**3GPP TSG- Meeting #**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **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** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Updates to ECS Address Configuration Information for roaming | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As agreed by S2-2405358 (23.502 CR#4771), the ECS Address Configuration Information for roaming may be provisioned by the V-AF (and requested by the V-SMF) based on the DNN and S-NSSAI to which it corresponds. Therefore, DNN and S-NSSAI need to be part of the related data model of the AF-provisioned EACI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Added dnn and snssai attributes to the EcsAddrInfo data type and clarified that the DNN and S-NSSAI can also derived by the NEF based on the AF identifier upon data provisioning.  A similar clarification was needed and applied for the EcsAddressProvision API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not aligned with stage 2 requirements | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.4.25, 4.4.40.2, 5.36.5.3.2, A.34 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.502 CR 4771 | | |
| ***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 feature into the OpenAPI file of the ECSAddress API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* First Change \*\*\*

4.4.25 Procedures for ECS address Provisioning

The procedures are used by the AF to provision ECS address(es) to the NEF. The procedures are applicable for an individual UE, any UE or a group of UEs.

In order to create an Individual ECS Address Provision Configuration resource, the AF shall initiate an HTTP POST request to the NEF for the "ECS Address Provision Configurations" resource. The body of the HTTP POST message shall include within the EcsAddressProvision data structure the ECS address(es) via the "ecsServerAddr" attribute, may include the spatial validity condition via the "spatialValidityCond" attribute, the target UE information via the "tgtUe" attirbute, and if the "HR-SBO" feature is supported, the PLMN ID in which the provided information applies via the "plmnId" attribute.

NOTE: The NEF can derive DNN and S-NSSAI information from the AF identifier.

Upon receipt of the corresponding HTTP POST message, if the AF is authorized by the NEF to provision the ECS address(es), the NEF shall interact with the UDM to create a resource at the UDM by using Nudm\_ParameterProvision service as defined in 3GPP TS 29.503 [17]. If the request is accepted by the UDM and the UDM informs the NEF with a successful response, the NEF shall create a new resource and assign an identifier for the "Individual ECS Address Provision Configuration" resource. Then the NEF shall send a HTTP "201 Created" response with EcsAddressProvision data structure as response body and a Location header field containing the URI of the created individual resource.

In order to update an existing Individual ECS Address Provision Configuration, the AF shall send an HTTP PUT message to the resource "Individual ECS Address Provision Configuration" requesting the NEF to change all properties in the existing resource. The body of the HTTP PUT request message shall include the EcsAddressProvision data type. Upon receipt of the corresponding HTTP PUT message, if the AF is authorized by the NEF to provision the ECS address(es), the NEF shall interact with the UDM to modify an existing resource at the UDM by using Nudm\_ParameterProvision service as defined in 3GPP TS 29.503 [17]. If the modification request is accepted by the UDM and the UDM informs the NEF with a successful response, the NEF shall update the existing resource for the "Individual ECS Address Provision Configuration" resource. Then the NEF shall send a HTTP response including "200 OK" status code with EcsAddressProvision data structure or "204 No Content" status code.

To delete an existing Individual ECS Address Provision Configuration, the AF shall initiate an HTTP DELETE request to the NEF for the "Individual ECS Address Provision Configuration" resource. Upon receipt of the corresponding HTTP DELETE message, if the AF is authorized, the NEF shall interact with the UDM to delete the existing resource at the UDM by using Nudm\_ParameterProvision service as defined in 3GPP TS 29.503 [17]. If the request is accepted by the UDM, the NEF shall delete the existing resource for the "Individual ECS Address Provision Configuration" resource. Then the NEF shall send a HTTP "204 No Content" response.

\*\*\* Next Change \*\*\*

4.4.40.2 Creation of new ECS Address Configuration Information

In order to create a new Individual ECS Address Configuration Information resource for a given AF, the AF shall initiate an HTTP POST request to the V-NEF for the "ECS Address Configuration Information" resource. The HTTP POST request message body shall include the EcsAddressInfo data structure that shall include:

- the ECS Server Address information within the "ecsServerAddr" attribute;

and may include:

- the target UE(s) within the "tgtUe" attribute;

- the spatial validity condition within the "spatialValidityCond" attribute;

- the DNN within the "dnn" attribute;

- the S-NSSAI within the "snssai" attribute.

NOTE: The V-NEF can derive HPLMN DNN and S-NSSAI information from the AF identifier, if the "dnn" and "snssai" attributes are not included in the EcsAddressInfo data structure.

Upon receipt of the corresponding HTTP POST message, the V-NEF authorizes the request and, if an External Group Identifier is provided in the request, the V-NEF may determine the HPLMN of the UE(s) (e.g. based on the Realm in the identifier) and invoke the Nnef\_UEId\_Get service as described in 3GPP TS 29.591 [73] to retrieve the Internal Group Identifier from the NEF of the HPLMN. Then, if the AF was authorized by the V-NEF to provide the ECS Address Configuration Information, the V-NEF may interact with the V-UDR to create the associated ECS Address Roaming Information by using the Nudr\_DataRepository service as defined in 3GPP TS 29.519 [23]. If the request is accepted by the V-UDR and the V-UDR informs the V-NEF with a successful response or if no interaction with the UDR takes place and the V-NEF successfully handles the information locally, the V-NEF shall create a new "Individual ECS Address Configuration Information" resource and send an HTTP "201 Created" response with the EcsAddressInfo data structure including the contents of the created ECS Address Configuration Information resource in the response body and a Location header field containing the URI of the created individual ECS Address Configuration Information resource. If the V-NEF receives an error response from the V-UDR, the V-NEF shall not create the resource and shall respond to the AF with a proper error status code. If the V-NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the V-NEF shall relay this error response to the AF with a corresponding application error, if applicable.

\*\*\* Next Change \*\*\*

5.36.5.3.2 Type: EcsAddrInfo

**Table 5.36.5.3.2-1: Definition of type EcsAddrInfo**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| self | Link | C | 0..1 | Identifies the individual resource.  It shall be present in the HTTP GET response when reading all the configurations for an AF. |  |
| ecsServerAddr | EcsServerAddr | M | 1 | Represents the ECS address(es). |  |
| spatialValidityCond | SpatialValidityCond | O | 0..1 | Indicates the spatial validity condition. |  |
| dnn | Dnn | O | 0..1 | Contains an HPLMN DNN. |  |
| snssai | Snssai | O | 0..1 | Contains an HPLMN S-NSSAI. |  |
| tgtUe | TargetUeId | O | 0..1 | Target UE information. Only the attributes "anyUeInd" and "exterGroupId" are applicable. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the negotiated supported features. It shall be provided in an HTTP POST response if it was provided in the HTTP POST request. |  |

\*\*\* Next Change \*\*\*

A.34 ECSAddress API

openapi: 3.0.0

info:

title: 3gpp-ecs-address

version: 1.0.0-alpha.2

description: |

API for AF provisioned ECS Address Configuration Information.

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externalDocs:

description: >

3GPP TS 29.522 V18.5.0; 5G System; Network Exposure Function Northbound APIs.

url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

security:

- {}

- oAuth2ClientCredentials: []

servers:

- url: '{apiRoot}/3gpp-ecs-address/v1'

variables:

apiRoot:

default: https://example.com

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

paths:

/{afId}/ecs-address-info:

get:

summary: Read all ECS Address Configuration Information for a given AF

operationId: ReadAllEACIs

tags:

- ECS Address Configuration Information (Collection)

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

responses:

'200':

description: OK (Successful retrieval of the ECS Address Configuration Information)

content:

application/json:

schema:

type: array

items:

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

minItems: 0

'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'

post:

summary: Create a new Individual ECS Address Configuration Information resource.

operationId: CreateEACI

tags:

- ECS Address Configuration Information (Collection)

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

requestBody:

description: new resource creation

required: true

content:

application/json:

schema:

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

responses:

'201':

description: Created (Successful creation)

content:

application/json:

schema:

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

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'

/{afId}/ecs-address-info/{ecsAddrInfoId}:

get:

summary: Read an active Individual ECS Address Configuration Information resource for the AF

operationId: ReadEACI

tags:

- Individual ECS Address Configuration Information

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: ecsAddrInfoId

in: path

description: Identifier of ECS Address Configuration Information.

required: true

schema:

type: string

responses:

'200':

description: OK (Successful retrieval of the active resource)

content:

application/json:

schema:

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

'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: Fully updates/replaces an existing resource

operationId: UpdateEACI

tags:

- Individual ECS Address Configuration Information

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: ecsAddrInfoId

in: path

description: Identifier of the ECS Address Configuration Information resource

required: true

schema:

type: string

requestBody:

description: Parameters to update/replace the existing resource

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful update of the existing resource)

content:

application/json:

schema:

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

'204':

description: >

Successful case. The resource has been successfully updated and no additional content is

sent in the response message.

'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: Deletes an existing ECS Address Configuration Information resource

operationId: DeleteEACI

tags:

- Individual ECS Address Configuration Information

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: ecsAddrInfoId

in: path

description: Identifier of the ECS Address Configuration Information resource

required: true

schema:

type: string

responses:

'204':

description: No Content (Successful deletion of the existing resource)

'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'

/remove-ecsaddr:

post:

summary: Remove ECS Address Configuration Information based on given criteria.

operationId: DeleteEACIs

tags:

- ECS Address Configuration Information removal

requestBody:

description: Criteria to be used for deleting ECS Address Configuration Information.

content:

application/json:

schema:

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

required: true

responses:

'204':

description: >

No Content. The entries matching the provided criteria have been successfully 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'

'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:

EcsAddrInfo:

description: Represents ECS Address Configuration Information.

type: object

properties:

self:

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

ecsServerAddr:

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

spatialValidityCond:

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

dnn:

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

snssai:

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

tgtUe:

$ref: 'TS29522\_AnalyticsExposure.yaml#/components/schemas/TargetUeId'

suppFeat:

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

required:

- ecsServerAddr

EcsAddrDeleteCriteria:

description: >

Contains criteria to be used for deleting ECS Address Configuration Information.

type: object

properties:

afIds:

type: array

items:

$ref: 'TS29522\_AKMA.yaml#/components/schemas/AfId'

minItems: 1

description: AF identifiers to be used as deletion criterion.

dnn:

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

snssai:

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

ecsAddrInfo:

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

anyOf:

- required: [afIds]

- required: [dnn]

- required: [snssai]

- required: [ecsAddrInfo]

\*\*\* End of Changes \*\*\*