N3 Transfer of PDU Session Information

- Feature Summary and Revision History, on page 1
- Feature Description, on page 1

Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	5G-UPF
Applicable Platform(s)	VPC-SI SMI
Feature Default Setting	Enabled – Always-on
Related Changes in this Release	Not Applicable
Related Documentation	Not Applicable

Revision History

Revision Details	Release
First introduced.	2020.02.0

Feature Description

The N3 transfer of PDU session information involves the inclusion of QoS Field Identifier (QFI) IE in the GTP-U extension header while performing GTP-U encapsulation toward gNodeB on the N3 interface, and removal of the GTP-U extension header while performing GTP-U decapsulation when packets are received from the gNodeB.

The QFI IE detects traffic pertaining to specific QoS sessions. It is used to send control information between the gNodeB and the UPF.

How it Works

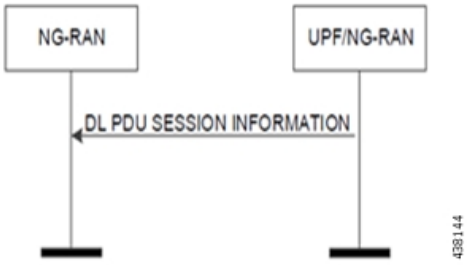
This section describes the transfer of PDU session Information procedures between the gNodeB and UPF for Uplink and Downlink packets.

Transfer of PDU Session Information for Downlink Data Packets

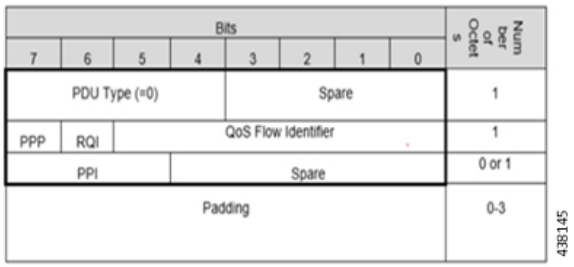
The Transfer of PDU Session Information for downlink data packets involves transfer of control information elements related to the PDU Session from UPF/NG-RAN to NG-RAN.

A PDU session user plane instance that makes use of this transfer procedure is associated to a single PDU Session. The procedure is invoked whenever packets for that particular PDU Session must be transferred across the related interface instance.

The DL PDU SESSION INFORMATION frame includes a QoS Flow Identifier (QFI) field that is associated with the transferred packet. The NG-RAN uses the received QFI to determine the QoS flow and QoS profile which are associated with the received packet.



The following frame shows the respective DL PDU SESSION INFORMATION.



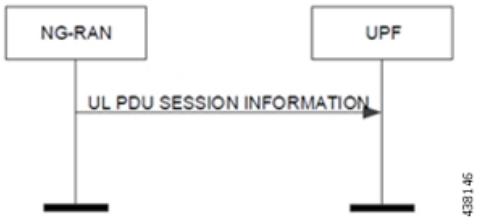
NOTE: In current implementation, the Reflective QoS Indicator (RQI) and Paging Policy Presence (PPP) in DL PDU SESSION INFORMATION frame is not supported.

Transfer of PDU Session Information for Uplink Data Packets

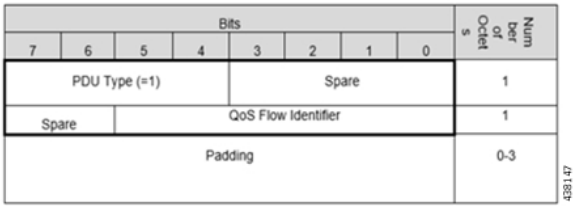
The Transfer of PDU Session Information for uplink data packets involves transfer of control information elements related to the PDU Session from NG-RAN to UPF.

An UL PDU Session user plane instance that makes use of the transfer procedure is associated to a single PDU Session. This procedure is invoked whenever packets for that particular PDU Session need to be transferred across the related interface instance.

The UL PDU SESSION INFORMATION frame includes a QoS Flow Identifier (QFI) field associated with the transferred packet.



The following frame shows the respective UL PDU SESSION INFORMATION.



PDU Session Information Frame IEs

The following table describes the Information Elements present in the PDU Session Information frame.

Information Element	Description
PDU Type	The PDU Type indicates the structure of the PDU session UP frame. The field takes the value of the PDU Type it identifies: "0" for PDU Type 0. The PDU type is in bit 4 to bit 7 in the first octet of the frame. **Value range**: {0= DL PDU SESSION INFORMATION, 1=UL PDU SESSION INFORMATION, 2-15=reserved for future PDU type extensions} **Field length**: 4 bits
Spare	The spare field is set to "0" by the sender and should not be interpreted by the receiver. This field is reserved for later versions. **Value Range**: (0–2n-1) **Field Length**: n bits
QoS Flow Identifier	When this IE is present, this parameter indicates the QoS Flow Identifier of the QoS flow to which the transferred packet belongs. **Value range**: {0 to 2^6-1} **Field length**: 6 bits
Padding	The padding is included at the end of the frame to ensure that the PDU Session user plane protocol PDU length (including padding and the future extension) is (n*4– 2) octets, where n is a positive integer. **Field Length**: 0–3 octets.

Standards Compliance

The feature complies with the following standard: 3GPP TS 38.415 V15.2.0 (NG-RAN; PDU Session User Plane Protocol).

Limitations

The following are the known limitations to this feature in this release:

- Reflective QoS Indicator (RQI) is not supported in this release.