

CLI Commands

Virtual Multimedia Resource Function

User Guide

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1 Introduction

This User Guide describes the Command-Line Interface (CLI) Commands available for use only in the Virtual Multimedia Resource Function (vMRF).



2 Command Access Restriction

Users have access to CLI commands as defined by the POSIX group shown in [Table 1](#).

Table 1 POSIX Group for Command Restriction

Name	Description
mrf-op	Normal operator; Access to all vMRF CLI commands for information printing

CLI commands, by default, are run on the SC VM that the user logged on using SSH. Commands can be run on the VNF level by adding **cluster run** to the command.

It is possible to run commands on a specific PL VM for troubleshooting purposes.

Note: Commands that are defined for SC VMs (for example, commands that are used to operate MOs) cannot be run on PL VMs.



3 mrf_appl Commands

Table 2 mrf_appl Commands

Name	Description	POSIX Group(s) with Access
announcement-counters on page 4	Displays announcement PM ⁽¹⁾ counters since last restart	mrf-op
announcement-status on page 5	Displays information on announcement playing failures	mrf-op
cache-test on page 8	Tests cache used for announcements	mrf-op – read access
compute-resource on page 8	Displays counters related to compute-resource.	mrf-op – read access
context-info on page 9	Displays context-related data and statistics	mrf-op
h248-counters on page 15	Displays H.248 command statistics and information on possible command execution failures	mrf-op
h248interface-counters on page 17	Displays H.248 interface-related counters	mrf-op
internals on page 18	Displays application internal info	mrf-op
license-info on page 19	Displays licensing-related information	mrf-op
overload-control	Displays information about overload	mrf-op – read access
sctp-pm-counters on page 20	Displays Linux kernel SCTP ⁽²⁾ counters	mrf-op
sctp-status on page 21	Displays the operational state of SCTP links	mrf-op
service-pm-counters on page 22	Displays Service PM counters since last restart	mrf-op
smms-counters on page 24	Displays SMMS counters	mrf-op



status on page 25	Command to query signalling state	mrf-op
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- (1) Performance Management
- (2) Stream Control Transmission Protocol

3.1 announcement-counters

This command displays announcement-related PM counters since the last restart. Counter values are not stored to disk, that is, counters are reset when the application is restarted.

Options without arguments:

-h, --help Prints the help message.

Example: Print Announcement Counters

cli_tool mrf_appl announcement-counters

```
Basic Announcement ID: 11 lang: en-GB
basic/phr_annc.wav
-----
announcementPlayReqs           : 34
announcementPlayFails          : 0

Basic Announcement ID: 103 lang: en-GB
basic/3.wav
-----
announcementPlayReqs           : 2
announcementPlayFails          : 0

Basic Announcement ID: 107 lang: en-GB
basic/phr_7.wav
-----
announcementPlayReqs           : 2
announcementPlayFails          : 0

Basic Announcement ID: 111 lang: en-GB
basic/11.wav
-----
announcementPlayReqs           : 2
announcementPlayFails          : 0

Variable announcement Type: TIME lang: en-GB
variable/Time_en-GB.lua
-----
announcementPlayReqs           : 1
announcementPlayFails          : 0

Variable announcement Type: DIGITS lang: fr-FR
```




```
variable/Digits_fr-FR.lua
-----
announcementPlayReqs          : 0
announcementPlayFails         : 0
```

3.2 announcement-status

This command displays information on failures in announcement playing.

Options without arguments:

- h, --help** Prints the help message.
- s, --status** Prints information on failures in announcement playing.
- j, --json** Prints information on failures in json format.

Options with mandatory arguments:

- c, --clear** Clears fault information specified in the argument.

Example: Print Information on Failures in Announcement Playing

```
cli_tool mrf_appl announcement-status --status
```

```
----->
ANNOUNCEMENT FAULTS
----->
time      faultId  category      announcementId
language  description
----->
2016-12-21T09:42:19+00:00    1    CONFIGURATION FAULT    555
en-GB    Missing BasicAnnouncement MO configuration.
                                     Announcement requested in H.248 is not configured.
2016-12-21T09:43:05+00:00    2    INFORMATION ONLY      214
en-GB    File caching failure:
                                     File not found: ./cache/2_JANUARY.wav
                                     Cache automatically recovered
2016-12-21T09:43:22+00:00    3    INFORMATION ONLY      216
en-GB    File caching failure:
                                     File not found: ./cache/0_MARCH.wav
                                     Cache automatically recovered
2016-12-21T10:40:55+00:00    4    CONFIGURATION FAULT    DATE
en-GB    Missing VariableAnnouncement MO configuration.
                                     Announcement requested in H.248 is not configured.
```



```
2016-12-21T10:40:55+00:00      5      CONFIGURATION FAULT    TIME      →
en-GB      Missing VariableAnnouncement MO configuration.

      Announcement requested in H.248 is not configured.      →
2016-12-21T10:40:55+00:00      6      CONFIGURATION FAULT    DIGITS      →
en-GB      Missing VariableAnnouncement MO configuration.

      Announcement requested in H.248 is not configured.      →
2016-12-21T10:42:25+00:00      7      CONFIGURATION FAULT    NUMBER      →
en-GB      Variable Announcement logic execution error.

      logicFile: /announcement_storage/variable/Date_en-GB.lua      →
      input data: 0      →
      lua interpreter error: "ERROR in function get_play_list_adpter()': →
⇒      ./cache/19_Date_en-GB.lua:103: Input length is not 8"      →
-----
```

Example: Remove Entries with a Specific <faultId>

```
cli_tool mrf_appl announcement-status --clear 4
```

```
Removed announcement fault with faultId = 4
cli_tool mrf_appl announcement-status --status
-----
ANNOUNCEMENT FAULTS
-----
time          faultId  category          announcementId
language      description
-----
2016-12-21T09:42:19+00:00      1      CONFIGURATION FAULT    555
en-GB      Missing BasicAnnouncement MO configuration.

      Announcement requested in H.248 is not configured.      →
2016-12-21T09:43:05+00:00      2      INFORMATION ONLY      214
en-GB      File caching failure:

      File not found: ./cache/2_JANUARY.wav      →
      Cache automatically recovered      →
2016-12-21T09:43:22+00:00      3      INFORMATION ONLY      216
en-GB      File caching failure:

      File not found: ./cache/0_MARCH.wav      →
      Cache automatically recovered      →
2016-12-21T10:40:55+00:00      5      CONFIGURATION FAULT    TIME      →
en-GB      Missing VariableAnnouncement MO configuration.

      Announcement requested in H.248 is not configured.      →
2016-12-21T10:40:55+00:00      6      CONFIGURATION FAULT    DIGITS      →
en-GB      Missing VariableAnnouncement MO configuration.
```



```

Announcement requested in H.248 is not configured.
2016-12-21T10:42:25+00:00      7      CONFIGURATION FAULT    NUMBER
en-GB      Variable Announcement logic execution error.

logicFile: /announcement_storage/variable/Date_en-GB.lua

input data: 0

lua interpreter error: "ERROR in function get_play_list_adpter()':
=>
./cache/19_Date_en-GB.lua:103: Input length is not 8"
-----

```

Example: Remove All Entries of Category INFORMATION ONLY

cli_tool mrf_appl announcement-status --clear info

```

Removed announcement fault with faultId = 4
cleared 2 faults
cli_tool mrf_appl announcement-status --status
-----
ANNOUNCEMENT FAULTS
-----
time          description          faultId  category          announcementId
language
-----
2016-12-21T09:42:19+00:00      1      CONFIGURATION FAULT    555
en-GB      Missing BasicAnnouncement M0 configuration.

Announcement requested in H.248 is not configured.

2016-12-21T10:40:55+00:00      5      CONFIGURATION FAULT    TIME
en-GB      Missing VariableAnnouncement M0 configuration.

Announcement requested in H.248 is not configured.

2016-12-21T10:40:55+00:00      6      CONFIGURATION FAULT    DIGITS
en-GB      Missing VariableAnnouncement M0 configuration.

Announcement requested in H.248 is not configured.

2016-12-21T10:42:25+00:00      7      CONFIGURATION FAULT    NUMBER
en-GB      Variable Announcement logic execution error.

logicFile: /announcement_storage/variable/Date_en-GB.lua

input data: 0

lua interpreter error: "ERROR in function get_play_list_adpter()':
=>
./cache/19_Date_en-GB.lua:103: Input length is not 8"
-----

```

Example: Remove All Entries

cli_tool mrf_appl announcement-status --clear all



```
cleared 4 faults
cli_tool mrf_appl announcement-status --status
ANNOUNCEMENTS OK
```

3.3 cache-test

This command tests cache used for announcements.

Options without arguments:

-h, --help Prints the help message.

--r, --cacheReset Resets cache.

Example: Test Cache Used for Announcements

```
cli_tool mrf_appl cache-test
```

```
Cache size: 610325
Cache list has 21 files
Cache has 0 users for the files
Threshold is 1073741824 Bytes
Timeout is 2000 ms
Done
```

3.4 compute-resource

This command displays PM counters related to vSwitch packet loss, CPU load, memory, and swap memory use, and disk space of a VM, represented by the `ComputeResource` MO.

Options without arguments:

-h, --help Prints the help message.

Example: Print Compute Resource Counters

```
cli_tool mrf_appl compute-resource
```

```
ComputeResource=3
vSwitchTxPacketLoss [ppm] : 0
memoryTotal [kB] : 4046476
memoryUsed [%] : 50
swapMemoryTotal [kB] : 0
swapMemoryUsed [%] : 0
diskSize [kB] : 3780032
diskPercentUsed [%] : 22
cpuLoadVmAvg [%] : 2
cpuLoadApplAvg [%] : 3
```



```

cpuLoadMpdAvg [%]                : 0
resourceLoadMpdAvg [%]           : 0
cpuLoadIppAvg [%] [DEPRECATED]   : 0
resourceLoadIppAvg [%]           : 0
cpuLoadOamAvg [%]                : 11
cpuLoadStealVm [%]               : 0
vmUtilizationLevel [%]           : 3

```

3.5 context-info

This command gives information on active contexts.

Options without arguments:

-h, --help	Prints the help message.
-l, --list	Prints active contextIDs.
j, --json	Prints context-related information in json format.

Options with mandatory arguments:

-a, --alive	Prints contexts that have been in use for the number of seconds specified in the argument.
-i, --id	Prints detailed information on a context specified by its ID.
-d, --hangDev	Prints already removed contexts that had reserved at the time of removal.

The possible argument values for option -d are the following:

- **-- hangDev total**: Prints the number of removed contexts that had hanging devices at release time. Also, prints the number of hanging devices.
- **-- hangDev list**: Prints the list of removed contexts that had hanging devices at release time. Each list has its own reference number (*list_id*).
- **-- hangDev <list_id>**: Prints detailed hanging device information for a single context, referred to by its *list_id*.
- **-- hangDev all**: Prints detailed hanging device information for all removed contexts that had hanging devices at release time.



— **-- hangDev release:** Releases hanging devices.

Example: Print Summary Context Information

```
cli_tool mrf_appl context-info
```

```
Context creation rate within last 94502s: 0 /s
```

```
Total number of active contexts 0
```

```
Normal Calls: 0
```

```
Emergency Calls: 0
```

```
Priority Calls: 0
```

```
IEPS Calls: 0
```

Example: List Contexts Alive for 2 Seconds or More

```
cli_tool mrf_appl context-info -a 2
```

```
[2016-09-14 09:55:31.898]
```

```
Context creation rate within last 1s: 1.28946 /s
```

```
Total number of contexts alive for 2s or more: 3
```

```
ContextId: 15 alive for 00:00:05
```

```
ContextId: 14 alive for 00:00:07
```

```
ContextId: 13 alive for 00:03:01
```

Example: List Active Context IDs

```
cli_tool mrf_appl context-info -l
```

```
[2016-03-10 08:39:49.556]
```

```
Context creation rate within last 1s: 1 /s
```

```
Total number of contexts 3
```

```
Normal Calls: 3
```

```
Emergency Calls: 0
```

```
Priority Calls: 0
```

```
IEPS Calls: 0
```

```
Active context IDs:
```

```
7 (NORMAL_CALL)
```

```
6 (NORMAL_CALL)
```

```
5 (NORMAL_CALL)
```

Example: List Detailed Information on One Context

```
cli_tool mrf_appl context-info -i 1000001
```



```
[2017-01-30 08:55:35.172]
Context creation rate within last 6s: 0 /s
ContextId=1000001
CallType=NORMAL_CALL
Alive: 00:00:07 Created: 2017-01-30T08:55:28+00:00
H248 controller IP address: 10.0.0.3 port: 2944
Last access type: COMMAND REPLY
terminationId: 153
    streamIndex:0 MPD ctrlDeviceId:329 IPP ctrlDeviceId:328 Stream state:AudioStre →
amState_ConnectToConference -> AudioStreamState_StreamConnected
    Action Queue: empty
terminationId: 154
    streamIndex:0 MPD ctrlDeviceId:331 IPP ctrlDeviceId:330 Stream state:AudioStre →
amState_StreamMod -> AudioStreamState_StreamConnected
    Action Queue: empty
terminationId: 155
    streamIndex:0 MPD ctrlDeviceId:333 IPP ctrlDeviceId:332 Stream state:AudioStre →
amState_StreamMod -> AudioStreamState_StreamConnected
    Action Queue: empty
terminationId: 156
    streamIndex:0 MPD ctrlDeviceId:335 IPP ctrlDeviceId:334 Stream state:AudioStre →
amState_ConnectToConference -> AudioStreamState_StreamConnected
    Action Queue: empty
ConferenceSwitch: command: NO_COMMAND state: MPC_RESERVED reason: reserveResourceC →
fm
Last Stream Update:
terminationId:155
    streamIndex:0 MPD ctrlDeviceId:333 IPP ctrlDeviceId:332 Stream state:AudioStre →
amState_StreamMod -> AudioStreamState_StreamConnected
    Action Queue: empty
Command history:
2017-01-30T08:55:28+00:00 ADD transactionId=2 termId=rtp/1/153 CallType=NORMAL_CAL →
L Status=COMPLETED
    Stream1=AUDIO, PCMA, Isolate
2017-01-30T08:55:28+00:00 ADD transactionId=3 termId=rtp/1/154 CallType=NORMAL_CAL →
L Status=COMPLETED
    Stream1=AUDIO, AMR-WB, Isolate
2017-01-30T08:55:28+00:00 MODIFY transactionId=4 termId=rtp/1/154 CallType=NORMAL_ →
CALL Status=COMPLETED
    Stream1=AUDIO, PCMA
2017-01-30T08:55:29+00:00 ADD transactionId=5 termId=rtp/1/155 CallType=NORMAL_CAL →
L Status=COMPLETED
    Stream1=AUDIO, AMR-WB, Isolate
2017-01-30T08:55:29+00:00 MODIFY transactionId=6 termId=rtp/1/155 CallType=NORMAL_ →
CALL Status=COMPLETED
    Stream1=AUDIO, PCMA
2017-01-30T08:55:29+00:00 ADD transactionId=7 termId=rtp/1/156 CallType=NORMAL_CAL →
L Status=COMPLETED
    Stream1=AUDIO, AMR-WB, Isolate
2017-01-30T08:55:29+00:00 MODIFY transactionId=8 termId=rtp/1/156 CallType=NORMAL_ →
CALL Status=COMPLETED
    Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:55:29+00:00 MODIFY transactionId=9 termId=rtp/1/153 CallType=NORMAL_ →
CALL Status=COMPLETED
    Stream1=, Send/receive
2017-01-30T08:55:29+00:00 MODIFY transactionId=10 termId=rtp/1/154 CallType=NORMAL →
_CALL Status=COMPLETED
    Stream1=, Send/receive
2017-01-30T08:55:29+00:00 MODIFY transactionId=11 termId=rtp/1/155 CallType=NORMAL →
_CALL Status=COMPLETED
    Stream1=, Send/receive
CRH devices:
```



```

----->
----->
deviceType  ctrlDevId  userPlaneDevId  streamId  services  ----->
            inCep  status          exCep  status          conference ceps  ----->
            ----->
            cepType          ctrlCepId  origUPCepId  ctrlDeviceIdPeer  status  ----->
            peerUPCepId  ----->
----->
----->
MPD CONF  336          1024          0          MPC  ----->
nnected   InternalCep  65532        454        329        BothwayCo ----->
          446
nnected   ExternalCep  65476        455        335        BothwayCo ----->
          452
nnected   AddedCep    65478        456        331        BothwayCo ----->
          448
nnected   AddedCep    65473        457        333        BothwayCo ----->
MPD LEG  335          8189          0          450        FH | RTP_RTCP | JITTER | PCM ----->
          BothwayConnected BothwayConnected
IPP       334          157          0          ----->
MPD LEG  333          8190          0          FH | RTP_RTCP | JITTER | PCM ----->
          BothwayConnected BothwayConnected
IPP       332          156          0          ----->
MPD LEG  331          8191          0          FH | RTP_RTCP | JITTER | PCM ----->
          BothwayConnected BothwayConnected
IPP       330          155          0          ----->
MPD LEG  329          8192          0          FH | RTP_RTCP | JITTER | PCM ----->
          BothwayConnected BothwayConnected
IPP       328          154          0          ----->
----->
----->

```

Example: List Detailed Information on All Contexts

cli_tool mrf_appl context-info -i all

```

[2017-01-30 08:46:20.073]
Context creation rate within last 389s: 17 /s
*****>
*****>
ContextId=1006125
CallType=NORMAL_CALL
Alive: 00:00:40 Created: 2017-01-30T08:45:40+00:00
H248 controller IP address: 10.52.60.6 port: 21421
Last access type: COMMAND
terminationId: 10142
  streamIndex:0 MPD ctrlDeviceId:36887 IPP ctrlDeviceId:36245 Stream state:Audio->
StreamState_ConnectToConference -> AudioStreamState_StreamConnected
  Action Queue: empty
terminationId: 10309
  streamIndex:0 MPD ctrlDeviceId:36516 IPP ctrlDeviceId:36517 Stream state:Audio->
StreamState_ModifySignalOut -> AudioStreamState_StreamConnected
  Action Queue: empty
terminationId: 10684
  streamIndex:0 MPD ctrlDeviceId:36965 IPP ctrlDeviceId:36963 Stream state:Audio->

```




```

StreamState_ModifySignalOut -> AudioStreamState_StreamConnected
  Action Queue: empty
ConferenceSwitch: command: NO_COMMAND state: MPC_RESERVED reason: reserveResourceC ->
fm
Last Stream Update:
terminationId:10684
  streamIndex:0 MPD ctrlDeviceId:36965 IPP ctrlDeviceId:36963 Stream state:Audio ->
StreamState_ModifySignalOut -> AudioStreamState_StreamConnected
  Action Queue: empty
Command history:
2017-01-30T08:45:40+00:00 ADD transactionId=192541430 termId=rtp/2/10142 CallType=>
NORMAL_CALL Status=COMPLETED
  Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:45:40+00:00 MODIFY transactionId=192541432 termId=rtp/2/10142 CallTy->
pe=NORMAL_CALL Status=COMPLETED
2017-01-30T08:45:40+00:00 NOTIFY transactionId=0 termId=rtp/2/10142 Event:
2017-01-30T08:45:48+00:00 ADD transactionId=192541950 termId=rtp/2/10309 CallType=>
NORMAL_CALL Status=COMPLETED
  Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:45:48+00:00 MODIFY transactionId=192541953 termId=rtp/2/10309 CallTy->
pe=NORMAL_CALL Status=COMPLETED
2017-01-30T08:45:49+00:00 NOTIFY transactionId=0 termId=rtp/2/10309 Event:
2017-01-30T08:45:56+00:00 ADD transactionId=192542528 termId=rtp/2/10684 CallType=>
NORMAL_CALL Status=COMPLETED
  Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:45:56+00:00 MODIFY transactionId=192542530 termId=rtp/2/10684 CallTy->
pe=NORMAL_CALL Status=COMPLETED
2017-01-30T08:45:57+00:00 NOTIFY transactionId=0 termId=rtp/2/10684 Event:
CRH devices:
----->
----->
deviceType  ctrlDevId  userPlaneDevId  streamId  services  ----->
            inCep  status                exCep  status                conference ceps  ----->
----->
            cepType                ctrlCepId  origUPCepId  peerUPCepId  ----->
----->
MPD LEG      36965      7952      0      FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected      BothwayConnected
IPP          36517      10492      0
MPD CONF     36513      1021      0      MPC  ----->
              36516      BothwayCo ----->
nnected      InternalCep  65183      13011      13463
              36887      BothwayCo ----->
nnected      ExternalCep  65378      13012      12911
              36965      BothwayCo ----->
nnected      AddedCep    65289      14139      14635
IPP          36245      10340      0
MPD LEG     36887      8043      0      FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected      BothwayConnected
IPP         36963      10852      0
MPD LEG     36516      8165      0      FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected      BothwayConnected
----->
----->
*****
*****
*****
ContextId=1006148
CallType=NORMAL_CALL
Alive: 00:00:36 Created: 2017-01-30T08:45:44+00:00
H248 controller IP address: 10.52.60.6 port: 21421
Last access type: COMMAND REPLY
terminationId: 10246
  streamIndex:0 MPD ctrlDeviceId:36792 IPP ctrlDeviceId:36442 Stream state:Audio ->
StreamState_ConnectToConference -> AudioStreamState_StreamConnected
  Action Queue: empty
terminationId:10404
  streamIndex:0 MPD ctrlDeviceId:36415 IPP ctrlDeviceId:36704 Stream state:Audio ->
StreamState_ConnectToConference -> AudioStreamState_StreamConnected
  Action Queue: empty
terminationId: 10483
  streamIndex:0 MPD ctrlDeviceId:36519 IPP ctrlDeviceId:36518 Stream state:Audio ->
StreamState_StreamMod -> AudioStreamState_StreamConnected

```

```

Action Queue: empty
ConferenceSwitch: command: NO_COMMAND state: MPC_RESERVED reason: reserveResourceC
m
Last Stream Update:
terminationId:10483
    streamIndex:0 MPD ctrlDeviceId:36519 IPP ctrlDeviceId:36518 Stream state:Audio
StreamState_StreamMod -> AudioStreamState_StreamConnected
    Action Queue: empty
Command history:
2017-01-30T08:45:44+00:00 ADD transactionId=192541716 termId=rtp/2/10404 CallType=
NORMAL_CALL Status=COMPLETED
    Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:45:45+00:00 ADD transactionId=192541782 termId=rtp/2/10246 CallType=
NORMAL_CALL Status=COMPLETED
    Stream1=AUDIO, AMR-WB, Isolate
2017-01-30T08:45:47+00:00 MODIFY transactionId=192541904 termId=rtp/2/10246 CallTy
pe=NORMAL_CALL Status=COMPLETED
    Stream1=AUDIO, PCMA, Send/receive
2017-01-30T08:45:48+00:00 ADD transactionId=192541952 termId=rtp/2/10483 CallType=
NORMAL_CALL Status=COMPLETED
    Stream1=AUDIO, AMR-WB, Isolate
2017-01-30T08:45:50+00:00 MODIFY transactionId=192542109 termId=rtp/2/10483 CallTy
pe=NORMAL_CALL Status=COMPLETED
    Stream1=AUDIO, PCMA, Send/receive
CRH devices:
----->
----->
----->
deviceType    ctrlDevId  userPlaneDevId  streamId  services  ----->
              inCep  status          exCep  status          conference  ceps
              ----->
              cepType      ctrlCepId  origUPCepId  peerUPCepId  ctrlDeviceIdPeer  status
              ----->
              ----->
MPD LEG      36519      8162          0          FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected  BothwayConnected
MPD CONF     37143      1015          0          MPC
              ----->
nnected      InternalCep  65462          12961          11909          ----->
              ----->
nnected      ExternalCep  65393          13203          13768          ----->
              ----->
nnected      AddedCep      65258          12408          13685          ----->
              ----->
MPD LEG     36792      8146          0          FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected  BothwayConnected
IPP          36442      10445          0
MPD LEG     36415      8015          0          FH | RTP_RTCP | JITTER | PCM  ----->
              BothwayConnected  BothwayConnected
IPP          36704      10599          0
IPP          36518      10493          0
              ----->
              ----->

```

Example: List Removed Contexts with Hanging Devices at Release Time

```
cli_tool mrf_appl context-info -d list
```

```
[2017-01-27 08:54:13.949]
Context creation rate within last 50s: 0 /s
*****
*****
Contexts with hanging devices at release time:
*****
-----
list Id      contextId      IPP devices      MPD LEG devices      MPD CONF devices      to
tal devices
0           5                1                1                    0                    2
1           4                1                1                    0                    2
2           3                3                3                    1                    7
-----
```



```
-----
*****
*****
*****
```

Example: List Detailed Hanging Device Information for a Single Context Specified by <list_id>

```
cli_tool mrf_appl context-info -d 1
```

```
[2017-01-30 09:40:42.698]
Context creation rate within last 151s: 0 /s
*****
*****
*****
Contexts with hanging devices at release time:
*****
*****
*****
*****
*****
ContextId=4
CallType=NORMAL_CALL
Life time: 00:03:11
Created: 2017-01-27T08:41:36+00:00
Deleted: 2017-01-27T08:44:47+00:00
H248 controller IP address: port: 0
Last access type: COMMAND REPLY
terminationId: 1
    streamIndex:0 MPD ctrlDeviceId:14 IPP ctrlDeviceId:55 Stream state:AudioStream ->
State_StreamAdd -> AudioStreamState_StreamIdle
    Action Queue: empty
    Last Stream Update:
terminationId:1
    streamIndex:0 MPD ctrlDeviceId:14 IPP ctrlDeviceId:55 Stream state:AudioStream ->
State_StreamAdd -> AudioStreamState_StreamIdle
    Action Queue: empty
Command history:
2017-01-27T08:41:36+00:00 ADD transactionId=0 termId=rtp/1 CallType=NORMAL_CALL St ->
atus=COMPLETED
    Stream1=AUDIO, PCMA, Send
Hanging CRH devices:
-----
-----
-----
deviceType  ctrlDevId  userPlaneDevId  streamId  services
inCep status          exCep status          conference ceps
-----
          cepType          ctrlCepId  origUPCepId  ctrlDeviceIdPeer  status
          peerUPCepId
-----
-----
IPP          55          85          0
MPD LEG      14          45          0          AMR2 | FH | RTP_RTCP | JITTER |
PCM          NotConnected          BothwayConnected
-----
-----
*****
*****
*****
```

3.6 h248-counters

This command displays H.248 command statistics and information on possible command execution failures.

Options without arguments:



- h, --help** Prints the help message.
- t, --timestamps** Lists H.248 command counters, with a timestamp for the last 10 error or reason message.
- c, --clear** Resets all H.248 command counters.
- j, --json** Prints the current status of SCTP link in json format.

Example: Print Command Statistics

cli_tool mrf_appl h248-counters

```
Add Request total: 1 (Emergency: 0 IEPS: 0 Priority: 0)
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

Modify Request total: 0 (Emergency: 0 IEPS: 0 Priority: 0)
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

Move Request total: 0
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

Subtract Request total: 1
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

Notify Request total: 0
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

Service Change Request total: 6
    Pendencies: 0
    Pending limit exceeded: 0
    Retransmissions: 0
    Retransmission limit exceeded: 0

    4 sent with reason 901 (GCP_COLD_BOOT)
```



Originated from MRFP_APPL at location 0 (visible as ERR_L → OC_00000 in source code)

2 sent with reason 905 (GCP_TERMINATION_TAKEN_OUT_OF_SERV → ICE)

Originated from MRFP_APPL at location 0 (visible as ERR_L → OC_00000 in source code)

Audit Capability Request total: 0
 Pending: 0
 Pending limit exceeded: 0
 Retransmissions: 0
 Retransmission limit exceeded: 0

Audit Value Request total: 0
 Pending: 0
 Pending limit exceeded: 0
 Retransmissions: 0
 Retransmission limit exceeded: 0

Topology Request total: 0
 Pending: 0
 Pending limit exceeded: 0
 Retransmissions: 0
 Retransmission limit exceeded: 0

3.7 h248interface-counters

This command displays H248 interface-related counters.

Options without arguments:

-h, --help Prints the help message.

-j, --json Prints counters in json format.

Options with mandatory arguments:

-l, --ldn Prints counters of an H.248 association, based on LDN.
 Partial matches are accepted in the argument.

Example: Print Counters

cli_tool mrf_appl h248interface-counters

```
[2018-02-27 11:13:39.068] LDN = MediaResourceFunction=1,MrfH248Co →
ntrol=1,MrfH248Interface=1
audioConfParticipantCreations          : 0
audioConfParticipants                   : 0
```



```

audioConferenceCreations      : 0
audioConferences              : 0
terminationReqs               : 1
terminationReqsRej           : 0
abnormTermTerminations        : 0
terminationsBusy              : 0
h248TransFaultsPend           : 0
h248TransRelRetrans           : 0
rcvdH248Msgs                  : 8
rcvdH248Octets                : 578
sentH248Msgs                  : 8
sentH248Octets                : 702
sentH248MsgsPend              : 0
sentH248MsgsRetrans           : 3
abnormTermContexts            : 0
contextReqs                   : 1
contextReqsRej                : 0
contextsBusy                  : 0
modifyReqs                    : 2
modifyReqsRej                 : 0
sctpRemoteError               : 0
sctpCommLost                  : 0
sctpSendFailure               : 0
sctpSuccAssocAbort            : 0
sctpSuccAssocEstab            : 1
sctpUnsuccAssocEstab          : 0
sctpRemoteShutdown            : 0

```

3.8 internals

This command prints application internal information.

Options without arguments:

- h, --help** Prints the help message.
- j, --json** Prints application internal information in j son format.

Example: Print Application InternalInformation

```
cli_tool mrf_appl internals
```

```

[2017-01-09 12:29:37.608]
Timer state:
=====
    Number of running timers : 10
    Number of timer instances: 27
    Next timer expiration    : [2017-01-09 12:29:37.608]
    Last timer expiration    : [2017-01-09 12:29:45.105]
=====

```



```
CRH state:
=====
nrRequests      : 1738
nrReplies       : 1738
nrTimers        : 0
nrTimeouts      : 0
nrHandledTimeouts: 0
=====
IsOiImmBusy: 0
```

3.9 license-info

This command displays licensing-related information, for example, LM-NeLS connection status and token use.

Options without arguments:

- h, --help** Prints the help message.
- j, --json** Prints information about licensing in json format.

Example: Print Licensing-Related Information

```
cli_tool mrf_appl license-info

[2017-04-27 10:27:12.698]
[2018-02-28 11:11:23.953]
License enforcement status : CONNECTED
[FAT1023693]
appUsedTokens : 0
grantedTokens : 50
totalAvailableTokens : 50
totalUsedTokens : 0
[FAT1023803]
appUsedTokens : 0
grantedTokens : 25
totalAvailableTokens : 25
totalUsedTokens : 0
```

3.10 overload-control

This command is used to check the status of overload supervision.

Options without arguments:

- h, --help** Prints the help message.
- s, --status** Prints the status of the overload supervision.



Example: Print the Current Status of the Overload Supervision

```
cli_tool mrf_appl overload-control -s
```

```
[2016-03-09 12:35:57.770]
Overload Control Status:
----->
Constants:
capacityForPriorityCalls:          2.0 %
capacityLimitExceededThresholdHigh: IPP: 76.4 % MPD: 76 % =>
APPL: 76 % (threshold for CapacityLimitExceeded Alarm raise)
capacityLimitExceededThresholdLow: IPP: 76.4 % MPD: 76 % =>
APPL: 76 % => (threshold for CapacityLimitExceeded Alarm cease)
overloadThresholdHigh:            IPP: 98.0 % MPD: 98 % =>
APPL: 98 % => (threshold for Overload Alarm raise and normal call rejection)
overloadThresholdLow:             IPP: 96.0 % MPD: 96 % =>
APPL: 96 % =>
(threshold for Overload Alarm cease)
loadControlInterval:              1000 ms
loadMeasurementInterval:          100 ms
loadMeasurementArrayLength:       10
----->
Load Information (used in load control):
Instance processor load % vSwitch loss based load % resource load % allocated
cores =>
(core index start from 1)
MPD 0 0 MPD contr
ol: 3 MPD userplane: 4
IPP 5.68 0.0 0.1 1
APPLICATION 1 - - 3
----->
Overload Status:
MPD: NO_OVERLOAD
IPP: NO_OVERLOAD
APPLICATION: NO_OVERLOAD
----->
Overload Calculation State:
MPD: measurement based load
IPP: measurement based load
APPLICATION: measurement based load
----->
CPU load on cores (based on /proc/stat):
CoreIndex: 3 (APPL, MPD control) 4 (MPD userplane)
CPU load (%): 1 1.03
```

3.11 sctp-pm-counters

This command displays SCTP PM counters.

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-n, --name Prints an SCTP counter specified by its name.

Example: Print the Counters

```
cli_tool mrf_appl sctp-pm-counters
```

```
[2016-03-10 09:26:21.030]
sctpCurrEstab : 2
```




```
sctpActiveEstabs           : 10
sctpPassiveEstabs          : 0
sctpAbortedS               : 28370
sctpShutdowns              : 8
sctpOutOfBlues              : 0
sctpChecksumErrors         : 0
sctpOutCtrlChunks          : 29383
sctpOutOrderChunks         : 167
sctpOutUnorderChunks       : 0
sctpInCtrlChunks           : 29507
sctpInOrderChunks          : 63
sctpInUnorderChunks        : 0
sctpFragUsrMsgs            : 0
sctpReasmUsrMsgs           : 0
sctpOutSCTPPacks           : 29550
sctpInSCTPPacks            : 29567
```

Example: Print One Counter

```
cli_tool mrf_appl sctp-pm-counters -n sctpCurrEstab
```

```
[2016-03-10 09:27:18.521]
sctpCurrEstab           : 2
```

3.12 sctp-status

This command prints the `operationalState` attribute of an SCTP link.

Options without arguments:

- h, --help** Prints the help message.
- j, --json** Prints all information about the MTAS in json format.

Options with mandatory arguments:

- i, --id** Prints the `operationalState` attribute of a given MTAS.
- o, --operationalState** Prints all information about the MTAS with the specified `operationalState`.

Example: Print SCTP Link Operational State for All MTAS

```
cli_tool mrf_appl sctp-status
```

```
[2016-09-13 11:54:21.594]
LDN= MediaResourceFunction=1,MrfH248Control=1,MrfH248Interface=2, →
operationalState: DISABLED, administrativeState: UNLOCKED
```



```
LDN= MediaResourceFunction=1,MrfH248Control=1,MrfH248Interface=1, →  
operationalState: ENABLED, administrativeState: UNLOCKED
```

Example: Print Disabled SCTP Links

```
cli_tool mrf_appl sctp-status -o DISABLED
```

```
[2016-09-13 11:54:21.594]  
LDN= MediaResourceFunction=1,MrfH248Control=1,MrfH248Interface=2, →  
operationalState: DISABLED, administrativeState: UNLOCKED
```

Example: Print SCTP Link Operational State for a MTASs

```
cli_tool mrf_appl sctp-status -i  
MediaResourceFunction=1,MrfH248Control=1,MrfH248Interface=2
```

```
[2016-09-13 11:54:21.594]  
LDN= MediaResourceFunction=1,MrfH248Control=1,MrfH248Interface=2, →  
operationalState: DISABLED, administrativeState: UNLOCKED
```

3.13 service-pm-counters

This command prints service PM counters since the last restart.

Options without arguments:

- h, --help** Prints the help message.
- j, --json** Prints service PM counters in json format.

Options with mandatory arguments:

- s, --service-name** Prints service counters specified by their name. Valid service names are: amrnb, amrwb, dtmfr, dtmfs, pcm, g722, g729, announcement, jitter, audio-mixing, rtp, tsr, fh, evs.

Example: Print All Service PM Counters

```
cli_tool mrf_appl service-pm-counters
```

```
[2017-01-10 08:49:31.528]  
Counters for DTMFS  
pmBusyInstances      : 0  
pmNormalRelease      : 0  
pmTotalSeizures      : 0  
pmUnsuccSeizures     : 0
```



```

-----
Counters for TSR
pmBusyInstances      : 0
pmNormalRelease      : 0
pmTotalSeizures      : 0
pmUnsuccSeizures     : 0
-----
Counters for DTMFR
pmBusyInstances      : 0
pmNormalRelease      : 0
pmTotalSeizures      : 0
pmUnsuccSeizures     : 0
-----
Counters for AMRNB
pmBusyInstances      : 0
pmNormalRelease      : 1
pmTotalSeizures      : 1
pmUnsuccSeizures     : 0
-----
Counters for FH
pmBusyInstances      : 0
pmNormalRelease      : 88
pmTotalSeizures      : 88
pmUnsuccSeizures     : 0
-----
Counters for ANNOUNCEMENT
pmBusyInstances      : 0
pmNormalRelease      : 42
pmTotalSeizures      : 42
pmUnsuccSeizures     : 0
-----
Counters for AUDIO_MIXING
pmBusyInstances      : 0
pmNormalRelease      : 2
pmTotalSeizures      : 2
pmUnsuccSeizures     : 0
-----
Counters for RTP_RTCP
pmBusyInstances      : 0
pmNormalRelease      : 88
pmTotalSeizures      : 88
pmUnsuccSeizures     : 0
-----
Counters for JITTER
pmBusyInstances      : 0
pmNormalRelease      : 88
pmTotalSeizures      : 88
pmUnsuccSeizures     : 0
-----
Counters for PCM
pmBusyInstances      : 0
pmNormalRelease      : 88

```



```

pmTotalSeizures      : 88
pmUnsuccSeizures     : 0
-----
Counters for AMRWB
pmBusyInstances       : 0
pmNormalRelease       : 16
pmTotalSeizures       : 16
pmUnsuccSeizures     : 0
-----
Counters for G729
pmBusyInstances       : 0
pmNormalRelease       : 1
pmTotalSeizures       : 1
pmUnsuccSeizures     : 0
-----
Counters for EVS
pmBusyInstances       : 0
pmNormalRelease       : 0
pmTotalSeizures       : 0
pmUnsuccSeizures     : 0
-----

```

Example: Print DTMFR Service PM Counters

```
cli_tool mrf_appl service-pm-counters -s dtmfr
```

```

[2016-10-03 11:20:20.013]
Service counters for DTMFR:
pmBusyInstances       : 0
pmNormalRelease       : 0
pmTotalSeizures       : 5
pmUnsuccSeizures     : 0

```

3.14 smms-counters

This command displays SMMS counters.

Options without arguments:

```

-h, --help           Prints the help message.
-j, --json           Prints counters in json format.

```

Example: Print SMMS Counters

```
cli_tool mrf_appl smms-counters
```

```

[2017-06-01 09:53:47.257]
LDN = MediaResourceFunction=1
smmsBaseActive       : 0

```



```
smmsBaseReqs                : 3
smmsBaseReqsRejNoLicense    : 1
smmsBaseCapacityExceeded     : 1
```

3.15 status

This command prints signaling state information.

Options without arguments:

-h, --help Prints the help message.

-j, --json Prints signaling state information in json format.

Example: Print Signaling State Information

cli_tool mrf_appl status

```
mrsv-admin@fv-mrsv:~$ cli_tool mrf_appl status
[2016-09-20 12:41:09.308]
Signalling State:
=====
H248Interface-Id: 2 H248Interface-LDN: "MediaResourceFunction=1,M →
rfH248Control=1,MrfH248Interface=2" H248Interface association sta →
te: UNLOCKED
H248Interface Service Change state: COMPLETED
Sctp operational state: ENABLED
Remote IP Address: 10.0.0.2 Remote Port: 9101
=====
H248Interface-Id: 1 H248Interface-LDN: "MediaResourceFunction=1,M →
rfH248Control=1,MrfH248Interface=1" H248Interface association sta →
te: UNLOCKED
H248Interface Service Change state: COMPLETED
Sctp operational state: ENABLED
Remote IP Address: 10.0.0.2 Remote Port: 2944
=====
LocalEndpoint Id: 3
Dscp: 40
Local port: 2944
=====
Sctp socket state: INITIATED.
DHCP assigned IP: 10.0.0.4
=====
MRF instance administrative state: UNLOCKED
=====
```



4 ipp Commands

Table 3 ipp Commands

Name	Description	POSIX Group with Access
conf	Prints current network configuration for media	mrf-op
debug-counters	Displays debug counters	mrf-op
discard-counters	Displays discard counters	mrf-op
dpdk-counters	Displays various dpdk counters	mrf-op
error-counters	Displays error counters	mrf-op
ethdev-counters	Displays ethdev counters	mrf-op
internals	Prints internal configuration and statistics	mrf-op
ipp mpd-usage on page 48	Prints MPD use information	mrf-op
ipp neigh on page 48	Shows current network neighbor cache	mrf-op
ping	Pings remote host over media link	mrf-op
pm-counters	Displays PM counters	mrf-op
signal-counters	Displays signal counters	mrf-op

4.1 ipp conf

This command displays network configuration information.

Options without arguments:

-h, --help Prints the help message.

Example: Faulty Configuration, Next Hop MAC Not Resolved

```
cli_tool ipp conf
```

Configuration:

Network (id:1)

VLAN ID

default_network

-



```

UDP Port Range          1024..65535
Media IP IF (id:1)
  Ethdev                em1 (id:0)
  MAC                   FA:16:EE:48:F9:67
  Link                  UP
  IP                    10.2.0.42
  Status                DHCP OK
Static Route (id:4)
  IP                    0.0.0.0/0
  Nexthop (id:4)
    MAC                 FA:16:EE:EF:A5:49
    IP                  10.2.0.1

```

4.2 ipp debug-counters

This command displays debug counters.

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-c, --clear Clears the debug counters. Valid arguments: all, <debug_counter_name>.

Example: Print the Counters

cli_tool ipp debug-counters

```

[2018-02-28 08:30:35.234]
Debug counters:
ARP_BROADCAST_REQUESTS_SENT           : 4      →
ARP_BROADCAST_PROBE_REQUESTS_SENT     : 8      →
ARP_BROADCAST_REQUESTS_RECEIVED       : 0      →
ARP_UNICAST_REQUESTS_RECEIVED         : 1190   →
ARP_REPLIES_RECEIVED                  : 2      →
NEXTHOP_MAC_UPDATED_AT_ARP_REPLY      : 2      →
NEXTHOP_MAC_UPDATED_AT_ICMPV6_NEIGHBOR_ADVERTISEMENT : 0      →
NEXTHOP_ADDR_REFRESHED_AT_ICMPV6_ROUTER_ADVERTISEMENT : 0      →
NEXTHOP_ADDR_CHANGED_AT_ICMPV6_ROUTER_ADVERTISEMENT : 0      →
NEXTHOP_ADDR_IGNORED_AT_ICMPV6_ROUTER_ADVERTISEMENT : 0      →

```



NEXTHOP_MAC_UPDATED_AT_GARP_REQUEST	: 0	→
ICMPV4_ECHO_REQUESTS_RECEIVED	: 0	→
ICMPV4_ECHO_REQUESTS_SENT	: 1	→
ICMPV4_ECHO_REPLY_RECEIVED	: 0	→
ICMPV4_ECHO_REPLY_SENT	: 0	→
ICMPV4_UNREACHABLE_NETWORK_RECEIVED	: 0	→
ICMPV4_UNREACHABLE_HOST_RECEIVED	: 0	→
ICMPV4_UNREACHABLE_PORT_RECEIVED	: 11	→
ICMPV4_FRAGMENTATION_NEEDED_RECEIVED	: 0	→
ICMPV4_TIME_EXCEEDED_RECEIVED	: 0	→
ICMPV6_PACKETS_RECEIVED	: 0	→
ICMPV6_UNSUPPORTED_MESSAGES_RECEIVED	: 0	→
ICMPV6_NEIGHBOR_SOLICITATION_RECEIVED	: 757	→
ICMPV6_NEIGHBOR_ADVERTISEMENT_RECEIVED	: 2	→
ICMPV6_NEIGHBOR_MULTICAST_SOLICITATION_SENT	: 0	→
ICMPV6_NEIGHBOR_UNICAST_SOLICITATION_SENT	: 0	→
ICMPV6_NEIGHBOR_SOLICITATION_SENT	: 2	→
ICMPV6_ROUTER_ADVERTISEMENT_RECEIVED	: 0	→
ICMPV6_ECHO_REQUEST_SENT	: 0	→
ICMPV6_ECHO_REQUEST_RECEIVED	: 0	→
ICMPV6_ECHO_REPLY_SENT	: 0	→
ICMPV6_ECHO_REPLY_RECEIVED	: 0	→
ICMPV6_UNSOLICITED_NEIGHBOR_ADVERTISEMENTS_SENT	: 2	→
ICMPV6_UNSOLICITED_NEIGHBOR_ADVERTISEMENTS_DAD_SENT	: 2	→
ICMPV6_DU_NO_ROUTE_TO_DESTINATION_RECEIVED	: 0	→
ICMPV6_DU_COMM_ADMIN_PROHIBITED_RECEIVED	: 0	→



ICMPV6_DU_BEYOND_SOURCE_ADDR_SCOPE_RECEIVED	: 0	→
ICMPV6_DU_ADDR_UNREACHABLE_RECEIVED	: 0	→
ICMPV6_DU_PORT_UNREACHABLE_RECEIVED	: 0	→
ICMPV6_DU_SRC_ADDR_FAIL_INGRESS_POLICY_RECEIVED	: 0	→
ICMPV6_DU_REJECT_ROUTE_TO_DEST_RECEIVED	: 0	→
ICMPV6_TE_HOP_LIMIT_EXCEEDED_RECEIVED	: 0	→
ICMPV6_TE_FRAGMENT_REASSEMBLY_TIME_EXCEEDED_RECEIVED	: 0	→
ICMPV6_PACKET_TOO_BIG_RECEIVED	: 0	→
MPD_PACKETS_IN	: 0	→
MPD_PACKETS_OUT	: 0	→
IP_TRANSLATION_UDP_PACKETS	: 0	→
IP_TRANSLATION_TCP_PACKETS	: 0	→
IP_TRANSLATION_ICMP_PACKETS	: 0	→
DHCP_ACK_RECEIVED	: 526	→
DHCP_OFFER_RECEIVED	: 2	→
DHCP_NAK_RECEIVED	: 0	→
DHCPV6_ADVERTISE_RECEIVED	: 2	→
DHCPV6_REPLY_RECEIVED	: 577	→
EXCESSIVE_TRAFFIC_THRESHOLD_EXCEEDED_ALARM_RAISE	: 0	→
EXCESSIVE_TRAFFIC_THRESHOLD_EXCEEDED_ALARM_CEASE	: 0	→
UDP_IPV4_MULTICONTXT_OPTIMIZATION	: 0	→
UDP_IPV6_MULTICONTXT_OPTIMIZATION	: 0	→
TCP_IPV4_MULTICONTXT_OPTIMIZATION	: 0	→
TCP_IPV6_MULTICONTXT_OPTIMIZATION	: 0	→
MEDIA_STOP_SUPERVISION_DETECTED_STOP	: 0	→
MEDIA_STOP_SUPERVISION_DETECTED_START	: 0	



TCP_RENDEZVOUS_FIRST_SYN_RECEIVED	: 0	→
TCP_RENDEZVOUS_COMPLETED	: 0	→
GARP_REPLIES_RECEIVED	: 0	→
GARP_REPLY_RECEIVED	: 0	→
SRTP_RESERVE_REQ	: 0	→
SRTP_RESERVE_CFM	: 0	→
SRTP_RESERVE_REJ	: 0	→
SRTP_MODIFY_REQ	: 0	→
SRTP_MODIFY_CFM	: 0	→
SRTP_MODIFY_REJ	: 0	→
SRTP_RELEASE_REQ	: 0	→
SRTP_RELEASE_CFM	: 0	→
SRTP_ENCRYPT_REQ	: 0	→
SRTP_ENCRYPT_CFM	: 0	→
SRTP_DECRYPT_REQ	: 0	→
SRTP_DECRYPT_CFM	: 0	→
DTLS_RESERVE_CFM	: 0	→
DTLS_RESERVE_REJ	: 0	→
DTLS_HANDSHAKE_CFM_IS_EMPTY	: 0	→
DTLS_RESERVE_CFM_IS_EMPTY	: 0	→
DTLS_HANDSHAKE_IND	: 0	→
DTLS_HANDSHAKE_IND_IS_EMPTY	: 0	→
DTLS_HANDSHAKE_REQ	: 0	→
DTLS_APPL_DATA	: 0	→
DTLS_HEARTBEAT	: 0	→
DTLS_HANDSHAKE_CFM	: 0	→



```
DTLS_ENCRYPT_REQ           : 0      →
DTLS_ENCRYPT_CFM           : 0      →
DTLS_ENCRYPT_CFM_IS_EMPTY  : 0      →
DTLS_DECRYPT_REQ           : 0      →
DTLS_DECRYPT_CFM           : 0      →
DTLS_CONFIGURE_REQ        : 0      →
DTLS_CONFIGURE_CFM        : 0      →
DTLS_CONFIGURE_REJ        : 0      →
DTLS_DECRYPT_CFM_IS_EMPTY  : 0
```

Example: Clear One Counter

```
cli_tool ipp debug-counters --clear
MEDIA_STOP_SUPERVISION_DETECTED_START
```

Cleared MEDIA_STOP_SUPERVISION_DETECTED_START debug counter

Example: Clear All Counters

```
cli_tool ipp debug-counters --clear all
```

Cleared all debug counters

4.3 ipp discard-counters

This command displays discard counters.

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-c, --clear Clears the discard counters. Valid arguments: all, <discard_counter_name>.

Example

```
cli_tool ipp discard-counters
```

```
2016-03-10 09:38:07.523]
```



Discard counters:

UNSUPPORTED_ETHERTYPE	: 0
IPV4_REASSEMBLY_NOT_IMPLEMENTED	: 0
TOO_SHORT_PACKET_FOR_IPV4	: 0
SEGMENTED_MBUF_NOT_IMPLEMENTED	: 0
TOO_SHORT_PACKET_FOR_IPV6	: 0
IPV4_UNSUPPORTED_NEXT_PROTO	: 0
IPV6_UNSUPPORTED_NEXT_PROTO	: 0
IPV6_REASSEMBLY_NOT_IMPLEMENTED	: 0
IPV6_IPSEC_NOT_IMPLEMENTED	: 0
IPV6_ROUTE_LOOKUP_FAILED	: 0
IPV6_ROUTE_INVALID_NEXTHOP	: 0
ARP_FRAME_TOO_SHORT	: 0
TOO_SHORT_PACKET_FOR_UDP	: 0
TTL_EXCEEDED_IN_NAPT	: 0
METADATA_CEP_NOT_VALID	: 0
MEDIAIP_NOT_VALID	: 0
METADATA_CEPID_OUT_OF_RANGE	: 0
ARP_UNSUPPORTED_OP_CODE	: 0
IPV4_ROUTE_INVALID_OUT_MEDIAIP	: 0
IPV4_ROUTE_INVALID_OUT_NETWORK	: 0
IPV4_ROUTE_LOOKUP_FAILED	: 0
IPV4_ROUTE_INVALID_NEXTHOP	: 0
IPV4_ROUTE_INVALID_ROUTE_ENTRY	: 0
NEXT_HOP_MAC_ADDR_NOT_SET	: 0
ICMPV6_UNSUPPORTED_MESSAGE_TYPE	: 0
ICMPV4_UNSUPPORTED_MESSAGE	: 0
ICMPV4_ECHO_REQUEST	: 0
ICMPV6_MESSAGE_FAILED_VALIDATION	: 0
ICMPV6_NDP_OPTION_NEEDED	: 0
ICMPV6_ECHO_REQUEST	: 0
UDP_RX_STREAM_MODE_DROP_TRAFFIC	: 4
UDP_TX_STREAM_MODE_DROP_TRAFFIC	: 0
UDP_RX_SOURCE_FILTERING_DROP_TRAFFIC	: 0
UDP_RX_INVALID_CHECKSUM_IPV4	: 0
UDP_RX_INVALID_CHECKSUM_IPV6	: 0
UDP_HEADER_EXCEEDS_MBUF	: 0
MPD_IN_INVALID_USERPLANE_CEP_ID	: 0
MPD_OUT_INVALID_USERPLANE_CEP_ID	: 0
MPD_IN_MBUF_ADJUST_FAILED	: 0
TOO_SHORT_PACKET_FOR_ICMP	: 0
RX_BANDWIDTH_POLICING_DROP_TRAFFIC	: 0
ICMPV6_DEST_UNREACHABLE_MSG_TOO_BIG	: 0
TOO_SHORT_PACKET_FOR_ICMPV6	: 0
ICMPV6_PARAM_PROB_ERRONEOUS_HEADER_FIELD	: 0
ICMPV6_PARAM_PROB_UNRECOGNIZED_NEXT_HEADER	: 0
ICMPV6_PARAM_PROB_UNRECOGNIZED_IPV6_OPTIONS	: 0
DHCP_TOO_SHORT_PACKET	: 0
DHCP_INVALID_MAGIC_COOKIE	: 0
DHCP_BOOTP_REQUEST	: 0
DHCP_UNSUPPORTED_REPLY_TYPE	: 0



```

DHCP_INVALID_CLIENT_MAC_ADDRESS      : 0
DHCP_INVALID_MEDIAIP_ID               : 0
DHCP_AUTOCONF_NOT_ENABLED            : 0
DHCP_OFFER_REJECTED                  : 0
DHCP_ACK_REJECTED                     : 0
DHCP_INVALID_STATE                   : 0
DHCPV6_MISSING_SERVER_IDENTIFIER_OPTION : 0
DHCPV6_MISSING_CLIENT_IDENTIFIER_OPTION : 0
DHCPV6_MISSING_IANA_OPTION           : 0
DHCPV6_MISSING_IAADDR_OPTION         : 0
DHCPV6_INVALID_LIFETIME_IN_IAADDR_OPTION : 0
DHCPV6_INVALID_DUID_IN_CLIENT_IDENTIFIER_OPTION : 0
DHCPV6_TOO_LONG_DUID_IN_SERVER_IDENTIFIER_OPTION : 0
DHCPV6_INVALID_MEDIAIP_ID            : 0
DHCPV6_INVALID_SRC_PORT              : 0
DHCPV6_INVALID_DST_PORT              : 0
DHCPV6_INVALID_IA_ID                 : 0
DHCPV6_NO_ADDRESS_AVAILABLE          : 0
DHCPV6_AUTOCONF_NOT_ENABLED          : 0
DHCPV6_INVALID_STATE                 : 0
DHCPV6_ERROR_CODE_IN_REPLY           : 0
UNSUPPORTED_IP_TRANSLATION            : 0

```

4.4 ipp dpdk-counters

This command prints the status of DPDK-related internal resources.

Options without arguments:

-h, --help Prints the help message.

-m, --memory Prints `rte_memseg`, `rte_memzone`, `rte_mempool`, and `rte_malloc` statistics.

-i, --ipc Prints `dpdkipc` statistics.

Options with mandatory arguments:

-r, --ring Prints the `rte_ring` statistics for one ring or all rings.

Example: Print Current Memory Use by DPDK

```
cli_tool ipp dpdk-counters -m
```

```

rte_memseg statistics:
      phys_addr      virt_addr      len hugepage_sz      socket_id      nch →
annel      nrank
      0      11000000      7fb8ec800000      164M      2M      0      →
      0      8b000000      7fb8ec400000      2M      2M      0      →
      0      8b400000      7fb8e9e00000      36M      2M      0      →
      0      0

```



0	8da00000	7fb8e9200000	10M	2M	0	→
0	0					
0	8e800000	7fb8e8c00000	4M	2M	0	→
0	0					
0	8ee00000	7fb8e7800000	18M	2M	0	→
0	0					
0	90200000	7fb8e5c00000	26M	2M	0	→
0	0					
0	91e00000	7fb8e5000000	10M	2M	0	→
0	0					
0	92c00000	7fb8d4a00000	260M	2M	0	→
0	0					
0	a3200000	7fb8d4600000	2M	2M	0	→
0	0					
0	a3800000	7fb8d3c00000	8M	2M	0	→
0	0					
0	a4200000	7fb8d2c00000	14M	2M	0	→
0	0					
0	a5400000	7fb8d2800000	2M	2M	0	→
0	0					
0	a5800000	7fb8d2200000	4M	2M	0	→
0	0					
0	a6000000	7fb8d1c00000	4M	2M	0	→
0	0					
0	a6600000	7fb8d1600000	4M	2M	0	→
0	0					
0	a6c00000	7fb8d0400000	16M	2M	0	→
0	0					
0	a7e00000	7fb8d0000000	2M	2M	0	→
0	0					
0	a8200000	7fb8cf800000	6M	2M	0	→
0	0					
0	a8a00000	7fb8cf400000	2M	2M	0	→
0	0					
0	a9000000	7fb8cee00000	4M	2M	0	→
0	0					
0	a9600000	7fb8ce800000	4M	2M	0	→
0	0					
0	a9c00000	7fb8ce400000	2M	2M	0	→
0	0					
0	aa200000	7fb8cdc00000	6M	2M	0	→
0	0					
0	aaa00000	7fb8cd400000	6M	2M	0	→
0	0					
0	ab400000	7fb8cce00000	4M	2M	0	→
0	0					
0	aba00000	7fb8cca00000	2M	2M	0	→
0	0					
0	abe00000	7fb8cb800000	16M	2M	0	→
0	0					
0	ad000000	7fb8cb000000	6M	2M	0	→
0	0					
0	ad800000	7fb8c6a00000	68M	2M	0	→
0	0					
0	b2000000	7fb8c5a00000	14M	2M	0	→
0	0					
0	b3000000	7fb8c4000000	24M	2M	0	→
0	0					
0	b4c00000	7fb8c3200000	12M	2M	0	→
0	0					
0	b5c00000	7fb8c2e00000	2M	2M	0	→
0	0					
0	b6400000	7fb8c2a00000	2M	2M	0	→
0	0					
0	b6800000	7fb8bfc00000	44M	2M	0	→
0	0					
0	b9600000	7fb8bdc00000	30M	2M	0	→
0	0					
0	bb800000	7fb8bd600000	4M	2M	0	→
0	0					
0	100000000	7fb8bcc00000	8M	2M	0	→
0	0					
0	100a00000	7fb8bbc00000	14M	2M	0	→
0	0					
0	101c00000	7fb8ba200000	24M	2M	0	→
0	0					
0	103600000	7fb8b8400000	28M	2M	0	→
0	0					
0	105400000	7fb8b7a00000	8M	2M	0	→
0	0					



0	105e00000	7fb8b7200000	6M	2M	0	→
0	0					
0	106800000	7fb8b5c00000	20M	2M	0	→
0	0					
0	108000000	7fb8b5600000	4M	2M	0	→
0	0					
0	10a200000	7fb8b5200000	2M	2M	0	→
0	0					
0	10c000000	7fb8b4e00000	2M	2M	0	→
0	0					
0	10ca00000	7fb8b4a00000	2M	2M	0	→
0	0					
0	10f200000	7fb8b4600000	2M	2M	0	→
0	0					
0	10fe00000	7fb8b4200000	2M	2M	0	→
0	0					
0	112200000	7fb8b3e00000	2M	2M	0	→
0	0					
0	112c00000	7fb8b3a00000	2M	2M	0	→
0	0					
0	115200000	7fb8b3600000	2M	2M	0	→
0	0					
0	116000000	7fb8b3200000	2M	2M	0	→
0	0					
0	118200000	7fb8b2e00000	2M	2M	0	→
0	0					
0	118e00000	7fb8b2a00000	2M	2M	0	→
0	0					
0	11b200000	7fb8b2600000	2M	2M	0	→
0	0					
0	11bc00000	7fb8b2200000	2M	2M	0	→
0	0					
0	11e400000	7fb8b1e00000	2M	2M	0	→
0	0					
0	11ee00000	7fb8b1a00000	2M	2M	0	→
0	0					
0	120e00000	7fb8b1600000	2M	2M	0	→
0	0					
0	121200000	7fb8b1200000	2M	2M	0	→
0	0					
0	121a00000	7fb8b0e00000	2M	2M	0	→
0	0					
0	123c00000	7fb8b0a00000	2M	2M	0	→
0	0					
0	124200000	7fb8b0600000	2M	2M	0	→
0	0					
0	127400000	7fb8b0200000	2M	2M	0	→
0	0					
0	127c00000	7fb8afe00000	2M	2M	0	→
0	0					
0	128000000	7fb8afa00000	2M	2M	0	→
0	0					
0	128400000	7fb8af600000	2M	2M	0	→
0	0					
0	128800000	7fb8af200000	2M	2M	0	→
0	0					
0	128e00000	7fb8aee00000	2M	2M	0	→
0	0					
0	12c000000	7fb8aea00000	2M	2M	0	→
0	0					
0	12c400000	7fb8ae600000	2M	2M	0	→
0	0					
0	12f200000	7fb8ae200000	2M	2M	0	→
0	0					
0	12f600000	7fb8ade00000	2M	2M	0	→
0	0					
0	134600000	7fb8ada00000	2M	2M	0	→
0	0					
0	134c00000	7fb8ad600000	2M	2M	0	→
0	0					
0	139600000	7fb8ad000000	4M	2M	0	→
0	0					

rte_memzone statistics:			
	name	phys_addr	len
	MALLOC_S0_HEAP_0	b4c00000	11534336
	RG_MP_log_history	b5700000	8320
	MP_log_history	8b000000	1872064
	rte_eth_dev_data	8b1c90c0	72192

	socket_id
	0
	0
	0
	0



```

port0_cvq      8b1db000      8192      0
port0_cvq_hdrzone 8b1dd000      4096      0
port1_cvq      8b1de000      8192      0
port1_cvq_hdrzone 8b1e0000      4096      0
RG_MP_pktbuf1  b5702080      262272     0
MP_pktbuf1     b6800000     39588096    0
port0_rvq0     8b1e1000      12288     0
port0_tvq0     8b1e4000      12288     0
port0_tvq0_hdrzone 8b1e7000      3072      0
port1_rvq0     8b1e8000      12288     0
port1_tvq0     8b1eb000      12288     0
port1_tvq0_hdrzone 8b1ee000      3072      0
RG_classed_udp 8b1eec00      16512     0
RG_classed_arp 8b1f2c80      8320      0
RG_classed_icmp 8b1f4d00      8320      0
RG_classed_icmpv6 8b1f6d80      8320      0
RG_classed_frag 8b1f8e00      8320      0
RG_classed_dhcp 8b1fae80      8320      0
RG_classed_ipv6_ll 8b1fcf00      8320      0
RG_arpout      b5742100      8320      0
RG_icmpv6out    b5744180      8320      0
RG_icmpout      b5746200      8320      0
RG_naptout      b5748280      8320      0
RG_udp_out      b574a300      8320      0
RG_udp_fwd      b574c380      8320      0
RG_internal_loop b574e400      8320      0
DPDKIPC_SHARED_MZ 8b1fef80        64      0
RG_MEDIA_CH_IN_ALL b5750480     16512     0
RG_MEDIA_CH_OUT_0 b5754500      4224      0
RG_MEDIA_CH_OUT_1 b5755580      4224      0
RG_MEDIA_CH_OUT_2 b5756600      4224      0
RG_MEDIA_CH_OUT_3 b5757680      4224      0
RG_MEDIA_CH_OUT_4 b5758700      4224      0
RG_MEDIA_CH_OUT_5 b5759780      4224      0
RG_MEDIA_CH_OUT_6 b575a800      4224      0
RG_MEDIA_CH_OUT_7 b575b880      4224      0
RG_MEDIA_CH_OUT_8 b575c900      4224      0
RG_MEDIA_CH_OUT_9 b575d980      4224      0
RG_MEDIA_CH_OUT_10 b575ea00      4224      0
RG_MEDIA_CH_OUT_11 b575fa80      4224      0
RG_MEDIA_CH_OUT_12 b5760b00      4224      0
RG_MEDIA_CH_OUT_13 b5761b80      4224      0
RG_MEDIA_CH_OUT_14 b5762c00      4224      0
RG_MEDIA_CH_OUT_15 b5763c80      4224      0
RG_TEST_PORT_SEND_RING 8b1fefc0      1152      0
RG_TEST_PORT_RECV_RING 8b1ff440      640      0
RG_MSERI_SEND_RING 8b1ff6c0      2176      0
RG_MSERI_RECV_RING b5764d00      2176      0
MALLOC_S0_HEAP_1 a4200000     11534336   0
MALLOC_S0_HEAP_2 b2000000     11534336   0

```

```

rte_mempool statistics:
      name      size  cache_size  ring count
log_history      512         0         252
pktbuf1      16384        128       15447

```

```

rte_malloc statistics:
      socket      bytes  free_bytes  used_bytes  free_count  used_count
0      34602816    8622528    25980288         3         245
1         0         0         0         0         0
2         0         0         0         0         0
3         0         0         0         0         0
4         0         0         0         0         0
5         0         0         0         0         0
6         0         0         0         0         0
7         0         0         0         0         0

```

Example: Print the Status of a Named DPDK Ring or All Rings Known by IPP

cli_tool ipp dpdk-counters -r internal_loop

```

rte_ring statistics:
      name      size  watermark  prod/cons      count  free_count
t      internal_loop    1024      1024      --/--         0      102 →

```




```

3
cli_tool ipp dpdk-counters -r all
rte_ring statistics:

```

	name	size	watermark	prod/cons	count	free_coun →
t	classed_udp	2048	2048	--/--	0	204 →
7	classed_arp	1024	1024	--/--	0	102 →
3	classed_icmp	1024	1024	--/--	0	102 →
3	classed_icmpv6	1024	1024	--/--	0	102 →
3	classed_frag	1024	1024	--/--	0	102 →
3	classed_dhcp	1024	1024	--/--	0	102 →
3	classed_ipv6_ll	1024	1024	--/--	0	102 →
3	arpout	1024	1024	--/--	0	102 →
3	icmpv6out	1024	1024	--/--	0	102 →
3	icmpout	1024	1024	--/--	0	102 →
3	naptout	1024	1024	--/--	0	102 →
3	udp_out	1024	1024	--/--	0	102 →
3	udp_fwd	1024	1024	--/--	0	102 →
3	internal_loop	1024	1024	--/--	0	102 →
3	_TEST_PORT_SEND_RING	128	100	--/--	0	12 →
7	_TEST_PORT_RECV_RING	64	50	--/--	0	6 →
3	_MSERI_SEND_RING	256	200	--/--	0	25 →
5	_MSERI_RECV_RING	256	200	--/--	0	25 →
5	_MEDIA_CH_IN_ALL	2048	2048	--/--	0	204 →
7	_MEDIA_CH_OUT_0	512	512	--/--	1	51 →
0	_MEDIA_CH_OUT_1	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_2	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_3	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_4	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_5	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_6	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_7	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_8	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_9	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_10	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_11	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_12	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_13	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_14	512	512	--/--	0	51 →
1	_MEDIA_CH_OUT_15	512	512	--/--	0	51 →

**Example: Print the Current Status of dpdkipc Channels****cli_tool ipp dpdk-counters --ipc**

dpdkipc statistics:

	name	send count	recv count	semaphore
	_TEST_PORT_RECV_RING	0	0	0
	_MSERI_RECV_RING	0	0	0
	_MEDIA_CH_OUT_0	0	0	0
	_MEDIA_CH_OUT_1	0	0	0
	_MEDIA_CH_OUT_2	0	4	4
	_MEDIA_CH_OUT_3	0	0	0
	_MEDIA_CH_OUT_4	0	0	0
	_MEDIA_CH_OUT_5	0	0	0
	_MEDIA_CH_OUT_6	0	0	0
	_MEDIA_CH_OUT_7	0	0	0
	_MEDIA_CH_OUT_8	0	0	0
	_MEDIA_CH_OUT_9	0	0	0
	_MEDIA_CH_OUT_10	0	0	0
	_MEDIA_CH_OUT_11	0	0	0
	_MEDIA_CH_OUT_12	0	0	0
	_MEDIA_CH_OUT_13	0	0	0
	_MEDIA_CH_OUT_14	0	0	0
	_MEDIA_CH_OUT_15	0	0	0

4.5 ipp error-counters

This command displays error counters.

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-c, --clear Clears the error counters. Valid arguments: all, <error_counter_name>.**Example****cli_tool ipp error-counters**

[2016-03-10 09:39:11.283]

```

Error counters:
IP_ADDRESS_COLLISIONS_DETECTED      : 0
CEP_ALREADY_RESERVED                : 0
TOO_LARGE_MEDIA_IP_ID_FOR_CEP        : 0
TOO_LARGE_NEXTHOP_ID_FOR_CEP        : 0
CONFIGURED_NEXTHOP_ID_NOT_VALID_FOR_CEP : 0
CONFIGURED_MEDIAIP_ID_NOT_VALID_FOR_CEP : 0
UNSUITABLE_NETWORK_ID_FOR_CEP       : 0

```



```

NETWORK_MISMATCH_BETWEEN_CEP_AND_NEXTHOP           : 0
NETWORK_MISMATCH_BETWEEN_CEP_AND_MEDIAIP           : 0
CONFIGURED_NETWORK_NOT_VALID_FOR_CEP                : 0
ADD_NETWORK_FAILED_FOR_TABLE                        : 0
MODIFY_NETWORK_FAILED_FOR_TABLE                     : 0
REMOVE_NETWORK_FAILED_FOR_TABLE                     : 0
ADD_NEXTHOP_FAILED_FOR_TABLE                        : 0
DELETE_NEXTHOP_FAILED_FOR_TABLE                     : 0
ADD_MEDIA_IP_FAILED_FOR_TABLE                       : 0
REMOVE_MEDIA_IP_FAILED_FOR_TABLE                    : 0
ADD_STATIC_ROUTE_FAILED_FOR_TABLE                   : 0
REMOVE_STATIC_ROUTE_FAILED_FOR_TABLE                : 0
RESERVE_IP_REQ_FAILED_FOR_TABLE                     : 0
MODIFY_IP_REQ_FAILED_FOR_TABLE                      : 0
RELEASE_IP_REQ_FAILED_FOR_TABLE                     : 0
CONNECT_IP_REQ_FAILED_FOR_TABLE                     : 0
DISCONNECT_IP_REQ_FAILED_FOR_TABLE                  : 0
CONNECT_IP_MPD_REQ_FAILED_FOR_TABLE                 : 0
ADD_ARP_ENTRY_FOR_MEDIA_IP_FAILED                   : 0
REMOVE_ARP_ENTRY_FOR_MEDIA_IP_FAILED                : 0
ADD_ARP_ENTRY_FOR_NEXTHOP_FAILED                    : 0
REMOVE_ARP_ENTRY_FOR_NEXTHOP_FAILED                 : 0
CLASSIFIER_RTP_CEP_ENTRY_UPDATE_FAILED              : 0
CLASSIFIER_RTP_CEP_ENTRY_DEL_FAILED                 : 0
CLASSIFIER_RTCP_CEP_ENTRY_UPDATE_FAILED             : 0
CLASSIFIER_RTCP_CEP_ENTRY_DEL_FAILED                : 0
UDP_RX_ENTRY_ADD_FAILED                             : 0
UDP_RX_ENTRY_MOD_FAILED                             : 0
UDP_TX_ENTRY_ADD_FAILED                             : 0
UDP_TX_ENTRY_MOD_FAILED                             : 0
TX_ENTRY_ADD_FAILED                                 : 0
TX_INVALID_OUTPUT_PORT                              : 0
ARP_PACKET_INSERT_FAILED                            : 0
NDP_PACKET_INSERT_FAILED                            : 0
ICMPV4_ECHO_PACKET_INSERT_FAILED                    : 0
DEL_ICMPV4_ECHO_ENTRY_FAILED                        : 0
ADD_ICMPV4_ECHO_ENTRY_FAILED                        : 0
ICMPV4_ECHO_REQUEST_SEND_FAILURE                    : 0
ICMPV6_ECHO_PACKET_INSERT_FAILED                    : 0
ICMPV6_ECHO_REQUEST_SEND_FAILURE                    : 0
INVALID_ICMPV4_IDENTITY_RECEIVED                    : 0
INVALID_LOCAL_PORT_FOR_CEP                          : 0
ICMPV6_PACKET_INSERT_FAILED                        : 0
ADD_STATIC_ROUTE_ENTRY_FOR_ROUTE_IPV4_FAILED        : 0
INVALID_BW_POLICING_CONFDATA_FOR_CEP                : 0

```

4.6 ipp ethdev-counters

This command displays ethdev counters.

Options without arguments:



- h, --help** Prints the help message.
- c, --clear** Clears all ethdev counters.
- x, --xstats** Prints extended stats, if available.

Options with mandatory arguments:

- d, --device** Limits the command to the specified Ethernet device ID.

Example: Print the Counters

cli_tool ipp ethdev-counters

[2018-05-29 09:09:21.685]

Ethdev	eth_trusted
port id	0
external id	0000:00:06.0
MAC	FA:16:AA:98:05:42
driver	net_virtio
status	UP
speed	10G
mtu	1500
promiscuous mode	OFF
all multicast mode	ON
RX:	
ipackets	12445
ibytes	1105554
ierrors	0
imissed	0
rx_nombuf	0
TX:	
opackets	12433
obytes	1087971
oerrors	0

Example: Print the Counters with Extended Details

cli_tool ipp ethdev-counters -x

[2018-05-29 09:11:44.425]

Ethdev	eth_trusted
port id	0
external id	0000:00:06.0
MAC	FA:16:AA:98:05:42
driver	net_virtio
status	UP
speed	10G
mtu	1500
promiscuous mode	OFF
all multicast mode	ON
RX:	
ipackets	12477
ibytes	1107762
ierrors	0
imissed	0
rx_nombuf	0
TX:	
opackets	12465
obytes	1090019
oerrors	0
XSTATS:	
rx_good_packets	12477
tx_good_packets	12465



```

rx_good_bytes          1107762
tx_good_bytes          1090019
rx_errors              0
tx_errors              0
rx_mbuf_allocation_errors 0
rx_q0packets           12477
rx_q0bytes             1107762
rx_q0errors            0
tx_q0packets           12465
tx_q0bytes             1090019
rx_q0_good_packets     12477
rx_q0_good_bytes       1107762
rx_q0_errors           0
rx_q0_multicast_packets 2
rx_q0_broadcast_packets 0
rx_q0_undersize_packets 1370
rx_q0_size_64_packets  0
rx_q0_size_65_127_packets 11089
rx_q0_size_128_255_packets 15
rx_q0_size_256_511_packets 3
rx_q0_size_512_1023_packets 0
rx_q0_size_1024_1518_packets 0
rx_q0_size_1519_max_packets 0
tx_q0_good_packets     12465
tx_q0_good_bytes       1090019
tx_q0_errors           0
tx_q0_multicast_packets 7
tx_q0_broadcast_packets 7
tx_q0_undersize_packets 1374
tx_q0_size_64_packets  0
tx_q0_size_65_127_packets 11087
tx_q0_size_128_255_packets 1
tx_q0_size_256_511_packets 3
tx_q0_size_512_1023_packets 0
tx_q0_size_1024_1518_packets 0
tx_q0_size_1519_max_packets 0

```

Example: Clear the Counters

cli_tool ipp ethdev-counters --clear

Cleared all ethdev counters

```
cli_tool ipp ethdev-counters
[2018-05-29 12:04:01.282]
```

```

Ethdev                                eth_trusted
  port id                             0
  external id                         0000:00:06.0
  MAC                                 FA:16:AA:98:05:42
  driver                             net_virtio
  status                             UP
  speed                              10G
  mtu                                1500
  promiscuous mode                    OFF
  all multicast mode                  ON
RX:
  ipackets                           0
  ibytes                             0
  ierrors                            0
  imissed                            0
  rx_nombuf                           0
TX:
  opackets                           0
  obytes                             0
  oerrors                            0

```

4.7 ipp internals

This command inspects the internals of the IP pipeline.

Options without arguments:



-h, --help	Prints the help message.
-f, --file	Shows the config file.
-n, --getnhload	Shows CEP use per next hop.
Options with mandatory arguments:	
-l, --lcore	Prints lcore internal configuration and statistics.
-m, --measure	Shows the current load on lcore.
-p, --port	Prints port statistics of a pipeline port specified by its name.
-t, --tableshow	Shows information about an internal table specified by its name.
-d, --dhcp_test	Enables and disables the DHCP state machine. Valid values are: up (enable) and down (disable).
-i, --interface	Specifies the media IP interface for DHCP state machine enabling and disabling.

Example: Print Current IP Pipeline Configuration As a File (Format Acceptable at IPP Startup)

```
cli_tool ipp internals --file
```

```
;;; Initial configuration file of the IP pipeline
;;; hostname: 103-PL-3
;;; generated: Thu May 28 10:17:03 2015
;;;
;;; file format version 001
PIPELINECONF001{
    MEMPOOL {
        name = "pktbuf1"
        ,id = 0
        ,type = PKT_MBUF ;;; received or transmitted media packets
    }
    ...
}
```

Example: Print the Internal Pipeline Along with Packet Handling Statistics

```
cli_tool ipp internals -f | grep lcore
```

```
,lcore = 0
,lcore = 0
```

port %	outport %	pipeline table %	runs/flush	total in	total out	total diff	inp →
2.57	1.69	tx_handler 0.53	4	480289234	480289234	0	→
		tablename table_tx	hits 480289234	misses 0	discarded 0		
e max	queue avg	portname dir	max burst	total	discards	lost	queu →
0	0.00	arpout in	64	0	0	0	→
0	0.00	udp_out in	64	480289218	0	0	→
0	0.00	icmpout in	64	0	0	0	→
0	0.00	icmpv6out in	64	0	0	0	→
0	0.00	classd_dhcp in	64	16	0	0	→
0	0.00	classd_ipv6_ll in	64	0	0	0	→
0	0.00	eml out	64	241677114	0	9720	→
0	0.00	internal_loop out	64	0	0	0	→

port %	outport %	pipeline table %	runs/flush	total in	total out	total diff	inp →
1.39	11.46	udp_tx 0.96	4	480289340	480289340	0	→
		tablename table_udp_tx	hits 480289340	misses 0	discarded 0		
ue max	queue avg	portname dir	max burst	total	discards	lost	que →
0	0.00	udp_fwd in	64	480289340	0	0	→
0	0.00	mpdport in	64	0	0	0	→
0	0.00	udp_out out	64	480289468	0	0	→

port %	outport %	pipeline table %	runs/flush	total in	total out	total diff	inp →
0.16	7.04	udp_rx 4.07	4	480289596	480289596	0	→
		tablename table_udp_rx	hits 480289596	misses 0	discarded 0		
e max	queue avg	portname dir	max burst	total	discards	lost	queu →
0	0.00	classd_udp in	64	480289596	0	0	→
0	0.00	udp_fwd out	64	480289596	0	0	→
0	0.00	mpdport out	64	0	0	0	→

----->							
ort %	pipeline	runs/flush	total in	total out	total diff	inp	>
0.00	output % table %	4	0	0	0		>
	arp_handler						
	0.00	0.00					
	tablename	hits	misses	discarded			
	table_arp_handler	0	0	0			
e max	portname dir	max burst	total	discards	lost	queu	>
0	queue avg						
0	classd_arp in	64	0	0	0		>
0	0.00						
0	arpout out	64	0	0	0		>
0	0.00						
----->							
ort %	pipeline	runs/flush	total in	total out	total diff	inp	>
0.00	output % table %	4	0	0	0		>
	icmpv6_handler						
	0.00	0.00					
	tablename	hits	misses	discarded			
	table_icmpv6_handler	0	0	0			
e max	portname dir	max burst	total	discards	lost	queu	>
0	queue avg						
0	classd_icmpv6 in	64	0	0	0		>
0	0.00						
0	icmpv6out out	64	0	0	0		>
0	0.00						
----->							
ort %	pipeline	runs/flush	total in	total out	total diff	inp	>
0.00	output % table %	4	0	0	0		>
	icmp_handler						
	0.00	0.00					
	tablename	hits	misses	discarded			
	table_icmp_handler	0	0	0			
e max	portname dir	max burst	total	discards	lost	queu	>
0	queue avg						
0	classd_icmp in	64	0	0	0		>
0	0.00						
0	icmpout out	64	0	0	0		>
0	0.00						
----->							
ort %	pipeline	runs/flush	total in	total out	total diff	inp	>
5.08	output % table %	4	480289740	480289724	16		>
	classifier						
	12.79	1.29					
	tablename	hits	misses	discarded			
	table_l2l3_classifier	480289740	0	0			
e max	portname dir	max burst	total	discards	lost	queu	>
0	queue avg						
0	eml in	16	238612370	0	0		>
0	0.00						
0	internal_loop in	16	0	0	0		>
0	0.00						
0	classd_udp out	64	480289724	0	0		>
0	0.00						
0	classd_arp out	64	0	0	0		>
0	0.00						
0	classd_icmp out	64	0	0	0		>
0	0.00						
0	classd_icmpv6 out	64	0	0	0		>
0	0.00						
0	classd_frag out	64	0	0	0		>
0	0.00						



```

        classed_dhcp out          64          16          16          0          →
0        0.00
        classed_ipv6_ll out       64          0           0          0          →
0        0.00
lcore 0 has 7 pipelines:
packet handling %: 49.04
timer handling %: 0.09
control handling %: 1.01
bw policing %: 0.09
measurement period: 155.23ms

```

Example: Measure Current Load on lcore 0

```
cli_tool ipp internals -m 0
```

Load measure for lcore 0:

```

total: 45.09%
actions: 43.81% (774647 calls)
control: 1.01% (1708 signals)
timers: 0.14%
policing: 0.13%
measurement period: 200.02ms

4.86% (187378 calls) tx_handler
12.50% (187406 calls) udp_tx
8.75% (187406 calls) udp_rx
0.00% (0 calls) arp_handler
0.00% (0 calls) icmpv6_handler
0.00% (0 calls) icmp_handler
17.69% (212457 calls) classifier

```

Example: Update "queue max" and "queue avg" in the lcore Output and Print Queue Size Per Port

```
cli_tool ipp internals --port mpdport
```

```

portname dir    max burst      total    discards      lost    queue max    queue →
avg
mpdport out      64         0         0         0         9         0. →
36
historical queue data (time/max/avg):
1161.226132265622/ 3/ 0.246
1161.226561461927/ 3/ 0.262
1161.226979298287/ 3/ 0.137
1161.227408225793/ 2/ 0.066
1161.227826191752/ 3/ 0.258
1161.228244024913/ 3/ 0.242
1161.228672685220/ 3/ 0.262
1161.229094903959/ 3/ 0.242
1161.229525140258/ 3/ 0.266
1161.229942760619/ 0/ 0.000
1161.230371643326/ 3/ 0.246
1161.230789511686/ 3/ 0.262
1161.231207682444/ 3/ 0.234
1161.231637091548/ 3/ 0.258
1161.232054691109/ 3/ 0.242
1161.232483709814/ 3/ 0.148
1161.232911366927/ 2/ 0.074
1161.233328960088/ 3/ 0.250
1161.233761914774/ 3/ 0.262

```



1161.234179664735/	3/ 0.230
1161.234609475437/	3/ 0.262
1161.235027034998/	3/ 0.242
1161.235456248903/	1/ 0.004
1161.235874122063/	3/ 0.230
1161.236292025622/	3/ 0.242
1161.236720885929/	3/ 0.250
1161.237143266267/	3/ 0.234
1161.237573020969/	3/ 0.270
1161.237990722929/	3/ 0.191
1161.238419810434/	1/ 0.023
1161.238837629195/	3/ 0.258
1161.239254883158/	3/ 0.234
1161.239684050662/	3/ 0.262
1161.240101767023/	3/ 0.234
1161.240530489730/	3/ 0.258
1161.240953030067/	1/ 0.004
1161.241382248772/	3/ 0.230
1161.241799997132/	3/ 0.262
1161.242218006292/	3/ 0.234
1161.242647042597/	3/ 0.262
1161.243064517359/	3/ 0.246
1161.243493707264/	3/ 0.195
1161.243911380425/	1/ 0.031
1161.244329279185/	3/ 0.234
1161.244757971491/	3/ 0.254
1161.245185591804/	3/ 0.254
1161.245618111292/	3/ 0.266
1161.246035731654/	3/ 0.246
1161.246465054358/	2/ 0.031
1161.246882916318/	3/ 0.180
1161.247300789478/	3/ 0.234
1161.247730089782/	3/ 0.273
1161.248148054141/	3/ 0.242
1161.248577271246/	3/ 0.258
1161.249000451580/	3/ 0.230
1161.249430743879/	0/ 0.000
1161.249848412240/	3/ 0.266
1161.250266283800/	3/ 0.246
1161.250695707304/	3/ 0.262
1161.251113625263/	3/ 0.234
1161.251542909567/	3/ 0.258
1161.251960745928/	2/ 0.023
1161.252389452635/	3/ 0.180
1161.252811444175/	3/ 0.254
1161.253229238935/	3/ 0.250
1161.253658569639/	3/ 0.266
1161.254076508398/	3/ 0.238
1161.254505719103/	3/ 0.234
1161.254924280260/	1/ 0.004
1161.255342316619/	3/ 0.258
1161.255771266525/	3/ 0.258
1161.256189072485/	3/ 0.242
1161.256617844792/	3/ 0.254
1161.257045604303/	3/ 0.227
1161.257478098192/	3/ 0.109
1161.257895788953/	2/ 0.102
1161.258313479713/	3/ 0.219
1161.258743290415/	3/ 0.230
1161.259161209975/	3/ 0.219
1161.259590523079/	3/ 0.238
1161.260008329039/	3/ 0.223
1161.260437173346/	0/ 0.000
1161.260859384085/	3/ 0.230
1161.261277239644/	3/ 0.242
1161.261706687148/	3/ 0.262
1161.262124625908/	3/ 0.234
1161.262553526214/	3/ 0.258
1161.262971042575/	3/ 0.082
1161.263399688483/	2/ 0.113
1161.263817513643/	3/ 0.254
1161.264234918005/	3/ 0.238
1161.264663688712/	3/ 0.266
1161.265088797036/	3/ 0.246
1161.265519414134/	3/ 0.266
1161.265937114495/	0/ 0.000
1161.266366333200/	3/ 0.242
1161.266783795161/	3/ 0.258
1161.267201740321/	3/ 0.234
1161.267631119025/	3/ 0.258



```

1161.268048622587/ 3/ 0.246
1161.268477684492/ 3/ 0.121
1161.268906029601/ 2/ 0.098
1161.269323984360/ 3/ 0.250
1161.269756681448/ 3/ 0.266
1161.270173986611/ 3/ 0.238
1161.270603694913/ 3/ 0.258
1161.271021395273/ 3/ 0.242
1161.271450345179/ 0/ 0.000
1161.271867933541/ 3/ 0.250
1161.272285846700/ 3/ 0.234
1161.272715006205/ 3/ 0.270
1161.273137194544/ 3/ 0.246
1161.273568339639/ 3/ 0.262
1161.273989529583/ 3/ 0.180
1161.274422082671/ 1/ 0.016
1161.274843152616/ 3/ 0.258
1161.275264323360/ 3/ 0.238
1161.275696769248/ 3/ 0.254
1161.276117856793/ 3/ 0.242
1161.276550086682/ 3/ 0.258
1161.276975449406/ 3/ 0.109
1161.277408295293/ 2/ 0.086
1161.277829518836/ 3/ 0.262
1161.278250662380/ 3/ 0.238
1161.278683079469/ 3/ 0.250
1161.279103715816/ 3/ 0.242
1161.279536081705/ 3/ 0.258
1161.279957110049/ 1/ 0.008
1161.280388805542/ 3/ 0.207
1161.280819686638/ 3/ 0.246
1161.281240833382/ 3/ 0.250
1161.281676658454/ 3/ 0.262
1161.282097861198/ 3/ 0.238
1161.282530716685/ 3/ 0.258
1161.282951639430/ 1/ 0.004
1161.283384395717/ 3/ 0.227
1161.283816308809/ 3/ 0.496
1161.284237225154/ 3/ 0.223
1161.284670872637/ 3/ 0.234
1161.285096305760/ 3/ 0.246
1161.285529332446/ 3/ 0.270
1161.285950010392/ 0/ 0.000
1161.286382222682/ 3/ 0.234
1161.286803436626/ 3/ 0.262
1161.287224704969/ 3/ 0.230
1161.287761324749/ 2/ 0.527
1161.288193666639/ 3/ 0.859
1161.288633610091/ 3/ 0.465
1161.289060065609/ 2/ 0.359
1161.289495316284/ 4/ 1.184
1161.289913091844/ 3/ 2.008
1161.290330878605/ 5/ 3.012
1161.290764081290/ 6/ 3.867
1161.291182903245/ 7/ 4.645
1161.291613232344/ 8/ 5.527
1161.292031244703/ 9/ 6.281
1161.292929805117/ 7/ 3.445
1161.294074244330/ 0/ 0.000
1161.295112176862/ 0/ 0.000
1161.296258854464/ 0/ 0.000
1161.297456232619/ 0/ 0.000
1161.297873353782/ 0/ 0.000
1161.298290022148/ 0/ 0.000
1161.298725164024/ 0/ 0.000
...

```

Example: Print Active CEP Table (All Active Half-calls):

```
cli_tool ipp internals -t cep
```

```

      validity      id network mediaip udpport  connectcep  clientcep  servercep
total cps in use 0

```



```
cli_tool ipp internals -t cep
```

validity	id	network	mediaip	udpport	connectcep	clientcep	servercep
0x000018ff	4	2	2	1026	5	-	-
0x000018ff	5	1	1	1026	4	-	-
0x000018ff	6	2	2	1028	7	-	-
0x000018ff	7	1	1	1028	6	-	-

```
total ceps in use 4
```

```
cli_tool ipp internals -t cep
```

validity	id	network	mediaip	udpport	connectcep	clientcep	servercep
0x000109ff	8	2	2	1030	-	8191	2
0x000109ff	9	1	1	1030	-	8189	4

```
total ceps in use 2
```

Example: Disable DHCP State Machine on Media IP Interface 1

```
cli_tool ipp internals -i 1 -d down
```

```
DHCP state machine disabled for media ip if 1
```

Example: Enable DHCP State Machine on Media IP Interface 1

```
cli_tool ipp internals -i 1 -d up
```

```
DHCP state machine enabled for media ip if 1
```

4.8 ipp mpd-usage

This command displays MPD DSS core use data.

Example: Print MPD DSS Cores Use

```
cli_tool ipp mpd-usage
```

```
MPD DSS Cores Usage:
```

dss id	srtp encrypt tasks	srtp decrypt tasks	ongoing transcoding tasks	total load	
0	0	0	0	0	→
1	10	100	541	21	→

4.9 ipp neigh

This command shows the current network neighbor cache.

Option without arguments:

-h, --help Print help message

Example: Show Current Network Neighbor Cache

```
cli_tool ipp neigh
```



```
mrvs-admin@fv-mrvs:~$ cli_tool ipp neigh
Neighbor list:
10.20.30.40 11:11:11:11:11:11 REACHABLE
fd02::1 AA:BB:FF:11:33:FF STALE
192.168.2.1 ?? FAILED
2001:db8::1 ?? INCOMPLETE
```

4.10 ipp ping

Mandatory parameters:

-m, --mediaipif	Specifies the host by its media IP interface ID from where the ping is sent. Acceptable values can be found in the output of <code>ipp conf</code> , as described in ipp conf on page 26. Either the <code>-m</code> or the <code>-n</code> option is mandatory.
-n, --network	Specifies the host on the network by its network name from where the ping is sent. Either the <code>-m</code> or the <code>-n</code> option is mandatory.
--remote_address	The IP address of the host to ping, in dotted decimal notation.

Optional parameters:

-s, --size	This option specifies the ping packet size.
-t, --ttl	This option limits the number of hops (that is, the TTL value) the packet traverses.
-c, --count	This option sets the number of ping requests to send.
-i, --interval	This option specifies the interval between pings in milliseconds.

Example: Ping a Host Specified by the Media IP Interface

```
cli_tool ipp ping -m 1 192.0.2.118
```

```
PING 192.0.2.118 64 bytes of data
64 bytes from 192.0.2.118: icmp_seq=0 ttl=64 time=9 ms
```

Example: Ping a Host Specified by the Network Name

```
cli_tool ipp ping -n default_network 10.2.0.3
```



```
PING 10.2.0.3 56 bytes of data
56 bytes from 10.2.0.3: icmp_seq=0 ttl=64 time=2 ms
```

4.11 ipp pm-counters

This command displays PM counters.

Options without arguments:

-h, --help Prints the help message.

Example

```
cli_tool ipp pm-counters
```

```
[2016-09-01 12:58:45.399]
```

```
PM counters:
```

```
default_network
```

```
MediaIPInterface (id:1)
```

PM_MEDIA_IP_IF_RX_DISC_OCTETS_EXC	: 0	→
PM_MEDIA_IP_IF_RX_DISC_PKTS_EXC	: 0	→
PM_MEDIA_IP_IF_RX_DISC_PKTS_OTHER	: 0	→
PM_MEDIA_IP_IF_RX_OCTETS	: 180300	→
PM_MEDIA_IP_IF_RX_PKTS	: 2248	→
PM_MEDIA_IP_IF_TX_DISC_PKTS_NO_NEXTHOP	: 0	→
PM_MEDIA_IP_IF_TX_NO_REACHABLE_NEXTHOP	: 0	→
PM_MEDIA_IP_IF_TX_OCTETS	: 179524	→
PM_MEDIA_IP_IF_TX_PKTS	: 2244	
PM_MEDIA_IP_IF_TX_DISC_PKTS_OTHER	: 0	→
PM_MEDIA_IP_IF_RX_PKTS_PER_SECOND	: 0	→
PM_MEDIA_IP_IF_RX_OCTETS_PER_SECOND	: 0	→
PM_MEDIA_IP_IF_RX_PKTS_PER_SECOND_PEAK	: 54	→
PM_MEDIA_IP_IF_RX_OCTETS_PER_SECOND_PEAK	: 10912	→
PM_MEDIA_IP_IF_TX_PKTS_PER_SECOND	: 0	→
PM_MEDIA_IP_IF_TX_OCTETS_PER_SECOND	: 0	→
PM_MEDIA_IP_IF_TX_PKTS_PER_SECOND_PEAK	: 51	→



PM_MEDIA_IP_IF_TX_OCTETS_PER_SECOND_PEAK : 10108

4.12 ipp signal-counters

This command displays signal counters.

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-c, --clear Clears the signal counters. Valid arguments: all, <signal_counter_name>.

Example

cli_tool ipp signal-counters

```
[2016-03-10 09:39:58.995]
Signal counters:
SIG_MSP_MSE_RI_NETWORK_CREATE_REQ      : 2
SIG_MSP_MSE_RI_NETWORK_CREATE_CFM      : 2
SIG_MSP_MSE_RI_NETWORK_CREATE_REJ      : 0
SIG_MSP_MSE_RI_NETWORK_MODIFY_REQ      : 0
SIG_MSP_MSE_RI_NETWORK_MODIFY_CFM      : 0
SIG_MSP_MSE_RI_NETWORK_MODIFY_REJ      : 0
SIG_MSP_MSE_RI_NETWORK_DELETE_REQ      : 0
SIG_MSP_MSE_RI_NETWORK_DELETE_CFM      : 0
SIG_MSP_MSE_RI_DSCP_TO_PBIT_CREATE_REQ  : 1
SIG_MSP_MSE_RI_DSCP_TO_PBIT_CREATE_CFM  : 1
SIG_MSP_MSE_RI_DSCP_TO_PBIT_CREATE_REJ  : 0
SIG_MSP_MSE_RI_DSCP_TO_PBIT_MODIFY_REQ  : 0
SIG_MSP_MSE_RI_DSCP_TO_PBIT_MODIFY_CFM  : 0
SIG_MSP_MSE_RI_DSCP_TO_PBIT_MODIFY_REJ  : 0
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_CREATE_REQ : 8
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_CREATE_CFM : 4
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_CREATE_REJ : 0
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_DELETE_REQ : 0
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_DELETE_CFM : 0
SIG_MSP_MSE_RI_MEDIA_IP_INTERFACE_AUTOCONF_IND : 532
SIG_MSP_MSE_RI_PING_REQ                  : 1
SIG_MSP_MSE_RI_PING_CFM                  : 1
SIG_MSP_MSE_RI_PING_REJ                  : 0
SIG_MSP_MSE_RI_NEXT_HOP_CREATE_REQ      : 4
SIG_MSP_MSE_RI_NEXT_HOP_CREATE_CFM      : 4
SIG_MSP_MSE_RI_NEXT_HOP_CREATE_REJ      : 0
SIG_MSP_MSE_RI_NEXT_HOP_DELETE_REQ      : 0
SIG_MSP_MSE_RI_NEXT_HOP_DELETE_CFM      : 0
SIG_MSP_MSE_RI_STATICROUTE_CREATE_REQ   : 4
SIG_MSP_MSE_RI_STATICROUTE_CREATE_CFM   : 4
```



SIG_MSP_MSE_RI_STATICROUTE_CREATE_REJ	: 0
SIG_MSP_MSE_RI_STATICROUTE_DELETE_REQ	: 0
SIG_MSP_MSE_RI_STATICROUTE_DELETE_CFM	: 0
SIG_MSP_MSE_RI_RESERVE_IP_REQ	: 8
SIG_MSP_MSE_RI_RESERVE_IP_CFM	: 8
SIG_MSP_MSE_RI_RESERVE_IP_REJ	: 0
SIG_MSP_MSE_RI_MODIFY_IP_REQ	: 6
SIG_MSP_MSE_RI_MODIFY_IP_CFM	: 6
SIG_MSP_MSE_RI_MODIFY_IP_REJ	: 0
SIG_MSP_MSE_RI_RELEASE_IP_REQ	: 8
SIG_MSP_MSE_RI_RELEASE_IP_CFM	: 8
SIG_MSP_MSE_RI_CONNECT_IP_REQ	: 8
SIG_MSP_MSE_RI_CONNECT_IP_CFM	: 8
SIG_MSP_MSE_RI_CONNECT_IP_REJ	: 0
SIG_MSP_MSE_RI_FAULT_IND	: 0
SIG_MSP_MSE_RI_FAULT_CEASED_IND	: 0
SIG_MSP_MSE_RI_CONNECT_IP_MPD_REQ	: 0
SIG_MSP_MSE_RI_CONNECT_IP_MPD_CFM	: 0
SIG_MSP_MSE_RI_CONNECT_IP_MPD_REJ	: 0
SIG_MSP_MSE_RI_DISCONNECT_IP_REQ	: 0
SIG_MSP_MSE_RI_DISCONNECT_IP_CFM	: 0
SIG_MSP_MSE_RI_PM_COUNTER_REPORT_IND	: 31710
SIG_MSP_MSE_RI_PM_COUNTER_SET_REP_INTERVAL_IND	: 1
SIG_MSP_MSE_RI_IP_EVENT_IND	: 0
SIG_MSP_MSE_RI_TRAFFIC_SUPERVISION_REQ	: 1
SIG_MSP_MSE_RI_TRAFFIC_SUPERVISION_CFM	: 1
SIG_MSP_MSE_RI_TRAFFIC_SUPERVISION_REJ	: 0
SIG_MSP_MSE_RI_MSR_CONFIG_REQ	: 0
SIG_MSP_MSE_RI_MSR_CONFIG_CFM	: 0
SIG_MSP_MSE_RI_MSR_CONFIG_REJ	: 0
UNSUPPORTED_SIGNAL_TYPE_RECEIVED	: 0

5

mpd Commands

Table 4 mpd Commands

Name	Description	POSIX Group with Access
internals on page 53	Prints MPD internal configuration and statistics	mrf-op

5.1

internals

This command prints internal MPD configuration and statistics.

Example: Print MPD Configuration and Statistics

`cli_tool mpd internals`

```
----->
-----
MPD scheduling timer deviation after running 173387360 ticks
Total drift (realtime - timerTicks): 0 ticks
Max drift in 80 ticks period: 83 ticks
----->
-----
Processor load
DssId
of received frames    FH dropped frames    Reported load %    Raw load %    number ->
  Jitter flushed frames    Csch flushed frames    Jitter dropped frames
0
935                    0          0          21          21          215972 ->
  0
1
014                    0          0          17          17          222546 ->
  0
2
951                    0          0          21          21          227853 ->
  0
----->
-----
FH number of frames: 666372900
FH dropped frames: 0
Jitter dropped frames: 0
Jitter flushed frames: 0
Jitter overflow frames: 0
Jitter adaptive catchups: 0
Jitter static catchups: 0
Csch flushed frames: 0
Csch inFifo overrun: 0
MPD device
Total                In use                In use %
8192                280                  3
----->
-----
Memory pool
Name                Total entries        In use                In use ->
%
pktbuf1            128672              279                  0 ->
```



6 vMRF Utility Scripts

Table 5 vMRF Utility Scripts

Name	Description	POSIX Group with Access
verify_vmrf_cluster_status.py on page 54	Displays status of services and applications running on a vMRF VNF	mrf-op
verify_vmrf_node_status.py on page 55	Displays status of services and applications running on a vMRF VM	mrf-op
collectData.py or dcmg	Fetches data for TR ⁽¹⁾ s or CSR ⁽²⁾ s	mrf-op and systemd-journal Linux group
mrf_export_conf.py on page 58	Exports vMRF configuration data	emergency user
mrf_import_conf.py on page 58	Imports vMRF configuration data	emergency user

(1) Trouble Report

(2) Customer Service Report

6.1 verify_vmrf_cluster_status.py

This command displays status of services and applications running on a vMRF VNF. If all VMs operate normally, the OK status is displayed in the printout.

If there are abnormally operating VMs, the following information is displayed:

- A list of normally operating VMs
- A list of abnormally operating VMs
- Detailed component information on abnormally operating VMs

Options without arguments:

-h, --help Prints the help message.

Options with mandatory arguments:

-s, --size <number_of_VMs>
Verifies if the cluster contains the number of VMs specified in the argument.



Example: Cluster Status Verification with One Faulty VM

verify_vmrf_cluster_status.py

The following hosts are successfully up:

IP Address	Hostname	Role	UUID	→
		Administrative State	Operational State	
192.168.0.3	fv-mrsv	ACTIVE	d8cb6553-172e-436f-9bdc-772ca	→
b02f20a	UNLOCKED		OK	
192.168.0.4	fv-mrsv-1	QUIESCED	2e4c1019-d971-435a-944a-290ac	→
8ae5491	UNLOCKED		OK	
192.168.0.5	fv-mrsv-2	STANDBY	c0951947-1bcf-45bd-a36a-c6f2f	→
b87b576	UNLOCKED		OK	

The following hosts are not up correctly:
fv-mrsv-0

Running command: "verify_vmrf_node_status.py" on host: 192.168.0. →
6 (fv-mrsv-0)

```

eth0: OK
eth1: OK
eth2: OK
SC role: not_available
CoreMW: ERROR
COM: OK, NOT RUNNING
MrfDirector: OK, NOT RUNNING
CliDaemon: ERROR
IpPipeline: ERROR
TC-MPD: ERROR
MrfAgent: ERROR
CloudInit: OK
ConfigImport: CONFIGURATION_NOT_IMPORTED_AT_DEPLOYMENT
SEC-CERT: ERROR
neighbourdetection: OK
LM: OK

```

6.2 verify_vmrf_node_status.py

This command displays the status of services and applications running on a vMRF VM, VM network interfaces, and information about vMRF configuration import. [Table 6](#) summarizes the information displayed in the command printout.

Options without arguments:

-h, --help	Prints the help message.
-q, --quiet	Executes the command as if without option specified but does not return with a printout.

Options with mandatory arguments:



- check** Checks and prints VM network configuration. Possible arguments: network, coremw, com, nodetype, mrf_director, cli, Ipp, mpd, mrf_agent, cloud_init, sec-cert, neighbourdetection, lm.
- interface** Checks and prints information on the specified eth interface and default VM services and applications. Possible arguments: eth0, eth1, eth2.

Table 6 Status Verification Summary

Service or Component	Description
eth0, eth1, eth2	Displays the status of the cluster internal network, O&M, and the signaling ports, respectively.
SC role	Displays the role of the VM in the cluster.
CoreMW	Displays the status of the CoreMW component.
COM	The component is in the OK, RUNNING state only for the active SC VM. In all other VMs, it is in the OK, NOT RUNNING state.
MrfDirector	Displays the status of the MrfDirector service.
CliDaemon	Displays the status of the CliDaemon service.
IpPipeline	Displays the status of the IpPipeline service.
TC-MPD	Displays the status of TC-MPD.
MrfAgent	Displays the status of the MrfAgent service.
CloudInit	Displays the status of the CloudInit service.
ConfigImport	Shows information about the configuration import process both if configuration was imported during deployment, using HOT files, or after deployment, using the <code>mrf_import_conf.py</code> command. Possible values: —OK: Configuration was imported successfully, but the user has to verify if it has the correct values. —FAILED: Configuration import failed. —CONFIGURATION_NOT_IMPORTED_AT_DEPLOYMENT: Configuration was imported using other methods, or not imported at all.
SEC-CERT	Shows information about the status of the SEC-CERT process, used for certificate management and other security-related services.
neighbourdetection	Shows information about the status of the neighbourdetection service, used for sharing



Service or Component	Description
	neighbor information through all the VMs in the cluster.
LM	Shows the status of License Management process. If the process is running, the OK status is shown, otherwise ERROR is displayed.

Example: Verify VM Status of the Active SC VM

`verify_vmrf_node_status.py`

```
eth0: OK
        eth1: OK
        eth2: OK
        SC role: ACTIVE
        CoreMW: OK
        COM: OK, RUNNING
MrfDirector: OK, RUNNING
        CliDaemon: OK
        IpPipeline: OK
        TC-MPD: OK
        MrfAgent: OK
        CloudInit: OK
        ConfigImport: CONFIGURATION_NOT_IMPORTED_AT_DEPLOYMENT
        SEC-CERT: OK
        neighbourdetection: OK
        LM: OK
```

Example: Verify a Specific VM Component

Note: In the `--check` option printout, the SC role of the VM is also displayed.

`verify_vmrf_node_status.py --check mrf_director`

```
        SC role: ACTIVE
MrfDirector: OK, RUNNING
```

6.3 collectData.py

This command collects troubleshooting data.

Note: To collect the logs file generated by this command, the user must be a member of both the `mrf-op` POSIX group and the `systemd-journal` group.

For more information on `collectData.py`, refer to [Data Collection Guideline for vMRF](#).



6.4 mrf_export_conf.py

This command exports vMRF configuration data into a file. For more information on configuration export, refer to [vMRF Configuration Management](#).

6.5 mrf_import_conf.py

This command imports vMRF configuration data from a file. For more information on configuration import, refer to [vMRF Configuration Management](#).



7 Linux Commands

OS restrictions—based on preconfigured access rights for each command—apply to Linux commands, that is, commands in `/bin`, `/sbin`, `/usr/bin`, and `/usr/sbin`. Additional rights can be granted based on `sudo` configuration.