



# Modify Bearer Request Support

- [Feature Summary and Revision History, on page 1](#)
- [Feature Description, on page 1](#)
- [How it Works, on page 2](#)

## 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

| Revision Details  | Release   |
|-------------------|-----------|
| First introduced. | 2020.03.0 |

## Feature Description

cnSGW-C supports the MBR service request from MME to change the UE state from IDLE to ACTIVE. cnSGW-C supports the following service requests:

- UE-triggered service request without PGW interaction
- UE-triggered service request with PGW interaction

# How it Works

This section describes how this feature works.

The cnSGW-C performs the following actions while processing the UE-triggered service request:

- Sends the Sx Modification Request message to the UPF to:
  - Mark downlink Forwarding Action Rule (FAR) as forward.
  - Update the S1 eNodeB-F TEID information to UPF sends the downlink packets to eNodeB.
- After receiving the Sx Modify Response message from the UPF, cnSGW-C:
  - Sends the Modify Bearer Response message to MME.
  - Checks User Location Information (ULI) or UE time zone. For any change in the time zone, it sends Modify Bearer Request to PGW to update the TAI. The UE-triggered service request with PGW interaction request only considers ULI or UE time zone check.

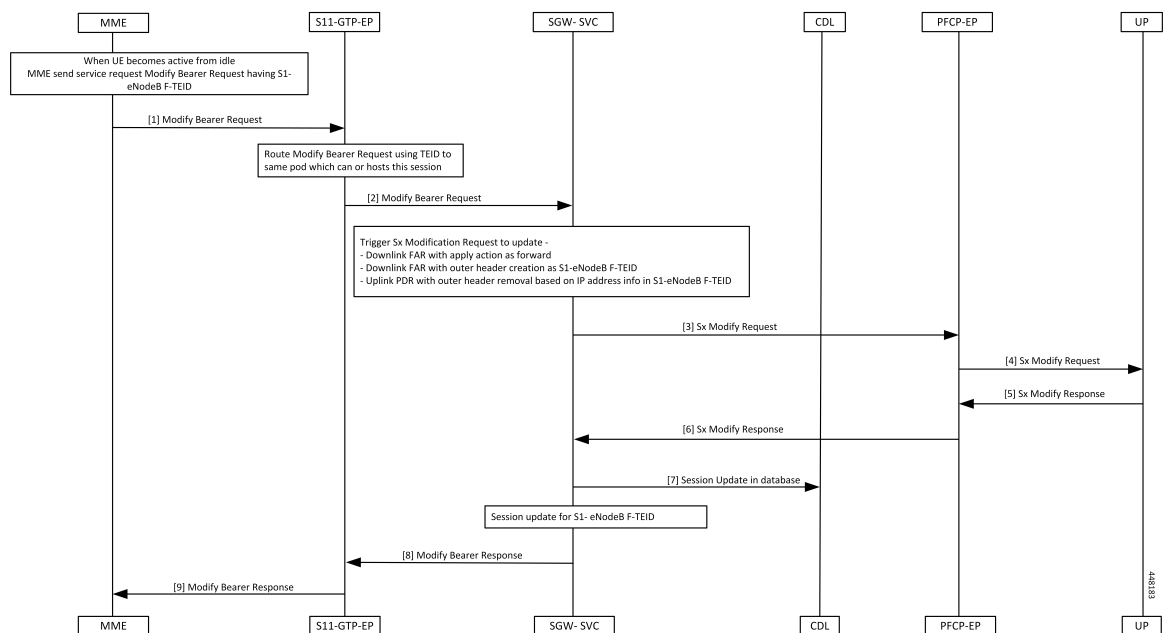
## Call Flows

This section describes the key call flows for this feature.

### UE-Triggered Service Request without PGW Interaction Call Flow

This section describes the UE-Triggered Service Request without PGW Interaction call flow.

**Figure 1: UE Triggered Service Request without PGW Interaction Call Flow**



**Table 2: UE Triggered Service Request without PGW Interaction Call Flow Description**

| Step | Description                                                                                                                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The MME sends the Modify Bearer Request message with s1-eNodeB F-TEID to cnSGW-C when the UE changes from IDLE to ACTIVE state.                                               |
| 2    | The S11-GTP-EP decodes the UDP message and converts it into gRPC message. This gRPC message is sent to the SGW-SVC pod (which can handle this UE session) using TEID.         |
| 3    | The SGW-SVC pod finds the subscriber context using the local ingress TEID.<br>The SGW-SVC pod sends the Modify Bearer Request content and sends Sx Modify Request to PFCP-EP. |
| 4    | The PFCP-EP sends Sx Modify Request message to UPF through the UDP proxy.                                                                                                     |
| 5    | The UPF process the Sx Modify Request message and sends Sx Modify Response message to PFCP-EP.                                                                                |
| 6    | The PFCP-EP sends the Sx Modify Response message to SGW-SVC pod.                                                                                                              |
| 7    | The SGW-SVC pod changes PDN into CONNECTED state and sends session update to CDL.<br>The CDL module updates the information in the database.                                  |
| 8    | The SGW-SVC pod sends the Modify Bearer Response message to the S11-GTP-EP.                                                                                                   |
| 9    | The S11-GTP-EP sends the Modify Bearer Response message to MME.<br>The MME processes the Modify Bearer Response message.                                                      |

## UE-Triggered Service Request with PGW Interaction Call Flow

This section describes the UE-Triggered Service Request with PGW Interaction call flow.

Figure 2: UE-Triggered Service Request with PGW Interaction Call Flow

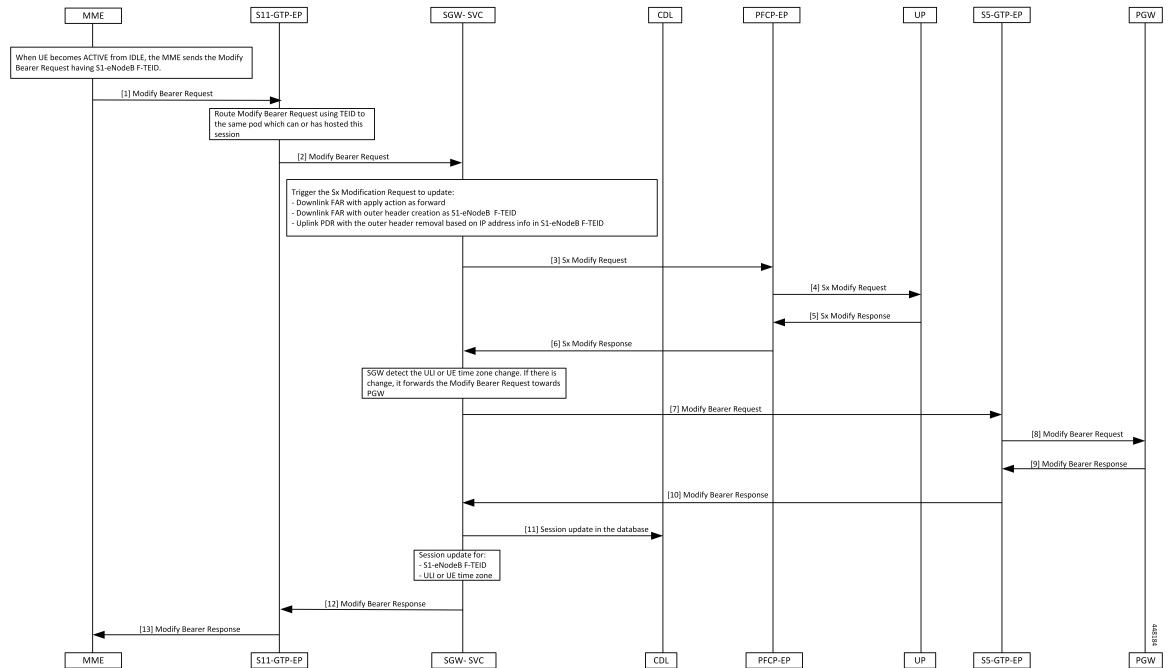


Table 3: UE-Triggered Service Request with PGW Interaction Call Flow description

| Step | Description                                                                                                                                                              |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The MME sends the Modify Bearer Request with s1-eNodeB F-TEID to cnSGW-C when the UE changes from the IDLE to ACTIVE state.                                              |
| 2    | The S11-GTP-EP decodes the UDP message and converts it into the gRPC message. This gRPC message is sent to the SGW-Service pod, which handles the UE session using TEID. |
| 3    | The SGW-Service pod finds the subscriber context using the local ingress TEID. It validates the Modify Bearer Request content and sends the Sx Modify Request to PCF-EP. |
| 4    | The PCF-EP sends the Sx Modify Request to the UPF through the UDP proxy.                                                                                                 |
| 5    | The UPF1 processes the Sx Modify Request and sends the Sx Modify Response message.                                                                                       |
| 6    | The PCF-EP sends the Sx Modify Response message to the SGW-Service pod.                                                                                                  |
| 7    | The SGW-Service pod detects ULI or UE time zone change and sends the Modify Bearer Request message to S5-GTP-EP.                                                         |
| 8    | The S5-GTP-EP sends the Modify Bearer Request message to the PGW.                                                                                                        |
| 9    | The PGW processes the Modify Bearer Request message and sends the Modify Bearer Response message.                                                                        |
| 10   | The S5-GTP-EP sends the Modify Bearer Response message to the SGW-Service pod.                                                                                           |

| Step | Description                                                                                                                                    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 11   | The SGW-Service pod moves PDN into the CONNECTED state and sends the update to CDL.<br>The CDL module updates the information in the database. |
| 12   | The SGW-Service pod sends the Modify Bearer Response message to the S11-GTP-EP.                                                                |
| 13   | The S11-GTP-EP sends the Modify Bearer Response message to the MME.<br>The MME processes the Modify Bearer Response message.                   |

