**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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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:*** | ASN.1 field deprecation and other drafting guidance enhancements | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | SA3LI | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***Category:*** | **F** |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | To enhance drafting guidelines:   * Change deprecation behaviour for all fields – the ASN.1 field is now renamed. * Clarifications to existing practices and linting. | | | | | | | | |
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| ***Summary of change:*** | | Update drafting guidance tables:   * D.2.3: XIRIEvent and IRIEvent comment exceptions. * D.2.5 and D.4.14: Deprecated fields get renamed to deprecated{PreviousName}. * Add D.2.6: Require explicit clause references. * Add D.2.7: Information elements used from other specifications omit the type and length of the original encoding. * Add D.2.8: Describe how Mandatory/Conditional/Optional is used for new ASN.1 fields added to existing types (c.f. D.4.13) * D.4.3, D.4.4: "Holes" in tags are to be avoided. * D.4.10: Void, since there's no formatting in text attachments. * D.4.15: XIRIEvent and IRIEvent use same field names for same tags. (This is a followup to CR 0415.)   Adapt existing text to the new deprecation conventions.  Adapt ASN.1 to the new deprecation conventions. | | | | | | | | |
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| ***Consequences if not approved:*** | | Established conventions not documented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.2.2.4, 6.2.3.2.2, 6.2.3.2.3, 6.2.5.3,  7.3.1.4, 7.3.3.2.13, 7.3.3.2.15, 7.3.3.2.18, 7.3.3.2.19,  7.11.2.2,  D.2, D.3, D.4,  ASN.1 attachment | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Merge request: <https://forge.3gpp.org/rep/sa3/li/-/merge_requests/233>  Commit hash: eb9c2b5ac9d74c89bc8b02fde212ae7f53c8d637 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i230520 | | | | | | | | |

START OF CHANGE 1

##### 6.2.2.2.4 Location update

The IRI-POI in the AMF shall generate an xIRI containing an AMFLocationUpdate record each time the IRI-POI present in an AMF detects that the target’s UE location is updated due to target UE mobility or as a part of an AMF service procedure and the reporting of location information is not restricted by service scoping. The generation of such separate xIRI is not required if the updated UE location information is obtained as a part of a procedure producing some other xIRIs (e.g. mobility registration). In that case the location information is included into the respective xIRI.

The UE mobility events resulting in generation of an AMFLocationUpdate xIRI include the *N2 Path Switch Request* (*Xn based inter NG-RAN handover* procedure described in TS 23.502 [4] clause 4.9.1.2) and the *N2 Handover Notify* (*Inter NG-RAN node N2 based handover* procedure described in TS 23.502 [4] clause 4.9.1.3).

The AMFLocationUpdate xIRI is also generated when the AMF receives an NG-RAN NGAP *PDU Session Resource Modify Indication* message as a result of Dual Connectivity activation/release for the target UE, as described in TS 37.340 [37] clause 10.

Optionally, based on operator policy, other NG-RAN NGAP messages that do not generate separate xIRI but carry location information (e.g. RRC INACTIVE TRANSITION REPORT) may trigger the generation of an xIRI AMFLocationUpdate record.

Additionally, based on regulatory requirements and operator policy, the location information obtained by AMF from NG-RAN or LMF in the course of some service operation (e.g. emergency services, LCS) may generate xIRI AMFLocationUpdate record. The AMF services providing the location information in these cases include the AMF Location Service (ProvideLocInfo, ProvidePosInfo, NotifiedPosInfo and EventNotify service operations) and the AMF Exposure Service (AmfEventReport with LOCATION\_REPORT) (see TS 29.518 [22]). Additionally, the AMF Communication Service (Namf\_Communication\_N1MessageNotify service operation) may be monitored to capture the location information in the scenarios described in TS 23.273 [42] clause 6.3.1. Also, in the case of Mobile Originated LCS service invoked by the target, the location information may be derived from a Nlmf\_Location\_DetermineLocation Response to AMF (see TS 23.273 [42] clause 6.2).

The AMFLocationUpdate record is also used by LARF to deliver Location Acquisition responses to MDF2, as described in clause 7.3.5.6. The IRI-POI in the AMF shall not generate the AMFLocationUpdate xIRI when the location is acquired as the result of a LARF request, as described in TS 33.127 [5], clause 7.3.5.2.

Table 6.2.2-3: Payload for AMFLocationUpdate record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI associated with the location update (see clause 6.2.2.4). | M |
| sUCI | SUCI associated with the location update, if available, see TS 24.501 [13]. | C |
| pEI | PEI associated with the location update, if available. | C |
| gPSI | GPSI associated with the location update, if available as part of the subscription profile. | C |
| gUTI | 5G-GUTI associated with the location update, if available, see TS 24.501 [13]. | C |
| location | Updated location information determined by the network.  Depending on the service or message type from which the location information is extracted, it may be encoded in several forms (Annex A):  1) as a *userLocation* parameter (*location>locationInfo>userLocation*) in the case the information is obtained from an NGAP message, except the LOCATION REPORT message (see TS 38.413 [23]);  2) as a *locationInfo* parameter (*location>locationInfo*) in the case the information is obtained from a **ProvideLocInfo** (TS 29.518 [22] clause 6.4.6.2.6);  3) as a *locationPresenceReport* parameter (*location>locationPresenceReport*) in the case the information is obtained from an **AmfEventReport** (TS 29.518 [22] clause 6.2.6.2.5) with event type **Location-Report** or **Presence-In-AOI-Report;**  4) as a *positionInfo* parameter (*location>positioningInfo>positionInfo*) in the case the information is obtained from a **ProvidePosInfo** (TS 29.518 [22] clause 6.4.6.2.3) or a **NotifiedPosInfo** (TS 29.518 [22] clause 6.4.6.2.4). | M |
| deprecatedSMSoverNASIndicator | No longer used in present version of this specification. | C |
| deprecatedOldGUTI | No longer used in present version of this specification. | C |

END OF CHANGE 1

START OF CHANGE 2

##### 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).

- 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).

If the Npcf\_SMPolicyControl\_Create response received from the PCF for the target UE in response to Npcf\_SMPolicyControl\_Create request includes PCC rules in which the traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE, then the SMF shall include those PCC rules 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).

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 Connections associated with the reported PDU Session. 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 |
| deprecatedSourceDNAI | No longer used in present version of this specification | O |
| deprecatedTargetDNAI | No longer used in present version of this specification | O |
| deprecatedDNAIChangeType | No longer used in present version of this specification | O |
| deprecatedSourceUEIPAddress | No longer used in present version of this specification | O |
| deprecatedTargetUEIPAddress | 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. | | |

END OF CHANGE 2

START OF CHANGE 3

##### 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 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 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], clause 6.1.3.3 and 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 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) where the V-SMF is used for the PDU session on the new access type only.

- For a home-routed roaming scenario, the SMF in the HPLMN (i.e. H-SMF) sends the N16: Nsmf\_PDU\_Session\_Update Response message with n1SmInfoToUe IE containing the PDU SESSION ESTABLISHMENT ACCEPT (see TS 29.502 [16]) while it had received a N16 Nsmf\_PDU\_Session\_Update 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) where the same V-SMF is used for the PDU session on both access types.

- 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).

If the Npcf\_SMPolicyControlUpdateNotify response sent to the PCF for the target UE in response to an Npcf\_SMPolicyControlUpdateNotify request includes PCC rules in which the traffic control policy data contains either a routeToLocs IE or trafficSteeringPolIdDl IE and/or trafficSteeringPolIdUl IE, then the SMF shall include those PCC rules 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).

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. Shall be provided. This parameter is conditional only for backwards compatibility. | C |
| ePS5GSComboInfo | Provides detailed information about PDN Connections associated with the reported PDU Session. 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 |

END OF CHANGE 3

START OF CHANGE 4

#### 6.2.5.3 SMS Message

The IRI-POI in the SMSF shall generate an xIRI containing an SMSMessage record for the following cases:

SMS-MO case:

- When a target UE originates an SMS message or when any UE originates an SMS message destined to a target non-local ID.

SMS-MT case:

- When an SMS message delivery to a target UE is attempted or when an SMS message delivery originated from a target non-local ID is attempted to any UE.

- When an SMS message is successfully delivered to a target UE or when an SMS message originated from a target non-local ID is successfully delivered to any UE.

The SMS-MT case can also apply to the scenario when a receipt of SMS delivery from the far end is delivered successfully to the target UE or when a receipt of SMS delivery from a target non-Local ID is successfully delivered to the originating UE.

The IRI-POI present in the SMSF shall generate the xIRI containing the SMSMessage record when it detects following events:

- The SMSF receives an SMCP message CP-DATA\_RP-DATA [SMS-SUBMIT, SMS-COMMAND] (via AMF in Nsmsf\_SMService\_UplinkSMS message) from a target UE.

- The SMSF receives an SMCP message CP-DATA\_RP-DATA [SMS-SUBMIT] (via AMF in Nsmsf\_SMService\_UplinkSMS message) from any UE with TP-DA field within the SMS-SUBMIT containing a target non-Local ID and SMSF returns the SMCP: CP-ACK to that originating UE.

- The SMSF receives an SMCP message CP-DATA\_RP-DATA [SMS-COMMAND] (via AMF in Nsmsf\_SMService\_UplinkSMS message) from any UE with TP-DA field within the SMS-COMMAND containing a target non-Local ID and SMSF returns the SMCP: CP-ACK to that originating UE.

- The SMSF receives a TCAP message MAP MT-FORWARD-SHORT-MESSAGE Request [SMS-DELIVER, SMS-STATUS-REPORT] destined to a target UE.

- The SMSF receives a TCAP message MAP MT-FORWARD-SHORT-MESSAGE Request [SMS-DELIVER] destined to any UE with the TP-OA field within the SMS-DELIVER containing a target non-Local ID.

- The SMSF receives a TCAP message MAP MT-FORWARD-SHORT-MESSAGE Request [SMS-STATUS-REPORT] destined to any UE with the TP-RA field within the SMS-STATUS-REPORT containing a target non-Local ID.

The IRI-POI present in the SMSF shall generate the xIRI containing the SMSReport record when it detects following events:

- The SMSF sends a SMCP message CP-DATA\_RP-ACK [SMS-SUBMIT-REPORT] (via AMF in Namf\_ Communication\_N1N2MessageTransfer message) in response to a previously intercepted CP-DATA\_RP-DATA.

- The SMSF sends a SMCP message CP-DATA\_RP-ERROR [SMS-SUBMIT-REPORT] (via AMF in Namf\_ Communication\_N1N2MessageTransfer message) in response to a previously intercepted CP-DATA\_RP-DATA.

- The SMSF sends a TCAP message MAP MT-FORWARD-SHORT-MESSAGE Response [SMS-DELIVER-REPORT] in response to a previously intercepted MAP MT-FORWARD-SHORT-MESSAGE Request.

NOTE 1: In the above-mentioned descriptions, the requirements of target Non-Local ID do not apply when both originating and terminating users of an SMS message are served by the same CSP. The method used to identify a target non-Local ID is different from the method used to identify a local target ID.

If the IRI-POI is provisioned with the TruncateTPUserData parameter included and the IRI-POI is generating xIRI for the SMS-SUBMIT type (TS 23.040 [18] clause 9.2.2.2) or SMS-DELIVER type (TS 23.040 [18] clause 9.2.2.1) TPDUs, the IRI-POI shall use the truncatedSMSTPDU (as described in table 6.2.5-7), otherwise, the IRI-POI shall use the sMSTPDU.

Table 6.2.5-5: Payload for SMSMessage record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| originatingSMSParty | Identity of the originating SMS party. See NOTE 2. | M |
| terminatingSMSParty | Identity of the terminating SMS party. See NOTE 3. | M |
| direction | Direction of the SMS with respect to the target. See NOTE 4. | M |
| linkTransferStatus | Indicates whether the SMSF sent the TPDU to the next network element. See NOTE 5. | M |
| otherMessage | In the event of a server-initiated transfer, indicates whether the server will send another SMS. May be omitted if the transfer is target-initiated. See NOTE 6. | C |
| location | Location information associated with the target sending or receiving the SMS, if available and authorised. See NOTE 7.  Encoded as a *userLocation* parameter (*location>locationInfo>userLocation*), see Annex A. | C |
| peerNFAddress | Address of the other network function (SMS-GMSC/IWMSC/SMS-Router) involved in the communication of the SMS, if available. | C |
| peerNFType | Type of the other network function (SMS-GMSC/IWMSC/SMS-Router) involved in the communication of the SMS, if available. | C |
| sMSTPDUData | See table 6.2.5-7. Shall be provided. This parameter is conditional only for backwards compatibility. | C |
| messageType | See table 6.2.5-8. Shall be provided. This parameter is conditional only for backwards compatibility. | C |
| rPMessageReference | The SM-RL Message Reference of the message per TS 24.011 [46] clause 7.3. Shall be provided. This parameter is conditional only for backwards compatibility. | C |

END OF CHANGE 4

START OF CHANGE 5

#### 7.3.1.4 Generation of xIRI over LI\_X2

The IRI-POI provided by the LI-LCS client shall deliver the target location reports to respective MDF(s) as xIRI over the LI\_X2 interface.

Table 7.3.1.4-1: LALSReport record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| sUPI | SUPI of the target, if used for the service (see NOTE). | C |
| deprecatedPEI | No longer used in present version of this specification. | C |
| gPSI | GPSI of the target, if used for the service (see NOTE). | C |
| iMSI | IMSI of the target, if used for the service (see NOTE). | C |
| mSISDN | MSISDN of the target, if used for the service (see NOTE). | C |
| iMPU | IMPU of the target, if used for the service (see NOTE). | C |
| location | Location of the target, if obtained successfully.  Encoded as a *positioningInfo* parameter (*location>positioningInfo*). Boththe *positionInfo* (*location>positioningInfo>positionInfo*)and the *mLPPositionData* (*location>positioningInfo>rawMLPResponse>mLPPositionData*) are present in the case of successful positioning. In the case of positioning failure only the *mLPErrorCode (location>positioningInfo>rawMLPResponse>mLPErrorCode)* is present. See Annex A. | C |
| NOTE: One and only one of SUPI, GPSI, IMSI, MSISDN, IMPU shall be present and it shall correspond to the target identifier included in the respective ActivateTask message for the LI-LCS Client. | | |

END OF CHANGE 5

START OF CHANGE 6

##### 7.3.3.2.13 Type: PointUncertaintyCircle

The PointUncertaintyCircle type is derived from the data present in the PointUncertaintyCircle type defined in TS 29.572 [24] clause 6.1.6.2.7.

Table 7.3.3.2.13-1 contains the details for the PointUncertaintyCircle type.

Table 7.3.3.2.13-1: Definition of type PointUncertaintyCircle

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates the geographic point for the center of the circle represented by its longitude and latitude. | M |
| deprecatedUncertainty | Uncertainty | 1 | No longer used in present version of this specification and shall always be set to 0. The uncertaintySBI parameter shall be used instead. | M |
| uncertaintySBI | UncertaintySBI | 0..1 | Indicates the radius of the uncertainty circle. Expressed in meters. Shall be provided. This parameter is conditional only for backwards compatibility. | C |

END OF CHANGE 6

START OF CHANGE 7

##### 7.3.3.2.15 Type: UncertaintyEllipse

The UncertaintyEllipse type is derived from the data present in the UncertaintyEllipse type defined in TS 29.572 [24] clause 6.1.6.2.22.

Table 7.3.3.2.15-1 contains the details for the UncertaintyEllipse type.

Table 7.3.3.2.15-1: Definition of type UncertaintyEllipse

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| deprecatedSemiMajor | Uncertainty | 1 | No longer used in present version of this specification and shall always be set to 0. The semiMajorSBI parameter shall be used instead. | M |
| deprecatedSemiMinor | Uncertainty | 1 | No longer used in present version of this specification and shall always be set to 0. The semiMinorSBI parameter shall be used instead. | M |
| orientationMajor | Orientation | 1 | Indicates the orientation of the major axis in degrees. | M |
| semiMajorSBI | UncertaintySBI | 0..1 | Indicates the semi-major axis of the uncertainty ellipse in meters. Shall be provided. This parameter is conditional only for backwards compatibility. | C |
| semiMinorSBI | UncertaintySBI | 0..1 | Indicates the semi-minor axis of the uncertainty ellipse in meters. Shall be provided. This parameter is conditional only for backwards compatibility. | C |

END OF CHANGE 7

START OF CHANGE 8

##### 7.3.3.2.18 Type: PointAltitudeUncertainty

The PointAltitudeUncertainty type is derived from the data present in the PointAltitudeUncertainty type defined in TS 29.572 [24] clause 6.1.6.2.11.

Table 7.3.3.2.18-1 contains the details for the PointAltitudeUncertainty type.

Table 7.3.3.2.18-1: Definition of type PointAltitudeUncertainty

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |
| altitude | Altitude | 1 | Indicates the altitude of the UE in meters. | M |
| uncertaintyEllipse | UncertaintyEllipse | 1 | Describes an uncertainty ellipse. | M |
| deprecatedUncertaintyAltitude | Uncertainty | 1 | No longer used in present version of this specification and shall be set to 0. The uncertaintyAltitudeSBI parameter shall be used instead. | M |
| confidence | Confidence | 1 | Indicates the confidence of the location as a percentage. | M |
| uncertaintyAltitudeSBI | UncertaintySBI | 0..1 | Indicates the uncertainty of the altitude in meters. Shall be provided. This parameter is conditional only for backwards compatibility. | C |

END OF CHANGE 8

START OF CHANGE 9

##### 7.3.3.2.19 Type: EllipsoidArc

The EllipsoidArc type is derived from the data present in the EllipsoidArc type defined in TS 29.572 [24] clause 6.1.6.2.12.

Table 7.3.3.2.19-1 contains the details for the EllipsoidArc type.

Table 7.3.3.2.19-1: Definition of type EllipsoidArc

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |
| innerRadius | InnerRadius | 1 | Indicates the inner radius of the ellipsoid arc in meters. | M |
| deprecatedUncertaintyRadius | Uncertainty | 1 | No longer used in present version of this specification and shall be set to 0. The uncertaintyRadiusSBI parameter shall be used instead. | M |
| offsetAngle | Angle | 1 | Indicates the angle from North to the first defining radius of the arc in degrees. | M |
| includedAngle | Angle | 1 | Indicates the angle from the first defining radus of the arc to the second in degrees. | M |
| confidence | Confidence | 1 | Indicates the confidence of the location as a percentage. | M |
| uncertaintyRadiusSBI | UncertaintySBI | 0..1 | Indicates the width of the uncertainty arc in meters. Shall be provided. This parameter is conditional only for backwards compatibility. | C |

END OF CHANGE 9

START OF CHANGE 10

#### 7.11.2.2 Signature generation

The IRI-POI present in the Telephony AS or IBCF, shall generate an xIRI containing a STIRSHAKENSignatureGeneration record under the following conditions:

- Telephony AS or IBCF is interacting with the SIGNING AS. Whether it is the Telephony AS or IBCF for sessions is based on network configuration and local policy of the CSP as described in clause 7.11.2.4.

- When P-Asserted Identity or From header of SIP INVITE request received from S-CSCF is a target identity with the conditions mentioned below:

- The identities in one or both of those headers are used to interact with the SIGNING AS.

- The "shaken" PASSporT is not received in the SIP INVITE request from the S-CSCF.

- The "shaken" PASSporT is received from the SIGNING AS.

- The "shaken" PASSporT is included in the outgoing SIP INVITE.

- When the "ReportDiversionPASSporTInfo" parameter is set to "True" in the ActivateTask with P-Asserted Identity or From header of SIP INVITE request received from S-CSCF is a target identity with the conditions mentioned below:

- The identities in one or both of those headers are used to interact with the SIGNING AS.

- A "shaken" PASSporT or a "div" PASSporT with those identities are included in the "orig" claim of "shaken" or "div" PASSporT received from the SIGNING AS.

- The "shaken" PASSporT or a "div" PASSporT with those identities are included in the "orig" claim of "shaken" or "div" PASSporT in the outgoing SIP INVITE.

- When Diversion header or the History Info of SIP INVITE request received from the S-CSCF includes a target identity with the conditions mentioned below:

- The identities in one or both of those headers are used to interact with the SIGNING AS.

- The "div" PASSporT with those identities in the "div" claim is not received in the SIP INVITE request from the S-CSCF.

- The "div" PASSporT with those identities in the "div" claim is received from the SIGNING AS.

- The "div" PASSporT with those identities in the "div" claim is included in the outgoing SIP INVITE.

- When the "ReportDiversionPASSporTInfo" parameter is set to "True" in the ActivateTask with Diversion or HistoryInfo header of SIP INVITE request received from S-CSCF includes the target identity with the conditions mentioned below:

- The identities in P-Asserted Identity or From of SIP INVITE received from the S-CSCF are used to interact with the SIGNING AS.

- A "div" PASSporT with the identities in P-Asserted Identity or From of SIP INVITE request received from S-CSCF are included in the "orig" claim of "div" PASSporT received from the SIGNING AS.

- The "div" PASSporT with the identities in P-Asserted Identity or From of SIP INVITE request received from S-CSCF are included in the "orig" claim of "div" PASSporT in the outgoing SIP INVITE.

- When Request URI of outgoing SIP INVITE is a target non-local ID and is present in the "dest" claim of "shaken" or "div" PASSporT received from the SIGNING AS and the same is included in the outgoing SIP INVITE.

- When Telephony AS is interacting with the SIGNING AS, and when Request URI of SIP INVITE received from the S-CSCF is a target identity with the conditions mentioned below:

- The identity is used to interact with the SIGNING AS.

- The "div" PASSporT with that identity in the "div" claim is received from the SIGNING AS.

- The "div" PASSporT with that identity in the "div" claim is included in the outgoing SIP INVITE.

When the target is not a non-local ID, the STIRSHAKENSignatureGeneration includes only the PASSporT received in the SIGING AS response with the following rules:

- When the "ReportDiversionPASSporTInfo" parameter is set to "True" in the ActivateTask, all of the PASSporT received from the SIGNING AS.

- When the "ReportDiversionPASSporTInfo" parameter is set to "False" in the ActivateTask:

- If P-Asserted Identity or From header in the SIP INVITE received from the S-CSCF is a target identity, then only "shaken" PASSporT received from the SIGNING AS with those identities in the "orig" claim of the "shaken" PASSporT.

- If Diversion or HistoryInfo header in the SIP INVITE received from the S-CSCF is a target identity, then only the "div" PASSporT received from the SIGNING AS with those identities in the "div" claim of "div" PASSporT.

- If REQUEST URI or To header in the SIP INVITE received from the S-CSCF is a target identity, then only the "div" PASSporT received from the SIGNING AS with those identities in the "div" claim of "div" PASSporT.

When the target is non-local ID, STIRSHAKENSignatureGeneration includes all of the PASSporT included in the outgoing SIP message.

The following table contains parameters, with IRITargetIdentifier, generated by the IRI-POI.

Table 7.11.2.2-1: Payload for STIRSHAKENSignatureGeneration record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| pASSporTs | Identifies the content of the SIP Identity headers added by the originating network and transit networks. This is a set of PASSporT parameter. See table 7.11.2.2-2. | M |
| encapsulatedSIPMessage | Encapsulated SIP INVITE request that includes SIP Identity header carrying the PASSporT (Outgoing SIP request) based on the structure defined in table 7.12.4.2-2 (see NOTE 2 below). Shall be provided. This parameter is conditional only for backwards compatibility. | C |
| NOTE 1: Void.  NOTE 2: The same SIP message may be encapsulated in the xIRI IMSMessage as well. | | |

Table 7.11.2.2-2: Details for PASSporT parameter

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| pASSporTHeader | PASSporT Header as defined in RFC 8224 [70] clause 4 for "shaken” PASSporT, in RFC 8946 [76] clause 3 for "div” PASSportT and in TS 24.229 [74]. See table 7.11.2.2-3. | M |
| pASSporTPayload | PASSporT Payload as defined in RFC 8224 [70] clause 4 for "shaken” PASSporT, in RFC 8946 [76] clause 3 for "div” PASSporTand in TS 24.229 [74]. See table 7.11.2.2-4. | M |
| pASSporTSignature | PASSporT Signature as defined in RFC 8224 [70] clause 4 for "shaken” PASSporT, in RFC 8946 [76] clause 3 for "div” PASSporTand in TS 24.229 [74]. | M |

Table 7.11.2.2-3: Details for pASSporTHeader parameter

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| type | Shall be populated with the type contained in the PASSporT Header as defined in RFC 8225 [69] clause 4.1 for "shaken” PASSporT and in RFC 8946 [76] clause 3 for "div” PASSporT. | M |
| algorithm | Shall be derived from the value of the 'alg' parameter of the PASSporT Header as defined in RFC 8225 [69] clause 4.2 for "shaken” PASSporT and in RFC 8946 [76] clause 3 for “div” PASSporT. | M |
| ppt | Shall be derived from the value of the 'ppt' parameter of the PASSporT Header as defined in RFC 8225 [69] clause 8.1 for “shaken” PASSporT if the PASSporT Header contains a ppt parameter and in RFC 8946 [76] clause 3 for “div” PASSporT. | C |
| x5u | Shall be populated with the URI contained in the 'x5u' parameter of the PASSporT Header as defined in RFC 8225 [69] clause 4.3 for “shaken” PASSporT and in RFC 8946 [76] clause 3 for "div” PASSporT. | M |

Table 7.11.2.2-4: Details for pASSporTPayload parameter

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| issuedAtTime | Shall be populated with the GenrealizedTime format timestamp converted from the NumericDate contained in the 'iat' parameter of the PASSporT Payload as defined in RFC 8225 [69] clause 5.1.1 and in RFC 8946 [76] clause 3. | M |
| originator | Shall be populated with the value of the "orig" claim of the PASSporT Payload as defined in RFC 8225 [69] clause 5.2.1 and in RFC 8946 [76] clause 3. | M |
| destination | Shall contain the list of destinations contained in the "dest" claim of the PASSporT Payload as defined in RFC 8225 [69] clause 5.2.1 and in RFC 8946 [76] clause 3. | M |
| diversion | Shall be populated with the "div" claim of the "div" PASSporT payload. For first diversion this contains the original identifier of the destination as defined in RFC 8946 [76] clause 3 for “div" PASSporT. | C |
| attestation | Indicates the attestation level as defined in RFC 8588 [71] clause 4 for the "shaken” PASSporT. The different values of attestation level are A = Full Attestation, B= Partial Attestation, C = Gateway Attestation. For "div" PASSporT where "attestation" is not available, the placeholder value "Not available" shall be used | M |
| origID | Shall be populated with the value of the origID contained in the 'origid' parameter of the PASSporT Payload as defined in RFC 8588 [71] clause 5 for the “shaken” PASSporT. For "div" PASSporT where "origId" is not available, the placeholder value "Not available" shall be used. | M |
| NOTE 3: Void.  NOTE 4: Void. | |  |

END OF CHANGE 10

START OF CHANGE 11

Annex D (informative):  
Drafting Guidance

# D.1 Introduction

This annex provides drafting guidance for contributors wishing to propose changes to the present document.

# D.2 Drafting conventions

Drafting conventions are described in table D.2-1.

Table D.2-1: Drafting conventions

|  |  |
| --- | --- |
| ID | Description |
| D.2.1 | The details for each field, including a complete description of the usage, format, cardinality, and conditionality of that field, are given in the prose in the main body of the document.  When a table is used in the main body of the document to describe complex type (including CHOICE, SEQUENCE, or SET), the row order in the table matches the ASN.1 tag order. |
| D.2.2 | The field names used in the main body of the document match those used in the ASN.1. |
| D.2.3 | ASN.1 comments are not used, except to indicate:  1. Where to find a description of the field or structure in the main body of the specification. Be aware that XIRIEvent and IRIEvent fields are usually described in separate clauses.  2. When a tag is reserved for a purpose in an equivalent structure (see D.4.15) or a different Release, to avoid a potential tag conflict in the future.  3. Where fields in XIRIEvent and IRIEvent for a given NF are continued from a previous disjoint tag number.  4. When a field is deprecated (see D.2.5 and D.4.14).  ASN.1 comments are defined before an item, not after. |
| D.2.4 | If a field is made conditional, the condition for its presence or absence is specified. |
| D.2.5 | When any field is deprecated, the table of main text is modified. The "Field" column is renamed to "deprecated{PreviousName}" (where {PreviousName} is previous name of the field with the first character in upper-case). The "Description" column is changed into "No longer used in present version of this specification".  When a mandatory field is deprecated, the "Description" column is also changed to specify a placeholder value. The value of the "Cardinality" column (if present) is not changed. The value of the "M/C/O" column is not changed.  When an optional field is deprecated, the value of "Cardinality" column (if present) is changed to "0". The value of the "M/C/O" column is not changed.  When a conditional field is deprecated, the value of "Cardinality" column (if present) is changed to "0". The value of the "M/C/O" column is set to "O".  When a field is deprecated, the ASN.1 field is renamed to deprecated{PreviousName} (see D.4.14). A comment is added before indicating the ASN.1 release and version that deprecated the field (see D.2.3). For example "deprecated{PreviousName} was deprecated in r18(18) version5(5)". |
| D.2.6 | When describing a field, where possible any references contain an explicit clause or section. |
| D.2.7 | OCTET STRING fields encoding information elements that contain a leading type and length in their definition omit the type and length octets, and the table row of main text for the field contains "omitting the first *N* octets" to indicate this. |
| D.2.8 | If a new required field is added to an existing SEQUENCE or SET, and the ASN.1 is OPTIONAL for backwards compatibility (see D.4.13), the table row of main text for the field contains "C" in the "M/C/O" column, and the "Description" column contains "Shall be provided." (or a more specific statement), and "This parameter is conditional only for backwards compatibility." |

# D.3 Naming conventions

ASN.1 naming conventions are described in table D.3-1, and examples of naming conventions to avoid are shown in figure 1.

Table D.3-1: Naming conventions

|  |  |
| --- | --- |
| ID | Convention |
| D.3.1 | To meet ASN.1 syntax rules, the first character of each ASN.1 field name are lower-cased. |
| D.3.2 | To meet ASN.1 syntax rules, the first character of an ASN.1 type name are upper-cased. |
| D.3.3 | To meet ASN.1 syntax rules, the first character of a field or a type name is not a number. |
| D.3.4 | Only the character ranges A-Z, a-z and 0-9 are used in names. |
| D.3.5 | Names are CamelCased, where the first character of each word is upper-cased (except for the first character of the name – see rule D.3.1). |
| D.3.6 | Any acronyms in a name are entirely upper-cased (except for the first character of the name – see rule D.3.1). |

ExampleBadStructure ::= SEQUENCE

{

FirstField [1] FirstFieldType, -- D.3.1 First letter of field is upper case

secondField [2] secondFieldType, -- D.3.2 First letter of type is lower case

3rdField [3] 3rdFieldType, -- D.3.3 Names starts with digit

fourth-field [4] Fourth\_Field\_Type, -- D.3.4 Names include hyphen and underscore

fifthfield [5] Fifthfieldtype, -- D.3.5 Names are not camelCased

msisdn [6] MSISDN, -- D.3.6 Acronyms in field name not wholly upper-cased

mSISDN [7] Msisdn -- D.3.6 Acronyms in type name not wholly upper-cased

}

Figure 1 – Naming convention counter-examples

# D.4 ASN.1 Syntax conventions

ASN.1 syntax conventions are described in table D.4-1, examples of conformant ASN.1 syntax conventions are shown in figure 2, and examples of ASN.1 syntax conventions to avoid are shown in figure 3.

Table D.4-1: ASN.1 Syntax conventions

|  |  |
| --- | --- |
| ID | Convention |
| D.4.1 | Modules are be defined with EXTENSIBILITY IMPLIED unless there is a specific reason to limit extensibility. |
| D.4.2 | The AUTOMATIC TAGS module directive is not used. |
| D.4.3 | SEQUENCE and CHOICE tag numbers start at one, and are allocated sequentially, except when tags are reserved for an equivalent structure (see D.2.3 and D.4.15). |
| D.4.4 | ENUMERATED tag numbers start at one, and are allocated sequentially. |
| D.4.5 | Anonymous types are not used. Non-trivial fields are assigned their own named type. |
| D.4.6 | Consideration is given to making types re-usable and independent of a particular release. Re-using or extending an existing type, where the intent is similar, is preferable to creating a new type. |
| D.4.7 | Consideration is given to making types extensible by declaring them as a SEQUENCE or CHOICE where possible. |
| D.4.8 | Multiple smaller messages or structures with fewer OPTIONAL fields are preferred to larger structures with many OPTIONAL fields, as this increases the ability of the ASN.1 schema to enforce the intent of the specification. |
| D.4.9 | Field names, tag numbers, field types and optional flags are be space-aligned where possible. An indent of four spaces is used. |
| D.4.10 | (Void). |
| D.4.11 | Braces are given their own line. |
| D.4.12 | OIDs containing a version number are updated when the structure that uses the OID is changed, even if the change is solely to correct a syntactic error. Other OIDs in the same module need not be updated if they are not associated with structures that have been changed. |
| D.4.13 | For backward compatibility, fields added to existing SEQUENCE or SET are defined as OPTIONAL, irrespective of their M/C/O designation in the main body of the specification. |
| D.4.14 | When a field is deprecated, the ASN.1 field is renamed to deprecated{PreviousName} as per the main text (see D.2.5). |
| D.4.15 | XIRIEvent and IRIEvent field names are identical for the same field purpose and tag numbers are identical for the same field purpose. If the field is not present in one of XIRIEvent or IRIEvent, a comment reserving the tag is added instead (see D.2.3). |

ConformantModule

{itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) ... }

DEFINITIONS IMPLICIT TAGS EXTENSIBILITY IMPLIED ::=

BEGIN

Structure1 ::= SEQUENCE

{

field1 [1] Field1,

field2 [2] Field2

}

Field1 ::= ENUMERATED

{

choice1(1),

choice2(2),

choice3(3)

}

Field2 ::= OCTET STRING

END

Figure 2 – Syntax convention examples

NonconformantModule

{itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) ... }

DEFINITIONS AUTOMATIC TAGS ::= -- D.4.1 Not declared with EXTENSIBILITY IMPLIED

-- D.4.2 Declared AUTOMATIC TAGS

BEGIN

Structure1 ::= SEQUENCE { -- D.4.11 Braces not given their own line

field1 [0] ::= ENUMERATED -- D.4.3 SEQUENCE tags don’t start at 1

{ -- D.4.5 Anonymous type used

choice1(0), -- D.4.4 ENUMERATED tag numbers don’t start at 1

choice2(2),

choice3(3)

},

field2 [2] Field2

}

Field2 ::= OCTET STRING

END

Figure 3 – Syntax convention counter-examples

END OF CHANGE 11

START OF ASN.1 CHANGE

---a/33128/r18/TS33128Payloads.asn  
+++b/33128/r18/TS33128Payloads.asn

@@ -217,14 +217,14 @@ XIRIEvent ::= CHOICE

217 217 fiveGMSAFUnsuccessfulProcedure [130] FiveGMSAFUnsuccessfulProcedure,

218 218 fiveGMSAFStartOfInterceptionWithAlreadyConfiguredUE [131] FiveGMSAFStartOfInterceptionWithAlreadyConfiguredUE,

219 219

220 - --AMF events, see 6.2.2.2.10, continued from tag 114

220 + -- AMF events, see 6.2.2.2.10, continued from tag 114

221 221 aMFUEConfigurationUpdate [132] AMFUEConfigurationUpdate,

222 222

223 223 -- HSS events, see clause 7.2.3.3

224 224 hSSServingSystemMessage [133] HSSServingSystemMessage,

225 225 hSSStartOfInterceptionWithRegisteredTarget [134] HSSStartOfInterceptionWithRegisteredTarget,

226 226

227 - -- NEF events, see clause 7.7.6.1

227 + -- NEF events, see clause 7.7.6.1

228 228 nEFAFSessionWithQoSProvision [135] NEFAFSessionWithQoSProvision,

229 229 nEFAFSessionWithQoSNotification [136] NEFAFSessionWithQoSNotification,

230 230

@@ -455,7 +455,7 @@ IRIEvent ::= CHOICE

455 455 fiveGMSAFUnsuccessfulProcedure [130] FiveGMSAFUnsuccessfulProcedure,

456 456 fiveGMSAFStartOfInterceptionWithAlreadyConfiguredUE [131] FiveGMSAFStartOfInterceptionWithAlreadyConfiguredUE,

457 457

458 - --AMF events, see 6.2.2.3, continued from tag 114

458 + -- AMF events, see 6.2.2.3, continued from tag 114

459 459 aMFUEConfigurationUpdate [132] AMFUEConfigurationUpdate,

460 460

461 461 -- HSS events, see clause 7.2.3.4

@@ -562,7 +562,6 @@ S8HRBearerInfo ::= SEQUENCE

562 562

563 563 -- ================

564 564 -- HR LI parameters

565 -

566 565 -- ================

567 566

568 567 N9HRMessageCause ::= ENUMERATED

@@ -1372,14 +1371,14 @@ AMFDeregistration ::= SEQUENCE

1372 1371 -- See clause 6.2.2.2.4 for details of this structure

1373 1372 AMFLocationUpdate ::= SEQUENCE

1374 1373 {

1375 - sUPI [1] SUPI,

1376 - sUCI [2] SUCI OPTIONAL,

1377 - pEI [3] PEI OPTIONAL,

1378 - gPSI [4] GPSI OPTIONAL,

1379 - gUTI [5] FiveGGUTI OPTIONAL,

1380 - location [6] Location,

1381 - sMSOverNASIndicator [7] SMSOverNASIndicator OPTIONAL,

1382 - oldGUTI [8] EPS5GGUTI OPTIONAL

1374 + sUPI [1] SUPI,

1375 + sUCI [2] SUCI OPTIONAL,

1376 + pEI [3] PEI OPTIONAL,

1377 + gPSI [4] GPSI OPTIONAL,

1378 + gUTI [5] FiveGGUTI OPTIONAL,

1379 + location [6] Location,

1380 + deprecatedSMSOverNASIndicator [7] SMSOverNASIndicator OPTIONAL,

1381 + deprecatedOldGUTI [8] EPS5GGUTI OPTIONAL

1383 1382 }

1384 1383

1385 1384 -- See clause 6.2.2.2.5 for details of this structure

@@ -1457,7 +1456,7 @@ AMFRANHandoverRequest ::= SEQUENCE

1457 1456 sourceToTargetContainer [11] RANSourceToTargetContainer

1458 1457 }

1459 1458

1460 - --See clause 6.2.2.2.10 on for details of this structure

1459 + -- See clause 6.2.2.2.10 on for details of this structure

1461 1460 AMFUEConfigurationUpdate ::= SEQUENCE

1462 1461 {

1463 1462 userIdentifiers [1] UserIdentifiers,

@@ -2256,11 +2255,11 @@ PCCRule ::= SEQUENCE

2256 2255 trafficRoutes [8] RouteToLocationSet,

2257 2256 trafficSteeringPolIdDl [9] UTF8String OPTIONAL,

2258 2257 trafficSteeringPolIdUl [10] UTF8String OPTIONAL,

2259 - sourceDNAI [11] DNAI OPTIONAL,

2260 - targetDNAI [12] DNAI OPTIONAL,

2261 - dNAIChangeType [13] DNAIChangeType OPTIONAL,

2262 - sourceUEIPAddr [14] IPAddress OPTIONAL,

2263 - targetUEIPAddr [15] IPAddress OPTIONAL,

2258 + deprecatedSourceDNAI [11] DNAI OPTIONAL,

2259 + deprecatedTargetDNAI [12] DNAI OPTIONAL,

2260 + deprecatedDNAIChangeType [13] DNAIChangeType OPTIONAL,

2261 + deprecatedSourceUEIPAddr [14] IPAddress OPTIONAL,

2262 + deprecatedTargetUEIPAddr [15] IPAddress OPTIONAL,

2264 2263 sourceTrafficRouting [16] RouteToLocation OPTIONAL,

2265 2264 targetTrafficRouting [17] RouteToLocation OPTIONAL,

2266 2265 eASIPReplaceInfos [18] EASIPReplaceInfos OPTIONAL

@@ -4106,6 +4105,7 @@ PTCAccessPolicyFailure ::= ENUMERATED

4106 4105 requestUnsuccessful(1),

4107 4106 requestUnknown(2)

4108 4107 }

4108 +

4109 4109 -- ===============

4110 4110 -- IMS definitions

4111 4111 -- ===============

@@ -4122,6 +4122,7 @@ IMSMessage ::= SEQUENCE

4122 4122 accessNetworkInformation [7] SEQUENCE OF SIPAccessNetworkInformation OPTIONAL,

4123 4123 cellularNetworkInformation [8] SEQUENCE OF SIPCellularNetworkInformation OPTIONAL

4124 4124 }

4125 +

4125 4126 -- See clause 7.12.4.2.2 for details of this structure

4126 4127 StartOfInterceptionForActiveIMSSession ::= SEQUENCE

4127 4128 {

@@ -4943,7 +4944,8 @@ FiveGMSAFErrorCode ::=ENUMERATED

4943 4944 LALSReport ::= SEQUENCE

4944 4945 {

4945 4946 sUPI [1] SUPI OPTIONAL,

4946 - -- pEI [2] PEI OPTIONAL, deprecated in Release-16, do not re-use this tag number

4947 + -- deprecatedPEI was deprecated in r16(16) version6(6).

4948 + deprecatedPEI [2] PEI OPTIONAL,

4947 4949 gPSI [3] GPSI OPTIONAL,

4948 4950 location [4] Location OPTIONAL,

4949 4951 iMPU [5] IMPU OPTIONAL,

@@ -5028,7 +5030,6 @@ MMEIdentifierAssociation ::= SEQUENCE

5028 5030 -- Identifier Association parameters

5029 5031 -- =================================

5030 5032

5031 -

5032 5033 MMEGroupID ::= OCTET STRING (SIZE(2))

5033 5034

5034 5035 MMECode ::= OCTET STRING (SIZE(1))

@@ -5229,7 +5230,6 @@ MDFCellSiteReport ::= SEQUENCE OF CellInformation

5229 5230 -- 5G EPS Interworking Parameters

5230 5231 -- ==============================

5231 5232

5232 -

5233 5233 EMM5GMMStatus ::= SEQUENCE

5234 5234 {

5235 5235 eMMRegStatus [1] EMMRegStatus OPTIONAL,

@@ -5890,9 +5890,9 @@ SUCI ::= SEQUENCE

5890 5890 protectionSchemeID [4] ProtectionSchemeID,

5891 5891 homeNetworkPublicKeyID [5] HomeNetworkPublicKeyID,

5892 5892 schemeOutput [6] SchemeOutput,

5893 + -- routingIndicatorLength shall be included if different from the number

5894 + -- of meaningful digits given in routingIndicator.

5893 5895 routingIndicatorLength [7] INTEGER (1..4) OPTIONAL

5894 - -- shall be included if different from the number of meaningful digits given

5895 - -- in routingIndicator

5896 5896 }

5897 5897

5898 5898 SUPI ::= CHOICE

@@ -6448,6 +6448,7 @@ SGSNLocationInformation ::= SEQUENCE

6448 6448 ageOfLocationInformation [8] INTEGER OPTIONAL,

6449 6449 userCSGInformation [9] UserCSGInformation OPTIONAL

6450 6450 }

6451 +

6451 6452 -- TS 29.172 [53], clause 7.4.57

6452 6453 ESMLCCellInfo ::= SEQUENCE

6453 6454 {

@@ -6651,9 +6652,9 @@ Point ::= SEQUENCE

6651 6652 PointUncertaintyCircle ::= SEQUENCE

6652 6653 {

6653 6654 geographicalCoordinates [1] GeographicalCoordinates,

6654 - -- The uncertainty parameter has been deprecated and shall be set to 0.

6655 - -- The uncertaintySBI parameter shall be used instead.

6656 - uncertainty [2] Uncertainty,

6655 + -- deprecatedUncertainty was deprecated in r18(18) version3(3)

6656 + -- and shall be set to 0. The uncertaintySBI parameter shall be used instead.

6657 + deprecatedUncertainty [2] Uncertainty,

6657 6658 uncertaintySBI [3] UncertaintySBI OPTIONAL

6658 6659 }

6659 6660

@@ -6684,9 +6685,9 @@ PointAltitudeUncertainty ::= SEQUENCE

6684 6685 point [1] GeographicalCoordinates,

6685 6686 altitude [2] Altitude,

6686 6687 uncertaintyEllipse [3] UncertaintyEllipse,

6687 - -- The uncertaintyAltitude parameter has been deprecated and shall be set to 0.

6688 - -- The uncertaintyAltitudeSBI parameter shall be used instead.

6689 - uncertaintyAltitude [4] Uncertainty,

6688 + -- deprecatedUncertaintyAltitude was deprecated in r18(18) version3(3)

6689 + -- and shall be set to 0. The uncertaintyAltitudeSBI parameter shall be used instead.

6690 + deprecatedUncertaintyAltitude [4] Uncertainty,

6690 6691 confidence [5] Confidence,

6691 6692 uncertaintyAltitudeSBI [6] UncertaintySBI OPTIONAL

6692 6693 }

@@ -6696,9 +6697,9 @@ EllipsoidArc ::= SEQUENCE

6696 6697 {

6697 6698 point [1] GeographicalCoordinates,

6698 6699 innerRadius [2] InnerRadius,

6699 - -- The uncertaintyRadius parameter has been deprecated and shall be set to 0.

6700 - -- The uncertaintyRadiusSBI parameter shall be used instead.

6701 - uncertaintyRadius [3] Uncertainty,

6700 + -- deprecatedUncertaintyRadius was deprecated in r18(18) version3(3)

6701 + -- and shall be set to 0. The uncertaintyRadiusSBI parameter shall be used instead.

6702 + deprecatedUncertaintyRadius [3] Uncertainty,

6702 6703 offsetAngle [4] Angle,

6703 6704 includedAngle [5] Angle,

6704 6705 confidence [6] Confidence,

@@ -6716,12 +6717,12 @@ GeographicalCoordinates ::= SEQUENCE

6716 6717 -- TS 29.572 [24], clause 6.1.6.2.22

6717 6718 UncertaintyEllipse ::= SEQUENCE

6718 6719 {

6719 - -- The semiMajor parameter has been deprecated and shall be set to 0.

6720 - -- The semiMajorSBI parameter shall be used instead.

6721 - semiMajor [1] Uncertainty,

6722 - -- The semiMinor parameter has been deprecated and shall be set to 0.

6723 - -- The semiMinorSBI parameter shall be used instead.

6724 - semiMinor [2] Uncertainty,

6720 + -- deprecatedSemiMajor was deprecated in r18(18) version3(3)

6721 + -- and shall be set to 0. The semiMajorSBI parameter shall be used instead.

6722 + deprecatedSemiMajor [1] Uncertainty,

6723 + -- deprecatedSemiMinor was deprecated in r18(18) version3(3)

6724 + -- and shall be set to 0. The semiMinorSBI parameter shall be used instead.

6725 + deprecatedSemiMinor [2] Uncertainty,

6725 6726 orientationMajor [3] Orientation,

6726 6727 semiMajorSBI [4] UncertaintySBI OPTIONAL,

6727 6728 semiMinorSBI [5] UncertaintySBI OPTIONAL

@@ -6763,6 +6764,7 @@ HorizontalWithVerticalVelocityAndUncertainty ::= SEQUENCE

6763 6764 }

6764 6765

6765 6766 -- The following types are described in TS 29.572 [24], table 6.1.6.3.2-1

6767 +

6766 6768 Altitude ::= UTF8String

6767 6769 Angle ::= INTEGER (0..360)

6768 6770 UncertaintySBI ::= UTF8String

@@ -6774,7 +6776,6 @@ HorizontalSpeed ::= UTF8String

6774 6776 VerticalSpeed ::= UTF8String

6775 6777 SpeedUncertainty ::= UTF8String

6776 6778 BarometricPressure ::= INTEGER (30000..115000)

6777 -

6778 6779 Uncertainty ::= INTEGER (0..127)

6779 6780

6780 6781 -- TS 29.572 [24], clause 6.1.6.3.13

END OF ASN.1 CHANGE