**3GPP TSG-CT WG3 Meeting #114eC3-211507**

**E-Meeting, 24th February – 05th March 2021** *(revision of C3-211370)*

**Source: Samsung**

**Title: Pseudo-CR on Eecs\_EESRegistration API definition**

**Spec: 3GPP TS 29.558 v0.1.0**

**Agenda item: 17.9**

**Document for: Decision**

**1. Introduction**

This contribution proposes the service description for Eecs\_EESRegistration API.

**2. Reason for Change**

TS 23.558 specifies the procedures and information flows for an EES to register itself, update its registration and deregister at a given ECS, using the Eecs\_EESRegisration service API. The details of the API definition along with data model need to be specified.

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.558 v0.1.0.

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

## 9.y Eecs\_EESRegistration API

### 9.y.1 API URI

The Eecs\_EESRegistration service shall use the Eecs\_EESRegistration API.

The request URIs used in HTTP requests from the Edge Enabler Server towards the Edge Configuration Server shall have the Resource URI structure as defined in clause 7.5 with the following clarifications:

- The <apiName>shall be "eecs-eesregistration".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 9.y.2.

### 9.y.2 Resources

#### 9.y.2.1 Overview



Figure 9.y.2.1-1: Resource URI structure of the Eecs\_EESRegistration API

Table 9.y.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 9.y.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| EES Registrations | /registrations | POST | Registers a new EES at the Edge Configuration Server. |
| Individual EES Registration | /registrations/{registrationId} | GET | Fetch an individual EES registration resource. |
| PUT | Update an individual EES registration resource. |
| DELETE | Remove an individual EES registration resource. |

Editor’s Note: It is FFS, to obtain the EES registration information from the "EES Registrations" collection resource.

Editor’s Note: Whether PATCH method will be used to partially update the EES registration information is FFS.

Editor’s Note: Inclusion of the EES identifier in the resource URI structure is FFS.

#### 9.y.2.2 Resource: EES Registrations

##### 9.y.2.2.1 Description

This resource represents all the Edge Enabler Servers that are registered at a given Edge Configuration Server.

##### 9.y.2.2.2 Resource Definition

Resource URI: **{apiRoot}/eecs-eesregistration/<apiVersion>/registrations**

This resource shall support the resource URI variables defined in the table 9.y.2.2.2-1.

Table 9.y.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 |
| apiVersion | string | See clause 9.y.1 |

##### 9.y.2.2.3 Resource Standard Methods

###### 9.y.2.2.3.1 POST

This method shall support the URI query parameters specified in table 9.y.2.2.3.1-1.

Table 9.y.2.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 9.y.2.2.3.1-2 and the response data structures and response codes specified in table 9.y.2.2.3.1-3.

Table 8.y.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EESRegistration | M | 1 | EES registration request information. |

Table 9.y.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| EESRegistration | M | 1 | 201 Created | EES information is registered successfully at ECS. EES information registered with ECS is provided in the response body.  The URI of the created resource shall be returned in the “Location” HTTP header. |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [r29122] also apply. | | | | |

Table 9.y.2.2.3.1-4: Headers supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.2.3.1-5: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | String | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/eecs-eesregistration/<apiVersion>/registrations/{registrationId} |

Table 9.y.2.2.3.1-6: Links supported by the 200 Response Code on this endpoint

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Resource name | HTTP method or custom operation | Link parameter(s) | Description |
| n/a |  |  |  |  |

##### 9.y.2.2.4 Resource Custom Operations

None.

#### 9.y.2.3 Resource: Individual EES Registration

##### 9.y.2.3.1 Description

This Individual EES Registration resource represents an individual EES registered at a given Edge Configuration Server.

##### 9.y.2.3.2 Resource Definition

Resource URI: **{apiRoot}/eecs-eesregistration/<apiVersion>/registrations/{registrationId}**

This resource shall support the resource URI variables defined in the table 9.y.2.3.2-1.

Table 9.y.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 |
| apiVersion | string | See clause 9.y.1 |
| registrationId | string | The EES registration identifier. |

##### 9.y.2.3.3 Resource Standard Methods

###### 9.y.2.3.3.1 GET

This method retrieves the EES information registered at Edge Configuration Server. This method shall support the URI query parameters specified in table 9.y.2.3.3.1-1.

Table 9.y.2.3.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 9.y.2.3.3.1-2 and the response data structures and response codes specified in table 9.y.2.3.3.1-3.

Table 9.y.2.3.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 9.y.2.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| EESResgistration | M | 1 | 200 OK | The EES registration information at the Edge Configuration Server. |
| NOTE: The manadatory HTTP error status code for the GET method listed in Table 5.2.6-1 of 3GPP TS 29.122 [r29122] also apply. | | | | |

Table 9.y.2.3.3.1-4: Headers supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.1-5: Headers supported by the <e.g. 200> response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.1-6: Links supported by the 200 Response Code on this endpoint

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Resource name | HTTP method or custom operation | Link parameter(s) | Description |
| n/a |  |  |  |  |

###### 9.y.2.3.3.2 PUT

This method updates the EES registration information at Edge Configuration Server by completely replacing the existing registration data (except registrationId). This method shall support the URI query parameters specified in the table 9.y.2.3.3.2-1.

Table 9.y.2.3.3.2-1: URI query parameters supported by the PUT method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 9.y.2.3.3.2-2 and the response data structures and response codes specified in table 9.y.2.3.3.2-3.

Table 9.y.2.3.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EESRegistration | M | 1 | Details of the EES registration information to be updated |

Table 9.y.2.3.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| EESRegistration | M | 1 | 200 OK | The EES registration information updated successfully and the updated EES registration information is returned in the response. |
| NOTE: The manadatory HTTP error status code for the PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [r29122] also apply. | | | | |

Editor’s Note: It is FFS, if 204 No Content response message is applicable.

Table 9.y.2.3.3.2-4: Headers supported by the PUT method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.2-5: Headers supported by the <e.g. 200> response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.2-6: Links supported by the 200 Response Code on this endpoint

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Resource name | HTTP method or custom operation | Link parameter(s) | Description |
| n/a |  |  |  |  |

###### 9.y.2.3.3.3 DELETE

This method deregisters an EES registration from the ECS. This method shall support the URI query parameters specified in the table 9.y.2.3.3.3-1.

Table 9.y.2.3.3.3-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 9.y.2.3.3.3-2 and the response data structures and response codes specified in table 9.y.2.3.3.3-3.

Table 9.y.2.3.3.3-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Editor’s Note: Details of how the EES security credentials are submitted in the HTTP DELETE message is FFS and to be updated based on security aspects defined by SA3.

Table 9.y.2.3.3.3-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | The individual EES registration information matching the registrationId is deleted. |
| NOTE: The manadatory HTTP error status code for the DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [r29122] also apply. | | | | |

Table 9.y.2.3.3.3-4: Headers supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.3-5: Headers supported by the <e.g. 200> response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 9.y.2.3.3.3-6: Links supported by the 200 Response Code on this endpoint

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Resource name | HTTP method or custom operation | Link parameter(s) | Description |
| n/a |  |  |  |  |

##### 9.y.2.3.4 Resource Custom Operations

None.

### 9.y.3 Custom Operations without associated resources

None.

### 9.y.4 Notifications

None.

### 9.y.5 Data Model

#### 9.y.5.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 7.2 apply to this API

Table 9.y.5.1-1 specifies the data types defined specifically for the Eecs\_EESRegistration API service.

Table 9.y.5.1-1: Eecs\_EESRegistration API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| EESRegistration | 9.y.5.2.2 | The EES registration information on ECS. |  |
| EESProfile | 9.y.5.2.3 | The profile information related to the EES in the EESRegistration data type. |  |

Table 9.y.5.1-2 specifies data types re-used by the Eecs\_EESRegistration API service.

Table 9.y.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| SupportedFeatures | 3GPP TS 29.571 [r29571] | Used to negotiate the applicability of optional features defined in table 9.y.7-1. |  |
| DateTime | 3GPP TS 29.122 [r29122] | Used to capture the expiration time of EES registration. |  |
| RouteToLocation | 3GPP TS 29.571 [r29571] | Used to define the DNAIs associated with EES/EAS and the corresponding N6 routing information for each EES/EAS DNAI. |  |
| LocationArea5G | 3GPP TS 29.122 [r29122] | Used to defined the geographic and topological area served by EES. |  |
| EndPoint | 8.y.5.2.5 | The end point information of the Edge Enabler Server in the EES profile. |  |

#### 9.y.5.2 Structured data types

##### 9.y.5.2.1 Introduction

##### 9.y.5.2.2 Type: EESRegistration

Table 9.y.5.2.2-1: Definition of type EESRegistration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eesProf | EESProfile | M | 1 | The profile information of the EES. |  |
| expTime | DateTime | O | 0..1 | Identifies the expiration time for the EES registration. If the expiration time is not present, then it indicates that the registration of EES never expires. |  |
| suppFeat | SupportedFeatures | O | 0..1 | Used to negotiate the supported optional features of the API as described in clause 7.8.  This attribute shall be provided in the HTTP POST request and in the response of successful resource creation. |  |

Editor’s Note: The data model to be updated with security credentials information, based on security aspects defined by SA3.

##### 9.y.5.2.3 Type: EESProfile

Table 9.y.5.2.3-1: Definition of type EESProfile

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eesId | string | M | 1 | The identifier of the EES |  |
| endPt | EndPoint | M | 1 | Endpoint information (e.g. URI, FQDN, IP address) used to communicate with the EES. This information is provided to the EEC to connect to the EES. |  |
| easIds | array(string) | O | 1..N | Identities of the Edge Application Servers registered with the EES. |  |
| provId | string | O | 0..1 | Identifier of the EES provider |  |
| svcArea | LocationArea5G | O | 0..1 | The list of geographical and topological areas that the EES serves. EECs in the UE that are outside the area shall not be served. |  |
| appLocs | array(RouteToLocation) | O | 1..N | List of DNAI(s) and the corresponding N6 traffic routing information/routing profile ID, associated with the EES and the registered EAS. This is a list of potential locations of the applications. |  |

Editor’s Note: Details of the DNAI(s) information in EES profile is FFS and will be updated based on stage 2 agreement.

Editor’s Note: The definition of topological service area in svcArea attribute is FFS and needs alignment with stage 2.

#### 9.y.5.3 Simple data types and enumerations

None.

### 9.y.6 Error Handling

General error responses are defined in clause 7.7.

### 9.y.7 Feature negotiation

General feature negotiation procedures are defined in clause 7.8. Table 9.y.7-1 lists the supported features for Eecs\_EESRegistration API.

Table 9.y.7-1: Supported Features

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

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