**3GPP TSG- Meeting #C3-231201**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.222** | **CR** | **0297** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  |
| *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:***  | Completing the support of CAPIF protocol and data formats extensibility requirements |
|  |  |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell, Intel, Ericsson? |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | NBI18 |  | ***Date:*** | 2023-04-10 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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:*** | As per the LS received from SA6 in C3-231021 on CAPIF extensibility requirements, CAPIF APIs should support vendor specific functionalities and different protocol / architectural design style. These extensions are however not applicable to AEFs defined by 3GPP (i.e. NEF, SCEF).In CT3#126 meeting, the Protocol and DataFormat enumerations were updated to contain new values that apply only to AEFs defined outside 3GPP. There is however a remaining Editor's Note on investigating the best mechanism to convey these additional values. In order to solve this remaining open point, it is proposed to specify the following 2 options:* The additional protocol and/or data format values for AEFs defined by other SDOs are simply defined as additional enumeration values controlled by a new feature having the suffix "EXT1". If other values are needed in future releases (e.g. Rel-19), they can be introduced via a new feature that would have the following suffix (e.g. "EXT2").
* The additional protocol and/or data format values defined by other SDOs are conveyed using vendor-specifc extensions (i.e. vendor-specific attributes). In this case, the "protocol" and/or "dataFormat" attributes are either not provided or provided and set to the value "EXTERNAL". This enables that other SDOs provide new values without having to update the 3GPP specification.
 |
|  |  |
| ***Summary of change:*** | * It is proposed to adopt the above detailed options to resolve the remaing Editor's Notes.
 |
|  |  |
| ***Consequences if not approved:*** | * Stage 2 requirements not fully captured in stage 3.
 |
|  |  |
| ***Clauses affected:*** | 8.2.4.2.4, 8.2.4.3.3, 8.2.4.3.4, 8.2.6, A.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces a backwards compatible feature to the OpenAPI description of the CAPIF\_Publish\_Service\_API defined in this specification. |
|  |  |
| ***This CR's revision history:*** |  |

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

##### 8.2.4.2.4 Type: AefProfile

Table 8.2.4.2.4-1: Definition of type AefProfile

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| aefId | string | M | 1 | AEF identifier  |  |
| versions | array(Version) | M | 1..N | API version |  |
| protocol | Protocol | O | 0..1 | Protocol used by the API.(NOTE 3) |  |
| dataFormat | DataFormat | O | 0..1 | Data format used by the API(NOTE 3) |  |
| securityMethods | array(SecurityMethod) | O | 1..N | Security methods supported by the AEF for all interfaces. Certain interfaces may have different security methods supported in the attribute interfaceDescriptions. |  |
| domainName | string | O | 0..1 | Domain to which API belongs to(NOTE 1) |  |
| interfaceDescriptions | array(InterfaceDescription) | O | 1..N | Interface details(NOTE 1) |  |
| aefLocation | AefLocation | O | 0..1 | The location information (e.g. civic address, GPS coordinates, data center ID) where the AEF providing the service API is located. |  |
| NOTE 1: Only one of the attributes "domainName" or "interfaceDescriptions" shall be included.NOTE 2: Notification or callback type of resource is not included.NOTE 3: When the ProtocDataFormats\_Ext1 feature is supported, the protocol and/or data format to be used for AEFs defined outside 3GPP (e.g. by other SDOs) should be indicated by providing the corresponding enumeration value (e.g. "MQTT" for the protocol, "XML" for the data format) within the "protocol" and/or "dataFormat" attribute respectively. The protocol and/or data format to be used for AEFs defined outside 3GPP (e.g. by other SDOs) may alternatively be indicated via vendor-specific extensions to the AefProfile data structure using the mechanism defined in clause 7.11. |

\* \* \* \* Next Change \* \* \* \*

##### 8.2.4.3.3 Enumeration: Protocol

Table 8.2.4.3.3-1: Enumeration Protocol

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| HTTP\_1\_1 | Indicates that the protocol is HTTP version 1.1. |  |
| HTTP\_2 | Indicates that the protocol is HTTP version 2. |  |
| MQTT | Indicates that the protocol is Message Queuing Telemetry Transport.(NOTE 1) | ProtocDataFormats\_Ext1 |
| WEBSOCKET | Indicates that the protocol is Websocket.(NOTE 1) | ProtocDataFormats\_Ext1 |
| NOTE 1: In this release of the specification, this enumeration value shall not be provided for AEFs defined by 3GPP (e.g. SCEF, NEF). It may only be provided for AEFs defined outside 3GPP (e.g. by other SDOs).NOTE 2: In this release of the specification, this enumeration value shall only be used to indicate that the protocol used by an AEF that is defined outside 3GPP (e.g. defined by other SDOs) is conveyed via a dedicated vendor-specific extension using the mechanism defined in clause 7.11. |

\* \* \* \* Next Change \* \* \* \*

##### 8.2.4.3.4 Enumeration: DataFormat

Table 8.2.4.3.4-1: Enumeration DataFormat

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| JSON | Indicates that the data format is JSON (JavaScript Object Notation). |  |
|  |  |  |
|  |  |  |
| XML | Indicates that the data format is Extensible Markup Language.(NOTE 1) | ProtocDataFormats\_Ext1 |
| PROTOBUF3 | Indicates that the data format is Protocol buffers version 3.(NOTE 1) | ProtocDataFormats\_Ext1 |
| NOTE 1: In this release of the specification, this enumeration value shall not be provided for AEFs defined by 3GPP (e.g. SCEF, NEF). It may only be provided for AEFs defined outside 3GPP (e.g. by other SDOs).NOTE 2: In this release of the specification, this enumeration value shall only be used to indicate that the data format used by an AEF that is defined outside 3GPP (e.g. defined by other SDOs) is conveyed via a dedicated vendor-specific extension using the mechanism defined in clause 7.11. |

\* \* \* \* Next Change \* \* \* \*

### 8.2.6 Feature negotiation

General feature negotiation procedures are defined in clause 7.8.

Table 8.2.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | ApiSupportedFeaturePublishing | Indicates the support of publishing with supported feature for a service API. |
| 2 | PatchUpdate | Indicates the support of the PATCH method for updating an APF published API resource. |
| 3 | ExtendedIntfDesc | Indicates the support of extended interface descriptions. |
| 4 | MultipleCustomOperations | Indicates the support of modelling multiple custom operations associated with a resource. |
| 5 | ProtocDataFormats\_Ext1 | Indicates the support of additional protocols and data formats with standardized values.(NOTE) |
| NOTE: In this release of the specification, this feature is only applicable for AEFs defined outside 3GPP (e.g. by other SDOs). It does not apply to AEFs defined by 3GPP (e.g. SCEF, NEF). |

\* \* \* \* Next 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: "1.3.0-alpha.2"

externalDocs:

 description: 3GPP TS 29.222 V18.1.0 Common API Framework for 3GPP Northbound APIs

 url: https://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 clause 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:

 type: string

 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:

 type: string

 responses:

 '200':

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

 content:

 application/json:

 schema:

 type: array

 items:

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

 minItems: 0

 '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:

 type: string

 - name: apfId

 in: path

 required: true

 schema:

 type: string

 responses:

 '200':

 description: >

 Definition of individual 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:

 type: string

 - name: apfId

 in: path

 required: true

 schema:

 type: string

 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'

 patch:

 description: Modify an existing published service API.

 operationId: ModifyIndAPFPubAPI

 tags:

 - Individual APF published API

 parameters:

 - name: serviceApiId

 in: path

 required: true

 schema:

 type: string

 - name: apfId

 in: path

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: >

 The definition of the service API is modified successfully and a

 representation of the updated service API is returned in the request body.

 content:

 application/json:

 schema:

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

 '204':

 description: No Content. The definition of the service API is modified successfully.

 '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:

 type: string

 - name: apfId

 in: path

 required: true

 schema:

 type: string

 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 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

 clause 5.2.4 of 3GPP TS 29.122.

 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

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

 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'

 fqdn:

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

 port:

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

 apiPrefix:

 type: string

 description: >

 A string representing a sequence of path segments that starts with the slash character.

 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]

 - required: [fqdn]

 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

 aefLocation:

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

 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 {apiSpecificSuffixes} part

 of the URI structure as defined in clause 5.2.4 of 3GPP TS 29.122.

 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 clause 5.2.4 of 3GPP TS 29.122.

 custOperations:

 type: array

 items:

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

 minItems: 1

 description: >

 Custom operations associated with this resource.

 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 clause 5.2.4 of 3GPP TS 29.122.

 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.

 AefLocation:

 description: >

 Represents the location information (e.g. civic address, GPS coordinates, data center ID)

 where the AEF providing the service API is located.

 type: object

 properties:

 civicAddr:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

 geoArea:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

 dcId:

 type: string

 description: >

 Identifies the data center where the AEF providing the service API is located.

 ServiceAPIDescriptionPatch:

 type: object

 description: >

 Represents the parameters to request the modification of an APF published API resource.

 properties:

 aefProfiles:

 type: array

 items:

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

 description: AEF profile information, which includes the exposed API details.

 minItems: 1

 description:

 type: string

 description: Text description of the API

 shareableInfo:

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

 serviceAPICategory:

 type: string

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

 apiSuppFeats:

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

 pubApiPath:

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

 ccfId:

 type: string

 description: CAPIF core function identifier.

 Protocol:

 anyOf:

 - type: string

 enum:

 - HTTP\_1\_1

 - HTTP\_2

 - MQTT

 - WEBSOCKET

 - 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: |

 Indicates a protocol and protocol version used by the API.

 Possible values are:

 - HTTP\_1\_1: Indicates that the protocol is HTTP version 1.1.

 - HTTP\_2: Indicates that the protocol is HTTP version 2.

 - MQTT: Indicates that the protocol is Message Queuing Telemetry Transport.

 - WEBSOCKET: Indicates that the protocol is Websocket.

 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: |

 Indicates a communication type of the resource or the custom operation.

 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

 - XML

 - PROTOBUF3

 - 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: |

 Indicates a data format.

 Possible values are:

 - JSON: Indicates that the data format is JSON.

 - XML: Indicates that the data format is Extensible Markup Language.

 - PROTOBUF3: Indicates that the data format is Protocol buffers version 3.

 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: |

 Indicates the security method.

 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: |

 Indicates an HTTP method.

 Possible values are:

 - GET: HTTP GET method.

 - POST: HTTP POST method.

 - PUT: HTTP PUT method.

 - PATCH: HTTP PATCH method.

 - DELETE: HTTP DELETE method.

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