**3GPP TSG-CT WG3 Meeting #127eC3-231434**

**E-meeting, 17th – 21st, April, 2023 (revision of C3-231xxx)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **0912** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | UEMemberSelectionAssistance API, overview and procedures | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIMLsys | | | | |  | ***Date:*** | | | 2023-03-20 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | In order to enable 5GC to assist the Application AI/ML AF to preform candidate member selection, a new NEF northbound serivce (i.e. Nnef\_UEMemberSelectionAssistance service) is specifed in TS 23.502 to enable the AF request the NEF to provide a list of recommended UEs based on the member selection filtering criteria requested by the AF.  It is proposed to define such procedures in this proposal | | | | | | | | |
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| ***Summary of change:*** | | Support the procedures for Nnef\_UEMemberSelectionAssistance service | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1, 4.4.34 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

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

## 4.1 Overview

The NEF Northbound interface is between the NEF and the AF. It specifies RESTful/RPC APIs that allow the AF to access the services and capabilities provided by 3GPP network entities and securely exposed by the NEF.

This document also specifies the procedures triggered at the NEF by API requests from the AF and by event notifications received from 3GPP network entities.

The stage 2 level requirements and signalling flows for the NEF Northbound interface are defined in 3GPP TS 23.502 [2], 3GPP TS 23.247 [53] for MBS specific aspects and 3GPP TS 26.531 [59] for data reporting provisioning and Media Streaming Event Exposure specific aspects.

The NEF Northbound interface supports the following procedures:

1) Procedures for Monitoring

2) Procedures for Device Triggering

3) Procedures for resource management of Background Data Transfer

4) Procedures for CP Parameters, Network Configuration Parameters Provisioning, 5G LAN Parameters Provisioning, ACS Configuration Parameter Provisioning, Location Privacy Indication Parameters Provisioning and ECS address provisioning

5) Procedures for PFD Management

6) Procedures for Traffic Influence

7) Procedures for changing the chargeable party at session set up or during the session

8) Procedures for setting up an AF session with required QoS

9) Procedures for MSISDN-less Mobile Originated SMS

10) Procedures for non-IP data delivery

11) Procedures for analytics information exposure

12) Procedure for applying BDT policy

13) Procedures for Enhanced Coverage Restriction Control

14) Procedures for IPTV Configuration

15) Procedures for Service Parameter Provisioning

16) Procedures for RACS Parameter Provisioning

17) Procedures for Mobile Originated Location Request

18) Procedures for AKMA

19) Procedures for AF triggered Access and Mobility Influence

20) Procedures for AF triggered Access and Mobility Policy Authorization

21) Procedures for Time Synchronization Exposure

22) Procedures for EAS Deployment information provisioning

23) Procedures for TMGI allocation, deallocation, expiry timer refresh and timer expiry notification

24) Procedures for MBS session management and parameters provisioning.

25) Procedures for Data Reporting.

26) Procedures for Data Reporting Provisioning.

27) Procedures for AF specific UE ID retrieval.

28) Procedures for Media Streaming Event Exposure.

29) Procedures for MBS User Service management.

30) Procedures for MBS User Data Ingest Session management.

31) Procedures for UE Member Slection Assistance.

Which correspond to the following services respectively, supported by the NEF as defined in 3GPP TS 23.502 [2] or 3GPP TS 26.531 [59]:

1) Nnef\_EventExposure service and Nnef\_APISupportCapability service

2) Nnef\_Trigger service

3) Nnef\_BDTPNegotiation service

4) Nnef\_ParameterProvision service

5) Nnef\_PFDManagement service

6) Nnef\_TrafficInfluence service

7) Nnef\_ChargeableParty service

8) Nnef\_AFsessionWithQoS service

9) Nnef\_MSISDN-less\_MO\_SMS service

10) Nnef\_NIDDConfiguration and Nnef\_NIDD services

11) Nnef\_AnalyticsExposure service

12) Nnef\_ApplyPolicy service

13) Nnef\_ECRestriction service

14) Nnef\_IPTVConfiguration service

15) Nnef\_ServiceParameter service

16) Nnef\_UCMFProvisioning service

17) Nnef\_Location service

18) Nnef\_AKMA service

19) Nnef\_AMInfluence

20) Nnef\_AMPolicyAuthorization service

21) Nnef\_TimeSynchronization and Nnef\_ASTI services

22) Nnef\_EASDeployment service

23) Nnef\_MBSTMGI service

24) Nnef\_MBSSession service

25) Nnef\_DataReporting

26) Nnef\_DataReportingProvisioning

27) Nnef\_UEId service

28) Nnef\_MSEventExposure service

29) Nnef\_MBSUserService

30) Nnef\_MBSUserDataIngestSession

31) Nnef\_UEMemberSelectionAssistance

NOTE 1: For Nnef\_PFDManagement service, only the Nnef\_PFDManagement\_Create/Update/Delete service operations are applicable for the NEF Northbound interface.

NOTE 2: For Nnef\_NIDD service, NF consumer other than the AF does not use the NEF Northbound interface.

NOTE 3: For Nnef\_NIDDConfiguration service, the Nnef\_NIDDConfiguration\_Trigger service operation is only applicable for the NEF Northbound interface.

NOTE 4: The Nnef\_APISupportCapability service is only applicable in the MonitoringEvent API when the monitoring type sets to "API\_SUPPORT\_CAPABILITY".

NOTE 5: The Nnef\_MSEventExposure service maps to the Nnef\_EventExposure service and is applicable for the case where the event consumer AF in the Application Service Provider is deployed outside the trusted domain, as described in 3GPP TS 26.531 [59], and the subscribed event is set to "MS\_QOE\_METRICS", "MS\_CONSUMPTION", "MS\_NET\_ASSIST\_INVOCATION", "MS\_DYN\_POLICY\_INVOCATION", or "MS\_ACCESS\_ACTIVITY".

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

### 4.4.34 Procedures for UE Member Selection Assistance

#### 4.4.34.1 General

The procedures described in the clauses below are used by an AF to subscribe, update and delete a subscription to UE member selection assistance information via the NEF, also for the NEF to notify the AF about the member selection assistance information which has been subscribed.

#### 4.4.34.2 Procedure for UE Member Selection Assistance Subscription Creation

In order to subscribe to receive the UE member selection assistance information, the AF shall invoke the Nnef\_UEMemberSelectionAssistance\_Subscribe service operation by sending an HTTP POST request message to the NEF targeting the "UE Member Selection Assistance Subscriptions" collection resource, with the request message body including the UeMemSelectAssistSubsc data structure, as specified in clause 5.39.3.3.2.

The NEF shall then check whether the AF is authorized to perform this operation or not. If the AF is authorized and based on the UE member filtering criteria provided by the AF, the NEF shall then interact with different 5GC NFs to request the UE list via the services offered by the 5GC NFs as specified in clause 4.15.13.2 of 3GPP TS 23.502 [2].

Upon reception of a successful response from the 5GC NF, the NEF shall respond to the AF with a "201 Created" status code including a "Location" header field that shall contain the URI of the created resource, i.e. "{apiRoot}/3gpp-umsa/v1/{afId}/subscriptions/{subscriptionId}", and the response body containing a representation of the created "Individual UE Member Selection Assistance Subscription" resource within the UeMemSelectAssistSubsc data structure as specified in clause 5.39.3.3.2.

On failure or if the NEF receives an error response from the 5GC NF, the NEF shall take proper error handling actions, as specified in clause 5.39.7, and respond to the AF with an appropriate error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

#### 4.4.34.3 Procedure for UE Member Selection Assistance Subscription Update

In order to update an existing Individual UE Member Selection Assistance Subscription, the AF shall invoke the Nnef\_UEMemberSelectionAssistance\_Subscribe service operation by sending an HTTP PUT request message to the NEF targeting the "Individual UE Member Selection Assistance Subscription" resource, with the request message body including the UeMemSelectAssistSubsc data structure as specified in clause 5.39.3.3.2.

The NEF shall then check whether the AF is authorized to perform this operation or not. If the AF is authorized and based on the UE member filtering criteria provided by the AF, the NEF shall then interact with different 5GC NFs to request the UE list via the services offered by the 5GC NFs as specified in clause 4.15.13.2 of 3GPP TS 23.502 [2].

Upon reception of a successful response from the 5GC NF, the NEF shall respond to the AF with a "200 OK" status code with the UeMemSelectAssistSubsc data structure or "204 No Content" status code, as specified in clause 5.39.3.3.2.

On failure or if the NEF receives an error response from the 5GC NF, the NEF shall take proper error handling actions, as specified in clause 5.39.7, and respond to the AF with an appropriate error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

#### 4.4.34.4 Procedure for UE Member Selection Assistance Subscription Unsubscription

In order to request the deletion of an existing Individual UE Member Selection Assistance Subscription, the AF shall invoke the Nnef\_UEMemberSelectionAssistance\_Unsubscribe service operation by sending an HTTP DELETE request method targeting the URI of the concerned "Individual UE Member Selection Assistance Subscription" resource.

The NEF shall then check whether the AF is authorized to perform this operation or not. If the AF is authorized, the the NEF shall then unsubscribe from the different 5GC NFs to stop collecting the UE list.

Upon reception of a successful response from the 5GC NF, the NEF shall respond to the AF with a HTTP "204 No Content" status code.

On failure or if the NEF receives an error code from the 5GC AF, the NEF shall take proper error handling actions, as specified in clause 5.39.7, and respond to the AF with an appropriate error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

#### 4.4.34.5 Procedure for UE Member Selection Assistance Notification

In order to send a UE Member Selection Assistance notification, the NEF shall invoke the Nnef\_UEMemberSelectionAssistance\_Notify service operation to the AF using the HTTP POST method and targeting the notification URI provided during the creation/update of the corresponding subscription, with the request body including the UeMemSeletAssistNotif data structure as specified in clause 5.39.3.3.3.

Upon success, the AF shall send a HTTP "204 No Content" status code.

On failure, the AF shall take proper error handling actions, as specified in subclause 5.39.7, and respond to the NEF with an appropriate error status code.

Editor’s Note: The term "UE member selection" is FFS.

Editor’s Note: The list of UE Member filtering criteria and their corresponding procedures are FFS.

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