

OsmoSGSN VTY Reference

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Chapter 1

VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

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

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

Table 1.2: VTY port numbers

1.1 Common Commands

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

1.1.1 end

Command

```
end
```

Parameters

end

End current mode and change to enable mode.

1.1.2 exit

Command

```
exit
```

Parameters

exit

Exit current mode and down to previous mode

1.1.3 help

Command

```
help
```

Parameters

help

Description of the interactive help system

1.1.4 list [with-flags]

Command

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

Parameters

list

Print command list

[with-flags]

Also print the VTY attribute flags

1.1.5 show running-config

Command

```
show running-config
```

Parameters

show

Show running system information

running-config

running configuration

1.1.6 show vty-attributes

Command

```
show vty-attributes
```

Parameters

show

Show running system information

vty-attributes

List of VTY attributes

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

Command

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

Parameters

show

Show running system information

vty-attributes

List of VTY attributes

application

Application specific attributes only

library

Library specific attributes only

global

Global attributes only

1.1.8 write

Command

```
write
```

Parameters

write

Write running configuration to memory, network, or terminal

1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

write

Write running configuration to memory, network, or terminal

file

Write to configuration file

[PATH]

Set file path to store the config, or replace if already exists

1.1.10 write memory

Command

```
write memory
```

Parameters

write

Write running configuration to memory, network, or terminal

memory

Write configuration to the file (same as write file)

1.1.11 write terminal

Command

```
write terminal
```

Parameters

write

Write running configuration to memory, network, or terminal

terminal

Write to terminal

1.2 view

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

1.2.1 bssgp bvc nsei <0-65535> bvci <0-65535> reset

Command

```
bssgp bvc nsei <0-65535> bvci <0-65535> reset
```

Parameters

bssgp

Initiate BVC RESET procedure for a given NSEI and BVCI

bvc

Filter based on BSSGP Virtual Connection

nsei

NSEI of the BVC to be filtered

<0-65535>

Network Service Entity Identifier (NSEI)

bvci

BVCI of the BVC to be filtered

<0-65535>

BSSGP Virtual Connection Identifier (BVCI)

reset

Perform reset procedure

1.2.2 enable [expert-mode]

Command

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

Parameters

enable

Turn on privileged mode command

[expert-mode]

Enable the expert mode (show hidden commands)

1.2.3 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

1.2.4 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

1.2.5 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

1.2.6 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

1.2.7 logging filter bvc nsei <0-65535> bvci <0-65535>

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

bvc

Filter based on BSSGP Virtual Connection

nsei

NSEI of the BVC to be filtered

<0-65535>

Network Service Entity Identifier (NSEI)

bvci

BVCI of the BVC to be filtered

<0-65535>

BSSGP Virtual Connection Identifier (BVCI)

1.2.8 logging filter nse nsei <0-65535>

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

nse

Filter based on NS Entity

nsei

Identify NSE by NSEI

<0-65535>

Numeric identifier

1.2.9 logging filter nsvc nsvci <0-65535>

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

nsvc

Filter based on NS Virtual Connection

nsvci

Identify NS-VC by NSVCI

<0-65535>

Numeric identifier

1.2.10 logging level (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglo...

Command

```
logging level (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal| ↵
llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscdp|lsua|lm3ua| ↵
lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio) (debug|info ↵
|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

mm

Layer3 Mobility Management (MM)

pag

Paging Subsystem

meas

Radio Measurement Processing

ref

Reference Counting

gprs
GPRS Packet Service

llc
GPRS Logical Link Control Protocol (LLC)

sndcp
GPRS Sub-Network Dependent Control Protocol (SNDCP)

slhc
RFC1144 TCP/IP Header compression (SLHC)

ranap
RAN Application Part (RANAP)

sua
SCCP User Adaptation (SUA)

v42bis
V.42bis data compression (SNDCP)

gtp
GPRS Tunnelling Protocol (GTP)

rim
RAN Information Management (RIM)

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

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

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lgtp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lsccp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnssignal
GPRS NS layer signal PDU

liuup
Iu UP layer

lpfcp
libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
libosmo-csn1 Concrete Syntax Notation 1 codec

lio
libosmocore IO Subsystem

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.2.11 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

1.2.12 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

1.2.13 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

1.2.14 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>')

1.2.15 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

1.2.16 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.

1.2.17 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

1.2.18 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

1.2.19 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

1.2.20 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

1.2.21 logp (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio) (debug|info|notice|error|fatal) .LOGMESSAGE

Command

```
logp (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal|llapd|linp| ↵
    lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf| ↵
    lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio) (debug|info|notice|error ↵
    |fatal) .LOGMESSAGE
```

Parameters

logp

Print a message on all log outputs; useful for placing markers in test logs

mm

Layer3 Mobility Management (MM)

pag

Paging Subsystem

meas

Radio Measurement Processing

ref

Reference Counting

gprs

GPRS Packet Service

llc

GPRS Logical Link Control Protocol (LLC)

sndcp
GPRS Sub-Network Dependent Control Protocol (SNDCP)

slhc
RFC1144 TCP/IP Header compression (SLHC)

ranap
RAN Application Part (RANAP)

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SCCP User Adaptation (SUA)

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V.42bis data compression (SNDCP)

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GPRS Tunnelling Protocol (GTP)

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RAN Information Management (RIM)

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llapd
LAPD in libosmogsm

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A-bis Input Driver for Signalling

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GPRS GTP library

lstats
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lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7

libosmo-sigtran Signalling System 7

lscpp

libosmo-sigtran SCCP Implementation

lsua

libosmo-sigtran SCCP User Adaptation

lm3ua

libosmo-sigtran MTP3 User Adaptation

lmgcp

libosmo-mgcp Media Gateway Control Protocol

ljibuf

libosmo-netif Jitter Buffer

lrspro

Remote SIM protocol

lns

GPRS NS layer

lbssgp

GPRS BSSGP layer

lnsdata

GPRS NS layer data PDU

lnssignal

GPRS NS layer signal PDU

liuup

Iu UP layer

lpfcp

libosmo-pfcp Packet Forwarding Control Protocol

lcsn1

libosmo-csn1 Concrete Syntax Notation 1 codec

lio

libosmocore IO Subsystem

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

.LOGMESSAGE

Arbitrary message to log on given category and log level

1.2.22 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>'

1.2.23 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

1.2.24 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show

Show running system information

asciidoc

Asciidoc generation

counters

Generate table of all registered counters

1.2.25 show bssgp

Command

```
show bssgp
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

1.2.26 show bssgp nsei <0-65535> [stats]

Command

```
show bssgp nsei <0-65535> [stats]
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

nsei

Show all BVCs on one NSE

<0-65535>

The NSEI

[stats]

Include Statistics

1.2.27 show bssgp stats

Command

```
show bssgp stats
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

stats

Include statistics

1.2.28 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)

1.2.29 show cs7 (sua|m3ua|ipa) [<0-65534>]

Command

```
show cs7 (sua|m3ua|ipa) [<0-65534>]
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

sua

SCCP User Adaptation

m3ua

MTP3 User Adaptation

ipa

IPA Multiplex (SCCP Lite)

[<0-65534>]

Port Number

1.2.30 show cs7 config

Command

```
show cs7 config
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

config

Currently running cs7 configuration

1.2.31 show cs7 instance <0-15> as (active|all|m3ua|sua)

Command

```
show cs7 instance <0-15> as (active|all|m3ua|sua)
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

as
Application Server (AS)

active
Display all active ASs

all
Display all ASs (default)

m3ua
Display all m3ua ASs

sua
Display all SUA ASs

1.2.32 show cs7 instance <0-15> asp

Command

```
show cs7 instance <0-15> asp
```

Parameters

show
Show running system information

cs7
ITU-T Signaling System 7

instance
An instance of the SS7 stack

<0-15>
An instance of the SS7 stack

asp
Application Server Process (ASP)

1.2.33 show cs7 instance <0-15> asp name ASP_NAME

Command

```
show cs7 instance <0-15> asp name ASP_NAME
```

Parameters

show
Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp

Application Server Process (ASP)

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.2.34 show cs7 instance <0-15> asp-assoc-status

Command

```
show cs7 instance <0-15> asp-assoc-status
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-assoc-status

Application Server Process (ASP) SCTP association status

1.2.35 show cs7 instance <0-15> asp-assoc-status name ASP_NAME

Command

```
show cs7 instance <0-15> asp-assoc-status name ASP_NAME
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-assoc-status

Application Server Process (ASP) SCTP association information

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.2.36 show cs7 instance <0-15> asp-remaddr

Command

```
show cs7 instance <0-15> asp-remaddr
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-remaddr

Application Server Process (ASP) remote addresses information

1.2.37 show cs7 instance <0-15> asp-remaddr name ASP_NAME

Command

```
show cs7 instance <0-15> asp-remaddr name ASP_NAME
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-remaddr

Application Server Process (ASP) remote addresses information

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.2.38 show cs7 instance <0-15> route

Command

```
show cs7 instance <0-15> route
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

route

Routing Table

1.2.39 show cs7 instance <0-15> sccp addressbook

Command

```
show cs7 instance <0-15> sccp addressbook
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

addressbook

List all SCCP addressbook entries

1.2.40 show cs7 instance <0-15> sccp connections

Command

```
show cs7 instance <0-15> sccp connections
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

connections

Show List of active SCCP connections

1.2.41 show cs7 instance <0-15> sccp ssn <0-65535>

Command

```
show cs7 instance <0-15> sccp ssn <0-65535>
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

ssn

Find an SCCP User registered for the given SSN

<0-65535>

Subsystem Number (SSN)

1.2.42 show cs7 instance <0-15> sccp timers

Command

```
show cs7 instance <0-15> sccp timers
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signaling Connection Control Part

timers

Show List of SCCP timers

1.2.43 show cs7 instance <0-15> sccp users

Command

```
show cs7 instance <0-15> sccp users
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

users

Show List of SCCP Users registered

1.2.44 show cs7 instance <0-15> users

Command

```
show cs7 instance <0-15> users
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

users

User Table

1.2.45 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.2.46 show llc

Command

```
show llc
```

Parameters

show

Show running system information

llc

Display information about the LLC protocol

1.2.47 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

1.2.48 show mm-context all [pdp]

Command

```
show mm-context all [pdp]
```

Parameters

show

Show running system information

mm-context

MM Context

all

All MM Contexts

[pdp]

Include PDP Context Information

1.2.49 show mm-context imsi IMSI [pdp]

Command

```
show mm-context imsi IMSI [pdp]
```

Parameters

show

Show running system information

mm-context

MM Context

imsi

Identify by IMSI

IMSI

IMSI of the MM Context

[pdp]

Include PDP Context Information

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

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

nsei

Select one NSE by its NSE Identifier

nsvc

Select one NSE by its NS-VC Identifier

<0-65535>

The Identifier of selected type

[stats]

Include Statistics

1.2.51 show ns binds [stats]

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

binds

Display information about the NS protocol binds

[stats]

Include statistic

1.2.52 show ns entities [stats]

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

entities

Display information about the NS protocol entities (NSEs)

[stats]

Include statistics

1.2.53 show ns persistent

Command

```
show ns persistent
```

Parameters

show

Show running system information

ns

Display information about the NS protocol

persistent

Show only persistent NS

1.2.54 show online-help

Command

```
show online-help
```

Parameters

show

Show running system information

online-help

Online help

1.2.55 show pdp-context all

Command

```
show pdp-context all
```

Parameters

show

Show running system information

pdp-context

Display information on PDP Context

all

Show everything

1.2.56 show pid

Command

```
show pid
```

Parameters

show

Show running system information

pid

Displays the process ID

1.2.57 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

1.2.58 show sgsn

Command

```
show sgsn
```

Parameters

show

Show running system information

sgsn

Display information about the SGSN

1.2.59 show sndcp

Command

```
show sndcp
```

Parameters

show

Show running system information

sndcp

Display information about the SND CP protocol

1.2.60 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

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

Command

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

Parameters

show

Show running system information

stats

Show statistical values

level

Set the maximum group level

global

Show global groups only

peer

Show global and network peer related groups

subscriber

Show global, peer, and subscriber groups

[skip-zero]

Skip items with total count zero

1.2.62 show subscriber cache

Command

```
show subscriber cache
```

Parameters

show

Show running system information

subscriber

Show information about subscribers

cache

Display contents of subscriber cache

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC_GLOBAL)

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC_GLOBAL)

- all
 - All contexts, if NULL-context tracking is enabled
- full
 - Display a full talloc memory hierarchy
- brief
 - Display a brief talloc memory hierarchy
- DEPTH
 - Specify required maximal depth value
- filter
 - Filter chunks using regular expression
- REGEXP
 - Regular expression

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

Command

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

Parameters

- show
 - Show running system information
- talloc-context
 - Show talloc memory hierarchy
- application
 - Application's context
- global
 - Global context (OTC_GLOBAL)
- all
 - All contexts, if NULL-context tracking is enabled
- full
 - Display a full talloc memory hierarchy
- brief
 - Display a brief talloc memory hierarchy
- DEPTH
 - Specify required maximal depth value
- tree
 - Display only a specific memory chunk
- ADDRESS
 - Chunk address (e.g. 0xdeadbeef)

1.2.66 show timer [TNNNN]

Command

```
show timer [TNNNN]
```

Parameters

show

Show running system information

timer

Show timers

[TNNNN]

T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.2.67 show timer gtp [TNNNN]

Command

```
show timer gtp [TNNNN]
```

Parameters

show

Show running system information

timer

Show timers

gtp

GTP (libgtp) timers

[TNNNN]

T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.2.68 show uptime

Command

```
show uptime
```

Parameters

show

Show running system information

uptime

Displays how long the program has been running

1.2.69 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

1.2.70 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)

1.2.71 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

1.2.72 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 bssgp bvc nsei <0-65535> bvci <0-65535> reset

Command

```
bssgp bvc nsei <0-65535> bvci <0-65535> reset
```

Parameters

bssgp

Initiate BVC RESET procedure for a given NSEI and BVCI

bvc

Filter based on BSSGP Virtual Connection

nsei

NSEI of the BVC to be filtered

<0-65535>

Network Service Entity Identifier (NSEI)

bvci

BVCI of the BVC to be filtered

<0-65535>

BSSGP Virtual Connection Identifier (BVCI)

reset

Perform reset procedure

1.3.2 configure [terminal]

Command

```
configure [terminal]
```

Parameters

configure

Configuration from vty interface

[terminal]

Configuration terminal

1.3.3 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)

1.3.4 cs7 instance <0-15> asp NAME disconnect

Command

```
cs7 instance <0-15> asp NAME disconnect
```

Parameters

cs7

ITU-T Signaling System 7

instance

Instance related commands

<0-15>

SS7 Instance Number

asp

ASP related commands

NAME

Name of ASP

disconnect

Disconnect the ASP (client will reconnect)

1.3.5 disable

Command

```
disable
```

Parameters

disable

Turn off privileged mode command

1.3.6 logging color (0|1)

Command

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

Parameters

logging

Configure logging

color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

1.3.7 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

1.3.8 logging enable

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

Command

```
logging enable
```

Parameters

logging

Configure logging

enable

Enables logging to this vty

1.3.9 logging filter all (0|1)

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

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

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

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

bvc

Filter based on BSSGP Virtual Connection

nsei

NSEI of the BVC to be filtered

<0-65535>

Network Service Entity Identifier (NSEI)

bvci

BVCI of the BVC to be filtered

<0-65535>

BSSGP Virtual Connection Identifier (BVCI)

1.3.11 logging filter nse nsei <0-65535>

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

nse

Filter based on NS Entity

nsei

Identify NSE by NSEI

<0-65535>

Numeric identifier

1.3.12 logging filter nsvc nsvci <0-65535>

Command

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

Parameters

logging

Configure logging

filter

Filter log messages

nsvc

Filter based on NS Virtual Connection

nsvci

Identify NS-VC by NSVCI

<0-65535>

Numeric identifier

1.3.13 logging level (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglo...

Command

```
logging level (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal| ↵
llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lscdp|lsua|lm3ua| ↵
lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1|lio) (debug|info ↵
|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

mm

Layer3 Mobility Management (MM)

pag

Paging Subsystem

meas

Radio Measurement Processing

ref

Reference Counting

gprs
GPRS Packet Service

llc
GPRS Logical Link Control Protocol (LLC)

sndcp
GPRS Sub-Network Dependent Control Protocol (SNDCP)

slhc
RFC1144 TCP/IP Header compression (SLHC)

ranap
RAN Application Part (RANAP)

sua
SCCP User Adaptation (SUA)

v42bis
V.42bis data compression (SNDCP)

gtp
GPRS Tunnelling Protocol (GTP)

rim
RAN Information Management (RIM)

lglobal
Library-internal global log family

llapd
LAPD in libosmogsm

linp
A-bis Input Subsystem

lmux
A-bis B-Subchannel TRAU Frame Multiplex

lmi
A-bis Input Driver for Signalling

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

lsms
Layer3 Short Message Service (SMS)

lctrl
Control Interface

lgtp
GPRS GTP library

lstats
Statistics messages and logging

lgsup
Generic Subscriber Update Protocol

loap
Osmocom Authentication Protocol

lss7
libosmo-sigtran Signalling System 7

lsccp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnssignal
GPRS NS layer signal PDU

liuup
Iu UP layer

lpfcp
libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
libosmo-csn1 Concrete Syntax Notation 1 codec

lio
libosmocore IO Subsystem

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

level

Set the log level for a specified category

force-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

level

Set the log level for a specified category

set-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

1.3.16 logging print category (0|1)

Command

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

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

1.3.17 logging print category-hex (0|1)

Command

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

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

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

1.3.18 logging print extended-timestamp (0|1)

Command

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

Parameters

logging

Configure logging

print

Log output settings

extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

basename

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

[last]

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

1.3.20 logging print level (0|1)

Command

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

Parameters

logging

Configure logging

print

Log output settings

level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

1.3.21 logging print thread-id (0|1)

Command

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

Parameters

logging

Configure logging

print

Log output settings

thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

1.3.22 logging set-log-mask MASK

Command

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

Parameters

logging

Configure logging

set-log-mask

Set the logmask of this logging target

MASK

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

1.3.23 logging timestamp (0|1)

Command

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

Parameters

logging

Configure logging

timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

1.3.24 logp (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata|lnsignal|liuup|lpfcp|lcsn1|lio) (debug|info|notice|error|fatal) .LOGMESSAGE

Command

```
logp (mm|pag|meas|ref|gprs|llc|sndcp|slhc|ranap|sua|v42bis|gtp|rim|lglobal|llapd|linp| ↵
    lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf| ↵
    lrspro|lns|lbssgp|lndata|lnsignal|liuup|lpfcp|lcsn1|lio) (debug|info|notice|error ↵
    |fatal) .LOGMESSAGE
```

Parameters

logp

Print a message on all log outputs; useful for placing markers in test logs

mm

Layer3 Mobility Management (MM)

pag

Paging Subsystem

meas

Radio Measurement Processing

ref

Reference Counting

gprs

GPRS Packet Service

llc

GPRS Logical Link Control Protocol (LLC)

sndcp
GPRS Sub-Network Dependent Control Protocol (SNDCP)

slhc
RFC1144 TCP/IP Header compression (SLHC)

ranap
RAN Application Part (RANAP)

sua
SCCP User Adaptation (SUA)

v42bis
V.42bis data compression (SNDCP)

gtp
GPRS Tunnelling Protocol (GTP)

rim
RAN Information Management (RIM)

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

lscpp

libosmo-sigtran SCCP Implementation

lsua

libosmo-sigtran SCCP User Adaptation

lm3ua

libosmo-sigtran MTP3 User Adaptation

lmgcp

libosmo-mgcp Media Gateway Control Protocol

ljibuf

libosmo-netif Jitter Buffer

lrspro

Remote SIM protocol

lns

GPRS NS layer

lbssgp

GPRS BSSGP layer

lnsdata

GPRS NS layer data PDU

lnssignal

GPRS NS layer signal PDU

liuup

Iu UP layer

lpfcp

libosmo-pfcp Packet Forwarding Control Protocol

lcsn1

libosmo-csn1 Concrete Syntax Notation 1 codec

lio

libosmocore IO Subsystem

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

.LOGMESSAGE

Arbitrary message to log on given category and log level

1.3.25 no logging level force-all

Command

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

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

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

1.3.26 nse <0-65535> restart-sns

Command

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

Parameters

nse

NSE specific commands

<0-65535>

NS Entity ID (NSEI)

restart-sns

Restart SNS procedure

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

Command

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

Parameters

nsvc

NS Virtual Connection

<0-65535>

NS Virtual Connection ID (NS-VCI)

block

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

unblock

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

reset

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

1.3.28 page imsi IMSI

Command

```
page imsi IMSI
```

Parameters

page

Send a PS paging request to subscriber

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

1.3.29 show alarms

Command

```
show alarms
```

Parameters

show

Show running system information

alarms

Show current logging configuration

1.3.30 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show

Show running system information

asciidoc

Asciidoc generation

counters

Generate table of all registered counters

1.3.31 show bssgp

Command

```
show bssgp
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

1.3.32 show bssgp nsei <0-65535> [stats]

Command

```
show bssgp nsei <0-65535> [stats]
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

nsei

Show all BVCs on one NSE

<0-65535>

The NSEI

[stats]

Include Statistics

1.3.33 show bssgp stats

Command

```
show bssgp stats
```

Parameters

show

Show running system information

bssgp

Show information about the BSSGP protocol

stats

Include statistics

1.3.34 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)

1.3.35 show cs7 (sua|m3ua|ipa) [<0-65534>]

Command

```
show cs7 (sua|m3ua|ipa) [<0-65534>]
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

sua

SCCP User Adaptation

m3ua

MTP3 User Adaptation

ipa

IPA Multiplex (SCCP Lite)

[<0-65534>]

Port Number

1.3.36 show cs7 config

Command

```
show cs7 config
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

config

Currently running cs7 configuration

1.3.37 show cs7 instance <0-15> as (active|all|m3ua|sua)

Command

```
show cs7 instance <0-15> as (active|all|m3ua|sua)
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

as
Application Server (AS)

active
Display all active ASs

all
Display all ASs (default)

m3ua
Display all m3ua ASs

sua
Display all SUA ASs

1.3.38 show cs7 instance <0-15> asp

Command

```
show cs7 instance <0-15> asp
```

Parameters

show
Show running system information

cs7
ITU-T Signaling System 7

instance
An instance of the SS7 stack

<0-15>
An instance of the SS7 stack

asp
Application Server Process (ASP)

1.3.39 show cs7 instance <0-15> asp name ASP_NAME

Command

```
show cs7 instance <0-15> asp name ASP_NAME
```

Parameters

show
Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp

Application Server Process (ASP)

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.3.40 show cs7 instance <0-15> asp-assoc-status

Command

```
show cs7 instance <0-15> asp-assoc-status
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-assoc-status

Application Server Process (ASP) SCTP association status

1.3.41 show cs7 instance <0-15> asp-assoc-status name ASP_NAME

Command

```
show cs7 instance <0-15> asp-assoc-status name ASP_NAME
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-assoc-status

Application Server Process (ASP) SCTP association information

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.3.42 show cs7 instance <0-15> asp-remaddr

Command

```
show cs7 instance <0-15> asp-remaddr
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-remaddr

Application Server Process (ASP) remote addresses information

1.3.43 show cs7 instance <0-15> asp-remaddr name ASP_NAME

Command

```
show cs7 instance <0-15> asp-remaddr name ASP_NAME
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

asp-remaddr

Application Server Process (ASP) remote addresses information

name

Lookup ASP with a given name

ASP_NAME

Name of the Application Server Process (ASP)

1.3.44 show cs7 instance <0-15> route

Command

```
show cs7 instance <0-15> route
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

route

Routing Table

1.3.45 show cs7 instance <0-15> sccp addressbook

Command

```
show cs7 instance <0-15> sccp addressbook
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

addressbook

List all SCCP addressbook entries

1.3.46 show cs7 instance <0-15> sccp connections

Command

```
show cs7 instance <0-15> sccp connections
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

connections

Show List of active SCCP connections

1.3.47 show cs7 instance <0-15> sccp ssn <0-65535>

Command

```
show cs7 instance <0-15> sccp ssn <0-65535>
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

ssn

Find an SCCP User registered for the given SSN

<0-65535>

Subsystem Number (SSN)

1.3.48 show cs7 instance <0-15> sccp timers

Command

```
show cs7 instance <0-15> sccp timers
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signaling Connection Control Part

timers

Show List of SCCP timers

1.3.49 show cs7 instance <0-15> sccp users

Command

```
show cs7 instance <0-15> sccp users
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

sccp

Signalling Connection Control Part

users

Show List of SCCP Users registered

1.3.50 show cs7 instance <0-15> users

Command

```
show cs7 instance <0-15> users
```

Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

instance

An instance of the SS7 stack

<0-15>

An instance of the SS7 stack

users

User Table

1.3.51 show history

Command

```
show history
```

Parameters

show

Show running system information

history

Display the session command history

1.3.52 show llc

Command

```
show llc
```

Parameters

show

Show running system information

llc

Display information about the LLC protocol

1.3.53 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

1.3.54 show mm-context all [pdp]

Command

```
show mm-context all [pdp]
```

Parameters

show

Show running system information

mm-context

MM Context

all

All MM Contexts

[pdp]

Include PDP Context Information

1.3.55 show mm-context imsi IMSI [pdp]

Command

```
show mm-context imsi IMSI [pdp]
```

Parameters

show

Show running system information

mm-context

MM Context

imsi

Identify by IMSI

IMSI

IMSI of the MM Context

[pdp]

Include PDP Context Information

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

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

nsei

Select one NSE by its NSE Identifier

nsvc

Select one NSE by its NS-VC Identifier

<0-65535>

The Identifier of selected type

[stats]

Include Statistics

1.3.57 show ns binds [stats]

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

binds

Display information about the NS protocol binds

[stats]

Include statistic

1.3.58 show ns entities [stats]

Command

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

Parameters

show

Show running system information

ns

Display information about the NS protocol

entities

Display information about the NS protocol entities (NSEs)

[stats]

Include statistics

1.3.59 show ns persistent

Command

```
show ns persistent
```

Parameters

show

Show running system information

ns

Display information about the NS protocol

persistent

Show only persistent NS

1.3.60 show online-help

Command

```
show online-help
```

Parameters

show

Show running system information

online-help

Online help

1.3.61 show pdp-context all

Command

```
show pdp-context all
```

Parameters

show

Show running system information

pdp-context

Display information on PDP Context

all

Show everything

1.3.62 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

1.3.63 show sgsn

Command

```
show sgsn
```

Parameters

show

Show running system information

sgsn

Display information about the SGSN

1.3.64 show sndcp

Command

```
show sndcp
```

Parameters

show

Show running system information

sndcp

Display information about the SNDTCP protocol

1.3.65 show startup-config

Command

```
show startup-config
```

Parameters

show

Show running system information

startup-config

Contentes of startup configuration

1.3.66 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

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

Command

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

Parameters

show

Show running system information

stats

Show statistical values

level

Set the maximum group level

global

Show global groups only

peer

Show global and network peer related groups

subscriber

Show global, peer, and subscriber groups

[skip-zero]

Skip items with total count zero

1.3.68 show subscriber cache

Command

```
show subscriber cache
```

Parameters

show

Show running system information

subscriber

Show information about subscribers

cache

Display contents of subscriber cache

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC_GLOBAL)

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC_GLOBAL)

- all
 - All contexts, if NULL-context tracking is enabled
- full
 - Display a full talloc memory hierarchy
- brief
 - Display a brief talloc memory hierarchy
- DEPTH
 - Specify required maximal depth value
- filter
 - Filter chunks using regular expression
- REGEXP
 - Regular expression

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

Command

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

Parameters

- show
 - Show running system information
- talloc-context
 - Show talloc memory hierarchy
- application
 - Application's context
- global
 - Global context (OTC_GLOBAL)
- all
 - All contexts, if NULL-context tracking is enabled
- full
 - Display a full talloc memory hierarchy
- brief
 - Display a brief talloc memory hierarchy
- DEPTH
 - Specify required maximal depth value
- tree
 - Display only a specific memory chunk
- ADDRESS
 - Chunk address (e.g. 0xdeadbeef)

1.3.72 show timer [TNNNN]

Command

```
show timer [TNNNN]
```

Parameters

show

Show running system information

timer

Show timers

[TNNNN]

T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.3.73 show timer gtp [TNNNN]

Command

```
show timer gtp [TNNNN]
```

Parameters

show

Show running system information

timer

Show timers

gtp

GTP (libgtp) timers

[TNNNN]

T- or X-timer-number -- 3GPP compliant timer number of the format '1234' or 'T1234' or 't1234'; Osmocom-specific timer number of the format: 'X1234' or 'x1234'.

1.3.74 show version

Command

```
show version
```

Parameters

show

Show running system information

version

Displays program version

1.3.75 shutdown

Command

```
shutdown
```

Parameters

shutdown

Request a shutdown of the program

1.3.76 stats report

Command

```
stats report
```

Parameters

stats

Stats related commands

report

Manurally trigger reporting of stats

1.3.77 stats reset

Command

```
stats reset
```

Parameters

stats

Stats related commands

reset

Reset all rate counter stats

1.3.78 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)

1.3.79 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal

Set terminal line parameters

monitor

Copy debug output to the current terminal line

1.3.80 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

1.3.81 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

1.3.82 update-subscriber imsi IMSI cancel (update-procedure|subscription-withdraw)

Command

```
update-subscriber imsi IMSI cancel (update-procedure|subscription-withdraw)
```

Parameters

update-subscriber

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

cancel

Cancel (remove) subscriber record

update-procedure

The MS moved to another SGSN

subscription-withdraw

The subscription is no longer valid

1.3.83 update-subscriber imsi IMSI create

Command

```
update-subscriber imsi IMSI create
```

Parameters

update-subscriber

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

create

Create a subscriber entry

1.3.84 update-subscriber imsi IMSI destroy

Command

```
update-subscriber imsi IMSI destroy
```

Parameters

update-subscriber

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

destroy

Destroy a subscriber entry

1.3.85 update-subscriber imsi IMSI insert auth-triplet <1-5> sres SRES rand RAND kc KC

Command

```
update-subscriber imsi IMSI insert auth-triplet <1-5> sres SRES rand RAND kc KC
```

Parameters

update-subscriber

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

insert

Insert data into the subscriber record

auth-triplet

Update authentication triplet

<1-5>

Triplet index

sres

Set SRES value

SRES

SRES value (4 byte) in hex

rand

Set RAND value

RAND

RAND value (16 byte) in hex

kc

Set Kc value

KC

Kc value (8 byte) in hex

1.3.86 update-subscriber imsi IMSI update-auth-info

Command

```
update-subscriber imsi IMSI update-auth-info
```

Parameters**update-subscriber**

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

update-auth-info

Complete the send authentication info procedure

1.3.87 update-subscriber imsi IMSI update-location-result (ok|system-failure|data-missi...

Command

```
update-subscriber imsi IMSI update-location-result (ok|system-failure|data-missing| ↵
unexpected-data-value|unknown-subscriber|roaming-not-allowed)
```

Parameters

update-subscriber

Update subscriber list

imsi

Use the IMSI to select the subscriber

IMSI

The IMSI

update-location-result

Complete the update location procedure

ok

The update location request succeeded

system-failure

Force error code SystemFailure

data-missing

Force error code DataMissing

unexpected-data-value

Force error code UnexpectedDataValue

unknown-subscriber

Force error code UnknownSubscriber

roaming-not-allowed

Force error code RoamingNotAllowed

1.3.88 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 bssgp

Command

```
bssgp
```

Parameters

bssgp

Configure the GPRS BSS Gateway Protocol

1.4.4 cpu-sched

Command

```
cpu-sched
```

Parameters

cpu-sched

Configure CPU Scheduler related settings

1.4.5 cs7 instance <0-15>

Command

```
cs7 instance <0-15>
```

Global attributes

Flag: !

This command applies immediately

Parameters

cs7

ITU-T Signaling System 7

instance

Configure a SS7 Instance

<0-15>

An instance of the SS7 stack

1.4.6 ctrl

Command

```
ctrl
```

Parameters

ctrl

Configure the Control Interface

1.4.7 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

1.4.8 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

1.4.9 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname

Set system's network name

WORD

This system's network name

1.4.10 line vty

Command

```
line vty
```

Parameters

line

Configure a terminal line

vtty

Virtual terminal

1.4.11 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

1.4.12 log file FILENAME [blocking-io]

Command

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

Parameters

log

Configure logging sub-system

file

Logging to text file

FILENAME

Filename

[blocking-io]

Use blocking, synchronous I/O

1.4.13 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)

1.4.14 log stderr [blocking-io]

Command

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

Parameters

log

Configure logging sub-system

stderr

Logging via STDERR of the process

[blocking-io]

Use blocking, synchronous I/O

1.4.15 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

1.4.16 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

1.4.17 log systemd-journal [raw]

Command

```
log systemd-journal [raw]
```

Parameters

log

Configure logging sub-system

systemd-journal

Logging to systemd-journal

[raw]

Offload rendering of the meta information (location, category) to systemd

1.4.18 no banner motd

Command

```
no banner motd
```

Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

1.4.19 no enable password

Command

```
no enable password
```

Parameters

no

Negate a command or set its defaults

enable

Modify enable password parameters

password

Assign the privileged level password

1.4.20 no hostname [HOSTNAME]

Command

```
no hostname [HOSTNAME]
```

Parameters

no

Negate a command or set its defaults

hostname

Reset system's network name

[HOSTNAME]

Host name of this router

1.4.21 no log alarms

Command

```
no log alarms
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

alarms

Logging alarms to osmo_strrb

1.4.22 no log file FILENAME

Command

```
no log file FILENAME
```

Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

file

Logging to text file

FILENAME

Filename

1.4.31 ns

Command

```
ns
```

Parameters

ns

Configure the GPRS Network Service

1.4.32 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

1.4.33 password LINE

Command

```
password LINE
```

Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

1.4.34 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

1.4.35 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)

1.4.36 sgsn

Command

```
sgsn
```

Parameters

sgsn

Configure the SGSN

gprs
GPRS Packet Service

llc
GPRS Logical Link Control Protocol (LLC)

sndcp
GPRS Sub-Network Dependent Control Protocol (SNDCP)

slhc
RFC1144 TCP/IP Header compression (SLHC)

ranap
RAN Application Part (RANAP)

sua
SCCP User Adaptation (SUA)

v42bis
V.42bis data compression (SNDCP)

gtp
GPRS Tunnelling Protocol (GTP)

rim
RAN Information Management (RIM)

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

lscpp
libosmo-sigtran SCCP Implementation

lsua
libosmo-sigtran SCCP User Adaptation

lm3ua
libosmo-sigtran MTP3 User Adaptation

lmgcp
libosmo-mgcp Media Gateway Control Protocol

ljibuf
libosmo-netif Jitter Buffer

lrspro
Remote SIM protocol

lns
GPRS NS layer

lbssgp
GPRS BSSGP layer

lnsdata
GPRS NS layer data PDU

lnssignal
GPRS NS layer signal PDU

liuup
Iu UP layer

lpfcp
libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
libosmo-csn1 Concrete Syntax Notation 1 codec

lio
libosmocore IO Subsystem

debug
Log debug messages and higher levels

info
Log informational messages and higher levels

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

1.5.9 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

1.5.10 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>')

1.5.11 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

1.5.14 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

1.5.15 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

1.5.16 no logging level force-all

Command

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

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

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

1.6 config-stats

1.6.1 disable

Command

```
disable
```

Parameters

disable

Disable the reporter

1.6.2 enable

Command

```
enable
```

Parameters

enable

Enable the reporter

1.6.3 flush-period <0-65535>

Command

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

Parameters

flush-period

Configure stats sub-system

<0-65535>

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

1.6.4 level (global|peer|subscriber)

Command

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

Parameters

level

Set the maximum group level

global

Report global groups only

peer

Report global and network peer related groups

subscriber

Report global, peer, and subscriber groups

1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

local-ip

Set the IP address to which we bind locally

ADDR

IP Address

1.6.6 mtu <100-65535>

Command

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

Parameters

mtu

Set the maximum packet size

<100-65535>

Size in byte

1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no

Negate a command or set its defaults

local-ip

Set the IP address to which we bind locally

1.6.8 no mtu

Command

```
no mtu
```

Parameters

no

Negate a command or set its defaults

mtu

Set the maximum packet size

1.6.9 no prefix

Command

```
no prefix
```

Parameters

no

Negate a command or set its defaults

prefix

Set the item name prefix

1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix

Set the item name prefix

PREFIX

The prefix string

1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

remote-ip

Set the remote IP address to which we connect

ADDR

IP Address

1.6.12 remote-port <1-65535>

Command

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

Parameters

remote-port

Set the remote port to which we connect

<1-65535>

Remote port number

1.7 config-line

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

Command

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

Parameters

bind

Accept VTY telnet connections on local interface

A.B.C.D

Local interface IP address (default: 127.0.0.1)

[<0-65535>]

Local TCP port number

1.7.2 login

Command

```
login
```

Parameters

login

Enable password checking

1.7.3 no login

Command

```
no login
```

Parameters

no

Negate a command or set its defaults

login

Enable password checking

1.8 config-ns

1.8.1 bind (fr|udp) ID

Command

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

Parameters

bind

Configure local Bind

fr

Frame Relay

udp

UDP/IP

ID

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

1.8.2 ip-sns-default bind ID

Command

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

Parameters

ip-sns-default

Defaults for dynamically created NSEs created by IP-SNS in SGSN role

bind

IP SNS binds

ID

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

1.8.3 no bind ID

Command

```
no bind ID
```

Parameters

no

Negate a command or set its defaults

bind

Delete a bind

ID

Unique identifier for this bind

1.8.4 no ip-sns-default bind ID

Command

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

Parameters

no

Negate a command or set its defaults

ip-sns-default

Defaults for dynamically created NSEs created by IP-SNS in SGSN role

bind

IP SNS binds

ID

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

1.8.5 no nse <0-65535>

Command

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

Parameters

no

Negate a command or set its defaults

nse

Delete a Persistent NS Entity

<0-65535>

NS Entity ID (NSEI)

tsns-prov

SNS Provision Timer (Tsns-prov) timeout

tsns-size-retries

SNS Size number of retries

tsns-config-retries

SNS Config number of retries

tsns-procedures-retries

SNS Procedures number of retries

<0-65535>

Timer Value

1.8.8 txqueue-max-length <1-4096>

Command

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

Parameters

txqueue-max-length

Set the maximum length of the txqueue (for UDP)

<1-4096>

Maximum length of the txqueue

1.9 config-bssgp

1.10 config-ctrl

1.10.1 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

1.11.7 no sccp-address NAME

Command

```
no sccp-address NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

sccp-address

Delete an SCCP addressbook entry

NAME

Name of the SCCP Address

1.11.8 point-code POINT_CODE

Command

```
point-code POINT_CODE
```

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Configure the local Point Code

POINT_CODE

Point Code

