Clear Subscriber Request

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	cnSGW-C
Applicable Platform(s)	SMI
Feature Default Setting	Enabled - Always-on
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2020.04

Feature Description

cnSGW-C handles the Clear Subscriber or the PDN Request from the Ops Center.

The Clear Subscriber Request initiates the administrative clearing of subscribers for a specific IMSI or all IMSIs using the local purge and remote signaling procedures.

Based on the OAM query, the cnSGW-C receives the Subscriber Notification message at REST-EP and triggers the Clear Subscriber Request message towards the SGW-Service.

Standards Compliance

This feature complies with the following standards specifications:

- *3GPP TS 23.401 "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access"*
- *3GPP TS 23.214 "Architecture enhancements for control and user plane separation of EPC nodes"*
- *3GPP TS 29.274 "3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3"*
- *3GPP TS 29.244 "Interface between the Control Plane and the User Plane nodes"*

How it Works

This section describes how this feature works.

When the cnSGW-C receives the admin-initiated Deletion Request with the purge option as “true”, it initiates Sx signaling towards User Plane and exchanges following messages:

1. SGW sends a Sx Session Deletion Request to User Plane.
2. User Plane sends a Sx Session Deletion Response SGW.

When cnSGW-C receives the Deletion Request with the purge option as “false”, it performs the Sx signaling towards User Plane and GTP-C signaling towards MME and PGW. The cnSGW-C exchanges the following messages with User Plane, MME, and PGW:

1. SGW sends the Sx Session Modification Request to the User Plane.
2. User Plane sends the Sx Session Modification Response to SGW.
3. SGW sends the Delete Bearer Request to MME.
4. SGW sends the Delete Session Request to PGW.
5. MME sends the Delete Bearer Response to SGW.
6. PGW sends the Delete Session Response to SGW.
7. SGW sends the Sx Session Deletion Request to User Plane.
8. User Plane sends the Sx Session Deletion Response to SGW.

cnSGW-C sends the Delete Session Request towards PGW and Delete Bearer Request towards MME. After receiving the response from both remote peers, the cnSGW-C sends Sx Session Deletion Request towards User Plane to clear the sessions.

Supported Clear Command

cnSGW-C supports the following clear commands:

Table 3: Supported Clear Commands

Supported Clear Command Options	GTP-C Signalling (Towards MME/PGW)	Sx Signalling (Towards UP)	Impact (Subscriber/PDN)
clear sub all **clear sub all purge false**	Yes	Yes	All subscribers
clear sub all purge true	No	Yes	All subscribers
• **clear sub namespace sgw imsi** *imsi_val* • **clear sub namespace sgw imsi***imsi_val***purge false**	Yes	Yes	Subscriber with IMSI as *imsi_val*
clear sub namespace sgw imsi*imsi_val***purge true**	No	Yes	Subscriber with IMSI as *imsi_val*
clear sub namespace sgw imsi*imsi_val***ebi***ebi_value*	Yes	Yes	PDN with IMSI as *imsi_val* and default ebi as *ebi_value*

Call Flows

This section describes the key call flows for this feature.

Clear PDN Call Flow

This section describes the Clear PDN call flow.

Figure 1: Clear PDN Call Flow

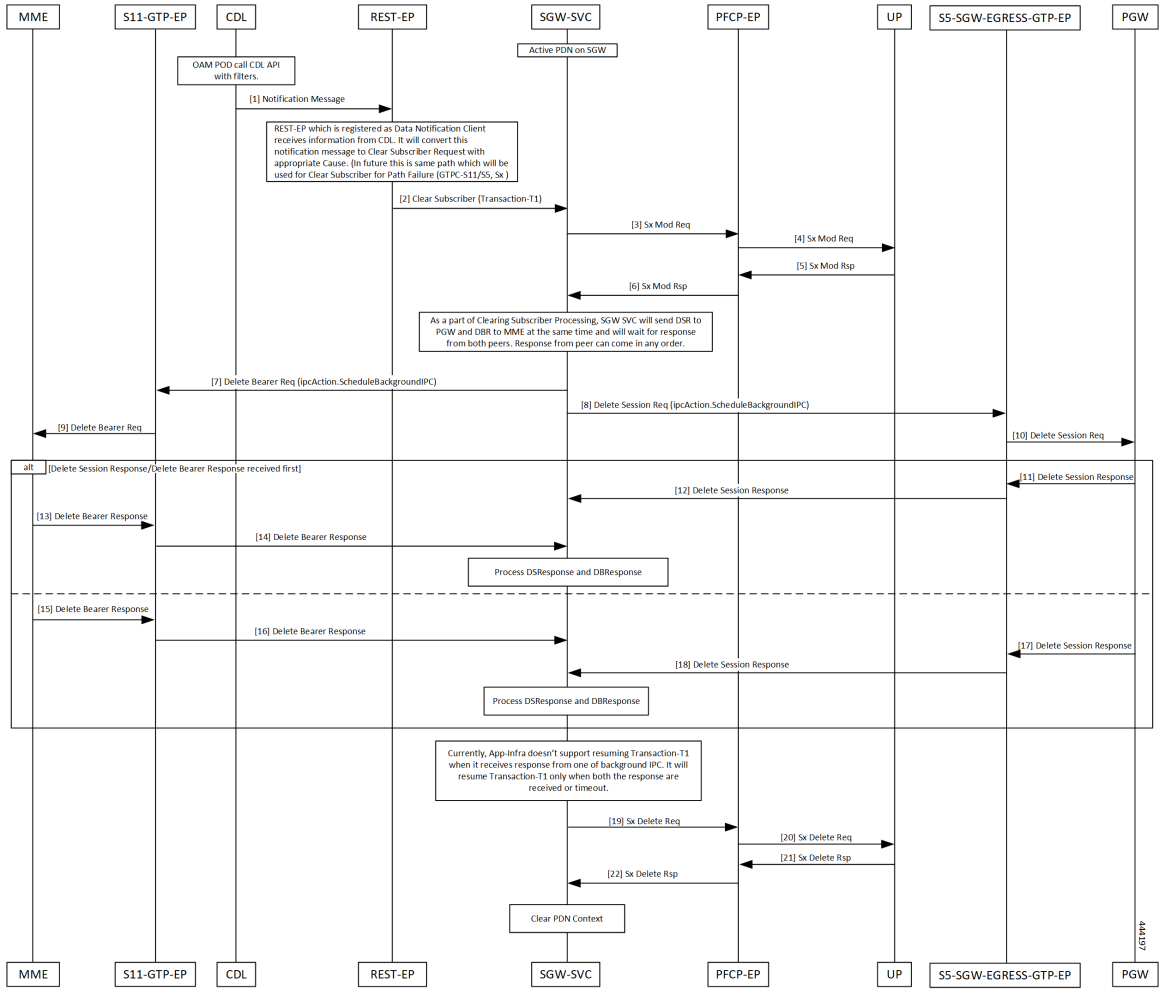

Table 4: Clear PDN Call Flow Description

Step	Description
1	The OAM pod calls the CDL API with the filters. CDL sends the notification message to REST EP.
2	The REST-EP converts this message to Clear Subscriber Request with a cause and sends Clear Subscriber to the SGW-Service pod. Transaction-T1 started.
3-6	The SGW-Service pod sends Sx Modification Request to UPF through PFCP-EP. The SGW-Service pod receives Sx Modification Response from UPF through PFCP-EP.
7	The SGW-Service pod sends the Delete Bearer Request to the S11-GTP-EP.
8	The SGW-Service pod sends the Delete Session Request to the S5-SGW-EGRESS-GTP-EP.

Step	Description
9	The S11-GTP-EP sends the Delete Bearer Request to MME.
10-12	The S5-SGW-EGRESS-GTP-EP sends the Delete Session Request to PGW. The PGW sends the Delete Session Response to S5-SGW-EGRESS-GTP-EP. The S5-SGW-EGRESS-GTP-EP forwards this request to the SGW-Service pod.
13-16	MME sends the Delete Bearer Response to S11-GTP-EP. S11-GTP-EP forwards to the SGW-Service pod.
17, 18	PGW sends the Delete Session Response to S5-SGW-EGRESS-GTP-EP. S5-SGW-EGRESS-GTP-EP forwards this request to the SGW-Service pod.
19-22	The SGW-Service pod sends the Sx Delete Request to PFCP-EP. The PFCP-EP forwards the request to UPF. UPF sends the Sx Delete Response to PFCP-EP, which it forwards it to the SGW-Service pod.