**3GPP TSG- Meeting #**

**, , -**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  |  |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***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 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 Ndccf\_DataManagement\_Subscribe service may provide Storage Handling information (i.e. lifetime of the data to be stored in the ADRF, indication of request to be notified about their deletion). |
|  |  |
| ***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) to the inputs of Nadrf\_DataManagement\_Subscribe. |
|  |  |
| ***Consequences if not approved:*** | Not fulfilled stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 4.2.2.2.2, 4.2.2.2.3, 4.2.2.2.4, 4.2.2.2.5, 5.1.6.1, 5.1.6.2.2, 5.1.6.2.3, 5.1.6.2.15 (new), 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 Ndccf\_DataManagement API. |
|  |  |
| ***This CR's revision history:*** |  |

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

4.2.2.2.2 Subscription for analytics notifications

Figure 4.2.2.2.2-1 shows a scenario where the NF service consumer sends a request to the DCCF to subscribe for analytics notifications.

****

**Figure 4.2.2.2.2-1: NF service consumer subscribes to analytics notifications**

The NF service consumer shall invoke the Ndccf\_DataManagement\_Subscribe service operation to subscribe to analytics notification(s). The NF service consumer shall send an HTTP POST request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/analytics-subscriptions" as Resource URI representing the "DCCF Analytics Subscriptions", as shown in figure 4.2.2.2.2-1, step 1, to create an "Individual DCCF Analytics Subscription" according to the information in the message body. The NdccfAnalyticsSubscription data structure provided in the request body shall include:

- analytics subscription information within the "anaSub" attribute;

- a notification target address within the "anaNotifUri" attribute; and

- a notification correlation identifier in the "anaNotifCorrId" attribute;

and may include:

- the notification endpoints within the "notifEndpoints" attribute, if the "DataAnaCollect" feature is supported;

- formatting instructions within the "formatInstruct" attribute;

- processing instructions within the "procInstrct" attribute;

- the indication for analytics storage within the "storeInd" attribute, if the "DataAnaCollect" feature is supported;

- a target NWDAF identifier within the "targetNfId" attribute or a target NWDAF set identifier within the "targetNfSetId" attribute;

- an ADRF identifier within the "adrfId" attribute or an ADRF set identifier within the "adrfSetId" attribute; and/or

- time window of performing the requested analytics within the "timePeriod" attribute.

NOTE: This time window, over which the requested data collection or analytics was performed or to be performed, is different from the analytics target period, over which the statistics or predictions are requested. For example, in a subscription that requests "predictions that are performed during the month of May about UE\_MOBILITY analytics during the month of July", this time window is "May" while the analytics target period is "July". The DCCF can use the provided time window e.g. to determine when to (un)subscribe to the NWDAF and/or what subscription duration to indicate to it.

- the purpose of data collection within the "dataCollectPurposes" attribute.

- the indication that the NF service consumer has already checked the user consent within the "checkedConsentInd" attribute.

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

Upon the reception of an HTTP POST request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/subscriptions" as Resource URI and NdccfAnalyticsSubscription data structure as request body, the DCCF shall use the contents of the request (e.g. "anaSub" attribute in NdccfAnalyticsSubscription data structure) to determine whether the subscription can already be served or interactions with the NWDAF and/or ADRF (e.g. creation or modification of analytics subscription for Nnwdaf\_EventsSubscription service) are required. If the DCCF cannot use the contents of the request to determine this, the DCCF shall send an HTTP "400 Bad Request" error response including the "cause" attribute set to "SUBSCRIPTION\_CANNOT\_BE\_SERVED".

NOTE 1: The "SUBSCRIPTION\_CANNOT\_BE\_SERVED" error can occur, for example, when the request is syntactically valid and there is no DCCF internal error, but the DCCF can neither find an existing subscription to an NWDAF nor construct one based on the received subscription contents.

If the user consent has not been checked by the NF service consumer and is required for the requested analytics collection depending on local policy and regulations, then the DCCF shall check user consent for the targeted UE(s) by retrieving the user consent subscription data via the Nudm\_SDM service API of the UDM as described in clause 5.2.2 of 3GPP TS 29.503 [20]. If the DCCF receive the response from the UDM that it is not granted for the impacted user(s), then the DCCF shall send an HTTP "403 Forbidden" error response including the "cause" attribute set to "USER\_CONSENT\_NOT\_GRANTED".

NOTE 2: When the target of reporting is a SUPI or a GPSI then the subscription can be rejected, e.g. because user consent is not granted, and the error is sent to the consumer. When the target of reporting is an Internal Group Id, or a list of SUPIs/GPSI(s) or any UE, and the user consent is not granted for a subset of the impacted users, then no error is sent, but a subset of the SUPIs/GPSIs is skipped if user consent is not granted.

If the DCCF determines that the subscription can already be served (without requiring further interactions with NWDAF and/or ADRF) or a successful response from the NWDAF and/or ADRF is received for the creation or modification of subscription(s) to serve this subscription, the DCCF shall:

- create a new subscription;

- assign a subscriptionId;

- store the subscription.

If the DCCF created an "Individual DCCF Analytics Subscription" resource, the DCCF shall respond with "201 Created" with the message body containing a representation of the created subscription, as shown in figure 4.2.2.2.2-1, step 2. If not all the requested analytics events in the subscription are accepted, then the DCCF may include the "failEventReports" attribute within the "anaSub" attribute, indicating the event(s) for which the subscription failed and the associated reason(s). The DCCF shall include a Location HTTP header field. The Location header field shall contain the URI of the created subscription i.e. "{apiRoot}/ndccf-datamanagement/<apiVersion>/analytics-subscriptions/{subscriptionId}". If the immediate reporting indication in the "immRep" attribute within the "evtReq" attribute of the "anaSub" attribute sets to true in the event subscription, the DCCF shall include the reports of the events subscribed, if available, in the HTTP POST response.

If the DCCF 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 setting the indication about deletion alerts to "false") in the message body of the response. When more than one consumer has requested storage lifetime for the same analytics, the storage approach should be based on the longest requested storage lifetime.

NOTE 2: The default operator policy for how long analytics is 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 DCCF shall send an HTTP error response as specified in clause 5.1.7.

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

4.2.2.2.3 Update subscription for analytic notifications

****

**Figure 4.2.2.2.3-1: NF service consumer updates subscription to analytics notifications**

The NF service consumer shall invoke the Ndccf\_DataManagement\_Subscribe service operation to update a subscription to analytics notifications. The NF service consumer shall send an HTTP PUT request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/analytics-subscriptions/{subscriptionId}" as Resource URI, as shown in figure 4.2.2.2.3-1, step 1, to update the subscription for an "Individual DCCF Analytics Subscription" resource identified by the {subscriptionId}. The NdccfAnalyticsSubscription data structure provided in the request body shall include the same contents as described in clause 4.2.2.2.2.

Upon the reception of an HTTP PUT request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/analytics-subscriptions/{subscriptionId}" as Resource URI and NdccfAnalyticsSubscription data structure as request body, the DCCF shall use the contents of the request to determine whether the updated subscription can already be served or interactions with the NWDAF and/or ADRF (e.g. modification of analytics subscriptions with the NWDAF) are required. If the DCCF cannot use the contents of the request to determine this, the DCCF shall send an HTTP "400 Bad Request" error response including the "cause" attribute set to "SUBSCRIPTION\_CANNOT\_BE\_SERVED".

NOTE 1: The "SUBSCRIPTION\_CANNOT\_BE\_SERVED" error can occur, for example, when the request is syntactically valid and there is no DCCF internal error, but the DCCF can neither find an existing subscription to an NWDAF nor construct one based on the received subscription contents.

If the user consent has not been checked by the NF service consumer and is required for the requested analytics collection depending on local policy and regulations, then the DCCF shall check user consent for the targeted UE(s) by retrieving the user consent subscription data via the Nudm\_SDM service API of the UDM as described in clause 5.2.2 of 3GPP TS 29.503 [20]. If the DCCF receive the response from the UDM that it is not granted for the impacted user(s), then the DCCF shall send an HTTP "403 Forbidden" error response including the "cause" attribute set to "USER\_CONSENT\_NOT\_GRANTED".

NOTE 2: When the target of reporting is a SUPI or a GPSI then the subscription can be rejected, e.g. because user consent is not granted, and the error is sent to the consumer. When the target of reporting is an Internal Group Id, or a list of SUPIs/GPSI(s) or any UE, and the user consent is not granted for a subset of the impacted users, then no error is sent, but a subset of the SUPIs/GPSIs is skipped if user consent is not granted.

If the DCCF determines that the updated subscription can already be served (without requiring further interactions with NWDAF and/or ADRF) or a successful response from the NWDAF and/or ADRF is received for the creation or modification of subscription(s) to serve this subscription, the DCCF shall:

- update the subscription of corresponding subscriptionId; and

- store the subscription.

If the DCCF successfully updated the "Individual DCCF Analytics Subscription" resource, the DCCF shall respond with:

a) HTTP "200 OK" status code with the message body containing a representation of the updated subscription, as shown in figure 4.2.2.2.3-1, step 2a. If not all the requested analytics events in the subscription are modified successfully, then the DCCF may include the "failEventReports" attribute within the "anaSub" attribute, indicating the event(s) for which the modification failed and the associated reason(s); or

b) HTTP "204 No Content" status code, as shown in figure 4.2.2.2.3-1, step 2b.

If the DCCF 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 setting the indication about deletion alerts to "false") in the message body of the response. When more than one consumer has requested storage lifetime for the same analytics, the storage approach should be based on the longest requested storage lifetime.

NOTE 2: The default operator policy for how long analytics is 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 PUT request, the DCCF shall send an HTTP error response as specified in clause 5.1.7.

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

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

4.2.2.2.4 Subscription for data notifications

Figure 4.2.2.2.4-1 shows a scenario where the NF service consumer sends a request to the DCCF to subscribe for data notifications.

****

**Figure 4.2.2.2.4-1: NF service consumer subscribes to data notifications**

The NF service consumer (i.e. NWDAF) shall invoke the Ndccf\_DataManagement\_Subscribe service operation to subscribe to data notification(s). The NF service consumer shall send an HTTP POST request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/data-subscriptions" as Resource URI, as shown in figure 4.2.2.2.4-1, step 1, to create a subscription for an "Individual DCCF Data Subscription" resource according to the information in message body. The NdccfDataSubscription data structure provided in the request body shall include:

- a notification target address within the "dataNotifUri" attribute;

- a notification correlation identifier within the "dataNotifCorrId" attribute; and

- a data subscription within the "dataSub" attribute, which contains one of the following:

- AMF event exposure subscription within the "amfDataSub" attribute;

- SMF event exposure subscription within the "smfDataSub" attribute;

- UDM event exposure subscription within the "udmDataSub" attribute;

- NEF event exposure subscription within the "nefDataSub" attribute;

- AF event exposure subscription within the "afDataSub" attribute;

- NRF event exposure subscription within the "nrfDataSub" attribute;

- NSACF event exposure subscription within the "nsacfDataSub" attribute;

and may include:

- the notification endpoints within the "notifEndpoints" attribute, if the "DataAnaCollect" feature is supported;

- formatting instructions within the "formatInstruct" attribute;

- processing instructions within the "procInstrct" attribute;

- the indication for data storage within the "storeInd" attribute, if the "DataAnaCollect" feature is supported;

- a target NF identifier within the "targetNfId" attribute" or a target NF set identifier within the "targetNfSetId" attribute";

- an ADRF identifier within the "adrfId" attribute or an ADRF set identifier within the "adrfSetId" attribute; and/or

- time window of the occurrence of the requested data collection within the "timePeriod" attribute.

NOTE: The DCCF can use the provided time window e.g. to determine when to (un)subscribe to the data source NF and/or what subscription duration to indicate to it.

- the purpose of data collection within the "dataCollectPurposes" attribute.

- the indication that the NF service consumer has already checked the user consent within the "checkedConsentInd" attribute.

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

Upon the reception of an HTTP POST request with: "{apiRoot}/ndccf-datamanagement/<apiVersion>/subscriptions" as Resource URI and NdccfDataSubscription data structure as request body, the DCCF shall use the contents (e.g. "smfDataSub" attribute in NdccfDataSubscription data structure) of the request to determine whether the subscription can already be served or interactions with data sources (e.g. creation or modification of event exposure subscription for Nsmf\_EventExposure service) are required. If the DCCF cannot use the contents of the request to determine this , the DCCF shall send an HTTP "400 Bad Request" error response including the "cause" attribute set to "SUBSCRIPTION\_CANNOT\_BE\_SERVED".

NOTE 1: The "SUBSCRIPTION\_CANNOT\_BE\_SERVED" error can occur, for example, when the request is syntactically valid and there is no DCCF internal error, but the DCCF can neither find an existing subscription to a data source nor construct one based on the received subscription contents.

If the user consent has not been checked by the NF service consumer and is required for the requested data collection depending on local policy and regulations, then the DCCF shall check user consent for the targeted UE(s) by retrieving the user consent subscription data via the Nudm\_SDM service API of the UDM as described in clause 5.2.2 of 3GPP TS 29.503 [20]. If the DCCF receive the response from the UDM that it is not granted for the impacted user(s), then the DCCF shall send an HTTP "403 Forbidden" error response including the "cause" attribute set to "USER\_CONSENT\_NOT\_GRANTED".

NOTE 2: When the target of reporting is a SUPI or a GPSI then the subscription can be rejected, e.g. because user consent is not granted, and the error is sent to the consumer. When the target of reporting is an Internal Group Id, or a list of SUPIs/GPSI(s) or any UE, and the user consent is not granted for a subset of the impacted users, then no error is sent, but a subset of the SUPIs/GPSIs is skipped if user consent is not granted.

If the DCCF determines that the subscription can already be served (without requiring further interactions with the data sources) or a successful response from the data source(s) is received for the creation or modification of subscription(s) to serve this subscription, the DCCF shall:

- create a new subscription;

- assign a subscriptionId;

- store the subscription.

If the DCCF created an "Individual DCCF Data Subscription" resource, the DCCF shall respond with "201 Created" with the message body containing a representation of the created subscription, as shown in figure 4.2.2.2.4-1, step 2. The DCCF shall include a Location HTTP header field. The Location header field shall contain the URI of the created subscription i.e. "{apiRoot}/ndccf-datamanagement/<apiVersion>/data-subscriptions/{subscriptionId}".

If the DCCF 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 setting the indication about deletion alerts to "false") in the message body of the response. When more than one consumer has requested storage lifetime for the same data, the storage approach should be based on the longest requested storage lifetime.

NOTE 2: The default operator policy for how long data is 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 DCCF shall send an HTTP error response as specified in clause 5.1.7.

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

4.2.2.2.5 Update subscription for data notifications

****

**Figure 4.2.2.2.5-1: NF service consumer updates subscription to data notifications**

The NF service consumer (i.e. NWDAF) shall invoke the Ndccf\_DataManagement\_Subscribe service operation to update a subscription to data notifications. The NF service consumer shall send an HTTP PUT request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/data-subscriptions/{subscriptionId}" as Resource URI, as shown in figure 4.2.2.2.5-1, step 1, to update the subscription for an "Individual DCCF Data Subscription" resource identified by the {subscriptionId}. The NdccfDataSubscription data structure provided in the request body shall include the same contents as described in clause 4.2.2.2.4.

Upon the reception of an HTTP PUT request with "{apiRoot}/ndccf-datamanagement/<apiVersion>/data-subscriptions/{subscriptionId}" as Resource URI and NdccfDataSubscription data structure as request body, the DCCF shall use the contents of the request to determine whether the updated subscription can already be served or interactions with the data sources (e.g. modification of event exposure subscriptions) are required. If the DCCF cannot use the contents of the request to determine this, the DCCF shall send an HTTP "400 Bad Request" error response including the "cause" attribute set to "SUBSCRIPTION\_CANNOT\_BE\_SERVED".

NOTE 1: The "SUBSCRIPTION\_CANNOT\_BE\_SERVED" error can occur, for example, when the request is syntactically valid and there is no DCCF internal error, but the DCCF can neither find an existing event exposure subscription nor construct one based on the received subscription contents.

If the user consent has not been checked by the NF service consumer and is required for the requested analytics collection depending on local policy and regulations), then the DCCF shall check user consent for the targeted UE(s) by retrieving the user consent subscription data via the Nudm\_SDM service API of the UDM as described in clause 5.2.2 of 3GPP TS 29.503 [20]. If the DCCF receive the response from the UDM that it is not granted for the impacted user(s), then the DCCF shall send an HTTP "403 Forbidden" error response including the "cause" attribute set to "USER\_CONSENT\_NOT\_GRANTED".

NOTE 2: When the target of reporting is a SUPI or a GPSI then the subscription can be rejected, e.g. because user consent is not granted, and the error is sent to the consumer. When the target of reporting is an Internal Group Id, or a list of SUPIs/GPSI(s) or any UE, and the user consent is not granted for a subset of the impacted users, then no error is sent, but a subset of the SUPIs/GPSIs is skipped if user consent is not granted.

If the DCCF determines that the updated subscription can already be served (without requiring further interactions with the data sources) or a successful response from the data source(s) is received for the creation or modification of subscription(s) to serve this subscription, the DCCF shall:

- update the subscription of the corresponding subscriptionId; and

- store the subscription.

If the DCCF successfully updated the "Individual DCCF Data Subscription" resource, the DCCF shall respond with:

a) HTTP "200 OK" status code with the message body containing a representation of the updated subscription, as shown in figure 4.2.2.2.5-1, step 2a; or

b) HTTP "204 No Content" status code, as shown in figure 4.2.2.2.5-1, step 2b.

If the DCCF 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 setting the indication about deletion alerts to "false") in the message body of the response. When more than one consumer has requested storage lifetime for the same data, the storage approach should be based on the longest requested storage lifetime.

NOTE 2: The default operator policy for how long data is 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 PUT request, the DCCF shall send an HTTP error response as specified in clause 5.1.7.

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

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

5.1.6.1 General

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

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| AggregationLevel | 5.1.6.3.4 | Contains an aggregation level for processing instructions (e.g. per UE, per Area of Interest). |  |
| DataCollectionPurpose | 5.1.6.3.5 | Represents the purpose for data collection. |  |
| DccfEvent | 5.1.6.2.13 | Represents the event type exposed by DCCF |  |
| EventParamReport | 5.1.6.2.10 | Represents a summarized report for one event parameter. |  |
| FormattingInstruction | 5.1.6.2.6 | Contains data or analytics formatting Instructions. |  |
| NdccfAnalyticsSubscription | 5.1.6.2.2 | Represents an Individual DCCF Analytics Subscription resource. |  |
| NdccfAnalyticsSubscriptionNotification | 5.1.6.2.4 | Represents a notification that corresponds with an Individual DCCF Analytics Subscription resource. |  |
| NdccfDataSubscription | 5.1.6.2.3 | Represents an Individual DCCF Data Subscription resource. |  |
| NdccfDataSubscriptionNotification | 5.1.6.2.5 | Represents a notification that corresponds with an Individual DCCF Data Subscription resource. |  |
| NotifSummaryReport | 5.1.6.2.9 | Represents summarized notifications based on processing instructions. |  |
| ParameterProcessingInstruction | 5.1.6.2.8 | Contains an event parameter name and the respective event parameter values and sets of attributes to be used in summarized reports. |  |
| ProcessingInstruction | 5.1.6.2.7 | Contains instructions related to the processing (e.g. clubbing) of notifications. |  |
| ReportingOptions | 5.1.6.2.11 | Represents reporting options for notifications that are processed. |  |
| StorageHandlingInformation | 5.1.6.2.15 | Contains storage handling information for data or analytics. | EnhDataMgmt |
| SummarizationAttribute | 5.1.6.3.3 | Represents attribute in the summarized report. |  |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Reference** | **Comments** | **Applicability** |
| AfEvent | 3GPP TS 29.517 [21] | Represents an AF Event id |  |
| AmfEventType | 3GPP TS 29.518 [19] | Represents an AMF Event id |  |
| DataSubscription | 3GPP TS 29.575 [25] | Represents a data subscription to one of various possible data sources. |  |
| DataNotification | 3GPP TS 29.575 [25] | Represents a data subscription notification of one of various possible data sources. |  |
| DateTime | 3GPP TS 29.571 [17] | Identifies the time. |  |
| DurationSec | 3GPP TS 29.571 [17] | Time in seconds. |  |
| EventType | 3GPP TS 29.503 [20] | Represents an UDM Event id |  |
| FetchInstruction | 3GPP TS 29.576 [26] | The fetch instruction indicates whether the data or analytics can be fetched by the consumer. |  |
| NefEvent | 3GPP TS 29.591 [22] | Represents a NEF Event id |  |
| NetworkAreaInfo | 3GPP TS 29.554 [28] | Identifies a network area. |  |
| NfInstanceId | 3GPP TS 29.571 [17] | NF instance identifier. |  |
| NfSetId | 3GPP TS 29.571 [17] | NF set identifier. |  |
| NnwdafEventsSubscription | 3GPP TS 29.520 [15] | Represents a NWDAF analytics subscription. |  |
| NnwdafEventsSubscriptionNotification | 3GPP TS 29.520 [15] | Represents a NWDAF analytics subscription notification. |  |
| NumberAverage | 3GPP TS 29.520 [15] | Represents average and variance of a parameter value. |  |
| SACEvent | 3GPP TS 29.536 [27] | Represents a NSAC Event id |  |
| SmfEvent | 3GPP TS 29.508 [18] | Represents a SMF Event id |  |
| Supi | 3GPP TS 29.571 [17] | Contains a SUPI. |  |
| SupportedFeatures | 3GPP TS 29.571 [17] | Used to negotiate the applicability of the optional features defined in table 5.1.8-1. |  |
| TimeWindow | 3GPP TS 29.122 [23] | Represents a time window. |  |
| Uinteger | 3GPP TS 29.571 [17] | Unsigned Integer. |  |
| Uri | 3GPP TS 29.571 [17] | URI. |  |

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

5.1.6.2.2 Type NdccfAnalyticsSubscription

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| anaSub | NnwdafEventsSubscription | M | 1 | Subscribed analytics events. (NOTE 1) |  |
| anaNotifUri | Uri | M | 1 | Notification target address. |  |
| anaNotifCorrId | string | M | 1 | Notification correlation identifier. |  |
| notifEndpoints | array(NotifyEndpoint) | O | 1..N | The additional information of notification target address and correlation identifier. | DataAnaCollect |
| formatInstruct | FormattingInstruction | O | 0..1 | Formatting instructions to be used for sending event notifications. |  |
| procInstructs | array(ProcessingInstruction) | O | 1..N | Processing instructions to be used for sending event notifications. |  |
| targetNfId | NfInstanceId | O | 0..1 | NF instance identifier to which the DCCF shall create the requested subscription. (NOTE 3) |  |
| targetNfSetId | NfSetId | O | 0..1 | NF set identifier to which the DCCF shall create the requested subscription.(NOTE 3) |  |
| adrfId | NfInstanceId | O | 0..1 | Identifier of the ADRF to be used by the DCCF.If the subscription is for runtime analytics (i.e. the "timePeriod" attribute is either absent or contains a time window in the future) then the DCCF shall store the notifications in this ADRF.If the subscription is for historical analytics (i.e. the "timePeriod" attribute contains a time window in the past) then the DCCF shall retrieve the data from this ADRF. (NOTE 3) |  |
| storeInd | boolean | C | 0..1 | The indication for analytics storage. This attribute shall be provided and set to "true" if the consumer requests to store the analytics in an ADRF but both the "adrfId" and "adrfSetId" attributes are not provided. The default value is "false". | DataAnaCollect |
| adrfSetId | NfSetId | O | 0..1 | Identifier of the ADRF Set to be used by the DCCF.If the subscription is for runtime analytics (i.e. the "timePeriod" attribute is either absent or contains a time window in the future) then the DCCF shall store the notifications in this ADRF Set.If the subscription is for historical analytics (i.e. the "timePeriod" attribute contains a time window in the past) then the DCCF shall retrieve the data from this ADRF Set. (NOTE 3) |  |
| storeHandl | StorageHandlingInformation | O | 0..1 | Contains storage handling information for the analytics that will be collected and stored in an ADRF 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. |  |
| timePeriod | TimeWindow | O | 0..1 | Represents a start time and a stop time during which the analytics was performed or is requested to be performed. If this attribute is provided, then the attribute "monDur" within the reporting information of the attribute "anaSub" shall not be provided.(NOTE 2) |  |
| dataCollectPurposes | array(DataCollectionPurpose) | O | 1..N | The purposes of data collection. This attribute may only be provided if user consent is required depending on local policy and regulations and the consumer has not checked user consent. |  |
| checkedConsentInd | boolean | O | 0..1 | If set to "true", it indicates that the NF service consumer has already checked the user consent. The default value is "false". | UserConsent |
| suppFeat | SupportedFeatures | C | 0..1 | This attribute represents a list of Supported features as described in clause 5.1.8.It shall be present in the POST request if at least one feature defined in clause 5.1.8 is supported, and it shall be present in the POST response if the NF service consumer included the"suppFeat" attribute in the POST request. |  |
| NOTE 1: The "notificationURI" and "notifCorreId" attributes of NnwdafEventsSubscription data type shall be ignored by the DCCF. The DCCF will provide the notification target address and the notification correlation ID of the DCCF itself in the NnwdafEventsSubscription data type during the event subscription request to the NWDAF.NOTE 2: It includes the time period either in the past or in the future (i.e., start time as past time and stop time as future time is not allowed).NOTE 3: "targetNfId" and "targetNfSetId" are mutually exclusive. "adrfId" and "adrfSetId" are also mutually exclusive. |

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

5.1.6.2.3 Type NdccfDataSubscription

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| dataSub | DataSubscription | M | 1 | Represents the requested events subscription.(NOTE 1) |  |
| dataNotifUri | Uri | M | 1 | Notification target address. |  |
| dataNotifCorrId | string | M | 1 | Notification correlation identifier. |  |
| notifEndpoints | array(NotifyEndpoint) | O | 1..N | The additional information of notification target address and correlation identifier. | DataAnaCollect |
| formatInstruct | FormattingInstruction | O | 0..1 | Formatting instructions to be used for sending event notifications. |  |
| procInstructs | array(ProcessingInstruction) | O | 1..N | Processing instructions to be used for sending event notifications. |  |
| targetNfId | NfInstanceId | O | 0..1 | Data Producer NF instance identifier to which the DCCF shall create the requested subscription. (NOTE 3) |  |
| targetNfSetId | NfSetId | O | 0..1 | Data Producer NF set identifier to which the DCCF shall create the requested subscription. (NOTE 3) |  |
| adrfId | NfInstanceId | O | 0..1 | Identifier of the ADRF to be used by the DCCF.If the subscription is for runtime data (i.e. the "timePeriod" attribute is either absent or contains a time window in the future) then the DCCF shall store the notifications in this ADRF.If the subscription is for historical data (i.e. the "timePeriod" attribute contains a time window in the past) then the DCCF shall retrieve the data from this ADRF. (NOTE 3) |  |
| adrfSetId | NfSetId | O | 0..1 | Identifier of the ADRF Set to be used by the DCCF.If the subscription is for runtime data (i.e. the "timePeriod" attribute is either absent or contains a time window in the future) then the DCCF shall store the notifications in this ADRF Set.If the subscription is for historical data (i.e. the "timePeriod" attribute contains a time window in the past) then the DCCF shall retrieve the data from this ADRF Set. (NOTE 3) |  |
| storeInd | boolean | C | 0..1 | The indication for analytics storage. This attribute shall be provided and set to "true" if the consumer requests to store the analytics in an ADRF but both the "adrfId" and "adrfSetId" attributes are not provided. The default value is "false". | DataAnaCollect |
| storeHandl | StorageHandlingInformation | O | 0..1 | Contains storage handling information for the data that will be collected and stored in an ADRF 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. |  |
| timePeriod | TimeWindow | O | 0..1 | Represents a start time and a stop time during which data was collected or is requested to be collected. If this attribute is included, then the internal attributes of the data subscription that indicate a subscription duration (e.g. the "targetPeriod" attribute of an "eventSubs" attribute of an "smfDataSub" attribute, or the "monDur" attribute of the ReportingInformation data type) shall not be provided.(NOTE 2) |  |
| dataCollectPurposes | array(DataCollectionPurpose) | O | 1..N | The purposes of data collection. This attribute may only be provided if user consent is required depending on local policy and regulations and the consumer has not checked user consent. |  |
| checkedConsentInd | boolean | O | 0..1 | If set to "true", it indicates that the NF service consumer has already checked the user consent. The default value is "false". | UserConsent |
| suppFeat | SupportedFeatures | C | 0..1 | This attribute represents a list of Supported features as described in clause 5.1.8.It shall be present in the POST request if at least one feature defined in clause 5.1.8 is supported, and it shall be present in the POST response if the NF service consumer included the"suppFeat" attribute in the POST request. |  |
| NOTE 1: The notification target address contained in the subscription attribute that is provided within the "dataSub" attribute (i.e. "eventNotifyUri" of "amfDataSub", "notifUri" of "smfDataSub", "callbackReference" of "udmDataSub", "notifUri" of "nefDataSub", "notifUri" of "afDataSub", "nfStatusNotificationUri" of "nrfDataSub", or "eventNotifyUri" of "nsacfDataSub") and the notification correlation ID contained in the subscription attribute that is provided within the "dataSub" attribute (i.e. the "notifyCorrelationId" of "amfDataSub", "notifId" of "smfDataSub", "notifyCorrelationId" of "udmDataSub", "notifId" of "nefDataSub", "notifId" of "afDataSub", or "notifyCorrelationId" of "nsacfDataSub") shall be ignored by the DCCF. The DCCF will provide the notification target address and the notification correlation ID of the DCCF itself in the data type during the event subscription request to each NF.NOTE 2: It includes the time period either in the past or in the future (i.e., start time as past time and stop time as future time is not allowed).NOTE 3: "targetNfId" and "targetNfSetId" are mutually exclusive. "adrfId" and "adrfSetId" are also mutually exclusive. |

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

5.1.6.2.15 Type: StorageHandlingInformation

**Table 5.1.6.2.15-1: Definition of type StorageHandlingInformation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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. |  |
| delNotifInd | boolean | O | 0..1 | Indication for receiving deletion alerts. If provided and set to "true", it indicates that the NF service consumer wants to receive such notifications. The default value is "false". |  |

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

A.2 Ndccf\_DataManagement API

openapi: 3.0.0

info:

 version: 1.1.0-alpha.2

 title: Ndccf\_DataManagement

 description: |

 DCCF Data Management Service.

 © 2023, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

 All rights reserved.

externalDocs:

 description: 3GPP TS 29.574 V18.1.0; 5G System; Data Collection Coordination Services; Stage 3.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.574/'

#

servers:

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

 variables:

 apiRoot:

 default: https://example.com

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

#

security:

 - oAuth2ClientCredentials:

 - ndccf-datamanagement

 - {}

#

paths:

 /analytics-subscriptions:

 post:

 summary: Creates a new Individual DCCF Analytics Subscription resource.

 operationId: CreateDCCFAnalyticsSubscription

 tags:

 - DCCF Analytics Subscriptions (Collection)

 requestBody:

 description: Contains the information for the creation the resource.

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '201':

 description: Create a new Individual DCCF Analytics Subscription resource.

 headers:

 Location:

 description: >

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

 {apiRoot}/ndccf-datamanagement/<apiVersion>/analytics-subscriptions/{subscriptionId}

 required: true

 schema:

 type: string

 content:

 application/json:

 schema:

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

 '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:

 dccfAnalyticsNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 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'

 callbacks:

 Fetch:

 '{request.body#/fetchInstruct/fetchUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 type: array

 items:

 type: string

 minItems: 1

 description: Fetch correlation identifiers.

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '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'

 /analytics-subscriptions/{subscriptionId}:

 delete:

 summary: Deletes an existing Individual DCCF Data Subscription.

 operationId: DeleteDCCFAnalyticsSubscription

 tags:

 - Individual DCCF Analytics Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 String identifying an analytics subscription to the Ndccf\_DataManagement Service.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual DCCF Analytics 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'

 put:

 summary: Updates an existing Individual DCCF Analytics Subscription resource.

 operationId: UpdateDCCFAnalyticsSubscription

 tags:

 - Individual DCCF Analytics Subscription (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: subscriptionId

 in: path

 description: >

 String identifying an analytics subscription to the Ndccf\_DataManagement Service.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: >

 The Individual DCCF Analytics Subscription resource was modified successfully and a

 representation of that resource is returned.

 content:

 application/json:

 schema:

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

 '204':

 description: >

 The Individual DCCF Analytics 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'

 /data-subscriptions:

 post:

 summary: Creates a new Individual DCCF Data Subscription resource.

 operationId: CreateDCCFDataSubscription

 tags:

 - DCCF Data Subscriptions (Collection)

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '201':

 description: Creates a new Individual DCCF Data Subscription resource.

 headers:

 Location:

 description: >

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

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

 required: true

 schema:

 type: string

 content:

 application/json:

 schema:

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

 '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:

 dccfDataNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 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'

 callbacks:

 Fetch:

 '{request.body#/fetchInstruct/fetchUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 type: array

 items:

 type: string

 minItems: 1

 description: Fetch correlation identifiers.

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '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-subscriptions/{subscriptionId}:

 delete:

 summary: Deletes an existing Individual DCCF Data Subscription resource.

 operationId: DeleteDCCFDataSubscription

 tags:

 - Individual DCCF Data Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: String identifying a data subscription to the Ndccf\_DataManagement Service.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual DCCF Data 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'

 put:

 summary: Updates an existing Individual DCCF Data Subscription resource.

 operationId: UpdateDCCFDataSubscription

 tags:

 - Individual DCCF Data Subscription (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: subscriptionId

 in: path

 description: >

 String identifying a data subscription to the Ndccf\_DataManagement Service.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: >

 The Individual DCCF Data Subscription resource was modified successfully and a

 representation of that resource is returned.

 content:

 application/json:

 schema:

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

 '204':

 description: >

 The Individual DCCF Data 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'

#

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 ndccf-datamanagement: Access to the ndccf-datamanagement API

#

 schemas:

#

 NdccfAnalyticsSubscription:

 description: Represents an Individual DCCF Analytics Subscription.

 type: object

 required:

 - anaSub

 - anaNotifUri

 - anaNotifCorrId

 properties:

 anaSub:

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

 anaNotifUri:

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

 anaNotifCorrId:

 type: string

 description: Notification correlation identifier.

 notifEndpoints:

 type: array

 items:

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

 minItems: 1

 description: The information of notification endpoints.

 formatInstruct:

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

 procInstructs:

 type: array

 items:

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

 minItems: 1

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

 targetNfId:

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

 targetNfSetId:

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

 adrfId:

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

 ardfSetId:

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

 storeInd:

 type: boolean

 description: >

 The indication for analytics storage. This attribute shall be provided and set to "true"

 if the consumer requests to store the analytics in an ADRF but both the "adrfId" and

 "adrfSetId" attributes are not provided. The default value is "false".

 storeHandl:

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

 suppFeat:

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

 timePeriod:

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

 dataCollectPurposes:

 type: array

 items:

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

 minItems: 1

 description: >

 The purposes of data collection. This attribute may only be provided if user consent is

 required depending on local policy and regulations and the consumer has not

 checked user consent.

 checkedConsentInd:

 type: boolean

 description: Indication that the NF service consumer has already checked the user consent.

#

 NdccfDataSubscription:

 description: Represents an Individual DCCF Data Subscription.

 type: object

 required:

 - dataNotifUri

 - dataNotifCorrId

 - dataSub

 properties:

 dataSub:

 $ref: 'TS29575\_Nadrf\_DataManagement.yaml#/components/schemas/DataSubscription'

 dataNotifUri:

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

 dataNotifCorrId:

 type: string

 description: Notification correlation identifier.

 notifEndpoints:

 type: array

 items:

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

 minItems: 1

 description: The information of notification endpoints.

 formatInstruct:

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

 procInstructs:

 type: array

 items:

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

 minItems: 1

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

 targetNfId:

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

 targetNfSetId:

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

 adrfId:

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

 ardfSetId:

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

 storeInd:

 type: boolean

 description: >

 The indication for analytics storage. This attribute shall be provided and set to "true"

 if the consumer requests to store the analytics in an ADRF but both the "adrfId" and

 "adrfSetId" attributes are not provided. The default value is "false".

 storeHandl:

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

 timePeriod:

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

 suppFeat:

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

 dataCollectPurposes:

 type: array

 items:

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

 minItems: 1

 description: >

 The purposes of data collection. This attribute may only be provided if user consent

 is required depending on local policy and regulations and the consumer has not

 checked user consent.

 checkedConsentInd:

 type: boolean

 description: Indication that the NF service consumer has already checked the user consent.

#

 NdccfAnalyticsSubscriptionNotification:

 description: Represents a notification for a DCCF analytics subscription.

 type: object

 required:

 - anaNotifCorrId

 - timeStamp

 oneOf:

 - required: [anaNotifications]

 - required: [anaReports]

 - required: [fetchInstruct]

 properties:

 anaNotifCorrId:

 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.

 anaReports:

 type: array

 items:

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

 minItems: 1

 description: >

 List of reports with summarized data from multiple analytics notifications that the DCCF

 has received from NWDAF.

 fetchInstruct:

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

 terminationReq:

 type: boolean

 description: >

 If provided and set to true, it indicates the termination of the data management

 subscription that requested by the DCCF, i.e. no further notifications related to this

 subscription will be provided, apart from sending final report (if available).

 The default value is false.

 timeStamp:

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

#

 NdccfDataSubscriptionNotification:

 description: Represents a notification for a DCCF data subscription.

 type: object

 required:

 - dataNotifCorrId

 - timeStamp

 oneOf:

 - required: [dataNotif]

 - required: [dataReports]

 - required: [fetchInstruct]

 properties:

 dataNotifCorrId:

 type: string

 description: Notification correlation identifier.

 dataNotif:

 $ref: 'TS29575\_Nadrf\_DataManagement.yaml#/components/schemas/DataNotification'

 dataReports:

 type: array

 items:

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

 minItems: 1

 description: >

 List of reports with summarized data from multiple notifications received from data

 producer.

 fetchInstruct:

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

 terminationReq:

 type: boolean

 description: >

 If provided and set to true, it indicates the termination of the data management

 subscription that requested by the DCCF, i.e. no further notifications related to this

 subscription will be provided, apart from sending final report (if available).

 The default value is false.

 timeStamp:

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

#

 FormattingInstruction:

 description: Contains data or analytics formatting instructions.

 type: object

 properties:

 consTrigNotif:

 type: boolean

 description: >

 Indicates that notifications shall be buffered until the NF service consumer requests

 their delivery.

 reportingOptions:

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

#

 ReportingOptions:

 description: Represents reporting options for processed notifications.

 type: object

 oneOf:

 - required: [notifyWindow]

 - required: [notifyPeriod]

 - required: [notifyPeriodInc]

 - required: [depEventSubId]

 properties:

 notifyWindow:

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

 notifyPeriod:

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

 notifyPeriodInc:

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

 depEventSubId:

 type: string

 description: >

 Notifications for the present subscription are sent only upon occurrence of events of the

 subscription with identifier that matches this attribute.

 minClubbedNotif:

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

 maxClubbedNotif:

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

#

 ProcessingInstruction:

 description: Contains instructions related to the processing of notifications.

 type: object

 required:

 - eventId

 - procInterval

 properties:

 eventId:

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

 procInterval:

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

 paramProcInstructs:

 type: array

 items:

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

 minItems: 1

 description: >

 List of event parameter names, and for each event parameter name, respective event

 parameter values and sets of the attributes to be used in the summarized reports.

 NotifyEndpoint:

 description: The information of notification endpoint.

 type: object

 required:

 - notifUri

 properties:

 notifUri:

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

 notifCorrId:

 type: string

 description: Notification correlation identifier.

#

 DccfEvent:

 description: >

 Identifies the (event exposure or analytics) event that the processing instructions

 shall apply to. Contains all event IDs related to DCCF.

 type: object

 oneOf:

 - required: [nwdafEvent]

 - required: [smfEvent]

 - required: [amfEvent]

 - required: [nefEvent]

 - required: [afEvent]

 - required: [sacEvent]

 - required: [nrfEvent]

 - required: [udmEvent]

 properties:

 nwdafEvent:

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

 smfEvent:

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

 amfEvent:

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

 nefEvent:

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

 udmEvent:

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

 afEvent:

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

 sacEvent:

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

 nrfEvent:

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

#

 ParameterProcessingInstruction:

 description: >

 Contains an event parameter name and the respective event parameter values and sets of

 attributes to be used in summarized reports.

 type: object

 required:

 - name

 - values

 - sumAttrs

 properties:

 name:

 type: string

 description: >

 A JSON pointer value that references an attribute within the notification object to which

 the processing instruction is applied.

 values:

 type: array

 items: {}

 minItems: 1

 description: A list of values for the attribute identified by the name attribute.

 sumAttrs:

 type: array

 items:

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

 minItems: 1

 description: Attributes requested to be used in the summarized reports.

 aggrLevel:

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

 supis:

 type: array

 items:

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

 minItems: 1

 description: Indicates the UEs for which processed reports are requested.

 temporalAggrLevel:

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

 anonymizeRule:

 type: string

 description: The anonymization rule.

 areas:

 type: array

 items:

 $ref: 'TS29554\_Npcf\_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'

 minItems: 1

 description: Indicates the Areas of Interest for which processed reports are requested.

#

 NotifSummaryReport:

 description: Represents summarized notifications based on processing instructions.

 type: object

 required:

 - eventId

 - procInterval

 - eventReports

 properties:

 eventId:

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

 procInterval:

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

 eventReports:

 type: array

 items:

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

 minItems: 1

 description: List of event parameter reports.

#

 EventParamReport:

 description: Represents a summarized report for one event parameter.

 type: object

 required:

 - name

 - values

 properties:

 name:

 type: string

 description: The name of the reported parameter.

 values:

 type: array

 items: {}

 minItems: 1

 description: The list of values of the reported parameter.

 supi:

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

 area:

 $ref: 'TS29554\_Npcf\_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'

 spacing:

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

 duration:

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

 avgAndVar:

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

 mostFreqVal: {}

 leastFreqVal: {}

 count:

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

 minValue:

 type: string

 description: The minimum value of the parameter.

 maxValue:

 type: string

 description: The maximum value of the parameter.

#

 StorageHandlingInformation:

 description: Contains storage handling information about data or analytics.

 type: object

 properties:

 lifetime:

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

 delNotifInd:

 type: boolean

 description: Indicates if deletion alerts are requested.

#

 SummarizationAttribute:

 anyOf:

 - type: string

 enum:

 - SPACING

 - DURATION

 - OCCURRENCES

 - AVG\_VAR

 - FREQ\_VAL

 - MIN\_MAX

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration but

 is not used to encode content defined in the present version of this API.

 description: |

 Represents the attribute in the summarized report.

 Possible values are:

 - SPACING: Average and variance of the time interval separating two consecutive occurrences

 of the same event and parameter value, or periodicity for periodic reporting.

 - DURATION: Average and variance of the time for which the parameter value applies.

 - OCCURRENCES: Number of countable occurrences for the parameter.

 - AVG\_VAR: Average and variance of the parameter.

 - FREQ\_VAL: Most and least frequent values.

 - MIN\_MAX: Maximum and minimum parameter values.

#

 AggregationLevel:

 anyOf:

 - type: string

 enum:

 - UE

 - AOI

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the aggregation level for processing instructions.

 Possible values are:

 - UE: Indicates that the summarized reports shall be provided per UE.

 - AOI: Indicates that the summarized reports shall be provided per Area of Interest.

#

 DataCollectionPurpose:

 anyOf:

 - type: string

 enum:

 - ANALYTICS\_GENERATION

 - MODEL\_TRAINING

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration but

 is not used to encode content defined in the present version of this API.

 description: |

 Represents the purpose for data collection.

 Possible values are:

 - ANALYTICS\_GENERATION: The data is collected for generating the analytics.

 - MODEL\_TRAINING: The data is collected for ML model training.

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