

## **OsmoUPF VTY Reference**

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**COLLABORATORS**

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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 sismocom products:

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

Table 1.2: VTY port numbers

### 1.1 Common Commands

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

### 1.1.1 end

#### Command

```
end
```

#### Parameters

end

End current mode and change to enable mode.

### 1.1.2 exit

#### Command

```
exit
```

#### Parameters

exit

Exit current mode and down to previous mode

### 1.1.3 help

#### Command

```
help
```

#### Parameters

help

Description of the interactive help system

### 1.1.4 list [with-flags]

#### Command

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

#### Parameters

list

Print command list

[with-flags]

Also print the VTY attribute flags

---

### 1.1.5 show running-config

#### Command

```
show running-config
```

#### Parameters

show

Show running system information

running-config

running configuration

### 1.1.6 show vty-attributes

#### Command

```
show vty-attributes
```

#### Parameters

show

Show running system information

vtty-attributes

List of VTY attributes

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

#### Command

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

#### Parameters

show

Show running system information

vtty-attributes

List of VTY attributes

application

Application specific attributes only

library

Library specific attributes only

global

Global attributes only

### 1.1.8 write

#### Command

```
write
```

#### Parameters

write

Write running configuration to memory, network, or terminal

### 1.1.9 write file [PATH]

#### Command

```
write file [PATH]
```

#### Parameters

write

Write running configuration to memory, network, or terminal

file

Write to configuration file

[PATH]

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

### 1.1.10 write memory

#### Command

```
write memory
```

#### Parameters

write

Write running configuration to memory, network, or terminal

memory

Write configuration to the file (same as write file)

---

### 1.1.11 write terminal

#### Command

```
write terminal
```

#### Parameters

##### write

Write running configuration to memory, network, or terminal

##### terminal

Write to terminal

## 1.2 view

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

### 1.2.1 enable [expert-mode]

#### Command

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

#### Parameters

##### enable

Turn on privileged mode command

##### [expert-mode]

Enable the expert mode (show hidden commands)

### 1.2.2 gtp1u-echo send to (A.B.C.D|X:X::X:X)

#### Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X)
```

#### Parameters

##### gtp1u-echo

GTP1-U Echo probing

##### send

Send a GTP1-U Echo Request to a remote peer

---

to

Send to remote peer's GTP address

A.B.C.D

IPv4 address

X:X::X:X

IPv6 address

### 1.2.3 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV\_NAME

Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV_NAME
```

Parameters

gtp1u-echo

GTP1-U Echo probing

send

Send a GTP1-U Echo Request to a remote peer

to

Send to remote peer's GTP address

A.B.C.D

IPv4 address

X:X::X:X

IPv6 address

local-dev

Send from local GTP device, chosen by name as configured in 'dev create' or 'dev use'.

DEV\_NAME

A GTP device name as it appears in the cfg

### 1.2.4 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-ip (A.B.C.D|X:X::X:X)

Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X) local-ip (A.B.C.D|X:X::X:X)
```

Parameters

gtp1u-echo

GTP1-U Echo probing

send

Send a GTP1-U Echo Request to a remote peer

to

Send to remote peer's GTP address

A.B.C.D

IPv4 address

X:X::X:X

IPv6 address

local-ip

Send from local GTP device, chosen by IP address

A.B.C.D

IPv4 address

X:X::X:X

IPv6 address

### 1.2.5 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

### 1.2.6 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

## 1.2.7 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

## 1.2.8 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

## 1.2.9 logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...

### Command

```
logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl| ↔  
lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata ↔  
|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

### Parameters

#### logging

Configure logging

#### level

Set the log level for a specified category

#### ref

Reference Counting

#### peer

PFPCP peer association

#### session

PFPCP sessions

#### gtp

GTP tunneling

#### nft

GTP forwarding rules via linux netfilter

#### 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

lcsn1  
libosmo-csn1 Concrete Syntax Notation 1 codec

lio  
libosmocore IO Subsystem

---

ltpcap

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

### 1.2.10 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

### 1.2.11 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

### 1.2.12 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

---

### 1.2.13 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>')

### 1.2.14 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

---

### 1.2.15 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.

### 1.2.16 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

### 1.2.17 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

### 1.2.18 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

### 1.2.19 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

### 1.2.20 logp (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|...)

#### Command

```
logp (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↔
lg sup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata|lnsignal| ↔
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

##### ref

Reference Counting

##### peer

PFCP peer association

##### session

PFCP sessions

##### gtp

GTP tunneling

##### nft

GTP forwarding rules via linux netfilter

##### 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

lndata  
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

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

### 1.2.21 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>'

### 1.2.22 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

### 1.2.23 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show

Show running system information

cpu-sched

Show Sched section information

threads

Show information about running threads)

### 1.2.24 show gtp

Command

```
show gtp
```

Parameters

show

Show running system information

gtp

Active GTP tunnels, both tunend and tunmap

### 1.2.25 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.2.26 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

### 1.2.27 show netinst [NAME]

#### Command

```
show netinst [NAME]
```

#### Parameters

##### show

Show running system information

##### netinst

List configured Network Instance entries

##### [NAME]

Show the Network Instance with this name (show all when omitted)

---

### 1.2.28 show online-help

#### Command

```
show online-help
```

#### Parameters

show

Show running system information

online-help

Online help

### 1.2.29 show pdr

#### Command

```
show pdr
```

#### Parameters

show

Show running system information

pdr

List all sessions' PDR and FAR status

### 1.2.30 show pid

#### Command

```
show pid
```

#### Parameters

show

Show running system information

pid

Displays the process ID

### 1.2.31 show runtime

#### Command

```
show runtime
```

#### Parameters

##### show

Show running system information

##### runtime

Display runtime information

### 1.2.32 show session

#### Command

```
show session
```

#### Parameters

##### show

Show running system information

##### session

PFCP Session status

### 1.2.33 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

### 1.2.34 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

### 1.2.35 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)

### 1.2.36 show timer [(pfc|nft)] [TNNNN]

#### Command

```
show timer [(pfc|nft)] [TNNNN]
```

#### Parameters

##### show

Show running system information

##### timer

Show timers

[pfcf]

PFPCP endpoint timers

[nft]

netfilter 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'.

### 1.2.37 show uptime

Command

```
show uptime
```

Parameters

show

Show running system information

uptime

Displays how long the program has been running

### 1.2.38 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

### 1.2.39 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)

---

### 1.2.40 terminal no length

#### Command

```
terminal no length
```

#### Parameters

##### terminal

Set terminal line parameters

##### no

Negate a command or set its defaults

##### length

Set number of lines on a screen

### 1.2.41 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 gtp1u-echo send to (A.B.C.D|X:X::X:X)

#### Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X)
```

#### Parameters

##### gtp1u-echo

GTP1-U Echo probing

##### send

Send a GTP1-U Echo Request to a remote peer

##### to

Send to remote peer's GTP address

##### A.B.C.D

IPv4 address

##### X:X::X:X

IPv6 address

---

### 1.3.5 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV\_NAME

#### Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV_NAME
```

#### Parameters

##### gtp1u-echo

GTP1-U Echo probing

##### send

Send a GTP1-U Echo Request to a remote peer

##### to

Send to remote peer's GTP address

##### A.B.C.D

IPv4 address

##### X:X::X:X

IPv6 address

##### local-dev

Send from local GTP device, chosen by name as configured in 'dev create' or 'dev use'.

##### DEV\_NAME

A GTP device name as it appears in the cfg

### 1.3.6 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-ip (A.B.C.D|X:X::X:X)

#### Command

```
gtp1u-echo send to (A.B.C.D|X:X::X:X) local-ip (A.B.C.D|X:X::X:X)
```

#### Parameters

##### gtp1u-echo

GTP1-U Echo probing

##### send

Send a GTP1-U Echo Request to a remote peer

##### to

Send to remote peer's GTP address

##### A.B.C.D

IPv4 address

##### X:X::X:X

IPv6 address

local-ip

Send from local GTP device, chosen by IP address

A.B.C.D

IPv4 address

X:X::X:X

IPv6 address

### 1.3.7 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

### 1.3.8 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

---

### 1.3.9 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

### 1.3.10 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

### 1.3.11 logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...)

#### Command

```
logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl| ↔
lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata ↔
|lnssignal|liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### ref

Reference Counting

##### peer

PFPCP peer association

##### session

PFPCP sessions

##### gtp

GTP tunneling

##### nft

GTP forwarding rules via linux netfilter

##### 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

lcsn1  
libosmo-csn1 Concrete Syntax Notation 1 codec

lio  
libosmocore IO Subsystem

---

ltpcap

TCAP

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

level

Set the log level for a specified category

force-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### set-all

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

##### debug

Log debug messages and higher levels

##### info

Log informational messages and higher levels

##### notice

Log noticeable messages and higher levels

##### error

Log error messages and higher levels

##### fatal

Log only fatal messages

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### category

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with category/subsystem name

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### category-hex

Configure log message

0

Don't prefix each log message

1

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### file

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with the source file and line

##### basename

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

##### [last]

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### level

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with the log level name

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

### 1.3.20 logging set-log-mask MASK

#### Command

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

#### Parameters

##### logging

Configure logging

##### set-log-mask

Set the logmask of this logging target

##### MASK

List of logging categories to log, e.g. 'abc:mno:xyz'. Available log categories depend on the specific application, refer to the 'logging level' command. Optionally add individual log levels like 'abc,1:mno,3:xyz,5', where the level numbers are LOGL\_DEBUG=1 LOGL\_INFO=3 LOGL\_NOTICE=5 LOGL\_ERROR=7 LOGL\_FATAL=8

### 1.3.21 logging timestamp (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

### 1.3.22 logp (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|...

#### Command

```
logp (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↔
lg sup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata|lnsignal| ↔
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

##### ref

Reference Counting

##### peer

PFCP peer association

##### session

PFCP sessions

##### gtp

GTP tunneling

##### nft

GTP forwarding rules via linux netfilter

##### 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

lndata  
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

ltcap  
TCAP

debug  
Log debug messages and higher levels

info  
Log informational messages and higher levels

notice  
Log noticeable messages and higher levels

error  
Log error messages and higher levels

fatal  
Log only fatal messages

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

### 1.3.23 no logging 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>'

### 1.3.24 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

### 1.3.25 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)

### 1.3.26 show gtp

Command

```
show gtp
```

Parameters

show

Show running system information

gtp

Active GTP tunnels, both tunend and tunmap

### 1.3.27 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.3.28 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

### 1.3.29 show netinst [NAME]

#### Command

```
show netinst [NAME]
```

#### Parameters

##### show

Show running system information

##### netinst

List configured Network Instance entries

##### [NAME]

Show the Network Instance with this name (show all when omitted)

---

### 1.3.30 show online-help

#### Command

```
show online-help
```

#### Parameters

show

Show running system information

online-help

Online help

### 1.3.31 show pdr

#### Command

```
show pdr
```

#### Parameters

show

Show running system information

pdr

List all sessions' PDR and FAR status

### 1.3.32 show runtime

#### Command

```
show runtime
```

#### Parameters

show

Show running system information

runtime

Display runtime information

---

### 1.3.33 show session

#### Command

```
show session
```

#### Parameters

##### show

Show running system information

##### session

PFCP Session status

### 1.3.34 show startup-config

#### Command

```
show startup-config
```

#### Parameters

##### show

Show running system information

##### startup-config

Contentes of startup configuration

### 1.3.35 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

### 1.3.36 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
-

### 1.3.37 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)

### 1.3.38 show timer [(pfc|nft)] [TNNNN]

#### Command

```
show timer [(pfc|nft)] [TNNNN]
```

#### Parameters

##### show

Show running system information

##### timer

Show timers

[pfcf]

PFPCP endpoint timers

[nft]

netfilter 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'.

### 1.3.39 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

### 1.3.40 shutdown

Command

```
shutdown
```

Parameters

shutdown

Request a shutdown of the program

### 1.3.41 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)

---

### 1.3.42 terminal monitor

#### Command

```
terminal monitor
```

#### Parameters

##### terminal

Set terminal line parameters

##### monitor

Copy debug output to the current terminal line

### 1.3.43 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

### 1.3.44 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

---

### 1.3.45 who

#### Command

```
who
```

#### Parameters

who

Display who is on vty

## 1.4 config

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

### 1.4.1 banner motd default

#### Command

```
banner motd default
```

#### Parameters

banner

Set banner string

motd

Strings for motd

default

Default string

### 1.4.2 banner motd file [FILE]

#### Command

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

#### Parameters

banner

Set banner

motd

Banner for motd

file

Banner from a file

[FILE]

Filename

---

### 1.4.3 cpu-sched

#### Command

```
cpu-sched
```

#### Parameters

cpu-sched

Configure CPU Scheduler related settings

### 1.4.4 ctrl

#### Command

```
ctrl
```

#### Parameters

ctrl

Configure the Control Interface

### 1.4.5 enable password (8|) WORD

#### Command

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

#### Parameters

enable

Modify enable password parameters

password

Assign the privileged level password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN 'enable' password string

---

### 1.4.6 enable password LINE

#### Command

```
enable password LINE
```

#### Parameters

##### enable

Modify enable password parameters

##### password

Assign the privileged level password

##### LINE

The UNENCRYPTED (cleartext) 'enable' password

### 1.4.7 hostname WORD

#### Command

```
hostname WORD
```

#### Parameters

##### hostname

Set system's network name

##### WORD

This system's network name

### 1.4.8 line vty

#### Command

```
line vty
```

#### Parameters

##### line

Configure a terminal line

##### vtty

Virtual terminal

---

### 1.4.9 log alarms <2-32700>

#### Command

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

#### Parameters

log

Configure logging sub-system

alarms

Logging alarms to osmo\_strrb

<2-32700>

Maximum number of messages to log

### 1.4.10 log file FILENAME [(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 netinst

Command

```
netinst
```

Parameters

netinst

Enter the Network Instance configuration node

### 1.4.17 no banner motd

Command

```
no banner motd
```

Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

### 1.4.18 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

### 1.4.19 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

### 1.4.20 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

### 1.4.21 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

### 1.4.22 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)

### 1.4.23 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

### 1.4.24 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

### 1.4.25 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

### 1.4.26 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

---

### 1.4.27 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)

### 1.4.28 password (8|) WORD

#### Command

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

#### Parameters

password

Assign the terminal connection password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN line password string

### 1.4.29 password LINE

#### Command

```
password LINE
```

#### Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

### 1.4.30 pfcf

#### Command

```
pfcf
```

#### Parameters

pfcf

Enter the PFCF configuration node

### 1.4.31 service advanced-vty

#### Command

```
service advanced-vty
```

#### Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

### 1.4.32 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)

---

### 1.4.33 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.4.34 timer [(pfc|nft)] [TNNNN] [(<0-2147483647>|default)]

#### Command

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

#### Parameters

##### timer

Configure or show timers

##### [pfc]

PFCP endpoint timers

##### [nft]

netfilter 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

### 1.4.35 tunend

#### Command

```
tunend
```

#### Parameters

##### tunend

Enter the 'tunend' node to configure Linux GTP kernel module usage

### 1.4.36 tunmap

#### Command

```
tunmap
```

#### Parameters

tunmap

Enter the 'tunmap' node to configure nftables usage

## 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 (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lc...

## Command

```
logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl| ↔
lgtp|lstats|lgsup|loap|lss7|lscpp|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

## ref

Reference Counting

## peer

PFCP peer association

## session

PFCP sessions

## gtp

GTP tunneling

## nft

GTP forwarding rules via linux netfilter

## 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

---

Insdata	GPRS NS layer data PDU
Inssignal	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-line

### 1.6.1 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

## 1.6.2 login

### Command

```
login
```

## Parameters

### login

Enable password checking

## 1.6.3 no login

### Command

```
no login
```

## Parameters

### no

Negate a command or set its defaults

### login

Enable password checking

## 1.7 config-ctrl

### 1.7.1 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

## 1.8 config-cpu-sched

### 1.8.1 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

### 1.8.2 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

## 1.9 config-pfcp

### 1.9.1 local-addr IP\_ADDR

#### Command

```
local-addr IP_ADDR
```

#### Parameters

##### local-addr

Set the local IP address to bind on for PFCP

##### IP\_ADDR

IP address

## 1.10 config-tunend

### 1.10.1 dev create DEVNAME [LISTEN\_ADDR]

#### Command

```
dev create DEVNAME [LISTEN_ADDR]
```

#### Parameters

##### dev

Configure the GTP device to use for encaps/decaps.

##### create

Add GTP device, creating a new Linux kernel GTP device. Will listen on GTPv1 port 2152 and GTPv0 port 3386 on the specified LISTEN\_ADDR

##### DEVNAME

device name, e.g. 'apn0'

##### [LISTEN\_ADDR]

IPv4 or IPv6 address to listen on, omit for ANY. LISTEN\_ADDR is used to pick a GTP device matching the local address for a PFCP Network Instance, which are configured in the 'netinst' node.

---

### 1.10.2 dev delete DEVNAME

#### Command

```
dev delete DEVNAME
```

#### Parameters

##### dev

Configure the GTP device to use for encaps/decaps.

##### delete

Remove a GTP device from the configuration, and delete the Linux kernel GTP device if it was created here.

##### DEVNAME

device name, e.g. 'apn0'

### 1.10.3 dev use DEVNAME [LOCAL\_ADDR]

#### Command

```
dev use DEVNAME [LOCAL_ADDR]
```

#### Parameters

##### dev

Configure the GTP device to use for encaps/decaps.

##### use

Add GTP device, using an existing Linux kernel GTP device, e.g. created by 'gtp-link'

##### DEVNAME

device name, e.g. 'apn0'

##### [LOCAL\_ADDR]

The local GTP address this device listens on. It is assumed to be ANY when omitted. LOCAL\_ADDR is used to pick a GTP device matching the local address for a PFCP Network Instance, which are configured in the 'netinst' node.

### 1.10.4 mockup

#### Command

```
mockup
```

#### Parameters

##### mockup

don't actually send commands to the GTP kernel module, just return success

## 1.10.5 no mockup

### Command

```
no mockup
```

### Parameters

no

Negate a command or set its defaults

mockup

operate GTP kernel module normally

## 1.11 config-tunmap

### 1.11.1 mockup

### Command

```
mockup
```

### Parameters

mockup

don't actually send rulesets to nftables, just return success

### 1.11.2 no mockup

### Command

```
no mockup
```

### Parameters

no

Negate a command or set its defaults

mockup

operate nftables rulesets normally

---

### 1.11.3 show nft-rule tunmap example

#### Command

```
show nft-rule tunmap example
```

#### Parameters

##### show

Show running system information

##### nft-rule

nftables rule specifics

##### tunmap

GTP tunmap use case (a.k.a. forwarding between two GTP tunnels)

##### example

Print a complete nftables ruleset for a tunmap filled with example IP addresses and TEIDs

### 1.11.4 table-name TABLE\_NAME

#### Command

```
table-name TABLE_NAME
```

#### Parameters

##### table-name

Set the nft inet table name to create and place GTP tunnel forwarding chains in (as in 'nft add table inet foo'). If multiple instances of osmo-upf are running on the same system, each osmo-upf must have its own table name. Otherwise the names of created forwarding chains will collide. The default table name is "osmo-upf".

##### TABLE\_NAME

nft inet table name

## 1.12 config-netinst

### 1.12.1 add NAME ADDR

#### Command

```
add NAME ADDR
```

#### Parameters

##### add

add Network Instance: associate a PFCP Network Instance name with a local IP address

##### NAME

Network Instance name as received in PFCP Network Instance IE

##### ADDR

IP address of a local interface

### 1.12.2 clear

#### Command

```
clear
```

#### Parameters

clear

Remove all Network Instance entries

### 1.12.3 show netinst [NAME]

#### Command

```
show netinst [NAME]
```

#### Parameters

show

Show running system information

netinst

List configured Network Instance entries

[NAME]

Show the Network Instance with this name (show all when omitted)

---