**3GPP TSG- Meeting # *s3i250074***

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

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| ***Title:***  | Clarification of the IEFDeassociation Record Handling and Other Fixes |
|  |  |
| ***Source to WG:*** | SA3LI () |
| ***Source to TSG:*** | SA3 |
|  |  |
| ***Work item code:*** | LI18 |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | A |  | ***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 canbe 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)* |
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| ***Reason for change:*** | The handling of the IEFDeassociation Record parameters at ICF is not specified. AdditionalCGIs parameter is missing in the list of ICF parameters  |
|  |  |
| ***Summary of change:*** |  The details of IEFDeassociation Record handling at ICF is added to the specification |
|  |  |
| ***Consequences if not approved:*** |  Incomplete specification, potentially incompatible implementations. |
|  |  |
| ***Clauses affected:*** | 5.7.2.3, 7.6.2.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | s3i250024 |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* START OF CHANGE 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

5.7.2.3 Response structure

The LI\_HIQR request is used to generate a request to the ICF over LI\_XQR (see clause 5.8). The response received over LI\_XQR is then transformed into an LI\_HIQR response.

LI\_HIQR responses and updates are represented as XML following the IdentityResponseDetails type definition (see Annex E).

When an NCGI is present within a response details structure and the IncludeCSIInResponse flag is set to true in the LI\_HIQR request, the IQF shall retrieve the cell site information and associated cell radio related information (e.g. OAM system or CSP cell database information) for the reported cell and deliver the same to the LEMF within the LI\_HIQR response message.

NOTE: For cells with mobility, the CSP should ensure that the cell site information (e.g. cell site location) reported correlates to the observed NCGI and NCGItime that is in the IdentityAssociationRecord.

Responses and updates are delivered within a DELIVER Request (see ETSI TS 103 120 [6] clause 6.4.10) containing a DeliveryObject (see ETSI TS 103 120 [6] clause 10).

IdentityResponseDetails contain IdentityAssociation records. The fields of each IdentityAssociationRecord shall be set as follows:

**Table 5.7.2-5: IdentityAssociationRecord**

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **M/C/O** |
| SUPI | SUPI associated with the provided identity. | M |
| SUCI | SUCI associated with the provided identity, if available. | C |
| 5G-GUTI | 5G GUTI associated with the provided identity, provided in the form given in the request (see table 5.7.2-4). | M |
| PEI | PEI associated with the provided identity during the association period, if known. | C |
| AssociationStartTime | The time that the association between the SUPI and the temporary identity became valid. (see NOTE). | M |
| AssociationEndTime | The time that the association between the SUPI and the temporary identity ceased to be valid. Shall be omitted if the association is still valid (see NOTE). | C |
| FiveGSTAIList | List of tracking areas associated with the registration area within which the UE was or is registered in the lifetime of the reported association, if available. See clause 7.6.2.4 for details. | C |
| GPSI | GPSI associated with the provided identity during the association period, if known. | C |
| NCGI | Last known NR Cell Global Identity associated with the provided identity during the association period. Shall be sent if the "IncludeNCGIInResponse" flag is set. | C |
| AdditionalCGIs | Last known, if any, set of the additional CGIs associated with the provided identity during the association period. Shall be sent if the "IncludeNCGIInResponse" flag is set and if additional CGIs are available at the IEF. | C |
| NOTE: The AssociationStartTime and AssociationEndTime represent the lifespan of the SUPI to 5G-GUTI association. When a SUCI is present, the AssociationStartTime also represents the time of the SUCI's validity. |

If no association is found which matches the criteria provided in the LI\_XQR request, then the LI\_XQR response contains zero IdentityAssociationRecords. Similarly, the LI\_HIQR response contains zero IdentityAssociationRecords.

For responses or updates providing a currently valid SUPI to 5G-GUTI identity association, the AssociationEndTime shall be absent. The AssociationStartTime shall indicate when the 5G-GUTI became associated with the SUPI. The SUCI field shall be populated if it was present in the IEF record for the association (see clause 6.2.2A.2.1). The PEI, TAI list and additional CGIs fields may be populated as well, see clause 7.6.2.4 for details.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* END OF CHANGE 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* START OF CHANGE 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

7.6.2.4 ICF Identifier Association Event Handling

Upon receipt of an Association event as defined in clause 6.2.2A.2, the ICF shall cache the identifier association(s) contained within the record as followings:

- SUPI to 5G-GUTI association received, in an IEFAssociationRecord is stored by ICF as an active association. The previous active association for the same SUPI, if any, is marked as a previously active association and cached until the cache time limit is reached.

- The NCGI and NCGITime parameters received in the IEFAssociationRecord are stored as a part of the received SUPI to 5G-GUTI association.

- If the IEFAssociationRecord also contains a SUCI, the SUCI is stored as a part of the received SUPI to 5G-GUTI association, for the lifetime of that association.

- Where the IEFDeassociationRecord corresponds to an active SUPI to 5G-GUTI association at ICF, the association is marked as a previously active association and cached until the cache time limit is reached. The NCGI and NCGITime parameters of the association are updated with the values received in the IEFDeassociationRecord. If the IEFDeassociationRecord contains the AdditionalCGIs, the respective parameter of the association is updated, as well.

The ICF shall have a CSP defined maximum active association lifetime (upon expiry of which the association is deleted from the ICF).

NOTE 1: This is needed to prevent an association from not being deleted from ICF under some error conditions (e.g. a loss of IEF message carrying IEFDeassociationRecord caused by the implicit deregistration of an out-of-service UE). The selection of the maximum active association lifetime value needs to ensure that no valid active associations are deleted upon the lifetime expiry, i.e. the longest possible association refresh time supported by CSP’s network needs to be accommodated.

For previous associations placed in the cache, the ICF shall store the times of association and disassociation, respectively.

Where an IEFAssociationRecord contains a PEI, GPSI, TAI list or additional CGIs, the ICF shall store the received values and associate them both the current received SUPI to 5G-GUTI association and any future association until:

- A subsequent IEFAssociationRecord is received which updates the PEI, GPSI, TAI list or additional CGIs values.

- The old PEI / GPSI / TAI list / additional CGIs shall be retained in association with previous SUPI to 5G-GUTI associations until those associations are deleted from cache.

- New PEI / GPSI / TAI list / additional CGIs shall be used in association with both the association(s) with which it was received and any subsequent associations until another update is received.

- All SUPI associations for which the PEI / GPSI / TAI list / additional CGIs is valid are deleted from the cache.

When the ICF receives a query request from the IQF as defined in clause 7.6.2.3, the ICF shall search available identifier associations (both active associations and those marked for deletion in the cache) for a match. The ICF shall be able to use both time and TAI (as a single TAI and in relation to a TAI list) to identify the correct SUPI to 5G-GUTI association(s). For associations which have been disassociated (and will be deleted once the cache time limit is reached), the time of disassociation is used by the ICF to identify the correct association match (based on observed time in LEA request), where multiple associations are held in the cache.

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