

# **OsmoSMLC VTY Reference**

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|---------------|---|--------------------|------------------|
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# Contents

|          |  |          |
|----------|--|----------|
| <b>1</b> | <b>VTY reference</b>   | <b>1</b> |
| 1.1      | Common Commands  | 1        |
| 1.1.1    | end  | 2        |
| 1.1.2    | exit   | 2        |
| 1.1.3    | help   | 2        |
| 1.1.4    | list [with-flags]  | 2        |
| 1.1.5    | show running-config  | 3        |
| 1.1.6    | show vty-attributes  | 3        |
| 1.1.7    | show vty-attributes (application library global)                                 | 3        |
| 1.1.8    | write  | 4        |
| 1.1.9    | write file [PATH]  | 4        |
| 1.1.10   | write memory   | 4        |
| 1.1.11   | write terminal   | 4        |
| 1.2      | view   | 5        |
| 1.2.1    | enable [expert-mode]   | 5        |
| 1.2.2    | logging color (0 1)  | 5        |
| 1.2.3    | logging disable  | 5        |
| 1.2.4    | logging enable   | 6        |
| 1.2.5    | logging filter all (0 1)   | 6        |
| 1.2.6    | logging level (smlc refl blcs lglobal lapd linp lmux lmi lmi lms lctrl lgtpl...) | 6        |
| 1.2.7    | logging level force-all (debug info notice error fatal)                          | 9        |
| 1.2.8    | logging level set-all (debug info notice error fatal)                            | 9        |
| 1.2.9    | logging print category (0 1)   | 10       |
| 1.2.10   | logging print category-hex (0 1)   | 10       |
| 1.2.11   | logging print extended-timestamp (0 1)   | 11       |
| 1.2.12   | logging print file (0 1 basename) [last]   | 11       |
| 1.2.13   | logging print level (0 1)  | 12       |
| 1.2.14   | logging print thread-id (0 1)  | 12       |
| 1.2.15   | logging set-log-mask MASK  | 13       |
| 1.2.16   | logging timestamp (0 1)  | 13       |

|        |   |    |
|--------|---|----|
| 1.2.17 | logp (smclreflblcsllgloballlapdllinpllmuxllmillmibllsmsllctrlllgtplstatsllg...  | 13 |
| 1.2.18 | no logging level force-all  | 16 |
| 1.2.19 | show alarms   | 16 |
| 1.2.20 | show cells  | 16 |
| 1.2.21 | show cs7 (sualm3ualipa) [<0-65534>]   | 17 |
| 1.2.22 | show cs7 config   | 17 |
| 1.2.23 | show cs7 instance <0-15> as (activelalllm3ualsua)                               | 17 |
| 1.2.24 | show cs7 instance <0-15> asp  | 18 |
| 1.2.25 | show cs7 instance <0-15> route  | 19 |
| 1.2.26 | show cs7 instance <0-15> sccp addressbook                                       | 19 |
| 1.2.27 | show cs7 instance <0-15> sccp connections                                       | 20 |
| 1.2.28 | show cs7 instance <0-15> sccp ssn <0-65535>                                     | 20 |
| 1.2.29 | show cs7 instance <0-15> sccp timers  | 21 |
| 1.2.30 | show cs7 instance <0-15> sccp users   | 21 |
| 1.2.31 | show cs7 instance <0-15> users  | 22 |
| 1.2.32 | show history  | 22 |
| 1.2.33 | show logging vty  | 22 |
| 1.2.34 | show online-help  | 23 |
| 1.2.35 | show pid  | 23 |
| 1.2.36 | show talloc-context (applicationlglobalall) (fullllbrieflDEPTH)                 | 23 |
| 1.2.37 | show talloc-context (applicationlglobalall) (fullllbrieflDEPTH) filter REGEXP   | 24 |
| 1.2.38 | show talloc-context (applicationlglobalall) (fullllbrieflDEPTH) tree ADDRESS    | 25 |
| 1.2.39 | show uptime   | 25 |
| 1.2.40 | show version  | 26 |
| 1.2.41 | terminal length <0-512>   | 26 |
| 1.2.42 | terminal no length  | 26 |
| 1.2.43 | who   | 27 |
| 1.3    | enable  | 27 |
| 1.3.1  | configure [terminal]  | 27 |
| 1.3.2  | copy running-config startup-config  | 27 |
| 1.3.3  | disable   | 28 |
| 1.3.4  | logging color (0l1)   | 28 |
| 1.3.5  | logging disable   | 28 |
| 1.3.6  | logging enable  | 29 |
| 1.3.7  | logging filter all (0l1)  | 29 |
| 1.3.8  | logging level (smclreflblcsllgloballlapdllinpllmuxllmillmibllsmsllctrlllgtpl... | 29 |
| 1.3.9  | logging level force-all (debuglinfo noticeerrorlfatal)                          | 32 |
| 1.3.10 | logging level set-all (debuglinfo noticeerrorlfatal)                            | 32 |
| 1.3.11 | logging print category (0l1)  | 33 |

|        |   |    |
|--------|---|----|
| 1.3.12 | logging print category-hex (01)   | 33 |
| 1.3.13 | logging print extended-timestamp (01)   | 34 |
| 1.3.14 | logging print file (01 basename) [last]                                       | 34 |
| 1.3.15 | logging print level (01)  | 35 |
| 1.3.16 | logging print thread-id (01)  | 35 |
| 1.3.17 | logging set-log-mask MASK   | 36 |
| 1.3.18 | logging timestamp (01)  | 36 |
| 1.3.19 | logp (smc refl lcs lglobal lapd linp lmux lmib lms lctrl lgtpl stats lg...    | 36 |
| 1.3.20 | no logging level force-all  | 39 |
| 1.3.21 | show alarms   | 39 |
| 1.3.22 | show cells  | 39 |
| 1.3.23 | show cs7 (sualm3ualipa) [<0-65534>]   | 40 |
| 1.3.24 | show cs7 config   | 40 |
| 1.3.25 | show cs7 instance <0-15> as (activelallm3ualsua)                              | 40 |
| 1.3.26 | show cs7 instance <0-15> asp  | 41 |
| 1.3.27 | show cs7 instance <0-15> route  | 42 |
| 1.3.28 | show cs7 instance <0-15> sccp addressbook                                     | 42 |
| 1.3.29 | show cs7 instance <0-15> sccp connections                                     | 43 |
| 1.3.30 | show cs7 instance <0-15> sccp ssn <0-65535>                                   | 43 |
| 1.3.31 | show cs7 instance <0-15> sccp timers  | 44 |
| 1.3.32 | show cs7 instance <0-15> sccp users   | 44 |
| 1.3.33 | show cs7 instance <0-15> users  | 45 |
| 1.3.34 | show history  | 45 |
| 1.3.35 | show logging vty  | 45 |
| 1.3.36 | show online-help  | 46 |
| 1.3.37 | show startup-config   | 46 |
| 1.3.38 | show talloc-context (application global all) (full brief DEPTH)               | 46 |
| 1.3.39 | show talloc-context (application global all) (full brief DEPTH) filter REGEXP | 47 |
| 1.3.40 | show talloc-context (application global all) (full brief DEPTH) tree ADDRESS  | 48 |
| 1.3.41 | show version  | 48 |
| 1.3.42 | shutdown  | 49 |
| 1.3.43 | terminal length <0-512>   | 49 |
| 1.3.44 | terminal monitor  | 49 |
| 1.3.45 | terminal no length  | 50 |
| 1.3.46 | terminal no monitor   | 50 |
| 1.3.47 | who   | 50 |
| 1.4    | config  | 50 |
| 1.4.1  | banner motd default   | 51 |
| 1.4.2  | banner motd file [FILE]   | 51 |

|        |   |    |
|--------|---|----|
| 1.4.3  | cells . . . . .   | 51 |
| 1.4.4  | cs7 instance <0-15> . . . . .   | 52 |
| 1.4.5  | ctrl . . . . .  | 52 |
| 1.4.6  | enable password (8l) WORD . . . . .   | 52 |
| 1.4.7  | enable password LINE . . . . .  | 53 |
| 1.4.8  | hostname WORD . . . . .   | 53 |
| 1.4.9  | line vty . . . . .  | 53 |
| 1.4.10 | log alarms <2-32700> . . . . .  | 54 |
| 1.4.11 | log file FILENAME [blocking-io] . . . . .   | 54 |
| 1.4.12 | log gsmmap [HOSTNAME] . . . . .   | 54 |
| 1.4.13 | log stderr [blocking-io] . . . . .  | 55 |
| 1.4.14 | log syslog (authpriv cron daemon ftp lpr mail news user uucp) . . . . .                       | 55 |
| 1.4.15 | log syslog local <0-7> . . . . .  | 56 |
| 1.4.16 | log systemd-journal [raw] . . . . .   | 56 |
| 1.4.17 | no banner motd . . . . .  | 56 |
| 1.4.18 | no enable password . . . . .  | 57 |
| 1.4.19 | no hostname [HOSTNAME] . . . . .  | 57 |
| 1.4.20 | no log alarms . . . . .   | 57 |
| 1.4.21 | no log file FILENAME . . . . .  | 58 |
| 1.4.22 | no log gsmmap [HOSTNAME] . . . . .  | 58 |
| 1.4.23 | no log stderr . . . . .   | 58 |
| 1.4.24 | no log syslog . . . . .   | 59 |
| 1.4.25 | no log systemd-journal . . . . .  | 59 |
| 1.4.26 | no service advanced-vty . . . . .   | 59 |
| 1.4.27 | no service terminal-length [<0-512>] . . . . .  | 60 |
| 1.4.28 | password (8l) WORD . . . . .  | 60 |
| 1.4.29 | password LINE . . . . .   | 60 |
| 1.4.30 | service advanced-vty . . . . .  | 61 |
| 1.4.31 | service terminal-length <0-512> . . . . .   | 61 |
| 1.4.32 | show history . . . . .  | 61 |
| 1.5    | config-log . . . . .  | 61 |
| 1.5.1  | logging color (0l1) . . . . .   | 62 |
| 1.5.2  | logging filter all (0l1) . . . . .  | 62 |
| 1.5.3  | logging level (smc refl bl cs l global l lapd l inpl mux l mib l sms l ctrl l gtpl... . . . . | 63 |
| 1.5.4  | logging level force-all (debug info notice error fatal) . . . . .                             | 65 |
| 1.5.5  | logging level set-all (debug info notice error fatal) . . . . .                               | 65 |
| 1.5.6  | logging print category (0l1) . . . . .  | 66 |
| 1.5.7  | logging print category-hex (0l1) . . . . .  | 67 |
| 1.5.8  | logging print extended-timestamp (0l1) . . . . .  | 67 |

|        |  |    |
|--------|--|----|
| 1.5.9  | logging print file (0 1 basename) [last]   | 68 |
| 1.5.10 | logging print level (0 1)  | 68 |
| 1.5.11 | logging print thread-id (0 1)  | 69 |
| 1.5.12 | logging timestamp (0 1)  | 69 |
| 1.5.13 | no logging level force-all   | 69 |
| 1.6    | config-line  | 70 |
| 1.6.1  | bind A.B.C.D [<0-65535>]   | 70 |
| 1.6.2  | login  | 70 |
| 1.6.3  | no login   | 70 |
| 1.7    | config-ctrl  | 71 |
| 1.7.1  | bind A.B.C.D [<0-65535>]   | 71 |
| 1.8    | config-cs7   | 71 |
| 1.8.1  | as NAME (sualm3ualipa)   | 71 |
| 1.8.2  | asp NAME <0-65535> <0-65535> (sualm3ualipa)  | 72 |
| 1.8.3  | description .TEXT  | 72 |
| 1.8.4  | network-indicator (international   national   reserved   spare)                      | 73 |
| 1.8.5  | no as NAME   | 73 |
| 1.8.6  | no asp NAME  | 74 |
| 1.8.7  | no sccp-address NAME   | 74 |
| 1.8.8  | point-code POINT_CODE  | 75 |
| 1.8.9  | point-code delimiter (default dash)  | 75 |
| 1.8.10 | point-code format <1-24> [<1-23>] [<1-22>]   | 76 |
| 1.8.11 | point-code format default  | 76 |
| 1.8.12 | sccp max-optional-data (<0-999999> standard)   | 77 |
| 1.8.13 | sccp-address NAME  | 77 |
| 1.8.14 | sccp-timer (conn_est ias iar rel repeat_rel int guard reset reassembly) <1-99999...> | 78 |
| 1.8.15 | xua rkm routing-key-allocation (static-only dynamic-permitted)                       | 79 |
| 1.9    | config-cs7-as  | 79 |
| 1.9.1  | asp NAME   | 79 |
| 1.9.2  | description .TEXT  | 80 |
| 1.9.3  | no asp NAME  | 80 |
| 1.9.4  | no traffic-mode  | 80 |
| 1.9.5  | point-code override dpc PC   | 81 |
| 1.9.6  | point-code override patch-sccp (disabled both)                                       | 81 |
| 1.9.7  | qos-class <0-255>  | 82 |
| 1.9.8  | recovery-timeout <1-2000>  | 82 |
| 1.9.9  | routing-key RCONTEXT DPC   | 82 |
| 1.9.10 | routing-key RCONTEXT DPC si (aal2 bicclb-isuplh248 isuplsat-isuplsccpltup)           | 83 |
| 1.9.11 | routing-key RCONTEXT DPC si (aal2 bicclb-isuplh248 isuplsat-isuplsccpltup) ssn S...  | 84 |



|         |  |    |
|---------|--|----|
| 1.9.12  | routing-key RCONTEXT DPC ssn SSN . . . . .   | 85 |
| 1.9.13  | traffic-mode (broadcast   loadshare   roundrobin   override) . . . . .                   | 85 |
| 1.10    | config-cs7-asp . . . . .   | 86 |
| 1.10.1  | block . . . . .  | 86 |
| 1.10.2  | description .TEXT . . . . .  | 86 |
| 1.10.3  | local-ip (A.B.C.D X:X::X:X) [primary] . . . . .  | 86 |
| 1.10.4  | no quirk (no_notify aud_in_asplnm_inactive) . . . . .                                    | 87 |
| 1.10.5  | no sctp-param init (num-ostreams max-instreams max-attempts timeout) . . . . .           | 87 |
| 1.10.6  | qos-class <0-255> . . . . .  | 88 |
| 1.10.7  | quirk (no_notify aud_in_asplnm_inactive) . . . . .                                       | 88 |
| 1.10.8  | remote-ip (A.B.C.D X:X::X:X) [primary] . . . . .   | 89 |
| 1.10.9  | role (sglasplisp) . . . . .  | 89 |
| 1.10.10 | sctp-param init (num-ostreams max-instreams max-attempts timeout) <0-65535> . . . . .    | 90 |
| 1.10.11 | sctp-role (client server) . . . . .  | 90 |
| 1.10.12 | shutdown . . . . .   | 91 |
| 1.10.13 | timer lm (wait_asp_up wait_notify wait_notify_rkm wait_rk_reg_resp) <1-999999> . . . . . | 91 |
| 1.11    | config-cs7-sccpaddr . . . . .  | 92 |
| 1.11.1  | global-title . . . . .   | 92 |
| 1.11.2  | no global-title . . . . .  | 92 |
| 1.11.3  | no point-code . . . . .  | 92 |
| 1.11.4  | no subsystem-number . . . . .  | 93 |
| 1.11.5  | point-code POINT_CODE . . . . .  | 93 |
| 1.11.6  | routing-indicator (GT PC IP) . . . . .   | 93 |
| 1.11.7  | subsystem-number <0-4294967295> . . . . .  | 94 |
| 1.12    | config-cs7-sccpaddr-gt . . . . .   | 94 |
| 1.12.1  | digits DIGITS . . . . .  | 94 |
| 1.12.2  | global-title-indicator <0-15> . . . . .  | 95 |
| 1.12.3  | nature-of-address-indicator <0-127> . . . . .  | 95 |
| 1.12.4  | numbering-plan-indicator <0-15> . . . . .  | 95 |
| 1.12.5  | translation-type <0-255> . . . . .   | 96 |
| 1.13    | config-cells . . . . .   | 96 |
| 1.13.1  | cgi <0-999> <0-999> <0-65535> <0-65535> lat LATITUDE lon LONGITUDE . . . . .             | 96 |
| 1.13.2  | lac-ci <0-65535> <0-65535> lat LATITUDE lon LONGITUDE . . . . .                          | 97 |
| 1.13.3  | no cgi <0-999> <0-999> <0-65535> <0-65535> . . . . .                                     | 97 |
| 1.13.4  | no lac-ci <0-65535> <0-65535> . . . . .  | 98 |

# List of Tables

|     |                                  |   |
|-----|----------------------------------|---|
| 1.1 | VTY Parameter Patterns . . . . . | 1 |
| 1.2 | VTY port numbers . . . . .       | 1 |

## Chapter 1

# VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

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

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

Table 1.2: VTY port numbers

### 1.1 Common Commands

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

### 1.1.1 end

#### Command

```
end
```

#### Parameters

end

End current mode and change to enable mode.

### 1.1.2 exit

#### Command

```
exit
```

#### Parameters

exit

Exit current mode and down to previous mode

### 1.1.3 help

#### Command

```
help
```

#### Parameters

help

Description of the interactive help system

### 1.1.4 list [with-flags]

#### Command

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

#### Parameters

list

Print command list

[with-flags]

Also print the VTY attribute flags

---

### 1.1.5 show running-config

#### Command

```
show running-config
```

#### Parameters

show

Show running system information

running-config

running configuration

### 1.1.6 show vty-attributes

#### Command

```
show vty-attributes
```

#### Parameters

show

Show running system information

vty-attributes

List of VTY attributes

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

#### Command

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

#### Parameters

show

Show running system information

vty-attributes

List of VTY attributes

application

Application specific attributes only

library

Library specific attributes only

global

Global attributes only

---

### 1.1.8 write

Command

```
write
```

Parameters

write

Write running configuration to memory, network, or terminal

### 1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

write

Write running configuration to memory, network, or terminal

file

Write to configuration file

[PATH]

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

### 1.1.10 write memory

Command

```
write memory
```

Parameters

write

Write running configuration to memory, network, or terminal

memory

Write configuration to the file (same as write file)

### 1.1.11 write terminal

Command

```
write terminal
```

Parameters

write

Write running configuration to memory, network, or terminal

terminal

Write to terminal

## 1.2 view

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

### 1.2.1 enable [expert-mode]

Command

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

Parameters

enable

Turn on privileged mode command

[expert-mode]

Enable the expert mode (show hidden commands)

### 1.2.2 logging color (0|1)

Command

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

Parameters

logging

Configure logging

color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

### 1.2.3 logging disable

Command

```
logging disable
```

Parameters

logging

Configure logging

disable

Disables logging to this vty

---

### 1.2.4 logging enable

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

#### Command

```
logging enable
```

#### Parameters

##### logging

Configure logging

##### enable

Enables logging to this vty

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### filter

Filter log messages

##### all

Do you want to log all messages?

##### 0

Only print messages matched by other filters

##### 1

Bypass filter and print all messages

### 1.2.6 logging level (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|...

#### Command

```
logging level (smlc|ref|lb|lcs|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

### smc

Serving Mobile Location Center

### ref

Reference Counting

### lb

Lb interface

### lcs

Location Services

### lglobal

Library-internal global log family

### llapd

LAPD in libosmogsm

### linp

A-bis Input Subsystem

### lmux

A-bis B-Subchannel TRAU Frame Multiplex

### lmi

A-bis Input Driver for Signalling

### lmib

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

### lsms

Layer3 Short Message Service (SMS)

### lctrl

Control Interface

### lgtp

GPRS GTP library

### lstats

Statistics messages and logging

### lgsup

Generic Subscriber Update Protocol

### loap

Osmocom Authentication Protocol

### lss7

libosmo-sigtran Signalling System 7

---

---

lsccp  
libosmo-sigtran SCCP Implementation

lsua  
libosmo-sigtran SCCP User Adaptation

lm3ua  
libosmo-sigtran MTP3 User Adaptation

lmgcp  
libosmo-mgcp Media Gateway Control Protocol

ljibuf  
libosmo-netif Jitter Buffer

lrspro  
Remote SIM protocol

lns  
GPRS NS layer

lbssgp  
GPRS BSSGP layer

lnsdata  
GPRS NS layer data PDU

lnssignal  
GPRS NS layer signal PDU

liuup  
Iu UP layer

lpfcp  
libosmo-pfcp Packet Forwarding Control Protocol

lcsn1  
libosmo-csn1 Concrete Syntax Notation 1 codec

lio  
libosmocore IO Subsystem

debug  
Log debug messages and higher levels

info  
Log informational messages and higher levels

notice  
Log noticeable messages and higher levels

error  
Log error messages and higher levels

fatal  
Log only fatal messages

---

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

### Command

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

### Parameters

#### logging

Configure logging

#### level

Set the log level for a specified category

#### force-all

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

#### debug

Log debug messages and higher levels

#### info

Log informational messages and higher levels

#### notice

Log noticeable messages and higher levels

#### error

Log error messages and higher levels

#### fatal

Log only fatal messages

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

### Command

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

### Parameters

#### logging

Configure logging

#### level

Set the log level for a specified category

#### set-all

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

#### debug

Log debug messages and higher levels

---

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

##### basename

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

##### [last]

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

### 1.2.15 logging set-log-mask MASK

#### Command

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

#### Parameters

##### logging

Configure logging

##### set-log-mask

Set the logmask of this logging target

#### MASK

List of logging categories to log, e.g. 'abc:mno:xyz'. Available log categories depend on the specific application, refer to the 'logging level' command. Optionally add individual log levels like 'abc,1:mno,3:xyz,5', where the level numbers are LOGL\_DEBUG=1 LOGL\_INFO=3 LOGL\_NOTICE=5 LOGL\_ERROR=7 LOGL\_FATAL=8

### 1.2.16 logging timestamp (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### timestamp

Configure log message timestamping

##### 0

Don't prefix each log message

##### 1

Prefix each log message with current timestamp

### 1.2.17 logp (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lg...

#### Command

```
logp (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup| ↵
    loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup| ↵
    lpfcpl|lcsn1|lio) (debug|info|notice|error|fatal) .LOGMESSAGE
```

#### Parameters

##### logp

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

---

smlc  
Serving Mobile Location Center

ref  
Reference Counting

lb  
Lb interface

lcs  
Location Services

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

.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 cells

#### Command

```
show cells
```

#### Parameters

show

Show running system information

cells

Show configured cell locations

### 1.2.21 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

### 1.2.22 show cs7 config

#### Command

```
show cs7 config
```

#### Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

config

Currently running cs7 configuration

### 1.2.23 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

### 1.2.24 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)

### 1.2.25 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

### 1.2.26 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

### 1.2.27 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

### 1.2.28 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)

---

### 1.2.29 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

### 1.2.30 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

### 1.2.31 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

### 1.2.32 show history

#### Command

```
show history
```

#### Parameters

show

Show running system information

history

Display the session command history

### 1.2.33 show logging vty

#### Command

```
show logging vty
```

#### Parameters

show

Show running system information

logging

Show current logging configuration

vtty

Show current logging configuration for this vty



### 1.2.34 show online-help

#### Command

```
show online-help
```

#### Parameters

##### show

Show running system information

##### online-help

Online help

### 1.2.35 show pid

#### Command

```
show pid
```

#### Parameters

##### show

Show running system information

##### pid

Displays the process ID

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

#### Command

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

#### Parameters

##### show

Show running system information

##### talloc-context

Show talloc memory hierarchy

##### application

Application's context

##### global

Global context (OTC\_GLOBAL)

##### all

All contexts, if NULL-context tracking is enabled

---

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC\_GLOBAL)

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

filter

Filter chunks using regular expression

REGEXP

Regular expression

---

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

#### Command

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

#### Parameters

##### show

Show running system information

##### talloc-context

Show talloc memory hierarchy

##### application

Application's context

##### global

Global context (OTC\_GLOBAL)

##### all

All contexts, if NULL-context tracking is enabled

##### full

Display a full talloc memory hierarchy

##### brief

Display a brief talloc memory hierarchy

##### DEPTH

Specify required maximal depth value

##### tree

Display only a specific memory chunk

##### ADDRESS

Chunk address (e.g. 0xdeadbeef)

### 1.2.39 show uptime

#### Command

```
show uptime
```

#### Parameters

##### show

Show running system information

##### uptime

Displays how long the program has been running

### 1.2.40 show version

#### Command

```
show version
```

#### Parameters

##### show

Show running system information

##### version

Displays program version

### 1.2.41 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)

### 1.2.42 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

---

### 1.2.43 who

#### Command

```
who
```

#### Parameters

who

Display who is on vty

## 1.3 enable

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

### 1.3.1 configure [terminal]

#### Command

```
configure [terminal]
```

#### Parameters

configure

Configuration from vty interface

[terminal]

Configuration terminal

### 1.3.2 copy running-config startup-config

#### Command

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

#### Parameters

copy

Copy configuration

running-config

Copy running config to...

startup-config

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

---

### 1.3.3 disable

#### Command

```
disable
```

#### Parameters

##### disable

Turn off privileged mode command

### 1.3.4 logging color (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### color

Configure color-printing for log messages

##### 0

Don't use color for printing messages

##### 1

Use color for printing messages

### 1.3.5 logging disable

#### Command

```
logging disable
```

#### Parameters

##### logging

Configure logging

##### disable

Disables logging to this vty

### 1.3.6 logging enable

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

#### Command

```
logging enable
```

#### Parameters

##### logging

Configure logging

##### enable

Enables logging to this vty

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### filter

Filter log messages

##### all

Do you want to log all messages?

##### 0

Only print messages matched by other filters

##### 1

Bypass filter and print all messages

### 1.3.8 logging level (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|...

#### Command

```
logging level (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↵
lgsup|loap|lss7|lscdp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lms|lbssgp|lmsdata|lmsignal| ↵
liuup|lpfcp|lcsn1|lio) (debug|info|notice|error|fatal)
```

---

## Parameters

### logging

Configure logging

### level

Set the log level for a specified category

### smc

Serving Mobile Location Center

### ref

Reference Counting

### lb

Lb interface

### lcs

Location Services

### 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

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### force-all

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

##### debug

Log debug messages and higher levels

##### info

Log informational messages and higher levels

##### notice

Log noticeable messages and higher levels

##### error

Log error messages and higher levels

##### fatal

Log only fatal messages

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### set-all

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

##### debug

Log debug messages and higher levels

---

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

##### basename

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

##### [last]

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

### 1.3.17 logging set-log-mask MASK

#### Command

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

#### Parameters

##### logging

Configure logging

##### set-log-mask

Set the logmask of this logging target

##### MASK

List of logging categories to log, e.g. 'abc:mno:xyz'. Available log categories depend on the specific application, refer to the 'logging level' command. Optionally add individual log levels like 'abc,1:mno,3:xyz,5', where the level numbers are LOGL\_DEBUG=1 LOGL\_INFO=3 LOGL\_NOTICE=5 LOGL\_ERROR=7 LOGL\_FATAL=8

### 1.3.18 logging timestamp (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### timestamp

Configure log message timestamping

##### 0

Don't prefix each log message

##### 1

Prefix each log message with current timestamp

### 1.3.19 logp (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lg...

#### Command

```
logp (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lg... ↵
    loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup| ↵
    lpfcpl|lcsn1|lio) (debug|info|notice|error|fatal) .LOGMESSAGE
```

#### Parameters

##### logp

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

---

smlc  
Serving Mobile Location Center

ref  
Reference Counting

lb  
Lb interface

lcs  
Location Services

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

.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 cells

#### Command

```
show cells
```

#### Parameters

show

Show running system information

cells

Show configured cell locations

### 1.3.23 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

### 1.3.24 show cs7 config

#### Command

```
show cs7 config
```

#### Parameters

show

Show running system information

cs7

ITU-T Signaling System 7

config

Currently running cs7 configuration

### 1.3.25 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

### 1.3.26 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)

### 1.3.27 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

### 1.3.28 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

---

### 1.3.29 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

### 1.3.30 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)

---

### 1.3.31 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

### 1.3.32 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

### 1.3.33 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

### 1.3.34 show history

#### Command

```
show history
```

#### Parameters

show

Show running system information

history

Display the session command history

### 1.3.35 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

---

### 1.3.36 show online-help

#### Command

```
show online-help
```

#### Parameters

##### show

Show running system information

##### online-help

Online help

### 1.3.37 show startup-config

#### Command

```
show startup-config
```

#### Parameters

##### show

Show running system information

##### startup-config

Contentes of startup configuration

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

#### Command

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

#### Parameters

##### show

Show running system information

##### talloc-context

Show talloc memory hierarchy

##### application

Application's context

##### global

Global context (OTC\_GLOBAL)

##### all

All contexts, if NULL-context tracking is enabled

---



full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

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

Command

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

Parameters

show

Show running system information

talloc-context

Show talloc memory hierarchy

application

Application's context

global

Global context (OTC\_GLOBAL)

all

All contexts, if NULL-context tracking is enabled

full

Display a full talloc memory hierarchy

brief

Display a brief talloc memory hierarchy

DEPTH

Specify required maximal depth value

filter

Filter chunks using regular expression

REGEXP

Regular expression

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

#### Command

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

#### Parameters

##### show

Show running system information

##### talloc-context

Show talloc memory hierarchy

##### application

Application's context

##### global

Global context (OTC\_GLOBAL)

##### all

All contexts, if NULL-context tracking is enabled

##### full

Display a full talloc memory hierarchy

##### brief

Display a brief talloc memory hierarchy

##### DEPTH

Specify required maximal depth value

##### tree

Display only a specific memory chunk

##### ADDRESS

Chunk address (e.g. 0xdeadbeef)

### 1.3.41 show version

#### Command

```
show version
```

#### Parameters

##### show

Show running system information

##### version

Displays program version

### 1.3.42 shutdown

#### Command

```
shutdown
```

#### Parameters

##### shutdown

Request a shutdown of the program

### 1.3.43 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)

### 1.3.44 terminal monitor

#### Command

```
terminal monitor
```

#### Parameters

##### terminal

Set terminal line parameters

##### monitor

Copy debug output to the current terminal line

### 1.3.45 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

### 1.3.46 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

### 1.3.47 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 cells

#### Command

```
cells
```

#### Parameters

##### cells

Configure cell locations

### 1.4.4 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

### 1.4.5 ctrl

#### Command

```
ctrl
```

#### Parameters

ctrl

Configure the Control Interface

### 1.4.6 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

---

### 1.4.7 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

### 1.4.8 hostname WORD

#### Command

```
hostname WORD
```

#### Parameters

##### hostname

Set system's network name

##### WORD

This system's network name

### 1.4.9 line vty

#### Command

```
line vty
```

#### Parameters

##### line

Configure a terminal line

##### vtty

Virtual terminal

### 1.4.10 log alarms <2-32700>

#### Command

```
log alarms <2-32700>
```

#### Parameters

log

Configure logging sub-system

alarms

Logging alarms to osmo\_strrb

<2-32700>

Maximum number of messages to log

### 1.4.11 log file FILENAME [blocking-io]

#### Command

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

#### Parameters

log

Configure logging sub-system

file

Logging to text file

FILENAME

Filename

[blocking-io]

Use blocking, synchronous I/O

### 1.4.12 log gsmtap [HOSTNAME]

#### Command

```
log gsmtap [HOSTNAME]
```

#### Parameters

log

Configure logging sub-system

gsmtap

Logging via GSMTAP

[HOSTNAME]

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

---



### 1.4.13 log stderr [blocking-io]

#### Command

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

#### Parameters

log

Configure logging sub-system

stderr

Logging via STDERR of the process

[blocking-io]

Use blocking, synchronous I/O

### 1.4.14 log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp)

#### Command

```
log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp)
```

#### Parameters

log

Configure logging sub-system

syslog

Logging via syslog

authpriv

Security/authorization messages facility

cron

Clock daemon (cron/at) facility

daemon

General system daemon facility

ftp

Ftp daemon facility

lpr

Line printer facility

mail

Mail facility

news

News facility

user

Generic facility

uucp

UUCP facility

---

### 1.4.15 log syslog local <0-7>

#### Command

```
log syslog local <0-7>
```

#### Parameters

log

Configure logging sub-system

syslog

Logging via syslog

local

Syslog LOCAL facility

<0-7>

Local facility number

### 1.4.16 log systemd-journal [raw]

#### Command

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

#### Parameters

log

Configure logging sub-system

systemd-journal

Logging to systemd-journal

[raw]

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

### 1.4.17 no banner motd

#### Command

```
no banner motd
```

#### Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

### 1.4.18 no enable password

#### Command

```
no enable password
```

#### Parameters

no

Negate a command or set its defaults

enable

Modify enable password parameters

password

Assign the privileged level password

### 1.4.19 no hostname [HOSTNAME]

#### Command

```
no hostname [HOSTNAME]
```

#### Parameters

no

Negate a command or set its defaults

hostname

Reset system's network name

[HOSTNAME]

Host name of this router

### 1.4.20 no log alarms

#### Command

```
no log alarms
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

alarms

Logging alarms to osmo\_strrb

### 1.4.21 no log file FILENAME

#### Command

```
no log file FILENAME
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

file

Logging to text file

FILENAME

Filename

### 1.4.22 no log gsmtap [HOSTNAME]

#### Command

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

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

gsmtap

Logging via GSMTAP

[HOSTNAME]

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

### 1.4.23 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

---

### 1.4.24 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

### 1.4.25 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

### 1.4.26 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

---

### 1.4.27 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)

### 1.4.28 password (8|) WORD

#### Command

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

#### Parameters

password

Assign the terminal connection password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN line password string

### 1.4.29 password LINE

#### Command

```
password LINE
```

#### Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

---

### 1.4.30 service advanced-vty

#### Command

```
service advanced-vty
```

#### Parameters

##### service

Set up miscellaneous service

##### advanced-vty

Enable advanced mode vty interface

### 1.4.31 service terminal-length <0-512>

#### Command

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

#### Parameters

##### service

Set up miscellaneous service

##### terminal-length

System wide terminal length configuration

##### <0-512>

Number of lines of VTY (0 means no line control)

### 1.4.32 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

## 1.5 config-log

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

---

### 1.5.1 logging color (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

---



### 1.5.3 logging level (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|...

#### Command

```
logging level (smlc|ref|lb|lcs|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↵
             lgsup|loap|lss7|lscgp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lndata|lnssignal| ↵
             liuup|lpfcp|lcsn1|lio) (debug|info|notice|error|fatal)
```

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### smlc

Serving Mobile Location Center

##### ref

Reference Counting

##### lb

Lb interface

##### lcs

Location Services

##### 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

lms

GPRS NS layer

lbssgp

GPRS BSSGP layer

lmsdata

GPRS NS layer data PDU

lmsignal

GPRS NS layer signal PDU

liuup

Iu UP layer

lpfcp

libosmo-pfcp Packet Forwarding Control Protocol

lcsn1

libosmo-csn1 Concrete Syntax Notation 1 codec

lio

libosmocore IO Subsystem

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

level

Set the log level for a specified category

force-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

---

## logging

Configure logging

## level

Set the log level for a specified category

## set-all

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

## debug

Log debug messages and higher levels

## info

Log informational messages and higher levels

## notice

Log noticeable messages and higher levels

## error

Log error messages and higher levels

## fatal

Log only fatal messages

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### category

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with category/subsystem name

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### category-hex

Configure log message

0

Don't prefix each log message

1

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### file

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with the source file and line

##### basename

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

##### [last]

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### level

Configure log message

##### 0

Don't prefix each log message

##### 1

Prefix each log message with the log level name

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### print

Log output settings

##### thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

### 1.5.12 logging timestamp (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

### 1.5.13 no logging level force-all

#### Command

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

#### Parameters

---

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

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

## 1.6 config-line

### 1.6.1 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

### 1.6.2 login

Command

```
login
```

Parameters

login

Enable password checking

### 1.6.3 no login

Command

```
no login
```

Parameters

no

Negate a command or set its defaults

login

Enable password checking



## 1.7 config-ctrl

### 1.7.1 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

## 1.8 config-cs7

### 1.8.1 as NAME (sua|m3ua|ipa)

Command

```
as NAME (sua|m3ua|ipa)
```

Global attributes

Flag: !

This command applies immediately

Parameters

as

Configure an Application Server

NAME

Name of the Application Server

sua

SCCP User Adaptation

m3ua

MTP3 User Adaptation

ipa

IPA Multiplex (SCCP Lite)

## 1.8.2 asp NAME <0-65535> <0-65535> (sua|m3ua|ipa)

### Command

```
asp NAME <0-65535> <0-65535> (sua|m3ua|ipa)
```

### Global attributes

Flag: @

This command applies on VTY node exit

### Parameters

asp

Configure Application Server Process

NAME

Name of ASP

<0-65535>

Remote SCTP port number

<0-65535>

Local SCTP port number

sua

SCCP User Adaptation

m3ua

MTP3 User Adaptation

ipa

IPA Multiplex (SCCP Lite)

## 1.8.3 description .TEXT

### Command

```
description .TEXT
```

### Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.8.4 network-indicator (international | national | reserved | spare)

#### Command

```
network-indicator (international | national | reserved | spare)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

network-indicator

Configure the Network Indicator

international

International Network

national

National Network

reserved

Reserved Network

spare

Spare Network

### 1.8.5 no as NAME

#### Command

```
no as NAME
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

as

Disable Application Server

NAME

Name of AS

### 1.8.6 no asp NAME

#### Command

```
no asp NAME
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

asp

Disable Application Server Process

NAME

Name of ASP

### 1.8.7 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

### 1.8.8 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

### 1.8.9 point-code delimiter (default|dash)

#### Command

```
point-code delimiter (default|dash)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Point Code

delimiter

Configure Point Code Delimiter

default

Use dot as delimiter

dash

User dash as delimiter

### 1.8.10 point-code format <1-24> [<1-23>] [<1-22>]

#### Command

```
point-code format <1-24> [<1-23>] [<1-22>]
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Point Code

format

Configure Point Code Format

<1-24>

Length of first PC component

[<1-23>]

Length of second PC component

[<1-22>]

Length of third PC component

### 1.8.11 point-code format default

#### Command

```
point-code format default
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Point Code

format

Configure Point Code Format

default

Default Point Code Format (3.8.3)

---

### 1.8.12 sccp max-optional-data (<0-999999>|standard)

#### Command

```
sccp max-optional-data (<0-999999>|standard)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

sccp

Configure SCCP behavior

max-optional-data

Adjust the upper bound for the optional data length (the payload) for CR, CC, CREF and RLSD messages. For any Optional Data part larger than this value in octets, send CR, CC, CREF and RLSD messages without any payload, and send the data payload in a separate Data Form 1 message. ITU-T Q.713 sections 4.2 thru 4.5 define a limit of 130 bytes for the 'Data' parameter. This limit can be adjusted here. May be useful for interop with nonstandard SCCP peers.

<0-999999>

Set a non-standard maximum allowed number of bytes

standard

Use the ITU-T Q.713 4.2 to 4.5 standard value of 130

### 1.8.13 sccp-address NAME

#### Command

```
sccp-address NAME
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

sccp-address

Create/Modify an SCCP addressbook entry

NAME

Name of the SCCP Address

---

### 1.8.14 sccp-timer (conn\_est|ias|iar|rel|repeat\_rel|int|guard|reset|reassembly) <1-99999...

#### Command

```
sccp-timer (conn_est|ias|iar|rel|repeat_rel|int|guard|reset|reassembly) <1-999999>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

##### sccp-timer

Configure SCCP timer values, see ITU-T Q.714

##### conn\_est

Waiting for connection confirm message, 1 to 2 minutes (default: 60)

##### ias

Send keep-alive: on an idle connection, delay before sending an Idle Timer message, 5 to 10 minutes (default: 420)

##### iar

Receive keep-alive: on an idle connection, delay until considering a connection as stale, 11 to 21 minutes (default: 900)

##### rel

Waiting for release complete message, 10 to 20 seconds (default: 10)

##### repeat\_rel

Waiting for release complete message; or to repeat sending released message after the initial expiry, 10 to 20 seconds (default: 10)

##### int

Waiting for release complete message; or to release connection resources, freeze the LRN and alert a maintenance function after the initial expiry, extending to 1 minute (default: 60)

##### guard

Waiting to resume normal procedure for temporary connection sections during the restart procedure, 23 to 25 minutes (default: 1380)

##### reset

Waiting to release temporary connection section or alert maintenance function after reset request message is sent, 10 to 20 seconds (default: 10)

##### reassembly

Waiting to receive all the segments of the remaining segments, single segmented message after receiving the first segment, 10 to 20 seconds (default: 10)

##### <1-999999>

Timer value, in seconds

---



### 1.8.15 xua rkm routing-key-allocation (static-only|dynamic-permitted)

#### Command

```
xua rkm routing-key-allocation (static-only|dynamic-permitted)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

xua

SIGTRAN xxxUA related

rkm

Routing Key Management

routing-key-allocation

Routing Key Management Allocation Policy

static-only

Only static (pre-configured) Routing Keys permitted

dynamic-permitted

Dynamically allocate Routing Keys for what ASPs request

## 1.9 config-cs7-as

### 1.9.1 asp NAME

#### Command

```
asp NAME
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

asp

Specify that a given ASP is part of this AS

NAME

Name of ASP to be added to AS

### 1.9.2 description .TEXT

#### Command

```
description .TEXT
```

#### Parameters

##### description

Save human-readable description of the object

##### .TEXT

Text until the end of the line

### 1.9.3 no asp NAME

#### Command

```
no asp NAME
```

#### Global attributes

##### Flag: !

This command applies immediately

#### Parameters

##### no

Negate a command or set its defaults

##### asp

Specify ASP to be removed from this AS

##### NAME

Name of ASP to be removed

### 1.9.4 no traffic-mode

#### Command

```
no traffic-mode
```

#### Parameters

##### no

Negate a command or set its defaults

##### traffic-mode

Remove explicit traffic mode of operation of this AS

---

### 1.9.5 point-code override dpc PC

#### Command

```
point-code override dpc PC
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Point Code Specific Features

override

Override (force) a point-code to hard-coded value

dpc

Override Source Point Code

PC

Override Destination Point Code

### 1.9.6 point-code override patch-sccp (disabled|both)

#### Command

```
point-code override patch-sccp (disabled|both)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Point Code Specific Features

override

Override (force) a point-code to hard-coded value

patch-sccp

Patch point code values into SCCP called/calling address

disabled

Don't patch any point codes into SCCP called/calling address

both

Patch both origin and destination point codes into SCCP called/calling address

---

### 1.9.7 qos-class <0-255>

#### Command

```
qos-class <0-255>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

qos-class

Specify QoS Class of AS

<0-255>

QoS Class of AS

### 1.9.8 recovery-timeout <1-2000>

#### Command

```
recovery-timeout <1-2000>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

recovery-timeout

Specifies the recovery timeout value in milliseconds

<1-2000>

Recovery Timeout in Milliseconds

### 1.9.9 routing-key RCONTEXT DPC

#### Command

```
routing-key RCONTEXT DPC
```

#### Global attributes

Flag: !

This command applies immediately

## Parameters

### routing-key

Define a routing key

### RCONTEXT

Routing context number

### DPC

Destination Point Code

## 1.9.10 routing-key RCONTEXT DPC si (aal2|bicc|b-isup|h248|isup|sat-isup|sccp|tup)

## Command

```
routing-key RCONTEXT DPC si (aal2|bicc|b-isup|h248|isup|sat-isup|sccp|tup)
```

## Global attributes

### Flag: !

This command applies immediately

## Parameters

### routing-key

Define a routing key

### RCONTEXT

Routing context number

### DPC

Destination Point Code

### si

Match on Service Indicator

### aal2

ATM Adaption Layer 2

### bicc

Bearer Independent Call Control

### b-isup

Broadband ISDN User Part

### h248

H.248

### isup

ISDN User Part

### sat-isup

Sattelite ISDN User Part

### sccp

Signalling Connection Control Part

### tup

Telephony User Part

### 1.9.11 routing-key RCONTEXT DPC si (aal2|bicc|b-isup|h248|isup|sat-isup|sccp|tup) ssn S...

#### Command

```
routing-key RCONTEXT DPC si (aal2|bicc|b-isup|h248|isup|sat-isup|sccp|tup) ssn SSN
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

##### routing-key

Define a routing key

##### RCONTEXT

Routing context number

##### DPC

Destination Point Code

##### si

Match on Service Indicator

##### aal2

ATM Adaption Layer 2

##### bicc

Bearer Independent Call Control

##### b-isup

Broadband ISDN User Part

##### h248

H.248

##### isup

ISDN User Part

##### sat-isup

Sattelite ISDN User Part

##### sccp

Signalling Connection Control Part

##### tup

Telephony User Part

##### ssn

Match on Sub-System Number

##### SSN

Sub-System Number to match on

---

### 1.9.12 routing-key RCONTEXT DPC ssn SSN

#### Command

```
routing-key RCONTEXT DPC ssn SSN
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

routing-key

Define a routing key

RCONTEXT

Routing context number

DPC

Destination Point Code

ssn

Match on Sub-System Number

SSN

Sub-System Number to match on

### 1.9.13 traffic-mode (broadcast | loadshare | roundrobin | override)

#### Command

```
traffic-mode (broadcast | loadshare | roundrobin | override)
```

#### Parameters

traffic-mode

Specifies traffic mode of operation of the ASP within the AS

broadcast

Broadcast to all ASP within AS

loadshare

Share Load among all ASP within AS

roundrobin

Round-Robin between all ASP within AS

override

Override

---

## 1.10 config-cs7-asp

### 1.10.1 block

Command

```
block
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

block

Allows a SCTP Association with ASP, but doesn't let it become active

### 1.10.2 description .TEXT

Command

```
description .TEXT
```

Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.10.3 local-ip (A.B.C.D|X:X::X:X) [primary]

Command

```
local-ip (A.B.C.D|X:X::X:X) [primary]
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

local-ip

Specify Local IP Address from which to contact ASP

A.B.C.D

Local IPv4 Address from which to contact of ASP

X:X::X:X

Local IPv6 Address from which to contact of ASP

[primary]

Signal the SCTP peer to use this address as Primary Address

---



### 1.10.4 no quirk (no\_notify|daud\_in\_asp|snm\_inactive)

#### Command

```
no quirk (no_notify|daud_in_asp|snm_inactive)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

quirk

Disable quirk to work around interop issues

no\_notify

Peer SG doesn't send NTFY(AS-INACTIVE) after ASP-UP

daud\_in\_asp

Allow Rx of DAUD in ASP role

snm\_inactive

Allow Rx of [S]SNM in AS-INACTIVE state

### 1.10.5 no sctp-param init (num-ostreams|max-instreams|max-attempts|timeout)

#### Command

```
no sctp-param init (num-ostreams|max-instreams|max-attempts|timeout)
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

no

Negate a command or set its defaults

sctp-param

Configure SCTP parameters

init

Configure INIT related parameters

num-ostreams

Configure INIT Number of Outbound Streams

---

max-instreams

Configure INIT Maximum Inboud Streams

max-attempts

Configure INIT Maximum Attempts

timeout

Configure INIT Timeout (milliseconds)

### 1.10.6 qos-class <0-255>

Command

```
qos-class <0-255>
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

qos-class

Specify QoS Class of ASP

<0-255>

QoS Class of ASP

### 1.10.7 quirk (no\_notify|daud\_in\_asp|snm\_inactive)

Command

```
quirk (no_notify|daud_in_asp|snm_inactive)
```

Global attributes

Flag: !

This command applies immediately

Parameters

quirk

Enable quirk to work around interop issues

no\_notify

Peer SG doesn't send NTFY(AS-INACTIVE) after ASP-UP

daud\_in\_asp

Allow Rx of DAUD in ASP role

snm\_inactive

Allow Rx of [S]SNM in AS-INACTIVE state

### 1.10.8 remote-ip (A.B.C.D|X:X::X:X) [primary]

#### Command

```
remote-ip (A.B.C.D|X:X::X:X) [primary]
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

remote-ip

Specify Remote IP Address of ASP

A.B.C.D

Remote IPv4 Address of ASP

X:X::X:X

Remote IPv6 Address of ASP

[primary]

Set remote address as SCTP Primary Address

### 1.10.9 role (sg|asp|ipsp)

#### Command

```
role (sg|asp|ipsp)
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

role

Specify the xUA role for this ASP

sg

SG (Signaling Gateway)

asp

ASP (Application Server Process)

ipsp

IPSP (IP Signalling Point)

### 1.10.10 sctp-param init (num-ostreams|max-instreams|max-attempts|timeout) <0-65535>

#### Command

```
sctp-param init (num-ostreams|max-instreams|max-attempts|timeout) <0-65535>
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

sctp-param

Configure SCTP parameters

init

Configure INIT related parameters

num-ostreams

Configure INIT Number of Outbound Streams

max-instreams

Configure INIT Maximum Inboud Streams

max-attempts

Configure INIT Maximum Attempts

timeout

Configure INIT Timeout (milliseconds)

<0-65535>

Value of the parameter

### 1.10.11 sctp-role (client|server)

#### Command

```
sctp-role (client|server)
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

sctp-role

Specify the SCTP role for this ASP

client

Operate as SCTP client; connect to a server

server

Operate as SCTP server; wait for client connections

---

### 1.10.12 shutdown

#### Command

```
shutdown
```

#### Global attributes

Flag: @

This command applies on VTY node exit

#### Parameters

shutdown

Terminates SCTP association; New associations will be rejected

### 1.10.13 timer lm (wait\_asp\_up|wait\_notify|wait\_notify\_rkm|wait\_rk\_reg\_resp) <1-999999>

#### Command

```
timer lm (wait_asp_up|wait_notify|wait_notify_rkm|wait_rk_reg_resp) <1-999999>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

timer

Configure ASP default timer values

lm

Configure ASP default lm timer values

wait\_asp\_up

Restart ASP after timeout waiting for ASP UP (SG role) / ASP UP ACK (ASP role) (s) (default: 20)

wait\_notify

Restart ASP after timeout waiting for NOTIFY (s) (default: 2)

wait\_notify\_rkm

Restart ASP after timeout waiting for NOTIFY after RKM registration (s) (default: 20)

wait\_rk\_reg\_resp

Restart ASP after timeout waiting for RK\_REG\_RESP (s) (default: 10)

<1-999999>

Timer value, in seconds

## 1.11 config-cs7-sccpaddr

### 1.11.1 global-title

Command

```
global-title
```

Global attributes

Flag: !

This command applies immediately

Parameters

global-title

Add/Modify Global Title

### 1.11.2 no global-title

Command

```
no global-title
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

global-title

Remove Global Title

### 1.11.3 no point-code

Command

```
no point-code
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

point-code

Remove point-code Number

### 1.11.4 no subsystem-number

#### Command

```
no subsystem-number
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

subsystem-number

Remove Subsystem Number

### 1.11.5 point-code POINT\_CODE

#### Command

```
point-code POINT_CODE
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

point-code

Add point-code Number

POINT\_CODE

PC

### 1.11.6 routing-indicator (GT|PC|IP)

#### Command

```
routing-indicator (GT|PC|IP)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

routing-indicator

Add Routing Indicator

GT

by global-title

PC

by point-code

IP

by ip-address

### 1.11.7 subsystem-number <0-4294967295>

#### Command

```
subsystem-number <0-4294967295>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

subsystem-number

Add Subsystem Number

<0-4294967295>

SSN

## 1.12 config-cs7-sccpaddr-gt

### 1.12.1 digits DIGITS

#### Command

```
digits DIGITS
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

digits

Set Global Title Digits

DIGITS

Number digits



### 1.12.2 global-title-indicator <0-15>

#### Command

```
global-title-indicator <0-15>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

global-title-indicator

Set Global Title Indicator

<0-15>

GTI

### 1.12.3 nature-of-address-indicator <0-127>

#### Command

```
nature-of-address-indicator <0-127>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

nature-of-address-indicator

Set Global Title Nature of Address Indicator

<0-127>

NAI

### 1.12.4 numbering-plan-indicator <0-15>

#### Command

```
numbering-plan-indicator <0-15>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

numbering-plan-indicator

Set Global Title Numbering Plan Indicator

<0-15>

NPI

---

### 1.12.5 translation-type <0-255>

#### Command

```
translation-type <0-255>
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

#### translation-type

Set Global Title Translation Type

<0-255>

TT

## 1.13 config-cells

### 1.13.1 cgi <0-999> <0-999> <0-65535> <0-65535> lat LATITUDE lon LONGITUDE

#### Command

```
cgi <0-999> <0-999> <0-65535> <0-65535> lat LATITUDE lon LONGITUDE
```

#### Parameters

#### cgi

Cell location by Cell-Global ID

<0-999>

MCC

<0-999>

MNC

<0-65535>

LAC

<0-65535>

CI

#### lat

Global latitude coordinate

#### LATITUDE

Latitude floating-point number, -90.0 (S) to 90.0 (N)

#### lon

Global longitude coordinate

#### LONGITUDE

Longitude as floating-point number, -180.0 (W) to 180.0 (E)

---

### 1.13.2 lac-ci <0-65535> <0-65535> lat LATITUDE lon LONGITUDE

#### Command

```
lac-ci <0-65535> <0-65535> lat LATITUDE lon LONGITUDE
```

#### Parameters

lac-ci

Cell location by LAC and CI

<0-65535>

LAC

<0-65535>

CI

lat

Global latitude coordinate

LATITUDE

Latitude floating-point number, -90.0 (S) to 90.0 (N)

lon

Global longitude coordinate

LONGITUDE

Longitude as floating-point number, -180.0 (W) to 180.0 (E)

### 1.13.3 no cgi <0-999> <0-999> <0-65535> <0-65535>

#### Command

```
no cgi <0-999> <0-999> <0-65535> <0-65535>
```

#### Parameters

no

Negate a command or set its defaults

cgi

Remove Cell location by Cell-Global ID

<0-999>

MCC

<0-999>

MNC

<0-65535>

LAC

<0-65535>

CI

### 1.13.4 no lac-ci <0-65535> <0-65535>

#### Command

```
no lac-ci <0-65535> <0-65535>
```

#### Parameters

no

Negate a command or set its defaults

lac-ci

Remove Cell location by LAC and CI

<0-65535>

LAC

<0-65535>

CI