**3GPP TSG-CT WG4 Meeting #111-eC4-224xyz**

**E-Meeting, 18th – 26th August 2022 (was C4-224339)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.632** | **CR** | **0039** | **rev** | **1** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | IMEI Update synchronization | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17, UDICOM | | | | |  | ***Date:*** | | | 2022-07-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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 PEI/IMEI synchronization procedure between HSS and UDM shall be enabled in both HSS and UDM whenever last know IMEI is used for common exposure or for Sh IMEI retrieval. No other alternative solution is available since CHANGE\_OF\_SUPI\_PEI\_ASSOCIATION event is not defined in Nhss EE operations.  The synchronization is only applicable for UEs that are provisioned in both 4G and 5G and when the PEI type is IMEI(SV).  When synchronizations is enabled, HSS/UDM shall notify and keep the last PEI/IMEI information stored even when the UE is not currently located/registered in 4G or 5G access respectively.  When the UE has never registered in 5GC, UDM shall retrieve the last IMEI stored in HSS to detect PEI changes during PEI-Update procedure. | | | | | | | | |
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| ***Summary of change:*** | | Clarify applicable cases for the PEI/IMEI change synchronization. | | | | | | | | |
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| ***Consequences if not approved:*** | | Related Nudm and Nhss services are not properly implemented and the procedures relying on synchronization procedures does not work as expected. | | | | | | | | |
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| ***Clauses affected:*** | | 5.6.1, 5.6.3 | | | | | | | | |
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|  | | **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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

### 5.6.1 General

As specified in 3GPP TS 23.501 [2] and 3GPP TS 23.502 [5], a combined SCEF+NEF can configure monitoring events applicable to both EPC and 5GC using only 5GC procedures towards UDM. In this case, the SCEF+NEF indicates that the monitoring event is also applicable to EPC together with the SCEF identity, i.e. the event must be reported both by 5GC and EPC.

If the HSS and UDM are deployed as separate network entities as defined in this specification, UDM uses HSS services to configure the monitoring event in EPC. For events requiring reporting from MME towards SCEF or HSS, the UDM requests the configuration of the monitoring event in the EPC to the HSS as defined in clause 5.6.2.

Common exposure scenarios are applicable for users having both EPC and 5GC subscription.

The status of specific monitoring events that are detected locally at the HSS and UDM (e.g. IMEI/PEI change, roaming status change) is kept synchronized between UDM and HSS as defined in clause 5.6.3 avoiding the need to configure those events in UDM and HSS

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\* \* \* Next Change \* \* \* \*

### 5.6.3 Synchronization of Status of Monitoring Event between HSS and UDM

The status of some specific monitoring events that are detected locally at the HSS and UDM (e.g. IMEI(SV)/PEI change, roaming status change) is kept synchronized between UDM and HSS as defined in this clause. This is, when the HSS detects e.g. that the IMEI(SV) for a UE changes (e.g. during an Update Location in EPS), the HSS informs the UDM about the IMEI(SV) change which stores the new IMEI(SV)/PEI accordingly and when UDM detects e.g. that the PEI for a UE changes (e.g. during an AMF registration procedure in 5GC), the UDM informs HSS about the PEI change as described in section 5.4.6.

HSS and UDM can store the last IMEI(SV)/PEI and Roaming Status even when the UE is not currently located/registered in EPS or 5GC access respectively. If the UE has never registered in 5GC and last PEI is not stored, UDM shall notify HSS about the new PEI received and retrieve the last IMEI stored in HSS to notify the change of PEI/IMEI event when applicable.

NOTE: The synchronization of the status of these monitoring events shall be enabled bled in both HSS and UDM based on local policieswhenever common exposure is supported or last known IMEI is required in HSS/UDM.

This allows that the subscriptions to these specific monitoring events are applied in both domains when the PEI type is IMEI(SV). The UDM is capable of notifying these events taking place in EPS to the combined SCEF+NEF using SBI procedures.

Figure 5.6.3-1 shows the scenario where the UDM receives a request from a combined SCEF+NEF to subscribe to a monitoring event in 5GC and EPC that is reported by the UDM.



Figure 5.6.3-1: Synchronization of Status of Monitoring Events between HSS and UDM

1. The UDM receives a request from a combined SCEF+NEF to configure a monitoring event for a UE. The request indicates that the subscription applies also to EPC (e.g. IMEI(SV)/PEI change) and UDM is expected to report the event.

2. The UDM stores in the 5GS-UDR the monitoring event together with the notification address (e.g., the NEF notification address) of the combined SCEF+NEF.

3. The UDM replies to the combined SCEF+NEF including a confirmation that the configuration of the event was also successful in EPC domain.

NOTE: A UDM that supports interworking with EPC relies on the HSS to synchronize the status of these monitoring events in the EPC domain with the UDM (i.e. the UDM does not need to subscribe to the monitoring event towards the HSS) for UEs that have subscription data in EPC and 5GC.

4. At a later stage, the HSS detects the event (e.g. IMEI(SV) change) for the UE in the EPC domain (e.g. during an Update Location Request procedure).

5. The HSS synchronizes with the UDM about the event using the Nudm\_UECM\_Update service operation.

6. The UDM stores the information received from HSS (e.g. a new PEI for the UE) in the 5GS-UDR and checks if a related subscription to the related monitoring event exists.

7. The UDM notifies the NEF accordingly.

8. Alternatively, the monitoring event may be detected by the UDM.

9. The UDM notifies the NEF accordingly.

10. The UDM synchronizes with the HSS about the event using the Nhss\_UECM\_Update service operation.

11. The HSS stores the status of the monitoring event received from the UDM in the EPS-UDR.

\* \* \* End of Changes \* \* \* \*