**3GPP TSG-CT WG4 Meeting #96C4-200853**

**E-Meeting, 24th – 28th February 2020**

**Source: Huawei**

**Title: Pseudo-CR on Group identifier for Bulk Operation**

**Spec: 3GPP TS 29.515**

**Agenda item: 6.1.6**

**Document for: Decision**

**1. Introduction**

None

**2. Reason for Change**

For supporting Bulk Operation of LCS Service Request Targeting to Multiple UEs, group identifiers can be transferred to GMLC for requesting LCS service for UEs associated with the provided group identifiers, we can see detail in clause 6.8 of TS23.273. Therefore group identifiers may be in the request body of ProvideLocation service operation of GMLC location service.

**3. Conclusions**

External group identifier and internal group identifier are added included in the data model of InputData which is used as data type of request body of ProvideLocation service operation of GMLC location service.

External group identifier and internal group identifier are added included in the data model of LocationData which is used as data type of response body of ProvideLocation service operation of GMLC location service.

Adding an indication of complete success or partial success in LocationData to indicate whether requesting LCS service is completely successful for all the users in the requested group or only successfully for part of users in the requested group.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.515 v1.0.0

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

##### 5.2.2.2.1 General

The service operation is used during the procedures:

- 5GC-MT-LR Procedure for the commercial location service (see 3GPP TS 23.273 [4], clause 6.1.2)

- Deferred 5GC-MT-LR Procedure for Periodic, Triggered and UE Available Location Events (see 3GPP TS 23.273 [4], clause 6.3.1)

- Bulk Operation of LCS Service Request Targeting to Multiple UEs (see 3GPP TS 23.273 [4], clause 6.8)

The ProvideLocation service operation is invoked by a NF Service Consumer, e.g. a NEF or GMLC, towards the GMLC to request to provide the location information (geodetic location and, optionally, civic location) for a target UE or a target Group, or to subscribe to periodic or triggered deferred location for a target UE or a target Group. See Figure 5.2.2.2.1-1..



Figure 5.2.2.2.1-1: ProvideLocation Request/Response

1. The NF Service Consumer shall send an HTTP POST request to the URI associated with the "provide-location" custom operation. The input parameters for the request (required QoS, supported GAD shapes, LCS client type, external Service Identity, Codeword, service coverage, LDR type, serving AMF address, LDR reference, H-GMLC Callback URI) should be included in the HTTP POST request body.

2a. On success, "200 OK" shall be returned. The response body shall contain the parameters related to the determined position of the UE if any (geodetic position, civic location, positioning methods…).

2b On failure, one of the HTTP status code listed in Table 6.1.3.2.2-2 may be returned. For a 4xx/5xx response, the message body may contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.3.2.2-2.

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

#### 6.1.3.1 Overview

The structure of the custom operation URIs of the Ngmlc\_Location service is shown in Figure 6.1.3.1-1.



Figure 6.1.3.1-1: Custom operation URI structure of the Ngmlc\_Location API

Table 6.1.3.1-1 provides an overview of the custom operations and applicable HTTP methods.

Table 6.1.3.1-1: Custom operations

|  |  |  |
| --- | --- | --- |
| Custom operation URI | Mapped HTTP method | Description |
| {apiRoot}/ngmlc-loc/v1/provide-location | POST | Request or Subscribe the geodetic and optionally civic location of a target UE or a target Group. |
| {apiRoot}/ngmlc-loc/v1/cancel-location | POST | Cancel an on-going periodic or triggered location request of a target UE |
| {apiRoot}/ngmlc-loc/v1/location-update-notify | POST | Enable the UE to update UE location information towards the consumer NF |

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

#### 6.1.5.1 General

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

Table 6.1.5.1-1 specifies the data types defined for the Ngmlc service based interface protocol.

Table 6.1.5.1-1: Ngmlc specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| InputData | 6.1.5.2.2 | the input parameters in ProvideLocation service operation |  |
| LocationData | 6.1.5.2.3 | the response parameters in ProvideLocation service operation |  |
| CancelLocData | 6.1.5.2.4 | the input parameters in CancelLocation service operation |  |
| LocUpdateData | 6.1.5.2.5 | the input parameters in LocationUpdateNotify service operation |  |
| EventNotifyData | 6.1.5.2.6 | the input parameters in EventNotify Notification service operation |  |
| UEPrivacyRequirements | 6.1.5.2.7 | UE privacy requriements from LCS client |  |
| UEPrivacyCallSessionUnrelatedClass | 6.1.5.2.8 | UE privacy Call/Session unrelated class |  |
| PseudonymOfUE | 6.1.5.3.2 | pseudonym of UE |  |
| ServiceIdentity | 6.1.5.3.2 | service identity |  |
| CodeWord | 6.1.5.3.2 | codeword |  |
| ExternalClientIdentification | 6.1.5.3.2 | external client identification |  |
| E164CountryCodeOfGeographicArea | 6.1.5.3.2 | E.164 country codes for geographic areas |  |
| PseudonymIndicator | 6.1.5.3.3 | It defines if a pseudonym is requested |  |
| LocationRequestType | 6.1.5.3.4 | NI-LR, MT-LR or MO-LR |  |
| LocationTypeRequested | 6.1.5.3.5 | the location type requested by the LCS client indicating requesting current location,current or last known location, or initial location |  |
| EventNotifyDataType | 6.1.5.3.6 | the type of event that triggers event notification |  |

Table 6.1.5.1-2 specifies data types re-used by the Ngmlc 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 Ngmlc service based interface.

Table 6.1.5.1-2: Ngmlc re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Gpsi | 3GPP TS 29.571 [11] |  |  |
| Supi | 3GPP TS 29.571 [11] |  |  |
| Uri | 3GPP TS 29.571 [11] |  |  |
| AmfId | 3GPP TS 29.571 [11] |  |  |
| NfInstanceId | 3GPP TS 29.571 [11] |  |  |
| ExternalClientType | 3GPP TS 29.572 [12] |  |  |
| LocationQoS | 3GPP TS 29.572 [12] |  |  |
| SupportedGADShapes | 3GPP TS 29.572 [12] |  |  |
| PeriodicEventInfo | 3GPP TS 29.572 [12] |  |  |
| AreaEventInfo | 3GPP TS 29.572 [12] |  |  |
| MotionEventInfo | 3GPP TS 29.572 [12] |  |  |
| LdrType | 3GPP TS 29.572 [12] |  |  |
| LdrReference | 3GPP TS 29.572 [12] |  |  |
| AgeOfLocationEstimate | 3GPP TS 29.572 [12] |  |  |
| PositioningMethod | 3GPP TS 29.572 [12] |  |  |
| AccuracyFulfilmentIndicator | 3GPP TS 29.572 [12] |  |  |
| LmfIdentification | 3GPP TS 29.572 [12] |  |  |
| LcsServiceType | 3GPP TS 29.572 [12] |  |  |
| VelocityRequested | 3GPP TS 29.572 [12] |  |  |
| LcsPriority | 3GPP TS 29.572 [12] |  |  |
| VelocityEstimate | 3GPP TS 29.572 [12] |  |  |
| TerminationCause | 3GPP TS 29.572 [12] |  |  |
| PositioningMethodAndUsage | 3GPP TS 29.572 [12] |  |  |
| GnssPositioningMethodAndUsage | 3GPP TS 29.572 [12] |  |  |
| Lpi | 3GPP TS 29.503 [14] |  |  |
| LocationPrivacyInd | 3GPP TS 29.503 [14] |  |  |
| ValidTimePeriod | 3GPP TS 29.503 [14] |  |  |
| PlmnOperatorClass | 3GPP TS 29.503 [14] |  |  |
| PrivacyCheckRelatedAction | 3GPP TS 29.503 [14] |  |  |
| ExtGroupId | 3GPP TS 29.503 [14] | External Group Identifier |  |

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

##### 6.1.5.2.2 Type: InputData

Table 6.1.5.2.2-1: Definition of type InputData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| gpsi | Gpsi | O | 0..1 | Generic Public Subscription Identitfier. |  |
| supi | Supi | O | 0..1 | Subscription Permanent Identifier. |  |
| extGroupId | ExtGroupId | O | 0..1 | This IE shall contain the External Group ID.May be present when requesting LCS service for a group. |  |
| pseudonymOfUE | PseudonymOfUE | O | 0..1 | pseudonym of the target UE |  |
| externalClientType | ExternalClientType | M | 0..1 | external client type |  |
| locationQoS | LocationQoS | O | 0..1 | requested location QoS |  |
| supportedGADShapes | array(SupportedGADShapes) | O | 1..N | supported Geographical Area Description shapes |  |
| serviceIdentity | ServiceIdentity | O | 0..1 | service identity |  |
| codeWord | CodeWord | O | 0..1 | codeword |  |
| serviceCoverage | array(E164CountryCode OfGeographicArea) | O | 1..N | a list of E.164 country codes for geographic areas [13] where the LCS client is permitted to request and receive UE location information. |  |
| ldrType | LdrType | C | 0..1 | location deferred request event type |  |
| periodicEventInfo | PeriodicEventInfo | C | 0..1 | periodic event information of the location request for a target UE |  |
| areaEventInfo | AreaEventInfo | C | 0..1 | area event information of the location request for a target UE |  |
| motionEventInfo | MotionEventInfo | C | 0..1 | motion event information of the location request for a target UE |  |
| ldrReference | LdrReference | C | 0..1 | notification correlation ID |  |
| hgmlcCallBackURI | Uri | O | 0..1 | notification target address |  |
| externalClientIdentification | ExternalClientIdentification | O | 0..1 | external LCS client identification |  |
| afId | NfInstanceId | O | 0..1 | the identification of AF that initiated location request |  |
| uePrivacyReqirements | UEPrivacyReqirements | O | 0..1 | UE privacy requirement |  |
| lcsServiceType | LcsServiceType | O | 0..1 | the LCS service type |  |
| velocityRequested | VelocityRequested | O | 0..1 | velocity of the target UE is requested |  |
| priority | LcsPriority | O | 0..1 | priority of the location request |  |
| locationTypeRequested | LocationTypeRequested | O | 0..1 | Requested type of location, applicable to location immediate request |  |
| maximumAgeOfLocationEstimate | AgeOfLocationEstimate | O | 0..1 | requested maximum age of the location estimate |  |
| amfid | AmfId | O | 0..1 | the identification of serving AMF |  |

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

##### 6.1.5.2.3 Type: LocationData

Table 6.1.5.2.3-1: Definition of type LocationData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pseudonymOfUE | PseudonymOfUE | O | 0..1 | pseudonym of the target UE |  |
| gpsi | Gpsi | O | 0..1 | Generic Public Subscription Identitfier |  |
| supi | Supi | O | 0..1 | Subscription Permanent Identifier |  |
| extGroupId | ExtGroupId | O | 0..1 | This IE shall contain the External Group ID.May be present when requesting LCS service for a group. |  |
| locationEstimate | GeographicArea | O | 0..1 | geographic area of the target UE |  |
| civicAddress | CivicAddress | O | 0..1 | civic address of the target UE |  |
| ageOfLocationEstimate | AgeOfLocationEstimate | O | 0..1 | age of location estimate |  |
| positioningDataList | array(PositioningMethodAndUsage) | O | 1..N | If present, this IE shall indicate the usage of each non-GANSS positioning method that was attempted to determine the location estimate, either successfully or unsuccessfully. |  |
| gnssPositioningDataList | array(GnssPositioningMethodAndUsage) | O | 1..N | If present, this IE shall indicate the usage of each GANSS positioning method that was attempted to determine the location estimate, either successfully or unsuccessfully. |  |
| accuracyFulfilmentIndicator | AccuracyFulfilmentIndicator | O | 0..1 | the indication whether the obtained location estimate satisfies the requested accuracy or not |  |
| ueVelocity | VelocityEstimate | O | 0..1 | responded UE velocity, if requested and available |  |
| successType | SuccessType | O | 0..1 | This IE is only used for requesting LCS service for a group, and may be present to indicate one of the following value.- SUCCESS\_COMPLETELY- SUCCESS\_PARTIALLYThe value “SUCCESS\_COMPLETELY” indicates that requesting/subscribing to LCS service is successful for all the UE(s) within the group identified by the external/internal group ID.The value “SUCCESS\_PARTIALLY” indicates that requesting/subscribing to LCS service is only successful for part of the UE(s) within the group identified by the external/internal group ID.The default value of this attribute is “SUCCESS\_COMPLETELY” if this IE is not present. |  |

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

##### 6.1.6.3.x Enumeration: SuccessType

The enumeration SuccessType represents the type of success. It shall comply with the provisions defined in table 6.1.5.3.x-1.

Table 6.1.5.3.x-1: Enumeration PseudonymIndicator

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "SUCCESS\_COMPLETELY" | It is completely successful. |  |
| "SUCCESS\_PARTIALLY" | It is partially successful. |  |

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

## A.2 Ngmlc\_Loction API

openapi: 3.0.0

info:

 version: '1.0.0.alpha-1'

 title: Ngmlc\_Location

 description: |

 Ngmlc\_Location Service.

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externalDocs:

 description: 3GPP TS 29.515 V0.4.0; 5G System; Gateway Mobile Location Services; Stage 3

 url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.515/'

servers:

 - url: '{apiRoot}/nglmc-loc/v1'

 variables:

 apiRoot:

 default: https://example.com

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

security:

 - {}

 - oAuth2ClientCredentials:

 - ngmlc-loc

paths:

 /provide-location:

 post:

 summary: Request Location of an UE

 operationId: RequestLocation

 tags:

 - Request Location

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 '504':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/504'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 callbacks:

 EventNotify:

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

 post:

 requestBody:

 description: UE Event Notification

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: Expected response to a valid notification

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 '504':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/504'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 /cancel-location:

 post:

 summary: request cancellation of periodic or triggered location

 operationId: CancelLocation

 tags:

 - Cancel Location

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: Expected response to a successful cancellation

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 '504':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/504'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 /location-update-notify:

 post:

 summary: provide UE location information

 operationId: ProvideLocation

 tags:

 - Provide Location

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '204':

 description: Expected response to successful location context transfer

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 '504':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/504'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 ngmlc-loc: Access to the Ngmlc\_Location API

 schemas:

#

# COMPLEX TYPES

#

 InputData:

 type: object

 properties:

 gpsi:

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

 supi:

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

 extGroupId:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 pseudonymOfUE:

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

 externalClientType:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/ExternalClientType'

 locationQoS:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationQoS'

 supportedGADShapes:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/SupportedGADShapes'

 minItems: 1

 serviceIdentity:

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

 codeWord:

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

 serviceCoverage:

 type: array

 items:

 $ref: '#/components/schemas/E164CountryCodeOfGeographicArea'

 minItems: 1

 ldrType:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LdrType'

 periodicEventInfo:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/PeriodicEventInfo'

 areaEventInfo:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AreaEventInfo'

 motionEventInfo:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/MotionEventInfo'

 ldrReference:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LdrReference'

 hgmlcCallBackURI:

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

 externalClientIdentification:

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

 amfId:

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

 uePrivacyReqirements:

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

 lcsServiceType:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LcsServiceType'

 velocityRequested:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/VelocityRequested'

 priority:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LcsPriority'

 locationTypeRequested:

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

 maximumAgeOfLocationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AgeOfLocationEstimate'

 amfid:

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

 LocationData:

 type: object

 properties:

 pseudonymOfUE:

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

 gpsi:

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

 supi:

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

 extGroupId:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 locationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

 civicAddress:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

 ageOfLocationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AgeOfLocationEstimate'

 positioningDataList:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/PositioningMethodAndUsage'

 minItems: 1

 gnssPositioningDataList:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GnssPositioningMethodAndUsage'

 minItems: 1

 accuracyFulfilmentIndicator:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AccuracyFulfilmentIndicator'

 ueVelocity:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/VelocityEstimate'

 successType:

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

 CancelLocData:

 type: object

 properties:

 gpsi:

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

 supi:

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

 pseudonymOfUE:

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

 hgmlcAddress:

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

 ldrReference:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LdrReference'

 lmfIdentification:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

 amfId:

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

 LocUpdateData:

 type: object

 properties:

 gpsi:

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

 supi:

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

 pseudonymOfUE:

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

 locationRequestType:

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

 locationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

 ageOfLocationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AgeOfLocationEstimate'

 accuracyFulfilmentIndicator:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AccuracyFulfilmentIndicator'

 civicAddress:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

 locationQoS:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationQoS'

 afId:

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

 hgmlcAddress:

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

 serviceIdentity:

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

 EventNotifyData:

 type: object

 required:

 - eventNotifyDataType

 - ldrReference

 properties:

 gpsi:

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

 supi:

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

 ldrReference:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LdrReference'

 eventNotifyDataType:

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

 locationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

 civicAddress:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

 ageOfLocationEstimate:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AgeOfLocationEstimate'

 positioningDataList:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/PositioningMethodAndUsage'

 minItems: 1

 gnssPositioningDataList:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GnssPositioningMethodAndUsage'

 minItems: 1

 lmfIdentification:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

 afId:

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

 terminationCause:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/TerminationCause'

 UEPrivacyReqirements:

 type: object

 properties:

 lpi:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/Lpi'

 uePrivacyCallSessionUnrelatedClass:

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

 plmnOperatorClass:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/PlmnOperatorClass'

 UEPrivacyCallSessionUnrelatedClass:

 type: object

 properties:

 lcsPrivacyCheckAction:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/PrivacyCheckRelatedAction'

 locationValidTimePeriod:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ValidTimePeriod'

 locationValidGeographicArea:

 type: array

 items:

 $ref: '#/components/schemas/E164CountryCodeOfGeographicArea'

 minItems: 1

#

# SIMPLE TYPES

#

 ServiceIdentity:

 type: string

 ExternalClientIdentification:

 type: string

 CodeWord:

 type: string

 E164CountryCodeOfGeographicArea:

 type: string

 PseudonymOfUE:

 type: string

#

# ENUMS

#

 PseudonymIndicator:

 anyOf:

 - type: string

 enum:

 - PSEUDONYM\_REQUESTED

 - PSEUDONYM\_NOT\_REQUESTED

 - type: string

 LocationRequestType:

 anyOf:

 - type: string

 enum:

 - NI-LR

 - MT-LR

 - MO-LR

 - type: string

 LocationTypeRequested:

 anyOf:

 - type: string

 enum:

 - CURRENT\_LOCATION

 - CURRENT\_OR\_LAST\_KNOWN\_LOCATION

 - INITIAL\_LOCATION

 - NOTIFICATION\_VERIFICATION\_ONLY

 - type: string

 EventNotifyDataType:

 anyOf:

 - type: string

 enum:

 - UE\_AVAILABLE

 - PERIODIC

 - ENTERING\_INTO\_AREA

 - LEAVING\_FROM\_AREA

 - BEING\_INSIDE\_AREA

 - MOTION

 - MAXIMUM\_INTERVAL\_EXPIRATION\_EVENT

 - LOCATION\_CANCELLATION\_EVENT

 - ACTIVATION\_OF\_DEFERRED\_LOCATION

 - type: string

 SuccessType:

 anyOf:

 - type: string

 enum:

 - SUCCESS\_COMPLETELY

 - SUCCESS\_PARTIALLY

 - type: string

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