

## **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|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns| ↵
lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio) (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 Input Subsystem

### lmux

A-bis B-Subchannel TRAU Frame Multiplex

### lmi

A-bis Input Driver for Signalling

### lmib

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

### lsms

Layer3 Short Message Service (SMS)

### lctrl

Control Interface

### lgtp

GPRS GTP library

---

lstats

Statistics messages and logging

lgsup

Generic Subscriber Update Protocol

loap

Osmocom Authentication Protocol

lss7

libosmo-sigtran Signalling System 7

lsccp

libosmo-sigtran SCCP Implementation

lsua

libosmo-sigtran SCCP User Adaptation

lm3ua

libosmo-sigtran MTP3 User Adaptation

lmgcp

libosmo-mgcp Media Gateway Control Protocol

ljibuf

libosmo-netif Jitter Buffer

lrspro

Remote SIM protocol

lns

GPRS NS layer

lbssgp

GPRS BSSGP layer

lnsdata

GPRS NS layer data PDU

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

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|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata ↵
    |lnsignal|liuup|lpfcp|lcsn1|lio) (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 Input Subsystem

lmux  
A-bis B-Subchannel TRAU Frame Multiplex

lmi  
A-bis Input Driver for Signalling

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

lsms  
Layer3 Short Message Service (SMS)

lctrl  
Control Interface

lgtp  
GPRS GTP library

lstats  
Statistics messages and logging

lgsup  
Generic Subscriber Update Protocol

loap  
Osmocom Authentication Protocol

lss7  
libosmo-sigtran Signalling System 7

lsccp  
libosmo-sigtran SCCP Implementation

lsua  
libosmo-sigtran SCCP User Adaptation

lm3ua  
libosmo-sigtran MTP3 User Adaptation

lmgcp  
libosmo-mgcp Media Gateway Control Protocol

ljibuf  
libosmo-netif Jitter Buffer

lrspro  
Remote SIM protocol

lns  
GPRS NS layer

lbssgp  
GPRS BSSGP layer

---

Insdata

GPRS NS layer data PDU

Innsignal

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

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 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

### 1.2.30 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

### 1.2.31 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

### 1.2.32 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

### 1.2.33 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

### 1.2.34 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

### 1.2.35 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

### 1.2.36 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

---

### 1.2.37 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

### 1.2.38 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)

### 1.2.39 show uptime

Command

```
show uptime
```

Parameters

show

Show running system information

uptime

Displays how long the program has been running

### 1.2.40 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

### 1.2.41 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

### 1.2.42 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)

---

### 1.2.43 terminal no length

#### Command

```
terminal no length
```

#### Parameters

##### terminal

Set terminal line parameters

##### no

Negate a command or set its defaults

##### length

Set number of lines on a screen

### 1.2.44 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) (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 Input Subsystem

##### lmux

A-bis B-Subchannel TRAU Frame Multiplex

##### lmi

A-bis Input Driver for Signalling

---

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

lsms  
Layer3 Short Message Service (SMS)

lctrl  
Control Interface

lgtp  
GPRS GTP library

lstats  
Statistics messages and logging

lgsup  
Generic Subscriber Update Protocol

loap  
Osmocom Authentication Protocol

lss7  
libosmo-sigtran Signalling System 7

lsccp  
libosmo-sigtran SCCP Implementation

lsua  
libosmo-sigtran SCCP User Adaptation

lm3ua  
libosmo-sigtran MTP3 User Adaptation

lmgcp  
libosmo-mgcp Media Gateway Control Protocol

ljibuf  
libosmo-netif Jitter Buffer

lrspro  
Remote SIM protocol

lns  
GPRS NS layer

lbssgp  
GPRS BSSGP layer

lnsdata  
GPRS NS layer data PDU

lnsignal  
GPRS NS layer signal PDU

liuup  
Iu UP layer

---

|        |   |
|--------|---|
| lpfcp  | libosmo-pfcp Packet Forwarding Control Protocol |
| lcsn1  | libosmo-csn1 Concrete Syntax Notation 1 codec   |
| lio    | libosmocore IO Subsystem                        |
| 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|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata ↵
      |lnssignal|liuup|lpfcp|lcsn1|lio) (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 Input Subsystem

lmux  
A-bis B-Subchannel TRAU Frame Multiplex

lmi  
A-bis Input Driver for Signalling

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

lsms  
Layer3 Short Message Service (SMS)

lctrl  
Control Interface

lgtp  
GPRS GTP library

lstats  
Statistics messages and logging

lgsup  
Generic Subscriber Update Protocol

loap  
Osmocom Authentication Protocol

lss7  
libosmo-sigtran Signalling System 7

lsccp  
libosmo-sigtran SCCP Implementation

lsua  
libosmo-sigtran SCCP User Adaptation

lm3ua  
libosmo-sigtran MTP3 User Adaptation

lmgcp  
libosmo-mgcp Media Gateway Control Protocol

ljibuf  
libosmo-netif Jitter Buffer

lrspro  
Remote SIM protocol

lns  
GPRS NS layer

lbssgp  
GPRS BSSGP layer

---

Insdata

GPRS NS layer data PDU

Innsignal

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

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 startup-config

#### Command

```
show startup-config
```

#### Parameters

##### show

Show running system information

##### startup-config

Contentes of startup configuration

### 1.3.31 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

### 1.3.32 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

### 1.3.33 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

### 1.3.34 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

### 1.3.35 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

### 1.3.36 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



### 1.3.37 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

### 1.3.38 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

---

### 1.3.39 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

### 1.3.40 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)

### 1.3.41 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

### 1.3.42 shutdown

Command

```
shutdown
```

Parameters

shutdown

Request a shutdown of the program

### 1.3.43 stats report

#### Command

```
stats report
```

#### Parameters

stats

Stats related commands

report

Manurally trigger reporting of stats

### 1.3.44 stats reset

#### Command

```
stats reset
```

#### Parameters

stats

Stats related commands

reset

Reset all rate counter stats

### 1.3.45 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

### 1.3.46 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

### 1.3.47 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

### 1.3.48 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

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

Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud3g (milennage|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)

milennage

Use Milennage 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)

### 1.3.50 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

---



### 1.3.51 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)

---

### 1.3.52 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!)

### 1.3.53 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)

### 1.3.54 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

### 1.3.55 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

### 1.3.56 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)

---

### 1.3.57 terminal monitor

#### Command

```
terminal monitor
```

#### Parameters

##### terminal

Set terminal line parameters

##### monitor

Copy debug output to the current terminal line

### 1.3.58 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

### 1.3.59 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

---

### 1.3.60 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

##### vtty

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 [blocking-io]

#### Command

```
log file FILENAME [blocking-io]
```

#### Parameters

log

Configure logging sub-system

file

Logging to text file

FILENAME

Filename

[blocking-io]

Use blocking, synchronous I/O

### 1.4.12 log gsmtap [HOSTNAME]

#### Command

```
log gsmtap [HOSTNAME]
```

#### Parameters

log

Configure logging sub-system

gsmtap

Logging via GSMTAP

[HOSTNAME]

Host name to send the GSMTAP logging to (UDP port 4729)

---

### 1.4.13 log stderr [blocking-io]

#### Command

```
log stderr [blocking-io]
```

#### Parameters

log

Configure logging sub-system

stderr

Logging via STDERR of the process

[blocking-io]

Use blocking, synchronous I/O

### 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) (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 Input Subsystem

##### lmux

A-bis B-Subchannel TRAU Frame Multiplex

##### lmi

A-bis Input Driver for Signalling

---

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

lsms  
Layer3 Short Message Service (SMS)

lctrl  
Control Interface

lgtp  
GPRS GTP library

lstats  
Statistics messages and logging

lgsup  
Generic Subscriber Update Protocol

loap  
Osmocom Authentication Protocol

lss7  
libosmo-sigtran Signalling System 7

lsccp  
libosmo-sigtran SCCP Implementation

lsua  
libosmo-sigtran SCCP User Adaptation

lm3ua  
libosmo-sigtran MTP3 User Adaptation

lmgcp  
libosmo-mgcp Media Gateway Control Protocol

ljibuf  
libosmo-netif Jitter Buffer

lrspro  
Remote SIM protocol

lns  
GPRS NS layer

lbssgp  
GPRS BSSGP layer

lnsdata  
GPRS NS layer data PDU

lnsignal  
GPRS NS layer signal PDU

liuup  
Iu UP layer

---

|        |   |
|--------|---|
| lpfcp  | libosmo-pfcp Packet Forwarding Control Protocol |
| lcsn1  | libosmo-csn1 Concrete Syntax Notation 1 codec   |
| lio    | libosmocore IO Subsystem                        |
| 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 responded 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.