# Rx Interface for 4G and 5G


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# Feature Summary and Revision History

## Summary Data

***Table 1: Summary Data***

| | |
|---|---|
| Applicable Product(s) or Functional Area | PCF |
| Applicable Platform(s) | SMI |
| Feature Default Setting | Enabled – Configuration required to disable |
| Related Documentation | Not Applicable |

# Revision History

*Table 2: Revision History*

| Revision Details | Release |
|---|---|
| Behavior change introduced.<br>Prior to the 2019.03 release, for the “3GPP Diameter Rx support on 5G PCF” feature, the “device-protocol-id configuration” option under Diameter application was required to be configured with the value 30. This option was configured using CLI for the Rx Diameter incoming calls for tagging them to RX_5G_TGPP device protocol.<br>For the “Converged Rx Support for 5G/4G” feature, the session lookup is done at the PCRF + PCF engine to determine whether the incoming Rx request needs to be tagged to RX_TGPP device protocol or RX_5G_TGPP device protocol. Hence, for this feature the “device-protocol-id configuration” option under Diameter application is removed and is no longer configurable in the CLI.<br>**Note** The update for this feature is not backward compatible and requires a fresh install. | 2020.01.0 |
| First introduced. | Pre 2020.01.0 |

# Feature Description

The combined PCF-PCRF deployment architecture provides both PCRF and PCF capabilities. In this deployment, all the incoming Rx Diameter requests are sent to the PCRF or PCF Engine, where session lookup determines the session binding of the 4G and 5G sessions.

## Relationships

This feature is an extension of the "3GPP Diameter Rx support on 5G PCF" feature, which was the implementation of N5 interface on PCF.

# How it Works

This section describes how this feature works.

The incoming Rx requests are tagged to RX_5G_TGPP device protocol, if the respective N7 session is available. Else, the requests are tagged to RX_TGPP device protocol.

No CLI configuration is required for tagging these requests.

# Routing the Rx Diameter Requests

This section describes the service configurations that enable routing of the Rx Diameter requests to PCF or PCRF.

- RxSTGConfiguration

# Configuring RxSTGConfiguration AVP

This section describes the parameters that can be configured for RxSTGConfiguration.

The RxSTGConfiguration service configuration supports the following output AVPs that allow the dynamic value expression and their ranges to be defined.

Before setting the service parameters, ensure that you create a use case template and add a service for this configuration. For details, see Configuring the Use Case Template and Adding a Service.

The following table describes the RxSTGConfiguration service parameters.

***Table 3: RxSTGConfiguration Parameters***

| Parameters | Description |
|---|---|
| Dynamic-QoS-ARP-Priority-Level | **Note** This is a mandatory parameter if the Dynamic QoS ARP feature is enabled.<br><br>This AVP is bound to the dynamic expression Priority-Level column. If the value is null/not configured, then Dynamic QoS ARP feature is disabled. If the value is configured, it overrides the integer PL value (if configured). The dynamic PL expression is either expected to match the java regex: `^[dD](\\s*([+-/*])\\s*([0-9]+))?$` or must be an offset value (of syntax: [+-][0-9]+). In case the value is provided in offset form, the “D” is implicit. Thus “+8” corresponds to “D+8” in expression form, “-5” corresponds to “D-5” and similarly, “0” corresponds to “D”. |
| Dynamic-QoS-ARP-Priority-Level-Default | If the default bearer doesn’t have a Priority-Level, this value is used as dedicated bearer PL. If the value is null/not configured, the default value (15) is used. |
| Dynamic-QoS-ARP-Priority-Level-Min | This output AVP provides upper/lower bound for the calculated PL value using the Dynamic expression provided under Dynamic-QoS-ARP-Priority-Level. If the value is null/not configured, the default value (1) is used. |
| Dynamic-QoS-ARP-Priority-Level-Max | The upper end of the valid PL range. If the value is null/not configured, the default value (15) is used. |
| Dynamic-QoS-Update-On-Change | This AVP controls whether the Rx rules must be updated on change in the dynamic PL value (for example, due to change in default bearer PL value). If value is null/not configured, the Rx rules aren’t updated with new dynamic PL value once installed. |

**Note**

- Using the offset form may have minor performance gains as compared to a full expression.
- Range limits are not applied for the default dynamic values.
- Dynamic expression has an implicit “Enforce” QoS action. The Action column value is ignored.
- If dynamic expression configured for Priority-Level is invalid, PCF ignores the expression and does not include the ARP parameters (since PL is set as null) in the rule install. This is true even if absolute PL value is configured (absolute value is ignored).