**3GPP TSG-CT3 Meeting #128 *C3-232076***

**Bratislava, Slovakia, 22nd May 2023 - 26th May 2023**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.575** | **CR** | **0052** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  |
| *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:***  | Sending ADRF Deletion Alerts |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNA\_Ph3 |  | ***Date:*** | 2023-05-14 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | 23.288 clauses 6.2B.2, 6.2B.3, and 5B.1 (complemented by the respective additions in the service definitions that were agreed in S2-2306087) require that the ADRF uses the Nadrf\_DataManagement\_RetrievalNotify service to send Deletion Alerts (notifications) to endpoints that were previously subscribed using the Nadrf\_DataManagement\_StorageRequest and/or Nadrf\_DataManagement\_StorageSubscriptionRequest services. These alerts include (in addition to the correlation identifier) a storage transaction identifier, which can be used by the NF service consumer to fetch the data before they are deleted. |
|  |  |
| ***Summary of change:*** | Extended Nadrf\_DataManagement\_RetrievalNotify to be able to send a new type of notifications, namely for deletion alerts. |
|  |  |
| ***Consequences if not approved:*** | Not fulfilled stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 4.2.1.1, 4.2.1.3.1, 4.2.2.1, 4.2.2.8.1, 4.2.2.8.3 (new), 5.1.5.1, 5.1.5.3 (new, including subclauses), 5.1.6.1, 5.1.6.2.11 (new), 5.1.6.2.12 (new), A.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR 23.288 CR 0726  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces a backwards compatible feature in the OpenAPI file of the Nadrf\_DataManagement API. |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* \* First change \* \* \* \*

4.2.1.1 Overview

The Nadrf\_DataManagement service as defined in 3GPP TS 23.288 [14], is provided by the Analytics Data Repository Function (ADRF).

This service:

- allows NF consumers to store data or analytics in the ADRF, and request/receive notifications about data or analytics that are about to be deleted;

- allows NF consumers to retrieve data or analytics from an ADRF; and

- allows NF consumers to delete data or analytics from an ADRF.

NOTE: Storage of ML models in ADRF is not specified in this Release of the specification.

\* \* \* \* Next change \* \* \* \*

4.2.1.3.1 Analytics Data Repository Function (ADRF)

The Analytics Data Repository Function (ADRF) provides the functionality to allow NF consumers to store, retrieve, and remove data or analytics from the ADRF, and request/receive notifications about data or analytics that are about to be deleted.

\* \* \* \* Next change \* \* \* \*

4.2.1.3.2 NF Service Consumers

The NWDAF and DCCF:

- supports storing data or analytics in the ADRF, and requesting/receiving notifications about data or analytics that are about to be deleted;

- supports retrieving data or analytics from an ADRF; and

- supports deletion data or analytics from an ADRF.

The MFAF:

- supports storing data or analytics in the ADRF.

\* \* \* \* Next change \* \* \* \*

4.2.2.1 Introduction

**Table 4.2.2.1-1: Operations of the Nadrf\_DataManagement Service**

| **Service operation name** | **Description** | **Initiated by** |
| --- | --- | --- |
| Nadrf\_DataManagement\_StorageRequest | This service operation is used by an NF to request the ADRF to store data or analytics. Data or analytics are provided to the ADRF in the request message. | NF service consumer (DCCF, NWDAF, MFAF) |
| Nadrf\_DataManagement\_StorageSubscriptionRequest | This service operation is used by an NF to request the ADRF to initiate a subscription for data or analytics. Data or analytics provided in notifications as a result of the subsequent subscription by the ADRF are stored in the ADRF. | NF service consumer (DCCF, NWDAF) |
| Nadrf\_DataManagement\_StorageSubscriptionRemoval | This service operation is used by an NF to request that the ADRF no longer subscribes to data or analytics it is collecting and storing. | NF service consumer (DCCF, NWDAF) |
| Nadrf\_DataManagement\_RetrievalRequest | This service operation is used by an NF to retrieve stored data or analytics from the ADRF. | NF service consumer (DCCF, NWDAF) |
| Nadrf\_DataManagement\_RetrievalSubscribe | This service operation is used by an NF to retrieve stored data or analytics from the ADRF and to receive future notifications containing the corresponding data or analytics received by ADRF. | NF service consumer (DCCF, NWDAF) |
| Nadrf\_DataManagement\_RetrievalUnsubscribe | This service operation is used by an NF to request that the ADRF no longer sends data or analytics to a notification endpoint. | NF service consumer (DCCF, NWDAF) |
| Nadrf\_DataManagement\_RetrievalNotify | This service operation is used by the ADRF to notify an NF with either data or analytics, or instructions to fetch the data or analytics from the ADRF. It is also used by the ADRF to notify NF service consumers about data or analytics that are about to be deleted. | ADRF |
| Nadrf\_DataManagement\_Delete | This service operation is used by an NF to delete stored data in ADRF. | NF service consumer (DCCF, NWDAF) |

\* \* \* \* Next change \* \* \* \*

4.2.2.8.1 General

The Nadrf\_DataManagement\_RetrievalNotify service operation is used by ADRF to notify NF service consumers about subscribed events related to data or analytics and about data or analytics that are about to be deleted.

\* \* \* \* Next change \* \* \* \*

4.2.2.8.3 Notification about data or analytics that are about to be deleted

Figure 4.2.2.8.3-1 shows a scenario where the ADRF sends a request to the NF service consumer to notify it about data or analytics that are about to be deleted.

****

**Figure 4.2.2.8.3-1: ADRF notifies the NF service consumer about data or analytics that are about to be deleted.**

In order to notify about data or analytics that are about to be deleted, the ADRF shall invoke the Nadrf\_DataManagement\_RetrievalNotify service operation. The ADRF shall send an HTTP POST request to the "{delNotificationURI}" received as "delNotifUri" attribute in a storage request as defined in clause 4.2.2.2.2 or in a storage subscription request as defined in clause 4.2.2.3.2, as shown in figure 4.2.2.8.3-1, step 1. The NadrfAlertNotification data structure provided in the request body shall include:

- a notification correlation identifier within the "delNotifCorrId" attribute;

- a storage transaction identifier, which may be used by the NF service consumer to retrieve the data, within the "alertStorTransId" attribute;

NOTE: The "alertStorTransId" attribute, which is used for retrieving data prior to deletion, does not have to be the same with or related to the "storeTransId" attribute that is assigned and returned during the storage of the data.

Upon the reception of an HTTP POST request with "{delNotificationURI}" as Resource URI and NadrfAlertNotification data structure as request body, if the NF service consumer successfully processed and accepted the received HTTP POST request, the NF Service Consumer shall either respond with HTTP "204 No Content" status code or with HTTP "200 OK" status code and the NadrfAlertNotificationResponse data structure in the message body.

If errors occur when processing the HTTP POST request, the NF service consumer shall send an HTTP error response as specified in clause 5.1.7.

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].

After the successful processing of the HTTP POST request, the NF service consumer may invoke the Nadrf\_DataManagement\_RetrievalRequest service operation as defined in clause 4.2.2.5, using the storage transaction identifier received within the "alertStorTransId" attribute of the NadrfAlertNotification, in order to retrieve the data or analytics that are about to be deleted.

\* \* \* \* Next change \* \* \* \*

5.1.5.1 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 5.1.5.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description****(service operation)** |
| Retrieval Notification | {notificationURI} | POST | Report data or analytics from ADRF. |
| ADRF Alert Notification | {delNotificationURI} | POST | Notify about data or analytics that are about to be deleted. |

\* \* \* \* Next change \* \* \* \*

5.1.5.3 ADRF Alert Notification

5.1.5.3.1 Description

The ADRF Alert Notification is used by the NF service producer to notify an NF service consumer about data or analytics that are about to be deleted.

5.1.5.3.2 Target URI

The Callback URI **"{delNotificationURI}"** shall be used with the callback URI variables defined in table 5.1.5.3.2-1.

**Table 5.1.5.3.2-1: Callback URI variables**

|  |  |
| --- | --- |
| **Name** | **Definition** |
| delNotificationURI | String formatted as URI with the Callback Uri |

5.1.5.3.3 Standard Methods

5.1.5.3.3.1 POST

This method shall support the request data structures specified in table 5.1.5.3.3.1-1 and the response data structures and response codes specified in table 5.1.5.3.3.1-2.

**Table 5.1.5.3.3.1-1: Data structures supported by the POST Request Body**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| NadrfAlertNotification | M | 1 | Contains information about data or analytics that are about to be deleted. |

**Table 5.1.5.3.3.1-2: Data structures supported by the POST Response Body**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| NadrfAlertNotificationResponse | M | 1 | 200 OK | The receipt of the Notification is acknowledged and a response with information about the planned action is provided. |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged.  |
| 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 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 5.1.5.3.3.1-3: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NF (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 NF (service) instance towards which the notification request is redirected. |

**Table 5.1.5.3.3.1-4: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NF (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 NF (service) instance towards which the notification request is redirected. |

\* \* \* \* Next change \* \* \* \*

5.1.6.1 General

This clause specifies the application data model supported by the Nadrf\_DataManagement API.

Table 5.1.6.1-1 specifies the data types defined for the Nadrf\_DataManagement service based interface protocol.

**Table 5.1.6.1-1: Nadrf\_DataManagement specific Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| DataNotification | 5.1.6.2.9 | Represents a data subscription notification of one of various possible data sources. |  |
| DataSubscription | 5.1.6.2.8 | Contains information about Data specification. |  |
| NadrfAlertNotification | 5.1.6.2.11 | Contains information about data or analytics that are about to be deleted. | EnhDataMgmt |
| NadrfAlertNotificationResponse | 5.1.6.2.12 | Contains information about the planned action upon receiving an alert. | EnhDataMgmt |
| NadrfDataRetrievalNotification | 5.1.6.2.5 | Represents a notification that corresponds with an Individual ADRF Data Retrieval Subscription resource. |  |
| NadrfDataRetrievalSubscription | 5.1.6.2.4 | Represents an Individual ADRF Data Retrieval Subscription resource. |  |
| NadrfDataStoreRecord | 5.1.6.2.2 | Represents an Individual ADRF Data Store Record resource. |  |
| NadrfDataStoreSubscription | 5.1.6.2.3 | Contains information to be used by the ADRF to create a Data or Analytics subscription. |  |
| NadrfDataStoreSubscriptionRef | 5.1.6.2.6 | Contains a reference to a request for a Data or Analytics subscription. |  |
| NadrfStoredDataSpec | 5.1.6.2.7 | Contains information about Data or Analytics specification. |  |

Table 5.1.6.1-2 specifies data types re-used by the Nadrf\_DataManagement 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 Nadrf\_DataManagement service based interface.

**Table 5.1.6.1-2: Nadrf\_DataManagement re-used Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Reference** | **Comments** | **Applicability** |
| AfEventExposureNotif | 3GPP TS 29.517 [20] | Represents notifications on AF event(s) that occurred for an Individual AF Event Subscription resource. |  |
| AfEventExposureSubsc | 3GPP TS 29.517 [20] | Represents AF event subscription. |  |
| AmfEventNotification | 3GPP TS 29.518 [18] | Represents notifications on AMF event(s) that occurred for an Individual AMF Event Subscription resource. |  |
| AmfEventSubscription | 3GPP TS 29.518 [18] | Represents AMF event subscription. |  |
| DateTime | 3GPP TS 29.571 [16] | Identifies the time. |  |
| EeSubscription | 3GPP TS 29.503 [19] | Represents UDM event subscription. |  |
| FetchInstruction | 3GPP TS 29.576 [24] | The fetch instruction indicates that the data or analytics can be fetched by the consumer. |  |
| FormattingInstruction | 3GPP TS 29.574 [23] | DCCF formatting Instructions. |  |
| MonitoringReport | 3GPP TS 29.503 [19] | UDM Monitoring Report. |  |
| NefEventExposureNotif | 3GPP TS 29.591 [21] | Represents notifications on network exposure event(s) that occurred for an Individual Network Exposure Event Subscription resource. |  |
| NefEventExposureSubsc | 3GPP TS 29.591 [21] | Represents NEF event subscription. |  |
| NfInstanceId | 3GPP TS 29.571 [16] | NF instance identifier. |  |
| NfSetId | 3GPP TS 29.571 [16] | NF set identifier. |  |
| NnwdafEventsSubscription | 3GPP TS 29.520 [15] | Represents an NWDAF analytics subscription. |  |
| NnwdafEventsSubscriptionNotification | 3GPP TS 29.520 [15] | Represents an NWDAF analytics subscription notification. |  |
| NotificationData | 3GPP TS 29.510 [10] | Represents an NRF event notification. |  |
| NsmfEventExposure | 3GPP TS 29.508 [17] | Represents SMF event subscription. |  |
| NsmfEventExposureNotification | 3GPP TS 29.508 [17] | Represents SMF event notification. |  |
| ProcessingInstruction | 3GPP TS 29.574 [23] | DCCF processing Instructions. |  |
| SACEventReport | 3GPP TS 29.536 [25] | Represents an NSACF event notification. |  |
| SACEventSubscription | 3GPP TS 29.536 [25] | Represents and NSACF event subscription. |  |
| SubscriptionData | 3GPP TS 29.510 [10] | Represents an NRF event subscription. |  |
| SupportedFeatures | 3GPP TS 29.571 [6] | Used to negotiate the applicability of the optional features defined in table 5.1.8-1. |  |
| TimeWindow | 3GPP TS 29.122 [22] | Represents a time window. |  |
| Uri | 3GPP TS 29.571 [16] | URI. |  |

\* \* \* \* Next change \* \* \* \*

5.1.6.2.11 Type: NadrfAlertNotification

**Table 5.1.6.2.11-1: Definition of type NadrfAlertNotification**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| alertStorTransId | string | M | 1 | Storage transaction identifier that can be used to retrieve the data or analytics that are about to be deleted. |  |
| delNotifCorrId | string | M | 1 | Notification correlation identifier for the alert. |  |

\* \* \* \* Next change \* \* \* \*

5.1.6.2.12 Type: NadrfAlertNotificationResponse

**Table 5.1.6.2.12-1: Definition of type NadrfAlertNotificationResponse**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| retrievalInd | boolean | M | 1 | If the NF service consumer had received a Data or Analytics Deletion Alert in the notification and determined to retrieve stored data or analytics prior to deletion, it shall be set to "true". Otherwise, it shall be set to "false". |  |

\* \* \* \* Next change \* \* \* \*

A.2 Nadrf\_DataManagement API

openapi: 3.0.0

info:

 version: 1.1.0-alpha.2

 title: Nadrf\_DataManagement

 description: |

 ADRF Data Management Service.

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externalDocs:

 description: 3GPP TS 29.575 V18.1.0; 5G System; Analytics Data Repository Services; Stage 3.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.575/'

#

servers:

 - url: '{apiRoot}/nadrf-datamanagement/v1'

 variables:

 apiRoot:

 default: https://example.com

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

#

security:

 - oAuth2ClientCredentials:

 - nadrf-datamanagement

 - {}

#

paths:

 /data-store-records:

 post:

 summary: Creates a new Individual Data Store Record resource.

 operationId: CreateADRFDataStoreRecord

 tags:

 - ADRF Data Store Records (Collection)

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 description: ADRF data store record to be stored.

 responses:

 '201':

 description: Successful creation of new Individual ADRF Data Store Record resource.

 headers:

 Location:

 description: >

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

 {apiRoot}/nadrf-datamanagement/<apiVersion>/data-store-records/{storeTransId}

 required: true

 schema:

 type: string

 content:

 application/json:

 schema:

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

 '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:

 storageAlertNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: The alert receipt is acknowledged and a planned action is provided.

 content:

 application/json:

 schema:

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

 '204':

 description: The alert receipt is acknowledged.

 '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'

 get:

 summary: Retrieves existing Individual ADRF Data Store Records.

 operationId: GetAdrfDataStoreRecords

 tags:

 - ADRF Data Store Records (Collection)

 parameters:

 - name: store-trans-id

 description: A storage transaction identifier of a data store record in ADRF.

 in: query

 required: false

 schema:

 type: string

 - name: fetch-correlation-ids

 description: Fetch correlation identifiers received as part of fetch instruction.

 in: query

 required: false

 style: form

 explode: false

 schema:

 type: array

 items:

 type: string

 minItems: 1

 responses:

 '200':

 description: Data store records are returned.

 content:

 application/json:

 schema:

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

 '204':

 description: No matching ADRF data were found.

 '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'

 /data-store-records/{storeTransId}:

 delete:

 summary: Delete an existing Individual ADRF Data Store Record.

 operationId: DeleteADRFDataStoreRecord

 tags:

 - Individual ADRF Data Store Record (Document)

 parameters:

 - name: storeTransId

 in: path

 description: String identifying a Data Store Record in ADRF.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual ADRF Data Store Record resource matching the

 storeTransId 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'

 /data-retrieval-subscriptions:

 post:

 summary: Creates a new Individual ADRF Data Retrieval Subscription resource.

 operationId: CreateADRFDataRetrievalSubscription

 tags:

 - ADRF Data Retrieval Subscriptions (Collection)

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 description: Individual ADRF Data Retrieval Subscription resource to be created.

 responses:

 '201':

 description: Created a new Individual ADRF Data Retrieval Subscription resource.

 headers:

 Location:

 description: >

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

 {apiRoot}/nadrf-datamanagement/<apiVersion>/data-retrieval-subscriptions/{subscriptionId}

 required: true

 schema:

 type: string

 content:

 application/json:

 schema:

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

 '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:

 adrfDataRetrievalNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the Notification is acknowledged.

 '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'

 /data-retrieval-subscriptions/{subscriptionId}:

 delete:

 summary: Delete an existing Individual ADRF Data Retrieval Subscription resource.

 operationId: DeleteADRFDataRetrievalSubscription

 tags:

 - Individual ADRF Data Retrieval Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 String identifying a data retrieval subscription to the Nadrf\_DataManagement

 Service.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual ADRF Data Retrieval Subscription resource 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'

 /request-storage-sub:

 post:

 summary: Triggers the creation of a new ADRF Storage Subscription.

 operationId: CreateADRFStorageSubscription

 tags:

 - ADRF Storage Subscriptions

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '200':

 description: >

 Successful response with reference used to identify the subscription at the ADRF.

 content:

 application/json:

 schema:

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

 '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:

 storageSubAlertNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: The alert receipt is acknowledged and a planned action is provided.

 content:

 application/json:

 schema:

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

 '204':

 description: The alert receipt is acknowledged.

 '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'

 /request-storage-sub-removal:

 post:

 summary: Triggers the removal of ADRF storage subscription.

 operationId: DeleteADRFStorageSubscription

 tags:

 - ADRF Storage Subscriptions

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: >

 No Content. The ADRF Storage Subscription matching the provided reference was deleted.

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 /remove-stored-data-analytics:

 post:

 summary: Remove ADRF data based on data or analytics specification.

 operationId: DeleteADRFData

 tags:

 - ADRF Stored Data

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: No Content. The ADRF data matching the provided specification is deleted.

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '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:

 nadrf-datamanagement: Access to the nadrf-datamanagement API

#

 schemas:

#

 NadrfDataStoreRecord:

 description: Represents an Individual ADRF Data Store Record.

 type: object

 oneOf:

 - allOf:

 - required: [anaSub]

 - required: [anaNotifications]

 - allOf:

 - required: [dataSub]

 - required: [dataNotif]

 properties:

 dataNotif:

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

 anaNotifications:

 type: array

 items:

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

 minItems: 1

 description: List of analytics subscription notifications.

 anaSub:

 type: array

 items:

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

 minItems: 1

 description: >

 Represents the subscription information of the corresponding analytics notification.

 dataSub:

 type: array

 items:

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

 minItems: 1

 description: >

 Represents the subscription information of the corresponding data notification.

 suppFeat:

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

#

 NadrfDataStoreSubscription:

 description: >

 Contains information to be used by the ADRF to create a Data or Analytics subscription.

 type: object

 allOf:

 - oneOf:

 - required: [anaSub]

 - required: [dataSub]

 - oneOf:

 - required: [targetNfId]

 - required: [targetNfSetId]

 properties:

 anaSub:

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

 dataSub:

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

 targetNfId:

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

 targetNfSetId:

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

 formatInstruct:

 $ref: 'TS29574\_Ndccf\_DataManagement.yaml#/components/schemas/FormattingInstruction'

 procInstruct:

 $ref: 'TS29574\_Ndccf\_DataManagement.yaml#/components/schemas/ProcessingInstruction'

 multiProcInstructs:

 type: array

 items:

 $ref: 'TS29574\_Ndccf\_DataManagement.yaml#/components/schemas/ProcessingInstruction'

 minItems: 1

 description: Processing instructions to be used for sending event notifications.

 suppFeat:

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

#

 NadrfDataRetrievalSubscription:

 description: Represents an Individual ADRF Data Retrieval Subscription.

 type: object

 required:

 - notifCorrId

 - notificationURI

 - timePeriod

 oneOf:

 - required: [anaSub]

 - required: [dataSub]

 properties:

 anaSub:

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

 dataSub:

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

 notificationURI:

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

 timePeriod:

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

 notifCorrId:

 type: string

 description: Notification correlation identifier.

 consTrigNotif:

 type: boolean

 description: >

 It indicates that notifications shall be buffered (sending only fetch instructions

 to the NF service consumer) until the NF service consumer requests their delivery

 using Nadrf\_DataManagement Service.

 suppFeat:

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

#

 NadrfDataRetrievalNotification:

 description: >

 Represents a notification that corresponds with an Individual ADRF Data

 Retrieval Subscription.

 type: object

 required:

 - notifCorrId

 - timeStamp

 oneOf:

 - required: [anaNotifications]

 - required: [dataNotif]

 - required: [fetchInstruct]

 properties:

 notifCorrId:

 type: string

 description: Notification correlation identifier.

 anaNotifications:

 type: array

 items:

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

 minItems: 1

 description: List of analytics subscription notifications.

 dataNotif:

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

 fetchInstruct:

 $ref: 'TS29576\_Nmfaf\_3caDataManagement.yaml#/components/schemas/FetchInstruction'#

 terminationReq:

 type: boolean

 description: >

 It indicates the termination of the data management subscription that requested by the

 ADRF.

 timeStamp:

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

#

 NadrfDataStoreSubscriptionRef:

 description: Contains a reference to a request for a Data or Analytics subscription.

 type: object

 required:

 - transRefId

 properties:

 transRefId:

 type: string

 description: Transaction reference identifier.

#

 NadrfStoredDataSpec:

 description: Contains information about Data or Analytics specification.

 type: object

 required:

 - timePeriod

 oneOf:

 - required: [dataSpec]

 - required: [anaSpec]

 properties:

 dataSpec:

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

 anaSpec:

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

 timePeriod:

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

#

 DataSubscription:

 description: Contains a data specification.

 type: object

 oneOf:

 - required: [amfDataSub]

 - required: [smfDataSub]

 - required: [udmDataSub]

 - required: [nefDataSub]

 - required: [afDataSub]

 - required: [nrfDataSub]

 - required: [nsacfDataSub]

 properties:

 amfDataSub:

 $ref: 'TS29518\_Namf\_EventExposure.yaml#/components/schemas/AmfEventSubscription'

 smfDataSub:

 $ref: 'TS29508\_Nsmf\_EventExposure.yaml#/components/schemas/NsmfEventExposure'

 udmDataSub:

 $ref: 'TS29503\_Nudm\_EE.yaml#/components/schemas/EeSubscription'

 afDataSub:

 $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEventExposureSubsc'

 nefDataSub:

 $ref: 'TS29591\_Nnef\_EventExposure.yaml#/components/schemas/NefEventExposureSubsc'

 nrfDataSub:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/SubscriptionData'

 nsacfDataSub:

 $ref: 'TS29536\_Nnsacf\_SliceEventExposure.yaml#/components/schemas/SACEventSubscription'

#

 DataNotification:

 description: Represents a Data Subscription Notification.

 type: object

 oneOf:

 - required: [amfEventNotifs]

 - required: [smfEventNotifs]

 - required: [udmEventNotifs]

 - required: [nefEventNotifs]

 - required: [afEventNotifs]

 - required: [nrfEventNotifs]

 - required: [nsacfEventNotifs]

 properties:

 amfEventNotifs:

 type: array

 items:

 $ref: 'TS29518\_Namf\_EventExposure.yaml#/components/schemas/AmfEventNotification'

 minItems: 1

 description: List of notifications of AMF events.

 smfEventNotifs:

 type: array

 items:

 $ref: 'TS29508\_Nsmf\_EventExposure.yaml#/components/schemas/NsmfEventExposureNotification'

 minItems: 1

 description: List of notifications of SMF events.

 udmEventNotifs:

 type: array

 items:

 $ref: 'TS29503\_Nudm\_EE.yaml#/components/schemas/MonitoringReport'

 minItems: 1

 description: List of notifications of UDM events.

 nefEventNotifs:

 type: array

 items:

 $ref: 'TS29591\_Nnef\_EventExposure.yaml#/components/schemas/NefEventExposureNotif'

 minItems: 1

 description: List of notifications of NEF events.

 afEventNotifs:

 type: array

 items:

 $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEventExposureNotif'

 minItems: 1

 description: List of notifications of AF events.

 nrfEventNotifs:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NotificationData'

 minItems: 1

 description: List of notifications of NRF events.

 nsacfEventNotifs:

 type: array

 items:

 $ref: 'TS29536\_Nnsacf\_SliceEventExposure.yaml#/components/schemas/SACEventReport'

 minItems: 1

 description: List of notifications of NSACF events.

 timeStamp:

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

#

 NadrfAlertNotification:

 description: Contains information about data or analytics that are about to be deleted.

 type: object

 properties:

 alertStorTransId:

 type: string

 description: >

 Storage transaction identifier that can be used to retrieve data or analytics.

 delNotifCorrId:

 type: string

 description: Notification correlation identifier.

 required:

 - alertStorTransId

 - delNotifCorrId

#

 NadrfAlertNotificationResponse:

 description: >

 Contains information about planned actions related to data or analytics

 that are about to be deleted.

 type: object

 properties:

 retrievalInd:

 type: boolean

 description: >

 Indicates if the NF service consumer has determined to retrieve the data

 or analytics that are about to be deleted. required:

 - retrievalInd

#

\* \* \* \* End of changes \* \* \* \*