# OsmoPCU VTY Reference

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# Chapter 1

# VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

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

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

Table 1.2: VTY port numbers

## 1.1 Common Commands

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

### 1.1.1 end

Command

```
end
```

Parameters

end
: End current mode and change to enable mode.

### 1.1.2 exit

Command

```
exit
```

Parameters

exit
: Exit current mode and down to previous mode

### 1.1.3 help

Command

```
help
```

Parameters

help
: Description of the interactive help system

### 1.1.4 list [with-flags]

Command

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

Parameters

list
: Print command list

[with-flags]
: Also print the VTY attribute flags

### 1.1.5 show running-config

Command

```
show running-config
```

Parameters

show
: Show running system information

running-config
: running configuration

### 1.1.6 show vty-attributes

Command

```
show vty-attributes
```

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

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

Command

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

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

application
: Application specific attributes only

library
: Library specific attributes only

global
: Global attributes only

### 1.1.8 write

Command

```
write
```

Parameters

write
: Write running configuration to memory, network, or terminal

### 1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

write
: Write running configuration to memory, network, or terminal

file
: Write to configuration file

[PATH]
: Set file path to store the config, or replace if already exists

### 1.1.10 write memory

Command

```
write memory
```

Parameters

write
: Write running configuration to memory, network, or terminal

memory
: Write configuration to the file (same as write file)

### 1.1.11 write terminal

Command

```
write terminal
```

Parameters

write
: Write running configuration to memory, network, or terminal

terminal
: Write to terminal

## 1.2 view

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

### 1.2.1 enable [expert-mode]

Command

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

Parameters

enable
: Turn on privileged mode command

[expert-mode]
: Enable the expert mode (show hidden commands)

### 1.2.2 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.2.3 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.2.4 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

### 1.2.5 logging filter all (0|1)

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

### 1.2.6 logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacm...

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms| ↩
    tbf|tbfdl|tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↩
    |lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata| ↩
    lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

csn1

Concrete Syntax Notation One (CSN1)

l1if

GPRS PCU L1 interface (L1IF)

rlcmac

GPRS RLC/MAC layer (RLCMAC)

rlcmacdata

GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl

GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul

GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched

GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas

GPRS RLC/MAC layer Measurements (RLCMAC)

ms

Mobile Station (MS)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

pcu
: GPRS Packet Control Unit (PCU)

nacc
: Network Assisted Cell Change (NACC)

rim
: RAN Information Management (RIM)

e1
: E1 line handling

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 1.2.9 logging print category (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with category/subsystem name

### 1.2.10 logging print category-hex (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

1
: Prefix each log message with category/subsystem nr in hex (’<000b>’)

### 1.2.11 logging print extended-timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the source file and line

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

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

### 1.2.13 logging print level (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

### 1.2.14 logging print thread-id (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don't prefix each log message

1
: Prefix each log message with current Thread ID

### 1.2.15 logging set-log-mask MASK

Command

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

Parameters

logging
: Configure logging

set-log-mask
: Set the logmask of this logging target

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

### 1.2.16 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp

### 1.2.17 logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tb...

Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tbf|tbfdl ↩
    |tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal| ↩
    liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

csn1
: Concrete Syntax Notation One (CSN1)

l1if
: GPRS PCU L1 interface (L1IF)

rlcmac
: GPRS RLC/MAC layer (RLCMAC)

rlcmacdata
: GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl
: GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul
: GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched
: GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas
: GPRS RLC/MAC layer Measurements (RLCMAC)

ms
: Mobile Station (MS)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

pcu
: GPRS Packet Control Unit (PCU)

nacc
: Network Assisted Cell Change (NACC)

rim
: RAN Information Management (RIM)

e1
: E1 line handling

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

### 1.2.18 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

### 1.2.19 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.2.20 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.2.21 show bts pdch

Command

```
show bts pdch
```

Parameters

show
: Show running system information

bts
: BTS related functionality

pdch
: PDCH timeslots

### 1.2.22 show bts statistics

Command

```
show bts statistics
```

Parameters

show
: Show running system information

bts
: BTS related functionality

statistics
: Statistics

### 1.2.23 show bts-timer [TNNNN]

Command

```
show bts-timer [TNNNN]
```

Parameters

show
: Show running system information

bts-timer
: Show BTS controlled 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’.

### 1.2.24 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)

### 1.2.25 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

### 1.2.26 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

### 1.2.27 show e1_timeslot [<0-255>] [<0-31>]

Command

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

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

### 1.2.28 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

### 1.2.29 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

### 1.2.30 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

### 1.2.31 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

### 1.2.32 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

### 1.2.33 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.2.34 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

### 1.2.35 show ms all

Command

```
show ms all
```

Parameters

show
: Show running system information

ms
: information about MSs

all
: All TBFs

### 1.2.36 show ms imsi IMSI

Command

```
show ms imsi IMSI
```

Parameters

show
: Show running system information

ms
: information about MSs

imsi
: Select MS by IMSI

IMSI
: IMSI

### 1.2.37 show ms tlli TLLI

Command

```
show ms tlli TLLI
```

Parameters

show
: Show running system information

ms
: information about MSs

tlli
: Select MS by TLLI

TLLI
: TLLI as hex

### 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 runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.2.42 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

### 1.2.43 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

### 1.2.44 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

### 1.2.45 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

### 1.2.46 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)

### 1.2.47 show tbf (all|ccch|pacch)

Command

```
show tbf (all|ccch|pacch)
```

Parameters

show
: Show running system information

tbf
: information about TBFs

all
: All TBFs

ccch
: TBFs allocated via CCCH

pacch
: TBFs allocated via PACCH

### 1.2.48 show timer [TNNNN]

Command

```
show timer [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show PCU timers

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

### 1.2.49 show 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 configure [terminal]

Command

```
configure [terminal]
```

Parameters

configure
: Configuration from vty interface

[terminal]
: Configuration terminal

### 1.3.2 copy running-config startup-config

Command

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

Parameters

copy
: Copy configuration

running-config
: Copy running config to...

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

### 1.3.3 disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

### 1.3.4 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.3.5 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.3.6 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

### 1.3.7 logging filter all (0|1)

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.3.8 logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacm...

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms| ↩
    tbf|tbfdl|tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↩
    |lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata| ↩
    lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

csn1
: Concrete Syntax Notation One (CSN1)

l1if
: GPRS PCU L1 interface (L1IF)

rlcmac
: GPRS RLC/MAC layer (RLCMAC)

rlcmacdata
: GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl
: GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul
: GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched
: GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas
: GPRS RLC/MAC layer Measurements (RLCMAC)

ms
: Mobile Station (MS)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

pcu
: GPRS Packet Control Unit (PCU)

nacc
: Network Assisted Cell Change (NACC)

rim
: RAN Information Management (RIM)

e1
: E1 line handling

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 1.3.11 logging print category (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don’t prefix each log message

1
: Prefix each log message with category/subsystem name

### 1.3.12 logging print category-hex (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

1
: Prefix each log message with category/subsystem nr in hex (’<000b>’)

### 1.3.13 logging print extended-timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the source file and line

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

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

### 1.3.15 logging print level (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

### 1.3.16 logging print thread-id (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don't prefix each log message

1
: Prefix each log message with current Thread ID

### 1.3.17 logging set-log-mask MASK

Command

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

Parameters

logging
: Configure logging

set-log-mask
: Set the logmask of this logging target

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

### 1.3.18 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp

### 1.3.19 logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tb...

Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tbf|tbfdl ↩
    |tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal| ↩
    liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

csn1
: Concrete Syntax Notation One (CSN1)

l1if
: GPRS PCU L1 interface (L1IF)

rlcmac
: GPRS RLC/MAC layer (RLCMAC)

rlcmacdata
: GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl
: GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul
: GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched
: GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas
: GPRS RLC/MAC layer Measurements (RLCMAC)

ms
: Mobile Station (MS)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

pcu
: GPRS Packet Control Unit (PCU)

nacc
: Network Assisted Cell Change (NACC)

rim
: RAN Information Management (RIM)

e1
: E1 line handling

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

### 1.3.20 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

### 1.3.21 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.3.22 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.3.23 show bts pdch

Command

```
show bts pdch
```

Parameters

show
: Show running system information

bts
: BTS related functionality

pdch
: PDCH timeslots

### 1.3.24 show bts statistics

Command

```
show bts statistics
```

Parameters

show
: Show running system information

bts
: BTS related functionality

statistics
: Statistics

### 1.3.25 show bts-timer [TNNNN]

Command

```
show bts-timer [TNNNN]
```

Parameters

show
: Show running system information

bts-timer
: Show BTS controlled timers

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

### 1.3.26 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show
: Show running system information

cpu-sched
: Show Sched section information

threads
: Show information about running threads)

### 1.3.27 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

### 1.3.28 show e1_line [<0-255>] [stats]

Command

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

Parameters

show
: Show running system information

e1_line
: Display information about a E1 line

[<0-255>]
: E1 Line Number

[stats]
: Include statistics

### 1.3.29 show e1_timeslot [<0-255>] [<0-31>]

Command

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

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

### 1.3.30 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

### 1.3.31 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

### 1.3.32 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.33 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.34 show fsm-state-graph NAME

Command

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

Parameters

show
: Show running system information

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

NAME
: FSM name

### 1.3.35 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.3.36 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

### 1.3.37 show ms all

Command

```
show ms all
```

Parameters

show
: Show running system information

ms
: information about MSs

all
: All TBFs

### 1.3.38 show ms imsi IMSI

Command

```
show ms imsi IMSI
```

Parameters

show
: Show running system information

ms
: information about MSs

imsi
: Select MS by IMSI

IMSI
: IMSI

### 1.3.39 show ms tlli TLLI

Command

```
show ms tlli TLLI
```

Parameters

show
: Show running system information

ms
: information about MSs

tlli
: Select MS by TLLI

TLLI
: TLLI as hex

### 1.3.40 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.3.41 show rate-counters [skip-zero]

Command

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

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

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

### 1.3.42 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.3.43 show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

### 1.3.44 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

### 1.3.45 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

### 1.3.46 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

### 1.3.47 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

### 1.3.48 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)

### 1.3.49 show tbf (all|ccch|pacch)

Command

```
show tbf (all|ccch|pacch)
```

Parameters

show
: Show running system information

tbf
: information about TBFs

all
: All TBFs

ccch
: TBFs allocated via CCCH

pacch
: TBFs allocated via PACCH

### 1.3.50 show timer [TNNNN]

Command

```
show timer [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show PCU timers

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

### 1.3.51 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.3.52 shutdown

Command

```
shutdown
```

Parameters

shutdown
: Request a shutdown of the program

### 1.3.53 stats report

Command

```
stats report
```

Parameters

stats
: Stats related commands

report
: Manurally trigger reporting of stats

### 1.3.54 stats reset

Command

```
stats reset
```

Parameters

stats
: Stats related commands

reset
: Reset all rate counter stats

### 1.3.55 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)

### 1.3.56 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

### 1.3.57 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

### 1.3.58 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

### 1.3.59 who

Command

```
who
```

Parameters

who
: Display who is on vty

## 1.4 config

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

### 1.4.1 banner motd default

Command

```
banner motd default
```

Parameters

banner
: Set banner string

motd
: Strings for motd

default
: Default string

### 1.4.2 banner motd file [FILE]

Command

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

Parameters

banner
: Set banner

motd
: Banner for motd

file
: Banner from a file

[FILE]
: Filename

### 1.4.3 cpu-sched

Command

```
cpu-sched
```

Parameters

cpu-sched
: Configure CPU Scheduler related settings

### 1.4.4 e1_input

Command

```
e1_input
```

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_input
: Configure E1/T1/J1 TDM input

### 1.4.5 enable password (8|) WORD

Command

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

Parameters

enable
: Modify enable password parameters

password
: Assign the privileged level password

8
: Specifies a HIDDEN password will follow

dummy string

WORD
: The HIDDEN 'enable' password string

### 1.4.6 enable password LINE

Command

```
enable password LINE
```

Parameters

enable
: Modify enable password parameters

password
: Assign the privileged level password

LINE
: The UNENCRYPTED (cleartext) 'enable' password

### 1.4.7 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname
: Set system's network name

WORD
: This system's network name

### 1.4.8 line vty

Command

```
line vty
```

Parameters

line
: Configure a terminal line

vty
: Virtual terminal

### 1.4.9 log alarms <2-32700>

Command

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

Parameters

log
: Configure logging sub-system

alarms
: Logging alarms to osmo_strrb

<2-32700>
: Maximum number of messages to log

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

Command

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

Parameters

log
: Configure logging sub-system

file
: Logging to text file

FILENAME
: Filename

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

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

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

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

Command

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

Parameters

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

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

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

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

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

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

Command

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

Parameters

log
: Configure logging sub-system

stderr
: Logging via STDERR of the process

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

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

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

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

Command

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

Parameters

log
: Configure logging sub-system

syslog
: Logging via syslog

authpriv
: Security/authorization messages facility

cron
: Clock daemon (cron/at) facility

daemon
: General system daemon facility

ftp
: Ftp daemon facility

lpr
: Line printer facility

mail
: Mail facility

news
: News facility

user
: Generic facility

uucp
: UUCP facility

### 1.4.14 log syslog local <0-7>

Command

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

Parameters

log
: Configure logging sub-system

syslog
: Logging via syslog

local
: Syslog LOCAL facility

<0-7>
: Local facility number

### 1.4.15 log systemd-journal [raw]

Command

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

Parameters

log
: Configure logging sub-system

systemd-journal
: Logging to systemd-journal

[raw]
: Offload rendering of the meta information (location, category) to systemd

### 1.4.16 no banner motd

Command

```
no banner motd
```

Parameters

no
: Negate a command or set its defaults

banner
: Set banner string

motd
: Strings for motd

### 1.4.17 no enable password

Command

```
no enable password
```

Parameters

no
: Negate a command or set its defaults

enable
: Modify enable password parameters

password
: Assign the privileged level password

### 1.4.18 no hostname [HOSTNAME]

Command

```
no hostname [HOSTNAME]
```

Parameters

no
: Negate a command or set its defaults

hostname
: Reset system's network name

[HOSTNAME]
: Host name of this router

### 1.4.19 no log alarms

Command

```
no log alarms
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

alarms
: Logging alarms to osmo_strrb

### 1.4.20 no log file FILENAME

Command

```
no log file FILENAME
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

file
: Logging to text file

FILENAME
: Filename

### 1.4.21 no log 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)

### 1.4.22 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

### 1.4.23 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

### 1.4.24 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

### 1.4.25 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

### 1.4.26 no service terminal-length [<0-512>]

Command

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

Parameters

no
: Negate a command or set its defaults

service
: Set up miscellaneous service

terminal-length
: System wide terminal length configuration

[<0-512>]
: Number of lines of VTY (0 means no line control)

### 1.4.27 no stats reporter log [NAME]

Command

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

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

[NAME]
: Name of the reporter

### 1.4.28 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

### 1.4.29 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

### 1.4.30 password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

### 1.4.31 pcu

Command

```
pcu
```

Global attributes

Flag: !

This command applies immediately

Parameters

pcu

BTS specific configure

### 1.4.32 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

### 1.4.33 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)

### 1.4.34 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.4.35 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)

### 1.4.36 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

### 1.4.37 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

### 1.4.38 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

### 1.4.39 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)

## 1.5 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 (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacm...

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms| ↩
    tbf|tbfdl|tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↩
    |lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata| ↩
    lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

csn1
: Concrete Syntax Notation One (CSN1)

l1if
: GPRS PCU L1 interface (L1IF)

rlcmac
: GPRS RLC/MAC layer (RLCMAC)

rlcmacdata
: GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl
: GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul
: GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched
: GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas
: GPRS RLC/MAC layer Measurements (RLCMAC)

ms
: Mobile Station (MS)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

pcu
: GPRS Packet Control Unit (PCU)

nacc
: Network Assisted Cell Change (NACC)

rim
: RAN Information Management (RIM)

e1
: E1 line handling

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 1.5.6 logging print category (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with category/subsystem name

### 1.5.7 logging print category-hex (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

1
: Prefix each log message with category/subsystem nr in hex (’<000b>’)

### 1.5.8 logging print extended-timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the source file and line

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

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

### 1.5.10 logging print level (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

### 1.5.11 logging print thread-id (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don’t prefix each log message

1
: Prefix each log message with current Thread ID

### 1.5.12 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp

### 1.5.13 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

## 1.6 config-stats

### 1.6.1 disable

Command

```
disable
```

Parameters

disable
Disable the reporter

### 1.6.2 enable

Command

```
enable
```

Parameters

enable
Enable the reporter

### 1.6.3 flush-period <0-65535>

Command

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

Parameters

flush-period
Configure stats sub-system

<0-65535>
Send all stats even if they have not changed (i.e. force the flush)every N-th reporting interval. Set to 0 to disable regular flush (default).

### 1.6.4 level (global|peer|subscriber)

Command

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

Parameters

level
: Set the maximum group level

global
: Report global groups only

peer
: Report global and network peer related groups

subscriber
: Report global, peer, and subscriber groups

### 1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

local-ip
: Set the IP address to which we bind locally

ADDR
: IP Address

### 1.6.6 mtu <100-65535>

Command

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

Parameters

mtu
: Set the maximum packet size

<100-65535>
: Size in byte

### 1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no
: Negate a command or set its defaults

local-ip
: Set the IP address to which we bind locally

### 1.6.8 no mtu

Command

```
no mtu
```

Parameters

no
: Negate a command or set its defaults

mtu
: Set the maximum packet size

### 1.6.9 no prefix

Command

```
no prefix
```

Parameters

no
: Negate a command or set its defaults

prefix
: Set the item name prefix

### 1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix
: Set the item name prefix

PREFIX
: The prefix string

### 1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

remote-ip
: Set the remote IP address to which we connect

ADDR
: IP Address

### 1.6.12 remote-port <1-65535>

Command

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

Parameters

remote-port
: Set the remote port to which we connect

<1-65535>
: Remote port number

## 1.7 config-line

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

Command

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

Parameters

bind
: Accept VTY telnet connections on local interface

A.B.C.D
: Local interface IP address (default: 127.0.0.1)

[<0-65535>]
: Local TCP port number

### 1.7.2 login

Command

```
login
```

Parameters

login
: Enable password checking

### 1.7.3 no login

Command

```
no login
```

Parameters

no
: Negate a command or set its defaults

login
: Enable password checking

## 1.8 config-e1_input

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

connect-timeout

Set connect timeout

<0-60>

Connect timeout in seconds (0 to disable)

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

Command

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

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

driver

Set driver for this line

misdn

mISDN supported E1 Card (kernel LAPD)

misdn_lapd

mISDN supported E1 Card (userspace LAPD)

dahdi
: DAHDI supported E1/T1/J1 Card

e1d
: osmo-e1d supported E1 interface

ipa
: IPA TCP/IP input

unixsocket
: Unix socket input

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

Command

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

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

ipa-keepalive
: Enable IPA PING/PONG keep-alive

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

<1-300>
: Time to wait for PONG response

### 1.8.4 e1_line <0-255> keepalive

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

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

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

<1-300>

Idle interval in seconds before probes are sent

<1-20>

Number of probes to sent

<1-300>

Delay between probe packets in seconds

### 1.8.6 e1_line <0-255> name .LINE

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

name

Set name for this line

.LINE

Human readable name

### 1.8.7 e1_line <0-255> pcap .FILE

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Setup a pcap recording of E1 traffic for line

.FILE

Filename to save the packets to

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

Command

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

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

port

Set physical port/span/card number

<0-255>

E1/T1 Port/Span/Card number

### 1.8.9 e1_line <0-255> socket .SOCKET

Command

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

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

socket

Set socket path for unixsocket

.SOCKET

socket path

### 1.8.10 ipa bind A.B.C.D

Command

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

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

ipa

ipa driver config

bind

Set ipa local bind address

A.B.C.D

Listen on this IP address (default 0.0.0.0)

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

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

ipa

ipa driver config

ip-dscp

Set IP DSCP value for outbound packets

oml

Set IP DSCP for OML link

rsl

Set IP DSCP for RSL link

<0-63>

IP DSCP Value to use

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

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

ipa

ipa driver config

socket-priority

Set socket priority value for outbound packets

oml

Set socket priority for OML link

rsl

Set socket priority for RSL link

<0-255>

socket priority value to use (>6 requires CAP_NET_ADMIN)

### 1.8.13 no e1_line <0-255> ipa-keepalive

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

ipa-keepalive

Enable IPA PING/PONG keep-alive

### 1.8.14 no e1_line <0-255> keepalive

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

### 1.8.15 no e1_line <0-255> pcap

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Disable pcap recording of E1 traffic for line

## 1.9 config-cpu-sched

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

cpu-affinity

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

self

Set CPU affinity mask on thread running the VTY

all

Set CPU affinity mask on all process' threads

<0-4294967295>

Set CPU affinity mask on a thread with specified PID

THREADNAME

Set CPU affinity mask on a thread with specified thread name

CPUHEXMASK

CPU affinity mask

[delay]

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

### 1.9.2 policy rr <1-32>

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

policy
: Set the scheduling policy to use for the process

rr
: Use the SCHED_RR real-time scheduling algorithm

<1-32>
: Set the SCHED_RR real-time priority

## 1.10 config-pcu

### 1.10.1 alloc-algorithm (a|b|dynamic)

Command

```
alloc-algorithm (a|b|dynamic)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

alloc-algorithm
: Select slot allocation algorithm to use when assigning timeslots on PACCH

a
: Single slot is assigned only

b
: Multiple slots are assigned for semi-duplex operation

dynamic
: Dynamically select the algorithm based on the system state

### 1.10.2 cs <1-4> [<1-4>]

Command

```
cs <1-4> [<1-4>]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

cs
: Coding Scheme configuration

<1-4>
: Initial CS value to be used (overrides BTS config)

[<1-4>]
: Use a different initial CS value for the uplink

### 1.10.3 cs downgrade-threshold <1-10000>

Command

```
cs downgrade-threshold <1-10000>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

cs
: Coding Scheme configuration

downgrade-threshold
: set threshold for data size based downlink (M)CS downgrade

<1-10000>
: downgrade if less octets left

### 1.10.4 cs link-quality-ranges cs1 <0-35> cs2 <0-35> <0-35> cs3 <0-35> <0-35> cs4 <0-35>

Command

```
cs link-quality-ranges cs1 <0-35> cs2 <0-35> <0-35> cs3 <0-35> <0-35> cs4 <0-35>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

cs
: Coding Scheme configuration

link-quality-ranges
: Set link quality ranges for each uplink CS

cs1
: Set quality range for CS-1 (high value only)

<0-35>
: CS-1 high (dB)

cs2
: Set quality range for CS-2

<0-35>
: CS-2 low (dB)

<0-35>
: CS-2 high (dB)

cs3
: Set quality range for CS-3

<0-35>
: CS-3 low (dB)

<0-35>
: CS-3 high (dB)

cs4
: Set quality range for CS-4 (low value only)

<0-35>
: CS-4 low (dB)

### 1.10.5 cs max <1-4> [<1-4>]

Command

```
cs max <1-4> [<1-4>]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

cs
: Coding Scheme configuration

max
: Set maximum values for adaptive CS selection (overrides BTS config)

<1-4>
: Maximum CS value to be used

[<1-4>]
: Use a different maximum CS value for the uplink

### 1.10.6 cs threshold <0-100> <0-100>

Command

```
cs threshold <0-100> <0-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

cs

Coding Scheme configuration

threshold

set thresholds for error rate based downlink (M)CS adjustment

<0-100>

lower limit in %

<0-100>

upper limit in %

### 1.10.7 dl-tbf-preemptive-retransmission

Command

```
dl-tbf-preemptive-retransmission
```

Global attributes

Flag: !

This command applies immediately

Parameters

dl-tbf-preemptive-retransmission

retransmit blocks even before the MS had a chance to receive them (better throughput, less readable traces) (enabled by default)

### 1.10.8 egprs dl arq-type (spb|arq2)

Command

```
egprs dl arq-type (spb|arq2)
```

Global attributes

Flag: !

This command applies immediately

Parameters

egprs

EGPRS configuration

dl

downlink specific configuration

arq-type

ARQ options

spb

enable SPB(ARQ1) support

arq2

enable ARQ2 support

### 1.10.9 flow-control bucket-time <1-65534>

Command

```
flow-control bucket-time <1-65534>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control

BSSGP Flow Control configuration

bucket-time

Set target downlink maximum queueing time (only affects the advertised bucket size)

<1-65534>

Time in centi-seconds

### 1.10.10 flow-control force-bvc-bucket-size <1-6553500>

Command

```
flow-control force-bvc-bucket-size <1-6553500>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control

BSSGP Flow Control configuration

force-bvc-bucket-size

Force a fixed value for the BVC bucket size

<1-6553500>

Bucket size in octets

### 1.10.11 flow-control force-bvc-leak-rate <1-6553500>

Command

```
flow-control force-bvc-leak-rate <1-6553500>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control

BSSGP Flow Control configuration

force-bvc-leak-rate

Force a fixed value for the BVC leak rate

<1-6553500>

Leak rate in bit/s

### 1.10.12 flow-control force-ms-bucket-size <1-6553500>

Command

```
flow-control force-ms-bucket-size <1-6553500>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control

BSSGP Flow Control configuration

force-ms-bucket-size

Force a fixed value for the default MS bucket size

<1-6553500>

Bucket size in octets

### 1.10.13 flow-control force-ms-leak-rate <1-6553500>

Command

```
flow-control force-ms-leak-rate <1-6553500>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control

BSSGP Flow Control configuration

force-ms-leak-rate

Force a fixed value for the default MS leak rate

<1-6553500>

Leak rate in bit/s

### 1.10.14 flow-control-interval <1-10>

Command

```
flow-control-interval <1-10>
```

Global attributes

Flag: !

This command applies immediately

Parameters

flow-control-interval

Interval between sending subsequent Flow Control PDUs

<1-10>

Interval time in seconds

### 1.10.15 gamma <0-62>

Command

```
gamma <0-62>
```

Global attributes

Flag: !

This command applies immediately

Parameters

gamma

Gamma parameter for MS power control in units of dB (see TS 05.08)

<0-62>

Gamma in even unit of dBs

### 1.10.16 gb ip-dscp <0-63>

Command

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

Application specific attributes

Flag: r
This command applies when the NS is reset

Parameters

gb
Configure Gb interface

ip-dscp
Set IP DSCP value for outbound packets

<0-63>
IP DSCP value to use

### 1.10.17 gb socket-priority <0-255>

Command

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

Application specific attributes

Flag: r
This command applies when the NS is reset

Parameters

gb
Configure Gb interface

socket-priority
Set socket priority value for outbound packets

<0-255>
Socket priority value to use (>6 requires CAP_NET_ADMIN)

### 1.10.18 gb-dialect (classic|ip-sns)

Command

```
gb-dialect (classic|ip-sns)
```

Application specific attributes

Flag: r
This command applies when the NS is reset

Parameters

gb-dialect
: Select which Gb interface dialect to use

classic
: Classic Gb interface with NS-{RESET,BLOCK,UNBLOCK} and static configuration

ip-sns
: Modern Gb interface with IP-SNS (Sub Network Service) and dynamic configuration

### 1.10.19 gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch...

Command

```
gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch|dl- ↩
    agch|dl-pch|ul-unknown|ul-dummy|ul-ctrl|ul-data-gprs|ul-data-egprs|ul-rach|ul-ptcch ↩
    )
```

Parameters

gsmtap-category
: GSMTAP Category

dl-unknown
: Unknown / Unparseable / Erroneous Downlink Blocks

dl-dummy
: Downlink Dummy Blocks

dl-ctrl
: Downlink Control Blocks

dl-data-gprs
: Downlink Data Blocks (GPRS)

dl-data-egprs
: Downlink Data Blocks (EGPRS)

dl-ptcch
: Downlink PTCCH Blocks

dl-agch
: Downlink AGCH Blocks

dl-pch
: Downlink PCH Blocks

ul-unknown
: Unknown / Unparseable / Erroneous Downlink Blocks

ul-dummy
: Uplink Dummy Blocks

ul-ctrl
: Uplink Control Blocks

ul-data-gprs
: Uplink Data Blocks (GPRS)

ul-data-egprs
: Uplink Data Blocks (EGPRS)

ul-rach
: Uplink RACH Bursts

ul-ptcch
: Uplink PTCCH Bursts

### 1.10.20 gsmtap-category (enable-all|disable-all)

Command

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

Parameters

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

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

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

### 1.10.21 gsmtap-remote-host [HOSTNAME]

Command

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

Parameters

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

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

### 1.10.22 mcs <1-9> [<1-9>]

Command

```
mcs <1-9> [<1-9>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

mcs

Modulation and Coding Scheme configuration (EGPRS)

<1-9>

Initial MCS value to be used (default 1)

[<1-9>]

Use a different initial MCS value for the uplink

### 1.10.23 mcs link-quality-ranges mcs1 <0-35> mcs2 <0-35> <0-35> mcs3 <0-35> <0-35> mcs4 <...

Command

```
mcs link-quality-ranges mcs1 <0-35> mcs2 <0-35> <0-35> mcs3 <0-35> <0-35> mcs4 <0-35>  ↩
    <0-35> mcs5 <0-35> <0-35> mcs6 <0-35> <0-35> mcs7 <0-35> <0-35> mcs8 <0-35> <0-35>  ↩
    mcs9 <0-35>
```

Global attributes

Flag: !

This command applies immediately

Parameters

mcs

Coding Scheme configuration

link-quality-ranges

Set link quality ranges for each uplink MCS

mcs1

Set quality range for MCS-1 (high value only)

<0-35>

MCS-1 high (dB)

mcs2
Set quality range for MCS-2
<0-35>
MCS-2 high (dB)
<0-35>
MCS-2 low (dB)
mcs3
Set quality range for MCS-3
<0-35>
MCS-3 high (dB)
<0-35>
MCS-3 low (dB)
mcs4
Set quality range for MCS-4
<0-35>
MCS-4 high (dB)
<0-35>
MCS-4 low (dB)
mcs5
Set quality range for MCS-5
<0-35>
MCS-5 high (dB)
<0-35>
MCS-5 low (dB)
mcs6
Set quality range for MCS-6
<0-35>
MCS-6 low (dB)
<0-35>
MCS-6 high (dB)
mcs7
Set quality range for MCS-7
<0-35>
MCS-7 low (dB)
<0-35>
MCS-7 high (dB)
mcs8
Set quality range for MCS-8

<0-35>
MCS-8 low (dB)

<0-35>
MCS-8 high (dB)

mcs9
Set quality range for MCS-9 (low value only)

<0-35>
MCS-9 low (dB)

### 1.10.24 mcs max <1-9> [<1-9>]

Command

```
mcs max <1-9> [<1-9>]
```

Global attributes

Flag: !
This command applies immediately

Parameters

mcs
Modulation and Coding Scheme configuration (EGPRS)

max
Set maximum values for adaptive CS selection (overrides BTS config)

<1-9>
Maximum MCS value to be used

[<1-9>]
Use a different maximum MCS value for the uplink

### 1.10.25 no cs

Command

```
no cs
```

Global attributes

Flag: !
This command applies immediately

Parameters

no
Negate a command or set its defaults

cs
Coding Scheme configuration

### 1.10.26 no cs downgrade-threshold

Command

```
no cs downgrade-threshold
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

downgrade-threshold

set threshold for data size based downlink (M)CS downgrade

### 1.10.27 no cs max

Command

```
no cs max
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

max

Set maximum values for adaptive CS selection (overrides BTS config)

### 1.10.28 no cs threshold

Command

```
no cs threshold
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

threshold

set thresholds for error rate based downlink (M)CS adjustment

### 1.10.29 no dl-tbf-preemptive-retransmission

Command

```
no dl-tbf-preemptive-retransmission
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

dl-tbf-preemptive-retransmission

retransmit blocks even before the MS had a chance to receive them (better throughput, less readable traces)

### 1.10.30 no flow-control bucket-time

Command

```
no flow-control bucket-time
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

bucket-time

Set target downlink maximum queueing time (only affects the advertised bucket size)

### 1.10.31 no flow-control force-bvc-bucket-size

Command

```
no flow-control force-bvc-bucket-size
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-bvc-bucket-size

Force a fixed value for the BVC bucket size

### 1.10.32 no flow-control force-bvc-leak-rate

Command

```
no flow-control force-bvc-leak-rate
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-bvc-leak-rate

Force a fixed value for the BVC leak rate

### 1.10.33 no flow-control force-ms-bucket-size

Command

```
no flow-control force-ms-bucket-size
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-ms-bucket-size

Force a fixed value for the default MS bucket size

### 1.10.34 no flow-control force-ms-leak-rate

Command

```
no flow-control force-ms-leak-rate
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-ms-leak-rate

Force a fixed value for the default MS leak rate

### 1.10.35 no gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-pt...

Command

```
no gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch|dl- ↩
    agch|dl-pch|ul-unknown|ul-dummy|ul-ctrl|ul-data-gprs|ul-data-egprs|ul-rach|ul-ptcch ↩
    )
```

Parameters

no

Negate a command or set its defaults

gsmtap-category

GSMTAP Category

dl-unknown

Unknown / Unparseable / Erroneous Downlink Blocks

dl-dummy

Downlink Dummy Blocks

dl-ctrl

Downlink Control Blocks

dl-data-gprs

Downlink Data Blocks (GPRS)

dl-data-egprs
: Downlink Data Blocks (EGPRS)

dl-ptcch
: Downlink PTCCH Blocks

dl-agch
: Downlink AGCH Blocks

dl-pch
: Downlink PCH Blocks

ul-unknown
: Unknown / Unparseable / Erroneous Downlink Blocks

ul-dummy
: Uplink Dummy Blocks

ul-ctrl
: Uplink Control Blocks

ul-data-gprs
: Uplink Data Blocks (GPRS)

ul-data-egprs
: Uplink Data Blocks (EGPRS)

ul-rach
: Uplink RACH Bursts

ul-ptcch
: Uplink PTCCH Bursts

### 1.10.36 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

### 1.10.37 no mcs

Command

```
no mcs
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

mcs

Modulation and Coding Scheme configuration (EGPRS)

### 1.10.38 no mcs max

Command

```
no mcs max
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

mcs

Modulation and Coding Scheme configuration (EGPRS)

max

Set maximum values for adaptive CS selection (overrides BTS config)

### 1.10.39 no queue codel

Command

```
no queue codel
```

Application specific attributes

Flag: s

This command applies when a new subscriber attaches

Parameters

no

Negate a command or set its defaults

queue

Packet queue options

codel

Set CoDel queue management

### 1.10.40 no queue hysteresis

Command

```
no queue hysteresis
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

no

Negate a command or set its defaults

queue

Packet queue options

hysteresis

Set lifetime hysteresis of LLC frame in centi-seconds (continue discarding until lifetime-hysteresis is reached)

### 1.10.41 no queue idle-ack-delay

Command

```
no queue idle-ack-delay
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

queue

Packet queue options

idle-ack-delay

Request an ACK after the last DL LLC frame in centi-seconds

### 1.10.42 no queue lifetime

Command

```
no queue lifetime
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

no

Negate a command or set its defaults

queue

Packet queue options

lifetime

Disable lifetime limit of LLC frame (use value given by SGSN)

### 1.10.43 no two-phase-access

Command

```
no two-phase-access
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

two-phase-access

Only use two phase access when requested my MS

### 1.10.44 pcu-socket PATH

Command

```
pcu-socket PATH
```

Parameters

pcu-socket

Configure the osmo-bts PCU socket file/path name

PATH

Path of the socket to connect to

### 1.10.45 queue codel

Command

```
queue codel
```

Application specific attributes

Flag: s

This command applies when a new subscriber attaches

Parameters

queue

Packet queue options

codel

Set CoDel queue management

### 1.10.46 queue codel interval <1-1000>

Command

```
queue codel interval <1-1000>
```

Application specific attributes

Flag: s

This command applies when a new subscriber attaches

Parameters

queue

Packet queue options

codel

Set CoDel queue management

interval

Specify interval

<1-1000>

Interval in centi-seconds

### 1.10.47 queue hysteresis <1-65535>

Command

```
queue hysteresis <1-65535>
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

queue

Packet queue options

hysteresis

Set lifetime hysteresis of LLC frame in centi-seconds (continue discarding until lifetime-hysteresis is reached)

<1-65535>

Hysteresis in centi-seconds

### 1.10.48 queue idle-ack-delay <1-65535>

Command

```
queue idle-ack-delay <1-65535>
```

Global attributes

Flag: !

This command applies immediately

Parameters

queue

Packet queue options

idle-ack-delay

Request an ACK after the last DL LLC frame in centi-seconds

<1-65535>

Idle ACK delay in centi-seconds

### 1.10.49 queue lifetime <1-65534>

Command

```
queue lifetime <1-65534>
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

queue

Packet queue options

lifetime

Set lifetime limit of LLC frame in centi-seconds (overrides the value given by SGSN)

<1-65534>

Lifetime in centi-seconds

### 1.10.50 queue lifetime infinite

Command

```
queue lifetime infinite
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

queue

Packet queue options

lifetime

Set lifetime limit of LLC frame in centi-seconds (overrides the value given by SGSN)

infinite

Infinite lifetime

### 1.10.51 timer [TNNNN] [(<0-2147483647>|default)]

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

timer

Configure or show PCU 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

### 1.10.52 two-phase-access

Command

```
two-phase-access
```

Global attributes

Flag: !

This command applies immediately

Parameters

two-phase-access

Force two phase access when MS requests single phase access

### 1.10.53 window-size <0-1024> [<0-256>]

Command

```
window-size <0-1024> [<0-256>]
```

Application specific attributes

Flag: n

This command applies when a new TBF is begins

Parameters

window-size

Window size configuration (b + N_PDCH * f)

<0-1024>

Base value (b)

[<0-256>]

Factor for number of PDCH (f)