**3GPP TSG-CT3 Meeting #128 *C3-232075***

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

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.575** | **CR** | **0051** | **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:***  | Adding Storage Handling Information in ARDF Data Management requests |
|  |  |
| ***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 NF service consumer of the Nadrf\_DataManagement\_StorageRequest and Nadrf\_DataManagement\_StorageSubscriptionRequest services may provide Storage Handling information (i.e. lifetime of the data in the ADRF, indication of request to be notified about their deletion) together with an endpoint for receiving Deletion Notifications. |
|  |  |
| ***Summary of change:*** | Added Storage Handling information (i.e. lifetime of the data in the ADRF, indication of request to be notified about their deletion) and Deletion Notification URI to the inputs of Nadrf\_DataManagement\_StorageRequest and Nadrf\_DataManagement\_StorageSubscriptionRequest. |
|  |  |
| ***Consequences if not approved:*** | Not fulfilled stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 4.2.2.2.2, 4.2.2.3.2, 5.1.6.1, 5.1.6.2.2, 5.1.6.2.3, 5.1.6.2.10 (new), 5.1.8, A.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS 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 \* \* \* \*

4.2.2.2.2 Request Storage of data or analytics

Figure 4.2.2.2.2-1 shows a scenario where the NF service consumer sends a request to the ADRF to store data or analytics.

****

**Figure 4.2.2.2.2-1: NF service consumer requesting to store data or analytics**

The NF service consumer shall invoke the Nadrf\_DataManagement\_StorageRequest service operation to store data or analytics. The NF service consumer shall send an HTTP POST request with "{apiRoot}/nadrf-datamanagement/<apiVersion>/data-store-records" as Resource URI representing the "ADRF Data Store Records" resource, as shown in figure 4.2.2.2.2-1, step 1, to create an "Individual ADRF Data Store Record" according to the information in the message body. The NadrfDataStoreRecord data structure provided in the request body shall include:

- one of the following:

- analytics subscription notification(s) within the "anaNotifications" attribute together with the corresponding subscription information within the "anaSub" attribute;

- data subscription notification within the "dataNotif" attribute together with the corresponding subscription information within the " dataSub" attribute.

and may include:

- storage handling information within the "storeHandl" attribute, if the "EnhDataMgmt" feature is supported.

Upon the reception of an HTTP POST request with "{apiRoot}/nadrf-datamanagement/<apiVersion>/data-store-records" as Resource URI and NadrfDataStoreRecord data structure as request body, the ADRF shall:

- create a new data store record;

- assign a storeTransId;

- store the data or analytics.

NOTE 1: If the data and/or analytics is already stored or being stored in the ADRF, the ADRF will still create a new "Individual ADRF Data Store Record" resource and assign a new storeTransId if the ADRF intends to not really store the data again in the memory again based on the implementation.

If the ADRF created an "Individual ADRF Data Store Record" resource, the ADRF shall respond with "201 Created" with the message body containing a representation of the created record, as shown in figure 4.2.2.2.2-1, step 2. The ADRF shall include a Location HTTP header field. The Location header field shall contain the URI of the created record i.e. "{apiRoot}/nadrf-datamanagement/<apiVersion>/data-store-records/{storeTransId}".

If the ADRF receives storage handling information in the request but determines (e.g. based on local policy) that a different storage approach shall be followed, it indicates the determined storage approach to the consumer by setting accordingly the "storeHandl" attribute (e.g. providing a different lifetime, or omitting the deletion notification URI to indicate that no deletion alerts will be sent) in the message body of the response. When more than one consumer has requested storage lifetime for the same data or analytics, the storage approach should be based on the longest requested storage lifetime.

NOTE 2: The default operator policy for how long data or analytics are to be stored can be longer or shorter than the lifetime requested by the consumer. A default operator policy can for example accept only consumer requested lifetimes that are shorter or longer than the default policy.

If an error occurs when processing the HTTP POST request, the ADRF shall send an HTTP error response as specified in clause 5.1.7.

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

4.2.2.3.2 Requesting subscription and storage of data or analytics

Figure 4.2.2.3.2-1 shows a scenario where the NF service consumer sends a request to the ADRF to subscribe for data or analytics to be stored in the ADRF.

****

**Figure 4.2.2.3.2-1: NF service consumer requesting that the ADRF subscribes to and subsequently stores data or analytics**

The NF service consumer shall invoke the Nadrf\_DataManagement\_StorageSubscriptionRequest service operation to request the ADRF to subscribe to data or analytics. The NF service consumer shall send an HTTP POST request with "{apiRoot}/nadrf-datamanagement/<apiVersion>/request-storage-sub" as URI, as shown in figure 4.2.2.3.2-1, step 1. The NadrfDataStoreSubscription data structure provided in the request body shall include:

- one of the following subscription attributes:

- analytics subscription information within the "anaSub" attribute;

- data subscription information within the "dataSub" attribute;

- one of the following target identifiers:

- DCCF or NWDAF instance identifier within the "targetNfId" attribute;

- DCCF or NWDAF NF set identifier within the "targetNfSetId" attribute;

and may include:

- formatting instructions within the "formatInstruct" attribute;

- processing instructions within the "procInstruct" attribute or the "multiProcInstructs" attribute if the "MultiProcessingInstruction" feature is supported.

NOTE 1: The parameters provided by the NF service consumer, including Formatting and Processing Instructions (if provided) are used by the ADRF when subscribing to a DCCF or NWDAF for Data or Analytics to be stored.

- storage handling information within the "storeHandl" attribute, if the "EnhDataMgmt" feature is supported.

Upon the reception of an HTTP POST request with "{apiRoot}/nadrf-datamanagement/<apiVersion>/request-storage-sub" as URI and NadrfDataStoreSubscription data structure as request body, the ADRF shall assign a transaction reference identifier to this request and, if the request is successfully processed and accepted, the ADRF shall respond with "200 OK" as shown in figure 4.2.2.3.2-1 step 2, with the message body containing an NadrfDataStoreSubscriptionRef data structure, which shall include the assigned transaction reference identifier as "transRefId" attribute.

NOTE 2: If the data and/or analytics is already stored or being stored in the ADRF, the ADRF will still assign a new transaction reference identifier if the ADRF intends to not really store the data again in the memory again based on the implementation.

If an error occurs when processing the HTTP POST request, the ADRF shall send an HTTP error response as specified in clause 5.1.7.

If the ADRF receives storage handling information in the request but determines (e.g. based on local policy) that a different storage approach shall be followed, it indicates the determined storage approach to the consumer by setting accordingly the "storeHandl" attribute (e.g. providing a different lifetime, or omitting the deletion notification URI to indicate that no deletion alerts will be sent) in the message body of the response. When more than one consumer has requested storage lifetime for the same data or analytics, the storage approach should be based on the longest requested storage lifetime.

NOTE 3: The default operator policy for how long data or analytics are to be stored can be longer or shorter than the lifetime requested by the consumer. A default operator policy can for example accept only consumer requested lifetimes that are shorter or longer than the default policy.

In the case of a successful response, the ADRF may subsequently create a data or analytics subscription (according to inputs that had been received in the NadrfDataStoreSubscription data structure; this is not performed if the ADRF determines that the data is already being stored based on an existing subscription) with a DCCF as described in 3GPP TS 29.574 [23] or with an NWDAF as described in 3GPP TS 29.520 [15], and create a mapping between the previously assigned and returned transaction reference identifier and the subscription that is used to serve the transaction.

\* \* \* \* 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. |  |
| 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. |  |
| StorageHandlingInfo | 5.1.6.2.10 | Contains storage handling information for data or analytics. | EnhDataMgmt |

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. |  |
| DurationSec | 3GPP TS 29.571 [16] | Unsigned integer identifying a period of time in units of seconds. | EnhDataMgmt |
| 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 \* \* \* \*

5.1.6.2.2 Type: NadrfDataStoreRecord

**Table 5.1.6.2.2-1: Definition of type NadrfDataStoreRecord**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| dataNotif | DataNotification | C | 0..1 | Data subscription notification. (NOTE 1) |  |
| anaNotifications | array(NnwdafEventsSubscriptionNotification) | C | 1..N | List of analytics subscription notifications. (NOTE 1) |  |
| anaSub | NnwdafEventsSubscription | C | 0..1 | Represents the subscription information of the corresponding analytics notification.Shall be present if the "anaNotifications" attribute is provided.(NOTE 2) |  |
| dataSub | DataSubscription | C | 0..1 | Represents the subscription information of the corresponding data notification.Shall be present if the "dataNotif" attribute is provided.(NOTE 2) |  |
| storeHandl | StorageHandlingInfo | O | 0..1 | Contains storage handling information for the data or analytics that are being stored. | EnhDataMgmt |
| suppFeat | SupportedFeatures | C | 0..1 | This IE represents a list of Supported features as described in clause 5.1.8.It shall be present if at least one feature defined in clause 5.1.8 is supported. |  |
| NOTE 1: Exactly one of the attributes "anaNotifications" and "dataNotif" shall be provided.NOTE 2: Exactly one of the attributes "anaSub" and "dataSub" shall be provided. |

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

5.1.6.2.3 Type: NadrfDataStoreSubscription

**Table 5.1.6.2.3-1: Definition of type NadrfDataStoreSubscription**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| anaSub | NnwdafEventsSubscription | C | 0..1 | Subscribed analytics events. (NOTE 1) |  |
| dataSub | DataSubscription | C | 0..1 | Represents requested Events subscription.(NOTE 1) |  |
| targetNfId | NfInstanceId | C | 0..1 | DCCF or NWDAF NF instance identifier to which the ADRF shall create the requested subscription. (NOTE 2) |  |
| targetNfSetId | NfSetId | C | 0..1 | DCCF or NWDAF NF set identifier to which the ADRF shall create the requested subscription. (NOTE 2) |  |
| formatInstruct | FormattingInstruction | O | 0..1 | Formatting instructions to be used for sending event notifications. |  |
| procInstruct | ProcessingInstruction | O | 0..1 | Processing instructions to be used for sending event notifications. (NOTE 3) |  |
| multiProcInstructs | array(ProcessingInstruction) | O | 1..N | Processing instructions to be used for sending event notifications. (NOTE 3) | MultiProcessingInstruction |
| storeHandl | StorageHandlingInfo | O | 0..1 | Contains storage handling information for the data or analytics that will be collected and stored based on the requested subscription. | EnhDataMgmt |
| suppFeat | SupportedFeatures | C | 0..1 | This IE represents a list of Supported features as described in clause 5.1.8.It shall be present if at least one feature defined in clause 5.1.8 is supported. |  |
| NOTE 1: Exactly one of these attributes shall be provided.NOTE 2: One of "targetNfId" and "targetNfSetId" shall be provided.NOTE 3: The "multiProcInstructs" attribute shall be used instead of the "procInstruct" attribute when the "MultiProcessingInstruction" feature is supported. |

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

5.1.6.2.10 Type: StorageHandlingInfo

**Table 5.1.6.2.10-1: Definition of type StorageHandlingInfo**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| lifetime | DurationSec | O | 0..1 | Indicates the lifetime of the provided data or analytics as a duration in seconds. |  |
| delNotifUri | Uri | O | 0..1 | Notification Uri for receiving deletion alerts. Its presence indicates that the NF service consumer wants to receive such notifications. |  |
| delNotifCorrId | string | C | 0..1 | Notification correlation identifier for the deletion alerts. It shall be provided if the "delNotifUri" attribute is provided. |  |

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

5.1.8 Feature negotiation

The optional features in table 5.1.8-1 are defined for the Nadrf\_DataManagement API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

**Table 5.1.8-1: Supported Features**

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | MultiProcessingInstruction | Indicates the support of multiple processing instructions. |
| 2 | EnhDataMgmt | Indicates the support of enhanced data management mechanisms. |

\* \* \* \* 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'

 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'

 /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.

 storeHandl:

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

 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.

 storeHandl:

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

 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'

#

 StorageHandlingInfo:

 description: Contains storage handling information about data or analytics.

 type: object

 properties:

 lifetime:

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

 delNotifUri:

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

 delNotifCorrId:

 type: string

 description: Notification correlation identifier for deletion alerts.

#

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