**3GPP TSG CT WG3 Meeting #132eC3-240073**

**Electronic, 22nd – 24th January, 2024**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **0155** | **rev** | **-** | **Current version:** |  |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Updates to the support of the cloud entities and services |
|  |  |
| ***Source to WG:*** | Huawei, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | EDGEAPP\_Ph2 |  | ***Date:*** | 2024-01-15 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** |  |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The following issues have been identified on missing the support of the cloud entities and services in this specification:* The APIs reused by the CES in TS 23.558 are not identified.
* It is not clear which APIs the CES or CAS consumes. For example:
	+ As per clauses 8.8.2A.3 and 8.8.2B.3.3 of TS 23.558, the CES can be a consumer of the Eees\_ACRParameterInformation\_Request service operation. Also, the source and target application server can be either the source/target EAS or source/target CAS.
	+ Moreover, it should be specified that the CES reuses/exposes the Eees\_ACRParameterInformation API during an ACR from between edge and cloud.
	+ The service operations of the Eees\_EECContextRelocation API can also be consumed by the CES and the latter can also reuse/expose the Eees\_ACRParameterInformation API during an ACR between edge and cloud.

In addition, the following issues were also identified:* The Eees\_ACRParameterInformation\_Request response does not contain any information as per Table 8.8.4.25-1 of TS 23.558 and should only indicate whether the request is successful or not. The "200 OK" response is hence not needed.

TS 23.558 clause 6.3.9 has removed the EN of the functionalities of the CES, and indicate it supports ACR related operations, CES can consume the ACR related operations involving EES, i.e., send ACR parameter information to EES, EEC context information transfer between CES and EES. clause 6.5.17 define EEC context relocation and ACR parameter information procedures are supported in ECI-4 between CES and EES.Hence, the ENs on CES as consumer of ACRParameterInformation and EECContextRelocation services can be removed in clause 5.1. |
|  |  |
| ***Summary of change:*** | This CR proposes to:* Update and correct based on the above-mentioned issues.
 |
|  |  |
| ***Consequences if not approved:*** | * The support of the cloud services is not completed in stage 3.
 |
|  |  |
| ***Clauses affected:*** | 5.1, 5.10.1, 5.10.2.1, 5.10.2.2.1, 5.10.2.2.2, 5.10.2.3.1, 5.10.2.3.2, 5.13.1, 5.13.2.1, 5.13.2.2.1, 5.13.2.2.2, 6.1, 6.3.1, 6.3.2.1, 6.3.2.2.1, 6.3.2.2.2, 6A, 6A.2.1, 6A.2.2.1, 6A.2.2.2.1, 6A.2.2.2.2, 6B (new clause), 8.7.1A, 8.7.2.1, 8.7.2.2, 8.7.2.2.1, 8.7.2.2.3.1, 8.7.2.2.3.2, 8.7.2.2.4, 8.7.3, 8.7.4, 8.7.5.1, 8.7.5.2.2, 8.7.5.2.3, 8.7.5.2.4, 8.7.5.2.5, 8.7.5.2.6, 8.7.5.2.7, 8.7.5.2.8, 8.7.5.3, 8.7.5.4 (new clause), 8.7.5.5 (new clause), 8.7.6, 8.7.7, 8.10.1, 8.10.4.1, 8.10.4.2.1, 8.10.4.2.2, 8.10.6.2.2, 8.10.7.3, 8A.1.1, 8A.1.4.1, 8A.1.4.2.1, 8A.1.4.2.2, 8A.1.6.1, 8A.1.6.2.2, 8A.1.6.3, 8A.1.6.4 (new clause), 8A.1.6.5 (new clause), 8A.1.7.3, 9.2.2.1, 9.2.2.2.1, 9.2.2.2.3.1, A.8, A.12, A.13 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backwards compatible new feature to the OpenAPI descriptions of the Eees\_EECContextRelocation, Eecs\_TargetEESDiscovery and Eees\_ACRParameterInformation APIs defined in this specification. |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* \* Start of changes \* \* \* \*

## 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\_EASRegistration | Request | Request/Response | EAS |
| Update | Request/Response | EAS |
| Deregister | Request/Response | EAS |
| Eees\_UELocation | Get | Request/Response | EAS |
| Subscribe | Subscribe/Notify | EAS |
| Notify |
| UpdateSubscription |
| Unsubscribe |
| Eees\_UEIdentifier | Get | Request/Response | EAS, EEC |
| Eees\_AppClientInformation | Subscribe | Subscribe/Notify | EAS |
| Notify |
| UpdateSubscription |
| Unsubscribe |
| Eees\_SessionWithQoS | Create | Request/Response | EAS |
| Update | Request/Response | EAS |
| Revoke | Request/Response | EAS |
| Notify | Subscribe/Notify | EAS |
| Eees\_EASDiscovery | TEasDiscRequest | Request/Response | EAS, EES |
| Eees\_ACRManagementEvent | Subscribe | Subscribe/Notify | EAS |
| Notify |
| UpdateSubscription |
| Unsubscribe |
| Eees\_EECContextRelocation | Push | Request/Response | EES, CES |
| Pull | Request/Response | EES |
| Eees\_EELManagedACR | Request | Request/Response | EAS |
| Subscribe | Subscribe/Notify | EAS |
| Notify |
| Eees\_ACRStatusUpdate | Request | Request/Response | EAS |
| Eees\_AppContextRelocation | ACRDetermination\_Request | Request/Response | EAS |
| SelectedTargetEAS\_Declare | Request/Response | EAS |
| Eees\_ACRParameterInformation | Request | Request/Response | EES, CES |
| Eees\_CommonEASAnnouncement | Declare | Request/Response | EES |

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\_EASRegistration | 5.2 | EAS registration service | TS29558\_Eees\_EASRegistration.yaml | eees-easregistration | A.2 |
| Eees\_UELocation | 5.3 | Service for fetching UE location information | TS29558\_Eees\_UELocation.yaml | eees-uelocation | A.3 |
| Eees\_UEIdentifier | 5.4 | Service for fetching UE identifier. | TS29558\_Eees\_UEIdentifier.yaml | eees-ueidentifier | A.4 |
| Eees\_AppClientInformation | 5.5 | Service to obtain the capabilities of the ACs. | TS29558\_Eees\_AppClientInformation.yaml | eees-appclientinformation | A.5 |
| Eees\_SessionWithQoS | 5.6 | Service to setup data session between AC and EAS with specific QoS. | TS29558\_Eees\_SessionWithQoS.yaml | eees-session-with-qos | A.6 |
| Eees\_ACRManagementEvent | 5.8 | Service to receive notification related to ACR management events. | TS29558\_Eees\_ACRManagementEvent.yaml | eees-acrmgmtevent | A.7 |
| Eees\_EECContextRelocation | 5.10 | Service to push or pull EEC context information. | TS29558\_Eees\_EECContextRelocation.yaml | eees-eeccontextreloc | A.8 |
| Eees\_EELManagedACR | 5.11 | Service to request for handling of ACR related operations and receive ACT notifications. | TS29558\_Eees\_EELManagedACR.yaml | eees-eel-acr | A.9 |
| Eees\_ACRStatusUpdate | 5.12 | Service to update the status of ACR. | TS29558\_Eees\_ACRStatusUpdate.yaml | eees-acrstatus-update | A.10 |
| Eees\_ACRParameterInformation | 5.13 | Service to send ACR parameters information. | TS29558\_Eees\_ACRParameterInformation.yaml | eees-acr-param | A.13 |
| Eees\_CommonEASAnnouncement | 5.14 | Service to announce common EAS information. | TS29558\_Eees\_CommonEASAnnouncement.yaml | eees-common-eas | A.15 |

\* \* \* \* Next changes \* \* \* \*

### 5.10.1 Service Description

The Eees\_EECContextRelocation API enables a service consumer (e.g., S-EES, T-EES, CES) to perform the EEC context relocation, as defined in clause 8.9 of 3GPP TS 23.558 [2]. The Eees\_EECContextRelocation\_Pull service operation enables a service consumer (e.g., T-EES, CES) to pull the EEC context from the EES (e.g., S-EES), as specified by Eees\_EECContextPull API in 3GPP TS 23.558 [2]. The Eees\_EECContextRelocation\_Push service operation enables a service consumer (e.g., S-EES, CES) to push the EEC context to the EES (e.g., T-EES), as specified by Eees\_EECContextPush API in 3GPP TS 23.558 [2].

\* \* \* \* Next changes \* \* \* \*

#### 5.10.2.1 Introduction

The service operation defined for Eees\_EECContextRelocation API is shown in the table 5.10.2.1-1.

Table 5.10.2.1-1: Operations of the Eees\_EECContextRelocation API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eees\_EECContextRelocation\_Pull | This service operation is used by a service consumer to pull the EEC context information from the EES. | EES, CES |
| Eees\_EECContextRelocation\_Push | This service operation is used by a service consumer to push the EEC context information to EES. | EES, CES |

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.2.1 General

This service operation is used by a service consumer to pull the EEC context information from the EES (see also clause 8.9 of 3GPP TS 23.558 [2]).

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.2.2 Service consumer pulling the EEC context information from the EES using the Eees\_EECContextRelocation\_Pull operation

In order to pull the EEC context information from the EES, the service consumer shall send an HTTP GET request message to the EES targeting the URI of the "EEC Contexts" collection resource and including the relevant query parameters, as specified in the clause 8.7.2.2.3.1.

Upon reception of the HTTP GET message from the service consumer, the EES shall:

1. validate the request and verify whether the service consumer is authorized to relocate the EEC context; and

2. if the service consumer is authorised, process the request;

3. upon success, respond with an HTTP "200 OK" status code, with the response body including the EECContext data type containing the EEC context information corresponding to the received query parameters; or

4. on failure, the EES shall take proper error handling actions, as specified in clause 8.7.6, and respond to the service consumer with an appropriate error status code.

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.3.1 General

This service operation is used by a service consumer to push the EEC context information to the EES, (see also clause 8.9 of 3GPP TS 23.558 [2]).

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.3.2 Service consumer pushing the EEC context information to the EES using the Eees\_EECContextRelocation\_Push operation

In order to push the EEC context information to the EES, the service consumer shall send an HTTP POST request message to the EES, targeting the URI of the "EEC Contexts" collection resource, as specified in the clause 8.7.2.2.3.2, with the request body including the EECContextPush data structure defined in clause 8.7.5.2.4.

Upon reception of the HTTP POST request message from the service consumer, the EES shall:

1. validate the request and verify whether the service consumer is authorized to relocate the EEC context; and

2. if the service consumer is authorised, then process the request;

3. upon success, the EES shall store the received EEC Context and respond with either:

- an HTTP "200 OK" status code with the response body including the EECContextPushRes data structure; or

- an HTTP "204 No content" status code;

or

4. on failure, the EES shall take proper error handling actions, as specified in clause 8.7.6, and respond to the service consumer with an appropriate error status code.

\* \* \* \* Next changes \* \* \* \*

### 5.13.1 Service Description

The Eees\_ACRParameterInformation service exposed by the EES enables a service consumer (e.g., S-EES, CES) to:

- send ACR parameters information to the EES (e.g., T-EES).

\* \* \* \* Next changes \* \* \* \*

#### 5.13.2.1 Introduction

The service operations defined for the Eees\_ACRParameterInformation API are shown in the table 5.13.2.1-1.

Table 5.13.2.1-1: Eees\_ACRParameterInformation Service Operations

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eees\_ACRParameterInformation\_Request | This service operation enables a service consumer to send ACR parameters information to the EES. | e.g., EES, CES |

\* \* \* \* Next changes \* \* \* \*

##### 5.13.2.2.1 General

This service operation is used by a service consumer to send ACR parameters information to the EES.

The following procedures are supported by the "Eees\_ACRParameterInformation\_Request" service operation:

- ACR Parameters Information Request.

\* \* \* \* Next changes \* \* \* \*

##### 5.13.2.2.2 ACR Parameters Information Request

The ACR Parameters Information Request procedure enables a service consumer to send ACR parameters information to the EES (see also clause 8.8.3.9 of 3GPP°TS°23.558°[2]).

1. The service consumer shall send for this purpose an HTTP POST request to the EES targeting the URI of the corresponding custom operation (i.e., "Request"), with the request body including the ACRParamsInfo data structure defined in clause 8.10.6.2.2.

2. Upon reception of the HTTP POST request message from the service consumer, the EES shall check whether the service consumer is autorized to send the ACR parameters information. Then:

2a. upon success, the EES shall respond with an HTTP "204 No Content" status code;

2b. on failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information, as defined in clause 8.10.7, should be returned in the HTTP POST response body; or

2c. if the EES is not able to handle the request, it may respond with an HTTP "307 Temporary Redirect" status code or an HTTP "308 Permanent Redirect" status code including an HTTP "Location" header containing an alternative target URI of the custom operation located in an alternative EES, as defined in clause 5.2.10 of 3GPP TS 29.122 [2].

\* \* \* \* Next changes \* \* \* \*

## 6.1 Introduction

The table 6.1-1 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 6.1-1: List of ECS Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| Eecs\_EESRegistration | Request | Request/Response | e.g., EES |
| Update | Request/Response | e.g., EES |
| Deregister | Request/Response | e.g., EES |
| Eecs\_TargetEESDiscovery(NOTE) | Request | Request/Response | e.g., EES, CES |
| NOTE: In this release of the specification, this API is extended to enable to discover the target Enabler Server, which can be either the target EES or the target CES, not only the target EES, in order to support cloud enabler services. |

Table 6.1-2 summarizes the corresponding Edge Configuration Server APIs defined in this specification.

Table 6.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
| Eecs\_EESRegistration | 9.1 | EES registration service. | TS29558\_Eecs\_EESRegistration.yaml | eecs-eesregistration | A.11 |
| Eecs\_TargetEESDiscovery | 9.2 | Service to discover the target EES information. | TS29558\_Eecs\_TargetEESDiscovery.yaml | eecs-targeteesdiscovery | A.12 |

\* \* \* \* Next changes \* \* \* \*

### 6.3.1 Service Description

The Eecs\_TargetEESDiscovery API, as defined in 3GPP TS 23.558 [2], allows a service consumer (e.g., EES, ECS) to retrieve the target Enabler Server (e.g., T-EES, target CES) information at the ECS.

\* \* \* \* Next changes \* \* \* \*

#### 6.3.2.1 Introduction

The service operation defined for Eecs\_TargetEESDiscovery API is shown in the table 6.3.2.1-1.

Table 6.3.2.1-1: Operations of the Eecs\_TargetEESDiscovery API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Eecs\_TargetEESDiscovery\_Request | This service operation is used by a service consumer to retrieve the target Enabler Server information.  | EES, CES |

\* \* \* \* Next changes \* \* \* \*

##### 6.3.2.2.1 General

This service operation is used by a service consumer to retrieve the target Enabler Server information from the ECS.

\* \* \* \* Next changes \* \* \* \*

##### 6.3.2.2.2 Service consumer fetching the target Enabler Server information from the ECS using Eecs\_TargetEESDiscovery\_Request operation

To retrieve the target Enabler Server information from the ECS, the service consumer shall send a HTTP GET message to the ECS on the "EES Profiles" collection resource as specified in clause 9.2.2.2.3.1. The service consumer includes the discovery filter information in the query parameters of the GET message, as specified in clause 9.2.2.2.3.1, to assist the ECS to determine the target Enabler Server that has the Application Server (e.g., EAS, CAS) available to serve the given AC in the UE.

Upon receiving the HTTP GET message from the service consumer, the ECS shall:

1. Process the request information; and

2. verify the identity of the service consumer and check if it is authorized to retrieve the target Enabler Server information;

3. if the service consumer is authorized to retrieve the target Enabler Server information, then the ECS shall;

a. determine the target Enabler Server based on the provided query parameters in the request. If UE location information is not included in the request or not known to the ECS, then the ECS may fetch the UE location information from the 3GPP core network as specified in 3GPP TS 29.522 [10];

b. returns an HTTP "200 OK" status code with the response body including the EDN configuration and the list of T-EES(s) or target CES(s) information to the service consumer. The list of target Enabler Server includes the endpoint information to reach the target Enabler Server.

or

4. on failure, the ECS shall take proper error handling actions, as specified in clause 9.2.6, and respond to the service consumer with an appropriate error status code.

\* \* \* \* Next changes \* \* \* \*

# 6A Services offered by the Cloud Application Server (CAS)

\* \* \* \* Next changes \* \* \* \*

### 6A.2.1 Service Description

The Ecas\_SelectedEES API, as defined in 3GPP TS 23.558 [2], allows a service consumer (e.g., EES) to inform the CAS of the selected EES during ACR.

\* \* \* \* Next changes \* \* \* \*

#### 6A.2.2.1 Introduction

The service operation defined for Ecas\_SelectedEES API is shown in the table 6A.2.2.1-1.

Table 6A.2.2.1-1: Operations of the Ecas\_SelectedEES API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Ecas\_SelectedEES\_Declare | This service operation is used by the service consumer to inform the CAS of the selected EES during the ACR from EAS to CAS. | e.g., EES |

\* \* \* \* Next changes \* \* \* \*

##### 6A.2.2.2.1 General

This service operation is used by a service consumer to inform the CAS of the selected EES.

\* \* \* \* Next changes \* \* \* \*

##### 6A.2.2.2.2 Service consumer informing the CAS of the selected EES using Ecas\_SelectedEES\_Declare operation

To inform the CAS of the selected EES during the ACR, the service consumer shall send an HTTP POST request to the CAS targeting the URI of the corresponding custom operation (i.e., "Declare"), with the request body including the SelEESDecInfo data structure defined in clause 8A.1.6.2.2.

Upon reception of the HTTP POST request message from the service consumer, the CAS shall:

1. check whether the service consumer is authorized to declare the selected EES information;

2. if the service consumer is authorized, process the request, store the received information and respond with an HTTP "204 No Content" status code; or

3. on failure, the CAS shall take proper error handling actions, as specified in clause 8A.1.7, and respond to the service consumer with an appropriate error status code.

\* \* \* \* Next changes \* \* \* \*

# 6B Services offered by the Cloud Enabler Server (CES)

## 6B.1 Introduction

Table 6B.1-1 lists the CES APIs defined in this specification.

Table 6B.1-1: List of CES Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
|  |  |  |  |

Table 6B.1-2 summarizes the corresponding CES APIs defined in this specification.

Table 6B.1-2: API Descriptions

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

Table 6B.1-3 lists the EES APIs that are reused by the CES.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Service Name | Clause | OpenAPI Specification File | apiName | Annex |
| Eees\_EECContextRelocation | 5.10 | TS29558\_Eees\_EECContextRelocation.yaml | eees-eeccontextreloc | A.8 |
| Eees\_EELManagedACR | 5.11 | TS29558\_Eees\_EELManagedACR.yaml | eees-eel-acr | A.9 |
| Eees\_ACRStatusUpdate | 5.12 | TS29558\_Eees\_ACRStatusUpdate.yaml | eees-acrstatus-update | A.10 |
| Eees\_ACRParameterInformation | 5.13 | TS29558\_Eees\_ACRParameterInformation.yaml | eees-acr-param | A.13 |
| Eees\_CommonEASAnnouncement | 5.14 | TS29558\_Eees\_CommonEASAnnouncement.yaml | eees-common-eas | A.15 |

Editor's note: The full list of reused APIs is FFS.

\* \* \* \* Next changes \* \* \* \*

### 8.7.1A Usage of HTTP

The provisions of clause 5.2.2 of 3GPP TS 29.122 [6] shall apply for the Eees\_EECContextRelocation API.

\* \* \* \* Next changes \* \* \* \*

#### 8.7.2.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 8.7.2.1-1 depicts the resource URIs structure for the Eees\_EECContextRelocation API.



Figure 8.7.2.1-1: Resource URI structure of the Eees\_EECContextRelocation API

Table 8.7.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 8.7.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| EEC Contexts | /eec-contexts | GET | Pull the EEC Context information. |
| POST | Push the EEC Context information. |

\* \* \* \* Next changes \* \* \* \*

#### 8.7.2.2 Resource: EEC Contexts

\* \* \* \* Next changes \* \* \* \*

##### 8.7.2.2.1 Description

This resource represents the collection of EEC Contexts managed by the EES.

\* \* \* \* Next changes \* \* \* \*

###### 8.7.2.2.3.1 GET

This method allows a service consumer to pull the EEC Context information from the EES.

This method shall support the URI query parameters specified in table 8.7.2.2.3.1-1.

Table 8.7.2.2.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| ees-id | string | M | 1 | The identifier of the requesting entity (e.g., T-EES, CES). |
| eec-cntx-id | string | M | 1 | Unique identifier of the EEC Context to authorize the transfer. |
| sess-cntxs | SessionContexts | O | 0..1 | List of service session context information being requested. |

This method shall support the request data structures specified in table 8.7.2.2.3.1-2 and the response data structures and response codes specified in table 8.7.2.2.3.1-3.

Table 8.7.2.2.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 8.7.2.2.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| EECContext | M | 1 | 200 OK | Successful case. The EEC context information matching the query parameters in the request is returned. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in Table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. |

\* \* \* \* Next changes \* \* \* \*

###### 8.7.2.2.3.2 POST

This method allows a service consumer to push the EEC Context to the EES.

This method shall support the URI query parameters specified in table 8.7.2.2.3.2-1.

Table 8.7.2.2.3.2-1: 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 8.7.2.2.3.2-2 and the response data structures and response codes specified in table 8.7.2.2.3.2-3.

Table 8.7.2.2.3.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EECContextPush | M | 1 | Represents the EEC Context information to be pushed. |

Table 8.7.2.2.3.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | Successful case. The EEC context information is successfully pushed to the EES, and no content is returned in the response body. |
| EECContextPushRes | M | 1 | 200 OK | Successful case. The EEC context information is successfully pushed to the EES and related information is returned in the response body. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.2.2.4 Resource Custom Operations

There are no resource custom operations defined for this API in this release of the specification.

\* \* \* \* Next changes \* \* \* \*

### 8.7.3 Custom Operations without associated resources

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

\* \* \* \* Next changes \* \* \* \*

### 8.7.4 Notifications

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

\* \* \* \* Next changes \* \* \* \*

#### 8.7.5.1 General

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

Table 8.7.5.1-1 specifies the data types defined specifically for the Eees\_EECContextRelocation API service.

Table 8.7.5.1-1: Eees\_EECContextRelocation API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| EECContext | 8.7.5.2.5 | To represent the EEC context information to be relocated. |  |
| EECContextPush | 8.7.5.2.4 | To represent the EEC context information to be pushed. |  |
| EECContextPushRes | 8.7.5.2.6 | Represents the EEC context push relocation response. |  |
| EECSrvContinuitySupport | 8.7.5.2.8 | Represents the EEC service continuity support and the supported ACR scenarios. |  |
| ImplicitRegDetails | 8.7.5.2.7 | Represents the EEC implicit registration information. |  |
| IndividualSessionContext | 8.7.5.2.3 | To represent single Service session context information. |  |
| SessionContexts | 8.7.5.2.2 | To represent the Service session contexts information in the EEC context pull request. |  |

Table 8.7.5.1-2 specifies data types re-used by the Eees\_EECContextRelocation API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Eees\_EECContextRelocation API.

Table 8.7.5.1-2: Eees\_EECContextRelocation API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| EndPoint | 8.1.5.2.5 | To represent the end point information of an entity.  |  |
| ACProfile | 3GPP TS 24.558 [14] | Represents the application clients profiles in EEC context. |  |
| ACRScenario | 9.1.5.3.3 | Represents the ACR scenarios. | EdgeApp\_2 |
|  |  |  |  |
| Gpsi | 3GPP TS 29.571 [8] | Represents the identifier of a UE in GPSI format. |  |
| LocationArea5G | 3GPP TS 29.122 [6] | Represents the location information of the UE in the EEC context. |  |
| DateTime | 3GPP TS 29.122 [6] | Represents a date and a time. |  |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.2 Type: SessionContexts

Table 8.7.5.2.2-1: Definition of type SessionContexts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| sessCntxs | array(IndividualSessionContext) | M | 1..N | Contains the list of service session context information. |  |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.3 Type: IndividualSessionContext

Table 8.7.5.2.3-1: Definition of type IndividualSessionContext

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| easId | string | M | 1 | Contains the application identifier (e.g., URI, FQDN) of the Application Server (e.g., EAS, CAS) providing the application services. |  |
| endPt | EndPoint | M | 1 | Contains the end point information of the Application Server provided within the "easId" attribute. |  |
| acId | string | O | 0..1 | Contains the identifier of the AC for which the service session information is provided. |  |
| acrList | array(ACRScenario) | O | 1..N | Contains the list of the selected ACR scenario(s). | EdgeApp\_2 |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.4 Type: EECContextPush

Table 8.7.5.2.4-1: Definition of type EECContextPush

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eesId | string | M | 1 | Contains the identifier of the requesting entity (e.g., S-EES, CES) pushing the EEC context. |  |
| eecCntx | EECContext | M | 1 | Contains the EEC Context to be relocated. |  |
| tgtEas | EndPoint | O | 0..1 | Contains the endpoint information of the selected Application Server (e.g., T-EAS, CAS). | EdgeApp\_2 |
| acrScenariosSelReq | boolean | O | 0..1 | Contains the ACR scenarios selection request.When set to "true", this attribute indicates to the EES to select the ACR scenarios list. When set to "false" or omitted, this attribute indicates to the EES that ACR scenarios selection is not needed.The default value when omitted is "false". | EdgeApp\_2 |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.5 Type: EECContext

Table 8.7.5.2.5-1: Definition of type EECContext

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eecId | string | M | 1 | Contains the unique identifier of the EEC |  |
| cntxId | string | M | 1 | Contains the unique identifier assigned to the EEC Context |  |
| ueId | Gpsi | O | 0..1 | Contains the identifier of the UE hosting the EEC. |  |
| e1Subs | array(string) | O | 1..N | Contains the list of subscription IDs for the capability exposure for the EEC ID. |  |
| ueLoc | LocationArea5G | O | 0..1 | Contains the latest available location information of the UE hosting the EEC. |  |
| acProfs | array(ACProfile) | O | 1..N | Contains the list of ACs profiles. |  |
| sessCntxs | SessionContexts | O | 0..1 | Contains the list of associated Service Session Contexts. |  |
| eecSrvContSupp | EECSrvContinuitySupport | O | 0..1 | Represents the service continuity support related information.  | EdgeApp\_2 |
| ueMobSuppInd | boolean | O | 0..1 | Contains the UE Mobility Support indication.When set to "true", this attribute indicates that UE Mobility Support is required. When set to "false" or omitted, this attribute indicates that UE Mobility Support is not required.The default value when omitted is "false". | EdgeApp\_2 |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.6 Type: EECContextPushRes

Table 8.7.5.2.6-1: Definition of type EECContextPushRes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| implReg | ImplicitRegDetails | C | 0..1 | Contains implicit registration details.(NOTE) |  |
| selAcrScenariosList | array(ACRScenario) | O | 1..N | Contains the list of ACR scenarios selected by the EES. | EdgeApp\_2 |
| NOTE: This attribute shall be included if the EES has performed implicit registration of the EEC. |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.7 Type: ImplicitRegDetails

Table 8.7.5.2.7-1: Definition of type ImplicitRegDetails

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| regId | string | M | 1 | Represents the registration ID of the EEC whose EEC context is pushed |  |
| expTime | DateTime | O | 0..1 | Represents the expiration time of the registration. If absent, then it indicates that the registration of the EEC never expires. |  |

\* \* \* \* Next changes \* \* \* \*

##### 8.7.5.2.8 Type: EECSrvContinuitySupport

Table 8.7.5.2.8-1: Definition of type EECSrvContinuitySupport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| srvContSupp | boolean | M | 1 | This attribute is to indicate EEC service continuity support.When set to "true", this attribute indicates EEC supports service continuity.When set to "false", this attribute indicates EEC does not support service continuity.The default value when omitted is "false". |  |
| acrScenarios | array(ACRScenario) | C | 1..N | This attribute indicates the list of ACR scenarios supported by the EEC.This attribute shall be present only when the "srvContSupp" attribute is set to "true". |  |

\* \* \* \* Next changes \* \* \* \*

#### 8.7.5.3 Simple data types and enumerations

##### 8.7.5.3.1 Introduction

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

##### 8.7.5.3.2 Simple data types

The simple data types defined in table 8.7.5.3.2-1 shall be supported.

Table 8.7.5.3.2-1: Simple data types

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

#### 8.7.5.4 Data types describing alternative data types or combinations of data types

There are no data types describing alternative data types or combinations of data types defined for this API in this release of the specification.

#### 8.7.5.5 Binary data

##### 8.7.5.5.1 Binary Data Types

Table 8.7.5.5.1-1: Binary Data Types

|  |  |  |
| --- | --- | --- |
| Name | Clause defined | Content type |
|  |  |  |

\* \* \* \* Next changes \* \* \* \*

### 8.7.6 Error Handling

#### 8.7.6.1 General

For the Eees\_EECContextRelocation API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [6]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [6] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [6].

In addition, the requirements in the following clauses are applicable for the Eees\_EECContextRelocation API.

#### 8.7.6.2 Protocol Errors

No specific protocol errors for the Eees\_EECContextRelocation API are specified.

#### 8.7.6.3 Application Errors

The application errors defined for the Eees\_EECContextRelocation API are listed in Table 8.7.6.3-1.

Table 8.7.6.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

### 8.7.7 Feature negotiation

General feature negotiation procedures are defined in clause 7.8. Table 8.7.7-1 lists the supported features for Eees\_EECContextRelocation API.

Table 8.7.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | EdgeApp\_2 | This feature indicates the support of the phase 2 of the definition of EDGE applications support.Within this feature, the following enhancements are covered:- Support the "ACR Selection" event subscription and reporting. |

\* \* \* \* Next changes \* \* \* \*

### 8.10.1 Introduction

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

The API URI of the Eees\_ACRParameterInformation API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [6], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [6].

- The <apiName>shall be "eees-acr-param".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [6].

NOTE: When 3GPP TS 29.122 [6] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 6.5, the EES takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

\* \* \* \* Next changes \* \* \* \*

#### 8.10.4.1 Overview

The structure of the custom operation URIs of the Eees\_ACRParameterInformation API is shown in Figure 8.10.4.1-1.



Figure 8.10.4.1-1: Custom operation URI structure of the Eees\_ACRParameterInformation API

Table 8.10.4.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the Eees\_ACRParameterInformation API.

Table 8.10.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Request | /send-acrparamsinfo | POST | Enables a service consumer to send ACR parameters information to the EES. |

\* \* \* \* Next changes \* \* \* \*

##### 8.10.4.2.1 Description

The custom operation enables a service consumer to send ACR parameters information to the EES.

\* \* \* \* Next changes \* \* \* \*

##### 8.10.4.2.2 Operation Definition

This operation shall support the request data structures and the response data structures and response codes specified in tables 8.10.4.2.2-1 and 8.10.4.2.2-2.

Table 8.10.4.2.2-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ACRParamsInfo | M | 1 | Contains the ACR parameters information to be provisioned/updated. |

Table 8.10.4.2.2-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
|  |  |  |  |  |
| n/a |  |  | 204 No Content | Successful case. The ACR parameters information 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 [6]. |
| 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 [6]. |
| NOTE: The manadatory HTTP error status codes for the HTTP POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. |

Table 8.10.4.2.2-3: Headers supported by the 307 Response Code

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

Table 8.10.4.2.2-4: Headers supported by the 308 Response Code

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

\* \* \* \* Next changes \* \* \* \*

##### 8.10.6.2.2 Type: ACRParamsInfo

Table 8.10.6.2.2-1: Definition of type ACRParamsInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| requestorId | string | M | 1 | Contains the identifier of the service consumer that is sending the request. |  |
| eecId | string | M | 1 | Contains the identifier of the concerned EEC. |  |
| acId | string | M | 1 | Contains the identifier of the concerned AC. |  |
| sAsEndPoint | EndPoint | M | 1 | Contains the endpoint information of the source Application Server (e.g., S-EAS, CAS). |  |
| tAsEndPoint | EndPoint | M | 1 | Contains the endpoint information of the target Application Server (e.g., T-EAS, CAS). |  |
| acrParams | ACRParameters | M | 1 | Contains the ACR Parameters. |  |

\* \* \* \* Next changes \* \* \* \*

#### 8.10.7.3 Application Errors

The application errors defined for the Eees\_ACRParameterInformation API are listed in Table 8.10.7.3-1.

Table 8.10.7.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

### 8A.1.1 Introduction

The Ecas\_SelectedEES service shall use the Ecas\_SelectedEES API.

The API URI of the Ecas\_SelectedEES API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [6], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [6].

- The <apiName>shall be "ecas-selected-ees".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [6].

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 5, the CAS takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

\* \* \* \* Next changes \* \* \* \*

#### 8A.1.4.1 Overview

The structure of the custom operation URIs of the Ecas\_SelectedEES API is shown in Figure 8A.1.4.1-1.



Figure 8A.1.4.1-1: Custom operation URI structure of the Ecas\_SelectedEES API

Table 8A.1.4.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the Ecas\_SelectedEES API.

Table 8A.1.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Declare | /declare | POST | Enables a service consumer to declare the selected target EES related information. |

\* \* \* \* Next changes \* \* \* \*

##### 8A.1.4.2.1 Description

The custom operation enables a service consumer to inform the CAS about the selected target EES related information during an ACR procedure from EAS to CAS.

\* \* \* \* Next changes \* \* \* \*

##### 8A.1.4.2.2 Operation Definition

This operation shall support the request data structures and the response data structures and response codes specified in tables 8A.1.4.2.2-1 and 8A.1.4.2.2-2.

Table 8A.1.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| SelEESDecInfo | M | 1 | Contains the parameters to declare the selected target EES related information. |

Table 8A.1.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The selected EES declaration 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 CAS.Redirection handling is described in clause 5.2.10 of TS 29.122 [6]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI located in an alternative CAS.Redirection handling is described in clause 5.2.10 of TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in Table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. |

Table 8A.1.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative CAS. |

Table 8A.1.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative CAS. |

\* \* \* \* Next changes \* \* \* \*

#### 8A.1.6.1 General

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

Table 8A.1.6.1-1 specifies the data types defined for the Ecas\_SelectedEES API.

Table 8A.1.6.1-1: Ecas\_SelectedEES API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| SelEESDecInfo | 8A.1.6.2.2 | Represent the selected target EES related information. |  |

Table 8A.1.6.1-2 specifies data types re-used by the Ecas\_SelectedEES API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Ecas\_SelectedEES API.

Table 8A.1.6.1-2: Ecas\_SelectedEES API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| EndPoint | Clause 8.1.5.2.5 | Represents the endpoint information.  |  |
| Gpsi | 3GPP TS 29.571 [8] | Used to identify the UE with GPSI.  |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |

\* \* \* \* Next changes \* \* \* \*

##### 8A.1.6.2.2 Type: SelEESDecInfo

Table 8A.1.6.2.2-1: Definition of type SelEESDecInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ueId | Gpsi | M | 1 | Contains the identifier of the UE. |  |
| seleEesId | string | M | 1 | Contains the identifier of the selected EES. |  |
| seleEesEndPoint | EndPoint | M | 1 | Contains Endpoint information (e.g. URI, FQDN, IP address) used to communicate with the selected EES. |  |
| easId | string | M | 1 | Contains the identifier of the concerned EAS. |  |
| acId | string | O | 0..1 | Contains the identifier of the concerned AC. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 8A.1.8.This attribute shall be present only when feature negotiation needs to take place. |  |

\* \* \* \* Next changes \* \* \* \*

#### 8A.1.6.3 Simple data types and enumerations

##### 8A.1.6.3.1 Introduction

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

##### 8A.1.6.3.2 Simple data types

The simple data types defined in table 8A.1.6.3.2-1 shall be supported.

Table 8A.1.6.3.2-1: Simple data types

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

#### 8A.1.6.4 Data types describing alternative data types or combinations of data types

There are no data types describing alternative data types or combinations of data types defined for this API in this release of the specification.

#### 8A.1.6.5 Binary data

##### 8A.1.6.5.1 Binary Data Types

Table 8A.1.6.5.1-1: Binary Data Types

|  |  |  |
| --- | --- | --- |
| Name | Clause defined | Content type |
|  |  |  |

\* \* \* \* Next changes \* \* \* \*

#### 8A.1.7.3 Application Errors

The application errors defined for the Ecas\_SelectedEES API are listed in Table 8A.1.7.3-1.

Table 8A.1.7.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

#### 9.2.2.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 9.2.2.1-1 depicts the resource URIs structure for the Eecs\_TargetEESDiscovery API.



Figure 9.2.2.1-1: Resource URI structure of the Eecs\_TargetEESDiscovery API

Table 9.2.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 9.2.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| EES Profiles(NOTE) | /ees-profiles | GET | Retrieve the target Enabler Server information. |
| NOTE: In this release of the specification, this resource is extended to manage also the CES profiles, not only the EES profiles, in order to support cloud enabler services. |

\* \* \* \* Next changes \* \* \* \*

##### 9.2.2.2.1 Description

This resource allows a service consumer to retrieve the target Enabler Server information from the ECS.

\* \* \* \* Next changes \* \* \* \*

###### 9.2.2.2.3.1 GET

This method allows the service consumer to fetch the target Enabler Server information as specified in 3GPP TS 23.558 [2], from the ECS with a given discovery filters.

This method shall support the URI query parameters specified in table 9.2.2.2.3.1-1.

Table 9.2.2.2.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| ees-id | string | M | 1 | Unique identifier of the target Enabler Server. |  |
| eas-id | string | M | 1 | Represents the application identifier of the source Application Server (e.g., S-EAS or CAS), e.g. URI, FQDN. |  |
| target-dnai | Dnai | O | 0..1 | The DNAI information associated with the potential target Enabler Server(s) and/or target Application Server(s). |  |
| ue-id | Gpsi | O | 0..1 | Identifier of the UE. |  |
| ue-location | LocationArea5G | O | 0..1 | The location information of the UE. |  |
| eec-srv-cont-supp | EECSrvContinuitySupport | O | 0..1 | Indicates whether the EEC supports service continuity or not and the related service continuity support information. | EdgeApp\_2 |
| ac-svc-cont-supp | array(ACRScenario) | O | 1..N  | Indicates that the AC supports service continuity and contains the related service continuity support information (i.e., supported ACR scenarios). | EdgeApp\_2 |
| bdl-id | string | O | 0..1 | Contains the identifier of the EAS bundle. | EdgeApp\_2 |
| bdl-type | BdlType | O | 0..1 | Contains the EAS bundle type. | EdgeApp\_2 |
| ens-ind | boolean | O | 0..1 | Indicates whether edge node sharing is requested.When set to "true", it indicates that edge node sharing is requested.When set to "false" (default if omitted), it indicates that node sharing is not requested. | EdgeApp\_2 |
| app-grp-id | string | O | 0..1 | Contains the application group identifier.When this query parameter is provided, then it indicates that the request is for the retrieval of an EES list for the announcement of common EAS. | EdgeApp\_2 |

This method shall support the request data structures specified in table 9.2.2.2.3.1-2 and the response data structures and response codes specified in table 9.2.2.2.3.1-3.

Table 9.2.2.2.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 9.2.2.2.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ECSServProvResp | M | 1 | 200 OK | The EDN configuration and the target Enabler Server information determined by the ECS based on the query parameters. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in Table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. |

\* \* \* \* Next changes \* \* \* \*

# A.8 Eees\_EECContextRelocation API

openapi: 3.0.0

info:

 title: EES EEC Context Relocation API

 version: 1.1.0-alpha.3

 description: |

 API for EEC Context Relocation.

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externalDocs:

 description: >

 3GPP TS 29.558 V18.2.0 Enabling Edge Applications;

 Application Programming Interface (API) specification; Stage 3

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

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

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 7.5 of 3GPP TS 29.558.

paths:

 /eec-contexts:

 post:

 summary: Push EEC Context information.

 operationId: PushEecContexts

 tags:

 - EEC contexts (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: >

 OK. The EEC context has been successfully pushed to the EES and related

 information is returned in the response body.

 content:

 application/json:

 schema:

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

 '204':

 description: No Content. The EEC context has been successfully pushed to the EES.

 '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'

 get:

 summary: Pull EEC Context information.

 operationId: PullEecContexts

 tags:

 - EEC contexts (Collection)

 parameters:

 - name: ees-id

 in: query

 description: Unique identifier of the requesting entity.

 required: true

 schema:

 type: string

 - name: eec-cntx-id

 in: query

 description: Unique identifier of the EEC context.

 required: true

 schema:

 type: string

 - name: sess-cntxs

 in: query

 description: List of service session context information being requested.

 required: false

 schema:

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

 responses:

 '200':

 description: >

 OK. The EEC context information matching the query parameters in the request

 shall be returned.

 content:

 application/json:

 schema:

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

 '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:

 SessionContexts:

 type: object

 description: Represents the list of service session contexts information.

 properties:

 sessCntxs:

 type: array

 items:

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

 minItems: 1

 description: List of service session contexts information.

 required:

 - sessCntxs

 IndividualSessionContext:

 type: object

 description: Represents a single service session context information.

 properties:

 easId:

 type: string

 description: Identifier of the Application Server providing the application services.

 endPt:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/EndPoint'

 acId:

 type: string

 description: Identifier of the AC for which the service session information is provided.

 acrList:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 minItems: 1

 description: The list of selected ACR scenarios.

 required:

 - easId

 - endPt

 EECContextPush:

 type: object

 description: Represents the EEC context push request data.

 properties:

 eesId:

 type: string

 description: Identifier of the entity that is pushing the EEC context information.

 eecCntx:

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

 tgtEas:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/EndPoint'

 acrScenariosSelReq:

 type: boolean

 description: >

 Set to true if the EEC indicates to select the ACR scenarisos.

 Set to false if it is not required to select the ACR scenarios.

 The default value when omitted is false.

 required:

 - eesId

 - eecCntx

 EECContextPushRes:

 type: object

 description: Represents the EEC context push response data.

 properties:

 implReg:

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

 selAcrScenariosList:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 minItems: 1

 ImplicitRegDetails:

 type: object

 description: Represents the EEC implicit registration details.

 properties:

 regId:

 type: string

 description: Identifier of the EEC registration.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - regId

 EECContext:

 type: object

 description: Represents the EEC context information.

 properties:

 eecId:

 type: string

 description: Unique idenitfier of the EEC.

 cntxId:

 type: string

 description: Unique idenitfier assigned to the EEC context.

 ueId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 e1Subs:

 type: array

 items:

 type: string

 minItems: 1

 description: List of subscription IDs for the capability expsoure for the EEC ID.

 ueLoc:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 acProfs:

 type: array

 items:

 $ref: 'TS24558\_Eees\_EECRegistration.yaml#/components/schemas/ACProfile'

 minItems: 1

 description: List AC profiles.

 sessCntxs:

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

 eecSrvContSupp:

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

 ueMobSuppInd:

 type: boolean

 description: >

 Set to true to indicate that UE Mobility support is required.

 Set to false to indicate that UE mobility support is not required.

 The default value when omitted is false.

 required:

 - eecId

 - cntxId

 EECSrvContinuitySupport:

 type: object

 description: Represents the EEC service continuity support details.

 properties:

 srvContSupp:

 type: boolean

 description: >

 Set to true if EEC supports service continuity.

 Set to false if EEC does not supports service continuity.

 The default value when omitted is false.

 acrScenarios:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 minItems: 1

 description: The list of ACR scenarios supported by EEC.

 required:

 - srvContSupp

\* \* \* \* Next changes \* \* \* \*

# A.12 Eecs\_TargetEESDiscovery API

openapi: 3.0.0

info:

 title: ECS Target EES Discovery API

 description: |

 API for Target EES Discovery.

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 version: 1.1.0-alpha.3

externalDocs:

 description: >

 3GPP TS 29.558 V18.4.0 Enabling Edge Applications;

 Application Programming Interface (API) specification; Stage 3

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/eecs-targeteesdiscovery/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 7.5 of 3GPP TS 29.558.

paths:

 /ees-profiles:

 get:

 summary: Read all the targeted Enabler Server Profiles

 operationId: GetEESProfiles

 tags:

 - EES Profiles (Collection)

 description: Retrieve the T-EES information.

 parameters:

 - name: ees-id

 in: query

 description: Unique identifier of the source Enabler Server.

 required: true

 schema:

 type: string

 - name: eas-id

 in: query

 description: Unique identifier of the source Application Server.

 required: true

 schema:

 type: string

 - name: target-dnai

 in: query

 description: >

 The DNAI information associated with the potential target Enabler Server(s)

 and/or target Application Server(s).

 required: false

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 - name: ue-id

 in: query

 description: Identifier of the UE.

 required: false

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 - name: ue-location

 in: query

 description: The location information of the UE.

 required: false

 schema:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 - name: eec-srv-cont-supp

 in: query

 description: >

 Indicates whether the EEC supports service continuity or not and the related service

 continuity support information.

 required: false

 schema:

 $ref: 'TS29558\_Eees\_EECContextRelocation.yaml#/components/schemas/EECSrvContinuitySupport'

 - name: ac-svc-cont-supp

 in: query

 description: >

 Indicates that the AC supports service continuity and contains the related service

 continuity support information (i.e., supported ACR scenarios).

 required: false

 schema:

 type: array

 items:

 $ref: 'TS29558\_Eecs\_EESRegistration.yaml#/components/schemas/ACRScenario'

 minItems: 1

 - name: bdl-id

 in: query

 description: >

 Contains EAS bundle identifier.

 required: false

 schema:

 type: string

 - name: bdl-type

 in: query

 description: >

 Contains EAS bundle type.

 required: false

 schema:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/BdlType'

 - name: ens-ind

 in: query

 description: indicates whether edge node sharing is requested.

 required: false

 schema:

 type: boolean

 description: >

 Set to true if edge node sharing is requested.

 Set to false if edge node sharing is not requested.

 The default value when omitted is false.

 - name: app-grp-id

 in: query

 description: >

 Contains the application group identifier.

 required: false

 schema:

 type: string

 responses:

 '200':

 description: >

 The EDN configuration and the Enabler Server information determined by the ECS.

 content:

 application/json:

 schema:

 $ref: 'TS24558\_Eecs\_ServiceProvisioning.yaml#/components/schemas/ECSServProvResp'

 '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: {}

\* \* \* \* Next changes \* \* \* \*

# A.13 Eees\_ACRParameterInformation API

openapi: 3.0.0

info:

 title: EES ACR Parameters Information Service

 version: 1.0.0-alpha.2

 description: |

 EES ACR Parameters Information Service.

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externalDocs:

 description: >

 3GPP TS 29.558 V18.3.0; Enabling Edge Applications;

 Application Programming Interface (API) specification; Stage 3.

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.558/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/eees-acr-param/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122

paths:

 /send-acrparamsinfo:

 post:

 summary: Request to send ACR parameters information.

 operationId: Request

 tags:

 - Send ACR Parameter Information

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: >

 No Content. The ACR parameter information is successfully received and processed.

 '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:

 ACRParamsInfo:

 description: >

 Represents the ACR parameters information.

 type: object

 properties:

 requestorId:

 type: string

 eecId:

 type: string

 acId:

 type: string

 sAsEndPoint:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/EndPoint'

 tAsEndPoint:

 $ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/EndPoint'

 acrParams:

 $ref: 'TS29558\_Eees\_ACRManagementEvent.yaml#/components/schemas/ACRParameters'

 required:

 - requestorId

 - eecId

 - acId

 - sAsEndPoint

 - tAsEndPoint

 - acrParams

\* \* \* \* End of changes \* \* \* \*