**3GPP TSG-CT WG3 Meeting #128 C3-232258**

**Bratislava, Slovakia, 22nd - 26th May, 2023 (Revision of C3-23xxxx)**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.522** | **CR** | **0944** | **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:***  | Updates for UE mobility analytics in AnalyticsExposure API |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNA\_Ph3 |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** |  |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The agreed TS 23.288 CR 0703 (S2-2306105) enhance UE mobility analytics with fine granularity in clause 6.7.2 in TS 23.288, needs to be implemented in this specification accordingly. Also the missing UE Mobility request attribute in subscription and request need to be added. |
|  |  |
| ***Summary of change:*** | Updates to UE Mobility extension for eNA including support ordering criterion and UE Mobility analytics with fine granularity with new feature. |
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| ***Consequences if not approved:*** | Not aligned with stage 2, not support the enhancement of UE Mobility analytics with fine granularity and ordering criterion, not support UE Mobility extension. |
|  |  |
| ***Clauses affected:*** | 5.6.3.3.4, 5.6.3.3.14 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.288 CR 0703 |
| ***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 \*\*\*

##### 5.6.3.3.4 Type: AnalyticsEventNotif

Table 5.6.3.3.4-1: Definition of type AnalyticsEventNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyEvent | AnalyticsEvent | M | 1 | Detected analytics event. |  |
| expiry | DateTime | O | 0..1 | Defines the expiration time after which the analytics information will become invalid. (NOTE 2) |  |
| timeStamp | DateTime | M | 1 | Time at which the event is observed. |  |
| failNotifyCode | AnalyticsFailureCode | C | 0..1 | Identifies the failure reason for the event notification.It shall only be included if the event notification is failed or the analytics information is not ready. (NOTE 1) | EneNA |
| rvWaitTime | DurationSec | O | 0..1 | Indicates a recommended time interval (in seconds) which is used to determine the time when analytics information is needed in similar future event subscriptions. It may only be included if the "failNotifyCode" attribute sets to "UNSATISFIED\_REQUESTED\_ANALYTICS\_TIME". | EneNA |
| ueMobilityInfos | array(UeMobilityExposure) | C | 1..N | Contains the UE mobility information.Shall be present if the "analyEvent" attribute sets to "UE\_MOBILITY".(NOTE 4) | Ue\_Mobility |
| ueCommInfos | array(UeCommunication) | C | 1..N | Contains the application communication information.Shall be present if the "analyEvent" attribute sets to "UE\_COMM". | Ue\_Communication |
| abnormalInfos | array(AbnormalExposure) | C | 1..N | Contains the user's abnormal behavior information.Shall be present if the "analyEvent" attribute sets to "ABNORMAL\_BEHAVIOR". | Abnormal\_Behavior |
| congestInfos | array(CongestInfo) | C | 1..N | Contains the UE's user data congestion information.Shall be present if the "analyEvent" attribute sets to "CONGESTION". | Congestion |
| nwPerfInfos | array(NetworkPerfExposure) | C | 1..N | Contains the network performance information.Shall be present if the "analyEvent" attribute is set to "NETWORK\_PERFORMANCE". | Network\_Performance |
| qosSustainInfos | array(QosSustainabilityExposure) | C | 1..N | Contains the QoS sustainability information.Shall be present if the "analyEvent" attribute is set to "QOS\_SUSTAINABILITY". | QoS\_Sustainability |
| disperInfos | array(DispersionInfo) | C | 1..N | Contains the Dispersion information.Shall be present if the "analyEvent" attribute is set to "DISPERSION". | Dispersion |
| dnPerfInfos | array(DnPerfInfo) | C | 1..N | Contains the DN performance information.Shall be present if the "analyEvent" attribute is set to "DN\_PERFORMANCE". | DnPerformance |
| svcExps | array(ServiceExperienceInfo) | C | 1..N | Contains the service experience information.Shall be present if the “analyEvent” attribute is set to "SERVICE\_EXPERIENCE". | ServiceExperience |
| timeStampGen | DateTime | O | 0..1 | It defines the timestamp of analytics generation. | EneNA |
| start | DateTime | O | 0..1 | It defines the start time of which the analytics information will become valid. (NOTE 2) | EneNA |
| locArea | LocationArea5G | O | 0..1 | Identification of network area to which the subscription applies.(NOTE 3) | Abnormal\_BehaviorExt\_eNADnPerformanceExt\_eNAServiceExperienceExt\_eNAUeCommunicationExt\_eNA |
| NOTE 1: The values of "UNAVAILABLE\_DATA" and "BOTH\_STAT\_PRED\_NOT\_ALLOWED" of the AnalyticsFailureCode data type are not applicable for the "failNotifyCode" attribute.NOTE 2: If the "start" attribute and the "expiry" attribute are both provided, the DateTime of the "expiry" attribute shall not be earlier than the DateTime of the "start" attribute.NOTE 3: The NetworkAreaInfo within the "locArea" attribute is not applicable for the untrusted AF. For "ABNORMAL\_BEHAVIOR","DN\_PERFORMANCE","SERVICE\_EXPERIENCE" or "UE\_COMM" event, the NetworkAreaInfo within the attribute is not applicable and removed for the untrusted AF, should not be send across to untrusted AF.NOTE 4: If the "UeMobilityExt\_eNA" feature is supported and the "locationGranReq" attribute value "LON\_AND\_LAT\_LEVEL" is subscribed, the "geoLoc" attribute within the "UeMobility" type may be provided to report the geographical location (longitude and latitude level). |

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

##### 5.6.3.3.14 Type AnalyticsData

Table 5.6.3.3.14-1: Definition of type AnalyticsData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| start | DateTime | O | 0..1 | It defines the start time of which the analytics information will become valid. (NOTE 1) | EneNA |
| expiry | DateTime | O | 0..1 | Defines the expiration time after which the analytics information will become invalid. (NOTE 1) |  |
| timeStampGen | DateTime | O | 0..1 | It defines the timestamp of analytics generation. | EneNA |
| ueMobilityInfos | array(UeMobilityExposure) | C | 1..N | Contains the UE mobility information.Shall be present if the "analyEvent" attribute sets to "UE\_MOBILITY"(NOTE 1) | Ue\_Mobility |
| ueCommInfos | array(UeCommunication) | C | 1..N | Contains the application communication information.Shall be present if the "analyEvent" attribute sets to "UE\_COMM" | Ue\_Communication |
| nwPerfInfos | array(NetworkPerfExposure) | C | 1..N | Contains the network performance information.Shall be present if the "analyEvent" attribute is set to "NETWORK\_PERFORMANCE". | Network\_Performance |
| abnormalInfos | array(AbnormalExposure) | C | 1..N | Contains the user's abnormal behavior information.Shall be present if the "analyEvent" attribute sets to "ABNORMAL\_BEHAVIOR". | Abnormal\_Behavior |
| congestInfos | array(CongestInfo) | C | 1..N | Contains the UE's user data congestion information.Shall be present if the "analyEvent" attribute sets to "CONGESTION". | Congestion |
| qosSustainInfos | array(QosSustainabilityExposure) | C | 1..N | Contains the QoS sustainability information.Shall be present if the "analyEvent" attribute is set to "QOS\_SUSTAINABILITY".(NOTE 2) | QoS\_Sustainability |
| disperInfos | array(DispersionInfo) | C | 1..N | Contains the Dispersion information.Shall be present if the "analyEvent" attribute is set to "DISPERSION". | Dispersion |
| dnPerfInfos | array(DnPerfInfo) | C | 1..N | Contains the DN performance information.Shall be present if the "analyEvent" attribute is set to "DN\_PERFORMANCE". | DnPerformance |
| svcExps | array(ServiceExperienceInfo) | C | 1..N | Contains the service experience information.Shall be present if the "analyEvent" attribute is set to "SERVICE\_EXPERIENCE". | ServiceExperience |
| suppFeat | SupportedFeatures | M | 1 | Represents the features supported by both the AF and the NEF. |  |
| NOTE 1: If the "start" attribute and the "expiry" attribute are both provided, the DateTime of the "expiry" attribute shall not be earlier than the DateTime of the "start" attribute.NOTE 2: The "qosFlowRetThd" and "ranUeThrouThd" attributes in QosSustainabilityExposure data type are not applicable.NOTE 3: If the "UeMobilityExt\_eNA" feature is supported and the "locationGranReq" attribute value "LON\_AND\_LAT\_LEVEL" is requested, the "geoLoc" attribute within the "UeMobility" type may be provided to report the geographical location (longitude and latitude level). |

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