**3GPP TSG-CT WG4 Meeting #96C4-200592**

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

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0329** | **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:*** | Configuration of Downlink data delivery status Events | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_CIoT | | | | |  | ***Date:*** | | | 2019-12-16 |
|  |  | | | |  | |  | | |  |
| ***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 Downlink data delivery status Events, it states that in clause 4.15.3.2.5 in TS23.502 as below:  *the Downlink delivery status events include:*  *- First downlink Packet(s) in extended buffering event:*  *- This event is triggered when the first new downlink data packet is buffered with extended buffering matching the source of the downlink traffic.*  *- in notifications about this Downlink delivery status, the SMF provides the Extended Buffering time as determined in clause 4.2.3.3.*  *- First downlink Packet discarded:*  *- This event occurs when the first packet matching the source of the downlink traffic is discraded because the Extended Buffering time, as determined by the SMF, expires or the amount of downlink data to be buffered is exceeded.*  *- First Downlink Packet transmitted:*  From the information above, there are three different kinds of events: First downlink Packet(s) in extended buffering event, First downlink Packet discarded event, and First Downlink Packet transmitted event, they should be explicitly indicated in subscribe messages.  And S2-1910641 mentions:   1. *CT3 question: Can multiple traffic filters be supplied in steps 1 and 2?   SA2 answer: The purpose of the traffic filter(s) is to identify a downlink data source. While SA2 anticipates that in most cases a single traffic filter is sufficient, it also allows multiple filters.*   Therefore traffic filter(s) to be monitered can be multiple. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1.Add the DddStatus information in DatalinkReportingConfiguration for subsribing Downlink data delivery status Events, see the revisons in 6.4.6.2.13  2.Add the DddStatus event report in Event Occurrence Notification, see the revisions in 6.4.6.2.4, 6.4.6.2.5,6.4.6.2.xx(new).  3.Extend attribute dddTrafficDes to an array data type of DddTrafficDescriptor in DatalinkReportingConfiguration to support multiple traffic filter(s) to be monitored. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 2 solution won't be implemented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.4.6.1, 6.4.6.2.13, A.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 files of TS29503\_Nudm\_EE.yaml, TS29505\_Subscription\_Data.yaml. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:  1. Changes on cover page  a.Remove the text related to event report in ***Reason for change*** because event report from UDM is unneccessary***.***  b.Rename the titlel from Downlink data delivery status Events to Configuration of Downlink data delivery status Events.  c.Revison references in ***Clauses affected:*** accordingly.  2. Remove the revisions in clause 6.4.6.2.4 and 6.4.6.2.5 and remove the new added clause 6.4.6.2.xx because the notification for Downlink Data Delivery event is from SMF to NEF directly and isn’t delivered or conveyed by UDM.  3. Modify the name of data type “DddStatus” from DddStatus to DlDataDeliveryStatus because it was modified in CR of 59.571 in Table 6.4.6.1-2 and Table 6.4.6.2.13-1.  4. In A.5, revise open API accordingly. | | | | | | | | |

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

#### 6.4.6.1 General

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

Table 6.4.6.2-1 specifies the data types defined for the Nudm\_EE service API.

Table 6.4.6.1-1: Nudm\_EE specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| EeSubscription | 6.4.6.2.2 | A subscription to Notifications |
| MonitoringConfiguration | 6.4.6.2.3 | Monitoring Configuration |
| MonitoringReport | 6.4.6.2.4 | Monitoring Report |
| Report | 6.4.6.2.5 |  |
| ReportingOptions | 6.4.6.2.6 |  |
| ChangeOfSupiPeiAssociationReport | 6.4.6.2.7 |  |
| RoamingStatusReport | 6.4.6.2.8 |  |
| CreatedEeSubscription | 6.4.6.2.9 |  |
| LocationReportingConfiguration | 6.4.6.2.10 |  |
| CnTypeChangeReport | 6.4.6.2.11 |  |
| ReachabilityForSmsReport | 6.4.6.2.12 |  |
| DatalinkReportingConfiguration | 6.4.6.2.13 | Reporting configuration for events related to data link |
| MaxNumOfReports | 6.4.6.3.2 | Maximum number of reports |
| ReferenceId | 6.4.6.3.2 | Reference Identity |
| EventType | 6.4.6.3.3 | Event type of UDM Event Exposure service |
| LocationAccuracy | 6.4.6.3.4 | Location Accuracy definition |
| CnType | 6.4.6.3.5 | Core Network Type |

Table 6.4.6.1-2 specifies data types re-used by the Nudm\_EE service API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nudm\_EE service API.

Table 6.4.6.1-2: Nudm\_EE re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Uri | 3GPP TS 29.571 [7] | Uniform Resource Identifier |
| SupportedFeatures | 3GPP TS 29.571 [7] | see 3GPP TS 29.500 [4] clause 6.6 |
| DateTime | 3GPP TS 29.571 [7] |  |
| Pei | 3GPP TS 29.571 [7] |  |
| PlmnId | 3GPP TS 29.571 [7] |  |
| Gpsi | 3GPP TS 29.571 [7] |  |
| AccessType | 3GPP TS 29.571 [7] |  |
| PatchResult | 3GPP TS 29.571 [7] |  |
| DddTrafficDescriptor | 3GPP TS 29.571 [7] |  |
| SamplingRatio | 3GPP TS 29.571 [7] |  |
| DurationSec | 3GPP TS 29.571 [7] |  |
| DlDataDeliveryStatus | 3GPP TS 29.571 [7] | Downlink data delivery status |

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

##### 6.4.6.2.13 Type: DatalinkReportingConfiguration

Table 6.4.6.2.13-1: Definition of type DatalinkReportingConfiguration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| dddTrafficDes | array(DddTrafficDescriptor) | C | 1..N | This IE shall be present for event type "DL\_DATA\_DELIVERY\_STATUS".  When present, this IE shall indicate the traffic descriptors of the downlink data. |
| dnn | Dnn | O | 0..1 | When present, this IE shall indicate the DNN of the PDU session serving the data link. |
| slice | Snssai | O | 0..1 | When present, this IE shall indicate the slice information of the PDU session serving the data link. |
| dddStatusList | array(DlDataDeliveryStatus) | O | 1..N | This IE shall be present for event type "DL\_DATA\_DELIVERY\_STATUS".  When present, this IE shall indicate the subscribed statuses (discarded, transmitted, buffered) for the event. If omitted all stati are subscribed. |

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

## A.5 Nudm\_EE API

openapi: 3.0.0

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

# COMPLEX TYPES:

CreatedEeSubscription:

type: object

required:

- eeSubscription

properties:

eeSubscription:

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

numberOfUes:

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

eventReports:

type: array

items:

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

minItems: 1

EeSubscription:

type: object

required:

- callbackReference

- monitoringConfigurations

properties:

callbackReference:

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

monitoringConfigurations:

description: A map (list of key-value pairs where ReferenceId serves as key) of MonitoringConfigurations

type: object

additionalProperties:

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

minProperties: 1

reportingOptions:

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

supportedFeatures:

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

subscriptionId:

type: string

MonitoringConfiguration:

type: object

required:

- eventType

properties:

eventType:

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

immediateFlag:

type: boolean

locationReportingConfiguration:

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

associationType:

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

datalinkReportCfg:

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

LocationReportingConfiguration:

type: object

required:

- currentLocation

properties:

currentLocation:

type: boolean

oneTime:

type: boolean

accuracy:

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

n3gppAccuracy:

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

ReportingOptions:

type: object

properties:

reportMode:

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

maxNumOfReports:

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

expiry:

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

samplingRatio:

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

guardTime:

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

reportPeriod:

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

MonitoringReport:

type: object

required:

- referenceId

- eventType

- timeStamp

properties:

referenceId:

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

eventType:

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

report:

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

reachabilityForSmsReport:

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

gpsi:

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

timeStamp:

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

Report:

oneOf:

- $ref: '#/components/schemas/ChangeOfSupiPeiAssociationReport'

- $ref: '#/components/schemas/RoamingStatusReport'

- $ref: '#/components/schemas/CnTypeChangeReport'

ReachabilityForSmsReport:

type: object

required:

- smsfAccessType

properties:

smsfAccessType:

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

ChangeOfSupiPeiAssociationReport:

type: object

required:

- newPei

properties:

newPei:

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

RoamingStatusReport:

type: object

required:

- roaming

- newServingPlmn

properties:

roaming:

type:

boolean

newServingPlmn:

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

CnTypeChangeReport:

type: object

required:

- newCnType

properties:

newCnType:

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

oldCnType:

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

DatalinkReportingConfiguration:

type: object

properties:

dddTrafficDes:

type: array

items:

$ref: 'TS29571\_ CommonData.yaml#/components/schemas/DddTrafficDescriptor'

minItems: 1

dnn:

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

slice:

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

dddStatusList:

type: array

items:

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

minItems: 1

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

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