the local division of the loc	1.3.6.1.4.1.35265.3.22.9	PONTEKNOVUSFIRMWAR	off	4009	PONTEKNOVUSFIRMWAR
	1.3.6.1.4.1.35265.3.22.10	PONTEKNOVUSUSERLOG	off	4010	PONTEKNOVUSUSERLOG
Allowing a stranger	1.3.6.1.4.1.35265.3.22.11	PONTEKNOVUSRAMALAR	off	4011	PONTEKNOVUSRAMALAR
	1.3.6.1.4.1.35265.3.22.12	PONTEKNOVUSLOGINALA	off	4012	PONTEKNOVUSLOGINALA
	1.3.6.1.4.1.35265.3.22.14	PONTEKNOVUSDUPLICAT	off	4014	PONTEKNOVUSDUPLICAT 👻

	Controling	Nationali			
EILEX.EIVIS-	-Centralized	Network	Element	wanagemeni	, system

¹ For versions 1.3.x.x

9.5.6. SNMP TRAPS

This tab shows information on configuration of SNMP traps.

Description ONT list M	Ionitoring Configuration FW update RRD statistics Access
Profilies	
Slot configuration	
IGMP Snooping	
IGMP Proxy Report Range	
Traps filtration	TRAP v2 IP
SNMP Traps	INFORM IP
Syslog configuration	
Users	
Network Time Protocol	
Time syncronization	
Stack configuration	
CLI/telnet	
CLI/ssh	

- Traps v1 IP define the address for sending SNMPv1 traps;
- Traps v2 IP define the address for sending SNMPv2 traps;
- *INFORM IP* define the address for sending SNMP information traps.

Click *Apply* button to save changes, or click Cancel button to exit from the edit mode without saving.

Click *Reload* button to refresh the information in the tab.

9.5.7. SYSLOG CONFIGURATION

Use this tab to configure network system log. You can create up to 64 different configurations.

Description ONT list Monitoring Configuration FW update RRD statistics Access						
Profilies	Profilies					
Slot configuration	😽 🗳 🗘 🗳	Current SyslogConfig: 0012				
IGMP Snooping						
IGMP Proxy Report Range	0012	Enable syslog on the given record	on 👻			
Traps filtration		In address of susian server	100 160 17 22			
SNMP Traps		Ip-address of syslog server	192.106.17.33			
Syslog configuration		Port of syslog server	514			
Users		Connection type	udp 🚽			
Network Time Protocol						
Time syncronization		Severity Emergency	on 💌			
Stack configuration		Severity Alert on 👻				
CLI/telnet		Severity Critical				
CLI/ssh		Severity endear				
D. Construction of the local division of the local division of the local division of the local division of the		Severity Error	on 💌			
		Severity Warning	on 💌			
		Severity Notice	off 👻			
		Severity Info	off 💌			
		Severity Debug	off 👻			
1						

- Enable syslog on the given record enable syslog message transmission to all recipients;
- IP address of syslog server— define the IP address of the remote host for log file saving;
- Port of syslog server— port number for the connection to the remote point in the range from 1 to 65535;
- Connection type type of packets being transmitted, tcp or udp;

Message types by severity level:

- Severity Emergency system is down, Level 0;
- Severity Alert immediate action required, Level 1;
- Severity Critical critical state, Level 2;
- Severity Error error, Level 3;
- Severity Warning warning, Level 4;
- Severity Notice important notice, Level 5;
- Severity Info informational message, Level 6;
- Severity Debug debug print, Level 7;

Configure the receiving of these message types:

- on enable;
- off disable.

Click *Apply* button to save changes, or click *Cancel* button to exit from the edit mode without saving.

Click (*Reload SyslogConfig list*) button to refresh the list of configured system logs.



Use this tab to view and edit user rights for configuration of the rack and subscriber-size devices.

Description ONT list N	Ionitoring Configuration FW update RRD statistics Access	
Profilies		1
Slot configuration	admin 😨 👽 🐷 🔪 🗠	
IGMP Snooping		πШ
IGMP Proxy Report Range	Configure ONT	
Traps filtration	remote Configure boot on v	
SNMP Traps	root Configure other off	
Syslog configuration		Ш
Users	Configure profiles off v	Ш
Network Time Protocol	Configure shelf off 👻	Ш
Time syncronization		
Stack configuration		Ш
CLI/telnet	View configuration on 💌	
CLI/ssh	View operational on v	



Users admin, linux, and root are always present on the device and cannot be deleted.

User rights:

- Configure ONT ONT configuration rules;
- Configure boot device boot configuration rules;
- Configure other other control rules;
- Configure profiles ONT profile configuration rules;
- Configure shelf crate configuration rules;
- View basic basic settings' viewing rules;
- View configuration configuration viewing rights;
- View operational rules for operational information viewing on the device.

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Adding user

	🕎 Add user	×
0	Name	
To add user, click 🔛 button	Password	
and fill in the following fields:	Accent.	₩ Cancel
	♦ Accept	Cancer

- Name user name;
- Password user authorization password (at least 8 characters, only Latin).

Editing user rights

To edit user rights, select the desired record, click

button and set up access rights:

厚 Edit user 'admin'				x
Configure ONT	off	-		
Configure boot	on	-		
Configure other	off	•		
Configure profiles	off	•		
Configure shelf	off	•		
View basic	on	•		
View configuration	on	•		
View operational	on	•		
			Accept X Cancel	

Change user password

To change the password, select the desired record, click and fill in the following fields:

- Current password current user password;
- New password modified user password;
- New password (verify) modified password verification.

Change user password for OLT 'admin'				
Old password				
New password				
New password (repeat)				
✓ Accept	X Cancel			

Click *Apply* button to save changes, or click Cancel button to exit from the edit mode without saving.

Click

(Update user settings) button to update parameters of a specific user.

Click

(Reload user list) button to refresh the list of users.

9.5.9. NETWORK TIME PROTOCOL

Use this menu to configure NTP service — device system time configuration.

Description ONT list M	Ionitoring Configuration FW update RRD statistics Access
Profilies	
Slot configuration	Lati e Reload
IGMP Snooping	NTP Enabled off
IGMP Proxy Report Range	
Traps filtration	NTP Poll Period 300
SNMP Traps	NTP Server 1
Syslog configuration	NTD Server 2
Users	
Network Time Protocol	NTP Server 3
Time syncronization	
Stack configuration	
CLI/telnet	
CLI/ssh	

- NTP Enabled enable/disable NTP;
- NTP Poll Period time interval between NTP server polling attempts in minutes;
- NTP Server 1..3 address of time server, that will be used for device time and date synchronization.

Click *Apply* button to save changes, or click Cancel button to exit from the edit mode without saving.

Click Reload button to refresh the information in the tab.

9.5.10. TIME SYNCHRONIZATION

Use this menu to synchronize device time with EMS server.

Description ONT list	Monitoring Configuration	FW update RRD statistics Access		
Profilies				
Slot configuration	2 Reload			
IGMP Snooping				
IGMP Proxy Report Range	Device UTC time	15.10.2014 03:36:50		
Traps filtration	Device local time	2014-10-15 03:36:50		
SNMP Traps	Device time zone	0		
Syslog configuration	Device unie zone	о С		
Users	EMS server UTC time	15.10.2014 03:44:55		
Network Time Protocol	EMS server local time	15.10.2014 10:44:55		
Time syncronization	EMS server timezone	7		
Stack configuration	Ling server unezone			
CLI/telnet	Time difference (minute	Time difference (minutes)8		
CLI/ssh	Syncronize			
	Set TimeZone			



To ensure the proper scheduler operation, adjust the system time correctly. If NTP service is enabled for the device, manual time synchronization will not be available.

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System time data

- Device UTC time device time in UTC format;
- Device local time device local time with UTC time offset;
- Device time zone timezone in reference to UTC;
- EMS server UTC time server time in UTC format;
- EMS server local time server local time with UTC time offset;
- EMS server timezone timezone in reference to UTC;
- Time difference (minutes) difference in time on the device and EMS server;
- Synchronize click to synchronize the system time on the device with EMS server;



If NTP service is enabled on the device, manual synchronization will not be performed

Set TimeZone — specify UTC offset and direction.

Click Reload button to refresh the information in the tab.

9.5.11. STACK CONFIGURATION

Use this menu to control the configuration file transmissions between PP4 control modules.



Input	x
?	Введите Tize Zone в диапазоне [-1212]. Знак "+" указывать не надо 0
	OK Cancel

9.6.FW UPDATE

9.6.1. SHELF S FIRMWARE

Use this tab to assign the active images for each of the device control modules.

Description ONT list	Monitoring Configuration FW update	RRD statistics Access					
Shelf's firmware	Download new firmware						
FW ONT	Calledate EW	C loadete DN					
ONT AutoUpdate Flags	Update PVV						
ONT updates scheduler	Select active image						
	🖸 Change fields 🛛 🦉 Reload	🕻 Make it active 🛑 Reboot 👎 Confirm	n				
	PP4X Module	Firmware image	Version	Status			
	Right 2 (master)	0	1 3 2 298 40462 10-Oct-2014 06:02:04				
	Right 2 (master)	1	1 3 2 301 40475 10-Oct-2014 20:10:57	running - boot			

To download new firmware, click *Update firmware* button and select the required record from the table in the next window. Click *Accept*, and the system will begin the firmware file download to MA4000.

If Update FW button is selected, the current version will be overwritten with the downloaded one.

🥃 Upda	te device firmware				x					
Do you IP-addr	Do you really want to update device MA4000? IP-address of device: 192.168.16.225									
It may f You car	It may take a few minutes. You can view perfirming status at the Tab Tasks.									
Device TFTP s Directo Directo	type : MA4000 erver : 192.168.16.230 ry of firmware files: station_images ry of configuration files: ems									
Choose	e firmware file.									
#	File	Size	Version	Description						
1	image_1.1.16.41.39358.plc	10242160 1.1.16.41		File loading by operator [tim].						
Configu	ration file									
🖌 Cha	ange version									
Ret	poot device									
		✓ Accept	X Cancel							

If *Reboot button* is selected, the device will be rebooted after firmware download is finished.

To activate the desired module, scroll to the desired line in the list and click *Make it active* button.

Click *Save* button to save changes, or click *Cancel* button to exit from the edit mode without saving.

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9.6.2. FW ONT

Use this tab to manage firmware files for subscriber-side devices stored on OLT.

Description ONT list	Monitoring Configuration FW up	pdate RRD statistics Access		
Shelf's firmware	Change fields Unload firmy	ware file 🔘 Delete firmware file 🎜	Reload	
FW ONT	Change noide Copieda initia		Holoda	
ONT AutoUpdate Flags	File name	ONT types	Firmware version	Vendor
ONT updates scheduler				

To download the firmware, click *Upload firmware file* button, and select the desired firmware file in the opened window. Click *Accept*, and the system will begin the firmware file download to MA4000. Later, it will be used for the automatic firmware update on the subscriber-side devices.

To delete the firmware file, select it in Firmware Files menu and click Delete firmware file button.

Click *Reload* button to refresh the information in the tab.

9.6.3. ONT AUTOUPDATE FLAGS¹

Use this tab to update ONT firmware via OMCI for each slot with PLC8 board installed.



¹ For versions 1.3. x. x



9.6.4. ONT UPDATE SCHEDULER¹

Use this menu to configure firmware update parameters for subscriber-side devices.

Description ONT list	Monitoring Configuratio	n FW update RRD sta	tistics Access			
Shelf's firmware	Change fields 😂 R	eload 💿 Delete				
FW ONT						
ONT AutoUpdate Flags	Slot	Task	Serial ONT	Status	File	Number of attempts
ONT updates scheduler						

- *Slot* slot number in the MA4000-PX rack;
- Task update task parameters;
- Serial ONT serial number of the ONT;
- Status process status;
- File firmware file for device update;
- *Number of attempts* counter of the device firmware update attempts.

Change displayed fiel... Change displayed fiel... Slot Task Serial ONT Status File Number of attempts Choose all By default Choose all Status Choose all By default Choose all By default Choose all Status Choose all Choose all Choose all Choose all Choose all Status Choose all Choose all Choose all Status Choose all

¹ For versions 1.3. x. x

9.6.5. ACS SCHEDULER¹

Use this menu to configure firmware update parameters for subscriber-side devices using ACS server.

Description ONT list	Monitoring Cont	iguration FW up	pdate RRD stati	stics Access					
Shelf's firmware	Change field	is 🙆 Add sched	ule 🙆 Delete 🔪	Edit Seload					٦
PLC8 modules' firmware				Eur Protoud	Desfiles	C-h-d-d	11-1-1	Hadada a ta lava	-
ACS Scheduler	U	File name	NTD DC 1400C	FVV Version	Profilies	Scheduler	Updating after r	updating to low	
ACS Scheduled time			NTP-RG-1400G,						
			W, NTP-RG-1400G- W2, NTP-RG-1400GC, NTP-RG-1400GC- W2, NTP-RG-1400GC- W2, NTP-RG-1402G- W, NTP-RG-1402G- W, NTP-RG-1402G- W2.						
	1	fw_ntp-rg_2.12	NTP-RG-1402GB, NTP-RG-1402GB- W, NTP-RG-1402GB- W2, NTP-RG-1402GC, W, NTP-RG-1402GC- W2, NTP-RG-1402GC B, NTP-RG-1402GC B-W2, NTP-RG-1402GC B-W2,	2.12.1.309	0, N4e2pS, BA	×			
			NTP-RG-1400G, NTP-RG-1400G- W, NTP-RG-1400G- W2,						
			141F-RG-1400GC,						-

Click *Add rule* button to proceed to adding rules screen, or click *Delete rule* to delete the rule. To edit the rule, select the desired row from the rights list and click *Edit* button.

Adding/Editing rules:

👺 Create ACS schedule		×
FW files	Use scheduler	
	Updating after reboot	
	Updating to low version	
	Profilies	
0 (Default)	N4e2pS (S_NS_(19) POTS)	BASE_4e2p ()
N4e2p-BBBB (S_NI_(11) 4xInternet Bridge)	N4e2p-BBBT (S_NIT_(13) 3xInternet Bridge,1xIPTV)	N4e2p-BBTT (S_NIT_(15) 2xInternet Bridge,2xIPTV)
N4e2p-BTTT (S_NIT_(17) 1xInternet Bridge,3xIPTV)	N4e2p-IIII (S_NI_(1) 4xInternet Routing)	N4e2p-IIIT (S_NIT_(3) 3xInternet Routing, 1xIPTV)
N4e2p-IITT (\$_NIT_(5) 2xInternet Routing,2xIPTV)	N4e2p-ITTT (S_NIT_(7) 1xInternet Routing,3xIPTV)	N4e2p-RRRR (S_NR_(140) 4xRadio)
N4e2p-TTTT (S_NT_(9) 4xIPTV)	N4e2p-1111-S (S_N1S_(130) 4xIPoE+POTS)	N4e2p-BBBB-S (S_NIS_(12) 4xInternet Bridge+POTS)
N4e2p-BBBT-S (S_NIST_(14) 3xInternet Bridge,1xIPTV+POTS)	N4e2p-BBTT-S (S_NIST_(16) 2xInternet Bridge,2xIPTV+POTS)	N4e2p-BTTT-S (S_NIST_(18) 1xInternet Bridge,3xIPTV+POTS)
N4e2p-IIII-S (S_NIS_(2) 4xInternet Routing+POTS)	N4e2p-IIIT-S (S_NIST_(4) 3xInternet Routing,1xIPTV+POTS)	N4e2p-IITT-S (S_NIST_(6) 2xInternet Routing,2xIPTV+POTS)
N4e2p-ITTT-S (S_NIST_(8) 1xInternet Routing,3xIPTV+POTS)	N4e2p-TTTT-S (S_NST_(10) 4xIPTV+POTS)	N4e2p-BBBB-S-F (S_NIS_(112) 4xInternet Bridge+POTS+FON)
	Accept X Cancel	

- Firmware files select the firmware from the drop-down list;
- Use scheduler when checked, use the scheduler, otherwise the scheduler will not be used;
- Update after reboot when checked, perform firmware update after ONT is rebooted, otherwise device will be updated when ONT gets access to ACS;
- Downgrading when checked, you can flash previous versions of ONT firmware;
- Profiles when checked, the profile will be included into the used profile list.

Click *Apply* button to confirm changes, or click Cancel button to exit from the edit mode without saving.

¹ For version 1.1.x.x with internal ACS enabled



9.6.6. ACS SCHEDULED TIME¹

Use this menu to configure firmware update schedule for subscriber-side devices using ACS server.

Description ONT list	Monitoring Configuration FW update	RRD statistics Access		
Shelf's firmware PLC8 modules' firmware	Reload 🔪 Edit			
FW ONT		Start	Ston	
ACS Scheduler		Start	5100	
ACS Scheduled time	Time of day	0 - : 0 -	23 🔻 : 59 👻	
	Day of week	Monday	Sunday	
	Date	01.06.2011	31.12.2099	
	-			

- *Time of day* set scheduler operation start/end time;
- Day of week set scheduler operation start/end day of the week in DD.MM.YYYY format;
- Date set scheduler operation start/end date in DD.MM.YYYY format;



To ensure the proper scheduler operation, adjust the system time correctly. If NTP service is enabled for the device, manual time synchronization will not be available.

¹ For version 1.1.x.x with internal ACS enabled

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9.7.PP4X CONTROL MODULE

Central switch module is the basic platform element, that performs the general management and diagnostics of periphery modules, switching, traffic aggregation for interface modules and communication with the upstream network equipment. Modules operate in load distribution mode and reservation mode.

Table 6 lists description of the basic control tabs:

|--|

Menu	Description	Section
Monitoring	Monitoring of thePP4X control module parameters	9.7.1
Unit 1 (left)	Information on the PP4X control module parameters	9.7.1.1
Unit 2 (right)	Information on the PP4X control module parameters	9.7.1.1
Temperature	Statistic chart of PP4X module temperature variations	6.6.8
Slot-port s status	Monitoring of the ports state	9.7.1.2
Slot-port s statistics	Channel configuration	9.7.1.3
IF Utiliz	Traffic load statistics for MA4000 interfaces	9.7.1.4
LACP	Monitoring of the logical channels	9.7.1.5
Configuration	Trap settings configuration	9.7.2
VLAN list	VLAN configuration	9.7.2.1
QOS	Traffic prioritization settings	9.7.2.2
Access list	List of rules, that define the device availability via HTTP,SNMP,	9.7.2.3
	SSH, TELNET protocols	
Ports config	Configuration of device control modules' uplink ports	9.7.2.4
Trunk membership	Configuration of LACP port aggregation	9.7.2.5
LACP	LACP System Priority setting configuration	9.7.2.6
RRD statistics	Collection of the network interface load statistics	6.6.10

9.7.1. MONITORING

9.7.1.1. UNIT1 (LEFT), UNIT 2 (RIGHT)

This tab shows information on each PP4X module parameters respectively. The information is read-only.

Monitoring Configuration RRD statis	stics		
Unit1 (left)	😴 Reload		
Unit2 (right) Temperature Role		not available or abcent	
Slot-port's status	Role	not available of absent	
Slot-port's statistic III Itiliz III Itiliz IIII Itiliz IIII Itiliz IIIII Itiliz IIIIIIII			
IF Utiliz U	Uptime <mark>(days:hh:mm:ss)</mark>	00:00:00	
LACP	Average CPU load (1 min)	0,00	
	Average CPU load (5 min)	0,00	
	Average CPU load (15 min)	0,00	
	Total memory, byte	0	
	Free memory, %	0	
SFP temperature, °C 0		0	×
SFP temperature, °C 0 CPU temperature, °C 0		0	<u>×</u>
:	Switch temperature, °C	0	×
:	Serial number		
1	MAC address	00:00:00:00:00	
1	Free FS Root, %	0	×
1	Free FS Tools, %	0	<u>×</u>
1	Free FS Config, %	0	×
1	Free FS Log, %	0	×

- *Role —* module role:
 - Master master module;
 - Backup slave module with the ability to take the master role;
 - Backup slave module without the ability to take the master role;
 - *unknown* not defined;
- Firmware version module firmware version;
- Uptime (days:hh:mm:ss) device operation time since the last reboot;
- Average CPU load 1min/5min/15min, % average system load 1min/5min/15min;
- Total memory total device memory in bytes;
- Free memory, %— free device memory in %;
- SFP temperature, C SFP module thermal sensor readings in Celsius;
- CPU temperature, C CPU thermal sensor readings in Celsius;
- Switch temperature, C internal switch thermal sensor readings in Celsius;
- Serial number device serial number;
- MAC address PP4X module unit MAC address;
- Free FS Root, Tools, Config, Log, % free space on disk partitions in percentage (in file systems).



For parameters that monitor the average system load, free memory, device temperature, click the button, located in the right area of the row, to go to the monitoring menu.

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9.7.1.2. SLOT-PORT S STATUS

In this tab you can perform online monitoring of the device port state.

Monitoring Configuration RRD sta	tistics									
Unit1 (left) Unit2 (right)	C Rel	oad								
Slot-port's status Slot-port's statistic	Ports' stat	tus								
IF Utiliz LACP			A							
	2/0	2/1	2/2	2/3	2/4	2/5	2/6	2//		
A CONTRACTOR OF	2/8	2/9	2/10	2/11	2/12	2/13	2/14	2/15		

Click *Reload* button to refresh the information in the tab.

Ports indication:

- operation and administrative port status is UP - in operation;

- operation port status *DOWN* - shut down by administrator or in alarm state.

Buttons are the active elements. Click them to edit the selected port on the respective tab.

9.7.1.3. SLOT-PORT S STATISTICS

Use this tab to view and edit Downlink port parameters of the device.

Use the drop-down menu to select the port for viewing and editing.

Monitoring Configuration RRD stat	istics			
Unit2 (right)	🛃 Reload 🔪 Edit 🖬 Online	statistic LACP ports : 1/0 V		
Temperature	Mode	0		?
Slot-port's status	Incoming data, bytes	0	×	
IF Utiliz	Outgoing data, bytes	0	×	
LACP	Incoming packages 'Broadcast'	0	X	
A CONTRACTOR OF A CONTRACTOR O	Outgoing 'Broadcast' packages	0	×	
	Incoming 'Multicast' packages	0	×	
And the second sec	Outgoing 'Multicast' packages	0	×	
and the second sec	Incoming 'Unicast' packages	0	×	
	Outgoing 'Unicast' packages	0	×	

- Mode interface operation speed in bit/s;
- Current interface state port operation status (Up enabled for operation, Down disabled for operation);
- Incoming data, bytes amount of data received to the interface, in bytes;
- Outgoing data, bytes amount of data sent via the interface, in bytes;
- Incoming Broadcast packages amount of broadcast packets received to the interface;
- Outgoing Broadcast packages amount of broadcast packets sent from the interface;
- Incoming Multicast packages amount of multicast packets received to the interface;

- Outgoing Multicast packages amount of multicast packets sent from the interface.
- Incoming Unicast packages amount of unicast packets received to the interface;
- *Outgoing Unicast packages* amount of unicast packets sent via the interface.

Click Save button to save entered parameters, or click Cancel to discard them.

Click button to proceed to *RRD Statistics* tab, to add new parameter monitoring task or to view the statistics for the previously assigned task (for detailed information, see chapter **6.6.10 RRD Statistics menu**).

Click *Reload* button to refresh the information in the tab.

9.7.1.4. IF UTILIZ

This tab shows traffic load statistics for each of the MA4000 interfaces for the last time (Last Time Load Interfaces).

Monitoring Configuration RRD statistics										
Unit1 (left)	Change field	ts 🕾 Reload 🗸	Edit options	Help 💰 Export						
Unit2 (right)	Change new			neip V Export		1				
Temperature	Port name	Last send, Kbit/s	Last recv, Kbit/s	Last send, Fra	Last recv, Fra	Average send,	Average recv,	Average send,	Average recv,	
Slot-port's status	stack-port 1/00	0	0	0	0	0	0	0	0	
IF Utiliz	stack-port 1/01	0	0	0	0	0	0	0	0	
LACP	front-port 2/00	1	6	1	12	1	5	1	9	
	front-port 2/01	0	0	0	0	0	0	0	0	
	front-port 2/02	0	0	0	0	0	0	0	0	
And the second s	front-port 2/03	0	0	0	0	0	0	0	0	
	front-port 2/04	0	0	0	0	0	0	0	0	
	front-port 2/05	0	0	0	0	0	0	0	0	
	slot-port 2/08	0	0	0	0	0	0	0	0	
	slot-port 2/07	0	0	0	0	0	0	0	0	H
	slot-port 2/09	0	0	0	0	0	0	0	0	
	slot-port 2/06	0	0	0	0	0	0	0	0	
	slot-port 2/10	0	0	0	0	0	0	0	0	
	slot-port 2/05	0	0	0	0	0	0	0	0	
	slot-port 2/11	0	0	0	0	0	0	0	0	
	slot-port 2/04	0	0	0	0	0	0	0	0	-

You can edit the Last Time Load Interfaces parameter by clicking *Edit parameters* button.

front-port X/Y — uplink interfaces on PP4X board, where X - PP4X number (1 or 2), Y - PP4X uplink port number (from 00 to 05).

slot-port X/Y — interfaces on PP4X board, connecting it to the subscriber-side PLC boards, where X - PP4X number (1 or 2), Y — PLC board number (from 00 to 15).

stack-port X/Y — interfaces on PP4X board, combining it in stack with the second PP4X board, where X - PP4X number (1 or 2), Y — stack port number (from 00 to 01).

Click *Change Fields* button to configure the set of fields for the event table.

- PortName name of the port;
- Last Sent, Kbit/s last known data rate (sent);
- Last Recv, Kbit/s last known data rate (received);
- Last Sent, Frames number of frames sent in the last transmission;
- Last Recv, Frames number of frames received in the last transmission;
- Average Sent, Kbit/s average data rate (sent);
- Average Recv, Kbit/s average data rate (received);
- Average Sent, Frames average number of frames sent;



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- Average Recv, Frames — average number of frames received.

Click *Choose All* button to select all list fields that you want to add.

Click *Apply* button to confirm changes, or click Cancel button to exit from the edit mode without saving.

Click *Reload* button to refresh the information in the tab.

9.7.1.5. LACP

LACP is a protocol, designed for combining multiple physical channels into one logical channel in Ethernet networks. Use this tab to monitor the channel data. Configuration of channel groups is described in chapter **9.7.2.5 Trunk membership.**

Monitoring Configuration RRD sta	atistics	
Unit1 (left)	Channel-group 2]
Unit2 (right)		
Temperature		٦l
Slot-port's status	Channel group 2	
Slot-port's statistic	- Mode: LACP	
IF Utiliz	Channel group 2 (Aggregator 1) Number of ports: 1	
LACP	Actor System Partner System	
	System priority: 32768 65535 System MAC: A8:F9:4B:81:93:20 00:00:00:00:00 Key: 0x444 0x1	
	Port Slot-port 1/8: [backup], link down Port Number: 17 Port Priority: 32768 LACP Activity: active	
9.7.2. CONFIGURATION

9.7.2.1. VLAN LIST

Use this tab to configure VLAN.

Monitoring Configuration RRD sta	tistics		
VLAN list			
QOS	🖸 😂 😽 🚮	Current VLAN: 1	
Access-list			
Ports config	1	Name	VLAN0001
		g1/0	Untagged -
LACP		a1/1	
A CONTRACTOR OF THE OWNER		yin	
		g1/2	Untagged
		g1/3	Untagged 👻
A CONTRACT OF CONTRACT		g1/4	Untagged 👻
		g1/5	Untagged 🚽
		g2/0	Untagged 👻
		g2/1	Untagged 👻
		g2/2	Untagged 👻
		g2/3	Untagged 👻
		g2/4	Untagged 🚽
		g2/5	Untagged 🚽
		Port-channel 2	Untagged 🚽
		IGMP Snooping	off 👻
		IGMP Snooping Querier	off 🚽
	L		

To add a new VID, click button, specify VLAN group name and tagging rules for each port of the device:

- Tagged all packets sent through ports will be tagged;
 - Untagged all packets sent through ports will not be tagged;
 - Not member this port is not a part of the group.

Add VL	AN X
?	New VLAN number: 55 OK Cancel

To edit record parameters, select the desired VID from the list and click button, or click

button to delete them.

Θ

Click *Accept* button to save entered parameters, or click *Cancel* to discard them.

Click button to update the list of configured VLANs, or click button to refresh parameters for the current VLAN.

9.7.2.2. QOS

This tab shows configuration for traffic prioritization.

Monitoring Configuration RRD sta	tistics
VLAN list QOS	2 Reload Cali
Access-list Ports config Trunk membership LACP	QOS type all priority are equal Default priority queue 0 DSCP/TOS queues
	Queue 0
	Queue 6

QoS type:

- All priority are equal when checked, QoS mapping is disabled;
- 802.1p packet selection by 802.1p only (Priority field in 802.1Q tag);

DSCP/TOS — packet selection by DSCP/TOS only (Differentiated Services field of the IP packet header, 6 high bits);

– DSCP/TOS or 802.1p — interaction either with 802.1p, or with DSCP/TOS.

Queues – queues, field values should be comma-separated.

- Queue — queue number (7th has the highest priority);

DSCP/TOS — differentiated Services field values of the IP packet header, 6 high bits, values should be entered in a decimal format;

802.1p — priority field value in 802.1Q tag;

- Default priority queue — all packets, falling outside the scope of rules, will be placed into the defined queue.

Click *Reload* button to refresh the information in the tab.

9.7.2.3. ACCESS LIST

This tab shows the list of rules, that define the device availability via HTTP, SNMP, SSH, TELNET protocols

Monitoring Configuration RRD statistics									
VLAN list	Dolo	ad 🧖 Dalaa			maya 🗖 Changa fielda	2			
QOS	No Keio	au 🔛 Keloa			Those Change news	1	1		
Access-list	ID	Policy	Service	If Index	Source Address Type	Source Mac Address	Source Ip Address	Source Mask	Shift index
Ports config	0	Allow	SSH	front-port 1/2	IP	-	192.168.18.0	255.255.255.0	0
Trunk membership									
LACP									

Record parameters:

- ID record number in the table;
- Policy rule;
- *Service* service type;
- If index management protocol;
- Source Address Type recipient's address type;
- Source MAC Address recipient's MAC-address;
- Source IP Address recipient's IP-address;
- Source Mask recipient's subnet mask;
- Shift Index sequence number.

All rules should follow in the MAC-IP-ANY order.

If you will try to shift or create a record with the out-of-order index, the *commit failed* error will be returned.

Example:

Permitted	Permitted	Forbidden
0 — Rule 0 — MAC	0 — Rule 0 — MAC	0 — Rule 0 — MAC
1 — Rule 1 — MAC	1 — Rule 1 — MAC	1 — Rule 3 — IP
2 — Rule 2 — IP	2 — Rule 4 — IP	2 — Rule 1 — MAC
3 — Rule 3 — IP	3 — Rule 3 — IP	3 — Rule 2 — IP
4 — Rule 4 — IP	4 — Rule 2 — IP	4 — Rule 4 — IP
5 — Rule 5 — ANY	5 — Rule 5 — ANY	5 — Rule 5 — ANY

Policy				
Service				
🖌 If Index				
Source Addre	ss Type			
Source Mac A	ddress			
Source Ip Address				
✓ Source Mask				
🕑 Shift index				
Choose all	By default			
	by dordant			
V Accept	X Cancel			
4				

🕺 Change displayed fiel... 📉

🖌 ID

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9.7.2.4. PORTS CONFIG

Use this tab to configure the uplink ports of the device control modules.

Monitoring Configuration RRD statistics									
VLAN list									
QOS			ange neius	,	,				
Access-list	ID	Name	Auto negotiate	Speed	Duplex	Flow control	Enabled	Status	In/Out, octets
Ports config	61	front-port 2/0	off	10 Mbps	Full duplex	off	On	Up, 10 Mbps	1616364 / 600378
Trunk membership	63	front-port 2/1	on	-	Full duplex	off	On	Down	-/-
	65	front-port 2/2	on	-	Full duplex	off	On	Down	-/-
	67	front-port 2/3	on	-	Full duplex	off	On	Down	- / -
	69	front-port 2/4	on	-	Full duplex	off	On	Down	- / -
ALC: NOT THE OWNER OF THE OWNER OWNER OF THE OWNER OWNE	71	front-port 2/5	on	-	Full duplex	off	On	Down	- / -
	122	port-channel 2	off	10 Mbps	Full duplex	off	On	Up, 10 Mbps	-1-

Configuration examples:

- Id number of the record;
- Name uplink port name;
- Autonegotiation automatic detection of the port parameters;
- Speed transfer rate;
- Duplex duplex mode selection;
- Flow control flow control mode (IEEE 802.3x PAUSE);
- Enabled enable/disable the port;
- Status current port status and operation speed;
- In/Out, octets quantity of received/sent octets.

Click *Reload* button to refresh the information in the tab.

9.7.2.5. TRUNK MEMBERSHIP

Use this tab to configure LACP port aggregation.

Each of the front ports can be included into one of the 8 aggregation groups. Click *Edit* button to proceed to configuration.

Monitoring Configuration RRD sta	tistics	
VLAN list QOS	😂 Reload 🔪 E	dit
Access-list Ports config	Front-port 1/0	n/a
Trunk membership	Front-port 1/1	n/a 🚽
LACP	Front-port 1/2	n/a 👻
	Front-port 1/3	n/a 👻
	Front-port 1/4	n/a 👻
A design and a design at the second s	Front-port 1/5	n/a 👻
A CONTRACT OF	Front-port 2/0	port-channel 2
	Front-port 2/1	n/a 👻
	Front-port 2/2	n/a 👻
	Front-port 2/3	n/a 👻
	Front-port 2/4	n/a 👻
	Front-port 2/5	n/a 👻

Click Reload button to refresh the information in the tab.

9.7.2.6. LACP

Use this tab to define LACP System Priority value.

Monitoring Configuration RRD sta	tistics
VLAN list	Reload Fdit
QOS	
Access-list	LACP System Priority 32768
Ports config	
Trunk membership	Port-channel 2 LACP
LACP	

Click *Reload* button to refresh the information in the tab.

9.8.PLC8 GPON MODULE

PLC8 module is designed to provide the broadband access to data networks using GPON technology with transfer rates up to 2.5Gbit/s downstream. This module is designed for 'last mile' operation and allows to connect up to 64 terminal devices (ONTs) per PON port. There are 8 PON ports per module.

Table 7 lists description of the basic control tabs.

Menu	Description	Section
ONT list	View and edit ONT configurations	9.8.1
Monitoring	View configuration parameters	9.8.2
Common	General device data (firmware version, uptime, CPU load, etc.)	9.8.2.1
PPPoE sessions	Information on PPPoE session parameters, running on the device	9.8.2.2
Temperature	Statistic chart of PP4X module temperature variations	6.6.8
PON channels	Information of SFP modules installed in the device	9.8.2.3
Multicast stats	List of IGMP groups, viewed by each of ONTs of the current board	9.8.2.4
Configuration	Configuration setup	9.8.3
VLAN	VLAN configuration	9.8.3.1
QoS	Assigning priority to packet transmission	9.8.3.2
ACL lists	Configuration of black/white lists for filtering traffic	9.8.3.3
ACL ports	Configuration of ACS LISTS tethering to PLC8 ports	9.8.3.4

Table	7 —	PI C8	module	control	and	monitoring	menu
Iable	/	I LCO	mouule	CONTRIO	anu	monitoring	menu

9.8.1. ONT LIST

This tab contains the complete list of active ONTs in the current tree (including ONTs in error state).

The server gets ONT list	st after synchronization	with the object.
--------------------------	--------------------------	------------------

0	ONT list Monitoring Configuration RRD statistics																		
F	Row filter: Records count: 6																		
	🖸 Change fields 🥰 Reload 🖭 Select all 💰 Export 😳 🍥 📉 😋 🥔 🤤 🚬																		
0	LT	Slot	Chan	ld	LED	PON Seri	Descri	CfgC	Cfgld	State	FwVer	FwR	Туре	Active	Crea	Switc	RSSI,	Note	Note d
MA	400	2	7	-	9	ELTX060		-	-1	UNACT	-1.0.0		UNKN	n/a	2014	0	n/a		
MA	400	2	7	-	9	ELTX080		-	-1	UNACT	-1.0.0		UNKN	n/a	2014	0	n/a		
MA	400	2	7	-	9	ELTX0F0		-	-1	UNACT	-1.0.0		UNKN	n/a	2014	0	n/a		
MA	400	2	7	-	9	ELTX1A0		-	-1	UNACT	-1.0.0		UNKN	n/a	2014	0	n/a		
MA	400	2	7	-	9	ELTX1A0		-	-1	UNACT	-1.0.0		UNKN	n/a	2014	0	n/a		
MA	MA400 2 7 - 😝 ELTX1D01 UNACT1.0.0 UNKN n/a 2014 0 n/a																		

For detailed description of the parameters listed in this tab, see LTP-8X operation instructions in chapter **8.2 ONT list.**

9.8.2. MONITORING

9.8.2.1. COMMON

The tab shows general data, received from the device. The information is read-only.

ONT list Monitoring Configuration	n RRD statistics			
Common	Seload			
PPPOE Session				
Temperature DOM observate	Firmware version	1.3.2.301 r40475		
Multicast stats	Serial number	OL04000034		
	Uptime (days:hh:mm:ss)	00:00:48:04		
	Free memory, byte	129732608	X	
	Free on disk, kbyte	2249	×	
	Average CPU load (1 min)	0,00	X	
	Average CPU load (5 min)	0,00	X	
	Average CPU load (15 min)	0,00	×	
	Temperature SFP, °C	32		2
	Temperature of PON, °C	36		2
	OLT: driver version	1.2.561		
	OLT #1: Firmware version	2.3.37.1008		
	OLT #1: Hardware version	5211.2		
	OLT #2: Firmware version	2.3.37.1008		
	OLT #2: Hardware version	5211.2		
	Board version	1		

Parameters:

- Firmware version module firmware version;
- Serial number device serial number;
- Uptime (days:hh:mm:ss) device operation time since the last reboot;
- Free memory, byte free device memory in bytes;
- Free on disk, kbyte free space on disk in percentage;
- Average CPU load 1 min/5 min/15 min average system load 1 min/5 min/15 min;

- Temperature SFP, °C SFP thermal sensor readings in Celsius;
- Temperature PON, °C PON thermal sensor readings in Celsius;
- OLT: Driver version OLT optical chip driver version;
- OLT 1,2: Firmware version (FW) OLT optical chip firmware version;
- OLT 1,2: Hardware version (HW) OLT optical chip hardware version;
- Board version.

Click button to proceed to *RRD Statistics* tab, to add new parameter monitoring task or to view the statistics for the previously assigned task (for detailed information, see chapter **6.6.10 RRD Statistics menu**).

Click *Reload* button to refresh the information in the tab.

9.8.2.2. PPPOE SESSIONS

This section contains data on current active PPPoE sessions. The information is read-only.

ONT list Monitoring Configuration	RRD statistics	i								
Common		All shamela								
PPPoE session		🖸 Change fields All Channels 🔍 🙀 Reload								
Temperature	PON serial	Client MAC	Session ID	ONT ID	Channel	Duration	Block			
PON channels							·			
Multicast stats										

Use drop-down menu to specify PON tree, which PPPoE sessions you want to view, or to show the statistics for all device trees.

The table lists the following information:

- PON serial PON serial number;
- *Client MAC* device address of the user that established the session;
- Session ID assigned PPPoE session number;
- ONT ID identifier of the subscriber-side device, that has established PPPoE session;
- Channel PON channel, which includes the subscriber-side device, that has established PPPoE session;
- Duration PPPoE session duration;
- *Block* subscriber-side device block status.

Click Change Fields button to configure the set of fields for the event table.

Click *Choose All* button to select all list fields, that you want to add.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

Click *Reload* button to refresh the information in the tab.

💡 Change displa	yed fiel 🗙
PON serial	
Client MAC	
Session ID	
ONT ID	
Channel	
Duration	
Block	
Choose all	By default
V Accept	X Cancel

9.8.2.3. PON CHANNELS

Use this tab to control and monitor SFP modules of the device.

ONT list Monitoring Configuration RRD statistics											
Common DDDoE session	C Reloa	😴 Reload 🧪 Reconfiguration 🥥 On/Off 🗔 Change fields									
Temperature	Channel	State	ONT count	SFP ven	SFP pro	SFP revi	TX powe	SFP tem	SFP volt	SFP curr	Enable
PON channels	0	Ok	0				N/a	N/a	N/a	N/a	on
Multicast stats	1	Ok	0				N/a	N/a	N/a	N/a	on
	2	Ok	0				N/a	N/a	N/a	N/a	on
	3	Ok	0				N/a	N/a	N/a	N/a	on
	4	Ok	0				N/a	N/a	N/a	N/a	on
	5	Ok	0				N/a	N/a	N/a	N/a	on
	6	Ok	0				N/a	N/a	N/a	N/a	on
	7	Ok	0	NEOPHO	38J0-653	1.0	5.498	42	3.2505	13.36	on

Click *Reload* button to refresh the information in the tab.

Click **Reconfiguration** button to perform PON channel reconfiguration, or click button to enable/disable channel and operation.

MONITORING TABLE CONFIGURATION

Click *Change Fields* button to configure the set of the monitoring table fields.

List of displayed fields:

🧧 Change displayed fiel 💌		
✓ Channel	_	Channel — PON channel number:
✓ State		
ONT count	_	State — SFP module state;
✓ SFP vendor	_	ONT count — quantity of connected ONTs;
SFP product	_	SFP vendor:
SFP revision		CED product
✓ TX power, dBm	_	SFP product;
✓ SFP temperature, °C	-	SFP revision;
SFP voltage, V	_	TX power, dBm;
SFP current, mA	_	SFP temperature, °C;
✓ Enable	_	SFP voltage, V;
Choose all By default	_	SFP current, mA;
V Accept X Cancel	_	Enable — PON channel status.

Click Choose All button to select all list fields, that you want to add.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

9.8.2.4. MULTICAST STATS

This tab shows the IGMP group log viewed from ONTs of the current board.

ONT list Monitoring Configuration RRD statistics									
Common	All	all and a Change Ballet							
PPPoE session									
Temperature	Channel	Record	ONT serial	Multicast address	Start	Stop			
PON channels									
Multicast stats	1								
	Multicast	statistic is e	mpty						

Click *Reload* button to refresh the information in the tab.

9.8.3. CONFIGURATION

9.8.3.1. VLAN

Use this tab to configure VLAN.

ONT list Monitoring Configuration	n RRD statistics		
VLAN			
QOS	🗘 😂 😽 🚮	Current VLAN: 1	
ACL lists			
ACL ports	1	MMR VLAN	
		IGMP Snooping Off	
9			A

Click (Re-read VLAN list) button to update the list of configured VLANs, or click (*Refresh VLAN parameters*) button to refresh parameters for the current VLAN.

To enable or disable VLAN, use the corresponding buttons in the settings field.

Given below is the dialog window for adding VLAN:

Add VLAN									
New VLAN number: 2 OK	H								

Click *(Edit VLAN parameters)* button to edit the selected VLAN name and respective IGMP configuration.

ULAN

🕹 ELTEX

The following actions are available:

💡 Edit VLAN 1		×
Имя	VLAN	
IGMP Snooping	off 💌	
	✓ Accept X Cancel	

- *IGMP Snooping* — for selected VLAN, enable/disable listening to multicast groups' requests and organization of multicast groups in the traffic forwarding device;

Click Accept button to save entered parameters, or click Cancel to discard them.

9.8.3.2. QOS

Use this menu to prioritize traffic and assign the packet transmission priority (by COS/TOS field) to one of seven priority queues.

ONT list Monitoring Configuratio	n RRD statistics							
VLAN QOS	😂 Reload 🔪 Edit							
ACL lists	QOS type	802.1p						
ACE ports	Default priority queue	0						
	Downstream Q-in-Q priority	off 👻						
	DSCP/TOS queue							
	00000							
	Queue 0							
	Queue 1							
	Queue 2							
	Queue 3							
	Queue 4							
	Queue 5							
	Queue 6							
	802.1p queues							
	Queue 0	0,1						
	Queue 1	2						
	Queue 2	3						
	Queue 3	4						
	Queue 4	5						
	Queue 5	6						
	Queue 6	7						

QoS type — QoS type configuration:

– All priority are equal — when value is set, QoS mapping is disabled;

- 802.1p — packet selection by 802.1p only (Priority field in 802.1Q tag);

DSCP/TOS — packet selection by DSCP/TOS only (Differentiated Services field of the IP packet header, 6 high bits);

DSCP/TOS or 802.1p — interaction either with 802.1p, or with DSCP/TOS;

- Default priority queue — all packets, falling outside the scope of rules, will be placed into this queue;

- Downstream Q-in-Q priority — prioritization by the internal tag in the downstream direction.

Click *Reload* button to refresh the information in the tab.

9.8.3.3. ACL LISTS

Use this tab to configure black/white lists for filtering traffic by the destination and source MAC/IP addresses, TCP/UDP ports and protocol.

Click General button to show the list type edit window.

ONT list Monitoring Configuration	RRD sta	atistics				
VLAN	S Com	non 🍣 Reload 🔿	Add	figurator	Change fields	
QOS	Se Collin	non 🥁 keload 👽	Add		change neius	
ACL lists	ID	Name	Ports			Filters
ACL ports	Access list is	; empty				
	access net is	, empty				
Паране Допусти Autocom	г ры записи (мые форма imit произої	access-control '22' ты значений: МАС 11:2 йдет после закрытия д	22:AA:ff:0F:b2; IP 12 иалога, если были	3.0.3.123; Protocol 0x00000x успешные изменения.	FFFF (HEX); Port 065535. Бновить	
Mac s	атры фильтра А	n. Of	▼ Добавить	Rules list	🔘 Удалить	
			✓ CI	ose		

Permitted value formats: MAC 11:22:AA:ff:0F:b2; IP 123.0.3.123; Protocol 0x0000..0xFFFF (HEX); Port 0..65535. If changes were entered successfully, Autocommit will happen after the dialog window is closed.

9.8.3.4. ACL PORTS

Use this tab to perform ACL LISTS tethering to PLC8 ports.

ONT list Monitoring Configuration	n RRD statistics	
VLAN QOS	🖉 Reload 🔪 E	dit
ACL lists	front-port 0	Not assigned v
	pon-port 0	Not assigned 💌
	pon-port 1	Not assigned 👻
	pon-port 2	Not assigned 👻
	pon-port 3	Not assigned 👻
	pon-port 4	Not assigned 👻
	pon-port 5	Not assigned 🔍
	pon-port 6	Not assigned 👻
	pon-port 7	Not assigned 👻
	slot-channel 0	Not assigned 👻
	i.	2

Click button to edit parameters.

Click *Reload* button to refresh the information in the tab.

9.9. MA4000 VERSION 1.3.2 OPERATION WITHELTEX.EMS MANAGEMENT SYSTEM

To work with the device in the management system, you should add a new object in the first place. To do this, select the 'Add object' item in the 'Devices' menu.

In the opened window, specify the name and IP address of the device and select the 'MA4000' object type from the list.

To edit device properties, go to 'Devices/Object properties' menu. There you will be able to change the device name, IP address and additional information that will be shown in the 'Description' tab.

厚 Add object	X
Object name	New node #7
Object type	MA4000 -
IP address	192.168.0.1
Add	Cancel

9.9.1. DEVICE MANAGEMENT

To perform tasks that require obtaining responses from the device (download/upload configuration, firmware update, etc.), you should configure SNMP trap sending. To do this, specify the EMS server IP address in the 'Configuration/SNMP Traps' section (Section **9.5.6**) of the MA4000 object.

9.9.1.1. SYNCHRONIZATION

You have to synchronize the device in order to work with its configuration. Depending on SNMP access settings, you have to configure parameters in the 'Access' tab (Section **6.6.11**). Verify the IP address, default SNMP version, and check that actual communities are provided for operation (default SNMP settings on EMS match those on the device.)

Applet Devices Management OLT	ONT ACS RADIUS Wire	eless Events Utilities Administration Information Help					
Synchronize ONT search Sa	ave 🐺 Apply						
	Description ONT list	Monitoring Configuration FW update RRD statistics Access					
Search	Name	MA4000					
P- MS	Туре	MA4000					
– 🌋 ACS 🗠 🏠 Dima Kruppa	Lock						
	IP address	192.168.205.113					
- PP4X - 00. PLC8 [0/0/0]	Availability status	Wrong					
- 📴 01. PLC8 [1/0/0] - 📴 02. PLC8 [1/1/0]	Access time	19.11.2014 14:13:00					
03. PLC8 [0/0/0]	Size	Height 9U					
05. PLC8 [0/0/0]	Power, V	3672					
07. PLC8 [0/0/0]	Equipment rack	19-inch					
- 09. PLC8 [0/0/0]	Quantity of service slots	16					

After device synchronization, the slot tree will open, where PP4X module and installed PLC8 modules will be shown.

9.9.1.2. UPLOAD CONFIGURATION BACKUP TO THE ARCHIVE

To perform the configuration upload, go to 'Management/Upload configuration to archive', and a new configuration upload task will be displayed in the 'Tasks' tab located in the bottom part of the applet. Upon completion, configuration file will be saved to the TFTP service root directory by default: /tftpboot/ems/.



9.9.1.3. RESTORE CONFIGURATION FROM THE BACKUP ARCHIVE

To restore the device configuration from the archive, go to 'Management/Restore configuration from archive' menu. Next, select the configuration file from the list of existing files and click 'Download and apply'. Upon download completion, the message 'Configuration has been downloaded and applied successfully' will be shown.

厚 Download the configuration to the device (in automatic mode) : MA4000	x
File: 61_MA4000_192.168.205.113_20141113_1653.cfg	Select
Test communication Cre Download and apply Cancel]
report Operation TEST launched. TFTP-server : '192.168.16.43', file : 'ems/61_MA4000_192.168.205.113_20141113_16 Error: Device fails to respond: exceeded timeout of response message. Time of receipt: Wed Nov 19 15:18:44 NO	353.cfg DVT 2014

9.9.1.4. SYNCHRONIZATION OF ALERTS

To refresh the alert list and show the current device alerts in 'Active alerts' and 'Event log' sections, select 'Synchronize alerts' item from the 'Management' menu in the configuration field.

9.9.1.5. APPLY CONFIGURATION CHANGES

Configuration is applied (commit+confirm), when the 'Apply configuration changes (COMMIT)' command is selected from the *Management* menu.

9.9.1.6. SLOT SYNCHRONIZATION

When the 'Synchronize MA4000 slots' command is selected from the 'Management' menu, PLC8 slot state will be updated.

9.9.1.7. REBOOTING THE DEVICE



Use the '*Reboot the device*' command from the '*Management*' menu to reboot the shelf and return it into operation.

9.9.1.8. RECONFIGURE OLT PON CHIPS

OLT PON chips of the PLC8 module are reconfigurable. This command is available in the 'OLT/PON chip reconfiguration' menu.

9.9.1.9. CONNECTING TO CLI WITH TELNET/SSH PROTOCOL

To log into CLI via Telnet protocol automatically, specify the Telnet/SSH login and password values in the 'Access' tab. After that, you will be able to log into CLI automatically when visiting 'Configuration/CLI/telnet' and 'Configuration/CLI/SSH' tabs.

9.9.1.10. REMOVE THE DEVICE FROM SERVICE

You may remove the device from service in order to prevent the automatic services (monitors) from performing any actions with the object (ping, configuration upload, etc.) To activate, select the respective checkbox in the 'Access' tab (Section **6.6.11**).

9.9.2. DEVICE CONFIGURATION

Device configuration is performed on the 'Configuration' tab of the MA4000 object.

9.9.2.1. GENERAL SYSTEM SETTINGS

9.9.2.1.1. SNMP TRAP CONFIGURATION

To perform tasks, that require obtaining responses from the device, you should configure SNMP trap sending to the EMS server address. To do this, specify the EMS server address in the 'Configuration/SNMP TRAPS' section (Section 9.5.6).

Description ONT list M	Ionitoring Configuration FW update RRD statistics Access							
Profilies								
Slot configuration	Z Reload							
IGMP Snooping	TRAP v1 IP TRAP v2 IP							
IGMP Proxy Report Range								
Traps filtration								
SNMP Traps								
Syslog configuration	INFORM IP							

9.9.2.1.2. SYSLOG CONFIGURATION

To enable syslog message receiving from the device by the EMS system, specify the EMS server IP address in the 'Syslog configuration' section (Section **9.5.7**).

9.9.2.1.3. TIME AND DATE CONFIGURATION

To perform time synchronization via NTP protocol, enable NTP synchronization via NTP in the '**NETWORK TIME PROTOCOL**' section (Section 9.5.9) and specify the IP address of NTP server.

To synchronize the current time with EMS server and set the time zone, use the '*Time* synchronization' section (Section **9.5.10**).

9.9.2.1.4. USER CONFIGURATION

To add, edit or delete users using EMS, assign permissions, change user passwords, use the 'Users' section (Section **9.5.8**).

9.9.2.1.5. ACCESS

To configure access to the shelf, use the separate PP4X module settings in the 'Configuration/ACCESS LIST' section (Section 9.7.2.3).

9.9.2.2. SHELF CONFIGURATION

Description ONT list	Monitoring Cont	figuration FW u	pdate RRD stat	istics Access				
Profilies	Change fie	lde 🧟 Roload 🔪	Edit D Poboo	+				
Slot configuration	Change ne	ius wieloau		L				
IGMP Snooping	Slot	State	Module type	Type of set up	Firmware versi	Curr.version	Serial number	
IGMP Proxy Report Range	0	Up Operational	PLC8	PLC8	-	1.3.2.391	OL04000052	
Traps filtration	- 1	Up Operational	PLC8	PLC8	-	1.3.2.391	OL04000210	
SNMP Traps	2	Up Operational	PLC8	PLC8	_	132391	01.04000222	
lisers	2		Nono	PL C9		1000	unknown	
Network Time Protocol	3	OpiNotBooting	None		-	1.0.0.0		
Time syncronization	_ 4	Up NotBooting	None	PLC8	-	1.0.0.0	OL04000758	
Stack configuration	5	Up NotBooting	None	PLC8	-	1.0.0.0	OL04000484	
Terminal VLANs	6	Up NotBooting	None	PLC8	- - -	1.0.0.0 1.0.0.0 1.0.0.0 1.0.0.0	unknown OL04000901 OL04001194	
CLI/telnet	7	Down NotBooting	None	PLC8				
CLI/ssh	8	Up NotBooting	None	PLC8				
	9	Up NotBooting	None	PLC8			OL04001665	
	10	Up NotBooting	None	PLC8	-	1.0.0.0	OL04000877	
And and a statement	11	Up NotBooting	None	PLC8	-	1.0.0.0	OL04001181	
	12	Up NotBooting	None	PLC8	-	1.0.0.0	OL04001174	
	13	Up NotBooting	None	PLC8	-	1.0.0.0	OL04000336	
	14	Down Absent	None	Unknown	-	0.0.0.0	unknown	
	15	Up NotBooting	None	PLC8	-	1.0.0.0	a8:f9:4b:81:8d:a0	

9.9.2.2.1. SLOT CONFIGURATION

When new PLC8 slots are connected, you have to specify their configuration. To do this, change the module type in *'Configuration/Slot configuration'* section to the type of the module being connected (e.g. PLC8). After the correct module has been specified, it will be rebooted and put into operation ('Up Operational' state).

9.9.2.2.2. STACK SYNCHRONIZATION CONFIGURATION

To enable/disable PP4X module synchronization, use the 'Configuration/Stack configuration' section (Section **9.5.11**).

9.9.2.2.3. ONT PON PROFILES

To configure ONT PON profiles, use the 'Profiles' section (see Section 8.4.8 Profiles).

You may add/edit/remove profiles of each profile type. PON profile manual or automatic synchronization allows you to set up profile parameter values according to the reference list (XML template), that is considered common for devices of the same type/firmware version.

9.9.2.2.4. TERMINAL VLAN CONFIGURATION

'Configuration/Terminal VLANs' section allows you to add, edit and remove Terminal VLANs.

Monitoring Configurat	tion RRD statistics		
VLAN list QOS	088 2	Current VLAN: 1	
Access-list			
Ports config	1	Name	VI AN0001
Trunk membership	30	Nume	
LACP	1200	g1/0	NotMember -
	1212 4000	g1/1	NotMember
and a set		g1/2	NotMember 🤝
		g1/3	NotMember 🧹
		g1/4	NotMember 👻
		g1/5	NotMember 👻
		g2/0	NotMember 👻
		g2/1	NotMember 🧹
		g2/2	NotMember 🧹
		g2/3	NotMember -
		g2/4	NotMember 🤝
		g2/5	NotMember 🧹
		IGMP Snooping	off 👻
		IGMP Snooping Querier	off 👻

9.9.2.2.5. VLAN CONFIGURATION

VLAN configuration is performed separately for PP4X and PLC8 modules in the *'Configuration/VLAN'* section (Section **9.8.3.1**). You may add/edit/remove VLANs to/from the configuration, assign different operation modes—tagged/untagged/forbidden—to the front-port (PP4X).

9.9.2.2.6. IGMP CONFIGURATION

To globally enable and configure IGMP, use the 'IGMP SNOOPING' section (Section 9.5.3), 'IGMP PROXY REPORT RANGE' section (Section 9.5.4) of the MA4000 object 'Configuration' tab.

9.9.3. OPERATIONS WITH ONT



	ONT list Monitoring Configuration RRD statistics
Search	Slot V Channel Row filter: ? Records count: 1
	📋 Change neidol 🦢 Reiodol 🐑 Selectian 👋 Export 👽 🥥 🔪 👻 🐷 🐷
	OLT S., Ch., Id L., PON Serial Descri., Cfg., Cfgld State FwVer., FwR., Type Act., Cre., Switch., RSS., Note Note d.,
- 2 Dima Kruppa	MA4000 2 0 0 😌 EL 🚱 General ONT state OK 3.20.2.4 NTP-R 2014 2014 45 -21.0
• MA4000 [2/1/0]	Rull configuration of ONT
00 PL C8 (0/0/0]	🖬 Statistics 🔸
01 PL C8 [1/0/0]	Secondary Second
02. PLC8 [1/1/0]	Configuration
03. PLC8 [0/0/0]	✓ Edit ACS parameters Selete
05. PLC8 [0/0/0]	👒 Go to external ACS 🔪 Edit
06. PLC8 [0/0/0]	😅 Swap ONT

9.9.3.1.1. ADD ONT

Before adding new ONT, you should synchronize the shelf and go to PLC8 slot, where you need to add a device—to the 'ONT list' tab. Added and non-specified devices will be listed as 'Unactivated'. If ONTs are still not connected to MA4000, the list will be empty. To add a new subscriber device, click button in the 'ONT list' tab or select the respective command from the menu by right-clicking the ONT. In the configuration creation window that appears, specify the ONT serial number, PON channel, that the device is connected to, and channel ONT identifier. Additionally, you may specify profiles, configure services or select configuration template (configured in the 'Configuration/Profiles/Template' section (Section 9.5.1)). After the ONT has been added to the configuration, device will enter the operation state (OK status).

	ONT list Monitoring Configuration RRD statistics	
Search	Slot - V Channel - V Row filter.	
?	C Change fields Z Reload E Select all 🖉 Export 💿 😫 🔪 🖉 Z 💭 🐼	
	OLT S Ch ld L DON Sorial Descrit Cfr. Cfr. Cfr. State Sulfar Surfar	to d
► ACS ► ACS	Ver 3 Ch., N E., PON Serial Desch., Cig., Cign State Pwver., Pwr., Type Act., Cie., Switch., RSS., Note Hold	e u
LTP-8X [12/2/0]	Add new configuration	
PP4X	Configuration template unassigned 🔻	
00. PLC8 [0/0/0]	Options	
02. PLC8 [1/1/0]	Serial * ELTX	
- 10 03. PLC8 [0/0/0] - 10 04. PLC8 [0/0/0]		
05. PLC8 [0/0/0]		
08. PLC8 [0/0/0]	PON Channel (CfgChan) * 0 v	
08. PLC8 [0/0/0]	ONT ID * 1	
- 10. PLC8 [0/0/0]	RF port disabled 👻	
- [= 11. PLC8 [0/0/0] - [= 12. PLC8 [0/0/0]	Profile Shaping Shaping-00.0NT Profile Shaping 0	
- [III 13. PLC8 [0/0/0] 14Empty-	Profile Scripting unassigned.unassigned	
- 15. PLC8 [0/0/0]	Profile Ports ports-00.0NT Profile Ports 0	
⊶ 🛄 та4000_205.234 [318/1/0] ⊶ 🐟 Найденные	Profile Management management-00.0NT Profile Management 0 💌	
	- Cross Connect Profile unassigned.unassigned	
	- DBA Profile unassigned.unassigned 💌	
	- Cross Connect Enabled off 💌	
	- Tag (VLAN) 1	
	- CoS (class of service) 0 💌	
	- Cross Connect Profile unassigned.unassigned	
	- DBA Profile unassigned.unassigned 💌	
	Accept X Cancel R Full configuration of ONT	

9.9.3.1.2. EDIT ONT CONFIGURATION

To edit the ONT configuration, double-click the device or click the \searrow button, or select the respective command from the menu that appears when you right-click the ONT. Also, you may edit multiple ONTs simultaneously. When changes are applied, ONT is reconfigured automatically, configuration is saved, commit+confirm is performed automatically.

9.9.3.1.3. REMOVE ONT

To remove ONT configuration, click the \bigcirc button or select the respective command from the menu by right-clicking the ONT. At that, all connected ONTs will enter the unauthorized state.

9.9.3.1.4. REPLACE ONT

To disconnect ONT from OLT and replace it with another device while retaining its settings, use the

'*Replace ONT*' command. To do this, click the subtraction or select the respective item from the menu by right-clicking the ONT. New ONT device will receive a correct configuration, configuration will be saved.

9.9.3.2. ONT MANAGEMENT

	ONT list Monitoring Configuration RRD statistics
Search	Slot - V Channel - V Row filter: ? Records count: 1
f	🖸 Change fields 🧟 Reload 🔚 Select all 🗳 Export 😳 😂 🔪 😅 🛃 🖉
ACS	OLT S., Ch., Id L., PON Serial Descri., Cfg., Cfgld State FwVer., FwR., Type Acti., Cre., Switch., RSS., Note Note d.
• 🔂 Dima Kruppa	MA4000 2 0 0 ELTX1A011 0 0 0K 3.20.2.4 NTP-R 2014201445 -21.0
← ₩ ₩A4000 [2/1/0]	General On State Generation of ONT
- PP4X - 00 PLC8 (0/0/01	
- [10 01. PLC8 [1/0/0]	Commands
02. PLC8 [1/1/0]	Configuration
- 04. PLC8 [0/0/0]	📏 Edit ACS parameters 👒 Update ONT firmware over OMCI
05. PLC8 [0/0/0]	🔹 Go to external ACS 🛛 🐜 Update ONT firmware through scheduler
- 07. PLC8 [0/0/0]	ONT deactivation
08. PLC8 [0/0/0]	💟 Reboot ONT

9.9.3.2.1. ONT RECONFIGURATION

To reconfigure the ONT, click the solution or select the respective item from the menu by right-clicking the ONT. Device will be reconfigured after the confirmation; ONT will enter the operation state.

9.9.3.2.2. ONT REBOOT

To reboot the ONT, select the respective item from the menu by right-clicking the ONT. Device will be rebooted after the confirmation; ONT will enter the operation state.

9.9.3.2.3. RESET TO FACTORY DEFAULTS

Right-click the ONT, select the 'Reset to factory settings over OMCI' from the command menu. Device will be reset to factory defaults after the confirmation; ONT will be booted with default settings and will enter the operation state.

9.9.3.2.4. DISABLE/ENABLE ONT OVER PLOAM

To disable the ONT, right-click the ONT, and select 'ONT deactivation' from the command menu. PON indicator will go off on the ONT after the confirmation; ONT will be listed as 'Disabled' in Eltex.EMS. To enable the ONT, right-click the ONT, and select 'ONT activation' from the command menu. ONT will enter the operation state—device PON indicator will become solid green, 'OK' status will be displayed in the ONT monitoring.

9.9.3.2.5. ONT FIRMWARE UPDATE

To update the firmware, upload the firmware file for the specific ONT type into the 'GPON-ONT firmware files' using the 'Administration/Device firmware/Subscriber firmware' menu (Section **14.2**).

On the *MA4000 'FW update'* tab, select '*FW ONT'* section, and click the '*Upload firmware file'* button. Select the desired file from the list. A new record with the upload progress will appear in tasks. When upload has been completed, firmware file will be displayed in '*FW ONT*' section.

Description ONT list	Monitoring Configuration	FW update RRD statistics	Access	
Shelf's firmware FW ONT	Change fields 🕞 Uploa	d firmware file 💿 Delete firmv	vare file 🥰 Reload	
ONT AutoUpdate Flags	File name	ONT types	Firmware version	Vendor
ONT updates scheduler				

9.9.3.2.5.1. UPDATE ONT FIRMWARE OVER OMCI

Right-click the ONT, select the 'Update ONT firmware over OMCI' from the command menu. A new record with the update status will appear in tasks. When ONT firmware update has been completed, ONT will enter the operation mode, a new firmware version will be displayed in the 'Version' field on the 'ONT list' tab.

9.9.3.2.5.2. UPDATE ONT FIRMWARE THROUGH SCHEDULER

Right-click the ONT, select the 'Update ONT firmware through scheduler' from the command menu. A new record with the update status will appear in tasks. Also, the current update progress is shown in the 'FW update' tab in the 'Update scheduler' section. When ONT firmware update has been completed, ONT will enter the operation mode, a new firmware version will be displayed in the 'Version' field on the 'ONT list' tab.

9.9.3.2.6. GROUP OPERATIONS WITH ONT

You may perform operations with multiple ONTs simultaneously. To do this, select multiple devices on the 'ONT list' tab. The following commands are available: 'Remove', 'Edit', 'Reconfigure', 'Reboot', 'Reset to defaults', 'Enable/Disable', 'Update firmware through scheduler'. You may perform group operations with the subscriber-side devices only within a single device.

Desci	iptio	n	ONT	r list		Monitor	ing	Configura	tion	FW upd	late RR	D statistic	s A	ccess						
Slot -	Slot · Channel · Row filter: Change fields Reload E Select all F Export							•) \ c	2	2	8	?Re	cords	count: 2					
OLT	S	(Ch	ld	L	PON S	Serial	Descri	Cfg	Cfgld	State	FwVer	FwR	Туре	Acti	Cre	Switch	RSS	Note	Note d
MA4000	1	-		-		ELTX0	9009		0	0	UNKNO	-	-	UNKNO	n/a	2014	0	n/a		
MA4000	2	0		0	Θ	ELTX1	A011		0	0	ок	3.20.2.4	-	NTP-R	2014	2014	45	-21.0		
	Configuration C							f ONT	PPP Mac- IGMP ONT Cros GEM GAL FEC C	session in address ta -groups ta connection s Connect ports mon counters counters met statist t ONT cou	fo able ns log counte iitoring tics	ıs								
						Rese	t connecti	ons col	unter											

9.9.3.3. ONT INFORMATION

9.9.3.3.1. ONT STATE

9.9.3.3.1.1. GENERAL ONT STATE

To view the general ONT state, press the mouse wheel on the particular device in the 'ONT list' tab, or use the menu that appears when you right-click the ONT.

9.9.3.3.1.2. VIEW FULL CONFIGURATION OF ONT

To view the full configuration of ONT, click the lease button, or right-click the ONT and select the respective menu item. The full configuration of ONT will be shown. Parameters, predefined with the configuration template, are marked with the [T] symbol.

9.9.3.3.1.3. VIEW COUNTERS

By right-clicking the ONT, in the 'Statistics' section you may monitor the state of PPP sessions (pppoe-ia should be enabled on MA4000), MAC address tables, IGMP groups, ONT connection logs, CrossConnect, GEM, GAL, and FEC counters, Ethernet interface statistics. You may reset Eth and connection counters.

9.9.3.3.2. GO TO EVENT LOG

To open the event log with the filter for the current ONT, right-click the ONT, and select the 'Statistics/Go to events log' command.

9.9.3.3.3. OPERATIONS WITH THE EXTERNAL ACS SERVER

To establish operations with the external ACS, select the 'Use external ACS' checkbox in the 'Access' tab (Section **6.6.11**). After selecting the checkbox in ONT menu (right-click the ONT row), the following two options will become available: 'Edit ACS parameters' (configure device parameters on the ACS server) and 'Go to ACS' (go to the CPE with the respective device serial number).

9.9.3.3.4. ONT SEARCH

To perform ONT search, press the 'ONT search' button. You may perform the search by all fields, by PON MAC/Serial, by description, channel or identifier. If ONT is found among the node devices, you will be taken directly to that device. If there are

Applet Devices Management OLT	ACS RADIUS Wireless E	Events Utilities
😵 Synchronize 🝳 ONT search 📃	ONT search	Ctrl-F
	Current statistics	
Same Contraction 1	Search for duplicate ONT by PC	ON MAC
Search	Search for duplicate ONT by De	escription
2	GPON metaprofile's editor	

multiple ONTs found matching search criteria, you will see the window with the list of devices with associated ONTs. If ONT is not found, you will be prompted to synchronize the node, and the search will be repeated.

9.9.3.3.5. ONT CONTENT STATISTICS

Show the statistics of the connected subscriber devices by their types. Results may be represented with the drop-down menu, available on the right click for the MA4000 object, and for each slot individually. You may search for duplicated ONTs by MAC/Description.

9.9.3.3.6. CREATE SUBSCRIBER (DEVICE) NOTES

EMS allows you to create the note for the subscriber with the date and text. To do this, click the

button in the 'ONT list' tab to open the ONT note editing window. Date and text will be shown in Note date and Note columns respectively.

9.9.4. FIRMWARE UPDATE

See 2	Description ONT list	Monitoring Configuration	FW update RRD statistics	Access	
Search ? ? ACS ACS Come Kruppa	Shelf's firmware FW ONT ONT AutoUpdate Flags ONT updates scheduler	Download new firmware	oad Make it active 🔿 R	teboot 🕂 Confirm	
P MA4000 [2/1/0] P P4X		PP4X Module	Firmware image	Version	Status
00. PLC8 [0/0/0]		Left 1 (master)	0	1 3 2 391 40962 18-Nov-2014	running - boot
- 1. PLC8 [1/0/0] - 1. PLC8 [1/1/0] 02. PLC8 [1/1/0]		Left 1 (master)	1	1 3 2 390 40949 17-Nov-2014	
- 03. PLC8 (0/0/0]					

9.9.4.1. UPDATE SHELF FIRMWARE

To perform the update, upload firmware files for specific devices in the 'Administration/Device firmware/Station firmware' (Section **14.1**).

To update the shelf firmware in automatic mode, go to the 'FW update/Shelf's firmware/FW update' tab (Section **9.6.1**). Select the firmware file in the window that opens and click 'Apply'. A new task will appear; when it has been completed, the firmware will be uploaded, the shelf will be restarted and the firmware update will be confirmed.

9.9.4.2. CHANGE FIRMWARE IMAGE

To change the active firmware image, go to the 'FW update/Shelf's firmware' tab (Section **9.6.1**), select the inactive image, click the 'Set as active' button (inactive image status will change to 'boot (not tested)'). To apply the change of a firmware image, reboot the PP4X. After the device startup, you will be prompted to confirm the firmware change. If you don't click the 'Confirm' button within 10 minutes, the Unit will be restarted and rolled back to the previous version of firmware.



9.9.4.3. ONT FIRMWARE UPDATE

To update the ONT firmware, upload the firmware file for the specific ONT type into the 'GPON-ONT firmware files' using the 'Administration/Device firmware/Subscriber firmware' menu (Section **14.2**). On the MA4000 'FW update' tab, select 'FW ONT' section (Section **9.6.2**), and click the 'Upload firmware file' button. Select the desired file from the list. A new record with the upload progress will appear in tasks. When upload has been completed, firmware file will be displayed in 'FW ONT' section.

Also, you may perform the firmware update from the drop-down menu in the 'ONT list' tab, available on the right-mouse click.

During the ONT firmware update through the scheduler, you may monitor the update status in the 'FW update/ONT update scheduler' tab (Section **9.6.4**).

See 20	Description ONT list	Monito	oring Configuration	FW upd	ate RRD statistics Access	
Search	Active alerts	Delevite				
?	Common	Priority	Date: fi	om	LO 10	
	Events log	OID:		Me	essage ONT serial:	
ACS	Syslog	Limit	20	🔶 🗖 🔮	🕴 📄 🛒 📑 🥰 Linewrap 🗌 Records count:	20
🗠 🚮 Dima Kruppa	Shelf	10 -	Canada data	Deignifer		OID
- 🚟 LTP-8X [12/2/0]	ICMP statistic		Create date	Priority	wessage	OID
P MA4000 [2/1/0]	SNMP statistic	352419	19.11.2014 13:10:01	MAJOR	Temperature sensor 'SFP' [slot-15] failed	1.3.6.1.4.1.35265.2.1.1.1.9
- PP4X	Power	352418	19.11.2014 13:10:01	MAJOR	Temperature sensor 'PON' [slot-15] failed	1.3.6.1.4.1.35265.2.1.1.1.9
00. PLC8 [0/0/0]	Multicast groups	352417	19.11.2014 13:10:01	MAJOR	Temperature sensor 'SFP' [slot-13] failed	1.3.6.1.4.1.35265.2.1.1.1.9
02. PLC8 [1/1/0]	D	352416	19 11 2014 13:10:01	MAJOR	Temperature sensor 'PON' (slot-13) failed	1361413526521119
03. PLC8 [0/0/0]		050445	10.11.0011.10.10.01			
04. PLC8 [0/0/0]		352415	19.11.2014 13:10:01	MAJOR	remperature sensor SEP. [slot-12] failed	1.3.6.1.4.1.35265.2.1.1.1.9
05. PLC8 [0/0/0]		352414	19.11.2014 13:10:01	MAJOR	Temperature sensor 'PON' [slot-12] failed	1.3.6.1.4.1.35265.2.1.1.1.9
- 00. PLC8 [0/0/0]		352413	19.11.2014 13:10:01	MAJOR	Temperature sensor 'SFP' [slot-11] failed	1.3.6.1.4.1.35265.2.1.1.1.9
- 08. PLC8 [0/0/0]		352412	19.11.2014 13:10:01	MAJOR	Temperature sensor 'PON' [slot-11] failed	1.3.6.1.4.1.35265.2.1.1.1.9
09. PLC8 [0/0/0]		352411	19.11.2014 13:10:01	MAJOR	Temperature sensor 'SFP' [slot-10] failed	1.3.6.1.4.1.35265.2.1.1.1.9
- [III 11. PLC8 [0/0/0]		352410	19 11 2014 13:10:01	MAJOR	Temperature sensor 'PON' (slot-10) failed	1361413526521119
- 📴 12. PLC8 [0/0/0]		552410	13.11.2014 13.10.01	M/ SOIL		1.0.0.1.4.1.00200.2.1.1.1.0
- 📴 13. PLC8 [0/0/0]		352409	19.11.2014 13:10:01	MAJOR	Temperature sensor 'SFP' [slot-9] failed	1.3.6.1.4.1.35265.2.1.1.1.9
14Empty-		352408	19.11.2014 13:10:01	MAJOR	Temperature sensor 'PON' [slot-9] failed	1.3.6.1.4.1.35265.2.1.1.1.9

9.9.5. MONITORING

9.9.5.1. ACTIVE EVENTS

To view the current device alerts, use the '*Monitoring/Active alerts*' tab (Section **6.6.2**). When alert is resolved, associated messages will be removed from this list.

9.9.5.2. COMMON

Common shelf information is located in the 'Monitoring/Common' tab (Section 6.6.3). For PP4X module—in the 'Monitoring/Unit1/2' tab (Section 9.7.1.1). For PLC8 modules—in the 'Monitoring/Common' tab (Section 9.8.2.1). Power supply information is located in the 'Monitoring/Power' section (Section 9.4.2).

9.9.5.3. EVENTS LOG

All shelf events are located in the '*Monitoring/Events log*' tab (Section **6.6.4**). You may filter the content, save a table or selected messages to a file.

9.9.5.4. SYSLOG

While configuring transmission of syslog messages from the device to EMS server IP address, you may check the data representation in the '*Monitoring/Syslog*' section (Section **6.6.5**). You may filter the content, save a table or selected messages to a file.

9.9.5.5. VIEW MA4000 SHELF STATUS

In the '*Monitoring*/**SHELF**' section (Section **9.4.1**), you may view the fan operation mode, power supply feeder status, slot status and shelf channel status. You may enable/disable, and reconfigure PON ports.

Also, you may view PLC8 object PON channels in the 'Monitoring/PON CHANNELS' tab (Section 9.8.2.3).

9.9.5.6. PERIODIC DEVICE POLLING (PING)

Polling is enabled in the system module settings ('Administration/Server configuration/SYSTEM **MODULES SETTINGS**' menu (Section **13.3**), 'Availability poll (ICMP, SNMP ping)' checkbox). Reboot the server after enabling the automatic device polling. Polling period is configured on the 'Access' tab

(Section **6.6.11**). Polling result will be shown in the graphics on the 'Monitoring' tab, in the 'ICMP statistics' section (Section **6.6.6**) and 'SNMP statistics' (Section **6.6.7**).

9.9.5.7. MULTICAST STATISTICS

To view the requested multicast groups, use the MA4000 object '*Monitoring*/**MULTICAST GROUPS**' tab (Section **9.4.3**), and for each PLC8 slot individually—use the '*Monitoring*/**MULTICAST STATS**' tab (Section **9.8.2.4**).

9.9.5.8. TEMPERATURE STATISTICS

To perform the temperature sensor polling, configure the 'Temperature control' monitor ('Administration/Server configuration/Scheduled tasks (monitors)') to be started each 5 minutes (default value: once a day). Temperature chart for PP4X module is shown in the 'Monitoring/Temperature' tab (readings from Switch, CPU, SFP for Unit 1 & Unit 2 temperature sensors). For PLC8 module— 'Monitoring/Temperature' (temperature chart is shown for PON, SFP sensors). For detailed information, see Section **6.6.8** MONITORING MENU, TEMPERATURE TAB.

9.9.5.9. PP4X SLOT PORT STATUS AND STATISTICS



To view the current port status and port operation statistics for the PP4X object, use 'Monitoring/SLOT-PORT S STATUS' (Section 9.7.1.2) and 'Monitoring/SLOT-PORT S STATISTICS' (Section 9.7.1.3) tabs.

9.9.5.10. INTERFACE UTILIZATION

To view the recent traffic load for each of the MA4000 shelf interfaces, use the '*Monitoring/IF* Utiliz' (Section **9.7.1.4**) of the PP4X object.

9.9.5.11. LACP STATISTICS

To view the LACP real-time data for the PP4X module, use 'Monitoring/LACP' tab (Section **9.7.1.5**).

9.9.5.12. PPPOE SESSIONS

To view active PPPoE sessions on the MA4000, you should enable and configure the PPPoE Intermediate Agent. To do this, define the following parameters of the **CLI shelf**:

ma4000(config-pppoe-ia)("pppoe-ia00")# enable ma4000(config-pppoe-ia)("pppoe-ia00")# sessions-limit 1000 ma4000(config-pppoe-ia)("pppoe-ia00")# sessions-limit per-user 4

After applying the configuration, reconfigure OLT:

ma4000# reconfigure olt slot x

After performing these operations, all active PPPoE sessions will be shown in the *'Monitoring/PPPoE sessions'* tab (Section **9.8.2.2**) of the PLC8 object.

9.9.5.13. RRD MONITORING

Description ONT list	Monitoring Configur	ation FW ONT RRD	statistics Access			
2 🔪 🖻 🗶 🗖 o	Change fields					
UserName	Start time	Step	Rrd file-path	Device	Parameter	Counter's type
doc	13.10.2014 17:54:01	300	/rrd/doc_EMS/ltp-16.223/R amFree_1413197381609	EMS.Itp-16.223	EMS/ltp-16.223/RamFree	Gauge
doc	13.10.2014 17:53:54	300	/rrd/doc_EMS/ltp-16.223/L oadAverage15Minutes_14 13197374609	EMS.Itp-16.223	EMS/Itp-16.223/LoadAver age15Minutes	Gauge

To enable the monitoring module, you have to select the respective checkbox in the system module settings, and restart the server afterwards. For detailed description, see Section **6.6.10 RRD Statistics menu**.

In the 'General' section, parameter monitoring buttons are shown next to parameters. Statistics will be collected according to the selected monitoring data type and polling period. To view the statistics for each of the monitored parameters, use the '*RRD statistics*' tab. You may view the statistics either in the chart mode, or in the table mode.

10 EXPORT OF RECORDS

The application allows you to export statistics data from tables to the operator's PC.

To copy records, select desired records, click (*Export*) button, located in the settings field, select the output directory and click *Save* button.



Log records will be saved in .csv format.

If you want to select all records in the log, use Select all button.

11 ADMINISTRATION. RIGHTS AND USERS. CONFIGURING USERS AND ROLES

11.1. PRINCIPLE OF USER RIGHTS' DISTRIBUTION

Role mechanism is used as a basic principle of rights' distribution. Role is a logical entity, that contains the following data:

- Role name;
- Text description;
- Idle time (seconds);
- List of permitted actions with objects;
- List of permitted nodes and objects;
- Alarm registration rights:
 - Info;
 - Warning;
 - Minor;
 - Major;
 - Critical.

The system has one basic administrator role, named 'SuperUser'. This role is disabled for editing. It automatically has all rights for each object.

All other roles are configured by the administrator according to operator job duties and logical breakdown by devices or locations.

System user — is a logical entity that is designed for authorized logging into system. Each user has the following set of parameters:

- Name
- Password
- Description
- Role
- Account expiration date
- Email address
- Forwarding email messages to the user address

When creating a new user, you have to complete all available fields. The name and password are required for log in (authorization), the role describes the list of permitted actions, and the account expiration date defines the account lifetime and is checked upon each authorization attempt.



11.2. CONFIGURING ROLES

Configuration of roles and users is available for system users with *Edit rights and roles* rights. To add or edit roles, go to *Administration/Rights and users/User role configuration* menu item. When this menu item is selected, the application will give show the dialog window where you will be able to edit roles (except for the SuperUser system role), and also add or remove them.

🦉 Role editor		×
Role list	Options	EMS
Northbound		- LTE-8X
test	Role name:	— MA4000-PX
	Description:	- Itp-16.222
	Idle time (sec):	
	Allowed actions	
	Edit privileges (0 changes)	
	Registration on alerts	
	Warnings	
	Not so important (Minor)	
	Important (Major)	
	Critical	
Add 🌑		
🔘 Delete		
Edit		
Save		
🗙 Cancel		
Сору		V Allow
Close		

There is a list of permissions for each role:

💡 Edit privileges of role 'Name of new role'.	Edit privileges of role 'Name of new role'.
MXA PON Common MSR SBC MA4000 MES3000L system TAU SMG ACS	MXA PON Common MSR SBC MA4000 MES3000L system TAU SMG ACS
GPON Common MSAN UEP VolP common linux ServerCommon WOP MES	GPON Common MSAN UEP VolP common linux ServerCommon WOP MES
PON monitoring	GPON metaprofile's editor
ONT work statistics	E AutoUpdate ONT flag operations
ONT activation/deactivation	Ont discovery mode operations
Reset ONT to factory settings over ACS/OMCI	Manage Terminal VLANs
NT synchronization	ONT auto-update rules list operations
📉 🔲 Add, deletem edit ONT parameters at OLT configuration. Search	ONT auto-update flag operations
ONT rebooting, reconfiguration	Users
FW ONT updating	
Command to update the chip's firmware	
Syslog configuration	
Network time protocol configuration	
Access-control for PLC	
Multicast statistic for OLT	
Accept Cancel Select all Reset all	Accept X Cancel Select all Reset all

In addition to rules defined for each role, you have to specify the scope of effect for these rules. To do this, edit the role and select *Enable* checkbox against the respective nodes in the right part of the role configuration dialog window. If you enable access to a node for this role, all nested nodes and objects in this node will become available automatically. To enable full access to the tree, you should give permission to access the root node *RootNode*.

🕹 ELTEX



The application stores previously given permissions, and they are saved when these nodes being merged with the higher level nodes. Note this, when revoking permissions. Also note, that the application will not let you to delete the role, unless it is assigned at least to one user.

11.3. CONFIGURE SYSTEM USERS

You have to enter your account name and password in order to login. When user authentication is completed, you will see the dialog window with the list of permitted actions and nodes or the login error message. *You cannot operate the system without registration* Configuration of user rights is performed by the system administrator (admin) or another user with the respective rights.

厚 Form to edit the li	sto	ofusers	x
User List		Name:	admin
admin	٠		
avp		Description:	admin
northbound ti1		Role:	SuperUser
test	=	Data:	10-12-2099
tim			
SS		E-mail:	
Dima Kruppa		Traps:	Do not send traps to e-mail
maks			
123		Logs:	Do not send logs to e-mail
124	•	ONT Problems	Do not send ONT problems to e-mail
🗘 Add		UNI Problems.	Do not send own problems to e-mail
Delete		Multiuser:	192.168.16.239
Edit		Block user:	User unlocked
Close			

To add or edit users, go to *Administration/Rights and users/System users configuration* menu item. If you choose this menu item, the application will show the user edit dialog window. System user **admin** cannot be deleted or renamed. Also, you can't change its expiration date or password. You can define the following parameters for other users:

厚 Edit user	x
Name:	ti1
Description:	Пользователь для работы tl1
Role:	Northbound
Password:	Change
Data:	10-08-2018
E-mail:	
Traps to e-mail:	
Log archive to e-mail:	
ONT problems to e-mai	1: 🔲
Block user:	×
Multiuser:	2
	V Accept X Cancel

- Name arbitrary name, up to 32 characters;
- Description arbitrary description, up to 64 characters;
- Role role, that defines access rights;
- Password arbitrary alphanumeric password;
- Date user account expiration date;
- E-mail e-mail address for sending alarm messages;
- Log archive by e-mail when checked, send e-mail messages to the defined address, otherwise — do not send;
- ONT problems by e-mail when checked, send e-mail messages to the defined address, otherwise do not send. (for detailed monitor configuration, see Appendix B. Paragraph 4 Monitor configuration);

- Block user;
- Multiuser mode, that allows authorization of multiple users with the single login In this mode you can define approved IP addresses for the user. If user performs authorization from one of these addresses, the password will not be prompted. Addresses should be delimited with space or comma. Validation of addresses is not performed. Field size limit — 255 characters.



If the address list database doesn't exist, this mode considered to be disabled.



Password is stored encrypted in the database, thus the system administrator will not be able to acces this information.



Edit checkbox next to *Password* field allows to change passwords. If you need to change the password (or to define it for the first time), select this checkbox and fill in the *Password* field. Otherwise, if you edit other parameters with this checkbox unselected, the password will not be changed. This feature allows the system administrator to avoid entering user password while changing other parameters of the account. Default password for 'admin' account — <empty>.



After the user account expires, the access to the system with this name will be blocked. System administrator can modify the expiration date or delete the account.

12 ADMINISTRATION GUI BEHAVIOUR

12.1. SETTING THE COLOR SCHEME

To configure the colour scheme, use Administration/GUI behaviour/Setting the color scheme menu.

🏮 Setting color spectrum o	of alerts and system messages	×
Setting alarm messages : Setting syslog messages:	CLEAR INFO WARNING MINOR MAJOR CRITICAL TOS_EMERGE LOG_ALERT LOG_CRIT LOG_ERR LOG_WARNING LOG_NOTICE LOG_INFO LOG	G_DEBUG
	Accept X Cancel Default	

The figure below shows the default colour for each type of alarm.

To change alarm colour marker, click the rectangle of the desired message level. Edit menu for this type of alarm will open.

Preview area (*Preview*) is located in the lower part of each tab. It allows you to estimate the selected colour visually.

Swatches tab

Swatches — sample palette Here you can select the colour from the palette.

HSV and HSL tabs

HSV(HSB) and HSL colour models — colour (tone), saturation, brightness (for

S Choosing color for [WARNING]	x
Swatches HSV HSL RGB CMYK	
Recent:	
Preview	
Sample Text Sample Text	
Sample Text Sample Text	
OK Cancel Reset	

A ELTEX

HSL — lightness level).

Palette types:

- Hue colour hue Varies from 0 to 360.
- Saturation colour saturation Varies from 0 to 100. The more the value of this parameter, the cleaner the colour. If the value is closer to zero, the colour will be closer to the neutral grey.
- Lightness brightness (lightness level) Varies from 0 to 100.
- Value colour value Varies from 0 to 100.
- Transparency colour transparency Varies from 0 to 100.

You can select the desired colour by moving sliders, entering the specific values in fields or placing the mouse cursor onto the desired part of the colour field.

Choosing color for [LOG_EMERG]	Choosing color for [LOG_EMERG]
Swatches HSV HSL RGB CMYK	Swatches HSV HSL RGB CMYK
Hue 0 100 Transparency	Blue Or Or
Preview Sample Text Sample Text Sample Text Sample Text Sample Text Sample Text Sample Text	Preview
OK Cancel Reset	OK Cancel Reset

RGB tab

RGB colour model — additive colour model that describes colour mixing method for further reproduction. Channels — red, green, blue.

You can select the desired colour by moving sliders or entering the specific values in fields to the right of each scale.

Choosing color for [LOG_EMERG]
Swatches HSV HSL RGB CMYK
Red 255 ⁺ Green 0 ⁺ Blue 0 ⁺ Alpha 255 ⁺
Color Code FF0000
Preview Sample Text
OK Cancel Reset

CMYK tab

CMYK colour model — subtractive colour model, used primarily in standard four-colour process printing. CMYK model gamut is smaller compared to RGB.

You can select the desired colour by moving sliders or entering the specific values in fields to the right of each scale.

Choosing	color for	[LOG_	EMERG	1	_	_		×
Swatches	<u>H</u> SV	HSL	RGB	CI	MAK			
					Cyan	_		 0 -
					Magenta			 255
					Yellow			255 🗧
					Black	— —		
					Alpha			255
Preview				_				
			•		Sample Text	Sample Text		
					Sample Text Sample Text	Sample Text Sample Text		
				OF	Cancel	Reset]	

Click *OK* button to save changes, or click *Cancel* button to exit the edit menu without saving. Click *Reset* button to cancel changes without leaving the edit menu.

When alarm colour scheme configuration is finished, click *Accept* to save and apply changes, or click *Cancel* button to exit without saving. Click *Default* button to show the default colours.

12.2. SETTING THE SOUND SCHEME OF ALERTS

To configure the applet sound scheme, use Administration/GUI behaviour/Setting the sound scheme of alerts menu.

Setting the sound scheme of	Ale	rts	-	x
Alert's pri	orit	y : Sound		
Warning <warning></warning>	:	Disabled	-	40
Minor alert <minor></minor>	:	Disabled	-	40
Major alert <major></major>	:	Disabled	-	40
Critical alert <critical></critical>	:	Disabled	-	40
🗸 Accept 🛛 💥 Cano	cel	n Defaul	t	Seep

Use the drop-down menu to select the audible signal, that will play, when the message of particular type is received.

You can select the following sound settings:

- none sound is disabled;
- beep system beep sound;
- sound system melody sound.

When alarm sound scheme configuration is finished, click *Accept* to save and apply changes, or click *Cancel* button to exit without saving. Click *Default* button to show the default values.

Click Beep

button to test the associated signal playback.

13 EMS SERVER CONFIGURATION

13.1. SNMP TRAP RECEIVING AND PROCESSING

Use this menu to configure SNMP traps receiving and processing in the system.

🦉 Configure SNMP tr	ap reception (Trap Rule	s)						X	
OID:		Device type:	Line	wrap					
Change fields	🔮 Reload 📏 Edit 🄊	Reset 🞇 Blacklist							
OID	Name	Description	Source	Disabled	Priority	Always closed	Disable storing	Device blacklist	
1.3.6.1.2.1.118.0.2	ALARMMIBalarmActiv	ALARM-MIB: alarm ac	SSW		MAJOR				
1.3.6.1.2.1.118.0.3	ALARMMIBalarmClea	ALARM-MIB: alarm cl	SSW		CLEAR				F
1.3.6.1.4.1.18.2	TopGATEalarm	ТорGATE: Авария	TopGATE		INFO				
1.3.6.1.4.1.18.2.0.0	TopGATEcoldStart	TopGATE: cold start	TopGATE		INFO				
1.3.6.1.4.1.18.2.1.0	TopGATEwarmStart	TopGATE: warm start	TopGATE		INFO				
1.3.6.1.4.1.18.2.2.0	TopGATElinkDown	TopGATE: link down	TopGATE		INFO				
1.3.6.1.4.1.18.2.3.0	TopGATElinkUp	TopGATE: link up	TopGATE		INFO				
1.3.6.1.4.1.18.2.4.0	TopGATEauthenticati	TopGATE: authenticat	TopGATE		MINOR				
1.3.6.1.4.1.18.2.5.0	TopGATEegpNeighb	TopGATE: EGP neigh	TopGATE		INFO				
1.3.6.1.4.1.18.2.6.0	TopGATEtrapE1Licen	TopGATE: E1 licensing	TopGATE		INFO				
1.3.6.1.4.1.18.2.6.1	TopGATEtrapMonitori	TopGATE: supply mo	TopGATE		MAJOR				
1.3.6.1.4.1.18.2.6.2	TopGATEtrapBlockPort	TopGATE: block port	TopGATE		MINOR				
1.3.6.1.4.1.18.2.6.3	TopGATEtrapUnblock	TopGATE: unblock port	TopGATE		CLEAR				
1.3.6.1.4.1.18.2.6.4	TopGATEtrapTemper	TopGATE: wrong tem	TopGATE		MAJOR				
1.3.6.1.4.1.34300.3.3.1	MXL2EAlarmDSL	MXL2E: Stream DSL	MXL2E		MINOR				
1.3.6.1.4.1.34300.3.3.7	MXL2EAlarmDPS	MXL2E: DPS alarm	MXL2E		MINOR				
1.3.6.1.4.1.34300.3.3.8	MXL2ESensorAlarm	MXL2E: Sensor Alarm	MXL2E		MINOR				
1.3.6.1.4.1.34300.3.4.1	MXL2EOKDSL	MXL2E: Stream DSL i	MXL2E		INFO				
1.3.6.1.4.1.34300.3.4.7	MXL2EOKDPS	MXL2E: DPS in work	MXL2E		INFO				
1.3.6.1.4.1.35265.1.2	ltp8xLoadAverageAlar	LTP8X: CPU load ave	LTP8X		WARNING				
1.3.6.1.4.1.35265.1.2	ltp8xInterfaceCriticalL	LTP8X: InterfaceCritic	LTP8X		MAJOR				
1.3.6.1.4.1.35265.1.2	ltp8xOntDyingGasp	LTP8X: ONT power off	LTP8X	×	INFO	2			
				_					-
				💥 Close					

13.2. SCHEDULED TASKS (MONITORS)

🧑 Monito	rs											_2	
🔪 Edit	Additiona	ally 😫 Blac	:klist 🥃 Re	eload 🗔 Cl	hange fields								
ID	Start type	Monitor's	Log file	CRON pe	Start cou	OK count	Error cou	Alerts ge	Current s	Next star	Interrupt	Run	
22	MANUAL	OLT PON	sync_pon		0	0	0	0	FREE			0	
16	MANUAL	Update st	station_u		0	0	0	0	FREE			0	
21	MANUAL	Cleaner o	switch_co		0	0	0	0	FREE			0	
19	MANUAL	Archiving	logsdir_s		0	0	0	0	FREE			0	
18	PERIOD	Device te	temperatu	0 0/5 * * * ?	338	338	0	0	FREE	15.10.201		0	
2	PERIOD	Alerts syn	alerts_sync	0 0 0/1 * * ?	29	29	0	0	FREE	15.10.201		0	
12	PERIOD	Syslog da	syslog_cl	0 0/30 * *	56	56	0	0	FREE	15.10.201		0	
3	MANUAL	Alerts jour	alerts_arc		0	0	0	0	FREE			0	
200	MANUAL	ACSD stat	acsd_break		0	0	0	0	FREE			0	
14	MANUAL	Update N	ntp_omci		0	0	0	0	FREE			0	
13	PERIOD	Database	check_db	0 28 0/6 *	4	4	0	0	FREE	15.10.201		0	
6	PERIOD	Configura	upload_c	007**?	2	2	0	0	FREE	16.10.201		0	
47		00001001			-	-	•		FDFF			<u> </u>	
	X Close												

For detailed description of system monitors, see APPENDIX B. System monitors.

13.3. SYSTEM MODULES SETTINGS

Use this menu to edit PON module parameters. For **GPon:**

🦉 System mo	dule	es settings	
acs	•	Use HEX format for ONT serial numbers	Enable
gPon		Get ONT type and FW version while PON sync	✓ Enable
gePon		Get ONT RSSI while PON sync	✓ Enable
Itp	=	TFTP server IP used for ONT	192.168.16.230
ma4000			
mes 30001			
msan			
msr			
mxa mxl2o			
plc8			
ponCommon	_		
sbc	•		
Actions Depart			
- reset	-		
X Reset all			
			✓ Accept Cancel

- Show and save GPON serial in the DB in HEX format (server reboot is required after changing this setting);
- Request ONT type and firmware version in synchronization;
- Request ONT RSSI in synchronization;
- TFTP server address for ONT IP address of the interface server, that will be used for operations between the server and NTP.

For **GEPon**:

💡 System mo	dule	es settings	
acs	•	Server address TFTP for ONT	192.168.16.230
gPon		Attempts maximum number of the NTE-RG updating	5
gePon		Maximum quantity of errors of the NTE-RG updating	5
Ito	_	Firmware for NTE-RG14	
ma4000		Eirmutare for NTE PG14troup	
mes			100
mesouuul		The software version for up-dating NTE-RG14	-1.0.0
msr		[The software version for up-dating NTE-RG14.revB	-1.0.0
mxa			
mxi2e pic8			
ponCommon			
sbc	•		
Actions			
- WReset			
💥 Reset all			
			V Accept X Cancel

- TFTP server address for ONT IP address of the interface server, that will be used for operations between the server and NTE;
- Maximum quantity of update attempts for NTE-RG maximum possible quantity of update attempts for NTE-RG update scheduler, 1..1000 (default value is 5);
- Maximum quantity of update errors for NTE-RG maximum possible quantity of update errors for NTE-RG update scheduler, 1..1000 (default value is 5);
- Firmware for NTE-RG14 update image file name for the update (advanced configuration is performed via the Update scheduler (Chapter 14.2 Subscriber s software 14.2.1.1 UPDATE SCHEDULER);
- Firmware for NTE-RG14:rev.B update image file name for the update (advanced configuration is performed via the Update scheduler (Chapter 14.2 Subscriber s software 14.2.1.1 UPDATE SCHEDULER);
- Firmware version for NTE-RG14 update firmware version for the update (advanced configuration is performed via the Update scheduler (Chapter 14.2 Subscriber s software 14.2.1.1 UPDATE SCHEDULER);
- Firmware version for NTE-RG14:rev.B update firmware version for the update (advanced configuration is performed via the Update scheduler (Chapter 14.2 Subscriber s software 14.2.1.1 UPDATE SCHEDULER).



For ma4000:

💡 System modu	es settings	×
acs gPon gPon gPon gPon te mes3000L msan msr mx22 plc8 ponCommon sbc ▼ Reset W Reset all	es settings	Enable
		Accept X Cancel

 Automatic changes committing (Autocommit) — apply configuration automatically, when changes has been made.

For tftpserver:

💡 System mo	lule	es settings		X				
msr	•	TFTP server IP for station devices	192.168.16.230					
mxa		Port (for embedded TFTP server)	69					
mxi2e		Root directory for tftpd	/tftpboot					
pics		Directory for FW files	station_images					
sbc		Directory for configuration files	ems					
smg		Show TFTP activity	Enable					
system		Embedded TFTP server enabled	Enable					
tau								
ti1								
topgate								
Uep voinCommon	•							
Actions								
Seset								
X Reset all								
	Accept							

- IP address for station-side devices common address, that is used for communication with the station-side devices;
- Port (for internal TFTP) local TFTP server port (integrated to EMS), possible values 1..65535 (default value is 69);
- Root service catalog tftpd root service catalog;
- Station-side firmware subcatalog name of subcatalog for station-side firmware files; this field cannot be changed;
- Configuration files' subcatalog name of subcatalog for configuration files; this field cannot be changed;
- Interaction tracing output debug messages into the log;
- Enable internal TFTP server use TFTP server, integrated to EMS, otherwise use TFTP at the same host outside of EMS.

13.4. ADMINISTRATOR S WORKSTATION

Use this menu to assign the type of access to Eltex.EMS:

- *Multi-user* multiple users can access the system simultaneously;
- Exclusive only one user can access the database and exclusively manage configuration objects.

	Single upor
ork mode:	
	Multiuser
ention: Sv	ritch to 'Single user' mode will lead to shutdown for all active users !
ctive user	s
Dima Krup	pa:SuperUser@192.168.16.43 (GUI), session start time: 15-10-2014 15:30
orthboun	d:Northbound@127.0.0.1 (Northbound), session start time: 14-10-2014 13:20
doc:Super	User@192.168.27.135 (GUI), session start time: 15-10-2014 15:34

Use *Operation modes* selector to switch the operation modes.

In exclusive mode, all active system users will be disconnected.

The list of current active users is shown in Active users field. Click Refresh list button to refresh it.

13.5. EMS SERVER RESTART

Use this menu to perform the forced reboot of EMS. To confirm the reboot, enter your system account password.

Reboot EMS server. Are you sure?									
?	Input your password: OK Cancel								

14 ADMINISTRATION DEVICE SOFTWARE

14.1. STATION-SIDE SOFTWARE

14.1.1. FIRMWARE FILES LIST

💡 Station software							x				
Firmware files list Control list	Change fields	🖸 Change fields 🗘 Upload 😂 Delete 🥃 Reload									
THITCHAS	id 🔻	Object type	File	Size	Version	Description	Test				
	8	PLC8	image.plc	10497640	1.1.14.57	File loading by operato	test				
	7	PP4X fin MA4000 in		17282996	1.1.14.57	File loading by operato	test				
	6			10242160	1.1.16.41	File loading by operato	test				
	5	PP4X	firmware_1.1.16.41.39	17414560	1.1.16.41	File loading by operato	test				
	1	LTP8X	ltp-8x-3.20.2.2855.fw.bin	10135527	3.20.2.2855	File loading by operato	test				
			×	Close							

This menu contains the table designed for registration of firmware files in EMS, that allows to perform firmware update for every device.



Firmware files must be registered in order to be used for the update.

14.1.2. CONTROL LIST

This menu contains the table of device polling (current version poll). Version polling is performed by 'Firmware FW' monitor that polls all devices in the network according to its settings. This allows to control firmware versions on all the network devices. 'Information type' is identified=READ.

😻 Station software												
Firmware files list]	-		1_1				
Control list	Device type:	All	Full device type:	All	IP:	IV	pe: All		_			
The second	Source:		Date : from	1		to		FW v	version:			
And the second size of	Page size:	25	Clear 🖸 Cha	load 🔲 Select All	📧 Select All 🗳 Export 🔡 Save						_	
	ID	Device type	Full device t Devic	e name IP	Description	Serial	FW version	Date 👻	Source	Descr type	Source type	Path
										,		·
					🔀 Clos	е						

You can filter events in the log by one or multiple parameters.

Filter list for log records:

- Device type select from the drop-down list;
- Full device type device type, select from the drop-down list;
- IP message source IP address;
- Type all/UNKNOWN/UPLOAD/READ;
- Source process initiator;
- Date: from/to record creation date range in DD.MM.YYYY or DD.MM.YYYY HH.MM format;
- FW version.

Record number field allows you to configure the quantity of messages displayed on the page. To navigate through pages, use the tab panel in the lower part of the window.

Use *Reset Filters* button to return all filters into their default state.

14.2. SUBSCRIBER S SOFTWARE

Use this section to configure firmware update operation parameters.

14.2.1. GPON-ONT/GEPON-ONT FIRMWARE FILES

Subscriber's software													
GPON-ONT FW files	Characteria Characteria Characteria												
GePON-ONT FW files		🖸 change neus 🤝 opioad 🥥 perece 🥃 Reioad											
General ONT list	id	PON technology 🔺	File	Size	Version	Description	Test						
GePON updating log	9	GPON	ntp-rg-2.2.2690.fw.bin	13124648	2.2.2690	old	🜔 test						
💥 Close													

To add, remove and edit the table elements, use the respective buttons in the settings field.

Select file for upload								
Look In: 📑 Прошивки	- a c x b							
ntp-rg-2.2.2690.fw.bin	Version							
ntp-rg-2.2.2789.fw.bin	Description							
	Check internal CRC							
l								
File <u>N</u> ame:								
Files of Type: All Files	▼							
	Open Cancel							

- *Version* firmware file version;
- Description arbitrary text description for firmware file identification;
- *File name* firmware file name;
- File type the type of files shown in the list.

Check file 'ntp_imagesIntp-rg-2.2.2690.fw.bin' ?	
 - 3) Check IFTP server - 4) Reading file - 5) TFTP server : 192.168.16.230 - 6) File 'ntp_images/ntp-rg-2.2.2690.fw.bin' for device 'GPON' is successful testing. File size - '13124648' bytes. It took time : 1 sec 	

After record has been added, you can verify its validity and firmware availability by double-clicking *Verify* button. Click *Start* button to start the verification process.

🕹 ELTEX

14.2.1.1. UPDATE SCHEDULER

For GePON devices, you can specify scheduled updates. Click *Update scheduler* button to proceed to firmware update schedule configuration.

Up-dating setup NTE-RG	x						
Maximum quantity of errors of updates:	5						
Number of attempts of up-dating in case of DHCP non-confirmation:	5						
FW NTE-RG14xx file name:	- not selected -						
FW NTE-RG14:rev.B file name:	- not selected -						
Version on up-dating NTE-RG14xx:	-1.0.0						
Version on up-dating NTE-RG14:rev.B:	-1.0.0						
The EMS interface IP address (TFTP for the NTE-RG network):	The version number for NTE-						
Apply X Cancel							

- Maximum quantity of errors of updates maximum possible number of failures during the firmware update;
- Maximum of updating in case of DHCP non-confirmation maximum possible number of firmware updates;
- FW NTE-RG14xx file name select the firmware file from the drop-down list;
- FW NTE-RG14xx rev.B file name select the firmware file from the drop-down list;
- Version on updating NTE-RG14xx generated according to the firmware file name;
- Version on updating NTE-RG14xx rev.B generated according to the firmware file name;
- The EMS interface IP address (TFTP for NTE-RG network) address of the interface, which is used by server for connection to NTE.

14.2.2. GENERAL ONT LIST

This section lists information on all ONTs, registered in the system.

💡 Subscriber's softwa	Subscriber's software													x		
GPON-ONT FW files GePON-ONT FW files	Code :	All	T IP	·		MAC:	_	PON MAC	:		Tech.:					
General ONT list	OLT:		Версия	e	🕴 Res	et counters	🔐 Update s	tatus 🕱 Del	ete old 🖬 🕄	statistics						
GePON updating log	Page size	.e: 25	Clear	Change f	fields 🥃 Rel	load 📃 Sel	ect All 🗳 Ex	port 📑 Sav	e							
	id	FACTORY	. PON_MAC	REAL_MAC	Туре	Serial num.	Software v	. Date of 🔻	Date of rec	. Status upd.	. Errors	Attempts t	. Reqv.update	IP address	Info	Mes
	14538		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14537		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14536		0E:00:02:0		NTE-RG-1	(-1.0.0		15.10.2014	Unknown	0	0	0			=/
	14535		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
The second	14534		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14533		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14532		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14531		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14530		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14529		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14528		0E:00:02:0		NTE-RG-1		-1.0.0		15.10.2014	Unknown	0	0	0			
	14527		0F:00:02:0		NTE-RG-1		-100		15 10 2014	Unknown	0	0	0			
× Close																

You can filter events in the table by one or multiple parameters.

Filter list for log records:

- Code device update status:
 - Unknown;
 - Updated successfully;
 - Overrun error;
 - Update required;
 - Update in progress;
 - Update error;
- Verification pending;
- IP device IP address;
- MAC device MAC address;
- PON MAC PON MAC address of the device;
- Tech PON technology (GePON/GPON);
- OLT name of device OLT, that ONT belongs to;
- Version ONT firmware version.

14.2.3. ONT LIST APPEARANCE CONFIGURATION

Click Change Fields button to configure the set of the table fields.

List of displayed fields:

- ID identification number of the record;
- FACTORY_ MAC factory MAC address;
- PON_MAC PON MAC address;
- REAL_MAC current WAN MAC address;
- *Type* device model;
- Serial number device serial number;
- *Software Version* current device firmware version;
- Date of update software— date and time when firmware was updated;
- Date of receipt DHCP— date and time when the data was received via DHCP;
- Status update software device firmware update status;
- Errors quantity of errors during the firmware update;
- Attempts to update quantity of firmware update attempts;
- *Reqv. Update* quantity of firmware update attempts;
- IP address;
- Info;
- Message;
- VLAN number of VLAN, that the device belongs to;
- OLT ID identifier of OLT, that the device is connected to;
- OLT name name of OLT, that the device is connected to;
- Slot number of slot, that the device is connected to (for ONTs connected to MA4000-PX);
- PON tree PON tree number, that the device is located in;
- ID in tree device identifier in the tree;
- PON descr description of ONT in configuration;
- Date of PON inf. OLT information receiving date;
- Date of PON active. last known PON activity date;
- Technology passive optic network technology, implemented in the device (GePON/GPON);
- Date of discovery;
- Туре;
- Connections counter;
- Version.

Click Choose All button to select all list fields, that you want to add.

Click Remove Old button to remove records, that are more than one month old.

To save changes in the set of displayed fields, click *Accept* button, or click *Cancel* to discard changes.

✓ id					
FACTORY_MAC					
PON_MAC					
REAL_MAC					
🖌 Туре					
✓ Serial number					
Software version					
✓ Date of update software					
✓ Date of receipt of DHCP					
🕑 Status update software					
✓ Errors					
Attempts to update					
✓ Reqv.update					
✓ IP address					
✓ Info					
✓ Message					
VLAN					
✓ OLT ID					
OLT name					
✓ Slot					
PON tree					
🗹 ID in tree					
PON descr					
Date of PON inf.					
Date of PON activ.					
✓ Technology					
✓ Date of discovery					
ビ Туре					
Connections counter					
Version					
Choose all By default					
Accept X Cancel					

🖳 Change displayed fiel...

🕆 eltex

14.2.4. GEPON UPDATING LOG

GPONLONT FW files Action: All - V DhTE-R0: GePON_NOTT FW files Date: from to General ONT Ist Page size: 25 Clear GePON updating tog Page size: 25 Clear Clear Id ONT Date * Operation Result code Message	💡 Subscriber's softwar	e					x
GePON UNT FW file Num Num	GPON-ONT FW files	Action : All	Code :				
General ONT Isst Date: from Image: from Image: from Image: from GePON updating log Page size: 25 Image: Clear Image: Select All Image: Fixed to the select All Image: Clear Id ONT Date → Operation Result code Message	GePON-ONT FW files	Autor .	· Code · · · · · · ·	· ID MIERG.			
GePON updating log Page size: 25 Change fields Reload E Select All E Select All Expert Save Clear id ONT Date Operation Result code Message	General ONT list	Date : from	to				
id ONT Date - Operation Result code Message	GePON updating log	Page size: 25	Clear 🖸 Change fi	elds 🥰 Reload 🗉 Select All 🗳 E	xport 📑 Save 📄 Clear		
		id	ONT	Date 👻	Operation	Result code	Message
	Line .						
¥ Close				× 0	lose		

You can filter events in the log by one or multiple parameters.

Filter list for log records:

- Action activity, performed on the device firmware:
 - All show all activities;
 - Unknown show only non-identified activities;
 - Firmware update show only successful firmware update activities;
 - Update not required show only incorrectly finished firmware update activities;
- Code operation result:
 - Unknown operation is finished incorrectly;
 - OK operation is finished correctly;
 - *Error* error while performing operation;
- ID NTE-RG identifier of the table record;
- Date: from/to record creation date range in DD.MM.YYYY or DD.MM.YYYY HH.MM:SS format.

Page size field allows you to configure the quantity of messages displayed on the page. To navigate through pages, use the tab panel in the lower part of the window.

Use *Clear* button to return all filters into their default state.

15 HELP

15.1. ABOUT

View the current version of the application. This dialog window shows console build date and version, and EMS server build date and version (if available).

15.2. LICENSE

View information on used modules and their restrictions.

15.3. LIST OF CHANGES

View information on the major changes in each version of the product.

APPENDIX A. SYSTEM MONITORS

1. DESCRIPTION

Monitor is an instrument that performs the monitoring of various states and events. With monitors, you can control the occurrence of critical events, and perform the event archiving and log clearing tasks, etc.

The system equipped with several system monitors for process automation:

- System pool size control (HandlersPool) - system monitor that tracks EMS server software resources.

Recommended execution frequency — once in an hour.

- Message log export (AlertsArchiving) monitor performs message log (alerts) archiving with the subsequent data removal from the database. In monitor settings, you can define the execution frequency and parameters that is responsible for removal of the obsolete records. Recommended execution frequency — once in a day (e.g. every night, with settings to delete alarms older than 10-20 days.)
- Firmware version scanning (FwReports) monitor performs scanning of installed firmware versions on all available devices and stores the information in the DB table, available to the administrator.

Recommended execution frequency — once in a month.

Configuration Upload (UploadConfigure) — monitor uploads configurations for all available devices to EMS TFTP server. Optimal settings for execution frequency depend on the current network conditions.

Recommended execution frequency — no less than once in a month.

NTE-RG firmware update (FwNteUpdate) — monitor allows to perform automatic firmware update for NTE-RG subscriber-side devices. To ensure the proper monitor operation, you will need an ad hoc DHCP server (dhcpd-eltex) and configured network for control data transmission (separate management VLAN for subscriber-side devices). Monitor performs the firmware upgrade according to defined settings.

Recommended execution frequency — in hours with the lowest load (e.g. once in a day, at night for 3-4 hours).

- PON synchronization (SyncPon) monitor performs the background synchronization of all PON devices, i.e. receives lists and states for all ONTs. It also stores the statistics for all enabled and available ONTs, that could be used later for analysis and removal of unused ONTs. Is stores the date of ONT discovery in the network, OLT, PON tree, PON activity date and NTE type for GePON technology. Besides, the monitor background activity allows operators to avoid the full polling of devices connected to EMS. It provides prepared information that could be used for ONT discovery, adding to OLT, etc.
- EMS server diagnostics (EmsServerDiagnostics) monitor enables self-diagnostics of EMS server (operating system). It performs the periodic polling of internal parameters, such as CPU load, free memory, free space on disk. If the critical condition is discovered, the system message will be generated and saved in the database that could be sent to administrator GUI or e-mail later.

Recommended execution frequency — once in an hour.

- Syslog server database cleaner (SyslogCleaner) — monitor performs data cleaning and removal from Syslog table. Data removal can be performed by size (mode size) or by time (mode time).

🕹 естех

This configuration mode depends on the quantity of devices and the intensity of message sending process, and also the purpose of debug configuration through Syslog. In general, it's not recommended to store more than 200k records, as their viewing and search will be slow.

- Check database connections (CheckDbConnect) system monitor, designed for maintaining socket connection to the database.
 It's not recommended to change the settings.
- NTP firmware update via OMCI protocol (NtpOmciSheduler) monitor performs sequential NTP-RG firmware update via OMCI Works in GPON 3.x or later. It's not recommended to use this parameter (use internal or external ACS TR -069 for firmware update purposes).
- Delete obsolete log files (LogsDirCleaner) monitor performs periodic cleaning of logs (log files), created during EMS server operation.
 Recommended execution frequency once in 10–20 days.
- GPON ONT autoupdate control (GponOntAutoupdateFlag) service monitor, designed for collection of debug information.
 It's not recommended to change the settings.
- Temperature control (CheckOltTermoMonitor) monitor performs periodic scanning of every OLT temperature sensor in the network. Monitoring results are used for construction of the temperature chart on Monitoring/Temperature tab. Also, if temperature for any of the sensors exceeds the defined limits the system will generate an alarm. You can define limits for each type of sensors in '/usr/lib/eltex-ems/conf/termoMonitor.xml' file. In the monitor settings, in addition to the execution frequency, you should define the following:
 - decision_factor quantity of readings that should exceed the defined limits for the alarm to be generated
 - reports_amount quantity of stored readings for traffic generation
 - process_size quantity of processes (streams) in the server, that perform the poll simultaneously

Monitor operation is affected by 'out-of-service' checkbox that is specific for each object. The monitor will not work for 'out-of-service' devices. Also, you can specify the 'black list' for the monitor that will skip polling operations for devices from the list. By default, polling is performed for all devices.

Recommended execution frequency — once in an hour.

 Archiving and sending log files (LogsSender) — service monitor, designed for periodic sending of the debug information log.

It's not recommended to change the settings.

- ONT problem reports (OntProblems) monitor allows to configure the periodic e-mail notifications about problems with PON ONT. Problems include frequent device reboots or RSSI parameter falling out of scope. You can define limits in the monitor settings. Monitoring results will be compiled into the text file with ONT list that will be sent to the address, defined in settings.
 - switchmax maximum number of ONT reconnections
 - rssiminmax minimum and maximum RSSI values, that, if exceeded, will place the ONT into the problem list.

Recommended execution frequency — once in an day.

ONT connection counter Switch counter reset (SwithCounterCleaner) — monitor performs automatic reset of reconnection counters for all ONTs in the network (in EMS database).
 Recommended execution frequency — once in a month.

 ACSD monitoring (CheckAcsdBreak) — monitor controls the availability of Eltex.ACS service (core) Eltex.EMS management system. It has no settings, except for the execution frequency. Recommended execution frequency — once in an hour.

2. MONITORS IN GUI

You can view monitor state in the general device tree, on Monitors tab.

🦉 Monito	rs	_	_	_	_	_	_	_	_	_	_	×
🔪 Edit	Additiona	ally 😫 Blac	cklist 🔮 Re	eload 🗔 Cl	hange fields	🕑 Help						
ID	Start type	Monitor's	Log file	CRON pe	Start cou	OK count	Error cou	Alerts ge	Current s	Next star	Interrupt	Run
22	MANUAL	OLT PON	sync_pon		0	0	0	0	FREE			
16	MANUAL	Update st	station_u		0	0	0	0	FREE			0
21	MANUAL	Cleaner o	switch_co		0	0	0	0	FREE			0
19	MANUAL	Archiving	logsdir_s		0	0	0	0	FREE			0
18	PERIOD	Device te	temperatu	0 0/5 * * * ?	343	343	0	0	FREE	15.10.201		0
2	PERIOD	Alerts syn	alerts_sync	0 0 0/1 * * ?	29	29	0	0	FREE	15.10.201		0
12	PERIOD	Syslog da	syslog_cl	0 0/30 * *	57	57	0	0	FREE	15.10.201		0
3	MANUAL	Alerts jour	alerts_arc		0	0	0	0	FREE			0
200	MANUAL	ACSD stat	acsd_break		0	0	0	0	FREE			0
14	MANUAL	Update N	ntp_omci		0	0	0	0	FREE			0
13	PERIOD	Database	check_db	0 28 0/6 *	4	4	0	0	FREE	15.10.201		0
6	PERIOD	Configura	upload_c	007**?	2	2	0	0	FREE	16.10.201		0
		0000101			0	0			FDFF			
						💥 Close	•					

- *ID* monitor ID;
- *Start type* monitor execution type:
 - manual manual;
 - *period* periodic;
 - start_server upon the server startup;
- Class name class of the monitor;
- Monitor s name (eng) monitor name (in Latin characters);
- *Monitor s name* monitor name (in Cyrillic characters);
- *Monitor s group* monitor workgroup;
- Trigger s name name of the trigger;
- Trigger s group the group of triggers;
- Log file log file name, that stores the monitor operation data;
- CRON period monitor execution period;
- Start counter current number of monitor executions;
- OK counter -- quantity of successful monitor executions;
- Error counter quantity of unsuccessful monitor executions;
- Alerts generated -- quantity of active monitor events;
- Current state current monitor state:
 - free monitor is idle;
 - *busy* monitor is performing operations;
- Next start date— time of the next monitor execution;
- Interrupt if the monitor is running, stop its operation;
- *Execute* execute the monitor (execution by user demand).

In the Tips section, you will find some information on the monitor configuration.



🕹 eltex

3. DEFINING INTERVALS OF MONITORING RECURRENCE IN CALENDAR VIEW WITH CRON EXPRESSIONS

With *cron* expressions, you can set up recurrence intervals in calendar view.

3.1 EXPRESSION STRUCTURE

Cron expression is comprised of seven fields:

1	2	3	4	5	6	7
Seconds	Minutes	Hours	Day of the month	Month	Day of the week	Year

- required field

- optional field

3.2 SPECIAL CHARACTERS

Charact	Name	Value	Example	Note
er				
/	slash	increment	'5/15' in 'seconds' field means every 15 seconds from the 5th second	
?	Question mark	the field should not contain the defined value	if you entering the day of the week, you can enter '?' in the 'day of the week' field to mark the 'day of the week' value as irrelevant	You can use it in 'day of the month' and 'day of the week' fields only
L	Letter L	The last (day of the week, day of the month)	Letter L entered in the field means 7, if it's not accompanied by digits. Thus, OL means that the task will be scheduled for the last Sunday of the current month.	You can use it in 'day of the month' and 'day of the week' fields only
W	Letter W	The closest (day of the week, day of the month)	1W in 'day of the month' field means, that the task will be scheduled for the working day, closest to the beginning of the month.	
#	Hash sign	Specific (day)	Enter 'MON#2' in 'day of the week' field to schedule the task for the second Monday of the month.	
*	Asterisk (star)	Any	This character in 'day of the week' field means, that the action may be performed on any day of the week.	

Table of th	e monitor e	execution	examples	5			
Seconds	Minutes	Hours	Day of the month	Month	Day of the week	Year	Meaning
0/20	*	*	*	*	?		every 20 seconds, from 0 second
15	0/2	*	*	*	?		in 2 minutes, from the 15th second of each interval
10	24	0/1	*	*	?		every hour at 24 minutes 10 seconds
0	0/2	8-17	*	*	?		every 2 minutes, in the interval from 8:00 to 17:00
0	0/3	17-23	*	*	?		every 3 minutes, in the interval from 17:00 to 23:00
0	0	10am	1.15	*	?		at 10am every 1st and 15th day of the month
0.30	*	*	?	*	MON- FRI		every 30 seconds from Monday till Friday
0.30	*	*	?	*	SAT, SUN		every 30 seconds on Saturday and Sunday
0	0	12	*	*	?		every day at noon
0	15	10	?	*	*		every day at 10:15
0	15	10	*	*	?		
0	15	10	*	*	?	*	
0	15	10	*	*	?	2005	in 2005, every day at 10:15
0	*	14	*	*	?		every day, every minute from 14:00 to 14:59
0/5	14	*	*	?			every day, every 5 minutes from 14:00 to 14:55
0	0/5	14.18	*	*	?		every day, every 5 minutes from 14:00 to 14:55 and from 18:00 to 15:55
0	0-5	14	*	*	?		every day, every minute from 14:00 to 14:05
0	10.44	14	?	3	WED		at 14:10 and 14:44, every Wednesday in March
0	15	10	?	*	MON- FRI		at 10:15 from Monday till Friday
0	15	10	15	*	?		at 10:15, each 15th day of each month
0	15	10	L	*	?		at 10:15 on the last day of each month
0	15	10	?	*	6L		at 10:15 on the last Friday of each month
0	15	10	?	*	6L	2002- 2005	from 2002 till 2005, at 10:15 on the last Friday of each month
0	15	10	?	*	6#3		at 10:15 on the third Friday of each month

3.3 DEFINING INTERVALS OF MONITORING RECURRENCE, EXAMPLES

🕹 ELTEX

4. MONITOR CONFIGURATION

When configuring monitors, please note the following recommendations:

- Handlers Pool monitor. Leave the default values for this monitor settings;
- Alerts Archiving monitor. Consult the vendor for configuration of this monitor (recurrent execution with the defined period);
- FwReports monitor. Consult the vendor for configuration of this monitor (recurrent execution with the defined period);
- CheckOltTermoMonitor. To configure the monitor, use Administration/Server configuration/Scheduled tasks (monitors) section.
 - *Type* monitor execution type: periodic, on server startup, manual;
 - Cron period set the monitor execution period;
 - decision_factor quantity of readings that should exceed the defined limits for the alarm to be generated;
 - reports_amount quantity of stored readings for traffic generation;
 - process_size quantity of processes (streams) in the server, that perform the poll simultaneously.

You can define limits for each type of sensors in '/usr/lib/eltex-ems/conf/termoMonitor.xml' file. Monitor operation is affected by 'out-of-service' checkbox, that is specific for each object. The monitor will not work for 'out-of-service' devices. Also, you can specify the 'black list' for the monitor, that will skip polling operations for devices from the list. All devices are polled by default. To exclude the device from the monitor polling list, go to 'Black list', select the device and click 'Disable'. Click 'Apply' when you finish the work with the black list.

Туре	PERIOD_AND_START_SERVER	-	
CRON period	0 10 0/1 ** ?	? 🔪	
	Parameter	s	
	state		^
		MemoryRealAvailable	
value	30000		
compare	LT	-	
paramType	LONG	-	
		MemorySwapAvailable	
value	100000		
compare	LT	-	
paramType	LONG	-	-



OntProblems monitor To send the problem message to the specific user, define user e-mail in settings (see paragraph 11.3 CONFIGURE SYSTEM USERS) and select the respective checkbox. Problems include frequent device reboots or RSSI parameter falling out of permitted scope. You can define limits in the monitor settings. Monitoring results will be compiled into the text file with ONT list, that will be sent to the address, defined in settings.

Туре	MANUAL	
	Parameters	
rssiminmax	-25;-10	
switchmax	25	
mailserver	mail.server	
login	login	
password	password	
subject	Eltex.EMS. ONT problems report	
body	ONT problems report is attached to message	
from	login@server	

- *Type* monitor execution type: periodic, on server startup, manual;
- *Cron period* set the monitor execution period;
- switchmax maximum number of ONT reconnections;
- mailserver IP address of the mail server;
- *login* login for authorization on the mail server;
- *password* password for authorization on the mail server;
- *body* information, shown in the message body;
- *rssiminmax* minimum and maximum RSSI values, that, if exceeded, will place the ONT into the problem list, format: min;max;
- *from* sender address;
- *subject* information, shown in the message subject.

APPENDIX B. NTE-RG FIRMWARE UPDATE CONFIGURATION

1) Configuration of EMS server IP address for the firmware upload from operator's PC to the server

To perform configuration, go to server module configuration page Administration/Server configuration/System modules.

Administration In	formation	Help
Rights and use	ers 🕨	
🌮 GUI behavior	•	
📓 EMS server co	nfiguration 🕨	SNMP traps receiving and processing
🚏 Devices softwa	are 🕨	Scheduled tasks (Monitors)
Change field	s 🥃 Reloa	🧮 System modules settings
Slot	State	Section 2 Manual Administrator's workstation
3101	Davia	A EMS server restart

In **system** module settings, define the IP address, that will be used for interactions between station-side devices and EMS server.

acs	Language of GUI and system messages	en_US 🔻
gPon	EMS server IP address at management network	192.168.16.230
lte	Temporary files directory	/tmp/ems
Itp	Tomcat work directory	/var/lib/tomcat6/webapps
ma4000 mes	Tomcat URL	http://192.168.16.230:8080
mes3000L	Monitors log level	ERROR
msan	Send SNMP pre-request 'Check availability'	✓ Enable
mxa	Timeout for SNMP pre-request 'Check availability', ms	999
mxl2e	Copy all alerts to Syslog	Enable
pic8 ponCommon	Asynchronous processes pool size	60
sbc	Asynchronous processes storing time, hours	24
smg	Availability poll enabled (ICMP, SNMP ping)	✓ Enable
system	ICMP, SNMP results storing time, sec	7200

In **tftpserver** module settings, define the IP address, that will be used for operations with stationside devices.

acs	TFTP server IP for station devices	192.168.16.230
gPon	Port (for embedded TFTP server)	69
gePon Ite	Root directory for tftpd	/tftpboot
Itp	Directory for FW files	station_images
ma4000	Directory for configuration files	ems
mes3000L	Show TFTP activity	Enable
msan	Embedded TFTP server enabled	Enable
mxa		
mxl2e		
plc8		
ponCommon		
sbc		
smg		
SSW		
system		
tau		
tftpserver		

2) Configuration of EMS server IP address for the firmware upload from the server to ONT

In **gePon** module settings, define the IP address, that will be used for interactions between the server and NTE-RG.

acs	Server address TFTP for ONT	192.168.200.4
gPon	Attempts maximum number of the NTE-RG updating	5
gePon	Movimum quantity of arrars of the NTE DC undefing	5

After configuration, perform the reboot of EMS (*Administration/Server configuration/EMS server reboot*).

3) Uploading NTE-RG firmware files

Go to Administration/Device firmware/Subscriber firmware section.

Administration	Information	on F	lelp
and u	isers	•	
🜮 GUI behavior	r	•	
MS server	configurat	ion >	
🚏 Devices soft	tware	•	Station software
Change fie	lds 😂 R	eload	🚞 Subscriber's software

Upload files from operator's PC to EMS server.

😴 Subscriber's software								
GPON-ONT FW files		Select file for upload						
GePON-ONT FW files								
General ONT list	id 🔻	Look in: 🗂 Прошивки 🔽 🖬 🛱 ն ն						
GePON updating log	13		test					
	10	nte_rg_14xx_5.3.2.tgz	C test					
	10	nte_rg_14xx_FS606.K125.tgz	UC31					
		nte_rg_14xx_v2.1407.tgz						
		nte_rg_14xxWiFi_4.2003.0.tgz						
		nte rg 14xxWiFi 5.0.0.tgz						
		Check internal CRC						
1 Page 1								
		File Name: nte rg. 14xxWiFi 5.0.0 tgz						
		Files of Type: All Files						
		Open Cancel						

4) Update scheduler configuration

Select scheduler files in *NTE-RG14xx/NTE-RG14xx rev.B firmware file name* field and specify the IP address of the interface, that will be used for interactions between the server and NTE-RG.

😬 Subscriber's softwa	re			
GPON-ONT FW files	Γ	🖸 Change fields 🙆 Unicad 🙆 Delete 🎜 Reload 🍭 Scheduler undate	96	
GePON-ONT FW files		Change heids • opioda • beiete • Reioda • senedaler apada		
General ONT list	i	Lin-dating setup NTE-PG	×	Test
GePON updating log	1			test
	1	Maximum quantity of errors of updates:	5	C test
	1	Number of attempts of up-dating in case of DHCP non-confirmation:	5	Co test
	F	FW NTE-RG14xx file name:	nte_rg_14xxWiFi_5.0.0.tgz	
		FW NTE-RG14:rev.B file name:	- not selected -	
		Version on up-dating NTE-RG14xx:	-1.0.0	
		Version on up-dating NTE-RG14:rev.B:	-1.0.0	
		The EMS interface IP address (TFTP for the NTE-RG network):	192.168.200.2	
		✓ Apply	Cancel	
		× Ci	ose	

5) Update schedule configuration

Administration Information	Help
Rights and users	
🜮 GUI behavior 🔹 🕨	
MS server configuration	SNMP traps receiving and processing
🟺 Devices software 🔹 🕨	Scheduled tasks (Monitors)
	📒 System modules settings
	Administrator's workstation
	A EMS server restart

Double-click on the 'Update NTE-RG FW' field to open the configuration window, where you will be able to specify recurrent execution of the update scheduler. Configure required parameters and click



Apply button.

P Monitors											
Kelit Markinally Reload C Change fields C Help											
ID	Start type	Monitor's name	Log file	CRON peri	Start cou	OK counter	Error cou	Alerts gen	Current st	. Next start	Interrupt
22	MANUAL	Edit Monitor							-22-1		
16	MANUAL										D
21	MANUAL	Update NTE-RG FW	Update NTE-RG FW								0
19	MANUAL	Turno	PERIO								0
18	PERIOD	Type	- Entro							16.10.201	0
2	PERIOD_A	CRON period	0 15 3	**?			?			16.10.201	0
12	PERIOD	🖳 Edit CRON perio	d '0 15 3 * *	? '		_		_	x	16.10.201	0
3	MANUAL										0
200	MANUAL		-CRON mode	es			Parameters				0
14	MANUAL	Every N min	utes								0
13	PERIOD	O Hourly				HH:MI	VI 3 : 1	5		16.10.201	•
6	PERIOD_A	Daily								17.10.201	0
17	MANUAL	O Weekly									
20	MANUAL	Vveekiy									0
9	MANUAL	O Monthly									0
10	PERIOD_A									16.10.201	0
4	MANUAL			Acc	cont 💊	Cancol					0
15	PERIOD			V ACC	-ehr 🗸	Calicer				17.10.201	0
8	MANUAL										0
1	PERIOD			V Ace	cept 🎽	Cancel				16.10.201	0
	💥 Close										

Results of scheduler operation are shown in *Administration/Device firmware/Subscriber firmware/ONT general list* and *GePON update log* menus.

APPENDIX C. PON PROFILE SYNCHRONIZATION

1. PON profile synchronization

PON profile synchronization allows you to set up profile parameter values according to the reference list (XML template), that is considered common for devices of the same type/firmware version.

Automatic synchronization is performed periodically by the monitor. It verifies the current values and, in case of conflict, changes them accordingly or adds the missing parameters.

If necessary, you can use manual synchronization, e.g. when you have to perform the initial network configuration of a new device.

PON profile synchronization is performed with XML templates, stored in directory/usr/lib/eltexems/conf/module/pon/common/profileOlt.

```
/usr/lib/eltex-ems/conf/module/pon/common/profileOlt$ ls
AllProfiles_LTP8X_3.20.1.xml
AllProfiles_LTP8X_3.20.2.xml
AllProfiles MA4000 1.3.xml
```

File format is defined strictly:

- 'AllProfiles_';
- device type (LTP8X or MA4000);
- underscore '_';
- firmware version, that is a rounded value of the actual firmware version;
- .xml extension.

Firmware versions are rounded down:

- versions 3.20.1.100, 3.20.1.500 are rounded to 3.20.1;
- versions 3.20.2.100, 3.20.2.500, 3.20.5.5 are rounded to 3.20.2.

If you try to synchronize profiles on the device, which firmware version is lower than any of the versions, listed for this device type, you will see the error message stating, that profile synchronization is not supported on this version yet.

2. Template files

You can create template files by two methods:

- Create files manually for the specific device type and version using the editor
- Upload parameters from the Device A with configured profiles (if you want to configure the same parameters on multiple OLTs in the network)

2.1 Creating files with editor

To open the editor, go to 'OLT/GUI OLT PON-profile s editor' menu. Select the required device type/version in the opened dialog window. No need to select files at this step.

In the editor window will be shown all available profile types for this device/version. No profiles added.

💡 Open PON profiles editor	<u></u>	x
Select PON profiles file:	-	
Select PON device type/version:	LTP8X	
Accept	X Cancel	

🕹 ELTEX

💡 PON profile of LTP8X	(v.3.20.155	x
CrossConnectProfile 🔻		
CrossConnectProfile		
DBAProfile		
ManagementProfile		
PortsProfile		
ScriptingProfile		
ShapingProfile		
Template		
	Accept Xancel	

If profile synchronization is performed, the system will only work with profiles that are listed in the template file. If the selected profile is absent on the device, it will be added. If the profile with the same name is present on the device (regardless of its index), profile parameter values will be changed.

Thus, in the editor window, you have to add only those profiles that are needed for synchronization. It may be the only one profile or multiple profiles of the same type. Adding profiles to all types is not necessary, as empty profile types will not be changed on the devices.

If you select the desired profile type, you will be able to add a new profile in it.

	PON profile of LTP8X v.3.20.155								
DE	DBAProfile								
	🖉 Add 'DBAProfile'								
	ıme *								
	scription								
	erviceClass	data 💌							
	atusReporting	nsr 💌							
	ze	0							
	eriod	0							
	kedBandwidth	0							
	ıaranteedBandwidth	64							
	setEffortBandwidth	1273856							
		✓ Accept							

It's necessary to define the name for a new profile. All other values will be taken by default from the EMS system source code; required values can be changed. After successful editing, a new profile will be shown in the editor.

💡 PON profile of LTP8X	v.3.20.155
DBAProfile 💌	dba×1 💌 🔪 💿 💿 😂 🕱
Name *	dba-x1
Description	dba-x1 profile
ServiceClass	voip
StatusReporting	type1 👻
Size	1
Period	2
FixedBandwidth	0
GuaranteedBandwidth	64
BestEffortBandwidth	1244000
	Accept Xaccel

After adding all the necessary profiles, the editor will close. The system will notify you on PON profiles' successful saving into a file.



You can edit the resulting file using the same editor or view it in 'OLT/XML OLT PON-profile's editor menu. Avoid using XML editor for editing the resulting files, as you can easily commit an error and disrupt the structure of parameters.

OLT PON-profile's editor		x
•	🚽 💑 🗊 🗓 🛒 🥱 🎓 🖾 🗛 # () 🐟 🕸 🗳 🤀	
AllProfiles_LTP8X_3.20.1.xml AllProfiles_LTP8X_3.20.2.xml AllProfiles_LTP8X_3.20.2.xml AllProfiles_MA4000_1.3.xml ltp_3.xml	<pre>1 <?mml version="1.0" encoding="UTF-8"?> 2 <profiles> 3 << type name="CrossConnectProfile"/> 4 <type name="DBAProfile">> 5 <pre> <pre< th=""><th></th></pre<></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></type></profiles></pre>	
	Date of editing : 2014-10-16 11:43:07 Size : 725	

2.2 Creating files by uploading them from the device

You can upload profile parameters on profile edit tab on the device by clicking 'Save profile parameters into XML file on server'.

厚 Eltex.EMS <doc:superuser></doc:superuser>								
Applet Devices Management OLT ONT ACS Events Utilities Administration Information Help								
🖏 Synchronize 💿 ONT search 🔜 Save 🖤 Apply								
Bescription ONT list Monitoring Configuration FW ONT RD statistics Access								
Search	Traps							
?	VLAN	DBAProfile	dba					
	Sync Time	Types of Profiles	Drofilion	Save profile parame				
ACS 16 166	NTP	Types of Fromes	Promies	Name * dba-00				
- E R LTE-8X [620/16/0]	IGMP	ManagementProfile	default	Description ONT profile DBA 0				
∽ ♀ MA4000-PX [0/0/0]	Syslog	DBAProfile	dba-00	ServiceClass type5				
- Es Itp-16.223 [8/6/0]	Users	PortsProfile						
	Profilies	Tempiate CrossConnectProfile		Statuskeporting				
	Log	ScriptingProfile		Size 0				
	ONT Discovery	ShapingProfile		Period 0				
	CLI/telpet			EixodPandwidth 0				
	CLI/temet	-						
	CENSII	-		GuaranteedBandwidth 64				
	- 101 11 2 2250			BestEffortBandwidth 1244000				
		-						
	A. 7							

The current device firmware version will be taken as a version of the file name.

Description ONT list Mor	nitoring Configuration FW ONT	RRD statistics Access		
Traps	DDDD - Gil-	8	N= 00.1	
VLAN	DBAProfile	d	1ba-00:1	
Sync Time	Types of Profiles	Drofilies	4	
NTP		Profilies	Name '	dba-00
IGMP	ManagementProfile	default	Description	ONT profile DBA 0
Syslog	DBAProfile	dba-00	ServiceClass	type5
Users	PortsProfile		Serviceoluss	ijpos
Profilies	Template		StatusReporting	nsr
Log	CrossConnectProlile		Size	0
ONT Discovery	ScriptingProfile		Deriod	0
Terminal VLANs	ShapingProtite		Periou	0
CLI/telnet			FixedBandwidth	0
CLI/ssh	Message		Bandwidth	64
	PON profiles values succes	ssfully saved to 'AllProfiles_LTP8X_3.	20.2.3244.xml', andwidth	1244000

You can view and edit the resulting file using editors (see paragraph 2.1).

3. PON profile parameter synchronization

PON profile synchronization (setting up parameters from templates) can be performed in manual or automatic mode (by EMS monitor).

3.1 Manual parameter synchronization

This option may be convenient for initial configuration of devices in the network.

To set the profile parameters from the template, you have to synchronize the device (*Synchronization* button) and proceed to the profile edit tab on the device. Click 'Load profile values from XML template' to open file select dialog window.

Eltex.EMS <doc:superuser> Applet Devices Management OLT ONT ACS Events Ut</doc:superuser>	ilities Administration Information Help		
😵 Synchronize 🤇 ONT search 🔄 Save 🖶 Apply			ACS Alerts: 0 0 2 2
Description ONT lis	st Monitoring Configuration FW ON	T RRD statistics Access	
Search Traps VLAN	DBAProfile	dba	a-00:1 💿 😂 🜊 🔪 🖲 🌲 💌
Sync Time Sync Time ACS_16.166	Types of Profiles	Profilies	Name * dba-00 Set profiles par
COMP Comparison Compari	ManagementProfile DBAProfile PortsProfile	default dba-00	Description ONT profile DBA 0 ServiceClass type5
Profilies	Template CrossConnectProfile		StatusReporting nsr 💌
ONT Discovery Terminal VLAN:	ScriptingProfile ShapingProfile		Period 0
CLI/telnet CLI/ssh			FixedBandwidth 0 GuaranteedBandwidth 64
	1		BestEffortBandwidth 1244000

Set PON	l profiles
?	Select PON profiles file:
	OK Cancel

Select the file and click OK button to set the parameters; result will be shown in the dialog window.

Messag	je	x
i	PON profiles values successfully restored from 'AllProfiles_LTP8X_3.20.155 xml':	•
	ОК	

After the next synchronization, a new profile will appear in the list. Then, click *Save* button to save the device configuration.

Also, the manual mode allows you to compare values (without modification of parameters). To do this, click 'Compare profile parameters with XML template' button.

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Eltex.EMS <doc:superuser></doc:superuser>	ONT ACS Events Utilities A	Administration Information Hole							
Synchronize C ONT search S Save Apply ACS Alerts: 0 0 1 2									
Bescription ONT list Monitoring Configuration FW ONT RRD statistics Access									
Search	Traps VLAN	DBAProfile	dba	a-00:1					
	Sync Time NTP	Types of Profiles	Profilies	Name	• dba-00 Compar				
ACS_16.166	IGMP Syslog	ManagementProfile DBAProfile	default dba-00	Description	ONT profile DBA 0				
Itp-16.223 [8/6/0]	Users Profilies	PortsProfile Template		ServiceClass StatusReporting	type5 v				
	Log ONT Discovery	CrossConnectProfile ScriptingProfile		Size	0				
	Terminal VLANs CLI/telnet	ShapingProfile		Period FixedBandwidth	0				
	CLI/ssh	-		GuaranteedBandwidth	64				
		-		BestEffortBandwidth	1244000				
				▲ II					
	L.								

Results of comparison will be shown in a dialog window.



3.2 Automatic parameter synchronization

Automatic synchronization is performed by OLT PON profile sync monitor.

🖉 Monitors									J			
🔪 Edit	Additiona	lly 😫 Blacklist 🥃 Reload	Change	fields 🥑 I	Help							
ID	Start type	Monitor's name	Log file	CRON per	. Start cou	OK counter	Error cou	Alerts ge	Current s	Next star	Interrupt	
22	MANUAL	OLT PON profiles sync mo	sync pon		0	0	0	0	FREE			2
16	MANUAL	Ur Edit Monitor	_	_	_	_	_	_				2
21	MANUAL	CI OLT PON profiles sy	nc monitor									2
19	MANUAL	An										2
18	PERIOD	De Туре	PERIOD			-				16.10.201		2
2	PERIOD	Ale CRON period	0 0 2 1 *	?			? 🔪			16.10.201		2
12	PERIOD	Sy			Decemeters					16.10.201		2
3	MANUAL	Ale	Parameters							2		
200	MANUAL	AC	file_ltp8x_3_20_1 AllProfiles_LTP8X_3.20.1.xml							2		
14	MANUAL	Up file_ltp8x_3_20_2	20_2 AllProfiles_LTP8X_3.20.2.xml						2			
13	PERIOD	Da file_ma4000_1_3	AllProfile	AllProfiles_MA4000_1.3.xml				16.10.201		2		
6	PERIOD	CC auto_sync_diff_on	n				17.10.201		2			
17	MANUAL	GF	send alert diff on v						2			
20	MANUAL	Of send_alert_dil_on	File described				ed PON profil	es of LTP8X v.	3.2			
9	MANUAL	De										2
10	PERIOD	EN								16.10.201		2
4	MANUAL	FV										2
15	PERIOD	De								17.10.201		2
8	MANUAL	UF										2
1	PERIOD	На		V Acc	ept 🛛 🞇	Cancel				16.10.201		2
		L								J		
Close												

Monitor verifies PON device firmware versions and compares their profiles with the reference file, which is basically a previously created template file with the description of parameters. In current monitor implementation, it can recognize three types of devices: LTP8X v.3.20.1, LTP8X v.3.20.2, MA4000 v.1.3. As it was said earlier, the actual firmware version is rounded down. This scheme is used for selection of the reference file, which name should be defined explicitly in the monitor settings.

If the file with the specified name is not found, the corresponding alarm will appear in the active alarm list, located in the tree root, and the monitor will suspend operations with this type/version.

Also, in the monitor parameters, there are the following radio buttons:

- profile autosynchronization (y-yes, n-no) if 'y' value is selected, parameter values will be actually changed during autosync; if 'n' value is selected, the comparison will be performed, and results will be output to logs and/or alarms.
- notify on profile mismatch (y-yes, n-no) if 'y' value is selected, mismatch will be treated as an alarm, and you will see the corresponding message in the active alarm list; if 'n' value is selected, the alarm will not be initiated, and the result will be available in the log only.

If PON profile control monitor is used, it is recommended to use the black list, in order to prevent unintentional editing of configuration for devices, that doesn't require the profile synchronization.

🦉 Monitor	5						X	
🔪 Edit	Additiona	lly 😫 Blacklist 🕻	Blacklist 'OLT PON profiles sync monitor'	x				
ID	Start type	Monitor's name	EMS		Current s	Next star	Interrupt	
22	MANUAL	OLT PON profiles s	- X LTE-8X		FREE			O
16	MANUAL	Update station dev			FREE			0
21	MANUAL	Cleaner of 'Switch	— ✔ 00Empty-		FREE			0
19	MANUAL	Archiving and e-ma	- ♥ 01Empty- - ♥ 02. PLC8		FREE			D
18	PERIOD	Device temperature	- ✔ 03Empty-		FREE	16.10.201		0
2	PERIOD	Alerts synchronizat	— ♥ 04Empty- — ♥ 05Empty-		FREE	16.10.201		D
12	PERIOD	Syslog database c	— ✔ 06Empty-		FREE	16.10.201		D
3	MANUAL	Alerts journal clear	- ♥ 07Empty- - ♥ 08Empty-		FREE			0
200	MANUAL	ACSD state monito	— ✔ 09Empty-		FREE			D
14	MANUAL	Update NTP FW via	— ✓ 10Empty- — ✓ 11Empty-		FREE			D
13	PERIOD	Database connecti	- 🖤 12Empty-		FREE	16.10.201		0
6	PERIOD	Configurations upl	— 13Empty- — 14Empty-		FREE	17.10.201		0
17	MANUAL	GPON ONT auto-u	- ♥ 15Empty-		FREE			D
20	MANUAL	ONT problems rep	└─ ❤ Itp-16.223		FREE			D
9	MANUAL	Device synchroniza			FREE			D
10	PERIOD	EMS server self dia			FREE	16.10.201		D
4	MANUAL	FW versions scanr			FREE			D
15	PERIOD	Deprecated logs cl			FREE	17.10.201		D
8	MANUAL	Update NTE-RG F\			FREE			D
1	PERIOD	Handlers/connection			FREE	16.10.201		D
			V Allow Deny					
			Accept X Cance	1				
					,			

The monitor will not perform PON synchronization for these devices (other mechanisms should do this task). If the PON synchronization is not performed, the profile list will not be discovered on the device, and the device itself will be skipped, so the message will be shown in active alarms list about missing synchronization for that specific device.

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After parameter editing, the monitor will issue *Save* command to store changes into the non-volatile memory. You can view the monitor operation results in the file /var/log/eltex-ems/monitor/SyncPonProfiles/sync_pon_profiles.txt.

```
LTP-8X-16.151 (192.168.16.151) version '3.20.2.3186': compare with
AllProfiles_LTP8X_3.20.155.xml
LTP-8X-16.151 (192.168.16.151 v.3.20.2.3186) profiles compare result: Profiles
modified successfully
2.1 'DBAProfile.dba-x1' added
Device LTP-8X-16.223 is blacklisted
Device LTP-8X-192.168.16.152 is blacklisted
Device LTP-8X-192.168.99.19 is blacklisted
Device ma4000-192.168.99.2 is blacklisted
Device MA4000_16.225 is blacklisted
Device MA4000_16.99 is blacklisted
Device MA4000_26.33 is blacklisted
Device TEST12334 is blacklisted
```

APPENDIX D. CHANGE LOG

Version 2.0.41

- LTP GPON 3.20.2 support;
- Eltex.ACS.GUI multilanguage support;
- STB support in ACS.GUI;
- Enhanced STB support in ACS.GUI: Application management, log management;
- Implemented 'Cancel' feature for long operations;
- GPON ports now are shown faster on devices;
- Implemented logging for all modifying TL1 commands;
- Implemented correct sorting in tables by IP and URL fields depending on the port;
- TL1 interface improvements ACS method support;
- Implemented GPON unified profile subsystem for all network OLTs.

Version 2.0.40

- General TAU port list, search by number;
- TAU SIP v2.12 support;
- TAU-16.IP, TAU-24.IP support;
- New MSAN capabilities support;
- TAU.Megaco advanced monitoring;
- SMG-4 device added;
- SMG-2016 device added;
- Device parameter monitoring (RRD);
- Downloading large files (logs) via web-browser;
- Configuration of e-mail message sending via GUI;
- Integration of authorization data into EMS (login, telnet, ssh password), autologin;
- Modified installer, periodic database saving;
- UEP monitoring improvements;
- Fixed sorting in tables by firmware version and IP address.

Version 2.0.33

- Multilanguage GUI support;
- Multilanguage: System module;
- Multilanguage: LTP8X;
- Multilanguage: MA4000;
- Multilanguage: LTE8ST/LTE8X/LTE2X.

Version 2.0.32

- Monitors: Implemented 'Black list' feature to exclude the unnecessary devices from polling;
- Full support of 'Out of service' checkbox by all processors;
- Automatic cleaning mechanism for exported configurations;
- GPON NTU template support;
- Group operations by double click in the device list;
- Added support for special SFP GPON power values;
- Disabling tooltips in the device tree is possible;
- Group operation for changing 'Internal/external ACS' mode;
- Removed 'OK' information messages that blocked GUI operation;
- Implemented 'control' information page, accessible via browser;
- Group operation for assigning trap recipients for ONT;
- In GUI, saving catalog on the user PC during the transfer of ACS files;
- In GUI, saving username in the authorization dialog window, if the login is successful;
- SNMP exchange optimization, pause during parallel operations, control;
- MES: Show stack in monitoring;
- Implemented reconnection counter reset for ONT group;

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- Improvements of device status icon shown depending on the alarm;
- Implemented logging configuration on LTP v3.x;
- Trap assigning configuration control for OLTs;
- Show 1U PON devices as a single monitoring object;
- Wi-Fi devices support WEP-12AC, WOP-12, WB-2;
- UEP 4.1 support;
- Support of group device configuration with SNMP templates (scenarios);
- Device list export to the text file;
- Device import from the text file;
- User alarm generation for SNMP traps or parameter polling;
- Configuration of e-mail notifications for SuperUser role;
- Added user blocking in settings.

Version 2.0.27

- Support for actual changes of GPON versions: LTP 2.x and MA4000 1.1.x;
- Full support of TL1 as NBI protocol for interactions with GPON equipment;
- Monitor that traces temperature of station-side devices, 'black list' in the monitor;
- Monitor for problem ONT report generation (RSSI, reconnections);
- Monitor for periodic ONT reconnection counter clearing;
- Operation logics configuration for the single Eltex.ACS through the common OLT settings (LTE, LTP, MA4000);
- MA4000, added alarm for possible optic fiber break;
- Enhancements of the monitor graphic editor 'Once in a week' setting;
- 4-digit ONT versions support;
- LTE firmware automatic update mechanism;
- Simultaneous work with ONT configurations in a single OLT for multiple users;
- 'Tree changes' modal dialog window removed;
- Added reconnection counter reset for ONT group;
- Added group trap configuration for OLT;
- Implemented 'Out of service' OLT configuration, suspends the monitor interactions with the device;
- For GUI, applet certificate was signed, applet is trusted by the browser;
- Added trap processors for OLT chip events;
- Implemented additional fields in ONT table Notes and the date of notes.