**3GPP TSG-CT WG4 Meeting #110-eC4-223337**

**E-Meeting, 12th – 20th May 2022**  *Revision of C4-223042*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.532** | **CR** | **0015** | **rev** | **2** | **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)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBS | | | | |  | ***Date:*** | | | 2022-04-29 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Currently, an AF may directly request an MB-SMF to allocate TMGI, but the message does not contain AF ID. Therefore, when the MB-SMF receives subsequent requests, the MB-SMF cannot know if these come from a valid AF, or not. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | AF ID is added to TMGI Allocate and Deallocate service operations. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Security vulnerability remains. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.2.1, 5.2.2.3.1, 6.1.6.2.2, 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 proposes backward compatible changes to Nmbsmf\_TMGI OpenAPI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1: The name of the new attribute is changed to 'afid' as in TS 29.522 and its type also becomes a string. The 'af-id' query parameter is also added to TMGI deallocation service operation.  Rev2:   * The proposed 'afid' query parameter is changed to 'af-id' and this is added to Table 6.1.3.2.3.2-1 and A.2 is corrected accordingly. * New description for the AF ID inclusion condition in the TMGI deallocation is aligned with the one for the TMGI allocation. | | | | | | | | |

**\*\*\*\*\*\*\***

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

#### 5.2.2.2 TMGI Allocate service operation

##### 5.2.2.2.1 General

The TMGI Allocate service operation (Nmbsmf\_TMGI\_Allocate) shall be used by NF Service Consumers to request the allocation of TMGI(s). The TMGI Allocate service operation shall also be used to refresh the expiration time of the previously allocated TMGI(s).

It is used in the following procedures:

- MBS Session Creation with and without PCC (see clauses 7.1.1.2 and 7.1.1.3 in 3GPP TS 23.247 [14]).

The NF Service Consumer (e.g. NEF, MBSF and AF) shall trigger the allocation of one or more TMGIs by using the HTTP POST method on the TMGI collection resource (/tmgi), as shown in Figure 5.2.2.2.1-1.



Figure 5.2.2.2.1-1: TMGI allocation and TMGI refresh operations

1. The NF Service Consumer shall send a POST request to the resource representing the TMGI collection resource (/tmgi) of the MB-SMF. The payload body (TmgiAllocate data structure) of the POST request shall contain:

- the number of TMGIs to be allocated, if TMGI allocation is requested;

- one or more TMGIs, if the expiration time of the previously allocated TMGI(s) needs to be refreshed;

- an AF ID, if the AF requests an MB-SMF to allocate TMGI directly, i.e. bypassing NEF/MBSF.

2a. On success, the MB-SMF shall return a 200 OK response with a payload body (TmgiAllocated data structure), which contains the allocated TMGI(s) and their expiration time, i.e. one expiration time for all TMGIs.

2b. On failure, or redirection, one of the HTTP status codes listed in Table 6.1.3.2.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails data structure, including:

- a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.3.2.3.1-3xx-x;

- FFS.

\* \* \* 2nd Change \* \* \* \*

#### 5.2.2.3 TMGI Deallocate service operation

##### 5.2.2.3.1 General

The TMGI Deallocate service operation (Nmbsmf\_TMGI\_Deallocate) shall be used by NF Service Consumers to request the deallocation of one or more TMGI(s).

It is used in the following procedures:

- Removal of the MBS session configuration with and without PCC (see clauses 7.1.1.4 and 7.1.1.5 in 3GPP TS 23.247 [14]);

- MBS Session Release for Broadcast (see clause 7.3.2 in 3GPP TS 23.247 [14]).

The NF Service Consumer (e.g. NEF, MBSF and AF) shall trigger the deallocation of one or more TMGIs by using the HTTP DELETE method on the TMGI collection resource (/tmgi), as shown in Figure 5.2.2.3.1-1.



Figure 5.2.2.3.1-1: TMGI deallocation

1. The NF Service Consumer shall send a DELETE request to the resource representing the TMGIs collection. Query parameters shall be used to indicate the TMGI(s) to be deallocated and also the AF ID, if the AF had requested an MB-SMF to allocate TMGI directly, i.e. bypassing NEF/MBSF. The NF Service Consumer may request to deallocate all previously allocated TMGIs, or one or more specific TMGIs previously allocated.

2. On success, "204 No Content" shall be returned with empty message body.

\* \* \* 3rd Change \* \* \* \*

6.1.3.2.3.2 DELETE

This method deallocates one or more of the previously allocated individual TMGIs in the MB-SMF with Nmbsmf\_TMGI\_Deallocate service operation.

This method shall support the URI query parameters specified in table 6.1.3.2.3.2-1.

Table 6.1.3.2.3.2-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| tmgi-list | array(Tmgi) | M | 1..N | The list of the TMGIs, which shall be deallocated by MB-SMF. |  |
| af-id | string | C | 0..1 | This parameter shall be present if an AF had directly requested an MB-SMF to allocate TMGI. |  |

\* \* \* 4th Change \* \* \* \*

##### 6.1.6.2.2 Type: TmgiAllocate

Table 6.1.6.2.2-1: Definition of type TmgiAllocate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| tmgiNumber | integer | C | 0..1 | This IE shall be present if TMGI allocation is requested.  When present, this IE shall indicate the number of TMGIs requested to be allocated.  Minimum: 1. Maximum: 255. |  |
| tmgiList | array(Tmgi) | C | 1..N | This IE shall be present if the expiration time of previously allocated TMGIs needs to be refreshed.  When present, this IE shall contain the list of TMGI(s) to be refreshed. |  |
| afId | string | C | 0..1 | This IE shall be present if an AF directly requests an MB-SMF to allocate TMGI. The IE contains an AF identification. |  |

\* \* \* 5th Change \* \* \* \*

## A.2 Nmbsmf\_TMGI API

openapi: 3.0.0

info:

title: 'Nmbsmf\_TMGI'

version: 1.0.0-alpha.4

description: |

MB-SMF TMGI Service.

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externalDocs:

description: >

3GPP TS 29.532 V17.0.0; 5G System; 5G Multicast-Broadcast Session Management Services;

Stage 3.

url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.532/

## Skipped for clarity ##

#

# STRUCTURED DATA TYPES

#

TmgiAllocate:

description: Data within TMGI Allocate Request

type: object

properties:

tmgiNumber:

description: The number of requested TMGIs

type: integer

tmgiList:

description: The list of TMGIs to be refreshed

type: array

items:

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

minItems: 1

afId:

type: string

description: AF ID.

## Skipped for clarity ##

delete:

summary: Deallocate one or more TMGIs

operationId: TMGIDeallocate

tags:

- TMGI collection

parameters:

- name: tmgi-list

in: query

description: One of more TMGIs to be deallocated

content:

application/json:

schema:

type: array

items:

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

minItems: 1

- name: af-id

in: query

description: AF ID

schema:

type: string

responses:

'204':

description: successful deallocation of TMGIs

## Skipped for clarity ##

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