**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | SA3-LI() | | | | | | | | | |
| ***Source to TSG:*** | SA3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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:*** | | The following information are missing :   * How the UE sends/receives its application flows within PDU sessions (via 3GPP access, via non-3GPP access, via both accesses) or without any PDU session via non-3GPP access. * Which 3GPP networks and which non-3GPP networks the UE may select in roaming situation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Provide the UE Route selection policies and provide steering of roaming information for 3GPP and non-3GPP access | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The above information will still be missing | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.2.2.2, 6.2.2.2.5, 6.2.2.2.8, 6.2.2.2.X | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS/TR 33.127 CR 0215 | | |
| ***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: <https://forge.3gpp.org/rep/sa3/li/-/merge_requests/191>  Commit Hash: <https://forge.3gpp.org/rep/sa3/li/-/commit/ed1a3fe6651d5a8cd2461e3c5db43ea6312e2aa3> | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i230359 | | | | | | | | |

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 6.2.2-1: Payload for AMFRegistration record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| registrationType | 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 | Specifies the result of registration, see TS 24.501 [13] clause 9.11.3.6. | M |
| Slice | 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 associated with the registration (see clause 6.2.2.4). | M |
| sUCI | SUCI used in the registration, if available. | C |
| pEI | PEI provided by the UE during the registration, if available. | C |
| gPSI | GPSI obtained in the registration, if available as part of the subscription profile. | C |
| gUTI | 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 information determined by the network during the registration, if available.  Encoded as a *userLocation* parameter (*location>locationInfo>userLocation*) and, when Dual Connectivity is activated, as an *additionalCellIDs* parameter (*location>locationInfo>additionalCellIDs*), see Annex A. | 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 |
| fiveGSTAIList | 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 | Indicates whether SMS over NAS is supported. Provide, if included in registrationResult, see TS 24.501 [13] clause 9.11.3.6. | C |
| oldGUTI | GUTI or 5G-GUTI, if provided in the REGISTRATION REQUEST message, see TS 24.501 [13] clause 5.5.1.2.2. | C |
| eMM5GRegStatus | UE Status, if provided in the REGISTRATION REQUEST message, see TS 24.501 [13] clause 9.11.3.56. | C |
| nonIMEISVPEI | 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 | 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 | Indicates if paging is restricted or the type of paging allowed. Include if sent in the REGISTRATION REQUEST message. Encoded per TS 24.501 [13] clause 9.11.3.77.2, omitting the first two octets. | C |
| rATType | 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 | 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 |
| nASTransportInitialInformation | 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 |
| nGInformation | 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] clause 9.2.6.1 and 9.2.6.2. | C |
| sORTransparentContainer | 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 |
| NOTE: List shall be included each time there is a change to the registration area. | | |

NEXT CHANGE

##### 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 6.2.2-4: Payload for AMFStartOfInterceptionWithRegisteredUE record

|  |  |  |  |
| --- | --- | --- | --- |
| Field name | Description | M/C/O | |
| registrationResult | Specifies the result of registration, see TS 24.501 [13] clause 9.11.3.6. | M | |
| registrationType | Specifies the type of registration, see TS 24.501 [13] clause 9.11.3.7, if available. | C | |
| Slice | 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 associated with the target UE. | M | |
| sUCI | SUCI used in the registration, if available. | C | |
| pEI | PEI associated with the target UE, if available. | C | |
| gPSI | GPSI associated with the target UE, if available. | C | |
| gUTI | Latest 5G-GUTI assigned to the target UE by the AMF. | M | |
| Location | Location information associated with the access type for the target UE, if available.  Encoded as a *userLocation* parameter (*location>locationInfo>userLocation*) and, when Dual Connectivity is activated, as an *additionalCellIDs* parameter (*location>locationInfo>additionalCellIDs*), see Annex A. | 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 | |
| timeOfRegistration | 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 | List of tracking areas associated with the target UE for the access type. | C | |
| sMSoverNASIndicator | Indicates whether SMS over NAS is supported. Provide, if included in the UE Context. | C | |
| oldGUTI | 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 | UE Status, if this parameter can be derived from information available in the UE Context at the AMF. | C | |
| sORTransparentContainer | 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 | Content of the N1 NAS message MANAGE UE POLICY COMMAND, as defined in TS 24.501 [13] table D.5.1.1.1. | 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).

NEXT CHANGE

##### 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 | Description | M/C/O |
| sUPI | SUPI associated with the procedure (see NOTE 1 in table 6.2.2-6). | M |
| sUCI | SUCI used in the procedure, if applicable and if available. | C |
| pEI | PEI used in the procedure, if available (see NOTE 1 in table 6.2.2-6). | C |
| gPSI | GPSI used in the procedure, if available (see NOTE 1 in table 6.2.2-6). | C |
| gUTI | 5G-GUTI used in the procedure, see TS 24.501 [13] clause 9.11.3.4. | C | |
| nRPPaMessage | Any UE associated NRPPa message exchanged between the LMF and NG-RAN via AMF. | C |
| lPPMessage | Any LPP message exchanged between the LMF and the target UE via AMF. | C |
| lcsCorrelationId | 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 |

NEXT CHANGE

##### 6.2.2.2.X UE policy transfer

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

- AMF sends a Namf\_Communication\_N1MessageNotify Request (See TS 29.518[22] clause 5.2.2.3) related to the target UE containing the N1 NAS message MANAGE UE POLICY COMPLETE; it confirms that UE policies forwarded by AMF to the target UE in the N1 NAS message MANAGE UE POLICY COMMAND have been accepted by the UE.

Table 6.2.2.2.X-1: Payload for AMFUEPolicyTransfer record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Cardinality** | **Description** | **M/C/O** |
| sUPI | SUPI | 1 | RCS target identities. All identities associated to the target known at the POI shall be included. | M |
| sUCI | SUCI | 0..1 | RCS Registration type, i.e., registration, re-registration and deregistration. | C |
| pEI | PEI | 0..1 | SIP REGISTER request related to target IMS Registration, Re-registration or Deregistration. | C |
| gPSI | GPSI | 0..1 | SIP REGISTER response related to target IMS Registration, Re-registration or Deregistration. | C |
| gUTI | FiveGGUTI | 0..1 | Shall include the target’s location when reporting of the target’s location information if authorized and available. | C |
| uePolicy | UEPolicy | 1 | Content of the N1 NAS message MANAGE UE POLICY COMMAND, as defined in TS 24.501 [13] table D.5.1.1.1. | M |

NEXT CHANGE

#### 6.2.2.3 Generation of IRI over LI\_HI2

When an xIRI is received over LI\_X2 from the IRI-POI in AMF, the MDF2 shall generate the corresponding IRI message and deliver over LI\_HI2 without undue delay. The IRI message shall contain a copy of the relevant record received in the xIRI over LI\_X2. This record may be enriched with any additional information available at the MDF (e.g. additional location information).

The timestamp field of the PSHeader structure shall be set to the time at which the AMF event was observed (i.e. the timestamp field of the X2 PDU).

The IRI type parameter (see ETSI TS 102 232-1 [9] clause 5.2.10) shall be included and coded according to table 6.2.2-7.

Table 6.2.2-7: IRI type for IRI messages

|  |  |
| --- | --- |
| IRI message | IRI type |
| AMFRegistration | REPORT |
| AMFDeregistration | REPORT |
| AMFLocationUpdate | REPORT |
| AMFStartOfInterceptionWithRegisteredUE | REPORT |
| AMFUnsuccessfulProcedure | REPORT |
| AMFIdentifierAssociation | REPORT |
| AMFPositioningInfoTransfer | REPORT |
| AMFRANHandoverCommand | REPORT |
| AMFRANHandoverRequest | REPORT |
| AMFUEConfigurationUpdate | REPORT |
| AMFUEPolicyTransfer | REPORT |

These IRI messages shall omit the CIN (see ETSI TS 102 232-1 [9] clause 5.2.4).

The threeGPP33128DefinedIRI field in ETSI TS 102 232-7 [10] clause 15 shall be populated with the BER-encoded IRIPayload.

When an additional warrant is activated on a target UE and the LIPF uses the same XID for the additional warrant, the MDF2 shall be able to generate and deliver the IRI message containing the AMFStartOfInterceptionWithRegisteredUE record to the LEMF associated with the additional warrant without receiving a corresponding xIRI. The payload of the AMFStartOfInterceptionWithRegisteredUE record is specified in table 6.2.2-4.

If the MDF2 did not receive from the IRI-POI the value of timeOfRegistration parameter in a previous corresponding AMFStartOfInterceptionWithRegisteredUE for the same registration, the MDF2 shall include in that parameter the time provided in the timestamp previously received in the header of the related AMFRegistration xIRI.

CHANGES TO ATTACHMENTS

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

@@ -238,7 +238,10 @@ XIRIEvent ::= CHOICE

238 238 -- RCS events, see clause 7.13.3

239 239 rCSRegistration [140] RCSRegistration,

240 240 rCSMessage [141] RCSMessage,

241 - rcsCapabilityDiscovery [142] RCSCapabilityDiscovery

- 241 rcsCapabilityDiscovery [142] RCSCapabilityDiscovery,

- 242

- 243 -- AMF events, see clause 6.2.2.2.X, continued from tag 139

- 244 aMFUEPolicyTransfer [143] AMFUEPolicyTransfer

242 245 }

243 246

244 247 -- ==============

@@ -469,7 +472,10 @@ IRIEvent ::= CHOICE

469 472 -- RCS events, see clause 7.13.3

470 473 rCSRegistration [140] RCSRegistration,

471 474 rCSMessage [141] RCSMessage,

472 - rcsCapabilityDiscovery [142] RCSCapabilityDiscovery

- 475 rcsCapabilityDiscovery [142] RCSCapabilityDiscovery,

- 476

- 477 -- AMF events, see clause 6.2.2.3, continued from tag 139

- 478 aMFUEPolicyTransfer [143] AMFUEPolicyTransfer

473 479 }

474 480

475 481 IRITargetIdentifier ::= SEQUENCE

@@ -1331,7 +1337,8 @@ AMFRegistration ::= SEQUENCE

1331 1337 rATType [18] RATType OPTIONAL,

1332 1338 rRCEstablishmentCause [19] RRCEstablishmentCause OPTIONAL,

1333 1339 nGInformation [20] NGInformation OPTIONAL,

1334 - nASTransportInitialInformation [21] NASTransportInitialInformation OPTIONAL

- 1340 nASTransportInitialInformation [21] NASTransportInitialInformation OPTIONAL,

- 1341 sORTransparentContainer [22] SORTransparentContainer OPTIONAL

1335 1342 }

1336 1343

1337 1344 -- See clause 6.2.2.2.3 for details of this structure

@@ -1380,7 +1387,9 @@ AMFStartOfInterceptionWithRegisteredUE ::= SEQUENCE

1380 1387 fiveGSTAIList [12] TAIList OPTIONAL,

1381 1388 sMSOverNASIndicator [13] SMSOverNASIndicator OPTIONAL,

1382 1389 oldGUTI [14] EPS5GGUTI OPTIONAL,

1383 - eMM5GRegStatus [15] EMM5GMMStatus OPTIONAL

- 1390 eMM5GRegStatus [15] EMM5GMMStatus OPTIONAL,

- 1391 sORTransparentContainer [16] SORTransparentContainer OPTIONAL,

- 1392 uEPolicy [17] UEPolicy OPTIONAL

1384 1393 }

1385 1394

1386 1395 -- See clause 6.2.2.2.6 for details of this structure

@@ -1465,6 +1474,17 @@ AMFRANTraceReport ::= SEQUENCE

1465 1474 location [11] Location OPTIONAL

1466 1475 }

1467 1476

- 1477 --See clause 6.2.2.2.X for details of this Structure

- 1478 AMFUEPolicyTransfer ::= SEQUENCE

- 1479 {

- 1480 sUPI [1] SUPI,

- 1481 sUCI [2] SUCI OPTIONAL,

- 1482 pEI [3] PEI OPTIONAL,

- 1483 gPSI [4] GPSI OPTIONAL,

- 1484 gUTI [5] FiveGGUTI OPTIONAL,

- 1485 uEPolicy [6] UEPolicy

- 1486 }

- 1487

1468 1488 -- =================

1469 1489 -- 5G AMF parameters

1470 1490 -- =================

@@ -1674,6 +1694,10 @@ EstablishmentCause ::= ENUMERATED

1674 1694 exceptionData(12)

1675 1695 }

1676 1696

- 1697 SORTransparentContainer ::= OCTET STRING (SIZE (22..65535))

- 1698

- 1699 UEPolicy ::= OCTET STRING (SIZE(16..65540))

- 1700

1677 1701 -- ==================

1678 1702 -- 5G SMF definitions

1679 1703 -- ==================

END OF CHANGES