**3GPP TSG-CT WG4 Meeting #98eC4-203369\_v2**

**E-Meeting, 02nd – 12th June 2020**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.518** | **CR** | **0367** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  |
| *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:***  | Sampling ratio for AMF event exposure |
|  |  |
| ***Source to WG:*** | Orange, Huawei |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | eNA |  | ***Date:*** | 2020-05-20 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | The sampling ratio is defined in stage 2. It is mandatory for the NWDAF. |
|  |  |
| ***Summary of change:*** | Add sampling ratio to event exposure subscription |
|  |  |
| ***Consequences if not approved:*** | Issue for NWDAF analytics |
|  |  |
| ***Clauses affected:*** | 5.3.2.2.2, 6.2.6.1, 6.2.6.2.6, A.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** | This CR introduces backward compatible corrections to Namf\_EventExposure API (Annex A.3) |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* Start of changes \* \* \* \*

#### 5.3.2.2 Subscribe

##### 5.3.2.2.1 General

The Service Operation is used by a NF Service Consumer (e.g. NEF) to subscribe to an event(s) for one UE, group of UE(s) or any UE.

##### 5.3.2.2.2 Creation of a subscription

The Subscribe service operation is invoked by a NF Service Consumer, e.g. NEF, towards the AMF, when it needs to create a subscription to monitor at least one event relevant to the AMF. The NF Service Consumer may subscribe to multiple events in a subscription. A subscription may be associated with one UE, a group of UEs or any UE.

The NF Service Consumer shall request to create a new subscription by using HTTP method POST with URI of the subscriptions collection, see clause 6.2.3.2.

The NF Service Consumer shall include the following information in the HTTP message body:

- NF ID, indicates the identity of the network function instance initiating the subscription;

- Subscription Target, indicates the target(s) to be monitored, as one of the following types:

- A specific UE, identified with a SUPI, a PEI or a GPSI;

- A group of UEs, identified with a group identity;

- Any UE, identified by the "anyUE" flag.

- Notification URI, indicates the address to deliver the event notifications generated by the subscription;

- Notification Correlation ID, indicates the correlation identity to be carried in the event notifications generated by the subscription;

- List of events to be subscribed;

- Event Types per event, as specified in clause 5.3.1.

- Reference Id per event, indicates the value of the Reference Id associated with the event to be monitored. If provided, the Reference Id shall be included in the reports triggered by the event.

The NF Service Consumer may include the following information in the HTTP message body:

- Immediate Report Flag per event, indicates an immediate report to be generated with current event status;

- Event Trigger, indicates how the events shall be reported (One-time Reporting or Continuously Reporting).

- Maximum Number of Reports, defines the maximum number of reports after which the event subscription ceases to exist;

- Expiry, defines maximum duration after which the event subscription ceases to exist;

- Sampling ratio, defines the random subset of UEs among target UEs, and AMF only report the event(s) related to the selected subset of UEs;

- Event Filter per applicable event, defines further options on how the event shall be reported.



Figure 5.3.2.2.2-1 Subscribe for Creation

1. The NF Service Consumer shall send a POST request to create a subscription resource in the AMF. The payload body of the POST request shall contain a representation of the individual subscription resource to be created. The request may contain an expiry time, suggested by the NF Service Consumer as a hint, representing the time upto which the subscription is desired to be kept active and the time after which the subscribed event(s) shall stop generating report.

2a. On success, the request is accepted, the AMF shall include a HTTP Location header to provide the location of a newly created resource (subscription) together with the status code 201 indicating the requested resource is created in the response message. If the NF Service Consumer has included the immediateFlag with value as "true" in the event subscription, the AMF shall include the current status of the events subscribed, if available (e.g. last known location information is included if the subscribed event is LOCATION\_REPORT). If the NF Service Consumer has set the event reporting option as ONE\_TIME and if the AMF has included the current status of the events subscribed in the response, then the AMF shall not do any subsequent event notification for the events given in the AmfCreateEventSubscription parameter.

The response, based on operator policy and taking into account the expiry time included in the request, may contain the expiry time, as determined by the AMF, after which the subscription becomes invalid. Once the subscription expires, if the NF Service Consumer wants to keep receiving notifications, it shall create a new subscription in the AMF. The AMF shall not provide the same expiry time for many subscriptions in order to avoid all of them expiring and recreating the subscription at the same time. If the expiry time is not included in the response, the NF Service Consumer shall consider the subscription to be valid without an expiry time.

If the sampling ratio (as the "sampRatio") attribute is included in the subscription, the AMF shall select a random subset of UEs among target UEs according to the sampling ratio and only report the event(s) related to the selected subset of UEs.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.2.3.2.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.2.3.2.3.1-3.

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

### 6.2.6 Data Model

#### 6.2.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.6.1-1 specifies the data types defined for the Namf\_EventExposure service based interface protocol.

Table 6.2.6.1-1: Namf\_EventExposure specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| AmfEventSubscription | 6.2.6.2.2 | Represents an individual event subscription resource on AMF |
| AmfEvent | 6.2.6.2.3 | Describes an event to be subscribed |
| AmfEventNotification | 6.2.6.2.4 | Represents a notification generated by AMF to be delivered |
| AmfEventReport | 6.2.6.2.5 | Represents a report triggered by a subscribed event type, except the report triggered by UES\_IN\_AREA\_REPORT event type |
| AmfEventMode | 6.2.6.2.6 | Describes how the reports shall be generated by a subscribed event |
| AmfEventState | 6.2.6.2.7 | Represents the state of a subscribed event |
| RmInfo | 6.2.6.2.8 | Represents the registration state of a UE for an access type |
| CmInfo | 6.2.6.2.9 | Represents the connection management state of a UE for an access type |
| CommunicationFailure | 6.2.6.2.11 | Describes a communication failure detected by AMF |
| AmfCreateEventSubscription | 6.2.6.2.12 | Describes of an AMF Event Subscription to be created |
| AmfCreatedEventSubscription | 6.2.6.2.13 | Represents successful creation of an AMF Event Subscription |
| AmfUpdateEventSubscriptionItem | 6.2.6.2.14 | Document describes the modification(s) to an AMF Event Subscription |
| AmfUpdatedEventSubscription | 6.2.6.2.15 | Represents a successful update on an AMF Event Subscription |
| AmfEventArea | 6.2.6.2.16 | Represents an area to be monitored by an AMF event. |
| LadnInfo | 6.2.6.2.17 | LADN Information |
| AmfUpdateEventOptionItem | 6.2.6.2.18 | Document describing the modifications to AMF event subscription options. |
| 5GsUserStateInfo | 6.2.6.2.19 | Represents the 5GS User state of the UE for an access type |
| TrafficDescriptor | 6.2.6.2.20 | Represents the Traffic Descriptor |
| AmfEventType | 6.2.6.3.3 | Describes the supported event types of Namf\_EventExposure Service |
| AmfEventTrigger | 6.2.6.3.4 | Describes how AMF should generate the report for the event |
| LocationFilter | 6.2.6.3.5 | Describes the supported filters of LOCATION\_REPORT event type |
| UeReachability | 6.2.6.3.7 | Describes the reachability of the UE |
| RmState | 6.2.6.3.9 | Describes the registration management state of a UE |
| CmState | 6.2.6.3.10 | Describes the connection management state of a UE |
| 5GsUserState | 6.2.6.3.11 | Describes the 5GS User State of a UE |

Table 6.2.6.1-2 specifies data types re-used by the Namf\_EventExposure 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 Namf\_EventExposure service based interface.

Table 6.2.6.1-2: Namf\_EventExposure re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Supi | 3GPP TS 29.571 [6] |  |
| GroupId | 3GPP TS 29.571 [6] |  |
| DurationSec | 3GPP TS 29.571 [6] |  |
| Gpsi | 3GPP TS 29.571 [6] |  |
| Uri | 3GPP TS 29.571 [6] |  |
| Pei | 3GPP TS 29.571 [6] |  |
| UserLocation | 3GPP TS 29.571 [6] |  |
| TaI | 3GPP TS 29.571 [6] |  |
| TimeZone | 3GPP TS 29.571 [6] |  |
| AccessType | 3GPP TS 29.571 [6] |  |
| Ecgi | 3GPP TS 29.571 [6] | EUTRA Cell Identifier |
| Ncgi | 3GPP TS 29.571 [6] | NR Cell Identifier |
| NfInstanceId | 3GPP TS 29.571 [6] |  |
| ProblemDetails | 3GPP TS 29.571 [6] | Problem Details |
| SupportedFeatures | 3GPP TS 29.571 [6] | Supported Features |
| DateTime | 3GPP TS 29.571 [6] |  |
| NgApCause | 3GPP TS 29.571 [6] |  |
| PresenceInfo | 3GPP TS 29.571 [6] | Presence Reporting Area Information |
| PresenceState | 3GPP TS 29.571 [6] | Describes the presence state of the UE to a specified area of interest |
| Dnn | 3GPP TS 29.571 [6] |  |
| Snssai | 3GPP TS 29.571 [6] |  |
| DddTrafficDescriptor | 3GPP TS 29.571 [6] | Downlink Data Delivery Traffic Descriptor |
| ReferenceId | 3GPP TS 29.503 [35] |  |
| SamplingRatio | 3GPP TS 29.571 [6] | Sampling Ratio. |

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

##### 6.2.6.2.6 Type: AmfEventMode

Table 6.2.6.2.6-1: Definition of type AmfEventMode

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| trigger | AmfEventTrigger | M | 1 | Describes how the reports are triggered. |
| maxReports | integer | C | 0..1 | This IE shall be present if the trigger is set to "CONTINUOUS". When present, this IE describes the maximum number of reports that can be generated by the subscribed event. If the AMF event subscription is for a group of UEs, this parameter shall be applied to each individual member UE of the group. If the event subscription is transferred from source AMF to target AMF, this IE shall contain:- the remaining number of reports for the event subscription, in the case of individual UE event subscription;- the remaining number of reports for the event subscription for this specific UE in a group, in the case of group ID specific event subscription. |
| expiry | DateTime | C | 0..1 | This IE shall be included in an event subscription response, if, based on operator policy and taking into account the expiry time included in the request, the AMF needs to include an expiry time.This IE may be included in an event subscription request.When present, this IE shall represent the time after which the subscribed event(s) shall stop generating report and the subscription becomes invalid. If the trigger value included in an event subscription response is "ONE\_TIME" and if an event report is included in the subscription response then the value of the expiry included in the response shall be an immediate timestamp.  |
| sampRatio | SamplingRatio | O | 0..1 | This IE may be included in an event subscription request for a group of UEs or any UE to indicate the ratio of the random subset to target UEs. Event reports only relate to the subset.If the AMF event subscription is for a list of AMF event, this parameter shall be applied to each individual event. |

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

## A.3 Namf\_EventExposure API

openapi: 3.0.0

info:

 version: 1.1.0.alpha-3

 title: Namf\_EventExposure

 description: |

 AMF Event Exposure Service

 © 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

 All rights reserved.

security:

 - {}

 - oAuth2ClientCredentials:

 - namf-evts

externalDocs:

 description: 3GPP TS 29.518 V16.3.0; 5G System; Access and Mobility Management Services

 url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.518/'

servers:

 - url: '{apiRoot}/namf-evts/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /subscriptions:

 post:

 summary: Namf\_EventExposure Subscribe service Operation

 tags:

 - Subscriptions collection (Document)

 operationId: CreateSubscription

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '201':

 description: Subsription Created

 headers:

 Location:

 description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/namf-evts/<apiVersion>/subscriptions/{subscriptionId}'

 required: true

 schema:

 type: string

 content:

 application/json:

 schema:

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

 '400':

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

 '403':

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

 '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:

 description: Unexpected error

 callbacks:

 onEventReport:

 '{$request.body#/subscription/eventNotifyUri}':

 post:

 summary: Event Notificaiton Delivery

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: Successful acknowledgement

 '400':

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

 '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:

 description: Unexpected error

 onSubscriptionIdChangeEvtReport:

 '{$request.body#/subscription/subsChangeNotifyUri}':

 post:

 summary: Event Notificaiton Delivery For Subscription Id Change

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: Successful acknowledgement

 '400':

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

 '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:

 description: Unexpected error

 /subscriptions/{subscriptionId}:

 patch:

 summary: Namf\_EventExposure Subscribe Modify service Operation

 tags:

 - Individual subscription (Document)

 operationId: ModifySubscription

 parameters:

 - name: subscriptionId

 in: path

 required: true

 description: Unique ID of the subscription to be modified

 schema:

 type: string

 requestBody:

 content:

 application/json-patch+json:

 schema:

 oneOf:

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

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

 required: true

 responses:

 '200':

 description: Subsription modified successfully

 content:

 application/json:

 schema:

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

 '400':

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

 '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:

 description: Unexpected error

 delete:

 summary: Namf\_EventExposure Unsubscribe service Operation

 tags:

 - Individual subscription (Document)

 operationId: DeleteSubscription

 parameters:

 - name: subscriptionId

 in: path

 required: true

 description: Unique ID of the subscription to be deleted

 schema:

 type: string

 responses:

 '204':

 description: Subsription deleted successfully

 '400':

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

 '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:

 description: Unexpected error

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 namf-evts: Access to the Namf\_EventExposure API

 schemas:

 AmfEventSubscription:

 type: object

 properties:

 eventList:

 type: array

 items:

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

 minItems: 1

 eventNotifyUri:

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

 notifyCorrelationId:

 type: string

 nfId:

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

 subsChangeNotifyUri:

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

 subsChangeNotifyCorrelationId:

 type: string

 supi:

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

 groupId:

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

 gpsi:

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

 pei:

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

 anyUE:

 type: boolean

 options:

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

 required:

 - eventList

 - eventNotifyUri

 - notifyCorrelationId

 - nfId

 AmfEvent:

 type: object

 properties:

 type:

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

 immediateFlag:

 type: boolean

 areaList:

 type: array

 items:

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

 minItems: 1

 locationFilterList:

 type: array

 items:

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

 minItems: 1

 refId:

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

 trafficDescriptorList:

 type: array

 items:

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

 minItems: 1

 required:

 - type

 AmfEventNotification:

 type: object

 properties:

 notifyCorrelationId:

 type: string

 subsChangeNotifyCorrelationId:

 type: string

 reportList:

 type: array

 items:

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

 minItems: 1

 AmfEventReport:

 type: object

 properties:

 type:

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

 state:

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

 timeStamp:

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

 subscriptionId:

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

 anyUe:

 type: boolean

 supi:

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

 areaList:

 type: array

 items:

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

 minItems: 1

 refId:

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

 gpsi:

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

 pei:

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

 location:

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

 timezone:

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

 accessTypeList:

 type: array

 items:

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

 minItems: 1

 rmInfoList:

 type: array

 items:

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

 minItems: 1

 cmInfoList:

 type: array

 items:

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

 minItems: 1

 reachability:

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

 commFailure:

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

 numberOfUes:

 type: integer

 5gsUserStateList:

 type: array

 items:

 $ref: '#/components/schemas/5GsUserStateInfo'

 minItems: 1

 typeCode:

 type: string

 pattern: '^imeitac-[0-9]{8}$'

 registrationNumber:

 type: integer

 required:

 - type

 - state

 - timeStamp

 AmfEventMode:

 type: object

 properties:

 trigger:

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

 maxReports:

 type: integer

 expiry:

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

 sampRatio:

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

 required:

 - trigger

 AmfEventState:

 type: object

 properties:

 active:

 type: boolean

 remainReports:

 type: integer

 remainDuration:

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

 required:

 - active

 RmInfo:

 type: object

 properties:

 rmState:

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

 accessType:

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

 required:

 - rmState

 - accessType

 CmInfo:

 type: object

 properties:

 cmState:

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

 accessType:

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

 required:

 - cmState

 - accessType

 CommunicationFailure:

 type: object

 properties:

 nasReleaseCode:

 type: string

 ranReleaseCode:

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

 AmfCreateEventSubscription:

 type: object

 properties:

 subscription:

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

 supportedFeatures:

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

 oldGuami:

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

 required:

 - subscription

 AmfCreatedEventSubscription:

 type: object

 properties:

 subscription:

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

 subscriptionId:

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

 reportList:

 type: array

 items:

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

 minItems: 1

 supportedFeatures:

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

 required:

 - subscription

 - subscriptionId

 AmfUpdateEventSubscriptionItem:

 type: array

 items:

 type: object

 properties:

 op:

 type: string

 enum:

 - add

 - remove

 - replace

 path:

 type: string

 pattern: '\/eventList\/[0-]$|\/eventList\/[1-9][0-9]\*$'

 value:

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

 required:

 - op

 - path

 minItems: 1

 AmfUpdateEventOptionItem:

 type: object

 properties:

 op:

 type: string

 enum:

 - replace

 path:

 type: string

 pattern: '\/options\/expiry$'

 value:

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

 required:

 - op

 - path

 - value

 AmfUpdatedEventSubscription:

 type: object

 properties:

 subscription:

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

 required:

 - subscription

 AmfEventArea:

 type: object

 properties:

 presenceInfo:

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

 ladnInfo:

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

 LadnInfo:

 type: object

 properties:

 ladn:

 type: string

 presence:

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

 required:

 - ladn

 5GsUserStateInfo:

 type: object

 properties:

 5gsUserState:

 $ref: '#/components/schemas/5GsUserState'

 accessType:

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

 required:

 - 5gsUserState

 - accessType

 TrafficDescriptor:

 type: object

 properties:

 dnn:

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

 sNssai:

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

 dddTrafficDescriptorList:

 type: array

 items:

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

 minItems: 1

 5gGuti:

 type: string

 AmfEventType:

 anyOf:

 - type: string

 enum:

 - LOCATION\_REPORT

 - PRESENCE\_IN\_AOI\_REPORT

 - TIMEZONE\_REPORT

 - ACCESS\_TYPE\_REPORT

 - REGISTRATION\_STATE\_REPORT

 - CONNECTIVITY\_STATE\_REPORT

 - REACHABILITY\_REPORT

 - COMMUNICATION\_FAILURE\_REPORT

 - UES\_IN\_AREA\_REPORT

 - SUBSCRIPTION\_ID\_CHANGE

 - SUBSCRIPTION\_ID\_ADDITION

 - LOSS\_OF\_CONNECTIVITY

 - 5GS\_USER\_STATE\_REPORT

 - AVAILABILITY\_AFTER\_DDN\_FAILURE

 - TYPE\_ALLOCATION\_CODE\_REPORT

 - FREQUENT\_MOBILITY\_REGISTRATION\_REPORT

 - type: string

 AmfEventTrigger:

 anyOf:

 - type: string

 enum:

 - ONE\_TIME

 - CONTINUOUS

 - type: string

 LocationFilter :

 anyOf:

 - type: string

 enum:

 - TAI

 - CELL\_ID

 - N3IWF

 - UE\_IP

 - UDP\_PORT

 - TNAP\_ID

 - GLI

 - type: string

 UeReachability:

 anyOf:

 - type: string

 enum:

 - UNREACHABLE

 - REACHABLE

 - REGULATORY\_ONLY

 - type: string

 RmState:

 anyOf:

 - type: string

 enum:

 - REGISTERED

 - DEREGISTERED

 - type: string

 CmState:

 anyOf:

 - type: string

 enum:

 - IDLE

 - CONNECTED

 - type: string

 5GsUserState:

 anyOf:

 - type: string

 enum:

 - DEREGISTERED

 - REGISTERED\_NOT\_REACHABLE\_FOR\_PAGING

 - REGISTERED\_REACHABLE\_FOR\_PAGING

 - CONNECTED\_NOT\_REACHABLE\_FOR\_PAGING

 - CONNECTED\_REACHABLE\_FOR\_PAGING

 - NOT\_PROVIDED\_FROM\_AMF

 - type: string

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