

AMOS/MOSHELL OVERVIEW

1 INTRODUCTION TO CPP O&M.....	4
1.1 CPP functional structure.....	4
1.2 CPP O&M Interfaces.....	6
1.3 MO interface (MIB).....	7
1.4 PM Interface.....	10
1.5 LOG Interface.....	12
1.6 COLI Interface (OSE shell).....	12
2 MOSHELL/AMOS.....	13
2.1 Help.....	14
2.2 Command line.....	19
2.3 Session Logging.....	21
2.4 Pattern matching.....	21
3 MO COMMANDS.....	23
3.1 The MOM.....	23
3.2 MOM command.....	26
3.3 lt and pr command.....	43
3.4 MO addressing.....	46
3.4.1 proxy id(s).....	46
3.4.2 mo-filter.....	48
3.5 get commands.....	54
3.6 st command.....	64
3.7 set command.....	69
3.8 rset command.....	79
3.9 bl/deb command.....	81
3.10 cr command.....	84
3.11 acl/acc command.....	85
3.11.1 List actions.....	85
3.11.2 Execute an action:.....	87
3.12 del/rdel command.....	93
3.13 run command.....	99
3.14 trun command.....	99
3.15 undo commands.....	101
3.16 al command.....	111
3.17 Offline mode.....	113
4 LOG COMMANDS.....	119
4.1 Alarm and Event history.....	122

4.2 Restart and upgrade history.....	126
4.3 Command history.....	132
4.4 Format options.....	138
4.5 Offline mode.....	140
5 NODE INVENTORY COMMANDS.....	142
5.1 CPP HW architecture.....	142
5.1.1 Subrack structure.....	142
5.1.2 Board types.....	143
5.1.3 Internal addressing of the processors.....	144
5.2 inv command.....	146
5.3 std command.....	158
5.4 bo command.....	165
6 COLI COMMANDS.....	166
6.1 COLI help.....	166
6.2 File handling commands.....	173
6.3 Using board groups.....	179
7 SW MANAGEMENT COMMANDS.....	185
7.1 Configuration Version Handling.....	185
7.1.1 CV files and folders.....	186
7.1.2 CV handling.....	190
7.1.3 CV Rollback.....	204
7.2 Restart Commands.....	206
7.2.1 Printing all possible restart actions.....	206
7.2.2 Performing a node restart.....	207
7.2.3 Performing a board restart.....	210
7.2.4 Performing a program restart.....	212
8 TRANSPORT NETWORK COMMANDS.....	214
8.1 Physical layer.....	214
8.2 Network Synchronisation.....	218
8.3 ATM layer.....	222
8.4 SS7.....	230
9 OTHER.....	248
9.1 Mobatch.....	248
9.2 TR/CSR data collection.....	255
9.3 Configuration settings and environment variables.....	256
9.3.1 Configuration settings.....	256
9.3.2 Uservariables for connecting to secure nodes.....	262
9.3.3 Environment variables.....	263
9.4 Ipdatabase.....	264
9.5 O&M connectivity problems.....	266
9.5.1 Case 1: moshell hangs at "Trying file=...".....	266

9.5.2 Case 2: CORBA.NOT_EXIST.....	271
9.5.3 Case 3: OSE shell and/or file transfer not accessible.....	277
9.5.4 Case 4: HTTP not accessible.....	278
9.5.5 Case 5: File not found on HTTP server.....	280
10 SCRIPTING.....	280
10.1 Using MO groups.....	280
10.1.1 Method 1 : based on the distinguished name of the MO.....	280
10.1.2 Method 2a: based on the attribute value of the MO, using “ma” command.....	283
10.1.3 Method 2b: based on the attribute value of the MO, using “hget” command.....	286
10.1.4 Method 2c: based on the attribute value of the MO, using “st” command.....	287
10.1.5 Method 3: adding a referenced MO.....	288
10.1.6 Method 4: from lk command.....	290
10.1.7 Method 5: from pdiff command.....	292
10.1.8 Two-step examples:.....	292
10.2 Scripting variables.....	300
10.3 Preset variables.....	300
10.4 Variable assignment.....	307
10.5 If/Else constructs.....	320
10.6 For constructs.....	322
10.7 User-defined functions.....	324
10.8 Examples.....	326
11 MGW Specific.....	328

1 INTRODUCTION TO CPP O&M

1.1 CPP functional structure

The following picture shows the different system modules in CPP.

APPLICATION

WCDMA
RNC/RBS

TD-SDMA
RNC/RBS

CDMA9000
BSC/RBS

MGW

LTE
RBS

Simulators:
corben,mgsim
erncsim,mgwsim

CPP

SS

(MTP, MTP, M UA, SCCP,

IP Transport
(Ethernet, IP, UDP)

ATM Transport
(ATM, TDM, SDH, PDH, AAL, SAAL)

Internal Transport

(Network synch, Atm switch, Ethernet switch)

Control

(Equipment mgmt, SW loading, System upgrade, O&M, Tracing,
Restarts, File system, Operating System, ...)

1.2 CPP O&M Interfaces

The following O&M services can be accessed in the node:

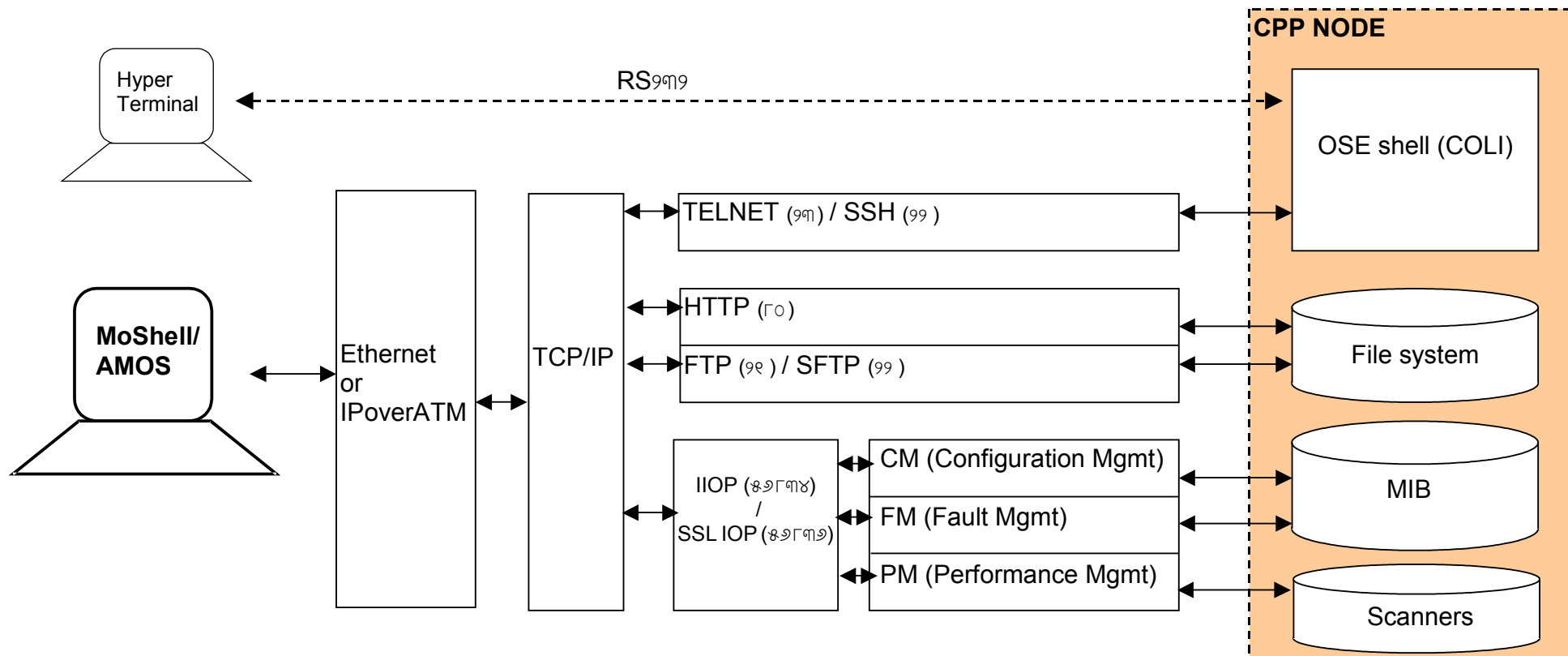
- **OSE shell (a.k.a COLI):** provides a set of commands on each individual board. Mainly geared towards trouble-shooting, not intended for configuration.
- **File service:** for transfer of files between to/from the node (SW files, logfiles, ROP files, etc)
- **MIB (Managed Information Base):** the database containing all the MOs (Managed Objects) of the node. MOs are used for configuration and trouble-shooting of the resources in the node.
- **Scanners:** the database containing all the Performance Management Scanners of the node. Scanners are used for defining the contents of the Performance Measurements (i.e. to specify which counters/events shall be logged in the ROP files).

The following protocols are used for accessing these services:

- **http**
- **unsecure protocols (unencrypted):** telnet, ftp, iiop
- **secure protocols (encrypted):** ssh, sftp, ssliop

Whether to use the secure or unsecure protocols will depend on the security level of the node (refer to CPP core presentation). http is used on all security levels even though it is unsecure.

The number in brackets is the TCP port used for each protocol.



1.3 MO interface (MIB)

The Managed Objects (MO) are used to modelize resources in the node so they can be easily accessed by the O&M engineer for configuration, trouble-shooting and performance management purposes.

Each MO instance belongs to an “MO Class”, eg: PlugInUnit, Program, AtmPort, etc.

An MO Class is used to modelize all resources of the same type.

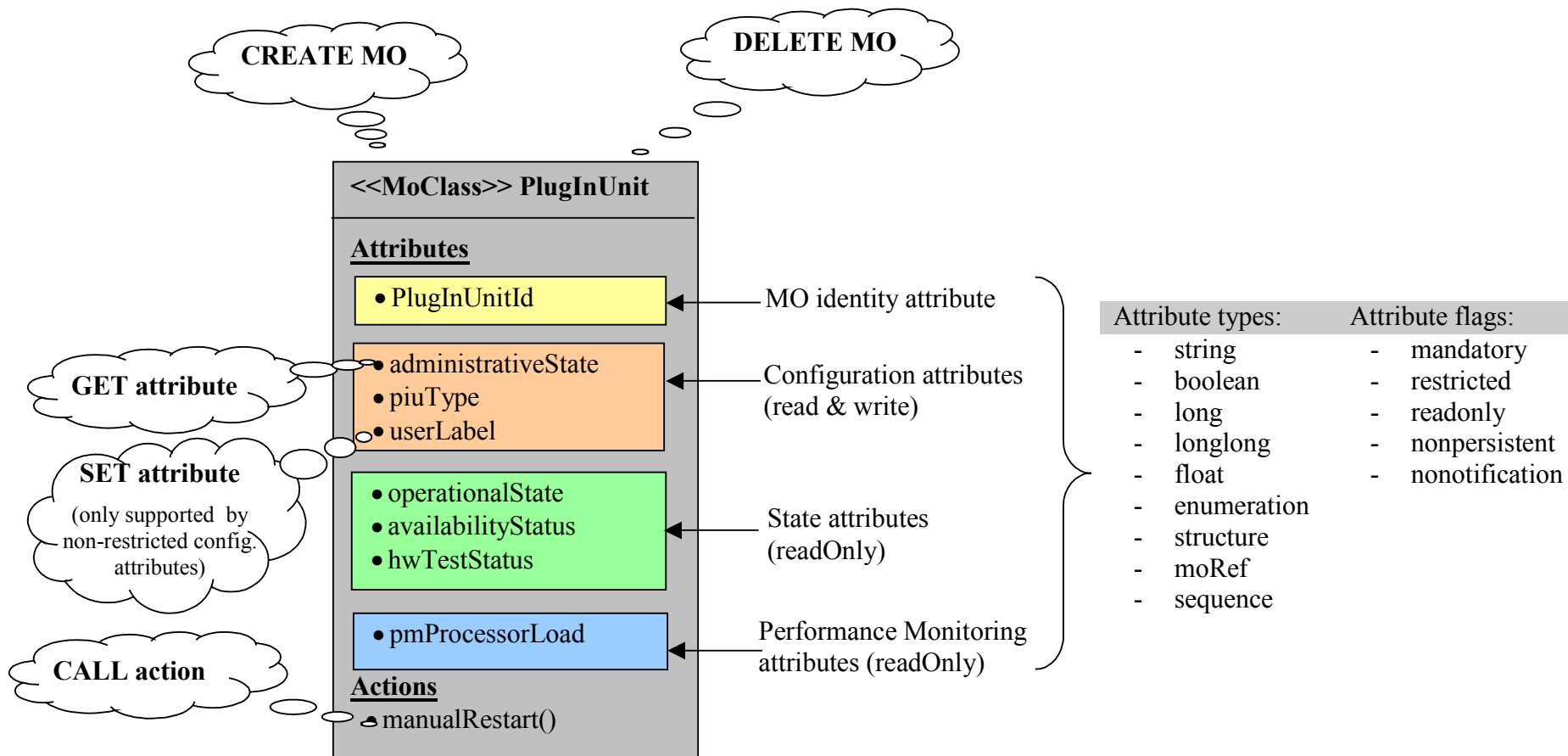
MOs have attributes that store values used for:

- configuration management (eg: administrativestate, externalVci, etc.) . Stored permanently in the database copy on the harddisk.
- fault management (eg: availabilityStatus, operationalState, etc.) . Not stored permanently.
- performance management (eg: pmReceivedAtmCells, pmTransmittedAtmCells, etc.). Not stored permanently.

The attribute values can be of the following types: integer, string, boolean, float, moRef, enum, struct, sequence of integer, sequence of string, sequence of boolean, sequence of moRef, sequence of struct, see 3.2.

MO operations

Operation	Purpose	Related moshell command(s)	Protocol
GetChildren	To list the LDNs of the MOs currently present in the MIB	lt, lc	corba (CM)
GetAttribute	To read the value of one or more attribute(s)	get, hget, pget, st, prod, inv, etc.	
CallAction	To call an action on an MO	acc (acl)	
SetAttribute	To change the value of an attribute (provided it is not restricted or readonly)	set, bl, deb	
CreateMO	To create an MO	cr	
DeleteMO	To delete an MO	del, rdel	
Subscribe	To subscribe to notifications about changes in the MIB	runClient.sh -c	
GetAlarms	List active alarms	al	corba (FM)
Acknowledge/unacknowledg e	Acknowledge/unacknowledge an alarm	al	
Subscribe	To subscribe to notifications about alarms and events.	runClient.sh -a	



Attribute types:

- **string**: a string of characters, e.g. `userLabel`
- **boolean**: true or false, e.g. `continuityCheck`
- **long**: 32-bit integer (from -2^{31} to 2^{31}), e.g. `externalVci`
- **longlong**: 64-bit integer (from -2^{63} to 2^{63}), e.g. `nodeUtcTime`
- **float**: a number with a decimal point
- **enumeration**: a set of discrete integer values, e.g. `operationalState`
- **struct**: an attribute consisting of a number of attributes of any of the above types, e.g. `productData`
- **moRef**: a pointer to another MO, e.g. `atmTrafficDescriptorId`
- **sequence**: an array of attributes of any of the above types

Attribute flags:

- **mandatory**: the attribute value has to be given when creating the MO

- **restricted:** the attribute value can only be changed by deleting the MO and re-creating it
- **readonly:** the attribute value is set by the system
- **nonpersistent:** the attribute value is not stored persistently on disk (eg. operationalState, availabilityStatus, etc)
- **nonnotification:** changes in the attribute value will not be sent to the client via the notification service

More info in the CPI document “MOM User Guide”

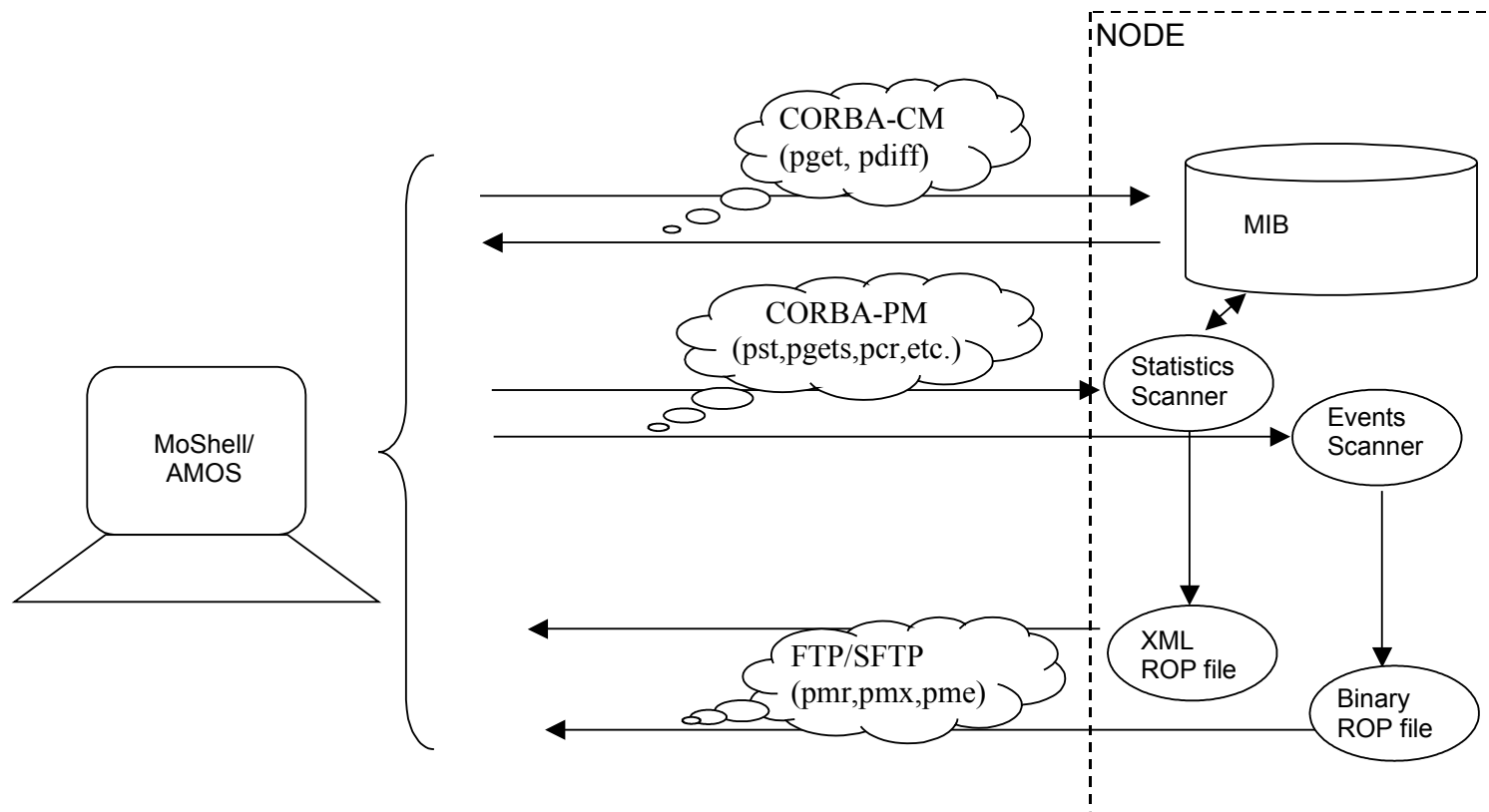
1.4 PM Interface

The CPP PM service supports counter-based measurements (all nodes) and event-based measurements (RNC/RBS only)

The following access methods are supported:

- instantaneous counter values for CPP, RBS and MGW MOs can be read via the CM Service “GetAttribute” operation (moshell command “pget”).
It is not possible to read instantaneous counters for RNC MOs via the CM Service.
- counter values for a given ROP (Result Output Period) can be read from the XML ROP files, provided there is an active statistics scanner containing these values.
- events that occurred in a given ROP can be read from the binary ROP files, provided there is an active event scanner containing these events.

A ROP can be defined to be 5 minutes, 15 minutes, or 60 minutes.



Available PM commands in moshell

Operation	Related moshell command(s)	Protocol
List Scanners and Event Filters	pst	corba (PM)
Create Statistics Scanner	pcr	
Stop Scanner	pbl	
Resume Scanner	pdeb	
Delete Scanner	pdel	
Set Event Filter	pset	
View Scanner contents	pgets	
Read instantaneous counter value	pget/pdiff	corba (CM)
Fetch and parse Statistics ROP files (xml)	pmr/pmx	ftp/sftp
Fetch and parse Event ROP files (binary)	pme	

PM related commands can be printed from the “p” menu.

OFFLINE> p

```
*****
Command Name      Purpose (type "h <command>" for detailed help on a command)
*****
pmom[ac]/lmom[c]   Print description of PM counters (pmom) or log attributes (lmom, CDMA only).
pget/lpget         Read PM attribute(s) from MO(s).
hpget[c]/lhpget[c] Read PM attribute(s) from MO(s), print horizontally one line per MO (instead of one line per attribute).
pdiff/lpdiff       Print incrementation of PM attributes.
pmx[hfdn]          Display counter values, extracted from the statistics ROP files.
pmr[ag]            Produce PM KPI reports, based on counter values in statistics ROP files and formulas in CPI documentation.
pme[fd][cgu]       Fetch/decode event ROP files (RNC/RBS only).
pst               List all PM scanners and their state.
pgets[n]          Print scanner contents.
pcr[cfid]/lpcr[cfid] Create a statistics scanner.
pbl               Suspend a scanner.
pdeb              Resume a scanner.
pdel              Delete a scanner.
emom              Display list of events available for each kind of event-based scanner.
pset[d]           Set the contents of an event-based scanner (RNC/RBS only).
```

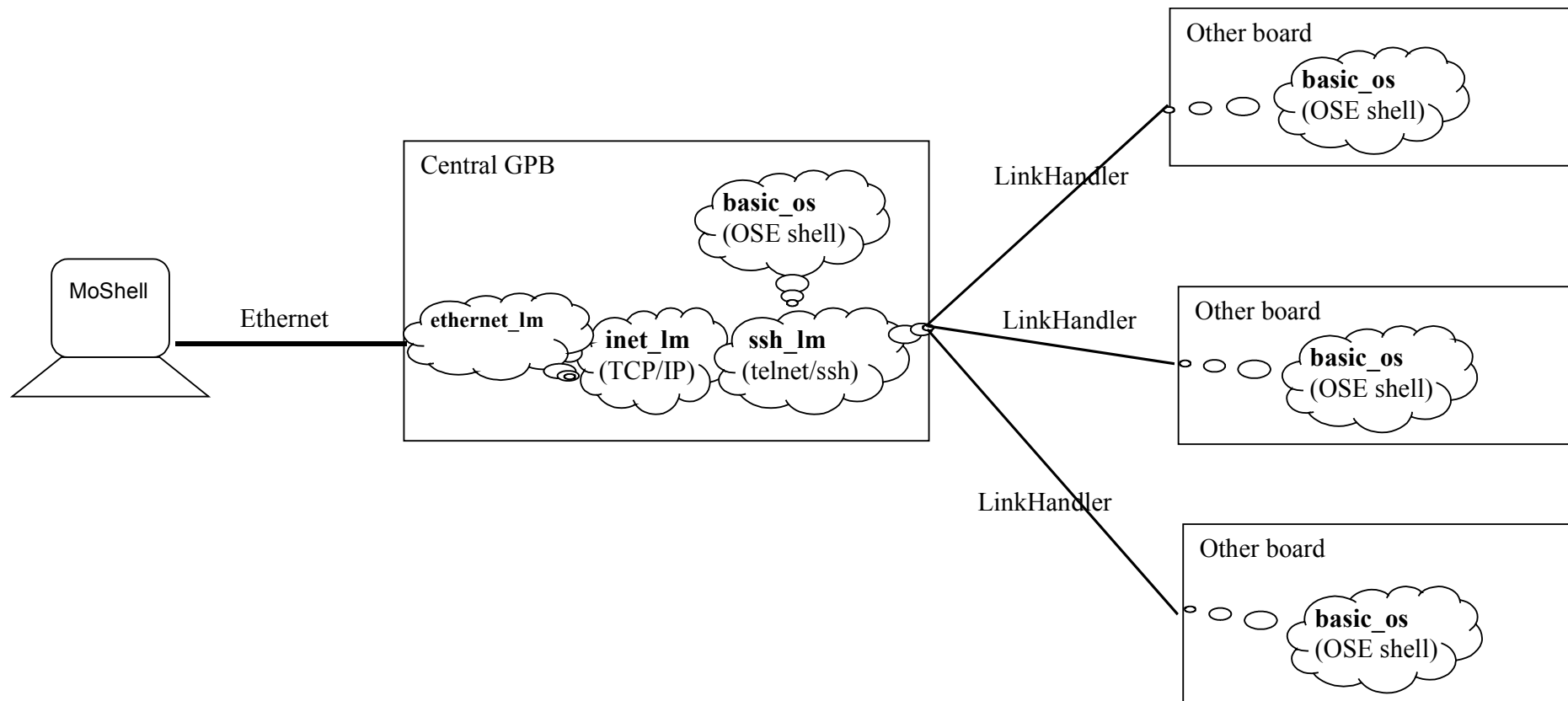
1.5 LOG Interface

A number of logs on store on the /c volume of the node:

- **alarm and event history**
- **restart history: node restarts, board restarts, program restarts, processor crashes)**
- **O&M history: MO commands, COLI commands, AMOS commands, O&M connection attempts**
- **upgrade history**

1.6 COLI Interface (OSE shell)

Commands for trouble-shooting and tracing can be run in the different boards of the node



2 MOSHELL/AMOS

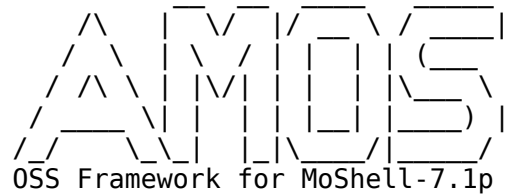
AMOS (Advanced MO Scripting) is the name of the moshell customer version which is sold as an optional feature in OSS.

It is installed on the OSS master server under /opt/ericsson/amos/moshell but this folder is then mounted on the Unix Application Server (UAS) so moshell should always be run from the UAS. The logs are stored under /var/opt/ericsson/amos/moshell_logfiles

When connecting to a node, it is possible to use any of the following addresses:

- **an ipaddress:** moshell 10.1.128.17
- **a DNS name:** moshell rnc1.utran.ericsson.se
- **a node name defined in the ipdatabase file:** moshell rnc1
- **the MeContext of the node (gets translated from the ORNM_CS database of OSSRC):** moshell RNC01

```
atrcus422{cdiuser} #: moshell RNC11
```



```
$amosrb_pid = 7537
```

```
Checking ip contact...OK
```

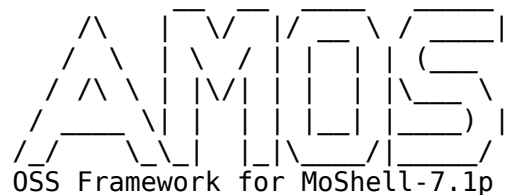
```
HELP MENU      : h
BASIC MO COMMANDS : m
OTHER MO COMMANDS : n
OTHER COMMANDS  : o
PM COMMANDS     : p
QUIT            : q
```

```
RNC11>
```

2.1 Help

- **The AMOS UG, available from OSSRC CPI**
- **The document /opt/ericsson/amos/moshell/UserGuide.pdf in OSS-RC**
- **Online help:**

```
atrcus422{cdiuser} #: moshell RNC11
```



\$amosrb_pid = 7537

Checking ip contact...OK

```
HELP MENU           : h
BASIC MO COMMANDS   : m
OTHER MO COMMANDS   : n
OTHER COMMANDS      : o
PM COMMANDS         : p
QUIT                : q
```

RNC11>

Print moshell command list with “h” command

RNC11> h

```
----- BASIC MO COMMANDS -----
mom[tcd]           Print description of MO classes, CM/FM attributes, actions, enums and structs.
lt/ltc[1-9]        Load MO tree (full or partial) and build proxy table.
lc[1-9]/lcc        Load MO tree (full or partial) and build proxy table.
lu/llu            Unload MOs from MO tree.
pr/lpr            Print MO LDNs and proxy ids for all or part of the MO tree currently loaded in moshell.
ma/lma            Add MO(s) to an MO group.
mr/lmr            Remove an MO group or remove MOs from an MO group (MOs will NOT be deleted, only the group).
mp               Print all defined MO groups.
get/lget          Read CM/FM attribute(s) from MO(s).
hget[c]/lhget[c]  Read CM/FM attribute(s) from MO(s), print horizontally one line per MO (instead of one line per attribute).
kget/lkget        Display CM/FM attributes in exportable printout format.
fro/lfro[m]       Read MAO data of an MO and/or froid of the MO. Data read from SQL tables motype_r1 and modata_r2.
st/lst           Print state of MOs (operationalState and administrativeState when applicable).
prod             Print productData of MO(s).
lk/llk           View all MO's linked to an MO, and their states (admState and opState).
lko/llko         The old lk. Messier than lk but supports a wider range of MO classes.
set[m]/lset[m]    Set an attribute value on one or several MO's.
rset/lrset       Set attribute value on a restricted attribute or change the MOid of an MO.
bl[s]/lbl[s]     Lock or soft-lock MO(s).
deb/ldeb        Unlock MO(s).
acl/lacL        Lists available MO actions.
acc/lacc        Execute an MO action.
cr              Create an MO.
del/ldel        Delete MO(s).
rdel/lrdel       Delete MO(s) together with children and reserving MOs.
```

u+[s]/u-/u?/u!	Handling of undo mode (for undo of del/rdel/set commands). Can be used for generation of MO scripts as well.
run	Run a command file in moshell format.
trun[i]	Run a command file in EMAS/MoTester format.
ctrl-z	Abort an MO command or a "for" loop. Type "touch /tmp/<stopfile>;fg" to resume the moshell session.
pol[s][h][c][u]	Poll the node until the MO service is up or until an operation has completed.
re[i]	Disconnect and reconnect to the CM service (mobrowser) and/or the PM service (pmtester).
getmom	Check the MOM version currently stored on the node.
parsemom	Parse an xml MOM file.
flt/fltc	Load proxys for an MO type that is not defined in the MOM. ("Force" lt/ltc).
ld	Load one MO from the tree and add to the proxy table.
fget/lfget	Read attributes that are not described in the MOM ("Force" get).
sget/lsget	Read CM/FM attributes from MO(s), one by one ("Slow" get).
fset/lfset	Set an attribute that is not described in the MOM ("Force" set).
facc/lfacc	Perform actions that are not defined in the MOM ("Force" action).
----- OTHER MO COMMANDS -----	
cvls/cvmk/cvms/cvset/cvrm/cvcu/cvget/cvls1	CV backup handling: list, make local, make remote, remove, setstartable.
inv[hr]	Complete HW/SW inventory. Includes information about RPU's, licensing, JVM, devices, XP's, ISL, etc.
cab[slxradgtm]	Display of miscellaneous COLI printouts relating to hw, sw, restarts, leds, cpu load, errors, disk/ram usage
stc[p][r]	Display state and configuration of AtmCrossConnections.
std	Display state and configuration of devices (RNC and MGW only).
stv[b][r]	Display state, user, and bandwidth usage for ATM ports and channels.
stt[r]	Display state and user of Physical Ports and Ds0Bundles.
hc	Run a general healthcheck on the node.
dcg[msie]	Fetch data for CSRs, according to the Data Collection Guidelines.
diff/ldiff	Parameter auditing or MO dump comparisons.
str[12ft]	Print status of the IubLinks/AbisLinks and their associated Cells and Channels (RNC/BSC only).
lki	Resource usage and configuration of IubLinks (RNC only).
remod[u][2]	Remodule an IubLink (RNC only).
tg[r][c][d]	Print Resource Object information for all MOs in LmCell (RNC only).
uer[d][t]	Print UE context data (serving or drifting) for all active calls (RNC only).
ced[h][r]	Print dynamic cell data or capacity usage (RNC only).
al[atk]	Print the list of active alarms. Acknowledge/Unacknowledge an alarm.
lg[aevsyuoldhmircf]	Fetching and/or processing of node logs (alarm, event, availability, system, etc)
----- OTHER COMMANDS -----	
uv	Print or change moshell configuration settings (also called "user variables").
pv	Print scripting variables.
!/l	Execute a unix command on the PC/workstation.
l+[m][m][s][o]/l-/l?	Open/close moshell logfiles.
ose/coli command	Send a COLI command to the node's OSE shell. Type "h ose" for syntax help and "?" to view available commands.
bo[r]/ba[swdp]/br[wd]/be[0-50]/bp	Manage board groups that can be used for running COLI commands on multiple boards.
lh	Run COLI commands on all boards of a board group.
mon/mon+/mon-/mon?	Start/stop/check the target monitor server on the node and/or start the monitor client for one or more board Group(s).
sql+/sql-/sql?	Start/stop/check the SQL client on the node (CXC1325608).

pgu[c][f][r]	Program Upgrade. For STP use only, eg, to load black LMs.
ftree[f]	Recursive listing of a directory on the file system of the node or the workstation.
ftget[c]/ftput[c]	Transfer files or directories to/from the node, using ftp or sftp.
htget	Transfer files from the node using http.
edit	Edit a file on the node.
fclean[f ff d e]	Removal of obsolete loadmodules OR recursive removal of a directory on the node.
hi	Print history of moshell commands entered during the current session.
lmid[c]	Print translation of loadmodule product number or T&E error codes.
p/w/pw/b	Change moshell prompt and/or window title.
prox	Toggle display of proxy identities in printout of get <mo> <attribute> command.
col	Toggle display of colors.
ul	Toggle display of userlabel in st/lst and pget/lpget printout.
conf[bld]	Toggle confirmation on various MO commands.
gs/gsg	Toggle display of old/new attribute value in set/bl/deb commands.
ip2d/d2ip	Convert an IP address into the format used in the fRO (sql database) or vice-versa.
h2d/d2h	Convert an integer to hexadecimal or viceversa.
h2b/b2h	Convert a binary to hexadecimal or viceversa.
wait	Specify a delay in hrs, mins, secs, or rops. Similar to the unix "sleep" command (scripting).
return	Exit from a command file without exiting from moshell (scripting).
print	Print a line or variable (scripting).
alias/unalias	Print or define command aliases.
q/by/exit/quit	Exit moshell.
----- PM COMMANDS -----	
pmom[acd]/lmom[c]	Print description of PM counters (pmom) or log attributes (lmom, CDMA only).
pget/lpget	Read PM attribute(s) from MO(s).
spget/lspget	Read PM attribute(s) one by one ("slow pget").
hpget[c]/lhpget[c]	Read PM attribute(s) from MO(s), print horizontally one line per MO (instead of one line per attribute).
pdiff/lpdiff	Print incrementation of PM attributes.
pmx[hfdn]	Display counter values, extracted from the statistics ROP files.
pmr[ag]	Produce PM KPI reports, based on counter values in statistics ROP files and formulas in CPI documentation.
pme[fd][cgu]	Fetch/decode event ROP files (RNC/RBS only).
pst	List all PM scanners and their state.
pgets[n]	Print scanner contents.
pcr[cfd]/lpcr[cfd]	Create a statistics scanner.
pbl	Suspend a scanner.
pdeb	Resume a scanner.
pdel	Delete a scanner.
emom	Display list of events available for each kind of event-based scanner.
pset[d]	Set the contents of an event-based scanner (RNC/RBS only).
----- HELP CHAPTERS -----	
0	Installation, security, and user settings
1	Revision History
2	Tutorial
3	Command syntax, regular expressions
4	Command descriptions

```

5          Lazy
6          Scripting
7          Utilities
8          Server Maintenance
9          Offline Mode

```

Type: - h <command> to view command description, e.g: h pget
 - h <pattern> to view commands whose description match a string, e.g: h change.*prompt
 - h <chapter> to view a chapter, e.g: h 3

Check command syntax and command description with “h <command>”

```
RNC11> h stt
```

```

*****
stt[r] [<Filter>] [<stateFilter>]
*****
Display state and user of Physical Ports and Ds0Bundles.

```

Options:

- r: to refresh the data (ie. re-read from node).

Arguments:

- the first argument matches on the whole line
 - the second argument matches only the state field ("PUI")

Examples:

```

>> stt ms-26-1 --> print all ports and their users matching ms-26-1
>> stt . 0|L --> print all ports and their users who have state disabled or locked

```

Printout format:

- PUI: the first digit represents the state of the PhysicalPort/Ds0Bundle. The second digit (if present) represents the state of the User. The third digit (if present) represents the state of the ImaGroup. L=locked, 1=enabled, 0=disabled.
 - CG/K.L.M: circuit group and K.L.M (for channelised STM-1)

Example printout RXI:

Port	CG/K.L.M	PUI	USER
Subrack=MS,Slot=7,..*,0s155SpiTtp=pp1,Vc4Ttp=1		11	AtmPort=MS-7-1
...			
Subrack=MS,Slot=24,..*,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=1,T1Ttp=1	1/1.1.1	11	AtmPort=MS-24-1-1-1
Subrack=MS,Slot=24,..*,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=2,T1Ttp=1	1/1.1.2	111	AtmPort=MS-24-ima1
Subrack=MS,Slot=24,..*,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=3,T1Ttp=1	1/1.1.3	111	AtmPort=MS-24-ima1

...
Example printout MGW:

Port	CG/K.L.M	PUI	USER
Subrack=2,Slot=21,.*,0s155SpiTtp=2211,Vc4Ttp=1,Vc12Ttp=2,E1Ttp=1,Ds0Bundle=1	1/1.1.2	11	TdmTermGrp=6
Subrack=2,Slot=25,.*,E1PhysPathTerm=2251,Ds0Bundle=1		11	Mtp2TpItu=1

If the command is not found, it prints a list of commands that contain the word in the command description

OFFLINE> h counter

Following commands match that word in the command description (type "h <command>" for more info on each command):

trun[i]	Run a command file in EMAS/MoTester format.
stc[p][r]	Display state and configuration of AtmCrossConnections.
pmom[ac]/lmom[c]	Print description of PM counters (pmom) or log attributes (lmom, CDMA only).
hpget[c]/lhpget[c]	Read PM attribute(s) from MO(s), print horizontally one line per MO (instead of one line per attribute).
pdiff/lpdiff	Print incrementation of PM attributes.
pmx[hfdn]	Display counter values, extracted from the statistics ROP files.
pmr[ag]	Produce PM KPI reports, based on counter values in statistics ROP files and formulas in CPI documentation.
pgets[n]	Print scanner contents.
pcr[cfd]/lpcr[cfd]	Create a statistics scanner.
pbl	Suspend a scanner.

2.2 Command line

The prompt shows the node name

A header is printed before each command is executed:

Node name: RNCee

Node ip address: 00000000-00:00:00:00:00:00:00:00

MOM version: RNC NODE_MODEL_J_00_00_COMPLETE

Moshell version: 0.0.0

Date/Time when command was run: 00:00:00-00:00:00:00:00:00:00:00

Command: pr stopfile=/tmp/00000000

Proxy M0

ManagedElement=0

Total: 0 M0s

Relation between the MOM version and the SW release:

RNC			RBS			MGW		
SW	MOM	CPP	SW	MOM	CPP	SW	MOM	CPP
P4	F	4	P4	H	4	R3	R3	4
P5	G	5.1	P5	J	5.1	R4.x	R4.x	5.x
P6/P6.1	H/J	6/6.1	P6	K	6	R5	R5	6
P7/P7.1	K	7	P7	L	7	R6	B	7
W10	L	8	W10	M	8			

The command line uses the Readline library from bash. Here are some of the supported function keys:

- up/down arrow
- right/left arrow
- Alt-f/Alt-b
- Ctrl-a/Ctrl-e
- backspace/Ctrl-d
- Ctrl-u/Ctrl-k
- select or select + ctrl-<insert>
- Ctrl-I or shift-<insert>
- previous/next command in history buffer
- move forward/backward one character at a time
- move forward/backward one word at a time
- go to beginning/end of line
- delete one character backward/forward
- erase all characters backward/forward
- copy to clipboard
- paste from clipboard

Useful: by typing the beginning of a command and then use the up/down arrow key, the command completion will only match the commands from history that start with this string

2.3 Session Logging

```
RNC11> l+
```

```
Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/sessionlog/070613-143817_RNC11.log
```

```
RNC11> l-
```

```
Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/sessionlog/070613-143817_RNC11.log
```

l+ appends to the file. To overwrite the file, use “l+o”

l+m for mute

```
MGW1> h l+
```

```
*****
```

```
l+[m][m][s][o]/l-/l?  [<logfile>]
```

```
*****
```

```
Open/close moshell logfiles.
```

```
...<cut>...
```

Or, to log the whole moshell session:

```
moshell <node-address> | tee <logfile>
```

2.4 Pattern matching

Unix regular expressions are used frequently in the moshell command syntax, therefore we give a short description here, for those not already familiar with them.

Unix regular expressions allow to perform pattern matching on text strings. A regular expression is like a text string but some characters have a special meaning. These characters are called meta-characters.

More info on google “Regular expressions”

Some of the most used meta-characters are:

Dot, star, and plus signs

- . --> matches any single character
- * --> matches 0 or more occurrences of the previous character
- + --> matches 1 or more occurrences of the previous character

E.g:

- a* matches nothing, or a or aa or aaa, etc.
- a+ matches a, or aa, or aaa, etc.
- .* matches 0 or more occurrences of any character
- .+ matches 1 or more occurrences of any character

Example:

Words to match	Regular expression
port110 port120 port230	port..0 or port.*0

Square brackets

- [] --> matches a character or range of characters inside the brackets
- [^] --> NOT matching a character or range of characters inside the brackets

E.g:

- [a-z] matches all letters from a to z
- [0-9] matches all numbers from 0 to 9
- [abe] matches letters a,b, and e
- [^3] matches any character but not 3

Example:

Words to match	Regular expression
port110 port120 port230	port[12][1-3]0

Or sign

- | --> OR

E.g:

- 3|5|6 matches 3 or 5 or 6
- utrancell|iublink

Example:

Words to match	Regular expression
----------------	--------------------

port110 port120 port230 line110 line120 line230	port[12][1-3]0 line[12][1-3]0
---	-------------------------------

Anchor characters

^ --> marks the beginning of the text string

\$ --> marks the end of the string

E.g:

^utrancell matches utrancell but not externalutrancell

slot=8,pluginunit=1\$

^a.*4\$ matches a string beginning with a and finishing with 4, with any character in the middle

Example:

Words to match	Regular expression
port110 port120 port230	^port[12][1-3]0\$

Round brackets, for grouping

E.g:

cell(11|23|45) matches cell11 or cell23 or cell45 (same as: cell11|cell23|cell45)

[^(utrancell)] matches any string except a string matching "utrancell"

Example:

Words to match	Regular expression
port110 port120 port230 line110 line120 line 230	^(port line)[12][1-3]0\$

Negation

! --> negation (not a real meta-character but treated as a meta-character in moshell)

E.g:

!utrancell|loadmodule matches any string except a string matching "utrancell" or "loadmodule"

3 MO COMMANDS

3.1 The MOM

The Managed Object Model (MOM), also called Managed Information Model (MIM), is a document describing for each particular node SW version:

- all the different types of MOs (MO classes)

- the attributes contained in each MO class
- the containment relationships (parents/children) between the MO classes.
- the actions supported by each MO class

The MOM can be browsed from moshell in text format (command “mom/pmom”) or from CPI in html format.

Mozilla Firefox

File Edit View History Bookmarks Tools Help

wwwproxy file:///C:/cygwin/home/eanzmagn/testlogs/mom_r Primus

[class](#)
[struct](#)
[enum](#)
[exception](#)

[Vp3TpTc](#)
[Mtp3bAp](#)
[Mtp3bSIansi](#)
[Mtp3bSIChina](#)
[Mtp3bSIItu](#)
[Mtp3bSIs](#)
[Mtp3bSITtc](#)
[Mtp3bSpAnsi](#)
[Mtp3bSpChina](#)
[Mtp3bSpItu](#)
[Mtp3bSpTtc](#)
[Mtp3bSr](#)
[Mtp3bSrs](#)
[NbapCommon](#)
[NbapDedicated](#)
[Ncli](#)
[NniSaalProfile](#)
[NniSaalTp](#)
[NodeSynch](#)
[Os155SpiTp](#)
[Ospf](#)
[OspfArea](#)
[OspfInterface](#)
[PacketDataRouter](#)
[Paging](#)
[Pch](#)
[PdrDevice](#)
[PduType](#)
[PlmnIdentityGroup](#)
[PsnTcTtc](#)

class VclTp

```

ManagedElement
+-TransportNetwork
+-AtmPort
+-VplTp
+-VpcTp
+-VclTp

```

Virtual Channel Link Termination Point
Represents the termination of an external VC link in the node.
A maximum of 10 000 instances of this MO can be configured in a node.
The VC service category cannot be configured to UBR+ or CBR, if the parent VplTp has the service category set to UBR. The service category is set by the attribute serviceCategory in AtmTrafficDescriptor.

Possible parents:
[VpcTp](#);

References from:
[Aal0TpVccTp](#); [Aal1TpVccTp](#); [Aal2PathVccTp](#); [Aal5TpVccTp](#); [AtmCrossConnection](#);

References to:
[AtmTrafficDescriptor](#); [ManagedObject](#);

Actions

boolean	eteLoopBack (): Performs an end-to-end loopback on the Virtual Channel. Transaction required: Yes
---------	--

Attributes

AtmTrafficDescriptor mandatory	atmTrafficDescriptorId Reference to an instance of AtmTrafficDescriptor MO.
AvailabilityStatus noNotification nonPersistent	availabilityStatus The availability status.

Done Proxv: wwwproxv

3.2 MOM command

View the MO description:

```
RNC11> h mom
```

```
*****
mom[tcd] [<moclass/struct/enum>|all] [<attribute/action>|all] [<attr-type>|all] [<attr-flags>|all] [<description>]
*****
....
```

```
RNC11> mom plug
```

```
#####
MO Class          Attributes/Actions
#####
PlugInUnit        PlugInUnitId,administrativeState,allowedSeqRestarts,availabilityStatus,greenLed,hwTestResult,
hwTestStatus,operationalState,piuGroupNumber,piuType,productType,redLed,reservedBy,userLabel,yellowLed
                  manualRestart,restart
This MO represents a plug-in-unit, that is a board inserted in a slot in a subrack.
Before deleting the PlugInUnit MO, administrativeState must be set to LOCKED.
-----
```

View the attributes and actions description:

```
RNC11> mom plug piutype
```

```
#####
MO Class          Attribute          Type          Flags
#####
PlugInUnit        piuType            moRef:PiuType    restricted,noNotification,mandatory
-----
Reference to an instance of PiuType.
*****
```

```
RNC11> mom . piutype
```

```
#####
MO Class          Attribute          Type          Flags
#####
Fan               piuType            moRef:PiuType    mandatory
```

Reference to an instance of PiuType.

PiuType PiuTypeId string restricted,noNotification,mandatory

The value component of the RDN.
It is set automatically during system upgrade.

PlugInUnit piuType moRef:PiuType restricted,noNotification,mandatory

Reference to an instance of PiuType.

Repertoire piuTypeList sequence:moRef-PiuType readOnly,noNotification

A list containing all PiuType references that has been added to this repertoire.

RNC11> mom plug .

M0 Class Attribute Type Flags

PlugInUnit PlugInUnitId string restricted,noNotification,mandatory

Naming attribute value.
Set by the operator at create of the M0.

PlugInUnit administrativeState enumRef:AdmState

The administrative state of the PlugInUnit.
The possibility to rollback the setting of this attribute is limited.
Default=LOCKED

PlugInUnit allowedSeqRestarts enumRef:SeqRestarts

The number of automatic (do not require intervention from a human operator) sequential restarts that are allowed for a PIU. When this number of automatic restarts has been exceeded, the automatic restarting halts and the PIU is faulty marked. The time limit between two restarts is 5 minutes. This means that if the time between two restarts is less then 5 minutes the restarts are counted, otherwise the restart counter is reset. For example, RESTARTS_WITH_WARM means 3 restarts with time limit < 5 minutes are accepted but when the 4:th occurs within 5 minutes the board is considered faulty and an alarm is generated. The attribute specifies the automatic (spontanenous) restart escalation ladder for the board. Example: if the attribute it set to RESTARTS_WITH_COLD the first restart will be of type cold, the second (within five minutes) will be cold_test. The third restart (within five minutes) will fault mark the board.

Note! If no value is supplied at creation, a default value, fetched from referred PiuType's attribute 'defAllowedSeqRestarts' will be used.

Default=RESTARTS_WITH_WARM

PlugInUnit	availabilityStatus	enumRef:AvailabilityStatus	readOnly,nonPersistent,noNotification
------------	--------------------	----------------------------	---------------------------------------

The availability status is used to qualify the operational state. It indicates why the operational state has changed its value to disabled. It is a bit mapped CORBA long, where one or more of the bits may be set. If none of the bits are set then the availability status is considered to be undefined.

PlugInUnit	hwTestResult	string	readOnly,noNotification
------------	--------------	--------	-------------------------

This attribute contains text information from latest performed HW-tests.

Default=""

PlugInUnit	hwTestStatus	enumRef:TestStatus	readOnly,noNotification
------------	--------------	--------------------	-------------------------

Indicates the status of HW tests.

Default=NO_TEST_RESULTS

PlugInUnit	operationalState	enumRef:OperState	readOnly,nonPersistent
------------	------------------	-------------------	------------------------

The operational state is set to 'enabled' when the plug-in-unit has loaded and started its 'Basic' load module.

PlugInUnit	piuGroupNumber	long	
------------	----------------	------	--

Indicates which restart group the plug-in unit belongs to.

Such a group consists of a number of plug-in units where at least one must be enabled (working) or performing recovery. When all plug-in units in a group are out of function, the node is restarted.

Must have a positive value.

Zero indicates no group.

Range: 0 to 65536, Default=0

PlugInUnit	piuType	moRef:PiuType	restricted,noNotification,mandatory
------------	---------	---------------	-------------------------------------

A reference to an available PiuType at create of a PIU.

PlugInUnit	productType	string	readOnly,noNotification
------------	-------------	--------	-------------------------

This attribute describes the product type and is always set to the value "HW".

Default="HW"

PlugInUnit	reservedBy	sequence:moRef-ManagedObject	readOnly,noNotification
------------	------------	------------------------------	-------------------------

```
List of managed objects depending on PlugInUnit
*****
PlugInUnit          userLabel          string
-----
Label for free use.
Range: 0 to 128, Default=""
*****

#####
M0 Class          Action          ReturnType          Parameters
#####
PlugInUnit          manualRestart          void
3:restartRank:restartReason:restartInfo:enumRef-RestartRank:enumRef-RestartReason:string
-----
Description of the parameters:
restartReason: This parameter is mandatory.
restartInfo: A free text field where extra information can be added.
This parameter is optional. The length of this text field is 0..80.
Transaction required = Yes
ReturnType: void
Parameter 1: restartRank (enumRef-RestartRank).
Parameter 2: restartReason (enumRef-RestartReason). This parameter is mandatory.
Parameter 3: restartInfo (string). A free text field where extra information can be added.
This parameter is optional. The length of this text field is 0..80.
*****
PlugInUnit          restart          void          2:restartRank:restartCause:enumRef-
RestartRank:enumRef-RestartCause
-----
Deprecated: This action should not be used. Use ManualRestart instead.
The restartCause can have the following values:
1 = restart error
2 = restart upgrade
The restartCause piuRestartUpgrade overrides the restartRank value and gives mainly restartRank=warm (or restartRank=refresh in
some upgrade situations.
Transaction required = Yes
ReturnType: void
Parameter 1: restartRank (enumRef-RestartRank).
Parameter 2: restartCause (enumRef-RestartCause).
*****
```

View the attributes and action list, without description:

```
RNC11> momd . piuty
```

```
#####
MO Class      Attribute      Type      Flags
#####
Fan           piuType        moRef:PiuType      mandatory
PiuType       PiuTypeId       string             restricted,noNotification,mandatory
PlugInUnit    piuType        moRef:PiuType      restricted,noNotification,mandatory
Repertoire    piuTypeList     sequence:moRef-PiuType  readOnly,noNotification
```

RNC11> momd . restart

```
#####
MO Class      Attribute      Type      Flags
#####
Mtp3bSpChina  restartType      enumRef:RestartType
PiuType       defAllowedSeqRestarts  enumRef:SeqRestarts
restricted,noNotification,mandatory
PlugInUnit    allowedSeqRestarts  enumRef:SeqRestarts
Program       restartCounterLimit  long
Program       restartTimer        long
```

```
#####
MO Class      Action      Parameters
#####
Fan           restartFan    1:restartCause:enumRef-RestartCause
Jvm           restart      0
ManagedElement  manualRestart  3:restartRank:restartReason:restartInfo:enumRef-RestartRank:enumRef-RestartReason:string
ManagedElement  restart      1:restartRank:enumRef-RestartRank
PlugInUnit     manualRestart  3:restartRank:restartReason:restartInfo:enumRef-RestartRank:enumRef-RestartReason:string
PlugInUnit     restart      2:restartRank:restartCause:enumRef-RestartRank:enumRef-RestartCause
Program       restart      0
Spm           restart      0
Spu           restart      0
```

RNC11> momd plug .

```
#####
MO Class      Attribute      Type      Flags
#####
PlugInUnit    PlugInUnitId  string             restricted,noNotification,mandatory
PlugInUnit    administrativeState  enumRef:AdmState
PlugInUnit    allowedSeqRestarts  enumRef:SeqRestarts
PlugInUnit    availabilityStatus  enumRef:AvailabilityStatus  readOnly,nonPersistent,noNotification
PlugInUnit    hwTestResult    string             readOnly,noNotification
```

PlugInUnit	hwTestStatus	enumRef:TestStatus	readOnly,noNotification
PlugInUnit	operationalState	enumRef:OperState	readOnly,nonPersistent
PlugInUnit	piuGroupNumber	long	
PlugInUnit	piuType	moRef:PiuType	restricted,noNotification,mandatory
PlugInUnit	productType	string	readOnly,noNotification
PlugInUnit	reservedBy	sequence:moRef-ManagedObject	readOnly,noNotification
PlugInUnit	userLabel	string	

#####			
MO Class	Action	ReturnType	Parameters
#####			
PlugInUnit	manualRestart	void	3: restartRank: restartReason: restartInfo: enumRef-RestartRank: enumRef-RestartReason:string
PlugInUnit	restart	void	2: restartRank: restartCause: enumRef-RestartRank: enumRef-RestartCause

Search the MOM by using regular expressions:

```
RNC11> h mom

*****
mom[tcd] [<moclass/struct/enum>|all] [<attribute/action>|all] [<attr-type>|all] [<attr-flags>|all] [<description>]
*****
....
```

Example: all attributes related to license handling:

```
OFFLINE> momd . . . . licens

100127-06:32:35 is 8.0 MGW_NODE_MODEL_R6_0_R5_A02 stopfile=/tmp/1776

#####
MO Class      Attributes
#####
GcpAssociation
GcpAssociationId,availabilityStatus,gcpLocalEndpointMoRef,maxNoOfOutgoingStreams,operationalState,remoteIpAddress1,remoteIpAddress2,remotePortNumber,reservedBy,userLabel
Licensing      LicensingId,emergencyStateInfo,licenseFileUrl,userLabel
PcmService      PcmServiceId,reservedBy

#####
MO Class      Actions
```


Licensing setEmergencyState,updateLicenseKeyFile

MO Class Attribute Type Flags

AccessSignalling busyUnitsPra long
readOnly,nonPersistent,noNotification
AccessSignalling licenseCapacityPra long
readOnly,nonPersistent,noNotification
AccessSignalling licenseStatePra enumRef:StateVals
readOnly,nonPersistent,noNotification
AmrWbService licenseCapacityAmrWb long
readOnly,nonPersistent,noNotification
AmrWbService licenseStateAmrWb enumRef:StateVals
readOnly,nonPersistent,noNotification
CsdGsmFaxService pstnDelay long noNotification
CsdGsmFaxService radioDelay long noNotification
EcRouteParameterSet fixedLevelControl long
EcRouteParameterSet networkProbeMode enumRef:NetworkProbeMode
G729Service licenseCapacityG729 long
readOnly,nonPersistent,noNotification
G729Service licenseStateG729 enumRef:StateVals
readOnly,nonPersistent,noNotification
Licensing licenseFileUrl string readOnly,noNotification
MccService mobileCrossTalkControlMode enumRef:MobileCrossTalkControlMode
MgwApplication amrWbHigherThresholdAlarm boolean noNotification
MgwApplication amrWbLowerThresholdAlarm boolean noNotification
MgwApplication g729HigherThresholdAlarm boolean noNotification
MgwApplication g729LowerThresholdAlarm boolean noNotification
MgwApplication licenseStateGcpOverSctp enumRef:StateVals
readOnly,nonPersistent,noNotification
MgwApplication licenseStateIuOverIp enumRef:StateVals
readOnly,nonPersistent,noNotification
MgwApplication licenseStateVoIpGw enumRef:StateVals
readOnly,nonPersistent,noNotification
MgwApplication maxNrOfLicMediaStreamChannels long
readOnly,nonPersistent,noNotification
MgwApplication mbacCongestionDscpMode enumRef:MbacCongDscpMode noNotification
MgwApplication mbacCongestionDscpValue long
MgwApplication mbacLicensingStatus enumRef:LicensingStatus readOnly,nonPersistent
MgwApplication mbacLostPacketsCalculationMode enumRef:MbacLostPackMode noNotification
MgwApplication mbacMeasurementInterval long
MgwApplication mbacMode enumRef:MbacMode
MgwApplication mbacThreshold enumRef:MbacThresholdLevel
MgwApplication mccLicensingStatus enumRef:LicensingStatus readOnly,nonPersistent
MgwApplication nrLicensingStatus enumRef:LicensingStatus readOnly,nonPersistent
MgwApplication sccHigherThresholdAlarm boolean noNotification
MgwApplication sccLowerThresholdAlarm boolean noNotification

NrService	noiseReductionConfiguration	enumRef:NoiseReductionConfMode
TdmTermGrp	mccMode	enumRef:MccMode
TdmTermGrp	nrMode	enumRef:NrMode
Vmgw	activeGcpTransportLayer	enumRef:GcpTransportType

MO Class	Action	ReturnType	Parameters
Licensing	setEmergencyState	void	0
Licensing	updateLicenseKeyFile	void	4:userId:password:ipAddress:sFile:string:string:string:string

Struct	StructMember	Type
EcRouteParameterSetData	networkProbeMode	enumRef:NetworkProbeMode
EcRouteParameterSetData	fixedLevelControl	long
EmergencyInfo	state	enumRef:EmergencyStatus

Enum	Values
EmergencyStatus	0:NEVER_USED, 1:ACTIVE, 2:USE_DEGRADED, 3:ACTIVE_AGAIN, 4:USE_DISABLED
LicensingStatus	0:DISABLED, 1:ENABLED
NrMode	0:NR_OFF, 1:NR_ON

View the MOM tree structure:

```

RNC11> h mom

*****
mom[tcd] [<moclass/struct/enum>|all] [<attribute/action>|all] [<attr-type>|all] [<attr-flags>|all] [<description>]
*****

....

RNC11> momt

-----
MO classes under ManagedElement
-----

```

```

Equipment[1] (systemCreated)
  Jvm[1] (systemCreated)
  SpDevicePool[3] (systemCreated)
    CcDevice[0-75]
    DcDevice[0-300]
    PdrDevice[0-17]
      IpEthPacketDataRouter[0-2]
      PacketDataRouter[0-8]
  Subrack[0-9]
    Fan[0-1]
    Program[0-]
    GpsReceiver[0-1]
    Slot[1-28] (systemCreated)
      PlugInUnit[0-1]
        Cbu[0-1]
  ExchangeTerminal[1]
    E1PhysPathTerm[0-8]
      Ds0Bundle[0-31]
    E3PhysPathTerm[0-2]
    J1PhysPathTerm[0-8]
      Ds0Bundle[0-24]
    Os155SpiTtp[0-4]
      Sts1SpeTtp[0-3] (systemCreated)
        Vt15Ttp[28] (systemCreated)
          T1Ttp[1] (systemCreated)
            Ds0Bundle[0-24]
          Sts3CspeTtp[0-1] (systemCreated)
            Vc3Ttp[0-3] (systemCreated)
              Vc11Ttp[28] (systemCreated)
                HgTtp[4] (systemCreated)
                  Ds0Bundle[0-6]
              Vc4Ttp[0-1] (systemCreated)
                Vc12Ttp[63] (systemCreated)
                  E1Ttp[1] (systemCreated)
                    Ds0Bundle[0-31]
            Program[0-]
            T1PhysPathTerm[0-8]
              Ds0Bundle[0-24]
            T3PhysPathTerm[0-2]
  GeneralProcessorUnit[0-1]
    FastEthernet[0-1]
    LoadControl[0-1]
    MediumAccessUnit[0-1]
  TimingUnit[0-1]
    Program[0-]

```

```

                                TuSyncRef[0-2]
EtMfg[0-1]
    GigaBitEthernet[0-1]
        IpInterface[0-8]
        Program[0-]
ExchangeTerminal[0-1]
    E1PhysPathTerm[0-8]
        Ds0Bundle[0-31]
    E3PhysPathTerm[0-2]
    J1PhysPathTerm[0-8]
        Ds0Bundle[0-24]
    Os155SpiTtp[0-4]
        Sts1SpeTtp[0-3] (systemCreated)
            Vt15Ttp[28] (systemCreated)
                T1Ttp[1] (systemCreated)
                    Ds0Bundle[0-24]
            Sts3CspeTtp[0-1] (systemCreated)
                Vc3Ttp[0-3] (systemCreated)
                    Vc11Ttp[28] (systemCreated)
                        HgTtp[4] (systemCreated)
                            Ds0Bundle[0-6]
                Vc4Ttp[0-1] (systemCreated)
                    Vc12Ttp[63] (systemCreated)
                        E1Ttp[1] (systemCreated)
                            Ds0Bundle[0-31]
        Program[0-]
        T1PhysPathTerm[0-8]
            Ds0Bundle[0-24]
        T3PhysPathTerm[0-2]
ExchangeTerminalIp[0-1]
    EthernetSwitch[0-1]
        EthernetSwitchPort[0-7]
            SwitchPortStp[1] (systemCreated)
            SwitchStp[1] (systemCreated)
        InternalEthernetPort[0-1]
            IpInterface[0-8]
        Program[0-]
GeneralProcessorUnit[0-1]
    FastEthernet[0-1]
    LoadControl[0-1]
    MediumAccessUnit[0-1]
Program[0-]
Spu[0-1]
    Program[0-]
    Spm[0-5]

```

```

                                Program[0-]
                                SwitchCoreUnit[0-1]
                                SwitchExtensionUnit[0-1]
                                TimDevice[0-1]
                                TimingUnit[0-1]
                                Program[0-]
                                TuSyncRef[0-2]

IpOam[1] (systemCreated)
    Dhcp[1] (systemCreated)
    Ip[0-1]
        EthernetLink[0-1]
        IpAtmLink[0-810]
        IpRoutingTable[1] (systemCreated)
    Ospf[0-1]
        OspfArea[1-4]
        OspfInterface[0-32]
IpSystem[1] (systemCreated)
    IpAccessAutoConfig[0-32]
    IpAccessHostEt[0-64]
        IpSyncRef[0-8]
    IpAccessHostGpb[0-64]
    IpAccessHostPool[0-16]
    IpAccessHostSpb[0-64]
ManagedElementData[1] (systemCreated)
RncDeployment[1] (systemCreated)
RncFunction[1] (systemCreated)
    CchFrameSynch[1] (systemCreated)
    CellUpdate[1] (systemCreated)
    ChannelSwitching[1] (systemCreated)
    CnOperator[0-4]
        IuLink[0-32]
            Ranap[0-1]
    CpmTransGapPattSeq[4] (systemCreated)
    DchFrameSynch[0-5]
    ExternalGsmNetwork[0-64]
        ExternalGsmCell[0-7680]
    Handover[1] (systemCreated)
    IuBcLink[0-1]
    IubLink[0-768]
        IubEdch[0-1]
        NbapCommon[0-1]
        NbapDedicated[0-1]
        NodeSynch[1] (systemCreated)
    IurLink[0-64]
        ExternalUtranCell[0-2304]

```

```

        Rnsap[0-1]
        WcdmaCarrier[0-8]
LocationArea[0-47]
        RoutingArea[0-154]
        ServiceArea[0-2304]
Mbms[0-1]
        MbmsServiceArea[0-768]
        MtchFrameSynch[1] (systemCreated)
MocnCellProfile[0-30]
Paging[1] (systemCreated)
PlmnIdentityGroup[0-32]
PowerControl[1] (systemCreated)
RabHandling[1] (systemCreated)
        ArpQosClassProfile[1] (systemCreated)
                TrafficClass[8] (systemCreated)
                        ArpMap[1] (systemCreated)
                        DchMap[0-15]
                        TcMap[0-15]
                TrafficClassPsInt[4] (systemCreated)
                        ArpMap[1] (systemCreated)
        RnlQosClassProfile[2] (systemCreated)
                SpiQosClass[15] (systemCreated)
                TrafficClass[3] (systemCreated)
                        ArpMap[1] (systemCreated)
                        DchMap[0-15]
                        TcMap[0-15]
                TrafficClassPsInt[4] (systemCreated)
                        ArpMap[1] (systemCreated)
        TnlDchQosClassProfile[1] (systemCreated)
                TnlQosClass[0-16]
                TrafficClass[6] (systemCreated)
                        ArpMap[1] (systemCreated)
                        DchMap[0-15]
                        TcMap[0-15]
        TnlHspaQosClassProfile[1] (systemCreated)
                TnlQosClass[16]
        TnlIuQosClassProfile[1] (systemCreated)
                TnlQosClass[0-16]
                TrafficClass[4] (systemCreated)
                        ArpMap[1] (systemCreated)
                        DchMap[0-15]
                        TcMap[0-15]
                TrafficClassPsInt[4] (systemCreated)
                        ArpMap[1] (systemCreated)
Rcs[1] (systemCreated)

```

```

ResMeasControl[1] (systemCreated)
RncModule[0-33]
RncSystemParameters[1] (systemCreated)
Rrc[1] (systemCreated)
SasPositioning[1] (systemCreated)
    Pcap[0-1]
SecurityHandling[1] (systemCreated)
Sid[1] (systemCreated)
TnlCchQosClassProfile[1] (systemCreated)
    TnlQosClass[1]
UeMeasControl[1] (systemCreated)
UePositioning[1] (systemCreated)
    AgpsPositioning[1] (systemCreated)
    PositioningServiceClass[3] (systemCreated)
    RttPositioning[1] (systemCreated)
UeRabType[0-6]
    Subflow[0-3]
        SduFormat[0-5]
UeRc[0-96]
    UeRcEdchFlow[0-4]
    UeRcHsdsc[0-3]
    UeRcPhyChDL[0-1]
    UeRcPhyChEdch[0-2]
        UeRcEdchGainFactors[0-6]
    UeRcPhyChTfc[0-240]
    UeRcPhyChUL[0-1]
    UeRcRab[0-7]
    UeRcRb[0-10]
    UeRcRrc[0-2]
    UeRcTrCh[0-7]
UeRrcType[0-1]
Ura[0-2304]
UtranCell[0-2304]
    CoverageRelation[0-1]
    Fach[0-1]
    GsmRelation[0-64]
    Hsdsc[0-1]
        Eul[0-1]
    MbmsCch[0-1]
    Pch[0-1]
    Rach[0-1]
    UtranRelation[0-63]
UtranNetwork[0-64]
WcdmaCarrier[0-8]
SwManagement[1] (systemCreated)

```

```

ConfigurationVersion[1] (systemCreated)
LoadModule[0-]
PiuType[0-]
ReliableProgramUniter[0-]
Repertoire[0-]
SwAllocation[0-]
UpgradePackage[0-]
UpgradeTrace[1] (systemCreated)
SwitchFabric[1] (systemCreated)
    InternalLinkGroup[0-31]
        SwitchInternalLink[0-8]
    SwitchModule[0-32]
SystemFunctions[1] (systemCreated)
    Licensing[] (systemCreated)
        RncCapacity[0-] (systemCreated)
        RncFeature[0-] (systemCreated)
    LogService[1] (systemCreated)
        Log[0-]
    Ncli[1] (systemCreated)
    PmService[1] (systemCreated)
    Security[1] (systemCreated)
    WebServer[1] (systemCreated)
TransportNetwork[1] (systemCreated)
    Aal0TpVccTp[0-2200]
    Aal1TpVccTp[0-1000]
    Aal2PathVccTp[0-2000]
    Aal2QosCodePointProfile[0-20]
    Aal2QosProfile[0-20]
    Aal2RoutingCase[0-900]
    Aal2Sp[0-1]
        Aal2Ap[0-850]
            Aal2PathDistributionUnit[0-28]
    Aal5TpVccTp[0-6000]
    AtmConfService[0-1]
    AtmCrossConnection[0-5000]
    AtmPort[0-1000]
        VplTp[0-]
            VpcTp[0-1]
                VclTp[0-5000]
    AtmTrafficDescriptor[0-1000]
    ImaGroup[0-800]
        ImaLink[8] (systemCreated)
    Mspg[0-]
    MspgExtended[0-]
    Mtp2Hsl[0-1]

```

```

        Mtp2HslProfileChina[0-15]
        Mtp2HslProfileItu[0-15]
        Mtp2HslTpChina[0-30]
        Mtp2HslTpItu[0-30]
Mtp2ProfileAnsi[0-256]
Mtp2ProfileChina[0-256]
Mtp2ProfileItu[0-256]
Mtp2ProfileTtc[0-256]
Mtp2TpAnsi[0-512]
Mtp2TpChina[0-512]
Mtp2TpItu[0-512]
Mtp2TpTtc[0-512]
Mtp3bSpAnsi[0-24]
        M3uAssociation[0-512]
        Mtp3bAp[0-510]
        Mtp3bSls[0-255]
                Mtp3bSlAnsi[0-16]
                Mtp3bSlChina[0-16]
                Mtp3bSlItu[0-16]
                Mtp3bSlTtc[0-16]
        Mtp3bSrs[0-255]
                Mtp3bSr[0-5]
        SgwMgmtMapping[0-50]
Mtp3bSpChina[0-24]
        M3uAssociation[0-512]
        Mtp3bAp[0-510]
        Mtp3bSls[0-255]
                Mtp3bSlAnsi[0-16]
                Mtp3bSlChina[0-16]
                Mtp3bSlItu[0-16]
                Mtp3bSlTtc[0-16]
        Mtp3bSrs[0-255]
                Mtp3bSr[0-5]
        SgwMgmtMapping[0-50]
Mtp3bSpItu[0-24]
        M3uAssociation[0-512]
        Mtp3bAp[0-510]
        Mtp3bSls[0-255]
                Mtp3bSlAnsi[0-16]
                Mtp3bSlChina[0-16]
                Mtp3bSlItu[0-16]
                Mtp3bSlTtc[0-16]
        Mtp3bSrs[0-255]
                Mtp3bSr[0-5]
        SgwMgmtMapping[0-50]

```

```

Mtp3bSpTtc[0-24]
  M3uAssociation[0-512]
  Mtp3bAp[0-510]
  Mtp3bSls[0-255]
    Mtp3bSlAnsi[0-16]
    Mtp3bSlChina[0-16]
    Mtp3bSlItu[0-16]
    Mtp3bSlTtc[0-16]
  Mtp3bSrs[0-255]
    Mtp3bSr[0-5]
  SgwMgmtMapping[0-50]
NniSaalProfile[0-50]
NniSaalTp[0-600]
SccpSp[0-24]
  SccpScrc[1]
    SccpAccountingCriteria[0-100]
    SccpApLocal[0-7]
    SccpApRemote[0-200]
    SccpEntitySet[0-2048]
    SccpGlobalTitle[0-2048]
    SccpPolicing[0-1024]
Sctp[0-34]
Synchronization[1] (systemCreated)
TdmCrossConnection[0-1500]
UniSaalProfile[0-300]
UniSaalTp[0-4800]

```

Printing attribute default values and ranges:

RNC11> momr aal2path

```

#####
MO Class      Attribute      Range
#####
Aal2PathDistributionUnit  userLabel      0 to 128
Aal2PathVccTp             aal2PathId     1 to 2147483647
Aal2PathVccTp             timerCu        1 to 100
Aal2PathVccTp             userLabel      0 to 128

```

RNC11> momb aal2path

```

#####

```

M0 Class	Attribute	Default
#####		
Aal2PathVccTp	aal2QoSAvailableProfiles	15 (CLASS_A_B_C_D)
Aal2PathVccTp	administrativeState	1 (UNLOCKED)
Aal2PathVccTp	alarmReport	2 (ALARM_LOC)
Aal2PathVccTp	continuityCheck	false
Aal2PathVccTp	counterActivation	false
Aal2PathVccTp	counterMode	6 (PM_MODE_FPM_BR)
Aal2PathVccTp	nomPmBlocksize	1024 (NOM_PM_BLKSIZE_2_10)
Aal2PathVccTp	remoteBlockingState	0 (UNDEFINED)
Aal2PathVccTp	timerCu	10

Printing length of attributes of type sequence:

RNC11> moml

#####		
M0 Class	Attribute	Length
#####		
Aal2RoutingCase	routeList	5
Aal2RoutingCase	routePriorityList	5
ArpMap	externalArpMapping	14
Cn0Operator	equivalentPlmnIdentities	64
Cn0Operator	equivalentPlmnIdentityGroupRef	32
Cn0Operator	iphoNetworkRefsGsm	64
Cn0Operator	iphoNetworkRefsUtran	64
DchMap	internalArp	15
EthernetSwitch	pbitQueueMap	8
EthernetSwitchPort	pbitQueueMap	8
ExternalGsmNetwork	aliasPlmnIdentities	30
ExternalGsmNetwork	reservedBy	4
Fan	connectedToScu	2
IpAccessHostPool	ipAccessHostRef	16
IpAccessHostPool	reservedBy	864
IpEthPacketDataRouter	reservedBy	16
IuLink	packetDataRouterRef	10
IubLink	reservedBy	12
IurLink	aliasPlmnIdentities	30
LocationArea	reservedBy	2304
ManagedElement	healthCheckSchedule	14
MbmsCch	nonPLMbmsSaRef	7
MbmsCch	plMbmsSaRef	7
MbmsServiceArea	reservedBy	2304

PacketDataRouter	reservedBy	16
PdrDevice	reservedBy	10
PlmnIdentityGroup	plmn	64
PositioningServiceClass	firstAttemptCandidate	3
Ranap	networkResourceIdentifier	8
RncFunction	aliasPlmnIdentities	30
RncModule	reservedBy	72
RncModule	rpuRefs	10
RoutingArea	reservedBy	2304
ServiceArea	reservedBy	2304
SpiQosClass	reservedBy	23
Synchronization	syncRefActivity	8
Synchronization	syncRefPriority	8
Synchronization	syncRefStatus	8
Synchronization	syncReference	8
UeRcPhyChTfc	rcTfi	7
UeRcTrCh	maxTfSubset	4
Ura	reservedBy	2304
UtranCell	accessClassNBarred	16
UtranCell	accessClassesBarredCs	16
UtranCell	accessClassesBarredPs	16
UtranCell	uraRef	4
UtranCell	utranCellPosition	45
UtranNetwork	aliasPlmnIdentities	64
UtranNetwork	reservedBy	68

3.3 lt and pr command

To connect to the MO interface, we must run the command “lt all”.

The command “lt all” reads the list of all MOs currently existing in the MIB and their LDN (Local Distinguished Name).

Moshell builds a table containing the list of all MO LDNs and assigns each of them an arbitrary proxy number.

This list can be printed with the “pr” command.

Checking ip contact...OK

```

HELP MENU      : h
BASIC MO COMMANDS : m
OTHER MO COMMANDS : n
OTHER COMMANDS  : o

```

```
PM COMMANDS      : p
QUIT             : q
```

RNC11>

RNC11> lt all

Checking MOM version...RNC_NODE_MODEL_G_1_4

Using MOM version: RNC_NODE_MODEL_G_1_4_COMPLETE

Parsing MOM (cached): /home/eanzmagn/moshell/jarxml/RNC_NODE_MODEL_G_1_4_COMPLETE.xml.cacheDone.

Fetching IOR file...Done.

**** Welcome to the Simple Mo Browser (version 3.0)!

Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060707-231532_7185/ior7185

**** Test Construction OK

Connected to 137.58.194.88 (ManagedElement=1)

Connected to 137.58.194.88 (ManagedElement=1)

Last MO: 5203. Loaded 5203 MOs. Total: 5204 MOs.

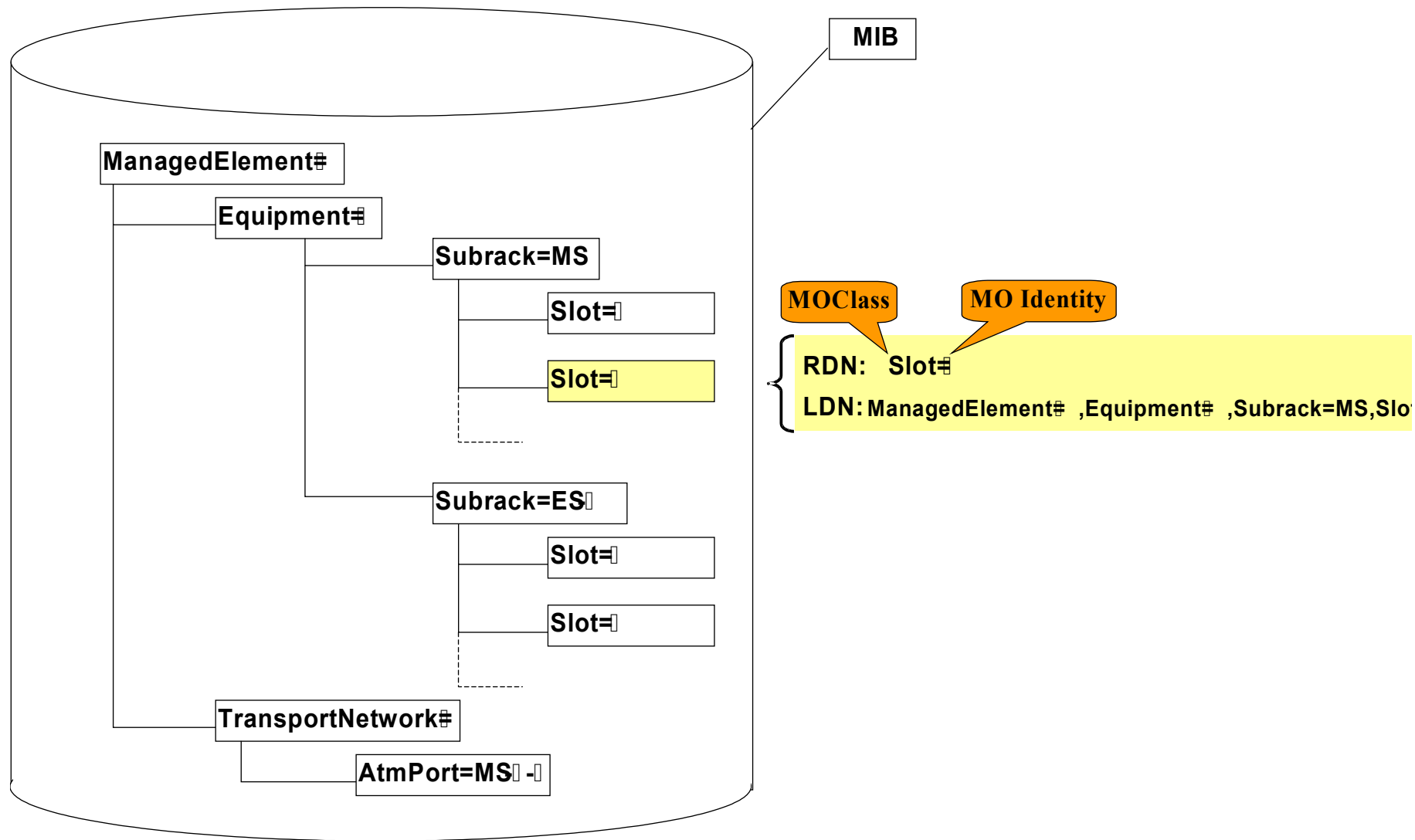
RNC11> pr

```
=====
Proxy  M0
=====
```

```
0  ManagedElement=1
1  ManagedElementData=1
2  SystemFunctions=1
3  SystemFunctions=1,Licensing=1
4  SystemFunctions=1,Licensing=1,RncFeature=HsdpaMobilityPhase2
5  SystemFunctions=1,Licensing=1,RncFeature=HsdpaMobilityPhase1
6  Equipment=1
```

etc.....

The MOs are organised in a hierarchical tree.



Distinguished names are used for addressing of MOs in the MIB.

There are three ways to address an MO. Using:

- **RDN, Relative Distinguished Name. Unique name in relation to the nearest parent.**
Eg: Slot=2. On the left of the "=" sign is the MO class, on the right is the MO identity.
The MO identity is stored in an attribute called "<moclass>Id" (e.g. slotId).
The RDN is unique in relation to the nearest parent but not necessarily unique in the node.

- LDN, Local Distinguished Name. Unique name in the node.
Eg: ManagedElement=1,Equipment=1,Subrack=MS,Slot=2

3.4 MO addressing

MO commands allow to perform Configuration Service operations (get, set, action, delete, create).

The MOs on which the operation shall be performed are specified in the first field of the MO command.

There are several syntaxes possible.

Use the “pr” command to try out the different syntaxes and see which MOs will be affected.

The “pr” does not perform any operation on the node, it just prints the MO LDNs from the internal proxy table in moshell.

3.4.1 proxy id(s)

==> MO(s) with the given proxy id(s) will be affected.

To specify several MO proxies, there are two ways:

- Specify each proxy id with a space in between

Example: pr 0 2 5 --> print MO proxies 0, 2, and 5

- Give a range

Example: pr 4-10 --> print MO proxies from 4 to 10

pr 10-4 --> print MO proxies from 10 to 4 (reverse order, useful for deleting MOs)

acc 10-20 restart ---> restart MOs with proxy 10 to 20

MGW1> pr 3658

```
=====
Proxy  M0
=====
```

```
3658  InteractiveMessaging=1,ImMessageComposition=1800
=====
```

Total: 1 MOs

MGW1> lpr 3658

```
=====
Proxy  M0
=====
```

```
3658  InteractiveMessaging=1,ImMessageComposition=1800
=====
```

Total: 1 MOs

RNC11> pr 569-577

=====
Proxy M0
=====

569 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
570 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322250_R51LX04
571 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322166/3_R51LX02
572 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321407_R51LX02
573 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321409_R51LX02
574 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,SwitchCoreUnit=1
575 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321120_R51HV02
576 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321121_R51GD01
577 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322165/12_R51LX02
=====

Total: 9 M0s

RNC11> pr 577-569

=====
Proxy M0
=====

577 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322165/12_R51LX02
576 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321121_R51GD01
575 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321120_R51HV02
574 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,SwitchCoreUnit=1
573 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321409_R51LX02
572 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321407_R51LX02
571 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322166/3_R51LX02
570 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322250_R51LX04
569 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
=====

Total: 9 M0s

MGW1> pr 3650 3652 3653

=====
Proxy M0
=====

3650 InteractiveMessaging=1,ImMessageComposition=2107
3652 InteractiveMessaging=1,ImMessageComposition=2105
3653 InteractiveMessaging=1,ImMessageComposition=2104
=====

Total: 3 M0s

3.4.2 mo-filter

==> MO(s) whose LDN/RDN match the pattern will be operated upon.

If the command starts with "I" then the pattern will match against the LDN.

If the command doesn't start with "I", then the pattern will match against the RDN.

Example:

```
RNC11> pr ms-26-2
```

```
=====
Proxy  M0
=====
```

```
1212  TransportNetwork=1,AtmPort=MS-26-2
=====
```

```
Total: 1 MOs
```

```
RNC11> lpr ms-26-2
```

```
=====
Proxy  M0
=====
```

```
1212  TransportNetwork=1,AtmPort=MS-26-2
1213  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40
1214  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1
1215  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc45
1216  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc44
1217  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc43
1218  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc40
1219  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc39
1220  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc38
1221  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc37
1222  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc36
1223  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc35
1224  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc34
1225  TransportNetwork=1,AtmPort=MS-26-2,VplTp=39
=====
```

```
Total: 14 MOs
```

Using regular expressions:

```
RNC11> pr vcltp=vc45
```

```
=====
Proxy  M0
=====
1217  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc45
1229  TransportNetwork=1,AtmPort=MS-26-2,VplTp=39,VpcTp=1,VclTp=vc45
1241  TransportNetwork=1,AtmPort=MS-26-2,VplTp=38,VpcTp=1,VclTp=vc45
1253  TransportNetwork=1,AtmPort=MS-26-2,VplTp=37,VpcTp=1,VclTp=vc45
1265  TransportNetwork=1,AtmPort=MS-26-2,VplTp=36,VpcTp=1,VclTp=vc45
1277  TransportNetwork=1,AtmPort=MS-26-2,VplTp=35,VpcTp=1,VclTp=vc45
1289  TransportNetwork=1,AtmPort=MS-26-2,VplTp=34,VpcTp=1,VclTp=vc45
.....
```

RNC11> lpr AtmPort=MS-26-2,VplTp=40,vpctp=1,vcltp=vc45

```
=====
Proxy  M0
=====
1215  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc45
=====
Total: 1 M0s
```

RNC11> lpr ms-26-2.*=40.*vc45

```
=====
Proxy  M0
=====
1215  TransportNetwork=1,AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc45
=====
Total: 1 M0s
```

RNC11> pr plug

```
=====
Proxy  M0
=====
11   Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
22   Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1
35   Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1
50   Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1
79   Equipment=1,Subrack=MS,Slot=22,PlugInUnit=1
109  Equipment=1,Subrack=MS,Slot=20,PlugInUnit=1
138  Equipment=1,Subrack=MS,Slot=19,PlugInUnit=1
```

```
167 Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1
181 Equipment=1,Subrack=MS,Slot=17,PlugInUnit=1
195 Equipment=1,Subrack=MS,Slot=16,PlugInUnit=1
215 Equipment=1,Subrack=MS,Slot=15,PlugInUnit=1
235 Equipment=1,Subrack=MS,Slot=14,PlugInUnit=1
255 Equipment=1,Subrack=MS,Slot=13,PlugInUnit=1
275 Equipment=1,Subrack=MS,Slot=12,PlugInUnit=1
295 Equipment=1,Subrack=MS,Slot=11,PlugInUnit=1
348 Equipment=1,Subrack=MS,Slot=10,PlugInUnit=1
401 Equipment=1,Subrack=MS,Slot=9,PlugInUnit=1
416 Equipment=1,Subrack=MS,Slot=8,PlugInUnit=1
431 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1
444 Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1
457 Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1
471 Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
```

```
=====
Total: 23 M0s
```

```
RNC11> pr Subrack=MS,Slot=1,PlugInUnit=1
```

```
=====
Proxy M0
=====
```

```
=====
Total: 0 M0s
```

```
RNC11> lpr Subrack=MS,Slot=1,PlugInUnit=1
```

```
=====
Proxy M0
=====
```

```
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
488 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321451_R50HX06
489 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322025_R50HX01
490 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=nsssycci_mpbp
491 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322165/12_R50HX01
492 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,SwitchCoreUnit=1
493 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=nssscb_bp
494 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1322166/2_R50HX01
495 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321407_R50HX01
496 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1,Program=CXC1321409_R50HX01
```

```
=====
Total: 10 M0s
```

RNC11> lpr Subrack=MS,Slot=1,PlugInUnit=1\$

=====
Proxy M0
=====

487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
=====

Total: 1 M0s

RNC11> lpr Subrack=MS,Slot=[1-7],PlugInUnit=1\$

=====
Proxy M0
=====

431 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1
444 Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1
457 Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1
471 Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
=====

Total: 5 M0s

RNC11> lpr Subrack=MS,Slot=[147],PlugInUnit=1\$

=====
Proxy M0
=====

431 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1
471 Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
=====

Total: 3 M0s

RNC11> lpr Subrack=MS,Slot=[^1]..,PlugInUnit=1\$

=====
Proxy M0
=====

11 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
22 Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1
35 Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1
50 Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1
79 Equipment=1,Subrack=MS,Slot=22,PlugInUnit=1
109 Equipment=1,Subrack=MS,Slot=20,PlugInUnit=1
=====

Total: 6 M0s

RNC11> pr iublink=1

```
=====
Proxy  M0
=====
```

```
4691  RncFunction=1,IubLink=1
4825  RncFunction=1,IubLink=19
4831  RncFunction=1,IubLink=18
4837  RncFunction=1,IubLink=17
4843  RncFunction=1,IubLink=16
4849  RncFunction=1,IubLink=15
4855  RncFunction=1,IubLink=14
4861  RncFunction=1,IubLink=13
4867  RncFunction=1,IubLink=12
4873  RncFunction=1,IubLink=11
4879  RncFunction=1,IubLink=10
=====
```

Total: 11 M0s

RNC11> pr iublink=1\$

```
=====
Proxy  M0
=====
```

```
4691  RncFunction=1,IubLink=1
=====
```

Total: 1 M0s

RNC11> lpr iublink=1,

```
=====
Proxy  M0
=====
```

```
4692  RncFunction=1,IubLink=1,NbapDedicated=1
4693  RncFunction=1,IubLink=1,NbapCommon=1
4694  RncFunction=1,IubLink=1,NodeSynch=1
4695  RncFunction=1,IubLink=1,NodeSynchTp=2
4696  RncFunction=1,IubLink=1,NodeSynchTp=1
=====
```

Total: 5 M0s

RNC11> lpr iublink=1(\$|,)

```

=====
Proxy  M0
=====
4691  RncFunction=1,IubLink=1
4692  RncFunction=1,IubLink=1,NbapDedicated=1
4693  RncFunction=1,IubLink=1,NbapCommon=1
4694  RncFunction=1,IubLink=1,NodeSynch=1
4695  RncFunction=1,IubLink=1,NodeSynchTp=2
4696  RncFunction=1,IubLink=1,NodeSynchTp=1
=====

```

Total: 6 M0s

RNC11> lst iublink=1(,|\$)

```

=====
Proxy  Adm State      Op. State      M0
=====
4691           1 (ENABLED)    RncFunction=1,IubLink=1
4692  0 (LOCKED)    0 (DISABLED)    RncFunction=1,IubLink=1,NbapDedicated=1
4693  0 (LOCKED)    0 (DISABLED)    RncFunction=1,IubLink=1,NbapCommon=1
4695  0 (LOCKED)    1 (ENABLED)    RncFunction=1,IubLink=1,NodeSynchTp=2
4696  0 (LOCKED)    0 (DISABLED)    RncFunction=1,IubLink=1,NodeSynchTp=1
=====

```

Total: 5 M0s

RNC11> lbl iublink=1,

```

=====
Id  M0                                     AdministrativeState  Result
=====
4692  IubLink=1,NbapDedicated=1                0                   >>> Set.
4693  IubLink=1,NbapCommon=1                    0                   >>> Set.
4695  IubLink=1,NodeSynchTp=2                    0                   >>> Set.
4696  IubLink=1,NodeSynchTp=1                    0                   >>> Set.
=====

```

Total: 4 M0s attempted, 4 M0s set

The “%” sign used at the beginning of the string is an additional moshell “meta-character” which can be used to specify the MOs in reverse order of their proxy number. This is useful when deleting MOs since the children have to be deleted before the parent.

RNC11> lpr Subrack=MS,Slot=28,PlugInUnit=1

```
=====
Proxy  M0
=====
```

```
11 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
12 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322165/12_R50HX01
13 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321407_R50HX01
14 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321409_R50HX01
15 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,SwitchCoreUnit=1
16 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321451_R50HX06
17 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322025_R50HX01
18 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322166/2_R50HX01
19 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=nsssysci_mpbp
20 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=nssscb_bp
=====
```

```
Total: 10 M0s
```

```
RNC11> lpr %Subrack=MS,Slot=28,PlugInUnit=1
```

```
=====
Proxy  M0
=====
```

```
20 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=nssscb_bp
19 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=nsssysci_mpbp
18 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322166/2_R50HX01
17 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322025_R50HX01
16 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321451_R50HX06
15 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,SwitchCoreUnit=1
14 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321409_R50HX01
13 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1321407_R50HX01
12 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1,Program=CXC1322165/12_R50HX01
11 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
=====
```

```
Total: 10 M0s
```

Negative filter:

```
RNC11> lpr !loadmodule|program
```

==> all MOs except those matching "loadmodule" or "program" will be printed.

3.5 get commands

```
RNC11> h get
```

get/lget [<moGroup>|<moFilter>|<proxy(s)>|all] [<attribute-filter>|all] [<value-filter>]

This command fetches one of several attributes from one or several MO's. Doesn't fetch pm attributes; to view pm attributes, use pget/lpget.

....

// GET ONLY READS CONFIGURATION AND FAULT MANAGEMENT ATTRIBUTES. (for PM attributes use pget, see below)

RNC11> get atmport=ms-26-1

```
=====
1405                               TransportNetwork=1,AtmPort=MS-26-1
=====
AtmPortId                         MS-26-1
availabilityStatus                 0 (NO_STATUS)
hecCorrectionMode                 true
operationalState                 1 (ENABLED)
userLabel                         MS-26-1
uses                             Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
valueOfLastCellWithUnexp         Struct{3}
>>> 1.vpi = 23
>>> 2.vci = 45
>>> 3.pti = 0
=====
Total: 1 MOs
```

RNC11> pr plug

```
=====
Proxy  MO
=====
11  Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
22  Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1
35  Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1
50  Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1
79  Equipment=1,Subrack=MS,Slot=22,PlugInUnit=1
109 Equipment=1,Subrack=MS,Slot=20,PlugInUnit=1
138 Equipment=1,Subrack=MS,Slot=19,PlugInUnit=1
167 Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1
181 Equipment=1,Subrack=MS,Slot=17,PlugInUnit=1
195 Equipment=1,Subrack=MS,Slot=16,PlugInUnit=1
215 Equipment=1,Subrack=MS,Slot=15,PlugInUnit=1
235 Equipment=1,Subrack=MS,Slot=14,PlugInUnit=1
```

255 Equipment=1,Subrack=MS,Slot=13,PlugInUnit=1
275 Equipment=1,Subrack=MS,Slot=12,PlugInUnit=1
295 Equipment=1,Subrack=MS,Slot=11,PlugInUnit=1
348 Equipment=1,Subrack=MS,Slot=10,PlugInUnit=1
401 Equipment=1,Subrack=MS,Slot=9,PlugInUnit=1
416 Equipment=1,Subrack=MS,Slot=8,PlugInUnit=1
431 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1
444 Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1
457 Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1
471 Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1

=====
Total: 23 M0s

RNC11> get 487

=====
487 Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1
=====
PlugInUnitId 1
administrativeState 1 (UNLOCKED)
allowedSeqRestarts 3 (RESTARTS_WITH_WARM)
availabilityStatus 0 (NO_STATUS)
hwTestResult 2006-07-07 20:33:18 Others No Test Results
hwTestStatus 0 (NO_TEST_RESULTS)
operationalState 1 (ENABLED)
piuGroupNumber 8
piuType PiuType=R0J1192108/2_R6
productType HW
reservedBy [0] =
userLabel
=====

Total: 1 M0s

RNC11> get plug piutype

=====
M0 Attribute Value
=====
Subrack=MS,Slot=28,PlugInUnit=1 piuType PiuType=R0J1192108/2_R6
Subrack=MS,Slot=27,PlugInUnit=1 piuType PiuType=R0J1192102/1_R3
Subrack=MS,Slot=26,PlugInUnit=1 piuType PiuType=R0J1192102/1_R3
Subrack=MS,Slot=23,PlugInUnit=1 piuType PiuType=R0J1192103/2_R6
Subrack=MS,Slot=22,PlugInUnit=1 piuType PiuType=R0J1192103/2_R6

Subrack=MS,Slot=20,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=19,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=18,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=17,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=16,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=15,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=14,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=13,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=12,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=11,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=10,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=9,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=8,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=7,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=6,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=5,PlugInUnit=1	piuType	PiuType=R0J1192104/3_R4
Subrack=MS,Slot=4,PlugInUnit=1	piuType	PiuType=R0J1192104/3_R4
Subrack=MS,Slot=1,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6

=====
Total: 23 M0s

RNC11> get plug piutype R0J1192108

M0	Attribute	Value
Subrack=MS,Slot=28,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6
Subrack=MS,Slot=1,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6

=====
Total: 2 M0s

RNC11> get plug piutype !R0J1192106

M0	Attribute	Value
Subrack=MS,Slot=28,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6
Subrack=MS,Slot=27,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=26,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=23,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=22,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=20,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=19,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=7,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=6,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3

Subrack=MS,Slot=5,PlugInUnit=1
Subrack=MS,Slot=4,PlugInUnit=1
Subrack=MS,Slot=1,PlugInUnit=1

piuType PiuType=R0J1192104/3_R4
piuType PiuType=R0J1192104/3_R4
piuType PiuType=R0J1192108/2_R6

=====
Total: 12 MOs

RNC11> get plug piutyp|admin

MO	Attribute	Value
Subrack=MS,Slot=28,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=28,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6
Subrack=MS,Slot=27,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=27,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=26,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=26,PlugInUnit=1	piuType	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=23,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=23,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=22,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=22,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=20,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=20,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=19,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=19,PlugInUnit=1	piuType	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=18,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=18,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=17,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=17,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=16,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=16,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=15,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=15,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=14,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=14,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=13,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=13,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=12,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=12,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=11,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=11,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=10,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=10,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=9,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Subrack=MS,Slot=9,PlugInUnit=1	piuType	PiuType=R0J1192106/3_R2

```
Subrack=MS,Slot=8,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=8,PlugInUnit=1      piuType          PiuType=R0J1192106/3_R2
Subrack=MS,Slot=7,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=7,PlugInUnit=1      piuType          PiuType=R0J1192102/1_R3
Subrack=MS,Slot=6,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=6,PlugInUnit=1      piuType          PiuType=R0J1192102/1_R3
Subrack=MS,Slot=5,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=5,PlugInUnit=1      piuType          PiuType=R0J1192104/3_R4
Subrack=MS,Slot=4,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=4,PlugInUnit=1      piuType          PiuType=R0J1192104/3_R4
Subrack=MS,Slot=1,PlugInUnit=1      administrativeState 1 (UNLOCKED)
Subrack=MS,Slot=1,PlugInUnit=1      piuType          PiuType=R0J1192108/2_R6
=====
```

Total: 23 MOs

RNC11> h hget

```
*****
hget[c]/lhget[c] <moGroup>|<moFilter>|<proxy(s)>  [<attribute-filter>]  [<value1-filter>] [<value2-filter>] [<value3-filter>]
etc...
*****
Similar to "get" but attribute values are printed horizontally, one line per MO (instead of one line per attribute).
....
```

RNC11> hget plug piuType|admin

=====		
MO	administrativeState	piuType
=====		
Subrack=MS,Slot=28,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192108/2_R6
Subrack=MS,Slot=27,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=26,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192102/1_R3
Subrack=MS,Slot=23,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=22,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=20,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=19,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192103/2_R6
Subrack=MS,Slot=18,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=17,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=16,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=15,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=14,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=13,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=12,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2
Subrack=MS,Slot=11,PlugInUnit=1	1 (UNLOCKED)	PiuType=R0J1192106/3_R2

```
Subrack=MS,Slot=10,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192106/3_R2
Subrack=MS,Slot=9,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192106/3_R2
Subrack=MS,Slot=8,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192106/3_R2
Subrack=MS,Slot=7,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=6,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=5,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192104/3_R4
Subrack=MS,Slot=4,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192104/3_R4
Subrack=MS,Slot=1,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192108/2_R6
=====
```

Total: 23 M0s

```
RNC11> hget plug piutype|admin unlocked !1192106
```

```
=====
M0                                administrativeState piuType
=====
Subrack=MS,Slot=28,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192108/2_R6
Subrack=MS,Slot=27,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=26,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=23,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192103/2_R6
Subrack=MS,Slot=22,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192103/2_R6
Subrack=MS,Slot=20,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192103/2_R6
Subrack=MS,Slot=19,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192103/2_R6
Subrack=MS,Slot=7,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=6,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192102/1_R3
Subrack=MS,Slot=5,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192104/3_R4
Subrack=MS,Slot=4,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192104/3_R4
Subrack=MS,Slot=1,PlugInUnit=1 1 (UNLOCKED)      PiuType=R0J1192108/2_R6
=====
```

Total: 12 M0s

//hget on struct attributes

```
RNC11> get loadmodule=CXC1325792_R50HC06
```

```
=====
281                                SwManagement=1,LoadModule=CXC1325792_R50HC06
=====
LoadModuleId                      CXC1325792_R50HC06
fileFormat                       rpdout
isDirectory                       false
loadModuleFilePath                /c/loadmodules/CXC1325792_R50HC06
LoaderType                        0 (0seLoader)
moppletEntries                    s[0] =
```

```

oseProgramHeapSize          0
oseProgramLoadClass         200 (coreEarly)
oseProgramPoolSize          0
otherLoaderName
preLoad                     0 (no)
productData                  Struct{5}
>>> 1.productNumber = CXC1325792
>>> 2.productRevision = R50HC06
>>> 3.productName = licensemanag
>>> 4.productInfo = licensemanag
>>> 5.productionDate = 20050817
programMustBeSingleton      false
reliableProgramLabel        licencemanager
reservedByUpgradePackage    true
userLabel

```

=====
Total: 1 M0s

RNC11> hget loadmodule productdata

M0	productInfo	productName	productNumber	productRevision	productionDate
LoadModule=CXC1322601_R51EL05		utils	CXC1322601	R51EL05	20061023
LoadModule=CXC1321409_R51MM01		spas_sm	CXC1321409	R51MM01	20070912
LoadModule=CXC1325608_R51GE03		osa_coli	CXC1325608	R51GE03	20061023
LoadModule=CXC1324872/4_R51GT02		cma_collecto	CXC1324872/4	R51GT02	20061201
LoadModule=CXC1329862_R10AT01		RncLmBdh	CXC1329862	R10AT01	20070815
LoadModule=CXC1329878_R9AE01		setup_UeRc	CXC1329878	R9AE01	20061010
LoadModule=CXC132868/5_R51EL21		index	CXC132868/5	R51EL21	20070720
LoadModule=CXC1323942_R51HG01		nsstu2_bp	CXC1323942	R51HG01	20070104
LoadModule=CXC1321120_R51GD01		nssscb_bp	CXC1321120	R51GD01	20060927
LoadModule=CXC132868/5_R51EL05		index	CXC132868/5	R51EL05	20061023
LoadModule=CXC1324173_R51GG03	PHY MC41 BP load module	phymc1bp	CXC1324173	R51GG03	20061023

RNC11> hget loadmodule class|type|productdata@name

M0	loaderType	oseProgramLoadClass	productName
LoadModule=CXC1329855_R4J10	0 (OseLoader)	500 (application)	RncLmRnsap
LoadModule=CXC1329861_R4J09	0 (OseLoader)	500 (application)	RncLmCen0m
LoadModule=CXC1329861_R4J07	0 (OseLoader)	500 (application)	RncLmCen0m
LoadModule=CXC1329855_R4J07	0 (OseLoader)	500 (application)	RncLmRnsap

```
LoadModule=CXC1325608_R50HX01 0 (OseLoader) 300 (coreLate) osa_coli
LoadModule=CXC1329872_R4J01 3 (WebServer) 500 (application) rncClient
LoadModule=CXC1329883_R4J05 0 (OseLoader) 500 (application) RncLmCenAgps
LoadModule=CXC1329856_R4G06 0 (OseLoader) 500 (application) RncLmCell
LoadModule=CXC1329875/2_R1B01 0 (OseLoader) 600 (upgrade) RncLmFroAue
LoadModule=CXC1326355_R2A01 4 (SpmFpgaLoader) 400 (networkAndConnectionHandling) falc_m3_fpga
LoadModule=CXC132868/12_R50HX01 3 (WebServer) 500 (application) oe_cert_pack
LoadModule=CXC1329877/3_R1C01 99 (Other) 500 (application) RncLmModConv
LoadModule=CXC1327705_R50HX01 0 (OseLoader) 200 (coreEarly) dbagent
LoadModule=CXC1325695_R50EF03 0 (OseLoader) 400 (networkAndConnectionHandling) phyauae
....<cut>....
```

//hget on sequence of structs

```
RNC49> hget switchport= pbitqu
```

```
=====
M0 pbitQueueMap pbit queue
=====
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[8] =
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[0] 0 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[1] 1 0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[2] 2 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[3] 3 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[4] 4 2
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[5] 5 2
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[6] 6 3
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[7] 7 3
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[8] =
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[0] 0 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[1] 1 0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[2] 2 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[3] 3 1
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[4] 4 2
...<cut>...
```

```
RNC49> get 14 vlanmemb
```

```
=====
Proxy M0 Attribute Value
=====
14 Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=7 vlanMembership t[256] =
>>> Struct[0] has 2 members:
```

```
>>> 1.egressUntag = false
>>> 2.vid = 0
>>> Struct[1] has 2 members:
>>> 1.egressUntag = false
>>> 2.vid = 0
>>> Struct[2] has 2 members:
>>> 1.egressUntag = false
>>> 2.vid = 0
>>> Struct[3] has 2 members:
>>> 1.egressUntag = false
>>> 2.vid = 0
>>> Struct[4] has 2 members:
>>> 1.egressUntag = false
>>> 2.vid = 0
>>> Struct[5] has 2 members:
```

RNC49> hget switchport= vlanmembership

```
=====
M0                                     vlanMembership egressUntag vid
=====
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[256] =
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[1]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[2]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[3]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[4]         false      0
...<cut>...
```

RNC49> hget switchport= vlanmembership t.0

```
=====
M0                                     vlanMembership egressUntag vid
=====
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=3 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=4 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=5 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=6 t[0]         false      0
Subrack=MS,Slot=25,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=7 t[0]         false      0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=1 t[0]         false      0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=2 t[0]         false      0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=3 t[0]         false      0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=4 t[0]         false      0
```

```
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=5 t[0] false 0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=6 t[0] false 0
Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminalIp=1,EthernetSwitch=1,EthernetSwitchPort=7 t[0] false 0
=====
Total: 14 M0s
```

To see all ports where vid is not 0:

```
RNC49> hget switchport= vlanmembership . . !^0
```

3.6 st command

```
RNC11> h st
```

```
*****
st/lst [<moGroup>|<moFilter>|<proxy(s)>|all] [<state-filter>]
*****
```

This command prints administrative state and operational state of M0's. It is similar to writing "get/lget <mo> state", the only difference is that it presents the two states side-by-side in a more visible way. The state filter matches towards both the Operational state and the Administrative state.
....

```
RNC11> st plug
```

Proxy	Adm State	Op. State	M0
11	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
22	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1
35	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1
50	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1
79	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=22,PlugInUnit=1
109	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=20,PlugInUnit=1
138	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=19,PlugInUnit=1
167	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1
181	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=17,PlugInUnit=1
195	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=16,PlugInUnit=1
215	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=15,PlugInUnit=1
235	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=14,PlugInUnit=1
255	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=13,PlugInUnit=1

275	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=12,PlugInUnit=1
295	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=11,PlugInUnit=1
348	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=10,PlugInUnit=1
401	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=9,PlugInUnit=1
416	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=8,PlugInUnit=1
431	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1
444	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1
457	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1
471	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1
487	1 (UNLOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=1,PlugInUnit=1

=====
Total: 23 MOs

RNC11> st atmpport

Proxy	Adm State	Op. State	MO
1212		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-26-2
1405		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-26-1
2203		0 (DISABLED)	TransportNetwork=1,AtmPort=MS-7-2
2204		0 (DISABLED)	TransportNetwork=1,AtmPort=MS-7-1
2223		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-2
2225		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-1
2484		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-27-2
2497		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-27-1

=====
Total: 8 MOs

RNC11> st atmpport=ms-6-1

Proxy	Adm State	Op. State	MO
2227		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-1

=====
Total: 1 MOs

RNC11> lst atmpport=ms-6-1

Proxy	Adm State	Op. State	MO
2225		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-1
2226		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-1,VplTp=1

```

2227      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1
2228      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu2
2229      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu1
2230      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu2
2231      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu1
2232      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc99
2233      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc98
2234      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc97
2235      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc96
2236      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc95
2237      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc94
2238      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc93
2239      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc92
2240      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc91
2241      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc90
2242      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50
2243      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc34
2244      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu2
2245      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu1
2246      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu2
2247      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu1
2248      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc103
2249      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc102
2250      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc101
2251      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc100
2252      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu2
2253      1 (ENABLED)  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu1

```

=====
Total: 29 MOs

Showing the userLabel next to the state

MGW1> uv show_userlabel=1

show_userlabel=1

(or use the command “ul” to toggle the uservariable show_user_label)

MGW1> st tdm

```

=====
Proxy  Adm State    Op. State    UserLabel          MO
=====
3358   1 (UNLOCKED)  1 (ENABLED)  E1_MSC3_Slot25_Port3_TS1-29_31  TdmTermGrp=E1_MSC3_Slot25_Port3_TS1-29_31

```

```

3359 1 (UNLOCKED) 1 (ENABLED) E1_MSC3_Slot25_Port4_TS1-29_31 TdmTermGrp=E1_MSC3_Slot25_Port4_TS1-29_31
3361 0 (LOCKED) 0 (DISABLED) E1_BSC8_Slot26_Port1_TS1-29&31 TdmTermGrp=E1_BSC8_Slot26_Port1_TS1-29&31
3362 1 (UNLOCKED) 1 (ENABLED) E1_BSC86_Slot26_Port2_TS1-29&31 TdmTermGrp=E1_BSC86_Slot26_Port2_TS1-29&31
3363 1 (UNLOCKED) 1 (ENABLED) E1_BL_Slot25_Port5_TS1-31 TdmTermGrp=E1_BL_Slot25_Port5_TS1-31
3367 1 (UNLOCKED) 1 (ENABLED) E1_MSC3_Slot25_Port1_TS1-29_31 TdmTermGrp=E1_MSC3_Slot25_Port1_TS1-29_31
3372 0 (LOCKED) 0 (DISABLED) E1_MSC3_Slot25_Port2_TS1-29_31 TdmTermGrp=E1_MSC3_Slot25_Port2_TS1-29_31
=====

```

Total: 7 MOs

Or:

MGW1> hget tdm state|user

```

=====
MO                administrativeState operationalState userLabel
=====
TdmTermGrp=E1_MSC3_Slot25_Port3_TS1-29_31 1 (UNLOCKED)          1 (ENABLED)          E1_MSC3_Slot25_Port3_TS1-29_31
TdmTermGrp=E1_MSC3_Slot25_Port4_TS1-29_31 1 (UNLOCKED)          1 (ENABLED)          E1_MSC3_Slot25_Port4_TS1-29_31
TdmTermGrp=E1_BSC8_Slot26_Port1_TS1-29&31 0 (LOCKED)            0 (DISABLED)         E1_BSC8_Slot26_Port1_TS1-29&31
TdmTermGrp=E1_BSC86_Slot26_Port2_TS1-29&31 1 (UNLOCKED)          1 (ENABLED)          E1_BSC86_Slot26_Port2_TS1-29&31
TdmTermGrp=E1_BL_Slot25_Port5_TS1-31       1 (UNLOCKED)          1 (ENABLED)          E1_BL_Slot25_Port5_TS1-31
TdmTermGrp=E1_MSC3_Slot25_Port1_TS1-29_31 1 (UNLOCKED)          1 (ENABLED)          E1_MSC3_Slot25_Port1_TS1-29_31
TdmTermGrp=E1_MSC3_Slot25_Port2_TS1-29_31 0 (LOCKED)            0 (DISABLED)         E1_MSC3_Slot25_Port2_TS1-29_31
=====

```

Total: 7 MOs

Using the state filter

MGW01> h st

st/lst [<moGroup>|<moFilter>|<proxy(s)>|all] [<state-filter>]

Print state of MOs (operationalState and administrativeState when applicable).

MGW01> st tdm

```

=====
Proxy  Adm State    Op. State    MO
=====
2387   1 (UNLOCKED)  1 (ENABLED)  MgwApplication=1,TdmTermGrp=22
2388   1 (UNLOCKED)  1 (ENABLED)  MgwApplication=1,TdmTermGrp=21
2389   1 (UNLOCKED)  1 (ENABLED)  MgwApplication=1,TdmTermGrp=20
2390   1 (UNLOCKED)  1 (ENABLED)  MgwApplication=1,TdmTermGrp=19

```

2391	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=18
2392	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=16
2393	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=15
2394	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=14
2395	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=13
2396	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=12
2397	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=11
2398	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=10
2404	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=9
2405	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=8
2406	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=7
2407	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=6
2408	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=5
2409	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=4
2410	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=3
2411	0 (LOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=2
2412	0 (LOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=1
2413	1 (UNLOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=17

=====
Total: 22 M0s

MGW01> st tdm 0

Proxy	Adm State	Op. State	M0
2411	0 (LOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=2
2412	0 (LOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=1
2413	1 (UNLOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=17

=====
Total: 3 M0s

MGW01> st tdm ^0

Proxy	Adm State	Op. State	M0
2411	0 (LOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=2
2412	0 (LOCKED)	1 (ENABLED)	MgwApplication=1,TdmTermGrp=1

=====
Total: 2 M0s

MGW01> st tdm dis

Proxy	Adm State	Op. State	M0
2411	0 (LOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=2
2413	1 (UNLOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=17

Total: 2 M0s

MGW01> st tdm 1.*0

Proxy	Adm State	Op. State	M0
2413	1 (UNLOCKED)	0 (DISABLED)	MgwApplication=1,TdmTermGrp=17

Total: 1 M0s

RNC11> lst !rncfunc 1.*0 (or unlocked.*disabled)

Proxy	Adm State	Op. State	M0
436	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
464	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
473	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1

Total: 4 M0s

RNC11> st . ^0

Proxy	Adm State	Op. State	M0
434	0 (LOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2

Total: 1 M0s

3.7 set command

Only supported for configuration attributes that are not restricted.

RNC11> h set

set[m]/lset[m] <moGroup>|<moFilter>|<proxy(s)> <attribute> [<value>]

Sets an attribute on one or several MO's.

Setting an attribute of type Long (Integer)

RNC11> set 434 administrativestate 1

Id	MO	administrativeState	Result
434	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2	1	>>> Set.
Total: 1 MOs attempted, 1 MOs set			

RNC11> lset Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2\$ administrativestate 0

Id	MO	administrativeState	Result
434	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2	0	>>> Set.
Total: 1 MOs attempted, 1 MOs set			

Setting an attribute of type String

RNC11> set 0 userlabel RNC 10

Id	MO	userLabel	Result
0	ManagedElement=1	RNC 10	>>> Set.
Total: 1 MOs attempted, 1 MOs set			

RNC11> get 0 userlabel

MO	Attribute	Value
----	-----------	-------

```
=====
ManagedElement=1                                userLabel          RNC 10
=====
Total: 1 M0s
```

Setting an attribute of type Struct

RNC11> get sid=1 sib1\$

```
=====
M0                                Attribute          Value
=====
Sid=1                             sib1          Struct{2}
>>> 1.sib1RepPeriod = 32
>>> 2.sib1StartPos = 2
=====
Total: 1 M0s
```

RNC11> set sid=1 sib1 sib1repperiod=16

```
=====
Id  M0                                sib1          Result
=====
4764 Sid=1                             sib1StartPos:i=2,sib1RepPeriod:i=16 >>> Set.
=====
Total: 1 M0s attempted, 1 M0s set
```

RNC11> set sid=1 sib1 sib1repperiod=20,sib1startpos=4

```
=====
Id  M0                                sib1          Result
=====
4764 Sid=1                             sib1StartPos:i=4,sib1RepPeriod:i=20 >>> Set.
=====
Total: 1 M0s attempted, 1 M0s set
```

RNC11> get sid=1 sib1\$

```
=====
M0                                Attribute          Value
=====
Sid=1                             sib1          Struct{2}
>>> 1.sib1RepPeriod = 20
>>> 2.sib1StartPos = 4
```

```
=====
Total: 1 M0s
```

Setting an attribute of type MoRef

```
RNC11> lget atmport=ms-6-1,vpltp=[^,]+$ atmtraff
```

```
=====
M0                                     Attribute      Value
=====
AtmPort=MS-6-1,VplTp=1               atmTrafficDescriptor AtmTrafficDescriptor=C1P353000
=====
```

```
Total: 1 M0s
```

```
RNC11> pr atmtraff
```

```
=====
Proxy  M0
=====
1209 TransportNetwork=1,AtmTrafficDescriptor=C1P4528
1694 TransportNetwork=1,AtmTrafficDescriptor=U3P4500M3000
1695 TransportNetwork=1,AtmTrafficDescriptor=C2P4000
1696 TransportNetwork=1,AtmTrafficDescriptor=U4P3500M500
1697 TransportNetwork=1,AtmTrafficDescriptor=C1P9560
1712 TransportNetwork=1,AtmTrafficDescriptor=C2P9050
1725 TransportNetwork=1,AtmTrafficDescriptor=U3P1000M600
1745 TransportNetwork=1,AtmTrafficDescriptor=C2P6800
1968 TransportNetwork=1,AtmTrafficDescriptor=C1P5
1969 TransportNetwork=1,AtmTrafficDescriptor=C2P12000
1974 TransportNetwork=1,AtmTrafficDescriptor=C2P6657
2061 TransportNetwork=1,AtmTrafficDescriptor=C1P2262
2099 TransportNetwork=1,AtmTrafficDescriptor=C1P353000
2100 TransportNetwork=1,AtmTrafficDescriptor=C2P13314
2160 TransportNetwork=1,AtmTrafficDescriptor=U4P30000M500
2163 TransportNetwork=1,AtmTrafficDescriptor=C1P14650
2164 TransportNetwork=1,AtmTrafficDescriptor=C1P1769
2168 TransportNetwork=1,AtmTrafficDescriptor=C1P3538
2169 TransportNetwork=1,AtmTrafficDescriptor=U4P35000M500
2202 TransportNetwork=1,AtmTrafficDescriptor=C2P3000
2220 TransportNetwork=1,AtmTrafficDescriptor=C2P4438
2303 TransportNetwork=1,AtmTrafficDescriptor=U3P66600M5000
2386 TransportNetwork=1,AtmTrafficDescriptor=U3P1000M80
2412 TransportNetwork=1,AtmTrafficDescriptor=U3P1000M67
```

```

2423 TransportNetwork=1,AtmTrafficDescriptor=C1P55000
2432 TransportNetwork=1,AtmTrafficDescriptor=C1P6500
2432 TransportNetwork=1,AtmTrafficDescriptor=C1P6500
2433 TransportNetwork=1,AtmTrafficDescriptor=C1P350000
=====

```

Total: 26 M0s

```
RNC11> lset atmport=ms-6-1,vpltp=[^,]+$ atmTrafficDescriptor AtmTrafficDescriptor=C1P350000
```

Id	M0	atmTrafficDescriptor	Result
2226	AtmPort=MS-6-1,VplTp=1	2433	>>> Set.

Total: 1 M0s attempted, 1 M0s set

Setting an attribute of type sequence of Long

```
wrbs075> get feeder atten
```

M0	Attribute	Value
AntFeederCable=2A	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=2A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1A	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3A	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1B	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3B	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=2B	dlAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=2B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1

Total: 6 M0s

```
wrbs075> set antfeeder dlattenuation 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
```

Id	M0	dlAttenuation	Result
161	AntFeederCable=2A	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.
171	AntFeederCable=1A	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.
173	AntFeederCable=3A	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.
185	AntFeederCable=1B	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.
186	AntFeederCable=3B	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.
193	AntFeederCable=2B	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	>>> Set.

Total: 6 M0s attempted, 6 M0s set

wrbs075> get feeder atten

M0	Attribute	Value
AntFeederCable=2A	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=2A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1A	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=1A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3A	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=3A	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=1B	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=1B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=3B	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=3B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1
AntFeederCable=2B	dlAttenuation	i[15] = 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
AntFeederCable=2B	ulAttenuation	i[15] = 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1

Total: 6 M0s

Setting an attribute of type sequence of MoRef

RNC11> mom . . sequence:moref ^\$

```
#####
M0 Class      Attribute      Type      Flags
#####
Aal2PathDistributionUnit aal2PathVccTpList sequence:moRef-Aal2PathVccTp
-----
```

List of references to Aal2PathVccTp M0:s.

Note that setting of this attribute removes the current list of Aal2PathVccTp's.

Each reference must be unique among all paths within all Aal2PathDistributionUnit's belonging to the same Aal2Ap.

```
Ranap                packetDataRouterRef    sequence:moRef-ManagedObject
-----
List of references to instances of PacketDataRouter M0 or IpEthPacketDataRouter M0.
To be used for Iu Flex.
Unit: N/A
Resolution: N/A
*****
Jvm                  admClasspath           sequence:moRef-LoadModule
-----
New classpath that will be activated at next restart of JVM. The classpath has a directory, which contains the load module, i.e.
the classpath references the load module.
*****
```

```
RNC11> get ranap= packet
```

=====		
M0	Attribute	Value
=====		
Ranap=Iuc2300	packetDataRouterRef [0] =	
Ranap=Iup2810	packetDataRouterRef [10] =	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr1Gtpu1	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr1Gtpu2	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr2Gtpu1	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr2Gtpu2	
>>>	packetDataRouterRef = RncFunction=1,RncModule=8,PacketDataRouter=Pdr3Gtpu1	
>>>	packetDataRouterRef = RncFunction=1,RncModule=8,PacketDataRouter=Pdr3Gtpu2	
>>>	packetDataRouterRef = RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu1	
>>>	packetDataRouterRef = RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu2	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr5Gtpu1	
>>>	packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr5Gtpu2	
=====		
Total: 2 M0s		

```
RNC11> set ranap=iup packetDataRouterRef RncModule=1,PacketDataRouter=Pdr1Gtpu1 RncModule=1,PacketDataRouter=Pdr1Gtpu2
```

=====			
Id	M0	packetDataRouterRef	Result
=====			
4912	Ranap=Iup2810	3314,3313	>>> Set.
=====			
Total: 1 M0s attempted, 1 M0s set			

```
or: set ranap=iup packetDataRouterRef RncModule=1,PacketDataRouter=Pdr1Gtpu1;RncModule=1,PacketDataRouter=Pdr1Gtpu2
```

```
RNC11> get ranap= packet
```

```
=====
M0                                     Attribute      Value
=====
Ranap=Iuc2300                         packetDataRouterRef [0] =
Ranap=Iup2810                         packetDataRouterRef [2] =
>>> packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr1Gtpu1
>>> packetDataRouterRef = RncFunction=1,RncModule=1,PacketDataRouter=Pdr1Gtpu2
=====
Total: 2 M0s
```

Note:

If the command is very long, type “b” to disable the prompt highlighting so that the command will not wrap around itself on the commandline

Example: trying to run the command “set ranap=iup packetDataRouterRef RncModule=1,PacketDataRouter=Pdr1Gtpu1 RncModule=1,PacketDataRouter=Pdr1Gtpu2 RncModule=1,PacketDataRouter=Pdr1Gtpu3” shows this:

```
etDataRouter=Pdr1Gtpu3acketDataRouterRef RncModule=1,PacketDataRouter=Pdr1Gtpu1 RncModule=1,PacketDataRouter=Pdr1Gtpu2
```

Type “b” at the prompt to disable prompt highlight, then run the command:

```
RNC11> b
```

```
RNC11> set ranap=iup packetDataRouterRef RncModule=1,PacketDataRouter=Pdr1Gtpu1 RncModule=1,PacketDataRouter=Pdr1Gtpu2
RncModule=1,PacketDataRouter=Pdr1Gtpu3
```

To restore prompt highlight, type “b” again:

```
RNC11> b
```

```
RNC11>
```

Setting an attribute of type sequence of String

Here we must use comma to separate the array elements since there could be spaces within each element

```
RNC11> get jvm admopt
```

M0	Attribute	Value
Jvm=1	admOptions	s[2] = Xms461M Dhttp.root=/c/public_html

Total: 1 M0s

RNC11> set jvm=1 admoptions Xms500M,Dhttp.root=/c/public_html

Id	M0	admOptions	Result
43	Jvm=1	Xms500M,Dhttp.root=/c/public_html	>>> Set.

Total: 1 M0s attempted, 1 M0s set

RNC11> get jvm admop

M0	Attribute	Value
Jvm=1	admOptions	s[2] = Xms500M Dhttp.root=/c/public_html

Total: 1 M0s

Exception handling, example of set failures

- In this case it failed because the value was out of range

RNC11> set 7931 primaryScramblingCode 630

Id	M0	primaryScramblingCode	Result
7931	UtranCell=Iub-2-1	630	!!!! Processing failure
:se.ericsson.cello.moframework.ValueOutOfRangeException TAG : "ValueOutOfRangeException" VARIABLES : "\$moTypeName" = "UtranCell", "\$attrName" = "primaryScramblingCode"			

Total: 1 M0s attempted, 0 M0s set

RNC11> momr utrancell primaryscra

#####

M0 Class	Attribute	Range
ExternalUtranCell	primaryScramblingCode	0 to 511
UtranCell	primaryScramblingCode	0 to 511

- In this case it failed because there was not enough free bandwidth

```
RNC11> lset atmport=ms-6-1,vpltp=[^,]+$ atmTrafficDescriptor AtmTrafficDescriptor=C1P55000
```

```
=====
Id  M0                                     atmTrafficDescriptor  Result
=====
2226  AtmPort=MS-6-1,VplTp=1                2423                !!!! Processing failure
:se.ericsson.cello.moframework.FroRequestFailedException TAG : "FroRequestFailed" VARIABLES : "$M0 typename" = "VplTp", "$FRO
typename" = "VpCp", "$Request type" = "SetAttrReq: AET_VPCPMI_RSP_RESERVE_BW_FAIL", "$result" = "10"
=====
Total: 1 M0s attempted, 0 M0s set
```

NOTE: in earlier releases the exception code is not translated.

Some exception codes translation can be found on <http://utran01.epa.ericsson.se/utranwiki/CelloInformation/FroExceptions>

Some exception codes translation may also appear in the "te log read" of the MP handling the FRO layer for that M0.

- In this case it failed because the attribute was restricted

```
RNC11> mom vcltp traff
```

```
#####
M0 Class      Attribute      Type      Flags
#####
VclTp         atmTrafficDescriptorId  moRef:AtmTrafficDescriptor      restricted,noNotification,mandatory
-----
Reference to the AtmTrafficDescriptor profile.
*****
```

```
RNC11> set 2509 atmTrafficDescriptorId AtmTrafficDescriptor=U4P35000M500
```

```
=====
Id  M0                                     atmTrafficDescriptorId  Result
=====
```

```

2509  AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100          2171          !!!! Processing failure
:se.ericsson.cello.moframework.NoSuchAttributeException TAG : "NoSuchAttribute" VARIABLES : "$attrName" = "atmTrafficDescriptorId",
"$moTypeName" = "VclTp"
=====

```

Total: 1 MOs attempted, 0 MOs set

NOTE: VclTp:AtmTrafficDescriptor is not restricted anymore from CPP5.1

More help on setting attributes:

RNC11> h set

RNC11> h syntax

3.8 rset command

Purpose: to set an attribute that is restricted (use the “mom” command to see if an attribute is restricted)

Works by deleting the MO and recreating it with the new value.

Is equivalent to doing the following 5 steps: u+, del/rdel, u-, editing the undo file, run the undofile

RNC11> lget AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100 traff

```

=====
MO                                     Attribute      Value
=====
AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100      atmTrafficDescriptorId  AtmTrafficDescriptor=U4P35000M500
=====
Total: 1 MOs

```

RNC11> lset AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100 atmTrafficDescriptorId AtmTrafficDescriptor=U3P4500M3000

```

=====
Id  MO                                     atmTrafficDescriptorId  Result
=====
446  AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100      448          !!!! Processing failure
:se.ericsson.cello.moframework.NoSuchAttributeException TAG : "NoSuchAttribute" VARIABLES : "$attrName" = "atmTrafficDescriptorId",
"$moTypeName" = "VclTp"
=====

```

Total: 1 M0s attempted, 0 M0s set

RNC11> mom vcltp atmtraff

```
#####
M0 Class           Attribute           Type           Flags
#####
VclTp              atmTrafficDescriptorId moRef:AtmTrafficDescriptor restricted,noNotification,mandatory
-----
Reference to the AtmTrafficDescriptor profile.
*****
```

RNC11> lrset AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100 atmTrafficDescriptorId AtmTrafficDescriptor=U3P4500M3000

Set restricted attribute atmtraffiddescriptorid on following M0s ?

```
=====
446 TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100
=====
```

Are you Sure [y/n] ? y

etc....

Deleting ...

```
=====
595 TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1 >>> Mo deleted
510 TransportNetwork=1,Aal2PathVccTp=Iub1-3 >>> Mo deleted
446 TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100 >>> Mo deleted
=====
```

Total: 3 M0s attempted, 3 M0s deleted

etc...

```
=====
Undo Commands summary for script file: /home/eanzmagn/moshell_logfiles/logs_moshell/rset/rset_060709-234441_RNC11_VclTpvc100.mos
=====
cr TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100 >>> [Proxy ID = 672]
lset TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100$ userLabel -No Change-
cr TransportNetwork=1,Aal2PathVccTp=Iub1-3 >>> [Proxy ID = 676]
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ timerCu 10 -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ nomPmBlocksize 1024 -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ continuityCheck false -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ counterMode 0 -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ administrativeState 1 -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ userLabel -No Change-
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ alarmReport 2 -No Change-
```

```
lset TransportNetwork=1,Aal2PathVccTp=Iub1-3$ aal2QoSAvailableProfiles 4 >>> Set.
cr TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1 >>> [Proxy ID = 786]
lset TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1$ userLabel userLabel >>> Set.
lset TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1$ aal2PathVccTpList
TransportNetwork=1,Aal2PathVccTp=Iub1-1 TransportNetwork=1,Aal2PathVccTp=Iub1-2 TransportNetwork=1,Aal2PathVccTp=Iub1-3 >>> Set.
```

Note: from cpp5.1, the restriction has been removed on certain attributes such as VclTp::atmTrafficDescriptorId so it is then possible to use “set” instead of “rset”

To change the name of an MO:

```
RNC11> rset utrancell=cell123 utrancellid cell_north_123

MGW1> rset atmport=ES-2-6-1 atmportid 2061
```

3.9 bl/deb command

Purpose: a shortcut for setting the administrativeState

Lock (block)

```
RNC11> lbl Subrack=MS,Slot=5,PlugInUnit=1$
```

Id MO		AdministrativeState	Result
457	Subrack=MS,Slot=5,PlugInUnit=1	0	>>> Set.

Total: 1 MOs attempted, 1 MOs set

Unlock (deblock)

```
RNC11> deb 457
```

Id MO		AdministrativeState	Result
457	Subrack=MS,Slot=5,PlugInUnit=1	1	>>> Set.

=====
Total: 1 MOs attempted, 1 MOs set

Soft Lock
Gives the resource some time to shutdown gracefully, handing over traffic to other resources.

RNC11> bls 457

=====

Id	MO	AdministrativeState	Result
457	Subrack=MS,Slot=5,PlugInUnit=1	2	>>> Set.

=====

Total: 1 MOs attempted, 1 MOs set

RNC11> st 457

=====

Proxy	Adm State	Op. State	MO
457	2 (SHUTTINGDOWN)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1

=====

Total: 1 MOs

RNC11> st 457

=====

Proxy	Adm State	Op. State	MO
457	0 (LOCKED)	1 (ENABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1

=====

Total: 1 MOs

Checking which MOs support soft-lock

RNC11> mom pluginunit admin

MO Class Attribute Type Flags

PlugInUnit administrativeState enumRef:AdmState

The administrative state of the PlugInUnit.

The possibility to rollback the setting of this attribute is limited.
Default=locked

RNC11> mom admstate

```
#####
Enum          Values
#####
AdmState       0:locked, 1:unlocked, 2:shuttingDown
-----
- locked:
- unlocked:
- shuttingDown:
*****
```

RNC11> mom utrancell admin

```
#####
MO Class      Attribute      Type      Flags
#####
UtranCell     administrativeState  enumRef:SupportedAdminStates
-----
The administrative state of the cell.
Default=LOCKED
*****
```

RNC11> mom adminstate

```
#####
Enum          Values
#####
SupportedAdminStates  0:LOCKED, 1:UNLOCKED
-----
- LOCKED:
- UNLOCKED:
*****
```

Note: soft-lock is supported on UtranCell from UTRAN P6

3.10 cr command

```
RNC11> cr rncfunction=1,iublink=99
```

```
Attribute 1 of 2, rbsId (long): 99
```

```
Attribute 2 of 2, rncModuleRef (moRef:RncModule):
```

```
Enter mo LDN: rncmodule=1
```

```
>>> [Proxy ID = 5204] M0 name :ManagedElement=1,RncFunction=1,IubLink=99
```

```
RNC11> cr swmanagement=1,upgradepackage=CXP9012014_R4G05
```

```
Attribute 1 of 2, ftpServerIpAddress (string): 137.58.194.174
```

```
Attribute 2 of 2, upFilePathOnFtpServer (string): /TCM/UP/WENDY/CXP9012014_R4G04/CXP9012014_R4G05.xml
```

```
Following attributes are optional. Enter attribute value or "d" for default.
```

```
Once the M0 is created, these attributes cannot be changed (they are restricted).
```

```
Attribute 1 of 2, user (string): d
```

```
Attribute 2 of 2, password (string): d
```

```
!!!! Processing failure :se.ericsson.cello.upgradepackage.main.exception.FtpServerNotAccessibleException  
TAG : "FtpServerNotAccessible" VARIABLES : "$msg" = "Invalid user ID, password or IP address for FTP server"
```

```
RNC11> cr swmanagement=1,upgradepackage=CXP9012014_R4G05
```

```
Attribute 1 of 2, ftpServerIpAddress (string): 137.58.194.174
```

```
Attribute 2 of 2, upFilePathOnFtpServer (string): /TCM/UP/WENDY/CXP9012014_R4G04/CXP9012014_R4G05.xml
```

```
Following attributes are optional. Enter attribute value or "d" for default.
```

```
Once the M0 is created, these attributes cannot be changed (they are restricted).
```

```
Attribute 1 of 2, user (string): ftp
```

```
Attribute 2 of 2, password (string): ftp
```

```
>>> [Proxy ID = 5205] M0 name :ManagedElement=1,SwManagement=1,UpgradePackage=CXP9012014_R4G05
```

To exit from a create statement, just type “enter” at one of the prompts

```
RNC11> cr swmanagement=1,upgradepackage=CXP9012014_R10J01
```

Attribute 1 of 2, ftpServerIpAddress (string):
Empty value! Aborting...

To input an empty value, type “d” or “null”.

3.11 acl/acc command

3.11.1 List actions

```
RNC11> h acl
```

```
*****
acl/lac1 <moGroup>|<moFilter>|<proxy(s)>|all  [<action-filter>]
*****
Lists available M0 actions.

....
```

The number of parameters that will be required for performing the action appears on the right-hand side

```
RNC11> acl upgradepackage=CXP9012014_R4G04
```

Proxy	M0	Action	Nr of Params
516	UpgradePackage=CXP9012014_R4G04	cancelInstall	0
516	UpgradePackage=CXP9012014_R4G04	cancelUpgrade	0
516	UpgradePackage=CXP9012014_R4G04	clearUpgradeLogFile	0
516	UpgradePackage=CXP9012014_R4G04	confirmUpgrade	0
516	UpgradePackage=CXP9012014_R4G04	forcedInstall	0
516	UpgradePackage=CXP9012014_R4G04	install	0
516	UpgradePackage=CXP9012014_R4G04	nonBlockingForcedInstall	0
516	UpgradePackage=CXP9012014_R4G04	nonBlockingInstall	0
516	UpgradePackage=CXP9012014_R4G04	nonBlockingSelectiveForcedInstall	0
516	UpgradePackage=CXP9012014_R4G04	nonBlockingSelectiveInstall	0
516	UpgradePackage=CXP9012014_R4G04	rebootNodeUpgrade	0
516	UpgradePackage=CXP9012014_R4G04	upgrade	0

```
RNC11> acl 0
```

Proxy	M0	Action	Nr of Params
0	ManagedElement=1	manualRestart	3
0	ManagedElement=1	restart	1

```
RNC11> lacl Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1
```

Proxy	M0	Action	Nr of Params
1722	Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	activate	0
1722	Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	deactivate	0
1722	Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	emergencyActivate	0
1722	Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	localInhibit	0
1722	Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	localUninhibit	0

```
RNC11> acl iprouting
```

Proxy	M0	Action	Nr of Params
2582	Ip=1,IpRoutingTable=1	addStaticRoute	5
2582	Ip=1,IpRoutingTable=1	deleteStaticRoute	1
2582	Ip=1,IpRoutingTable=1	getRoutingTableEntry	1
2582	Ip=1,IpRoutingTable=1	listRoutes	0
2582	Ip=1,IpRoutingTable=1	numberOfRoutes	0

Use the mom command to see more details about an action and the parameters and return value

```
RNC11> mom man manualrestart
```

```
#####
M0 Class          Action          ReturnTypo      Parameters
```

```
#####
ManagedElement          manualRestart          void          3:restartRank:restartReason:restartInfo:enumRef-
RestartRank:enumRef-RestartReason:string
-----
Manual restarts of the node.
Transaction required: No
ReturnType: void
Parameter 1: restartRank (enumRef-RestartRank). The restart type.
Parameter 2: restartReason (enumRef-RestartReason). This parameter is mandatory.
Parameter 3: restartInfo (string). A free text field where extra information can be added.
This parameter is optional. The length of this text field is 0..80.
*****
```

3.11.2 Execute an action:

```
RNC11> h acc

*****
acc/lacc <moGroup>|<moFilter>|<proxy(s)>|all <action>
*****
Execute an M0 action.

.....
```

Some actions require no parameters, some require parameters
The return value of the action can be empty (null) or contain a value.

```
RNC11> lacc Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810 activate
```

Proxy	M0	Action	Nr of Params
1266	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	activate	0
>>> Return value = null			

=====
Total: 1 M0s attempted, 1 M0s actioned

```
RNC11> acc 1522 eteloopback
```

Proxy	M0	Action	Nr of Params
-------	----	--------	--------------

1522 AtmPort=MS-27-2-1,VplTp=1,VpcTp=1,VclTp=Iub-33-34
>>> Return value = true

eteLoopBack

0

=====

Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc iprouting listroutes

Proxy	M0	Action	Nr of Params				
2582	Ip=1,IpRoutingTable=1	listRoutes	0				
>>> Return value = 3							
destinationIpAddr	destinationNetMask	nextHopIpAddr	routeMetric	routeType	interface	redistribute	active
0.0.0.0	0.0.0.0	137.58.194.1	100	2	le0	FALSE	active
127.0.0.1	255.255.255.255	0.0.0.0	1	2	lo0	FALSE	active
137.58.194.0	255.255.254.0	0.0.0.1	1	2	le0	FALSE	active

=====

Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc 0 manualrestart

Proxy	M0	Action	Nr of Params
0	ManagedElement=1	manualRestart	3

Parameter 1 of 3, restartRank (enumRef-RestartRank):

Enter one of the following integers: 0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST: 0

Parameter 2 of 3, restartReason (enumRef-RestartReason):

Enter one of the following integers: 0:PLANNED_RECONFIGURATION, 1:UNPLANNED_NODE_EXTERNAL_PROBLEMS, 2:UNPLANNED_NODE_UPGRADE_PROBLEMS, 3:UNPLANNED_O AND M ISSUE, 4:UNPLANNED_CYCLIC_RECOVERY, 5:UNPLANNED_LOCKED_RESOURCES, 6:UNPLANNED_COLD_WITH_HW_TEST, 7:UNPLANNED_CALL_PROCESSING_DEGRADATION, 8:UNPLANNED_LOW_COVERAGE: 0

Parameter 3 of 3, restartInfo (string): eanzmagn

>>> Return value = null

=====

Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc iprouting addstaticroute

Proxy	M0	Action	Nr of Params
2582	Ip=1,IpRoutingTable=1	addStaticRoute	5

Parameter 1 of 5, ipAddress (string): 122.10.1.10

Parameter 2 of 5, subnetMask (string): 255.255.255.255

Parameter 3 of 5, hopIpAddress (string): 122.10.1.10

Parameter 4 of 5, routeMetric (long): 1

Parameter 5 of 5, redistribute (boolean): false

>>> Return value = null

Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc ipr numberofroutes

Proxy	M0	Action	Nr of Params
2582	Ip=1,IpRoutingTable=1	numberOfRoutes	0

>>> Return value = 4

Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc ipr getroutingtableentry

Proxy	M0	Action	Nr of Params
2582	Ip=1,IpRoutingTable=1	getRoutingTableEntry	1

Parameter 1 of 1, index (long): 3

>>> Struct Return value has 8 members:

>>> 1.destinationIpAddress = 122.10.1.10

>>> 2.destinationNetworkMask = 255.255.255.255

>>> 3.nextHopIpAddress = 122.10.1.10

>>> 4.routeMetric = 1

>>> 5.routeType = 2

>>> 6.interfaceName = ~~~~~~

```
>>> 7.redistribute = false
>>> 8.active = false
```

```
=====
Total: 1 M0s attempted, 1 M0s actioned
```

```
RNC11> acc ipr deletestaticroute
```

```
=====
Proxy  M0                                     Action                               Nr of Params
=====
 2582  Ip=1,IpRoutingTable=1                 deleteStaticRoute                       1
=====
```

```
Parameter 1 of 1, routingTableEntry (structRef-RoutingTableEntry):
destinationIpAddress=122.10.1.10,destinationNetworkMask=255.255.255.255,nextHopIpAddress=122.10.1.10
!!!! Processing failure :se.ericsson.cello.moframework.NoSuchFieldException TAG : "NoSuchField" VARIABLES : "$fieldName" =
"routeMetric"
```

```
=====
Total: 1 M0s attempted, 0 M0s actioned
```

```
RNC11> acc ipr deletestaticroute
```

```
=====
Proxy  M0                                     Action                               Nr of Params
=====
 2582  Ip=1,IpRoutingTable=1                 deleteStaticRoute                       1
=====
```

```
Parameter 1 of 1, routingTableEntry (structRef-RoutingTableEntry):
destinationIpAddress=122.10.1.10,destinationNetworkMask=255.255.255.255,nextHopIpAddress=122.10.1.10,routemetric=1
>>> Return value = null
```

```
=====
Total: 1 M0s attempted, 1 M0s actioned
```

```
RNC11> acc ipr listroutes
```

```
=====
Proxy  M0                                     Action                               Nr of Params
=====
 2582  Ip=1,IpRoutingTable=1                 listRoutes                             0
=====
```

```
>>> Return value = 3
0.0.0.0 0.0.0.0 137.58.194.1 100 2 le0 FALSE active
127.0.0.1 255.255.255.255 0.0.0.0 1 2 lo0 FALSE active
137.58.194.0 255.255.254.0 0.0.0.1 1 2 le0 FALSE active
```


793 Synchronization=1 removeSyncRefResource 1

Parameter 1 of 1, syncReference (moRef-ManagedObject):
Enter mo LDN: Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
Last M0: 801. Loaded 8 M0s. Total: 799 M0s. M0 Class: 0s155SpiTtp.
>>> Return value = null

=====
Total: 1 M0s attempted, 1 M0s actioned

RNC11> acc 793 addSyncRefResource

Proxy	M0	Action	Nr of Params
793	Synchronization=1	addSyncRefResource	2

Parameter 1 of 2, syncReference (moRef-ManagedObject):
Enter mo LDN: Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1

Parameter 2 of 2, syncPriority (long): 3
>>> Return value = null

=====
Total: 1 M0s attempted, 1 M0s actioned

To cancel an action, just type “enter” at one of the prompts.

RNC11> acc 0 restart

Proxy	M0	Action	Nr of Params
0	ManagedElement=1	restart	1

Parameter 1 of 1, restartRank (enumRef-RestartRank):
Enter one of the following integers: 0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST:
Empty value! Aborting...

=====
Total: 1 M0s attempted, 0 M0s actioned

3.12 del/rdel command

```
RNC11> h del
```

```
*****
del/lidel <moGroup>|<moFilter>|<proxy(s)>
*****
Delete MO(s).
```

An MO can only be deleted when its reservedBy list is empty and when it does not have any children. If the MO does have children and/or a non-empty reservedBy attribute, it is possible to use the rdel/lrdel command instead.

.....

```
RNC11> h rdel
```

```
*****
rdel/lrdel <moGroup>|<moFilter>|<proxy(s)>
*****
Delete MO(s) together with children and reserving MOs.
```

.....

```
RNC11> del 5204
```

Delete following MOs ?

```
=====
5204 RncFunction=1,IubLink=99
=====
```

Warning: Undo Mode is currently inactive !!!!
Are you Sure [y/n] ? y

Deleting ...

```
=====
5204 RncFunction=1,IubLink=99
=====
```

>>> Mo deleted

Total: 1 MOs attempted, 1 MOs deleted

```
RNC11> del iublink=1$
```

Delete following MOs ?

```

=====
4691 RncFunction=1,IubLink=1
=====
Warning: Undo Mode is currently inactive !!!!
Are you Sure [y/n] ? y

Deleting ...

=====
4691 RncFunction=1,IubLink=1                                     !!!! Processing failure
:se.ericsson.wcdma.rnc.roam.mao.commonmo.ProcessingFailureException TAG : "ProcessingFailureException" VARIABLES : "$Message" =
"IubLink could not be deleted, there are still references to cell(s)"
=====
Total: 1 MOs attempted, 0 MOs deleted

RNC11> rdel iublink=1$

Recursive Delete following MOs ?

=====
4691 RncFunction=1,IubLink=1
=====
Are you Sure [y/n] ? y
..
Delete following MOs ?

=====
3776 RncFunction=1,UtranCell=30101,UtranRelation=30101_30103_soft_wo
3764 RncFunction=1,UtranCell=30102,UtranRelation=30102_30103_soft_wo
3755 RncFunction=1,UtranCell=30103,UtranRelation=30103_30102_soft_wo
3756 RncFunction=1,UtranCell=30103,UtranRelation=30103_301107_soft_wo
3760 RncFunction=1,UtranCell=30103,UtranRelation=30103_30165_soft_wo
3761 RncFunction=1,UtranCell=30103,UtranRelation=30103_30166_soft_wo
3757 RncFunction=1,UtranCell=30103,UtranRelation=30103_30185_soft_wo
3758 RncFunction=1,UtranCell=30103,UtranRelation=30103_30186_soft_wo
3759 RncFunction=1,UtranCell=30103,UtranRelation=30103_30187_soft_wo
4419 RncFunction=1,UtranCell=301107,UtranRelation=301107_30103_soft_wo
3001 RncFunction=1,UtranCell=30165,UtranRelation=30165_30103_soft_wo
2992 RncFunction=1,UtranCell=30166,UtranRelation=30166_30103_soft_wo
2766 RncFunction=1,UtranCell=30185,UtranRelation=30185_30103_soft_wo
2740 RncFunction=1,UtranCell=30187,UtranRelation=30187_30103_soft_wo
3752 RncFunction=1,UtranCell=30103,Fach=301030
3753 RncFunction=1,UtranCell=30103,Hsdscch=301034
3754 RncFunction=1,UtranCell=30103,Pch=301033
3762 RncFunction=1,UtranCell=30103,Rach=301032
3751 RncFunction=1,UtranCell=30103
4637 RncFunction=1,LocationArea=3015,RoutingArea=11
4634 RncFunction=1,LocationArea=3015,ServiceArea=1003

```

3766 RncFunction=1,UtranCell=30102,UtranRelation=30102_301106_soft_wo
 3774 RncFunction=1,UtranCell=30102,UtranRelation=30102_30123_soft_wo
 3772 RncFunction=1,UtranCell=30102,UtranRelation=30102_30144_soft_wo
 3773 RncFunction=1,UtranCell=30102,UtranRelation=30102_30145_soft_wo
 3769 RncFunction=1,UtranCell=30102,UtranRelation=30102_30165_soft_wo
 3770 RncFunction=1,UtranCell=30102,UtranRelation=30102_30166_soft_wo
 4434 RncFunction=1,UtranCell=301106,UtranRelation=301106_30102_soft_wo
 3519 RncFunction=1,UtranCell=30123,UtranRelation=30123_30102_soft_wo
 3253 RncFunction=1,UtranCell=30144,CoverageRelation=30144_30102
 3256 RncFunction=1,UtranCell=30144,UtranRelation=30144_30102_soft_wo
 3236 RncFunction=1,UtranCell=30145,UtranRelation=30145_30102_soft_wo
 3004 RncFunction=1,UtranCell=30165,UtranRelation=30165_30102_soft_wo
 2990 RncFunction=1,UtranCell=30166,UtranRelation=30166_30102_soft_wo
 3771 RncFunction=1,UtranCell=30102,Fach=301020
 3767 RncFunction=1,UtranCell=30102,HsdscH=301024
 3765 RncFunction=1,UtranCell=30102,Pch=301023
 3768 RncFunction=1,UtranCell=30102,Rach=301022
 3763 RncFunction=1,UtranCell=30102
 4635 RncFunction=1,LocationArea=3015,ServiceArea=1002
 3781 RncFunction=1,UtranCell=30101,UtranRelation=30101_301106_soft_wo
 3777 RncFunction=1,UtranCell=30101,UtranRelation=30101_30122_soft_wo
 3778 RncFunction=1,UtranCell=30101,UtranRelation=30101_30123_soft_wo
 3779 RncFunction=1,UtranCell=30101,UtranRelation=30101_30124_soft_wo
 3786 RncFunction=1,UtranCell=30101,UtranRelation=30101_30143_soft_wo
 3784 RncFunction=1,UtranCell=30101,UtranRelation=30101_30164_soft_wo
 4433 RncFunction=1,UtranCell=301106,UtranRelation=301106_30101_soft_wo
 3532 RncFunction=1,UtranCell=30122,UtranRelation=30122_30101_soft_wo
 3518 RncFunction=1,UtranCell=30123,UtranRelation=30123_30101_soft_wo
 3507 RncFunction=1,UtranCell=30124,UtranRelation=30124_30101_soft_wo
 3260 RncFunction=1,UtranCell=30143,UtranRelation=30143_30101_soft_wo
 3014 RncFunction=1,UtranCell=30164,UtranRelation=30164_30101_soft_wo
 3783 RncFunction=1,UtranCell=30101,Fach=301010
 3785 RncFunction=1,UtranCell=30101,HsdscH=301014
 3780 RncFunction=1,UtranCell=30101,Pch=301013
 3782 RncFunction=1,UtranCell=30101,Rach=301012
 3775 RncFunction=1,UtranCell=30101
 4636 RncFunction=1,LocationArea=3015,ServiceArea=1001
 4693 RncFunction=1,IubLink=1,NbapCommon=1
 4692 RncFunction=1,IubLink=1,NbapDedicated=1
 4696 RncFunction=1,IubLink=1,NodeSynchTp=1
 4695 RncFunction=1,IubLink=1,NodeSynchTp=2
 4694 RncFunction=1,IubLink=1,NodeSynch=1
 4691 RncFunction=1,IubLink=1
 1916 TransportNetwork=1,Aal2RoutingCase=Iub1
 1993 TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1

```

1992 TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1
1867 TransportNetwork=1,Aal2PathVccTp=Iub1-1
1864 TransportNetwork=1,Aal2PathVccTp=Iub1-2
1861 TransportNetwork=1,Aal2PathVccTp=Iub1-3
1816 TransportNetwork=1,UniSaalTp=1
1815 TransportNetwork=1,UniSaalTp=2
1814 TransportNetwork=1,UniSaalTp=3
1813 TransportNetwork=1,UniSaalTp=4
1812 TransportNetwork=1,UniSaalTp=5
1811 TransportNetwork=1,UniSaalTp=6
2156 TransportNetwork=1,Aal0TpVccTp=1
2155 TransportNetwork=1,Aal0TpVccTp=2
1966 TransportNetwork=1,Aal5TpVccTp=1
1965 TransportNetwork=1,Aal5TpVccTp=2
1964 TransportNetwork=1,Aal5TpVccTp=3
1963 TransportNetwork=1,Aal5TpVccTp=4
1962 TransportNetwork=1,Aal5TpVccTp=5
1961 TransportNetwork=1,Aal5TpVccTp=6
1693 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc34
1692 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc35
1691 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc36
1690 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc37
1689 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc38
1688 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc39
1687 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc40
1686 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc43
1685 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44
1684 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45

```

=====

Are you Sure [y/n] ? y

Deleting ...

```

=====
3776 RncFunction=1,UtranCell=30101,UtranRelation=30101_30103_softer_wo >>> Mo deleted
3764 RncFunction=1,UtranCell=30102,UtranRelation=30102_30103_softer_wo >>> Mo deleted
3755 RncFunction=1,UtranCell=30103,UtranRelation=30103_30102_softer_wo >>> Mo deleted
3756 RncFunction=1,UtranCell=30103,UtranRelation=30103_301107_soft_wo >>> Mo deleted
3760 RncFunction=1,UtranCell=30103,UtranRelation=30103_30165_soft_wo >>> Mo deleted
3761 RncFunction=1,UtranCell=30103,UtranRelation=30103_30166_soft_wo >>> Mo deleted
3757 RncFunction=1,UtranCell=30103,UtranRelation=30103_30185_soft_wo >>> Mo deleted
3758 RncFunction=1,UtranCell=30103,UtranRelation=30103_30186_soft_wo >>> Mo deleted
3759 RncFunction=1,UtranCell=30103,UtranRelation=30103_30187_soft_wo >>> Mo deleted
4419 RncFunction=1,UtranCell=301107,UtranRelation=301107_30103_soft_wo >>> Mo deleted
3001 RncFunction=1,UtranCell=30165,UtranRelation=30165_30103_soft_wo >>> Mo deleted

```

```

2992 RncFunction=1,UtranCell=30166,UtranRelation=30166_30103_soft_wo      >>> Mo deleted
2766 RncFunction=1,UtranCell=30185,UtranRelation=30185_30103_soft_wo      >>> Mo deleted
2740 RncFunction=1,UtranCell=30187,UtranRelation=30187_30103_soft_wo      >>> Mo deleted
3752 RncFunction=1,UtranCell=30103,Fach=301030                             >>> Mo deleted
3753 RncFunction=1,UtranCell=30103,Hsdsc=301034                           >>> Mo deleted
3754 RncFunction=1,UtranCell=30103,Pch=301033                             >>> Mo deleted
3762 RncFunction=1,UtranCell=30103,Rach=301032                             >>> Mo deleted
3751 RncFunction=1,UtranCell=30103                                         >>> Mo deleted
4637 RncFunction=1,LocationArea=3015,RoutingArea=11                       >>> Mo deleted
:se.ericsson.wcdma.rnc.roam.mao.commonmo.ProcessingFailureException TAG : "ProcessingFailureException" VARIABLES : "$Message" =
"RoutingArea could not be deleted, there are still references in reservedBy ! "
4634 RncFunction=1,LocationArea=3015,ServiceArea=1003                     >>> Mo deleted
3766 RncFunction=1,UtranCell=30102,UtranRelation=30102_301106_soft_wo      >>> Mo deleted
3774 RncFunction=1,UtranCell=30102,UtranRelation=30102_30123_soft_wo      >>> Mo deleted
3772 RncFunction=1,UtranCell=30102,UtranRelation=30102_30144_soft_wo      >>> Mo deleted
3773 RncFunction=1,UtranCell=30102,UtranRelation=30102_30145_soft_wo      >>> Mo deleted
3769 RncFunction=1,UtranCell=30102,UtranRelation=30102_30165_soft_wo      >>> Mo deleted
3770 RncFunction=1,UtranCell=30102,UtranRelation=30102_30166_soft_wo      >>> Mo deleted
4434 RncFunction=1,UtranCell=301106,UtranRelation=301106_30102_soft_wo     >>> Mo deleted
3519 RncFunction=1,UtranCell=30123,UtranRelation=30123_30102_soft_wo      >>> Mo deleted
3253 RncFunction=1,UtranCell=30144,CoverageRelation=30144_30102           >>> Mo deleted
3256 RncFunction=1,UtranCell=30144,UtranRelation=30144_30102_soft_wo      >>> Mo deleted
3236 RncFunction=1,UtranCell=30145,UtranRelation=30145_30102_soft_wo      >>> Mo deleted
3004 RncFunction=1,UtranCell=30165,UtranRelation=30165_30102_soft_wo      >>> Mo deleted
2990 RncFunction=1,UtranCell=30166,UtranRelation=30166_30102_soft_wo      >>> Mo deleted
3771 RncFunction=1,UtranCell=30102,Fach=301020                             >>> Mo deleted
3767 RncFunction=1,UtranCell=30102,Hsdsc=301024                           >>> Mo deleted
3765 RncFunction=1,UtranCell=30102,Pch=301023                             >>> Mo deleted
3768 RncFunction=1,UtranCell=30102,Rach=301022                             >>> Mo deleted
3763 RncFunction=1,UtranCell=30102                                         >>> Mo deleted
4635 RncFunction=1,LocationArea=3015,ServiceArea=1002                     >>> Mo deleted
3781 RncFunction=1,UtranCell=30101,UtranRelation=30101_301106_soft_wo      >>> Mo deleted
3777 RncFunction=1,UtranCell=30101,UtranRelation=30101_30122_soft_wo      >>> Mo deleted
3778 RncFunction=1,UtranCell=30101,UtranRelation=30101_30123_soft_wo      >>> Mo deleted
3779 RncFunction=1,UtranCell=30101,UtranRelation=30101_30124_soft_wo      >>> Mo deleted
3786 RncFunction=1,UtranCell=30101,UtranRelation=30101_30143_soft_wo      >>> Mo deleted
3784 RncFunction=1,UtranCell=30101,UtranRelation=30101_30164_soft_wo      >>> Mo deleted
4433 RncFunction=1,UtranCell=301106,UtranRelation=301106_30101_soft_wo     >>> Mo deleted
3532 RncFunction=1,UtranCell=30122,UtranRelation=30122_30101_soft_wo      >>> Mo deleted
3518 RncFunction=1,UtranCell=30123,UtranRelation=30123_30101_soft_wo      >>> Mo deleted
3507 RncFunction=1,UtranCell=30124,UtranRelation=30124_30101_soft_wo      >>> Mo deleted
3260 RncFunction=1,UtranCell=30143,UtranRelation=30143_30101_soft_wo      >>> Mo deleted
3014 RncFunction=1,UtranCell=30164,UtranRelation=30164_30101_soft_wo      >>> Mo deleted
3783 RncFunction=1,UtranCell=30101,Fach=301010                             >>> Mo deleted
3785 RncFunction=1,UtranCell=30101,Hsdsc=301014                           >>> Mo deleted

```

3780	RncFunction=1,UtranCell=30101,Pch=301013	>>> Mo deleted
3782	RncFunction=1,UtranCell=30101,Rach=301012	>>> Mo deleted
3775	RncFunction=1,UtranCell=30101	>>> Mo deleted
4636	RncFunction=1,LocationArea=3015,ServiceArea=1001	>>> Mo deleted
4693	RncFunction=1,IubLink=1,NbapCommon=1	>>> Mo deleted
4692	RncFunction=1,IubLink=1,NbapDedicated=1	>>> Mo deleted
4696	RncFunction=1,IubLink=1,NodeSynchTp=1	>>> Mo deleted
4695	RncFunction=1,IubLink=1,NodeSynchTp=2	>>> Mo deleted
4694	RncFunction=1,IubLink=1,NodeSynch=1	>>> Mo deleted
4691	RncFunction=1,IubLink=1	>>> Mo deleted
1916	TransportNetwork=1,Aal2RoutingCase=Iub1	>>> Mo deleted
1993	TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1	>>> Mo deleted
1992	TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1	>>> Mo deleted
1867	TransportNetwork=1,Aal2PathVccTp=Iub1-1	>>> Mo deleted
1864	TransportNetwork=1,Aal2PathVccTp=Iub1-2	>>> Mo deleted
1861	TransportNetwork=1,Aal2PathVccTp=Iub1-3	>>> Mo deleted
1816	TransportNetwork=1,UniSaalTp=1	>>> Mo deleted
1815	TransportNetwork=1,UniSaalTp=2	>>> Mo deleted
1814	TransportNetwork=1,UniSaalTp=3	>>> Mo deleted
1813	TransportNetwork=1,UniSaalTp=4	>>> Mo deleted
1812	TransportNetwork=1,UniSaalTp=5	>>> Mo deleted
1811	TransportNetwork=1,UniSaalTp=6	>>> Mo deleted
2156	TransportNetwork=1,Aal0TpVccTp=1	>>> Mo deleted
2155	TransportNetwork=1,Aal0TpVccTp=2	>>> Mo deleted
1966	TransportNetwork=1,Aal5TpVccTp=1	>>> Mo deleted
1965	TransportNetwork=1,Aal5TpVccTp=2	>>> Mo deleted
1964	TransportNetwork=1,Aal5TpVccTp=3	>>> Mo deleted
1963	TransportNetwork=1,Aal5TpVccTp=4	>>> Mo deleted
1962	TransportNetwork=1,Aal5TpVccTp=5	>>> Mo deleted
1961	TransportNetwork=1,Aal5TpVccTp=6	>>> Mo deleted
1693	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc34	>>> Mo deleted
1692	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc35	>>> Mo deleted
1691	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc36	>>> Mo deleted
1690	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc37	>>> Mo deleted
1689	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc38	>>> Mo deleted
1688	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc39	>>> Mo deleted
1687	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc40	>>> Mo deleted
1686	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc43	>>> Mo deleted
1685	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44	>>> Mo deleted
1684	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45	>>> Mo deleted

=====

Total: 94 MOs attempted, 93 MOs deleted

3.13 run command

Purpose: To run a command file that contains moshell commands. No confirmations are needed in the command file.

RNC11> h run

run <command file> [<var1>] [<var2>] ...

The command file layout is the same as for monode and mobatch. See examples in moshell/example/mobatch_cmdfiles

It shall contain all lines to be sent to the moshell prompt, including password (for ose commands), but NOT confirmations ("y").

This applies to commands such as "lt/ltc", "lc/lcc", "del", "bl", "set", where confirmation is automatically entered when running a command file.

Comments can be put in the command file using the # sign.

By typing <TAB>, the unix file system is displayed, making it easier to find the location of the command file.

If some arguments are given after the command file, the scripting variables \$1, \$2, \$3, etc. will be set to the corresponding values. Type "h scripting" for info.

EXAMPLE:

cr RncFunction=1,IubLink=10

10 #rbsId

Subrack=MS #preferredSubrackRef

lset RncFunction=1,IubLink=10\$ ulHwAdm 100

cvms new_iub

acc 0 restart

0

pol

Example:

run /home/eanzmagn/cmdfiles/setcells.mos

3.14 trun command

Purpose: to run a command file written in EMAS/MoTester format

RNC11> h trun

trun[is1] <moScript>|<http://ipaddress/script>

Run a command file in EMAS/MoTester format.

Execute a command file in EMAS/MoTester format.

By typing <TAB>, the unix file system is displayed, making it easier to find the location of the command file.

It is also possible to specify a file located on a web server (eg. when the script is located on the CPP node).

The following commands are supported: ECHO, CREATE, SET, DELETE, ACTION, CHECK, CALL, WAIT.

Lines can be commented out by adding // at the beginning of each line.

See examples below. For more info, refer to MoTester documentation on

<http://utran01.au.ao.ericsson.se/moshell/training/references/cpp/runMoTester.html> .

By default, the command file halts when a command fails.

Options:

- i: ignore exceptions, the execution does not halt when a command fails.
- s: simulated run, the command file execution is simulated, no commands are actually executed on the node. Can be used to verify the syntax of a script prior to running it for real. The simulated mode is always used in "offline mode" or "simulated undo mode", regardless of the "trun" options.
- l: execute the whole script in one transaction. This option should be used with great care and only when absolutely necessary (e.g. when changing IP address of the node, see example script in moshell/examples/misc/ip_change.mo). In regular usage, it is recommended to not use this option as it has been observed to cause database corruptions in certain cases.

Script example:

```
ECHO "Start Test"
CREATE
(
  parent "ManagedElement=1,SwManagement=1"
  identity "R0J1192104_3_R4"
  moType PiuType
  exception none
  nrOfAttributes 3
    productData Struct
      nrOfElements 5
        productNumber String "R0J1192104/3"
        productRevision String "R4"
        productName String "TUB"
        productInfo String "TU"
        productionDate String "20030116"
      boardWidth Integer 3
      role Integer 2
    )
  DELETE
  (
    mo "ManagedElement=1,SwManagement=1,PiuType=R0J1192104_3_R4"
    exception none
  )
  SET
```

```
(
  mo "ManagedElement=1,Equipment=1,Jvm=1"
  exception none
  admClasspath Array Reference 4
    "ManagedElement=1,SwManagement=1,LoadModule=Oms"
    "ManagedElement=1,SwManagement=1,LoadModule=Asms"
    "ManagedElement=1,SwManagement=1,LoadModule=VbjOrb"
    "ManagedElement=1,SwManagement=1,LoadModule=Cma"
)
ACTION
(
  actionName addRepertoire
  mo "ManagedElement=1,SwManagement=1,SwAllocation=TB_LLP"
  exception none
  nrOfParameters 1
    Ref "ManagedElement=1,SwManagement=1,Repertoire=Cello_Common_MP"
  returnValue ignore
)
//wait 2 seconds (time given in milliseconds)
WAIT 2000
//run another MO script
CALL("/home/eric/scripts/newfile.mo")
```

3.15 undo commands

When undo mode is active (activate with “u+”), all MO commands which affect the configuration data (del/rdel/set/bl/deb/cr/acc) are logged and a MO script will be generated to undo the operations if necessary.

RNC11> rdel iublink=1\$

Recursive Delete following MOs ?

```
=====
4691  RncFunction=1,IubLink=1
=====
```

Warning: Undo Mode is currently inactive !!!!

Are you Sure [y/n] ? **n**

RNC11> u+

Logging cr/del/rdel/set/bl/deb/acc commands to file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_060709-001748.log

RNC11> rdel iublink=1\$

Recursive Delete following M0s ?

```
=====
4691  RncFunction=1,IubLink=1
=====
```

Are you Sure [y/n] ? y

..
Delete following M0s ?

```
=====
3776  RncFunction=1,UtranCell=30101,UtranRelation=30101_30103_softer_wo
3764  RncFunction=1,UtranCell=30102,UtranRelation=30102_30103_softer_wo
3755  RncFunction=1,UtranCell=30103,UtranRelation=30103_30102_softer_wo
3756  RncFunction=1,UtranCell=30103,UtranRelation=30103_301107_soft_wo
3760  RncFunction=1,UtranCell=30103,UtranRelation=30103_30165_soft_wo
3761  RncFunction=1,UtranCell=30103,UtranRelation=30103_30166_soft_wo
3757  RncFunction=1,UtranCell=30103,UtranRelation=30103_30185_soft_wo
3758  RncFunction=1,UtranCell=30103,UtranRelation=30103_30186_soft_wo
3759  RncFunction=1,UtranCell=30103,UtranRelation=30103_30187_soft_wo
4419  RncFunction=1,UtranCell=301107,UtranRelation=301107_30103_soft_wo
3001  RncFunction=1,UtranCell=30165,UtranRelation=30165_30103_soft_wo
2992  RncFunction=1,UtranCell=30166,UtranRelation=30166_30103_soft_wo
2766  RncFunction=1,UtranCell=30185,UtranRelation=30185_30103_soft_wo
2740  RncFunction=1,UtranCell=30187,UtranRelation=30187_30103_soft_wo
3752  RncFunction=1,UtranCell=30103,Fach=301030
3753  RncFunction=1,UtranCell=30103,Hsdscch=301034
3754  RncFunction=1,UtranCell=30103,Pch=301033
3762  RncFunction=1,UtranCell=30103,Rach=301032
3751  RncFunction=1,UtranCell=30103
4637  RncFunction=1,LocationArea=3015,RoutingArea=11
4634  RncFunction=1,LocationArea=3015,ServiceArea=1003
3766  RncFunction=1,UtranCell=30102,UtranRelation=30102_301106_soft_wo
3774  RncFunction=1,UtranCell=30102,UtranRelation=30102_30123_soft_wo
3772  RncFunction=1,UtranCell=30102,UtranRelation=30102_30144_soft_wo
3773  RncFunction=1,UtranCell=30102,UtranRelation=30102_30145_soft_wo
3769  RncFunction=1,UtranCell=30102,UtranRelation=30102_30165_soft_wo
3770  RncFunction=1,UtranCell=30102,UtranRelation=30102_30166_soft_wo
4434  RncFunction=1,UtranCell=301106,UtranRelation=301106_30102_soft_wo
3519  RncFunction=1,UtranCell=30123,UtranRelation=30123_30102_soft_wo
3253  RncFunction=1,UtranCell=30144,CoverageRelation=30144_30102
3256  RncFunction=1,UtranCell=30144,UtranRelation=30144_30102_soft_wo
3236  RncFunction=1,UtranCell=30145,UtranRelation=30145_30102_soft_wo
3004  RncFunction=1,UtranCell=30165,UtranRelation=30165_30102_soft_wo
2990  RncFunction=1,UtranCell=30166,UtranRelation=30166_30102_soft_wo
3771  RncFunction=1,UtranCell=30102,Fach=301020
=====
```

3767 RncFunction=1,UtranCell=30102,Hsdsc=301024
3765 RncFunction=1,UtranCell=30102,Pch=301023
3768 RncFunction=1,UtranCell=30102,Rach=301022
3763 RncFunction=1,UtranCell=30102
4635 RncFunction=1,LocationArea=3015,ServiceArea=1002
3781 RncFunction=1,UtranCell=30101,UtranRelation=30101_301106_soft_wo
3777 RncFunction=1,UtranCell=30101,UtranRelation=30101_30122_soft_wo
3778 RncFunction=1,UtranCell=30101,UtranRelation=30101_30123_soft_wo
3779 RncFunction=1,UtranCell=30101,UtranRelation=30101_30124_soft_wo
3786 RncFunction=1,UtranCell=30101,UtranRelation=30101_30143_soft_wo
3784 RncFunction=1,UtranCell=30101,UtranRelation=30101_30164_soft_wo
4433 RncFunction=1,UtranCell=301106,UtranRelation=301106_30101_soft_wo
3532 RncFunction=1,UtranCell=30122,UtranRelation=30122_30101_soft_wo
3518 RncFunction=1,UtranCell=30123,UtranRelation=30123_30101_soft_wo
3507 RncFunction=1,UtranCell=30124,UtranRelation=30124_30101_soft_wo
3260 RncFunction=1,UtranCell=30143,UtranRelation=30143_30101_soft_wo
3014 RncFunction=1,UtranCell=30164,UtranRelation=30164_30101_soft_wo
3783 RncFunction=1,UtranCell=30101,Fach=301010
3785 RncFunction=1,UtranCell=30101,Hsdsc=301014
3780 RncFunction=1,UtranCell=30101,Pch=301013
3782 RncFunction=1,UtranCell=30101,Rach=301012
3775 RncFunction=1,UtranCell=30101
4636 RncFunction=1,LocationArea=3015,ServiceArea=1001
4693 RncFunction=1,IubLink=1,NbapCommon=1
4692 RncFunction=1,IubLink=1,NbapDedicated=1
4696 RncFunction=1,IubLink=1,NodeSynchTp=1
4695 RncFunction=1,IubLink=1,NodeSynchTp=2
4694 RncFunction=1,IubLink=1,NodeSynch=1
4691 RncFunction=1,IubLink=1
1916 TransportNetwork=1,Aal2RoutingCase=Iub1
1993 TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1
1992 TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1
1867 TransportNetwork=1,Aal2PathVccTp=Iub1-1
1864 TransportNetwork=1,Aal2PathVccTp=Iub1-2
1861 TransportNetwork=1,Aal2PathVccTp=Iub1-3
1816 TransportNetwork=1,UniSaalTp=1
1815 TransportNetwork=1,UniSaalTp=2
1814 TransportNetwork=1,UniSaalTp=3
1813 TransportNetwork=1,UniSaalTp=4
1812 TransportNetwork=1,UniSaalTp=5
1811 TransportNetwork=1,UniSaalTp=6
2156 TransportNetwork=1,Aal0TpVccTp=1
2155 TransportNetwork=1,Aal0TpVccTp=2
1966 TransportNetwork=1,Aal5TpVccTp=1
1965 TransportNetwork=1,Aal5TpVccTp=2

```

1964 TransportNetwork=1,Aal5TpVccTp=3
1963 TransportNetwork=1,Aal5TpVccTp=4
1962 TransportNetwork=1,Aal5TpVccTp=5
1961 TransportNetwork=1,Aal5TpVccTp=6
1693 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc34
1692 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc35
1691 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc36
1690 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc37
1689 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc38
1688 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc39
1687 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc40
1686 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc43
1685 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44
1684 TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45

```

=====

Are you Sure [y/n] ? y

Deleting ...

```

3776 RncFunction=1,UtranCell=30101,UtranRelation=30101_30103_softer_wo      >>> Mo deleted
3764 RncFunction=1,UtranCell=30102,UtranRelation=30102_30103_softer_wo      >>> Mo deleted
3755 RncFunction=1,UtranCell=30103,UtranRelation=30103_30102_softer_wo      >>> Mo deleted
3756 RncFunction=1,UtranCell=30103,UtranRelation=30103_301107_soft_wo       >>> Mo deleted
3760 RncFunction=1,UtranCell=30103,UtranRelation=30103_30165_soft_wo       >>> Mo deleted
3761 RncFunction=1,UtranCell=30103,UtranRelation=30103_30166_soft_wo       >>> Mo deleted
3757 RncFunction=1,UtranCell=30103,UtranRelation=30103_30185_soft_wo       >>> Mo deleted
3758 RncFunction=1,UtranCell=30103,UtranRelation=30103_30186_soft_wo       >>> Mo deleted
3759 RncFunction=1,UtranCell=30103,UtranRelation=30103_30187_soft_wo       >>> Mo deleted
4419 RncFunction=1,UtranCell=301107,UtranRelation=301107_30103_soft_wo      >>> Mo deleted
3001 RncFunction=1,UtranCell=30165,UtranRelation=30165_30103_soft_wo       >>> Mo deleted
2992 RncFunction=1,UtranCell=30166,UtranRelation=30166_30103_soft_wo       >>> Mo deleted
2766 RncFunction=1,UtranCell=30185,UtranRelation=30185_30103_soft_wo       >>> Mo deleted
2740 RncFunction=1,UtranCell=30187,UtranRelation=30187_30103_soft_wo       >>> Mo deleted
3752 RncFunction=1,UtranCell=30103,Fach=301030                             >>> Mo deleted
3753 RncFunction=1,UtranCell=30103,Hsdscch=301034                         >>> Mo deleted
3754 RncFunction=1,UtranCell=30103,Pch=301033                             >>> Mo deleted
3762 RncFunction=1,UtranCell=30103,Rach=301032                             >>> Mo deleted
3751 RncFunction=1,UtranCell=30103                                         >>> Mo deleted
4637 RncFunction=1,LocationArea=3015,RoutingArea=11                       >>> Processing failure
:se.ericsson.wcdma.rnc.roam.mao.commonmo.ProcessingFailureException TAG : "ProcessingFailureException" VARIABLES : "$Message" =
"RoutingArea could not be deleted, there are still references in reservedBy ! "
4634 RncFunction=1,LocationArea=3015,ServiceArea=1003                     >>> Mo deleted
3766 RncFunction=1,UtranCell=30102,UtranRelation=30102_301106_soft_wo      >>> Mo deleted
3774 RncFunction=1,UtranCell=30102,UtranRelation=30102_30123_soft_wo      >>> Mo deleted

```

3772	RncFunction=1,UtranCell=30102,UtranRelation=30102_30144_soft_wo	>>> Mo deleted
3773	RncFunction=1,UtranCell=30102,UtranRelation=30102_30145_soft_wo	>>> Mo deleted
3769	RncFunction=1,UtranCell=30102,UtranRelation=30102_30165_soft_wo	>>> Mo deleted
3770	RncFunction=1,UtranCell=30102,UtranRelation=30102_30166_soft_wo	>>> Mo deleted
4434	RncFunction=1,UtranCell=301106,UtranRelation=301106_30102_soft_wo	>>> Mo deleted
3519	RncFunction=1,UtranCell=30123,UtranRelation=30123_30102_soft_wo	>>> Mo deleted
3253	RncFunction=1,UtranCell=30144,CoverageRelation=30144_30102	>>> Mo deleted
3256	RncFunction=1,UtranCell=30144,UtranRelation=30144_30102_soft_wo	>>> Mo deleted
3236	RncFunction=1,UtranCell=30145,UtranRelation=30145_30102_soft_wo	>>> Mo deleted
3004	RncFunction=1,UtranCell=30165,UtranRelation=30165_30102_soft_wo	>>> Mo deleted
2990	RncFunction=1,UtranCell=30166,UtranRelation=30166_30102_soft_wo	>>> Mo deleted
3771	RncFunction=1,UtranCell=30102,Fach=301020	>>> Mo deleted
3767	RncFunction=1,UtranCell=30102,Hsdsc=301024	>>> Mo deleted
3765	RncFunction=1,UtranCell=30102,Pch=301023	>>> Mo deleted
3768	RncFunction=1,UtranCell=30102,Rach=301022	>>> Mo deleted
3763	RncFunction=1,UtranCell=30102	>>> Mo deleted
4635	RncFunction=1,LocationArea=3015,ServiceArea=1002	>>> Mo deleted
3781	RncFunction=1,UtranCell=30101,UtranRelation=30101_301106_soft_wo	>>> Mo deleted
3777	RncFunction=1,UtranCell=30101,UtranRelation=30101_30122_soft_wo	>>> Mo deleted
3778	RncFunction=1,UtranCell=30101,UtranRelation=30101_30123_soft_wo	>>> Mo deleted
3779	RncFunction=1,UtranCell=30101,UtranRelation=30101_30124_soft_wo	>>> Mo deleted
3786	RncFunction=1,UtranCell=30101,UtranRelation=30101_30143_soft_wo	>>> Mo deleted
3784	RncFunction=1,UtranCell=30101,UtranRelation=30101_30164_soft_wo	>>> Mo deleted
4433	RncFunction=1,UtranCell=301106,UtranRelation=301106_30101_soft_wo	>>> Mo deleted
3532	RncFunction=1,UtranCell=30122,UtranRelation=30122_30101_soft_wo	>>> Mo deleted
3518	RncFunction=1,UtranCell=30123,UtranRelation=30123_30101_soft_wo	>>> Mo deleted
3507	RncFunction=1,UtranCell=30124,UtranRelation=30124_30101_soft_wo	>>> Mo deleted
3260	RncFunction=1,UtranCell=30143,UtranRelation=30143_30101_soft_wo	>>> Mo deleted
3014	RncFunction=1,UtranCell=30164,UtranRelation=30164_30101_soft_wo	>>> Mo deleted
3783	RncFunction=1,UtranCell=30101,Fach=301010	>>> Mo deleted
3785	RncFunction=1,UtranCell=30101,Hsdsc=301014	>>> Mo deleted
3780	RncFunction=1,UtranCell=30101,Pch=301013	>>> Mo deleted
3782	RncFunction=1,UtranCell=30101,Rach=301012	>>> Mo deleted
3775	RncFunction=1,UtranCell=30101	>>> Mo deleted
4636	RncFunction=1,LocationArea=3015,ServiceArea=1001	>>> Mo deleted
4693	RncFunction=1,IubLink=1,NbapCommon=1	>>> Mo deleted
4692	RncFunction=1,IubLink=1,NbapDedicated=1	>>> Mo deleted
4696	RncFunction=1,IubLink=1,NodeSynchTp=1	>>> Mo deleted
4695	RncFunction=1,IubLink=1,NodeSynchTp=2	>>> Mo deleted
4694	RncFunction=1,IubLink=1,NodeSynch=1	>>> Mo deleted
4691	RncFunction=1,IubLink=1	>>> Mo deleted
1916	TransportNetwork=1,Aal2RoutingCase=Iub1	>>> Mo deleted
1993	TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1	>>> Mo deleted
1992	TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1	>>> Mo deleted
1867	TransportNetwork=1,Aal2PathVccTp=Iub1-1	>>> Mo deleted

1864	TransportNetwork=1,Aal2PathVccTp=Iub1-2	>>> Mo deleted
1861	TransportNetwork=1,Aal2PathVccTp=Iub1-3	>>> Mo deleted
1816	TransportNetwork=1,UniSaalTp=1	>>> Mo deleted
1815	TransportNetwork=1,UniSaalTp=2	>>> Mo deleted
1814	TransportNetwork=1,UniSaalTp=3	>>> Mo deleted
1813	TransportNetwork=1,UniSaalTp=4	>>> Mo deleted
1812	TransportNetwork=1,UniSaalTp=5	>>> Mo deleted
1811	TransportNetwork=1,UniSaalTp=6	>>> Mo deleted
2156	TransportNetwork=1,Aal0TpVccTp=1	>>> Mo deleted
2155	TransportNetwork=1,Aal0TpVccTp=2	>>> Mo deleted
1966	TransportNetwork=1,Aal5TpVccTp=1	>>> Mo deleted
1965	TransportNetwork=1,Aal5TpVccTp=2	>>> Mo deleted
1964	TransportNetwork=1,Aal5TpVccTp=3	>>> Mo deleted
1963	TransportNetwork=1,Aal5TpVccTp=4	>>> Mo deleted
1962	TransportNetwork=1,Aal5TpVccTp=5	>>> Mo deleted
1961	TransportNetwork=1,Aal5TpVccTp=6	>>> Mo deleted
1693	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc34	>>> Mo deleted
1692	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc35	>>> Mo deleted
1691	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc36	>>> Mo deleted
1690	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc37	>>> Mo deleted
1689	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc38	>>> Mo deleted
1688	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc39	>>> Mo deleted
1687	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc40	>>> Mo deleted
1686	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc43	>>> Mo deleted
1685	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44	>>> Mo deleted
1684	TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45	>>> Mo deleted

=====

Total: 94 MOs attempted, 93 MOs deleted

RNC11> u-

To undo, execute command: run /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_060709-001748.mos

RNC11> l cat \$undocommandfile

Undo Script

confb+

gs+

cr TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45

45 #externalVci

AtmTrafficDescriptor=U3P1000M80 #atmTrafficDescriptorId

lset TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc45\$ userLabel

cr TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44

```
44 #externalVci
AtmTrafficDescriptor=U3P1000M80 #atmTrafficDescriptorId
lset TransportNetwork=1,AtmPort=MS-26-1,VplTp=1,VpcTp=1,VclTp=vc44$ userLabel
etc.....
```

Simulated undo mode for script generation

```
RNC11> u+s
```

```
Logging cr/del/rdel/set/bl/deb/acc commands to file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_060709-002556.log
```

```
RNC11> del iublink=10
```

```
Delete following M0s ?
```

```
=====
4879  RncFunction=1,IubLink=10
=====
```

```
Note: Running in Simulated Undo mode. No actual deletion will be performed !!!!
```

```
Are you Sure [y/n] ? y
```

```
Getting Attributes...
```

```
=====
...<cut>...
```

```
Deleting ...
```

```
=====
4879  RncFunction=1,IubLink=10
=====
```

```
>>> Simulated M0 deletion
```

```
Total: 1 M0s attempted, 1 M0s deleted
```

```
RNC11> u-
```

```
Delete file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_060709-002556_del.mos
```

```
To undo, execute command: run /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_060709-002556.mos
```

```
RNC11> u+s
```

```
Logging cr/del/rdel/set/bl/deb/acc commands to file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_061003-112724.log
```

RNC11> rdel 2507

Recursive Delete following M0s ?

```
=====
2507  TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100
=====
```

Note: Running in Simulated Undo mode. No actual deletion will be performed !!!!

Are you Sure [y/n] ? y

.....
Delete following M0s ?

```
=====
1991  TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1
1859  TransportNetwork=1,Aal2PathVccTp=Iub1-3
2507  TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100
=====
```

Note: Running in Simulated Undo mode. No actual deletion will be performed !!!!

Are you Sure [y/n] ? y

Getting Attributes...

```
=====
...<cut>...
```

Deleting ...

```
=====
1991  TransportNetwork=1,Aal2Sp=1,Aal2Ap=Iub1,Aal2PathDistributionUnit=Iub1    >>> Simulated M0 deletion
1859  TransportNetwork=1,Aal2PathVccTp=Iub1-3                                >>> Simulated M0 deletion
2507  TransportNetwork=1,AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100          >>> Simulated M0 deletion
=====
```

Total: 3 M0s attempted, 3 M0s deleted

RNC11> u-

Delete file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_061003-112724_del.mos (\$undodelcommandfile)

To undo, execute command: run /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_061003-112724.mos (\$undocommandfile)

To generate the command file in EMAS/MoTester format:

RNC11> u! \$undocommandfile

Example:

RNC11> u+s

Logging cr/del/rdel/set/bl/deb/acc commands to file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.log

RNC11> del 11

Delete following M0s ?

=====

11 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1

=====

Note: Running in Simulated Undo mode. No actual deletion will be performed !!!!
Are you Sure [y/n] ? y

Getting Attributes...

=====

M0	Attribute	Value
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	PlugInUnitId	1
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	administrativeState	1 (UNLOCKED)
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	allowedSeqRestarts	3 (RESTARTS_WITH_WARM)
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	availabilityStatus	0 (NO_STATUS)
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	hwTestResult	2007-05-22 08:18:41 Others
Test Results		
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	hwTestStatus	0 (NO_TEST_RESULTS)
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	operationalState	1 (ENABLED)
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	piuGroupNumber	8
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	piuType	PiuType=R0J1192108/2_R6
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	productType	HW
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	reservedBy	[0] =
Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1	userLabel	

No

Total: 1 M0s

Deleting ...

=====

11 Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1

=====

>>> Simulated M0 deletion

Total: 1 M0s attempted, 1 M0s deleted

RNC11> u-

Delete file: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040_del.mos (\$undodelcommandfile)

To undo, execute command: run /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.mos (\$undocommandfile)

Note: to convert command files from moshell format to trun/emas format, execute the command: u! <commandfile>

RNC11> l cat /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.mos

#DoNotEditThisLine: UndoCommandFile 137.58.194.88 7.0n RNC_NODE_MODEL_G_1_4_COMPLETE stopfile=/tmp/26637

confb+
gs+

cr Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1
PiuType=R0J1192108/2_R6 #piuType
lset Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1\$ administrativeState 1
lset Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1\$ piuGroupNumber 8
lset Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1\$ userLabel
lset Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1\$ allowedSeqRestarts 3
confb-
gs-

RNC11> u! /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.mos

Result saved to: /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.mo (\$undotrunkfile).

RNC11> l cat /home/eanzmagn/moshell_logfiles/logs_moshell/undo/undo_RNC11_070604-114040.mo

CREATE
(
 parent "ManagedElement=1,Equipment=1,Subrack=MS,Slot=28"
 identity "1"
 moType PlugInUnit
 exception none
 nrOfAttributes 1
 piuType Ref "ManagedElement=1,SwManagement=1,PiuType=R0J1192108/2_R6"
)
SET
(
 mo "ManagedElement=1,Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1"
 exception none
 administrativeState Integer 1
)

```
SET
(
    mo "ManagedElement=1,Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1"
    exception none
    piuGroupNumber Integer 8
)
SET
(
    mo "ManagedElement=1,Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1"
    exception none
    userLabel String ""
)
SET
(
    mo "ManagedElement=1,Equipment=1,Subrack=MS,Slot=28,PlugInUnit=1"
    exception none
    allowedSeqRestarts Integer 3
)
```

3.16al command

```
OFFLINE> h al

*****
al[atkc] [ | <unix cmds>]
*****
Print the list of active alarms.
....
```

Basic alarm information, showing four fields per alarm:

```
RNC11> al

Connecting to 137.58.194.147:56834 (CorbaSecurity=OFF, corba_class=2, jarcorb=R71S08, jacsec=R71S08, jacoms=R71J18)
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081128-131838_23227/ior23227
Resolving the alarm service in OMS...
Simple Alarm Client initialized...
Starting to retrieve active alarms
Nr of active alarms are: 6
=====
Sever Specific Problem          Cause          Mo-Reference
=====
Maj  Loss of Signal              loss_of_signal Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
Maj  Plug-In Unit General Problem processor_problem_m3100 Subrack=MS,Slot=18,PlugInUnit=1
```

```
Maj Rach_NbapMessageFailure call_establishment_error UtranCell=Iub-3-2,Rach=1041
Maj TU Synch Reference Loss of Signal loss_of_signal Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
Maj TU Synch Reference Loss of Signal loss_of_signal Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
Min Loss of Synch Reference Redundancy replaceable_unit_problem Synchronization=1
>>> Total: 6 Alarms (0 Critical, 5 Major)
```

4 Possible alarm severities:

- Critical
- Major
- minor
- warning

Showing alarm timestamps:

```
RNC11> alt

Fetching IOR file...Done.
Connecting to 137.58.194.147:56834 (CorbaSecurity=OFF, corba_class=2, jarcorb=R71S08, jacsec=R71S08, jacoms=R71J18)
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081128-131838_23227/ior23227
Resolving the alarm service in OMS...
Simple Alarm Client initialized...
Starting to retrieve active alarms
Nr of active alarms are: 6

=====
Date & Time (Local) S Specific Problem Cause Mo-Reference
=====
2008-11-28 00:06:57 m Loss of Synch Reference Redundancy replaceable_unit_problem Synchronization=1
2008-11-28 00:06:57 M TU Synch Reference Loss of Signal loss_of_signal Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-11-28 00:06:57 M TU Synch Reference Loss of Signal loss_of_signal Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-11-28 00:07:00 M Loss of Signal loss_of_signal
Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
2008-11-28 00:07:12 M Rach_NbapMessageFailure call_establishment_error UtranCell=Iub-3-2,Rach=1041
2008-11-28 00:10:40 M Plug-In Unit General Problem processor_problem_m3100 Subrack=MS,Slot=18,PlugInUnit=1
>>> Total: 6 Alarms (0 Critical, 5 Major)
```

Showing all alarm information, in CSV format:

```
RNC11> alc

Connecting to 137.58.194.147:56834 (CorbaSecurity=OFF, corba_class=2, jarcorb=R71S08, jacsec=R71S08, jacoms=R71J18)
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081128-131838_23227/ior23227
Resolving the alarm service in OMS...
Simple Alarm Client initialized...
Starting to retrieve active alarms
Nr of active alarms are: 6
```

```

Date;Time;Severity;Object;Problem;Cause;AdditionalText;AckState;AlarmId;NotificationId
2008-11-28;00:07:00;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1;Loss of
Signal;loss_of_signal;;Unacknowledged;_6;6
2008-11-28;00:10:40;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1;Plug-In Unit General
Problem;processor_problem_m3100;;Unacknowledged;_10;12
2008-11-28;00:07:12;Major;ManagedElement=1,RncFunction=1,UtranCell=Iub-3-2,Rach=1041;Rach_NbapMessageFailure;call_establishment_error;A Radio NW
Service Impact nbapCause = message_not_compatible_with_receiver_state;Unacknowledged;_9;9
2008-11-28;00:06:57;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch Reference Loss of
Signal;loss_of_signal;;Unacknowledged;_2;2
2008-11-28;00:06:57;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch Reference Loss of
Signal;loss_of_signal;;Unacknowledged;_3;3
2008-11-28;00:06:57;Minor;ManagedElement=1,TransportNetwork=1,Synchronization=1;Loss of Synch Reference
Redundancy;replaceable_unit_problem;;Unacknowledged;_1;1
>>> Total: 6 Alarms (0 Critical, 5 Major)

```

Filtering alarms using grep:

```
RNC11> al | grep -i timing
```

```

Maj    TU Synch Reference Loss of Signal    loss_of_signal                Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
Maj    TU Synch Reference Loss of Signal    loss_of_signal                Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1

```

```
MGW1> al | grep Sctp
```

```

Min    Remote IP Address Unreachable        unavailable                    Sctp=SIGTR_12

```

```
MGW1> alc | grep Sctp
```

```

2009-12-03;12:55:32;Minor;SubNetwork=OSSETE2_ROOT_MO,MeContext=MGW1,ManagedElement=1,TransportNetwork=1,Sctp=SIGTR_12;Remote IP Address
Unreachable;unavailable;userLabel = SIGTR_12 assocId = 6 localIpAddress1 = 10.201.0.30 localIpAddress1.prefixLength = 0 localPort = 2905
remoteIpAddress1 = 10.201.2.172 remoteIpAddress1.prefixLength = 0 remoteIpAddress2 = 10.201.12.172 remoteIpAddress2.prefixLength = 0 remotePort
= 2905 unreachableIpIndex = 2;Unacknowledged;SubNetwork=OSSETE2_ROOT_MO,MeContext=MGW1_42;45

```

To fix an alarm, follow the ALARM OPIs: <http://cpistore.ericsson.se>

3.17 Offline mode

Take an MO dump of the node:

```
RNC11> dcgk
```

Getting MO data from node (8244 MOs). Please wait...

0% ~50% ~100%

.....
Successful storage of the MO dump to /home/eanzmagn/moshell_logfiles/logs_moshell/dcg/RNC11/090325_113852/RNC11_modump.zip
For offline processing, run: moshell <zipfile>.

Using an MO dump for investigating a node offline:

**:ws4264@~> moshell modumps/RNC11/090325_114224/RNC11_modump.zip

```
#####  
#           Welcome to MoShell 7.1n           #  
#           Finn Magnusson, Jan Pettersson    #  
#           http://utran01.au.ao.ericsson.se/moshell #  
#           Contact: Finn.Magnusson@ericsson.com #  
#           David.Smith@ericsson.com          #  
#####
```

unzip -ojq modumps/RNC11/090325_114224/RNC11_modump.zip -d /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090325-114443_23046/modump

Found MO dump: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090325-114443_23046/modump/RNC11_dcg_k.log.gz

Parsing MOM (cached): /home/eanzmagn/jarxml/RNC_NODE_MODEL_G_5_30.xml.cache.gz

.....Done.

Connected to OFFLINE_RNC11_modump.zip (ManagedElement=1)

Last MO: 8243. Loaded 8243 MOs. Total: 8244 MOs.

Preparing offline MIB:

0% ~50% ~100%

.....
HELP MENU : h
QUIT : q

OFFLINE_RNC11_DCG_K> h

----- COMMANDS SUPPORTED IN OFFLINE-MODE -----
mom[tcdr] Print description of MO classes, CM/FM attributes, actions, enums and structs.
lt/ltc[1-9] Load MO tree (full or partial) and build proxy table.

lu/llu	Unload MOs from MO tree.
pr/lpr	Print MO LDNs and proxy ids for all or part of the MO tree currently loaded in moshell.
ma/lma	Add MO(s) to an MO group.
mr/lmr	Remove an MO group or remove MOs from an MO group (MOs will NOT be deleted, only the group).
mp	Print all defined MO groups.
get/lget	Read CM/FM attribute(s) from MO(s).
hget[c]/lhget[c]	Read CM/FM attribute(s) from MO(s), print horizontally one line per MO (instead of one line per attribute).
kget/lkget	Display CM/FM attributes in exportable printout format.
st/lst	Print state of MOs (operationalState and administrativeState when applicable).
prod	Print productData of MO(s).
lk/llk	View all MO's linked to an MO, and their states (admState and opState).
lko/llko	Obsolete command, use lk/llk instead.
set[m][c]/lset[m][c]	Set an attribute value on one or several MO's.
bl[s]/lbl[s]	Lock or soft-lock MO(s).
deb/ldeb	Unlock MO(s).
acl/lacL	Lists available MO actions.
acc/lacc	Execute an MO action.
cr	Create an MO.
del/ldel	Delete MO(s).
rdel/lrdel	Delete MO(s) together with children and reserving MOs.
s+/s-/s?	Sort MO list in alphabetical order instead of proxy order.
u+[s]/u-/u?/u!	Handling of undo mode (for cr/del/rdel/set/bl/deb/acc commands). Can be used for generation of MO scripts as well.
run	Run a command file in moshell format.
parsemom	Parse an xml MOM file.
cvls/cvmk/cvms/cvset/cvrm/cvcu/cvget/cvput/cvls1	CV backup handling: list, make local, make remote, remove, setstartable.
inv[hr]	Complete HW/SW inventory. Includes information about RPU's, licensing, JVM, devices, XPs, ISL, etc.
stc[p][r]	Display state and configuration of Atm/Tdm CrossConnections.
std[ar]	Display state and configuration of devices (RNC and MGW only).
stv[b][r]	Display state, user, and bandwidth usage for ATM ports and channels.
stt[r]	Display state and user of Physical Ports and Ds0Bundles.
sti[bcpr]	Display state and configuration of IP interfaces.
diff/ldiff	Parameter auditing or MO dump comparisons.
str[12ft]	Print status of the IubLinks/AbisLinks and their associated Cells and Channels (RNC/BSC only).
lki	Show repartition of the IubLinks' ATM resources (RNC only).
lg[aevsyuoltdhmircfx]	Fetching and/or processing of node logs (alarm, event, availability, system, etc)
uv	Print or change moshell configuration settings (also called "user variables").
pv	Print scripting variables.
!/l	Execute a unix command on the PC/workstation.
l+[m][m][s][o]/l-/l?	Open/close moshell logfiles.
bo[r]/ba[swdp]/br[wd]/be[0-50]/bp	Manage board groups that can be used for running COLI commands on multiple boards.
hi	Print history of moshell commands entered during the current session.
time[t]	Measure time taken by an moshell command or by each command in a moshell command file.
lmid[c]/upid	Print translation of loadmodule/upgradepackage product number or T&E error codes.
p/w/pw/b	Change moshell prompt and/or window title.

prox	Toggle display of proxy identities in printout of get <mo> <attribute> command.
ul	Toggle display of userlabel in st/lst and pget/lpget printout.
conf[bld]	Toggle confirmation on various MO commands.
ip2d/d2ip	Convert an IP address into the format used in the fR0 (sql database) or vice-versa.
h2d/d2h	Convert an integer to hexadecimal or viceversa.
h2b/b2h	Convert a binary to hexadecimal or viceversa.
wait	Specify a delay in hrs, mins, secs, or rops. Similar to the unix "sleep" command (scripting).
return	Exit from a command file without exiting from moshell (scripting).
print	Print a line or variable (scripting).
alias/unalias	Print or define command aliases.
q/by/exit/quit	Exit moshell.
pmom[acd]/lmom[c]	Print description of PM counters (pmom) or log attributes (lmom, CDMA only).
pmx[hfdn]	Display counter values, extracted from the statistics ROP files.
pmr[agf]	Produce PM KPI reports, based on counter values in statistics ROP files and formulas in CPI documentation.
emom	Display list of events available for each kind of event-based scanner.

```

----- HELP CHAPTERS -----
0      Revision History
1      Introduction
2      Installation, and user settings
3      Command syntax, regular expressions
4      Command descriptions
5      Lazy
6      Scripting
7      Utilities
8      Server Maintenance
9      Offline Mode and Multi Mode

```

Type: - h <command> to view command description, e.g: h pget
 - h <pattern> to view commands whose description match a string, e.g: h change.*prompt
 - h <chapter> to view a chapter, e.g: h 3

OFFLINE_RNC11_DCG_K> get 0

090325-11:48:01 OFFLINE_RNC11_modump.zip 7.1n RNC_NODE_MODEL_G_5_30 stopfile=/tmp/23079

```

=====
0      ManagedElement=1
=====
ManagedElementId      1
applicationConfiguration  t[0] =
faultTolerantCoreStates s[2] = ManagedElement=1,Equipment=1,Subrack=MS,Slot=10,PlugInUnit=1;PassiveReady
ManagedElement=1,Equipment=1,Subrack=MS,Slot=11,PlugInUnit=1;Active
logicalName
mimName      RNC_NODE_MODEL_G
productName
productNumber

```

productRevision
productType
site
userLabel

Node
RNC11

=====
Total: 1 MOs

OFFLINE_RNC11_DCG_K> st . dis

090325-11:47:56 OFFLINE_RNC11_modump.zip 7.1n RNC_NODE_MODEL_G_5_30 stopfile=/tmp/23079

Proxy	Adm State	Op. State	MO
74	0 (LOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
75		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
83	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1
84	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Cc
85	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Cc,CcDevice=2
86	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Pdr
87	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Pdr,PdrDevice=1
88	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Dc
89	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Dc,DcDevice=5
90	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Dc,DcDevice=4
91	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,SpbDeviceGroup=1,SpbDeviceSet=Dc,DcDevice=3
96		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1
97		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1,Spm=5
101		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1,Spm=4
105		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1,Spm=3
109		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1,Spm=2
113		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=23,PlugInUnit=1,Spu=1,Spm=1
247	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1
248		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1322812_R51MM01
249		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1321121_R51GD01
250		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1321314_R51TK02
251		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1320742_R51SZ01
252		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1321447_R51TK05
253		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,GeneralProcessorUnit=1
255		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1329854_R10CC04
256		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1329855_R10CC03
257		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1321316_R51SZ01
258		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1327705_R51SZ01
259		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1329850_R10CC03
260		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=18,PlugInUnit=1,Program=CXC1320787_R51TK02
521	0 (LOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
522		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1

```

523 1 (UNLOCKED) 0 (DISABLED) Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
524 1 (UNLOCKED) 0 (DISABLED) Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1,Vc4Ttp=1
546 1 (UNLOCKED) 0 (DISABLED) Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
556 1 (UNLOCKED) 0 (DISABLED) Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
1808 0 (DISABLED) TransportNetwork=1,AtmPort=MS-7-2-1
1968 0 (DISABLED) TransportNetwork=1,AtmPort=MS-7-1-1
2685 0 (DISABLED) TransportNetwork=1,AtmPort=MS-26-1-1
3513 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu2
3514 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu1

```

=====
Total: 41 M0s

Added 41 M0s to group: st_group

OFFLINE_RNC11_DCG_K> bl utrancell=iub-10-1

090325-11:47:03 OFFLINE_RNC11_modump.zip 7.1n RNC_NODE_MODEL_G_5_30 stopfile=/tmp/23079

```

=====
Id      M0                                           administrativeState  Result
=====
6756    UtranCell=Iub-10-1                               0                    >>> Set.
=====

```

Total: 1 M0s attempted, 1 M0s set

OFFLINE_RNC11_DCG_K> cr rncfunction=1,iublink=Iub-42

090325-11:47:21 OFFLINE_RNC11_modump.zip 7.1n RNC_NODE_MODEL_G_5_30 stopfile=/tmp/23079

Attribute 1 of 2, rbsId (long): 42

Attribute 2 of 2, preferredSubrackRef (moRef:Subrack):

Enter mo LDN: subrack=ms

>>> [Proxy ID = 8244] M0 name :ManagedElement=1,RncFunction=1,IubLink=Iub-42

OFFLINE_RNC11_DCG_K> get 8244

090325-11:47:31 OFFLINE_RNC11_modump.zip 7.1n RNC_NODE_MODEL_G_5_30 stopfile=/tmp/23079

```

=====
8244                                           RncFunction=1,IubLink=Iub-42
=====
IubLinkId                                Iub-42
availabilityStatus                        0 (NO_STATUS)

```

```

beMarginDlHw          0
beMarginUlHw          0
dlHwAdm               100
operationalState      1 (ENABLED)
preferredSubrackRef    Subrack=MS
rbsId                 42
reservedBy             [0] =
rncModuleRef
ulHwAdm               100
userLabel

```

```

=====
Total: 1 M0s

```

4 LOG COMMANDS

The CPP logs are stored in files in the folders /c/logfiles , /c/systemfiles and /c/pmd.

```
RNC11> ftreef /c/logfiles
```

```

-rw-rw-rw- 1999990    8 Jul 2009 12:13:51 /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml
-rw-rw-rw- 2999992    9 Jul 2009 06:33:40 /c/logfiles/alarm_event/ALARM_LOG.xml
-rw-rw-rw- 499741     4 Jul 2009 12:14:37 /c/logfiles/alarm_event/EVENT_LOG.xml
-rw-rw-rw- 28795      15 Jun 2009 19:40:54 /c/logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml.bak
-rw-rw-rw- 26058      20 Jun 2009 07:05:13 /c/logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml
-rw-rw-rw- 102400     9 Jul 2009 06:34:24 /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml
-rw-rw-rw- 1392889    9 Jul 2009 06:34:22 /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml
-rw-rw-rw- 2999918    9 Jul 2009 06:34:20 /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml
-rw-rw-rw- 1573030    7 Jul 2009 08:49:58 /c/logfiles/audit_trail/X911040657_CORBA_AUDITTRAIL_LOG_20090707T084959.push
-rw-rw-rw- 1573030    7 Jul 2009 08:49:58 /c/logfiles/audit_trail/X911040657_SHELL_AUDITTRAIL_LOG_20090707T084959.push
-rw-rw-rw- 1047623    21 Oct 2007 06:50:59 /c/logfiles/systemlog/00000syslog
-rw-rw-rw- 1047442     7 Apr 2009 15:01:07 /c/logfiles/systemlog/00001syslog
-rw-rw-rw- 668375     9 Jul 2009 06:33:39 /c/logfiles/systemlog/00002syslog

```

```
RNC11> ftreef /c/systemfiles
```

```

-rw-rw-rw- 1186786    7 Jul 2009 05:56:28 /c/systemfiles/cello/cma/su/trace/Trace.log
-rw-rw-rw- 2557      15 Jun 2009 20:43:37 /c/systemfiles/cello/cma/su/prop/Trace_01.prop

```

```
RNC11> ftreef /c/pmd
```

```
-rw-rw-rw- 60496      18 Sep 2007 12:22:24 /c/pmd/1/001600/0x15aa234f.pmd
-rw-rw-rw- 64728      20 Sep 2007 19:51:38 /c/pmd/2/001600/0x15aa2357.pmd
-rw-rw-rw- 38880       2 Oct 2007 04:04:06 /c/pmd/3/001600/0x15aa237b.pmd
-rw-rw-rw- 44412       2 Oct 2007 04:04:08 /c/pmd/4/001600/0x15aa237e.pmd
-rw-rw-rw- 42420       2 Oct 2007 04:04:09 /c/pmd/5/001600/0x15aa2381.pmd
-rw-rw-rw- 49404       2 Oct 2007 04:43:13 /c/pmd/6/001600/0x15aa23b0.pmd
-rw-rw-rw- 46728       2 Oct 2007 04:43:14 /c/pmd/7/001600/0x15aa23b3.pmd
-rw-rw-rw- 3392        2 Oct 2007 04:43:15 /c/pmd/8/001600/0x15aa23b6.pmd
-rw-rw-rw- 3504        2 Oct 2007 04:43:16 /c/pmd/9/001600/0x15aa23b7.pmd
-rw-rw-rw- 42268       2 Oct 2007 20:00:43 /c/pmd/10/001600/0x15aa23bf.pmd
...<cut>...
-rw-rw-rw- 85084       9 May 2009 08:34:42 /c/pmd/116/001000/0x2db6faa0.pmd
-rw-rw-rw- 65536       5 Jun 2009 09:50:05 /c/pmd/119/001918/0x00000002.pmd
-rw-rw-rw- 142304      1 Jul 2009 12:48:09 /c/pmd/120/001100/0x4fb5acbe.pmd
-rw-rw-rw- 124864      1 Jul 2009 13:55:04 /c/pmd/123/001000/0x2db6fb4d.pmd
-rw-rw-rw- 84668       1 Jul 2009 13:55:00 /c/pmd/121/000100/0xff0001b1.pmd
-rw-rw-rw- 84216       1 Jul 2009 13:55:03 /c/pmd/122/000000/0xfdbe819e.pmd
```

The “lg” command can be used to fetch and process these logs.

```
OFFLINE> h lg
```

```
*****
```

```
lg[acdefghilmnopqrstuvwxyz] [-l <logdirectory|logfile|zipfile>] [-m <minustime>] [-p <plustime>] [-s <startdate>] [-e <enddate>]
[-g <boardgroup>] [-n <nodefilter>] [|<unixcmds>]
```

```
*****
```

Fetching and processing of node logs

All options can be combined together, except options "d","w","x","f" which can only be combined with the options "r" and "c".

Log Options:

```
*****
```

- a: Alarm log (ALARM_LOG.xml). History of alarms raising and ceasing.
- x: Active alarms (ALARM_LOG.xml). Snapshot of alarms active on a specific date/time given in -m/-s option.
- e: Event log (EVENT_LOG.xml). History of MO events.
- v: Availability log (CELL0_AVAILABILITY2_LOG.xml). History of node/board/program restarts.
- s: System log (/c/logfiles/systemlog). History of node/board/program restarts.
- p: Post Mortem Dumps (/c/pmd). History of board/program crashes. PMD files are saved permanently in moshell_logfiles/logs_moshell/pmdfiles/<nodeaddress>/pmd .
- u: Upgrade log (Trace.log and Trace.log_old). History of system upgrades.
- d: Downtime log. History of node outages.

- o: MO command log (CORBA_AUDITTRAIL_LOG.xml). History of MO write commands (set/action/create/delete).
- q: MO command log in "trun" format (CORBA_AUDITTRAIL_LOG.xml). Useful for recovering configuration data which was not saved to CV before node restart.
- l: COLI command log (SHELL_AUDITTRAIL_LOG.xml). History of COLI commands.
- n: Moshell command log. To specify different or all nodes, use the "-n <node-filter>" option. If "-m" or "-s" option are not specified, the default is to show command history of the last 30 days.
- y: SecurityEvent log (CELLO_SECURITYEVENT_LOG.xml). History of O&M connection setups.
- w: Active O&M connections (CELLO_SECURITYEVENT_LOG.xml). Snapshot of O&M connections on a specific date/time given in -m/-s option.
- z: IpSec log (CELLO_IPTRAN_LOG.xml).
- t: T&E log (lh all te log read. to specify a different boardgroup than "all", use the "-g" option). Trace and Error Log.
- g: Board Restart error log (lh allp llog -l ; lh ru llog -l -n 5).
- h: HW Inventory log (CELLO_HWINVENTORY_LOG.xml). This file must first be generated with the command "hili mk".

Format Options:

- m: merge the different logs together (eg: lgaevm will merge alarm/event/availability logs).
- i: inverse chronological order.
- r: refetch the logs from the node. Logs are only fetched once and kept in cache. This option is used to refresh the session cache.
- c: print the output in csv format (semicolon separation).
- f: fetch the logs only and store them in a directory on the workstation.

Time filtering:

- The "-s" and "-e" options are used for specifying an absolute timespan: -s gives the starting date and -e gives the ending date. The format is yyyyymmdd[.hhmm], for instance 20071230, or 20071230.0800.
 - The "-m" and "-p" options are used for specifying a timespan relative to today's date: -m gives how long time backward and -p gives how long time forward. The format is in days, hours, or minutes, eg. 10d (10 days), 2h (2 hours), 30m (30 minutes).
- Note: the switch "-s"/"-m" can sometimes be omitted. E.g. "lgo 14" can be used instead of "lgo -m 14", and "lgo 20080701.1200" can be used instead of "lgo -s 20080701.1200". This works only when the options -e/-p are not used.

Offline usage:

The "-l" option allows to process the logfiles in offline mode, when not connected to the node.

The argument of the "-l" option specifies the location where the logfile(s) are locally stored on the workstation. It can be:

- a single logfile
- a directory containing several logfiles.
- a zipped archive containing one or more logfiles.

By running the command "lgf" while connected to the node, it is possible to download all the logfiles to a local directory for later offline processing. The local directory can be specified as argument. If not specified, a default location is chosen (~/.moshell_logfiles/logs_moshell/lg/nodeaddress/date_time). The local directory is then automatically compressed and saved in a zipped archive.

Notes:

- The output of the lg command can be filtered by piping to a unix command such as "grep", "sort", "less", etc.
- In "lga", the Alarm severity field is shortened to one character: C=Critical, M=Major, m=minor, w=warning, *=cleared.
- In "lgd", the downtime values correspond to the following stages:
 - * CPP downtime is the time elapsed between the row "CRIT Node down" and the row "Node operational." in syslog or the row "NODE IN Operational" in avlog (whichever row comes first).
 - * Application downtime is the time elapsed between the row "CRIT Node down" in syslog and the row "RNC Node Restart Completed" (RNC) , "Cell .* enabled" (WRBS) , "VMGWs Unlocked/First VMGw Enabled" (MGW), or "IN Operational CELL" (ERBS) in avlog.
 - * Jvm downtime is the time elapsed between the row "CRIT Node down" in syslog and the row "JVM Load Module is now operational" in avlog or the row "The Configuration Service is up and running" in upgradelog.
 - * The node downtime figures in the summary table at the end of the printout represent the highest value between CPP downtime and Application downtime. The partial downtime figures are weighted against percentage of availability (when applicable).

Examples:

```
>> lga -s 20050705 -e 20050710 --> show alarm log entries between the dates 20050705 and 20070710
>> lgaemc | grep -i atmport      --> show all entries from the alarm/event logs matching the word "atmport" (case insensitive),
display in CSV format (semicolon separated), pipe to grep
>> lgx -m 14                    --> show alarms that were active 14 days ago
>> lgxc -s 20080704.1330        --> show alarms that were active on the 2008-07-04 at 13:30 and print output in CSV format
>> lgvsm -s 20050705.1000       --> show all entries from system log and availability log since the 20070705 at 10:00, merged in
chronological order
>> lgar -m 10d -p 30m           --> refetch the alarm log and show all its entries starting from 10 days ago and until 30
minutes from then.
>> lgf                          --> fetch all logs from the node and put them in the default location
~/moshell_logfiles/logs_moshell/lg/nodeaddress/date_time/node_logfiles.zip
>> lgf /home/user/logs/rnc10    --> fetch all logs from the node and put them in the zipped file
/home/user/logs/rnc10/<node>_logfiles.zip
>> lgaemic -m 10h -l ~/moshell_logfiles/logs_moshell/lg/rnc10/20071122_1425 --> parse the last 10 hours of the alarm and event
logs stored in the folder ~/moshell_logfiles/logs_moshell/lg/rnc10/20071122_1425, merge them and display them in CSV format and
reverse chronological order
>> lgd -m 30d                  --> show all node restarts and system downtime from the past 30 days
>> lgt -g mp                   --> show the T&E logs of the boards of the board group "mp", sorted in chronological order
>> lgtaom -m 12h               --> show the T&E logs of all boards merged with the alarm log and audit trail, for the past 12
hours
>> lgn -m 5 -n 137.58          --> show the moshell command log for the past 5 days for all nodes whose address matches 137.58
```

4.1 Alarm and Event history

Alarm log

5 Possible alarm severities:

- C = Critical

- **M = Major**
- **m = minor**
- **w = warning**
- *** = cleared**

RNC11> lga

Startdate=20090905.211933, Enddate=20090916.211934

Get /c/logfiles/alarm_event/ALARM_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090915-231354_24767/alarmLog24800.xml ... OK

Timestamp (UTC)	S	Problem	Cause	M0-reference
2009-09-15 18:00:47 AL	M	Fach_InternalResourceUnavailable	unavailable	UtranCell=Iub-10-2,Fach=1101
2009-09-15 18:00:47 AL	M	Rach_InternalResourceUnavailable	unavailable	UtranCell=Iub-10-2,Rach=1101
2009-09-15 18:00:47 AL	M	Pch_InternalResourceUnavailable	unavailable	UtranCell=Iub-10-2,Pch=1101
...<cut>...				
2009-09-15 19:06:01 AL	M	TU Synch Reference Loss of Signal	loss_of_signal	
Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1				
2009-09-15 19:07:43 AL	*	TU Synch Reference Loss of Signal	loss_of_signal	
Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1				
2009-09-15 19:26:03 AL	m	Password File Fault	configuration_or_customizing_error	Security=1

RNC11> lgac

090915-23:19:49 137.58.194.147 7.1u RNC_NODE_MODEL_J_3_45_COMPLETE stopfile=/tmp/24800

Startdate=20090905.211953, Enddate=20090916.211953

Date;Time;Log;Severity;Object;Event;Cause;AdditionalText;AckState;Id

2009-09-15;18:00:47;AL;Major;ManagedElement=1,RncFunction=1,UtranCell=Iub-10-2,Fach=1101;Fach_InternalResourceUnavailable;unavailable;A Radio NW Service Impact internalCause::Unacknowledged;_287

2009-09-15;18:00:47;AL;Major;ManagedElement=1,RncFunction=1,UtranCell=Iub-10-2,Rach=1101;Rach_InternalResourceUnavailable;unavailable;A Radio NW Service Impact internalCause::Unacknowledged;_288

2009-09-15;18:00:47;AL;Major;ManagedElement=1,RncFunction=1,UtranCell=Iub-10-2,Pch=1101;Pch_InternalResourceUnavailable;unavailable;A Radio NW Service Impact internalCause::Unacknowledged;_289

...<cut>...

2009-09-15;19:06:01;AL;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch Reference Loss of Signal;loss_of_signal;;Unacknowledged;_301

2009-09-15;19:07:43;AL;Cleared;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch Reference Loss of Signal;loss_of_signal;;Unacknowledged;_301

2009-09-15;19:26:03;AL;Minor;ManagedElement=1,SystemFunctions=1,Security=1;Password File Fault;configuration_or_customizing_error;;Unacknowledged;_303

RNC11> lgx -m 7

081023-15:18:16 137.58.194.147 7.1d stopfile=/tmp/2733
Startdate=19661031.151320, Enddate=20081016.131819
Parsing alarmLog.....Done.
Parsing sysLog.....Done.

.....
Nr of active alarms on 2008-10-16 at 13:18:19: 5

Date & Time (UTC)	S Specific Problem	Cause	Mo-Reference
2008-10-15 05:40:16 M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-10-15 05:40:16 M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-10-15 05:40:16 m	Loss of Synch Reference Redundancy	replaceable_unit_problem	Synchronization=1
2008-10-15 05:40:20 M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
2008-10-15 05:44:06 M	Plug-In Unit General Problem	processor_problem_m3100	Subrack=MS,Slot=18,PlugInUnit=1

>>> Total: 5 Alarms (0 Critical, 4 Major)

RNC11> lgx -m 60h

081023-15:19:30 137.58.194.147 7.1d stopfile=/tmp/2733
Startdate=19661031.151320, Enddate=20081021.011933
Parsing alarmLog.....Done.
Parsing sysLog.....Done.

.....
Nr of active alarms on 2008-10-21 at 01:19:33: 7

Date & Time (UTC)	S Specific Problem	Cause	Mo-Reference
2008-10-20 08:34:18 M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-10-20 08:34:18 M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-10-20 08:34:18 m	Loss of Synch Reference Redundancy	replaceable_unit_problem	Synchronization=1
2008-10-20 08:34:20 M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
2008-10-20 08:38:08 M	Plug-In Unit General Problem	processor_problem_m3100	Subrack=MS,Slot=18,PlugInUnit=1
2008-10-20 22:09:11 M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
2008-10-20 22:09:12 M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=2

>>> Total: 7 Alarms (0 Critical, 6 Major)

RNC49> lgx -s 20090714.0200

Nr of active alarms on 2009-07-14 at 02:00:00: 1

Date & Time (UTC)	S Specific Problem	Cause	Mo-Reference
2009-06-18 10:37:00 M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1

>>> Total: 1 Alarms (0 Critical, 1 Major)

RNC11> lgx

081023-15:17:18 137.58.194.147 7.1d stopfile=/tmp/2733

Trying password from ipdatabase file: /home/eanzmagn/moshell_logfiles/ipdatabase...

Startdate=19661031.151320, Enddate=20081024.131725

...Get /c/logfiles/alarm_event/ALARM_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081023-

151717_2688/alarmLog2733.xml ... OK

Get /c/logfiles/systemlog/00000syslog /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081023-

151717_2688/sysLog2733.tmp ... OK

Get /c/logfiles/systemlog/00001syslog /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20081023-

151717_2688/sysLog2733.tmp ... OK

Parsing alarmLog.....Done.

Parsing sysLog.....Done.

.....

Nr of active alarms on 2008-10-24 at 13:17:25: 5

Date & Time (UTC)	S	Specific Problem	Cause	Mo-Reference
2008-10-22 07:49:02	M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
2008-10-22 07:49:02	m	Loss of Synch Reference Redundancy	replaceable_unit_problem	Synchronization=1
2008-10-22 07:49:04	M	Loss of Signal	loss_of_signal	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=1
2008-10-22 07:52:49	M	Plug-In Unit General Problem	processor_problem_m3100	Subrack=MS,Slot=18,PlugInUnit=1
2008-10-22 13:42:13	M	TU Synch Reference Loss of Signal	loss_of_signal	Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
>>> Total: 5 Alarms (0 Critical, 4 Major)				

Event log

RNC11> lge

Get /c/logfiles/alarm_event/EVENT_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-174119/eventLog28585.xml ... OK

Timestamp (UTC)		MO-reference	Event
2006-06-07 09:11:36	EV	RncFunction=1	RncFunction_NodeRestartCompleted
2006-06-07 10:06:24	EV	Synchronization=1	NssSynchronization_SystemClockStatusChanged
2006-06-07 16:01:19	EV	RncFunction=1	RncFunction_NodeRestartCompleted
2007-02-15 07:34:05	EV	Licensing=1	Licensing_FingerPrintMismatch. Faulty fingerprint in the license key file
2007-02-15 07:34:06	EV	Licensing=1	Licensing_MultipleLicenses. CXC4010071/3009 has multiple (3) licenses
2007-03-29 10:36:01	EV	Subrack=MS,Slot=13	SlotNew PIU detected, matches the defined configuration
2007-10-11 09:47:05	EV	Security=1	Download of Trusted Certificates failed. File Server Access Failure(UserId: ftp RemoteHost: 137.58.194.174 Fault: User authorisation failed. Info:)
2007-10-11 09:47:05	EV	Security=1	Download of Trusted Certificates failed. File Server Access Failure

2007-10-11 09:56:47 EV Security=1

2007-10-11 10:00:24 EV Security=1

2007-12-13 14:59:54 EV UpgradePackage=CXP9012014_R9AM04

Download of Trusted Certificates completed

Download of Local AA Database completed

UpgradePackage Upgrade executed

4.2 Restart and upgrade history

System log (more info in CPP core document)

RNC11> lgs
Get /c/logfiles/systemlog/00000syslog /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-174119/sysLog28585.tmp ... OK

Timestamp (UTC)	Sev	Description
2006-06-07 08:31:06	INFO	Program restart order received for CXC1320784_R50HC05 (jvm.ppc750)
2006-06-07 08:42:51	INFO	Program restart order received for CXC1320784_R50HC05 (jvm.ppc750)
2006-06-07 09:08:11	INFO	Node restart order received. Restart rank = COLD_WITH_TEST
2006-06-07 09:08:11	CRIT	Node down
2006-06-07 09:08:19	INFO	*** Cls_evlogd_proc restart ***
2006-06-07 09:08:36	INFO	Node starting
2006-06-07 09:08:54	INFO	Active CIM ready.
2006-06-07 09:09:03	INFO	Configuration Version = Rnc_final
2006-06-07 09:09:36	INFO	Node operational.

Availability log (more info in “CPP core” document)

RNC11> lgv
Get /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-174119/availabilityLog28585.xml ... OK

Timestamp (UTC)	Type	Serv	Reason	Piu	Positn	Board/Prog	AdditionalInfo
2006-06-06 07:05:48	OTHR		PeriodicLogging	CV=Rnc_final	UP=CXP9012014_R4J07		
2006-06-07 07:05:48	OTHR		PeriodicLogging	CV=Rnc_final	UP=CXP9012014_R4J07		
2006-06-07 09:08:11	NODE	OUT	ShutdownCommand	RankColdWTest	ExtRestartRequest		
2006-06-07 09:08:11	NODE	OUT	UnOperational	RankColdWTest			
2006-06-07 09:09:06	NODE		CppCoreNodeRestart				
2006-06-07 09:09:43	OTHR		CXC1329851 R4J02 is now operational,	CAUSE_NODESTART,	RpuId=31	(RncLmCenDh)	
2006-06-07 09:09:03	NODE	IN	Starting				

Board and program crashes from pmd files

RNC11> lgp

/home/eanzmagn/moshell/zpm.linux

/home/eanzmagn/moshell_logfiles/logs_moshell/pmdfiles/137.58.194.147/pmd/20070918_122224_c_pmd_1_001600_0x15aa234f.pmd

...<cut>...

/home/eanzmagn/moshell/zpm.linux

/home/eanzmagn/moshell_logfiles/logs_moshell/pmdfiles/137.58.194.147/pmd/20090701_135504_c_pmd_123_001000_0x2db6fb4d.pmd

```
=====
Timestamp (UTC)          Board      Restart
=====
2007-09-18 12:20:04 PMD   0016 GPB Module  Program restart Proc=Ans_aal2ncc2_proc Block=CXC1322419%12_R51LJ02 (Aal2DisNcc12)
Err=0x03000113 (kernel) OSE_EUNEXPECTED_EXCEPTION_REGDUMP PMD=20070918_122224_c_pmd_1_001600_0x15aa234f.pmd
2007-09-20 19:51:16 PMD   0016 GPB Module  Program restart Proc=Ans_aal2ncc2_proc Block=CXC1322419%12_R51LJ02 (Aal2DisNcc12)
Err=0x03000113 (kernel) OSE_EUNEXPECTED_EXCEPTION_REGDUMP PMD=20070920_195138_c_pmd_2_001600_0x15aa2357.pmd
2007-10-02 04:01:43 PMD   0016 GPB Module  Board restart rank=Cold Proc=aal5edipri_hp_30142 Block=CXC1320997_R51KF03 (UsaalTerm)
Err=0x07000113 (kernel) OSE_EUNEXPECTED_EXCEPTION_REGDUMP PMD=20071002_040406_c_pmd_3_001600_0x15aa237b.pmd
2007-10-02 04:01:59 PMD   0016 GPB Module  Board restart rank=Coldwithtest Proc=ose_asf Block=Main Err=0x83000113 (kernel)
OSE_EUNEXPECTED_EXCEPTION_REGDUMP PMD=20071002_040408_c_pmd_4_001600_0x15aa237e.pmd
2007-10-02 04:03:33 PMD   0016 GPB Module  Board restart rank=Cold Proc=Cs_boardManager_proc Block=Main Err=0x83000113 (kernel)

...<cut>...

2009-03-02 05:13:53 PMD   0010 GPB_Central Program restart Proc=listAal2CpsRc (heap.c:1480) Block=CXC1322418%12_R51TK01
(Aal2CpsRc12) Err=0x00820105 (ose_api) OSE_HEAP_EHEAP_EXHAUSTED PMD=20090302_051423_c_pmd_113_001000_0x2db6fa74.pmd
2009-03-02 05:13:54 PMD   0010 GPB_Central Board restart rank=Warm Proc=listAal2CpsRc (heap.c:1480) Block=CXC1322418%12_R51TK01
(Aal2CpsRc12) Err=0x00820105 (ose_api) OSE_HEAP_EHEAP_EXHAUSTED PMD=20090302_051425_c_pmd_114_001000_0x2db6fa76.pmd
2009-03-02 07:28:44 PMD   0022SP2 **DC      SPM restart Proc=DedicatedChMainPT Block=CXC1329863%3_R10CC03 (RncLmDc) Err=0xE9B8F0EF
PMD=20090302_072849_c_pmd_115_002218_0x00000002.pmd
2009-05-09 08:34:36 PMD   0010 GPB_Central Program restart Proc=tm (heap.c:1480) Block=CXC1326054_R51SZ01 (target_monit)
Err=0x00820105 (ose_api) OSE_HEAP_EHEAP_EXHAUSTED PMD=20090509_083442_c_pmd_116_001000_0x2db6faa0.pmd
2009-06-05 09:50:01 PMD   0019SP2 **DC      SPM restart Proc=DedicatedChModelPT Block=CXC1329863%3_R10CC03 (RncLmDc) Err=0xE9B8F0EF
PMD=20090605_095005_c_pmd_119_001918_0x00000002.pmd
2009-07-01 12:45:50 PMD   0011 GPB_Central Board restart rank=Warm Proc=Osa_coreManager_proc (osa_cm_main.c:2936)
Block=CXC1320785_R71BC10 (LoaderServer) Err=0xF0F0F0F3 (eri_api) PMD=20090701_124809_c_pmd_120_001100_0x4fb5acbe.pmd. Lost contact
with active CM with supa=0xa0000, passive not ready for takeover
2009-07-01 13:54:07 PMD   0001 SCB3          Board restart rank=Warm Proc=Cs_boardManager_proc Block=CXC1725310_R71BC08 (BcMpBp)
Err=0xB0AD0004 (eri_api) PMD=20090701_135500_c_pmd_121_000100_0xff0001b1.pmd. Board manager restart. Load phase rejected: phase=8,
lmid=CXC1321121_R60EJ01, cause=0xffff0101, The ELF header of the load module is corrupt.
2009-07-01 13:54:09 PMD   0000 SCB3          Board restart rank=Warm Proc=Cs_boardManager_proc Block=CXC1725310_R71BC08 (BcMpBp)
Err=0xB0AD0004 (eri_api) PMD=20090701_135503_c_pmd_122_000000_0xfdb819e.pmd. Board manager restart. Load phase rejected: phase=8,
lmid=CXC1321121_R60EJ01, cause=0xffff0101, The ELF header of the load module is corrupt.
2009-07-01 13:52:40 PMD   0010 GPB_Central Board restart rank=Warm Proc=Osa_coreManager_proc (osa_cm_main.c:2936)
Block=CXC1320785_R71BC10 (LoaderServer) Err=0xF0F0F0F3 (eri_api) PMD=20090701_135504_c_pmd_123_001000_0x2db6fb4d.pmd. Lost contact
with active CM with supa=0xb0000, passive not ready for takeover
```

Usually we combine the three logs (system,availability,pmd):

```
RNC10> lgvspm

Get /c/logfiles/cello/CELLO_AVAILABILITY2_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060712-165147_934/availabilityLog934.xml ... OK
Get /c/logfiles/systemlog/00000syslog /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060712-165147_934/sysLog934.tmp ... OK

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060712-165147_934/mergeLog934
Parsing availabilityLog.....Done.
Parsing syslog.....Done.

Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060712-165147_934/mergeLog934
=====
Timestamp (UTC)      Type  Merged Log Entry
=====
//Prockill:
2005-12-09 12:48:30 PGM   OUT  UnOperational      MP 001400 CXC1726806_R6AJ18 ProgramFailure (RncLmUe)
2005-12-09 12:48:30 INFO  Program CXC1726806_R6AJ18 on PIU 0.14 failed (RncLmUe)
2005-12-09 12:48:31 PGM   IN   Starting           MP 001400 CXC1726806_R6AJ18 (RncLmUe)
2005-12-09 12:48:31 INFO  Program CXC1726806_R6AJ18 on PIU 0.14 started (RncLmUe)
//program restart action
2005-12-09 12:49:36 PGM   OUT  ShutdownCommand    MP 001600 CXC1327928_R71T30 ManualRestart (iphost_gpb_l)
2005-12-09 12:49:36 PGM   IN   Starting           MP 001600 CXC1327928_R71T30 (iphost_gpb_l)
2005-12-09 12:49:36 INFO  Program CXC1327928_R71T30 on PIU 0.16 manual restart ordered (iphost_gpb_l)
2005-12-09 12:49:36 INFO  Program CXC1327928_R71T30 on PIU 0.16 started (iphost_gpb_l)
2005-12-22 08:25:12 INFO  *** Cls_evlogd_proc restart ***
2005-12-22 08:25:16 INFO  Node starting
2005-12-22 08:25:19 INFO  Active CIM ready.
2005-12-22 08:25:20 INFO  Configuration Version = empty_cv
2005-12-22 08:27:47 INFO  Node restart order received. Restart rank = WARM
2005-12-22 08:27:47 CRIT  Node down
2005-12-22 08:28:16 INFO  *** Cls_evlogd_proc restart ***
2005-12-22 08:28:21 INFO  Node starting
2005-12-22 08:28:29 INFO  Active CIM ready.
//program crash
2005-12-22 08:28:31 INFO  Crash on 001100 PROCESSOR_BASIC_0xF0F0F0F3 pmdId=0x4fb5abcb.pmd, 05-12-22, 08:06:16
2005-12-22 08:28:31 PMD   0011 GPB_Central Board restart rank=Warm Proc=0sa_sysmgr_proc (sysmgr.c:5213) Block=CXC1320782_R51TG01
(EqmRes) Err=0xF0F0F0F3 (eri_api) PMD=20081127_215005_c_pmd_110_001100_0x4fb5abcb.pmd. Restart ordered by system manager, node
upgrade error, timeout
2005-12-22 08:28:31 INFO  Configuration Version = STEP35
2005-12-22 08:34:36 INFO  Node restart order received. Restart rank = WARM
```

```

2005-12-22 08:34:36 CRIT Node down
2005-12-22 08:34:46 INFO *** Cls_evlogd_proc restart ***
2005-12-22 08:34:53 INFO Node starting
2005-12-22 08:34:54 INFO Active CIM ready.
2005-12-22 08:34:55 INFO Configuration Version = STEP85
2005-12-22 08:42:07 INFO Node restart order received. Restart rank = WARM
2005-12-22 08:42:07 CRIT Node down
2005-12-22 08:42:17 INFO *** Cls_evlogd_proc restart ***
2005-12-22 08:42:26 INFO Node starting
2005-12-22 08:42:27 INFO Active CIM ready.
2005-12-22 08:42:28 INFO Configuration Version = RADIO_NETWORK_40_RBS_IOV
2005-12-22 09:02:27 ERR MP (smn = 0, apn = 11 ) initially unavailable, do cold restart of board.
2005-12-22 09:02:27 ERR BP (smn = 0, apn = 7 ) initially unavailable, do cold restart of board.
2005-12-22 10:50:56 INFO Node operational.
//board restart
2005-12-22 10:59:00 INFO MP ( smn = 0, apn = 11 ) restarted by command. Restart rank = WARM
2005-12-22 10:59:01 ERR MP (smn = 0, apn = 11 ) down
2005-12-22 10:59:08 INFO MP ( smn = 0, apn = 11 ) starting, administrative state = UNLOCKED
2005-12-22 10:59:08 INFO Program CXC1320785_R50HC05 started (loaderserver)
2005-12-22 10:59:08 INFO Program CXC1321447_R50HX04 started (GpbBasic)
2005-12-22 10:59:08 INFO Program CXC1322812_R50HN01 started (gpb_pqiipatc)
2005-12-22 10:59:08 INFO Program CXC1320787_R50HX01 started (SystemManage)
2005-12-22 10:59:08 INFO Program CXC1321341_R50HC06 started (sw_installat)
2005-12-22 10:59:08 INFO Program CXC1321408_R50HC03 started (spas_resourc)
2005-12-22 10:59:08 INFO Program CXC1325792_R50HC06 started (licencemgr)
2005-12-22 10:59:08 INFO MP ( smn = 0, apn = 11 ) operational, administrative state = UNLOCKED
...<cut>...
2006-07-10 13:00:41 NODE OUT ShutdownCommand RankWarm ExtRestartRequest
2006-07-10 13:00:41 NODE OUT UnOperational RankWarm
//node restart
2006-07-10 13:00:41 INFO Node restart order received. Restart rank = WARM
2006-07-10 13:00:41 CRIT Node down
2006-07-10 13:00:50 INFO *** Cls_evlogd_proc restart ***
2006-07-10 13:01:00 INFO Node starting
2006-07-10 13:01:03 INFO Active CIM ready.
2006-07-10 13:01:06 NODE IN Starting
2006-07-10 13:01:06 OTHR NodeRestarted CV=test UP=CXP9012014_R4J07
2006-07-10 13:01:06 INFO Configuration Version = test
2006-07-10 13:01:10 NODE IN Operational
2006-07-10 13:01:10 INFO Node operational.
2006-07-10 13:01:16 NODE CppCoreNodeRestart
2006-07-10 13:01:58 OTHR CXC1329852 R4J10 is now operational, CAUSE_NODESTART, RpuId=33 (RncLmCenRnh)
2006-07-10 13:01:58 NODE IN Operational RNC Node Restart Completed
2006-07-10 13:02:00 OTHR PeriodicLogging CV=test UP=CXP9012014_R4J07
2006-07-11 10:34:40 OTHR ConfigVersionCreated CV=Si_CXP9012014_R4J07_060711_1034 UP=CXP9012014_R4J07

```

2006-07-11 10:40:15 OTHR ConfigVersionCreated CV=Rb_CXP9012014_R4J07_060711_1040 UP=CXP9012014_R4J07
2006-07-11 10:40:27 INFO Set upgrade supervision timer to 14400 seconds
2006-07-11 10:40:32 INFO Set error escalation to Node Restart

Node downtime

RNC39> lgd -m 30

Startdate=20091222.170901, Enddate=20100122.170901
Parsing availabilityLog...Done.
Parsing syslog...Done.
Parsing upgLog...Done.

Timestamp (UTC)	Restart Type	Configuration Version	SwRelease	CPP Downtime	Appl. Downtime	JVM Downtime
2010-01-05 09:34:29	ManualWarm	PGU_CXC1727624%1_P4AB99_091116_131716	W10	245s (4m5s)	286s (4m46s)	611s (10m11s)
2010-01-05 09:39:13		PartialOutage: -1% availability	W10	367s (6m7s)		
2010-01-05 11:14:47	ManualWarm	PGU_CXC1727624%1_P4AB99_091116_131716	W10	42s	135s (2m15s)	398s (6m38s)
2010-01-05 11:15:54		PartialOutage: -1% availability	W10	67s (1m7s)		
2010-01-15 10:14:00	ManualWarm	PGU_CXC1727626_1_P4AC99_100114	W10	32s	105s (1m45s)	403s (6m43s)

Node uptime since last restart: 543204 seconds (6 days, 6 hours, 53 minutes, 24 seconds)

Period=29 days	NodeUpgrade	NodeManual	NodeSpontaneous	AllNodeRestarts	PartialOutages
Number Of outages	0	3	0	3	2
Total downtime	0s	526s (8m46s)	0s	526s (8m46s)	0s
Downtime per day	0s	18s	0s	18s	0s
Downtime per outage	0s	175s (2m55s)	0s	175s (2m55s)	0s

MGW48> lgd

Timestamp (UTC)	Restart Type	Configuration Version	SwRelease	CPP Downtime	Appl. Downtime	JVM Downtime
...<cut>...						
2009-11-24 10:57:26	ManualWarm	R6_LSV08_CM55_BC3024_ET_SYS_PNP	R6.0	31s		125s (2m5s)
2009-11-24 11:11:23	ManualCold	R6_LSV08_CM48_BC3024_NW3_MPP_black5	R6.0	62s (1m2s)	83s (1m23s)	198s (3m18s)
2009-11-24 11:21:07	ManualCold	R6_LSV08_CM48_BC3024_NW3_MPP_black5	R6.0	70s (1m10s)	83s (1m23s)	185s (3m5s)
2009-11-24 11:55:31	ManualWarm	R6_LSV08_CM55_BC3024_ET_SYS_PNP	R6.0	345s (5m45s)		
2009-11-24 12:01:22	ManualWarm	SU_CXP9013522%2_R8A70_091124_1200	R6.0	46s		167s (2m47s)

2009-11-24 12:24:35	ManualWarm	R6_LSV08_CM55_BC3024_ET_SYS_PNP2	R6.0	27s		116s (1m56s)
2009-11-24 12:29:16	ManualCold	R6_LSV08_CM48_BC3024_NW3_MPP_black5	R6.0	107s (1m47s)		10593s (2h56m)
2009-11-24 15:46:42	UpgradeNormal	SU_CXP9013522%2_R8A70_091124_1545	R6.0	56s		196s (3m16s)
2009-11-24 16:09:21	ManualWarm	R6_LSV08_CM55_BC3024_ET_SYS_PNP2	R6.0	222s (3m42s)		309s (5m9s)
2009-11-24 17:26:55	UpgradeNormal	SU_CXP9013522%2_R8A70_091124_1726	R6.0	50s		188s (3m8s)
2009-11-25 10:47:02	ManualWarm	R6_LSV08_CM51_BC3002_NW0	R6.0	23s	2256s (37m36s)	104s (1m44s)
2009-11-25 11:38:44	ManualWarm	R6_LSV08_CM51_BC3024_NW0	R6.0	25s		113s (1m53s)
2009-11-25 11:50:17	ManualWarm	R6_LSV08_CM51_BC3024_NW0_MPC_EXP	R6.0	24s		109s (1m49s)
2009-11-25 11:54:57	ManualWarm	R5_CNP_R5.1.4.0B_BC3002_NW0	CNPR5140B	417s (6m57s)		364s (6m4s)
2009-11-25 12:36:44	ManualWarm	R6_LSV08_CM51_BC3002_NW0	R6.0	2982s (49m42s)		1837s (30m37s)
2009-11-25 14:02:50	ManualWarm	R5_CNP_R5.1.5.0_B_BC3024_ET_NW4	R5.1	690s (11m30s)		751s (12m31s)
2009-11-25 15:40:58	UpgradeNormal	SU_CXP9013522%2_R8A66_E_091125_1540	R6.0	55s	147s (2m27s)	506s (8m26s)
2009-11-26 06:29:00	ManualWarm	R6_LSV08_CM55_BC3002_NW0	R6.0	31s		148s (2m28s)
2009-11-26 07:24:30	ManualWarm	R6_LSV08_CM55_BC3024_NW0_MPC_EX	R6.0	25s		133s (2m13s)

Node uptime since last restart: 4873457 seconds (56 days, 9 hours, 44 minutes, 17 seconds)

Period=619 days	NodeUpgrade	NodeManual	NodeSpontaneous	AllNodeRestarts	PartialOutages
Number Of outages	43	142	0	185	0
Total downtime	62066s (17h14m)	60124s (16h42m)	0s	122190s (1d9h)	0s
Downtime per day	100s (1m40s)	97s (1m37s)	0s	197s (3m17s)	0s
Downtime per outage	1443s (24m3s)	423s (7m3s)	0s	660s (11m0s)	0s

Upgrade history

RNC11> lgu

Timestamp (UTC)	Description
2005-08-25 09:30:56 UP	Start Action - Upgrade Product number: CXP9012014 Revision: R1T05
2005-08-25 09:30:56 UP	Sending AVC Event - aProgressCounter: 0
2005-08-25 09:30:56 UP	Sending AVC Event - aProgressTotal: 0
2005-08-25 09:30:56 UP	End Action - Upgrade, upgrade initiated(Action ID: 93056628)
2005-08-25 09:30:57 UP	Sending AVC Event - progressHeader: Variant of upgrade action initiated
2005-08-25 09:31:00 UP	Sending AVC Event - aProgressTotal: 10
2005-08-25 09:31:00 UP	Sending AVC Event - progressHeader: The verification phase has been initiated
2005-08-25 09:31:00 UP	Sending AVC Event - progressHeader: Verifying that the used PIUs in the node are supported according to the Upgrade Control File
2005-08-25 09:31:02 UP	Sending AVC Event - progressHeader: Verifying that the upgrade window defined in the Upgrade Control File allows an upgrade
2005-08-25 09:31:03 UP	Sending AVC Event - progressHeader: Verifying that it is possible to create the required number of CV's during the upVgrade phase

```

2005-08-25 09:31:04 UP    Sending AVC Event - progressHeader: Verifying checksum for all load modules that has a checksum value
defined in the Upgrade Control File
2005-08-25 09:31:50 UP    Sending AVC Event - progressHeader: Verifying that Plug In Units(PIUs)on the node are not faulty before
the upgrade is initiated
2005-08-25 09:31:50 UP    Sending AVC Event - progressHeader: The verification phase is finished
2005-08-25 09:31:50 UP    Create an upgrade rollback CV.
2005-08-25 09:31:58 UP    CV 'Rb_CXP9012014_R1T05_050825_0931' has been created.
2005-08-25 09:32:06 UP    Sending AVC Event - state: Upgrade executing
2005-08-25 09:32:07 UP    Sending AVC Event - progressHeader: The upgrade phase is initiated and the system state is set to
upgrade mode
2005-08-25 09:32:07 UP    The upgrade supervision timer is set to 14400 seconds and started.
2005-08-25 09:32:09 UP    Confirmation deadline timer data: 240 minutes.
2005-08-25 09:32:11 UP    Following slots shall tolerate errors during an upgrade(pointed out by repertoire
names)theTolerateErrorsSlotsForRepertoireNames: [ManagedElement=1,Subrack=MS,Slot=14, ManagedElement=1,Subrack=MS,Slot=15,
ManagedElement=1,Subrack=MS,Slot=16, ManagedElement=1,Subrack=ES-1,Slot=12, ManagedElement=1,Subrack=ES-1,Slot=13,
ManagedElement=1,Subrack=ES-1,Slot=14, ManagedElement=1,Subrack=ES-1,Slot=15, ManagedElement=1,Subrack=ES-1,Slot=16,
ManagedElement=1,Subrack=ES-1,Slot=17, ManagedElement=1,Subrack=MS,Slot=19, ManagedElement=1,Subrack=MS,Slot=22,
ManagedElement=1,Subrack=ES-1,Slot=5, ManagedElement=1,Subrack=ES-1,Slot=8, ManagedElement=1,Subrack=ES-1,Slot=11,
ManagedElement=1,Subrack=MS,Slot=20, ManagedElement=1,Subrack=MS,Slot=23, ManagedElement=1,Subrack=ES-1,Slot=6,
ManagedElement=1,Subrack=ES-1,Slot=9, ManagedElement=1,Subrack=ES-1,Slot=18, ManagedElement=1,Subrack=ES-1,Slot=20,
ManagedElement=1,Subrack=ES-1,Slot=21, ManagedElement=1,Subrack=ES-1,Slot=22, ManagedElement=1,Subrack=ES-1,Slot=23,
ManagedElement=1,Subrack=MS,Slot=21, ManagedElement=1,Subrack=ES-1,Slot=7, ManagedElement=1,Subrack=ES-1,Slot=10,
ManagedElement=1,Subrack=ES-1,Slot=19, ManagedElement=1,Subrack=ES-1,Slot=24] theRepertoireNamesForTolerateErrors: [RNC_Module_MP,
CPP_SPB]
2005-08-25 09:32:12 UP    The upgrade sequence defined in the Upgrade Control File(UCF)is parsed. Upgrade sequence to parse:
YAD_TO_YAD_label Previously executed step:
2005-08-25 09:32:13 UP    Sending AVC Event - aProgressCounter: 1

```

4.3 Command history

SHELL_AUDIT_TRAIL, a log of all OSE shell commands

```

RNC11> lg1
Get /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-
174119/audittrailLog28585.xml ... OK

```

Timestamp (UTC)	User	Terminal	Event	Info
2006-05-15 03:12:05	COLI kalle	Coli access granted	bp.lnh/001000!/telnet_137.58.194.175:36374	shell
2006-05-15 03:12:05	COLI kalle	Coli access granted	bp.lnh/001000!/telnet_137.58.194.175:36374	pboot show parameters
2006-05-15 03:12:06	COLI kalle	Coli access granted	bp.lnh/001000!/telnet_137.58.194.175:36374	pglist
2006-05-15 03:12:06	COLI kalle	Coli access granted	bp.lnh/001000!/telnet_137.58.194.175:36374	ps

CORBA_AUDIT_TRAIL, stores a log of all set/create/action/delete operations on the MOs

Standard format

RNC49> lgo

Get /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-174119/audit_trailLog28585.xml ... OK

```
=====
Timestamp (UTC)      Description
=====
2009-06-17 12:20:13 MO-A CRE SwManagement=1,UpgradePackage=CXP9013831_R9LD01
2009-06-17 12:20:29 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 nonBlockingInstall
2009-06-17 12:54:37 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 rebootNodeUpgrade
2009-06-17 13:26:04 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 confirmUpgrade
2009-06-18 09:18:53 MO-A ACT SwManagement=1,ConfigurationVersion=1 setStartable STP49_P7MD
2009-06-18 09:18:55 MO-A ACT ManagedElement=1 manualRestart 0|0|UPGT00L
2009-06-18 09:30:00 MO-A DEL SwManagement=1,UpgradePackage=Virtual_1_of_CXP9013831_R9LD01
2009-06-18 09:33:00 MO-A CRE SwManagement=1,UpgradePackage=CXP9013831_R9LD01
2009-06-18 09:33:15 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 nonBlockingInstall
2009-06-18 10:11:51 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 rebootNodeUpgrade
2009-06-18 10:45:52 MO-A ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 confirmUpgrade
2009-07-01 15:11:27 MO-A SET SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers operatorCapacityLimit noLimit=0|value=10
2009-07-01 15:15:27 MO-A SET SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers operatorCapacityLimit value=10|noLimit=1
2009-07-04 07:53:07 MO-A ACT SwManagement=1,ConfigurationVersion=1 create DCG_20090704_095241_duringfault|
DCG_20090704_095241_duringfault|5|moshelluser|CV taken during fault
2009-07-04 07:53:12 MO-A ACT SwManagement=1,ConfigurationVersion=1 putToFtpServer DCG_20090704_095241_duringfault|/d/usr|
STP49_DCG_20090704_095241_duringfault.zip|127.0.0.1|moshelluser|*****
2009-07-04 07:54:47 MO-A ACT SwManagement=1,ConfigurationVersion=1 delete DCG_20090704_095241_duringfault
2009-07-04 07:56:03 MO-A ACT SwManagement=1,ConfigurationVersion=1 putToFtpServer SU_CXP9013831_R9LD01_090618_1033|/d/usr|
STP49_SU_CXP9013831_R9LD01_090618_1033.zip|127.0.0.1|moshelluser|*****
2009-07-09 10:27:36 MO-A SET SystemFunctions=1,Licensing=1,RncFeature=TransmitDiversity featureState 1
=====
```

CSV format, showing userid (if seclevel 3 activated, otherwise "unknown")

RNC49> lgoc

```
Date;Time;Log;Severity;Object;Event;Cause;AdditionalText;AckState;Id
2009-06-18;09:33:00;MO-A;Unknown;;CRE SwManagement=1,UpgradePackage=CXP9013831_R9LD01
2009-06-18;09:33:15;MO-A;Unknown;;ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 nonBlockingInstall
2009-06-18;10:11:51;MO-A;Unknown;;ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 rebootNodeUpgrade
2009-06-18;10:45:52;MO-A;Unknown;;ACT SwManagement=1,UpgradePackage=CXP9013831_R9LD01 confirmUpgrade
```

```

2009-07-01;15:11:27;M0-A;Unknown;;SET   SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers operatorCapacityLimit noLimit=0|
value=10
2009-07-01;15:15:27;M0-A;Unknown;;SET   SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers operatorCapacityLimit value=10|
noLimit=1
2009-07-04;07:53:07;M0-A;Unknown;;ACT   SwManagement=1,ConfigurationVersion=1 create DCG_20090704_095241_duringfault|
DCG_20090704_095241_duringfault|5|moshelluser|CV taken during fault
2009-07-04;07:53:12;M0-A;Unknown;;ACT   SwManagement=1,ConfigurationVersion=1 putToFtpServer
DCG_20090704_095241_duringfault|/d/usr|STP49_DCG_20090704_095241_duringfault.zip|127.0.0.1|moshelluser|*****
2009-07-04;07:54:47;M0-A;Unknown;;ACT   SwManagement=1,ConfigurationVersion=1 delete DCG_20090704_095241_duringfault
2009-07-04;07:56:03;M0-A;Unknown;;ACT   SwManagement=1,ConfigurationVersion=1 putToFtpServer
SU_CXP9013831_R9LD01_090618_1033|/d/usr|STP49_SU_CXP9013831_R9LD01_090618_1033.zip|127.0.0.1|moshelluser|*****
2009-07-09;10:27:36;M0-A;Unknown;;SET   SystemFunctions=1,Licensing=1,RncFeature=TransmitDiversity featureState 1

```

In trun/emas format

RNC49> lgq

```

//2009-06-18 09:33:00 Unknown
CREATE ( parent "ManagedElement=1,SwManagement=1" identity CXP9013831_R9LD01 moType UpgradePackage exception none nrOfAttributes 4
ftpServerIpAddress String "137.58.194.174" upFilePathOnFtpServer String "/TCM/UP/WIONA_FP/CXP9013831_R9LD01/CXP9013831_R9LD01.xml"
user String "ftp" password String "*****" )
//2009-06-18 09:33:15 Unknown
ACTION ( actionName nonBlockingInstall mo "ManagedElement=1,SwManagement=1,UpgradePackage=CXP9013831_R9LD01" exception none
nrOfParameters 0 returnValue ignore )
//2009-06-18 10:11:51 Unknown
ACTION ( actionName rebootNodeUpgrade mo "ManagedElement=1,SwManagement=1,UpgradePackage=CXP9013831_R9LD01" exception none
nrOfParameters 0 returnValue ignore )
//2009-06-18 10:45:52 Unknown
ACTION ( actionName confirmUpgrade mo "ManagedElement=1,SwManagement=1,UpgradePackage=CXP9013831_R9LD01" exception none
nrOfParameters 0 returnValue none )
//2009-07-01 15:11:27 Unknown
SET ( mo "ManagedElement=1,SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers" exception none operatorCapacityLimit Struct
nrOfElements 2 noLimit Integer 0 value Integer 10 )
//2009-07-01 15:15:27 Unknown
SET ( mo "ManagedElement=1,SystemFunctions=1,Licensing=1,RncCapacity=FachDchHsUsers" exception none operatorCapacityLimit Struct
nrOfElements 2 value Integer 10 noLimit Integer 1 )
//2009-07-04 07:53:07 Unknown
ACTION ( actionName create mo "ManagedElement=1,SwManagement=1,ConfigurationVersion=1" exception none nrOfParameters 5 String
"DCG_20090704_095241_duringfault" String "DCG_20090704_095241_duringfault" Integer 5 String "moshelluser" String "CV taken during
fault" returnValue none )
//2009-07-04 07:53:12 Unknown
ACTION ( actionName putToFtpServer mo "ManagedElement=1,SwManagement=1,ConfigurationVersion=1" exception none nrOfParameters 6
String "DCG_20090704_095241_duringfault" String "/d/usr" String "STP49_DCG_20090704_095241_duringfault.zip" String "127.0.0.1"
String "moshelluser" String "*****" returnValue ignore )
//2009-07-04 07:54:47 Unknown

```

```
ACTION ( actionName delete mo "ManagedElement=1,SwManagement=1,ConfigurationVersion=1" exception none nrOfParameters 1 String
"DCG_20090704_095241_duringfault" returnValue none )
//2009-07-04 07:56:03 Unknown
ACTION ( actionName putToFtpServer mo "ManagedElement=1,SwManagement=1,ConfigurationVersion=1" exception none nrOfParameters 6
String "SU_CXP9013831_R9LD01_090618_1033" String "/d/usr" String "STP49_SU_CXP9013831_R9LD01_090618_1033.zip" String "127.0.0.1"
String "moshelluser" String "*****" returnValue ignore )
//2009-07-09 10:27:36 Unknown
SET ( mo "ManagedElement=1,SystemFunctions=1,Licensing=1,RncFeature=TransmitDiversity" exception none featureState Integer 1 )
```

AMOS command log:

--> Shows all moshell commands executed on a particular node by all users

```
RNC11> lgn -m 3
```

Startdate=20091130.084030, Enddate=20091204.084030

Timestamp (Local)	User	Node	PID	Command
2009-12-02 19:50:04	MOS nmsadm	137.58.194.147	21963	StartSession, interactive, ID=20091202-194947_21963, CWD=/home/nmsadm, WS=SunOS atrcus422, ver=7.1y
2009-12-02 19:50:04	MOS nmsadm	137.58.194.147	21963	pr
2009-12-02 19:50:17	MOS nmsadm	137.58.194.147	21963	fget 0 userlabel
2009-12-02 19:50:21	MOS nmsadm	137.58.194.147	21963	q
2009-12-03 08:38:27	MOS design01	137.58.194.147	6567	StartSession, interactive, ID=20091203-083809_6567, CWD=/home/design01, WS=SunOS atrcus422, ver=7.1y
2009-12-03 08:38:30	MOS design01	137.58.194.147	6567	vii
2009-12-03 08:38:39	MOS design01	137.58.194.147	6567	get 0
2009-12-03 08:39:05	MOS design01	137.58.194.147	6567	set 0 userlabel RNC11
2009-12-03 08:39:12	MOS design01	137.58.194.147	6567	q
2009-12-03 08:40:14	MOS design01	137.58.194.147	11902	StartSession, interactive, ID=20091203-084001_11902, CWD=/home/design01, WS=SunOS atrcus422, ver=7.1y
2009-12-03 08:40:14	MOS design01	137.58.194.147	11902	lgn -m

--> Shows all moshell commands executed on any node by all users

```
OFFLINE> lgn -m 3 -n .
```

Startdate=20091130.084030, Enddate=20091204.084030

Timestamp (Local)	User	Node	PID	Command
-------------------	------	------	-----	---------

```

=====
2009-12-02 19:50:04 MOS nmsadm 137.58.194.147 21963 StartSession, interactive, ID=20091202-194947_21963, CWD=/home/nmsadm,
WS=SunOS atrcus422, ver=7.1y
2009-12-02 19:50:04 MOS nmsadm 137.58.194.147 21963 pr
2009-12-02 19:50:17 MOS nmsadm 137.58.194.147 21963 fget 0 userlabel
2009-12-02 19:50:21 MOS nmsadm 137.58.194.147 21963 q
2009-12-02 20:24:16 MOS eanzmagn 137.58.194.149 7029 StartSession, interactive, ID=20091202-202410_7029, CWD=/home/eanzmagn,
WS=Linux ws7180, ver=7.1z
2009-12-02 20:24:16 MOS eanzmagn 137.58.194.149 7029 pr
2009-12-02 20:24:38 MOS eanzmagn 137.58.194.149 7029 cr rnc11,rncfunction=1,iublink=99
2009-12-02 20:24:43 MOS eanzmagn 137.58.194.149 7029 cr me=rnc11,rncfunction=1,iublink=99
2009-12-02 20:24:49 MOS eanzmagn 137.58.194.149 7029 cr me=rnc11,rncfunction=1,iublink=999
2009-12-02 20:25:06 MOS eanzmagn 137.58.194.149 7029 get 46
2009-12-02 20:25:12 MOS eanzmagn 137.58.194.149 7029 lt roo
2009-12-02 20:25:14 MOS eanzmagn 137.58.194.149 7029 lt root
2009-12-02 20:25:16 MOS eanzmagn 137.58.194.149 7029 pr
2009-12-02 20:25:19 MOS eanzmagn 137.58.194.149 7029 cr me=rnc11,rncfunction=1,iublink=999
2009-12-02 20:25:24 MOS eanzmagn 137.58.194.149 7029 cr me=rnc11,rncfunction=1,iublink=999
2009-12-02 20:25:29 MOS eanzmagn 137.58.194.149 7029 cr me=rnc11,rncfunction=1,iublink=999
2009-12-02 20:30:55 MOS eanzmagn 137.58.194.149 7029 q
2009-12-02 20:31:51 MOS eanzmagn 137.58.194.149 7446 StartSession, interactive, ID=20091202-203148_7446, CWD=/home/eanzmagn,
WS=Linux ws7180, ver=7.1z
2009-12-02 20:31:53 MOS eanzmagn 137.58.194.149 7446 pr
2009-12-02 20:32:16 MOS eanzmagn 137.58.194.149 7446 cr me=rnc11,transportnetwork=1,iublink=99
2009-12-02 20:32:44 MOS eanzmagn 137.58.194.149 7446 cr me=rnc11,transportnetwork=1,iublink=9999
2009-12-02 20:32:57 MOS eanzmagn 137.58.194.149 7446 q
2009-12-03 08:38:27 MOS design01 137.58.194.147 6567 StartSession, interactive, ID=20091203-083809_6567, CWD=/home/design01,
WS=SunOS atrcus422, ver=7.1y
2009-12-03 08:38:30 MOS design01 137.58.194.147 6567 vii
2009-12-03 08:38:39 MOS design01 137.58.194.147 6567 get 0
2009-12-03 08:39:05 MOS design01 137.58.194.147 6567 set 0 userlabel RNC11
2009-12-03 08:39:12 MOS design01 137.58.194.147 6567 q
2009-12-03 08:40:14 MOS design01 137.58.194.147 11902 StartSession, interactive, ID=20091203-084001_11902, CWD=/home/design01,
WS=SunOS atrcus422, ver=7.1y
2009-12-03 08:40:14 MOS design01 137.58.194.147 11902 lgn -m
=====

```

SECURITY_EVENT, a log of all logins/logouts

RNC11> lgy

Get /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/tmp28585_20060518-174119/securityLog28585.xml ... OK

```

=====
Timestamp (UTC)      User      Terminal      Event      Info
=====

```

```

=====
2010-01-22 14:57:05 SEC    TCPConnectionClosed from /134.138.128.128:46319 to localhost:56836
2010-01-22 14:57:26 SEC    TCPConnectionOpened from 134.138.128.128:36784 to localhost:56836
2010-01-22 14:57:30 SEC    SSLSessionCreated from 134.138.128.128:36784 to localhost:56836
2010-01-22 14:57:31 SEC    TCPConnectionClosed from /134.138.128.128:36784 to localhost:56836
2010-01-22 14:58:02 SEC    TCPConnectionOpened from 134.138.128.128:40537 to localhost:56836
=====

```

RNC11> lgw

100121-16:54:44 137.58.194.147 8.0 stopfile=/tmp/13373

Startdate=19661031.151320, Enddate=20100122.155447

Parsing sysLog.....Done.

Parsing securityLog...Done.

.....

Nr of active O&M connections on 2010-01-21 at 15:54:55: 18

```

=====
ConnType          Origin                ActiveSince           Duration
=====
Corba:56834        150.132.34.224:52573  2010-01-21 12:20:17  12878s (3h34m38s)
Corba:56834        150.132.34.239:33515  2010-01-21 13:52:26  7349s (2h02m29s)
Corba:56834        150.132.92.194:54718  2010-01-21 13:57:11  7064s (1h57m44s)
Corba:56834        150.132.34.239:35799  2010-01-21 14:13:05  6110s (1h41m50s)
Corba:56834        150.132.83.6:59620    2010-01-21 14:40:16  4479s (1h14m39s)
Corba:56834        150.132.34.239:38789  2010-01-21 14:49:53  3902s (1h05m02s)
Corba:56834        150.132.83.8:51635    2010-01-21 14:52:08  3767s (1h02m47s)
Corba:56834        150.132.34.224:56141  2010-01-21 15:02:31  3144s (52m24s)
Corba:56834        150.132.83.8:49204    2010-01-21 15:07:17  2858s (47m38s)
Corba:56834        150.132.34.239:42245  2010-01-21 15:12:34  2541s (42m21s)
Corba:56834        150.132.34.224:56436  2010-01-21 15:13:18  2497s (41m37s)
Corba:56834        150.132.34.226:55994  2010-01-21 15:27:57  1618s (26m58s)
Corba:56834        150.132.34.226:56006  2010-01-21 15:28:12  1603s (26m43s)
Ftp                22152995
Ssh                137.58.218.221:39452
Ssh                147.214.195.156:59908
Telnet             147.214.195.156:41188
Telnet             147.214.195.156:50717
>>> Total: 18 O&M connections (13 Corba, 2 Ssh, 2 Telnet, 1 Ftp)
=====

```

RNC11> lgw -s 20100121.1200

100121-16:55:45 137.58.194.147 8.0 stopfile=/tmp/13373

Startdate=19661031.151320, Enddate=20100121.120000

Parsing sysLog.....Done.

Parsing securityLog...Done.

.....
Nr of active Corba connections on 2010-01-21 at 12:00:00: 2

ConnType	Origin	ActiveSince	Duration
Corba:56834	150.132.83.15:64628	2010-01-21 11:50:28	572s (09m32s)
Corba:56834	150.132.92.194:40485	2010-01-21 11:56:53	187s (03m07s)

>>> Total: 2 Corba connections

4.4 Format options

lga -m 1 ---> last day
lgae -m 3h ---> last 3 hrs
lgo -m 5m ---> last 5 minutes
lgs -m 5 -p 3 ---> starting from 5 days ago and 3 days forward
lgs -s 20080220.0700 -e 20080221.1400 --> between these two timestamps

Output in CSV format (“c” option)

RNC11> lgaemoc 1

Startdate=20080617.101223, Enddate=20080619.101224
Date;Time;Log;Severity;Object;Event;Cause;AdditionalText;AckState;Id
Get /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20080618-113223_8126/audit_trailLog8126.xml ... OK
Parsing alarmLog...Done.
Parsing eventLog...Done.
Parsing audit_trailLog.....Done.
2008-06-17;10:19:35;MO-A;Unknown;;SET ManagedElement=1 userLabel
2008-06-17;11:00:38;MO-A;Unknown;;SET Equipment=1 userLabel etuotai
2008-06-17;11:01:15;AL;Cleared;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch
Reference Loss of Signal;loss_of_signal;;Unacknowledged;_16
2008-06-17;11:01:15;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1 administrativeState 0

```

2008-06-17;11:01:25;AL;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch
Reference Loss of Signal;loss_of_signal;;Unacknowledged;_17
2008-06-17;11:01:25;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1 administrativeState 1
2008-06-17;11:03:31;MO-A;Unknown;;SET Equipment=1 userLabel epashus
2008-06-17;11:03:38;MO-A;Unknown;;SET TransportNetwork=1,NniSaalTp=QAAL2-Iup-2351-2810 nniSaalProfileId NniSaalProfile=2
2008-06-17;11:03:47;MO-A;Unknown;;SET TransportNetwork=1,NniSaalTp=QAAL2-Iup-2351-2810 nniSaalProfileId NniSaalProfile=1
2008-06-17;11:05:17;MO-A;Unknown;;SET Equipment=1 userLabel eniksos
2008-06-17;11:17:34;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TuDeviceGroup=1,TimDeviceSet=1
administrativeState 0
2008-06-17;11:17:36;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TuDeviceGroup=1,TimDeviceSet=1,TimDevice=1
administrativeState 0
2008-06-17;11:17:39;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1 administrativeState 0
2008-06-17;11:18:13;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1 administrativeState 0
2008-06-17;11:18:26;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1 administrativeState 0
2008-06-17;11:19:15;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1 administrativeState 1
2008-06-17;11:19:15;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TuDeviceGroup=1 administrativeState 1
2008-06-17;11:19:15;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TuDeviceGroup=1,TimDeviceSet=1
administrativeState 1
2008-06-17;11:19:15;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TuDeviceGroup=1,TimDeviceSet=1,TimDevice=1
administrativeState 1
2008-06-17;11:19:16;MO-A;Unknown;;SET Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1 administrativeState 1
2008-06-17;11:19:17;AL;Major;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch
Reference Loss of Signal;loss_of_signal;;Unacknowledged;_20
2008-06-17;11:19:20;MO-A;Unknown;;SET Equipment=1 userLabel evelhel
2008-06-17;11:19:28;AL;Cleared;ManagedElement=1,Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1;TU Synch
Reference Loss of Signal;loss_of_signal;;Unacknowledged;_20

```

Piping:

example: print all sccp related alarms:

```
RNC11> lga | grep -i sccp
```

```

Startdate=19661031.151320, Enddate=20090326.143840
2009-02-07 04:11:28 AL      w SCCP Remote Subsystem Unavailable      unavailable      SccpSp=Iu,SccpSrc=1,SccpApRemote=Iuc-
2351-2300
2009-02-07 04:11:28 AL      w SCCP Remote Subsystem Unavailable      unavailable      SccpSp=Iu,SccpSrc=1,SccpApRemote=Iup-
2351-2810
2009-02-07 04:13:20 AL      * SCCP Remote Subsystem Unavailable      unavailable      SccpSp=Iu,SccpSrc=1,SccpApRemote=Iuc-
2351-2300
2009-02-07 04:13:20 AL      * SCCP Remote Subsystem Unavailable      unavailable      SccpSp=Iu,SccpSrc=1,SccpApRemote=Iup-
2351-2810
2009-02-07 04:21:40 AL      w SCCP Remote Subsystem Unavailable      unavailable      SccpSp=Iu,SccpSrc=1,SccpApRemote=Iup-
2351-2810

```

2009-02-07 04:21:40 AL	w	SCCP Remote Subsystem Unavailable	unavailable	SccpSp=Iu,SccpSrc=1,SccpApRemote=Iuc-
2351-2300				
2009-02-07 04:23:35 AL	*	SCCP Remote Subsystem Unavailable	unavailable	SccpSp=Iu,SccpSrc=1,SccpApRemote=Iuc-
2351-2300				
2009-02-07 04:23:35 AL	*	SCCP Remote Subsystem Unavailable	unavailable	SccpSp=Iu,SccpSrc=1,SccpApRemote=Iup-
2351-2810				
2009-02-07 04:32:27 AL	w	SCCP Remote Subsystem Unavailable	unavailable	SccpSp=Iu,SccpSrc=1,SccpApRemote=Iup-
2351-2810				
2009-02-07 04:32:27 AL	w	SCCP Remote Subsystem Unavailable	unavailable	SccpSp=Iu,SccpSrc=1,SccpApRemote=Iuc-
2351-2300				

4.5 Offline mode

Fetching ROP files for offline processing

Fetch to default location

RNC11> lgf

Startdate=19661031.151320, Enddate=20090326.143330

```
...
get /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml .
.. OK
get /c/logfiles/alarm_event/ALARM_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/alarm_event/ALARM_LOG.xml ... OK
get /c/logfiles/alarm_event/EVENT_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/alarm_event/EVENT_LOG.xml ... OK
get /c/logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml ...
OK
get /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/security/CELLO_SECURITYEVENT_LOG.xml ...
OK
get /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml ...
OK
get /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml ... OK
get /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ...
OK
```

```

get /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml ...
OK
get /c/logfiles/systemlog/00000syslog
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/systemlog/00000syslog ... OK
get /c/logfiles/systemlog/00001syslog
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/logfiles/systemlog/00001syslog ... OK
....
get /c/systemfiles/cello/cma/su/Trace.log_old
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/systemfiles/cello/cma/su/Trace.log_old ... OK
get /c/systemfiles/cello/cma/su/Trace.log
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/systemfiles/cello/cma/su/Trace.log ... OK
Removing all empty directories in /home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641
find /home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641 -type d | LANG=C LC_ALL=C
/home/eanzmagn/moshell/gawk.linux ' {line[++i]=$1};END{for(j=i;j>=1;j--)print line[j]}' | xargs rmdir 2>/dev/null
lh all te log read |tee /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090325-141640_31488/teread31518.logput
/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090325-141640_31488/lhCmd31518 /d/usr/lhCmd31518 ... OK
.....
New directory: /home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641
zip -rmD /home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/RNC11_logfiles.zip logfiles systemfiles
teread.log
  adding: logfiles/availability/CELLO_AVAILABILITY2_LOG.xml (deflated 97%)
  adding: logfiles/alarm_event/ALARM_LOG.xml (deflated 96%)
  adding: logfiles/alarm_event/EVENT_LOG.xml (deflated 95%)
  adding: logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml (deflated 94%)
  adding: logfiles/security/CELLO_SECURITYEVENT_LOG.xml (deflated 96%)
  adding: logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml (deflated 98%)
  adding: logfiles/audit_trail/AUDIT_TRAIL_LOG.xml (deflated 97%)
  adding: logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml (deflated 98%)
  adding: logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml (deflated 96%)
  adding: logfiles/systemlog/00000syslog (deflated 94%)
  adding: logfiles/systemlog/00001syslog (deflated 94%)
  adding: systemfiles/cello/cma/su/Trace.log_old (deflated 93%)
  adding: systemfiles/cello/cma/su/Trace.log (deflated 94%)
  adding: teread.log (deflated 92%)

New directory: /home/eanzmagn
Successful storage of the CPP logs to
/home/eanzmagn/moshell_logfiles/logs_moshell/lg/137.58.194.147/20090325_141641/RNC11_logfiles.zip
For offline processing, run: lg[<options>] -l <zipfile>.

```

Fetch to specific location

```
RNC11> lgf ~/logfiles
```

```
...<cut>...
```

Successful storage of the CPP logs to /home/eanzmagn/logfiles/RNC11_logfiles.zip
For offline processing, run: lg[<options>] -l <zipfile>.

Run lg while offline

```
OFFLINE> lgaevsm -l /home/eanzmagn/logfiles/RNC11_logfiles.zip -m 5  
....<cut>...
```

5 NODE INVENTORY COMMANDS

5.1 CPP HW architecture

5.1.1 Subrack structure

A CPP node contains from 1 to 6 Subracks.

Node type A = 1 subrack, B = 2 subracks, ..., F = 6 subracks.

Each Subrack can contain 28 slots (except in RBS which has smaller subracks).

Each Slot can contain one PlugInUnit. Some Slots contain no PlugInUnit (a dummy board is inserted). Some Slots are used by their neighbour's PlugInUnit (e.g. ET-MC41 boards is 2 Slots wide).

Standard Subrack, 100 W (eXtGV): RNC9100, RXI, MGW GMP v9, v9

Slots

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
SCB				TUB	TUB																								SCB

High Performance Subrack: 9800 W (9x8GV): RNC9190, MGW GMP v8

Slots

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
SCB-TF	TUB	CMXB																									CMXB	TUB	SCB-TF

5.1.2 Board types

Board type	Functionality
GPB (General Purpose Board)	Control plane processing, administration of node resources (MAO/FRO)
SCB (Switch Control Board)	ATM backplane switching, ISL termination (Inter Subrack Links), distribution of power (-48 V), distribution of system clock.
SXB (Switch Extension Board)	Provide additional ports for ISL termination.
CMXB (Ethernet Switch Module Board - High Performance Subrack only)	IP backplane switching, ESL termination (Ethernet Subrack Links).
TUB (Timing Unit Board)	Generation of system clock (19.44 MHz)
ET-ATM (Exchange Terminal Boards for ATM)	Handles SDH/PDH, TDM, ATM, IMA.
ET-IP (Exchange Terminal Board for IP)	Handles Ethernet, IP, TCP, UDP, RLP.
SPB (Special Purpose Board)	User plane processing in RNC

MSB (Media Stream Board)	User plane processing in MGW.
RAX/TX (Receiver/Transmitter)	Baseband processing in RBS
RU (Radio Unit)	RF processing in RBS
CBU (Control Base Unit)	A combined GPB + TUB + SCB + ETB. Used in RBS.
DU (Digital Unit)	A CBM (Control Base Module, equivalent to CBU) combined with Baseband HW. Used in RBS

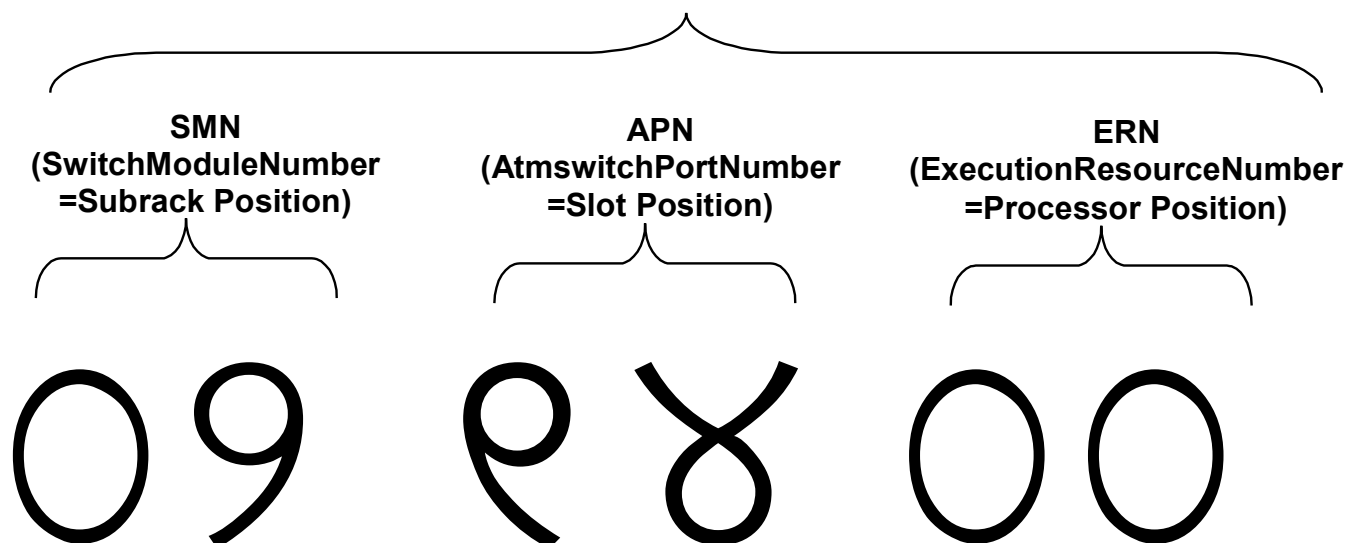
5.1.3 Internal addressing of the processors

Each processor has a unique address (the link handler, LNH) to identify its position in the node.

The address consists of the following three fields:

- Subrack Module Number (SMN): the subrack in which the processor is located. Can take values 0 to 99 as well as A0 to A9.
- AtmSwitchCore Port Number (APN): the slot in which the processor is located. Can take values 0 to 27.
- Execution Resource Number (ERN): to distinguish between several processors that are located in the same slot.

Link Handler value (LNH)



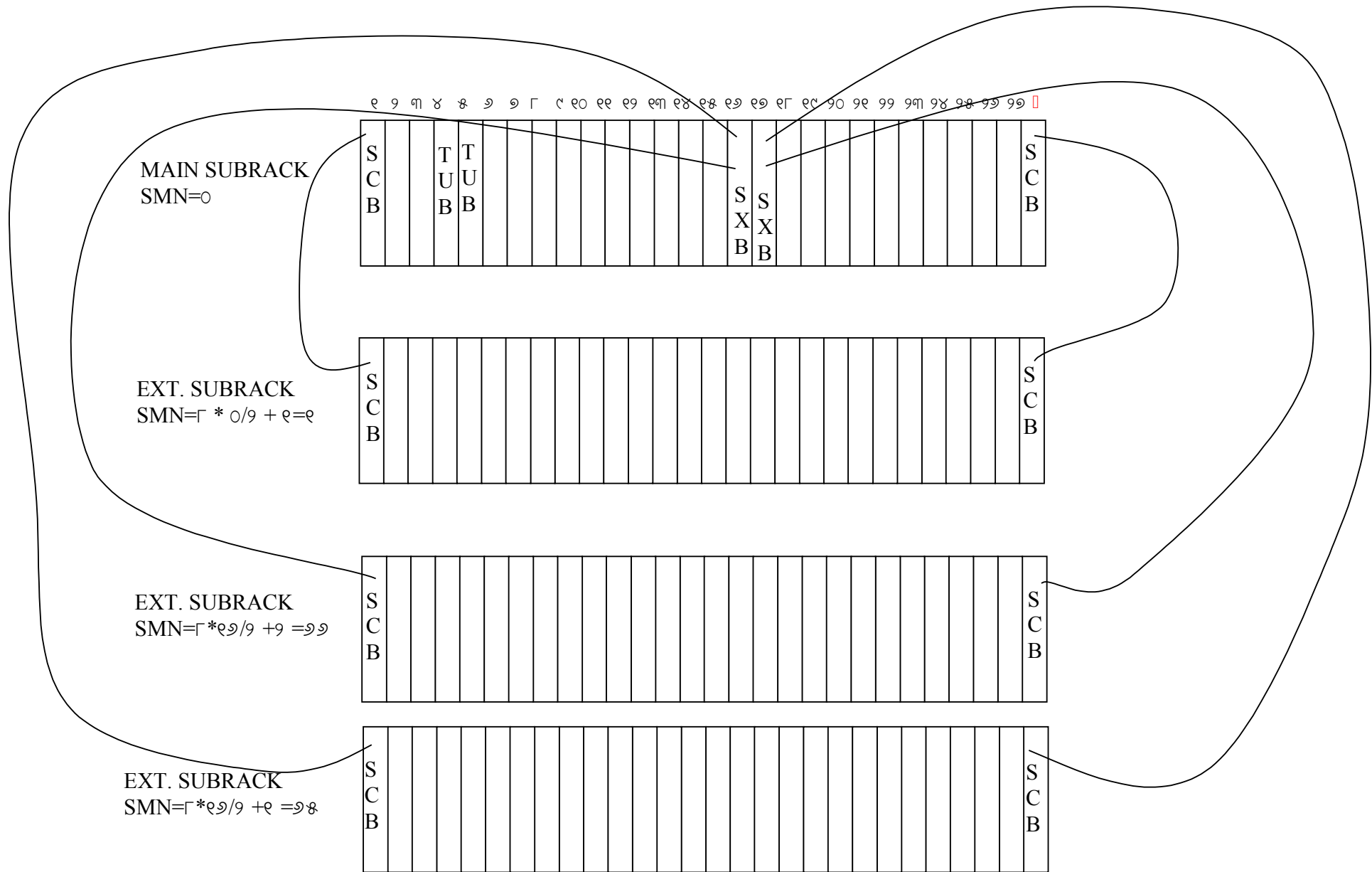
SMN value:

The main subrack always has SMN=00.

The SMN value of each extension subrack depends on which pair of slots it connects to in the main subrak.

It can be calculated with the formula: $SMN = 8 * \text{int}(APN/2) + \text{islport}$ where APN is the APN of the SCB/SXB and islport is the port number in SCB/SXB (islport=1 to 4)

Example:



Note: HW of revision CPP2/PPP3 does not support SMN addresses A0 to A9

APN of SCB/SXB in main subrack	SCB/SXB	SMN of extension subrack
-----------------------------------	---------	-----------------------------

0/1	SCB	1 to 4
2/3	SXB	9 to 12
4/5	reserved for TUB	N/A
6/7	SXB	25 to 28
8/9	SXB	33 to 26
10/11	SXB	41 to 44
12/13	SXB	49 to 52
14/15	SXB	57 to 60
16/17	SXB	65 to 68
18/19	SXB	73 to 76
20/21	SXB	81 to 84
22/23	SXB	89 to 92
24/25	SXB	97 to 99, A0
26/27	SXB	A5 to A9

APN value:

The APN value is identical to the slot number except for the last slot on the right which has APN=00.
Example in a 28-slot subrack:

୧୨୩୪୫୬୭୮୯୧୦୧୧୧୨୧୩୧୪୧୫୧୬୧୭୧୮୧୯୨୦୨୧୨୨୨୩୨୪୨୫୨୬୨୭																												00	Slot Number
S C B S C B																													
୧୨୩୪୫୬୭୮୯୧୦୧୧୧୨୧୩୧୪୧୫୧୬୧୭୧୮୧୯୨୦୨୧୨୨୨୩୨୪୨୫୨୬୨୭																												00	APN

ERN value:

The ERN value is always 00 for the MP/BP processor and 1 to 99 for the device processors.

5.2 inv command

```
MGW6> h inv
```

inv[hr] [<Filter>] [<stateFilter>]

Complete HW/SW inventory. Includes information about RPUs, licensing, JVM, devices, XPs, ISL, etc.

This command performs a complete HW/SW inventory via the M0 interface. All SW including JVM, RPU, and Device SW (spm,dsp,fpga) is shown. Licensing (features and capacity) as well as overview of the ISL links is also shown.

The "h" option is for fetching HW information only.

The first time the command is run, it takes a bit longer because the data has to be fetched from the node before parsing.

The following times the command is run, the existing data is parsed again, unless the "r" switch is used ("refresh"), in which case, the data is fetched again and parsed.

The first argument (general filter) allows to only show the lines matching the filter string.

The second argument (state filter) allows to only show the lines where the M0 status matches the state filter.

Printout description:

- the first table shows the MP/BP hardware info, position, and status. The CPU column shows the CPU load (read from pget plug load) and the GE column (when subrack contains CMXB) shows the connection status to IP backplane. The column "c/p" shows the disk usage on /c or /p (depending if it is a central MP or regular MP), and the column "/d" shows the disk usage of the /d volume.
- the second table shows the XP/EP hardware/software info and status
- the third table shows the subracks and backplanes HW info. The switchState field consists of three digits: the state of the switch, the state of plane A, and the state of plane B.
- the fourth table shows the ISL links (only applicable in nodes containing several subracks). All ISL links connecting the main subrack to each extension subrack are shown. The status of each link is show: 1st digit corresponds to "operationalStateSync" and the 2nd digit corresponds "operationalStateTraffic". The ports connected to each ISL are shown, including the type of board (SCB/SXB) and the port state (active/passive).
- the fifth and sixth table shows the list of features and capacity and their licensing status
- the seventh table shows the java loadmodules that are running in the JVM.
- the eighth table shows the configuration and status of the ReliableProgramUniters (RPU).
- the ninth table shows the Programs running in each processor including devices.

Note: state information is always abbreviated to one digit, in the same way as for other printouts such as stt, stv, str, etc.

- 1 = unlocked enabled
- 0 = unlocked disabled
- L = locked (opstate could be enabled or disabled)

Examples:

>> inv CXC132055 --> only rows matching CXC132055 will appear. This is convenient to lookup the name of an LM and in see which boards it is running.

>> inv : --> only RPU information will be printed.

>> inv nss --> to see which loadmodules contain the string "nss" and in which boards they are running.

>> inv . L|0 --> only rows where the state of the M0 is locked or disabled will appear.

>> inv roj L|0 --> only rows matching "ROJ" and where the state is locked or disabled will appear.

MGW6> inv

100125-12:56:10 172.31.68.188 8.0 MGW_NODE_MODEL_R5_1_R30_C01_COMPLETE stopfile=/tmp/28162

SMN	APN	BOARD	SWALLOCATION	S	GREEN	YELLO	RED	c/p	d	CPU	PRODUCTNUMBER	REV	SERIAL	MO
0	1	SCB3	MGW_SCB	1	ON	OFF	OFF			2%	R0J1192108/4	R2C	TU89242231	1,Slot=1
0	2	GPB53	MGW_MS_GPB_02	1	ON	OFF	OFF	40%	33%	10%	R0J1192106/53	R4C	TU89286176	1,Slot=2
0	3	GPB53	MGW_MS_GPB_03	1	ON	OFF	OFF	40%	33%	30%	R0J1192106/53	R4C	TU89286278	1,Slot=3
0	4	TUB2	MGW_TUB	1	ON	OFF	OFF			0%	R0J1192104/4	R3C	TU89331643	1,Slot=4
0	5	TUB2	MGW_TUB	1	ON	OFF	OFF			0%	R0J1192104/4	R3C	TU89331644	1,Slot=5
0	6	GPB53	MGW_MS_GPB_06	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285976	1,Slot=6
0	7	GPB53	MGW_MS_GPB_07	1	ON	OFF	OFF	0%	29%	0%	R0J1192106/53	R4C	TU89285661	1,Slot=7
0	8	GPB53	MGW_MS_GPB_08	1	ON	OFF	OFF	0%	29%	0%	R0J1192106/53	R4C	TU89285795	1,Slot=8
0	9	GPB53	MGW_MS_GPB_09	1	ON	OFF	OFF	0%	29%	0%	R0J1192106/53	R4C	TU89285629	1,Slot=9
0	10	GPB53	MGW_MS_GPB_10	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285799	1,Slot=10
0	11	GPB53	MGW_MS_GPB_11	1	ON	OFF	OFF	0%	29%	0%	R0J1192106/53	R4C	TU89285630	1,Slot=11
0	12	GPB53	MGW_MS_GPB_12	1	ON	OFF	OFF	0%	29%	1%	R0J1192106/53	R4C	TU89285792	1,Slot=12
0	13	GPB53	MGW_MS_GPB_13	1	ON	OFF	OFF	0%	29%	1%	R0J1192106/53	R4C	TU89285977	1,Slot=13
0	14	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293001	1,Slot=14
0	15	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292530	1,Slot=15
0	16	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293199	1,Slot=16
0	17	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292388	1,Slot=17
0	18	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292525	1,Slot=18
0	19	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			2%	R0J1192109/3	R1C	TU8BK22049	1,Slot=19
0	20	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292545	1,Slot=20
0	21	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292549	1,Slot=21
0	22	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89292375	1,Slot=22
0	23	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293263	1,Slot=23
0	24	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293269	1,Slot=24
0	25	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293245	1,Slot=25
0	26	SXB3	MGW_SXB_Main	1	ON	OFF	OFF			1%	R0J1192109/3	R1C	TU89293243	1,Slot=26
0	27	ET-MC1	MGW_ET_MC1	1	ON	OFF	OFF			0%	R0J1192163/1	R5B	TU89068040	1,Slot=27
0	0	SCB3	MGW_SCB	1	ON	OFF	OFF			2%	R0J1192108/4	R2C	TU89241518	1,Slot=28
1	1	SCB3	MGW_SCB	1	ON	OFF	OFF			1%	R0J1192108/4	R2C	TU89241698	2,Slot=1
1	2	GPB53	MGW_MOD_GPB_02	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285793	2,Slot=2
1	3	GPB53	MGW_MOD_GPB_03	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285797	2,Slot=3
1	4	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404101	2,Slot=4
1	5	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404062	2,Slot=5
1	6	MSB3	MGW_MSB3_Profile_8	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404130	2,Slot=6
1	7	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404115	2,Slot=7

1	8	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063402378	2,Slot=8
1	9	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063404129	2,Slot=9
1	10	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063404114	2,Slot=10
1	11	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063360078	2,Slot=11
1	12	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063404113	2,Slot=12
1	13	MSB3	MGW_MSB3_Profile_15	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063404128	2,Slot=13
1	14	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063360079	2,Slot=14
1	15	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF	1%	R0J1192201/1	R7B	A063404061	2,Slot=15
1	19	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF	4%	R0J1192232/1	R2B	T01D141621	2,Slot=19
1	20	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF	4%	R0J1192232/1	R2B	T01D141578	2,Slot=20
1	21	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170665	2,Slot=21
1	22	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170680	2,Slot=22
1	23	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170751	2,Slot=23
1	24	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D160351	2,Slot=24
1	25	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D160263	2,Slot=25
1	26	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D160380	2,Slot=26
1	27	SXB3	MGW_SXB_Device	1	ON	OFF	OFF	0%	R0J1192109/3	R1C	TU89293241	2,Slot=27
1	0	SCB3	MGW_SCB	1	ON	OFF	OFF	2%	R0J1192108/4	R2C	TU89213889	2,Slot=28

65	1	SCB3	MGW_SCB	1	ON	OFF	OFF	0%	29%	1%	R0J1192108/4	R2C	TU89217981	3,Slot=1
65	2	GPB53	MGW_MOD_GPB_02	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285905	3,Slot=2
65	3	GPB53	MGW_MOD_GPB_03	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285938	3,Slot=3
65	4	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404121	3,Slot=4
65	5	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063360074	3,Slot=5
65	6	MSB3	MGW_MSB3_Profile_8	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063360073	3,Slot=6
65	7	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404124	3,Slot=7
65	8	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404126	3,Slot=8
65	9	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404125	3,Slot=9
65	10	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404123	3,Slot=10
65	11	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063360071	3,Slot=11
65	12	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063360072	3,Slot=12
65	13	MSB3	MGW_MSB3_Profile_15	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404122	3,Slot=13
65	14	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063402226	3,Slot=14
65	15	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403615	3,Slot=15
65	19	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141634	3,Slot=19
65	20	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141741	3,Slot=20
65	21	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170672	3,Slot=21
65	22	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170667	3,Slot=22
65	23	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170671	3,Slot=23
65	24	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			10%	R0J1192257/1	R1A	T01D168001	3,Slot=24
65	25	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			10%	R0J1192257/1	R1A	T01D167983	3,Slot=25
65	26	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			10%	R0J1192257/1	R1A	T01D167989	3,Slot=26
65	27	SXB3	MGW_SXB_Device	1	ON	OFF	OFF			0%	R0J1192109/3	R1C	TU89292689	3,Slot=27
65	0	SCB3	MGW_SCB	1	ON	OFF	OFF			2%	R0J1192108/4	R2C	TU89242025	3,Slot=28

73	1	SCB3	MGW_SCB	1	ON	OFF	OFF		1%	R0J1192108/4	R2C	TU89242621	4,Slot=1	
73	2	GPB53	MGW_MOD_GPB_02	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89286135	4,Slot=2
73	3	GPB53	MGW_MOD_GPB_03	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89286276	4,Slot=3
73	4	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			2%	R0J1192201/1	R7B	A063403996	4,Slot=4
73	5	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403605	4,Slot=5
73	6	MSB3	MGW_MSB3_Profile_8	1	ON	OFF	OFF			2%	R0J1192201/1	R7B	A063403606	4,Slot=6
73	7	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403611	4,Slot=7
73	8	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403612	4,Slot=8
73	9	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403607	4,Slot=9
73	10	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403569	4,Slot=10
73	11	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403614	4,Slot=11
73	12	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403570	4,Slot=12
73	13	MSB3	MGW_MSB3_Profile_15	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403571	4,Slot=13
73	14	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403617	4,Slot=14
73	15	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063403572	4,Slot=15
73	19	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141601	4,Slot=19
73	20	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141599	4,Slot=20
73	21	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170668	4,Slot=21
73	22	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170670	4,Slot=22
73	23	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170674	4,Slot=23
73	24	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			9%	R0J1192257/1	R1A	T01D160307	4,Slot=24
73	25	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			9%	R0J1192257/1	R1A	T01D156528	4,Slot=25
73	26	ET-C41	MGW_ET_C41	1	ON	OFF	OFF			10%	R0J1192257/1	R1A	T01D157930	4,Slot=26
73	27	SXB3	MGW_SXB_Device	1	ON	OFF	OFF			0%	R0J1192109/3	R1C	TU89292393	4,Slot=27
73	0	SCB3	MGW_SCB	1	ON	OFF	OFF			2%	R0J1192108/4	R2C	TU89242362	4,Slot=28

89	1	SCB3	MGW_SCB	1	ON	OFF	OFF		1%	R0J1192108/4	R2C	TU89165983	5,Slot=1	
89	2	GPB53	MGW_MOD_GPB_02	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285907	5,Slot=2
89	3	GPB53	MGW_MOD_GPB_03	1	ON	OFF	OFF	0%	29%	2%	R0J1192106/53	R4C	TU89285975	5,Slot=3
89	4	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			2%	R0J1192201/1	R7B	A063404005	5,Slot=4
89	5	MSB3	MGW_MSB3_Profile_16	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404117	5,Slot=5
89	6	MSB3	MGW_MSB3_Profile_8	1	ON	OFF	OFF			2%	R0J1192201/1	R7B	A063404054	5,Slot=6
89	7	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404116	5,Slot=7
89	8	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404063	5,Slot=8
89	9	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404053	5,Slot=9
89	10	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404064	5,Slot=10
89	11	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404102	5,Slot=11
89	12	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404109	5,Slot=12
89	13	MSB3	MGW_MSB3_Profile_15	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404103	5,Slot=13
89	14	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404119	5,Slot=14
89	15	MSB3	MGW_MSB3_Profile_3	1	ON	OFF	OFF			1%	R0J1192201/1	R7B	A063404050	5,Slot=15
89	19	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141742	5,Slot=19
89	20	ET-MFG	MGW_ET_MFG	1	ON	OFF	OFF			4%	R0J1192232/1	R2B	T01D141593	5,Slot=20
89	21	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170677	5,Slot=21
89	22	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF			0%	R0J1192102/22	R1B	TU89170678	5,Slot=22

89	23	ET-M4	MGW_ETM4_ETMF41	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170675	5,Slot=23
89	24	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D167986	5,Slot=24
89	25	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D168153	5,Slot=25
89	26	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	10%	R0J1192257/1	R1A	T01D168180	5,Slot=26
89	27	SXB3	MGW_SXB_Device	1	ON	OFF	OFF	0%	R0J1192109/3	R1C	TU89293151	5,Slot=27
89	0	SCB3	MGW_SCB	1	ON	OFF	OFF	2%	R0J1192108/4	R2C	TU89195807	5,Slot=28

97	1	SCB3	MGW_SCB	1	ON	OFF	OFF	0%	R0J1192108/4	R2C	TU89242331	6,Slot=1
97	2	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170681	6,Slot=2
97	3	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170682	6,Slot=3
97	4	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170644	6,Slot=4
97	5	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	1%	R0J1192102/22	R1B	TU89170796	6,Slot=5
97	6	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170769	6,Slot=6
97	7	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170790	6,Slot=7
97	8	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170760	6,Slot=8
97	9	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170798	6,Slot=9
97	10	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89190402	6,Slot=10
97	11	ET-M4	MGW_ET_M4	1	ON	OFF	OFF	0%	R0J1192102/22	R1B	TU89170615	6,Slot=11
97	17	ET-MC41	MGW_ET_MC41	1	ON	OFF	OFF	6%	R0J1192161/2	R1B	TU89198496	6,Slot=17
97	19	ET-MC41	MGW_ET_MC41	1	ON	OFF	OFF	5%	R0J1192161/2	R1B	TU89198777	6,Slot=19
97	21	ET-MC41	MGW_ET_MC41	1	ON	OFF	OFF	6%	R0J1192161/2	R1B	TU89179976	6,Slot=21
97	23	ET-MC41	MGW_ET_MC41	1	ON	OFF	OFF	6%	R0J1192161/2	R1B	TU89198771	6,Slot=23
97	25	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	9%	R0J1192257/1	R1A	T01D167987	6,Slot=25
97	26	ET-C41	MGW_ET_C41	1	ON	OFF	OFF	8%	R0J1192257/1	R1A	T01D157986	6,Slot=26
97	27	SXB3	MGW_SXB_Device	1	ON	OFF	OFF	0%	R0J1192109/3	R1C	TU89292605	6,Slot=27
97	0	SCB3	MGW_SCB	1	ON	OFF	OFF	2%	R0J1192108/4	R2C	TU89242435	6,Slot=28

XPBOARD	ST	PRODUCTNUMBER	REV	SERIAL/NAME	MO
XALM	1	ZHA90134/1	R2C	A442145219	Macu=1
FAN	1	BFD50908 4	R1J	S773487544	MgwFan=1A
FAN	1	BFD50908 4	R1J	S773487548	MgwFan=1B
FAN	1	BFD50908 4	R1J	S773487546	MgwFan=1C
FAN	1	BFD50908 4	R1J	S773487536	MgwFan=1D
FAN	1	BFD50908 4	R1J	S773488136	MgwFan=2C
FAN	1	BFD50908 4	R1J	S773487549	MgwFan=2D

mgw_xalm	-	CXP9012696	R3A01	mgw_xalm	Macu=1,XpProgram=CXP9012696R3A01

Subrack=1	0	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE
Subrack=2	1	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE
Subrack=3	65	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE
Subrack=4	73	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE
Subrack=5	89	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE
Subrack=6	97	Subrack	BFD	508	01/33	R1A	MGW	HW	01W05	ATM_TRANSMISSION	1000W	BFD7422019_ONE

MO	SMN	PRODUCT	PRODUCTNUMBER	REV	SERIAL/NAME	DATE	activeSwitchPlane	switchState
Subrack=1	0	Backplane	R0J 605 107/3	R1A	X911090152	20060801	SWITCH_PLANE_B	111
Subrack=2	1	Backplane	R0J 605 107/3	R1A	X911090443	20060802	SWITCH_PLANE_A	111
Subrack=3	65	Backplane	R0J 605 107/3	R1A	X911090271	20060801	SWITCH_PLANE_B	111
Subrack=4	73	Backplane	R0J 605 107/3	R1A	X911090208	20060801	SWITCH_PLANE_B	111
Subrack=5	89	Backplane	R0J 605 107/3	R1A	X911090267	20060801	SWITCH_PLANE_B	111
Subrack=6	97	Backplane	R0J 605 107/3	R1A	X911090322	20060802	SWITCH_PLANE_B	111

ExtSr	SMN	ISLGroup/Link	ST	Slot/Port (MS)	Slot/Port (ES)	PortState
2	01	MAIN-MOD_1,.*=1	11	01/0 C3	01/0 C3	ACTIVE
2	01	MAIN-MOD_1,.*=2	11	01/1 C3	01/1 C3	ACTIVE
2	01	MAIN-MOD_1,.*=3	01	14/2 X3	27/2 X3	ACTIVE
2	01	MAIN-MOD_1,.*=4	01	14/3 X3	27/3 X3	ACTIVE
2	01	MAIN-MOD_1,.*=5	11	28/0 C3	28/0 C3	PASSIVE
2	01	MAIN-MOD_1,.*=6	11	28/1 C3	28/1 C3	PASSIVE
2	01	MAIN-MOD_1,.*=7	11	28/2 C3	28/2 C3	PASSIVE
2	01	MAIN-MOD_1,.*=8	11	28/3 C3	28/3 C3	PASSIVE
3	65	MAIN-MOD_2,.*=1	11	16/0 X3	01/0 C3	ACTIVE
3	65	MAIN-MOD_2,.*=2	11	16/1 X3	01/1 C3	ACTIVE
3	65	MAIN-MOD_2,.*=3	01	15/2 X3	27/2 X3	ACTIVE
3	65	MAIN-MOD_2,.*=4	01	15/3 X3	27/3 X3	ACTIVE
3	65	MAIN-MOD_2,.*=5	11	17/0 X3	28/0 C3	PASSIVE
3	65	MAIN-MOD_2,.*=6	11	17/1 X3	28/1 C3	PASSIVE
3	65	MAIN-MOD_2,.*=7	11	17/2 X3	28/2 C3	PASSIVE
3	65	MAIN-MOD_2,.*=8	11	17/3 X3	28/3 C3	PASSIVE
4	73	MAIN-MOD_3,.*=1	11	18/0 X3	01/0 C3	ACTIVE
4	73	MAIN-MOD_3,.*=2	11	18/1 X3	01/1 C3	ACTIVE
4	73	MAIN-MOD_3,.*=3	01	20/2 X3	27/2 X3	ACTIVE

4	73	MAIN-MOD_3,.*=4	01	20/3 X3	27/3 X3	ACTIVE
4	73	MAIN-MOD_3,.*=5	11	19/0 X3	28/0 C3	PASSIVE
4	73	MAIN-MOD_3,.*=6	11	19/1 X3	28/1 C3	PASSIVE
4	73	MAIN-MOD_3,.*=7	11	19/2 X3	28/2 C3	PASSIVE
4	73	MAIN-MOD_3,.*=8	11	19/3 X3	28/3 C3	PASSIVE

5	89	MAIN-MOD_4,.*=1	11	22/0 X3	01/0 C3	ACTIVE
5	89	MAIN-MOD_4,.*=2	11	22/1 X3	01/1 C3	ACTIVE
5	89	MAIN-MOD_4,.*=3	01	21/2 X3	27/2 X3	ACTIVE
5	89	MAIN-MOD_4,.*=4	01	21/3 X3	27/3 X3	ACTIVE
5	89	MAIN-MOD_4,.*=5	11	23/0 X3	28/0 C3	PASSIVE
5	89	MAIN-MOD_4,.*=6	11	23/1 X3	28/1 C3	PASSIVE
5	89	MAIN-MOD_4,.*=7	11	23/2 X3	28/2 C3	PASSIVE
5	89	MAIN-MOD_4,.*=8	11	23/3 X3	28/3 C3	PASSIVE

6	97	MAIN-ET_MOD,.*=1	11	24/0 X3	01/0 C3	ACTIVE
6	97	MAIN-ET_MOD,.*=2	11	24/1 X3	01/1 C3	ACTIVE
6	97	MAIN-ET_MOD,.*=3	01	26/2 X3	27/2 X3	ACTIVE
6	97	MAIN-ET_MOD,.*=4	01	26/3 X3	27/3 X3	ACTIVE
6	97	MAIN-ET_MOD,.*=5	11	25/0 X3	28/0 C3	PASSIVE
6	97	MAIN-ET_MOD,.*=6	11	25/1 X3	28/1 C3	PASSIVE
6	97	MAIN-ET_MOD,.*=7	11	25/2 X3	28/2 C3	PASSIVE
6	97	MAIN-ET_MOD,.*=8	11	25/3 X3	28/3 C3	PASSIVE

LicenseKeyFile: Installed, Mon Nov 10 13:22:26 2008, SequenceNumber: 3026

FeatureId	StartDate	StopDate	Status	ChangeReason	Description
CXC4010071/3003	2008-09-24	9999-12-31			KEY/M-MGW XC BASIC SW LICENSE
CXC4010071/3004	2008-09-24	9999-12-31			KEY/M-MGW SGW BASIC SW LICENSE
CXC4010071/3005	2008-09-24	9999-12-31			KEY/LAWFUL INTERCEPT NO:FAJ122990
CXC4010071/3006	2008-09-24	9999-12-31	Enabled	Licensed	KEY/UMTS IU INTERFACE NO:FAJ121384
CXC4010071/3007	2008-09-24	9999-12-31			KEY/GSM A-INTERFACE NO:FAJ121385
CXC4010071/3008	2008-09-24	9999-12-31	Enabled	Licensed	KEY/GSM HS DATA SERV NO:FAJ121386
CXC4010071/3009	2008-09-24	9999-12-31			KEY/IP TRANSPORT NO:FAJ121378
CXC4010071/3011	2007-09-21	9999-12-31	Enabled	Licensed	KEY/VQE MCC NO:FAP131218
CXC4010071/3012	2007-09-21	9999-12-31	Enabled	Licensed	KEY/VQE NOISE REDUCTION NO:FAP1312
CXC4010071/3013	2007-09-21	9999-12-31	Enabled	Licensed	KEY/VQE FIXED LEVEL CONTROL NO:FAP
CXC4010071/3014	2007-09-21	9999-12-31	Enabled	Licensed	KEY/VQE NETWORK PROBE NO:FAP131218
CXC4010071/3015	2008-09-24	9999-12-31			KEY/SS7 SIGN OVER IP NO:FAJ121391
CXC4010071/3016	2008-09-24	9999-12-31			KEY/SCCP ACCOUNTING NO:FAJ121392
CXC4010071/3017	2008-09-24	9999-12-31			KEY/SCCP POLICING NO:FAJ121393
CXC4010071/3018	2008-09-24	9999-12-31			KEY/SCCP RELAY NO:FAJ121394

CXC4010071/3019	2008-09-24	9999-12-31	Enabled	Licensed	KEY/GTT NO:FAJ121388
CXC4010071/3022	2008-09-24	9999-12-31	Enabled	Licensed	KEY/TF0 NO:FAJ121939
CXC4010071/3023	2008-09-24	9999-12-31	Enabled	Licensed	KEY/COMP SPEECH ON NB NO:FAJ121551
CXC4010071/3024	2008-09-24	9999-12-31	Enabled	Licensed	KEY/MBAC NO:FAJ121400
CXC4010071/3025	2008-09-24	9999-12-31	Enabled	Licensed	KEY/FAX SERVICE NO:FAJ121950
CXC4010071/3026	2008-09-24	9999-12-31			SOFTWARE KEY/M-MGW KEY FOR CAPACITY ENHA
CXC4010071/3027	2008-09-24	9999-12-31			KEY/NB/MC OVER SATEL NO:FAJ1210097
CXC4010071/3029	2008-09-24	9999-12-31	Enabled	Licensed	KEY/A/U-LAW CONVERSION NO:FAJ12100
CXC4010071/3030	2008-09-24	9999-12-31			KEY/TDM CROSS CONNECT NO:FAJ121004
CXC4010071/3032	2008-09-24	9999-12-31			KEY/ASSOCIATED SIGN. MODE NO:FAJ12
CXC4010071/3033	2008-09-24	9999-12-31			KEY/NCLI NO:FAJ1210092
CXC4010071/3034	2008-09-24	9999-12-31	Enabled	Licensed	KEY/GCP ON SCTP NO:FAJ1210093
CXC4010071/3035	2008-09-24	9999-12-31	Enabled	Licensed	KEY/FAX SERVICE FOR DELAYS NO:FAJ1
CXC4010071/3036	2008-09-24	9999-12-31			KEY/VOIP GW DEMO NO:FAJ1210160/1
CXC4010071/3037	2008-09-24	9999-12-31	Enabled	Licensed	KEY/IU OVER IP NO:FAJ1210161
CXC4010071/3042	2008-09-24	9999-12-31			KEY/TDM BASED HSL NO:FAJ1210166
CXC4010071/3044	2008-09-24	9999-12-31	Enabled	Licensed	KEY/NB OVER IP NO:FAJ1210222
CXC4010408/1101	2008-09-24	9999-12-31	Enabled	Licensed	KEY/GSM MSC PPROXY NO:FAJ1210391
CXC4010408/1102	2008-09-24	9999-12-31	Enabled	Licensed	KEY/ADAPTIVE JITTER NO:FAJ1210393

CapacityId	StartDate	StopDate	CapLimit	CapValue	HardLimit	HardValue	ChangeReason	Description
CXC4010071/3002	2008-09-24	9999-12-31	True	70000	True	70000	Licensed	KEY/SCC CAPACITY NO:FAJ19009 U:SCC
CXC4010071/3020	2008-09-24	9999-12-31			No Limit			KEY/AMBE+2 NO:FAJ19003 U:DEVICES
CXC4010071/3021	2008-09-24	9999-12-31	True	1024	True	1024	Licensed	KEY/CSD MOD NO:FAJ19004 U:DEVICES
CXC4010071/3038	2008-09-24	9999-12-31	True	60000	True	60000	Licensed	KEY/G.729 NO:FAJ1210162 U:CODECS
CXC4010071/3039	2008-09-24	9999-12-31	True	60000	True	60000	Licensed	KEY/AMR-WB NO:FAJ1210163 U:SCC
CXC4010071/3040	2008-09-24	9999-12-31	True	1000	True	1000	Licensed	KEY/PRA NO:FAJ1210164 U:INTERFACES
CXC4010071/3045	2008-09-24	9999-12-31			1			KEY/IP MULTIPLEXING NO:FAJ1210344
CXC4010408/1201	2008-09-24	9999-12-31	True	60000	True	60000	Licensed	KEY/VOIP GATEWAY NO:FAJ1210160

....<cut>..

SMN	APN	BOARDTYPE	ST	PRODUCTNUMBER_REV	NAME	MO
0	1	SCB3	1	CXC1321120_R61CN02	nssscb_bp	1,Slot=1,PlugInUnit=1,Program=CXC1321120_R61CN02
0	1	SCB3	1	CXC1321121_R61ES03	nsssygi_mpbp	1,Slot=1,PlugInUnit=1,Program=CXC1321121_R61ES03
0	1	SCB3	1	CXC1321407_R61HH04	spas_link	1,Slot=1,PlugInUnit=1,Program=CXC1321407_R61HH04
0	1	SCB3	1	CXC1321409_R61HH02	spas_sm	1,Slot=1,PlugInUnit=1,Program=CXC1321409_R61HH02
0	1	SCB3	1	CXC1322165/12_R61HH02	48Vpowersup	1,Slot=1,PlugInUnit=1,Program=CXC1322165/12_R61HH02
0	1	SCB3	1	CXC1322166/3_R61HH02	atf	1,Slot=1,PlugInUnit=1,Program=CXC1322166/3_R61HH02
0	1	SCB3	1	CXC1322250_R61HH10	dbm2_cs_basi	1,Slot=1,PlugInUnit=1,Program=CXC1322250_R61HH10
0	1	SCB3	1	CXC1721176_R61HH03	pm_agent	1,Slot=1,PlugInUnit=1,Program=CXC1721176_R61HH03

0	2	GPB53	1	CXC1320742_R61HH02	spas_connect	1,Slot=2,PlugInUnit=1,Program=CXC1320742_R61HH02
0	2	GPB53	1	CXC1320781_R61HH03	database	1,Slot=2,PlugInUnit=1,Program=CXC1320781_R61HH03
0	2	GPB53	1	CXC1320782_R61HH09	equipment_re	1,Slot=2,PlugInUnit=1,Program=CXC1320782_R61HH09
0	2	GPB53	1	CXC1320783_R61HH02	http_server	1,Slot=2,PlugInUnit=1,Program=CXC1320783_R61HH02
0	2	GPB53	1	CXC1320784_R61HH04	jvm	1,Slot=2,PlugInUnit=1,Program=CXC1320784_R61HH04
0	2	GPB53	1	CXC1320785_R61HH02	loaderserver	1,Slot=2,PlugInUnit=1,Program=CXC1320785_R61HH02
0	2	GPB53	1	CXC1320787_R61HH03	SystemManage	1,Slot=2,PlugInUnit=1,Program=CXC1320787_R61HH03
0	2	GPB53	1	CXC1320836_R61HL04	aal2mp	1,Slot=2,PlugInUnit=1,Program=CXC1320836_R61HL04
0	2	GPB53	1	CXC1320839_R61HL07	atmmp	1,Slot=2,PlugInUnit=1,Program=CXC1320839_R61HL07
0	2	GPB53	1	CXC1320978_R61DX01	aal05ncc	1,Slot=2,PlugInUnit=1,Program=CXC1320978_R61DX01
0	2	GPB53	1	CXC1320980_R61HL01	aalcrossconn	1,Slot=2,PlugInUnit=1,Program=CXC1320980_R61HL01
0	2	GPB53	1	CXC1320995/31_R61AZ01	aal5_term_mp	1,Slot=2,PlugInUnit=1,Program=CXC1320995/31_R61AZ01
0	2	GPB53	1	CXC1321118/1_R61HH02	nssmp	1,Slot=2,PlugInUnit=1,Program=CXC1321118/1_R61HH02
0	2	GPB53	1	CXC1321121_R61ES03	nssyci_mpbp	1,Slot=2,PlugInUnit=1,Program=CXC1321121_R61ES03
0	2	GPB53	1	CXC1321171_R61CG02	nsaal_adm	1,Slot=2,PlugInUnit=1,Program=CXC1321171_R61CG02
0	2	GPB53	1	CXC1321314_R61HH03	sock	1,Slot=2,PlugInUnit=1,Program=CXC1321314_R61HH03
0	2	GPB53	1	CXC1321315_R61HH03	inet	1,Slot=2,PlugInUnit=1,Program=CXC1321315_R61HH03
0	2	GPB53	1	CXC1321316_R61HH05	ethernet	1,Slot=2,PlugInUnit=1,Program=CXC1321316_R61HH05
0	2	GPB53	1	CXC1321317_R61HH04	ospf	1,Slot=2,PlugInUnit=1,Program=CXC1321317_R61HH04
0	2	GPB53	1	CXC1321341_R61HH04	sw_installat	1,Slot=2,PlugInUnit=1,Program=CXC1321341_R61HH04
0	2	GPB53	1	CXC1321344_R61HH02	pms	1,Slot=2,PlugInUnit=1,Program=CXC1321344_R61HH02
0	2	GPB53	1	CXC1321408_R61HH03	spas_resourc	1,Slot=2,PlugInUnit=1,Program=CXC1321408_R61HH03
0	2	GPB53	1	CXC1321447_R61HH17	gpb_cs_basic	1,Slot=2,PlugInUnit=1,Program=CXC1321447_R61HH17
0	2	GPB53	1	CXC1321520_R61FN05	equipmp	1,Slot=2,PlugInUnit=1,Program=CXC1321520_R61FN05
0	2	GPB53	1	CXC1322208_R61FN02	aal5_static_	1,Slot=2,PlugInUnit=1,Program=CXC1322208_R61FN02
0	2	GPB53	1	CXC1322209_R61HL01	aal5_dynamic	1,Slot=2,PlugInUnit=1,Program=CXC1322209_R61HL01
0	2	GPB53	1	CXC1322210_R61FN02	aal0_static_	1,Slot=2,PlugInUnit=1,Program=CXC1322210_R61FN02
0	2	GPB53	1	CXC1322211_R61CJ01	aal0_dynamic	1,Slot=2,PlugInUnit=1,Program=CXC1322211_R61CJ01
0	2	GPB53	1	CXC1322418/12_R61HL01	aal2cpsrc_12	1,Slot=2,PlugInUnit=1,Program=CXC1322418/12_R61HL01
0	2	GPB53	1	CXC1322419/12_R61HL01	aal2distncc_	1,Slot=2,PlugInUnit=1,Program=CXC1322419/12_R61HL01
0	2	GPB53	1	CXC1322420/12_R61HL02	aal2nccadm_1	1,Slot=2,PlugInUnit=1,Program=CXC1322420/12_R61HL02
0	2	GPB53	1	CXC1322506_R61HH03	iputil	1,Slot=2,PlugInUnit=1,Program=CXC1322506_R61HH03
0	2	GPB53	1	CXC1322812_R61HH01	gpb_pqiipatc	1,Slot=2,PlugInUnit=1,Program=CXC1322812_R61HH01
0	2	GPB53	1	CXC1323464_R61HH09	objectsuppor	1,Slot=2,PlugInUnit=1,Program=CXC1323464_R61HH09
0	2	GPB53	1	CXC1323491_R61CA01	aal1_static_	1,Slot=2,PlugInUnit=1,Program=CXC1323491_R61CA01
0	2	GPB53	1	CXC1323506_R61CA01	aal1crosscon	1,Slot=2,PlugInUnit=1,Program=CXC1323506_R61CA01
0	2	GPB53	1	CXC1323507_R61DX02	aal1ncc	1,Slot=2,PlugInUnit=1,Program=CXC1323507_R61DX02
0	2	GPB53	1	CXC1323636_R61HL03	ds0mp	1,Slot=2,PlugInUnit=1,Program=CXC1323636_R61HL03
0	2	GPB53	1	CXC1323657_R61BE02	scc_mtp2adm	1,Slot=2,PlugInUnit=1,Program=CXC1323657_R61BE02
0	2	GPB53	1	CXC1323911_R61HH06	ssh	1,Slot=2,PlugInUnit=1,Program=CXC1323911_R61HH06
0	2	GPB53	1	CXC1324169_R61HL01	phymp	1,Slot=2,PlugInUnit=1,Program=CXC1324169_R61HL01
0	2	GPB53	1	CXC1324928/8_R30F02	upcfoam	1,Slot=2,PlugInUnit=1,Program=CXC1324928/8_R30F02

...<cut>...

97	27	SXB3	1	CXC1322250_R61HH10	dbm2_cs_basi	6,Slot=27,PlugInUnit=1,Program=CXC1322250_R61HH10
97	27	SXB3	1	CXC1721176_R61HH03	pm_agent	6,Slot=27,PlugInUnit=1,Program=CXC1721176_R61HH03

97	0	SCB3	1	CXC1321120_R61CN02	nssscb_bp	6,Slot=28,PlugInUnit=1,Program=CXC1321120_R61CN02
97	0	SCB3	1	CXC1321121_R61ES03	nsssyaci_mpbp	6,Slot=28,PlugInUnit=1,Program=CXC1321121_R61ES03
97	0	SCB3	1	CXC1321407_R61HH04	spas_link	6,Slot=28,PlugInUnit=1,Program=CXC1321407_R61HH04
97	0	SCB3	1	CXC1321409_R61HH02	spas_sm	6,Slot=28,PlugInUnit=1,Program=CXC1321409_R61HH02
97	0	SCB3	1	CXC1322165/12_R61HH02	48Vpowersup	6,Slot=28,PlugInUnit=1,Program=CXC1322165/12_R61HH02
97	0	SCB3	1	CXC1322166/3_R61HH02	atf	6,Slot=28,PlugInUnit=1,Program=CXC1322166/3_R61HH02
97	0	SCB3	1	CXC1322250_R61HH10	dbm2_cs_basi	6,Slot=28,PlugInUnit=1,Program=CXC1322250_R61HH10
97	0	SCB3	1	CXC1721176_R61HH03	pm_agent	6,Slot=28,PlugInUnit=1,Program=CXC1721176_R61HH03

Filtering the output of the “inv” command

OFFLINE> h inv

inv[hr] [<Filter>] [<stateFilter>]

This command performs a HW/SW inventory via the M0 interface. The output is similar to "cabsx" which provides a HW/SW inventory via the OSE she

Example: view only lines matching “slot=6”

RNC11> inv slot=6

SMN	APN	BOARDTYPE	M	SWALLOCATION	ST	PRODUCTNUMBER	REV	M0
0	6	ET-M4		ETM4	1	ROJ1192102/22	R1B	Subrack=MS,Slot=6,PlugInUnit=1

SMN	APN	BOARDTYPE	ST	PRODUCTNUMBER_REV	NAME	M0
0	6	ET-M4	1	CXC1322250_R51TK01	dbm2_cs_basi	Subrack=MS,Slot=6,PlugInUnit=1,Program=CXC1322250_R51TK01
0	6	ET-M4	1	CXC1321121_R51GD01	nsssyaci_mpbp	Subrack=MS,Slot=6,PlugInUnit=1,Program=CXC1321121_R51GD01
0	6	ET-M4	1	CXC1329155_R51SN02	etm4v2atm	Subrack=MS,Slot=6,PlugInUnit=1,Program=CXC1329155_R51SN02
0	6	ET-M4	1	CXC1328977_R51SN02	phym4v2bp	Subrack=MS,Slot=6,PlugInUnit=1,Program=CXC1328977_R51SN02
0	6	Exchange=1	1	CXC1327678_R3B01	AMD4V2_FPGA	Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,Program=CXC1327678_R3B01

Example: view only lines matching ”fax”

MGW1> inv fax

SMN	APN	BOARDTYPE	ST	PRODUCTNUMBER_REV	NAME	M0
73	7	MsDev=1	1	CXC1720519/5_R1D01	fax	Subrack=3,Slot=7,PlugInUnit=1,MsDeviceGroup=1,Program=CXC1720519/5_R1D01
73	8	MsDev=1	1	CXC1720519/5_R1D01	fax	Subrack=3,Slot=8,PlugInUnit=1,MsDeviceGroup=1,Program=CXC1720519/5_R1D01

Example: view only lines matchin ”_gra”

MGW1> inv _gra

SMN	APN	BOARDTYPE	ST	PRODUCTNUMBER_REV	NAME	M0
0	25	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=1,Slot=25,PlugInUnit=1,Program=CXC1327888/6_R7A02
1	2	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=2,Slot=2,PlugInUnit=1,Program=CXC1327888/6_R7A02
1	3	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=2,Slot=3,PlugInUnit=1,Program=CXC1327888/6_R7A02
73	2	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=3,Slot=2,PlugInUnit=1,Program=CXC1327888/6_R7A02
73	3	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=3,Slot=3,PlugInUnit=1,Program=CXC1327888/6_R7A02
73	4	GPB40	1	CXC1327888/6_R7A02	msp_crh_gra	Subrack=3,Slot=4,PlugInUnit=1,Program=CXC1327888/6_R7A02

Example: view only HW/SW that is locked or disabled

OFFLINE> h inv

 inv[hr] [<Filter>] [<stateFilter>]

 This command performs a HW/SW inventory via the M0 interface. The output is similar to "cabsx" which provides a HW/SW inventory via the OSE she

RNC11> inv . 0|L

SMN	APN	BOARDTYPE	M	SWALLOCATION	ST	PRODUCTNUMBER	REV	M0
0	5	TUB		TUB	0	R0J1192104/3	R4E	Subrack=MS,Slot=5,PlugInUnit=1

SMN	APN	BOARDTYPE	ST	PRODUCTNUMBER_REV	NAME	M0
0	5	TUB	0	CXC1321122/21_R50HF01	nsstu_21_bp	Subrack=MS,Slot=5,PlugInUnit=1,Program=nsstu_21_bp
0	5	TUB	0	CXC1321794_R50HF01	aal0_term_tu	Subrack=MS,Slot=5,PlugInUnit=1,Program=aal0_term_tu
0	5	TUB	0	CXC1321451_R50HX06	dbm_cs_basic	Subrack=MS,Slot=5,PlugInUnit=1,Program=CXC1321451_R50HX06
0	5	TUB	0	CXC1321121_R50HF01	nsssygi_mpbp	Subrack=MS,Slot=5,PlugInUnit=1,Program=nsssygi_mpbp
0	5	TUB	0	CXC1322025_R50HX01	dbm_fpgaload	Subrack=MS,Slot=5,PlugInUnit=1,Program=CXC1322025_R50HX01
0	5	TUB	0	CXC1329867_R4J02	RncLmTas	Subrack=MS,Slot=5,PlugInUnit=1,Program=CXC1329867_R4J02
0	5	Timing=1	0	CXC1321123_R50BL03	nsstu_fpga	Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,Program=nsstu_fpga

5.3 std command

MGW1> stda

Sr	Slot	LnH	Board	GRA	DSP	GMD	DeviceType	SW	Set	ResId	nRes	nIdle	graCap	dspCap	totCap	rej	nRest	dupCep
3	7	730700	MSB3	7304	1	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	2	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	3	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	4	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	5	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	6	111	MPC	CXC1327801/8_R4C01	370	11088	24	24	55542	55542	55542	0	0	0
3	7	730700	MSB3	7303	7	111	IM	CXC1327799/8_R4C01	371		100	100						
3	7	730700	MSB3	7304	8	111	CSD_GSM_MFH	CXC1327794/8_R4D01	372	11112	36	36	55650	55650	55650	0	0	0
3	7	730700	MSB3	7304	9	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	10	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	11	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	12	111	UMTS_MFD	CXC1327790/8_R4E01	369	9594	166	166	57300	57300	57300	0	0	0
3	7	730700	MSB3	7304	13	111	CSD_DIGITAL	CXC1327791/8_R4E01	373	11148	16	16	55650	55650	55650	0	0	0
3	7	730700	MSB3	7304	14	111	CSD_DIGITAL	CXC1327791/8_R4E01	373	11148	16	16	55650	55650	55650	0	0	0
3	7	730700	MSB3	7304	15	111	CSD_MODEM	CXC1327792/8_R4D01	374	11180	16	16	55650	55650	55650	0	0	0
3	7	730700	MSB3	7304	16	111	CSD_FAX	CXC1720519/8_R4D01	375	11196	5	5	55650	55650	55650	0	0	0
3	8	730800	MSB3	7302	1	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	2	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	3	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	4	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	5	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	6	111	MPC	CXC1327801/8_R4C01	363	12118	24	24	55542	55542	55542	0	0	0

3	8	730800	MSB3	7302	7	111	IM	CXC1327799/8_R4C01	364		100	100						
3	8	730800	MSB3	7302	8	111	CSD_GSM_MFH	CXC1327794/8_R4D01	365	12142	36	36	55650	55650	55650	0	0	0
3	8	730800	MSB3	7302	9	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	10	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	11	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	12	111	UMTS_MFD	CXC1327790/8_R4E01	362	10624	166	166	57300	57300	57300	0	0	0
3	8	730800	MSB3	7302	13	111	CSD_DIGITAL	CXC1327791/8_R4E01	366	12178	16	16	55650	55650	55650	0	0	0
3	8	730800	MSB3	7302	14	111	CSD_DIGITAL	CXC1327791/8_R4E01	366	12178	16	16	55650	55650	55650	0	0	0
3	8	730800	MSB3	7302	15	111	CSD_MODEM	CXC1327792/8_R4D01	367	12210	16	16	55650	55650	55650	0	0	0
3	8	730800	MSB3	7302	16	111	CSD_FAX	CXC1720519/8_R4D01	368	12226	5	5	55650	55650	55650	0	0	0
3	9	730900	MSB3	7303	1	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	2	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	3	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	4	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	5	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	6	111	MPC	CXC1327801/8_R4C01	351	12118	24	24	55542	55542	55542	0	0	0
3	9	730900	MSB3	7303	7	111	IM	CXC1327799/8_R4C01	352		100	100						
3	9	730900	MSB3	7303	8	111	CSD_GSM_MFH	CXC1327794/8_R4D01	353	12166	36	36	55650	55650	55650	0	0	0
3	9	730900	MSB3	7303	9	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	10	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	11	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	12	111	UMTS_MFD	CXC1327790/8_R4E01	350	10624	166	166	57300	57300	57300	0	0	0
3	9	730900	MSB3	7303	13	111	MPC	CXC1327801/8_R4C01	351	12118	24	24	55542	55542	55542	0	0	0
3	9	730900	MSB3	7303	14	111	CSD_DIGITAL	CXC1327791/8_R4E01	354	12202	16	16	55650	55650	55650	0	0	0
3	9	730900	MSB3	7303	15	111	CSD_DIGITAL	CXC1327791/8_R4E01	354	12202	16	16	55650	55650	55650	0	0	0
3	9	730900	MSB3	7303	16	111	CSD_MODEM	CXC1327792/8_R4D01	355	12234	16	16	55650	55650	55650	0	0	0
3	10	731000	MSB3	7304	1	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	2	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	3	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	4	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	5	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	6	111	MPC	CXC1327801/8_R4C01	357	9462	24	24	55542	55542	55542	0	0	0
3	10	731000	MSB3	7302	7	111	IM	CXC1327799/8_R4C01	358		100	100						
3	10	731000	MSB3	7304	8	111	CSD_GSM_MFH	CXC1327794/8_R4D01	359	9510	36	36	55650	55650	55650	0	0	0
3	10	731000	MSB3	7304	9	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	10	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	11	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	12	111	UMTS_MFD	CXC1327790/8_R4E01	356	7968	166	166	57300	57300	57300	0	0	0
3	10	731000	MSB3	7304	13	111	MPC	CXC1327801/8_R4C01	357	9462	24	24	55542	55542	55542	0	0	0
3	10	731000	MSB3	7304	14	111	CSD_DIGITAL	CXC1327791/8_R4E01	360	9546	16	16	55650	55650	55650	0	0	0
3	10	731000	MSB3	7304	15	111	CSD_DIGITAL	CXC1327791/8_R4E01	360	9546	16	16	55650	55650	55650	0	0	0
3	10	731000	MSB3	7304	16	111	CSD_MODEM	CXC1327792/8_R4D01	361	9578	16	16	55650	55650	55650	0	0	0
3	11	731100	MSB3	7302	1	111	UMTS_MFD	CXC1327790/8_R4E01	349	7968	166	166	57300	57300	57300	0	0	0
3	11	731100	MSB3	7302	2	111	UMTS_MFD	CXC1327790/8_R4E01	349	7968	166	166	57300	57300	57300	0	0	0
3	11	731100	MSB3	7302	3	111	UMTS_MFD	CXC1327790/8_R4E01	349	7968	166	166	57300	57300	57300	0	0	0
3	11	731100	MSB3	7302	4	111	UMTS_MFD	CXC1327790/8_R4E01	349	7968	166	166	57300	57300	57300	0	0	0

[illegible]

[illegible]

[illegible]

3	19	731900	MSB3	7304	16	111	UMTS_MFD	CXC1327790/8_R4E01	342	0	166	166	57300	57300	57300	0	0	0

3	20	732000	MSB3	7302	1	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	2	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	3	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	4	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	5	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	6	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	7	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	8	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	9	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	10	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	11	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	12	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	13	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	14	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	15	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0
3	20	732000	MSB3	7302	16	111	UMTS_MFD	CXC1327790/8_R4E01	340	0	166	166	57300	57300	57300	0	0	0

3	21	732100	MSB3	7303	1	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	2	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	3	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	4	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	5	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	6	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	7	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	8	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	9	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	10	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	11	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	12	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	13	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	14	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	15	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0
3	21	732100	MSB3	7303	16	111	UMTS_MFD	CXC1327790/8_R4E01	339	0	166	166	57300	57300	57300	0	0	0

Sr	Slot	Lnh	Board	MD	SwAllocation	DeviceType	nDev	%Lock	%Dis	maxDev
=====										
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	CSDDigital	2	0	0	32
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	CSDGSMFH	1	0	0	36
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	CSDModem	1	0	0	16
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	Fax	1	0	0	5
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	IM	1	0	0	100
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	MFD	9	0	0	1494
3	7	730700	MSB3	11	MGW_MSB3_Profile_16	MPC	1	0	0	24

3	8	730800	MSB3	11	MGW_MSB3_Profile_16	CSDDigital	2	0	0	32
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	CSDGSMFH	1	0	0	36
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	CSDModem	1	0	0	16
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	Fax	1	0	0	5
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	IM	1	0	0	100
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	MFD	9	0	0	1494
3	8	730800	MSB3	11	MGW_MSB3_Profile_16	MPC	1	0	0	24

3	9	730900	MSB3	11	MGW_MSB3_Profile_13	CSDDigital	2	0	0	32
3	9	730900	MSB3	11	MGW_MSB3_Profile_13	CSDGSMFH	1	0	0	36
3	9	730900	MSB3	11	MGW_MSB3_Profile_13	CSDModem	1	0	0	16
3	9	730900	MSB3	11	MGW_MSB3_Profile_13	IM	1	0	0	100
3	9	730900	MSB3	11	MGW_MSB3_Profile_13	MFD	9	0	0	1494
3	9	730900	MSB3	11	MGW_MSB3_Profile_13	MPC	2	0	0	48

3	10	731000	MSB3	11	MGW_MSB3_Profile_13	CSDDigital	2	0	0	32
3	10	731000	MSB3	11	MGW_MSB3_Profile_13	CSDGSMFH	1	0	0	36
3	10	731000	MSB3	11	MGW_MSB3_Profile_13	CSDModem	1	0	0	16
3	10	731000	MSB3	11	MGW_MSB3_Profile_13	IM	1	0	0	100
3	10	731000	MSB3	11	MGW_MSB3_Profile_13	MFD	9	0	0	1494
3	10	731000	MSB3	11	MGW_MSB3_Profile_13	MPC	2	0	0	48

3	11	731100	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	12	731200	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	13	731300	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	14	731400	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	15	731500	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	16	731600	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	17	731700	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	18	731800	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	19	731900	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	20	732000	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

3	21	732100	MSB3	11	MGW_MSB3_Profile_3	MFD	16	0	0	2656

DevPool	Total	%Idle	%Busy	%Failed	%DepLock	%DepFail
CSDDigitalPool	128	100	0	0	0	0
CSDGSMFHPool	144	100	0	0	0	0
CSDModemPool	64	100	0	0	0	0
FaxPool	10	100	0	0	0	0
IMPool	400	100	0	0	0	0
IpEtPool	0	0	0	0	0	0
MFDPool	35192	100	0	0	0	0
MPCpool	144	100	0	0	0	0

5.4 bo command

MGW-F> bo

00 BoardType SwAllocation	01 BoardType SwAllocation	65 BoardType SwAllocation
00 SCB3 MGW_SCB3	00 SCB3 MGW_SCB3	00 SCB3 MGW_SCB3
01 SCB3 MGW_SCB3	01 SCB3 MGW_SCB3	01 SCB3 MGW_SCB3
02 GPB53 MGW_MS_GPB_02	02 GPB53 MGW_MOD_GPB_02	02 GPB53 MGW_MOD_GPB_02
03 GPB53 MGW_MS_GPB_03	03 GPB53 MGW_MOD_GPB_03	03 GPB53 MGW_MOD_GPB_03
04 TUB MGW_TUB	04 MSB3 MGW_MSB3_Profile_11	04 MSB3 MGW_MSB3_Profile_11
05 TUB MGW_TUB	05 MSB3 MGW_MSB3_Profile_11	05 MSB3 MGW_MSB3_Profile_11
06 GPB53 MGW_MS_GPB_06	06 MSB3 MGW_MSB3_Profile_8	06 MSB3 MGW_MSB3_Profile_8
07 GPB53 MGW_MS_GPB_07	07 MSB3 MGW_MSB3_Profile_3	07 MSB3 MGW_MSB3_Profile_3
08 GPB53 MGW_MS_GPB_08	08 MSB3 MGW_MSB3_Profile_3	08 MSB3 MGW_MSB3_Profile_3
09 GPB53 MGW_MS_GPB_09	09 MSB3 MGW_MSB3_Profile_3	09 MSB3 MGW_MSB3_Profile_3
10 GPB53 MGW_MS_GPB_10	10 MSB3 MGW_MSB3_Profile_3	10 MSB3 MGW_MSB3_Profile_3
11 GPB53 MGW_MS_GPB_11	11 MSB3 MGW_MSB3_Profile_3	11 MSB3 MGW_MSB3_Profile_3
12 GPB53 MGW_MS_GPB_12	12 MSB3 MGW_MSB3_Profile_3	12 MSB3 MGW_MSB3_Profile_3
13 GPB53 MGW_MS_GPB_13	13 MSB3 MGW_MSB3_Profile_8	13 MSB3 MGW_MSB3_Profile_8
14 SXB3 MGW_SXB3_Main	14 MSB3 MGW_MSB3_Profile_3	14 MSB3 MGW_MSB3_Profile_3
15 SXB3 MGW_SXB3_Main	15 MSB3 MGW_MSB3_Profile_3	15 MSB3 MGW_MSB3_Profile_3
16 SXB3 MGW_SXB3_Main	16 MSB3 MGW_MSB3_Profile_10	16 MSB3 MGW_MSB3_Profile_10
17 SXB3 MGW_SXB3_Main	17 MSB3 MGW_MSB3_Profile_10	17 MSB3 MGW_MSB3_Profile_10
18 SXB3 MGW_SXB3_Main	18 MSB3 MGW_MSB3_Profile_10	18 MSB3 MGW_MSB3_Profile_10
19 SXB3 MGW_SXB3_Main	19 ET-MFG MGW_ET_MFG	19 ET-MFG MGW_ET_MFG
20 SXB3 MGW_SXB3_Main	20 ET-MFG MGW_ET_MFG	20 ET-MFG MGW_ET_MFG
21 SXB3 MGW_SXB3_Main	21 ET-M4 MGW_ET_M4	21 ET-M4 MGW_ET_M4
22 SXB3 MGW_SXB3_Main	22 ET-M4 MGW_ET_M4	22 ET-M4 MGW_ET_M4
23 SXB3 MGW_SXB3_Main	23 ET-M4 MGW_ET_M4	23 ET-M4 MGW_ET_M4

24	SXB3	MGW_SXB3_Main	24	ET-C41	MGW_ET_C414	24	ET-C41	MGW_ET_C414
25	SXB3	MGW_SXB3_Main	25	ET-C41	MGW_ET_C414	25	ET-C41	MGW_ET_C414
26	SXB3	MGW_SXB3_Main	26	ET-C41	MGW_ET_C414	26	ET-C41	MGW_ET_C414
27	ET-MC1	MGW_ET_MC1	27	SXB3	MGW_SXB3_Device	27	SXB3	MGW_SXB3_Device

73	BoardType	SwAllocation	89	BoardType	SwAllocation	97	BoardType	SwAllocation
00	SCB3	MGW_SCB3	00	SCB3	MGW_SCB3	00	SCB3	MGW_SCB3
01	SCB3	MGW_SCB3	01	SCB3	MGW_SCB3	01	SCB3	MGW_SCB3
02	GPB53	MGW_MOD_GPB_02	02	GPB53	MGW_MOD_GPB_02	02	ET-M4	MGW_ET_M4
03	GPB53	MGW_MOD_GPB_03	03	GPB53	MGW_MOD_GPB_03	03	ET-M4	MGW_ET_M4
04	MSB3	MGW_MSB3_Profile_11	04	MSB3	MGW_MSB3_Profile_11	04	ET-M4	MGW_ET_M4
05	MSB3	MGW_MSB3_Profile_11	05	MSB3	MGW_MSB3_Profile_11	05	ET-M4	MGW_ET_M4
06	MSB3	MGW_MSB3_Profile_8	06	MSB3	MGW_MSB3_Profile_8	06	ET-M4	MGW_ET_M4
07	MSB3	MGW_MSB3_Profile_3	07	MSB3	MGW_MSB3_Profile_3	07	ET-M4	MGW_ET_M4
08	MSB3	MGW_MSB3_Profile_3	08	MSB3	MGW_MSB3_Profile_3	08	ET-M4	MGW_ET_M4
09	MSB3	MGW_MSB3_Profile_3	09	MSB3	MGW_MSB3_Profile_3	09	ET-M4	MGW_ET_M4
10	MSB3	MGW_MSB3_Profile_3	10	MSB3	MGW_MSB3_Profile_3	10	ET-M4	MGW_ET_M4
11	MSB3	MGW_MSB3_Profile_3	11	MSB3	MGW_MSB3_Profile_3	11	ET-M4	MGW_ET_M4
12	MSB3	MGW_MSB3_Profile_3	12	MSB3	MGW_MSB3_Profile_3			
13	MSB3	MGW_MSB3_Profile_8	13	MSB3	MGW_MSB3_Profile_8			
14	MSB3	MGW_MSB3_Profile_3	14	MSB3	MGW_MSB3_Profile_3			
15	MSB3	MGW_MSB3_Profile_3	15	MSB3	MGW_MSB3_Profile_3	15	ET-MC1	MGW_ET_MC1
16	MSB3	MGW_MSB3_Profile_10	16	MSB3	MGW_MSB3_Profile_10	16	ET-MC1	MGW_ET_MC1
17	MSB3	MGW_MSB3_Profile_10	17	MSB3	MGW_MSB3_Profile_10	17	ET-MC41	MGW_ET_MC41
18	MSB3	MGW_MSB3_Profile_10	18	MSB3	MGW_MSB3_Profile_10			
19	ET-MFG	MGW_ET_MFG	19	ET-MFG	MGW_ET_MFG	19	ET-MC41	MGW_ET_MC41
20	ET-MFG	MGW_ET_MFG	20	ET-MFG	MGW_ET_MFG			
21	ET-M4	MGW_ET_M4	21	ET-M4	MGW_ET_M4	21	ET-MC41	MGW_ET_MC41
22	ET-M4	MGW_ET_M4	22	ET-M4	MGW_ET_M4			
23	ET-M4	MGW_ET_M4	23	ET-M4	MGW_ET_M4	23	ET-MC41	MGW_ET_MC41
24	ET-C41	MGW_ET_C414	24	ET-C41	MGW_ET_C414			
25	ET-C41	MGW_ET_C414	25	ET-C41	MGW_ET_C414	25	ET-C41	MGW_ET_C414
26	ET-C41	MGW_ET_C414	26	ET-C41	MGW_ET_C414	26	ET-C41	MGW_ET_C414
27	SXB3	MGW_SXB3_Device	27	SXB3	MGW_SXB3_Device	27	SXB3	MGW_SXB3_Device

6 COLI COMMANDS

6.1 COLI help

RNC11> ?

Trying password from ipdatabase file: /home/eanzmagn/moshell_sitefiles/ipdatabase...

Command	Syntax	Description
.	. <command-file>	execute commands from file
?	? [<command> ...]	print syntax and descr. of commands

CentralRnh_pm_counter_disable CentralRnh_pm_counter_disable <one or more counterIds> disable trace for one or more counterIds in this load module. The counterIds are either integer values or symbolic counter names (as defined in roamIfPmCounter.h) separated by blank or tab. Counter names will be matched using substring matching so e.g the name ROAM_UTRANCELL will match all counters defined for this MO

CentralRnh_pm_counter_disableall CentralRnh_pm_counter_disableall disable trace for all counterIds in this load module
...<cut>...

RNC11> lhsh 001400 ?

Command	Syntax	Description
.	. <command-file>	execute commands from file
?	? [<command> ...]	print syntax and descr. of commands

Cell_pm_counter_disable Cell_pm_counter_disable <one or more counterIds> disable trace for one or more counterIds in this load module. The counterIds are either integer values or symbolic counter names (as defined in roamIfPmCounter.h) separated by blank or tab. Counter names will be matched using substring matching so e.g the name ROAM_UTRANCELL will match all counters defined for this MO

Cell_pm_counter_disableall Cell_pm_counter_disableall disable trace for all counterIds in this load module

Cell_pm_counter_enable Cell_pm_counter_enable <one or more counterIds> enable trace for one or more counterIds in this load module. The counterIds are either integer values or symbolic counter names (as defined in roamIfPmCounter.h) separated by blank or tab. Counter names will be matched using substring matching so e.g the name ROAM_UTRANCELL will match all counters defined for this MO

Cell_pm_counter_enableall Cell_pm_counter_enableall enable trace for all counterIds in this load module

Cell_pm_counter_enabled Cell_pm_counter_enabled print each enabled counterId (or the string "all" if all are enabled)

Cell_pm_counter_print Cell_pm_counter_print <zero or more counterIds> print all counter names that match the specified counterIds.
The counterId
.....<cut>.....

RNC11> lhsh 001400 te log read

\$ lhsh 001400 te log read

```
[2010-01-13 06:00:47.612] Sys_Spas_plane_proc asccconfiguration.c:1200 INFO:SPAS_AC: asccB port is configured.
[2010-01-13 06:00:47.632] Sys_Spas_id_proc id.c:1744 INFO:SPAS resources found 1 SAI, 0 CORE, 4 ISL
[2010-01-13 06:00:47.640] Sys_Spas_id_proc id.c:1858 INFO:Board type SXB3 revision R1B
[2010-01-13 06:00:47.640] Sys_Spas_id_proc id.c:1949 INFO:SMN is [0]
[2010-01-13 06:00:48.188] Sys_Osa_Ntp_Manager_proc ntpstart.c:1177 INFO:NTP Mgr process ID =x10039
```

```

[2010-01-13 06:00:48.192] Sys_Osa_Ntp_Manager_proc ntpstart.c:2485 INFO:NTP not synchronized
[2010-01-13 06:00:48.192] Cls_lcim_proc lcim.c:340 INFO:LCIM: No CIM Pid received from NS (GetServicePidRequest), retrying
[2010-01-13 06:00:50.308] Sys_Osa_clkDistr_proc systemclock.c:1624 INFO:RTC panic set
[2010-01-13 06:00:50.308] Sys_Osa_clkDistr_proc systemclock.c:1326 INFO:Notify Time Change sent. New time 2010-1-13 6:0:51 Old
time 2010-1-13 6:0:50
[2010-01-13 06:00:50.308] Sys_Osa_clkDistr_proc systemclock.c:1697 INFO:Correct time received from server, timePair0se.seconds =
1263362450 timePairNew.seconds = 1263362451
[2010-01-13 06:00:53.764] Nss_sdiBp_proc nss_sdibp.c:1185 INFO:PROCESS started: Nss_sdiBp_proc
[2010-01-13 06:00:53.996] Nss_syciSsiBp_proc nss_sycissibp.c:1446 INFO:Nss_syciSsiBp_proc: STARTED
[2010-01-13 06:00:54.012] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:54.012] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:54.012] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:54.036] cello_temi_service_proc tem_server.c:1598 INFO:number of expected temi-clients: 3
[2010-01-13 06:00:54.072] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:56.932] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:57.160] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:57.204] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:57.428] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:00:59.388] Cls_lcim_proc lcim.c:355 INFO:LCIM: Pid received from NS (GetServicePidRequest)
[2010-01-13 06:00:59.588] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:00.016] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:00.176] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:00.644] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.472] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.528] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.532] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.560] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.624] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.756] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:04.780] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:05.944] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.044] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.112] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.188] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.196] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.332] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.720] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.776] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.940] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:06.996] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:07.868] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:08.532] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:08.552] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:08.768] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:08.788] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A

```

```

[2010-01-13 06:01:11.572] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:11.636] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:11.656] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:11.804] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:11.884] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:13.852] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:13.936] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:14.052] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:24.944] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:25.076] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:01:58.328] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-13 06:36:13.048] Cls_atmPdr_proc atmpdrmxfunc.c:2753 INFO:Lost contact with smn: 0 apn: 3
[2010-01-18 05:52:09.740] Sys_Osa_clkDistr_proc systemclock.c:1697 INFO:Correct time received from server, timePair0se.seconds =
1263793929 timePairNew.seconds = 6619136
[2010-01-19 05:56:36.156] Cs_boardManager_proc osa_board_mgr.c:2837 INFO:Start of @(#)CXC1322250 R61HH10 2009-08-31 16:35:20 MEST
868a2602-122e9c28-0656 (dbm2_cs_basi)
[2010-01-19 05:56:36.552] Sys_Spas_hwdrv_proc spicfunc.c:1186 INFO:Sili port reset enabled
[2010-01-19 05:56:36.704] Sys_Spas_hwdrv_proc hwdrv.c:1267 INFO:SPAS_HWDRV Soft Initialized
[2010-01-19 05:56:36.704] Sys_Spas_start_proc start.c:2066 INFO:Warm restart of SPAS done.
(SPIC soft init, ASCC_A soft init, ASCC_B soft init) Input TEMI: CELLO_TEMI_RESTART_WARM.
[2010-01-19 05:56:36.968] Sys_Spas_id_proc id.c:2054 INFO:APN is [14]
[2010-01-19 05:56:36.968] Sys_Spas_plane_proc planechangecontrol.c:1713 INFO:SPAS_PCC: active Plane B
[2010-01-19 05:56:36.968] Sys_Spas_plane_proc asccconfiguration.c:1175 INFO:SPAS_AC: asccA port is configured.
[2010-01-19 05:56:36.968] Sys_Spas_plane_proc asccconfiguration.c:1200 INFO:SPAS_AC: asccB port is configured.
[2010-01-19 05:56:36.988] Sys_Spas_id_proc id.c:1744 INFO:SPAS resources found 1 SAI, 0 CORE, 4 ISL
[2010-01-19 05:56:36.996] Sys_Spas_id_proc id.c:1858 INFO:Board type SXB3 revision R1B
[2010-01-19 05:56:37.200] Sys_Spas_id_proc id.c:1949 INFO:SMN is [0]
[2010-01-19 05:56:37.548] Sys_Osa_Ntp_Manager_proc ntpstart.c:1177 INFO:NTP Mgr process ID =x10039
[2010-01-19 05:56:37.560] Sys_Osa_Ntp_Manager_proc ntpstart.c:2485 INFO:NTP not synchronized
[2010-01-19 05:56:37.560] Cls_lcim_proc lcim.c:340 INFO:LCIM: No CIM Pid received from NS (GetServicePidRequest), retrying
[2010-01-19 05:56:43.096] Sys_Osa_clkDistr_proc systemclock.c:1624 INFO:RTC panic set
[2010-01-19 05:56:43.096] Sys_Osa_clkDistr_proc systemclock.c:1326 INFO:Notify Time Change sent. New time 2010-1-19 5:56:23 Old
time 2010-1-19 5:56:43
[2010-01-19 05:56:43.096] Sys_Osa_clkDistr_proc systemclock.c:1697 INFO:Correct time received from server, timePair0se.seconds =
1263880603 timePairNew.seconds = 1263880583
[2010-01-19 05:56:44.964] Nss_sdiBp_proc nss_sdibp.c:1185 INFO:PROCESS started: Nss_sdiBp_proc
[2010-01-19 05:56:45.004] Nss_syciSsiBp_proc nss_sycissibp.c:1446 INFO:Nss_syciSsiBp_proc: STARTED
[2010-01-19 05:56:26.952] cello_temi_service_proc tem_server.c:1598 INFO:number of expected temi-clients: 3
[2010-01-19 05:56:27.256] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : A
[2010-01-19 05:56:27.300] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.300] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.304] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.344] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.368] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.372] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int

```

```

[2010-01-19 05:56:27.376] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.380] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.384] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.388] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.388] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.512] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.516] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.520] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.524] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.528] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.532] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.536] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.540] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.544] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int
[2010-01-19 05:56:27.548] Sys_Spas_sync_proc sync.c:800 INFO:Clock status : (A:ok B:ok Int:ok ) selected : Int

```

Piping the output

```
RNC11> lhsh 001200 te log read | grep ERROR
```

```

[2006-09-06 15:45:00.928] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_PREDEF.PRIMARY.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [PREDEF.PRIMARY.STATS]. Proceeding with execution.
[2006-09-06 15:45:00.940] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.utrancell.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.utrancell.STATS]. Proceeding with
execution.
[2006-09-06 15:45:00.944] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.rncfunction.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.rncfunction.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.948] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.CchFrameSynch.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.CchFrameSynch.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.952] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.DchFrameSynch.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.DchFrameSynch.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.956] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.IurlLink.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [USERDEF.IurlLink.STATS]. Proceeding with execution.
[2006-09-06 15:45:00.980] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.LoadControl.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.LoadControl.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.984] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.UeRc.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [USERDEF.UeRc.STATS]. Proceeding with execution.

```

```
[2006-09-06 15:45:00.988] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.Gsmrelation.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.Gsmrelation.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.992] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.UtranRelation.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [USERDEF.UtranRelation.STATS]. Proceeding
with execution.
[2006-09-06 15:45:00.996] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.Paging.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [USERDEF.Paging.STATS]. Proceeding with execution.
[2006-09-06 15:45:01.000] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.LArea.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [USERDEF.LArea.STATS]. Proceeding with execution.
[2006-09-06 15:45:01.004] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_USERDEF.RArea.STATS PmStatInternalScanner$MoInstancesInfo:0
INFO:ERROR: Scanner not in finishedScanner list [USERDEF.RArea.STATS]. Proceeding with execution.
[2006-09-06 15:45:01.008] se.ericsson.wcdma.rnc.roam.roam_pmstat:Pms_PREDEF.SECONDARY.STATS
PmStatInternalScanner$MoInstancesInfo:0 INFO:ERROR: Scanner not in finishedScanner list [PREDEF.SECONDARY.STATS]. Proceeding with
execution.
```

```
RNC11> ls -l | sort +2n
```

```
$
$ ls -l
-rw-rw-rw- 0      3081  10 Jul 2006 12:44:43 Trace_01.prop
-rw-rw-rw- 0     11487  22 Dec 2005 08:08:55 CXC1321344_R50GN03      (pms.ppc750)
-rw-rw-rw- 0     18689  22 Dec 2005 08:08:22 CXC1320992_R50HF01      (aal2_adm.ppc)
-rw-rw-rw- 0     20072  11 Jan 2006 12:40:09 CXC1322165%12_R50HX01  (48vpowsup)
-rw-rw-rw- 0     20082  22 Dec 2005 08:10:16 CXC1322165%12_R50HC03  (48vpowsup)
-rw-rw-rw- 0     21217  11 Jan 2006 12:40:39 CXC1321407_R50HX01     (spas_link.pp)
-rw-rw-rw- 0     21225  22 Dec 2005 08:09:01 CXC1321407_R50HC03     (spas_link.pp)
.....< cut > .....
-rw-rw-rw- 0    1564295  22 Dec 2005 08:20:40 CXC1329863%2_R4G04     (RncLmDc)
-rw-rw-rw- 0    1564300  22 Dec 2005 08:20:57 CXC1329863%3_R4G04     (RncLmDc)
-rw-rw-rw- 0    1564639  11 Jan 2006 12:43:30 CXC1329863_R4J06      (RncLmDc)
-rw-rw-rw- 0    1564645  11 Jan 2006 12:43:39 CXC1329863%2_R4J06     (RncLmDc)
-rw-rw-rw- 0    1564667  19 Jan 2006 07:11:45 CXC1329863_R4J11      (RncLmDc)
-rw-rw-rw- 0    1564680  19 Jan 2006 07:11:55 CXC1329863%2_R4J11     (RncLmDc)
-rw-rw-rw- 0    1564692  19 Jan 2006 07:12:04 CXC1329863%3_R4J11     (RncLmDc)
-rw-rw-rw- 0    1564703  11 Jan 2006 12:43:48 CXC1329863%3_R4J06     (RncLmDc)
-rw-rw-rw- 0    1682531  11 Jan 2006 12:40:01 CXC1321447_R50HX06     (GpbBasic)
-rw-rw-rw- 0    1682571  22 Dec 2005 08:09:26 CXC1321447_R50HX04     (GpbBasic)
-rw-rw-rw- 0    3048154  22 Dec 2005 08:17:50 CXC1329856_R4G06      (RncLmCell)
-rw-rw-rw- 0    3049921  11 Jan 2006 12:42:10 CXC1329856_R4J08      (RncLmCell)
-rw-rw-rw- 0    3049923  19 Jan 2006 07:10:30 CXC1329856_R4J10      (RncLmCell)
-rw-rw-rw- 0    3396654  22 Dec 2005 08:19:57 CXC1329860_R4G02      (RncLmFro)
-rw-rw-rw- 0    3416818  11 Jan 2006 12:43:18 CXC1329860_R4J09      (RncLmFro)
-rw-rw-rw- 0    3417860  19 Jan 2006 07:11:35 CXC1329860_R4J10      (RncLmFro)
```

-rw-rw-rw-	0	6846040	22 Dec 2005 08:19:06	CXC1329857_R4G06	(RncLmUe)
-rw-rw-rw-	0	6848725	11 Jan 2006 12:42:54	CXC1329857_R4J08	(RncLmUe)
-rw-rw-rw-	0	6849049	19 Jan 2006 07:11:14	CXC1329857_R4J14	(RncLmUe)

More help

RNC11> h ose (or "h coli")

 <ose command> [|<unix command>] (type "h ose" for info)

Sends an ose command to the node, via telnet or ssh. (See chap 0.5 for info about secure shell.)
 The password is not required if it is defined in the ipdatabase (otherwise, the user will be prompted to enter the password).
 To find out all available ose commands, type "?" or "lhsh <lnh> ?"
 It is possible to pipe the command to any external utility. Examples:

```
>> ls -l /d/loadmodules | sort +2n (to sort LMs by size)
>> ps | grep CXC (useful to see what processes belong to what LM)
>> te log read | /home/eric/tools/decoder.pl | /home/eric/tools/flow.pl
>> lhsh 001400 te log read | grep -i error (to search for errors in the te log)
```

Several commands can be run on the same line by separating each command with a semicolon. Examples:

```
>> vii ; pwd ; cd /d/loadmodules ; pwd ; llog
>> lhsh 001100 ; vii ; te e trace1 NBAP*
>> lhsh 001400 ; te filter set "([1]<8 OR [1]>=9 AND LEN <> 33)" NBAP*
>> lhsh 001400 ; te filter set "[1]<> 8 AND [1] <> $12 AND [1] <> $14 AND [1] <> $11" NBAP*
```

Note that it is safer to do "lhsh <lnh> <command>" instead of "lhsh <lnh> ; command" in case the board is not reachable.
 Eg: if you want to format /d on board 001400: if you do "lhsh 001400 ; formathd /d" and the board 001400 is not reachable then the command is sent to the Hub MP whereas with the command "lhsh 001400 formathd /d", if the board 001400 is not reachable then the command is not sent at all.

To run sql commands use one of the following syntax examples:

```
>> sqlc ; select * from tables
>> sql select * from tables
>> sql select * from tables where name like '%iur%' ;
>> sql select * from cspgmresource_01 where pno='CXC 132 0784';
>> sql update cspgmresource_01 set poolsize=20000000 where pno='CXC 132 0784'; commit;
```

To run corben commands use one of the following syntax examples:

```
>> corben ; ts ; statistics
>> corben ts ; corben statistics
```

To run loco commands use one of the following syntax examples:

```
>> loco ; ts ; ls
>> loco ts ; loco ls
```

Note: the "ts" command (stands for "termset") is for redirecting the printout to the telnet/ssh session instead of the serial port.

To run 3gsim commands use the following syntax:

```
>> 3gsim lb
```

```
>> 3gsim lss
To change the COLI password, use the following syntax:
>> passwd ; <new password>
To change security level (CPP5.1), use the following syntax:
>> secmode -l 2 ; <password>
To run against an AXE node, no need for semicolons, eg:
>> allip
>> rxmsp:mo=rxotg-17,subord
>> rxbli:mo=rxotrx-17-1 (command will be auto-confirmed)
Limitations: it is not possible to release the terminal in order to view "ordered" printouts.
```

6.2 File handling commands

Navigating through the directories on the node

```
RNC11> cd /d/configuration/cv
```

```
$ cd /d/configuration/cv
$
```

```
RNC11> pwd
```

```
$ pwd
/d/configuration/cv/
$
```

```
RNC11> cd ../../loadmodules
```

```
$ cd ../../loadmodules
$
```

```
RNC11> pwd
```

```
$ pwd
/d/loadmodules/
$
```

Navigating through the directories on the workstation

```
RNC11> l pwd
```

```
/home/eanzmagn
```

```
RNC11> l cd moshell_logfiles/
```

```
New directory: /home/eanzmagn/moshell_logfiles
```

```
RNC11> l pwd
```

```
/home/eanzmagn/moshell_logfiles
```

Listing of a directory on the node, one level at a time

```
MGW3> ls -l /c/logfiles
```

```
$ ls -l /c/logfiles
```

```
Directory '/c/logfiles'
```

```
drwxrwxrwx  0      512  1 Jan 1970 00:58:41 systemlog/  
drwxrwxrwx  0      512  1 Jan 1970 01:39:37 logattributes/  
drwxrwxrwx  0      512  1 Jan 1970 01:39:37 cello/  
$
```

Recursive listing of a directory on the node

```
MGW1> h ftree
```

```
*****
```

```
ftree[f] [<lnh>/][<directory>] [| <unix-command>]
```

```
*****
```

Recursive listing of a directory on the node's file system (equivalent to “find <dir> -ls” in unix).

```
MGW1> ftree /c/logfiles
```

```
                                     /c/logfiles/  
  
drwxrwxrwx  512      1 Jan 1970 01:37:05 /c/logfiles/availability/  
-rw-rw-rw- 1294489 25 Mar 2009 12:05:55 /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml  
  
drwxrwxrwx  512      12 Mar 2009 12:05:16 /c/logfiles/alarm_event/  
-rw-rw-rw- 342934 25 Mar 2009 13:23:59 /c/logfiles/alarm_event/ALARM_LOG.xml  
-rw-rw-rw- 3365    12 Mar 2009 12:06:10 /c/logfiles/alarm_event/EVENT_LOG.xml
```

```

drwxrwxrwx 512      1 Jan 1970 01:36:59 /c/logfiles/security/
-rw-rw-rw- 102370   25 Mar 2009 14:05:54 /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml

drwxrwxrwx 1024     24 Mar 2009 08:48:34 /c/logfiles/audit_trail/
-rw-rw-rw- 3145695  13 Sep 2007 10:36:47 /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml
-rw-rw-rw- 966251   16 Oct 2008 11:52:27 /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml
-rw-rw-rw- 307345   24 Mar 2009 08:47:19 /c/logfiles/audit_trail/T821137428_SHELL_AUDITTRAIL_LOG_20090324T084719.push
-rw-rw-rw- 136174   25 Mar 2009 14:05:55 /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml
-rw-rw-rw- 307481   11 Mar 2009 22:12:15 /c/logfiles/audit_trail/T821137428_CORBA_AUDITTRAIL_LOG_20090311T221216.push
-rw-rw-rw- 174120   24 Mar 2009 22:11:49 /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml

drwxrwxrwx 512      1 Jan 1970 00:47:01 /c/logfiles/systemlog/
-rw-rw-rw- 292801   12 Mar 2009 12:05:09 /c/logfiles/systemlog/00000syslog

```

Show only the files and not the directories:

MGW1> ftrees /c/logfiles

```

-rw-rw-rw- 1294489   25 Mar 2009 12:05:55 /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml
-rw-rw-rw- 342934    25 Mar 2009 13:23:59 /c/logfiles/alarm_event/ALARM_LOG.xml
-rw-rw-rw- 3365      12 Mar 2009 12:06:10 /c/logfiles/alarm_event/EVENT_LOG.xml
-rw-rw-rw- 102370    25 Mar 2009 14:06:07 /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml
-rw-rw-rw- 3145695   13 Sep 2007 10:36:47 /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml
-rw-rw-rw- 966251   16 Oct 2008 11:52:27 /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml
-rw-rw-rw- 307345   24 Mar 2009 08:47:19 /c/logfiles/audit_trail/T821137428_SHELL_AUDITTRAIL_LOG_20090324T084719.push
-rw-rw-rw- 141963    25 Mar 2009 14:06:09 /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml
-rw-rw-rw- 307481    11 Mar 2009 22:12:15 /c/logfiles/audit_trail/T821137428_CORBA_AUDITTRAIL_LOG_20090311T221216.push
-rw-rw-rw- 174120    24 Mar 2009 22:11:49 /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml
-rw-rw-rw- 292801    12 Mar 2009 12:05:09 /c/logfiles/systemlog/00000syslog

```

Show files in order of file size:

MGW1> ftrees /c/logfiles | sort +ln

```

-rw-rw-rw- 3365      12 Mar 2009 12:06:10 /c/logfiles/alarm_event/EVENT_LOG.xml
-rw-rw-rw- 102370    25 Mar 2009 14:06:55 /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml
-rw-rw-rw- 151633    25 Mar 2009 14:06:57 /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml
-rw-rw-rw- 174120    24 Mar 2009 22:11:49 /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml
-rw-rw-rw- 292801    12 Mar 2009 12:05:09 /c/logfiles/systemlog/00000syslog
-rw-rw-rw- 307345    24 Mar 2009 08:47:19 /c/logfiles/audit_trail/T821137428_SHELL_AUDITTRAIL_LOG_20090324T084719.push
-rw-rw-rw- 307481    11 Mar 2009 22:12:15 /c/logfiles/audit_trail/T821137428_CORBA_AUDITTRAIL_LOG_20090311T221216.push
-rw-rw-rw- 342934    25 Mar 2009 13:23:59 /c/logfiles/alarm_event/ALARM_LOG.xml

```

```
-rw-rw-rw- 966251    16 Oct 2008 11:52:27 /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml
-rw-rw-rw- 1294489   25 Mar 2009 12:05:55 /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml
-rw-rw-rw- 3145695   13 Sep 2007 10:36:47 /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml
```

Show files stored in a folder on a different board:

MGW1> ftree 000400/f

```
000400!/f/
-rw-rw-rw- 116      14 Sep 2007 13:22:11 000400!/f/tu_flash_information
-rw-rw-rw- 78756    23 Jan 2007 12:45:55 000400!/f/tu_fpga_loadmodule
drwxrwxrwx 512      1 Jan 1970 00:25:45 000400!/f/fpga_load_files/
```

Recursive listing of a directory on the workstation

RNC11> ftree moshell/examples/

```
find moshell/examples -ls | LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk -v what= '{if (what~/f/&&$3~/^d/) next;printf("%-10s %-14s %-10s %-3s %-2s %-5s %s\n",$3,$5,($3~/^d/?"-":$7),$8,$9,$10,$11)}'
```

```
drwxr-xr-x eanzmagn      - May 7 2007 moshell/examples
drwxr-xr-x eanzmagn      - Jan 14 12:30 moshell/examples/audit_files
-rwxr-xr-x eanzmagn      57125 Jul 17 2003 moshell/examples/audit_files/CDR_celldata.txt
-rwxr-xr-x eanzmagn     259072 Jan 9 2006 moshell/examples/audit_files/CDR_ExcelFormat.xls
-rwxr-xr-x eanzmagn      13695 Jul 17 2003 moshell/examples/audit_files/CDR_utranrelations.txt
-rwxr-xr-x eanzmagn      61440 Feb 20 11:06 moshell/examples/audit_files/EAB_FJW-08_0071.doc
drwxr-xr-x eanzmagn      - May 7 2007 moshell/examples/mobatch_files
-rwxr-xr-x eanzmagn      1278 Oct 16 2003 moshell/examples/mobatch_files/commandfile
-rwxr-xr-x eanzmagn     45685 Jan 14 21:58 moshell/examples/mobatch_files/ipdatabase
-rwxr-xr-x eanzmagn       802 May 7 2007 moshell/examples/mobatch_files/sitefile
drwxr-xr-x eanzmagn      - May 7 2007 moshell/examples/netcheck_swup_cvms
drwxr-xr-x eanzmagn      - May 7 2007 moshell/examples/netcheck_swup_cvms/cvms_file
-rwxr-xr-x eanzmagn      372 Jun 11 2003 moshell/examples/netcheck_swup_cvms/cvms_file/swversions
```

Copy files, rename files

Same commands as in unix: cp, mv
For recursive copy, use rcp <folder>

MGW1> ? cp

```
$ ? cp
cp <source> ... <destination>  copy files
$
```

```
MGW1> ? mv
```

```
$ ? mv
mv <source> ... <destination>  rename/move files
$
```

```
MGW1> ? rcp
```

```
$ ? rcp
rcp [-p <linkhandler>] <source> ... <target> Copy files or directory to remote local volumes
$
```

Delete files and directories

```
rm <file>          ---> to remove a single file

rmdir <directory>  ---> to remove an empty folder

fclean <directory> ---> to remove the contents of a folder

fclean -f <file-filter> <directory> ---> to remove files in a folder
```

Example:

```
>> fclean /c/pmd          --> remove all files in the folder /c/pmd

>> fclean 000400/f        --> remove all files in the folder /f on board 000400

>> fclean /c/tmp -f cmd    --> remove all files in the folder /c/tmp whose name match the string "cmd"
```

```
MGW1> h fclean
```

```
OFFLINE> h fclean
```

```
*****
fclean[f|ff|a|d|e] [<lnh>/][<directory>] [-f <filename-filter>]
*****
```

Removal of obsolete loadmodules OR recursive removal of a directory on the node.

...<cut>..

MGW1> ? rm

\$? rm

rm [-f] <filename> ... remove files.

rmdir [-f] <directory> ... remove (empty) directories

File transfer with ftp/sftp

RNC11> uv secure_ftp

secure_ftp = 0

RNC11> h ftget

ftget[c]/ftput[c]/ftdel [<options>] <source> [<destination>]

Transfer files or directories to/from the node, using ftp or sftp.

...<cut>....

Download the whole folder

RNC11> ftget /c/logfiles

...

get /c/logfiles/availability/CELLO_AVAILABILITY2_LOG.xml ./logfiles/availability/CELLO_AVAILABILITY2_LOG.xml ... OK

get /c/logfiles/alarm_event/ALARM_LOG.xml ./logfiles/alarm_event/ALARM_LOG.xml ... OK

get /c/logfiles/alarm_event/EVENT_LOG.xml ./logfiles/alarm_event/EVENT_LOG.xml ... OK

get /c/logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml ./logfiles/hw_inventory/CELLO_HWINVENTORY_LOG.xml ... OK

get /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml ./logfiles/security/CELLO_SECURITYEVENT_LOG.xml ... OK

get /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml ... OK

get /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml ./logfiles/audit_trail/AUDIT_TRAIL_LOG.xml ... OK

get /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ... OK

get /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml ... OK

get /c/logfiles/systemlog/00000syslog ./logfiles/systemlog/00000syslog ... OK

get /c/logfiles/systemlog/00001syslog ./logfiles/systemlog/00001syslog ... OK

Download only the files whose name match a specific string

```
RNC11> ftget -f AUDIT /c/logfiles
```

```
...
get /c/logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/CELLO_AUDITTRAIL_LOG.xml ... OK
get /c/logfiles/audit_trail/AUDIT_TRAIL_LOG.xml ./logfiles/audit_trail/AUDIT_TRAIL_LOG.xml ... OK
get /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ... OK
get /c/logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/CORBA_AUDITTRAIL_LOG.xml ... OK
```

Conditional download, existing files will not be overwritten

```
RNC11> ftgetc -f AUDIT /c/logfiles
```

```
...
RNC11>
```

Fetch files modified in the past 3 hours:

```
RNC11> ftget -m 3h /c/logfiles
```

```
Startdate=20081104.115542, Enddate=20081105.145542
```

```
...
get /c/logfiles/security/CELLO_SECURITYEVENT_LOG.xml ./logfiles/security/CELLO_SECURITYEVENT_LOG.xml ... OK
get /c/logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ./logfiles/audit_trail/SHELL_AUDITTRAIL_LOG.xml ... OK
RNC11>
```

Delete files in /c/tmp older than 1 day:

```
RNC11> ftdel -m 9999 -p 9998 /c/tmp
```

Delete files in /p001200/pm_data older than 7 days and whose name matches "lnk":

```
RNC11> ftdel -m 9999 -p 9992 -f lnk /p001200/pm_data
```

6.3 Using board groups

MGW

MGW1> bp

Board-Group	Nr of Boards
aal2ap	4
aal2cpsrc	5
aal2ncc	8
aal2nccadm	2
all	71
allp	71
bp	50
ch	3
confmgr	2
coremp	2
et	21
gra	6
imra	3
licdb	2
mesc	3
mp	21
msb	15
msb3	15
mtp2mp	11
ommp	2
raa	3
sccmp	4
sctmp	6
scx	12
ss7mp	17
stc	2
tu	2

Total: 27 groups

MGW1> bp all

Board	BoardType	SwAllocation	BoardGroups
000000	SCB3	MGW_SCB	all allp bp scx
000100	SCB3	MGW_SCB	all allp bp scx
000200	GPB40	MGW_MS_GPB_02	aal2nccadm all allp coremp mp
000300	GPB40	MGW_MS_GPB_03	aal2nccadm all allp coremp mp
000400	TUB	MGW_TUB	all allp bp tu

000500	TUB	MGW_TUB	all allp bp tu
000600	GPB40	MGW_MS_GPB_06	aal2ap aal2cpsrc all allp mp omp
000700	GPB40	MGW_MS_GPB_07	aal2ap aal2cpsrc all allp mp omp
000800	GPB40	MGW_MS_GPB_08	all allp mp mtp2mp sccpmp sctpmp ss7mp
000900	GPB40	MGW_MS_GPB_09	aal2cpsrc all allp mp mtp2mp sccpmp sctpmp ss7mp
001000	GPB40	MGW_MS_GPB_10	aal2ncc all allp confmgr mp sctpmp ss7mp
001100	GPB40	MGW_MS_GPB_11	aal2ncc all allp confmgr mp sctpmp ss7mp
001200	GPB40	MGW_MS_GPB_12	aal2ap aal2cpsrc all allp mp mtp2mp sccpmp sctpmp ss7mp
001300	GPB40	MGW_MS_GPB_13	aal2ap aal2cpsrc all allp mp mtp2mp sccpmp sctpmp ss7mp
001700	SXB3	MGW_SXB_Main	all allp bp scx
001800	SXB3	MGW_SXB_Main	all allp bp scx
001900	SXB3	MGW_SXB_Main	all allp bp scx
002000	SXB3	MGW_SXB_Main	all allp bp scx
002400	GPB40	MGW_MS_GPB_24	aal2ncc all allp ch licdb mp ss7mp
002500	GPB40	MGW_MS_GPB_25	aal2ncc all allp gra imra mesc mp raa ss7mp stc
002600	GPB40	MGW_MS_GPB_26	all allp ch mp mtp2mp ss7mp
002700	GPB40	MGW_MS_GPB_27	all allp ch licdb mp mtp2mp ss7mp stc
010000	SCB3	MGW_SCB	all allp bp scx
010100	SCB3	MGW_SCB	all allp bp scx
010200	GPB40	MGW_ATMIP_GPB_02	aal2ncc all allp gra mp mtp2mp ss7mp
010300	GPB40	MGW_ATMIP_GPB_03	aal2ncc all allp gra mp mtp2mp ss7mp
010400	ET-M4	MGW_ET_M4	all allp bp et
010500	ET-M4	MGW_ET_M4	all allp bp et
010600	ET-M4	MGW_ET_M4	all allp bp et
010700	ET-M4	MGW_ET_M4	all allp bp et
010800	ET-M4	MGW_ET_M4	all allp bp et
010900	ET-M4	MGW_ET_M4	all allp bp et
011000	ET-M4	MGW_ET_M4	all allp bp et
011100	ET-M4	MGW_ET_M4	all allp bp et
011200	ET-M4	MGW_ET_M4	all allp bp et
011300	ET-M4	MGW_ET_M4	all allp bp et
011400	ET-M4	MGW_ET_M4	all allp bp et
011500	ET-M4	MGW_ET_M4	all allp bp et
011600	ET-M4	MGW_ET_M4	all allp bp et
011700	ET-M4	MGW_ET_M4	all allp bp et
011800	ET-M4	MGW_ET_M4	all allp bp et
012100	ET-MC41	MGW_ET_MC41	all allp bp et
012300	ET-MC41	MGW_ET_MC41	all allp bp et
012500	ET-MC1	MGW_ET_MC1	all allp bp et
012600	ET-MC1	MGW_ET_MC1	all allp bp et
012700	SXB3	MGW_SXB_Device	all allp bp scx
730000	SCB3	MGW_SCB	all allp bp scx
730100	SCB3	MGW_SCB	all allp bp scx
730200	GPB40	MGW_MSE_GPB_02	all allp gra imra mp mtp2mp ss7mp
730300	GPB40	MGW_MSE_GPB_03	all allp gra imra mp mtp2mp ss7mp

730400	GPB40	MGW_MSE_GPB_04	all allp gra mp mtp2mp ss7mp
730500	GPB40	MGW_MSE_GPB_05	aal2ncc all allp mesc mp raa ss7mp
730600	GPB40	MGW_MSE_GPB_06	aal2ncc all allp mesc mp raa ss7mp
730700	MSB3	MGW_MSB3_Profile_16	all allp bp msb msb3
730800	MSB3	MGW_MSB3_Profile_16	all allp bp msb msb3
730900	MSB3	MGW_MSB3_Profile_13	all allp bp msb msb3
731000	MSB3	MGW_MSB3_Profile_13	all allp bp msb msb3
731100	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731200	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731300	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731400	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731500	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731600	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731700	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731800	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
731900	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
732000	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
732100	MSB3	MGW_MSB3_Profile_3	all allp bp msb msb3
732300	ET-MC41	MGW_ET_MC41	all allp bp et
732500	ET-MC41	MGW_ET_MC41	all allp bp et
732700	SXB3	MGW_SXB_Device	all allp bp scx

=====
Total: 71 boards

MGW1> bp gra

Board	BoardType	SwAllocation	BoardGroups
002500	GPB40	MGW_MS_GPB_25	aal2ncc all allp gra imra mesc mp raa ss7mp stc
010200	GPB40	MGW_ATMIP_GPB_02	aal2ncc all allp gra mp mtp2mp ss7mp
010300	GPB40	MGW_ATMIP_GPB_03	aal2ncc all allp gra mp mtp2mp ss7mp
730200	GPB40	MGW_MSE_GPB_02	all allp gra imra mp mtp2mp ss7mp
730300	GPB40	MGW_MSE_GPB_03	all allp gra imra mp mtp2mp ss7mp
730400	GPB40	MGW_MSE_GPB_04	all allp gra mp mtp2mp ss7mp

=====
Total: 6 boards

MGW1> bp mesc

Board	BoardType	SwAllocation	BoardGroups
002500	GPB40	MGW_MS_GPB_25	aal2ncc all allp gra imra mesc mp raa ss7mp stc
730500	GPB40	MGW_MSE_GPB_05	aal2ncc all allp mesc mp raa ss7mp

```
730600  GPB40                MGW_MSE_GPB_06                aal2ncc all allp mesc mp raa ss7mp
```

```
=====
```

Total: 3 boards

MGW1> bp raa

```
=====
```

Board	BoardType	SwAllocation	BoardGroups
002500	GPB40	MGW_MS_GPB_25	aal2ncc all allp gra imra mesc mp raa ss7mp stc
730500	GPB40	MGW_MSE_GPB_05	aal2ncc all allp mesc mp raa ss7mp
730600	GPB40	MGW_MSE_GPB_06	aal2ncc all allp mesc mp raa ss7mp

```
=====
```

Total: 3 boards

MGW1> bp licdb

```
=====
```

Board	BoardType	SwAllocation	BoardGroups
002400	GPB40	MGW_MS_GPB_24	aal2ncc all allp ch licdb mp ss7mp
002700	GPB40	MGW_MS_GPB_27	all allp ch licdb mp mtp2mp ss7mp stc

```
=====
```

Total: 2 boards

MGW1> bp confmgr

```
=====
```

Board	BoardType	SwAllocation	BoardGroups
001000	GPB40	MGW_MS_GPB_10	aal2ncc all allp confmgr mp sctmp ss7mp
001100	GPB40	MGW_MS_GPB_11	aal2ncc all allp confmgr mp sctmp ss7mp

```
=====
```

Total: 2 boards

MGW1> lh all te log read | grep ERROR

```
0004: [2006-06-07 16:26:42.052] Nss_tuControl_proc nss_tu_control_smAny.c:1137 ERROR:Unexpected signal 639489 received from Nss_tuDlRegu_proc
0004: [2006-06-07 16:26:42.052] Nss_tuControl_proc nss_tu_control.c:290 CHECK:ERROR STATUS
0004: [2006-06-07 16:26:42.052] Nss_tuControl_proc nss_tu_control.c:294 ERROR:Unexpected error occured, further investigation needed.
0004: [2006-06-08 10:22:02.316] Nss_tuControl_proc nss_tu_control_smAny.c:1137 ERROR:Unexpected signal 639489 received from Nss_tuDlRegu_proc
```

```

etc..
0016: [2006-07-08 22:48:15.996] uehUeCtxtC[1754] ../src/UehUeCtxtC.cpp:23484 ERROR:Timeout on Procedure Execution Timer for
procedure : PROC 10: Soft Handover
0016: [2006-07-08 22:48:15.996] UehSoftHoC[109] ../src/target/Cello/RTActor/badMessage.cc:196
ERROR:uehProcedures(109)@waitCellParams received unexpected message: uehUeCtxtAsynchIndicP%asynch_unknownSigInd data: void
0016: [2006-07-08 22:48:16.040] uehUeCtxtC[1755] ../src/UehUeCtxtC.cpp:23484 ERROR:Timeout on Procedure Execution Timer for
procedure : PROC 10: Soft Handover
0016: [2006-07-08 22:48:16.040] UehSoftHoC[110] ../src/target/Cello/RTActor/badMessage.cc:196
ERROR:uehProcedures(110)@waitCellParams received unexpected message: uehUeCtxtAsynchIndicP%asynch_unknownSigInd data: void
0016: [2006-07-08 22:48:16.360] uehUeCtxtC[1759] ../src/UehUeCtxtC.cpp:23484 ERROR:Timeout on Procedure Execution Timer for
procedure : PROC 10: Soft Handover
0016: [2006-07-08 22:48:16.360] UehSoftHoC[107] ../src/target/Cello/RTActor/badMessage.cc:196
ERROR:uehProcedures(107)@waitCellParams received unexpected message: uehUeCtxtAsynchIndicP%asynch_unknownSigInd data: void
0019: [2006-07-07 20:26:36.316] spp_supervisor_ro sp_supervisor_ro.cc:418 ERROR:Unknown signal 0x0 received from pid 0x10102
0019: [2006-07-08 22:46:27.508] spp_supervisor_ro sp_supervisor_ro.cc:418 ERROR:Unknown signal 0x2000e received from pid 0x10103

```

```

MGW1> lh mesc mesc_info_fpip -stat | grep 'in use'

```

```

0025:   Number of Ctxs in use:           0
0025:   Number of Ctxs not in use:       5700
7305:   Number of Ctxs in use:           0
7305:   Number of Ctxs not in use:       5700
7306:   Number of Ctxs in use:           0
7306:   Number of Ctxs not in use:       5700

```

```

MGW1> lh mesc mesc_counters -all

```

```

=====
$ lhsh 002500 mesc_counters -all
0025: mesc_counters: Time=Wed Mar 25 14:02:05 2009
0025: mesc_counters: Command not accessable because Mesc is in Passive state:
=====

```

```

$ lhsh 730500 mesc_counters -all
7305: mesc_counters: Time=Wed Mar 25 14:02:05 2009
7305: mesc_counters output:
7305: mesc_counters: Mesc specific data for mescId 1:
7305: mesc_counters: -----
7305: mesc_counters: mescId                      = 1
7305: mesc_counters: rpuId                        = 73
7305: mesc_counters: Emergency reject                counter = 0
7305: mesc_counters: Emergency request              counter = 0
7305: mesc_counters: NrOfChangedCdvtSpeechToDataValue counter = 0
7305: mesc_counters: NrOfChangedCdvtDataToSpeechValue counter = 0
...<cut>...

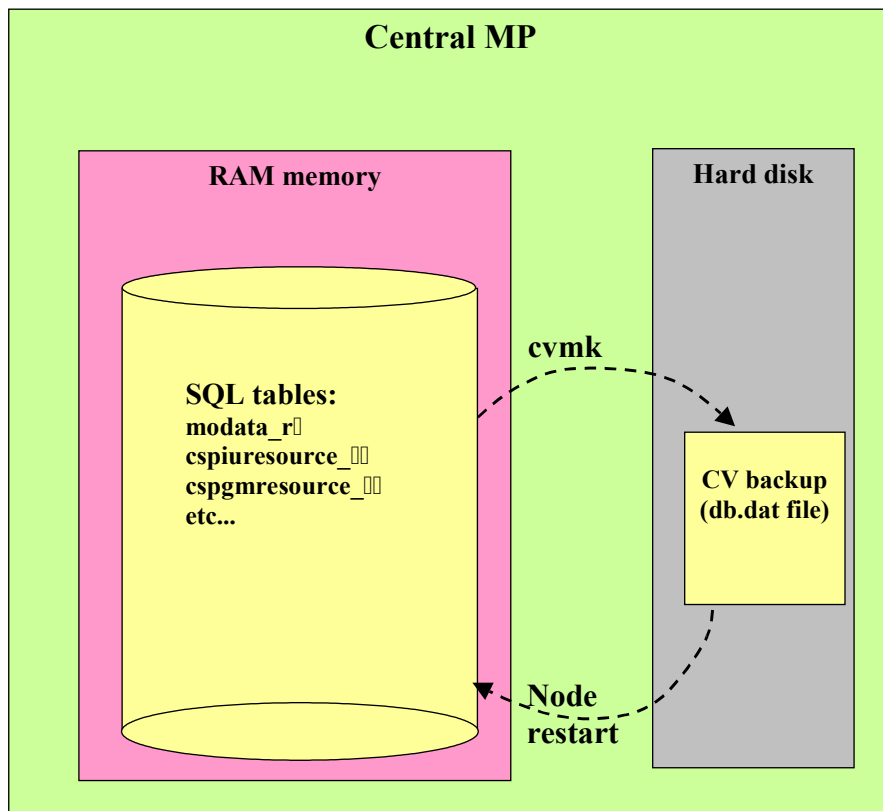
```

Note: refer to the command file of the dcg command (moshell/commonjars/scripts/dcg_datacollection.mos) for more examples of lh commands.

7 SW MANAGEMENT COMMANDS

7.1 Configuration Version Handling

The configuration data is kept in a SQL database in the RAM memory. It can be backed up and reloaded to/from a db.dat file on the harddisk. This is called a CV and consists of several files but the main one is the db.dat file.



7.1.1 CV files and folders

/d/configuration/cv contains all the configuration versions. For safety reasons it is replicated between the two Core MPs. Each CV is kept in a separate folder.

```
RNC11> ls -l /d
```

```
$ ls -l /d
Directory '/d'
drwxrwxrwx 0      512  1 Jan 1970 04:56:37 configuration/
drwxrwxrwx 0     46592 11 Sep 2007 13:47:25 loadmodules/
-r--r--r-- 0       17 17 Sep 2007 11:13:18 cv.ptr
-rw-rw-rw- 0      112 31 Aug 2007 10:42:45 rollbacklst.bak
-r--r--r-- 0       20 31 Aug 2007 11:13:50 rollback.ini
-r--r--r-- 0      144 31 Aug 2007 11:02:45 rollback.lst
-rw-rw-rw- 0       32 17 Sep 2007 11:13:18 cv.bak
-r--r--r-- 0        2 11 Sep 2007 14:27:38 rollback.cnt
$
```

```
RNC1> ftree /d/configuration
```

```

                                     /d/configuration/
-r--r--r-- 33      23 Aug 2005 05:04:52 /d/configuration/lastcreatedcv.ptr
-rw-rw-rw- 124     23 Aug 2005 05:20:52 /d/configuration/CM_CONFIG
-rw-rw-rw- 8       7 Nov 2004 23:18:54  /d/configuration/cs_equipmentcmd2.cfg
-rw-rw-rw- 10      12 Mar 2005 14:12:34  /d/configuration/defaultrouter

drwxrwxrwx 3072     23 Aug 2005 04:59:54 /d/configuration/cv/

drwxrwxrwx 512     15 Jun 2005 06:39:00  /d/configuration/cv/P3GA_CN5_final_3/
-r--r--r-- 1246    15 Jun 2005 06:38:49  /d/configuration/cv/P3GA_CN5_final_3/activityLog.gz
-r--r--r-- 17985   15 Jun 2005 06:38:50  /d/configuration/cv/P3GA_CN5_final_3/ARMAMENT
-r--r--r-- 39      15 Jun 2005 06:38:51  /d/configuration/cv/P3GA_CN5_final_3/LLP.LMID
-r--r--r-- 84      15 Jun 2005 06:38:51  /d/configuration/cv/P3GA_CN5_final_3/attribute
-rw-rw-rw- 1131272 15 Jun 2005 06:38:56  /d/configuration/cv/P3GA_CN5_final_3/db.dat
-r--r--r-- 167     15 Jun 2005 06:38:59  /d/configuration/cv/P3GA_CN5_final_3/md5checksums
-r--r--r-- 3       15 Jun 2005 06:39:00  /d/configuration/cv/P3GA_CN5_final_3/ok

drwxrwxrwx 512     7 Jun 2005 23:53:16   /d/configuration/cv/Ranap_cs_ps_cleaned/
-r--r--r-- 817     7 Jun 2005 23:53:04   /d/configuration/cv/Ranap_cs_ps_cleaned/activityLog.gz
-r--r--r-- 17979   7 Jun 2005 23:53:04   /d/configuration/cv/Ranap_cs_ps_cleaned/ARMAMENT
-r--r--r-- 39      7 Jun 2005 23:53:05   /d/configuration/cv/Ranap_cs_ps_cleaned/LLP.LMID
-r--r--r-- 81      7 Jun 2005 23:53:06   /d/configuration/cv/Ranap_cs_ps_cleaned/attribute
-rw-rw-rw- 1164031 7 Jun 2005 23:53:11   /d/configuration/cv/Ranap_cs_ps_cleaned/db.dat
-r--r--r-- 167     7 Jun 2005 23:53:15   /d/configuration/cv/Ranap_cs_ps_cleaned/md5checksums
```

Core MP startup sequence

Program	Action
Basic OS	Open file /d/cv.ptr --> points to active CV
	Go to the directory /d/configuration/cv/<activeCV>/
	Check that this directory contains a file called “ok”. The “ok” file is an empty file that is written at CV creation, once the database is finished writing from RAM to disk (into the db.dat file). If the ok file is not present then it means that the CV was not dumped completely to db.dat (for instance due to a node restart during CV creation) so the db.dat must be corrupted. (At the next node restart this CV will be removed.). If “ok” file is present then continue with next step.
	Open the file md5checksums. This file contains the checksums for the files LLP.LMID, ARMAMENT, db.dat and attribute. All checksums listed in this file should match the checksums of the actual files (can be checked with command md5, on the node) in order to go on to the next step.
	Open file LLP.LMID ---> gives the product number and revision of the loaderserver program that should be loaded
	Load the loaderserver program
LoaderServer Program	Open file ARMAMENT --> gives the list of programs to load in each MP/BP
	Load all programs listed in ARMAMENT file (contains MP and BP software only)
Database Program	Open file db.dat --> shows list of programs to load in all processors (including device HW)
	Load all remaining programs as listed in database

The BasicOS opens the file /d/cv.ptr to find out name of the startable CV.

```
RNC1> cat /d/cv.ptr
```

```
$ cat /d/cv.ptr
Rnc_final
$
```

BasicOS now knows the folder where are stored the CV files to load

```
RNC10> ls -l /d/configuration/cv/Rnc_final/
```

```
$ ls -l /d/configuration/cv/Rnc_final/
Directory '/d/configuration/cv/Rnc_final/'
-r--r--r-- 0      16619  2 May 2006 20:44:52 ARMAMENT
-r--r--r-- 0         35  2 May 2006 20:44:52 LLP.LMID
-r--r--r-- 0         77  2 May 2006 20:44:53 attribute
```

```

-rw-rw-rw- 0 303676 2 May 2006 20:44:57 db.dat
-r--r--r-- 0 167 2 May 2006 20:44:58 md5checksums
-r--r--r-- 0 3 2 May 2006 20:44:58 ok
$

```

BasicOS checks if the CV folder contains an “ok” file. If this file is missing then it means that the db.dat file was not fully created and the CV is invalide.

```
RNC11> cat /d/configuration/cv/Rnc_final/ok
```

```

$ cat /d/configuration/cv/Rnc_final/ok
ok
$

```

BasicOS opens the file md5checksums and uses it to check that the CV files are not corrupted.

```
RNC10> cat /d/configuration/cv/Rnc_final/md5checksums
```

```

$ cat /d/configuration/cv/Rnc_final/md5checksums
db.dat 4a8acb7c1f1922d057531886bc6a52b0
attribute a1581796a137df0a3b12ca611b530a57
ARMAMENT 3d7d6a6ef2562b6e4543594ff3cc4d50
LLP.LMID 9bd471b81eacda455bacd3783ceaa83d
$

```

```
RNC10> md5 /d/configuration/cv/Rnc_final/ARMAMENT
```

```

$ md5 /d/configuration/cv/Rnc_final/ARMAMENT
File: /d/configuration/cv/Rnc_final/ARMAMENT
MD5 checksum: 3d7d6a6ef2562b6e4543594ff3cc4d50
$

```

BasicOS opens the file LLP.LMID to find out the identity of the LoaderServer program. It then loads that program.

```
RNC1> cat /d/configuration/cv/Rnc_final/LLP.LMID
```

```

$ cat /d/configuration/cv/Rnc_final/LLP.LMID
CXC1320785_R50HX02 1201000 0 10 11
$

```

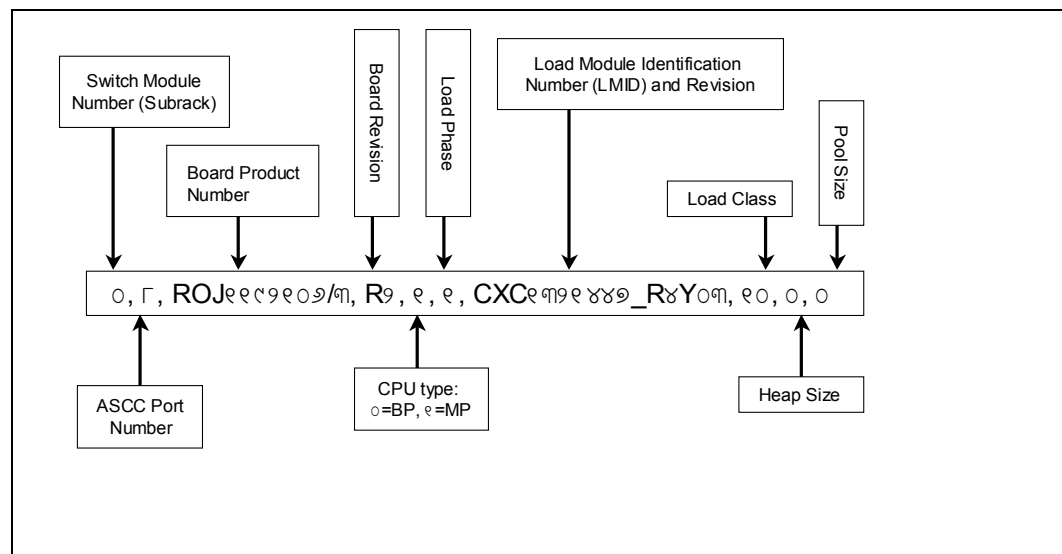
The LoadServer program opens the ARMAMENT file and uses this information to inform all MB/BP processors of what programs they need to load.

```
RNC1> cat /d/configuration/cv/Rnc_final/ARMAMENT
```

```

$ cat /d/configuration/cv/Rnc_final/ARMAMENT
0,1,ROJ1192108/2,R6,0,1,CXC1321451_R50HX06,10,0,0
0,1,ROJ1192108/2,R6,0,2,CXC1322025_R50HX01,50,0,0
0,1,ROJ1192108/2,R6,0,3,CXC1322166%2_R50HX01,200,0,0
0,1,ROJ1192108/2,R6,0,4,CXC1321407_R50HX01,300,0,0
0,1,ROJ1192108/2,R6,0,5,CXC1321409_R50HX01,300,0,0
0,1,ROJ1192108/2,R6,0,6,CXC1322165%12_R50HX01,300,0,0
0,1,ROJ1192108/2,R6,0,7,CXC1321120_R50HF01,400,0,0
0,1,ROJ1192108/2,R6,0,8,CXC1321121_R50HF01,400,0,0
0,10,ROJ1192106/3,R2,1,1,CXC1321447_R50HX06,10,0,0
0,10,ROJ1192106/3,R2,1,2,CXC1322812_R50HX01,50,0,0
0,10,ROJ1192106/3,R2,1,3,CXC1320785_R50HX02,100,1201000,0
0,10,ROJ1192106/3,R2,1,4,CXC1321408_R50HC03,200,120000,600000
0,10,ROJ1192106/3,R2,1,5,CXC1320781_R50HC04,200,135000000,6000000
0,10,ROJ1192106/3,R2,1,6,CXC1320782_R50HX03,200,3143000,1506000
0,10,ROJ1192106/3,R2,1,7,CXC1321315_R50HC07,200,0,20000000
0,10,ROJ1192106/3,R2,1,8,CXC1321357_R50HC04,200,2343000,4731000
0,10,ROJ1192106/3,R2,1,9,CXC1321317_R50HC04,200,0,0
0,10,ROJ1192106/3,R2,1,10,CXC1320787_R50HX02,200,0,3300000

```



Note: CPU type (MP/BP) will tell the LLP whether a board is LMP or not.

Once the Database program (CXC1320781) is running and the SQL database has been loaded from the db.dat file to RAM memory, the LLP will be able to find out the list of device SW, java SW, and XP SW to be loaded.

```
RNC1> ls -l /d/configuration/cv/Rnc_final/db.dat
```

```
$ ls -l /d/configuration/cv/Rnc_final/db.dat
-rw-rw-rw- 0 303676 2 May 2006 20:44:57 db.dat
```

```
RNC10> sql select name from tables | egrep 'pgm|jvm'
```

```
| 'cspgmresource_01' |
| 'csfanpgmresource' |
| 'jvmfro_r1' |
| 'spppgmresource_02' |
| 'sppspupgmresource_02' |
| 'ipcpgmfrotable_01' |
| 'phyeqmtpgmfrotable' |
```

Once the database is laoded and the java SW is running the MOs can read their data and the MIB will become ready.

7.1.2 CV handling

All CV handling can be done with the ConfigurationVersion MO:

```
RNC10> get configurationversion=1
```

```
=====
1                               SwManagement=1,ConfigurationVersion=1
=====
ConfigurationVersionId         1
autoCreatedCVIsTurnedOn       false
commandlogStatus               true
currentLoadedConfigurationVersion Rnc_final
currentUpgradePackage          UpgradePackage=CXP9012014_R4J07
executingCv                    Rnc_final
lastCreatedCv                  Rnc_final
rollbackInitCounterValue       5
rollbackInitTimerValue         30
rollbackList                   s[2] = Exercise_2 RADIO_NETWORK_40_RBS_IOV
rollbackOn                     false
startableConfigurationVersion  Rnc_final //from /d/cv.ptr
storedConfigurationVersions     t[2] =
>>> Struct[1] has 8 members:
>>> 1.name = Rnc_final
>>> 2.identity = Rnc_final
>>> 3.type = other
>>> 4.upgradePackageId = CXP9012014_R4J07
```

```

>>> 5.operatorName = unknown
>>> 6.operatorComment = none
>>> 7.date = Tue May  2 20:44:53 2006
>>> 8.status = CELLO_CV_OK
>>> Struct[2] has 8 members:
>>> 1.name = Fi_CXP9012014_R4J07_060119_0724
>>> 2.identity = no value (cv product id)
>>> 3.type = other
>>> 4.upgradePackageId = CXP9012014_R4J07
>>> 5.operatorName = Cello Packet Platform
>>> 6.operatorComment = Final CV autocreated at System Upgrade.
>>> 7.date = Thu Jan 19 07:24:43 2006
>>> 8.status = CELLO_CV_OK
timeForAutoCreatedCV          04:00
userLabel

```

```

=====
Total: 1 M0s

```

```

RNC10> acl configura

```

Proxy	M0	Action	Nr of Params
2052	ConfigurationVersion=1	cancelRestore	0
2052	ConfigurationVersion=1	changeRestoreConfirmationDeadline	1
2052	ConfigurationVersion=1	confirmRestore	0
2052	ConfigurationVersion=1	create	5
2052	ConfigurationVersion=1	delete	1
2052	ConfigurationVersion=1	forcedRestore	2
2052	ConfigurationVersion=1	getFromFtpServer	4
2052	ConfigurationVersion=1	putToFtpServer	6
2052	ConfigurationVersion=1	removeFromRollbackList	1
2052	ConfigurationVersion=1	restore	2
2052	ConfigurationVersion=1	setFirstRollbackList	1
2052	ConfigurationVersion=1	setStartable	1
2052	ConfigurationVersion=1	verifyRestore	1

The moshell “cv” commands can be used to perform CV operations

```

RNC10> h cvls

```

cvls/cvmk/cvms/cvset/cvrn/cvcu/cvget/cvput

Command syntax:

- * cvls [<cv-filter>]
- * cvcu
- * cvrm <cv-name>|<cv-filter>
- * cvms <cvname> [<operator>] [<comment>]
- * cvmk <cvName> [<operator>] [<comment>]
- * cvset <cvname>

etc...

Overview of active CVs as well as full CV list

RNC11> cvcu

090325-16:04	CV Name	Upgrade Package	Release
Startable:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Loaded:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Executing:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Last created:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Current UpgradePkg:	UpgradePackage=CXP9012014_R10CJ%A	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
AutoCreatedCV:	Disabled		
Rollback status:	Rollback is on		
Rollback init timer:	30		
Rollback init counter:	5		
Rollback counter:	5		
Rollback list:	s[2] = Rb_CXP9012014_R10CJ%A_090209_1611 RNC11_OK4		

RNC11> cvls

090709-08:47	CV Name	Upgrade Package	Release
Startable:	RNC11_P6.1	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Loaded:	RNC11_P6.1	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Executing:	RNC11_P6.1	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Last created:	RNC11_P7	CXP9012995_R6CF/13	P7.0.1-7 (7.0.1.3 EP12)
Current UpgradePkg:	UpgradePackage=CXP9012842_R3BE%6	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)

AutoCreatedCV: Disabled
Rollback status: Rollback is on
Rollback init timer: 2880
Rollback init counter: 2
Rollback counter: 2
Rollback list: s[3] = RNC11_P6 Rb_CXP9012123_R10H%12_090528_1204 RNC11_OK5

UP name	ProductData	CVs	LMs	PrDate	LastCV	state	Release	CompatIndex
CXP9012014_R10CJ%A	CXP9012014_R10CJ/A	3	226	090116	090528	IDLE, UPGRADE_COMPLETED	P5.0.26-6 (5.1.2.39 EP17)	RNC_P5_AUE4_U5
CXP9012123_R10H/19	CXP9012123_R10H/19	5	272	090407	090615	IDLE, UPGRADE_COMPLETED	P6.0.2-25 (EP12-6.0.2.9)	RncMOM_AN1
CXP9012842_R3BE%6	CXP9012842_R3BE/6	4	303	090513	090617	IDLE, UPGRADE_COMPLETED	P6.1.4-9 (EP10-CPP6.1.0.16)	RncMOM_AU
Virtual_0_of_CXP9012995_R6CF/13	CXP9012995_R6CF/13	3	0	090506	090617	IDLE, ONLY_DELETEABLE	P7.0.1-7 (7.0.1.3 EP12)	

CV Name	Creation Date	Package/Release	Type	Operator	Comment
Fi_CXP9012014_R10CJ%A_090209_1625	2009-02-09 16:25	CXP9012014_R10CJ/A P5.0.26-6	other	CPP	Final CV autocreated at SU
RNC11_OK5	2009-02-09 16:30	CXP9012014_R10CJ/A P5.0.26-6	other	eanzmagn	none
Rb_CXP9012123_R10H%12_090528_1204	2009-05-28 12:04	CXP9012014_R10CJ/A P5.0.26-6	other	CPP	Rollb. CV autocreated at SU
Fi_CXP9012123_R10H%19_090613_0940	2009-06-13 09:40	CXP9012123_R10H/19 P6.0.2-25	other	CPP	Final CV autocreated at SU
RNC11_P6	2009-06-15 09:08	CXP9012123_R10H/19 P6.0.2-25	other	eanzmagn	none
Si_CXP9012014_R10CJ%A_090615_1648	2009-06-15 16:48	CXP9012123_R10H/19 P6.0.2-25	other	CPP	Install_tmp CV autocreated by SU
Fi_CXP9012123_R10H%19_090615_1707	2009-06-15 17:07	CXP9012123_R10H/19 P6.0.2-25	other	CPP	Final CV autocreated at SU
Rb_CXP9012842_R3BE%6_090615_1926	2009-06-15 19:26	CXP9012123_R10H/19 P6.0.2-25	other	CPP	Rollb. CV autocreated at SU
SU_CXP9012842_R3BE%6_090615_1939	2009-06-15 19:39	CXP9012842_R3BE/6 P6.1.4-9	upgr_tol	CPP	Temp. CV autocreated at SU
Fi_CXP9012842_R3BE%6_090615_1950	2009-06-15 19:50	CXP9012842_R3BE/6 P6.1.4-9	other	CPP	Final CV autocreated at SU
RNC11_P6.1	2009-06-15 19:52	CXP9012842_R3BE/6 P6.1.4-9	other	eanzmagn	none
Rb_CXP9012995_R6CF%13_090617_0609	2009-06-17 06:10	CXP9012842_R3BE/6 P6.1.4-9	other	CPP	Rollb. CV autocreated at SU
SU_CXP9012995_R6CF%13_090617_0630	2009-06-17 06:30	CXP9012995_R6CF/13 P7.0.1-7	upgr_tol	CPP	Temp. CV autocreated at SU
Fi_CXP9012995_R6CF%13_090617_0642	2009-06-17 06:43	CXP9012995_R6CF/13 P7.0.1-7	other	CPP	Final CV autocreated at SU
RNC11_P7	2009-06-17 12:42	CXP9012995_R6CF/13 P7.0.1-7	other	eanzmagn	none

>>> Total: 15 CV's, 4 UP's

Filter the CV list

RNC11> cvls p5.0.17

090325-16:05	CV Name	Upgrade Package	Release
Startable:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Loaded:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Executing:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)

Last created:RNC11_OK5CXP9012014_R10CJ/AP5.0.26-6 (5.1.2.39 EP17)

Current UpgradePkg:UpgradePackage=CXP9012014_R10CJ%ACXP9012014_R10CJ/AP5.0.26-6 (5.1.2.39 EP17)

AutoCreatedCV:Disabled

Rollback status:Rollback is on

Rollback init timer:30

Rollback init counter:5

Rollback counter:5

Rollback list:s[2] = Rb_CXP9012014_R10CJ%A_090209_1611 RNC11_OK4

CV Name	Creation Date	Package/Release	Type	Operator	Comment
no_ntp	2008-02-14 17:30	CXP9012014_R10AY/7 P5.0.17-3	other	eanzmagn	none

>>> Total: 1 CV's

Make a CV

RNC11> cvmk test eanzmagn this is a test

(---> calls the action “ConfigurationVersion:create”)

RNC11> acc 1 create

Proxy	M0	Action	Nr of Params
1	ConfigurationVersion=1	create	5

Parameter 1 of 5, configurationVersionName (string): test

Parameter 2 of 5, identity (string): test

Parameter 3 of 5, type (enumRef-ConfigurationVersionType):
Enter one of the following integers: 0:STANDARD, 1:UPGRADE, 2:MINIMAL, 3:TEST, 4:AUTOCREATE, 5:OTHER, 6:UPGRADE_TOLERATE_ERROR, 7:DOWNLOADED, 8:RESTORED: 5

Parameter 4 of 5, operatorName (string): eanzmagn

Parameter 5 of 5, comment (string): this is a test
>>> Return value = null

Total: 1 M0s attempted, 1 M0s actioned

The new CV becomes “Executing” and “Last created”

RNC11> cvcu

090325-16:06	CV Name	Upgrade Package	Release
Startable:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Loaded:	RNC11_OK5	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Executing:	test	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Last created:	test	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
Current UpgradePkg:	UpgradePackage=CXP9012014_R10CJ%A	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)
AutoCreatedCV:	Disabled		
Rollback status:	Rollback is on		
Rollback init timer:	30		
Rollback init counter:	5		
Rollback counter:	5		
Rollback list:	s[2] = Rb_CXP9012014_R10CJ%A_090209_1611 RNC11_OK4		

Set the CV as startable

RNC11> cvset test

(---> calls the action “ConfigurationVersion:setStartable”)

RNC11> acc 1 setstartable

Proxy	M0	Action	Nr of Params
1	ConfigurationVersion=1	setStartable	1

Parameter 1 of 1, configurationVersionName (string): test
>>> Return value = null

Total: 1 M0s attempted, 1 M0s actioned

The CV becomes startable

RNC11> cvcu

090325-16:06	CV Name	Upgrade Package	Release
Startable:	test	CXP9012014_R10CJ/A	P5.0.26-6 (5.1.2.39 EP17)

```
Loaded:                RNC11_OK5                CXP9012014_R10CJ/A    P5.0.26-6 (5.1.2.39 EP17)
Executing:             test                    CXP9012014_R10CJ/A    P5.0.26-6 (5.1.2.39 EP17)
Last created:         test                    CXP9012014_R10CJ/A    P5.0.26-6 (5.1.2.39 EP17)
-----
Current UpgradePkg:   UpgradePackage=CXP9012014_R10CJ%A    CXP9012014_R10CJ/A    P5.0.26-6 (5.1.2.39 EP17)
AutoCreatedCV:       Disabled
Rollback status:     Rollback is on
Rollback init timer: 30
Rollback init counter: 5
Rollback counter:    5
Rollback list:       s[2] = Rb_CXP9012014_R10CJ%A_090209_1611 RNC11_OK4
=====
```

Note: cvmk and cvset can also be done in one operation with the cvms command

```
RNC10> cvms test1 eanzmagn this is test1

(---> does cvmk followed by cvset)
```

Restart the node

```
RNC10> acc 0 manualrestart
```

The startable CV becomes “Loaded”

```
RNC10> cvcu
```

```
=====
060709-23:49      CV Name                        Upgrade Package
=====
Startable:        test1                          CXP9012014_R4J07
Loaded:           test1                          CXP9012014_R4J07
Executing:        test1                          CXP9012014_R4J07
Last created:     test1                          CXP9012014_R4J07
-----
Current UpgradePkg: UpgradePackage=CXP9012014_R4J07    CXP9012014_R4J07
CommandLog:       Enabled
AutoCreatedCV:    Disabled
Rollback status:  Rollback is off
Rollback init timer: 30
Rollback init counter: 5
```

=====

Remove CVs, pattern matching can be used to remove several CVs at once.
The CVs are also removed from the rollback list at the same time.

RNC10> cvrm tes

Delete following 3 CV's?

test1	2006-07-09 21:49	CXP9012014_R4J07	eanzmagn	this is test1
db_test	2006-06-26 08:13	CXP9012014_R4J07	unknown	none
test	2006-07-09 21:48	CXP9012014_R4J07	eanzmagn	this is a test

!!!! WARNING: Delete 3 CV's?
Are you Sure [y/n] ? y

(---> calls action Configuration:delete)

RNC10> # Deleting cv 1 of 3: test1

Proxy	M0	Action	Nr of Params
787	ConfigurationVersion=1	delete	1

Parameter 1 of 1, configurationVersionName (string): test1
>>> Return value = null

=====

Total: 1 M0s attempted, 1 M0s actioned

RNC10> # Deleting cv 2 of 3: db_test

Proxy	M0	Action	Nr of Params
787	ConfigurationVersion=1	delete	1

Parameter 1 of 1, configurationVersionName (string): db_test
>>> Return value = null

=====

Total: 1 M0s attempted, 1 M0s actioned

RNC10> # Deleting cv 3 of 3: test

Proxy	M0	Action	Nr of Params
787	ConfigurationVersion=1	delete	1

Parameter 1 of 1, configurationVersionName (string): test
>>> Return value = null

=====
Total: 1 M0s attempted, 1 M0s actioned

Remote CV backup to the workstation where moshell is running

RNC11> cvget RNC_P6.1_OK

Download the following 1 CV's to /home/eanzmagn/moshell_logfiles/logs_moshell/cv/RNC11/091026_012936?

=====
RNC_P6.1_OK 2009-09-25 19:52 CXP9012842_R3BE/6 eanzmagn params aligned to recommended values
=====

Are you Sure [y/n] ? y

Downloading CV 1 of 1: RNC_P6.1_OK

facc configurationversion=1 putToFtpServer RNC_P6.1_OK /d/usr RNC11_RNC_P6.1_OK.zip 127.0.0.1 moshelluser \$password

Proxy M0		Action	Nr of Params
581	ConfigurationVersion=1	putToFtpServer	6
>>> Return value = 2940061			

=====
Total: 1 M0s attempted, 1 M0s actioned

Waiting 20 seconds before starting to poll...
ConfigurationVersion=1 ElapsedTime currentMainActivity currentDetailedActivity
ConfigurationVersion=1 0s EXPORTING_BACKUP_CV TRANSFERING_BACKUP_TO_REMOTE_SERVER
ConfigurationVersion=1 10s EXPORTING_BACKUP_CV TRANSFERING_BACKUP_TO_REMOTE_SERVER
ConfigurationVersion=1 20s IDLE IDLE
Waiting 60 seconds before checking result...
CV action result: EXECUTED
additionalInfo : CV_BACKUP_NAME RNC11_RNC_P6.1_OK.zip
Get /d/usr/RNC11_RNC_P6.1_OK.zip /home/eanzmagn/moshell_logfiles/logs_moshell/cv/RNC11/091026_012936/RNC11_RNC_P6.1_OK.zip ... OK
Dele /d/usr/RNC11_RNC_P6.1_OK.zip ... OK
Successful storage of RNC_P6.1_OK to /home/eanzmagn/moshell_logfiles/logs_moshell/cv/RNC11/091026_012936/RNC11_RNC_P6.1_OK.zip

Transfer a remote CV backup from the workstation to the node

```
RNC11> cvput /home/eanzmagn/moshell_logfiles/logs_moshell/cv/RNC11/091026_012936/RNC11_RNC_P6.1_OK.zip
```

```
Put /home/eanzmagn/moshell_logfiles/logs_moshell/cv/RNC11/091026_012936/RNC11_RNC_P6.1_OK.zip /d/usr/RNC11_RNC_P6.1_OK.zip ... OK
```

```
facc configurationversion=1 getFromFtpServer /d/usr/RNC11_RNC_P6.1_OK.zip 127.0.0.1 moshelluser $password
```

```
=====
Proxy  M0                                     Action                                     Nr of Params
=====
581 ConfigurationVersion=1                   getFromFtpServer                               4
>>> Return value = 3604394
=====
```

```
Total: 1 M0s attempted, 1 M0s actioned
```

```
Waiting 20 seconds before starting to poll...
```

```
ConfigurationVersion=1 ElapsedTime          currentMainActivity
```

```
ConfigurationVersion=1 0s                   IMPORTING_BACKUP_CV
```

```
ConfigurationVersion=1 10s                  IDLE
```

```
currentDetailedActivity
```

```
UNPACKING_RETREIVED_BACKUP
```

```
IDLE
```

```
Waiting 60 seconds before checking result...
```

```
CV action result: EXECUTED
```

```
additionalInfo :
```

```
Dele /d/usr/RNC11_RNC_P6.1_OK.zip ... OK
```

```
The CV RNC_P6.1_OK was successfully transferred.
```

The CV is now stored again on the node and appears with the type “downloaded”. It means we cannot set this CV as startable and restart the node on it. To load this type of CV on the node, we must use the action “restore”

```
RNC11> cvls RNC_P6.1_OK
```

```
=====
CV Name          Creation Date   UpgradePackage   Release   Type      Operator   Comment
=====
RNC_P6.1_OK      2009-09-25 19:52 CXP9012842_R3BE/6 P6.1.4-9 download eanzmagn   params aligned to recommended values
=====
```

```
>>> Total: 1 CV's, 0 UP's
```

Restore a CV (note: confirmRestore is done automatically by “polc”)

```
RNC11> acc config restore
```

Call Action restore on following MOs ?

=====

```
1 SwManagement=1,ConfigurationVersion=1
```

=====

Are you Sure [y/n] ? y

Proxy	MO	Action	Nr of Params
1	ConfigurationVersion=1	restore	2

Parameter 1 of 2, cvName (string): RNC_P6.1_OK

Parameter 2 of 2, autoConfigurationInformation (enumRef-CVAutoConfigurationInformation):

Enter one of the following integers: 0:OFF, 1:ON, 2:AS_CONFIGURED: 2

polc
>>> Return value = 21032529

=====

Total: 1 MOs attempted, 1 MOs actioned

RNC11> polc

Waiting 20 seconds before starting to poll...

ConfigurationVersion=1	ElapsedTime	currentMainActivity	currentDetailedActivity
ConfigurationVersion=1	0s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFY_RESTORE_REQUESTED
ConfigurationVersion=1	10s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFY_RESTORE_REQUESTED
ConfigurationVersion=1	20s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_UPGRADE_PACKAGE_PRESENT
ConfigurationVersion=1	30s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	40s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	50s	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	60s (01m00s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	70s (01m10s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	80s (01m20s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	90s (01m30s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	101s (01m41s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	111s (01m51s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_CHECKSUM_FOR_LOAD_MODULES
ConfigurationVersion=1	121s (02m01s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_NETWORK_CONFIGURATION_FOR_IP_ATM
ConfigurationVersion=1	131s (02m11s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_POSSIBLE_TO_CREATE_REQUIRED_NUMBER_OF_CVS
ConfigurationVersion=1	141s (02m21s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_HARDWARE_COMPATIBILITY
ConfigurationVersion=1	151s (02m31s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_HARDWARE_SOFTWARE_COMPATIBILITY
ConfigurationVersion=1	161s (02m41s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_NODE_IDENTITY
ConfigurationVersion=1	171s (02m51s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_APPLICATION_CONFIGURATION_DATA
ConfigurationVersion=1	181s (03m01s)	RESTORING_DOWNLOADED_BACKUP_CV	VERIFYING_APPLICATION_CONFIGURATION_DATA
ConfigurationVersion=1	191s (03m11s)	RESTORING_DOWNLOADED_BACKUP_CV	RESTORE_INITIATED

ConfigurationVersion=1	201s (03m21s)	RESTORING_DOWNLOADED_BACKUP_CV	RESTORE_INITIATED
ConfigurationVersion=1	211s (03m31s)	RESTORING_DOWNLOADED_BACKUP_CV	SAVING_ROLLBACK_CV
ConfigurationVersion=1	221s (03m41s)	RESTORING_DOWNLOADED_BACKUP_CV	SAVING_ROLLBACK_CV
ConfigurationVersion=1	231s (03m51s)	RESTORING_DOWNLOADED_BACKUP_CV	SAVING_ROLLBACK_CV
ConfigurationVersion=1	241s (04m01s)	RESTORING_DOWNLOADED_BACKUP_CV	SAVING_ROLLBACK_CV
ConfigurationVersion=1	257s (04m17s)	RESTORING_DOWNLOADED_BACKUP_CV	NODE_RESTART_REQUEST
ConfigurationVersion=1	268s (04m28s)	RESTORING_DOWNLOADED_BACKUP_CV	NODE_RESTART_REQUEST
ConfigurationVersion=1	278s (04m38s)	HTTP.NO_CONTACT	HTTP.NO_CONTACT
ConfigurationVersion=1	312s (05m12s)	org.omg.CORBA.COMM_FAILURE	org.omg.CORBA.TRANIENT
ConfigurationVersion=1	329s (05m29s)	org.omg.CORBA.TRANIENT	org.omg.CORBA.TRANIENT
ConfigurationVersion=1	349s (05m49s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	360s (06m00s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	370s (06m10s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	380s (06m20s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	390s (06m30s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	400s (06m40s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	410s (06m50s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	420s (07m00s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	430s (07m10s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	441s (07m21s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	451s (07m31s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	461s (07m41s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	471s (07m51s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	481s (08m01s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	491s (08m11s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	501s (08m21s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	511s (08m31s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	521s (08m41s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	531s (08m51s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	541s (09m01s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	551s (09m11s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	561s (09m21s)	org.omg.CORBA.OBJECT_NOT_EXIST	org.omg.CORBA.OBJECT_NOT_EXIST
ConfigurationVersion=1	573s (09m33s)	IDLE	INITIATING_CONFIRM_RESTORE_TIME_SUPERVISION
Waiting 60 seconds before checking result...			
ConfigurationVersion=1	634s (10m34s)	RESTORING_DOWNLOADED_BACKUP_CV	AWAITING_RESTORE_CONFIRMATION

The node has been restarted on a different CV: from RNC_P6.1_OK1 to RNC_P6.1_OK.
Rereading MOM and MIB...

Checking MOM version...RNC_NODE_MODEL_J_3_45
Using MOM version: RNC_NODE_MODEL_J_3_45_COMPLETE
Parsing MOM (cached):
/home/eanzmagn/jarxml/RNC_NODE_MODEL_J_3_45_COMPLETE.xml.cache.gz
..Done.
Using paramfile /home/eanzmagn/moshell/commonjars/pm/PARAM_RNC_J_1_0.txt

Parsing file /home/eanzmagn/moshell/commonjars/pm/PARAM_RNC_J_1_0.txtDone.
Connected to 137.58.194.147 (ManagedElement=1)
Last MO: 11059. Loaded 11059 MOs. Total: 11060 MOs.

Proxy	MO	Action	Nr of Params
	2135 ConfigurationVersion=1	confirmRestore	0
	>>> Return value = 22142711		

=====
Total: 1 MOs attempted, 1 MOs actioned
ConfigurationVersion=1 659s (10m59s) CONFIRMING_RESTORE_OF_DOWNLOADED_BACKUP_CV SAVING_FINAL_CV
ConfigurationVersion=1 669s (11m09s) CONFIRMING_RESTORE_OF_DOWNLOADED_BACKUP_CV SAVING_FINAL_CV
ConfigurationVersion=1 679s (11m19s) CONFIRMING_RESTORE_OF_DOWNLOADED_BACKUP_CV SAVING_FINAL_CV
ConfigurationVersion=1 689s (11m29s) IDLE IDLE
CV action result: EXECUTED
additionalInfo :
Connected to 137.58.194.147 (ManagedElement=1)
Last MO: 11059. Loaded 11059 MOs. Total: 11060 MOs.

Print CV list: the CV has become loaded and a RF CV has been made (Rollback Final)

RNC11> cvcu

091026-02:26:18 137.58.194.147 7.1w RNC_NODE_MODEL_J_3_45_COMPLETE stopfile=/tmp/26376

091026-02:26	CV Name	Upgrade Package	Release
Startable:	RF_CXP9012842_R3BE%6_091026_0059	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Loaded:	RNC_P6.1_OK	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Executing:	RF_CXP9012842_R3BE%6_091026_0059	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
Last created:	RF_CXP9012842_R3BE%6_091026_0059	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)

Current UpgradePkg:	UpgradePackage=CXP9012842_R3BE%6	CXP9012842_R3BE/6	P6.1.4-9 (EP10-CPP6.1.0.16)
AutoCreatedCV:	Disabled		
Rollback status:	Rollback is on		
Rollback init timer:	2880		
Rollback init counter:	2		
Rollback counter:	2		
Rollback list:	s[8] = RR_CXP9012014_R10CJ%A_091026_0050 RF_CXP9012014_R10CJ%A_091026_0025 RR_CXP9012014_R10CJ%A_091026_0022		
	RF_CXP9012014_R10CJ%A_091025_2355 RR_CXP9012842_R3BE%6_091025_2346 RNC_P6.1_OK1 Rb_CXP9012123_R10H%12_090528_1204 RNC11_OK5		

Notes:

Similar commands are also available from OSE shell in case MO service is unavailable:

```
cv ls
cv mk
cv set
cv rm
cv cu
etc.
```

Type cv help for info:

```
$ cv help
```

Create CV: cv mk <name> [id] [type] [puid] [operator] [comment]

Remove CV: cv rm <name>

Set as startable: cv set <name>

List cv:s: cv ls

Current usage: cv cu

Set rollback init values: cv rbinit <status> <timer> <counter>

- status : 0=no_change, 1=rollback_on, 2=rollback_off
- timer : 0=no_change, 1-n minutes
- counter : 0=no_change, 1-n

Set first in rollback list: cv rbset <name>

Remove from rollback list: cv rbrm <name>

Set rollback counter: cv rbcnt <counter>

Check if loaded cv is upgrade: cv up

Clean up cv dir: cv clean <level>

- level : 1=remove all cvs except one used by cv pointer.
- level : 2=remove all cvs except one used by cv pointer & rollback list.
- level : 3=remove all cvs on passive side that does not exist on active side.

Synch from active to MP with given lnh name: cv synch <lnh>

List upgrade cv: cv upls <upgrade package id>

Remove upgrade cv: cv uprm <upgrade package id>

Checksum cv: cv csum <name> <mode>

- name: CV name to checksum files for
- mode: active=active Core MP, passive=passive Core MP

Precheck cv: cv prec <number of new CVs>

```
$
```

Difference between startable/loaded/executing/lastcreated:

Example:

```
loaded      CV1
startable   CV1
```

```
executing CV1
last created CV1
```

```
--> cvmk CV2
```

```
loaded CV1
startable CV1
executing CV2
last created CV2
```

```
--> cvset CV2
```

```
loaded CV1
startable CV2
executing CV2
last created CV2
```

```
--> acc 0 restart
```

```
loaded CV2
startable CV2
executing CV2
last created CV2
```

The information about each CV (creation date, upgrade package, user who created the CV, etc) is read from the attribute file

```
RNC1> cat /d/configuration/cv/Rnc_final/attribute
```

```
$ cat /d/configuration/cv/Rnc_final/attribute
Tue May  2 20:44:53 2006
Rnc_final
other
CXP9012014_R4J07
unknown
none
$
```

7.1.3 CV Rollback

If Rollback function is turned on and the node has restarted too many times (more than “Rollback init counter”) within a specific time period (given by “Rollback init timer”), it will rollback to a different CV (the first CV in the “Rollback list”).

- **RNC settings:** the node rolls back if there 3 node restarts within 48 hours
- **RBS settings:** the node rolls back if there are 3 node restarts within 30 minutes

- **MGW settings: the node rolls back if there are 6 node restarts within 30 minutes**

RNC11> cvcu

```
=====
100123-14:26          CV Name          Upgrade Package      Release
=====
Startable:           RNC_P6.1_OK1      CXP9012842_R3BE/6    P6.1.4-9 (EP10-CPP6.1.0.16)
Loaded:              RNC_P6.1_OK1      CXP9012842_R3BE/6    P6.1.4-9 (EP10-CPP6.1.0.16)
Executing:           RNC_P6.1_OK1      CXP9012842_R3BE/6    P6.1.4-9 (EP10-CPP6.1.0.16)
Last created:        RNC_P6.1_OK1      CXP9012842_R3BE/6    P6.1.4-9 (EP10-CPP6.1.0.16)
-----
Current UpgradePkg:  UpgradePackage=CXP9012842_R3BE%6    CXP9012842_R3BE/6    P6.1.4-9 (EP10-CPP6.1.0.16)
AutoCreatedCV:       Disabled
Rollback status:     Rollback is on
Rollback init timer: 2880
Rollback init counter: 2
Rollback counter:    2
Rollback list:       s[1] = RNC11_OK5
=====
```

OFFLINE> mom config rollback

```
#####
M0 Class          Attribute          Type          Flags
#####
ConfigurationVersion  rollbackInitCounterValue      long
-----
Specifies the initial value of the rollback counter. This is used when rollback is switched on (rollbackOn = true).
Range: 1 to 10000, Default=5
*****
ConfigurationVersion  rollbackInitTimerValue        long
-----
Specifies the time used by the system when rollback is switched on (rollbackOn = true). After the given time, the node is not in a cyclic
restart mode. The rollback counter, rollbackInitCounterValue, is then reset to its initial value.
Unit: 1 min
Range: 1 to 10000, Default=30
*****
ConfigurationVersion  rollbackList          sequence:string          readOnly
-----
Specifies a list of configuration versions to rollback to (configuration version name).
The first CV on the list is used at the next rollback. This entry is then automatically removed from the rollback list.
This attribute is modified by the actions, setFirstRollbackList and removeFromRollbackList.
```

```

Default=""
*****
ConfigurationVersion      rollbackOn      boolean
-----
This flag indicates if rollback is enabled or not.
If true, the system automatically sets the rollback counter. If cyclic restarts, a rollback is issued after x restarts (x is defined by the
rollbackInitCounterValue).
Default=true
*****

```

In a cyclic restart situation it is possible to specify the CV on which the node should rollback by writing the CV name into the cv.ptr file of the active Core MP.

```

RNC10> chmod 666 /d/cv.ptr

RNC10> echo Rnc_final > /d/cv.ptr

```

7.2 Restart Commands

7.2.1 Printing all possible restart actions

```

RNC10> momd . restart

#####
MO Class      Action      Parameters
#####
Fan           restartFan  1:restartCause:enumRef-RestartCause
Jvm           restart    0
ManagedElement manualRestart 3:restartRank:restartReason:restartInfo:enumRef-RestartRank:enumRef-
RestartReason:string
PlugInUnit    manualRestart 3:restartRank:restartReason:restartInfo:enumRef-RestartRank:enumRef-
RestartReason:string
PlugInUnit    restart    2:restartRank:restartCause:enumRef-RestartRank:enumRef-RestartCause
Program       restart    0
Spm           restart    0
Spu           restart    0

RNC10> mom restartrank .

```

```
#####
Enum                      Values
#####
RestartRank              0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST
-----
- RESTART_WARM:
- RESTART_REFRESH:
- RESTART_COLD:
- RESTART_COLDWTEST:
*****
```

7.2.2 Performing a node restart

With MO action (recommended way)

```
RNC11> acc 0 manualrestart
```

```
090909-19:53:04 137.58.194.147 7.1u RNC_NODE_MODEL_J_3_45_COMPLETE stopfile=/tmp/18080
Call Action manualrestart on following MOs ?
```

```
=====
0 ManagedElement=1
!! Warning: this is a Node Restart of RNC RNC11 !!
=====
```

```
Are you Sure [y/n] ? y
Please confirm the node type [mgw/rnc/rxi/rbs]: rnc
```

Proxy	MO	Action	Nr of Params
	0 ManagedElement=1	manualRestart	3

```
Parameter 1 of 3, restartRank (enumRef-RestartRank):
Enter one of the following integers: 0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST: 0
```

```
Parameter 2 of 3, restartReason (enumRef-RestartReason):
Enter one of the following integers: 0:PLANNED_RECONFIGURATION, 1:UNPLANNED_NODE_EXTERNAL_PROBLEMS,
2:UNPLANNED_NODE_UPGRADE_PROBLEMS, 3:UNPLANNED_O_AND_M_ISSUE, 4:UNPLANNED_CYCLIC_RECOVERY, 5:UNPLANNED_LOCKED_RESOURCES,
6:UNPLANNED_COLD_WITH_HW_TEST, 7:UNPLANNED_CALL_PROCESSING_DEGRADATION, 8:UNPLANNED_LOW_COVERAGE: 0
```

```
Parameter 3 of 3, restartInfo (string): eanzmagn
>>> Return value = null
```

```
=====
Total: 1 MOs attempted, 1 MOs actioned
```

```
RNC10> pol
```

```
Waiting 20 seconds before starting to poll...
```

```
CORBA.COMM_FAILURE      MO service not ready, retrying in 10 seconds...
CORBA.TRANSIENT          MO service not ready, retrying in 10 seconds...
CORBA.TRANSIENT          MO service not ready, retrying in 10 seconds...
CORBA.OBJECT_NOT_EXIST   MO service not ready, retrying in 10 seconds...
CORBA.OBJECT_NOT_EXIST   MO service not ready, retrying in 10 seconds...
CORBA.OBJECT_NOT_EXIST   MO service not ready, retrying in 10 seconds...
CORBA.OBJECT_NOT_EXIST   MO service not ready, retrying in 10 seconds...
MO service is ready.
```

```
RNC10>
```

With OSE shell command

```
RNC11> restartObj me
```

```
$ restartObj me
```

```
Usage: restartObj me <restartRank> <restatCause> <restartInfo>
```

```
restartRank: has to be warm, refresh, cold or coldwtest .
```

```
restartReason: has to be one of the below mentioned integer or string values
```

```
      0 - reconfiguration,  1 - external_problems,      2 - upgrade_problems,
      3 - O_and_M_problems, 4 - cyclic_recovery,        5 - locked_resources,
      6 - perform_HW_test,  7 - call_processing_degradation, 8 - low_coverage,
      9 - board_upgrade
```

```
$
```

```
RNC11> restartObj me warm 0
```

Using the restart confirmation feature

An moshell uservariable allows to add extra confirmation before performing a node restart, or disable node restart completely

From the moshell file description:

```
....
```

```
#=====
#          * 0 = no confirmation needed
#          * 1 = ask for node type on MGW/RNC/RXI
```

```
#      * 11 = ask for node type on MGW/RNC/RXI/RBS
#      * 2  = ask for node type and node name on MGW/RNC/RXI
#      * 22 = ask for node type and node name on MGW/RNC/RXI/RBS
#      * 3  = node restart forbidden on MGW/RNC/RXI
#      * 33 = node restart forbidden on MGW/RNC/RXI/RBS
```

```
#=====
```

```
restart_confirmation=1
```

```
....
```

restart_confirmation = 1 or 11

```
RBS11> acc 0 manualrestart
```

```
Call Action manualrestart on following MOs ?
```

```
=====
```

```
0 ManagedElement=1
```

```
!! Warning: this is a Node Restart of RBS RBS11 !!
```

```
=====
```

```
Are you Sure [y/n] ? y
```

```
Please confirm the node type [mgw/rnc/rxi/rbs]: rnc
```

```
!! Incorrect node type, please check that you are logged in to the correct node.
```

```
RBS11> restartObj me warm 0
```

```
Are you sure you want to restart the node?
```

```
Please confirm [y/n] ? y
```

```
Please confirm the node type [mgw/rnc/rxi/rbs]: rbs
```

restart_confirmation = 2 or 22

```
RBS11> acc 0 manualrestart
```

```
Call Action manualrestart on following MOs ?
```

```
=====
```

```
0 ManagedElement=1
```

```
!! Warning: this is a Node Restart of RBS RBS11 !!
```

```
=====
```

```
Are you Sure [y/n] ? y
```

```
Please confirm the node type [mgw/rnc/rxi/rbs]: rbs
```

```
Please confirm the node name: rbs1
```

```
!! Incorrect node name, please check that you are logged in to the correct node.
```

```
RBS11> restartObj me warm 0
```

```
Are you sure you want to restart the node?
```

```
Please confirm [y/n] ? y
```

Please confirm the node type [mgw/rnc/rxi/rbs]: rbs
Please confirm the node name: rbs11

restart_confirmation = 3 or 33

RBS11> acc 0 manualrestart

Proxy	M0	Action	Nr of Params
	0 ManagedElement=1	manualRestart	3
!!!! Node Restart not allowed.			

Total: 1 M0s attempted, 0 M0s actioned

\$ restartObj me warm 0
Node Restart not allowed.
\$

\$ lhsh 001100 restartObj me warm 0
Node Restart not allowed.
\$

7.2.3 Performing a board restart

With MO action (recommended way)

RNC11> acc 001400 manualrestart

Proxy	M0	Action	Nr of Params
	485 Subrack=MS,Slot=14,PlugInUnit=1	manualRestart	3

Parameter 1 of 3, restartRank (enumRef-RestartRank):
Enter one of the following integers: 0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST: 0

Parameter 2 of 3, restartReason (enumRef-RestartReason):
Enter one of the following integers: 0:PLANNED_RECONFIGURATION, 1:UNPLANNED_NODE_EXTERNAL_PROBLEMS, 2:UNPLANNED_NODE_UPGRADE_PROBLEMS, 3:UNPLANNED_O AND M ISSUE, 4:UNPLANNED_CYCLIC_RECOVERY, 5:UNPLANNED_LOCKED_RESOURCES, 6:UNPLANNED_COLD_WITH_HW_TEST, 7:UNPLANNED_CALL_PROCESSING_DEGRADATION, 8:UNPLANNED_LOW_COVERAGE: 0

Parameter 3 of 3, restartInfo (string): eanzmagn
>>> Return value = null

=====

Total: 1 M0s attempted, 1 M0s actioned

Note: the board group can also be used instead of the link handler

RNC11> bp mod1

=====

Board	BoardType	Swallocation/DevType	Module
001400	GPB3	GPB_Module	1

=====

RNC11> pr mod1

=====

Proxy	M0
235	Equipment=1,Subrack=MS,Slot=14,PlugInUnit=1

=====

Total: 1 M0s

RNC11> acc mod1 manualrestart

=====

Proxy	M0	Action	Nr of Params
485	Subrack=MS,Slot=14,PlugInUnit=1	manualRestart	3

=====

Parameter 1 of 3, restartRank (enumRef-RestartRank):
Enter one of the following integers: 0:RESTART_WARM, 1:RESTART_REFRESH, 2:RESTART_COLD, 3:RESTART_COLDWTEST: 0

Parameter 2 of 3, restartReason (enumRef-RestartReason):
Enter one of the following integers: 0:PLANNED_RECONFIGURATION, 1:UNPLANNED_NODE_EXTERNAL_PROBLEMS, 2:UNPLANNED_NODE_UPGRADE_PROBLEMS, 3:UNPLANNED_O_AND_M_ISSUE, 4:UNPLANNED_CYCLIC_RECOVERY, 5:UNPLANNED_LOCKED_RESOURCES, 6:UNPLANNED_COLD_WITH_HW_TEST, 7:UNPLANNED_CALL_PROCESSING_DEGRADATION, 8:UNPLANNED_LOW_COVERAGE: 0

Parameter 3 of 3, restartInfo (string): eanzmagn
>>> Return value = null

=====

Total: 1 M0s attempted, 1 M0s actioned

With OSE shell command

```
RNC10> lhsh 001400 reload
$ lhsh 001400 reload
```

7.2.4 Performing a program restart

With MO action (rank=warm)

```
RNC11> lacc Subrack=MS,Slot=14,PlugInUnit=1,Program=CXC1320997_R51KF03 restart
```

Proxy	M0	Action	Nr of Params
318	Subrack=MS,Slot=14,PlugInUnit=1,Program=CXC1320997_R51KF03	restart	0
>>> Return value = null			

Total: 1 M0s attempted, 1 M0s actioned

With OSE shell command prockill (rank=hot)

The prockill command is an alias for pgkill (CPP6 and below) or pm_kill (CPP7 and above)
The CXC number or LM name can be given as argument.

```
RNC11> lhsh 001400 proglis
```

1	run	CXC1320787_R51SZ01	(SystemManage)
2	run	CXC1320742_R51SZ01	(spas_connect)
3	run	CXC1321121_R51GD01	(nssyci_mpbp)
4	run	CXC1320995%31_R51GV01	(aal5_term_mp)
5	run	CXC1320997_R51KF03	(usaal_term)
6	run	CXC1322418%12_R51NZ01	(aal2cpsrc_12)

7	run	CXC1320993_R51SK01	(aal2_rh)
8	run	CXC1322417%12_R51TC01	(aal2ap_12)
9	run	CXC1322419%12_R51TC01	(aal2distncc_)
10	run	CXC1329850_R10CC01	(RncLmLoadCtr)
11	run	CXC1329858_R10CC01	(RncLmMod0m)
12	run	CXC1329859_R10CC01	(RncLmDh)
13	run	CXC1329856_R10CJ01	(RncLmCell)
15	run	CXC1329857_R10CJ02	(RncLmUe)

RNC11> lhsh 001400 progkill lmue

```
$ echo Killing program CXC1329857_R10CJ02
Killing program CXC1329857_R10CJ02
$ lhsh 001400 pgkill 15
$
```

RNC11> lhsh 001400 progkill 9857

```
$ echo Killing program CXC1329857_R10CJ02
Killing program CXC1329857_R10CJ02
$ lhsh 001400 pgkill 15
$
```

137.58.194.134> lhsh 001700 proglis

```
090716-06:55:00 137.58.194.134 7.1t RNC_NODE_MODEL_K_9_95 stopfile=/tmp/29206
0x00020321 started CXC1728717_R9LA14 (RncLmSabp)
0x000202c5 started CXC1728716_R9LA11 (RncLmRnsap)
0x00030282 started CXC1728715_R9LA14 (RncLmRanap)
0x00020245 started CXC1728714_R9LA13 (RncLmPcap)
0x0002022b started CXC1728713_R9LA10 (RncLmLoadCtr)
0x000201dc started CXC1728712_R9LA12 (RncLmCenRnh)
0x000301a1 started CXC1728711_R9LA11 (RncLmCenMbms)
0x0003016a started CXC1728710_R9LA16 (RncLmCenDrh)
0x00030148 started CXC1728702_R9LA12 (RncLmCenAgps)
0x00030140 started CXC1321121_R71AE20 (NssSyciBp)
0x00030139 started CXC1721176_R71AE20 (PmAgent)
0x00030133 started CXC1320742_R71AE15 (SpasConn)
0x0003012d started CXC1327705_R71AE18 (dbagent)
0x00030126 started CXC1321316_R71AE21 (ethernet)
0x00020118 started CXC1321314_R71AE25 (sock)
0x000c010b started CXC1320787_R71AE20 (SysMan)
0x00030079 started CXC1725509_R71AE22 (SpasBasSpic)
0x00020094 started CXC1725383_R71AE34 (IcsPqiiMp)
0x00020088 started CXC1725507_R71AE29 (BcPpc750)
```

```

0x0002007b  started  CXC1725489_R71AE37          (BcMpRole)
0x00020061  started  CXC1725310_R71AE36          (BcMpBp)
0x00030057  started  CXC1725558_R71AE31          (EthFcc)
0x00040053  started  CXC1725465_R71AE25          (i2cpqii)
0x0001000d  started  core_module

```

```
137.58.194.134> lhsh 001700 progkill rnsap
```

```
090716-06:55:21 137.58.194.134 7.1t RNC_NODE_MODEL_K_9_95 stopfile=/tmp/29206
```

```
137.58.194.134> echo Killing program CXC1728716_R9LA11;lhsh 001700 pm_kill 0x000202c5;
```

```
090716-06:55:22 137.58.194.134 7.1t RNC_NODE_MODEL_K_9_95 stopfile=/tmp/29206
```

```
$ echo Killing program CXC1728716_R9LA11
```

```
Killing program CXC1728716_R9LA11
```

```
$ lhsh 001700 pm_kill 0x000202c5
```

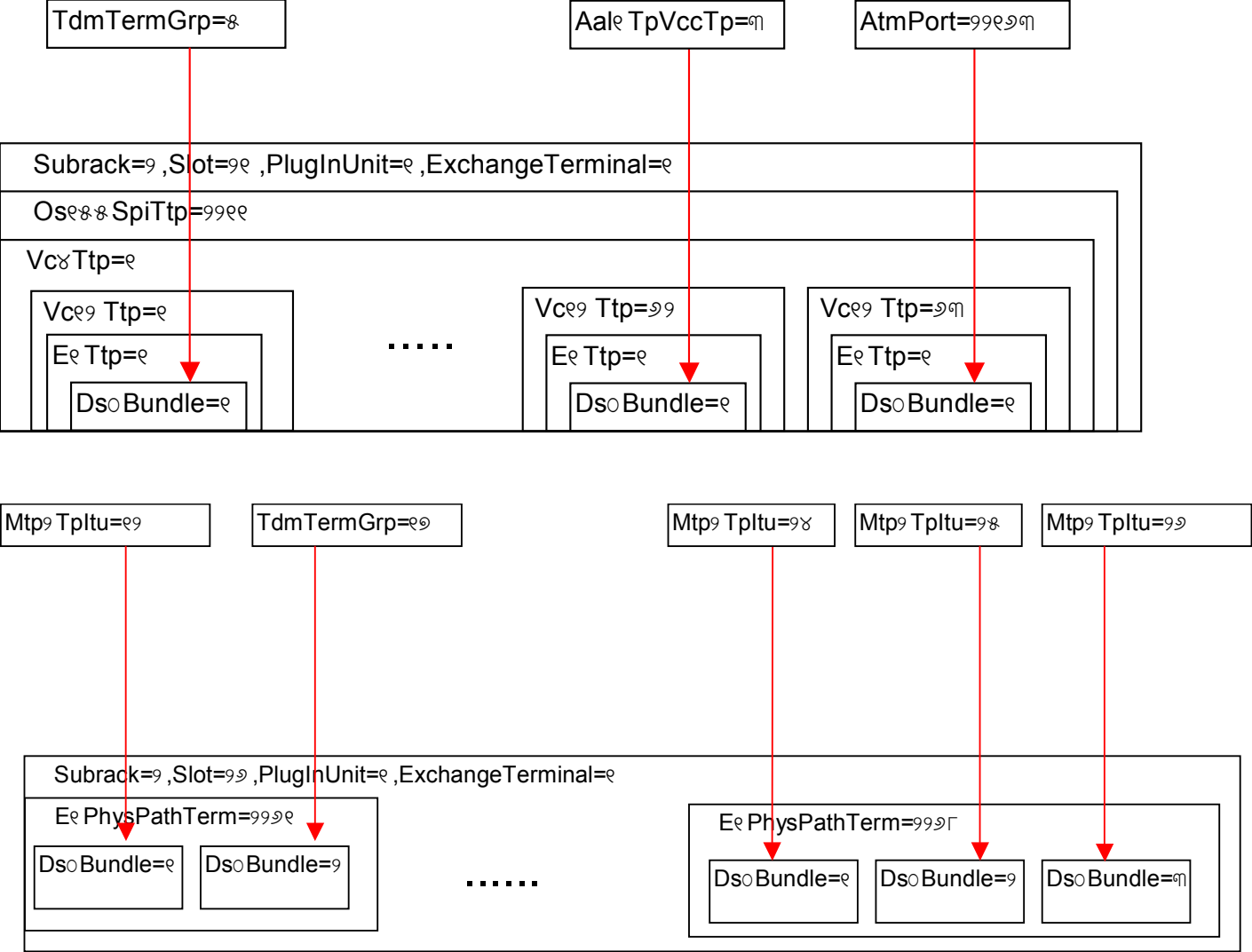
```
$
```

8 TRANSPORT NETWORK COMMANDS

8.1 Physical layer

Some things to check for trouble-shooting of the ATM/TDM physical terminations

- **stt : state and configuration of the physical terminations**
- **pdiff : current disturbances on the physical terminations (errored seconds counters)**
- **lga : past disturbances on the physical terminations (pdh degradation alarms)**



MGW1> stt

100126-14:41:18 172.31.68.99 8.0 MGW_NODE_MODEL_R5_1_R30_C01_COMPLETE stopfile=/tmp/29657

.....

=====				
Port	CG/KLM	SLC/PCM	PUI	USER
=====				

...<cut>...

2,Slot=17,.*,0s155.*=2172,Vc4Ttp=1

11 AtmPort=2172

```

2,Slot=18,.*,0s155.*=2181,Vc4Ttp=1
2,Slot=18,.*,0s155.*=2182,Vc4Ttp=1
2,Slot=25,.*,E1PhysPathTerm=2251,Ds0.*=22511
2,Slot=25,.*,E1PhysPathTerm=2251,Ds0.*=22512
2,Slot=25,.*,E1PhysPathTerm=2252,Ds0.*=22521
2,Slot=25,.*,E1PhysPathTerm=2252,Ds0.*=22522
2,Slot=25,.*,E1PhysPathTerm=2253,Ds0.*=22531
2,Slot=25,.*,E1PhysPathTerm=2253,Ds0.*=22532
(available,initialized,active)
2,Slot=25,.*,E1PhysPathTerm=2254,Ds0.*=22541
2,Slot=25,.*,E1PhysPathTerm=2254,Ds0.*=22542
2,Slot=25,.*,E1PhysPathTerm=2255,Ds0.*=22551
2,Slot=25,.*,E1PhysPathTerm=2256
2,Slot=25,.*,E1PhysPathTerm=2257
2,Slot=25,.*,E1PhysPathTerm=2258
2,Slot=26,.*,E1PhysPathTerm=2261,Ds0.*=22611
2,Slot=26,.*,E1PhysPathTerm=2261,Ds0.*=22612
(failed,not_initialized,idle)
2,Slot=26,.*,E1PhysPathTerm=2262,Ds0.*=22621
2,Slot=26,.*,E1PhysPathTerm=2262,Ds0.*=22622
(failed,not_initialized,idle)
2,Slot=26,.*,E1PhysPathTerm=2263
2,Slot=26,.*,E1PhysPathTerm=2264
2,Slot=26,.*,E1PhysPathTerm=2265
2,Slot=26,.*,E1PhysPathTerm=2266
2,Slot=26,.*,E1PhysPathTerm=2267
2,Slot=26,.*,E1PhysPathTerm=2268
...<cut>...

```

=====
Total: 178 M0s

MGW4> stt tdm

100126-17:01:52 MGW4 8.0 MGW_NODE_MODEL_R5_1_R4_G01 stopfile=/tmp/6480

Port	CG/KLM	SLC/PCM	PUI	USER
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=1,.*,Ds0.*=MOD1-24-1-1_Ds671	1/1.1.1	5325	10	TdmTermGrp=PcmNr5325_M1-24-1-1
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=2,.*,Ds0.*=MOD1-24-1-2_Ds672	1/1.1.2	5326	10	TdmTermGrp=PcmNr5326_M1-24-1-2
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=3,.*,Ds0.*=MOD1-24-1-3_Ds408	1/1.1.3	5327	10	TdmTermGrp=PcmNr5327_M1-24-1-3
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=4,.*,Ds0.*=MOD1-24-1-4_Ds409	1/1.2.1	5328	10	TdmTermGrp=PcmNr5328_M1-24-1-4
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=5,.*,Ds0.*=MOD1-24-1-5_Ds410	1/1.2.2	5329	10	TdmTermGrp=PcmNr5329_M1-24-1-5
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=6,.*,Ds0.*=MOD1-24-1-6_Ds411	1/1.2.3	5330	10	TdmTermGrp=PcmNr5330_M1-24-1-6
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=7,.*,Ds0.*=MOD1-24-1-7_Ds412	1/1.3.1	5331	10	TdmTermGrp=PcmNr5331_M1-24-1-7

2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=8,.*,Ds0.*=MOD1-24-1-8_Ds413	1/1.3.2	5332	10	TdmTermGrp=PcmNr5332_M1-24-1-8
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=9,.*,Ds0.*=MOD1-24-1-9_Ds414	2/1.3.3	5333	10	TdmTermGrp=PcmNr5333_M1-24-1-9
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=10,.*,Ds0.*=MOD1-24-1-10_Ds415	2/1.4.1	5334	10	TdmTermGrp=PcmNr5334_M1-24-1-10
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=11,.*,Ds0.*=MOD1-24-1-11_Ds416	2/1.4.2	5335	10	TdmTermGrp=PcmNr5335_M1-24-1-11
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=12,.*,Ds0.*=MOD1-24-1-12_Ds417	2/1.4.3	5336	10	TdmTermGrp=PcmNr5336_M1-24-1-12
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=13,.*,Ds0.*=MOD1-24-1-13_Ds418	2/1.5.1	5337	10	TdmTermGrp=PcmNr5337_M1-24-1-13
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=14,.*,Ds0.*=MOD1-24-1-14_Ds419	2/1.5.2	5338	10	TdmTermGrp=PcmNr5338_M1-24-1-14
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=15,.*,Ds0.*=MOD1-24-1-15_Ds420	2/1.5.3	5339	10	TdmTermGrp=PcmNr5339_M1-24-1-15
2,Slot=24,.*,0s155.*=MOD1-24-1,.*,Vc12Ttp=16,.*,Ds0.*=MOD1-24-1-16_Ds421	2/1.6.1	5340	10	TdmTermGrp=PcmNr5340_M1-24-1-16
...<cut>....				
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=33,.*,Ds0.*=MOD5-25-2-33_Ds564	5/2.4.3	6932	0L	TdmTermGrp=PcmNr6932_M5-25-2-33
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=34,.*,Ds0.*=MOD5-25-2-34_Ds565	5/2.5.1	6933	0L	TdmTermGrp=PcmNr6933_M5-25-2-34
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=35,.*,Ds0.*=MOD5-25-2-35_Ds566	5/2.5.2	6934	0L	TdmTermGrp=PcmNr6934_M5-25-2-35
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=36,.*,Ds0.*=MOD5-25-2-36_Ds567	5/2.5.3	6935	0L	TdmTermGrp=PcmNr6935_M5-25-2-36
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=37,.*,Ds0.*=MOD5-25-2-37_Ds568	5/2.6.1	6936	0L	TdmTermGrp=PcmNr6936_M5-25-2-37
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=38,.*,Ds0.*=MOD5-25-2-38_Ds569	6/2.6.2	6937	0L	TdmTermGrp=PcmNr6937_M5-25-2-38
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=39,.*,Ds0.*=MOD5-25-2-39_Ds570	6/2.6.3	6938	0L	TdmTermGrp=PcmNr6938_M5-25-2-39
6,Slot=25,.*,0s155.*=MOD5-25-2,.*,Vc12Ttp=40,.*,Ds0.*=MOD5-25-2-40_Ds571	6/2.7.1	6939	0L	TdmTermGrp=PcmNr6939_M5-25-2-40

MGW3> lpdiff exchangeterminal . !^0

first check...

waiting 25 seconds before next check...

second check

M0	Counter	DiffValue
Subrack=MS,Slot=24,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=28,T1Ttp=1 pmUas		25
Subrack=MS,Slot=24,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=27,T1Ttp=1 pmUas		25
Subrack=MS,Slot=24,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=1,T1Ttp=1 pmEs		2
Subrack=MS,Slot=24,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1,Sts1SpeTtp=1,Vt15Ttp=1,T1Ttp=1 pmSes		2
Subrack=MS,Slot=17,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2 pmMsUas	25	
Subrack=MS,Slot=17,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2,Vc4Ttp=1 pmVcUas		25
Subrack=MS,Slot=16,PlugInUnit=1,ExchangeTerminal=1,E1PhysPathTerm=pp5 pmUas	25	

Total: 9 M0s

ALARMS ARE RAISED WHEN THE ERRORED SECONDS ARE TOO HIGH (30% BER for more than 7 seconds)

CHECK LGA TO LOOK FOR RAISED/CEASED ALARMS ON DEGRADED TRANSMISSION

MGW3> lga

...<cut>...

2007-08-20 18:01:55 AL m **PDH Degraded Signal** degraded_signal_m3100

Subrack=MS,Slot=12,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=pp1,Vc4Ttp=1,Vc12Ttp=62,E1Ttp=1

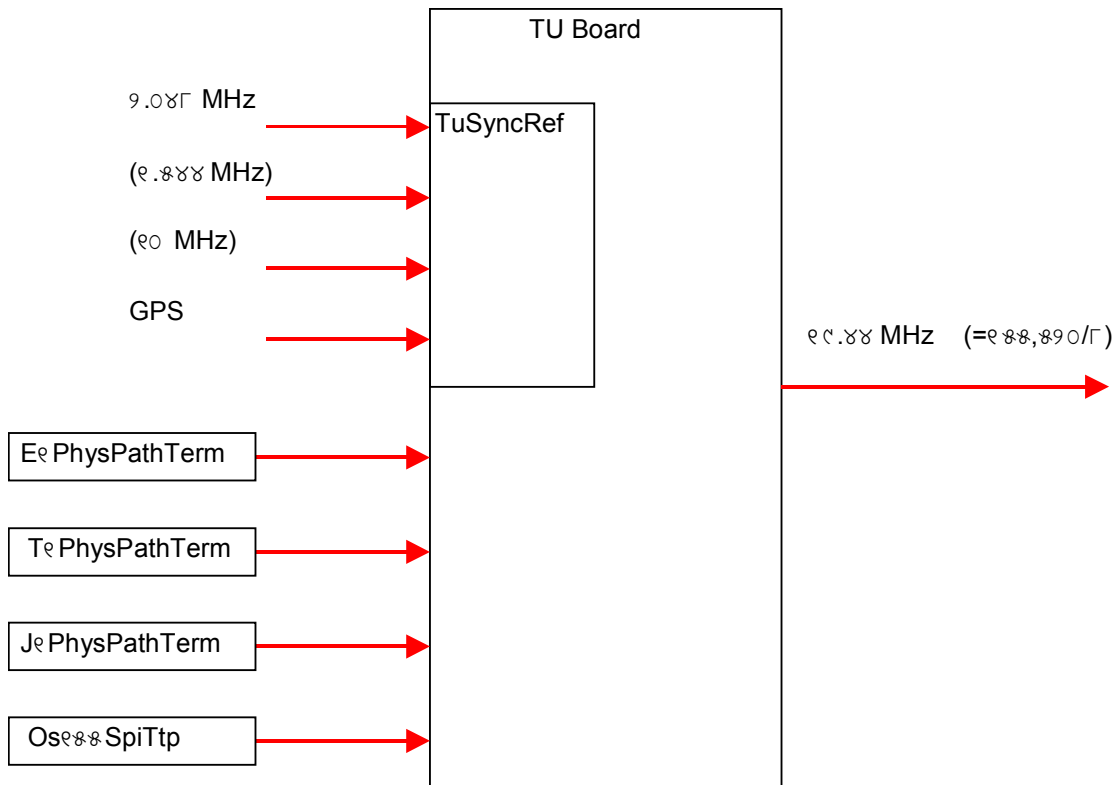
2007-08-20 18:02:11 AL * **PDH Degraded Signal** degraded_signal_m3100

Subrack=MS,Slot=12,PlugInUnit=1,ExchangeTerminal=1,Os155SpiTtp=pp1,Vc4Ttp=1,Vc12Ttp=62,E1Ttp=1

8.2 Network Synchronisation

Sync references can be connected directly on each TU board (they are then mapped to the MO TuSyncRef) or the signal from a physical port can be used as sync reference. The clock signal generated by the TU clocks is a 19.44 MHz signal (corresponds to 1/8 of the STM-1 bitrate).

(Note: TuSyncRef with 1.544 or 10 MHz is not recommended as these signals are usually less reliable than the 2.048 MHz or GPS)



RXI3> get synchroni

```
=====
1358                                TransportNetwork=1,Synchronization=1
=====
SynchronizationId                    1
degradationIsFault                   0 (DEGR_NOT_FAULT)
syncRefActivity                      i[8] = 1 1 1 2 1 1 1 1    // = INACTIVE, INACTIVE, INACTIVE, ACTIVE, INACTIVE, ...
syncRefPriority                      i[8] = 4 2 3 1 5 0 0 0
syncRefStatus                        i[8] = 3 3 3 3 0 0 0 0    // = OK, OK, OK, OK, FAILED, FAILED, FAILED, FAILED
syncReference                        [8] =
>>> syncReference = Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1
>>> syncReference = Equipment=1,Subrack=MS,Slot=8,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2
>>> syncReference = Equipment=1,Subrack=MS,Slot=12,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2
>>> syncReference = Equipment=1,Subrack=MS,Slot=16,PlugInUnit=1,ExchangeTerminal=1,E1PhysPathTerm=pp8
>>> syncReference = Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
>>> syncReference =
>>> syncReference =
>>> syncReference =
systemClockA                        2 (LOCKED_MODE)        // TUB SLOT 4
systemClockB                        2 (LOCKED_MODE)        // TUB SLOT 5
userLabel
=====
```

Total: 1 M0s

RXI3> mom clockstate

```
#####
Enum                                Values
#####
ClockState                          0:unknownMode, 1:startupMode, 2:lockedMode, 3:holdOverMode, 4:freeRunningMode, 5:failedMode,
6:lossOfTrackingMode, 7:notApplicable
-----
```

RXI3> mom . syncRef(Activity|status)

```
#####
M0 Class                            Attribute                Type                                Flags
#####
Synchronization                     syncRefActivity      sequence:enumRef-RefActivity          readOnly,nonPersistent,noNotification
-----
Set of synchronization reference activity attributes.
Note: The length of this sequence is always 8.
*****
Synchronization                     syncRefStatus        sequence:enumRef-RefState            readOnly,nonPersistent,noNotification
```

Set of synchronization reference status attributes.

Note: The length of this sequence is always 8.

RXI3> mom ref(activity|state)

#####

Enum Values

#####

RefState 0:FAILED, 1:DEGRADED, 2:LOSS_OF_TRACKING, 3:OK, 4:REF_PATH_FAILED_A, 5:REF_PATH_FAILED_B

RefState can have the following values:

failed = synchronization reference is not capable to perform its required tasks.

degraded = capability of synchronization reference to perform its required tasks is degraded e.g. because of signal level degradation. This value is only applicable for traffic carrying (ET physical path termination) synchronization references. Note: attribute degradationIsFault controls whether synchronization reference degradation is interpreted as a synchronization reference fault or not.

lossOfTracking = system clock regulation algorithm on TU board can not follow the 8kHz synchronization reference signal either because of the poor quality of the signal or because of a HW fault at TU board. If all synchronization references repeatedly end up to state lossOfTracking, fault is likely in TU HW.

ok = synchronization reference is capable of performing its required tasks.

refPathFailed_A = Synchronization reference cannot be distributed on plane A.

refPathFailed_B = Synchronization reference cannot be distributed on plane B.

- FAILED:
- DEGRADED:
- LOSS_OF_TRACKING:
- OK:
- REF_PATH_FAILED_A:
- REF_PATH_FAILED_B:

RefActivity 1:INACTIVE, 2:ACTIVE

RefActivity can have the following values:

inactive = Synchronization reference is currently not used in system clock generation.

active = Synchronization is used in system clock generation.

- INACTIVE:
- ACTIVE:

RXI3> ma syncref synch ref

Added 4 MOs to group: syncref

RXI3> get syncref reservedbysync

```

=====
M0                                     Attribute      Value
=====
Subrack=MS,Slot=16,PlugInUnit=1,ExchangeTerminal=1,E1PhysPathTerm=pp8 reservedBySync    Synchronization=1
Subrack=MS,Slot=12,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2 reservedBySync    Synchronization=1
Subrack=MS,Slot=8,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp2 reservedBySync    Synchronization=1
Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=pp1 reservedBySync    Synchronization=1
=====
Total: 4 M0s

```

RXI> mom synchorniz

```

#####
M0 Class      Attributes/Actions
#####
Synchronization
SynchronizationId,degradationIsFault,syncRefActivity,syncRefPriority,syncRefStatus,syncReference,systemClockA,systemClockB,systemC
lockRedundancy,userLabel
      addSyncRefResource,changeSyncRefPriority,removeSyncRefResource,resetLossOfTracking
This M0 is used to administer synchronization references for the network synchronization function and to view the system clock
state of Timing Unit boards.
Synchronization can have 0 to 8 relations to other M0s. The only valid M0s where relations can exist are E1Physpathterm,
J1Physpathterm, T1Physpathterm, 0s155SpiTtp, TU Synchronization Reference, and ManagedObject (for the non-Cello RXI820 M0) M0s.
Note that maximum number of relations to these M0s is 8 all together.
The synchronization M0 is automatically created and cannot be deleted.
Note: An external ManagedObject that wishes to be connected to the Synchronization M0 must implement the following interface
se.ericsson.cello.equipment.SyncReservable!
The local distinguished name of this M0 is ManagedElement=1,TransportNetwork=1,Synchronization=1
.
-----

```

RNC10> acc 793 removeSyncRefResource

```

=====
Proxy  M0                                     Action                                     Nr of Params
=====
793    Synchronization=1                      removeSyncRefResource                      1

```

Parameter 1 of 1, syncReference (moRef-ManagedObject):

Enter mo LDN: Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1

>>> Return value = null

```
=====
Total: 1 M0s attempted, 1 M0s actioned

RNC10> acc 793 addSyncRefResource

=====
Proxy  M0                                     Action                                     Nr of Params
=====
  793  Synchronization=1                     addSyncRefResource                             2
=====

Parameter 1 of 2, syncReference (moRef-ManagedObject):
  Enter mo LDN: Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1

Parameter 2 of 2, syncPriority (long): 3
>>> Return value = null

=====
Total: 1 M0s attempted, 1 M0s actioned
```

8.3 ATM layer

Some things to check for trouble-shooting of the ATM transport network

- stvb : state and configuration of the VP/VCs
- step : state and configuration of the VC cross-connections
- pdiff : transmitted and received atm cells counters, to see if there is one-way traffic on the VC's, which could indicate loss of end-to-end connectivity
- etelooptest : manual test of end-to-end connectivity on the VC's
- continuitycheck : automatic check of end-to-end connectivity on the Aal2Paths

```
RNC11> stvb
```

VclTp	VPI/VCI	BwUsage/TraffDes	VU	M	User
AtmPort=MS-6-1-1		353000/353207	1		
AtmPort=MS-6-1-1,VplTp=2	2	224000/353000	1		
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-34	2/34	U3P4500M3000	11		Mtp3bSpItu=Iu,Mtp3bSls=Iuc-2351-2300,Mtp3bSlItu=Iuc
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-50	2/50	U3P4500M3000	11		Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-90	2/90	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-90 (1, Aal2Ap=Iuc)

AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-91	2/91	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-91 (2, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-92	2/92	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-92 (3, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-93	2/93	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-93 (4, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-94	2/94	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-94 (5, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-95	2/95	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-95 (6, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-96	2/96	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-96 (7, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-97	2/97	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-97 (8, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-98	2/98	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-98 (9, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-99	2/99	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-99 (10, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-100	2/100	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-100 (11, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-101	2/101	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-101 (12, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-102	2/102	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-102 (13, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-103	2/103	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-103 (14, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-110	2/110	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr1Gtpu1 (MS-19,Pdr1Gtpu1,111.111.101.101,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-111	2/111	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr1Gtpu2 (MS-19,Pdr1Gtpu2,222.222.101.101,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-112	2/112	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr2Gtpu1 (MS-20,Pdr2Gtpu1,111.111.102.102,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-113	2/113	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr2Gtpu2 (MS-20,Pdr2Gtpu2,222.222.102.102,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-114	2/114	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr3Gtpu1 (MS-22,Pdr3Gtpu1,111.111.103.103,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-115	2/115	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr3Gtpu2 (MS-22,Pdr3Gtpu2,222.222.103.103,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-116	2/116	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr4Gtpu1 (MS-23,Pdr4Gtpu1,111.111.104.104,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-117	2/117	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr4Gtpu2 (MS-23,Pdr4Gtpu2,222.222.104.104,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-118	2/118	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr5Gtpu1 (MS-19,Pdr5Gtpu1,111.111.105.105,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-119	2/119	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr5Gtpu2 (MS-19,Pdr5Gtpu2,222.222.105.105,124.124.124.124)
AtmPort=MS-26-2-1		353000/353207	1		-----
AtmPort=MS-26-2-1,VplTp=1	1	27118/27838	1		-----
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-34	1/34	C1P5	11	8	IubLink=Iub-1,NodeSynchTp=1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-35	1/35	C1P5	11	8	IubLink=Iub-1,NodeSynchTp=2
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-36	1/36	U3P1000M80	11	8	IubLink=Iub-1,NbapCommon=1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-37	1/37	U3P1000M80	11	8	IubLink=Iub-1,NbapDedicated=1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-38	1/38	U3P1000M80	11	1	Aal2Sp=1,Aal2Ap=Iub-1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-39	1/39	C2P6657(AB)	11?	1	Aal2PathVccTp=Iub-1-39 (9, Aal2Ap=Iub-1)
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-43	1/43	U3P1000M80	11	8	IubLink=Iub-1,NbapCommon=1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-44	1/44	U3P1000M80	11	8	IubLink=Iub-1,NbapDedicated=1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-45	1/45	U3P1000M80	11	1	Aal2Sp=1,Aal2Ap=Iub-1
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-47	1/47	C2P6657(AB)	11?	1	Aal2PathVccTp=Iub-1-47 (10, Aal2Ap=Iub-1)

```

AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-48      1/48  C2P6657(AB)      11?   1  Aal2PathVccTp=Iub-1-48 (12, Aal2Ap=Iub-1)
AtmPort=MS-26-2-1,VplTp=1,.*VclTp=Iub-1-51      1/51  C2P6657(AB)      11?   1  Aal2PathVccTp=Iub-1-51 (13, Aal2Ap=Iub-1)
AtmPort=MS-26-2-1,VplTp=10                      10    13804/14524      1      -----
...<cut>.....

```

=====
Total: 511 M0s

RXI3> stvb

```

=====
VclTp                VPI/VCi  BwUsage/TraffDesc  VU    User
=====
AtmPort=MS-7-1                350000/353207      1      -----
AtmPort=MS-7-1,VplTp=vp2                2  80740/350000      1      -----
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc38      2/38  U3P2000M400      11     Aal2Sp=1,Aal2Ap=r35
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc39      2/39  C2P80000(AB)     111    Aal2PathVccTp=r35a1 (1, Aal2Ap=r35)
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12232    2/12232 U4               11     AtmCrossConnection=RNC35-2-12232-RBS122-1-32
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12234    2/12234 C1P5             11     AtmCrossConnection=RNC35-2-12234-RBS122-1-34
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12235    2/12235 C1P5             11     AtmCrossConnection=RNC35-2-12235-RBS122-1-35
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12236    2/12236 U3P1000M80       11     AtmCrossConnection=RNC35-2-12236-RBS122-1-36
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12237    2/12237 U3P1000M80       11     AtmCrossConnection=RNC35-2-12237-RBS122-1-37
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12432    2/12432 U4               11     AtmCrossConnection=RNC35-2-12432-RBS124-1-32
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12434    2/12434 C1P5             11     AtmCrossConnection=RNC35-2-12434-RBS124-1-34
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12435    2/12435 C1P5             11     AtmCrossConnection=RNC35-2-12435-RBS124-1-35
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12436    2/12436 U3P1000M80       11     AtmCrossConnection=RNC35-2-12436-RBS124-1-36
AtmPort=MS-7-1,VplTp=vp2,.*VclTp=vc12437    2/12437 U3P1000M80       11     AtmCrossConnection=RNC35-2-12437-RBS124-1-37
AtmPort=MS-7-2                353000/353207      1      -----
AtmPort=MS-7-2,VplTp=vp2                2  83500/353000      1      -----
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12532    2/12532 U4               11     AtmCrossConnection=RNC37-2-12532-RBS125-1-32
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12534    2/12534 C1P5             11     AtmCrossConnection=RNC37-2-12534-RBS125-1-34
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12535    2/12535 C1P5             11     AtmCrossConnection=RNC37-2-12535-RBS125-1-35
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12536    2/12536 U3P1000M80       11     AtmCrossConnection=RNC37-2-12536-RBS125-1-36
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12537    2/12537 U3P1000M80       11     AtmCrossConnection=RNC37-2-12537-RBS125-1-37
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12538    2/12538 U3P1000M80       11     AtmCrossConnection=RNC37-2-12538-RBS125-1-38
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12539    2/12539 C2P4000          11     AtmCrossConnection=MS-7-2-2-12539-MS-19-ima1-1-39
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc12540    2/12540 C2P12000         11     AtmCrossConnection=MS-7-2-2-12540-MS-19-ima1-1-40
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23832    2/23832 U4               11     AtmCrossConnection=RNC37-2-23832-RBS238-1-32
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23834    2/23834 C1P5             11     AtmCrossConnection=RNC37-2-23834-RBS238-1-34
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23835    2/23835 C1P5             11     AtmCrossConnection=RNC37-2-23835-RBS238-1-35
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23836    2/23836 U3P1000M80       11     AtmCrossConnection=RNC37-2-23836-RBS238-1-36
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23837    2/23837 U3P1000M80       11     AtmCrossConnection=RNC37-2-23837-RBS238-1-37
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23838    2/23838 U3P1000M80       11     AtmCrossConnection=RNC37-2-23838-RBS238-1-38
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23839    2/23839 C2P55000         11     AtmCrossConnection=MS-7-2-2-23839-MS-10-1-1-39
AtmPort=MS-7-2,VplTp=vp2,.*VclTp=vc23840    2/23840 C2P12000         11     AtmCrossConnection=MS-7-2-2-23840-MS-10-1-1-40
...<cut>...

```

=====
Total: 582 M0s

RNC11> stvb ms-6-1

```
=====  
VclTp          VPI/VCi  BwUsage/TraffDesc  VU   M  User  
=====
```

AtmPort=MS-6-1-1		353000/353207	1		-----
AtmPort=MS-6-1-1,VplTp=2	2	224000/353000	1		-----
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-34	2/34	U3P4500M3000	11		Mtp3bSpItu=Iu,Mtp3bSlS=Iuc-2351-2300,Mtp3bSlItu=Iuc
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-50	2/50	U3P4500M3000	11		Mtp3bSpItu=Iu,Mtp3bSlS=Iup-2351-2810,Mtp3bSlItu=Iup
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-90	2/90	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-90 (1, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-91	2/91	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-91 (2, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-92	2/92	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-92 (3, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-93	2/93	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-93 (4, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-94	2/94	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-94 (5, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-95	2/95	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-95 (6, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-96	2/96	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-96 (7, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-97	2/97	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-97 (8, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-98	2/98	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-98 (9, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-99	2/99	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-99 (10, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-100	2/100	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-100 (11, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-101	2/101	C2P12000(AB)	11?	8	Aal2PathVccTp=Iuc-101 (12, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-102	2/102	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-102 (13, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iuc-103	2/103	C2P12000(AB)	11?	1	Aal2PathVccTp=Iuc-103 (14, Aal2Ap=Iuc)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-110	2/110	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr1Gtpu1 (MS-19,Pdr1Gtpu1,111.111.101.101,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-111	2/111	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr1Gtpu2 (MS-19,Pdr1Gtpu2,222.222.101.101,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-112	2/112	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr2Gtpu1 (MS-20,Pdr2Gtpu1,111.111.102.102,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-113	2/113	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr2Gtpu2 (MS-20,Pdr2Gtpu2,222.222.102.102,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-114	2/114	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr3Gtpu1 (MS-22,Pdr3Gtpu1,111.111.103.103,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-115	2/115	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr3Gtpu2 (MS-22,Pdr3Gtpu2,222.222.103.103,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-116	2/116	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr4Gtpu1 (MS-23,Pdr4Gtpu1,111.111.104.104,123.123.123.123)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-117	2/117	U3P66600M5000	111		RncModule=8,PacketDataRouter=Pdr4Gtpu2 (MS-23,Pdr4Gtpu2,222.222.104.104,124.124.124.124)
AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-118	2/118	U3P66600M5000	111		RncModule=1,PacketDataRouter=Pdr5Gtpu1 (MS-19,Pdr5Gtpu1,111.111.105.105,123.123.123.123)

AtmPort=MS-6-1-1,VplTp=2,.*VclTp=Iup-119 2/119 U3P66600M5000 111 RncModule=1,PacketDataRouter=Pdr5Gtpu2 (MS-19,Pdr5Gtpu2,222.222.105.105,124.124.124.124)

RNC11> stvb iub-10

VclTp	VPI/VCI	BwUsage/TraffDesc	VU	M	User
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-34	10/34	C1P5	11	8	IubLink=Iub-10,NodeSynchTp=1
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-35	10/35	C1P5	11	8	IubLink=Iub-10,NodeSynchTp=2
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-36	10/36	U3P1000M80	11	8	IubLink=Iub-10,NbapCommon=1
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-37	10/37	U3P1000M80	11	8	IubLink=Iub-10,NbapDedicated=1
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-38	10/38	U3P1000M80	11	1	Aal2Sp=1,Aal2Ap=Iub-10
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-39	10/39	C2P6657(ABC)	11?	1	Aal2PathVccTp=Iub-10-39 (227, Aal2Ap=Iub-10)
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-43	10/43	U3P1000M80	11	8	IubLink=Iub-10,NbapCommon=1
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-44	10/44	U3P1000M80	11	8	IubLink=Iub-10,NbapDedicated=1
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-45	10/45	U3P1000M80	11	1	Aal2Sp=1,Aal2Ap=Iub-10
AtmPort=MS-26-2-1,VplTp=10,.*VclTp=Iub-10-47	10/47	C2P6657(ABC)	11?	1	Aal2PathVccTp=Iub-10-47 (228, Aal2Ap=Iub-10)

RXI3> stvb . 0|L

VclTp	VPI/VCI	BwUsage/TraffDesc	VU	User
AtmPort=MS-9-1		353000/353207	0	-----
AtmPort=MS-9-1,VplTp=vp1	1	110500/353000	0	-----
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc32	1/32	U4	01	AtmCrossConnection=RNC35-2-12432-RBS124-1-32
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc33	1/33	U4	01	AtmCrossConnection=RNC35-2-12433-RBS124-1-33
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc34	1/34	C1P5	01	AtmCrossConnection=RNC35-2-12434-RBS124-1-34
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc35	1/35	C1P5	01	AtmCrossConnection=RNC35-2-12435-RBS124-1-35
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc36	1/36	U3P1000M80	01	AtmCrossConnection=RNC35-2-12436-RBS124-1-36
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc37	1/37	U3P1000M80	01	AtmCrossConnection=RNC35-2-12437-RBS124-1-37
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc38	1/38	U3P1000M80	00	Aal2Sp=1,Aal2Ap=b124
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc39	1/39	C2P55000(ABCD)	00?	Aal2PathVccTp=b124a1
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc40	1/40	C2P55000(C)	00?	Aal2PathVccTp=b124b1
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc41	1/41	C1P5	01	AtmCrossConnection=RNC35-2-12441-RBS124-1-41
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc42	1/42	C1P5	01	AtmCrossConnection=RNC35-2-12442-RBS124-1-42
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc43	1/43	U3P1000M80	01	AtmCrossConnection=RNC35-2-12443-RBS124-1-43
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc44	1/44	U3P1000M80	01	AtmCrossConnection=RNC35-2-12444-RBS124-1-44
AtmPort=MS-9-1,VplTp=vp1,.*VclTp=vc45	1/45	U3P1000M80	00	Aal2Sp=1,Aal2Ap=b124

AtmPort=MS-9-2		350000/353207	0	-----
AtmPort=MS-9-2,VplTp=vp2	2	27600/350000	0	-----
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9932	2/9932	U4	01	AtmCrossConnection=RNC47-2-9932-RBS99-1-32
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9934	2/9934	C1P5	01	AtmCrossConnection=RNC47-2-9934-RBS99-1-34
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9935	2/9935	C1P5	01	AtmCrossConnection=RNC47-2-9935-RBS99-1-35
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9936	2/9936	U3P1000M80	01	AtmCrossConnection=RNC47-2-9936-RBS99-1-36
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9937	2/9937	U3P1000M80	01	AtmCrossConnection=RNC47-2-9937-RBS99-1-37
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc9938	2/9938	U3P1000M80	01	AtmCrossConnection=RNC47-2-9938-RBS99-1-38
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=1	2/9939	C2P8550	01	AtmCrossConnection=RNC47-2-9939-RBS99-1-39
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=3	2/9940	C2P8550	01	AtmCrossConnection=MS-9-2-2-9940-MS-20-ima1-1-40
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25132	2/25132	U4	01	AtmCrossConnection=RNC47-2-25132-RBS251-1-32
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25134	2/25134	C1P5	01	AtmCrossConnection=RNC47-2-25134-RBS251-1-34
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25135	2/25135	C1P5	01	AtmCrossConnection=RNC47-2-25135-RBS251-1-35
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25136	2/25136	U3P1000M80	01	AtmCrossConnection=RNC47-2-25136-RBS251-1-36
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25137	2/25137	U3P1000M80	01	AtmCrossConnection=RNC47-2-25137-RBS251-1-37
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25138	2/25138	U3P1000M80	01	AtmCrossConnection=RNC47-2-25138-RBS251-1-38
AtmPort=MS-9-2,VplTp=vp2,.*VclTp=vc25139	2/25139	C2P10000	01	AtmCrossConnection=MS-9-2-2-25139-MS-17-1-1-39
AtmPort=MS-11-1,VplTp=vp2,.*VclTp=vc39	2/39	C2P55000(AB)	110	Aal2PathVccTp=r25a1
AtmPort=MS-11-1,VplTp=vp2,.*VclTp=vc46	2/46	C2P55000(AB)	110	Aal2PathVccTp=r25a2
AtmPort=MS-11-2,VplTp=vp2,.*VclTp=vc47	2/47	C2P55000(AB)	110	Aal2PathVccTp=r25b2
AtmPort=MS-18-ima1,VplTp=vp1,.*VclTp=vc40	1/40	U4(CD)	110	Aal2PathVccTp=b122a2
AtmPort=MS-20-ima2		17600/17611	0	-----
AtmPort=MS-20-ima2,VplTp=vp1	1	10500/17600	0	-----
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc32	1/32	U4	01	AtmCrossConnection=RNC27-2-21932-RBS219-1-32
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc33	1/33	U4	01	AtmCrossConnection=RNC27-2-21933-RBS219-1-33
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc34	1/34	C1P5	01	AtmCrossConnection=RNC27-2-21934-RBS219-1-34
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc35	1/35	C1P5	01	AtmCrossConnection=RNC27-2-21935-RBS219-1-35
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc36	1/36	U3P1000M80	01	AtmCrossConnection=RNC27-2-21936-RBS219-1-36
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc37	1/37	U3P1000M80	01	AtmCrossConnection=RNC27-2-21937-RBS219-1-37
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc38	1/38	U3P1000M80	01	AtmCrossConnection=RNC27-2-21938-RBS219-1-38
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc39	1/39	C2P10000	01	AtmCrossConnection=MS-14-1-2-21939-MS-20-ima2-1-39
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc41	1/41	C1P5	01	AtmCrossConnection=RNC27-2-21941-RBS219-1-41
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc42	1/42	C1P5	01	AtmCrossConnection=RNC27-2-21942-RBS219-1-42
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc43	1/43	U3P1000M80	01	AtmCrossConnection=RNC27-2-21943-RBS219-1-43
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc44	1/44	U3P1000M80	01	AtmCrossConnection=RNC27-2-21944-RBS219-1-44
AtmPort=MS-20-ima2,VplTp=vp1,.*VclTp=vc45	1/45	U3P1000M80	01	AtmCrossConnection=RNC27-2-21945-RBS219-1-45

=====
Total: 52 M0

RXI1> acc 14 37 eteloopback

Proxy	M0	Action	Nr of Params
-------	----	--------	--------------

```

14  AtmPort=MS-6-2,VplTp=vp2,VpcTp=1,VclTp=vc12532          eteLoopBack          0
>>> Return value = false

37  AtmPort=MS-26-1,VplTp=vp2,VpcTp=1,VclTp=vc68            eteLoopBack          0
>>> Return value = true

```

```

RXI1> pdiff vcltp transmitted !^0

```

```

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20070110-220418_17503/boLog17503

```

```

.....
waiting 20 seconds before next check...

```

```

.....
Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20070110-220418_17503/boLog17503

```

M0	Counter	DiffValue
AtmPort=MS-22-2,VplTp=vp1,VpcTp=1,VclTp=vc45	pmTransmittedAtmCells	47
AtmPort=MS-22-2,VplTp=vp1,VpcTp=1,VclTp=vc44	pmTransmittedAtmCells	46
...<cut>...		
AtmPort=MS-17-1,VplTp=vp1,VpcTp=1,VclTp=vc44	pmTransmittedAtmCells	48
AtmPort=MS-17-1,VplTp=vp1,VpcTp=1,VclTp=vc45	pmTransmittedAtmCells	48
AtmPort=MS-17-1,VplTp=vp1,VpcTp=1,VclTp=vc39	pmTransmittedAtmCells	24
AtmPort=MS-17-1,VplTp=vp1,VpcTp=1,VclTp=vc40	pmTransmittedAtmCells	24

```

Total: 473 M0s

```

```

Added 473 M0s to group: pdiff_group

```

```

RXI1> pdiff pdiff_group receive ^0

```

```

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20070110-220418_17503/boLog17503

```

```

.....
waiting 21 seconds before next check...

```

```

.....
Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20070110-220418_17503/boLog17503

```

M0	Counter	DiffValue
AtmPort=MS-26-2,VplTp=vp2,VpcTp=1,VclTp=vc6233	pmReceivedAtmCells	0
...<cut>...		
AtmPort=MS-10-2,VplTp=vp2,VpcTp=1,VclTp=vc4433	pmReceivedAtmCells	0
AtmPort=MS-10-1,VplTp=vp2,VpcTp=1,VclTp=vc5133	pmReceivedAtmCells	0

AtmPort=MS-8-2,VplTp=vp2,VpcTp=1,VclTp=vc646pmReceivedAtmCells0

AtmPort=MS-8-2,VplTp=vp2,VpcTp=1,VclTp=vc648pmReceivedAtmCells0

AtmPort=MS-7-2,VplTp=vp2,VpcTp=1,VclTp=vc23933pmReceivedAtmCells0

AtmPort=MS-7-2,VplTp=vp2,VpcTp=1,VclTp=vc8233pmReceivedAtmCells0

AtmPort=MS-7-2,VplTp=vp2,VpcTp=1,VclTp=vc21333pmReceivedAtmCells0

AtmPort=MS-7-2,VplTp=vp2,VpcTp=1,VclTp=vc5433pmReceivedAtmCells0

AtmPort=MS-7-2,VplTp=vp2,VpcTp=1,VclTp=vc21133pmReceivedAtmCells0

=====

Total: 27 M0s

RXI1> stcp

CCId	CSSPP	VclTpA	VclTpB	Vp/VcA	Vp/VcB	TD-A	TD-B	UserLabel
RNC161-2-11933-RBS119-1-33	11111	MS-10-1.*vp2.*vc11933	MS-21-1.*vp1.*vc33	2/11933	1/33	U4	U4	
MS-10-1-2-11940-MS-21-1-1-40	11111	MS-10-1.*vp2.*vc11940	MS-21-1.*vp1.*vc40	2/11940	1/40	C2P55000	C2P55000	
RNC161-2-11941-RBS119-1-41	11111	MS-10-1.*vp2.*vc11941	MS-21-1.*vp1.*vc41	2/11941	1/41	C1P5	C1P5	
RNC161-2-11942-RBS119-1-42	11111	MS-10-1.*vp2.*vc11942	MS-21-1.*vp1.*vc42	2/11942	1/42	C1P5	C1P5	
RNC161-2-11943-RBS119-1-43	11111	MS-10-1.*vp2.*vc11943	MS-21-1.*vp1.*vc43	2/11943	1/43	U3P1000M80	U3P1000M80	
RNC161-2-11944-RBS119-1-44	11111	MS-10-1.*vp2.*vc11944	MS-21-1.*vp1.*vc44	2/11944	1/44	U3P1000M80	U3P1000M80	
RNC161-2-11945-RBS119-1-45	11111	MS-10-1.*vp2.*vc11945	MS-21-1.*vp1.*vc45	2/11945	1/45	U3P1000M80	U3P1000M80	
RNC161-2-5133-RBS51-1-33	11101	MS-10-1.*vp2.*vc5133	MS-20-2.*vp1.*vc33	2/5133	1/33	U4	U4	
MS-10-1-2-5140-MS-20-2-1-40	11111	MS-10-1.*vp2.*vc5140	MS-20-2.*vp1.*vc40	2/5140	1/40	C2P55000	C2P55000	
RNC161-2-5141-RBS51-1-41	11111	MS-10-1.*vp2.*vc5141	MS-20-2.*vp1.*vc41	2/5141	1/41	C1P5	C1P5	
RNC161-2-5142-RBS51-1-42	11111	MS-10-1.*vp2.*vc5142	MS-20-2.*vp1.*vc42	2/5142	1/42	C1P5	C1P5	
RNC161-2-5143-RBS51-1-43	11111	MS-10-1.*vp2.*vc5143	MS-20-2.*vp1.*vc43	2/5143	1/43	U3P1000M80	U3P1000M80	
RNC161-2-5144-RBS51-1-44	11111	MS-10-1.*vp2.*vc5144	MS-20-2.*vp1.*vc44	2/5144	1/44	U3P1000M80	U3P1000M80	
RNC161-2-5145-RBS51-1-45	11111	MS-10-1.*vp2.*vc5145	MS-20-2.*vp1.*vc45	2/5145	1/45	U3P1000M80	U3P1000M80	

...<cut>...

RXI1> h stc

stc[p][r] [<Filter>] [<stateFilter>]

This command shows the state and information about atm cross connections.

...<cut>...

RXI1> stcp . 0

CCId	CSSPP	VclTpA	VclTpB	Vp/VcA	Vp/VcB	TD-A	TD-B	UserLabel
RNC161-2-5133-RBS51-1-33	11101	MS-10-1.*vp2.*vc5133	MS-20-2.*vp1.*vc33	2/5133	1/33	U4	U4	

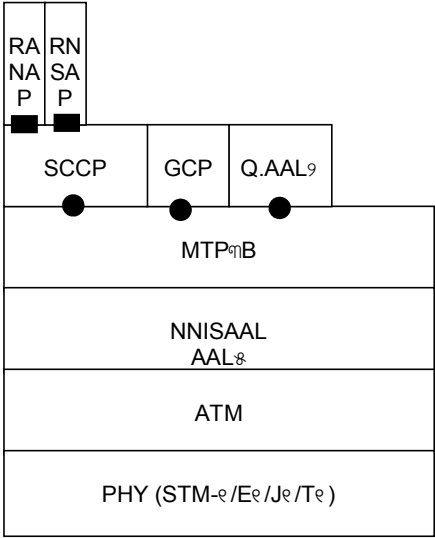
RNC162-2-2433-RBS24-1-33	11101 MS-10-2.*vp2.*vc2433	MS-22-1.*vp1.*vc33	2/2433	1/33 U4	U4
RNC162-2-2533-RBS25-1-33	11101 MS-10-2.*vp2.*vc2533	MS-22-2.*vp1.*vc33	2/2533	1/33 U4	U4
RNC162-2-4433-RBS44-1-33	11101 MS-10-2.*vp2.*vc4433	MS-25-2.*vp1.*vc33	2/4433	1/33 U4	U4
RNC163-2-1733-RBS17-1-33	11101 MS-11-1.*vp2.*vc1733	MS-23-1.*vp1.*vc33	2/1733	1/33 U4	U4
RNC163-2-3033-RBS30-1-33	11101 MS-11-1.*vp2.*vc3033	MS-23-2.*vp1.*vc33	2/3033	1/33 U4	U4
RNC163-2-4133-RBS41-1-33	11101 MS-11-1.*vp2.*vc4133	MS-24-1.*vp1.*vc33	2/4133	1/33 U4	U4
RNC163-2-5933-RBS59-1-33	11101 MS-11-1.*vp2.*vc5933	MS-24-2.*vp1.*vc33	2/5933	1/33 U4	U4
RNC171-2-12133-RBS121-1-33	11101 MS-11-2.*vp2.*vc12133	MS-25-1.*vp1.*vc33	2/12133	1/33 U4	U4
RNC171-2-4333-RBS43-1-33	11101 MS-11-2.*vp2.*vc4333	MS-16-2.*vp1.*vc33	2/4333	1/33 U4	U4
RNC171-2-633-RBS6-1-33	11101 MS-11-2.*vp2.*vc633	MS-17-1.*vp1.*vc33	2/633	1/33 U4	U4
MS-11-2-2-647-MS-17-1-1-47	11101 MS-11-2.*vp2.*vc647	MS-17-1.*vp1.*vc47	2/647	1/47 C2P55000	C2P55000
MS-11-2-2-649-MS-17-1-1-49	11101 MS-11-2.*vp2.*vc649	MS-17-1.*vp1.*vc49	2/649	1/49 C2P55000	C2P55000
RNC166-2-12033-RBS120-1-33	11101 MS-26-2.*vp2.*vc12033	MS-27-2.*vp1.*vc33	2/12033	1/33 U4	U4
RNC166-2-12333-RBS123-1-33	11101 MS-26-2.*vp2.*vc12333	MS-15-2.*vp1.*vc33	2/12333	1/33 U4	U4
RNC166-2-17033-RBS170-1-33	11101 MS-26-2.*vp2.*vc17033	MS-16-1.*vp1.*vc33	2/17033	1/33 U4	U4
RNC166-2-21633-RBS216-1-33	11101 MS-26-2.*vp2.*vc21633	MS-27-1.*vp1.*vc33	2/21633	1/33 U4	U4
RNC166-2-21833-RBS218-1-33	11101 MS-26-2.*vp2.*vc21833	MS-19-2.*vp1.*vc33	2/21833	1/33 U4	U4
RNC166-2-6233-RBS62-1-33	11101 MS-26-2.*vp2.*vc6233	MS-15-1.*vp1.*vc33	2/6233	1/33 U4	U4
RNC166-2-9133-RBS91-1-33	11101 MS-26-2.*vp2.*vc9133	MS-19-1.*vp1.*vc33	2/9133	1/33 U4	U4
RNC164-2-21133-RBS211-1-33	11101 MS-7-2.*vp2.*vc21133	MS-12-1.*vp1.*vc33	2/21133	1/33 U4	U4
RNC164-2-21333-RBS213-1-33	11101 MS-7-2.*vp2.*vc21333	MS-13-1.*vp1.*vc33	2/21333	1/33 U4	U4
RNC164-2-23933-RBS239-1-33	11101 MS-7-2.*vp2.*vc23933	MS-21-2.*vp1.*vc33	2/23933	1/33 U4	U4
RNC164-2-5433-RBS54-1-33	11101 MS-7-2.*vp2.*vc5433	MS-20-1.*vp1.*vc33	2/5433	1/33 U4	U4
RNC164-2-8233-RBS82-1-33	11101 MS-7-2.*vp2.*vc8233	MS-13-2.*vp1.*vc33	2/8233	1/33 U4	U4
MS-8-2-2-646-MS-17-1-1-46	11101 MS-8-2.*vp2.*vc646	MS-17-1.*vp1.*vc46	2/646	1/46 C2P10000	C2P10000
MS-8-2-2-648-MS-17-1-1-48	11101 MS-8-2.*vp2.*vc648	MS-17-1.*vp1.*vc48	2/648	1/48 C2P55000	C2P55000

8.4 SS7

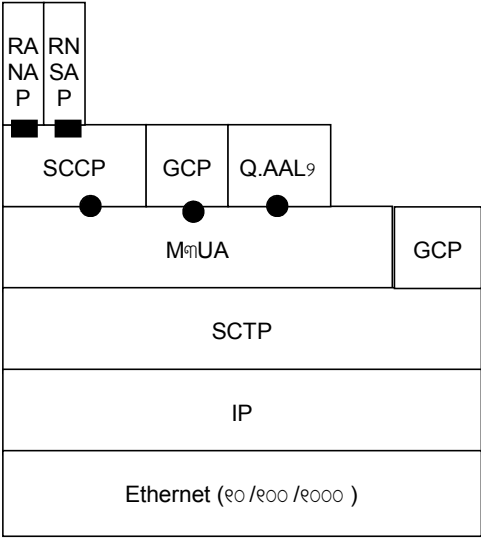
NARROWBAND



BROADBAND

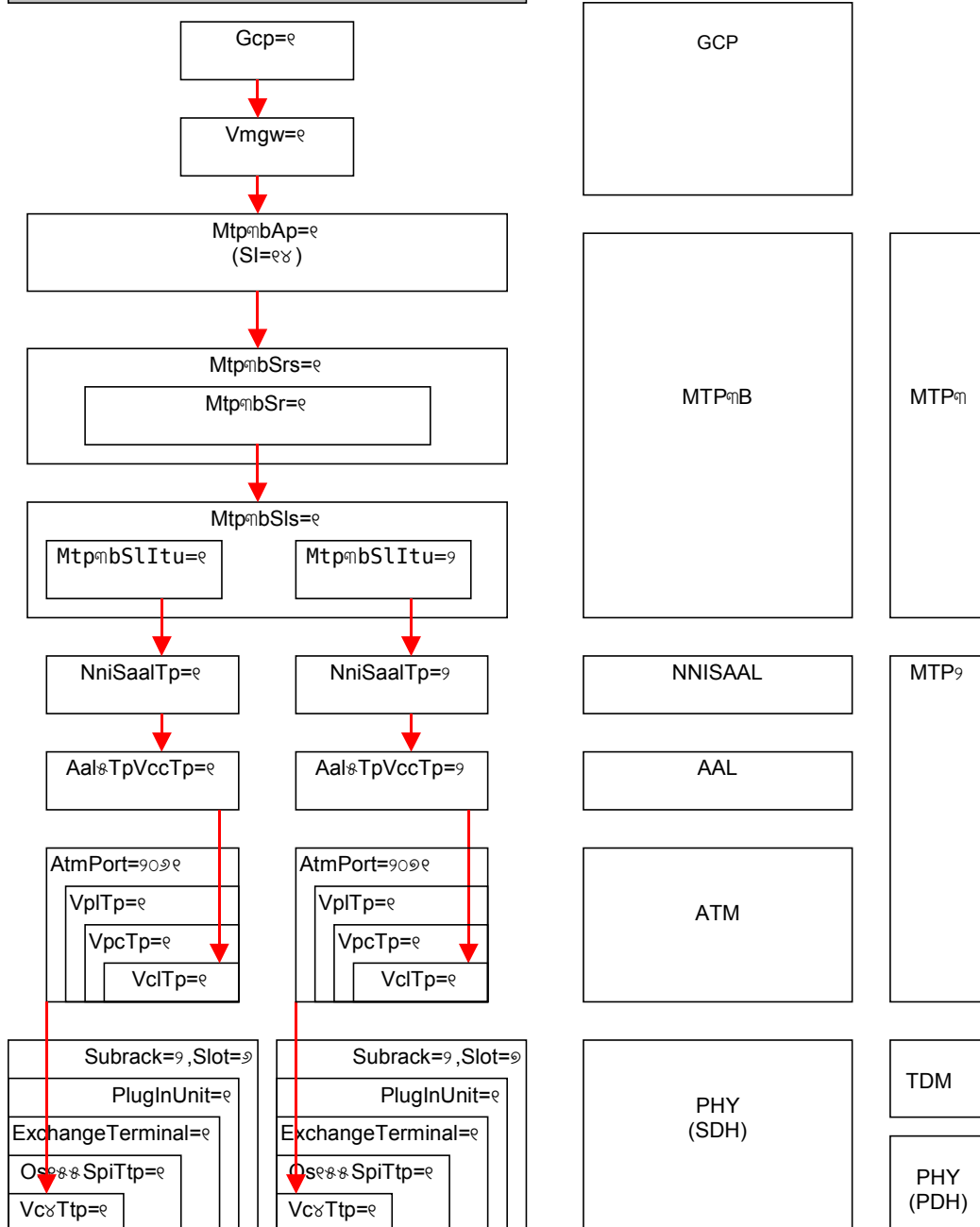


SIGTRAN

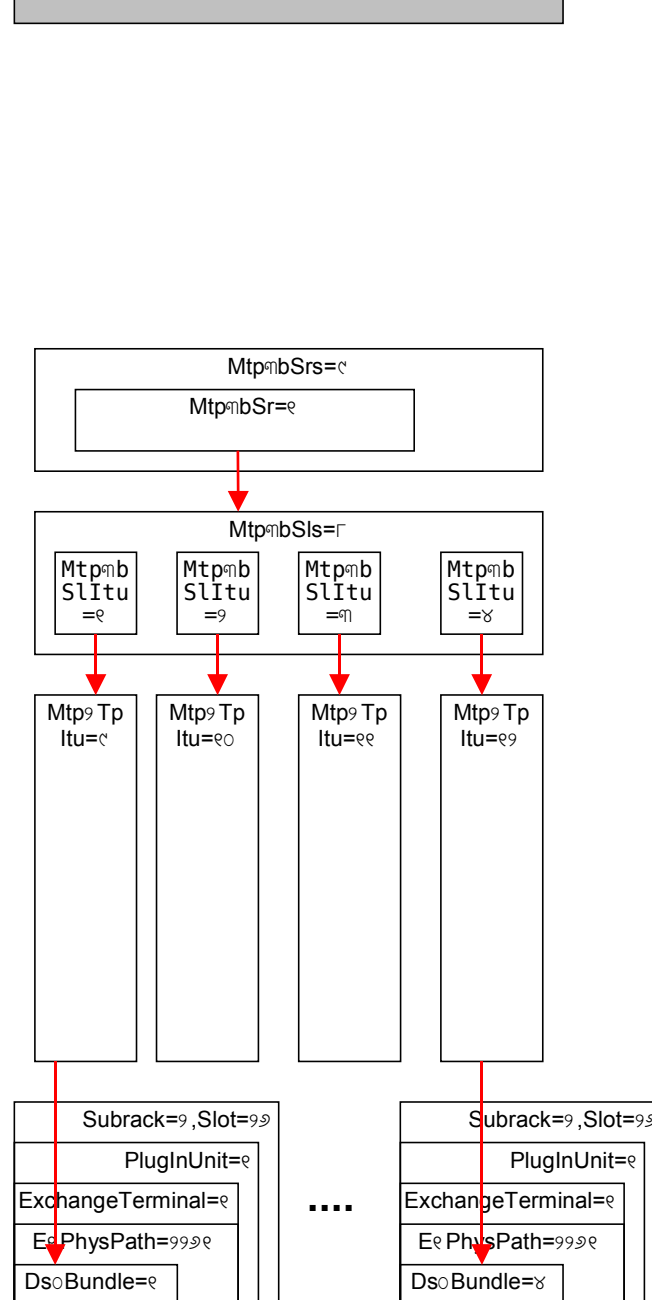


- SCCP AccessPoint , identified by Subsystem Number (SSN)
- MTP₃ AccessPoint , identified by Service Indicator (SI)

Example: GCP in MGW, carried by MTP-B



Example: MTP-Narrowband Signaling Transfer Point in MGW



MGW01> lk mtp3bsrs=1

Proxy	Adm State	Op. State	M0s linked to 2283:Mtp3bSrs=1
2403	1 (UNLOCKED)	1 (ENABLED)	MgwApplication=1,Vmgw=1
2324		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bAp=1
2284		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSrs=1,Mtp3bSr=1
2314		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=2
2315		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=1
2313		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1
2283		1 (ENABLED)	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSrs=1
2015		1 (ENABLED)	TransportNetwork=1,NniSaalTp=2
2016		1 (ENABLED)	TransportNetwork=1,NniSaalTp=1
2024		1 (ENABLED)	TransportNetwork=1,Aal5TpVccTp=2
2025		1 (ENABLED)	TransportNetwork=1,Aal5TpVccTp=1
2059		1 (ENABLED)	TransportNetwork=1,AtmPort=2061,VplTp=1,VpcTp=1,VclTp=1
2044		1 (ENABLED)	TransportNetwork=1,AtmPort=2071,VplTp=1,VpcTp=1,VclTp=1

Total: 13 M0s

Added 13 M0s to group: lk_group

MGW01 > get lk_group

2403	MgwApplication=1,Vmgw=1
VmgwId	1
administrativeState	1 (UNLOCKED)
availabilityStatus	0 (NO_STATUS)
gcpMoRef	Gcp=1
gcpProfile	Ericsson_FAY11232_2/1
mgcLabel	KSC06
mtp3bApMoRef	Mtp3bSpItu=1,Mtp3bAp=1
operationalState	1 (ENABLED)
tdmTermGrpMos	[22] =
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=1
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=2
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=3
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=4
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=5
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=6
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=7
>>> tdmTermGrpMos	= MgwApplication=1,TdmTermGrp=8

```

>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=9
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=10
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=11
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=12
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=13
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=14
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=15
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=16
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=18
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=19
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=20
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=21
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=22
>>> tdmTermGrpMos = MgwApplication=1,TdmTermGrp=17
vmgwLabel          KSC06-MGW01

```

```

=====
2324                TransportNetwork=1,Mtp3bSpItu=1,Mtp3bAp=1
=====

```

```

Mtp3bApId          1
availabilityStatus  1 (IN_TEST)
operationalState    1 (ENABLED)
reservedBy          [1] =
>>> reservedBy = MgwApplication=1,Vmgw=1
routeSetId          Mtp3bSpItu=1,Mtp3bSrs=1
serviceInd         14
userLabel           KSC06_GCP

```

```

=====
2283                TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSrs=1
=====

```

```

Mtp3bSrsId         1
autoReroute         false
congestedLevel      0 (notCongested)
destPointCode      11503
operationalState    1 (ENABLED)
reservedBy          [2] =
>>> reservedBy = TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1
>>> reservedBy = TransportNetwork=1,Mtp3bSpItu=1,Mtp3bAp=1
userLabel           KSC06

```

```

=====
2284                TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSrs=1,Mtp3bSr=1
=====

```

```

Mtp3bSrId          1
RouteBlockingState  0 (NOT_BLOCKED)
availabilityStatus  1 (IN_TEST)
linkSetM3uId        Mtp3bSpItu=1,Mtp3bSls=1

```

operationalState	1 (ENABLED)
priority	2
routeType	0 (TDM_ATM)
usageState	1 (ACTIVE)
userLabel	KSC06

2313	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1
------	--

Mtp3bSlsId	1
availabilityStatus	1 (IN_TEST)
mtp3bSrsId	Mtp3bSpItu=1,Mtp3bSrs=1
operationalState	1 (ENABLED)
periodicLinkTestFlag	true
reservedBy	[1] =
>>> reservedBy =	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSrs=1,Mtp3bSr=1
usageState	1 (ACTIVE)
userLabel	KSC06

2314	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=2
------	---

Mtp3bSlItuId	2
autoStartLink	true
availabilityStatus	0 (NO_STATUS)
linkCongestLevel	0 (level_0)
linkState	0 (AVAILABLE)
operationalState	1 (ENABLED)
prioBeforeSio	false
proceduralState	1 (INITIALIZED)
signLinkCode	1
tpId	NniSaalTp=2
usageState	1 (ACTIVE)
userLabel	KSC06b

2315	TransportNetwork=1,Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=1
------	---

Mtp3bSlItuId	1
autoStartLink	true
availabilityStatus	0 (NO_STATUS)
linkCongestLevel	0 (level_0)
linkState	0 (AVAILABLE)
operationalState	1 (ENABLED)
prioBeforeSio	false
proceduralState	1 (INITIALIZED)
signLinkCode	0
tpId	NniSaalTp=1

usageState	1 (ACTIVE)
userLabel	KSC06a
=====	
2015	TransportNetwork=1,NniSaalTp=2
=====	
NniSaalTpId	2
aal5TpVccTpId	Aal5TpVccTp=2
maxSduSize	2040
nniSaalProfileId	NniSaalProfile=1
operationalState	1 (ENABLED)
reservedBy	Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=2
userLabel	KSC06b
=====	
2016	TransportNetwork=1,NniSaalTp=1
=====	
NniSaalTpId	1
aal5TpVccTpId	Aal5TpVccTp=1
maxSduSize	2040
nniSaalProfileId	NniSaalProfile=1
operationalState	1 (ENABLED)
reservedBy	Mtp3bSpItu=1,Mtp3bSls=1,Mtp3bSlItu=1
userLabel	KSC06a
=====	
2024	TransportNetwork=1,Aal5TpVccTp=2
=====	
Aal5TpVccTpId	2
alarmReport	7 (ALARM_AIS_RDI_LOC)
continuityCheck	false
counterMode	0 (PM_MODE_OFF)
fromUserMaxSduSize	2044
nomPmBlkSize	1024 (NOM_PM_BLKSIZE_2_10)
operationalState	1 (ENABLED)
processorId	Subrack=1,Slot=9,PlugInUnit=1
reservedBy	NniSaalTp=2
toUserMaxSduSize	2044
userLabel	KSC06b
vclTpId	AtmPort=2071,VplTp=1,VpcTp=1,VclTp=1
=====	
2025	TransportNetwork=1,Aal5TpVccTp=1
=====	
Aal5TpVccTpId	1
alarmReport	7 (ALARM_AIS_RDI_LOC)
continuityCheck	false
counterMode	0 (PM_MODE_OFF)
fromUserMaxSduSize	2044

nomPmBlkSize	1024 (NOM_PM_BLKSIZE_2_10)
operationalState	1 (ENABLED)
processorId	Subrack=1,Slot=8,PlugInUnit=1
reservedBy	NniSaalTp=1
toUserMaxSduSize	2044
userLabel	KSC06a
vclTpId	AtmPort=2061,VplTp=1,VpcTp=1,VclTp=1
=====	
2044	TransportNetwork=1,AtmPort=2071,VplTp=1,VpcTp=1,VclTp=1
=====	
VclTpId	1
atmTrafficDescriptorId	AtmTrafficDescriptor=U3P1760M1759
availabilityStatus	0 (NO_STATUS)
externalVci	65
operationalState	1 (ENABLED)
reservedBy	Aal5TpVccTp=2
userLabel	myVclTp
=====	
2059	TransportNetwork=1,AtmPort=2061,VplTp=1,VpcTp=1,VclTp=1
=====	
VclTpId	1
atmTrafficDescriptorId	AtmTrafficDescriptor=U3P1760M1759
availabilityStatus	0 (NO_STATUS)
externalVci	65
operationalState	1 (ENABLED)
reservedBy	Aal5TpVccTp=1
userLabel	myVclTp
=====	

Total: 13 M0s

MGW01> hget srs userlabel|reser|point

M0	destPointCode	reservedBy	userLabel
=====			
Mtp3bSpItu=1,Mtp3bSrs=34	11328	[0] =	RNC20
Mtp3bSpItu=1,Mtp3bSrs=33	11313	[0] =	RNC26
Mtp3bSpItu=1,Mtp3bSrs=32	11318	[0] =	RNC17
Mtp3bSpItu=1,Mtp3bSrs=31	11303	[0] =	RNC16
Mtp3bSpItu=1,Mtp3bSrs=30	11304	[0] =	RNC10
Mtp3bSpItu=1,Mtp3bSrs=29	11314	[0] =	RNC08
Mtp3bSpItu=1,Mtp3bSrs=28	11309	[0] =	RNC05
Mtp3bSpItu=1,Mtp3bSrs=27	11317	[2] = Mtp3bSpItu=1,Mtp3bSls=14	Mtp3bSpItu=1,Mtp3bAp=11 RNC27
Mtp3bSpItu=1,Mtp3bSrs=26	11319	[2] = Mtp3bSpItu=1,Mtp3bSls=16	Mtp3bSpItu=1,Mtp3bAp=13 RNC23
Mtp3bSpItu=1,Mtp3bSrs=25	11316	[2] = Mtp3bSpItu=1,Mtp3bSls=18	Mtp3bSpItu=1,Mtp3bAp=15 RNC21

Mtp3bSpItu=1,Mtp3bSrs=24	11315	[2] = Mtp3bSpItu=1,Mtp3bSls=15	Mtp3bSpItu=1,Mtp3bAp=12	RNC19
Mtp3bSpItu=1,Mtp3bSrs=23	11308	[2] = Mtp3bSpItu=1,Mtp3bSls=17	Mtp3bSpItu=1,Mtp3bAp=14	RNC12
Mtp3bSpItu=1,Mtp3bSrs=22	11306	[2] = Mtp3bSpItu=1,Mtp3bSls=13	Mtp3bSpItu=1,Mtp3bAp=10	RNC11
Mtp3bSpItu=1,Mtp3bSrs=21	11492	[2] = Mtp3bSpItu=1,Mtp3bSls=9	Mtp3bSpItu=1,Mtp3bAp=6	RNC06
Mtp3bSpItu=1,Mtp3bSrs=20	11305	[2] = Mtp3bSpItu=1,Mtp3bSls=12	Mtp3bSpItu=1,Mtp3bAp=9	RNC04
Mtp3bSpItu=1,Mtp3bSrs=19	11312	[2] = Mtp3bSpItu=1,Mtp3bSls=11	Mtp3bSpItu=1,Mtp3bAp=8	RNC03
Mtp3bSpItu=1,Mtp3bSrs=18	11302	[2] = Mtp3bSpItu=1,Mtp3bSls=10	Mtp3bSpItu=1,Mtp3bAp=7	RNC01
Mtp3bSpItu=1,Mtp3bSrs=17	11449	[0] =		MSC6
Mtp3bSpItu=1,Mtp3bSrs=16	11448	[0] =		MSC3
Mtp3bSpItu=1,Mtp3bSrs=15	11529	[0] =		MSCL
Mtp3bSpItu=1,Mtp3bSrs=14	11571	[0] =		MSC1
Mtp3bSpItu=1,Mtp3bSrs=13	7947	[0] =		OLTRT
Mtp3bSpItu=1,Mtp3bSrs=12	8204	[0] =		AARGT
Mtp3bSpItu=1,Mtp3bSrs=11	2572	[0] =		LSPRT
Mtp3bSpItu=1,Mtp3bSrs=10	2571	[0] =		LSSGT
Mtp3bSpItu=1,Mtp3bSrs=9	11588	[1] = Mtp3bSpItu=1,Mtp3bSls=8		STP4
Mtp3bSpItu=1,Mtp3bSrs=8	11587	[1] = Mtp3bSpItu=1,Mtp3bSls=7		STP3
Mtp3bSpItu=1,Mtp3bSrs=7	11581	[1] = Mtp3bSpItu=1,Mtp3bSls=5		STPA
Mtp3bSpItu=1,Mtp3bSrs=6	11582	[1] = Mtp3bSpItu=1,Mtp3bSls=6		STPB
Mtp3bSpItu=1,Mtp3bSrs=5	11505	[1] = Mtp3bSpItu=1,Mtp3bAp=5		KSC05
Mtp3bSpItu=1,Mtp3bSrs=4	11338	[2] = Mtp3bSpItu=1,Mtp3bSls=3	Mtp3bSpItu=1,Mtp3bAp=4	MGW07
Mtp3bSpItu=1,Mtp3bSrs=3	11339	[2] = Mtp3bSpItu=1,Mtp3bSls=4	Mtp3bSpItu=1,Mtp3bAp=3	MGW05
Mtp3bSpItu=1,Mtp3bSrs=2	11340	[2] = Mtp3bSpItu=1,Mtp3bSls=2	Mtp3bSpItu=1,Mtp3bAp=2	MGW06
Mtp3bSpItu=1,Mtp3bSrs=1	11503	[2] = Mtp3bSpItu=1,Mtp3bSls=1	Mtp3bSpItu=1,Mtp3bAp=1	KSC06

=====
Total: 34 MOs

Here it shows which SLS shall be used for each route.

In order to get to RNC20, we don't have a direct SLS but we can go via MGW07 or MGW05.

MGW01 > hget mtp3bsr= state|linkset|prio|userlab

MO	RouteBlockingState	linkSetM3uId	operationalState	priority	usageState	userLabel
Mtp3bSpItu=1,Mtp3bSrs=34,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC20_over_MGW07
Mtp3bSpItu=1,Mtp3bSrs=34,Mtp3bSr=1	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=4	1 (ENABLED)	2	1 (ACTIVE)	RNC20_over_MGW05
Mtp3bSpItu=1,Mtp3bSrs=33,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC26_over_MGW07
Mtp3bSpItu=1,Mtp3bSrs=33,Mtp3bSr=1	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=4	1 (ENABLED)	2	1 (ACTIVE)	RNC26_over_MGW05
Mtp3bSpItu=1,Mtp3bSrs=32,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC17_over_MGW07
Mtp3bSpItu=1,Mtp3bSrs=32,Mtp3bSr=1	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=4	1 (ENABLED)	2	1 (ACTIVE)	RNC17_over_MGW05
Mtp3bSpItu=1,Mtp3bSrs=31,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC16_over_MGW07
Mtp3bSpItu=1,Mtp3bSrs=31,Mtp3bSr=1	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=4	1 (ENABLED)	2	1 (ACTIVE)	RNC16_over_MGW05
Mtp3bSpItu=1,Mtp3bSrs=30,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC10_over_MGW07
Mtp3bSpItu=1,Mtp3bSrs=30,Mtp3bSr=1	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=4	1 (ENABLED)	2	1 (ACTIVE)	RNC10_over_MGW05
Mtp3bSpItu=1,Mtp3bSrs=29,Mtp3bSr=2	0 (NOT_BLOCKED)	Mtp3bSpItu=1,Mtp3bSls=3	1 (ENABLED)	2	1 (ACTIVE)	RNC08_over_MGW07

Finn Magnusson 2009-12-04 rev PA54 239/334)

=====

Total: 60 M0s

RNC10> lk Mtp3bSrs=Iup-2-2810-3

=====

Proxy	Adm State	Op. State	M0s linked to 1721:Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3
4912		0 (DISABLED)	RncFunction=1,Ranap=Iup2810
2309			TransportNetwork=1,SccpSp=Iu1,SccpSrc=1,SccpGlobalTitle=Iup-2-2810
2310			TransportNetwork=1,SccpSp=Iu1,SccpSrc=1,SccpEntitySet=Iup-2-2810
2306		0 (DISABLED)	TransportNetwork=1,SccpSp=Iu1,SccpSrc=1,SccpApRemote=Iup-2-2810
1717		0 (DISABLED)	TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bAp=Iup-2-2810-3
1726		0 (DISABLED)	TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3,Mtp3bSr=1
1724		0 (DISABLED)	TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bSl=Iup-2-2810-3,Mtp3bSlItu=1
1723		0 (DISABLED)	TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bSl=Iup-2-2810-3
1725		0 (DISABLED)	TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3
2205		1 (ENABLED)	TransportNetwork=1,NniSaalTp=Iup-2
1204		1 (ENABLED)	TransportNetwork=1,Aal5TpVccTp=Iup-2
2242		1 (ENABLED)	TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50

=====

Total: 12 M0s

Added 12 M0s to group: lk_group

RNC10> get lk_group

.....

Investigate every MO in the stack from bottom to top, in the following order:

1) VclTp. Is there end-to-end continuity?

RNC10> lacc AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50 eteloopback

=====

Proxy	M0	Action	Nr of Params
2251	AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50	eteLoopBack	0

>>> Return value = false

=====

Total: 1 M0s attempted, 1 M0s actioned

2) NniSaalTp. Do the NniSaalProfile match on both sides of the link?

Do this in both nodes:

RNC11> get NniSaalTp=RANAP-Iuc-2351-2300

```
=====
3025                               TransportNetwork=1,NniSaalTp=RANAP-Iuc-2351-2300
=====
NniSaalTpId                        RANAP-Iuc-2351-2300
aal5TpVccTpId                     Aal5TpVccTp=RANAP-Iuc-2351-2300
maxSduSize                        276
nniSaalProfileId                  NniSaalProfile=1
operationalState                  1 (ENABLED)
reservedBy                        Mtp3bSpItu=Iu,Mtp3bSls=Iuc-2351-2300,Mtp3bSlItu=Iuc-2351-2300
userLabel
=====
Total: 1 M0s
```

RNC11> get NniSaalProfile=1

```
=====
2689                               TransportNetwork=1,NniSaalProfile=1
=====
NniSaalProfileId                  1
profileData                       Struct{26}
>>> 1.timerPoll = 50
>>> 2.maxCC = 4
>>> 3.maxPD = 200
>>> 4.maxStat = 67
>>> 5.initialCredit = 1000
>>> 6.timerKeepAlive = 100
>>> 7.timerNoResponse = 500
>>> 8.timerIdle = 100
>>> 9.timerCC = 200
>>> 10.mps = 0
>>> 11.congestionLevel10nSet = 70
>>> 12.congestionLevel20nSet = 80
>>> 13.congestionLevel30nSet = 90
>>> 14.congestionLevel1Abatement = 60
```

```

>>> 15.congestionLevel2Abatement = 70
>>> 16.congestionLevel3Abatement = 80
>>> 17.discardMessagesLevel1 = 80
>>> 18.discardMessagesLevel2 = 90
>>> 19.discardMessagesLevel3 = 100
>>> 20.nrOfPDUsDuringProving = 1000
>>> 21.maxNRP = 0
>>> 22.timerNoCredit = 1500
>>> 23.timerRepeatSrec = 3600000
>>> 24.timerT1 = 5000
>>> 25.timerT2 = 30000
>>> 26.timerT3 = 5
reservedBy [4] =
>>> reservedBy = TransportNetwork=1,NniSaalTp=QAAL2-Iuc-2351-2300
>>> reservedBy = TransportNetwork=1,NniSaalTp=RANAP-Iuc-2351-2300
>>> reservedBy = TransportNetwork=1,NniSaalTp=QAAL2-Iup-2351-2810
>>> reservedBy = TransportNetwork=1,NniSaalTp=RANAP-Iup-2351-2810
userLabel Iu NniSaalProfile

```

=====
Total: 1 M0s

3) Mtp3bSl. Check the linkstate (deactivated? inhibited? remote blocked?)

RNC11> get mtp3bslitu=iup-

```

=====
1 TransportNetwork=1,Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810
=====
Mtp3bSlItuId Iup-2351-2810
autoStartLink false
availabilityStatus 1056 (DEPENDENCY_FAILED)
linkState 32 (DEACTIVATED)
operationalState 0 (DISABLED)
prioBeforeSio false
proceduralState 0 (NOT_INITIALIZED)
signLinkCode 2
tpId NniSaalTp=RANAP-Iup-2351-2810
usageState 0 (IDLE)
userLabel
=====

```

Total: 1 M0s

RNC11> mom mtp3bslitu linkstate

```
#####
M0 Class          Attribute          Type          Flags
#####
Mtp3bSlItu        linkState          long          readOnly,nonPersistent,noNotification
-----
```

The link state of the Mtp3bSl.

The link state is a bit map which contains a combination of the following values: (in hexadecimal format)

0x00 Available

0x01 Failed

0x02 Remotely blocked

0x04 Locally blocked

0x08 Remotely inhibited

0x10 Locally inhibited

0x20 Deactivated

RNC11> acl mtp3bslitu=iup-

Proxy	M0	Action	Nr of Params
1	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	activate	0
1	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	deactivate	0
1	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	emergencyActivate	0
1	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	localInhibit	0
1	Mtp3bSpItu=Iu,Mtp3bSls=Iup-2351-2810,Mtp3bSlItu=Iup-2351-2810	localUninhibit	0

4) Mtp3bSl . Check the signallinglinkcode . Must match on both ends.

//SignallingLinkCode on RNC:

RNC10> get slitu code

M0	Attribute	Value
Mtp3bSpItu=Iu1,Mtp3bSls=Iuc-1-2300-3,Mtp3bSlItu=1	signLinkCode	9
Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1	signLinkCode	3

Total: 2 M0s

//SignallingLinkCode in CoreNetwork:

CRB10> get mtp3bslITU code

M0	Attribute	Value
Mtp3bSpITU=Iu,Mtp3bSls=Iuc-1-2351-3,Mtp3bSlITU=1	signLinkCode	2
Mtp3bSpITU=Iup,Mtp3bSls=Iup-2-2351-3,Mtp3bSlITU=1	signLinkCode	3
Total: 2 M0s		

RNC10> lhget Mtp3bSls=Iup-2-2810-3, state

M0	linkState	operationalState	proceduralState	usageState
Mtp3bSpITU=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlITU=1	1 (FAILED)	0 (DISABLED)	0 (NOT_INITIALIZED)	0 (IDLE)
Total: 1 M0s				

//In the trace we see that RNC side is using signlinkcode=9 and other side is using signlinkcode=3

RNC10> lh sccmp te e trace3 Scc_Server_proc

\$ lhsh 000800 te e trace3 Scc_Server_proc
\$

RNC10> lhsh 000800 te log read | decoder_ss7 | flow_ss7

TIME	HSN	SDL	SI	OPC	DPC	SLC	DIR	FROM/TO	MESSAGE
...<cut>...									
21:46:39.796	1	9	MAINT	2351	2810	9	SEND	MTPL3/MTPL2	DL_MSU_REQ SLTM
21:46:39.800	1	9	MAINT	2810	2351	3	RECV	MTPL2/MTPL3	DL_MSU_IND SLTM
...<cut>...									

RNC10> u+

RNC10> ldel Mtp3bSls=Iup-2-2810-3,Mtp3bSlITU=1

Deleting ...

```
=====
5204 TransportNetwork=1,Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1      >>> Mo deleted
=====
Total: 1 MOs attempted, 1 MOs deleted
```

RNC10> u-

RNC10> l vi \$undocommandfile

... change signLinkCode from 9 to 3

RNC10> run \$undocommandfile

Now it's ok

OR:

RNC10> uv rset_customlist=mtp3bslitu

rset_customlist=mtp3bslitu

RNC10> lrset Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1 signlinkcode 3

RNC10> lhsh 000800 te log read | decoder_ss7 | flow_ss7

```
=====
TIME          HSN SDL SI      OPC   DPC SLC DIR  FROM/TO    MESSAGE
=====
...<cut>...
21:52:12.984   1   3 MAINT   2351  2810   3 SEND MTPL3/MTPL2  DL_MSU_REQ SLTM
21:52:12.984   1   3 MAINT   2810  2351   3 RECV MTPL2/MTPL3  DL_MSU_IND SLTM
...<cut>...
```

5) Mtp3bSrs . Check the destpointcode value. Should match the pointcode at destination node

//Own point code and dest point codes in RNC

RNC10> get mtp3bsp code

```
=====
MO                                     Attribute      Value
=====
Mtp3bSpItu=Iu1                       signallingPointCode 2351
```

```
=====
Total: 1 M0s
```

```
RNC10> get mtp3bsrs code
```

```
=====
M0                                     Attribute      Value
=====
Mtp3bSpItu=Iu1,Mtp3bSrs=Iuc-1-2300-3  destPointCode  2300
Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3  destPointCode  2999
=====
```

```
Total: 2 M0s
```

```
//Own point codes and dest point codes in Core Network
```

```
CRB10> get mtp3bspitu code
```

```
=====
M0                                     Attribute      Value
=====
Mtp3bSpItu=Iup                        signallingPointCode 2810
Mtp3bSpItu=Iu                         signallingPointCode 2300
=====
```

```
Total: 2 M0s
```

```
CRB10> get mtp3bsrs code
```

```
=====
M0                                     Attribute      Value
=====
Mtp3bSpItu=Iup,Mtp3bSrs=Iup-2-2351-3  destPointCode  2351
Mtp3bSpItu=Iu,Mtp3bSrs=Iuc-1-2351-3    destPointCode  2351
=====
```

```
Total: 2 M0s
```

```
//In the trace we see that each side are using different point codes
```

```
RNC10> lh sccmpm te e trace3 Scc_Server_proc
```

```
$ lhsh 000800 te e trace3 Scc_Server_proc
$
```

```
RNC10> lh sccmpm te log read | decoder_ss7 | flow_ss7
```

```
=====
TIME          HSN SDL SI          OPC   DPC SLC DIR  FROM/TO      MESSAGE
=====
...<cut>...
21:54:51.496   1   3 MAINT   2351  2999   3 SEND MTPL3/MTPL2  DL_MSU_REQ SLTM
21:54:51.496   1   3 MAINT   2810  2351   3 RECV MTPL2/MTPL3  DL_MSU_IND SLTM
21:54:51.496   1   3          2810  2351   3 RECV MTPL2/MTPL3  MTPL3: ILLEGAL OPC OR BADLY SORTED
=====
```

RNC10> lhget Mtp3bSrs=Iup-2-2810-3 state

```
=====
M0                                RouteBlockingState operationalState usageState
=====
Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3,Mtp3bSr=1 0 (NOT_BLOCKED)    0 (DISABLED)    0 (IDLE)
=====
Total: 1 M0s
.
```

```
=====
M0                                operationalState
=====
Mtp3bSpItu=Iu1,Mtp3bSrs=Iup-2-2810-3 0 (DISABLED)
=====
Total: 1 M0s
```

RNC10> lhget Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1 state

```
=====
M0                                linkState operationalState proceduralState    usageState
=====
Mtp3bSpItu=Iu1,Mtp3bSls=Iup-2-2810-3,Mtp3bSlItu=1 1 (FAILED) 0 (DISABLED)    0 (NOT_INITIALIZED) 0 (IDLE)
=====
Total: 1 M0s
```

RNC10> rset Mtp3bSrs=Iup-2-2810-3 destpointcode 2810

```
Now it's ok:
22:00:13.100   1   3 MAINT   2351  2810   3 SEND MTPL3/MTPL2  DL_MSU_REQ SLTM
22:00:13.100   1   3 MAINT   2810  2351   3 RECV MTPL2/MTPL3  DL_MSU_IND SLTM
```

9 OTHER

9.1 Mobatch

Mobatch is a utility located in the moshell folder. It is used for running moshell sessions on several nodes in parallel.

The differences between mobatch and the multimode are:

- **the multimode offers an interactive sessions to the node while mobatch is non-interactive, ie, all commands must be specified from the start, in a command file or from the command line**
- **the multimode only supports commands that run over the corba interface while mobatch supports all moshell commands**

The list of nodes can either be specified on the command line:

```
** :ws4264@~> mobatch rnc2,rbs3,mgw5 'lt all;st;al'
```

or from a sitefile, containing the list of nodes, one node per line:

```
** :ws4264@~> cat sitefiles/stockholm.txt
rnc2
rbs3
mgw5
** :ws4264@~> mobatch sitefiles/stockholm.txt 'lt all;st;al'
```

The commands can either be specified on the command line:

```
** :ws4264@~> mobatch rnc2,rbs3,mgw5 'lt all;st;al'
```

or from a command file containing the commands, one command per line:

```
** :ws4264@~> cat commandfiles/healthcheck.txt
lt all
st
al
** :ws4264@~> mobatch sitefiles/stockholm.txt commandfiles/healthcheck.txt
```

or from set of command files associated to each individual node (in case each node will run different commands)

in this case, the name of each command file must contain the name of the node, followed by the extension “.mos” or “.cmd”

```
** :ws4264@~> ls -l commandfiles/stockholm/
-rw-rw-rw- 1 eanzmagn mkgroupl-d 58608 Mar 21 2006 rnc2.mos
-rw-rw-rw- 1 eanzmagn mkgroupl-d 29244 Mar 21 2006 rbs17.mos
-rw-rw-rw- 1 eanzmagn mkgroupl-d 29244 Mar 21 2006 mgw5.mos
```

```
**ws4264@~> mobatch sitefiles/stockholm.txt commandfiles/stockholm/
```

Example:

```
**ws4264@~> mobatch rnc11,mgw1,rbs17 'lt all;st;al'
```

Sitelist = rnc11,mgw1,rbs17. Number of sites = 3

Command = lt all;st;al

Timeout set to 20 minutes (default value)

Maximum number of parallel processes set to 10 (default value)

Logfiles stored in /home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42

```
#####
>>>>> STARTED (pid)
** FINISHED (result)          STATUS (started, finished, queue, running, sites running)
#####
>>>>> rnc11 (22032)           1s 0f 2q 1r: rnc11
>>>>> mgw1 (22034)           2s 0f 1q 2r: mgw1 rnc11
>>>>> rbs17 (22036)          3s 0f 0q 3r: mgw1 rbs17 rnc11
** mgw1 (OK)                  3s 1f 0q 2r: rbs17 rnc11
** rbs17 (OK)                  3s 2f 0q 1r: rnc11
** rnc11 (OK)                  3s 3f 0q 0r:
#####

rnc11          OK
mgw1           OK
rbs17          OK
```

Logfiles stored in /home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42

```
**ws4264@~>
```

```
**ws4264@~> cd /home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42
```

Directory: /home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42

```
**ws4264@/home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42>
```

```
**ws4264@/home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42> ls -l
```

total 480

```
drwxr-xr-x 2 eanzmagn rnd      55 2008-11-28 12:42 ./
```

```
drwxr-xr-x 3 eanzmagn rnd      18 2008-11-28 12:42 ../
```

```
-rw-r--r-- 1 eanzmagn rnd 206771 2008-11-28 12:42 mgw1.log
```

```
-rw-r--r-- 1 eanzmagn rnd  42142 2008-11-28 12:42 rbs17.log
```

```
-rw-r--r-- 1 eanzmagn rnd 237112 2008-11-28 12:42 rnc11.log
```

```
**ws4264@/home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42> grep Total *
```

```

mgw1.log:Last MO: 3659. Loaded 3659 MOs. Total: 3660 MOs.
mgw1.log:Total: 2019 MOs
mgw1.log:>>> Total: 27 Alarms (0 Critical, 24 Major)
rbs17.log:Last MO: 1894. Loaded 1894 MOs. Total: 1895 MOs.
rbs17.log:Total: 387 MOs
rbs17.log:>>> Total: 0 Alarms (0 Critical, 0 Major)
rnc11.log:Last MO: 8143. Loaded 8143 MOs. Total: 8144 MOs.
rnc11.log:Total: 2699 MOs
rnc11.log:>>> Total: 6 Alarms (0 Critical, 5 Major)
**:ws4264@/home/eanzmagn/logs_mobatch/2008-11-28/rnc11_and_more/12-42>

```

When one of the moshell sessions started by mobatch takes longer than expected, it is killed, in order to avoid hanging sessions. The default timeout is 20 but it can be increased with the “-t” option:

```

**:ws4264@~> mobatch -t 60 sitefiles/wholenetwork.txt 'lt all;st;al'

.....
Timeout set to 60 minutes
....

```

The number of nodes specified in the sitefile is unlimited but mobatch runs in batches of 10 simultaneous sessions at a time. To increase the batch size, use the option “-p”:

```

**:ws4264@~> mobatch -p 20 sitefiles/wholenetwork.txt 'lt all;st;al'

.....
Maximum number of parallel processes set to 20
....

```

Before increasing the number of parallel sessions, it is important to check that the workstation has enough free RAM memory, to avoid overloading it. Each moshell session takes between 80 to 100 MB of RAM, depending on the number of MOs in the node.

```

% top
last pid: 27824; load averages: 0.01, 0.01, 0.01
14:34:35
82 processes: 79 sleeping, 2 zombie, 1 on cpu
CPU states: 97.4% idle, 0.0% user, 0.9% kernel, 1.7% iowait, 0.0% swap
Memory: 8192M real, 6193M free, 447M swap in use, 14G swap free

```

For more information on mobatch, see user guide and online help by typing mobatch on its own:

```
** :srld7261@~> mobatch
```

```
Usage:  mobatch [options] <sitefile>|<sitelist> <command(s)>|<commandfile>|<commanddir> [logdirectory]
```

Purpose: To send moshell commands to several nodes in parallel.

Arguments:

- The first argument is the sitefile or the sitelist.

The sitefile is a file containing the list of sites to connect to. Each line in the sitefile contains:

- * the IP/DNS addresses and/or site names whose IP address are defined in the IP database.
- * optionally: the uservariables/scriptingvariables to input with -v option.

See example of sitefile and ipdatabase in: moshell/examples/mobatch_files/

If using the sitelist, the sites are listed on the command line and separated by commas.

- The second argument is the command or commandfile.

See example of commands below and commandfile in moshell/examples/mobatch_files

If a directory is given, then a different commandfile will be used for each node:

the name of each commandfile should be <node-name>.cmd or <node-name>.mos

the <node-name> should be the same as given in the sitefile.

example: node-name is rbs602 ==> commandfile should be rbs602.cmd or rbs602.mos

- The third argument (logdirectory) is optional. If no logdirectory is specified, a default one will be used.

Options:

- t <minutes> Specify the number of minutes before timing out. Set to 0 for no timeout (default=20).
- p <processes> Specify the maximum number of moshell sessions that will run in parallel (default=10)
- v <userVariables> Specify moshell uservariables. Type "moshell" on its own for more info about this option.
- o Print output of every moshell session both to screen and to logfile.
- s Silent. No output is printed.

Examples:

```
mobatch -p 15 -t 60 ~/sitefiles/victoria-sites 'lt all ; get'
mobatch 10.1.128.10 ./cmdfiles/kget.mos
mobatch 10.1.128.10,rnc34,rbs10,mgw1.ericsson.se ./cmdfiles/kget.mos
mobatch ./sitefiles/all-rbs.txt ./cmdfiles/do_healthCheck.mos
mobatch -p 5 -t 1 ./sitefiles/all-rbs.txt 'cv cu ; rbs'
mobatch ./sitefiles/all-rnc.txt 'lt ^utrancell ; st cell'
mobatch ./sitefiles/all-bsc.txt ~/bsc-commandfiles/
mobatch -v security_method=2,sa_credential=~/.sam.pbe,sa_password=oemas -p 20 ./all_mgw.txt 'hc'
mobatch -v ip_database=~/.utran_network/ipdatabase ~/utran_network/ipdatabase 'lt all ; get '
```

```
** :srld7261@~> mobatch -o rnc11,crb11 'lt os155;st'
```

Sitelist = rnc11,crb11. Number of sites = 2

Command = lt os155;st

Timeout set to 20 minutes (default value)

Maximum number of parallel processes set to 10 (default value)

Logfiles stored in /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35

```
#####
>>>>> STARTED (pid)
** FINISHED (result)          STATUS (started, finished, queue, running, sites running)
#####
>>>>> rnc11 (29688)           1s 0f 1q 1r: rnc11
>>>>> crb11 (29690)           2s 0f 0q 2r: crb11 rnc11
rnc11:
rnc11: Logging to file /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35/rnc11.log
crb11:
crb11: Logging to file /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35/crb11.log
rnc11: #####
rnc11: # Welcome to MoShell 7.1q #
rnc11: # Finn Magnusson, Jan Pettersson #
rnc11: # http://utran01.au.ao.ericsson.se/moshell #
rnc11: # Contact: Finn.Magnusson@ericsson.com #
rnc11: # David.Smith@ericsson.com #
rnc11: #####
rnc11:
rnc11: Checking ip contact...OK
rnc11:
rnc11: HELP MENU : h
rnc11: BASIC MO COMMANDS : m
rnc11: OTHER MO COMMANDS : n
rnc11: OTHER COMMANDS : o
rnc11: PM COMMANDS : p
rnc11: QUIT : q
rnc11:
rnc11: RNC11> lt os155
rnc11:
rnc11: 090601-13:35:32 137.58.194.147 7.1q stopfile=/tmp/29758
crb11: #####
crb11: # Welcome to MoShell 7.1q #
crb11: # Finn Magnusson, Jan Pettersson #
crb11: # http://utran01.au.ao.ericsson.se/moshell #
crb11: # Contact: Finn.Magnusson@ericsson.com #
crb11: # David.Smith@ericsson.com #
crb11: #####
crb11:
crb11: Checking ip contact...OK
crb11:
crb11: HELP MENU : h
crb11: BASIC MO COMMANDS : m
```

```

crb11: OTHER MO COMMANDS      : n
crb11: OTHER COMMANDS         : o
crb11: PM COMMANDS             : p
crb11: QUIT                     : q
crb11:
crb11: CRB11> lt os155
crb11:
crb11: 090601-13:35:32 137.58.194.149 7.1q stopfile=/tmp/29762
crb11: Checking MOM version...CPP_MOM_5.0.4_AF4_2
crb11: Parsing MOM (cached): /home/eanzmagn/jarxml/CPP_MOM_5.0.4_AF4_2.xml.cache.gz .....Done.
crb11: Fetching IOR file...Done.
crb11: Connecting to 137.58.194.149:56835 (CorbaSecurity=OFF, corba_class=2, jarcorb=R71S08, jacsec=R71S08, jacoms=R71J18)
crb11: **** Welcome to the Simple Mo Browser (version 3.0)!
crb11: Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090601-133529_29695/ior29695
crb11: **** Test Construction OK
crb11: ****
crb11:
crb11: $mobrowser_pid = 29847
crb11:
crb11: Connected to 137.58.194.149 (ManagedElement=1)
crb11:
crb11: Load Proxys for MOs of following type...
crb11: =====
crb11: 0s155SpiTtp
crb11: =====
crb11:
crb11: Please Confirm [y/n]: y
crb11:
crb11: Last MO:      6. Loaded      6 MOs. Total:      7 MOs. MO Class: 0s155SpiTtp.
crb11:
crb11: CRB11> st
crb11:
crb11: 090601-13:35:37 137.58.194.149 7.1q CPP_MOM_5.0.4_AF4_2 stopfile=/tmp/29762
crb11: =====
crb11: Proxy  Adm State      Op. State      MO
crb11: =====
crb11:      1  1 (UNLOCKED)  1 (ENABLED)  Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
crb11:      2  1 (UNLOCKED)  0 (DISABLED) Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
crb11:      3  1 (UNLOCKED)  1 (ENABLED)  Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
crb11:      4  1 (UNLOCKED)  1 (ENABLED)  Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
crb11:      5  1 (UNLOCKED)  1 (ENABLED)  Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
crb11:      6  1 (UNLOCKED)  1 (ENABLED)  Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
crb11: =====
crb11: Total: 6 MOs
crb11:

```

```

crb11: CRB11> q!!
crb11: Bye...
crb11: Output has been logged to file /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35/crb11.log
rnc11: Checking MOM version...RNC_NODE_MODEL_H_20_80
rnc11: Using MOM version: RNC_NODE_MODEL_H_20_80_COMPLETE
rnc11: Parsing MOM (cached):
/home/eanzmagn/jarxml/RNC_NODE_MODEL_H_20_80_COMPLETE.xml.cache.gz .....
Done.
rnc11: Fetching IOR file...Done.
rnc11: Connecting to 137.58.194.147:56834 (CorbaSecurity=OFF, corba_class=2, jarcorb=R71S08, jacsec=R71S08, jacoms=R71J18)
rnc11: **** Welcome to the Simple Mo Browser (version 3.0)!
rnc11: Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20090601-133529_29693/ior29693
rnc11: **** Test Construction OK
rnc11: ****
rnc11:
rnc11: $mobrowser_pid = 29865
crb11:
** crb11 (OK)                2s 1f 0q 1r: rnc11
rnc11:
rnc11: Connected to 137.58.194.147 (ManagedElement=1)
rnc11:
rnc11: Load Proxys for MOs of following type...
rnc11: =====
rnc11: 0s155SpiTtp
rnc11: =====
rnc11:
rnc11: Please Confirm [y/n]: y
rnc11:
rnc11: Last MO:      8. Loaded      8 MOs. Total:      9 MOs. MO Class: 0s155SpiTtp.
rnc11:
rnc11: RNC11> st
rnc11:
rnc11: 090601-13:35:39 137.58.194.147 7.1q RNC_NODE_MODEL_H_20_80_COMPLETE stopfile=/tmp/29758
rnc11: =====
rnc11: Proxy  Adm State      Op. State      MO
rnc11: =====
rnc11:      1  0 (LOCKED)      0 (DISABLED)    Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
rnc11:      2  1 (UNLOCKED)     0 (DISABLED)    Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
rnc11:      3  1 (UNLOCKED)     1 (ENABLED)     Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
rnc11:      4  1 (UNLOCKED)     1 (ENABLED)     Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
rnc11:      5  1 (UNLOCKED)     1 (ENABLED)     Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
rnc11:      6  1 (UNLOCKED)     1 (ENABLED)     Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
rnc11:      7  1 (UNLOCKED)     1 (ENABLED)     Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
rnc11:      8  0 (LOCKED)      0 (DISABLED)    Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
rnc11: =====

```

```

rnc11: Total: 8 MOs
rnc11:
rnc11: RNC11> q!!
rnc11: Bye...
rnc11: Output has been logged to file /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35/rnc11.log
rnc11:
** rnc11 (OK)                2s  2f  0q  0r:
#####
rnc11                OK
crb11                OK

```

Logfiles stored in /home/eanzmagn/logs_mobatch/2009-06-01/rnc11_and_more/13-35

9.2 TR/CSR data collection

```
RNC11> h dcg
```

```

*****
dcg[measrifk] [<logdir>]
*****
Fetch data for TRs/CSRs, according to the Data Collection Guidelines.

```

The dcg command offers a number of options, it is possible to combine several options, eg: "dcgmsrq"

Options:

- m: mandatory data
- e: subset of the mandatory data which can be taken in case of emergency, before doing board/node restart. This option will usually be run on its own.
- a: AAL2 printouts
- s: SS7 printouts
- i: IP printouts
- r: RNC/RBS specific printouts
- f: fetch cpp logs and ropfiles. Two zipfiles are produced (one for cpp logs and one for ropfiles) which can be used in offline mode in pmr, pmx, lg and the "-l" option. Refer to the chapter "Offline mode" for more info.
- k: take MO dump (kget format). A zipfile is produced containing the MO dump and MOM of the node, it can be used in offline mode by running "moshell <zipfile>". Refer to the chapter "Offline mode" for more info.

Argument:

- the directory where the collected data will be stored. If no directory is given, the directory ~/moshell_logfiles/logs_moshell/dcg/<node>/<date>_<time>/ is used.

Please refer to the command file in moshell/commonjars/scripts/dcg_datacollection.mos to view the various commands that are run for each option.

More info about each command can be found by typing "h <command>"

For TR/CSR data collection the main command is “dcgm” which collects all mandatory data. This can take up to one hour on large nodes.

If it is an emergency and the node must be restarted as soon as possible, a smaller set of data can be collected by using the dcge command, this takes less than 15 minutes.

The logs collected by dcg are stored in the folder called ~/moshell_logfiles/logs_moshell/dcg/<node>/<date>_<time>.

Example:

```
**ws4264@/home/eanzmagn/moshell_logfiles/logs_moshell/dcg/RNC11/080505_102644> ls -l
total 8100
-rw-rw-rw- 1 eanzmagn rnd 536626 2008-05-05 10:30 RNC11_DCG_20080505_102915_duringfault.zip
-rw-rw-rw- 1 eanzmagn rnd 767812 2008-05-05 10:35 RNC11_dcg_m.log.gz
-rw-rw-rw- 1 eanzmagn rnd 2103 2008-05-05 10:35 RNC11_license.zip
-rw-rw-rw- 1 eanzmagn rnd 820269 2008-05-05 10:35 RNC11_logfiles.zip
-rw-rw-rw- 1 eanzmagn rnd 536818 2008-05-05 10:32 RNC11_RNC11_OK3.zip
-rw-rw-rw- 1 eanzmagn rnd 5611712 2008-05-05 10:33 RNC11_ropfiles.zip
```

9.3 Configuration settings and environment variables

Printed with the commands “uv” and “pv”.

Very important to include the “uv” and “pv” printouts when reporting problems on moshell !!

9.3.1 Configuration settings

The “uv” printout shows the current values of the “uservariables”, ie. the moshell settings which can be changed by the user.

RNC11> uv

```
bldebset_confirmation = 1
credential             = C:/cygwin/home/eanzmagn/tools/moshell/commonjars/host.p12
corba_class            = 2
csnotiflist            = availabilitystatus
```

```

decoder                = /vobs/iov/rnc/bin/decoder.pl
default_mom            = /home/eanzmagn/tools/moshell/jarxml/MGW_R2.xml
del_confirmation       = 1
editor                 = vi
fast_lh_threshold      = 5
fast_cab_threshold     = 10
ftp_port               = 21
ftp_timeout            = 600
http_port              = 80
inactivity_timeout     = 43200
include_nonpm          = 1
ip_connection_timeout  = 20
ip_database            = /home/eanzmagn/moshell_logfiles/sitefiles/ipdatabase,/home/eanzmagn/tools/moshell/sitefiles/ipdatabase
ip_inactivity_timeout  = 45
java                   = /usr/bin/java
jarxmlldir             = /home/eanzmagn/tools/moshell/jarxml
keepLmList             =
/d/loadmodules/CXC1326054_R1C01,/d/loadmodules/CXC1326054_R1D01,/c/java/host.p12,/c/java/TaskConfigurationFile.txt,/c/java/OLD_Sec
urityManagement.prp,/d/loadmodules/CXC33077_R5A08,/c/java/SecurityManagement.prp
lt_confirmation        = 1
loginfo_print          = 1
moscommandlog          = 0
muteFactor             = 100
nm_credential          = C:/cygwin/home/eanzmagn/ssucredentials.xml
nm_folder              = C:/cygwin/home/eanzmagn
node_login             = 1
print_lmld             = 1
prompt_color           = 1
prompt_highlight       = 1
pm_wait               = 25
pm_logdir              =
rset_customlist        = AntJumperCable,AntFeederCable,Aal2PathDistributionUnit,Repertoire,Program,TdmtermGrp,XpProgram,DpProgram
rt_jar                 =
sa_credential          = C:/cygwin/home/eanzmagn/tools/moshell/commonjars/sam.pbe
sa_password            = *****
use_complete_mom       = 0
secure_ftp             = 0
secure_port            = 22
secure_shell           = 0
security_method        = 1
set_window_title       = 1
show_colors            = 1
show_timestamp         = 1
show_userlabel         = 0

```

```

sls_urls           = https://172.31.93.161:8443/ericsson/servlet/sls,https://134.138.65.70:8443/ericsson/servlet/sls
sls_username       = sls
sls_password       = *****
mospace_convert    = 1
target_monitor_type = 1
telnet_port        = 23
transaction_timeout = 3600
username           = moshelluser
xmlmomlist         = rnc_node_mim.xml,RbsNodeVersion.txt,RbsNode.xml,mmgw_node_mom_limited.xml,mmgwr4_node_mom_open.xml,
mgw_node_mom_ro.xml,CelloMOM.xml

```

The description of each uservariable and default values are shown in the moshell file.

See following extract from moshell file:

.....<cut>....

#####

FOLLOWING SETTINGS ARE CUSTOMIZABLE BY EACH USER.

If changes need to be made to the default values, it is recommended to do it in

one of the following files:

moshell/jarxml/moshellrc (settings will apply to all users)

~/.moshellrc (settings will apply to own user only)

It's also possible to specify a uservariable on session basis:

at moshell startup with "-v" option

or from within moshell, using the "uv" command

#####

#=====

jarxml directory (to store MOM files and jar files which are fetched from the node)

#=====

jarxmlldir=\$moshelldir/jarxml

#=====

Path to java. Java version must be 1.2.2 or higher.

#=====

java="/usr/bin/java"

#=====

IPDATABASE FILE : to specify node names and node passwords, see example in moshell/examples/ipdatabase

several ipdatabase files can be specified, just separate them with commas.

eg: ip_database=\$sitefiledir/ipdatabase,/home/toto/myipdatabase

#=====

ip_database=\$sitefiledir/ipdatabase

#=====

CORBA CLASS:

```

# 1 = vbjorb (secure + unsecure nodes)
# 2 = jacob orb unsecure
# 3 = jacob orb secure with SAM credential (uses sa_credential and sa_password)
# 4 = jacob orb secure with SLS login and download of nm_credential
#      (uses sls_urls, sls_username, sls_password and puts the NM credential in nm_credential)
# 5 = jacob orb secure with NM credential (uses file located in nm_credential)
#=====
corba_class=1

#=====
# CORBA SECURITY METHOD:
# 1 = uses host credential (only works with corba_class=1)
# 2 = uses stand-alone credential (requires java 1.3.1 or higher)
#=====
security_method=1

#=====
# PATH TO HOST CREDENTIAL
# This file is required to handle Corba Security method 1
# Can be generated by PKS server or found on node (in /c/java/host.p12)
# or found in Ranos (in /etc/opt/ericsson/nms_cif_security/certificates/host.p12 )
# This file has an unlimited lifetime.
#=====
credential=$commonjardir/host.p12

#=====
# PATH TO STAND-ALONE CREDENTIAL and stand-alone password
# This file is required when corba_class=3 or corba_class=1+security_method=2
# Can be downloaded from SLS server or with EMAS.
# This file has a limited lifetime, set by SLS server.
#=====
sa_credential=$commonjardir/sam.pbe
sa_password="oemas"

#=====
# PATH TO NETWORK-MODE CREDENTIAL
# The path nm_folder indicates the folder where the NM credential will be downloaded when corba_class=4
# The path nm_credential indicates the path to the NM credential file that will be used when corba_class=5
#=====
nm_folder=$HOME
nm_credential=$HOME/ssucredentials.xml

#=====
# URLs and login details for SLS (one or more URLs can be given)

```

```

# If the uservariable sls_urls is empty, moshell will try to find it out by http download of the file
/configuration/sls_address.cfg
#=====
#sls_urls=https://137.58.194.190:8443/sls/servlet/sls,https://137.58.194.191:8443/sls/servlet/sls
sls_username=sls
sls_password=sls

#=====
# Default xml-MOM file (in case not stored on node, e.g. MGW)
# MGW R2 MOM can be downloaded from
http://internal.ericsson.com/page/hub_corenetwork/unit/pdu_ipconnectivity_control/node_mgw/mgw_supply_and_support/plm.html
# Click on "release binders". The latest MOM is included in the latest release binder.
# MGW R3 MOM can be downloaded from http://mgw.lmf.ericsson.se/projects/r3/system/MGwR3_MOM/
# MGW R4 MOM can be downloaded from http://mgw.lmf.ericsson.se/projects/r4/sm/MOM/index_4.1.html
# MGW R5 MOM can be downloaded from http://vobs.lmf.ericsson.se/wcs/mmgw/r5/mgwr5_oam_appl_mom/xml_storage/
# NOTE: this setting is superceeded by the setting in ~/.moshellrc file.
# Please set this variable in ~/.moshellrc instead .
# Alternatively, transfer the MOM to the node, into the directory /c/public_html/cello/oe/xml and rename it to CelloMOM.xml
# This way, the correct MOM will be used for each node, rather than the default MOM.
#=====
default_mom="$jarxmlmdir/MGW_R2.xml"

#=====
# Prompt highlighting and coloring (1=bold/color, 0=normal)
# Problem when using prompt highlight: if the command is longer than the window,
# it overwrites the beginning of the line
# Prompt highlighting and color can be toggled online using the "b" command.
# Note: prompt_color only works when prompt_highlight is turned on
#=====
prompt_highlight=1
prompt_color=1

#=====
# Set Window Title at startup (0=no, 1=yes)
#=====
set_window_title=1

#=====
# Show colors
# Can be toggled online with the "col" command.
#=====
show_colors=1

#=====
# Show userlabel. To show the userlabel in st/pget printouts.

```

```

# Can be toggled online with the "ul" command.
#=====
show_userlabel=0

#=====
# Telnet/ssh/ftp/sftp username
#=====
username=moshelluser

#=====
# OSE-shell/ftp security (1 to use ssh/sftp, 0 to use telnet/ftp)
#=====
secure_shell=0
secure_ftp=0

#=====
# Timeouts for IP connections (http/telnet/ftp/ssh/sftp), in seconds.
# * ip_connection_timeout : Disconnects if the connection couldn't be established within that time.
# * ip_inactivity_timeout : Disconnects if no output is received from the server within that time.
# * ftp_timeout          : Maximum time allowed for ftp/http transfers
#=====
ip_connection_timeout=20
ip_inactivity_timeout=45
ftp_timeout=600

#=====
# Inactivity timeout (in seconds):
# Moshell exits if no user input arrives within this time.
#=====
inactivity_timeout=108000

#=====
# Http port: 80 for Cello, xx80 for CppEmu where xx is the offset (usually 40)
# Telnet port: 23 for Cello, xx23 for CppEmu where xx is the offset (usually 40)
# Ftp port: 21 for Cello, xx21 for CppEmu where xx is the offset (usually 40)
# Secure port: used for ssh/sftp. a different value can be used in case of RSG port forwardings
#=====
http_port=80
telnet_port=23
ftp_port=21
secure_port=22
.....<cut>.....

```

Uservariables can be changed in the following way:

a) From “uv” command (the change will only apply for the current session)

```
RNC11> uv secure_shell  
  
secure_shell          = 0  
  
RNC11> uv secure_shell=1  
  
secure_shell=1
```

b) Using the “-v” option when starting moshell (the change will only apply for the current session)

```
** NONE ** eanzmagn@srld7243:=> moshell -v secure_shell=1,secure_ftp=1 rnc10
```

c) By editing the ~/.moshellrc file (the change is permanent but only applies to the user owning this file).

```
** NONE ** eanzmagn@srld7243:=> cat ~/.moshellrc  
secure_shell=1  
secure_ftp=1
```

d) By editing the moshell/jarxml/moshellrc file (the change is permanent and applies to all users of this moshell installation).

```
** NONE ** eanzmagn@srld7243:=> cat moshell/jarxml/moshellrc  
secure_shell=1  
secure_ftp=1
```

e) By editing the ipdatabase file (whose path is set in the uservariable ip_database, see chapter below).

Note: it is also possible change a uservariable inside the moshell file but it is not recommended since the change will be undone at the next moshell upgrade.

9.3.2 Uservariables for connecting to secure nodes

To connect to a node that has corba security activated, there are two kind of credentials that can be used:

1) a stand-alone credential (sam.pbe file) which is manually downloaded from SLS. Enter the SLS address in the webbrowser and download the file, store it on the workstation or PC. Note that this connection method usually does not work with security level 3. Then run:

```
moshell -v corba_class=3,sa_credential=/path/to/sam.pbe,sa_password=pw_for_file <ipaddress>
```

2) **a network mode credential** (ssucredentials.xml) which is automatically downloaded by moshell from SLS:

```
moshell -v corba_class=4,sls_username=<sls_user> <ipaddress>
```

---> At the first MO command, moshell will prompt for input of SLS password. The SLS password can also be input with the uservariable sls_password but that is not secure since it appears in full text on the command line or in the ~/.moshellrc file.

If the node has telnet/ftp turned off then you must also add the uservariables secure_shell=1 and secure_ftp=1 to force moshell to connect with ssh/sftp instead of telnet/ftp.

If the node has security level 3 activated, then the node password does not work, a user-specific login must be used. This can be done with the uservariable username. The node password for this user will then be prompted. It is also possible to enter the node password with the password variable but that is not secure since it then appears in full text.

Example of connecting moshell to a security level 2 node:

```
moshell -v corba_class=3,sa_credential=/path/to/sam.pbe,sa_password=pw_for_sampbe,secure_shell=1,secure_ftp=1 <ipaddress>
```

Example of connecting moshell to a security level 3 node:

```
moshell -v corba_class=4,sls_username=<sls_user>,username=<node_user>,secure_shell=1,secure_ftp=1 <ipaddress>
```

(can also add sls_password=<sls_pw>,password=<node_pw> but that is not secure)

Also refer to http://utran01.epa.ericsson.se/moshell/forum_viewtopic.php?4.3522.0#3542 and to the moshell user guide.

9.3.3 Environment variables

The “pv” printout shows all environment variables and scripting variables.

Environment variables are set by moshell at startup and cannot be changed by the user.

They keep some important parameters of the current moshell session (ipaddress of the node, process ID of the session, path to the folder containing logs and temporary logs, etc)

```
RNC11> pv
```

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$uname = SunOS
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20071030-005240_6046
$gawk_pid = 6070
$nodename = RNC11
$ipaddress = 137.58.194.147
$moshelldir = /home/eanzmagn/moshell
$momversion = RNC_NODE_MODEL_G_5_28_COMPLETE
$momdocnumber = 15554-AXD10503/1
$mobrowser_pid = 6120
$momdocrevision = AE4
$cellmomversion = 5.1.2.19-6
$moshell_version = 7.0r
```

**Scripting variables look exactly the same as environment variables but can be set by the user for scripting purposes.
More information on scripting in chapter 7**

9.4 Ipdatabase

The ipdatabase is a file where you can store for each node of the network:

- **nodename** (arbitrary)
- **ipaddress or dns name**
- **password** (optional)
- **any uservariables or scripting variables that should be set before connecting to the node** (optional)

The format of the ipdatabase file is like this:

nodeName ipAddress/DNSname password uservariables/scriptingvariables

Example:

```
** NONE ** eanzmagn@srld7243:=> cat /home/eanzmagn/moshell_sitefiles/ipdatabase
rnc10 137.58.194.88 tch88 secure_shell=1
rnc21 10.1.162.169 rnc21 sa_credential=./rnc21_sam.pbe,sa_password=rnc21,corba_class=3
rnc26 10.1.163.169 rnc26
rnc46 10.1.161.169 rnc46
rbs3206 rbs173.ericsson.se rbs173 username=rbs3206
```

The path to the ipdatabase is stored in the uservariable `ip_database`:

```
RNC11> uv ip_database
```

```
ip_database          = /home/eanzmagn/moshell_sitefiles/ipdatabase
```

Several ipdatabase files can be referred in this uservariable:

```
** NONE ** eanzmagn@srld7243:=> cat ~/.moshellrc
```

```
...<cut>...
```

```
ip_database=/home/eanzmagn/moshell_sitefiles/ipdatabase_telia,/home/eanzmagn/moshell_sitefiles/ipdatabase_tele2
```

When starting moshell, it looks in the list of ipdatabase files to find a matching entry for that entry.

If an entry is found, it uses this to know the ipaddress, the node password, and set any associated uservariables and/or scripting variables.

```
** NONE ** eanzmagn@srld7244:=> moshell rbs3206
```

```
#####
#                               #
#      Welcome to MoShell 7.0q   #
#      Finn Magnusson, Jan Pettersson   #
#      http://utran01.epa.ericsson.se/moshell   #
#      Contact: Finn.Magnusson@ericsson.com   #
#      David.Smith@ericsson.com   #
#####
```

```
Checking ip contact...OK
```

```
HELP MENU      : h
MO COMMANDS    : m
OTHER COMMANDS : n
PM COMMANDS    : p
QUIT           : q
```

```
RBS3206> vii
```

```
070916-04:41:32 rbs173. sw.ericsson.se 7.0q stopfile=/tmp/17661
```

```
Trying password from ipdatabase file: /home/eanzmagn/moshell_sitefiles/ipdatabase...
```

```
$ vii
```

```
----- VII SERVER INFO -----
```

```
registered clients:
```

client	FAULT	LOAD_START	NO_POWER	BOOTTEST	MISSING_RESOURCE	BOARD_LOCKED	BOARD_BUSY	SHUTDOWN
0x00010351	NO	NO	NO	NO	NO	NO	YES	NO

```
LED      State
GREEN    CLS_LEDI_ON
```

```
RED      CLS_LEDI_OFF
YELLOW   CLS_LEDI_FLASHING_16HZ
$
```

```
RBS3206> uv username
```

```
username = rbs3206
```

9.5 O&M connectivity problems

9.5.1 Case 1: moshell hangs at “Trying file=....”

Symptom:

```
RNC10> lt all
```

```
Checking MOM version...RNC_NODE_MODEL_G_1_4
Using MOM version: RNC_NODE_MODEL_G_1_4_COMPLETE
Parsing MOM (cached): /home/eanzmagn/moshell/jarxml/RNC_NODE_MODEL_G_1_4_COMPLETE.xml.cache .....Done.
Fetching IOR file...Done.
**** Welcome to the Simple Mo Browser (version 3.0)!
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20061130-094222_6050/ior6050
```

Possible causes:

1) JVM ran out of memory

```
RNC10> lhsh 001200 jheapinfo
```

```
$ lhsh 001200 jheapinfo
Java Heap Information
Total size: 204800000
Total used: 204700134
Total used high water-mark: 20470593
$
```

==> Try to restart the JVM

RNC11> lhsh 001200 sma -all

\$ lhsh 001200 sma -all

Tue Dec 11 20:19:53 2007

Root Pid	Load Module	
-----	-----	
0x0001024f	CXC1329861_R10AV03	(RncLmCen0m)
0x0001014c	CXC1329860_R10AY01	(RncLmFro)
0x0002012c	CXC1321344_R51EL02	(pms)
0x00010121	CXC1320784_R51LX04	(jvm)
0x00020113	CXC1320783_R51LX02	(http_server)
0x000100e2	CXC1322506_R51LX02	(iputil)
0x000200dd	CXC1322506_R51LX02	(iputil)
0x000200f1	CXC1322705_R51LX02	(xpm)
0x000100ed	CXC1323464_R51LX02	(objectsuppor)
0x000100eb	CXC1323464_R51LX02	(objectsuppor)
0x000200e6	CXC1323464_R51LX02	(objectsuppor)
0x000100ec	CXC1323464_R51LX02	(objectsuppor)
0x000100ee	CXC1323464_R51LX02	(objectsuppor)

Load Module	RPU	State	Mode	Container ID	ReplNoOfRecs	RecSize	SnapSeq	PeerSmnApn
-----	-----	-----	-----	-----	-----	-----	-----	-----
CXC1329861_R10AV03 (RncLmCen0m)	49	Activ	A_w_S	-	-	-	-	- (0, 13)
CXC1329860_R10AY01	48	Activ	A_w_S	-	-	-	-	- (0, 13) (RncLmFro)
CXC1322705_R51LX02	47	Activ	A_w_S	-	-	-	-	- (0, 13) (xpm)
CXC1323464_R51LX02 (objectsuppor)	46	Activ	A_w_S	LSI_CLI_CONTAINER	Yes	1	20	0 (0, 13)
	46	Activ	A_w_S	OSD_CLI_CONTAINER	Yes	300	24	0 (0, 13)
CXC1321344_R51EL02	45	Activ	A_w_S	-	-	-	-	- (0, 13) (pms)
CXC1322506_R51LX02	7	Activ	A_w_S	-	-	-	-	- (0, 13) (iputil)
CXC1320784_R51LX04	6	Activ	A_w_S	-	-	-	-	- (0, 13) (jvm)
CXC1320783_R51LX02 (http_server)	5	Activ	A_w_S	-	-	-	-	- (0, 13)

\$

RNC11> lhsh 001200 proglis

1	run	CXC1320787_R51SZ01	(SystemManage)
2	run	CXC1322506_R51SZ01	(iputil)
3	run	CXC1323464_R51SZ01	(objectsuppor)

4	run	CXC1322705_R51SZ01	(xpm)
5	run	CXC1321314_R51SZ01	(sock)
6	run	CXC1321316_R51SZ01	(ethernet)
7	run	CXC1327705_R51SZ01	(dbagent)
8	run	CXC1320742_R51SZ01	(spas_connect)
9	run	CXC1320783_R51SZ01	(http_server)
10	run	CXC1320784_R51SZ01	(jvm)
11	run	CXC1321121_R51GD01	(nssyci_mpbp)
12	run	CXC1321344_R51EL02	(pms)
13	run	CXC1329860_R10CD01	(RncLmFro)
14	run	CXC1329861_R10CC01	(RncLmCen0m)

RNC11> lhsh 001200 proglst

090911-16:19:09 137.58.194.147 7.1u RNC_NODE_MODEL_J_3_45_COMPLETE stopfile=/tmp/15418

1	run	CXC1320787_R61HH03	(SysMan)
2	run	CXC1322506_R61HH02	(IpUtil)
3	run	CXC1323464_R61HH06	(ObjectSuppor)
4	run	CXC1322705_R61HH02	(Xpm)
5	run	CXC1321314_R61HH02	(sock)
6	run	CXC1321316_R61HH02	(ethernet)
7	run	CXC1327705_R61HH02	(dbagent)
8	run	CXC1320742_R61HH02	(SpasConn)
9	run	CXC1721176_R61HH03	(PmAgent)
10	run	CXC1320783_R61HH02	(Http)
11	run	CXC1320784_R61HH02	(Jvm)
12	run	CXC1321121_R61ES03	(NssSyciBp)
13	run	CXC1321344_R61HH02	(Pms)
14	run	CXC1724161_R3BE01	(RncLmFro)
15	run	CXC1724162_R3BE08	(RncLmCen0m)

RNC11> lhsh 001200 progkill jvm

```
$ echo Killing program CXC1320784_R51SZ01
Killing program CXC1320784_R51SZ01
$ lhsh 001200 pgkill 10
$
```

==> Or restart the JVM board

RNC10> lhsh 001200 reload

```
$ lhsh 001200 reload
```

Note: the memory settings can be found in:

```
RNC10> get jvm= adoptions
```

```
=====
MO                               Attribute      Value
=====
Jvm=1                           admOptions    s[3] = Xms200000k  Dhttp.root=/c/public_html
Dse_ericsson_security_PropertyFileLocation=/c/java/SecurityManagement.prp
=====
```

```
Total: 1 M0s
```

```
RNC10> sql select id,jvm_option from jvmfro_r1
```

```
$ sqlc
```

```
select id,jvm_option from jvmfro_r1;
```

```
Note! Have you allocated enough of heap memory to the loadmodule:CXC1325608 to be able to run SQLC in the way you want??
```

```
Note! CTRL+C is not supported!!!
```

```
Component sqlc (V04.03.0034/0SE)
```

```
Copyright (C) 1994-2005 by Polyhedra Ltd
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id    | jvm_option                                                                                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|      0 | '-Xms200000k -Dhttp.root=/c/public_html -Dse_ericsson_security_PropertyFileLocation=/c/java/SecurityManagement.prp ' |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Query Done: 1 record selected
SQL> exit;
$
```

2) Too many open corba sessions

Maximum number of connections on the CM/PM service : 30.

Maximum number of subscriptions to CM notifications: 25.

Maximum number of subscriptions to FM notifications: 25.

Every line with “Select Accepted” shows a corba session to the node.

CPP <= 6

RNC11> lhsh 001200 dsock client list

\$ lhsh 001200 dsock client list						java_main_thread-66336
lsd	psd	Type	pending	State	Port	SocketOwner-pid
12	30	TCP	Select	Accepted		java_main_thread-66295
11	28	TCP	Select	Accepted		
10	25	TCP	Select	Accepted		
9	19	TCP	Select	Accepted		
8	16	TCP	Select	Accepted		
5	24	TCP	Select	Accepted		
7	23	TCP	Select	Accepted		
16	38	TCP	Select	Accepted		
6	18	TCP	Select	Listen		
4	14	TCP	Accept	Listen		
3	9	TCP	-	Listen		ose_webs-66160
2	7	TCP	-	Listen		prngd-66282
1	6	UDP	-	Other		ose_dhcpr-131694
0	5	UDP	-	Bind		
\$						

CPP7:

STP49> lhsh 001200 rsock -fln

090911-16:55:13 137.58.194.134 7.1u RNC_NODE_MODEL_L_1_47_COMPLETE stopfile=/tmp/17863

\$ lhsh 001200 rsock -fln

CRT	Stack	Type	State	Owner	Request	Owner	Restore Commands
8	35	TCP	0x8f31	efs_file_own			setsockopt(65535,8,0x0) setsockopt(6,1,0x1)
8=accept(5,147.214.201.228:58412)							
0	2	UDP	0x75ba	ose_resolve	ose_resolve		socket(2,2,0) bind(0.0.0.0:0) read_event(1)
9	37	TCP	0x8f31	efs_file_own			setsockopt(65535,8,0x0) setsockopt(6,1,0x1)
9=accept(5,147.214.201.228:58418)							
1	17	UDP	0x75ba	ose_dhcpr	ose_dhcpr		socket(2,2,17) setsockopt(65535,32,0x1) setsockopt(65535,512,0x1)
setsockopt(0,20,0x1) bind(0.0.0.0:68) read_event(1)							
2	12	TCP	0x8f13	prngd			socket(2,1,0) setsockopt(65535,4098,0x400) setsockopt(65535,4,0x1)
setsockopt(65535,512,0x1) bind(127.0.0.1:5555) listen(5) accept_event(0) error_event(0) fcntl(0x4,4)							

```

3   13   TCP   0x8f24   ose_webs      ose_webs      socket(2,1,0) setsockopt(65535,4,0x1) bind(0.0.0.0:80) listen(32)
accept_event(-1)
4   31   UDP   0x75ba   ose_dhcpr     ose_dhcpr     socket(2,2,17) setsockopt(65535,32,0x1) setsockopt(65535,512,0x1)
setsockopt(0,20,0x1) bind(0.0.0.0:67) read_event(1)
5   32   TCP   0x8f14   efs_file_own  ServerSocket  socket(2,1,0) setsockopt(65535,4,0x1) bind(0.0.0.0:56834) listen(20)
6   33   TCP   0x8f31   efs_file_own  setsockopt(65535,8,0x0) setsockopt(6,1,0x1)
6=accept(5,147.214.156.158:44700)
7   34   TCP   0x8f14   efs_file_own  NcliServer    socket(2,1,0) setsockopt(65535,4,0x1) bind(127.0.0.1:5050) listen(3)
$

```

==> reduce the number of client sessions that are currently connected to the node.

9.5.2 Case 2: CORBA.NOT_EXIST

Symptom:

```
RNC10> lt all
```

```

Checking MOM version...RNC_NODE_MODEL_G_1_4
Using MOM version: RNC_NODE_MODEL_G_1_4_COMPLETE
Parsing MOM (cached): /home/eanzmagn/moshell/jarxml/RNC_NODE_MODEL_G_1_4_COMPLETE.xml.cache .....Done.
Fetching IOR file...Done.
**** Welcome to the Simple Mo Browser (version 3.0)!
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20061130-100121_6471/ior6471
org.omg.CORBA.OBJECT_NOT_EXIST: Server-side Exception: null
    at sun.reflect.NativeConstructorAccessorImpl.newInstance0(Native Method)
    at sun.reflect.NativeConstructorAccessorImpl.newInstance(NativeConstructorAccessorImpl.java:39)
    at sun.reflect.DelegatingConstructorAccessorImpl.newInstance(DelegatingConstructorAccessorImpl.java:27)
    at java.lang.reflect.Constructor.newInstance(Constructor.java:274)
    at org.jacorb.orb.SystemExceptionHandler.read(SystemExceptionHandler.java:199)
    at org.jacorb.orb.ReplyReceiver.getReply(ReplyReceiver.java:331)
    at org.jacorb.orb.Delegate.invoke_internal(Delegate.java:1120)
    at org.jacorb.orb.Delegate.invoke(Delegate.java:958)
    at org.omg.CORBA.portable.ObjectImpl._invoke(ObjectImpl.java:76)
    at org.omg.CosNaming._NamingContextStub.resolve(_NamingContextStub.java:546)
    at e.<init>(Unknown Source)
    at se.ericsson.cello.configtestclient.SimpleMoBrowser.<init>(Unknown Source)
    at se.ericsson.cello.configtestclient.SimpleMoBrowser.main(Unknown Source)
MO service not ready, retrying in 10 seconds...

```

Possible causes:

1) JVM restart ongoing or failed

- Wait a while, it could be that the Jvm is not finished starting up, it can take up to 20 minutes on large RNCs (> 120000 MOs)
- Check the T&E log of the JVM to see if some files could not be loaded by the JVM . It could be java SW files or configuration/security files (host.p12, SecurityManagement.prp)

Example:

```
RNC01> lhsh 001200 te log read
```

```
[2007-04-10 05:40:20.404] se.ericsson.cello.support.debug:main Assert:0 ERROR:Mainjava.lang.NoClassDefFoundError:
org.omg.CORBA.ORB
```

```
RNC02> lhsh 001200 te log read
```

```
[2007-08-24 13:03:45.572] se.ericsson.cello.oms:main 0ms:0 ERROR:Failed to start Cello ORB, trying again...
org.omg.CORBA.INITIALIZE: Could not find property file /c/security/SecurityManagement.prp
```

The files needed by the JVM can be viewed with:

```
RNC11> hget jvm admclass
```

```
=====
M0      admClasspath
=====
```

```
Jvm=1 [12] = LoadModule=CXC1328917_R51LX03 LoadModule=CXC1320960_R51EL13 LoadModule=CXC1323893_R50A01 LoadModule=CXC1329797_R2E01
LoadModule=CXC1320959_R51EL45 LoadModule=CXC1720452_R1C01 LoadModule=CXC1720453_R1C01 LoadModule=CXC1720729_R1F01
LoadModule=CXC1720482_R51EL18 LoadModule=CXC1720327_R51EL13 LoadModule=CXC1323613_R50A01 LoadModule=CXC1329868_R10AT01
=====
```

```
Total: 1 M0s
```

```
RNC11> sql select id,jvm_classpath from jvmfro_r1
```

```
$ sqlc
select id,jvm_classpath from jvmfro_r1;
Note! Have you allocated enough of heap memory to the loadmodule CXC1325608 to be able to run SQLC in the way you want?
```

Note! CTRL+C is not supported!!!

Component sqlc (V06.03.0017/0SE4-powerpc)
Copyright (C) 1994-2007 by Polyhedra Ltd

```
+-----+
+-----+
+-----+
+-----+
| id    | jvm_classpath
|
+-----+
+-----+
+-----+
|      0 |
'/c/java/CXC1328917_R51LX03.jar:/c/java/CXC1320960_R51EL13.jar:/c/java/CXC1323893_R50A01.jar:/c/java/CXC1329797_R2E01.jar:/c/java/
CXC1320959_R51EL45.jar:/c/java/CXC1720452_R1C01.jar:/c/java/CXC1720453_R1C01.jar:/c/java/CXC1720729_R1F01.jar:/c/java/CXC1720482_R
51EL18.jar:/c/java/CXC1720327_R51EL13.jar:/c/java/security/CXC1323613_R50A01.jar:/c/java/CXC1329868_R10AT01.jar' |
+-----+
+-----+
+-----+
Query Done: 1 record selected
SQL> exit;
$
```

RNC11> sql select id,jvm_option from jvmfro_r1

070908-08:59:48 137.58.194.147 7.0p RNC_NODE_MODEL_G_5_28_COMPLETE stopfile=/tmp/25007

```
$ sqlc
select id,jvm_option from jvmfro_r1;
Note! Have you allocated enough of heap memory to the loadmodule CXC1325608 to be able to run SQLC in the way you want?
```

Note! CTRL+C is not supported!!!

Component sqlc (V06.03.0017/0SE4-powerpc)
Copyright (C) 1994-2007 by Polyhedra Ltd

```
+-----+
+-----+
+-----+
| id    | jvm_option
+-----+
|      0 | '-Xms200000k -Dhttp.root=/c/public_html -Dse_ericsson_security_PropertyFileLocation=/c/java/SecurityManagement.prp
-Dse.ericsson.cello.CsNotificationQueueSize=6000 ' |
+-----+
```

Query Done: 1 record selected
 SQL> exit;
 \$

RNC11> ftree /c/java

```

/c/java/
-rw-rw-rw-      8431    1 Jan 1970 03:41:32 /c/java/SecurityManagement.prp
-rw-rw-rw-      8431    1 Jan 1970 03:41:32 /c/java/CXC1328917_R51EH05.jar (vls)
-rw-rw-rw-  1420349    1 Jan 1970 03:41:34 /c/java/CXC1320960_R51EH01.jar (oms_jar)
-rw-rw-rw-      2000    1 Jan 1970 03:41:34 /c/java/CXC1323893_R50A01.jar (Asms)
-rw-rw-rw-     37273    1 Jan 1970 03:41:34 /c/java/CXC1329797_R2B02.jar (csu)
-rw-rw-rw-      8431    1 Jan 1970 03:41:32 /c/java/host.pl2
-rw-rw-rw-  3446889    1 Jan 1970 03:41:38 /c/java/CXC1320959_R51EH03.jar (cma_jar)
-rw-rw-rw-  3243785    1 Jan 1970 03:41:41 /c/java/CXC1720452_R1A02.jar (jacorb)
-rw-rw-rw-  1617708    1 Jan 1970 03:41:42 /c/java/CXC1720453_R1A02.jar (jacorb_sec)
-rw-rw-rw-      4446    1 Jan 1970 03:41:42 /c/java/CXC1720729_R1D01.jar (prngcApi)
-rw-rw-rw-   319351    1 Jan 1970 03:41:43 /c/java/CXC1720482_R51DT03.jar (ncliserver)
-rw-rw-rw-     84757    1 Jan 1970 03:41:43 /c/java/CXC1327582_R51DX01.jar (FrameworkAue)
-rw-rw-rw-     17264    1 Jan 1970 03:41:43 /c/java/CXC1324872%4_R51EH01.jar (cma_collect)
-rw-rw-rw-     62285    1 Jan 1970 03:41:44 /c/java/CXC1322491%8_R51EH01.jar (cma_conv)
-rw-rw-rw-      6208    1 Jan 1970 03:41:44 /c/java/CXC1329353_R51DT02.jar (cma_et_conv)
-rw-rw-rw-   199498    1 Jan 1970 03:41:44 /c/java/CXC1720327_R51DT01.jar (cma_serv)
-rw-rw-rw-      7514    1 Jan 1970 03:41:45 /c/java/CXC1721350_R51DJ05.jar (lic_rplabel_)
-rw-rw-rw-  7293199    1 Jan 1970 03:41:52 /c/java/CXC1329868_R9L04.jar (RncLmMao)
-rw-rw-rw-   191597    1 Jan 1970 03:41:52 /c/java/CXC1329876%12_R1B01.jar (RncLmMaoAue)
-rw-rw-rw-   237560    1 Jan 1970 03:41:53 /c/java/CXC1329876%13_R1A01.jar (RncLmMaoAue)
-rw-rw-rw-   244854    1 Jan 1970 03:41:53 /c/java/CXC1329876%14_R1A01.jar (RncLmMaoAue)
-rw-rw-rw-     33652    1 Jan 1970 03:41:54 /c/java/CXC1329877%12_R1B01.jar (RncLmMoDConv)
-rw-rw-rw-     45776    1 Jan 1970 03:41:54 /c/java/CXC1329877%13_R1B01.jar (RncLmMoDConv)
-rw-rw-rw-     48811    1 Jan 1970 03:41:54 /c/java/CXC1329877%14_R1A01.jar (RncLmMoDConv)
-rw-rw-rw-  2924076   28 Mar 2007 08:39:24 /c/java/CXC1720452_R1B01.jar (jacorb)
-rw-rw-rw-  1617688   13 Feb 2007 12:24:12 /c/java/CXC1720453_R1B01.jar (jacorb_sec)
-rw-rw-rw-      8427   13 Feb 2007 12:46:51 /c/java/CXC1328917_R51GT03.jar (vls)
-rw-rw-rw-  1422373   13 Feb 2007 12:46:53 /c/java/CXC1320960_R51EL05.jar (oms_jar)

drwxrwxrwx      1536    1 Jan 1970 03:41:54 /c/java/install/

drwxrwxrwx      512    26 Mar 2007 08:33:47 /c/java/security/
-rw-rw-rw-      1999    7 Mar 2007 12:18:48 /c/java/security/CXC1323613_R50A01.jar (asms)

```

If the faulty loadmodule is not found, download /c/java from another node (with same SW level), or from the upgrade package ftp server, and transfer it to the faulty node.

Note: If there is no classpath entry in the database (eg when configuring a node from scratch), then all loadmodules located in /c/java are loaded. If the JVM classpath needs to be changed, it is strongly recommended to do this via the “set” command or “pgu” instead of directly into the jvmfro_r1 table as this can cause future upgrades to fail. See example in the paragraphs below (“activating corba security”).

If the node is using Corba security, make sure that there is a valid /c/java/host.p12 file and that the clock is correct on the node

```
RNC1> ntpconfig info
```

```
$ ntpconfig info
```

9.5.2.1.1.1 Server 0: 10.0.1.3

```
Result = 3: No secondary server found
```

9.5.2.1.1.2 NTP synchronized 2006-12-06 01:21:39

```
NTP no server 2006-12-11 00:35:31
```

```
NTP clock stepped 2006-12-06 01:16:22 2006-12-06 01:16:22.817->2006-12-06 01:16:22.816
```

```
$
```

```
RNC1> readclock
```

```
$ readclock
```

```
Date: 2006-12-14 UTC Time: 10:11:24. Thursday
```

```
$
```

```
137.58.194.22> ls -l /c/java/host.p12
```

```
$ ls -l /c/java/host.p12
```

```
-rw-rw-rw- 0 2476 25 Aug 2006 13:25:49 /c/java/host.p12
```

```
$
```

2) No communication path available to the node's corba port

- Check the T&E log to make sure that the JVM has successfully started on the node. Look for the line “OMS Initialised”.

```
RNC10> lhsh 001200 te log read
```

```
.....<cut>.....
```

```
[2006-12-14 09:11:23.792] se.ericsson.cello.oms:main 0ms:0 INFO:OMS initialized.
```

```
....
```

If the line OMS initialized is not visible, open a telnet session to the node and run the command “ncli” to see if JVM is started. NCLI is available from CPP5.1 and above.

```
** :srld7240@~> telnet 137.58.194.88
Trying 137.58.194.88...
Connected to 137.58.194.88.
Escape character is '^]'.
username: x
password:
Welcome to OSE Shell OSE4.6.1.
```

```
//this means the JVM is ok:
$ ncli
```

```
[ManagedElement=1]>
```

```
//this means the JVM is NOT ok:
$ ncli
```

```
NOT ACCEPTED
Failed to connect to NCLI Server.
```

//This means that either the node does not support ncli (CPP is 5.0 or older) , or that the NCLI RPU is switched. In this case, try to run the ncli command on the standby MP.

```
$ ncli
Unknown command 'ncli'.
$ lhsh 001100 ncli
```

```
[ManagedElement=1]>
```

9.5.2.1.1.3 - If the JVM is ok, then the fault could be due to lack of communication path between the client and the corba port(s) of the node. Check if there is connectivity to the corba ports. 0=ok, 1= not ok.

**9.5.2.1.1.4 In CPP >= 5.1, Unsecure corba port=56834, secure corba port=56836.
In CPP <= 5.0, corba ports= 56834&56835 (secure+unsecure).**

```
** NONE ** eanzmagn@srld7243:=> moshell/commonjars/nc -z 137.58.194.88 56834;echo $?
0
** NONE ** eanzmagn@srld7243:=> moshell/commonjars/nc -z 137.58.194.88 56835 ; echo $?
0
```

```
** NONE ** eanzmagn@srld7243:=> moshell/commonjars/nc -z 137.58.194.88 56836 ; echo $?  
1
```

Common causes for corba ports inaccessible:

- NAT is used between the client and the node (NAT is not supported for corba communication)
- Firewall blocking some of the ports

9.5.3 Case 3: OSE shell and/or file transfer not accessible

Symptom:

The following error message is printed in moshell:

Unable to connect to <ipaddress>:<port>

It indicates that there is no contact to the TCP port used to access the OSE shell or file transfer protocol.

This port can either be:

- the telnet port, if secure_shell=0. The telnet port is defined in the uservariable telnet_port and is set to 23 by default.
- the ftp port, if secure_ftp=0. The ftp port is defined in the uservariable ftp_port and is set to 21 by default.
- the ssh/sftp port, if secure_shell=1. The ssh/sftp port is defined in the uservariable secure_port and is set to 22 by default.

Possible causes:

1) Wrong settings in moshell

- is security level 3 activated on the node?

In this case, the telnet/ftp ports are blocked, so the uservariables secure_shell and secure_ftp must be set to 1

- is the node accessed through RSG with port forwarding?

In this case the uservariables telnet_port and/or secure_port must be set accordingly.

2) Too many open telnet/ftp/ssh/sftp sessions

- Maximum number of telnet sessions: 5.
- Maximum number of ftp sessions: 5.
- Maximum number of ssh/sftp sessions: 5.

Try to close some ongoing sessions or change the setting of the uservariables secure_shell or secure_ftp to be able to access.

How to check the number of ongoing telnet/ssh sessions:

```
RNC11> ps | egrep -i ' (sshd|ose)_shell '
```

```
000107c9 ose_shell          p31 telnet_137.58.19  0 rcv
00060273 ose_shell          p31 telnet_153.88.12  0 rcv
001507b3 ose_shell          p31 telnet_153.88.12  0 rcv
011e0797 ose_shell          p31 telnet_153.88.12  0 rcv
000207b7 ose_shell          p31 telnet_153.88.12  0 rcv
000307dc sshd_shell          p30 Osa_secAccess_bl  4 rcv
000207da sshd_shell          p30 Osa_secAccess_bl  0 rcv
000407d3 sshd_shell          p30 Osa_secAccess_bl  0 rcv
000307d0 sshd_shell          p30 Osa_secAccess_bl  0 rcv
```

How to check the number of ongoing ftp/sftp sessions:

```
RNC11> ps | egrep -i 'sftp|ftpd_'
```

```
00090278 ose_ftpd_spawn      p31 CelloIaci_telnet  0 rcv
002a079e ose_ftpd_spawn      p31 CelloIaci_telnet  0 rcv
000407c8 ose_ftpd_spawn      p31 CelloIaci_telnet  0 rcv
001e07ae sftp1_137.58.190.40: p31 Osa_secAccess_bl  33 rcv
002107b3 sftp1_137.58.190.40: p31 Osa_secAccess_bl  33 rcv
```

3) The telnet/ssh server LM is hanging or the node is cyclic restarting

If the MO service is reachable try to restart the ssh program or the node itself (with restart action on the Program MO or ManagedElement MO).

```
RNC11> proglis | grep ssh
```

```
090911-17:12:18 137.58.194.147 7.1u RNC_NODE_MODEL_J_3_45_COMPLETE stopfile=/tmp/15418
16      run   CXC1323911_R61HH05      (ssh)
```

Otherwise, access the node through RS232 (serial interface).

9.5.4 Case 4: HTTP not accessible

Symptom:

The following error message is printed in moshell:

Checking MOM version...Failed! Unable to connect to 10.18.14.147:80.

**It indicates that there is no contact to the TCP port used for file transfer over HTTP.
This port is set in the uservariable http_port and has default value 80.**

Possible causes:

1) Wrong settings in moshell

Is the node accessed through RSG with port forwarding?

In this case the uservariables http_port must be set accordingly.

2) HTTP server LM is hanging

Try to restart the http server program with the progkill command. This program is running in the O&M MP.

RNC11> lhsh 001200 proglst

1	run	CXC1320787_R51SZ01	(SystemManage)
2	run	CXC1322506_R51SZ01	(iputil)
3	run	CXC1323464_R51SZ01	(objectsuppor)
4	run	CXC1322705_R51SZ01	(xpm)
5	run	CXC1321314_R51SZ01	(sock)
6	run	CXC1321316_R51SZ01	(ethernet)
7	run	CXC1327705_R51SZ01	(dbagent)
8	run	CXC1320742_R51SZ01	(spas_connect)
9	run	CXC1320783_R51SZ01	(http_server)
10	run	CXC1320784_R51SZ01	(jvm)
11	run	CXC1321121_R51GD01	(nsssygi_mpbp)
12	run	CXC1321344_R51EL02	(pms)
13	run	CXC1329860_R10CD01	(RncLmFro)
14	run	CXC1329861_R10CC01	(RncLmCen0m)

RNC11> lhsh 001200 progkill http

```
$ echo Killing program CXC1320783_R51SZ01
Killing program CXC1320783_R51SZ01
$ lhsh 001400 pgkill 15
$
```

9.5.5 Case 5: File not found on HTTP server

10 SCRIPTING

10.1 Using MO groups

RNC11> h ma

```
*****
ma/lma <moGroup> <moGroup>|<moFilter>|<proxy(s)>|all [<attribute-filter>] [<value-filter>]
*****
To put MO LDNs into an MO-Group.
```

RNC11> h mr

```
*****
mr/lmr <moGroup> [<moGroup>|<moFilter>|<proxy(s)>|all] [<attribute-filter>] [<value-filter>]
*****
Exactly the same as "ma" but the MOs matching will be removed from the MO-Group instead of added.
If the second argument is omitted, the whole MO-group is removed.
```

RNC11> h mp

```
*****
mp
*****
To print the available MO-Groups. See ma command for more info.
```

10.1.1 Method 1 : based on the distinguished name of the MO

RNC11> pr ms-6-1

```
=====
Proxy  MO
=====
```

```
2225  TransportNetwork=1,AtmPort=MS-6-1
=====
```

Total: 1 MOs

RNC11> ma test ms-6-1

Added 1 MOs to group: test

RNC11> pr test

```
=====
Proxy  MO
=====
```

```
2225  TransportNetwork=1,AtmPort=MS-6-1
=====
```

Total: 1 MOs

RNC11> lpr ms-6-1

```
=====
Proxy  MO
=====
```

```
2225  TransportNetwork=1,AtmPort=MS-6-1
2226  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1
2227  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1
2228  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu2
2229  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu1
2230  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu2
2231  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu1
2232  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc99
2233  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc98
2234  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc97
2235  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc96
2236  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc95
2237  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc94
2238  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc93
2239  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc92
2240  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc91
2241  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc90
2242  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50
2243  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc34
2244  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu2
2245  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu1
2246  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu2
2247  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu1
2248  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc103
2249  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc102
2250  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc101
2251  TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc100
```

```
2252 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu2
2253 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu1
```

```
=====
Total: 29 M0s
```

```
RNC11> lma test1 ms-6-1
```

```
Added 29 M0s to group: test1
```

```
RNC11> pr test1
```

```
=====
Proxy  M0
```

```
=====
2225 TransportNetwork=1,AtmPort=MS-6-1
2226 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1
2227 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1
2228 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu2
2229 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr3Gtpu1
2230 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu2
2231 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr5Gtpu1
2232 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc99
2233 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc98
2234 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc97
2235 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc96
2236 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc95
2237 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc94
2238 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc93
2239 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc92
2240 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc91
2241 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc90
2242 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc50
2243 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc34
2244 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu2
2245 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr2Gtpu1
2246 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu2
2247 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr4Gtpu1
2248 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc103
2249 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc102
2250 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc101
2251 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=vc100
2252 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu2
2253 TransportNetwork=1,AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu1
```

```
=====
Total: 29 M0s
```

RNC11> mp

=====	
M0-Group	Nr of M0s
=====	
1. test	1
2. test1	29

To view the contents of an M0 group, type "pr <mogroup>"

RNC11> mr test

Removed group: test

RNC11> lmr test1 AtmPort=MS-6-1,VplTp=1,VpcTp=1,VclTp=Pdr1Gtpu2

RNC11> mp

=====	
M0-Group	Nr of M0s
=====	
1. test1	28

RNC11> mr test1

Removed group: test1

10.1.2 Method 2a: based on the attribute value of the MO, using "ma" command

RNC11> get atmport operational 0

=====		
M0	Attribute	Value
=====		
AtmPort=MS-7-2	operationalState	0 (DISABLED)
AtmPort=MS-7-1	operationalState	0 (DISABLED)
=====		

Total: 2 M0s

RNC11> ma test atmport operational 0

Added 2 MOs to group: test

RNC11> st test

Proxy	Adm State	Op. State	M0
2203		0 (DISABLED)	TransportNetwork=1,AtmPort=MS-7-2
2204		0 (DISABLED)	TransportNetwork=1,AtmPort=MS-7-1

Total: 2 MOs

RNC11> get atmport uses

M0	Attribute	Value
AtmPort=MS-26-2	uses	Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-26-1	uses	Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-7-2	uses	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-7-1	uses	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-6-2	uses	Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-6-1	uses	Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-27-2	uses	Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-27-1	uses	Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1

Total: 8 MOs

RNC11> ma test1 atmport uses slot=6

Added 2 MOs to group: test1

RNC11> get test1 uses

M0	Attribute	Value
AtmPort=MS-6-2	uses	
Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1		
AtmPort=MS-6-1	uses	
Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1		

Total: 2 MOs

RNC11> ma test2 vcltp pmreceiv ^0

Added 66 M0s to group: test2

RNC11> pget test2 pmrec

M0	Attribute	Value
AtmPort=MS-26-2,VplTp=40,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
AtmPort=MS-26-2,VplTp=39,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
AtmPort=MS-26-2,VplTp=38,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
AtmPort=MS-26-2,VplTp=37,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
AtmPort=MS-26-2,VplTp=36,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
AtmPort=MS-26-2,VplTp=35,VpcTp=1,VclTp=vc35	pmReceivedAtmCells	0
...<cut>...		
AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc103	pmReceivedAtmCells	0
AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc102	pmReceivedAtmCells	0
AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc101	pmReceivedAtmCells	0
AtmPort=MS-27-1,VplTp=1,VpcTp=1,VclTp=vc100	pmReceivedAtmCells	0

Total: 66 M0s

RNC11> mp

M0-Group	Nr of M0s
1. test	2
2. test1	2
3. test2	66

To view the contents of an M0 group, type "pr <mogroup>"

RNC11> mr test

Removed group: test

RNC11> mr test1

Removed group: test1

RNC11> mr test2

Removed group: test2

//NOTE: when attribute value changes the MO group stays the same

10.1.3 Method 2b: based on the attribute value of the MO, using “hget” command

Example: make an MO group with all pluginunits that are locked and enabled:

```
RNC11> hget plug state 0 1
```

```
=====
MO                               administrativeState operationalState
=====
```

```
Subrack=MS,Slot=19,PlugInUnit=1 0 (LOCKED)          1 (ENABLED)
=====
```

```
Total: 1 MOs
```

```
Added 1 MOs to group: hget_group
```

```
RNC11> st hget_group
```

```
=====
Proxy  Adm State      Op. State      MO
=====
  138  0 (LOCKED)      1 (ENABLED)    Equipment=1,Subrack=MS,Slot=19,PlugInUnit=1
=====
```

```
Total: 1 MOs
```

```
RNC11> ma test hget_group
```

```
Added 1 MOs to group: test
```

```
RNC11> st test
```

```
=====
Proxy  Adm State      Op. State      MO
=====
  138  0 (LOCKED)      1 (ENABLED)    Equipment=1,Subrack=MS,Slot=19,PlugInUnit=1
=====
```

```
Total: 1 MOs
```

Example: make an MO group with all UtranCells who have maxtxpwr at 400 and primarycpichpwr at 300:

```
RNC11> hget utrancell maximumTransmissionPower|primaryCpichPower 400 300
```

MO	maximumTransmissionPower	primaryCpichPower
UtranCell=30199	400	300
UtranCell=30198	400	300
UtranCell=30197	400	300
UtranCell=30196	400	300
UtranCell=30195	400	300
UtranCell=30194	400	300
UtranCell=30193	400	300
UtranCell=30192	400	300
UtranCell=30191	400	300

Total: 9 MOs

Added 9 MOs to group: hget_group

Save the group:

```
RNC11> ma mygroup hget_group
```

All cells with maxtxpower > 400 and pichpower > 300

```
RNC11> hget utrancell maximumTransmissionPower|primaryCpichPower ^[4-9].. ^[3-9]..
```

10.1.4 Method 2c: based on the attribute value of the MO, using “st” command

Example: make an MO group containing all MOs who are unlocked disabled

```
RNC11> st . 1.*0
```

Proxy	Adm State	Op. State	MO
434	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
436	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
464	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1

```

473 1 (UNLOCKED) 0 (DISABLED) Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
3308 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu2
3309 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr4Gtpu1
3310 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr3Gtpu2
3311 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=8,PacketDataRouter=Pdr3Gtpu1
3315 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=1,PacketDataRouter=Pdr5Gtpu2
3316 1 (UNLOCKED) 0 (DISABLED) RncFunction=1,RncModule=1,PacketDataRouter=Pdr5Gtpu1
=====

```

Total: 10 M0s

Added 10 M0s to group: st_group

Save the group:

RNC11> ma mygroup st_group

10.1.5 Method 3: adding a referenced MO

RNC11> get atmpport uses

M0	Attribute	Value
AtmPort=MS-26-2	uses	Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-26-1	uses	Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-7-2	uses	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-7-1	uses	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-6-2	uses	Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-6-1	uses	Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
AtmPort=MS-27-2	uses	Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
AtmPort=MS-27-1	uses	Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1

Total: 8 M0s

RNC11> ma test atmpport uses

Added 8 M0s to group: test

RNC11> pr test

```

=====
Proxy M0

```

```

=====
27  Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
29  Equipment=1,Subrack=MS,Slot=27,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
40  Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
42  Equipment=1,Subrack=MS,Slot=26,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
435 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
437 Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
450 Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
452 Equipment=1,Subrack=MS,Slot=6,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
=====

```

Total: 8 M0s

RNC11> get jvm admclass

```

=====
M0                                     Attribute      Value
=====
Jvm=1                                admClasspath   [8] =
>>> admClasspath = SwManagement=1,LoadModule=CXC1320960_R50HK01
>>> admClasspath = SwManagement=1,LoadModule=CXC1323893_R50A01
>>> admClasspath = SwManagement=1,LoadModule=CXC1323613_R50A01
>>> admClasspath = SwManagement=1,LoadModule=CXC1329315_R1A01
>>> admClasspath = SwManagement=1,LoadModule=CXC1321689_R50HK01
>>> admClasspath = SwManagement=1,LoadModule=CXC1329797_R1A01
>>> admClasspath = SwManagement=1,LoadModule=CXC1320959_R50HX02
>>> admClasspath = SwManagement=1,LoadModule=CXC1329868_R4J08
=====

```

Total: 1 M0s

RNC11> ma test1 jvm admclass

Added 8 M0s to group: test1

RNC11> pr test1

```

=====
Proxy  M0
=====
543  SwManagement=1,LoadModule=CXC1323613_R50A01
666  SwManagement=1,LoadModule=CXC1320960_R50HK01
675  SwManagement=1,LoadModule=CXC1321689_R50HK01
775  SwManagement=1,LoadModule=CXC1329797_R1A01
961  SwManagement=1,LoadModule=CXC1329315_R1A01
982  SwManagement=1,LoadModule=CXC1320959_R50HX02

```

```
1019 SwManagement=1,LoadModule=CXC1323893_R50A01
1050 SwManagement=1,LoadModule=CXC1329868_R4J08
```

=====
Total: 8 M0s

RNC11> hget test1 prod

```
=====  
M0                productInfo productName productNumber productRevision productionDate  
=====  
LoadModule=CXC1323613_R50A01 asms      asms      CXC1323613  R50A01  20050216  
LoadModule=CXC1320960_R50HK01 oms      oms      CXC1320960  R50HK01  20050817  
LoadModule=CXC1321689_R50HK01 vbjorb   vbjorb   CXC1321689  R50HK01  20040311  
LoadModule=CXC1329797_R1A01  csu      csu      CXC1329797  R1A01    20050216  
LoadModule=CXC1329315_R1A01  vbsec    vbsec    CXC1329315  R1A01    20050126  
LoadModule=CXC1320959_R50HX02      cma      CXC1320959  R50HX02  20051222  
LoadModule=CXC1323893_R50A01 asms_stub asms_stub CXC1323893  R50A01    20050216  
LoadModule=CXC1329868_R4J08      RncLmMao CXC1329868  R4J08    20060116  
=====
```

Total: 8 M0s

RNC11> prod test1

```
=====  
Proxy  M0                ProductData  
=====  
543 LoadModule=CXC1323613_R50A01 CXC1323613 R50A01 asms      20050216 asms  
666 LoadModule=CXC1320960_R50HK01 CXC1320960 R50HK01 oms      20050817 oms  
675 LoadModule=CXC1321689_R50HK01 CXC1321689 R50HK01 vbjorb   20040311 vbjorb  
775 LoadModule=CXC1329797_R1A01  CXC1329797 R1A01  csu      20050216 csu  
961 LoadModule=CXC1329315_R1A01  CXC1329315 R1A01  vbsec    20050126 vbsec  
982 LoadModule=CXC1320959_R50HX02 CXC1320959 R50HX02 cma      20051222  
1019 LoadModule=CXC1323893_R50A01 CXC1323893 R50A01 asms_stub 20050216 asms_stub  
1049 LoadModule=CXC1329868_R4J08  CXC1329868 R4J08  RncLmMao 20060116  
=====
```

Total: 8 M0s

10.1.6 Method 4: from lk command

MGW1> lk 2292

```

=====
Proxy  Adm State      Op. State      M0s linked to 2292:Mtp3bSpItu=2,Mtp3bSrs=nwp171
=====
1864                                     TransportNetwork=1,Aal2RoutingCase=nwp171
1910                                     TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171,Aal2PathDistributionUnit=nwp171
1909                1 (ENABLED)    TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171
2336                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bAp=nwp171
2293                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171
2294                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171_ip
2381                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171,Mtp3bSlItu=nwp171_0
2380                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171
2403                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,M3uAssociation=m3ua_nwp171
2292                1 (ENABLED)    TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171
1943                1 (ENABLED)    TransportNetwork=1,Sctp=SIGTR_12
1881                1 (ENABLED)    TransportNetwork=1,NniSaalTp=nwp171a
1885                1 (ENABLED)    TransportNetwork=1,Aal5TpVccTp=r171qa
2037                1 (ENABLED)    TransportNetwork=1,AtmPort=2152,VplTp=2,VpcTp=2,VclTp=36
=====

```

Total: 14 M0s

Added 14 M0s to group: lk_group

MGW1> pr lk_group

```

=====
Proxy  M0
=====
1864  TransportNetwork=1,Aal2RoutingCase=nwp171
1881  TransportNetwork=1,NniSaalTp=nwp171a
1885  TransportNetwork=1,Aal5TpVccTp=r171qa
1909  TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171
1910  TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171,Aal2PathDistributionUnit=nwp171
1943  TransportNetwork=1,Sctp=SIGTR_12
2037  TransportNetwork=1,AtmPort=2152,VplTp=2,VpcTp=2,VclTp=36
2292  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171
2293  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171
2294  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171_ip
2336  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bAp=nwp171
2380  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171
2381  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171,Mtp3bSlItu=nwp171_0
2403  TransportNetwork=1,Mtp3bSpItu=2,M3uAssociation=m3ua_nwp171
=====

```

Total: 14 M0s

```
MGW1> ma myc7group lk_group
```

Added 14 MOs to group: myc7group

```
MGW1> pr myc7group
```

```
=====
Proxy  MO
=====
1864  TransportNetwork=1,Aal2RoutingCase=nwp171
1881  TransportNetwork=1,NniSaalTp=nwp171a
1885  TransportNetwork=1,Aal5TpVccTp=r171qa
1909  TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171
1910  TransportNetwork=1,Aal2Sp=1,Aal2Ap=nwp171,Aal2PathDistributionUnit=nwp171
1943  TransportNetwork=1,Sctp=SIGTR_12
2037  TransportNetwork=1,AtmPort=2152,VplTp=2,VpcTp=2,VclTp=36
2292  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171
2293  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171
2294  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSrs=nwp171,Mtp3bSr=nwp171_ip
2336  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bAp=nwp171
2380  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171
2381  TransportNetwork=1,Mtp3bSpItu=2,Mtp3bSls=nwp171,Mtp3bSlItu=nwp171_0
2403  TransportNetwork=1,Mtp3bSpItu=2,M3uAssociation=m3ua_nwp171
=====
Total: 14 MOs
```

10.1.7 Method 5: from pdiff command

Refer to CPP NCH presentation for examples

10.1.8 Two-step examples:

1. to put all unlocked-disabled MOs in a group in order to lock them (obsolete. easier to use the method described in 10.1.4)

```
RNC11> lma test equipment operationalstate 0
```

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060830-093030_28415/gaLog28415

.....

Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060830-093030_28415/gaLog28415

Added 6 M0s to group: test

RNC11> st test

Proxy	Adm State	Op. State	M0
434	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
435		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2,Vc4Ttp=1
436	0 (LOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1
437		0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1,Vc4Ttp=1
464	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
473	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1

Total: 6 M0s

RNC11> ma test1 test administ 1

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060830-093030_28415/gaLog28415

.....
Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060830-093030_28415/gaLog28415

Added 3 M0s to group: test1

RNC11> st test1

Proxy	Adm State	Op. State	M0
434	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2
464	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
473	1 (UNLOCKED)	0 (DISABLED)	Equipment=1,Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1

Total: 3 M0s

RNC11> bl test1

Id	M0	AdministrativeState	Result
434	Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2	0	>>> Set.
464	Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1	0	>>> Set.
473	Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1	0	>>> Set.

Total: 3 M0s attempted, 3 M0s set

2. to put all cells belonging to module 8 in a group in order to lock them

RNC11> get iublink module

MO	Attribute	Value
IubLink=9	rncModuleRef	RncModule=1
IubLink=8	rncModuleRef	RncModule=1
IubLink=7	rncModuleRef	RncModule=1
IubLink=6	rncModuleRef	RncModule=1
IubLink=5	rncModuleRef	RncModule=1
IubLink=4	rncModuleRef	RncModule=1
IubLink=3	rncModuleRef	RncModule=1
IubLink=2	rncModuleRef	RncModule=1
IubLink=1	rncModuleRef	RncModule=1
IubLink=40	rncModuleRef	RncModule=8
IubLink=39	rncModuleRef	RncModule=8
IubLink=38	rncModuleRef	RncModule=8
IubLink=37	rncModuleRef	RncModule=8
IubLink=36	rncModuleRef	RncModule=8
IubLink=35	rncModuleRef	RncModule=8
IubLink=34	rncModuleRef	RncModule=8
IubLink=33	rncModuleRef	RncModule=8
IubLink=32	rncModuleRef	RncModule=8
IubLink=31	rncModuleRef	RncModule=8
IubLink=30	rncModuleRef	RncModule=8
IubLink=29	rncModuleRef	RncModule=8
IubLink=28	rncModuleRef	RncModule=8
IubLink=27	rncModuleRef	RncModule=8
IubLink=26	rncModuleRef	RncModule=8
IubLink=25	rncModuleRef	RncModule=8
IubLink=24	rncModuleRef	RncModule=8
IubLink=23	rncModuleRef	RncModule=8
IubLink=22	rncModuleRef	RncModule=8
IubLink=21	rncModuleRef	RncModule=8
IubLink=20	rncModuleRef	RncModule=1
IubLink=19	rncModuleRef	RncModule=1
IubLink=18	rncModuleRef	RncModule=1
IubLink=17	rncModuleRef	RncModule=1
IubLink=16	rncModuleRef	RncModule=1
IubLink=15	rncModuleRef	RncModule=1
IubLink=14	rncModuleRef	RncModule=1

IubLink=13	rncModuleRef	RncModule=1
IubLink=12	rncModuleRef	RncModule=1
IubLink=11	rncModuleRef	RncModule=1
IubLink=10	rncModuleRef	RncModule=1

=====
Total: 40 M0s

RNC11> get iublink module =8\$

M0	Attribute	Value
IubLink=40	rncModuleRef	RncModule=8
IubLink=39	rncModuleRef	RncModule=8
IubLink=38	rncModuleRef	RncModule=8
IubLink=37	rncModuleRef	RncModule=8
IubLink=36	rncModuleRef	RncModule=8
IubLink=35	rncModuleRef	RncModule=8
IubLink=34	rncModuleRef	RncModule=8
IubLink=33	rncModuleRef	RncModule=8
IubLink=32	rncModuleRef	RncModule=8
IubLink=31	rncModuleRef	RncModule=8
IubLink=30	rncModuleRef	RncModule=8
IubLink=29	rncModuleRef	RncModule=8
IubLink=28	rncModuleRef	RncModule=8
IubLink=27	rncModuleRef	RncModule=8
IubLink=26	rncModuleRef	RncModule=8
IubLink=25	rncModuleRef	RncModule=8
IubLink=24	rncModuleRef	RncModule=8
IubLink=23	rncModuleRef	RncModule=8
IubLink=22	rncModuleRef	RncModule=8
IubLink=21	rncModuleRef	RncModule=8

=====
Total: 20 M0s

RNC11> ma iubmod8 iublink module =8\$

Added 20 M0s to group: iubmod8

RNC11> get iubmod8 module

M0	Attribute	Value
IubLink=40	rncModuleRef	RncModule=8

IubLink=39	rncModuleRef	RncModule=8
IubLink=38	rncModuleRef	RncModule=8
IubLink=37	rncModuleRef	RncModule=8
IubLink=36	rncModuleRef	RncModule=8
IubLink=35	rncModuleRef	RncModule=8
IubLink=34	rncModuleRef	RncModule=8
IubLink=33	rncModuleRef	RncModule=8
IubLink=32	rncModuleRef	RncModule=8
IubLink=31	rncModuleRef	RncModule=8
IubLink=30	rncModuleRef	RncModule=8
IubLink=29	rncModuleRef	RncModule=8
IubLink=28	rncModuleRef	RncModule=8
IubLink=27	rncModuleRef	RncModule=8
IubLink=26	rncModuleRef	RncModule=8
IubLink=25	rncModuleRef	RncModule=8
IubLink=24	rncModuleRef	RncModule=8
IubLink=23	rncModuleRef	RncModule=8
IubLink=22	rncModuleRef	RncModule=8
IubLink=21	rncModuleRef	RncModule=8

=====

Total: 20 M0s

RNC11> get iublink reserved

M0	Attribute	Value
IubLink=9	reservedBy	[3] =
>>> reservedBy = RncFunction=1,UtranCell=30125		
>>> reservedBy = RncFunction=1,UtranCell=30126		
>>> reservedBy = RncFunction=1,UtranCell=30127		
IubLink=8	reservedBy	[3] =
>>> reservedBy = RncFunction=1,UtranCell=30122		
>>> reservedBy = RncFunction=1,UtranCell=30123		
.....<cut>.....		
>>> reservedBy = RncFunction=1,UtranCell=30133		
IubLink=10	reservedBy	[3] =
>>> reservedBy = RncFunction=1,UtranCell=30128		
>>> reservedBy = RncFunction=1,UtranCell=30129		
>>> reservedBy = RncFunction=1,UtranCell=30130		

=====

Total: 40 M0s

RNC11> ma cellmod8 iubmod8 reserved

Added 60 MOs to group: cellmod8

RNC11> bl cellmod8

3. group containing all nbapcommon MOs belonging to a specific module, in order to lock them

RNC11> lt root

This will clear the proxy list. OK to proceed? [y/n]: y
Connected to 137.58.194.88 (ManagedElement=1)

RNC11> pr

```
=====
Proxy  MO
=====
      0  ManagedElement=1
=====
Total: 1 MOs
```

RNC11> lt iublink

Load Proxys for MOs of following type...

```
=====
IubLink
=====
```

Please Confirm [y/n]: y

Last MO: 40. Loaded 40 MOs. Total: 41 MOs. MO Class: IubLink.

RNC11> ma iub_mod8 iublink rncmodule module=8\$

Added 20 MOs to group: iub_mod8

RNC11> get iub_mod8 module

MO	Attribute	Value
IubLink=40	rncModuleRef	RncModule=8
IubLink=39	rncModuleRef	RncModule=8

IubLink=38	rncModuleRef	RncModule=8
IubLink=37	rncModuleRef	RncModule=8
IubLink=36	rncModuleRef	RncModule=8
IubLink=35	rncModuleRef	RncModule=8
IubLink=34	rncModuleRef	RncModule=8
IubLink=33	rncModuleRef	RncModule=8
IubLink=32	rncModuleRef	RncModule=8
IubLink=31	rncModuleRef	RncModule=8
IubLink=30	rncModuleRef	RncModule=8
IubLink=29	rncModuleRef	RncModule=8
IubLink=28	rncModuleRef	RncModule=8
IubLink=27	rncModuleRef	RncModule=8
IubLink=26	rncModuleRef	RncModule=8
IubLink=25	rncModuleRef	RncModule=8
IubLink=24	rncModuleRef	RncModule=8
IubLink=23	rncModuleRef	RncModule=8
IubLink=22	rncModuleRef	RncModule=8
IubLink=21	rncModuleRef	RncModule=8

=====

Total: 20 M0s

RNC11> lcc iub_mod8

Load Proxys for children of following M0s and all subsequent children...

=====

10	RncFunction=1,IubLink=40
11	RncFunction=1,IubLink=39
12	RncFunction=1,IubLink=38
13	RncFunction=1,IubLink=37
14	RncFunction=1,IubLink=36
15	RncFunction=1,IubLink=35
16	RncFunction=1,IubLink=34
17	RncFunction=1,IubLink=33
18	RncFunction=1,IubLink=32
19	RncFunction=1,IubLink=31
20	RncFunction=1,IubLink=30
21	RncFunction=1,IubLink=29
22	RncFunction=1,IubLink=28
23	RncFunction=1,IubLink=27
24	RncFunction=1,IubLink=26
25	RncFunction=1,IubLink=25
26	RncFunction=1,IubLink=24
27	RncFunction=1,IubLink=23
28	RncFunction=1,IubLink=22
29	RncFunction=1,IubLink=21

=====

Please Confirm [y/n]: y

Last M0:	45.	Loaded	5 M0s.	Total:	46 M0s.
Last M0:	50.	Loaded	5 M0s.	Total:	51 M0s.
Last M0:	55.	Loaded	5 M0s.	Total:	56 M0s.
Last M0:	60.	Loaded	5 M0s.	Total:	61 M0s.
Last M0:	65.	Loaded	5 M0s.	Total:	66 M0s.
Last M0:	70.	Loaded	5 M0s.	Total:	71 M0s.
Last M0:	75.	Loaded	5 M0s.	Total:	76 M0s.
Last M0:	80.	Loaded	5 M0s.	Total:	81 M0s.
Last M0:	85.	Loaded	5 M0s.	Total:	86 M0s.
Last M0:	90.	Loaded	5 M0s.	Total:	91 M0s.
Last M0:	95.	Loaded	5 M0s.	Total:	96 M0s.
Last M0:	100.	Loaded	5 M0s.	Total:	101 M0s.
Last M0:	105.	Loaded	5 M0s.	Total:	106 M0s.
Last M0:	110.	Loaded	5 M0s.	Total:	111 M0s.
Last M0:	115.	Loaded	5 M0s.	Total:	116 M0s.
Last M0:	120.	Loaded	5 M0s.	Total:	121 M0s.
Last M0:	125.	Loaded	5 M0s.	Total:	126 M0s.
Last M0:	130.	Loaded	5 M0s.	Total:	131 M0s.
Last M0:	135.	Loaded	5 M0s.	Total:	136 M0s.
Last M0:	140.	Loaded	5 M0s.	Total:	141 M0s.

RNC11> ma nbap_mod8 nbapcom

Added 20 M0s to group: nbap_mod8

RNC11> pr nbap_mod8

=====

Proxy M0

=====

45	RncFunction=1,IubLink=40,NbapCommon=1
50	RncFunction=1,IubLink=39,NbapCommon=1
52	RncFunction=1,IubLink=38,NbapCommon=1
56	RncFunction=1,IubLink=37,NbapCommon=1
62	RncFunction=1,IubLink=36,NbapCommon=1
70	RncFunction=1,IubLink=35,NbapCommon=1
75	RncFunction=1,IubLink=34,NbapCommon=1
76	RncFunction=1,IubLink=33,NbapCommon=1
83	RncFunction=1,IubLink=32,NbapCommon=1
86	RncFunction=1,IubLink=31,NbapCommon=1
95	RncFunction=1,IubLink=30,NbapCommon=1

```
96  RncFunction=1,IubLink=29,NbapCommon=1
105 RncFunction=1,IubLink=28,NbapCommon=1
108 RncFunction=1,IubLink=27,NbapCommon=1
114 RncFunction=1,IubLink=26,NbapCommon=1
118 RncFunction=1,IubLink=25,NbapCommon=1
123 RncFunction=1,IubLink=24,NbapCommon=1
126 RncFunction=1,IubLink=23,NbapCommon=1
135 RncFunction=1,IubLink=22,NbapCommon=1
139 RncFunction=1,IubLink=21,NbapCommon=1
```

=====
Total: 20 M0s

10.2 Scripting variables

Scripting variables are named by string with a “\$” in front, eg: \$myvar

Variables of type “hashtable” are named in the same way but the index is specified in brackets, just after the name, eg: \$mytable[1]

When a command contains a variable, its name is replaced by its value.

Eg:

```
$myvar = read
te log $myvar --> will be replaced with “te log read”
```

```
$myvar = read
$table[$myvar] = te log ---> the variable $table[read] is assigned the value “te log”
lhsh 001200 $table[$myvar] $myvar --> will be replaced with “lhsh 001200 te log read”
```

Note! user variables should not be confused with scripting variables.

User variables (whose values can be printed with the “uv” commands) are not scripting variables, they are configuration settings for moshell. To use the value of a user variable, its value should first be saved into a scripting variable.

Eg: uv secure_shell > \$secure_shell

10.3 Preset variables

The following variables are set immediately after moshell startup:

\$moshelldir ---> path to the moshell directory

\$gawk ---> path to gawk

\$ipaddress ---> IP address to the node that moshell is connected to

\$moshell_version ---> the moshell version

\$logdir ---> path to the moshell_logfiles/logs_moshell directory
\$tempdir ---> path to the directory containing all temporary files for this moshell session. Gets deleted at the end of the session.

RNC11> pv

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102
$gawk_pid = 9127
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$moshell_version = 6.1zu
```

The following variables are set after the MOM has been parsed:

\$momversion ---> the MOM version of the node (eg: RNC_NODE_MODEL_E_5_3, MGW_NODE_MODEL_R3_9_0)

\$cellomomversion ---> the CPP MOM version (eg: 3.3, 4.3, 5.1, etc) of the node

These two variables can be handy to have when a script needs to know what SW revision is running in the node or what kind of node it is.

\$momdocnumber --> document number and revision of the MOM

\$momdocrevision

The following variables are set after running certain MO commands:

\$nr_of_mos --> the number of MOs that were printed on screen by the last run of the pr/st/get/prod/fro/set/del/acc commands.

\$nr_of_mos_ok --> the number of MOs that were successfully operated upon by the last run of the set/del/acc commands.

\$command_result --> set after the cr/pcr/pset/trun commands. Possible values: 0 for success, 1 for failure.

\$nr_of_alarms --> the number of active alarms on the node. Set after the last run of the "al" command.

\$nr_of_cvs --> the number of CV:s that exist on the node, is set after the last run of the "cvls" command.

\$nr_of_scanners --> the number of scanners printed by the last run of the pst/pgets/pdel/pbl/pdeb commands.

\$nr_of_counter_instances --> the number of counter instances printed by the last run of the pgetsn command.

RNC11> pr

```
Checking MOM version...RNC_NODE_MODEL_G_1_4
Using MOM version: RNC_NODE_MODEL_G_1_4_COMPLETE
Parsing MOM (cached): /home/eanzmagn/moshell/jarxml/RNC_NODE_MODEL_G_1_4_COMPLETE.xml.cache .....Done.
Fetching IOR file...Done.
**** Welcome to the Simple Mo Browser (version 3.0)!
Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102/ior9102
**** Test Construction OK
****
```

Connected to 137.58.194.88 (ManagedElement=1)

Proxy	M0
0	ManagedElement=1

Total: 1 M0s

RNC11> pv

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20070111-154422_25420
$gawk_pid = 25443
$nodename = RNC11
$nr_of_mos = 1
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$momversion = RNC_NODE_MODEL_G_1_4_COMPLETE
$cellmomversion = 5.0_LSV43-4
$momdocnumber = 15554-AXD10503/1
$mobrowser_pid = 25472
$momdocrevision = Z1
$moshell_version = 7.0f
```

RNC11> get 0 userlabel

M0	Attribute	Value
ManagedElement=1	userLabel	

Total: 1 M0s

RNC11> set 0 userlabel RNC11

Id	M0	userLabel	Result
0	ManagedElement=1	RNC11	>>> Set.

Total: 1 M0s attempted, 1 M0s set

RNC11> pv

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102
$gawk_pid = 9127
$nodename = RNC11
$nr_of_mos = 1
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$nr_of_vars = 12
$momversion = RNC_NODE_MODEL_G_1_4_COMPLETE
$nr_of_mos_ok = 1
$cellmomversion = 5.0_LSV43-4
$moshell_version = 6.1zu
```

```
RNC11> set 0 managedelementid 2
```

Id M0		ManagedElementId	Result
0 ManagedElement=1		2	!!!! Processing failure
:se.ericsson.cello.moframework.NoSuchAttributeException TAG : "NoSuchAttribute" VARIABLES : "\$attrName" = "ManagedElementId", "\$moTypeName" = "ManagedElement"			
Total: 1 M0s attempted, 0 M0s set			

```
RNC11> pv
```

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102
$gawk_pid = 9127
$nodename = RNC11
$nr_of_mos = 1
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$nr_of_vars = 13
$momversion = RNC_NODE_MODEL_G_1_4_COMPLETE
$nr_of_mos_ok = 0
$cellmomversion = 5.0_LSV43-4
$moshell_version = 6.1zu
```

The following variables are set after running one of the l+/u+/u- commands.

\$logfile ---> the logfile that is currently open. Set immediately after executing the "l+" command, stays set even after "l-" and will only be reset the next time a new logfile is open with "l+"
\$undologfile ---> the logfile used by the undo command. Set immediately after executing the "u+/u+s" command, stays set even after "u-" and will only be reset the next time a new undo mode is started with "u+/u+s".
\$undocommandfile --> the command file that can be used to undo the commands that were run between "u+/u+s" and "u-". Set immediately after executing the "u-" command.
\$undodelcommandfile --> the file containing the delete commands. Only applicable to simulated undo mode "u+s".

RNC11> l+

Logging to file: /home/eanzmagn/moshell_logfiles/logs_moshell/sessionlog/060710-075833_RNC11.log

RNC11> al

Trying file=/home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102/ior9102
Resolving the alarm service in OMS...
Simple Alarm Client initialized...
Starting to retrieve active alarms
Nr of active alarms are: 11

=====		
Sever	Specific Problem	Cause Mo-Reference
=====		
Maj	Loss of Signal	loss_of_signal
Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=1		
Maj	Loss of Signal	loss_of_signal
Subrack=MS,Slot=7,PlugInUnit=1,ExchangeTerminal=1,0s155SpiTtp=2		
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=1,PacketDataRouter=Pdr5Gtpu1
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=1,PacketDataRouter=Pdr5Gtpu2
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=8,PacketDataRouter=Pdr3Gtpu1
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=8,PacketDataRouter=Pdr3Gtpu2
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=8,PacketDataRouter=Pdr4Gtpu1
Maj	PacketDataRouter_CnNotRespondingToICMPEcho	communication_protocol_error RncModule=8,PacketDataRouter=Pdr4Gtpu2
Maj	TU Synch Reference Loss of Signal	loss_of_signal Subrack=MS,Slot=4,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
Maj	TU Synch Reference Loss of Signal	loss_of_signal Subrack=MS,Slot=5,PlugInUnit=1,TimingUnit=1,TuSyncRef=1
Min	Loss of Synch Reference Redundancy	replaceable_unit_problem Synchronization=1
>>> Total: 11 Alarms (0 Critical, 10 Major)		

RNC11> l-

Log close: /home/eanzmagn/moshell_logfiles/logs_moshell/sessionlog/060710-075833_RNC11.log

RNC11> pv

```

$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$logfile = /home/eanzmagn/moshell_logfiles/logs_moshell/sessionlog/060710-075833_RNC11.log
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-075643_9102
$gawk_pid = 9127
$nodename = RNC11
$nr_of_mos = 1
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$nr_of_vars = 13
$momversion = RNC_NODE_MODEL_G_1_4_COMPLETE
$nr_of_mos_ok = 0
$nr_of_alarms = 11
$cellmomversion = 5.0_LSV43-4
$moshell_version = 6.1zu

```

The following variable is set after having logged on to the node via telnet/ssh or ftp/sftp.

\$password

The contents of the variable can not be printed, it will only show if it's empty or not. By unsetting this variable or setting it to empty, this will force moshell to check the password again. Useful in case the password has changed on the node during the moshell session.

```
RNC11> pv pass
```

```
RNC11> vii
```

Trying password from ipdatabase file: /home/eanzmagn/moshell_sitefiles/ipdatabase...

```

$ vii
----- VII SERVER INFO -----
registered clients:
  client  FAULT  LOAD_START  NO_POWER  BOOTTEST  MISSING_RESOURCE  BOARD_LOCKED  BOARD_BUSY  SHUTDOWN
  -----  -----  -----  -----  -----  -----  -----  -----  -----

LED      State
GREEN    CLS_LEDI_ON
RED      CLS_LEDI_OFF
YELLOW   CLS_LEDI_OFF
$

```

```
RNC11> pv pass
```

```
$password = *****
```

```
RNC11> unset $password
```

```
RNC11> vii
```

```
Trying password from ipdatabase file: /home/eanzmagn/moshell_sitefiles/ipdatabase...
```

```
$ vii
----- VII SERVER INFO -----
registered clients:
  client  FAULT  LOAD_START  NO_POWER  BOOTTEST  MISSING_RESOURCE  BOARD_LOCKED  BOARD_BUSY  SHUTDOWN
-----
LED      State
GREEN    CLS_LEDI_ON
RED      CLS_LEDI_OFF
YELLOW   CLS_LEDI_OFF
$
```

```
RNC11> $password =
```

```
$password =
```

```
RNC11> vii
```

```
Trying password from ipdatabase file: /home/eanzmagn/moshell_sitefiles/ipdatabase...
```

```
$ vii
----- VII SERVER INFO -----
registered clients:
  client  FAULT  LOAD_START  NO_POWER  BOOTTEST  MISSING_RESOURCE  BOARD_LOCKED  BOARD_BUSY  SHUTDOWN
-----
LED      State
GREEN    CLS_LEDI_ON
RED      CLS_LEDI_OFF
YELLOW   CLS_LEDI_OFF
$
```

The following variable is set after running the "pv" command.

\$nr_of_vars

This variable indicates the number of scripting variables that were printed in the last "pv" printout. By using "pv" together with a filtering pattern (eg: pv \$table), it is possible to find out the number of variables that had matched the pattern, for instance the number of elements in a hashtable.

```
RNC11> pv moshell
```

```
$moshelldir = /home/eanzmagn/moshell
```

```
$moshell_version = 6.1zu
```

```
RNC11> print $nr_of_vars
```

```
2
```

10.4 Variable assignment

To assign your own variables or hashtables, use the “=” sign, surrounded by spaces

To print variable values, use the command “pv”, or “print”, or “l echo”

```
RNC11> $i = 2
```

```
$i = 2
```

```
RNC11> $node = the RNC
```

```
$node = the RNC
```

```
RNC11> $table[1] = $node
```

```
$table[1] = the RNC
```

```
RNC11> $table[$i] = the RBS
```

```
$table[2] = the RBS
```

```
RNC11> pv
```

```
$i = 2
```

```
$table[2] = the RBS
```

```
$table[1] = the RNC
```

```
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
```

```
$node = RNC
```

```
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
```

```
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-074615_8986
```

```
$gawk_pid = 9011
```

```
$nodename = RNC11
```

```
$ipaddress = 137.58.194.88
```

```
$moshelldir = /home/eanzmagn/moshell
```

```
$moshell_version = 6.1zu
```

//FIND OUT HOW MANY ELEMENTS IN THE HASHTABLE: RUN THE PV COMMANDS, THEN PRINT THE VARIABLE \$nr_of_vars

```
RNC11> pv table
```

```
$table[2] = the RBS  
$table[1] = the RNC
```

```
RNC11> print $nr_of_vars
```

```
2
```

```
RNC11> print $table[$i]
```

```
the RBS
```

```
RNC11> l echo "$table[$i]"
```

```
the RBS
```

```
RNC11> pv $i
```

```
$i = 2  
$ipaddress = 137.58.194.88
```

```
RNC11> pv $i$
```

```
$i = 2
```

It is good practice to unset variables after they are not needed in order to keep the number of variables to a minimum.

This is because the variable lookup in moshell will take more time if there are too many variables defined (around 1000 variables the performance starts to decrease)

```
RNC11> unset $i
```

```
RNC11> pv $i$
```

```
RNC11> unset $table
```

```
RNC11> pv table
```

If there are many variables, it is easier to use the command “unset all”, which unsets all variables except the preset variables.

```
RNC11> $i = 1
```

```
$i = 1
RNC11> $j = 2
$j = 2
RNC11> $k = 3
$k = 3
RNC11> pv
$j = 2
$i = 1
$k = 3
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$node = the RNC
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-080430_9319
$password = *****
$gawk_pid = 9344
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$nr_of_vars = 0
$moshell_version = 6.1zu
RNC11> unset all
RNC11> pv
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-080430_9319
$password = *****
$gawk_pid = 9344
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$moshell_version = 6.1zu
```

It is also possible to define “resilient” variables which survive the “unset small” command (but not the “unset all”)

```
RNC11> $i := 1
```

```
$i = 1

RNC11> $j = 2

$j = 2

RNC11> pv

$j = 2
$i = 1
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-080430_9319
$password = *****
$gawk_pid = 9344
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$nr_of_vars = 9
$moshell_version = 6.1zu

RNC11> unset small

RNC11> pv

$i = 1
$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-080430_9319
$password = *****
$gawk_pid = 9344
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshelldir = /home/eanzmagn/moshell
$moshell_version = 6.1zu

RNC11> unset all

RNC11> pv

$gawk = LANG=C LC_ALL=C /home/eanzmagn/moshell/gawk
$logdir = /home/eanzmagn/moshell_logfiles/logs_moshell
$tempdir = /home/eanzmagn/moshell_logfiles/logs_moshell/tempfiles/20060710-080430_9319
$password = *****
```

```
$gawk_pid = 9344
$nodename = RNC11
$ipaddress = 137.58.194.88
$moshellldir = /home/eanzmagn/moshell
$moshell_version = 6.1zu
```

Other ways of setting variables

0) from the ~/.moshellrc file
cat .moshellrc
\$myvar=0

1) at moshell startup, using the "-v" option

In this case, the "\$" sign should be omitted (otherwise it gets interpreted by the unix shell)

Example:

```
>> moshell -v upmo=CXP9011008_R1A03,ftpserv=10.1.0.16,secure_shell=1,secure_ftp=1 rnc34
```

In this case, we can see that scripting variables (\$upmo and \$ftpserv) and user variables (secure_shell and secure_ftp) have been mixed in the same statement. This is ok because any variable that is not recognised as a user variable will be treated as a scripting variable.

```
** NONE ** eanzmagn@srlld7244:==> moshell -v upmo=CXP9012014_R4J04,password=tch88,secure_ftp=1 rnc11
```

```
#####
#                               #
#      Welcome to MoShell 6.1zu  #
#      Finn Magnusson, Jan Pettersson  #
#      http://utran01.epa.ericsson.se/moshell  #
#      Contact: Finn.Magnusson@ericsson.com  #
#      David.Smith@ericsson.com  #
#####
```

Checking ip contact...OK

```
HELP MENU      : h
MO COMMANDS    : m
OTHER COMMANDS : n
PM COMMANDS    : p
QUIT          : q
```

```
RNC11> pv upmo|password
```

```
$upmo = CXP9012014_R4J04
$password = *****
```

```
RNC11> uv secure_ftp
```

```
secure_ftp          = 1
```

2) from the following commands: get, fro, ip2d/d2ip, h2d/d2h, b2h, h2b, uv.
The mo-filter and attribute-filter must be specified, then comes the redirection sign (">"), then the variable name.
If several attributes are printed, only the last attribute value gets assigned into the variable.

```
RNC11> get 0 userlabel > $node
```

M0	Attribute	Value
ManagedElement=1	userLabel	RNC11

Total: 1 M0s

```
$node = RNC11
```

```
RNC11> get configuration currentupgrade > $currentup
```

M0	Attribute	Value
ConfigurationVersion=1	currentUpgradePackage	UpgradePackage=CXP9012014_R9AA05

Total: 1 M0s

```
$currentup = UpgradePackage=CXP9012014_R9AA05
```

```
RNC11> get $currentup administrativedata > $currentupproduct
```

M0	Attribute	Value
UpgradePackage=CXP9012014_R9AA05	administrativeData	Struct{5}

```
>>> 1.productNumber = CXP9012014
>>> 2.productRevision = R9AA05
>>> 3.productName = UTRAN RNC
>>> 4.productInfo = Upgrade Package file for RNC CXP9012014 R9AA05.
>>> 5.productionDate = 20060925
```

Total: 1 M0s

//IN THE CASE OF STRUCT ATTRIBUTES, THE VALUES OF EACH MEMBER ARE SAVED IN A HASHTABLE

```

$currentupproduct = Struct{5}
>>> 1.productNumber = CXP9012014
>>> 2.productRevision = R9AA05
>>> 3.productName = UTRAN RNC
>>> 4.productInfo = Upgrade Package file for RNC CXP9012014 R9AA05.
>>> 5.productionDate = 20060925
$currentupproduct[productName] = UTRAN RNC
$currentupproduct[productInfo] = Upgrade Package file for RNC CXP9012014 R9AA05.
$currentupproduct[productionDate] = 20060925
$currentupproduct[productNumber] = CXP9012014
$currentupproduct[productRevision] = R9AA05

```

```
RNC11> lfro subrack=ms,slot=1,pluginunit=1$ . > $slot1_fro
```

=====		
M0	FroName	FroId
=====		
Subrack=MS,Slot=1,PlugInUnit=1	resourceId	1
=====		

```
Total: 1 M0s
```

```
$slot1_fro = 1
```

```
RNC11> uv credential > $credential
```

```
credential          = /home/eanzmagn/moshell/commonjars/host.p12
```

```
$credential = /home/eanzmagn/moshell/commonjars/host.p12
```

```
sa_credential       = /home/eanzmagn/moshell/commonjars/sam.pbe
```

```
$credential = /home/eanzmagn/moshell/commonjars/sam.pbe
```

```
RNC11> uv ^credential > $credential
```

```
credential          = /home/eanzmagn/moshell/commonjars/host.p12
```

```
$credential = /home/eanzmagn/moshell/commonjars/host.p12
```

```
RNC11> ip2d 10.1.128.17 > $ipd
```

```
10.1.128.17: 167870481
```

```
$ipd = 167870481
```

```
RNC11> d2h $ipd > $iph
```

```
167870481: 0xA018011
```

```
$iph = 0xA018011
```

3) using an arithmetic operation

The following numeric operations are supported:

+ addition

- subtraction

* multiplication

/ division

% modulo (returns the remainder of an integer division operation)

```
>> $i = 1          (result: $i=1)
>> $i = $i + 1      (result: $i=2)
>> $i = $i * 3       (result: $i=6)
>> $k = $i * $j      (result: $k=12)
>> $l = $i / $j      (result: $l=0.333)
>> $m = $k % 5       (result: $m=2)
```

Note: Only one operation per line is allowed. A space must exist between each element of the operation. There cannot be more than two members in the operation (ie: \$i = \$j + \$k ==> OK. But \$i = \$j + \$k + \$l ==> NOTOK)

4) using string manipulation

The following string operations are supported: concatenation and substitution/replacement.

The concatenation is performed by juxtaposing the strings.

Syntax for concatenation: \$var = string1string2string3 (the strings are concatenated without space in between)

or \$var = string1 string2 string3 (the strings are concatenated with spaces in between)

The substitution/replacement is performed using the "-s" switch to specify the string to substitute and the "-r" switch to specify the string it should be replaced with. If the "-r" switch is not used, then the string will be replaced by nothing. If the "-g" switch is specified, then all instances of the string to be substituted, otherwise, only the first instance.

Syntax for substitution/replacement: \$var = originalString -s stringToSubstitute [-r stringToReplaceItWith [-g]]

Regular expressions can be used in the string manipulations.

```
RNC11> $var = my book is green
```

```
$var = my book is green
```

```
RNC11> $var1 = $var and red
```

```
$var1 = my book is green and red
```

```
RNC11> $var2 = $var1ish
$var2 = my book is green and redish
RNC11> $var3 = $var2 -s green -r blue
$var3 = my book is blue and redish
RNC11> $var3 = $var2 -s red -r blue
$var3 = my book is green and blueish
RNC11> $var4 = $var3 -s $var
$var4 =  and blueish
RNC11> $var5 = $var4 -s a.*e
$var5 =  ish
RNC11> $var6 = $var$var5
$var6 = my book is green ish
RNC11> $var6 = $var6 -s .ish -r ish
$var6 = my book is greenish
RNC11> $var7 = $var6 -s \x020
$var7 = mybook is greenish
RNC11> $var7 = $var6 -s \x020 -g
$var7 = mybookisgreenish
```

5) using output from a unix command:

The unix command must be surrounded by back-quotes (`). Variables can be used within the unix command.

```
RNC11> $date = `date +%y%m%d-%H%M`
$date = 060710-0841
```

```
RNC11> $nr_of_errors = `$moshelldir/moshell -v password=$password $ipaddress 'lh all te log read' | grep -c ERROR`
```

```
$nr_of_errors = 986
```

```
RNC11> $corben_clock = ` $moshelldir/moshell -v password=$corben_pw,username=auto $corben_ip "readclock" | grep Date`
```

```
$corben_clock = Date: 2006-07-10 UTC Time: 06:49:14. Monday
```

```
RNC11> $mirrorstat = ` $moshelldir/moshell -v password=$password $ipaddress "lh coremp mirror s" | grep -c "Peer Disk.*Valid"`
```

```
$mirrorstat = 1
```

```
// 0 = Not ok , 1 = OK
```

```
RNC11> $rbs_a2ea = ` $moshelldir/moshell $rbsip 'lt aal2sp;get aal2sp a2ea' | $gawk '$2 == "a2ea" { print $3}`
```

```
$rbs_a2ea = 491520004301000
```

6) using output from a predefined function

Currently, the following functions exist:

- * fdn(proxy) ---> input is the proxy id, output is the FDN
- * ldn(proxy) ---> input is the proxy id, output is the LDN
- * rdn(proxy) ---> input is the proxy id, output is the RDN
- * motype(proxy) ---> input is the proxy id, output is the MO type
- * proxy(string) ---> input is the LDN or FDN (NOT RDN!), output is the proxy id
- * readinput(sring) ---> input is a prompt that should appear on the screen, so that the user can input an answer which will then be assigned to the variable.
- * readfile(file) ---> input is a filename. Each line of the file is assigned into an element of the hashtable into which we have assigned the result of the function. If the file is not found, the variable \$nr_of_lines is set to 0, otherwise it is set to the number of lines in the file. Note, this should not be used on large files as it will slow down things very much.
- * testfile(file) ---> input is a filename. If the file is not found, the variable \$nr_of_lines is set to 0, otherwise it is set to 1.
- * split(string) --> The string is split into the array specified on the left side of the equal sign (see example below). The separator used to split the string can be specified in the variable "\$split_separator". By default it is a space. If the \$split_separator has been changed and needs to be reset to the default value, just run the command "unset \$split_separator". The number of elements in the array is stored in the variable \$split_last

Examples:

```
RNC37> pr atmport
```

```
=====
Proxy  MO
=====
```

```
3 TransportNetwork=1,AtmPort=MS-26-2
4 TransportNetwork=1,AtmPort=MS-26-1
5 TransportNetwork=1,AtmPort=MS-24-2
6 TransportNetwork=1,AtmPort=MS-24-1
7 TransportNetwork=1,AtmPort=ES-1-2-2
8 TransportNetwork=1,AtmPort=ES-1-2-1
9 TransportNetwork=1,AtmPort=ES-1-26-2
10 TransportNetwork=1,AtmPort=ES-1-26-1
11 TransportNetwork=1,AtmPort=MS-6-2
12 TransportNetwork=1,AtmPort=MS-6-1
13 TransportNetwork=1,AtmPort=MS-27-2
14 TransportNetwork=1,AtmPort=MS-27-1
```

=====

Total: 12 M0s

RNC37> \$rdn = rdn(14)

\$rdn = AtmPort=MS-27-1

RNC37> \$ldn = ldn(14)

\$ldn = TransportNetwork=1,AtmPort=MS-27-1

RNC37> \$fdn = fdn(14)

\$fdn = SubNetwork=OSS27_RootMo_R,SubNetwork=RNC37,MeContext=RNC37,ManagedElement=1,TransportNetwork=1,AtmPort=MS-27-1

RNC37> \$motype = motype(14)

\$motype = AtmPort

RNC37> \$proxy = proxy(\$fdn)

\$proxy = 14

RNC37> \$proxy = proxy(\$ldn)

\$proxy = 14

RNC37> \$reply = readinput(please type something:)
please type something: hoho

RNC37> pv reply

\$reply = hoho

```
RNC37> l cat testfile
```

```
this is the first line  
this is the second line  
this is the third line  
this is the last line of this file
```

```
RNC37> $lines = readfile(./testfile)
```

```
RNC37> pv lines
```

```
$lines[1] = this is the first line  
$lines[2] = this is the second line  
$lines[3] = this is the third line  
$lines[4] = this is the last line of this file  
$nr_of_lines = 4
```

```
RNC37> for $i = 1 to $nr_of_lines  
Enter commands (one per line), then type "done"  
> pv $lines[$i]  
> done
```

```
-----  
061003-14:14:57      Index 1 of 4: 1  
-----
```

```
RNC37> pv $lines[$i]
```

```
$lines[1] = this is the first line
```

```
RNC37>
```

```
-----  
061003-14:14:57      Index 2 of 4: 2  
-----
```

```
RNC37> pv $lines[$i]
```

```
$lines[2] = this is the second line
```

```
RNC37>
```

```
-----  
061003-14:14:57      Index 3 of 4: 3  
-----
```

RNC37> pv \$lines[\$i]

\$lines[3] = this is the third line

RNC37>

061003-14:14:57 Index 4 of 4: 4

RNC37> pv \$lines[\$i]

\$lines[4] = this is the last line of this file

RNC37>

RNC37> \$words = split(\$lines[3])

RNC37> pv words

\$words[5] = line
\$words[4] = third
\$words[3] = the
\$words[2] = is
\$words[1] = this

RNC37> for \$i = 1 to \$split_last
Enter commands (one per line), then type "done"
> pv \$words[\$i]
> done

061003-14:19:10 Index 1 of 5: 1

RNC37> pv \$words[\$i]

\$words[1] = this

RNC37>

061003-14:19:10 Index 2 of 5: 2

RNC37> pv \$words[\$i]

\$words[2] = is

RNC37>

061003-14:19:10 Index 3 of 5: 3

RNC37> pv \$words[\$i]

\$words[3] = the

RNC37>

061003-14:19:10 Index 4 of 5: 4

RNC37> pv \$words[\$i]

\$words[4] = third

RNC37>

061003-14:19:10 Index 5 of 5: 5

RNC37> pv \$words[\$i]

\$words[5] = line

To specify another field separator, set the variable \$split_separator.

10.5 If/Else constructs

- The if statement must be followed by a condition. The comparison operator of the condition must be surrounded by spaces.
- Zero or more "else if" statements can be used after the "if" statement.
- Zero or one "else" statements can be after the "if" or "else if" statements.

- The end of the if/else structure must be specified with a "fi" statement.
- Each statement must be on its own line and can be followed by one or more commands.
- Several conditions can be combined, using the logical AND (&&), or the logical OR (||).
- Any number of AND/OR can be put on a line but NOT BOTH on the same line.
- Grouping conditions with brackets is NOT supported.
- The "return" command can be used to exit from the command file in case a certain condition is met (type "h return" for more information on how to use this command).

Syntax examples:

```
a) if <condition>
    command1
    command2
fi

b) if <condition1> || <condition2>
    command1
    command2
else
    command3
fi

c) if <condition> && <condition2> && <condition3>
    command1
else if <condition4>
    command2
else
    return
fi
```

A condition can use the following comparison operators:

```
=    equals
~    matches
!=   is not equal to
!~   does not match
>    greater than
<    less than
>=   greater or equal than
<=   less or equal than
```

The words around the operator can be either a variable or a single word but NOT a string containing spaces or a concatenation of a variable and string.

Following conditions are syntactically correct:

```
if $var1 = $var2
if mystring ~ $var
if $i < 2
```

Following conditions are NOT syntactically correct and will return unexpected results:

```
if mystring_$var1 ~ $var2
if mystring is this ~ your string
```

A condition can also just contain one variable, in which case it will check if the variables exists.

Examples:

```
>> if $var ---> check if the variable $var exists
>> get 0 productname > $nodeType
>> if $nodeType ~ 3202 || $nodeType ~ 3104
    set feeder attenuation 4
else if $nodeType ~ 3101
    set feeder attenuation 16
else
    return
fi
```

10.6 For constructs

The parameter to the "For" construct can be:

a) "ever" : to repeat the loop an infinite number of times

```
$var = 0
for ever
    $var = $var + 1
    if $var = 10
        break
fi
done
```

b) <numberOfIterations> : to repeat the loop a specific number of times

```
for 10
    command1
    command2
    wait 5
done
```

c) \$var in <moGroup> : to run the body of the loop on each MO of the specified moGroup. At each loop iteration, the \$var variable will take the value of the proxy id of one of the MOs of the moGroup.

```
for $mo in mymogroup
```

```

    get $mo attribute > $var
    $var = $var + 1
    set $mo attribute $var
    $rdn = rdn($mo)
    set $mo userlabel $rdn
done

```

d) \$var in <boardGoup> : to run the body of the loop on each board of the specified board group. At each loop iteration, the \$var variable will take the value of the linkhandler of one of the boards of the boardGroup.

```

for $board in myboardgroup
    bl $board
    facc $board restart 0 1
    wait 10
    deb $board
    lhsh $board vii
done

```

f) \$var in \$table : for each iteration of the loop, \$var will take one of the index values of the hashtable \$table

```

for $proxy in $proxytable
    bl $proxy
    st $proxy
    deb $proxy
    st $proxy
    get $proxy operational > $opstate
    if $opstate != 1
        break
    fi
done

```

g) \$var = \$start to \$stop : \$var is assigned every integer value between \$start and \$stop. \$start and \$stop can be variables or constants but must be an integer. If \$start is smaller than \$stop then the order will be ascending, otherwise it will be descending.

```

for $var = $maxproxy to $minproxy
    del $var
done

for $var = 1 to 6
    te e trace$var process
done

```

Notes:

- The end of the "for" structure must be specified with a "done" statement.
- The "wait" command can be used in the body of the loop to specify a delay to wait in between each iteration. The delay can be in seconds, minutes, hours, or even ROP periods. (Type "h wait" for info.) Do not use the "sleep" command as this will result in hanging if the loop is aborted.
- The loop can be aborted any time by typing ctrl-z , then "touch <stopfile>", then "fg". The <stopfile> path is shown in the window title bar. Type "h ctrl-z" for more info about aborting.
- The break command can be used within the loop to exit from the loop.
- The return command can be used to exit from the script but without exiting from moshell. Return shall always be used within an "if" construct.

10.7 User-defined functions

It is possible to nest one or more if/else statement within a for statement and vice-versa.

But it is not possible to nest an if/else statement within an if/else statement and a for statement within another for statement.

The following is ok:

```
for xxx
  command1
  if yyy
    command2
  else
    command3
  fi
done
```

But not this:

```
for xxx
  command1
  if yyy
    command2
    for zzz
      command4
      if aaa
        break
      fi
    fi
  fi
done
```

```

        done
    else
        command3
    fi
done

INSTEAD:
func myfunction
    for zzz
        command4
        if aaa
            break
        fi
    done
endfunc

for xxx
    command1
    if yyy
        command2
        myfunction
    else
        command3
    fi
done

```

The workaround is to put the for/if constructs into functions.

Users can define their own functions, using the func/endfunc construct.

If the function is called with arguments, these are assigned to the variables \$1, \$2, \$3, etc

Example:

1. Define the function (the function definitions can be run in a different command file)

Here we are defining a function which checks the state of the mirrored disks and returns once the disks are in sync

```

func check_disk_state
    #if $1 is undefined or different to an integer value then we set it to 10 seconds
    if $1 ~ ^[0-9]+$
        $wait_interval = $1
    else
        $wait_interval = 10
    fi
    for ever
        wait $wait_interval
    done
endfunc

```

```

*Valid"``
        $res = `moshell/moshell -v password=$password $ipaddress "lh coremp mirror s" | grep -c "Peer Disk Status:
        if $res > 0
            break
        fi
    done
endfunc

```

2. Call the function

Here we have made a small script which makes use of our user-defined function.

First we are running a file containing all the definitions for our user-defined functions.

(Note that the functions can also be defined within the same script, but by keeping all functions in a separate file means that several command files can use the same functions)

We have called the function with an argument "5" which in this case will be used as the "\$wait_interval" parameter in the function

```

run ~/myfunctions_define.mos
for ever
    check_disk_state 5
    acc 0 restart
    pol
done

```

10.8 Examples

Example scripts can be found under moshell/commonjars/scripts and moshell/examples/scripting/

Note two types of comments can be used in scripts:

- visible comments: start with the "#" sign. These comments are printed on the screen while the script is executing.
- invisible comments: start with the "/*" sign. These comments are not printed on the screen.

Examples:

```

a) increase the primaryCpichPower by 0.1 dBm on each UtranCell
>> lt ^utranCell
>> ma cell ^utranCell
>> for $mo in cell
    get $mo primarycpichpower > $pich
    $pich = $pich + 1
    set $mo primarycpichpower $pich
done

```

b) make an M0 group with all UtranCells supporting HSDPA:

```
(rncfunction=1,utrancell=30112,hsdsch=1 )
```

```
ma hs ^hsdsch=
for $mo in hs
    $ldn = ldn($mo)
    $cell = $ldn -s ,Hsdsch=.*$
    lma hscell $cell$
done
```

c) checking the progress of a UP installation, every 10 seconds.

Break from the loop if the result is "1 (INSTALL_COMPLETED)", and continue with upgrade action.

Abort the command file if the result is "6 (INSTALL_NOT_COMPLETED)"

```
>> lt upgrade
>> acc upgradepackage=xxx nonblockinginstall
>> for ever
    $return = 0
    wait 10
    get upgradepackage=xxx state > $upstate
    if $upstate ~ ^1
        break
    else if $upstate ~ ^6
        $return = 1
        break
    fi
done
if $return = 1
    return
fi
acc upgradepackage=xxx upgrade
```

d) run a testcase 50 times

```
>> func testcase31
    command1
    command2
    etc.
endfunc
>> for 50
    testcase31
    wait 2m
done
```

e) restart all boards in a board group

```

>> ba spb spb
>> for $board in spb
    acc $board restart
    0
    1
    wait 30
done

f) restart some boards in a specific order
>> for $var = 20 to 14
    $board = 00$var00
    facc $board restart 0 1
    wait 30
done

g) save the fro values of all programs into a table and then restart every program
>> lma programs_on_slot_19 subrack=ms,slot=19,.*program
>> $i = 0
>> for $prog in programs_on_slot_19
    $i = $i + 1
    fro $prog ^res > $frolist[$i]
done
>> for $i in $frolist
    restartObj pgm $frolist[$i]
done

```

Other examples: See the folders moshell/commonjars/scripts and moshell/examples/scripting/

For instance the following scripts :

- **moshell/commonjars/scripts/dcg_datacollection.mos** (called by the “dcg” command for CSR/TR log collection)
- **moshell/commonjars/scripts/pgu.mos** (called by the “pgu” command for program upgrade)
- **moshell/commonjars/examples/change_lac.mos** (used in lab for moving a cell cluster to a different location area)
- **moshell/commonjars/examples/rename_utranrel.mos** (used for renaming utranrelation MOs so the MOid indicates the destination cell)
- **moshell/commonjars/examples/set_cell_userlabel.mos** (used for putting the rncmodule reference inside the userlabel of the cell)

11 MGW Specific

```
MGW6> run moshell/commonjars/scripts/mesc_usage.mos
```

```
MGW6>
```

```
#####  
###
```

```
MGW6> # Mesc usage rev B
```

```
MGW6> # Used for checking the active Contexts in each VMGW
```

```
MGW6>
```

```
#####  
###
```

```
MGW6>
```

```
MGW6> l+mmo $tempdir/dummy
```

```
MGW6> lh mesc mesc_info_vmgw -all | $gawk 'BEGIN{ printf("%-6s %-9s %s\n","MP","VmgwFroId","ActiveContexts");$1~/^[0-9]+:$/ {if  
(/Vmgw specific data for vmgwId/) { sub(/:/,"",$NF);vmgw=$NF } else if (/Number of Contexts active/) { printf("%-6s %-9s %s\n",  
$1,vmgw,$NF);total+=$NF}};END{printf("%-6s %-9s %s\n","Total:","",total)}}'
```

```
100208-04:57:30 172.31.68.188 8.0a MGW_NODE_MODEL_R5_1_R30_C01_COMPLETE stopfile=/tmp/19546
```

```
MP      VmgwFroId ActiveContexts
```

```
0102:  0          95  
0102:  1         107  
0103:  0          86  
0103:  1         117  
6502:  0          91  
6502:  1         107  
6503:  0          86  
6503:  1         106  
7302:  0          89  
7302:  1         106  
7303:  0          80  
7303:  1         117  
8902:  0          79  
8902:  1         118  
8903:  0          86  
8903:  1         108  
Total:          1578
```

```
MGW6>
```



```

7303: 1 0x5010cdd 52s Working 2 VOICE VOICE
7303: 1 0x5010cab 71s Working 2 VOICE VOICE
7303: 1 0x5010d47 10s Working 2 VOICE VOICE
7303: 0 0x5001240 121s Working 2 VOICE VOICE
7303: 1 0x5010cbe 65s Working 2 VOICE VOICE
7303: 1 0x5010c7d 93s Working 2 VOICE VOICE
7303: 1 0x5010cd7 54s Working 2 VOICE VOICE
8902: 1 0x601005f 67s Working 2 VOICE VOICE
8902: 1 0x6010036 81s Working 2 VOICE VOICE
8902: 0 0x60011de 28s Working 2 VOICE VOICE
8902: 0 0x6001200 13s Working 2 VOICE VOICE
8902: 1 0x601004f 73s Working 2 VOICE VOICE
8902: 1 0x6010044 77s Working 2 VOICE VOICE
8902: 1 0x601005c 68s Working 2 VOICE VOICE
8903: 0 0x7001121 40s Working 2 VOICE VOICE
8903: 1 0x701044e 4s Working 2 VOICE VOICE
8903: 0 0x70010bd 75s Working 2 VOICE VOICE
8903: 1 0x701041a 25s Working 2 VOICE VOICE
8903: 1 0x701040d 29s Working 2 VOICE VOICE
8903: 1 0x70103f7 37s Working 2 VOICE VOICE
8903: 1 0x7010432 16s Working 2 VOICE VOICE

```

For call path trace: facc vmgw= callpathtrace <context>

MGW6> facc vmgw= callpathtrace 0x7010432

100208-04:58:00 172.31.68.188 8.0a MGW_NODE_MODEL_R5_1_R30_C01_COMPLETE stopfile=/tmp/19546

Call Action callpathtrace on following M0s ?

```

=====
3328 MgwApplication=1,Vmgw=VMGW6_2
3329 MgwApplication=1,Vmgw=VMGW6
=====

```

Are you Sure [y/n] ? y

Proxy	M0	Action	Nr of Params
3328	Vmgw=VMGW6_2	callpathtrace	1
>>> Struct Return value has 3 members:			
>>> 1.traceId = 27			
>>> 2.contextId = 117507122			
>>> 3.resultCode = 0 (SUCCESSFUL)			
3329	Vmgw=VMGW6	callpathtrace	1
>>> Struct Return value has 3 members:			
>>> 1.traceId = 28			

```
>>> 2.contextId = 117507122
>>> 3.resultCode = 2 (INVALID_CONTEXT)
```

```
=====
Total: 2 M0s attempted, 2 M0s actioned
```

```
=====
Row  Board                      Info
=====
1    Sr=6,Sl=5 ET-M4             type=3:AAL2-EXT id=T537104827 connTo=R64-13058 mode=2:SEND_RECEIVE lineDsp=1 vpi=2 vci=43 cid=237
aes=491520011206000 sugr=217012AD
2    Sr=2,Sl=13 MSB3            type=89916927:MFD id=R64-13058 connTo=T537104827 mode=2:SEND_RECEIVE lineDsp=5 codecIn=AMR2_1220_SID
codecOut=AMR2_1220_SID
3    Sr=2,Sl=13 MSB3            type=89916927:MFD id=R64-13058 connTo=R64-13046 mode=2:SEND_RECEIVE lineDsp=5 codecIn=AMR2_1220_SID
codecOut=AMR2_1220_SID
4    Sr=6,Sl=5 ET-M4             type=3:AAL2-EXT id=T537101195 connTo=R64-13046 mode=2:SEND_RECEIVE lineDsp=1 vpi=2 vci=44 cid=255
aes=491520011206000 sugr=4E601607
5    Sr=2,Sl=13 MSB3            type=89916927:MFD id=R64-13046 connTo=T537101195 mode=2:SEND_RECEIVE lineDsp=5 codecIn=AMR2_1220_SID
codecOut=AMR2_1220_SID
6    Sr=2,Sl=13 MSB3            type=89916927:MFD id=R64-13046 connTo=R64-13058 mode=2:SEND_RECEIVE lineDsp=5 codecIn=AMR2_1220_SID
codecOut=AMR2_1220_SID
```

```
MGW1> run moshell/commonjars/scripts/mgw_traffic_check.mos help
```

```
MGW1> l+mm /dev/null
```

```
*****
```

```
Automated M-MGw Traffic Checker V0.5b
```

```
By Cade Bull
```

```
http://core1.au.ao.ericsson.se/~epabull/
```

```
enter "run mgw_traffic_check.mos help" for options
```

```
*****
```

```
Checking MGW1
```

```
-----
There are currently 5 options when using the script
```

- run mgw_traffic_check.mos traffic
- run mgw_traffic_check.mos signal
- run mgw_traffic_check.mos gcp
- run mgw_traffic_check.mos tdm
- run mgw_traffic_check.mos

NOTE: Each option will print different information, no parameters will print everything (except tdm) but will take some time to print

MGW1> run moshell/commonjars/scripts/mgw_traffic_check.mos

MGW1> l+mm /dev/null

Automated M-MGw Traffic Checker V0.5b

By Cade Bull

<http://core1.au.ao.ericsson.se/~epabull/>

enter "run mgw_traffic_check.mos help" for options

Checking MGW1

Collecting current statistics

Waiting 60 seconds to collect new statistics

Collecting new statistics

Available Media Stream Channels: 70000 (34912.7 calls)

Current Media Stream Channels Busy: 4 (1.99501 calls)

Media Stream Channels Rejected due to capacity: 0 (0 %)

1st_vMGW1: CTX Req: 11, CTX Rej: 0 (0 %), Nb Init Req: 0, Nb Init Rej: 0 (0 %), Notify Faults: 0, GCP Retrans: 0

IP Connections: 0, IP Rejections: 0, Used Bandwidth (without headers): 0 (Kbit/s)

SAC Mode: Disabled, Max Bandwidth: 0 (Unlimited) Kbit/s

SAC Rejections: 0

MBAC Mode: Disabled, Lost Packets: Disabled, ECN: Disabled, DSCP: Disabled

M3UA MSU Rec: 0 (Approx 0 MSU/s), MSU Sent: 0 (Approx 0 MSU/s)

C7 MSU Rec: 334 (Approx 4.28205 MSU/s), MSU Sent: 334 (Approx 4.28205 MSU/s)

Total MSU Rec: 334 (Approx 4.28205 MSU/s), MSU Sent: 334 (Approx 4.28205 MSU/s)

GCP Errors in Controller Handler

NOTE: You should reset ch counters before investigating any fault with: lh ch ch_counters_gcp -clear all

Printing Errors for: 1st_vMGW1 (VMGw ID=0)

```
0024: nrAddReqs      :          1 with error  510 GCP_INSUFFICIENT_RESOURCES
0024: nrSubtractReqs :          2 with error  431 GCP_NO_TERMINATIONID_MATCHED_A_WILDCARD
0024: nrAuditReqs     :        110 with error  430 GCP_UNKNOWN_TERMINATIONID
```