**3GPP TSG-CT3 Meeting #138 *C3-246195***

**Orlando, United States, 18th Nov 2024 - 22nd Nov 2024**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.522** | **CR** | **1440** | **rev** | **-** | **Current version:** | **19.0.0** |  |
|  |
| *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:***  | N6 delay measurement support in EAS Deployment information |
|  |  |
| ***Source to WG:*** | Nokia, Huawei, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eEDGE\_5GC\_Ph3 |  | ***Date:*** | 2024-11-11 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | S2-2410711 extended the EAS Deployment information to contain “N6 delay measurement assistance information”. |
|  |  |
| ***Summary of change:*** | N6 delay measurement assistance information is added to the EAS Deployment information. |
|  |  |
| ***Consequences if not approved:*** | Not fulfilled stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 4.4.28.2, 5.21.4.1, 5.21.4.2, 5.21.4.3.2, 5.21.4.3.6(new), 5.21.4.3.7(new), 5.21.4.3.8(new), 5.21.4.4.3(new), 5.21.5, A.19 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.548 CR 0252  |
| ***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 EASDeployment API. |
|  |  |
| ***This CR's revision history:*** |  |

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

4.4.28.2 Creation of a new Individual EAS Deployment information resource

In order to create a new Individual EAS Deployment information resource for a given AF, the AF shall initiate an HTTP POST request to the NEF for the "EAS Deployment Information" resource. The HTTP POST request message body shall include the EasDeployInfo data structure that shall include:

- FQDN(s) of an application deployed in the Local part of the DN via an "fqdnPatternList" attribute;

and may include:

- an AF service identifier as the "afServiceId" attribute;

- an DNN as "dnn" attribute;

- an S-NSSAI as "snssai" attribute;

- an external Group Identifier as "exterGroupId" attribute;

- identification of an application as "appId" attribute;

- list of DNS server identifier and/or IP address(s) of the EAS in the local DN for each DNAI as "dnaiInfos" attribute; and

- the identifier of the AF that is responsible for the EAS associated with this EAS deployment information as "targetAfId" attribute, if the "EasRelocationEnh" feature is supported.

NOTE 1: The AF responsible for the EAS (indicated by the "targetAfId" attribute) can be different from the AF that creates the EAS Deployment information (indicated by the "afId" attribute in the URI of the resource).

NOTE 2: When the "targetAfId" attribute is provided, then all DNAI(s) correspond to the same EHE provider. The "targetAfId" attribute can be used in case of AF(s) involving different EHE providers, and the source EHE is unaware of other/target EHE specific deployment details.

- N6 delay measurement assistance information in the "n6DelayPerDnaiEas" attribute, if the "N6DelayMeasurement" feature is supported.

Upon receipt of the corresponding HTTP POST message, if the AF is authorized by the NEF to provide the EAS Deployment Information, the NEF shall interact with the UDM by using Nudm\_SubscriberDataManagement service as defined in 3GPP TS 29.503 [17] to translate the external group identifier into the corresponding internal group identifier and the NEF may derive DNN and S-NSSAI from the AF Service Identifier if not received explicitly. Then the NEF shall interact with the UDR to create the associated EAS Deployment information by using the Nudr\_DataRepository service as defined in 3GPP TS 29.504 [20]. If the "EasDnaiConsistency" feature is supported and there are existing EAS-DNAI mappings configured via OAM in the UDR (see 3GPP TS 29.519 [23] clause 6.2.23), the NEF also ensures that the EAS Deployment Information received from the AF is not in conflict with the OAM-configured information. In case of conflict the NEF shall reject the request message by sending an HTTP response to the AF with a status code set to 403 Forbidden and may include the "CONFLICT\_CONFIG\_DATA" error in the "cause" attribute of the "ProblemDetails" structure. If the request is accepted by the UDR and the UDR informs the NEF with a successful response, the NEF shall create a new "Individual EAS Deployment Information" resource. Then the NEF shall send a HTTP "201 Created" response with the EasDeployInfo data structure including the contents of the created EAS Deployment Information resource in theresponse body and a Location header field containing the URI of the created individual EAS Deployment Information resource. If the NEF receives an error responsefrom the UDR, the NEF shall not create the resource and shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

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

5.21.4.1 General

This clause specifies the application data model supported by the EASDeployment API. Table 5.21.4.1-1 specifies the data types defined for the EASDeployment API.

**Table 5.21.4.1-1: EASDeployment API specific Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| EasDeployInfo | 5.21.4.3.2 | EAS Deployment Information, indicates how edge services are deployed in each Local DN. |  |
| EdiDeleteCriteria | 5.21.4.3.5 | Contains criteria for deleting EAS Deployment Information. |  |
| DelayMeasurementProtocol | 5.21.4.4.3 | Represents a delay measurement protocol. | N6DelayMeasurement |
| DnaiInformation | 5.21.4.3.3 | list of DNS server identifier and/or IP address(s) of the EAS in the local DN for the DNAI. |  |
| DnsServerIdentifier | 5.21.4.3.4 | DNS server identifier (consisting of IP address and port). |  |
| N6DelayMeasurementInfo | 5.21.4.3.7 | Represents N6 delay measurement assistance information. | N6DelayMeasurement |
| N6DelayPerDnaiEAS | 5.21.4.3.6 | Represents N6 delay measurement assistance information per DNAI and/or EAS. | N6DelayMeasurement |

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

5.21.4.2 Reused data types

The data types reused by the EASDeployment API from other specifications are listed in table 5.21.4.2-1.

**Table 5.21.4.2-1: Re-used Data Types**

|  |  |  |
| --- | --- | --- |
| **Data type** | **Reference** | **Comments** |
| AfId | 5.14.5.4.2 | Represents an AF identifier. |
| Dnai | 3GPP TS 29.571 [8] | Identifies a DNAI. |
| Dnn | 3GPP TS 29.571 [8] | Identifies a DNN. |
| DnnSnssaiInformation | 5.18.3.3.5 | Contains DNN and S-NSSAI information. |
| EasServerAddress | 3GPP TS 29.571 [8] | Identifies an EAS server. |
| ExternalGroupId | 3GPP TS 29.122 [4] | External Group Identifier for a user group. |
| FqdnPatternMatchingRule | 3GPP TS 29.571 [8] | Identifies the FQDN pattern matching rule. |
| IpAddr | 3GPP TS 29.571 [8] | IP Address. |
| Snssai | 3GPP TS 29.571 [8] | Identifies the S-NSSAI. |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |
| Uinteger | 3GPP TS 29.571 [8] | Unsigned integer. |
| Link | 3GPP TS 29.122 [4] | Identifies a referenced resource. |

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

5.21.4.3.2 Type: EasDeployInfo

**Table 5.21.4.3.2-1: Definition of type EasDeployInfo**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| self | Link | C | 0..1 | Identifies the individual EAS Deployment information resource.Shall be present in the HTTP GET response when reading all the configurations for an AF. |  |
| afServiceId | string | O | 0..1 | Identifies a service on behalf of which the AF is issuing the request. |  |
| fqdnPatternList | array(FqdnPatternMatchingRule) | M | 1..N | Contains the supported FQDN pattern(s) for application(s) deployed in the Local part of the DN where each FQDN pattern is described by a FQDN Pattern Matching Rule. |  |
| appId | string | O | 0..1 | Identifies the application for which the EAS Deployment Information corresponds to. |  |
| dnn | Dnn | O | 0..1 | Contains the DNN for the EAS Deployment Information. |  |
| snssai | Snssai | O | 0..1 | Contains the S-NSSAI for the EAS Deployment Information. |  |
| exterGroupId | ExternalGroupId | O | 0..1 | Contains the external Group ID for the EAS Deployment Information. |  |
| dnaiInfos | map(DnaiInformation) | O | 1..N | Contains the list of DNS server identifier (consisting of IP address and port) and/or IP address(s) of the EAS in the local DN for each DNAI. The key of map is the DNAI. |  |
| targetAfId | string | O | 0..1 | Identifier of the AF that is responsible for the EAS associated with this EAS deployment information. | EasRelocationEnh |
| n6DelayPerDnaiEas | array(N6DelayPerDnaiEas) | O | 1..N | Contains N6 delay measurement assistance information per DNAI and/or EAS. | N6DelayMeasurement |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the list of Supported features used as described in clause 5.21.5. |  |

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

5.21.4.3.6 Type: N6DelayPerDnaiEas

**Table 5.21.4.3.6-1: Definition of type N6DelayPerDnaiEas**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| dnai | Dnai | C | 0..1 | Contains the DNAI to which this N6 delay measurement assistance information applies.(NOTE) |  |
| eas | EasServerAddress | C | 0..1 | Contains addressing information of the EAS to which this N6 delay measurement assistance information applies.(NOTE) |  |
| n6DelayMeasureInfo | N6DelayMeasurementInfo | M | 1 | Contains N6 delay measurement assistance information. |  |
| NOTE: At least one of the "dnai" and/or "eas" attributes shall be provided. |

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

5.21.4.3.7 Type: N6DelayMeasurementInfo

**Table 5.21.4.3.7-1: Definition of type N6DelayMeasurementInfo**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| measureEndpointAddr | IpAddr | M | 1 | Contains the measurement endpoint address information. |  |
| measureEndpointPort | Uinteger | O | 0..1 | Contains the measurement endpoint port information. |  |
| suppMeasProtocs | array(DelayMeasurementProtocol) | O | 1..N | Contains the supported N6 delay measurement protocols. |  |
| configParams | string | O | 0..1 | Contains protocol-specific configuration parameters. The contents and the format are up to the implementation. |  |

Editor’s Note: The contents and format of configParams is FFS.

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

5.21.4.4.3 Enumeration: DelayMeasurementProtocol

**Table 5.21.4.4.3-1: Enumeration DelayMeasurementProtocol**

|  |  |
| --- | --- |
| **Enumeration value** | **Description** |
| ICMP | The delay measurement protocol is ICMP. |
| TWAMP | The delay measurement protocol is TWAMP. |
| OWAMP | The delay measurement protocol is OWAMP. |
| STAMP | The delay measurement protocol is STAMP. |
| OTHER | The delay measurement protocol is a protocol for which no specific value exists in this enumeration. |

Editor’s Note: The contents of the DelayMeasurementProtocol data type is FFS.

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

5.21.5 Used Features

The table below defines the features applicable to the EASDeployment API. Those features are negotiated as described in clause 5.2.7 of 3GPP TS 29.122 [4].

**Table 5.21.5-1: Features used by EASDeployment API**

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | EasRelocationEnh | This feature indicates enhanced support of EAS relocation procedures via additional information about the AFs that are responsible for certain EAS. |
| 2 | EasDnaiConsistency | This feature indicates support of consistency checking between AF-provisioned and operator-configured data related to EAS Deployment. |
| 3 | N6DelayMeasurement | This feature indicates support of provisioning N6 delay measurement assistance information. |

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

A.19 EASDeployment API

openapi: 3.0.0

info:

 title: 3gpp-eas-deployment

 version: 1.1.0

 description: |

 API for AF provisioned EAS Deployment.

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externalDocs:

 description: >

 3GPP TS 29.522 V18.6.0; 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-eas-deployment/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /{afId}/eas-deployment-info:

 get:

 summary: Read all EAS Deployment information for a given AF

 operationId: ReadAllDeployment

 tags:

 - EAS Deployment Information (Collection)

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK (Successful get all of the EAS Deployment information for the AF)

 content:

 application/json:

 schema:

 type: array

 items:

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

 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 EAS Deployment information resource.

 operationId: CreateAnDeployment

 tags:

 - EAS Deployment 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/EasDeployInfo'

 responses:

 '201':

 description: Created (Successful creation)

 content:

 application/json:

 schema:

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

 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}/eas-deployment-info/{easDeployInfoId}:

 get:

 summary: Read an active Individual EAS Deployment Information resource for the AF

 operationId: ReadAnDeployment

 tags:

 - Individual EAS Deployment Information

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: easDeployInfoId

 in: path

 description: Identifier of an EAS Deployment Information.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK (Successful get the active resource)

 content:

 application/json:

 schema:

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

 '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: FullyUpdateAnDeployment

 tags:

 - Individual EAS Deployment Information

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: easDeployInfoId

 in: path

 description: Identifier of the EAS Deployment 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/EasDeployInfo'

 responses:

 '200':

 description: OK (Successful update of the existing resource)

 content:

 application/json:

 schema:

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

 '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 already existing EAS Deployment information resource

 operationId: DeleteAnDeployment

 tags:

 - Individual EAS Deployment Information

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: easDeployInfoId

 in: path

 description: Identifier of the EAS Deployment 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-edis:

 post:

 summary: Remove EAS Deployment Information based on given criteria.

 operationId: DeleteEDIs

 tags:

 - EAS Deployment Information removal

 requestBody:

 description: Criteria to be used for deleting EAS Deployment Information that match them.

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: >

 No Content. The EDIs matching the provided criteria have been successfully deleted.

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 EasDeployInfo:

 description: Represents EAS Deployment Information.

 type: object

 properties:

 self:

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

 afServiceId:

 type: string

 description: >

 Contains a service on behalf of which the AF is issuing the request.

 fqdnPatternList:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains the Supported FQDN pattern(s) for application(s) deployed in the Local

 part of the DN where each FQDN pattern is described by a FQDN Pattern Matching Rule.

 appId:

 type: string

 description: >

 Contains the application for which the EAS Deployment Information corresponds to.

 dnn:

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

 snssai:

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

 externalGroupId:

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

 dnaiInfos:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 list of DNS server identifier (consisting of IP address and port) and/or IP address(s)

 of the EAS in the local DN for each DNAI. The key of map is the DNAI.

 targetAfId:

 type: string

 description: >

 Identifier of the AF that is responsible for the EAS associated with this EAS

 deployment information.

 n6DelayPerDnaiEas:

 type: array

 items:

 $ref: '#/components/schemas/N6DelayPerDnaiEas'

 minItems: 1

 description: >

 N6 delay measurement assistance information per DNAI and/or EAS.

 suppFeat:

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

 required:

 - fqdnPatternList

 DnaiInformation:

 description: Represents DNAI information.

 type: object

 properties:

 dnai:

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

 dnsServIds:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains the list of DNS server identifier for each DNAI.

 easIpAddrs:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains the IP address(s) of the EASs in the local DN for each DNAI.

 required:

 - dnai

 anyOf:

 - required: [dnsServIds]

 - required: [easIpAddrs]

 DnsServerIdentifier:

 description: Represents DNS server identifier (consisting of IP address and port).

 type: object

 properties:

 dnsServIpAddr:

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

 portNumber:

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

 required:

 - dnsServIpAddr

 - portNumber

 EdiDeleteCriteria:

 description: >

 Contains criteria to be used for deleting EAS Deployment Information entries that match

 them.

 type: object

 properties:

 afId:

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

 dnnSnssai:

 $ref: 'TS29522\_AMInfluence.yaml#/components/schemas/DnnSnssaiInformation'

 anyOf:

 - required: [afId]

 - required: [dnnSnssai]

 N6DelayPerDnaiEas:

 description: Contains N6 delay measurement assistance information per DNAI and/or EAS.

 type: object

 properties:

 dnai:

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

 eas:

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

 n6DelayMeasureInfo:

 $ref: '#/components/schemas/N6DelayMeasurementInfo'

 required:

 - n6DelayMeasureInfo

 anyOf:

 - required: [dnai]

 - required: [eas]

 N6DelayMeasurementInfo:

 description: Contains N6 delay measurement assistance information.

 type: object

 properties:

 measureEndpointAddr:

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

 measureEndpointPort:

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

 suppMeasProtocs:

 type: array

 items:

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

 minItems: 1

 description: Contains the list of supported N6 delay measurement protocols.

 configParams:

 type: string

 description: >

 Contains protocol-specific configuration parameters.

 The contents and the format are up to the implementation.

 required:

 - measureEndpointAddr

 DelayMeasurementProtocol:

 anyOf:

 - type: string

 enum:

 - ICMP

 - TWAMP

 - STAMP

 - OWAMP

 - 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: |

 Represents a delay measurement protocol.

 Possible values are:

 - ICMP: The delay measurement protocol is ICMP.

 - TWAMP: The delay measurement protocol is TWAMP.

 - STAMP: The delay measurement protocol is STAMP.

 - OWAMP: The delay measurement protocol is OWAMP.

 - OTHER: The delay measurement protocol has no specific value in this enum.

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