



Cause Code Mapping

Local Cause Code Mapping provides the operator with the flexibility to configure a preferred GMM cause code to be sent to the UE in response to various failures, such as MAP failures. This section identifies the various cause code mapping options and how they are configured.

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Feature Description

This feature enables the operator to configure (map) preferred failure code information to send to the UE in reject messages.

Prior to release 16, the operator could map a preferred GMM reject cause code for the SGSN to send to a UE in place of MAP cause 'roaming not allowed' for MAP failures and to map a preferred GMM reject cause code to be sent in a RAU Reject for inbound peer SGSN address resolution failures.

Beginning with release 16, additional local cause code mapping is possible:

- Mapping GSM-MAP cause code "unknown-subscriber" to GMM cause code "gprs-service-not-allowed" if a response message comes without diagnostic information.
- Mapping GSM-MAP cause code unknown-subscriber with diagnostic information indicating gprs-subscription-unknown to a preferred GMM cause code.
- Mapping GSM-MAP cause code unknown-subscriber with diagnostic information indicating imsi-unknown to a preferred GMM cause code.
- Override the GMM cause sent to the MS in a RAU Reject during context transfer failure.
- Override the cause sent in a Deactivate Request, to an MS, due to the GGSN becoming unreachable.
- Mapping an SM cause code for Deactivate PDP Requests during a path failure towards the GGSN.

Configuring Cause Code Mapping

Each mapping of a cause code is configured slightly differently. Each is illustrated below.

Configuring GMM Cause Codes to Replace MAP Cause Codes

The following configures the SGSN to include a preferred GMM cause code, in Reject messages to the UE, in place of MAP failure cause 'unknown-subscriber' for MAP failures and inbound RAU context transfer failures. Optionally, the Operator can map a specific GMM cause code if the SGSN receives additional MAP failure diagnostic information.

```
configure
  call-control-profile profile_name
    local-cause-code-mapping map-cause-code { roaming-not-allowed
gmm-cause-code gmm_cause | unknown-subscriber { gmm-cause-code gmm_cause |
map-diag-info { gprs-subscription-unknown gmm-cause-code gmm_cause |
imsi-unknown gmm-cause-code gmm_cause } } }
    end
```

Notes:

- **unknown-subscriber** Instructs the SGSN to send a different GPRS mobility management (GMM) cause code to a UE when the UE's access request is rejected due to map cause 'unknown-subscriber'.
- **gmm-cause-code *gmm_cause*** identifies the replacement GMM cause code options include:
 - **gprs-serv-and-non-gprs-serv-not-allowed**
 - **gprs-serv-not-allowed**
 - **gprs-serv-not-in-this-plmn**
 - **location-area-not-allowed**
 - **network-failure**
 - **no-suitable-cell-in-this-la**
 - **plmn-not-allowed**
 - **roaming-not-allowed-in-this-la**
- **map-diag-info gprs-subscription-unknown gmm-cause-code *gmm_cause*** identifies a replacement GMM cause code if additional 'gprs-subscription-unknown' diagnostic MAP failure information is received when the UE's access request is rejected due to map cause 'unknown-subscriber'.
- **map-diag-infoimsi-unknown gmm-cause-code *gmm_cause*** identifies a replacement GMM cause code if additional 'imsi-unknown' diagnostic MAP failure information is received when the UE's access request is rejected due to map cause 'unknown-subscriber'.

Verifying Configuration to Replace MAP Cause Codes

Mapping is performed in the call control profile.

Run the **show call-control-profile full name *profile_name*** command and review the output. Look for the following lines to confirm the mapping configuration

```
Mapped Gmm Cause code for MAP cause Unknown Subscriber          : <gmm-cause-if-configured>
MAP cause Unknown Subscriber with Diag Info Gprs Subscription Unknown :
<gmm-cause-if-configured>
```

```
MAP cause Unknown Subscriber with Diag Info Imsi Unknown      :
<gmm-cause-if-configured>
```

Configuring GMM Cause Code for RAU Reject due to Context Transfer Failure

This configuration uses the existing **rau-inter** command in the call control profile configuration mode. There is a new keyword configures a GMM failure cause code to be sent in a RAU Reject to the UE due to context transfer failures.

```
configure
  call-control-profile profile_name
    rau-inter ctxt-xfer-failure failure-code fail_code
  end
```

Notes:

- *fail_code* enter value from 2 to 111 to identify the TS 124.008 GMM failure cause code for the **ctxt-xfer-failure** keyword.

For more information about these commands, refer to the *Command Line Interface Reference*.

Verifying Configuration for Context Transfer Failures

Mapping is performed in the call control profile.

Run the **show call-control-profile full name profile_name** command and review the output. Look for the following lines to confirm the mapping configuration

```
RAU Inter- Failure Code For Peer Sgsn Address Resolution      : <gmm-cause>
RAU Inter- Failure Code For Context Transfer                  : <gmm-cause>
```

Configuring SM Cause Codes

The following procedures illustrates the commands used to configure SM cause codes to override the default cause codes sent in Deactivate PDP Request due to GTPC path failure. It is up to the person entering the configuration to determine which of the 4 cause codes should be the new cause code.

```
configure
  call-control-profile profile_name
    local-cause-code-mapping path-failure sm-cause-code {
insufficient-resources | network-failure | reactivation-requested |
regular-deactivation }
  end
```

Verifying Configuration for SM Cause Codes

Mapping is performed in the call control profile.

Run the **show call-control-profile full name profile_name** command and review the output. Look for the following lines to confirm the mapping configuration

```
Mapped SM Cause Code For Path Failure      : <sm-cause>
```

