**3GPP TSG-SA3 Meeting #96-LI *s3i250077***

**Sophia-Antipolis, France, 28th Jan 2025 - 31st Jan 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **33.128** | **CR** | **0711** | **rev** | **1** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *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:*** | Additional User Identifiers to AMF records | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | SA3-LI (OTD\_US) | | | | | | | | | |
| ***Source to TSG:*** | SA3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LI18 | | | | |  | ***Date:*** | | | 2025-01-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Many AMF records errantly do not currently support the ability to send more than one identifier, e.g. GPSI. This CR adds such a capability. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add new additonalUserIdentifiers parameter using existing UserIdentifiers definition to allow for signalling of more than one of any given type of identifier. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Specification will remain incomplete and CSPs may not be able to fully meet LI obligations. Lack of complete reporting will not be addressed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.2.2.2, 6.2.2.2.3, 6.2.2.2.4, 6.2.2.2.5, 6.2.2.2.6, 6.2.2.2.7, 6.2.2.2.8, attachments ASN.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:*** | | Schema changes for this CR can be found on the Forge:  Merge Request 301:: <https://forge.3gpp.org/rep/sa3/li/-/merge_requests/301/diffs?commit_id=d676b223c2af145a3cc6db03fc360503bc2335b8>  Commit Hash: d676b223c2af145a3cc6db03fc360503bc2335b8 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i250026 | | | | | | | | |

**\*\* START OF CHANGES \*\***

**\*\* START OF FIRST CHANGE \*\***

##### 6.2.2.2.2 Registration

The IRI-POI in the AMF shall generate an xIRI containing an AMFRegistration record when the IRI-POI present in the AMF detects that a UE matching one of the target identifiers provided via LI\_X1 has successfully registered to the 5GS via 3GPP NG-RAN or non-3GPP access. Accordingly, the IRI-POI in the AMF generates the xIRI when the following event is detected:

- AMF sends a N1: REGISTRATION ACCEPT message to the target UE and the UE 5G Mobility Management (5GMM) state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF is changed to 5GMM-REGISTERED.

Table 6.2.2.2.2-1: Payload for AMFRegistration record

| Field name | Type | Cardinality | Description | M/C/O |
| --- | --- | --- | --- | --- |
| registrationType | AMFRegistrationType | 1 | Specifies the type of registration, see TS 24.501 [13] clause 9.11.3.7. This is derived from the information received from the UE in the REGISTRATION REQUEST message. | M |
| registrationResult | AMFRegistrationResult | 1 | Specifies the result of registration, see TS 24.501 [13] clause 9.11.3.6. | M |
| slice | Slice | 0..1 | Provide, if available, one or more of the following:  - allowed NSSAI (see TS 24.501 [13] clause 9.11.3.37).  - configured NSSAI (see TS 24.501 [13] clause 9.11.3.37).  - rejected NSSAI (see TS 24.501 [13] clause 9.11.3.46).  This is derived from the information sent to the UE in the REGISTRATION ACCEPT message. | C |
| sUPI | SUPI | 1 | SUPI associated with the registration (see clause 6.2.2.4). | M |
| sUCI | SUCI | 0..1 | SUCI used in the registration, if available. | C |
| pEI | PEI | 0..1 | PEI provided by the UE during the registration, if available. | C |
| gPSI | GPSI | 0..1 | GPSI obtained in the registration, if available as part of the subscription profile. | C |
| gUTI | FiveGGUTI | 1 | 5G-GUTI provided as outcome of initial registration or used in other cases, see TS 24.501 [13] clause 5.5.1.2.2. | M |
| location | Location | 0..1 | Location information determined by the network during the registration, if available.  Shall be encoded using the *Location.locationInfo.userLocation* parameter and, when Dual Connectivity is activated, using the *Location.locationInfo.additionalCellIDs* parameter. If available, other parameters reportable via *Location* shall be included. | C |
| non3GPPAccessEndpoint | UEEndpointAddress | 0..1 | 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 |
| fiveGSTAIList | TAIList | 0..1 | List of tracking areas associated with the registration area within which the UE is current registered, see TS 24.501 [13] clause 9.11.3.9 (see NOTE) | C |
| sMSoverNASIndicator | SMSOverNASIndicator | 0..1 | Indicates whether SMS over NAS is supported. Provide, if included in registrationResult, see TS 24.501 [13] clause 9.11.3.6. | C |
| oldGUTI | EPS5GGUTI | 0..1 | GUTI or 5G-GUTI, if provided in the REGISTRATION REQUEST message, see TS 24.501 [13] clause 5.5.1.2.2. | C |
| eMM5GRegStatus | EMM5GMMStatus | 0..1 | UE Status, if provided in the REGISTRATION REQUEST message, see TS 24.501 [13] clause 9.11.3.56. | C |
| nonIMEISVPEI | NonIMEISVPEI | 0..1 | MACAddress or EUI-64 used as UE equipment identity if IMEI or IMEISV based PEI is not available. Provide if known, see TS 24.501 [13] clause 8.2.26.4. | C |
| mACRestIndicator | MACRestrictionIndicator | 0..1 | Indicates whether the non-IMEISV PEI MACAddress can be used as an equipment identifier. Required if non-IMEISVPEI is used, see TS 24.501 [13] clause 9.11.3.4. | C |
| pagingRestrictionIndicator | PagingRestrictionIndicator | 0..1 | Indicates if paging is restricted or the type of paging allowed. Shall be included if sent in the REGISTRATION REQUEST message. Encoded per TS 24.501 [13] clause 9.11.3.77, omitting the first two octets. | C |
| rATType | RATType | 0..1 | RAT Type shall be present if known by the AMF. RAT Type is determined by the AMF during registration. See TS 23.501 [2] clause 5.3.2.3 | C |
| rRCEstablishmentCause | RRCEstablishmentCause | 0..1 | Indicates the reason for UE RRC Connection Establishment. This parameter shall be populated with information provided by the serving RAN during NAS establishment in the Initial UE Message. See TS 38.413 [23] clause 9.3.1.111. | C |
| nGInformation | NGInformation | 0..1 | Provides application layer related information for the serving Global RAN Node provided by the NG-RAN node to the serving AMF during NG setup. This parameter shall be populated using information from the NG SETUP REQUEST and NG SETUP RESPONSE. See TS 38.413 [23] clauses 9.2.6.1 and 9.2.6.2. Shall only be sent when location information reporting is authorized. | C |
| nASTransportInitialInformation | NASTransportInitialInformation | 0..1 | Provides information related to the NAS Transport setup for the target UE over the NG interface. Shall be included when received by the AMF per TS 38.413 [23]. This parameter is only conditional for backward compatibility. See TS 38.413 [23] clause 9.2.5.1. | C |
| equivalentPLMNList | PLMNList | 0..1 | Provides a list of equivalent PLMNs in the REGISTRATION ACCEPT message. See clause TS 24.501 [13] clause 8.2.7.3. | C |
| fiveGMMCapability | FiveGMMCapability | 0..1 | Shall contain the target 5GMM capability information octets sent in the REGISTRATION REQUEST message, omitting the first two octets. Defined in TS 24.501 [13] clause 9.11.3.1. | C |
| initialRANUEContextSetup | InitialRANUEContextSetup | 0..1 | Provides information sent in the INITIAL CONTEXT SETUP message from the AMF to the RAN for a target. See TS 38.413 [23] clause 9.2.2.1. | C |
| mUSIMUERequestType | MUSIMUERequestType | 0..1 | Indicates a MUSIM UE has requested release of NAS signalling or has rejected paging. Shall be included if sent in the REGISTRATION REQUEST message. Encoded per UE Request Type omitting the first two octets. See TS 24.301 [51] clause 9.9.3.65. | C |
| sORTransparentContainer | SORTransparentContainer | 0..1 | Provides the list of preferred PLMN/access technology combinations. Included if sent in the NAS N1 message REGISTRATION ACCEPT. Given as a SoR Transparent container encoded per TS 24.501 [13] clause 9.11.3.51 omitting the first three octets. | C |
| unavailabilityPeriodDuration | UnavailabilityPeriodDuration | 0..1 | Period duration the UE is unavailable. Include if sent in the REGISTRATION REQUEST message. See TS 24.501 [13] clause 8.2.6.1. Encoded as GPRS Timer 3, see TS 24.008 [95] clause 10.5.7.4a, omitting the first two octets. | C |
| fiveGSUpdateType | FiveGSUpdateType | 0..1 | Shall contain the target 5GS Update Type information octets if sent in the REGISTRATION REQUEST message. Defined in TS 24.501 [13] clause 9.11.3.9A, omitting the first two octets. | C |
| uEAreaIndication | UEAreaIndication | 0..1 | Contains a country, area in a country or international area indication where UE is located, if available. If UE is outside of the area of any known country, i.e. international area, it contains the international area indication without a country. UEAreaIndication is derived from the data present in the UEAreaIndication information element defined in TS 29.572 [24] clause 6.1.6.2.42. | C |
| establishmentCauseNon3GPPAccess | EstablishmentCauseNon3GPPAccess | 0..1 | Provides the establishment cause for Non-3GPP access (N3AEC) sent to the AMF by the N3AF on behalf of the target. Encoded per TS 24.502 [128] clause 9.2.2 omitting the first octet. Shall be included for N3AEC. | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |
| NOTE: List shall be included each time there is a change to the registration area. | | | | |

Table 6.2.2.2.2-2: Payload for UEAreaIndication

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| Country | UTF8String (SIZE (2)) | 0..1 | Indicates the country or the area of country where the UE is located. Contains the two-letter ISO 3166 country code in capital ASCII letters, e.g., DE or US. Shall be encoded as described in TS 29.572 [24] table 6.1.6.2.42-1. | C |
| internationalAreaIndication | BOOLEAN | 0..1 | Indicates international area.  Set to true if UE is located in international area and set to false (default) if UE is not located in international area. | C |
| NOTE: Either country or internationalAreaIndication shall be present. | | | | |

##### 6.2.2.2.3 Deregistration

The IRI-POI in the AMF shall generate an xIRI containing an AMFDeregistration record when the IRI-POI present in the AMF detects that a UE matching one of the target identifiers provided via LI\_X1 has deregistered from the 5GS over at least one access type. Accordingly, the IRI-POI in AMF generates the xIRI when any of the following events is detected:

- For network initiated de-registration, when the AMF receives the N1: DEREGISTRATION ACCEPT message from the target UE or when implicit deregistration timer expires; and in both cases the UE 5GMN state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF is changed to 5GMM-DEREGISTERED.

- For UE initiated de-registration, when the AMF sends the N1: DEREGISTRATION ACCEPT message to the target UE or when the AMF receives the N1: DEREGISTRATION REQUEST message from the target UE with deregistration type value of “switch off”; and in both cases the UE 5GMN state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF is changed to 5GMM-DEREGISTERED.

- For network initiated AMF UE relocation, the AMFDeregistration xIRI shall not be sent unless the 5GMM COMMON PROCEDURE INITIATED (see TS 24.501 [13] clause 5.1.3.2.3.3) results in deregistration.

Table 6.2.2.2.3-1: Payload for AMFDeregistration record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| deregistrationDirection | AMFDirection | 1 | Indicates whether the deregistration was initiated by the network or by the UE. | M |
| accessType | AccessType | 1 | Indicates the access for which the deregistration is handled, see TS 24.501 [13] clause 9.11.3.20. | M |
| sUPI | SUPI | 0..1 | SUPI associated with the deregistration (see clause 6.2.2.4), if available (see NOTE). | C |
| sUCI | SUCI | 0..1 | SUCI used in the deregistration, if available (see NOTE). | C |
| pEI | PEI | 0..1 | PEI used in the deregistration, if available (see NOTE). | C |
| gPSI | GPSI | 0..1 | GPSI associated to the deregistration, if available as part of the subscription profile (see NOTE). | C |
| gUTI | FiveGGUTI | 0..1 | 5G-GUTI used in the deregistration, if available, see TS 24.501 [13] clause 5.5.2.2.1. | C |
| cause | FiveGMMCause | 0..1 | Indicates the 5GMM cause value associated with the deregistration procedure, see TS 24.501 [13] clause 9.11.3.2. The integer value is mapped from the second octet shown in TS 24.501 [13] clause 9.11.3.2. | C |
| location | Location | 0..1 | Location information determined by the network during the deregistration, if available.  Shall be encoded using the *Location.locationInfo.userLocation* parameter. If available, other parameters reportable via *Location* shall be included. | C |
| switchOffIndicator | SwitchOffIndicator | 0..1 | Indicates whether the deregistration type is normal or switch off, if available, see TS 24.501 [13] clause 9.1.3.20.1. | C |
| reRegRequiredIndicator | ReRegRequiredIndicator | 0..1 | Indicates whether UE re-registration is required in the DEREGISTRATION REQUEST message, if available, see TS 24.501 [13] clause 9.1.3.20.1. | C |
| unavailabilityPeriodDuration | UnavailabilityPeriodDuration | 0..1 | Period duration the UE is unavailable. Include if sent in the DEREGISTRATION REQUEST message. See TS 24.501 [13] clause 8.2.12.1. Encoded as GPRS Timer 3, see TS 24.008 [95] clause 10.5.7.4a, omitting the first two octets. | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |
| NOTE: At least one among SUPI, SUCI, PEI and GPSI shall be provided. | | | | |

##### 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 6.2.2.2.4-1: Payload for AMFLocationUpdate record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| sUPI | SUPI | 1 | SUPI associated with the location update (see clause 6.2.2.4). | M |
| sUCI | SUCI | 0..1 | SUCI associated with the location update, if available, see TS 24.501 [13]. | C |
| pEI | PEI | 0..1 | PEI associated with the location update, if available. | C |
| gPSI | GPSI | 0..1 | GPSI associated with the location update, if available as part of the subscription profile. | C |
| gUTI | FiveGGUTI | 0..1 | 5G-GUTI associated with the location update, if available, see TS 24.501 [13]. | C |
| location | Location | 1 | 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:  1) as a *Location.locationInfo.userLocation* parameter in the case the information is obtained from an NGAP message, except the LOCATION REPORT message (see TS 38.413 [23]);  2) as a *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 *Location.locationPresenceReport* parameter 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 *Location.positioningInfo.positionInfo parameter* 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).  If available, other parameters reportable via *Location* shall be included. | M |
| deprecatedSMSoverNASIndicator | SMSOverNASIndicator | 0..1 | No longer used in present version of this specification. | C |
| deprecatedOldGUTI | EPS5GGUTI | 0..1 | No longer used in present version of this specification. | C |
| uEAreaIndication | UEAreaIndication | 0..1 | Contains a country, area in a country or international area indication where UE is located, if available. If UE is outside of the area of any known country, i.e. international area, it contains the international area indication without a country. See table 6.2.2.2.2-2 for details on this data type. | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |

##### 6.2.2.2.5 Start of interception with registered UE

The IRI-POI in the AMF shall generate an xIRI containing an AMFStartOfInterceptionWithRegisteredUE record when the IRI-POI present in the AMF detects that interception is activated on a UE that has already been registered in the 5GS (see clause 6.2.2.4 on identity privacy). A UE is considered already registered to the 5GS when the 5GMM state for the access type (3GPP NG-RAN or non-3GPP access) for that UE is 5GMM-REGISTERED. Therefore, the IRI-POI present in the AMF shall generate the xIRI AMFStartOfInterceptionWithRegisteredUE record when it detects that a new interception for a UE is activated (i.e. provisioned by the LIPF) and the 5G mobility management state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF for that UE is 5GMM-REGISTERED. If the UE is registered over both 3GPP NG-RAN and non-3GPP access, the IRI-POI present in the AMF shall generate an xIRI containing an AMFStartOfInterceptionWithRegisteredUE record for each access type.

Table 6.2.2.2.5-1: Payload for AMFStartOfInterceptionWithRegisteredUE record

| Field name | Type | Cardinality | Description | M/C/O |
| --- | --- | --- | --- | --- |
| registrationResult | AMFRegistrationResult | 1 | Specifies the result of registration, see TS 24.501 [13] clause 9.11.3.6. | M |
| registrationType | AMFRegistrationType | 0..1 | Specifies the type of registration, see TS 24.501 [13] clause 9.11.3.7, if available. | C |
| slice | Slice | 0..1 | Provide, if available, one or more of the following:  - allowed NSSAI (see TS 24.501 [13] clause 9.11.3.37).  - configured NSSAI (see TS 24.501 [13] clause 9.11.3.37). | C |
| sUPI | SUPI | 1 | SUPI associated with the target UE. | M |
| sUCI | SUCI | 0..1 | SUCI used in the registration, if available. | C |
| pEI | PEI | 0..1 | PEI associated with the target UE, if available. | C |
| gPSI | GPSI | 0..1 | GPSI associated with the target UE, if available. | C |
| gUTI | FiveGGUTI | 1 | Latest 5G-GUTI assigned to the target UE by the AMF. | M |
| location | Location | 0..1 | Location information associated with the access type for the target UE, if available.  Shall be encoded using the *Location.locationInfo.userLocation* parameter and, when Dual Connectivity is activated, using the *Location.locationInfo.additionalCellIDs* parameter (see attachment *TS33128Payloads.asn*). If available, other parameters reportable via *Location* shall be included. | C |
| non3GPPAccessEndpoint | UEEndpointAddress | 0..1 | 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 |
| timeOfRegistration | Timestamp | 0..1 | Time at which the last registration occurred, if available. This is the time stamp when the REGISTRATION ACCEPT message was sent to the UE or (when applicable) when the REGISTRATION COMPLETE was received from the UE.  Shall be given qualified with time zone information (i.e. as UTC or offset from UTC, not as local time). | C |
| fiveGSTAIList | TAIList | 0..1 | List of tracking areas associated with the target UE for the access type. | C |
| sMSoverNASIndicator | SMSOverNASIndicator | 0..1 | Indicates whether SMS over NAS is supported. Provide, if included in the UE Context. | C |
| oldGUTI | EPS5GGUTI | 0..1 | Latest GUTI or 5G-GUTI received from the target UE if different than the latest GUTI assigned by the AMF and the target UE has not acknowledged the latest GUTI assignment. | C |
| eMM5GRegStatus | EMM5GMMStatus | 0..1 | UE Status, if this parameter can be derived from information available in the UE Context at the AMF. | C |
| sORTransparentContainer | SORTransparentContainer | 0..1 | Provides the list of preferred PLMN/access technology combinations. Included if sent in the NAS N1 message REGISTRATION ACCEPT. Given as a SoR Transparent container encoded per TS 24.501 [13] clause 9.11.3.51 omitting the first three octets. | C |
| uEPolicy | UEPolicy | 0..1 | Content of the N1 NAS message MANAGE UE POLICY COMMAND, as defined in TS 24.501 [13] table D.5.1.1.1. | C |
| unavailabilityPeriodDuration | UnavailabilityPeriodDuration | 0..1 | Period duration the UE is unavailable. Include if sent in the REGISTRATION REQUEST. See TS 24.501 [13] clause 8.2.6.1. Encoded as GPRS Timer 3, see TS 24.008 [95] clause 10.5.7.4a, omitting the first two octets. | C |
| fiveGSUpdateType | FiveGSUpdateType | 0..1 | Shall contain the target 5GS Update Type information octets if sent in the REGISTRATION REQUEST message. Defined in TS 24.501 [13] clause 9.11.3.9A, omitting the first two octets. | C |
| uEAreaIndication | UEAreaIndication | 0..1 | Contains a country, area in a country or international area indication where UE is located, if available. If UE is outside of the area of any known country, i.e. international area, it contains the international area indication without a country. See table 6.2.2.2.2-2 for details on this data type. | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |
| NOTE: The values of the parameters in the table above are derived from the UE Context at the AMF, see TS 23.502 clause 5.2.2.2.2. | | | | |

The IRI-POI present in the AMF generating an xIRI containing an AMFStartOfInterceptionWithRegisteredUE record shall set the Payload Direction field in the PDU header to *not applicable* (Direction Value 5, see ETSI TS 103 221-2 [8] clause 5.2.6).

##### 6.2.2.2.6 AMF unsuccessful procedure

The IRI-POI in the AMF shall generate an xIRI containing an AMFUnsuccessfulProcedure record when the IRI-POI present in the AMF detects an unsuccessful procedure for a UE matching one of the target identifiers provided via LI\_X1.

Accordingly, the IRI-POI in the AMF generates the xIRI when any of the following events is detected:

- AMF sends a N1: REGISTRATION REJECT message to the target UE and the UE 5G Mobility Management (5GMM) state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF is changed to 5GMM-DEREGISTERED.

- AMF aborts a registration procedure before the UE 5G Mobility Management (5GMM) state for the access type (3GPP NG-RAN or non-3GPP access) within the AMF is changed to 5GMM-REGISTERED.

- AMF sends a SERVICE REJECT message to the target UE including a PDU session establishment reject message type.

- AMF aborts a UE-initiated NAS transport procedure with payload container type IE set to "SMS".

Unsuccessful registration shall be reported only if the target UE has been successfully authenticated.

Table 6.2.2.2.6-1: Payload for AMFUnsuccessfulProcedure record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| failedprocedureType | AMFFailedProcedureType | 1 | Specifies the procedure which failed at the AMF. | M |
| failureCause | AMFFailureCause | 1 | Provides the value of the 5GSM or 5GMM cause, see TS 24.501 [13] clauses 9.11.3.2 and 9.11.4.2. The integer value is mapped from the second octet shown in TS 24.501 [13] clauses 9.11.3.2 and 9.11.4.2. | M |
| requestedSlice | NSSAI | 0..1 | Slice requested for the procedure, if available, given as a NSSAI (a list of S-NSSAI values as described in TS 24.501 [13] clause 9.11.3.37). | C |
| sUPI | SUPI | 0..1 | SUPI associated with the procedure, if available (see NOTE). | C |
| sUCI | SUCI | 0..1 | SUCI used in the procedure, if applicable and if available (see NOTE). | C |
| pEI | PEI | 0..1 | PEI used in the procedure, if available (see NOTE). | C |
| gPSI | GPSI | 0..1 | GPSI used in the procedure, if available (see NOTE). | C |
| gUTI | FiveGGUTI | 0..1 | 5G-GUTI used in the procedure, if available, see TS 24.501 [13] clause 9.11.3.4 (see NOTE). | C |
| location | Location | 0..1 | Location information determined during the procedure, if available.  Shall be encoded using the *Location.locationinfo.userlocation* parameter. If available, other parameters reportable via *Location* shall be included. | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |
| NOTE: At least one identity shall be provided, the others shall be provided if available. | | | | |

##### 6.2.2.2.7 AMF identifier association

The IRI-POI present in the AMF shall generate an xIRI containing an AMFIdentifierAssociation record when the IRI-POI present in the AMF detects a new identifier association for a UE matching one of the target identifiers provided via LI\_X1. Generation of this record is subject to this record type being enabled for a specific target (see clause 6.2.2.2.1).

Table 6.2.2.2.7-1: Payload for AMFIdentifierAssociation record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| sUPI | SUPI | 1 | SUPI associated with the procedure (see NOTE 1). | M |
| sUCI | SUCI | 0..1 | SUCI used in the procedure, if applicable and if available. | C |
| pEI | PEI | 0..1 | PEI used in the procedure, if available (see NOTE 1). | C |
| gPSI | GPSI | 0..1 | GPSI used in the procedure, if available (see NOTE 1). | C |
| gUTI | FiveGGUTI | 1 | 5G-GUTI used in the procedure, see TS 24.501 [13] clause 9.11.3.4. | M |
| location | Location | 1 | Location information available when identifier association occurs.  Shall be encoded using the *Location.locationInfo.userLocation* parameter (see attachment. If available, other parameters reportable via *Location* shall be included. | M |
| fiveGSTAIList | TAIList | 0..1 | List of tracking areas associated with the registration area within which the UE is current registered, see TS 24.501 [13] clause 9.11.3.9. (see NOTE 2) | C |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |
| NOTE 1: SUPI shall always be provided, in addition to the warrant target identifier if different to SUPI. Other identifiers shall be provided if available.  NOTE 2: List shall be included each time there is a change to the registration area. | | | | |

The IRI-POI present in the AMF generating an xIRI containing an AMFIdentifierAssociation record shall set the Payload Direction field in the PDU header to *not applicable* (Direction Value 5, see ETSI TS 103 221-2 [8] clause 5.2.6).

##### 6.2.2.2.8 Positioning info transfer

The IRI-POI present in the AMF shall generate an xIRI containing an AMFPositioningInfoTransfer when the IRI-POI present in the AMF detects one of the following events :

- an NRPPa (see TS 38.455 [86]) message related to a target UE has been exchanged between the LMF and NG-RAN via the AMF.

- a LPP (see TS 37.355 [85]) message related to a target UE has been exchanged between the LMF and the target UE via the AMF.

Accordingly, the IRI-POI in AMF generates the xIRI when any of the following events is detected:

- AMF receives an Namf\_Communication\_N1N2MessageTransfer (see TS 29.518 [22]) from LMF to request the transfer of a NRPPa request to the serving NG-RAN node for a target UE as part of a UE associated NRPPa positioning activity. The NRPPa request may be E-CID MEASUREMENT INITIATION REQUEST or OTDOA INFORMATION REQUEST.

- AMF sends a Namf\_Communication\_N2InfoNotify [22] to the LMF to forward the NRPPa response or report received from the NG-RAN for a target UE. The NRPPa response or report may be E-CID MEASUREMENT INITIATION RESPONSE, E-CID MEASUREMENT REPORT or OTDOA INFORMATION RESPONSE.

- AMF receives an Namf\_Communication\_N1N2MessageTransfer ([22]) from LMF to request the transfer of a LPP message to a target UE as part of a LPP positioning activity.

- AMF sends an Namf\_Communication\_N1MessageNotify ([22]) to LMF to forward a LPP message received from the target UE.

Table 6.2.2.2.8-1: Payload for AMFPositioningInfoTransfer record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| sUPI | SUPI | 1 | SUPI associated with the procedure (see NOTE 1 in table 6.2.2.2.7-1). | M |
| sUCI | SUCI | 0..1 | SUCI used in the procedure, if applicable and if available. | C |
| pEI | PEI | 0..1 | PEI used in the procedure, if available (see NOTE 1 in table 6.2.2.2.7-1). | C |
| gPSI | GPSI | 0..1 | GPSI used in the procedure, if available (see NOTE 1 in table 6.2.2.2.7-1). | C |
| gUTI | FiveGGUTI | 0..1 | 5G-GUTI used in the procedure, see TS 24.501 [13] clause 9.11.3.4. | C |
| nRPPaMessage | OCTET STRING | 0..1 | Any UE associated NRPPa message exchanged between the LMF and NG-RAN via AMF. | C |
| lPPMessage | OCTET STRING | 0..1 | Any LPP message exchanged between the LMF and the target UE via AMF. | C |
| lcsCorrelationId | UTF8String (SIZE(1..255)) | 1 | LCS correlation ID (see TS 29.572 [24] clause 6.1.6.3.2) related to a location session, found in the Namf\_CommunicationN1N2MessageTransfer and corresponding Namf\_Communication\_N2InfoNotify or Namf\_CommunicationN1MessageNotify. All the AMFPositioningInfoTransfer records related to the same location session have the same lcsCorrelationId. | M |
| additionalUserIdentifiers | UserIdentifiers | 0..1 | Provides additional user identifiers known at the AMF or stored in AMF context, e.g. additional GPSI. | C |

**\*\*\*END OF FIRST CHANGE\*\*\***

**\*\*END OF MAIN DOCUMENT CHANGES\*\***

**\*\*START OF ATTACHMENT CHANGES\*\***

START OF CHANGE 1

---a/33128/r19/TS33128Payloads.asn  
+++b/33128/r19/TS33128Payloads.asn

@@ -1756,7 +1756,8 @@ AMFRegistration ::= SEQUENCE

1756 1756 unavailabilityPeriodDuration [27] UnavailabilityPeriodDuration OPTIONAL,

1757 1757 fiveGSUpdateType [28] FiveGSUpdateType OPTIONAL,

1758 1758 uEAreaIndication [29] UEAreaIndication OPTIONAL,

1759 - establishmentCauseNon3GPPAccess [30] EstablishmentCauseNon3GPPAccess OPTIONAL

1759 + establishmentCauseNon3GPPAccess [30] EstablishmentCauseNon3GPPAccess OPTIONAL,

1760 + additionalUserIdentifiers [31] UserIdentifiers OPTIONAL

1760 1761 }

1761 1762

1762 1763 -- See clause 6.2.2.2.3 for details of this structure

@@ -1773,7 +1774,8 @@ AMFDeregistration ::= SEQUENCE

1773 1774 location [9] Location OPTIONAL,

1774 1775 switchOffIndicator [10] SwitchOffIndicator OPTIONAL,

1775 1776 reRegRequiredIndicator [11] ReRegRequiredIndicator OPTIONAL,

1776 - unavailabilityPeriodDuration [12] UnavailabilityPeriodDuration OPTIONAL

1777 + unavailabilityPeriodDuration [12] UnavailabilityPeriodDuration OPTIONAL,

1778 + additionalUserIdentifiers [13] UserIdentifiers OPTIONAL

1777 1779 }

1778 1780

1779 1781 -- See clause 6.2.2.2.4 for details of this structure

@@ -1787,7 +1789,8 @@ AMFLocationUpdate ::= SEQUENCE

1787 1789 location [6] Location,

1788 1790 deprecatedSMSOverNASIndicator [7] SMSOverNASIndicator OPTIONAL,

1789 1791 deprecatedOldGUTI [8] EPS5GGUTI OPTIONAL,

1790 - uEAreaIndication [9] UEAreaIndication OPTIONAL

1792 + uEAreaIndication [9] UEAreaIndication OPTIONAL,

1793 + additionalUserIdentifiers [10] UserIdentifiers OPTIONAL

1791 1794 }

1792 1795

1793 1796 -- See clause 6.2.2.2.5 for details of this structure

@@ -1812,7 +1815,8 @@ AMFStartOfInterceptionWithRegisteredUE ::= SEQUENCE

1812 1815 uEPolicy [17] UEPolicy OPTIONAL,

1813 1816 unavailabilityPeriodDuration [18] UnavailabilityPeriodDuration OPTIONAL,

1814 1817 fiveGSUpdateType [19] FiveGSUpdateType OPTIONAL,

1815 - uEAreaIndication [20] UEAreaIndication OPTIONAL

1818 + uEAreaIndication [20] UEAreaIndication OPTIONAL,

1819 + additionalUserIdentifiers [21] UserIdentifiers OPTIONAL

1816 1820 }

1817 1821

1818 1822 -- See clause 6.2.2.2.6 for details of this structure

@@ -1826,7 +1830,8 @@ AMFUnsuccessfulProcedure ::= SEQUENCE

1826 1830 pEI [6] PEI OPTIONAL,

1827 1831 gPSI [7] GPSI OPTIONAL,

1828 1832 gUTI [8] FiveGGUTI OPTIONAL,

1829 - location [9] Location OPTIONAL

1833 + location [9] Location OPTIONAL,

1834 + additionalUserIdentifiers [10] UserIdentifiers OPTIONAL

1830 1835 }

1831 1836

1832 1837 -- See clause 6.2.2.2.8 on for details of this structure

@@ -1839,7 +1844,8 @@ AMFPositioningInfoTransfer ::= SEQUENCE

1839 1844 gUTI [5] FiveGGUTI OPTIONAL,

1840 1845 nRPPaMessage [6] OCTET STRING OPTIONAL,

1841 1846 lPPMessage [7] OCTET STRING OPTIONAL,

1842 - lcsCorrelationId [8] UTF8String (SIZE(1..255))

1847 + lcsCorrelationId [8] UTF8String (SIZE(1..255)),

1848 + additionalUserIdentifiers [9] UserIdentifiers OPTIONAL

1843 1849 }

1844 1850

1845 1851 -- See clause 6.2.2.2.9.2 for details of this structure

@@ -5811,13 +5817,14 @@ PDSRSummaryTrigger ::= ENUMERATED

5811 5817

5812 5818 AMFIdentifierAssociation ::= SEQUENCE

5813 5819 {

5814 - sUPI [1] SUPI,

5815 - sUCI [2] SUCI OPTIONAL,

5816 - pEI [3] PEI OPTIONAL,

5817 - gPSI [4] GPSI OPTIONAL,

5818 - gUTI [5] FiveGGUTI,

5819 - location [6] Location,

5820 - fiveGSTAIList [7] TAIList OPTIONAL

5820 + sUPI [1] SUPI,

5821 + sUCI [2] SUCI OPTIONAL,

5822 + pEI [3] PEI OPTIONAL,

5823 + gPSI [4] GPSI OPTIONAL,

5824 + gUTI [5] FiveGGUTI,

5825 + location [6] Location,

5826 + fiveGSTAIList [7] TAIList OPTIONAL,

5827 + additionalUserIdentifiers [8] UserIdentifiers OPTIONAL

5821 5828 }

5822 5829

5823 5830 MMEIdentifierAssociation ::= SEQUENCE

END OF CHANGE 1

**\*\*\*END ATTACHMENT CHANGES\*\*\***

**\*\*\*END OF ALL CHANGES\*\*\***