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Contents

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:

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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.

1 Scope

The present document specifies the APIs for enabling the edge applications over 3GPP networks for EDGE-1 and EDGE-4 reference points. 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 are 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".

[7] 3GPP TS 33.558: "Security aspects of enhancement of support for enabling edge applications; Stage 2".

[8] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; 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:

Application Context
Application Context Relocation
EEC Context

3.2 Symbols

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

<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

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
Eees_EASDiscovery	EasDiscRequest	Request/Response	EEC
	Subscribe	Subscribe/Notify	EEC
	Notify		EEC
	UpdateSubscription	Subscribe/Notify	EEC
	Unsubscribe	Subscribe/Notify	EEC
Eees_ACREvents	Notify	Subscribe/Notify	EEC
	UpdateSubscription	Subscribe/Notify	EEC
	Unsubscribe	Subscribe/Notify	EEC
Eees_AppContextRelocation	Determine	Request/Response	EEC, EAS
	Initiate	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
Eees_EECRegistration	6.2	Eees EEC Registration	TS24558_Eees_EECRegistration.yaml	eees-eecregistration	A.2
Eees_EASDiscovery	6.3	Eees EAS Discovery	TS24558_ Eees_EASDiscovery.yaml	eees-easdiscovery	A.3
Eees_AppContextRelocation	6.5	Eees Application Context Relocation	TS24558_Eees_AppContextRelocation.yaml	Eees-appctxtreloc	A.5

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.

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.

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, the ACR scenario(s) supported by the EEC for service continuity, 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 EEC, EES, and the matching EAS have 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 according to the procedures specified in clause 5.10 of 3GPP TS 29.558 [4];

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. If the EEC registration request contains AC Profile(s), and the EES determines that the requirements indicated in the AC profile(s) cannot be fulfilled for some of the AC profile(s), the EES shall include "unfulfilledAcProfs" attribute containing the list of ACIDs of such AC Profile(s) and appropriate reasons as specified in clause 6.2.5.2.2.

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 a succesful 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 PATCH 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) 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):

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

      ii) For each AC Profile, if EAS(s) 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 for atleast one AC profile, the EES determines that the corresponding requirements are fulfilled and are supported and shall 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.

   2) 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 EEC registration request contains AC Profile(s), and the EES determines that the requirements indicated in the AC profile(s) cannot be fulfilled for some of the AC profile(s), the EES shall include "unfulfilledAcProfs" attribute containing the list of ACIDs of such AC Profile(s) and appropriate reasons as specified in clause 6.2.5.2.2.

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 successful 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.

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 Eees_EASDiscovery service

5.3.1 Service Description

The Eees_EASDiscovery service enables a service consumer (e.g. EEC) to:

- request EAS discovery;
- request to subscribe to EAS discovery information reporting at the EES;
- request to update/modify/delete an existing subscription to EAS discovery information reporting; and
- receive notifications from the EES on EAS discovery information.

5.3.2 Service Operations

5.3.2.1 Introduction

The service operations defined for Eees_EASDiscovery API are shown in the table 5.3.2.1-1.

Table 5.3.2.1-1: Operations of the Eees_EASDiscovery API

Service operation name	Description	Initiated by
Eees_EASDiscovery_EasDiscRequest	This service operation is used by the EEC to request for one-time EAS discovery information.	EEC
Eees_EASDiscovery_Subscribe	This service operation is used by the EEC to request to subscribe to EAS discovery information reporting.	EEC
Eees_EASDiscovery_Notify	This service operation is used by the EES to notify a previously subscribed EEC on EAS discovery information.	EES
Eees_EASDiscovery_UpdateSubscription	This service operation is used by the EEC to update an existing subscription to EAS discovery information reporting.	EEC
Eees_EASDiscovery_Unsubscribe	This service operation is used by the EEC to delete an existing subscription to EAS discovery information reporting.	EEC

5.3.2.2 Eees_EASDiscovery_EasDiscRequest

5.3.2.2.1 General

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

5.3.2.2.2 EEC requesting EAS discovery information using Eees_EASDiscovery_EasDiscRequest operation

To request for one-time EAS discovery, the EEC shall send an HTTP POST request to the EES as specified in clause 6.3.2.4.4. The body of the POST message shall include the EasDiscoveryReq data structure as specified in clause 6.3.5.2.2.

Upon reception of the HTTP POST message from the EEC, the EES shall:

a) process the EAS discovery request information;

b) the EES verifies and checks if the EEC is authorized to discover the requested EAS(s) from EES;

c) if EEC is authorized to discover the requested EAS(s) from EES, the EEC is not registered with the EES, and the ECSP policy requires the EEC to perform EEC registration prior to EAS discovery, the EES shall reject the request by sending an HTTP "403 Forbidden" status code to the EEC including the ProblemDetails data structure with the "cause" attribute containing the "REGISTRATION_REQUIRED" application error;

d) if the EEC is authorized to discover the requested EAS(s) from EES and the EEC is registered as required by the ECSP policy, then the EES;

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

   2) if EAS discovery filters are provided by the EEC, the EES identifies the EAS(s) based on the provided EAS discovery filters and the UE location;

   3) if the EEC indicates that service continuity support is required, the EES shall take the indication which ACR scenarios are supported by the AC and the EEC and which of these are preferred by the AC into consideration. The EES identifies the EAS(s) who supports at least one of the ACR scenarios as indicated by EEC.

   4) if EAS discovery filters are not provided:

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

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

   5) the EES may trigger the EAS management system to instantiate the EAS that matches with EAS discovery filter IEs; and

e) if the processing of the request was successful, the EES sends an EAS discovery response to the EEC as specified in clause 6.3.2.4.3.1, which includes information about the discovered EASs. The response shall include endpoint information for discovered EASs. Depending on the EAS discovery filters received in the EAS discovery request, the response may include additional information regarding matched capabilities, e.g. service permissions levels, KPIs, AC locations(s) that the EASs can support, ACR scenarios supported by the EAS, etc. The EAS discovery response may contain a list of EASs. This list may be based on EAS discovery filters containing a Geographical or Topological Service Area, e.g. a route, included in the EAS discovery request by the EEC.

   If the successful processing of the request does not result in finding a matching EAS (i.e. there is no client side error), the EES responds with "204 No Content" HTTP status code. Otherwise, the EES shall reject the EAS discovery request and respond with an appropriate failure HTTP status code.

The EEC may cache the EAS information (e.g. EAS endpoint) for subsequent use and avoid the need to repeat this procedure. If the "lifeTime" attribute is included in the response, the EEC may cache the EAS information only for the duration specified by the Lifetime IE.

If the failure response is received for the EAS discovery request, the EEC may resend the EAS discovery request, taking into account the received failure cause. If the failure cause indicated "REGISTRATION_REQUIRED" error in the "cause" attribute of the "ProblemDetails" structure, the EEC shall perform an EEC registration as specified in clause 5.2.2.2.2 before resending the EAS discovery request.

5.3.2.3 Eees_EASDiscovery_Subscribe

5.3.2.3.1 General

This service operation is used by the EEC to subscribe to EES for reporting of EAS discovery information.

5.3.2.3.2 EEC subscribing to EAS discovery information from EES using Eees_EASDiscovery_Subscribe operation

To subscribe to changes of EAS discovery information at the EES, the EEC shall send an HTTP POST message to the EES on the "EAS Discovery Subscriptions" resource. The body of the POST message shall include the EASDiscoverySubscription data structure as specified in clause 6.3.2.2.3.1.

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

a) shall process the EAS discovery subscription request;

b) if the EEC is not registered with the EES, and if ECSP policy requires the EEC to perform EEC registration prior to EAS discovery, the EES shall reject the request message by sending an HTTP response to the EEC with a status code set to 403 Forbidden and may indicate the "REGISTRATION_REQUIRED" error in the "cause" attribute of the "ProblemDetails" structure;

b) if the EEC is registered, the EES shall verify and check if the EEC is authorized to subscribe for information of the requested EAS(s) from EES;

c) if the EEC is authorized to discover the requested EAS(s) from EES, then the EES;

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

   2) shall create a new Individual EAS Discovery Subscription resource as specified in clause 6.3.2.2.3.1; and

d) if the processing of the request was successful, the EES shall send an EAS discovery subscription response to the EEC as specified in clause 6.3.2.2.3.1, which includes the subscription identifier and shall include the expiration time, indicating when the subscription will automatically expire.

   If the EES is unable to process the request (e.g. was not able to determine the EAS using the input information in the request or using the locally available information), the EES shall reject the request with a with appropriate response code as specified in Table 5.2.6-1 of TS 29.122 [3].

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

If the failure response is received for the EAS discovery request, the EEC may resend the EAS discovery subscription request, taking into account the received failure cause. If the failure cause indicated "REGISTRATION_REQUIRED" error in the "cause" attribute of the "ProblemDetails" structure, the EEC shall perform an EEC registration as specified in clause 5.2.2.2.2 before resending the EAS discovery request.

5.3.2.4 Eees_EASDiscovery_Notify

5.3.2.4.1 General

This service operation is used by the EES to notify the EEC about the EAS discovery information.

5.3.2.4.2 EES notifying the EAS discovery information to EEC using Eees_EASDiscovery_Notify operation

The EES determines to notify the EEC with the EAS discovery information, when an event occurs at the EES that satisfies trigger conditions for updating EAS discovery information of a subscribed EEC. The EES may obtain the UE's location as specified in clause 5.3 of 3GPP TS 29.122 [3].

If EAS discovery filters are provided by the EEC, the EES identifies the EAS(s) based on the provided EAS discovery filters and the UE location.

If EAS discovery filters are not provided, the EES identifies the EAS(s), if available, based on the UE-specific service information at the EES and the UE location; and by applying the ECSP policy (e.g. based only on the UE location).

If valid UE location information is not available in local cache, then the EES shall obtain the UE location information by consuming the 3GPP core network capabilities. If obtaining UE location information from the 3GPP core network

capabilities fails, then the EES may retry to obtain UE location information. If EES is unable to obtain UE location, then the EES fails to discover the EAS and the notification will not be sent.

If UE location is available and EES determines that the UE location is outside the Geographical or Topological Service Area of an EAS, then the EES shall not include this EAS in the EAS discovery notification.

If the EES identifies the EAS(s) then to notify the EAS discovery information events, the EES shall either send an HTTP POST message using the Notification Destination URI received in the subscription request, as specified in clause 6.3.4.2.

The EEC may cache the EAS information (e.g. EAS endpoint) for subsequent use. If the "lifeTime" attribute is included in the notification, the EEC may cache the EAS information only for the duration specified by the Lifetime IE.

5.3.2.5 Eees_EASDiscovery_UpdateSubscription

5.3.2.5.1 General

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

5.3.2.5.2 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.

5.3.2.6 Eees_EASDiscovery_Unsubscribe

5.3.2.6.1 General

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

5.3.2.6.2 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 Service Description

The Eees_ACREvents API, as defined in 3GPP TS 23.558 [2], allows the EES to notify the EEC of the target information during the ACR procedures or the ACR complete events.

5.4.2 Service Operations

5.4.2.1 Introduction

The service operations defined for Eees_ACREvents API are shown in the table 5.4.2.1-1.

Table 5.4.2.1-1: Operations of the Eees_ACREvents API

Service operation name	Description	Initiated by
Eees_ACREvents_Subscribe	This service operation is used by the EEC to subscribe to EES for ACR related events.	EEC
Eees_ACREvents_Notify	This service operation is used by the EES to notify the EEC about ACR related events.	EES
Eees_ACREvents_UpdateSubscription	This service operation is used by the EEC to update existing subscription for ACR related events.	EEC
Eees_ACREvents_Unsubscribe	This service operation is used by the EEC to unsubscribe for the previously subscribed ACR related events.	EEC

5.4.2.2 Eees_ACREvents_Subscribe

5.4.2.2.1 General

This service operation is used by the EEC to subscribe to EES, for reporting 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.

5.4.2.2.2 EEC subscribing to ACR information from EES using Eees_ACREvents_Subscribe operation

To subscribe to ACR information reporting at the EES, the EEC shall send an HTTP POST message to the EES on the "ACR events subscriptions" resource. The body of the POST message shall include "ACREventsSubscription" as specified in clause 6.4.5.2.2.

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

a) process the EEC ACR information subscription request;

b) verify and check if the EEC is authorized to subscribe ACR information about the requested EAS(s); and

c) if the EEC is authorized to subscribe for the ACR information notification, then the EES;

   1) shall create a new resource with the Individual ACR events subscription resource as specified in clause 6.4.2.3;

   2) if a list of identifier of ACs is provided by the EEC, the EES shall use it during ACR information notification as specified in clause 5.4.2.3; and

   3) shall send an ACR information subscription response to the EEC. The URI of the created resource (including the subscription identifier) shall be returned in the "Location" HTTP header. The response may include the expiration time, indicating when the subscription will automatically expire.

If the expiration time is provided, then to maintain the subscription information, the EEC shall send an ACR information subscription update request (as described in clause 5.3.2.4) prior to the expiration time. If the ACR information subscription update request is not sent prior to the expiration time, the EES shall treat the EEC as implicitly unsubscribed and remove the corresponding Individual ACR information subscription resource.

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:

a) identify ACs that satisfies trigger conditions for providing ACR information notification if a list of identifier of ACs was provided by the EEC when subscribing to ACR information; and

b) send an HTTP POST message using the Notification Destination URI received in the subscription request, as specified in clause 6.4.4. The EES shall include "eecCtxtReloc" attribute containing the registration ID and registration expiration time as specified in clause 6.4.5.2.3.

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.

5.5 Eees_AppContextRelocation Service

5.5.1 Service Description

The Eees_AppContextRelocation API, as defined in 3GPP TS 23.558 [2], allows an EEC to request to launch Application Context Relocation towards a given EES via the Eees interface.

5.5.2 Service Operations

5.5.2.1 Introduction

The service operation defined for Eees_AppContextRelocation API is shown in the table 5.5.2.1-1.

Table 5.5.2.1-1: Operations of the Eees_AppContextRelocation API

Service operation name	Description	Initiated by
Eees_AppContextRelocation_Determine	This service operation enables to request ACR determination.	EEC
Eees_AppContextRelocation_Initiate	This service operation enables to request ACR initiation.	EEC

5.5.2.2 Eees_AppContextRelocation_Determine

5.5.2.2.1 General

This service operation is used by an EEC to request ACR determination to the EES.

The following procedures are supported by the "Eees_AppContextRelocation_Determine" service operation:

- ACR Determination.

5.5.2.2.2 ACR Determination

In order to request ACR determination, the EEC shall send an HTTP POST request to the EES, with the request URI set to "{apiRoot}/eees-appctxtreloc/<apiVersion>/determine" and the request body including the ACRDetermReq data structure that shall contain the necessary information to enable the EES to carry out ACR determination as described in clause 6.5.5.2.2.

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

a) process the ACR determination request;

b) verify if the EEC is authorized to request ACR determination at the EES;

c) if the EEC is authorized to request ACR determination with the EES, then:

   1) the S-EES determines the T-EES via the Discover T-EAS procedure and may notify the EEC with target information and/or ACR result notification;

Upon success, the EES responds with an HTTP "204 No Content" status code.

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the POST response body.

5.5.2.3 Eees_AppContextRelocation_Initiate

5.5.2.3.1 General

This service operation is used by an EEC to request ACR initiation to the EES.

The following procedures are supported by the "Eees_AppContextRelocation_Initiate" service operation:

- ACR Initiation.

5.5.2.3.2 ACR Initiation

In order to request ACR initiation, the EEC shall send an HTTP POST request to the EES, with the request URI set to "{apiRoot}/eees-appctxtreloc/<apiVersion>/initiate" and the request body including the ACRInitReq data structure that shall contain the necessary information to enable the EES to carry out ACR initiation as described in clause 6.5.5.2.3.

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

a) process the ACR initiation request information;

b) verify if the EEC is authorized to request ACR initiation at the EES and;

c) if the EEC is authorized to request ACR initiation with the EES, then;

   1) if T-EAS routing information (i.e. N6 routing information) as specified in table 6.5.5.2.3-1 is included in HTTP POST message:

      i) the EES may apply AF traffic influence with the N6 routing information in the 3GPP Core Network as specified in clause 4.4.7 of 3GPP TS 29.522 [8];

   2) if EAS notification indication as specified in table 6.5.5.2.3-1 is included in the HTTP POST message, the EES shall notify the EAS to start the ACR towards the T-EAS;

   3) if EEC context relocation details as specified in table 6.5.5.2.3-1 is included in HTTP POST message, then

      i) if the T-EES is different than the current EES, then the EES shall initiate EEC Context Push towards the T-EES as specified in clause 5.11 of 3GPP TS 29.558 [4]; or

      ii) if the EEC context ID and the S-EES Endpoint are included, then EES shall initiate EEC Context Pull (using EEC Context ID) towards the S-EES as specified in clause 5.10 of 3GPP TS 29.558 [4];

      iii) if Previous T-EAS Endpoint is included in HTTP POST message, then:

         A) if the previous EAS notification indication is included in the HTTP POST message, the EES shall notify the cancellation of the ACR to the EAS;

   4) the EES shall return the response message.

Upon success, the EES responds with an HTTP "204 No Content" status code.

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the POST response body.

6 Edge Enabler Server API Definitions

6.1 Information applicable to several EES APIs

The EES APIs as specified in this document 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 the 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

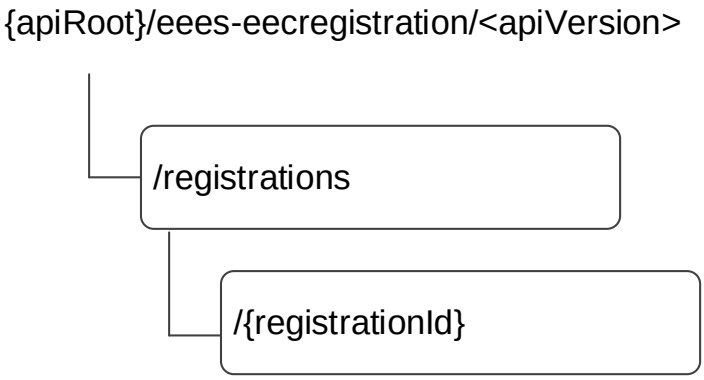

Figure 6.2.2.1-1: Resource URI structure of the Eees_EECRegistration API

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

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

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	Response codes	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
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	Response codes	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	Response codes	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	Response codes	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.	
unfulfilledAcProfs	array(UnfulfilledAcProfile)	O	1..N	Represents the list of ACIDs of the AC Profile(s) sent from EES, for which the requirements indicated in the AC profile(s) cannot be fulfilled as shared in reason	

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.	
unfulfilledAcProfs	array(UnfulfilledAcProfile)	O	1..N	Represents the list of ACIDs of the AC Profile(s) sent from EES, for which the requirements indicated in the AC profile(s) cannot be fulfilled as shared in reason	

6.2.5.2.7 Type: UnfulfilledAcProfile

Table 6.2.5.2.7-1: Definition of type UnfulfilledAcProfile

Attribute name	Data type	P	Cardinality	Description	Applicability
acId	string	M	0..1	The list of identifier of the AC profile	
reason	UnfulfillACProfRsn	O	0..1	Reason indicating the cause (e.g. EAS not available, requirements cannot be fulfilled)	

6.2.5.3 Simple data types and enumerations

6.2.5.3.1 Introduction

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

6.2.5.3.2 Simple data types

The simple data types defined in table 6.2.5.3.2-1 shall be supported.

Table 6.2.5.3.2-1: Simple data types

Type Name	Type Definition	Description	Applicability

6.2.5.3.3 Enumeration: UnfulfillACProfRsn

The enumeration UnfulfillACProfRsn represents the reasons for AC profile failure during EEC Registration. It shall comply with the provisions defined in table 6.2.5.3.3-1.

Table 6.2.5.3.3-1: Enumeration UnfulfillACProfRsn

Enumeration value	Description	Applicability
EAS_NOT_AVAILABLE	EAS not available	
REQ_UNFULFILLED	Requirements cannot be fulfilled	

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 URIs used in HTTP requests shall have the Resource URI structure defined in clause 6.1 with the following clarifications:

- The {apiRoot} shall be set as described in clause 6.1.
- 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

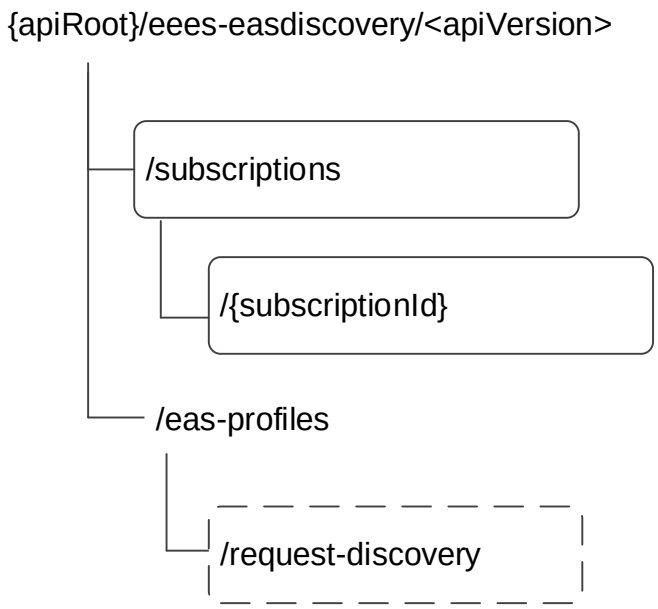

Figure 6.3.2.1-1: Resource URI structure of the Eees_EASDiscovery API

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/request-discovery	request-discovery (POST)	Request EAS discovery.

NOTE 1: Based on SA3 specified security mechanisms for EDGE-1, EDGE-3 and EDGE-9 interfaces, the EES can identify the initiator of the API (i.e. EEC, EAS or EES) and apply the appropriate security procedures as specified in 3GPP TS 33.558 [20].

NOTE 2: The same service API can be implemented on different interfaces, i.e. EDGE-1, EDGE-3 and EDGE-9, which are for separate endpoints, i.e. EEC, EAS and EES.

6.3.2.2 Resource: EAS Discovery Subscriptions

6.3.2.2.1 Description

This resource represents the collection of EAS Discovery Subscriptions managed by the 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.

6.3.2.2.3 Resource Standard Methods

6.3.2.2.3.1 POST

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	Response codes	Description
EASDiscoverySubscription	M	1	201 Created	Successful case. An Individual EAS Discovery Subscription resource was successfully created and a representation of the created resource is returned in the response body. The URI of the created resource shall be returned in an HTTP "Location" 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 6.3.2.2.3.1-4: 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 of an Individual EAS Discovery Subscription resource managed by the EES.

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.
subscriptionId	string	The identifier of the individual EAS discovery subscription.

6.3.2.3.3 Resource Standard Methods

6.3.2.3.3.1 PUT

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	Response codes	Description
EASDiscoverySubscription	M	1	200 OK	The Individual EAS Discovery Subscription resource was successfully updated and a representation of the updated resource is returned in the response body.
n/a			204 No Content	The Individual EAS Discovery Subscription resource was successfully updated and no content is returned in the response body.
n/a			307 Temporary Redirect	Temporary redirection. 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. 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 6.3.2.3.3.1-4: 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 6.3.2.3.3.1-5: 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 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	Response codes	Description
n/a			204 No Content	The targeted Individual EAS Discovery Subscription resource was successfully deleted.
n/a			307 Temporary Redirect	Temporary redirection. 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. 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 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 6.3.2.3.3.2-5: 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 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	Contains the parameters to request the modification of an existing Individual EAS Discovery Subscription resource.

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

Data type	P	Cardinality	Response codes	Description
EasDiscoverySubscription	M	1	200 OK	The Individual EAS Discovery Subscription resource was successfully modified and a representation of the modified resource is returned in the response body.
n/a			204 No Content	The Individual EAS Discovery Subscription resource was successfully modified and no content is returned in the response body.
n/a			307 Temporary Redirect	Temporary redirection. 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. 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 6.3.2.3.3.3-4: 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 6.3.2.3.3.3-5: 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 the collection of EAS Profiles managed by the EES.

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

6.3.2.4.3 Resource Standard Methods

None.

6.3.2.4.4 Resource Custom Operations

6.3.2.4.4.1 Overview

Resource custom operations defined for this resource are summarized in table 6.3.2.4.4.1-1.

Table 6.3.2.4.4.1-1: Custom operations

Operation name	Custom operaration URI	Mapped HTTP method	Description
Request-Discovery	eees-easdiscovery/<apiVersion>/eas-profile /request-discovery	POST	Request EAS discovery information

6.3.2.4.4.2 Operation: RequestDiscovery

6.3.2.4.4.2.1 Description

The custom operation allows a service consumer (e.g. EEC, EAS, EES) to request EAS discovery, as specified in 3GPP TS 23.558 [2], from the EES.

6.3.2.4.4.2.2 Operation Definition

This operation shall support the request of data structures specified in table 6.3.2.4.4.2.2-1 and the response data structure and response codes specified in table 6.3.2.4.4.2.2-2.

Table 6.3.2.4.4.2.2-1: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
EASDiscoveryReq	M	1	Contains the necessary information to request EAS discovery.

Table 6.3.2.4.4.2.2-2: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
EASDiscoveryResp	M	1	200 OK	The requested EAS discovery information was successfully returned.
n/a			204 No Content	The processing of the request is successful but no matching EAS was found.
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.				

6.3.3 Custom operations without associated resources

There are no custom operations without associated resources defined for this API in this release of the specification.

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 a subscribed EEC about 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 on EAS discovery information. The EEC may subscribe to the EAS discovery information as a pre-condition for receiving notification.

6.3.4.2.2 Target URI

The Callback URI **"{notificationDestination}"** shall be used with the callback URI variables defined in table 8.6.4.2.2-1.

Table 6.3.4.2.2-1: Callback URI variables

Name	Definition
notificationDestination	String formatted as URI with the Callback Uri.

6.3.4.2.3 Standard Methods

6.3.4.2.3.1 POST

This method shall support the request data structures specified in table 6.3.4.2.3.1-1 and the response data structures and response codes specified in table 6.3.4.2.3.1-2.

Table 6.3.4.2.3.1-1: 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 6.3.4.2.3.1-2: 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.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative EEC where the notification should be sent. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative EEC where the notification should be sent. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6].
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 6.3.4.2.3.1-3: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative URI representing the end point of an alternative EAS towards which the notification should be redirected.

Table 6.3.4.2.3.1-4: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative URI representing the end point of an alternative EAS towards which the notification should be redirected.

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

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

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
requestorId	RequestorId	M	1	Represents a unique identifier of the requestor (e.g. EEC, EAS, EES).	
ueId	string	O	0..1	Represents the identifier of the UE.	
easDiscoveryFilter	EasDiscoveryFilter	O	0..1	Contains EAS characteristics	
eecSvcContinuity	string	O	0..1	Contains service continuity support; indicates EEC supported ACR scenarios	
eesSvcContinuity	String	O	0..1	Contains service continuity support; indicates EES supported ACR scenarios	
easSvcContinuity	string	O	0..1	Contains 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	Contains the 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;	

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 characteristics	
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.	
easEventType	EASDiscEventIDs	O	0..1	Event type for which the EEC should be notified;	

6.3.5.2.13 Type: RequestorId

Table 8.6.5.2.13-1: Definition of type RequestorId

Attribute name	Data type	P	Cardinality	Description	Applicability
EesId	string	C	0..1	The identifier of the EES (e.g. S-EES).	
EasId	string	C	0..1	The identifier of the EAS (e.g. S-EAS).	
eecId	string	C	0..1	The identifier of the EEC.	
NOTE: Either the "eecId" attribute, the "EesId" attribute or the "EasId" attribute shall be provided, they are mutually exclusive.					

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

6.3.6.1 General

For the Eees_EASDiscovery API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [3]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [3] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [3].

In addition, the requirements in the following clauses are applicable for the Eees_EASDiscovery API.

6.3.6.2 Protocol Errors

No specific protocol errors for the Eees_EASDiscovery API are specified.

6.3.6.3 Application Errors

The application errors defined for the Eees_EASDiscovery service are listed in Table 6.3.6.3-1.

Table 6.3.6.1-1: Application errors

Application Error	HTTP status code	Description
REGISTRATION_REQUIRED	403 Forbidden	Indicates that the registration is required for the EEC to perform the operation.

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

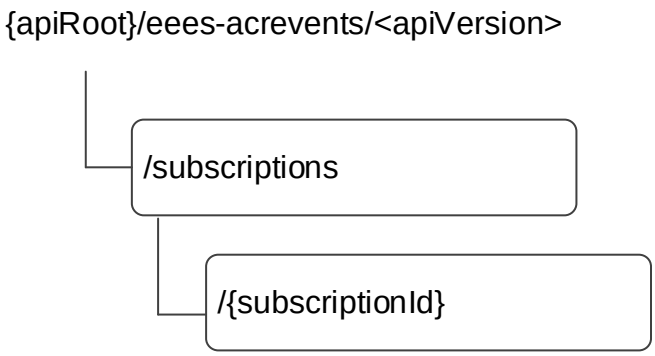

Figure 6.4.2.1-1: Resource URI structure of the Eees_ACREvents API

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.

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.

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	Response codes	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.
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	Response codes	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	Response codes	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	Response codes	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, if required, the selected T-EES, during the ACR procedures and, if required, the identifier of the AC;
- 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		
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]		
EDNConfigInfo	Clause 8.1.5.2.7		
DiscoveredEas	Clause 6.3.5.2.8		
ImplicitRegDetail	3GPP TS 29.558 [4]		

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	
acIds	array(string)	O	1..N	The list of identifier of the AC(s) (NOTE)	
eventIds	ACREventIDs	M	1	Specifies the events for which EEC is subscribing.	
notificationDestination	Uri	M	1	URI where the ACR Information Notification should be delivered to.	
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.	
NOTE: If acIds attribute is not included, it implies that the subscription corresponds to all ACs that can be served by the EAS(s) included this message.					

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	
acId	string	O	0..1	Contains the identifier of the AC.	
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	
eecCtxtReloc (NOTE 4)	EecCtxtReloc Status	O	0..1	Specifies the registration id and expiry time of the registration.	
NOTE 1: This attribute shall be included when Event ID indicates 'TARGET_INFORMATION' event NOTE 2: This attribute shall be included when Event ID indicates 'ACR_COMPLETE' event NOTE 3: This attribute shall be included when the ACRRes attribute indicates failure. NOTE 4: This attribute shall be included when eventId indicates 'ACR_COMPLETE' event and EEC context relocation was attempted.					

6.4.5.2.4 Type: TargetInfo

Table 6.4.5.2.4-1: TargetInfo

Attribute name	Data type	P	Cardinality	Description	Applicability
trgetEASInfo	DiscoveredEas	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.	

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)	O	1..N	The list of identifier of the EASs	
eventIds	ACREventIDs	O	0..1	Specifies the events for which EEC is subscribing.	
notificationDestination	Uri	O	0..1	URI where the ACR Information Notification should be delivered to. This attribute shall be present in HTTP POST message to EES.	

6.4.5.2.6 Type: EecCtxtRelocStatus

Table 6.4.5.2.6-1: EecCtxtRelocStatus

Attribute name	Data type	P	Cardinality	Description	Applicability
implReg	ImplicitRegDetails	O	0..1	Provides implicit registration details (NOTE)	
NOTE 1: This attribute shall be included when the S-EES has received it in EEC Context Push response.					

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 Introduction

The Eees_AppContextRelocation service shall use the Eees_AppContextRelocation API.

The API URI of the Eees_AppContextRelocation API shall be:

{apiRoot}/<apiName>/<apiVersion>

The request URI used in HTTP requests shall have the Resource URI structure defined in clause 6.1, i.e:

apiRoot}/<apiName>/<apiVersion>/<apiSpecificResourceUriPart>

with the following components:

- The {apiRoot} shall be set as described in clause 6.1.
- The <apiName> shall be "eees-appctxtreloc".
- The <apiVersion> shall be "v1".
- The <apiSpecificResourceUriPart> shall be set as described in clause 6.1.

6.5.2 Resources

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

6.5.3 Custom Operations without associated resources

6.5.3.1 Overview

The structure of the custom operation URIs of the Eees_AppContextRelocation API is shown in Figure 6.5.3.1-1.

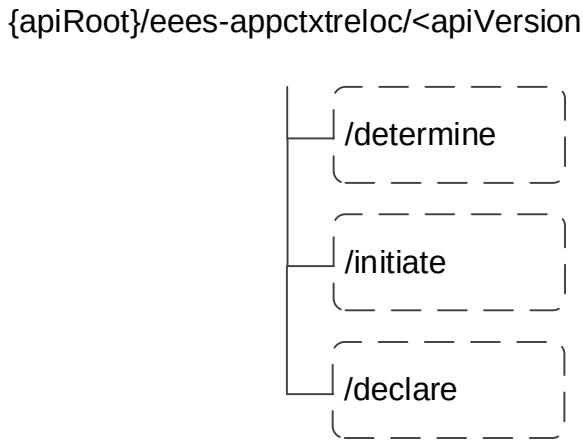

Figure 6.5.3.1-1: Resource URI structure of the Eees_AppContextRelocation API

Table 6.5.3.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the Eees_AppContextRelocation API.

Table 6.5.3.1-1: Custom operations without associated resources

Operation name	Custom operation URI	Mapped HTTP method	Description
Determine	/determine	POST	EES or EAS determines if ACR is needed and may initiate the procedure
Initiate	/initiate	POST	EES initiates the requested ACR procedure
Declare	/declare	POST	EAS declares the selected target EAS and the associated information.

NOTE 1: Based on SA3 specified security mechanisms for EDGE-1 and EDGE-3 interfaces, the EES can identify the initiator of the API (EEC or EAS) and apply the appropriate security procedures as specified in 3GPP TS 33.558 [7].

NOTE 2: The same service API can be implemented on two different interfaces, i.e. EDGE-1 and EDGE-3, which are for separate endpoints, i.e. EEC and EAS.

6.5.3.2 Operation: Determine

6.5.3.2.1 Description

This custom operation allows the EEC or the EAS 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 request data structures, 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
AcrDeterReq	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	Response codes	Description
n/a			204 No Content	Successful case. The ACR request is successfully received and processed.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]
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 6.5.3.2.2-3: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

Table 6.5.3.2.2-4: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

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 request data structures and 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
AcrInitReq	M	1	Information about the requestor and requested ACR operation

Table 6.5.3.3.2-2: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The ACR request is successfully received and processed.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]
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 6.5.3.3.2-3: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

Table 6.5.3.3.2-4: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

6.5.3.4 Operation: Declare

6.5.3.4.1 Description

This custom operation allows an S-EAS to declare the selected target EAS and the associated information.

6.5.3.4.2 Operation Definition

This operation shall support the request data structures and the response data structures and response codes specified in tables 6.5.3.4.2-1 and 6.5.3.4.2-2.

Table 6.5.3.4.2-1: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
AcrDecReq	M	1	Contains the selected target EAS information.

Table 6.5.3.4.2-2: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The selected target EAS information is successfully received.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative target URI located in an alternative EES. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]
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 6.5.3.4.2-3: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

Table 6.5.3.4.2-4: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative EES.

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
AcrDecReq	6.5.5.2.4		
AcrDetermReq	6.5.5.2.2		
AcrInitReq	6.5.5.2.3		
EecCtxtReloc	6.5.5.2.5		

Table 6.5.5.1-2 specifies data types re-used by the Eees_AppContextRelocation API service from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Eees_AppContextRelocation.

Table 6.5.5.1-2: Re-used Data Types

Data type	Reference	Comments	Applicability
RouteToLocation	3GPP TS 29.571 [5]	Represent the N6 traffic routing information and/or routing profile ID for a DNAI.	
EndPoint	3GPP TS 29.558 [4]	Represents the endpoint information of an EAS.	
Gpsi	3GPP TS 29.571 [5]	Represents a GPSI.	

6.5.5.2 Structured data types

6.5.5.2.1 Introduction

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

6.5.5.2.2 Type: AcrDetermReq

Table 6.5.5.2.2-1: Definition of type AcrDetermReq

Attribute name	Data type	P	Cardinality	Description	Applicability
requestorId	string	M	1	Contains the identifier of the EEC or the EAS that is sending the request.	
easId	string	O	0..1	Contains the identifier of the EAS.	
sEasEndpoint	EndPoint	M	1	Contains the endpoint information of the selected S-EAS.	
ueId	Gpsi	M	1	Contains the identifier of the concerned UE.	
acId	string	O	0..1	Contains the identifier of the AC.	

6.5.5.2.3 Type: AcrInitReq

Table 6.5.5.2.3-1: Definition of type AcrInitReq

Attribute name	Data type	P	Cardinality	Description	Applicability
requestorId	string	M	1	Contains the identifier of the EEC that is sending the request.	
easId	string	O	0..1	Contains the identifier of the EAS.	
ueId	Gpsi	M	1	Contains the identifier of the concerned UE.	
acId	string	O	0..1	Contains the identifier of the AC.	
tEasEndpoint	EndPoint	M	1	Contains the endpoint information of the T-EAS.	
sEasEndpoint	EndPoint	C	0..1	Contains the endpoint information of the S-EAS. This attribute shall be provided when the "easNotifInd" attribute is set to "true" or when the "prevEasNotifInd" attribute is present and set to "true".	
prevTEasEndpoint	EndPoint	C	0..1	Contains the endpoint information of the previous T-EAS. This attribute shall be provided when the EEC re-sends the ACR request to indicate that a previous ACR is to be cancelled.	
routeReq	RouteToLocation	O	0..1	Contains the T-EAS's DNAI information and the corresponding N6 traffic routing information and/or routing profile ID.	
easNotifInd	boolean	C	1	Indicates whether the EAS should be notified about the need for ACR or ACR cancellation. "true": Notification required. "false" (default): Notification not required.	
prevEasNotifInd	boolean	C	0..1	Indicates whether the EAS should be notified about ACR cancellation. "true": Notification required. "false" (default): Notification not required. This attribute shall be provided when the EEC re-sends the ACR request to indicate that a previous ACR is to be cancelled.	
eecCtxtReloc	EecCtxtReloc	O	0..1	Contains EEC context relocation information.	

6.5.5.2.4 Type: AcrDecReq

Table 6.5.5.2.4-1: Definition of type AcrDecReq

Attribute name	Data type	P	Cardinality	Description	Applicability
requestorId	string	M	1	Contains the identifier of the EAS that is sending the request.	
ueId	Gpsi	M	1	Contains the identifier of the concerned UE.	
acId	string	O	0..1	Contains the identifier of the AC.	
tEasId	string	M	1	Contains the identifier of the selected target EAS.	
tEasEndpoint	EndPoint	M	1	Contains the endpoint information of the selected target EAS.	

6.5.5.2.5 Type: EecCtxtReloc

Table 6.5.5.2.5-1: Definition of type EecCtxtReloc

Attribute name	Data type	P	Cardinality	Description	Applicability
eecCtxtId	string	M	1	Contains the identifier of the concerned EEC context.	
sEesId	string	O	0..1	Contains the identifier of the S-EES. This attribute may be provided only if the ACR request is from the EEC to the T-EES.	
sEesEndpoint	EndPoint	O	0..1	Contains the endpoint information of the selected S-EES. This attribute may be provided only if the ACR request is from the EEC to the T-EES.	
tEesId	string	O	0..1	Contains the identifier of the T-EES. This attribute may be provided only if the ACR request is from the EEC to the S-EES.	
tEesEndpoint	EndPoint	O	0..1	Contains the endpoint information of the selected T-EES. This attribute may be provided only if the ACR request is from the EEC to the S-EES.	

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

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
Eecs_ServiceProvisioning	7.2	Eecs Service Provisioning	TS24558_Eecs_ServiceProvisioning.yaml	eecs-serviceprovisioning	B.1

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 request (custom operation: "Request") to the ECS with the request URI set to"{apiRoot}/eecs-serviceprovisioning/<apiVersion>/request". And the body including the ECSServProvReq data structure, as specified in clause 8.1.5.2.2.

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;

   i) if acSvcContSupp information is included in the AC Profile, the matching EES 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 ECS identifies the matching EES such that the EES profile matches easId information.

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 an HTTP "200 OK" status code response with the response body including the ECSServProvResp data structure which may include the lifetime of the provided 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 ECS sends an HTTP "204 No Content" status code 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.

Note: How EEC maintains the service provisioning information is implementation specific.

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.

Note 1: How ECS identifies the EES(s) based on the provided AC profile(s) and the UE location is implementation specific.

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.

Note 2: How the EEC maintains the service provisioning information is implementation specific.

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 8.1.2.4.3.3 for an HTTP PATCH message and in clause 8.1.2.4.3.1 for an HTTP PUT message.

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

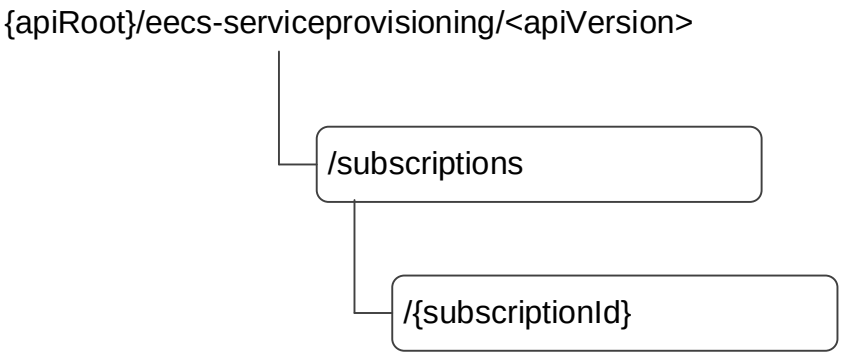

Figure 8.1.2.1-1: Resource URI structure of the Eecs_ServiceProvisioning API

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
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.

8.1.2.3 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]

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	Response codes	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 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]
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	Response codes	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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 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 ECS.

Table 8.1.2.4.3.1-5: 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 ECS.

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	Response codes	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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 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 ECS.

Table 8.1.2.4.3.2-5: 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 ECS.

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	Response codes	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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 8.1.2.4.3.3-7: 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 ECS.

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 ECS.

8.1.3 Custom Operations without associated resources

8.1.3.1 Overview

The structure of the custom operation URIs of the Eecs_ServiceProvisioning API is shown in Figure 8.1.3.1-1.

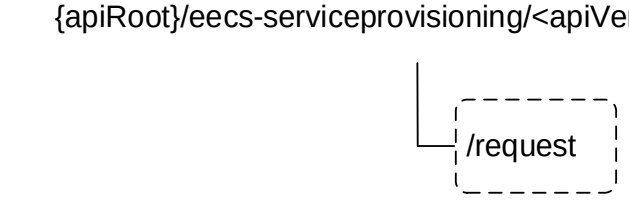

Figure 8.1.3.1-1: Custom operation URI structure of the Eecs_ServiceProvisioning API

Table 8.1.3.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the Eecs_ServiceProvisioning API.

Table 8.1.3.1-1: Custom operations without associated resources

Operation name	Custom operation URI	Mapped HTTP method	Description
Request	/request	POST	Enables an EEC to request service provisioning information to the ECS.

8.1.3.2 Operation: Request

8.1.3.2.1 Description

The custom operation enables an EEC to request service provisioning information to the ECS.

8.1.3.2.2 Operation Definition

This operation shall support the request data structures and the response data structures and response codes specified in tables 8.1.3.2.2-1 and 8.1.3.2.2-2.

Table 8.1.3.2.2-1: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
ECSServProvReq	M	1	Contains the parameters to request service provisioning information.

Table 8.1.3.2.2-2: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ECSServProvResp	M	1	200 OK	The requested service provisioning information is returned successfully.
n/a			204 No Content	The requested service provisioning information does not exist.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative target URI located in an alternative ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative target URI located in an alternative ECS. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]
NOTE: The manadatory HTTP error status code for the HTTP POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [3] also apply.				

Table 8.1.3.2.2-3: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative ECS.

Table 8.1.3.2.2-4: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative target URI located in an alternative ECS.

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.
n/a			307 Temporary Redirect	Temporary redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative EEC where the notification should be sent. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
n/a			308 Permanent Redirect	Permanent redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative EEC where the notification should be sent. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3].
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 8.1.4.2.2-4: Headers supported by the 307 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative URI representing the end point of an alternative EEC towards which the notification should be redirected.

Table 8.1.4.2.2-5: Headers supported by the 308 Response Code on this resource

Name	Data type	P	Cardinality	Description
Location	string	M	1	An alternative URI representing the end point of an alternative EEC towards which the notification should be redirected.

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.					

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	

8.1.5.2.10 Type: ECSServProvSubscriptionPatch

Table 8.1.5.2.10-1: 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

The authentication and authorization between EEC and ECS shall be as specified in 3GPP TS 33.558 [7].

The authentication and authorization between EEC and EES shall be as specified in 3GPP TS 33.558 [7].

The security credentials to be used for verification and authorization of various API requests from EEC shall be as specified in 3GPP TS 33.558 [7].

Annex A (normative): Edge Enabler Server OpenAPI specification

A.1 General

A.2 Eees_EECRegistration

```
openapi: 3.0.0
info:
  title: Eees_EECRegistration
  version: "1.0.0"
  description: |
    API for EEC registration.
    © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: >
    3GPP TS 24.558 V17.0.0 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_Eecs_EESRegistration.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_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
      unfulfilledAcProfs:
        $ref: '#/components/schemas/UnfulfilledAcProfile'
    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_Eecs_EESRegistration.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'
        unfulfilledAcProfs:
          $ref: '#/components/schemas/UnfulfilledAcProfile'
    UnfulfilledAcProfile:
      description: Desrcibes AC Profile ID and reason sent by EES in EEC Register response.
      type: object
      properties:
        acId:
          type: string
          description: The AC ID of a AC profile.
        reason:
          $ref: '#/components/schemas/UnfulfillACProfRsn'
    UnfulfillACProfRsn:
      anyOf:
        - type: string
          enum:
            - EAS_NOT_AVAILABLE
            - REQ_UNFULFILLED
      description: represents reason for unfulfilled AC profile requirements.
```

A.3 Eees_EASDiscovery API

```
openapi: 3.0.0
info:
  title: Eees_EASDiscovery
  description: |
    API for EAS Discovery.
    © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
  version: "1.0.0"
externalDocs:
  description: >
    3GPP TS 24.558 V17.0.0 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'
      responses:
        '201':
          description: >
            Created. A new Individual EAS Discovery Subscription resource was successfully
            created.
          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'
      callbacks:
        notificationDestination:
          '{request.body#/notificationDestination}':
            post:
              requestBody:
                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'

  /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. The individual EAS discovery subscription resource was updated successfully.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/EasDiscoverySubscription'
        '204':
          description: No Content (updated successfully).
        '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'
      '204':
        description: No Content (modified successfully).
      '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/request-discovery:
    post:
      description: Provides EAS information requested by the service consumer (i.e. EEC, EAS or
EES).
      tags:
        - EAS Profiles
      requestBody:
        required: true
        content:
          application/json:
            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:
          $ref: '#/components/schemas/RequestorId'
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
        easDiscoveryFilter:
          $ref: '#/components/schemas/EasDiscoveryFilter'
        eecSvcContinuity:
          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.
        eesSvcContinuity:
          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.
        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.
        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:
          $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'
    RequestorId:
      description: Represents identifier of the requestor.
      type: object
      properties:
        eesId:
          type: string
        easId:
          type: string
        eecId:
          type: string
```

```
      oneOf:
        - required: [eesId]
        - required: [easId]
        - required: [eecId]
```

A.4 Eees_ACREvents API

```
openapi: 3.0.0
info:
  title: Eees_ACREvents
  version: "1.0.0"
  description: |
    API for ACR events subscription and notification.
    © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: >
    3GPP TS 24.558 V17.0.0 Enabling Edge Applications; Protocol specification.
  url: 'https://www.3gpp.org/ftp/Specs/archive/24_series/24.558/'

security:
  - {}
  - oAuth2ClientCredentials: []

servers:
  - url: '{apiRoot}/eees-acrevents/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 ACR events subscription.
      operationId: CreateACREventsSubscripton
      tags:
        - ACR events subscription (Collection)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ACREventsSubscription'
      responses:
        '201':
          description: Individual ACR events subscription resource created successfully.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ACREventsSubscription'
          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'
    callbacks:
      notificationDestination:
        '{request.body#/notificationDestination}':
          post:
            requestBody:  # contents of the callback message
              required: true
              content:
                application/json:
                  schema:
                    $ref: '#/components/schemas/ACRInfoNotification'
            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'

  /subscriptions/{subscriptionId}:
    put:
      description: >
        Updates an existing individual ACR events subscription identified by the subscriptionId.
      operationId: UpdateACREventsSubscription
      tags:
        - Individual ACR Events Subscription
      parameters:
        - name: subscriptionId
          in: path
          description: Identifies an individual ACR Events subscription resource
          required: true
          schema:
            type: string
      requestBody:
        description: Parameters to replace the existing subscription
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ACREventsSubscription'
      responses:
        '200':
          description: >
            OK (An individual ACR Events subscription resource updated successfully).
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ACREventsSubscription'
        '204':
          description: No Content (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: >
        Deletes an existing individual ACR events subscription identified by the subscriptionId.
      operationId: DeleteACREventsSubscription
      tags:
        - Individual ACR Events Subscription
      parameters:
        - name: subscriptionId
          in: path
          description: Identifies an individual ACR Events subscription resource.
          required: true
          schema:
            type: string
      responses:
        '204':
          description: An individual ACR Events 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: >
        Partially modifyan existing individual ACR events subscription identified by the
subscriptionId.
      operationId: ModifyACREventsSubscription
      tags:
        - Individual ACR Events Subscription
      parameters:
        - name: subscriptionId
          in: path
          description: Identifies an individual ACR Events subscription resource.
          required: true
          schema:
            type: string
      requestBody:
        description: Parameters to replace the existing subscription
        required: true
```

```
        content:
          application/merge-patch+json:
            schema:
              $ref: '#/components/schemas/ACREventsSubscriptionPatch'
      responses:
        '200':
          description: >
            OK (An individual ACR Events subscription resource updated successfully).
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ACREventsSubscription'
        '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'

components:
  securitySchemes:
    oAuth2ClientCredentials:
      type: oauth2
      flows:
        clientCredentials:
          tokenUrl: '{tokenUrl}'
          scopes: {}
  schemas:
    ACREventsSubscription:
      description: ACE Events subscription request.
      type: object
      properties:
        eecId:
          type: string
          description: Represents a unique identifier of the EEC.
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
        expTime:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/DateTime'
        easIds:
          type: array
          items:
            type: string
          minItems: 1
          description: The list of identifier of the EASs.
        eventIds:
          $ref: '#/components/schemas/ACREventIDs'
        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
      - easIds
      - eventIds
      - notificationDestination
  ACRInfoNotification:
    description: Notification of ACR events information.
    type: object
    properties:
      subId:
        type: string
        description: >
          String identifying the Individual ACR events subscription for which the ACT
          Information notification is delivered.
      easId:
        type: string
        description: Identifier of the EAS.
      eventId:
        $ref: '#/components/schemas/ACREventIDs'
      trgtInfo:
        $ref: '#/components/schemas/TargetInfo'
      acrRes:
        type: boolean
        description: Indicates whether the ACR is successful or failure.
      failReason :
        type: string
        description: Indicates the cause information for the failure.
      eecCtxtReloc:
        $ref: '#/components/schemas/EecCtxtRelocStatus'

    required:
      - subId
      - easId
      - eventId
  TargetInfo:
    description: Details of the selected T-EAS and the T-EES.
    type: object
    properties:
      trgetEASInfo:
        $ref: 'TS24558_Eees_EASDiscovery.yaml#/components/schemas/DiscoveredEas'
      trgetEESInfo:
        $ref: 'TS24558_Eecs_ServiceProvisioning.yaml#/components/schemas/EDNConfigInfo'
  ACREventsSubscriptionPatch:
    description: An individual ACR events subscription resource to be updated.
    type: object
    properties:
      expTime:
        $ref: 'TS29122_CommonData.yaml#/components/schemas/DateTime'
      easIds:
        type: array
        items:
          type: string
        minItems: 1
        description: The list of identifier of the EASs.
      eventIds:
        $ref: '#/components/schemas/ACREventIDs'
      notificationDestination:
        $ref: 'TS29122_CommonData.yaml#/components/schemas/Uri'
  ACREventIDs:
    anyOf:
    - type: string
      enum:
        - TARGET_INFORMATION
        - ACR_COMPLETE
    - 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
      - TARGET_INFORMATION: Represents the target information event.
      - ACR_COMPLETE: Represents the ACR complete event.
  EecCtxtRelocStatus:
    description: Indicates the registration id and expiry time of the registration.
    type: object
```

```
      properties:
        implReg:
          $ref: 'TS29558_Eees_EECContextRelocation.yaml#/components/schemas/ImplicitRegDetails'
```

A.5 Eees_AppContextRelocation API

```
openapi: 3.0.0
info:
  title: Eees Application Context Relocation Service
  version: "1.0.0"
  description: |
    Eees Application Context Relocation Service.
    © 2021, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.

externalDocs:
  description: >
    3GPP TS 24.558 V17.0.0; Enabling Edge Applications; Protocol specification; Stage 3.
  url: 'https://www.3gpp.org/ftp/Specs/archive/29_series/24.558/'

servers:
  - url: '{apiRoot}/eees-appctxtreloc/v1'
    variables:
      apiRoot:
        default: https://example.com
        description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122

security:
  - {}
  - oAuth2ClientCredentials:
    - eees-appctxtreloc

paths:
  /determine:
    post:
      summary: Request ACR determination.
      operationId: Determine
      tags:
        - Determine ACR
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/AcrDetermReq'
      responses:
        '204':
          description: No Content.
        '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'
```

```
  /initiate:
    post:
      summary: Request the initiation of ACR.
      operationId: Initiate
      tags:
        - Initiate ACR
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/AcrInitReq'
      responses:
        '204':
          description: No Content.
        '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'

  /declare:
    post:
      summary: Informs about the selected target EAS and provides the associated information.
      operationId: Declare
      tags:
        - Declare selected target EAS
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/AcrDecReq'
      responses:
        '204':
          description: >
            No Content. The selected target EAS information is successfully received.
        '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: '{nrfApiRoot}/oauth2/token'
          scopes:
            eees-appctxtreloc: Access to the Eees_AppContextRelocation API

  schemas:
    AcrDetermReq:
      description: Represents the parameters to request ACR with action determination.
      type: object
      properties:
        requestorId:
          type: string
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
        acId:
          type: string
        easId:
          type: string
        sEasEndpoint:
          $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
      required:
        - requestorId
        - sEasEndpoint

    AcrInitReq:
      description: Represents the parameters to request ACR with action initiation.
      type: object
      properties:
        requestorId:
          type: string
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
        acId:
          type: string
        easId:
          type: string
        tEasEndpoint:
          $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
        sEasEndpoint:
          $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
        prevTEasEndpoint:
          $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
        routeReq:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/RouteToLocation'
        easNotifInd:
          type: boolean
          default: false
        prevEasNotifInd:
          type: boolean
          default: false
        eecCtxtReloc:
          $ref: '#/components/schemas/EecCtxtReloc'
      required:
        - requestorId
        - tEasEndpoint
        - easNotifInd

    AcrDecReq:
      description: >
        Represents the parameters to inform about the selected target EAS and provide the
        associated information.
      type: object
      properties:
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
```

```
      acId:
        type: string
      tEasId:
        type: string
      tEasEndpoint:
        $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
    required:
      - ueId
      - tEasId
      - tEasEndpoint

  EecCtxtReloc:
    description: Represents EEC Context relocation information.
    type: object
    properties:
      eecCtxtId:
        type: string
      sEesId:
        type: string
      sEecEndpoint:
        $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
      tEesId:
        type: string
      tEecEndpoint:
        $ref: 'TS29558_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
    required:
      - eecCtxtId
```

Annex B (normative): Edge Configuration Server OpenAPI specification

B.1 Eecs_ServiceProvisioning

```
openapi: 3.0.0
info:
  title: Eecs_ServiceProvisioning
  version: "1.0.0"
  description: |
    API for ECS Service Provisioning.
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    All rights reserved.

externalDocs:
  description: 3GPP TS 24.558 V17.0.0 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:
  /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'

  /request:
    post:
      summary: Request service provisioning information.
      operationId: RequestServProv
      tags:
        - Request Service Provisioning
      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'
```

```
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: 'TS24558_Eees_EECRegistration.yaml#/components/schemas/ACProfile'
          description: Information about services the EEC wants to connect to.
        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.
        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: '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.
      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_Eees_EASRegistration.yaml#/components/schemas/EndPoint'
```

```
      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_Eecs_EESRegistration.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 C (informative): Protocol options considered for EDGE-4 reference point

CT1 considered two possible protocol options for the EDGE-4 reference point: an API-based option and an NAS signalling-based option. CT1 decided to have only the API-based option in this release of the specification.

Annex D(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				OpenAPI specification for Eees_EECRegistration API	0.4.0
2021-09	CT1#131-e	C1-214502				Notify operation for Eees_ACREvents API	0.4.0
2021-09	CT1#131-e	C1-214503				Update subscription operation for Eees_ACREvents API	0.4.0
2021-09	CT1#131-e	C1-214504				Unsubscribe operation for Eees_ACREvents API	0.4.0
2021-09	CT1#131-e	C1-214505				Eees_EECRegistration_Request Service Operation	0.4.0
2021-09	CT1#131-e	C1-214506				Eees_EECRegistration_Update Service Operation	0.4.0
2021-09	CT1#131-e	C1-214593				Data model and Notification for Eees_ACREvents API	0.4.0
2021-09	CT1#131-e	C1-215059				General on EAS Discovery API Definition	0.4.0
2021-09	CT1#131-e	C1-215176				Pseudo-CR on Support of redirection for the Eees_ACREvents API	0.4.0
2021-10	CT1#132-e	C1-216089				Eees_AppContextRelocation API	0.5.0
2021-10	CT1#133-e	C1-217109				Service description and request operation for Eees_EASDiscovery service	0.6.0
2021-10	CT1#133-e	C1-217151				Service offered by ECS and service provisioning API	0.6.0
2021-10	CT1#133-e	C1-217366				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				Eees_EASDiscovery_UpdateSubscription operation for Eees_EASDiscovery API	1.1.0
2022-01	CT1#133e-Bis	C1-220727				EAS Discovery data model fixes	1.1.0
2022-01	CT1#133e-Bis	C1-220729				Clarification for Eecs_ServiceProvisioning_Request operation	1.1.0
2022-01	CT1#133e-Bis	C1-220730				EAS Discovery partial update with HTTP PATCH	1.1.0
2022-01	CT1#133e-Bis	C1-220732				EEC Registration partial update with HTTP PATCH	1.1.0
2022-01	CT1#133e-Bis	C1-220733				Service provisioning information subscription - Partial update with HTTP PATCH	1.1.0
2022-01	CT1#133e-Bis	C1-220735				ACR information subscription partial update with HTTP PATCH	1.1.0
2022-01	CT1#133e-Bis	C1-220736				Definitions of terms	1.1.0
2022-01	CT1#133e-Bis	C1-220838				Eees_EASDiscovery_Unsubscribe operation for Eees_EASDiscovery API	1.1.0
2022-02	CT1#134-e	C1-221598				Corrections in specification	1.2.0
2022-02	CT1#134-e	C1-221619				Update list of EES Service APIs	1.2.0
2022-02	CT1#134-e	C1-221622				Removing Editor Notes for EDNConfigInfo	1.2.0
2022-02	CT1#134-e	C1-221812				Resolution of editor's note under clause 6.3.5.2.4	1.2.0
2022-02	CT1#134-e	C1-221830				Resolving EN on EEC Context Transfer	1.2.0
2022-02	CT1#134-e	C1-222047				Removing Editor Notes in Eees_EECRegistration_Update and Eecs_ServiceProvisioning_Request	1.2.0
2022-02	CT1#134-e	C1-222094				Pseudo CR on updating the design of the Eecs_ServiceProvisioning_Request service operation	1.2.0
2022-02	CT1#134-e	C1-222099				Pseudo-CR on Eees_EASDiscovery API request, subscribe and notify service operations	1.2.0
2022-04	CT1#135-e	C1-222821				Pseudo-CR to update list of EES Service APIs	1.3.0
2022-04	CT1#135-e	C1-222827				Pseudo-CR to add reference in EEC Registration Open API	1.3.0
2022-04	CT1#135-e	C1-222831				Pseudo-CR to add reference in ECS Service Provisioning Open API	1.3.0
2022-04	CT1#135-e	C1-222836				Pseudo-CR to update Ecs Service Provisioning API description	1.3.0
2022-04	CT1#135-e	C1-222862				Pseudo CR on resolution of editor's note under clause 8.1.3.2	1.3.0
2022-04	CT1#135-e	C1-223026				Pseudo CR on resolution of editor's note under clause 8.1.4.2.2	1.3.0

2022-04	CT1#135-e	C1-223166				Pseudo-CR on removing Editor Notes specific to security	1.3.0
2022-04	CT1#135-e	C1-223171				Pseudo-CR to detail easEventType in EasDiscoverySubscriptionPatch	1.3.0
2022-04	CT1#135-e	C1-223187				Service description and Subscribe operation for Eees_ACREvents API	1.3.0
2022-04	CT1#135-e	C1-223191				Open API specification for Eees_ACREvents API	1.3.0
2022-04	CT1#135-e	C1-223210				removing templates from the specification	1.3.0
2022-04	CT1#135-e	C1-223216				Unifying the Eees_AppContextRelocation and the and Eees_SelectedTargetEAS APIs; compromised solution	1.3.0
2022-05	CT1#136-e	C1-223567				Pseudo-CR Checking ACR Scenario Support During a Registration and a Registration Update	1.4.0
2022-05	CT1#136-e	C1-223715				Pseudo CR on adding missing TS 29.522	1.4.0
2022-05	CT1#136-e	C1-223722				Pseudo CR on editorial corrections	1.4.0
2022-05	CT1#136-e	C1-223727				Pseudo CR on ACR Information Notification	1.4.0
2022-05	CT1#136-e	C1-223792				Pseudo-CR on correcting the ACREventsSubscriptionPatch data type	1.4.0
2022-05	CT1#136-e	C1-223794				Pseudo-CR on correcting formatting issues	1.4.0
2022-05	CT1#136-e	C1-223899				Pseudo-CR on removing the apiVersion placeholder from the resource URI variables table	1.4.0
2022-05	CT1#136-e	C1-223981				Pseudo CR on correction to scope	1.4.0
2022-05	CT1#136-e	C1-223982				Pseudo CR on ACR Information Subscription	1.4.0
2022-05	CT1#136-e	C1-223983				Pseudo CR on correction to the Eees_AppContextRelocation service	1.4.0
2022-05	CT1#136-e	C1-224076				Pseudo-CR on unifying the Eees_EASDiscovery and Eees_TargetEASDiscovery APIs	1.4.0
2022-05	CT1#136-e	C1-224141				specification cleanup	1.4.0
2022-05	CT1#136-e	C1-224174				Removal of content of Annex B	1.4.0
2022-05	CT1#136-e	C1-224187				Pseudo-CR to update ACR request	1.4.0
2022-05	CT1#136-e	C1-224189				Pseudo-CR to remove Editor's notes	1.4.0
2022-05	CT1#136-e	C1-224190				Pseudo-CR to update ACR information notification	1.4.0
2022-05	CT1#136-e	C1-224191				Pseudo-CR to provide partial EEC REGISTER Update failure status	1.4.0
2022-06	CT#96	CP-221192				Version 2.0.0 created for CT Plenary for approval	2.0.0
2022-06	CT#96					Version 17.0.0 created after CT#96	17.0.0

History

Document history		
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