**3GPP TSG- Meeting #**

**Stor-Göteborg, , - (revision of C3-253183)**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.222** | **CR** |  | **rev** | **1** | **Current version:** | **19.3.0** |  |
|  |
| *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:***  | Create events related to CAPIF-1 interaction for service APIs |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | CAPIF\_Ph3 |  | ***Date:*** | 2025-08-28 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | Based on the LS reply in S6-253199 from SA6, which provides clarification on CAPIF-1/1e interaction related events defined in S6-253198 (CR#0313) submitted to this meeting in SA6#68, it is clarified that the event subscription request includes onboarded API invokers enrolled for particular service APIs, as well as particular service APIs requested in "Discover service APIs" or "Open Discover service APIs" requests, or discovered in the related responses, all within the reporting frequency of the event. The corresponding event notification includes statistics on these CAPIF-1/1e events to include the count of onboarded API invokers enrolled and the number of times particular service APIs being requested or discovered. |
|  |  |
| ***Summary of change:*** | This CR proposes to define the below events to be subscribed and notified based on above-mentioned events.* CAPIF1\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT for event related to the numbers of API Invokers enrolled particular service APIs during onboarded to the CAPIF and CAPIF1\_RECENT\_API\_DISCOVERY\_COUNT for event related to the number of invokers that requested or received particular service APIs to/from the CCF during discovery or open discovery operations, including the particular service APIs, within the reporting period.
 |
|  |  |
| ***Consequences if not approved:*** | Not fulfilement of stage-2 requirement. |
|  |  |
| ***Clauses affected:*** | 5.4.2.2.2, 5.4.2.4.2, 8.3.4.1, 8.3.4.2.3, 8.3.4.2.5, 8.3.4.2.9(new), 8.3.4.2.10(new), 8.3.4.3.3, 8.3.6, A.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.222 CR 0313  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backward compatible feature to the following API: TS29222\_CAPIF\_Events\_API.yaml. |
|  |  |
| ***This CR's revision history:*** |  |

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

##### 5.4.2.2.2 Subscribing to CAPIF events using Subscribe\_Event service operation

To subscribe to CAPIF events reporting, the Subscriber shall send an HTTP POST request message to the CCF targeting the "CAPIF Events Subscriptions" Collection resource with the request body including the EventSubscription data structure as defined in clause 8.3.2.2.3.1.

For all the events included in the HTTP POST message, if the "Enhanced\_event\_report" feature is supported, the Subscriber may include within the EventSubscription data structure the event reporting requirements within the "eventReq" attribute including:

- the event notification method (periodic, one time, on event detection) within the "notifMethod" attribute;

- the maximum Number of Reports within the "maxReportNbr" attribute;

- the monitoring duration within the "monDur" attribute;

- the repetition period for periodic reporting within the "repPeriod" attribute; and/or

- the immediate reporting indication within the "immRep" attribute.

If the "Enhanced\_event\_report" feature is supported, the Subscriber may also include within the EventSubscription data structure event filters within the "eventFilters" attribute that shall include:

- if the event is "SERVICE\_API\_AVAILABLE", "SERVICE\_API\_UNAVAILABLE" or "SERVICE\_API\_UPDATE", the API IDs within the "apiIds" attribute;

- if the event is "API\_INVOKER\_ONBOARDED", "API\_INVOKER\_OFFBOARDED" or "API\_INVOKER\_UPDATED", the API invoker IDs within the "apiInvokerIds" attribute;

- if the event is "ACCESS\_CONTROL\_POLICY\_UPDATE", the API Invoker IDs within the "apiInvokerIds" attribute and/or API identifications within the "apiIds" attribute;

- if the event is "SERVICE\_API\_INVOCATION\_SUCCESS" or "SERVICE\_API\_INVOCATION\_FAILURE", the API invoker IDs within the "apiInvokerIds" attribute, AEF identifiers within the "aefIds" attribute and/or API IDs within the "apiIds" attribute;

- if the "CAPIF\_Ext1" feature is supported and the event is API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED, the API invoker ID(s) within the "apiInvokerIds" attribute, the AEF identifier(s) within the "aefIds" attribute and/or the API ID(s) within the "apiIds" attribute; and/or

- if the "CAPIF\_Ext1" feature is supported and the event is " SERVICE\_API\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT" or " SERVICE\_API\_RECENT\_API\_DISCOVERY\_COUNT", the service API ID(s) within the "apiIds" attribute and the reporting period in the "repPeriod" attribute within the "eventReq" attribute.

Upon receiving the above described HTTP POST message, the CCF shall:

1. verify the identity of the Subscriber and check if the Subscriber is authorized to subscribe to the CAPIF events mentioned in the HTTP POST request message;

2. if the Subscriber is authorized to subscribe to the CAPIF events, the CCF shall:

a. create a new "Individual CAPIF Events Subscription" resource; and

b. respond with an HTTP "201 Created" status code with the response body containing a representation of the created "Individual CAPIF Events Subscription" resource within the EventSubscription data structure, and an HTTP "Location" header field containing the URI of the created resource as defined in clause 8.3.2.2.3.1;

and

3. if errors occur when processing the request, the CCF shall respond to the Subscriber with an appropriate error status code as defined in clause 8.3.5.

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

##### 5.4.2.4.2 Notifying CAPIF events using Notify\_Event service operation

To notify on CAPIF events, the CCF shall send an HTTP POST request message using the Notification Destination URI received during the subscription creation/update request as defined in clauses 5.4.2.2 and 5.4.2.5, with the request body including the EventNotification data structure.

If the "Enhanced\_event\_report" feature is supported, the CCF may also include within the EventNotification data structure events related detail within the "eventDetail" attribute. The "eventDetail" attribute shall include:

- if the event is "SERVICE\_API\_AVAILABLE" or "SERVICE\_API\_UNAVAILABLE", the API IDs within the "apiIds" attribute and, if the "ApiStatusMonitoring" feature is supported, the service API information within the "serviceAPIDescriptions" attribute;

- if the event is "SERVICE\_API\_UPDATE", the API information within the "serviceAPIDescriptions" attribute;

- if the event is "API\_INVOKER\_ONBOARDED" or "API\_INVOKER\_OFFBOARDED" or "API\_INVOKER\_UPDATED", the API invoker IDs within the "apiInvokerIds" attribute;

- if the event is "ACCESS\_CONTROL\_POLICY\_UPDATE", the access control policy information within the "accCtrlPolList" attribute;

- if the event is "SERVICE\_API\_INVOCATION\_SUCCESS" or "SERVICE\_API\_INVOCATION\_FAILURE", the API invocation logs within the "invocationLogs" attribute;

- if the event is "API\_TOPOLOGY\_HIDING\_CREATED" or "API\_TOPOLOGY\_HIDING\_REVOKED", the API topology hiding information within the "apiTopoHide" attribute;

- if the event is API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED, the onboard criteria information within the "onboardingCriteria" attribute;

- if the "CAPIF\_Ext1" feature is supported and the event is "SERVICE\_API \_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT", the counters within the "onboardedCounts" attribute; or

- if the "CAPIF\_Ext1" feature is supported and the event is "SERVICE\_API \_RECENT\_API\_DISCOVERY\_COUNT", the counters within the "disoveryCountList" attribute.

Upon reception of the HTTP POST request message, the Subscriber shall process the Event Notification, and upon success, the Subscriber shall respond with an HTTP "204 No Content" status code to acknowledge the reception of the notification.

If errors occur when processing the request, the Subscriber shall respond to the CCF with an appropriate error status code as defined in clause 8.3.5.

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

#### 8.3.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 7.2 also apply to this API.

Table 8.3.4.1-1 specifies the data types defined specifically for the CAPIF\_Events\_API service.

Table 8.3.4.1-1: CAPIF\_Events\_API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| AccessControlPolicyListExt | Clause 8.3.4.2.6 | Represents the extension for access control policies. |  |
| ApiInvokerCount | Clause 8.3.4.2.9 | Represents the counts of API invokers associated with CAPIF events. | CAPIF\_Ext1 |
| CAPIFEvent | Clause 8.3.4.3.3 | Represents the CAPIF event. |  |
| CAPIFEventDetail | Clause 8.3.4.2.5 | Represents the CAPIF event related details. | Enhanced\_event\_report |
| CAPIFEventFilter | Clause 8.3.4.2.4 | Represents the CAPIF event filter. | Enhanced\_event\_report |
| DiscoveryCountList | Clause 8.3.4.2.10 | Represents the counts of discovery requests and/or responses of API invokers associated with CAPIF events. | CAPIF\_Ext1 |
| EventNotification | Clause 8.3.4.2.3 | Represents a CAPIF Events Notification. |  |
| EventSubscription | Clause 8.3.4.2.2 | Represents a CAPIF Events Subscription. |  |
| EventSubscriptionPatch | Clause 8.3.4.2.8 | Represents the requested modifications to a CAPIF Events Subscription. |  |
| TopologyHiding | Clause 8.3.4.2.7 | Represents the routing rules information of a service API. |  |

Table 8.3.4.1-2 specifies data types re-used by the CAPIF\_Events\_API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the CAPIF\_Events\_API.

Table 8.3.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AccessControlPolicyList | Clause 8.6.4.2.2 | Represents the access control policy list for a published service API. |  |
| InvocationLog | Clause 8.7.4.2.2 | Represents logs of service API invocations. |  |
| ReportingInformation | 3GPP TS 29.523 [26] | Used to indicate the reporting requirement, only the following information are applicable for CAPIF:- immRep- notifMethod- maxReportNbr- monDur- repPeriod | Enhanced\_event\_report |
| RoutingRule | Clause 8.10.4.2.3 | Represents API routing rule. |  |
| ServiceAPIDescription | Clause 8.2.4.2.2 | Represents the description of the service API |  |
| SupportedFeatures | 3GPP TS 29.571 [19] | Used to negotiate the applicability of optional features defined in table 8.3.6-1. |  |
| Uri | 3GPP TS 29.122 [14] | Represents a URI. |  |
| WebsockNotifConfig | 3GPP TS 29.122 [14] | Represents the configuration information for websocket notifications. |  |

\* \* \* \* 4th Change \* \* \* \*

##### 8.3.4.2.3 Type: EventNotification

Table 8.3.4.2.3-1: Definition of type EventNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriptionId | string | M | 1 | Contains the identifier of the subscription to which the notification is related. |  |
| events | CAPIFEvent | M | 1 | Contains the CAPIF events report. |  |
| eventDetail | CAPIFEventDetail | C | 0..1 | Contains the detailed information for the reported event.(NOTE) | Enhanced\_event\_report |
| NOTE: Within the CAPIFEventDetail data type, the "serviceAPIDescriptions" attribute shall be provided only if the reported event is "SERVICE\_API\_UPDATE", the "apiIds" attribute shall be provided only if the reported event is either "SERVICE\_API\_AVAILABLE" or "SERVICE\_API\_UNAVAILABLE", the "apiInvokerIds" attribute shall be provided only if the reported event is either "API\_INVOKER\_ONBOARDED", "API\_INVOKER\_OFFBOARDED" or "API\_INVOKER\_UPDATED", the "accCtrlPolList" attribute shall be provided only if the reported event is "ACCESS\_CONTROL\_POLICY\_UPDATE", the "invocationLogs" attribute shall be provided only if the reported event is "SERVICE\_API\_INVOCATION\_SUCCESS" or "SERVICE\_API\_INVOCATION\_FAILURE", the "apiTopoHide" attribute shall be provided only if the reported event is "API\_TOPOLOGY\_HIDING\_CREATED" or "API\_TOPOLOGY\_HIDING\_REVOKED", the "onboardingCriteria" attribute shall be provided if the event is API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED, the "onboardedCounts" attribute shall be provided if the event is "SERVICE\_API\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT", the "discoveryCountList" attribute shall be provided if the event is " SERVICE\_API\_RECENT\_API\_DISCOVERY\_COUNT". For all these events, the "eventDetail" attribute shall be present when the "events" attribute is set to one of these events. |

\* \* \* \* 5th Change \* \* \* \*

##### 8.3.4.2.5 Type: CAPIFEventDetail

Table 8.3.4.2.5-1: Definition of type CAPIFEventDetail

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serviceAPIDescriptions | array(ServiceAPIDescription) | O | 1..N | Contains the description of the service API as published by the APF. |  |
| apiIds | array(string) | O | 1..N | Contains the identifier(s) of the API(s). |  |
| apiInvokerIds | array(string) | O | 1..N | Contains the identifier(s) of the API Invoker(s) that are onboarded/offboarded. |  |
| accCtrlPolList | AccessControlPolicyListExt | O | 0..1 | Contains the access control policy updated list. |  |
| invocationLogs | array(InvocationLog) | O | 1..N | Contains the invocation logs. |  |
| apiTopoHide | TopologyHiding | O | 0..1 | Contains the topology hiding information for a service API. |  |
| onboardingCriteria | array(OnboardingCriteria) | O | 1..N | Contains the onboarding criteria failed to be met during API Invokers onboarding. | CAPIF\_Ext1 |
| onboardedCounts | array(ApiInvokerCount) | O | 1..N | Contains the counts of onboarded API invokers associated with each service API. | CAPIF\_Ext1 |
| discoveryCountList | DiscoveryCountList | O | 0..1 | Contains the counts of discovery requests and/or responses for API invokers corresponding to the service APIs. | CAPIF\_Ext1 |

\* \* \* \* 6th Change \* \* \* \*

##### 8.3.4.2.9 Type: ApiInvokerCount

Table 8.3.4.2.9-1: Definition of type ApiInvokerCount

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| apiId | string | M | 1 | Contains the identifier of the service API. |  |
| count | integer | M | 1 | Contains the number of API invokers identified by the "apiId" attribute. |  |

\* \* \* \* 7th Change \* \* \* \*

##### 8.3.4.2.10 Type: DiscoveryCountList

Table 8.3.4.2.10-1: Definition of type DiscoveryCountList

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| apiIds | array(string) | M | 1..N | Contains the list of service API identifiers. Each index corresponds to the same indexin the discovery count arrays. |  |
| discoveryReqCounts | array(integer) | C | 1..N | Contains the number of API invokers per API for discovery requests.The nth entry corresponds to the nth entry in the "apiIds" attribute.(NOTE) |  |
| discoveryRspCounts | array(integer) | C | 1..N | Contains the number of API invokers per API for discovery responses.The nth entry corresponds to the nth entry in the "apiIds" attribute.(NOTE) |  |
| NOTE: At least one of these attributes shall be provided. |

\* \* \* \* 8th Change \* \* \* \*

##### 8.3.4.3.3 Enumeration: CAPIFEvent

The enumeration CAPIFEvent represents a CAPIF event. It shall comply with the provisions defined in table 8.3.4.3.3-1.

Table 8.3.4.3.3-1: Enumeration CAPIFEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| SERVICE\_API\_AVAILABLE | Events related to the availability of service APIs after the service APIs are published. |  |
| SERVICE\_API\_UNAVAILABLE | Events related to the unavailability of service APIs after the service APIs are unpublished. |  |
| SERVICE\_API\_UPDATE | Events related to changes in service API information. |  |
| API\_INVOKER\_ONBOARDED | Events related to API Invoker onboarded to CAPIF. |  |
| API\_INVOKER\_OFFBOARDED | Events related to API Invoker offboarded from CAPIF. |  |
| SERVICE\_API\_INVOCATION\_SUCCESS | Events related to the successful invocation of service APIs. |  |
| SERVICE\_API\_INVOCATION\_FAILURE | Events related to the failed invocation of service APIs. |  |
| ACCESS\_CONTROL\_POLICY\_UPDATE | Events related to the update for the access control policy related to the service APIs. |  |
| ACCESS\_CONTROL\_POLICY\_UNAVAILABLE | Events related to the unavailability of the access control policy related to the service APIs. |  |
| API\_INVOKER\_AUTHORIZATION\_REVOKED | Events related to the revocation of the authorization of API Invokers to access the service APIs. |  |
| API\_INVOKER\_UPDATED | Events related to API Invoker profile updated to CAPIF. |  |
| API\_TOPOLOGY\_HIDING\_CREATED | Events related to the creation or update of the API topology hiding information of the service API after the service APIs are published. |  |
| API\_TOPOLOGY\_HIDING\_REVOKED | Events related to the revocation of the API topology information of the service API after the service APIs are unpublished. |  |
| API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED | Events related to API Invoker onboarding criteria failed to be met. | CAPIF\_Ext1 |
| SERVICE\_API\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT | Periodic event related to the number of API Invokers currently enrolled to particular service APIs as a result of onboarded, offboarding or updating the enrollment. | CAPIF\_Ext1 |
| SERVICE\_API\_RECENT\_API\_DISCOVERY\_COUNT | Periodic event related to the number of API Invokers that requested or received information related to particular service APIs to/from the CCF during discover service APIs or open discover service APIs operations, within the reporting period including the particular service APIs. | CAPIF\_Ext1 |

\* \* \* \* 9th Change \* \* \* \*

### 8.3.6 Feature negotiation

The optional features in table 8.3.6-1 are defined for the CAPIF\_Events\_API. They shall be negotiated using the extensibility mechanism defined in clause 7.8.

Table 8.3.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | Notification\_test\_event | Testing of notification connection is supported according to clause 7.6. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 7.6. This feature requires that the Notification\_test\_event feature is also supported. |
| 3 | Enhanced\_event\_report | This feature supports the enhanced event report including event reporting requirement and event reporting details. |
| 4 | ApiStatusMonitoring | Indicates the support of the API status monitoring in CAPIF layer as a part of enhancement of SEAL framework.This feature enables the following functionality:- enhancement of the CAPIF event notification. |
| 5 | CAPIF\_Ext1 | Indicates the support of onboarding criteria information for the API Invoker onboarding functionality.This feature enables the following functionalities:- indicates the support of the CAPIF event report due to failed onboarding criteria during API Invokers onboarding.- Indicates support for CAPIF-1/1e interaction-related events providing statistics on the number of API invokers accessing particular service API(s) during discovery or open discovery within the reporting period.This feature requires that the Enhanced\_event\_report features is also supported if the CAPIF related events reporting needed. |

\* \* \* \* 10th Change \* \* \* \*

# A.4 CAPIF\_Events\_API

openapi: 3.0.0

info:

 title: CAPIF\_Events\_API

 description: |

 API for event subscription management.

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 version: "1.4.0-alpha.2"

externalDocs:

 description: 3GPP TS 29.222 V19.2.0 Common API Framework for 3GPP Northbound APIs

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.222/

servers:

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

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 7.5 of 3GPP TS 29.222

paths:

 /{subscriberId}/subscriptions:

 post:

 summary: Create a new CAPIFs Event Subscription.

 operationId: CreateEventSubsc

 tags:

 - CAPIFs Events Subscriptions (Collection)

 parameters:

 - name: subscriberId

 in: path

 description: Identifier of the Subscriber

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Created (Successful creation of subscription).

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

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

 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'

 callbacks:

 notificationDestination:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content (successful notification).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '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'

 /{subscriberId}/subscriptions/{subscriptionId}:

 delete:

 summary: Delete an existing Individual CAPIF Events Subscription resource.

 operationId: DeleteIndEventSubsc

 tags:

 - Individual CAPIFs Events Subscription (Document)

 parameters:

 - name: subscriberId

 in: path

 description: Identifier of the Subscriber

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of an individual Events Subscription

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 No Content. The Individual CAPIF Events Subscription resource is successfully deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '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'

 put:

 summary: Update an existing Individual CAPIF Events Subscription resource.

 operationId: UpdateIndEventSubsc

 tags:

 - Individual CAPIFs Events Subscription (Document)

 parameters:

 - name: subscriberId

 in: path

 description: Identifier of the Subscriber

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the individual Subscriber

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: OK (Successful update of the subscription).

 content:

 application/json:

 schema:

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

 '204':

 description: No Content. (Successful update of the subscription).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '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'

 patch:

 summary: Modify an existing Individual CAPIF Events Subscription resource.

 operationId: ModifyIndEventSubsc

 tags:

 - Individual CAPIFs Events Subscription (Document)

 parameters:

 - name: subscriberId

 in: path

 description: Identifier of the Subscriber

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the individual Subscriber

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: OK (Successful modification of the subscription).

 content:

 application/json:

 schema:

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

 '204':

 description: No Content (Successful modification of the subscription).

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '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:

 schemas:

 EventSubscription:

 type: object

 description: Represents a CAPIF Events Subscription.

 properties:

 events:

 type: array

 items:

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

 minItems: 1

 description: Subscribed events.

 eventFilters:

 type: array

 items:

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

 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 CAPIF core function to send a

 test notification as defined in in clause 7.6. Set to false or omitted otherwise.

 websockNotifConfig:

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

 supportedFeatures:

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

 required:

 - events

 - notificationDestination

 EventNotification:

 type: object

 description: Represents a CAPIF Events Notification.

 properties:

 subscriptionId:

 type: string

 description: >

 Identifier of the subscription resource to which the notification

 is related.

 events:

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

 eventDetail:

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

 required:

 - subscriptionId

 - events

 CAPIFEventFilter:

 type: object

 description: Represents a CAPIF event filter.

 properties:

 apiIds:

 type: array

 items:

 type: string

 minItems: 1

 description: Identifier of the service API.

 apiInvokerIds:

 type: array

 items:

 type: string

 minItems: 1

 description: Identity of the API invoker.

 aefIds:

 type: array

 items:

 type: string

 minItems: 1

 description: Identifier of the API exposing function.

 CAPIFEventDetail:

 type: object

 description: Represents the CAPIF event related details.

 properties:

 serviceAPIDescriptions:

 type: array

 items:

 $ref: 'TS29222\_CAPIF\_Publish\_Service\_API.yaml#/components/schemas/ServiceAPIDescription'

 minItems: 1

 description: Description of the service API as published by the APF.

 apiIds:

 type: array

 items:

 type: string

 minItems: 1

 description: Identifier of the service API.

 apiInvokerIds:

 type: array

 items:

 type: string

 minItems: 1

 description: Identity of the API invoker.

 accCtrlPolList:

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

 invocationLogs:

 type: array

 items:

 $ref: 'TS29222\_CAPIF\_Logging\_API\_Invocation\_API.yaml#/components/schemas/InvocationLog'

 minItems: 1

 description: Invocation logs.

 apiTopoHide:

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

 onboardingCriteria:

 type: array

 items:

 $ref: 'TS29222\_CAPIF\_API\_Invoker\_Management\_API.yaml#/components/schemas/OnboardingCriteria'

 minItems: 1

 onboardedCounts:

 type: array

 items:

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

 minItems: 1

 discoveryCountList:

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

 AccessControlPolicyListExt:

 description: Represents the extension for access control policies.

 allOf:

 - $ref: 'TS29222\_CAPIF\_Access\_Control\_Policy\_API.yaml#/components/schemas/AccessControlPolicyList'

 - type: object

 properties:

 apiId:

 type: string

 required:

 - apiId

 TopologyHiding:

 type: object

 description: Represents the routing rules information of a service API.

 properties:

 apiId:

 type: string

 routingRules:

 type: array

 items:

 $ref: 'TS29222\_CAPIF\_Routing\_Info\_API.yaml#/components/schemas/RoutingRule'

 minItems: 1

 required:

 - apiId

 - routingRules

 EventSubscriptionPatch:

 type: object

 description: >

 Represents the parameters to request the modification of a CAPIF Events Subscription

 resource.

 properties:

 events:

 type: array

 items:

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

 minItems: 1

 description: Subscribed events.

 eventFilters:

 type: array

 items:

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

 minItems: 1

 description: Subscribed event filters.

 eventReq:

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

 notificationDestination:

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

 ApiInvokerCount:

 type: object

 description: Represents the counts of API invokers associated with CAPIF events.

 properties:

 apiId:

 type: string

 count:

 type: integer

 description: >

 Contains the number of API invokers identified by the "apiId" attribute.

 required:

 - apiId

 - count

 DiscoveryCountList:

 type: object

 description: Represents the counts of discovery requests and/or responses of API invokers associated with CAPIF events.

 properties:

 apiIds:

 type: array

 items:

 type: string

 minItems: 1

 discoveryReqCounts:

 type: array

 items:

 type: integer

 minItems: 1

 discoveryRspCounts:

 type: array

 items:

 type: integer

 minItems: 1

 required:

 - apiIds

 anyOf:

 - required: [discoveryReqCounts]

 - required: [discoveryRspCounts]

 CAPIFEvent:

 anyOf:

 - type: string

 enum:

 - SERVICE\_API\_AVAILABLE

 - SERVICE\_API\_UNAVAILABLE

 - SERVICE\_API\_UPDATE

 - API\_INVOKER\_ONBOARDED

 - API\_INVOKER\_OFFBOARDED

 - SERVICE\_API\_INVOCATION\_SUCCESS

 - SERVICE\_API\_INVOCATION\_FAILURE

 - ACCESS\_CONTROL\_POLICY\_UPDATE

 - ACCESS\_CONTROL\_POLICY\_UNAVAILABLE

 - API\_INVOKER\_AUTHORIZATION\_REVOKED

 - API\_INVOKER\_UPDATED

 - API\_TOPOLOGY\_HIDING\_CREATED

 - API\_TOPOLOGY\_HIDING\_REVOKED

 - API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED

 - SERVICE\_API\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT

 - SERVICE\_API\_RECENT\_API\_DISCOVERY\_COUNT

 - 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: |

 Describes the CAPIF event.

 Possible values are:

 - SERVICE\_API\_AVAILABLE:

 Events related to the availability of service APIs after the service APIs are

 published.

 - SERVICE\_API\_UNAVAILABLE:

 Events related to the unavailability of service APIs after the service APIs are

 unpublished.

 - SERVICE\_API\_UPDATE: Events related to change in service API information.

 - API\_INVOKER\_ONBOARDED: Events related to API invoker onboarded to CAPIF.

 - API\_INVOKER\_OFFBOARDED: Events related to API invoker offboarded from CAPIF.

 - SERVICE\_API\_INVOCATION\_SUCCESS:

 Events related to the successful invocation of service APIs.

 - SERVICE\_API\_INVOCATION\_FAILURE: Events related to the failed invocation of service APIs.

 - ACCESS\_CONTROL\_POLICY\_UPDATE:

 Events related to the update for the access control policy related to the service APIs.

 - ACCESS\_CONTROL\_POLICY\_UNAVAILABLE:

 Events related to the unavailability of the access control policy related to

 the service APIs.

 - API\_INVOKER\_AUTHORIZATION\_REVOKED: Events related to the revocation of the authorization

 of API invokers to access the service APIs.

 - API\_INVOKER\_UPDATED: Events related to API invoker profile updated to CAPIF.

 - API\_TOPOLOGY\_HIDING\_CREATED:

 Events related to the creation or update of the API topology hiding

 information of the service APIs after the service APIs are published.

 - API\_TOPOLOGY\_HIDING\_REVOKED:

 Events related to the revocation of the API topology hiding information of

 the service APIs after the service APIs are unpublished.

 - API\_INVOKER\_ONBOARDING\_CRITERIA\_FAILED: Events related to API Invoker onboarding criteria

 failed to be met.

 - SERVICE\_API\_RECENT\_ONBOARDED\_API\_INVOKERS\_COUNT: Periodic event related to the number of API

 Invokers currently enrolled to particular service APIs as a result of onboarded,

 offboarding or updating the enrollment.

 - SERVICE\_API\_RECENT\_API\_DISCOVERY\_COUNT: Periodic event related to the number of API Invokers

 that requested or received information related to particular service APIs

 to/from the CCF during discover service APIs or open discover service APIs operations,

 within the reporting period including the particular service APIs.

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