Dedicated Core Networks on MME

This chapter describes the Dedicated Core Networks feature in the following sections:

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	MME
Applicable Platform(s)	• ASR 5500 • VPC-DI • VPC-SI
Feature Default	Enabled - Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	• *Command Line Interface Reference* • *MME Administration Guide* • *Statistics and Counters Reference*

Revision History

Revision Details	Release
In release 21.16, the DECOR feature is enhanced to support UE Usage type updated by ULA.	21.16

Revision Details	Release
In release 21.14, the DECOR feature is enhanced to support: • P-GW Selection based on ULAs UE Usage Type • Usage Type Deletion by DSR flag support added.	21.14
In release 21.8, the DECOR feature is enhanced to support: • Association of DCNs to a specific RAT Type under call-control-profile • Association of multiple DCN profiles (to designate dedicated or default core network) under call-control-profile • DNS selection of S-GW / P-GW / MME / S4-SGSN/ MMEGI lookup for specified UE Usage Type or DCN-ID • DIAMETER_AUTHENTICATION_DATA_UNAVAILABLE result code for the S6a (HSS) interface • When UE moves from a service area where DCN is not used to another area where DCN is supported, then MME does not receive the UE-Usage-Type from peer. In this case, MME will do an explicit AIR towards HSS for UE-Usage lookup.	21.8
The enhancements to the DECOR feature in release 21.6 are fully qualified.	21.7
In release 21.6, the DECOR feature is enhanced to support: • DNS based MMEGI selection • DCN-ID IE in Attach/TAU Accept and GUTI Reallocation Command message towards UE • DCN-ID IE in INITIAL UE MESSAGE from eNodeB • HSS initiated DCN reselection • MME initiated DCN reselection • Network sharing with same MMEGI for different PLMNs • Network sharing with different MMEGIs for different PLMNs • Served DCNs Items IE in S1 Setup Response and MME Configuration Update messages towards eNodeBs	21.6
First introduced.	21.4

Feature Description

The Dedicated Core (DECOR) Networks feature allows an operator to deploy one or more dedicated core network within a PLMN, with each core network dedicated for a specific type of subscriber. The specific dedicated core network that serves a UE is selected based on subscription information and operator

configuration, without requiring the UEs to be modified. This feature aims to route and maintain UEs in their respective DCNs.

The DECOR feature can either provide specific characteristics and functions to the UE or subscriber, or isolate them to a UE or subscriber. For example, Machine-to-Machine (M2M) subscribers, subscribers belonging to a specific enterprise or separate administrative domain, and so on.

UE Usage type Update by ULA command

Dedicated Core selection for UE usage type can be delivered either by Subscription Data of ULA or in AIA according to 3GPP TS 23.401. MME processes the UE Usage Type only in AIA, with release 21.16 re-routing the NAS message by UE Usage Type from ULA is supported. This feature is CLI controlled and disabled by default.

Overview

Dedicated Core Networks (DCN) enable operators to deploy multiple core networks consisting of one or more MME/SGSN and optionally one or more S-GW/P-GW/PCRF.

If a network deploys a DCN selection based on both LAPI indication and subscription information (MME/SGSN), then DCN selection based on the subscription information provided by MME/SGSN overrides the selection based on the Low Access Priority Indication (LAPI) by RAN.

A new optional subscription information parameter, **UE Usage Type**, stored in the HSS, is used by the serving network to select the DCNs that must serve the UE. The operator can configure DCNs and its serving UE Usage Type as required. Multiple UE Usage Types can be served by the same DCN. The HSS provides the UE Usage Type value in the subscription information of the UE to the MME/SGSN/MSC. The serving network chooses the DCN based on the operator configured (UE Usage Type to DCN) mapping, other locally configured operator's policies, and the UE related context information available at the serving network.

Note One UE subscription can be associated only with a single UE Usage Type, which describes its characteristics and functions.

External Interfaces

The following components are enhanced to support the DECOR feature on the MME:

DNS

S-GW or P-GW Selection

MME performs S-GW or P-GW selection from DCNs serving UE Usage Type or DCN-ID, based on the configuration in the decor profile.

The existing service parameters of the SNAPTR records are enhanced by appending the character string "+ue-<ue usage type>" or "+ue-<dcn-id>" to the "app-protocol" name identifying the UE usage type(s) or DCN-ID for which the record applies.

For example: S-GW service parameter — x-3gpp-sgw:x-s11+ue-1.10.20 will represent the S-GW which is part of a DCN serving UE usage types or DCN-ID 1, 10, and 20.

For example: P-GW service parameter — x-3gpp-pgw:x-s5-gtp+ue-1.10.20:x-s8-gtp+ue-1.10.20 will represent the P-GW which is part of a DCN serving UE usage types or DCN-ID 1, 10, and 20.

MMEGI Retrieval

MME uses local configuration for MMEGI corresponding to the UE Usage Type and DNS SNAPTR procedures.

The configuration options for static (local) or DNS or both are provided under decor-profile. If both options are enabled, then DNS is given preference. When DNS lookup fails, static (local) value is used as fallback.

To retrieve the MMEGI identifying the DCN serving a particular UE usage type, the SNAPTR procedure uses the Application-Unique String set to the TAI FQDN. The existing service parameters are enhanced by appending the character string "+ue-<ue usage type>" or "+ue-<dcn-id>" to the "app-protocol" name identifying the UE usage type for which the discovery and selection procedures are performed.

For example: MME will discover the MMEGI for a particular UE usage type or DCN-ID by using the "Service Parameters" of "x-3gpp-mme:x-s10+ue-<ue usage type>" or "x-3gpp-mme:x-s10+ue-<dcn-id>". The service parameters are enhanced to identify the UE usage type(s) for which the record applies. The MMEGI will be provisioned in the host name of the records and MMEGI will be retrieved from the host name.

MME or S4-SGSN Selection

To perform MME/S4-SGSN selection from the same DCN during handovers, the existing service parameters are enhanced by appending the character string "+ue-<ue usage type>" or "+ue-<dcn-id>" to the "app-protocol" name identifying the UE usage type.

If the MME fails to find a candidate list for the specific UE Usage Type, it falls back to the legacy DNS selection procedure.

For example:

For an MME to find a candidate set of target MMEs — "x-3gpp-mme:x-s10+ue-<ue usage type>" or "x-3gpp-mme:x-s10+ue-<dcn-id>"

For an MME to find a candidate set of target SGSNs — "x-3gpp-sgsn:x-s3+ue-<ue usage type>" or "x-3gpp-sgsn:x-s3+ue-<dcn-id>"

Note I-RAT handovers between MME and Gn-SGSN is not supported in this release.

S6a (HSS) Interface

To request the UE Usage Type from HSS, MME sets the "Send UE Usage Type" flag in the AIR-Flags AVP, in the AIR command.

The AIR-Flag is set only if the **decor s6a ue-usage-type** CLI command is enabled under MME-service or Call-Control-Profile.

HSS may include the UE-Usage-Type AVP in the AIA response command in the case of DIAMETER_SUCCESS or DIAMETER_AUTHENTICATION_DATA_UNAVAILABLE result code. MME will store the UE Usage Type in the UE context for both the result codes.

GTPv2 (MME or S4-SGSN)

MME supports the UE Usage Type IE in Identification Response, Forward Relocation Request, and Context Response Messages. If the subscribed UE Usage Type is available, it will be set to the available value, otherwise the MME encodes the length field of this IE with 0.

Similarly, MME will parse and store the UE Usage Type value when received from the peer node.

How It Works

MME obtains the UE Usage type and determines the MMEGI that serves the corresponding DCN.

The MME then compares this MMEGI with its own MMEGI to perform a reroute or process further. In case of reroute, the request message is redirected to the appropriate MME. Refer to the ATTACH/TAU Procedure, on page 7 call flow for more information.

The following deployment scenarios are supported when DECOR is enabled on the MME:

- MME can be deployed where the initial request is sent by RAN (eNodeB) when sufficient information is not available to select a specific DCN.
- MME can be deployed as a part of DCN to serve one or more UE Usage Types.
- MME can be deployed as part of a Common Core Network (CCN) or Default Core Network, to serve UE Usage Types for which specific DCN is not available.

Note An MME can service initial RAN requests and also be a part of a DCN or a CCN. However, a particular MME service can only belong to one DCN or CCN within a PLMN domain.

The Dedicated Core Network implements the following functionalities on the MME:

- NAS Message Redirection
- ATTACH and TAU and Handover Procedures
- UE Usage Type support on S6a and GTPv2 interfaces
- S-GW/P-GW DNS selection procedures with UE Usage Type or DCN-ID
- MME/S4-SGSN selection procedures with UE Usage Type or DCN-ID during handovers
- Roaming
- Network Sharing
- DNS based MMEGI selection with UE-Usage-Type or DCN-ID
- DCN ID Support
- HSS/MME initiated DCN reselection
- When UE moves from a service area where DCN is not used to another area where DCN is supported, then MME does not receive the UE-Usage-Type from peer. In this case, MME will do an explicit AIR towards HSS for UE-Usage lookup.

Flows

This section describes the call flows related to the DECOR feature.

- P-GW Selection based on ULAs UE Usage Type, on page 6
- UE Assisted Dedicated Core Network Selection, on page 6
- NAS Message Redirection Procedure, on page 6
- ATTACH/TAU Procedure, on page 7
- HSS Initiated Dedicated Core Network Reselection, on page 10

P-GW Selection based on ULAs UE Usage Type

MME considers only the UE Usage Type received in ULA for gateway selection and UUT (UE Usage Type) received from peer MME/SGSN including reroute scenarios or in AIA message from HSS or locally configured UUT will not be considered. This feature can disabled or enabled by CLI, It is disabled by default.

UE Assisted Dedicated Core Network Selection

The UE assisted Dedicated Core Network Selection feature selects the correct DCN by reducing the need for DECOR reroute by using DCN-ID sent from the UE and DCN-ID used by RAN.

1. The DCN-ID will be assigned to the UE by the serving PLMN and is stored in the UE per PLMN-ID. Both standardized and operator specific values for DCN-ID are acceptable. The UE will use the PLMN specific DCN-ID whenever it is stored for the target PLMN.
2. The HPLMN may provision the UE with a single default standardized DCN-ID that will be used by the UE only if the UE has no PLMN specific DCN-ID of the target PLMN. When a UE configuration is changed with a new default standardized DCN-ID, the UE will delete all stored PLMN specific DCN-IDs.
3. The UE provides the DCN-ID to RAN at registration to a new location in the network, that is, in Attach, TAU, and RAU procedures.
4. RAN selects the serving node MME based on the DCN-ID provided by UE and configuration in RAN. For E-UTRAN, the eNodeB is conveyed with DCNs supported by the MME during setup of the S1 connection in S1 Setup Response.

UE Usage Type Deletion by DSR Flag

MME processes the User Equipment (UE) Usage Type if it is set in Dynamic Source Routing flag in the Delete Subscriber data at the Home Subscriber Server. MME initiates the 3GPP standard(23.401 section 5.19.3) procedure to redirect Network Access Storage (NAS)/UE if necessary.

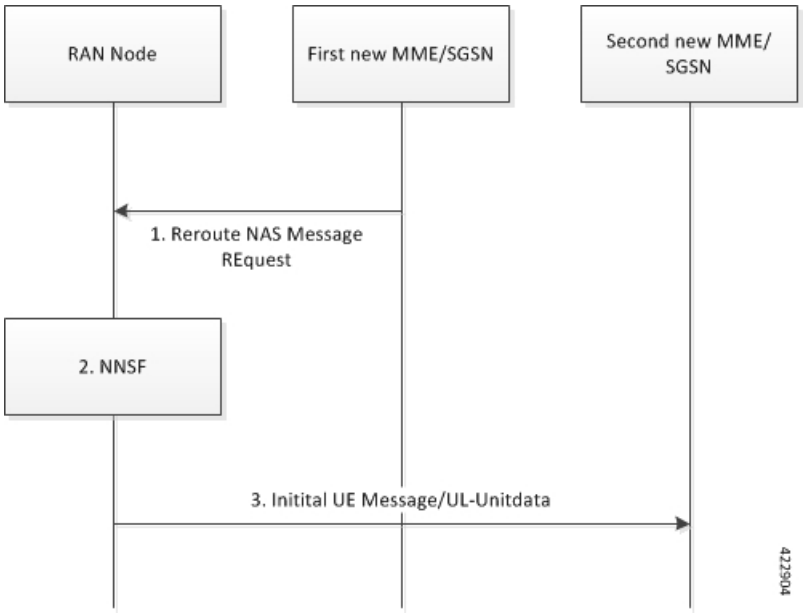
NAS Message Redirection Procedure

Reroute NAS message is used to reroute a UE from one CN node to another CN node during Attach, TAU, or RAU procedure. This is also used by the MME/SGSN or HSS initiated Dedicated Core Network Reselection procedure.

When the first MME determines the UE Usage Type, it fetches the DCN configuration serving the UE and the corresponding MMEGI (from configuration or DNS). If the MME's MMEGI is not the same as the MMEGI of the DCN, MME moves the UE to another MME using the NAS messaging redirection procedure.

The following call flow illustrates the NAS Message Redirection procedure:

Figure 1: NAS Message Redirection Procedure

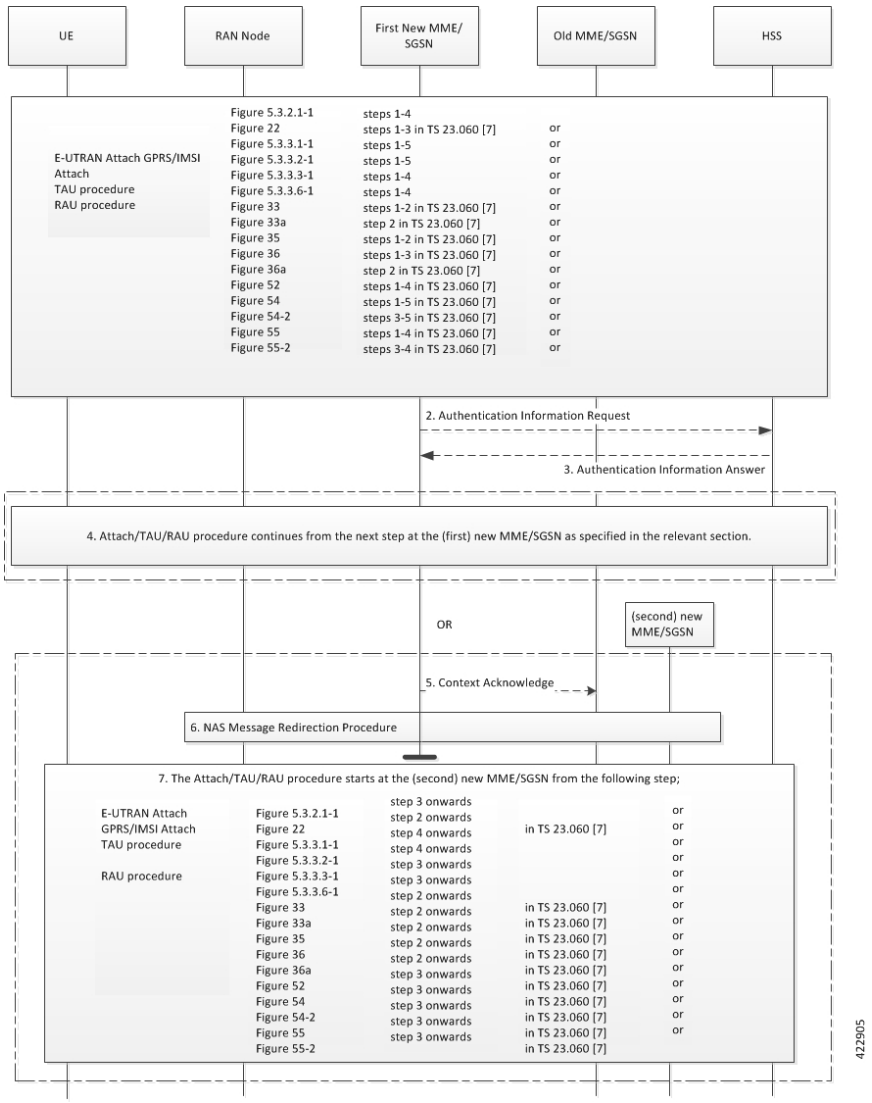


Step	Description
1	The first new MME sends a Reroute NAS Message Request to eNodeB including UE Usage Type and MMEGI among other parameters.
2	RAN selects a new MME based on MMEGI. If no valid MME can be obtained from MMEGI, it selects MME from the CCN or forwards to the same first MME.
3	The second new MME determines from the MMEGI field if the incoming request is a re-routed NAS request or not. Now, if the received MMEGI belongs to the second MME, the call is serviced, else the call is rejected. No further rerouting is performed. If the UE Usage Type is received by the second MME, it is used for S-GW/P-GW selection.

ATTACH/TAU Procedure

The following figure illustrates a detailed flow of the ATTACH or TAU procedure.

Figure 2: ATTACH and TAU Procedure



Step	Description
1	In the RRC Connection Complete message transferring the NAS Request message, the UE provides the DCN-ID, if available. If the UE has a PLMN specific DCN-ID. the UE provides this value and if no PLMN specific DCN-ID exists, then the pre-provisioned default standardized DCN-ID will be provided, if pre-provisioned in the UE. The RAN node selects a DCN and a serving MME/SGSN within the network of the selected core network operator based on the DCN-ID and configuration in the RAN node. The NAS Request message is sent to the selected node. The DCN-ID is provided by the RAN to the MME/SGSN together with the NAS Request message.

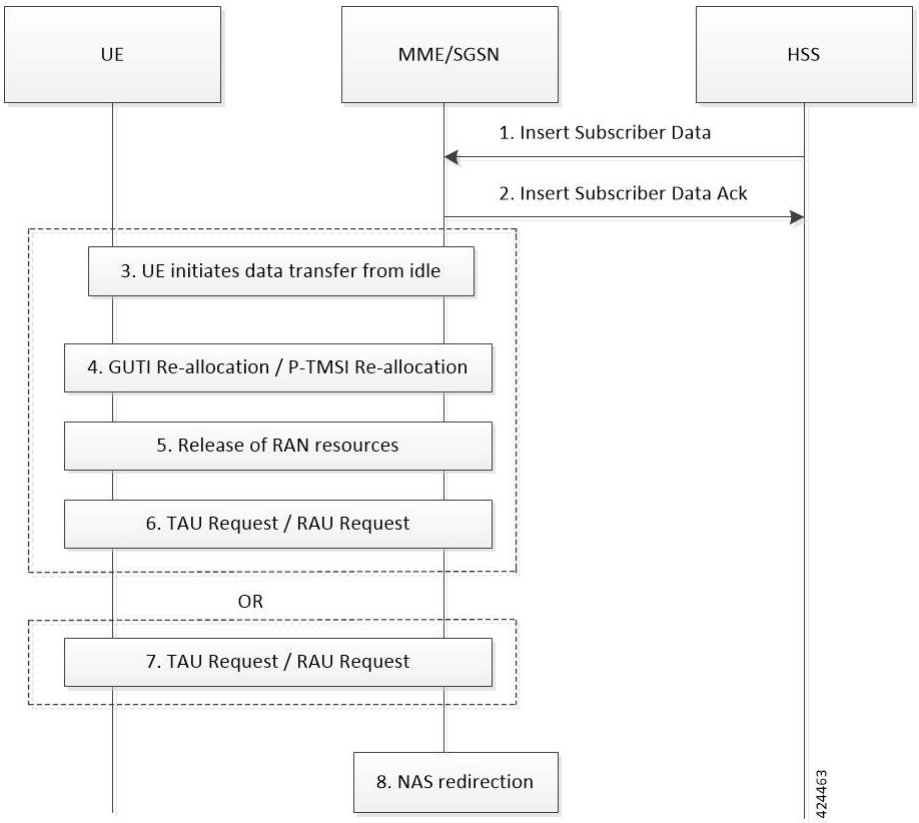
Step	Description
2	The first new MME does not receive the MMEGI from eNodeB. The MME determines the UE Usage Type as follows: **1.** It may receive the UE Usage Type from the peer MME/S4-SGSN. **2.** It may determine from the locally available UE context information. **3.** It sends an AIR message to the HSS requesting the UE Usage Type by adding the parameter "Send UE Usage Type" flag in the message. If authentication vectors are available in the database or received from peer, MME will not send the Immediate-Response-Preferred flag in the AIR message. **4.** It may determine from the local configuration.
3	When UE Usage Type is available, and if the MME has to send an AIR message to the HSS to fetch authentication vectors, then the “Send UE Usage Type” flag is not set in the AIR message.
4	The first new MME determines to handle the UE: **1.** When there is a configured DCN and the first new MME belongs to the MMEGI serving the DCN. **2.** It will continue with the call flow. **3.** The MME/SGSN sends the DCN-ID, if available, for the new DCN to the UE in the NAS Accept message. The UE updates its stored DCN-ID parameter for the serving PLMN if DCN-ID for serving PLMN is changed.
5	The first new MME determines to reject the UE: **1.** When UE Usage Type is available but without a matching DCN. **2.** The NAS message is rejected with parameters (for example: T3346 backoff timer) such that the UE does not immediately re-initiate the NAS procedure.
6	The first new MME determines to reroute the UE: **1.** When there is a configured DCN and the first new MME does not belong to the MMEGI. **2.** The first new MME sends a Context Acknowledge message with cause code indicating that the procedure is not successful. The old MME/SGSN will continue as if Context Request was never received. **3.** The first new MME performs the NAS redirection procedure and the request may be routed by RAN to a second new MME.
7	The second new MME determines to handle the UE or reject it; the MME does not perform another re-route. The process of handling the UE or rejecting the UE is similar to the procedure used in the case of the first new MME. The second new MME does not fetch the UE Usage Type from HSS. It is received either from the RAN node or the old MME.

HSS Initiated Dedicated Core Network Reselection

This procedure is used by the HSS to update (add, modify, or delete) the UE Usage Type subscription parameter in the serving node. This procedure may result in change of serving node of the UE.

The following call flow illustrates the HSS Initiated DCN Reselection procedure.

Figure 3: HSS Initiated Dedicated Core Network Reselection Procedure



Step	Description
1	The HSS sends an Insert Subscriber Data Request (IMSI, Subscription Data) message to the MME. The Subscription Data includes the UE Usage Type information.
2	The MME updates the stored Subscription Data and acknowledges the Insert Subscriber Data Request message by returning an Insert Subscriber Data Answer (IMSI) message to the HSS. The procedure ends if the MME/SGSN continues to serve the UE.

Step	Description
As per this callflow, one of the following steps occur: • Steps 3 through 6 occur in case the UE is already in connected mode or UE enters connected mode by initiating data transfer. • Step 7 occurs in case the UE is in idle mode and performs a TAU/RAU procedure. **Important** Paging is not supported in this release. If the UE is in idle mode, MME waits until the UE becomes active.	
3	The UE initiates NAS connection establishment either by uplink data or by sending a TAU/RAU Request.
4	The MME triggers the GUTI re-allocation procedure and includes a non-broadcast TAI.
5	The MME releases RAN resources and UE is moved to idle mode.
6	The non-broadcast TAI triggers the UE to immediately start the TAU procedure. The MME receives the TAU Request message.
7	The UE performs a TAU request. The MME receives the TAU Request message
8	The MME triggers the NAS Message redirection procedure to redirect the UE if: • the UE Usage Type for the UE has been added or modified and if it is not served by the MME • the UE Usage Type has been withdrawn from the HSS subscription data and subscriptions without UE Usage Type are not served by the MME **Note** HSS Initiated UE Usage Type withdrawal is not supported. The addition or change in usage type is supported.

Impact to Handover Procedures

This section describes the impact during handover procedures:

- In a forward relocation request, the source MME includes the UE-Usage-Type, if available.
- If an S-GW needs to be relocated, MME applies the UE-Usage-Type or DCN-ID based DNS selection, that is similar to the Attach/TAU procedure.
- MME or S4-SGSN selection during handover considers UE-Usage-Type or DCN-ID.
- The following two scenarios apply to DCNs deployed partially or heterogeneously:
  - Handover from service area where DCN is not used to an area where DCN is supported. In this case, MME does not receive the UE-Usage-Type from peer and MME does an Explicit AIR towards HSS for UE-Usage lookup.
  - The target MME or SGSN obtains the UE-Usage-Type information from the HSS during the subsequent TAU or RAU procedure.

- If the target MME/SGSN determines that the S-GW does not support the UE-Usage-Type, the target MME/SGSN must trigger the S-GW relocation as part of the handover procedure. S-GW relocation is not supported in this release.
- If the target MME/SGSN does not serve the UE-Usage-Type, the handover procedure must complete successfully and the target MME initiates the GUTI re-allocation procedure with non-broadcast TAI to change the serving DCN of the UE.

Roaming

MME in the visited PLMN provides an operator policy that allows to serve a UE whose home PLMN does not support DCNs. MME also provides operator policies that support the UE Usage Type parameter received from the HPLMN HSS.

Network Sharing

MME supports DCN selection based on the selected PLMN information received from the UE.

Limitations

The DECOR feature has the following limitations:

- Only one MMEGI can be configured per DCN.
- DCN deployments as part of a PLMN is not supported. The ability to configure DCN for a set of TAI/TAC is not supported.
- HSS Initiated UE usage type withdrawal is not supported. Only change in UE usage type is supported.
- DCNs can be deployed partially or heterogeneously.
  - The target MME or SGSN obtains the UE Usage Type information from the HSS during the subsequent TAU or RAU procedure. If the target MME/SGSN determines that the S-GW does not support the UE Usage Type, the target MME/SGSN must trigger the S-GW relocation as part of the handover procedures.

    In this release, S-GW relocation is not supported.

Standards Compliance

The DECOR feature complies with the following standards:

- 3GPP 23.401 Release 14.5.0 - General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access
- 3GPP 29.272 Release 14.6.0 - Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Diameter applications; 3GPP specific codes and identifiers

- 3GPP 29.274 Release 14.5.0 - Universal Mobile Telecommunications System (UMTS); LTE; 3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3
- 3GPP 29.303 Release 14.3.0 - Universal Mobile Telecommunications System (UMTS); LTE; Domain Name System Procedures; Stage 3

Configuring DECOR on MME

This section describes the CLI commands to configure the DECOR feature.

This feature supports the following configurations:

- DCN profile with
  - UE-Usage-Type
  - Static MMEGI
  - DNS lookup for MMEGI
  - PLMN
  - DCN-ID
  - Relative Capacity for the served DCN
  - DNS Service parameters using UE Usage Type or DCN-ID for S-GW / P-GW / MME / S4-SGSN selection / MMEGI lookup using DNS
- Associate DCNs to a specific RAT Type under MME service
- Associate multiple DCN profiles (to designate dedicated or default core network) under MME service
- Associate DCNs to a specific RAT Type under Call-Control-Profile
- Associate multiple DCN profiles (to designate dedicated or default core network) under Call-Control-Profile
- Non-broadcast TAI
- Request UE-Usage-Type from HSS on S6a interface
- UE-Usage-Type per IMSI/IMEI range

Configuring custom-actions ula gw-selection

Use the following configuration to enable GW selection based on UUT received in ULA.

```
configure
  mme-service mme_service_name
     [ no ] decor custom-actions ula gw-selection
     end
```

NOTES:

- **no**: Removes the DECOR configuration.
- **decor**: Specifies the DECOR configuration.
- **custom-actions** : Configures specific decor actions.
- **ula** :Configure UUT actions in ULA message
- **gw-selection**: Enables GW selection based on UUT received in ULA.

Configuring DECOR Profile

Use the following configuration to create and configure a DECOR profile by specifying the MMEGI hosting the DCN and the associated UE usage type using that DCN.

```
configure
  [ no ] decor-profile profile_name [ -noconfirm ]
    dcn-id dcn_id
    dns service-param ue-usage-type
    [ no ] mmegi { mmegi_value | dns }
    plmn-id mcc mcc_id mnc mnc_id
    served-dcn [ relative-capacity capacity ]
    [ no ] ue-usage-types num_ue_usage_types
    no { dcn-id | dns service-param | plmn-id | served-dcn }
    end
```

NOTES:

- **decor-profile** *profile_name*: Configures the DECOR feature as deployed by operator. A DECOR profile without any UE Usage Types configuration is treated as a Common Core Network. *profile_name* must be an alphanumeric string of 1 through 63 characters.

  Entering the **decor-profile** *profile_name* command results in the following prompt and changes to the Decor Profile Configuration mode:

  ```
  [context_name]host_name(config-decor-profile-<profile_name>)#
  ```

- **dns service-param ue-usage-type**: Configures the service parameter to select peer nodes using UE Usage Type or DCN-ID for S-GW / P-GW / MME / S4-SGSN / MMEGI lookup using DNS.
  - **service-param**: Configures the service parameter types used for DNS peer lookup.
  - **ue-usage-type**: Configures the UE Usage type that will be used for DNS service parameter.
  - For UE Usage Type based DECOR configuration:
    - If only UE-USAGE-TYPE is configured, DNS lookup uses UE-USAGE-TYPE.
    - If only DCN-ID is configured, DNS lookup uses DCN-ID without **dns service-param ue-usage-type** CLI command or UE-USAGE-TYPE with **dns service-param ue-usage-type** CLI (default profile).
    - If both UE-USAGE-TYPE and DCN-ID are configured, DCN-ID is used without **dns service-param ue-usage-type** CLI command or UE-USAGE-TYPE with **dns service-param ue-usage-type** CLI command.
    - If both UE-USAGE-TYPE and DCN-ID are not configured, DNS lookup uses UE-USAGE-TYPE (default profile).

- **dcn-id** *dcn_id*: Configures the DCN identifier for the specified DECOR profile. *dcn_id* must be an integer from 0 to 65535.
- **mmegi {** *mmegi_value* **| dns }**: Identifies the MME Group Identifier (MMEGI) of the configured DCN. *mmegi_value* must be an integer from 32768 to 65535.

  dns: Enables DNS for MMEGI retrieval using UE Usage Type.

  The **mmegi dns** command will work only when the **dns peer-mme** command is enabled under MME-service.
- **plmn-id mcc** *mcc_id* **mnc** *mnc_id*: Configures the PLMN identifier for the specified DECOR profile. This supports network sharing with different MMEGIs for different PLMNs.

  mcc *mcc_id*: Configures the mobile country code (MCC) for the specified DECOR profile. *mcc_id* must be a 3-digit number between 000 to 999.

  mnc *mnc_id*: Configures the mobile network code (MNC) for the specified DECOR profile. *mnc_id* must be a 2- or 3-digit number between 00 to 999.
- **served-dcn [relative-capacity** *capacity* **]**: Configures the MME that is serving the DCN and its relative capacity. These values are sent by MME to eNodeB during S1 Setup Response to indicate DCN-IDs served by the MME and their relative capacity.

  relative-capacity *capacity*: Set the relative capacity of this DCN. *capacity* must be an integer from 0 to 255. The default relative-capacity is 255.
- **ue-usage-types** *num_ue_usage_types*: Specifies the number of UE Usage Types in the dedicated core network. *num_ue_usage_types* is an integer from 0 to 255.

  A maximum number of 20 UE Usage Types are supported per DCN.
- **no**: Removes the specified DECOR parameters from the Global Configuration.
- MME will send the "MME CONFIGURATION UPDATE" message to all connected eNodeBs when a new DECOR profile is created with **served-dcn relative-capacity** and **dcn-id** CLI commands.
- MME will send the "MME CONFIGURATION UPDATE" message to all connected eNodeBs whenever there is a change in **served-dcn relative-capacity** or **dcn-id** CLI commands in a DECOR profile.

Associating a DECOR Profile under MME Service

Use the following configuration to associate a DECOR profile with an MME service.

```
configure
  context context_name
    mme-service service_name
      [ no ] associate decor-profile profile_name access-type { all | eutran
 | nb-iot }
       end
```

NOTES:

- **associate**: Associates a DECOR profile with an MME service.
- **decor-profile** *profile_name*: Specifies the DECOR profile that is associated with the MME Service.
- **access-type**: Configures the type of network access — E-UTRAN, NB-IoT, or both.

- **all** : Specifies to allow all access types.
- **eutran**: Specifies the access type as E-UTRAN.
- **nb-iot**: Specifies the access-type as NB-IoT.

- **no**: Removes the specified DECOR profile from the configuration.
- A maximum number of 16 DECOR profiles can be associated to an MME service.

Associating a DECOR Profile under Call Control Profile

Use the following configuration to associate a DECOR profile under call control profile.

```
configure
   call-control-profile profile_name
      [ remove ] associate decor-profile profile_name [ access-type { all |
eutran | nb-iot } ]
      end
```

NOTES:

- **associate**: Associates a DECOR profile under call control profile.
- **decor-profile** *profile_name*: Specifies the DECOR profile that is associated with the call control profile. *profile_name* must be an alphanumeric string of 1 through 63 characters.
- **access-type**: Configures the type of network access for the DECOR profile — E-UTRAN, NB-IoT, or both.
  - **all** : Specifies allows all access types.
  - **eutran**: Specifies the access type as E-UTRAN.
  - **nb-iot**: Specifies the access-type as NB-IoT.
- **remove**: Removes the specified DECOR profile from the configuration.
- A maximum number of 16 DECOR profile associations can be configured for the call control profile.

Configuring nas-reroute reject

Use the following configuration to configure NAS re-route reject.

```
configure
   context context_name
      mme-service service_name
         [ no ] decor custom-actions ula nas-reroute [ reject ]
         end
```

NOTES:

- **no**: Removes the configuration of NAS re-route reject.
- **decor**: Specifies the Dedicated Core Network Configuration.

- **custom-actions**: Configures specific decor actions.
- **ula**: Configures the UUT actions in ULA message.
- **nas-reroute**: Enables NAS re-route based on Ue-Usage-Type received in ULA.
- **reject**: Rejects the rerouted call based on Ue-Usage-Type received in ULA.

Configuring UE Usage Type over S6a Interface under MME Service

Use the following configuration to advertise or request UE Usage Type over S6a interface.

```
configure
  context context_name
    mme-service service_name
      [ no ] decor s6a ue-usage-type
      end
```

NOTES:

- **decor**: Specifies the DECOR configuration.
- **s6a**: Configures the S6a interface.
- **ue-usage-type**: Specifies the UE Usage Type that needs to be sent in the Authentication-Information-Request message over S6a interface.
- **no**: Disables the specified configuration.

Configuring UE Usage Type over S6a Interface under Call Control Profile

Use the following configuration to disable UE Usage Type requests over the S6a interface.

```
configure
  call-control-profile profile_name
    decor s6a ue-usage-type [ suppress ]
    remove decor s6a ue-usage-type
    end
```

NOTES:

- **decor**: Specifies the DECOR configuration.
- **s6a**: Enables the DECOR S6a configuration.
- **ue-usage-type**: Requests the UE Usage Type in S6a Authentication-Information-Request message.
- **suppress**: Suppresses sending the UE Usage Type in S6a Authentication-Information-Request message.
- **remove**: Removes the DECOR configuration.
- The configuration under call control profile overrides the MME service configuration.

Configuring UE Usage Type under Call Control Profile

Use the following configuration to locally configure the UE Usage Types for UEs matching the Call Control Profile criteria.

```
configure
   call-control-profile profile_name
      decor ue-usage-type usage_type_value
      remove decor ue-usage-type
      end
```

NOTES:

- **decor**: Specifies the DECOR configuration.
- **ue-usage-type** *usage_type_value*: Configures a UE Usage Type locally. *usage_type_value* must be an integer from 0 to 255.
- **remove**: Removes the specified configuration.

Configuring Non-Broadcast TAI

Use the following configuration to configure non-broadcast TAI. The configuration is added in support of HSS Initiated Dedicated Core Network Reselection.

When HSS sends ISDR with different UE-Usage-Type value other than what is already used by the subscriber and MME decides to move that UE to a new DCN, MME will send the GUTI Reallocation command with unchanged GUTI and non-broadcast TAI.

```
configure
   context context_name
      mme-service service_name
         tai non-broadcast mcc mcc_id mnc mnc_id tac tac_id
         no tai non-broadcast
         end
```

NOTES:

- **tai non-broadcast mcc** *mcc_id* **mnc** *mnc_id* **tac** *tac_id*: Specifies the Tracking Area Identity (TAI) which is not assigned to any area.

  mcc *mcc_id*: Configures the mobile country code (MCC) for the specified decor profile. *mcc_id* must be a 3-digit number between 000 to 999.

  mnc *mnc_id*: Configures the mobile network code (MNC) for the specified decor profile. *mnc_id* must be a 2- or 3-digit number between 00 to 999.

  tac *tac_id*: Configures the tracking area code (TAC) for the specified decor profile. *tac_id* must be an integer from 0 to 65535.

- **no**: Deletes the specified configuration.

Monitoring and Troubleshooting

This section provides information on the show commands available to support DECOR on MME.

Show Commands and/or Outputs

This section provides information regarding show commands and/or their outputs in support of the DECOR feature.

show decor-profile full all

The output of this command includes the following information

- Decor Profile Name — Displays the configured decor-profile name.
- UE Usage Types — Displays the configured UE usage types.
- MMEGI — Displays the MMEGI value.
- DNS — Indicates whether DNS is enabled or disabled.
- DCN Id — Displays the configured DCN identifier. Displays "Not Defined" if not configured.
- PLMN Id — Displays the configured PLMN identifier. Displays "Not Defined" if not configured.
- Serving DCN — Indicates whether MME is serving the DCN. Displays "Not Defined" if not configured.
    - Relative capacity — Indicates the configured relative capacity.
- DNS Service Param — Displays the configured DNS service parameter.

show mme-service all

The output of this command includes the following DECOR information:

- GW selection based on ULA - UUT - indicates if the GW selection based on ULA - UUT is enabled or disabled.
- NAS reroute based on ULA-UeUsageType - indicates if the NAS reroute based on ULA-UeUsageType is enabled or disabled.
- Reject the rerouted call in ULA - indicates if the Reject the rerouted call in ULA is enabled or disabled.

show mme-service name <mme_svc_name>

The output of this command includes the following information:

- Non-Broadcast TAI — Displays the configured values for MCC, MNC, and TAC.

show mme-service session full all

The output of this command includes the following DECOR information:

- DECOR Information:

- UE Usage type
- DCN Id

show mme-service statistics decor decor-profile <decor_profile_name>

This show command displays the DECOR statistics for a specified DECOR profile. The DECOR profile level statistics are pegged only if a DECOR profile is configured.

The output of this command includes the following information:

- Decor Statistics
  - Attached Calls
  - Initial Requests
    - ATTACH
      - Accepts
      - Reroutes
      - Rejects
  - TAU
    - Accepts
    - Reroutes
    - Rejects
  - Rerouted Requests
    - ATTACH
      - Accepts
      - Rejects
    - TAU
      - Accepts
      - Rejects
  - UE-Usage-Type Source
    - HSS
    - UE Context
    - Peer MME
    - Peer SGSN
    - Config

- eNB

- GUTI Reallocation Cmd due to UE-Usage-Type Change
  - Attempted
  - Success
  - Failures

- Handover from service area
  - DCN
  - Non DCN

- Explicit AIR
  - Attach
  - Inbound relocation
  - Inbound relocation using TAU procedure

- ISDR UE-Usage-Type Change
- MMEGI Selection
  - DNS
  - Local
  - Failure

- Node Selection
  - SGW DNS
    - Common
    - Dedicated
  - SGW Local Config
    - Common
  - PGW DNS
    - Common
    - Dedicated
  - PGW Local Config
    - Common
  - MME DNS
    - Common

- Dedicated
- MME Local Config
  - Common
- SGSN DNS
  - Common
  - Dedicated
- SGSN Local Config
  - Common

show mme-service statistics decor

The output of this command includes the following information:

- Decor Statistics
  - Attached Calls
  - Initial Requests
    - ATTACH
      - Accepts
      - Reroutes
      - Rejects
    - TAU
      - Accepts
      - Reroutes
      - Rejects
  - Rerouted Requests
    - ATTACH
      - Accepts
      - Rejects
    - TAU
      - Accepts
      - Rejects

- UE-Usage-Type Source
  - HSS
  - UE Context
  - Peer MME
  - Peer SGSN
  - Config
  - eNodeB
- GUTI Reallocation Cmd due to UE-Usage-Type Change
  - Attempted
  - Success
  - Failures
- Handover from service area
  - DCN
  - Non DCN
- Explicit AIR
  - Attach
  - Inbound relocation
  - Inbound relocation using TAU procedure
- ISDR UE-Usage-Type Change
- MMEGI Selection
  - DNS
  - Local
  - Failure
- Node Selection
  - SGW DNS
    - Common
    - Dedicated
  - SGW Local Config
    - Common
  - PGW DNS

- Common
- Dedicated

- PGW Local Config
  - Common

- MME DNS
  - Common
  - Dedicated

- MME Local Config
  - Common

- SGSN DNS
  - Common
  - Dedicated

- SGSN Local Config
  - Common

show mme-service statistics

The output of this command includes the following information at an MME service level:

- S1AP Statistics
  - Reroute NAS Requests

- Decor Statistics
  - Attached Calls
  - Initial Requests
    - ATTACH
      - Accepts
      - Reroutes
      - Rejects

    - TAU
      - Accepts
      - Reroutes
      - Rejects

- Rerouted Requests
  - ATTACH
    - Accepts
    - Rejects
  - TAU
    - Accepts
    - Rejects
- UE-Usage-Type Source
  - HSS
  - UE Context
  - Peer MME
  - Peer SGSN
  - Config
  - eNodeB
- GUTI Reallocation Cmd due to UE-Usage-Type Change
  - Attempted
  - Success
  - Failures
- Handover from service area
  - DCN
  - Non DCN
- Explicit AIR
  - Attach
  - Inbound relocation
  - Inbound relocation using TAU procedure
- ISDR UE-Usage-Type Change
- MMEGI Selection
  - DNS
  - Local
  - Failure

- Node Selection
  - SGW DNS
    - Common
    - Dedicated
  - SGW Local Config
    - Common
  - PGW DNS
    - Common
    - Dedicated
  - PGW Local Config
    - Common
  - MME DNS
    - Common
    - Dedicated
  - MME Local Config
    - Common
  - SGSN DNS
    - Common
    - Dedicated
  - SGSN Local Config
    - Common

show mme-service statistics recovered-values

The output of this command includes the following information:

Decor Statistics:

- Initial Requests
  - ATTACH
    - Accepts
    - Reroutes
    - Rejects

- TAU
  - Accepts
  - Reroutes
  - Rejects

- Rerouted Requests
  - ATTACH
    - Accepts
    - Rejects
  - TAU
    - Accepts
    - Rejects

Bulk Statistics

The MME schema and MME Decor schema include the supported bulk statistics for the DECOR feature.

MME Schema

The following bulk statistics are added in the MME schema:

Bulk Statistics	Description
mme-decor-attached-subscriber	Indicates the number of MME sessions attached that have an associated UE usage type.
mme-decor-initial-attach-req-accept	Indicates the total number of Initial Attach Requests accepted by the MME, which functions as a DCN.
mme-decor-initial-attach-req-reroute	Indicates the total number of Initial Attach Requests which are rerouted by the MME, which functions as a DCN.
mme-decor-initial-attach-req-reject	Indicates the total number of Initial Attach Rejects due to No Reroute data and not handled by the MME, which functions as a DCN.
mme-decor-reroute-attach-req-accept	Indicates the total number of Rerouted Attach Requests which are accepted by the MME, which functions as a DCN.
mme-decor-reroute-attach-req-reject	Indicates the total number of Rerouted Attach Requests which are rejected by the MME, which functions as a DCN.
mme-decor-initial-tau-req-accept	Indicates the total number of Initial TAU Requests accepted by the MME, which functions as a DCN.

Bulk Statistics	Description
mme-decor-initial-tau-req-reroute	Indicates the total number of Initial TAU Requests which are rerouted by the MME, which functions as a DCN.
mme-decor-initial-tau-req-reject	Indicates the total number of Initial TAU Rejects due to No Reroute data and not handled by the MME, which functions as a DCN.
mme-decor-reroute-tau-req-accept	Indicates the total number of Rerouted TAU Requests which are accepted by the MME, which functions as a DCN.
mme-decor-reroute-tau-req-reject	Indicates the total number of Rerouted TAU Requests which are rejected by the MME, which functions as a DCN.
mme-decor-ue-usage-type-src-hss	Indicates the number of MME subscriber sessions, where UE usage type was obtained from HSS/AUC.
mme-decor-ue-usage-type-src-ue-ctxt	Indicates the number of MME subscriber sessions, where UE usage type was obtained from MME DB record.
mme-decor-ue-usage-type-src-peer-mme	Indicates the number of MME subscriber sessions, where UE usage type was obtained from peer MME as part of handover.
mme-decor-ue-usage-type-src-peer-sgsn	Indicates the number of MME subscriber sessions, where UE usage type was obtained from peer SGSN as part of handover.
mme-decor-ue-usage-type-src-cfg	Indicates the number of MME subscriber sessions, where UE usage type was obtained from local configuration.
mme-decor-ue-usage-type-src-enb	Indicates the number of MME subscriber sessions, where UE usage type was obtained from the eNodeB, in the S1 message as part of reroute.
mme-decor-sgw-sel-dns-common	Indicates the number of times S-GW DNS selection procedures were performed with DNS RR excluding UE usage type. This counter increments only when the DNS RR with UE usage type is absent.
mme-decor-sgw-sel-dns-dedicated	Indicates the number of times S-GW DNS selection procedures were performed with DNS RR including UE usage type parameter(s). This counter increments only when the DNS RR with UE usage type is present.
mme-decor-sgw-sel-local-cfg-common	Indicates the number of times S-GW selection procedures were performed with locally configured S-GW address, without considering the UE usage type.

Bulk Statistics	Description
mme-decor-pgw-sel-dns-common	Indicates the number of times PGW DNS selection procedures were performed with DNS RR excluding UE usage type. This counter increments only when the DNS RR with UE usage type is absent.
mme-decor-pgw-sel-dns-dedicated	Indicates the number of times S-GW DNS selection procedures were performed with DNS RR including UE usage type parameter(s). This counter increments only when the DNS RR with UE usage type is present.
mme-decor-pgw-sel-local-cfg-common	Indicates the number of times P-GW selection procedures were performed with locally configured P-GW address without considering the UE usage type.
mme-decor-mme-sel-dns-common	Indicates the number of times MME DNS selection procedures were performed with DNS RR excluding UE usage type. This counter increments only when the DNS RR with UE usage type is absent.
mme-decor-mme-sel-dns-dedicated	Indicates the number of times MME DNS selection procedures were performed with DNS RR including UE usage type parameter(s). This counter increments only when the DNS RR with UE usage type is present.
mme-decor-mme-sel-local-cfg-common	Indicates the number of times MME selection procedures were performed with locally configured MME address without considering the UE usage type.
mme-decor-sgsn-sel-dns-common	Indicates the number of times SGSN DNS selection procedures were performed with DNS RR excluding UE usage type. This counter increments only when the DNS RR with UE usage type is absent.
mme-decor-sgsn-sel-dns-dedicated	Indicates the number of times SGSN DNS selection procedures were performed with DNS RR including UE usage type parameter(s). This counter increments only when the DNS RR with UE usage type is present.
mme-decor-handover-srv-area-dcn	Indicates the total number of inbound handovers from the service area where DCN is supported. This counter increments for every inbound handover from DCN service area.

Bulk Statistics	Description
mme-decor-handover-srv-area-non-dcn	Indicates the total number of inbound handovers from the service area where DCN is not supported. This counter increments for every inbound handover from non DCN service area.
mme-decor-explicit-air-attach	Indicates the number of explicit AIR messages during Attach. This counter increments when MME triggers an explicit AIR during Attach.
mme-decor-explicit-air-in-reallocation	Indicates the number of explicit AIR messages during inbound relocation. This counter increments when MME triggers explicit an AIR during inbound relocation.
mme-decor-explicit-air-tau-in-reallocation	Indicates the number of explicit AIR messages during inbound relocation using TAU. This counter increments when MME triggers an explicit AIR during inbound relocation using TAU.
mme-decor-sgsn-sel-local-cfg-common	Indicates the number of times SGSN selection procedures were performed with locally configured SGSN address without considering the UE usage type.
s1ap-transdata-reroutenasreq	Indicates the number of S1 Reroute NAS Request Message sent by MME.
mme-decor-mmegi-sel-dns	Indicates the total number of times MMEGI is selected through DNS from a dedicated pool (DNS records having UE Usage Type which is matching).
mme-decor-mmegi-sel-local-cfg	Indicates the total number of times MMEGI is selected from local configuration.
mme-decor-mmegi-sel-fail	Indicates the total number of times MMEGI is selected from failure.
mme-decor-guti-reallocation-attempted	This proprietary counter tracks the number of GUTI Reallocation procedures attempted due to UE-Usage-Type Change from HSS through ISDR OR after connected mode handover and UE-Usage-Type not served by the MME (NAS GUTI Reallocation Command message was sent by MME).
mme-decor-guti-reallocation-success	Tracks the number of GUTI Reallocation procedures successful.
mme-decor-guti-reallocation-failures	Tracks the number of GUTI Reallocation procedure failures.
mme-decor-isdr-ue-usage-type-change	Tracks the number of ISDR Messages received with different UE-Usage-Type from the HSS.

Bulk Statistics	Description
recovered-mme-decor-initial-attach-req-accept	Indicates the total number of Initial Attach Requests accepted by the MME, which functions as a DCN.
recovered-mme-decor-initial-attach-req-reroute	Indicates the total number of Initial Attach Requests which are rerouted by the MME, which functions as a DCN.
recovered-mme-decor-initial-attach-req-reject	Indicates the total number of Initial Attach Rejects without the reroute data and that are not handled by the MME, which functions as a DCN.
recovered-mme-decor-reroute-attach-req-accept	Indicates the total number of Rerouted Attach Requests which are accepted by the MME, which functions as a DCN.
recovered-mme-decor-reroute-attach-req-reject	Indicates the total number of Rerouted Attach Requests which are rejected by the MME, which functions as a DCN.
recovered-mme-decor-initial-tau-req-accept	Indicates the total number of Initial TAU Requests accepted by the MME, which functions as a DCN.
recovered-mme-decor-initial-tau-req-reroute	Indicates the total number of Initial TAU Requests which are rerouted by the MME, which functions as a DCN.
recovered-mme-decor-initial-tau-req-reject	Indicates the total number of Initial TAU Rejects due to No Reroute data and not handled by the MME, which functions as a DCN.
recovered-mme-decor-reroute-tau-req-accept	Indicates the total number of Rerouted TAU Requests which are accepted by the MME, which functions as a DCN.
recovered-mme-decor-reroute-tau-req-accept	Indicates the total number of Rerouted TAU Requests which are rejected by the MME, which functions as a DCN.

MME Decor Schema

The following bulk statistics for a specific decor-profile are added in the MME Decor schema:

Bulk Statistics	Description
mme-decor-profile-name	Indicates the name of the DECOR profile.
mme-decor-profile-attached-subscriber	Indicates the total number of subscribers on the MME which is acting as a DCN.
mme-decor-profile-initial-attach-req-accept	Indicates the total number of Initial Attach Requests accepted by the MME that is acting as a DCN.
mme-decor-profile-initial-attach-req-reroute	Indicates the total number of Initial Attach Requests which are rerouted by the MME that is acting as a DCN.
mme-decor-profile-initial-attach-req-reject	Indicates the total number of Initial Attach Rejects due to No Reroute Data and not handled by the MME that is acting as a DCN.

Bulk Statistics	Description
mme-decor-profile-reroute-attach-req-accept	Indicates the total number of Rerouted Attach Requests which are accepted by the MME that is acting as a DCN.
mme-decor-profile-reroute-attach-req-reject	Indicates the total number of Rerouted Attach Requests which are rejected by the MME that is acting as a DCN.
mme-decor-profile-initial-tau-req-accept	Indicates the total number of Initial TAU Reuquests accepted by the MME that is acting as a DCN.
mme-decor-profile-initial-tau-req-reroute	Indicates the total number of Initial TAU Reuquests which are rerouted by the MME that is acting as a DCN.
mme-decor-profile-initial-tau-req-reject	Indicates the total number of Initial TAU Rejects due to No Reroute Data and not handled by the MME that is acting as a DCN.
mme-decor-profile-reroute-tau-req-accept	Indicates the total number of Rerouted TAU Requests which are accepted by the MME that is acting as a DCN.
mme-decor-profile-reroute-tau-req-reject	Indicates the total number of Rerouted TAU Requests which are rejected by the MME that is acting as a DCN.
mme-decor-profile-ue-usage-type-src-hss	Indicates the total number of times UE Usage Type is received from the HSS and used by the MME.
mme-decor-profile-ue-usage-type-src-ue-ctxt	Indicates the total number of times UE Usage Type is fetched from the local DB Record and used by the MME.
mme-decor-profile-ue-usage-type-src-peer-mme	Indicates the total number of times UE Usage Type is received from the peer MME and used by the MME.
mme-decor-profile-ue-usage-type-src-peer-sgsn	Indicates the total number of times UE Usage Type is received from the peer SGSN and used by the MME.
mme-decor-profile-ue-usage-type-src-cfg	Indicates the total number of times UE Usage Type is fetched from the local configuration and used by the MME.
mme-decor-profile-ue-usage-type-src-enb	Indicates the total number of times UE Usage Type is received from the eNodeB and used by the MME.
mme-decor-profile-sgw-sel-dns-common	Indicates the total number of times S-GW is selected through DNS from a common pool (DNS records without UE Usage Type).
mme-decor-profile-sgw-sel-dns-dedicated	Indicates the total number of times S-GW is selected through DNS from a dedicated pool (DNS records with matching UE Usage Type).
mme-decor-profile-sgw-sel-local-cfg-common	Indicates the total number of times S-GW is selected from the local configuration without UE Usage Type.

Bulk Statistics	Description
mme-decor-profile-pgw-sel-dns-common	Indicates the total number of times P-GW is selected through DNS from a common pool (DNS records without UE Usage Type).
mme-decor-profile-pgw-sel-dns-dedicated	Indicates the total number of times P-GW is selected through DNS from a dedicated pool (DNS records with matching UE Usage Type).
mme-decor-profile-pgw-sel-local-cfg-common	Indicates the total number of times P-GW is selected from the local configuration without UE Usage Type.
mme-decor-profile-mme-sel-dns-common	Indicates the total number of times MME is selected through DNS from a common pool (DNS records without UE Usage Type).
mme-decor-profile-mme-sel-dns-dedicated	Indicates the total number of times MME is selected through DNS from a dedicated pool (DNS records with matching UE Usage Type).
mme-decor-profile-mme-sel-local-cfg-common	Indicates the total number of times MME is selected from the local configuration without UE Usage Type.
mme-decor-profile-sgsn-sel-dns-common	Indicates the total number of times SGSN is selected through DNS from a common pool (DNS records without UE Usage Type).
mme-decor-profile-sgsn-sel-dns-dedicated	Indicates the total number of times SGSN is selected through DNS from a dedicated pool (DNS records with matching UE Usage Type).
mme-decor-profile-sgsn-sel-local-cfg-common	Indicates the total number of times SGSN is selected from the local configuration without UE Usage Type.
mme-decor-profile-mmegi-sel-dns	Indicates the total number of times MMEGI is selected through DNS from a dedicated pool (DNS records with matching UE Usage Type).
mme-decor-profile-mmegi-sel-local-cfg	Indicates the total number of times MMEGI is selected from the local configuration.
mme-decor-profile-mmegi-sel-fail	Indicates the total number of times MMEGI selection failed.
mme-decor-profile-guti-reallocation-attempted	Indicates the number of GUTI Reallocation procedures attempted due to UE-Usage-Type Change from HSS through ISDR OR after connected mode handover and UE-Usage-Type not served by this MME (NAS GUTI Reallocation Command message was sent by MME).
mme-decor-profile-guti-reallocation-success	Indicates the number of successful GUTI Reallocation procedures.
mme-decor-profile-guti-reallocation-failures	Indicates the number of failed GUTI Reallocation procedures.

Bulk Statistics	Description
mme-decor-profile-isdr-ue-usage-type-change	Indicates the number of ISDR Messages received with different UE-Usage-Type from the HSS.
mme-decor-profile-explicit-air-attach	Indicates the number of explicit AIR messages during Attach.
mme-decor-profile-explicit-air-in-relocation	Indicates the number of explicit AIR messages during inbound relocation.
mme-decor-profile-explicit-air-tau-in-relocation	Indicates the number of explicit AIR messages during inbound relocation using TAU.
mme-decor-profile-handover-srv-area-dcn	Indicates the total number of inbound handovers from the service area where DCN is supported.
mme-decor-profile-handover-srv-area-non-dcn	Indicates the total number of inbound handovers from the service area where DCN is not supported.