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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# Introduction

This clause is optional. If it exists, it shall be the second unnumbered clause.

# 1 Scope

The present document specifies the APIs for enabling the edge applications over 3GPP networks for EDGE-1 reference point. The application layer architecture, functional requirements, procedures and information flows necessary for enabling edge applications over 3GPP networks are specified in 3GPP TS 23.558 [2]. The APIs for EDGE-1 reference point is specified as RESTful APIs except for custom operations wherever required.

# 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] 3GPP TS 29.122: "T8 reference point for Northbound APIs".

[4] 3GPP TS 29.558: "Enabling Edge Applications; Application Programming Interface (API) specification; Stage 3".

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

[6] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.558 [2] apply:

**EEC Context**

Definition format (Normal)

**<defined term>:** <definition>.

**example:** text used to clarify abstract rules by applying them literally.

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

Symbol format (EW)

<symbol> <Explanation>

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

AC Application Client

ACR Application Context Relocation

API Application Programming Interface

EAS Edge Application Server

ECS Edge Configuration Server

EEC Edge Enabler Client

EES Edge Enabler Server

NAS Non Access Stratum

URI Uniform Resource Locator

<ABBREVIATION> <Expansion>

# 4 Overview

In order to support the edge applications over the 3GPP systems, various features are defined to ensure the efficient use and deployment of edge applications, some of which include, registration, discovery, service provisioning, capability exposure and support for service continuity.

The present document specifies the APIs in detail, needed to support the services offered by EES over EDGE-1 interface for enabling the edge applications over 3GPP network.

# 5 Services offered by Edge Enabler Server

## 5.1 Introduction

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\_EECRegistration | Request | Request/Response | EEC |
| Update | Request/Response | EEC |
| Deregister | Request/Response | EEC |

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 |
|  |  |  |  |  |  |

## 5.2 Eees\_EECRegistration Service

### 5.2.1 Service Description

The Eees\_EECRegistration API, as defined in 3GPP TS 23.558 [2], allows an EEC via Eees interface to register, update its registration and deregister at a given EES.

Editor's Note: Details about the security credentials of the EEC, verification and authorization of Eees\_EECRegistration Request, Update and Deregister by the EES depend on SA3 WG security requirements and are FFS.

### 5.2.2 Service Operations

#### 5.2.2.1 Introduction

The service operation defined for Eees\_EECRegistration API is shown in the table 5.2.2.1-1.

Table 5.2.2.1-1: Operations of the Eees\_EECRegistration API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eees\_EECRegistration\_Request | This service operation is used by the EEC to register itself to a given EES.  | EEC |
| Eees\_EECRegistration\_Update | This service operation is used by the EEC to update its registration information at EES. | EEC |
| Eees\_EECRegistration\_Deregister | This service operation is used by the EEC to deregister itself from a given EES. | EEC |

#### 5.2.2.2 Eees\_EECRegistration\_Request

##### 5.2.2.2.1 General

This service operation is used by EEC to register itself with a given EES.

Editor's note: Details about EEC security credentials, verification and authorization of Eees\_EECRegistration Request, by the EES, is FFS and depends on security requirements to be defined by SA3.

##### 5.2.2.2.2 EEC registering to EES using Eees\_EECRegistration\_Request operation

For an EEC to register at the EES, the EEC shall send an HTTP POST message to the EES on the "EEC Registrations" collection resource to create the resource associated to or representing the EEC. The body of the HTTP POST message shall include the EEC ID, may include UE identifier, AC Profile(s), proposed expiration time for the registration, EEC context ID obtained from a previous registration, as specified in clause 6.2.2.2.3.1. If EEC context ID is included in the body of the HTTP POST message, it shall also include Source EES ID and Source EES Endpoint of the EES that provided EEC context ID.

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

a) Process the EEC registration request information;

b) verify if the EEC is authorized to register itself at EES; and

c) if the EEC is authorized to register with EES, then;

1) if the AC Profile(s) is included in the HTTP POST message, the EES further determines whether the registered EAS(s) fulfils the requirements that were indicated in the AC Profile(s):

i) if acSvcContSupp information is included in the AC Profile, the matching EAS has to support ACRScenario indicated in the acSvcContSupp information; and

ii) For each AC Profile, if eass information is included in the AC Profile, the EES identifies the matching EAS such that the matching EAS shall:

A) be identified by the easId information; and

B) suffice all information included in the minimumReqSvcKPIs information.

NOTE 1: With respect to expectedSvcKPIs information, it is up to the EES implementation on how to identifies the matching EAS.

 When a matching EAS is identified, the EES determines that the corresponding requirements are fulfilled and are supported for the new resource.

 When a matching EAS is not identified for even one AC profile, the EES shall reject the request message by sending an HTTP response to the EEC with a status code set to 404 Not Found and indicate the "RESOURCE\_NOT\_FOUND" error in the "cause" attribute of the "ProblemDetails" structure.

2) if the received EEC registration request contains an EEC context ID, a source EES endpoint, the EES retrieves the EEC's context from the source EES;

Editor's note: The reference of how EES retrieves the EEC's context from source EES will be added once it is available.

3) the EES creates a new resource with the EEC registration information as specified in clause 6.2.2.1, and assigns and stores new EEC context ID;

i) if the EES cannot reserve the necessary resources while meeting the capability requirements of the existing registered EECs, the EES shall determine the EEC Context information stale and send a failure response with a corresponding cause as specified in clause 6.2.2.2.3.1; and

ii) Otherwise the EES shall return the EEC registration information in the response message. The response message may include expiration time to indicate when the EEC registration will automatically expire. The response message may include a newly assigned EEC context ID. The URI of the created resource shall be returned in the "Location" HTTP header.

The EEC stores the new EEC context ID and uses it when it registers with another EES.

If the expiration time is provided, then to maintain the registration, the EEC shall send a registration update request (as described in clause 5.2.2.3) prior to the expiration time. If the registration update request is not received prior to the expiration time, then the EES shall treat the EEC as implicitly deregistered and remove the corresponding EEC registration resource.

#### 5.2.2.3 Eees\_EECRegistration\_Update

##### 5.2.2.3.1 General

This service operation is used by the EEC to update its registration information at the EES.

##### 5.2.2.3.2 EEC updating registration information using Eees\_EECRegistration\_Update operation

To update the EEC registration information at the EES, the EEC shall send an HTTP PATCH request (for partial update) or HTTP PUT message (for fully replacement) to the EES on resource URI identifying the Individual EEC registration resource representation as specified in clause 6.2.2.3.3.3 for an HTTP PUT message or in clause 6.2.2.3.3.1 for an HTTP PUT message.

The PATCH message includes the parameters (AC profiles or proposed expiry time) that need to be replaced in the existing registration information.

The PUT message shall replace all properties of the existing resource with the EEC registration information in the request. The value of the eecId provided during the EEC registration shall not be changed.

Upon receiving the HTTP PATCH or PUT message from the EEC, if the resource URI does not exist, the EES shall respond 404 Not Found error to the EEC. Otherwise, the EES shall:

a) check the registration update message from the EEC to see if the EEC is authorized to modify the requested registration resource; and

b) if the EEC is authorized to update the registration information and the eecId information in the request and the resource match, then the EES shall;

1) update the resource identified by Resource URI of the EEC registration information with the updated EEC registration information received in the HTTP PATCH or PUT request message; and

2) if the AC Profile(s) is included in the HTTP PATCH or PUT message, the EES further determines whether the registered EAS(s) fulfils the requirements that were indicated in the AC Profile(s):

Editor's note: How EES identifies the EAS(s) based on the provided AC profile(s) is FFS.

 When a matching EAS is identified, the EES determines that the corresponding requirements are fulfilled and are supported for the new resource.

Editor's note: When the HTTP PUT message includes multiple AC Profile(s), it is FFS how EES determines the requirements in the AC Profile(s) are fulfilled and how EES indicates to the EEC for which AC Profile the requirement is fulfilled.

3) return the updated EEC registration information in the response. In the response message, the EES may send "200 OK" response code to provide an updated expiration time to indicate to the EEC when the updated registration will automatically expire. Otherwise, the EES sends "204 No Content" response code.

If the expiration time is provided, the EEC shall send a registration update request prior to the expiration time if the EEC wants to maintain the registration.. If a registration update request is not received prior to the expiration time, the EES shall treat the EEC as implicitly de-registered and remove the corresponding EEC registration resource.

Editor's note: Whether eecCntxId can be replaced or not is FFS.

#### 5.2.2.4 Eees\_EECRegistration\_Deregister

##### 5.2.2.4.1 General

This service operation is used by EEC to deregister itself from a given EES.

##### 5.2.2.4.2 EEC deregistering from EES using Eees\_EECRegistration\_Deregister operation

To deregister itself from the EES, the EEC shall send HTTP DELETE message to the EES, on the resource URI identifying the Individual EEC registration resource representation as specified in clause 6.2.2.3.3.3. Upon receiving the HTTP DELETE request, the EES shall:

a) verify the identity of the EEC and check if the EEC is authorized to deregister the EEC registration information;

b) if the EEC is authorized to deregister the EEC registration information, then the EES shall

1) if the resource identified by registrationId is not found, return "404 Not Found" error message to the EEC;

2) otherwise, deregister the EEC profile from the EES and delete the resource representing EEC registration information; and

3) return the "204 No Content" message to the EEC, indicating the successful deregistration of the EEC information.

## 5.3 void

### 5.3.1 void

### 5.3.2 void

#### 5.3.2.1 Eees\_EASDiscovery\_UpdateSubscription

##### 5.3.2.1.1 General

This service operation is used by the EEC to update its subscription at the EES for reporting of EAS discovery information.

##### 5.3.2.1.2 EEC updating EAS discovery information subscription at EES using Eees\_EASDiscovery\_UpdateSubscription operation

To request modification of an existing Individual EAS Discovery Subscription, the EEC shall send an HTTP PATCH request (for partial modification) or PUT request (for fully replacement) message to the EES using the resource URI identifying the concerned "Individual EAS Discovery Subscription" resource as specified in clause 6.3.2.3.3.3 for an HTTP PATCH message and in clause 6.3.2.3.3.1 for an HTTP PUT message.

The PATCH message includes the parameters (EAS discovery filters, EAS dynamic information filters, Service continuity support, or proposed expiry time) that need to be replaced in the existing subscription resource.

The PUT message shall replace all properties of the existing resource with the EAS Discovery subscription information in the request. The values of the easId and ueId provided during the subscription creation shall not be changed.

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

a) shall check the update subscription message from the EEC to see if the EEC is authorized to update the requested subscription resource;

b) if the EEC is authorized to update the EAS discovery subscription and if the eecId and the ueId of the request match the eecId and the ueId in the resource, then the EES;

1) shall update the resource identified by Resource URI of the EAS discovery subscription with the updated information received in the HTTP PATCH or PUT request message;

2) on success, shall either return an HTTP "200 OK" response with the payload body of the HTTP PATCH or PUT response containing the representation of the replaced resource or an HTTP "204 No Content" response.

c) if the EAS discovery subscription update operation is unsuccessful, shall return an appropriate error response as specified in Table 5.2.6-1 of 3GPP TS 29.122 [3];

d) may include an expiration time.

If the expiration time is provided, the EEC shall send the EAS discovery subscription update request prior to the expiration time if the EEC wants to maintain the subscription. If the EAS discovery subscription update request is not received prior to the expiration time, the EES shall treat the EEC as implicitly unsubscribed and remove the corresponding EAS discovery subscription resource.

#### 5.3.2.2 Eees\_EASDiscovery\_Unsubscribe

##### 5.3.2.2.1 General

This service operation is used by the EEC to unsubscribe from EAS discovery notification at the EES.

##### 5.3.2.2.2 EEC unsubscribing to EAS discovery subscription from EES using Eees\_EASDiscovery\_Unsubscribe operation

To unsubscribe from EAS discovery notification at the EES, the EEC shall send an HTTP DELETE request to the EES using the resource URI identifying the concerned Individual EAS Discovery Subscription resource as specified in clause 6.3.2.3.3.2. Upon receiving the HTTP DELETE request, the EES:

a) shall verify and check if the EEC is authorized to delete the Individual EAS Discovery Subscription resource;

b) if the EEC is authorized to perform the operation, then the EES shall delete the individual EAS Discovery subscription resource identified by the "subscriptionId" provided within the request URI;

c) on success, shall return a "204 No Content" message to the EEC, indicating the successful removal of the subscription resource.

d) if the operation fails, shall return an appropriate HTTP error response as specified in Table 5.2.6-1 of 3GPP TS 29.122 [3].

## 5.4 Eees\_ACREvents Service

### 5.4.1 void

### 5.4.2 Service Operations

#### 5.4.2.1 void

#### 5.4.2.2 void

#### 5.4.2.3 Eees\_ACREvents\_Notify

##### 5.4.2.3.1 General

This service operation is used by the EES to notify the EEC about the ACR information notification.

##### 5.4.2.3.2 EES notifying the ACR information to EEC using Eees\_ACREvents\_Notify operation

The EES determines to notify the EEC with the ACR information on following events:

- For EEC executed ACR via S-EES scenario, when S-EAS sends the ACR Complete message to the S-EES to confirm that the ACR has completed;

- For S-EAS decided ACR scenario, when T-EAS selection information received from the S-EAS or when S-EAS informs the S-EES of the complete of ACT;

- For S-EES executed ACR scenario, when S-EES determines T-EES and T-EAS via the Discover T-EAS procedure or when S-EAS informs the S-EES of the complete of ACT; and

- For EEC executed ACR via T-EES scenario, when T-EAS sends the ACR Complete message to the T-EES to confirm that the ACR has completed.

To notify the ACR information events, the EES shall send an HTTP POST message using the Notification Destination URI received in the subscription request, as specified in clause 6.4.4.

Upon receiving the HTTP POST message, the EEC shall process the ACR information Notification.

#### 5.4.2.4 Eees\_ACREvents\_UpdateSubscription

##### 5.4.2.4.1 General

This service operation is used by the EEC to update its subscription at EES, for reporting of ACR information notification.

##### 5.4.2.4.3 EEC updating ACR information subscription at EES using Eees\_ACREvents\_UpdateSubscription operation

To update ACR information subscription at the EES, the EEC shall send an HTTP PATCH message (for partial modification) or HTTP PUT message (for fully replacement) to the EES on resource URI identifying the Individual ACR events subscription resource representation, as specified in clause 6.4.2.3.3.3 for an HTTP PATCH message and in clause 6.4.2.3.3.1 for an HTTP PUT message.

The PATCH message includes the parameters (EASID, Event ID, Notification Destination and proposed expiry time) that need to be replaced in the existing subscription resource.

The PUT message shall replace all properties of the existing resource with the ACR information in the request. The values of the eecId and ueId provided during the subscription creation shall not be changed.

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

a) shall check the update subscription message from the EEC to see if the EEC is authorized to modify the requested subscription resource;

b) if the EEC is authorized to update the ACR information subscription and the eecId of the requesting EEC and the eecId in the resource match, then the EES;

1) shall update the resource identified by Resource URI of the ACR information subscription with the updated information received in the HTTP PATCH or PUT request message;

3) shall return the ACR information subscription response. The EES may send "200 OK" response code which includes the subscription identifier and the expiration time, indicating when the subscription will automatically expire. Otherwise, the EES sends "204 No Content" response code.

If the expiration time is provided, the EEC shall send an ACR information subscription update request prior to the expiration time if the EEC wants to maintain the subscription. If the ACR information subscription update request is not received prior to the expiration time, the EES shall treat the EEC as implicitly unsubscribed and remove the corresponding ACR information subscription resource.

#### 5.4.2.5 Eees\_ACREvents\_Unsubscribe

##### 5.4.2.5.1 General

This service operation is used by the EEC to remove its subscription from the EES for reporting of ACR information.

##### 5.4.2.5.2 EEC unsubscribing to service provisioning subscription from EES using Eees\_ACREvents\_Unsubscribe operation

To unsubscribe ACR information subscription from the EES, the EEC shall send an HTTP DELETE message to the EES, on the resource URI identifying the Individual ACR events subscription resource representation as specified in clause 6.4.2.3.3.2. Upon receiving the HTTP DELETE request, the EES:

a) shall verify and check if the EEC is authorized to unsubscribe the Individual ACR events subscription resource;

b) if the EEC is authorized to delete the Individual ACR events subscription resource, then the EES shall unsubscribe the EEC for the ACR information subscription identified by the subscriptionId;

c) shall return the "204 Not Content" message to the EEC, indicating the successful removal of the subscription information.

## 5.x <Eees\_xxx> Service

*Add a copy of this clause for a new API, adding the overview of the API, Details of service operations, detailed description of each service operation. Yellow highlighted text needs to be replaced with appropriate clause number and the API, Service operation name.*

### 5.x.1 Service Description

*This clause will provide a general description of the related service, include a description of the functional elements involved in the invocation of the service.*

### 5.x.2 Service Operations

One clause per service operation. This clause will include a description of the different service operations supported by the service.

#### 5.x.2.1 Introduction

The service operation defined for <API Name – Eees\_xxx> API is shown in the table 5.x.2.1-1.

Table 5.x.2.1-1: Operations of the <API Name> API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
|  |  |  |

#### 5.x.2.2 <Service operation 1>

##### 5.x.2.2.1 General

*Provide the general description of the service operation.*

##### 5.x.2.2.2 <Description> <Service Operation Name> operation

#### 5.x.2.3 <Service operation 2>

*And so on if there are more than 2 service operations to be described for the service.*

# 6 Edge Enabler Server API Definitions

*This clause will provide the definitions of all the Edge Enabler Server APIs*

## 6.1 Information applicable to several EES APIs

The EES APIs as specified in clause 6.x allow secure access to the capabilities provided by the EES functional entity.

The stage-2 level requirements and signalling flows are defined in 3GPP TS 23.558 [2].

The usage of HTTP, content type, URI structure definition, notifications, error handling, feature negotiation, HTTP headers and Conventions for Open API specification files, as specified in clauses 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9 and 7.10 of 3GPP TS 29.558 [4] respectively, shall be applicable for the APIs in current specification.

## 6.2 Eees\_EECRegistration API

### 6.2.1 API URI

The request URI used in each HTTP request from the EEC towards the EES shall have the structure as defined in clause 6.1 with the following clarifications:

- The <apiName>shall be "eees-eecregistration".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.2.2.

### 6.2.2 Resources

#### 6.2.2.1 Overview



Figure 6.2.2.1-1: Resource URI structure of the Eees\_EECRegistration API

Table 6.2.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.2.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| EEC Registrations | /registrations | POST | Create a new EEC registration at the EES |
| Individual EEC registration | /registrations/{registrationId} | PUT | Update an existing EEC registration a the EES |
| DELETE | Remove an existing ECC registration at EES |
| PATCH | Partially update an existing EEC registration a the EES |

Editor's note: Whether the EEC Id should be included into the resource URI structure is FFS.

#### 6.2.2.2 Resource: EEC Registrations

##### 6.2.2.2.1 Description

This resource represents a collection of EEC registrations with an EES.

##### 6.2.2.2.2 Resource Definition

Resource URI: **{apiRoot}/eees-eecregistration/<apiVersion>/registrations**

This resource shall support the resource URI variables defined in table 6.2.2.2.2-1.

Table 6.2.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1 |
| apiVersion | string | See clause 6.1 |

##### 6.2.2.2.3 Resource Standard Methods

###### 6.2.2.2.3.1 POST

This method creates a new registration. This method shall support the URI query parameters specified in table 6.22.2.3.1-

Table 6.2.2.2.3.1-1: 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 6.2.2.2.3.1-2 and the response data structures and response codes specified in table 6.2.2.2.3.1-3

Table 6.2.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EECRegistration | M | 1 | EEC registration request information |

Table 6.2.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EECRegistration | M | 1 | 201 Created | EEC information is registered successfully at EES. EEC information registered with EES 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 [3] also apply. |

Table 6.2.2.2.3.1-4: Headers supported by the POST method on this resource

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

Table 6.2.2.2.3.1-5: 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}/eees-eecregistration/<apiVersion>/registrations/{registrationId} |

##### 6.2.2.2.4 Resource Custom Operations

None.

#### 6.2.2.3 Resource: Individual EEC registration

##### 6.2.2.3.1 Description

This resource represents an individual registration of an EEC.

##### 6.2.2.3.2 Resource Definition

Resource URI: **{apiRoot}/eees-eecregistration//<apiVersion>**/**registrations/{registrationId}**

This resource shall support the resource URI variables defined in table 6.2.2.3.2-1.

Table 6.2.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1.y |
| apiVersion | string | See clause 6.1.z |
| registrationId | string | The Identifier of a specific EEC registration. |

##### 6.2.2.3.3 Resource Standard Methods

###### 6.2.2.3.3.1 PUT

This method updates the EEC registration data by completely replacing the existing registration data. This method shall support the URI query parameters specified in table 6.2.2.3.3.1-1.

Table 6.2.2.3.3.1-1: 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 6.2.2.3.3.1-2 and the response data structures and response codes specified in table 6.2.2.3.3.1-3.

Table 6.2.2.3.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EECRegistration | M | 1 | An Individual registration resource to be updated. |

Table 6.2.2.3.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EECRegistration | M | 1 | 200 OK | An individual EEC registration resource updated successfully and the EECRegistration data shall be included in the response. |
| n/a |  |  | 204 No Content | An individual EEC registration resource updated successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.2.2.3.3.1-4: Headers supported by the PUT method on this resource

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

Table 6.2.2.3.3.1-5: Headers supported by the 200 response code on this resource

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

Table 6.2.2.3.3.1-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.2.2.3.3.1-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.2.2.3.3.1-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.2.2.3.3.2 DELETE

This method deregisters (removes) an existing EEC registration. This method shall support the URI query parameters specified in table 6.2.2.3.3.2-1.

Table 6.2.2.3.3.2-1: 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 6.2.2.3.3.2-2 and the response data structures and response codes specified in table 6.2.2.3.3.2-3.

Table 6.2.2.3.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 6.2.2.3.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | An individual EEC registration resource deleted successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.2.2.3.3.3-4: Headers supported by the DELETE method on this resource

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

Table 6.2.2.3.3.3-5: Headers supported by the 204 response code on this resource

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

Table 6.2.2.3.3.3-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.2.2.3.3.3-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.2.2.3.3.3-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.2.2.3.3.3 PATCH

This method partially updates the EEC registration at EES. This method shall support the URI query parameters specified in table 6.2.2.3.3.3-1.

Table 6.2.2.3.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.2.2.3.3.3-2 and the response data structures and response codes specified in table 6.2.2.3.3.3-3.

Table 6.2.2.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EECRegistrationPatch | M | 1 | An Individual registration resource to be updated. |

Table 6.2.2.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EECRegistration | M | 1 | 200 OK | An individual EEC registration resource updated successfully and the EECRegistration data shall be included in the response. |
| n/a |  |  | 204 No Content | An individual EEC registration resource updated successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the PATCH method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.2.2.3.3.3-4: Headers supported by the PATCH method on this resource

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

Table 6.2.2.3.3.3-5: Headers supported by the 200 response code on this resource

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

Table 6.2.2.3.3.3-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.2.2.3.3.3-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.2.2.3.3.3-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

##### 6.2.2.3.4 Resource Custom Operations

None.

### 6.2.3 Custom Operations without associated resources

None.

### 6.2.4 Notifications

None.

### 6.2.5 Data Model

#### 6.2.5.1 General

This clause specifies the application data model supported by the Eees\_EECRegistration API.

Table 6.2.5.1-1 specifies the data types defined specifically for the Eees\_EECRegistration API service.

Table 6.2.5.1-1: Eees\_EECRegistration API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| EECRegistration | 6.2.5.2.2 | Describes the parameters to perform EEC Registration related operations |  |
| acProfile | 6.2.5.2.3 | Describes information about AC used to determine services and service characteristics required |  |
| EASDetail | 6.2.5.2.4 | Describes EAS along with service KPIs that serves the AC |  |
| acServiceKPIs | 6.2.5.2.5 | Describes the KPIs required by the AC in order to receive required services  |  |

Table 6.2.5.1-2 specifies data types re-used by the Eees\_EECRegistration API service.

Table 6.2.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| BitRate | 3GPP TS 29.571 [5] |  |  |
| DateTime | 3GPP TS 29.122 [3] |  |  |
| EndPoint | 3GPP TS 29.558 [4] |  |  |
| ScheduledCommunicationTime | 3GPP TS 29.122 [3] |  |  |
| LocationArea5G | 3GPP TS 29.122 [3] |  |  |
| Uinteger | 3GPP TS 29.571 [5] |  |  |
| DurationSec | 3GPP TS 29.122 [3] |  |  |
| SupportedFeatures | 3GPP TS 29.571 [5] |  |  |
| Gpsi | 3GPP TS 29.571 [5] |  |  |
| ACRScenario | 3GPP TS 29.558 [4] |  |  |

#### 6.2.5.2 Structured data types

##### 6.2.5.2.1 Introduction

##### 6.2.5.2.2 Type: EecRegistration

Table 6.2.5.2.2-1: Definition of type EecRegistration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 0..1 | Represents a unique identifier of the EEC. |  |
| ueId | Gpsi | O | 0..1 | Represents the identifier of the UE. |  |
| acProfs | array(ACProfile) | O | 1..N | Profiles of ACs for which the EEC provides edge enabling services.  |  |
| eecSvcContSupp | array(ACRScenario) | O | 0..1 | The ACR scenarios supported by the EEC for service continuity. If this attribute is not present, then the EEC does not support service continuity. |  |
| expTime | DateTime | O | 0..1 | Represents an expiration time for the registration.This attribute shall be present in the response of the HTTP POST message from EEC to create a new registration or in the response of the HTTP PUT message from EEC to update a specific registration.If abesent, then it indicates that the registration of EEC never expires. |  |
| eecCntxId | string | O | 0..1 | Identifier of the EEC context obtained from a previous registration.  |  |
| srcEesId | string | O | 0..1 | Identifier of the EES that provided EEC context ID. |  |
| srcEesEndpoint | EndPoint | O | 0..1 | The endpoint address of the EES that provided EEC context ID. |  |

Editor's note: The security credentials of EEC depends on SA3 WG and is FFS.

##### 6.2.5.2.3 Type: ACProfile

Table 6.2.5.2.2-1: Definition of type ACProfile

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| acId | string | M | 1 | Identity of the AC. |  |
| acType | string | O | 0..1 | The category or type of AC.  |  |
| prefEcsps | array(string) | O | 1..N | Indicates to the ECS which ECSPs are preferred for the AC. The ECS may use this information in the selection of EESs.  |  |
| acSchedule | ScheduledCommunicationTime | O | 0..1 | Indicates the expected operation schedule of the AC (e.g. time windows) |  |
| expAcGeoServArea | LocationArea5G | O | 0..1 | Indicates the expected location(s) (e.g. route) of the hosting UE during the AC's operation schedule. |  |
| acSvcContSupp | array(ACRScenario) | O | 0..1 | Indicates if service continuity support is required or not for the application.The ACR scenarios supported by the AC for service continuity. If this attribute is not present, then the AC does not support service continuity. |  |
| eass | Array(EasDetail) | O | 1..N | Provides the list of EAS that serve the AC along with the service KPIs required by the AC |  |

##### 6.2.5.2.4 Type: EasDetail

Table 6.2.5.2.2-1: Definition of type EasDetail

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| easId | string | M | 1 | Identifier of the EAS |  |
| expectedSvcKPIs | ACServiceKPIs | O | 0..1 | Describes the KPIs expected in order for ACs to receive currently required services from the EAS |  |
| minimumReqSvcKPIs | ACServiceKPIs | O | 0..1 | Describes the minimum KPIs required in order for ACs to receive meaningful services from the EAS |  |

##### 6.2.5.2.5 Type: ACServiceKPIs

Table 6.2.5.2.2-1: Definition of type ACServiceKPIs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| connBand | BitRate | O | 0..1 | The required connection bandwidth in Kbit/s for the application. |  |
| reqRate | Uinteger | O | 0..1 | The request rate to be generated by the AC.  |  |
| respTime | DurationSec | O | 0..1 | Response time required for the server servicing the requests. |  |
| avail | Uinteger | O | 0..1 | Percentage of time the server is required to be available for the AC's use. |  |
| reqComp | string | O | 0..1 | The compute resources required by the AC. |  |
| reqGrapComp | string | O | 0..1 | The graphical compute resources required by the AC. |  |
| reqMem | string | O | 0..1 | The memory resources required by the AC. |  |
| reqStrg | string | O | 0..1 | The storage resources required by the AC. |  |

##### 6.2.5.2.6 Type: EecRegistrationPatch

Table 6.2.5.2.6-1: Definition of type EecRegistrationPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| acProfs | array(ACProfile) | O | 1..N | Profiles of ACs for which the EEC provides edge enabling services.  |  |
| expTime | DateTime | O | 0..1 | Represents an expiration time for the registration. |  |

### 6.2.6 Error Handling

General error handling are described in clause 6.1.

#### 6.2.6.1 Application Errors

The application errors defined for the Eees\_EECRegistration service are listed in Table 6.2.6.1-1. The EES shall include in the HTTP status code a "ProblemDetails" data structure with the "cause" attribute indicating the application error as listed in table 6.2.6.1-1.

Table 6.2.6.1-1: Application errors

|  |  |  |
| --- | --- | --- |
| Application Error | HTTP status code | Description |
| RESOURCE\_NOT\_FOUND | 404 Not Found | Indicates that the requirements included in the EEC registration request e.g., the AC Profile(s) cannot be fulfilled. |

### 6.2.7 Feature negotiation

General feature negotiation procedures are described in clause 6.1. Table 6.2.7-1 lists the supported features for Eees\_EECRegistration API.

Table 6.2.7-1: Supported Features

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

## 6.3 Eees\_EASDiscovery API

### 6.3.1 API URI

The Eees\_EASDiscovery service shall use the Eees\_EASDiscovery API.

The request URI used in each HTTP request from the EEC towards the EES shall have the structure as defined in clause 6.1 with the following clarifications:

- The <apiName>shall be "eees-easdiscovery".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.3.2.

### 6.3.2 Resources

#### 6.3.2.1 Overview



Figure 6.3.2.1-1: Resource URI structure of the Eees\_EASDiscovery API

Table 6.3.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.3.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| EAS Discovery Subscriptions | /subscriptions | POST | Creates a new individual EAS discovery subscription. |
| Individual EAS Discovery Subscription | /subscriptions/{subscriptionId} | PUT | Updates an existing individual EAS discovery subscription identified by the subscriptionId. |
| DELETE | Deletes an existing individual EAS discovery subscription identified by the subscriptionId. |
| PATCH | Partial update an existing EAS Discovery Subscription resource identified by a subscriptionId. |
| EAS Profiles | /eas-profiles | GET | Provides EAS information requested by the UE. |

Editor's note: Whether the EEC Id should be included in the resource URI structure is FFS.

#### 6.3.2.2 Resource: EAS Discovery Subscriptions

##### 6.3.2.2.1 Description

This resource represents a collection of EAS Discovery Subscriptions with an EES.

##### 6.3.2.2.2 Resource Definition

Resource URI: **{apiRoot}/eees-easdiscovery/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 6.3.2.2.2-1.

Table 6.3.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1. |
| apiVersion | string | See clause 6.1. |

##### 6.3.2.2.3 Resource Standard Methods

###### 6.3.2.2.3.1 POST

This method creates a new subscription. This method shall support the URI query parameters specified in table 6.3.2.2.3.1-1.

Table 6.3.2.2.3.1-1: 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 6.3.2.2.3.1-2 and the response data structures and response codes specified in table 6.3.2.2.3.1-3.

Table 6.3.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EASDiscoverySubscription | M | 1 | Create an Individual EAS Discovery Subscription resource. |

Table 6.3.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EASDiscoverySubscription | M | 1 | 201 Created | Individual EAS Discovery Subscription resource created successfully.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 [3] also apply. |

Table 6.3.2.2.3.1-4: Headers supported by the POST method on this resource

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

Table 6.3.2.2.3.1-5: 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}/eees-easdiscovery/<apiVersion>/subscriptions/{subscriptionId} |

##### 6.3.2.2.4 Resource Custom Operations

None.

#### 6.3.2.3 Resource: Individual EAS Discovery Subscription

##### 6.3.2.3.1 Description

This resource represents modification or deletion of an Individual EAS Discovery Subscription resource.

##### 6.3.2.3.2 Resource Definition

Resource URI: **{apiRoot}/eees-easdiscovery/<apiVersion>/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 6.3.2.3.2-1.

Table 6.3.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1. |
| apiVersion | string | See clause 6.1. |
| subscriptionId | string | The identifier of a specific individual EAS discovery subscription. |

##### 6.3.2.3.3 Resource Standard Methods

###### 6.3.2.3.3.1 PUT

This method updates the individual EAS discovery subscription resource by completely replacing the existing subscription data (except subscriptionId). This method shall support the URI query parameters specified in table 6.3.2.3.3.1-1.

Table 6.3.2.3.3.1-1: 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 6.3.2.3.3.1-2 and the response data structures and response codes specified in table 6.3.2.3.3.1-3.

Table 6.3.2.3.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EASDiscoverySubscription | M | 1 | An individual EAS discovery subscription resource to be updated. |

Table 6.3.2.3.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EASDiscoverySubscription | M | 1 | 200 OK | An individual EAS discovery subscription resource updated successfully, and the EASDiscoverySubscription data shall be included in the response. |
| n/a |  |  | 204 No Content | An individual EAS discovery subscription resource updated successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification/relocation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.3.2.3.3.1-4: Headers supported by the PUT method on this resource

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

Table 6.3.2.3.3.1-5: Headers supported by the 200 response code on this resource

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

Table 6.3.2.3.3.1-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.3.2.3.3.1-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.3.2.3.3.1-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.3.2.3.3.2 DELETE

This method terminates an existing individual EAS discovery subscription. This method shall support the URI query parameters specified in table 6.3.2.3.3.2-1.

Table 6.3.2.3.3.2-1: 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 6.3.2.3.3.2-2 and the response data structures and response codes specified in table 6.3.2.3.3.2-3.

Table 6.3.2.3.3.2-2: Data structures supported by the DELETE Request Body on this resource

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

Table 6.3.2.3.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | An individual EAS discovery subscription resource deleted successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.3.2.3.3.2-4: Headers supported by the DELETE method on this resource

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

Table 6.3.2.3.3.2-5: Headers supported by the 204 response code on this resource

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

Table 6.3.2.3.3.2-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.3.2.3.3.2-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.3.2.3.3.2-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.3.2.3.3.3 PATCH

This method partially updates an existing Individual EAS Discovery Subscription. This method shall support the URI query parameters specified in the table 6.3.2.3.3.3-1.

Table 6.3.2.3.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.3.2.3.3.3-2 and the response data structures and response codes specified in table 6.3.2.3.3.3-3.

Table 6.3.2.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EasDiscoverySubscriptionPatch | M | 1 | Request to partially update an existing Individual EAS Discovery Subscription. |

Table 6.3.2.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EasDiscoverySubscription | M | 1 | 200 OK | The Individual EAS Discovery Subscription is successfully modified and the updated subscription information is returned in the response. |
| n/a |  |  | 204 No Content | The Individual EAS Discovery Subscription is successfully modified. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during subscription modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during subscription modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The manadatory HTTP error status code for the PATCH method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.3.2.3.3.3-4: Headers supported by the PATCH method on this resource

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

Table 6.3.2.3.3.3-5: Headers supported by the PATCH response code on this resource

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

Table 6.3.2.3.3.3-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.3.2.3.3.3-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.3.2.3.3.3-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

##### 6.3.2.3.4 Resource Custom Operations

None.

#### 6.3.2.4 Resource: EAS Profiles

##### 6.3.2.4.1 Description

This resource represents EAS information required by the EEC to access edge application servers.

##### 6.3.2.4.2 Resource Definition

Resource URI: **{apiRoot}/eees-easdiscovery/<apiVersion>/eas-profiles**

This resource shall support the resource URI variables defined in table 6.3.2.2.2-1.

Table 6.3.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1 |
| apiVersion | string | See clause 6.1 |

##### 6.3.2.4.3 Resource Standard Methods

###### 6.3.2.4.3.1 GET

This method allows the EEC to fetch EAS information, as specified in 3GPP TS 23.558 [2] and in 3GPP TS 29.558 [4], from the EES according to a given discovery filter. This method shall support the URI query parameters specified in table 6.3.2.4.3.1-1.

Table 6.3.2.4.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a | EASDiscoveryReq | M | 1 | EAS discovery request information |

This method shall support the request data structures specified in table 6.3.2.4.3.1-2 and the response data structure and response codes specified in table 6.3.2.4.3.1-3.

Table 6.3.2.4.3.1-2: Data structures supported by the GET Request Body on this resource

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

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

Table 6.3.2.4.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EASDiscoveryResp | M | 1 | 200 OK | The requested EAS discovery information was returned successfully. |
| NOTE: The manadatory HTTP error status code for the GET method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.3.2.4.3.1-4: Headers supported by the GET method on this resource

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

Table 6.3.2.4.3.1-5: Headers supported by the 200 response code on this resource

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

Table 6.3.2.4.3.1-6: Links supported by the 200 Response Code on this endpoint

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

##### 6.3.2.4.4 Resource Custom Operations

None

### 6.3.3 Custom operations without associated resources

#### 6.3.3.1 Overview

Editor's note: It is for FFS if a custom operation is used to allow an EEC to request for EAS discovery information as defined in 3GPP TS 23.558.

### 6.3.4 Notifications

#### 6.3.4.1 General

Table 6.3.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| EAS Discovery Notification | {notificationDestination} | POST | Notifies the subscriber EEC with EAS discovery information. |

#### 6.3.4.2 EAS Discovery Notification

##### 6.3.4.2.1 Description

EAS Discovery notification is used by the EES to notify an EEC with EAS discovery information. The EEC may subscribe to the EAS discovery information as a pre-condition for receiving notification.

##### 6.3.4.2.2 Notification definition

The POST method shall be used by the EES for the notification and the callback URI shall be the one provided by the EEC during the EAS discovery notification.

Callback URI: **{notificationDestination}**

This method shall support the URI query parameters specified in table 6.3.4.2.2-1.

Table 6.3.4.2.2-1: 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 6.3.4.2.2-2 and the response data structures and response codes specified in table 6.3.4.2.2-3.

Table 6.3.4.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EasDiscoveryNotification | M | 1 | Notification of EAS discovery information. |

Table 6.3.4.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

### 6.3.5 Data Model

#### 6.3.5.1 General

This clause specifies the application data model supported by the Eees\_EASDiscovery API.

Table 6.3.5.1-1 specifies the data types defined specifically for the Eees\_EASDiscovery API service.

Table 6.3.5.1-1: Eees\_EASDiscovery API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| EasDiscoveryReq | 6.3.5.2.2 |  |  |
| EasDiscoveryResp | 6.3.5.2.3 |  |  |
| EasDiscoverySubscription | 6.3.5.2.4 |  |  |
| EasDiscoveryNotification | 6.3.5.2.5 |  |  |
| EasDiscoveryFilter | 6.3.5.2.6 |  |  |
| EasCharacteristics | 6.3.5.2.7 |  |  |
| DiscoveredEas | 6.3.5.2.8 |  |  |
| EasDynamicInfoFilter | 6.3.5.2.9 |  |  |

Table 6.3.5.1-2 specifies data types re-used by the Eees\_EASDiscovery API service.

Table 6.3.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| TimeWindow | 3GPP TS 29.122 [3] |  |  |
| DurationSec | 3GPP TS 29.122 [3] |  |  |
| LocationArea5G | 3GPP TS 29.122 [3] |  |  |
| ACProfile | clause 6.2.5.2.3 |  |  |
| LocationInfo | 3GPP TS 29.122 [3] |  |  |
| EndPoint | 3GPP TS 29.558 [4] |  |  |
| EASProfile | 3GPP TS 29.558 [4] |  |  |
| Dnai | 3GPP TS 29.571 [5] |  |  |
| RouteToLocation | 3GPP TS 29.571 [5] |  |  |
| Gpsi | 3GPP TS 29.571 [5] | Used to identify a UE.  |  |
| Uri | 3GPP TS 29.122 [3] |  |  |

#### 6.3.5.2 Structured data types

##### 6.3.5.2.1 Introduction

##### 6.3.5.2.2 Type: EasDiscoveryReq

Table 6.3.5.2.2-1: Definition of type EasDiscoveryReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 1 | Represents a unique identifier of the EEC. |  |
| ueId | string | O | 0..1 | Represents the identifier of the UE. |  |
| easDiscoveryFilter | EasDiscoveryFilter | O | 0..1 | EAS characteristics |  |
| eecSvcContinuity | string | O | 0..1 | Service continuity support; indicates EEC supported ACR scenarios |  |
| eesSvcContinuity | String | O | 0..1 | Service continuity support; indicates EES supported ACR scenarios |  |
| easSvcContinuity | string | O | 0..1 | Service continuity support; indicates EAS supported ACR scenarios |  |
| locInf | LocationInfo | O | 0..1 | Represents location information of the UE. |  |
| easTDnais | array(Dnai) | O | 1..N | Target DNAI information which can be associated with potential target-EAS(s)  |  |

##### 6.3.5.2.3 Type: EasDiscoveryResp

Table 6.3.5.2.3-1: Definition of type EasDiscoveryResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| discoveredEas | array(DiscoveredEas) | M | 1..N | List of EAS discovery information |  |

##### 6.3.5.2.4 Type: EasDiscoverySubscription

Table 6.3.5.2.4-1: Definition of type EasDiscoverySubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 1 | Represents a unique identifier of the EEC. |  |
| ueId | Gpsi | O | 0..1 | Represents the identifier of the UE. |  |
| easEventType | EASDiscEventIDs | M | 1 | Event type for which the EEC should be notified; |  |
| easDiscoveryFilter | EasDiscoveryFilter | O | 0..1 | EAS characteristics filter; Applicable when easEventType is set to "EAS\_AVAILABILITY\_CHANGE" event |  |
| easDynInfoFilter | EasDynamicInfoFilter | O | 0..1 | EAS dynamic information changes filter; Applicable when easEventType is set to "EAS\_DYNAMIC\_INFO\_CHANGE" event |  |
| eecSvcContinuity | array(ACRScenario) | O | 0..1 | Service continuity support; indicates EEC supported ACR scenarios |  |
| notificationDestination | Uri | M | 1 | URI where the EAS discovery notification should be delivered to. This attribute shall be present in HTTP POST message to EES. |  |
| expTime | DateTime | O | 0..1 | Expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |
| requestTestNotification | boolean | O | 0..1 | Set to true by Subscriber to request the EES to send a test notification as defined in clause 6.1. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 7.6. | Notification\_websocket |
| suppFeat | SupportedFeatures | C | 0..1 | Represents a list of Supported features used as described in clause 6.3.7. Shall be present in the HTTP POST request/response; |  |

Editor's note: The security credentials of EEC depend on SA3 WG and is FFS.

Editor's note: How subscription ID will be sent in a subscription response is FFS.

##### 6.3.5.2.5 Type: EasDiscoveryNotification

Table 6.3.5.2.5-1: Definition of type EasDiscoveryNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subId | string | M | 1 | String identifying the individual subscription for which the service provisioning notification is delivered. |  |
| eventType | EASDiscEventIDs | M | 1 | Event type for which the notification is delivered; |  |
| discoveredEas | array(DiscoveredEas) | M | 1..N | List of EAS discovery information |  |

##### 6.3.5.2.6 Type: EasDiscoveryFilter

Table 6.3.5.2.6-1: Definition of type EasDiscoveryFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| acChars | array(ACCharacteristics) | O | 1..N | AC description for which an EAS is needed |  |
| easChars | Array(EasCharacteristics) | O | 1..N | Required EAS chararcteristics |  |
| NOTE 1: Either acChars or easChars shall be present.NOTE 2: prefEcsps from the ACProfile shall not be present. |

##### 6.3.5.2.7 Type: EasCharacteristics

Table 6.3.5.2.7-1: Definition of type EasCharacteristics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| easId | string | O | 0..1 | EAS identifier |  |
| easProvId | string | O | 0..1 | EAS provider identifier |  |
| easType | string | O | 0..1 | EAS type |  |
| easSched | TimeWindow | O | 0..1 | EAS availability schedule |  |
| svcArea | LocationArea5G | O | 0..1 | Service availability area (geographical and topological) |  |
| easSvcContinuity | array(ACRScenario) | O | 0..1 | The ACR scenarios required by the EAS for service continuity. If this attribute is not present, then the EAS does not require to support service continuity. |  |
| svcPermLevel | string | O | 0..1 | Service permissions level |  |
| svcFeats | array(string) | O | 1..N | Service features |  |
| NOTE: Must include at least one optional IE |

##### 6.3.5.2.8 Type: DiscoveredEas

Table 6.3.5.2.8-1: Definition of type DiscoveredEas

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eass | EASProfile | M | 1 | Contains the list of EAS matching the discovery request filters |  |
| lifeTime | DateTime | O | 0..1 | Indicates the time duration for which the EAS information is valid and supposed to be cached in the EEC. |  |

##### 6.3.5.2.9 Type: EasDynamicInfoFilter

Table 6.3.5.2.9-1: Definition of type EasDynamicInfoFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dynInfoFilter | array(EasDynamicInfoFilterData) | M | 1 | List of EAS dynamic information required by the EEC per EAS |  |

##### 6.3.5.2.10 Type: EasDynamicInfoFilterData

Table 6.3.5.2.10-1: Definition of type EasDynamicInfoFilterData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| easId | string | M | 1 | EAS identifier |  |
| easStatus | boolean | O | 0..1 | Notify if EAS status changed |  |
| easAcIds | boolean | O | 0..1 | Notify if list of AC identifiers changed |  |
| easDesc | boolean | O | 0..1 | Notify if EAS description changed |  |
| easPt | boolean | O | 0..1 | Notify if EAS endpoint changed |  |
| easFeature | boolean  | O | 0..1 | Notify if EAS feature changed |  |
| easSchedule | boolean | O | 0..1 | Notify if EAS schedule changed |  |
| svcArea | boolean | O | 0..1 | Notify if EAS service area changed |  |
| svcKpi | boolean | O | 0..1 | Notify if EAS KPIs changed |  |
| svcCont | boolean | O | 0..1 | Notify if EAS supported ACR changed |  |

##### 6.3.5.2.11 Type: ACCharacteristics

Table 6.3.5.2.11-1: Definition of type ACCharacteristics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| acProf | ACProfile | M | 1 | Profiles of ACs for which the EEC provides edge enabling services. |  |

##### 6.3.5.2.12 Type: EasDiscoverySubscriptionPatch

Table 6.3.5.2.12-1: Definition of type EasDiscoverySubscriptionPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| easDiscoveryFilter | EasDiscoveryFilter | O | 0..1 | EAS characteristics filter; Applicable when easEventType is set to "EAS\_AVAILABILITY\_CHANGE" event |  |
| easDynInfoFilter | EasDynamicInfoFilter | O | 0..1 | EAS dynamic information changes filter; Applicable when easEventType is set to "EAS\_DYNAMIC\_INFO\_CHANGE" event |  |
| eecSvcContinuity | array(ACRScenario) | O | 0..1 | Service continuity support; indicates EEC supported ACR scenarios |  |
| expTime | DateTime | O | 0..1 | Expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |

#### 6.3.5.3 Simple data types and enumerations

##### 6.3.5.3.1 Introduction

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

##### 6.3.5.3.2 Simple data types

The simple data types defined in table 6.3.5.3.2-1 shall be supported.

Table 6.3.5.3.2-1: Simple data types

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

##### 6.3.5.3.3 Enumeration: EASDiscEventIDs

The enumeration ACREventIDs represents the ACR events supported. It shall comply with the provisions defined in table 6.3.5.3.3-1.

Table 6.3.5.3.3-1: Enumeration ACREventIDs

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| EAS\_AVAILABILITY\_CHANGE | Represents the EAS availability change event |  |
| EAS\_DYNAMIC\_INFO\_CHANGE | Represents the EAS dynamic information change event |  |

### 6.3.6 Error Handling

General error handling is described in clause 6.1.

### 6.3.7 Feature negotiation

General feature negotiation procedures are described in clause 6.1. Table 6.3.7-1 lists the supported features for Eees\_EASDiscovery API.

Table 6.3.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | Notification\_test\_event | Testing of notification connection is supported according to clause 6.1. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 6.1. This feature requires that the Notification\_test\_event feature is also supported. |

## 6.4 Eees\_ACREvents API

### 6.4.1 API URI

The request URI used in each HTTP request from the EEC towards the EES shall have the structure as defined in clause 6.1 with the following clarifications:

- The <apiName>shall be "eees-acrevents".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.4.2.

### 6.4.2 Resources

#### 6.4.2.1 Overview



Figure 6.4.2.1-1: Resource URI structure of the Eees\_ACREvents API

Table 6.4.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.4.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| ACR events subscriptions | /subscriptions | POST | Creates a new individual ACR events subscription. |
| Individual ACR events subscription | /subscriptions/{subscriptionId} | PUT | Updates an existing individual ACR events subscription identified by the subscriptionId. |
| DELETE | Deletes an existing individual ACR events subscription identified by the subscriptionId. |
| PATCH | Partially updates an existing individual ACR events subscription identified by the subscriptionId. |

Editor's note: Whether the EEC Id should be included in the resource URI structure is FFS.

#### 6.4.2.2 Resource: ACR events subscriptions

##### 6.4.2.2.1 Description

This resource represents a collection of ACR related events subscriptions with an EES.

##### 6.4.2.2.2 Resource Definition

Resource URI: **{apiRoot}/eees-acrevents/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 6.4.2.2.2-1.

Table 6.4.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.4.1. |
| apiVersion | string | See clause 6.4.1. |

##### 6.4.2.2.3 Resource Standard Methods

###### 6.4.2.2.3.1 POST

This method creates a new subscription. This method shall support the URI query parameters specified in table 6.4.2.2.3.1-1.

Table 6.4.2.2.3.1-1: 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 6.4.2.2.3.1-2 and the response data structures and response codes specified in table 6.4.2.2.3.1-3.

Table 6.4.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ACREventsSubscription | M | 1 | Create an Individual ACR events subscription resource. |

Table 6.4.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ACREventsSubscription | M | 1 | 201 Created | Individual ACR events subscription resource created successfully.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 [3] also apply. |

Table 6.4.2.2.3.1-4: Headers supported by the POST method on this resource

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

Table 6.4.2.2.3.1-5: 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}/eees-acrevents/<apiVersion>/subscriptions/{subscriptionId} |

##### 6.4.2.2.4 Resource Custom Operations

None.

#### 6.4.2.3 Resource: Individual ACR events subscription

##### 6.4.2.3.1 Description

This resource represents modification or deletion of an Individual ACR events subscription resource.

##### 6.4.2.3.2 Resource Definition

Resource URI: **{apiRoot}/eees-acrevents/<apiVersion>/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 6.4.2.3.2-1.

Table 6.4.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.4.1. |
| apiVersion | string | See clause 6.4.1. |
| subscriptionId | string | The identifier of a specific individual ACR events subscription. |

##### 6.4.2.3.3 Resource Standard Methods

###### 6.4.2.3.3.1 PUT

This method updates the individual ACR events subscription resource by completely replacing the existing subscription data (except subscriptionId). This method shall support the URI query parameters specified in table 6.4.2.3.3.1-1.

Table 6.4.2.3.3.1-1: 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 6.4.2.3.3.1-2 and the response data structures and response codes specified in table 6.4.2.3.3.1-3.

Table 6.4.2.3.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ACREventsSubscription | M | 1 | An individual ACR events subscription resource to be updated. |

Table 6.4.2.3.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ACREventsSubscription | M | 1 | 200 OK | An individual ACR events subscription resource updated successfully and the ACREventsSubscription data shall be included in the response. |
| n/a |  |  | 204 No Content | An individual ACE events subscription resource updated successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.4.2.3.3.1-4: Headers supported by the PUT method on this resource

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

Table 6.4.2.3.3.1-5: Headers supported by the 200 response code on this resource

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

Table 6.4.2.3.3.1-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.4.2.3.3.1-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.4.2.3.3.1-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.4.2.3.3.2 DELETE

This method terminates an existing individual ACR events subscription. This method shall support the URI query parameters specified in table 6.4.2.3.3.2-1.

Table 6.4.2.3.3.2-1: 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 6.4.2.3.3.2-2 and the response data structures and response codes specified in table 6.4.2.3.3.2-3.

Table 6.4.2.3.3.2-2: Data structures supported by the DELETE Request Body on this resource

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

Table 6.4.2.3.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | An individual individual ACR events subscription resource deleted successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.4.2.3.3.2-4: Headers supported by the DELETE method on this resource

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

Table 6.4.2.3.3.2-5: Headers supported by the 204 response code on this resource

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

Table 6.4.2.3.3.2-6: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.4.2.3.3.2-7: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

###### 6.4.2.3.3.3 PATCH

This method partially updates the individual ACR events subscription resource. This method shall support the URI query parameters specified in table 6.4.2.3.3.3-1.

Table 6.4.2.3.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.4.2.3.3.3-2 and the response data structures and response codes specified in table 6.4.2.3.3.3-3.

Table 6.4.2.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ACREventsSubscriptionPatch | M | 1 | An individual ACR events subscription resource to be updated. |

Table 6.4.2.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ACREventsSubscription | M | 1 | 200 OK | An individual ACR events subscription resource updated successfully and the ACREventsSubscription data shall be included in the response. |
| n/a |  |  | 204 No Content | An individual ACE events subscription resource updated successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The manadatory HTTP error status code for the PATCH method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 6.4.2.3.3.3-4: Headers supported by the PATCH method on this resource

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

Table 6.4.2.3.3.3-5: Headers supported by the 200 response code on this resource

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

Table 6.4.2.3.3.3-6: Links supported by the 200 Response Code on this endpoint

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

Table 6.4.2.3.3.3-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 6.4.2.3.3.3-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

##### 6.4.2.3.4 Resource Custom Operations

None.

### 6.4.3 Custom operations without associated resources

None.

### 6.4.4 Notifications

#### 6.4.4.1 General

Table 6.4.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| ACR Information Notification | {notificationDestination} | POST | Notifies EEC for the ACR information notification. |

#### 6.4.4.2 ACR Information Notification

##### 6.4.4.2.1 Description

ACR Information Notification is used by the EES to notify an EEC for the following ACR information:

- target information, i.e. the details of the selected T-EAS and, if required, the selected T-EES, during the ACR procedures;

- ACR complete events.

##### 6.4.4.2.2 Notification definition

The POST method shall be used by the EES for sending notifications and the notification destination shall be the callback URI as provided by the EEC during the ACR events subscription.

Callback URI: **{notificationDestination}**

This method shall support the URI query parameters specified in table 6.4.4.2.2-1.

Table 6.4.4.2.2-1: 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 6.4.4.2.2-2 and the response data structures and response codes specified in table 6.4.4.2.2-3.

Table 6.4.4.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ACRInfoNotification | M | 1 | Notification of ACR information. |

Table 6.4.4.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

### 6.4.5 Data Model

#### 6.4.5.1 General

This clause specifies the application data model supported by the Eees\_ACREvents API.

Table 6.4.5.1-1 specifies the data types defined specifically for the Eees\_ACREvents API service.

Table 6.4.5.1-1: Eees\_ACREvents API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| ACREventsSubscription | 6.4.5.2.2 |  |  |
| ACRInfoNotification | 6.4.5.2.3 |  |  |
| EasInfo | Clause 6.3.5.2.8 |  |  |
| ACREventIDs | 6.4.5.3.3 |  |  |

Table 6.4.5.1-2 specifies data types re-used by the Eees\_ACREvents API service.

Table 6.4.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [3] |  |  |
| Uri | 3GPP TS 29.122 [3] |  |  |
| WebsockNotifConfig | 3GPP TS 29.122 [3] |  |  |
| SupportedFeatures | 3GPP TS 29.571 [5] |  |  |

#### 6.4.5.2 Structured data types

##### 6.4.5.2.1 Introduction

##### 6.4.5.2.2 Type: ACREventsSubscription

Table 6.4.5.2.2-1: ACREventsSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 0..1 | Represents a unique identifier of the EEC. |  |
| ueId | Gpsi | O | 0..1 | Represents the identifier of the UE. |  |
| expTime | DateTime | O | 0..1 | Indicates the expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |
| easIds | array(string) | M | 1..N | The list of identifier of the EASs |  |
| eventIds | ACREventIDs | M | 1 | Specifies the events for which EEC is subscribing. |  |
| notificationDestination | Uri | O | 1 | URI where the ACR Information Notification should be delivered to. This attribute shall be present in HTTP POST message to EES. |  |
| requestTestNotification | boolean | O | 0..1 | Set to true by Subscriber to request the ECS to send a test notification as defined in clause 7.6 of 3GPP TS 29.558 [4]. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 7.6 of 3GPP TS 29.558 [4]. | Notification\_websocket |
| suppFeat | SupportedFeatures | O | 0..1 | Used to negotiate the supported optional features of the API as described in clause 7.8 of 3GPP TS 29.558 [4].This attribute shall be provided in the HTTP POST request and in the response of successful resource creation. |  |

Editor's note: The security credentials of EEC depends on SA3 WG and is FFS.

##### 6.4.5.2.3 Type: ACRInfoNotification

Table 6.4.5.2.3-1: ACRInfoNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subId | string | M | 1 | String identifying the Individual ACR events subscription for which the ACT Information notification is delivered. |  |
| easId | string | M | 1 | The identifier of the EASs |  |
| eventId | ACREventIDs | M | 1 | Specifies the events for which notification is sent |  |
| TrgtInfo (NOTE 1) | TargetInfo | O | 0..1 | Details of the selected T-EAS and the T-EES. |  |
| ACRRes (NOTE 2) | boolean | O | 0..1 | Indicates whether the ACR is successful or failure |  |
| failReason (NOTE 3) | string | O | 0..1 | Indicates the cause information for the failure |  |
| NOTE 1: This attribute shall be included when Event ID indicates 'TARGET\_INFORMATION' eventNOTE 2: This attribute shall be included when Event ID indicates 'ACR\_COMPLETE' eventNOTE 3: This attribute shall be included when the ACRRes attribute indicates failure. |

##### 6.4.5.2.4 Type: TargetInfo

Table 6.4.5.2.4-1: TargetInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| TrgetEASInfo | EasInfo | M | 1 | EAS discovery information. |  |
| TrgetEESInfo | EDNConfigInfo | O | 0..1 | Provides EDN configuration information. This attribute shall be included only if the selected T-EES is different from the S-EES. |  |

Editor's note: The EDNConfigInfo data type is FFS.

##### 6.4.5.2.5 Type: ACREventsSubscriptionPatch

Table 6.4.5.2.5-1: ACREventsSubscriptionPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| expTime | DateTime | O | 0..1 | Indicates the expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |
| easIds | array(string) | M | 1..N | The list of identifier of the EASs |  |
| eventIds | ACREventIDs | M | 1 | Specifies the events for which EEC is subscribing. |  |
| notificationDestination | Uri | O | 1 | URI where the ACR Information Notification should be delivered to. This attribute shall be present in HTTP POST message to EES. |  |

#### 6.4.5.3 Simple data types and enumerations

##### 6.4.5.3.1 Introduction

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

##### 6.4.5.3.2 Simple data types

The simple data types defined in table 6.4.5.3.2-1 shall be supported.

Table 6.4.5.3.2-1: Simple data types

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

##### 6.4.5.3.3 Enumeration: ACREventIDs

The enumeration ACREventIDs represents the ACR events supported. It shall comply with the provisions defined in table 6.4.5.3.3-1.

Table 6.4.5.3.3-1: Enumeration ACREventIDs

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| TARGET\_INFORMATION |  |  |
| ACR\_COMPLETE |  |  |

### 6.4.6 Error Handling

General error handling are described in clause 6.1.

### 6.4.7 Feature negotiation

General feature negotiation procedures are described in clause 6.1. Table 6.4.7-1 lists the supported features for Eees\_ACREvents API.

Table 6.4.7-1: Supported Features

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

## 6.5 Eees\_AppContextRelocation API

### 6.5.1 API URI

The request URI used in each HTTP request from the EEC towards the EES shall have the structure as defined in clause 6.1 with the following clarifications:

- The <apiName>shall be "eees-acrevents".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.5.2.

### 6.5.2 Resources

#### 6.5.2.1 Overview



Figure 6.5.2.1-1: Resource URI structure of the Eees\_AppContextRelocation API

Table 6.5.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.5.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| n/a | /determine | determine(POST) | EES determines if ACR is needed and may initiate the procedure |
| /initiate | initiate(POST) | EES initiates the requested ACR procedure |

#### 6.5.2.2 Resources

None

### 6.5.3 Custom Operations without associated resources

#### 6.5.3.1 Overview

Table 6.5.3.1-1: Custom operations without associated resources

|  |  |  |
| --- | --- | --- |
| Custom operation URI | Mapped HTTP method | Description |
| /determine | POST | EES determines if ACR is needed and may initiate the procedure |
| /initiate | POST | EES initiates the requested ACR procedure |

#### 6.5.3.2 Operation: Determine

##### 6.5.3.2.1 Description

This custom operation allows the EEC to request that the EES evaluates if ACR is needed and subsequently initiate the ACR procedure if required.

##### 6.5.3.2.2 Operation Definition

This operation shall support the response data structures and response codes specified in tables 6.5.3.2.2-1 and 6.5.3.2.2-2.

Table 6.5.3.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AcrDeterminationReq | M | 1 | Information about the requestor and requested ACR operation |

Table 6.5.3.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  |  |  |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

#### 6.5.3.3 Operation: Initiate

##### 6.5.3.3.1 Description

This custom operation allows the EEC to request initiation of an ACR procedure.

##### 6.5.3.3.2 Operation Definition

This operation shall support the response data structures and response codes specified in tables 6.5.3.3.2-1 and 6.5.3.3.2-2.

Table 6.5.3.3.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AcrInitiationReq | M | 1 | Information about the requestor and requested ACR operation |

Table 6.5.3.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  |  |  |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

### 6.5.4 Notifications

None

### 6.5.5 Data Model

#### 6.5.5.1 General

This clause specifies the application data model supported by the Eees\_AppContextRelocation API.

Table 6.5.5.1-1 specifies the data types defined specifically for the Eees\_AppContextRelocation API service.

Table 6.5.5.1-1: Eees\_ AppContextRelocation API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| AcrInitiationReq | 6.5.5.2.2 |  |  |
| AcrDeterminationReq | 6.5.5.2.3 |  |  |

Table 6.5.5.1-2 specifies data types re-used by the Eees\_AppContextRelocation API service.

Table 6.5.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| n/a |  |  |  |

#### 6.5.5.2 Structured data types

##### 6.5.5.2.1 Introduction

##### 6.5.5.2.2 Type: AcrInitiationReq

Editor's note: The definition of the data type is FFS.

##### 6.5.5.2.3 Type: AcrDeterminationReq

Editor's note: The definition of the data type is FFS.

### 6.5.6 Error Handling

General error handling are described in clause 6.1.

### 6.5.7 Feature negotiation

General feature negotiation procedures are defined in clause 6.1. Table 6.5.7-1 lists the supported features for Eees\_AppContextRelocation API.

Table 6.5.7-1: Supported Features

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

## 6.x <API Name – Eees\_xxx> API

*Add a copy of this clause for a new API definition, adding all the clauses below. All the clauses are mandatory for each API. Yellow highlighted text needs to be replaced with appropriate clause number and the API, Service operation name.*

### 6.x.1 API URI

### 6.x.2 Resources

#### 6.x.2.1 Overview



Figure 6.x.2.1-1: Resource URI structure of the <API Name> API

Table 6.x.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.x.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
|  |  |  |  |

#### 6.x.2.2 Resource: <Resource name>

##### 6.x.2.2.1 Description

##### 6.x.2.2.2 Resource Definition

##### 6.x.2.2.3 Resource Standard Methods

###### 6.x.2.2.3.1 <Method Name>

Table 6.x.2.2.3.1-1: URI query parameters supported by the <Method Name> method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| <name> or n/a | <type> or <leave empty> | <M, C or O> | 0..1 or 1 or 0..N or 1..N or <leave empty> | <only if applicable> |

This method shall support the request data structures specified in table 6.x.2.2.3.1-2 and the response data structures and response codes specified in table 6.x.2.2.3.1-3.

Table 6.x.2.2.3.1-2: Data structures supported by the <Method Name> Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| "<type>" or "array*(<type>*)" or "map*(<type>*)" or n/a | "M", "C" or "O" | "0..1", "1", or "M..N", or <leave empty> | <only if applicable> |

Table 6.x.2.2.3.1-3: Data structures supported by the <Method Name> Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" or n/a | "M", "C" or "O" | "0..1", "1", or "M..N", or <leave empty> | <list applicable codes with name from the applicable RFCs> | <Meaning of the success case>or<Meaning of the error case with additional statement regarding error handling> |
| NOTE: The manadatory HTTP error status code for the <method 1> method listed in <Table X of 3GPP TS 29.xxx [x]> also apply. |

Table 6.x.2.2.3.1-4: Headers supported by the <e.g. GET> method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| <header name>  | <data type>e.g. string | "M", "C" or "O" | "0..1", "1", "1..N", "1..N", or <leave empty> | <description> |

Table 6.x.2.2.3.1-5: Headers supported by the <e.g. 200> response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| <header name>  | <data type>e.g. string | "M", "C" or "O" | "0..1", "1", "1..N", "1..N", or <leave empty> | <description> |

Table 6.x.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 |
| <link name>e.g. search | <resource 1>e.g. Stored Search (Document) | <method 1>e.g. GET | <parameter>e.g. searchId | <description of the link> |

##### 6.x.2.2.4 Resource Custom Operations

The following clauses will specify the custom operations supported by the resource.

It will describe, for each custom operation, the use and the URI of the operation, the HTTP method on which it is mapped, request and response data structures and response codes, and if applicable, HTTP headers specific to the operation.

###### 6.x.2.2.4.1 Overview

Table 6.x.2.2.4.1-1: Custom operations

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operaration URI | Mapped HTTP method | Description |
| <custom operation name> | <custom operation URI> | e.g.POST | <Operation executed by Custom operation> |
|  |  |  |  |

###### 6.x.2.2.4.2 Operation: < operation 1 >

This clause will specify the meaning of the operation applied on the resource.

6.x.2.2.4.2.1 Description

This sublause will describe the custom operation and what it is used for, and the custom operation's URI.

6.x.2.2.4.2.2 Operation Definition

This clause will specify the custom operation and the HTTP method on which it is mapped.

This operation shall support the request data structures specified in table 6.x.2.2.4.2.2-1 and the response data structure and response codes specified in table 6.x.2.2.4.2.2-2.

Table 6.x.2.2.4.2.2-1: Data structures supported by the <e.g. POST> Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1", or "M..N", or <leave empty> | <only if applicable> |

Table 6.x.2.2.4.2.2-2: Data structures supported by the <e.g. POST> Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1" or "M..N", or <leave empty> | <list applicable codes with name from the applicable RFCs> | <Meaning of the success case>or<Meaning of the error case with additional statement regarding error handling> |
| NOTE: The manadatory HTTP error status code for the <e.g. POST> method listed in <Table X of 3GPP TS 29.xxx [x]> also apply. |

### 6.x.3 Custom Operations without associated resources

#### 6.x.3.1 Overview

This clause will specify custom operations without any associated resource supported by this API.

Table 6.x.3.1-1: Custom operations without associated resources

|  |  |  |
| --- | --- | --- |
| Custom operation URI | Mapped HTTP method | Description |
| <custom operation URI> | e.g.POST | <Operation executed by Custom operation> |
|  |  |  |

#### 6.x.3.2 Operation: <operation 1>

Where <operation 1> is to be replaced by the name of the custom operation, e.g. Authentication\_Information\_Request.

It will describe, for each custom operation, the use and the URI of the operation, the HTTP method on which it is mapped, request and response data structures and response codes, and if applicable, HTTP headers specific to the operation.

##### 6.x.3.2.1 Description

This clause will describe the custom operation and what it is used for, and the custom operation's URI.

##### 6.x.3.2.2 Operation Definition

This clause will specify the custom operation and the HTTP method on which it is mapped.

This operation shall support the response data structures and response codes specified in tables 6.x.3.2.2-1 and 6.x.3.2.2-2.

Table 6.x.3.2.2-1: Data structures supported by the <e.g. POST> Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1", or "M..N", or <leave empty> | <only if applicable> |

Table 6.x.3.2.2-2: Data structures supported by the <e.g. POST> Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1" or "M..N", or <leave empty> | <list applicable codes with name from the applicable RFCs> | <Meaning of the success case>or<Meaning of the error case with additional statement regarding error handling> |
| NOTE: The manadatory HTTP error status code for the <e.g. POST> method listed in <Table X of 3GPP TS 29.xxx [x]> also apply. |

#### 6.x.3.3 Operation: < operation 2>

*And so on if there are more than one custom operations supported by the service. Same structure as in clause 6.x.3.2*

### 6.x.4 Notifications

#### 6.x.4.1 General

Table 6.x.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| <notification 1>e.g. Status Change Notification | < Callback URI >e.g. {StatusCallbackUri} | e.g POST | e.g. Notify Event  |
|  |  |  |  |

#### 6.x.4.2 <notification 1>

##### 6.x.4.2.1 Description

##### 6.x.4.2.2 Notification definition

Callback URI: <Notification resource URI>

This method shall support the URI query parameters specified in table 6.x.4.2.2-1.

Table 6.x.4.2.2-1: URI query parameters supported by the <Method Name> method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

This method shall support the request data structures specified in table 6.x.4.2.2-2 and the response data structures and response codes specified in table 6.x.4.2.2-3.

Table 6.x.4.2.2-2: Data structures supported by the <Method Name> Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1", or "M..N", or <leave empty> | <only if applicable> |

Table 6.x.4.2.2-3: Data structures supported by the <Method Name> Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1" or "M..N", or <leave empty> | <list applicable codes with name from the applicable RFCs> | <Meaning of the success case>or<Meaning of the error case with additional statement regarding error handling> |

### 6.x.5 Data Model

#### 6.x.5.1 General

This clause specifies the application data model supported by the API. Data types listed in clause <6.1 related to EdgeApp design aspects common for several EES APIs> apply to this API

Table 6.x.5.1-1 specifies the data types defined specifically for the <API Name> API service.

Table 6.x.5.1-1: <API Name> API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
|  |  |  |  |

Table 6.x.5.1-2 specifies data types re-used by the <API Name> API service.

Table 6.x.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
|  |  |  |  |

#### 6.x.5.2 Structured data types

##### 6.x.5.2.1 Introduction

##### 6.x.5.2.2 Type: <Data type name>

Table 6.x.5.2.2-1: Definition of type <Data Type name>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| <*attribute name*> | "*<type>*" or "array*(<type>*)" or "map*(<type>*)" | "M", "C" or "O" | "0..1", "1" or "M..N" | <only if applicable> |  |
|  |  |  |  |  |  |

#### 6.x.5.3 Simple data types and enumerations

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

##### 6.x.5.3.1 Introduction

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

##### 6.x.5.3.2 Simple data types

The simple data types defined in table 6.x.5.3.2-1 shall be supported.

Table 6.x.5.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  | <one simple data type, i.e. boolean, integer, number, or string> |  |  |

##### 6.x.5.3.3 Enumeration: <EnumType1>

The enumeration <EnumType1> represents <something>. It shall comply with the provisions defined in table 6.x.5.3.3-1.

Table 6.x.5.3.3-1: Enumeration < EnumType1>

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
|  |  |  |

### 6.x.6 Error Handling

### 6.x.7 Feature negotiation

General feature negotiation procedures are defined in clause <6.1>. Table 6.x.7-1 lists the supported features for <API name> API.

Table 6.x.7-1: Supported Features

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

# 7 Services offered by Edge Configuration Server

## 7.1 Introduction

The table 7.1-1 lists the Edge Configuration Server APIs below the service name. A service description clause for each API gives a general description of the related API.

Table 7.1-1: List of ECS Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| Eecs\_ServiceProvisioning | Request | Request/Response | EEC |
| Subscribe | Subscribe/Notify | EEC |
| Notify |
| UpdateSubscription |
| Unsubscribe |

Table 7.1-2 summarizes the corresponding Edge Configuration Server APIs defined in this specification.

Table 7.1-2: API Descriptions

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

## 7.2 Eecs\_ServiceProvisioning Service

### 7.2.1 Service Description

The Eecs\_ServiceProvisioning API, as defined in 3GPP TS 23.558 [2], allows an EEC via the Eecs interface to obtain service provisioning information as a one-time request or to subscribe for reporting from the ECS.

### 7.2.2 Service Operations

#### 7.2.2.1 Introduction

The service operation defined for Eecs\_ServiceProvisioning API is shown in the table 7.2.2.1-1.

Table 7.2.2.1-1: Operations of the Eecs\_ServiceProvisioning API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eecs\_ServiceProvisioning\_Request | This service operation is used by the EEC to request for one-time service provisioning information. | EEC |
| Eecs\_ServiceProvisioning\_Subscribe | This service operation is used by the EEC to subscribe to ECS for reporting of service provisioning information. | EEC |
| Eecs\_ServiceProvisioning\_Notify | This service operation is used by the ECS to notify the EEC about the service provisioning information. | ECS |
| Eecs\_ServiceProvisioning\_UpdateSubscription | This service operation is used by the EEC to update its subscription at ECS for reporting of service provisioning information. | EEC |
| Eecs\_ServiceProvisioning\_Unsubscribe | This service operation is used by the EEC to remove its subscription from ECS for reporting of service provisioning information. | EEC |

#### 7.2.2.2 Eecs\_ServiceProvisioning\_Request

##### 7.2.2.2.1 General

This service operation is used by the EEC to request for one-time service provisioning information.

##### 7.2.2.2.2 EEC requesting service provisioning information using Eecs\_ServiceProvisioning\_Request operation

To request for the one-time service provisioning information, the EEC shall send an HTTP POST message to the ECS on the "Provisioning Information" resource. The body of the HTTP POST message shall include the unique identifier of the EEC, may include AC profile information, connectivity information, UE location information, as specified in clause 8.1.2.2.4.2.2.

Upon receiving the HTTP POST message from the EEC, the ECS shall:

a) process the EEC service provisioning request information;

b) verify and check if the EEC is authorized to request service provisioning information from ECS;

c) if the EEC is authorized to request service provisioning information from ECS, then the ECS;

1) may obtain the UE's location as specified in clause 5.3 of 3GPP TS 29.122 [3];

2) if AC profile(s) are provided by the EEC, the ECS identifies the EES(s) based on the provided AC profile(s) and the UE location;

Editor's note: How ECS identifies the EES(s) based on the provided AC profile(s) and the UE location is FFS.

3) if AC profiles(s) are not provided:

i. if available, the ECS identifies the EES(s) based on the UE-specific service information at the ECS and the UE location; and

ii. ECS identifies the EES(s) by applying the ECSP policy (e.g. based on the UE location);

 the ECS also determines other information that needs to be provisioned, e.g. identification of the EDN, EDN service area, EES endpoints; and

d) if the ECS is able to determine service provisioning information using the inputs in service provisioning request, UE-specific service information at the ECS or the ECSP's policy, then the ECS returns the response to the request, which includes the list of EDN configuration information, e.g. identification of the EDN, EDN service area, and the required information (e.g. URI, IP address) for establishing a connection to the EES, and may include the lifetime of the EDN configuration information. If the inputs in service provisioning request do not match any EDN configuration information (i.e. there is no client side error), the EES sends "404 Not found" response code. Otherwise, the ECS shall reject the service provisioning request and respond with an appropriate failure cause.

The EEC may cache the service provisioning information (e.g. EES endpoint). If the lifeTime attribute is included in the service provisioning response, then the EEC may cache and reuse the service provisioning information only for the duration specified by the lifeTime attribute.

Editor's note: How the EEC maintains the service provisioning information is FFS.

#### 7.2.2.3 Eecs\_ServiceProvisioning\_Subscribe

##### 7.2.2.3.1 General

This service operation is used by the EEC to subscribe to ECS, for reporting of service provisioning information when changes to provisioning information occur which are of interest to EEC.

##### 7.2.2.3.2 EEC subscribing to service provisioning information from ECS using Eecs\_ServiceProvisioning\_Subscribe operation

To subscribe to changes to service provisioning information at the ECS, the EEC shall send an HTTP POST message to the ECS on the Service Provisioning Subscriptions resource. The body of the POST message shall include Notification Target Address (e.g. URL) and may include the UE identifier (e.g. GPSI), connectivity information, proposed expiration time and AC Profile information, as specified in clause 8.1.2.3.3.1.

Upon receiving the HTTP POST message from the EEC, the ECS shall:

a) process the EEC service provisioning subscription request;

b) verify and check if the EEC is authorized to subscribe for the service provisioning information; and

c) if the EEC is authorized to subscribe for the service provisioning information, then the ECS;

1) may obtain the UE's location as specified in clause 5.3 of 3GPP TS 29.122 [3];

2) shall create a new resource with the Service Provisioning Subscriptions resource as specified in clause 8.1.2.3; and

3) if the ECS determines the EES information using the inputs in service provisioning subscription request, UE-specific service information at the ECS or the ECSP policy, then the ECS returns the service provisioning subscription response, which includes the subscription identifier and may include the expiration time, indicating when the subscription will automatically expire. Otherwise, the ECS shall reject the service provisioning subscription request and respond with an appropriate failure cause.

If the expiration time is provided, then to maintain the subscription, the EEC shall send a Service provisioning subscription update request (as described in clause 7.2.2.5) prior to the expiration time. If a Service provisioning subscription update request is not received prior to the expiration time, the ECS shall treat the EEC as implicitly unsubscribed and remove the corresponding service provisioning subscription resource.

#### 7.2.2.4 Eecs\_ServiceProvisioning\_Notify

##### 7.2.2.4.1 General

This service operation is used by the ECS to notify the EEC about the service provisioning information.

##### 7.2.2.4.2 ECS notifying the service provisioning information to EEC using Eecs\_ServiceProvisioning\_Notify operation

The ECS determines to notify the EEC with the service provisioning information, when an event occurs at the ECS that satisfies trigger conditions for updating service provisioning of a subscribed EEC.

The ECS may obtain the UE's location as specified in clause 5.3 of 3GPP TS 29.122 [3]. If AC profile(s) were provided by the EEC during subscription creation, the ECS identifies the EES(s) based on the provided AC profile(s) and the UE location. If AC profiles(s) were not provided, then if available, the ECS identifies the EES(s) based on the UE-specific service information at the ECS and the UE location; The ECS may also identify the EES(s) by applying the ECSP policy (e.g. based only on the UE location). The ECS also determines other information that needs to be provisioned, e.g. identification of the EDN, EDN service area, EES endpoints.

Editor's note: How ECS identifies the EES(s) based on the provided AC profile(s) and the UE location is FFS.

To notify the service provisioning information events, the ECS shall send an HTTP POST message using the Notification Destination URI received in the subscription request, as specified in clause 8.1.4.2.

Upon receiving the HTTP POST message, the EEC shall process the service provisioning information. The EEC may cache the service provisioning information (e.g. EES endpoint). If the lifeTime attribute is included in the service provisioning response, then the EEC may cache and reuse the service provisioning information only for the duration specified by the lifeTime attribute. If the ECS provids information regarding the service continuity support of individual EESs, the EEC may take this information into account when selecting an EES for EEC registration, EAS discovery or T-EAS discovery, respectively.

Editor's note: How the EEC maintains the service provisioning information is FFS.

#### 7.2.2.5 Eecs\_ServiceProvisioning\_UpdateSubscription

##### 7.2.2.5.1 General

This service operation is used by the EEC to update its subscription at the ECS, for reporting of service provisioning information.

##### 7.2.2.5.2 EEC updating service provisioning information subscription at ECS using Eecs\_ServiceProvisioning\_UpdateSubscription operation

To update service provisioning information subscription at the ECS, the EEC shall send an HTTP PATCH message (for partial modification) or HTTP PUT message (for fully replacement) to the ECS on resource URI identifying the Individual Service Provisioning Subscription resource representation, as specified in clause 6.3.2.3.3.3 for an HTTP PATCH message and in clause 8.1.2.4.3.1 for an HTTP PUT message.

Editor's note: Whether UE identifier is contained as a part of the URI is FFS.

The PATCH message includes the parameters (AC Profiles, proposed expiry time, service continuity support or list of connectivity information) that need to be replaced in the existing subscription resource.

The PUT message shall replace all properties of the existing resource with the service provisioning information in the request. The values of the eecId and ueId provided during the subscription creation shall not be changed.

Upon receiving the HTTP PATCH or PUT message from the EEC, the ECS:

a) shall check the update subscription message from the EEC to see if the EEC is authorized to modify the requested subscription resource;

b) if the EEC is authorized to update the service provisioning subscription and the eecId of the requesting EEC and the eecId in the resource match, then the ECS;

1) may obtain the UE's location as specified in clause 5.3 of 3GPP TS 29.122 [3];

2) shall update the resource identified by Resource URI of the service provisioning subscription with the updated information received in the HTTP PATCH or PUT request message;

3) shall return the service provisioning subscription response. The ECS may send "200 OK" response code which includes the subscription identifier and the expiration time, indicating when the subscription will automatically expire. Otherwise, the EES sends "204 No Content" response code.

If the expiration time is provided, the EEC shall send a service provisioning subscription update request prior to the expiration time if the EEC wants to maintain the subscription. If a service provisioning subscription update request is not received prior to the expiration time, the ECS shall treat the EEC as implicitly unsubscribed and remove the corresponding service provisioning subscription resource.

#### 7.2.2.6 Eecs\_ServiceProvisioning\_Unsubscribe

##### 7.2.2.6.1 General

This service operation is used by the EEC to remove its subscription from the ECS for reporting of service provisioning information.

##### 7.2.2.6.2 EEC unsubscribing to service provisioning subscription from ECS using Eecs\_ServiceProvisioning\_Unsubscribe operation

To unsubscribe service provisioning subscription from the ECS, the EEC shall send an HTTP DELETE message to the ECS, on the resource URI identifying the individual service provisioning subscription resource representation as specified in clause 8.1.2.4.3.2. Upon receiving the HTTP DELETE request, the ECS:

a) shall verify and check if the EEC is authorized to unsubscribe the Individual Service Provisioning Subscription resource;

b) if the EEC is authorized to delete the Individual Service Provisioning Subscription resource, then the ECS shall unsubscribe the EEC service provisioning subscription identified by the subscriptionId;

c) shall return the "204 Not Content" message to the EEC, indicating the successful removal of the subscription information.

# 8 Edge Configuration Server API Definitions

## 8.1 Eecs\_ServiceProvisioning API

### 8.1.1 API URI

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

The request URI used in each HTTP request from the EEC towards the ECS shall have the structure as defined in clause 6.1 with the following clarifications:

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

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 8.1.2.

### 8.1.2 Resources

#### 8.1.2.1 Overview



Figure 8.1.2.1-1: Resource URI structure of the Eecs\_ServiceProvisioning API

Editor's Note: Inclusion of the EEC identifier in the resource URI structure is FFS.

Table 8.1.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 8.1.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Provisioning Information  | /provisioning-info | n/a |  |
| /provisioning-info/fetch | fetch(POST) | Provide the information required by the UE to access the edge services. |
| Service Provisioning Subscriptions | /subscriptions | POST | Creates a new subscription in ECS in order to be notified of provisioning data changes of interest. |
| Individual Service Provisioning Subscription | /subscriptions/{subscriptionId} | PUT | Updates an existing individual service provisioning subscription identified by the subscriptionId |
| DELETE | Deletes an existing individual service provisioning subscription identified by the subscriptionId. |
| PATCH | Partial update an existing individual service provisioning subscription identified by the subscriptionId. |

#### 8.1.2.2 Resource: Provisioning Information

##### 8.1.2.2.1 Description

This resource represents provisioning information required by the UE to access the edge services.

##### 8.1.2.2.2 Resource Definition

Resource URI: **{apiRoot}/eecs-serviceprovisioning/<apiVersion>/provisioning-info**

This resource shall support the resource URI variables defined in table 8.1.2.2.2-1.

Table 8.1.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 of 3GPP TS 29.558 [4] |
| apiVersion | string | See clause 8.1.1 |

##### 8.1.2.2.3 Resource Standard Methods

None.

##### 8.1.2.2.4 Resource Custom Operations

###### 8.1.2.2.4.1 Overview

Custom operations used for this API are summarized in table 8.1.2.2.4-1.

Table 8.1.2.2.4.1-1: Custom operations

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operaration URI | Mapped HTTP method | Description |
| Fetch | {apiRoot}/eecs-serviceprovisioning/<apiVersion>/provisioning-info /fetch | POST | Request to fetch service provisioning information |

###### 8.1.2.2.4.2 Operation: fetch

8.1.2.2.4.2.1 Description

The custom operation allows an EEC to fetch service provisioning information from ECS.

8.1.2.2.4.2.2 Operation Definition

This operation shall support the request of data structures specified in table 8.1.2.2.4.2.2-1 and the response data structure and response codes specified in table 8.1.2.2.4.2.2-2.

Table 8.1.2.2.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ECSServProvReq | M | 1 | ECS service provisioning request information |

Table 8.1.2.2.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ECSServProvResp | M | 1 | 200 OK | The requested service provisioning information was returned successfully. |
| n/a |  |  | 204 No Content | If the requested service provisioning information does not exist, the ECS shall respond with "204 No Content". |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

#### 8.1.2.3 Resource: Service Provisioning Subscriptions

##### 8.1.2.3.1 Description

This resource represents a collection of service provisioning subscriptions of EECs interested in receiving provisioning data related notifications from ECS.

##### 8.1.2.3.2 Resource Definition

Resource URI: **{apiRoot}/eecs-serviceprovisioning/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 8.1.2.3.2-1.

Table 8.1.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | String | See clause 7.5 of 3GPP TS 29.558 [4] |
| apiVersion | String | See clause 8.1.1 |

##### 8.1.2.3.3 Resource Standard Methods

###### 8.1.2.3.3.1 POST

This method creates a new subscription. This method shall support the URI query parameters specified in table 8.1.2.3.3.1-1.

Table 8.1.2.3.3.1-1: 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 8.1.2.3.3.1-2 and the response data structures and response codes specified in table 8.1.2.3.3.1-3.

Table 8.1.2.3.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ECSServProvSubscription | M | 1 | Create a new service provisioning subscription. |

Table 8.1.2.3.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ECSServProvSubscription | M | 1 | 201 Created | Individual ECS Service Provisioning Subscription resource created successfully.The URI of the created resource shall be returned in the "Location" HTTP header |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 8.1.2.3.3.1-4: Headers supported by the POST method on this resource

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

Table 8.1.2.3.3.1-5: 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-serviceprovisioning/<apiVersion>/subscriptions/{subscriptionId} |

##### 8.1.2.3.4 Resource Custom Operations

None.

#### 8.1.2.4 Resource: Individual Service Provisioning Subscription

##### 8.1.2.4.1 Description

This resource represents the individual service provisioning subscription of an EEC at a given ECS.

##### 8.1.2.4.2 Resource Definition

Resource URI: **{apiRoot}/eecs-serviceprovisioning/<apiVersion>/****subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in the table 8.1.2.4.2-1.

Table 8.1.2.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 of 3GPP TS 29.558 [4] |
| apiVersion | string | See clause 8.1.1 |
| subscriptionId | string | Identifies an individual service provisioning subscription. |

##### 8.1.2.4.3 Resource Standard Methods

###### 8.1.2.4.3.1 PUT

This method updates the individual service provisioning subscription information at the ECS by completely replacing the existing subscription data (except eecId, suppFeat, requestTestNotification and websockNotifConfig). This method shall support the URI query parameters specified in the table 8.1.2.4.3.1-1.

Table 8.1.2.4.3.1-1: 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 8.1.2.4.3.1-2 and the response data structures and response codes specified in table 8.1.2.4.3.1-3.

Table 8.1.2.4.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ECSServProvSubscription | M | 1 | Details of individual service provisioning subscription matching the subscriptionId to be updated at the ECS. |

Table 8.1.2.4.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ECSServProvSubscription | M | 1 | 200 OK | The individual service provisioning subscription matching the subscriptionId was modified successfully and the updated information is returned in the response. |
| n/a |  |  | 204 No Content | The individual service provisioning subscription matching the subscriptionId was modified successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The mandatory HTTP error status code for the PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 8.1.2.4.3.1-4: Headers supported by the PUT method on this resource

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

Table 8.1.2.4.3.1-5: Headers supported by the PUT response code on this resource

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

Table 8.1.2.4.3.1-6: Links supported by the 200 Response Code on this endpoint

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

###### 8.1.2.4.3.2 DELETE

This method removes the subscription information from the ECS. This method shall support the URI query parameters specified in the table 8.1.2.4.3.2-1.

Table 8.1.2.4.3.2-1: 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 8.1.2.4.3.2-2 and the response data structures and response codes specified in table 8.1.2.4.3.2-3.

Table 8.1.2.4.3.2-2: Data structures supported by the DELETE Request Body on this resource

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

Table 8.1.2.4.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a | M | 1 | 204 No Content | The individual service provisioning subscription matching the subscriptionId is deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The mandatory HTTP error status code for the DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 8.1.2.4.3.2-4: Headers supported by the DELETE method on this resource

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

Table 8.1.2.4.3.2-5: Headers supported by the DELETE response code on this resource

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

Table 8.1.2.4.3.2-6: Links supported by the 200 Response Code on this endpoint

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

###### 8.1.2.4.3.3 PATCH

This method partially updates the individual service provisioning subscription. This method shall support the URI query parameters specified in the table 8.1.2.4.3.3-1.

Table 8.1.2.4.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 8.1.2.4.3.3-2 and the response data structures and response codes specified in table 8.1.2.4.3.3-3.

Table 8.1.2.4.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ECSServProvSubscriptionPatch | M | 1 | Details of individual service provisioning subscription matching the subscriptionId to be updated at the ECS. |

Table 8.1.2.4.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ECSServProvSubscription | M | 1 | 200 OK | The individual service provisioning subscription matching the subscriptionId was modified successfully and the updated information is returned in the response. |
| n/a |  |  | 204 No Content | The individual service provisioning subscription matching the subscriptionId was modified successfully. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3] with the difference that the SCEF is replaced by the EES and the SCS/AS is replaced by the EEC. |
| NOTE: The mandatory HTTP error status code for the PATCH method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 8.1.2.4.3.3-4: Headers supported by the PATCH method on this resource

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

Table 8.1.2.4.3.3-5: Headers supported by the PATCH response code on this resource

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

Table 8.1.2.4.3.3-6: Links supported by the 200 Response Code on this endpoint

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

Table 8.1.2.4.3.3-7: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

Table 8.1.2.4.3.3-8: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative EES. |

### 8.1.3 Custom Operations without associated resources

None.

### 8.1.4 Notifications

#### 8.1.4.1 General

Table 8.1.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| Service Provisioning Notification | {notificationDestination} | POST | Notifies EEC of the service provisioning information of interest. |

#### 8.1.4.2 Service Provisioning Notification

##### 8.1.4.2.1 Description

Service Provisioning Notification is used by the ECS to notify an EEC with service provisioning information.

##### 8.1.4.2.2 Notification definition

The POST method shall be used by the ECS for sending notifications and the notification destination shall be the callback URI as provided by the EEC during the service provisioning subscription.

Callback URI: **{notificationDestination}**

This method shall support the URI query parameters specified in table 8.1.4.2.2-1.

Table 8.1.4.2.2-1: 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 8.1.4.2.2-2 and the response data structures and response codes specified in table 8.1.4.2.2-3.

Table 8.1.4.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServProvNotification | M | 1 | Notification of service provisioning information. |

Table 8.1.4.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

### 8.1.5 Data Model

#### 8.1.5.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 7.2 of 3GPP TS 29.558 [4] apply to this API.

Table 8.1.5.1-1 specifies the data types defined specifically for the Eecs\_ServiceProvisioning API service.

Table 8.1.5.1-1: Eecs\_ServiceProvisioning API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| ECSServProvReq | 8.1.5.2.2 |  |  |
| ECSServProvResp | 8.1.5.2.3 |  |  |
| ECSServProvSubscription | 8.1.5.2.4 | Represents the service provisioning subscription. |  |
| ConnectivityInfo | 8.1.5.2.5 |  |  |
| ServProvNotification | 8.1.5.2.6 | Service provisioning information notification from ECS to EEC.  |  |
| EDNConfigInfo | 8.1.5.2.7 |  |  |
| EDNConInfo | 8.1.5.2.8 |  |  |
| EESInfo | 8.1.5.2.9 |  |  |

Table 8.1.5.1-2 specifies data types re-used by the Eecs\_ServiceProvisioning API service.

Table 8.1.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| PlmnId | 3GPP TS 29.571 [5] |  |  |
| ACProfile | clause 6.2.5.2.3 |  |  |
| DateTime | 3GPP TS 29.122 [3] |  |  |
| Uri | 3GPP TS 29.122 [3] |  |  |
| SupportedFeatures | 3GPP TS 29.571 [5] | Used to negotiate the applicability of optional features. |  |
| Snssai | 3GPP TS 29.571 [5] |  |  |
| LocationArea5G | 3GPP TS 29.122 [3] |  |  |
| EndPoint | 3GPP TS 29.558 [4] |  |  |
| Dnai | 3GPP TS 29.571 [5] |  |  |
| LocationInfo | 3GPP TS 29.122 [3] | The location information related to the UE. |  |
| Dnn | 3GPP TS 29.571 [5] |  |  |
| Gpsi | 3GPP TS 29.571 [5] | Used to identify the UE.  |  |
| ACRScenario | 3GPP TS 29.558 [4] |  |  |

#### 8.1.5.2 Structured data types

##### 8.1.5.2.1 Introduction

##### 8.1.5.2.2 Type: ECSServProvReq

Table 8.1.5.2.2-1: Definition of type ECSServProvReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 0..1 | Represents a unique identifier of the EEC. |  |
| ueId | Gpsi | O | 0..1 | Represents the identifier of the UE. |  |
| acProfs | array(ACProfile) | O | 1..N | Information about services the EEC wants to connect to.  |  |
| eecSvcContSupp | array(ACRScenario) | O | 0..1 | The ACR scenarios supported by the EEC for service continuity. If this attribute is not present, then the EEC does not support service continuity. |  |
| connInfo | array(ConnectivityInfo) | O | 0..N | List of connectivity information for the UE. |  |
| locInf | LocationInfo | O | 0..1 | Represents location information of the UE. |  |

##### 8.1.5.2.3 Type: ECSServProvResp

Table 8.1.5.2.3-1: Definition of type ECSServProvResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ednCnfgInfo | array(EDNConfigInfo) | M | 1..N | List of EDN configuration information.  |  |

##### 8.1.5.2.4 Type: ECSServProvSubscription

Table 8.1.5.2.4-1: Definition of type ECSServProvSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 0..1 | Represents a unique identifier of the EEC. |  |
| ueId | Gpsi | O | 0..1 | Represents the identifier of the UE. |  |
| acProfs | array(ACProfile) | O | 1..N | Information about services the EEC wants to connect to.  |  |
| expTime | DateTime | O | 0..1 | Indicates the expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |
| eecSvcContSupp | array(ACRScenario) | O | 0..1 | The ACR scenarios supported by the EEC for service continuity. If this attribute is not present, then the EEC does not support service continuity. |  |
| connInfo | array(ConnectivityInfo) | O | 0..N | List of connectivity information for the UE. |  |
| notificationDestination | Uri | O | 1 | The notification target address containing the URI where the service provisioning notification should be delivered to. This attribute shall be present in HTTP POST message to EES. (NOTE 1) |  |
| requestTestNotification | boolean | O | 0..1 | Set to true by Subscriber to request the ECS to send a test notification as defined in clause 7.6 of 3GPP TS 29.558 [4]. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 7.6 of 3GPP TS 29.558 [4]. | Notification\_websocket |
| suppFeat | SupportedFeatures | O | 0..1 | Used to negotiate the supported optional features of the API as described in clause 7.8 of 3GPP TS 29.558 [4].This attribute shall be provided in the HTTP POST request and in the response of successful resource creation.This attribute also shall be provided in the HTTP PUT request and in the response of successful resource modification. |  |
| NOTE 1: The notification target address can terminate at the EEC (e.g. in an IoT device) if the deployment supports EEC reachability, or it can terminate at a push notification service. Details of the push notification service are out of scope of this release. |

Editor's note: The security credentials of EEC depend on SA3 WG and is FFS.

##### 8.1.5.2.5 Type: ConnectivityInfo

Table 8.1.5.2.5-1: Definition of type ConnectivityInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| plmnId | PlmnId | O | 0..1 | Represents PLMN identity |  |
| ssId | string | O | 0..1 | This IE shall be present if the UE is accessing the 5GC via a trusted WLAN access network.When present, it shall contain the SSID of the access point to which the UE is attached. |  |

##### 8.1.5.2.6 Type: ServProvNotification

Table 8.1.5.2.6-1: Definition of type ServProvNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subId | string | M | 1 | String identifying the individual service provisioning subscription for which the service provisioning notification is delivered. |  |
| ednCnfgInfo | array(EDNConfigInfo) | M | 1..N | List of EDN configuration information.  |  |

##### 8.1.5.2.7 Type: EDNConfigInfo

Table 8.1.5.2.7-1: Definition of type EDNConfigInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ednConInfo | EDNConInfo | M | 1 | Contains EDN connection information required by the UE to establish connection with the EDN |  |
| eess | array(EESInfo) | M | 1..N | Contains the list of EESs of the EDN |  |
| lifeTime | DateTime | O | 0..1 | Indicates the time duration for which the EDN configuration information is valid and supposed to be cached in the EEC. |  |

##### 8.1.5.2.8 Type: EDNConInfo

Table 8.1.5.2.8-1: Definition of type EDNConInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dnn | Dnn | O | 0..1 | String representing a Data Network or an APN  |  |
| snssai | Snssai | O | 0..1 | Represents network slice information |  |
| ednTopoSrvArea | LocationArea5G | O | 0..1 | The list of geographical and topological areas that the ECS serves. ACs in the UE that are outside the area shall not be served. |  |

##### 8.1.5.2.9 Type: EESInfo

Table 8.1.5.2.9-1: Definition of type EESInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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.  |  |
| ecspInfo | string | O | 0..1 | String representing the EES Provider (such as ECSP Information) |  |
| 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. |  |
| dnais | array(Dnai) | O | 0..1 | Represents list of Data network access identifier |  |
| eesSvcContSupp | array(ACRScenario) | O | 0..1 | The ACR scenarios supported by the EES for service continuity. If this attribute is not present, then the EEC does not support service continuity. |  |
| eecRegConf | boolean | M | 1 | Indicates whether the EEC is required to register on the EES to use edge services or not |  |

##### 8.1.5.2.y Type: ECSServProvSubscriptionPatch

Table 8.1.5.2.y-1: Definition of type ECSServProvSubscriptionPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| acProfs | array(ACProfile) | O | 1..N | Information about services the EEC wants to connect to.  |  |
| expTime | DateTime | O | 0..1 | Indicates the expiration time of the subscription. If the expiration time is not present, then it indicates that the EEC subscription never expires. |  |
| eecSvcContSupp | array(ACRScenario) | O | 0..1 | The ACR scenarios supported by the EEC for service continuity. If this attribute is not present, then the EEC does not support service continuity. |  |
| connInfo | array(ConnectivityInfo) | O | 0..N | List of connectivity information for the UE. |  |

#### 8.1.5.3 Simple data types and enumerations

None.

### 8.1.6 Error Handling

General error handling are described in clause 7.7 of 3GPP TS 29.558 [4].

### 8.1.7 Feature negotiation

General feature negotiation procedures are described in clause 7.8 of 3GPP TS 29.558 [4]. Table 8.1.7-1 lists the supported features for Eecs\_ServiceProvisioning API.

Table 8.1.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | Notification\_test\_event | Testing of notification connection is supported according to clause 7.6 of 3GPP TS 29.558 [4]. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 7.6 of 3GPP TS 29.558 [4]. This feature requires that the Notification\_test\_event feature is also supported. |

# 9 Security

*This clause will provide the security aspects.*

Editor's note: Security related issues on the use of the concept of APIs are being studied by SA3 in TR 33.839. This clause needs to incorporate necessary security requirements based on normative requirements from SA3 work.

Annex A (normative):
Edge Enabler Server OpenAPI specification

This is a normative annex clause to specify the Open API representation of the EES APIs defined in this specification.

## A.1 General

*This clause provides the introduction of the Open API specification files and their location.*

## A.2 Eees\_EECRegistration

openapi: 3.0.0

info:

 title: Eees\_EECRegistration

 description: |

 API for EEC registration.

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 version: "1.0.0-alpha.1"

externalDocs:

 description: 3GPP TS 24.558 V1.1.0 Enabling Edge Applications; Protocol specification.

 url: https://www.3gpp.org/ftp/Specs/archive/24\_series/24.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/eees-eecregistration/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 6.1 of 3GPP TS 24.558

paths:

 /registrations:

 post:

 description: Create a new EEC registration at the EES.

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistration'

 responses:

 '201':

 description: Created (EEC information is registered successfully at EES)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistration'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /registrations/{registrationId}:

 put:

 description: Update an existing EEC registration a the EES.

 parameters:

 - name: registrationId

 in: path

 description: Identifies an individual EEC registration

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing registration

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistration'

 responses:

 '200':

 description: OK (An individual EEC registration resource updated successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistration'

 '204':

 description: No Content (An individual EEC registration resource updated successfully).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 description: Remove an existing ECC registration at EES.

 parameters:

 - name: registrationId

 in: path

 description: Identifies an individual EEC registration

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content (An individual EEC registration resource deleted successfully).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 description: partially update an existing EEC registration a the EES.

 parameters:

 - name: registrationId

 in: path

 description: Identifies an individual EEC registration

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing registration

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistrationPatch'

 responses:

 '200':

 description: OK (An individual EEC registration resource updated successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EECRegistration'

 '204':

 description: No Content (An individual EEC registration resource updated successfully).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 EECRegistration:

 description: Describes the parameters to perform EEC Registration related operations.

 type: object

 properties:

 eecId:

 type: string

 description: Represents a unique identifier of the EEC.

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 acProfs:

 type: array

 items:

 $ref: '#/components/schemas/ACProfile'

 description: Profiles of ACs for which the EEC provides edge enabling services.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 # eecSvcContSupp:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Profiles of ACs for which the EEC provides edge enabling services.

 eecCntxId:

 type: string

 description: Identifier of the EEC context obtained from a previous registration.

 srcEesId:

 type: string

 description: Identifier of the EES that provided EEC context ID.

 # endPt:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/EndPoint'

 required:

 - eecId

 ACProfile:

 description: ECS service provisioning response information.

 type: object

 properties:

 acId:

 type: string

 description: Identity of the AC.

 acType:

 type: string

 description: The category or type of AC.

 prefEcsps:

 type: array

 items:

 type: string

 description: Indicates to the ECS which ECSPs are preferred for the AC.

 acSchedule:

 $ref: 'TS29122\_CpProvisioning.yaml#/components/schemas/ScheduledCommunicationTime'

 expAcGeoServArea:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 # acSvcContSupp:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Profiles of ACs for which the EEC provides edge enabling services.

 eass:

 type: array

 items:

 $ref: '#/components/schemas/EasDetail'

 minItems: 1

 description: List of EAS information.

 required:

 - acId

 EasDetail:

 description: EAS details.

 type: object

 properties:

 easId:

 type: string

 description: Identifier of the EAS.

 expectedSvcKPIs:

 $ref: '#/components/schemas/ACServiceKPIs'

 minimumReqSvcKPIs:

 $ref: '#/components/schemas/ACServiceKPIs'

 required:

 - easId

 ACServiceKPIs:

 description: EAS details.

 type: object

 properties:

 connBand:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 reqRate:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 respTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DurationSec'

 avail:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 reqComp:

 type: string

 description: The compute resources required by the AC.

 reqGrapComp:

 type: string

 description: The graphical compute resources required by the AC.

 reqMem:

 type: string

 description: The memory resources required by the AC.

 reqStrg:

 type: string

 description: The storage resources required by the AC.

 EECRegistrationPatch:

 description: Describes the parameters to perform EEC Registration update.

 type: object

 properties:

 acProfs:

 type: array

 items:

 $ref: '#/components/schemas/ACProfile'

 description: Profiles of ACs for which the EEC provides edge enabling services.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

## A.3 Eees\_EASDiscovery API

openapi: 3.0.0

info:

 title: Eees\_EASDiscovery

 description: |

 API for EAS Discovery.

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 version: "1.0.0-alpha.1"

externalDocs:

 description: 3GPP TS 24.558 V1.1.0 Enabling Edge Applications; Protocol specification.

 url: https://www.3gpp.org/ftp/Specs/archive/24\_series/24.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/eees-easdiscovery/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 6.1 of 3GPP TS 24.558

paths:

 /subscriptions:

 post:

 description: Creates a new individual EAS discovery subscription..

 tags:

 - EAS Discovery Subscriptions

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscription'

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoveryNotification'

 responses:

 '204':

 description: No Content (The receipt of the Notification is acknowledged)

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 responses:

 '201':

 description: Individual EAS Discovery Subscription resource created successfully.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscription'

 headers:

 Location:

 description: 'Contains the URI of the newly created resource'

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions/{subscriptionId}:

 put:

 description: Updates an existing individual EAS discovery subscription identified by the subscriptionId.

 tags:

 - Individual EAS Discovery Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual EAS discovery subscription resource

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing subscription

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscription'

 responses:

 '200':

 description: OK (An individual EAS discovery subscription resource updated successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscription'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 description: Deletes an existing individual EAS discovery subscription identified by the subscriptionId.

 tags:

 - Individual EAS Discovery Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual EAS discovery subscription resource

 required: true

 schema:

 type: string

 responses:

 '204':

 description: An individual EAS discovery subscription resource deleted successfully.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 description: Partial update an existing EAS Discovery Subscription resource identified by a subscriptionId.

 tags:

 - Individual EAS Discovery Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual EAS discovery subscription resource

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing subscription

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscriptionPatch'

 responses:

 '200':

 description: OK (An individual EAS discovery subscription resource updated successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoverySubscription'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /eas-profiles:

 get:

 description: Provides EAS information requested by the UE.

 tags:

 - EAS Profiles

 parameters:

 - name: disc-req

 in: query

 description: EAS discovery request information.

 required: false

 schema:

 $ref: '#/components/schemas/EasDiscoveryReq'

 responses:

 '200':

 description: OK (The requested EAS discovery information was returned successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/EasDiscoveryResp'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 EasDiscoveryReq:

 description: ECS service provisioning request information.

 type: object

 properties:

 requestorId:

 type: string

 description: Represents a unique identifier of the requestor (i.e. EEC).

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 easDiscoveryFilter:

 $ref: '#/components/schemas/EasDiscoveryFilter'

 # eecSvcContinuity:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 # eesSvcContinuity:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 # easSvcContinuity:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 locInf:

 $ref: 'TS29122\_MonitoringEvent.yaml#/components/schemas/LocationInfo'

 easTDnai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 required:

 - requestorId

 EasDiscoveryResp:

 description: ECS discovery response.

 type: object

 properties:

 discoveredEas:

 type: array

 items:

 $ref: '#/components/schemas/DiscoveredEas'

 description: List of EAS discovery information.

 required:

 - discoveredEas

 EasDiscoverySubscription:

 description: Represents an Individual EAS Discovery Subscription resource.

 type: object

 properties:

 eecId:

 type: string

 description: Represents a unique identifier of the EEC.

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 easEventType:

 $ref: '#/components/schemas/EASDiscEventIDs'

 easDiscoveryFilter:

 $ref: '#/components/schemas/EasDiscoveryFilter'

 easDynInfoFilter:

 $ref: '#/components/schemas/EasDynamicInfoFilter'

 easSvcContinuity:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 notificationDestination:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 requestTestNotification:

 type: boolean

 description: Set to true by Subscriber to request the ECS to send a test notification. Set to false or omitted otherwise.

 websockNotifConfig:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/WebsockNotifConfig'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - eecId

 - easEventType

 EasDiscoveryNotification:

 description: Notification of EAS discovery information.

 type: object

 properties:

 subId:

 type: string

 description: Identifier of the individual service provisioning subscription for which the service provisioning notification is delivered.

 eventType:

 $ref: '#/components/schemas/EASDiscEventIDs'

 discoveredEas:

 type: array

 items:

 $ref: '#/components/schemas/DiscoveredEas'

 minItems: 1

 description: List of EAS discovery information.

 required:

 - subId

 - eventType

 - discoveredEas

 EasDiscoveryFilter:

 description: Represents the EAS characteristics.

 type: object

 properties:

 acChars:

 type: array

 items:

 $ref: '#/components/schemas/ACCharacteristics'

 minItems: 1

 description: AC description for which an EAS is needed.

 easChars:

 type: array

 items:

 $ref: '#/components/schemas/EasCharacteristics'

 minItems: 1

 description: Required EAS chararcteristics.

 EasCharacteristics:

 description: Represents the EAS chararcteristics.

 type: object

 properties:

 easId:

 type: string

 description: EAS identifier.

 easProvId:

 type: string

 description: EAS provider identifier.

 easType:

 type: string

 description: EAS type.

 easSched:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'

 svcArea:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 easSvcContinuity:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 svcPermLevel:

 type: string

 description: Service permissions level.

 svcFeats:

 type: array

 items:

 type: string

 minItems: 1

 description: Service features.

 DiscoveredEas:

 description: Represents an EAS discovery information.

 type: object

 properties:

 eass:

 type: array

 items:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/EasProfile'

 minItems: 1

 description: Contains the list of EAS matching the discovery request filters

 lifeTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - eass

 EasDynamicInfoFilter:

 description: Represents EAS dynamic information changes filter.

 type: object

 properties:

 dynInfoFilter:

 type: array

 items:

 $ref: '#/components/schemas/EasDynamicInfoFilterData'

 minItems: 1

 description: List of EAS dynamic information required by the EEC per EAS.

 required:

 - dynInfoFilter

 EasDynamicInfoFilterData:

 description: Represents an EAS dynamic information.

 type: object

 properties:

 eecId:

 type: string

 description: Represents a unique identifier of the EEC.

 easStatus:

 type: boolean

 description: Notify if EAS status changed.

 easAcIds:

 type: boolean

 description: Notify if list of AC identifiers changed.

 easDesc:

 type: boolean

 description: Notify if EAS description changed.

 easPt:

 type: boolean

 description: Notify if EAS endpoint changed.

 easFeature:

 type: boolean

 description: NotiNotify if EAS feature changed.

 easSchedule:

 type: boolean

 description: Notify if EAS schedule changed.

 svcArea:

 type: boolean

 description: Notify if EAS service area changed.

 svcKpi:

 type: boolean

 description: Notify if EAS KPIs changed.

 svcCont:

 type: boolean

 description: Notify if EAS supported ACR changed.

 required:

 - eecId

 ACCharacteristics:

 description: Represents EAS dynamic information changes filter.

 type: object

 properties:

 acProf:

 description: Describes the AC Profile.

 $ref: 'TS24558\_Eees\_EECRegistration.yaml#/components/schemas/ACProfile'

 required:

 - acProf

 EASDiscEventIDs:

 anyOf:

 - type: string

 enum:

 - EAS\_AVAILABILITY\_CHANGE

 - EAS\_DYNAMIC\_INFO\_CHANGE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - EAS\_AVAILABILITY\_CHANGE: Represents the EAS availability change event.

 - EAS\_DYNAMIC\_INFO\_CHANGE: Represents the EAS dynamic information change event.

 EasDiscoverySubscriptionPatch:

 description: Represents an Individual EAS Discovery Subscription resource.

 type: object

 properties:

 easDiscoveryFilter:

 $ref: '#/components/schemas/EasDiscoveryFilter'

 easDynInfoFilter:

 $ref: '#/components/schemas/EasDynamicInfoFilter'

 easSvcContinuity:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

Annex A1 (normative):
Edge Configuration Server OpenAPI specification

## A1.1 Eecs\_ServiceProvisioning

openapi: 3.0.0

info:

 title: Eecs\_ServiceProvisioning

 description: |

 API for ECS Service Provisioning.

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 version: "1.0.0-alpha.1"

externalDocs:

 description: 3GPP TS 24.558 V1.1.0 Enabling Edge Applications; Protocol specification.

 url: https://www.3gpp.org/ftp/Specs/archive/24\_series/24.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/eecs-serviceprovisioning/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 7.5 of 3GPP TS 29.558

paths:

 /provisioning-info/fetch:

 post:

 description: Provide the information required by the UE to access the edge services

 tags:

 - Provisioning Information

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvReq'

 responses:

 '200':

 description: OK (The requested service provisioning information was returned successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvResp'

 '204':

 description: No Content (the requested service provisioning information does not exist)

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions:

 post:

 description: Creates a new subscription in ECS in order to be notified of provisioning data changes of interest.

 tags:

 - Service Provisioning Subscriptions

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscription'

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ServProvNotification'

 responses:

 '204':

 description: No Content (successful notification)

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 responses:

 '201':

 description: Individual ECS Service Provisioning Subscription resource created successfully.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscription'

 headers:

 Location:

 description: 'Contains the URI of the newly created resource'

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions/{subscriptionId}:

 put:

 description: Updates an existing individual service provisioning subscription identified by the subscriptionId.

 tags:

 - Individual Service Provisioning Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual service provisioning subscription

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing subscription

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscription'

 responses:

 '200':

 description: OK (The individual service provisioning subscription matching the subscriptionId was modified successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscription'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 description: Deletes an existing individual service provisioning subscription identified by the subscriptionId.

 tags:

 - Individual Service Provisioning Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual service provisioning subscription

 required: true

 schema:

 type: string

 responses:

 '204':

 description: The individual service provisioning subscription matching the subscriptionId is deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 description: Partially updates an existing individual service provisioning subscription identified by the subscriptionId.

 tags:

 - Individual Service Provisioning Subscription

 parameters:

 - name: subscriptionId

 in: path

 description: Identifies an individual service provisioning subscription

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to replace the existing subscription

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscriptionPatch'

 responses:

 '200':

 description: OK (The individual service provisioning subscription matching the subscriptionId was modified successfully)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/ECSServProvSubscription'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 ECSServProvReq:

 description: ECS service provisioning request information.

 type: object

 properties:

 eecId:

 type: string

 description: Represents a unique identifier of the EEC.

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 # acProfs:

 # type: array

 # items:

 # $ref:

 # description: Information about services the EEC wants to connect to.

 # eecSvcContSupp:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 connInfo:

 type: array

 items:

 $ref: '#/components/schemas/ConnectivityInfo'

 description: List of connectivity information for the UE.

 locInf:

 $ref: 'TS29122\_MonitoringEvent.yaml#/components/schemas/LocationInfo'

 required:

 - eecId

 ECSServProvResp:

 description: ECS service provisioning response information.

 type: object

 properties:

 ednCnfgInfo:

 type: array

 items:

 $ref: '#/components/schemas/EDNConfigInfo'

 minItems: 1

 description: List of EDN configuration information.

 required:

 - ednCnfgInfo

 ECSServProvSubscription:

 description: Represents an individual service provisioning subscription resource.

 type: object

 properties:

 eecId:

 type: string

 description: Represents a unique identifier of the EEC.

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 # acProfs:

 # type: array

 # items:

 # $ref:

 # description: Information about services the EEC wants to connect to.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 # eecSvcContSupp:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 connInfo:

 type: array

 items:

 $ref: '#/components/schemas/ConnectivityInfo'

 description: List of connectivity information for the UE.

 notificationDestination:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 requestTestNotification:

 type: boolean

 description: Set to true by Subscriber to request the ECS to send a test notification. Set to false or omitted otherwise.

 websockNotifConfig:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/WebsockNotifConfig'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - eecId

 ServProvNotification:

 description: Represents notification information of a service provisioning Event.

 type: object

 properties:

 subId:

 type: string

 description: Identifier of the individual service provisioning subscription for which the service provisioning notification is delivered.

 ednCnfgInfo:

 type: array

 items:

 $ref: '#/components/schemas/EDNConfigInfo'

 minItems: 1

 description: List of EDN configuration information.

 required:

 - subId

 - ednCnfgInfo

 ConnectivityInfo:

 description: Represents the connectivity information for the UE.

 type: object

 properties:

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 ssId:

 type: string

 description: Identifies the SSID of the access point to which the UE is attached.

 EDNConfigInfo:

 description: Represents the EDN information.

 type: object

 properties:

 ednConInfo:

 $ref: '#/components/schemas/EDNConInfo'

 eess:

 type: array

 items:

 $ref: '#/components/schemas/EESInfo'

 minItems: 1

 description: Contains the list of EESs of the EDN.

 lifeTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - ednConInfo

 - eess

 EDNConInfo:

 description: Represents an EDN connection information .

 type: object

 properties:

 dnn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 snssai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 ednTopoSrvArea:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 EESInfo:

 description: Represents EES information.

 type: object

 properties:

 eesId:

 type: string

 description: Identity of the EES

 # endPt:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/EndPoint'

 # description: Endpoint information (e.g. URI, FQDN, IP address) used to communicate with the EES.

 easIds:

 type: array

 items:

 type: string

 description: Identities of the Edge Application Servers registered with the EES.

 ecspInfo:

 type: string

 description: Represents an ECSP Information.

 svcArea:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 dnais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 description: Represents list of Data network access identifier.

 # eesSvcContSupp:

 # type: array

 # items:

 # $ref: 'TS29558\_CommonData.yaml#/components/schemas/ACRScenario'

 # description: Indicates if the EES supports service continuity or not, also indicates which ACR scenarios are supported by the EES.

 eecRegConf:

 type: boolean

 description: Indicates whether the EEC is required to register on the EES to use edge services or not.

 required:

 - eesId

 - eecRegConf

 ECSServProvSubscriptionPatch:

 description: Represents an individual service provisioning subscription resource.

 type: object

 properties:

 acProfs:

 type: array

 items:

 $ref: 'TS24558\_Eees\_EECRegistration.yaml#/components/schemas/ACProfile'

 description: Information about services the EEC wants to connect to.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 eecSvcContSupp:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 description: Indicates if the EEC supports service continuity or not, also indicates which ACR scenarios are supported by the EEC.

 connInfo:

 type: array

 items:

 $ref: '#/components/schemas/ConnectivityInfo'

 description: List of connectivity information for the UE.

Annex B (informative):
Protocol options considered for EDGE-4 reference point

This clause describes protocol options for EDGE-4 reference point in detail.

Editor's note: Based on solutions feasibility and evaluation and conclusion, solution(s) will be moved to the main body of the TS, i.e. Annex B will be marked as void before TS is sent for approval.

## B.1 Void

## B.2 NAS Option

### B.2.1 General

*This clause will provide the general description on the use of the NAS for EDGE-4.*

### B.2.2 Elementary procedures between ECS and EEC

#### B.2.2.1 General

*This clause will provide general description of the service provisioning procedures between ECS and EEC.*

#### B.2.2.2 Procedures

##### B.2.2.2.1 Service provisioning procedure based on Request-Response model

*This clause will provide a general description of the related provisioning procedure, include a description of the functional elements involved procedure.*

##### B.2.2.2.2 Service provisioning procedure based on Subscribe-Notify model

*This clause will provide a general description of the related provisioning procedure, include a description of the functional elements involved procedure.*

### B.2.3 Handling of unknown, unforeseen, and erroneous service data

#### B.2.3.1 General

*This clause will specify "error handling procedures" for the handling of unknown, unforeseen, and erroneous service data by the receiving entity (ECS and EEC).*

#### B.2.3.2 Message too short or too long

*This clause will specify handling when a received message is too short or too long.*

#### B.2.3.3 Unknown or unforeseen message type

*This clause will specify handling when receiving a message with message type not defined.*

#### B.2.3.4 Non-semantical mandatory information element

*This clause will specify handling of non-semantical mandatory information element.*

#### B.2.3.5 Unknown and unforeseen IEs in the non-imperative message part

*This clause will specify handling of unknown and unforeseen IEs in the non-imperative message part.*

#### B.2.3.6 Non-imperative message part errors

*This clause will specify handling of* non-imperative message part errors*.*

#### B.2.3.7 Messages with semantically incorrect contents

*This clause will specify handling of messages with semantically incorrect contents.*

### B.2.4 Message functional definition and contents

*This clause will provide the definitions of all the message specified in clause B.2.2.*

#### B.2.4.1 Service provisioning request

*This clause will describe the content of service provisioning request from the EEC to the ECS.*

#### B.2.4.2 Service provisioning response

*This clause will describe the content of service provisioning response from the ECS to the EEC.*

#### B.2.4.3 Service provisioning subscription request

*This clause will describe the content of service provisioning subscription request from the EEC to the ECS.*

#### B.2.4.4 Service provisioning subscription response

*This clause will describe the content of service provisioning subscription response from the ECS to the EEC.*

#### B.2.4.5 Service provisioning notification

*This clause will describe the content of service provisioning notfication from the ECS to the EEC.*

#### B.2.4.6 Service provisioning subscription update request

*This clause will describe the content of service provisioning subscription update request from the EEC to the ECS.*

#### B.2.4.7 Service provisioning subscription update response

*This clause will describe the content of service provisioning subscription update response from the ECS to the EEC.*

#### B.2.4.8 Service provisioning unsubscribe request

*This clause will describe the content of service provisioning unsubscribed request from the EEC to the ECS.*

#### B.2.4.9 Service provisioning unsubscribe response

*This clause will describe the content of service provisioning unsubscribe response from the ECS to the EEC.*

### B.2.5 Information elements coding

#### B.2.5.1 General

#### B.2.5.1 Service provisioning service message type

*This clause will define the type of service provisioning service messages used.*

#### B.2.5.2 New information element

*This clause will define the content and coding of the information element.*

### B.2.6 Timers

*This clause will define potential timers.*

### B.2.7 Conclusions

This clause provides the conclusions.

Annex C (informative):
Change history

|  |
| --- |
| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2021-01 | CT1#128e | C1-211421 |  |  |  | TS skeleton for Enabling Edge Applications; Protocol specification | 0.0.0 |
|  |  |  |  |  |  | Implementing agreed pCRs in CT1#128-e (C1-211423)  | 0.1.0 |
| 2021-04 | CT1#129-e |  |  |  |  | Implementing agreed pCRs in CT1#129-e (C1-212155, C1-212454, C1-212464, C1-212546, C1-212547) | 0.2.0 |
| 2021-06 | CT1#130-e |  |  |  |  | Implementing agreed pCRs in CT1#130-e (C1-213293, C1-213701, C1-213702, C1-213705, C1-213708, C1-213759 C1-213838, C1-213900, C1-213901) | 0.3.0 |
| 2021-09 | CT1#131-e | [C1-214500](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214500.zip) |  |  |  | OpenAPI specification for Eees\_EECRegistration API | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214502](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214502.zip) |  |  |  | Notify operation for Eees\_ACREvents API | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214503](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214503.zip) |  |  |  | Update subscription operation for Eees\_ACREvents API | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214504](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214504.zip) |  |  |  | Unsubscribe operation for Eees\_ACREvents API | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214505](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214505.zip) |  |  |  | Eees\_EECRegistration\_Request Service Operation | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214506](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214506.zip) |  |  |  | Eees\_EECRegistration\_Update Service Operation | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-214593](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-214593.zip) |  |  |  | Data model and Notification for Eees\_ACREvents API | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-215059](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-215059.zip) |  |  |  | General on EAS Discovery API Definition | 0.4.0 |
| 2021-09 | CT1#131-e | [C1-215176](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_131e/Docs/C1-215176.zip) |  |  |  | Pseudo-CR on Support of redirection for the Eees\_ACREvents API | 0.4.0 |
| 2021-10 | CT1#132-e | [C1-216089](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_132e/Docs/C1-216089.zip) |  |  |  | Eees\_AppContextRelocation API | 0.5.0 |
| 2021-10 | CT1#133-e | [C1-217109](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e/Docs/C1-217109zip) |  |  |  | Service description and request operation for Eees\_EASDiscovery service | 0.6.0 |
| 2021-10 | CT1#133-e | [C1-217151](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e/Docs/C1-21C1-217151.zip) |  |  |  | Service offered by ECS and service provisioning API | 0.6.0 |
| 2021-10 | CT1#133-e | [C1-217366](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e/Docs/C1-217366.zip) |  |  |  | Pseudo-CR on EEC registration abnormal case | 0.6.0 |
| 2021-12 | CT#94e |  |  |  |  | Version 1.0.0 created for CT Plenary for information | 1.0.0 |
| 2022-01 | CT1#133e-Bis | [C1-220725](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220725.zip) |  |  |  | Eees\_EASDiscovery\_UpdateSubscription operation for Eees\_EASDiscovery API | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220727](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220727.zip) |  |  |  | EAS Discovery data model fixes | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220729](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220729.zip) |  |  |  | Clarification for Eecs\_ServiceProvisioning\_Request operation | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220730](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220730.zip) |  |  |  | EAS Discovery partial update with HTTP PATCH | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220732](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220732.zip) |  |  |  | EEC Registration partial update with HTTP PATCH | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220733](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220733.zip) |  |  |  | Service provisioning information subscription - Partial update with HTTP PATCH | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220735](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220735.zip) |  |  |  | ACR information subscription partial update with HTTP PATCH | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220736](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220736.zip) |  |  |  | Definitions of terms | 1.1.0 |
| 2022-01 | CT1#133e-Bis | [C1-220838](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_133e-bis/Docs/C1-220838.zip) |  |  |  | Eees\_EASDiscovery\_Unsubscribe operation for Eees\_EASDiscovery API | 1.1.0 |