**3GPP TSG-CT3 Meeting #142 C3-253596**

Gothenburg, SE, 25 - 29 August, 2025 (revision of C3-253417)

**Source: Samsung**

**Title: Pseudo-CR on SS\_SmLocalization API data model**

**Spec: 3GPP TS 29.437 (v1.0.0)**

**Agenda item: 19.42**

**Document for: Approval**

**1. Introduction**

This pCR proposes the API data model for SS\_SmLocalization service API.

**2. Reason for Change**

The SS\_SmLocalization API, as specified in TS 23.437, enables VAL server or SEAL SM Client to get localization information from the spatial maps. The data model of the same needs to be implemented in TS 29.437.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.437 v1.0.0

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

### 6.2.X SS\_SmLocalization API

#### 6.2.X.1 Introduction

The SS\_SmLocalization service shall use the SS\_SmLocalization API.

The API URI of the SS\_SmLocalization API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 6.5 of 3GPP TS 29.549 [17], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 6.5 of 3GPP TS 29.549 [17].

- The <apiName>shall be "ssm-loc".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 6.2.X.4.

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 5, the SEAL SM Server takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

#### 6.2.X.2 Usage of HTTP and common API related aspects

The provisions of clause 6.3 of 3GPP TS 29.549 [17] shall apply for the SS\_SmLocalization API.

#### 6.2.X.3 Resources

There are no resources defined for this API in this release of the specification.

#### 6.2.X.4 Custom Operations without associated resources

##### 6.2.X.4.1 Overview

The structure of the custom operation URIs of the SS\_ SmLocalization API is shown in Figure 6.2.X.4.1-1.



Figure 6.2.x.4.1-1: Custom operation URI structure of the SS\_SmLocalization API

Table 6.2.X.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Custom operation Name | Custom operation URI | Mapped HTTP method | Description |
| Request | /localize | POST | Enables a service consumer to request for localization of VAL user or VAL UE. |

##### 6.2.x.4.2 Operation: Request

6.2.X.4.2.1 Description

The custom operation enables a service consumer to request for localization of VAL user or VAL UE information to the SM server.

6.2.x.4.2.2 Operation Definition

This operation shall support the response data structures and response codes specified in tables 6.2.x.4.2.2-1 and 6. 2.x.4.2.2-2.

Table 6.2.X.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| SpatialMapLocalizeReq | M | 1 | Contains the spatial anchor usage information. |

Table 6.2.X.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| SpatialMapLocalizeResp | M | 1 | 200 OK | Successful case. The spatial map localization information is successfully processed and returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI located in an alternative SM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI located in an alternative SM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2] |
| NOTE: The mandatory HTTP error status code for the HTTP POST method listed in table 5.2.1.6-1 of 3GPP TS 29.122 [2] shall also apply. | | | | |

Table 6.2.X.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative SM Server. |

Table 6.2.X.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative SM Server. |

#### 6.2.X.5 Notifications

There are no notifications defined for this API in this release of the specification.

#### 6.2.X.6 Data Model

##### 6.2.X.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.X.6.1-1 specifies the data types defined for the SS\_SmLocalization API.

Table 6.2.X.6.1-1: SS\_SmLocalization API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| TargetLocalizeIdentities | 6.2.X.6.2.3 | Represents the target identities for localization. |  |
| SpatialMapLocDetails | 6.2.X.6.2.5 | Represents the localization details of the spatial map. |  |
| SpatialMapLocalizeResp | 6.2.X.6.2.4 | Represents the spatial map localization response. |  |
| SpatialMapLocalizeReq | 6.2.X.6.2.2 | Represents the spatial map localization request. |  |

Table 6.2.X.6.1-2 specifies data types re-used by the SS\_SmLocalization API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the SS\_SmLocalization API.

Table 6.2.X.6.1-2: SS\_SmLocalization API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Local3dPointUncertaintyEllipsoid | 3GPP TS 29.572 [16] | Represents a 3D point. |  |
| LocationInfo | 3GPP TS 29.122 [2] | Represents the location information. |  |
| SpatialMapId | 6.1.1.6.3.2 | Represents the spatial map identifier. |  |
| SupportedFeatures | 3GPP TS 29.571 [15] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| ValTargetUe | 3GPP TS 29.549 [17] | Represents the VAL UE or VAL user identifier. |  |

##### 6.2.X.6.2 Structured data types

6.2.X.6.2.1 Introduction

This clause defines the structures to be used in resource representations.

6.2.X.6.2.2 Type: SpatialMapLocalizeReq

Table 6.2.X.6.2.2-1: Definition of type SpatialMapLocalizeReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mapId | SpatialMapId | M | 1 | Contains the identifier of the spatial map. |  |
| areaInt | LocationInfo | O | 0..1 | Contains the three dimensional area within spatial map. |  |
| tgtIds | TargetLocalizeIdentities | O | 0..1 | Contains the target identities to localize. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported feature(s) among the ones defined in clause 6.2.X.8.  This attribute shall be present only when feature negotiation is required. |  |

6.2.X.6.2.3 Type: TargetLocalizeIdentities

Table 6.2.X.6.2.3-1: Definition of type TargetLocalizeIdentities

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| usrId | array(ValTargetUe) | O | 1..N | Contains the identity of the target VAL UE or VAL user to localize  (NOTE) |  |
| NOTE: At least one of these attributes shall be present. | | | | | |

6.2.X.6.2.4 Type: SpatialMapLocalizeResp

Table 6.2.X.6.2.4-1: Definition of type SpatialMapLocalizeResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| results | array(SpatialMapLocDetails) | M | 0..N | Contains the lists of localization information  If there are no target identities (for e.g., VAL UEs or VAL Users) matching the provided localization filter criteria, an empty array shall be returned within this attribute. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported feature(s) among the ones defined in clause 6.2.X.8.  This attribute shall be present only when feature negotiation is required. |  |

6.2.X.6.2.5 Type: SpatialMapLocDetails

Table 6.2.X.6.2.5-1: Definition of type SpatialMapLocDetails

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| targetId | ValTargetUe | O | 0..1 | Contains the identity of VAL UE or VAL user. |  |
| position | Local3dPointUncertaintyEllipsoid | O | 0..1 | Contains the three dimensional position of the VAL UE or VAL user in spatial map. |  |
| pose | string | O | 0..1 | Contains the pose of the VAL UE or VAL user. |  |

##### 6.2.X.6.3 Simple data types and enumerations

6.2.X.6.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

6.2.X.6.3.2 Simple data types

The simple data types defined in table 6.2.X.6.3.2-1 shall be supported.

Table 6.2.X.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

##### 6.2.X.6.4 Data types describing alternative data types or combinations of data types

There are no data types describing alternative data types or combinations of data types defined for this API in this release of the specification.

##### 6.2.X.6.5 Binary data

6.2.X.6.5.1 Binary Data Types

Table 6.2.X.6.5.1-1: Binary Data Types

|  |  |  |
| --- | --- | --- |
| Name | Clause defined | Content type |
| n/a |  |  |

#### 6.2.X.7 Error Handling

##### 6.2.X.7.1 General

For the SS\_SmLocalization API, error handling shall be supported as specified in clause 6.7 of 3GPP TS 29.549 [17].

In addition, the requirements in the following clauses are applicable for the SS\_SmLocalization API.

##### 6.2.X.7.2 Protocol Errors

No specific procedures for the SS\_SmLocalization API are specified.

##### 6.2.X.7.3 Application Errors

The application errors defined for the SS\_SmLocalization API are listed in Table 6.2.X.7.3-1.

Table 6.2.X.7.3-1: Application errors

|  |  |  |
| --- | --- | --- |
| Application Error | HTTP status code | Description |
|  |  |  |

#### 6.2.X.8 Feature negotiation

The optional features in table 6.2.X.8-1 are defined for the SS\_SmLocalization API. They shall be negotiated using the extensibility mechanism defined in clause 6.8 of 3GPP TS 29.549 [17].

Table 6.2.X.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
|  |  |  |

#### 6.2.X.9 Security

The provisions of clause 9 of 3GPP TS 29.549 [17] shall apply for the SS\_SmLocalization API.

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