Customizing Access-Link IP Fragmentation

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	• GGSN • P-GW • SAEGW
Applicable Platform(s)	• ASR 5500 • VPC-DI • VPC-SI
Feature Default	Enabled - Always-on
Related Changes in This Release	Not Applicable
Related Documentation	• *Command Line Interface Reference* • *GGSN Administration Guide* • *P-GW Administration Guide* • *SAEGW Administration Guide* • *Statistics and Counters Reference*

Revision History

Revision Details	Release
Support is added for access-link fastpath to enforce APN MTU for IPv4 traffic.	21.27
First introduced.	21.26

Feature Description

The P-GW APN level configuration controls the IP fragmentation, if the forward or drop logic for IP packets that are larger than MTU, becomes higher due to GTPU encapsulation overheads. To override multiple configurations at the APN level, the global-level CLI reduces deployment time, configuration size, and minimizes errors.

Note If the CLI is not configured at the APN level, the Global level configuration is applied by default. If the CLI is not configured at the Global level, then the default value is applied.

Configuring Access-Link IP Fragmentation

Configuring access-link IP fragmentation involves the following steps:

- Configuring Global Level Access-Link IP Fragmentation
- Configuring APN Level Access-Link IP Fragmentation
- Configuring Access-Link Fastpath to Enforce APN MTU

Configuring Global Level Access-Link IP Fragmentation

Use the following configuration to configure the access-link IP fragmentation in the Global configuration mode:

```
configure
  [ default ] access-link ip-fragmentation { df-fragment-and-icmp-notify
 | df-ignore | normal }
  end
```

NOTES:

- **access-link ip-fragmentation**: Configures the access-link IP fragmentation to the mobile node if the link MTU is smaller than the packet length.
- **df-fragment-and-icmp-notify**: Partially ignores the DF bit setting when the packet is fragmented. It also sends ICMP unreachable error to the source, even if DF bit is set for the packet.

- **df-ignore**: Ignores the DF bit setting when the packet is fragmented. This is the default value.
- **normal**: Configures the normal fragmentation process.
- **default**: The default value is set to **df-ignore**.

Configuring APN Level Access-Link IP Fragmentation

Use the following configuration to configure the access-link IP fragmentation in the APN configuration mode:

```
configure
   context context_name
      apn apn_name
         [ no ] access-link ip-fragmentation { df-fragment-and-icmp-notify
 | df-ignore | normal }
         end
```

Note The **no** option is introduced in the APN configuration and the **default** option is deprecated.

NOTES:

- **access-link ip-fragmentation**: Configures the access-link IP fragmentation to the mobile node if the link MTU is smaller than the packet length.
- **df-fragment-and-icmp-notify**: Partially ignores the DF bit setting when the packet is fragmented. It also sends ICMP unreachable error to the source, even if DF bit is set for the packet.
- **df-ignore**: Ignores the DF bit setting when the packet is fragmented.
- **normal**: Configures the normal fragmentation process.

Configuring Access-Link Fastpath to Enforce APN MTU

The downlink SGi IP packet may get fragmented before it is sent out through the GTP tunnel. The packet is not fragmented, if the packet size and GTP tunnel encapsulation is smaller than or equal to the APN MTU size. If the packet size and GTP tunnel encapsulation are bigger than the APN MTU size, then the packet is fragmented before it is sent through the GTP tunnel. The packet is fragmented either in the inner or outer packet. The global-level configuration enforces the VPP enabled platform to perform outer packet fragmentation upon receiving the nonfragmented packets.

Use the following configuration to access-link fastpath to enforce APN MTU for IPv4 traffic:

```
configure
   [ no ] access-link fastpath apn-ppp-mtu-enforce
   end
```

NOTES:

- **access-link fastpath apn-ppp-mtu-enforce**: Enforces the APN MTU to VPP-based fastpath IPv4 data streams.

Note After configuration, the newly created bearers are set to the newly configured value. However, the ongoing bearer traffic does not get affected due to this configuration. The **access-link fastpath apn-ppp-mtu-enforce** is disabled by default and is not supported in the VPC-DI platform.

Monitoring and Troubleshooting

This section provides information regarding show commands and their outputs.

Show Commands and Output

This section provides information regarding show commands and their outputs in support of this feature.

show configuration access-link

The output of this command displays the following field.

Field	Description
access-link ip-fragmentation normal	Displays the respective value, if configured at Global level. If the configuration is set to **default** or **df-ignore** then, no output is displayed.

show configuration access-link verbose

The output of this command displays the following field.

Field	Description
access-link ip-fragmentation df-ignore	Displays the respective value, if configured at Global level. If the configuration is set to **default** or **df-ignore** then, df-ignore is displayed.

show config apn <apn_name>

The output of this command displays the following field.

Field	Description
access-link ip-frag: df-ignore (APN-Configured: False)	Displays the application logic applied to the APN. APN-Configured confirms if the application logic is derived from the APN (True) or from the Global level (False).