# OsmoBSC VTY Reference

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| COLLABORATORS | | | |
|---|---|---|---|
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# Chapter 1

# VTY reference

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

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

Table 1.1: VTY Parameter Patterns

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

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

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

Table 1.2: VTY port numbers

## 1.1 Common Commands

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

### 1.1.1 end

Command

```
end
```

Parameters

end
: End current mode and change to enable mode.

### 1.1.2 exit

Command

```
exit
```

Parameters

exit
: Exit current mode and down to previous mode

### 1.1.3 help

Command

```
help
```

Parameters

help
: Description of the interactive help system

### 1.1.4 list [with-flags]

Command

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

Parameters

list
: Print command list

[with-flags]
: Also print the VTY attribute flags

### 1.1.5 show running-config

Command

```
show running-config
```

Parameters

show
: Show running system information

running-config
: running configuration

### 1.1.6 show vty-attributes

Command

```
show vty-attributes
```

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

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

Command

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

Parameters

show
: Show running system information

vty-attributes
: List of VTY attributes

application
: Application specific attributes only

library
: Library specific attributes only

global
: Global attributes only

### 1.1.8 write

Command

```
write
```

Parameters

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

### 1.1.9 write file [PATH]

Command

```
write file [PATH]
```

Parameters

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

file
: Write to configuration file

[PATH]
: Set file path to store the config, or replace if already exists

### 1.1.10 write memory

Command

```
write memory
```

Parameters

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

memory
: Write configuration to the file (same as write file)

### 1.1.11 write terminal

Command

```
write terminal
```

Parameters

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

terminal
: Write to terminal

## 1.2 view

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

### 1.2.1 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 filter imsi IMSI

Command

```
logging filter imsi IMSI
```

Parameters

logging
: Configure logging

filter
: Filter log messages

imsi
: Filter log messages by IMSI

IMSI
: IMSI to be used as filter

### 1.2.7 logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|c...

Command

```
logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts| ↩
    as|cbs|lcs|asci|reset|loop|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal| ↩
    liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rll
: A-bis Radio Link Layer (RLL)

mm
: Layer3 Mobility Management (MM)

rr
: Layer3 Radio Resource (RR)

rsl
: A-bis Radio Signalling Link (RSL)

nm
: A-bis Network Management / O&M (NM/OML)

pag
: Paging Subsystem

meas
: Radio Measurement Processing

msc
: Mobile Switching Center

ho
: Hand-Over Process

hodec
: Hand-Over Decision

ref
: Reference Counting

ctrl
: Control interface

filter
: BSC/NAT IMSI based filtering

pcu
: PCU Interface

lcls
: Local Call, Local Switch

chan
: lchan FSM

ts
: timeslot FSM

as
: assignment FSM

cbs
: Cell Broadcast System

lcs
: Location Services

asci
: Advanced Speech Call Items (VGCS/VBS)

reset
: RESET/ACK on A and Lb interfaces

loop
: Control loops

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

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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 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

### 1.2.9 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

### 1.2.10 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

### 1.2.11 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>’)

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don’t prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

### 1.2.13 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.

### 1.2.14 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

### 1.2.15 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

### 1.2.16 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

### 1.2.17 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

### 1.2.18 logp (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts|as...

Command

```
logp (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts|as|cbs| ↩
    lcs|asci|reset|loop|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup| ↩
    loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup| ↩
    lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

rll
: A-bis Radio Link Layer (RLL)

mm
: Layer3 Mobility Management (MM)

rr
: Layer3 Radio Resource (RR)

rsl
: A-bis Radio Signalling Link (RSL)

nm
: A-bis Network Management / O&M (NM/OML)

pag
: Paging Subsystem

meas
: Radio Measurement Processing

msc
: Mobile Switching Center

ho
: Hand-Over Process

hodec
: Hand-Over Decision

ref
: Reference Counting

ctrl
: Control interface

filter
: BSC/NAT IMSI based filtering

pcu
: PCU Interface

lcls
: Local Call, Local Switch

chan
: lchan FSM

ts
: timeslot FSM

as
: assignment FSM

cbs
: Cell Broadcast System

lcs
: Location Services

asci
: Advanced Speech Call Items (VGCS/VBS)

reset
: RESET/ACK on A and Lb interfaces

loop
: Control loops

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

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

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

### 1.2.19 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>'

### 1.2.20 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.2.21 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.2.22 show bts <0-65535> fail-rep [reset]

Command

```
show bts <0-65535> fail-rep [reset]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

fail-rep
: OML failure reports

[reset]
: Clear the list of failure reports after showing them

### 1.2.23 show bts <0-65535> neighbor arfcn <0-1023> bsic (<0-63>|any)

Command

```
show bts <0-65535> neighbor arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

neighbor
: Query which cell would be the target for this neighbor ARFCN+BSIC

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.2.24 show bts <0-65535> om2k-mo

Command

```
show bts <0-65535> om2k-mo
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

om2k-mo
: OM2000 Managed Object information

### 1.2.25 show bts <0-65535> smscb [(basic|extended)]

Command

```
show bts <0-65535> smscb [(basic|extended)]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

smscb
: SMS Cell Broadcast State

[basic]
: Show only information related to CBCH BASIC

[extended]
: Show only information related to CBCH EXTENDED

### 1.2.26 show bts [<0-65535>]

Command

```
show bts [<0-65535>]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

[<0-65535>]
: BTS number

### 1.2.27 show bts brief

Command

```
show bts brief
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

brief
: Display availability status of all BTS

### 1.2.28 show cbc

Command

```
show cbc
```

Parameters

show
: Show running system information

cbc
: Display state of CBC / CBSP

### 1.2.29 show conns

Command

```
show conns
```

Parameters

show
: Show running system information

conns
: Display currently active subscriber connections

### 1.2.30 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)

### 1.2.31 show cs7 (sua|m3ua|ipa) (sctp|tcp) [<0-65534>]

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

sctp
: SCTP (Stream Control Transmission Protocol)

tcp
: TCP (Transmission Control Protocol)

[<0-65534>]
: Local Port Number

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

[<0-65534>]
: Local Port Number

### 1.2.33 show cs7 config

Command

```
show cs7 config
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

config
: Currently running cs7 configuration

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

active
: Display all active ASs

all
: Display all ASs (default)

m3ua
: Display all m3ua ASs

sua
: Display all SUA ASs

### 1.2.35 show cs7 instance <0-15> as binding-table name AS_NAME

Command

```
show cs7 instance <0-15> as binding-table name AS_NAME
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

binding-table
: Display binding table

name
: Look up AS with a given name

AS_NAME
: Name of the Application Server (AS)

### 1.2.36 show cs7 instance <0-15> as name AS_NAME

Command

```
show cs7 instance <0-15> as name AS_NAME
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

name
: Look up AS with a given name

AS_NAME
: Name of the Application Server (AS)

### 1.2.37 show cs7 instance <0-15> asp

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp
: Application Server Process (ASP)

### 1.2.38 show cs7 instance <0-15> asp name ASP_NAME

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp
: Application Server Process (ASP)

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.2.39 show cs7 instance <0-15> asp-assoc-status

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-assoc-status
: Application Server Process (ASP) SCTP association status

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-assoc-status
: Application Server Process (ASP) SCTP association information

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.2.41 show cs7 instance <0-15> asp-remaddr

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-remaddr
: Application Server Process (ASP) remote addresses information

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-remaddr
: Application Server Process (ASP) remote addresses information

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.2.43 show cs7 instance <0-15> route [POINT_CODE]

Command

```
show cs7 instance <0-15> route [POINT_CODE]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route
: Routing Table

[POINT_CODE]
: Destination Point Code

### 1.2.44 show cs7 instance <0-15> route binding-table [POINT_CODE] [all-matches]

Command

```
show cs7 instance <0-15> route binding-table [POINT_CODE] [all-matches]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route
: Routing Table

binding-table
: Display binding table

[POINT_CODE]
: Destination Point Code

[all-matches]
: Display all matching Combination Links

### 1.2.45 show cs7 instance <0-15> route-lookup POINT_CODE from POINT_CODE sls <0-15> [lis...

Command

```
show cs7 instance <0-15> route-lookup POINT_CODE from POINT_CODE sls <0-15> [list-asps]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route-lookup
: Look up route

POINT_CODE
: Destination PC

from
: From

POINT_CODE
: Origin PC

sls
: SLS

<0-15>
: SLS value

[list-asps]
: List ASPs of the AS if route points to an AS

### 1.2.46 show cs7 instance <0-15> sccp addressbook

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

addressbook
: List all SCCP addressbook entries

### 1.2.47 show cs7 instance <0-15> sccp connections

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

connections
: Show List of active SCCP connections

### 1.2.48 show cs7 instance <0-15> sccp ssn <0-65535>

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

ssn
: Find an SCCP User registered for the given SSN

<0-65535>
: Subsystem Number (SSN)

### 1.2.49 show cs7 instance <0-15> sccp timers

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signaling Connection Control Part

timers
: Show List of SCCP timers

### 1.2.50 show cs7 instance <0-15> sccp users

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

users
: Show List of SCCP Users registered

### 1.2.51 show cs7 instance <0-15> users

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

users
: User Table

### 1.2.52 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

### 1.2.53 show e1_line [<0-255>] [stats]

Command

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

Parameters

show
: Show running system information

e1_line
: Display information about a E1 line

[<0-255>]
: E1 Line Number

[stats]
: Include statistics

### 1.2.54 show e1_timeslot [<0-255>] [<0-31>]

Command

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

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

### 1.2.55 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

### 1.2.56 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

### 1.2.57 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.2.58 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.2.59 show fsm-state-graph NAME

Command

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

Parameters

show
: Show running system information

fsm-state-graph
: Generate a state transition graph (using DOT language)

NAME
: FSM name

### 1.2.60 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.2.61 show lchan [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.2.62 show lchan summary [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary
: Short summary (used lchans)

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.2.63 show lchan summary-all [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary-all [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary-all
: Short summary (all lchans)

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.2.64 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

### 1.2.65 show mgw-pool

Command

```
show mgw-pool
```

Parameters

show
: Show running system information

mgw-pool
: Display information about the MGW-Pool

### 1.2.66 show mscs

Command

```
show mscs
```

Parameters

show
: Show running system information

mscs
: MSC Connections and State

### 1.2.67 show network

Command

```
show network
```

Parameters

show
: Show running system information

network
: Display information about a GSM NETWORK

### 1.2.68 show nri [<0-1000>]

Command

```
show nri [<0-1000>]
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators, for MSC pooling

[<0-1000>]
: Optional MSC number to limit to

### 1.2.69 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.2.70 show paging [<0-65535>]

Command

```
show paging [<0-65535>]
```

Parameters

show
: Show running system information

paging
: Display information about paging requests of a BTS

[<0-65535>]
: BTS Number

### 1.2.71 show paging-group <0-65535> IMSI

Command

```
show paging-group <0-65535> IMSI
```

Parameters

show
: Show running system information

paging-group
: Display the paging group

<0-65535>
: BTS Number

IMSI
: IMSI

### 1.2.72 show pid

Command

```
show pid
```

Parameters

show
: Show running system information

pid
: Displays the process ID

### 1.2.73 show position

Command

```
show position
```

Parameters

show
: Show running system information

position
: Position information of the BTS

### 1.2.74 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

### 1.2.75 show rejected-bts

Command

```
show rejected-bts
```

Parameters

show
: Show running system information

rejected-bts
: Display recently rejected BTS devices

### 1.2.76 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.2.77 show statistics

Command

```
show statistics
```

Parameters

show
: Show running system information

statistics
: Statistics about the BSC

### 1.2.78 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

### 1.2.79 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

### 1.2.80 show subscriber all

Command

```
show subscriber all
```

Parameters

show
: Show running system information

subscriber
: Display information about subscribers

all
: All Subscribers

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

all
: All contexts, if NULL-context tracking is enabled

full
: Display a full talloc memory hierarchy

brief
: Display a brief talloc memory hierarchy

DEPTH
: Specify required maximal depth value

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

all
: All contexts, if NULL-context tracking is enabled

full
: Display a full talloc memory hierarchy

brief
: Display a brief talloc memory hierarchy

DEPTH
: Specify required maximal depth value

filter
: Filter chunks using regular expression

REGEXP
: Regular expression

### 1.2.83 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)

### 1.2.84 show timer [(net|mgw)] [TNNNN]

Command

```
show timer [(net|mgw)] [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show timers

[net]
: GSM network

[mgw]
: MGW (Media Gateway) interface

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

### 1.2.85 show timeslot [<0-65535>] [<0-255>] [<0-7>]

Command

```
show timeslot [<0-65535>] [<0-255>] [<0-7>]
```

Parameters

show
: Show running system information

timeslot
: Display information about a TS

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

### 1.2.86 show trx (connected|disconnected)

Command

```
show trx (connected|disconnected)
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

connected
: Show TRX with RSL connected

disconnected
: Show TRX with RSL disconnected

### 1.2.87 show trx [<0-65535>] [<0-255>]

Command

```
show trx [<0-65535>] [<0-255>]
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

### 1.2.88 show uptime

Command

```
show uptime
```

Parameters

show
: Show running system information

uptime
: Displays how long the program has been running

### 1.2.89 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.2.90 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)

### 1.2.91 terminal no length

Command

```
terminal no length
```

Parameters

terminal
: Set terminal line parameters

no
: Negate a command or set its defaults

length
: Set number of lines on a screen

### 1.2.92 who

Command

```
who
```

Parameters

who
: Display who is on vty

## 1.3 enable

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

### 1.3.1 assignment any

Command

```
assignment any
```

Parameters

assignment
: Manually trigger assignment (for debugging)

any
: Pick any actively used TCH/F or TCH/H lchan and re-assign within the same BTS. This will fail if no lchans of the same type are available besides the used one.

### 1.3.2 bts <0-65535> c0-power-reduction <0-6>

Command

```
bts <0-65535> c0-power-reduction <0-6>
```

Parameters

bts
: BTS Specific Commands

<0-65535>
: BTS Number

c0-power-reduction
: BCCH carrier power reduction operation

<0-6>
: Power reduction value (in dB, even numbers only)

### 1.3.3 bts <0-65535> om2000 class (trxc|tg|ts|tf|is|con|dp|mctr|cf|tx|rx) <0-255> <0-25...

Command

```
bts <0-65535> om2000 class (trxc|tg|ts|tf|is|con|dp|mctr|cf|tx|rx) <0-255> <0-255>  ↩
    <0-255>
```

Parameters

bts
: BTS related commands

<0-65535>
: BTS Number

om2000
: Manipulate the OM2000 managed objects

class
: Object Class

trxc
: TRX Controller

tg
: Trunk Group

ts
: Timeslot

tf
: Timing Function

is
: Interface Switch

con
: Abis Concentrator

dp
: Digital Path

mctr
: Multi Carrier Transceiver

cf
: Central Function

tx
: Transmitter

rx
: Receiver

<0-255>
: BTS Number

<0-255>

Associated SO Instance

<0-255>

Instance Number

### 1.3.4 bts <0-65535> om2000 class <0-255> <0-255> <0-255> <0-255>

Command

```
bts <0-65535> om2000 class <0-255> <0-255> <0-255> <0-255>
```

Parameters

bts

BTS related commands

<0-65535>

BTS Number

om2000

Manipulate the OML managed objects

class

Object Class

<0-255>

Object Class

<0-255>

BTS Number

<0-255>

Associated SO Instance

<0-255>

Instance Number

### 1.3.5 bts <0-65535> oml class (site-manager|bts|radio-carrier|baseband-transceiver|cha...

Command

```
bts <0-65535> oml class (site-manager|bts|radio-carrier|baseband-transceiver|channel| ↩
    adjc|handover|power-contorl|btse|rack|test|envabtse|bport|gprs-nse|gprs-cell|gprs- ↩
    nsvc|siemenshw) instance <0-255> <0-255> <0-255>
```

Parameters

bts

BTS related commands

<0-65535>

BTS Number

oml
: Manipulate the OML managed objects

class
: Object Class

site-manager
: Site Manager Object

bts
: BTS Object

radio-carrier
: Radio Carrier Object

baseband-transceiver
: Baseband Transceiver Object

channel
: Channel (Timeslot) Object

adjc
: Adjacent Object (Siemens)

handover
: Handover Object (Siemens)

power-contorl
: Power Control Object (Siemens)

btse
: BTSE Object (Siemens)

rack
: Rack Object (Siemens)

test
: Test Object (Siemens)

envabtse
: ENVABTSE Object (Siemens)

bport
: BPORT Object (Siemens)

gprs-nse
: GPRS NSE Object (ip.access/osmo-bts)

gprs-cell
: GPRS Cell Object (ip.acecss/osmo-bts)

gprs-nsvc
: GPRS NSVC Object (ip.acecss/osmo-bts)

siemenshw
: SIEMENSHW Object (Siemens)

instance
: Object Instance

<0-255>
: BTS Number

<0-255>
: TRX Number

<0-255>
: TS Number

### 1.3.6 bts <0-65535> oml class <0-255> instance <0-255> <0-255> <0-255>

Command

```
bts <0-65535> oml class <0-255> instance <0-255> <0-255> <0-255>
```

Parameters

bts
: BTS related commands

<0-65535>
: BTS Number

oml
: Manipulate the OML managed objects

class
: Object Class

<0-255>
: Object Class

instance
: Object Instance

<0-255>
: BTS Number

<0-255>
: TRX Number

<0-255>
: TS Number

### 1.3.7 bts <0-65535> resend-power-control-defaults

Command

```
bts <0-65535> resend-power-control-defaults
```

Parameters

bts
: BTS Specific Commands

<0-65535>
: BTS Number

resend-power-control-defaults
: Re-generate + re-send default MS/BS Power control parameters

### 1.3.8 bts <0-65535> resend-system-information

Command

```
bts <0-65535> resend-system-information
```

Parameters

bts
: BTS Specific Commands

<0-65535>
: BTS Number

resend-system-information
: Re-generate + re-send BCCH SYSTEM INFORMATION

### 1.3.9 bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> (activa...

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> (activate| ↩
    activate-vamos) (hr|fr|efr|amr|sig) [<0-7>]
```

Parameters

bts
: BTS for manual command

<0-65535>
: BTS Number

trx
: TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

sub-slot
Primary sub-slot

vamos-sub-slot
VAMOS secondary shadow subslot, range <0-1>, only valid for TCH type timeslots

<0-7>
Sub-slot Number

activate
Manual Channel Activation (e.g. for BER test)

activate-vamos
Manual Channel Activation, in VAMOS mode

hr
Half-Rate v1

fr
Full-Rate

efr
Enhanced Full Rate

amr
Adaptive Multi-Rate

sig
Signalling

[<0-7>]
AMR Mode

### 1.3.10 bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> deactiv...

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> deactivate
```

Parameters

bts
BTS for manual command

<0-65535>
BTS Number

trx
: TRX for manual command

<0-255>
: TRX Number

timeslot
: Timeslot for manual command

<0-7>
: Timeslot Number

sub-slot
: Primary sub-slot

vamos-sub-slot
: VAMOS secondary shadow subslot, range <0-1>, only valid for TCH type timeslots

<0-7>
: Sub-slot Number

deactivate
: Manual Channel Deactivation (e.g. for BER test)

### 1.3.11 bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> reassig...

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> reassign-to ↩
    trx <0-255> timeslot <0-7> (sub-slot|vamos-sub-slot) <0-7> [tsc] [<1-4>] [<0-7>]
```

Parameters

bts
: BTS for manual command

<0-65535>
: BTS Number

trx
: TRX for manual command

<0-255>
: TRX Number

timeslot
: Timeslot for manual command

<0-7>
: Timeslot Number

sub-slot
: Primary sub-slot

vamos-sub-slot
: VAMOS secondary shadow subslot, range <0-1>, only valid for TCH type timeslots

<0-7>
: Sub-slot Number

reassign-to
: Trigger Assignment to an unused lchan on the same cell

trx
: Target TRX

<0-255>
: TRX nr

timeslot
: Target timeslot

<0-7>
: timeslot nr

sub-slot
: Primary sub-slot

vamos-sub-slot
: VAMOS secondary shadow subslot, range <0-1>, only valid for TCH type timeslots

<0-7>
: Sub-slot Number

[tsc]
: Provide specific TSC Set and Training Sequence Code

[<1-4>]
: TSC Set

[<0-7>]
: Training Sequence Code

### 1.3.12 bts <0-65535> trx <0-255> timeslot <0-7> pdch (activate|deactivate)

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> pdch (activate|deactivate)
```

Parameters

bts
: BTS for manual command

<0-65535>
: BTS Number

trx
: TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

pdch
Packet Data Channel

activate
Activate Dynamic PDCH/TCH (-> PDCH mode)

deactivate
Deactivate Dynamic PDCH/TCH (-> TCH mode)

### 1.3.13 bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> assignment

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> assignment
```

Parameters

bts
BTS for manual command

<0-65535>
BTS Number

trx
TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

sub-slot
Sub-slot for manual command

<0-7>
Sub-slot Number

assignment
Manually trigger assignment (for debugging)

### 1.3.14 bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> handover <0-65535>

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> handover <0-65535>
```

Parameters

bts
: BTS for manual command

<0-65535>
: BTS Number

trx
: TRX for manual command

<0-255>
: TRX Number

timeslot
: Timeslot for manual command

<0-7>
: Timeslot Number

sub-slot
: Sub-slot for manual command

<0-7>
: Sub-slot Number

handover
: Manually trigger handover (for debugging)

<0-65535>
: New BTS Number

### 1.3.15 bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> mdcx A.B.C.D <0-65535>

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> mdcx A.B.C.D <0-65535>
```

Parameters

bts
: BTS for manual command

<0-65535>
: BTS Number

trx
: TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

sub-slot
Sub-slot for manual command

<0-7>
Sub-slot Number

mdcx
Modify RTP Connection

A.B.C.D
MGW IP Address

<0-65535>
MGW UDP Port

### 1.3.16 bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> modify (vamos|non-vamos)...

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> modify (vamos|non-vamos) [tsc]  ↩
    [<1-4>] [<0-7>]
```

Parameters

bts
BTS for manual command

<0-65535>
BTS Number

trx
TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

sub-slot
Sub-slot for manual command

<0-7>
Sub-slot Number

modify
Manually send Channel Mode Modify (for debugging)

vamos
Enable VAMOS channel mode

non-vamos
Disable VAMOS channel mode

[tsc]
Provide specific TSC Set and Training Sequence Code

[<1-4>]
TSC Set

[<0-7>]
Training Sequence Code

### 1.3.17 bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> ms-power <0-40> [verify]...

Command

```
bts <0-65535> trx <0-255> timeslot <0-7> sub-slot <0-7> ms-power <0-40> [verify]
```

Parameters

bts
BTS for manual command

<0-65535>
BTS Number

trx
TRX for manual command

<0-255>
TRX Number

timeslot
Timeslot for manual command

<0-7>
Timeslot Number

sub-slot
Sub-slot for manual command

<0-7>
Sub-slot Number

ms-power
Manually force MS Uplink Power Level in dBm on the lchan (for testing)

<0-40>
Set transmit power of the MS in dBm

[verify]
Check requested level against BAND and UE Power Class.

### 1.3.18 bts <0-65535> unblock-setup-ramping

Command

```
bts <0-65535> unblock-setup-ramping
```

Parameters

bts
BTS Specific Commands

<0-65535>
BTS Number

unblock-setup-ramping
Unblock and allow to configure a BTS if kept back by BTS ramping

### 1.3.19 configure [terminal]

Command

```
configure [terminal]
```

Parameters

configure
Configuration from vty interface

[terminal]
Configuration terminal

### 1.3.20 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)

### 1.3.21 cs7 instance <0-15> asp NAME audit point-code POINT_CODE

Command

```
cs7 instance <0-15> asp NAME audit point-code POINT_CODE
```

Global attributes

Flag: !

This command applies immediately

Parameters

cs7

ITU-T Signaling System 7

instance

Instance related commands

<0-15>

SS7 Instance Number

asp

ASP related commands

NAME

Name of ASP

audit

Audit destination Point Code (xUA DAUD)

point-code

Destination Point Code to audit

POINT_CODE

Destination Point Code value

### 1.3.22 cs7 instance <0-15> asp NAME disconnect

Command

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

Parameters

cs7

ITU-T Signaling System 7

instance

Instance related commands

<0-15>

SS7 Instance Number

asp
: ASP related commands

NAME
: Name of ASP

disconnect
: Disconnect the ASP (client will reconnect)

### 1.3.23 ctrl-interface generate-trap TRAP VALUE

Command

```
ctrl-interface generate-trap TRAP VALUE
```

Parameters

ctrl-interface
: Commands related to the CTRL Interface

generate-trap
: Generate a TRAP for test purpose

TRAP
: Identity/Name of the TRAP variable

VALUE
: Value of the TRAP variable

### 1.3.24 disable

Command

```
disable
```

Parameters

disable
: Turn off privileged mode command

### 1.3.25 drop bts connection <0-65535> (oml|rsl)

Command

```
drop bts connection <0-65535> (oml|rsl)
```

Parameters

drop
: Debug/Simulation command to drop Abis/IP BTS

bts
: Debug/Simulation command to drop Abis/IP BTS

connection
: Debug/Simulation command to drop Abis/IP BTS

<0-65535>
: BTS NR

oml
: Drop OML Connection

rsl
: Drop RSL Connection

### 1.3.26 generate-location-state-trap <0-65535>

Command

```
generate-location-state-trap <0-65535>
```

Parameters

generate-location-state-trap
: Generate location state report

<0-65535>
: BTS to report

### 1.3.27 handover any

Command

```
handover any
```

Parameters

handover
: Manually trigger handover (for debugging)

any
: Pick any actively used TCH/F or TCH/H lchan and handover to any other BTS. This is likely to fail if not all BTS are guaranteed to be reachable by the MS.

### 1.3.28 handover any to arfcn <0-1023> bsic (<0-63>|any)

Command

```
handover any to arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

handover
: Manually trigger handover (for debugging)

any
: Pick any actively used TCH/F or TCH/H lchan to handover to another cell. This is likely to fail outside of a lab setup where you are certain that all MS are able to see the target cell.

to
: 'to'

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.3.29 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

### 1.3.30 logging disable

Command

```
logging disable
```

Parameters

logging
: Configure logging

disable
: Disables logging to this vty

### 1.3.31 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

### 1.3.32 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

### 1.3.33 logging filter imsi IMSI

Command

```
logging filter imsi IMSI
```

Parameters

logging
: Configure logging

filter
: Filter log messages

imsi
: Filter log messages by IMSI

IMSI
: IMSI to be used as filter

### 1.3.34 logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|c...

Command

```
logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts| ↩
    as|cbs|lcs|asci|reset|loop|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal| ↩
    liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rll
: A-bis Radio Link Layer (RLL)

mm
: Layer3 Mobility Management (MM)

rr
: Layer3 Radio Resource (RR)

rsl
: A-bis Radio Signalling Link (RSL)

nm
: A-bis Network Management / O&M (NM/OML)

pag
: Paging Subsystem

meas
: Radio Measurement Processing

msc
: Mobile Switching Center

ho
: Hand-Over Process

hodec
: Hand-Over Decision

ref
: Reference Counting

ctrl
: Control interface

filter
: BSC/NAT IMSI based filtering

pcu
: PCU Interface

lcls
: Local Call, Local Switch

chan
: lchan FSM

ts
: timeslot FSM

as
: assignment FSM

cbs
: Cell Broadcast System

lcs
: Location Services

asci
: Advanced Speech Call Items (VGCS/VBS)

reset
: RESET/ACK on A and Lb interfaces

loop
: Control loops

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

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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

### 1.3.35 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

### 1.3.36 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

### 1.3.37 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

### 1.3.38 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>’)

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

extended-timestamp
: Configure log message timestamping

0
: Don't prefix each log message

1
: Prefix each log message with current timestamp with YYYYMMDDhhmmssnnn

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

file
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the source file and line

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

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

### 1.3.41 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

### 1.3.42 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

### 1.3.43 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

### 1.3.44 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

### 1.3.45 logp (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts|as...

Command

```
logp (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts|as|cbs| ↩
    lcs|asci|reset|loop|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats|lgsup| ↩
    loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal|liuup| ↩
    lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal) .LOGMESSAGE
```

Parameters

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

rll
: A-bis Radio Link Layer (RLL)

mm
: Layer3 Mobility Management (MM)

rr
: Layer3 Radio Resource (RR)

rsl
: A-bis Radio Signalling Link (RSL)

nm
: A-bis Network Management / O&M (NM/OML)

pag
: Paging Subsystem

meas
: Radio Measurement Processing

msc
: Mobile Switching Center

ho
: Hand-Over Process

hodec
: Hand-Over Decision

ref
: Reference Counting

ctrl
: Control interface

filter
: BSC/NAT IMSI based filtering

pcu
: PCU Interface

lcls
: Local Call, Local Switch

chan
: lchan FSM

ts
: timeslot FSM

as
: assignment FSM

cbs
: Cell Broadcast System

lcs
: Location Services

asci
: Advanced Speech Call Items (VGCS/VBS)

reset
: RESET/ACK on A and Lb interfaces

loop
: Control loops

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

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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

### 1.3.46 mgw <0-255> block

Command

```
mgw <0-255> block
```

Global attributes

Flag: !

This command applies immediately

Parameters

mgw

Configure MGCP connection to Media Gateway

<0-255>

reference number

block

block MGCP client so that it won't be used for new calls

### 1.3.47 mgw <0-255> reconnect

Command

```
mgw <0-255> reconnect
```

Global attributes

Flag: !

This command applies immediately

Parameters

mgw

Configure MGCP connection to Media Gateway

<0-255>

reference number

reconnect

reconfigure and reconnect MGCP client

### 1.3.48 mgw <0-255> unblock

Command

```
mgw <0-255> unblock
```

Global attributes

Flag: !

This command applies immediately

Parameters

mgw

Configure MGCP connection to Media Gateway

<0-255>

reference number

unblock

unblock MGCP client so that it will be available for new calls

### 1.3.49 msc <0-1000> bssmap reset

Command

```
msc <0-1000> bssmap reset
```

Parameters

msc

Query or manipulate a specific A-interface link

<0-1000>

MSC nr

bssmap

Query or manipulate BSSMAP layer of A-interface

reset

Flip this MSC to disconnected state and re-send BSSMAP RESET

### 1.3.50 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>'

### 1.3.51 restart-bts <0-65535>

Command

```
restart-bts <0-65535>
```

Parameters

restart-bts
: Restart ip.access nanoBTS through OML

<0-65535>
: BTS Number

### 1.3.52 show alarms

Command

```
show alarms
```

Parameters

show
: Show running system information

alarms
: Show current logging configuration

### 1.3.53 show asciidoc counters

Command

```
show asciidoc counters
```

Parameters

show
: Show running system information

asciidoc
: Asciidoc generation

counters
: Generate table of all registered counters

### 1.3.54 show bts <0-65535> fail-rep [reset]

Command

```
show bts <0-65535> fail-rep [reset]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

fail-rep
: OML failure reports

[reset]
: Clear the list of failure reports after showing them

### 1.3.55 show bts <0-65535> neighbor arfcn <0-1023> bsic (<0-63>|any)

Command

```
show bts <0-65535> neighbor arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

neighbor
: Query which cell would be the target for this neighbor ARFCN+BSIC

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.3.56 show bts <0-65535> om2k-mo

Command

```
show bts <0-65535> om2k-mo
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

om2k-mo
: OM2000 Managed Object information

### 1.3.57 show bts <0-65535> smscb [(basic|extended)]

Command

```
show bts <0-65535> smscb [(basic|extended)]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

<0-65535>
: BTS number

smscb
: SMS Cell Broadcast State

[basic]
: Show only information related to CBCH BASIC

[extended]
: Show only information related to CBCH EXTENDED

### 1.3.58 show bts [<0-65535>]

Command

```
show bts [<0-65535>]
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

[<0-65535>]
: BTS number

### 1.3.59 show bts brief

Command

```
show bts brief
```

Parameters

show
: Show running system information

bts
: Display information about a BTS

brief
: Display availability status of all BTS

### 1.3.60 show cbc

Command

```
show cbc
```

Parameters

show
: Show running system information

cbc
: Display state of CBC / CBSP

### 1.3.61 show conns

Command

```
show conns
```

Parameters

show
: Show running system information

conns
: Display currently active subscriber connections

### 1.3.62 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)

### 1.3.63 show cs7 (sua|m3ua|ipa) (sctp|tcp) [<0-65534>]

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

sctp
: SCTP (Stream Control Transmission Protocol)

tcp
: TCP (Transmission Control Protocol)

[<0-65534>]
: Local Port Number

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

[<0-65534>]
: Local Port Number

### 1.3.65 show cs7 config

Command

```
show cs7 config
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

config
: Currently running cs7 configuration

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

active
: Display all active ASs

all
: Display all ASs (default)

m3ua
: Display all m3ua ASs

sua
: Display all SUA ASs

### 1.3.67 show cs7 instance <0-15> as binding-table name AS_NAME

Command

```
show cs7 instance <0-15> as binding-table name AS_NAME
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

binding-table
: Display binding table

name
: Look up AS with a given name

AS_NAME
: Name of the Application Server (AS)

### 1.3.68 show cs7 instance <0-15> as name AS_NAME

Command

```
show cs7 instance <0-15> as name AS_NAME
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

as
: Application Server (AS)

name
: Look up AS with a given name

AS_NAME
: Name of the Application Server (AS)

### 1.3.69 show cs7 instance <0-15> asp

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp
: Application Server Process (ASP)

### 1.3.70 show cs7 instance <0-15> asp name ASP_NAME

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp
: Application Server Process (ASP)

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.3.71 show cs7 instance <0-15> asp-assoc-status

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-assoc-status
: Application Server Process (ASP) SCTP association status

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-assoc-status
: Application Server Process (ASP) SCTP association information

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.3.73 show cs7 instance <0-15> asp-remaddr

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-remaddr
: Application Server Process (ASP) remote addresses information

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

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

asp-remaddr
: Application Server Process (ASP) remote addresses information

name
: Lookup ASP with a given name

ASP_NAME
: Name of the Application Server Process (ASP)

### 1.3.75 show cs7 instance <0-15> route [POINT_CODE]

Command

```
show cs7 instance <0-15> route [POINT_CODE]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route
: Routing Table

[POINT_CODE]
: Destination Point Code

### 1.3.76 show cs7 instance <0-15> route binding-table [POINT_CODE] [all-matches]

Command

```
show cs7 instance <0-15> route binding-table [POINT_CODE] [all-matches]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route
: Routing Table

binding-table
: Display binding table

[POINT_CODE]
: Destination Point Code

[all-matches]
: Display all matching Combination Links

### 1.3.77 show cs7 instance <0-15> route-lookup POINT_CODE from POINT_CODE sls <0-15> [lis...

Command

```
show cs7 instance <0-15> route-lookup POINT_CODE from POINT_CODE sls <0-15> [list-asps]
```

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

route-lookup
: Look up route

POINT_CODE
: Destination PC

from
: From

POINT_CODE
: Origin PC

sls
: SLS

<0-15>
: SLS value

[list-asps]
: List ASPs of the AS if route points to an AS

### 1.3.78 show cs7 instance <0-15> sccp addressbook

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

addressbook
: List all SCCP addressbook entries

### 1.3.79 show cs7 instance <0-15> sccp connections

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

connections
: Show List of active SCCP connections

### 1.3.80 show cs7 instance <0-15> sccp ssn <0-65535>

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

ssn
: Find an SCCP User registered for the given SSN

<0-65535>
: Subsystem Number (SSN)

### 1.3.81 show cs7 instance <0-15> sccp timers

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signaling Connection Control Part

timers
: Show List of SCCP timers

### 1.3.82 show cs7 instance <0-15> sccp users

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

sccp
: Signalling Connection Control Part

users
: Show List of SCCP Users registered

### 1.3.83 show cs7 instance <0-15> users

Command

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

Parameters

show
: Show running system information

cs7
: ITU-T Signaling System 7

instance
: An instance of the SS7 stack

<0-15>
: An instance of the SS7 stack

users
: User Table

### 1.3.84 show e1_driver

Command

```
show e1_driver
```

Parameters

show
: Show running system information

e1_driver
: Display information about available E1 drivers

### 1.3.85 show e1_line [<0-255>] [stats]

Command

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

Parameters

show
: Show running system information

e1_line
: Display information about a E1 line

[<0-255>]
: E1 Line Number

[stats]
: Include statistics

### 1.3.86 show e1_timeslot [<0-255>] [<0-31>]

Command

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

Parameters

show
: Show running system information

e1_timeslot
: Display information about a E1 timeslot

[<0-255>]
: E1 Line Number

[<0-31>]
: E1 Timeslot Number

### 1.3.87 show fsm NAME

Command

```
show fsm NAME
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

NAME
: Display information about a single named finite state machine

### 1.3.88 show fsm all

Command

```
show fsm all
```

Parameters

show
: Show running system information

fsm
: Show information about finite state machines

all
: Display a list of all registered finite state machines

### 1.3.89 show fsm-instances NAME

Command

```
show fsm-instances NAME
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.90 show fsm-instances all

Command

```
show fsm-instances all
```

Parameters

show
: Show running system information

fsm-instances
: Show information about finite state machine instances

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

### 1.3.91 show fsm-state-graph NAME

Command

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

Parameters

show
: Show running system information

fsm-state-graph
: Generate a state transition graph (using DOT language)

NAME
: FSM name

### 1.3.92 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.3.93 show lchan [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.3.94 show lchan summary [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary
: Short summary (used lchans)

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.3.95 show lchan summary-all [<0-65535>] [<0-255>] [<0-7>] [<0-7>]

Command

```
show lchan summary-all [<0-65535>] [<0-255>] [<0-7>] [<0-7>]
```

Parameters

show
: Show running system information

lchan
: Display information about a logical channel

summary-all
: Short summary (all lchans)

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

[<0-7>]
: Logical Channel Number

### 1.3.96 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

### 1.3.97 show mgw-pool

Command

```
show mgw-pool
```

Parameters

show
: Show running system information

mgw-pool
: Display information about the MGW-Pool

### 1.3.98 show mscs

Command

```
show mscs
```

Parameters

show
: Show running system information

mscs
: MSC Connections and State

### 1.3.99 show network

Command

```
show network
```

Parameters

show
: Show running system information

network
: Display information about a GSM NETWORK

### 1.3.100 show nri [<0-1000>]

Command

```
show nri [<0-1000>]
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators, for MSC pooling

[<0-1000>]
: Optional MSC number to limit to

### 1.3.101 show online-help

Command

```
show online-help
```

Parameters

show
: Show running system information

online-help
: Online help

### 1.3.102 show paging [<0-65535>]

Command

```
show paging [<0-65535>]
```

Parameters

show
: Show running system information

paging
: Display information about paging requests of a BTS

[<0-65535>]
: BTS Number

### 1.3.103 show paging-group <0-65535> IMSI

Command

```
show paging-group <0-65535> IMSI
```

Parameters

show
: Show running system information

paging-group
: Display the paging group

<0-65535>
: BTS Number

IMSI
: IMSI

### 1.3.104 show position

Command

```
show position
```

Parameters

show
: Show running system information

position
: Position information of the BTS

### 1.3.105 show rate-counters [skip-zero]

Command

```
show rate-counters [skip-zero]
```

Parameters

show
: Show running system information

rate-counters
: Show all rate counters

[skip-zero]
: Skip items with total count zero

### 1.3.106 show rejected-bts

Command

```
show rejected-bts
```

Parameters

show
: Show running system information

rejected-bts
: Display recently rejected BTS devices

### 1.3.107 show runtime

Command

```
show runtime
```

Parameters

show
: Show running system information

runtime
: Display runtime information

### 1.3.108 show startup-config

Command

```
show startup-config
```

Parameters

show
: Show running system information

startup-config
: Contentes of startup configuration

### 1.3.109 show statistics

Command

```
show statistics
```

Parameters

show
: Show running system information

statistics
: Statistics about the BSC

### 1.3.110 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

### 1.3.111 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

### 1.3.112 show subscriber all

Command

```
show subscriber all
```

Parameters

show
: Show running system information

subscriber
: Display information about subscribers

all
: All Subscribers

### 1.3.113 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

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

Command

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

Parameters

show
: Show running system information

talloc-context
: Show talloc memory hierarchy

application
: Application's context

global
: Global context (OTC_GLOBAL)

all
: All contexts, if NULL-context tracking is enabled

full
: Display a full talloc memory hierarchy

brief
: Display a brief talloc memory hierarchy

DEPTH
: Specify required maximal depth value

filter
: Filter chunks using regular expression

REGEXP
: Regular expression

### 1.3.115 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)

### 1.3.116 show timer [(net|mgw)] [TNNNN]

Command

```
show timer [(net|mgw)] [TNNNN]
```

Parameters

show
: Show running system information

timer
: Show timers

[net]
: GSM network

[mgw]
: MGW (Media Gateway) interface

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

### 1.3.117 show timeslot [<0-65535>] [<0-255>] [<0-7>]

Command

```
show timeslot [<0-65535>] [<0-255>] [<0-7>]
```

Parameters

show
: Show running system information

timeslot
: Display information about a TS

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

[<0-7>]
: Timeslot Number

### 1.3.118 show trx (connected|disconnected)

Command

```
show trx (connected|disconnected)
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

connected
: Show TRX with RSL connected

disconnected
: Show TRX with RSL disconnected

### 1.3.119 show trx [<0-65535>] [<0-255>]

Command

```
show trx [<0-65535>] [<0-255>]
```

Parameters

show
: Show running system information

trx
: Display information about a TRX

[<0-65535>]
: BTS Number

[<0-255>]
: TRX Number

### 1.3.120 show version

Command

```
show version
```

Parameters

show
: Show running system information

version
: Displays program version

### 1.3.121 shutdown

Command

```
shutdown
```

Parameters

shutdown
: Request a shutdown of the program

### 1.3.122 stats report

Command

```
stats report
```

Parameters

stats
: Stats related commands

report
: Manurally trigger reporting of stats

### 1.3.123 stats reset

Command

```
stats reset
```

Parameters

stats
: Stats related commands

reset
: Reset all rate counter stats

### 1.3.124 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)

### 1.3.125 terminal monitor

Command

```
terminal monitor
```

Parameters

terminal
: Set terminal line parameters

monitor
: Copy debug output to the current terminal line

### 1.3.126 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

### 1.3.127 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

### 1.3.128 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 bsc

Command

```
bsc
```

Global attributes

Flag: !
This command applies immediately

Parameters

bsc
Configure BSC

### 1.4.4 cbc

Command

```
cbc
```

Parameters

cbc
Configure CBSP Link to Cell Broadcast Centre

### 1.4.5 cpu-sched

Command

```
cpu-sched
```

Parameters

cpu-sched
Configure CPU Scheduler related settings

### 1.4.6 cs7 instance <0-15>

Command

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

Global attributes

Flag: !
This command applies immediately

Parameters

cs7
: ITU-T Signaling System 7

instance
: Configure a SS7 Instance

<0-15>
: An instance of the SS7 stack

### 1.4.7 ctrl

Command

```
ctrl
```

Parameters

ctrl
: Configure the Control Interface

### 1.4.8 e1_input

Command

```
e1_input
```

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_input
: Configure E1/T1/J1 TDM input

### 1.4.9 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

### 1.4.10 enable password LINE

Command

```
enable password LINE
```

Parameters

enable
: Modify enable password parameters

password
: Assign the privileged level password

LINE
: The UNENCRYPTED (cleartext) 'enable' password

### 1.4.11 hostname WORD

Command

```
hostname WORD
```

Parameters

hostname
: Set system's network name

WORD
: This system's network name

### 1.4.12 line vty

Command

```
line vty
```

Parameters

line
: Configure a terminal line

vty
: Virtual terminal

### 1.4.13 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

### 1.4.14 log file FILENAME [(nonblocking-io|blocking-io|wq)]

Command

```
log file FILENAME [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

file
: Logging to text file

FILENAME
: Filename

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if file write buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

### 1.4.15 log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)]

Command

```
log gsmtap [HOSTNAME] [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

gsmtap
: Logging via GSMTAP

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

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if UDP socket send buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

### 1.4.16 log stderr [(nonblocking-io|blocking-io|wq)]

Command

```
log stderr [(nonblocking-io|blocking-io|wq)]
```

Parameters

log
: Configure logging sub-system

stderr
: Logging via STDERR of the process

[nonblocking-io]
: Use non-blocking, synchronous I/O (may lose msgs if file write buffer becomes full) (default)

[blocking-io]
: Use blocking, synchronous I/O (only for debug purposes or when blocking is acceptable)

[wq]
: Use Tx workqueue, asynchronous I/O (may lose msgs if queue becomes full)

### 1.4.17 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

### 1.4.18 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

### 1.4.19 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

### 1.4.20 msc [<0-1000>]

Command

```
msc [<0-1000>]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

msc
: Configure MSC details

[<0-1000>]
: MSC connection to configure

### 1.4.21 network

Command

```
network
```

Global attributes

Flag: !
: This command applies immediately

Parameters

network
: Configure the GSM network

### 1.4.22 no banner motd

Command

```
no banner motd
```

Parameters

no
: Negate a command or set its defaults

banner
: Set banner string

motd
: Strings for motd

### 1.4.23 no enable password

Command

```
no enable password
```

Parameters

no
: Negate a command or set its defaults

enable
: Modify enable password parameters

password
: Assign the privileged level password

### 1.4.24 no hostname [HOSTNAME]

Command

```
no hostname [HOSTNAME]
```

Parameters

no
: Negate a command or set its defaults

hostname
: Reset system's network name

[HOSTNAME]
: Host name of this router

### 1.4.25 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

### 1.4.26 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

### 1.4.27 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)

### 1.4.28 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

### 1.4.29 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

### 1.4.30 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

### 1.4.31 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

### 1.4.32 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)

### 1.4.33 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

### 1.4.34 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

### 1.4.35 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

### 1.4.36 password LINE

Command

```
password LINE
```

Parameters

password
: Assign the terminal connection password

LINE
: The UNENCRYPTED (cleartext) line password

### 1.4.37 service advanced-vty

Command

```
service advanced-vty
```

Parameters

service
: Set up miscellaneous service

advanced-vty
: Enable advanced mode vty interface

### 1.4.38 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)

### 1.4.39 show history

Command

```
show history
```

Parameters

show
: Show running system information

history
: Display the session command history

### 1.4.40 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)

### 1.4.41 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

### 1.4.42 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

### 1.4.43 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

### 1.4.44 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 filter imsi IMSI

Command

```
logging filter imsi IMSI
```

Parameters

logging
: Configure logging

filter
: Filter log messages

imsi
: Filter log messages by IMSI

IMSI
: IMSI to be used as filter

### 1.5.4 logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|c...

Command

```
logging level (rll|mm|rr|rsl|nm|pag|meas|msc|ho|hodec|ref|ctrl|filter|pcu|lcls|chan|ts| ↩
    as|cbs|lcs|asci|reset|loop|lglobal|llapd|linp|lmux|lmi|lmib|lsms|lctrl|lgtp|lstats| ↩
    lgsup|loap|lss7|lsccp|lsua|lm3ua|lmgcp|ljibuf|lrspro|lns|lbssgp|lnsdata|lnssignal| ↩
    liuup|lpfcp|lcsn1|lio|ltcap) (debug|info|notice|error|fatal)
```

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

rll
: A-bis Radio Link Layer (RLL)

mm
: Layer3 Mobility Management (MM)

rr
: Layer3 Radio Resource (RR)

rsl
: A-bis Radio Signalling Link (RSL)

nm
: A-bis Network Management / O&M (NM/OML)

pag
: Paging Subsystem

meas
: Radio Measurement Processing

msc
: Mobile Switching Center

ho
: Hand-Over Process

hodec
: Hand-Over Decision

ref
: Reference Counting

ctrl
: Control interface

filter
: BSC/NAT IMSI based filtering

pcu
: PCU Interface

lcls
: Local Call, Local Switch

chan
: lchan FSM

ts
: timeslot FSM

as
: assignment FSM

cbs
: Cell Broadcast System

lcs
: Location Services

asci
: Advanced Speech Call Items (VGCS/VBS)

reset
: RESET/ACK on A and Lb interfaces

loop
: Control loops

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

lns
: GPRS NS layer

lbssgp
: GPRS BSSGP layer

lnsdata
: GPRS NS layer data PDU

lnssignal
: GPRS NS layer signal PDU

liuup
: Iu UP layer

lpfcp
: libosmo-pfcp Packet Forwarding Control Protocol

lcsn1
: libosmo-csn1 Concrete Syntax Notation 1 codec

lio
: libosmocore IO Subsystem

ltcap
: TCAP

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 force-all (debug|info|notice|error|fatal)

Command

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

Parameters

logging
: Configure logging

level
: Set the log level for a specified category

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

debug
: Log debug messages and higher levels

info
: Log informational messages and higher levels

notice
: Log noticeable messages and higher levels

error
: Log error messages and higher levels

fatal
: Log only fatal messages

### 1.5.6 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

### 1.5.7 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

### 1.5.8 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>')

### 1.5.9 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

### 1.5.10 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.

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

level
: Configure log message

0
: Don't prefix each log message

1
: Prefix each log message with the log level name

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

Command

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

Parameters

logging
: Configure logging

print
: Log output settings

thread-id
: Configure log message logging Thread ID

0
: Don't prefix each log message

1
: Prefix each log message with current Thread ID

### 1.5.13 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

### 1.5.14 no logging level force-all

Command

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

Parameters

no
: Negate a command or set its defaults

logging
: Configure logging

level
: Set the log level for a specified category

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

## 1.6 config-stats

### 1.6.1 disable

Command

```
disable
```

Parameters

disable
: Disable the reporter

### 1.6.2 enable

Command

```
enable
```

Parameters

enable
: Enable the reporter

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

Command

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

Parameters

flush-period
: Configure stats sub-system

<0-65535>
: Send all stats even if they have not changed (i.e. force the flush)every N-th reporting interval. Set to 0 to disable regular flush (default).

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

Command

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

Parameters

level
: Set the maximum group level

global
: Report global groups only

peer
: Report global and network peer related groups

subscriber
: Report global, peer, and subscriber groups

### 1.6.5 local-ip ADDR

Command

```
local-ip ADDR
```

Parameters

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

ADDR
: IP Address

### 1.6.6 mtu <100-65535>

Command

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

Parameters

mtu
: Set the maximum packet size

<100-65535>
: Size in byte

### 1.6.7 no local-ip

Command

```
no local-ip
```

Parameters

no
: Negate a command or set its defaults

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

### 1.6.8 no mtu

Command

```
no mtu
```

Parameters

no
: Negate a command or set its defaults

mtu
: Set the maximum packet size

### 1.6.9 no prefix

Command

```
no prefix
```

Parameters

no
: Negate a command or set its defaults

prefix
: Set the item name prefix

### 1.6.10 prefix PREFIX

Command

```
prefix PREFIX
```

Parameters

prefix
: Set the item name prefix

PREFIX
: The prefix string

### 1.6.11 remote-ip ADDR

Command

```
remote-ip ADDR
```

Parameters

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

ADDR
: IP Address

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

Command

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

Parameters

remote-port
: Set the remote port to which we connect

<1-65535>
: Remote port number

## 1.7 config-line

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

Command

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

Parameters

bind
: Accept VTY telnet connections on local interface

A.B.C.D
: Local interface IP address (default: 127.0.0.1)

[<0-65535>]
: Local TCP port number

### 1.7.2 login

Command

```
login
```

Parameters

login
: Enable password checking

### 1.7.3 no login

Command

```
no login
```

Parameters

no
: Negate a command or set its defaults

login
: Enable password checking

## 1.8 config-e1_input

### 1.8.1 e1_line <0-255> connect-timeout <0-60>

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

connect-timeout

Set connect timeout

<0-60>

Connect timeout in seconds (0 to disable)

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

Command

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

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

driver

Set driver for this line

misdn

mISDN supported E1 Card (kernel LAPD)

misdn_lapd

mISDN supported E1 Card (userspace LAPD)

dahdi

DAHDI supported E1/T1/J1 Card

e1d
: osmo-e1d supported E1 interface

ipa
: IPA TCP/IP input

unixsocket
: Unix socket input

### 1.8.3 e1_line <0-255> ipa-keepalive <1-300> <1-300>

Command

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

Global attributes

Flag: !
: This command applies immediately

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

ipa-keepalive
: Enable IPA PING/PONG keep-alive

<1-300>
: Idle interval in seconds before probes are sent

<1-300>
: Time to wait for PONG response

### 1.8.4 e1_line <0-255> keepalive

Command

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

Library specific attributes

Flag: I
: This command applies on IPA link establishment

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

keepalive
: Enable keep-alive probing

### 1.8.5 e1_line <0-255> keepalive <1-300> <1-20> <1-300>

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

<1-300>

Idle interval in seconds before probes are sent

<1-20>

Number of probes to sent

<1-300>

Delay between probe packets in seconds

### 1.8.6 e1_line <0-255> name .LINE

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

name

Set name for this line

.LINE

Human readable name

### 1.8.7 e1_line <0-255> pcap .FILE

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Setup a pcap recording of E1 traffic for line

.FILE

Filename to save the packets to

### 1.8.8 e1_line <0-255> port <0-255>

Command

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

Library specific attributes

Flag: L

This command applies on E1 line update

Parameters

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

port

Set physical port/span/card number

<0-255>

E1/T1 Port/Span/Card number

### 1.8.9 e1_line <0-255> socket .SOCKET

Command

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

Library specific attributes

Flag: L
: This command applies on E1 line update

Parameters

e1_line
: Configure E1/T1/J1 Line

<0-255>
: Line Number

socket
: Set socket path for unixsocket

.SOCKET
: socket path

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

Command

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

Library specific attributes

Flag: L
: This command applies on E1 line update

Parameters

ipa
: ipa driver config

bind
: Set ipa local bind address

A.B.C.D
: Listen on this IP address (default 0.0.0.0)

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

Command

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

Library specific attributes

Flag: I
: This command applies on IPA link establishment

Parameters

ipa
: ipa driver config

ip-dscp
: Set IP DSCP value for outbound packets

oml
: Set IP DSCP for OML link

rsl
: Set IP DSCP for RSL link

<0-63>
: IP DSCP Value to use

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

Command

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

Library specific attributes

Flag: I
: This command applies on IPA link establishment

Parameters

ipa
: ipa driver config

socket-priority
: Set socket priority value for outbound packets

oml
: Set socket priority for OML link

rsl
: Set socket priority for RSL link

<0-255>
: socket priority value to use (>6 requires CAP_NET_ADMIN)

### 1.8.13 no e1_line <0-255> ipa-keepalive

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

ipa-keepalive

Enable IPA PING/PONG keep-alive

### 1.8.14 no e1_line <0-255> keepalive

Command

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

Library specific attributes

Flag: I

This command applies on IPA link establishment

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

keepalive

Enable keep-alive probing

### 1.8.15 no e1_line <0-255> pcap

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

e1_line

Configure E1/T1/J1 Line

<0-255>

Line Number

pcap

Disable pcap recording of E1 traffic for line

## 1.9 config-ctrl

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

Command

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

Parameters

bind

Set bind address to listen for Control connections

A.B.C.D

Local IP address (default 127.0.0.1)

[<0-65535>]

Local TCP port number

## 1.10 config-cs7

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

as

Configure an Application Server

NAME

Name of the Application Server

sua

SCCP User Adaptation

m3ua

MTP3 User Adaptation

ipa

IPA Multiplex (SCCP Lite)

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

asp

Configure Application Server Process

NAME

Name of ASP

<0-65535>

Remote port number

<0-65535>
Local port number

sua
SCCP User Adaptation

m3ua
MTP3 User Adaptation

ipa
IPA Multiplex (SCCP Lite)

### 1.10.3 asp NAME <0-65535> <0-65535> (sua|m3ua|ipa) (sctp|tcp)

Command

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

Global attributes

Flag: @
This command applies on VTY node exit

Parameters

asp
Configure Application Server Process

NAME
Name of ASP

<0-65535>
Remote port number

<0-65535>
Local port number

sua
SCCP User Adaptation

m3ua
MTP3 User Adaptation

ipa
IPA Multiplex (SCCP Lite)

sctp
SCTP (Stream Control Transmission Protocol)

tcp
TCP (Transmission Control Protocol)

### 1.10.4 description .TEXT

Command

```
description .TEXT
```

Parameters

description
: Save human-readable description of the object

.TEXT
: Text until the end of the line

### 1.10.5 listen (sua|m3ua|ipa) <0-65534> [(sctp|tcp)]

Command

```
listen (sua|m3ua|ipa) <0-65534> [(sctp|tcp)]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

listen
: Configure/Enable xUA Listener

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

<0-65534>
: Port number

[sctp]
: SCTP (Stream Control Transmission Protocol)

[tcp]
: TCP (Transmission Control Protocol)

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

network-indicator

Configure the Network Indicator

international

International Network

national

National Network

reserved

Reserved Network

spare

Spare Network

### 1.10.7 no as NAME

Command

```
no as NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

as

Disable Application Server

NAME

Name of AS

### 1.10.8 no asp NAME

Command

```
no asp NAME
```

Global attributes

Flag: !
: This command applies immediately

Parameters

no
: Negate a command or set its defaults

asp
: Disable Application Server Process

NAME
: Name of ASP

### 1.10.9 no listen (sua|m3ua|ipa) <0-65534> [(sctp|tcp)]

Command

```
no listen (sua|m3ua|ipa) <0-65534> [(sctp|tcp)]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

no
: Negate a command or set its defaults

listen
: Disable xUA Listener on given port

sua
: SCCP User Adaptation

m3ua
: MTP3 User Adaptation

ipa
: IPA Multiplex (SCCP Lite)

<0-65534>
: Port number

[sctp]
: SCTP (Stream Control Transmission Protocol)

[tcp]
: TCP (Transmission Control Protocol)

### 1.10.10 no sccp-address NAME

Command

```
no sccp-address NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

sccp-address

Delete an SCCP addressbook entry

NAME

Name of the SCCP Address

### 1.10.11 point-code POINT_CODE

Command

```
point-code POINT_CODE
```

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Configure the local Point Code

POINT_CODE

Point Code

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Point Code

delimiter

Configure Point Code Delimiter

default

Use dot as delimiter

dash

User dash as delimiter

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Point Code

format

Configure Point Code Format

<1-24>

Length of first PC component

[<1-23>]

Length of second PC component

[<1-22>]

Length of third PC component

### 1.10.14 point-code format default

Command

```
point-code format default
```

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Point Code

format

Configure Point Code Format

default

Default Point Code Format (3.8.3)

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

sccp

Configure SCCP behavior

max-optional-data

Adjust the upper bound for the optional data length (the payload) for CR, CC, CREF and RLSD messages. For any Optional Data part larger than this value in octets, send CR, CC, CREF and RLSD messages without any payload, and send the data payload in a separate Data Form 1 message. ITU-T Q.713 sections 4.2 thru 4.5 define a limit of 128 bytes for the 'Data' parameter. This limit can be adjusted here. May be useful for interop with nonstandard SCCP peers.

<0-999999>

Set a non-standard maximum allowed number of bytes

standard

Use the ITU-T Q.713 4.2 to 4.5 standard value of 128

### 1.10.16 sccp-address NAME

Command

```
sccp-address NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

sccp-address

Create/Modify an SCCP addressbook entry

NAME

Name of the SCCP Address

### 1.10.17 sccp-timer (conn_est|ias|iar|rel|repeat_rel|int|guard|reset|reassembly) <1-99999...

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

sccp-timer

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

conn_est

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

ias

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

iar

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

rel

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

repeat_rel

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

int

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

guard

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

reset

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

reassembly

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

<1-999999>

Timer value, in seconds

### 1.10.18 secondary-pc POINT_CODE

Command

```
secondary-pc POINT_CODE
```

Global attributes

Flag: !

This command applies immediately

Parameters

secondary-pc

Configure the local Secondary Point Code

POINT_CODE

Point Code

### 1.10.19 sls-opc-dpc [opc-shift] [<0-8>] [dpc-shift] [<0-8>]

Command

```
sls-opc-dpc [opc-shift] [<0-8>] [dpc-shift] [<0-8>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

sls-opc-dpc
: Shift OPC and DPC bits used during routing decision

[opc-shift]
: Shift OPC bits used during routing decision

[<0-8>]
: How many bits from ITU OPC field (starting from least-significant-bit) to skip (default=0). 6 bits are always used

[dpc-shift]
: Shift DPC bits used during routing decision

[<0-8>]
: How many bits from ITU DPC field (starting from least-significant-bit) to skip (default=0). 6 bits are always used

### 1.10.20 sls-shift <0-6>

Command

```
sls-shift <0-6>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

sls-shift
: Shift SLS bits used during routing decision

<0-6>
: How many bits from derivated 7-bit extended-SLS (OPC, DPC, SLS) field (starting from least-significant-bit) to skip

### 1.10.21 timer xua (T8) <1-999999>

Command

```
timer xua (T8) <1-999999>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

timer
: Configure CS7 Instance default timer values

xua
: Configure CS7 Instance default xua timer values

T8
: T8 - Transfer prohibited inhibition timer (transient solution) (ms) (default: 1000)

<1-999999>
: Timer value, in seconds

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

xua

SIGTRAN xxxUA related

rkm

Routing Key Management

routing-key-allocation

Routing Key Management Allocation Policy

static-only

Only static (pre-configured) Routing Keys permitted

dynamic-permitted

Dynamically allocate Routing Keys for what ASPs request

## 1.11 config-cs7-as

### 1.11.1 asp NAME

Command

```
asp NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

asp

Specify that a given ASP is part of this AS

NAME

Name of ASP to be added to AS

### 1.11.2 binding-table reset

Command

```
binding-table reset
```

Global attributes

Flag: !

This command applies immediately

Parameters

binding-table

AS Loadshare binding table operations

reset

Reset loadshare binding table

### 1.11.3 description .TEXT

Command

```
description .TEXT
```

Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.11.4 no asp NAME

Command

```
no asp NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

asp

Specify ASP to be removed from this AS

NAME

Name of ASP to be removed

### 1.11.5 no point-code override (opc|dpc)

Command

```
no point-code override (opc|dpc)
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

point-code

Point Code Specific Features

override

Override (force) a point-code of messages received at the AS

opc

Override Source Point Code of received messages

dpc

Override Destination Point Code of received messages

### 1.11.6 no traffic-mode

Command

```
no traffic-mode
```

Parameters

no

Negate a command or set its defaults

traffic-mode

Remove explicit traffic mode of operation of this AS

### 1.11.7 point-code override (opc|dpc) PC

Command

```
point-code override (opc|dpc) PC
```

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Point Code Specific Features

override

Override (force) a point-code of messages received at the AS

opc

Override Source Point Code of received messages

dpc

Override Destination Point Code of received messages

PC

New Point Code

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

point-code

Point Code Specific Features

override

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

patch-sccp

Patch point code values into SCCP called/calling address

disabled

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

both

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

### 1.11.9 qos-class <0-7>

Command

```
qos-class <0-7>
```

Global attributes

Flag: !

This command applies immediately

Parameters

qos-class

Specity QoS Class of AS

<0-7>

QoS Class

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

recovery-timeout

Specifies RFC4666 recovery timer T(r) timeout

<1-2000>

Recovery Timeout in Milliseconds

### 1.11.11 routing-key RCONTEXT DPC

Command

```
routing-key RCONTEXT DPC
```

Global attributes

Flag: !

This command applies immediately

Parameters

routing-key
: Define a routing key

RCONTEXT
: Routing context number

DPC
: Destination Point Code

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

Command

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

Global attributes

Flag: !
: This command applies immediately

Parameters

routing-key
: Define a routing key

RCONTEXT
: Routing context number

DPC
: Destination Point Code

si
: Match on Service Indicator

aal2
: ATM Adaption Layer 2

bicc
: Bearer Independent Call Control

b-isup
: Broadband ISDN User Part

h248
: H.248

isup
: ISDN User Part

sat-isup
: Sattelite ISDN User Part

sccp
: Signalling Connection Control Part

tup
: Telephony User Part

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

routing-key

Define a routing key

RCONTEXT

Routing context number

DPC

Destination Point Code

si

Match on Service Indicator

aal2

ATM Adaption Layer 2

bicc

Bearer Independent Call Control

b-isup

Broadband ISDN User Part

h248

H.248

isup

ISDN User Part

sat-isup

Sattelite ISDN User Part

sccp

Signalling Connection Control Part

tup

Telephony User Part

ssn

Match on Sub-System Number

SSN

Sub-System Number to match on

### 1.11.14 routing-key RCONTEXT DPC ssn SSN

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

routing-key

Define a routing key

RCONTEXT

Routing context number

DPC

Destination Point Code

ssn

Match on Sub-System Number

SSN

Sub-System Number to match on

### 1.11.15 sls-shift <0-3>

Command

```
sls-shift <0-3>
```

Global attributes

Flag: !

This command applies immediately

Parameters

sls-shift

Shift SLS bits used during routing decision

<0-3>

How many bits from SLS field (starting from least-significant-bit) to skip

### 1.11.16 traffic-mode (broadcast | roundrobin | override)

Command

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

Parameters

traffic-mode
: Specifies traffic mode of operation of the ASP within the AS

broadcast
: Broadcast to all ASP within AS

roundrobin
: Round-Robin between all ASP within AS

override
: Override

### 1.11.17 traffic-mode loadshare [bindings] [sls] [opc-sls] [opc-shift] [<0-2>]

Command

```
traffic-mode loadshare [bindings] [sls] [opc-sls] [opc-shift] [<0-2>]
```

Parameters

traffic-mode
: Specifies traffic mode of operation of the ASP within the AS

loadshare
: Share Load among all ASP within AS

[bindings]
: Configure Loadshare parameters

[sls]
: Configure Loadshare SLS generation parameters

[opc-sls]
: Generate extended SLS with OPC information

[opc-shift]
: Shift OPC bits used during routing decision

[<0-2>]
: How many bits from ITU OPC field (starting from least-significant-bit) to skip (default=0). 6 bits are always used

## 1.12 config-cs7-asp

### 1.12.1 asp-identifier <0-4294967295>

Command

```
asp-identifier <0-4294967295>
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

asp-identifier

Specify ASP Identifier for this ASP

<0-4294967295>

ASP Identifier

### 1.12.2 block

Command

```
block
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

block

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

### 1.12.3 description .TEXT

Command

```
description .TEXT
```

Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.12.4 destination-audit asp-active

Command

```
destination-audit asp-active
```

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

destination-audit
: Configure ASP Auditing (xUA DAUD)

asp-active
: Transmit DAUD after ASP successful activate (for remote PCs in sccp address-book)

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

Command

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

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

local-ip
: Specify Local IP Address from which to contact ASP

A.B.C.D
: Local IPv4 Address from which to contact of ASP

X:X::X:X
: Local IPv6 Address from which to contact of ASP

[primary]
: Signal the SCTP peer to use this address as Primary Address

### 1.12.6 no asp-identifier

Command

```
no asp-identifier
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

asp-identifier

Specify ASP Identifier for this ASP

### 1.12.7 no destination-audit asp-active

Command

```
no destination-audit asp-active
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

destination-audit

Configure ASP Auditing (xUA DAUD)

asp-active

Transmit xUA DAUD after ASP successful activate (for remote PCs in sccp address-book)

### 1.12.8 no local-ip (A.B.C.D|X:X::X:X)

Command

```
no local-ip (A.B.C.D|X:X::X:X)
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

local-ip

Specify Local IP Address from which to contact ASP

A.B.C.D

Local IPv4 Address from which to contact of ASP

X:X::X:X

Local IPv6 Address from which to contact of ASP

### 1.12.9 no quirk (no_notify|daud_in_asp|snm_inactive)

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

quirk

Disable quirk to work around interop issues

no_notify

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

daud_in_asp

Allow Rx of DAUD in ASP role

snm_inactive

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

### 1.12.10 no remote-ip (A.B.C.D|X:X::X:X)

Command

```
no remote-ip (A.B.C.D|X:X::X:X)
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

remote-ip

Specify Remote IP Address of ASP

A.B.C.D

Remote IPv4 Address of ASP

X:X::X:X

Remote IPv6 Address of ASP

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

sctp-param

Configure SCTP parameters

init

Configure INIT related parameters

num-ostreams

Configure INIT Number of Outbound Streams

max-instreams

Configure INIT Maximum Inboud Streams

max-attempts

Configure INIT Maximum Attempts

timeout

Configure INIT Timeout (milliseconds)

### 1.12.12 no shutdown

Command

```
no shutdown
```

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

no
: Negate a command or set its defaults

shutdown
: Terminates SCTP association; New associations will be rejected

### 1.12.13 no tcp-param keepalive

Command

```
no tcp-param keepalive
```

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

no
: Negate a command or set its defaults

tcp-param
: Configure TCP parameters

keepalive
: Configure TCP keep-alive related parameters

### 1.12.14 no tcp-param keepalive (time|intvl|probes)

Command

```
no tcp-param keepalive (time|intvl|probes)
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

tcp-param

Configure TCP parameters

keepalive

Configure TCP keep-alive related parameters

time

Configure number of seconds a connection needs to be idle before beggining to send probes

intvl

Configure number of seconds between probes

probes

Configure max number of probes to send before giving up if no response is obtained

### 1.12.15 no tcp-param user-timeout

Command

```
no tcp-param user-timeout
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

no

Negate a command or set its defaults

tcp-param

Configure TCP parameters

user-timeout

Configure TCP User Timeout socket option (TCP_USER_TIMEOUT)

### 1.12.16 qos-class <0-7>

Command

```
qos-class <0-7>
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

qos-class

Specify QoS Class of ASP

<0-7>

QoS Class

### 1.12.17 quirk (no_notify|daud_in_asp|snm_inactive)

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

quirk

Enable quirk to work around interop issues

no_notify

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

daud_in_asp

Allow Rx of DAUD in ASP role

snm_inactive

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

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

remote-ip

Specify Remote IP Address of ASP

A.B.C.D

Remote IPv4 Address of ASP

X:X::X:X

Remote IPv6 Address of ASP

[primary]

Set remote address as SCTP Primary Address

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

role

Specify the xUA role for this ASP

sg

SG (Signaling Gateway)

asp

ASP (Application Server Process)

ipsp

IPSP (IP Signalling Point)

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

sctp-param

Configure SCTP parameters

init

Configure INIT related parameters

num-ostreams

Configure INIT Number of Outbound Streams

max-instreams

Configure INIT Maximum Inboud Streams

max-attempts

Configure INIT Maximum Attempts

timeout

Configure INIT Timeout (milliseconds)

<0-65535>

Value of the parameter

### 1.12.21 shutdown

Command

```
shutdown
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

shutdown

Terminates SCTP association; New associations will be rejected

### 1.12.22 tcp-param keepalive (time|intvl|probes) <0-65535>

Command

```
tcp-param keepalive (time|intvl|probes) <0-65535>
```

Global attributes

Flag: @
This command applies on VTY node exit

Parameters

tcp-param
Configure TCP parameters

keepalive
Configure TCP keep-alive related parameters

time
Configure number of seconds a connection needs to be idle before beggining to send probes

intvl
Configure number of seconds between probes

probes
Configure max number of probes to send before giving up if no response is obtained

<0-65535>
Value of the parameter

### 1.12.23 tcp-param keepalive enabled

Command

```
tcp-param keepalive enabled
```

Global attributes

Flag: @
This command applies on VTY node exit

Parameters

tcp-param
Configure TCP parameters

keepalive
Configure TCP keep-alive related parameters

enabled
Enable TCP keep-alive

### 1.12.24 tcp-param user-timeout <0-65535>

Command

```
tcp-param user-timeout <0-65535>
```

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

tcp-param

Configure TCP parameters

user-timeout

Configure TCP User Timeout socket option (TCP_USER_TIMEOUT)

<0-65535>

Value of the parameter

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

timer

Configure ASP default timer values

lm

Configure ASP default lm timer values

wait_asp_up

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

wait_notify

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

wait_notify_rkm

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

wait_rk_reg_resp

Restart ASP after timeout waiting for RK_REG_RESP (s) (default: 10)

<1-999999>

Timer value, in seconds

### 1.12.26 timer xua (ack|beat) <1-999999>

Command

```
timer xua (ack|beat) <1-999999>
```

Global attributes

Flag: !

This command applies immediately

Parameters

timer

Configure ASP default timer values

xua

Configure ASP default xua timer values

ack

Resend ASP Up/Down/Active/Inactive after timeout waiting for ASP Up/Down/Active/Inactive ACK (ASP role)(s) (default: 2)

beat

Heartbeat Timer (0 = disabled) (s) (default: 30)

<1-999999>

Timer value, in seconds

### 1.12.27 transport-role (client|server)

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

transport-role

Specify the transport layer role for this ASP

client

Operate as a client; connect to a server

server

Operate as a server; wait for client connections

## 1.13 config-cs7-listen

### 1.13.1 accept-asp-connections (pre-configured|dynamic-permitted)

Command

```
accept-asp-connections (pre-configured|dynamic-permitted)
```

Global attributes

Flag: !

This command applies immediately

Parameters

accept-asp-connections

Define what kind of ASP connections to accept

pre-configured

Accept only pre-configured ASPs (source IP/port)

dynamic-permitted

Accept any connection and dynamically create an ASP definition

### 1.13.2 local-ip (A.B.C.D|X:X::X:X)

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

local-ip

Configure the Local IP Address for xUA

A.B.C.D

IPv4 Address to use for XUA

X:X::X:X

IPv6 Address to use for XUA

### 1.13.3 no local-ip (A.B.C.D|X:X::X:X)

Command

```
no local-ip (A.B.C.D|X:X::X:X)
```

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

no
: Negate a command or set its defaults

local-ip
: Configure the Local IP Address for xUA

A.B.C.D
: IPv4 Address to use for XUA

X:X::X:X
: IPv6 Address to use for XUA

### 1.13.4 no sctp-param init (num-ostreams|max-instreams)

Command

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

Global attributes

Flag: @
: This command applies on VTY node exit

Parameters

no
: Negate a command or set its defaults

sctp-param
: Configure SCTP parameters

init
: Configure INIT related parameters

num-ostreams
: Configure INIT Number of Outbound Streams

max-instreams
: Configure INIT Maximum Inboud Streams

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

Command

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

Global attributes

Flag: @

This command applies on VTY node exit

Parameters

sctp-param

Configure SCTP parameters

init

Configure INIT related parameters

num-ostreams

Configure INIT Number of Outbound Streams

max-instreams

Configure INIT Maximum Inboud Streams

<0-65535>

Value of the parameter

## 1.14 config-cs7-sccpaddr

### 1.14.1 global-title

Command

```
global-title
```

Global attributes

Flag: !

This command applies immediately

Parameters

global-title

Add/Modify Global Title

### 1.14.2 no global-title

Command

```
no global-title
```

Global attributes

Flag: !
: This command applies immediately

Parameters

no
: Negate a command or set its defaults

global-title
: Remove Global Title

### 1.14.3 no point-code

Command

```
no point-code
```

Global attributes

Flag: !
: This command applies immediately

Parameters

no
: Negate a command or set its defaults

point-code
: Remove point-code Number

### 1.14.4 no subsystem-number

Command

```
no subsystem-number
```

Global attributes

Flag: !
: This command applies immediately

Parameters

no
: Negate a command or set its defaults

subsystem-number
: Remove Subsystem Number

### 1.14.5 point-code POINT_CODE

Command

```
point-code POINT_CODE
```

Global attributes

Flag: !
This command applies immediately

Parameters

point-code
Add point-code Number

POINT_CODE
PC

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

Command

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

Global attributes

Flag: !
This command applies immediately

Parameters

routing-indicator
Add Routing Indicator

GT
by global-title

PC
by point-code

IP
by ip-address

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

Command

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

Global attributes

Flag: !
This command applies immediately

Parameters

subsystem-number
Add Subsystem Number

<0-4294967295>
SSN

## 1.15 config-cs7-sccpaddr-gt

### 1.15.1 digits DIGITS

Command

```
digits DIGITS
```

Global attributes

Flag: !
This command applies immediately

Parameters

digits
Set Global Title Digits

DIGITS
Number digits

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

global-title-indicator

Set Global Title Indicator

<0-15>

GTI

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

nature-of-address-indicator

Set Global Title Nature of Address Indicator

<0-127>

NAI

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

numbering-plan-indicator

Set Global Title Numbering Plan Indicator

<0-15>

NPI

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

Command

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

Global attributes

Flag: !

This command applies immediately

Parameters

translation-type

Set Global Title Translation Type

<0-255>

TT

## 1.16 config-cpu-sched

### 1.16.1 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

### 1.16.2 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

## 1.17 config-net

### 1.17.1 allow-unusable-timeslots

Command

```
allow-unusable-timeslots
```

Parameters

allow-unusable-timeslots
Don't refuse to start with mutually exclusive codec settings

### 1.17.2 bts <0-65535>

Command

```
bts <0-65535>
```

Global attributes

Flag: !
This command applies immediately

Parameters

bts
Select a BTS to configure

<0-65535>
BTS Number

### 1.17.3 encryption a5 <0-4> [<0-4>] [<0-4>] [<0-4>] [<0-4>]

Command

```
encryption a5 <0-4> [<0-4>] [<0-4>] [<0-4>] [<0-4>]
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

encryption

Encryption options

a5

GSM A5 Air Interface Encryption

<0-4>

A5/n Algorithm Number

[<0-4>]

A5/n Algorithm Number

[<0-4>]

A5/n Algorithm Number

[<0-4>]

A5/n Algorithm Number

[<0-4>]

A5/n Algorithm Number

### 1.17.4 handover (0|1|default)

Command

```
handover (0|1|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover

Handover general config

0

Disable in-call handover

1

Enable in-call handover

default

Enable/disable handover: Use default (0), remove explicit setting on this node

### 1.17.5 handover algorithm (1|2|default)

Command

```
handover algorithm (1|2|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover

Handover general config

algorithm

Choose algorithm for handover decision

1

Algorithm 1: trigger handover based on comparing current cell and neighbor RxLev and RxQual, only.

2

Algorithm 2: trigger handover on RxLev/RxQual, and also to balance the load across several cells. Consider available codecs. Prevent repeated handover by penalty timers.

default

Use default (1), remove explicit setting on this node

### 1.17.6 handover1 maximum distance (<0-9999>|default)

Command

```
handover1 maximum distance (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

maximum

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

distance

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

<0-9999>

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

default

Use default (9999), remove explicit setting on this node

### 1.17.7 handover1 power budget hysteresis (<0-999>|default)

Command

```
handover1 power budget hysteresis (<0-999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

hysteresis

How many dB stronger must a neighbor be to become a HO candidate

<0-999>

Neighbor's strength difference in dB

default

Use default (3), remove explicit setting on this node

### 1.17.8 handover1 power budget interval (<1-99>|default)

Command

```
handover1 power budget interval (<1-99>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

interval
: How often to check for a better cell (SACCH frames)

<1-99>
: Check for stronger neighbor every N number of SACCH frames

default
: Use default (6), remove explicit setting on this node

### 1.17.9 handover1 window rxlev averaging (<1-10>|default)

Command

```
handover1 window rxlev averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxlev
: Received-Level averaging

averaging
: How many RxLev measurements to use for averaging

<1-10>
: RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.17.10 handover1 window rxlev neighbor averaging (<1-10>|default)

Command

```
handover1 window rxlev neighbor averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxlev
: Received-Level averaging

neighbor
: How many Neighbor RxLev measurements to use for averaging

averaging
: How many Neighbor RxLev measurements to use for averaging

<1-10>
: Neighbor RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.17.11 handover1 window rxqual averaging (<1-10>|default)

Command

```
handover1 window rxqual averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxqual
: Received-Quality averaging

averaging
: How many RxQual measurements to use for averaging

<1-10>
: RxQual averaging: Number of values to average over

default
: Use default (1), remove explicit setting on this node

### 1.17.12 handover2 afs-bias rxlev (<0-20>|default)

Command

```
handover2 afs-bias rxlev (<0-20>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

afs-bias

Configure bias to prefer AFS (AMR on TCH/F) over other codecs

rxlev

RxLev improvement bias for AFS over other codecs

<0-20>

Virtual RxLev improvement (dB)

default

Use default (0), remove explicit setting on this node

### 1.17.13 handover2 afs-bias rxqual (<0-7>|default)

Command

```
handover2 afs-bias rxqual (<0-7>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

afs-bias

Configure bias to prefer AFS (AMR on TCH/F) over other codecs

rxqual

RxQual improvement bias for AFS over other codecs

<0-7>

Virtual RxQual improvement

default

Use default (0), remove explicit setting on this node

### 1.17.14 handover2 assignment (0|1|default)

Command

```
handover2 assignment (0|1|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

assignment

Enable or disable in-call channel re-assignment within the same cell

0

Disable in-call assignment

1

Enable in-call assignment

default

Use default (0), remove explicit setting on this node

### 1.17.15 handover2 congestion-check (disabled|<1-999>|now)

Command

```
handover2 congestion-check (disabled|<1-999>|now)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

congestion-check

Configure congestion check interval

disabled

Disable congestion checking, do not handover based on cell load. Note: there is one global congestion check interval, i.e. contrary to other handover2 settings, this is not configurable per individual cell.

<1-999>

Congestion check interval in seconds (default 10)

now

Manually trigger a congestion check to run right now

### 1.17.16 handover2 max-handovers (<1-9999>|default)

Command

```
handover2 max-handovers (<1-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

max-handovers

Maximum number of concurrent handovers allowed per cell

<1-9999>

Number

default

Use default (9999), remove explicit setting on this node

### 1.17.17 handover2 maximum distance (<0-9999>|default)

Command

```
handover2 maximum distance (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

maximum

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

distance

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

<0-9999>

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

default

Use default (9999), remove explicit setting on this node

### 1.17.18 handover2 min rxlev (<-110--50>|default)

Command

```
handover2 min rxlev (<-110--50>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min

Minimum Level/Quality thresholds before triggering HO

rxlev

How weak may RxLev of an MS become before triggering HO

<-110--50>

minimum RxLev (dBm; note: negative values)

default

Use default (-100), remove explicit setting on this node

### 1.17.19 handover2 min rxqual (<0-7>|default)

Command

```
handover2 min rxqual (<0-7>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min

Minimum Level/Quality thresholds before triggering HO

rxqual

How bad may RxQual of an MS become before triggering HO, where 0 is the best quality (bit error rate < 0.2%) and 7 is the worst quality (bit error rate > 12.8%), see 3GPP TS 45.008 8.2.4.

<0-7>

worst acceptable RxQual

default

Use default (5), remove explicit setting on this node

### 1.17.20 handover2 min-free-slots tch/f (<0-9999>|default)

Command

```
handover2 min-free-slots tch/f (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min-free-slots

Minimum free TCH timeslots before cell is considered congested

tch/f

Minimum free TCH/F timeslots before cell is considered congested

<0-9999>

Number of TCH/F slots

default

Use default (0), remove explicit setting on this node

### 1.17.21 handover2 min-free-slots tch/h (<0-9999>|default)

Command

```
handover2 min-free-slots tch/h (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min-free-slots

Minimum free TCH timeslots before cell is considered congested

tch/h

Minimum free TCH/H timeslots before cell is considered congested

<0-9999>

Number of TCH/H slots

default

Use default (0), remove explicit setting on this node

### 1.17.22 handover2 penalty-time failed-assignment (<0-99999>|default)

Command

```
handover2 penalty-time failed-assignment (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

failed-assignment

Time to suspend handover for a subscriber after a failed re-assignment within this cell; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.17.23 handover2 penalty-time failed-ho (<0-99999>|default)

Command

```
handover2 penalty-time failed-ho (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

failed-ho

Time to suspend handover for a subscriber after a failed handover into this cell; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.17.24 handover2 penalty-time low-rxqual-assignment (<0-99999>|default)

Command

```
handover2 penalty-time low-rxqual-assignment (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

low-rxqual-assignment

Time to suspend re-assignment after an lchan was re-assigned because of low RxQual

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.17.25 handover2 penalty-time low-rxqual-ho (<0-99999>|default)

Command

```
handover2 penalty-time low-rxqual-ho (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

low-rxqual-ho

Time to suspend handover back to a cell after bad RxQual caused handover away from it

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.17.26 handover2 penalty-time max-distance (<0-99999>|default)

Command

```
handover2 penalty-time max-distance (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

max-distance

Time to suspend handover for a subscriber after leaving this cell due to exceeding max distance; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (300), remove explicit setting on this node

### 1.17.27 handover2 power budget hysteresis (<0-999>|default)

Command

```
handover2 power budget hysteresis (<0-999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

hysteresis

How many dB stronger must a neighbor be to become a HO candidate

<0-999>

Neighbor's strength difference in dB

default

Use default (3), remove explicit setting on this node

### 1.17.28 handover2 power budget interval (<1-99>|default)

Command

```
handover2 power budget interval (<1-99>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

interval

How often to check for a better cell (SACCH frames)

<1-99>

Check for stronger neighbor every N number of SACCH frames

default

Use default (6), remove explicit setting on this node

### 1.17.29 handover2 retries (<0-9>|default)

Command

```
handover2 retries (<0-9>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

retries

Number of times to immediately retry a failed handover/assignment, before a penalty time is applied

<0-9>

Number of retries

default

Use default (0), remove explicit setting on this node

### 1.17.30 handover2 tdma-measurement (auto|full|subset|default)

Command

```
handover2 tdma-measurement (auto|full|subset|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

tdma-measurement

Define measurement set of TDMA frames

auto

Use full set when DTX is not in use, use subset when DTX is in use, as indicated by each Measurement Report

full

Full set of 102/104 TDMA frames

subset

Sub set of 4 TDMA frames (SACCH)

default

Use default (subset), remove explicit setting on this node

### 1.17.31 handover2 window rxlev averaging (<1-10>|default)

Command

```
handover2 window rxlev averaging (<1-10>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

window

Measurement averaging settings

rxlev

Received-Level averaging

averaging
: How many RxLev measurements to use for averaging

<1-10>
: RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.17.32 handover2 window rxlev neighbor averaging (<1-10>|default)

Command

```
handover2 window rxlev neighbor averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover2
: Handover options for handover decision algorithm 2

window
: Measurement averaging settings

rxlev
: Received-Level averaging

neighbor
: How many Neighbor RxLev measurements to use for averaging

averaging
: How many Neighbor RxLev measurements to use for averaging

<1-10>
: Neighbor RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.17.33 handover2 window rxqual averaging (<1-10>|default)

Command

```
handover2 window rxqual averaging (<1-10>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

window

Measurement averaging settings

rxqual

Received-Quality averaging

averaging

How many RxQual measurements to use for averaging

<1-10>

RxQual averaging: Number of values to average over

default

Use default (1), remove explicit setting on this node

### 1.17.34 meas-feed destination ADDR <0-65535>

Command

```
meas-feed destination ADDR <0-65535>
```

Global attributes

Flag: !

This command applies immediately

Parameters

meas-feed

Measurement Report export

destination

Where to forward Measurement Report feeds

ADDR

address or hostname

<0-65535>

port number

### 1.17.35 meas-feed scenario NAME

Command

```
meas-feed scenario NAME
```

Global attributes

Flag: !

This command applies immediately

Parameters

meas-feed

Measurement Report export

scenario

Set a name to include in the Measurement Report feeds

NAME

Name string, up to 31 characters

### 1.17.36 meas-feed write-queue-max-length <1-65535>

Command

```
meas-feed write-queue-max-length <1-65535>
```

Global attributes

Flag: !

This command applies immediately

Parameters

meas-feed

Measurement Report export

write-queue-max-length

Set the maximum length of the message write queue towards the UDP socket

<1-65535>

Maximum number of messages to be queued waiting for transmission

### 1.17.37 mgw <0-255>

Command

```
mgw <0-255>
```

Global attributes

Flag: !

This command applies immediately

Parameters

mgw

Select a MGCP client config to setup

<0-255>

reference number

### 1.17.38 mobile network code <0-999>

Command

```
mobile network code <0-999>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

mobile

Set the GSM mobile network code

network

Network Commands

code

Code commands

<0-999>

Mobile Network Code to use

### 1.17.39 neci (0|1)

Command

```
neci (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

neci

New Establish Cause Indication

0

Don’t set the NECI bit

1

Set the NECI bit

### 1.17.40 neighbor-resolution bind (A.B.C.D|X:X::X:X) [<0-65535>]

Command

```
neighbor-resolution bind (A.B.C.D|X:X::X:X) [<0-65535>]
```

Parameters

neighbor-resolution

Manage local and remote-BSS neighbor cells

bind

Bind Neighbor Resolution Service (CTRL interface) to given ip and port

A.B.C.D

IP information

X:X::X:X

IPv6 information

[<0-65535>]

Port to bind the service to [defaults to 4248 if not provided]

### 1.17.41 network country code <1-999>

Command

```
network country code <1-999>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

network

Set the GSM network country code

country

Country commands

code

Code commands

<1-999>

Network Country Code to use

### 1.17.42 no mgw <0-255>

Command

```
no mgw <0-255>
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

mgw

Select a MGCP client config to remove

<0-255>

reference number

### 1.17.43 no pcu-socket

Command

```
no pcu-socket
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

pcu-socket

Disable BSC co-located PCU

### 1.17.44 no periodic location update

Command

```
no periodic location update
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

no

Negate a command or set its defaults

periodic

Periodic Location Updating Interval

location

Periodic Location Updating Interval

update

Periodic Location Updating Interval

### 1.17.45 no timezone

Command

```
no timezone
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

timezone

Disable network timezone override, use system tz

### 1.17.46 nri bitlen <1-15>

Command

```
nri bitlen <1-15>
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators, for MSC pooling

bitlen

Set number of bits that an NRI has, to extract from TMSI identities (always starting just after the TMSI's most significant octet).

<1-15>

bit count (default: 10)

### 1.17.47 nri null add <0-32767> [<0-32767>]

Command

```
nri null add <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators, for MSC pooling

null

Define NULL-NRI values that cause re-assignment of an MS to a different MSC, for MSC pooling.

add

Add NULL-NRI value (or range)

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.17.48 nri null del <0-32767> [<0-32767>]

Command

```
nri null del <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators, for MSC pooling

null

Define NULL-NRI values that cause re-assignment of an MS to a different MSC, for MSC pooling.

del

Remove NRI value or range from the NRI mapping

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.17.49 paging any use tch (0|1)

Command

```
paging any use tch (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

paging

Assign a TCH when receiving a Paging Any request

any

Any Channel

use

Use

tch

TCH

0

Do not use TCH for Paging Request Any

1

Do use TCH for Paging Request Any

### 1.17.50 pcu-socket PATH

Command

```
pcu-socket PATH
```

Global attributes

Flag: !

This command applies immediately

Parameters

pcu-socket

PCU Socket Path for using OsmoPCU co-located with BSC

PATH

Path in the file system for the unix-domain PCU socket

### 1.17.51 pcu-socket-wqueue-length <1-2147483646>

Command

```
pcu-socket-wqueue-length <1-2147483646>
```

Global attributes

Flag: !

This command applies immediately

Parameters

pcu-socket-wqueue-length

Configure the PCU socket queue length

<1-2147483646>

Queue length

### 1.17.52 periodic location update <6-1530>

Command

```
periodic location update <6-1530>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

periodic

Periodic Location Updating Interval

location

Periodic Location Updating Interval

update

Periodic Location Updating Interval

<6-1530>

Periodic Location Updating Interval in Minutes

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

Command

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

Parameters

timer
: Configure or show timers

[net]
: GSM network

[mgw]
: MGW (Media Gateway) interface

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

[<0-2147483647>]
: New timer value

[default]
: Set to default timer value

### 1.17.54 timezone <-19-19> (0|15|30|45)

Command

```
timezone <-19-19> (0|15|30|45)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

timezone
: Set the Timezone Offset of the network

<-19-19>
: Timezone offset (hours)

0
: Timezone offset (00 minutes)

15
: Timezone offset (15 minutes)

30
: Timezone offset (30 minutes)

45
: Timezone offset (45 minutes)

### 1.17.55 timezone <-19-19> (0|15|30|45) <0-2>

Command

```
timezone <-19-19> (0|15|30|45) <0-2>
```

Global attributes

Flag: !

This command applies immediately

Parameters

timezone

Set the Timezone Offset of the network

<-19-19>

Timezone offset (hours)

0

Timezone offset (00 minutes)

15

Timezone offset (15 minutes)

30

Timezone offset (30 minutes)

45

Timezone offset (45 minutes)

<0-2>

DST offset (hours)

## 1.18 config-mgw

### 1.18.1 description .TEXT

Command

```
description .TEXT
```

Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.18.2 endpoint-domain NAME

Command

```
endpoint-domain NAME
```

Parameters

endpoint-domain
: Set the domain name to send in MGCP messages, e.g. the part 'foo' in 'rtpbridge/*@foo'.

NAME
: Domain name, should be alphanumeric.

### 1.18.3 keepalive request-endpoint NAME

Command

```
keepalive request-endpoint NAME
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

request-endpoint
: Use a given endpoint name when sending an MGCP command to the MGW for keepalive purposes

NAME
: The name of the endpoint to use

### 1.18.4 keepalive request-interval <0-4294967295>

Command

```
keepalive request-interval <0-4294967295>
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

request-interval
: Send an MGCP command to the MGW at given interval if no other commands are sent

<0-4294967295>
: The interval at which send MGCP commands (s), 0 to disable

### 1.18.5 keepalive timeout <0-4294967295>

Command

```
keepalive timeout <0-4294967295>
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

timeout
: Consider the link to the MGW to be down after time without receiving any message from it

<0-4294967295>
: The timeout (s), 0 to disable

### 1.18.6 local-ip (A.B.C.D|X:X::X:X)

Command

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

Parameters

local-ip
: local bind to connect to MGW from

A.B.C.D
: local bind IPv4 address

X:X::X:X
: local bind IPv6 address

### 1.18.7 local-port <0-65535>

Command

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

Parameters

local-port
: local port to connect to MGW from

<0-65535>
: local bind port

### 1.18.8 no reset-endpoint NAME

Command

```
no reset-endpoint NAME
```

Parameters

no
: Negate a command or set its defaults

reset-endpoint
: remove an endpoint name from the reset-endpoint list, e.g. 'rtpbridge/*'

NAME
: Endpoint name, e.g. 'rtpbridge/*' or 'ds/e1-0/s-3/su16-4'.

### 1.18.9 remote-ip (A.B.C.D|X:X::X:X)

Command

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

Parameters

remote-ip
: remote IP address to reach the MGW at

A.B.C.D
: remote IPv4 address

X:X::X:X
: remote IPv6 address

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

Command

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

Parameters

remote-port
: remote port to reach the MGW at

<0-65535>
: remote port

### 1.18.11 reset-endpoint NAME

Command

```
reset-endpoint NAME
```

Parameters

reset-endpoint
: Add an endpoint name that should be reset (DLCX) on connect to the reset-endpoint list,e.g. 'rtpbridge/*'

NAME
: Endpoint name, e.g. 'rtpbridge/*' or 'ds/e1-0/s-3/su16-4'.

## 1.19 config-net-bts

### 1.19.1 (bs-power-control|ms-power-control)

Command

```
(bs-power-control|ms-power-control)
```

Parameters

bs-power-control
: BS (Downlink) power control parameters

ms-power-control
: MS (Uplink) power control parameters

### 1.19.2 abis-lower-transport (single-timeslot|super-channel)

Command

```
abis-lower-transport (single-timeslot|super-channel)
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

abis-lower-transport
: Configure thee Abis Lower Transport

single-timeslot
: Single Timeslot (classic Abis)

super-channel
: SuperChannel (Packet Abis)

### 1.19.3 access-control-class-ramping

Command

```
access-control-class-ramping
```

Global attributes

Flag: !

This command applies immediately

Parameters

access-control-class-ramping

Enable Access Control Class ramping

### 1.19.4 access-control-class-ramping-chan-load <0-100> <0-100>

Command

```
access-control-class-ramping-chan-load <0-100> <0-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

access-control-class-ramping-chan-load

Configure Access Control Class ramping channel load thresholds

<0-100>

Lower Channel load threshold (%) below which subset size of allowed broadcast ACCs can be increased

<0-100>

Upper channel load threshold (%) above which subset size of allowed broadcast ACCs can be decreased

### 1.19.5 access-control-class-ramping-step-interval (<5-600>|dynamic)

Command

```
access-control-class-ramping-step-interval (<5-600>|dynamic)
```

Global attributes

Flag: !

This command applies immediately

Parameters

access-control-class-ramping-step-interval
: Configure Access Control Class ramping step interval

<5-600>
: Set a fixed step interval (in seconds)

dynamic
: Use dynamic step interval based on BTS channel load (deprecated, don't use, ignored)

### 1.19.6 access-control-class-ramping-step-size (<1-10>)

Command

```
access-control-class-ramping-step-size (<1-10>)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

access-control-class-ramping-step-size
: Configure Access Control Class ramping step size

<1-10>
: Set the number of Access Control Classes to enable per ramping step

### 1.19.7 access-control-class-rotate <0-10>

Command

```
access-control-class-rotate <0-10>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

access-control-class-rotate
: Enable Access Control Class allowed subset rotation

<0-10>
: Size of the rotating allowed ACC 0-9 subset (default=10, no subset)

### 1.19.8 access-control-class-rotate-quantum <1-65535>

Command

```
access-control-class-rotate-quantum <1-65535>
```

Global attributes

Flag: !

This command applies immediately

Parameters

access-control-class-rotate-quantum

Time between rotation of ACC 0-9 generated subsets

<1-65535>

Time in seconds (default=20)

### 1.19.9 amr tch-f hysteresis (ms|bts) <0-15>

Command

```
amr tch-f hysteresis (ms|bts) <0-15>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-f

Full Rate

hysteresis

Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms

MS side

bts

BTS side

<0-15>

Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

### 1.19.10 amr tch-f hysteresis (ms|bts) <0-15> <0-15>

Command

```
amr tch-f hysteresis (ms|bts) <0-15> <0-15>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-f

Full Rate

hysteresis

Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms

MS side

bts

BTS side

<0-15>

Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

<0-15>

Hysteresis between codec mode 2 and 3 (in 0.5 dB steps)

### 1.19.11 amr tch-f hysteresis (ms|bts) <0-15> <0-15> <0-15>

Command

```
amr tch-f hysteresis (ms|bts) <0-15> <0-15> <0-15>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-f

Full Rate

hysteresis
: Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-15>
: Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

<0-15>
: Hysteresis between codec mode 2 and 3 (in 0.5 dB steps)

<0-15>
: Hysteresis between codec mode 3 and 4 (in 0.5 dB steps)

### 1.19.12 amr tch-f modes (0|1|2|3|4|5|6|7)

Command

```
amr tch-f modes (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

6
: 10,2k

7
: 12,2k

### 1.19.13 amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7)

Command

```
amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

6
: 10,2k

7
: 12,2k

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

6
: 10,2k

7
: 12,2k

### 1.19.14 amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7)

Command

```
amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
6,70k
4
7,40k
5
7,95k
6
10,2k
7
12,2k
0
4,75k
1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k
6
10,2k
7
12,2k
0
4,75k
1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k

6
: 10,2k

7
: 12,2k

### 1.19.15 amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4...

Command

```
amr tch-f modes (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7) (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

6
: 10,2k

7
: 12,2k

0
: 4,75k

1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k
6
10,2k
7
12,2k
0
4,75k
1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k
6
10,2k
7
12,2k
0
4,75k
1
5,15k
2
5,90k
3
6,70k

4
: 7,40k

5
: 7,95k

6
: 10,2k

7
: 12,2k

### 1.19.16 amr tch-f start-mode (auto|1|2|3|4)

Command

```
amr tch-f start-mode (auto|1|2|3|4)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

start-mode
: Initial codec mode to use with AMR

auto
: Automatically

1
: First mode

2
: Second mode

3
: Third mode

4
: Fourth mode

### 1.19.17 amr tch-f threshold (ms|bts) <0-63>

Command

```
amr tch-f threshold (ms|bts) <0-63>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-f

Full Rate

threshold

Lower threshold(s) for switching between codec modes

ms

MS side

bts

BTS side

<0-63>

Threshold between codec mode 1 and 2 (in 0.5 dB steps)

### 1.19.18 amr tch-f threshold (ms|bts) <0-63> <0-63>

Command

```
amr tch-f threshold (ms|bts) <0-63> <0-63>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-f

Full Rate

threshold

Lower threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-63>
: Threshold between codec mode 1 and 2 (in 0.5 dB steps)

<0-63>
: Threshold between codec mode 2 and 3 (in 0.5 dB steps)

### 1.19.19 amr tch-f threshold (ms|bts) <0-63> <0-63> <0-63>

Command

```
amr tch-f threshold (ms|bts) <0-63> <0-63> <0-63>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-f
: Full Rate

threshold
: Lower threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-63>
: Threshold between codec mode 1 and 2 (in 0.5 dB steps)

<0-63>
: Threshold between codec mode 2 and 3 (in 0.5 dB steps)

<0-63>
: Threshold between codec mode 3 and 4 (in 0.5 dB steps)

### 1.19.20 amr tch-h hysteresis (ms|bts) <0-15>

Command

```
amr tch-h hysteresis (ms|bts) <0-15>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-h

Half Rate

hysteresis

Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms

MS side

bts

BTS side

<0-15>

Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

### 1.19.21 amr tch-h hysteresis (ms|bts) <0-15> <0-15>

Command

```
amr tch-h hysteresis (ms|bts) <0-15> <0-15>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-h

Half Rate

hysteresis

Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-15>
: Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

<0-15>
: Hysteresis between codec mode 2 and 3 (in 0.5 dB steps)

### 1.19.22 amr tch-h hysteresis (ms|bts) <0-15> <0-15> <0-15>

Command

```
amr tch-h hysteresis (ms|bts) <0-15> <0-15> <0-15>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

hysteresis
: Hysteresis value(s) to obtain the higher threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-15>
: Hysteresis between codec mode 1 and 2 (in 0.5 dB steps)

<0-15>
: Hysteresis between codec mode 2 and 3 (in 0.5 dB steps)

<0-15>
: Hysteresis between codec mode 3 and 4 (in 0.5 dB steps)

### 1.19.23 amr tch-h modes (0|1|2|3|4|5)

Command

```
amr tch-h modes (0|1|2|3|4|5)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-h

Half Rate

modes

Codec modes to use with AMR codec

0

4,75k

1

5,15k

2

5,90k

3

6,70k

4

7,40k

5

7,95k

### 1.19.24 amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5)

Command

```
amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

### 1.19.25 amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5)

Command

```
amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

### 1.19.26 amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5)

Command

```
amr tch-h modes (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5) (0|1|2|3|4|5)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

modes
: Codec modes to use with AMR codec

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
: 6,70k

4
: 7,40k

5
: 7,95k

0
: 4,75k

1
: 5,15k

2
: 5,90k

3
6,70k
4
7,40k
5
7,95k
0
4,75k
1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k
0
4,75k
1
5,15k
2
5,90k
3
6,70k
4
7,40k
5
7,95k

### 1.19.27 amr tch-h start-mode (auto|1|2|3|4)

Command

```
amr tch-h start-mode (auto|1|2|3|4)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

start-mode
: Initial codec mode to use with AMR

auto
: Automatically

1
: First mode

2
: Second mode

3
: Third mode

4
: Fourth mode

### 1.19.28 amr tch-h threshold (ms|bts) <0-63>

Command

```
amr tch-h threshold (ms|bts) <0-63>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

amr
: Adaptive Multi Rate settings

tch-h
: Half Rate

threshold
: Lower threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-63>
: Threshold between codec mode 1 and 2 (in 0.5 dB steps)

### 1.19.29 amr tch-h threshold (ms|bts) <0-63> <0-63>

Command

```
amr tch-h threshold (ms|bts) <0-63> <0-63>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-h

Half Rate

threshold

Lower threshold(s) for switching between codec modes

ms

MS side

bts

BTS side

<0-63>

Threshold between codec mode 1 and 2 (in 0.5 dB steps)

<0-63>

Threshold between codec mode 2 and 3 (in 0.5 dB steps)

### 1.19.30 amr tch-h threshold (ms|bts) <0-63> <0-63> <0-63>

Command

```
amr tch-h threshold (ms|bts) <0-63> <0-63> <0-63>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr

Adaptive Multi Rate settings

tch-h

Half Rate

threshold
: Lower threshold(s) for switching between codec modes

ms
: MS side

bts
: BTS side

<0-63>
: Threshold between codec mode 1 and 2 (in 0.5 dB steps)

<0-63>
: Threshold between codec mode 2 and 3 (in 0.5 dB steps)

<0-63>
: Threshold between codec mode 3 and 4 (in 0.5 dB steps)

### 1.19.31 band BAND

Command

```
band BAND
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

band
: Set the frequency band of this BTS

BAND
: Frequency band

### 1.19.32 base_station_id_code <0-63>

Command

```
base_station_id_code <0-63>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

base_station_id_code
: Set the Base Station Identity Code (BSIC) of this BTS

<0-63>
: BSIC of this BTS

### 1.19.33 ccch load-indication-period <0-255>

Command

```
ccch load-indication-period <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

ccch

Common Control Channel

load-indication-period

Period of time at which BTS sends RSL CCCH LOAD IND

<0-255>

CCCH Load Indication Period in seconds (Default: 1)

### 1.19.34 ccch load-indication-threshold <0-100>

Command

```
ccch load-indication-threshold <0-100>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

ccch

Common Control Channel

load-indication-threshold

Percentage of CCCH load at which BTS sends RSL CCCH LOAD IND

<0-100>

CCCH Load Threshold in percent (Default: 10)

### 1.19.35 cell bar qualify (0|1)

Command

```
cell bar qualify (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

cell

Cell Parameters

bar

Cell Bar Qualify (CELL_BAR_QUALIFY)

qualify

Cell Bar Qualify (CELL_BAR_QUALIFY)

0

Set CBQ to 0

1

Set CBQ to 1

### 1.19.36 cell barred (0|1)

Command

```
cell barred (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

cell

Should this cell be barred from access? (CELL_BAR_ACCESS)

barred

Should this cell be barred from access? (CELL_BAR_ACCESS)

0

The cell is not barred, see 3GPP TS 23.022

1

The cell is barred, see 3GPP TS 23.022

### 1.19.37 cell reselection hysteresis <0-14>

Command

```
cell reselection hysteresis <0-14>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

cell

Cell Parameters

reselection

Cell re-selection parameters

hysteresis

Cell Re-Selection Hysteresis in dB

<0-14>

Cell Re-Selection Hysteresis in dB

### 1.19.38 cell reselection offset <0-126>

Command

```
cell reselection offset <0-126>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

cell

Cell Parameters

reselection

Cell Re-Selection Parameters

offset

Cell Re-Selection Offset (CRO) in dB

<0-126>

Cell Re-Selection Offset (CRO) in dB

### 1.19.39 cell_identity <0-65535>

Command

```
cell_identity <0-65535>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

cell_identity

Set the Cell identity of this BTS

<0-65535>

Cell Identity (default 0)

### 1.19.40 channel allocator avoid-interference (0|1)

Command

```
channel allocator avoid-interference (0|1)
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

avoid-interference

Configure whether reported interference levels from RES IND are used in channel allocation

0

Ignore interference levels (default). Always assign lchans in a deterministic order.

1

In channel allocation, prefer lchans with less interference.

### 1.19.41 channel allocator dynamic-param c0-chan-load thresh <0-100>

Command

```
channel allocator dynamic-param c0-chan-load thresh <0-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

dynamic-param

Parameters for dynamic channel allocation mode

c0-chan-load

C0 (BCCH carrier) channel load

thresh

Channel load threshold

<0-100>

Channel load threshold (in %)

### 1.19.42 channel allocator dynamic-param sort-by-trx-power (0|1)

Command

```
channel allocator dynamic-param sort-by-trx-power (0|1)
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

dynamic-param

Parameters for dynamic channel allocation mode

sort-by-trx-power
: Whether to sort TRX instances by their respective power levels

0
: Do not sort, use the same order as in the configuration file

1
: Sort TRX instances by their power levels in descending order

### 1.19.43 channel allocator dynamic-param ul-rxlev thresh <0-63> avg-num <1-10>

Command

```
channel allocator dynamic-param ul-rxlev thresh <0-63> avg-num <1-10>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

channel
: Channel Allocator

allocator
: Channel Allocator

dynamic-param
: Parameters for dynamic channel allocation mode

ul-rxlev
: Uplink RxLev

thresh
: Uplink RxLev threshold

<0-63>
: Uplink RxLev threshold

avg-num
: Minimum number of RxLev samples for averaging

<1-10>
: Minimum number of RxLev samples for averaging

### 1.19.44 channel allocator mode (set-all|chan-req|assignment|handover|vgcs-vbs) (ascendin...

Command

```
channel allocator mode (set-all|chan-req|assignment|handover|vgcs-vbs) (ascending| ↩
    descending)
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

mode

Channel allocation mode

set-all

Set a single mode for all variants

chan-req

Channel allocation for CHANNEL REQUEST (RACH)

assignment

Channel allocation for assignment

handover

Channel allocation for handover

vgcs-vbs

Channel allocation for VGCS/VBS

ascending

Allocate Timeslots and Transceivers in ascending order

descending

Allocate Timeslots and Transceivers in descending order

### 1.19.45 channel allocator mode assignment dynamic

Command

```
channel allocator mode assignment dynamic
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

mode

Channel allocation mode

assignment

Channel allocation for assignment

dynamic

Dynamic lchan selection based on configured parameters

### 1.19.46 channel allocator tch-signalling-policy (never|emergency|voice|always)

Command

```
channel allocator tch-signalling-policy (never|emergency|voice|always)
```

Global attributes

Flag: !

This command applies immediately

Parameters

channel

Channel Allocator

allocator

Channel Allocator

tch-signalling-policy

Configure when TCH/H or TCH/F channels can be used to serve signalling if SDCCHs are exhausted

never

Never allow TCH for signalling purposes

emergency

Only allow TCH for signalling purposes when establishing an emergency call

voice

Allow TCH for signalling purposes when establishing any voice call

always

Always allow TCH for signalling purposes (default)

### 1.19.47 channel-description attach (0|1)

Command

```
channel-description attach (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

channel-description

Channel Description

attach

Set if attachment is required

0

Attachment is NOT required

1

Attachment is required (standard)

### 1.19.48 channel-description bs-ag-blks-res <0-7>

Command

```
channel-description bs-ag-blks-res <0-7>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

channel-description

Channel Description

bs-ag-blks-res

Set number of blocks reserved for access grant

<0-7>

Number of blocks reserved for access grant

### 1.19.49 channel-description bs-pa-mfrms <2-9>

Command

```
channel-description bs-pa-mfrms <2-9>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

channel-description

Channel Description

bs-pa-mfrms

Set number of multiframe periods for paging groups

<2-9>

Number of multiframe periods for paging groups

### 1.19.50 codec-support fr

Command

```
codec-support fr
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

codec-support

Codec Support settings

fr

Fullrate

### 1.19.51 codec-support fr (hr|efr|amr)

Command

```
codec-support fr (hr|efr|amr)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

codec-support
: Codec Support settings

fr
: Fullrate

hr
: Half Rate

efr
: Enhanced Full Rate

amr
: Adaptive Multirate

### 1.19.52 codec-support fr (hr|efr|amr) (hr|efr|amr)

Command

```
codec-support fr (hr|efr|amr) (hr|efr|amr)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

codec-support
: Codec Support settings

fr
: Fullrate

hr
: Half Rate

efr
: Enhanced Full Rate

amr
: Adaptive Multirate

hr
: Half Rate

efr
: Enhanced Full Rate

amr
: Adaptive Multirate

### 1.19.53 codec-support fr (hr|efr|amr) (hr|efr|amr) (hr|efr|amr)

Command

```
codec-support fr (hr|efr|amr) (hr|efr|amr) (hr|efr|amr)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

codec-support

Codec Support settings

fr

Fullrate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

### 1.19.54 codec-support fr (hr|efr|amr) (hr|efr|amr) (hr|efr|amr) (hr|efr|amr)

Command

```
codec-support fr (hr|efr|amr) (hr|efr|amr) (hr|efr|amr) (hr|efr|amr)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

codec-support

Codec Support settings

fr

Fullrate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

hr

Half Rate

efr

Enhanced Full Rate

amr

Adaptive Multirate

### 1.19.55 con-connection-group <1-31>

Command

```
con-connection-group <1-31>
```

Global attributes

Flag: !
This command applies immediately

Parameters

con-connection-group
Configure a CON (Concentrator) Connection Group

<1-31>
CON Connection Group Number

### 1.19.56 del-connection-group <1-31>

Command

```
del-connection-group <1-31>
```

Global attributes

Flag: !
This command applies immediately

Parameters

del-connection-group
Delete a CON (Concentrator) Connection Group

<1-31>
CON Connection Group Number

### 1.19.57 depends-on-bts <0-65535>

Command

```
depends-on-bts <0-65535>
```

Global attributes

Flag: !
This command applies immediately

Parameters

depends-on-bts
This BTS can only be started if another one is up

<0-65535>
BTS Number

### 1.19.58 description .TEXT

Command

```
description .TEXT
```

Parameters

description
: Save human-readable description of the object

.TEXT
: Text until the end of the line

### 1.19.59 dtx downlink

Command

```
dtx downlink
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

dtx
: Configure discontinuous transmission

downlink
: Enable Downlink DTX for this BTS

### 1.19.60 dtx uplink [force]

Command

```
dtx uplink [force]
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

dtx
: Configure discontinuous transmission

uplink
: Enable Uplink DTX for this BTS

[force]
: MS 'shall' use DTXu instead of 'may' use (might not be supported by older phones).

### 1.19.61 early-classmark-sending (allowed|forbidden)

Command

```
early-classmark-sending (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

early-classmark-sending

Early Classmark Sending

allowed

Early Classmark Sending is allowed

forbidden

Early Classmark Sending is forbidden

### 1.19.62 early-classmark-sending-3g (allowed|forbidden)

Command

```
early-classmark-sending-3g (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

early-classmark-sending-3g

3G Early Classmark Sending

allowed

3G Early Classmark Sending is allowed

forbidden

3G Early Classmark Sending is forbidden

### 1.19.63 force-combined-si

Command

```
force-combined-si
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

force-combined-si

Force the generation of a single SI (no ter/bis)

### 1.19.64 gprs ccn-active (0|1|default)

Command

```
gprs ccn-active (0|1|default)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

gprs

GPRS Packet Network

ccn-active

Set CCN_ACTIVE in the GPRS Cell Options IE on the BCCH (SI13)

0

Disable

1

Enable

default

Default based on BTS type support

### 1.19.65 gprs cell bvci <2-65535>

Command

```
gprs cell bvci <2-65535>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

cell

GPRS Cell Settings

bvci

GPRS BSSGP VC Identifier

<2-65535>

GPRS BSSGP VC Identifier

### 1.19.66 gprs cell timer (blocking-timer|blocking-retries|unblocking-retries|reset-timer|...

Command

```
gprs cell timer (blocking-timer|blocking-retries|unblocking-retries|reset-timer|reset- ↩
    retries|suspend-timer|suspend-retries|resume-timer|resume-retries|capability-update ↩
    -timer|capability-update-retries) <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

cell

Cell / BSSGP

timer

Cell/BSSGP Timer

blocking-timer

Tbvc-block timeout

blocking-retries
: Tbvc-block retries

unblocking-retries
: Tbvc-unblock retries

reset-timer
: Tbvc-reset timeout

reset-retries
: Tbvc-reset retries

suspend-timer
: Tbvc-suspend timeout

suspend-retries
: Tbvc-suspend retries

resume-timer
: Tbvc-resume timeout

resume-retries
: Tbvc-resume retries

capability-update-timer
: Tbvc-capa-update timeout

capability-update-retries
: Tbvc-capa-update retries

<0-255>
: Timer Value

### 1.19.67 gprs control-ack-type-rach

Command

```
gprs control-ack-type-rach
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

gprs
: GPRS Packet Network

control-ack-type-rach
: Set GPRS Control Ack Type for PACKET CONTROL ACKNOWLEDGMENT message to four access bursts format instead of default RLC/MAC control block

### 1.19.68 gprs egprs-packet-channel-request

Command

```
gprs egprs-packet-channel-request
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

gprs

GPRS Packet Network

egprs-packet-channel-request

EGPRS Packet Channel Request support

### 1.19.69 gprs mode (none|gprs|egprs)

Command

```
gprs mode (none|gprs|egprs)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

mode

GPRS Mode for this BTS

none

GPRS Disabled on this BTS

gprs

GPRS Enabled on this BTS

egprs

EGPRS (EDGE) Enabled on this BTS

### 1.19.70 gprs network-control-order (nc0|nc1|nc2)

Command

```
gprs network-control-order (nc0|nc1|nc2)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

gprs

GPRS Packet Network

network-control-order

GPRS Network Control Order

nc0

MS controlled cell re-selection, no measurement reporting

nc1

MS controlled cell re-selection, MS sends measurement reports

nc2

Network controlled cell re-selection, MS sends measurement reports

### 1.19.71 gprs ns timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|...

Command

```
gprs ns timer (tns-block|tns-block-retries|tns-reset|tns-reset-retries|tns-test|tns- ↩
    alive|tns-alive-retries|tsns-prov) <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

ns

Network Service

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

<0-255>
: Timer Value

### 1.19.72 gprs nsei <0-65535>

Command

```
gprs nsei <0-65535>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

gprs
: GPRS Packet Network

nsei
: GPRS NS Entity Identifier

<0-65535>
: GPRS NS Entity Identifier

### 1.19.73 gprs nsvc <0-1> local udp port <0-65535>

Command

```
gprs nsvc <0-1> local udp port <0-65535>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

nsvc

Network Service Virtual Connection (NS-VC)

<0-1>

NSVC Logical Number

local

GPRS NS Local UDP Port

udp

GPRS NS Local UDP Port

port

GPRS NS Local UDP Port

<0-65535>

GPRS NS Local UDP Port Number

### 1.19.74 gprs nsvc <0-1> nsvci <0-65535>

Command

```
gprs nsvc <0-1> nsvci <0-65535>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

nsvc

Network Service Virtual Connection (NS-VC)

<0-1>
NSVC Logical Number

nsvci
NS Virtual Connection Identifier

<0-65535>
GPRS NS VC Identifier

### 1.19.75 gprs nsvc <0-1> remote ip (A.B.C.D|X:X::X:X)

Command

```
gprs nsvc <0-1> remote ip (A.B.C.D|X:X::X:X)
```

Application specific attributes

Flag: o
This command applies on A-bis OML link (re)establishment

Parameters

gprs
GPRS Packet Network

nsvc
Network Service Virtual Connection (NS-VC)

<0-1>
NSVC Logical Number

remote
GPRS NS Remote IP Address

ip
GPRS NS Remote IP Address

A.B.C.D
GPRS NS Remote IPv4 Address

X:X::X:X
GPRS NS Remote IPv6 Address

### 1.19.76 gprs nsvc <0-1> remote udp port <0-65535>

Command

```
gprs nsvc <0-1> remote udp port <0-65535>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

nsvc

Network Service Virtual Connection (NS-VC)

<0-1>

NSVC Logical Number

remote

GPRS NS Remote UDP Port

udp

GPRS NS Remote UDP Port

port

GPRS NS Remote UDP Port

<0-65535>

GPRS NS Remote UDP Port Number

### 1.19.77 gprs power-control alpha <0-10>

Command

```
gprs power-control alpha <0-10>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

gprs

GPRS Packet Network

power-control

GPRS Global Power Control Parameters IE (SI13)

alpha

Set alpha

<0-10>

alpha for MS output power control in units of 0.1 (defaults to 0)

### 1.19.78 gprs routing area <0-255>

Command

```
gprs routing area <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

gprs

GPRS Packet Network

routing

GPRS Routing Area Code

area

GPRS Routing Area Code

<0-255>

GPRS Routing Area Code

### 1.19.79 handover (0|1|default)

Command

```
handover (0|1|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover

Handover general config

0

Disable in-call handover

1

Enable in-call handover

default

Enable/disable handover: Use default (0), remove explicit setting on this node

### 1.19.80 handover algorithm (1|2|default)

Command

```
handover algorithm (1|2|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover

Handover general config

algorithm

Choose algorithm for handover decision

1

Algorithm 1: trigger handover based on comparing current cell and neighbor RxLev and RxQual, only.

2

Algorithm 2: trigger handover on RxLev/RxQual, and also to balance the load across several cells. Consider available codecs. Prevent repeated handover by penalty timers.

default

Use default (1), remove explicit setting on this node

### 1.19.81 handover1 maximum distance (<0-9999>|default)

Command

```
handover1 maximum distance (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

maximum

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

distance

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

<0-9999>

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

default

Use default (9999), remove explicit setting on this node

### 1.19.82 handover1 power budget hysteresis (<0-999>|default)

Command

```
handover1 power budget hysteresis (<0-999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

hysteresis

How many dB stronger must a neighbor be to become a HO candidate

<0-999>

Neighbor's strength difference in dB

default

Use default (3), remove explicit setting on this node

### 1.19.83 handover1 power budget interval (<1-99>|default)

Command

```
handover1 power budget interval (<1-99>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover1

Handover options for handover decision algorithm 1

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

interval
: How often to check for a better cell (SACCH frames)

<1-99>
: Check for stronger neighbor every N number of SACCH frames

default
: Use default (6), remove explicit setting on this node

### 1.19.84 handover1 window rxlev averaging (<1-10>|default)

Command

```
handover1 window rxlev averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxlev
: Received-Level averaging

averaging
: How many RxLev measurements to use for averaging

<1-10>
: RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.19.85 handover1 window rxlev neighbor averaging (<1-10>|default)

Command

```
handover1 window rxlev neighbor averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxlev
: Received-Level averaging

neighbor
: How many Neighbor RxLev measurements to use for averaging

averaging
: How many Neighbor RxLev measurements to use for averaging

<1-10>
: Neighbor RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.19.86 handover1 window rxqual averaging (<1-10>|default)

Command

```
handover1 window rxqual averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover1
: Handover options for handover decision algorithm 1

window
: Measurement averaging settings

rxqual
: Received-Quality averaging

averaging
: How many RxQual measurements to use for averaging

<1-10>
: RxQual averaging: Number of values to average over

default
: Use default (1), remove explicit setting on this node

### 1.19.87 handover2 afs-bias rxlev (<0-20>|default)

Command

```
handover2 afs-bias rxlev (<0-20>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

afs-bias

Configure bias to prefer AFS (AMR on TCH/F) over other codecs

rxlev

RxLev improvement bias for AFS over other codecs

<0-20>

Virtual RxLev improvement (dB)

default

Use default (0), remove explicit setting on this node

### 1.19.88 handover2 afs-bias rxqual (<0-7>|default)

Command

```
handover2 afs-bias rxqual (<0-7>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

afs-bias

Configure bias to prefer AFS (AMR on TCH/F) over other codecs

rxqual

RxQual improvement bias for AFS over other codecs

<0-7>

Virtual RxQual improvement

default

Use default (0), remove explicit setting on this node

### 1.19.89 handover2 assignment (0|1|default)

Command

```
handover2 assignment (0|1|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

assignment

Enable or disable in-call channel re-assignment within the same cell

0

Disable in-call assignment

1

Enable in-call assignment

default

Use default (0), remove explicit setting on this node

### 1.19.90 handover2 max-handovers (<1-9999>|default)

Command

```
handover2 max-handovers (<1-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

max-handovers

Maximum number of concurrent handovers allowed per cell

<1-9999>

Number

default

Use default (9999), remove explicit setting on this node

### 1.19.91 handover2 maximum distance (<0-9999>|default)

Command

```
handover2 maximum distance (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

maximum

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

distance

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

<0-9999>

Maximum Timing-Advance value (i.e. MS distance) before triggering HO

default

Use default (9999), remove explicit setting on this node

### 1.19.92 handover2 min rxlev (<-110--50>|default)

Command

```
handover2 min rxlev (<-110--50>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min

Minimum Level/Quality thresholds before triggering HO

rxlev

How weak may RxLev of an MS become before triggering HO

<-110--50>

minimum RxLev (dBm; note: negative values)

default

Use default (-100), remove explicit setting on this node

### 1.19.93 handover2 min rxqual (<0-7>|default)

Command

```
handover2 min rxqual (<0-7>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min

Minimum Level/Quality thresholds before triggering HO

rxqual

How bad may RxQual of an MS become before triggering HO, where 0 is the best quality (bit error rate < 0.2%) and 7 is the worst quality (bit error rate > 12.8%), see 3GPP TS 45.008 8.2.4.

<0-7>

worst acceptable RxQual

default

Use default (5), remove explicit setting on this node

### 1.19.94 handover2 min-free-slots tch/f (<0-9999>|default)

Command

```
handover2 min-free-slots tch/f (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min-free-slots

Minimum free TCH timeslots before cell is considered congested

tch/f

Minimum free TCH/F timeslots before cell is considered congested

<0-9999>

Number of TCH/F slots

default

Use default (0), remove explicit setting on this node

### 1.19.95 handover2 min-free-slots tch/h (<0-9999>|default)

Command

```
handover2 min-free-slots tch/h (<0-9999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

min-free-slots

Minimum free TCH timeslots before cell is considered congested

tch/h

Minimum free TCH/H timeslots before cell is considered congested

<0-9999>

Number of TCH/H slots

default

Use default (0), remove explicit setting on this node

### 1.19.96 handover2 penalty-time failed-assignment (<0-99999>|default)

Command

```
handover2 penalty-time failed-assignment (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

failed-assignment

Time to suspend handover for a subscriber after a failed re-assignment within this cell; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.19.97 handover2 penalty-time failed-ho (<0-99999>|default)

Command

```
handover2 penalty-time failed-ho (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

failed-ho

Time to suspend handover for a subscriber after a failed handover into this cell; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.19.98 handover2 penalty-time low-rxqual-assignment (<0-99999>|default)

Command

```
handover2 penalty-time low-rxqual-assignment (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

low-rxqual-assignment

Time to suspend re-assignment after an lchan was re-assigned because of low RxQual

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.19.99 handover2 penalty-time low-rxqual-ho (<0-99999>|default)

Command

```
handover2 penalty-time low-rxqual-ho (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

low-rxqual-ho

Time to suspend handover back to a cell after bad RxQual caused handover away from it

<0-99999>

Seconds

default

Use default (60), remove explicit setting on this node

### 1.19.100 handover2 penalty-time max-distance (<0-99999>|default)

Command

```
handover2 penalty-time max-distance (<0-99999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

penalty-time

Set penalty times to wait between repeated handovers

max-distance

Time to suspend handover for a subscriber after leaving this cell due to exceeding max distance; see also 'handover2 retries'

<0-99999>

Seconds

default

Use default (300), remove explicit setting on this node

### 1.19.101 handover2 power budget hysteresis (<0-999>|default)

Command

```
handover2 power budget hysteresis (<0-999>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

hysteresis

How many dB stronger must a neighbor be to become a HO candidate

<0-999>

Neighbor's strength difference in dB

default

Use default (3), remove explicit setting on this node

### 1.19.102 handover2 power budget interval (<1-99>|default)

Command

```
handover2 power budget interval (<1-99>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

power

Neighbor cell power triggering

budget

Neighbor cell power triggering

interval
: How often to check for a better cell (SACCH frames)

<1-99>
: Check for stronger neighbor every N number of SACCH frames

default
: Use default (6), remove explicit setting on this node

### 1.19.103 handover2 retries (<0-9>|default)

Command

```
handover2 retries (<0-9>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover2
: Handover options for handover decision algorithm 2

retries
: Number of times to immediately retry a failed handover/assignment, before a penalty time is applied

<0-9>
: Number of retries

default
: Use default (0), remove explicit setting on this node

### 1.19.104 handover2 tdma-measurement (auto|full|subset|default)

Command

```
handover2 tdma-measurement (auto|full|subset|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover2
: Handover options for handover decision algorithm 2

tdma-measurement
: Define measurement set of TDMA frames

auto
: Use full set when DTX is not in use, use subset when DTX is in use, as indicated by each Measurement Report

full
: Full set of 102/104 TDMA frames

subset
: Sub set of 4 TDMA frames (SACCH)

default
: Use default (subset), remove explicit setting on this node

### 1.19.105 handover2 window rxlev averaging (<1-10>|default)

Command

```
handover2 window rxlev averaging (<1-10>|default)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

handover2
: Handover options for handover decision algorithm 2

window
: Measurement averaging settings

rxlev
: Received-Level averaging

averaging
: How many RxLev measurements to use for averaging

<1-10>
: RxLev averaging: Number of values to average over

default
: Use default (10), remove explicit setting on this node

### 1.19.106 handover2 window rxlev neighbor averaging (<1-10>|default)

Command

```
handover2 window rxlev neighbor averaging (<1-10>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

window

Measurement averaging settings

rxlev

Received-Level averaging

neighbor

How many Neighbor RxLev measurements to use for averaging

averaging

How many Neighbor RxLev measurements to use for averaging

<1-10>

Neighbor RxLev averaging: Number of values to average over

default

Use default (10), remove explicit setting on this node

### 1.19.107 handover2 window rxqual averaging (<1-10>|default)

Command

```
handover2 window rxqual averaging (<1-10>|default)
```

Global attributes

Flag: !

This command applies immediately

Parameters

handover2

Handover options for handover decision algorithm 2

window

Measurement averaging settings

rxqual

Received-Quality averaging

averaging

How many RxQual measurements to use for averaging

<1-10>

RxQual averaging: Number of values to average over

default

Use default (1), remove explicit setting on this node

### 1.19.108 immediate-assignment (post-chan-ack|pre-chan-ack|pre-ts-ack)

Command

```
immediate-assignment (post-chan-ack|pre-chan-ack|pre-ts-ack)
```

Global attributes

Flag: !

This command applies immediately

Parameters

immediate-assignment

Configure time of Immediate Assignment after ChanRqd RACH (Abis optimization)

post-chan-ack

Send the Immediate Assignment after the Channel Activation ACK (normal sequence)

pre-chan-ack

Send the Immediate Assignment directly after Channel Activation (early), without waiting for the ACK; This may help with double allocations on high latency Abis links

pre-ts-ack

EXPERIMENTAL: If a dynamic timeslot switch is necessary, send the Immediate Assignment even before the timeslot is switched, i.e. even before the Channel Activation is sent (very early)

### 1.19.109 interference-meas avg-period <1-31>

Command

```
interference-meas avg-period <1-31>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

interference-meas

Interference measurement parameters

avg-period

Averaging period (Intave)

<1-31>

Number of SACCH multiframes

### 1.19.110 interference-meas level-bounds <-120-0> <-120-0> <-120-0> <-120-0> <-120-0> <-12...

Command

```
interference-meas level-bounds <-120-0> <-120-0> <-120-0> <-120-0> <-120-0> <-120-0>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

interference-meas

Interference measurement parameters

level-bounds

Interference level Boundaries. 3GPP do not specify whether these should be in ascending or descending order (3GPP TS 48.058 9.3.21 / 3GPP TS 52.021 9.4.25). OsmoBSC supports either ordering, but possibly some BTS models only return meaningful interference levels with one specific ordering.

<-120-0>

Interference boundary 0 (dBm)

<-120-0>

Interference boundary X1 (dBm)

<-120-0>

Interference boundary X2 (dBm)

<-120-0>

Interference boundary X3 (dBm)

<-120-0>

Interference boundary X4 (dBm)

<-120-0>

Interference boundary X5 (dBm)

### 1.19.111 ipa rsl-ip A.B.C.D

Command

```
ipa rsl-ip A.B.C.D
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

ipa

Abis/IP specific options

rsl-ip

Set the IPA RSL IP Address of the BSC

A.B.C.D

Destination IP address for RSL connection

### 1.19.112 ipa unit-id <0-65534> <0-255>

Command

```
ipa unit-id <0-65534> <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

ipa

Abis/IP specific options

unit-id

Set the IPA BTS Unit ID

<0-65534>

Unit ID (Site)

<0-255>

Unit ID (BTS)

### 1.19.113 is-connection-list (add|del) <0-2047> <0-2047> <0-255>

Command

```
is-connection-list (add|del) <0-2047> <0-2047> <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

is-connection-list

Interface Switch Connection List

add

Add to IS list

del

Delete from IS list

<0-2047>

ICP1

<0-2047>

ICP2

<0-255>

Contiguity Index

### 1.19.114 location_area_code (<0-65535>|<0x0000-0xffff>)

Command

```
location_area_code (<0-65535>|<0x0000-0xffff>)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

location_area_code

Set the Location Area Code (LAC) of this BTS

<0-65535>

LAC in decimal format (default 0, reserved by GSM 04.08)

<0x0000-0xffff>

LAC in hexadecimal format (default 0x0000, reserved by GSM 04.08)

### 1.19.115 mgw pool-target <0-255> [strict]

Command

```
mgw pool-target <0-255> [strict]
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

mgw

MGW configuration for this specific BTS

pool-target

Pin BTS to use a single MGW in the pool

<0-255>

Reference Number of the MGW (in the config) to pin to

[strict]

Strictly prohibit use of other MGWs if the pinned one is not available

### 1.19.116 ms max power <0-40>

Command

```
ms max power <0-40>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

ms

MS Options

max

Maximum transmit power of the MS

power

Maximum transmit power of the MS

<0-40>

Maximum transmit power of the MS in dBm

### 1.19.117 ncc-permitted <1-8> [<1-8>] [<1-8>] [<1-8>] [<1-8>] [<1-8>] [<1-8>]

Command

```
ncc-permitted <1-8> [<1-8>] [<1-8>] [<1-8>] [<1-8>] [<1-8>] [<1-8>]
```

Application specific attributes

Flag: r
This command applies on A-bis RSL link (re)establishment

Parameters

ncc-permitted
Set permitted NCCs

<1-8>
Network Colour Code

[<1-8>]
Network Colour Code

[<1-8>]
Network Colour Code

[<1-8>]
Network Colour Code

[<1-8>]
Network Colour Code

[<1-8>]
Network Colour Code

[<1-8>]
Network Colour Code

### 1.19.118 ncc-permitted all

Command

```
ncc-permitted all
```

Application specific attributes

Flag: r
This command applies on A-bis RSL link (re)establishment

Parameters

ncc-permitted
Set permitted NCCs

all
Permit all NCCs (default)

### 1.19.119 nch-position num-blocks <1-7> first-block <0-6>

Command

```
nch-position num-blocks <1-7> first-block <0-6>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

nch-position

NCH (Notification Channel) position within CCCH

num-blocks

Number of blocks reserved for NCH

<1-7>

Number of blocks reserved for NCH

first-block

First block reserved for NCH

<0-6>

First block reserved for NCH

### 1.19.120 neighbor bts <0-65535>

Command

```
neighbor bts <0-65535>
```

Parameters

neighbor

Manage local and remote-BSS neighbor cells

bts

Add Neighbor cell by local BTS number

<0-65535>

BTS number

### 1.19.121 neighbor cgi <0-999> <0-999> <0-65535> <0-65535>

Command

```
neighbor cgi <0-999> <0-999> <0-65535> <0-65535>
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

cgi
: Add Neighbor cell by cgi

<0-999>
: MCC

<0-999>
: MNC

<0-65535>
: LAC

<0-65535>
: CI

### 1.19.122 neighbor cgi <0-999> <0-999> <0-65535> <0-65535> arfcn <0-1023> bsic (<0-63>|any...

Command

```
neighbor cgi <0-999> <0-999> <0-65535> <0-65535> arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

cgi
: Add Neighbor cell by cgi

<0-999>
: MCC

<0-999>
: MNC

<0-65535>
: LAC

<0-65535>
: CI

arfcn
: ARFCN of neighbor cell

<0-1023>
ARFCN value

bsic
BSIC of neighbor cell

<0-63>
BSIC value

any
for all BSICs / use any BSIC in this ARFCN

### 1.19.123 neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535>

Command

```
neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535>
```

Parameters

neighbor
Manage local and remote-BSS neighbor cells

cgi-ps
Add Neighbor cell by cgi (Packet Switched, with RAC)

<0-999>
MCC

<0-999>
MNC

<0-65535>
LAC

<0-255>
RAC

<0-65535>
CI

### 1.19.124 neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535> arfcn <0-1023> bsic ...

Command

```
neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535> arfcn <0-1023> bsic  ↩
    (<0-63>|any)
```

Parameters

neighbor
Manage local and remote-BSS neighbor cells

cgi-ps
: Add Neighbor cell by cgi (Packet Switched, with RAC)

<0-999>
: MCC

<0-999>
: MNC

<0-65535>
: LAC

<0-255>
: RAC

<0-65535>
: CI

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.19.125 neighbor lac <0-65535>

Command

```
neighbor lac <0-65535>
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

lac
: Add Neighbor cell by LAC

<0-65535>
: LAC

### 1.19.126 neighbor lac <0-65535> arfcn <0-1023> bsic (<0-63>|any)

Command

```
neighbor lac <0-65535> arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

lac
: Add Neighbor cell by LAC

<0-65535>
: LAC

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.19.127 neighbor lac-ci <0-65535> <0-65535>

Command

```
neighbor lac-ci <0-65535> <0-65535>
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

lac-ci
: Add Neighbor cell by LAC and CI

<0-65535>
: LAC

<0-65535>
: CI

### 1.19.128 neighbor lac-ci <0-65535> <0-65535> arfcn <0-1023> bsic (<0-63>|any)

Command

```
neighbor lac-ci <0-65535> <0-65535> arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

neighbor
: Manage local and remote-BSS neighbor cells

lac-ci
: Add Neighbor cell by LAC and CI

<0-65535>
: LAC

<0-65535>
: CI

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.19.129 neighbor-list (add|del) arfcn <0-1023>

Command

```
neighbor-list (add|del) arfcn <0-1023>
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

neighbor-list
: Neighbor List

add
: Add to manual neighbor list

del
: Delete from manual neighbor list

arfcn
: ARFCN of neighbor

<0-1023>
: ARFCN of neighbor

### 1.19.130 neighbor-list mode (automatic|manual|manual-si5)

Command

```
neighbor-list mode (automatic|manual|manual-si5)
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

neighbor-list
: Neighbor List

mode
: Mode of Neighbor List generation

automatic
: Automatically from all BTS in this BSC

manual
: Manual

manual-si5
: Manual with different lists for SI2 and SI5

### 1.19.131 no (bs-power-control|ms-power-control)

Command

```
no (bs-power-control|ms-power-control)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

no
: Negate a command or set its defaults

bs-power-control
: BS (Downlink) power control parameters

ms-power-control
: MS (Uplink) power control parameters

### 1.19.132 no access-control-class-ramping

Command

```
no access-control-class-ramping
```

Global attributes

Flag: !
This command applies immediately

Parameters

no
Negate a command or set its defaults

access-control-class-ramping
Disable Access Control Class ramping

### 1.19.133 no depends-on-bts <0-65535>

Command

```
no depends-on-bts <0-65535>
```

Global attributes

Flag: !
This command applies immediately

Parameters

no
Negate a command or set its defaults

depends-on-bts
This BTS can only be started if another one is up

<0-65535>
BTS Number

### 1.19.134 no description

Command

```
no description
```

Parameters

no
Negate a command or set its defaults

description
Remove description of the object

### 1.19.135 no dtx downlink

Command

```
no dtx downlink
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

dtx

Configure discontinuous transmission

downlink

Disable Downlink DTX for this BTS

### 1.19.136 no dtx uplink

Command

```
no dtx uplink
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

dtx

Configure discontinuous transmission

uplink

Disable Uplink DTX for this BTS

### 1.19.137 no force-combined-si

Command

```
no force-combined-si
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

no

Negate a command or set its defaults

force-combined-si

Force the generation of a single SI (no ter/bis)

### 1.19.138 no gprs control-ack-type-rach

Command

```
no gprs control-ack-type-rach
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

gprs

GPRS Packet Network

control-ack-type-rach

Set GPRS Control Ack Type for PACKET CONTROL ACKNOWLEDGMENT message to default RLC/MAC control block

### 1.19.139 no gprs egprs-packet-channel-request

Command

```
no gprs egprs-packet-channel-request
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

gprs

GPRS Packet Network

egprs-packet-channel-request

EGPRS Packet Channel Request support

### 1.19.140 no gprs nsvc <0-1>

Command

```
no gprs nsvc <0-1>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

no

Negate a command or set its defaults

gprs

GPRS Packet Network

nsvc

Network Service Virtual Connection (NS-VC)

<0-1>

NSVC Logical Number

### 1.19.141 no mgw pool-target

Command

```
no mgw pool-target
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

no

Negate a command or set its defaults

mgw

MGW configuration for this specific BTS

pool-target

Avoid pinning the BTS to any specific MGW (default)

### 1.19.142 no nch-position

Command

```
no nch-position
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

nch-position

Disable NCH in this BTS

### 1.19.143 no neighbor arfcn <0-1023> bsic (<0-63>|any)

Command

```
no neighbor arfcn <0-1023> bsic (<0-63>|any)
```

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

arfcn
: ARFCN of neighbor cell

<0-1023>
: ARFCN value

bsic
: BSIC of neighbor cell

<0-63>
: BSIC value

any
: for all BSICs / use any BSIC in this ARFCN

### 1.19.144 no neighbor bts <0-65535>

Command

```
no neighbor bts <0-65535>
```

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

bts
: Neighbor cell by local BTS number

<0-65535>
: BTS number

### 1.19.145 no neighbor cgi <0-999> <0-999> <0-65535> <0-65535>

Command

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

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

cgi
: Neighbor cell by cgi

<0-999>
: MCC

<0-999>
: MNC

<0-65535>
: LAC

<0-65535>
: CI

### 1.19.146 no neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535>

Command

```
no neighbor cgi-ps <0-999> <0-999> <0-65535> <0-255> <0-65535>
```

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

cgi-ps
: Neighbor cell by cgi (Packet Switched, with RAC)

<0-999>
: MCC

<0-999>
: MNC

<0-65535>
: LAC

<0-255>
: RAC

<0-65535>
: CI

### 1.19.147 no neighbor lac <0-65535>

Command

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

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

lac
: Neighbor cell by LAC

<0-65535>
: LAC

### 1.19.148 no neighbor lac-ci <0-65535> <0-65535>

Command

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

Parameters

no
: Negate a command or set its defaults

neighbor
: Remove local or remote-BSS neighbor cell

lac-ci
: Neighbor cell by LAC and CI

<0-65535>
: LAC

<0-65535>
: CI

### 1.19.149 no neighbors

Command

```
no neighbors
```

Parameters

no
: Negate a command or set its defaults

neighbors
: Remove all local and remote-BSS neighbor config for this cell. Note that this falls back to the legacy behavior of regarding all local cells as neighbors.

### 1.19.150 no overpower dl-acch

Command

```
no overpower dl-acch
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

no

Negate a command or set its defaults

overpower

Temporary ACCH overpower

dl-acch

Disable ACCH overpower for this BTS

### 1.19.151 no repeat (ul-sacch|dl-sacch)

Command

```
no repeat (ul-sacch|dl-sacch)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

no

Negate a command or set its defaults

repeat

FACCH/SACCH repetition

ul-sacch

Disable UL-SACCH repetition for this BTS

dl-sacch

Disable DL-SACCH repetition for this BTS

### 1.19.152 no repeat dl-facch

Command

```
no repeat dl-facch
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

no

Negate a command or set its defaults

repeat

FACCH/SACCH repetition

dl-facch

Disable DL-FACCH repetition for this BTS

### 1.19.153 no rf-lock-exclude

Command

```
no rf-lock-exclude
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

rf-lock-exclude

Exclude this BTS from the global RF Lock

### 1.19.154 no system-information unused-send-empty

Command

```
no system-information unused-send-empty
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

no

Negate a command or set its defaults

system-information

System Information Messages

unused-send-empty

Avoid sending BCCH Info with empty 'Full BCCH Info' TLV to notify disabled SI. Some nanoBTS fw versions are known to fail upon receival of these messages.

### 1.19.155 no timer-dynamic TNNNN

Command

```
no timer-dynamic TNNNN
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

timer-dynamic

Set given timer to non-dynamic and use the default or user provided fixed value

TNNNN

T-number, optionally preceded by 't' or 'T'

### 1.19.156 nokia_site bts-reset-timer <15-100>

Command

```
nokia_site bts-reset-timer <15-100>
```

Global attributes

Flag: !

This command applies immediately

Parameters

nokia_site

Nokia *Site related commands

bts-reset-timer

The amount of time between BTS_RESET is sent and the BTS is being bootstrapped

<15-100>

Timer value (in seconds, default 15)

### 1.19.157 nokia_site hopping-mode (baseband|synthesizer)

Command

```
nokia_site hopping-mode (baseband|synthesizer)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

nokia_site

Nokia *Site related commands

hopping-mode

Sets the hopping type for Nokia *Site

baseband

Baseband (BB) hopping

synthesizer

Synthesizer (RF) hopping

### 1.19.158 nokia_site no-local-rel-conf (0|1)

Command

```
nokia_site no-local-rel-conf (0|1)
```

Global attributes

Flag: !

This command applies immediately

Parameters

nokia_site

Nokia *Site related commands

no-local-rel-conf

Do not wait for RELease CONFirm message when releasing channel locally

0

Wait for RELease CONFirm

1

Do not wait for RELease CONFirm

### 1.19.159 nokia_site skip-reset (0|1)

Command

```
nokia_site skip-reset (0|1)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

nokia_site

Nokia *Site related commands

skip-reset

Skip the reset step during bootstrap process of this BTS

0

Do NOT skip the reset

1

Skip the reset

### 1.19.160 om2000 sync-source (internal|external)

Command

```
om2000 sync-source (internal|external)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

om2000

Configure OM2K specific parameters

sync-source

TF Synchronization Source

internal

Use Internal (E1)

external

USe External (GPS)

### 1.19.161 om2000 version-limit (oml|rsl) gen <0-99> rev <0-99>

Command

```
om2000 version-limit (oml|rsl) gen <0-99> rev <0-99>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

om2000

Configure OM2K specific parameters

version-limit

Configure optional maximum protocol version to negotiate

oml

Limit OML IWD version

rsl

Limit RSL IWD version

gen

Generation limit

<0-99>

Generation number to limit to (inclusive)

rev

Revision limit

<0-99>

Revision number to limit to (inclusive)

### 1.19.162 oml e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)

Command

```
oml e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)
```

Parameters

oml

Organization & Maintenance Link

e1

OML E1/T1 Configuration

line

E1/T1 line number to be used for OML

E1_LINE
: E1/T1 line number to be used for OML

timeslot
: E1/T1 timeslot to be used for OML

<1-31>
: E1/T1 timeslot to be used for OML

sub-slot
: E1/T1 sub-slot to be used for OML

0
: Use E1/T1 sub-slot 0

1
: Use E1/T1 sub-slot 1

2
: Use E1/T1 sub-slot 2

3
: Use E1/T1 sub-slot 3

full
: Use full E1 slot 3

### 1.19.163 oml e1 tei <0-63>

Command

```
oml e1 tei <0-63>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

oml
: Organization & Maintenance Link

e1
: OML E1/T1 Configuration

tei
: Set the TEI to be used for OML

<0-63>
: TEI Number

### 1.19.164 oml ipa stream-id <0-255> line E1_LINE

Command

```
oml ipa stream-id <0-255> line E1_LINE
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

oml

Organization & Maintenance Link

ipa

A-bis/IP Specific Options

stream-id

Set the ipa Stream ID of the OML link of this BTS

<0-255>

Stream Identifier

line

Virtual E1 Line Number

E1_LINE

Virtual E1 Line Number

### 1.19.165 osmux (on|off|only)

Command

```
osmux (on|off|only)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

osmux

RTP multiplexing

on

Enable OSMUX

off

Disable OSMUX

only

Only use OSMUX

### 1.19.166 overpower (dl-acch|dl-sacch|dl-facch) <1-4>

Command

```
overpower (dl-acch|dl-sacch|dl-facch) <1-4>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

overpower

Temporary ACCH overpower

dl-acch

Enable overpower for both SACCH and FACCH

dl-sacch

Enable overpower for SACCH only

dl-facch

Enable overpower for FACCH only

<1-4>

Overpower value in dB

### 1.19.167 overpower chan-mode (speech-amr|any)

Command

```
overpower chan-mode (speech-amr|any)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

overpower

Temporary ACCH overpower

chan-mode

Allow temporary overpower for specific Channel mode(s)

speech-amr

Speech channels using AMR codec (default)

any

Any kind of channel mode

### 1.19.168 overpower rxqual (0|1|2|3|4|5|6|7)

Command

```
overpower rxqual (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

overpower

Temporary ACCH overpower

rxqual

Set RxQual (BER) threshold (default 4)

0

BER >= 0% (always on)

1

BER >= 0.2%

2

BER >= 0.4%

3

BER >= 0.8%

4

BER >= 1.6% (default)

5

BER >= 3.2%

6

BER >= 6.4%

7

BER >= 12.8%

### 1.19.169 paging free <-1-1024>

Command

```
paging free <-1-1024>
```

Global attributes

Flag: !

This command applies immediately

Parameters

paging
: Paging options

free
: Only page when having a certain amount of free slots

<-1-1024>
: amount of required free paging slots. -1 to disable

### 1.19.170 penalty time <20-620>

Command

```
penalty time <20-620>
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

penalty
: Cell selection penalty time

time
: Cell selection penalty time

<20-620>
: Cell selection penalty time in seconds (by 20s increments)

### 1.19.171 penalty time reserved

Command

```
penalty time reserved
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

penalty
: Cell selection penalty time

time
: Cell selection penalty time

reserved
: Set cell selection penalty time to reserved value 31, (indicate that CELL_RESELECT_OFFSET is subtracted from C2 and TEMPORARY_OFFSET is ignored)

### 1.19.172 rach access-control-class (0|1|2|3|4|5|6|7|8|9|11|12|13|14|15) (barred|allowed)

Command

```
rach access-control-class (0|1|2|3|4|5|6|7|8|9|11|12|13|14|15) (barred|allowed)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

rach

Random Access Control Channel

access-control-class

Set access control class

0

Access control class 0

1

Access control class 1

2

Access control class 2

3

Access control class 3

4

Access control class 4

5

Access control class 5

6

Access control class 6

7

Access control class 7

8

Access control class 8

9

Access control class 9

11

Access control class 11 for PLMN use

12

Access control class 12 for security services

13
: Access control class 13 for public utilities (e.g. water/gas suppliers)

14
: Access control class 14 for emergency services

15
: Access control class 15 for PLMN staff

barred
: barred to use access control class

allowed
: allowed to use access control class

### 1.19.173 rach call-reestablishment allowed (0|1)

Command

```
rach call-reestablishment allowed (0|1)
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

rach
: Random Access Control Channel

call-reestablishment
: Resume calls after radio link failure

allowed
: Resume calls after radio link failure

0
: Forbid MS to reestablish calls

1
: Allow MS to try to reestablish calls

### 1.19.174 rach emergency call allowed (0|1)

Command

```
rach emergency call allowed (0|1)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

rach

Random Access Control Channel

emergency

Should this cell allow emergency calls?

call

Should this cell allow emergency calls?

allowed

Should this cell allow emergency calls?

0

Do NOT allow emergency calls

1

Allow emergency calls

### 1.19.175 rach expiry-timeout <4-64>

Command

```
rach expiry-timeout <4-64>
```

Global attributes

Flag: !

This command applies immediately

Parameters

rach

Random Access Control Channel

expiry-timeout

Set the timeout for channel requests expiry

<4-64>

Maximum timeout before dropping channel requests

### 1.19.176 rach max transmission (1|2|4|7)

Command

```
rach max transmission (1|2|4|7)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

rach

Random Access Control Channel

max

Set the maximum number of RACH burst transmissions

transmission

Set the maximum number of RACH burst transmissions

1

Maximum number of 1 RACH burst transmissions

2

Maximum number of 2 RACH burst transmissions

4

Maximum number of 4 RACH burst transmissions

7

Maximum number of 7 RACH burst transmissions

### 1.19.177 rach max-delay <1-127>

Command

```
rach max-delay <1-127>
```

Global attributes

Flag: !

This command applies immediately

Parameters

rach

Random Access Control Channel

max-delay

Set the max Access Delay IE value to accept in CHANnel ReQuireD

<1-127>

Maximum Access Delay IE value to accept in CHANnel ReQuireD

### 1.19.178 rach nm busy threshold <0-255>

Command

```
rach nm busy threshold <0-255>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

rach

Random Access Control Channel

nm

Network Management

busy

Set the NM Busy Threshold

threshold

Set the NM Busy Threshold

<0-255>

NM Busy Threshold in dB

### 1.19.179 rach nm load average <0-65535>

Command

```
rach nm load average <0-65535>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

rach

Random Access Control Channel

nm

Network Management

load

Set the NM Loadaverage Slots value

average

Set the NM Loadaverage Slots value

<0-65535>

NM Loadaverage Slots value

### 1.19.180 rach tx integer <0-15>

Command

```
rach tx integer <0-15>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

rach

Random Access Control Channel

tx

Set the raw tx integer value in RACH Control parameters IE

integer

Set the raw tx integer value in RACH Control parameters IE

<0-15>

Raw tx integer value in RACH Control parameters IE

### 1.19.181 radio-link-timeout <4-64>

Command

```
radio-link-timeout <4-64>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

radio-link-timeout

Radio link timeout criterion (BTS side)

<4-64>

Radio link timeout value (lost SACCH block)

### 1.19.182 radio-link-timeout infinite

Command

```
radio-link-timeout infinite
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

radio-link-timeout

Radio link timeout criterion (BTS side)

infinite

Infinite Radio link timeout value (use only for BTS RF testing)

### 1.19.183 repeat (ul-sacch|dl-sacch)

Command

```
repeat (ul-sacch|dl-sacch)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

repeat

FACCH/SACCH repetition

ul-sacch

Enable UL-SACCH repetition for this BTS

dl-sacch

Enable DL-SACCH repetition for this BTS

### 1.19.184 repeat dl-facch (command|all)

Command

```
repeat dl-facch (command|all)
```

Application specific attributes

Flag: l
This command applies for newly created lchans

Parameters

repeat
FACCH/SACCH repetition

dl-facch
Enable DL-FACCH repetition for this BTS

command
command LAPDm frames only

all
all LAPDm frames

### 1.19.185 repeat rxqual (0|1|2|3|4|5|6|7)

Command

```
repeat rxqual (0|1|2|3|4|5|6|7)
```

Application specific attributes

Flag: l
This command applies for newly created lchans

Parameters

repeat
FACCH/SACCH repetition

rxqual
Set RxQual (BER) threshold (default 4)

0
BER >= 0% (always on)

1
BER >= 0.2%

2
BER >= 0.4%

3
BER >= 0.8%

4
BER >= 1.6% (default)

5
BER >= 3.2%

6
BER >= 6.4%

7
BER >= 12.8%

### 1.19.186 rf-lock-exclude

Command

```
rf-lock-exclude
```

Global attributes

Flag: !

This command applies immediately

Parameters

rf-lock-exclude

Exclude this BTS from the global RF Lock

### 1.19.187 rxlev access min <0-63>

Command

```
rxlev access min <0-63>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

rxlev

Minimum RxLev needed for cell access

access

Minimum RxLev needed for cell access

min

Minimum RxLev needed for cell access

<0-63>

Minimum RxLev needed for cell access (better than -110dBm)

### 1.19.188 si2quater neighbor-list add earfcn <0-65535> thresh-hi <0-31> thresh-lo <0-32> p...

Command

```
si2quater neighbor-list add earfcn <0-65535> thresh-hi <0-31> thresh-lo <0-32> prio ↩
    <0-8> qrxlv <0-32> meas <0-8>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

si2quater

SI2quater Neighbor List

neighbor-list

SI2quater Neighbor List

add

Add to manual SI2quater neighbor list

earfcn

EARFCN of neighbor

<0-65535>

EARFCN of neighbor

thresh-hi

threshold high bits

<0-31>

threshold high bits

thresh-lo

threshold low bits

<0-32>

threshold low bits (32 means NA)

prio

priority

<0-8>

priority (8 means NA)

qrxlv

QRXLEVMIN

<0-32>

QRXLEVMIN (32 means NA)

meas

measurement bandwidth

<0-8>

measurement bandwidth (8 means NA)

### 1.19.189 si2quater neighbor-list add uarfcn <0-16383> <0-511> <0-1>

Command

```
si2quater neighbor-list add uarfcn <0-16383> <0-511> <0-1>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

si2quater

SI2quater Neighbor List

neighbor-list

SI2quater Neighbor List

add

Add to manual SI2quater neighbor list

uarfcn

UARFCN of neighbor

<0-16383>

UARFCN of neighbor

<0-511>

scrambling code

<0-1>

diversity bit

### 1.19.190 si2quater neighbor-list del earfcn <0-65535>

Command

```
si2quater neighbor-list del earfcn <0-65535>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

si2quater

SI2quater Neighbor List

neighbor-list

SI2quater Neighbor List

del
: Delete from SI2quater manual neighbor list

earfcn
: EARFCN of neighbor

<0-65535>
: EARFCN

### 1.19.191 si2quater neighbor-list del uarfcn <0-16383> <0-511>

Command

```
si2quater neighbor-list del uarfcn <0-16383> <0-511>
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

si2quater
: SI2quater Neighbor List

neighbor-list
: SI2quater Neighbor List

del
: Delete from SI2quater manual neighbor list

uarfcn
: UARFCN of neighbor

<0-16383>
: UARFCN

<0-511>
: scrambling code

### 1.19.192 si5 neighbor-list (add|del) arfcn <0-1023>

Command

```
si5 neighbor-list (add|del) arfcn <0-1023>
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

si5
: SI5 Neighbor List

neighbor-list
: SI5 Neighbor List

add
: Add to manual SI5 neighbor list

del
: Delete from SI5 manual neighbor list

arfcn
: ARFCN of neighbor

<0-1023>
: ARFCN of neighbor

### 1.19.193 srvcc fast-return (allow|forbid)

Command

```
srvcc fast-return (allow|forbid)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

srvcc
: SRVCC Configuration

fast-return
: Allow or forbid Fast Return to 4G on Channel Release in this BTS

allow
: Allow

forbid
: Forbid

### 1.19.194 system-information (1|2|3|4|5|6|7|8|9|10|13|16|17|18|19|20|2bis|2ter|2quater|5bi...

Command

```
system-information (1|2|3|4|5|6|7|8|9|10|13|16|17|18|19|20|2bis|2ter|2quater|5bis|5ter) ↩
    mode (static|computed)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

system-information

System Information Messages

1

System Information Type 1

2

System Information Type 2

3

System Information Type 3

4

System Information Type 4

5

System Information Type 5

6

System Information Type 6

7

System Information Type 7

8

System Information Type 8

9

System Information Type 9

10

System Information Type 10

13

System Information Type 13

16

System Information Type 16

17

System Information Type 17

18
: System Information Type 18

19
: System Information Type 19

20
: System Information Type 20

2bis
: System Information Type 2bis

2ter
: System Information Type 2ter

2quater
: System Information Type 2quater

5bis
: System Information Type 5bis

5ter
: System Information Type 5ter

mode
: System Information Mode

static
: Static user-specified

computed
: Dynamic, BSC-computed

### 1.19.195 system-information (1|2|3|4|5|6|7|8|9|10|13|16|17|18|19|20|2bis|2ter|2quater|5bi...

Command

```
system-information (1|2|3|4|5|6|7|8|9|10|13|16|17|18|19|20|2bis|2ter|2quater|5bis|5ter) ↩
    static HEXSTRING
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

system-information
: System Information Messages

1
: System Information Type 1

2
: System Information Type 2

3
: System Information Type 3

4
: System Information Type 4

5
: System Information Type 5

6
: System Information Type 6

7
: System Information Type 7

8
: System Information Type 8

9
: System Information Type 9

10
: System Information Type 10

13
: System Information Type 13

16
: System Information Type 16

17
: System Information Type 17

18
: System Information Type 18

19
: System Information Type 19

20
: System Information Type 20

2bis
: System Information Type 2bis

2ter
: System Information Type 2ter

2quater
: System Information Type 2quater

5bis
: System Information Type 5bis

5ter

System Information Type 5ter

static

Static System Information filling

HEXSTRING

Static user-specified SI content in HEX notation

### 1.19.196 system-information unused-send-empty

Command

```
system-information unused-send-empty
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

system-information

System Information Messages

unused-send-empty

Send BCCH Info with empty 'Full BCCH Info' TLV to notify disabled SI. Some nanoBTS fw versions are known to fail upon receival of these messages.

### 1.19.197 temporary offset <0-60>

Command

```
temporary offset <0-60>
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

temporary

Cell selection temporary negative offset

offset

Cell selection temporary negative offset

<0-60>

Cell selection temporary negative offset in dB

### 1.19.198 temporary offset infinite

Command

```
temporary offset infinite
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

temporary

Cell selection temporary negative offset

offset

Cell selection temporary negative offset

infinite

Sets cell selection temporary negative offset to infinity

### 1.19.199 timer-dynamic TNNNN

Command

```
timer-dynamic TNNNN
```

Global attributes

Flag: !

This command applies immediately

Parameters

timer-dynamic

Calculate T3113 dynamically based on channel config and load (default)

TNNNN

T-number, optionally preceded by 't' or 'T'

### 1.19.200 trx <0-255>

Command

```
trx <0-255>
```

Global attributes

Flag: !

This command applies immediately

Parameters

trx

Radio Transceiver

<0-255>

Select a TRX to configure

### 1.19.201 type (unknown|bs11|nanobts|rbs2000|nokia_site|osmo-bts)

Command

```
type (unknown|bs11|nanobts|rbs2000|nokia_site|osmo-bts)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

type

BTS Vendor/Type

unknown

Unknown BTS Type

bs11

Siemens BTS (BS-11 or compatible)

nanobts

ip.access nanoBTS or compatible

rbs2000

Ericsson RBS2000 Series

nokia_site

Nokia {Metro,Ultra,In}Site

osmo-bts

Osmocom Base Transceiver Station

## 1.20 config-net-bts-trx

### 1.20.1 arfcn <0-1023>

Command

```
arfcn <0-1023>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

arfcn

Set the ARFCN for this TRX

<0-1023>

Absolute Radio Frequency Channel Number

### 1.20.2 description .TEXT

Command

```
description .TEXT
```

Parameters

description

Save human-readable description of the object

.TEXT

Text until the end of the line

### 1.20.3 max_power_red <0-100>

Command

```
max_power_red <0-100>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

max_power_red

Reduction of maximum BS RF Power (relative to nominal power)

<0-100>

Reduction of maximum BS RF Power in dB

### 1.20.4 no description

Command

```
no description
```

Parameters

no
: Negate a command or set its defaults

description
: Remove description of the object

### 1.20.5 nominal power <-20-100>

Command

```
nominal power <-20-100>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

nominal
: Nominal TRX RF Power in dBm

power
: Nominal TRX RF Power in dBm

<-20-100>
: Nominal TRX RF Power in dBm

### 1.20.6 om2000 rx-diversity-mode (a|ab|b)

Command

```
om2000 rx-diversity-mode (a|ab|b)
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

om2000
: Configure OM2K specific parameters

rx-diversity-mode
: RX Diversity

a
: Antenna TX/RX (A)

ab
: Both Antennas

b
: Antenna RX (B)

### 1.20.7 rf_locked (0|1)

Command

```
rf_locked (0|1)
```

Global attributes

Flag: !
: This command applies immediately

Parameters

rf_locked
: Set or unset the RF Locking (Turn off RF of the TRX)

0
: TRX is NOT RF locked (active)

1
: TRX is RF locked (turned off)

### 1.20.8 rsl e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)

Command

```
rsl e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)
```

Parameters

rsl
: RSL Parameters

e1
: E1/T1 interface to be used for RSL

line
: E1/T1 interface to be used for RSL

E1_LINE
: E1/T1 Line Number to be used for RSL

timeslot
: E1/T1 Timeslot to be used for RSL

<1-31>
: E1/T1 Timeslot to be used for RSL

sub-slot
: E1/T1 Sub-slot to be used for RSL

0
: E1/T1 Sub-slot 0 is to be used for RSL

1
: E1/T1 Sub-slot 1 is to be used for RSL

2
: E1/T1 Sub-slot 2 is to be used for RSL

3
: E1/T1 Sub-slot 3 is to be used for RSL

full
: E1/T1 full timeslot is to be used for RSL

### 1.20.9 rsl e1 tei <0-63>

Command

```
rsl e1 tei <0-63>
```

Application specific attributes

Flag: r
: This command applies on A-bis RSL link (re)establishment

Parameters

rsl
: RSL Parameters

e1
: Set the TEI to be used for RSL

tei
: Set the TEI to be used for RSL

<0-63>
: TEI to be used for RSL

### 1.20.10 timeslot <0-7>

Command

```
timeslot <0-7>
```

Global attributes

Flag: !

This command applies immediately

Parameters

timeslot

Select a Timeslot to configure

<0-7>

Timeslot number

## 1.21 config-net-bts-trx-ts

### 1.21.1 e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)

Command

```
e1 line E1_LINE timeslot <1-31> sub-slot (0|1|2|3|full)
```

Global attributes

Flag: !

This command applies immediately

Parameters

e1

E1/T1 channel connected to this on-air timeslot

line

E1/T1 channel connected to this on-air timeslot

E1_LINE

E1/T1 line connected to this on-air timeslot

timeslot

E1/T1 timeslot connected to this on-air timeslot

<1-31>

E1/T1 timeslot connected to this on-air timeslot

sub-slot

E1/T1 sub-slot connected to this on-air timeslot

0
: E1/T1 sub-slot 0 connected to this on-air timeslot

1
: E1/T1 sub-slot 1 connected to this on-air timeslot

2
: E1/T1 sub-slot 2 connected to this on-air timeslot

3
: E1/T1 sub-slot 3 connected to this on-air timeslot

full
: Full E1/T1 timeslot connected to this on-air timeslot

### 1.21.2 hopping arfcn add <0-1023>

Command

```
hopping arfcn add <0-1023>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

arfcn
: Configure hopping ARFCN list

add
: Add an entry to the hopping ARFCN list

<0-1023>
: ARFCN

### 1.21.3 hopping arfcn del <0-1023>

Command

```
hopping arfcn del <0-1023>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

arfcn
: Configure hopping ARFCN list

del
: Delete an entry to the hopping ARFCN list

<0-1023>
: ARFCN

### 1.21.4 hopping arfcn del-all

Command

```
hopping arfcn del-all
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

arfcn
: Configure hopping ARFCN list

del-all
: Delete all previously configured entries

### 1.21.5 hopping enabled (0|1)

Command

```
hopping enabled (0|1)
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

enabled
: Enable or disable frequency hopping

0
: Disable frequency hopping

1
: Enable frequency hopping

### 1.21.6 hopping maio <0-63>

Command

```
hopping maio <0-63>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

maio
: Which hopping MAIO to use for this channel

<0-63>
: Mobile Allocation Index Offset (MAIO)

### 1.21.7 hopping sequence-number <0-63>

Command

```
hopping sequence-number <0-63>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

hopping
: Configure frequency hopping

sequence-number
: Which hopping sequence to use for this channel

<0-63>
: Hopping Sequence Number (HSN)

### 1.21.8 phys_chan_config (none|ccch|ccch+sdcch4|tch/f|tch/h|sdcch8|pdch|dynamic/ipaccess...

Command

```
phys_chan_config (none|ccch|ccch+sdcch4|tch/f|tch/h|sdcch8|pdch|dynamic/ipaccess| ↩
    unknown|ccch+sdcch4+cbch|sdcch8+cbch|dynamic/osmocom|tch/f_pdch|tch/f_tch/ ↩
    h_sdcch8_pdch)
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

phys_chan_config

Physical Channel Combination

none

Physical Channel not configured

ccch

FCCH + SCH + BCCH + CCCH (Comb. IV)

ccch+sdcch4

FCCH + SCH + BCCH + CCCH + 4 SDCCH + 2 SACCH (Comb. V)

tch/f

TCH/F + FACCH/F + SACCH (Comb. I)

tch/h

2 TCH/H + 2 FACCH/H + 2 SACCH (Comb. II)

sdcch8

8 SDCCH + 4 SACCH (Comb. VII)

pdch

Packet Data Channel for GPRS/EDGE

dynamic/ipaccess

Dynamic TCH/F or GPRS PDCH (dynamic/ipaccess is an alias for tch/f_pdch)

unknown

Unknown / Unsupported channel combination

ccch+sdcch4+cbch

FCCH + SCH + BCCH + CCCH + CBCH + 3 SDCCH + 2 SACCH (Comb. V)

sdcch8+cbch

7 SDCCH + 4 SACCH + CBCH (Comb. VII)

dynamic/osmocom

Dynamic TCH/F or TCH/H or SDCCH/8 or GPRS PDCH (dynamic/osmocom is an alias for tch/f_tch/h_sdcch8_pdch)

tch/f_pdch

Dynamic TCH/F or GPRS PDCH (dynamic/ipaccess is an alias for tch/f_pdch)

tch/f_tch/h_sdcch8_pdch

Dynamic TCH/F or TCH/H or SDCCH/8 or GPRS PDCH (dynamic/osmocom is an alias for tch/f_tch/h_sdcch8_pdch)

### 1.21.9 training_sequence_code <0-7>

Command

```
training_sequence_code <0-7>
```

Application specific attributes

Flag: o
This command applies on A-bis OML link (re)establishment

Parameters

training_sequence_code
Training Sequence Code of the Timeslot

<0-7>
TSC

## 1.22 oml

### 1.22.1 change-adm-state (locked|unlocked|shutdown|null)

Command

```
change-adm-state (locked|unlocked|shutdown|null)
```

Parameters

change-adm-state
Change the Administrative State

locked
Locked

unlocked
Unlocked

shutdown
Shutdown

null
NULL

### 1.22.2 opstart

Command

```
opstart
```

Parameters

opstart
Send an OPSTART message to the object

## 1.23 config-msc

This node allows to configure the MSC connection related settings.

### 1.23.1 allow-attach

Command

```
allow-attach
```

Global attributes

Flag: !

This command applies immediately

Parameters

allow-attach

Allow this MSC to attach new subscribers (default).

### 1.23.2 allow-emergency (allow|deny)

Command

```
allow-emergency (allow|deny)
```

Global attributes

Flag: !

This command applies immediately

Parameters

allow-emergency

Allow CM ServiceRequests with type emergency

allow

Allow

deny

Deny

### 1.23.3 amr-config 10_2k (allowed|forbidden)

Command

```
amr-config 10_2k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

10_2k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.4 amr-config 12_2k (allowed|forbidden)

Command

```
amr-config 12_2k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

12_2k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.5 amr-config 4_75k (allowed|forbidden)

Command

```
amr-config 4_75k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

4_75k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.6 amr-config 5_15k (allowed|forbidden)

Command

```
amr-config 5_15k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

5_15k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.7 amr-config 5_90k (allowed|forbidden)

Command

```
amr-config 5_90k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

5_90k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.8 amr-config 6_70k (allowed|forbidden)

Command

```
amr-config 6_70k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

6_70k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.9 amr-config 7_40k (allowed|forbidden)

Command

```
amr-config 7_40k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

7_40k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.10 amr-config 7_95k (allowed|forbidden)

Command

```
amr-config 7_95k (allowed|forbidden)
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

amr-config

AMR Multirate Configuration

7_95k

Bitrate

allowed

Allowed

forbidden

Forbidden

### 1.23.11 amr-payload (octet-aligned|bandwidth-efficient)

Command

```
amr-payload (octet-aligned|bandwidth-efficient)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

amr-payload

Set AMR payload framing mode

octet-aligned

payload fields aligned on octet boundaries

bandwidth-efficient

payload fields packed (AoIP)

### 1.23.12 asp-protocol (m3ua|sua|ipa)

Command

```
asp-protocol (m3ua|sua|ipa)
```

Parameters

asp-protocol

A interface protocol to use for this MSC)

m3ua

MTP3 User Adaptation

sua

SCCP User Adaptation

ipa

IPA Multiplex (SCCP Lite)

### 1.23.13 bsc-addr NAME

Command

```
bsc-addr NAME
```

Parameters

bsc-addr

Calling Address (local address of this BSC)

NAME

SCCP address name

### 1.23.14 codec-list .LIST

Command

```
codec-list .LIST
```

Application specific attributes

Flag: r

This command applies on A-bis RSL link (re)establishment

Parameters

codec-list

Set the allowed audio codecs and their order of preference

.LIST

List of audio codecs in order of preference, e.g. 'codec-list fr3 fr2 fr1 hr3 hr1'. (fr3: AMR-FR, hr3: AMR-HR, fr2: GSM-EFR, fr1: GSM-FR, hr1: GSM-HR)

### 1.23.15 core-mobile-country-code <1-999>

Command

```
core-mobile-country-code <1-999>
```

Global attributes

Flag: !

This command applies immediately

Parameters

core-mobile-country-code

Use this country code for the core network

<1-999>

MCC value

### 1.23.16 core-mobile-network-code <1-999>

Command

```
core-mobile-network-code <1-999>
```

Global attributes

Flag: !

This command applies immediately

Parameters

core-mobile-network-code

Use this network code for the core network

<1-999>

MNC value

### 1.23.17 keepalive request-endpoint NAME

Command

```
keepalive request-endpoint NAME
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

request-endpoint
: Use a given endpoint name when sending an MGCP command to the MGW for keepalive purposes

NAME
: The name of the endpoint to use

### 1.23.18 keepalive request-interval <0-4294967295>

Command

```
keepalive request-interval <0-4294967295>
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

request-interval
: Send an MGCP command to the MGW at given interval if no other commands are sent

<0-4294967295>
: The interval at which send MGCP commands (s), 0 to disable

### 1.23.19 keepalive timeout <0-4294967295>

Command

```
keepalive timeout <0-4294967295>
```

Parameters

keepalive
: Monitor if the MGCP link against MGW is still usable

timeout
: Consider the link to the MGW to be down after time without receiving any message from it

<0-4294967295>
: The timeout (s), 0 to disable

### 1.23.20 lcls-codec-mismatch (allowed|forbidden)

Command

```
lcls-codec-mismatch (allowed|forbidden)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

lcls-codec-mismatch

Allow 3GPP LCLS (Local Call, Local Switch) when call legs use different codec/rate

allowed

Allow LCLS only only for calls that use the same codec/rate on both legs

forbidden

Do not Allow LCLS for calls that use a different codec/rate on both legs

### 1.23.21 lcls-mode (disabled|mgw-loop|bts-loop)

Command

```
lcls-mode (disabled|mgw-loop|bts-loop)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

lcls-mode

Configure 3GPP LCLS (Local Call, Local Switch)

disabled

Disable LCLS for all calls of this MSC

mgw-loop

Enable LCLS with looping traffic in MGW

bts-loop

Enable LCLS with looping traffic between BTS

### 1.23.22 mgw x-osmo-ign call-id

Command

```
mgw x-osmo-ign call-id
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

mgw

Configure MGCP connection to Media Gateway

x-osmo-ign

Set a (non-standard) X-Osmo-IGN header in all CRCX messages for RTP streams associated with this MSC, useful for A/SCCPlite MSCs, since osmo-bsc cannot know the MSC's chosen CallID. This is enabled by default for A/SCCPlite connections, disabled by default for all others.

call-id

Send 'X-Osmo-IGN: C' to ignore CallID mismatches. See OsmoMGW.

### 1.23.23 msc-addr NAME

Command

```
msc-addr NAME
```

Parameters

msc-addr

Called Address (remote address of the MSC)

NAME

SCCP address name

### 1.23.24 no allow-attach

Command

```
no allow-attach
```

Global attributes

Flag: !

This command applies immediately

Parameters

no
: Negate a command or set its defaults

allow-attach
: Do not assign new subscribers to this MSC. Useful if an MSC in an MSC pool is configured to off-load subscribers. The MSC will still be operational for already IMSI-Attached subscribers, but the NAS node selection function will skip this MSC for new subscribers

### 1.23.25 no mgw x-osmo-ign

Command

```
no mgw x-osmo-ign
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

no
: Negate a command or set its defaults

mgw
: Configure MGCP connection to Media Gateway

x-osmo-ign
: Do not send X-Osmo-IGN MGCP header to this MSC

### 1.23.26 nri add <0-32767> [<0-32767>]

Command

```
nri add <0-32767> [<0-32767>]
```

Global attributes

Flag: !
: This command applies immediately

Parameters

nri
: Mapping of Network Resource Indicators, for MSC pooling

add
: Add NRI value or range to the NRI mapping for this MSC

<0-32767>
: First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]
: Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.23.27 nri del <0-32767> [<0-32767>]

Command

```
nri del <0-32767> [<0-32767>]
```

Global attributes

Flag: !

This command applies immediately

Parameters

nri

Mapping of Network Resource Indicators, for MSC pooling

del

Remove NRI value or range from the NRI mapping for this MSC

<0-32767>

First value of the NRI value range, should not surpass the configured 'nri bitlen'.

[<0-32767>]

Last value of the NRI value range, should not surpass the configured 'nri bitlen' and be larger than the first value; if omitted, apply only the first value.

### 1.23.28 osmux (on|off|only)

Command

```
osmux (on|off|only)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

osmux

RTP multiplexing

on

Enable OSMUX

off

Disable OSMUX

only

Only use OSMUX

### 1.23.29 show nri

Command

```
show nri
```

Parameters

show
: Show running system information

nri
: Mapping of Network Resource Indicators, for MSC pooling

## 1.24 om2k

### 1.24.1 arbitrary <0-65535> [HEXSTRING]

Command

```
arbitrary <0-65535> [HEXSTRING]
```

Parameters

arbitrary
: Send arbitrary OM2k message

<0-65535>
: Command identifier

[HEXSTRING]
: Hex Encoded payload

### 1.24.2 capabilities-request

Command

```
capabilities-request
```

Parameters

capabilities-request
: Request MO capabilities

### 1.24.3 configuration-request

Command

```
configuration-request
```

Parameters

configuration-request
: Send the configuration request for current MO

### 1.24.4 connect-command

Command

```
connect-command
```

Parameters

connect-command
: Connect the MO

### 1.24.5 disable-request

Command

```
disable-request
```

Parameters

disable-request
: Disable the MO

### 1.24.6 disconnect-command

Command

```
disconnect-command
```

Parameters

disconnect-command
: Disconnect the MO

### 1.24.7 enable-request

Command

```
enable-request
```

Parameters

enable-request
Enable the MO

### 1.24.8 operational-info <0-1>

Command

```
operational-info <0-1>
```

Parameters

operational-info
Set operational information

<0-1>
Set operational info to 0 or 1

### 1.24.9 reset-command

Command

```
reset-command
```

Parameters

reset-command
Reset the MO

### 1.24.10 start-request

Command

```
start-request
```

Parameters

start-request
Start the MO

### 1.24.11 status-request

Command

```
status-request
```

Parameters

status-request
: Get the MO Status

### 1.24.12 test-request

Command

```
test-request
```

Parameters

test-request
: Test the MO

## 1.25 om2k-con-group

### 1.25.1 con-path (add|del) <0-2047> <0-255> concentrated <1-16>

Command

```
con-path (add|del) <0-2047> <0-255> concentrated <1-16>
```

Application specific attributes

Flag: o
: This command applies on A-bis OML link (re)establishment

Parameters

con-path
: CON Path (In/Out)

add
: Add CON Path to Concentration Group

del
: Delete CON Path from Concentration Group

<0-2047>
: CON Connection Point

<0-255>
: Contiguity Index

concentrated
: Concentrated in/outlet

<1-16>
: Tag Number

### 1.25.2 con-path (add|del) <0-2047> <0-255> deconcentrated <0-63>

Command

```
con-path (add|del) <0-2047> <0-255> deconcentrated <0-63>
```

Application specific attributes

Flag: o

This command applies on A-bis OML link (re)establishment

Parameters

con-path

CON Path (In/Out)

add

Add CON Path to Concentration Group

del

Delete CON Path from Concentration Group

<0-2047>

CON Connection Point

<0-255>

Contiguity Index

deconcentrated

De-concentrated in/outlet

<0-63>

TEI Value

## 1.26 config-bsc

This node allows to configure the BSC connection related settings.

### 1.26.1 bsc-auto-rf-off <1-65000>

Command

```
bsc-auto-rf-off <1-65000>
```

Global attributes

Flag: !

This command applies immediately

Parameters

bsc-auto-rf-off

Disable RF on MSC Connection

<1-65000>

Timeout

### 1.26.2 bsc-rf-socket PATH

Command

```
bsc-rf-socket PATH
```

Parameters

bsc-rf-socket
: Set the filename for the RF control interface.

PATH
: RF Control path

### 1.26.3 bts-setup-ramping

Command

```
bts-setup-ramping
```

Global attributes

Flag: !
: This command applies immediately

Parameters

bts-setup-ramping
: Enable BTS setup ramping to limit the amount of BTS to configure within a time window.

### 1.26.4 bts-setup-ramping-step-interval <0-65535>

Command

```
bts-setup-ramping-step-interval <0-65535>
```

Global attributes

Flag: !
: This command applies immediately

Parameters

bts-setup-ramping-step-interval
: Configure the BTS setup ramping step interval. The time between ramping steps.

<0-65535>
: Set a step interval (in seconds)

### 1.26.5 bts-setup-ramping-step-size <0-65535>

Command

```
bts-setup-ramping-step-size <0-65535>
```

Global attributes

Flag: !

This command applies immediately

Parameters

bts-setup-ramping-step-size

Configure the BTS setup ramping step size. The amount of BTS to allow to configure within a ramping interval

<0-65535>

Amount of BTS to setup while a step size

### 1.26.6 mid-call-timeout NR

Command

```
mid-call-timeout NR
```

Global attributes

Flag: !

This command applies immediately

Parameters

mid-call-timeout

Switch from Grace to Off in NR seconds.

NR

Timeout in seconds

### 1.26.7 no bsc-auto-rf-off

Command

```
no bsc-auto-rf-off
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

bsc-auto-rf-off

Disable RF on MSC Connection

### 1.26.8 no bts-setup-ramping

Command

```
no bts-setup-ramping
```

Global attributes

Flag: !

This command applies immediately

Parameters

no

Negate a command or set its defaults

bts-setup-ramping

Disable BTS ramping and configure all waiting BTS.

## 1.27 config-cbc

### 1.27.1 client

Command

```
client
```

Parameters

client

Configure OsmoBSC's CBSP client role

### 1.27.2 mode (server|client|disabled)

Command

```
mode (server|client|disabled)
```

Parameters

mode

Set OsmoBSC as CBSP server or client

server

CBSP Server: listen for inbound TCP connections from a remote Cell Broadcast Centre

client

CBSP Client: establish outbound TCP connection to a remote Cell Broadcast Centre

disabled

Disable CBSP link

### 1.27.3 server

Command

```
server
```

Parameters

server
: Configure OsmoBSC's CBSP server role

## 1.28 config-cbc-server

### 1.28.1 local-ip (A.B.C.D|X:X::X:X)

Command

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

Parameters

local-ip
: Set IP Address to listen on for inbound CBSP from a Cell Broadcast Centre

A.B.C.D
: IPv4 address

X:X::X:X
: IPv6 address

### 1.28.2 local-port <1-65535>

Command

```
local-port <1-65535>
```

Parameters

local-port
: Set TCP port to listen on for inbound CBSP from a Cell Broadcast Centre

<1-65535>
: CBSP port number (Default: 48049)

## 1.29 config-cbc-client

### 1.29.1 local-ip (A.B.C.D|X:X::X:X)

Command

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

Parameters

local-ip
: Set local bind address for the outbound CBSP link to the Cell Broadcast Centre

A.B.C.D
: IPv4 address

X:X::X:X
: IPv6 address

### 1.29.2 local-port <1-65535>

Command

```
local-port <1-65535>
```

Parameters

local-port
: Set local bind port for the outbound CBSP link to the Cell Broadcast Centre

<1-65535>
: port number

### 1.29.3 no local-ip

Command

```
no local-ip
```

Parameters

no
: Negate a command or set its defaults

local-ip
: Remove local IP address bind config for the CBSP client mode

### 1.29.4 no local-port

Command

```
no local-port
```

Parameters

no
: Negate a command or set its defaults

local-port
: Remove local TCP port bind config for the CBSP client mode

### 1.29.5 remote-ip (A.B.C.D|X:X::X:X)

Command

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

Parameters

remote-ip
: Set IP Address of the Cell Broadcast Centre, to establish CBSP link to

A.B.C.D
: IPv4 address

X:X::X:X
: IPv6 address

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

Command

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

Parameters

remote-port
: Set TCP port of the Cell Broadcast Centre, to establish CBSP link to

<1-65535>
: CBSP port number (Default: 48049)

## 1.30 config-power-ctrl

### 1.30.1 (rxlev-avg|rxqual-avg) algo (unweighted|weighted|mod-median)

Command

```
(rxlev-avg|rxqual-avg) algo (unweighted|weighted|mod-median)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

rxlev-avg
: RxLev (signal strength) measurement averaging (for dynamic mode)

rxqual-avg
: RxQual (signal quality) measurement averaging (for dynamic mode)

algo
: Select the averaging algorithm

unweighted
: Un-weighted average

weighted
: Weighted average

mod-median
: Modified median calculation

### 1.30.2 (rxlev-avg|rxqual-avg) algo osmo-ewma beta <1-99>

Command

```
(rxlev-avg|rxqual-avg) algo osmo-ewma beta <1-99>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

rxlev-avg
: RxLev (signal strength) measurement averaging (for dynamic mode)

rxqual-avg
: RxQual (signal quality) measurement averaging (for dynamic mode)

algo
: Select the averaging algorithm

osmo-ewma
: Exponentially Weighted Moving Average (EWMA)

beta
: Smoothing factor (in %): beta = (100 - alpha)

<1-99>
: 1% - lowest smoothing, 99% - highest smoothing

### 1.30.3 (rxlev-avg|rxqual-avg) params hreqave <1-31> hreqt <1-31>

Command

```
(rxlev-avg|rxqual-avg) params hreqave <1-31> hreqt <1-31>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

rxlev-avg
: RxLev (signal strength) measurement averaging (for dynamic mode)

rxqual-avg
: RxQual (signal quality) measurement averaging (for dynamic mode)

params
: Configure general averaging parameters

hreqave
: Hreqave: the period over which an average is produced

<1-31>
: Hreqave value (so that Hreqave * Hreqt < 32)

hreqt
: Hreqt: the number of averaged results that are maintained

<1-31>
: Hreqt value (so that Hreqave * Hreqt < 32)

### 1.30.4 bs-power (static|dyn-max) <0-30>

Command

```
bs-power (static|dyn-max) <0-30>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Parameters

bs-power
: BS Power IE value to be sent to the BTS

static
: Fixed BS Power reduction value (for static mode)

dyn-max
: Maximum BS Power reduction value (for dynamic mode)

<0-30>
: BS Power reduction value (in dB, even numbers only)

### 1.30.5 ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) algo (unweighted|weighted|mod-median...

Command

```
ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) algo (unweighted|weighted|mod-median)
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

ci-avg
: C/I (Carrier-to-Interference) measurement averaging (for dynamic mode)

fr-efr
: Channel Type FR/EFR

hr
: Channel Type HR

amr-fr
: Channel Type AMR FR

amr-hr
: Channel Type AMR HR

sdcch
: Channel Type SDCCH

gprs
: Channel Type (E)GPRS

algo
: Select the averaging algorithm

unweighted
: Un-weighted average

weighted
: Weighted average

mod-median
: Modified median calculation

### 1.30.6 ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) algo osmo-ewma beta <1-99>

Command

```
ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) algo osmo-ewma beta <1-99>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

ci-avg
: C/I (Carrier-to-Interference) measurement averaging (for dynamic mode)

fr-efr
: Channel Type FR/EFR

hr
: Channel Type HR

amr-fr
: Channel Type AMR FR

amr-hr
: Channel Type AMR HR

sdcch
: Channel Type SDCCH

gprs
: Channel Type (E)GPRS

algo
: Select the averaging algorithm

osmo-ewma
: Exponentially Weighted Moving Average (EWMA)

beta
: Smoothing factor (in %): beta = (100 - alpha)

<1-99>
: 1% - lowest smoothing, 99% - highest smoothing

### 1.30.7 ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) params hreqave <1-31> hreqt <1-31>

Command

```
ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) params hreqave <1-31> hreqt <1-31>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

ci-avg
: C/I (Carrier-to-Interference) measurement averaging (for dynamic mode)

fr-efr
: Channel Type FR/EFR

hr
: Channel Type HR

amr-fr
: Channel Type AMR FR

amr-hr
: Channel Type AMR HR

sdcch
: Channel Type SDCCH

gprs
: Channel Type (E)GPRS

params
: Configure general averaging parameters

hreqave
: Hreqave: the period over which an average is produced

<1-31>
: Hreqave value (so that Hreqave * Hreqt < 32)

hreqt
: Hreqt: the number of averaged results that are maintained

<1-31>
: Hreqt value (so that Hreqave * Hreqt < 32)

### 1.30.8 ci-thresh (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) lower <0-30> upper <0-30>

Command

```
ci-thresh (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) lower <0-30> upper <0-30>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

ci-thresh
: Set target C/I thresholds (for dynamic mode), only available in ms-power-control

fr-efr
: Channel Type FR/EFR

hr
: Channel Type HR

amr-fr
: Channel Type AMR FR

amr-hr
: Channel Type AMR HR

sdcch
: Channel Type SDCCH

gprs
: Channel Type (E)GPRS

lower
: Lower C/I value

<0-30>
: Lower C/I value (Carrier-to-Interference (dB), 0 is worst, 30 is best)

upper
: Upper C/I value

<0-30>
: Upper C/I value (Carrier-to-Interference (dB), 0 is worst, 30 is best)

### 1.30.9 ci-thresh (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs|all) (enable|disable)

Command

```
ci-thresh (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs|all) (enable|disable)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

ci-thresh

Set target C/I thresholds (for dynamic mode), only available in ms-power-control

fr-efr

Channel Type FR/EFR

hr

Channel Type HR

amr-fr

Channel Type AMR FR

amr-hr

Channel Type AMR HR

sdcch

Channel Type SDCCH

gprs

Channel Type (E)GPRS

all

All Channel Types

enable

Enable C/I comparison in control loop

disable

Disable C/I comparison in control loop

### 1.30.10 ci-thresh-comp (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) lower <0-31> <0-31> upper <0...

Command

```
ci-thresh-comp (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs) lower <0-31> <0-31> upper <0-31>  ↩
    <0-31>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

ci-thresh-comp

Set Carrier-to_interference (C/I) threshold comparators (for dynamic mode)

fr-efr

Channel Type FR/EFR

hr

Channel Type HR

amr-fr

Channel Type AMR FR

amr-hr

Channel Type AMR HR

sdcch

Channel Type SDCCH

gprs

Channel Type (E)GPRS

lower

Lower Carrier-to_interference (C/I) threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>

Lower P (default 5)

<0-31>

Lower N (default 7)

upper

Upper Carrier-to_interference (C/I) threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>

Upper P (default 15)

<0-31>

Upper N (default 18)

### 1.30.11 ctrl-interval <0-31>

Command

```
ctrl-interval <0-31>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

ctrl-interval

Set power control interval (for dynamic mode)

<0-31>

P_CON_INTERVAL, in units of 2 SACCH periods (0.96 seconds)(default=1)

### 1.30.12 mode (static|dyn-bts|dyn-bsc) [reset]

Command

```
mode (static|dyn-bts|dyn-bsc) [reset]
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Parameters

mode

Power control mode

static

Instruct the MS/BTS to use a static power level

dyn-bts

Power control to be performed dynamically by the BTS itself

dyn-bsc

Power control to be performed dynamically at this BSC

[reset]

Reset to default parameters for the given mode

### 1.30.13 no (rxlev-avg|rxqual-avg)

Command

```
no (rxlev-avg|rxqual-avg)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

no

Negate a command or set its defaults

rxlev-avg

RxLev (signal strength) measurement averaging (for dynamic mode)

rxqual-avg

RxQual (signal quality) measurement averaging (for dynamic mode)

### 1.30.14 no ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs)

Command

```
no ci-avg (fr-efr|hr|amr-fr|amr-hr|sdcch|gprs)
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

no

Negate a command or set its defaults

ci-avg

C/I (Carrier-to-Interference) measurement averaging (for dynamic mode)

fr-efr

Channel Type FR/EFR

hr

Channel Type HR

amr-fr
: Channel Type AMR FR

amr-hr
: Channel Type AMR HR

sdcch
: Channel Type SDCCH

gprs
: Channel Type (E)GPRS

### 1.30.15 rxlev-thresh lower <0-63> upper <0-63>

Command

```
rxlev-thresh lower <0-63> upper <0-63>
```

Application specific attributes

Flag: l
: This command applies for newly created lchans

Flag: v
: This command/parameter is BTS vendor specific

Parameters

rxlev-thresh
: Set target RxLev thresholds (for dynamic mode)

lower
: Lower RxLev value (default is 32, i.e. -78 dBm)

<0-63>
: Lower RxLev value (signal strength, 0 is worst, 63 is best)

upper
: Upper RxLev value (default is 38, i.e. -72 dBm)

<0-63>
: Upper RxLev value (signal strength, 0 is worst, 63 is best)

### 1.30.16 rxlev-thresh-comp lower <0-31> <0-31> upper <0-31> <0-31>

Command

```
rxlev-thresh-comp lower <0-31> <0-31> upper <0-31> <0-31>
```

Application specific attributes

Flag: l
This command applies for newly created lchans

Flag: v
This command/parameter is BTS vendor specific

Parameters

rxlev-thresh-comp
Set RxLev threshold comparators (for dynamic mode)

lower
Lower RxLev threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>
P1 (default 10)

<0-31>
N1 (default 12)

upper
Upper RxLev threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>
P2 (default 10)

<0-31>
N2 (default 12)

### 1.30.17 rxqual-thresh lower <0-7> upper <0-7>

Command

```
rxqual-thresh lower <0-7> upper <0-7>
```

Application specific attributes

Flag: l
This command applies for newly created lchans

Flag: v
This command/parameter is BTS vendor specific

Parameters

rxqual-thresh
Set target RxQual thresholds (for dynamic mode)

lower
Lower RxQual value (default is 3, i.e. 0.8% <= BER < 1.6%)

<0-7>
Lower RxQual value (signal quality, 0 is best, 7 is worst)

upper
Upper RxQual value (default is 0, i.e. BER < 0.2%)

<0-7>
Upper RxQual value (signal quality, 0 is best, 7 is worst)

### 1.30.18 rxqual-thresh-comp lower <0-31> <0-31> upper <0-31> <0-31>

Command

```
rxqual-thresh-comp lower <0-31> <0-31> upper <0-31> <0-31>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

rxqual-thresh-comp

Set RxQual threshold comparators (for dynamic mode)

lower

Lower RxQual threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>

P3 (default 5)

<0-31>

N3 (default 7)

upper

Upper RxQual threshold comparators (see 3GPP TS 45.008, A.3.2.1)

<0-31>

P4 (default 15)

<0-31>

N4 (default 18)

### 1.30.19 step-size inc <2-6> red <2-4>

Command

```
step-size inc <2-6> red <2-4>
```

Application specific attributes

Flag: l

This command applies for newly created lchans

Flag: v

This command/parameter is BTS vendor specific

Parameters

step-size
: Set power change step size (for dynamic mode)

inc
: Increase step size (default is 4 dB)

<2-6>
: Step size (2, 4, or 6 dB)

red
: Reduce step size (default is 2 dB)

<2-4>
: Step size (2 or 4 dB)