**3GPP TSG-CT WG3 Meeting #110eC3-20xxxx**

**E-Meeting, 02-11 June 2020 (Revision of C3-202300)**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.520** | **CR** | **0170** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  |
| *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:***  | Clarify service experience data |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNA |  | ***Date:*** | 2020-06-11 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *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 canbe 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | 1. Service experience requires either snssais or anySlice. |
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| ***Summary of change:*** | Clarify the slice information for SERVICE\_EXPERIENCE in cl.4.2.2.2.2. |
|  |  |
| ***Consequences if not approved:*** | Inconsistency remains in the specification. |
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| ***Clauses affected:*** | 4.2.2.2.2 |
|  |  |
|  | **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 doesn’t impact any openAPI specification file. |
|  |  |
| ***This CR's revision history:*** | CT3#110e:This CR to revised to remove the addition of bullet 2 for service experience in 4.2.2.2.2 to avoid clash with CR0158. |

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

##### 4.2.2.2.2 Subscription for event notifications

Figure 4.2.2.2.2-1 shows a scenario where the NF service consumer sends a request to the NWDAF to subscribe for event notification(s) (as shown in 3GPP TS 23.288 [17]).



Figure 4.2.2.2.2-1: NF service consumer subscribes to notifications

The NF service consumer shall invoke the Nnwdaf\_EventsSubscription\_Subscribe service operation to subscribe to event notification(s). The NF service consumer shall send an HTTP POST request with "{apiRoot}/nnwdaf-eventssubscription/v1/subscriptions" as Resource URI representing the "NWDAF Events Subscriptions", as shown in figure 4.2.2.2.2-1, step 1, to create a subscription for an "Individual NWDAF Event Subscription" according to the information in message body. The NnwdafEventsSubscription data structure provided in the request body shall include:

- an URI where to receive the requested notifications as "notificationURI" attribute;

- list of supported features by the service consumer as "supportedFeatures" attribute; and

- a description of the subscribed events as "eventSubscriptions" attribute that for each event shall include

1) an event identifier as "event" attribute; and

2) if the event notification method "periodic" is selected, repetition period as "repetitionPeriod" attribute;

and may include:

- event reporting requirement information as "evtReq" attribute, which applies for all events in a subscription and may contain the following attributes:

1) event notification method (periodic, one time, on event detection) in the "notifMethod" attribute;

2) maximum Number of Reports in the "maxReportNbr" attribute;

3) monitoring duration in the "monDur" attribute;

4) repetition period for periodic reporting in the "repPeriod" attribute;

5) immediate reporting indication in the "immRep" attribute;

6) percentage of sampling among impacted UEs in the "sampRatio" attribute;

7) group reporting guard time for aggregating the reports for a group of UEs in the "grpRepTime" attribute;

8) identification of time window to which the subscription applies via identification of date-time(s) in the "startTs" and "endTs" attributes; and/or

9) preferred level of accuracy of the analytics in the "accuracy" attribute.

NOTE: The event reporting information provided in NnwdafEventsSubscription data type, if present, supersedes the event notification method and repetition period in the EventSubscription data type.

For different event types, the "eventSubscriptions" attribute:

- if the event is "SLICE\_LOAD\_LEVEL", shall provide:

1) if the event notification method "THRESHOLD" on specific event level load level threshold in the "loadLevelThreshold" attribute; and

2) identification of network slice(s) to which the subscription applies via identification of network slice(s) in the "snssais" attribute or any slices indication in the "anySlice" attribute;

- if the feature "NfLoad" is supported and the event is "NF\_LOAD", shall provide:

1) identification of target UE(s) to which the subscription applies by "supi" or "anyUE" in the "tgtUe" attribute; and

2) identification of network slice(s) to which the subscription applies via identification of network slice(s) in the "snssais" attribute or any slices indication in the "anySlice" attribute;

3) NF load level thresholds in the "nfLoadLvlThds" attribute if the "notifMethod" attribute in "evtReq" attribute is set to "ON\_EVENT\_DETECTION" or the "notificationMethod" attribute in "eventSubscriptions" attribute is set to "THRESHOLD" or omitted

and may include:

1) either list of NF instance IDs in the "nfInstanceIds" attribute or list of NF set IDs in the "nfSetIds" attribute if the identification of target UE(s) applies to all UEs;

2) list of NF instance types in the "nfTypes" attribute; and

3) maximum number of analytics entries expected for an analytics report in the "maxAnaEntry" attribute;

- if the feature "NetworkPerformance" is supported and the event is "NETWORK\_PERFORMANCE", it shall provide:

1) identification of target UE(s) to which the subscription applies by "supi", "intGroupId" or "anyUe" attribute in the "tgtUe" attribute; and

2) The network performance requirements via "nwPerfRequs" attribute;

 and may provide:

1) maximum number of analytics entries expected for an analytics report in the "maxAnaEntry" attribute; and/or

2) identification of network area to which the subscription applies via identification of network area by "networkArea" attribute (mandatory if "anyUe" attribute is set to true);

- if the feature "ServiceExperience" is supported and the event is "SERVICE\_EXPERIENCE", shall provide:

1) identification of target UE(s) to which the subscription applies by "supi", "intGroupId" or "anyUe" attribute in the "tgtUe" attribute;

 and may provide:

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

2) identification of network area to which the subscription applies via identification of network area(s) by "networkAreas" attribute;

3) identification of DNN to which the subscription applies via identification of application(s) by "dnns" attribute; and

4) identification of a user plane access to one or more DN(s) where applications are deployed by "dnais" attribute;

5) if "appIds" attribute is provided, the bandwidth requirement of each application by "bwRequs" attribute.

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

1) identification of target UE(s) to which the subscription applies by "supi" or "intGroupId" attribute in the "tgtUe" attribute;

and may provide:

1) identification of network area to which the subscription applies via identification of network area by "networkArea" attribute; and/or

2) maximum number of analytics entries expected for an analytics report in the "maxAnaEntry" attribute;

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

1) identification of target UE(s) to which the subscription applies by "supi" or "intGroupId" attribute in the "tgtUe" attribute;

 and may provide:

1) maximum number of analytics entries expected for an analytics report in the "maxAnaEntry" attribute;

2) identification of the application in the "appIds" attribute;

3) identification of network area to which the subscription applies via identification of network area by "networkArea" attribute;

4) an identification of DNN in the "dnns" attribute; and/or

5) a network slice in the "snssais" attribute;

- if the feature "QoSSustainability" is supported and the event is "QOS\_SUSTAINABILITY", shall provide:

1) identification of network area to which the subscription applies via identification of network area by "networkArea" attribute;

2) The QoS requirements via "qosRequ" attribute;

3) QoS flow retainability threshold(s) by the "qosFlowRetThds" attribute for the 5QI of GBR resource type or RAN UE throughout threshold(s) by the "ranUeThrouThds" attribute for the 5QI of non-GBR resource type, if the "notifMethod" attribute in "evtReq" attribute is set to "ON\_EVENT\_DETECTION" or the "notificationMethod" attribute in "eventSubscriptions" attribute is set to "THRESHOLD" or omitted; and

4) identification of target UE(s) to which the subscription applies by "anyUe" in the "tgtUe" attribute;

 and may include:

1) identification of network slice(s) by "snssais" attribute;

- if the feature "AbnormalBehaviour" is supported and the event is "ABNORMAL\_BEHAVIOUR", shall provide:

1) identification of target UE(s) to which the subscription applies by "supi", "intGroupId" or "anyUe" attribute in the "tgtUe" attribute; and

2) either the expected analytics type via "exptAnaType" attribute or a list of exception Ids with the associated thresholds via "excepRequs" attribute.

 and may provide:

1) identification of network area to which the subscription applies via identification of network area by "networkArea" attribute;

2) identification of application to which the subscription applies via identification of application(s) by "appIds" attribute;

3) identification of DNN to which the subscription applies via identification of application(s) by "dnns" attribute;

4) identification of network slice(s) by "snssais" attribute; and

5) expected UE behaviour via "exptUeBehav" attribute.

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

1) identification of a specific network area to which the subscription applies by "networkArea" attribute; or

2) identification of a specific UE via "supi" attribute;

and may include:

3) congestion threshold by the "congThresholds" attribute.

Upon the reception of an HTTP POST request with: "{apiRoot}/nnwdaf-eventssubscription/v1/subscriptions" as Resource URI and NnwdafEventsSubscription data structure as request body, the NWDAF shall:

- create a new subscription;

- assign an event subscriptionId;

- store the subscription.

If the NWDAF created an "Individual NWDAF Event Subscription" resource, the NWDAF shall respond with "201 Created" with the message body containing a representation of the created subscription, as shown in figure 4.2.2.2.2-1, step 2. The NWDAF shall include a Location HTTP header field. The Location header field shall contain the URI of the created subscription i.e. "{apiRoot}/nnwdaf-eventssubscription/v1/subscriptions/{subscriptionId}".

If the feature "AbnormalBehaviour" is supported and the expected analytics type via "exptAnaType" attribute is received in figure 4.2.2.2.2-1, step 1, the NWDAF shall derive the corresponding Exception Ids from the expected analytics type as follows:

- if "exptAnaType" attribute sets to "MOBILITY", the corresponding list of Exception Ids are "UNEXPECTED\_UE\_LOCATION" and "PING\_PONG\_ACROSS\_CELLS";

- if "exptAnaType" attribute sets to "COMMUN", the corresponding list of Exception Ids are "UNEXPECTED\_LONG\_LIVE\_FLOW", "UNEXPECTED\_LARGE\_RATE\_FLOW", "UNEXPECTED\_WAKEUP", "SUSPICION\_OF\_DDOS\_ATTACK", "WRONG\_DESTINATION\_ADDRESS", "TOO\_FREQUENT\_SERVICE\_ACCESS", "ABNORMAL\_TRAFFIC\_VOLUME" and "UNEXPECTED\_RADIO\_LINK\_FAILURES";

- if "exptAnaType" attribute sets to "MOBILITY\_AND\_COMMUN", the corresponding list of Exception Ids includes all above derived exception Ids.

The derived list of Exception Ids are used by the NWDAF to notify the NF service consumer when UE’s behaviour is exceptional based on one or more Exception Ids within the list.

\*\*\* End of Change \*\*\*