

## **OsmoPCU VTY Reference**

Copyright © 2014-2021

This work is copyright by sysmocom - s.f.m.c. GmbH. All rights reserved.

<b>COLLABORATORS</b>
----------------------

	<i>TITLE :</i> OsmoPCU VTY Reference		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		June 14, 2025	

<b>REVISION HISTORY</b>
-------------------------

NUMBER	DATE	DESCRIPTION	NAME

# 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	5
1.2	view	5
1.2.1	enable [expert-mode]	5
1.2.2	logging color (0 1)	5
1.2.3	logging disable	6
1.2.4	logging enable	6
1.2.5	logging filter all (0 1)	6
1.2.6	logging level (csn ll if rlc mac rlc mac data rlc mac dll rlc mac ull rlc mac sched rlc mac ...	7
1.2.7	logging level force-all (debug info notice error fatal)	10
1.2.8	logging level set-all (debug info notice error fatal)	10
1.2.9	logging print category (0 1)	11
1.2.10	logging print category-hex (0 1)	12
1.2.11	logging print extended-timestamp (0 1)	12
1.2.12	logging print file (0 1 basename) [last]	13
1.2.13	logging print level (0 1)	13
1.2.14	logging print thread-id (0 1)	14
1.2.15	logging set-log-mask MASK	14
1.2.16	logging timestamp (0 1)	15

1.2.17	logp (csn1lll1ifrlcmacr rlcmacdata rlcmacd rlcmacul rlcmacsched rlcmacmeas ms tb...	15
1.2.18	no logging level force-all	18
1.2.19	show alarms	18
1.2.20	show asciidoc counters	19
1.2.21	show bts pdch	19
1.2.22	show bts statistics	19
1.2.23	show bts-timer [TNNNN]	20
1.2.24	show cpu-sched threads	20
1.2.25	show e1_driver	20
1.2.26	show e1_line [<0-255>] [stats]	21
1.2.27	show e1_timeslot [<0-255>] [<0-31>]	21
1.2.28	show fsm NAME	21
1.2.29	show fsm all	22
1.2.30	show fsm-instances NAME	22
1.2.31	show fsm-instances all	22
1.2.32	show fsm-state-graph NAME	23
1.2.33	show history	23
1.2.34	show logging vty	23
1.2.35	show ms all	24
1.2.36	show ms imsi IMSI	24
1.2.37	show ms tlli TLLI	24
1.2.38	show online-help	25
1.2.39	show pid	25
1.2.40	show rate-counters [skip-zero]	25
1.2.41	show runtime	26
1.2.42	show stats [skip-zero]	26
1.2.43	show stats level (global peer subscriber) [skip-zero]	26
1.2.44	show talloc-context (application global all) (full brief DEPTH)	27
1.2.45	show talloc-context (application global all) (full brief DEPTH) filter REGEXP	28
1.2.46	show talloc-context (application global all) (full brief DEPTH) tree ADDRESS	28
1.2.47	show tbf (all ccch pacch)	29
1.2.48	show timer [TNNNN]	30
1.2.49	show uptime	30
1.2.50	show version	30
1.2.51	terminal length <0-512>	31
1.2.52	terminal no length	31
1.2.53	who	31
1.3	enable	32
1.3.1	configure [terminal]	32

1.3.2	copy running-config startup-config . . . . .	32
1.3.3	disable . . . . .	32
1.3.4	logging color (0 1) . . . . .	33
1.3.5	logging disable . . . . .	33
1.3.6	logging enable . . . . .	33
1.3.7	logging filter all (0 1) . . . . .	34
1.3.8	logging level (csn1 l1 f rlcmacr lcmacdata rlcmacd lrlcmacul rlcmacsched rlcmacm... . . . .	34
1.3.9	logging level force-all (debug info notice error fatal) . . . . .	37
1.3.10	logging level set-all (debug info notice error fatal) . . . . .	38
1.3.11	logging print category (0 1) . . . . .	38
1.3.12	logging print category-hex (0 1) . . . . .	39
1.3.13	logging print extended-timestamp (0 1) . . . . .	39
1.3.14	logging print file (0 1 basename) [last] . . . . .	40
1.3.15	logging print level (0 1) . . . . .	40
1.3.16	logging print thread-id (0 1) . . . . .	41
1.3.17	logging set-log-mask MASK . . . . .	41
1.3.18	logging timestamp (0 1) . . . . .	42
1.3.19	logp (csn1 l1 f rlcmacr lcmacdata rlcmacd lrlcmacul rlcmacsched rlcmacmeas ms tb... . . . .	42
1.3.20	no logging level force-all . . . . .	45
1.3.21	show alarms . . . . .	45
1.3.22	show asciidoc counters . . . . .	46
1.3.23	show bts pdch . . . . .	46
1.3.24	show bts statistics . . . . .	46
1.3.25	show bts-timer [TNNNN] . . . . .	47
1.3.26	show cpu-sched threads . . . . .	47
1.3.27	show e1_driver . . . . .	47
1.3.28	show e1_line [<0-255>] [stats] . . . . .	48
1.3.29	show e1_timeslot [<0-255>] [<0-31>] . . . . .	48
1.3.30	show fsm NAME . . . . .	48
1.3.31	show fsm all . . . . .	49
1.3.32	show fsm-instances NAME . . . . .	49
1.3.33	show fsm-instances all . . . . .	49
1.3.34	show fsm-state-graph NAME . . . . .	50
1.3.35	show history . . . . .	50
1.3.36	show logging vty . . . . .	50
1.3.37	show ms all . . . . .	51
1.3.38	show ms imsi IMSI . . . . .	51
1.3.39	show ms tlli TLLI . . . . .	51
1.3.40	show online-help . . . . .	52

1.3.41	show rate-counters [skip-zero]	52
1.3.42	show runtime	52
1.3.43	show startup-config	53
1.3.44	show stats [skip-zero]	53
1.3.45	show stats level (global peer subscriber) [skip-zero]	53
1.3.46	show talloc-context (application global all) (full brief DEPTH)	54
1.3.47	show talloc-context (application global all) (full brief DEPTH) filter REGEXP	55
1.3.48	show talloc-context (application global all) (full brief DEPTH) tree ADDRESS	55
1.3.49	show tbf (all ccch pacch)	56
1.3.50	show timer [TNNNN]	57
1.3.51	show version	57
1.3.52	shutdown	57
1.3.53	stats report	58
1.3.54	stats reset	58
1.3.55	terminal length <0-512>	58
1.3.56	terminal monitor	59
1.3.57	terminal no length	59
1.3.58	terminal no monitor	59
1.3.59	who	60
1.4	config	60
1.4.1	banner motd default	60
1.4.2	banner motd file [FILE]	60
1.4.3	cpu-sched	61
1.4.4	e1_input	61
1.4.5	enable password (8l) WORD	61
1.4.6	enable password LINE	62
1.4.7	hostname WORD	62
1.4.8	line vty	62
1.4.9	log alarms <2-32700>	63
1.4.10	log file FILENAME [blocking-io]	63
1.4.11	log gsmmap [HOSTNAME]	63
1.4.12	log stderr [blocking-io]	64
1.4.13	log syslog (authpriv cron daemon ftp lpr mail news user uucp)	64
1.4.14	log syslog local <0-7>	65
1.4.15	log systemd-journal [raw]	65
1.4.16	no banner motd	65
1.4.17	no enable password	66
1.4.18	no hostname [HOSTNAME]	66
1.4.19	no log alarms	66

1.4.20	no log file FILENAME . . . . .	67
1.4.21	no log gsmmap [HOSTNAME] . . . . .	67
1.4.22	no log stderr . . . . .	67
1.4.23	no log syslog . . . . .	68
1.4.24	no log systemd-journal . . . . .	68
1.4.25	no service advanced-vty . . . . .	68
1.4.26	no service terminal-length [<0-512>] . . . . .	69
1.4.27	no stats reporter log [NAME] . . . . .	69
1.4.28	no stats reporter statsd [NAME] . . . . .	70
1.4.29	password (8l) WORD . . . . .	70
1.4.30	password LINE . . . . .	70
1.4.31	pcu . . . . .	71
1.4.32	service advanced-vty . . . . .	71
1.4.33	service terminal-length <0-512> . . . . .	71
1.4.34	show history . . . . .	72
1.4.35	stats interval <0-65535> . . . . .	72
1.4.36	stats reporter log [NAME] . . . . .	72
1.4.37	stats reporter statsd [NAME] . . . . .	73
1.4.38	stats-tcp batch-size <1-65535> . . . . .	73
1.4.39	stats-tcp interval <0-65535> . . . . .	73
1.5	config-log . . . . .	74
1.5.1	logging color (0l1) . . . . .	74
1.5.2	logging filter all (0l1) . . . . .	74
1.5.3	logging level (csn1ll1lfrlcmacrclmacdataclrlcmacdllrlcmacullrlcmacschedrlcmacm... . . . .	75
1.5.4	logging level force-all (debuglinfofnoticeerrorlfatal) . . . . .	78
1.5.5	logging level set-all (debuglinfofnoticeerrorlfatal) . . . . .	78
1.5.6	logging print category (0l1) . . . . .	79
1.5.7	logging print category-hex (0l1) . . . . .	79
1.5.8	logging print extended-timestamp (0l1) . . . . .	80
1.5.9	logging print file (0l1 basename) [last] . . . . .	80
1.5.10	logging print level (0l1) . . . . .	81
1.5.11	logging print thread-id (0l1) . . . . .	81
1.5.12	logging timestamp (0l1) . . . . .	82
1.5.13	no logging level force-all . . . . .	82
1.6	config-stats . . . . .	83
1.6.1	disable . . . . .	83
1.6.2	enable . . . . .	83
1.6.3	flush-period <0-65535> . . . . .	83
1.6.4	level (global peer subscriber) . . . . .	84



1.6.5	local-ip ADDR . . . . .	84
1.6.6	mtu <100-65535> . . . . .	84
1.6.7	no local-ip . . . . .	85
1.6.8	no mtu . . . . .	85
1.6.9	no prefix . . . . .	85
1.6.10	prefix PREFIX . . . . .	86
1.6.11	remote-ip ADDR . . . . .	86
1.6.12	remote-port <1-65535> . . . . .	86
1.7	config-line . . . . .	87
1.7.1	bind A.B.C.D [<0-65535>] . . . . .	87
1.7.2	login . . . . .	87
1.7.3	no login . . . . .	87
1.8	config-e1_input . . . . .	88
1.8.1	e1_line <0-255> connect-timeout <0-60> . . . . .	88
1.8.2	e1_line <0-255> driver (misdn misdn_lapd dahdile1d palunixsocket) . . . . .	88
1.8.3	e1_line <0-255> ipa-keepalive <1-300> <1-300> . . . . .	89
1.8.4	e1_line <0-255> keepalive . . . . .	89
1.8.5	e1_line <0-255> keepalive <1-300> <1-20> <1-300> . . . . .	90
1.8.6	e1_line <0-255> name .LINE . . . . .	91
1.8.7	e1_line <0-255> pcap .FILE . . . . .	91
1.8.8	e1_line <0-255> port <0-255> . . . . .	92
1.8.9	e1_line <0-255> socket .SOCKET . . . . .	92
1.8.10	ipa bind A.B.C.D . . . . .	93
1.8.11	ipa ip-dscp (oml rs ) <0-63> . . . . .	93
1.8.12	ipa socket-priority (oml rs ) <0-255> . . . . .	94
1.8.13	no e1_line <0-255> ipa-keepalive . . . . .	94
1.8.14	no e1_line <0-255> keepalive . . . . .	95
1.8.15	no e1_line <0-255> pcap . . . . .	95
1.9	config-cpu-sched . . . . .	96
1.9.1	cpu-affinity (self all <0-4294967295> THREADNAME) CPUHEXMASK [delay] . . . . .	96
1.9.2	policy rr <1-32> . . . . .	96
1.10	config-pcu . . . . .	97
1.10.1	alloc-algorithm (alb dynamic) . . . . .	97
1.10.2	cs <1-4> [<1-4>] . . . . .	97
1.10.3	cs downgrade-threshold <1-10000> . . . . .	98
1.10.4	cs link-quality-ranges cs1 <0-35> cs2 <0-35> <0-35> cs3 <0-35> <0-35> cs4 <0-35> . . . . .	98
1.10.5	cs max <1-4> [<1-4>] . . . . .	99
1.10.6	cs threshold <0-100> <0-100> . . . . .	100
1.10.7	dl-tbf-preemptive-retransmission . . . . .	100

1.10.8	egprs dl arq-type (spblarq2)	101
1.10.9	flow-control bucket-time <1-65534>	101
1.10.10	flow-control force-bvc-bucket-size <1-6553500>	102
1.10.11	flow-control force-bvc-leak-rate <1-6553500>	102
1.10.12	flow-control force-ms-bucket-size <1-6553500>	103
1.10.13	flow-control force-ms-leak-rate <1-6553500>	103
1.10.14	flow-control-interval <1-10>	104
1.10.15	gamma <0-62>	104
1.10.16	gb ip-dscp <0-63>	104
1.10.17	gb socket-priority <0-255>	105
1.10.18	gb-dialect (classiclip-sns)	105
1.10.19	gsmtap-category (dl-unknown dl-dummy dl-ctrl dl-data-gprs dl-data-egprs dl-ptcch...	106
1.10.20	gsmtap-category (enable-all disable-all)	107
1.10.21	gsmtap-remote-host [HOSTNAME]	107
1.10.22	mcs <1-9> [<1-9>]	108
1.10.23	mcs link-quality-ranges mcs1 <0-35> mcs2 <0-35> <0-35> mcs3 <0-35> <0-35> mcs4 <...	108
1.10.24	mcs max <1-9> [<1-9>]	110
1.10.25	no cs	110
1.10.26	no cs downgrade-threshold	111
1.10.27	no cs max	111
1.10.28	no cs threshold	112
1.10.29	no dl-tbf-preemptive-retransmission	112
1.10.30	no flow-control bucket-time	113
1.10.31	no flow-control force-bvc-bucket-size	113
1.10.32	no flow-control force-bvc-leak-rate	114
1.10.33	no flow-control force-ms-bucket-size	114
1.10.34	no flow-control force-ms-leak-rate	115
1.10.35	no gsmtap-category (dl-unknown dl-dummy dl-ctrl dl-data-gprs dl-data-egprs dl-pt...	115
1.10.36	no gsmtap-remote-host	116
1.10.37	no mcs	117
1.10.38	no mcs max	117
1.10.39	no queue codel	118
1.10.40	no queue hysteresis	118
1.10.41	no queue idle-ack-delay	119
1.10.42	no queue lifetime	119
1.10.43	no two-phase-access	120
1.10.44	pcu-socket PATH	120
1.10.45	queue codel	120
1.10.46	queue codel interval <1-1000>	121

1.10.47 queue hysteresis <1-65535> . . . . .	121
1.10.48 queue idle-ack-delay <1-65535> . . . . .	122
1.10.49 queue lifetime <1-65534> . . . . .	122
1.10.50 queue lifetime infinite . . . . .	123
1.10.51 timer [TNNNN] [(<0-2147483647> default)] . . . . .	123
1.10.52 two-phase-access . . . . .	124
1.10.53 window-size <0-1024> [<0-256>] . . . . .	124

# 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 (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacm...

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms| ↵
    tbf|tbfdl|tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↵
    |lstats|lgsup|loap|lss7|lscdp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lms|lbssgp|lndata| ↵
    lnsignal|liuup|lpfcp|lcsn1|lio) (debug|info|notice|error|fatal)
```

Parameters

logging

Configure logging

level

Set the log level for a specified category

csn1

Concrete Syntax Notation One (CSN1)

l1if

GPRS PCU L1 interface (L1IF)

rlcmac

GPRS RLC/MAC layer (RLCMAC)

rlcmacdata

GPRS RLC/MAC layer Data (RLCMAC)

rlcmacdl

GPRS RLC/MAC layer Downlink (RLCMAC)

rlcmacul

GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched

GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas

GPRS RLC/MAC layer Measurements (RLCMAC)

ms

Mobile Station (MS)

---

tbf	Temporary Block Flow (TBF)
tbfdl	Temporary Block Flow (TBF) Downlink
tbful	Temporary Block Flow (TBF) Uplink
ns	GPRS Network Service Protocol (NS)
pcu	GPRS Packet Control Unit (PCU)
nacc	Network Assisted Cell Change (NACC)
rim	RAN Information Management (RIM)
e1	E1 line handling
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 (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tb...

#### Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tbfdl ↔
|tbful|ns|pcu|nacc|rim|el|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

##### csn1

Concrete Syntax Notation One (CSN1)

##### l1if

GPRS PCU L1 interface (L1IF)

##### rlcmac

GPRS RLC/MAC layer (RLCMAC)

##### rlcmacdata

GPRS RLC/MAC layer Data (RLCMAC)

##### rlcmacdl

GPRS RLC/MAC layer Downlink (RLCMAC)

##### rlcmacul

GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched

GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas

GPRS RLC/MAC layer Measurements (RLCMAC)

ms

Mobile Station (MS)

tbf

Temporary Block Flow (TBF)

tbfdl

Temporary Block Flow (TBF) Downlink

tbful

Temporary Block Flow (TBF) Uplink

ns

GPRS Network Service Protocol (NS)

pcu

GPRS Packet Control Unit (PCU)

nacc

Network Assisted Cell Change (NACC)

rim

RAN Information Management (RIM)

e1

E1 line handling

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 asciidoc counters

#### Command

```
show asciidoc counters
```

#### Parameters

show

Show running system information

asciidoc

Asciidoc generation

counters

Generate table of all registered counters

### 1.2.21 show bts pdch

#### Command

```
show bts pdch
```

#### Parameters

show

Show running system information

bts

BTS related functionality

pdch

PDCH timeslots

### 1.2.22 show bts statistics

#### Command

```
show bts statistics
```

#### Parameters

show

Show running system information

bts

BTS related functionality

statistics

Statistics

---

### 1.2.23 show bts-timer [TNNNN]

#### Command

```
show bts-timer [TNNNN]
```

#### Parameters

show

Show running system information

bts-timer

Show BTS controlled 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'.

### 1.2.24 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)

### 1.2.25 show e1\_driver

#### Command

```
show e1_driver
```

#### Parameters

show

Show running system information

e1\_driver

Display information about available E1 drivers

---



### 1.2.26 show e1\_line [<0-255>] [stats]

#### Command

```
show e1_line [<0-255>] [stats]
```

#### Parameters

##### show

Show running system information

##### e1\_line

Display information about a E1 line

##### [<0-255>]

E1 Line Number

##### [stats]

Include statistics

### 1.2.27 show e1\_timeslot [<0-255>] [<0-31>]

#### Command

```
show e1_timeslot [<0-255>] [<0-31>]
```

#### Parameters

##### show

Show running system information

##### e1\_timeslot

Display information about a E1 timeslot

##### [<0-255>]

E1 Line Number

##### [<0-31>]

E1 Timeslot Number

### 1.2.28 show fsm NAME

#### Command

```
show fsm NAME
```

#### Parameters

##### show

Show running system information

##### fsm

Show information about finite state machines

##### NAME

Display information about a single named finite state machine

---

### 1.2.29 show fsm all

#### Command

```
show fsm all
```

#### Parameters

show

Show running system information

fsm

Show information about finite state machines

all

Display a list of all registered finite state machines

### 1.2.30 show fsm-instances NAME

#### Command

```
show fsm-instances NAME
```

#### Parameters

show

Show running system information

fsm-instances

Show information about finite state machine instances

NAME

Display a list of all FSM instances of the named finite state machine

### 1.2.31 show fsm-instances all

#### Command

```
show fsm-instances all
```

#### Parameters

show

Show running system information

fsm-instances

Show information about finite state machine instances

all

Display a list of all FSM instances of all finite state machine

---

### 1.2.32 show fsm-state-graph NAME

#### Command

```
show fsm-state-graph NAME
```

#### Parameters

##### show

Show running system information

##### fsm-state-graph

Generate a state transition graph (using DOT language)

##### NAME

FSM name

### 1.2.33 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.2.34 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

---

### 1.2.35 show ms all

#### Command

```
show ms all
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### all

All TBFs

### 1.2.36 show ms imsi IMSI

#### Command

```
show ms imsi IMSI
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### imsi

Select MS by IMSI

##### IMSI

IMSI

### 1.2.37 show ms tlli TLLI

#### Command

```
show ms tlli TLLI
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### tlli

Select MS by TLLI

##### TLLI

TLLI as hex

### 1.2.38 show online-help

#### Command

```
show online-help
```

#### Parameters

##### show

Show running system information

##### online-help

Online help

### 1.2.39 show pid

#### Command

```
show pid
```

#### Parameters

##### show

Show running system information

##### pid

Displays the process ID

### 1.2.40 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

---

### 1.2.41 show runtime

#### Command

```
show runtime
```

#### Parameters

##### show

Show running system information

##### runtime

Display runtime information

### 1.2.42 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

### 1.2.43 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

#### 1.2.44 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

### 1.2.45 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

### 1.2.46 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)

### 1.2.47 show tbf (all|ccch|pacch)

Command

```
show tbf (all|ccch|pacch)
```

Parameters

show

Show running system information

tbf

information about TBFs

all

All TBFs

ccch

TBFs allocated via CCCH

pacch

TBFs allocated via PACCH

---

### 1.2.48 show timer [TNNNN]

#### Command

```
show timer [TNNNN]
```

#### Parameters

##### show

Show running system information

##### timer

Show PCU 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'.

### 1.2.49 show uptime

#### Command

```
show uptime
```

#### Parameters

##### show

Show running system information

##### uptime

Displays how long the program has been running

### 1.2.50 show version

#### Command

```
show version
```

#### Parameters

##### show

Show running system information

##### version

Displays program version

### 1.2.51 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)

### 1.2.52 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

### 1.2.53 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 (csn1|l1if|rlcmac|rlcmacdata|rlcmacd|rlcmacul|rlcmacsched|rlcmacm...

#### Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacd|rlcmacul|rlcmacsched|rlcmacmeas|ms| ↵
    tbf|tbfdl|tbful|ns|pcu|nacc|rim|el|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↵
    |lstats|lgsup|loap|lss7|lscpp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lms|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

##### csn1

Concrete Syntax Notation One (CSN1)

##### l1if

GPRS PCU L1 interface (L1IF)

---

rlcmac  
GPRS RLC/MAC layer (RLCMAC)

rlmacdata  
GPRS RLC/MAC layer Data (RLCMAC)

rlmacdl  
GPRS RLC/MAC layer Downlink (RLCMAC)

rlmacul  
GPRS RLC/MAC layer Uplink (RLCMAC)

rlmacsched  
GPRS RLC/MAC layer Scheduling (RLCMAC)

rlmacmeas  
GPRS RLC/MAC layer Measurements (RLCMAC)

ms  
Mobile Station (MS)

tbf  
Temporary Block Flow (TBF)

tbfdl  
Temporary Block Flow (TBF) Downlink

tbful  
Temporary Block Flow (TBF) Uplink

ns  
GPRS Network Service Protocol (NS)

pcu  
GPRS Packet Control Unit (PCU)

nacc  
Network Assisted Cell Change (NACC)

rim  
RAN Information Management (RIM)

e1  
E1 line handling

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

### 1.3.9 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 (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tb...

#### Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|ms|tbfdl ↔  
|tbful|ns|pcu|nacc|rim|el|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

##### csn1

Concrete Syntax Notation One (CSN1)

##### l1if

GPRS PCU L1 interface (L1IF)

##### rlcmac

GPRS RLC/MAC layer (RLCMAC)

##### rlcmacdata

GPRS RLC/MAC layer Data (RLCMAC)

##### rlcmacdl

GPRS RLC/MAC layer Downlink (RLCMAC)

##### rlcmacul

GPRS RLC/MAC layer Uplink (RLCMAC)

rlcmacsched

GPRS RLC/MAC layer Scheduling (RLCMAC)

rlcmacmeas

GPRS RLC/MAC layer Measurements (RLCMAC)

ms

Mobile Station (MS)

tbf

Temporary Block Flow (TBF)

tbfdl

Temporary Block Flow (TBF) Downlink

tbful

Temporary Block Flow (TBF) Uplink

ns

GPRS Network Service Protocol (NS)

pcu

GPRS Packet Control Unit (PCU)

nacc

Network Assisted Cell Change (NACC)

rim

RAN Information Management (RIM)

e1

E1 line handling

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 asciidoc counters

#### Command

```
show asciidoc counters
```

#### Parameters

##### show

Show running system information

##### asciidoc

Asciidoc generation

##### counters

Generate table of all registered counters

### 1.3.23 show bts pdch

#### Command

```
show bts pdch
```

#### Parameters

##### show

Show running system information

##### bts

BTS related functionality

##### pdch

PDCH timeslots

### 1.3.24 show bts statistics

#### Command

```
show bts statistics
```

#### Parameters

##### show

Show running system information

##### bts

BTS related functionality

##### statistics

Statistics

### 1.3.25 show bts-timer [TNNNN]

#### Command

```
show bts-timer [TNNNN]
```

#### Parameters

show

Show running system information

bts-timer

Show BTS controlled 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'.

### 1.3.26 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)

### 1.3.27 show e1\_driver

#### Command

```
show e1_driver
```

#### Parameters

show

Show running system information

e1\_driver

Display information about available E1 drivers

---

### 1.3.28 show e1\_line [<0-255>] [stats]

#### Command

```
show e1_line [<0-255>] [stats]
```

#### Parameters

##### show

Show running system information

##### e1\_line

Display information about a E1 line

##### [<0-255>]

E1 Line Number

##### [stats]

Include statistics

### 1.3.29 show e1\_timeslot [<0-255>] [<0-31>]

#### Command

```
show e1_timeslot [<0-255>] [<0-31>]
```

#### Parameters

##### show

Show running system information

##### e1\_timeslot

Display information about a E1 timeslot

##### [<0-255>]

E1 Line Number

##### [<0-31>]

E1 Timeslot Number

### 1.3.30 show fsm NAME

#### Command

```
show fsm NAME
```

#### Parameters

##### show

Show running system information

##### fsm

Show information about finite state machines

##### NAME

Display information about a single named finite state machine

---

### 1.3.31 show fsm all

#### Command

```
show fsm all
```

#### Parameters

show

Show running system information

fsm

Show information about finite state machines

all

Display a list of all registered finite state machines

### 1.3.32 show fsm-instances NAME

#### Command

```
show fsm-instances NAME
```

#### Parameters

show

Show running system information

fsm-instances

Show information about finite state machine instances

NAME

Display a list of all FSM instances of the named finite state machine

### 1.3.33 show fsm-instances all

#### Command

```
show fsm-instances all
```

#### Parameters

show

Show running system information

fsm-instances

Show information about finite state machine instances

all

Display a list of all FSM instances of all finite state machine

---

### 1.3.34 show fsm-state-graph NAME

#### Command

```
show fsm-state-graph NAME
```

#### Parameters

##### show

Show running system information

##### fsm-state-graph

Generate a state transition graph (using DOT language)

##### NAME

FSM name

### 1.3.35 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.3.36 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

---

### 1.3.37 show ms all

#### Command

```
show ms all
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### all

All TBFs

### 1.3.38 show ms imsi IMSI

#### Command

```
show ms imsi IMSI
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### imsi

Select MS by IMSI

##### IMSI

IMSI

### 1.3.39 show ms tlli TLLI

#### Command

```
show ms tlli TLLI
```

#### Parameters

##### show

Show running system information

##### ms

information about MSs

##### tlli

Select MS by TLLI

##### TLLI

TLLI as hex

### 1.3.40 show online-help

#### Command

```
show online-help
```

#### Parameters

##### show

Show running system information

##### online-help

Online help

### 1.3.41 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

### 1.3.42 show runtime

#### Command

```
show runtime
```

#### Parameters

##### show

Show running system information

##### runtime

Display runtime information

---



### 1.3.43 show startup-config

#### Command

```
show startup-config
```

#### Parameters

##### show

Show running system information

##### startup-config

Contentes of startup configuration

### 1.3.44 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

### 1.3.45 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

### 1.3.46 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

### 1.3.47 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

### 1.3.48 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)

### 1.3.49 show tbf (all|ccch|pacch)

Command

```
show tbf (all|ccch|pacch)
```

Parameters

show

Show running system information

tbf

information about TBFs

all

All TBFs

ccch

TBFs allocated via CCCH

pacch

TBFs allocated via PACCH

### 1.3.50 show timer [TNNNN]

#### Command

```
show timer [TNNNN]
```

#### Parameters

##### show

Show running system information

##### timer

Show PCU 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'.

### 1.3.51 show version

#### Command

```
show version
```

#### Parameters

##### show

Show running system information

##### version

Displays program version

### 1.3.52 shutdown

#### Command

```
shutdown
```

#### Parameters

##### shutdown

Request a shutdown of the program

### 1.3.53 stats report

#### Command

```
stats report
```

#### Parameters

stats

Stats related commands

report

Manurally trigger reporting of stats

### 1.3.54 stats reset

#### Command

```
stats reset
```

#### Parameters

stats

Stats related commands

reset

Reset all rate counter stats

### 1.3.55 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)

---

### 1.3.56 terminal monitor

#### Command

```
terminal monitor
```

#### Parameters

##### terminal

Set terminal line parameters

##### monitor

Copy debug output to the current terminal line

### 1.3.57 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

### 1.3.58 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

---

### 1.3.59 who

#### Command

```
who
```

#### Parameters

who

Display who is on vty

## 1.4 config

The config node is the root for all configuration commands, which are identical to the config file format. Changes made on the telnet VTY can be made persistent with the 'write file' command.

### 1.4.1 banner motd default

#### Command

```
banner motd default
```

#### Parameters

banner

Set banner string

motd

Strings for motd

default

Default string

### 1.4.2 banner motd file [FILE]

#### Command

```
banner motd file [FILE]
```

#### Parameters

banner

Set banner

motd

Banner for motd

file

Banner from a file

[FILE]

Filename

---



### 1.4.3 cpu-sched

#### Command

```
cpu-sched
```

#### Parameters

cpu-sched

Configure CPU Scheduler related settings

### 1.4.4 e1\_input

#### Command

```
e1_input
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

e1\_input

Configure E1/T1/J1 TDM input

### 1.4.5 enable password (8|) WORD

#### Command

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

#### Parameters

enable

Modify enable password parameters

password

Assign the privileged level password

8

Specifies a HIDDEN password will follow

dummy string

WORD

The HIDDEN 'enable' password string

---

### 1.4.6 enable password LINE

#### Command

```
enable password LINE
```

#### Parameters

##### enable

Modify enable password parameters

##### password

Assign the privileged level password

##### LINE

The UNENCRYPTED (cleartext) 'enable' password

### 1.4.7 hostname WORD

#### Command

```
hostname WORD
```

#### Parameters

##### hostname

Set system's network name

##### WORD

This system's network name

### 1.4.8 line vty

#### Command

```
line vty
```

#### Parameters

##### line

Configure a terminal line

##### vtty

Virtual terminal

### 1.4.9 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

### 1.4.10 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

### 1.4.11 log gsmmap [HOSTNAME]

#### Command

```
log gsmmap [HOSTNAME]
```

#### Parameters

log

Configure logging sub-system

gsmmap

Logging via GSMTAP

[HOSTNAME]

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

---

### 1.4.12 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

### 1.4.13 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

---

### 1.4.14 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

### 1.4.15 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

### 1.4.16 no banner motd

#### Command

```
no banner motd
```

#### Parameters

no

Negate a command or set its defaults

banner

Set banner string

motd

Strings for motd

---

### 1.4.17 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

### 1.4.18 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

### 1.4.19 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

### 1.4.20 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

### 1.4.21 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)

### 1.4.22 no log stderr

#### Command

```
no log stderr
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

stderr

Logging via STDERR of the process

---

### 1.4.23 no log syslog

#### Command

```
no log syslog
```

#### Parameters

no

Negate a command or set its defaults

log

Configure logging sub-system

syslog

Logging via syslog

### 1.4.24 no 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

### 1.4.25 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

---



### 1.4.26 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)

### 1.4.27 no stats reporter log [NAME]

#### Command

```
no stats reporter log [NAME]
```

#### Parameters

no

Negate a command or set its defaults

stats

Configure stats sub-system

reporter

Configure a stats reporter

log

Report to the logger

[NAME]

Name of the reporter

---

### 1.4.28 no stats reporter statsd [NAME]

#### Command

```
no stats reporter statsd [NAME]
```

#### Parameters

no

Negate a command or set its defaults

stats

Configure stats sub-system

reporter

Configure a stats reporter

statsd

Report to a STATSD server

[NAME]

Name of the reporter

### 1.4.29 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

### 1.4.30 password LINE

#### Command

```
password LINE
```

#### Parameters

password

Assign the terminal connection password

LINE

The UNENCRYPTED (cleartext) line password

### 1.4.31 pcu

#### Command

```
pcu
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

pcu

BTS specific configure

### 1.4.32 service advanced-vty

#### Command

```
service advanced-vty
```

#### Parameters

service

Set up miscellaneous service

advanced-vty

Enable advanced mode vty interface

### 1.4.33 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)

---

### 1.4.34 show history

#### Command

```
show history
```

#### Parameters

##### show

Show running system information

##### history

Display the session command history

### 1.4.35 stats interval <0-65535>

#### Command

```
stats interval <0-65535>
```

#### Parameters

##### stats

Configure stats sub-system

##### interval

Set the reporting interval

##### <0-65535>

Interval in seconds (0 disables the reporting interval)

### 1.4.36 stats reporter log [NAME]

#### Command

```
stats reporter log [NAME]
```

#### Parameters

##### stats

Configure stats sub-system

##### reporter

Configure a stats reporter

##### log

Report to the logger

##### [NAME]

Name of the reporter

---

### 1.4.37 stats reporter statsd [NAME]

#### Command

```
stats reporter statsd [NAME]
```

#### Parameters

stats

Configure stats sub-system

reporter

Configure a stats reporter

statsd

Report to a STATSD server

[NAME]

Name of the reporter

### 1.4.38 stats-tcp batch-size <1-65535>

#### Command

```
stats-tcp batch-size <1-65535>
```

#### Parameters

stats-tcp

Configure stats sub-system

batch-size

Set the number of tcp sockets that are processed per stats polling interval

<1-65535>

Number of sockets per interval

### 1.4.39 stats-tcp interval <0-65535>

#### Command

```
stats-tcp interval <0-65535>
```

#### Parameters

stats-tcp

Configure stats sub-system

interval

Set the tcp socket stats polling interval

<0-65535>

Interval in seconds (0 disables the polling interval)

---

## 1.5 config-log

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

### 1.5.1 logging color (0|1)

#### Command

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

#### Parameters

##### logging

Configure logging

##### color

Configure color-printing for log messages

0

Don't use color for printing messages

1

Use color for printing messages

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

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### filter

Filter log messages

all

Do you want to log all messages?

0

Only print messages matched by other filters

1

Bypass filter and print all messages

---

### 1.5.3 logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacd|rlcmacul|rlmacsched|rlcmacm...

#### Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacd|rlcmacul|rlmacsched|rlcmacmeas|ms| ↔
             tbf|tbfdl|tbful|ns|pcu|nacc|rim|e1|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp ↔
             |lstats|lgsup|loap|lss7|lscdp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lms|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

##### csn1

Concrete Syntax Notation One (CSN1)

##### l1if

GPRS PCU L1 interface (L1IF)

##### rlcmac

GPRS RLC/MAC layer (RLCMAC)

##### rlcmacdata

GPRS RLC/MAC layer Data (RLCMAC)

##### rlmacdl

GPRS RLC/MAC layer Downlink (RLCMAC)

##### rlmacul

GPRS RLC/MAC layer Uplink (RLCMAC)

##### rlmacsched

GPRS RLC/MAC layer Scheduling (RLCMAC)

##### rlmacmeas

GPRS RLC/MAC layer Measurements (RLCMAC)

##### ms

Mobile Station (MS)

##### tbf

Temporary Block Flow (TBF)

##### tbfdl

Temporary Block Flow (TBF) Downlink

##### tbful

Temporary Block Flow (TBF) Uplink

##### ns

GPRS Network Service Protocol (NS)

---

pcu  
GPRS Packet Control Unit (PCU)

nacc  
Network Assisted Cell Change (NACC)

rim  
RAN Information Management (RIM)

e1  
E1 line handling

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

---

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### force-all

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

##### debug

Log debug messages and higher levels

##### info

Log informational messages and higher levels

##### notice

Log noticeable messages and higher levels

##### error

Log error messages and higher levels

##### fatal

Log only fatal messages

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

#### Command

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

#### Parameters

##### logging

Configure logging

##### level

Set the log level for a specified category

##### set-all

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

debug

Log debug messages and higher levels

info

Log informational messages and higher levels

notice

Log noticeable messages and higher levels

error

Log error messages and higher levels

fatal

Log only fatal messages

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category

Configure log message

0

Don't prefix each log message

1

Prefix each log message with category/subsystem name

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

category-hex

Configure log message

0

Don't prefix each log message

1

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

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

extended-timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

file

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the source file and line

basename

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

[last]

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

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

level

Configure log message

0

Don't prefix each log message

1

Prefix each log message with the log level name

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

Command

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

Parameters

logging

Configure logging

print

Log output settings

thread-id

Configure log message logging Thread ID

0

Don't prefix each log message

1

Prefix each log message with current Thread ID

### 1.5.12 logging timestamp (0|1)

Command

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

Parameters

logging

Configure logging

timestamp

Configure log message timestamping

0

Don't prefix each log message

1

Prefix each log message with current timestamp

### 1.5.13 no logging level force-all

Command

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

Parameters

no

Negate a command or set its defaults

logging

Configure logging

level

Set the log level for a specified category

force-all

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

## 1.6 config-stats

### 1.6.1 disable

Command

```
disable
```

Parameters

disable

Disable the reporter

### 1.6.2 enable

Command

```
enable
```

Parameters

enable

Enable the reporter

### 1.6.3 flush-period <0-65535>

Command

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

Parameters

flush-period

Configure stats sub-system

<0-65535>

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

### 1.6.4 level (global|peer|subscriber)

#### Command

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

#### Parameters

##### level

Set the maximum group level

##### global

Report global groups only

##### peer

Report global and network peer related groups

##### subscriber

Report global, peer, and subscriber groups

### 1.6.5 local-ip ADDR

#### Command

```
local-ip ADDR
```

#### Parameters

##### local-ip

Set the IP address to which we bind locally

##### ADDR

IP Address

### 1.6.6 mtu <100-65535>

#### Command

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

#### Parameters

##### mtu

Set the maximum packet size

##### <100-65535>

Size in byte

---



### 1.6.7 no local-ip

#### Command

```
no local-ip
```

#### Parameters

no

Negate a command or set its defaults

local-ip

Set the IP address to which we bind locally

### 1.6.8 no mtu

#### Command

```
no mtu
```

#### Parameters

no

Negate a command or set its defaults

mtu

Set the maximum packet size

### 1.6.9 no prefix

#### Command

```
no prefix
```

#### Parameters

no

Negate a command or set its defaults

prefix

Set the item name prefix

### 1.6.10 prefix PREFIX

#### Command

```
prefix PREFIX
```

#### Parameters

##### prefix

Set the item name prefix

##### PREFIX

The prefix string

### 1.6.11 remote-ip ADDR

#### Command

```
remote-ip ADDR
```

#### Parameters

##### remote-ip

Set the remote IP address to which we connect

##### ADDR

IP Address

### 1.6.12 remote-port <1-65535>

#### Command

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

#### Parameters

##### remote-port

Set the remote port to which we connect

##### <1-65535>

Remote port number

---

## 1.7 config-line

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

#### Command

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

#### Parameters

bind

Accept VTY telnet connections on local interface

A.B.C.D

Local interface IP address (default: 127.0.0.1)

[<0-65535>]

Local TCP port number

### 1.7.2 login

#### Command

```
login
```

#### Parameters

login

Enable password checking

### 1.7.3 no login

#### Command

```
no login
```

#### Parameters

no

Negate a command or set its defaults

login

Enable password checking

## 1.8 config-e1\_input

### 1.8.1 e1\_line <0-255> connect-timeout <0-60>

Command

```
e1_line <0-255> connect-timeout <0-60>
```

Global attributes

Flag: !

This command applies immediately

Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

connect-timeout

Set connect timeout

<0-60>

Connect timeout in seconds (0 to disable)

### 1.8.2 e1\_line <0-255> driver (misdn|misdn\_lapd|dahdi|e1d|ipa|unixsocket)

Command

```
e1_line <0-255> driver (misdn|misdn_lapd|dahdi|e1d|ipa|unixsocket)
```

Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

driver

Set driver for this line

misdn

mISDN supported E1 Card (kernel LAPD)

misdn\_lapd

mISDN supported E1 Card (userspace LAPD)

---

dahdi

DAHDI supported E1/T1/J1 Card

e1d

osmo-e1d supported E1 interface

ipa

IPA TCP/IP input

unixsocket

Unix socket input

### 1.8.3 e1\_line <0-255> ipa-keepalive <1-300> <1-300>

Command

```
e1_line <0-255> ipa-keepalive <1-300> <1-300>
```

Global attributes

Flag: !

This command applies immediately

Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

ipa-keepalive

Enable IPA PING/PONG keep-alive

<1-300>

Idle interval in seconds before probes are sent

<1-300>

Time to wait for PONG response

### 1.8.4 e1\_line <0-255> keepalive

Command

```
e1_line <0-255> keepalive
```

Library specific attributes

---

Flag: I

This command applies on IPA link establishment

Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

### 1.8.5 e1\_line <0-255> keepalive <1-300> <1-20> <1-300>

Command

```
e1_line <0-255> keepalive <1-300> <1-20> <1-300>
```

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

<1-300>

Idle interval in seconds before probes are sent

<1-20>

Number of probes to sent

<1-300>

Delay between probe packets in seconds

---

### 1.8.6 e1\_line <0-255> name .LINE

#### Command

```
e1_line <0-255> name .LINE
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

name

Set name for this line

.LINE

Human readable name

### 1.8.7 e1\_line <0-255> pcap .FILE

#### Command

```
e1_line <0-255> pcap .FILE
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Setup a pcap recording of E1 traffic for line

.FILE

Filename to save the packets to

### 1.8.8 e1\_line <0-255> port <0-255>

#### Command

```
e1_line <0-255> port <0-255>
```

#### Library specific attributes

Flag: L

This command applies on E1 line update

#### Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

port

Set physical port/span/card number

<0-255>

E1/T1 Port/Span/Card number

### 1.8.9 e1\_line <0-255> socket .SOCKET

#### Command

```
e1_line <0-255> socket .SOCKET
```

#### Library specific attributes

Flag: L

This command applies on E1 line update

#### Parameters

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

socket

Set socket path for unixsocket

.SOCKET

socket path



### 1.8.10 ipa bind A.B.C.D

#### Command

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

#### Library specific attributes

Flag: L

This command applies on E1 line update

#### Parameters

ipa

ipa driver config

bind

Set ipa local bind address

A.B.C.D

Listen on this IP address (default 0.0.0.0)

### 1.8.11 ipa ip-dscp (oml|rsl) <0-63>

#### Command

```
ipa ip-dscp (oml|rsl) <0-63>
```

#### Library specific attributes

Flag: I

This command applies on IPA link establishment

#### Parameters

ipa

ipa driver config

ip-dscp

Set IP DSCP value for outbound packets

oml

Set IP DSCP for OML link

rsl

Set IP DSCP for RSL link

<0-63>

IP DSCP Value to use

---

### 1.8.12 ipa socket-priority (oml|rsl) <0-255>

#### Command

```
ipa socket-priority (oml|rsl) <0-255>
```

#### Library specific attributes

#### Flag: I

This command applies on IPA link establishment

#### Parameters

##### ipa

ipa driver config

##### socket-priority

Set socket priority value for outbound packets

##### oml

Set socket priority for OML link

##### rsl

Set socket priority for RSL link

##### <0-255>

socket priority value to use (>6 requires CAP\_NET\_ADMIN)

### 1.8.13 no e1\_line <0-255> ipa-keepalive

#### Command

```
no e1_line <0-255> ipa-keepalive
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

##### no

Negate a command or set its defaults

##### e1\_line

Configure E1/T1/J1 Line

##### <0-255>

Line Number

##### ipa-keepalive

Enable IPA PING/PONG keep-alive

### 1.8.14 no e1\_line <0-255> keepalive

#### Command

```
no e1_line <0-255> keepalive
```

#### Library specific attributes

#### Flag: I

This command applies on IPA link establishment

#### Parameters

no

Negate a command or set its defaults

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

### 1.8.15 no e1\_line <0-255> pcap

#### Command

```
no e1_line <0-255> pcap
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

e1\_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Disable pcap recording of E1 traffic for line

## 1.9 config-cpu-sched

### 1.9.1 cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay]

Command

```
cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay]
```

Global attributes

Flag: !

This command applies immediately

Parameters

cpu-affinity

Set CPU affinity mask on a (group of) thread(s)

self

Set CPU affinity mask on thread running the VTY

all

Set CPU affinity mask on all process' threads

<0-4294967295>

Set CPU affinity mask on a thread with specified PID

THREADNAME

Set CPU affinity mask on a thread with specified thread name

CPUHEXMASK

CPU affinity mask

[delay]

If set, delay applying the affinity mask now and let the app handle it at a later point

### 1.9.2 policy rr <1-32>

Command

```
policy rr <1-32>
```

Global attributes

Flag: !

This command applies immediately

Parameters

---

### policy

Set the scheduling policy to use for the process

### rr

Use the SCHED\_RR real-time scheduling algorithm

### <1-32>

Set the SCHED\_RR real-time priority

## 1.10 config-pcu

### 1.10.1 alloc-algorithm (a|b|dynamic)

#### Command

```
alloc-algorithm (a|b|dynamic)
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

#### alloc-algorithm

Select slot allocation algorithm to use when assigning timeslots on PACCH

#### a

Single slot is assigned only

#### b

Multiple slots are assigned for semi-duplex operation

#### dynamic

Dynamically select the algorithm based on the system state

### 1.10.2 cs <1-4> [<1-4>]

#### Command

```
cs <1-4> [<1-4>]
```

#### Global attributes

#### Flag: !

This command applies immediately

---

### Parameters

cs

Coding Scheme configuration

<1-4>

Initial CS value to be used (overrides BTS config)

[<1-4>]

Use a different initial CS value for the uplink

## 1.10.3 cs downgrade-threshold <1-10000>

### Command

```
cs downgrade-threshold <1-10000>
```

### Global attributes

Flag: !

This command applies immediately

### Parameters

cs

Coding Scheme configuration

downgrade-threshold

set threshold for data size based downlink (M)CS downgrade

<1-10000>

downgrade if less octets left

## 1.10.4 cs link-quality-ranges cs1 <0-35> cs2 <0-35> <0-35> cs3 <0-35> <0-35> cs4 <0-35>

### Command

```
cs link-quality-ranges cs1 <0-35> cs2 <0-35> <0-35> cs3 <0-35> <0-35> cs4 <0-35>
```

### Global attributes

Flag: !

This command applies immediately

### Parameters

cs

Coding Scheme configuration

### link-quality-ranges

Set link quality ranges for each uplink CS

#### cs1

Set quality range for CS-1 (high value only)

<0-35>

CS-1 high (dB)

#### cs2

Set quality range for CS-2

<0-35>

CS-2 low (dB)

<0-35>

CS-2 high (dB)

#### cs3

Set quality range for CS-3

<0-35>

CS-3 low (dB)

<0-35>

CS-3 high (dB)

#### cs4

Set quality range for CS-4 (low value only)

<0-35>

CS-4 low (dB)

## 1.10.5 cs max <1-4> [<1-4>]

### Command

```
cs max <1-4> [<1-4>]
```

### Global attributes

Flag: !

This command applies immediately

### Parameters

#### cs

Coding Scheme configuration

#### max

Set maximum values for adaptive CS selection (overrides BTS config)

<1-4>

Maximum CS value to be used

[<1-4>]

Use a different maximum CS value for the uplink

### 1.10.6 cs threshold <0-100> <0-100>

#### Command

```
cs threshold <0-100> <0-100>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

cs

Coding Scheme configuration

threshold

set thresholds for error rate based downlink (M)CS adjustment

<0-100>

lower limit in %

<0-100>

upper limit in %

### 1.10.7 dl-tbf-preemptive-retransmission

#### Command

```
dl-tbf-preemptive-retransmission
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

dl-tbf-preemptive-retransmission

retransmit blocks even before the MS had a chance to receive them (better throughput, less readable traces) (enabled by default)



### 1.10.8 egprs dl arq-type (spb|arq2)

#### Command

```
egprs dl arq-type (spb|arq2)
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

egprs

EGPRS configuration

dl

downlink specific configuration

arq-type

ARQ options

spb

enable SPB(ARQ1) support

arq2

enable ARQ2 support

### 1.10.9 flow-control bucket-time <1-65534>

#### Command

```
flow-control bucket-time <1-65534>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control

BSSGP Flow Control configuration

bucket-time

Set target downlink maximum queueing time (only affects the advertised bucket size)

<1-65534>

Time in centi-seconds

---

### 1.10.10 flow-control force-bvc-bucket-size <1-6553500>

#### Command

```
flow-control force-bvc-bucket-size <1-6553500>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control

BSSGP Flow Control configuration

force-bvc-bucket-size

Force a fixed value for the BVC bucket size

<1-6553500>

Bucket size in octets

### 1.10.11 flow-control force-bvc-leak-rate <1-6553500>

#### Command

```
flow-control force-bvc-leak-rate <1-6553500>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control

BSSGP Flow Control configuration

force-bvc-leak-rate

Force a fixed value for the BVC leak rate

<1-6553500>

Leak rate in bit/s

### 1.10.12 flow-control force-ms-bucket-size <1-6553500>

#### Command

```
flow-control force-ms-bucket-size <1-6553500>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control

BSSGP Flow Control configuration

force-ms-bucket-size

Force a fixed value for the default MS bucket size

<1-6553500>

Bucket size in octets

### 1.10.13 flow-control force-ms-leak-rate <1-6553500>

#### Command

```
flow-control force-ms-leak-rate <1-6553500>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control

BSSGP Flow Control configuration

force-ms-leak-rate

Force a fixed value for the default MS leak rate

<1-6553500>

Leak rate in bit/s

### 1.10.14 flow-control-interval <1-10>

#### Command

```
flow-control-interval <1-10>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

flow-control-interval

Interval between sending subsequent Flow Control PDUs

<1-10>

Interval time in seconds

### 1.10.15 gamma <0-62>

#### Command

```
gamma <0-62>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

gamma

Gamma parameter for MS power control in units of dB (see TS 05.08)

<0-62>

Gamma in even unit of dBs

### 1.10.16 gb ip-dscp <0-63>

#### Command

```
gb ip-dscp <0-63>
```

#### Application specific attributes

---

Flag: r

This command applies when the NS is reset

#### Parameters

gb

Configure Gb interface

ip-dscp

Set IP DSCP value for outbound packets

<0-63>

IP DSCP value to use

### 1.10.17 gb socket-priority <0-255>

#### Command

```
gb socket-priority <0-255>
```

Application specific attributes

Flag: r

This command applies when the NS is reset

#### Parameters

gb

Configure Gb interface

socket-priority

Set socket priority value for outbound packets

<0-255>

Socket priority value to use (>6 requires CAP\_NET\_ADMIN)

### 1.10.18 gb-dialect (classic|ip-sns)

#### Command

```
gb-dialect (classic|ip-sns)
```

Application specific attributes

Flag: r

This command applies when the NS is reset

---

## Parameters

## gb-dialect

Select which Gb interface dialect to use

## classic

Classic Gb interface with NS-{RESET,BLOCK,UNBLOCK} and static configuration

## ip-sns

Modern Gb interface with IP-SNS (Sub Network Service) and dynamic configuration

### 1.10.19 gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch...

## Command

```
gsmtap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch|dl- ↵
                agch|dl-pch|ul-unknown|ul-dummy|ul-ctrl|ul-data-gprs|ul-data-egprs|ul-rach|ul-ptcch ↵
                )
```

## Parameters

## gsmtap-category

GSMTAP Category

## dl-unknown

Unknown / Unparseable / Erroneous Downlink Blocks

## dl-dummy

Downlink Dummy Blocks

## dl-ctrl

Downlink Control Blocks

## dl-data-gprs

Downlink Data Blocks (GPRS)

## dl-data-egprs

Downlink Data Blocks (EGPRS)

## dl-ptcch

Downlink PTCCH Blocks

## dl-agch

Downlink AGCH Blocks

## dl-pch

Downlink PCH Blocks

## ul-unknown

Unknown / Unparseable / Erroneous Downlink Blocks

## ul-dummy

Uplink Dummy Blocks

ul-ctrl

Uplink Control Blocks

ul-data-gprs

Uplink Data Blocks (GPRS)

ul-data-egprs

Uplink Data Blocks (EGPRS)

ul-rach

Uplink RACH Bursts

ul-ptcch

Uplink PTCCH Bursts

### 1.10.20 gsmtap-category (enable-all|disable-all)

Command

```
gsmtap-category (enable-all|disable-all)
```

Parameters

gsmtap-category

Enable/disable sending of UL/DL messages over GSMTAP

enable-all

Enable all kinds of messages (all categories)

disable-all

Disable all kinds of messages (all categories)

### 1.10.21 gsmtap-remote-host [HOSTNAME]

Command

```
gsmtap-remote-host [HOSTNAME]
```

Parameters

gsmtap-remote-host

Enable GSMTAP Um logging (see also 'gsmtap-category')

[HOSTNAME]

Remote IP address or hostname ('localhost' if omitted)

### 1.10.22 mcs <1-9> [<1-9>]

#### Command

```
mcs <1-9> [<1-9>]
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

mcs

Modulation and Coding Scheme configuration (EGPRS)

<1-9>

Initial MCS value to be used (default 1)

[<1-9>]

Use a different initial MCS value for the uplink

### 1.10.23 mcs link-quality-ranges mcs1 <0-35> mcs2 <0-35> <0-35> mcs3 <0-35> <0-35> mcs4 <...

#### Command

```
mcs link-quality-ranges mcs1 <0-35> mcs2 <0-35> <0-35> mcs3 <0-35> <0-35> mcs4 <0-35> ↔  
    <0-35> mcs5 <0-35> <0-35> mcs6 <0-35> <0-35> mcs7 <0-35> <0-35> mcs8 <0-35> <0-35> ↔  
    mcs9 <0-35>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

mcs

Coding Scheme configuration

link-quality-ranges

Set link quality ranges for each uplink MCS

mcs1

Set quality range for MCS-1 (high value only)

<0-35>

MCS-1 high (dB)



mcs2

Set quality range for MCS-2

<0-35>

MCS-2 high (dB)

<0-35>

MCS-2 low (dB)

mcs3

Set quality range for MCS-3

<0-35>

MCS-3 high (dB)

<0-35>

MCS-3 low (dB)

mcs4

Set quality range for MCS-4

<0-35>

MCS-4 high (dB)

<0-35>

MCS-4 low (dB)

mcs5

Set quality range for MCS-5

<0-35>

MCS-5 high (dB)

<0-35>

MCS-5 low (dB)

mcs6

Set quality range for MCS-6

<0-35>

MCS-6 low (dB)

<0-35>

MCS-6 high (dB)

mcs7

Set quality range for MCS-7

<0-35>

MCS-7 low (dB)

<0-35>

MCS-7 high (dB)

mcs8

Set quality range for MCS-8

<0-35>

MCS-8 low (dB)

<0-35>

MCS-8 high (dB)

mcs9

Set quality range for MCS-9 (low value only)

<0-35>

MCS-9 low (dB)

### 1.10.24 mcs max <1-9> [<1-9>]

Command

```
mcs max <1-9> [<1-9>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

mcs

Modulation and Coding Scheme configuration (EGPRS)

max

Set maximum values for adaptive CS selection (overrides BTS config)

<1-9>

Maximum MCS value to be used

[<1-9>]

Use a different maximum MCS value for the uplink

### 1.10.25 no cs

Command

```
no cs
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

### 1.10.26 no cs downgrade-threshold

#### Command

```
no cs downgrade-threshold
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

downgrade-threshold

set threshold for data size based downlink (M)CS downgrade

### 1.10.27 no cs max

#### Command

```
no cs max
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

cs

Coding Scheme configuration

max

Set maximum values for adaptive CS selection (overrides BTS config)

---

### 1.10.28 no cs threshold

#### Command

```
no cs threshold
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

##### no

Negate a command or set its defaults

##### cs

Coding Scheme configuration

##### threshold

set thresholds for error rate based downlink (M)CS adjustment

### 1.10.29 no dl-tbf-preemptive-retransmission

#### Command

```
no dl-tbf-preemptive-retransmission
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

##### no

Negate a command or set its defaults

##### dl-tbf-preemptive-retransmission

retransmit blocks even before the MS had a chance to receive them (better throughput, less readable traces)

### 1.10.30 no flow-control bucket-time

#### Command

```
no flow-control bucket-time
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

#### no

Negate a command or set its defaults

#### flow-control

BSSGP Flow Control configuration

#### bucket-time

Set target downlink maximum queueing time (only affects the advertised bucket size)

### 1.10.31 no flow-control force-bvc-bucket-size

#### Command

```
no flow-control force-bvc-bucket-size
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

#### no

Negate a command or set its defaults

#### flow-control

BSSGP Flow Control configuration

#### force-bvc-bucket-size

Force a fixed value for the BVC bucket size

### 1.10.32 no flow-control force-bvc-leak-rate

#### Command

```
no flow-control force-bvc-leak-rate
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-bvc-leak-rate

Force a fixed value for the BVC leak rate

### 1.10.33 no flow-control force-ms-bucket-size

#### Command

```
no flow-control force-ms-bucket-size
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-ms-bucket-size

Force a fixed value for the default MS bucket size

### 1.10.34 no flow-control force-ms-leak-rate

#### Command

```
no flow-control force-ms-leak-rate
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

flow-control

BSSGP Flow Control configuration

force-ms-leak-rate

Force a fixed value for the default MS leak rate

### 1.10.35 no gsmzap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-pt...

#### Command

```
no gsmzap-category (dl-unknown|dl-dummy|dl-ctrl|dl-data-gprs|dl-data-egprs|dl-ptcch|dl- ↔  
agch|dl-pch|ul-unknown|ul-dummy|ul-ctrl|ul-data-gprs|ul-data-egprs|ul-rach|ul-ptcch ↔  
)
```

#### Parameters

no

Negate a command or set its defaults

gsmzap-category

GSMTAP Category

dl-unknown

Unknown / Unparseable / Erroneous Downlink Blocks

dl-dummy

Downlink Dummy Blocks

dl-ctrl

Downlink Control Blocks

dl-data-gprs

Downlink Data Blocks (GPRS)

dl-data-egprs	Downlink Data Blocks (EGPRS)
dl-ptcch	Downlink PTCCH Blocks
dl-agch	Downlink AGCH Blocks
dl-pch	Downlink PCH Blocks
ul-unknown	Unknown / Unparseable / Erroneous Downlink Blocks
ul-dummy	Uplink Dummy Blocks
ul-ctrl	Uplink Control Blocks
ul-data-gprs	Uplink Data Blocks (GPRS)
ul-data-egprs	Uplink Data Blocks (EGPRS)
ul-rach	Uplink RACH Bursts
ul-ptcch	Uplink PTCCH Bursts

### 1.10.36 no gsmtap-remote-host

#### Command

```
no gsmtap-remote-host
```

#### Parameters

no

Negate a command or set its defaults

gsmtap-remote-host

Disable GSMTAP Um logging



### 1.10.37 no mcs

#### Command

```
no mcs
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

mcs

Modulation and Coding Scheme configuration (EGPRS)

### 1.10.38 no mcs max

#### Command

```
no mcs max
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

mcs

Modulation and Coding Scheme configuration (EGPRS)

max

Set maximum values for adaptive CS selection (overrides BTS config)

### 1.10.39 no queue codel

#### Command

```
no queue codel
```

#### Application specific attributes

#### Flag: s

This command applies when a new subscriber attaches

#### Parameters

#### no

Negate a command or set its defaults

#### queue

Packet queue options

#### codel

Set CoDel queue management

### 1.10.40 no queue hysteresis

#### Command

```
no queue hysteresis
```

#### Application specific attributes

#### Flag: n

This command applies when a new TBF is begins

#### Parameters

#### no

Negate a command or set its defaults

#### queue

Packet queue options

#### hysteresis

Set lifetime hysteresis of LLC frame in centi-seconds (continue discarding until lifetime-hysteresis is reached)

### 1.10.41 no queue idle-ack-delay

#### Command

```
no queue idle-ack-delay
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

no

Negate a command or set its defaults

queue

Packet queue options

idle-ack-delay

Request an ACK after the last DL LLC frame in centi-seconds

### 1.10.42 no queue lifetime

#### Command

```
no queue lifetime
```

#### Application specific attributes

Flag: n

This command applies when a new TBF is begins

#### Parameters

no

Negate a command or set its defaults

queue

Packet queue options

lifetime

Disable lifetime limit of LLC frame (use value given by SGSN)

### 1.10.43 no two-phase-access

#### Command

```
no two-phase-access
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

##### no

Negate a command or set its defaults

##### two-phase-access

Only use two phase access when requested my MS

### 1.10.44 pcu-socket PATH

#### Command

```
pcu-socket PATH
```

#### Parameters

##### pcu-socket

Configure the osmo-bts PCU socket file/path name

##### PATH

Path of the socket to connect to

### 1.10.45 queue codel

#### Command

```
queue codel
```

#### Application specific attributes

#### Flag: s

This command applies when a new subscriber attaches

#### Parameters

##### queue

Packet queue options

##### codel

Set CoDel queue management

---

### 1.10.46 queue codel interval <1-1000>

#### Command

```
queue codel interval <1-1000>
```

#### Application specific attributes

##### Flag: s

This command applies when a new subscriber attaches

#### Parameters

##### queue

Packet queue options

##### codel

Set CoDel queue management

##### interval

Specify interval

##### <1-1000>

Interval in centi-seconds

### 1.10.47 queue hysteresis <1-65535>

#### Command

```
queue hysteresis <1-65535>
```

#### Application specific attributes

##### Flag: n

This command applies when a new TBF is begins

#### Parameters

##### queue

Packet queue options

##### hysteresis

Set lifetime hysteresis of LLC frame in centi-seconds (continue discarding until lifetime-hysteresis is reached)

##### <1-65535>

Hysteresis in centi-seconds

---

### 1.10.48 queue idle-ack-delay <1-65535>

#### Command

```
queue idle-ack-delay <1-65535>
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

queue

Packet queue options

idle-ack-delay

Request an ACK after the last DL LLC frame in centi-seconds

<1-65535>

Idle ACK delay in centi-seconds

### 1.10.49 queue lifetime <1-65534>

#### Command

```
queue lifetime <1-65534>
```

#### Application specific attributes

Flag: n

This command applies when a new TBF is begins

#### Parameters

queue

Packet queue options

lifetime

Set lifetime limit of LLC frame in centi-seconds (overrides the value given by SGSN)

<1-65534>

Lifetime in centi-seconds

---

### 1.10.50 queue lifetime infinite

#### Command

```
queue lifetime infinite
```

#### Application specific attributes

#### Flag: n

This command applies when a new TBF is begins

#### Parameters

##### queue

Packet queue options

##### lifetime

Set lifetime limit of LLC frame in centi-seconds (overrides the value given by SGSN)

##### infinite

Infinite lifetime

### 1.10.51 timer [TNNNN] [(<0-2147483647>|default)]

#### Command

```
timer [TNNNN] [(<0-2147483647>|default)]
```

#### Global attributes

#### Flag: !

This command applies immediately

#### Parameters

##### timer

Configure or show PCU 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'.

##### [<0-2147483647>]

New timer value

##### [default]

Set to default timer value

---

### 1.10.52 two-phase-access

#### Command

```
two-phase-access
```

#### Global attributes

Flag: !

This command applies immediately

#### Parameters

two-phase-access

Force two phase access when MS requests single phase access

### 1.10.53 window-size <0-1024> [<0-256>]

#### Command

```
window-size <0-1024> [<0-256>]
```

#### Application specific attributes

Flag: n

This command applies when a new TBF is begins

#### Parameters

window-size

Window size configuration ( $b + N\_PDCH * f$ )

<0-1024>

Base value (b)

[<0-256>]

Factor for number of PDCH (f)