**3GPP TSG-CT WG4 Meeting #102-eC4-211007r1**

**E-Meeting, 24th Feb – 05th Mar 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.518** | **CR** | **0443** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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:*** | Subscription not found inconsistency | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | one2many, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | TSG CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2021-02-01 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | If an NF wants to delete a subscription from the AMF and the AMF cannot find the subscription, then for some Delete requests the AMF responds with a "204 – No Content" response for other Delete requests with a "404 – Subscription not found" response.  Clause 6.2.5.1 is missing due to removal of this clause rather than voiding the clause, which leads to a gap in the clause numbering. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The response is consistently "404 – Subscription not found".  Clause 6.2.5.1 with title Void is inserted. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The NF is not always notified of an error condition. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.3.4.3.1, 6.1.3.7.3.1, 6.1.3.10.3.1, 6.5.2.1 (new), 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:*** | | The CR proposes a backwards compatible change and affects the Namf\_Communication API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | In 1007r1 text in the table is clarified. | | | | | | | | |

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

###### 6.1.3.4.3.1 DELETE

This method deletes an individual N1/N2 message notification subscription resource for an individual UE. This method is used by NF Service Consumers (e.g. PCF) to unsubscribe for notifications about UE related N1/N2 information.

This method shall support the request data structures specified in table 6.1.3.4.3.1-2 and the response data structures and response codes specified in table 6.1.3.4.3.1-3.

Table 6.1.3.4.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.4.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content |  |
| ProblemDetails | O | 0..1 | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 404 Not Found | If the resource corresponding to the SubscriptionId can't be found, the AMF shall return this status code. The "cause" attribute is set to:  - SUBSCRIPTION\_NOT\_FOUND |

Table 6.1.3.4.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

Table 6.1.3.4.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

\* \* \* Next Change \* \* \* \*

###### 6.1.3.7.3.1 DELETE

This method terminates an existing subscription. This method shall support the URI query parameters specified in table 6.1.3.7.3.1-1.

Table 6.1.3.4.3.1-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.7.3.1-2 and the response data structures and response codes specified in table 6.1.3.7.3.1-3.

Table 6.1.3.7.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.7.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
|  |  |  | 204 No Content | This case represents a successful deletion of the subscription. |
| ProblemDetails | O | 0..1 | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 404 Not Found | If the resource corresponding to the SubscriptionId can't be found, the AMF shall return this status code. The "cause" attribute is set to:  - SUBSCRIPTION\_NOT\_FOUND |

Table 6.1.3.7.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

Table 6.1.3.7.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

\* \* \* Next Change \* \* \* \*

\* \* \* Next Change \* \* \* \*

###### 6.1.3.10.3.1 DELETE

This method deletes an individual N2 message notification subscription resource for non UE associated N2 information. This method is used by NF Service Consumers (e.g. LMF) to unsubscribe for notifications about non UE related N2 information.

This method shall support the request data structures specified in table 6.1.3.10.3.1-2 and the response data structures and response codes specified in table 6.1.3.10.3.1-3.

Table 6.1.3.10.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.10.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content |  |
| ProblemDetails | O | 0..1 | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing a different URI. The URI shall be an alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set. |
| ProblemDetails | O | 0..1 | 404 Not Found | If the resource corresponding to the SubscriptionId can't be found the AMF shall return this status code. The "cause" attribute is set to:  - SUBSCRIPTION\_NOT\_FOUND |

Table 6.1.3.10.3.1-5: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

Table 6.1.3.10.3.1-6: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

\* \* \* Next Change \* \* \* \*

### 6.2.5 Notifications

#### 6.2.5.1 Void

#### 6.2.5.2 AMF Event Notification

If a NF service consumer has subscribed to an event(s) supported by Namf\_EventExposure service, when AMF aware of a state change of the event, AMF shall create a notification including the event state report, and shall deliver the notification to the call-back URI, following Subscribe/Notify mechanism defined in 3GPP TS 29.501 [5].

\* \* \* Next Change \* \* \* \*

# Annex A (normative): OpenAPI specification

## A.2 Namf\_Communication API

openapi: 3.0.0

info:

version: 1.2.0-alpha.1

title: Namf\_Communication

description: |

AMF Communication Service

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Part removed for clarity

callbacks:

onN2MessageNotify:

'{$request.body#/n2NotifyUri}':

post:

summary: Namf\_Communication N2 Info Notify (UE Specific) service Operation

tags:

- N2 Info Notify

operationId: N2InfoNotifyHandoverComplete

requestBody:

description: UE Specific N2 Information Notification

content:

application/json:

schema:

$ref: '#/components/schemas/N2InformationNotification'

responses:

'200':

description: N2 Information Notification Response.

content:

application/json:

schema:

$ref: '#/components/schemas/N2InfoNotificationRspData'

multipart/related: # message with binary body part(s)

schema:

type: object

properties: # Request parts

jsonData:

$ref: '#/components/schemas/N2InfoNotificationRspData'

binaryDataN2Information:

type: string

format: binary

encoding:

jsonData:

contentType: application/json

binaryDataN2Information:

contentType: application/vnd.3gpp.ngap

headers:

Content-Id:

schema:

type: string

'204':

description: Expected response to a successful callback processing

'307':

description: temporary redirect

content:

application/problem+json:

schema:

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

headers:

Location:

description: 'An alternative URI of the NF service consumer to which the notification should be sent'

required: true

schema:

type: string

3gpp-Sbi-Target-Nf-Id:

description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

schema:

type: string

'308':

description: permanent redirect

content:

application/problem+json:

schema:

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

headers:

Location:

description: 'An alternative URI of the NF service consumer to which the notification should be sent'

required: true

schema:

type: string

3gpp-Sbi-Target-Nf-Id:

description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

schema:

type: string

'400':

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

'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'

responses:

'201':

description: UE context successfully created.

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/namf-comm/<apiVersion>/ue-contexts/{ueContextId}'

required: true

schema:

type: string

Part removed for clarity

/non-ue-n2-messages/subscriptions/{n2NotifySubscriptionId}:

delete:

summary: Namf\_Communication Non UE N2 Info UnSubscribe service Operation

tags:

- Non UE N2 Message Notification Individual Subscription (Document)

operationId: NonUeN2InfoUnSubscribe

parameters:

- name: n2NotifySubscriptionId

in: path

description: N2 info Subscription Identifier

required: true

schema:

type: string

responses:

'204':

description: Non UE N2 INfo Subscription successfully removed.

'307':

description: temporary redirect

content:

application/problem+json:

schema:

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

headers:

Location:

description: 'An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set'

required: true

schema:

type: string

3gpp-Sbi-Target-Nf-Id:

description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

schema:

type: string

'308':

description: permanent redirect

content:

application/problem+json:

schema:

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

headers:

Location:

description: 'An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set'

required: true

schema:

type: string

3gpp-Sbi-Target-Nf-Id:

description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

schema:

type: string

'400':

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

'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'

/subscriptions:

post:

summary: Namf\_Communication AMF Status Change Subscribe service Operation

tags:

- subscriptions collection (Document)

operationId: AMFStatusChangeSubscribe

requestBody:

content:

application/json:

schema:

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

required: true

responses:

'201':

description: N1N2 Message Subscription successfully created.

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/namf-comm/<apiVersion>/subscriptions/{subscriptionId}'

required: true

schema:

type: string

content:

application/json:

schema:

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

'307':

description: temporary redirect

content:

application/problem+json:

schema:

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

headers:

Location:

description: 'An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set'

required: true

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