# OsmoPCU VTY Reference

**COLLABORATORS**

| | *TITLE* :<br><br>OsmoPCU VTY Reference | |
|---|---|---|

| *ACTION* | *NAME* | *DATE* | *SIGNATURE* |
|---|---|---|---|
| WRITTEN BY | | August 29, 2020 | |

**REVISION HISTORY**

| NUMBER | DATE | DESCRIPTION | NAME |
|---|---|---|---|
| v1 | 5th March 2014 | Initial version for 0.2-307 | hf |

# Contents

# List of Tables

# 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

## Common Commands

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

## end

Command

```
end
```

Parameters

end
: End current mode and change to enable mode.

## exit

Command

```
exit
```

Parameters

exit
: Exit current mode and down to previous mode

## help

Command

```
help
```

Parameters

help
: Description of the interactive help system

## list

Command

```
list
```

Parameters

list
: Print command list

### show running-config

Command

```
show running-config
```

Parameters

show
: Show running system information

running-config
: running configuration

### write

Command

```
write
```

Parameters

write
: Write running configuration to memory, network, or terminal

### 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

### 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)

### write terminal

Command

```
write terminal
```

Parameters

write
: Write running configuration to memory, network, or terminal

terminal
: Write to terminal

## 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.

### enable

Command

```
enable
```

Parameters

enable
: Turn on privileged mode command

### 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

## logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

## 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

## 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

### logging filter nsvc (nsei|nsvci) <0-65535>

Command

```
logging filter nsvc (nsei|nsvci) <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsei
: Identify NS-VC by NSEI

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

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

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf ↩
    |tbfdl|tbful|ns|bssgp|pcu|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error| ↩
    fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

bssgp
: GPRS BSS Gateway Protocol (BSSGP)

pcu
: GPRS Packet Control Unit (PCU)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 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

### 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

### 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

### 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>’)

### 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

### 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.

## 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

## 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

## 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

### logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf|t...

Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf|tbfdl| ↩
    tbful|ns|bssgp|pcu|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup| ↩
    loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error|fatal) . ↩
    LOGMESSAGE
```

Parameters

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

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)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

bssgp
: GPRS BSS Gateway Protocol (BSSGP)

pcu
: GPRS Packet Control Unit (PCU)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

.LOGMESSAGE
: Arbitrary message to log on given category and log level

### 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>'

## show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

## show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

## show bts statistics

Command

```
show bts statistics
```

Parameters

show
: Show running system information

bts
: BTS related functionality

statistics
: Statistics

### 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’.

### show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 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

### show ms all

Command

```
show ms all
```

Parameters

show
: Show running system information

ms
: information about MSs

all
: All TBFs

### 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

### 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

### show ns

Command

```
show ns
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

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

Command

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

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

nsei
: Select one NSE by its NSE Identifier

nsvc
: Select one NSE by its NS-VC Identifier

<0-65535>
: The Identifier of selected type

[stats]
: Include Statistics

### show ns persistent

Command

```
show ns persistent
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

persistent
: Show only persistent NS

### show ns stats

Command

```
show ns stats
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

stats
: Include statistics

### show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### show rate-counters

Command

```
show rate-counters
```

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

### show stats

Command

```
show stats
```

Parameters

show
: Show running system information

stats
: Show statistical values

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

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

level
: Set the maximum group level

global
: Show global groups only

peer
: Show global and network peer related groups

subscriber
: Show global, peer, and subscriber groups

### 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

### 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’.

### show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 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)

### 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

### who

Command

```
who
```

Parameters

who
: Display who is on vty

## 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.

### configure terminal

Command

```
configure terminal
```

Parameters

configure
: Configuration from vty interface

terminal
: Configuration terminal

### 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)

### disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

### 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

### logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 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

### 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

### logging filter nsvc (nsei|nsvci) <0-65535>

Command

```
logging filter nsvc (nsei|nsvci) <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsei
: Identify NS-VC by NSEI

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

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

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf ↩
    |tbfdl|tbful|ns|bssgp|pcu|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error| ↩
    fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

bssgp
: GPRS BSS Gateway Protocol (BSSGP)

pcu
: GPRS Packet Control Unit (PCU)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 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

## 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

## 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

### 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>’)

### 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

### 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.

### 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

## 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

## 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

## logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf|t...

Command

```
logp (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf|tbfdl| ↩
    tbful|ns|bssgp|pcu|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup| ↩
    loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error|fatal) . ↩
    LOGMESSAGE
```

Parameters

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

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)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

bssgp
: GPRS BSS Gateway Protocol (BSSGP)

pcu
: GPRS Packet Control Unit (PCU)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

.LOGMESSAGE
: Arbitrary message to log on given category and log level

### 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>'

### nsvc (nsei|nsvci) <0-65535> (block|unblock|reset)

Command

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

Parameters

nsvc
: Perform an operation on a NSVC

nsei
: NSEI to identify NS-VC Identifier (NS-VCI)

nsvci
: NS-VC Identifier (NS-VCI)

<0-65535>
: The NSEI

block
: Initiate BLOCK procedure

unblock
: Initiate UNBLOCK procedure

reset
: Initiate RESET procedure

## show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

## show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

## show bts statistics

Command

```
show bts statistics
```

Parameters

show
: Show running system information

bts
: BTS related functionality

statistics
: Statistics

### 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’.

### show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 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

### show ms all

Command

```
show ms all
```

Parameters

show
: Show running system information

ms
: information about MSs

all
: All TBFs

### 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

### 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

### show ns

Command

```
show ns
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

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

Command

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

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

nsei
: Select one NSE by its NSE Identifier

nsvc
: Select one NSE by its NS-VC Identifier

<0-65535>
: The Identifier of selected type

[stats]
: Include Statistics

### show ns persistent

Command

```
show ns persistent
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

persistent
: Show only persistent NS

### show ns stats

Command

```
show ns stats
```

Parameters

show
: Show running system information

ns
: Display information about the NS protocol

stats
: Include statistics

### show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### show rate-counters

Command

```
show rate-counters
```

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

### show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

### show stats

Command

```
show stats
```

Parameters

show
: Show running system information

stats
: Show statistical values

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

Command

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

Parameters

show
: Show running system information

stats
: Show statistical values

level
: Set the maximum group level

global
: Show global groups only

peer
: Show global and network peer related groups

subscriber
: Show global, peer, and subscriber groups

### 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

### 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’.

### show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 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)

### terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

### 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

### 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

### who

Command

```
who
```

Parameters

who
: Display who is on vty

## 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.

### banner motd default

Command

```
banner motd default
```

Parameters

banner
: Set banner string

motd
: Strings for motd

default
: Default string

### banner motd file [FILE]

Command

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

Parameters

banner
: Set banner

motd
: Banner for motd

file
: Banner from a file

[FILE]
: Filename

### 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

### 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

### hostname WORD

Command

```
hostname WORD
```

Parameters

hostname
: Set system's network name

WORD
: This system's network name

### line vty

Command

```
line vty
```

Parameters

line
: Configure a terminal line

vty
: Virtual terminal

### 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

### log file .FILENAME

Command

```
log file .FILENAME
```

Parameters

log
: Configure logging sub-system

file
: Logging to text file

.FILENAME
: Filename

### log gsmtap [HOSTNAME]

Command

```
log gsmtap [HOSTNAME]
```

Parameters

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

[HOSTNAME]
: Host name to send the GSMTAP logging to (UDP port 4729)

### log stderr

Command

```
log stderr
```

Parameters

log
: Configure logging sub-system

stderr
: Logging via STDERR of the process

### 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

### 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

### no banner motd

Command

```
no banner motd
```

Parameters

no
: Negate a command or set its defaults

banner
: Set banner string

motd
: Strings for motd

### 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

### 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

## 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

## 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

## 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

### 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

### 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

### 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)

## no stats reporter log

Command

```
no stats reporter log
```

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

## no stats reporter statsd

Command

```
no stats reporter statsd
```

Parameters

no
: Negate a command or set its defaults

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

## ns

Command

```
ns
```

Parameters

ns
: Configure the GPRS Network Service

### 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

### password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

### pcu

Command

```
pcu
```

Parameters

pcu
: BTS specific configure

### service advanced-vty

Command

```
service advanced-vty
```

Parameters

service
: Set up miscellaneous service

advanced-vty
: Enable advanced mode vty interface

### 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)

### show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### stats interval <1-65535>

Command

```
stats interval <1-65535>
```

Parameters

stats
: Configure stats sub-system

interval
: Set the reporting interval

<1-65535>
: Interval in seconds

### stats reporter log

Command

```
stats reporter log
```

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

log
: Report to the logger

### stats reporter statsd

Command

```
stats reporter statsd
```

Parameters

stats
: Configure stats sub-system

reporter
: Configure a stats reporter

statsd
: Report to a STATSD server

# 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.

## 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

## 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

### logging filter nsvc (nsei|nsvci) <0-65535>

Command

```
logging filter nsvc (nsei|nsvci) <0-65535>
```

Parameters

logging
: Configure logging

filter
: Filter log messages

nsvc
: Filter based on NS Virtual Connection

nsei
: Identify NS-VC by NSEI

nsvci
: Identify NS-VC by NSVCI

<0-65535>
: Numeric identifier

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

Command

```
logging level (csn1|l1if|rlcmac|rlcmacdata|rlcmacdl|rlcmacul|rlcmacsched|rlcmacmeas|tbf ↩
    |tbfdl|tbful|ns|bssgp|pcu|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro) (debug|info|notice|error| ↩
    fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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)

tbf
: Temporary Block Flow (TBF)

tbfdl
: Temporary Block Flow (TBF) Downlink

tbful
: Temporary Block Flow (TBF) Uplink

ns
: GPRS Network Service Protocol (NS)

bssgp
: GPRS BSS Gateway Protocol (BSSGP)

pcu
: GPRS Packet Control Unit (PCU)

lglobal
: Library-internal global log family

llapd
: LAPD in libosmogsm

linp
: A-bis Intput Subsystem

lmux
: A-bis B-Subchannel TRAU Frame Multiplex

lmi
: A-bis Input Driver for Signalling

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

lsms
: Layer3 Short Message Service (SMS)

lctrl
: Control Interface

lgtp
: GPRS GTP library

lstats
: Statistics messages and logging

lgsup
: Generic Subscriber Update Protocol

loap
: Osmocom Authentication Protocol

lss7
: libosmo-sigtran Signalling System 7

lsccp
: libosmo-sigtran SCCP Implementation

lsua
: libosmo-sigtran SCCP User Adaptation

lm3ua
: libosmo-sigtran MTP3 User Adaptation

lmgcp
: libosmo-mgcp Media Gateway Control Protocol

ljibuf
: libosmo-netif Jitter Buffer

lrspro
: Remote SIM protocol

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 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

### 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

### 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

### 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>’)

### 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

### 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.

### 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

### 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

### 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>'

# config-stats

## disable

Command

```
disable
```

Parameters

disable
: Disable the reporter

## enable

Command

```
enable
```

Parameters

enable
: Enable the reporter

## 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

### local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

local-ip
: Set the IP address to which we bind locally

ADDR
: IP Address

### mtu <100-65535>

Command

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

Parameters

mtu
: Set the maximum packet size

<100-65535>
: Size in byte

### 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

### no mtu

Command

```
no mtu
```

Parameters

no
: Negate a command or set its defaults

mtu
: Set the maximum packet size

### no prefix

Command

```
no prefix
```

Parameters

no
: Negate a command or set its defaults

prefix
: Set the item name prefix

### prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix
: Set the item name prefix

PREFIX
: The prefix string

### remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

remote-ip
: Set the remote IP address to which we connect

ADDR
: IP Address

### 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

# config-line

## 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

## login

Command

```
login
```

Parameters

login
: Enable password checking

## no login

Command

```
no login
```

Parameters

no
: Negate a command or set its defaults

login
: Enable password checking

# config-ns

## encapsulation framerelay-gre enabled (1|0)

Command

```
encapsulation framerelay-gre enabled (1|0)
```

Parameters

encapsulation
: NS encapsulation options

framerelay-gre
: NS over Frame Relay over GRE Encapsulation

enabled
: Enable or disable Frame Relay over GRE

1
: Enable

0
: Disable

## encapsulation framerelay-gre local-ip A.B.C.D

Command

```
encapsulation framerelay-gre local-ip A.B.C.D
```

Parameters

encapsulation
: NS encapsulation options

framerelay-gre
: NS over Frame Relay over GRE Encapsulation

local-ip
: Set the IP address on which we listen for NS/FR/GRE

A.B.C.D
: IP Address

### encapsulation udp dscp <0-255>

Command

```
encapsulation udp dscp <0-255>
```

Parameters

encapsulation
: NS encapsulation options

udp
: NS over UDP Encapsulation

dscp
: Set DSCP/TOS on the UDP socket

<0-255>
: DSCP Value

### encapsulation udp local-ip A.B.C.D

Command

```
encapsulation udp local-ip A.B.C.D
```

Parameters

encapsulation
: NS encapsulation options

udp
: NS over UDP Encapsulation

local-ip
: Set the IP address on which we listen for NS/UDP

A.B.C.D
: IP Address

### encapsulation udp local-port <0-65535>

Command

```
encapsulation udp local-port <0-65535>
```

Parameters

encapsulation
: NS encapsulation options

udp
: NS over UDP Encapsulation

local-port
: Set the UDP port on which we listen for NS/UDP

<0-65535>
: UDP port number

### no nse <0-65535>

Command

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

Parameters

no
: Delete Persistent NS Entity

nse
: Delete Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

### nse <0-65535> encapsulation (udp|framerelay-gre)

Command

```
nse <0-65535> encapsulation (udp|framerelay-gre)
```

Parameters

nse
: Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

encapsulation
: Encapsulation for NS

udp
: UDP/IP Encapsulation

framerelay-gre
: Frame-Relay/GRE/IP Encapsulation

### nse <0-65535> fr-dlci <16-1007>

Command

```
nse <0-65535> fr-dlci <16-1007>
```

Parameters

nse
: Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

fr-dlci
: Frame Relay DLCI

<16-1007>
: Frame Relay DLCI Number

### nse <0-65535> nsvci <0-65534>

Command

```
nse <0-65535> nsvci <0-65534>
```

Parameters

nse
: Persistent NS Entity

<0-65535>
: NS Entity ID (NSEI)

nsvci
: NS Virtual Connection

<0-65534>
: NS Virtual Connection ID (NSVCI)

### nse <0-65535> remote-ip A.B.C.D

Command

```
nse <0-65535> remote-ip A.B.C.D
```

Parameters

nse
: Persistent NS Entity

<0-65535>
NS Entity ID (NSEI)

remote-ip
Remote IP Address

A.B.C.D
Remote IP Address

### nse <0-65535> remote-port <0-65535>

Command

```
nse <0-65535> remote-port <0-65535>
```

Parameters

nse
Persistent NS Entity

<0-65535>
NS Entity ID (NSEI)

remote-port
Remote UDP Port

<0-65535>
Remote UDP Port Number

### nse <0-65535> remote-role (sgsn|bss)

Command

```
nse <0-65535> remote-role (sgsn|bss)
```

Parameters

nse
Persistent NS Entity

<0-65535>
NS Entity ID (NSEI)

remote-role
Remote NSE Role

sgsn
Remote Peer is SGSN

bss
Remote Peer is BSS

### timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns-aliv...

Command

```
timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns-alive|tns- ↩
    alive-retries|tsns-prov) <0-65535>
```

Parameters

timer
: Network Service Timer

tns-block
: (un)blocking Timer (Tns-block) timeout

tns-block-retries
: (un)blocking Timer (Tns-block) number of retries

tns-reset
: Reset Timer (Tns-reset) timeout

tns-reset-retries
: Reset Timer (Tns-reset) number of retries

tns-test
: Test Timer (Tns-test) timeout

tns-alive
: Alive Timer (Tns-alive) timeout

tns-alive-retries
: Alive Timer (Tns-alive) number of retries

tsns-prov
: SNS Provision Timer (Tsns-prov) timeout

<0-65535>
: Timer Value

## config-pcu

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

Command

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

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

### alpha <0-10>

Command

```
alpha <0-10>
```

Parameters

alpha
: Alpha parameter for MS power control in units of 0.1 (see TS 05.08) NOTE: Be sure to set Alpha value at System information 13 too.

<0-10>
: Alpha in units of 0.1

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

Command

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

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

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

Command

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

Parameters

cs
: Coding Scheme configuration

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

<1-10000>
: downgrade if less octets left

### 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>
```

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)

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

Command

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

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

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

Command

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

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 %

### dl-tbf-preemptive-retransmission

Command

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

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)

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

Command

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

Parameters

egprs
: EGPRS configuration

dl
: downlink specific configuration

arq-type
: ARQ options

spb
: enable SPB(ARQ1) support

arq2
: enable ARQ2 support

### egprs only

Command

```
egprs only
```

Parameters

egprs
: EGPRS configuration

only
: Use EGPRS and disable plain GPRS

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

Command

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

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

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

Command

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

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

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

Command

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

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

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

Command

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

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

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

Command

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

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

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

Command

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

Parameters

flow-control-interval
: Interval between sending subsequent Flow Control PDUs

<1-10>
: Interval time in seconds

### gamma <0-62>

Command

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

Parameters

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

<0-62>
: Gamma in even unit of dBs

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

Command

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

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

### 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)
```

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

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

Command

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

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

### 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>
```

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)

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

Command

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

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

### no cs

Command

```
no cs
```

Parameters

no
: Negate a command or set its defaults

cs
: Coding Scheme configuration

### no cs downgrade-threshold

Command

```
no cs downgrade-threshold
```

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

### no cs max

Command

```
no cs max
```

Parameters

no
: Negate a command or set its defaults

cs
: Coding Scheme configuration

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

### no cs threshold

Command

```
no cs threshold
```

Parameters

no
: Negate a command or set its defaults

cs
: Coding Scheme configuration

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

### no dl-tbf-preemptive-retransmission

Command

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

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)

### no egprs

Command

```
no egprs
```

Parameters

no
: Negate a command or set its defaults

egprs
: EGPRS configuration

### no flow-control bucket-time

Command

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

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)

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

Command

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

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

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

Command

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

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

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

Command

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

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

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

Command

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

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

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

Command

```
no 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)
```

Parameters

no
: Negate a command or set its defaults

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

### no mcs

Command

```
no mcs
```

Parameters

no
: Negate a command or set its defaults

mcs
: Modulation and Coding Scheme configuration (EGPRS)

### no mcs max

Command

```
no mcs max
```

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)

### no queue codel

Command

```
no queue codel
```

Parameters

no
: Negate a command or set its defaults

queue
: Packet queue options

codel
: Set CoDel queue management

### no queue hysteresis

Command

```
no queue hysteresis
```

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)

### no queue idle-ack-delay

Command

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

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

### no queue lifetime

Command

```
no queue lifetime
```

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)

### no two-phase-access

Command

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

Parameters

no
: Negate a command or set its defaults

two-phase-access
: Only use two phase access when requested my MS

### 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

### queue codel

Command

```
queue codel
```

Parameters

queue
: Packet queue options

codel
: Set CoDel queue management

### queue codel interval <1-1000>

Command

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

Parameters

queue
: Packet queue options

codel
: Set CoDel queue management

interval
: Specify interval

<1-1000>
: Interval in centi-seconds

### queue hysteresis <1-65535>

Command

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

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

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

Command

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

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

### queue lifetime <1-65534>

Command

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

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

### queue lifetime infinite

Command

```
queue lifetime infinite
```

Parameters

queue
: Packet queue options

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

infinite
: Infinite lifetime

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

Command

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

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

### two-phase-access

Command

```
two-phase-access
```

Parameters

two-phase-access
: Force two phase access when MS requests single phase access

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

Command

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

Parameters

window-size
: Window size configuration (b + N_PDCH * f)

<0-1024>
: Base value (b)

[<0-256>]
: Factor for number of PDCH (f)