**3GPP TSG-CT3 Meeting #119e C3-216508**

**E-Meeting, 11th – 19th November 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **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:*** | Update of OpenAPI version and TS version in externalDocs field | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | China Mobile | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 7 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | | 7 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | CRs modifying the Nnwdaf\_EventsSubscription API and Nnwdaf\_AnalyticsInfo API have been agreed and the version number of the corresponding OpenAPI file thus needs to be incremented following the rules in 3GPP TS 29.501, clause 4.3.1.  The following agreed CRs update the OpenAPI file for Nnwdaf\_EventsSubscription API for the present release:   * CR#0322 impacts the OpenAPI file with a backwards compatible feature. * CR#0325 impacts the OpenAPI file with a backwards compatible feature. * CR#0332 impacts the OpenAPI file with a backwards compatible feature. * CR#0335 impacts the OpenAPI file with a backwards compatible feature. * CR#0347 impacts the OpenAPI file with a backwards compatible feature. * CR#0348 impacts the OpenAPI file with a backwards compatible feature. * CR#0349 impacts the OpenAPI file with a backwards compatible feature. * CR#0350 impacts the OpenAPI file with a backwards compatible feature. * CR#0352 impacts the OpenAPI file with a backwards compatible feature. * CR#0353 impacts the OpenAPI file with a backwards compatible feature.   As some backward compatible corrections and features (but no backward incompatible changes or backward compatible new features) are added of the present release, the draft version number needs to be increased.  The following agreed CRs update the OpenAPI file for Nnwdaf\_AnalyticsInfo API for the present release:   * CR#0323 impacts the OpenAPI file with a backwards compatible feature. * CR#0326 impacts the OpenAPI file with a backwards compatible feature. * CR#0328 impacts the OpenAPI file with a backwards compatible feature. * CR#0341 impacts the OpenAPI file with a backwards compatible feature.   As some backward compatible correction and feature (but no backward incompatible changes or backward compatible new features) are added of the present release, the draft version number needs to be increased. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The Nnwdaf\_EventsSubscription API version incremented from value "1.2.0-alpha.5" to value "1.2.0-alpha.6", and the TS version in the externalDocs field from 17.4.0 to 17.5.0.  The Nnwdaf\_AnalyticsInfo API version incremented from value "1.2.0-alpha.4" to value "1.2.0-alpha.5", and the TS version in the externalDocs field from 17.4.0 to 17.5.0. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect API version number and TS version in externalDocs field. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.2, A.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR introduces backward compatible changes to Nnwdaf\_EventsSubscription API and Nnwdaf\_AnalyticsInfo API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**…**

**Proposed changes:**

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

# A.2 Nnwdaf\_EventsSubscription API

openapi: 3.0.0

info:

version: 1.2.0-alpha.6

title: Nnwdaf\_EventsSubscription

description: |

Nnwdaf\_EventsSubscription Service API.

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externalDocs:

description: 3GPP TS 29.520 V17.5.0; 5G System; Network Data Analytics Services.

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

security:

- {}

- oAuth2ClientCredentials:

- nnwdaf-eventssubscription

servers:

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

variables:

apiRoot:

default: https://example.com

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

paths:

/subscriptions:

post:

summary: Create a new Individual NWDAF Events Subscription

operationId: CreateNWDAFEventsSubscription

tags:

- NWDAF Events Subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: Create a new Individual NWDAF Event Subscription resource.

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nnwdaf-eventssubscription/v1/subscriptions/{subscriptionId}'

required: true

schema:

type: string

content:

application/json:

schema:

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

'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'

'503':

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

default:

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

callbacks:

myNotification:

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

post:

requestBody:

required: true

content:

application/json:

schema:

type: array

items:

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

minItems: 1

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'

'503':

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

default:

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

/subscriptions/{subscriptionId}:

delete:

summary: Delete an existing Individual NWDAF Events Subscription

operationId: DeleteNWDAFEventsSubscription

tags:

- Individual NWDAF Events Subscription (Document)

parameters:

- name: subscriptionId

in: path

description: String identifying a subscription to the Nnwdaf\_EventsSubscription Service

required: true

schema:

type: string

responses:

'204':

description: No Content. The Individual NWDAF Event 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':

description: The Individual NWDAF Event Subscription resource does not exist.

content:

application/problem+json:

schema:

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

'429':

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

'500':

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

'501':

$ref: 'TS29571\_CommonData.yaml#/components/responses/501'

'503':

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

default:

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

put:

summary: Update an existing Individual NWDAF Events Subscription

operationId: UpdateNWDAFEventsSubscription

tags:

- Individual NWDAF Events Subscription (Document)

requestBody:

required: true

content:

application/json:

schema:

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

parameters:

- name: subscriptionId

in: path

description: String identifying a subscription to the Nnwdaf\_EventsSubscription Service

required: true

schema:

type: string

responses:

'200':

description: The Individual NWDAF Event Subscription resource was modified successfully and a representation of that resource is returned.

content:

application/json:

schema:

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

'204':

description: The Individual NWDAF Event 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':

description: The Individual NWDAF Event Subscription resource does not exist.

content:

application/problem+json:

schema:

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

'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'

'501':

$ref: 'TS29571\_CommonData.yaml#/components/responses/501'

'503':

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

default:

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

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

nnwdaf-eventssubscription: Access to the Nnwdaf\_EventsSubscription API

schemas:

NnwdafEventsSubscription:

description: Represents an Individual NWDAF Event Subscription resource.

type: object

properties:

eventSubscriptions:

type: array

items:

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

minItems: 1

description: Subscribed events

evtReq:

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

notificationURI:

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

supportedFeatures:

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

eventNotifications:

type: array

items:

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

minItems: 1

failEventReports:

type: array

items:

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

minItems: 1

required:

- eventSubscriptions

EventSubscription:

description: Represents a subscription to a single event.

type: object

properties:

anySlice:

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

appIds:

type: array

items:

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

minItems: 1

description: Identification(s) of application to which the subscription applies.

dnns:

type: array

items:

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

minItems: 1

description: Identification(s) of DNN to which the subscription applies.

dnais:

type: array

items:

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

minItems: 1

event:

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

extraReportReq:

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

loadLevelThreshold:

type: integer

description: Indicates that the NWDAF shall report the corresponding network slice load level to the NF service consumer where the load level of the network slice identified by snssais is reached.

notificationMethod:

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

matchingDir:

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

nfLoadLvlThds:

type: array

items:

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

minItems: 1

description: Shall be supplied in order to start reporting when an average load level is reached.

nfInstanceIds:

type: array

items:

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

minItems: 1

nfSetIds:

type: array

items:

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

minItems: 1

nfTypes:

type: array

items:

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

minItems: 1

networkArea:

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

topAppListUlInd:

type: boolean

description: Indicates that the list of top applications that contribute the most to the traffic in Uplink direction is requested, if it is included and set to "true". Default value is "false".

topAppListDlInd:

type: boolean

description: Indicates that the list of top applications that contribute the most to the traffic in Downlink direction is requested, if it is included and set to "true". Default value is "false".

nsiIdInfos:

type: array

items:

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

minItems: 1

nsiLevelThrds:

type: array

items:

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

minItems: 1

qosRequ:

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

qosFlowRetThds:

type: array

items:

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

minItems: 1

ranUeThrouThds:

type: array

items:

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

minItems: 1

repetitionPeriod:

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

snssaia:

type: array

items:

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

minItems: 1

description: Identification(s) of network slice to which the subscription applies. It corresponds to snssais in the data model definition of 3GPP TS 29.520.

tgtUe:

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

congThresholds:

type: array

items:

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

minItems: 1

nwPerfRequs:

type: array

items:

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

minItems: 1

bwRequs:

type: array

items:

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

minItems: 1

excepRequs:

type: array

items:

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

minItems: 1

exptAnaType:

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

exptUeBehav:

$ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExpectedUeBehaviourData'

required:

- event

NnwdafEventsSubscriptionNotification:

description: Represents an Individual NWDAF Event Subscription Notification resource.

type: object

properties:

eventNotifications:

type: array

items:

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

minItems: 1

description: Notifications about Individual Events

subscriptionId:

type: string

description: String identifying a subscription to the Nnwdaf\_EventsSubscription Service

required:

- eventNotifications

- subscriptionId

EventNotification:

description: Represents a notification on events that occurred.

type: object

properties:

event:

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

start:

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

expiry:

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

timeStampGen:

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

failNotifyCode:

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

rvWaitTime:

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

anaMetaInfo:

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

nfLoadLevelInfos:

type: array

items:

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

minItems: 1

nsiLoadLevelInfos:

type: array

items:

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

minItems: 1

sliceLoadLevelInfo:

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

svcExps:

type: array

items:

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

minItems: 1

qosSustainInfos:

type: array

items:

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

minItems: 1

ueComms:

type: array

items:

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

minItems: 1

ueMobs:

type: array

items:

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

minItems: 1

userDataCongInfos:

type: array

items:

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

minItems: 1

abnorBehavrs:

type: array

items:

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

minItems: 1

nwPerfs:

type: array

items:

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

minItems: 1

required:

- event

ServiceExperienceInfo:

description: Represents service experience information.

type: object

properties:

svcExprc:

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

svcExprcVariance:

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

supis:

type: array

items:

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

minItems: 1

snssai:

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

appId:

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

confidence:

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

dnn:

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

networkArea:

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

nsiId:

$ref: 'TS29531\_Nnssf\_NSSelection.yaml#/components/schemas/NsiId'

ratio:

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

required:

- svcExprc

BwRequirement:

description: Represents bandwidth requirements.

type: object

properties:

appId:

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

marBwDl:

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

marBwUl:

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

mirBwDl:

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

mirBwUl:

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

required:

- appId

SliceLoadLevelInformation:

description: Contains load level information applicable for one or several slices.

type: object

properties:

loadLevelInformation:

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

snssais:

type: array

items:

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

minItems: 1

description: Identification(s) of network slice to which the subscription applies.

required:

- loadLevelInformation

- snssais

NsiLoadLevelInfo:

description: Represents the network slice and optionally the associated network slice instance and the load level information.

type: object

properties:

loadLevelInformation:

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

snssai:

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

nsiId:

$ref: 'TS29531\_Nnssf\_NSSelection.yaml#/components/schemas/NsiId'

networkArea:

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

timePeriod:

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

numOfUes:

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

numOfPduSess:

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

confidence:

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

required:

- loadLevelInformation

- snssai

NsiIdInfo:

description: Represents the S-NSSAI and the optionally associated Network Slice Instance(s).

type: object

properties:

snssai:

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

nsiIds:

type: array

items:

$ref: 'TS29531\_Nnssf\_NSSelection.yaml#/components/schemas/NsiId'

minItems: 1

required:

- snssai

EventReportingRequirement:

description: Represents the type of reporting that the subscription requires.

type: object

properties:

accuracy:

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

startTs:

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

endTs:

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

sampRatio:

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

maxObjectNbr:

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

maxSupiNbr:

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

timeAnaNeeded:

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

anaMeta:

type: array

items:

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

minItems: 1

anaMetaInd:

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

TargetUeInformation:

description: Identifies the target UE information.

type: object

properties:

anyUe:

type: boolean

supis:

type: array

items:

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

gpsis:

type: array

items:

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

intGroupIds:

type: array

items:

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

UeMobility:

description: Represents UE mobility information.

type: object

properties:

ts:

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

recurringTime:

$ref: 'TS29122\_CpProvisioning.yaml#/components/schemas/ScheduledCommunicationTime'

duration:

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

durationVariance:

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

locInfos:

type: array

items:

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

minItems: 1

required:

- duration

- locInfos

LocationInfo:

description: Represents UE location information.

type: object

properties:

loc:

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

ratio:

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

confidence:

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

required:

- loc

UeCommunication:

description: Represents UE communication information.

type: object

properties:

commDur:

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

commDurVariance:

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

perioTime:

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

perioTimeVariance:

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

ts:

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

tsVariance:

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

recurringTime:

$ref: 'TS29122\_CpProvisioning.yaml#/components/schemas/ScheduledCommunicationTime'

trafChar:

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

ratio:

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

confidence:

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

required:

- commDur

- trafChar

TrafficCharacterization:

description: Identifies the detailed traffic characterization.

type: object

properties:

dnn:

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

snssai:

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

appId:

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

fDescs:

type: array

items:

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

minItems: 1

maxItems: 2

ulVol:

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

ulVolVariance:

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

dlVol:

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

dlVolVariance:

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

UserDataCongestionInfo:

description: Represents the user data congestion information.

type: object

properties:

networkArea:

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

congestionInfo:

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

snssai:

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

CongestionInfo:

description: Represents the congestion information.

type: object

properties:

congType:

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

timeIntev:

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

nsi:

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

confidence:

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

topAppListUl:

type: array

items:

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

minItems: 1

topAppListDl:

type: array

items:

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

minItems: 1

required:

- congType

- timeIntev

- nsi

TopApplication:

description: Top application that contributes the most to the traffic.

type: object

properties:

appId:

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

ipTrafficFilter:

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

ratio:

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

QosSustainabilityInfo:

description: Represents the QoS Sustainability information.

type: object

properties:

areaInfo:

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

startTs:

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

endTs:

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

qosFlowRetThd:

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

ranUeThrouThd:

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

snssai:

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

confidence:

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

QosRequirement:

description: Represents the QoS requirements.

type: object

properties:

5qi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5Qi'

gfbrUl:

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

gfbrDl:

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

resType:

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

pdb:

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

per:

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

ThresholdLevel:

description: Represents a threshold level.

type: object

properties:

congLevel:

type: integer

nfLoadLevel:

type: integer

nfCpuUsage:

type: integer

nfMemoryUsage:

type: integer

nfStorageUsage:

type: integer

NfLoadLevelInformation:

description: Represents load level information of a given NF instance.

type: object

properties:

nfType:

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

nfInstanceId:

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

nfSetId:

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

nfStatus:

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

nfCpuUsage:

type: integer

nfMemoryUsage:

type: integer

nfStorageUsage:

type: integer

nfLoadLevelAverage:

type: integer

nfLoadLevelpeak:

type: integer

snssai:

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

confidence:

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

required:

- nfType

- nfInstanceId

NfStatus:

description: Contains the percentage of time spent on various NF states.

type: object

properties:

statusRegistered:

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

statusUnregistered:

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

statusUndiscoverable:

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

AnySlice:

type: boolean

description: FALSE represents not applicable for all slices. TRUE represents applicable for all slices.

LoadLevelInformation:

type: integer

description: Load level information of the network slice and the optionally associated network slice instance.

AbnormalBehaviour:

description: Represents the abnormal behaviour information.

type: object

properties:

supis:

type: array

items:

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

minItems: 1

excep:

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

dnn:

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

snssai:

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

ratio:

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

confidence:

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

addtMeasInfo:

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

required:

- excep

Exception:

description: Represents the Exception information.

type: object

properties:

excepId:

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

excepLevel:

type: integer

excepTrend:

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

required:

- excepId

AdditionalMeasurement:

description: Represents additional measurement information.

type: object

properties:

unexpLoc:

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

unexpFlowTeps:

type: array

items:

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

minItems: 1

unexpWakes:

type: array

items:

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

minItems: 1

ddosAttack:

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

wrgDest:

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

circums:

type: array

items:

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

minItems: 1

IpEthFlowDescription:

description: Contains the description of an Uplink and/or Downlink Ethernet flow.

type: object

properties:

ipTrafficFilter:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/FlowDescription'

ethTrafficFilter:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

AddressList:

description: Represents a list of IPv4 and/or IPv6 addresses.

type: object

properties:

ipv4Addrs:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

minItems: 1

ipv6Addrs:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

minItems: 1

CircumstanceDescription:

description: Contains the description of a circumstance.

type: object

properties:

freq:

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

tm:

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

locArea:

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

vol:

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

RetainabilityThreshold:

description: Represents a QoS flow retainability threshold.

type: object

properties:

relFlowNum:

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

relTimeUnit:

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

relFlowRatio:

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

NetworkPerfRequirement:

description: Represents a network performance requirement.

type: object

properties:

nwPerfType:

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

relativeRatio:

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

absoluteNum:

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

required:

- nwPerfType

NetworkPerfInfo:

description: Represents the network performance information.

type: object

properties:

networkArea:

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

nwPerfType:

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

relativeRatio:

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

absoluteNum:

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

confidence:

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

required:

- networkArea

- nwPerfType

FailureEventInfo:

description: Contains information on the event for which the subscription is not successful.

type: object

properties:

event:

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

failureCode:

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

required:

- event

- failureCode

AnalyticsMetadataIndication:

description: Contains analytics metadata information requested to be used during analytics generation.

type: object

properties:

dataWindow:

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

dataStatProps:

type: array

items:

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

minItems: 1

strategy:

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

aggrNwdafIds:

type: array

items:

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

minItems: 1

AnalyticsMetadataInfo:

description: Contains analytics metadata information required for analytics aggregation.

type: object

properties:

numSamples:

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

dataWindow:

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

dataStatProps:

type: array

items:

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

minItems: 1

strategy:

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

accuracy:

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

NumberAverage:

description: Represents average and variance information.

type: object

properties:

number:

type: integer

variance:

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

required:

- number

- variance

NotificationMethod:

anyOf:

- type: string

enum:

- PERIODIC

- THRESHOLD

- 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: >

Possible values are

- PERIODIC: The subscribe of NWDAF Event is periodically. The periodic of the notification is identified by repetitionPeriod defined in subclause 5.1.6.2.3.

- THRESHOLD: The subscribe of NWDAF Event is upon threshold exceeded. The threshold of the notification is identified by loadLevelThreshold defined in subclause 5.1.6.2.3.

NwdafEvent:

anyOf:

- type: string

enum:

- SLICE\_LOAD\_LEVEL

- NETWORK\_PERFORMANCE

- NF\_LOAD

- SERVICE\_EXPERIENCE

- UE\_MOBILITY

- UE\_COMMUNICATION

- QOS\_SUSTAINABILITY

- ABNORMAL\_BEHAVIOUR

- USER\_DATA\_CONGESTION

- NSI\_LOAD\_LEVEL

- 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: >

Possible values are

- SLICE\_LOAD\_LEVEL: Indicates that the event subscribed is load level information of Network Slice

- NETWORK\_PERFORMANCE: Indicates that the event subscribed is network performance information.

- NF\_LOAD: Indicates that the event subscribed is load level and status of one or several Network Functions.

- SERVICE\_EXPERIENCE: Indicates that the event subscribed is service experience.

- UE\_MOBILITY: Indicates that the event subscribed is UE mobility information.

- UE\_COMMUNICATION: Indicates that the event subscribed is UE communication information.

- QOS\_SUSTAINABILITY: Indicates that the event subscribed is QoS sustainability.

- ABNORMAL\_BEHAVIOUR: Indicates that the event subscribed is abnormal behaviour.

- USER\_DATA\_CONGESTION: Indicates that the event subscribed is user data congestion information.

- NSI\_LOAD\_LEVEL: Indicates that the event subscribed is load level information of Network Slice and the optionally associated Network Slice Instance

Accuracy:

anyOf:

- type: string

enum:

- LOW

- HIGH

- 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: >

Possible values are

- LOW: Low accuracy.

- HIGH: High accuracy.

CongestionType:

anyOf:

- type: string

enum:

- USER\_PLANE

- CONTROL\_PLANE

- USER\_AND\_CONTROL\_PLANE

- 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: >

Possible values are

- USER\_PLANE: The congestion analytics type is User Plane.

- CONTROL\_PLANE: The congestion analytics type is Control Plane.

- USER\_AND\_CONTROL\_PLANE: The congestion analytics type is User Plane and Control Plane.

ExceptionId:

anyOf:

- type: string

enum:

- UNEXPECTED\_UE\_LOCATION

- UNEXPECTED\_LONG\_LIVE\_FLOW

- UNEXPECTED\_LARGE\_RATE\_FLOW

- UNEXPECTED\_WAKEUP

- SUSPICION\_OF\_DDOS\_ATTACK

- WRONG\_DESTINATION\_ADDRESS

- TOO\_FREQUENT\_SERVICE\_ACCESS

- UNEXPECTED\_RADIO\_LINK\_FAILURES

- PING\_PONG\_ACROSS\_CELLS

- 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: >

Possible values are

- UNEXPECTED\_UE\_LOCATION: Unexpected UE location

- UNEXPECTED\_LONG\_LIVE\_FLOW: Unexpected long-live rate flows

- UNEXPECTED\_LARGE\_RATE\_FLOW: Unexpected large rate flows

- UNEXPECTED\_WAKEUP: Unexpected wakeup

- SUSPICION\_OF\_DDOS\_ATTACK: Suspicion of DDoS attack

- WRONG\_DESTINATION\_ADDRESS: Wrong destination address

- TOO\_FREQUENT\_SERVICE\_ACCESS: Too frequent Service Access

- UNEXPECTED\_RADIO\_LINK\_FAILURES: Unexpected radio link failures

- PING\_PONG\_ACROSS\_CELLS: Ping-ponging across neighbouring cells

ExceptionTrend:

anyOf:

- type: string

enum:

- UP

- DOWN

- UNKNOW

- STABLE

- 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: >

Possible values are

- UP: Up trend of the exception level.

- DOWN: Down trend of the exception level.

- UNKNOW: Unknown trend of the exception level.

- STABLE: Stable trend of the exception level.

TimeUnit:

anyOf:

- type: string

enum:

- MINUTE

- HOUR

- DAY

- 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: >

Possible values are

- MINUTE: Time unit is per minute.

- HOUR: Time unit is per hour.

- DAY: Time unit is per day.

NetworkPerfType:

anyOf:

- type: string

enum:

- GNB\_ACTIVE\_RATIO

- GNB\_COMPUTING\_USAGE

- GNB\_MEMORY\_USAGE

- GNB\_DISK\_USAGE

- NUM\_OF\_UE

- SESS\_SUCC\_RATIO

- HO\_SUCC\_RATIO

- 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: >

Possible values are

- GNB\_ACTIVE\_RATIO: Indicates that the network performance requirement is gNodeB active (i.e. up and running) rate. Indicates the ratio of gNB active (i.e. up and running) number to the total number of gNB

- GNB\_COMPUTING\_USAGE: Indicates gNodeB computing resource usage.

- GNB\_MEMORY\_USAGE: Indicates gNodeB memory usage.

- GNB\_DISK\_USAGE: Indicates gNodeB disk usage.

- NUM\_OF\_UE: Indicates number of UEs.

- SESS\_SUCC\_RATIO: Indicates ratio of successful setup of PDU sessions to total PDU session setup attempts.

- SESS\_SUCC\_RATIO: Indicates Ratio of successful handovers to the total handover attempts.

ExpectedAnalyticsType:

anyOf:

- type: string

enum:

- MOBILITY

- COMMUN

- MOBILITY\_AND\_COMMUN

- 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: >

Possible values are

- MOBILITY: Mobility related abnormal behaviour analytics is expected by the consumer.

- COMMUN: Communication related abnormal behaviour analytics is expected by the consumer.

- MOBILITY\_AND\_COMMUN: Both mobility and communication related abnormal behaviour analytics is expected by the consumer.

MatchingDirection:

anyOf:

- type: string

enum:

- ASCENDING

- DESCENDING

- CROSSED

- 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: >

Possible values are

- ASCENDING: Threshold is crossed in ascending direction.

- DESCENDING: Threshold is crossed in descending direction.

- CROSSED: Threshold is crossed either in ascending or descending direction.

NwdafFailureCode:

anyOf:

- type: string

enum:

- UNAVAILABLE\_DATA

- BOTH\_STAT\_PRED\_NOT\_ALLOWED

- UNSATISFIED\_REQUESTED\_ANALYTICS\_TIME

- OTHER

- 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: >

Possible values are

- UNAVAILABLE\_DATA: Indicates the requested statistics information for the event is rejected since necessary data to perform the service is unavailable.

- BOTH\_STAT\_PRED\_NOT\_ALLOWED: Indicates the requested analysis information for the event is rejected since the start time is in the past and the end time is in the future, which means the NF service consumer requested both statistics and prediction for the analytics.

- UNSATISFIED\_REQUESTED\_ANALYTICS\_TIME: Indicates that the requested event is rejected since the analytics information is not ready when the time indicated by the "timeAnaNeeded" attribute (as provided during the creation or modification of subscription) is reached.

- OTHER: Indicates the requested analysis information for the event is rejected due to other reasons.

AnalyticsMetadata:

anyOf:

- type: string

enum:

- NUM\_OF\_SAMPLES

- DATA\_WINDOW

- DATA\_STAT\_PROPS

- STRATEGY

- ACCURACY

- 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: >

Possible values are

- NUM\_OF\_SAMPLES: Number of data samples used for the generation of the output analytics.

- DATA\_WINDOW: Data time window of the data samples.

- DATA\_STAT\_PROPS: Dataset statistical properties of the data used to generate the analytics.

- STRATEGY: Output strategy used for the reporting of the analytics.

- ACCURACY: Level of accuracy reached for the analytics.

DatasetStatisticalProperty:

anyOf:

- type: string

enum:

- UNIFORM\_DIST\_DATA

- NO\_OUTLIERS

- 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: >

Possible values are

- UNIFORM\_DIST\_DATA: Indicates the use of data samples that are uniformly distributed according to the different aspects of the requested analytics.

- NO\_OUTLIERS: Indicates that the data samples shall disregard data samples that are at the extreme boundaries of the value range.

OutputStrategy:

anyOf:

- type: string

enum:

- BINARY

- GRADIENT

- 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: >

Possible values are

- BINARY: Indicates that the analytics shall only be reported when the requested level of accuracy is reached within a cycle of periodic notification.

- GRADIENT: Indicates that the analytics shall be reported according with the periodicity irrespective of whether the requested level of accuracy has been reached or not.

\*\*\* 2nd Change \*\*\*

# A.3 Nnwdaf\_AnalyticsInfo API

openapi: 3.0.0

info:

version: 1.2.0-alpha.5

title: Nnwdaf\_AnalyticsInfo

description: |

Nnwdaf\_AnalyticsInfo Service API.

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externalDocs:

description: 3GPP TS 29.520 V17.5.0; 5G System; Network Data Analytics Services.

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

security:

- {}

- oAuth2ClientCredentials:

- nnwdaf-analyticsinfo

servers:

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

variables:

apiRoot:

default: https://example.com

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

paths:

/analytics:

get:

summary: Read a NWDAF Analytics

operationId: GetNWDAFAnalytics

tags:

- NWDAF Analytics (Document)

parameters:

- name: event-id

in: query

description: Identify the analytics.

required: true

schema:

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

- name: ana-req

in: query

description: Identifies the analytics reporting requirement information.

required: false

content:

application/json:

schema:

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

- name: event-filter

in: query

description: Identify the analytics.

required: false

content:

application/json:

schema:

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

- name: supported-features

in: query

description: To filter irrelevant responses related to unsupported features

schema:

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

- name: tgt-ue

in: query

description: Identify the target UE information.

required: false

content:

application/json:

schema:

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

responses:

'200':

description: Containing the analytics with parameters as relevant for the requesting NF service consumer.

content:

application/json:

schema:

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

'204':

description: No Content (The request NWDAF Analytics data does not exist)

'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':

description: Indicates that the NWDAF Analytics resource does not exist.

content:

application/problem+json:

schema:

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

'406':

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

'414':

$ref: 'TS29571\_CommonData.yaml#/components/responses/414'

'429':

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

'500':

description: The request is rejected by the NWDAF and more details (not only the ProblemDetails) are returned.

content:

application/problem+json:

schema:

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

'503':

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

default:

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

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

nnwdaf-analyticsinfo: Access to the Nnwdaf\_AnalyticsInfo API

schemas:

AnalyticsData:

description: Represents the description of analytics with parameters as relevant for the requesting NF service consumer.

type: object

properties:

start:

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

expiry:

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

timeStampGen:

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

anaMetaInfo:

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

sliceLoadLevelInfos:

type: array

items:

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

minItems: 1

description: The slices and their load level information.

nsiLoadLevelInfos:

type: array

items:

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

minItems: 1

nfLoadLevelInfos:

type: array

items:

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

minItems: 1

nwPerfs:

type: array

items:

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

minItems: 1

svcExps:

type: array

items:

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

minItems: 1

qosSustainInfos:

type: array

items:

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

minItems: 1

ueMobs:

type: array

items:

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

minItems: 1

ueComms:

type: array

items:

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

minItems: 1

userDataCongInfos:

type: array

items:

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

minItems: 1

abnorBehavrs:

type: array

items:

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

minItems: 1

suppFeat:

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

EventFilter:

description: Represents the event filters used to identify the requested analytics.

type: object

properties:

anySlice:

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

snssais:

type: array

items:

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

minItems: 1

description: Identification(s) of network slice to which the subscription belongs.

appIds:

type: array

items:

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

minItems: 1

dnns:

type: array

items:

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

minItems: 1

dnais:

type: array

items:

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

minItems: 1

networkArea:

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

topAppListUlInd:

type: boolean

description: Indicates that the list of top applications that contribute the most to the traffic in Uplink direction is requested, if it is included and set to "true". Default value is "false".

topAppListDlReq:

type: boolean

description: Indicates that the list of top applications that contribute the most to the traffic in Downlink direction is requested, if it is included and set to "true". Default value is "false".

nfInstanceIds:

type: array

items:

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

minItems: 1

nfSetIds:

type: array

items:

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

minItems: 1

nfTypes:

type: array

items:

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

minItems: 1

nsiIdInfos:

type: array

items:

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

minItems: 1

qosRequ:

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

nwPerfTypes:

type: array

items:

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

minItems: 1

bwRequs:

type: array

items:

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

minItems: 1

excepIds:

type: array

items:

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

minItems: 1

exptAnaType:

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

exptUeBehav:

$ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExpectedUeBehaviourData'

not:

required: [anySlice, snssais]

ProblemDetailsAnalyticsInfoRequest:

description: Extends ProblemDetails to indicate more details why the analytics request is rejected.

allOf:

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

- $ref: '#/components/schemas/AdditionInfoAnalyticsInfoRequest'

AdditionInfoAnalyticsInfoRequest:

description: Indicates additional information why the analytics request is rejected.

type: object

properties:

rvWaitTime:

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

EventId:

anyOf:

- type: string

enum:

- LOAD\_LEVEL\_INFORMATION

- NETWORK\_PERFORMANCE

- NF\_LOAD

- SERVICE\_EXPERIENCE

- UE\_MOBILITY

- UE\_COMMUNICATION

- QOS\_SUSTAINABILITY

- ABNORMAL\_BEHAVIOUR

- USER\_DATA\_CONGESTION

- NSI\_LOAD\_LEVEL

- 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: >

Possible values are

- LOAD\_LEVEL\_INFORMATION: Represent the analytics of load level information of corresponding network slice.

- NETWORK\_PERFORMANCE: Represent the analytics of network performance information.

- NF\_LOAD: Indicates that the event subscribed is NF Load.

- SERVICE\_EXPERIENCE: Represent the analytics of service experience information of the specific applications.

- UE\_MOBILITY: Represent the analytics of UE mobility.

- UE\_COMMUNICATION: Represent the analytics of UE communication.

- QOS\_SUSTAINABILITY: Represent the analytics of QoS sustainability information in the certain area.

- ABNORMAL\_BEHAVIOUR: Indicates that the event subscribed is abnormal behaviour information.

- USER\_DATA\_CONGESTION: Represent the analytics of the user data congestion in the certain area.

- NSI\_LOAD\_LEVEL: Represent the analytics of Network Slice and the optionally associated Network Slice Instance.

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