**3GPP TSG CT WG3 Meeting #135 *C3-243301r2***

**Hyderabad, IN, 27 - 31 May, 2024 (Revision of C3-242426)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.591** | **CR** | **0173** | **rev** | **3** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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:*** | Add GPSI and Application Layer ID mapping information | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Xiaomi | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | Ranging\_SL | | | | |  | ***Date:*** | | | 2024-05-16 |
|  |  | | | |  | |  | | |  |
| ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS 23.586 clause 4.3.7 defined NEF provide the GMLC with the GPSI of the UE based on Application Layer ID mapping information stored in UDR application data. Also provide the GMLC with the Application Layer ID based on GPSI of the UE mapping information stored in UDR application data. Hence needs to be implented in this specification.  SA2 has the related LS reply for LS out S2-2405863 (C3-242616) and TS 23.502 CR 4812 adding GMLC as service consumer to retrieve Ranging\_SL UE Id mapping information in Nnef\_UEId API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding GMLC as service consumer and adding new service operation for GMLC to get GPSI and Application Layer ID mapping information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not implemented stage 2 requirement on NEF provide the GMLC with GPSI and Application Layer ID mapping information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.7.2.3(new), 5.6.4.3(new), 5.6.6.1, 5.6.6.2.4(new), 5.6.7.3, A.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.502 CR 4812 | | |
| ***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 in the OpenAPI file of Nnef\_UEId API.  The Nnef\_UEId API service descriptions covering this new service operation is updated in CR 0182. The Nnef\_UEId API security clause 5.6.9 and custom operations overiew clause 5.6.4.1 covering this new custom operation is updated in CR 0183. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR’s revision history:*** | | **Rev 2 provides additional update:**  Adding the related TS 23.502 CR 4812 in cover page and update the service operation naming and descriptions accordingly. Also update re-used data type, error handling and editorial changes.  **Rev 3 provides additional update:**  Updated upon the service operation naming changed in the agreed TS 23.502 CR 4812. Removed 204 response code and application errors for future discussion. | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.7.2.3 Get UE ID Mapping custom operation

##### 4.7.2.3.1 General

The Nnef\_UEId\_UeIdMappingGet service operation as defined in 3GPP TS 23.502 [2] is implemented as "Get UeId Mapping" custom operation to enables the NF service consumer (e.g., GMLC) to get the mapped UE ID information (e.g., Application Layer ID or GPSI of Ranging Sidelink position enabled UE) stored in UDR application data.

The following procedure using the "Get UeId Mapping" custom operation is supported:

- to get the mapped UE ID information (e.g., Ranging Sidelink mapped Application Layer ID or GPSI stored in UDR application data).

##### 4.7.2.3.2 Get the mapped UE ID information

Figure 4.7.2.3.2-1 illustrates to get the mapped UE Id information.



Figure 4.7.2.3.2-1: Get the mapped UE ID information

In order to get the mapped UE ID information (e.g. mapped Application Layer ID or GPSI), the NF service consumer shall send an HTTP POST request as shown in step 1 of figure 4.7.2.3.2-1 targeting the custom operation URI "{apiRoot}/nnef-ueid/<apiVersion>/get-ueid-mapping" to retrieve the mapped UE Id information with the request body including the MapUeIdInfo data structure as defined in clause 5.6.6.2.4.

When receiving the HTTP POST request message, the NEF shall verify the NF service consumer whether authorized to retrieve the UE ID mapping information. If authorized, the NEF shall interact with the UDR by invoking the Nudr\_DataRepository service as described in 3GPP TS 29.504 [20] to retrieve the requested UE ID mapping information in the UeIdMappingInfo type in the application data of the UDR.

If the NF service consumer is not authorized or the NEF receives an error response from the UDR, the NEF shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

After receiving a successful response from the UDR, the NEF shall respond with "200 OK" status code with the message body containing the MapUeIdInfo data structure as defined in clause 5.6.6.2.4.

If the NEF cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the NEF shall send an HTTP error response as specified in clause 5.6.7.

\*\*\* 2nd Change \*\*\*

#### 5.6.4.3 Operation: Get UE ID Mapping

##### 5.6.4.3.1 Description

The custom operation allows the NF service consumer (e.g. GMLC) providing the UE ID (e.g., GPSI or Application Layer ID) of the UE to retrieve the mapped UE ID (e.g., Application Layer ID or GPSI of the Ranging Sidelink position enabled UE) stored in UDR application data.

##### 5.6.4.3.2 Operation Definition

This operation shall support the response data structures and response codes specified in tables 5.6.4.3.2-1 and 5.6.4.3.2-2.

Table 5.6.4.3.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MapUeIdInfo | M | 1 | Parameters to request to retrieve the mapped UE ID (e.g., Application Layer ID or GPSI) stored in UDR application data. |

Table 5.6.4.3.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  Codes | Description |
| MapUeIdInfo | M | 1 | 200 OK | The requested mapped UE ID (e.g., Application Layer ID or GPSI) was returned successfully. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during retrieve procedure.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection during retrieve procedure.  (NOTE 2) |
| ProblemDetails | O | 0..1 | 404 Not Found | (NOTE 3) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]).  NOTE 3: Failure cases are described in clause 5.6.7.3. | | | | |

Table 5.6.4.3.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | String | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (service) instance towards which the request is redirected.  For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | String | O | 0..1 | Identifier of the NEF (service) instance towards which the request is redirected. |

Table 5.6.4.3.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NEF (service) instance towards which the request is redirected.  For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the NEF (service) instance towards which the request is redirected. |

\*\*\* 3rd Change \*\*\*

#### 5.6.6.1 General

This clause specifies the application data model supported by the API.

Table 5.6.6.1-1 specifies the data types defined for the Nnef\_UEId service-based interface protocol.

Table 5.6.6.1-1: Nnef\_UEId specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| UeIdReq | 5.6.6.2.2 | Contains the UE ID request information. |  |
| UeIdInfo | 5.6.6.2.3 | Contains the UE ID information. |  |
| MapUeIdInfo | 5.6.6.2.4 | Contains the mapped UE ID information. |  |

Table 5.6.6.1-2 specifies data types re-used by the Nnef\_UEId service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nnef\_UEId service based interface.

Table 5.6.6.1-2: Nnef\_UEId re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| ApplicationlayerId | 3GPP TS 29.571 [16] | Identifies an Application Layer ID. |  |
| Gpsi | 3GPP TS 29.571 [16] | Identifies the GPSI of a UE. |  |
| Supi | 3GPP TS 29.571 [16] | Identifies the SUPI of a UE. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Indicates the features supported. |  |

\*\*\* 4th Change \*\*\*

##### 5.6.6.2.4 Type: MapUeIdInfo

vTable 5.6.6.2.4-1: Definition of type MapUeIdInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| appLayerId | ApplicationlayerId | C | 0..1 | Identifies a Ranging/Sidelink Positioning-enabled UE within the context of a specific application.  Shall be provided in the response if the "gpsi" attribute is provided in the request. |  |
| gpsi | Gpsi | C | 0..1 | Identifies a GPSI of a UE.  Shall be provided in the response if the "appLayerId" attribute is provided in the request. |  |
| NOTE: Only one of the "appLayerId" attribute or "gpsi" attribute shall be included. | | | | | |

\*\*\* 5th Change \*\*\*

# A.7 Nnef\_UEId API

openapi: 3.0.0

info:

title: Nnef\_UEId

version: 1.0.0-alpha.1

description: |

NEF Traffic Correlation Service.

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externalDocs:

description: >

3GPP TS 29.591 V18.4.0; 5G System; Network Exposure Function Southbound Services; Stage 3.

url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.591/

servers:

- url: '{apiRoot}/nnef-ueid/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

security:

- {}

- oAuth2ClientCredentials:

- nnef-ueid

paths:

/fetch-roaming:

post:

summary: fetch the Internal UE Identifier for roaming UE(s).

operationId: FetchUEId

tags:

- UE ID (Document)

security:

- {}

- oAuth2ClientCredentials:

- nnef-ueid

- oAuth2ClientCredentials:

- nnef-ueid

- nnef-ueid:fetch-roaming

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: The requested information was returned successfully.

content:

application/json:

schema:

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

'204':

description: No Content (The requested Internal UE Identifier does not exist.)

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'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'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

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

default:

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

/get-ueid-mapping:

post:

summary: get the UE ID mapping information.

operationId: GetUeIdMapping

tags:

- ue id mapping (Document)

security:

- {}

- oAuth2ClientCredentials:

- nnef-ueid

- oAuth2ClientCredentials:

- nnef-ueid

- nnef-ueid:get-ueid-mapping

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: The requested information was returned successfully.

content:

application/json:

schema:

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

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'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'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

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

default:

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

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

nnef-ueid: Access to the UE ID API

nnef-ueid:fetch-roaming: >

Access to service operation applying to fetch the internal UE identifier from the

H-NEF for the roaming UE.

nnef-ueid:get-ueid-mapping: >

Access to service operation applying to get the mapped UE ID (e.g., Application Layer

ID or GPSI for the Ranging Sidelink position enabled UE).

schemas:

UeIdReq:

description: Contains parameters to request to fetch the Internal UE Identifier.

type: object

properties:

gpsi:

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

required:

- gpsi

UeIdInfo:

description: Contains the UE ID Information.

type: object

properties:

supi:

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

required:

- supi

MapUeIdInfo:

description: >

Contains mapped UE ID information (e.g., Application Layer ID or GPSI for the Ranging

Sidelink position enabled UE).

type: object

properties:

appLayerId:

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

description: >

Identifies a Ranging\_Sidelink Positioning-enabled UE within the context of a specific

application. The format of this identifier is outside the scope of 3GPP.

gpsi:

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

oneOf:

- required: [appLayerId]

- required: [gpsi]

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