**3GPP TSG-CT WG3 Meeting #131 *C3-235155***

**Chicago, United States, 13 - 17 November, 2023 (revision of C3-235155)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.222** | **CR** | **0313** | **rev** | **2** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Update authorization obtaining part to support resource owner-aware northbound API access | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CT3 | | | | | | | | | |
| ***Source to TSG:*** | Xiaomi | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SNAAPP | | | | |  | ***Date:*** | | | 2023-11-3 |
|  |  | | | |  | |  | | |  |
| ***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 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As referring to clause 6.5.3.1 of TS 33.122, in resource owner-aware northbound API access (RNAA) scenarios, the access token shall include the resource owner ID.  According to clause 6.5.3.2 of TS 33.122, to enable the API invoker to access the resources of a specific resource owner via client credentials flow, the token request may include the resource owner ID.  However, currently, AccessTokenReq, AccessTokenRsp, and AccessTokenClaims data types in TS 29.222, which relate to the authorization flow, do not contain resource owner ID information.  Currently, clause 5.6.2.3.2 of TS 29.222 only provides authorization procedure without involving UE ID checking. However, in RNAA scenarios, as described in clause 6.5.3.2 of TS 33.122, the CCF shall check that the UE is accessing its own resources if the API invoker is on a UE.  Without updating the authorization part, the CAPIF cannot support the RNAA feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the resource owner ID in the accesstokenreq and accesstokenresp data types.  Add the requirement and methods of checking UE is accessing its own resources. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | CAPIF cannot support the RNAA feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6.2.3.2, 8.5.4.2.6, 8.5.4.2.8, A.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 CAPIF\_Security\_API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

##### 5.6.2.3.2 Obtain authorization using Obtain\_Authorization service operation

To obtain authorization information from the CAPIF core function to invoke service APIs, the API invoker shall perform the functions of the resource owner, client and redirection endpoints as described in clause 6.5.2.3 of 3GPP TS 33.122 [16].

The API invoker shall send a POST request to the "Token Endpoint", as described in IETF RFC 6749 [23], clause 3.2. The "Token Endpoint" URI shall be:

{apiRoot}/capif-security/v1/securities/{securityId}/token

where {securityId} is the API invoker identifier and represents the "Individual trusted API invoker" resource created during obtain security method, as described in clause 5.6.2.2.  
  
The body of the HTTP POST request shall indicate that the required OAuth2 grant must be of type "client\_credentials". The "scope" parameter (if present) shall include a list of AEF identifiers and its associated API names the API invoker is trying to access (i.e., the API invoker expected scope). If the request is sent for client credentials flow in RNAA scenarios, the request may include the resource owner ID (i.e. the GPSI as defined in clause 6.5.3.1 of TS 33.122 [16]).

The API invoker may use HTTP Basic authentication towards this endpoint, using the API invoker identifier as "username" and the onboarding secret as "password". Such username and password may be included in the header or body of the HTTP POST request.

On success, "200 OK" shall be returned. The payload body of the POST response shall contain the requested access token, the token type and the expiration time for the token. The access token shall be a JSON Web Token (JWT) as specified in IETF RFC 7519 [24]. The access token returned by the CAPIF core function shall include the claims encoded as a JSON object as specified in clause 8.5.4.2.8 and then digitally signed using JWS as specified in IETF RFC 7515 [25] and in Annex C.1 of 3GPP TS 33.122 [16].

The digitally signed access token shall be converted to the JWS Compact Serialization encoding as a string as specified in clause 7.1 of IETF RFC 7515 [25].

If the access token request fails at the CAPIF core function, the CAPIF core function shall return "400 Bad Request" status code, including a JSON object in the response payload, that includes details about the specific error that occurred.

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

##### 8.5.4.2.6 Type: AccessTokenReq

Table 8.5.4.2.6-1: Definition of type AccessTokenReq

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| grant\_type | string | M | 1 | This IE shall contain the grant type as "client\_credentials"  (NOTE 3, NOTE 4) |
| client\_id | string | M | 1 | This IE shall contain the API invoker Identifier.  (NOTE 3) |
| client\_secret | string | O | 0..1 | This IE when present shall contain the onboarding secret which is got during API invoker onboarding.  (NOTE 3) |
| resource\_owner\_id | string | O | 1 | This IE shall contain the resource owner ID.  (NOTE x) |
| scope | string | O | 0..1 | This IE when present shall contain a list of AEF identifiers and its associated API names for which the access\_token is authorized for use.  It takes the format of 3gpp#aefId1:apiName1,apiName2,…apiNameX;aefId2:apiName1,apiName2,…apiNameY;…aefIdN:apiName1,apiName2,…apiNameZ  Using delimeter "#" after the discriminator "3gpp", ":" after AEF identifier, "," between API names and ";" between the last API name of the previous AEF identifier and the next AEF identifier. (NOTE 2)  Example: '3gpp#aef-jiangsu-nanjing:3gpp-monitoring-event,3gpp-as-session-with-qos;aef-zhejiang-hangzhou:3gpp-cp-parameter-provisioning,3gpp-pfd-management' |
| NOTE 1: This data structure shall not be treated as a JSON object. It shall be treated as a key, value pair data structure to be encoded using x-www-urlencoded format as specified in clause 17.13.4.1 of W3C HTML 4.01 Specification [22].  NOTE 2: The scope may contain more space-delimited strings which further add additional access ranges to the scope, the definition of those additional strings is out of the scope of the present document.  NOTE 3: The "grant\_type", "client\_id" and "client\_secret" attributes do not follow the related naming convention defined in subclause 7.2.1. These attributes are however kept as currently defined in this specification for backward compatibility considerations.  NOTE 4: The enumeration value "client\_credentials" of the "grant\_type" attribute does not follow the related naming convention defined in subclause 7.2.1. This enumeration is however kept as currently defined in this specification for backward compatibility considerations.  NOTE x: The resource\_owner\_id is only applicable to the RNAA feature. | | | | |

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

##### 8.5.4.2.8 Type: AccessTokenClaims

Table 8.5.4.2.8-1: Definition of type AccessTokenClaims

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| iss | string | M | 1 | This IE shall contain the API invoker Identifier. |
| scope | string | M | 1 | This IE shall contain a list of AEF identifiers and its associated API names for which the access\_token is authorized for use.  It takes the format of 3gpp#aefId1:apiName1,apiName2,…apiNameX;aefId2:apiName1,apiName2,…apiNameY;…aefIdN:apiName1,apiName2,…apiNameZ  Using delimeter "#" after the discriminator "3gpp", ":" after AEF identifier, "," between API names and ";" between the last API name of the previous AEF identifier and the next AEF identifier. (NOTE)  Example: '3gpp#aef-jiangsu-nanjing:3gpp-monitoring-event,3gpp-as-session-with-qos;aef-zhejiang-hangzhou:3gpp-cp-parameter-provisioning,3gpp-pfd-management' |
| exp | DurationSec | M | 1 | This IE shall contain the number of seconds after which the access\_token is considered to be expired. |
| resource\_owner\_id | string | O | 1 | This IE shall contain the resource owner ID. |
| NOTE: The scope may contain more space-delimited strings which further add additional access ranges to the scope, the definition of those additional strings is out of the scope of the present document.  NOTEx: The resource\_owner\_id is only applicable to the RNAA feature. | | | | |

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

# A.6 CAPIF\_Security\_API

openapi: 3.0.0

info:

title: CAPIF\_Security\_API

description: |

API for CAPIF security management.

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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}/capif-security/v1'

variables:

apiRoot:

default: https://example.com

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

paths:

/trustedInvokers/{apiInvokerId}:

get:

parameters:

- name: apiInvokerId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

- name: authenticationInfo

in: query

description: >

When set to 'true', it indicates the CAPIF core function to send the

authentication information of the API invoker. Set to false or omitted otherwise.

schema:

type: boolean

- name: authorizationInfo

in: query

description: >

When set to 'true', it indicates the CAPIF core function to send the

authorization information of the API invoker. Set to false or omitted otherwise.

schema:

type: boolean

responses:

'200':

description: >

The security related information of the API Invoker based on the request

from the API exposing function.

content:

application/json:

schema:

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

'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'

put:

parameters:

- name: apiInvokerId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

requestBody:

description: create a security context for an API invoker

required: true

content:

application/json:

schema:

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

callbacks:

notificationDestination:

'{request.body#/notificationDestination}':

post:

requestBody:

required: true

content:

application/json:

schema:

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

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: Successful created.

content:

application/json:

schema:

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

headers:

Location:

description: >

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

{apiRoot}/capif-security/v1/trustedInvokers/{apiInvokerId}

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'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'414':

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

'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:

parameters:

- name: apiInvokerId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

responses:

'204':

description: No Content (Successful deletion of the existing subscription)

'307':

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

'308':

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

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'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'

/trustedInvokers/{apiInvokerId}/update:

post:

parameters:

- name: apiInvokerId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

requestBody:

description: Update the security context (e.g. re-negotiate the security methods).

required: true

content:

application/json:

schema:

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

responses:

'200':

description: Successful updated.

content:

application/json:

schema:

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

'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'

/trustedInvokers/{apiInvokerId}/delete:

post:

parameters:

- name: apiInvokerId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

requestBody:

description: Revoke the authorization of the API invoker for APIs.

required: true

content:

application/json:

schema:

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

responses:

'204':

description: Successful revoked.

'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'

/securities/{securityId}/token:

post:

parameters:

- name: securityId

in: path

description: Identifier of an individual API invoker

required: true

schema:

type: string

requestBody:

required: true

content:

application/x-www-form-urlencoded:

schema:

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

responses:

'200':

description: Successful Access Token Request

content:

application/json:

schema:

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

'307':

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

'308':

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

'400':

description: Error in the Access Token Request

content:

application/json:

schema:

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

'401':

description: Unauthorized

content:

application/json:

schema:

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

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

schemas:

ServiceSecurity:

type: object

description: >

Represents the details of the security method for each service API interface.

When included by the API invoker, it indicates the preferred method of security.

When included by the CAPIF core function, it indicates the security method to be

used for the service API interface.

properties:

securityInfo:

type: array

items:

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

minimum: 1

notificationDestination:

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

requestTestNotification:

type: boolean

description: >

Set to true by API invoker to request the CAPIF core function to send a

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

websockNotifConfig:

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

supportedFeatures:

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

required:

- securityInfo

- notificationDestination

SecurityInformation:

type: object

description: Represents the interface details and the security method.

properties:

interfaceDetails:

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

aefId:

type: string

description: Identifier of the API exposing function

apiId:

type: string

description: API identifier

prefSecurityMethods:

type: array

items:

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

minItems: 1

description: Security methods preferred by the API invoker for the API interface.

selSecurityMethod:

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

authenticationInfo:

type: string

description: Authentication related information

authorizationInfo:

type: string

description: Authorization related information

required:

- prefSecurityMethods

oneOf:

- required: [interfaceDetails]

- required: [aefId]

SecurityNotification:

type: object

description: Represents the revoked authorization notification details.

properties:

apiInvokerId:

type: string

description: String identifying the API invoker assigned by the CAPIF core function.

aefId:

type: string

description: String identifying the AEF.

apiIds:

type: array

items:

type: string

minItems: 1

description: Identifier of the service API

cause:

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

required:

- apiInvokerId

- apiIds

- cause

AccessTokenReq:

format: x-www-form-urlencoded

description: Represents the access token request information.

properties:

grant\_type:

type: string

enum:

- client\_credentials

client\_id:

type: string

client\_secret:

type: string

resource\_owner\_id:

type: string

scope:

type: string

required:

- grant\_type

- client\_id

AccessTokenRsp:

type: object

description: Represents the access token response information.

properties:

access\_token:

type: string

description: >

JWS Compact Serialized representation of JWS signed JSON object (AccessTokenClaims)

token\_type:

type: string

enum:

- Bearer

expires\_in:

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

scope:

type: string

required:

- access\_token

- token\_type

- expires\_in

AccessTokenClaims:

type: object

description: Represents the claims data structure for the access token.

properties:

iss:

type: string

scope:

type: string

exp:

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

resource\_owner\_id:

type: string

required:

- iss

- scope

- exp

AccessTokenErr:

type: object

description: Represents an error in the access token request.

properties:

error:

type: string

enum:

- invalid\_request

- invalid\_client

- invalid\_grant

- unauthorized\_client

- unsupported\_grant\_type

- invalid\_scope

error\_description:

type: string

error\_uri:

type: string

required:

- error

Cause:

anyOf:

- type: string

enum:

- OVERLIMIT\_USAGE

- UNEXPECTED\_REASON

- 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 cause for revoking the API invoker's authorization to the service API.

Possible values are:

- OVERLIMIT\_USAGE:

The revocation of the authorization of the API invoker is due to the overlimit

usage of the service API

- UNEXPECTED\_REASON:

The revocation of the authorization of the API invoker is due to unexpected reason.

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