

LTE Policy Configuration Mode Commands

The LTE Policy Configuration Mode is used to create and manage the LTE policies supporting ePDG, MME, S-GW, SAEGW, SGSN, and HeNBGW configurations on the system.

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

`[local]host_name(lte-policy)#`

Important Available commands or keywords/variables vary based on platform type, product version, and installed license(s).

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

Syntax Description

monitoring-event-profile *profile_monte profile_name*

events ***<List of Supported Events>***

loss-of-connectivity

Specifies Loss of connectivity.

ue-reachability

Specifies reachability of UE.

location-reporting

Specifies location information.

communication-failure

Specifies Radio connection status.

availability-after-ddn-failure

Specifies whether UE is active after DDN Failure.

idle-status-indication

Indicates that UE moves to idle status. The idle status can be either for ue-reachability or for DDN failure.

pdn-connectivity-status

Indicates PDN status change.

number-of-ue-in-geo-area

Specifies number of UEs present in a geographic area.

external identifier

MME updates HSS to handle the support.

If external identifier is received from HSS as part of Monitoring Event Configuration Grouped AVP it is read and the same is sent in as RIR to SCEF.

If external identifier AVP is NOT received as part of Monitoring Event Configuration AVP but received the same in Subscription Data AVP this will be read and sent in as RIR to SCEF.

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cause-code-group

Creates a new cause code group, or specifies an existing cause code group and enters the Cause Code Group Configuration Mode.

Product

MME

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] cause-code-group` *`group_name`* **`protocol { bssgp | ranap | s1ap }`**

no

Removes the specified cause code group with all related configuration from the LTE Policy.

group_name

Specify a name of a cause-code-group to create, modify, or remove. This name must be an alphanumeric string of 1 through 16 characters. Each new cause-code-group must have a unique name.

A maximum of 4 cause code groups can be defined across all services (MME+GPRS+SGSN).

protocol

Specifies the protocol for the cause code group being created/accessed. Options include:

- BSSGP for 2G.
- RANAP for 3G
- S1-AP

Usage Guidelines

Use this command to create or modify a group of cause codes.

Entering this command results in a prompt, with the protocol ID included, similar to the following:

```
[context_name]hostname(s1ap-cause-code)#
```

Depending upon the protocol you have selected, the Cause Code Group configuration commands are defined in the

- *BSSGP Cause Code Configuration Mode Commands* chapter of this guide.
- *RANAP Cause Code Configuration Mode Commands* chapter of this guide.
- *S1AP Cause Code Configuration Mode Commands* chapter of this guide.

Example

The following command creates an S1-AP cause code group named *move-ue-to-idle*.

```
cause-code-group move-ue-to-idle protocol s1ap
```

congestion-action-profile

Creates an action profile for MME or ePDG or HeNBGW critical, major and minor congestion thresholds. The profile defines the action to be taken when these thresholds are exceeded.



Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

HeNBGW

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] congestion-action-profile` *`profile_name`*

no

Removes the specified profile from the system.

profile_name

Specifies the name of the action profile. If the entered name does not refer to an existing profile, a new profile is created. *profile_name* is an alphanumeric string of 1 through 64 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to establish MME or ePDG action profiles to be associated with critical, major and minor congestion thresholds. This command is also used to remove an existing profile.

Note This command is part of a licensed feature and requires a proper license to function: MME Resiliency Bundle.

For information on setting the action to be taken within this profile, see the *Congestion Action Profile Configuration Mode Commands* chapter in this guide, and the *Congestion Control* chapter in the *System Administration Guide*.

Example

The following command creates a major congestion action profile named *mme_major_profile* and moves to the Congestion Action Profile Configuration mode:

```
congestion-action-profile mme_major_profile
```

Syntax Description

```
drop | reject  monitoring-event-config-request
```

drop|reject

Drops or rejects every new incoming Monitoring Event configuration without any reply.

Usage Guidelines Use this command to drop or reject the Monitoring Event Configuration Request if the system detects congestion.

.

enb-group

Creates eNB Group mode.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

```
[ no ] enb-group enb_group_name
```

Important Maximum of 20 eNB groups are allowed to be configure at any given point of time.

no

Removes the specific eNB group.

enb-group *enb_group_name*

Creates the eNB Group. *enb_group_name* must be a string of 1 to 64 characters.

bits Must be an Integer from 1 to 28.

By entering this command you enter new mode enb-group

foreign-plmn-guti-mgmt-db

Creates a new, or enters the existing Foreign PLMN GUTI management database.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

foreign-plmn-guti-mgmt-db *db_name* **[-noconfirm]**
no foreign-plmn-guti-mgmt-db *db_name*

no

Remove the specified management database from the system.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

db_name

Specifies the name of the management database. If the name does not refer to an existing database, a new database is created.

db_name is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to create a new, or enter the existing Foreign PLMN GUTI management database. This management database allows for the optional configuration of foreign PLMNs for which Attach Requests or TAU Requests containing a GUTI from such a PLMN can either be allowed or immediately rejected.

A maximum of four separate Foreign PLMN GUTI management databases can be configured.

Entering this command results in the following prompt:

```
[context_name]hostname(foreign-plmn-guti-mgmt-db)#
```

Global MME ID management database commands are defined in the *LTE Foreign PLMN GUTI Management Database Configuration Mode Commands* chapter.

Example

The following command creates a Foreign PLMN GUTI management database named *fguti-db1*.

foreign-plmn-guti-mgmt-db fguti-db1 -noconfirm

henbgw mme-pool

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Creates or configures a specified MME or MME pool to which the HeNB-GW is to communicate and enters the MME pool configuration mode.

Product

HeNB-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] henbgw mme-pool *pool_name* **[-noconfirm]**

no

Removes an already configured MME or MME pool from the system.

pool_name

Specifies the name of the MME pool being created or accessed. If the pool name does not refer to an existing profile, a new pool is created. *pool_name* is an alphanumeric string of 1 through 63 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to enter the MME Pool Configuration Mode for an existing pool or for a newly defined MME pool. This command is also used to remove an existing MME pool.

Important A maximum of eight MME pools are allowed per system.

Entering this command results in the following prompt:

```
[context_name]hostname(mme-pool)#
```

MME Pool Configuration Mode commands are defined in the *MME Pool Configuration Mode Commands* chapter.

Example

The following command helps entering the MME Pool Configuration Mode for a new or existing profile named *henb_mme_pool*:

henbgw mme-pool henb_mme_pool

henbgw overload-control



Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Configures HeNBGW overload control parameters.

Product

HeNBGW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

henbgw overload-control [load-reduction-indicator *percentage_value* **| ochl-guard-time** *minutes* **]**
default mme henbgw overload-control [load-reduction-indicator | ochl-guard-time]

default

Sets/Restores the default values assigned to HeNBGW overload control parameters. The default value of load Reduction indication is 99 percent.

load-reduction-indicator *percentage_value*

Designates the percentage of HeNBs to relay overload start message if traffic load Reduction indication IE is not present in the overload start message.

percentage_value is the percentage value, which is an integer between 1 and 99.

ochl-guard-time *minutes*

Designates the guard timeout value (in minutes) for sending overload stop messages if overload stop message is not received from MME to all the HeNBs in corresponding MME's overload control HeNBs list. The guard timeout value is an integer between 0 and 2147483647.

Usage Guidelines Use this command to configure HeNBGW overload control parameters.

Example

The following command configures HeNBGW overload control parameter **ochl-guard-time** as 45 minutes:

```
henbgw overload-control ochl-guard-time 45
```

henbgw qci-dscp-mapping-table

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Use this command to configure qci-dscp-mapping-table for HENBGW. The maximum limit for the tables that can be configured is 32.

Product HeNB-GW

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description **`[ no ] henbgw qci-dscp-mapping-table`** *`table_name`*

no

Removes the qci-dscp-mapping-table for HENBGW.

Important This command on execution will open a new mode HeNBGW QCI DSCP Mapping Table mode.

table_name

It is the qci-dscp-mapping-table for HENBGW, a string of size between 1 and 63.

Usage Guidelines Use this command to configure qci-dscp-mapping-table for HENBGW.

Example

Following command configures qci-dscp-mapping-table by name table1 for HENBGW.

```
henbgw qci-dscp-mapping-table table1
```

henbgw s1-reset

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Configures option to enable/disable s1-reset/partial-reset messages sent from HeNBGW.

Product HeNBGW

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

```
[ no ] henbgw s1-reset
```

no

This command prefix disables s1-reset/partial-reset messages sent from HeNBGW.

s1-reset

Configures option to enable or disable sending s1-reset/partial-reset messages from HeNBGW.

Example

The following command configures HeNBGW **s1-reset** messages:

```
henbgw  s1-reset
```

henbgw session-recovery idle-timeout

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Configures HENBGW session recovery. The HENBGW session recovery is valid only when require session recovery is configured. Base session recovery feature will enable recovery of IP-Sec tunnels when integrated IP-Sec is used. Enhanced HENBGW session recovery feature will enable recovery of SCTP/UE sessions in HENBGW. This feature should be enabled if henb(s) have the capability to retain UE S1AP state across SCTP connection restarts.

Product

HeNBGW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

henbgw session-recovery [idle-timeout *timeout_value* **]**
no henbgw session-recovery

no

Removes the HENBGW session recovery configuration.

idle-timeout *timeout_value*

Configures the idle timeout.

Designates the maximum duration of the session recovered without any activity, in seconds, before system automatically terminates the session. Zero indicates function is disabled.

The *timeout_value* specifies the idle timeout in seconds (0 is disabled). It is an integer between 0 through 2147483647.

Usage Guidelines

Use this command to configure HENBGW session recovery with idle timeout.

Example

The following command configures HeNBGW session recovery with idle timeout *45* seconds:

henbgw session-recovery idle-timeout *45*

ho-restrict-list

Creates a handover (HO) restriction list or specifies an existing HO restriction list and enters the Handover Restriction List Configuration Mode.

Product

MME

ePDG

SAEGW

S-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] ho-restrict-list` *`list_name`* `[ -noconfirm ]`

no

Removes the specified restriction list from the system.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

list_name

Specifies the name of the HO restriction list. If the entered list name does not refer to an existing list, a new list is created. *list_name* is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to enter the Handover Restriction List Configuration Mode for an existing list or for a newly defined list. This command is also used to remove an existing list.

Entering this command results in the following prompt:

```
[context_name]hostname(ho-restrict-list)#
```

Handover Restriction List Configuration Mode commands are defined in the *LTE Handover Restriction List Configuration Mode Commands* chapter.

Example

The following command enters the Handover Restriction List Configuration Mode for a new or existing list named *ho_restricit_list1*:

```
ho-restrict-list ho_restrict_list1
```

imei-tac-group

Creates an IMEI-TAC group and provides commands to configure up to 25,000 IMEI-TACs (international mobile equipment identity - type allocation code (IMEI-TAC) that can be used as the filtering criteria for Operator Policy selection.

Important This functionality is available on releases 18.6, 19.4, and 20.0 and higher.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description **`[ no ] imei-tac-group`** *`group_name`*

no

Removes the specified IMEI-TAC group with all related configuration from the LTE Policy.

group_name

Specify a name for the IMEI-TAC group to create, modify, or remove the group. This name must be an alphanumeric string of 1 through 64 characters. Each new IMEI-TAC group must have a unique name.

A maximum of 50 IMEI-TAC groups can be defined on the MME.

Usage Guidelines Use this command to create, modify, or delete an IMEI-TAC group. Create up to 50 IMEI-TAC groups. Each group can contain up to 500 unique IMEI-TAC values and/or up to 20 IMEI-TAC ranges, which can be overlapping.

This command is used as part of the configuration required to enable operator policy selection based on IMEI-TAC. Including the type allocation code (TAC) in the operator policy selection process supports network access restrictions being applied to UEs based on the type of wireless device identified by the IMEI-TAC. For details about this feature and all the other commands required for its configuration, refer to the *Operator Policy Selection Based on IMEI-TAC* chapter in the *MME Administration Guide*.

Example

The following command creates an S1-AP cause code group named *move-ue-to-idle*.

```
cause-code-group move-ue-to-idle protocol s1ap
```

imsi-group

This command configures the International Mobile Subscriber Identity (IMSI) group.

Product MME

SGSN

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

imsi-group *group_name*

imsi-group *group_name*

Specifies the IMSI group name. *group_name* must be an alphanumeric string of 1 through 64 characters. It can have a maximum of 50 groups.

Usage Guidelines

Use this command to create the IMSI group. An IMSI group can contain up to 500 elements of either individual IMSI or range of IMSI numbers. Once an IMSI group is created, each group can be configured with up to 500 unique IMSI values. Multiple lines of IMSI and IMSI-range can be up to 20 lines per group.

This command allows you to enter the IMSI Group Configuration Mode.

Entering this command results in the following prompt:

[*context_name*]*hostname*(config-imsi-group)#

IMSI Group Configuration Mode commands are defined in the *IMSI Group Configuration Mode Commands* chapter.

lte-emergency-profile

Creates an LTE emergency profile or specifies an existing emergency profile and enters the LTE Emergency Profile Configuration Mode.

Product

MME

ePDG

SAEGW

S-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] lte-emergency-profile *profile_name* **[-noconfirm]**

no

Removes an LTE emergency profile from the system.

profile_name

Specifies the name of the LTE emergency profile being created or accessed. If the profile name does not refer to an existing profile, a new profile is created. *profile_name* is an alphanumeric string of 1 through 64 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to enter the LTE Emergency Profile Configuration Mode for an existing profile or for a newly defined profile. This command is also used to remove an existing profile.



Important A maximum of four LTE emergency profiles are allowed per system.

Entering this command results in the following prompt:

```
[context_name]hostname(lte-emergency-profile)#
```

LTE Emergency Profile Configuration Mode commands are defined in the *LTE Emergency Profile Configuration Mode Commands* chapter.

Example

The following command enters the LTE Emergency Profile Configuration Mode for a new or existing profile named *emergency_profile3*:

`lte-emergency-profile emergency_profile3`

mec-tai-grp

Creates a MEC TAI Group and enters the MEC TAI Group Configuration Mode.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] mec-tai-grp` *`grp_name`*

no

Removes the MEC TAI Group from the system.

mec_tai_grp_name grp_name

Specifies the name of the MEC TAI Group being created. *grp_name* is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to enter the MEC TAI Group Configuration Mode.

MEC TAI Group Configuration Mode commands are defined in the *MEC TAI Group Configuration Mode Commands* chapter.

Example

The following command enters the MEC TAI Group Configuration Mode:

```
mec-tai-grp mgrp1
```

mme henbgw mgmt-db

Creates an MME HeNB-GW Management Database or specifies an existing database and enters the HeNB-GW Management Database Configuration mode.



Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] mme henbgw mgmt-db` *db_name* **`[ -noconfirm ]`**

no

Removes the specified management database from the system.

[-noconfirm]

Executes the command without any additional prompt and confirmation from the user.

db_name

Specifies the name of the management database. If the name does not refer to an existing database, a new database is created. *db_name* is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to create a new, or enter the existing MME HeNB-GW management database. This command enables configuration for the MME to distinguish between an HeNB-GW and an eNodeB.

In case of S1-based handovers to Home eNodeBs served by a HeNB-GW, the lookup at the MME for the target eNodeB based on global eNodeB id cannot be completed, as the MME is aware of only the HeNB-GW. In those cases, an additional lookup needs to be performed based on the TAI, in order to find the HeNB-GW serving the Home eNodeB. The S1 Handover request message will then be sent to the HeNB-GW and forwarded to the correct Home eNodeB in order to prepare the target RAN node for handover.

One HeNB-GW management database is allowed per LTE Policy.

A maximum of 8 HeNB-GWs can be configured within this management database.

Entering this command results in the following prompt:

`[context_name]hostname(henbgw-mgmt-db)#`

MME HeNB-GW management database commands are defined in the *LTE MME HeNB-GW Management Database Configuration Mode Commands* chapter.

Example

The following command enters the existing LTE MME HeNB-GW Managment Database Configuration Mode (or creates it if it does not already exist) for the database named henbgw_db1:

`mme henbgw mgmt-db  henbgw_db1`

mme paging cache

Enable or disables caching of the MME's paging and provides the operator configurable paging cache controls.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

`[local]host_name(lte-policy)#`

Syntax Description

`mme paging cache { size` *`cache_size`* **`| timeout`** *`time`* **`}`**
`default mme paging cache { size | timeout }`

default

Resets either the paging cache size or the paging cache timer to default settings.

size *cache_size*

cache_size: Enter an integer from 0 to 10000 to specify the maximum number of Tracking Area Code (TAC) entries to be cached.

Entering the '0' value disables caching and should be followed by use of the **mme paging cache clear** command (in the Exec mode). See the *Example* section.

Default cache size = 5000 TAC entries per SessMgr.

timeout *time*

time: Enter an integer from 1 to 1440 to specify the number of minutes that each Tracking Area Code (TAC) entry remains valid.

A lower cache timeout helps to refresh the cache frequently and enables this functionality to quickly adapt to changes in the network. We recommend the **timeout** value be less than the expected eNodeB flap frequency; for example, if the eNodeBs connected to the MME are expected to disconnect and reconnect every 10 minutes (due to network issues), then the timeout configuration should be less than 10 minutes.

Default timeout = 5 minutes.

Usage Guidelines

Both size and timeout must be configured to enable paging cache optimization. The **mme paging cache** command must be entered twice, once for each parameter.

Example

Use the following configuration to set the paging cache timeout to match the eNodeB flap frequency of 10 minutes:

```
mme paging cache timeout 10
```

Use the following configuration to set the paging cache size to 100:

```
mme paging cache size 100
```

Use the following configuration to set the paging cache size to 0 (to disable caching):

```
mme paging cache size 0
end
mme paging cache clear { all | instance sessmgr_instance }
```

network-global-mme-id-mgmt-db

Creates a new, or enters the existing MME group ID management database.

Product

MME

ePDG

SAEGW

S-GW

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] network-global-mme-id-mgmt-db

no

Remove the global MME ID management database from the system.

Usage Guidelines

Use this command to create a new, or enter the existing MME group ID management database. The MME group ID management database is used to create associations between PLMN IDs and ranges of MME group IDs.

On the S4-SGSN, this command enables operators to create a MME group ID management database that can be associated with an SGSN service.

Important Only one MME group ID management database can be created per system.

Entering this command results in the following prompt:

```
[context_name]hostname(network-global-mme-id-mgmt-db)#
```

plmn mcc [*mcc-value*] **mnc** [*mnc-value*]**mme-group-id-range** [*First id*] [*last id*]

Global MME ID management database commands are defined in the *LTE Network Global MME ID Management Database Configuration Mode Commands* chapter.

paging-map

Creates a paging map or specifies an existing paging map and enters the Paging Map Configuration Mode.

Product

MME

ePDG

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] paging-map *paging_map_name* **[-noconfirm]**

precedence *priority* **traffic-type { cs [other | sms | voice] | ps [apn-profile** *profile_name* **| arp** *arp_value* **| qci** *qci_value* **] | signaling [detach | idr | lcs | node-restoration] } paging-profile** *paging_profile_name*

no

Remove the paging map from the system.

paging_map_name

Specifies the name of the paging map being created or accessed. If the map name does not refer to an existing map, a new map is created. *paging_map_name* must be an alphanumeric string of 1 through 64 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

precedence ***priority***

precedence: For StarOS releases 16.5 and higher, enter an integer from 1 to 19, where 1 is the highest priority and 19 is the lowest priority. For StarOS releases prior to 16.5, enter an integer from 1 to 7, where 1 is the highest priority and 7 is the lowest priority. For releases 20.0 onwards enter an integer from 1 to 35, where 1 is the highest priority and 35 is the lowest priority. The numbers of paging-profiles supported are increased from 8 to 16.

traffic-type { cs [voice | sms | other] | ps [qci ***qci_value*** **| apn-profile** ***profile_name*** **] | signaling [detach | idr | lcs | node-restoration] }**

Defines the type of traffic of the incoming call.

- **cs** (Circuit Switched) - All data and control activities that involve CSFB. Paging requests from the MSC for mobile-terminated calls alone are treated as CS type. Paging requests for SMS are treated as PS type.

  Optionally, define the CS traffic sub-type:

  - **other**: MM Information Request messages coming from MSC can also trigger paging if UE is in IDLE state. These requests are mapped to 'other' sub-traffic type.
  - **sms**: Paging requests from MSC for mobile terminated SMS requests.
  - **voice**: Paging requests from MSC for mobile terminated voice calls.

  If a sub-traffic-type is not configured then paging-profile configured for CS (with no sub traffic-type qualification) is applied. If no such entry exists, then default heuristics based paging behavior is applied.

- **ps** (Packet Switched) - All data and control activities that involve packet services. SRVCC is also mapped to this traffic-type as the voice is carried using PS service. PS traffic type is further qualified using a set of QCI values or ARP values or APN profile names. These qualified entries are only used for paging triggered by S11 Downlink Data Notifications or Create Bearer Request or Update Bearer Request

  Optionally, define the APN Profile for PS traffic:

  apn-profile *profile_name*

  where *profile_name* is an alphanumeric string of size 1 to 64.

  The MME supports paging profile selection based on APN. A maximum of four APN profiles can be configured per precedence using this command.

  When heuristics paging is enabled, the MME selects the paging profile based on the APN profile, if paging-profile with matching APN profile name is fetched from the APN information corresponding to the EBI received in DDN is configured in the paging-map. If the incoming DDN does not have the EBI

information then the APN information is received from the bearers stored in the MME for the UE. If multiple APN information is available, then the mapping with the highest precedence is picked. MME warns the user of duplicate APN profile names in a given entry. The same APN profile name cannot be configured with more than one precedence level.

Optionally, define the ARP priority based paging for PS traffic type in the paging-map:

arp *arp_value*

The allowed ARP value " *arp_value* " is an integer from 1 through 15.

Optionally, define the QoS Class Identifier (QCI) value for this PS traffic:

qci *qci_value*

The QCI values can be either standard or non-standard. The *qci_value* is an integer from 1 through 9, 65, 66, 67, 69, 70 (standard values) and from 128 up to 255 are non-standard values.

QCI qualified entries can only be used for paging triggered by Downlink Data Notifications received on S11. If the incoming DDN contains EPS Bearer ID (EBI) information, the QCI corresponding to that PDN is used to find the appropriate 'ps qci xx' entry and its configured paging-profile.

If there are multiple EBIs included in the DDN the mapping entry with highest precedence is selected.

If no QCI specific mapping exists, or if the incoming DDN does not have the EBI information then the qci corresponding to the bearers stored in MME for the UE shall be used to find the appropriate 'ps qci xx' entry and its configured paging-profile. The MME warns the user of duplicate QCI values in a given entry, same QCI values cannot be configured with more than one precedence level.

sms

Configures paging profile for SMS via SGd.

- **signaling [detach | idr | lcs | node-restoration]**: UE level signaling requests. This traffic can be optionally qualified according to the following sub-traffic types:

  detach: Paging requests triggered due to UE getting detached.

  idr: Paging triggered in response to an IDR event, such as receiving an IDR Request.

  lcs: (Location Services) – Paging requests triggered due to Positioning Requests coming from SMLC over SLs interface. Mobile Terminated Location Requests arriving on SLg interface can also trigger paging if UE is in IDLE state, and are included in this sub-traffic type.

  node-restoration: Paging requests triggered due to node restoration (for example, due to P-GW Restart Notification (PRN)). By default, no precedence is assigned to node restoration signaling traffic. The MME treats node restoration paging with the least priority.

  If a sub-traffic-type is not configured then paging-profile configured for signaling (with no sub traffic-type qualification) shall be applied. If no such entry exists then default-heuristics based paging behavior is applied.

paging-profile *paging_profile_name*

The paging-profile to apply for paging UE.

Usage Guidelines

Enter the Paging Map Configuration Mode for an existing or newly defined map. This command is also used to remove an existing map.

Entering this command results in the following prompt:

hostname(paging-map)#

Paging Map Configuration Mode commands are defined in the *LTE Paging Map Configuration Mode Commands* chapter.

Refer to the *Heuristic and Intelligent Paging* chapter in the *MME Administration Guide* for more information about Paging Maps.

Example

The following command enters the existing Paging Map Configuration Mode (or creates it if it does not already exist) for the map named *map1*:

paging-map map1

paging-profile

Creates a paging profile or specifies an existing paging profile and enters the Paging Profile Configuration Mode.

Product

MME

ePDG

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

[local]*host_name*(lte-policy)#

Syntax Description

[no] paging-profile *paging_profile_name* **[-noconfirm]**

no

Remove the paging map from the system.

paging_profile_name

Specifies the name of the paging profile being created or accessed. If the profile name does not refer to an existing profile, a new profile is created. *paging_profile_name* must be an alphanumeric string of 1 through 64 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Enter the Paging Profile Configuration Mode for an existing or newly defined paging profile. This command is also used to remove an existing profile.

Entering this command results in the following prompt:

```
hostname(paging-profile)#
```

Paging Profile Configuration Mode commands are defined in the *LTE Paging Profile Configuration Mode Commands* chapter.

Refer to the *Heuristic and Intelligent Paging* chapter in the *MME Administration Guide* for more information about Paging Profiles.

Example

The following command enters the existing Paging Profile Configuration Mode (or creates it if it does not already exist) for the profile named *profile1*:

paging-profile profile1

peer-map

Creates a peer map and enters the LTE Peer Map Configuration mode.

Product

P-GW

SAEGW

S-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

peer-map *map_name* **[-noconfirm]**
no peer-map *map_name*

no

Removes the specified peer map from the LTE policy.

map_name

Specify a name of a peer map to create, modify, or remove. This name must be an alphanumeric string of 1 through 64 characters. Each new peer map must have a unique name.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to create or modify a peer map.

Entering this command results in the following prompt:

```
[local]host_name(peer-map)#
```

LTE Peer Map Configuration Mode commands are defined in the *LTE Peer Map Configuration Mode Commands* chapter of this guide.

Example

The following command creates a peer map named map5 and enters the LTE Peer Map Configuration mode:

```
peer-map map5
```

pra-profile dcnr-5g-radio

Configures the gNB S1-U IP addresses in ranges. By default, an gNB S1-U IP address is not configured.

For IPv4 addresses or IPv6 addresses, a maximum of 50 entries can be given in a PRA profile. Altogether, a maximum of 100 entries can be given in a PRA profile and only one PRA profile is supported.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

```
[ no ] pra-profile dcnr-5g-radio  profilename1
           [ no ] gnb-s1u ipv4-network <address>/[ mask ]
          [ no ] gnb-s1u ipv4-range from <start-ip/mask> to <end-ip/mask>

           [ no ] gnb-s1u ipv6-prefix <address>/[mask]
           [ no ] gnb-s1u ipv6-prefix-range from <start-ip/mask> to
<end-ip/mask>
           [ no ] gnb-s1u ipv6-prefix-pattern <address/mask> start-bit
<bit position>
             end-bit <bit position> pattern <pattern in hex value>
```

pra-profile

Configures PRA Profile.

profile_name: Specifies the PRA profile name with a string of size 1–63..

- **do**: Spawns an exec mode command which displays information to the administrator.
- **end**: Exits configuration mode and returns to the Exec Mode
- **exit**: Exits current configuration mode, returning to previous mode
- **gnb-s1u**: Configures gNB S1-U Addresses for 5G radio connectivity

- **no**: Disables option.

gnb-s1u

Executes the command without any additional prompt and confirmation from the user.

- **ipv4-network** : Configures gNB S1-U IPv4 network for 5G radio connectivity.
- **ipv4-range**: Configures gNB S1-U IPv4 address range for 5G radio connectivity.
- **ipv6-prefix**: Configures gNB S1-U IPv6 network for 5G radio connectivity.
- **ipv6-prefix-pattern**: Configures gNB S1-U IPv6 prefix range with hex-pattern for 5G radio connectivity.
- **ipv6-prefix-range**: Configures gNB S1-U IPv6 prefix range for 5G radio connectivity

gnb-s1u ipv4-network *address/mask*

Configures block of addresses. If the mask is not specified, a default mask of 32 bits for the IPv4 address is considered.

When **gnb-s1u ipv4-network** *0.0.0.0* is configured, it indicates that any IPv4 address will be considered as gnb-s1u address, and no lookup is done with the already configured IPv4 addresses in the profile. In this input, default mask is taken irrespective of any configured mask.

gnb-s1u ipv4-range from <start-ip/mask> to <end-ip/mask>

Specifies a range of IP addresses for a given mask. The mask value should be the same in the *start-ip* and in *end-ip*. Following are few conditions:

- In the range, if Network ID is specified, then starting address and ending address is calculated according to the mask.
- In the range, if host address is specified then it will be taken.
- You can specify either Network ID for both the starting address and ending address or Host ID for both the starting address and ending address.
- In the range, if mask is not specified, a default mask of 32 bits is considered for IPv4 and the specified address is considered as host address.

gnb-s1u ipv4-range

- **from**: Enter the first gNB S1-U IPv4 address in the range.
- **to**: Enter the last gNB S1-U IPv4 address in the range.

gnb-s1u ipv6-prefix *address/mask*

Configures block of addresses. If the mask is not specified, default mask of 128 bits for an IPv6 address is considered. For example, if an ipv6 range is specified from 2001:4900:0050:2001::0/64, then all addresses with the network id 2001:4900:0050:2001 is considered.

Note When **gnb-s1u ipv6-prefix :: is** configured, it indicates that any IPv6 address is considered as gnb S1 U address, and there is no lookup with the already configured IPv6 addresses in the profile. In this input, a default mask is taken irrespective of any configured mask.

ipv6-prefix

Configures S1-U IPv6 addresses.

gnb-s1u ipv6-prefix-range from < start-ip / mask > to < end-ip / mask >

Specifies a range of IP addresses for a given mask. Ensure to enter the same mask value in the *start-ip* and in the *end-ip*:

- **from**: Enter the first gNB S1-U IPv6 address in the range.
- **to**: Enter the last gNB S1-U IPv6 address in the range.

  For example, If you specifiy ipv6 range from 2001:4900:0050:2001::0/64 to 2001:4900:0050:20aa::0/64", then all addresses with the network id "2001:4900:0050:2001" to "2001:4900:0050:20aa" is considered.

gnb-s1u ipv6-prefix-pattern <address/mask> start-bit *bit position* end-bit *bit position* pattern *pattern in hex value*

- **start-bit** *bit position* : Starting bit position of the pattern. It should be outside the mask bits
- **end-bit** *bit position* : Ending bit position of the pattern. It should be outside the mask bits.
- **pattern** *pattern in hex value*: Enter the pattern in hexadecimal. A maximum of 64 bit pattern is supported.

Note The start-bit and end-bit position should not be within the mask bits. For example, if you specify gnb-s1u ipv6-prefix-pattern 2001:4900:0050:2000::0/16 start-bit 61 end-bit 64 pattern 0x3", then all addresses with the network id "2001:4900" and with bits 61–64 matching to 0x3 are considered. A maximum of 64-bit pattern is supported for an IPv6 address.

Limitations: Following are the limitations:

- It is recommended to provide non duplicate, or non overlapping IP addresses, or non conflicting inputs across the CLIs.
- It is recommended not to configure multicast or broadcast IP addresses.

Usage Guidelines

Enter the gNB S1-U IP addresses in ranges. By default, an gNB S1-U IP address is not configured.

For IPv4 addresses or IPv6 addresses, a maximum of 50 entries can be given in a PRA profile. Altogether, a maximum of 100 entries can be given in a PRA profile and only one PRA profile is supported.

sgsn-mme

This command is used to enable or disable subscriber data optimization in a SGSN-MME combo node.

Product

SGSN

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] sgsn-mme subscriber-data-optimization`

no

Disables the configured optimization in a SGSN-MME combo node.

subscriber-data-optimization

Enables subscriber data optimization in a SGSN-MME combo node.

Usage Guidelines

This command is used to configure data optimization in a SGSN-MME combo node. When this command is configured in a co-located SGSN and MME node, lower memory or CPU utilization and reduced signaling towards other nodes in network is achieved. This feature is supported by both the S4-SGSN and the Gn-SGSN. For the feature to apply to a Gn-SGSN, the Gn-SGSN must be configured to connect to an HSS. The is a licensed Cisco feature. A separate feature license is required. Contact your Cisco account representative for detailed information on specific licensing requirements. For information on installing and verifying licenses, refer to the *Managing License Keys section of the Software Management Operations chapter in the System Administration Guide*

Example

The following command is used to enable subscriber data optimization in a SGSN-MME combo node.

`sgsn-mme subscriber-data-optimization`

subscriber-map

Creates a subscriber map or specifies an existing subscriber map and enters the Subscriber Map Configuration Mode.

Product

MME

ePDG

SAEGW

S-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] subscriber-map *map_name* **[-noconfirm]**

no

Removes the specified subscriber map from the system.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

map_name

Specifies the name of the subscriber map. If the map name does not refer to an existing map, a new map is created. *map_name* must be an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Enter the Subscriber Map Configuration Mode for an existing or newly defined map. This command is also used to remove an existing map.

Entering this command results in the following prompt:

```
hostname(subscriber-map)#
```

Subscriber Map Configuration Mode commands are defined in the *LTE Subscriber Map Configuration Mode Commands* chapter.

Example

The following command enters the existing Subscriber Map Configuration Mode (or creates it if it does not already exist) for the map named *map1*:

```
subscriber-map map1
```

tai-list-db

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Creates or configures a list of Tracking Area Information (TAI). This list is called TAI List Database.

Product

HeNB-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

`[ no ] tai-list-db` *`db_name`* `[ -noconfirm ]`

no

Removes the specified TAI list database from the system.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

db_name

Specifies the name of the TAI list database. If the name does not refer to an existing database, a new database is created. *db_name* is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Enters the TAI List Database Configuration Mode for an existing or newly defined database. This command is also used to remove an existing database.



Important Maximum of eight TAI List Database instances can be created in a system.

Entering this command results in the following prompt:

```
[context_name]hostname(tai-list-db)#
```

TAI List Database Configuration Mode commands are defined in the *TAI List Database Configuration Mode Commands* chapter.

Example

The following command enters the existing TAI List Database configuration mode (or creates it if it does not already exist) for the database named *tai_db1*:

```
tai-list-db tai_db1
```

tai-mgmt-db

Creates a Tracking Area Identifier (TAI) Management Database or specifies an existing database and enters the TAI Management Database Configuration mode. On an S4-SGSN, this command is used as part of configuring S-GWs and their associated RAIs to bypass DNS resolution of RAI FQDN for obtaining the S-GW address.

Product

MME

ePDG

SAEGW

S-GW

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > LTE Policy Configuration

configure > lte-policy

Entering the above command sequence results in the following prompt:

```
[local]host_name(lte-policy)#
```

Syntax Description

[no] tai-mgmt-db *db_name* **[-noconfirm]**

no

Removes the specified management database from the system.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

db_name

Specifies the name of the management database. If the name does not refer to an existing database, a new database is created. *db_name* is an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Enter the TAI Management Database Configuration Mode for an existing or newly defined database. This command is also used to remove an existing database.

On the S4-SGSN, once you have created a new, or accessed an existing, TAI Management database, a TAI Management Object must be created or accessed and the S-GWs and their associated RAIs configured using the **rai** and **sgw-address** commands. Refer to the *LTE TAI Object Configuration Mode* chapter for details on these two commands.

A maximum number of 32 TAI-DBs is supported in this release.

Entering this command results in the following prompt:

```
[context_name]hostname(tai-mgmt-db)#
```

TAI Management Database Configuration Mode commands are defined in the *TAI Management Database Configuration Mode Commands* chapter.

Example

The following command enters the existing TAI Management Database configuration mode (or creates it if it does not already exist) for the database named *tai_db1*:

```
tai-mgmt-db tai_db1
```