**3GPP TSG- Meeting #C3-253545**

**Gothenburg, Sweden, 25 -29 August, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **0244** | **rev** | **1** | **Current version:** |  |  |
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| *For* [***HELP***](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:*** | Definition of Nnef\_Inference | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***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:*** | | TS 23.288 shows on clause 6.2H.2.4.2 the usage of Nnef\_Inference service by an NWDAF containing an AnLF when it wants to request VFL inference and there is an untrusted AF acting as VFL server.  Contents of Nnef\_Inference service are specified in 23.288 in clause 12.5.  Hence, new Nnef\_Inference service needs to be defined on TS 29.591 to allow NWDAF containing an AnLF request/subscribe to/unsubscribe from/be notified of Inference events on untrusted AF(s) acting as VFL server(s).  EN on clause 12.5.1 of TS 23.288 indicates that parameters of Nnef\_Inference service operations are FFS. | | | | | | | | |
|  | |  | | | | | | | | |
| Summary of change: | | New Nnef\_Inference service is defined on TS 29.591 allowing:   * Subscribing to/unsubscribing from Inference event subscriptions. * Update/partial modify existing Inference event subscriptions. * Be notified about subscribed Inference event(s).   No new data types are added for Nnef\_Inference. Data types from Naf\_Inference.yaml API are reused.  For Nnef\_Inference\_Subscribe operation it is mandatory that the NF consumer sends to the NEF the identity of the AF acting as VFL server. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No support of stage 2 requirements on Nnef\_Inference service. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.3, 4.1, 4.11 (new, including subclauses), 5.10 (new, including subclauses), A.11 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 new OpenAPI file for:  Nnef\_Inference.yaml | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 9113: "HTTP/2".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 9457: "Problem Details for HTTP APIs".

[14] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[15] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[16] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[17] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[18] 3GPP TS 29.517: "5G System; Application Function Event Exposure Service; Stage 3".

[19] 3GPP TS 29.551: "5G System; Packet Flow Description Management Service; Stage 3".

[20] 3GPP TS 29.541: "5G System; Network Exposure (NE) function services for Non-IP Data Delivery (NIDD) and Short Message Services (SMS); Stage 3".

[21] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[22] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[23] 3GPP TS 29.256: "Uncrewed Aerial Systems Network Function (UAS-NF); Aerial Management Services; Stage 3".

[24] 3GPP TS 26.531: "Data Collection and Reporting; General Description and Architecture".

[25] 3GPP TS 26.501: "5G Media Streaming (5GMS); General description and architecture".

[26] 3GPP TS 26.512: "5G Media Streaming (5GMS); Protocols".

[27] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".

[28] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

[29] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

[30] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

[31] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

[32] 3GPP TS 29.504: "5G System; Unified Data Repository Services; Stage 3".

[33] 3GPP TS 29.530: "5G System; Application Function Artificial Intelligence/Machine Learning (AI/ML) Services; Stage 3".\*\*\* Next Change \*\*\*

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GMS 5G Media Streaming

AF Application Function

AnLF Analytics Logical Function

API Application Programming Interface

ASP Application Service Provider

DCCF Data Collection Coordination Function

EAS Edge Application Server

EHE Edge Hosting Environment

GMLC Gateway Mobile Location Centre

GPSI Generic Public Subscription Identifier

I-SMF Intermediate SMF

LCS LoCation Services

LMF Location Management Function

MFAF Messaging Framework Adaptor Function

NEF Network Exposure Function

NF Network Function

NWDAF Network Data Analytics Function

SMF Session Management Function

SUPI Subscription Permanent Identifier

URI Uniform Resource Identifier

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

## 4.1 Introduction

The NEF offers to other NFs the following southbound services:

- Nnef\_EventExposure

- Nnef\_PFDManagement

- Nnef\_SMContext

- Nnef\_SMService

- Nnef\_Authentication

- Nnef\_EASDeployment

- Nnef\_TrafficInfluenceData

- Nnef\_ECSAddress

- Nnef\_UEId

- Nnef\_Inference

NOTE 1: The northbound services offered by the NEF are defined in 3GPP TS 29.522 [15], e.g. the northbound requirement of Nnef\_EventExposure service or Nnef\_EASDeployment.

NOTE 2: The services offered by the NEF (e.g. Nnef\_EventExposure service) as specified in the present specification are only applicable for Nnef southbound services.

NOTE 3: The Nnef\_PFDManagement service offered by the NEF southbound is defined in 3GPP TS 29.551 [19].

NOTE 4: The Nnef\_SMContext service and the Nnef\_SMService offered by the NEF southbound is defined in 3GPP TS 29.541 [20].

NOTE 5: The Nnef\_Authentication service offered by the NEF southbound is defined in 3GPP TS 29.256 [23].

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

## 4.11 Nnef\_Inference Service

### 4.11.1 Service Description

#### 4.11.1.1 Overview

The Nnef\_Inference service, as defined in 3GPP TS 23.288 [14], is provided by the Network Exposure Function (NEF) and consumed by NWDAF(s) containing AnLF.

This service:

- allows NF service consumers to subscribe, modify and unsubscribe the Inference events reporting; and

- notifies NF service consumers with a corresponding subscription about subscribed Inference events.

#### 4.11.1.2 Service Architecture

The 5G System Architecture is defined in 3GPP TS 23.501 [2]. The Network Data Analytics Exposure architecture is defined in 3GPP TS 23.288 [14].

The Nnef\_Inference service is part of the Nnef service-based interface exhibited by the Network Exposure Function (NEF).

Known NF service consumers of the Nnef\_Inference service are:

- Network Data Analytics Function (NWDAF) containing an AnLF.

The Nnef\_Inference service is provided by the NEF and consumed by NF service consumers (i.e., NWDAF), as shown in figure 4.11.1.2-1 for the SBI representation model and in figure 4.11.1.2-2 for reference point representation model.



Figure 4.11.1.2-1: Reference Architecture for the Nnef\_Inference Service; SBI representation

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Figure 4.11.1.2-2: Reference Architecture for the Nnef\_Inference Service: reference point representation

#### 4.11.1.3 Network Functions

##### 4.11.1.3.1 Network Exposure Function (NEF)

The Network Exposure Function (NEF) is a functional element that provides application or user related information to the NF service consumers as defined in this specification.

The NEF allows the NF service consumer(s) to (un)subscribe to notifications of monitoring observed event and sends the notification to the NF service consumer(s) when a subscribed event is detected.

##### 4.11.1.3.2 NF Service Consumers

Known NF service consumers are as follows:

The Network Data Analytics Function (NWDAF) containing an AnLF:

- supports (un)subscribing to notifications of subscribed inference event(s) from the NEF;

- supports receiving the notifications of subscribed inference event(s) from the NEF.

### 4.11.2 Service Operations

#### 4.11.2.1 Introduction

Service operations defined for the Nnef\_Inference Service are shown in table 4.11.2.1-1.

Table 4.11.2.1-1: Nnef\_Inference Service Operations

|  |  |  |
| --- | --- | --- |
| **Service Operation Name** | **Description** | **Initiated by** |
| Nnef\_Inference\_Subscribe | This service operation is used by an NF service consumer to subscribe to, update or modify an individual inference subscription in the NEF. | NF service consumer (NWDAF) |
| Nnef\_Inference\_Unsubscribe | This service operation is used by an NF service consumer to unsubscribe from an individual Inference subscription. | NF service consumer (NWDAF) |
| Nnef\_Inference\_Notify | This service operation is used by the NEF to report inference related event(s) to the NF service consumer which has subscribed to. | NEF |

#### 4.11.2.2 Nnef\_Inference\_Subscribe service operation

##### 4.11.2.2.1 General

This service operation is used by the NF service consumer to subscribe the notifications on specified event(s) or modify an existing subscription.

The following are the types of events for which a subscription to notify the NWDAF as the NF service consumer:

- Inference events.

The following procedures using the Nnef\_Inference\_Subscribe service operation are supported:

- creating a new subscription;

- updating an existing subscription; and

- partial modifying an existing subscription.

##### 4.11.2.2.2 Creating a new subscription

Figure 4.11.2.2.2-1 illustrates the creation of a Network Exposure Inference Subscription.



Figure 4.11.2.2.2-1: Creation of a subscription

To subscribe to event notifications, the NF service consumer shall send an HTTP POST request to the NEF with: "{apiRoot}/nnef-inference/<apiVersion>/subscriptions" as request URI as shown in step 1 of figure 4.11.2.2.2-1, and the "InferEventSubsc" data structure as request body.

The InferEventSubsc data structure provided in the request body shall include:

- an URI where to receive the requested notifications as the "notifUri" attribute;

- a notification correlation identifier assigned by the NF service consumer for the requested notifications as "notifCorreId" attribute;

- the identification of the AF that the Inference subscription is targeted to as the "targetServer" attribute; and

- a description of the subscribed analytics event as the "inferAnaSub" attribute.

and may include:

- the reporting information as the "reportInfo" attribute; and

- the required conditions to apply inference as the "inferReq" attribute.

Upon receipt of the HTTP request from the NWDAF the NEF shall:

- translate any received SUPI into a GPSI or an Internal-Group-Id into an External-Group-Id in the inference target; and

- send a subscription to the inference notification to the indicated AF acting as VFL server by using Naf\_Inference\_Subscribe request as defined in clause 6.2H.2.4.2 of 3GPP TS 29.288 [29].

If the request is accepted by the AF and it informs the NEF with a successful response, the NEF shall create a new inference event subscription, store it and send an HTTP "201 Created" response, as shown in step 2 of figure 4.11.2.2.2-1. The NEF shall include in the "201 Created" response:

- a Location header field; and

- an InferEventSubsc data type in the content.

The Location header field shall contain the URI of the created individual application session context resource i.e. "{apiRoot}/nnef-inference/<apiVersion>/subscriptions/{subscriptionId}".

The InferEventSubsc data type content shall contain the representation of the created "Individual Inference".

If the NEF cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the NEF shall send an HTTP error response as specified in clause 5.10.7.

##### 4.11.2.2.3 Modifying an existing subscription

Figure 4.11.2.2.3-1 illustrates the modification of an existing subscription.

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Figure 4.11.2.2.3-1: Modification of an existing subscription

To modify an existing subscription to inference event notifications, the NF service consumer shall send an HTTP PUT/PATCH request with: "{apiRoot}/nnef-inference/<apiVersion>/subscriptions/{subscriptionId}" as request URI, as shown in step 1 of figure 4.11.2.2.3-1, where "{subscriptionId}" is the subscription correlation ID of the existing subscription. The InferEventSubsc data structure is included as PUT request body as described in clause 4.11.2.2.2 2 or the InferEventSubscPatch data structure is included as PATCH request body as defined in clause 5.10.6.2.3 in 29.520 [17].

Upon receipt of the HTTP PUT/PATCH request from the NWDAF the NEF shall:

- translate any received SUPI into a GPSI or an Internal-Group-Id into an External-Group-Id in the inference target; and

- send an update of the subscription to the inference notification to the AF managing that subscription by using Naf\_Inference\_Subscribe request as defined in clause 6.2H.2.4.2 of 3GPP TS 29.288 [29].

If the request is accepted by the AF and it informs the NEF with a successful response, the NEF shall update the subscription and send either

- an HTTP "200 OK" response with the InferEventSubsc data structure as response body containing the representation of the modified "Individual Inference subscription"; or

- an HTTP "204 No Content" response, as shown in step 2 of figure 4.11.2.2.3-1.

If the NEF cannot successfully fulfil the received HTTP PUT/PATCH request due to an internal error or an error in the HTTP PUT request, the NEF shall send an HTTP error response as specified in clause 5.10.7.

If the NEF determines the received HTTP PUT/PATCH request needs to be redirected, the NEF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

#### 4.11.2.3 Nnef\_Inference\_Unsubscribe service operation

##### 4.11.2.3.1 General

This service operation is used by an NF service consumer to unsubscribe from event notifications.

The following procedure using the Nnef\_Inference\_Unsubscribe service operation is supported:

- unsubscription from event notifications.

##### 4.11.2.3.2 Unsubscription from event notifications

Figure 4.11.2.3.2-1 illustrates the unsubscription from event notifications.



Figure 4.11.2.3.2-1: Unsubscription from event notifications

To unsubscribe from event notifications, the NF service consumer shall send an HTTP DELETE request with "{apiRoot}/nnef-inference/<apiVersion>/subscriptions/{subscriptionId}" as request URI, as shown in step 1 of figure 4.11.2.3.2-1, where "{subscriptionId}" is the subscription correlation identifier of the existing subscription resource that is to be deleted.

Upon receipt of the HTTP DELETE request from the NWDAF the NEF shall request the AF managing that subscription to remove the Inference subscription by using Naf\_Inference\_Unsubscribe request. If the request is accepted by the AF and it informs the NEF with a successful response, the NEF shall remove the subscription and send an HTTP "204 No Content" response, as shown in step 2 of figure 4.11.2.2.3-1.

If the NEF cannot successfully fulfil the received HTTP DELETE request due to an internal error or an error in the HTTP DELETE request, the NEF shall send an HTTP error response as specified in clause 5.10.7.

If the NEF determines the received HTTP DELETE request needs to be redirected, the NEF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

#### 4.11.2.4 Nnef\_Inference\_Notify service operation

##### 4.11.2.4.1 General

The Nnef\_Inference\_Notify service operation enables the NEF to notify the NF service consumer(s) that the previously subscribed application related event occurred.

The following procedure using the Nnef\_Inference\_Notify service operation is supported:

- notification about inference subscribed events.

##### 4.11.2.4.2 Notification about subscribed events

Figure 4.11.2.4.2-1 illustrates the notification about subscribed events.



Figure 4.11.2.4.2-1: Notification about subscribed events

If the NEF observes application related event(s) for which an NF service consumer has subscribed, the NEF shall send an HTTP POST request as shown in step 1 of figure 4.11.2.4.2-1, with the "{notifUri}" as request URI containing the value previously provided by the NF service consumer within the corresponding subscription, and the InferNotif data structure.

If the NF service consumer cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the NF service consumer shall send an HTTP error response as specified in clause 5.10.7.

If the NF service consumer determines the received HTTP POST request needs to be redirected, the NF service consumer shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

Upon successful reception of an HTTP POST request with "{notifUri}" as request URI and InferNotif data structure as request body, the NF service consumer shall send an HTTP "204 No Content" response, as shown in step 2 of figure 4.11.2.4.2-1, in case of a successful processing.

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

## 5.10 Nnef\_Inference Service API

### 5.10.1 Introduction

The Nnef\_Inference service shall use the Nnef\_Inference API.

The API URI of the Nnef\_Inference API shall be:

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

The request URIs used in HTTP requests from the NF service consumer towards the NF service producer shall have the Resource URI structure defined in clause 4.4.1 of 3GPP TS 29.501 [5], i.e.:

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

with the following components:

- The {apiRoot} shall be set as described in 3GPP TS 29.501 [5].

- The <apiName>shall be "nnef-inference".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 5.10.3.

### 5.10.2 Usage of HTTP

#### 5.10.2.1 General

HTTP/2, IETF RFC 9113 [11], shall be used as specified in clause 5 of 3GPP TS 29.500 [4].

HTTP/2 shall be transported as specified in clause 5.3 of 3GPP TS 29.500 [4].

The OpenAPI [6] specification of HTTP messages and content bodies for the Nnef\_Inference API is contained in Annex A.

#### 5.10.2.2 HTTP standard headers

##### 5.10.2.2.1 General

See clause 5.2.2 of 3GPP TS 29.500 [4] for the usage of HTTP standard headers.

##### 5.10.2.2.2 Content type

JSON, IETF RFC 8259 [12], shall be used as content type of the HTTP bodies specified in the present specification as specified in clause 5.10 of 3GPP TS 29.500 [4]. The use of the JSON format shall be signalled by the content type "application/json".

"Problem Details" JSON object shall be used to indicate additional details of the error in a HTTP response body and shall be signalled by the content type "application/problem+json", as defined in IETF RFC 9457 [13].

#### 5.10.2.3 HTTP custom headers

The Nnef\_Inference API shall support mandatory HTTP custom header fields specified in clause 5.2.3.2 of 3GPP TS 29.500 [4] and may support HTTP custom header fields specified in clause 5.2.3.3 of 3GPP TS 29.500 [4].

In this Release of the specification, no specific custom headers are defined for the Nnef\_Inference API.

### 5.10.3 Resources

#### 5.10.3.1 Overview

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

Figure 5.10.3.1-1 depicts the resource URIs structure for the Nnef\_Inference API.

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Figure 5.10.3.1-1: Resource URI structure of the Nnef\_Inference API

Table 5.10.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 5.10.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource name** | **Resource URI** | **HTTP method or custom operation** | **Description** |
| Inference subscriptions | /subscriptions | POST | Creates a subscription to notifications on application or user relatedevent(s), i.e. creation of an Individual Inference Subscription resource. |
| Individual Inference subscription | /subscriptions/{subscriptionId} | PUT | Updates an Individual Inference Subscription. |
| PATCH | Modifies partially an individual Inference Subscription. |
| DELETE | Removes an individual subscription to notifications of subscribed event. |

#### 5.10.3.2 Resource: Inference Subscriptions

##### 5.10.3.2.1 Description

The resource represents the collection of Inference subscriptions of the Nnef\_Inference service. It allows NF service consumers to create a new subscription to notifications on application or user related event(s).

##### 5.10.3.2.2 Resource Definition

Resource URI: **{apiRoot}/nnef-inference/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 5.10.3.2.2-1.

Table 5.10.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 5.10.1 |

##### 5.10.3.2.3 Resource Standard Methods

###### 5.10.3.2.3.1 POST

This method shall support the URI query parameters specified in table 5.10.3.2.3.1-1.

Table 5.10.3.2.3.1-1: 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 5.10.3.2.3.1-2 and the response data structures and response codes specified in table 5.10.3.2.3.1-3.

Table 5.10.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| InferEventSubsc | M | 1 | Contains the information required for the creation of a new Individual Inference subscription resource.  "targetServer" attribute on InferEventSubsc structure shall contain the AF identity of the target AF VFL Server.  "exterGroupIds" and "gpsis" target identities on " inferAnaSub" attribute under this structure are not applicable to this API. |

Table 5.10.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| InferEventSubsc | M | 1 | 201 Created | Contains the representation of the Individual Inference subscription resource.  "exterGroupIds" and "gpsis" target identities on " inferAnaSub" attribute under this structure are not applicable to this API. |
| ProblemDetails | O | 0..1 | 403 Forbidden | (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: Failure cases are described in clause 5.10.7. | | | | |

Table 5.10.3.2.3.1-4: 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}/nnef-inference/<apiVersion>/subscriptions/{subscriptionId} |

#### 5.10.3.3 Resource: Individual Inference subscription

##### 5.10.3.3.1 Description

The resource represents an individual Network Exposure Inference subscription of the Nnef\_Inference service. It allows NF service consumers to read/modify/cancel a subscription to notifications on application or user related event(s).

##### 5.10.3.3.2 Resource Definition

Resource URI: **{apiRoot}/nnef-inference/<apiVersion>/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 5.10.3.3.2-1.

Table 5.10.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 5.10.1 |
| subscriptionId | string | Identifies a subscription to the inference service. |

##### 5.10.3.3.3 Resource Standard Methods

###### 5.10.3.3.3.1 PUT

This method shall support the URI query parameters specified in table 5.10.3.3.3.1-1.

Table 5.10.3.3.3.1-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 5.10.3.3.3.1-2 and the response data structures and response codes specified in table 5.10.3.3.3.1-3.

Table 5.10.3.3.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| InferEventSubsc | M | 1 | Modifies the existing Individual Inference subscription resource.  "exterGroupIds" and "gpsis" target identities on " inferAnaSub" attribute under this structure are not applicable to this API. |

Table 5.10.3.3.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| InferEventSubsc | M | 1 | 200 OK | Successful case.  The Individual Inference subscription resource was modified and a representation is returned. |
| n/a |  |  | 204 No Content | Successful case.  The Individual Inference subscription resource was modified. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during subscription modification.  (NOTE 3) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during subscription modification.  (NOTE 3) |
| ProblemDetails | O | 0..1 | 403 Forbidden | (NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: Failure cases are described in clause 5.10.7.  NOTE 3: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). | | | | |

Table 5.10.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (service) instance towards which the request is redirected. |

Table 5.10.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (service) instance towards which the request is redirected. |

###### 5.10.3.3.3.2 PATCH

This method shall support the URI query parameters specified in table 5.10.3.3.3.2-1.

Table 5.10.3.3.3.2-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 5.10.3.3.3.2-2 and the response data structures and response codes specified in table 5.10.3.3.3.2-3.

Table 5.10.3.3.3.2-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| InferEventSubscPatch | M | 1 | Partially modify an existing inference subscription. |

Table 5.10.3.3.3.2-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| InferEventSubsc | M | 1 | 200 OK | The subscription was updated successfully.  "exterGroupIds" and "gpsis" target identities on " inferAnaSub" attribute under this structure are not applicable to this API. |
| n/a |  |  | 204 No Content | The subscription has been successfully updated and no content is returned in the response body. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during subscription retrieval.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during subscription retrieval.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] 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 [4]). | | | | |

Table 5.10.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (service) instance towards which the request is redirected. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (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 [4]. |

Table 5.10.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (service) instance towards which the request is redirected. |

###### 5.10.3.3.3.3 DELETE

This method shall support the URI query parameters specified in table 5.10.3.3.3.3-1.

Table 5.10.3.3.3.3-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 5.10.3.3.3.3-2 and the response data structures and response codes specified in table 5.10.3.3.3.3-3.

**Table 5.10.3.3.3.3-2: Data structures supported by the DELETE Request Body on this resource**

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

Table 5.10.3.3.3.3-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The Individual Inference subscription resource matching the subscriptionId was deleted. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during subscription termination.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during subscription termination.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] 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 [4]). | | | | |

Table 5.10.3.3.3.3-4: 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 NEF (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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (service) instance towards which the request is redirected. |

Table 5.10.3.3.3.3-5: 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 NEF (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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NEF (service) instance towards which the request is redirected. |

### 5.10.4 Custom Operations without associated resources

None.

### 5.10.5 Notifications

#### 5.10.5.1 General

Notifications shall comply to clause 6.2 of 3GPP TS 29.500 [4] and clause 4.6.2.3 of 3GPP TS 29.501 [5].

Table 5.10.5.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description**  **(service operation)** |
| Inference Notification | {notifUri} | POST | Provides Information about observed events. |

#### 5.10.5.2 Inference Notification

##### 5.10.5.2.1 Description

The Inference Notification is used by the NEF to report one or several observed events to a NF service consumer that has subscribed to such Notifications.

##### 5.10.5.2.2 Target URI

The Notification URI **"{notifUri}"** shall be used with the callback URI variables defined in table 5.10.5.2.2-1.

Table 5.10.5.2.2-1: Callback URI variables for this resource

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| notifUri | Uri | The Notification Uri as assigned by the NF service consumer during the subscription service operation and described within the InferEventSubsc data type (see table 5.10.6.2.2-1). |

##### 5.10.5.2.3 Standard Methods

###### 5.10.5.2.3.1 POST

This method shall support the request data structures specified in table 5.10.5.2.3.1-1 and the response data structures and response codes specified in table 5.10.5.2.3.1-1.

Table 5.10.5.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| InferNotif | M | 1 | Provides Information about observed events.  "exterGroupIds" and "gpsis" target identities on " inferResults" attribute under this structure are not applicable to this API. |

Table 5.10.5.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during event notification.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during event notification.  (NOTE 2) |
| 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 [4] 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 [4]). | | | | |

Table 5.10.5.2.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative NF consumer (service) instance towards which the notification should be 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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected. |

Table 5.10.5.2.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative NF consumer (service) instance towards which the notification should be 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 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected. |

### 5.10.6 Data Model

#### 5.10.6.1 General

This clause specifies the application data model supported by the API.

Table 5.10.6.1-1 specifies the data types defined for the Nnef\_Inference service based interface protocol.

Table 5.10.6.1-1: Nnef\_Inference specific Data Types

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Data type** | | **Section defined** | | **Description** | | **Applicability** | |
| InferEventSubsc | | 5.10.6.4.2 | | Represents a inference subscription. | |  | |
| InferEventSubscPatch | | 5.10.6.4.3 | | Represents parameters to request the modification of a inference subscription. | |  | |

Table 5.10.6.1-2 specifies data types re-used by the Nnef\_Inference 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 Nnef\_Inference service based interface.

Table 5.10.6.1-2: Nnef\_Inference re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Reference** | **Comments** | **Applicability** |
| InferAnaSub | 3GPP TS 29.530 [33] |  |  |
| InferNotif | 3GPP TS 29.530 [33] | Represents notification of a inference subscription. |  |
| InferReq | 3GPP TS 29.530 [33] | Represents inference requirements. |  |
| InferResults | 3GPP TS 29.530 [33] | Represents inference results. |  |
| ReportingInformation | 3GPP TS 29.523 [22] | Represents the type of reporting a subscription requires. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Represents the list of supported features. |  |
| Uri | 3GPP TS 29.571 [16] | Represents a URI. |  |

#### 5.10.6.2 Structured data types

##### 5.10.6.2.1 Introduction

This clause defines the structures to be used in resource representations.

##### 5.10.6.4.2 Type InferEventSubsc

Table 5.10.6.4.2-1: Definition of type InferEventSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifCorreId | string | M | 1 | The value of Notification Correlation ID in the corresponding notification. |  |
| notifUri | Uri | M | 1 | URI at which the NF service consumer requests to receive notifications. |  |
| suppFeats | SupportedFeatures | C | 0..1 | List of Supported features used as described in clause 5.10.8.  It shall be supplied by NF service consumer in the POST requests that request the creation of an AF Inference Subscriptions resource and shall be supplied by the AF in the reply of corresponding request. |  |
| inferAnaSubs | array(InferAnaSub) | M | 1..N | Identifies the inference subscription information for the subscribed analytics ID(s). |  |
| inferReq | InferReq | O | 0..1 | Represents required conditions to apply inference. |  |
| inferResults | array(InferResult) | O | 1..N | Represents inference results |  |
| reportInfo | ReportingInformation | O | 0..1 | Reporting requirement information of the inference subscription.  If omitted, the default values within the ReportingInformation data type apply. |  |
| targetServerId | string | M | 1 | Target VFL Server identity. |  |

EN: 23.288 clause 11.4.1 states on EN that parameters of the Naf\_Inference service operations are FFS and more will be added when procedures and content of services are agreed. This affects the parameter definition of InferEventSubsc data type.

##### 5.10.6.4.3 Type InferEventSubscPatch

Table 5.10.6.4.3-1: Definition of type InferEventSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifUri | Uri | M | 1 | URI at which the NF service consumer requests to receive notifications. |  |
| inferReq | InferReq | O | 0..1 | Represents required conditions to apply inference. |  |
| reportInfo | ReportingInformation | O | 0..1 | Reporting requirement information of the inference subscription.  If omitted, the default values within the ReportingInformation data type apply. |  |

#### 5.10.6.3 Simple data types and enumerations

##### 5.10.6.3.1 Introduction

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

##### 5.10.6.3.2 Simple data types

The simple data types defined in table 5.10.6.3.2-1 shall be supported.

Table 5.10.6.3.2-1: Simple data types

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

### 5.10.7 Error Handling

#### 5.10.7.1 General

For the Nnef\_Inference API, HTTP error responses shall be supported as specified in clause 4.8 of 3GPP TS 29.501 [5]. Protocol errors and application errors specified in table 5.2.7.2-1 of 3GPP TS 29.500 [4] shall be supported for an HTTP method if the corresponding HTTP status codes are specified as mandatory for that HTTP method in table 5.2.7.1-1 of 3GPP TS 29.500 [4].

In addition, the requirements in the following clauses are applicable for the Nnef\_Inference API.

#### 5.10.7.2 Protocol Errors

No specific protocol errors for the Nnef\_Inference service are specified.

#### 5.10.7.3 Application Errors

The application errors defined for the Nnef\_Inference service are listed in Table 5.10.7.3-1.

Table 5.10.7.3-1: Application errors

|  |  |  |
| --- | --- | --- |
| **Application Error** | **HTTP status code** | **Description** |
| OVERLOAD | 403 Forbidden | Indicates the NF is overloaded. |
| INFERENCE\_REQS\_NOT\_MET | 403 Forbidden | Indicates the inference requirements are not met. |
| NOTE: Including a "ProblemDetails" data structure with the "cause" attribute in the HTTP response is optional unless explicitly mandated in the service operation clauses. | | |

### 5.10.8 Feature negotiation

The optional features in table 5.10.8-1 are defined for the Nnef\_Inference API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 5.10.8-1: Supported Features

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

### 5.10.9 Security

As indicated in 3GPP TS 33.501 [8] and 3GPP TS 29.500 [4], the access to the Nnef\_Inference API may be authorized by means of the OAuth2 protocol (see IETF RFC 6749 [9]), based on local configuration, using the "Client Credentials" authorization grant, where the NRF (see 3GPP TS 29.510 [10]) plays the role of the authorization server.

If OAuth2 is used, an NF Service Consumer, prior to consuming services offered by the Nnef\_Inference API, shall obtain a "token" from the authorization server, by invoking the Access Token Request service, as described in 3GPP TS 29.510 [10], clause 5.10.11.2.

NOTE: When multiple NRFs are deployed in a network, the NRF used as authorization server is the same NRF that the NF Service Consumer used for discovering the Nnef\_Inference service.

The Nnef\_Inference API defines a single scope "nnef-inference" for the entire service, and it does not define any additional scopes at resource or operation level.

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

# A.11 Nnef\_Inference API

openapi: 3.0.0

info:

title: Nnef\_Inference

version: 1.0.0-alpha.1

description: |

API for Nnef\_Inference Service.

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externalDocs:

description: >

3GPP TS 29.591 V19.4.0; 5G System; Network Exposure Function Southbound Services; Stage 3.

url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.591/

servers:

- url: '{apiRoot}/nnef-inference/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials:

- nnef-inference

paths:

/subscriptions:

post:

summary: Create a new Individual Inference Subscription resource.

operationId: CreateInferenceSubcription

tags:

- Subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubsc'

responses:

'201':

description: Create a new Individual Inference Subscription resource.

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubsc'

headers:

Location:

description: >

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

structure

{apiRoot}/nnef-inference/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:

myNotification:

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

post:

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferNotif'

responses:

'204':

description: No Content, Notification was successful

'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}:

put:

summary: Update an existing Individual Inference Subscription

operationId: UpdateInferenceSubcription

tags:

- Individual Inference Subscription (Document)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubsc'

parameters:

- name: subscriptionId

in: path

description: String identifying an Individual Inference Subscription.

required: true

schema:

type: string

responses:

'200':

description: >

The Individual Inference Subscription resource was modified

successfully and a representation of that resource is returned.

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubsc'

'204':

description: >

The Individual Inference 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: Partial update an existing Individual Inference Subscription

operationId: PartialUpdateInferenceSubcription

tags:

- Individual Inference Subscription (Document)

requestBody:

required: true

content:

application/merge-patch+json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubscPatch'

parameters:

- name: subscriptionId

in: path

description: String identifying an Individual Inference Subscription.

required: true

schema:

type: string

responses:

'200':

description: >

The Individual Inference Subscription resource was partial

modified successfully and a representation of that resource is returned.

content:

application/json:

schema:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferEventSubsc'

'204':

description: >

The Individual Inference Subscription resource was partial

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'

delete:

summary: Delete an existing Individual Inference Subscription.

operationId: DeleteInferenceSubcription

tags:

- Individual Inference Subscription (Document)

parameters:

- name: subscriptionId

in: path

description: >

String identifying an Individual Inference Subscription.

required: true

schema:

type: string

responses:

'204':

description: >

No Content. The Individual Inference 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:

nnef-inference: Access to the Nnef\_Inference API

schemas:

InferEventSubsc:

description: Represents an Inference subscription.

type: object

properties:

notifCorreId:

type: string

description: >

String identifying the Notification Correlation ID in the corresponding

notification.

notifUri:

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

suppFeats:

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

inferAnaSubs:

type: array

items:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferAnaSub'

minItems: 1

description: Represents inference subscription per analytics Id.

inferReq:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferReq'

inferResults:

type: array

items:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferResult'

minItems: 1

description: Represents Inference result.

reportInfo:

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

targetServerId:

type: string

description: >

String identifying target VFL server id.

required:

- notifUri

- notifCorreId

- inferAnaSubs

- targetServerId

InferEventSubscPatch:

description: >

Represents parameters to request the modification of an Inference

subscription.

type: object

properties:

notifUri:

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

inferReq:

$ref: 'TS29530\_Naf\_Inference.yaml#/components/schemas/InferReq'

reportInfo:

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

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