OsmoGGSN VTY Reference
# COLLABORATORS

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NAME</th>
<th>DATE</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITTEN BY</td>
<td></td>
<td>September 16, 2022</td>
<td></td>
</tr>
</tbody>
</table>

# REVISION HISTORY

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>v1</td>
<td>06th September 2017</td>
<td>Initial version as of OsmoGGSN v1.0.0</td>
<td>hw</td>
</tr>
</tbody>
</table>
# Contents

1 VTY reference  
1.1 Common Commands  
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 (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...  7  
1.2.7 logging level force-all (debug|info|notice|error|fatal)  9  
1.2.8 logging level set-all (debug|info|notice|error|fatal)  10  
1.2.9 logging print category (0|1)  10  
1.2.10 logging print category-hex (0|1)  10  
1.2.11 logging print extended-timestamp (0|1)  11  
1.2.12 logging print file (0|1|basename) [last]  11  
1.2.13 logging print level (0|1)  12  
1.2.14 logging print thread-id (0|1)  13  
1.2.15 logging set-log-mask MASK  13  
1.2.16 logging timestamp (0|1)  14
1.2.17 logp (iptun|ggsn|sgsnicmp6|gml|lmgtp|imelmib|ltelu|ltftp|... .......................... 14
1.2.18 no logging level force-all ................................................................. 16
1.2.19 show alarms ................................................................. 17
1.2.20 show asciidoc counters ................................................................. 17
1.2.21 show cpu-sched threads ................................................................. 17
1.2.22 show ggsn [NAME] ................................................................. 18
1.2.23 show history ................................................................. 18
1.2.24 show logging vty ................................................................. 18
1.2.25 show online-help ................................................................. 19
1.2.26 show pdp-context ggsn NAME ................................................................. 19
1.2.27 show pdp-context ggsn NAME apn APN ................................................................. 19
1.2.28 show pdp-context ggsn NAME imsi IMSI [<0-15>] ................................................................. 20
1.2.29 show pdp-context ggsn NAME ipv4 A.B.C.D ................................................................. 20
1.2.30 show pid ................................................................. 21
1.2.31 show rate-counters [skip-zero] ................................................................. 21
1.2.32 show stats [skip-zero] ................................................................. 22
1.2.33 show stats level (global|peer|subscriber) [skip-zero] ................................................................. 22
1.2.34 show talloc-context (application|global|all) (full|brief|DEPTH) ................................................................. 23
1.2.35 show talloc-context (application|global|all) (full|brief|DEPTH) filter REGEXP ................................................................. 23
1.2.36 show talloc-context (application|global|all) (full|brief|DEPTH) tree ADDRESS ................................................................. 24
1.2.37 show uptime ................................................................. 25
1.2.38 show version ................................................................. 25
1.2.39 terminal length <0-512> ................................................................. 25
1.2.40 terminal no length ................................................................. 26
1.2.41 who ................................................................. 26
1.3 enable ................................................................. 26
1.3.1 configure terminal ................................................................. 26
1.3.2 copy running-config startup-config ................................................................. 27
1.3.3 disable ................................................................. 27
1.3.4 logging color (01) ................................................................. 27
1.3.5 logging disable ................................................................. 28
1.3.6 logging enable ................................................................. 28
1.3.7 logging filter all (01) ................................................................. 28
1.3.8 logging level (iptun|ggsn|sgsnicmp6|gml|lmgtp|imelmib|ltelu|ltftp|... ................................................................. 29
1.3.9 logging level force-all (debug|info|notice|error|fatal) ................................................................. 31
1.3.10 logging level set-all (debug|info|notice|error|fatal) ................................................................. 32
1.3.11 logging print category (01) ................................................................. 32
1.3.12 logging print category-hex (01) ................................................................. 33
1.3.13 logging print extended-timestamp (01) ................................................................. 33
1.3.14 logging print file (0|1|basename) [last] ......................................................... 34
1.3.15 logging print level (0|1) ................................................................. 34
1.3.16 logging print thread-id (0|1) .......................................................... 35
1.3.17 logging set-log-mask MASK ....................................................... 35
1.3.18 logging timestamp (0|1) ............................................................... 36
1.3.19 logp (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lns|l... ........................................ 36
1.3.20 no logging level force-all .......................................................... 38
1.3.21 show alarms .......................................................... 39
1.3.22 show asciidoc counters ......................................................... 39
1.3.23 show cpu-sched threads ......................................................... 39
1.3.24 show ggsn [NAME] ............................................................... 40
1.3.25 show history ................................................................. 40
1.3.26 show logging vty ................................................................. 40
1.3.27 show online-help ............................................................... 41
1.3.28 show pdp-context ggsn NAME ................................................... 41
1.3.29 show pdp-context ggsn NAME apn APN .................................................. 41
1.3.30 show pdp-context ggsn NAME imsi IMSI [<>-15>] ........................................ 42
1.3.31 show pdp-context ggsn NAME ipv4 A.B.C.D .......................................... 42
1.3.32 show rate-counters [skip-zero] .................................................. 43
1.3.33 show startup-config ............................................................. 43
1.3.34 show stats [skip-zero] ............................................................. 44
1.3.35 show stats level (globalpeer|subscriber) [skip-zero] .................................. 44
1.3.36 show talloc-context (application|global) (full|brief|DEPTH) ......................................... 45
1.3.37 show talloc-context (application|global) (full|brief|DEPTH) filter REGEXP .......................................... 45
1.3.38 show talloc-context (application|global) (full|brief|DEPTH) tree ADDRESS ........................................ 46
1.3.39 show version ................................................................. 47
1.3.40 shutdown ................................................................. 47
1.3.41 stats report ................................................................. 47
1.3.42 stats reset ................................................................. 48
1.3.43 terminal length <0-512> ....................................................... 48
1.3.44 terminal monitor ............................................................... 48
1.3.45 terminal no length ............................................................. 49
1.3.46 terminal no monitor ............................................................. 49
1.3.47 who ................................................................. 49
1.4 config ................................................................. 50
1.4.1 banner motd default ............................................................ 50
1.4.2 banner motd file [FILE] ........................................................... 50
1.4.3 cpu-sched ................................................................. 50
1.4.4 ctrl ................................................................. 51
1.4.5 enable password (8|) WORD ................................. 51
1.4.6 enable password LINE ........................................ 51
1.4.7 ggsn NAME ....................................................... 52
1.4.8 hostname WORD ............................................... 52
1.4.9 line vty ......................................................... 52
1.4.10 log alarms <2-32700> ...................................... 53
1.4.11 log file FILENAME [blocking-io] ........................ 53
1.4.12 log gsmtap [HOSTNAME] ................................. 53
1.4.13 log stderr [blocking-io] .................................... 54
1.4.14 log syslog (authpriv|cron|daemon|ftp|lpr|mail|news|user|uucp) ........................................... 54
1.4.15 log syslog local <0-7> .................................... 55
1.4.16 log systemd-journal [raw] ............................... 55
1.4.17 no banner motd ............................................. 55
1.4.18 no enable password ........................................ 56
1.4.19 no ggsn NAME ................................................ 56
1.4.20 no hostname [HOSTNAME] ............................... 56
1.4.21 no log alarms ............................................... 57
1.4.22 no log file FILENAME ...................................... 57
1.4.23 no log gsmtap [HOSTNAME] ............................. 57
1.4.24 no log stderr ............................................... 58
1.4.25 no log syslog ................................................ 58
1.4.26 no log systemd-journal .................................... 59
1.4.27 no service advanced-vty .................................. 59
1.4.28 no service terminal-length [<0-512>] ................ 59
1.4.29 no stats reporter log [NAME] ......................... 60
1.4.30 no stats reporter statsd [NAME] ........................ 60
1.4.31 password (8|) WORD ........................................ 61
1.4.32 password LINE ............................................. 61
1.4.33 service advanced-vty ...................................... 61
1.4.34 service terminal-length [<0-512>] .................... 62
1.4.35 show history ................................................ 62
1.4.36 stats interval <0-65535> .................................. 62
1.4.37 stats reporter log [NAME] ............................... 63
1.4.38 stats reporter statsd [NAME] ........................... 63
1.4.39 stats-tcp batch-size <1-65535> ......................... 63
1.4.40 stats-tcp interval <0-65535> ............................. 64
1.5 config-log ....................................................... 64
1.5.1 logging color (0|1) .......................................... 64
1.5.2 logging filter all (0|1) ...................................... 65
1.5.3 logging level (iptunnelgsnslnsgsnicmp6ggloballapdlinplmuxlmilmlmibsmsslctr... 65
1.5.4 logging level force-all (debug|info|notice|error|fatal) 67
1.5.5 logging level set-all (debug|info|notice|error|fatal) 68
1.5.6 logging print category (01) 69
1.5.7 logging print category-hex (01) 69
1.5.8 logging print extended-timestamp (01) 70
1.5.9 logging print file (01|basename) [last] 70
1.5.10 logging print level (01) 71
1.5.11 logging print thread-id (01) 71
1.5.12 logging timestamp (01) 72
1.5.13 no logging level force-all 72
1.6 config-stats 72
1.6.1 disable 72
1.6.2 enable 73
1.6.3 flush-period <0-65535> 73
1.6.4 level (globalpeersubscriber) 73
1.6.5 local-ip ADDR 74
1.6.6 mtu <100-65535> 74
1.6.7 no local-ip 74
1.6.8 no mtu 75
1.6.9 no prefix 75
1.6.10 prefix PREFIX 75
1.6.11 remote-ip ADDR 76
1.6.12 remote-port <1-65535> 76
1.7 config-line 76
1.7.1 bind A.B.C.D [<0-65535>] 76
1.7.2 login 77
1.7.3 no login 77
1.8 config-ctrl 77
1.8.1 bind A.B.C.D 77
1.9 config-cpu-sched 78
1.9.1 cpu-affinity (self|all|<0-4294967295>|THREADNAME) CPUHEXMASK [delay] 78
1.9.2 policy rr <1-32> 78
1.10 config-ggsn 79
1.10.1 apn NAME 79
1.10.2 default-apn NAME 79
1.10.3 description .TEXT 80
1.10.4 echo-interval <1-36000> 80
1.10.5 gtp bind-ip A.B.C.D 80
1.10.6 gtp control-ip A.B.C.D .................................................. 81
1.10.7 gtp state-dir PATH ......................................................... 81
1.10.8 gtp user-ip A.B.C.D ....................................................... 81
1.10.9 no apn NAME ............................................................... 82
1.10.10 no default-apn .......................................................... 82
1.10.11 no description .......................................................... 82
1.10.12 no echo-interval ....................................................... 83
1.10.13 no shutdown ggsn ..................................................... 83
1.10.14 show sgsn ............................................................... 83
1.10.15 shutdown ggsn ......................................................... 84

1.11 config-ggsn-apn ........................................................... 84
1.11.1 description .TEXT ....................................................... 84
1.11.2 g-pdu tx-sequence-numbers .......................................... 84
1.11.3 gtpu-mode (tun|kernel-gtp) ........................................... 85
1.11.4 ip dns <0-1> A.B.C.D .................................................... 85
1.11.5 ip ifconfig A.B.C.D/M .................................................. 85
1.11.6 ip prefix (static|dynamic) A.B.C.D/M .............................. 86
1.11.7 ipdown-script PATH ..................................................... 86
1.11.8 ipup-script PATH ......................................................... 86
1.11.9 ipv6 dns <0-1> X:X::X:X ............................................... 87
1.11.10 ipv6 ifconfig X:X::X:X/M ............................................ 87
1.11.11 ipv6 link-local X:X::X:X/M ......................................... 87
1.11.12 ipv6 prefix (static|dynamic) X:X::X:X/M ....................... 88
1.11.13 no (ip|ipv6) dns <0-1> ................................................ 88
1.11.14 no description ........................................................ 89
1.11.15 no g-pdu tx-sequence-numbers .................................... 89
1.11.16 no ip ifconfig ........................................................ 89
1.11.17 no ipdown-script ...................................................... 90
1.11.18 no ipup-script ........................................................ 90
1.11.19 no ipv6 ifconfig ........................................................ 90
1.11.20 no ipv6 link-local ..................................................... 91
1.11.21 no shutdown ........................................................... 91
1.11.22 no type-support (v4|v6|v4v6) ........................................ 91
1.11.23 shutdown ............................................................... 92
1.11.24 tun-device NAME ..................................................... 92
1.11.25 type-support (v4|v6|v4v6) ............................................ 92
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 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.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Example</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.B.C.D</td>
<td>127.0.0.1</td>
<td>A IPv4 address</td>
</tr>
<tr>
<td>TEXT</td>
<td>example01</td>
<td>A single string without any spaces, tabs</td>
</tr>
<tr>
<td>.TEXT</td>
<td>Some information</td>
<td>A line of text</td>
</tr>
<tr>
<td>(OptionA</td>
<td>OptionB</td>
<td>OptionC)</td>
</tr>
<tr>
<td>&lt;0-10&gt;</td>
<td>5</td>
<td>A number from a range</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Port Number</th>
<th>Software</th>
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<tbody>
<tr>
<td>4240</td>
<td>osmo-pcu</td>
</tr>
<tr>
<td>4241</td>
<td>osmo-bts</td>
</tr>
<tr>
<td>4242</td>
<td>osmo-nitb, osmo-bsc</td>
</tr>
<tr>
<td>4243</td>
<td>osmo-bsc_mgcp</td>
</tr>
<tr>
<td>4244</td>
<td>osmo-bsc_nat</td>
</tr>
<tr>
<td>4245</td>
<td>osmo-sgsn</td>
</tr>
<tr>
<td>4246</td>
<td>osmo-gbproxy</td>
</tr>
</tbody>
</table>

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 (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctr...

Command

```
logging level {ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp} ←
    lstats|lgsup|loap|lsa?|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata| ←
    lnssignal|liuup|lpfc|lcsn} (debug|info|notice|error|fatal)
```

Parameters

logging
    Configure logging

level
    Set the log level for a specified category

ip
    IP Pool and other groups
tun
    Tunnel interface
ggsn
    GGSN
sgsn
    SGSN Emulator
icmp6
    ICMPv6
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)
lms
  Layer3 Short Message Service (SMS)
lctrl
  Control Interface
lgtp
  GPRS GTP library
lstats
  Statistics messages and logging
lgsup
  Generic Subscriber Update Protocol
loap
  Osmocom Authentication Protocol
lss7
  libosmo-sigtran Signalling System 7
lsccp
  libosmo-sigtran SCCP Implementation
lsua
  libosmo-sigtran SCCP User Adaptation
lm3ua
  libosmo-sigtran MTP3 User Adaptation
lmgcp
  libosmo-mgcp Media Gateway Control Protocol
ljibuf
  libosmo-netif Jitter Buffer
lrspro
  Remote SIM protocol
lns
  GPRS NS layer
lbssgp
  GPRS BSSGP layer
lnsdata
  GPRS NS layer data PDU
lnsignal
  GPRS NS layer signal PDU
liuup
   Iu UP layer
lpfcp
   libosmo-pfcp Packet Forwarding Control Protocol
lcsn1
   libosmo-csn1 Concrete Syntax Notation 1 codec
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 YYYYMMDDhhmssnnn
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 (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|lind|lmux|lmi|lmib|lsms|lctrl|lgtp|ls...**

**Command**

```
logp (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|lind|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfcp|lcsn1) (debug|info|notice|error|fatal) .LOGMESSAGE
```

**Parameters**

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

- **ip**
  - IP Pool and other groups

- **tun**
  - Tunnel interface

- **ggsn**
  - GGSN

- **sgsn**
  - SGSN Emulator

- **icmp6**
  - ICMPv6

- **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
lgmcp
   libosmo-mgcp Media Gateway Control Protocol
ljibuf
   libosmo-netif Jitter Buffer
lrspro
   Remote SIM protocol
lns
   GPRS NS layer
lbssgp
    GPRS BSSGP layer
lnsdata
    GPRS NS layer data PDU
lnsignal
    GPRS NS layer signal PDU
liuup
    Iu UP layer
lpfcp
    libosmo-pfcp Packet Forwarding Control Protocol
lcsn1
    libosmo-csn1 Concrete Syntax Notation 1 codec
debug
    Log debug messages and higher levels
info
    Log informational messages and higher levels
notice
    Log noticeable messages and higher levels
euler
    Log error messages and higher levels
fatal
    Log only fatal messages

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

1.2.18  no logging level force-all

Command

  no logging level force-all

Parameters

no
    Negate a command or set its defaults
logging
    Configure logging
level
    Set the log level for a specified category
force-all
    Release any globally forced log level set with 'logging level force-all <level>'
1.2.19 show alarms

Command

```
show alarms
```

Parameters

show
  Show running system information
alarms
  Show current logging configuration

1.2.20 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
  Show running system information
asciidoc
  Asciidoc generation
counters
  Generate table of all registered counters

1.2.21 show cpu-sched threads

Command

```
show cpu-sched threads
```

Parameters

show
  Show running system information
cpu-sched
  Show Sched section information
threads
  Show information about running threads)
### 1.2.22  show ggsn [NAME]

**Command**

```
show ggsn [NAME]
```

**Parameters**

- `show`
  - Show running system information
- `ggsn`
  - Display information on the GGSN
- `[NAME]`
  - (null)

### 1.2.23  show history

**Command**

```
show history
```

**Parameters**

- `show`
  - Show running system information
- `history`
  - Display the session command history

### 1.2.24  show logging vty

**Command**

```
show logging vty
```

**Parameters**

- `show`
  - Show running system information
- `logging`
  - Show current logging configuration
- `vty`
  - Show current logging configuration for this vty
1.2.25  show online-help

Command

```
show online-help
```

Parameters

- **show**
  - Show running system information
- **online-help**
  - Online help

1.2.26  show pdp-context ggsn NAME

Command

```
show pdp-context ggsn NAME
```

Parameters

- **show**
  - Show running system information
- **pdp-context**
  - Show PDP Context Information
- **ggsn**
  - Gateway GPRS Support NODE (GGSN)
- **NAME**
  - GGSN Name

1.2.27  show pdp-context ggsn NAME apn APN

Command

```
show pdp-context ggsn NAME apn APN
```

Parameters

- **show**
  - Show running system information
- **pdp-context**
  - Show PDP Context Information
ggsn
   Gateway GPRS Support NODE (GGSN)
NAME
   GGSN Name
apn
   Filter by APN
APN
   APN name

1.2.28  show pdp-context ggsn NAME imsi IMSI [<0-15>]

   Command

   show pdp-context ggsn NAME imsi IMSI [<0-15>]

   Parameters

show
   Show running system information
pdp-context
   Display information on PDP Context
ggsn
   Gateway GPRS Support NODE (GGSN)
NAME
   GGSN Name
imsi
   PDP contexts for given IMSI
IMSI
   PDP context for given NSAPI
[<0-15>]
   (null)

1.2.29  show pdp-context ggsn NAME ipv4 A.B.C.D

   Command

   show pdp-context ggsn NAME ipv4 A.B.C.D

   Parameters
show
  Show running system information
pdp-context
  Display information on PDP Context
ggsn
  Gateway GPRS Support NODE (GGSN)
NAME
  GGSN Name
ipv4
  IPv4 address type
  A.B.C.D
  IP address

1.2.30  show pid

Command

```
show pid
```

Parameters
show
  Show running system information
pid
  Displays the process ID

1.2.31  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
1.2.32  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

1.2.33  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
1.2.34  **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 (OTCGLOBAL)
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

1.2.35  **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 (OTCGLOBAL)
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

1.2.36  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)
1.2.37  show uptime

Command

```
show uptime
```

Parameters

- `show`
  - Show running system information
- `uptime`
  - Displays how long the program has been running

1.2.38  show version

Command

```
show version
```

Parameters

- `show`
  - Show running system information
- `version`
  - Displays program version

1.2.39  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)
1.2.40  terminal no length

Command

```text
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

1.2.41  who

Command

```text
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

```text
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 (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmb|lsms|lctrl...)

Command

```
logging level {ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmb|lsms|lctrl|lgtp|...
  lstats|lgsup|loap|lar7|lscap|lsua|lm3ua|lmgcp|ljibuf|lrspro|ln|lbssgp|lnsdatal|...
  lns|lnsignal|liuup|lpfcp|lcsnl} (debug|info|notice|error|fatal)
```

Parameters

logging
  Configure logging
level
  Set the log level for a specified category
ip
  IP Pool and other groups
tun
  Tunnel interface
ggsn
  GGSN
sgsn
  SGSN Emulator
icmp6
  ICMPv6
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)
lms
   Layer3 Short Message Service (SMS)
lctrl
   Control Interface
lgtp
   GPRS GTP library
lstats
   Statistics messages and logging
lgsup
   Generic Subscriber Update Protocol
loap
   Osmocom Authentication Protocol
lss7
   libosmo-sigtran Signalling System 7
lsccp
   libosmo-sigtran SCCP Implementation
lsua
   libosmo-sigtran SCCP User Adaptation
lm3ua
   libosmo-sigtran MTP3 User Adaptation
lmgcp
   libosmo-mgcp Media Gateway Control Protocol
ljibuf
   libosmo-netif Jitter Buffer
lrspro
   Remote SIM protocol
lns
   GPRS NS layer
lbssgp
   GPRS BSSGP layer
lnsdata
   GPRS NS layer data PDU
lnsignal
   GPRS NS layer signal PDU
liuup
   Iu UP layer
lpfcp
   libosmo-pfcp Packet Forwarding Control Protocol
lcsn1
   libosmo-csn1 Concrete Syntax Notation 1 codec
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 YYYYMMDDhhmmsnnn
1.3.14 logging print file \( (0|1|\text{basename}) \ [\text{last}] \)

Command

```
logging print file \( (0|1|\text{basename}) \ [\text{last}] \)
```

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 (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|ls...)

Command

```
logp (ip|tun|ggsn|sgsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| lgsup|loap|lss7|lsccp|lsua|lm3ua|lgmcp|ljibuf|lrsp|lns|lbssgp|lnsdata|lnsignal| liuup|lpfcp|lcns1) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

logp
  Print a message on all log outputs; useful for placing markers in test logs
ip
  IP Pool and other groups
tun
  Tunnel interface
ggsn
  GGSN
sgsn
  SGSN Emulator
icmp6
  ICMPv6
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

stats
  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
debug
    Log debug messages and higher levels
info
    Log informational messages and higher levels
notice
    Log noticeable messages and higher levels
error
    Log error messages and higher levels
fatal
    Log only fatal messages
LOGMESSAGE
    Arbitrary message to log on given category and log level

1.3.20  no logging level force-all

Command

    no logging level force-all

Parameters

no
    Negate a command or set its defaults
logging
    Configure logging
level
    Set the log level for a specified category
force-all
    Release any globally forced log level set with 'logging level force-all <level>''
1.3.21  **show alarms**

Command

```
show alarms
```

Parameters

show
  Show running system information
alarms
  Show current logging configuration

1.3.22  **show asciidoc counters**

Command

```
show asciidoc counters
```

Parameters

show
  Show running system information
asciidoc
  Asciidoc generation
counters
  Generate table of all registered counters

1.3.23  **show cpu-sched threads**

Command

```
show cpu-sched threads
```

Parameters

show
  Show running system information
cpu-sched
  Show Sched section information
threads
  Show information about running threads)
1.3.24  show ggsn [NAME]

Command

```
show ggsn [NAME]
```

Parameters

show
- Show running system information

ggsn
- Display information on the GGSN

[NAME]
- (null)

1.3.25  show history

Command

```
show history
```

Parameters

show
- Show running system information

history
- Display the session command history

1.3.26  show logging vty

Command

```
show logging vty
```

Parameters

show
- Show running system information

logging
- Show current logging configuration

vty
- Show current logging configuration for this vty
1.3.27  show online-help

Command

```
show online-help
```

Parameters

- **show**
  - Show running system information
- **online-help**
  - Online help

1.3.28  show pdp-context ggsn NAME

Command

```
show pdp-context ggsn NAME
```

Parameters

- **show**
  - Show running system information
- **pdp-context**
  - Show PDP Context Information
- **ggsn**
  - Gateway GPRS Support NODE (GGSN)
- **NAME**
  - GGSN Name

1.3.29  show pdp-context ggsn NAME apn APN

Command

```
show pdp-context ggsn NAME apn APN
```

Parameters

- **show**
  - Show running system information
- **pdp-context**
  - Show PDP Context Information
ggsn
    Gateway GPRS Support NODE (GGSN)

NAME
    GGSN Name

apn
    Filter by APN

APN
    APN name

1.3.30  show pdp-context ggsn NAME imsi IMSI [<>-15>]

Command

```
show pdp-context ggsn NAME imsi IMSI [<>-15>]
```

Parameters

show
    Show running system information

pdp-context
    Display information on PDP Context

ggsn
    Gateway GPRS Support NODE (GGSN)

NAME
    GGSN Name

imsi
    PDP contexts for given IMSI

IMSI
    PDP context for given NSAPI

[<>-15>]
    (null)

1.3.31  show pdp-context ggsn NAME ipv4 A.B.C.D

Command

```
show pdp-context ggsn NAME ipv4 A.B.C.D
```

Parameters
show
    Show running system information
pdp-context
    Display information on PDP Context
ggsn
    Gateway GPRS Support NODE (GGSN)

NAME
    GGSN Name
ipv4
    IPv4 address type
    A.B.C.D
    IP address

1.3.32  show rate-counters [skip-zero]

Command

```bash
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

1.3.33  show startup-config

Command

```bash
show startup-config
```

Parameters

show
    Show running system information
startup-config
    Contenbes of startup configuration
1.3.34  **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

1.3.35  **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
1.3.36  `show talloc-context (application|global|all) (full|brief|DEPTH)`

**Command**

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

**Parameters**

- **show**
  - Show running system information
- **talloc-context**
  - Show talloc memory hierarchy
- **application**
  - Application’s context
- **global**
  - Global context (OTC_GLOBAL)
- **all**
  - All contexts, if NULL-context tracking is enabled
- **full**
  - Display a full talloc memory hierarchy
- **brief**
  - Display a brief talloc memory hierarchy
- **DEPTH**
  - Specify required maximal depth value

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

**Command**

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

**Parameters**

- **show**
  - Show running system information
- **talloc-context**
  - Show talloc memory hierarchy
- **application**
  - Application’s context
- **global**
  - Global context (OTCGLOBAL)
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

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

Command

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

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

Command

```
show version
```

Parameters

- **show**
  - Show running system information
- **version**
  - Displays program version

1.3.40  shutdown

Command

```
shutdown
```

Parameters

- **shutdown**
  - Request a shutdown of the program

1.3.41  stats report

Command

```
stats report
```

Parameters

- **stats**
  - Stats related commands
- **report**
  - Manually trigger reporting of stats
1.3.42 stats reset

Command

```
stats reset
```

Parameters

- stats
  Stats related commands
- reset
  Reset all rate counter stats

1.3.43 terminal length <0-512>

Command

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

Parameters

- terminal
  Set terminal line parameters
- length
  Set number of lines on a screen
- <0-512>
  Number of lines on screen (0 for no pausing)

1.3.44 terminal monitor

Command

```
terminal monitor
```

Parameters

- terminal
  Set terminal line parameters
- monitor
  Copy debug output to the current terminal line
1.3.45 terminal no length

Command

terminal no length

Parameters

- **terminal**: Set terminal line parameters
- **no**: Negate a command or set its defaults
- **length**: Set number of lines on a screen

1.3.46 terminal no monitor

Command

terminal no monitor

Parameters

- **terminal**: Set terminal line parameters
- **no**: Negate a command or set its defaults
- **monitor**: Copy debug output to the current terminal line

1.3.47 who

Command

who

Parameters

- **who**: Display who is on vty
1.4  config

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

1.4.1  banner motd default

Command

```
banner motd default
```

Parameters

- banner
  - Set banner string
- motd
  - Strings for motd
- default
  - Default string

1.4.2  banner motd file [FILE]

Command

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

Parameters

- banner
  - Set banner
- motd
  - Banner for motd
- file
  - Banner from a file
- [FILE]
  - Filename

1.4.3  cpu-sched

Command

```
cpu-sched
```

Parameters

- cpu-sched
  - Configure CPU Scheduler related settings
1.4.4 ctrl

Command

ctrl

Parameters

ctrl

Configure the Control Interface

1.4.5 enable password (8|) WORD

Command

enable password (8|) WORD

Parameters

enable

Modify enable password parameters
password

Assign the privileged level password
8

Specifies a HIDDEN password will follow
dummy string
WORD

The HIDDEN ‘enable’ password string

1.4.6 enable password LINE

Command

enable password LINE

Parameters

enable

Modify enable password parameters
password

Assign the privileged level password
LINE

The UNCRYPTED (cleartext) ‘enable’ password
1.4.7  **ggsn NAME**

Command

```
ggsn NAME
```

Parameters

**ggsn**
Configure the Gateway GPRS Support Node

**NAME**
GGSN Name (has only local significance)

1.4.8  **hostname WORD**

Command

```
hostname WORD
```

Parameters

**hostname**
Set system’s network name

**WORD**
This system’s network name

1.4.9  **line vty**

Command

```
line vty
```

Parameters

**line**
Configure a terminal line

**vty**
Virtual terminal
1.4.10  log alarms <2-32700>

Command

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

Parameters

- **log**
  - Configure logging sub-system
- **alarms**
  - Logging alarms to osmo_strrb
- `<2-32700>`
  - Maximum number of messages to log

1.4.11  log file FILENAME [blocking-io]

Command

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

Parameters

- **log**
  - Configure logging sub-system
- **file**
  - Logging to text file
- **FILENAME**
  - Filename
- `[blocking-io]`
  - Use blocking, synchronous I/O

1.4.12  log gsmtap [HOSTNAME]

Command

```
log gsmtap [HOSTNAME]
```

Parameters

- **log**
  - Configure logging sub-system
- **gsmtap**
  - Logging via GSMTAP
- **[HOSTNAME]**
  - Host name to send the GSMTAP logging to (UDP port 4729)
1.4.13 log stderr [blocking-io]

Command

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

Parameters

log
Configure logging sub-system

stderr
Logging via STDERR of the process

[blocking-io]
Use blocking, synchronous I/O

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

Command

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

Parameters

log
Configure logging sub-system

syslog
Logging via syslog

authpriv
Security/authorization messages facility

cron
Clock daemon (cron/at) facility

daemon
General system daemon facility

ftp
Ftp daemon facility

lpr
Line printer facility

mail
Mail facility

news
News facility

user
Generic facility

uucp
UUCP facility
1.4.15  log syslog local <0-7>

Command

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

Parameters

**log**
Configure logging sub-system

**syslog**
Logging via syslog

**local**
Syslog LOCAL facility

**<0-7>**
Local facility number

1.4.16  log systemd-journal [raw]

Command

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

Parameters

**log**
Configure logging sub-system

**systemd-journal**
Logging to systemd-journal

**[raw]**
Offload rendering of the meta information (location, category) to systemd

1.4.17  no banner motd

Command

```
no banner motd
```

Parameters

**no**
Negate a command or set its defaults

**banner**
Set banner string

**motd**
Strings for motd
1.4.18  **no enable password**

Command

```bash
no enable password
```

**Parameters**

- no
  - Negate a command or set its defaults
- enable
  - Modify enable password parameters
- password
  - Assign the privileged level password

1.4.19  **no ggsn NAME**

Command

```bash
no ggsn NAME
```

**Parameters**

- no
  - Negate a command or set its defaults
- ggsn
  - Remove the named Gateway GPRS Support Node
- NAME
  - GGSN Name (has only local significance)

1.4.20  **no hostname [HOSTNAME]**

Command

```bash
no hostname [HOSTNAME]
```

**Parameters**

- no
  - Negate a command or set its defaults
- hostname
  - Reset system’s network name
- [HOSTNAME]
  - Host name of this router
1.4.21  no log alarms

Command

```
no log alarms
```

Parameters

- `no`
  - Negate a command or set its defaults
- `log`
  - Configure logging sub-system
- `alarms`
  - Logging alarms to osmo_strrb

1.4.22  no log file FILENAME

Command

```
no log file FILENAME
```

Parameters

- `no`
  - Negate a command or set its defaults
- `log`
  - Configure logging sub-system
- `file`
  - Logging to text file
- `FILENAME`
  - Filename

1.4.23  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)

1.4.24  no log stderr

Command

no log stderr

Parameters

no
    Negate a command or set its defaults

log
    Configure logging sub-system

stderr
    Logging via STDERR of the process

1.4.25  no log syslog

Command

no log syslog

Parameters

no
    Negate a command or set its defaults

log
    Configure logging sub-system

syslog
    Logging via syslog
1.4.26  no log systemd-journal

Command

    no log systemd-journal

Parameters

no
    Negate a command or set its defaults
log
    Configure logging sub-system
systemd-journal
    Logging to systemd-journal

1.4.27  no service advanced-vty

Command

    no service advanced-vty

Parameters

no
    Negate a command or set its defaults
service
    Set up miscellaneous service
advanced-vty
    Enable advanced mode vty interface

1.4.28  no service terminal-length [<0-512>]

Command

    no service terminal-length [<0-512>]

Parameters

no
    Negate a command or set its defaults
service
    Set up miscellaneous service
terminal-length
    System wide terminal length configuration
    [<0-512>]
    Number of lines of VTY (0 means no line control)
1.4.29  no stats reporter log [NAME]

Command

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

Parameters

- no  
  Negate a command or set its defaults
- stats  
  Configure stats sub-system
- reporter  
  Configure a stats reporter
- log  
  Report to the logger
- [NAME]  
  Name of the reporter

1.4.30  no stats reporter statsd [NAME]

Command

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

Parameters

- no  
  Negate a command or set its defaults
- stats  
  Configure stats sub-system
- reporter  
  Configure a stats reporter
- statsd  
  Report to a STATSD server
- [NAME]  
  Name of the reporter
1.4.31  password (8|) WORD

Command

password (8|) WORD

Parameters
password
Assign the terminal connection password

8
Specifies a HIDDEN password will follow
dummy string
WORD
The HIDDEN line password string

1.4.32  password LINE

Command

password LINE

Parameters
password
Assign the terminal connection password
LINE
The UNENCRYPTED (cleartext) line password

1.4.33  service advanced-vty

Command

service advanced-vty

Parameters
service
Set up miscellaneous service
advanced-vty
Enable advanced mode vty interface
1.4.34 service terminal-length <0-512>

Command

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

Parameters

- service
  - Set up miscellaneous service
- terminal-length
  - System wide terminal length configuration
- <0-512>
  - Number of lines of VTY (0 means no line control)

1.4.35 show history

Command

```
show history
```

Parameters

- show
  - Show running system information
- history
  - Display the session command history

1.4.36 stats interval <0-65535>

Command

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

Parameters

- stats
  - Configure stats sub-system
- interval
  - Set the reporting interval
- <0-65535>
  - Interval in seconds (0 disables the reporting interval)
1.4.37  stats reporter log [NAME]

Command

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

Parameters

*stats*
  Configure stats sub-system

*reporter*
  Configure a stats reporter

*log*
  Report to the logger

*[NAME]*
  Name of the reporter

1.4.38  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

1.4.39  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

1.4.40 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 (ip|tun|ggsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmb|lsms|lctrl|lgtpl...)

Command

```
logging level (ip|tun|ggsn|icmp6|lglobal|llapd|linp|lmux|lmi|lmb|lsms|lctrl|lgtpl|lstats|lgsup|loap|lss7|lscgp|lsua|lm3ua|lmgcp|ljibuf|lspro|lns|lbssgp|lnsdata|lnssignal|liuup|lpfc|lcsl)
```

Parameters

logging
Configure logging

level
Set the log level for a specified category

ip
IP Pool and other groups

tun
Tunnel interface
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ggsn</td>
<td>GGSN</td>
</tr>
<tr>
<td>sgsn</td>
<td>SGSN Emulator</td>
</tr>
<tr>
<td>icmp6</td>
<td>ICMPv6</td>
</tr>
<tr>
<td>lglobal</td>
<td>Library-internal global log family</td>
</tr>
<tr>
<td>llapd</td>
<td>LAPD in libosmogsm</td>
</tr>
<tr>
<td>linp</td>
<td>A-bis Input Subsystem</td>
</tr>
<tr>
<td>lmux</td>
<td>A-bis B-Subchannel TRAU Frame Multiplex</td>
</tr>
<tr>
<td>lmi</td>
<td>A-bis Input Driver for Signalling</td>
</tr>
<tr>
<td>lmib</td>
<td>A-bis Input Driver for B-Channels (voice)</td>
</tr>
<tr>
<td>lsms</td>
<td>Layer3 Short Message Service (SMS)</td>
</tr>
<tr>
<td>lctrl</td>
<td>Control Interface</td>
</tr>
<tr>
<td>lgtp</td>
<td>GPRS GTP library</td>
</tr>
<tr>
<td>lstats</td>
<td>Statistics messages and logging</td>
</tr>
<tr>
<td>lgsup</td>
<td>Generic Subscriber Update Protocol</td>
</tr>
<tr>
<td>loap</td>
<td>Osmocom Authentication Protocol</td>
</tr>
<tr>
<td>lss7</td>
<td>libosmo-sigtran Signalling System 7</td>
</tr>
<tr>
<td>lsccp</td>
<td>libosmo-sigtran SCCP Implementation</td>
</tr>
<tr>
<td>lsua</td>
<td>libosmo-sigtran SCCP User Adaptation</td>
</tr>
<tr>
<td>lm3ua</td>
<td>libosmo-sigtran MTP3 User Adaptation</td>
</tr>
</tbody>
</table>
libosmo-mgcp Media Gateway Control Protocol

libosmo-netif Jitter Buffer

Remote SIM protocol

GPRS NS layer

GPRS BSSGP layer

GPRS NS layer data PDU

GPRS NS layer signal PDU

Iu UP layer

libosmo-pfcp Packet Forwarding Control Protocol

libosmo-csn1 Concrete Syntax Notation 1 codec

Log debug messages and higher levels

Log informational messages and higher levels

Log noticeable messages and higher levels

Log error messages and higher levels

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)
```
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

```plaintext
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

```plaintext
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

<i>0-65535></i>

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**

Configure parameters of the Telnet/VTY Interface, such as to which IP address it should bind/listen to.

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

Command

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

Parameters
bind
   Accept VTY telnet connections on local interface
A.B.C.D
   Local interface IP address (default: 127.0.0.1)
[<0-65535>]
   Local TCP port number
1.7.2  login

Command

```
login
```

Parameters

- login
  - Enable password checking

1.7.3  no login

Command

```
no login
```

Parameters

- no
  - Negate a command or set its defaults
- login
  - Enable password checking

1.8  config-ctrl

Configure parameters of the CTRL Interface, such as to which IP address it should bind/listen to.

1.8.1  bind A.B.C.D

Command

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

Parameters

- bind
  - Set bind address to listen for Control connections
- A.B.C.D
  - Local IP address (default 127.0.0.1)
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-ggsn

Configure an Instance of a (virtual) GGSN

1.10.1  apn NAME

Command

    apn NAME

Parameters
apn
   APN Configuration
NAME
   APN Name

1.10.2  default-apn NAME

Command

    default-apn NAME

Parameters
default-apn
   Set a default-APN to be used if no other APN matches
NAME
   APN Name
1.10.3 description .TEXT

Command

description .TEXT

Parameters

description

Save human-readable description of the object .TEXT

Text until the end of the line

1.10.4 echo-interval <1-36000>

Command

echo-interval <1-36000>

Parameters

echo-interval

Gateway GPRS Support NODE (GGSN) <1-36000>

GGSN Number

1.10.5 gtp bind-ip A.B.C.D

Command

gtp bind-ip A.B.C.D

Parameters

gtp

GTP Parameters

bind-ip

Set the IP address for the local GTP bind A.B.C.D

IPv4 Address
1.10.6  

gtp control-ip A.B.C.D

Command

```
gtp control-ip A.B.C.D
```

Parameters

- **gtp**
  GTP Parameters
- **control-ip**
  Set the IP address states as local IP in GTP-C messages
- **A.B.C.D**
  IPv4 Address

1.10.7  

**gtp state-dir PATH**

Command

```
gtp state-dir PATH
```

Parameters

- **gtp**
  GTP Parameters
- **state-dir**
  Set the directory for the GTP State file
- **PATH**
  Local Directory

1.10.8  

**gtp user-ip A.B.C.D**

Command

```
gtp user-ip A.B.C.D
```

Parameters

- **gtp**
  GTP Parameters
- **user-ip**
  Set the IP address states as local IP in GTP-U messages
- **A.B.C.D**
  IPv4 Address
1.10.9 no apn NAME

Command

```plaintext
no apn NAME
```

Parameters

- no
  - Negate a command or set its defaults
- apn
  - Remove APN Configuration
- NAME
  - APN Name

1.10.10 no default-apn

Command

```plaintext
no default-apn
```

Parameters

- no
  - Negate a command or set its defaults
- default-apn
  - Remove default-APN to be used if no other APN matches

1.10.11 no description

Command

```plaintext
no description
```

Parameters

- no
  - Negate a command or set its defaults
- description
  - Remove description of the object
1.10.12  no echo-interval

Command

no echo-interval

Parameters

no

Gateway GPRS Support NODE (GGSN)

echo-interval

GGSN Number

1.10.13  no shutdown ggsn

Command

no shutdown ggsn

Parameters

no

Negate a command or set its defaults

shutdown

Gateway GPRS Support NODE (GGSN)

ggsn

Remove the GGSN from administrative shut-down

1.10.14  show sgsn

Command

show sgsn

Parameters

show

Negate a command or set its defaults

sgsn

Gateway GPRS Support NODE (GGSN)
1.10.15 shutdown ggsn

Command

```
shutdown ggsn
```

Parameters

- shutdown
  - Put the GGSN in administrative shut-down
- ggsn
  - Gateway GPRS Support NODE (GGSN)

1.11 config-ggsn-apn

Configure an Access Point Name (APN) inside a GGSN Instance

1.11.1 description .TEXT

Command

```
description .TEXT
```

Parameters

- description
  - Save human-readable description of the object
- .TEXT
  - Text until the end of the line

1.11.2 g-pdu tx-sequence-numbers

Command

```
g-pdu tx-sequence-numbers
```

Parameters

- g-pdu
  - G-PDU Configuration
- tx-sequence-numbers
  - Enable transmission of G-PDU sequence numbers
1.11.3  **gtpu-mode (tun|kernel-gtp)**

**Command**

```bash
gtpu-mode (tun|kernel-gtp)
```

**Parameters**

**gtpu-mode**
- Set the Mode for this APN (tun or Linux Kernel GTP)
  - **tun**
    - GTP-U in userspace using TUN device
  - **kernel-gtp**
    - GTP-U in kernel using Linux Kernel GTP

1.11.4  **ip dns <0-1> A.B.C.D**

**Command**

```bash
ip dns <0-1> A.B.C.D
```

**Parameters**

**ip**
- IP information

**dns**
- Configure DNS Server

<0-1>
- primary/secondary DNS

A.B.C.D
- IP address of DNS Server

1.11.5  **ip ifconfig A.B.C.D/M**

**Command**

```bash
ip ifconfig A.B.C.D/M
```

**Parameters**

**ip**
- IP information

**ifconfig**
- GGSN-based interface configuration

A.B.C.D/M
- IPv4 Address/Prefix-Length
1.11.6 ip prefix (static|dynamic) A.B.C.D/M

Command

```
ip prefix {static|dynamic} A.B.C.D/M
```

Parameters

- **ip**
  - IP information
- **prefix**
  - Prefix (Network/Netmask)
- **static**
  - IPv4 Address/Prefix-Length
- **dynamic**
  - (null)
- **A.B.C.D/M**
  - (null)

1.11.7 ipdown-script PATH

Command

```
ipdown-script PATH
```

Parameters

- **ipdown-script**
  - Configure name/path of ip-down script
- **PATH**
  - File/Path name of ip-down script

1.11.8 ipup-script PATH

Command

```
ipup-script PATH
```

Parameters

- **ipup-script**
  - Configure name/path of ip-up script
- **PATH**
  - File/Path name of ip-up script
### 1.11.9 ipv6 dns <0-1> X:X::X:X

**Command**

```
ipv6 dns <0-1> X:X::X:X
```

**Parameters**

- **ipv6**
  - IPv6 Information
- **dns**
  - Configure DNS Server
  - `<0-1>`
    - primary/secondary DNS
- **X:X::X:X**
  - IP address of DNS Server

### 1.11.10 ipv6 ifconfig X:X::X:X/M

**Command**

```
ipv6 ifconfig X:X::X:X/M
```

**Parameters**

- **ipv6**
  - IPv6 Information
- **ifconfig**
  - GGSN-based interface configuration
- **X:X::X:X/M**
  - IPv6 Address/Prefix-Length

### 1.11.11 ipv6 link-local X:X::X:X/M

**Command**

```
ipv6 link-local X:X::X:X/M
```

**Parameters**

- **ipv6**
  - IPv6 Information
- **link-local**
  - GGSN-based interface configuration
- **X:X::X:X/M**
  - IPv6 Link-local Address/Prefix-Length
1.11.12  ipv6 prefix (static|dynamic) X:X::X:X/M

Command

```
ipv6 prefix (static|dynamic) X:X::X:X/M
```

Parameters

ipv6
IPv6 Information

prefix
Prefix (Network/Netmask)

static
IPv6 Address/Prefix-Length

dynamic
(null)

X:X::X:X/M
(null)

1.11.13  no (ip|ipv6) dns <0-1>

Command

```
no (ip|ipv6) dns <0-1>
```

Parameters

no
Negate a command or set its defaults

ip
IP information

ipv6
IPv6 Information

dns
Disable DNS Server

<0-1>
primary/secondary DNS
1.11.14  no description

Command

no description

Parameters

no

Negate a command or set its defaults
description

Remove description of the object

1.11.15  no g-pdu tx-sequence-numbers

Command

no g-pdu tx-sequence-numbers

Parameters

no

Negate a command or set its defaults
g-pdu
  G-PDU Configuration
tx-sequence-numbers
  Disable transmission of G-PDU sequence numbers

1.11.16  no ip ifconfig

Command

no ip ifconfig

Parameters

no

Negate a command or set its defaults
ip
  IP information
ifconfig
  GGSN-based interface configuration
1.11.17 no ipdown-script

Command

no ipdown-script

Parameters
no
  Negate a command or set its defaults
ipdown-script
  Disable ip-down script

1.11.18 no ipup-script

Command

no ipup-script

Parameters
no
  Negate a command or set its defaults
ipup-script
  Disable ip-up script

1.11.19 no ipv6 ifconfig

Command

no ipv6 ifconfig

Parameters
no
  Negate a command or set its defaults
ipv6
  IPv6 Information
ifconfig
  GGSN-based interface configuration
1.11.20  **no ipv6 link-local**

Command

```
no ipv6 link-local
```

Parameters

- **no**
  - Negate a command or set its defaults
- **ipv6**
  - IPv6 Information
- **link-local**
  - GGSN-based interface configuration

1.11.21  **no shutdown**

Command

```
no shutdown
```

Parameters

- **no**
  - Negate a command or set its defaults
- **shutdown**
  - Remove the APN from administrative shut-down

1.11.22  **no type-support (v4|v6|v4v6)**

Command

```
no type-support (v4|v6|v4v6)
```

Parameters

- **no**
  - Negate a command or set its defaults
- **type-support**
  - Disable support for PDP Type
- **v4**
  - IPv4(-only) PDP Type
- **v6**
  - IPv6(-only) PDP Type
- **v4v6**
  - IPv4v6 (dual-stack) PDP Type
1.11.23 shutdown

Command

```
shutdown
```

Parameters

```
shutdown
```
Put the APN in administrative shut-down

1.11.24 tun-device NAME

Command

```
tun-device NAME
```

Parameters

```
tun-device
```
Configure tun device name

```
NAME
```
TUN device name

1.11.25 type-support (v4|v6|v4v6)

Command

```
type-support (v4|v6|v4v6)
```

Parameters

```
type-support
```
Enable support for PDP Type

```
v4
```
IPv4(-only) PDP Type

```
v6
```
IPv6(-only) PDP Type

```
v4v6
```
IPv4v6 (dual-stack) PDP Type