

IPv4 and IPV6 Notification Support for IP Address Alignment

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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* • *Statistics and Counters Reference*

Revision History

Revision Details	Release
The IPv4 and IPv6 Notification for IP Address Alignment feature is enhanced with CLI and Bulk Statistic counters	21.28.mx

Feature Description

The User Equipment (UE) must consistently receive IP address assignment during Wi-Fi to LTE handover or conversely. For dual stack UEs requesting both addresses, due to the operator's choice and network preferences, UE receives either IPv4 or IPv6.

When a UE requests for both IPv4 and IPv6 addresses, the ePDG provides only one type of address to the UE based on the configured PDN Type in the P-GW and network preference. To indicate this, the ePDG sends a notification to the UE, either PDN_TYPE_IPv6_ONLY_ALLOWED or PDN_TYPE_IPv4_ONLY_ALLOWED, instructing it to use only the type of address as per the network preference. It is expected that the UE, upon receiving this notification, requests for the type of address it has received earlier during subsequent roaming.

The table below details the IPv4 and IPv6 notification alignment.

Table 1: IPv4 and IPv6 Notification for Alignment

S.No.	UE IKE CFG request to ePDG	ePDG CS request to P-GW	P-GW CS Response (based on PDN type)	ePDG Response in IKE CFG_REPLY
1	Both IPv4 and IPv6	Both IPv4 and IPv6	IPv4	IPv4 address sent and IPv4 only private notification sent.
2	Both IPv4 and IPv6	Both IPv4 and IPv6	IPv6	IPv6 address sent and IPv6 only private notification sent.

Through CLI configurations and Bulk Statistic counters, ePDG supports enabling and disabling of sending the PDN type notification to the UE associated with the subscriber.

Configuration to Enable or Disable IPv4 and IPv6 Notification

Use the following configuration to enable or disable the support of sending the PDN type notification to the UE that is associated with the subscriber. By default this feature is disabled.

To enable or disable:

```
configure
  context context_name
    crypto template template_name ikev2-dynamic
       [ no ] notify-payload pdn-type-allowed
    end
```

NOTES:

- **notify-payload pdn-type-allowed**: Enables sending of PDN type notification in Notify Payload.
- **[no] notify-payload pdn-type-allowed**: Disables sending of PDN type notification in Notify Payload.

Monitoring and Troubleshooting

This section provides information on how to monitor and troubleshoot using show commands to support this feature.

Show Commands and Outputs

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

show crypto template tag

The following output displays the enabled PDN type notification for a subscriber.

```
[pdif]ePDG# show crypto template tag boston
|
|
   IKEv2 Notify Payload:
    Device Identity: Enabled[Default]
    PDN Type Allowed: Enabled
|
|
[pdif]ePDG#
```

show configuration

The following output displays the enabled PDN type notification for a subscriber.

```
pdif]ePDG# show configuration
|
|
    crypto template boston ikev2-dynamic
      authentication remote eap-profile eap1 second-phase eap-profile eap1
      ikev2-ikesa transform-set list ikesa-boston
      ikev2-ikesa rekey
      payload 1 match childsa match any
        ip-address-alloc static
        ipsec transform-set list tselsa-boston
        rekey keepalive
      #exit
      natt
      ikev2-ikesa policy error-notification
      notify-payload pdn-type-allowed
    #exit
|
|
End
```

clear epdg-service statistics

The **clear epdg-service statistics** command clears all the crypto ikev2 statistics.

show crypto statistics ikev2

After clearing, all the counters of IKEv2 statistics will be set to 0. The following is the sample show output after clear command.

```
[pdif]ePDG# show crypto statistics ikev2
…
…
…
Total IKEv2 Notify Statistics:
    COOKIE Notify Sent:                0 COOKIE Notify Rcvd:          0
    COOKIE Notify Match:               0 COOKIE Notify No Match:      0
    Multi Auth Supported:              0 Another Auth Follows:        0
    Device ID Req Sent:                0 Device ID Rsp Rcvd:          0
    Temporary Failure Retries:         0 PDN Type IPv4 Sent:          1
    PDN Type IPv6 Sent:                0
…
…
…
```

Bulk Statistics

The following bulk statistics are added to the System schema as part of this feature:

System Schema

Following new counters are provided under the existing **show bulkstats variables system**.

Table 2: Bulk Statistics Varibales in the System Schema

Variables	Description
ikev2-notifpaysent-pdntype-ipv4	The total number of PDN type notification sent for IPv4 event records.
ikev2-notifpaysent-pdntype-ipv6	The total number of PDN type notification sent for IPv6 event records.