



# MME Bearer Request Message During Handover Process

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## Feature Summary and Revision History

### Summary Data

Applicable Product(s) or Functional Area	MME
Applicable Platform(s)	<ul style="list-style-type: none"><li>• ASR 5000</li><li>• ASR 5500</li><li>• VPC-DI</li><li>• VPC-SI</li></ul>
Feature Default	Disabled - Configuration Required
Related Changes in This Release	Not applicable
Related Documentation	<ul style="list-style-type: none"><li>• <i>Command Line Interface Reference</i></li><li>• <i>MME Administration Guide</i></li><li>• <i>Statistics and Counters Reference</i></li></ul>

### Revision History

Revision Details	Release
In this release, MME supports the <b>current Nb of UBR's buffered at MME app</b> statistics in the active mme-service configuration and supports dynamic activation of MME bearer request message during handover process.	21.23.20
In this release, MME supports: <ul style="list-style-type: none"> <li>• EGTPC buffering when UBR arrives between Create Session Request and Response sequence.</li> <li>• If dedicated bearer information is present both the delayed ERAB and MBC procedures are triggered allowing the remaining bearer details from the stored UBR to be sent to the UE.</li> </ul>	21.21
First introduced	21.20

## Overview

In MME, there are Key Performance Index (KPI) failures seen in the GTPv2 Update Bearer Request messages received during the 3G-to-4G Handover/TAU procedures.

To overcome this issue, a globally enabled flag is used as an entry in the MME Service to improve the KPI success rate of GTPv2 Update Bearer Request failures during the following 3G-to-4G Handover/TAU procedures:

- Gn/Gp SGSN to MME Tracking Area Update procedure
- Gn/Gp SGSN to MME combined hard handover and SRNS relocation procedure

When enabled, if an Update Bearer Request (UBR) message is received during the Gn/Gp procedures the UBR is stored, and an Update Bearer Response with “Request Accepted” cause code 16 is sent back to the SGW. On completion of the Gn/Gp procedure, if a UBR is stored the MME (depending on other events) sends a delayed E-RAB Modify Request message to the eNB using the QoS details in the stored UBR.



**Note** The delayed E-RAB Modify procedure is non-3GPP compliant behavior. This procedure is non-3GPP compliant and is not designed to be enabled dynamically. If configured dynamically, it could interfere with UE's in mid bearer modification procedures and cause adverse affects. Hence, this feature should only be enabled during system start-up from saved CLI configuration.

## How It Works

If an update bearer request is received during a Gn/Gp Handover /TAU procedure instead of discarding the message (if it arrives in between a Create Session Request/Response sequence) or responding with a

“Temporarily rejected due to handover/TAU/RAU procedure in progress” cause code 110, a successful response with cause code 16 is sent, and the UBR is stored for later E-RAB modification processing.

The new feature is active through the CLI flag. After receiving an Update Bearer Request, MME sends a bearer response with Cause Code 16 as "Request Accepted" to the SGW and then stores the Update Bearer Request for processing it later once the 3G-to-4G Handover/TAU procedure is completed.

Once the Gn/Gp Handover/TAU procedure is completed, if there is no "HSS Initiated Subscribed QoS Modification" procedure-based modify bearer command to process, a delayed E-RAB Modify procedure is performed towards the eNB/UE. It ensures that the eNB/UE's QoS parameters are in sync with the MME/SGW/PGW using the information in the stored update bearer request. If the modify bearer command message fails (either via a modify bearer failure Indication or re-transmission timeout) then the delayed E-RAB modify procedure is performed to ensure the eNB/UE's QoS parameters are in sync with the MME/SGW/PGW.




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**Important** If dedicated bearer information is present both the delayed ERAB and MBC procedures are triggered allowing the remaining bearer details from the stored UBR to be sent to the UE.

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If any error occurs during the delayed E-RAB Modify procedure towards the eNB/UE, the MME performs a "UE Context Release Command" procedure towards the eNB/UE, to rectify the error situation.

## Updating Bearer Response During 3G to 4G GnGp HO and TAU Process

Use the following configuration to update the bearer response during 3G to 4G GnGp HO and TAU process:

```
configure
  context context_name
    mme-service mme_service_name
      [ no ] buffer-ubreq-from-3g-to-4g
  end
```

## Show Commands and Outputs

### show update-bearer-request-stats

The output of this command displays the update bearer Response Cause Code (CC16) statistics during HO/3G-4G TAU:

The output of this command includes the following fields:

- **Forced\_UBResp\_CC16\_during\_HO\_3G\_4G\_TAU\_TX** – Displays the total number of counts of update bearer response during 3G-4G GnGp HO TAU and TX process.
- **Current Nb of UBRs buffered at mme app** – Displays current number of UBR buffered at MME application.



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**Note** The above two statistics will not be recovered after session manager restart. Hence these counters will be reset after a session manager restart.

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**show mme-service *mme\_service\_name***

The output of this command displays the configuration of all MME services:

- **buffer-ubreq-from-3g-to-4g** – Displays the enabled and disabled bearer response during 3G-4G GnGp HO and TAU process.

**show mme-service all**

The output of this command displays the configuration of all MME services:

- **buffer-ubreq-from-3g-to-4g** – Displays the enabled and disabled bearer response during 3G-4G GnGp HO and TAU process.