Open Switch

Supporting the best solution

XL-Telecom

User Guide

(Version 2.02)

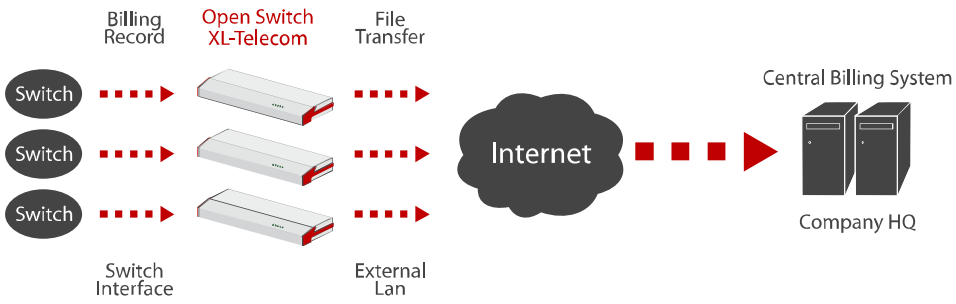
Table of Contents

1. Introduction

This guide provides guidelines for installing and configuring the Open Switch XL-Telecom data collector. XL-Telecom is a robust collector and was designed to be used in applications that require performance and where multiple collection interfaces are present.

1.1. Application

The XL-Telecom data collector was designed to meet all the applications that need to receive Call Detail Records (CDRs) generated by local or remote telephone switchboards and provided through tape interface (SCSI or Pertec), Ethernet or X.25. Billing, antifraud, traffic control, and carrier bill-checking systems, among others, may use this data collection system for PABX switchboards, large telephone switchboards or any type of call record-generating equipment.



1.2. Description

Switchboards, PABX switches and other equipment capable of generating call records can transfer billing data called CDRs (Call Detail Record), or simply tickets that record the detail of every call done. But, the manner of transferring these data is through physical protocols other than TCP/IP networks. In a corporate environment these equipment can be geographically located per regions or states.

Open Switch Collectors are a solution specially designed to collect CDRs from different physical protocols and provide them through a TCP/IP net. It is a complete solution that can receive, treat, store and send the basic data of phone call records.

These Collectors assure a reliable and consistent data collection platform by means of characteristics specifically designed for critical applications that must operate continuously, supporting network failures and occasional maintenance of the target systems with no data loss.

1.3. Main Characteristics

1.3.1 Absence of movable components

During the 13 years of experience in producing CDR, using collectors that must run continuously, it is possible to have a background of the main causes of equipment maintenance. By analyzing this batch of data from the hardware viewpoint, the main cause of maintenance can be seen to be replacement of movable parts, such as power supply fans, CPU fans and hard disks. XL-Telecom has no movable components.

1.3.2 Dual power supply of 48 Vdc

A second major cause of maintenance is the power supply of the equipment. Equipment can remain out of action due to power supply failure. The XL-Telecom is equipped with dual power supplies and can give a warning in case of failure of one of the power supplies while the equipment is running normally.

1.3.3 Data transmission in safe format

In many current solutions, data transmission occurs with "open" data in the net through unsafe protocols (FTP/Telnet/pure socket). In XL-Telecom data can travel in a safe protocol (SFTP/SSH).

1.3.4 Access control

Some market solutions have components that do not have user/password both for configuration and data collection. The XL-Telecom has access control to configure, data collection and information on the status in general.

1.3.5 Interoperability

Interoperability is the capacity of a system (computerized or not) of communicating in a transparent manner (or as close as) with another system (similar or not). For a system to be considered interoperable it is very important for it to work with open, that is, non-proprietary standards. Some components of the current solutions have proprietary or open communication protocols, but not market standard. The XL-Telecom has open and market communication protocols both for collection and configuration.

1.3.6 Collection environment abstraction

This data collection system brings a valuable collection environment abstraction for files in standard formats. Various protocols are used to collect CDRs, physical protocols (tape emulation, V.35/X.25 and Ethernet/TCP-IP), logic protocols (SCSI, PERTEC, FTAM and MTP) and switchboard behavior protocols (FTAM/Siemens: IA-ICAMA, FTAM/Lucent: stream/revesh). However, in market solutions, each collection environment must have specific equipment, in many cases making it impossible to replace hardware between switchboards, impairing the

installation and maintenance logistics. The XL-Telecom can fit every collection environment listed above in one single item of equipment.

1.3.7 Access control management

Many corporate data collection environments consist of dozens or hundreds of geographically distributed collectors. The current collecting systems have user/password with local management, that is, the user/password is validated in the actual collector. This hinders access control management and may generate security failures in collection or throughout the network. The XL-Telecom may have user and password validation in compliance with the corporation IT (for example: LDAP).

1.3.8 Configuration per profile

In an environment with hundreds of collectors where the configuration of each switchboard is done individually, the operator can configure all the details of the switchboard. In this case, it means hundreds of configurations. However, this configuration repeats itself per profile of switchboard that is typically of six types. Using the Open Switch configuration system it is possible one configuration per profile of switchboard, simplifying and automating the task of the operators and technicians, favoring a detailed advanced configuration.

2. Installation - XL-Telecom

The XL-Telecom Collector can be installed in racks using the side rail supplied with the equipment. In order to install on a shelf or desk it is necessary to fit rubber pads so as not to block the ventilation slots.

XL-Telecom Front Panel

Description of indicator LEDs left to right:

- Power - indicates that the equipment is on.
- Activity – indicates processing in action.
- On Line – indicates that configured interfaces are ready.
- Date – indicates data traffic in one of the equipment interfaces.
- Error – indicates some kind of failure.

The XL-Telecom error code is represented by the intermittent flashing error LED.

The error code consists of two intermittent error LED sequences. The first indicates the module where the error occurred and the second represents the actual error. The intermittence interval in the same sequence is 0.5 second. The interval between the two sequences is one (1) second. The repetition interval of the error code is two (2) seconds.

See below the XL-Telecom error list:

Initialization

1st sequence	*2nd sequence*	*Error*
1	1	Error reading configuration file: OSNet.ini
1	2	Error reading configuration file: OS.ini
1	3	Error reading configuration file: OSControl.ini
1	4	Error – Invalid control number

Hardware

1st sequence	*2nd sequence*	*Error*
2	1	Error reading driver: '/dev/iotaped'
2	2	Power supply sensor failed
2	3	Power supply 1 failed
2	4	Power supply 2 failed
2	5	Error reading folder '/media/usb'
2	6	Pen Drive not installed
2	7	Pen Drive Read Only
2	8	SCSI interface error
2	9	X.25 interface error

Control

1st sequence	*2nd sequence*	*Error*
3	1	Storage limit overflow
3	2	Restarting Syslog process
3	3	-
3	4	Restarting tape collect process
3	5	Restarting X25 collect process
3	6	Restarting X25 Router
3	7	Restarting FTP & Backup
3	8	No file received in the last 24 hours
3	9	No file received in the configured limit time

Description of front connector:

- Console – Connector DB-9, RS232, 9600 8-N-1.

See below how to identify the interfaces and power connector in the XL-Telecom:

XL-Telecom back panel:

Description of connectors from left to right:

- LAN 1 – Ethernet interface
- LAN 2 – Ethernet interface (needs internal switch installation)
- Serial – Serial Interface (X.25)
- SCSI – SCSI Interface
- Pertec2 – Pertec Interface
- Pertec1 – Pertec Interface
- Power connector 1
- Power connector 2

3. Access to configuration

The XL-Telecom can be configured using the serial or network interface.

Terminal software must be used through the serial interface.

It is possible through the network interface to configure using terminal software.

The data of access to the configuration through the terminal are:

User: xlcfg

Password: PASS

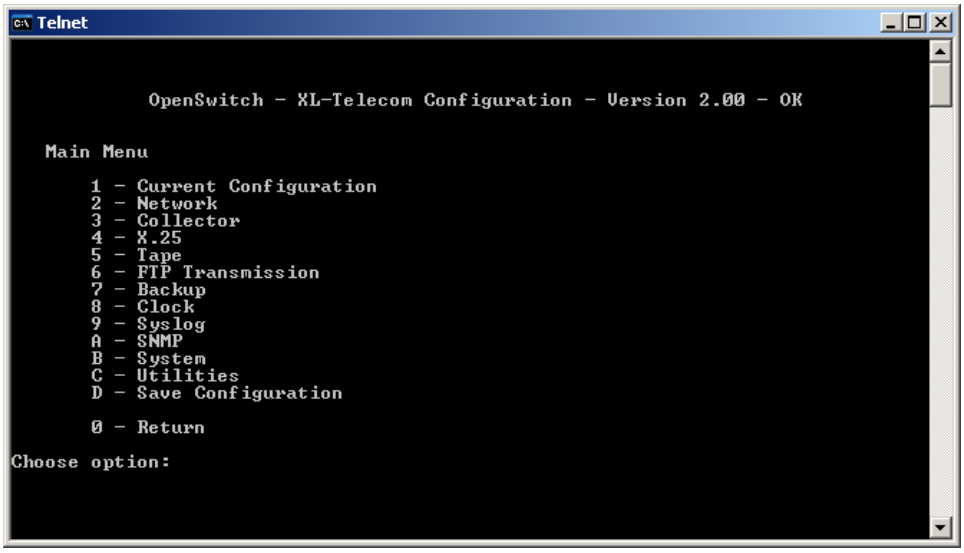
3.1. SERIAL INTERFACE CONNECTION

An example of a connection to access the configuration software using the Windows XP HyperTerminal and a crossover cable is given below:

- Connect one side of the crossover cable to your computer;
- Connect the other side of the cable to the serial port of the XL-Telecom console at the front of the equipment;
- Run the Windows XP terminal emulation program: click on: Start > All Programs > Accessories > Communications > HyperTerminal;

- In the Description of connection window, enter a name for this connection;
- In the window "Connect", select the serial port where you connected the cable in the PC. For example, COM1
- Configure the port in the "COMx properties" window as follows:
  - ✓ Bits per second: 9600
  - ✓ Data bits: 8
  - ✓ Parity: None
  - ✓ Stop bits: 1
  - ✓ Flow control: None
- After connecting the cable, the prompt asking for access data will appear. The XL-Telecom will request the access data. Enter the data informed above. You will have access to the configuration program as shown in the image below.

Configuration using Terminal – Main Menu:



3.2. NETWORK INTERFACE CONNECTION

To configure the XL-Telecom through the network interface, you can use the telnet program in the command line or Windows HyperTerminal using the IP address to which the XL-Telecom is configured.

For information on configuration go to the next item.

4. Configuration

This topic shows how to configure and what the configurations can be used for, regardless of how the XL-Telecom is being accessed.

4.1. Current Configuration (Status)

This option shows all current XL-Telecom configurations.

NOTE: To access by terminal, the configuration presented may not yet have been saved. In this case, to be valid it is necessary to save before closing the access.

4.2. Network

The network configuration is used to determine the XL-Telecom form and parameters for connecting to the network through the Ethernet interface.

NOTE: These parameters are enabled only after restarting the XL-Telecom.

4.2.1 DHCP

It determines whether the network configurations will be fixed or received through a DHCP server. If the choice is to configure using a DHCP server, all other network configuration parameters of are discarded.

Available options: YES (configurations using a DHCP server) and NO (fixed configurations).

4.2.2 IP Address

It configures the fixed IP address to be used by the XL-Telecom.

Example: 192.168.21.100

4.2.3 Subnet Mask

It configures the network mask to which the XL-Telecom will be connected.

Example: 255.255.255.0

4.2.4 Gateway

It configures the IP address of the network gateway to which the XL-Telecom will be connected.

Example: 192.168.21.1

4.2.5 DNS

It configures the IP address of the domain names server to be used by the XL-Telecom.

Example: 192.168.21.1

4.2.6 IP Address-2

It configures a 2nd IP address if it is necessary to access two different networks.

Example: 192.168.0.100

4.2.7 Subnet Mask-2

It configures the network mask for the 2nd IP address.

Example: 255.255.255.0

4.3. Collector

These configurations are adopted to determine the parameters used by the collection module to create the CDR files.

First of all, the switch model is configured. Each switch model has particular parameters to be configured.

4.3.1 Switch Model

This option selects the switch model to which the XL-Telecom is connected to collect CDRs.

Available options: EWSD, AXE, NEAX, SIGMA, 5ESS, TROPICO, S-12 or NO (disabled)

See below the options for each switch model:

Switch model:	*EWSD*	*AXE*	*NEAX*	*5ESS*	*TROPICO*	*S12*	*SIGMA*	*Outro*
Interface x Switch model								
Tape	x	x	x		x	x		x
X.25	x	x		x		x		x
Ethernet							x	
Configuration x Switch model								
Collector's Name	x	x	x	x	x	x	x	x
Input Directory	x	x	x	x	x	x	x	x
Output Directory	x	x	x	x	x	x	x	x
Local File Name	x	x	x	x	x	x	x	x
Collected File Name	x	x	x	x	x	x	x	x
Tape Interface: Protocol	x	x	x		x	x		
Tape Interface: Id	x	x	x		x	x		
Tape Interface: Block Size	x	x	x		x	x		
Switch User	x			x		x	x	x
Switch Password	x			x		x	x	x
Time Between Collects	x			x		x	x	x
Delete Switch Files	x			x		x	x	x
Enable Stream				x			x	

Switch model:	*EWSD*	*AXE*	*NEAX*	*5ESS*	*TROPICO*	*S12*	*SIGMA*	*Outro*
Stream Selector				x			x	
Stream File Name				x			x	
Stream Counter				x				
Enable Revsh				x				
Revsh Selector				x				
Revsh File Name				x				
Revsh Counter				x				
Enable Subreg				x				
Subreg Selector				x				
Subreg File Name				x				
Subreg Counter				x				
Maximum Counter				x				
S12 Switch Type						x		
Counter File						x		
Maximum Counter Value						x		
Last File Date (V1P)						x		
Switch IP Address							x	
Switch FTP Port							x	
Passive Mode							x	
Remote Directory							x	

4.3.2 Interface

It defines the interface to be used.

The availability of the options depends on the type of switchboard configured.

Available options: Tape, X.25 or Ethernet

4.3.3 Tape Interface (Protocol, Id and Block Size)

See item 4.5.

4.3.4 Time Between Collects

It defines the time interval between collects in seconds.

4.3.5 Delete Switch File

This option enables deleting the switch file after collecting it.

Opções disponíveis: YES ou NO

4.3.6 Collector's Name

It is the collector's name. Normally identifies the headquarters or switchboard where the equipment that generates the call records is located. Maximum size: 15 characters.

Example: OPENSWITCH

4.3.7 Input Directory

It is the directory where the current file (being created) must be located. Maximum size: 50 characters.

Example: /media/usb/work

4.3.8 Output Directory

It is the directory where the closed files, that is, ready for collection, must be located. Maximum size: 50 characters.

Example: /media/usb/trans

4.3.9 Switch User

It is the user that accesses the switch.

4.3.10 Switch Password

It is the access password to the switch.

4.3.11 Local File Name

It configures the format of the name of the created file.

Sequences of fixed and variable characters in the system can be used. Input limit of characters: 50.

The existing variables are:

Variable	*Value*	*Format*
&NAME&	collector name (item 4.3.3).	-
&DATE&	date of moment when file is created	YYYYMMDD
&TIME&	hour, minute and second when file is created	HHMMSS
&DAY&	date when file is created	DD
&MONTH&	month when file is created	MM
&YEAR&	year when file is created	AAAA
&HOUR&	time when file is created	HH
&MIN&	minute when file is created	MM
&SEC&	second when file is created	SS
&FILENAME&	original switchboard file name	-
&EXT&	extension of original file of switchboard	-
&SEQ&	sequencial number	NNN
&SUBSTR(string,start,size)&	substring of the string paramether **Ex.** &SUBSTR("OPENSWITCH",5,6)& results "SWITCH"	-

Example: **&NAME&_&DATE&_&TIME&**.DAT

If the collector name is configured as "OPEN", a file that was created on 03/01/2009 at 12:00:00 will be called: **"OPEN_20090301_120000.DAT"**.

4.3.12 Remote File Name

It configures the format of the name of the created file. The configuration options are the same as in item 4.3.8.

4.3.13 Enable Stream

It enables collection of the "stream" file.

Available options: Yes (enabled), No (disabled)

4.3.14 Stream Selector

It configures the Stream file selector.

Example: 1000

4.3.15 Stream Counter

It configures or shows the counter number.

4.3.16 Stream File Name

It configures the collected "revsh" file name.

Available options: Yes (enabled), No (disabled)

4.3.17 Enable Revsh

It enables the collection of the "revsh" file.

Available options: Yes (enabled), No (disabled)

4.3.18 Revsh Selector

It configures the selector of "revsh" file.

Example: 1000

4.3.19 Revsh Counter

It configures or shows the counter number.

4.3.20 Revsh File Name

It configures the collected "revsh" file name.

Available Options: Yes (enabled), No (disabled)

4.3.21 Enable Subreg

It enables the creation of the "subreg" file.

Available Options: Yes (enabled), No (disabled)

4.3.22 SUBREG SELECTOR

It configures the selector of the "subreg" file.

Example: 1000

4.3.23 SUBREG FILE NAME

It configures the collected "subreg" file name.

Available Options: Yes (enabled), No (disabled)

4.3.24 SUBREG COUNTER

It configures or shows the counter number.

4.3.25 SEE RECORDS (X.25)

This option permits viewing the data exchange between the switchboard and XL-Telecom (only for X.25 collection).

4.3.26 MAXIMUM COUNTER

It configures the maximum number for the "subreg", "revsh" and "stream" counters.

Example: 9999

4.3.27 SWITCH TYPE S12

This option configures the switch type for switch model S12.

Options: PAS e V1P

4.3.28 FILE COUNTER

It configures or shows the counter number.

4.3.29 MAXIMUM COUNTER VALUE

It configures the maximum number for the counter.

Example: 9999

4.3.30 LAST FILE DATE (V1P)

It configures the last file creation date. The system uses this value for naming the files.

Format: DDMMhhmm

4.3.31 SWITCH IP ADDRESS

It configures the switch IP address.

4.3.32 SWITCH FTP PORT

It configures the switch FTP Port.

4.3.33 Passive Mode

It determines if the transfer will be in the passive mode or not.

Options: Yes or No

4.3.34 Remote Directory

It configures the switch's directory from where the files will be collected.

4.4. X.25

The X.25 configuration is used to adapt the XL-Telecom internal router to the configurations of the switchboard to which it is connected.

4.4.1 Enable

This option enables or disables the X.25 module.

Available Options: YES or NO

4.4.2 Clock

This option defines the communication speed between the XL-Telecom and switchboard.

Available Options: 64, 128, 256, 512 Kb/s or external clock

4.4.3 Block Size

It defines the size of the block used in communication between the XL-Telecom and switchboard.

Available Options: 19.2k, 56k, 64k, 128k

4.4.4 DTE or DCE

It determines whether the XL-Telecom should be configured as DTE (Data Terminal Equipment) or DCE (Data Circuit-terminating Equipment). The XL-Telecom has an automatic self-configuring capacity.

Possible values: DCE, DTE and Auto

4.4.5 Virtual Circuits

It informs the XL-Telecom the quantity of virtual circuits in the switchboard.

Possible values: from 1 to 999

4.4.6 Local X.25 Address

This is the local X.21 address, namely, of the XL-Telecom.

Example: 22222222

4.4.7 Remote X.25 Address

This is the remote X.21 address, namely, of the switchboard.

Example: 11111111

4.4.8 Local NSAP Address

This is the local NSAP address, that is, of the XL-Telecom.

Example: 48440000

4.4.9 Remote NSAP Address

This is the remote NSAP address, that is, of the switchboard.

Example: 484410

4.5. Tape Emulator

The configuration of the tape emulator is used to collect equipment that provides CDRs through the tape interface.

4.5.1 Protocol

The protocol will define the physical interface to be used by the XL-Telecom.

Available Options: Pertec or SCSI

4.5.2 ID

The ID identifies the tape unit in the bus bar.

Available Options: 0, 1, 2, 3, 4, 5, 6, 7.

4.5.3 Block Size

The size of the block will inform the XL-Telecom which blocks should be considered as valid data.

More common values: 2000, 2048

4.6. FTP Transmission

The MTP configuration is used to collect equipment that provides CDRs through a synchronous X.25 interface with the MTP protocol.

4.6.1 Enable FTP Transmission

It determines whether the XL-Telecom must or must not send files through FTP to the data target server.

Available options: YES or NO

4.6.2 IP Server Address

It configures the server IP to send files.

Example: 10.10.1.18

4.6.3 FTP Server Port

It configures the port that the FTP server waits for connection to send.

Example: 21

4.6.4 FTP User

It is the user for connection in the FTP server.

Example: FTP-user

4.6.5 FTP Password

It is the password for connection with the above user

4.6.6 Passive Mode

It determines if the transfer will be in the passive mode or not.

Available options: YES or NO

4.6.7 Remote Directory

It is the directory where the files must stay in the FTP server at the end of the transfer.

Example: /data/

4.6.8 Temporary Remote Directory

It is the temporary directory for sending files.

Example: /data/temp

4.6.9 Local Directory

It is the directory where the files to be transferred are

Example: /media/usb/trans

4.6.10 File Mask

This option defines the type of file to be sent.

Example: *.DAT

4.6.11 Enable Backup

It defines whether the transmitted files should be deleted or transferred to a backup directory.

Available Options: YES or NO

If the option YES is selected, the file will be moved after transfer to the configured directory in item 4.6.12. If the option is NO, the file will be deleted after transmission.

4.6.12 Backup Directory

It is the directory to which the files must be moved after transfer the FTP server if option 4.6.11 is enabled.

Example: /media/usb/bkp

4.6.13 Over-writing

It defines the sending behavior when there is a file at the destination with the same name of the file to be sent.

Available Options: YES or NO

If the option YES is selected, the file will be overwritten at the destination. If the option is NO, a sequential number will be added to the file.

Example: file.dat.001.

4.6.14 Transmission Interval

It defines the period between sending files. Normally it is the same period as the switchboard generates files.

Example: 5 minutes

4.6.15 IDX File

It defines whether the file to be sent has an index file. This option is normally used in case of tape emulation.

Available Options: YES or NO

4.7. Backup

The Backup system is used to store the files collected and sent by the XL-Telecom. This system distributes the files in directories with the name of the day when it was generated and also controls the storage space to leave room in the memory.

4.7.1 Enable Backup

It determines if the backup system of the XL-Telecom should be started.

Available Options: YES or NO

4.7.2 Backup Directory

It determines the directory where the files to be treated by the backup system are provided.

Example: /media/usb/bkp

4.7.3 Minimum of Days

It determines the minimum time in days in which the files must be kept in the XL-Telecom.

Example: 180

4.7.4 Minimum Space

It determines the minimum percentage of memory space to be kept free in the XL-Telecom. If the space is less than the configured value, the older files are deleted until the configured percentage is reached.

Example: 10%

4.7.5 Delete All Backup Directory Files

It excludes all files in the backup directory.

4.8. Updating of the Clock

Since the XL-Telecom collects CDRs in real time, it is very important for the system's clock to show the correct date.

The parameters below allow the configuration of the date and time of the system.

NOTE: These parameters are only enabled after restarting the XL-Telecom.

4.8.1 Enabled NTP

This option enables the update of the internal clock from a network server.

Available Options: YES or NO

4.8.2 NTP Server

The XL-Telecom is able to set the internal time through a time server available in the net. In this case, the IP address of the server must be configured.

Example: 201.345.45.3

4.8.3 Local Time Zone

Depending on the clock server it is necessary to inform the region where the equipment is installed.

Normally for the Brasilia time a -3 time zone must be used in clocks with Greenwich Mean Time. In daylight saving time -2 must be used.

Example: -3

4.8.4 Manual Adjust

Sometimes the equipment does not have access to a clock server. In this case, the clock must be correctly by hand.

In the configuration via terminal the date and time must be inserted in the format YYYYMMDDHHMMSS.

Example: 20080101010000

4.9. SYSLOG

The XL-Telecom is able to generate internal event logs and send such logs to a local file or to a specific log server.

NOTE: These parameters are enabled only after resetting the XL-TELECOM.

4.9.1 REMOTE SERVER

This option enables the log to be sent to a log server.

Available Options: YES or NO

4.9.2 SERVER IP ADDRESS

It configures the address of the log server to which the XL-Telecom must send the messages.

Example: 201.345.45.3

4.9.3 SERVER PORT

It configures the port in the log server to send the messages.

Example: 154

4.9.4 ENABLE LOCAL LOG

This option enables the creation of a local log file.

Available Options: YES or NO

4.9.5 LOCAL SYSLOG FILE

It configures the file where the log is to be saved.

Example: /os/syslogd

4.9.6 MAXIMUM FILE SIZE

It configures the maximum size of the log file in Kb.

Example: 30 Kb

4.9.7 VIEW LOG FILE

It shows the last log entries.

4.10. SNMP

The XL-Telecom may be configured to send information (traps) of internal events to an SNMP server.

Two traps are available in XL-TELECOM:

- When setting -> Cold Start
- When restarting -> Warm Start

NOTE: These parameters are enabled only after restarting the XL-TELECOM.

4.10.1 Enabled SNMP

This option enables the traps to be sent to the server.

Available Options: YES or NO

4.10.2 Server IP Address

It configures the address of the SNMP server to which the XL-Telecom must send the event traps.

Example: 201.345.45.3

4.10.3 Server Port

It configures the SNMP server port configured to receive traps.

Example: 162

4.11. System

4.11.1 Restart XL

Many of the configurations described above are only enabled if the XL-Telecom is restarted.

This option permits restarting the XL-TELECOM.

4.11.2 Change user's password "xlcfg"

It permits the change of the access password through a terminal.

4.11.3 Change user's password "xlftp"

It permits the change of the access user password by FTP to collect files.

4.11.4 Restore Factory configuration

It permits returning all configurations to the factory standard.

4.11.5 Firmware Update

It permits update of the XL-Telecom version. To do so, a file made especially for this purpose by Open Switch must be used.

4.12. Utilities

4.12.1 View files in output directory

It lists the files in the directory configured in item 4.3.4.

4.12.2 View files in job work directory

It lists the files in the directory configured in item 4.3.5.

4.12.3 View files in Backup directory

It lists the files in the directory configured in 4.3.6. It permits view of the files in the root directory of the Backup or in a daily directory.

4.12.4 Ping

It permits performing a "ping" for a network IP.

4.12.5 Monitor

It permits monitoring the XL-Telecom main processes.

4.12.6 Statistics

It controls the quantity of received files and bytes.

4.13. Save Configuration

All configurations altered by a terminal are saved and consequently valid, after recording.

5. XL-Telecom Specification

5.1. Data Collection

- Collection without CDR loss during a power cut
- Four different interfaces for data collection: SCSI, Pertec, X.25 and Ethernet
- CDR storage area with permanent memory
- Synchronous serial collection up to 256Kbits/s
- X.25/MTP collection
- X.25/FTAM collection
- SCSI tape emulator collection
- PERTEC tape emulator collection
- Ethernet collection via FTP

5.2. APPLICATIONS

- Operating System: Linux
- Compacting with Gzip
- Management via SNMP
- NTP client
- Local configuration of collector using Serial Console or SSH
- File viewer
- Possibility of developing utilities
- Formating name of generated file
- File compacting
- Syslog

5.3. OPERATION

- SSH Server
- Visualizer of CDRs
- Access Telnet
- Access SSH

5.4. DATA TRANSFER

- FTP Transmission

5.5. DATA BACKUP

- Data file storage management
- Daily storage in directories
- Automatic deletion by time
- Automatic deletion by space in memory

5.6. SECURITY

- SSH Server
- SSH and SSL
- Remote resetting

5.7. MANAGEMENT

- FW update mechanism
- SW update mechanism (application) with operating status (success/error)
- Telnet access
- SSH access
- Local access control – users
- Disk space control
- SNMP
- RTC/NTP

- Syslog

5.8. CONFIGURATION

- Configuration via serial console in equipment
- Configuration through Telnet/ SSH

5.9. CONTINGENCY

- Storage of up to 4GB – file storage in one directory per day.
- Two power supplies

5.10. HARDWARE

- Control console
- Specific serial port for console
- Processor: AT91RM9200 @ 160MHz
- RAM memory: 32 MB
- Basic Flash Memory: 16 MB
- CDR Flash Memory storage
- Size of non volatile storage area: up to 4 GB
- No mobile components
- Automatic restart in event of a power cut
- Redundant power supplies
- Input voltages: 48 Vdc (110/220 Vac optional)
- Rack support 19", 21" and 23"
- Dimensions: 300 x 130 x 44 mm
- Weight: 450 g

5.11. HEAT CHARACTERISTICS AND RELIABILITY

- Operating ambient temperature: 0 to 45ºC
- Transporting temperature: -20 to +70ºC
- Relative humidity in operation: 30% to 80%
- MTTR: < 20 minutes

6. Contact data

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