**3GPP TSG-CT WG1 Meeting #141eC1-23xxxx**

**Online 17– 21 April 2023**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0** | **rev** | **1** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | EAS instantiation status via service provisioning by ECS | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | InterDigital Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | \_Ph2 | | | | |  | ***Date:*** | | | 2023-04-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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:*** | | In TS 23.558 the enhancement of dynamic EAS instantiation triggerng was agreed.  The EAS instantiation status via service provisioning by ECS as agreed in TS 23.558, needs to be implemented in stage-3 TS 24.558. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Proposed changes:   1. Eecs\_ServiceProvisioning\_Request procedure is updated to cover dynamic EAS instantiation solution 2. instEasInfo is provided in EESInfo | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Dynamic EAS instantiation via service provisioning by ECS solution can not be implemented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.2.2.2.2, 8.1.5.2.9 , B.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |

\*\*\*\*\* First change \*\*\*\*\*

##### 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. ECS may also include EAS instantiation information using " easInstInfos" attribute in eass 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.

The EEC may select one or more EES to perform EAS discovery, for multiple EES(s) case, if instantiable EAS information using "easInstInfos" attribute for an EAS is not available, or the instantiable EAS information using "easInstInfos" attribute is set to instantiated or instantiable.

The EEC may consider the instantiable EAS information using "easInstInfos" attribute and the associated instantiation criteria to mitigate the waste of EDN resources for EAS discovery. The EEC selects one EES, if the EAS instantiation status corresponding to the EASID requested by AC/EEC is instantiable but not yet instantiated (i.e., no instantiated EAS).

NOTE 1: If the EAS instantiation fails based on the selected EES, the EEC retries the EAS discovery request to another EES ((e.g. selecting another one EES based on the instantiable EAS information).

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

\*\*\*\*\* Next change \*\*\*\*\*

##### 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 | The list of application identifiers of the Edge Application Servers registered or expected to be registered with the EES, e.g. FQDN, URI. |  |
| 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 |  |
| easInstInfos | array(EASInstantiationInfo) | O | 1..N | The EAS instantiation status per EASID (e.g. instantiated, instantiable but not be instantiated yet) | EdgeApp\_2 |

\*\*\*\*\* Next change \*\*\*\*\*

# B.1 Eecs\_ServiceProvisioning

openapi: 3.0.0

info:

title: Eecs\_ServiceProvisioning

version: "1.1.0-alpha.1"

description: |

API for ECS Service Provisioning.

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externalDocs:

description: 3GPP TS 24.558 V18.0.0 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'

suppFeat:

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

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: Application 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.

easInstInfos:

type: array

items:

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

minItems: 1

description: >

The EAS instantiation status per EASID (e.g. instantiated, instantiable but not be

instantiated yet). 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.

\*\*\*\*\* End of change \*\*\*\*\*