**3GPP TSG-CT3 Meeting #116e C3-213119\_r1**

**E-Meeting, 19th – 28th May 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.222** | **CR** | **0206** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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:*** | Support of 204 No content response code for service API definition update(NBI17) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NBI17 | | | | |  | ***Date:*** | | | 2021-5-12 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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 can be 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:*** | | It’s possible that the server responds with 204 No content without any representation during service API definition update procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add “204 No content” as a possible response code for update procedure of CAPIF\_Publish\_Service\_API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | “204 No content” response code is not supported for service API definition update procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.2.3.3.2, 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 backward compatible feature in the OpenAPI file for the CAPIF\_Publish\_Service\_API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**…**

**Proposed changes:**

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

###### 8.2.2.3.3.2 PUT

This method shall support the URI query parameters specified in table 8.2.2.3.3.2-1.

Table 8.2.2.3.3.2-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 8.2.2.3.3.2-2 and the response data structures and response codes specified in table 8.2.2.3.3.2-3.

Table 8.2.2.3.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServiceAPIDescription | M | 1 | Updated definition of the service API. |

Table 8.2.2.3.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ServiceAPIDescription | M | 1 | 200 OK | Definition of the service API updated successfully and the updated service API definition is returned. |
| n/a |  |  | 204 No Content | Definition of the service API updated successfully. |

\*\*\* 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: "1.1.0"

externalDocs:

description: 3GPP TS 29.222 V16.3.0 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'

'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'

'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

'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.

'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

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

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

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

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

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

properties:

apiVersion:

type: string

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

expiry:

$ref: 'TS29571\_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

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

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

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