

MEC Location Management

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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
Default Setting	Enabled - Always-on
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
MEC UP configuration enhancement.	21.16
PGW-U IP address is used for User Plane address.	21.15
First introduced.	21.14

Feature Description

Mobile Edge Computing (MEC) Support is used to bring application with low latency requirements and capabilities to the carrier's network in order to explore a wide range of new use cases and applications. This feature enables selection of proper Edge User Plane nodes for MEC user sessions.

With release 21.16, MEC UP configuration is enhanced to configure multiple TALs under a MEC group. MME allows to mix and match the TALs under a MEC group.

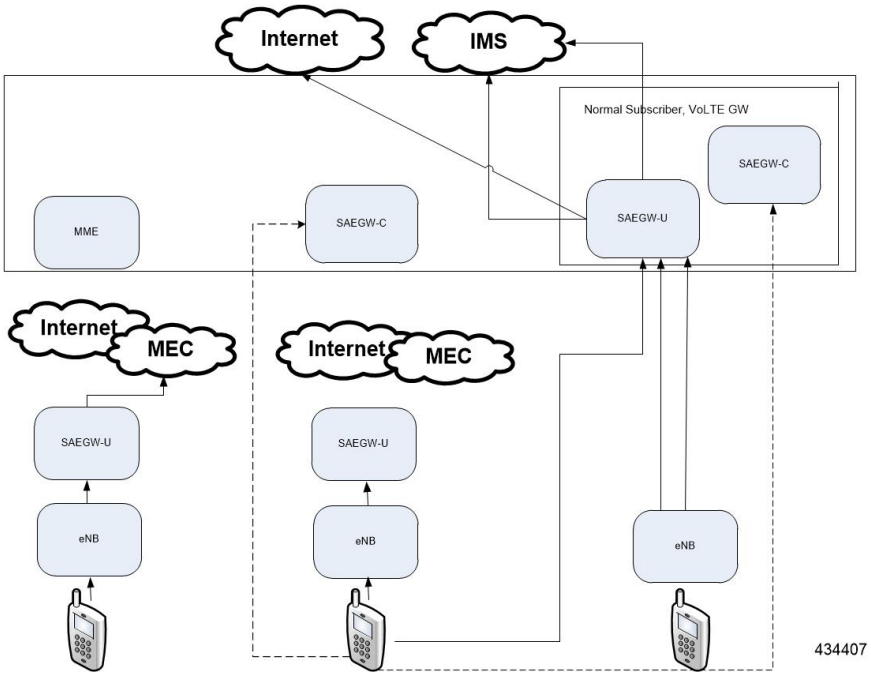
Note TAI List and UP address for MEC group can be configured either in TAI Management DB or MEC TAI Group. It is recommended to configure using only one option.

How It Works

Architecture

This section describes the MEC architecture.

Figure 1: MEC Architecture



Flows

This section describes the call flow procedures related to MEC support.

Whenever the user moves to idle mode, each PDN's default bearer is checked to see if the GW-U IP address matches the TAI List. If a mismatch is found, paging is initiated.

When the user connects back again either by TAU or Service Request based on the new tracking area from where the TAU or Service Request is received, each PDN's default bearer is checked to see if the GW-U IP address matches the TAI List. If mismatch is found and if the PDN and UE Usage is marked Re-connect in APN Profile, the PDNs are deleted with Re-Activation cause code. TAI List will be taken from TAI Management DB or MEC TAI Group based on the configuration of TAI List and UP address".

Figure 2: Attach in TA-1, TAU from TA-2, IDLE Mode and SR in TA-2

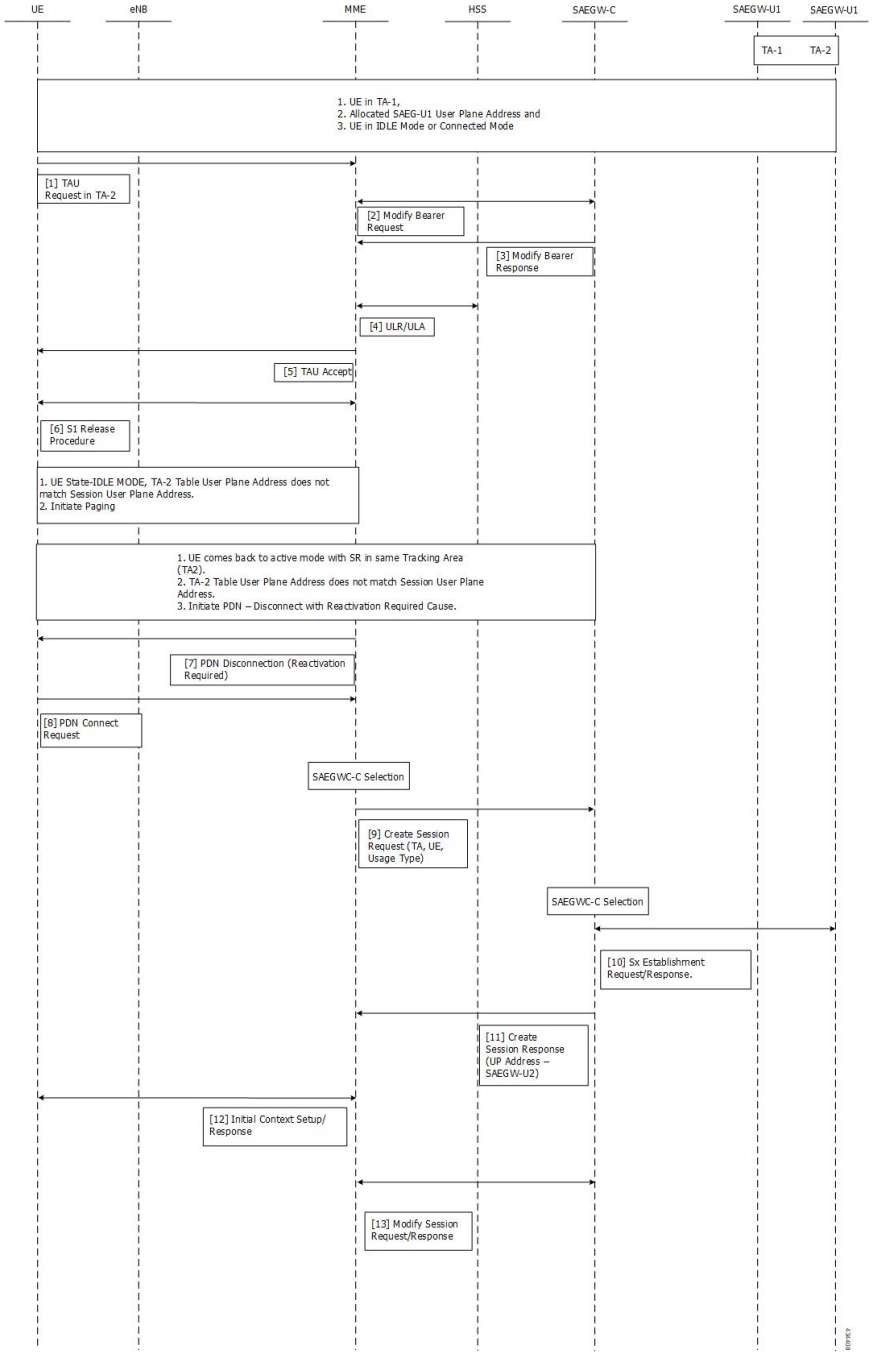
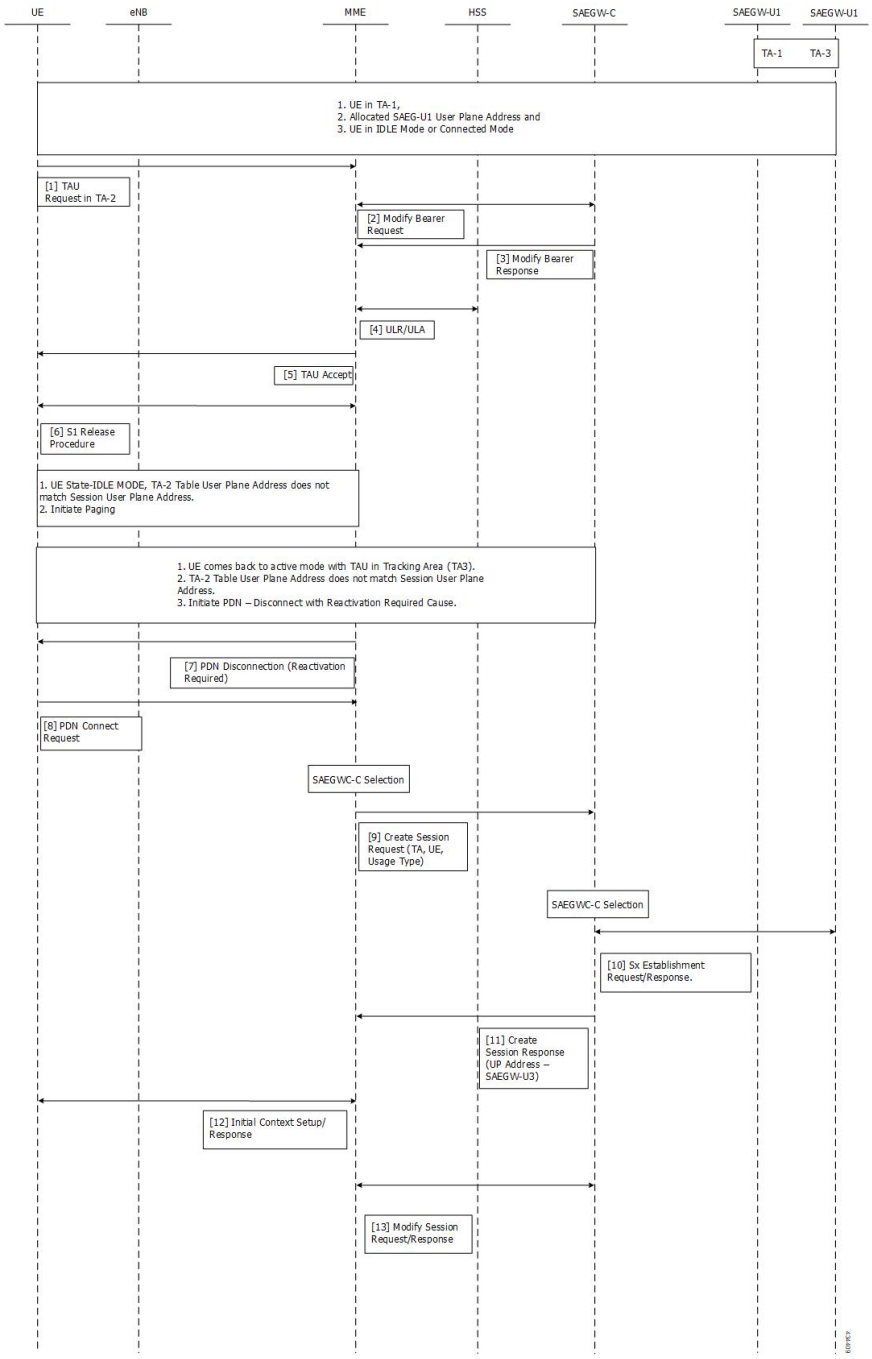


Figure 3: Attach in TA-1, TAU from TA-2, IDLE Mode and TAU in TA-3



Configuring MEC Support

This section provides information on the CLI commands to configure MEC Support in the MME.

Configureing up-address in TAI Management DB

Use the following configuration to configure the addresses of User Plane Nodes Serving all TAIs in this object.

```
configure
  lte-policy
    tai-mgmt-db tai_mgmt_db_name
      tai-mgmt-obj tai_mgmt_obj_name
        [ no ] up-address ( IP-ADDRESS | IP-ADDRESS/MASK }
        end
```

NOTES:

- **no**: Removes the addresses of User Plane Nodes Serving all TAIs in this object.
- **[no] up-address (IP-ADDRESS | IP-ADDRESS/MASK }** Configures the addresses of User Plane Nodes Serving all TAIs in this Object. **IP-ADDRESS** must be an IPV4 ##.##.##.## or IPV6 ####:####:####:####:####:####:####:####. Also supports :: notation **IP-ADDRESS/MASK** must be an IPV4 ##.##.##.##/x or IPV6 ####:####:####:####:####:####:####:####/x.

Configuring up-address in MEC TAI Group

Use the following configuration to configure the up-address of User Plane Nodes Serving all TAIs in this object.

```
configure
  lte-policy
    mec-tai-grp mec_tai_grp_name
        [ no ] up-address ( IP-ADDRESS | IP-ADDRESS/MASK } mef-address
 iPV4/iPV6_address
        end
```

NOTES:

- **no**: Removes the addresses of User Plane Nodes Serving all TAIs in this object.
- **up-address (IP-ADDRESS | IP-ADDRESS/MASK }** Configures the addresses of User Plane Nodes Serving all TAIs in this Object. **IP-ADDRESS** must be an IPV4 ##.##.##.## or IPV6 ####:####:####:####:####:####:####:####. Also supports :: notation **IP-ADDRESS/MASK** must be an IPV4 ##.##.##.##/x or IPV6 ####:####:####:####:####:####:####:####/x.
- **mef-address** *iPV4/iPV6_address*: Configures the peer MEF server address for MEF signalling.*iPV4/iPV6_address* must be IPV4 ##.##.##.## or IPV6 ####:####:####:####:####:####:####:#### (IPV6 also supports :: notation).

Configuring tai in MEC TAI Group

Use the following configuration to configure the Tracking Area Identity.

```
configure
  lte-policy
    mec-tai-grp mec_tai_grp_name
      [ no ] tai mcc mcc_value mnc mnc_value { tac value1... value20  | tac-range
```

```
from tac_value_from to tac_value_to }
        [ no ] up-address ( IP-ADDRESS | IP-ADDRESS/MASK }
        end
```

NOTES:

- **no**: Removes the configuration of tai.
- **mec-tai-grp** *mec_tai_grp_name*: Configures MEC TAI Group.*mec_tai_grp_name* must be a string between 1 to 64. Maximum of 50 MEC TAI Groups can be configured.
- **tai**: Specifies the Tracking Area Identity.
- **mcc** *mcc_value*: Specifies the Mobile Country Code.*mcc_value* must be a three digit integer between 0 to 999.
- **mnc** *mnc_value*: Specifies the Mobile National Code.*mnc_value* must be a two / three digit integer between 00 to 999.
- **tac** *value1... value20*: Specifies the Tracking Area Code. Upto 20 Tracking Area Codes can be entered on one line. It can be configured by entering TAC directly or using range. *value1... value20* must be an integer between 0 to 65535.
- **tac-range from** *tac_value_from* **to** *tac_value_to* : Specifies the Range of Tracking Area Code. Maximum of 5 ranges in a MEC TAI group can be configured. *tac_value_from* and *tac_value_to* must be an integer between 0 to 65535.

Configuring up-service-area-change

Use the following configuration to configure action for User-Plane Service Area Change for MME.

```
configure
   context context_name
      apn-profile apn_profile_name
         up-service-area-change disconnect-pdn [ ue-usage-type ]
ue_usage_type_values
         end
```

NOTES:

- **up-service-area-change**: Configures action for User-Plane Service Area Change for MME.
- **disconnect-pdn**: Enables reselection of User Plane Node by PDN disconnection.
- **ue-usage-type** *ue_usage_type_values*: Configures UE usage type for disconnecting PDN for UP service area. *ue_usage_type_values* must be an integer 1 through 255.

Important Release 21.15 onwards, PGW-U IP address is used for User Plane address.

Monitoring and Troubleshooting

This section provides information regarding show commands available to monitor this feature.

Show Commands and Outputs

show mme-service statistics

The output of this command includes the following fields:

Paging Initiation for SIGNALING PDN RECONN Events:

- Attempted
- Success
- Failures
  - Success at Last n eNB
  - Success at TAI List
  - Success at Last TAI

show lte-policy mec-tai-grp name <grp_name>

The output of this command includes the following fields:

MEC TAI Group group grp_name

- TAI mcc 123 mnc 45 tac 2010 2011 2457
- TAI mcc 123 mnc 456 tac
- UP-address 192.80.80.10 MEF-ADDRESS 192.80.80.175

show lte-policy mec-tai-grp summary

- MEC TAI Group group1
- MEC TAI Group group2

Bulk Statistics

The following statistics are added in support of the MEC Location Management feature:

Table 1: MME Schema

Bulk Statistics	Description
signalling-pdn-reconn-paging-init-events-attempted	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that were attempted.
signalling-pdn-reconn-paging-init-events-success	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that were successful.

Bulk Statistics	Description
signalling-pdn-reconn-paging-init-events-failures	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that failed.
signalling-pdn-reconn-paging-last-enb-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at the last known eNodeB.
signalling-pdn-reconn-paging-last-tai-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at the last known Tracking Area Identifier.
signalling-pdn-reconn-paging-tai-list-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at an eNodeB in all TAIs present in the TAI list assigned to the UE.

Table 2: TAI Schema

Bulk Statistics	Description
tai-signalling-pdn-reconn-paging-init-events-attempted	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that were attempted.
tai-signalling-pdn-reconn-paging-init-events-success	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that were successful.
tai-signalling-pdn-reconn-paging-init-events-failures	The total number of ECM Statistics-related Paging requests to UE, to reconnect PDN, that failed.
tai-signalling-pdn-reconn-paging-last-enb-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at the last known eNodeB.
tai-signalling-pdn-reconn-paging-last-tai-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at the last known Tracking Area Identifier.
tai-signalling-pdn-reconn-paging-tai-list-success	The total number of ECM Statistics-related Paging requests to UE to reconnect PDN that succeeded at an eNodeB in all TAIs present in the TAI list assigned to the UE.