**3GPP TSG-CT WG3 Meeting #130C3-234055r2**

**Xiamen, China, 9 - 13 October, 2023 (revision of C3-233abc)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **1043** | **rev** |  | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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 of reporting the number of UEs that do not meet each criteria | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIMLsys | | | | |  | ***Date:*** | | | 2023-09-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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 can be 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 NEF may provide the number of UEs that do not meet each criteria as per clause 5.2.6.32.4 in TS 23.502, which is not defined in stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Update the MemUeSeletAssistNotif data type to include the number of UEs that do not meet each criteria. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 5.32.5.2.3, 5.32.5.2.13(new), 5.32.5.3(new), 5.32.5.3.1(new) 5.32.5.3.2(new) 5.32.5.3.3(new), A.30 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | The CR introduces backward compatible feature to the OpenAPI file for MemberUESelectionAssistance API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

A-KID AKMA Key IDentifier

A-TID AKMA Temporary UE IDentifier

A2X Aircraft-to-Everything

AAnF AKMA Anchor Function

ACS Auto-Configuration Server

AF Application Function

AI/ML Artificial Intelligence/Machine Learning

AKMA Authentication and Key Management for Applications

AM Access and Mobility management

ASTI Access Stratum TIme distribution

BAT Burst Arrival Time

BDT Background Data Transfer

CAPIF Common API Framework

CP Communication Pattern

DN Data Network

DNAI DN Access Identifier

DNN Data Network Name

EAS Edge Application Server

ECS Edge Configuration Server

EHE Edge Hosting Environment

FQDN Fully Qualified Domain Name

GMLC Global Mobile Location Centre

GPSI Generic Public Subscription Identifier

IPTV Internet Protocol Television

KAF AKMA Application Key

MBS Multicast/Broadcast Service

MB-SMF Multicast/Broadcast Session Management Function

MCC Mobile Country Code

MNC Mobile Network Code

MO-LR Mobile Originated Location Request

NEF Network Exposure Function

NSAC Network Slice Admission Control

NSACF Network Slice Admission Control Function

PCF Policy Control Function

PEGC PIN Element with Gateway Capability

PCRF Policy and Charging Rule Function

PDTQ Planned Data Transfer with QoS requirements

PFD Packet Flow Description

PFDF Packet Flow Description Function

PIN Personal IoT Network

REST Representational State Transfer

SCEF Service Capability Exposure Function

SFC Service Function Chain

S-NSSAI Single Network Slice Selection Assistance Information

SSM Source Specific IP Multicast address

TAI Traffic Area Identity

TMGI Temporary Mobile Group Identity

TNAP Trusted Network Access Point

TSC Time Sensitive Communication

TSCAI Time Sensitive Communication Assistance Information

TSCTSF Time Sensitive Communication and Time Synchronization Function

UDR Unified Data Repository

UP User Plane

UPF User Plane Function

URSP UE Route Selection Policy

WB Wide Band

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

#### 5.32.5.1 General

This clause specifies the application data model supported by the MemberUESelectionAssistance API. Table 5.32.5.1-1 specifies the data types defined for the MemberUESelectionAssistance API.

Table 5.32.5.1-1: MemberUESelectionAssistance API specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| FilterCriterionType | 5.32.5.3.3 | Indicates the filter criterion type. |
| MemUeSeletAssistNotif | 5.32.5.2.3 |  |
| MemUeSelectAssistSubsc | 5.32.5.2.2 |  |
| MemUeSeletReport | 5.32.5.2.13 | Indicates the Member UE selection report. |

Table 5.32.5.1-2 specifies data types re-used by the MemberUESelectionAssistance API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the MemberUESelectionAssistance API.

Table 5.32.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [4] | Represents a date and a time. |  | |
| DurationSec | 3GPP TS 29.122 [4] | Indicates the time window. |  | |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI. |  | |
| Uri | 3GPP TS 29.571 [8] | Identifies a referenced resource. |  |

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

##### 5.32.5.2.3 Type: MemUeSeletAssistNotif

Table 5.32.5.2.3-1: Definition of type MemUeSeletAssistNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifId | string | M | 1 | Notification Correlation ID assigned by the AF. |  |
| remdUes | array(Gpsi) | M | 1..N | Identifies the list of recommended UEs |  |
| memUeSelectRpts | array(MemUeSeletReport) | O | 1..N | Each element indicates the number of UEs that do not meet the certain criterion. |  |

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

##### 5.32.5.2.13 Type: MemUeSeletReport

Table 5.32.5.2.13-1: Definition of type MemUeSeletReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| criterionType | FilterCriterionType | M | 1 | Indicates the filter criterion type. |  |
| numForCriterion | Uinteger | M | 1 | Indicates the number of UEs that do not meet the filter criterion. |  |

\*\*\* Next Change (new)\*\*\*

#### 5.32.5.3 Simple data types and enumerations

##### 5.32.5.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

##### 5.32.5.3.2 Simple data types

The simple data types defined in table 5.32.5.3.2-1 shall be supported.

Table 5.32.5.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

##### 5.32.5.3.3 Enumeration: FilterCriterionType

The enumeration FilterCriterionType represents the type of filter criterion event for which the AF requests to be notified. It shall comply with the provisions defined in table 5.32.5.2.13-1.

Table 5.32.5.3.3-1: Enumeration FilterCriterionType

|  |  |
| --- | --- |
| Enumeration value | Description |
| QOS | Indicates QoS criterion. |
| ACCESS\_RAT\_TYPE | Indicates Access and Rat types criterion. |
| E2E\_DATA\_VOLUME\_TRANSFER\_TIME | Indicates End-to-end data volume transfer time criterion. |
| UE\_LOCATION | Indicates UE location criterion. |
| UE\_HISTORICAL\_LOCATION | Indicates UE historical location criterion. |
| UE\_DIRECTION | Indicates UE direction criterion. |
| UE\_DISTANCE | Indicates UE distance criterion. |
| SERVICE\_EXPERIENCE | Indicates the Service Experience criterion. |
| DNN | Indicates the DNN criterion. |

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

A.30 MemberUESelectionAssistance API

openapi: 3.0.0

info:

title: 3gpp-musa

version: 1.0.0-alpha.1

description: |

API for Member UE Selection Assistance.

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externalDocs:

description: >

3GPP TS 29.522 V18.1.0; 5G System; Network Exposure Function Northbound APIs.

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

servers:

- url: '{apiRoot}/3gpp-musa/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials: []

paths:

/{afId}/subscriptions:

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

get:

summary: read all of the active subscriptions for the AF

operationId: ReadAllSubscriptions

tags:

- Member UE Selection Assistance Subscription

responses:

'200':

description: OK.

content:

application/json:

schema:

type: array

items:

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

'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'

post:

summary: Create a new subscription to Member UE Selection Assistance.

operationId: CreateMemberUESelectionAssistanceSubcription

tags:

- Member UE Selection Assistance Subscription

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: Create a new Individual Member UE Selection Assistance Subscription resource.

content:

application/json:

schema:

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

headers:

Location:

description: >

Contains the URI of the newly created resource, according to the structure

{apiRoot}/3gpp-musa/v1/{afId}/subscriptions/{subscriptionId}.

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:

notificationDestination:

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

post:

requestBody:

required: true

content:

application/json:

schema:

type: array

items:

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

minItems: 1

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'

/{afId}/subscriptions/{subscriptionId}:

parameters:

- name: afId

in: path

description: Identifier of the AF.

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource.

required: true

schema:

type: string

get:

summary: Read an active subscription identified by the subscriptionId.

tags:

- Individual Member UE Selection Assistance Subscription

responses:

'200':

description: OK (Successful get the active subscription)

content:

application/json:

schema:

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

'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'

put:

summary: Update/Replace an existing subscription resource.

tags:

- Individual Member UE Selection Assistance Subscription

requestBody:

description: Parameters to replace the existing subscription.

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful update of the subscription)

content:

application/json:

schema:

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

'204':

description: No Content

'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'

delete:

summary: Delete an existing subscription.

tags:

- Individual Member UE Selection Assistance Subscription

responses:

'204':

description: No Content (Successful deletion of the existing subscription)

'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'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes: {}

schemas:

MemUeSelectAssistSubsc:

description: Represents an Member UE Selection Assistance Subscription.

type: object

properties:

tgtUes:

type: array

items:

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

minItems: 1

description: Identifies the list of UEs for Member Selection Assistance Reporting.

notifUri:

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

notifId:

type: string

filterCriters:

type: string

appId:

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

expTime:

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

timeWins:

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

required:

- tgtUes

- notifUri

- notifId

- filterCriters

MemUeSeletAssistNotif:

description: Represents a Member UE Selection Assistance notification.

type: object

properties:

notifId:

type: string

remdUes:

type: array

items:

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

minItems: 1

description: Identifies the list of UEs for Member Selection Assistance Reporting.

memUeSelectRpts:

type: array

items:

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

minItems: 1

description: Identifies the list of UEs for Member Selection Assistance Reporting.

required:

- notifId

- remdUes

MemUeSeletReport:

description: Indicates the Member UE selection report.

type: object

properties:

criterionType:

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

numForCriterion:

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

required:

- criterionType

- numForCriterion

FilterCriterionType:

anyOf:

- type: string

enum:

- QOS

- ACCESS\_RAT\_TYPE

- E2E\_DATA\_VOLUME\_TRANSFER\_TIME

- UE\_LOCATION

- UE\_HISTORICAL\_LOCATION

- UE\_DIRECTION

- UE\_DISTANCE

- SERVICE\_EXPERIENCE

- DNN

- type: string

description: >

This string provides forward-compatibility with future extensions to the enumeration and

is not used to encode content defined in the present version of this API.

description: |

Represents the filter criterion event

Possible values are:

- QOS: Indicates QoS criterion.

- ACCESS\_RAT\_TYPE: Indicates Access and Rat types criterion.

- E2E\_DATA\_VOLUME\_TRANSFER\_TIME: Indicates End-to-end data volume transfer time criterion.

- UE\_LOCATION: Indicates UE location criterion.

- UE\_HISTORICAL\_LOCATION: Indicates UE historical location criterion.

- UE\_DIRECTION: Indicates UE direction criterion.

- UE\_DISTANCE: Indicates UE distance criterion.

- SERVICE\_EXPERIENCE: Indicates the Service Experience criterion.

- DNN: Indicates the DNN criterion.

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