Support for 3gpp IKEv2 Private Notify Error Types

This chapter describes the following topics:

Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	ePDG
Applicable Platform(s)	• ASR 5500 • VPC-DI • VPC-SI
Feature Default	Disabled – Configuration Required
Related Changes in This Release	Not applicable
Related Documentation	• *ePDG Administration Guide* • *Command Line Interface Reference*

Revision History

Revision Details	Release
First introduced.	21.5.5

Feature Description

ePDG treats every error returned on S2b from P-GW in the same way and translates to "Internal Address Failure",ePDG also treats SWM from AAA in the same way and translates it to "AUTH Fail" towards UE. This feature translates the errors received on the S2b from the P-GW and SWm from the AAA into 3GPP defined errors on the SWu interface.

A new backoff timer notify payload is introduced to restrict the UE from retrying immediately after certain permanent errors as defined in 3GPP. New CLI command is introduced to control, enable/disable the back off timer value.

Table 1: SWm to SWu Error Mappig Table

Notify Message	Value	Descriptions
NON_3GPP_ACCESS_TO_EPC_NOT_ALLOWED	9000	SWM Result code IE #DIAMETER_ERROR_USER_NO_NON_3GPP_SUBSCRIPTION
USER_UNKNOWN	9001	SWM Result code IE #DIAMETER_ERROR_USER_UNKNOWN
NO_APN_SUBSCRIPTION	9002	SWM Result code IE #DIAMETER_ERROR_USER_NO_APN_SUBSCRIPTION or Other scenarios when the requested APN is not included in the user's profile
AUTHORIZATION_REJECTED	9003	SWM Result code IE #DIAMETER_AUTHORIZATION_REJECTED
ILLEGAL_ME	9006	SWM Result code IE #DIAMETER_ERROR_ILLEGAL_EQUIPMENT
NETWORK_FAILURE	10500	SWM Result code IE #DIAMETER_ERROR_UNABLE_TO_COMPLY
RAT_TYPE_NOT_ALLOWED	11001	SWM Result code IE #DIAMETER_RAT_TYPE_NOT_ALLOWED
IMEI_NOT_ACCEPTED	11005	NA
PLMN_NOT_ALLOWED	11011	SWM Result code IE #DIAMETER_ERROR_ROAMING_NOT_ALLOWED
UNAUTHENTICATED_EMERGENCY_NOT_SUPPORTED	11055	The emergency PDN connection request has been rejected due to authentication has failed

Table 2: S2b to SWu Error Mapping Table

Notify Message	Value	Descriptions
PDN_CONNECTION_REJECTION	8192	UE PGW selection failure during attach or handoff scenario.
MAX_CONNECTION_REACHED	8193	The maximum number of PDN connections per UE allowed to be established simultaneously. Max value is 11 due to a limitation in the network mobility procedures. or With "ebi range start <> end <>" CLI under epdg-service max PDN connection per UE change be modified.
SEMANTIC_ERROR_IN_THE_TFT_OPERATION	8241	S2B Error #74 Semantic error in the TFT operation.
SYNTACTICAL_ERROR_IN_THE_TFT_OPERATION	8242	S2B Error #75 Syntactic error in the TFT operation.
SEMANTIC_ERRORS_IN_PACKET_FILTERS	8244	S2B Error #76 Semantic errors in packet filter(s).
SYNTACTICAL_ERRORS_IN_PACKET_FILTERS	8245	S2B Error #77 Syntactic errors in packet filter(s).

Configuring Support for 3GPP IKEv2 Private Notify Error Types

This section provides information on CLI commands available in support of this feature.

Configuring 3GPP IKEv2 Private Notify Error Types

Use the following configuration to enable this feature.

```
configure
   context context_name
      epdg-service service_name
         [ no ] allow 3gpp-swu-priv-notify-error-types
         end
```

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Important   Either the *Custom S2b/SWm to SWu Error Code Mapping* (existing feature) or the Configuring 3GPP IKEv2 Private Notify Error Types feature can be enabled for epdg-service at a given time.

NOTES:

- **epdg-service** : Creates ePDG service and enters ePDG service configuration mode.

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- **allow 3gpp-swu-priv-notify-error-types** : Configures 3GPP Rel.13 SWu Private Notify Error Types for S2b, SWm failures.

- **no**: Disables the 3GPP Rel.13 SWu Private Notify Error Types for S2b, SWm failures related parameters.

Configuring the Backoff-Timer

Use the following configuration to enable this feature.

```
configure
  context context_name
    crypto template template_name ikev2-dynamic
      ikev2-ikesa notify-msg-error { network-failure | no-apn-subscription
 } backoff-timer { backoff_timer | deactivate }
        end
```

NOTES:

- **crypto template**: Configures the context level name to be used to identify the Crypto Template.

- **notify-msg-error**: Configures the notify message error type for backoff Timer.

- **network-failure**: Configures backoff timer for notify message error type network-failure(10500).

- **no-apn-subscription**: Cofigures backoff timer for notify message error type no-apn-subscription(9002).

- *backoff_timer*: Configures the number of seconds to inform UE Backoff Timer via notify payload after IKE setup failure.

  Backoff timer must be an Integer from 0 to 35712000 seconds. Default 3600 seconds.

- **deactivate**: Backoff timer value set to deactivate in the notify payload sent to UE after IKE setupfailure.

Monitoring and Troubleshooting

This section provides information on how to monitor and troubleshoot the Support for 3GPP IKEv2 Private Notify Error Types feature.

Show Commands and Outputs

This section provides information on show commands and their corresponding outputs for this feature.

show epdg-service all

The following new fields are added to the output of this command:

- 3GPP SWu Private Notify Error Types

show crypto template tag test

The following new fields are added to the output of this command:

- IKE SA Backoff Timer per Notify Msg Type

    - No APN Subscription

    - Network failure