IKEv2 Error Codes and Notifications

This appendix lists the IKEv2 error codes and notifications supported by the ePDG (evolved Packet Data Gateway).

IKEv2 Error Codes

The following table lists the IKEv2 error codes generated by the ePDG.

Table 1: IKEv2 Error Codes Generated by the ePDG

Value	Error Code	ePDG Support
1	UNSUPPORTED_CRITICAL_PAYLOAD	The ePDG sends this code if the Critical Bit exists in the received message and the Payload Type is unrecognized.
4	INVALID_IKE_SPI	The ePDG does not send this code. The ePDG ignores messages with an unrecognized SPI in order to minimize the impact of DoS attacks.
5	INVALID_MAJOR_VERSION	The ePDG sends this code in response to messages with an invalid Major Version. The ePDG supports a CLI command to suppress sending this error notification in response to IKE_SA_INIT Request messages. This is done in order to avoid DoS attacks.

Value	Error Code	ePDG Support
7	INVALID_SYNTAX	The ePDG sends this code upon receiving messages with an inappropriate format, or when necessary payloads are missing. The ePDG does not send this code during IKE_SA_INIT exchanges for an unknown IKE SA. The ePDG sends this code for non-IKEv2 INIT exchanges only (such as IKE_AUTH, CREATE_CHILD_SA, or INFORMATIONAL exchanges). The ePDG also supports a CLI command to suppress sending this error notification. This is done in order to avoid DoS attacks.
9	INVALID_MESSAGE_ID	The ePDG sends this code in INFORMATIONAL Request messages only. The ePDG also supports a CLI command to suppress sending this error notification in response to IKE_SA_INIT Request messages. This is done in order to avoid DoS attacks.
11	INVALID_SPI	The ePDG does not send this code. The ePDG ignores ESP packets with an unrecognized SPI in order to minimize the impact by DoS attacks.
14	NO_PROPOSAL_CHOSEN	The ePDG sends this code when it cannot not choose a proposal from the UE. The ePDG supports a CLI command to suppress sending this code.
17	INVALID_KE_PAYLOAD	The ePDG sends this code when the IKE payload from the UE is invalid.
24	AUTHENTICATION_FAILED	The ePDG sends this code during the EAP authentication when EAP authentication fails.

Value	Error Code	ePDG Support
35	NO_ADDITIONAL_SAS	The ePDG sends this code when a CREATE_CHILD_SA Request message is unacceptable because the ePDG is unwilling to accept any more CHILD SAs on the IKE_SA.
36	INTERNAL_ADDRESS_FAILURE	The ePDG sends this code when the ePDG experiences a failure in address assignment.
37	FAILED_CP_REQUIRED	The ePDG sends this code when the CP payload (CFG_REQUEST) was expected but not received.
38	TS_UNACCEPTABLE	The ePDG sends this code when the TSi and/or TSr parameters contain IP protocol values other than 0.
39	INVALID_SELECTORS	The ePDG does not send this code because the selector range is not checked and ingress filtering is applied instead.
40	TEMPORARY_FAILURE	when it is under collision scenarios as specified in RFC 5996.
41	CHILD_SA_NOT_FOUND	when it is under collision scenarios as specified in RFC 5996.

The following tale lists the IKEv2 error codes expected by the ePDG from the WLAN UEs.

Table 2: IKEv2 Error Codes Expected by the ePDG

Value	Error Code	ePDG Behavior Upon Receipt
1	UNSUPPORTED_CRITICAL_PAYLOAD	The ePDG sends an INFORMATIONAL (Delete) message and deletes the session information.
4	INVALID_IKE_SPI	The ePDG ignores the error message and maintain the state of existing SAs.
7	INVALID_SYNTAX	The ePDG sends an INFORMATIONAL (Delete) message and deletes the session information.

Value	Error Code	ePDG Behavior Upon Receipt
9	INVALID_MESSAGE_ID	The ePDG deletes the session information without sending an INFORMATIONAL (Delete) message.
11	INVALID_SPI	When notified in an IKE_SA message, the ePDG sends an INFORMATIONAL (Delete) message and deletes the session information. When notified outside an IKE_SA message, the ePDG ignores the error message and maintain the state for any existing SAs.
39	INVALID_SELECTORS	The ePDG sends an INFORMATIONAL (Delete) message for the IKE SA and deletes the session information.
40	TEMPORARY_FAILURE	On receipt of temporary_failure - If ePDG receives this for a rekey initiated by ePDG, ePDG shall retry rekey after some time.
41	CHILD_SA_NOT_FOUND	On receipt of CHILD_SA_NOT_FOUND - Epdg deletes the CHILDSA existing in ePDG, based on SPI.

The following table lists the notify status types defined in RFCs 4306 and 4739 that are supported by the ePDG.

Table 3: Notify Status Types Supported by the ePDG

Value	Notify Status Type
16388	NAT_DETECTION_SOURCE_IP
16389	NAT_DETECTION_DESTINATION_IP
16390	COOKIE
16393	REKEY_SA