**3GPP TSG-SA WG6 Meeting #52-bis-e S6-230102r01**

**e-meeting*,* 11th – 20th January 2023 (revision of S6-22xxxx)**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.434** | **CR** | **0149** | **rev** | **-** | **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 | **X** | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Location service registration and intialization |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | SA6 |
|  |  |
| ***Work item code:*** | 5GFLS |  | ***Date:*** | 2023-01-10 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Based on the conclusion of KI#5 in TR 23.700-96, the solution#4 will be considered in the normative phase. The related function, procedure and information flow will be specified in TS 23.434 to support the solution#4.  |
|  |  |
| ***Summary of change:*** | To add the procedure and information flow for location service registration according to the conclusion of KI#5 in TR 23.700-96. |
|  |  |
| ***Consequences if not approved:*** | The 5G-enabled fused location service capability will not support Location service registration for SEAL location management. |
|  |  |
| ***Clauses affected:*** | 2,9.3.x(new),9.3.2.x(new),9.3.2.y(new) |
|  |  |
|  | **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 \* \* \* \*

#  References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 22.104: "Service requirements for cyber-physical control applications in vertical domains".

[3] 3GPP TS 23.379: "Functional architecture and information flows to support Mission Critical Push To Talk (MCPTT); Stage 2".

[4] 3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".

[5] 3GPP TS 23.281: "Functional architecture and information flows to support Mission Critical Video (MCVideo); Stage 2".

[6] 3GPP TS 23.282: "Functional architecture and information flows to support Mission Critical Data (MCData); Stage 2".

[7] 3GPP TS 23.286: "Application layer support for V2X services; Functional architecture and information flows".

[8] 3GPP TS 23.222: "Functional architecture and information flows to support Common API Framework for 3GPP Northbound APIs; Stage 2".

[9] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[10] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[11] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[12] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".

[13] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[14] 3GPP TS 23.002: "Network Architecture".

[15] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[16] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE\_LTE); Stage 2".

[17] 3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description".

[18] 3GPP TS 23.203: "Policy and charging control architecture".

[19] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System; Stage 2".

[20] 3GPP TS 26.348: "Northbound Application Programming Interface (API) for Multimedia Broadcast/Multicast Service (MBMS) at the xMB reference point".

[21] 3GPP TS 29.214: "Policy and charging control over Rx reference point".

[22] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE\_LTE); MB2 Reference Point; Stage 3".

[23] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[24] IETF RFC 6733 (October 2012): "Diameter Base Protocol".

[25] ETSI TS 102 894-2 (V1.2.1): "Intelligent Transport Systems (ITS); Users and applications requirements; Part 2: Applications and facilities layer common data dictionaryMultimedia Broadcast/Multicast Service (MBMS); Protocols and codecs".

[26] ETSI TS 102 965 (V1.4.1): "Intelligent Transport Systems (ITS); Application Object Identifier (ITS-AID); Registration".

[27] ISO TS 17419: "Intelligent Transport Systems - Cooperative systems - Classification and management of ITS applications in a global context".

[28] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs".

[29] 3GPP TS 33.434: "Service Enabler Architecture Layer (SEAL); Security aspects for Verticals".

[30] 3GPP TS 29.549: "Service Enabler Architecture Layer for Verticals (SEAL); Application Programming Interface (API) specification; Stage3".

[31] 3GPP TS 23.285: "Architecture enhancements for V2X services".

[32] IETF RFC 7252: "The Constrained Application Protocol (CoAP)".

[33] IETF RFC 8323: "CoAP (Constrained Application Protocol) over TCP, TLS, and WebSockets".

[34] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[35] IEEE Std 802.1Qcc-2018: "Standard for Local and metropolitan area networks - Bridges and Bridged Networks - Amendment: Stream Reservation Protocol (SRP) Enhancements and Performance Improvements".

[36] IEEE 802.1Q-2018: "IEEE Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks".

[37] IEEE Std 802.1CB-2017: "Frame Replication and Elimination for Reliability".

[38] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[39] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[40] 3GPP TS 23.435: "Procedures for Network Slice Capability Exposure for Application Layer Enablement Service".

[41] 3GPP TS 28.531: "Management and orchestration; Provisioning".

[42] 3GPP TS 28.533: "Management and orchestration; Architecture framework".

[43] 3GPP TS 28.530: "Management and orchestration; Concepts, use cases and requirements".

[44] 3GPP TS 28.532: "Management and orchestration; Generic management services".

[45] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements".

[46] 3GPP TS 28.554: "Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[47] 3GPP TS 28.104: "Management and orchestration; Management Data Analytics".

[48] 3GPP TS 23.433: "Service Enabler Architecture Layer for Verticals (SEAL); Data Delivery enabler for vertical applications".

[49] 3GPP TS 23.436: "Procedures for Application Data Analytics Enablement Service".

[x] 3GPP TS 23.273: “5G System (5GS) Location Services (LCS); Stage 2”

[y] 3GPP TS 29.572: “5G System; Location Management Services; Stage 3”

\* \* \* 2nd Change \* \* \* \*

## 9.3 Procedures and information flows for Location management (on-network)

### 9.3.x Location service registration procedure

Before the Location Management Server (LMS) requesting location information for the target UE, the Location Management Client (LMC) should register the available location services to the LMS while ensuring the privacy of the users to report the UE’s location capabilities.

Figure 9.3.x-1 illustrates the procedure of client-triggered location service registration.



Figure 9.3.x-1: Location service registration procedure

1. The LMC of a VAL UE sends location service registration request to the LMS via the LM-UU interface over 3GPP or non-3GPP access, with the identifier of the UE (e.g. GPSI, UUID) and location capabilities.

NOTE: The LMS enhanced with FLF can be pre-configured in the LMC of VAL UE or be discovered via the DNS query.

2. The LMS checks authorization for the VAL UE's registration request. If the LMS supports privacy check, it also performs privacy check for the VAL UE.

3. After successful authorization and privacy check (if any), LMS sends location service registration response to the LMC and stores the UE identifier information and location capabilities.

\* \* \* 3rd Change \* \* \* \*

### 9.3.2 Information flows for location information

#### 9.3.2.x Location service registration request

Table 9.3.2.x-1 describes the information flow from the location management client to the location management server for registrating the location service.

Table 9.3.2.x-1: Location service registration request

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Identity | M | Identity of the VAL user or identity of the VAL UE. |
| VAL service ID | O | Identity of the VAL service for which the location service is registrated. |
| Location capability | O | The information of location capability of VAL UE for which the location service is registrated. |
| >access type | O | Identity of the available access type of the VAL UE. |
| >positioning method | O | Identity of the available positioning methods of the VAL UE. |
| >Location QoS | O | Information of the location Quality of Service for different access type of VAL UE (see NOTE). |
| NOTE: The definition of Location QoS has been defined in the clause 6.1.6.2.13 of TS 29.572[y] and the clause 4.1b of TS 23.273[x]. |

\* \* \* 4th Change \* \* \* \*

#### 9.3.2.y Location service registration response

Table 9.3.2.y-1 describes the information flow from the location management server to the location management client for the location service registration response.

Table 9.3.2.y-1: Location service registration response

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Identity | M | Identity of the VAL user or identity of the VAL UE. |
| Registration status | M | It indicated the registration result. |

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