

OsmoHLR VTY Reference

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COLLABORATORS

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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

1.2.10 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

1.2.14 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

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

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

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

lpfc	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

1.3.16 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

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

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Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

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lsccp
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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

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

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

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

1.4.18 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

1.4.24 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

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

lpfc	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

1.5.7 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

1.5.11 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

1.6.11 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.