**3GPP TSG-CT WG4 Meeting #96C4-200857**

**E-Meeting, 24th – 28th February 2020**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0365** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *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:*** | Provision of UE LCS privacy profile | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, CATT | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_eLCS | | | | |  | ***Date:*** | | | 2019-12-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | For support of Provision of UE LCS privacy profile, in TS 23.273 clause 5.4.3 it mentions that UE can provision the LCS privacy profile for the LPI via AMF, and AF can provision the LCS privacy profile for the LPI via AMF for specific UE(s) via NEF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Extend ParameterProvision Service to support proviosn of LCS privacy profile for the LPI, and the interface for proviosn of LCS privacy profile for the LPI is common for AMF and NEF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 2 solution won't be implemented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6.2.2.2, 6.5.3.1, 6.5.3.2.2, 6.5.6.1, 6.5.6.2.2, 6.5.6.2.x, 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 will introduce backward compatible new features in the OpenAPI specification file of Nudm\_PP. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:  1.Correct the wrong reference in OpenAPI A.6  From          lcsPrivacy:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/LcsPrivacy'  To          lcsPrivacy:            $ref: '#/components/schemas/LcsPrivacy'  And From          lpi:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/Lpi'  To          lpi:            $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/Lpi'  2.Remove supi and gpsi in definition of data model LcsPrivacy and reword the text of NOTE in Table 6.5.6.2.x-1, and revise the openAPI accordingly.  3. The gpsi was changed into ueId in the resource path of Subscription data update service operation and The resource structure. | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The start of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 5.6.2.2.2 Subscription data update

Figure 5.6.2.2.2-1 shows a scenario where the NF service consumer (e.g. NEF, AMF) sends a request to the UDM to update a UE's subscription data (see 3GPP TS 23.502 [3] figure 4.15.6.2-1 step 2 and also 3GPP TS 23.273 [38] Figure 6.12.1-1 step 2). The request contains the identifier of the UE's parameter provision data ( .../{ueId}/pp-data) and the modification instructions.



Figure 5.6.2.2.2-1: NF service consumer updates subscription data

1. The NF service consumer (e.g. NEF, AMF) sends a PATCH request to the resource that represents a UE's modifiable subscription data.

2. The UDM responds with "204 No Content".

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the PATCH response body.

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

#### 6.5.3.1 Overview



Figure 6.5.3.1-1: Resource URI structure of the Nudm\_PP API

Table 6.5.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.5.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| PpData | /{ueId}/pp-data | PATCH | Modify the UE's modifiable subscription data |
| 5GVnGroupConfiguration | /5g-vn-groups/{external-group-id} | PUT | Create a 5G VN Group |
| DELETE | Delete a 5G VN Group |
| PATCH | Modify a 5G VN Group |

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

##### 6.5.3.2.2 Resource Definition

Resource URI: {apiRoot}/nudm-pp/v1/{ueId}/pp-data

This resource shall support the resource URI variables defined in table 6.5.3.2.2-1.

Table 6.5.3.2.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | See clause 6.5.1 |
| ueId | Represents the Generic Public Subscription Identifier (see 3GPP TS 23.501 [2] clause 5.9.8) or SUPI.  pattern: "(imsi-[0-9]{5,15}|nai-.+|msisdn-[0-9]{5,15}|extid-[^@]+@[^@]+|.+)" |

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

#### 6.5.6.1 General

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

Table 6.5.6.1-1 specifies the data types defined for the Nudm\_PP service API.

Table 6.5.6.1-1: Nudm\_PP specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| PpData | 6.5.6.2.2 | Parameter Provision Data |
| CommunicationCharacteristics | 6.5.6.2.3 | Communication Characteristics |
| PpSubsRegTimer | 6.5.6.2.4 |  |
| PpActiveTime | 6.5.6.2.5 |  |
| 5GVnGroupConfiguration | 6.5.6.2.6 |  |
| 5GVnGroupData | 6.5.6.2.7 |  |
| ExpectedUeBehaviour | 6.5.6.2.8 | Expected UE Behaviour Parameters |
| LocationArea | 6.5.6.2.10 | Location Area |
| NetworkAreaInfo | 6.5.6.2.11 | Network Area Information |
| EcRestriction | 6.5.6.2.12 |  |
| PlmnEcInfo | 6.5.6.2.13 |  |
| PpDlPacketCountExt | 6.5.6.2.15 |  |

Table 6.5.6.1-2 specifies data types re-used by the Nudm\_PP service API from other APIs, including a reference and when needed, a short description of their use within the Nudm\_PP service API.

Table 6.5.6.1-2: Nudm\_PP re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| DurationSec | 3GPP TS 29.571 [7] | Time value in seconds |
| DurationSecRm | 3GPP TS 29.571 [7] | Time value in seconds; nullable |
| SupportedFeatures | 3GPP TS 29.571 [7] |  |
| NfInstanceId | 3GPP TS 29.571 [7] |  |
| ProblemDetails | 3GPP TS 29.571 [7] |  |
| Gpsi | 3GPP TS 29.571 [7] |  |
| PatchResult | 3GPP TS 29.571 [7] |  |
| DateTime | 3GPP TS 29.571 [7] |  |
| Ecgi | 3GPP TS 29.571 [7] | an EUTRA cell identifier |
| Ncgi | 3GPP TS 29.571 [7] | an NR cell identifier |
| GlobalRanNodeId | 3GPP TS 29.571 [7] | an identity of the NG-RAN node |
| Tai | 3GPP TS 29.571 [7] | a tracking area identity |
| GeographicArea | 3GPP TS 29.572 [34] | Identifies the geographical information of the user(s). |
| CivicAddress | 3GPP TS 29.572 [34] | Identifies the civic address information of the user(s). |
| PduSessionType | 3GPP TS 29.571 [7] |  |
| AppDescriptor | 6.1.6.2.40 |  |
| DayOfWeek | 3GPP TS 29.571 [7] |  |
| TimeOfDay | 3GPP TS 29.571 [7] |  |
| ScheduledCommunicationTime | 3GPP TS 29.571 [7] | Scheduled Communication Time |
| StationaryIndication | 3GPP TS 29.571 [7] | Stationary Indication |
| TrafficProfile | 3GPP TS 29.571 [7] | Traffic Profile |
| AcsInfoRm | 3GPP TS 29.571 [7] |  |
| Supi | 3GPP TS 29.571 [7] |  |
| Lpi | 6.1.6.2.43 |  |

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

##### 6.5.6.2.2 Type: PpData

Table 6.5.6.2.2-1: Definition of type PpData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| supportedFeatures | SupportedFeatures | O | 0..1 |  |
| communicationCharacteristics | CommunicationCharacteristics | O | 0..1 | communication characteristics |
| expectedUeBehaviour | ExpectedUeBehaviour | O | 0..1 | Expected UE Behaviour Parameters |
| ecRestriction | EcRestriction | O | 0..1 | Enhanced Coverage Restriction Parameters |
| acsInfo | AcsInfoRm | O | 0..1 | Identifies the ACS Information (see TS 23.316 [37] clause 9.6.3); nullable. |
| lcsPrivacy | LcsPrivacy | O | 0..1 | LCS Privacy Parameters (see clause 5.4.3 of 3GPP TS 23.273 [38]) |

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

##### 6.5.6.2.x Type: LcsPrivacy

Table 6.5.6.2.x-1: Definition of type LcsPrivacy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| afInstanceId | NfInstanceId | C | 0..1 | When present, indicates NF Instance Id of the originating AF/NF.  (NOTE) |
| referenceId | ReferenceId | C | 0..1 | When present, indicates Transaction Reference ID  (NOTE) |
| lpi | Lpi | O | 0..1 | If present, indicates the Location Privacy Indication |
| NOTE: If LCS privacy parameters are provisioned by UE, parameters afInstanceId and referenceId shall be not included, and if LCS privacy parameters are provisioned by AF, paramters afInstanceId and referenceId shall be included. | | | | |

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

## A.6 Nudm\_PP API

openapi: 3.0.0

***(… text not shown for clarity …)***

paths:

/{ueId}/pp-data:

patch:

summary: provision parameters

operationId: Update

tags:

- Subscription Data Update

parameters:

- name: ueId

in: path

description: Identifier of the UE

required: true

schema:

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

requestBody:

content:

application/merge-patch+json:

schema:

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

required: true

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'204':

description: Expected response to a valid request

'400':

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

'403':

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

'404':

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

'500':

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

'503':

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

default:

description: Unexpected error

***(… text not shown for clarity …)***

# COMPLEX TYPES:

PpData:

type: object

properties:

communicationCharacteristics:

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

supportedFeatures:

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

expectedUeBehaviourParameters:

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

ecRestriction:

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

acsInfo:

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

lcsPrivacy:

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

***(… text not shown for clarity …)***

PpDlPacketCountExt:

type: object

required:

- afInstanceId

- referenceId

properties:

afInstanceId:

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

referenceId:

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

validityTime:

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

nullable: true

LcsPrivacy:

type: object

properties:

afInstanceId:

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

referenceId:

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

lpi:

$ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/Lpi'

***(… text not shown for clarity …)***

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The end of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*