**3GPP TSG-CT3 Meeting #136 *C3-244073***

**Maastricht, The Netherlands, 19th – 23rd August 2024**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **1323** | **rev** |  | **Current version:** |  |  |
|  |
| *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** |

|  |
| --- |
|  |
| ***Title:***  | Corrections to MBS Service Area related error handling |
|  |  |
| ***Source to WG:*** | , Ericsson |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | 5MBS |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** |  |
|  | *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 canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | In clauses 4.4.29.2.2 and 4.4.29.3.2, it is not clear everywhere that the returned reduced MBS Service Area together with the "MBS\_SERVICE\_AREA\_TOO\_LARGE" application error is the MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF, which creates misalignment with the other related provisions and may create confusion.Also, update the error handling by providing the details of the area supported by the MBS Service Area(s) covered by the MB-SMF Service Area of each MB-SMF (in case of the provided MBS Service Area across multiple MB-SMFs), so that AF could use this information and create appropriate request targeting each MB-SMF instead of deducing the MBS service area supported by each MB-SMF through trial and error method. This would significantly reduce the signalling load and time delay. |
|  |  |
| ***Summary of change:*** | This CR proposes to:1. Clarify wherever needed that the returned reduced MBS Service Area together with the "MBS\_SERVICE\_AREA\_TOO\_LARGE" application error is the MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF in clauses 4.4.29.2.2 and 4.4.29.3.2.
2. Update error handling by providing the details of supported MBS Service areas by other MB-SMFs with new data type defined in the clause 5.19.5.2.7 and updating the optional attribute in the clause 5.19.5.4.1 and corresponding open API update in A.17
 |
|  |  |
| ***Consequences if not approved:*** | 1. Misalignment (and potential confusion) in the definition of the content of the "403 Forbidden" status code with the "MBS\_SERVICE\_AREA\_TOO\_LARGE" application error.
2. By providing the additional information about the MBS service area(s) supported by other MB-SMFs, the AF could create the request targetting individual MB-SMF instead of deducing MBS service area for each MB-SMF based on error response with trail and error method. This would significantly reduce signalling load and time delay in creating the MBS sesssions.
 |
|  |  |
| ***Clauses affected:*** | 4.4.29.2.2, 4.4.29.3.2, 5.19.5.1, 5.19.5.2.6, 5.19.5.2.7 (new), 5.19.5.4.1, A.17 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.247 CR 0366 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR provides backward compatible corrections to the open API – MBSTMGI API |
|  |  |
| ***This CR's revision history:*** |  |

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

##### 4.4.29.2.2 Procedure for MBS TMGI(s) allocation or MBS TMGI(s) expiry time refresh

This procedure is used by an AF to request the allocation of TMGI(s) for new MBS session(s) or the refresh of the expiry time of already allocated MBS TMGI(s).

In order to request the allocation of TMGI(s) for new MBS session(s) or the refresh of the expiry time of already allocated MBS TMGI(s), an AF shall send a Nnef\_MBSTMGI\_Allocation request message to the NEF using the HTTP POST method with the request body including the TmgiAllocRequest data structure that shall contain:

NOTE: The Nnef\_MBSTMGI\_Allocation service operation corresponds to the stage 2 Nnef\_MBSTMGI\_Allocate service operation defined in 3GPP TS 23.247 [53].

- within the "afId" attribute, the identifier of the AF that is sending the request;

- within the "tmgiParams" attribute, the parameters (e.g. number of TMGI(s) to be allocated, etc.) to request the allocation of TMGI(s) for new MBS session(s) or the refresh of the expiry time of already allocated TMGI(s);

- within the "suppFeat" attribute, the features supported by the AF, if feature negotiation needs to take place;

and may contain:

- within the "notificationUri" attribute, the notification URI via which the AF desires to receive notifications on timer expiry for TMGI(s);

- within the "requestTestNotification" attribute, an indication on whether the NEF should send a test notification, if the "Notification\_test\_event" feature is supported;

- within the "websockNotifConfig" attribute, the configuration parameters to set up notification delivery over Websocket protocol, if the "Notification\_websocket" feature is supported; and/or

- within the either "mbsServiceArea" attribute or the "extMbsServiceArea" attribute, the MBS service area for the TMGI(s) to be allocated, which may be needed for a local MBS service.

The NEF shall then check whether the AF is authorized to perform this operation or not as defined in clause 6.1.1 of 3GPP TS 23.247 [53]. If the AF is authorized, then:

- if the MBS Service Area information is provided via the "extMbsServiceArea" attribute, the NEF shall translate the received geographical area(s) or civic address(es) to a list of TAI(s) and/or cell ID(s);

- the NEF shall determine the target MB-SMF either by querying the NRF to discover and select an MB-SMF (service) instance that can handle this request, or based on local configuration; and

- if the received MBS Service Area information cannot be covered by the MB-SMF Service Area of a single MB-SMF, the NEF shall reject the request and respond to the AF with an HTTP "403 Forbidden" status code with the response body including the ProblemDetailsTmgiAlloc data structure containing:

- the ProblemDetails data structure containing the "cause" attribute set to the "MBS\_SERVICE\_AREA\_TOO\_LARGE" application error; and

- the ReducedMbsServArea data structure containing the reduced MBS Service Area information, i.e., the MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF in case of single MB-SMF deployment in the network; or

- the SupportedMbsServArea data structure containing the list of supported MBS Service Area(s) covered by the list of MB-SMF Service Area(s) of each MB-SMF;

- the NEF shall convey this MBS TMGI(s) allocation request or expiry time refresh request to the selected MB-SMF using the Nmbsmf\_TMGI service API as defined in 3GPP TS 29.532 [52]; and

- if the received MBS Service Area is not supported (e.g., the received MBS Service Area cannot be covered by the service area(s) of any MB-SMF), the NEF shall skip the following steps below and respond to the AF with an HTTP "403 Forbidden" status code with the response body including the "MBS\_SERVICE\_AREA\_NOT\_SUPPORTED" application error.

Upon reception of a successful response from the MB-SMF as defined in 3GPP TS 29.532 [52], the NEF shall forward the received information (e.g. allocated MBS TMGI(s), expiry time or updated expiry time of existing MBS TMGI(s), etc.) to the AF in a Nnef\_MBSTMGI\_Allocation response message with an HTTP "200 OK" status code and the response body including the TmgiAllocResponse data structure that shall contain:

- within the "tmgiInfo" attribute, the MBS TMGI(s) allocation information or the refreshed expiry time for already allocated MBS TMGI(s); and

- within the "suppFeat" attribute, the features supported by both the AF and the NEF, if feature negotiation needs to take place and the AF provided the list of its supported features in the corresponding request body.

On failure or if the NEF receives an error response from the MB-SMF, the NEF shall take proper error handling actions, as specified in clause 5.19.7, and respond to the AF with an appropriate error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

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

##### 4.4.29.3.2 Procedure for MBS session creation

This procedure is used by an AF to request the creation of a multicast or a broadcast MBS session or, for a location dependent MBS session, the part of an MBS Session within an MBS service area.

In order to request the creation of an MBS Session, an AF shall send a Nnef\_MBSSession\_Create request to the NEF using the HTTP POST method and targeting the "MBS Sessions" collection resource with the request message body including the MbsSessionCreateReq data structure that shall contain:

- within the "afId" attribute, the identifier of the AF that is sending the request; and

- within the "mbsSession" attribute, the characteristics of the MBS session that is to be created.

The "mbsSession" attribute shall be encoded using the MbsSession data structure that shall contain:

- within the "mbsSessionId" attribute, the identifier of the MBS Session (e.g. SSM, TMGI), if available;

- within the "tmgiAllocReq" attribute, the TMGI allocation request indication, if the "mbsSessionId" attribute is either absent or does not contain a TMGI; and

- within the "serviceType" attribute, the MBS service type (i.e. multicast or broadcast);

- within the "locationDependent" attribute, the location dependent MBS session indication, if the request is related to a location dependent MBS;

and may further contain:

- for a multicast or a broadcast MBS session:

- within the "ingressAddrReq" attribute, the ingress transport address request indication to indicate whether the allocation of an ingress transport address is requested or not;

- within the "extMbsServiceArea" attribute, the MBS service area, for a location dependent MBS session or a local MBS session;

- within the "activationTime" attribute, the MBS session activation time;

- within the "terminationTime" attribute, the MBS session termination time;

- within the "mbsServInfo" attribute, the MBS Service Information for the MBS session; and

- within the "mbsSessionSubsc" attribute, the parameters to request the creation of a subscription to MBS session status event(s) reporting;

- for a multicast MBS session:

- within the "activityStatus" attribute, the MBS session activity status (i.e. active or inactive); and

- within the "anyUeInd" attribute, the indication of whether any UE may join the MBS session;

- for a broadcast MBS session:

- within the " mbsFsaIdList" attribute, the list of MBS frequency selection area Identifiers (i.e. FSA IDs); and

- when the "5MBS2" feature is supported:

- within the "associatedSessionId" attribute, the Associated Session ID; and

- within the "nrRedCapUeInfo" attribute, the indication of whether the broadcast MBS session is for NR RedCap UEs only, non-RedCap UEs only or both.

At the reception of this HTTP POST request for MBS session creation:

- the NEF may decide to interact with the PCF for MBS policy authorization of the received MBS Service Information;

- if the NEF decides to interact with the PCF, then:

- if the NEF did not receive an MBS Session Identifier or received a TMGI allocation request within the "tmgiAllocReq" attribute, the NEF shall request TMGI allocation to the MB-SMF using the Nmbsmf\_TMGI service API, as specified in 3GPP TS 29.532 [52];

- if the received MBS Session Creation request is for the creation of an MBS Session that is part of a location dependent MBS, i.e. the "locationDependent" attribute is present and set to "true", and there is a need to select the same PCF for all the MBS Sessions composing the location dependent MBS, the NEF shall interact with the BSF using the Nbsf\_Management service API to check whether there is already a PCF serving the MBS Sessions of the location dependent MBS based on the MBS Session Identifier, as specified in 3GPP TS 29.532 [52]. Then:

NOTE 1: Interacting with the BSF to discover whether there is already a PCF serving the MBS Session is not necessary in a deployment with a single PCF.

- if there is a PCF already serving the MBS Sessions of the location dependent MBS, the NEF shall use this PCF for MBS policy authorization of the received MBS Service Information;

- if there is no PCF already serving the MBS Sessions of the location dependent MBS or the NEF did not interact with the BSF, the NEF shall interact with the NRF using the Nnrf\_NFDiscovery service API to discover a PCF (service) instance to serve the MBS Session possibly based on the MBS Session Identifier, as specified in 3GPP TS 29.510 [57];

- the NEF shall then interact with the selected PCF (service) instance using the Npcf\_MBSPolicyAuthorization service API for MBS policy authorization of the received MBS Service Information and the creation of a corresponding MBS Application Session Context at the PCF, as specified in 3GPP TS 29.537 [63]; and

- if MBS session authorization is successful or when the NEF decides to not interact with the PCF for MBS policy authorization, the NEF shall interact with the MB-SMF using the Nmbsmf\_MBSSession service API to request the creation of a corresponding MBS session at the MB-SMF as specified in 3GPP TS 29.532 [52];

- if the MBS Service Area information is provided within the "extMbsServiceArea" attribute, the NEF shall translate the received geographical area(s) or civic address(es) to a list of cell ID(s) and/or list of TAI(s) before relaying it to the MB-SMF;

- if the NEF discovers the target MB-SMF based on the MBS Service Area and the received MBS Service Area information cannot be covered by the MB-SMF Service Area of a single MB-SMF, the NEF shall reject the request and respond to the AF with an HTTP "403 Forbidden" status code with the response body including the ProblemDetailsTmgiAlloc data structure containing:

- the ProblemDetails data structure containing the "cause" attribute set to the "MBS\_SERVICE\_AREA\_TOO\_LARGE" application error; and

- the ReducedMbsServArea data structure containing the reduced MBS Service Area information, i.e., the MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF in case of single MB-SMF deployment in the network; or

- the SupportedMbsServArea data structure containing the list of supported MBS Service Area(s) covered by the list of MB-SMF Service Area(s) of each MB-SMF;

and

- if the received MBS Service Area is not supported (e.g., the received MBS Service Area cannot be covered by the service area(s) of any MB-SMF), the NEF shall skip the following steps below and respond to the AF with an HTTP "403 Forbidden" status code with the response body including the "MBS\_SERVICE\_AREA\_NOT\_SUPPORTED" application error.

Upon reception of a successful response from the MB-SMF and successful MBS session creation at the NEF, the NEF shall return a Nnef\_MBSSession\_Create response with an HTTP "201 Created" status code to theAF including a "Location" header that shall contain the URI of the created "Individual MBS Session" resource, and the response body including the MbsSessionCreateRsp data structure that shall contain:

- within the "mbsSession" attribute, a representation of the created Individual MBS Session resource encoded using the MbsSession data structure, including:

- the area session ID assigned by the MB-SMF in the case of a location dependent MBS within the "areaSessionId" attribute of the MbsSession data structure;

- the allocated TMGI for the MBS session, if the MBS session creation request included a "tmgiAllocReq" attribute requesting TMGI allocation for the MBS session, within the "tmgi" attribute;

- if unicast transport is used over N6mb/Nmb9, the ingress MB-UPF tunnel information, within the "ingressTunAddr" attribute;

- if the "serviceType" value is "BROADCAST" and any MBS FSA ID(s) received from the MB-SMF, the list of MBS FSA ID(s) within the "mbsFsaIdList" attribute; and

- if the "ReducedMbsServArea" feature is supported and the MB-SMF reduced the MBS Service Area initially requested by the AF, the reduced MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF within the "reducedMbsServArea" attribute or the "reducedExtMbsServArea" attribute;

and

- within the "eventList" attribute, a list of MBS Session Status Event(s) report(s), if available.

If the MBS session creation request contained a request to also create a subscription to MBS session status event(s) within the "mbsSessionSubsc" attribute, the the NEF shall also create a corresponding "Individual MBS Session Subscription" resource and return a representation of it in the HTTP POST response body within the "mbsSessionSubsc" attribute of the MbsSession data structure. The "mbsSessionSubsc" attribute shall contains the identifier of the created "Individual MBS Session Subscription" resource within the "subscriptionId" attribute. The AF shall construct the URI of the created "Individual MBS Session Subscription" resource by appending the path segments "/subscriptions/{subscriptionId}", where the "subscriptionId" takes the value of the received "subscriptionId" attribute, to the URI of the created "Individual MBS Session" resource received within the HTTP Location header.

On failure or if the NEF receives an error code from the PCF, the NRF or the MB-SMF, the NEF shall take proper error handling actions, as specified in clause 5.20.7, and respond to the AF with an appropriate error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

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

#### 5.19.5.1 General

This clause specifies the application data model supported by the MBSTMGI API. Table 5.19.5.1-1 specifies the data types defined for the MBSTMGI API.

Table 5.19.5.1-1: MBSTMGI specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| ExpiryNotif | 5.19.5.2.5 | Represents TMGI(s) timer expiry notification information. |  |
| ExternalMbsServiceArea | 3GPP TS 29.571 [8] | Represents an external MBS service area. |  |
| MbsServiceArea | 3GPP TS 29.571 [8] | Represents an MBS service area. |  |
| ProblemDetailsTmgiAlloc | 5.19.5.4.1 | Represents an extension to the ProblemDetails data structure with additional error information related to TMGI Allocation. |  |
| ReducedMbsServArea | 5.19.5.2.6 | Represents the reduced MBS Service Area information. |  |
| TmgiAllocRequest | 5.19.5.2.2 | Represents the full set of parameters to initiate a TMGI(s) allocation request or the refresh of the expiry time of already allocated TMGI(s). |  |
| TmgiAllocResponse | 5.19.5.2.3 | Represents TMGI(s) allocation information or the refreshed expiry time for already allocated TMGI(s). |  |
| TmgiDeallocRequest | 5.19.5.2.4 | Represents information to request the deallocation of TMGI(s). |  |
| SupportedMbsServArea | 5.19.5.2.7 | Represents the list of supported MBS Service Area covered by the MB-SMF Service Area(s) of each MB-SMF. |  |

Table 5.19.5.1-2 specifies data types re-used by the MBSTMGI API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the MBSTMGI API.

Table 5.19.5.1-2: MBSTMGI API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| ProblemDetails | 3GPP TS 29.122 [4] | Represents error related information. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and is used to negotiate the applicability of the optional features. |  |
| Tmgi | 3GPP TS 29.571 [8] | Contains a TMGI. |  |
| TmgiAllocate | 3GPP TS 29.532 [52] | Contains parameters to initiate a TMGI(s) allocation request or the refresh of the expiry time of already allocated TMGI(s). |  |
| TmgiAllocated | 3GPP TS 29.532 [52] | Contains the TMGI(s) allocation information or the refreshed expiry time for already allocated TMGI(s). |  |
| Uri | 3GPP TS 29.122 [4] | Contains a TMGI. |  |
| WebsockNotifConfig | 3GPP TS 29.122 [4] | Contains the configuration parameters to set up notification delivery over Websocket protocol. |  |

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

##### 5.19.5.2.6 Type: ReducedMbsServArea

Table 5.19.5.2.6-1: Definition of type ReducedMbsServArea

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| reducedMbsServArea | MbsServiceArea | C | 0..1 | Represents the reduced MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF.(NOTE) |  |
| reducedExtMbsServArea | ExternalMbsServiceArea | C | 0..1 | Represents the reduced external MBS Service Area that can be covered by the MB-SMF Service Area of a single MB-SMF.(NOTE) |  |
| NOTE: These attributes are mutually exclusive. Either one of them shall be present. |

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

##### 5.19.5.2.7 Type: SupportedMbsServArea

Table 5.19.5.2.7-1: Definition of type SupportedMbsServArea

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| mbsServArea | array(MbsServiceArea) | C | 1..N | Each entry in the list represents the MBS Service area covered by the MB-SMF Service Area of an individual MB-SMF.(NOTE) |  |
| extMbsServArea | array(ExternalMbsServiceArea) | C | 1..N | Each entry in the list represents the external MBS Service area covered by the MB-SMF Service Area of an individual MB-SMF.(NOTE) |  |
| NOTE: These attributes are mutually exclusive. Either one of them shall be present. |

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

##### 5.19.5.4.1 Type: ProblemDetailsTmgiAlloc

Table 5.19.5.4.1-1: Definition of type ProblemDetailsTmgiAlloc as a list of to be combined data types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Cardinality | Description | Applicability |
| ProblemDetails | 1 | Contains additional error related information. |  |
| ReducedMbsServArea | 0..1 | Contains the reduced MBS Service Area information.(NOTE) |  |
| SupportedMbsServArea | 0..1 | Contains the list of supported MBS Service Area(s) covered by the MB-SMF Service Area(s) of eachMB-SMF.(NOTE) |  |
| NOTE: These attributes are mutually exclusive. Only one of them shall be present. |

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

# A.17 MBSTMGI API

openapi: 3.0.0

info:

 title: 3gpp-mbs-tmgi

 version: 1.1.0

 description: |

 API for the allocation, deallocation and management of TMGI(s) for MBS.

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externalDocs:

 description: >

 3GPP TS 29.522 V18.6.0; 5G System; Network Exposure Function Northbound APIs.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/3gpp-mbs-tmgi/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122.

paths:

 /allocate:

 post:

 summary: Request the allocation of TMGI(s) for new MBS session(s) or the refresh of the expiry time of already allocated TMGI(s).

 operationId: AllocateTmgi

 tags:

 - TMGI Allocation or Timer Expiry Refresh

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: >

 OK. Successful case. The allocated TMGI(s) or a refreshed expiry time for the concerned

 already allocated TMGI(s) is/are returned to the requesting AF.

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 description: >

 The request is rejected by the NEF and more details (along with ProblemDetails) may be

 returned.

 content:

 application/problem+json:

 schema:

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

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 callbacks:

 TmgiTimerExpiryNotification:

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

 post:

 requestBody:

 description: >

 Represents the MBS TMGI(s) timer expiry notification information (e.g. list of

 TMGI(s) for which the timer has expired).

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No content. The notification is successfully received.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /deallocate:

 post:

 summary: Request the deallocation of MBS TMGI(s).

 operationId: DeallocateTmgi

 tags:

 - MBS TMGI Deallocation

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content. Successful case, the TMGI(s) are deallocated.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 TmgiAllocRequest:

 description: >

 Represents the full set of parameters to initiate an MBS TMGI(s) allocation request

 or the refresh of the expiry time of already allocated TMGI(s).

 type: object

 properties:

 afId:

 type: string

 tmgiParams:

 $ref: 'TS29532\_Nmbsmf\_TMGI.yaml#/components/schemas/TmgiAllocate'

 notificationUri:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 mbsServiceArea:

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

 extMbsServiceArea:

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

 requestTestNotification:

 type: boolean

 websockNotifConfig:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/WebsockNotifConfig'

 suppFeat:

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

 required:

 - afId

 - tmgiParams

 not:

 required: [mbsServiceArea, extMbsServiceArea]

 TmgiAllocResponse:

 description: >

 Represents MBS TMGI(s) allocation information or the refreshed expiry time for

 already allocated TMGI(s)

 type: object

 properties:

 tmgiInfo:

 $ref: 'TS29532\_Nmbsmf\_TMGI.yaml#/components/schemas/TmgiAllocated'

 suppFeat:

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

 required:

 - tmgiInfo

 TmgiDeallocRequest:

 description: Represents information to request the deallocation of MBS TMGI(s).

 type: object

 properties:

 afId:

 type: string

 tmgis:

 type: array

 items:

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

 minItems: 1

 required:

 - afId

 - tmgis

 ExpiryNotif:

 description: Represents MBS TMGI(s) timer expiry notification information.

 type: object

 properties:

 tmgis:

 type: array

 items:

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

 minItems: 1

 required:

 - tmgis

 ReducedMbsServArea:

 description: >

 Represents the reduced MBS Service Area information.

 type: object

 properties:

 reducedMbsServArea:

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

 reducedExtMbsServArea:

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

 oneOf:

 - required: [reducedMbsServArea]

 - required: [reducedExtMbsServArea]

 SupportedMbsServArea:

 description: >

 Represents the list of supported MBS Service Area(s) covered by the MB-SMF Service Area(s)

 Of each MB-SMF.

 type: object

 properties:

 mbsServArea:

 type: array

 items:

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

 minItems: 1

 extMbsServArea:

 type: array

 items:

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

 minItems: 1

 oneOf:

 - required: [mbsServArea]

 - required: [extMbsServArea]

 ProblemDetailsTmgiAlloc:

 description: >

 Represents an extension to the ProblemDetails data structure with additional error

 information related to TMGI Allocation.

 allOf:

 - $ref: 'TS29122\_CommonData.yaml#/components/schemas/ProblemDetails'

 - oneOf:

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

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

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