OsmoBTS VTY Reference

osmo-bts-virtual
### COLLABORATORS

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<th>NAME</th>
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<td></td>
<td>June 20, 2024</td>
<td></td>
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### REVISION HISTORY

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<td>2024-May-07</td>
<td>Automatically Generated VTY Reference</td>
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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 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.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Example</th>
<th>Explanation</th>
</tr>
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<tbody>
<tr>
<td>A.B.C.D</td>
<td>127.0.0.1</td>
<td>A IPv4 address</td>
</tr>
<tr>
<td>TEXT</td>
<td>example01</td>
<td>A single string without any spaces, tabs</td>
</tr>
<tr>
<td>TEXT</td>
<td>Some information</td>
<td>A line of text</td>
</tr>
<tr>
<td>(OptionA</td>
<td>OptionB</td>
<td>OptionC)</td>
</tr>
<tr>
<td>&lt;0-10&gt;</td>
<td>5</td>
<td>A number from a range</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Port Number</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>4240</td>
<td>osmo-pcu</td>
</tr>
<tr>
<td>4241</td>
<td>osmo-bts</td>
</tr>
<tr>
<td>4242</td>
<td>osmo-nitb, osmo-bsc</td>
</tr>
<tr>
<td>4243</td>
<td>osmo-bsc_mgcp</td>
</tr>
<tr>
<td>4244</td>
<td>osmo-bsc_nat</td>
</tr>
<tr>
<td>4245</td>
<td>osmo-sgsn</td>
</tr>
<tr>
<td>4246</td>
<td>osmo-gbproxy</td>
</tr>
</tbody>
</table>

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
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|pctch|pdtch|poch|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
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|osmu|asci|←
  lglobal|llapd|llin|llmux|llmi|llms|lctrl|lgtp|lstats|lgsm|loap|lss7|lscct|lssua|←
  lm3ua|lmgcp|ljibuf|lrpro|lns|lbssgp|lndata|lnsignal|lup|lpfcp|lcsnl|lio) (←
debu|info|notic|error|fatal)
```
Parameters
logging
  Configure logging
level
    Set the log level for a specified category
rsl
  A-bis Radio Signalling 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 Input 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 Input Subsystem
lmux
   A-bis B-Subchannel TRAU Frame Multiplex
lmi
   A-bis Input Driver for Signalling
lmib
   A-bis Input Driver for B-Channels (voice)
lsms
   Layer3 Short Message Service (SMS)
lctrl
   Control Interface
lgtp
   GPRS GTP library
lstats
   Statistics messages and logging
lgsup
   Generic Subscriber Update Protocol
loap
   Osmocom Authentication Protocol
lss7
   libosmo-sigtran Signalling System 7
lsccp
   libosmo-sigtran SCCP Implementation
lsua
   libosmo-sigtran SCCP User Adaptation
lm3ua
   libosmo-sigtran MTP3 User Adaptation
lmgcp
   libosmo-mgcp Media Gateway Control Protocol
ljibuf
   libosmo-netif Jitter Buffer
lrspro
   Remote SIM protocol
lns
    GPRS NS layer
lbssgp
    GPRS BSSGP layer
lnsdata
    GPRS NS layer data PDU
lnsignal
    GPRS NS layer signal PDU
liuup
    Iu UP layer
lpfcp
    libosmo-pfcp Packet Forwarding Control Protocol
lcson1
    libosmo-cson1 Concrete Syntax Notation 1 codec
lio
    libosmocore IO Subsystem
ddebug
    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> <levels>' 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 YYYYMMDDhhmmsnnn

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>logging</td>
<td>Configure logging</td>
</tr>
<tr>
<td>print</td>
<td>Log output settings</td>
</tr>
<tr>
<td>level</td>
<td>Configure log message</td>
</tr>
<tr>
<td>0</td>
<td>Don’t prefix each log message</td>
</tr>
<tr>
<td>1</td>
<td>Prefix each log message with the log level name</td>
</tr>
</tbody>
</table>

1.2.15 logging print thread-id (0|1)

Command

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

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>logging</td>
<td>Configure logging</td>
</tr>
<tr>
<td>print</td>
<td>Log output settings</td>
</tr>
<tr>
<td>thread-id</td>
<td>Configure log message logging Thread ID</td>
</tr>
<tr>
<td>0</td>
<td>Don’t prefix each log message</td>
</tr>
<tr>
<td>1</td>
<td>Prefix each log message with current Thread ID</td>
</tr>
</tbody>
</table>
### 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|lg...) (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 Signalling Link (RSL)

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

rll
A-bis Radio Link Layer (RLL)

rr
Layer 3 Radio Resource (RR)

meas
Radio Measurement Processing

pag
Paging Subsystem

l1c
Layer 1 Control (MPH)

l1p
Layer 1 Primitives (PH)

dsp
DSP Trace Messages

cpu
PCU interface

ho
Handover

trx
TRX interface

loop
Control loops

abis
A-bis Input Subsystem

rtp
Realtime Transfer Protocol

osmux
Osmux (Osmocom RTP multiplexing)

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

lglobal
Library-internal global log family
illapd
  LAPD in libosmogsm
linp
  A-bis Input Subsystem
lmux
  A-bis B-Subchannel TRAU Frame Multiplex
lmi
  A-bis Input Driver for Signalling
lmiib
  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
lcns1
  libosmo-csn1 Concrete Syntax Notation 1 codec
lio
  libosmocore IO Subsystem
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|pncn|ppch|prach|ptcch|rach|sacch|sch|sdcc|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
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 [<>-255>]

Command

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

Parameters

- **show**
  - Show running system information
- **bts**
  - Display information about a BTS
- **[<>-255>]**
  - BTS Number
1.2.25  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

1.2.26  show e1_driver

Command

```
show e1_driver
```

Parameters

- `show`
  - Show running system information
- `e1_driver`
  - Display information about available E1 drivers

1.2.27  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
1.2.28  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 an E1 timeslot
  [<0-255>]
    E1 Line Number
  [<0-31>]
    E1 Timeslot Number

1.2.29  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

1.2.30  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
1.2.31 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

1.2.32 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

1.2.33 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
1.2.34 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.2.35 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

1.2.36 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

1.2.37  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

1.2.38  show online-help

Command
    show online-help

Parameters
    show
        Show running system information
    online-help
        Online help
1.2.39  show pid

Command

    show pid

Parameters

    show
        Show running system information

    pid
        Displays the process ID

1.2.40  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

1.2.41  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
1.2.42  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

1.2.43  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

1.2.44  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
1.2.45  **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)

1.2.46  **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'.

1.2.47  **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

1.2.48  **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
1.2.49  show uptime

Command

```
show uptime
```

Parameters

**show**
- Show running system information

**uptime**
- Displays how long the program has been running

1.2.50  show version

Command

```
show version
```

Parameters

**show**
- Show running system information

**version**
- Displays program version

1.2.51  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)
1.2.52  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

1.2.53  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

able

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
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|pnc|ppch|prach|ptcch|rach|sacch|sch|sdch|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
1.3.11 logging level (rsl|oml|rl|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmu...)

Command

logging level (rsl|oml|rl|rr|meas|pag|l1c|l1p|dsp|pcu|ho|trx|loop|abis|rtp|osmu|asci|←
global|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscp|lsua|←
lm3ua|lmgcp|ljibuf|lraspro|lns|lbssgp|lnsdata|lnsignal|liuup|lpfcp|lcsn1|lio) (←
debug|info|notice|error|fatal)
Parameters

logging
  Configure logging

level
  Set the log level for a specified category

rsl
  A-bis Radio Signalling Link (RSL)

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

rll
  A-bis Radio Link Layer (RLL)

rr
  Layer 3 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 Input 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 Input Subsystem
lmux
A-bis B-Subchannel TRAU Frame Multiplex
lmi
A-bis Input Driver for Signalling
lmiib
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
lrspo
Remote SIM protocol
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

```plaintext
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 YYYYMMDDhhmssnnn

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

Command

```plaintext
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...
Parameters

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

rsl
  A-bis Radio Signalling 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 Input 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 Input Subsystem

lmux
   A-bis B-Subchannel TRAU Frame Multiplex

lmi
   A-bis Input Driver for Signalling

lmit
   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

lssa
   libosmo-sigtran SCCP User Adaptation

lm3ua
   libosmo-sigtran MTP3 User Adaptation

lmgcp
   libosmo-mgcp Media Gateway Control Protocol

ljibuf
   libosmo-netif Jitter Buffer

lrspro
   Remote SIM protocol

lns
   GPRS NS layer
lbssgp
    GPRS BSSGP layer

lnsdata
    GPRS NS layer data PDU

lnsignal
    GPRS NS layer signal PDU

liuup
    Iu UP layer

lpfcp
    libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
    libosmo-csn1 Concrete Syntax Notation 1 codec

lio
    libosmocore IO Subsystem

debug
    Log debug messages and higher levels

info
    Log informational messages and higher levels

notice
    Log noticeable messages and higher levels

ero\r
    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|...\n    pagch|pbcch|pch|pdtch|pnch|ppch|prach|ptcch|rach|sacch|sch|sdccch|tch/f|tch/h)\n
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
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>]

Command

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

Parameters

- show
  - Show running system information
- bts
  - Display information about a BTS
- [<0-255>]
  - BTS Number
1.3.29  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)

1.3.30  show e1_driver

Command

```
show e1_driver
```

Parameters

show
  Show running system information
e1_driver
  Display information about available E1 drivers

1.3.31  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
1.3.32  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 an E1 timeslot
  - **[<0-255>]**
    - E1 Line Number
  - **[<0-31>]**
    - E1 Timeslot Number

1.3.33  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

1.3.34  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
1.3.35  **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

1.3.36  **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

1.3.37  **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
1.3.38  show history

**Command**

```
show history
```

**Parameters**

- **show**
  - Show running system information
- **history**
  - Display the session command history

1.3.39  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

1.3.40  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

1.3.41  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

1.3.42  show online-help

Command

show online-help

Parameters

show
  Show running system information

online-help
  Online help
1.3.43 show rate-counters [skip-zero]

Command

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

Parameters

show

Show running system information

date-counters

Show all rate counters

[skip-zero]

Skip items with total count zero

1.3.44 show startup-config

Command

```
show startup-config
```

Parameters

show

Show running system information

startup-config

Contentes of startup configuration

1.3.45 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
1.3.46  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

1.3.47  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

1.3.48  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
1.3.49  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)

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

Command

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

Parameters

- **show**
  - Show running system information
- **timer**
  - Show timers
**BTS process timers**

Abis (RSL) related timers

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'.

### 1.3.51 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

### 1.3.52 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
1.3.53  show version

Command

```
show version
```

Parameters

- **show**
  - Show running system information
- **version**
  - Displays program version

1.3.54  shutdown

Command

```
shutdown
```

Parameters

- **shutdown**
  - Request a shutdown of the program

1.3.55  stats report

Command

```
stats report
```

Parameters

- **stats**
  - Stats related commands
- **report**
  - Manually trigger reporting of stats

1.3.56  stats reset

Command

```
stats reset
```

Parameters

- **stats**
  - Stats related commands
- **reset**
  - Reset all rate counter stats
1.3.57  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)

1.3.58  terminal monitor

Command

```
terminal monitor
```

Parameters

- `terminal`
  - Set terminal line parameters
- `monitor`
  - Copy debug output to the current terminal line

1.3.59  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
1.3.60  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

1.3.61  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

1.3.62  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
password
```
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

```
eable
```
Modify enable password parameters

```
password
```
Assign the privileged level password

```
LINE
```
The UNENCRIPTED (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 [blocking-io]

Command

```
log file FILENAME [blocking-io]
```

Parameters

log
  Configure logging sub-system

file
  Logging to text file

FILENAME
  Filename

[blocking-io]
  Use blocking, synchronous I/O

1.4.13  log gsmtap [HOSTNAME]

Command

```
log gsmtap [HOSTNAME]
```

Parameters

log
  Configure logging sub-system

gsmtap
  Logging via GSMTAP

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

1.4.14  log stderr [blocking-io]

Command

```
log stderr [blocking-io]
```

Parameters

log
  Configure logging sub-system

stderr
  Logging via STDERR of the process

[blocking-io]
  Use blocking, synchronous I/O
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>]**

<table>
<thead>
<tr>
<th>Command</th>
<th>no service terminal-length [&lt;0-512&gt;]</th>
</tr>
</thead>
</table>

**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]**

<table>
<thead>
<tr>
<th>Command</th>
<th>no stats reporter log [NAME]</th>
</tr>
</thead>
</table>

**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|lg MCP|ljibuf|lrs pro|lns|lb ssgp|lns data|lns signal|liuup|lpfc p|lcsn1|lio) (←
   |debug|info|notice|error|fatal)
```

Parameters

`logging level` Configure logging

level

Set the log level for a specified category

rsl
A-bis Radio Signalling 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 Input 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 Input Subsystem

lmux
   A-bis B-Subchannel TRAU Frame Multiplex

limi
   A-bis Input Driver for Signalling

limib
   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
lgs
  GPRS NS layer
lbssgp
  GPRS BSSGP layer
lgsdata
  GPRS NS layer data PDU
lgsignal
  GPRS NS layer signal PDU
liuup
  Iu UP layer
lpfcp
  libosmo-pfcp Packet Forwarding Control Protocol
lcn
  libosmo-csn1 Concrete Syntax Notation 1 codec
liu
  libosmocore IO Subsystem
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
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

```plaintext
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

```plaintext
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|misdnlapd|dahdi|e1d|ipa|unixsocket)

Command

```
e1_line <0-255> driver (misdn|misdnlapd|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)

misdnlapd

  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>
```
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**

```plaintext
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**

```plaintext
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)
sel
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 <1-32>

Command

| policy rr <1-32> |

Global attributes

Flag: !

This command applies immediately

Parameters

policy

Set the scheduling policy to use for the process

rr

Use the SCHED_RR real-time scheduling algorithm

<1-32>

Set the SCHED_RR real-time priority

1.11 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
```plaintext
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
```plaintext
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|DCS1800|1900|PCS1900)**

**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** 

Command

```
description .TEXT
```

Parameters

- **description**
  - Save human-readable description of the object

```
.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|sacch)

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

cch

CCCH

rach

RACH

agch

AGCH

pch

PCH

sdch

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 centiBel (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|sacch)

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

cch

CCCH

rach

RACH

agch

AGCH

pch

PCH

sdch

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 (seconds)

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
  
  Maximum length of BTS-internal paging queue

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

  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: 1

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: 1

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 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)
```

1.13.35   **rtp socket-priority <0-255>**

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

**Application specific attributes**

**Flag:** 1
  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)
```
1.13.36 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)

1.13.37 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)
1.13.38 \textbf{smscb queue-target-length <1-30>}

\textbf{Command}

\begin{verbatim}
smcb queue-target-length <1-30>
\end{verbatim}

\textbf{Global attributes}

\textbf{Flag: }!

This command applies immediately

\textbf{Parameters}

\textit{smscb}

SMSCB (SMS Cell Broadcast) / CBCH configuration

\textit{queue-target-length}

Target length of the SMSCB (CBCH) queue

\textit{<1-30>}

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

1.13.39 \textbf{supp-meas-info toa256}

\textbf{Command}

\begin{verbatim}
supp-meas-info toa256
\end{verbatim}

\textbf{Global attributes}

\textbf{Flag: }!

This command applies immediately

\textbf{Parameters}

\textit{supp-meas-info}

Configure the RSL Supplementary Measurement Info

\textit{toa256}

Report the TOA in 1/256th symbol periods
1.13.40  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

1.14  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> |
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

```
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

```
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

```
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

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