**3GPP TSG-CT WG3 Meeting #128 *C3-232303r2***

**Bratislava, Slovakia, 22nd - 26th May, 2023**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.520** | **CR** | **0735** | **rev** | **1** | **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:*** | Correction to UeCommunicationExt feature | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNA\_Ph2 | | | | |  | ***Date:*** | | | 2023-5-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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:*** | | "perioCommInd", "anaOfAppList" and "sessInactTimer" attributes included in UeCommunication data type are under the control of UeCommunicationExt feature.  According to stage 2 requirement in TS 23.288, clause 6.7.3.3, these attributes apply to both Nnwdaf\_AnalyticsInfo Service API and Nnwdaf\_EventsSubscription API, however the UeCommunicationExt feature is only defined for Nnwdaf\_EventsSubscription API in clause 5.1.8 while missing in 5.2.8 for Nnwdaf\_AnalyticsInfo Service API.  Besides, it’s not indicated UeCommunicationExt feature requires the support of UeCommunication feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Update Table 5.1.8-1 to add the condition for UeCommunicationExt feature, and correct the feature description.  Add UeCommunicationExt feature to Table 5.2.8-1. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UeCommunicationExt feature cannot be properly used. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1.8, 5.2.6.2.2, 5.2.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \*\*\*

### 5.1.8 Feature negotiation

The optional features in table 5.1.8-1 are defined for the Nnwdaf\_EventsSubscription API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [6].

Table 5.1.8-1: Supported Features

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Feature number | | Feature Name | | Description | | |
| 1 | | ServiceExperience | | This feature indicates support for the event related to service experience. | | |
| 2 | | UeMobility | | This feature indicates the support of analytics based on UE mobility information. | | |
| 3 | | UeCommunication | | This feature indicates the support of analytics based on UE communication information. | | |
| 4 | | QoSSustainability | | This feature indicates support for the event related to QoS sustainability. | | |
| 5 | | AbnormalBehaviour | | This feature indicates support for the event related to abnormal behaviour information. | | |
| 6 | | UserDataCongestion | | This feature indicates support for the event related to user data congestion. | | |
| 7 | | NfLoad | | This feature indicates the support of the analytics related to the load of NF instances. | | |
| 8 | | NetworkPerformance | | This feature indicates the support of analytics based on network performance. | | |
| 9 | | NsiLoad | | This feature indicates the support of the event related to the load level of Network Slice and the optionally associated Network Slice Instance. | | |
| 10 | | ES3XX | | Extended Support for 3xx redirections. This feature indicates the support of redirection for any service operation, according to Stateless NF procedures as specified in clauses 6.5.3.2 and 6.5.3.3 of 3GPP TS 29.500 [6] and according to HTTP redirection principles for indirect communication, as specified in clause 6.10.9 of 3GPP TS 29.500 [6]. | | |
| 11 | | EneNA | | This feature indicates support for the enhancements of network data analytics requirements. | | |
| 12 | | UserDataCongestionExt | | This feature indicates support for the extensions to the event related to user data congestion, including support of GPSI and/or list of Top applications. Supporting this feature also requires the support of feature UserDataCongestion. | |
| 13 | | Aggregation | | This feature indicates support for analytics aggregation. | |
| 14 | | NsiLoadExt | | This feature indicates support for the extensions to the event related to the load level of Network Slice and the optionally associated Network Slice Instance, including support of area of interest, NF load information and number of UE or number of PDU Session. Supporting this feature also requires the support of feature NsiLoad. | |
| 15 | | ServiceExperienceExt | | This feature indicates support for the extensions to the event related to service experience, including support of RAT type and/or Frequency. Supporting this feature also requires the support of feature ServiceExperience. | |
| 16 | | DnPerformance | | This feature indicates the support of the analytics related to DN performance. | |
| 17 | | NfLoadExt | | This feature indicates support for the extensions to the event related to the load of NF instances, including NF load over area of interest. Supporting this feature also requires the support of feature NfLoad. | |
| 18 | | Dispersion | | This feature indicates support of the analytics related to dispersion analytics information. | |
| 19 | | RedundantTransmissionExp | | This feature indicates support of the analytics related to redundant transmission experience analytics information. | |
| 20 | | WlanPerformance | | This feature indicates support of the analytics related to WLAN performance information. | |
| 21 | | UeCommunicationExt | | This feature indicates the support for the extensions to the event related to UE communication, including support of reporting the analytics of the application list used by UE, N4 Session inactivity timer, and whether the UE communicates periodically or not.  Supporting this feature also requires the support of UeCommunication feature. | |
| 22 | | UeMobilityExt | | This feature indicates support for extensions to the event related to UE mobility, including support of LADN DNN to refer the LADN service area as the AOI. Supporting this feature also requires the support of feature UeMobility. | |
| 23 | | AnaCtxTransfer | | This feature indicates support for functionality related to Analytics Context Transfer. | |
| 24 | | AnaSubTransfer | | This feature indicates support for Analytics Subscription Transfer initiated by the source NWDAF. | |
| 25 | | UserConsent | | Indicates the support of detailed handling of user consent, e.g. error responses related to the lack of user consent. | |
| 26 | | TermRequest | | This feature indicates support for Analytics Subscription termination requests sent by the NWDAF to the NF service consumer. | |
| 27 | | ENAExt | | This feature indicates support for the general enhancements of network data analytics requirements. | |
| 28 | | EnAbnormalBehaviour | | This feature indicates support for the enhancements of UE Abnormal Behaviour. | |
| 29 | | EnQoSSustainability | | This feature indicates support for the enhancements of QoS Sustainability. | |
| 30 | | UserDataCongestionExt2\_eNA | | This feature indicates support for the enhancements of user data congestion, including support of ordering criterion. Supporting this feature also requires the support of UserDataCongestion and UserDataCongestionExt features. | |
| 31 | | UeMobilityExt2\_eNA | | This feature indicates support for the enhancements of UE mobility, including support of ordering criterion. Supporting this feature also requires the support of UeMobility and UeMobilityExt features. | |
| 32 | | EnUeCommunication | | This feature indicates support for the enhancements of UE Communication. | |
| 33 | | EnNetworkPerformance | | This feature indicates support for the enhancements of Network Performance | |
| 34 | | QoSSustainabilityExt\_eNA | | This feature indicates support for the enhancements of QoS Sustainability, including enhancements of filter information. Supporting this feature also requires the support of QoSSustainability feature. | |
| 35 | | PartialAnalyticsSubTransfer | | This feature indicates support for partial successful analytics subscription transfer. | |
| 36 | | NetworkPerformanceExt\_eNA | | This feature indicates the support for extensions to the analytics event related to network performance, including support of analytics target period subset. | |

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

##### 5.2.6.2.2 Type AnalyticsData

Table 5.2.6.2.2-1: 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) |  |
| expiry | DateTime | O | 0..1 | It defines the expiration time after which the analytics information will become invalid. (NOTE 1) |  |
| timeStampGen | DateTime | C | 0..1 | It defines the timestamp of analytics generation. (NOTE 3) |  |
| anaMetaInfo | AnalyticsMetadataInfo | C | 0..1 | Contains information about analytics metadata required to aggregate the analytics. It shall be present if the "anaMeta" attribute was included in the request, containing the information indicated by the "anaMeta" attribute. | Aggregation |
| sliceLoadLevelInfos | array(SliceLoadLevelInformation) | C | 1..N | The slices and the load level information. Shall be present when the requested event is "LOAD\_LEVEL\_INFORMATION". |  |
| nsiLoadLevelInfos | array(NsiLoadLevelInfo) | C | 1..N | Each element identifies the load level information for an S-NSSAI and the optionally associated network slice instance.  Shall be presented when the requested event is "NSI\_LOAD\_LEVEL" | NsiLoad |
| nwPerfs | array(NetworkPerfInfo) | C | 1..N | The network performance information.  Shall be present when the requested event is "NETWORK\_PERFORMANCE". | NetworkPerformance |
| nfLoadLevelInfos | array(NfLoadLevelInformation) | C | 1..N | The NF load information.  When the requestedevent is "NF\_LOAD", the nfLoadLevelInfos shall be included. | NfLoad |
| qosSustainInfos | array(QosSustainabilityInfo) | C | 1..N | The QoS sustainability informations in the certain geographic areas.  It shall be present if the requested eventis "QOS\_SUSTAINABILITY".  (NOTE 2) | QoSSustainability |
| ueMobs | array(UeMobility) | C | 1..N | The UE mobility information.  When the requested event is "UE\_MOBILITY", the "ueMobs" attribute shall be included. | UeMobility |
| ueComms | array(UeCommunication) | C | 1..N | The UE communication information.  When the requested event is "UE\_COMM", the "ueComms" attribute shall be included. (NOTE x) | UeCommunication |
| userDataCongInfos | array(UserDataCongestionInfo) | C | 1..N | The user data congestion information.  Shall be present when the requested event is "USER\_DATA\_CONGESTION". | UserDataCongestion |
| suppFeat | SupportedFeatures | C | 0..1 | List of Supported features used as described in clause 5.2.8.  This parameter shall be supplied by NWDAF in the reply of GET request that request the analytics resource, if the consumer includes "supported-features" in the GET request. |  |
| svcExps | array(ServiceExperienceInfo) | C | 1..N | The service experience information.  Shall be present when the requested event is "SERVICE\_EXPERIENCE". | ServiceExperience |
| abnorBehavrs | array(AbnormalBehaviour) | C | 1..N | The abnormal behaviour information.  Shall be present when the requested event is "ABNORMAL\_BEHAVIOUR". | AbnormalBehaviour |
| smccExps | array(SmcceInfo) | C | 1..N | The Session Management congestion control experience information.  Shall be present when the requested event is "SM\_CONGESTION". | SMCCE |
| disperInfos | array(DispersionInfo) | C | 1..N | The Dispersion information.  Shall be present when the requested event is "DISPERSION". | Dispersion |
| redTransInfos | array(RedundantTransmissionExpInfo) | C | 1..N | The Redundant Transmission Experience analytics information.  Shall be present when the requested event is "RED\_TRANS\_EXP". | RedundantTransmissionExp |
| wlanInfos | array(WlanPerformanceInfo) | C | 1..N | The WLAN performance related information.  When requested event is "WLAN\_PERFORMANCE", the "wlanInfos" attribute shall be included. | WlanPerformance |
| dnPerfInfos | array(DnPerfInfo) | C | 1..N | The DN performance information.  Shall be present when the requested event is "DN\_PERFORMANCE". | DnPerformance |
| pfdDetermInfos | array(PfdDeterminationInfo) | C | 1..N | Represents the PFD Determination information for a known application identifier.  Shall be present when the requested event is "PFD\_DETERMINATION". | PfdDetermination |
| 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 QosSustainabilityInfo data type are not applicable.  NOTE 3: This attribute shall be included when ADRF is deployed.  NOTE x: The "perioCommInd", "anaOfAppList" and "sessInactTimer" attributes within the UeCommunication data type are applicable only if the "UeCommunicationExt" feature is supported. | | | | | |

Editor's Note: The definition of "pfdDetermInfos" in the OpenAPI file is FFS.

\*\*\* 3rd Change \*\*\*

### 5.2.8 Feature negotiation

The optional features in table 5.2.8-1 are defined for the Nnwdaf\_AnalyticsInfo API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [6].

Table 5.2.8-1: Supported Features

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Feature number | | Feature Name | | Description | |
| 1 | | UeMobility | | This feature indicates the support of analytics based on UE mobility information. | |
| 2 | | UeCommunication | | This feature indicates the support of analytics based on UE communication information. | |
| 3 | | NetworkPerformance | | This feature indicates the support of analytics based on network performance. | |
| 4 | | ServiceExperience | | This feature indicates support for the event related to service experience. | |
| 5 | | QoSSustainability | | This feature indicates support for the event related to QoS sustainability. | |
| 6 | | AbnormalBehaviour | | This feature indicates support for the event related to abnormal behaviour information. | |
| 7 | | UserDataCongestion | | This feature indicates the support of the analytics related on user data congestion. | |
| 8 | | NfLoad | | This feature indicates the support of the analytics related to the load of NF instances. | |
| 9 | | NsiLoad | | This feature indicates the support of the analytics related to the load level of Network Slice and the optionally associated Network Slice Instance. | |
| 10 | | EneNA | | This feature indicates support for the enhancements of network data analytics requirements. | |
| 11 | | UserDataCongestionExt | | This feature indicates support for the extensions to the event related to user data congestion, including support of GPSI and/or list of Top applications. Supporting this feature also requires the support of feature UserDataCongestion. | |
| 12 | | Aggregation | | This feature indicates support for analytics aggregation. | |
| 13 | | NsiLoadExt | | This feature indicates support for the extensions to the event related to the load level of Network Slice and the optionally associated Network Slice Instance, including support of area of interest, NF load information and number of UE or number of PDU Session. Supporting this feature also requires the support of feature NsiLoad. | |
| 14 | | ServiceExperienceExt | | This feature indicates support for the extensions to the event related to service experience, including support of RAT type and/or Frequency. Supporting this feature also requires the support of feature ServiceExperience. | |
| 15 | | SMCCE | | This feature indicates support for the event related to SM congestion control experience. | |
| 16 | | NfLoadExt | | This feature indicates support for the extensions to the event related to the load of NF instances, including NF load over area of interest. Supporting this feature also required the support of feature NfLoad. | |
| 17 | | Dispersion | | This feature indicates support for the event related to dispersion analytics information. | |
| 18 | | RedundantTransmissionExp | | This feature indicates support for the event related to redundant transmission experience analytics information. | |
| 19 | | WlanPerformance | | This feature indicates support of the event related to WLAN performance analytics information. | |
| 20 | | UeMobilityExt | | This feature indicates support for extensions to the event related to UE mobility, including support of LADN DNN to refer the LADN service area as the AOI. Supporting this feature also requires the support of feature UeMobility. | |
| 21 | | DnPerformance | | This feature indicates the support of the analytics related to DN performance. | |
| 22 | | AnaCtxTransfer | | This feature indicates the support of analytics context transfer. | |
| 23 | | UeCommunicationExt | | This feature indicates the support for the extensions to the event related to UE communication, including support of reporting the analytics of the application list used by UE, N4 Session inactivity timer, and whether the UE communicates periodically or not.  Supporting this feature also requires the support of UeCommunication feature. | |
| 24 | | UserConsent | | Indicates the support of detailed handling of user consent, e.g. error responses related to the lack of user consent. | |
| 25 | | UserDataCongestionExt2\_eNA | | This feature indicates support for the enhancements of user data congestion, including support of ordering criterion. Supporting this feature also requires the support of UserDataCongestion and UserDataCongestionExt features. | |
| 26 | | UeMobilityExt2\_eNA | | This feature indicates support for the enhancements of UE mobility, including support of ordering criterion. Supporting this feature also requires the support of UeMobility and UeMobilityExt features. | |
| 27 | | UeCommunicationExt\_eNA | | This feature indicates support for the enhancements of UE Communication, including support of ordering criterion. Supporting this feature also requires the support of UeCommunication feature. | |
| 28 | | NetworkPerformanceExt\_eNA | | This feature indicates support for the enhancements of UE mobility, including support of ordering criterion. Supporting this feature also requires the support of NetworkPerformance feature. | |
| 29 | | PfdDetermination | | Indicates the support of the analytics related to PFD Determination information of known application identifier(s). | |

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