OsmoBTS VTY Reference

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osmo-bts-virtual

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COLLABORATORS			
	TITLE : OsmoBTS VTY Reference		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY		November 16, 2026	

REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME
DRAFT 1.12.0-2-gf4a80	2026-Feb-03	Automatically Generated VTY Reference	s.f.m.c.

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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 sysmocom 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

vty-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

vty-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 filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pac...

Command

```
logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pacch| ↩
    pagch|pbcch|pch|pdtch|pnch|ppch|prach|ptcch|rach|sacch|sch|sdcch|tch/f|tch/h)
```

Parameters

logging
: Configure logging

filter
: Filter log messages

l1-sapi
: L1 SAPI

unknown
: UNKNOWN

agch
: AGCH

bcch
: BCCH

cbch
: CBCH

facch/f
: FACCH/F

facch/h
: FACCH/H

fcch
: FCCH

idle
: IDLE

nch
: NCH

pacch
: PACCH

pagch
: PAGCH

pbcch
: PBCCH

pch
: PCH

pdtch
: PDTCH

pnch
: PNCH

ppch
: PPCH

prach
: PRACH

ptcch
: PTCCH

rach
: RACH

sacch
: SACCH

sch
: SCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

1.2.7 logging level (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmu...

Command

```
logging level (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci| ↩
    lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua| ↩
    lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) ↩
     (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rsl
: A-bis Radio Siganlling Link (RSL)

oml
: A-bis Network Management / O&M (NM/OML)

rll
: A-bis Radio Link Layer (RLL)

rr
: Layer3 Radio Resource (RR)

meas
: Radio Measurement Processing

pag
: Paging Subsystem

l1c
: Layer 1 Control (MPH)

l1p
: Layer 1 Primitives (PH)

dsp
: DSP Trace Messages

pcu
: PCU interface

ho
: Handover

trx
: TRX interface

loop
: Control loops

abis
: A-bis Intput Subsystem

rtp
: Realtime Transfer Protocol

osmux
: Osmux (Osmocom RTP multiplexing)

asci
: ASCI (Advanced Speech Call Items: VGCS/VBS)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput 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

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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 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

1.2.9 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

1.2.10 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

1.2.11 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>')

1.2.12 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

1.2.13 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.

1.2.14 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

1.2.15 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

1.2.16 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

1.2.17 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

1.2.18 logp (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci|lg...

Command

```
logp (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci|lglobal| ↩
    llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua| ↩
    lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) ( ↩
    debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

rsl
: A-bis Radio Siganlling Link (RSL)

oml
: A-bis Network Management / O&M (NM/OML)

rll
: A-bis Radio Link Layer (RLL)

rr
: Layer3 Radio Resource (RR)

meas
: Radio Measurement Processing

pag
: Paging Subsystem

l1c
: Layer 1 Control (MPH)

l1p
: Layer 1 Primitives (PH)

dsp
: DSP Trace Messages

pcu
: PCU interface

ho
: Handover

trx
: TRX interface

loop
: Control loops

abis
: A-bis Intput Subsystem

rtp
: Realtime Transfer Protocol

osmux
: Osmux (Osmocom RTP multiplexing)

asci
: ASCI (Advanced Speech Call Items: VGCS/VBS)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput 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

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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

1.2.19 no logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|...

Command

```
no logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pacch| ↩
    pagch|pbcch|pch|pdtch|pnch|ppch|prach|ptcch|rach|sacch|sch|sdcch|tch/f|tch/h)
```

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

filter
: Filter log messages

l1-sapi
: L1 SAPI

unknown
: UNKNOWN

agch
: AGCH

bcch
: BCCH

cbch
: CBCH

facch/f
: FACCH/F

facch/h
: FACCH/H

fcch
: FCCH

idle
: IDLE

nch
: NCH

pacch
: PACCH

pagch
: PAGCH

pbcch
: PBCCH

pch
: PCH

pdtch
: PDTCH

pnch
: PNCH

ppch
: PPCH

prach
: PRACH

ptcch
: PTCCH

rach
: RACH

sacch
: SACCH

sch
: SCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

1.2.20 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>'

1.2.21 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

1.2.22 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

1.2.23 show bts <0-255> gprs

Command

```
show bts <0-255> gprs
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-255>
: BTS Number

gprs
: GPRS/EGPRS configuration

1.2.24 show bts <0-255> rtp

Command

```
show bts <0-255> rtp
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-255>
: BTS Number

rtp
: RTP library selection

1.2.25 show bts [<0-255>]

Command

```
show bts [<0-255>]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

[<0-255>]
: BTS Number

1.2.26 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)

1.2.27 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

1.2.28 show e1_line [<0-255>] [stats]

Command

```
show e1_line [<0-255>] [stats]
```

Parameters

show
: Show running system information

e1_line
: Display information about a E1 line

[<0-255>]
: E1 Line Number

[stats]
: Include statistics

1.2.29 show e1_timeslot [<0-255>] [<0-31>]

Command

```
show e1_timeslot [<0-255>] [<0-31>]
```

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

1.2.30 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

1.2.31 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

1.2.32 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

NAME
: Display a list of all FSM instances of the named finite state machine

1.2.33 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

all
: Display a list of all FSM instances of all finite state machine

1.2.34 show fsm-state-graph NAME

Command

```
show fsm-state-graph NAME
```

Parameters

show
: Show running system information

fsm-state-graph
: Generate a state transition graph (using DOT language)

NAME
: FSM name

1.2.35 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

1.2.36 show lchan [<0-255>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan [<0-255>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

1.2.37 show lchan summary [<0-255>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary [<0-255>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary
: Short summary

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

1.2.38 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

1.2.39 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

1.2.40 show pid

Command

```
show pid
```

Parameters

show
: Show running system information

pid
: Displays the process ID

1.2.41 show rate-counters [skip-zero]

Command

```
show rate-counters [skip-zero]
```

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

[skip-zero]
: Skip items with total count zero

1.2.42 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

1.2.43 show stats [skip-zero]

Command

```
show stats [skip-zero]
```

Parameters

show
: Show running system information

stats
: Show statistical values

[skip-zero]
: Skip items with total count zero

1.2.44 show stats level (global|peer|subscriber) [skip-zero]

Command

```
show stats level (global|peer|subscriber) [skip-zero]
```

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

[skip-zero]
: Skip items with total count zero

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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)

1.2.48 show timer [(bts|abis)] [TNNNN]

Command

```
show timer [(bts|abis)] [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show timers

[bts]
: BTS process timers

[abis]
: Abis (RSL) related timers

[TNNNN]
: T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.2.49 show timeslot [<0-255>] [<0-255>] [<0-7>]

Command

```
show timeslot [<0-255>] [<0-255>] [<0-7>]
```

Parameters

show
: Show running system information

timeslot
: Display information about a TS

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

1.2.50 show trx [<0-255>] [<0-255>]

Command

```
show trx [<0-255>] [<0-255>]
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

1.2.51 show uptime

Command

```
show uptime
```

Parameters

show
: Show running system information

uptime
: Displays how long the program has been running

1.2.52 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

1.2.53 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)

1.2.54 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

1.2.55 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 bts <0-0> c0-power-red <0-6>

Command

```
bts <0-0> c0-power-red <0-6>
```

Parameters

bts
BTS Specific Commands

<0-0>
BTS Number

c0-power-red
BCCH carrier power reduction operation

<0-6>
Power reduction value (in dB, even numbers only)

1.3.2 bts <0-0> trx <0-255> ts <0-7> (lchan|shadow-lchan) <0-7> rtp jitter-buffer <0-1...

Command

```
bts <0-0> trx <0-255> ts <0-7> (lchan|shadow-lchan) <0-7> rtp jitter-buffer <0-10000>
```

Parameters

bts
BTS related commands

<0-0>
BTS number

trx
TRX related commands

<0-255>
TRX number

ts
timeslot related commands

<0-7>
timeslot number

lchan
Primary logical channel commands

shadow-lchan
Shadow logical channel commands

<0-7>
logical channel number

rtp
RTP settings

jitter-buffer
Jitter buffer

<0-10000>
Size of jitter buffer in (ms)

1.3.3 configure [terminal]

Command

```
configure [terminal]
```

Parameters

configure
Configuration from vty interface

[terminal]
Configuration terminal

1.3.4 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)

1.3.5 disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

1.3.6 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

1.3.7 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

1.3.8 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

1.3.9 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

1.3.10 logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pac...

Command

```
logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pacch| ↩
    pagch|pbcch|pch|pdtch|pnch|ppch|prach|ptcch|rach|sacch|sch|sdcch|tch/f|tch/h)
```

Parameters

logging
: Configure logging

filter
: Filter log messages

l1-sapi
: L1 SAPI

unknown
: UNKNOWN

agch
: AGCH

bcch
: BCCH

cbch
: CBCH

facch/f
: FACCH/F

facch/h
: FACCH/H

fcch
: FCCH

idle
: IDLE

nch
: NCH

pacch
: PACCH

pagch
: PAGCH

pbcch
: PBCCH

pch
: PCH

pdtch
: PDTCH

pnch
: PNCH

ppch
: PPCH

prach
: PRACH

ptcch
: PTCCH

rach
: RACH

sacch
: SACCH

sch
: SCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

1.3.11 logging level (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmu...

Command

```
logging level (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci| ↩
    lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua| ↩
    lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) ↩
     (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rsl
: A-bis Radio Siganlling Link (RSL)

oml
: A-bis Network Management / O&M (NM/OML)

rll
: A-bis Radio Link Layer (RLL)

rr
: Layer3 Radio Resource (RR)

meas
: Radio Measurement Processing

pag
: Paging Subsystem

l1c
: Layer 1 Control (MPH)

l1p
: Layer 1 Primitives (PH)

dsp
: DSP Trace Messages

pcu
: PCU interface

ho
: Handover

trx
: TRX interface

loop
: Control loops

abis
: A-bis Intput Subsystem

rtp
: Realtime Transfer Protocol

osmux
: Osmux (Osmocom RTP multiplexing)

asci
: ASCI (Advanced Speech Call Items: VGCS/VBS)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput 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

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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

1.3.12 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

1.3.13 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

1.3.14 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

1.3.15 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>')

1.3.16 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

1.3.17 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.

1.3.18 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

1.3.19 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

1.3.20 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

1.3.21 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

1.3.22 logp (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci|lg...

Command

```
logp (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci|lglobal| ↩
    llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua| ↩
    lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) ( ↩
    debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

rsl
: A-bis Radio Siganlling Link (RSL)

oml
: A-bis Network Management / O&M (NM/OML)

rll
: A-bis Radio Link Layer (RLL)

rr
: Layer3 Radio Resource (RR)

meas
: Radio Measurement Processing

pag
: Paging Subsystem

l1c
: Layer 1 Control (MPH)

l1p
: Layer 1 Primitives (PH)

dsp
: DSP Trace Messages

pcu
: PCU interface

ho
: Handover

trx
: TRX interface

loop
: Control loops

abis
: A-bis Intput Subsystem

rtp
: Realtime Transfer Protocol

osmux
: Osmux (Osmocom RTP multiplexing)

asci
: ASCI (Advanced Speech Call Items: VGCS/VBS)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput 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

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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

1.3.23 no logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|...

Command

```
no logging filter l1-sapi (unknown|agch|bcch|cbch|facch/f|facch/h|fcch|idle|nch|pacch| ↩
    pagch|pbcch|pch|pdtch|pnch|ppch|prach|ptcch|rach|sacch|sch|sdcch|tch/f|tch/h)
```

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

filter
: Filter log messages

l1-sapi
: L1 SAPI

unknown
: UNKNOWN

agch
: AGCH

bcch
: BCCH

cbch
: CBCH

facch/f
: FACCH/F

facch/h
: FACCH/H

fcch
: FCCH

idle
: IDLE

nch
: NCH

pacch
: PACCH

pagch
: PAGCH

pbcch
: PBCCH

pch
: PCH

pdtch
: PDTCH

pnch
: PNCH

ppch
: PPCH

prach
: PRACH

ptcch
: PTCCH

rach
: RACH

sacch
: SACCH

sch
: SCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

1.3.24 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>'

1.3.25 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

1.3.26 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

1.3.27 show bts <0-255> gprs

Command

```
show bts <0-255> gprs
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-255>
: BTS Number

gprs
: GPRS/EGPRS configuration

1.3.28 show bts <0-255> rtp

Command

```
show bts <0-255> rtp
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-255>
: BTS Number

rtp
: RTP library selection

1.3.29 show bts [<0-255>]

Command

```
show bts [<0-255>]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

[<0-255>]
: BTS Number

1.3.30 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)

1.3.31 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

1.3.32 show e1_line [<0-255>] [stats]

Command

```
show e1_line [<0-255>] [stats]
```

Parameters

show
: Show running system information

e1_line
: Display information about a E1 line

[<0-255>]
: E1 Line Number

[stats]
: Include statistics

1.3.33 show e1_timeslot [<0-255>] [<0-31>]

Command

```
show e1_timeslot [<0-255>] [<0-31>]
```

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

1.3.34 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

1.3.35 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

1.3.36 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

NAME
: Display a list of all FSM instances of the named finite state machine

1.3.37 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

all
: Display a list of all FSM instances of all finite state machine

1.3.38 show fsm-state-graph NAME

Command

```
show fsm-state-graph NAME
```

Parameters

show
: Show running system information

fsm-state-graph
: Generate a state transition graph (using DOT language)

NAME
: FSM name

1.3.39 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

1.3.40 show lchan [<0-255>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan [<0-255>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

1.3.41 show lchan summary [<0-255>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary [<0-255>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary
: Short summary

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

1.3.42 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

1.3.43 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

1.3.44 show rate-counters [skip-zero]

Command

```
show rate-counters [skip-zero]
```

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

[skip-zero]
: Skip items with total count zero

1.3.45 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

1.3.46 show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

1.3.47 show stats [skip-zero]

Command

```
show stats [skip-zero]
```

Parameters

show
: Show running system information

stats
: Show statistical values

[skip-zero]
: Skip items with total count zero

1.3.48 show stats level (global|peer|subscriber) [skip-zero]

Command

```
show stats level (global|peer|subscriber) [skip-zero]
```

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

[skip-zero]
: Skip items with total count zero

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

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)

1.3.52 show timer [(bts|abis)] [TNNNN]

Command

```
show timer [(bts|abis)] [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show timers

[bts]
: BTS process timers

[abis]
: Abis (RSL) related timers

[TNNNN]
: T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.3.53 show timeslot [<0-255>] [<0-255>] [<0-7>]

Command

```
show timeslot [<0-255>] [<0-255>] [<0-7>]
```

Parameters

show
: Show running system information

timeslot
: Display information about a TS

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

1.3.54 show trx [<0-255>] [<0-255>]

Command

```
show trx [<0-255>] [<0-255>]
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

[<0-255>]
: BTS Number

[<0-255>]
: TRX Number

1.3.55 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

1.3.56 shutdown

Command

```
shutdown
```

Parameters

shutdown
: Request a shutdown of the program

1.3.57 stats report

Command

```
stats report
```

Parameters

stats
: Stats related commands

report
: Manurally trigger reporting of stats

1.3.58 stats reset

Command

```
stats reset
```

Parameters

stats
: Stats related commands

reset
: Reset all rate counter stats

1.3.59 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)

1.3.60 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

1.3.61 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

1.3.62 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

1.3.63 test send-failure-event-report <0-255>

Command

```
test send-failure-event-report <0-255>
```

Parameters

test
: Various testing commands

send-failure-event-report
: Send a test OML failure event report to the BSC

<0-255>
: BTS Number

1.3.64 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 bts BTS_NR

Command

```
bts BTS_NR
```

Global attributes

Flag: !

This command applies immediately

Parameters

bts

Select a BTS to configure

BTS_NR

BTS Number

1.4.4 cpu-sched

Command

```
cpu-sched
```

Parameters

cpu-sched

Configure CPU Scheduler related settings

1.4.5 ctrl

Command

```
ctrl
```

Parameters

ctrl

Configure the Control Interface

1.4.6 e1_input

Command

```
e1_input
```

Global attributes

Flag: !

This command applies immediately

Parameters

e1_input

Configure E1/T1/J1 TDM input

1.4.7 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

1.4.8 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

1.4.9 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname
: Set system's network name

WORD
: This system's network name

1.4.10 line vty

Command

```
line vty
```

Parameters

line
: Configure a terminal line

vty
: Virtual terminal

1.4.11 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

1.4.12 log file FILENAME [(nonblocking-io|blocking-io|wq)]

Command

```
log file FILENAME [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

file
: Logging to text file

FILENAME
: Filename

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if file write buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

1.4.13 log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)]

Command

```
log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

[HOSTNAME]
: Host name to send the GSMTAP logging to (UDP port 4729)

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if UDP socket send buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

1.4.14 log stderr [(nonblocking-io|blocking-io|wq)]

Command

```
log stderr [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

stderr
: Logging via STDERR of the process

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if file write buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

1.4.15 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

1.4.16 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

1.4.17 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

1.4.18 no banner motd

Command

```
no banner motd
```

Parameters

no
: Negate a command or set its defaults

banner
: Set banner string

motd
: Strings for motd

1.4.19 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

1.4.20 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

1.4.21 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_strrb

1.4.22 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

1.4.23 no log gsmtap [HOSTNAME]

Command

```
no log gsmtap [HOSTNAME]
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

[HOSTNAME]
: Host name to send the GSMTAP logging to (UDP port 4729)

1.4.24 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

1.4.25 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

1.4.26 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

1.4.27 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

1.4.28 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)

1.4.29 no stats reporter log [NAME]

Command

```
no stats reporter log [NAME]
```

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

[NAME]
: Name of the reporter

1.4.30 no stats reporter statsd [NAME]

Command

```
no stats reporter statsd [NAME]
```

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

[NAME]
: Name of the reporter

1.4.31 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

1.4.32 password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

1.4.33 phy <0-255>

Command

```
phy <0-255>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

phy
: Select a PHY to configure

<0-255>
: PHY number

1.4.34 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service
: Set up miscellaneous service

advanced-vty
: Enable advanced mode vty interface

1.4.35 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)

1.4.36 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

1.4.37 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)

1.4.38 stats reporter log [NAME]

Command

```
stats reporter log [NAME]
```

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

[NAME]
: Name of the reporter

1.4.39 stats reporter statsd [NAME]

Command

```
stats reporter statsd [NAME]
```

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

[NAME]
: Name of the reporter

1.4.40 stats-tcp batch-size <1-65535>

Command

```
stats-tcp batch-size <1-65535>
```

Parameters

stats-tcp
: Configure stats sub-system

batch-size
: Set the number of tcp sockets that are processed per stats polling interval

<1-65535>
: Number of sockets per interval

1.4.41 stats-tcp interval <0-65535>

Command

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

Parameters

stats-tcp

Configure stats sub-system

interval

Set the tcp socket stats polling interval

<0-65535>

Interval in seconds (0 disables the polling interval)

1.4.42 timer [(bts|abis)] [TNNNN] [(<0-2147483647>|default)]

Command

```
timer [(bts|abis)] [TNNNN] [(<0-2147483647>|default)]
```

Parameters

timer

Configure or show timers

[bts]

BTS process timers

[abis]

Abis (RSL) related timers

[TNNNN]

T- or X-timer-number -- 3GPP compliant timer number of the format ’1234’ or ’T1234’ or ’t1234’; Osmocom-specific timer number of the format: ’X1234’ or ’x1234’.

[<0-2147483647>]

New timer value

[default]

Set to default timer value

1.4.43 vty telnet-port <0-65535>

Command

```
vty telnet-port <0-65535>
```

Parameters

vty
: Configure the VTY

telnet-port
: Set the VTY telnet port

<0-65535>
: TCP Port number

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 (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmu...

Command

```
logging level (rsl|oml|rll|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmux|asci| ↩
    lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua| ↩
    lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) ↩
     (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rsl
: A-bis Radio Siganlling Link (RSL)

oml
: A-bis Network Management / O&M (NM/OML)

rll
: A-bis Radio Link Layer (RLL)

rr
: Layer3 Radio Resource (RR)

meas
: Radio Measurement Processing

pag
: Paging Subsystem

l1c
: Layer 1 Control (MPH)

l1p
: Layer 1 Primitives (PH)

dsp
: DSP Trace Messages

pcu
: PCU interface

ho
: Handover

trx
: TRX interface

loop
: Control loops

abis
: A-bis Intput Subsystem

rtp
: Realtime Transfer Protocol

osmux
: Osmux (Osmocom RTP multiplexing)

asci
: ASCI (Advanced Speech Call Items: VGCS/VBS)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput 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

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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 YYYYMMDDhhmmssnnn

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-e1_input

1.8.1 e1_line <0-255> connect-timeout <0-60>

Command

```
e1_line <0-255> connect-timeout <0-60>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

connect-timeout
: Set connect timeout

<0-60>
: Connect timeout in seconds (0 to disable)

1.8.2 e1_line <0-255> driver (misdn|misdn_lapd|dahdi|e1d|ipa|unixsocket)

Command

```
e1_line <0-255> driver (misdn|misdn_lapd|dahdi|e1d|ipa|unixsocket)
```

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

driver
: Set driver for this line

misdn
: mISDN supported E1 Card (kernel LAPD)

misdn_lapd
: mISDN supported E1 Card (userspace LAPD)

dahdi
: DAHDI supported E1/T1/J1 Card

e1d
: osmo-e1d supported E1 interface

ipa
: IPA TCP/IP input

unixsocket
: Unix socket input

1.8.3 e1_line <0-255> ipa-keepalive <1-300> <1-300>

Command

```
e1_line <0-255> ipa-keepalive <1-300> <1-300>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
Line Number

ipa-keepalive
Enable IPA PING/PONG keep-alive

<1-300>
Idle interval in seconds before probes are sent

<1-300>
Time to wait for PONG response

1.8.4 e1_line <0-255> keepalive

Command

```
e1_line <0-255> keepalive
```

Library specific attributes

Flag: I
This command applies on IPA link establishment

Parameters

e1_line
Configure E1/T1/J1 Line

<0-255>
Line Number

keepalive
Enable keep-alive probing

1.8.5 e1_line <0-255> keepalive <1-300> <1-20> <1-300>

Command

```
e1_line <0-255> keepalive <1-300> <1-20> <1-300>
```

Library specific attributes

Flag: I
This command applies on IPA link establishment

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

keepalive
: Enable keep-alive probing

<1-300>
: Idle interval in seconds before probes are sent

<1-20>
: Number of probes to sent

<1-300>
: Delay between probe packets in seconds

1.8.6 e1_line <0-255> name .LINE

Command

```
e1_line <0-255> name .LINE
```

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

name
: Set name for this line

.LINE
: Human readable name

1.8.7 e1_line <0-255> pcap .FILE

Command

```
e1_line <0-255> pcap .FILE
```

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Setup a pcap recording of E1 traffic for line

.FILE

Filename to save the packets to

1.8.8 e1_line <0-255> port <0-255>

Command

```
e1_line <0-255> port <0-255>
```

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

port

Set physical port/span/card number

<0-255>

E1/T1 Port/Span/Card number

1.8.9 e1_line <0-255> socket .SOCKET

Command

```
e1_line <0-255> socket .SOCKET
```

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

socket

Set socket path for unixsocket

.SOCKET

socket path

1.8.10 ipa bind A.B.C.D

Command

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

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

ipa

ipa driver config

bind

Set ipa local bind address

A.B.C.D

Listen on this IP address (default 0.0.0.0)

1.8.11 ipa ip-dscp (oml|rsl) <0-63>

Command

```
ipa ip-dscp (oml|rsl) <0-63>
```

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

ipa

ipa driver config

ip-dscp

Set IP DSCP value for outbound packets

oml

Set IP DSCP for OML link

rsl

Set IP DSCP for RSL link

<0-63>

IP DSCP Value to use

1.8.12 ipa socket-priority (oml|rsl) <0-255>

Command

```
ipa socket-priority (oml|rsl) <0-255>
```

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

ipa

ipa driver config

socket-priority

Set socket priority value for outbound packets

oml

Set socket priority for OML link

rsl

Set socket priority for RSL link

<0-255>

socket priority value to use (>6 requires CAP_NET_ADMIN)

1.8.13 no e1_line <0-255> ipa-keepalive

Command

```
no e1_line <0-255> ipa-keepalive
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

ipa-keepalive

Enable IPA PING/PONG keep-alive

1.8.14 no e1_line <0-255> keepalive

Command

```
no e1_line <0-255> keepalive
```

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

1.8.15 no e1_line <0-255> pcap

Command

```
no e1_line <0-255> pcap
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Disable pcap recording of E1 traffic for line

1.9 config-ctrl

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

Command

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

Parameters

bind

Set bind address to listen for Control connections

A.B.C.D

Local IP address (default 127.0.0.1)

[<0-65535>]

Local TCP port number

1.10 config-cpu-sched

1.10.1 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

1.10.2 policy rr <1-99>

Command

```
policy rr <1-99>
```

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

<1-99>
: Set the SCHED_RR real-time priority

1.11 phy

1.11.1 instance <0-255>

Command

```
instance <0-255>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

instance
: Select a PHY instance to configure

<0-255>
: PHY Instance number

1.11.2 no instance <0-255>

Command

```
no instance <0-255>
```

Parameters

no
: Negate a command or set its defaults

instance
: Select a PHY instance to remove

<0-255>
: PHY Instance number

1.11.3 virtual-um bts-multicast-group GROUP

Command

```
virtual-um bts-multicast-group GROUP
```

Parameters

virtual-um
: Virtual Um layer

bts-multicast-group
: Configure the BTS multicast group

GROUP
: (null)

1.11.4 virtual-um bts-udp-port <0-65535>

Command

```
virtual-um bts-udp-port <0-65535>
```

Parameters

virtual-um
: Virtual Um layer

bts-udp-port
: Configure the BTS UDP port

<0-65535>
: (null)

1.11.5 virtual-um ms-multicast-group GROUP

Command

```
virtual-um ms-multicast-group GROUP
```

Parameters

virtual-um
: Virtual Um layer

ms-multicast-group
: Configure the MS multicast group

GROUP
: (null)

1.11.6 virtual-um ms-udp-port <0-65535>

Command

```
virtual-um ms-udp-port <0-65535>
```

Parameters

virtual-um
: Virtual Um layer

ms-udp-port
: Configure the MS UDP port

<0-65535>
: (null)

1.11.7 virtual-um net-device NETDEV

Command

```
virtual-um net-device NETDEV
```

Parameters

virtual-um
: Virtual Um layer

net-device
: Configure the network device

NETDEV
: (null)

1.11.8 virtual-um ttl <0-255>

Command

```
virtual-um ttl <0-255>
```

Parameters

virtual-um
: Virtual Um layer

ttl
: Configure the TTL for transmitted multicast GSMTAP packets

<0-255>
: (null)

1.12 phy-inst

1.12.1 osmotrx maxdly <0-63>

Access Burst is the first burst a mobile transmits in order to establish a connection and it is used to estimate Timing Advance (TA) which is then applied to Normal Bursts to compensate for signal delay due to distance. So changing this setting effectively changes maximum range of the cell, because Access Bursts with a delay higher than this value will be ignored.

Command

```
osmotrx maxdly <0-63>
```

Parameters

1.12.2 osmotrx maxdlynb <0-63>

USE FOR TESTING ONLY, DO NOT CHANGE IN PRODUCTION USE! During the normal operation, delay of Normal Bursts is controlled by the Timing Advance loop and thus Normal Bursts arrive to a BTS with no more than a couple GSM symbols, which is already taken into account in osmo-trx. Changing this setting will have no effect in production installations except increasing osmo-trx CPU load. This setting is only useful when testing with a transmitter which cannot precisely synchronize to the BTS downlink signal, like R&S CMD57.

Command

```
osmotrx maxdlynb <0-63>
```

Parameters

1.13 bts

1.13.1 agch-queue-mgmt default

Command

```
agch-queue-mgmt default
```

Global attributes

Flag: !

This command applies immediately

Parameters

agch-queue-mgmt

AGCH queue mgmt

default

Reset clean parameters to default values

1.13.2 agch-queue-mgmt threshold <0-100> low <0-100> high <0-100000>

Command

```
agch-queue-mgmt threshold <0-100> low <0-100> high <0-100000>
```

Global attributes

Flag: !

This command applies immediately

Parameters

agch-queue-mgmt

AGCH queue mgmt

threshold

Threshold to start cleanup

<0-100>

in % of the maximum queue length

low

Low water mark for cleanup

<0-100>

in % of the maximum queue length

high

High water mark for cleanup

<0-100000>

in % of the maximum queue length

1.13.3 band (450|GSM450|480|GSM480|750|GSM750|810|GSM810|850|GSM850|900|GSM900|1800|DCS...

Command

```
band (450|GSM450|480|GSM480|750|GSM750|810|GSM810|850|GSM850|900|GSM900|1800|DCS1800 ↩
    |1900|PCS1900)
```

Parameters

band

Set the frequency band of this BTS

450

Alias for GSM450

GSM450
: 450Mhz

480
: Alias for GSM480

GSM480
: 480Mhz

750
: Alias for GSM750

GSM750
: 750Mhz

810
: Alias for GSM810

GSM810
: 810Mhz

850
: Alias for GSM850

GSM850
: 850Mhz

900
: Alias for GSM900

GSM900
: 900Mhz

1800
: Alias for DCS1800

DCS1800
: 1800Mhz

1900
: Alias for PCS1900

PCS1900
: 1900Mhz

1.13.4 description .TEXT

Command

```
description .TEXT
```

Parameters

description
: Save human-readable description of the object

.TEXT
: Text until the end of the line

1.13.5 gsmtap-local-host HOSTNAME

Command

```
gsmtap-local-host HOSTNAME
```

Parameters

gsmtap-local-host
: Enable local bind for GSMTAP Um logging (see also 'gsmtap-sapi')

HOSTNAME
: Local IP address or hostname

1.13.6 gsmtap-remote-host [HOSTNAME]

Command

```
gsmtap-remote-host [HOSTNAME]
```

Parameters

gsmtap-remote-host
: Enable GSMTAP Um logging (see also 'gsmtap-sapi')

[HOSTNAME]
: Remote IP address or hostname ('localhost' if omitted)

1.13.7 gsmtap-rlp [skip-null]

Command

```
gsmtap-rlp [skip-null]
```

Parameters

gsmtap-rlp
: Enable generation of GSMTAP frames for RLP (non-transparent CSD)

[skip-null]
: Skip the generation of GSMTAP for RLP NULL frames

1.13.8 gsmtap-sapi (bcch|ccch|rach|agch|pch|sdcch|tch/f|tch/h|pacch|pdtch|ptcch|cbch|sa...

Command

```
gsmtap-sapi (bcch|ccch|rach|agch|pch|sdcch|tch/f|tch/h|pacch|pdtch|ptcch|cbch|sacch)
```

Parameters

gsmtap-sapi
: Enable sending of UL/DL messages over GSMTAP

bcch
: BCCH

ccch
: CCCH

rach
: RACH

agch
: AGCH

pch
: PCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

pacch
: PACCH

pdtch
: PDTCH

ptcch
: PTCCH

cbch
: CBCH

sacch
: SACCH

1.13.9 gsmtap-sapi (enable-all|disable-all)

Command

```
gsmtap-sapi (enable-all|disable-all)
```

Parameters

gsmtap-sapi
: Enable/disable sending of UL/DL messages over GSMTAP

enable-all
: Enable all kinds of messages (all SAPI)

disable-all
: Disable all kinds of messages (all SAPI)

1.13.10 ipa unit-id <0-65534> <0-255>

Command

```
ipa unit-id <0-65534> <0-255>
```

Parameters

ipa
: ip.access RSL commands

unit-id
: Set the Unit ID of this BTS

<0-65534>
: Site ID

<0-255>
: Unit ID

1.13.11 max-ber10k-rach <0-10000>

Command

```
max-ber10k-rach <0-10000>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

max-ber10k-rach
: Set the maximum BER for valid RACH requests

<0-10000>
: BER in 1/10000 units (0=no BER; 100=1% BER)

1.13.12 min-qual-norm <-100-100>

Command

```
min-qual-norm <-100-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

min-qual-norm

Set the minimum link quality level of Normal Bursts to be accepted

<-100-100>

C/I (Carrier-to-Interference) ratio in centiBels (10e-2 B or 10e-1 dB)

1.13.13 min-qual-rach <-100-100>

Command

```
min-qual-rach <-100-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

min-qual-rach

Set the minimum link quality level of Access Bursts to be accepted

<-100-100>

C/I (Carrier-to-Interference) ratio in centiBels (10e-2 B or 10e-1 dB)

1.13.14 no description

Command

```
no description
```

Parameters

no

Negate a command or set its defaults

description

Remove description of the object

1.13.15 no gsmtap-local-host

Command

```
no gsmtap-local-host
```

Parameters

no
: Negate a command or set its defaults

gsmtap-local-host
: Disable local bind for GSMTAP Um logging

1.13.16 no gsmtap-remote-host

Command

```
no gsmtap-remote-host
```

Parameters

no
: Negate a command or set its defaults

gsmtap-remote-host
: Disable GSMTAP Um logging

1.13.17 no gsmtap-rlp

Command

```
no gsmtap-rlp
```

Parameters

no
: Negate a command or set its defaults

gsmtap-rlp
: Disable generation of GSMTAP frames for RLP (non-transparent CSD)

1.13.18 no gsmtap-sapi (bcch|ccch|rach|agch|pch|sdcch|tch/f|tch/h|pacch|pdtch|ptcch|cbch...

Command

```
no gsmtap-sapi (bcch|ccch|rach|agch|pch|sdcch|tch/f|tch/h|pacch|pdtch|ptcch|cbch|sacch)
```

Parameters

no
: Negate a command or set its defaults

gsmtap-sapi
: Disable sending of UL/DL messages over GSMTAP

bcch
: BCCH

ccch
: CCCH

rach
: RACH

agch
: AGCH

pch
: PCH

sdcch
: SDCCH

tch/f
: TCH/F

tch/h
: TCH/H

pacch
: PACCH

pdtch
: PDTCH

ptcch
: PTCCH

cbch
: CBCH

sacch
: SACCH

1.13.19 no oml remote-ip A.B.C.D

Command

```
no oml remote-ip A.B.C.D
```

Parameters

no
: Negate a command or set its defaults

oml
: OML Parameters

remote-ip
: OML IP Address

A.B.C.D
: OML IP Address

1.13.20 no rtp continuous-streaming

Command

```
no rtp continuous-streaming
```

Parameters

no
: Negate a command or set its defaults

rtp
: RTP parameters

continuous-streaming
: Always emit an RTP packet every 20 ms

1.13.21 no rtp internal-uplink-ecu

Command

```
no rtp internal-uplink-ecu
```

Parameters

no
: Negate a command or set its defaults

rtp
: RTP parameters

internal-uplink-ecu
: Apply a BTS-internal ECU to the uplink traffic frame stream

1.13.22 no supp-meas-info toa256

Command

```
no supp-meas-info toa256
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

supp-meas-info

Configure the RSL Supplementary Measurement Info

toa256

Report the TOA in 1/256th symbol periods

1.13.23 oml remote-ip A.B.C.D

Command

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

Parameters

oml

OML Parameters

remote-ip

OML IP Address

A.B.C.D

OML IP Address

1.13.24 osmux

Command

```
osmux
```

Global attributes

Flag: !

This command applies immediately

Parameters

osmux

Configure Osmux

1.13.25 paging lifetime <0-60>

Command

```
paging lifetime <0-60>
```

Global attributes

Flag: !

This command applies immediately

Parameters

paging

Paging related parameters

lifetime

Maximum lifetime of a paging record

<0-60>

Maximum lifetime of a paging record (secods)

1.13.26 paging queue-size <1-1024>

Command

```
paging queue-size <1-1024>
```

Global attributes

Flag: !

This command applies immediately

Parameters

paging

Paging related parameters

queue-size

Maximum length of BTS-internal paging queue

<1-1024>

Maximum length of BTS-internal paging queue (default 200)

1.13.27 pcu-socket PATH

Command

```
pcu-socket PATH
```

Parameters

pcu-socket
: Configure the PCU socket file/path name

PATH
: UNIX socket path

1.13.28 pcu-socket-wqueue-length <1-2147483647>

Command

```
pcu-socket-wqueue-length <1-2147483647>
```

Parameters

pcu-socket-wqueue-length
: Configure the PCU socket queue length

<1-2147483647>
: Queue length

1.13.29 rtp continuous-streaming

Command

```
rtp continuous-streaming
```

Parameters

rtp
: RTP parameters

continuous-streaming
: Always emit an RTP packet every 20 ms

1.13.30 rtp hr-format (rfc5993|ts101318)

Command

```
rtp hr-format (rfc5993|ts101318)
```

Global attributes

Flag: !

This command applies immediately

Parameters

rtp

RTP parameters

hr-format

HRv1 codec output format

rfc5993

RFC 5993

ts101318

TS 101 318

1.13.31 rtp internal-uplink-ecu

Command

```
rtp internal-uplink-ecu
```

Parameters

rtp

RTP parameters

internal-uplink-ecu

Apply a BTS-internal ECU to the uplink traffic frame stream

1.13.32 rtp ip-dscp <0-63>

Command

```
rtp ip-dscp <0-63>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

rtp

RTP parameters

ip-dscp

Specify DSCP for RTP/IP packets

<0-63>

The DSCP value (upper 6 bits of TOS)

1.13.33 rtp jitter-buffer <0-10000> [adaptive]

Command

```
rtp jitter-buffer <0-10000> [adaptive]
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

rtp

RTP parameters

jitter-buffer

RTP jitter buffer

<0-10000>

Jitter buffer in ms

[adaptive]

Enable adaptive RTP jitter buffering

1.13.34 rtp library (ortp|twrtp)

Command

```
rtp library (ortp|twrtp)
```

Parameters

rtp
: RTP parameters

library
: RTP library selection

ortp
: Belledonne ortp

twrtp
: Themyscira twrtp

1.13.35 rtp port-range <1-65534> <1-65534>

Command

```
rtp port-range <1-65534> <1-65534>
```

Parameters

rtp
: RTP parameters

port-range
: Range of local ports to use for RTP/RTCP traffic

<1-65534>
: Port range start (inclusive)

<1-65534>
: Port range end (inclusive)

1.13.36 rtp socket-priority <0-255>

Command

```
rtp socket-priority <0-255>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

rtp
: RTP parameters

socket-priority
: Specify socket priority for RTP/IP packets

<0-255>
: The socket priority value (> 6 requires CAP_NET_ADMIN)

1.13.37 smscb queue-hysteresis <0-30>

Command

```
smscb queue-hysteresis <0-30>
```

Global attributes

Flag: !

This command applies immediately

Parameters

smscb

SMSCB (SMS Cell Broadcast) / CBCH configuration

queue-hysteresis

Hysteresis of the SMSCB (CBCH) queue

<0-30>

In count of messages/pages (default: 2)

1.13.38 smscb queue-max-length <1-60>

Command

```
smscb queue-max-length <1-60>
```

Global attributes

Flag: !

This command applies immediately

Parameters

smscb

SMSCB (SMS Cell Broadcast) / CBCH configuration

queue-max-length

Maximum length of the SMSCB (CBCH) queue

<1-60>

Length in count of messages/pages (default: 15)

1.13.39 smscb queue-target-length <1-30>

Command

```
smscb queue-target-length <1-30>
```

Global attributes

Flag: !

This command applies immediately

Parameters

smscb

SMSCB (SMS Cell Broadcast) / CBCH configuration

queue-target-length

Target length of the SMSCB (CBCH) queue

<1-30>

Length in count of messages/pages (default: 2)

1.13.40 supp-meas-info toa256

Command

```
supp-meas-info toa256
```

Global attributes

Flag: !

This command applies immediately

Parameters

supp-meas-info

Configure the RSL Supplementary Measurement Info

toa256

Report the TOA in 1/256th symbol periods

1.13.41 trx <0-254>

Command

```
trx <0-254>
```

Global attributes

Flag: !
This command applies immediately

Parameters

trx
Select a TRX to configure

<0-254>
TRX number

1.13.42 twjit

Command

```
twjit
```

Global attributes

Flag: !
This command applies immediately

Parameters

twjit
Configure TW jitter buffer

1.14 trx

1.14.1 ms-power-control (dsp|osmo)

Command

```
ms-power-control (dsp|osmo)
```

Parameters

ms-power-control
Mobile Station Power Level Control

dsp
Handled by DSP

osmo
Handled by OsmoBTS

1.14.2 phy <0-255> instance <0-255>

Command

```
phy <0-255> instance <0-255>
```

Parameters

phy
: Configure PHY Link+Instance for this TRX

<0-255>
: PHY Link number

instance
: PHY instance

<0-255>
: PHY Instance number

1.14.3 power-ramp max-initial <-10000-100000> (dBm|mdBm)

Command

```
power-ramp max-initial <-10000-100000> (dBm|mdBm)
```

Parameters

power-ramp
: Power-Ramp settings

max-initial
: Maximum initial power

<-10000-100000>
: Value

dBm
: Unit is dB (decibels)

mdBm
: Unit is mdB (milli-decibels, or rather 1/10000 bel)

1.14.4 power-ramp step-interval <1-100>

Command

```
power-ramp step-interval <1-100>
```

Parameters

power-ramp
: Power-Ramp settings

step-interval
: Power increase by step

<1-100>
: Step time in seconds

1.14.5 power-ramp step-size <1-100000> (dB|mdB)

Command

```
power-ramp step-size <1-100000> (dB|mdB)
```

Parameters

power-ramp
: Power-Ramp settings

step-size
: Power increase by step

<1-100000>
: Step size

dB
: Unit is dB (decibels)

mdB
: Unit is mdB (milli-decibels, or rather 1/10000 bel)

1.14.6 ta-control interval <0-31>

Command

```
ta-control interval <0-31>
```

Parameters

ta-control
: Timing Advance Control Parameters

interval
: Set TA control loop interval

<0-31>
: As in P_CON_INTERVAL, in units of 2 SACCH periods (0.96 seconds) (default=0, every SACCH block)

1.14.7 user-gain <-100000-100000> (dB|mdB)

Command

```
user-gain <-100000-100000> (dB|mdB)
```

Global attributes

Flag: !

This command applies immediately

Parameters

user-gain

Inform BTS about additional, user-provided gain or attenuation at TRX output

<-100000-100000>

Value of user-provided external gain(+)/attenuation(-)

dB

Unit is dB (decibels)

mdB

Unit is mdB (milli-decibels, or rather 1/10000 bel)

1.15 osmux

1.15.1 batch-factor <1-8>

Command

```
batch-factor <1-8>
```

Parameters

batch-factor

Batching factor

<1-8>

Number of messages in the batch

1.15.2 batch-size <1-65535>

Command

```
batch-size <1-65535>
```

Parameters

batch-size

Batch size

<1-65535>

Batch size in bytes

1.15.3 dummy-padding (on|off)

Command

```
dummy-padding (on|off)
```

Parameters

dummy-padding
: Dummy padding

on
: Enable dummy padding

off
: Disable dummy padding (default)

1.15.4 local-ip (A.B.C.D|X:X::X:X)

Command

```
local-ip (A.B.C.D|X:X::X:X)
```

Parameters

local-ip
: IP information

A.B.C.D
: IPv4 Address to bind to

X:X::X:X
: IPv6 Address to bind to

1.15.5 local-port <1-65535>

Command

```
local-port <1-65535>
```

Parameters

local-port
: Osmux port

<1-65535>
: UDP port

1.15.6 use (off|on|only)

Command

```
use (off|on|only)
```

Global attributes

Flag: !

This command applies immediately

Parameters

use

Configure Osmux usage

off

Never use Osmux

on

Use Osmux if requested by BSC (default)

only

Always use Osmux, reject non-Osmux BSC requests

1.16 twjit

1.16.1 buffer-depth <1-65535> <1-65535>

Command

```
buffer-depth <1-65535> <1-65535>
```

Parameters

buffer-depth

Buffer depth configuration

<1-65535>

Minimum fill required to start flow

<1-65535>

High water mark fill level

1.16.2 marker-handling (handover|ignore)

Command

```
marker-handling (handover|ignore)
```

Parameters

marker-handling
: How to handle RTP packets with marker bit set

handover
: Invoke handover handling, same as SSRC change

ignore
: Ignore marker bit

1.16.3 max-future-sec <1-65535>

Command

```
max-future-sec <1-65535>
```

Parameters

max-future-sec
: Guard against time traveler packets

<1-65535>
: Maximum permissible number of seconds into the future

1.16.4 no start-max-delta

Command

```
no start-max-delta
```

Parameters

no
: Negate a command or set its defaults

start-max-delta
: Maximum permitted gap in time-of-arrival in starting state

1.16.5 no start-min-delta

Command

```
no start-min-delta
```

Parameters

no
: Negate a command or set its defaults

start-min-delta
: Minimum required delta in time-of-arrival to start flow

1.16.6 no underrun-extension

Command

```
no underrun-extension
```

Parameters

no
: Negate a command or set its defaults

underrun-extension
: Underrun extension for intentional gaps

1.16.7 start-max-delta <1-65535>

Command

```
start-max-delta <1-65535>
```

Parameters

start-max-delta
: Maximum permitted gap in time-of-arrival in starting state

<1-65535>
: Time delta value in ms

1.16.8 start-min-delta <1-65535>

Command

```
start-min-delta <1-65535>
```

Parameters

start-min-delta
: Minimum required delta in time-of-arrival to start flow

<1-65535>
: Time delta value in ms

1.16.9 thinning-interval <2-65535>

Command

```
thinning-interval <2-65535>
```

Parameters

thinning-interval
: Standing queue thinning configuration

<2-65535>
: Drop every Nth packet

1.16.10 underrun-extension <1-65535>

Command

```
underrun-extension <1-65535>
```

Parameters

underrun-extension
: Underrun extension for intentional gaps (DTX)

<1-65535>
: Maximum number of consecutive omitted packets