OsmoUPF VTY Reference

Copyright © 2021-2022

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

COLLABORATORS			
	TITLE : OsmoUPF VTY Reference		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY		November 15, 2026	

REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME
DRAFT 0.4.0-1-g6183	2024-Jan-24	Automatically Generated VTY Reference	NJH

Contents

1 VTY reference **1**

1.1 Common Commands . . . 1

1.1.1 end . . . 2

1.1.2 exit . . . 2

1.1.3 help . . . 2

1.1.4 list [with-flags] . . . 2

1.1.5 show running-config . . . 3

1.1.6 show vty-attributes . . . 3

1.1.7 show vty-attributes (application|library|global) . . . 3

1.1.8 write . . . 4

1.1.9 write file [PATH] . . . 4

1.1.10 write memory . . . 4

1.1.11 write terminal . . . 5

1.2 view . . . 5

1.2.1 enable [expert-mode] . . . 5

1.2.2 gtp1u-echo send to (A.B.C.D|X:X::X:X) . . . 5

1.2.3 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV_NAME . . . 6

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) . . . 6

1.2.5 logging color (0|1) . . . 7

1.2.6 logging disable . . . 7

1.2.7 logging enable . . . 8

1.2.8 logging filter all (0|1) . . . 8

1.2.9 logging level (ref|peer|session|gtp|nft|l|global|llapd|linp|lmux|lmi|lmib|lsms|lc... . . . 9

1.2.10 logging level force-all (debug|info|notice|error|fatal) . . . 11

1.2.11 logging level set-all (debug|info|notice|error|fatal) . . . 12

1.2.12 logging print category (0|1) . . . 12

1.2.13 logging print category-hex (0|1) . . . 13

1.2.14 logging print extended-timestamp (0|1) . . . 13

1.2.15 logging print file (0|1|basename) [last] . . . 14

1.2.16 logging print level (0|1) . . . 14

1.2.17 logging print thread-id (0|1) . . . 15
1.2.18 logging set-log-mask MASK . . . 15
1.2.19 logging timestamp (0|1) . . . 16
1.2.20 logp (ref|peer|session|gtp|nft|l|global|l|lapd|l|inp|l|mux|l|mi|l|mib|l|sms|l|ctrl|l|gtp|... . . . 16
1.2.21 no logging level force-all . . . 18
1.2.22 show alarms . . . 19
1.2.23 show cpu-sched threads . . . 19
1.2.24 show gtp . . . 19
1.2.25 show history . . . 20
1.2.26 show logging vty . . . 20
1.2.27 show netinst [NAME] . . . 20
1.2.28 show online-help . . . 21
1.2.29 show pdr . . . 21
1.2.30 show pid . . . 21
1.2.31 show runtime . . . 22
1.2.32 show session . . . 22
1.2.33 show talloc-context (application|global|all) (full|brief|DEPTH) . . . 22
1.2.34 show talloc-context (application|global|all) (full|brief|DEPTH) filter REGEXP . . . 23
1.2.35 show talloc-context (application|global|all) (full|brief|DEPTH) tree ADDRESS . . . 24
1.2.36 show timer [(pfcp|nft)] [TNNNN] . . . 24
1.2.37 show uptime . . . 25
1.2.38 show version . . . 25
1.2.39 terminal length <0-512> . . . 25
1.2.40 terminal no length . . . 26
1.2.41 who . . . 26
1.3 enable . . . 26
1.3.1 configure [terminal] . . . 26
1.3.2 copy running-config startup-config . . . 27
1.3.3 disable . . . 27
1.3.4 gtp1u-echo send to (A.B.C.D|X:X::X:X) . . . 27
1.3.5 gtp1u-echo send to (A.B.C.D|X:X::X:X) local-dev DEV_NAME . . . 28
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) . . . 28
1.3.7 logging color (0|1) . . . 29
1.3.8 logging disable . . . 29
1.3.9 logging enable . . . 30
1.3.10 logging filter all (0|1) . . . 30
1.3.11 logging level (ref|peer|session|gtp|nft|l|global|l|lapd|l|inp|l|mux|l|mi|l|mib|l|sms|l|c... . . . 31
1.3.12 logging level force-all (debug|info|notice|error|fatal) . . . 33
1.3.13 logging level set-all (debug|info|notice|error|fatal) . . . 34

1.3.14 logging print category (0|1) . . . 34
1.3.15 logging print category-hex (0|1) . . . 35
1.3.16 logging print extended-timestamp (0|1) . . . 35
1.3.17 logging print file (0|1|basename) [last] . . . 36
1.3.18 logging print level (0|1) . . . 36
1.3.19 logging print thread-id (0|1) . . . 37
1.3.20 logging set-log-mask MASK . . . 37
1.3.21 logging timestamp (0|1) . . . 38
1.3.22 logp (ref|peer|session|gtp|nft|lglobal|lapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|... . . . 38
1.3.23 no logging level force-all . . . 40
1.3.24 show alarms . . . 41
1.3.25 show cpu-sched threads . . . 41
1.3.26 show gtp . . . 41
1.3.27 show history . . . 42
1.3.28 show logging vty . . . 42
1.3.29 show netinst [NAME] . . . 42
1.3.30 show online-help . . . 43
1.3.31 show pdr . . . 43
1.3.32 show runtime . . . 43
1.3.33 show session . . . 44
1.3.34 show startup-config . . . 44
1.3.35 show talloc-context (application|global|all) (full|brief|DEPTH) . . . 44
1.3.36 show talloc-context (application|global|all) (full|brief|DEPTH) filter REGEXP . . . 45
1.3.37 show talloc-context (application|global|all) (full|brief|DEPTH) tree ADDRESS . . . 46
1.3.38 show timer [(pfcp|nft)] [TNNNN] . . . 46
1.3.39 show version . . . 47
1.3.40 shutdown . . . 47
1.3.41 terminal length <0-512> . . . 47
1.3.42 terminal monitor . . . 48
1.3.43 terminal no length . . . 48
1.3.44 terminal no monitor . . . 48
1.3.45 who . . . 49
1.4 config . . . 49
1.4.1 banner motd default . . . 49
1.4.2 banner motd file [FILE] . . . 49
1.4.3 cpu-sched . . . 50
1.4.4 ctrl . . . 50
1.4.5 enable password (8|) WORD . . . 50
1.4.6 enable password LINE . . . 51

1.4.7 hostname WORD . . . 51
1.4.8 line vty . . . 51
1.4.9 log alarms <2-32700> . . . 52
1.4.10 log file FILENAME [(nonblocking-io|blocking-io|wq)] . . . 52
1.4.11 log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)] . . . 53
1.4.12 log stderr [(nonblocking-io|blocking-io|wq)] . . . 53
1.4.13 log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp) . . . 54
1.4.14 log syslog local <0-7> . . . 54
1.4.15 log systemd-journal [raw] . . . 55
1.4.16 netinst . . . 55
1.4.17 no banner motd . . . 55
1.4.18 no enable password . . . 56
1.4.19 no hostname [HOSTNAME] . . . 56
1.4.20 no log alarms . . . 56
1.4.21 no log file FILENAME . . . 57
1.4.22 no log gsmtap [HOSTNAME] . . . 57
1.4.23 no log stderr . . . 57
1.4.24 no log syslog . . . 58
1.4.25 no log systemd-journal . . . 58
1.4.26 no service advanced-vty . . . 58
1.4.27 no service terminal-length [<0-512>] . . . 59
1.4.28 password (8|) WORD . . . 59
1.4.29 password LINE . . . 59
1.4.30 pfcp . . . 60
1.4.31 service advanced-vty . . . 60
1.4.32 service terminal-length <0-512> . . . 60
1.4.33 show history . . . 61
1.4.34 timer [(pfcp|nft)] [TNNNN] [(<0-2147483647>|default)] . . . 61
1.4.35 tunend . . . 61
1.4.36 tunmap . . . 62
1.5 config-log . . . 62
1.5.1 logging color (0|1) . . . 62
1.5.2 logging filter all (0|1) . . . 62
1.5.3 logging level (ref|peer|session|gtp|nft|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lc... . . . 63
1.5.4 logging level force-all (debug|info|notice|error|fatal) . . . 65
1.5.5 logging level set-all (debug|info|notice|error|fatal) . . . 66
1.5.6 logging print category (0|1) . . . 67
1.5.7 logging print category-hex (0|1) . . . 67
1.5.8 logging print extended-timestamp (0|1) . . . 68

1.5.9 logging print file (0|1|basename) [last] . . . 68
1.5.10 logging print level (0|1) . . . 69
1.5.11 logging print thread-id (0|1) . . . 69
1.5.12 logging timestamp (0|1) . . . 70
1.5.13 no logging level force-all . . . 70
1.6 config-line . . . 70
1.6.1 bind A.B.C.D [<0-65535>] . . . 70
1.6.2 login . . . 71
1.6.3 no login . . . 71
1.7 config-ctrl . . . 71
1.7.1 bind A.B.C.D [<0-65535>] . . . 71
1.8 config-cpu-sched . . . 72
1.8.1 cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay] . . . 72
1.8.2 policy rr <1-99> . . . 72
1.9 config-pfcp . . . 73
1.9.1 local-addr IP_ADDR . . . 73
1.10 config-tunend . . . 73
1.10.1 dev create DEVNAME [LISTEN_ADDR] . . . 73
1.10.2 dev delete DEVNAME . . . 74
1.10.3 dev use DEVNAME [LOCAL_ADDR] . . . 74
1.10.4 mockup . . . 74
1.10.5 no mockup . . . 75
1.11 config-tunmap . . . 75
1.11.1 mockup . . . 75
1.11.2 no mockup . . . 75
1.11.3 show nft-rule tunmap example . . . 76
1.11.4 table-name TABLE_NAME . . . 76
1.12 config-netinst . . . 76
1.12.1 add NAME ADDR . . . 76
1.12.2 clear . . . 77
1.12.3 show netinst [NAME] . . . 77

List of Tables

1.1 VTY Parameter Patterns 1
1.2 VTY port numbers 1

Chapter 1

VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

The following table lists the TCP port numbers of the VTY for the various Osmocom GSM related programs as used on 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 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|lc...

Command

```
logging level (ref|peer|session|gtp|nft|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

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 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

1.2.10 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| ↩
    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

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 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

1.2.21 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 [(pfcp|nft)] [TNNNN]

Command

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

Parameters

show
: Show running system information

timer
: Show timers

[pfcp]
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’.

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|lc...

Command

```
logging level (ref|peer|session|gtp|nft|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

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 Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

1.3.14 logging print category (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don’t prefix each log message

1
: Prefix each log message with category/subsystem name

1.3.15 logging print category-hex (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

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

1.3.16 logging print extended-timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

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

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

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

1.3.18 logging print level (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

1.3.19 logging print thread-id (0|1)

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don't prefix each log message

1
: Prefix each log message with current Thread ID

1.3.20 logging set-log-mask MASK

Command

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

Parameters

logging
: Configure logging

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

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

1.3.21 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp

1.3.22 logp (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| ↩
    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

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 Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

1.3.23 no logging 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 [(pfcp|nft)] [TNNNN]

Command

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

Parameters

show
: Show running system information

timer
: Show timers

[pfcp]
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’.

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

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 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 pfcp

Command

```
pfcp
```

Parameters

pfcp
: Enter the PFCP 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 [(pfcp|nft)] [TNNNN] [(<0-2147483647>|default)]

Command

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

Parameters

timer
: Configure or show timers

[pfcp]
: 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|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

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 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-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 <1-99>

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

policy
: Set the scheduling policy to use for the process

rr
: Use the SCHED_RR real-time scheduling algorithm

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

1.9 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)