**3GPP TSG-CT WG3 Meeting #126 *C3-230793***

**Athens, Greece, 27th - 3rd, March, 2023 (revision of C3-230549)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.222** | **CR** | **0294** | **rev** | **1** | **Current version:** | **18.0.0** |  |
|  | | | | | | | | |
| *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:*** | Update for CAPIF\_Auditing\_API to support carrying multiple invocation logs and feature negotiation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NBI18 | | | | |  | ***Date:*** | | | 2023-02-01 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | * The InvocationLog data type contained in the GET response Body is inconsistent with the OpenAPI file and multiple invocation logs may be returned according to the query parameters. Hence, it is proposed to support carrying multiple invocation logs in the GET response. * The supported features is not included in the GET response. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define InvocationLogsRetrieveRes data type to support:   * carrying multiple invocation logs to the consumer * feature negotiation between the consumer and CAPIF core function. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Inconsistency between main body and the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.9.2.2.2, 8.8.2.2.3.1, 8.8.4.1, 8.8.4.2, 8.8.4.2.1, 8.8.4.2.2, 8.8.4.2.3,8.8.6, A.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 backwards compatible feature to the OpenAPI file for CAPIF\_Auditing\_API | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

##### 5.9.2.2.2 Query API invocation information logs using Query\_Invocation\_Logs service operation

To query service API invocation logs at the CAPIF core function, the API management function shall send an HTTP GET message with the API management function identity information and optionally a set of log query parameters to the CAPIF core function as specified in clause 8.8.2.2.3.1.

Upon receiving the above described HTTP GET message, the CAPIF core function shall:

1. verify the identity of the API management function and check if the API management function is authorized to query the service API invocation logs;

2. if the API management function is authorized to query the service API invocation logs, the CAPIF core function shall:

a. search the API invocation logs for logs matching the log query parameters, if any; and

b. return the search results in the response message

.

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

###### 8.8.2.2.3.1 GET

This method shall support the URI query parameters specified in table 8.8.2.2.3.1-1.

Table 8.8.2.2.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| aef-id | string | O | 0..1 | String identifying the API exposing function |
| api-invoker-id | string | O | 0..1 | String identifying the API invoker which invoked the service API |
| time-range-start | DateTime | O | 0..1 | Start time of the invocation time range |
| time-range-end | DateTime | O | 0..1 | End time of the invocation time range |
| api-id | string | O | 0..1 | String identifying the API invoked. |
| api-name | string | O | 0..1 | API name, it is set as {apiName} part of the URI structure as defined in clause 5.2.4 of 3GPP TS 29.122 [14]. |
| api-version | string | O | 0..1 | Version of the API which was invoked |
| protocol | Protocol | O | 0..1 | Protocol invoked |
| operation | Operation | O | 0..1 | Operation that was invoked on the API |
| result | string | O | 0..1 | HTTP status code of the invocation |
| resource-name | string | O | 0..1 | Name of the specific resource invoked |
| src-interface | InterfaceDescription | O | 0..1 | Interface description of the API invoker. |
| dest-interface | InterfaceDescription | O | 0..1 | Interface description of the API invoked. |
| supported-features | SupportedFeatures | O | 0..1 | To filter irrelevant responses related to unsupported features. |

This method shall support the request data structures specified in table 8.8.2.2.3.1-2 and the response data structures and response codes specified in table 8.8.2.2.3.1-3.

Table 8.8.2.2.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 8.8.2.2.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| InvocationLogsRetrieveRes | O | 0..1 | 200 OK | Result of the query operation along with fetched service API invocation log data. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative CAPIF core function.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [14]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative CAPIF core function.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [14]. |
| ProblemDetails | O | 0..1 | 414 URI Too Long | Indicates that the server is refusing to service the request because the request-target is too long. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [14] also apply. | | | | |

Table 8.8.2.2.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative CAPIF core function. |

Table 8.8.2.2.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative CAPIF core function. |

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

#### 8.8.4.1 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 8.8.4.1-1 specifies the data types defined specifically for the CAPIF\_Auditing\_API service.

Table 8.8.4.1-1: CAPIF\_Auditing\_API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| InvocationLogs | 8.8.4.2.2 | Contains multiple invocation logs. | EnQueryInvokeLog |
| InvocationLogsRetrieveRes | 8.8.4.2.3 | Contains the result of an invocation logs retrieval request. |  |

Table 8.8.4.1-2 specifies data types re-used by the CAPIF\_Auditing\_API service:

Table 8.8.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [14] | Used to indicate the start and end times. |  |
| InvocationLog | Clause 8.7.4.2.2 | Used to represent logs of service API invocations stored on the CAPIF core function. |  |
| Operation | Clause 8.2.4.3.7 | Used to indicate the HTTP operation. |  |
| ProblemDetails | 3GPP TS 29.122 [14] | Used to represent the problem details in an error message. |  |
| SupportedFeatures | 3GPP TS 29.571 [19] | Used to negotiate the applicability of optional features defined in table 8.8.6-1. |  |

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

#### 8.8.4.2 Structured data types

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

##### 8.8.4.2.1 Introduction

This clause defines the structured data types to be used in resource representations of the CAPIF\_Auditing\_API.

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

##### 8.8.4.2.2 Type: InvocationLogs

Table 8.8.4.2.2-1: Definition of type InvocationLogs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| multipleInvocationLogs | array(InvocationLog) | M | 1..N | Contains a multiple API invocation logs. |  |

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

##### 8.8.4.2.3 Type: InvocationLogsRetrieveRes

Table 8.8.4.2.3-1: Definition of type InvocationLogsRetrieveRes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability | |
| invocationLog | InvocationLog | C | 0..1 | Contains a single API invocation log.  The "supportedFeatures" attribute within the InvocationLog data type shall not be provided.  (NOTE) |  | |
| invocationLogs | InvocationLogs | C | 0..1 | Contains multiple (more than one) API invocation logs.  (NOTE) | EnQueryInvokeLog | |
| suppFeat | SupportedFeatures | C | 0..1 | The list of supported features.  This attribute shall be provided if feature negotiation needs to take place. |  | |
| NOTE: The InvocationLog data type shall be present only if the "EnQueryInvokeLog" feature is not supported or the result of the invocation logs retrieval request consists of a single invocation log. The InvocationLogs data type shall be present only if the "EnQueryInvokeLog" feature is supported and the result of the invocation logs retrieval request consists of more than single invocation log. | | | | | |

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

### 8.8.6 Feature negotiation

General feature negotiation procedures are defined in clause 7.8.

Table 8.8.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | EnQueryInvokeLog | This feature indicates support for the enhancements of query invocation log. |

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

# A.9 CAPIF\_Auditing\_API

openapi: 3.0.0

info:

title: CAPIF\_Auditing\_API

description: |

API for auditing.

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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}/logs/v1'

variables:

apiRoot:

default: https://example.com

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

paths:

/apiInvocationLogs:

get:

description: Query and retrieve service API invocation logs stored on the CAPIF core function.

parameters:

- name: aef-id

in: query

description: String identifying the API exposing function.

schema:

type: string

- name: api-invoker-id

in: query

description: String identifying the API invoker which invoked the service API.

schema:

type: string

- name: time-range-start

in: query

description: Start time of the invocation time range.

schema:

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

- name: time-range-end

in: query

description: End time of the invocation time range.

schema:

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

- name: api-id

in: query

description: String identifying the API invoked.

schema:

type: string

- name: api-name

in: query

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.

schema:

type: string

- name: api-version

in: query

description: Version of the API which was invoked.

schema:

type: string

- name: protocol

in: query

description: Protocol invoked.

schema:

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

- name: operation

in: query

description: Operation that was invoked on the API.

schema:

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

- name: result

in: query

description: Result or output of the invocation.

schema:

type: string

- name: resource-name

in: query

description: Name of the specific resource invoked.

schema:

type: string

- name: src-interface

in: query

description: Interface description of the API invoker.

content:

application/json:

schema:

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

- name: dest-interface

in: query

description: Interface description of the API invoked.

content:

application/json:

schema:

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

- name: supported-features

in: query

description: To filter irrelevant responses related to unsupported features

schema:

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

responses:

'200':

description: >

Result of the query operation along with fetched service API invocation log data.

content:

application/json:

schema:

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

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'406':

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

'414':

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

'429':

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

'500':

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

'503':

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

default:

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

components:

schemas:

InvocationLogs:

type: object

description: >

Represents several (more than one) invocation logs.

properties:

multipleInvocationLogs:

type: array

items:

$ref: 'TS29222\_CAPIF\_Logging\_API\_Invocation\_API.yaml#/components/schemas/InvocationLog'

minItems: 1

required:

- multipleInvocationLogs

InvocationLogsRetrieveRes:

type: object

description: >

Represents the result of invocation logs retrieval request.

properties:

invocationLog:

$ref: 'TS29222\_CAPIF\_Logging\_API\_Invocation\_API.yaml#/components/schemas/InvocationLog'

invocationLogs:

type: array

items:

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

minItems: 1

suppFeat:

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

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