**3GPP TSG-SA WG6 Meeting #52-bis-e S6-230103r01**

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

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.434** | **CR** | **0150** | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Procedure and information flow of location QoS based location sources and positioning methods selection | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | SA6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GFLS | | | | |  | ***Date:*** | | | 2023-01-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | Based on the conclusion of KI#2 in TR 23.700-96, the solution#7 will be considered in the normative phase. The related function, procedure and information flow will be specified in TS 23.434 to support solution#7. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | To add the procedure and information flow for Location QoS-based location sources and positioning methods selection according to the conclusion of KI#2 in TR 23.700-96. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The 5G-enabled fused location service capability will not support LCS QoS for SEAL location management. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2,9.3.x(new),9.3.2.3,9.3.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

# 2 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”

[z] Open Mobile Alliance, OMA AD SUPL: "Secure User Plane Location Architecture", (<http://www.openmobilealliance.org>).

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

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

### 9.3.x Location QoS-based location sources and positioning methods selection procedure

The location management server enhanced with the Fused Location Function(FLF) could collect the location data from multiple sources based on the requested location QoS (e.g. the requirements of the positioning accuracy, reliability and latency). Based on the requested location QoS, the location management server needs to select one or more access types, location methods, related CP/UP(SUPL as defined in OMA AD SUPL [z] ) methods and so on.

Figure 9.3.x-1describes the high level procedure of location QoS based-location sources and positioning methods selection for the enhanced location management server.



Figure 9.3.x-1: Location QoS-based location sources and positioning methods selection Procedure

1. The VAL server sends a location information request to the Location Management Server(LMS) which enhanced with fused location function(FLF) to request the location information for the target UE. The location information request includs the location QoS which contains the location accuracy, reliability and latency as described in clause 4.1b of TS 23.273[x].

2. The LMS queries the UE location context from e.g. the internal database with the location QoS to retrieve the available access type, positioning methods for the target UE.

3. The LMS sends to different sources with the proper access type (i.e. NG-RAN,WLAN,GNSS) and positioning methods retrieved in step 2 to fetch the UE location information.

4. The LMS fuses the UE location information from different sources to calculate a fused UE location that meets the location QoS requirements.

5. The LMS sends the UE location information report that meets the location QoS requirements to the VAL server.

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

#### 9.3.2.3 Location information request

Table 9.3.2.3-1 describes the information flow from the VAL server to the location management server and from the location management server to the location management client for requesting an immediate location information report.

Table 9.3.2.3-1: Location information request

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Identity list | M | List of VAL users or VAL UEs whose location information is requested |
| VAL service ID | O | Identity of the VAL service for which the location information is requested. |
| Location QoS | O | Definition of the location Quality of Service for which the location information is requested (see NOTE). |
| NOTE: The definition of location QoS has been defined in clause 4.1b of TS 23.273 [x] and clause 6.1.6.2.13 of TS 29.572 [y]. | | |

Editor's Note: It's FFS whether and how the LMS need to identify the VAL service when the VAL UE ID is used for location request.

Editor's Note: It's FFS the security aspects for LM-Uu and LM-S in relation to the VAL service ID that need to be coordinated with SA3.

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

#### 9.3.2.5 Location information subscription request

Table 9.3.2.5-1 describes the information flow from the VAL server or location management client to the location management server for location information subscription request.

Table 9.3.2.5-1: Location information subscription request

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Identity | M | Identity of the requesting VAL server/VAL user or VAL UE |
| Identities list | M | List of VAL users or VAL UEs whose location information is requested. |
| VAL service ID | O | Identity of the VAL service for which the location information is subscribed. |
| Time between consecutive reports | M | It indicates the interval time between consecutive reports |
| Location QoS | O | Definition of the location Quality of Service for which the location information is requested (see NOTE). |
| NOTE: The definition of location QoS has been defined in clause 4.1b of TS 23.273 [x] and clause 6.1.6.2.13 of TS 29.572 [y]. | | |

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