S-GW Event Reporting

This chapter describes the record content and trigger mechanisms for S-GW event reporting. When enabled the S-GW writes a record of session events and sends the resulting event files to an external file server for processing. Each event is sent to the server within 60 seconds of its occurrence.

Note The S-GW Event Reporting feature is applicable to S-GW and SAEGW (Pure-S calls).

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Event Record Triggers

When properly configured, the S-GW creates and sends a record in CSV format as the session events listed below occur.

- ID 1: Session Creation
- ID 2: Session Deletion
- ID 3: Bearer Creation
- ID 4: Bearer Deletion
- ID 5: Bearer Modification
  - suppress intra-system handover
  - configurable enable active to idle transition event reporting

- ID 6: Bearer Update

The following guidelines apply to the above session events:

- A session refers to a PDN connection and the default bearer associated with it.
- Bearer events refer to dedicated bearers that have been created/deleted/updated/modified.
- Bearer modifications that are intra-S-GW and intra-MME are not be reported.
- Bearers and sessions that fail to setup are reported once in a session/bearer creation record with the result code set to failure.

Event Record Elements

Each event record includes the information documented in the table below in comma separated value (CSV) ASCII format. The elements are listed in the order in which they will appear. All record elements are not available for all event triggers. If a record element cannot be populated due to incomplete information, the element is omitted and the comma separation maintained.

The following guidelines apply to record elements:

- Byte/packet counters shall not be sent in session or bearer creation messages
- Byte/packet counters include packets and bytes sent or received since the last record created for that session or bearer.
- The S-GW will attempt to populate all record elements. Values that are unavailable will not be populated.

Table 1: S-GW Event Record Elements

Event Number	Description	Format	Size (bytes)	Applicable Event Numbers
1	Event identity (ID 1 – ID 6)	Integer [1-6]	1	All
2	Event Result (3GPP 29.274 Cause Code)	Integer [1-255]	3	All
3	IMSI	Integer (15 digits)	15	All
4	IMEISV	Integer (16 digits)	16	All
5	Callid	Integer (0-500000000000)	4	All
6	Start Time (GMT)	MM/DD/YYYY-HH:MM:SS:_MS (millisecond accuracy)	18	All
7	End Time (GMT)	MM/DD/YYYY-HH:MM:SS:_MS (millisecond accuracy)	18	2, 4
8	Protocol (GTPv2)	String	5	All
9	Disconnect code (ASR 5500)	Integer [1-999]	3	All
10	Trigger Event (3GPP 29.274 request cause code)	Integer [1-15]	3	All
11	Hostname	IPv4 or IPv6 address	255	All

Event Number	Description	Format	Size (bytes)	Applicable Event Numbers
12	Origination Node	String (CLLI)	10	All
13	Origination Node Type	String (SGW|HSGW|PGW|...)	3	All
14	EPS Bearer ID(Default)	Integer [0-15]	1 or 2	All
15	APN Name	String	34 to 255	All
16	PGW IP Address	IPv4 or IPv6 address	7 to 55	All
17	UE IPv4 Address	IPv4 address	7 to 15	All
18	UE IPv6 Address	IPv6 address	3 to 55	All
19	Uplink AMBR	Integer (0-4000000000)	1 to 10	All
20	Downlink AMBR	Integer (0-4000000000)	1 to 10	All
21	TAI - MCC/MNC/TAC	String (MCC;MNC;TAC)	14	All
22	Cell ID (ECI)	String (28 bits)	8	All
23	EPS Bearer ID (dedicated)	Integer (0-15)	1 or 2	21
24	Result Code (success/fail)	0=fail 1=success	1	All
25	QCI	Integer[1-255]	1 to 3	All
26	Uplink MBR (bps)	Integer (0-4000000000)	1 to 10	All
27	Downlink MBR (bps)	Integer (0-4000000000)	1 to 10	All
28	Uplink GBR (bps)	Integer (0-4000000000)	1 to 10	All
29	Downlink GBR (bps)	Integer (0-4000000000)	1 to 10	All
30	Downlink Packets Sent (interval)	Integer (0-4000000000)	1 to 10	2, 4, 5, 6
31	Downlink Bytes Sent (interval)	Integer (0-500000000000)	1 to 12	2, 4, 5, 6
32	Downlink Packets Dropped (interval)	Integer (0-500000000000)	1 to 12	2, 4, 5, 6
33	Uplink Packets Sent (interval)	Integer (0-500000000000)	1 to 12	2, 4, 5, 6
34	Uplink Bytes Sent (interval)	Integer (0-500000000000)	1 to 12	2, 4, 5, 6
35	Uplink Packets Dropped (interval)	Integer (0-4000000000)	1 to 10	2, 4, 5, 6
36	MME S11 IP Address	IPv4 or IPv6 address	7 to 55	All

Event Number	Description	Format	Size (bytes)	Applicable Event Numbers
37	S1u IP Address of eNodeB	IPv4 or IPv6 address	7 to 55	All

Active-to-Idle Transitions

This table below describes how active-to-idle transitions generate event records.

Table 2: Subscriber-initiated Attach (initial) Call Flow Description

Step	Description
1	UE becomes Active (via UE or NW initiated service request)
2	Session becomes idle.
3	S-GW acknowledges idle session.
4	Bearer modification event record is created, with the following fields: • Start Time: Use the start time of the idle-to-active transition • End Time: Use the timestamp of the idle time • Bytes up/Bytes down: Amount of data sent between transitions • Packets up/Packets down: Number of packets sent between transitions

3GPP 29.274 Cause Codes

Table 3: 3GPP 29.274 Cause Codes

Cause Value	Meaning
Request	
2	Local Detach
3	Complete
4	RAT changed from 3GPP to Non-3GPP
5	ISR deactivation
6	Error Indication received from RNC/eNodeB
Accept	
16	Request accepted
17	Request accepted partially

Cause Value	Meaning
18	New PDN type due to network preference
19	New PDN type due to single address bearer only
Reject	
64	Context Not Found
65	Invalid Message Format
66	Version not supported by next peer
67	Invalid length
68	Service not supported
69	Mandatory IE incorrect
70	Mandatory IE missing
71	Reserved
72	System failure
73	No resources available
74	Semantic error in the TFT operation
75	Syntactic error in the TFT operation
76	Semantic errors in packet filter(s)
77	Syntactic errors in packet filter(s)
78	Missing or unknown APN
79	Unexpected repeated IE
80	GRE key not found
81	Relocation failure
82	Denied in RAT
83	Preferred PDN type not supported
84	All dynamic addresses are occupied
85	UE context without TFT already activated
86	Protocol type not supported
87	UE not responding
88	UE refuses

Cause Value	Meaning
89	Service denied
90	Unable to page UE
91	No memory available
92	User authentication failed
93	APN access denied - no subscription
94	Request rejected
95	P-TMSI Signature mismatch
96	IMSI not known
97	Semantic error in the TAD operation
98	Syntactic error in the TAD operation
99	Reserved Message Value Received
100	Remote peer not responding
101	Collision with network initiated request
102	Unable to page UE due to Suspension
103	Conditional IE missing
104	APN Restriction type Incompatible with currently active PDN connection
105	Invalid overall length of the triggered response message and a piggybacked initial message
106	Data forwarding not supported
107	Invalid reply from remote peer
116 to 239	Spare. This value range is reserved for Cause values in rejection response message.
Sub-Causes	
NO_INFORMATION	
ABORTED_BY_SESSION_DELETION	
NO_RESPONSE_FROM_MME	
INTERNALLY_TRIGGERED	
BEARERS_IN_MULTIPLE_PDN_CONNECTIONS	
EXPECTED_BEARERS_MISSING_IN_MESSAGE	
UNEXPECTED_BEARERS_PRESENT_IN_MESSAGE	