**3GPP TSG-CT WG3 Meeting #134 *C3-242608***

**Changsha, China, 15th – 19th April, 2024 (Revision of C3-242452)**

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.591** | **CR** | **0181** | **rev** | **2** | **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)*.* |
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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Update the Nnef\_UEId service for HR-SBO |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | EDGE\_Ph2 |  | ***Date:*** | 2023-03-19 |
|  |  |  |  |  |
| ***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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | TS 23.502 in clause 5.2.6.27.2 Nnef\_UEId\_Get operation has further clarify the Nnef\_UEId\_Get service operation definition as:**Service operation name:** Nnef\_UEId\_Get**Description:** Get the UE identifier.**Inputs, Required:** GPSI or UE address (i.e. IPv4/IPv6 address or MAC address) or External Group Identifier(s).NOTE 1: External Group Identifier(s) cannot be used for HR-SBO sessions.**Inputs, Optional:** DNN, S-NSSAI, Port number (e.g. TCP or UDP port), IP domain, Application port ID, MTC Provider Information, AF Identifier.**Outputs, Required:** Result, AF specific UE Identifier represented as an External Identifier or SUPI or Internal Group Identifier(s).NOTE 2: SUPI can only be exposed to roaming partners.**Outputs, Optional:** None.While in southbound for HR-SBO session, the V-NEF does not support External GrouP Id, hence the External/Internal Group Id should not be added in this specification.TS 23.502 clause 4.3.6.5.4 step 6 described V-NEF contacts H-NEF to get data related to the IP address received from AF by Nnef\_UEId\_Get request service operation (IP address). Step 9 described H-NEF responds with Nnef\_UEId\_Get response (UE IP address, and optionally HPLMN DNN and S-NSSAI). added optionally Private UE IP address, HPLMN DNN and S-NSSAI for HR-SBO Session in response of Nnef\_UEId\_Get operation, needed to be aligned in this TS for V-NEF interaction with H-NEF by Nnef\_UEId\_Get operation. |
|  |  |
| ***Summary of change:*** | Adding UE IP address optionally in the UE ID retrieval request, adding UE IP address and HPLMN DNN and S-NSSAI optionally in response of UE ID retrieval. |
|  |  |
| ***Consequences if not approved:*** | Part of the UE ID retrieve process is not supported and not align with stage 2. |
|  |  |
| ***Clauses affected:*** | 4.7.2.2.2, 5.6.6.1, 5.6.6.2.2, 5.6.6.2.3, A.7 |
|  |  |
|  | **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 in the OpenAPI file of Nnef\_UEId API. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

##### 4.7.2.2.2 Fetch internal UE ID for roaming UE

Figure 4.6.2.2.2-1 illustrates the retrieval of internal UE ID for roaming UE.



Figure 4.7.2.2.2-1: Fetch internal UE ID for roaming UE

In order to fetch the internal UE identifier for the roaming UE, the NF service consumer (e.g. V-NEF) shall send an HTTP POST request as shown in step 1 of figure 4.7.2.2.2-1 targetingthe custom operation URI "{apiRoot}/nnef-ueid/<apiVersion>/fetch" to fetch the internal UE identifier according to the provided UeIdReq data type which shall include:

 external UE identification of an individual UE via a "gpsi" attribute; or

 UE public IP address via a "ueIpAddr" attribute.

When receiving the HTTP POST request message, the NEF shall verify the NF service consumer (e.g. V-NEF) whether belong to the roaming partner(s) under roaming agreement.

On success, the NEF shall respond with "200 OK" status code with the message body containing the UeIdInfo data structure in the response body shall include:

- internal UE identification of an individual UE via a "supi" attribute; or

- UE private IP address via a "ueIpAddr" attribute and optionally with HPLMN DNN and S-NSSAI via a "hPlmnDnnSnssai" attribute.

If the requested internal UE identifier does not exist, the NEF shall respond with "204 No Content" status code.

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 \*\*\*

#### 5.6.6.1 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. |  |

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 |
| DnnSnssaiInformation | 3GPP TS 29.522 [15] | Identifies a combination of (DNN, S-NSSAI). |  |
| Gpsi | 3GPP TS 29.571 [16] | Identifies the GPSI of an UE. |  |
| IpAddr | 3GPP TS 29.571 [16] | Identifes an UE IP address. |  |
| Supi | 3GPP TS 29.571 [16] | Identifies the SUPI of an UE. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Indicates the features supported. |  |

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

##### 5.6.6.2.2 Type: UeIdReq

Table 5.6.6.2.2-1: Definition of type UeIdReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| gpsi | Gpsi | C | 0..1 | The GPSI of an UE.(NOTE) |  |
| ueIpAddr | IpAddr | C | 0..1 | Identifies a UE IP address.(NOTE) |  |
| NOTE: Only one of the attributes "gpsi" and "ueIpAddr" shall be present. |

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

##### 5.6.6.2.3 Type: UeIdInfo

Table 5.6.6.2.3-1: Definition of type UeIdInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| hPlmnDnnSnssai | DnnSnssaiInformation | C | 0..1 | Identifies the HPLMN DNN and/or S-NSSAI information of the HR-SBO Session.(NOTE 2) |  |
| supi | Supi | C | 0..1 | The SUPI of an UE.(NOTE 1) |  |
| ueIpAddr | IpAddr | C | 0..1 | Identifies a UE IP address.(NOTE 1), (NOTE 2) |  |
| NOTE 1: Only one of the attributes "supi" and "ueIpAddr" shall be present.NOTE 2: The "hPlmnDnnSnssai" attribute may be included if the "ueIpAddr" attribute is provided. |

\*\*\* 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:

 post:

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

 operationId: FetchUEId

 tags:

 - UE ID (Document)

 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'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 nnef-ueid: Access to the UE ID API

 schemas:

 UeIdReq:

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

 type: object

 properties:

 gpsi:

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

 ueIpAddr:

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

 oneOf:

 - required: [gpsi]

 - required: [ueIpAddr]

 UeIdInfo:

 description: Contains the UE ID Information.

 type: object

 properties:

 hPlmnDnnSnssai:

 $ref: 'TS29522\_AMInfluence.yaml#/components/schemas/DnnSnssaiInformation'

 supi:

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

 ueIpAddr:

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

 oneOf:

 - required: [supi]

 - required: [ueIpAddr]

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