

CP Call Summary Log

- Revision History, on page 1
- Feature Description, on page 1
- How it Works, on page 2
- Configuring Call Summary Log in CP, on page 9
- Monitoring and Troubleshooting, on page 10

Revision History

Note Revision history details are not provided for features introduced before release 21.24.

Revision Details	Release
With this release, new Sx-specific information are added in S-GW and P-GW event records.	21.24.1
First introduced	Pre 21.24

Feature Description

Call Summary Log is a mechanism using which subscriber activities like Session Creation/Deletion, Bearer Creation/Update/Deletion is reported to an external server.

When the Call Summary Log feature is enabled on the CUPS Control Plane (CP) node—where S-GW and/or P-GW records are generated depending upon SAEGW call type—generates events records and stores the records in chassis hard disk in CSV file format. The files are stored in .gz compressed format as well. These files are later SFTPed to external server for further analysis from network operator to maintain and troubleshoot the network.

This chapter captures the Call Summary Log feature for CUPS CP node. For information about Call Summary Log feature from CUPS User Plane (UP) node, see the *UPC CUPS User Plane Administration Guide*.

How it Works

S-GW Event Record

S-GW event reporting is a feature using which subscriber events like Session creation (PDN connect), Session deletion (PDN disconnect), Bearer Creation, Bearer Deletion, Bearer Modification and Bearer Update is reported to external SFTP server.

The interface between the S-GW and SFTP server is based on SFTP. Each record is generated as comma-separated ASCII values (CSV record). S-GW sends one ASCII formatted CSV record per line. The CSV records are stored in file and are compressed before sending to external SFTP server. The CSV records cannot be older than 15 minutes; therefore, the file needs to be SFTed to external SFTP server at least once in 15 minutes. The transfer of CSV record file between S-GW and SFTP server is based on either PULL or PUSH model. In PULL model, the external SFTP server is responsible for SFTP with S-GW. For PUSH model, S-GW is responsible for sending the CSV record file to external SFTP server based on the configured PUSH timer interval.

The following events trigger a record.

Event	Description
1	Session Creation
2	Session Deletion
3	Bearer Creation
4	Bearer Deletion
5	Bearer Modification (Suppress intra system handover)
6	Bearer Update

The report includes the following information in the CSV format:

No.	Description	Format Example
1	Event Identity	Integer [1-6]
2	Event Result (3GPP 29.274 Result Cause Code)	Integer [1-255]
3	IMSI	Integer (15 digits)
4	IMEISV	Intrger (16 digits)
5	Call-ID	Internal CallID. Example: [376efb10]
6	Start Time (GMT)	Time MM/DD/YYYY-HH:MM:SS
7	End Time (GMT)	Time MM/DD/YYYY-HH:MM:SS

No.	Description	Format Example
8	Protocol (GTPv2)	String GTPv2
9	Disconnect Reason	Integer [1-999]
10	Trigger Event (3GPP 29.274 request cause code)	Integer [1-6]
11	CP Name (Hostname)	String cisco.mnc311.mcc480.3gppnetwork.org
12	Origination Node Type	String (SGW|HSGW|PGW|…) SGW
13	EPS Bearer ID (Default)	Integer [1-15]
14	APN Name	String cisco.mnc311.mcc480.3gppnetwork.org
15	PGW IP Address	IPv4 or IPv6 Address
16	UE IPv4 Address	IPv4 Address
17	UE IPv6 Address	IPv6 Address
18	Uplink AMBR	Integer (0-4 Billion)
19	Downlink AMBR	Integer (0-4 Billion)
20	TAI-MCC/MNC/TAC	String(MCC;MNC;TAC) 311;480;0x5802
21	Cell ID (ECI)	String (8bytes) 0x158B33
22	EPS Bearer ID (Dedicated)	Integer (1-15)
23	Result Code (Success/Fail)	0=fail 1=success
24	QCI	Integer [1-255]
25	Uplink MBR	Integer (0-4 Billion)
26	Downlink MBR	Integer (0-4 Billion)
27	Uplink GBR	Integer (0-4 Billion)
28	Downlink GBR	Integer (0-4 Billion)
29	Downlink Packets Sent	Integer (0-4 Billion)
30	Downlink Bytes Sent	Integer (0-4 Billion)
31	Downlink Packets Dropped	Integer (0-4 Billion)

No.	Description	Format Example
32	Uplink Packets Sent	Integer (0-4 Billion)
33	Uplink Bytes Sent	Integer (0-4 Billion)
34	Uplink Packets Dropped	Integer (0-4 Billion)
35	MME S11 IP Address	IPv4 or IPv6 Address
36	S1u IP Address	IPv4 or IPv6 Address
37	User Plane IP Address	Contains User Plane IPv4 or IPv6 Address
38	Sx-PFCP Local SEID	Contains the SEID for CP node
39	Sx-PFCP Remote SEID	Contains the SEID for UP node
40	Sx-PFCP Cause Code	Contains the PFCP cause code
41	Sx-PFCP Response Time	Contains the PFCP transaction response time

P-GW Event Record

The P-GW generates the per call, per event call summary records with error or cause codes and latency information.

Currently, the feature supports the P-GW event records for the following six independent GTPv2 procedures.

Procedure Number	Procedure Name
1	GTP Create Session
2	GTP Create Bearer
3	GTP Delete Session
4	GTP Delete Bearer
5	GTP Modify Bearer
6	GTP Update Bearer
8…16	Diameter Procedures

The report includes the following information in the CSV format:

IE	Description	Definition or Format Example	Applicable Procedures (from Table above)
1	PGW RTT Record Number	<proclet-type>|<instance-id>|<RTT-record-#>	All
2	PGW RTT Version Number	Version 1 in v18.0	All
3	Procedure Number	Defined Table 1 (1 through 18)	All
4	PGW Name	Host Name of the Chassis	All

IE	Description	Definition or Format Example	Applicable Procedures (from Table above)
5	Procedure Start Time (GMT)	Time in UTC, (to ms accuracy)	All
6	Procedure End Time (GMT)	Time in UTC (to ms accuracy)	All
7	ASR5K CallID	Internal CallID. Example: [376efb10]	All
8…10	Reserved		
11	IMSI	Example: [311480076488840]	1
12	MSISDN	Example: [19728256305]	1, 5
13	IMEISV	Example: [9900028823793406]	1, 11, 15
14	TAI - MCC/MNC/TAC	Example: String [311-480-0x3B00]	1 through 6
15	Cell ID	ECI. Example: [0xE70D01]	1 through 6
16	ASR5K Disconnect Reason	Internal reason for session disconnect (e.g. timeout, error). Example: [0 to 533]	All (pending error)
17…20	Reserved		
21	Serving Network	MCC MNC. Example: [311480]	1, 5
22	Radio Access Technology	Defined in TS29.274. Example: [6 = E-UTRAN]	1, 5
23	Handover Indicator	HI field in Indication attribute; e.g. [0 = New PDN; 1 = Handover]	1, 5
24	SGW/HSGW TEID	Tunnel Identifier for Peer. Example: [0x26B609F0]	1, 2, 5
25	PGW TEID	Tunnel Identifier for PGW. Example: 0x084BC005	1, 2
26	AN GW Address	IP Address of Remote GW: HSGW or SGW	1, 2, 5
27	Access Point Name	String. Example: [vzwims.mnc311.mcc480.3gppnetwork.org]	1
28	Framed-IP Address	UE assigned IPv4 address	1
29	Framed-IPv6 Address	UE assigned IPv6 prefix/address	1
30	Uplink AMBR	In Kbps. Example: [0-4294967295]	1, 6
31	Downlink AMBR	In Kbps. Example: [0-4294967295]	1, 6
32	PCO DNS IPv6 Address – Primary	IPv6 Address	1
33	PCO DNS IPv6 Address - Secondary	IPv6 Address	1

IE	Description	Definition or Format Example	Applicable Procedures (from Table above)
34	PCO DNS IPv4 Address – Primary	IPv4 Address	1
35	PCO DNS IPv4 Address - Secondary	IPv4 Address	1
36	List of EPS Bearer IDs (Successful)	Each bearer Id shall be separated by a “|” Example: 1 | 3 | 5	1, 2, 4, 5, 6
37	Linked Bearer Identity	Example: [0-15]	2, 3, 4, 5
38	Uplink MBR	In Kbps. MBR. For example, 1234 | 3456 | 567 MBR of each bearer shall be separated by "|” and has same order as of IE 37 followed by 44	1, 6
39	Downlink MBR	Same as IE 38	1, 6
40	Uplink GBR	Same as IE 40	1, 6
41	Downlink GBR	Same as IE 41	1, 6
42	GTP Cause Value	Request/Acceptance/Rejection Cause, e.g. [1-255]	1 through 6
43	Piggyback Record Indicator	Explicit indication of piggyback message record, e.g. (0=no; 1=yes)	2, 5
44…50	Reserved		
51	Diameter IEs Session ID	Session-ID for Authentication Session, example, UTF8 String [0006-diamproxy.WSBOMAGJPNC. S6b.vzims.com; 21604107; 449305093; 536f9359-503]	7 to 18, 24
52	Auth-Application ID	Example [S6b = 16777999 , Gx = 16777238, Gy = 4]	7 to 18, 24
53	PGW-Host (Origin Host)	FQDN of PGW, example [0004-diamproxy. WSBOMAGJPNC. Gy.vzims. com]	7 to 18, 24
54	Diameter Peer Address Realm	FQDN of 3GPP AAA, PCRF OCS realm, example [Customerims.com]	7 to 18, 24
55	Dest Peer Host	FQDN of 3GPP AAA, PCRF, OCS host, example [njbbpcrf1a.vzims.com]	7 to 18, 24
56	CC Request Type	Example Enumerated [1-3, for I, U, T]	11, 12, 13, 15, 16, 17

IE	Description	Definition or Format Example	Applicable Procedures (from Table above)
57	CC Request Number	Example [0]	11, 12, 13, 15, 16, 17
58	Result Code	Diameter Result Code based on RFC3588, example [2001]	7 to 18, 24
59	Origin State ID	Example [1366695723]	7 through 18
60	Service Selection	AVP used for providing APN name for authorization, example [Customerinternet]	12 through 24
61	Charging Gateway Function Host	FQDN of CGF, e.g. [cgf1.NEE29.cisco.com]	5, 7
62	Charging Group ID	Charging ID of each bearer is separated by "|" in the order same as that of IE 37 followed by 44	5, 7
63	Server-Name (CSCF Address)	Only on IMS APN, example [pcscf1.CTX07.vzims.com]	7
64	Framed-pool	Pool name from which IPv4 address is to be allocated, example [int41]	7
65	Framed-IPv6-Pool	Pool name from which IPv6 prefix is to be allocated, example [ims61]	7
66	Auth-Request-Type	Based on TS29.273 and 29.212. Example Enumerated [1-3]	7 through 24
67	Re-Auth-Request-Type	Based on TS29.273 and 29.212. Example Enumerated [0-1]	8, 14 18
68	Diameter Termination Cause	Based on TS29.273 and 29.212. Example Enumerated [1-8]	9, 13, 17
69	QoS Class Identifier	QCI, example [8]	11, 12, 15, 16
70	IP-CAN Type	Example [5 = 3GPP-EPS]	11, 12, 14
71	Event Trigger	Based on TS29.212, Series of Pipe Delimited Triggers, example [1 = QOS_CHANGE]	11, 12
72	Event Trigger		
73	Charging-Rule-Remove	Name of the removed Charging rule, example String [RTRRule3300]	12
74	Charging-Rule-Install	Name of the installed Charging rule, example String[RTRRule3300]	11
75	Multiple Services Indicator	Based on TS32.299, example Enumerated [0-1]	15 16 17

IE	Description	Definition or Format Example	Applicable Procedures (from Table above)
76	Multiple Services Credit Control Rating-Group	Identifier of Rating Troup, example [3300]	15 16 17
77	Multiple Services Credit Control Granted Service Unit	CC-Total-Octets, example [524288000]	15
78	Reserved		
79	Reserved		
80	Reserved		
81 to 170	Not applicable to P-GW		
171	User Plane IP Address	Contains User Plane IPv4 or IPv6 Address	1 through 6
172	Sx-PFCP Local SEID	Contains the SEID for CP node	1 through 6
173	Sx-PFCP Remote SEID	Contains the SEID for UP node	1 through 6
174	Sx-PFCP Cause Code	Contains the PFCP cause code	1 through 6
175	Sx-PFCP Response Time	Contains the PFCP transaction response time	1 through 6

Sx-specific Fields

Following are the new Sx-specific information which are added in S-GW and P-GW event records on CP for CUPS.

S.No.	Description	Definition	Bytes
1	User Plane IP Address	Contains User Plane IPv4 or IPv6 address	7-55
2	Sx-PFCP Local SEID	Contains the SEID for CP node	8
3	Sx-PFCP Remote SEID	Contains the SEID for UP node	8

S.No.	Description	Definition	Bytes
4	Sx-PFCP Cause Code	Contains the PFCP cause code. This is per 3GPP specification 29.244 section 8.2.1. There can be multiple cause codes corresponding to one event record as multiple Sx transactions are involved. So, this is an array separated by "|". For example: 1|2|3	1-5
5	Sx-PFCP Response Time	Contains the Sx transaction response time in milliseconds. There are multiple Response time corresponding to one event record as multiple Sx transactions are involved. So, this is an array separated by "|". If response times-out, then fill -1	4-20

Configuring Call Summary Log in CP

Following is the event record framework CLI configuration for file creation, rotation, compression, and SFTP PUSH:

```
configure
   context context_name
      session-event-module event_module_name
        file name <ser> current-prefix <curr> rotation volume <xxxxx.. xxxxxxxx>
 rotation time <xx..xxxxx>  field-separator underscore include compression
gzip
        event { transfer-mode [ pull | push { primary { encrypted-url |
url } <value> [ { encrypted-secondary-url | secondary-url } ]
[{module-only}]]  | push-interval  <xx.. xxxx> | remove-file-after-transfer
 | use-harddisk }
        exit
   end
```

Configuring Call Summary Log in S-GW

To enable the S-GW event reporting, configure “reporting-action” under SGW service.

```
configure
   context context_name
      sgw-service service_name
         [ no | default ] reporting-action event-record
         end
```

Configuring Call Summary Log in P-GW

To enable the P-GW event reporting, configure “reporting-action” under APN.

```
configure
   context context_name
       apn apn_name
         [ no | default ] reporting-action event-record
         end
```

Verifying Call Summary Log Configuration in CP

Use the **show configuration** or **show config verbose** CLI command to verify if the feature is enabled. The following is a sample output of the command when reporting of event records is enabled.

```
config
  context context1
    apn apn1
    ...
    ...
    ...
      reporting-action event-record
```

Use the **show config verbose** CLI command to verify if the feature is disabled. The following is a sample output of the command when reporting event records is disabled.

```
config
  context context1
    apn apn1
    ...
    ...
    ...
      no reporting-action event-record
```

Monitoring and Troubleshooting

Show Command(s) and/or Outputs

This section provides information regarding show commands and/or their outputs in support of the CSL.

show session-event-module file-space-usage

The show command output displays the Event-Service module file space usage information.

```
CDRMOD Instance Id: 2

  Session-Event File Storage Limit                   : 33554432 bytes
  Session-Event File Storage Usage                   : 33554431 bytes
  Percentage of Session-Event file store usage : 100.000000
```

show session-event-module statistics

The show command output displays the Event-Service module counters and statistics.

```
CDRMOD Instance Id: 2

Session-Event Specific Statistics:
  Session-Event files rotated:                                    0
  Session-Event files rotated due to volume limit:  0
  Session-Event files rotated due to time limit:       0
  Session-Event files rotated due to records limit:  0
  Session-Event file rotation failures:                        0
  Session-Event files deleted:                                      0
  Session-Event records deleted:                                0
  Session-Event records received:                              0
  Current open Session-Event files:                           0
  Time of last Session-Event file deletion:                0

Session-Event Record Transfer Statistics:
  Successful File Transfers   :                    0
  Failed File Transfers       :                       0
  Num of times PUSH initiated :               0
  Num of times PUSH Failed    :                0
  Num of times PUSH cancelled
           due to HD failure :                          0
  Num of periodic PUSH        :                  0
  Num of manual PUSH          :                 0
  Current status of PUSH      :                  Not Running
  Last completed PUSH time    :              N/A
```

show event-record statistics pgw

Displays the statistics for the event records. Below is the sample output.

```
Total number of event records: 130
GTPv2 event records: 30
   CSR: 10    CBR: 20    DSR: 0
   DBR: 0     MBR:0      UBR: 0
Diameter event records: 100
S6b Procedures:
   AAR: 10               RAR: 5
   ASR: 5                STR: 5
Gx Procedures:
   CCR-I: 10               CCR-U: 10
   CCR-T: 10                RAR: 5
Gy Procedures:
   CCR-I: 10               CCR-U: 10
   CCR-T: 10                RAR: 10
```