

# Delete Bearer and Delete Session 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

This feature supports the following:

- Deletion of Session Request from the MME
- Deletion of Bearer Request from the PGW

This deletion helps in clearing the PDN connection at the SGW, which in turn clears resources at the cnSGW-C, and releases all the relevant TEIDs.

## Delete from MME

1. cnSGW-C sends the Sx Modification Request to the User Plane (UP) to mark the forwarding action as DROP so that all uplink or downlink packets are dropped at the SGW-U.
2. cnSGW-C sends the Delete Session Request to the PGW/SMF.
3. After SGW receives the Delete Session Response from the PGW/SMF, cnSGW-C sends the Sx Terminate Request to the UP to clear the session.
4. After UP confirms the deletion of the SGW-U session, cnSGW-C releases the allocated ID by sending request to the Node Manager, and the Delete Session Response to the MME.

## Delete from PGW

1. cnSGW-C sends the Sx Modification Request to the UP to mark the forwarding action as DROP so that all the uplink and downlink packets are dropped at the SGW-U.
2. cnSGW-C sends the Delete Bearer Request to the MME.
3. After SGW receives the Delete Bearer Response from the MME, the cnSGW-C sends the Sx Terminate Request to the UP to clear the session.
4. After UP confirms the deletion of the SGW-U session, cnSGW-C releases the allocated ID by sending request to the Node Manager, and the Delete Bearer Response to the PGW.

## Standard Compliance

The Delete Bearer and Delete Session Request Support feature complies with the following standards:

- *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.

## Call Flows

This section describes the key call flows for this feature.

*Figure 1: Delete from MME Call Flow*

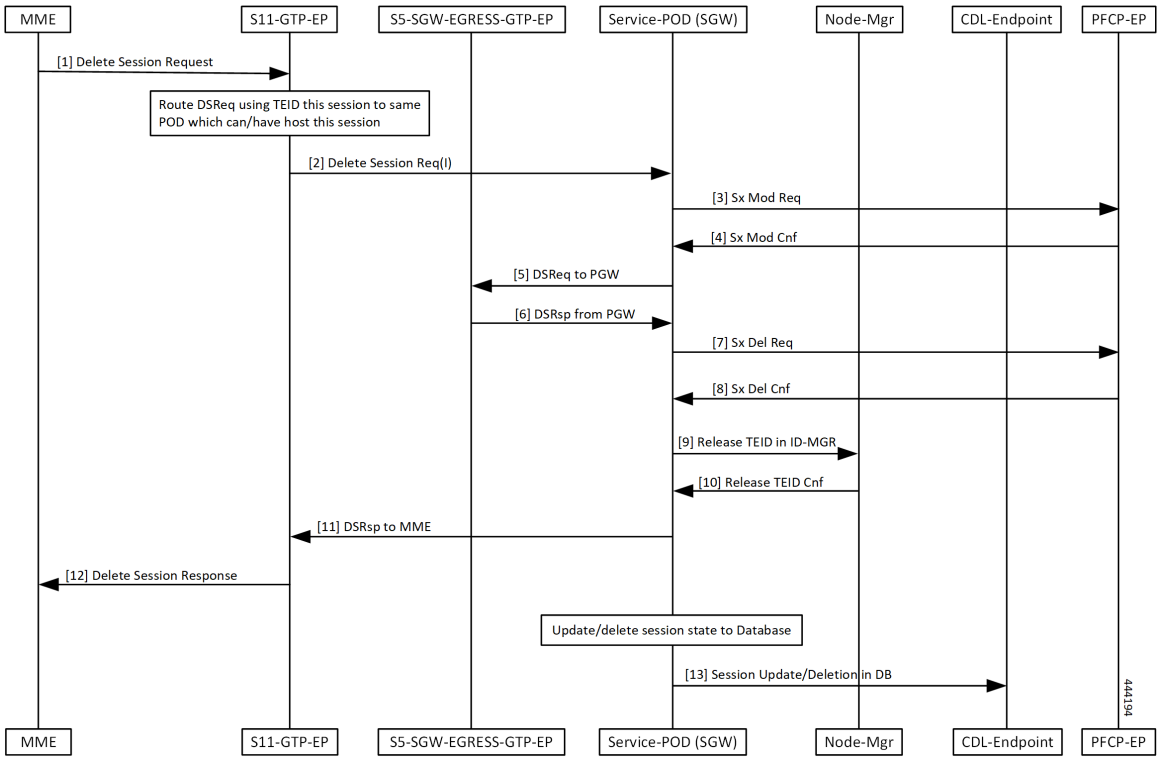



*Table 3: Delete from MME Call Flow Description*

| Step | Description |
|---|---|
| 1 | The MME sends the Delete Session Request to the S11-GTP-EP. |
| 2 | The S11-GTP-EP routes this message with TEID value to the Service-POD (SGW) which handles this session. |
| 3 | The Service-POD (SGW) sends the Sx Modification Request to PFCP-EP. |
| 4 | The PFCP-EP sends the Sx Modification Confirmation to the Service-POD (SGW). |
| 5 | The Service-POD (SGW) sends the Delete Session Request to the PGW through the S5-SGW-EGRESS-GTP-EP. |
| 6 | The Service-POD (SGW) receives the Delete Session Request from the PGW through the S5-SGW-EGRESS-GTP-EP. |
| 7 | The Service-POD (SGW) sends the Sx Delete Request to PFCP-EP. |
| 8 | The Service-POD (SGW) receives the Sx Delete Confirmation from PFCP-EP. |
| 9 | The Service-POD (SGW) sends Release TEID in ID-MGR to Node-Mgr. |
| 10 | The Service-POD (SGW) receives the Release TEID Confirmation from the Node-Mgr. |

| Step | Description |
|---|---|
| 11 | The Service-POD (SGW) sends the Delete Session Response to S11-GTP-EP. |
| 12 | The S11-GTP-EP sends the Delete Session Response to the MME. |
| 13 | The Service-POD (SGW) sends the Session Update or Delete in database message to the CDL. |

***Figure 2: Delete from PGW Call Flow***

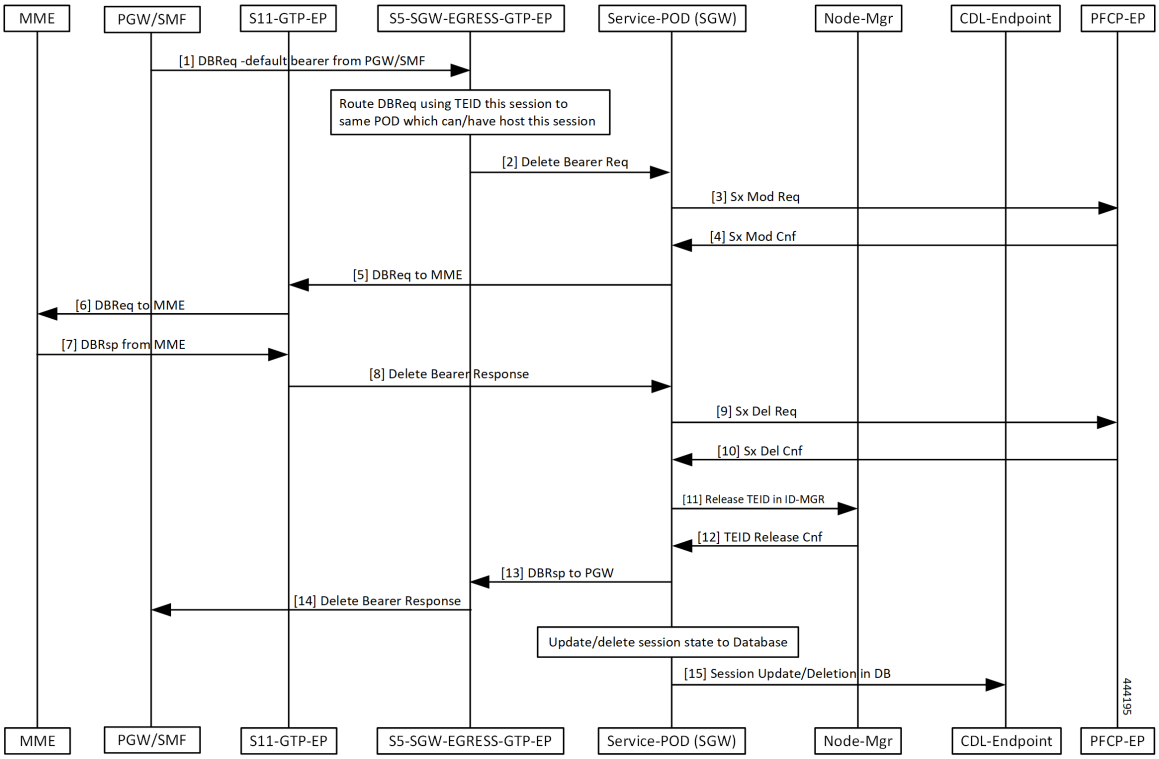



***Table 4: Delete from PGW Call Flow Description***

| Step | Description |
|---|---|
| 1 | The PGW/SMF sends the Delete Bearer Request to the S5-SGW-EGRESS-GTP-EP. |
| 2 | The S5-SGW-EGRESS-GTP-EP performs routing of this message with TEID value to the same pod that has hosted this session.<br>The S5-SGW-EGRESS-GTP-EP sends the Delete Bearer Request to the Service-POD (SGW). |
| 3 | The Service-POD (SGW) sends the Sx Modification Request to PFCP-EP and receives Sx Mod Cnf from it. |
| 4 | The PFCP-EP sends the Sx Modification Confirmation to the Service-POD (SGW). |
| 5 | The Service-POD (SGW) sends the Delete Bearer Request to the MME through the S11-GTP-EP. |
| 6 | The S11-GTP-EP forwards the Delete Bearer Request to the MME. |

| Step | Description |
|---|---|
| 7 | The MME sends the Delete Bearer Response to the S11-GTP-EP. |
| 8 | The S11-GTP-EP forwards the Delete Bearer Response to the Service-POD (SGW). |
| 9 | The Service-POD (SGW) sends the Sx Delete Request to the PFCP-EP. |
| 10 | The Service-POD (SGW) receives the Sx Delete Confirmation from the PFCP-EP. |
| 11 | The Service-POD (SGW) sends the Release TEID in ID-MGR to the Node-Mgr. |
| 12 | The Service-POD (SGW) receives the Release TEID Confirmation from the Node-Mgr. |
| 13 | The S11-GTP-EP sends the Delete Bearer Response to the PGW through S5-SGW-EGRESS-GTP-EP. |
| 14 | The S5-SGW-EGRESS-GTP-EP sends the Delete Bearer Response to the PGW/SMF. |
| 15 | The Service-POD (SGW) sends the Session Update or Delete in database message to the CDL. |