**3GPP TSG CT WG3 Meeting #132e *C3-240108\_R4***

**Electronic, 22 - 24 January, 2024**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.222** | **CR** | **0336** | **rev** | **-** | **Current version:** | **18.4.0** |  |
|  |
| *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 onboarding expiration in the CAPIF\_API\_Invoker\_Management\_API |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | NSCALE |  | ***Date:*** | 2023-12-17 |
|  |  |  |  |  |
| ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Clauses 8.1.2.1 and 8.1.2.2 of 23.222 introduce expiration time functionality for the the enrollment of the API invoker in CAPIF Layer.Thus, this functionality shall be implemented in Stage 3. |
|  |  |
| ***Summary of change:*** | This CR introduces the expiration time functionality for the enrollment of the API invoker in CAPIF Layer. |
|  |  |
| ***Consequences if not approved:*** | Misalignment with stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 8.4.4.1, 8.4.4.2.2, 8.4.4.2.8, 8.4.6, A.5 |
|  |  |
|  | **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 intorduces a backward compatible feature for the CAPIF\_API\_Invoker\_Management\_API.
 |
| ***()*** |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 8.4.4.1 General

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

Table 8.4.4.1-1 specifies the data types defined specifically for the CAPIF\_API\_Invoker\_Management\_API service.

Table 8.4.4.1-1: CAPIF\_API\_Invoker\_Management\_API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| APIInvokerEnrolmentDetails | Clause 8.4.4.2.2 | Represents information about the API Invoker that requested to onboard. |  |
| APIInvokerEnrolmentDetailsPatch | Clause 8.4.4.2.8 | Represents an API Invoker's enrolment details to be updated. | PatchUpdate |
| APIList | Clause 8.4.4.2.4 | The list of service APIs that the API Invoker is allowed to invoke. |  |
| OnboardingInformation | Clause 8.4.4.2.5 | Represents on-boarding information of the API invoker. |  |
| OnboardingNotification | Clause 8.4.4.2.7 | Represents the notification with on-boarding or update result. |  |

Table 8.4.4.1-2 specifies data types re-used by the CAPIF\_API\_Invoker\_Management\_API service.

Table 8.4.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [14] | Used to indicate a date and a time. |  |
| DateTimeRm | 3GPP TS 29.122 [14] | Used to indicate the same as the DateTime data structure but with the OpenAPI "nullable: true" property. |  |
| SupportedFeatures | 3GPP TS 29.571 [19] | Used to negotiate the applicability of optional features defined in table 8.4.6-1. |  |

\* \* \* Next change \* \* \* \*

##### 8.4.4.2.2 Type: APIInvokerEnrolmentDetails

Table 8.4.4.2.2-1: Definition of type APIInvokerEnrolmentDetails

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| apiInvokerId | string | O | 0..1 | 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. |  |
| onboardingInformation | OnboardingInformation | M | 1 | On-boarding information about the API invoker necessary for the CAPIF core function to on-board the API invoker. |  |
| notificationDestination | Uri | M | 1 | URI where the notification should be delivered to. |  |
| requestTestNotification | boolean | O | 0..1 | CAPIF core function to send a test notification as defined in in clause 7.6. Set to "false" to request the CAPIF core function not to send a test notification.Default value is "false" if omitted. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 7.6. | Notification\_websocket |
| apiList | APIList | O | 0..1 | A list of APIs. When included by the API invoker in the HTTP request message, it lists the APIs that the API invoker intends to invoke while onboard or API invoker update. When included by the CAPIF core function in the HTTP response message, it lists the APIs that the API invoker is allowed to invoke while onboard or API invoker update. |  |
| apiInvokerInformation | string | O | 0..1 | Generic information related to the API invoker such as details of the device or the application.  |  |
| expTime | DateTime | O | 0..1 | Represents the expiration time of the onboarding.If this attribute is absent, this means that the onboarding timer shall not expire until explicitly included, updated or deleted by the service consumer. | ExpirationTime |
| supportedFeatures | SupportedFeatures | C | 0..1 | Used to negotiate the supported optional features of the API as described in clause 7.8.This attribute shall be provided in the HTTP POST request and in the response of successful resource creation. |  |

##### 8.4.4.2.8 Type: APIInvokerEnrolmentDetailsPatch

Table 8.4.4.2.8-1: Definition of type APIInvokerEnrolmentDetailsPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| onboardingInformation | OnboardingInformation | O | 0..1 | On-boarding information about the API invoker necessary for the CAPIF core function to on-board the API invoker. |  |
| notificationDestination | Uri | O | 0..1 | URI where the notification should be delivered to. |  |
| apiList | APIList | O | 0..1 | A list of APIs. When included by the API invoker in the HTTP request message, it lists the APIs that the API invoker intends to invoke while onboard or API invoker update.  |  |
| apiInvokerInformation | string | O | 0..1 | Generic information related to the API invoker such as details of the device or the application.  |  |
| expTime | DateTimeRm | O | 0..1 | Represents the updated expiration time of the onboarding. | ExpirationTime |

\* \* \* Next change \* \* \* \*

### 8.4.6 Feature negotiation

General feature negotiation procedures are defined in clause 7.8. Table 8.4.6-1 lists the supported features for CAPIF\_API\_Invoker\_Management\_API.

Table 8.4.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | Notification\_test\_event | Testing of notification connection is supported according to clause 7.6. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 7.6. This feature requires that the Notification\_test\_event feature is also supported. |
| 3 | PatchUpdate | Indicates the support of the PATCH method for updating an On-boarded API Invoker resource. |
| 4 | ExpirationTime | Indicates the support of expiration time for the API invoker onboarding functionality as part of the support of network slice capability exposure application layer framework.This feature enables the following functionalities:- provisioning/updating/deleting the expiration time of an onboarding. |

\* \* \* Next 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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 All rights reserved.

 version: "1.3.0-alpha.1"

externalDocs:

 description: 3GPP TS 29.222 V18.0.0 Common API Framework for 3GPP Northbound APIs

 url: https://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 clause 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'

 patch:

 description: Modify an individual API invoker details.

 operationId: ModifyIndApiInvokeEnrolment

 tags:

 - Individual API Invoker enrolment details

 parameters:

 - name: onboardingId

 in: path

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 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/APIInvokerEnrolmentDetails'

 '202':

 description: The request is accepted and under processing.

 '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'

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: object

 description: Represents a list of APIs.

 properties:

 serviceAPIDescriptions:

 type: array

 items:

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

 minItems: 1

 description: Represents 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 clause 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.

 expTime:

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

 supportedFeatures:

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

 required:

 - onboardingInformation

 - notificationDestination

 description: Represents 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

 APIInvokerEnrolmentDetailsPatch:

 type: object

 description: Represents an API Invoker's enrolment details to be updated.

 properties:

 onboardingInformation:

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

 notificationDestination:

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

 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.

 expTime:

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

\* \* \* End of changes \* \* \* \*