

OsmoTRX VTY Reference



osmo-trx-lms

Copyright © 2021

This work is copyright by sysmocom - s.f.m.c. GmbH. All rights reserved.

COLLABORATORS

	<i>TITLE :</i> OsmoTRX VTY Reference		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		May 17, 2021	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME
v1	6th March 2018	Initial	pe
v2	17th May 2021	Automatic build (1.3.1.6-c27fe)	s.f.m.c.

Contents

1	VTY reference	1
1.1	Common Commands	1
1.1.1	end	2
1.1.2	exit	2
1.1.3	help	2
1.1.4	list [with-flags]	2
1.1.5	show running-config	3
1.1.6	show vty-attributes	3
1.1.7	show vty-attributes (application library global)	3
1.1.8	write	4
1.1.9	write file [PATH]	4
1.1.10	write memory	4
1.1.11	write terminal	4
1.2	view	5
1.2.1	enable [expert-mode]	5
1.2.2	logging color (0 1)	5
1.2.3	logging disable	5
1.2.4	logging enable	6
1.2.5	logging filter all (0 1)	6
1.2.6	logging level (main trxclk trxctrl trxddll trxdull dev devdrv ctrl global llapdli...	6
1.2.7	logging level force-all (debug info notice error fatal)	9
1.2.8	logging level set-all (debug info notice error fatal)	9
1.2.9	logging print category (0 1)	10
1.2.10	logging print category-hex (0 1)	10
1.2.11	logging print extended-timestamp (0 1)	11
1.2.12	logging print file (0 1 basename) [last]	11
1.2.13	logging print level (0 1)	12
1.2.14	logging print thread-id (0 1)	12
1.2.15	logging set-log-mask MASK	13
1.2.16	logging timestamp (0 1)	13

1.2.17	logp (main trxclk trxctrl trxddll trxdull dev devdrv ctrl global lapd linp lmuxl...	13
1.2.18	no logging level force-all	16
1.2.19	show alarms	16
1.2.20	show asciidoc counters	16
1.2.21	show cpu-sched threads	17
1.2.22	show history	17
1.2.23	show logging vty	17
1.2.24	show online-help	18
1.2.25	show rate-counters	18
1.2.26	show stats	18
1.2.27	show stats level (global peer subscriber)	19
1.2.28	show talloc-context (application all) (full brief DEPTH)	19
1.2.29	show talloc-context (application all) (full brief DEPTH) filter REGEXP	20
1.2.30	show talloc-context (application all) (full brief DEPTH) tree ADDRESS	20
1.2.31	show trx	21
1.2.32	show version	21
1.2.33	terminal length <0-512>	22
1.2.34	terminal no length	22
1.2.35	who	22
1.3	enable	22
1.3.1	configure terminal	23
1.3.2	copy running-config startup-config	23
1.3.3	disable	23
1.3.4	logging color (0 1)	24
1.3.5	logging disable	24
1.3.6	logging enable	24
1.3.7	logging filter all (0 1)	25
1.3.8	logging level (main trxclk trxctrl trxddll trxdull dev devdrv ctrl global lapd li...	25
1.3.9	logging level force-all (debug info notice error fatal)	27
1.3.10	logging level set-all (debug info notice error fatal)	28
1.3.11	logging print category (0 1)	29
1.3.12	logging print category-hex (0 1)	29
1.3.13	logging print extended-timestamp (0 1)	30
1.3.14	logging print file (0 1 basename) [last]	30
1.3.15	logging print level (0 1)	31
1.3.16	logging print thread-id (0 1)	31
1.3.17	logging set-log-mask MASK	32
1.3.18	logging timestamp (0 1)	32
1.3.19	logp (main trxclk trxctrl trxddll trxdull dev devdrv ctrl global lapd linp lmuxl...	32

1.3.20	no logging level force-all	35
1.3.21	show alarms	35
1.3.22	show asciidoc counters	35
1.3.23	show cpu-sched threads	36
1.3.24	show history	36
1.3.25	show logging vty	36
1.3.26	show online-help	37
1.3.27	show rate-counters	37
1.3.28	show startup-config	37
1.3.29	show stats	37
1.3.30	show stats level (globalpeer subscriber)	38
1.3.31	show talloc-context (application all) (full brief DEPTH)	38
1.3.32	show talloc-context (application all) (full brief DEPTH) filter REGEXP	39
1.3.33	show talloc-context (application all) (full brief DEPTH) tree ADDRESS	39
1.3.34	show trx	40
1.3.35	show version	40
1.3.36	stats report	40
1.3.37	stats reset	41
1.3.38	terminal length <0-512>	41
1.3.39	terminal monitor	41
1.3.40	terminal no length	42
1.3.41	terminal no monitor	42
1.3.42	who	42
1.4	config	42
1.4.1	banner motd default	43
1.4.2	banner motd file [FILE]	43
1.4.3	cpu-sched	43
1.4.4	ctrl	44
1.4.5	enable password (8) WORD	44
1.4.6	enable password LINE	44
1.4.7	hostname WORD	45
1.4.8	line vty	45
1.4.9	log alarms <2-32700>	45
1.4.10	log file .FILENAME	46
1.4.11	log gsm tap [HOSTNAME]	46
1.4.12	log stderr	46
1.4.13	log syslog (auth priv cron daemon ftplib pr mail news user lu ucp)	47
1.4.14	log syslog local <0-7>	47
1.4.15	log systemd-journal [raw]	48

1.4.16	no banner motd	48
1.4.17	no enable password	48
1.4.18	no hostname [HOSTNAME]	49
1.4.19	no log alarms	49
1.4.20	no log file .FILENAME	49
1.4.21	no log stderr	50
1.4.22	no log syslog	50
1.4.23	no log systemd-journal	50
1.4.24	no service advanced-vty	51
1.4.25	no service terminal-length [<0-512>]	51
1.4.26	no stats reporter log	51
1.4.27	no stats reporter statsd	52
1.4.28	password (8l) WORD	52
1.4.29	password LINE	52
1.4.30	service advanced-vty	53
1.4.31	service terminal-length <0-512>	53
1.4.32	show history	53
1.4.33	stats interval <0-65535>	54
1.4.34	stats reporter log	54
1.4.35	stats reporter statsd	54
1.4.36	trx	55
1.5	config-log	55
1.5.1	logging color (0l1)	55
1.5.2	logging filter all (0l1)	55
1.5.3	logging level (main trx clk trxc trll trxdd lltrxd dull dev devdrv ctrl global llapd li...	56
1.5.4	logging level force-all (debug info notice error fatal)	58
1.5.5	logging level set-all (debug info notice error fatal)	59
1.5.6	logging print category (0l1)	59
1.5.7	logging print category-hex (0l1)	60
1.5.8	logging print extended-timestamp (0l1)	60
1.5.9	logging print file (0l1 basename) [last]	61
1.5.10	logging print level (0l1)	61
1.5.11	logging print thread-id (0l1)	62
1.5.12	logging timestamp (0l1)	62
1.5.13	no logging level force-all	62
1.6	config-stats	63
1.6.1	disable	63
1.6.2	enable	63
1.6.3	flush-period <0-65535>	63

1.6.4	level (globalpeersubscriber)	64
1.6.5	local-ip ADDR	64
1.6.6	mtu <100-65535>	64
1.6.7	no local-ip	65
1.6.8	no mtu	65
1.6.9	no prefix	65
1.6.10	prefix PREFIX	65
1.6.11	remote-ip ADDR	66
1.6.12	remote-port <1-65535>	66
1.7	config-line	66
1.7.1	bind A.B.C.D [<0-65535>]	66
1.7.2	login	67
1.7.3	no login	67
1.8	config-ctrl	67
1.8.1	bind A.B.C.D	67
1.9	config-cpu-sched	68
1.9.1	cpu-affinity (self all<0-4294967295> THREADNAME) CPUHEXMASK [delay]	68
1.9.2	policy rr <1-32>	68
1.10	config-trx	69
1.10.1	base-port <1-65535>	69
1.10.2	bind-ip A.B.C.D	69
1.10.3	chan <0-100>	69
1.10.4	clock-ref (internal external gpsdo)	70
1.10.5	ctr-error-threshold (rx_overrun tx_underrun rx_drop_events rx_drop_samples tx_...	70
1.10.6	dev-args DESC	71
1.10.7	egprs (disable enable)	72
1.10.8	ext-rach (disable enable)	72
1.10.9	filler access-burst-delay <0-68>	72
1.10.10	filler tsc <0-7>	73
1.10.11	filler type (dummy zerolrandom-nb-gmsklrandom-nb-8psklrandom-ab)	73
1.10.12	multi-arfcn (disable enable)	74
1.10.13	no ctr-error-threshold (rx_overrun tx_underrun rx_drop_events rx_drop_samples	74
1.10.14	offset FLOAT	75
1.10.15	remote-ip A.B.C.D	76
1.10.16	rsi-offset FLOAT [relative]	76
1.10.17	rx-sps (1 4)	76
1.10.18	stack-size <0-2147483647>	77
1.10.19	swap-channels (disable enable)	77
1.10.20	tx-sps (1 4)	77
1.11	config-trx-chan	78
1.11.1	rx-path NAME	78
1.11.2	tx-path NAME	78

List of Tables

1.1	VTY Parameter Patterns	1
1.2	VTY port numbers	1

Chapter 1

VTY reference

The Virtual Tele Type (VTY) has the concept of nodes and commands. This chapter lists all nodes and the commands that are available within the node. Each command can consist out of several words followed by a variable number of parameters. There are common patterns for the parameters, these include IPv4 addresses, number ranges, a word, a line of text and choice. The following will explain the commonly used patterns.

Pattern	Example	Explanation
A.B.C.D	127.0.0.1	A IPv4 address
TEXT	example01	A single string without any spaces, tabs
.TEXT	Some information	A line of text
(OptionA OptionB OptionC)	OptionA	A choice between a list of available options
<0-10>	5	A number from a range

Table 1.1: VTY Parameter Patterns

The application is configured through the VTY. For configuring a system one needs to enter the **enable** node and then enter the **configure terminal** command. Then the configuration can be made according to the available commands. After the system has been configured one can use the **write** command to write the new configuration to the configuration file. The new file will be used after the application has been restarted.

The following table lists the TCP port numbers of the VTY for the various Osmocom GSM related programs as used on sismocom products:

Port Number	Software
4240	osmo-pcu
4241	osmo-bts
4242	osmo-nitb, osmo-bsc
4243	osmo-bsc_mgcp
4244	osmo-bsc_nat
4245	osmo-sgsn
4246	osmo-gbproxy

Table 1.2: VTY port numbers

1.1 Common Commands

These commands are available on all VTY nodes. They are listed here only once, to unclutter the VTY reference.

1.1.1 end

Command

```
end
```

Parameters

end

End current mode and change to enable mode.

1.1.2 exit

Command

```
exit
```

Parameters

exit

Exit current mode and down to previous mode

1.1.3 help

Command

```
help
```

Parameters

help

Description of the interactive help system

1.1.4 list [with-flags]

Command

```
list [with-flags]
```

Parameters

list

Print command list

[with-flags]

Also print the VTY attribute flags

1.1.5 show running-config

Command

```
show running-config
```

Parameters

show

Show running system information

running-config

running configuration

1.1.6 show vty-attributes

Command

```
show vty-attributes
```

Parameters

show

Show running system information

vtty-attributes

List of VTY attributes

1.1.7 show vty-attributes (application|library|global)

Command

```
show vty-attributes (application|library|global)
```

Parameters

show

Show running system information

vtty-attributes

List of VTY attributes

application

Application specific attributes only

library

Library specific attributes only

global

Global attributes only

1.1.8 write

Command

```
write
```

Parameters

write

Write running configuration to memory, network, or terminal

1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

write

Write running configuration to memory, network, or terminal

file

Write to configuration file

[PATH]

Set file path to store the config, or replace if already exists

1.1.10 write memory

Command

```
write memory
```

Parameters

write

Write running configuration to memory, network, or terminal

memory

Write configuration to the file (same as write file)

1.1.11 write terminal

Command

```
write terminal
```

Parameters

write

Write running configuration to memory, network, or terminal

terminal

Write to terminal

1.2 view

The view node is the default node when connecting to the VTY interface. This node does not require any additional permission and allows to introspect the application.

1.2.1 enable [expert-mode]

Command

```
enable [expert-mode]
```

Parameters

enable

Turn on privileged mode command

[expert-mode]

Enable the expert mode (show hidden commands)

1.2.2 logging color (0|1)

Command

```
logging color (0|1)
```

Parameters

logging

Configure logging

color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

1.2.3 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

1.2.4 logging enable

This command is required to make logging commands available on the telnet VTY.

Command

```
logging enable
```

Parameters

logging

Configure logging

enable

Enables logging to this vty

1.2.5 logging filter all (0|1)

Disable/enable general log output on a given target. Typically, 'logging filter all 1' allows to see the usual log output on a given target. Setting to '0' can be useful when logging to the telnet VTY console: mute all log output to allow typing VTY commands on the telnet prompt without interference from log output; 'logging filter all 1' then re-enables logging in the same log output configuration as before. Some applications provide more specific filters, e.g. to log a given IMSI only. To employ such filters, set 'logging filter all 0' to disable general logging, and then enable a more specific filter instead.

Command

```
logging filter all (0|1)
```

Parameters

logging

Configure logging

filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

1.2.6 logging level (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|li...

Command

```
logging level (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux ↔
|lmi|lmib|lsms|lctrl|lgtpl|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf| ↔
|rspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

main

Main generic category

trxclk

TRX Master Clock

trxctrl

TRX CTRL interface

trxddl

TRX Data interface Downlink

trxdul

TRX CTRL interface Uplink

dev

Device/Driver specific code

devdrv

Logging from external device driver library implementing lower level specifics

ctr

Rate counter related logging

lglobal

Library-internal global log family

llapd

LAPD in libosmogsm

linp

A-bis Input Subsystem

lmux

A-bis B-Subchannel TRAU Frame Multiplex

lmi

A-bis Input Driver for Signalling

lmib

A-bis Input Driver for B-Channels (voice)

lsms

Layer3 Short Message Service (SMS)

lctrl

Control Interface

lgtp

GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lscpp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnsignal
GPRS NS layer signal PDU

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice
Log noticeable messages and higher levels

error
Log error messages and higher levels

fatal
Log only fatal messages

1.2.7 logging level force-all (debug|info|notice|error|fatal)

Command

```
logging level force-all (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

force-all

Globally force all logging categories to a specific level. This is released by the 'no logging level force-all' command. Note: any 'logging level <category> <level>' commands will have no visible effect after this, until the forced level is released.

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.2.8 logging level set-all (debug|info|notice|error|fatal)

Command

```
logging level set-all (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

set-all

Once-off set all categories to the given log level. There is no single command to take back these changes -- each category is set to the given level, period.

debug

Log debug messages and higher levels

- info
Log informational messages and higher levels
- notice
Log noticeable messages and higher levels
- error
Log error messages and higher levels
- fatal
Log only fatal messages

1.2.9 logging print category (0|1)

Command

```
logging print category (0|1)
```

Parameters

- logging
Configure logging
- print
Log output settings
- category
Configure log message
- 0
Don't prefix each log message
- 1
Prefix each log message with category/subsystem name

1.2.10 logging print category-hex (0|1)

Command

```
logging print category-hex (0|1)
```

Parameters

- logging
Configure logging
- print
Log output settings
- category-hex
Configure log message
- 0
Don't prefix each log message
- 1
Prefix each log message with category/subsystem nr in hex ('<000b>')

1.2.11 logging print extended-timestamp (0|1)

Command

```
logging print extended-timestamp (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

1.2.12 logging print file (0|1|basename) [last]

Command

```
logging print file (0|1|basename) [last]
```

Parameters

logging

Configure logging

print

Log output settings

file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

basename

Prefix each log message with the source file's basename (strip leading paths) and line

[last]

Log source file info at the end of a log line. If omitted, log source file info just before the log text.

1.2.13 logging print level (0|1)

Command

```
logging print level (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

1.2.14 logging print thread-id (0|1)

Command

```
logging print thread-id (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

1.2.15 logging set-log-mask MASK

Command

```
logging set-log-mask MASK
```

Parameters

logging

Configure logging

set-log-mask

Set the logmask of this logging target

MASK

List of logging categories to log, e.g. 'abc:mno:xyz'. Available log categories depend on the specific application, refer to the 'logging level' command. Optionally add individual log levels like 'abc,1:mno,3:xyz,5', where the level numbers are LOGL_DEBUG=1 LOGL_INFO=3 LOGL_NOTICE=5 LOGL_ERROR=7 LOGL_FATAL=8

1.2.16 logging timestamp (0|1)

Command

```
logging timestamp (0|1)
```

Parameters

logging

Configure logging

timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

1.2.17 logp (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtpl|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal) .LOGMESSAGE

Command

```
logp (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux|lmi|lmib ↔
|lsms|lctrl|lgtpl|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns| ↔
|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

logp

Print a message on all log outputs; useful for placing markers in test logs

main
Main generic category

trxclk
TRX Master Clock

trxctrl
TRX CTRL interface

trxddl
TRX Data interface Downlink

trxdul
TRX CTRL interface Uplink

dev
Device/Driver specific code

devdrv
Logging from external device driver library implementing lower level specifics

ctr
Rate counter related logging

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

lmib
A-bis Input Driver for B-Channels (voice)

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lgtp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lsccp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnsignal
GPRS NS layer signal PDU

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice
Log noticeable messages and higher levels

error
Log error messages and higher levels

fatal
Log only fatal messages

.LOGMESSAGE
Arbitrary message to log on given category and log level

1.2.18 no logging level force-all

Command

```
no logging level force-all
```

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

Release any globally forced log level set with 'logging level force-all <level>'

1.2.19 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

1.2.20 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show

Show running system information

asciidoc

Asciidoc generation

counters

Generate table of all registered counters

1.2.21 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show

Show running system information

cpu-sched

Show Sched section information

threads

Show information about running threads)

1.2.22 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.2.23 show logging vty

Command

```
show logging vty
```

Parameters

show

Show running system information

logging

Show current logging configuration

vty

Show current logging configuration for this vty

1.2.24 show online-help

Command

```
show online-help
```

Parameters

show

Show running system information

online-help

Online help

1.2.25 show rate-counters

Command

```
show rate-counters
```

Parameters

show

Show running system information

rate-counters

Show all rate counters

1.2.26 show stats

Command

```
show stats
```

Parameters

show

Show running system information

stats

Show statistical values

1.2.27 show stats level (global|peer|subscriber)

Command

```
show stats level (global|peer|subscriber)
```

Parameters

show

Show running system information

stats

Show statistical values

level

Set the maximum group level

global

Show global groups only

peer

Show global and network peer related groups

subscriber

Show global, peer, and subscriber groups

1.2.28 show talloc-context (application|all) (full|brief|DEPTH)

Command

```
show talloc-context (application|all) (full|brief|DEPTH)
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

1.2.29 show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP

Command

```
show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

filter

Filter chunks using regular expression

REGEXP

Regular expression

1.2.30 show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS

Command

```
show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

tree

Display only a specific memory chunk

ADDRESS

Chunk address (e.g. 0xdeadbeef)

1.2.31 show trx

Command

```
show trx
```

Parameters

show

Show running system information

trx

Display information on the TRX

1.2.32 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

1.2.33 terminal length <0-512>

Command

```
terminal length <0-512>
```

Parameters

terminal

Set terminal line parameters

length

Set number of lines on a screen

<0-512>

Number of lines on screen (0 for no pausing)

1.2.34 terminal no length

Command

```
terminal no length
```

Parameters

terminal

Set terminal line parameters

no

Negate a command or set its defaults

length

Set number of lines on a screen

1.2.35 who

Command

```
who
```

Parameters

who

Display who is on vty

1.3 enable

The enable node is a privileged node, allowing to make changes to the configuration and to access further commands like 'configure'. All commands seen on the view node are also available here.

1.3.1 configure terminal

Command

```
configure terminal
```

Parameters

configure

Configuration from vty interface

terminal

Configuration terminal

1.3.2 copy running-config startup-config

Command

```
copy running-config startup-config
```

Parameters

copy

Copy configuration

running-config

Copy running config to...

startup-config

Copy running config to startup config (same as write file)

1.3.3 disable

Command

```
disable
```

Parameters

disable

Turn off privileged mode command

1.3.4 logging color (0|1)

Command

```
logging color (0|1)
```

Parameters

logging

Configure logging

color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

1.3.5 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

1.3.6 logging enable

This command is required to make logging commands available on the telnet VTY.

Command

```
logging enable
```

Parameters

logging

Configure logging

enable

Enables logging to this vty

1.3.7 logging filter all (0|1)

Disable/enable general log output on a given target. Typically, 'logging filter all 1' allows to see the usual log output on a given target. Setting to '0' can be useful when logging to the telnet VTY console: mute all log output to allow typing VTY commands on the telnet prompt without interference from log output; 'logging filter all 1' then re-enables logging in the same log output configuration as before. Some applications provide more specific filters, e.g. to log a given IMSI only. To employ such filters, set 'logging filter all 0' to disable general logging, and then enable a more specific filter instead.

Command

```
logging filter all (0|1)
```

Parameters

logging

Configure logging

filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

1.3.8 logging level (main|trxclk|trxctrl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal)

Command

```
logging level (main|trxclk|trxctrl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux ↔
|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf| ↔
lrspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

main

Main generic category

trxclk

TRX Master Clock

trxctrl

TRX CTRL interface

trxddl
TRX Data interface Downlink

trxdul
TRX CTRL interface Uplink

dev
Device/Driver specific code

devdrv
Logging from external device driver library implementing lower level specifics

ctr
Rate counter related logging

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

lmib
A-bis Input Driver for B-Channels (voice)

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lntp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lscpp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnsignal
GPRS NS layer signal PDU

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice
Log noticeable messages and higher levels

error
Log error messages and higher levels

fatal
Log only fatal messages

1.3.9 logging level force-all (debug|info|notice|error|fatal)

Command

```
logging level force-all (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

force-all

Globally force all logging categories to a specific level. This is released by the 'no logging level force-all' command. Note: any 'logging level <category> <level>' commands will have no visible effect after this, until the forced level is released.

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.3.10 logging level set-all (debug|info|notice|error|fatal)

Command

```
logging level set-all (debug|info|notice|error|fatal)
```

Parameters**logging**

Configure logging

level

Set the log level for a specified category

set-all

Once-off set all categories to the given log level. There is no single command to take back these changes -- each category is set to the given level, period.

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.3.11 logging print category (0|1)

Command

```
logging print category (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

1.3.12 logging print category-hex (0|1)

Command

```
logging print category-hex (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem nr in hex ('<000b>')

1.3.13 logging print extended-timestamp (0|1)

Command

```
logging print extended-timestamp (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

1.3.14 logging print file (0|1|basename) [last]

Command

```
logging print file (0|1|basename) [last]
```

Parameters

logging

Configure logging

print

Log output settings

file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

basename

Prefix each log message with the source file's basename (strip leading paths) and line

[last]

Log source file info at the end of a log line. If omitted, log source file info just before the log text.

1.3.15 logging print level (0|1)

Command

```
logging print level (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

1.3.16 logging print thread-id (0|1)

Command

```
logging print thread-id (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

1.3.17 logging set-log-mask MASK

Command

```
logging set-log-mask MASK
```

Parameters

logging

Configure logging

set-log-mask

Set the logmask of this logging target

MASK

List of logging categories to log, e.g. 'abc:mno:xyz'. Available log categories depend on the specific application, refer to the 'logging level' command. Optionally add individual log levels like 'abc,1:mno,3:xyz,5', where the level numbers are LOGL_DEBUG=1 LOGL_INFO=3 LOGL_NOTICE=5 LOGL_ERROR=7 LOGL_FATAL=8

1.3.18 logging timestamp (0|1)

Command

```
logging timestamp (0|1)
```

Parameters

logging

Configure logging

timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

1.3.19 logp (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux|l...)

Command

```
logp (main|trxcclk|trxcctl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux|lmi|lmib ↔
|lsms|lctrl|lgtpl|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns| ↔
|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

logp

Print a message on all log outputs; useful for placing markers in test logs

main
Main generic category

trxclk
TRX Master Clock

trxctrl
TRX CTRL interface

trxddl
TRX Data interface Downlink

trxdul
TRX CTRL interface Uplink

dev
Device/Driver specific code

devdrv
Logging from external device driver library implementing lower level specifics

ctr
Rate counter related logging

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

lmib
A-bis Input Driver for B-Channels (voice)

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lgtp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lsccp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnsignal
GPRS NS layer signal PDU

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice
Log noticeable messages and higher levels

error
Log error messages and higher levels

fatal
Log only fatal messages

.LOGMESSAGE
Arbitrary message to log on given category and log level

1.3.20 no logging level force-all

Command

```
no logging level force-all
```

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

Release any globally forced log level set with 'logging level force-all <level>'

1.3.21 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

1.3.22 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show

Show running system information

asciidoc

Asciidoc generation

counters

Generate table of all registered counters

1.3.23 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show

Show running system information

cpu-sched

Show Sched section information

threads

Show information about running threads)

1.3.24 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.3.25 show logging vty

Command

```
show logging vty
```

Parameters

show

Show running system information

logging

Show current logging configuration

vtty

Show current logging configuration for this vty

1.3.26 show online-help

Command

```
show online-help
```

Parameters

show

Show running system information

online-help

Online help

1.3.27 show rate-counters

Command

```
show rate-counters
```

Parameters

show

Show running system information

rate-counters

Show all rate counters

1.3.28 show startup-config

Command

```
show startup-config
```

Parameters

show

Show running system information

startup-config

Contentes of startup configuration

1.3.29 show stats

Command

```
show stats
```

Parameters

show

Show running system information

stats

Show statistical values

1.3.30 show stats level (global|peer|subscriber)

Command

```
show stats level (global|peer|subscriber)
```

Parameters

show

Show running system information

stats

Show statistical values

level

Set the maximum group level

global

Show global groups only

peer

Show global and network peer related groups

subscriber

Show global, peer, and subscriber groups

1.3.31 show talloc-context (application|all) (full|brief|DEPTH)

Command

```
show talloc-context (application|all) (full|brief|DEPTH)
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

1.3.32 show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP

Command

```
show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

filter

Filter chunks using regular expression

REGEXP

Regular expression

1.3.33 show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS

Command

```
show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS
```

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

tree

Display only a specific memory chunk

ADDRESS

Chunk address (e.g. 0xdeadbeef)

1.3.34 show trx

Command

```
show trx
```

Parameters

show

Show running system information

trx

Display information on the TRX

1.3.35 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

1.3.36 stats report

Command

```
stats report
```

Parameters

stats

Stats related commands

report

Manurally trigger reporting of stats

1.3.37 stats reset

Command

```
stats reset
```

Parameters

stats

Stats related commands

reset

Reset all stats

1.3.38 terminal length <0-512>

Command

```
terminal length <0-512>
```

Parameters

terminal

Set terminal line parameters

length

Set number of lines on a screen

<0-512>

Number of lines on screen (0 for no pausing)

1.3.39 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal

Set terminal line parameters

monitor

Copy debug output to the current terminal line

1.3.40 terminal no length

Command

```
terminal no length
```

Parameters

terminal

Set terminal line parameters

no

Negate a command or set its defaults

length

Set number of lines on a screen

1.3.41 terminal no monitor

Command

```
terminal no monitor
```

Parameters

terminal

Set terminal line parameters

no

Negate a command or set its defaults

monitor

Copy debug output to the current terminal line

1.3.42 who

Command

```
who
```

Parameters

who

Display who is on vty

1.4 config

The config node is the root for all configuration commands, which are identical to the config file format. Changes made on the telnet VTY can be made persistent with the 'write file' command.

1.4.1 banner motd default

Command

```
banner motd default
```

Parameters

banner

Set banner string

motd

Strings for motd

default

Default string

1.4.2 banner motd file [FILE]

Command

```
banner motd file [FILE]
```

Parameters

banner

Set banner

motd

Banner for motd

file

Banner from a file

[FILE]

Filename

1.4.3 cpu-sched

Command

```
cpu-sched
```

Parameters

cpu-sched

Configure CPU Scheduler related settings

1.4.4 ctrl

Command

```
ctrl
```

Parameters

ctrl

Configure the Control Interface

1.4.5 enable password (8|) WORD

Command

```
enable password (8|) WORD
```

Parameters

enable

Modify enable password parameters

password

Assign the privileged level password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN 'enable' password string

1.4.6 enable password LINE

Command

```
enable password LINE
```

Parameters

enable

Modify enable password parameters

password

Assign the privileged level password

LINE

The UNENCRYPTED (cleartext) 'enable' password

1.4.7 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname

Set system's network name

WORD

This system's network name

1.4.8 line vty

Command

```
line vty
```

Parameters

line

Configure a terminal line

vtty

Virtual terminal

1.4.9 log alarms <2-32700>

Command

```
log alarms <2-32700>
```

Parameters

log

Configure logging sub-system

alarms

Logging alarms to osmo_strrb

<2-32700>

Maximum number of messages to log

1.4.10 log file .FILENAME

Command

```
log file .FILENAME
```

Parameters

log

Configure logging sub-system

file

Logging to text file

.FILENAME

Filename

1.4.11 log gsmtap [HOSTNAME]

Command

```
log gsmtap [HOSTNAME]
```

Parameters

log

Configure logging sub-system

gsmtap

Logging via GSMTAP

[HOSTNAME]

Host name to send the GSMTAP logging to (UDP port 4729)

1.4.12 log stderr

Command

```
log stderr
```

Parameters

log

Configure logging sub-system

stderr

Logging via STDERR of the process

1.4.13 log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp)

Command

```
log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp)
```

Parameters

log

Configure logging sub-system

syslog

Logging via syslog

authpriv

Security/authorization messages facility

cron

Clock daemon (cron/at) facility

daemon

General system daemon facility

ftp

Ftp daemon facility

lpr

Line printer facility

mail

Mail facility

news

News facility

user

Generic facility

uucp

UUCP facility

1.4.14 log syslog local <0-7>

Command

```
log syslog local <0-7>
```

Parameters

log

Configure logging sub-system

syslog

Logging via syslog

local

Syslog LOCAL facility

<0-7>

Local facility number

1.4.15 log systemd-journal [raw]

Command

```
log systemd-journal [raw]
```

Parameters

log

Configure logging sub-system

systemd-journal

Logging to systemd-journal

[raw]

Offload rendering of the meta information (location, category) to systemd

1.4.16 no banner motd

Command

```
no banner motd
```

Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

1.4.17 no enable password

Command

```
no enable password
```

Parameters

no

Negate a command or set its defaults

enable

Modify enable password parameters

password

Assign the privileged level password

1.4.18 no hostname [HOSTNAME]

Command

```
no hostname [HOSTNAME]
```

Parameters

no

Negate a command or set its defaults

hostname

Reset system's network name

[HOSTNAME]

Host name of this router

1.4.19 no log alarms

Command

```
no log alarms
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

alarms

Logging alarms to osmo_strb

1.4.20 no log file .FILENAME

Command

```
no log file .FILENAME
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

file

Logging to text file

.FILENAME

Filename

1.4.21 no log stderr

Command

```
no log stderr
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

stderr

Logging via STDERR of the process

1.4.22 no log syslog

Command

```
no log syslog
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

syslog

Logging via syslog

1.4.23 no log systemd-journal

Command

```
no log systemd-journal
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

systemd-journal

Logging to systemd-journal

1.4.24 no service advanced-vty

Command

```
no service advanced-vty
```

Parameters

no

Negate a command or set its defaults

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

1.4.25 no service terminal-length [<0-512>]

Command

```
no service terminal-length [<0-512>]
```

Parameters

no

Negate a command or set its defaults

service

Set up miscellaneous service

terminal-length

System wide terminal length configuration

[<0-512>]

Number of lines of VTY (0 means no line control)

1.4.26 no stats reporter log

Command

```
no stats reporter log
```

Parameters

no

Negate a command or set its defaults

stats

Configure stats sub-system

reporter

Configure a stats reporter

log

Report to the logger

1.4.27 no stats reporter statsd

Command

```
no stats reporter statsd
```

Parameters

no

Negate a command or set its defaults

stats

Configure stats sub-system

reporter

Configure a stats reporter

statsd

Report to a STATSD server

1.4.28 password (8|) WORD

Command

```
password (8|) WORD
```

Parameters

password

Assign the terminal connection password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN line password string

1.4.29 password LINE

Command

```
password LINE
```

Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

1.4.30 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

1.4.31 service terminal-length <0-512>

Command

```
service terminal-length <0-512>
```

Parameters

service

Set up miscellaneous service

terminal-length

System wide terminal length configuration

<0-512>

Number of lines of VTY (0 means no line control)

1.4.32 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.4.33 stats interval <0-65535>

Command

```
stats interval <0-65535>
```

Parameters

stats

Configure stats sub-system

interval

Set the reporting interval

<0-65535>

Interval in seconds (0 disables the reporting interval)

1.4.34 stats reporter log

Command

```
stats reporter log
```

Parameters

stats

Configure stats sub-system

reporter

Configure a stats reporter

log

Report to the logger

1.4.35 stats reporter statsd

Command

```
stats reporter statsd
```

Parameters

stats

Configure stats sub-system

reporter

Configure a stats reporter

statsd

Report to a STATSD server

1.4.36 `trx`

Command

```
trx
```

Parameters

`trx`

Configure the TRX

1.5 `config-log`

The log node is commonly available in all Osmocom programs and allows configuring logging to stderr and/or log files, including logging category and level filtering as well as output formatting options. Note that the 'logging enable' command is required to make logging commands available on the telnet VTY.

1.5.1 `logging color (0|1)`

Command

```
logging color (0|1)
```

Parameters

`logging`

Configure logging

`color`

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

1.5.2 `logging filter all (0|1)`

Disable/enable general log output on a given target. Typically, 'logging filter all 1' allows to see the usual log output on a given target. Setting to '0' can be useful when logging to the telnet VTY console: mute all log output to allow typing VTY commands on the telnet prompt without interference from log output; 'logging filter all 1' then re-enables logging in the same log output configuration as before. Some applications provide more specific filters, e.g. to log a given IMSI only. To employ such filters, set 'logging filter all 0' to disable general logging, and then enable a more specific filter instead.

Command

```
logging filter all (0|1)
```

Parameters

logging

Configure logging

filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

1.5.3 logging level (main|trxclock|trxcctrl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux ↔ |lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf| ↔ lrspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal)

Command

```
logging level (main|trxclock|trxcctrl|trxddl|trxdul|dev|devdrv|ctr|lglobal|llapd|linp|lmux ↔
|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf| ↔
lrspro|lns|lbssgp|lnsdata|lnssignal) (debug|info|notice|error|fatal)
```

Parameters**logging**

Configure logging

level

Set the log level for a specified category

main

Main generic category

trxclock

TRX Master Clock

trxcctrl

TRX CTRL interface

trxddl

TRX Data interface Downlink

trxdul

TRX CTRL interface Uplink

dev

Device/Driver specific code

devdrv

Logging from external device driver library implementing lower level specifics

ctr

Rate counter related logging

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

lmib
A-bis Input Driver for B-Channels (voice)

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lgtp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lsccp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

Ins
 GPRS NS layer

lbssgp
 GPRS BSSGP layer

Insdata
 GPRS NS layer data PDU

Inssignal
 GPRS NS layer signal PDU

debug
 Log debug messages and higher levels

info
 Log informational messages and higher levels

notice
 Log noticeable messages and higher levels

error
 Log error messages and higher levels

fatal
 Log only fatal messages

1.5.4 logging level force-all (debug|info|notice|error|fatal)

Command

```
logging level force-all (debug|info|notice|error|fatal)
```

Parameters

logging

 Configure logging

level

 Set the log level for a specified category

force-all

 Globally force all logging categories to a specific level. This is released by the 'no logging level force-all' command. Note: any 'logging level <category> <level>' commands will have no visible effect after this, until the forced level is released.

debug

 Log debug messages and higher levels

info

 Log informational messages and higher levels

notice

 Log noticeable messages and higher levels

error

 Log error messages and higher levels

fatal

 Log only fatal messages

1.5.5 logging level set-all (debug|info|notice|error|fatal)

Command

```
logging level set-all (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

set-all

Once-off set all categories to the given log level. There is no single command to take back these changes -- each category is set to the given level, period.

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.5.6 logging print category (0|1)

Command

```
logging print category (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

1.5.7 logging print category-hex (0|1)

Command

```
logging print category-hex (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem nr in hex ('<000b>')

1.5.8 logging print extended-timestamp (0|1)

Command

```
logging print extended-timestamp (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnn

1.5.9 logging print file (0|1|basename) [last]

Command

```
logging print file (0|1|basename) [last]
```

Parameters

logging

Configure logging

print

Log output settings

file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

basename

Prefix each log message with the source file's basename (strip leading paths) and line

[last]

Log source file info at the end of a log line. If omitted, log source file info just before the log text.

1.5.10 logging print level (0|1)

Command

```
logging print level (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

1.5.11 logging print thread-id (0|1)

Command

```
logging print thread-id (0|1)
```

Parameters

logging

Configure logging

print

Log output settings

thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

1.5.12 logging timestamp (0|1)

Command

```
logging timestamp (0|1)
```

Parameters

logging

Configure logging

timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

1.5.13 no logging level force-all

Command

```
no logging level force-all
```

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

Release any globally forced log level set with 'logging level force-all <level>'

1.6 config-stats

1.6.1 disable

Command

```
disable
```

Parameters

disable

Disable the reporter

1.6.2 enable

Command

```
enable
```

Parameters

enable

Enable the reporter

1.6.3 flush-period <0-65535>

Command

```
flush-period <0-65535>
```

Parameters

flush-period

Configure stats sub-system

<0-65535>

Send all stats even if they have not changed (i.e. force the flush) every N-th reporting interval. Set to 0 to disable regular flush (default).

1.6.4 level (global|peer|subscriber)

Command

```
level (global|peer|subscriber)
```

Parameters

level

Set the maximum group level

global

Report global groups only

peer

Report global and network peer related groups

subscriber

Report global, peer, and subscriber groups

1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

local-ip

Set the IP address to which we bind locally

ADDR

IP Address

1.6.6 mtu <100-65535>

Command

```
mtu <100-65535>
```

Parameters

mtu

Set the maximum packet size

<100-65535>

Size in byte

1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no

Negate a command or set its defaults

local-ip

Set the IP address to which we bind locally

1.6.8 no mtu

Command

```
no mtu
```

Parameters

no

Negate a command or set its defaults

mtu

Set the maximum packet size

1.6.9 no prefix

Command

```
no prefix
```

Parameters

no

Negate a command or set its defaults

prefix

Set the item name prefix

1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix

Set the item name prefix

PREFIX

The prefix string

1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

remote-ip

Set the remote IP address to which we connect

ADDR

IP Address

1.6.12 remote-port <1-65535>

Command

```
remote-port <1-65535>
```

Parameters

remote-port

Set the remote port to which we connect

<1-65535>

Remote port number

1.7 config-line

1.7.1 bind A.B.C.D [<0-65535>]

Command

```
bind A.B.C.D [<0-65535>]
```

Parameters

bind

Accept VTY telnet connections on local interface

A.B.C.D

Local interface IP address (default: 127.0.0.1)

[<0-65535>]

Local TCP port number

1.7.2 login

Command

```
login
```

Parameters

login

Enable password checking

1.7.3 no login

Command

```
no login
```

Parameters

no

Negate a command or set its defaults

login

Enable password checking

1.8 config-ctrl

1.8.1 bind A.B.C.D

Command

```
bind A.B.C.D
```

Parameters

bind

Set bind address to listen for Control connections

A.B.C.D

Local IP address (default 127.0.0.1)

1.9 config-cpu-sched

1.9.1 cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay]

Command

```
cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay]
```

Global attributes

Flag: !

This command applies immediately

Parameters

cpu-affinity

Set CPU affinity mask on a (group of) thread(s)

self

Set CPU affinity mask on thread running the VTY

all

Set CPU affinity mask on all process' threads

<0-4294967295>

Set CPU affinity mask on a thread with specified PID

THREADNAME

Set CPU affinity mask on a thread with specified thread name

CPUHEXMASK

CPU affinity mask

[delay]

If set, delay applying the affinity mask now and let the app handle it at a later point

1.9.2 policy rr <1-32>

Command

```
policy rr <1-32>
```

Global attributes

Flag: !

This command applies immediately

Parameters

policy

Set the scheduling policy to use for the process

rr

Use the SCHED_RR real-time scheduling algorithm

<1-32>

Set the SCHED_RR real-time priority

1.10 config-trx

1.10.1 base-port <1-65535>

Command

```
base-port <1-65535>
```

Parameters

base-port

Set the TRX Base Port

<1-65535>

TRX Base Port

1.10.2 bind-ip A.B.C.D

Command

```
bind-ip A.B.C.D
```

Parameters

bind-ip

Set the IP address for the local bind

A.B.C.D

IPv4 Address

1.10.3 chan <0-100>

Command

```
chan <0-100>
```

Parameters

chan

Select a channel to configure

<0-100>

Channel index

1.10.4 clock-ref (internal|external|gpsdo)

Command

```
clock-ref (internal|external|gpsdo)
```

Parameters

clock-ref

Set the Reference Clock

internal

Enable internal reference (default)

external

Enable external 10 MHz reference

gpsdo

Enable GPSDO reference

1.10.5 ctr-error-threshold (rx_overruns|tx_underruns|rx_drop_events|rx_drop_samples|tx_...

Command

```
ctr-error-threshold (rx_overruns|tx_underruns|rx_drop_events|rx_drop_samples| ↔  
tx_drop_events|tx_drop_samples|tx_stale_bursts|tx_unavailable_bursts| ↔  
tx_trxd_fn_repeated|tx_trxd_fn_outoforder|tx_trxd_fn_skipped) <0-65535> (per-second ↔  
|per-minute|per-hour|per-day)
```

Global attributes

Flag: !

This command applies immediately

Parameters

ctr-error-threshold

Threshold rate for error counter

rx_overruns

Set threshold value for rate_ctr device:rx_overruns

tx_underruns

Set threshold value for rate_ctr device:tx_underruns

rx_drop_events

Set threshold value for rate_ctr device:rx_drop_events

rx_drop_samples

Set threshold value for rate_ctr device:rx_drop_samples

tx_drop_events

Set threshold value for rate_ctr device:tx_drop_events

tx_drop_samples

Set threshold value for rate_ctr device:tx_drop_samples

tx_stale_bursts

Set threshold value for rate_ctr device:tx_stale_bursts

tx_unavailable_bursts

Set threshold value for rate_ctr device:tx_unavailable_bursts

tx_trxd_fn_repeated

Set threshold value for rate_ctr device:tx_trxd_fn_repeated

tx_trxd_fn_outoforder

Set threshold value for rate_ctr device:tx_trxd_fn_outoforder

tx_trxd_fn_skipped

Set threshold value for rate_ctr device:tx_trxd_fn_skipped

<0-65535>

Value to set for threshold

per-second

Threshold value sampled per-second

per-minute

Threshold value sampled per-minute

per-hour

Threshold value sampled per-hour

per-day

Threshold value sampled per-day

1.10.6 dev-args DESC

Command

```
dev-args DESC
```

Parameters

dev-args

Set the device-specific arguments to pass to the device

DESC

Device-specific arguments

1.10.7 egprs (disable|enable)

Command

```
egprs (disable|enable)
```

Parameters

egprs

EGPRS (8-PSK demodulation) support (default=disable)

disable

Disable EGPRS (8-PSK demodulation) support

enable

Enable EGPRS (8-PSK demodulation) support

1.10.8 ext-rach (disable|enable)

Command

```
ext-rach (disable|enable)
```

Parameters

ext-rach

11-bit Access Burst correlation support (default=disable)

disable

Disable 11-bit Access Burst (TS1 & TS2) correlation

enable

Enable 11-bit Access Burst (TS1 & TS2) correlation

1.10.9 filler access-burst-delay <0-68>

Command

```
filler access-burst-delay <0-68>
```

Parameters

filler

Filler burst settings

access-burst-delay

Set the delay for Access Burst random fillers. Used only with 'random-ab' filler type. (default=0)

<0-68>

RACH delay in symbols

1.10.10 filler tsc <0-7>

Command

```
filler tsc <0-7>
```

Parameters

filler

Filler burst settings

tsc

Set the TSC for GMSK/8-PSK Normal Burst random fillers. Used only with 'random-nb-gmsk' and 'random-nb-8psk' filler types. (default=0)

<0-7>

TSC

1.10.11 filler type (dummy|zero|random-nb-gmsk|random-nb-8psk|random-ab)

Command

```
filler type (dummy|zero|random-nb-gmsk|random-nb-8psk|random-ab)
```

Parameters

filler

Filler burst settings

type

What to do when there is nothing to send (filler type, default=zero)

dummy

Send a Dummy Burst on C0 (TRX0) and empty burst on other channels

zero

Send an empty burst (default)

random-nb-gmsk

Send a GMSK modulated Normal Burst with random bits (spectrum mask testing)

random-nb-8psk

Send an 8-PSK modulated Normal Burst with random bits (spectrum mask testing)

random-ab

Send an Access Burst with random bits (Rx/Tx alignment testing)

1.10.12 multi-arfcn (disable|enable)

Command

```
multi-arfcn (disable|enable)
```

Parameters

multi-arfcn

Multi-ARFCN transceiver mode (default=disable)

disable

Enable multi-ARFCN mode

enable

Disable multi-ARFCN mode

1.10.13 no ctr-error-threshold (rx_overruns|tx_underruns|rx_drop_events|rx_drop_samples|...)

Command

```
no ctr-error-threshold (rx_overruns|tx_underruns|rx_drop_events|rx_drop_samples| ↔  
tx_drop_events|tx_drop_samples|tx_stale_bursts|tx_unavailable_bursts| ↔  
tx_trxd_fn_repeated|tx_trxd_fn_outoforder|tx_trxd_fn_skipped) <0-65535> (per-second ↔  
|per-minute|per-hour|per-day)
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

ctr-error-threshold

Threshold rate for error counter

rx_overruns

Set threshold value for rate_ctr device:rx_overruns

tx_underruns

Set threshold value for rate_ctr device:tx_underruns

rx_drop_events

Set threshold value for rate_ctr device:rx_drop_events

rx_drop_samples

Set threshold value for rate_ctr device:rx_drop_samples

tx_drop_events

Set threshold value for rate_ctr device:tx_drop_events

tx_drop_samples

Set threshold value for rate_ctr device:tx_drop_samples

tx_stale_bursts

Set threshold value for rate_ctr device:tx_stale_bursts

tx_unavailable_bursts

Set threshold value for rate_ctr device:tx_unavailable_bursts

tx_trxd_fn_repeated

Set threshold value for rate_ctr device:tx_trxd_fn_repeated

tx_trxd_fn_outoforder

Set threshold value for rate_ctr device:tx_trxd_fn_outoforder

tx_trxd_fn_skipped

Set threshold value for rate_ctr device:tx_trxd_fn_skipped

<0-65535>

Value to set for threshold

per-second

Threshold value sampled per-second

per-minute

Threshold value sampled per-minute

per-hour

Threshold value sampled per-hour

per-day

Threshold value sampled per-day

1.10.14 offset FLOAT

Command

```
offset FLOAT
```

Parameters

offset

Set the baseband frequency offset (default=0, auto)

FLOAT

Baseband Frequency Offset

1.10.15 remote-ip A.B.C.D

Command

```
remote-ip A.B.C.D
```

Parameters

remote-ip

Set the IP address for the remote BTS

A.B.C.D

IPv4 Address

1.10.16 rssi-offset FLOAT [relative]

Command

```
rssi-offset FLOAT [relative]
```

Parameters

rssi-offset

Set the RSSI to dBm offset in dB (default=0)

FLOAT

RSSI to dBm offset in dB

[relative]

Add to the default rssi-offset value instead of completely replacing it

1.10.17 rx-sps (1|4)

Command

```
rx-sps (1|4)
```

Parameters

rx-sps

Set the Rx Samples-per-Symbol

1

Rx Samples-per-Symbol

4

1 Sample-per-Symbol

1.10.18 stack-size <0-2147483647>

Command

```
stack-size <0-2147483647>
```

Parameters

stack-size

Set the stack size per thread in BYTE, 0 = OS default

<0-2147483647>

Stack size per thread in BYTE

1.10.19 swap-channels (disable|enable)

Command

```
swap-channels (disable|enable)
```

Parameters

swap-channels

Swap primary and secondary channels of the PHY (if any)

disable

Do not swap primary and secondary channels (default)

enable

Swap primary and secondary channels

1.10.20 tx-sps (1|4)

Command

```
tx-sps (1|4)
```

Parameters

tx-sps

Set the Tx Samples-per-Symbol

1

Tx Samples-per-Symbol

4

1 Sample-per-Symbol

1.11 config-trx-chan

1.11.1 rx-path NAME

Command

```
rx-path NAME
```

Parameters

rx-path

Set the Rx Path

NAME

Rx Path name

1.11.2 tx-path NAME

Command

```
tx-path NAME
```

Parameters

tx-path

Set the Tx Path

NAME

Tx Path name