# OsmoGbProxy VTY Reference

Copyright © 2021

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

**COLLABORATORS**

| | *TITLE* :<br><br>OsmoGbProxy VTY Reference | |
|---|---|---|

| *ACTION* | *NAME* | *DATE* | *SIGNATURE* |
|---|---|---|---|
| WRITTEN BY | | May 2, 2026 | |

**REVISION HISTORY**

| NUMBER | DATE | DESCRIPTION | NAME |
|---|---|---|---|
| DRAFT | unknown | Automatically Generated VTY Reference | dw |

# 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 logging color (0|1) . . . 5

1.2.3 logging disable . . . 6

1.2.4 logging enable . . . 6

1.2.5 logging filter all (0|1) . . . 6

1.2.6 logging filter bvc bvci <0-65535> . . . 7

1.2.7 logging filter nse nsei <0-65535> . . . 7

1.2.8 logging filter nsvc nsvci <0-65535> . . . 8

1.2.9 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|... . . . 8

1.2.10 logging level force-all (debug|info|notice|error|fatal) . . . 10

1.2.11 logging level set-all (debug|info|notice|error|fatal) . . . 11

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

1.2.13 logging print category-hex (0|1) . . . 12

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

1.2.15 logging print file (0|1|basename) [last] . . . 13

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

1.2.17 logging print thread-id (0|1) . . . 14
1.2.18 logging set-log-mask MASK . . . 15
1.2.19 logging timestamp (0|1) . . . 15
1.2.20 logp (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loa... . . . 15
1.2.21 no logging level force-all . . . 18
1.2.22 show alarms . . . 18
1.2.23 show asciidoc counters . . . 18
1.2.24 show cpu-sched threads . . . 19
1.2.25 show fsm NAME . . . 19
1.2.26 show fsm all . . . 19
1.2.27 show fsm-instances NAME . . . 20
1.2.28 show fsm-instances all . . . 20
1.2.29 show fsm-state-graph NAME . . . 20
1.2.30 show gbproxy bvc (bss|sgsn) [stats] . . . 21
1.2.31 show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats] . . . 21
1.2.32 show gbproxy cell [stats] . . . 22
1.2.33 show gbproxy cell nsei <0-65535> [stats] . . . 22
1.2.34 show gbproxy imsi-cache . . . 23
1.2.35 show gbproxy tlli-cache . . . 23
1.2.36 show history . . . 23
1.2.37 show logging vty . . . 24
1.2.38 show nri all . . . 24
1.2.39 show nri nsei <0-65535> . . . 24
1.2.40 show ns (nsei|nsvc) <0-65535> [stats] . . . 25
1.2.41 show ns binds [stats] . . . 25
1.2.42 show ns entities [stats] . . . 26
1.2.43 show ns persistent . . . 26
1.2.44 show online-help . . . 26
1.2.45 show pid . . . 27
1.2.46 show rate-counters [skip-zero] . . . 27
1.2.47 show runtime . . . 27
1.2.48 show stats [skip-zero] . . . 28
1.2.49 show stats level (global|peer|subscriber) [skip-zero] . . . 28
1.2.50 show talloc-context (application|global|all) (full|brief|DEPTH) . . . 29
1.2.51 show talloc-context (application|global|all) (full|brief|DEPTH) filter REGEXP . . . 29
1.2.52 show talloc-context (application|global|all) (full|brief|DEPTH) tree ADDRESS . . . 30
1.2.53 show uptime . . . 31
1.2.54 show version . . . 31
1.2.55 terminal length <0-512> . . . 31

1.2.56 terminal no length . . . 32
1.2.57 who . . . 32
1.3 enable . . . 32
1.3.1 configure [terminal] . . . 32
1.3.2 copy running-config startup-config . . . 33
1.3.3 delete-gbproxy-peer <0-65534> (only-bvc|only-nsvc|all) [dry-run] . . . 33
1.3.4 delete-gbproxy-peer <0-65534> bvci <2-65534> . . . 34
1.3.5 disable . . . 34
1.3.6 logging color (0|1) . . . 34
1.3.7 logging disable . . . 35
1.3.8 logging enable . . . 35
1.3.9 logging filter all (0|1) . . . 35
1.3.10 logging filter bvc bvci <0-65535> . . . 36
1.3.11 logging filter nse nsei <0-65535> . . . 36
1.3.12 logging filter nsvc nsvci <0-65535> . . . 37
1.3.13 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|... . . . 37
1.3.14 logging level force-all (debug|info|notice|error|fatal) . . . 39
1.3.15 logging level set-all (debug|info|notice|error|fatal) . . . 40
1.3.16 logging print category (0|1) . . . 41
1.3.17 logging print category-hex (0|1) . . . 41
1.3.18 logging print extended-timestamp (0|1) . . . 42
1.3.19 logging print file (0|1|basename) [last] . . . 42
1.3.20 logging print level (0|1) . . . 43
1.3.21 logging print thread-id (0|1) . . . 43
1.3.22 logging set-log-mask MASK . . . 44
1.3.23 logging timestamp (0|1) . . . 44
1.3.24 logp (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loa... . . . 44
1.3.25 no logging level force-all . . . 47
1.3.26 nse <0-65535> restart-sns . . . 47
1.3.27 nsvc <0-65535> (block|unblock|reset) . . . 47
1.3.28 show alarms . . . 48
1.3.29 show asciidoc counters . . . 48
1.3.30 show cpu-sched threads . . . 49
1.3.31 show fsm NAME . . . 49
1.3.32 show fsm all . . . 49
1.3.33 show fsm-instances NAME . . . 50
1.3.34 show fsm-instances all . . . 50
1.3.35 show fsm-state-graph NAME . . . 50
1.3.36 show gbproxy bvc (bss|sgsn) [stats] . . . 51

1.3.37 show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats] . . . 51
1.3.38 show gbproxy cell [stats] . . . 52
1.3.39 show gbproxy cell nsei <0-65535> [stats] . . . 52
1.3.40 show gbproxy imsi-cache . . . 53
1.3.41 show gbproxy tlli-cache . . . 53
1.3.42 show history . . . 53
1.3.43 show logging vty . . . 54
1.3.44 show nri all . . . 54
1.3.45 show nri nsei <0-65535> . . . 54
1.3.46 show ns (nsei|nsvc) <0-65535> [stats] . . . 55
1.3.47 show ns binds [stats] . . . 55
1.3.48 show ns entities [stats] . . . 56
1.3.49 show ns persistent . . . 56
1.3.50 show online-help . . . 56
1.3.51 show rate-counters [skip-zero] . . . 57
1.3.52 show runtime . . . 57
1.3.53 show startup-config . . . 57
1.3.54 show stats [skip-zero] . . . 58
1.3.55 show stats level (global|peer|subscriber) [skip-zero] . . . 58
1.3.56 show talloc-context (application|global|all) (full|brief|DEPTH) . . . 59
1.3.57 show talloc-context (application|global|all) (full|brief|DEPTH) filter REGEXP . . . 59
1.3.58 show talloc-context (application|global|all) (full|brief|DEPTH) tree ADDRESS . . . 60
1.3.59 show version . . . 61
1.3.60 shutdown . . . 61
1.3.61 stats report . . . 61
1.3.62 stats reset . . . 61
1.3.63 terminal length <0-512> . . . 62
1.3.64 terminal monitor . . . 62
1.3.65 terminal no length . . . 62
1.3.66 terminal no monitor . . . 63
1.3.67 who . . . 63
1.4 config . . . 63
1.4.1 banner motd default . . . 63
1.4.2 banner motd file [FILE] . . . 64
1.4.3 cpu-sched . . . 64
1.4.4 ctrl . . . 64
1.4.5 enable password (8|) WORD . . . 65
1.4.6 enable password LINE . . . 65
1.4.7 gbproxy . . . 65

1.4.8 hostname WORD . . . 66
1.4.9 line vty . . . 66
1.4.10 log alarms <2-32700> . . . 66
1.4.11 log file FILENAME [(nonblocking-io|blocking-io|wq)] . . . 67
1.4.12 log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)] . . . 67
1.4.13 log stderr [(nonblocking-io|blocking-io|wq)] . . . 68
1.4.14 log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp) . . . 68
1.4.15 log syslog local <0-7> . . . 69
1.4.16 log systemd-journal [raw] . . . 69
1.4.17 no banner motd . . . 70
1.4.18 no enable password . . . 70
1.4.19 no hostname [HOSTNAME] . . . 70
1.4.20 no log alarms . . . 71
1.4.21 no log file FILENAME . . . 71
1.4.22 no log gsmtap [HOSTNAME] . . . 71
1.4.23 no log stderr . . . 72
1.4.24 no log syslog . . . 72
1.4.25 no log systemd-journal . . . 72
1.4.26 no service advanced-vty . . . 73
1.4.27 no service terminal-length [<0-512>] . . . 73
1.4.28 no stats reporter log [NAME] . . . 73
1.4.29 no stats reporter statsd [NAME] . . . 74
1.4.30 ns . . . 74
1.4.31 password (8|) WORD . . . 75
1.4.32 password LINE . . . 75
1.4.33 service advanced-vty . . . 75
1.4.34 service terminal-length <0-512> . . . 76
1.4.35 sgsn nsei <0-65534> . . . 76
1.4.36 show history . . . 76
1.4.37 stats interval <0-65535> . . . 77
1.4.38 stats reporter log [NAME] . . . 77
1.4.39 stats reporter statsd [NAME] . . . 77
1.4.40 stats-tcp batch-size <1-65535> . . . 78
1.4.41 stats-tcp interval <0-65535> . . . 78
1.5 config-log . . . 78
1.5.1 logging color (0|1) . . . 79
1.5.2 logging filter all (0|1) . . . 79
1.5.3 logging filter nse nsei <0-65535> . . . 80
1.5.4 logging filter nsvc nsvci <0-65535> . . . 80

1.5.5 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|... 81
1.5.6 logging level force-all (debug|info|notice|error|fatal) 83
1.5.7 logging level set-all (debug|info|notice|error|fatal) 83
1.5.8 logging print category (0|1) 84
1.5.9 logging print category-hex (0|1) 85
1.5.10 logging print extended-timestamp (0|1) 85
1.5.11 logging print file (0|1|basename) [last] 86
1.5.12 logging print level (0|1) 86
1.5.13 logging print thread-id (0|1) 87
1.5.14 logging timestamp (0|1) 87
1.5.15 no logging level force-all 88
1.6 config-stats 88
1.6.1 disable 88
1.6.2 enable 88
1.6.3 flush-period <0-65535> 89
1.6.4 level (global|peer|subscriber) 89
1.6.5 local-ip ADDR 89
1.6.6 mtu <100-65535> 90
1.6.7 no local-ip 90
1.6.8 no mtu 90
1.6.9 no prefix 91
1.6.10 prefix PREFIX 91
1.6.11 remote-ip ADDR 91
1.6.12 remote-port <1-65535> 92
1.7 config-line 92
1.7.1 bind A.B.C.D [<0-65535>] 92
1.7.2 login 92
1.7.3 no login 93
1.8 config-ns 93
1.8.1 bind (fr|udp) ID 93
1.8.2 ip-sns-default bind ID 93
1.8.3 no bind ID 94
1.8.4 no ip-sns-default bind ID 94
1.8.5 no nse <0-65535> 94
1.8.6 nse <0-65535> [ip-sns-role-sgsn] 95
1.8.7 timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns-aliv... 95
1.8.8 txqueue-max-length <1-4096> 96
1.9 config-ctrl 96
1.9.1 bind A.B.C.D [<0-65535>] 96

1.10 config-cpu-sched . . . 97
1.10.1 cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay] . . . 97
1.10.2 policy rr <1-32> . . . 97
1.11 config-ns-bind . . . 98
1.11.1 accept-dynamic-ip-sns . . . 98
1.11.2 accept-ipaccess . . . 98
1.11.3 dscp <0-63> . . . 98
1.11.4 fr NETIF (fr|frnet) . . . 99
1.11.5 ip-sns signalling-weight <0-254> data-weight <0-254> . . . 99
1.11.6 listen (A.B.C.D|X:X::X:X) <1-65535> . . . 100
1.11.7 no accept-dynamic-ip-sns . . . 100
1.11.8 no accept-ipaccess . . . 100
1.11.9 no dscp . . . 101
1.11.10 no fr NETIF . . . 101
1.11.11 no listen . . . 101
1.11.12 socket-priority <0-255> . . . 102
1.12 config-ns-nse . . . 102
1.12.1 ip-sns-bind BINDID . . . 102
1.12.2 ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535> . . . 102
1.12.3 no ip-sns-bind BINDID . . . 103
1.12.4 no ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535> . . . 103
1.12.5 no nsvc fr NETIF dlci <16-1007> . . . 103
1.12.6 no nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535> . . . 104
1.12.7 no nsvc nsvci <0-65535> . . . 105
1.12.8 no nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535> . . . 105
1.12.9 nsvc fr NETIF dlci <16-1007> nsvci <0-65535> . . . 106
1.12.10 nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535> . . . 106
1.12.11 nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535> . . . 107
1.12.12 nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535> signalling-weight <0-254> data-weight... . . . 107
1.13 config-gbproxy . . . 108
1.13.1 nri bitlen <0-15> . . . 108
1.13.2 nri null add <0-32767> [<0-32767>] . . . 109
1.13.3 nri null del <0-32767> [<0-32767>] . . . 109
1.13.4 pool bvc-flow-control-ratio <1-100> . . . 110
1.14 config-sgsn . . . 110
1.14.1 allow-attach . . . 110
1.14.2 name NAME . . . 110
1.14.3 no allow-attach . . . 111
1.14.4 nri add <0-32767> [<0-32767>] . . . 111
1.14.5 nri del <0-32767> [<0-32767>] . . . 112

# 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 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.2.3 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.2.4 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

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

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.2.6 logging filter bvc bvci <0-65535>

Command

```
logging filter bvc bvci <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

bvc
: Filter based on BSSGP VC

bvci
: Identify BVC by BVCI

<0-65535>
: Numeric identifier

### 1.2.7 logging filter nse nsei <0-65535>

Command

```
logging filter nse nsei <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nse
: Filter based on NS Entity

nsei
: Identify NSE by NSEI

<0-65535>
: Numeric identifier

### 1.2.8 logging filter nsvc nsvci <0-65535>

Command

```
logging filter nsvc nsvci <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

### 1.2.9 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|...

Command

```
logging level (gprs|obj|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

gprs
: GPRS Packet Service

obj
: GbProxy object allocation/release

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 (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loa...

Command

```
logp (gprs|obj|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

gprs
: GPRS Packet Service

obj
: GbProxy object allocation/release

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 asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.2.24 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show
: Show running system information

cpu-sched
: Show Sched section information

threads
: Show information about running threads)

### 1.2.25 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

### 1.2.26 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

### 1.2.27 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.2.28 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.2.29 show fsm-state-graph NAME

Command

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

Parameters

show
: Show running system information

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

NAME
: FSM name

### 1.2.30 show gbproxy bvc (bss|sgsn) [stats]

Command

```
show gbproxy bvc (bss|sgsn) [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

bvc
: Show BSSGP Virtual Connections

bss
: Display BSS-side BVCs

sgsn
: Display SGSN-side BVCs

[stats]
: Show statistics

### 1.2.31 show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats]

Command

```
show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

bvc
: Show BSSGP Virtual Connections

bss
: Display BSS-side BVCs

sgsn
: Display SGSN-side BVCs

nsei
: Limit display to cells from an NSE

<0-65535>
: NSEI to use

[stats]
: Show statistics

### 1.2.32 show gbproxy cell [stats]

Command

```
show gbproxy cell [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

cell
: Show GPRS Cell Information

[stats]
: Show statistics

### 1.2.33 show gbproxy cell nsei <0-65535> [stats]

Command

```
show gbproxy cell nsei <0-65535> [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

cell
: Show GPRS Cell Information

nsei
: Limit display to cells from an NSE

<0-65535>
: NSEI to use

[stats]
: Show statistics

### 1.2.34 show gbproxy imsi-cache

Command

```
show gbproxy imsi-cache
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

imsi-cache
: Show IMSI cache entries

### 1.2.35 show gbproxy tlli-cache

Command

```
show gbproxy tlli-cache
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

tlli-cache
: Show TLLI cache entries

### 1.2.36 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.2.37 show logging vty

Command

```
show logging vty
```

Parameters

show
: Show running system information

logging
: Show current logging configuration

vty
: Show current logging configuration for this vty

### 1.2.38 show nri all

Command

```
show nri all
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

all
: Show all SGSNs

### 1.2.39 show nri nsei <0-65535>

Command

```
show nri nsei <0-65535>
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

nsei
: Identify SGSN by NSEI

<0-65535>
: NSEI of the SGSN

### 1.2.40 show ns (nsei|nsvc) <0-65535> [stats]

Command

```
show ns (nsei|nsvc) <0-65535> [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

nsei
: Select one NSE by its NSE Identifier

nsvc
: Select one NSE by its NS-VC Identifier

<0-65535>
: The Identifier of selected type

[stats]
: Include Statistics

### 1.2.41 show ns binds [stats]

Command

```
show ns binds [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

binds
: Display information about the NS protocol binds

[stats]
: Include statistic

### 1.2.42 show ns entities [stats]

Command

```
show ns entities [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

entities
: Display information about the NS protocol entities (NSEs)

[stats]
: Include statistics

### 1.2.43 show ns persistent

Command

```
show ns persistent
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

persistent
: Show only persistent NS

### 1.2.44 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.2.45 show pid

Command

```
show pid
```

Parameters

show
: Show running system information

pid
: Displays the process ID

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

Command

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

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

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

### 1.2.47 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.2.48 show stats [skip-zero]

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

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

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

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

level
: Set the maximum group level

global
: Show global groups only

peer
: Show global and network peer related groups

subscriber
: Show global, peer, and subscriber groups

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

### 1.2.50 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

### 1.2.51 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

### 1.2.52 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)

### 1.2.53 show uptime

Command

```
show uptime
```

Parameters

show
: Show running system information

uptime
: Displays how long the program has been running

### 1.2.54 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.2.55 terminal length <0-512>

Command

```
terminal length <0-512>
```

Parameters

terminal
: Set terminal line parameters

length
: Set number of lines on a screen

<0-512>
: Number of lines on screen (0 for no pausing)

### 1.2.56 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

### 1.2.57 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 delete-gbproxy-peer <0-65534> (only-bvc|only-nsvc|all) [dry-run]

Command

```
delete-gbproxy-peer <0-65534> (only-bvc|only-nsvc|all) [dry-run]
```

Parameters

delete-gbproxy-peer
: Delete a GBProxy bvc by NSEI and optionally BVCI

<0-65534>
: NSEI number

only-bvc
: Only delete BSSGP connections (BVC)

only-nsvc
: Only delete dynamic NS connections (NS-VC)

all
: Delete BVC and dynamic NS connections

[dry-run]
: Show what would be deleted instead of actually deleting

### 1.3.4 delete-gbproxy-peer <0-65534> bvci <2-65534>

Command

```
delete-gbproxy-peer <0-65534> bvci <2-65534>
```

Parameters

delete-gbproxy-peer
: Delete a GBProxy bvc by NSEI and optionally BVCI

<0-65534>
: NSEI number

bvci
: Only delete bvc with a matching BVCI

<2-65534>
: BVCI number

### 1.3.5 disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

### 1.3.6 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.3.7 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.3.8 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

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

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.3.10 logging filter bvc bvci <0-65535>

Command

```
logging filter bvc bvci <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

bvc
: Filter based on BSSGP VC

bvci
: Identify BVC by BVCI

<0-65535>
: Numeric identifier

### 1.3.11 logging filter nse nsei <0-65535>

Command

```
logging filter nse nsei <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nse
: Filter based on NS Entity

nsei
: Identify NSE by NSEI

<0-65535>
: Numeric identifier

### 1.3.12 logging filter nsvc nsvci <0-65535>

Command

```
logging filter nsvc nsvci <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

### 1.3.13 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|...

Command

```
logging level (gprs|obj|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

gprs
: GPRS Packet Service

obj
: GbProxy object allocation/release

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

### 1.3.14 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

### 1.3.15 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

### 1.3.16 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

### 1.3.17 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>')

### 1.3.18 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

### 1.3.19 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.

### 1.3.20 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

### 1.3.21 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

### 1.3.22 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

### 1.3.23 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

### 1.3.24 logp (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loa...

Command

```
logp (gprs|obj|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

gprs
: GPRS Packet Service

obj
: GbProxy object allocation/release

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

### 1.3.25 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>'

### 1.3.26 nse <0-65535> restart-sns

Command

```
nse <0-65535> restart-sns
```

Parameters

nse
: NSE specific commands

<0-65535>
: NS Entity ID (NSEI)

restart-sns
: Restart SNS procedure

### 1.3.27 nsvc <0-65535> (block|unblock|reset)

Command

```
nsvc <0-65535> (block|unblock|reset)
```

Parameters

nsvc
: NS Virtual Connection

<0-65535>
NS Virtual Connection ID (NS-VCI)

block
Block a NSVC. As cause code O&M intervention will be used.

unblock
Unblock a NSVC. As cause code O&M intervention will be used.

reset
Reset a NSVC. As cause code O&M intervention will be used.

### 1.3.28 show alarms

Command

```
show alarms
```

Parameters

show
Show running system information

alarms
Show current logging configuration

### 1.3.29 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
Show running system information

asciidoc
Asciidoc generation

counters
Generate table of all registered counters

### 1.3.30 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show
: Show running system information

cpu-sched
: Show Sched section information

threads
: Show information about running threads)

### 1.3.31 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

### 1.3.32 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

### 1.3.33 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.34 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.35 show fsm-state-graph NAME

Command

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

Parameters

show
: Show running system information

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

NAME
: FSM name

### 1.3.36 show gbproxy bvc (bss|sgsn) [stats]

Command

```
show gbproxy bvc (bss|sgsn) [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

bvc
: Show BSSGP Virtual Connections

bss
: Display BSS-side BVCs

sgsn
: Display SGSN-side BVCs

[stats]
: Show statistics

### 1.3.37 show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats]

Command

```
show gbproxy bvc (bss|sgsn) nsei <0-65535> [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

bvc
: Show BSSGP Virtual Connections

bss
: Display BSS-side BVCs

sgsn
: Display SGSN-side BVCs

nsei
: Limit display to cells from an NSE

<0-65535>
: NSEI to use

[stats]
: Show statistics

### 1.3.38 show gbproxy cell [stats]

Command

```
show gbproxy cell [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

cell
: Show GPRS Cell Information

[stats]
: Show statistics

### 1.3.39 show gbproxy cell nsei <0-65535> [stats]

Command

```
show gbproxy cell nsei <0-65535> [stats]
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

cell
: Show GPRS Cell Information

nsei
: Limit display to cells from an NSE

<0-65535>
: NSEI to use

[stats]
: Show statistics

### 1.3.40 show gbproxy imsi-cache

Command

```
show gbproxy imsi-cache
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

imsi-cache
: Show IMSI cache entries

### 1.3.41 show gbproxy tlli-cache

Command

```
show gbproxy tlli-cache
```

Parameters

show
: Show running system information

gbproxy
: Display information about the Gb proxy

tlli-cache
: Show TLLI cache entries

### 1.3.42 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.3.43 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

### 1.3.44 show nri all

Command

```
show nri all
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

all
: Show all SGSNs

### 1.3.45 show nri nsei <0-65535>

Command

```
show nri nsei <0-65535>
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

nsei
: Identify SGSN by NSEI

<0-65535>
: NSEI of the SGSN

### 1.3.46 show ns (nsei|nsvc) <0-65535> [stats]

Command

```
show ns (nsei|nsvc) <0-65535> [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

nsei
: Select one NSE by its NSE Identifier

nsvc
: Select one NSE by its NS-VC Identifier

<0-65535>
: The Identifier of selected type

[stats]
: Include Statistics

### 1.3.47 show ns binds [stats]

Command

```
show ns binds [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

binds
: Display information about the NS protocol binds

[stats]
: Include statistic

### 1.3.48 show ns entities [stats]

Command

```
show ns entities [stats]
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

entities
: Display information about the NS protocol entities (NSEs)

[stats]
: Include statistics

### 1.3.49 show ns persistent

Command

```
show ns persistent
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

persistent
: Show only persistent NS

### 1.3.50 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

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

Command

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

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

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

### 1.3.52 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.3.53 show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

### 1.3.54 show stats [skip-zero]

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

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

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

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

level
: Set the maximum group level

global
: Show global groups only

peer
: Show global and network peer related groups

subscriber
: Show global, peer, and subscriber groups

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

### 1.3.56 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

### 1.3.57 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

### 1.3.58 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)

### 1.3.59 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.3.60 shutdown

Command

```
shutdown
```

Parameters

shutdown
: Request a shutdown of the program

### 1.3.61 stats report

Command

```
stats report
```

Parameters

stats
: Stats related commands

report
: Manurally trigger reporting of stats

### 1.3.62 stats reset

Command

```
stats reset
```

Parameters

stats
: Stats related commands

reset
: Reset all rate counter stats

### 1.3.63 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)

### 1.3.64 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

### 1.3.65 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

### 1.3.66 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

### 1.3.67 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 gbproxy

Command

```
gbproxy
```

Parameters

gbproxy
: Configure the Gb proxy

### 1.4.8 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname
: Set system's network name

WORD
: This system's network name

### 1.4.9 line vty

Command

```
line vty
```

Parameters

line
: Configure a terminal line

vty
: Virtual terminal

### 1.4.10 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

### 1.4.11 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)

### 1.4.12 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)

### 1.4.13 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)

### 1.4.14 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

### 1.4.15 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

### 1.4.16 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

### 1.4.17 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 no stats reporter log [NAME]

Command

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

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

[NAME]
: Name of the reporter

### 1.4.29 no stats reporter statsd [NAME]

Command

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

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

[NAME]
: Name of the reporter

### 1.4.30 ns

Command

```
ns
```

Parameters

ns
: Configure the GPRS Network Service

### 1.4.31 password (8|) WORD

Command

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

Parameters

password
: Assign the terminal connection password

8
: Specifies a HIDDEN password will follow

dummy string

WORD
: The HIDDEN line password string

### 1.4.32 password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

### 1.4.33 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service
: Set up miscellaneous service

advanced-vty
: Enable advanced mode vty interface

### 1.4.34 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)

### 1.4.35 sgsn nsei <0-65534>

Command

```
sgsn nsei <0-65534>
```

Parameters

sgsn
: Configure the SGSN

nsei
: NSEI to be used in the connection with the SGSN

<0-65534>
: The NSEI

### 1.4.36 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.4.37 stats interval <0-65535>

Command

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

Parameters

stats
: Configure stats sub-system

interval
: Set the reporting interval

<0-65535>
: Interval in seconds (0 disables the reporting interval)

### 1.4.38 stats reporter log [NAME]

Command

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

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

[NAME]
: Name of the reporter

### 1.4.39 stats reporter statsd [NAME]

Command

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

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

[NAME]
: Name of the reporter

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

Command

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

Parameters

stats-tcp
: Configure stats sub-system

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

<1-65535>
: Number of sockets per interval

### 1.4.41 stats-tcp interval <0-65535>

Command

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

Parameters

stats-tcp
: Configure stats sub-system

interval
: Set the tcp socket stats polling interval

<0-65535>
: Interval in seconds (0 disables the polling interval)

## 1.5 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 filter nse nsei <0-65535>

Command

```
logging filter nse nsei <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nse
: Filter based on NS Entity

nsei
: Identify NSE by NSEI

<0-65535>
: Numeric identifier

### 1.5.4 logging filter nsvc nsvci <0-65535>

Command

```
logging filter nsvc nsvci <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

### 1.5.5 logging level (gprs|obj|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|...

Command

```
logging level (gprs|obj|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

gprs
: GPRS Packet Service

obj
: GbProxy object allocation/release

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

### 1.5.6 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

### 1.5.7 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

### 1.5.8 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

### 1.5.9 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>’)

### 1.5.10 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

### 1.5.11 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.

### 1.5.12 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

### 1.5.13 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

### 1.5.14 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

### 1.5.15 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

## 1.6 config-stats

### 1.6.1 disable

Command

```
disable
```

Parameters

disable
: Disable the reporter

### 1.6.2 enable

Command

```
enable
```

Parameters

enable
: Enable the reporter

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

Command

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

Parameters

flush-period

Configure stats sub-system

<0-65535>

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

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

Command

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

Parameters

level

Set the maximum group level

global

Report global groups only

peer

Report global and network peer related groups

subscriber

Report global, peer, and subscriber groups

### 1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

local-ip

Set the IP address to which we bind locally

ADDR

IP Address

### 1.6.6 mtu <100-65535>

Command

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

Parameters

mtu
: Set the maximum packet size

<100-65535>
: Size in byte

### 1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no
: Negate a command or set its defaults

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

### 1.6.8 no mtu

Command

```
no mtu
```

Parameters

no
: Negate a command or set its defaults

mtu
: Set the maximum packet size

### 1.6.9 no prefix

Command

```
no prefix
```

Parameters

no
: Negate a command or set its defaults

prefix
: Set the item name prefix

### 1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix
: Set the item name prefix

PREFIX
: The prefix string

### 1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

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

ADDR
: IP Address

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

Command

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

Parameters

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

<1-65535>
: Remote port number

## 1.7 config-line

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

Command

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

Parameters

bind
: Accept VTY telnet connections on local interface

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

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

### 1.7.2 login

Command

```
login
```

Parameters

login
: Enable password checking

### 1.7.3 no login

Command

```
no login
```

Parameters

no
: Negate a command or set its defaults

login
: Enable password checking

## 1.8 config-ns

### 1.8.1 bind (fr|udp) ID

Command

```
bind (fr|udp) ID
```

Parameters

bind
: Configure local Bind

fr
: Frame Relay

udp
: UDP/IP

ID
: Unique identifier for this bind (to reference from NS-VCs, NSEs, ...)

### 1.8.2 ip-sns-default bind ID

Command

```
ip-sns-default bind ID
```

Parameters

ip-sns-default
: Defaults for dynamically created NSEs created by IP-SNS in SGSN role

bind
: IP SNS binds

ID
: Name of NS udp bind whose IP endpoint will be used as IP-SNS local endpoint. Can be given multiple times.

### 1.8.3 no bind ID

Command

```
no bind ID
```

Parameters

no
: Negate a command or set its defaults

bind
: Delete a bind

ID
: Unique identifier for this bind

### 1.8.4 no ip-sns-default bind ID

Command

```
no ip-sns-default bind ID
```

Parameters

no
: Negate a command or set its defaults

ip-sns-default
: Defaults for dynamically created NSEs created by IP-SNS in SGSN role

bind
: IP SNS binds

ID
: Name of NS udp bind whose IP endpoint will be removed as IP-SNS local endpoint.

### 1.8.5 no nse <0-65535>

Command

```
no nse <0-65535>
```

Parameters

no
: Negate a command or set its defaults

nse
: Delete a Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

### 1.8.6 nse <0-65535> [ip-sns-role-sgsn]

Command

```
nse <0-65535> [ip-sns-role-sgsn]
```

Parameters

nse
: Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

[ip-sns-role-sgsn]
: Create NSE in SGSN role (default: BSS)

### 1.8.7 timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns-aliv...

Command

```
timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns-alive|tns- ↩
    alive-retries|tsns-prov|tsns-size-retries|tsns-config-retries|tsns-procedures- ↩
    retries) <0-65535>
```

Parameters

timer
: Network Service Timer

tns-block
: (un)blocking Timer (Tns-block) timeout

tns-block-retries
: (un)blocking Timer (Tns-block) number of retries

tns-reset
: Reset Timer (Tns-reset) timeout

tns-reset-retries
: Reset Timer (Tns-reset) number of retries

tns-test
: Test Timer (Tns-test) timeout

tns-alive
: Alive Timer (Tns-alive) timeout

tns-alive-retries
: Alive Timer (Tns-alive) number of retries

tsns-prov
: SNS Provision Timer (Tsns-prov) timeout

tsns-size-retries
: SNS Size number of retries

tsns-config-retries
: SNS Config number of retries

tsns-procedures-retries
: SNS Procedures number of retries

<0-65535>
: Timer Value

### 1.8.8 txqueue-max-length <1-4096>

Command

```
txqueue-max-length <1-4096>
```

Parameters

txqueue-max-length
: Set the maximum length of the txqueue (for UDP)

<1-4096>
: Maximum length of the txqueue

## 1.9 config-ctrl

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

Command

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

Parameters

bind
: Set bind address to listen for Control connections

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

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

## 1.10 config-cpu-sched

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

cpu-affinity

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

self

Set CPU affinity mask on thread running the VTY

all

Set CPU affinity mask on all process' threads

<0-4294967295>

Set CPU affinity mask on a thread with specified PID

THREADNAME

Set CPU affinity mask on a thread with specified thread name

CPUHEXMASK

CPU affinity mask

[delay]

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

### 1.10.2 policy rr <1-32>

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

policy
: Set the scheduling policy to use for the process

rr
: Use the SCHED_RR real-time scheduling algorithm

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

## 1.11 config-ns-bind

### 1.11.1 accept-dynamic-ip-sns

Command

```
accept-dynamic-ip-sns
```

Parameters

accept-dynamic-ip-sns
: Allow to create dynamic NS Entities by IP-SNS PDUs

### 1.11.2 accept-ipaccess

Command

```
accept-ipaccess
```

Parameters

accept-ipaccess
: Allow to create dynamic NS Entity by NS Reset PDU on UDP (ip.access style)

### 1.11.3 dscp <0-63>

Command

```
dscp <0-63>
```

Parameters

dscp
: Set DSCP/TOS on the UDP socket

<0-63>
: DSCP Value

### 1.11.4 fr NETIF (fr|frnet)

Command

```
fr NETIF (fr|frnet)
```

Parameters

fr
: frame relay

NETIF
: Interface name(e.g. ep0)

fr
: fr (user) is used by BSS or SGSN attached to UNI of a FR network

frnet
: frnet (network) is used by SGSN if BSS is directly attached

### 1.11.5 ip-sns signalling-weight <0-254> data-weight <0-254>

Command

```
ip-sns signalling-weight <0-254> data-weight <0-254>
```

Parameters

ip-sns
: IP SNS

signalling-weight
: signalling weight used by IP-SNS dynamic configuration

<0-254>
: signalling weight used by IP-SNS dynamic configuration

data-weight
: data weight used by IP-SNS dynamic configuration

<0-254>
: data weight used by IP-SNS dynamic configuration

### 1.11.6 listen (A.B.C.D|X:X::X:X) <1-65535>

Command

```
listen (A.B.C.D|X:X::X:X) <1-65535>
```

Parameters

listen
: Configure local IP + Port of this bind

A.B.C.D
: Local IPv4 Address

X:X::X:X
: Local IPv6 Address

<1-65535>
: Local UDP Port

### 1.11.7 no accept-dynamic-ip-sns

Command

```
no accept-dynamic-ip-sns
```

Parameters

no
: Negate a command or set its defaults

accept-dynamic-ip-sns
: Disable dynamic creation of NS Entities by IP-SNS PDUs

### 1.11.8 no accept-ipaccess

Command

```
no accept-ipaccess
```

Parameters

no
: Negate a command or set its defaults

accept-ipaccess
: Reject NS Reset PDU on UDP (ip.access style)

### 1.11.9 no dscp

Command

```
no dscp
```

Parameters

no
: Set DSCP/TOS on the UDP socket

dscp
: DSCP Value

### 1.11.10 no fr NETIF

Command

```
no fr NETIF
```

Parameters

no
: Negate a command or set its defaults

fr
: Delete a frame relay link

NETIF
: Delete a frame relay link

### 1.11.11 no listen

Command

```
no listen
```

Parameters

no
: Negate a command or set its defaults

listen
: Delete a IP/Port assignment

### 1.11.12 socket-priority <0-255>

Command

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

Parameters

socket-priority
: Set socket priority on the UDP socket

<0-255>
: Priority Value (>6 requires CAP_NET_ADMIN)

## 1.12 config-ns-nse

### 1.12.1 ip-sns-bind BINDID

Command

```
ip-sns-bind BINDID
```

Parameters

ip-sns-bind
: IP SNS binds

BINDID
: Name of NS udp bind whose IP endpoint will be used as IP-SNS local endpoint. Can be given multiple times.

### 1.12.2 ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535>

Command

```
ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535>
```

Parameters

ip-sns-remote
: SNS Initial Endpoint

A.B.C.D
: SGSN IPv4 Address

X:X::X:X
: SGSN IPv6 Address

<1-65535>
: SGSN UDP Port

### 1.12.3 no ip-sns-bind BINDID

Command

```
no ip-sns-bind BINDID
```

Parameters

no
: Negate a command or set its defaults

ip-sns-bind
: IP SNS binds

BINDID
: Name of NS udp bind whose IP endpoint will not be used as IP-SNS local endpoint

### 1.12.4 no ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535>

Command

```
no ip-sns-remote (A.B.C.D|X:X::X:X) <1-65535>
```

Parameters

no
: Negate a command or set its defaults

ip-sns-remote
: Delete a SNS Initial Endpoint

A.B.C.D
: SGSN IPv4 Address

X:X::X:X
: SGSN IPv6 Address

<1-65535>
: SGSN UDP Port

### 1.12.5 no nsvc fr NETIF dlci <16-1007>

Command

```
no nsvc fr NETIF dlci <16-1007>
```

Parameters

no
: Negate a command or set its defaults

nsvc
: Delete frame relay NS-VC

fr
: frame relay

NETIF
: frame relay interface. Must be registered via fr vty

dlci
: Data Link connection identifier

<16-1007>
: Data Link connection identifier

### 1.12.6 no nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535>

Command

```
no nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535>
```

Parameters

no
: Negate a command or set its defaults

nsvc
: Delete a NS Virtual Connection

ipa
: NS over UDP

BIND
: A unique bind identifier created by ns bind

A.B.C.D
: Remote IPv4 Address

X:X::X:X
: Remote IPv6 Address

<1-65535>
: Remote UDP Port

nsvci
: NS Virtual Connection ID (NS-VCI)

<0-65535>
: NS Virtual Connection ID (NS-VCI)

### 1.12.7 no nsvc nsvci <0-65535>

Command

```
no nsvc nsvci <0-65535>
```

Parameters

no
: Negate a command or set its defaults

nsvc
: Delete NSVC

nsvci
: NS Virtual Connection ID (NS-VCI)

<0-65535>
: NS Virtual Connection ID (NS-VCI)

### 1.12.8 no nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535>

Command

```
no nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535>
```

Parameters

no
: Negate a command or set its defaults

nsvc
: Delete a NS Virtual Connection

udp
: NS over UDP

BIND
: A unique bind identifier created by ns bind

A.B.C.D
: Remote IPv4 Address

X:X::X:X
: Remote IPv6 Address

<1-65535>
: Remote UDP Port

### 1.12.9 nsvc fr NETIF dlci <16-1007> nsvci <0-65535>

Command

```
nsvc fr NETIF dlci <16-1007> nsvci <0-65535>
```

Parameters

nsvc
: NS Virtual Connection

fr
: frame relay

NETIF
: frame relay interface. Must be registered via fr vty

dlci
: NS Virtual Connection ID (NS-VCI)

<16-1007>
: NS Virtual Connection ID (NS-VCI)

nsvci
: Data Link connection identifier

<0-65535>
: Data Link connection identifier

### 1.12.10 nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535>

Command

```
nsvc ipa BIND (A.B.C.D|X:X::X:X) <1-65535> nsvci <0-65535>
```

Parameters

nsvc
: NS Virtual Connection

ipa
: NS over UDP ip.access style (uses RESET/BLOCK)

BIND
: A unique bind identifier created by ns bind

A.B.C.D
: Remote IPv4 Address

X:X::X:X
: Remote IPv6 Address

<1-65535>
Remote UDP Port

nsvci
NS Virtual Connection ID (NS-VCI)

<0-65535>
NS Virtual Connection ID (NS-VCI)

### 1.12.11 nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535>

Command

```
nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535>
```

Parameters

nsvc
NS Virtual Connection

udp
NS over UDP

BIND
A unique bind identifier created by ns bind

A.B.C.D
Remote IPv4 Address

X:X::X:X
Remote IPv6 Address

<1-65535>
Remote UDP Port

### 1.12.12 nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535> signalling-weight <0-254> data-weight...

Command

```
nsvc udp BIND (A.B.C.D|X:X::X:X) <1-65535> signalling-weight <0-254> data-weight ↩
    <0-254>
```

Parameters

nsvc
NS Virtual Connection

udp
NS over UDP

BIND
: A unique bind identifier created by ns bind

A.B.C.D
: Remote IPv4 Address

X:X::X:X
: Remote IPv6 Address

<1-65535>
: Remote UDP Port

signalling-weight
: Signalling weight of the NSVC (default = 1)

<0-254>
: Signalling weight of the NSVC (default = 1)

data-weight
: Data weight of the NSVC (default = 1)

<0-254>
: Data weight of the NSVC (default = 1)

## 1.13 config-gbproxy

Configure the Gb proxy

### 1.13.1 nri bitlen <0-15>

Command

```
nri bitlen <0-15>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

nri
: Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

bitlen
: Set number of bits that an NRI has, to extract from TMSI identities (always starting just after the TMSI's most significant octet).

<0-15>
: bit count (0 disables) pooling)

### 1.13.2 nri null add <0-32767> [<0-32767>]

Command

```
nri null add <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

null

Define NULL-NRI values that cause re-assignment of an MS to a different SGSN, for SGSN pooling.

add

Add NULL-NRI value (or range)

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.13.3 nri null del <0-32767> [<0-32767>]

Command

```
nri null del <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

null

Define NULL-NRI values that cause re-assignment of an MS to a different SGSN, for SGSN pooling.

del

Remove NULL-NRI value (or range)

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.13.4 pool bvc-flow-control-ratio <1-100>

Command

```
pool bvc-flow-control-ratio <1-100>
```

Parameters

pool
: SGSN Pool related configuration

bvc-flow-control-ratio
: Ratio of BSS-advertised bucket size + leak rate advertised to each SGSN

<1-100>
: Ratio of BSS-advertised bucket size + leak rate advertised to each SGSN (Percent)

## 1.14 config-sgsn

### 1.14.1 allow-attach

Command

```
allow-attach
```

Global attributes

Flag: !
: This command applies immediately

Parameters

allow-attach
: Allow this SGSN to attach new subscribers (default).

### 1.14.2 name NAME

Command

```
name NAME
```

Parameters

name
: Configure the SGSN

NAME
: Name the SGSN

### 1.14.3 no allow-attach

Command

```
no allow-attach
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

allow-attach

Do not assign new subscribers to this SGSN. Useful if an SGSN in an SGSN pool is configured to off-load subscribers. The SGSN will still be operational for already IMSI-Attached subscribers, but the NAS node selection function will skip this SGSN for new subscribers

### 1.14.4 nri add <0-32767> [<0-32767>]

Command

```
nri add <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

add

Add NRI value or range to the NRI mapping for this SGSN

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.14.5 nri del <0-32767> [<0-32767>]

Command

```
nri del <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators to this SGSN, for SGSN pooling

del

Remove NRI value or range from the NRI mapping for this SGSN

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.