Cisco UBE Serviceability

The Cisco UBE Serviceability feature captures the performance metrics of Cisco Unified Border Element (Cisco UBE) periodically based on certain parameters and collects consolidated or filtered information about active calls and Cisco UBE-related configurations.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for Cisco UBE Serviceability

Cisco Unified Border Element

- Cisco IOS Release 15.3(1)T or a later release must be installed and running on your Cisco Unified Border Element.

Cisco Unified Border Element (Enterprise)

- Cisco IOS XE Release 3.8S or a later release must be installed and running on your Cisco ASR 1000 Series Router.

Information About Cisco UBE Serviceability

Resource Volume Monitoring

You can use the Cisco UBE Serviceability feature for resource volume monitoring (RVM); that is, you can capture the performance metrics of the Cisco Unified Border Element (Cisco UBE) based on various parameters. The following parameters are supported by Cisco UBE:

- Active calls—The number of concurrent or active calls on the Cisco UBE; these calls may have voice or video media flowing through Cisco UBE and describe the load on memory.
- Call rate—The number of incoming calls handled by Cisco UBE per second. Call rate is crucial to understand the incoming call load.
- Call-leg rate—Call-leg rate is an extension of call legs, where the number of call legs is counted instead of the number of calls. Call legs refer to end-to-end logical connections between two routers or between a telephony device and a router in a VoIP network.
- Short-duration calls—The number of short-duration calls (configurable), indicative of audio issues or dropped calls.
- Session Initiation Protocol (SIP) message rate—The number of SIP messages handled per second. The messages can be received across any transport mechanism and includes all messages received by Cisco UBE.

Each of these parameters is presented in a histogram or tabular format over the past 60 seconds, 60 minutes, and 72 hours. You can also view the call watermarks, that is, the peak values of a parameter (calls or message rate) over a duration.

Consolidated Information of Active Calls and Cisco UBE Configurations

You can combine and filter the output of several **show** commands. It is not required to know several disparate commands related to Session Initiation Protocol (SIP), H.323, audio, video, and so on. You can enter a single command that will consolidate information based on the type of calls that are present at that time. Static configurations pertaining to digital signal processor (DSP) farm and redundancy are also consolidated. You can filter the potentially huge output and display information only for a specific call, called-number, or port. While troubleshooting a specific call, you may find it useful to have a single command that provides all signaling and media information related to that call. The **show cube global** command is used to display the consolidated output.

Monitoring Cisco UBE Serviceability

Perform this task to monitor Cisco UBE serviceability for some parameters. Depending on your requirements, you can capture the performance metrics of the Cisco Unified Border Element (Cisco UBE) based on several parameters or you can collect consolidated information of active calls and configurations related to Cisco UBE. The **show** commands can be entered in any order.

SUMMARY STEPS

1. **enable**
2. **show call history stats cps table**
3. **show call history watermark cps table**
4. **show sip-ua history stats message-rate**
5. **show cube calls called-number** *called-number*
6. **show cube global**

DETAILED STEPS

Step 1 **enable**
Enables privileged EXEC mode.

Example:
```
Device> enable
```

Step 2 **show call history stats cps table**
Displays the call rate per second for Cisco UBE. The following sample output displays the tabular output of call rate per second for the last 60 seconds, 60 minutes, and 72 hours.

Example:
```
Device# show call history stats cps table

Call switching rate / CPS (last 60 seconds)
Period     Actual     Average
-----------------------------
 1-5          61         12
 6-10         60         12
11-15         60         12
16-20         60         12
21-25         59         12
26-30         60         12
31-35         61         12
36-40         60         12
41-45         60         12
46-50         59         12
51-55         61         12
56-60         61         12

Call switching rate / CPS (last 60 minutes)
Period     Average       Max
---------------------------
 1-5          12         14
 6-10         12         13
11-15         12         13
16-20         12         14
21-25         12         13
26-30         12         14
31-35         12         12
36-40         12         12
41-45         12         12
46-50         12         12
51-55         12         12
56-60         12         12

Call switching rate / CPS (last 72 hours)
```

```
Period     Average       Max
---------------------------
 1-5           7          44
 6-10          0           0
11-15          0           0
16-20          0           0
21-25          0           0
26-30          0           0
31-35         11          52
36-40          0           0
41-45          0           0
46-50          0           0
51-55          0           0
56-60          0           0
61-65          0           0
66-70          0           0
71-72          0           0
```

Step 3 **show call history watermark cps table**

Displays the watermarks for calls per second for Cisco UBE. This following sample output displays in a tabular format the calls per second watermarks (peak values) for the last 60 seconds, 60 minutes, and 72 hours.

Example:

```
Device# show call history watermark cps table

================================================
   Calls Per Second / CPS
================================================
------- The WaterMark Table for Second --------
_____________________________________________
Value : 0, ts : [Thu, 01 Nov 2012 13:15:24 GMT]
Value : 0, ts : [Thu, 01 Nov 2012 13:15:25 GMT]
Value : 0, ts : [Thu, 01 Nov 2012 13:15:26 GMT]
Value : 1, ts : [Thu, 01 Nov 2012 13:15:27 GMT]
Value : 1, ts : [Thu, 01 Nov 2012 13:15:28 GMT]
================================================

------- The WaterMark Table for Minute-------
_____________________________________________
Value : 150, ts : [Thu, 01 Nov 2012 13:15:24 GMT]
Value : 120, ts : [Thu, 01 Nov 2012 13:02:20 GMT]
Value : 119, ts : [Thu, 01 Nov 2012 13:25:39 GMT]
Value : 101, ts : [Thu, 01 Nov 2012 13:55:24 GMT]
Value : 101, ts : [Thu, 01 Nov 2012 13:42:28 GMT]
================================================

------- The WaterMark Table for Hour --------
_____________________________________________
Value : 309, ts : [Wed, 31 Oct 2012 13:15:24 GMT]
Value : 222, ts : [Wed, 31 Oct 2012 16:00:00 GMT]
Value : 169, ts : [Thu, 01 Nov 2012 13:00:30 GMT]
Value : 111, ts : [Thu, 01 Nov 2012 20:10:40 GMT]
Value : 101, ts : [Fri, 01 Nov 2012 17:20:00 GMT]
================================================
```

Step 4 **show sip-ua history stats message-rate**

Displays the incoming SIP messages for Cisco UBE. This following sample output displays in a histogram format the incoming SIP messages for the last 60 seconds, 60 minutes, and 72 hours.

Example:

```
Device# show sip-ua history stats message-rate

      111111111111111111111111111111111111111111111111111111111111111
      212322221322221222312312313222131322122232132222231213132132
```

```
  20
  19
  18
  17
  16
  15
  14
  13    *     *        *  *  * *    * *      *  *     *   * *  *
  12 * ****** ***** **** ** ** **** * *** ***** ******* * * ** **
  11 ************************************************************
  10 ************************************************************
    0....5....1....1....2....2....3....3....4....4....5....5....6
              0    5    0    5    0    5    0    5    0    5    0
          SIP messages switching rate (last 60 seconds)
         # = SIP Messages entering the module per second


     1111111111111111111111111111111111111111111111111111111111
     3433333333333333333422223242322222222222222222222222222222
  20
  19
  18
  17
  16
  15
  14  *                *      *
  13 ******************    * * *
  12 ###*############################################################
  11 ############################################################
  10 ############################################################
    0....5....1....1....2....2....3....3....4....4....5....5....6
              0    5    0    5    0    5    0    5    0    5    0
         SIP messages switching rate (last 60 minutes)
         * = maximum sip messages/s    # = average sip messages/s



     114                             225
     224                             652
 100
  90
  80
  70
  60
  50                                   *
  40   *                               *
  30   *                              ***
  20   *                              *##
  10 ###                              ###
    0....5....1....1....2....2....3....3....4....4....5....5....6....6....7..
              0    5    0    5    0    5    0    5    0    5    0    5    0
         SIP messages switching rate (last 72 hours)
         * = maximum sip messages/s    # = average sip messages/s
```

Step 5 **show cube calls called-number** *called-number*

Displays the call IDs, calling number, and total number of RTP sessions associated with the called number.

Example:

```
Device# show cube calls media called-number 8000

called number: 8000  info are as the following:
============================================================
============================================================
Phone number 8000 has the following callID associated to it:
============================================================
```

```
callID: 5120, calling number: 2000
callID: 5121, calling number: 2000
============================================================
A total of 2 rtp sessions for number 8000
============================================================
```

Step 6 **show cube global**

Displays an overview of the static configurations related to Cisco UBE.

Example:

```
Device# show cube global

This command consolidates the output from the following commands:
---------------------------------------------------------------------
         show voip rtp high-availability stats
         show sccp all
         show dspfarm all
         show diag
         show redundancy

------------------ show diag ------------------


Slot 0:
        C2951 Mother board 3GE, integrated VPN and 4W Port adapter, 4 ports
        Port adapter is analyzed
        Port adapter insertion time 1w0d ago
        EEPROM contents at hardware discovery:
        PCB Serial Number        : FOC16065YF2
        Hardware Revision        : 1.1
        Part Number              : 73-11836-07
        Top Assy. Part Number    : 800-30793-05
        Board Revision           : B0
        Deviation Number         : 122364
        Fab Version              : 03
        Product (FRU) Number     : CISCO2951/K9
        Version Identifier       : V05
        CLEI Code                : CMMBM00ARC
        Processor type           : C8
        Chassis Serial Number    : FGL161011YC
        Chassis MAC Address      : 442b.0371.9720
        MAC Address block size   : 96
        Manufacturing Test Data  : 00 00 00 00 00 00 00 00
        EEPROM format version 4
        EEPROM contents (hex):
          0x00: 04 FF C1 8B 46 4F 43 31 36 30 36 35 59 46 32 40
          0x10: 06 15 41 01 01 82 49 2E 3C 07 C0 46 03 20 00 78
          0x20: 49 05 42 42 30 88 00 01 DD FC 02 03 CB 8C 43 49
          0x30: 53 43 4F 32 39 35 31 2F 4B 39 89 56 30 35 20 D9
          0x40: 04 40 C1 CB C2 C6 8A 43 4D 4D 42 4D 30 30 41 52
          0x50: 43 09 C8 C2 8B 46 47 4C 31 36 31 30 31 31 59 43
          0x60: C3 06 44 2B 03 71 97 20 43 00 60 C4 08 00 00 00
          0x70: 00 00 00 00 00 F3 00 03 40 01 63 FF FF FF FF FF
          0x80: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0x90: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xA0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xB0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xC0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xD0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xE0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0xF0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
        Internal Power Supply information
        Top Assy. Part Number    : 341-0226-03
        Deviation Number         : 0
        PCB Serial Number        : DCA1552K3AE
        RMA Test History         : 00
        RMA Number               : 0-0-0-0
```

```
RMA History              : 00
Version Identifier       : V03
Product (FRU) Number     : PWR-2921-51-AC
CLEI Code                : 0000000000
Board Revision           : A0
EEPROM format version 4
EEPROM contents (hex):
  0x00: 04 FF 40 05 E2 DF 45 01 55 00 E2 03 88 00 00 00
  0x10: 00 C1 8B 44 43 41 31 35 35 32 4B 33 41 45 03 00
  0x20: 81 00 00 00 00 04 00 89 56 30 33 20 CB 8E 50 57
  0x30: 52 2D 32 39 32 31 2D 35 31 2D 41 43 C6 8A 30 30
  0x40: 30 30 30 30 30 30 30 30 F3 00 59 41 01 22 42 00
  0x50: 05 F8 00 50 01 F3 18 3B 02 F0 19 D9 03 E8 1B 76
  0x60: 04 E2 1C 49 05 D9 1D 1B 06 D8 1D ED 07 CF 1E BF
  0x70: 08 CE 1F 40 09 C2 1F B8 0A B8 20 34 0B B7 20 B0
  0x80: 0D AF 21 0C 0F 9F 21 67 11 91 21 94 13 87 21 C0
  0x90: 17 6E 21 DB 1B 57 21 EA 1F 3F 21 E2 23 28 21 D4
  0xA0: 27 0A 21 CD 42 41 30 FF FF FF FF FF FF FF FF FF
  0xB0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0xC0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0xD0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0xE0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0xF0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

PVDM Slot 0:
32-channel (G.711) Voice/Fax PVDM3 DSP DIMM PVDM daughter card
Hardware Revision        : 1.0
Part Number              : 73-11577-03
Board Revision           : C0
Deviation Number         : 0
Fab Version              : 03
PCB Serial Number        : FOC16093RJM
RMA Test History         : 00
RMA Number               : 0-0-0-0
RMA History              : 00
Processor type           : 00
Product (FRU) Number     : PVDM3-32
Version Identifier       : V01
EEPROM format version 4
EEPROM contents (hex):
  0x00: 04 FF 40 05 D9 41 01 00 82 49 2D 39 03 42 43 30
  0x10: 88 00 00 00 00 02 03 C1 8B 46 4F 43 31 36 30 39
  0x20: 33 52 4A 4D 03 00 81 00 00 00 00 04 00 09 00 CB
  0x30: 8F 50 56 44 4D 33 2D 33 32 20 20 20 20 20 20 20
  0x40: 89 56 30 31 20 D9 02 40 C1 FF FF FF FF FF FF FF
  0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
  0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

WIC Slot 3:
HWIC CSU/DSU WAN daughter card
Hardware Revision        : 1.0
Board Revision           : 01
Deviation Number         : 0-0
Fab Version              : 02
PCB Serial Number        : FHH1132004E
RMA Test History         : 00
RMA Number               : 0-0-0-0
RMA History              : 00
Processor type           : 02
Top Assy. Part Number    : 800-28804-01
Product (FRU) Number     : HWIC-1DSU-T1
Version Identifier       : V01
CLEI Code                : TBD
EEPROM format version 4
EEPROM contents (hex):
  0x00: 04 FF 40 05 8A 41 01 00 42 30 31 80 00 00 00 00
  0x10: 02 02 C1 8B 46 48 48 31 31 33 32 30 30 34 45 03
  0x20: 00 81 00 00 00 00 04 00 09 02 C0 46 03 20 00 70
  0x30: 84 01 CB 8C 48 57 49 43 2D 31 44 53 55 2D 54 31
  0x40: 89 56 30 31 00 D9 02 40 C1 C6 8A 54 42 44 00 00
```

```
          0x50: 00 00 00 00 00 FF FF FF FF FF FF FF FF FF FF FF
          0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
          0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Slot 1:
        Services Module with Services Ready Engine Port adapter, 1 port
        Port adapter is analyzed
        Port adapter insertion time 1w0d ago
        EEPROM contents at hardware discovery:
        Hardware Revision        : 1.0
        Part Number              : 73-13642-01
        Top Assy. Part Number    : 800-35252-01
        Board Revision           : B0
        Deviation Number         : 0
        Fab Version              : 04
        PCB Serial Number        : FOC160308Z3
        RMA Test History         : 00
        RMA Number               : 0-0-0-0
        RMA History              : 00
        Product (FRU) Number     : SM-SRE-910-K9
        Version Identifier       : V01
        CLEI Code                : IPUCA2VBTA
        Manufacturing Test Data  : 00 00 00 00 00 00 00 00
        EEPROM format version 4
        EEPROM contents (hex):
          0x00: 04 FF 40 07 2D 41 01 00 82 49 35 4A 01 C0 46 03
          0x10: 20 00 89 B4 01 42 42 30 88 00 00 00 00 02 04 C1
          0x20: 8B 46 4F 43 31 36 30 33 30 38 5A 33 03 00 81 00
          0x30: 00 00 00 04 00 CB 8D 53 4D 2D 53 52 45 2D 39 31
          0x40: 30 2D 4B 39 89 56 30 31 20 D9 03 40 C1 CB C6 8A
          0x50: 49 50 55 43 41 32 56 42 54 41 C4 08 00 00 00 00
          0x60: 00 00 00 00 F3 00 06 40 0B E3 43 00 32 FF FF FF
          0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF


Embedded Service Engine 0/0 :
  Total platform memory : 1048576K bytes
  Total 2nd core memory : 0K bytes
  Start of physical address for 2nd core : 0x20000000
  Number of blocks of memory for 2nd core : 1
  2nd core configured disabled
  L2 cache ways for 2nd core : 0


------------------ show voip rtp high-availability stats ------------------

------------
ACTIVE stats
------------
RTP HA ACTV
(per call leg):     add       mod        del
--------------- ---------- ---------- ----------
                         0          0          0

ACTIVE call-leg stats:


-------------
STANDBY stats
-------------
RTP HA STBY
(per call leg):     add     mod-chg   mod-nochg  del-RBTreeEnt del-freeGccb
--------------- ---------- ---------- ---------- ------------- -------------
                         0          0          0             0             0

STANDBY call-leg stats:


---------------------
STANDBY session stats
---------------------
```

```
RTP HA STBY
(per call):    add        mod        del
---------- ---------- ---------- ----------
                    0          0          0

STANDBY call session stats:


------------------ show sccp all ------------------

SCCP Admin State: DOWN
Gateway Local Interface: None
IP Precedence: 5
User Masked Codec list: None
There is no CCM group configured.

Total number of active session(s) 0, and connection(s) 0


Total number of active session(s) 0, and connection(s) 0


Total number of active session(s) 0, connection(s) 0, and callegs 0

SCCP Application Service(s) Statistics Summary:
Total Conferencing Sessions: 0, Connections: 0
Total Transcoding Sessions: 0, Connections: 0
Total MTP Sessions: 0, Connections: 0
Total ALG-Phone Sessions: 0, Connections: 0
Total BRI-Phone Sessions: 0, Connections: 0
Total SCCP Sessions: 0, Connections: 0
Total Video Conferencing Sessions: 0, Connections: 0
Total Video Transcoding Sessions: 0, Connections: 0


 Total active sessions 0, connections 0, rsvp sessions 0
Statistic                  Count
-------------------------  -----------
Send queue enqueue error   0
Socket send error          694
Msgs discarded upon error  704


------------------ show dspfarm all ------------------

Total number of DSPFARM DSP channel(s) 0


------------------ show redundancy ------------------


Redundant System Information :
------------------------------
       Available system uptime = 0 minutes
Switchovers system experienced = 0
              Standby failures = 0
        Last switchover reason = unsupported

                 Hardware Mode = Simplex
             Maintenance Mode = Disabled
               Communications = Down      Reason: Failure

Current Processor Information :
-------------------------------
               Active Location = slot 0
        Current Software state = ACTIVE
       Uptime in current state = 1 week, 2 hours, 10 minutes
                 Image Version = Cisco IOS Software, C2951 Software (C2951-UNIVERSALK9-M), Version
15.3(BENELLI_PI21_DEV_CBAS_20120903)T, EARLY DEPLOYMENT DEVELOPMENT BUILD, synced to
BEGIN_PI21_SRTG_UC_INDIA
Copyright (c) 1986-2012 by Cisco Systems, Inc.
```

```
Compiled Mon 03-Sep-12 06:40 by nshivamu
                         BOOT = flash0:c2951-universalk9-mz.SSA.BENELLI_PI21_DEV_20120903,1;
        Configuration register = 0x2102

Peer (slot: 0) information is not available because it is in 'DISABLED' state


------------------ show redundancy application group all ------------------


------------------ show redundancy state ------------------

       my state = 13 -ACTIVE
     peer state = 1  -DISABLED
           Mode = Simplex
        Unit ID = 0

     Maintenance Mode = Disabled
    Manual Swact = disabled (system is simplex (no peer unit))
 Communications = Down      Reason: Simplex mode

   client count = 12
 client_notification_TMR = 60000 milliseconds
          keep_alive TMR = 4000 milliseconds
        keep_alive count = 0
    keep_alive threshold = 7
           RF debug mask = 0x0


------------------ show redundancy inter-device ------------------

Redundancy inter-device not configured
```

Feature Information for Cisco UBE Serviceability

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for Cisco UBE Serviceability

Feature Name	Releases	Feature Information
Cisco UBE Serviceability	15.3(1)T	The Cisco UBE Serviceability feature captures the performance metrics of Cisco UBE periodically based on certain parameters and collects consolidated or filtered information of active calls and Cisco UBE-related configurations. The following commands were introduced or modified: **show call history stats**, **show call history watermark**, **show cube calls**, **show cube global**, **show sip-ua history**, **voice call duration monitor threshold**, and **voice watermark table-size**.
Cisco UBE Serviceability	For Cisco IOS XE Release 3.8S	The Cisco UBE Serviceability feature captures the performance metrics of Cisco UBE periodically based on certain parameters and collects consolidated or filtered information of active calls and Cisco UBE-related configurations. The following commands were introduced or modified: **show call history stats**, **show call history watermark**, **show cube calls**, **show cube global**, **show sip-ua history**, **voice call duration monitor threshold**, and **voice watermark table-size**.