

LTE TAI Management Object Configuration Mode Commands

The LTE TAI Management Object Configuration Mode is used to create and manage the LTE Tracking Area Identifiers for the TAI database.

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Important For information on common commands available in this configuration mode, refer to the Common Commands chapter.

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access-type

This command is used to configure the NB-IoT RAT per TAI object.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

`[ no ] access-type nb-iot`

no

Removes the configured access type for the TAI object.

nb-iot

Configures the access type as NB-IoT for a TAI object.

Usage Guidelines

The LTE TAI Management Object Configuration Mode is used to create and manage the LTE Tracking Area Identifiers for the TAI database. This mode is used to create, remove or modify the existing LTE Tracking Area Identifier (TAI) object configurations. Use this command to configure the access type of a TAC or group of TACs as NB-IoT RAT. As per 3GPP standards, the same TAC cannot belong to both EUTRAN and NB-IoT RATs. This command is not enabled by default. The default RAT is WB-EUTRAN.

Example

The following command is used to configure the access type as NB-IoT:

`access-type nb-iot`

emergency-services-not-supported

This command disables emergency services at a TAI object management level per TAC basis.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

`[ no ] emergency-services-not-supported`

no

For the **emergency-services-not-supported** command, the **no** command prefix enables emergency services at TAI management object level.

Usage Guidelines

In a shared RAN network, there are several TACs contolled by several operators connected to the same MME, and disabling emergency services for a particular TAC becomes a challenge. To over come this, MME provides the **emergency-services-not-supported** command, which disables emergency services at a TAI management object level per TAC basis.

Example

The following command disables emergency services per TAC:

`emergency-services-not-supported`

ims-voice-over-ps

Configures support for IMS Voice over Packet-Switched information element for this TAI List.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

`[ no ] ims-voice-over-ps`

no

Disables support for IMS Voice over PS for this TAI List.

Usage Guidelines

Use this command to enable support for IMS Voice over PS for this TAI List.

When enabled, the IMS Voice Over PS Indicator is sent in the S6a Insert-Subscriber-Data Answer message. This indicates whether the TAI supports 'IMS Voice over PS session'.

If IMS Voice over PS support is configured globally within the Call Control Profile (using the **network-feature-support-ie ims-voice-over-ps** command) as well as on a per TAI basis, the global configuration (from call control profile) is honored.

Example

The following command enables the MME to send the IMS Voice over PS indicator in the S6a Insert-Subscriber-Data Answer message for this TAI list.

```
ims-voice-over-ps
```

lai

Configures a Location Area Identifier (LAI) for this TAI management object.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

lai mcc *number* **mnc** *number* **lac** *area_code*
no lai

no

Removes a configured LAI from the TAI management object.

mcc *number*

Specifies the mobile country code (MCC) portion of a PLMN identifier as an integer from 100 through 999.

mnc *number*

Specifies the mobile network code (MNC) portion of a PLMN identifier as a 2- or 3-digit integer from 00 through 999.

lac *area_code*

Specifies the Location Area Code portion of the TAI as an integer from 1 through 65535.

Usage Guidelines

Use this command to configure an LAI for this management object.

Example

The following command adds an LAI to this management object with an MCC of *111*, an MNC of *22*, and a LAC of *101*:

```
lai mcc 122 mnc 22 lac 101
```

network-name

This command configures the long (full) and short network name used in the Long and Short network name IE in the EMM Information message that is sent to the UE from the MME.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

`[ no ] network-name [ full` *`full_name`* **`| short`** *`short_name`* **`]`**

no

Removes a configured network-name.

full *full_name*

Defines the full (long) network name. *full_name* is an alphanumeric string of 1 through 251 characters.

short *short_name*

Defines the short network name. *short_name* is an alphanumeric string of 1 through 251 characters.

Usage Guidelines

Use this command to configure the full and short network name on the tai-mgmt-obj.

This configuration affects the actions of the MME when the MME is configured to set the UE time. If this configuration exists, and there is no interaction with an MSC that sends an EMM INFORMATION message, the MME uses the above configuration while sending a EMM INFORMATION message.

There is no default for this configuration. If this configuration does not exist at the tai-db level and tai-mgmt-object level, no network name will be signaled in a EMM Information message.

rai

Configures a Routing Area Identifier (RAI) for an associated S-GW for this TAI management object.

Product

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > **lte-policy** > **tai-mgmt-db** *db_name* > **tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

rai mcc *number* **mnc** *number* **lac** *area_code* **rac** *rac_value*
no rai

no

Removes a configured LAI from the TAI management object.

mcc *number*

Specifies the mobile country code (MCC) portion of a PLMN identifier as an integer from 100 through 999.

mnc *number*

Specifies the mobile network code (MNC) portion of a PLMN identifier as a 2- or 3-digit integer from 00 through 999.

lac *area_code*

Specifies the Location Area Code portion of the TAI as an integer from 1 through 65535.

rac

Specifies the Routing Area Code portion of the TAI as an integer from 1 to 255.

Usage Guidelines

On the S4-SGSN, use this command as part of the configuration of the selection of an SGW for RAI on the S4-SGSN for operators wishing to bypass the DNS resolution of RAI FQDN for obtaining the SGW address.

Once the RAI is configured, the SGW address that serves this RAI must be configured with the **sgw-address** command. For details on this command, refer to the description of **sgw-address** in this chapter.

Example

The following command adds a RAI to this management object with an MCC of *111*, an MNC of *22*, and a LAC of *110*:

```
rai mcc 111 mnc 22 lac 101 rac 110
```

sgw-address

Configures an IP address for a Serving Gateway (S-GW), a supported S5/S8 protocol type, and selection weight used in a pool for S-GW selection. On an S4-SGSN, this command is used as part of the configuration to bypass DNS resolution of RAI FQDN for an S-GW.

Product

MME

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

sgw-address *ipv4_or_ipv6_address* **s5-s8-protocol { both | gtp | pmip } weight** *number* **attach-only | collocated-node** *collocated_node_name* **ue-usage-type** *ue_usage_type_value*
no sgw-address *ipv4_or_ipv6_address* **s5-s8-protocol { both | gtp | pmip } [collocated-node** *collocated_node_name* **]ue-usage-type** *ue_usage_type_value*

no sgw-address *ipv4_or_ipv6_address* s5-s8-protocol { both | gtp | pmip }

Removes the configured S-GW address from this TAI management object.

ipv4_or_ipv6_address

Specifies the IP address of the S-GW in the selection pool in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Up to 32 S-GW addresses can be configured per TAI management object.

s5-s8-protocol { both | gtp | pmip }

Specifies the S5/S8 interface type found between the configured S-GW and the P-GW.

both: Specifies that both the GTP and PMIP protocols are supported over the S5/S8 interface. The **both** option is not supported on the SGSN.

gtp: Specifies that the GTP protocol is supported over the S5/S8 interface. This is the only option supported by the SGSN.

pmip: Specifies that the PMIP protocol is supported over the S5/S8 interface. The **pmip** option is not supported on the SGSN.

weight *number*

Specifies the priority or weight of the S-GW address used during weighted round-robin selection within this TAI management object. *number* must be an integer from 1 through 100.

attach-only

Specifies the SGW preference for SGW-relocation.

collocated-node

Configures the collocation name to select the collocated S/PGW node IP addresses for MME.

collocated_node_name must be a string of size 1 to 255.

ue-usage-type

Configures the ue-usage-type for the gateway. *ue_usage_type_value* must be an integer between 1 through 255.

Usage Guidelines

Use this command to configure a pool of S-GW addresses used for S-GW selection.

On the S4-SGSN, use this command to complete the configuration of bypassing DNS resolution of RAI FQDN to obtain the S-GW address. This command is not valid on the S4-SGSN until the following commands have been executed:

- **tai-mgmt-db** in *LTE Policy Configuration Mode*
- **tai-mgmt-obj** in *LTE Management Database Configuration Mode*
- **rai** in *LTE TAI Management Object Configuration Mode*

Example

The following command configures an S-GW with an IPv4 address of *209.165.200.228*, a supported S5/S8 protocol type of GTP, and a selection weight of *3*:

```
sgw-address 209.165.200.228 s5-s8-protocol gtp weight 3
```

sgw-address-resolution-mode

This command specifies the address resolution mode of the SGW address(s) configured in this object. This command is applicable only for S4-SGSN.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

```
sgw-address-resolution-mode { fallback-for-dns | local }
```

default

Resets the configuration to the default value, that is **fallback-for-dns**.

fallback-for-dns

Instructs the system to try DNS resolution. If the DNS query fails, the SGSN will use locally configured addresses. The S4-SGSN will use locally configured SGW address on DNS failure

Default: enabled

local

Instructs the system to only use locally configured S-GW addresses and not to use DNS query.

Default: disabled

Usage Guidelines

Use this command to specify the DNS query or local address resolution for this LTE TAI Management Object. The addresses will be valid only for lac and rac defined under tai-mgmt-object.

Example

The following command sets the address resolution mode to use local addresses *only if* the DNS query fails:

```
sgw-address-resolution-mode fallback-for-dns
```

tai

Configures a Tracking Area Identifier (TAI) for this TAI management object.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

`[ no ] tai mcc` *`number`* **`mnc`** *`number`* **`{ tac`** *`value`* **`} +`**

no

Removes a configured TAI from the TAI management object.

mcc *number*

Specifies the mobile country code (MCC) portion of a PLMN identifier as an integer from 100 through 999.

mnc *number*

Specifies the mobile network code (MNC) portion of a PLMN identifier as a 2- or 3-digit integer from 00 through 999.

tac *value* +

Specifies the Tracking Area Code portion of the TAI as an integer from 1 through 65535. Up to 16 TAC values can be entered on a single line.

Usage Guidelines Use this command to configure one or more TAIs for this management object. Up to 16 TAIs can be configured per management object.

Example

The following command adds a TAI to this management object with an MCC of *111*, an MNC of *22*, and a TAC value of *1001*:

```
tai mcc 122 mnc 22 tac 1001
```

timezone

Configures the timezone to be used for the UE timezone in S11 and Non-Access Stratum (NAS) messages.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > **lte-policy** > **tai-mgmt-db** *db_name* > **tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

```
timezone { + | - } hours value [ minutes { 0 | 15 | 30 | 45 } |
daylight-savings-time-increment { 0 | 1 | 2 } ]
no timezone
```

Removes the timezone configuration from the management object.

+ | -

Specifies the offset direction from Coordinated Universal Time (UTC).

hours *value*

Specifies the offset from UTC in hours as an integer from 0 through 14.

minutes { 0 | 15 | 30 | 45 }

Optionally specifies the offset minutes added to the hours value.

daylight-savings-time-increment { 0 | 1 | 2 }

Specifies the number of hours the timezone should be offset due to daylight savings time. This allows the MME to serve areas that have daylight savings time different than that of the MME. This keyword is available in release 14.0 and higher.

If the TAI management database/object is configured for daylight savings using this keyword, the daylight savings time adjustment is applied in these messages only if the system time is within a daylight savings period.

Usage Guidelines Use this command to configure the timezone to be used for the UE timezone in S11 and NAS messages.



Important Time zone configurations at the TAI Management Object level take precedence over time zone configurations at the TAI Management Database level. If neither is configured, the system defaults to the MME (system) time zone.

Example

The following command sets the timezone mapping for this management object to plus-3 hours and 15 minutes from UTC:

```
timezone + hours 3 minutes 15
```

up-address

Displays the addresses of User Plane Nodes Serving all TAI's in this Object.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description **`[ no ] up-address { IP-ADDRESS | IP-ADDRESS/MASK } mef-address`***`ip_address`*

no

Removes the addresses of User Plane Nodes Serving all TAI's in this Object.

up-address { IP-ADDRESS | IP-ADDRESS/MASK }

Specifies the addresses of User Plane Nodes Serving all TAI's in this Object.

{ IP-ADDRESS | IP-ADDRESS/MASK } must be an IPV4 in ##.##.##.## notation or IPV6 in ####:####:####:####:####:####:####:#### notation. IPV6 also supports :: notation.

must be an IPV4 in ##.##.##.##/x notation or IPV6 in ####:####:####:####:####:####:####:####/x notation. IPV6 also supports :: notation.

mef-address*ip_address*: Configures the peer MEF server address for MEF signalling. *ip_address* must be any IPV4 address of notation ##.##.##.## or IPV6 address of notation ####:####:####:####:####:####:####:#### . IPV6 also supports :: notation.

Example

The following command displays the addresses of User Plane Nodes Serving all TAI's in this Object :

up-address *209.165.201.4*

zone-code

Configures a zone code for the management object.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration > LTE TAI Management Database Configuration > LTE TAI Management Object Configuration

configure > lte-policy > tai-mgmt-db *db_name* **> tai-mgmt-obj** *obj_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(tai-mgmt-obj)#
```

Syntax Description

In releases prior to 21.1:

zone-code *zc_id*
no zone-code

In 21.1 and later releases:

[no] zone-code *zonecode_value* **[***zonecode_value2***[...[** *zonecode_value10* **]]]**

no

Removes the configured zone-code from the management object. The operator needs to enter the zone code value(s) to be removed from the configuration (See Example).

zc_id

Identifies the zone code configuration instance as an integer from 1 through 65535.

zonecode_value

Identifies te zone code configuration instance as an integer from 1 through 65535. Under a TAI-Object, up to 10 zone code values can be configured.

Usage Guidelines



Important While there is no limit to the number of zone codes that can be created, only 10 LACs per zone code can be defined.

Use this command to define zone code restrictions. Regional subscription data at the home subscriber service (HSS) is used to determine the regional subscription area in which the subscriber is allowed to roam. The regional subscription data consists of a list of zone codes which are comprised of one or more location areas (identified by a LAC) into which the subscriber is allowed to roam. Regional subscription data, if present in the Insert-Subscriber-Data-Request (IDR) and the Update-Location-Answer (ULA) from the HSS, defines the subscriber's subscription area for the addressed MME. It contains the complete list (up to 10 zone codes) that apply to a subscriber in the currently visited PLMN. During the Location Update procedure, the zone code list is received in the ULA from the HSS. The zone code list is validated against the configured values in this command. If matched, the Location Update procedure is allowed to proceed. If not matched, the response is that the Network Node Area is restricted and the Location Update procedure fails.

In release 21.1, this command is modified to configure up to 10 zone code values under the same TAI-Object. It allows specific zone codes to be managed based on call-control-profile / HSS (per roaming partner). Also, it supports overlapping of zones by allowing multiple zone code values to which a TAI-Object belongs. For more information, refer to *Access Restriction based on Regional Zone Code* chapter in the *MME Administration Guide*.

Example

The following command sets the zone code for this management object to *1*:

```
zone-code 1
```

The following CLI shows the configuration of 5 zone code values:

```
zone-code 11 12 13 14 15
```

The following CLI shows the configuration to remove 3 zone code values from the above configuration:

```
no zone-code 11 12 13
```

In the above configuration example, zone code value **11 12 13** are removed from the configuration, and the zone code values **14** and **15** still remain configured under the TAI-Object.