**3GPP TSG-CT WG3 Meeting #112e C3-205379**

**E-Meeting, 4th – 13th November 2020 (Revision of C3-205320)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **0232** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Corrections to Subscription Request in AnalyticsExposure API | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNA | | | | |  | ***Date:*** | | | 2020-10-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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:*** | | Missing attribute "dnn" in Type AnalyticsEventFilterSubsc.  "locArea" attribute reusing type LocationArea5G contains NetworkAreaInfo which is 5GS inside information not allowed to be exposed without permission and not defined in SA2 eNA related specifications.  Adding condition notes to"ABNORMAL\_BEHAVIOR" event with "anyUeInd" attribute in Type AnalyticsEventFilter and Type AnalyticsEventFilter table | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding the missing attribute "dnn" in Type AnalyticsEventFilterSubsc.  Adding condition notes to"ABNORMAL\_BEHAVIOR " event with "anyUeInd" attribute in Type AnalyticsEventFilter and Type AnalyticsEventFilter table.  Updates locArea related description not allow NetworkAreaInfo. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not aligned with the network slice information, dnn and/or application Id information to the applicable analytics event subscribed/requested by AF. Not fulfilling the requested snssai appId and/or dnn exposure, which is not aligned with location area usage in SA2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6.3.3.6, 5.6.3.3.13, A.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 corrections into the OpenAPI files applicable to AnalyticsExposure API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

##### 5.6.3.3.6 Type: AnalyticsEventFilterSubsc

Table 5.6.3.3.6-1: Definition of type AnalyticsEventFilterSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| locArea | LocationArea5G | O | 0..1 | Identification of network area to which the subscription applies.  (NOTE 1) (NOTE m) | Abnormal\_Behavior  Congestion  Ue\_Communication  Ue\_Mobility  QoS\_Sustainability  Network\_Performance |
| dnn | Dnn | O | 0..1 | Identifies the DNN. (NOTE m) | Ue\_Communication  Abnormal\_Behavior |
| appIds | array(ApplicationId) | O | 1..N | Each element identifies an application. (NOTE m) | Abnormal\_Behavior  Ue\_Communication |
| excepRequs | array(Exception) | O | 1..N | Represents a list of Exception Ids with associated thresholds.  (NOTE 2, NOTE 3) | Abnormal\_Behavior |
| exptAnaType | ExpectedAnalyticsType | O | 0..1 | Represents expected UE analytics type.  (NOTE 3) | Abnormal\_Behavior |
| exptUeBehav | ExpectedUeBehaviourData | O | 0..1 | Represents expected UE behaviour. | Abnormal\_Behavior |
| reptThlds | array(ThresholdLevel) | O | 1..N | Represents the congestion levels to be reached in order to be notified by the NEF.  (NOTE 4) | Congestion |
| nwPerfReqs | array(NetworkPerfRequirement) | C | 1..N | Represents the network performance requirements. This attribute shall be included when eventId is "NETWORK\_PERFORMANCE". | Network\_Performance |
| snssai | Snssai | O | 0..1 | Identifies the network slice information. (NOTE m) | Ue\_Communication  QoS\_Sustainability  Abnormal\_Behavior  Congestion |
| qosReq | QosRequirement | C | 0..1 | Represents the QoS requirements. This attribute shall be included when eventId is "QOS\_SUSTAINABILITY". | QoS\_Sustainability |
| qosFlowRetThds | array(RetainabilityThreshold) | C | 1..N | Represents the QoS flow retainability thresholds,  Shall be supplied for the 5QI of GBR resource type. (NOTE 5) | QoS\_Sustainability |
| ranUeThrouThds | array(BitRate) | C | 1..N | Represents the RAN UE throughput thresholds.  Shall be supplied for the 5QI of non-GBR resource type. (NOTE 5) | QoS\_Sustainability |
| extraReportReq | EventReportingRequirement | O | 0..1 | The extra event reporting requirement information. (NOTE 6) |  |
| NOTE 1: The NetworkAreaInfo within the "locArea" attribute is not applicable for the untrusted AF. For "NETWORK\_PERFORMANCE" or "CONGESTION" event, the "locArea" attribute shall be provided if the event applied for all UEs (i.e. "anyUeInd" attribute set to true within the TargetUeId data). For "QOS\_SUSTAINABILITY" event, the "locArea" attribute shall be provided.  NOTE 2: Only "excepId" and "excepLevel" within the Exception data type apply to the "excepRequs" attribute.  NOTE 3: Either "excepRequs" or "exptAnaType" shall be provided if the subscribed event is "ABNORMAL\_BEHAVIOR".  NOTE 4: If the subscribed event is "CONGESTION", this attribute shall be provided if "notifMethod" within "analyRepInfo" sets to "ON\_EVENT\_DETECTION" or omitted.  NOTE 5: For "QOS\_SUSTAINABILITY", this property shall be provided if the "notifMethod" in "analyRepInfo" is set to "ON\_EVENT\_DETECTION" or omitted.  NOTE 6: The "sampRatio" attribute within EventReportingRequirement data type is not applicable for the present API.  NOTE m: For "ABNORMAL\_BEHAVIOR" event with "anyUeId" attribute in "tgtUe" attribute sets to true,  - at least one of the "locArea" and the "snssai" attribute should be included, if the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via the "excepRequs" attribute is mobility related;  - at least one of the "locArea", "appIds", "dnn" and "snssai" attribute should be included, if the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via the "excepRequs" attribute is communication related;  - the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via "excepRequs" attribute shall not be requested for both mobility and communication related analytics at the same time. | | | | | |

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

##### 5.6.3.3.13 Type AnalyticsEventFilter

Table 5.6.3.3.13-1: Definition of type AnalyticsEventFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| locArea | LocationArea5G | C | 0..1 | This IE represents the network area where the NF service consumer wants to know the analytics result.  (NOTE n, NOTE o) | Ue\_Mobility  Ue\_Communication  Network\_Performance  QoS\_Sustainability  Abnormal\_Behavior  Congestion |
| dnn | Dnn | O | 0..1 | Identifies the DNN. (NOTE o) | Ue\_Communication  Abnormal\_Behavior |
| nwPerfTypes | array(NetworkPerfType) | C | 1..N | Represents the network performance requirements. This attribute shall be included when eventId is "NETWORK\_PERFORMANCE". | Network\_Performance |
| appIds | array(ApplicationId) | O | 1..N | Each element identifies an application. The absence of appIds means all applications. (NOTE o) | Ue\_Communication Abnormal\_Behavior |
| excepIds | array(ExceptionId) | O | 1..N | Represents a list of Exception Ids. (NOTE 1) | Abnormal\_Behavior |
| exptAnaType | ExpectedAnalyticsType | O | 0..1 | Represents expected UE analytics type. (NOTE 1) | Abnormal\_Behavior |
| exptUeBehav | ExpectedUeBehaviourData | O | 0..1 | Represents expected UE behaviour. | Abnormal\_Behavior |
| snssai | Snssai | O | 0..1 | Identifies the network slice information. (NOTE o) | Ue\_Communication  QoS\_Sustainability  Abnormal\_Behavior  Congestion |
| qosReq | QosRequirement | C | 0..1 | Represents the QoS requirements. This attribute shall be included when analyEvent is "QOS\_SUSTAINABILITY". | QoS\_Sustainability |
| NOTE 1: Either "excepIds" or "exptAnaType" shall be provided if the subscribed event is "ABNORMAL\_BEHAVIOR".  NOTE n: The NetworkAreaInfo within the "locArea" attribute is not applicable for the untrusted AF. For "NETWORK\_PERFORMANCE" or "CONGESTION" event, the "locArea" attribute shall be provided if the event applied for all UEs (i.e. "anyUeInd" attribute set to true within the TargetUeId data). For "QOS\_SUSTAINABILITY" event, this attribute shall be provided.  NOTE o: For "ABNORMAL\_BEHAVIOR" event with "anyUeId" attribute in "tgtUe" attribute sets to true,  - at least one of the "locArea" and the "snssai" attribute should be included, if the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via the "excepIds" attribute is mobility related;  - at least one of the "locArea", "appIds", "dnn" and "snssai" attribute should be included, if the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via the "excepIds" attribute is communication related;  - the expected analytics type via the"exptAnaType" attribute or the list of Exception Ids via "excepIds" attribute shall not be requested for both mobility and communication related analytics at the same time. | | | | | |

\*\*\* 3rd Change \*\*\*

# A.4 AnalyticsExposure API

openapi: 3.0.0

info:

title: 3gpp-analyticsexposure

version: 1.0.1

description: |

API for Analytics Exposure.

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externalDocs:

description: 3GPP TS 29.522 V16.5.0; 5G System; Network Exposure Function Northbound APIs.

url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

security:

- {}

- oAuth2ClientCredentials: []

servers:

- url: '{apiRoot}/3gpp-analyticsexposure/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in subclause 5.2.4 of 3GPP TS 29.122.

paths:

/{afId}/subscriptions:

get:

summary: read all of the active subscriptions for the AF

tags:

- Analytics Exposure Subscriptions

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: supp-feat

in: query

description: Features supported by the NF service consumer

required: false

schema:

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

responses:

'200':

description: OK (Successful get all of the active subscriptions for the AF)

content:

application/json:

schema:

type: array

items:

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

minItems: 0

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

post:

summary: Creates a new subscription resource

tags:

- Analytics Exposure Subscriptions

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

requestBody:

description: new subscription creation

required: true

content:

application/json:

schema:

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

callbacks:

notification:

'{request.body#/notifUri}':

post:

requestBody: # contents of the callback message

required: true

content:

application/json:

schema:

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

responses:

'204':

description: No Content (successful notification)

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

responses:

'201':

description: Created (Successful creation)

content:

application/json:

schema:

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

headers:

Location:

description: 'Contains the URI of the newly created resource'

required: true

schema:

type: string

'204':

description: Successful case. The resource has been successfully created and no additional content is to be sent in the response message.

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/{afId}/subscriptions/{subscriptionId}:

get:

summary: read an active subscription for the AF and the subscription Id

tags:

- Individual Analytics Exposure Subscription

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

- name: supp-feat

in: query

description: Features supported by the NF service consumer

required: false

schema:

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

responses:

'200':

description: OK (Successful get the active subscription)

content:

application/json:

schema:

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

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

put:

summary: Updates/replaces an existing subscription resource

tags:

- Individual Analytics Exposure Subscription

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

requestBody:

description: Parameters to update/replace the existing subscription

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful deletion of the existing subscription)

content:

application/json:

schema:

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

'204':

description: Successful case. The resource has been successfully updated and no additional content is to be sent in the response message.

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

delete:

summary: Deletes an already existing subscription

tags:

- Individual Analytics Exposure Subscription

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

responses:

'204':

description: No Content (Successful deletion of the existing subscription)

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/{afId}/fetch:

post:

summary: Fetch analytics information

tags:

- AnalyticsExposure API Fetch analytics information

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: The requested information was returned successfully.

content:

application/json:

schema:

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

'204':

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

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUrl}'

scopes: {}

schemas:

AnalyticsExposureSubsc:

type: object

properties:

analyEventsSubs:

type: array

items:

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

minItems: 1

analyRepInfo:

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

notifUri:

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

notifId:

type: string

eventNotifis:

type: array

items:

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

minItems: 1

suppFeat:

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

self:

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

required:

- analyEventsSubs

- notifUri

- notifId

AnalyticsEventNotification:

type: object

properties:

notifId:

type: string

analyEventNotifs:

type: array

items:

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

minItems: 1

required:

- notifId

- analyEventNotifs

AnalyticsEventNotif:

type: object

properties:

analyEvent:

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

expiry:

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

timeStamp:

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

ueMobilityInfos:

type: array

items:

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

minItems: 1

ueCommInfos:

type: array

items:

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

minItems: 1

abnormalInfos:

type: array

items:

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

minItems: 1

congestInfos:

type: array

items:

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

minItems: 1

nwPerfInfos:

type: array

items:

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

minItems: 1

qosSustainInfos:

type: array

items:

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

minItems: 1

required:

- analyEvent

- timeStamp

AnalyticsEventSubsc:

type: object

properties:

analyEvent:

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

analyEventFilter:

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

tgtUe:

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

required:

- analyEvent

AnalyticsEventFilterSubsc:

type: object

properties:

nwPerfReqs:

type: array

items:

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

minItems: 1

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

appIds:

type: array

items:

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

minItems: 1

dnn:

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

excepRequs:

type: array

items:

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

minItems: 1

exptAnaType:

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

exptUeBehav:

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

reptThlds:

type: array

items:

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

minItems: 1

snssai:

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

qosReq:

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

qosFlowRetThds:

type: array

items:

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

minItems: 1

ranUeThrouThds:

type: array

items:

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

minItems: 1

extraReportReq:

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

TargetUeId:

type: object

properties:

anyUeInd:

type: boolean

gpsi:

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

exterGroupId:

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

UeMobilityExposure:

type: object

properties:

ts:

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

recurringTime:

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

duration:

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

durationVariance:

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

locInfo:

type: array

items:

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

minItems: 1

required:

- duration

- locInfo

UeLocationInfo:

type: object

properties:

loc:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

ratio:

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

confidence:

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

required:

- loc

AnalyticsRequest:

type: object

properties:

analyEvent:

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

analyEventFilter:

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

analyRep:

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

tgtUe:

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

suppFeat:

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

required:

- analyEvent

- suppFeat

AnalyticsEventFilter:

type: object

properties:

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

dnn:

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

nwPerfTypes:

type: array

items:

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

minItems: 1

appIds:

type: array

items:

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

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'

snssai:

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

qosReq:

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

AnalyticsData:

type: object

properties:

expiry:

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

ueMobilityInfos:

type: array

items:

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

minItems: 1

ueCommInfos:

type: array

items:

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

minItems: 1

nwPerfInfos:

type: array

items:

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

minItems: 1

abnormalInfos:

type: array

items:

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

minItems: 1

congestInfos:

type: array

items:

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

minItems: 1

qosSustainInfos:

type: array

items:

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

minItems: 1

suppFeat:

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

required:

- suppFeat

NetworkPerfExposure:

type: object

properties:

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

nwPerfType:

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

- locArea

- nwPerfType

AbnormalExposure:

type: object

properties:

gpsis:

type: array

items:

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

minItems: 1

excep:

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

ratio:

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

confidence:

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

addtMeasInfo:

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

required:

- excep

CongestInfo:

type: object

properties:

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

cngAnas:

type: array

items:

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

minItems: 1

required:

- locArea

- cngAnas

CongestionAnalytics:

type: object

properties:

cngType:

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

tmWdw:

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

nsi:

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

confidence:

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

required:

- cngType

- tmWdw

- nsi

QosSustainabilityExposure:

type: object

properties:

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

startTs:

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

endTs:

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

qosFlowRetThd:

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

ranUeThrouThd:

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

confidence:

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

required:

- locArea

- startTs

- endTs

AnalyticsEvent:

anyOf:

- type: string

enum:

- UE\_MOBILITY

- UE\_COMM

- ABNORMAL\_BEHAVIOR

- CONGESTION

- NETWORK\_PERFORMANCE

- QOS\_SUSTAINABILITY

- 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

- UE\_MOBILITY: The AF requests to be notified about analytics information of UE mobility.

- UE\_COMM: The AF requests to be notified about analytics information of UE communication.

- ABNORMAL\_BEHAVIOR: The AF requests to be notified about analytics information of UE’s abnormal behavior.

- CONGESTION: The AF requests to be notified about analytics information of user data congestion information.

- NETWORK\_PERFORMANCE: The AF requests to be notified about analytics information of network performance.

- QOS\_SUSTAINABILITY: The AF requests to be notified about analytics information of QoS sustainability.

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