**3GPP TSG-CT3 Meeting #142 C3-253597**

**Gothenburg, SE, 25 - 29 August, 2025** (revision of C3-253418)

**Source: Samsung**

**Title: Pseudo-CR on SS\_SAnUsage API service operation description and other updates**

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

**Agenda item: 19.42**

**Document for: Approval**

**1. Introduction**

This pCR proposes the service operation description for SS\_SAnUsage service API.

**2. Reason for Change**

The SS\_SAnUsage API is specified in TS 23.437, allows consumer (i.e., VAL server) to get the spatial anchor usage information. The service operation descriptions of this API need to be implemented in TS 29.437. The stage-2 APIs SS\_SAnUsageInfo and SS\_SAnUsageReport APIs are merged into API and specified as SS\_SAnUsage API in TS 29.437. The The SS\_SAnUsageReport\_Request operation is implemented as part of Sub/Notify, with one-time and immediate reporting values set in subscription request. Based on the availability of the information, the Spatial Anchor usage report information is included in the subscription response message.

As per agreed S6-251436 (Fix for spatial anchor usage information (Sub-Notify)), the terminology in API definition and service description needs to be updated. The term “analytics” needs to be removed.

**4. Proposal**

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

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

### 5.2.X SS\_SAnUsage API

#### 5.2.X.1 Service Description

The SS\_SAnUsage API service enables a service consumer to:

- to get spatial anchor usage information from the SAn Server.

- to report the spatial anchor usage information to the SAn Server.

#### 5.2.X.2 Service Operations

##### 5.2.X.2.1 Introduction

The service operation defined for the SS\_SAnUsage API are shown in the table 5.2.X.2.1-1.

Table 5.2.X.2.1-1: Operations of the SS\_SAnUsage API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| SS\_SAnUsage\_Create | This service operation enables a service consumer to request the creation of a new spatial anchor usage subscription at the SAn Server. | e.g., VAL Server |
| SS\_SAnUsage\_Update | This service operation enables a service consumer to request the updation of an existing spatial anchor usage information subscription at the SAn server. | e.g., VAL Server |
| SS\_SAnUsage\_Delete | This service operation enables a service consumer to request the deletion of an existing spatial anchor usage information subscription from the SAn Server. | e.g., VAL Server |
| SS\_SAnUsage\_Notify | This service operation enables a SEAL SAn server to notify a previously subscriber service consumer about the Spatial Anchors Usage Information. | e.g., SAn Server |
| SS\_SAnUsage\_Request | This service operation enables a service consumer to request the spatial anchor usage information report from the SAn Server | e.g., VAL Server |
| SS\_SAnUsage\_Report | This service operation enables a service consumer to report the spatial anchor usage information to the SAn Server | e.g., VAL Server |

##### 5.2.X.2.2 SS\_SAnUsage\_Create

5.2.X.2.2.1 General

This service operation is used by a service consumer to request the creation of Spatial Anchors Usage Information Subscription at the SAn Server.

The following procedures are supported by the "SS\_SAnUsage\_Create" service operation:

- Spatial Anchor Usage Information Subscription Creation.

5.2.X.2.2.2 Spatial Anchor Usage Information Subscription Creation

Figure 5.2.X.2.2.2-1 depicts a scenario where a service consumer sends a request to the SAn Server to request the creation of Spatial Anchors Usage Information Subscription (see also clause 8.4 of 3GPP TS 23.437 [13]).



Figure 5.2.X.2.2.2-1: Procedure for Spatial Anchor Usage Information Subscription Creation

1. In order to create a new Spatial Anchors Usage Information Subscription, the service consumer shall send an HTTP POST request to the SAn Server targeting the URI of the "Spatial Anchors Usage Information Subscriptions" collection resource, with the request body including the SpatialAnchorsUsageInfoSub data structure.

2a. Upon success, the SAn Server shall respond with an HTTP "201 Created" status code with the response body containing a representation of the created "Spatial Anchors Usage Information Subscriptions" resource within the SpatialAnchorsUsageInfoSub data structure, and an HTTP "Location" header field containing the URI of the created resource.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.3.7.

##### 5.2.X.2.3 SS\_SAnUsage\_Update

5.2.X.2.3.1 General

This service operation is used by a service consumer to update the existing "Individual Spatial Anchors Usage Information Subscription" from the SAn Server.

The following procedures are supported by the "SS\_SAnUsage\_Update" service operation:

- Spatial Anchor Usage Information Subscription Update.

5.2.X.2.3.2 Spatial Anchor Usage Subscription Update

Figure 5.2.X.2.3.2-1 depicts a scenario where a service consumer sends a request to the SAn Server to update the existing spatial anchors usage information subscription (see also clause 8.4 of 3GPP TS 23.437 [13]).



Figure 5.2.X.2.3.2-1: Procedure for Spatial Anchor Usage Information Subscription Update

1. In order to update an existing spatial anchor usage information subscription, the service consumer shall send an HTTP PUT/PATCH request to the SAn Server, targeting the URI of the corresponding "Individual Spatial Anchors Usage Information Subscription" resource, with the request body including either:

- the updated representation of the resource within the SpatialAnchorsUsageInfoSub data structure, in case the HTTP PUT method is used; or

- the requested modifications to the resource within the SpatialAnchorsUsageInfoSubPatch data structure, in case the HTTP PATCH method is used.

NOTE: An alternative service consumer (i.e., other than the one that requested the creation/update of the targeted resource) can initiate this request.

2a. Upon success, the SAn Server shall update the targeted "Individual Spatial Anchors Usage Information Subscription" resource accordingly and respond with either:

- an HTTP "200 OK" status code with the response body containing a representation of the updated "Individual Spatial Anchors Usage Information Subscription" resource within the SpatialAnchorsUsageInfoSub data structure; or

- an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP PUT/PATCH response body, as specified in clause 6.1.3.7.

##### 5.2.X.2.4 SS\_SAnUsage\_Delete

5.2.X.2.4.1 General

This service operation is used by a service consumer to request the deletion of an existing "Individual Spatial Anchors Usage Information Subscription" resource at the SAn Server.

The following procedures are supported by the "SS\_SAnUsage\_Delete" service operation:

- Spatial Anchor Usage Information Subscription Deletion.

5.2.X.2.4.2 Spatial Anchor Usage Information Subscription Deletion

Figure 5.2.X.2.4.2-1 depicts a scenario where a service consumer sends a request to the SAn Server to request the deletion of an existing Spatial Anchors Usage Information Subscription (see also clause 8.4 of 3GPP TS 23.437 [13]).



Figure 5.2.X.2.4.2-1: Procedure for Spatial Anchor Usage Information Subscription Deletion

1. In order to request the deletion of an existing Spatial Anchors Usage Information Subscription, the service consumer shall send an HTTP DELETE request to the SAn Server targeting the URI of the corresponding "Individual Spatial Anchors Usage Information Subscription" resource.

NOTE: An alternative service consumer (i.e., other than the one that requested the creation/update of the targeted resource) can initiate this request.

2a. Upon success, the SAn Server shall respond with an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP DELETE response body, as specified in clause 6.1.3.7.

##### 5.2.x.2.5 SS\_SAnUsage\_Notify

5.2.x.2.5.1 General

This service operation is used by a SEAL SAn Server to notify a previously subscribed consumer on:

- Spatial anchors usage information.

The following procedures are supported by the "SS\_SAnUsage\_Notify" service operation:

- Spatial Anchors Usage Information Notification.

5.2.x.2.5.2 Spatial Anchors Usage Information Notification

Figure 5.2.x.2.5.2-1 depicts a scenario where the SEAL SAn Server sends a request to notify a previously subscribed service consumer on Spatial Anchors Usage Information related report(s) (see also clause 8.4 of 3GPP TS 23.437 [13]).



Figure 5.2.1.2.8.2-1: Procedure for Spatial Maps Notification

1. In order to notify a previously subscribed service consumer on Spatial Anchors Usage Information related report(s), the SEAL SAn Server shall send an HTTP POST request to the service consumer with the request URI set to "{notifUri}", where the "notifUri" variable is set to the value received from the service consumer during the creation and/or update of the corresponding Spatial Anchors Usage Information Subscription using the procedures defined in clauses 5.2.x.2.2 and 5.2.x.2.3, the request body including the SpatialAnchorsUsageInfoNotif data structure.

2a. Upon success, the service consumer shall respond to the SEAL SAn Server with an HTTP "204 No Content" status code to acknowledge the reception of the notification.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.3.7.

##### 5.2.X.2.6 SS\_SAnUsage\_Request

5.2.X.2.6.1 General

This service operation is used by a service consumer to request the spatial anchors usage information from the SAn Server.

The following procedures are supported by the "SS\_SAnUsage\_Request" service operation:

- Spatial Anchor Usage Information Request.

5.2.X.2.6.2 Spatial Anchor Usage Information Request

Figure 5.2.X.2.6.2-1 depicts a scenario where a service consumer sends a request to the SAn Server to retrieve the existing Spatial Anchors Usage Information (see also clause 8.4.3 of 3GPP TS 23.437 [13]).



Figure 5.2.X.2.6.2-1: Procedure for Spatial Anchor Usage Information Request

1. In order to retrieve a Spatial Anchors Usage Information, the service consumer shall send an HTTP POST request to the SAn Server targeting the URI of the "Spatial Anchors Usage Information Subscriptions" collection resource, with the request body including the SpatialAnchorsUsageInfoSub data structure, with the one-time and immediate reporting values set to "true".

2a. Upon success, if the requested Spatial Anchors Usage Information is available at the SAn server, then the SAn server responds with HTTP "201 Created" status code, with the response body containing Spatial Anchor usage report information within the SpatialAnchorsUsageInfoSub data structure.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.3.7.

##### 5.2.X.2.7 SS\_SAnUsage\_Report

5.2.X.2.7.1 General

This service operation is used by a service consumer to report the Spatial Anchors Usage Information at the SAn Server.

The following procedures are supported by the "SS\_SAnUsage\_Report" service operation:

- Spatial Anchor Usage Information Report.

5.2.X.2.7.2 Spatial Anchor Usage Information Report

Figure 5.2.X.2.7.2-1 depicts a scenario where a service consumer sends a request to the SEAL SM Server to report spatial anchors usage information (see also SS\_SAnUsageReport\_Request service operation, clause 8.4.4 of 3GPP TS 23.437 [13]).



Figure 5.2.X.2.7.2-1: Procedure for Spatial Anchor Usage Information Report

1. In order to report the spatial anchor usage information, the service consumer shall send an HTTP POST request to the SEAL SM Server targeting the URI of the corresponding custom operation (i.e., "Request"), with the request body including the SpatialAnchorUsageReportReq data structure.

2a. Upon success, the SEAL SM Server shall respond with an HTTP "204 No Content" status code to confirm the fulfilment of spatial anchor usage information report request.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.3.7.

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

##### 6.1.3.6.1 General

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

Table 6.1.3.6.1-1 specifies the data types defined for the SS\_SAnUsage API.

Table 6.1.3.6.1-1: SS\_SAnUsage API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| AnchorsUsageFilter | 6.1.3.6.2.6 | Represents the spatial anchors usage filter information. |  |
| AnchorUsage | 6.1.3.6.2.11 | Represents the anchor usage information reported. |  |
| AnchorUsageEvent | 6.1.3.6.3.3 | Represents the spatial anchors usage information event. |  |
| AnchorsUsageEventFilter | 6.1.3.6.2.5 | Represents the filter information for anchors usage event. |  |
| AnchorsUsageInfo | 6.1.3.6.2.9 | Represents the anchor usage details. |  |
| AnchorsUsageSub | 6.1.3.6.2.4 | Represent the subscription details related to spatial anchor usage. |  |
| SpatialAnchorsUsageInfoNotif | 6.1.3.6.2.7 | Represents the spatial anchors usage information notification. |  |
| SpatialAnchorsUsageInfoSub | 6.1.3.6.2.2 | Represents the spatial anchors usage information subscription. |  |
| SpatialAnchorsUsageInfoSubPatch | 6.1.3.6.2.3 | Represents the spatial anchors usage information subscription patch. |  |
| SpatialAnchorsUsageReport | 6.1.3.6.2.8 | Represents the usage report in the notification. |  |
| SpatialAnchorsUsageReportReq | 6.1.3.6.2.10 | Represents the request for spatial anchor usage report. |  |

Table 6.1.3.6.1-2 specifies data types re-used by the SS\_SAnUsage API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the SS\_SAnUsage API.

Table 6.1.3.6.1-2: SS\_SAnUsage API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [2] | Represents a date and a time. |  |
| DurationSec | 3GPP TS 29.122 [2] | Represens a period of time in units of seconds. |  |
| LocationInfo | 3GPP TS 29.122 [2] | Represents the location information. |  |
| ReportingInformation | 3GPP TS 29.523 [19] | Represents the reporting requirements information. |  |
| ServiceArea | 3GPP TS 29.558 [18] | Represents the service area information. |  |
| SpatialAnchorId | 6.1.1.6.3.2 | Represents the Spatial Anchor identifier. |  |
| SupportedFeatures | 3GPP TS 29.571 [15] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| TimeWindow | 3GPP TS 29.122 [2] | Represents a time window. |  |
| Uri | 3GPP TS 29.122 [2] | Represent a URI. |  |

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

6.1.3.6.2.5 Type: AnchorsUsageEventFilter

Table 6.1.3.6.2.5-1: Definition of type AnchorsUsageEventFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| anchAnlFltr | AnchorsUsageFilter | C | 0..1 | Contains the Spatial Anchor usage information event.  This attribute shall be present for the "SPATIAL\_ANCHOR\_USAGE\_INFORMATION" event. |  |

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

6.1.3.6.2.6 Type: AnchorsUsageFilter

Table 6.1.3.6.2.6-1: Definition of type AnchorsUsageFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| anchIds | array(SpatialAnchorId) | C | 1..N | Contains the identities of the spatial anchors.  (NOTE) |  |
| anchLoc | LocationInfo | C | 0..1 | Contains the spatial anchor location information.  (NOTE) |  |
| area | ServiceArea | C | 0..1 | Contains the area information.  (NOTE) |  |
| appId | string | C | 0..1 | Contains the application service identifier.  (NOTE) |  |
| sampInt | DurationSec | O | 0..1 | Indicates the interval to sample the spatial anchor(s) related information. |  |
| NOTE: At least one of these attributes shall be present. | | | | | |

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