**3GPP TSG-CT3 Meeting #120e C3-221676**

**E-Meeting, 17th – 25th February 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.551** | **CR** | **0103** | **rev** | **-** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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:*** | Update of info and externalDocs fields | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2022-02-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | CR modifying Nnef\_PFDmanagement API has been agreed and the version number of the corresponding OpenAPI file thus needs to be incremented following the rules in TS 29.501, subclause 4.3.1.  The following agreed CR updates the Nnef\_PFDmanagement API for the present release:  - TS 29.551 CR #0102 is a backward compatible correction in Rel-17.  As the present release is not yet frozen, a draft version number should be assigned. As the first backward compatible changes without prior backward incompatible changes to the existing API were agreed in for present non-frozen release, the minor version number needs to be incremented.  Since a new Rel-17 TS version will be provided with changes to the OpenAPI specification file, the TS version number included in the "description" field of the "externalDocs" object also needs to be updated.  Furthermore, in the "description" field of the "info" object, at the end of the first and second line two white spaces should be added to make a "hard line break" mark, and in the "description" field of the "externalDocs" object the url part needs to be updated to:  'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.551/'. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The Nnef\_PFDmanagement Service API version value changed to "1.2.0-alpha.7".  The TS version number included in the "description" field of the "externalDocs" object changed to "17.6.0".  The "description" field of the "info" object, two white spaces added at the end of the first and second line.  The url part in the "description" field of the "externalDocs" object updated to:  'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.551/'. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect API version number and incorrect TS version number in the "description" field of the "externalDocs" object. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |

\*\*\* First Change \*\*\*

# A.2 Nnef\_PFDmanagement API

openapi: 3.0.0

info:

title: Nnef\_PFDmanagement Service API

version: 1.2.0-alpha.7

description: |

Packet Flow Description Management Service.

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#

externalDocs:

description: 3GPP TS 29.551 v17.6.0, 5G System; Packet Flow Description Management Service

url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.551/'

#

servers:

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

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials:

- nnef-pfdmanagement

paths:

/applications:

get:

summary: Retrieve PFDs for all applications or for one or multiple applications with query parameter.

tags:

- PFD of applications

operationId: Nnef\_PFDmanagement\_AllFetch

parameters:

- name: application-ids

description: The required application identifier(s) for the returned PFDs.

in: query

required: true

schema:

type: array

items:

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

minItems: 1

- 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: The PFDs for one or more application identifier(s) in the request URI are returned.

content:

application/json:

schema:

type: array

items:

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

minItems: 0

'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'

'406':

$ref: 'TS29571\_CommonData.yaml#/components/responses/406'

'414':

$ref: 'TS29571\_CommonData.yaml#/components/responses/414'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

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

'503':

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

default:

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

/applications/partialpull:

post:

summary: retrieve the PFD(s) by partial update

operationId: Nnef\_PFDmanagement\_AppFetchPartialUpdate

tags:

- PFD of applications by partial update

requestBody:

required: true

content:

application/json:

schema:

type: array

items:

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

minItems: 1

responses:

'200':

description: OK. Changed PFD(s) is returned

content:

application/json:

schema:

type: array

items:

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

minItems: 1

'204':

description: The PFD(s) is not changed

'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'

'503':

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

default:

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

/applications/{appId}:

get:

summary: Retrieve the PFD for an application.

tags:

- Individual application PFD

operationId: Nnef\_PFDmanagement\_IndAppFetch

parameters:

- name: appId

description: The required application identifier(s) for the returned PFDs.

in: path

required: true

schema:

type: string

- 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: A representation of PFDs for an application in the request URI is returned.

content:

application/json:

schema:

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

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'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'

'406':

$ref: 'TS29571\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'414':

$ref: 'TS29571\_CommonData.yaml#/components/responses/414'

'500':

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

'503':

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

default:

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

/subscriptions:

post:

summary: Subscribe the notification of PFD changes.

tags:

- PFD subscriptions

operationId: Nnef\_PFDmanagement\_CreateSubscr

requestBody:

description: a PfdSubscription resource to be created.

required: true

content:

application/json:

schema:

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

callbacks:

PfdChangeNotification:

'{request.body#/notifyUri}':

post:

summary: Notification of PFD change.

tags:

- PfdChangeNotification data

operationId: Nnef\_PFDmanagement\_Notify

requestBody:

required: true

content:

application/json:

schema:

type: array

items:

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

minItems: 1

responses:

'200':

description: The PFD operation in the notification is performed and the PfdChangeReport indicates failure reason.

content:

application/json:

schema:

type: array

items:

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

minItems: 1

'204':

description: The PFD operation in the notification is performed successfully.

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'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'

'503':

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

default:

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

NotificationPush:

'{request.body#/notifyUri}/notifypush':

post:

summary: Notification Push.

tags:

- NotificationPush data

operationId: Nnef\_PFDmanagement\_PushNotify

requestBody:

required: true

content:

application/json:

schema:

type: array

items:

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

minItems: 1

responses:

'204':

description: Notificaiton PUSH is accepted.

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'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'

'503':

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

default:

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

responses:

'201':

description: The creation of a PfdSubscription resource is confirmed and a representation of that resource is returned.

content:

application/json:

schema:

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

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nnef-pfdmanagement/v1/subscriptions/{subscriptionId}'

required: true

schema:

type: string

'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'

'503':

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

default:

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

/subscriptions/{subscriptionId}:

put:

summary: Updates/replaces an existing subscription resource

tags:

- Individual PFD subscription

operationId: Nnef\_PFDmanagement\_ModifySubscr

parameters:

- name: subscriptionId

description: Identify the subscription.

in: path

required: true

schema:

type: string

requestBody:

description: Parameters to update/replace the existing subscription

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful update of the subscription)

content:

application/json:

schema:

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

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'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'

'503':

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

default:

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

delete:

summary: Delete a subscription of PFD change notification.

tags:

- Individual PFD subscription

operationId: Nnef\_PFDmanagement\_Unsubscribe

parameters:

- name: subscriptionId

description: Identify the subscription.

in: path

required: true

schema:

type: string

responses:

'204':

description: The PfdSubscription resource matching the subscriptionId was deleted successfully.

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'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'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

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

'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-pfdmanagement: Access to the Nnef\_PFDmanagement API

schemas:

#

# STRUCTURED DATA TYPES

#

PfdContent:

description: Represents the content of a PFD for an application identifier.

type: object

properties:

pfdId:

type: string

description: Identifies a PDF of an application identifier.

flowDescriptions:

type: array

items:

type: string

minItems: 1

description: Represents a 3-tuple with protocol, server ip and server port for UL/DL application traffic.

urls:

type: array

items:

type: string

minItems: 1

description: Indicates a URL or a regular expression which is used to match the significant parts of the URL.

domainNames:

type: array

items:

type: string

minItems: 1

description: Indicates an FQDN or a regular expression as a domain name matching criteria.

dnProtocol:

$ref: 'TS29122\_PfdManagement.yaml#/components/schemas/DomainNameProtocol'

PfdDataForApp:

description: Represents the PFDs for an application identifier.

type: object

properties:

applicationId:

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

pfds:

type: array

items:

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

minItems: 1

cachingTime:

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

pfdTimestamp:

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

partialFlag:

type: boolean

supportedFeatures:

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

required:

- applicationId

PfdSubscription:

description: Represents a PFD subscription.

type: object

properties:

applicationIds:

type: array

items:

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

minItems: 1

notifyUri:

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

supportedFeatures:

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

required:

- notifyUri

- supportedFeatures

PfdChangeNotification:

description: Represents information related to a notification of PFD change.

type: object

properties:

applicationId:

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

removalFlag:

type: boolean

default: false

partialFlag:

type: boolean

default: false

pfds:

type: array

items:

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

minItems: 1

required:

- applicationId

NotificationPush:

description: Represents the information to be used by the NF service consumer to retrieve the PFDs and/or remove the PFDs of the applicable application identifier(s).

type: object

properties:

appIds:

type: array

items:

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

minItems: 1

allowedDelay:

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

pfdOp:

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

required:

- appIds

PfdChangeReport:

description: Represents an error report on PFD change.

type: object

properties:

pfdError:

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

applicationId:

type: array

items:

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

minItems: 1

required:

- pfdError

- applicationId

PfdOperation:

description: Indicates the operation to be applied on PFD(s).

anyOf:

- type: string

enum:

- RETRIEVE

- FULLPULL

- PARTIALPULL

- REMOVE

- type: string

ApplicationForPfdRequest:

description: Contains the application identifier(s) for the PFD(s) request.

type: object

properties:

applicationId:

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

pfdTimestamp:

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

required:

- applicationId

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