

# P-GW Restart Notification


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## Revision History

**Note** Revision history details are not provided for features introduced before release 21.24.

| Revision Details | Release |
|---|---|
| First introduced | Pre 21.24 |

## Feature Description

P-GW Restart notification (PRN) procedure is supported for UP communication over the Sx interface during P-GW path failure. The P-GW Restart Notification procedure optimizes the amount of signaling involved on the S11/S4 interface when a P-GW failure is detected.

PRN procedure is a standards-based procedure supported on S-GW to notify detection of P-GW failure to MME/S4-SGSN.

P-GW failure detection will be done at S-GW when it detects that the P-GW has restarted (based on restart counter received from the restarted P-GW) or when it detects that P-GW has failed but not restarted (based on path failure detection).

When an S-GW detects that a peer P-GW has restarted, it locally deletes all PDN connection and bearer contexts associated with the failed P-GW and notifies the MME through P-GW Restart Notification.

The S-GW, in the echo request/response on S11/S4 interface, indicates that the P-GW Restart Notification procedure is supported.

P-GW Restart Notification Procedure is an optional procedure and is invoked only if both the peers, MME/S4-SGSN and S-GW, support it.

In the absence of this procedure, S-GW will initiate the Delete procedure to clean up all the PDNs anchored at that failed P-GW, which can lead to flooding of GTP messages on S11/S4 if there are multiple PDNs using that S-GW and P-GW.

The following figure illustrates the PRN flow during a path failure.

In CUPS, when a path failure is detected:

IMAGE HERE

- On detecting S5 pathfailure S-GW initiates PRN processing if S-GW and MME supports the PRN feature.
- For a path failed session, if S-GW has not sent a PRN message to MME then it will send PRN message once per MME.
- For path failed session, the S-GW CP sends a Sx Modify with FAR Action = DROP.
- On receiving Sx Modify Response, the S-GW CP sends Sx Delete Request to UP.