**3GPP TSG-CT WG4 Meeting #110-eC4-22wxyz**

**E-Meeting, 12th – 20th May 2022 *Revision of C4-22328***

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.272** | **CR** | **0841** | **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:***  | Update ULR flags in support of handover |
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| ***Source to WG:*** | Vodafone |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2202-05-19 |
|  |  |  |  |  |
| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | While roaming, an inter-MME handover of a VoLTE call will lead to a a TAU process that is then subject to Steering of Roaming, e.g. as described in GSMA IR.73. If the SoR platform decides to attempt to change the UE’s VPLMN, the VoLTE call would be dropped. With the proposed change, indication of Inter-PLMN-inter-MME and Intra-PLMN-inter-MME, respectively, the SOR function gets hold on more information for handling of the connection, preventing unwanted service loss. A similar situation could occur with 5GC to EPS fallback voice handovers failing unless this flag is available to the 4G SoR platform.Questions from discussion:What happens if HSS receives the flag? Assumption: Stage 2 requirement missing. (Nokia, Ericsson)The HSS can may use this information to optimise registration behaviour, e.g. Steering of Roaming functionality.What if a malicious MME always send this flag? (Nokia, Ericsson)Statistical information and/or determination of the UE’s cell ID (using e.g. PSI/ATI) can be used to detect MMEs that are abusing this feature.Is it against 5g architecture premise not having overriding mechanisms for NF? (Nokia)The 5G architecture is not impacted here. And if there is no monitoring of the 5GC signalling then this functionality is essential to avoid EPS fallback calls failing.Only relevant to VoLTE? What if a CS fallback is needed? The call will fail, the HO is messed with. (NTT DoCoMo)Normal CSFB does not involve any Location Update from the MSC to the HSS and hence the SoR platform does not impact 4G to 2G/3G CS FallBack.  |
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| ***Summary of change:*** | Providing more information to the SOR function to minimise service interruption. |
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| ***Consequences if not approved:*** | Service degradation for customers whilst roaming. |
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| ***Clauses affected:*** | 7.3.7 ULR-Flags |
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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 ...  |
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| ***Other comments:*** | This CR introduces backward compatible changes. |
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| ***This CR's revision history:*** | v1 updated Reason for change.*Single flag instead of two flags as an alternative – depends on decision**Single flag renamed.* |

**\*\*\*\*\*\*\***

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

### 7.3.7 ULR-Flags

The ULR-Flags AVP is of type Unsigned32 and it shall contain a bit mask. The meaning of the bits shall be as defined in table 7.3.7/1:

Table 7.3.7/1: ULR-Flags

|  |  |  |
| --- | --- | --- |
| Bit | Name | Description |
| 0 | Single-Registration-Indication | This bit, when set, indicates that the HSS shall send Cancel Location to the SGSN. An SGSN shall not set this bit when sending ULR. |
| 1 | S6a/S6d-Indicator | This bit, when set, indicates that the ULR message is sent on the S6a interface, i.e. the source node is an MME (or a combined MME/SGSN to which the UE is attached via E-UTRAN).This bit, when cleared, indicates that the ULR message is sent on the S6d interface, i.e. the source node is an SGSN (or a combined MME/SGSN to which the UE is attached via UTRAN or GERAN). |
| 2 | Skip Subscriber Data | This bit, when set, indicates that the HSS may skip subscription data in ULA. If the subscription data has changed in the HSS after the last successful update of the MME/SGSN, the HSS shall ignore this bit and send the updated subscription data. If the HSS effectively skips the sending of subscription data, the GPRS-Subscription-Data-Indicator flag can be ignored. |
| 3 | GPRS-Subscription-Data-Indicator | This bit, when set, indicates that the HSS shall include in the ULA command the GPRS subscription data, if available in the HSS; it shall be included in the GPRS-Subscription-Data AVP inside the Subscription-Data AVP (see 7.3.2).Otherwise, the HSS shall not include the GPRS-Subscription-Data AVP in the response, unless the Update Location Request is received over the S6d interface and there is no APN configuration profile stored for the subscriber, or when the subscription data is returned by a Pre-Rel-8 HSS (via an IWF).A standalone MME shall not set this bit when sending a ULR. |
| 4 | Node-Type-Indicator | This bit, when set, indicates that the requesting node is a combined MME/SGSN.This bit, when cleared, indicates that the requesting node is a single MME or SGSN; in this case, if the S6a/S6d-Indicator is set, the HSS may skip the check of those supported features only applicable to the SGSN, and if, in addition the MME does not request to be registered for SMS, the HSS may consequently skip the download of the SMS related subscription data to a standalone MME. NOTE2 |
| 5 | Initial-Attach-Indicator | This bit, when set, indicates that the HSS shall send Cancel Location to the MME or SGSN if there is the MME or SGSN registration. |
| 6 | PS-LCS-Not-Supported-By-UE | This bit, when set, indicates to the HSS that the UE does not support neither UE Based nor UE Assisted positioning methods for Packet Switched Location Services. The MME shall set this bit on the basis of the UE capability information. The SGSN shall set this bit on the basis of the UE capability information and the access technology supported by the SGSN. |
| 7 | SMS-Only-Indication  | This bit, when set, indicates that the UE indicated "SMS only" when requesting a combined IMSI attach or combined RA/LU. |
| 8 | Dual-Registration-5G-Indicator | This bit, when set by an MME over S6a interface, indicates that the HSS+UDM shall not send Nudm\_UECM\_DeregistrationNotification to the registered AMF (if any); when not set by an MME over S6a interface, it indicates that the HSS+UDM shall send Nudm\_UECM\_DeregistrationNotification to the registered AMF (if any). See 3GPP TS 29.503 [66].An SGSN shall not set this bit when sending ULR over S6d interface. |
| x | Inter-PLMN-inter-MME | This bit, when set by an MME over S6a interface, indicates that an inter PLMN inter MME handover is ongoing.This information enables the HSS to optimise the combination of call handling and mobility management functions such as SoR. |
| y | Intra-PLMN-inter-MME | This bit, when set by an MME over S6a interface, indicates that an intra PLMN inter MME handover is ongoing.This information enables the HSS to optimise the combination of call handling and mobility management functions such as SoR. |
| NOTE1: Bits not defined in this table shall be cleared by the sending MME or SGSN and discarded by the receiving HSS.NOTE2: If the MME is registered for SMS then the HSS will download the SMS related data also for the standalone MME. |

Alternative – only one new flag, renamed.

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| z | handover ongoing | This bit, when set by an MME over S6a interface, indicates that a handover is ongoing.This information enables the HSS to optimise the combination of call handling and mobility management functions such as SoR. |
|  |  |  |
| NOTE1: Bits not defined in this table shall be cleared by the sending MME or SGSN and discarded by the receiving HSS.NOTE2: If the MME is registered for SMS then the HSS will download the SMS related data also for the standalone MME. |

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