**3GPP TSG-CT WG3 Meeting #108eC3-201269**

**E-Meeting, 19th – 28th February 2020**

**Source: Samsung**

**Title: Pseudo-CR on SEAL Events API Definition**

**Spec: 3GPP TS 29.549 v1.0.0**

**Agenda item: 16.28**

**Document for: Decision**

**1. Introduction**

Subscribe/Notify semantic service operations are specified in TS 23.434 for various SEAL services. The event type service API (SS\_Events) needs to be specified, which applies for all SEAL services that need. This contribution proposes the SS\_Events API definition and Open API Specification.

**2. Reason for Change**

SS\_Events API definition needs to be specified.

**3. Conclusions**

Add SEAL Events API definition.

Correction to TS 29.122 reference in Reference clause.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.549 v1.0.0.

This contribution proposes new Open API specification for SS\_Events API in the Annex A.

\* \* \* First Change \* \* \* \*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.434: "Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows".

[3] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[4] IETF RFC 6455: "The Websocket Protocol".

[5] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[6] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[7] IETF RFC 7232: "Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests".

[8] IETF RFC 7233: "Hypertext Transfer Protocol (HTTP/1.1): Range Requests".

[9] IETF RFC 7234: "Hypertext Transfer Protocol (HTTP/1.1): Caching".

[10] IETF RFC 7235: "Hypertext Transfer Protocol (HTTP/1.1): Authentication".

[11] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".

[12] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[13] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[14] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[15] Open API Initiative, “OpenAPI 3.0.0 Specification”, <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

[16] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3”.

[17] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2”.

[18] 3GPP TS 33.122: "Security Aspects of Common API Framework for 3GPP Northbound APIs".

[19] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[A] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[B] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3"

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

## 7.x Event APIs

### 7.x.1 SS\_Events API

#### 7.x.1.1 API URI

The request URI use in each HTTP request from the VAL server towards the SEAL server shall use the structure as defined in clause 6.5 with the following clarifications:

- The {apiName}shall be "ss-events".

- The {apiVersion} shall be "v1".

- The {apiSpecificSuffixes} shall be set as described in clause 7.x.1.2

#### 7.x.1.2 Resources

##### 7.x.1.2.1 Overview



Figure 7.x.1.2.1-1: Resource URI structure of the SS\_Events API

Table 7.x.1.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 7.x.1.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| SEAL Events Subscriptions | {apiRoot}/ss-events/{apiVersion}/subscriptions | POST | Creates a new individual SEAL Event Subscription.  |
| Individual SEAL Events Subscription | {apiRoot}/ss-events/{apiVersion}/subscriptions/{subscriptionId} | DELETE | Deletes an individual SEAL Event Subscription identified by the subscriptionId. |

##### 7.x.1.2.2 Resource: SEAL Events Subscriptions

###### 7.x.1.2.2.1 Description

The SEAL Events Subscriptions represents all event subscriptions on the SEAL server.

###### 7.x.1.2.2.2 Resource Definition

Resource URI: **{apiRoot}/ss-events/{apiVersion}/subscriptions**

This resource shall support the resource URI variables defined in the table 7.x.1.2.2.2-1.

Table 7.x.1.2.2.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | See clause 6.5 |

###### 7.x.1.2.2.3 Resource Standard Methods

7.x.1.2.2.3.1 POST

This method shall support the URI query parameters specified in the table 7.x.1.2.2.3.1-1.

Table 7.x.1.2.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.x.1.2.2.3.1-2 and the response data structures and response codes specified in table 7.x.1.2.2.3.1-3.

Table 7.x.1.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| SEALEventSubscription | M | 1 | Create a new individual SEAL Events Subscription resource. |

Table 7.x.1.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| SEALEventSubscription | M | 1 | 201 Created | SEAL Events Subscription resource created successfully.The URI of the created resource shall be returned in the "Location" HTTP header |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

###### 7.x.1.2.2.4 Resource Custom Operations

None.

##### 7.x.1.2.3 Resource: Individual SEAL Events Subscription

###### 7.x.1.2.3.1 Description

The Individual SEAL Events Subscription resource represents an individual event subscription of a VAL server.

###### 7.x.1.2.3.2 Resource Definition

Resource URI: **{apiRoot}/ss-events/{apiVersion}/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in the table 7.x.1.2.3.2-1.

Table 7.x.1.2.3.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | See clause 6.5 |
| SubscriptionId | String identifying an Individual Events Subscription |

###### 7.x.1.2.3.3 Resource Standard Methods

7.x.1.2.3.3.1 DELETE

This method shall support the URI query parameters specified in table 7.x.1.2.3.3.1-1.

Table 7.x.1.2.3.3.1-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.x.1.2.3.3.1-2 and the response data structures and response codes specified in table 7.x.1.2.3.3.1-3.

Table 7.x.1.2.3.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.x.1.2.3.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The individual SEAL Events Subscription matching the subscriptionId is deleted. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

###### 7.x.1.2.3.4 Resource Custom Operations

None.

#### 7.x.1.3 Notifications

##### 7.x.1.3.1 General

The delivery of notifications shall conform to clause 6.6.

Table 7.x.1.3.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Resource URI | HTTP method or custom operation | Description(service operation) |
| SEAL Event Notification | {notificationDestination} | POST | Notifies subscriber of a SEAL Event |

##### 7.x.1.3.2 SEAL Event Notification

###### 7.x.1.3.2.1 Description

SEAL Event Notification is used by the SEAL server notify a VAL server of an Event. The VAL server shall be subscribed to such SEAL Event Notifications via the Individual SEAL Events Subscription Resource.

###### 7.x.1.3.2.2 Notification definition

The POST method shall be used for the event notification and the URI shall be the one provided by the VAL server during the subscription to the event.

Resource URI: **{notificationDestination}**

This method shall support the URI query parameters specified in table 7.x.1.3.2.2-1.

Table 7.x.1.3.2.2-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.x.1.3.2.2-2 and the response data structures and response codes specified in table 7.x.1.3.2.2-3.

Table 7.x.1.3.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| SEALEventNotification | M | 1 | Notification information of a SEAL Event |

Table 7.x.1.3.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

#### 7.x.1.4 Data Model

##### 7.x.1.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API.

Table 7.x.1.4.1-1 specifies the data types defined specifically for the SS\_Events API service.

Table 7.x.1.4.1-1: SS\_Events API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| LMEvent | 7.x.1.4.3.3 | Describes Location Management events |  |
| GMEvent | 7.x.1.4.3.4 | Describes Group Management events |  |
| CMEvent | 7.x.1.4.3.5 | Describes Configuration Management events |  |
| SEALEventSubscription | 7.x.1.4.2.2 | Represents an individual SEAL Event Subscription resource |  |
| SEALEventNotification | 7.x.1.4.2.3 | Represents an individual SEAL Event Subscription Notification  |  |
| SEALEventFilter | 7.x.1.4.2.4 | Represents the SEAL event filter |  |
| SEALEventDetail | 7.x.1.4.2.5 | Represents the SEAL event detail |  |

Table 7.x.1.4.1-2 specifies data types re-used by the SS\_Events API service:

Table 7.x.1.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| ReportingInformation | 3GPP TS 29.523 [A] | Used to indicate the reporting requirement, only the following information are applicable for SEAL:- immRep- notifMethod- maxReportNbr- monDur- repPeriod |  |
| SupportedFeatures | 3GPP TS 29.571 [B] | Used to negotiate the applicability of optional features defined in table 7.x.1.6-1. |  |
| TestNotification | 3GPP TS 29.122 [3] | Following differences apply:- The SCEF is the SEAL server; and- The SCS/AS is the subscribing VAL server. |  |
| Uri | 3GPP TS 29.122 [3] |  |  |
| WebsockNotifConfig | 3GPP TS 29.122 [3] | Following differences apply:- The SCEF is the CAPIF core function; and- The SCS/AS is the Subscribing functional entity. |  |
| VALGroupDocument | Clause 7.2.1.4.2.2 | Used to send VAL group document as part of event detail in the event notification. |  |
| ProfileDoc | Clause 7.3.1.4.2.2 | Used to send VAL User or VAL UE profile information as part of event detail in the event notification. |  |

##### 7.x.1.4.2 Structured data types

###### 7.x.1.4.2.1 Introduction

###### 7.x.1.4.2.2 SEALEventSubscription

Table 7.x.1.4.2.2-1: Definition of type SEALEventSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriberId | string | M | 1 | String identifying the subscriber of the event. |  |
| lmEvents | array(LMEvent) | C | 1..N | Subscribed Location Management events. (Note) |  |
| gmEvents | array(GMEvent) | C | 1..N | Subscribed Group Management events. (Note) |  |
| cmEvents | array(CMEvent) | C | 1..N | Subscribed Configuration Management events. (Note) |  |
| eventFilters | array(SEALEventFilter) | M | 1..N | Subscribed event filters.The nth entry in the "eventFilters" attribute shall correspond to the nth entry in the "lmEvents" or "gmEvents" or "cmEvents" attribute. For event not having event filter, an empty event filter entry without any sub-attribute shall be provided. |  |
| eventReq | ReportingInformation | M | 1 | Represents the reporting requirements of the event subscription. |  |
| notificationDestination | Uri | M | 1 | URI where the notification should be delivered to. |  |
| requestTestNotification | boolean | O | 0..1 | Set to true by Subscriber to request the SEAL server to send a test notification as defined in clause 6.6. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 6.6. | Notification\_websocket |
| supportedFeatures | SupportedFeatures | O | 0..1 | Used to negotiate the supported optional features of the API as described in clause 6.8.This attribute shall be provided in the HTTP POST request and in the response of successful resource creation. |  |
| NOTE: Only one of “lmEvents”, “gmEvents”, “cmEvents” shall be present.  |

###### 7.x.1.4.2.3 SEALEventNotification

Table 7.x.1.4.2.3-1: Definition of type SEALEventNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriptionId | string | M | 1 | Identifier of the subscription resource to which the notification is related – SEAL resource identifier |  |
| lmEvents | LMEvent | C | 1 | Notifications of individual Location Management events. (NOTE) |  |
| gmEvents | GMEvent | C | 1 | Notifications of individual Group Management events. (NOTE) |  |
| cmEvents | CMEvent | C | 1 | Notifications of individual Configuration Management events. (NOTE) |  |
| eventDetail | SEALEventDetail | O | 0..1 | Detailed information for the event. |  |
| NOTE: Only one of “lmEvents”, “gmEvents”, “cmEvents” shall be present.  |

###### 7.x.1.4.2.4 SEALEventFilter

Table 7.x.1.4.2.4-1: Definition of type SEALEventFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valGroupIds | array(string) | O | 1..N | VAL Group identifiers that the event subscriber wants to know in the interested event. This parameter shall be present only if the event subscribed is “GM\_GROUP\_INFO\_CHANGE”. |  |
| valUserIds | array(string) | O | 1..N | VAL User IDs that the event subscriber wants to know in the interested event.This parameter shall be present only if the event subscribed is “CM\_USER\_PROFILE\_CHANGE”. |  |
| valUEIds | array(string) | O | 1..N | VAL UE IDs that the event subscriber wants to know in the interested event.This parameter shall be present only if the event subscribed is “CM\_USER\_PROFILE\_CHANGE”. |  |
| NOTE:      Only one of the parameters "valUserIds" or "valUEIds" shall be included. |

###### 7.x.1.4.2.5 SEALEventDetail

Table 7.x.1.4.2.5-1: Definition of type SEALEventDetail

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valGroupDocuments | array(VALGroupDocument) | O | 1..N | The VAL groups documents with modified membership and configuration information.This parameter shall be present only if the event in event notification is “GM\_GROUP\_INFO\_CHANGE”. |  |
| profileDocs | array(ProfileDoc) | O | 1..N | Updated profile information associated with VAL Users or VAL UEs.This parameter shall be present only if the event in event notification is “CM\_USER\_PROFILE\_CHANGE”. |  |

##### 7.x.1.4.3 Simple data types and enumerations

###### 7.x.1.4.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

###### 7.x.1.4.3.2 Simple data types

None.

###### 7.x.1.4.3.3 Enumeration: LMEvent

Table 7.x.1.4.3.3-1: Enumeration LMEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| LM\_LOCATION\_INFO | Events related to the location information of VAL Users or VAL UEs from the Location Management Server. |  |

###### 7.x.1.4.3.4 Enumeration: GMEvent

Table 7.x.1.4.3.4-1: Enumeration GMEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| GM\_GROUP\_INFO\_CHANGE | Events related to the modification of VAL group membership and configuration information from the Group Management Server. |  |

###### 7.x.1.4.3.5 Enumeration: CMEvent

Table 7.x.1.4.3.5-1: Enumeration CMEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| CM\_USER\_PROFILE\_CHANGE | Events related to update of user profile information from the Configuration Management Server. |  |

#### 7.x.1.5 Error Handling

General error responses are defined in clause 6.7.

#### 7.x.1.6 Feature Negotiation

General feature negotiation procedures are defined in clause 6.8. Table 7.x.1.6-1 lists the supported features for SS\_Events API.

Table 7.x.1.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | Notification\_test\_event | Testing of notification connection is supported according to clause 6.6. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 6.6. This feature requires that the Notification\_test\_event feature is also supported. |

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

Annex A (normative):
OpenAPI specification

*This is a normative annex clause to specify the Open API representation of all SEAL APIs defined in this specification.*

## A.Z SS\_Events API

openapi: 3.0.0

info:

 title: SS\_Events

 description: |

 API for SEAL Events management.

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 version: "1.0.0.alpha-1"

externalDocs:

 description: 3GPP TS 29.549 V1.0.0 Service Enabler Architecture Layer for Verticals (SEAL);Application Programming Interface (API) specification

 url: http://www.3gpp.org/ftp/Specs/archive/29\_series/29.549/

servers:

 - url: '{apiRoot}/ss-events/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in subclause 6.5 of 3GPP TS 29.549

paths:

 /subscriptions:

 post:

 description: Creates a new individual SEAL Event Subscription.

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

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

 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: SEAL Events subscription resource created successfully.

 content:

 application/json:

 schema:

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

 headers:

 Location:

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

 required: true

 schema:

 type: string

 '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'

 /subscriptions/{subscriptionId}:

 delete:

 description: Deletes an individual SEAL Event Subscription.

 parameters:

 - name: subscriptionId

 in: path

 description: Identifier of an individual Events Subscription

 required: true

 schema:

 type: string

 responses:

 '204':

 description: The individual SEAL Events Subscription matching the subscriptionId is deleted.

 '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'

components:

 schemas:

 SEALEventSubscription:

 type: object

 properties:

 subscriberId:

 type: string

 description: String identifying the subscriber of the event.

 lmEvents:

 type: array

 items:

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

 minItems: 1

 description: Subscribed Location management events

 gmEvents:

 type: array

 items:

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

 minItems: 1

 description: Subscribed Group management events

 cmEvents:

 type: array

 items:

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

 minItems: 1

 description: Subscribed Configuration management events

 eventFilters:

 type: array

 items:

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

 minItems: 1

 description: Subscribed event filters.

 eventReq:

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

 notificationDestination:

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

 requestTestNotification:

 type: boolean

 description: Set to true by Subscriber to request the SEAL server to send a test notification as defined in in subclause 6.6. Set to false or omitted otherwise.

 websockNotifConfig:

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

 supportedFeatures:

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

 required:

 - subscriberId

 - eventFilters

 - eventReq

 - notificationDestination

 oneOf:

 - required: [lmEvents]

 - required: [gmEvents]

 - required: [cmEvents]

 SEALEventNotification:

 type: object

 properties:

 subscriptionId:

 type: string

 description: Identifier of the subscription resource to which the notification is related – SEAL resource identifier

 lmEvents:

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

 gmEvents:

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

 cmEvents:

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

 eventDetail:

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

 required:

 - subscriptionId

 oneOf:

 - required: [lmEvents]

 - required: [gmEvents]

 - required: [cmEvents]

 SEALEventFilter:

 type: object

 properties:

 valGroupIds:

 type: array

 items:

 type: string

 minItems: 1

 description: VAL Group identifiers that the event subscriber wants to know in the interested event. This parameter shall be present only if the event subscribed is “GM\_GROUP\_INFO\_CHANGE”.

 valUserIds:

 type: array

 items:

 type: string

 minItems: 1

 description: VAL User IDs that the event subscriber wants to know in the interested event.This parameter shall be present only if the event subscribed is “CM\_USER\_PROFILE\_CHANGE”.

 valUEIds:

 type: array

 items:

 type: string

 minItems: 1

 description: VAL UE IDs that the event subscriber wants to know in the interested event.This parameter shall be present only if the event subscribed is “CM\_USER\_PROFILE\_CHANGE”.

 oneOf:

 - required: [valUserIds]

 - required: [valUEIds]

 SEALEventDetail:

 type: object

 properties:

 valGroupDocuments:

 type: array

 items:

 $ref: 'TS29549\_SS\_GroupManagement.yaml#/components/schemas/VALGroupDocument'

 minItems: 1

 description: The VAL groups documents with modified membership and configuration information.This parameter shall be present only if the event in event notification is “GM\_GROUP\_INFO\_CHANGE”.

 profileDocs:

 type: array

 items:

 $ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ProfileDoc'

 minItems: 1

 description: Updated profile information associated with VAL Users or VAL UEs. This parameter shall be present only if the event in event notification is “CM\_USER\_PROFILE\_CHANGE”.

 LMEvent:

 anyOf:

 - type: string

 enum:

 - LM\_LOCATION\_INFO

 - 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

 - LM\_LOCATION\_INFO: Events related to the location information of VAL Users or VAL UEs from the Location Management Server.

 GMEvent:

 anyOf:

 - type: string

 enum:

 - GM\_GROUP\_INFO\_CHANGE

 - 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

 - GM\_GROUP\_INFO\_CHANGE: Events related to the modification of VAL group membership and configuration information from the Group Management Server.

 CMEvent:

 anyOf:

 - type: string

 enum:

 - CM\_USER\_PROFILE\_CHANGE

 - 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

 - CM\_USER\_PROFILE\_CHANGE: Events related to update of user profile information from the Configuration Management Server.

\* \* \* End of Change \* \* \* \*