**3GPP TSG-CT WG4 Meeting #110-eC4-223399**

**E-Meeting, 12th – 20th May 2022 C4-223197**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** | **1** | **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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Reporting NG-RAN failure to MB-SMF |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | C4 |
|  |  |
| ***Work item code:*** | 5MBS |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The procedure to restore a broadcast MBS session affected by a NG-RAN failure with or without restart has been agreed in C4-222349. The corresponding protocol impacts needs to be specified:1. When the AMF detects NG-RAN failure, it shall report such event together with the failed NG-RAN ID to the MB-SMF using Namf\_MBBroad\_ContextStatusNotification Request message;3.The MB-SMF will start MBS session in that failed NG-RAN by sending Namf\_MBSBroadcast\_ContextUpdate Request message to the AMF including the failed NG-RAN ID. In addition, as discussed in C4-223192:a. The AMF may report that the NG-RAN is not reachable (at Setup/Modification/Release) to the MB-SMF as a NG-RAN failure event;b. When the MB-SMF detects the AMF which was handling the MBS session has failed, it may reselect an alternative AMF to take over the MBS session, in such case, the MB-SMF may indicate to the alternative AMF to consider not send any NGAP signalling towards any NG-RAN for the MBS session.c. Another AMF in the same AMF set may notify the MB-SMF using Namf\_MBSBroadcast\_ContextStatusNotify about AMF change, e.g. when the original AMF handling the MBS session has failed. |
|  |  |
| ***Summary of change:*** | A number of protocol changes are added to address the various failure scenarios and also the procedure to restore a MBS session in a failed NG-RAN. |
|  |  |
| ***Consequences if not approved:*** | It is not clear how the MBS session can be restored in a (re)started NG-RAN if the AMF for the Broadcast MBS Session has failed. |
|  |  |
| ***Clauses affected:*** | 5.6.2.2, 5.6.2.3, 5.6.2.4, 5.6.2.5, 6.5.6.1, 6.5.6.2.4, 6.5.6.2.5, 6.5.6.2.7, 6.5.6.2.a, 6.5.6.2.x, 6.5.6.3.y, 6.5.6.3.z, A.6 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.527 CR 0048TS 23.527 CR 0056 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backward compatible new features in the OpenAPI file for Namf\_MBSBroadcast service. |
|  |  |
| ***This CR's revision history:*** | Rev1: remove the protocol changes for addressing local link failure |

\* \* \* \* First change \* \* \* \*

#### 5.6.2.2 ContextCreate

The ContextCreate service operation shall be used by the NF Service Consumer (e.g. MB-SMF) to request the AMF to create a broadcast MBS session context.

It is used in the following procedures:

- MBS Session Start for Broadcast (see clause 7.3.1 of 3GPP TS 23.247 [55]);

- Support for Local Broadcast Service (see clause 7.3.4 of 3GPP TS 23.247 [55]).

There shall be only one broadcast MBS session context per MBS session, or per MBS session and Area Session ID for an MBS session with Location dependent Broadcast service.

The NF Service Consumer (e.g. MB-SMF) shall create a broadcast MBS session context by using the HTTP POST method as shown in Figure 5.6.2.2-1.



Figure 5.6.2.2-1: Broadcast MBS session context creation

1. The NF Service Consumer shall send a POST request targeting the Broadcast MBS session contexts collection resource of the AMF. The payload body of the POST request shall contain the following information:

- MBS Session ID (i.e. TMGI, or TMGI and NID for an MBS session in an SNPN);

- Area Session ID, if this is a Location dependent broadcast MBS service;

- MBS service area;

- N2 MBS Session Management container (see MBS Session Information Setup Request Transfer IE in 3GPP TS 38.413 [12]); and

- Notification URI where to be notified about the status change of the broadcast MBS session context.

 The NF Service Consumer may also include the maxResponseTime IE in the request to indicate the maximum response time to receive information about the completion of the Broadcast MBS session establishment.

2a. On success, "201 Created" shall be returned. The AMF should respond success when it receives the first successful response from the NG-RAN(s). The 201 Created response may contain one or more N2 MBS Session Management containers, if additional information (e.g. MBS Session Information Response Transfer IE or MBS Session Information Failure Transfer IE in 3GPP TS 38.413 [12]) needs to be transferred to the MB-SMF. If the AMF received the NG-RAN responses from all involved NG-RAN(s), e.g. if the broadccast MBS session involves only one NG-RAN, the AMF shall include an indication of completion of the operation in all NG-RANs in the 201 Created response.

Upon receipt of subsequent responses from other NG-RANs after sending the 201 Created response, if additional information (e.g. MBS Session Information Response Transfer IE or MBS Session Information Failure Transfer IE in 3GPP TS 38.413 [12]) needs to be transferred to the MB-SMF, the AMF shall transfer such information by sending one or more Namf\_MBSBroadcast\_ContextStatusNotify requests to the MB-SMF. A Namf\_MBSBroadcast\_ContextStatusNotify request may include a list of N2 MBS Session Management containers received from different NG-RANs. When the AMF receives the response from all NG-RANs, the AMF shall include an indication of the completion of the operation in the Namf\_MBSBroadcast\_ContextStatusNotify request.

If the AMF does not receive responses from all NG-RAN nodes before the maximum response time elapses since the reception of the Namf\_MBSBroadcast\_ContextCreate Request, then the AMF should send one Namf\_MBSBroadcast\_ContextStatusNotify request indicating the incompletion of the Broadcast MBS session establishment.

The AMF may send one or more Namf\_MBSBroadcast\_ContextStatusNotify request including an operationEvent attribute to report the MB-SMF about failure to reach one or more NG-RANs.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.5.3.2.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.5.3.2.3.1-3.

\* \* \* \* Next change \* \* \* \*

#### 5.6.2.3 ContextUpdate

The ContextUpdate service operation shall be used by the NF Service Consumer (e.g. MB-SMF) to request the AMF to update a broadcast MBS session context.

It is used in the following procedures:

- MBS Session Update for Broadcast (see clause 7.3.3 of 3GPP TS 23.247 [55]).

- Broadcast MBS session restoration by MB-SMF (see clause 8.x.2.3 of 3GPP TS 23.527 [33].

- Selecting an alternative AMF for a Broadcast MBS Session at AMF failure (see clause 8.x.2.4 of 3GPP TS 23.527 [33]).

The NF Service Consumer (e.g. MB-SMF) shall update a broadcast MBS session context by using the HTTP POST method as shown in Figure 5.6.2.3-1.



Figure 5.6.2.3-1: Broadcast MBS session context update

1. The NF Service Consumer shall send a POST request targeting the individual Broadcast MBS session context resource to be updated in the AMF. The payload body of the POST request may contain the following information:

- N2 MBS Session Management container (see MBS Session Information Modify Request Transfer IE in 3GPP TS 38.413 [12]);

- Notification URI, if the NF Service Consumer wishes to modify the notification URI where to be notified about the status change of the broadcast MBS session context;

- updated MBS service area.

 The NF Service Consumer may also include the maxResponseTime IE in the request to indicate the maximum response time to receive information about the completion of the Broadcast MBS session update.

 During a broadcast MBS session restoration procedure for an NG-RAN failure with restart, the MB-SMF may include one or more ranIds attibutes to request the AMF to setup the Broadcast MBS session in a list of NG-RANs as identified by the NG-RAN ID(s), as specified in clause 8.x.2.3 of 3GPP TS 23.527 [33].

 During a restoration procedure upon an AMF failure without restart, for an AMF deployed in an AMF set, the MB-SMF may set the noNgapSignallingIndication IE to "true" when the MB-SMF detects the original AMF has failed and then selects an alternative AMF to take over the MBS session but without a need to trigger any NGAP signalling towards NG-RANs, as specified in clause 8.x.2.4 of 3GPP TS 23.527 [33].

2a. On success, "200 OK" shall be returned if additional information needs to be returned in the response. The 200 OK response may contain one or more N2 MBS Session Management containers, if such information (e.g. MBS Session Information Response Transfer IE or MBS Session Information Failure Transfer IE in 3GPP TS 38.413 [12]) needs to be transferred to the MB-SMF. If the AMF received the NG-RAN responses from all involved NG-RAN(s), the AMF shall include an indication of completion of the operation in all NG-RANs.

2b. On success, "204 No Content" shall be returned if no additional information needs to be returned in the response.

In both 2a and 2b cases, upon receipt of subsequent responses from other NG-RANs after sending the 200 OK response or the 204 No Content response, if additional information (e.g. MBS Session Information Response Transfer IE or MBS Session Information Failure Transfer IE in 3GPP TS 38.413 [12]) needs to be transferred to the MB-SMF, the AMF shall transfer such information by sending one or more Namf\_MBSBroadcast\_ContextStatusNotify requests to the MB-SMF. A Namf\_MBSBroadcast\_ContextStatusNotify request may include a list of N2 MBS Session Management containers received from different NG-RANs. When the AMF receives the response from all NG-RANs, the AMF shall include an indication of the completion of the operation in the Namf\_MBSBroadcast\_ContextStatusNotify request.

If the AMF does not receive responses from all NG-RAN nodes before the maximum response time elapses since the reception of the Namf\_MBSBroadcast\_ContextUpdate Request, then the AMF should send one Namf\_MBSBroadcast\_ContextStatusNotify request indicating the incompletion of the Broadcast MBS session update.

The AMF may send one or more Namf\_MBSBroadcast\_ContextStatusNotify request including an operationEvent attribute to report the MB-SMF about failure to reach one or more NG-RANs.

2c. On failure or redirection, one of the HTTP status code listed in Table 6.5.3.2.4.2.2-2 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.5.3.2.4.2.2-2.

\* \* \* \* Next change \* \* \* \*

#### 5.6.2.4 ContextRelease

The ContextRelease service operation shall be used by the NF Service Consumer (e.g. MB-SMF) to request the AMF to release a broadcast MBS session context.

It is used in the following procedures:

- MBS Session Release for Broadcast (see clause 7.3.2 of 3GPP TS 23.247 [55]).

The NF Service Consumer (e.g. MB-SMF) shall release a broadcast MBS session context by using the HTTP DELETE method as shown in Figure 5.6.2.4-1.



Figure 5.6.2.4-1: Broadcast MBS session context creation

1. The NF Service Consumer shall send a DELETE request targeting the individual Broadcast MBS session context resource to be released in the AMF.

2a. On success, "204 No Content" shall be returned.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.5.3.3.3.1-3shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.5.3.3.3.1-3.

 The AMF may send one or more Namf\_MBSBroadcast\_ContextStatusNotify request including an operationEvent attribute to report the MB-SMF about failure to reach one or more NG-RANs.

\* \* \* \* Next change \* \* \* \*

#### 5.6.2.5 ContextStatusNotify

The ContextStatusNotify service operation shall be used by the AMF to notify status change of a broadcast MBS session context to the NF Service Consumer (e.g. MB-SMF).

It is used in the following procedures:

- MBS Session Start for Broadcast (see clause 7.3.1 of 3GPP TS 23.247 [55]);

- MBS Session Update for Broadcast (see clause 7.3.3 of 3GPP TS 23.247 [55]).

- Broadcast MBS session restoration by MB-SMF (see clause 8.x.2.3 of 3GPP TS 23.527 [33]).

- Selecting an alternative AMF for a Broadcast MBS Session at AMF failure (see clause 8.x.2.4 of 3GPP TS 23.527 [33]).

The AMF shall notify status change of a broadcast MBS session context to the NF Service Consumer (e.g. MB-SMF) by using the HTTP POST method as shown in Figure 5.6.2.5-1.



Figure 5.6.2.5-1: Broadcast MBS session context status change notification

1. The AMF shall send a POST request targeting the notification URI received from the NF Service Consumer. The payload body of the POST request shall contain the following information:

- MBS Session ID (i.e. TMGI, or TMGI and NID for an MBS session in an SNPN);

- Area Session ID, if this is a Location dependent broadcast MBS service;

- one or more N2 MBS Session Management containers, if N2 MBS Session Management information has been received from one or more NG-RANs that needs to be transferred to the NF Service Consumer;

- the operationStatus IE indicating the completion of the Broadcast MBS session establishment or update, if the NF Service Consumer has requested to establish or update the Broadcast MBS session context and a response has been received from all NG-RANs; and

- the operationStatus IE indicating the incompletion of the Broadcast MBS session establishment or update, if the NF Service Consumer has requested to establish or update the Broadcast MBS session context including a maximum response time and the AMF has not received responses from all NG-RANs before the maximum response time elapses.

 The AMF may include an operationEvent attribute in the MBS Context Status Notification request to report the MB-SMF:

- a NG-RAN failure event, e.g. the NG-RAN failure with or without restart, as specified in clause 8.x.2.3 of 3GPP TS 23.527 [33]);

- that a new AMF has taken over the control of the broadcast MBS session upon an AMF failure as specified in clause 8.x.2.4 of 3GPP TS 23.527 [33]).

2a. On success, the NF Service Consumer shall return a "204 No Content" response.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.5.5.2.3.1-3 shall be returned and appropriate additional error information should be returned.

\* \* \* \* Next change \* \* \* \*

#### 6.5.6.1 General

This clause specifies the application data model supported by the API.

Table 6.5.6.1-1 specifies the data types defined for the Namf\_MBSBroadcast service based interface protocol.

Table 6.5.6.1-1: Namf\_MBSBroadcast specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| ContextCreateReqData | 6.5.6.2.2 | Data within ContextCreate Request |
| ContextCreateRspData | 6.5.6.2.3 | Data within ContextCreate Response |
| ContextStatusNotification | 6.5.6.2.4 | Data within ContextStatusNotify Request |
| ContextUpdateReqData | 6.5.6.2.5 | Data within ContextUpdate Request |
| ContextUpdateRspData | 6.5.6.2.6 | Data within ContextUpdate Response |
| N2MbsSmInfo | 6.5.6.2.7 | N2 MBS Session Management Information |
| OperationEvent | 6.5.6.2.a | Operation Event  |
| NgranFailureEvent | 6.5.6.2.x | NG-RAN failure event |
| OperationStatus | 6.5.6.3.3 | Operation Status |
| NgapIeType | 6.5.6.3.4 | NGAP Information Element Type |
| NgranFailureIndication | 6.5.6.3.z | Indication of a NG-RAN failure event |
| OpEventType | 6.5.6.3.a | Operation Event Type |

Table 6.5.6.1-2 specifies data types re-used by the Namf service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Namf service based interface.

Table 6.5.6.1-2: Namf re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| MbsSessionId | 3GPP TS 29.571 [6] | MBS Session Id |
| AreaSessionId | 3GPP TS 29.571 [6] | Area Session Id |
| MbsServiceArea | 3GPP TS 29.571 [6] | MBS Service Area |
| RefToBinaryData | 3GPP TS 29.571 [6] | Reference to binary body part |
| Uri | 3GPP TS 29.571 [6] | URI |
| DurationSec | 3GPP TS 29.571 [6] | Duration in seconds |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.2.5 Type: ContextUpdateReqData

Table 6.5.6.2.5-1: Definition of type ContextUpdateReqData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| mbsServiceArea | MbsServiceArea | O | 0..1 | MBS Service Area |
| n2MbsSmInfo | N2MbsSmInfo | O | 0..1 | When present, this IE shall contain N2 MBS Session Management related information.(see clause 6.5.6.4). |
| ranIdList | array(GlobalRanNodeId) | O | 1..N | This IE may be included when the MBS session update is to be performed only in a list of specific NG-RAN(s) as specified in clause 8.x.2.3 of 3GPP TS 23.527 [33]). |
| noNgapSignallingInd | boolean | O | 0..1 | This IE may be present during the restoration procedure to select an alternative AMF for a Broadcast MBS Session at AMF failure as specified in clause 8.x.2.4 of 3GPP TS 23.527 [33]).When present, this IE shall be set as following:- true: the AMF may consider to not trigger a NGAP signaling message to any NG-RAN. |
| notifyUri | Uri | O | 0..1 | When present, this IE shall contain the notification URI where to be notified about the status change of the broadcast MBS session context. |
| maxResponseTime | DurationSec | O | 0..1 | Maximum response time (in seconds) to receive information about the completion of the Broadcast MBS session update. |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.2.4 Type: ContextStatusNotification

Table 6.5.6.2.4-1: Definition of type ContextStatusNotification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| mbsSessionId | MbsSessionId | M | 1 | MBS Session ID |
| areaSessionId | AreaSessionId | C | 0..1 | Area Session IDThis IE shall be present if this is a Location dependent broadcast MBS service. |
| n2MbsSmInfoList | array(N2MbsSmInfo) | O | 1..10 | When present, this IE shall contain N2 MBS Session Management related information.(see clause 6.5.6.4). |
| operationStatus | OperationStatus | C | 0..1 | This IE shall be present and indicate the completion of the MBS session start or update operation, if the NF Service Consumer has requested to establish or update the Broadcast MBS session context and a response has been received from all NG-RANs.This IE shall be present and indicate the incompletion of the MBS session start or update operation, if the NF Service Consumer has requested to establish or update the Broadcast MBS session context within a maximum response time and the AMF has not received responses from all NG-RANs before the maximum response time elapses. |
| operationEvents | array(operationEvent) | O | 1..N | This IE may be present to report a list of operation events related to the Broadcast MB Session. |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.2.a Type: OperationEvent

Table 6.5.6.2.a-1: Definition of type OperationEvent

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| opEventType | OpEventType | M | 1 | Indicates the event type of an operation event related to the Broadcast MBS Session. |
| amfId | NfInstanceId | C | 0..1 | This IE shall be present to contain the NF Instance ID of the AMF sending the Context Status Notify Request message if the operation event type indicates an AMF change event. |
| ngranFailureEventList | array(NgranFailureEvent) | C | 1..N | This IE shall be present if the event type is related to a NG-RAN. |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.2.x Type: NgranFailureEvent

Table 6.5.6.2.x-1: Definition of type NgranFailureEvent

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| ngranId | GlobalRanNodeId | M | 1 | Indicates the identity of the RAN node. The IE shall contain the gNB ID. |
| ngranFailureIndication | NgranFailureIndication | M | 1 | This IE shall contain the information related to the NG-RAN failure. |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.3.y Enumeration: OpEventType

Table 6.5.6.3.y-1: Enumeration: OpEventType

|  |  |
| --- | --- |
| Enumeration value | Description |
| "AMF\_CHANGE" | This value indicates that the AMF has taken over of the Broadcast MBS Session. |
| "NG\_RAN\_EVENT" | This value indicates that an event related to a NG-RAN for the Broadcast MBS Session has taken place. |

\* \* \* \* Next change \* \* \* \*

##### 6.5.6.3.z Enumeration: NgranFailureIndication

The enumeration NgranFailureIndication indicates a NG-RAN failure event.

Table 6.5.6.3.z-1: Enumeration NgranFailureIndication

|  |  |
| --- | --- |
| Enumeration value | Description |
| "NG\_RAN\_RESTART\_OR\_START" | This value indicates that the AMF has detected a (re)start of a NG-RAN. |
| "NG\_RAN\_FAILURE\_WITHOUT\_RESTART" | This value indicates that the AMF has detected a NG-RAN failure without a restart. |
| "NG\_RAN\_NOT\_REACHABLE" | This value indicates that the AMF has failed to reach the NG-RAN when sending a NGAP MBS Session Setup/Modification/Release Request message. |

\* \* \* \* Next change \* \* \* \*

## A.6 Namf\_MBSBroadcast API

openapi: 3.0.0

info:

 version: 1.0.0-alpha.2

 title: Namf\_MBSBroadcast

 description: |

 AMF MBSBroadcast Service

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externalDocs:

 description: 3GPP TS 29.518 V17.5.0; 5G System; Access and Mobility Management Services

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.518/'

servers:

 - url: '{apiRoot}/namf-mbs-bc/v1'

 variables:

 apiRoot:

 default: https://example.com

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

security:

 - {}

 - oAuth2ClientCredentials:

 - namf-mbs-bc

**...Skipped for clarity...**

 schemas:

#

# STRUCTURED DATA TYPES

#

 ContextCreateReqData:

 description: Data within ContextCreate Request

 type: object

 properties:

 mbsSessionId:

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

 areaSessionId:

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

 mbsServiceArea:

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

 n2MbsSmInfo:

 $ref: '#/components/schemas/N2MbsSmInfo'

 notifyUri:

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

 maxResponseTime:

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

 required:

 - mbsSessionId

 - mbsServiceArea

 - ngapData

 - notifyUri

 ContextCreateRspData:

 description: Data within ContextCreate Response

 type: object

 properties:

 n2MbsSmInfoList:

 type: array

 items:

 $ref: '#/components/schemas/N2MbsSmInfo'

 minItems: 1

 maxItems: 10

 operationStatus:

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

 ContextUpdateReqData:

 description: Data within ContextUpdate Request

 type: object

 properties:

 mbsServiceArea:

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

 n2MbsSmInfo:

 $ref: '#/components/schemas/N2MbsSmInfo'

 ranIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/GlobalRanNodeId' minItems: 1

 noNgapSignallingInd:

 type: boolean

 enum:

 - true

 notifyUri:

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

 maxResponseTime:

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

 ContextStatusNotification:

 description: Data within ContextStatusNotify Request

 type: object

 properties:

 mbsSessionId:

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

 areaSessionId:

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

 n2MbsSmInfoList:

 type: array

 items:

 $ref: '#/components/schemas/N2MbsSmInfo'

 minItems: 1

 maxItems: 10

 operationEvents:

 type: array

 items:

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

 minItems: 1

 operationStatus:

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

 required:

 - mbsSessionId

 ContextUpdateRspData:

 description: Data within ContextUpdate Response

 type: object

 properties:

 n2MbsSmInfoList:

 type: array

 items:

 $ref: '#/components/schemas/N2MbsSmInfo'

 minItems: 1

 maxItems: 10

 operationStatus:

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

 N2MbsSmInfo:

 description: N2 MBS Session Management information

 type: object

 properties:

 ngapIeType:

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

 ngapData:

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

 OperationEvent:

 description: Operation Event for a Broadcast MBS Session.

 type: object

 properties:

 opEventType:

 $ref: '/components/schemas/OpEventType'

 amfId:

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

 type: array

 items:

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

 minItems: 1

 required:

 - opEventType

 NgranFailureEvent:

 description: NG-RAN failure event for a NG-RAN

 type: object

 properties:

 ngranId:

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

 ngranFailureIndication:

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

 required:

 - ngranId

 - ngranFailureIndication

#

# SIMPLE DATA TYPES

#

#

# ENUMERATIONS

#

 OperationStatus:

 description: Status of a Broadcast MBS session start or update operation.

 anyOf:

 - type: string

 enum:

 - MBS\_SESSION\_START\_COMPLETE

 - MBS\_SESSION\_START\_INCOMPLETE

 - MBS\_SESSION\_UPDATE\_COMPLETE

 - MBS\_SESSION\_UPDATE\_INCOMPLETE

 - type: string

 NgapIeType:

 description: NGAP Information Element Type

 anyOf:

 - type: string

 enum:

 - MBS\_SES\_SETUP\_REQ

 - MBS\_SES\_RSP

 - MBS\_SES\_FAIL

 - MBS\_SES\_MOD\_REQ

 - type: string

 OpEventType:

 description: Operation Event Type.

 anyOf:

 - type: string

 enum:

 - AMF\_CHANGE

 - NG\_RAN\_EVENT

 - type: string

 NgranFailureIndication:

 description: Indicates a NG-RAN failure event.

 anyOf:

 - type: string

 enum:

 - NG\_RAN\_RESTART\_OR\_START

 - NG\_RAN\_FAILURE\_WITHOUT\_RESTART

 - NG\_RAN\_NOT\_REACHABLE

 - type: string

\* \* \* \* End of changes \* \* \* \*