**3GPP TSG-CT WG4 Meeting #96C4-200854**

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

**Source: Huawei**

**Title: Pseudo-CR on LCS service authorization**

**Spec: 3GPP TS 29.515**

**Agenda item: 6.1.6**

**Document for: Decision**

**1. Introduction**

None

**2. Reason for Change**

For LCS service authorization, in scenario LCS service authorization for an Immediate UE Location, if there is geographic area restriction in the positioning request, the (H)GMLC performs an initial location by including a "location allowed without notification" indication in the location request sent to the VGMLC or AMF. The (H)GMLC then determines, based on the obtained location, whether location of the UE is allowed. If location of the UE is allowed subject to notification or verification, the (H)GMLC initiates a second location request to the VGMLC or serving AMF for the purpose of notification and/or verification only and includes one of the following indications in the second location request forwarded to the serving AMF, or VGMLC in the case of roaming:

- Notification only

- Notification and privacy verification only

Values "Notification only" and "Notification and privacy verification only" are missing in the data model of PrivacyCheckRelatedAction which is used for LCS service authorization in positioning request from (H)GMLC to VGMLC. PrivacyCheckRelatedAction is defined in 29.503 because it is used in subscription data, but values "Notification only" and "Notification and privacy verification only" does not belong to user subscription data. Therefore a new data model which includes these two values will be defined and used in positioning request message instead of the PrivacyCheckRelatedAction.

**3. Conclusions**

Add reference of data model LcsServiceAuth in Table Table 6.1.5.1-1.

Rename attribue privacyCheckRelatedAction to lcsServiceAuthInfo, and indicate its data type as LcsServiceAuth in the definition of data model UEPrivacyCallSessionUnrelatedClass.

**4. Proposal**

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

\* \* \* First 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] |  |  |
| LcsServiceAuth | 3GPP TS 29.571 [11] |  |  |

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

##### 6.1.5.2.8 Type: UEPrivacyCallSessionUnrelatedClass

Table 6.1.5.2.8-1: Definition of type UEPrivacyCallSessionUnrelatedClass

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| lcsServiceAuthInfo | LcsServiceAuth | O | 0..1 | When present, this IE shall contain an indication of privacy related notification or verification for the target UE.  The default value of this parameter if not presents is "LOCATION\_ALLOWED\_WITHOUT\_NOTIFICATION". |  |
| locationValidTimePeriod | ValidTimePeriod | O | 0..1 | a valid time period for the positioning |  |
| locationValidGeographicArea | array(E164CountryCodeOfGeographicArea) | O | 1..N | a valid geographic area for positioning |  |

\* \* \* 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'

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'

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'

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:

lcsServiceAuthInfo:

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

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

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