# OsmoHLR VTY Reference

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**COLLABORATORS**

| | *TITLE* :<br><br>OsmoHLR VTY Reference | |
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# Chapter 1

# VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

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

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

Table 1.2: VTY port numbers

## 1.1 Common Commands

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

### 1.1.1 end

Command

```
end
```

Parameters

end
: End current mode and change to enable mode.

### 1.1.2 exit

Command

```
exit
```

Parameters

exit
: Exit current mode and down to previous mode

### 1.1.3 help

Command

```
help
```

Parameters

help
: Description of the interactive help system

### 1.1.4 list [with-flags]

Command

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

Parameters

list
: Print command list

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

### 1.1.5 show running-config

Command

```
show running-config
```

Parameters

show
: Show running system information

running-config
: running configuration

### 1.1.6 show vty-attributes

Command

```
show vty-attributes
```

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

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

Command

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

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

application
: Application specific attributes only

library
: Library specific attributes only

global
: Global attributes only

### 1.1.8 write

Command

```
write
```

Parameters

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

### 1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

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

file
: Write to configuration file

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

### 1.1.10 write memory

Command

```
write memory
```

Parameters

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

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

### 1.1.11 write terminal

Command

```
write terminal
```

Parameters

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

terminal
: Write to terminal

## 1.2 view

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

### 1.2.1 enable [expert-mode]

Command

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

Parameters

enable
: Turn on privileged mode command

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

### 1.2.2 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.2.3 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.2.4 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

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

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.2.6 logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|lglobal|llapd|linp|lmux|lmi|...

Command

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|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

main
: Main Program

db
: Database Layer

auc
: Authentication Center

ss
: Supplementary Services

mslookup
: Mobile Subscriber Lookup

lu
: Location Updating

dgsm
: Distributed GSM: MS lookup and proxy

ctrl
: Osmocom CTRL interface

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

force-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

level

Set the log level for a specified category

set-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don't prefix each log message

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

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

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

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don't prefix each log message

1
: Prefix each log message with current Thread ID

### 1.2.15 logging set-log-mask MASK

Command

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

Parameters

logging
: Configure logging

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

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

### 1.2.16 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp

### 1.2.17 logp (main|db|auc|ss|mslookup|lu|dgsm|ctrl|lglobal|llapd|linp|lmux|lmi|lmib|lsms...

Command

```
logp (main|db|auc|ss|mslookup|lu|dgsm|ctrl|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

main
: Main Program

db
: Database Layer

auc
: Authentication Center

ss
: Supplementary Services

mslookup
: Mobile Subscriber Lookup

lu
: Location Updating

dgsm
: Distributed GSM: MS lookup and proxy

ctrl
: Osmocom CTRL interface

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

### 1.2.18 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

### 1.2.19 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.2.20 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.2.21 show 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)

### 1.2.22 show gsup-connections

Command

```
show gsup-connections
```

Parameters

show
: Show running system information

gsup-connections
: GSUP Connections from VLRs, SGSNs, EUSEs

### 1.2.23 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.2.24 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

### 1.2.25 show mslookup services

Command

```
show mslookup services
```

Parameters

show
: Show running system information

mslookup
: Distributed GSM / mslookup related information

services
: List configured service addresses as sent to remote mslookup requests

### 1.2.26 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.2.27 show pid

Command

```
show pid
```

Parameters

show
: Show running system information

pid
: Displays the process ID

### 1.2.28 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

### 1.2.29 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.2.30 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

### 1.2.31 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

### 1.2.32 show subscriber (imsi|msisdn|id|imei) IDENT

Command

```
show subscriber (imsi|msisdn|id|imei) IDENT
```

Parameters

show
: Show running system information

subscriber
: Show subscriber information

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

### 1.2.33 show subscribers (cs|ps) (on|off)

Command

```
show subscribers (cs|ps) (on|off)
```

Parameters

show
: Show running system information

subscribers
: Show subscriber information

cs
: Filter Subscribers by CS Network Access Mode

ps
: Filter Subscribers by PS Network Access Mode

on
: Authorised

off
: Not Authorised

### 1.2.34 show subscribers (imei|imsi|msisdn) FILTER

Command

```
show subscribers (imei|imsi|msisdn) FILTER
```

Parameters

show
: Show running system information

subscribers
: Show all subscribers (with filter possibility)

imei
: Filter Subscribers by IMEI

imsi
: Filter Subscribers by IMSI

msisdn
: Filter Subscribers by MSISDN

FILTER
: String to match in imei, imsi or msisdn

### 1.2.35 show subscribers all

Command

```
show subscribers all
```

Parameters

show
: Show running system information

subscribers
: Show all subscribers (with filter possibility)

all
: Show summary of all subscribers

### 1.2.36 show subscribers last-seen

Command

```
show subscribers last-seen
```

Parameters

show
: Show running system information

subscribers
: Show subscriber information

last-seen
: Show Subscribers Ordered by Last Seen Time

### 1.2.37 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

### 1.2.38 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

### 1.2.39 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)

### 1.2.40 show uptime

Command

```
show uptime
```

Parameters

show
: Show running system information

uptime
: Displays how long the program has been running

### 1.2.41 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.2.42 subscriber (imsi|msisdn|id|imei) IDENT show

Command

```
subscriber (imsi|msisdn|id|imei) IDENT show
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

show
: Show subscriber information

### 1.2.43 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)

### 1.2.44 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

### 1.2.45 who

Command

```
who
```

Parameters

who
: Display who is on vty

## 1.3 enable

The enable node is a privileged node, allowing to make changes to the configuration and to access further commands like 'configure'. All commands seen on the view node are also available here.

### 1.3.1 configure [terminal]

Command

```
configure [terminal]
```

Parameters

configure
: Configuration from vty interface

[terminal]
: Configuration terminal

### 1.3.2 copy running-config startup-config

Command

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

Parameters

copy
: Copy configuration

running-config
: Copy running config to...

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

### 1.3.3 disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

### 1.3.4 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

### 1.3.5 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.3.6 logging enable

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

Command

```
logging enable
```

Parameters

logging
: Configure logging

enable
: Enables logging to this vty

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

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.3.8 logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|lglobal|llapd|linp|lmux|lmi|...

Command

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|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

main
: Main Program

db
: Database Layer

auc
: Authentication Center

ss
: Supplementary Services

mslookup
: Mobile Subscriber Lookup

lu
: Location Updating

dgsm
: Distributed GSM: MS lookup and proxy

ctrl
: Osmocom CTRL interface

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

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

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

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don’t prefix each log message

1
: Prefix each log message with current Thread ID

### 1.3.17 logging set-log-mask MASK

Command

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

Parameters

logging
: Configure logging

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

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

### 1.3.18 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp

### 1.3.19 logp (main|db|auc|ss|mslookup|lu|dgsm|ctrl|lglobal|llapd|linp|lmux|lmi|lmib|lsms...

Command

```
logp (main|db|auc|ss|mslookup|lu|dgsm|ctrl|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

main
: Main Program

db
: Database Layer

auc
: Authentication Center

ss
: Supplementary Services

mslookup
: Mobile Subscriber Lookup

lu
: Location Updating

dgsm
: Distributed GSM: MS lookup and proxy

ctrl
: Osmocom CTRL interface

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

### 1.3.20 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

### 1.3.21 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.3.22 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.3.23 show 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)

### 1.3.24 show gsup-connections

Command

```
show gsup-connections
```

Parameters

show
: Show running system information

gsup-connections
: GSUP Connections from VLRs, SGSNs, EUSEs

### 1.3.25 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.3.26 show logging vty

Command

```
show logging vty
```

Parameters

show
: Show running system information

logging
: Show current logging configuration

vty
: Show current logging configuration for this vty

### 1.3.27 show mslookup services

Command

```
show mslookup services
```

Parameters

show
: Show running system information

mslookup
: Distributed GSM / mslookup related information

services
: List configured service addresses as sent to remote mslookup requests

### 1.3.28 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.3.29 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

### 1.3.30 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.3.31 show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

### 1.3.32 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

### 1.3.33 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

### 1.3.34 show subscriber (imsi|msisdn|id|imei) IDENT

Command

```
show subscriber (imsi|msisdn|id|imei) IDENT
```

Parameters

show
: Show running system information

subscriber
: Show subscriber information

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

### 1.3.35 show subscribers (cs|ps) (on|off)

Command

```
show subscribers (cs|ps) (on|off)
```

Parameters

show
: Show running system information

subscribers
: Show subscriber information

cs
: Filter Subscribers by CS Network Access Mode

ps
: Filter Subscribers by PS Network Access Mode

on
: Authorised

off
: Not Authorised

### 1.3.36 show subscribers (imei|imsi|msisdn) FILTER

Command

```
show subscribers (imei|imsi|msisdn) FILTER
```

Parameters

show
: Show running system information

subscribers
: Show all subscribers (with filter possibility)

imei
: Filter Subscribers by IMEI

imsi
: Filter Subscribers by IMSI

msisdn
: Filter Subscribers by MSISDN

FILTER
: String to match in imei, imsi or msisdn

### 1.3.37 show subscribers all

Command

```
show subscribers all
```

Parameters

show
: Show running system information

subscribers
: Show all subscribers (with filter possibility)

all
: Show summary of all subscribers

### 1.3.38 show subscribers last-seen

Command

```
show subscribers last-seen
```

Parameters

show
: Show running system information

subscribers
: Show subscriber information

last-seen
: Show Subscribers Ordered by Last Seen Time

### 1.3.39 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

### 1.3.40 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

### 1.3.41 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)

### 1.3.42 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.3.43 shutdown

Command

```
shutdown
```

Parameters

shutdown
: Request a shutdown of the program

### 1.3.44 stats report

Command

```
stats report
```

Parameters

stats
: Stats related commands

report
: Manurally trigger reporting of stats

### 1.3.45 stats reset

Command

```
stats reset
```

Parameters

stats
: Stats related commands

reset
: Reset all rate counter stats

### 1.3.46 subscriber (imsi|msisdn|id|imei) IDENT delete

Command

```
subscriber (imsi|msisdn|id|imei) IDENT delete
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

delete
: Delete subscriber from database

### 1.3.47 subscriber (imsi|msisdn|id|imei) IDENT show

Command

```
subscriber (imsi|msisdn|id|imei) IDENT show
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

show
: Show subscriber information

### 1.3.48 subscriber (imsi|msisdn|id|imei) IDENT update aud2g (comp128v1|comp128v2|comp128...

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud2g (comp128v1|comp128v2|comp128v3|xor ↩
    -2g) ki KI
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

aud2g
: Set 2G authentication data

comp128v1
: Use COMP128v1 algorithm

comp128v2
: Use COMP128v2 algorithm

comp128v3
: Use COMP128v3 algorithm

xor-2g
: Use XOR-2G algorithm

ki
: Set Ki Encryption Key

KI
: Ki as 32 hexadecimal characters

### 1.3.49 subscriber (imsi|msisdn|id|imei) IDENT update aud2g none

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud2g none
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

aud2g
: Set 2G authentication data

none
: Delete 2G authentication data

### 1.3.50 subscriber (imsi|msisdn|id|imei) IDENT update aud3g (milenage|tuak) k K (op|opc)...

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud3g (milenage|tuak) k K (op|opc) OP_C [ ↩
    ind-bitlen] [<0-28>]
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

aud3g
: Set UMTS authentication data (3G, and 2G with UMTS AKA)

milenage
: Use Milenage algorithm

tuak
: Use TUAK algorithm

k
: Set Encryption Key K

K
: K as 32/64 hexadecimal characters

op
: Set OP key

opc
: Set OPC key

OP_C
: OP or OPC as 32/64 hexadecimal characters

[ind-bitlen]
: Set IND bit length

[<0-28>]
: IND bit length value (default: 5)

### 1.3.51 subscriber (imsi|msisdn|id|imei) IDENT update aud3g none

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud3g none
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

aud3g
: Set UMTS authentication data (3G, and 2G with UMTS AKA)

none
: Delete 3G authentication data

### 1.3.52 subscriber (imsi|msisdn|id|imei) IDENT update aud3g xor-3g k K [ind-bitlen] [<0-...

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud3g xor-3g k K [ind-bitlen] [<0-28>]
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

aud3g
: Set UMTS authentication data (3G, and 2G with UMTS AKA)

xor-3g
: Use XOR-3G algorithm

k
: Set Encryption Key K

K
: K as 32 hexadecimal characters

[ind-bitlen]
: Set IND bit length

[<0-28>]
: IND bit length value (default: 5)

### 1.3.53 subscriber (imsi|msisdn|id|imei) IDENT update imei (none|IMEI)

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update imei (none|IMEI)
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

imei
: Set IMEI of the subscriber (normally populated from MSC, no need to set this manually)

none
: Forget IMEI

IMEI
: Set IMEI (use for debug only!)

### 1.3.54 subscriber (imsi|msisdn|id|imei) IDENT update msisdn (none|MSISDN)

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update msisdn (none|MSISDN)
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

msisdn
: Set MSISDN (phone number) of the subscriber

none
: Remove MSISDN (phone number)

MSISDN
: New MSISDN (phone number)

### 1.3.55 subscriber (imsi|msisdn|id|imei) IDENT update network-access-mode (none|cs|ps|cs...

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update network-access-mode (none|cs|ps|cs+ps)
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

msisdn
: Identify subscriber by MSISDN (phone number)

id
: Identify subscriber by database ID

imei
: Identify subscriber by IMEI

IDENT
: IMSI/MSISDN/ID/IMEI of the subscriber

update
: Set or update subscriber data

network-access-mode
: Set Network Access Mode (NAM) of the subscriber

none
: Do not allow access to circuit switched or packet switched services

cs
: Allow access to circuit switched services only

ps
: Allow access to packet switched services only

cs+ps
: Allow access to both circuit and packet switched services

### 1.3.56 subscriber imsi IDENT create

Command

```
subscriber imsi IDENT create
```

Parameters

subscriber
: Subscriber management commands

imsi
: Identify subscriber by IMSI

IDENT
: IMSI/MSISDN/ID of the subscriber

create
: Create subscriber by IMSI

### 1.3.57 terminal length <0-512>

Command

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

Parameters

terminal
: Set terminal line parameters

length
: Set number of lines on a screen

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

### 1.3.58 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

### 1.3.59 terminal no length

Command

```
terminal no length
```

Parameters

terminal
: Set terminal line parameters

no
: Negate a command or set its defaults

length
: Set number of lines on a screen

### 1.3.60 terminal no monitor

Command

```
terminal no monitor
```

Parameters

terminal
: Set terminal line parameters

no
: Negate a command or set its defaults

monitor
: Copy debug output to the current terminal line

### 1.3.61 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 hlr

Command

```
hlr
```

Parameters

hlr
: Configure the HLR

### 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 mslookup

Command

```
mslookup
```

Parameters

mslookup
: Configure Distributed GSM mslookup

### 1.4.18 no banner motd

Command

```
no banner motd
```

Parameters

no
: Negate a command or set its defaults

banner
: Set banner string

motd
: Strings for motd

### 1.4.19 no enable password

Command

```
no enable password
```

Parameters

no
: Negate a command or set its defaults

enable
: Modify enable password parameters

password
: Assign the privileged level password

### 1.4.20 no hostname [HOSTNAME]

Command

```
no hostname [HOSTNAME]
```

Parameters

no
: Negate a command or set its defaults

hostname
: Reset system's network name

[HOSTNAME]
: Host name of this router

### 1.4.21 no log alarms

Command

```
no log alarms
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

alarms
: Logging alarms to osmo_strrb

### 1.4.22 no log file FILENAME

Command

```
no log file FILENAME
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

file
: Logging to text file

FILENAME
: Filename

### 1.4.23 no log gsmtap [HOSTNAME]

Command

```
no log gsmtap [HOSTNAME]
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

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

### 1.4.24 no log stderr

Command

```
no log stderr
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

stderr
: Logging via STDERR of the process

### 1.4.25 no log syslog

Command

```
no log syslog
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

syslog
: Logging via syslog

### 1.4.26 no log systemd-journal

Command

```
no log systemd-journal
```

Parameters

no
: Negate a command or set its defaults

log
: Configure logging sub-system

systemd-journal
: Logging to systemd-journal

### 1.4.27 no service advanced-vty

Command

```
no service advanced-vty
```

Parameters

no
: Negate a command or set its defaults

service
: Set up miscellaneous service

advanced-vty
: Enable advanced mode vty interface

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

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)

### 1.4.29 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

### 1.4.30 no stats reporter statsd [NAME]

Command

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

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

[NAME]
: Name of the reporter

### 1.4.31 password (8|) WORD

Command

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

Parameters

password
: Assign the terminal connection password

8
: Specifies a HIDDEN password will follow

dummy string

WORD
: The HIDDEN line password string

### 1.4.32 password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

### 1.4.33 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 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.4.36 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)

### 1.4.37 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

### 1.4.38 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

### 1.4.39 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

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

Command

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

Parameters

stats-tcp
: Configure stats sub-system

interval
: Set the tcp socket stats polling interval

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

## 1.5 config-log

The log node is commonly available in all Osmocom programs and allows configuring logging to stderr and/or log files, including logging category and level filtering as well as output formatting options. Note that the 'logging enable' command is required to make logging commands available on the telnet VTY.

### 1.5.1 logging color (0|1)

Command

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

Parameters

logging
: Configure logging

color
: Configure color-printing for log messages

0
: Don't use color for printing messages

1
: Use color for printing messages

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

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

Command

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

Parameters

logging
: Configure logging

filter
: Filter log messages

all
: Do you want to log all messages?

0
: Only print messages matched by other filters

1
: Bypass filter and print all messages

### 1.5.3 logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|lglobal|llapd|linp|lmux|lmi|...

Command

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|ctrl|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

main
: Main Program

db
: Database Layer

auc
: Authentication Center

ss
: Supplementary Services

mslookup
: Mobile Subscriber Lookup

lu
: Location Updating

dgsm
: Distributed GSM: MS lookup and proxy

ctrl
: Osmocom CTRL interface

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

category-hex
: Configure log message

0
: Don’t prefix each log message

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

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

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

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

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don’t prefix each log message

1
: Prefix each log message with current Thread ID

### 1.5.12 logging timestamp (0|1)

Command

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

Parameters

logging
: Configure logging

timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp

### 1.5.13 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

## 1.6 config-stats

### 1.6.1 disable

Command

```
disable
```

Parameters

disable
Disable the reporter

### 1.6.2 enable

Command

```
enable
```

Parameters

enable
Enable the reporter

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

Command

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

Parameters

flush-period
Configure stats sub-system

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

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

Command

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

Parameters

level
: Set the maximum group level

global
: Report global groups only

peer
: Report global and network peer related groups

subscriber
: Report global, peer, and subscriber groups

### 1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

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

ADDR
: IP Address

### 1.6.6 mtu <100-65535>

Command

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

Parameters

mtu
: Set the maximum packet size

<100-65535>
: Size in byte

### 1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no
: Negate a command or set its defaults

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

### 1.6.8 no mtu

Command

```
no mtu
```

Parameters

no
: Negate a command or set its defaults

mtu
: Set the maximum packet size

### 1.6.9 no prefix

Command

```
no prefix
```

Parameters

no
: Negate a command or set its defaults

prefix
: Set the item name prefix

### 1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix
: Set the item name prefix

PREFIX
: The prefix string

### 1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

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

ADDR
: IP Address

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

Command

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

Parameters

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

<1-65535>
: Remote port number

## 1.7 config-line

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

Command

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

Parameters

bind
: Accept VTY telnet connections on local interface

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

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

### 1.7.2 login

Command

```
login
```

Parameters

login
: Enable password checking

### 1.7.3 no login

Command

```
no login
```

Parameters

no
: Negate a command or set its defaults

login
: Enable password checking

## 1.8 config-ctrl

### 1.8.1 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

## 1.9 config-cpu-sched

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

Command

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

Global attributes

Flag: !
: This command applies immediately

Parameters

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

self
: Set CPU affinity mask on thread running the VTY

all
: Set CPU affinity mask on all process' threads

<0-4294967295>
: Set CPU affinity mask on a thread with specified PID

THREADNAME
: Set CPU affinity mask on a thread with specified thread name

CPUHEXMASK
: CPU affinity mask

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

### 1.9.2 policy rr <1-32>

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

policy

Set the scheduling policy to use for the process

rr

Use the SCHED_RR real-time scheduling algorithm

<1-32>

Set the SCHED_RR real-time priority

## 1.10 config-hlr

### 1.10.1 database PATH

Command

```
database PATH
```

Parameters

database

Set the path to the HLR database file

PATH

Relative or absolute file system path to the database file (default is 'hlr.db')

### 1.10.2 euse NAME

Command

```
euse NAME
```

Parameters

euse

Configure a particular External USSD Entity

NAME

Alphanumeric name of the External USSD Entity

### 1.10.3 gsup

Command

```
gsup
```

Parameters

gsup
: Configure GSUP options

### 1.10.4 ncss-guard-timeout <0-255>

Command

```
ncss-guard-timeout <0-255>
```

Parameters

ncss-guard-timeout
: Set guard timer for NCSS (call independent SS) session activity

<0-255>
: Guard timer value (sec.), or 0 to disable

### 1.10.5 no euse NAME

Command

```
no euse NAME
```

Parameters

no
: Negate a command or set its defaults

euse
: Remove a particular External USSD Entity

NAME
: Alphanumeric name of the External USSD Entity

### 1.10.6 no smsc default-route

Command

```
no smsc default-route
```

Parameters

no
: Negate a command or set its defaults

smsc
: Configuration of GSUP routing to SMSCs

default-route
: Remove default SMSC route for unknown SMSC numeric addresses

### 1.10.7 no smsc entity NAME

Command

```
no smsc entity NAME
```

Parameters

no
: Negate a command or set its defaults

smsc
: Configuration of GSUP routing to SMSCs

entity
: Remove a particular external SMSC

NAME
: IPA name of the external SMSC

### 1.10.8 no smsc route NUMBER

Command

```
no smsc route NUMBER
```

Parameters

no
: Negate a command or set its defaults

smsc
: Configuration of GSUP routing to SMSCs

route
: Remove GSUP route to a particular SMSC

NUMBER
: Numeric address of the SMSC

### 1.10.9 no store-imei

Command

```
no store-imei
```

Parameters

no
: Do not save the IMEI in the database, when receiving Check IMEI requests.

store-imei
: (null)

### 1.10.10 no subscriber-create-on-demand

Command

```
no subscriber-create-on-demand
```

Parameters

no
: Do not make a new record when a subscriber is first seen.

subscriber-create-on-demand
: (null)

### 1.10.11 no ussd default-route

Command

```
no ussd default-route
```

Parameters

no
: Negate a command or set its defaults

ussd
: USSD Configuration

default-route
: Remove the default-route for all USSD to unknown destinations

### 1.10.12 no ussd route prefix PREFIX

Command

```
no ussd route prefix PREFIX
```

Parameters

no
: Negate a command or set its defaults

ussd
: USSD Configuration

route
: Routing Configuration

prefix
: Prefix-Matching Route

PREFIX
: USSD Prefix

### 1.10.13 ps

Command

```
ps
```

Parameters

ps
: Configure the PS options

### 1.10.14 reject-cause (not-found|no-proxy) (imsi-unknown|illegal-ms|plmn-not-allowed|la-n...

Command

```
reject-cause (not-found|no-proxy) (imsi-unknown|illegal-ms|plmn-not-allowed|la-not- ↩
    allowed|roaming-not-allowed|no-suitable-cell-in-la|net-fail|congestion|auth- ↩
    unacceptable|proto-error-unspec)
```

Parameters

reject-cause
: GSUP/GMM cause to be sent

not-found
: in the case the IMSI could not be found in the database

no-proxy
: in the case no remote HLR reponded to mslookup GSUP request

imsi-unknown
: #02: (IMSI unknown in HLR)

illegal-ms
: #03 (Illegal MS)

plmn-not-allowed
: #11: (PLMN not allowed)

la-not-allowed
: #12: (Location Area not allowed)

roaming-not-allowed
: #13: (Roaming not allowed in this location area)

no-suitable-cell-in-la
: #15: (No Suitable Cells In Location Area [continue search in PLMN]).

net-fail
: #17: (Network Failure)

congestion
: #22: (Congestion)

auth-unacceptable
: #23: (GSM authentication unacceptable [UMTS])

proto-error-unspec
: #111: (Protocol error, unspecified)

### 1.10.15 smsc default-route NAME

Command

```
smsc default-route NAME
```

Parameters

smsc
: Configuration of GSUP routing to SMSCs

default-route
: Configure default SMSC route for unknown SMSC numeric addresses

NAME
: IPA name of the external SMSC

### 1.10.16 smsc entity NAME

Command

```
smsc entity NAME
```

Parameters

smsc
: Configuration of GSUP routing to SMSCs

entity
: Configure a particular external SMSC

NAME
: IPA name of the external SMSC

### 1.10.17 smsc route NUMBER NAME

Command

```
smsc route NUMBER NAME
```

Parameters

smsc
: Configuration of GSUP routing to SMSCs

route
: Configure GSUP route to a particular SMSC

NUMBER
: Numeric address of this SMSC, must match EF.SMSP programming in SIMs

NAME
: IPA name of the external SMSC

### 1.10.18 store-imei

Command

```
store-imei
```

Parameters

store-imei
: Save the IMEI in the database when receiving Check IMEI requests. Note that an MSC does not necessarily send Check IMEI requests (for OsmoMSC, you may want to set 'check-imei-rqd 1').

### 1.10.19 subscriber-create-on-demand (no-msisdn|msisdn-from-imsi|<3-15>) (none|cs|ps|cs+p...

Command

```
subscriber-create-on-demand (no-msisdn|msisdn-from-imsi|<3-15>) (none|cs|ps|cs+ps)
```

Parameters

subscriber-create-on-demand
: Make a new record when a subscriber is first seen.

no-msisdn
: Do not automatically assign MSISDN.

msisdn-from-imsi
: Assign MSISDN identical to subscriber's IMSI.

<3-15>
: Length of an automatically assigned MSISDN.

none
: Do not allow any NAM (Network Access Mode) by default.

cs
: Allow access to circuit switched NAM by default.

ps
: Allow access to packet switched NAM by default.

cs+ps
: Allow access to circuit and packet switched NAM by default.

### 1.10.20 ussd default-route external EUSE

Command

```
ussd default-route external EUSE
```

Parameters

ussd
: USSD Configuration

default-route
: Configure default-route for all USSD to unknown destinations

external
: External USSD Handler

EUSE
: Name of External USSD Handler (IPA CCM ID)

### 1.10.21 ussd route prefix PREFIX external EUSE

Command

```
ussd route prefix PREFIX external EUSE
```

Parameters

ussd
: USSD Configuration

route
: Routing Configuration

prefix
: Prefix-Matching Route

PREFIX
: USSD Prefix

external
: External USSD Handler

EUSE
: Name of External USSD Handler (IPA CCM ID)

### 1.10.22 ussd route prefix PREFIX internal (own-msisdn|own-imsi|test-idle)

Command

```
ussd route prefix PREFIX internal (own-msisdn|own-imsi|test-idle)
```

Parameters

ussd
: USSD Configuration

route
: Routing Configuration

prefix
: Prefix-Matching Route

PREFIX
: USSD Prefix

internal
: Internal USSD Handler

own-msisdn
: Respond with subscribers' own MSISDN

own-imsi
: Respond with subscribers' own IMSI

test-idle
: Keep the session idle (useful for testing)

## 1.11 config-hlr-gsup

### 1.11.1 bind ip A.B.C.D

Command

```
bind ip A.B.C.D
```

Parameters

bind
: Listen/Bind related socket option

ip
: IP information

A.B.C.D
: IPv4 Address to bind the GSUP interface to

### 1.11.2 ipa-name NAME

Command

```
ipa-name NAME
```

Parameters

ipa-name
: Set the IPA name of this HLR, for proxying to remote HLRs

NAME
: A globally unique name for this HLR. For example: PLMN + redundancy server number: HLR-901-70-0. This name is used for GSUP routing and must be set if multiple HLRs interconnect (e.g. mslookup for Distributed GSM).

## 1.12 config-hlr-euse

## 1.13 config-hlr-smsc

## 1.14 config-mslookup

### 1.14.1 client

Command

```
client
```

Parameters

client
: Enable and configure Distributed GSM mslookup client

### 1.14.2 mdns bind [IP] [<1-65535>]

Command

```
mdns bind [IP] [<1-65535>]
```

Parameters

mdns
: Multicast DNS related configuration

bind
: Convenience shortcut: enable and configure both server and client for mDNS mslookup

[IP]
: multicast IPv4 address like 239.192.23.42 or IPv6 address like ff08::23:42

[<1-65535>]
: mDNS UDP Port number

### 1.14.3 mdns domain-suffix DOMAIN_SUFFIX

Command

```
mdns domain-suffix DOMAIN_SUFFIX
```

Parameters

mdns
: Multicast DNS related configuration

domain-suffix
: mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

DOMAIN_SUFFIX
: mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

### 1.14.4 no client

Command

```
no client
```

Parameters

no
: Negate a command or set its defaults

client
: Disable Distributed GSM mslookup client

### 1.14.5 no mdns bind

Command

```
no mdns bind
```

Parameters

no
: Negate a command or set its defaults

mdns
: Disable both server and client for mDNS mslookup

bind
: (null)

### 1.14.6 no server

Command

```
no server
```

Parameters

no
: Negate a command or set its defaults

server
: Disable Distributed GSM mslookup server

### 1.14.7 server

Command

```
server
```

Parameters

server
: Enable and configure Distributed GSM mslookup server

## 1.15 config-mslookup-server

### 1.15.1 mdns bind [IP] [<1-65535>]

Command

```
mdns bind [IP] [<1-65535>]
```

Parameters

mdns

Multicast DNS related configuration

bind

Configure where the mDNS server listens for mslookup requests

[IP]

multicast IPv4 address like 239.192.23.42 or IPv6 address like ff08::23:42

[<1-65535>]

mDNS UDP Port number

### 1.15.2 mdns domain-suffix DOMAIN_SUFFIX

Command

```
mdns domain-suffix DOMAIN_SUFFIX
```

Parameters

mdns

Multicast DNS related configuration

domain-suffix

mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

DOMAIN_SUFFIX

mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

### 1.15.3 msc ipa-name .IPA_NAME

Command

```
msc ipa-name .IPA_NAME
```

Parameters

msc
: Configure services for individual local MSCs

ipa-name
: Identify locally connected MSC by IPA Unit Name

.IPA_NAME
: IPA Unit Name of the local MSC to configure

### 1.15.4 no mdns bind

Command

```
no mdns bind
```

Parameters

no
: Negate a command or set its defaults

mdns
: Disable server for mDNS mslookup (do not answer remote requests)

bind
: (null)

### 1.15.5 no service NAME

Command

```
no service NAME
```

Parameters

no
: Negate a command or set its defaults

service
: Remove one or more service address entries

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

### 1.15.6 no service NAME at IP <1-65535>

Command

```
no service NAME at IP <1-65535>
```

Parameters

no
: Negate a command or set its defaults

service
: Remove one or more service address entries

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

at
: at

IP
: IPv4 address like 1.2.3.4 or IPv6 address like a:b:c:d::1

<1-65535>
: Service-specific port number

### 1.15.7 service NAME at IP <1-65535>

Command

```
service NAME at IP <1-65535>
```

Parameters

service
: Configure addresses of local services, as sent in replies to remote mslookup requests.

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

at
: at

IP
: IPv4 address like 1.2.3.4 or IPv6 address like a:b:c:d::1

<1-65535>
: Service-specific port number

## 1.16 config-mslookup-server-msc

### 1.16.1 no service NAME

Command

```
no service NAME
```

Parameters

no
: Negate a command or set its defaults

service
: Remove one or more service address entries

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

### 1.16.2 no service NAME at IP <1-65535>

Command

```
no service NAME at IP <1-65535>
```

Parameters

no
: Negate a command or set its defaults

service
: Remove one or more service address entries

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

at
: at

IP
: IPv4 address like 1.2.3.4 or IPv6 address like a:b:c:d::1

<1-65535>
: Service-specific port number

### 1.16.3 service NAME at IP <1-65535>

Command

```
service NAME at IP <1-65535>
```

Parameters

service
: Configure addresses of local services, as sent in replies to remote mslookup requests.

NAME
: mslookup service name, e.g. sip.voice or smpp.sms

at
: at

IP
: IPv4 address like 1.2.3.4 or IPv6 address like a:b:c:d::1

<1-65535>
: Service-specific port number

## 1.17 config-mslookup-client

### 1.17.1 gateway-proxy IP [<1-65535>]

Command

```
gateway-proxy IP [<1-65535>]
```

Parameters

gateway-proxy
: Configure a fixed IP address to send all GSUP requests for unknown IMSIs to, without invoking a lookup for IMSI

IP
: IP address of the remote HLR

[<1-65535>]
: GSUP port number (omit for default 4222)

### 1.17.2 mdns bind [IP] [<1-65535>]

Command

```
mdns bind [IP] [<1-65535>]
```

Parameters

mdns
: Multicast DNS related configuration

bind
: Enable mDNS client, and configure multicast address to send mDNS mslookup requests to

[IP]
: multicast IPv4 address like 239.192.23.42 or IPv6 address like ff08::23:42

[<1-65535>]
: mDNS UDP Port number

### 1.17.3 mdns domain-suffix DOMAIN_SUFFIX

Command

```
mdns domain-suffix DOMAIN_SUFFIX
```

Parameters

mdns
: Multicast DNS related configuration

domain-suffix
: mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

DOMAIN_SUFFIX
: mDNS domain suffix (default: mdns.osmocom.org). This is appended and stripped from mDNS packets during encoding/decoding, so we don't collide with top-level domains administrated by IANA

### 1.17.4 no gateway-proxy

Command

```
no gateway-proxy
```

Parameters

no
: Negate a command or set its defaults

gateway-proxy
: Disable gateway proxy for GSUP with unknown IMSIs

### 1.17.5 no mdns bind

Command

```
no mdns bind
```

Parameters

no
: Negate a command or set its defaults

mdns
: Disable mDNS client, do not query remote services by mDNS

bind
: (null)

### 1.17.6 timeout <1-100000>

Command

```
timeout <1-100000>
```

Parameters

timeout
: How long should the mslookup client wait for remote responses before evaluating received results

<1-100000>
: timeout in milliseconds

## 1.18 config-hlr-ps

### 1.18.1 no pdp-profiles default

Command

```
no pdp-profiles default
```

Parameters

no
: Negate a command or set its defaults

pdp-profiles
: Delete PDP profile.

default
: Unique identifier for this PDP profile set.

### 1.18.2 pdp-profiles default

Command

```
pdp-profiles default
```

Parameters

pdp-profiles
: Define a PDP profile set.

default
: Define the global default profile.

## 1.19 config-hlr-ps-pdp-profiles

### 1.19.1 no profile <1-10>

Command

```
no profile <1-10>
```

Parameters

no
: Negate a command or set its defaults

profile
: Delete a PDP profile

<1-10>
: Unique PDP context identifier. The lowest profile will be used as default context.

### 1.19.2 profile <1-10>

Command

```
profile <1-10>
```

Parameters

profile
: Configure a PDP profile

<1-10>
: Unique PDP context identifier. The lowest profile will be used as default context.

## 1.20 config-hlr-ps-pdp-profile

### 1.20.1 apn ID

Command

```
apn ID
```

Parameters

apn
: Configure the APN.

ID
: APN name or * for wildcard apn.

### 1.20.2 no apn

Command

```
no apn
```

Parameters

no
: Negate a command or set its defaults

apn
: Delete the APN.