

# **OsmoHLR VTY Reference**

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**COLLABORATORS**

	<i>TITLE :</i> OsmoHLR VTY Reference		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		October 22, 2020	

**REVISION HISTORY**

NUMBER	DATE	DESCRIPTION	NAME
v1	18th September 2017	Initial	nh

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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

#### Command

```
list
```

#### Parameters

list

Print command list

### 1.1.5 show running-config

#### Command

```
show running-config
```

#### Parameters

show

Show running system information

running-config

running configuration

### 1.1.6 write

#### Command

```
write
```

#### Parameters

write

Write running configuration to memory, network, or terminal

### 1.1.7 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

### 1.1.8 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)

---

### 1.1.9 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

#### Command

```
enable
```

#### Parameters

##### enable

Turn on privileged mode command

### 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|lglobal|llapd|linp|lmux|lmi|lmib|...

#### Command

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms| ↵  
lctrl|lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (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

##### 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

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 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

### 1.2.15 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

**1.2.16 logp (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...****Command**

```
logp (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lntp| ↵
    lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (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

**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

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

### 1.2.17 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>'

### 1.2.18 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

### 1.2.19 show asciidoc counters

#### Command

```
show asciidoc counters
```

#### Parameters

##### show

Show running system information

##### asciidoc

Asciidoc generation

##### counters

Generate table of all registered counters

### 1.2.20 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)

### 1.2.21 show gsup-connections

#### Command

```
show gsup-connections
```

#### Parameters

##### show

Show running system information

##### gsup-connections

GSUP Connections from VLRs, SGSNs, EUSEs

### 1.2.22 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.2.23 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

### 1.2.24 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

---

### 1.2.25 show online-help

#### Command

```
show online-help
```

#### Parameters

##### show

Show running system information

##### online-help

Online help

### 1.2.26 show rate-counters

#### Command

```
show rate-counters
```

#### Parameters

##### show

Show running system information

##### rate-counters

Show all rate counters

### 1.2.27 show stats

#### Command

```
show stats
```

#### Parameters

##### show

Show running system information

##### stats

Show statistical values

### 1.2.28 show stats level (global|peer|subscriber)

#### Command

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

#### 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

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

#### Command

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

#### Parameters

##### show

Show running system information

##### 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

---

### 1.2.30 show talloc-context (application|all) (full|brief|DEPTH)

#### Command

```
show talloc-context (application|all) (full|brief|DEPTH)
```

#### Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

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

### 1.2.31 show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP

#### Command

```
show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP
```

#### Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

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

### 1.2.32 **show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS**

**Command**

```
show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS
```

**Parameters****show**

Show running system information

**talloc-context**

Show talloc memory hierarchy

**application**

Application's context

**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)

### 1.2.33 **show version**

**Command**

```
show version
```

**Parameters****show**

Show running system information

**version**

Displays program version

### 1.2.34 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

### 1.2.35 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)

---

### 1.2.36 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

### 1.2.37 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|lglobal|llapd|linp|lmux|lmi|lmib|...

#### Command

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms| ↵  
lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (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

##### 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

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 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

### 1.3.17 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

**1.3.18 logp (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...****Command**

```
logp (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lntp| ↵
    lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (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

**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

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

### 1.3.19 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>'

### 1.3.20 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

### 1.3.21 show asciidoc counters

#### Command

```
show asciidoc counters
```

#### Parameters

##### show

Show running system information

##### asciidoc

Asciidoc generation

##### counters

Generate table of all registered counters

### 1.3.22 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)

### 1.3.23 show gsup-connections

#### Command

```
show gsup-connections
```

#### Parameters

##### show

Show running system information

##### gsup-connections

GSUP Connections from VLRs, SGSNs, EUSEs

### 1.3.24 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.3.25 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

### 1.3.26 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

---

### 1.3.27 show online-help

#### Command

```
show online-help
```

#### Parameters

show

Show running system information

online-help

Online help

### 1.3.28 show rate-counters

#### Command

```
show rate-counters
```

#### Parameters

show

Show running system information

rate-counters

Show all rate counters

### 1.3.29 show startup-config

#### Command

```
show startup-config
```

#### Parameters

show

Show running system information

startup-config

Contentes of startup configuration

### 1.3.30 show stats

#### Command

```
show stats
```

#### Parameters

show

Show running system information

stats

Show statistical values

---

### 1.3.31 show stats level (global|peer|subscriber)

#### Command

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

#### 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

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

#### Command

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

#### Parameters

##### show

Show running system information

##### 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

---

### 1.3.33 show talloc-context (application|all) (full|brief|DEPTH)

#### Command

```
show talloc-context (application|all) (full|brief|DEPTH)
```

#### Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

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

### 1.3.34 show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP

#### Command

```
show talloc-context (application|all) (full|brief|DEPTH) filter REGEXP
```

#### Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

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

### 1.3.35 **show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS**

**Command**

```
show talloc-context (application|all) (full|brief|DEPTH) tree ADDRESS
```

**Parameters****show**

Show running system information

**talloc-context**

Show talloc memory hierarchy

**application**

Application's context

**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)

### 1.3.36 **show version**

**Command**

```
show version
```

**Parameters****show**

Show running system information

**version**

Displays program version

### 1.3.37 stats report

#### Command

```
stats report
```

#### Parameters

stats

Stats related commands

report

Manurally trigger reporting of stats

### 1.3.38 stats reset

#### Command

```
stats reset
```

#### Parameters

stats

Stats related commands

reset

Reset all stats

### 1.3.39 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

---

### 1.3.40 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

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

#### Command

```
subscriber (imsi|msisdn|id|imei) IDENT update aud2g (comp128v1|comp128v2|comp128v3|xor) ←  
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**

Use XOR algorithm

**ki**

Set Ki Encryption Key

**KI**

Ki as 32 hexadecimal characters

### 1.3.42 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

### 1.3.43 subscriber (imsi|msisdn|id|imei) IDENT update aud3g milenage k K (op|opc) OP\_C [...

Command

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

k

Set Encryption Key K

K

K as 32 hexadecimal characters

op

Set OP key

opc

Set OPC key

**OP\_C**

OP or OPC as 32 hexadecimal characters

**[ind-bitlen]**

Set IND bit length

**[<0-28>]**

IND bit length value (default: 5)

**1.3.44 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

**1.3.45 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!)

**1.3.46 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)

### 1.3.47 **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

### 1.3.48 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

### 1.3.49 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)

### 1.3.50 terminal monitor

#### Command

```
terminal monitor
```

#### Parameters

##### terminal

Set terminal line parameters

##### monitor

Copy debug output to the current terminal line

---

### 1.3.51 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

### 1.3.52 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

### 1.3.53 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

#### Command

```
log file .FILENAME
```

#### Parameters

log

Configure logging sub-system

file

Logging to text file

.FILENAME

Filename

### 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

#### Command

```
log stderr
```

#### Parameters

log

Configure logging sub-system

stderr

Logging via STDERR of the process

#### 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 mslookup

Command

```
mslookup
```

Parameters

mslookup

Configure Distributed GSM mslookup

### 1.4.17 no banner motd

Command

```
no banner motd
```

Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

### 1.4.18 no enable password

Command

```
no enable password
```

Parameters

no

Negate a command or set its defaults

enable

Modify enable password parameters

password

Assign the privileged level password

---

### 1.4.19 no hostname [HOSTNAME]

#### Command

```
no hostname [HOSTNAME]
```

#### Parameters

no

Negate a command or set its defaults

hostname

Reset system's network name

[HOSTNAME]

Host name of this router

### 1.4.20 no log alarms

#### Command

```
no log alarms
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

alarms

Logging alarms to osmo\_strrb

### 1.4.21 no log file .FILENAME

#### Command

```
no log file .FILENAME
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

file

Logging to text file

.FILENAME

Filename

---

### 1.4.22 no log 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

### 1.4.23 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

### 1.4.24 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

---

### 1.4.25 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)

### 1.4.26 no stats reporter log

#### Command

```
no stats reporter log
```

#### Parameters

no

Negate a command or set its defaults

stats

Configure stats sub-system

reporter

Configure a stats reporter

log

Report to the logger

### 1.4.27 no stats reporter statsd

#### Command

```
no stats reporter statsd
```

#### 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

### 1.4.28 password (8|) WORD

Command

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

Parameters

password

Assign the terminal connection password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN line password string

### 1.4.29 password LINE

Command

```
password LINE
```

Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

### 1.4.30 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

### 1.4.31 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)

### 1.4.32 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.4.33 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)

---

### 1.4.34 stats reporter log

#### Command

```
stats reporter log
```

#### Parameters

stats

Configure stats sub-system

reporter

Configure a stats reporter

log

Report to the logger

### 1.4.35 stats reporter statsd

#### Command

```
stats reporter statsd
```

#### Parameters

stats

Configure stats sub-system

reporter

Configure a stats reporter

statsd

Report to a STATSD server

## 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|lglobal|llapd|linp|lmux|lmi|lmib|lms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error|fatal)****Command**

```
logging level (main|db|auc|ss|mslookup|lu|dgsm|lglobal|llapd|linp|lmux|lmi|lmib|lms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (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

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
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 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

### 1.5.12 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

#### Command

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

#### Parameters

bind

Set bind address to listen for Control connections

A.B.C.D

Local IP address (default 127.0.0.1)

---

## 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]
```

#### 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>
```

#### 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 store-imei

#### Command

```
no store-imei
```

#### Parameters

no

Do not save the IMEI in the database, when receiving Check IMEI requests.

store-imei

(null)

### 1.10.7 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)

---

### 1.10.8 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

### 1.10.9 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

### 1.10.10 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').

### 1.10.11 subscriber-create-on-demand (no-msisdn|<3-15>) (none|cs|ps|cs+ps)

#### Command

```
subscriber-create-on-demand (no-msisdn|<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.

##### <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.

### 1.10.12 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)

---

### 1.10.13 **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)

### 1.10.14 **ussd route prefix PREFIX internal (own-msisdn|own-imsi)**

#### Command

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

#### 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

## 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-mslookup

### 1.13.1 client

#### Command

```
client
```

#### Parameters

##### client

Enable and configure Distributed GSM mslookup client

---

### 1.13.2 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

### 1.13.3 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

### 1.13.4 no client

#### Command

```
no client
```

#### Parameters

no

Negate a command or set its defaults

client

Disable Distributed GSM mslookup client

---

### 1.13.5 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)

### 1.13.6 no server

#### Command

```
no server
```

#### Parameters

no

Negate a command or set its defaults

server

Disable Distributed GSM mslookup server

### 1.13.7 server

#### Command

```
server
```

#### Parameters

server

Enable and configure Distributed GSM mslookup server

---

## 1.14 config-mslookup-server

### 1.14.1 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

### 1.14.2 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

### 1.14.3 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

### 1.14.4 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)

### 1.14.5 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

### 1.14.6 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

### 1.14.7 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

## 1.15 config-mslookup-server-msc

### 1.15.1 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

---

### 1.15.2 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

### 1.15.3 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

## 1.16 config-mslookup-client

### 1.16.1 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)

### 1.16.2 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

### 1.16.3 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

---

### 1.16.4 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

### 1.16.5 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)

### 1.16.6 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

---