**3GPP TSG-CT WG3 Meeting #130 *C3-234263***

**Xiamen, China, 9 - 13 October, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.517** | **CR** | **0799** | **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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | corrections to CollectiveBehaviour | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNetAE | | | | |  | ***Date:*** | | | 2023-9-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | TS 23.288 in clasue 6.5.2 described that the collective attribute (see Table 6.5.2-5) can be indicated as part of event filter information as defined in TS 23.502 [3] which has been correctly implemented as the CollectiveBehaviour feature applicability to "appId” attribute within EventFilter data type, while in 4.2.2.2, when the subscribed event is "COLLECTIVE\_BEHAVIOUR", the consumer does not provide "appIds" within the "eventFilter" attribute, therefore the corresponding correction in clause 4.2.2.2 is needed.  collAttrs attribute in EventFilter data type applies for "COLLECTIVE\_BEHAVIOUR" event, hence no need to indicate listOfUeInd within collAttrs attribute applies for "COLLECTIVE\_BEHAVIOUR" event. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add"appIds" attribute for collective behaviour in clause 4.2.2.2.  Move the sentence “may be included when the subscribed event is "COLLECTIVE\_BEHAVIOUR" from the description of listOfUeInd to the description of collAttrs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.2.2, 5.6.2.5, 5.6.2.19 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 have any impact in the OpenAPI specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.2.2.2 Creating a new subscription

Figure 4.2.2.2-1 illustrates the creation of a subscription.



Figure 4.2.2.2-1: Creation of a subscription

To subscribe to event notifications, the NF service consumer shall send an HTTP POST request to the AF with: "{apiRoot}/naf-eventexposure/<apiVersion>/subscriptions" as request URI as shown in step 1 of figure 4.2.2.2-1, and the "AfEventExposureSubsc" data structure as request body.

The "AfEventExposureSubsc" data structure shall include:

- description of subscribed event information as "eventsSubs" attribute by using one or more "EventsSubs" data;

- description of the event reporting information as "eventsRepInfo" attribute;

- a URI where to receive the requested notifications as "notifUri" attribute;

- a Notification Correlation Identifier assigned by the NF service consumer for the requested notifications as "notifId" attribute.

The "AfEventExposureSubsc" data may include:

- a specific Authorization AS provisioned Data Access Profile Identifier as "dataAccProfId" attribute, if the feature "DataAccProfileId" is supported and the subscribed events including "MS\_QOE\_METRICS", "MS\_CONSUMPTION", "MS\_NET\_ASSIST\_INVOCATION", "MS\_DYN\_POLICY\_INVOCATION", and/or "MS\_ACCESS\_ACTIVITY".

NOTE 1: The optional Data Access Profile Identifier provisioned by the Authorization AS procedures are specified in clause 5.8 of 3GPP TS 26.531 [28].

The "EventsSubs" data shall include:

- a event to subscribe as a "event" attribute; and

- event filter information as "eventFilter" attribute associated with the event.

The "eventsRepInfo" attribute may include:

- event notification method (periodic, one time, on event detection) as "notifMethod" attribute;

- Maximum Number of Reports as "maxReportNbr" attribute;

- Monitoring Duration as "monDur" attribute;

- repetition period for periodic reporting as "repPeriod" attribute;

- immediate reporting indication as "immRep" attribute;

- sampling ratio as "sampRatio" attribute;

- partitioning criteria for partitioning the UEs before performing sampling as "partitionCriteria" attribute if the EneNA feature is supported;

- group reporting guard time as "grpRepTime" attribute;

- a notification flag as "notifFlag" attribute if the EneNA feature is supported; and/or

- notification muting exception instructions within the "notifFlagInstruct" attribute, if the EnhDataMgmt feature is supported and the "notifFlag" attribute is provided and set to "DEACTIVATE".

The "eventFilter" shall include:

- identification of target UE(s) to which the subscription applies via :

1) identification of individual UE(s) via "gpsis" attribute or "supis" attribute; or

2) identification of group(s) of UE(s) via "exterGroupIds" attribute or "interGroupIds" attribute; or

3) identification of any UE via "anyUeInd" attribute; or

4) identification of a UE with a specific IP address via the "ueIpAddr" attribute;

NOTE 2: It is assumed that the AF is provisioned with the list of UE IDs (GPSIs or SUPIs) belonging to an External or Internal Group ID.

Depending on the event type:

- if the feature "ServiceExperience" is supported and the event is "SVC\_EXPERIENCE", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "Exceptions" is supported and the event is "EXCEPTIONS", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute;

- if the feature "UeCommunication" is supported and the event is "UE\_COMM", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "UeMobility" is supported and the event is "UE\_MOBILITY", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "UserDataCongestion" is supported and the event is "USER\_DATA\_CONGESTION", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "PerformanceData" is supported and the event is "PERF\_DATA", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "CollectiveBehaviour" is supported and the event is "COLLECTIVE\_BEHAVIOUR", the "eventFilter" attribute may provide:

1) collective attributes information via "collAttrs" attribute;

2) an area of interest via "locArea" attribute

3) identification of application to which the subscription applies via "appIds" attribute.

- if the feature "Dispersion" is supported and the event is "DISPERSION", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "MSQoeMetrics" is supported and the event is "MS\_QOE\_METRICS", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "MSConsumption" is supported and the event is "MS\_CONSUMPTION", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "MSNetAssInvocation" is supported and the event is "MS\_NET\_ASSIST\_INVOCATION", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "MSDynPolicyInvocation" is supported and the event is "MS\_DYN\_POLICY\_INVOCATION", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "MSAccessActivity" is supported and the event is "MS\_ACCESS\_ACTIVITY", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

- if the feature "DataVolTransferTime" is supported and the event is "E2E\_DATA\_VOL\_TRANS\_TIME", the "eventFilter" attribute may provide:

1) identification of application to which the subscription applies via "appIds" attribute;

2) an area of interest via "locArea" attribute.

If the AF cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the AF shall send the HTTP error response as specified in clause 5.7.

Upon successful reception of the HTTP POST request with "{apiRoot}/naf-eventexposure/<apiVersion>/subscriptions" as request URI and "AfEventExposureSubsc" data structure as request body, the AF shall create a new "Individual Application Event Subscription" resource, store the subscription and send an HTTP "201 Created" response as shown in step 2 of figure 4.2.2.2-1, containing:

- a Location header field; and

- an "AfEventExposureSubsc" data type in the payload body.

The Location header field shall contain the URI of the created individual application session context resource i.e. "{apiRoot}/naf-eventexposure/<apiVersion>/subscriptions/{subscriptionId}".

The "AfEventExposureSubsc" data type payload body shall contain the representation of the created "Individual Application Event Subscription".

When the "monDur" attribute is included in the response by the AF, it represents AF selected expiry time that is equal or less than the expiry time received in the request.

When the "immRep" attribute is included and sets to "true" in the subscription and the subscribed events are available, the AF shall include the reports of the events subscribed, if available, in the HTTP POST response.

When the sampling ratio as, "sampRatio" attribute, is included in the subscription without a "partitionCriteria" attribute, the AF shall select a random subset of UEs among the target UEs according to the sampling ratio and only report the event(s) related to the selected subset of UEs. If the "partitionCriteria" attribute is additionally included, then the AF shall first partition the UEs according to the value of the "partitionCriteria" attribute and then select a random subset of UEs from each partition according to the sampling ratio and only report the event(s) related to the selected subsets of UEs.

When the group reporting guard time as the "grpRepTime" attribute is included in the subscription, the AF shall accumulate all the event reports for the target UEs until the group reporting guard time expires. Then the AF shall notify the NF service consumer using the Naf\_EventExposure\_Notify service operation, as described in clause 4.2.4.2.

When the "notifFlag" attribute is included and set to "DEACTIVATE" in the request, the AF shall mute the event notification and store the available events until the NF service consumer requests to retrieve them by setting the "notifFlag" attribute to "RETRIEVAL" or until a muting exception occurs (e.g. full buffer). When a muting exception occurs, the AF may consider the contents of the "notifFlagInstruct" attribute (if provided) and/or local configuration to determine its actions.

If the EnhDataMgmt feature is supported and the AF accepts the muting instructions provided in the "notifFlag" and/or the "notifFlagInstruct" attributes, it may indicate the applied muting notification settings within the "mutingSetting" attribute in the response. If the AF does not accept the muting instructions provided in the "notifFlag" and/or the "notifFlagInstruct" attributes, it shall send an HTTP "403 Forbidden" error response including the "cause" attribute set to "MUTING\_INSTR\_NOT\_ACCEPTED".

\*\*\* 2nd Change \*\*\*

#### 5.6.2.5 Type EventFilter

Table 5.6.2.5-1: Definition of type EventFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability  (NOTE 4) |
| gpsis | array(Gpsi) | O | 1..N | Each element represents external UE identifier.  (NOTE 1, NOTE 2) |  |
| supis | array(Supi) | O | 1..N | Each element represents a SUPI identifying a UE (NOTE 1, NOTE 2) |  |
| exterGroupIds | array(ExtGroupId) | O | 1..N | Each element represents a group of UEs identified by an External Group Identifier.  (NOTE 1, NOTE 2) |  |
| interGroupIds | array(GroupId) | O | 1..N | Each element represents a group of UEs identified by an Internal Group Identifier (NOTE 1, NOTE 2) |  |
| anyUeInd | boolean | O | 0..1 | Identifies whether the request applies to any UE.  This attribute shall set to "true" if applicable for any UE, otherwise, set to "false".  May only be present and sets to "true" if "AfEvent" sets to "SVC\_EXPERIENCE", "EXCEPTIONS" or "USER\_DATA\_CONGESTION".  (NOTE 2) | ServiceExperience  Exceptions  UserDataCongestion |
| ueIpAddr | IpAddr | O | 0..1 | Identifies the UE IP address. (NOTE 2) | EnPerformanceData |
| appIds | array(ApplicationId) | O | 1..N | Each element indicates an application identifier.  If absent, the EventFilter data applies to any application (i.e. all applications)  (NOTE 3) | ServiceExperience  UeMobility  UeCommunication  Exceptions  UserDataCongestion  PerformanceData  Dispersion  CollectiveBehaviour  MSQoeMetrics  MSConsumption  MSNetAssInvocation  MSDynPolicyInvocation  MSAccessActivity  DataVolTransferTime |
| locArea | LocationArea5G | O | 0..1 | Represents area of interest. (NOTE 5) | ServiceExperience  UeMobility  UeCommunication  Exceptions  UserDataCongestion  PerformanceData  Dispersion  CollectiveBehaviour  MSQoeMetrics  MSConsumption  MSNetAssInvocation  MSDynPolicyInvocation  MSAccessActivity  DataVolTransferTime |
| collAttrs | array(CollectiveBehaviourFilter) | O | 1..N | Each element indicates a collective attribute parameter type and value.  This attribute may be included when the subscribed event is "COLLECTIVE\_BEHAVIOUR". | CollectiveBehaviour |
| exceptionReqs | array(Exception) | O | 1..N | Each element indicates an Exception Id with associated threshold. This attribute may be included when the subscribed event is "EXCEPTIONS".  (NOTE 6) | EnPerformanceData |
| NOTE 1: For untrusted AF, only gpsis and exterGroupIds are applicable. For trusted AF, only supis and interGroupIds are applicable.  NOTE 2: For an applicable feature, only one attribute identifying the target UE shall be provided.  NOTE 3: For event "UE\_COMM", "UE\_MOBILITY", "EXCEPTIONS" and "PERF\_DATA", the "appIds" attribute, if present, shall include only one element.  NOTE 4: Properties marked with a feature as defined in clause 5.8 are applicable as described in clause 6.6 of 3GPP TS 29.500 [5]. If no features are indicated, the related property applies for all the features.  NOTE 5: The NetworkAreaInfo data within the LocationArea5G data is only applicable for trusted AF. In addition, for event "SVC\_EXPERIENCE", only the "tais" attribute within the NetworkAreaInfo data is applicable for the trusted AF.  NOTE 6: Only "excepId" and "excepLevel" attributes within the Exception data type are applicable to this attribute. | | | | | |

Editor's note: Futher event filter information is FFS.

\*\*\* 2nd Change \*\*\*

#### 5.6.2.19 Type CollectiveBehaviourFilter

Table 5.6.2.19-1: Definition of type CollectiveBehaviourFilter

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attribute name | | Data type | | P | | Cardinality | | Description | | Applicability | |
| type | | CollectiveBehaviourFilterType | | M | | 1 | | Parameter type for collective behaviour information event filter. | |  | |
| value | | string | | M | | 1 | | Value of the parameter type as in "type" attribute. | |  | |
| collBehAttr | | array(PerUeAttribute) | | O | | 1..N | | Contains values of collective behaviour attributes, at least one of which shall match for an AF event to be sent. If provided, the attributes "type" and "value" may be ignored. | | ExtEventFilters | |
| dataProcType | | DataProcessingType | | O | | 0..1 | | Contains the type of processing that shall have been performed on the data for an AF event to be sent. If provided, the attributes "type" and "value" may be ignored. | | ExtEventFilters | |
| listOfUeInd | | boolean | | O | | 0..1 | | Indicates whether request list of UE IDs that fulfill a collective behaviour within the area of interest.  This attribute shall set to "true" if request the list of UE IDs, otherwise, set to "false". | |  | |

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