**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:*** | Nnef\_VFLTraining data model | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | , vivo | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIML\_CN | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories 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:*** | | 23.288 clause 12.2 defines the Nnef\_VFLTraining API, which enables an Untrusted AF acting as a VFL server to request from an NWDAF to act as a VFL client, as described in detail in 23.288 clause 6.2H. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Defined the resources and data model for the Nnef\_VFLTraining API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not fulfilled stage 2 requirements and non workable end-to-end VFL procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.46 (new, including subclauses) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact any OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

5.46 VFLTraining API

5.46.1 Introduction

The Nnef\_VFLTraining service shall use the VFLTraining API.

The API URI of the VFLTraining API shall be:

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

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [4], i.e.:

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

with the following components:

- "apiRoot" is set as defined in clause 5.2.4 of 3GPP TS 29.122 [4].

- "apiName" shall be set to "3gpp-vfl-training".

- "apiVersion" shall be set to "v1" for the current version defined in the present document.

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [4].

All resource URIs in the clauses below are defined relative to the above API URI.

5.46.2 Resources

5.46.2.1 Overview

This clause describes the structure for the Resource URIs as shown in figure 5.46.2.1-1 and the resources and HTTP methods used for the VFLTraining API.

****

**Figure 5.46.2.1-1: Resource URI structure of the northbound VFLTraining API**

Table 5.46.2.1-1 provides an overview of the resources and HTTP methods applicable for the northbound VFLTraining API.

**Table 5.46.2.1-1: Resources and methods overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource name** | **Resource URI** | **HTTP method** | **Description** |
| VFL Training Subscriptions | /{afId}/subscriptions | GET | Retrieve all the active VFL Training Subscriptions. |
| POST | Create a new Individual VFL Training Subscription resource. |
| Individual VFL Training Subscription | /{afId}/subscriptions/{subId} | GET | Retrieve an existing Individual VFL Training Subscription resource. |
| PUT | Update an existing Individual VFL Training Subscription resource. |
| PATCH | Partially modify an existing Individual VFL Training Subscription resource. |
| DELETE | Delete an existing Individual VFL Training Subscription resource. |

5.46.2.2 Resource: VFL Training Subscriptions

5.46.2.2.1 Introduction

This resource represents all the active VFL Training Subscriptions managed by the NEF for a given AF.

This resource is modelled with the Collection resource archetype (see clause C.2 of 3GPP TS 29.501 [3]).

5.46.2.2.2 Resource Definition

Resource URI: **{apiRoot}/3gpp-vfl-training/<apiVersion>/{afId}/subscriptions**

This resource shall support the resource URI variables defined in table 5.46.2.2.2-1.

**Table 5.46.2.2.2-1: Resource URI variables for this resource**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 5.46.1. |
| afId | string | Represents the identifier of the AF. |

5.46.2.2.3 Resource Standard Methods

5.46.2.2.3.1 GET

The HTTP GET method allows to retrieve all the active VFL Training Subscriptions at the NEF for a given AF.

This method shall support the URI query parameters specified in table 5.46.2.2.3.1-1.

**Table 5.46.2.2.3.1-1: URI query parameters supported by the GETmethod on this resource**

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

This method shall support the request data structures specified in table 5.46.2.2.3.1-2, the response data structures and response codes specified in table 5.46.2.2.3.1-3, and the location headers specified in table 5.46.2.2.3.1-4 and table 5.46.2.2.3.1-5.

**Table 5.46.2.2.3.1-2: Data structures supported by the GETRequest Body on this resource**

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

**Table 5.46.2.2.3.1-3: Data structures supported by theGET Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| array(VflTrainingSubs) | M | 0..N | 200 OK | Successful case. All the active "Individual VFL Training Subscription" resource(s) are returned.  If there are no active "Individual VFL Training Subscription" resources at the NEF, an empty array is returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.2.3.1-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

**Table 5.46.2.2.3.1-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

5.46.2.2.3.2 POST

The HTTP POST method allows to create a new Individual VFL Training Subscription at the NEF for a given AF.

This method shall support the URI query parameters specified in table 5.46.2.2.3.2-1.

**Table 5.46.2.2.3.2-1: URI query parameters supported by the POST method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 5.46.2.2.3.2-1, the response data structures and response codes specified in table 5.46.2.2.3.2-2, and the Location Headers specified in table 5.46.2.2.3.2-3.

**Table 5.46.2.2.3.2-1: Data structures supported by the POSTRequest Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| VflTrainingSubs | M | 1 | Contains the parameters to request the creation of an Individual VFL Training Subscription. |

**Table 5.46.2.2.3.2-2: Data structures supported by thePOST Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| VflTrainingSubs | M | 1 | 201 Created | Successful case. A representation of the created "Individual VFL Training Subscription" resource is returned in the response body.  The URI of the created resource shall be returned in the "Location" HTTP header. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.2.3.2-3: Headers supported by the 201 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:  {apiRoot}/3gpp-vfl-training/<apiVersion>/{afId}/subscriptions/{subId} |

5.46.2.2.4 Resource Custom Operations

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

5.46.2.3 Resource: Individual VFL Training Subscription

5.46.2.3.1 Introduction

This resource represents an "Individual VFL Training Subscription" resource managed by the NEF.

5.46.2.3.2 Resource Definition

Resource URI: **{apiRoot}/3gpp-vfl-training/<apiVersion>/{afId}/subscriptions/{subId}**

This resource shall support the resource URI variables defined in table 5.46.2.3.2-1.

**Table 5.46.2.3.2-1: Resource URI variables for this resource**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 5.46.1. |
| afId | string | Represents the identifier of the AF. |
| subId | string | Represents the identifier of the "Individual VFL Training Subscription" resource. |

5.46.2.3.3 Resource Standard Methods

5.46.2.3.3.1 GET

The HTTP GET method allows to retrieve an existing "Individual VFL Training Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.46.2.3.3.1-1.

**Table 5.46.2.3.3.1-1: URI query parameters supported by theGETmethod on this resource**

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

This method shall support the request data structures specified in table 5.46.2.3.3.1-2 and the response data structures and response codes specified in table 5.46.2.3.3.1-3.

**Table 5.46.2.3.3.1-2: Data structures supported by the GETRequest Body on this resource**

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

**Table 5.46.2.3.3.1-3: Data structures supported by theGET Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| VflTrainingSubs | M | 1 | 200 OK | Successful case. The requested "Individual VFL Training Subscription" resource is successfully returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.3.3.1-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

**Table 5.46.2.3.3.1-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

5.46.2.3.3.2 PUT

The HTTP PUT method allows to update an existing "Individual VFL Training Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.46.2.3.3.2-1.

**Table 5.46.2.3.3.2-1: URI query parameters supported by the PUT method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 5.46.2.3.3.2-2 and the response data structures and response codes specified in table 5.46.2.3.3.2-3.

**Table 5.46.2.3.3.2-2: Data structures supported by the PUTRequest Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| VflTrainingSubs | M | 1 | Contains the updated representation of the "Individual VFL Training Subscription" resource. |

**Table 5.46.2.3.3.2-3: Data structures supported by thePUT Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| VflTrainingSubs | M | 1 | 200 OK | Successful case. The "Individual VFL Training Subscription" resource is successfully updated and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual VFL Training Subscription" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.3.3.2-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

**Table 5.46.2.3.3.2-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

5.46.2.3.3.3 PATCH

This method enables to request the modification of an existing "Individual VFL Training Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.46.2.3.3.3-1.

**Table 5.46.2.3.3.3-1: URI query parameters supported by the PATCH method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 5.46.2.3.3.3-2 and the response data structures and response codes specified in table 5.46.2.3.3.3-3.

**Table 5.46.2.3.3.3-2: Data structures supported by the PATCH Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| VflTrainingSubsPatch | M | 1 | Contains the requested modifications to the "Individual VFL Training Subscription" resource. |

**Table 5.46.2.3.3.3-3: Data structures supported by the PATCH Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| VflTrainingSubs | M | 1 | 200 OK | Successful response. The "Individual VFL Training Subscription" resource is successfully modified and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful response. The "Individual VFL Training Subscription" resource is successfully modified and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.3.3.3-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

**Table 5.46.2.3.3.3-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

5.46.2.3.3.4 DELETE

The HTTP DELETE method allows to delete an existing "Individual VFL Training Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.46.2.3.3.4-1.

**Table 5.46.2.3.3.4-1: URI query parameters supported by theDELETE method on this resource**

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

This method shall support the request data structures specified in table 5.46.2.3.3.4-2 and the response data structures and response codes specified in table 5.46.2.3.3.4-3.

**Table 5.46.2.3.3.4-2: Data structures supported by the DELETERequest Body on this resource**

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

**Table 5.46.2.3.3.4-3: Data structures supported by theDELETE Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The "Individual VFL Training Subscription" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.2.3.3.4-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

**Table 5.46.2.3.3.4-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative target URI of the resource located in an alternative NEF. |

5.46.2.3.4 Resource Custom Operations

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

5.46.3 Custom Operations without associated resources

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

5.46.4 Notifications

5.46.4.1 General

Notifications shall comply to clause 5.2.5 of 3GPP TS 29.122 [4].

**Table 5.46.4.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description**  **(service operation)** |
| VFL Training Notification | {notifUri} | POST | Enables the NEF to notify a previously subscribed AF on VFL Training related event(s). |

5.46.4.2 VFL Training Notification

5.46.4.2.1 Description

The VFL Training Notification is used by the NEF to report VFL Training related event(s) to a previously subscribed AF.

5.46.4.2.2 Target URI

The Callback URI"**{notifUri}**" shall be used with the callback URI variables defined in table 5.46.4.2.2-1.

**Table 5.46.4.2.2-1: Callback URI variables**

|  |  |
| --- | --- |
| **Name** | **Definition** |
| notifUri | Represents the callback URI encoded as a string formatted as a URI. |

5.46.4.2.3 Operation Definition

This method shall support the request data structures specified in table 5.46.4.2.3-1 and the response data structures and response codes specified in table 5.46.4.2.3-2.

**Table 5.46.4.2.3-1: Data structures supported by the POST Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| VflTrainingNotify | M | 1..N | Represents the VFL Training Notification information. |

**Table 5.46.4.2.3-2: Data structures supported by the POST Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The notification is successfully received and acknowledged. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI representing the end point of an alternative AF towards which the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI representing the end point of an alternative AF towards which the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

**Table 5.46.4.2.3-3: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative AF towards which the notification should be redirected. |

**Table 5.46.4.2.3-4: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative AF towards which the notification should be redirected. |

5.46.5 Data Model

5.46.5.1 General

This clause specifies the application data model supported by the VFLTraining API. Table 5.46.5.1-1 specifies the data types defined for the VFLTraining API.

**Table 5.46.5.1-1: VFLTraining API specific Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| VflTrainingSubs | 5.46.5.3.2 | Represents VFL training subscription information. |  |
| VflTrainingSubsPatch | 5.46.5.3.3 | Represents modifications to VFL training subscription information. |  |

Table 5.46.5.1-2 specifies data types re-used by the VFLTraining API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the VFLTraining API.

**Table 5.46.5.1-2: VFLTraining API re-used Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Reference** | **Comments** | **Applicability** |
| ReportingInformation | 3GPP TS 29.523 [22] | Describes reporting requirements. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and is used to negotiate the applicability of the optional features. |  |
| Uri | 3GPP TS 29.571 [8] | Represents a URI. |  |
| VflTrainingNotify | 3GPP TS 29.520 [27] | Represents VFL training notification information. |  |
| VflTrainingSub | 3GPP TS 29.520 [27] | Represents VFL training subscription information for a specific analytics ID. |  |

5.46.5.3 Structured data types

5.46.5.3.1 Introduction

This clause defines the structured data types to be used in resource representations.

5.46.5.3.2 Type: VflTrainingSubs

**Table 5.46.5.3.2-1: Definition of type VflTrainingSubs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifUri | Uri | M | 1 | Notification target address. |  |
| notifCorrId | string | M | 1 | Notification correlation identifier. |  |
| vflTrainSubs | array(VflTrainingSub) | M | 1..N | Each entry contains VFL training subscription request for a specific analytics ID. |  |
| reportingReqs | ReportingInformation | O | 0..1 | Reporting requirement information of the subscription.  If omitted, the default values within the ReportingInformation data type apply. |  |
| extNwdafId | string | M | 1 | Contains the external identifier of the NWDAF which is being requested to act as a VFL client. |  |
| trainReports | array(VflTrainingNotify) | O | 1..N | Contains the VFL Training related even(s) report(s).  This attribute may be present only if immediate reporting was requested via the "reportingReqs" attribute. |  |
| suppFeat | SupportedFeatures | C | 0..1 | List of supported features used as described in clause 5.46.6.  This attribute shall be included when feature negotiation needs to take place. |  |

5.46.5.3.3 Type: VflTrainingSubsPatch

**Table 5.46.5.3.3-1: Definition of type VflTrainingSubsPatch**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| vflTrainSubs | array(VflTrainingSub) | O | 1..N | Contains modified information related to VFL training subscription request for a specific analytics ID. |  |
| notifUri | Uri | O | 0..1 | Contains the updated URI via which VFL Training related notifications shall be delivered. |  |
| notifCorrId | string | O | 0..1 | Contains the updated Notification Correlation Identifier. |  |
| reportingReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements applicable for VFL Training related reporting. |  |

5.46.5.4 Simple data types and enumerations

5.46.5.4.1 Introduction

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

5.46.5.4.2 Simple data types

The simple data types defined in table 5.46.5.4.2-1 shall be supported.

**Table 5.46.5.4.2-1: Simple data types**

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

5.46.5.4 Data types describing alternative data types or combinations of data types

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

5.46.6 Used Features

The optional features listed in table 5.46.6-1 are defined for the VFLTraining API. They shall be negotiated using the extensibility mechanism defined in clause 5.2.7 of 3GPP TS 29.122 [4].

**Table 5.46.6-1: Features used by VFLTraining API**

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
|  |  |  |

5.46.7 Error handling

5.46.7.1 General

For the VFLTraining API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [4]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [4] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [4].

In addition, the requirements in the following clauses are applicable for the VFLTraining API.

5.46.7.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the VFLTraining API.

5.46.7.3 Application Errors

The application errors defined for VFLTraining API are listed in table 5.46.7.3-1.

**Table 5.46.7.3-1: Application errors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Application Error** | **HTTP status code** | **Description** | **Applicability** |
| OVERLOAD | 403 Forbidden | Indicates that the request cannot be served due to an overload situation. |  |

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