**3GPP TSG-CT3 Meeting #119e C3-216500**

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

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.222** | **CR** | **0217** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  |
| *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:***  | Update of OpenAPI version and TS version in externalDocs field |
|  |  |
| ***Source to WG:*** | Samsung |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2021-11-23 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The following APIs are modified by the CR(s) agreed in CT3#118e and CT3#119e meetings. The version number of the corressponding Open API files need to be updated following the rules in TS 29.501, clause 4.3.1, which are under release (Rel-17) development.The following agreed CR updates the OpenAPI files for CAPIF\_Discover\_Service\_API and CAPIF\_Publish\_Service\_API APIs:* TS 29.222 CR #0215 introduces backward compatible feature.

The data type changes in the agreed CR (TS 29.222, #0215) is used by the following Open APIs:* CAPIF\_Events\_API
* CAPIF\_API\_Invoker\_Management\_API
* CAPIF\_Routing\_Info\_API

 The agreed CRs introduce backward compatible features to the above APIs. The impacted APIs are under pre-release development, the second minor version is updated during the start of the release due to BC change, hence the pre-release version number (“alpha.n”) of the APIs need to be incremented as per TS 29.501, clause 4.3.1.2. The TS version number included in the "description" field of the "externalDocs" object also needs to be updated from v17.2.0 to v17.3.0, where the agreed CRs are applied.The above mentioned updates to Open API version and externalDocs version, also apply to the Open APIs that are affected by the data type changes agreed in CR #0215 i.e, CAPIF\_Events\_API, CAPIF\_API\_Invoker\_Management\_API and CAPIF\_Routing\_Info\_API. |
|  |  |
| ***Summary of change:*** | The CAPIF\_Discover\_Service\_API* Version incremented from value "1.2.0-alpha.1" to "1.2.0-alpha.2" value.
* TS version number in the "description" field of the "externalDocs" object is changed to “17.3.0”

The CAPIF\_Publish\_Service\_API* Version incremented from value "1.2.0-alpha.2" to "1.2.0-alpha.3" value.
* TS version number in the "description" field of the "externalDocs" object is changed to “17.3.0”.

The CAPIF\_Events\_API* Version incremented from value "1.2.0-alpha.1" to "1.2.0-alpha.2" value.
* TS version number in the "description" field of the "externalDocs" object is changed to “17.3.0”.

The CAPIF\_API\_Invoker\_Management\_API* Version incremented from value "1.2.0-alpha.2" to "1.2.0-alpha.3" value.
* TS version number in the "description" field of the "externalDocs" object is changed to “17.3.0”.

The CAPIF\_Routing\_Info\_API* Version incremented from value "1.1.0-alpha.1" to "1.1.0-alpha.2" value.
* TS version number in the "description" field of the "externalDocs" object is changed to “17.3.0”.
 |
|  |  |
| ***Consequences if not approved:*** | Incorrect OpenAPI version and TS version in the OpenAPI file. |
|  |  |
| ***Clauses affected:*** | A.2, A.3, A.4, A.5, A.12 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

## A.2 CAPIF\_Discover\_Service\_API

openapi: 3.0.0

info:

 title: CAPIF\_Discover\_Service\_API

 description: |

 API for discovering service APIs.

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 version: "1.2.0-alpha.2"

externalDocs:

 description: 3GPP TS 29.222 V17.3.0 Common API Framework for 3GPP Northbound APIs

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

servers:

 - url: '{apiRoot}/service-apis/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /allServiceAPIs:

 get:

 description: Discover published service APIs and retrieve a collection of APIs according to certain filter criteria.

 parameters:

 - name: api-invoker-id

 in: query

 description: String identifying the API invoker assigned by the CAPIF core function. It also represents the CCF identifier in the CAPIF-6/6e interface.

 required: true

 schema:

 type: string

 - name: api-name

 in: query

 description: API name, it is set as {apiName} part of the URI structure as defined in subclause 4.4 of 3GPP TS 29.501.

 schema:

 type: string

 - name: api-version

 in: query

 description: API major version the URI (e.g. v1).

 schema:

 type: string

 - name: comm-type

 in: query

 description: Communication type used by the API (e.g. REQUEST\_RESPONSE).

 schema:

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

 - name: protocol

 in: query

 description: Protocol used by the API.

 schema:

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

 - name: aef-id

 in: query

 description: AEF identifer.

 schema:

 type: string

 - name: data-format

 in: query

 description: Data formats used by the API (e.g. serialization protocol JSON used).

 schema:

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

 - name: api-cat

 in: query

 description: The service API category to which the service API belongs to.

 schema:

 type: string

 - name: supported-features

 in: query

 description: Features supported by the NF consumer for the CAPIF Discover Service API.

 schema:

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

 - name: api-supported-features

 in: query

 description: Features supported by the discovered service API indicated by api-name parameter. This may only be present if api-name query parameter is present.

 schema:

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

 responses:

 '200':

 description: The response body contains the result of the search over the list of registered APIs.

 content:

 application/json:

 schema:

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

 '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'

 '406':

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

 '414':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/414'

 '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:

 DiscoveredAPIs:

 type: object

 description: Represents a list of APIs currently registered in the CAPIF core function and satisfying a number of filter criteria provided by the API consumer.

 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 service. Each service API description shall include AEF profiles matching the filter criteria.

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

## A.3 CAPIF\_Publish\_Service\_API

openapi: 3.0.0

info:

 title: CAPIF\_Publish\_Service\_API

 description: |

 API for publishing service APIs.

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 version: "1.2.0-alpha.3"

externalDocs:

 description: 3GPP TS 29.222 V17.3.0 Common API Framework for 3GPP Northbound APIs

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

servers:

 - url: '{apiRoot}/published-apis/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

# APF published API

 /{apfId}/service-apis:

 post:

 description: Publish a new API.

 parameters:

 - name: apfId

 in: path

 required: true

 schema:

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

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Service API published successfully The URI of the created resource shall be returned in the "Location" HTTP header.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/published-apis/v1/{apfId}/service-apis/{serviceApiId}'

 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'

 get:

 description: Retrieve all published APIs.

 parameters:

 - name: apfId

 in: path

 required: true

 schema:

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

 responses:

 '200':

 description: Definition of all service API(s) published by the API publishing function.

 content:

 application/json:

 schema:

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

 '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'

 '406':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

# Individual APF published API

 /{apfId}/service-apis/{serviceApiId}:

 get:

 description: Retrieve a published service API.

 parameters:

 - name: serviceApiId

 in: path

 required: true

 schema:

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

 - name: apfId

 in: path

 required: true

 schema:

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

 responses:

 '200':

 description: Definition of all service API published by the API publishing function.

 content:

 application/json:

 schema:

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

 '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'

 '406':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

 put:

 description: Update a published service API.

 parameters:

 - name: serviceApiId

 in: path

 required: true

 schema:

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

 - name: apfId

 in: path

 required: true

 schema:

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

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: Definition of service API updated successfully.

 content:

 application/json:

 schema:

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

 '204':

 description: No Content

 '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'

 delete:

 description: Unpublish a published service API.

 parameters:

 - name: serviceApiId

 in: path

 required: true

 schema:

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

 - name: apfId

 in: path

 required: true

 schema:

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

 responses:

 '204':

 description: The individual published service API matching the serviceAPiId is 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'

# Components

components:

 schemas:

# Data types uses as path variables

 apfId:

 type: string

 description: Identification of the API publishing function.

 serviceApiId:

 type: string

 description: String identifying an individual published service API.

# Data Type for representations

 ServiceAPIDescription:

 type: object

 description: Represents the description of a service API as published by the APF.

 properties:

 apiName:

 type: string

 description: API name, it is set as {apiName} part of the URI structure as defined in subclause 4.4 of 3GPP TS 29.501.

 apiId:

 type: string

 description: API identifier assigned by the CAPIF core function to the published service API. Shall not be present in the HTTP POST request from the API publishing function to the CAPIF core function. Shall be present in the HTTP POST response from the CAPIF core function to the API publishing function and in the HTTP GET response from the CAPIF core function to the API invoker (discovery API).

 aefProfiles:

 type: array

 items:

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

 minItems: 1

 description: AEF profile information, which includes the exposed API details (e.g. protocol).

 description:

 type: string

 description: Text description of the API

 supportedFeatures:

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

 shareableInfo:

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

 serviceAPICategory:

 type: string

 apiSuppFeats:

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

 pubApiPath:

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

 ccfId:

 type: string

 description: CAPIF core function identifier.

 required:

 - apiName

 InterfaceDescription:

 type: object

 description: Represents the description of an API's interface.

 properties:

 ipv4Addr:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

 ipv6Addr:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

 port:

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

 securityMethods:

 type: array

 items:

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

 minItems: 1

 description: Security methods supported by the interface, it take precedence over the security methods provided in AefProfile, for this specific interface.

 oneOf:

 - required: [ipv4Addr]

 - required: [ipv6Addr]

 AefProfile:

 type: object

 description: Represents the AEF profile data.

 properties:

 aefId:

 type: string

 description: Identifier of the API exposing function

 versions:

 type: array

 items:

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

 minItems: 1

 description: API version

 protocol:

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

 dataFormat:

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

 securityMethods:

 type: array

 items:

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

 minItems: 1

 description: Security methods supported by the AEF

 domainName:

 type: string

 description: Domain to which API belongs to

 interfaceDescriptions:

 type: array

 items:

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

 minItems: 1

 description: Interface details

 required:

 - aefId

 - versions

 oneOf:

 - required: [domainName]

 - required: [interfaceDescriptions]

 Resource:

 type: object

 description: Represents the API resource data.

 properties:

 resourceName:

 type: string

 description: Resource name

 commType:

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

 uri:

 type: string

 description: Relative URI of the API resource, it is set as {apiSpecificResourceUriPart} part of the URI structure as defined in subclause 4.4 of 3GPP TS 29.501.

 custOpName:

 type: string

 description: it is set as {custOpName} part of the URI structure for a custom operation associated with a resource as defined in subclause 4.4 of 3GPP TS 29.501.

 operations:

 type: array

 items:

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

 minItems: 1

 description: Supported HTTP methods for the API resource. Only applicable when the protocol in AefProfile indicates HTTP.

 description:

 type: string

 description: Text description of the API resource

 required:

 - resourceName

 - commType

 - uri

 CustomOperation:

 type: object

 description: Represents the description of a custom operation.

 properties:

 commType:

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

 custOpName:

 type: string

 description: it is set as {custOpName} part of the URI structure for a custom operation without resource association as defined in subclause 4.4 of 3GPP TS 29.501.

 operations:

 type: array

 items:

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

 minItems: 1

 description: Supported HTTP methods for the API resource. Only applicable when the protocol in AefProfile indicates HTTP.

 description:

 type: string

 description: Text description of the custom operation

 required:

 - commType

 - custOpName

 Version:

 type: object

 description: Represents the API version information.

 properties:

 apiVersion:

 type: string

 description: API major version in URI (e.g. v1)

 expiry:

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

 resources:

 type: array

 items:

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

 minItems: 1

 description: Resources supported by the API.

 custOperations:

 type: array

 items:

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

 minItems: 1

 description: Custom operations without resource association.

 required:

 - apiVersion

 ShareableInformation:

 type: object

 description: Indicates whether the service API and/or the service API category can be shared to the list of CAPIF provider domains.

 properties:

 isShareable:

 type: boolean

 description: Set to "true" indicates that the service API and/or the service API category can be shared to the list of CAPIF provider domain information. Otherwise set to "false".

 capifProvDoms:

 type: array

 items:

 type: string

 minItems: 1

 description: List of CAPIF provider domains to which the service API information to be shared.

 required:

 - isShareable

 PublishedApiPath:

 type: object

 description: Represents the published API path within the same CAPIF provider domain.

 properties:

 ccfIds:

 type: array

 items:

 type: string

 minItems: 1

 description: A list of CCF identifiers where the service API is already published.

 Protocol:

 anyOf:

 - type: string

 enum:

 - HTTP\_1\_1

 - HTTP\_2

 - 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

 - HTTP\_1\_1: HTTP version 1.1

 - HTTP\_2: HTTP version 2

 CommunicationType:

 anyOf:

 - type: string

 enum:

 - REQUEST\_RESPONSE

 - SUBSCRIBE\_NOTIFY

 - 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

 - REQUEST\_RESPONSE: The communication is of the type request-response

 - SUBSCRIBE\_NOTIFY: The communication is of the type subscribe-notify

 DataFormat:

 anyOf:

 - type: string

 enum:

 - JSON

 - 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

 - JSON: JavaScript Object Notation

 SecurityMethod:

 anyOf:

 - type: string

 enum:

 - PSK

 - PKI

 - OAUTH

 - 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

 - PSK: Security method 1 (Using TLS-PSK) as described in 3GPP TS 33.122

 - PKI: Security method 2 (Using PKI) as described in 3GPP TS 33.122

 - OAUTH: Security method 3 (TLS with OAuth token) as described in 3GPP TS 33.122

 Operation:

 anyOf:

 - type: string

 enum:

 - GET

 - POST

 - PUT

 - PATCH

 - DELETE

 - 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

 - GET: HTTP GET method

 - POST: HTTP POST method

 - PUT: HTTP PUT method

 - PATCH: HTTP PATCH method

 - DELETE: HTTP DELETE method

\*\*\* 3rd 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: "1.2.0-alpha.2"

externalDocs:

 description: 3GPP TS 29.222 V17.3.0 Common API Framework for 3GPP Northbound APIs

 url: http://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 subclause 7.5 of 3GPP TS 29.222

paths:

 /{subscriberId}/subscriptions:

 post:

 description: Creates a new individual CAPIF Event Subscription.

 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'

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 requestBody: # contents of the callback message

 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'

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

 /{subscriberId}/subscriptions/{subscriptionId}:

 delete:

 description: Deletes an individual CAPIF Event Subscription.

 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: The individual CAPIF Events Subscription matching the subscriptionId is 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'

components:

 schemas:

 EventSubscription:

 type: object

 description: Represents an individual CAPIF Event 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'

 requestTestNotification:

 type: boolean

 description: Set to true by Subscriber to request the CAPIF core function to send a test notification as defined in in subclause 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 an individual CAPIF Event notification.

 properties:

 subscriptionId:

 type: string

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

 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 a CAPIF event 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'

 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

 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

 - 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

 - 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.

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

## A.5 CAPIF\_API\_Invoker\_Management\_API

openapi: 3.0.0

info:

 title: CAPIF\_API\_Invoker\_Management\_API

 description: |

 API for API invoker management.

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 version: "1.2.0-alpha.3"

externalDocs:

 description: 3GPP TS 29.222 V17.3.0 Common API Framework for 3GPP Northbound APIs

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

servers:

 - url: '{apiRoot}/api-invoker-management/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /onboardedInvokers:

 post:

 description: Creates a new individual API Invoker profile.

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 description: Notify the API Invoker about the onboarding completion

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content (successful onboarding 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'

 responses:

 '201':

 description: API invoker on-boarded successfully.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/api-invoker-management/v1/onboardedInvokers/{onboardingId}'

 required: true

 schema:

 type: string

 '202':

 description: The CAPIF core has accepted the Onboarding request and is processing it.

 '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'

 /onboardedInvokers/{onboardingId}:

 delete:

 description: Deletes an individual API Invoker.

 parameters:

 - name: onboardingId

 in: path

 description: String identifying an individual on-boarded API invoker resource

 required: true

 schema:

 type: string

 responses:

 '204':

 description: The individual API Invoker matching onboardingId was offboarded.

 '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:

 description: Updates an individual API invoker details.

 parameters:

 - name: onboardingId

 in: path

 description: String identifying an individual on-boarded API invoker resource

 required: true

 schema:

 type: string

 requestBody:

 description: representation of the API invoker details to be updated in CAPIF core function

 required: true

 content:

 application/json:

 schema:

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

 callbacks:

 notificationDestination:

 '{request.body#/notificationDestination}':

 post:

 description: Notify the API Invoker about the API invoker update completion

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content (successful API invoker update 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'

 responses:

 '200':

 description: API invoker details updated successfully.

 content:

 application/json:

 schema:

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

 '202':

 description: The CAPIF core has accepted the API invoker update details request and is processing it.

 '204':

 description: API invoker’s information updated successfully, with no content to be sent in the response body.

 '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:

 OnboardingInformation:

 type: object

 description: Represents on-boarding information of the API invoker.

 properties:

 apiInvokerPublicKey:

 type: string

 description: The API Invoker’s public key

 apiInvokerCertificate:

 type: string

 description: The API Invoker’s generic client certificate, provided by the CAPIF core function.

 onboardingSecret:

 type: string

 description: The API Invoker’s onboarding secret, provided by the CAPIF core function.

 required:

 - apiInvokerPublicKey

 APIList:

 type: array

 items:

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

 minItems: 1

 description: The list of service APIs that the API Invoker is allowed to invoke

 APIInvokerEnrolmentDetails:

 type: object

 properties:

 apiInvokerId:

 type: string

 description: API invoker ID assigned by the CAPIF core function to the API invoker while on-boarding the API invoker. Shall not be present in the HTTP POST request from the API invoker to the CAPIF core function, to on-board itself. Shall be present in all other HTTP requests and responses.

 readOnly: true

 onboardingInformation:

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

 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 subclause 7.6. Set to false or omitted otherwise.

 websockNotifConfig:

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

 apiList:

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

 apiInvokerInformation:

 type: string

 description: Generic information related to the API invoker such as details of the device or the application.

 supportedFeatures:

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

 required:

 - onboardingInformation

 - notificationDestination

 description: Information about the API Invoker that requested to onboard

 OnboardingNotification:

 type: object

 description: Represents a notification of on-boarding or update result.

 properties:

 result:

 type: boolean

 description: Set to "true" indicate successful on-boarding. Otherwise set to "false"

 resourceLocation:

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

 apiInvokerEnrolmentDetails:

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

 apiList:

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

 required:

 - result

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

## A.12 CAPIF\_Routing\_Info\_API

openapi: 3.0.0

info:

 title: CAPIF\_Routing\_Info\_API

 description: |

 API for Routing information.

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 version: "1.1.0-alpha.2"

externalDocs:

 description: 3GPP TS 29.222 V17.3.0 Common API Framework for 3GPP Northbound APIs

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

servers:

 - url: '{apiRoot}/capif-routing-info/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /service-apis/{serviceApiId}:

 get:

 description: Retrieves the API routing information.

 parameters:

 - name: serviceApiId

 in: path

 description: Identifier of a published service API

 required: true

 schema:

 type: string

 - name: aef-id

 in: query

 required: true

 description: Identifier of the AEF

 schema:

 type: string

 - name: supp-feat

 in: query

 required: false

 description: To filter irrelevant responses related to unsupported features

 schema:

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

 responses:

 '200':

 description: OK.

 content:

 application/json:

 schema:

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

 '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'

 '406':

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

 '414':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/414'

 '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:

 RoutingInfo:

 type: object

 description: Represents an API routing information.

 properties:

 routingRules:

 type: array

 items:

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

 minItems: 1

 required:

 - routingRules

 RoutingRule:

 type: object

 description: Represents an API routing rule.

 properties:

 ipv4AddrRanges:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/Ipv4AddressRange'

 minItems: 1

 ipv6AddrRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv6AddressRange'

 minItems: 1

 aefProfile:

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

 required:

 - aefProfile

 Ipv6AddressRange:

 type: object

 description: Represents IPv6 address range.

 properties:

 start:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

 end:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

 required:

 - start

 - end

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