**3GPP TSG-CT WG4 Meeting #99eC4-204262**

**E-Meeting, 18th – 28th August 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.510** | **CR** | **0384** | **rev** | **1** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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:*** | Notification Binding for Default Subscription | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_eSBA | | | | |  | ***Date:*** | | | 2020-08-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | 3GPP TS 29.500 has specified Binding indication for notifications, which is provided by the NF consumer to the NF producer when setup the subscription (implicitly or explicitly). When the target of the notification is not able to handle the notification (e.g. failed, overloaded, etc.) the NF producer (or SCP) will reselect an equivalent target to deliver the notification.  When a NF producer (or SCP for indirect communication) delivers a notification to a default subscription and detected the target NF consumer is not available, the NF producer (or SCP) needs to reselect an alternative consumer to handle the notification, especially when the notification is target a specific NF consumer (e.g. when the AMF deliver uplink LPP/NRPPa message to the LMF who triggered the location procedure). The entity handling default subscription in the NF consumer may have different binding levels (NF Instance/NF Set/NF Service/NF Service Set) but there is NO WAY to indicate its binding level of default subscriptions to the NF producer for notification delivery.  One alternative is to provide the binding indication for default subscription beforehand by the NF consumer to the producer. e.g. the LMF may provide the binding indication for default subscription LPP during N1/N2 Message Transfer invocation. Because binding indication may already be needed for N1/N2 delivery failure notification, to distinguish from this callback, a new scope (e.g. "default-sub") may be extended to explicitly indicate that the binding is for subsequent default subscription delivery. The drawback of this approach is that it create logic associations between different service operations for binding handling, and it also requires the NF producer to explicitly remember a context for default subscription to store the binding indication.  Another alternative is that a NF consumer when register default subscriptions into NRF, also register binding indication for each default subscription. Thus the NF producer (or SCP) could easily fetch it from NRF when deliver the notification to a default subscription. scope "callback" can be used for this approach thus no extension is needed.  This CR propose the NF consumer register binding indication for default subscriptions in NRF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1/ Introduce new attribute "binding" for data type DefaultNotificationSubscription.  2/ Update OpenAPI accordingly. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Binding indication cannot be supported for default notification subscription. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.6.2.4, 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 introduces backward compatible corrections to OpenAPI file of Nnrf\_NFManagement and Nnrf\_NFDiscovery APIs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:  Indicate the usage of binding attribute, e.g. reselecting alternative when delivery of notificaiton towards specific NF consumer who are not available. | | | | | | | | |

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

##### 6.1.6.2.4 Type: DefaultNotificationSubscription

Table 6.1.6.2.4-1: Definition of type DefaultNotificationSubscription

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| notificationType | NotificationType | M | 1 | Type of notification for which the corresponding callback URI is provided. |
| callbackUri | Uri | M | 1 | This attribute contains a default notification endpoint to be used by a NF Service Producer towards an NF Service Consumer that has not registered explicitly a callback URI in the NF Service Producer (e.g. as a result of an implicit subscription). |
| n1MessageClass | N1MessageClass | C | 0..1 | If the notification type is N1\_MESSAGES, this IE shall be present and shall identify the class of N1 messages to be notified. |
| n2InformationClass | N2InformationClass | C | 0..1 | If the notification type is N2\_INFORMATION, this IE shall be present and shall identify the class of N2 information to be notified. |
| versions | array(string) | O | 1..N | API versions (e.g. "v1") supported for the default notification type. |
| binding | string | O | 0..1 | When present, this IE shall contain the value of the Binding Indication for the default subscription notification (i.e. the value part of "3gpp-Sbi-Binding" header), as specified in clause 6.12.4 of 3GPP TS 29.500 [4]. (see NOTE) |
| NOTE: The binding indication for default subscription shall be used by a NF service producer to reselect an alternative NF service consumer, when delivering a notification to a default subscription in a specific NF consumer and it is not available. E.g. an AMF notifies corresponding uplink LPP/NRPPa messages via default subscription, to the LMF instance who previously sent downlink LPP/NRPPa message during a location procedure, If the original LMF instance is not available, the AMF selects an alternative LMF instance using the binding indication and deliver the notification towards the selected LMF. | | | | |

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

## A.2 Nnrf\_NFManagement API

openapi: 3.0.0

info:

version: '1.1.0'

title: 'NRF NFManagement Service'

description: |

NRF NFManagement Service.

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externalDocs:

description: 3GPP TS 29.510 V16.4.0; 5G System; Network Function Repository Services; Stage 3

url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.510/'

servers:

- url: '{apiRoot}/nnrf-nfm/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials:

- nnrf-nfm

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Text Skipped for Clarity \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

DefaultNotificationSubscription:

description: Data structure for specifying the notifications the NF service subscribes by default along with callback URI

type: object

required:

- notificationType

- callbackUri

properties:

notificationType:

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

callbackUri:

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

n1MessageClass:

$ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N1MessageClass'

n2InformationClass:

$ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N2InformationClass'

versions:

type: array

items:

type: string

minItems: 1

binding:

type: string

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Text Skipped for Clarity \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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