**3GPP TSG-CT WG3 Meeting #115eC3-212367**

**E-Meeting, 14th – 23rd April 2021** *(Revision of C3-212266)*

**Source: Samsung**

**Title: Pseudo-CR on Eees\_UELocation Service description**

**Spec: 3GPP TS 29.558, v0.2.0**

**Agenda item: 17.9**

**Document for: Decision**

**1. Introduction**

Eees\_UELocation service and its API is specified by SA6 in TS 23.558. This contribution proposes the service description of the Eees\_UELocation API.

**2. Reason for Change**

Stage 3 aspects of Eees\_UELocation service API need to be defined aligning to TS 23.558.

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.558, v0.2.0.

\* \* \* 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 23.558: "Architecture for enabling Edge Applications".

[3] Open API: "OpenAPI Specification Version 3.0.0.", <https://spec.openapis.org/oas/v3.0.0>.

[4] 3GPP TR 21.900: "Technical Specification Group working methods".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[7] IETF RFC 6455: "The Websocket Protocol".

[8] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[9] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[r29572] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

[r29522] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[r29523] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[r29520] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

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

## 5.1 Introduction

*This clause will provide the list of Edge Enabler Server services with their respective service operations.*

The table 5.1-1 lists the Edge Enabler Server APIs below the service name. A service description clause for each API gives a general description of the related API.

Table 5.1-1: List of EES Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| Eees\_EASRegistration | Request | Request/Response | EAS |
| Update | Request/Response | EAS |
| Deregister | Request/Response | EAS |
| Eees\_UELocation | Get | Request/Response | EAS |
| Subscribe | Subscribe/Notify | EAS |
| Notify |
| UpdateSubscription |
| Unsubscribe |

Table 5.1-2 summarizes the corresponding Edge Enabler Server APIs defined in this specification.

Table 5.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
|  |  |  |  |  |  |

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

## 5.y Eees\_UELocation Service

### 5.y.1 Service Description

The Eees\_UELocation API, as defined in 3GPP TS 23.558 [2], allows an Edge Application Server via Eees interface to obtain the UE location information as one time request or subscribe for continuous reporting.

Editor’s Note: Details about EAS security credentials, verification and authorization of Eees\_UELocation service operations, by the EES, to be aligned with security aspects defined by SA3.

### 5.y.2 Service Operations

#### 5.y.2.1 Introduction

The service operation defined for Eees\_UELocation API is shown in the table 5.y.2.1-1.

Table 5.y.2.1-1: Operations of the Eees\_UELocation API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eees\_UELocation\_Get | This service operation is used by the EAS to request UE location information from a given EES.  | EAS |
| Eees\_UELocation\_Subscribe | This service operation is used by the EAS to subscribe to EES, for continuous reporting of UE location information. | EAS |
| Eees\_UELocation\_Notify | This service operation is used by the EES to notify the EAS about the UE location information. | EES |
| Eees\_UELocation\_UpdateSubscription | This service operation is used by the EAS to update its subscription at EES, for continuous reporting of UE location information. | EAS |
| Eees\_UELocation\_Unsubscribe | This service operation is used by the EAS to remove its subscription from EES, for continuous reporting of UE location information. | EAS |

#### 5.y.2.2 Eees\_UELocation\_Get

##### 5.y.2.2.1 General

This service operation is used by EAS to obtain a UE’s location information from a given EES.

##### 5.y.2.2.2 EAS obtaining UE location information from EES using Eees\_UELocation\_Get operation

To obtain an UE’s location information from the EES, the EAS shall send a HTTP POST message to the EES on the resource URI "{apiRoot}/eees-uelocation/<apiVersion>/ue-location/fetch" as specified in clause 8.y.2.2.4.2. The POST message includes the parameters: the identifier of the UE for which location information is requested, format of the requested location in granularity parameter and location QoS.

Upon receiving the HTTP POST message from the EAS, the EES shall:

1. Process the EAS UE location information request;

2. verify the identity of the Edge Application Server and check if the EAS is authorized to obtain UE location information;

3. if the EAS is authorized to obtain the UE’s location information, then the EES shall;

a. consider the location granularity information in the request message to obtain the UE’s location information;

b. check if a valid locally cached UE location information is available, and if available then the EES shall return the UE location information in the format requested by the EAS along with the location accuracy and its timestamp;

c. if valid UE location information is not available in local cache, then the EES shall obtain the UE location information by consuming the 3GPP core network capabilities from NEF as specified in 3GPP TS 29.522 [r29522], from SCEF as specified in 3GPP TS 29.122 [6] or from LMF as specified in 3GPP TS 29.572 [r29572]. The EES shall return the UE location information to EAS in the format requested by the EAS along with the location accuracy and its timestamp.

Editor’s Note: It is FFS, usage of GET method for Eees\_UELocation\_Get service operation is based on clarification from CT4.

#### 5.y.2.3 Eees\_UELocation\_Subscribe

##### 5.y.2.3.1 General

This service operation is used by the EAS to subscribe for continuous UE(s) location reporting.

##### 5.y.2.3.2 EAS subscribing to continuous UE(s) location reporting from EES using Eees\_UELocation\_Subscribe operation

To subscribe to continuous UE(s) location information reporting at the EES, the EAS shall send a HTTP POST message to the EES on the "Location Information Subscriptions" resource. The body of the POST message shall include EAS identifier, the identifier of the UE or the identifier of the group uniquely identifying a group of UEs, Notification Destination URI and may include location format that is understood by EAS, location QoS, proposed expiry time of the subscription and reporting requirements, as specified in clause 8.y.2.3.3.1.

Upon receiving the HTTP POST message from the EAS, the EES shall:

1. Process the EAS UE location information subscription request;

2. verify the identity of the Edge Application Server and check if the EAS is authorized to subscribe for the continuous UE(s) location reporting;

3. if the EAS is authorized to subscribe for the continuous UE(s) location information reporting, then the EES shall;

a. create a new resource with the Location Information Subscription as specified in clause 8.y.2.1;

b. return the EAS’s location subscription information, the resource URI of the EAS location subscription, in the response message. The response message may include expiration time to indicate when the location information subscription will automatically expire;

EES shall obtain the UE location information by consuming the 3GPP core network capabilities from NEF as specified in 3GPP TS 29.522 [r29522], from SCEF as specified in 3GPP TS 29.122 [6] or from LMF as specified in 3GPP TS 29.572 [r29572]. The EES may also consume the UE mobility analytics from NEF as specified in 3GPP TS 29.522 [r29522] or from NWDAF as specified in 3GPP TS 29.520 [r29520].

If the expiration time is provided, then to maintain the registration, the EAS shall send a subscription update request (as described in clause 5.y.2.5) prior to the expiration time. If the subscription update request is not sent before the expiry time, then the EES shall treat the subscription as unsubscribed and remove the corresponding EAS’s Individual Location Information Subscription resource.

#### 5.y.2.4 Eees\_UELocation\_Notify

##### 5.y.2.4.1 General

This service operation is used by the EES to send UE(s) location information notifications to the EAS.

##### 5.y.2.4.2 EES notifying the UE(s) location reporting to EAS using Eees\_UELocation\_Notify operation

The EES determines to notify the EAS with the UE location information, when the UE location information is available either locally cached or from the 3GPP core network.

To notify the UE(s) location information events, the EES shall send an HTTP POST message using the Notification Destination URI received in the subscription request. The body of the HTTP POST message shall include LocationNotification. LocationNotification includes location information of each UE with accuracy, timestamp and type. The location information of each UE may be actual location change or predictive location report from the UE mobility analytics report from NEF as specified in 3GPP TS 29.522 [r29522] or from NWDAF as specified in 3GPP TS 29.520 [r29520]. The EES may modify the UE location information in the format requested by the EAS in the subscription request.

Upon receiving the HTTP POST message, the EAS shall process the Location Notification.

#### 5.y.2.5 Eees\_UELocation\_UpdateSubscription

##### 5.y.2.5.1 General

This service operation is used by the EAS to update its location information subscription at the EES.

##### 5.y.2.5.2 EAS updating continuous UE(s) location reporting subscription at EES using Eees\_UELocation\_UpdateSubscribe operation

To update continuous UE(s) location information reporting subscription at the EES, the EAS shall send a HTTP PATCH or PUT message to the EES on resource URI identifying the "Individual Location Information" Subscription resource representation, as specified in clause 8.y.2.4.3.2 for HTTP PATCH message and in clause 8.y.2.4.3.3 for HTTP PUT message.

The PATCH message includes the parameters (location QoS, location granularity, Notification Destination, Reporting requirements and proposed expiry time) that need to be replaced in the existing subscription resource.

The PUT message shall replace all the properties of the existing resource with the location subscription information in the request. The request shall not replace the easId, ueId and groupId properties of the existing resource.

Upon receiving the HTTP PATCH or PUT message from the EAS, the EES shall:

1. check the update subscription message from the EAS to see if the EAS is authorized to modify the requested subscription resource;

2. if the EAS is authorized to update the location information subscription and the easId of the requesting EAS and the easId in the resource match, then the EES shall;

a. update the resource identified by Resource URI of the EAS location information subscription with the updated information received in the HTTP PATCH or PUT request message;

b. return the updated EAS Location information subscription in the response. In the response message, the EES may provide an updated expiration time to indicate to the EAS when the updated subscription will automatically expire.

If the expiration time is provided, then to maintain the subscription, the EAS shall send a update subscription prior to subscription expiry time. If the update subscription request is not sent before the expiry time, then the EES shall treat EAS subscription as unsubscribed and remove the corresponding EAS location information subscription resource.

#### 5.y.2.6 Eees\_UELocation\_Unsubscribe

##### 5.y.2.6.1 General

This service operation is used by the EAS to unsubscribe from an existing UE(s) location information subscription.

##### 5.y.2.6.2 EAS unsubscribing to continuous UE(s) location reporting from EES using Eees\_UELocation\_Unsubscribe operation

To unsubscribe its location information subscription from the EES, the EAS shall send HTTP DELETE message to the EES, on the resource URI identifying the "Individual Location Information Subscription" resource representation as specified in clause 8.y.2.4.3.4. Upon receiving the HTTP DELETE request, the EES shall:

1. verify the identity of the EAS and check if the EAS is authorized to unsubscribe the Individual Location Information Subscription resource;

2. if the EAS is authorized to unsubscribe the Individual Location Information Subscription resource, then the EES shall unsubscribe the EAS subscription identified by the subscriptionId from the EES and delete the resource representing Individual Location Information Subscription resource represented by subscriptionId;

3. return the "204 Not Content" message to the EAS, indicating the successful removal of the subscription information and may unsubscribe to the corresponding 3GPP core network service subscriptions.

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