**TSG-CT WG3 Meeting #118-e *C3-215094***

**E-Meeting, 11th – 15th October 2021 (Revision of C3-215xyz)**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.549** | **CR** | 0032 | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  |
| *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:***  | Support local MBMS |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eV2XAPP |  | ***Date:*** | 2021-10-11 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | As defined in 14.3.2.10 of TS 23.434, VAL server can provide the local MBMS information to the NRM server. |
|  |  |
| ***Summary of change:*** | Add the localMbmsInfo and localMbmsActInd within the MulticastSubscription. |
|  |  |
| ***Consequences if not approved:*** | Local MBMS is not supported. |
|  |  |
| ***Clauses affected:*** | 2, 5.5.1.2.5.2, 7.4.1.4.1, 7.4.1.4.2.2, 7.4.1.6, A.5 |
|  |  |
|  | **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 feature to the SS\_NetworkResourceAdaptation OpenAPI file |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.434: "Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows".

[3] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[4] IETF RFC 6455: "The Websocket Protocol".

[5] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[6] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[7] IETF RFC 7232: "Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests".

[8] IETF RFC 7233: "Hypertext Transfer Protocol (HTTP/1.1): Range Requests".

[9] IETF RFC 7234: "Hypertext Transfer Protocol (HTTP/1.1): Caching".

[10] IETF RFC 7235: "Hypertext Transfer Protocol (HTTP/1.1): Authentication".

[11] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".

[12] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[13] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[14] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[15] Open API: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[16] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3”.

[17] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2”.

[18] 3GPP TS 33.122: "Security Aspects of Common API Framework for 3GPP Northbound APIs".

[19] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[20] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[21] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[22] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[23] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE\_LTE); MB2 reference point; Stage 3".

[24] 3GPP TR 21.900: "Technical Specification Group working methods".

[25] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[26] 3GPP TS 33.434: "Service Enabler Architecture Layer for Verticals (SEAL); Security Aspects".

[x] 3GPP TS 29.486: "V2X Application Enabler (VAE) Services; Stage 3".

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

###### 5.5.1.2.5.2 VAL server requesting for multicast resource using Request\_Multicast\_Resource service operation

The VAL server shall send a HTTP POST message to the NRM server. The body of the POST message shall include VAL group information, service announcement mode, QoS information, Broadcast area, the local MBMS information or the local MBMS activation indication and VAL server notification endpoint address information. Upon receiving HTTP POST message, the NRM server shall

1. verify the identity of the VAL server and check if the VAL server is authorized to request for multicast resource;

2. if the VAL server is authorized, the NRM server decides to establish an MBMS bearer in EPS using the procedures defined in 3GPP TS 29.468 [23];

3. the NRM server creates a multicast subscription as specified in clause 7.4.1.2.2.3.1;

4. the NRM server provides the result in the response message.

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

##### 7.4.1.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API

Table 7.4.1.4.1-1 specifies the data types defined specifically for the SS\_NetworkResourceAdaptation API service.

Table 7.4.1.4.1-1: SS\_NetworkResourceAdaptation API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| DeliveryMode | 7.4.1.4.3.2 |  |  |
| MulticastSubscription | 7.4.1.4.2.2 |  |  |
| NrmEvent | 7.4.1.4.3.3 |  |  |
| NrmEventNotification | 7.4.1.4.2.5 |  |  |
| ServiceAnnoucementMode | 7.4.1.4.3.1 |  |  |
| UserPlaneNotification | 7.4.1.4.2.4 |  |  |
| UnicastSubscription | 7.4.1.4.2.3 |  |  |

Table 7.4.1.4.1-2 specifies data types re-used by the SS\_NetworkResourceAdaptation API service.

Table 7.4.1.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.571 [21] |  |  |
| LocalMbmsInfo | 3GPP TS 29.486 [x] |  | LocalMBMS |
| MbmsLocArea | 3GPP TS 29.122 [3] |  |  |
| SupportedFeatures | 3GPP TS 29.571 [21] |  |  |
| Uint32 | 3GPP TS 29.571 [21] |  |  |
| Uri | 3GPP TS 29.571 [21] |  |  |
| WebsockNotifConfig | 3GPP TS 29.122 [3] |  |  |
| ValTargetUe | 7.3.1.4.2.3 | Used to identify either a VAL User ID or a VAL UE ID. |  |
| Ipv4Addr | 3GPP TS 29.571 [21] |  |  |
| Ipv6Addr | 3GPP TS 29.571 [21] |  |  |
| Port | 3GPP TS 29.122 [3] |  |  |

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

###### 7.4.1.4.2.2 Type: MulticastSubscription

Table 7.4.1.4.2.2-1: Definition of type MulticastSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valGroupId | string | M | 1 | The identity of the group that the MBMS bearer is requested for. |  |
| anncMode | ServiceAnnoucementMode | M | 1 | Indicates whether the service announcement is sent by NRM server or by the VAL server. |  |
| multiQosReq | string | M | 1 | The QoS requirement for the multicast. |  |
| locArea | MbmsLocArea | O | 0..1 | Indicate the area where the MBMS bearer is requested for. |  |
| duration | DateTime | O | 0..1 | Identifies the absolute time at which the subscription resource is considered to expire. When omitted in the request, it indicates the resource is requested to be valid forever by the VAL server. When omitted in the response, it indicates the resource is set to valid forever by the VAL server. |  |
| tmgi | Uint32 | O | 0..1 | TMGI. Shall be provided by the NRM server if announcement mode is set to VAL. |  |
| localMbmsInfo | LocalMbmsInfo | O | 0..1 | Contains the local MBMS inforamtion. The information only can be provided by the NF service consumer in the trust domain. | LocalMBMS |
| localMbmsActInd | boolean | O | 0..1 | Set to true by the NF service consumer to indicate that the local MBMS is activated.Set to false or omitted otherwise. | LocalMBMS |
| notifUri | Uri | M | 1 | Identifies the notification URI where the NRM notification shall be sent to. |  |
| reqTestNotif | boolean | O | 0..1 | Set to true by the NF service consumer to request the VAE server to send a test notification as defined in clause 6.3.5.3. Set to false or omitted otherwise. | Notification\_test\_event |
| wsNotifCfg | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 6.3.5.4. | Notification\_websocket |
| suppFeat | SupportedFeatures | M | 1 | This parameter shall be supplied by VAL server in the POST request that request the creation of a Multicast Subscription resource and shall be supplied in the reply of corresponding request. |  |
| upIpv4Addr | Ipv4Addr | O | 0..1 | Ipv4address of the user plane. (NOTE) |  |
| upIpv6Addr | Ipv6Addr | O | 0..1 | Ipv6address of the user plane. (NOTE) |  |
| upPortNum | Port | O | 0..1 | UDP port number of the user plane. |  |
| radioFreqs | array(Uint32) | O | 1..N | The radio frequencies which may be provided by the NRM server. |  |
| NOTE: At least one of upIpv4Addr or upIpv6Addr shall be provided by the NRM server. |

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

#### 7.4.1.6 Feature negotiation

Table 7.4.1.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | Notification\_test\_event | The testing of notification connection is supported according to clause 6.6. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 6.6. This feature requires that the Notification\_test\_event feature is also supported. |
| x | LocalMBMS | Indicate the support of local MBMS transmission. |

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

## A.5 SS\_NetworkResourceAdaptation API

openapi: 3.0.0

info:

 version: 1.1.0-alpha.2

 title: SS\_NetworkResourceAdaptation

 description: |

 SS Network Resource Adaptation Service.

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externalDocs:

 description: 3GPP TS 29.549 V17.1.0; Service Enabler Architecture Layer for Verticals (SEAL); Application Programming Interface (API) specification; Stage 3.

 url: http://www.3gpp.org/ftp/Specs/archive/29\_series/29.549/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/ss-nra/v1'

 variables:

 apiRoot:

 default: https://example.com

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

paths:

 /multicast-subscriptions:

 post:

 summary: Creates a new Individual Multicast Subscription resource

 operationId: CreateMulticastSubscription

 tags:

 - Multicast Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Success

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: 'Contains the URI of the created individual multicast subscription resource'

 required: true

 schema:

 type: string

 '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'

 callbacks:

 UserPlaneNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content, Notification was succesfull

 '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'

 /multicast-subscriptions/{multiSubId}:

 get:

 summary: "Reads an existing Individual Multicast Subscription"

 operationId: GetMulticastSubscription

 tags:

 - Individual Multicast Subscription (Document)

 parameters:

 - name: multiSubId

 in: path

 description: Multicast Subscription ID

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK. Resource representation is returned

 content:

 application/json:

 schema:

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

 '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'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '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'

 delete:

 summary: "Delete an existing Individual Multicast Subscription"

 operationId: DeleteMulticastSubscription

 tags:

 - Individual Multicast Subscription (Document)

 parameters:

 - name: multiSubId

 in: path

 description: Multicast Subscription ID

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content. Resource was succesfully deleted

 '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'

 '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'

 /unicast-subscriptions:

 post:

 summary: Creates a new Individual Unicast Subscription resource

 operationId: CreateUnicastSubscription

 tags:

 - Unicast Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Success

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: 'Contains the URI of the created individual unicast subscription resource'

 required: true

 schema:

 type: string

 '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'

 callbacks:

 UserPlaneNotification:

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

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content, Notification was succesfull

 '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'

 /unicast-subscriptions/{uniSubId}:

 get:

 summary: "Reads an existing Individual Unicast Subscription"

 operationId: GetUnicastSubscription

 tags:

 - Individual Unicast Subscription (Document)

 parameters:

 - name: uniSubId

 in: path

 description: Unicast Subscription ID

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK. Resource representation is returned

 content:

 application/json:

 schema:

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

 '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'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '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'

 delete:

 summary: "Delete an existing Individual Unicast Subscription"

 operationId: DeleteUnicastSubscription

 tags:

 - Individual Unicast Subscription (Document)

 parameters:

 - name: uniSubId

 in: path

 description: Unicast Subscription ID

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content. Resource was succesfully deleted

 '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'

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 '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:

 MulticastSubscription:

 description: Represents a multicast subscription.

 type: object

 properties:

 valGroupId:

 type: string

 anncMode:

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

 multiQosReq:

 type: string

 locArea:

 $ref: 'TS29122\_GMDviaMBMSbyMB2.yaml#/components/schemas/MbmsLocArea'

 duration:

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

 tmgi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 localMbmsInfo:

 $ref: 'TS29486\_VAE\_FileDistribution.yaml #/components/schemas/LocalMbmsInfo'

 localMbmsActInd:

 type: boolean

 notifUri:

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

 reqTestNotif:

 type: boolean

 wsNotifCfg:

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

 suppFeat:

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

 upIpv4Addr:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 upIpv6Addr:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 upPortNum:

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

 radioFreqs:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 minItems: 1

 required:

 - valGroupId

 - anncMode

 - multiQosReq

 - notifUri

 UnicastSubscription:

 description: Represents a unicast subscription.

 type: object

 properties:

 valTgtUe:

 $ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

 uniQosReq:

 type: string

 duration:

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

 notifUri:

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

 reqTestNotif:

 type: boolean

 wsNotifCfg:

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

 suppFeat:

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

 required:

 - valTgtUe

 - notifUri

 UserPlaneNotification:

 description: Represents a notification on User Plane events.

 type: object

 properties:

 notifId:

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

 eventNotifs:

 type: array

 items:

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

 minItems: 1

 required:

 - notifId

 - eventNotifs

 NrmEventNotification:

 description: Represents a notification on an individual User Plane event.

 type: object

 properties:

 event:

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

 ts:

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

 deliveryMode:

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

 streamIds:

 type: array

 items:

 type: string

 minItems: 1

 required:

 - event

 - ts

# Simple data types and Enumerations

 ServiceAnnoucementMode:

 anyOf:

 - type: string

 enum:

 - NRM

 - VAL

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - NRM: NRM server performs the service announcement.

 - VAL: VAL server performs the service announcement.

 DeliveryMode:

 anyOf:

 - type: string

 enum:

 - UNICAST

 - MULTICAST

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - UNICAST: Unicast delivery.

 - MULTICAST: Multicast delivery.

 NrmEvent:

 anyOf:

 - type: string

 enum:

 - UP\_DELIVERY\_MODE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - UP\_DELIVERY\_MODE: User Plane delivery mode.

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