**3GPP TSG-CT3 Meeting #127eC3-231202**

**E-meeting, 17th – 21st April 2023**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.558** | **CR** | **0064** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
| ***Title:*** | Updates to the EAS type for UAS services | | | | | | | | |
|  |  | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | |
|  |  | | | | | | | | |
| ***Work item code:*** | NBI18 | | | | |  | ***Date:*** | | 2023-04-10 |
|  |  | | | |  | |  | |  |
| ***Category:*** | **B** | |  | | | | ***Release:*** | | Rel-18 |
|  | *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 can be 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:*** | | As per the provisions of Annex A of TS 23.255, both the UAS Application Specific Server (UASS) and the UAE Server can act as an EAS. It is hence needed to update the EAS type/category accordingly.  The following abbreviation are now used in this specification, but the definition of them is missing:   * UAE/UAS/UASS | | | | | | | |
|  | |  | | | | | | | |
| ***Summary of change:*** | | This CR proposes to:   * Update the EASCategory enumeration to enable the possible UAS related EAS types. The EEC (on behalf of the UAE client and/or the UAS Application Specific Client) should be able to discover either a UAE Server, a UAS Application Specific Server (UASS) or both. * Define the above UAS related abbreviations. | | | | | | | |
|  | |  | | | | | | | |
| ***Consequences if not approved:*** | | * The provisions of Annex A of TS 23.255 are not reflected in stage 3. * Missing UAS related abbreviations definition. | | | | | | | |
|  | | |  | | | | | | |
| ***Clauses affected:*** | | | 3.3, 8.1.5.3.4, 8.1.7, A.2 | | | | | | |
|  | | |  | | | | | | |
|  | | | **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 a backwards compatible new feature to the OpenAPI description of the Eees\_EASRegistration API defined in this specification and the Eees\_EASDiscovery API defined in TS 24.558. | | | | | | |
|  | | |  | | | | | | |
| ***This CR's revision history:*** | | |  | | | | | | |

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

## 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

ACID Application Client Identification

ACR Application Context Relocation

AF Application Function

ASP Application Service Provider

DN Data Network

DNAI Data Network Access Identifier

DNN Data Network Name

EAS Edge Application Server

EASID Edge Application Server Identification

ECS Edge Configuration Server

ECSP Edge Computing Service Provider

EDN Edge Data Network

EEC Edge Enabler Client

EECID Edge Enabler Client Identification

EEL Edge Enabler Layer

EES Edge Enabler Server

EESID Edge Enabler Server Identification

EHE Edge Hosting Environment

FQDN Fully Qualified Domain Name

GPSI Generic Public Subscription Identifier

LADN Local Area Data Network

NEF Network Exposure Function

S-EAS Source Edge Application Server

S-EES Source Edge Enabler Server

SCEF Service Capability Exposure Function

SSID Service Set Identifier

T-EAS Target Edge Application Server

T-EES Target Edge Enabler Server

TAI Tracking Area Identity

UAE UAS Application Enabler

UAS Uncrewed Aerial System

UASS UAS Application Specific Server

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

##### 8.1.5.3.4 Enumeration: EASCategory

Table 8.1.5.3.3-1: Enumeration EASCategory

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| UAS | Indicates that the EAS category is for UAS services (i.e. UAE Sever and UASS). |  |
| UAS\_UAE\_SERVER | Indicates that the EAS Category is UAE Server for UAS services. | UASAPP |
| UAS\_UASS | Indicates that the EAS Category is UASS for UAS services. | UASAPP |
| V2X | Category of EAS is for V2X Services. |  |
| OTHER | Any other type of EAS category |  |

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

### 8.1.7 Feature negotiation

General feature negotiation procedures are defined in clause 7.8. Table 8.1.7-1 lists the supported features for Eees\_EASRegistration API.

Table 8.1.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | SEALDD\_Support | Indicates the SEALDD related functionality (e.g., the seamless EAS transport layer relocation support). |
| 2 | Edge2\_EasCtxtHold | This feature supports the indication of context holding time that the EAS holds the application context before AC connects to the EAS. |
| 3 | UASAPP | Represents the support of UASAPP functionality related enhancements (e.g. support of UAS related EAS types). |

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

# A.2 Eees\_EASRegistration API

openapi: 3.0.0

info:

title: EES EAS Registration\_API

description: |

API for EAS Registration.

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version: 1.1.0-alpha.2

externalDocs:

description: >

3GPP TS 29.558 V18.1.0 Enabling Edge Applications;

Application Programming Interface (API) specification; Stage 3

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

servers:

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

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials: []

paths:

/registrations:

post:

summary: Creates a new Individual EAS Registration resource

operationId: CreateEASRegistration

tags:

- EAS Registrations (Collection)

description: Registers a new EAS at an EES.

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: EAS information is registered successfully at EES.

content:

application/json:

schema:

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

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'

/registrations/{registrationId}:

get:

summary: Read an Individual EAS Registration resource

operationId: ReadIndEASRegistration

tags:

- Individual EAS Registration (Document)

description: Retrieve an Individual EAS registration resource.

parameters:

- name: registrationId

in: path

description: Registration Id.

required: true

schema:

type: string

responses:

'200':

description: OK (The EAS registration information at the EES).

content:

application/json:

schema:

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

'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'

put:

summary: Update an Individual EAS Registration resource

operationId: UpdateIndEASRegistration

tags:

- Individual EAS Registration (Document)

description: Fully replace an existing EAS Registration resource.

parameters:

- name: registrationId

in: path

description: EAS registration Id.

required: true

schema:

type: string

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (The EAS registration information is updated successfully).

content:

application/json:

schema:

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

'204':

description: >

No Content. The individual EAS registration information is 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'

patch:

summary: Modify an Individual EAS Registration resource

operationId: ModifyIndEASRegistration

tags:

- Individual EAS Registration (Document)

description: Partially update an existing EAS Registration resource.

parameters:

- name: registrationId

in: path

description: EAS registration Id.

required: true

schema:

type: string

requestBody:

description: Partial update of an existing EAS registration resource.

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: >

The Individual EAS registration is successfully modified and the updated

registration information is returned in the response.

content:

application/json:

schema:

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

'204':

description: >

No Content. The individual EAS registration information is 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:

summary: Delete an Individual EAS Registration resource

operationId: DeleteIndEASRegistration

tags:

- Individual EAS Registration (Document)

description: Delete an existing EAS registration at EES.

parameters:

- name: registrationId

in: path

description: EAS registration Id.

required: true

schema:

type: string

responses:

'204':

description: The individual EAS registration 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'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUrl}'

scopes: {}

schemas:

EASRegistration:

type: object

description: Represents an EAS registration information.

properties:

easProf:

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

expTime:

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

suppFeat:

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

required:

- easProf

EASProfile:

type: object

description: Represents the EAS profile information.

properties:

easId:

type: string

description: Identifier of the EAS.

endPt:

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

acIds:

type: array

items:

type: string

minItems: 1

description: Identities of application clients that are served by the EAS.

provId:

type: string

description: Identifier of the ASP that provides the EAS.

type:

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

flexEasType:

type: string

description: The EAS type with flexible value set.

scheds:

type: array

items:

$ref: 'TS29122\_CpProvisioning.yaml#/components/schemas/ScheduledCommunicationTime'

minItems: 1

description: The availability schedule of the EAS.

svcArea:

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

svcKpi:

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

permLvl:

type: array

items:

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

minItems: 1

description: level of service permissions supported by the EAS.

easFeats:

type: array

items:

type: string

minItems: 1

description: Service specific features supported by EAS.

appLocs:

type: array

items:

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

minItems: 1

description: List of DNAI(s) and the N6 traffic information associated with the EAS.

svcContSupp:

type: array

items:

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

minItems: 1

description: The ACR scenarios supported by the EAS for service continuity.

transContSupp:

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

avlRep:

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

status:

type: string

description: EAS status information.

genCtxDur:

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

required:

- easId

- endPt

not:

required: [ type, flexEasType ]

EASRegistrationPatch:

type: object

description: Represents partial update request of individual EAS registration information.

properties:

easProf:

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

expTime:

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

EASServiceKPI:

type: object

description: Represents the EAS service KPI information.

properties:

maxReqRate:

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

maxRespTime:

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

avail:

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

avlComp:

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

avlGraComp:

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

avlMem:

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

avlStrg:

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

connBand:

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

EndPoint:

type: object

description: The end point information to reach EAS.

properties:

fqdn:

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

ipv4Addrs:

type: array

items:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

minItems: 1

description: IPv4 addresses of the edge server.

ipv6Addrs:

type: array

items:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

minItems: 1

description: IPv6 addresses of the edge server.

uri:

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

oneOf:

- required: [uri]

- required: [fqdn]

- required: [ipv4Addrs]

- required: [ipv6Addrs]

PermissionLevel:

anyOf:

- type: string

enum:

- TRIAL

- GOLD

- SILVER

- OTHER

- 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: |

Indicates the level of service permissions supported by the EAS.

Possible values are:

- TRIAL: Level of service permission supported is TRIAL.

- GOLD: Level of service permission supported is GOLD.

- SILVER: Level of service permission supported is SILVER.

- OTHER: Any other level of service permissions supported.

EASCategory:

anyOf:

- type: string

enum:

- UAS

- V2X

- UAS\_UAE\_SERVER

- UAS\_UASS

- OTHER

- 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: |

Indicates the category or type of the EAS.

Possible values are:

- UAS: Indicates that the EAS category is for UAS services(i.e. VAE Server and UASS).

- V2X: Category of EAS is for V2X Services.

- UAS\_UAE\_SERVER: Indicates that the EAS category is UAE Server for UAS services.

- UAS\_UASS: Indicates that the EAS category is UASS for UAS services.

- OTHER: Any other type of EAS category.

TransContSuppDetails:

type: object

description: >

Represents the detailed information about the seamless EAS transport layer

relocation support.

properties:

transProtocs:

type: array

items:

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

minItems: 1

description: >

Indicates the transport layer protocols that are supported for

the seamless EAS transport layer relocation.

required:

- transProtocs

TransportProtocol:

anyOf:

- type: string

enum:

- QUIC

- TCP

- TCP\_TLS

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the transport layer protocol.

Possible values are:

- QUIC: UDP-Based Multiplexed and Secure Transport (QUIC) protocol.

- TCP: Transmission Control Protocol.

- TCP\_TLS: Transmission Control Protocol (TCP) with Transport Layer Security (TLS) Protocol.

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