**3GPP SA3LI#89 S3i230314**

**Washington DC; April 25-28, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **33.128** | **CR** | **0521** | **rev** | **1** | **Current version:** | **18.3.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Adding the clause number when external reference is given in the SMF/UPF claueses (R18) | | | | | | | | | |
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| ***Source to WG:*** | SA3-LI (Nokia, Nokia Shanghai Bell, OTD\_US) | | | | | | | | | |
| ***Source to TSG:*** | SA3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LI18 | | | | |  | ***Date:*** | | | 2023-04-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | ***F*** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | When an external to LI specification is referred to, the clause numbers are not referenced in some places. This can make the implementer's life a bit tedious. | | | | | | | | |
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| ***Summary of change:*** | | Clause numbers are added where appropriate. | | | | | | | | |
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| ***Consequences if not approved:*** | | Implementers will have to look for the clause number on their own. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.3.2.2, 6.2.3.2.3, 6.2.3.2.4, 6.2.3.2.7.2, 6.2.3.2.7.3, 6.2.3.2.7.4, 6.2.3.3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | S3i230240 | | | | | | | | |

\*\* First Change \*\*

##### 6.2.3.2.2 PDU session establishment

The IRI-POI in the SMF shall generate an xIRI containing an SMFPDUSessionEstablishment record when the IRI-POI present in the SMF detects that a single-access PDU session has been established for the target UE. The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), sends the N1 NAS message (via AMF) PDU SESSION ESTABLISHMENT ACCEPT to the UE and the 5G Session Management (5GSM) state within the SMF is changed to PDU SESSION ACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.1). If SMF receives a Npcf\_SMPolicyControl\_Create response from the PCF for the target UE in response to Npcf\_SMPolicyControl\_Create request sent by SMF to PCF including PCC rules which traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE, SMF includes them in the xIRI. These PCC rules correspond to policies that influence the target UE’s traffic flows (see TS 29.513 [88] clause 5.5.3).

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) sends the N16: Nsmf\_PDU\_Session\_Create response message with n1SmInfoToUe IE containing the PDU SESSION ESTABLISHMENT ACCEPT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.7, 5.2.3, 6.1.2.4, and 6.1.6.4).

Table 6.2.3-1: Payload for SMFPDUSessionEstablishment record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session (e.g. as provided by the AMF in the associated Nsmf\_PDU\_Session\_CreateSMContext service operation). Shall be present except for PEI-only unauthenticated emergency sessions (see NOTE). | C |
| sUPIUnauthenticated | Shall be present if a SUPI is present in the message and set to “true” if the SUPI has not been authenticated, or “false” if it has been authenticated. | C |
| pEI | PEI associated with the PDU session if available (see NOTE). | C |
| gPSI | GPSI associated with the PDU session if available (see NOTE). | C |
| pDUSessionID | PDU Session ID See TS 24.501 [13] clause 9.4. | M |
| gTPTunnelID | Contains the F-TEID identifying the UPF endpoint of the GTP tunnel used to encapsulate the traffic derived from the UL NG-U UP TNL Information (see TS 38.413 clause 9.3.4.1), as defined in TS 29.244 [15] clause 8.2.3. Non-GTP encapsulation is for further study. | M |
| pDUSessionType | Identifies selected PDU session type, see TS 24.501 [13] clause 9.11.4.11. | M |
| sNSSAI | Slice identifiers associated with the PDU session, if available. See TS 23.003 [19] clause 28.4.2 and TS 23.501 [2] clause 5.15.2. | C |
| uEEndpoint | UE endpoint address(es) assigned to the PDU Session if available (see TS 29.244 [15] clause 5.21). | C |
| non3GPPAccessEndpoint | UE's local IP address used to reach the N3IWF, TNGF or TWIF, if available. IP addresses are given as 4 octets (for IPv4) or 16 octets (for IPv6) with the most significant octet first (network byte order). | C |
| location | Location information provided by the AMF or present in the context at the SMF, if available. | C |
| dNN | Data Network Name requested by the target UE, as defined in TS 23.003[19] clause 9A and described in TS 23.502 [4] clause 4.3.2.2. Shall be given in dotted-label presentation format as described in TS 23.003 [19] clause 9.1. | M |
| aMFID | Identifier of the AMF associated with the target UE, as defined in TS 23.003 [19] clause 2.10.1 if available. | C |
| hSMFURI | URI of the Nsmf\_PDUSession service of the selected H-SMF, if available. See TS 29.502 [16] clause 6.1.6.2.2. | C |
| requestType | Type of request as described in TS 24.501 [13] clause 9.11.3.47 provided within the Nsmf\_PDU\_Session\_CreateSMContext Request (TS 29.502 [16]) message shall be reported.  In the case where the network does not support Multi Access (MA) PDU sessions, but receives a MA PDU session request, a request type of “Initial request” shall be reported.  In the case where the network does not provide a request type value for a non-MA PDU session, a request type of “initial request”, according to TS 24.501 [13] clause 6.4.1.2 shall be reported. | M |
| accessType | Access type associated with the session (i.e. 3GPP or non-3GPP access) if provided by the AMF (see TS 24.501 [13] clause 9.11.2.1A). | C |
| rATType | RAT Type associated with the access if provided by the AMF as part of session establishment (see TS 23.502 [4] clause 4.3.2). Values given as per TS 29.571 [17] clause 5.4.3.2. | C |
| sMPDUDNRequest | Contents of the SM PDU DN Request container, if available, as described in TS 24.501 [13] clause 9.11.4.15. | C |
| uEEPSPDNConnection | This IE shall be present, if available, during an EPS to 5GS Idle mode mobility or handover using the N26 interface. If present, it shall contain the EPS bearer context(s) information present in the uEEPSPDNConnection parameter of the intercepted SmContextCreateData message. (see TS 29.502 [16] clause 6.1.6.2.2). | C |
| ePS5GSComboInfo | Provides detailed information about PDN associated with PDU Sessions when the SMFPDUSessionEstablishment xIRI message is used to report PDU Session Establishment (see clause 6.3.3.2.2). Shall be included if the AMF has selected a SMF+PGW-C to serve the PDU session. This parameter shall include the additional IEs in Table 6.2.3-1A, if present. | C |
| selectedDNN | Shall be present if a DNN other than the UE requested DNN is selected for the PDU Session. Shall be given in dotted-label presentation format as described in TS 23.003 [19] clause 9.1. | C |
| servingNetwork | PLMN ID of the serving core network operator, and, for a Non-Public Network (NPN), the NID that together with the PLMN ID identifies the NPN. Shall be present if this IE is in the SMContextCreateData or PDUSessionCreateData message sent to the SMF or the PDU Session Context or SM Context at the SMF (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). | C |
| oldPDUSessionID | Shall be present if this IE is in the SMContextCreateData or PDUSessionCreateData message sent to the SMF or the PDU Session Context or SM Context at the SMF (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). | C |
| handoverState | Indicates whether the PDU Session Establishment being reported was due to a handover. Shall be present if this IE is in the SMContextCreatedData sent by the SMF (see TS 29.502 [16] clause 6.1.6.2.3). | C |
| gTPTunnelInfo | Contains the information for the User Plane GTP Tunnels for the PDU Session (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). See Table 6.2.3-1B. | M |
| pCCRules | Set of PCC rules related to traffic influence. Each PCC rule influences the routing of a given traffic flow. If several flows are concerned, then several PCC rules shall be handled by the SMF. Traffic influence policies are orginated by an AF. PCF translates these rules into PCC rules for traffic influence. The payload of a PCC rule for traffic influence is defined in Table 6.2.3-1E. | C |
| ePSPDNConnectionEstablishment | Provides details about PDN Connections when the SMFPDUSessionEstablishment xIRI message is used to report PDN Connection establishment. See Table 6.3.3-1 and clause 6.3.3.2.2. | C |
| NOTE: At least one of the SUPI, PEI or GPSI fields shall be present. | | |

Table 6.2.3-1A: Payload for ePS5GSComboInfo

|  |  |  |
| --- | --- | --- |
| ePSInterworkingIndication | Indicates whether and how the PDU Session may be moved to EPS. Shall be derived from the EpsInterworkingIndication associated with the PDU Session at the SMF+PGW-C(see TS 29.502 [16] clause 6.1.6.3.11). | M |
| ePSSubscriberIDs | Includes the Subscriber Identities associated with the EPS PDN Connection in the UE Context sent from the MME to the AMF or known in the context at the SMF+PGW-C.See TS 29.274 [87] clause 7.2.1 and TS 23.502 [4] clause 4.11.1. | M |
| ePSPdnCnxInfo | Shall be present if there are any EPS PDN connections associated to the PDU Session in the SM Context or PDU Session Context at the SMF+PGW-C. Contains information about the EPS PDN connection associated with the PDU Session. See TS 29.502 [16] clause 6.1.6.2.31. | C |
| ePSBearerInfo | Shall be present if there are any EPS Bearers associated to the PDU Session in the SM Context or PDU Session Context at the SMF+PGW-C. Contains information about the EPS Bearer context(s) associated with the PDU Session. See TS 29.502 [16] clause 6.1.6.2.4. | C |

Table 6.2.3-1B: gTPTunnelInfo field

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| fiveGSGTPTunnels | Shall include the 5GS GTP Tunnels (See Table 6.2.3-1C)when the xIRI message is used to report PDU Session related events. | C |
| ePSGTPTunnels | Shall include the information for the User Plane GTP Tunnels for the bearer context if present in the Request or Response (see TS 29.274 [87] clauses 7.2.2, 7.2.4 and 8.15) or known at the context at the SGW or PGW (see TS 23.401 [50] clause 5.6.4) when the xIRI message is used to report PDN Connection related events. See Table 6.3.3-6. | C |

Table 6.2.3-1C: fiveGSGTPTunnels field

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| uLNGUUPTunnelInformation | Shall include the F-TEID for the UPF endpoint of the NG-U transport bearer (See TS 38.413 [23] clause 9.3.4.1). | C |
| additionalULNGUUPTunnelInformation | Shall include the F-TEID for the UPF endpoint of any additional NG-U transport bearers (See TS 38.413 [23] clause 9.3.4.1). | C |
| dLRANTunnelInformation | Shall include the RAN tunnel and QOS Flow information for the PDU Session (See TS 29.502 [16] clause 6.1.6.2.39 and TS 38.413 [23] clause 9.3.4.1). See Table 6.2.3-1D. | C |

Table 6.2.3-1D: dLRANTunnelInformation field

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| dLQOSFlowTunnelInformation | Shall include the F-TEID NG-RAN endpoint of the NG-U transport bearer together with associated QoS flows (See TS 38.413 [23] clause 9.3.4.2 and TS 29.502 [16] clause 6.1.6.2.39). | C |
| additionalDLQOSFlowTunnelInformation | Shall include the F-TEID NG-RAN endpoint of any additional NG-U transport bearers together with associated QoS flows (See TS 38.413 [23] clause 9.3.4.2 and TS 29.502 [16] clause 6.1.6.2.39). | C |
| redundantDLQOSFlowTunnelInformation | Shall include the F-TEID NG-RAN endpoint of redundant NG-U transport bearers together with associated QoS flows (See TS 38.413 [23] clause 9.3.4.2 and TS 29.502 [16] clause 6.1.6.2.39). | C |
| additionalredundantDLQOSFlowTunnelInformation | Shall include the F-TEID NG-RAN endpoint of any additional redundant NG-U transport bearers together with associated QoS flows (See TS 38.413 [23] clause 9.3.4.2 and TS 29.502 [16] clause 6.1.6.2.39). | C |

Each PCC rule for traffic influence has the payload defined in Table 6.2.3-1E.

Table 6.2.3-1E: Payload of PCCrule for traffic influence

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| pCCRuleID | Policy rule identifier. This IE is defined in TS 29.512 [89], table 5.6.2.6-1. | M |
| appId | Identifies an application (NOTE 1), if available. This IE is defined in TS 29.512 [89], table 5.6.2.6-1 (NOTE 1). | C |
| pFD | Packet flow description (PFD) associated with the appId, if available. It is defined in TS 29.551 [96] table 5.6.2.5-1 (NOTE 1). | C |
| flowInfos | A set of flow information, if available. A flow information is an Ethernet or IP flow packet filter information (NOTE 1). This IE is defined in TS 29.512 [89], table 5.6.2.6-1 (NOTE 1). FlowInfos may be IP flow or Ethernet flow. IP flow is specified in TS 29.214, section 5.3.8 [92]. Ethernet Flow is specified in TS 29.514 [91] Table 5.6.2.17-1. | C |
| appReloc | Indicates that the application cannot be relocated once a location of the application is selected by the 5GC when it is included and set to "true". The default value is "false". | C |
| simConnInd | Indication of simultaneous connectivity temporarily maintained for the source and target PSA (PDU Session Anchor). If it is included and set to "true", temporary simultaneous connectivity should be kept. The default value "false" applies, if the IE is not present. This IE is defined in TS 29.512 [89], table 5.6.2.9-1. | C |
| simConnTerm | Indication of the minimum time interval to be considered for inactivity of the traffic routed via the source PSA during the edge re-location procedure. It may be included when the "simConnInd" attribute is set to true. This IE is defined in TS 29.512 [89], table 5.6.2.9-1. | C |
| maxAllowedUpLat | Indicates the target user plane latency in units of milliseconds used by SMF to decide whether edge relocation is needed to ensure that the user plane latency does not exceed the value. This IE is defined in TS 29.512 [89], table 5.6.2.9-1, if available. | C |
| routeToLocs | A set of traffic routes, if available. A traffic route provides information to route to/from a DNAI. This IE is defined in TS 29.512 [89], table 5.6.2.9-1 (NOTE 2). | C |
| trafficSteeringPolIdDl | Traffic steering policy for downlink traffic at the SMF, if available. This IE is defined in TS 29.512 [89], table 5.6.2.9-1 (NOTE 2). | C |
| trafficSteeringPolIdUl | Traffic steering policy for uplink traffic at the SMF, if available. This IE is defined in TS 29.512 [89], table 5.6.2.9-1 (NOTE 2). | C |
| sourceDNAI | No longer used in present version of this specification | O |
| targetDNAI | No longer used in present version of this specification | O |
| dNAIChangeType | No longer used in present version of this specification | O |
| sourceUEIPAddress | No longer used in present version of this specification | O |
| targetUEIPAddress | No longer used in present version of this specification | O |
| eASIPReplaceInfos | Contains EAS IP replacement information for a Source and a Target EAS, if available. This IE is defined in TS 29.571 [17], table 5.4.4.79. | C |
| NOTE 1: Either appId/pFD or flowInfos shall be supplied.  NOTE 2: TrafficSteeringPolIdDl attribute and/or trafficSteeringPolIdUl attribute and routeToLocs attribute are mutually exclusive. | | |

##### 6.2.3.2.3 PDU session modification

The IRI-POI in the SMF shall generate an xIRI containing an SMFPDUSessionModification record when the IRI-POI present in the SMF detects that a single-access PDU session has been modified for the target UE. The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION MODIFICATION COMMAND COMPLETE from the UE and the 5GSM state within the SMF is returned to PDU SESSION ACTIVE (see TS 24.501 [13], clauses 6.1.3.3, 6.3.2 and 6.4.2). This applies to the following two cases:

- UE initiated PDU session modification (see TS 23.502 [4], clause 4.3.3.2).

- Network (VPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.3.3.2). - For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), sends the N1 NAS message (via AMF) PDU SESSION ESTABLISHMENT ACCEPT to the UE and the 5GSM state within the SMF remains in the PDU SESSION ACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and clause 6.4.1). This applies to the following case:

- Handover from one access type to another access type happens ((e.g. 3GPP to non-3GPP);. see TS 23.502 [4], clauses 4.9.2.1 and 4.9.2.2).

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION MODIFICATION COMMAND COMPLETE (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6.4). This applies to the following three cases:

- UE initiated PDU session modification (see TS 23.502 [4], clause 4.3.3.3).

- Network (VPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.3.3.3).

- Network (HPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.3.3.3)..

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) sends the N16: Nsmf\_PDU\_Session\_Create response message with n1SmInfoToUe IE containing the PDU SESSION ESTABLISHMENT ACCEPT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6.4) while it had received a N16 Nsmf\_PDU\_Session\_Create request message with an existing PDU Session Id with access type being changed. This applies to the following case:

- Handover from one access type to another access type happens ((e.g. 3GPP to non-3GPP); see TS 23.502 [4], clauses 4.9.2.3 and 4.9.2.4).

- For a non-roaming scenario, SMF sends a Npcf\_SMPolicyControlUpdateNotify response to the PCF for the target UE in response to an Npcf\_SMPolicyControlUpdateNotify request sent by PCF to SMF including PCC rules which traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE. These PCC rules correspond to policies that influence the target UE’s traffic flows (see TS 29.513 [88] clause 5.5.3).

- For a non-roaming scenario, SMF sends a Nsmf\_EventExposure\_Notify request to the NEF or AF for the target UE for the event "UP Path Change" related to a corresponding subscription from AF (see TS 29.508 [90] clause 4.2.2).

- For a non-roaming scenario, SMF sends a Nsmf\_EventExposure\_AppRelocationInfo response to the NEF or AF for the target UE in response to Nsmf\_EventExposure\_AppRelocationInfo request sent by NEF or AF to SMF (see TS 29.508 [90] clause 4.2.5).

- For a non-roaming scenario, SMF receives a Nnef\_PFDManagement\_Fetch response from the NEF for the target UE in response to Nnef\_PFDManagement\_Fetch request sent by SMF to NEF (see TS 29.551 [96] clause 4.2.2).

Table 6.2.3-2: Payload for SMFPDUSessionModification record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session (e.g. as provided by the AMF in the associated Nsmf\_PDU\_Session\_CreateSMContext service operation). Shall be present except for PEI-only unauthenticated emergency sessions. | C |
| sUPIUnauthenticated | Shall be present if a SUPI is present in the message and set to “true” if the SUPI was not authenticated, or “false” if it has been authenticated. | C |
| pEI | PEI associated with the PDU session if available. | C |
| gPSI | GPSI associated with the PDU session if available. | C |
| sNSSAI | Slice identifier associated with the PDU session, if available. See TS 23.003 [19] clause 28.4.2 and TS 23.501 [2] clause 5.15.2. | C |
| non3GPPAccessEndpoint | UE's local IP address used to reach the N3IWF, TNGF or TWIF, if available. IP addresses are given as 4 octets (for IPv4) or 16 octets (for IPv6) with the most significant octet first (network byte order). | C |
| location | Location information provided by the AMF or present in the context at the SMF, if available. | C |
| requestType | Type of request as described in TS 24.501 [13] clause 9.11.3.47 if available. | C |
| accessType | Access type associated with the session (i.e. 3GPP or non-3GPP access) if provided by the AMF (see TS 24.501 [13] clause 9.11.2.1A). | C |
| rATType | RAT type associated with the access, if available. Values given as per TS 29.571 [17] clause 5.4.3.2. | C |
| pDUSessionID | PDU Session ID See TS 24.501 [13] clause 9.4. This parameter is conditional only for backwards compatibility. | C |
| ePS5GSComboInfo | Provides detailed information about PDN Connections associated with PDU Sessions when the SMFPDUSessionEstablishment xIRI message is used to report PDU Session Establishment (see clause 6.3.3.2.2). Shall be included when the AMF has selected a SMF+PGW-C to serve the PDU session. This parameter may include the additional IEs in Table 6.2.3-1A, when available. | C |
| uEEndpoint | UE IP address(es) assigned to the PDU Session if available (See TS 29.244 [15] clause 5.21). | C |
| servingNetwork | Shall be present if this IE is in the SMContextUpdateData, HsmfUpdateData or message sent to the SMF or the PDU Session Context or SM Context at the SMF (see TS 29.502 [16] clauses 6.1.6.2.3, 6.1.6.2.11 and 6.1.6.2.39). | C |
| handoverState | Indicates whether the PDU Session Modification being reported was due to a handover. Shall be present if this IE is in the SMContextUpdatedData or sent by the SMF (see TS 29.502 [16] clause 6.1.6.2.3). | C |
| gTPTunnelInfo | Contains the information for the User Plane GTP Tunnels for the PDU Session (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). See Table 6.2.3-1B. | M |
| pCCRules | Set of PCC rules related to traffic influence. Each PCC rule influences the routing of a given traffic flow. If several flows are concerned, then several PCC rules shall be handled by the SMF. Traffic influence policies are orginated by an AF. PCF translates these rules into PCC rules for traffic influence, if available. The payload of a PCC rule for traffic influence is defined in Table 6.2.3-1E. | C |
| ePSPDNConnectionModification | Provides details about PDN Connections when the SMFPDUSessionModification xIRI message is used to report PDN Connection Modification. See Table 6.3.3-8 and clause 6.3.3.2.3. | C |
| uPPathChange | Notification of the UPPathChange event. This IE is defined in TS 29.508 [90], if available, Table 5.6.2.5-1. | C |
| pFDDataForApp | Represents the packet flow descriptions (PFDs) for an application identifier (AppId), if available. This IE is defined in TS 29.551 [96], Table 5.6.2.2-1. | C |

Table 6.2.3-2A: Payload of UPPathChange

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sourceDNAI | Source DNAI, if the DNAI has changed. DNAI represents the location of applications towards which the traffic routing should apply, if available. | C |
| targetDNAI | Target DNAI if the DNAI has changed. | C |
| dNAIChangeType | Type of a DNAI change. Possible values are “early”, “late” and “earlyAndLate” notification of UP path reconfiguration, if available. | C |
| sourceUEIPAddress | The IPv4 Address of the served UE for the source DNAI, if available. | C |
| targetUEIPAddress | The IPv4 Address of the served UE for the target DNAI, if available. | C |
| sourceTrafficRouting | N6 traffic routing information for the source DNAI, if available. | C |
| targetTrafficRouting | N6 traffic routing information for the target DNAI, if available. | C |
| mACAddress | The MAC address of the served UE, if available. | C |

Table 6.2.3-2B: Payload of PFDDataForApp

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| appId | Identifier of an application. | M |
| pFDs | PFDs for an application identifier, if available. PFD is defined in TS 29.551 [96], Table 5.6.2.5-1. | C |

Table 6.2.3-2C: Payload of PFD

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| pFDId | PFD identifier. | M |
| pFDflowDescription | Represents a set of 3-tuple with protocol, server IP address and server port for UL/DL application traffic, if available. | C |
| uRLs | Represents a set of URL, if available. | C |
| domainNames | Represents a set of FQDN, if available. | C |
| dnProtocol | Indicates the additional protocol and protocol field for domain names to be matched, if available. This IE is defined in 29.122 [63], Table 5.14.2.2.4-1. | C |

##### 6.2.3.2.4 PDU session release

The IRI-POI in the SMF shall generate an xIRI containing an SMFPDUSessionRelease record when the IRI-POI present in the SMF detects that a single-access PDU session has been released. The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION RELEASE COMMAND COMPLETE from the UE and the 5GSM state within the SMF is changed to PDU SESSION INACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.3). This applies to the following two cases:

- UE initiated PDU session release (see TS 23.502 [4], clause 4.3.4.2)

- Network initiated PDU session release (see TS 23.502 [4], clause 4.3.4.2).

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION MODIFICATION COMMAND REJECT from the UE with the cause value #43 indicating an invalid PDU Session ID and the 5GSM state within the SMF is changed to PDU SESSION INACTIVE (see TS 24.501 [13], clause 6.1.3.3). This applies to the case where the UE rejects a PDU SESSION MODIFICATION COMMAND as it finds that the indicated PDU session ID is invalid. The 5GSM state is changed to PDU SESSION INACTIVE within the SMF.

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION RELEASE COMMAND COMPLETE (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6.4) from the V-SMF. This applies to the following three cases:

- UE initiated PDU session release (see TS 23.502 [4], clause 4.3.4.3).

- Network (VPLMN) initiated PDU session release (see TS 23.502 [4] clause 4.3.4.3).

- Network (HPLMN) initiated PDU session release (see TS 23.502, clause 4.3.4.3).

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION MODIFICATION COMMAND REJECT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, and 6.1.6.4) from the V-SMF with the cause value #43 indicating an Invalid PDU Session ID.

Table 6.2.3-3: Payload for SMFPDUSessionRelease record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session. | M |
| pEI | PEI associated with the PDU session if available. | C |
| gPSI | GPSI associated with the PDU session if available. | C |
| pDUSessionID | PDU Session ID as assigned by the AMF. | M |
| timeOfFirstPacket | Time of first packet for the PDU session. | C |
| timeOfLastPacket | Time of last packet for the PDU session. | C |
| uplinkVolume | Number of uplink octets for the PDU session. | C |
| downlinkVolume | Number of downlink octets for the PDU session. | C |
| location | Location information, if available. | C |
| cause | Indicates the NF Service Consumer cause for the requested PDU session release (see TS 29.502 [16] clause 6.1.6.3.8 for enumerated cause information). Include if known. | C |
| ePS5GSComboInfo | Provides detailed information about PDN Connections associated with PDU Sessions when the SMFPDUSessionEstablishment xIRI message is used to report PDU Session Establishment (see clause 6.3.3.2.2). This parameter may include the additional IEs in Table 6.2.3-1A, when available. | C |
| nGAPCause | Indicates the NGAP cause for the requested SM context release (see TS 29.502 [16] clause 6.1.6.2.6). Shall be derived as described in TS 29.571 [17] clause 5.4.4.12. | C |
| fiveGMMCause | Indicates the 5GMM cause for a PDU Session released due to any 5GMM failure (see 29.502 [16] clause 6.1.6.2.6). Shall be sent as an integer derived as described in TS 29.571 [17] clause 5.4.2. | C |
| pCCRuleIDs | PCC rule IDs of the PCC rules related to traffic influence that are associated to the PDU session and active at the time the PDU session is released. | C |
| ePSPDNConnectionRelease | Provides details about PDN Connections when the SMFPDUSessionRelease xIRI message is used to report PDN Connection Release. See Table 6.3.3-13 and clause 6.3.3.2.4. | C |

6.2.3.2.7.2 MA PDU session establishment

The IRI-POI in the SMF shall generate an xIRI containing an SMFMAPDUSessionEstablishment record when the IRI-POI present in the SMF detects that a PDU session has been established for the target UE that is an MA PDU session (Request Type set to MA PDU session or upgraded at establishment), or where the upgrade allowed parameter is set to upgrade allowed and session is established as an ordinary PDU session (not upgraded at establishment, but may occur later on). The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario , the SMF sends the N1 NAS message (via AMF) PDU Session Establishment Accept to the UE for a new PDU session and the 5G Session Management (5GSM) state within the SMF is changed to PDU SESSION ACTIVE (see TS 24.501 [13], clause 6.1.3.3 and 6.4.1) in response to a PDU Session Establishment request received along with:

- PDU Session ID which does not identify an existing PDU session, and

- Request Type = MA PDU request, or

- Request Type = initial request and MA PDU session information set to "MA PDU session network upgrade is allowed", with either upgrade occuring at establishment or upgrade does not occur at establishment but may occur later.

- If SMF receives a Npcf\_SMPolicyControl\_Create response from the PCF for the target UE in response to Npcf\_SMPolicyControl\_Create request sent by SMF to PCF including PCC rules which traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE, SMF includes them in the xIRI. These PCC rules correspond to policies that influence the target UE’s traffic flows (see TS 29.513 [88] clause 5.5.3).

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) sends the N16: Nsmf\_PDU\_Session\_Create response message with n1SmInfoToUe IE containing the PDU SESSION ESTABLISHMENT ACCEPT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.7, 5.2.3, and 6.1.6) for a new PDU session in response to a PDU Session Establishment request received along with:

- PDU Session ID which does not identify an existing PDU session, and

- Request Type = MA PDU request, or

- Request Type = initial request and MA PDU session information set to "MA PDU session network upgrade is allowed", with either upgrade occuring at establishment or upgrade does not occur at establishment but may occur later.

Table 6.2.3-5A: Payload for SMFMAPDUSessionEstablishment record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session (e.g. as provided by the AMF in the associated Nsmf\_PDU\_Session\_CreateSMContext service operation). Shall be present except for PEI-only unauthenticated emergency sessions (see NOTE). | C |
| sUPIUnauthenticated | Shall be present if a SUPI is present in the message and set to “true” if the SUPI has not been authenticated, or “false” if it has been authenticated. | C |
| pEI | PEI associated with the PDU session if available (see NOTE). | C |
| gPSI | GPSI associated with the PDU session if available (see NOTE). | C |
| pDUSessionID | PDU Session ID See clause 9.4 of TS 24.501 [13]. Identifies a new PDU session. | M |
| pDUSessionType | Identifies selected PDU session type, see TS 24.501 [13] clause 9.11.4.11. | M |
| accessInfo | Identifies the access(es) associated with the PDU session including the information for each specific access (see table 6.2.3-5B) | M |
| sNSSAI | Slice identifiers associated with the PDU session, if available. See TS 23.003 [19] clause 28.4.2 and TS 23.501 [2] clause 5.15.2. | C |
| uEEndpoint | UE endpoint address(es) assigned to the PDU Session if available (see TS 29.244 [15] clause 5.21). | C |
| location | Location information provided by the AMF or present in the context at the SMF, if available. | C |
| dNN | Data Network Name requested by the target UE, as defined in TS 23.003 [19] clause 9A and described in TS 23.502 [4] clause 4.3.2.2. Shall be given in dotted-label presentation format as described in TS 23.003 [19] clause 9.1. | M |
| aMFID | Identifier of the AMF associated with the target UE, as defined in TS 23.003 [19] clause 2.10.1 when available. | C |
| hSMFURI | URI of the Nsmf\_PDUSession service of the selected H-SMF, if available. See TS 29.502 [16] clause 6.1.6.2.2. | C |
| requestType | Type of request as described in TS 24.501 [13] clause 9.11.3.47 provided within the Nsmf\_PDU\_Session\_CreateSMContext Request (TS 29.502 [16]) message shall be reported.  In the case where the network does not provide a request type value for a MA PDU session and the network does support MA PDU sessions, the request type shall be set to “MA PDU request” according to TS 24.501 [13] clause 6.4.1.2. | M |
| sMPDUDNRequest | Contents of the SM PDU DN Request container, if available, as described in TS 24.501 [13] clause 9.11.4.15. | C |
| servingNetwork | PLMN ID of the serving core network operator, and, for a Non-Public Network (NPN), the NID that together with the PLMN ID identifies the NPN. | M |
| oldPDUSessionID | The old PDU Session ID received from the UE. See TS 23.502 [4] clauses 4.3.2.2.1 and 4.3.5.2 and TS 24.501 [13] clause 6.4.1.2. Shall be present if this IE is in the SMContextCreateData or PDUSessionCreateData message sent to the SMF or the PDU Session Context or SM Context at the SMF (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). | C |
| mAUpgradeIndication | Indicates whether the PDU session is allowed to be upgraded to MA-Confirmed MA PDU session (see TS 23.502 [4] clause 4.22.3). Include if known. | C |
| ePSPDNCnxInfo | Indicates if the PDU session may be moved to EPS during its lifetime (see TS 29.502 [16] clause 6.1.6.2.31). Include if known. | C |
| mAAcceptedIndication | Indicates that a request to establish an MA PDU session was accepted or if a single access PDU session request was upgraded into a MA PDU session (see TS 23.502 [4] clauses 4.22.2 and 4.22.3).  It shall be set as follows:  - true: MA-Confirmed MA PDU session was established  - false: single access MA-Upgrade-Allowed MA PDU session was established that may be upgraded to an MA-Confirmed MA PDU session. | M |
| aTSSSContainer | Identifies the steering, switching, and splitting features for the MA-Confirmed MA PDU session. Also indicates whether MPTCP or ATSSS-LL is to be used for ATSSS. See TS 24.501[13] clause 9.11.4.22. | C |
| uEEPSPDNConnection | This IE shall be present, if available, during an EPS to 5GS Idle mode mobility or handover using the N26 interface. If present, it shall contain the EPS bearer context(s) information present in the uEEPSPDNConnection parameter of the intercepted SmContextCreateData message. (see TS 29.502 [16] clause 6.1.6.2.2). | C |
| ePS5GSComboInfo | Provides detailed information about PDN Connections and PDU Sessions during EPS to 5GS idle mode mobility or handover using the N26 interface. Shall be included if the AMF has selected a SMF+PGW-C to serve the PDU session. This parameter shall include the additional IEs in Table 6.2.3-1A, if present. | C |
| selectedDNN | Shall be present if a DNN other than the UE requested DNN is selected for the PDU Session. Shall be given in dotted-label presentation format as described in TS 23.003 [19] clause 9.1. | C |
| handoverState | Indicates whether the PDU Session Establishment being reported was due to a handover. Shall be present if this IE is in the SMContextCreatedData sent by the SMF (see TS 29.502 [16] clause 6.1.6.2.3). | C |
| pCCRules | Set of PCC rules related to traffic influence. Each PCC rule influences the routing of a given traffic flow. If several flows are concerned, then several PCC rules shall be handled by the SMF. Traffic influence policies are orginated by an AF. PCF translates these rules into PCC rules for traffic influence. The payload of a PCC rule for traffic influence is defined in Table 6.2.3-1E. | C |
| ePSPDNConnectionEstablishment | Provides details about PDN Connections when the SMFMAPDUSessionEstablishment xIRI message is used to report PDN Connection establishment. See table 6.3.3-1 and clause 6.3.3.2.2. | C |
| NOTE: At least one of the SUPI, PEI or GPSI fields shall be present. | | |

Table 6.2.3-5B: Contents of Access Info parameter

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| accessType | Access type associated with the session (i.e. 3GPP or non-3GPP access) as provided by the AMF (see TS 24.501 [13] clause 9.11.2.1A). | M |
| rATType | RAT Type associated with the access as provided by the AMF as part of session establishment (see TS 23.502 [4] clause 4.3.2). Values given as per TS 29.571 [17] clause 5.4.3.2. | C |
| gTPTunnelID | Contains the F-TEID identifying the GTP tunnel used to encapsulate the traffic, as defined in TS 29.244 [15] clause 8.2.3. Non-GTP encapsulation is for further study. | M |
| non3GPPAccessEndpoint | UE's local IP address used to reach the N3IWF, TNGF or TWIF, if available. IP addresses are given as 4 octets (for IPv4) or 16 octets (for IPv6) with the most significant octet first (network byte order). | C |
| establishmentStatus | Indicates whether the access type is established or released. | M |
| aNTypeToReactivate | Indicates the Access Network Type for which the UP connection is requested to be re-activated, for an MA PDU session. Applicable to session modification reporting. | C |
| gTPTunnelInfo | Contains the information for the User Plane GTP Tunnels for the PDU Session (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). See Table 6.2.3-1B. | M |

6.2.3.2.7.3 MA PDU session modification

The IRI-POI in the SMF shall generate an xIRI containing an SMFMAPDUSessionModification record when the IRI-POI present in the SMF detects that an MA PDU session has been modified for the target UE. The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION MODIFICATION COMMAND COMPLETE from the UE and the 5GSM state within the SMF is returned to PDU SESSION ACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.2). This applies to the following cases for an MA-Upgrade-Allowed PDU session:

- UE initiated PDU session modification (see TS 23.502 [4], clause 4.22.8.2).

- Network (VPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.22.8.2).

- Upgrade to an MA PDU session.

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION RELEASE COMPLETE from the UE in response to a PDU SESSION RELEASE COMMAND message containing an Access type IE identifying a single access to be released of an MA PDU session which was established over both accesses and the 5GSM state within the SMF remains in the PDU SESSION ACTIVE. This applies to the following case:

- A single access type is released from an MA PDU session, but the MA PDU session continues.

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), sends the N1 NAS message (via AMF) PDU SESSION ESTABLISHMENT ACCEPT to the UE and the 5GSM state within the SMF remains in the PDU SESSION ACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.1). This applies to the following cases:

- Handover from one access type to another access type happens (e.g. 3GPP to non-3GPP) for an MA-Upgrade-Allowed MA PDU session (See TS 23.502 [4], clauses 4.9.2.3 and 4.9.2.4).

- MA PDU Session establishment over second access type.

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION MODIFICATION COMMAND COMPLETE (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6). This applies to the following cases for an MA-Upgrade-Allowed PDU session:

- UE initiated PDU session modification (see TS 23.502 [4], clause 4.22.8.3).

- Network (VPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.22.8.3).

- Network (HPLMN) initiated PDU session modification (see TS 23.502 [4], clause 4.22.8.3).

- Upgrade to an MA PDU session.

- For a non-roaming scenario, SMF sends a Npcf\_SMPolicyControlUpdateNotify response to the PCF for the target UE in response to an Npcf\_SMPolicyControlUpdateNotify request sent by PCF to SMF including PCC rules which traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE. These PCC rules correspond to policies that influence the target UE’s traffic flows (see TS 29.513 [88] clause 5.5.3).

- For a non-roaming scenario, SMF sends a Nsmf\_EventExposure\_Notify request to the NEF or AF for the target UE for the event "UP Path Change" related to a corresponding subscription from AF (see TS 29.508 [90] clause 4.2.2).

- For a non-roaming scenario, SMF sends a Nsmf\_EventExposure\_AppRelocationInfo response to the NEF or AF for the target UE in response to Nsmf\_EventExposure\_AppRelocationInfo request sent by NEF or AF to SMF (see TS 29.508 [90] clause 4.2.5).

- For a non-roaming scenario, SMF receives a Nnef\_PFDManagement\_Fetch response from the NEF for the target UE in response to Nnef\_PFDManagement\_Fetch request sent by SMF to NEF (see TS 29.551 [96] clause 4.2.2).

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION RELEASE COMPLETE message, a response to a PDU SESSION RELEASE COMMAND message containing an Access type IE identifying a single access to be released of an MA PDU session which was established over both accesses and the 5GSM state within the SMF remains in the PDU SESSION ACTIVE. This applies to the following cases:

- A single access type is released from an MA PDU session, but the MA PDU session continues.

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) sends the N16: Nsmf\_PDU\_Session\_Create response message with n1SmInfoToUe IE containing the PDU SESSION ESTABLISHMENT ACCEPT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6) while it had received an N16 Nsmf\_PDU\_Session\_Create request message with an existing PDU Session Id with access type being changed. This applies to the following cases:

- Handover from one access type to another access type happens (e.g. 3GPP to non-3GPP) for an MA-Upgrade-Allowed PDU session (see TS 23.502 [4], clauses 4.9.2.3 and 4.9.2.4).

- MA PDU Session establishment over second access type.

Table 6.2.3-5C: Payload for SMFMAPDUSessionModification record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session (e.g. as provided by the AMF in the associated Nsmf\_PDU\_Session\_CreateSMContext service operation). Shall be present except for PEI-only unauthenticated emergency sessions. | C |
| sUPIUnauthenticated | Shall be present if a SUPI is present in the message, and set to “true” if the SUPI was not authenticated, or “false” if it has been authenticated. | C |
| pEI | PEI associated with the PDU session if available. | C |
| gPSI | GPSI associated with the PDU session if available. | C |
| pDUSessionID | PDU Session ID, see TS 24.501 [13] clause 9.4. | M |
| accessInfo | Identifies the access(es) associated with the PDU session including the information for each specific access (see table 6.2.3-5B) being modified. | C |
| sNSSAI | Slice identifier associated with the PDU session, if available. See TS 23.003 [19] clause 28.4.2 and TS 23.501 [2] clause 5.15.2. | C |
| location | Location information provided by the AMF or present in the context at the SMF, if available. | C |
| requestType | For both a UE- as well as a network-requested PDU session, the POI (SMF) shall set the request type parameter to "modification request". | C |
| servingNetwork | PLMN ID of the serving core network operator, and, for a Non-Public Network (NPN), the NID that together with the PLMN ID identifies the NPN. | M |
| oldPDUSessionID | The old PDU Session ID received from the UE. See TS 23.502 [4] clauses 4.3.2.2.1 and 4.3.5.2 and TS 24.501 [13] clause 6.4.1.2. Shall be present if this IE is in the SMContextCreateData or PDUSessionCreateData message sent to the SMF or the PDU Session Context or SM Context at the SMF (see TS 29.502 [16] clauses 6.1.6.2.2, 6.1.6.2.9 and 6.1.6.2.39). | C |
| mAUpgradeIndication | Indicates whether the PDU session is allowed to be upgraded to MA PDU session (see TS 23.502 [4] clause 4.22.3). Include if known. | C |
| ePSPDNCnxInfo | Indicates if the PDU session may be moved to EPS during its lifetime (see TS 29.502 [16] clause 6.1.6.2.31). Include if known. | C |
| mAAcceptedIndication | Indicates that a request to establish an MA PDU session was accepted or if a single access PDU session request was upgraded into a MA PDU session (see clauses 4.22.2 and 4.22.3 of TS 23.502 [4]).  It shall be set as follows:  - true: MA-Confirmed MA PDU session was established  - false: single access MA-Upgrade-Allowed MA PDU session was established that may be upgraded to an MA-Confirmed MA PDU session. | M |
| aTSSSContainer | Identifies the steering, switching, and splitting features for the MA-Confirmed MA PDU session. Also indicates whether MPTCP or ATSSS-LL is to be used for ATSSS. See clause 9.11.4.22 of TS 24.501 [13]. | C |
| uEEPSPDNConnection | This IE shall be present, if available, during an EPS to 5GS Idle mode mobility or handover using the N26 interface. If present, it shall contain the EPS bearer context(s) information present in the uEEPSPDNConnection parameter of the intercepted SmContextCreateData message (see TS 29.502 [16] clause 6.1.6.2.2). | C |
| ePS5GSComboInfo | Provides detailed information about PDN Connections and PDU Sessions during EPS to 5GS idle mode mobility or handover using the N26 interface. Shall be included if the AMF has selected a SMF+PGW-C to serve the PDU session. This parameter shall include the additional IEs in Table 6.2.3-1A, if present. | C |
| handoverState | Indicates whether the PDU Session Establishment being reported was due to a handover. Shall be present if this IE is in the SMContextCreatedData sent by the SMF (see TS 29.502 [16] clause 6.1.6.2.3). | C |
| pCCRules | Set of PCC rules related to traffic influence. Each PCC rule influences the routing of a given traffic flow. If several flows are concerned, then several PCC rules shall be handled by the SMF. Traffic influence policies are orginated by an AF. PCF translates these rules into PCC rules for traffic influence. The payload of a PCC rule for traffic influence is defined in Table 6.2.3-1E. | C |
| uPPathChange | Notification of the UPPathChange event, if available. This IE is defined in TS 29.508 [90], Table 5.6.2.5-1. | C |
| pFDDataForApp | Represents the packet flow descriptions (PFDs) for an application identifier (AppId), if available. This IE is defined in TS 29.551 [96], Table 5.6.2.2-1. | C |
| ePSPDNConnectionModification | Provides details about PDN Connections when the SMFMAPDUSessionModification xIRI message is used to report PDN Connection Establishment or Modification. See table 6.3.3-8 and clause 6.3.3.2.3. | C |

6.2.3.2.7.4 MA PDU session release

The IRI-POI in the SMF shall generate an xIRI containing an SMFMAPDUSessionRelease record when the IRI-POI present in the SMF detects that an MA PDU session has been released. The IRI-POI present in the SMF shall generate the xIRI for the following events:

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION RELEASE COMPLETE from the UE and the 5GSM state within the SMF is changed to PDU SESSION INACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.3). This applies to the following two cases for an MA PDU session that is either MA-Confirmed or MA-Upgrade-Allowed:

- UE initiated PDU session release (see TS 23.502 [4], clause 4.22.10.2).

- Network initiated PDU session release (see TS 23.502 [4], clause 4.22.10.2).

- For a roaming scenario, V-SMF in the VPLMN, the V-SMF receives the N1 NAS message (via AMF) PDU SESSION RELEASE COMPLETE from the UE and the 5GSM state within the V-SMF is changed to PDU SESSION INACTIVE (see TS 24.501 [13], clauses 6.1.3.3 and 6.4.3). This applies to the following two cases for an MA PDU session that is either MA-confirmed or MA-Upgrade-Allowed:

- UE initiated PDU session release of a single access for an MA PDU session; (VPLMN considers MA PDU session fully released while HPLMN considers MA PDU session active).

- Network initiated PDU session release of a single access for an MA PDU session; (VPLMN considers MA PDU session fully released while HPLMN considers MA PDU session active).

- For a non-roaming scenario, the SMF (or for a roaming scenario, V-SMF in the VPLMN), receives the N1 NAS message (via AMF) PDU SESSION MODIFICATION COMMAND REJECT from the UE with the cause value #43 indicating an invalid PDU Session ID and the 5GSM state within the SMF is changed to PDU SESSION INACTIVE (see TS 24.501 [13] clause 6.1.3.3). This applies to the case for a PDU session that is either MA-Confirmed or MA-Upgrade-Allowed and where the UE rejects a PDU SESSION MODIFICATION COMMAND as it finds that the indicated PDU session ID is invalid. The 5GSM state is changed to PDU SESSION INACTIVE within the SMF.

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION RELEASE COMMAND COMPLETE (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, 5.2.3, and 6.1.6) from the V-SMF. This applies to the following three cases for an MA PDU session that is either MA-Confirmed or MA-Upgrade-Allowed:

- UE initiated PDU session release (see TS 23.502 [4], clause 4.22.103).

- Network (VPLMN) initiated PDU session release (see TS 23.502 [4], clause 4.22.10.3)..

- Network (HPLMN) initiated PDU session release (see TS 23.502 [4], clause 4.22.10.3)..

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) receives the N16: Nsmf\_PDU\_Session\_Update response message with n1SmInfoFromUe IE containing the PDU SESSION MODIFICATION COMMAND REJECT (see TS 29.502 [16], clauses 5.2.1, 5.2.2.8, and 6.1.6) from the V-SMF with the cause value #43 indicating an Invalid PDU Session ID for an MA PDU session that is either MA-Confirmed or MA-Upgrade-Allowed.

Table 6.2.3-5D: Payload for SMFMAPDUSessionRelease record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the PDU session. | M |
| pEI | PEI associated with the PDU session if available. | C |
| gPSI | GPSI associated with the PDU session if available. | C |
| pDUSessionID | PDU Session ID as assigned by the AMF. | M |
| timeOfFirstPacket | Time of first packet for the PDU session. | C |
| timeOfLastPacket | Time of last packet for the PDU session. | C |
| uplinkVolume | Number of uplink octets for the PDU session. | C |
| downlinkVolume | Number of downlink octets for the PDU session. | C |
| location | Location information, if available. | C |
| cause | Indicates the NF Service Consumer cause for the requested PDU session release (see TS 29.502 [16] clause 6.1.6.3.8 for enumerated cause information). Include if known. | C |
| nGAPCause | Indicates the NGAP cause for the requested SM context release (see TS 29.502 [16] clause 6.1.6.2.6). Shall be derived as described in TS 29.571 [17] clause 5.4.4.12. | C |
| fiveGMMCause | Indicates the 5GMM cause for a PDU Session released due to any 5GMM failure (see 29.502 [16] clause 6.1.6.2.6). Shall be sent as an integer derived as described in TS 29.571 [17] clause 5.4.2. | C |
| pCCRulesIDs | PCC rule IDs of the PCC rules related to traffic influence that are associated to the PDU session and active at the time the PDU session is released. | C |
| ePSPDNConnectionRelease | Provides details about PDN Connections when the SMFMAPDUSessionRelease xIRI message is used to report PDN Connection Release. See table 6.3.3-13 and clause 6.3.3.2.4. | C |

\*\* End of all Changes \*\*