**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **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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| ***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:*** | | There have been new IRI records defined for the AMF and parameters added to the existing AMF records since the introduction of the MME records to the standard. Many of these events/parameters are also applicable to the MME. This CR aligns the two record types. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adds new records reported out of the IRI-POI in the MME and adds parameters to the existing records. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The reporting out of the MME will not be complete. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.2.2.3, 6.3.2.2.6, New 6.3.2.2.Cl1, New 6.3.2.2.Cl2, New 6.3.2.2.Cl3, New 6.3.2.2A, 6.3.2.3, Attachment TS33128Payloads.asn | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 ... | | |
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| ***Other comments:*** | | This CR is associated with the following changes in the Forge: Merge request: [!215](https://forge.3gpp.org/rep/sa3/li/-/merge_requests/215)  Commit hash: [a2b6750f6f543955e6d231590f3c36caf36929c7](https://forge.3gpp.org/rep/sa3/li/-/merge_requests/215/diffs?commit_id=a2b6750f6f543955e6d231590f3c36caf36929c7)  The ExternalASNType used by this CR (and defined in the ASN.1) is added by TS 33.128 CR 0591 (S3i230566).  The following changes made to the tables in this CR represent ASN.1 changes made in other CRs:   * Table 6.3.2.2.Cl2.2-1: Payload for MMERANTraceReport record includes changes made in TS 33.128 CR 0576 (S3i230523). | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i230506 | | | | | | | | |

## \*\*\*\* START OF FIRST CHANGE (MAIN DOCUMENT) \*\*\*\*

##### 6.3.2.2.3 Attach

The IRI-POI in the MME shall generate an xIRI containing an MMEAttach record when the IRI-POI present in the MME detects that a UE matching one of the target identifiers provided via LI\_X1 has successfully attached to EPS. Accordingly, the IRI-POI in the MME generates the xIRI when the following event is detected:

- MME sends an S1: ATTACH ACCEPT message to the target UE and the UE EPS Mobility Management (EMM) state within the MME is changed to EMM-REGISTERED.

Table 6.3.2-2: Payload for MMEAttach record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| attachType | EPSAttachType | 1 | Specifies the type of EPS Attach, see TS 24.301 [51] clause 9.9.3.11. This is derived from the information received from the UE in the Attach Request message. | M |
| attachResult | EPSAttachResult | 1 | Specifies the result of the attach procedure, see TS 24.301 [51] clause 9.9.3.10. | M |
| iMSI | IMSI | 1 | IMSI associated with the registration. | M |
| iMEI | IMEI | 0..1 | IMEI associated with the registration, if available. | C |
| mSISDN | MSISDN | 0..1 | mSISDN associated with the registration, if available. | C |
| gUTI | GUTI | 0..1 | GUTI provided as outcome of initial attach or used in other cases, see TS 24.301 [51] clause 5.5.1.2.4. | C |
| location | Location | 0..1 | Location information determined by the network during the registration or known at the MME, if available.  Shall include all location information for the target UE available at the MME encoded as one of the following:  *- ePSUserLocationInformation parameter (location>EPSLocationInfo> ePSUserLocationInformation).*  *- ePSLocationInformation parameter (location>fourGLocationInfo>ePSUserLocationInformation).* | C |
| ePSTAIList | TAIList | 0..1 | List of tracking areas associated with the registration area within which the UE is currently registered, see TS 24.301 [51] clause 9.9.3.33. (see NOTE) | C |
| sMSServiceStatus | EPSSMSServiceStatus | 0..1 | Indicates the availability of SMS Services. Shall be provided if present in the ATTACH ACCEPT. | C |
| oldGUTI | GUTI | 0..1 | Old GUTI used in the registration, if available. | 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 |
| pagingRestrictionIndicator | PagingRestrictionIndicator | 0..1 | Indicates if paging is restricted or the type of paging allowed. Include if sent in the Attach Request message. Encoded per TS 24.301 [51] clause 9.9.3.66, omitting the first two octets. | C |
| rATType | RATType | 0..1 | RAT Type shall be present if known by the MME. RAT Type is determined by the MME during the attach procedure. See TS 23.401 [50] clause 4.3.5.3. | C |
| rRCEstablishmentCause | EPSRRCEstablishmentCause | 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 36.413 [38] clause 9.2.1.3a. | C |
| s1Information | S1Information | 0..1 | Provides application layer related information for the serving Global RAN Node provided by the eNB node to the serving MME during S1 setup. This parameter shall be populated using information from the S1 SETUP REQUEST and S1 SETUP RESPONSE. See TS 36.413 [38] clauses 9.1.8.4 and 9.1.8.5. | C |
| nASTransportInitialInformation | EPSNASTransportInitialInformation | 0..1 | Provides information related to the NAS Transport setup for the target UE over the S1 interface. Shall be included when received by the MME per TS 36.413 [38]. This parameter is only conditional for backward compatibility. See TS 36.413 [38] clause 9.1.7.1. | C |
| equivalentPLMNList | PLMNList | 0..1 | Provides a list of equivalent PLMNs in the Attach Accept message. See clause TS 24.301 [51] clauses 8.2.1.1 and 8.2.1.8. | C |
| ePSUENetworkCapability | EPSUENetworkCapability | 0..1 | Shall contain the target UE network capability information octets sent in the Attach Request message, omitting the first two octets. Defined in TS 24.301 [51] clause 9.9.3.34. | C |
| initialRANUEContextSetup | EPSRANUEContext | 0..1 | Provides information sent in the INITIAL CONTEXT SETUP message from the MME to the RAN for a target. See TS 36.413 [38] clause 9.1.4.1. | C |
| mUSIMUERequestType | MUSIMUERequestType | 0..1 | Indicates a MUSIM UE has requested release of NAS signalling or has rejected paging. Include 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 |
| ePSNetworkPolicy | EPSNetworkPolicy | 0..1 | Indicates network policy information to the UE during attach or tracking area update procedures. Include if present in the ATTACH ACCEPT message. Encoded per Network policy type. See TS 24.301 [38] clause 9.9.3.52. | C |
| NOTE: List shall be included each time there is a change to the registration area. | | | | |

## \*\*\*\* START OF NEXT CHANGE (MAIN DOCUMENT) \*\*\*\*

##### 6.3.2.2.6 Start of interception with EPS attached UE

The IRI-POI in the MME shall generate an xIRI containing an MMEStartOfInterceptionWithEPSAttachedUE record when the IRI-POI present in the MME detects that interception is activated on a UE that has already attached to the EPS. A UE is considered already attached to the EPS when the EMM state for that UE is EMM-REGISTERED. Therefore, the IRI-POI present in the MME shall generate the xIRI MMEStartOfInterceptionWithEPSAttachedUE record when it detects that a new interception for a UE is activated (i.e. provisioned by the LIPF) and the EPS mobility management state within the MME for that UE is EMM-REGISTERED.

Table 6.3.2-6: Payload for MMEStartOfInterceptionWithEPSAttachedUE record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| attachType | EPSAttachType | 1 | Specifies the type of EPS Attach, see TS 24.301 [51] clause 9.9.3.11. This is derived from the information stored in the UE Context at the MME, see TS 23.401 [50] clause 5.7.2. | M |
| attachResult | EPSAttachResult | 1 | Specifies the result of the attach procedure, see TS 24.301 [51] clause 9.9.3.10. This is derived from the information stored in the UE Context at the MME, see TS 23.401 [50] clause 5.7.2. | M |
| iMSI | IMSI | 1 | IMSI associated with the target UE Context at the MME, see TS 23.401 [50] clause 5.7.2. | M |
| iMEI | IMEI | 0..1 | IMEI associated with the target UE Context at the MME, if available, see TS 23.401 [50] clause 5.7.2. | C |
| mSISDN | MSISDN | 0..1 | mSISDN associated with the target UE Context at the MME, if available. | C |
| gUTI | GUTI | 0..1 | Current GUTI associated with the target UE context at the MME, if available, see TS 23.401 [50] clause 5.7.2. | C |
| location | Location | 0..1 | Location information stored in the UE Context at the MME, if available, see TS 23.401 [50] clause 5.7.2.  Shall include all location information for the target UE available at the MME encoded as one of the following:  *- ePSUserLocationInformation parameter (location>EPSLocationInfo> ePSUserLocationInformation).*  *- ePSLocationInformation parameter (location>fourGLocationInfo>ePSUserLocationInformation).*  When Dual Connectivity is activated, the *additionalCellIDs* parameter *(location>ePSLocationInfo>ePSLocationInformation>mMELocationInformation>additionalCellIDs)* shall also be populated, see clause 7.3.3. and Annex A. | C |
| ePSTAIList | TAIList | 0..1 | List of tracking areas associated with the registration area within which the UE is currently registered, see TS 24.301 [51], clause 9.9.3.33 and TS 23.401 [50] clause 5.7.2. | C |
| sMSServiceStatus | EPSSMSServiceStatus | 0..1 | Indicates the availability of SMS Services. Shall be provided if present in the UE Context at the MME, see TS 23.401 [50] clause 5.7.2. | C |
| eMM5GRegStatus | EMM5GMMStatus | 0..1 | UE Status, if present in the UE Context at the MME, see TS 24.501 [13] clause 9.11.3.56. | C |
| pagingRestrictionIndicator | PagingRestrictionIndicator | 0..1 | Indicates if paging is restricted or the type of paging allowed. Shall be included if known at the NF context. Encoded per TS 24.301 [51] clause 9.9.3.66, omitting the first two octets. | C |
| rATType | RATType | 0..1 | RAT Type shall be present if known by the MME. RAT Type is determined by the MME during the attach procedure. Shall be included if known at the NF context. See TS 23.401 [50] clause 4.3.5.3. | C |
| rRCEstablishmentCause | EPSRRCEstablishmentCause | 0..1 | Indicates the reason for UE RRC Connection Establishment. Shall be included if known at the NF context. See TS 36.413 [38] clause 9.2.1.3a. | C |
| s1Information | S1Information | 0..1 | Provides application layer related information for the serving Global RAN Node provided by the eNB node to the serving MME during S1 setup. Shall be included if known at the NF context. See TS 36.413 [38] clauses 9.1.8.4 and 9.1.8.5. | C |
| nASTransportInitialInformation | EPSNASTransportInitialInformation | 0..1 | Provides information related to the NAS Transport setup for the target UE over the S1 interface. Shall be included when received by the MME per TS 36.413 [38]. This parameter is only conditional for backward compatibility. See TS 36.413 [38] clause 9.1.7.1. | C |
| equivalentPLMNList | PLMNList | 0..1 | Provides a list of equivalent PLMNs. Shall be included if known at the NF. See clause TS 24.301 [51] clauses 8.2.1.1 and 8.2.1.8. | C |
| ePSUENetworkCapability | EPSUENetworkCapability | 0..1 | Shall contain the target UE network capability information Shall be included if known at the NF context. Encoded per TS 24.301 [51] clause 9.9.3.34 ommitting the first two octets. | C |
| initialRANUEContextSetup | EPSRANUEContext | 0..1 | Provides information about the RAN context for the UE as known at the MME. Shall be included if known at the NF context. See TS 36.413 [38] clause 9.1.4.1. | C |
| ePSNetworkPolicy | EPSNetworkPolicy | 0..1 | Indicates network policy information to the UE during attach or tracking area update procedures. Shall be included if known at the NF context. Encoded per Network policy type. See TS 24.301 [38] clause 9.9.3.52. | C |

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

## \*\*\*\* START OF NEXT CHANGE (MAIN DOCUMENT) \*\*\*\*

##### 6.3.2.2.Cl1 Handovers

6.3.2.2.Cl1.1 General

The present clause provides the LI requirements for S1 interface-based handovers which occur for a target UE. Such handovers may be intra EPS (inter-eNB), 5GS to EPS (inter-system), EPS to 5GS (inter-system), EPS to UTRA (inter-system) or EPS to GERA (inter-system).

The following xIRI records are used to report handover related events between the MME and RAN nodes for the target UE when the delivery of location information is not restricted by service scoping:

- EPSRANHandoverCommand.

- EPSRANHandoverRequest.

The above xIRIs are used to report handover events and information that are not carried in the MMELocationUpdate (clause 6.3.2.2.5) record and shall include the information transferred between the MME and RAN nodes, as a part of handover preparation, resource allocation, and handover notification.

6.3.2.2.Cl1.2 Handover command

The IRI-POI in the MME shall generate an xIRI containing an EPSRANHandoverCommand record when the IRI-POI present in the MME detects that the MME has sent a HANDOVER COMMAND message to the source RAN node (old RAN node) in response to a HANDOVER REQUIRED message for the target UE and location information is not restricted by service scoping.

Table 6.3.2.2.Cl1.2-1: Payload for EPSRANHandoverCommand record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| userIdentifiers | UserIdentifiers | 1 | List of identifiers, including the target identifier, associated with the target UE registration stored in the MME context. See TS 23.401 [50] clause 5.7.2. | M |
| mMEUES1APID | MMEUES1APID | 1 | Identity that the MME uses to uniquely identify the target UE over the S1 Interface. See TS 36.413 [38] clause 9.2.3.3. This is correlated to the IMSI known in the UE context at the MME. | M |
| eNBUES1APID | RANUES1APID | 1 | Identity that the MME receives from the eNB uniquely identifying the target UE with the eNB. See TS 36.413 [38] clause 9.2.3.4. | M |
| handoverType | EPSHandoverType | 1 | Identifies the type of handover indicated by the source RAN node to the MME. See TS 36.413 [38] clause 9.2.1.3. | M |
| eRABsToBeForwarded | ERABContextList | 0..1 | Contains a list of any E-RABs that are subject to forwarding. Shall be present if there are any E-RABs to be forwarded listed in the handover command. See TS 36.413 [38] clause 9.1.5.2. | C |
| eRABsToRelease | ERABReleaseList | 0..1 | Contains a list of any E-RABs that are to be released. Shall be present if there are any E-RABs to be released listed in the handover command. See TS 36.413 [38] clause 9.1.5.2. | C |
| targetToSourceContainers | SEQUENCE OF RANTargetToSourceContainer | 1..MAX | Provides radio related information about the gaining RAN node. See TS 36.413 [38] clause 9.2.1.57. | M |

6.3.2.2.Cl1.3 Handover request

The IRI-POI in the MME shall generate an xIRI containing an EPSRANHandoverRequest record when the IRI-POI in the MME detects that the MME received a HANDOVER REQUEST ACKNOWLEDGE message from the gaining RAN node (new RAN node) for the target UE and location information is not restricted by service scoping.

NOTE: The gaining RAN node sends the HANDOVER REQUEST ACKNOWLEDGE in response to a HANDOVER REQUEST from the MME.

Table 6.3.2.2.Cl1.3-1: Payload for EPSRANHandoverRequest record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| userIdentifiers | UserIdentifiers | 1 | List of identifiers, including the target identifier, associated with the target UE registration stored in the MME context. See TS 23.401 [50] clause 5.7.2. | M |
| handoverType | EPSHandoverType | 1 | Identifies the type of handover indicated by the source RAN node to the MME. See TS 36.413 [38] clause 9.3.1.22. | M |
| handoverCause | EPSRANCause | 1 | Indicates the cause of handover as seen in the handover request message from MME to gaining RAN node. See TS 36.413 [38] clause 9.2.1.3. | M |
| sourceToTargetContainer | RANSourceToTargetContainer | 1 | Provides radio related information via the MME in the handover request from source to gaining RAN node. See TS 36.413 [38] clause 9.2.1.56. | M |
| cSGInfo | EPSCSGInfo | 0..1 | Includes information about the currend CSG ID and membership information present in a handover request. Shall be present if the CSG ID or CSG Membership infor parameters were sent in the handover request. See TS 36.413 [38] clause 9.1.5.4. | C |
| targetToSourceContainer | RANTargetToSourceContainer | 1 | Provides radio related information via the MME in the handover request acknowledge from gaining RAN node to the source. See TS 36.413 [38] clause 9.2.1.57. | M |
| admittedCSGID | CSGID | 0..1 | Derived from the CSG Id IE in the handover request acknowledge. See TS 36.413 [38] clause 9.1.5.5. | C |
| ePSRANUEContext | EPSRANUEContext | 1 | Includes RAN related information for the UE. | M |

## \*\*\*\* START OF NEXT CHANGE (MAIN DOCUMENT) \*\*\*\*

##### 6.3.2.2.Cl2 Trace

###### 6.3.2.2.Cl2.1 General

Trace procedures, as defined in TS 32.423 [112], allow for the MME to request trace sessions, including Minimization of Drive Test (MDT) data gathering for a target using UE-associated signalling.

The present clause provides the LI requirements for reporting trace sessions from the IRI-POI in the MME for a target UE.

The following xIRI records are used to report trace related events between the MME and RAN nodes for the target UE when the delivery of location information is not restricted by service scoping:

- MMERANTraceReport

###### 6.3.2.2.Cl2.2 MME RAN trace report

The IRI-POI in the MME shall generate an xIRI containing an MMERANTraceReport record when the IRI-POI present in the MME has detected any of the following events:

- MME sent a TRACE START message to a RAN node in response to a Trace Session Activation message for the target.

- MME received a CELL TRAFFIC TRACE message from the RAN for the target.

- MME sent MDT or trace data to the trace collection entity for the target.

- MME sent a deactivate trace message to the RAN for the target.

**Table 6.3.2.2.Cl2.2-1: Payload for MMERANTraceReport record**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field name** | **Type** | **Cardinality** | **Description** | **M/C/O** |
| userIdentifiers | UserIdentifiers | 1 | List of identifiers, including the target identifier, associated with the target UE registration stored in the MME context. See TS 23.401 [50] clause 5.7.2. | M |
| mMEUES1APID | MMEUES1APID | 1 | Identity that the MME uses to uniquely identify the target UE over the S1 Interface. See TS 36.413 [38] clause 9.2.3.3. This is correlated to the IMSI known in the UE context at the MME. | M |
| RANUES1APID | RANUES1APID | 1 | Identity that the MME receives from the eNB uniquely identifying the target UE with the eNB. See TS 36.413 [38] clause 9.2.3.4. | M |
| traceRecordType | TraceRecordType | 1 | Identifies the type of trace record being generated. This parameter is populated with either Trace Start, Cell Traffic Trace, Trace Data Delivery, or Trace Deactivation. | M |
| traceDirection | TraceDirection | 1 | Identifies which network element is signalling the trace information. This parameter is populated with a choice of either MME or RAN. See TS 36.413 [38] clauses 9.1.11 and 9.1.18. | M |
| traceActivationInfo | TraceActivationInfo | 0..1 | Information related to a trace session activation provided from the MME to the NG-RAN node. Shall be populated if the traceRecordType is set to Trace Start. See TS 36.413 [38] clause 9.2.1.4. | C |
| eUTRANCGI | ECGI | 1 | Identifies the eUTRAN Cell Global Identifier of the cell performing the UE trace. | M |
| globalRANNodeID | GlobalRANNodeID | 1 | Uniquely identifies the RAN node to which the TRACE START message is sent. This is derived from the initial S1 Setup exchange between the RAN node and the MME. | M |
| traceCollectionEntityInfo | TraceCollectionEntityInfo | 0..1 | Provides information related to the trace collection entity to which the MME sends the MDT or Trace data of the target. Shall be populated if the Trace Record Type is set to Trace Data Delivery. See TS 36.413 [38] clauses 9.1.18 and 9.2.2.1. | C |
| mMETraceData | XMLType | 0..1 | Includes the trace data (in raw XML format) sent from the MME to the trace collection entity. Shall be present when the MME is the trace collection NE. See TS 32.423 [112] clauses 4.18 and 5.2. | C |
| location | Location | 0..1 | Provides the current location as known in the UE context at the MME or supplemented by the MDF2. | C |

## \*\*\*\* START OF NEXT CHANGE (MAIN DOCUMENT) \*\*\*\*

##### 6.3.2.2.Cl3 Service Accept

The IRI-POI in the MME shall generate an xIRI containing an MMEUEServiceAccept record when the IRI-POI in present in the MME detects that the MME considers a service request procedure initiated by the target to be completed successfully (see TS 24.301 [51] clause 5.6.1.4).

Table 6.3.2.2.Cl3-1: Payload for MMEUEServiceAccept record

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| userIdentifiers | UserIdentifiers | 1 | List of identifiers, including the target identifier, associated with the target UE registration stored in the MME context. See TS 23.401 [50] clause 5.7.2. | M |
| serviceType | OCTET STRING (SIZE (1)) | 0..1 | Indicates the purpose of the service request procedure. Encoded per TS 24.301 [51] clause 9.9.3.27. | C |
| mTMSI | TMSI | 0..1 | TMSI value associated with the target within the MME context. Shall be included if known. Encoded per 24.501 [13] figure 9.11.3.4.5 | C |
| cSFBResponse | OCTET STRING (SIZE(1)) | 0..1 | Indicates whether the target UE accepted circuit switched fallback. Shall be present if the CSFB response IE was present in the request that triggered the procedure reported by the xIRI (see TS 24.301 [51] clause 9.9.3.5. | C |
| uEEPSBearerContextStatus | OCTET STRING (SIZE (2)) | 0..1 | Indicates the state of each EPS bearer context at the target UE. Shall be present if the EPS bearer context status IE was present in the request that triggered the procedure reported by the xIRI (see TS 24.301 [51] clauses 8.2.15 and 8.2.33). Encoded per TS 24.301 [51] clause 9.9.2.1 ommitting the first two octets. | C |
| uERequestType | MUSIMUERequestType | 0..1 | Indicates the type of request sent by the UE. Shall be present if the UE request type indication IE was present in the request that initiated the procedure being reported by the xIRI. Encoded per TS 24.301 [51] clause 9.9.3.65. | C |
| pagingRestriction | PagingRestrictionIndicator | 0..1 | Indicates the current paging restriction status for the target as known at the MME. Shall be present if the Paging restriction IE was present in the request that initiated the procedure being reported by the xIRI. Encoded per TS 24.301 [51] clause 9.9.3.66 omitting the first two octets. | C |
| controlPlaneServiceType | OCTET STRING (SIZE (1)) | 0..1 | Indicates the purpose of the control plane service request procedure.Shall be present if the request that initiated the procedure being reported by the xIRI was a Control Plane Service Request. Encoded per TS 24.301 [51] clause 9.9.3.47. | C |

## \*\*\*\* START OF NEXT CHANGE (MAIN DOCUMENT) \*\*\*\*

#### 6.3.2.2A Definitions for MME message Types

##### 6.3.2.2A.1 Simple data types

Table 6.3.2.2A.1-1: Simple Types for LI reporting of MME Events

|  |  |  |
| --- | --- | --- |
| Type name | Type definition | Description |
| MMEUES1APID | INTEGER (0..4294967295) | Identity that the MME uses to uniquely identify the target UE over the S1 Interface. See TS 36.413 [38] clause 9.2.3.3. |
| RANUES1APID | INTEGER (0.. 16777215) | Identity that the eNB uses to uniquely identify the target UE over the S1 Interface. See TS 36.413 [38] clause 9.2.3.4. |
| EPSUENetworkCapability | OCTET STRING (SIZE(2..13)) | Contains the target UE network capability information encoded per TS 24.301 [51] clause 9.9.3.34, omitting the first two octets. |
| EPSUERadioCapability | OCTET STRING | Indicates the radio capabilities of the UE. Encoded per 36.413 [38] clause 9.2.1.27. |
| EPSNetworkPolicy | OCTET STRING (SIZE(1)) | Indicates network policy information to the UE. Encoded per TS 24.301 [38] clause 9.9.3.52. |

##### 6.3.2.2A.2 Type: EPSHandoverType

The EPSHandoverType provides information about the type of handover being performed in EPS. Defined in TS 36.413 [38] clause 9.2.1.13.

Table 6.3.2.2A.2-1 contains the details of the EPSHandoverType type.

Table 6.3.2.2A.2-1: Details for EPSHandoverType

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| EPSHandoverType | ExternalASNType | 1 | Indicates the type of handover. The *ExternalASNType.encodedASN* shall contain the contents of the the Cause IE from TS 36.413 [38] clause 9.2.1.13.  The *ExternalASNType*.*moduleIdentifier* for this parameter shall be populated with {0 4 0 0 21 3 1 1 2}.  The *ExternalASNType*.*aSNReference* for this parameter shall be populated with '@S1AP-IEs.HandoverType. | M |

##### 6.3.2.2A.3 Type: ERABContextList

Table 6.3.2.2A.3-1 contains the details for the ERABContextList type.

Table 6.3.2.2A.3-1: Structure of the ERABContextList type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| ERABContextList | SEQUENCE OF ERABContext | 1..MAX | Contains a list of E-RAB Contexts. | M |

##### 6.3.2.2A.4 Type: ERABContext

Table 6.3.2.2A.4-1 contains the details for the ERABContext type.

Table 6.3.2.2A.4-1: Structure of the ERABContext type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| eRABID | EPSBearerID | 1 | This element uniquely identifies a radio access bearer for a particular UE, which makes the E-RAB ID unique over one S1 connection. Derived from the E-RAB ID IE, see TS 36.413 [38] clause 9.2.1.2. | M |
| eRABQoSParameters | ERABQoSParameters | 0..1 | The QOS parameters to be assigned to an E-RAB. Derived from the E-RAB Level QoS Parameters defined in TS 36.418 [38] clause 9.2.1.15. Shall be present if present in the messages for the procedure that triggered the xIRI or known at the NF context. | C |
| transportLayerAddress | IPAddr | 0..1 | The local IP Address assigned to the UE for the E-RAB. See TS 36.418 [38] Clause 9.2.2.1. Shall be present if present in the messages for the procedure that triggered the xIRI or known at the NF context. | C |
| uLGTPTEID | FTEID | 0..1 | The uplink tunnel information for the E-RAB. See TS 36.418 [38] Clause 9.2.2.2. Shall be present if present in the messages for the procedure that triggered the xIRI or known at the NF context. | C |
| dLGTPTEID | FTEID | 0..1 | The downlink tunnel information for the E-RAB. See TS 36.418 [38] Clause 9.2.2.2. Shall be present if present in the messages for the procedure that triggered the xIRI or known at the NF context. | C |

##### 6.3.2.2A.5 Type: ERABReleaseList

Table 6.3.2.2A.5-1 contains the details for the ERABReleaseList type.

Table 6.3.2.2A.5-1: Structure of the ERABReleaseList type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| ERABReleaseList | SEQUENCE OF ERABError | 1..MAX | Contains a list of E-RABs that are released along with the cause. | M |

##### 6.3.2.2A.6 Type: ERABError

Table 6.3.2.2A.6-1 contains the details for the ERABErrortype.

Table 6.3.2.2A.6-1: Structure of the ERABErrortype

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| eRABID | EPSBearerID | 1 | This element uniquely identifies a radio access bearer for a particular UE, which makes the E-RAB ID unique over one S1 connection. Derived from the E-RAB ID IE, see TS 36.413 [38] clause 9.2.1.2. | M |
| cause | EPSRANCause | 1 | Indicates the cause of the E-RAB release. Derived from the Cause IE from TS 36.413 [38] clause 9.2.1.3. | M |

##### 6.3.2.2A.7 Type: EPSRANCause

Table 6.3.2.2A.7-1: Details for EPSRANCause parameter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| EPSRANCause | ExternalASNType | 1 | Indicates the cause for the procedure indicated by the RAN or MME. The *ExternalASNType.encodedASN* shall contain the contents of the the Cause IE from TS 36.413 [38] clause 9.2.1.3.  The *ExternalASNType*.*moduleIdentifier* for this parameter shall be populated with {0 4 0 0 21 3 1 1 2}.  The *ExternalASNType*.*aSNReference* for this parameter shall be populated with '@S1AP-IEs.Cause’. | M |

##### 6.3.2.2A.8 Type: EPSHandoverRestrictionList

This IE is derived from the Handover Restriction List IE defined in TS 36.413 [38] clause 9.2.1.22. This information describes roaming or access restrictions for subsequent mobility of a UE.

Table 6.3.2.2A.8-1 contains the details for the EPSHandoverRestrictionList.

Table 6.3.2.2A.8-1: Structure of the EPSHandoverRestrictionList

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| EPSHandoverRestrictionList | ExternalASNType | 1 | Indicates roaming or access restrictions for subsequent mobility of a UE. The *ExternalASNType.encodedASN* shall contain the contents of the the Handover Restriction List IE defined in TS 36.413 [38] clause 9.2.1.22,  The *ExternalASNType*.*moduleIdentifier* for this parameter shall be populated with {0 4 0 0 21 3 1 1 2}.  The *ExternalASNType*.*aSNReference* for this parameter shall be populated with '@S1AP-IEs.HandoverRestrictionList’. | M |

##### 6.3.2.2A.9 Type: EPSCSGInfo

Table 6.3.2.2A.9-1 contains the details for the EPSCSGInfo type.

Table 6.3.2.2A.9-1: Structure of the EPSCSGInfo type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| cSGID | CSGID | 0..1 | Indicates the CSG being described. | C |
| cSGMembershipStatus | CSGMembershipIndication | 0..1 | Indicates the user's membership status for the indicated CSG. Shall be included if known at the NF where the POI is located. | C |

##### 6.3.2.2A.10 Type: EPSProSeAuthorization

Table 6.3.2.2A.10-1 contains the details for the EPSProSeAuthorization type.

Table 6.3.2.2A.10-1: Details for the EPSProSeAuthorization type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| EPSProSeAuthorization | ExternalASNReference | 0..1 | Indicates EPS ProSe Authorizations for a UE. The *ExternalASNType.encodedASN* shall contain the contents of the the ProSe Authorized IE defined in TS 36.413 [38] clause 9.2.1.99,  The *ExternalASNType*.*moduleIdentifier* for this parameter shall be populated with {0 4 0 0 21 3 1 1 2}.  The *ExternalASNType*.*aSNReference* for this parameter shall be populated with '@S1AP-IEs.ProSeAuthorized. | C |

##### 6.3.2.2A.11 Type: EPSSubscriptionBasedUEDifferentiationIndication

Table 6.3.2.2A.11-1 contains the details for the EPSSubscriptionBasedUEDifferentiationIndication type. This information is derived from the Subscription Based UE Differentiation Information IE defined in TS 36.413 [38] clause 9.2.1.140.

Table 6.3.2.2A.11-1: Structure of the EPSSubscriptionBasedUEDifferentiationIndication type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| EPSSubscriptionBasedUEDifferentiationIndication | ExternalASNReference | 0..1 | Indicates subscription based UE differentiation information for a UE. Shall be present when the Subscription Based UE Differentiation Information IE defined in TS 36.413 [38] clause 9.2.1.140 is present in messages exchanged as part of the procedure that triggered the generation of the xIRI. The *ExternalASNType.encodedASN* contain the contents of the Subscription Based UE Differentiation Information IE as described above.  The *ExternalASNType*.*moduleIdentifier* for this parameter shall be populated with {0 4 0 0 21 3 1 1 2}.  The *ExternalASNType*.*aSNReference* for this parameter shall be populated with '@S1AP-IEs.Subscription-Based-UE-DifferentiationInfo. | C |

##### 6.3.2.2A.12 Type: S1Information

Table 6.3.2.2A.12-1 contains the details for the S1Information type. This information is derived from the S1 SETUP REQUEST and S1 SETUP RESPONSE. See TS 36.413 [38] clauses 9.1.8.4 and 9.1.8.5.

Table 6.3.2.2A.12-1: Structure of the S1Information type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| globalRANNodeID | GlobalRANNodeID | 0..1 | The ID of the RAN Node from which the message was received. Shall be present if known at the NF where the POI is located. | C |
| rANNodeName | RANNodeName | 0..1 | The RAN Node Name for the the RAN Node from which the message was received. Shall be present if known at the NF where the POI is located. | C |
| supportedTAList | SupportedTAList | 0..1 | The list of TAIs supported by the RAN Node. Shall be present if known at the NF where the POI is located. | C |
| cSGIDList | CSGIDList | 0..1 | A list of the closed subscriber groups supported by the RAN Node. Shall be present if known at the NF where the POI is located. | C |
| connectedENGNBList | ConnectedENGNBList | 0..1 | A list of the en-gNBs connected to the RAN Node. Shall be present if known at the NF where the POI is located. | C |
| mMEServedGUMMEIList | MMEServedGUMMEIList | 0..1 | A list of the GUMMEIs served by the MME. Shall be present if known at the NF where the POI is located. | C |
| iABSupported | BOOLEAN | 0..1 | Indicates whether the MME supports IAB Nodes. Shall be present if known at the NF where the POI is located. | C |

##### 6.3.2.2A.13 Type: MMEServedGUMMEIList

Table 6.3.2.2A.13-1 contains the details for the MMEServedGUMMEIList type. This information is derived from the Served GUMMEI List IE of the S1 SETUP RESPONSE. See TS 36.413 [38] clauses 9.1.8.5.

Table 6.3.2.2A.13-1: Structure of the MMEServedGUMMEIList type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| MMEServedGUMMEIList | MMEServedGUMMEI | 1..MAX | A list of the GUMMEIs supported by the MME. | M |

##### 6.3.2.2A.14 Type: MMEServedGUMMEI

Table 6.3.2.2A.14-1 contains the details for the MMEServedGUMMEI type. This information is derived from the Served GUMMEI List IE of the S1 SETUP RESPONSE. See TS 36.413 [38] clauses 9.1.8.5.

Table 6.3.2.2A.14-1: Structure of the MMEServedGUMMEI type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| servedPLMNs | PLMNSupportList | 1 | A list of PLMNs served by the MME for the GUMMEI. | M |

##### 6.3.2.2A.15 Type: EPSNASTransportInitialInformation

Table 6.3.2.2A.15-1 contains the details for the EPSNASTransportInitialInformation type. This information is derived from information present in the INITIAL UE MESSAGE defined in TS 36.413 [38] clauses 9.1.7.1.

Table 6.3.2.2A.15-1: Structure of the MMEServedGUMMEI type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| rANUES1APID | RANUES1APID | 1 | Identity that the MME receives from the eNB uniquely identifying the target UE with the eNB. See TS 36.413 [38] clause 9.2.3.4. | M |
| relayNodeIndicator | BOOLEAN | 0..1 | Indicates whether the UE is acting as a Relay Node. See TS 36.413 [38] clause 9.2.1.79. Shall be present if the Relay Node Indicator IE is present in the INITIAL UE MESSAGE. | C |
| bBFTunnelInformation | BBFTunnelInformation | 0..1 | Indicates HeNB’s Local IP Address and, when appropriate UPD Port Numebrs, assigned by the broadband access provider. Derived from the Tunnel Information for BBF IE defined in TS 36.413 [38] clause 9.1.7.1. Shall be present if present in the message that triggered the event or known at the NF where the POI is located. | C |
| eDTSession | BOOLEAN | 0..1 | Indicates that the session is EDT capable. Shall be present if present in the message that triggered the event or known at the NF where the POI is located. | C |
| iABNodeIndication | BOOLEAN | 0..1 | Indicates that the UE is capable of acting as an IAB Node. Shall be present if present in the message that triggered the event or known at the NF where the POI is located. | C |
| lTENTNTAIInformation | LTENTNTAIInformation | 0..1 | Contains information on the PLMN, broadcast TAC and TAC information derived from the UE location in the case of NTN access. Shall be present if the LTE NTN TAI Information (see TS 36.413 [38] clause 9.2.3.56) is present in the message that triggered the event or known at the NF where the POI is located. | C |

##### 6.3.2.2A.16 Type: BBFTunnelInformation

Table 6.3.2.2A.16-1 contains the details for the BBFTunnelInformation type. This information is derived from information present in the Tunnel Information IE defined in TS 36.413 [38] clauses 9.2.2.3.

Table 6.3.2.2A.16-1: Structure of the BBFTunnelInformation type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| hENBTransportLayerAddress | IPAddr | 1 | Indicates the transport layer address of the HeNB. | M |
| uDPPortNumber | PortNumber | 0..1 | UDP Port Numbers if NAT/NAPT is deployed in the BBF access network. Shall be present if present in the Tunnel Information IE used to populate this record. | C |

##### 6.3.2.2A.17 Type: LTENTNTAIInformation

Table 6.3.2.2A.17-1 contains the details for the LTENTNTAIInformation type. This information is derived from information present in the LTE NTN TAI Information IE defined in see TS 36.413 [38] clause 9.2.3.56.

Table 6.3.2.2A.17-1: Structure of the LTENTNTAIInformation type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pLMN | PLMN | 1 | Indicates the serving PLMN for the UE. | M |
| tACListInLTENTN | TACList | 1 | Includes all TACs broadcast in the cell for the UE's serving PLMN. | M |
| uETAC | TAC | 0..1 | Contains the TAC information derived from the TAC serving the UE's actual location. Shall be present if known. | C |

##### 6.3.2.2A.18 Type: EPSRANUEContext

Table 6.3.2.2A.18-1 contains the details for the EPSRANUEContext type. This information is derived from information present in the INITIAL UE CONTEXT SETUP REQUEST IE defined in see TS 36.413 [38] clause 9.1.4.1.

Table 6.3.2.2A.18-1: Structure of the EPSRANUEContext type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| mMEUES1APID | MMEUES1APID | 0..1 | Identity that the MME uses to uniquely identify the target UE over the S1 Interface. See TS 36.413 [38] clause 9.2.3.3. This is correlated to the IMSI known in the UE context at the MME. Include when sent during the procedure being reported or when known at the NF. | C |
| rANUES1APID | RANUES1APID | 0..1 | Identity that the MME receives from the eNB uniquely identifying the target UE with the eNB. See TS 36.413 [38] clause 9.2.3.4. Include when sent during the procedure being reported or when known at the NF. | C |
| eRABSetupRequest | SEQUENCE OF ERABContext | 0..MAX | Contains a list of any E-RABs requested for setup. See TS 36.413 [38] clause 9.1.4.1. Include when sent during the procedure being reported or when known at the NF. | C |
| handoverRestrictionList | EPSHandoverRestrictionList | 0..1 | Provides information on the PLMNs and RAT Type combinations the UE is able to use for reselection. See TS 36.413 [38] clause 9.2.1.22. Include when sent during the procedure being reported or when known at the NF. | C |
| uERadioCapability | EPSUERadioCapability | 0..1 | Indicates the radio capabilities of the UE. See TS 36.413 [38] clause 9.2.1.27. Include when sent during the procedure being reported or when known at the NF. | C |
| rATFrequencySelectionPriority | RATFrequencySelectionPriority | 0..1 | Indicates the RAT/Frequency priority to define camp priorities in Idle mode and inter-RAT/inter-freqency priorities for handover in Active mode. Encoded per TS 36.413 [38] clause 9.2.1.39. | C |
| cSFallbackIndicator | EPSCSFallbackIndicator | 0..1 | Indicates that a fallback to the CS domain is required and the type of fallback requested. See TS 36.413 [38] clause 9.2.3.21. | C |
| proSeAuthorized | EPSProSeAuthorization | 0..1 | Provides information on the authorization status of the UE to use proximity services. Include when sent during the procedure being reported or when known at the NF. Derived from the value of the ProSe Authorized IE defined in TS 36.413 [38] clause 9.2.1.99. | C |
| lTEV2XServicesAuthorized | LTEV2XServiceAuthorization | 0..1 | Provides information on the authorization status of the UE to use V2X services over LTE. Include when sent during the procedure being reported or when known at the NF. Derived from the value of the V2X Services Authorized IE defined in TS 36.413 [38] clause 9.2.1.120. | C |
| aerialUESubscription | AerialUESubscriptionIndicator | 0..1 | Provides information on the authorization status of the UE to use aerial UE service. Include when sent during the procedure being reported or when known at the NF. Derived from the value of the aerial UE subscription information IE defined in TS 36.413 [38] clause 9.2.1.136. | C |
| subscriptionBasedUEDifferentiationIndication | EPSSubscriptionBasedUEDifferentiationIndication | 0..1 | Provides information on the periodic communication subscription for a UE. Include when sent during the procedure being reported or when known at the NF. Derived from the value of the Subscription Based UE Differentiation Information IE defined in TS 36.413 [38] clause 9.2.1.140. | C |
| iABAuthorizedIndicator | IABAuthorizedIndicator | 0..1 | Provides information on the authorization of a UE to act as an IAB node. Include when during the procedure being reported or when known at the NF. Derived from the value of the IAB Authorized IE defined in TS 36.413 [38] clause 9.2.1.146. | C |
| nRV2XServicesAuthorization | NRV2XServicesAuthorization | 0..1 | Provides information on the authorization status of the UE to use V2X services over NR. Include when sent during the procedure being reported or when known at the NF. Derived from the value of the V2X Services Authorized IE defined in TS 36.413 [38] clause 9.2.1.148. | C |

##### 6.3.2.2A.19 Enumeration: EPSCSFallbackIndicator

The EPSCSFallbackIndicator indicates that a fallback to the CS domain is required and the type of fallback requested. Derived from the enumerations in TS 36.413 [38] clause 9.2.3.21.

Table 6.3.2.2A.19-1 contains the details of the EPSCSFallbackIndicator type.

Table 6.3.2.2A.19-1: Enumeration for EPSCSFallbackIndicator

|  |  |
| --- | --- |
| Enumeration value | Description |
| cSFallbackRequired (1) | Fallback to the CS domain is required. |
| cSFallbackHighPriority (2) | A high priority fallback to the CS domain is required. |

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

##### 6.3.2.3.1 General

When Option A or Option B specified in clause 6.3.1 are used and an xIRI is received over LI\_X2 from the IRI-POI in the MME, the MDF2 shall generate the corresponding IRI message and deliver it over LI\_HI2 without undue delay. The IRI message shall contain a copy of the relevant record received in the xIRI over LI\_X2.

When Option C specified in clause 6.3.1 is used the MDF2 shall generate IRI messages based on the proprietary information received from the MME and provide it over LI\_HI2 without undue delay.

The IRI record may be enriched with any additional information available at the MDF (e.g. additional location information).

The IRI messages shall be delivered over LI\_HI2 according to ETSI TS 102 232-7 [10] clause 10.When Option A specified in clause 6.3.1 is used, LI\_HI2 shall be realised as described in clause 6.3.2.3.2.

When Option B or Option C specified in clause 6.3.1 is used, LI\_HI2 shall be realised as described in clause 6.3.2.3.3.

##### 6.3.2.3.2 Option A

The IRI message the MDF2 generates shall contain a copy of the relevant record received in the xIRI over LI\_X2 and provide it over LI\_HI2 without undue delay.

The timestamp field of the PSHeader structure shall be set to the time at which the MME 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 6.3.2-8.

Table 6.3.2-8: IRI type for IRI messages

|  |  |
| --- | --- |
| IRI message | IRI type |
| MMEAttach | REPORT |
| MMEDetach | REPORT |
| MMELocationUpdate | REPORT |
| MMEStartOfInterceptionWithEPSAttachedUE | REPORT |
| MMEUnsuccessfulProcedure | REPORT |
| MMEIdentifierAssociation | REPORT |
| MMEPositioningInfoTransfer | REPORT |
| EPSRANHandoverCommand | REPORT |
| EPSRANHandoverRequest | REPORT |
| MMERANTraceReport | REPORT |
| MMEUEServiceAccept | 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 MMEStartOfInterceptionWithEPSAttachedUE record to the LEMF associated with the additional warrant without receiving a corresponding xIRI. The payload of the MMEStartOfInterceptionWithEPSAttachedUE record is specified in table 6.3.2-6.

For records related to SMS over NAS in EPS, the process detailed in clause 6.3.2.3.3 shall be used.

##### 6.3.2.3.3 Option B and Option C

For all messages except MMEIdentifierAssociation, the IRI messages shall include an IRI payload encoded according to TS 33.108 [12] Annex B.9.

The MDF2 shall encode the correct value of LIID in the IRI message, replacing the value "LIIDNotPresent" given in the xIRI (see clause 6.3.2.2).

For MMEIdentifierAssociation messages, the IRI message shall be encoded as an IRIEvent structure according to Annex B and used to populate the threeGPP33128DefinedIRI field in ETSI TS 102 232-7 [10] clause 15.

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

## \*\*\*\* START OF FIRST CHANGE (ATTACHMENTS) \*\*\*\*

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

@@ -245,7 +245,13 @@ XIRIEvent ::= CHOICE

245 245

246 246 -- AMF events, see clause 6.2.2.2.12, continued from tag 139

247 247 aMFUEPolicyTransfer [146] AMFUEPolicyTransfer,

248 - aMFUEServiceAccept [147] AMFUEServiceAccept

248 + aMFUEServiceAccept [147] AMFUEServiceAccept,

249 +

250 + -- MME events, see clause 6.3.2.2, continued from tag 112

251 + ePSRANHandoverCommand [148] EPSRANHandoverCommand,

252 + ePSRANHandoverRequest [149] EPSRANHandoverRequest,

253 + mMERANTraceReport [150] MMERANTraceReport,

254 + mMEUEServiceAccept [151] MMEUEServiceAccept

249 255 }

250 256

251 257 -- ==============

@@ -483,7 +489,13 @@ IRIEvent ::= CHOICE

483 489

484 490 -- AMF events, see clause 6.2.2.3, continued from tag 139

485 491 aMFUEPolicyTransfer [146] AMFUEPolicyTransfer,

486 - aMFUEServiceAccept [147] AMFUEServiceAccept

492 + aMFUEServiceAccept [147] AMFUEServiceAccept,

493 +

494 + -- MME events, see clause 6.3.2.2, continued from tag 112

495 + ePSRANHandoverCommand [148] EPSRANHandoverCommand,

496 + ePSRANHandoverRequest [149] EPSRANHandoverRequest,

497 + mMERANTraceReport [150] MMERANTraceReport,

498 + mMEUEServiceAccept [151] MMEUEServiceAccept

487 499 }

488 500

489 501 IRITargetIdentifier ::= SEQUENCE

@@ -1622,11 +1634,11 @@ ServiceMessageIdentity ::= CHOICE

1622 1634

1623 1635 TraceActivationInfo ::= SEQUENCE

1624 1636 {

1625 - nGRANTraceID [1] OCTET STRING (SIZE(8)),

1626 - interfacestoTrace [2] BIT STRING (SIZE(8)),

1627 - traceDepth [3] TraceDepth,

1628 - traceCollectionEntityIPAddress [4] IPAddress,

1629 - mDTConfiguration [5] MDTConfiguration OPTIONAL

1637 + traceID [1] OCTET STRING (SIZE(8)),

1638 + interfacesToTrace [2] BIT STRING (SIZE(8)),

1639 + traceDepth [3] TraceDepth,

1640 + traceCollectionEntityIPAddress [4] IPAddress,

1641 + mDTConfiguration [5] MDTConfiguration OPTIONAL

1630 1642 }

1631 1643

1632 1644 TraceCollectionEntityInfo ::= SEQUENCE

@@ -1649,7 +1661,9 @@ TraceDepth ::= ENUMERATED

1649 1661 TraceDirection ::= ENUMERATED

1650 1662 {

1651 1663 toAMF(1),

1652 - fromAMF(2)

1664 + fromAMF(2),

1665 + toMME(3),

1666 + fromMME(4)

1653 1667 }

1654 1668

1655 1669 TraceRecordType ::= ENUMERATED

@@ -5039,19 +5053,52 @@ TMSI ::= OCTET STRING (SIZE(4))

5039 5053 -- EPS MME definitions

5040 5054 -- ===================

5041 5055

5056 + EPSRANHandoverCommand ::= SEQUENCE

5057 + {

5058 + userIdentifiers [1] UserIdentifiers,

5059 + mMEUES1APID [2] MMEUES1APID,

5060 + eNBUES1APID [3] RANUES1APID,

5061 + handoverType [4] EPSHandoverType,

5062 + eRABsToBeForwarded [5] ERABContextList OPTIONAL,

5063 + eRABsToRelease [6] ERABReleaseList OPTIONAL,

5064 + targetToSourceContainers [7] SEQUENCE SIZE(1..MAX) OF RANTargetToSourceContainer

5065 + }

5066 +

5067 + EPSRANHandoverRequest ::= SEQUENCE

5068 + {

5069 + userIdentifiers [1] UserIdentifiers,

5070 + handoverType [2] EPSHandoverType,

5071 + handoverCause [3] EPSRANCause,

5072 + sourceToTargetContainer [4] RANSourceToTargetContainer,

5073 + cSGInfo [5] EPSCSGInfo OPTIONAL,

5074 + targetToSourceContainer [6] RANTargetToSourceContainer,

5075 + admittedCSGID [7] CSGID OPTIONAL,

5076 + ePSRANUEContext [8] EPSRANUEContext

5077 + }

5078 +

5042 5079 MMEAttach ::= SEQUENCE

5043 5080 {

5044 - attachType [1] EPSAttachType,

5045 - attachResult [2] EPSAttachResult,

5046 - iMSI [3] IMSI,

5047 - iMEI [4] IMEI OPTIONAL,

5048 - mSISDN [5] MSISDN OPTIONAL,

5049 - gUTI [6] GUTI OPTIONAL,

5050 - location [7] Location OPTIONAL,

5051 - ePSTAIList [8] TAIList OPTIONAL,

5052 - sMSServiceStatus [9] EPSSMSServiceStatus OPTIONAL,

5053 - oldGUTI [10] GUTI OPTIONAL,

5054 - eMM5GRegStatus [11] EMM5GMMStatus OPTIONAL

5081 + attachType [1] EPSAttachType,

5082 + attachResult [2] EPSAttachResult,

5083 + iMSI [3] IMSI,

5084 + iMEI [4] IMEI OPTIONAL,

5085 + mSISDN [5] MSISDN OPTIONAL,

5086 + gUTI [6] GUTI OPTIONAL,

5087 + location [7] Location OPTIONAL,

5088 + ePSTAIList [8] TAIList OPTIONAL,

5089 + sMSServiceStatus [9] EPSSMSServiceStatus OPTIONAL,

5090 + oldGUTI [10] GUTI OPTIONAL,

5091 + eMM5GRegStatus [11] EMM5GMMStatus OPTIONAL,

5092 + pagingRestrictionIndicator [12] PagingRestrictionIndicator OPTIONAL,

5093 + rATType [13] RATType OPTIONAL,

5094 + rRCEstablishmentCause [14] RRCEstablishmentCause OPTIONAL,

5095 + s1Information [15] S1Information OPTIONAL,

5096 + nASTransportInitialInformation [16] EPSNASTransportInitialInformation OPTIONAL,

5097 + equivalentPLMNList [17] PLMNList OPTIONAL,

5098 + ePSUENetworkCapability [18] EPSUENetworkCapability OPTIONAL,

5099 + initailRANUEContextSetup [19] EPSRANUEContext OPTIONAL,

5100 + mUSIMUERequestType [20] MUSIMUERequestType OPTIONAL,

5101 + ePSNetworkPolicy [21] EPSNetworkPolicy OPTIONAL

5055 5102 }

5056 5103

5057 5104 MMEDetach ::= SEQUENCE

@@ -5078,18 +5125,55 @@ MMELocationUpdate ::= SEQUENCE

5078 5125 sMSServiceStatus [7] EPSSMSServiceStatus OPTIONAL

5079 5126 }

5080 5127

5128 + MMERANTraceReport ::= SEQUENCE

5129 + {

5130 + userIdentifiers [1] UserIdentifiers,

5131 + mMEUES1APID [2] MMEUES1APID,

5132 + eNBUES1APID [3] RANUES1APID,

5133 + traceRecordType [4] TraceRecordType,

5134 + traceDirection [5] TraceDirection,

5135 + traceActivationInfo [6] TraceActivationInfo OPTIONAL,

5136 + eUTRANCGI [7] ECGI,

5137 + globalRANNodeID [8] GlobalRANNodeID,

5138 + traceCollectionEntityInfo [9] TraceCollectionEntityInfo OPTIONAL,

5139 + mMETraceData [10] XMLType,

5140 + location [11] Location

5141 + }

5142 +

5081 5143 MMEStartOfInterceptionWithEPSAttachedUE ::= SEQUENCE

5082 5144 {

5083 - attachType [1] EPSAttachType,

5084 - attachResult [2] EPSAttachResult,

5085 - iMSI [3] IMSI,

5086 - iMEI [4] IMEI OPTIONAL,

5087 - mSISDN [5] MSISDN OPTIONAL,

5088 - gUTI [6] GUTI OPTIONAL,

5089 - location [7] Location OPTIONAL,

5090 - ePSTAIList [9] TAIList OPTIONAL,

5091 - sMSServiceStatus [10] EPSSMSServiceStatus OPTIONAL,

5092 - eMM5GRegStatus [12] EMM5GMMStatus OPTIONAL

5145 + attachType [1] EPSAttachType,

5146 + attachResult [2] EPSAttachResult,

5147 + iMSI [3] IMSI,

5148 + iMEI [4] IMEI OPTIONAL,

5149 + mSISDN [5] MSISDN OPTIONAL,

5150 + gUTI [6] GUTI OPTIONAL,

5151 + location [7] Location OPTIONAL,

5152 + ePSTAIList [9] TAIList OPTIONAL,

5153 + sMSServiceStatus [10] EPSSMSServiceStatus OPTIONAL,

5154 + eMM5GRegStatus [12] EMM5GMMStatus OPTIONAL,

5155 + pagingRestrictionIndicator [13] PagingRestrictionIndicator OPTIONAL,

5156 + rATType [14] RATType OPTIONAL,

5157 + rRCEstablishmentCause [15] RRCEstablishmentCause OPTIONAL,

5158 + s1Information [16] S1Information OPTIONAL,

5159 + nASTransportInitialInformation [17] EPSNASTransportInitialInformation OPTIONAL,

5160 + equivalentPLMNList [18] PLMNList OPTIONAL,

5161 + ePSUENetworkCapability [19] EPSUENetworkCapability OPTIONAL,

5162 + initailRANUEContextSetup [20] EPSRANUEContext OPTIONAL,

5163 + mUSIMUERequestType [21] MUSIMUERequestType OPTIONAL,

5164 + ePSNetworkPolicy [22] EPSNetworkPolicy OPTIONAL

5165 + }

5166 +

5167 + MMEUEServiceAccept ::= SEQUENCE

5168 + {

5169 + userIdentifiers [1] UserIdentifiers,

5170 + serviceType [2] OCTET STRING (SIZE(1)) OPTIONAL,

5171 + mTMSI [3] TMSI OPTIONAL,

5172 + cSFBResponse [4] OCTET STRING (SIZE (1)) OPTIONAL,

5173 + uEEPSBearerContextStatus [5] OCTET STRING (SIZE(2)) OPTIONAL,

5174 + uERequestType [6] MUSIMUERequestType OPTIONAL,

5175 + pagingRestriction [7] PagingRestrictionIndicator OPTIONAL,

5176 + controlPlaneServiceType [8] OCTET STRING (SIZE(1)) OPTIONAL

5093 5177 }

5094 5178

5095 5179 MMEUnsuccessfulProcedure ::= SEQUENCE

@@ -5119,6 +5203,27 @@ MMEPositioningInfoTransfer ::= SEQUENCE

5119 5203 -- EPS MME parameters

5120 5204 -- ==================

5121 5205

5206 + AerialUESubscriptionIndicator ::= ENUMERATED

5207 + {

5208 + authorized(1),

5209 + notAuthorized(2)

5210 + }

5211 +

5212 + BBFTunnelInformation ::= SEQUENCE

5213 + {

5214 + hENBTransportLayerAddress [1] IPAddr,

5215 + uDPPortNumber [2] PortNumber OPTIONAL

5216 + }

5217 +

5218 + ConnectedENGNB ::= SEQUENCE

5219 + {

5220 + eNGNBID [1] GNbID,

5221 + supportedTAList [2] TACList,

5222 + broadcastPLMN [3] PLMNList

5223 + }

5224 +

5225 + ConnectedENGNBList ::= SEQUENCE SIZE (1..MAX) OF ConnectedENGNB

5226 +

5122 5227 EMMCause ::= INTEGER (0..255)

5123 5228

5124 5229 ESMCause ::= INTEGER (0..255)

@@ -5138,6 +5243,17 @@ EPSAttachResult ::= ENUMERATED

5138 5243 combinedEPSIMSI(2)

5139 5244 }

5140 5245

5246 + EPSCSFallbackIndicator ::= ENUMERATED

5247 + {

5248 + cSFallbackRequired(1),

5249 + cSFallbackHighPriority(2)

5250 + }

5251 +

5252 + EPSCSGInfo ::= SEQUENCE

5253 + {

5254 + cSGID [1] CSGID OPTIONAL,

5255 + cSGMembershipStatus [2] CSGMembershipIndication OPTIONAL

5256 + }

5141 5257

5142 5258 EPSDetachType ::= ENUMERATED

5143 5259 {

@@ -5149,6 +5265,41 @@ EPSDetachType ::= ENUMERATED

5149 5265 reserved(6)

5150 5266 }

5151 5267

5268 + EPSHandoverRestrictionList ::= ExternalASNType

5269 +

5270 + EPSRANCause ::= ExternalASNType

5271 +

5272 + EPSRANUEContext ::= SEQUENCE

5273 + {

5274 + mMEUES1APID [1] MMEUES1APID,

5275 + rANUES1APID [2] RANUES1APID,

5276 + eRABSetupRequest [3] SEQUENCE (SIZE(1..MAX)) OF ERABContext,

5277 + handoverRestrictionList [4] EPSHandoverRestrictionList OPTIONAL,

5278 + uERadioCapability [5] EPSUERadioCapability OPTIONAL,

5279 + rATFrequencySelectionPriority [6] RATFrequencySelectionPriority OPTIONAL,

5280 + cSFallbackIndicator [7] EPSCSFallbackIndicator OPTIONAL,

5281 + proSeAuthorized [8] EPSProSeAuthorization OPTIONAL,

5282 + lTEV2XServicesAuthorized [9] LTEV2XServiceAuthorization OPTIONAL,

5283 + aerialUESubscription [10] AerialUESubscriptionIndicator OPTIONAL,

5284 + subscriptionBasedUEDifferentiationIndication [11] EPSSubscriptionBasedUEDifferentiationIndication OPTIONAL,

5285 + iABAuthorizedIndicator [12] IABAuthorizedIndicator OPTIONAL,

5286 + nRV2XServicesAuthorization [13] NRV2XServicesAuthorization OPTIONAL

5287 + }

5288 +

5289 + EPSNASTransportInitialInformation ::= SEQUENCE

5290 + {

5291 + rANUES1APID [1] RANUES1APID,

5292 + relayNodeIndicator [2] BOOLEAN OPTIONAL,

5293 + bBFTunnelInformation [3] BBFTunnelInformation OPTIONAL,

5294 + eDTSession [4] BOOLEAN OPTIONAL,

5295 + iABNodeIndication [5] BOOLEAN OPTIONAL,

5296 + lTENTNTAIInformation [6] LTENTNTAIInformation OPTIONAL

5297 + }

5298 +

5299 + EPSNetworkPolicy ::= OCTET STRING (SIZE (1))

5300 +

5301 + EPSProSeAuthorization ::= ExternalASNType

5302 +

5152 5303 EPSSMSServiceStatus ::= ENUMERATED

5153 5304 {

5154 5305 sMSServicesNotAvailable(1),

@@ -5157,6 +5308,43 @@ EPSSMSServiceStatus ::= ENUMERATED

5157 5308 congestion(4)

5158 5309 }

5159 5310

5311 + EPSSubscriptionBasedUEDifferentiationIndication ::= ExternalASNType

5312 +

5313 + EPSUENetworkCapability ::= OCTET STRING (SIZE(2..13))

5314 +

5315 + EPSUERadioCapability ::= OCTET STRING

5316 +

5317 + ERABQoSParameters ::= SEQUENCE

5318 + {

5319 + qCI [1] QCI

5320 + }

5321 +

5322 + ERABContext ::= SEQUENCE

5323 + {

5324 + eRABID [1] EPSBearerID,

5325 + eRABQoSParameters [2] ERABQoSParameters OPTIONAL,

5326 + transportLayerAddress [3] IPAddr OPTIONAL,

5327 + uLGTPTEID [4] FTEID OPTIONAL,

5328 + dLGTPTEID [5] FTEID OPTIONAL

5329 + }

5330 +

5331 + ERABContextList ::= SEQUENCE SIZE (1..MAX) OF ERABContext

5332 +

5333 + ERABError ::= SEQUENCE

5334 + {

5335 + eRABID [1] EPSBearerID,

5336 + cause [2] EPSRANCause

5337 + }

5338 +

5339 + ERABReleaseList ::= SEQUENCE SIZE (1..MAX) OF ERABError

5340 +

5341 + LTENTNTAIInformation ::= SEQUENCE

5342 + {

5343 + pLMN [1] PLMNID,

5344 + tACListInLTENTN [2] TACList,

5345 + uETAC [3] TAC OPTIONAL

5346 + }

5347 +

5160 5348 MMEDirection ::= ENUMERATED

5161 5349 {

5162 5350 networkInitiated(1),

@@ -5185,6 +5373,28 @@ MMEFailureCause ::= CHOICE

5185 5373 eSMCause [2] ESMCause

5186 5374 }

5187 5375

5376 + MMEServedGUMMEI ::= SEQUENCE

5377 + {

5378 + servedPLMNs [1] PLMNSupportList

5379 + }

5380 +

5381 + MMEServedGUMMEIList ::= SEQUENCE(SIZE (1..MAX)) OF MMEServedGUMMEI

5382 +

5383 + MMEUES1APID ::= INTEGER (0..4294967295)

5384 +

5385 + RANUES1APID ::= INTEGER (0..16777215)

5386 +

5387 + S1Information ::= SEQUENCE

5388 + {

5389 + globalRANNodeID [1] GlobalRANNodeID,

5390 + rANNodeName [2] RANNodeName OPTIONAL,

5391 + supportedTAList [3] SupportedTAList OPTIONAL,

5392 + cSGIDList [4] CSGIDList OPTIONAL,

5393 + connectedENGNBList [5] ConnectedENGNBList OPTIONAL,

5394 + mMEServedGUMMEIList [6] MMEServedGUMMEIList,

5395 + iABSupported [7] BOOLEAN OPTIONAL

5396 + }

5397 +

5188 5398 -- ===========================

5189 5399 -- LI Notification definitions

5190 5400 -- ===========================

@@ -5447,6 +5657,8 @@ E164Number ::= NumericString (SIZE(1..15))

5447 5657

5448 5658 EmailAddress ::= UTF8String

5449 5659

5660 + EPSHandoverType ::= ExternalASNType

5661 +

5450 5662 EquivalentPLMNs ::= SEQUENCE (SIZE(1..MAX)) OF PLMNID

5451 5663

5452 5664 EUI64 ::= OCTET STRING (SIZE(8))

@@ -5794,7 +6006,6 @@ RATRestrictionItem ::= SEQUENCE

5794 6006 {

5795 6007 pLMNIdentity [1] PLMNID,

5796 6008 rATRestrictionInformation [2] RATRestrictionInformation

5797 -

5798 6009 }

5799 6010

5800 6011 RATType ::= ENUMERATED

@@ -6183,6 +6394,8 @@ ECGI ::= SEQUENCE

6183 6394 nID [3] NID OPTIONAL

6184 6395 }

6185 6396

6397 + TACList ::= SEQUENCE OF TAC

6398 +

6186 6399 TAIList ::= SEQUENCE OF TAI

6187 6400

6188 6401 -- TS 29.571 [17], clause 5.4.4.6

@@ -6421,6 +6634,8 @@ UserCSGInformation ::= SEQUENCE

6421 6634 -- TS 29.272 [106], clause 7.3.79

6422 6635 CSGID ::= INTEGER

6423 6636

6637 + CSGIDList ::= SEQUENCE SIZE(1..MAX) OF CSGID

6638 +

6424 6639 -- TS 32.299 [111], clause 7.2.46A

6425 6640 CSGAccessMode ::= ENUMERATED

6426 6641 {

@@ -7053,4 +7268,18 @@ MIMEBody ::= CHOICE

7053 7268 bodyPart [2] MIMEPartIdentifier

7054 7269 }

7055 7270

7271 + -- =======================================================

7272 + -- Externally Defined Structures - External ASN Parameters

7273 + -- =======================================================

7274 + ExternalASNType ::= SEQUENCE

7275 + {

7276 + moduleIdentifier [1] OBJECT IDENTIFIER OPTIONAL,

7277 + aSNReference [2] ExternalASNReference OPTIONAL,

7278 + encodedASNValue [3] ExternalASNValue

7279 + }

7280 +

7281 + ExternalASNReference ::= UTF8String

7282 +

7283 + ExternalASNValue ::= OCTET STRING

7284 +

7056 7285 END

## \*\*\*\* START OF NEXT CHANGE (ATTACHMENTS) \*\*\*\*

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