**3GPP TSG CT WG3 Meeting #142 C3-253371**

**Goteborg, Sweden, 25 – 29 August, 2025 (Revision of C3-253xxx)**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.520** | **CR** | **1095** | **rev** | **-** | **Current version:** | **19.3.0** |  |
|  |
| *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:***  | Support of PATCH and GET for Nnwdaf\_VFLTraining API |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | AIML\_CN |  | ***Date:*** | 2025-08-08 |
|  |  |  |  |  |
| ***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:*** | * The Editor’s Note in clause 5.9.3.1 needs to be resolved. To support flexible retrieval and modification of the VFL Training Subscriptions resource, this CR proposes to define GET and PATCH methods for Nnwdaf\_VFLTraining API.
* The Editor’s Note in clause 5.9.6.2.2 needs to be resolved. This CR proposes to remove the Editor’s Note and keep the cardinality of "vflTrainSub" attribute as array for future-proof.
 |
|  |  |
| ***Summary of change:*** | * Define GET and PATCH methods for Nnwdaf\_VFLTraining API.
* Remove the Editor’s Note listed above.
* Update the OpenAPI file accordingly.
 |
|  |  |
| ***Consequences if not approved:*** | The retrieval and flexible modification of the VFL Training Subscriptions resource is not supported. |
|  |  |
| ***Clauses affected:*** | 5.9.3.1, 5.9.3.2.3.1, 5.9.3.3.3.3, 5.9.3.3.3.4, 5.9.6.1, 5.9.6.2.2, 5.9.6.2.3, 5.9.6.2.6, 5.9.6.2.8, 5.9.6.2.9, A.10 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backward compatible feature to the following API:TS29520\_Nnwdaf\_VFLTraining.yaml |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\* 1st Change \*\*\*

#### 5.9.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 5.9.3.1-1 depicts the resource URIs structure for the Nnwdaf\_VFLTraining API.



Figure 5.9.3.1-1: Resource URI structure of the Nnwdaf\_VFLTraining API

Table 5.9.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 5.9.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| VFL Training Subscriptions | /subscriptions | POST | Creates a new Individual VFL Training Subscription resource. |
| Individual VFL Training Subscription | /subscriptions/{subscriptionId} | GET | Retrieve an existing "Individual VFL Training Subscription" resource. |
| PUT | Updates an existing Individual VFL Training Subscription identified by {subscriptionId}. |
| PATCH | Modifies an existing "Individual VFL Training Subscription" resource. |
| DELETE | Deletes an Individual VFL Training Subscription identified by {subscriptionId}. |

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

###### 5.9.3.2.3.1 POST

This method shall support the URI query parameters specified in table 5.9.3.2.3.1-1.

Table 5.9.3.2.3.1-1: 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 5.9.3.2.3.1-2 and the response data structures and response codes specified in table 5.9.3.2.3.1-3.

Table 5.9.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| VflTrainingSubs | M | 1 | New Individual VFL Training Subscription resource to be created. |

Table 5.9.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| VflTrainingSubs | M | 1 | 201 Created | The creation of an Individual VFL Training Subscription resource is confirmed and a representation of that resource is returned. |
| NOTE 1: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [6] also apply.NOTE 2: Failure cases are described in clause 5.9.7. |

Table 5.9.3.2.3.1-4: 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}/nnwdaf-vfltraining/<apiVersion>/subscriptions/{subscriptionId}. |

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

###### 5.9.3.3.3.3 GET

The GET method allows an NF service consumer to retrieve an existing "Individual VFL Training Subscription" resource managed by the NWDAF.

This method shall support the URI query parameters specified in table 5.9.3.3.3.3-1.

Table 5.9.3.3.3.3-1: URI query parameters supported by the GET method on this resource

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

This method shall support the request data structures specified in table 5.9.3.3.3.3-2 and the response data structures and response codes specified in table 5.9.3.3.3.3-3.

Table 5.9.3.3.3.3-2: Data structures supported by the GET Request Body on this resource

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

Table 5.9.3.3.3.3-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| VflTrainingSubs | M | 1 | 200 OK | Successful case. The requested "Individual VFL Training Subscription" resource is returned. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP GET method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [6] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [6]). |

Table 5.9.3.3.3.3-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NWDAF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [6]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NWDAF (service) instance towards which the request is redirected. |

Table 5.9.3.3.3.3-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NWDAF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [6]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NWDAF (service) instance towards which the request is redirected. |

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

###### 5.9.3.3.3.4 PATCH

The PATCH method allows an NF service consumer to request the modification of an existing "Individual VFL Training Subscription" resource managed by the NWDAF.

This method shall support the URI query parameters specified in table 5.9.3.3.3.4-1.

Table 5.9.3.3.3.4-1: 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 5.9.3.3.3.4-2 and the response data structures and response codes specified in table 5.9.3.3.3.4-3.

Table 5.9.3.3.3.4-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| VflTrainingSubsPatch | M | 1 | Contains the parameters to request the modification of the "Individual VFL Training Subscription" resource. |

Table 5.9.3.3.3.4-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| VflTrainingSubs | M | 1 | 200 OK | Successful case. 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 case. The "Individual VFL Training Subscription" resource is successfully modified and no content is returned in the response body. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP PATCH method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [6] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [6]). |

Table 5.9.3.3.3.4-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NWDAF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [6]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NWDAF (service) instance towards which the request is redirected. |

Table 5.9.3.3.3.4-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NWDAF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [6]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NWDAF (service) instance towards which the request is redirected. |

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

#### 5.9.6.1 General

This clause specifies the application data model supported by the Nnwdaf\_VFLTraining API.

Table 5.9.6.1-1 specifies the data types defined for the Nnwdaf\_VFLTraining service based interface protocol.

Table 5.9.6.1-1: Nnwdaf\_VFLTraining specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| VflCheckpointInfo | 5.9.6.2.4 | Represents information about whether current VFL training status is requested to be stored as checkpoint or whether a previously saved checkpoint is requested to be resumed. |  |
| VflIntermedTrainInfo | 5.9.6.2.7 | Represents the intermediate model training information. |  |
| VflInteropInfo | 5.9.6.2.5 | Represents VFL interoperability information. |  |
| VflTrainingNotify | 5.9.6.2.6 | Represents VFL training notification information. |  |
| VflTrainingReport | 5.9.6.2.9 | Represents a VFL Training Report. |  |
| VflTrainingSubs | 5.9.6.2.2 | Represents VFL training subscription information. |  |
| VflTrainingSubsPatch | 5.9.6.2.8 | Represents the requested modifications to a VFL Training Subscription. |  |
| VflTrainingSub | 5.9.6.2.3 | Represents VFL training subscription information for each analytics ID. |  |

Table 5.9.6.1-2 specifies data types re-used by the Nnwdaf\_VFLTraining service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nnwdaf\_VFLTraining service based interface.

Table 5.9.6.1-2: Nnwdaf\_VFLTraining re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.571 [8] | Identifies the time. |  |
| DurationSec | 3GPP TS 29.571 [8] | Represents a time duration expressed in units of seconds. |  |
| EventFilter | 5.2.6.2.3 | Identifies the filter for the subscribed event. |  |
| MLModelMetric | 5.4.6.3.4 | Indicates the ML Model Metric. |  |
| NwdafEvent | 5.1.6.3.4 | Indicates the NWDAF events. |  |
| ReportingInformation | 3GPP TS 29.523 [20] | Represents the type of reporting a subscription requires. |  |
| Supi | 3GPP TS 29.571 [8] | Identifies the UE. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Used to negotiate the applicability of the optional features defined in table 5.7.8-1. |  |
| TimeWindow | 3GPP TS 29.122 [19] | Represents a time window. |  |
| Uinteger | 3GPP TS 29.571 [8] | Unsigned Integer, i.e. only value 0 and integers above 0 are permissible. |  |
| Uri | 3GPP TS 29.571 [8] | Indicates the URI. |  |
| VflTermCause | 5.10.6.3.3 | Represents a cause of termination. |  |

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

##### 5.9.6.2.2 Type VflTrainingSubs

Table 5.9.6.2.2-1: Definition of type VflTrainingSubs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| vflTrainSubs | array(VflTrainingSub) | M | 1..N | Contains the subscribed VFL training set(s). |  |
| notifUri | Uri | M | 1 | Contains the URI via which notifications shall be delivered. |  |
| notifCorrId | string | M | 1 | Notification Correlation Identifier. |  |
| reportingReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements applicable for VFL Training related reporting. |  |
| 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 | Contains the list of supported features among the ones defined in clause 5.9.8.This attribute shall be present only when feature negotiation is required. |  |

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

##### 5.9.6.2.3 Type VflTrainingSub

Table 5.9.6.2.3-1: Definition of type VflTrainingSub

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| event | NwdafEvent | M | 1 | Identifies the analytics ID for which the ML Model is requested to be trained. |  |
| vflCorrId | string | M | 1 | Represents the VFL Correlation ID. |  |
| interopInfo | VflInteropInfo | O | 0..1 | Represents the VFL Interoperability Information. |  |
| maxRspTime | DurationSec | O | 0..1 | Contains the maximum time between VFL clients receive the intermediate model training information and send back intermediate training result. |  |
| trainFilter | EventFilter | O | 0..1 | Contains the training filter information for the monitored event. |  |
| intermediateInfo | VflIntermedTrainInfo | O | 0..1 | Represents the intermediate model training information. |  |
| chkFlg | boolean | O | 0..1 | Indicates whether the ML model accuracy monitoring information is requested.- "true" indicates that the ML model accuracy monitoring information is requested.- "false" (default) indicates that the ML model accuracy monitoring information is not requested. |  |
| sampIds | array(Supi) | O | 1..N | Represents the initial sample list provided by the VFL Server. |  |
| selectedSampIds | array(Supi) | O | 1..N | Represents the samples selected by the VFL Clients from the initial sample list. |  |
| chkPoint | VflCheckpointInfo | O | 0..1 | Represents information about whether VFL training status at the current iteration should be saved as a VFL training checkpoint or the VFL training has to resume from a previous checkpoint by using its training iteration round ID. |  |
| vflFeatIds | array(string) | O | 1..N | Contains the identifier(s) of the supported feature(s).In the VFL Server request, it contains the list of feature(s) supported by the VFL Server. In the VFL Client response, it contains the list of feature(s) supported by the VFL Client.The content of this attribute is not standardized in this release of the specification. |  |
| minNumSamples | Uinteger | O | 0..1 | Represents the minimum required sample size. |  |
| timeWindows | array(TimeWindow) | O | 1..N | Contains the time period(s) of the data samples. |  |
| reportingReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements applicable for VFL Training related reporting.(NOTE) |  |
| NOTE: When this attribute is present, the event reporting requirements provided within this attribute shall take precedence over the common events reporting requirements provided within the "reportingReqs" attribute of the parent data structure. |

Editor's Note: The final list of the attributes and their presence conditions are FFS.

Editor's Note:The attributes shall be present in the response and the attributes that can be modified by the NWDAF are FFS.

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

##### 5.9.6.2.6 Type VflTrainingNotify

Table 5.9.6.2.6-1: Definition of type VflTrainingNotify

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifCorrId | string | M | 1 | Notification correlation identifier. |  |
| reports | array(VflTrainingReport) | M | 1..N | Contains the VFL Training related even(s) report(s). |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |

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

##### 5.9.6.2.8 Type VflTrainingSubsPatch

Table 5.9.6.2.8-1: Definition of type VflTrainingSubsPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| vflTrainSubs | array(VFLTrainingSub) | O | 1..N | Contains the updated subscribed VFL training set(s). |  |
| notifUri | Uri | O | 0..1 | Contains the updated URI via which VFL Training related notifications shall be delivered. |  |
| notifCorrId | string | O | 0..1 | Notification Correlation Identifier. |  |
| reportingReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements applicable for VFL Training related reporting. |  |

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

##### 5.9.6.2.9 Type: VflTrainingReport

Table 5.9.6.2.9-1: Definition of type VflTrainingReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| event | NwdafEvent | M | 1 | Contains the identifier of the analytics to which the VFL Training notifications is related. |  |
| vflCorrId | string | M | 1 | Contains the VFL Correlation ID to which the VFL Training notifications is related. |  |
| intermediateRes | VflIntermedTrainInfo | O | 0..1 | Contains the intermediate VFL training results data.(NOTE) |  |
| iterationNum | Uinteger | O | 0..1 | Contains the VFL training iteration number.(NOTE) |  |
| modelMetric | MLModelMetric | O | 0..1 | Contains the local ML model metric provided by the VFL client.This attribute may be present only if the "chkFlg" attribute within the corresponding subscription is set to "true".(NOTE) |  |
| accMlModel | integer | O | 0..1 | Contains the local ML model accuracy value provided by the VFL client.Minimum = 0. Maximum = 100.This attribute shall be present only if the "modelMetric" is also present. |  |
| termCause | VflTermCause | O | 0..1 | Contains the termination cause.(NOTE) |  |
| NOTE: If the "termCause" attribute is present, this attribute shall not be present. |

Editor's Note: The full content of this data type is FFS.

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

# A.10 Nnwdaf\_VFLTraining API

openapi: 3.0.0

info:

 title: Nnwdaf\_VFLTraining

 version: 1.0.0-alpha.1

 description: |

 Nnwdaf\_VFLTraining API Service.

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 All rights reserved.

externalDocs:

 description: 3GPP TS 29.520 V19.3.0; 5G System; Network Data Analytics Services.

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.520/

servers:

 - url: '{apiRoot}/nnwdaf-vfltraining/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

security:

 - {}

 - oAuth2ClientCredentials:

 - nnwdaf-vfltraining

paths:

 /subscriptions:

 post:

 summary: Create a new Individual VFL Training Subscription resource.

 operationId: CreateNWDAFVFLTrainingSubcription

 tags:

 - Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Create a new Individual VFL Training Subscription resource.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

 Contains the URI of the newly created resource, according to the structure

 {apiRoot}/nnwdaf-vfltraining/v1/subscriptions/{subscriptionId}.

 required: true

 schema:

 type: string

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 callbacks:

 nwdafVflTrainingNotification:

 '{$request.body#/notifUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content, Notification was succesfull

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 /subscriptions/{subscriptionId}:

 get:

 summary: Retrieve an existing Individual VFL Training Subscription resource.

 operationId: RetrieveNWDAFVFLTrainingSubcription

 tags:

 - Individual VFL Training Subscription (Document)

 responses:

 '200':

 description: >

 OK. The requested Individual VFL Training Subscription resource is returned.

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '429':

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

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 put:

 summary: update an existing Individual VFL Training Subscription

 operationId: UpdateNWDAFVFLTrainingSubcription

 tags:

 - Individual VFL Training Subscription (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: subscriptionId

 in: path

 description: String identifying a subscription to the Nnwdaf\_VFLTraining Service.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: >

 The Individual VFL Training Subscription resource was modified successfully and a

 representation of that resource is returned.

 content:

 application/json:

 schema:

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

 '204':

 description: >

 The Individual VFL Training Subscription resource was modified successfully.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 patch:

 summary: Modifies an existing "Individual VFL Training Subscription" resource.

 operationId: ModifyNWDAFVFLTrainingSubcription

 tags:

 - Individual VFL Training Subscription (Document)

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: >

 OK. The Individual VFL Training Subscription resource is successfully modified and a

 representation of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

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

 '204':

 description: >

 No Content. The Individual VFL Training Subscription resource is successfully modified

 and no content is returned in the response body.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 delete:

 summary: Delete an existing Individual VFL Training Subscription.

 operationId: DeleteNWDAFVFLTrainingSubcription

 tags:

 - Individual VFL Training Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: String identifying a subscription to the Nnwdaf\_VFLTraining Service.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual VFL Training Subscription matching the subscriptionId was

 deleted.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '429':

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

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 nnwdaf-vfltraining: Access to the Nnwdaf\_VFLTraining API

 schemas:

 VflTrainingSubs:

 description: Represents VFL Training subscription.

 type: object

 properties:

 notifUri:

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

 notifCorrId:

 type: string

 description: Notification correlation identifier.

 vflTrainSubs:

 type: array

 items:

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

 minItems: 1

 reportingReqs:

 $ref: 'TS29523\_Npcf\_EventExposure.yaml#/components/schemas/ReportingInformation'

 trainReports:

 type: array

 items:

 $ref: 'TS29530\_Naf\_VFLTraining.yaml#/components/schemas/VflTrainingNotify'

 minItems: 1

 suppFeat:

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

 required:

 - notifUri

 - notifCorrId

 - vflTrainSubs

 VflTrainingSubsPatch:

 description: Represents the requested modifications to a VFL Training Subscription.

 type: object

 properties:

 notifUri:

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

 notifCorrId:

 type: string

 description: Notification correlation identifier.

 vflTrainSubs:

 type: array

 items:

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

 minItems: 1

 reportingReqs:

 $ref: 'TS29523\_Npcf\_EventExposure.yaml#/components/schemas/ReportingInformation'

 VflTrainingSub:

 description: Represents VFL Training subscription for a analytics ID.

 type: object

 properties:

 event:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

 vflCorrId:

 type: string

 description: Represents the VFL Correlation ID.

 interopInfo:

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

 maxRspTime:

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

 trainFilter:

 $ref: 'TS29520\_Nnwdaf\_AnalyticsInfo.yaml#/components/schemas/EventFilter'

 intermediateInfo:

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

 chkFlg:

 type: boolean

 description: >

 Set to "true" to indicate that the ML model accuracy monitoring information is

 requested.The default value is "false" if omitted.

 sampIds:

 type: array

 items:

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

 minItems: 1

 description: Represents the initial sample list provided by the VFL server.

 selectedSampIds:

 type: array

 items:

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

 minItems: 1

 description: Represents the samples which are selected from the initial sample list.

 chkPoint:

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

 vflFeatIds:

 type: array

 items:

 type: string

 minItems: 1

 minNumSamples:

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

 timeWindows:

 type: array

 items:

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

 minItems: 1

 reportingReqs:

 $ref: 'TS29523\_Npcf\_EventExposure.yaml#/components/schemas/ReportingInformation'

 required:

 - event

 - vflCorrId

 VflCheckpointInfo:

 description: Represents VFL Training check point information.

 type: object

 properties:

 saveCheckpoint:

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

 resRoundInd:

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

 oneOf:

 - required: [saveCheckpoint]

 - required: [resRoundInd]

 VflInteropInfo:

 description: Represents VFL interoperability information.

 type: object

 properties:

 interopInfo:

 type: array

 items:

 type: string

 minItems: 1

 required:

 - interopInfo

 VflTrainingNotify:

 description: Represents a ML Model Training notification.

 type: object

 properties:

 notifCorrId:

 type: string

 description: Notification correlation identifier.

 reports:

 type: array

 items:

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

 minItems: 1

 required:

 - notifCorrId

 - reports

 VflIntermedTrainInfo:

 description: Represents the intermediate model training information.

 type: object

 properties:

 intermedTrainInfo:

 type: array

 items:

 type: string

 minItems: 1

 required:

 - intermedTrainInfo

 VflTrainingReport:

 description: Represents a VFL Training report.

 type: object

 properties:

 event:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

 vflCorreId:

 type: string

 intermediateRes:

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

 iterationNum:

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

 modelMetric:

 $ref: 'TS29520\_Nnwdaf\_MLModelProvision.yaml#/components/schemas/MLModelMetric'

 accMlModel:

 type: integer

 minimum: 0

 maximum: 100

 termCause:

 $ref: 'TS29520\_Nnwdaf\_VFLInference.yaml#/components/schemas/VflTermCause'

 required:

 - event

 - vflCorreId

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