**3GPP TSG CT WG3 Meeting #132e *C3-240107\_R3***

**Electronic, 22 - 24 January, 2024**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.549** | **CR** | **0229** | **rev** | **-** | **Current version:** | **18.4.0** |  |
|  |
| *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** |

|  |
| --- |
|  |
| ***Title:***  | Implementation of the SS\_ADAE\_Ue2UePerformanceAnalytics API |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | ADAES |  | ***Date:*** | 2023-12-17 |
|  |  |  |  |  |
| ***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 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 Editor's Notes in the SS\_ADAE\_Ue2UePerformanceAnalytics API shall be resolved and Stage 3 shall be aligned with Stage 2. |
|  |  |
| ***Summary of change:*** | This CR introduces correction of SS\_ADAE\_Ue2UePerformanceAnalytics API. |
|  |  |
| ***Consequences if not approved:*** | The defnition of the SS\_ADAE\_Ue2UePerformanceAnalytics API cannot be completed in the stage 3. |
|  |  |
| ***Clauses affected:*** | 7.10.3.2.1, 7.10.3.2.2.3.1, 7.10.3.2.3(new), 7.10.3.3.1, 7.10.3.3.2.2, 7.10.3.4.1, 7.10.3.4.2.2, 7.10.3.4.2.3, 7.10.3.4.2.4(new), 7.10.3.4.2.5(new), 7.10.3.4.2.6(new), 7.10.3.4.2.7(new), 7.10.3.4.3(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 affect any OpenAPI file.
 |
| ***()*** |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\* \* \* First Change \* \* \* \*

##### 7.10.3.2.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 7.10.3.2.1-1 depicts the resource URIs structure for the SS\_ADAE\_Ue2UePerformanceAnalytics API.



Figure 7.10.3.2.1-1: Resource URI structure of the SS\_ADAE\_Ue2UePerformanceAnalytics API

Table 7.10.3.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 7.10.3.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method | Description  |
| UE-to-UE Session Performance Event Subscription | /ue2ue-session-performance | POST | Create an individual UE-to-UE session performance analytics event subscription. |
| Individual UE-to-UE Session Performance Event Subscription | /ue2ue-session-performance/{u2uPerfId} | GET | Read the individual UE-to-UE session performance analytics event subscription. |
|  |  |
|  |  |
| DELETE | Remove the individual UE-to-UE session performance analytics event subscription |

\* \* \* Next change \* \* \* \*

7.10.3.2.2.3.1 POST

This method to subscribe to the event of the UE-to-UE session performance analytics and shall support the URI query parameters specified in table 7.10.3.2.2.3.1-1.

Table 7.10.3.2.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.10.3.2.2.3.1-2 and the response data structures and response codes specified in table 7.10.3.2.2.3.1-3.

Table 7.10.3.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| U2UPerfSub | M | 1 | Subscription to the UE-to-UE session performance analytics event. |

Table 7.10.3.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| U2UPerfSub | M | 1 | 201 Created | Subscription to the UE-to-UE session performance analytics is created. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.122 [3] shall also apply. |

Table 7.10.3.2.2.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/ss-adae-uupa/<apiVersion>/ue2ue-session-performance |

\* \* \* Next change \* \* \* \*

##### 7.10.3.2.3 Resource: Individual UE-to-UE Session Performance Event Subscription

###### 7.10.3.2.3.1 Description

###### 7.10.3.2.3.2 Resource Definition

Resource URI: {**apiRoot**}/**ss-adae-uupa**/<**apiVersion**>/**ue2ue-session-performance**/{**u2uPerfId**}

This resource shall support the resource URI variables defined in table 7.4.2.2.3.2-1.

Table 7.10.3.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.4.2.1. |
| u2uPerfId | string | Represents the identifier of an individual UE-to-UE session performance event subscription. |

###### 7.10.3.2.3.3 Resource Standard Methods

7.10.3.2.3.3.1 GET

This operation reads the individual unicast monitoring subscription resource. This method shall support the URI query parameters specified in table 7.10.3.2.3.3.1-1.

Table 7.10.3.2.3.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

This method shall support the request data structures specified in table 7.10.3.2.3.3.1-2 and the response data structures and response codes specified in table 7.10.3.2.3.3.1-3.

Table 7.10.3.2.3.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.10.3.2.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| U2UPerfSub | M | 1 | 200 OK | The requested individual UE-to-UE session performance event subscription is returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.122 [3] shall also apply. |

Table 7.10.3.2.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

Table 7.10.3.2.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

7.10.3.2.3.3.2 DELETE

This operation deletes the Individual UE-to-UE Session Performance Event Subscription resource. This method shall support the URI query parameters specified in table 7.10.3.2.3.3.2-1.

Table 7.10.3.2.3.3.2-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.10.3.2.3.3.2-2 and the response data structures and response codes specified in table 7.10.3.2.3.3.2-3.

Table 7.10.3.2.3.3.2-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.10.3.2.3.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The individual UE-to-UE session performance event subscription matching the u2uPerfId is deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. |

Table 7.10.3.2.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE Server. |

Table 7.10.3.2.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

\* \* \* Next change \* \* \* \*

7.10.3.3.1 General

Table 7.10.3.3.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| UE-to-UE session performance event notification | {notifUri} | POST | Notification on the UE-to-UE session performance analytics |

\* \* \* Next change \* \* \* \*

###### 7.10.3.3.2.2 Notification definition

The POST method shall be used for the event notification and the callback URI shall be the one provided by the consumer during the subscription to the event.

Callback URI: **{notifUri}**

This method shall support the URI query parameters specified in table 7.10.3.3.2.2-1.

Table 7.10.3.3.2.2-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

If the notification is on the UE-to-UE session performance analytics, this method shall support the request data structures specified in table 7.10.3.3.2.2-2 and the response data structures and response codes specified in table 7.10.3.3.2.2-3.

Table 7.10.3.3.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| U2UPerfNotif | M | 1 | Notification information of the UE-to-UE session performance analytics. |

Table 7.10.3.3.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Notification for the UE-to-UE session performance analytics event is accepted. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.122 [3] shall also apply. |

\* \* \* Next change \* \* \* \*

##### 7.10.3.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API.

Table 7.10.3.4.1-1 specifies the data types defined specifically for the SS\_ADAE\_Ue2UePerformanceAnalytics API service.

Table 7.10.3.4.1-1\_SS\_ADAE\_Ue2UePerformanceAnalytics API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| U2UAnalytics | 7.4.2.4.3.1 | Represents the UE-to-UE analytics types. |  |
| U2UAnalyticsData | 7.10.3.4.2.6 | Represents the UE-to-UE analytics data. |  |
| U2UPair | 7.10.3.4.2.7 | Represents the UE-to-UE pair. |  |
| U2UPerfNotif | 7.10.3.4.2.3 | Represents the UE-to-UE session performance analytics notification. |  |
| U2UPerfSub | 7.10.3.4.2.2 | Represents the UE-to-UE session performance analytics subscription. |  |
| U2UReportingRequirements | 7.10.3.4.2.4 | Represents the UE-to-UE session performance analytics reporting requirements. |  |
| U2UReportingGranularity | 7.4.2.4.3.2 | Represents the UE-to-UE reporting granularity. |  |
| U2UThreshold | 7.10.3.4.2.5 | Represents the threshold for UE-to-UE session performance analytics. |  |
|  |  |  |  |

Table 7.10.3.4.1-2 specifies data types re-used by the SS\_ADAE\_Ue2UePerformanceAnalytics API service:

Table 7.10.3.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AnalyticsType | Clause 7.10.1.4.2.6 | Type of analytics for the event of the VAL application performance analytics. |  |
|  |  |  |  |
| DurationSec | 3GPP TS 29.122 [3] | Represents a period of time in units of seconds. |  |
| LocationArea5G | 3GPP TS 29.122 [3] | Represents location information. |  |
| MatchingDirection | 3GPP TS 29.520 [33] | Used to indicate a threshold matching direction. |  |
| NotificationMethod | 3GPP TS 29.508 [32] | Used to indicate the reporting mode. |  |
| PacketErrRate | 3GPP TS 29.571 [21] | Used to represent packet error rate. |  |
| SupportedFeatures | 3GPP TS 29.571 [21] | Used to negotiate the supported optional features of the API. |  |
| TimeWindow | 3GPP TS 29.122 [3] | Used to indicate the time window. |  |
| Uinteger | 3GPP TS 29.571 [21] | Used to represent integer attributes. |  |
| Uri | 3GPP TS 29.122 [3] | Used to indicate the notification URI. |  |
| ValTargetUe | Clause 7.3.1.4.2.3 | Used to indicate either VAL User ID or VAL UE ID. |  |

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.2 Type: U2UPerfSub

Table 7.10.3.4.2.2-1: Definition of type U2UPerfSub

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyticsType | AnalyticsType | M | 1 | Represents the type of the UE-to-UE session performance analytics. Only the "category" attribute within the AnalyticsType data structure is applicable. |  |
| valUeIds | array(ValTargetUe) | M | 2..N | Represent the list of VAL UEs, whose UE-to-UE session analytics are subscribed to. |  |
|  |  |  |  |  |  |
| valServiceId | string | O | 0..1 | Represents the VAL service for which the subscription applies. |  |
| confLevel | Uinteger | C | 0..1 | Defines the accuracy level for the UE-to-UE session analytics if the UE-to-UE session performance analytics.This attribute shall be provided if the "analyticsType" is set to "ANALYTICS\_PREDICTIVE".Minimum = 0. Maximum = 100. |  |
| area | LocationArea5G | O | 0..1 | Represents the geographical or service area, to which the UE-to-UE session performance analytics subscription is applied. |  |
| repReqs | U2UReportingRequirements | O | 0..1 | Represents the reporting requirements. |  |
| expReqs | array(U2UThreshold) | O | 1..N | Represents the exposure level requirements for the analytics to be exposed. |  |
| notifUri | Uri | M | 1 | Represents the notification URI. |  |
| timeInterval | TimeWindow | O | 0..1 | The time interval as the start time and end time, to which the UE-to-UE session performance analytics subscription is applied. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Used to negotiate the applicability of optional features.This attribute shall be present only if feature negotiation needs to take place. |  |

Editor's Note: Detailed definition for the "repReqs" attribute is FFS.

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.3 Type: U2UPerfNotif

Table 7.10.3.4.2.3-1: Definition of type U2UPerfNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyticsOutput | array(U2UAnalyticsData) | M | 1..N | UE-to-UE session performance analytics for prediction or statistics depending on the type. |  |
| analyticsType | AnalyticsType | O | 0..1 | Identity the type of the UE-to-UE session performance analytics |  |
| confLevel | Uinteger | C | 0..1 | Indicates the confidence of the prediction.This attribute shall be provided if the "analyticsType" is set to "ANALYTICS\_PREDICTIVE".Minimum = 0. Maximum = 100. |  |

Editor's Note: The exact contents/requirements of the "analyticsType" are FFS.

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.4 Type: U2UReportingRequirements

Table 7.10.3.4.2.4-1: Definition of type U2UReportingRequirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| repMode | NotificationMethod | M | 1 | The indication of the requested reporting option: periodic or event-triggered (i.e. "ON\_EVENT\_DETECTION")The "ONE\_TIME" enumeration value is not applicable for this attribute. |  |
| reportingPeriod | DurationSec | C | 0..1 | Identifies the reporting time interval for the periodic reporting. (NOTE 1) |  |
| reportingThrs | array(U2UThreshold) | C | 1..N | Identifies reporting threshold corresponding to the application QoS index(es). (NOTE 2) |  |
| reportingGrn | ReportingGranularity | M | 1 | Indicates the reporting granularity. |  |
| NOTE 1: The "reportingPeriod" attribute shall be present only when the "reportingMode" attribute is set to "PERIODIC".NOTE 2: The "reportingThr" attribute shall be present only when the "reportingMode" attribute is set to "ON\_EVENT\_DETECTION". |

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.5 Type: U2UThreshold

Table 7.10.3.4.2.5-1: Definition of type U2UThreshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| value | U2UAnalyticsData | M | 1 | Indicates the value for the analytics threshold. |  |
| thrDirect | MatchingDirection | M | 1 | Indicates the threshold matching direction for the analytics threshold provided in the "value" attribute. |  |

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.6 Type: U2UAnalyticsData

Table 7.10.3.4.2.6-1: Definition of type U2UAnalyticsData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valUes | U2UPair | O | 0..1 | Represent the pair of VAL UEs, whose UE-to-UE session analytics are observed. This attribute shall represent a sub-set of the VAL UEs defined in the "valUeIds" attribute within the U2UPerfSub data type.If omitted, the analytics data is applied for all active VAL UE sessions. |  |
| avgLatency | Uinteger | O | 0..1 | The average latency in milliseconds (NOTE). |  |
| avgPer | PacketErrRate | O | 0..1 | The average packet error rate (NOTE). |  |
| avgDataRate | BitRate | O | 0..1 | The average data rate (NOTE). |  |
| jitter | Float | O | 0..1 | The jitter (NOTE). |  |
| NOTE: At least one of the indexes shall be provided. |

\* \* \* Next change \* \* \* \*

###### 7.10.3.4.2.7 Type: U2UPair

Table 7.10.3.4.2.7-1: Definition of type U2UPair

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valUeA | ValTargetUe | M | 1 | Represent the first VAL UE in the pair. |  |
| valUeB | ValTargetUe | M | 1 | Represent the second VAL UE in the pair. |  |

\* \* \* Next change \* \* \* \*

##### 7.10.3.4.3 Simple data types and enumerations

###### 7.10.3.4.3.1 Enumeration: U2UAnalytics

Table 7.10.3.4.3.1-1: Enumeration U2UAnalytics

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| AVG\_LATENCY | The indication for requesting the average latency analytics. |  |
| AVG\_PER | The indication for requesting the average packet error rate analytics. |  |
| AVG\_DATA\_RATE | The indication for requesting the average data rate analytics. |  |
| JITTER | The indication for requesting the jitter analytics. |  |

###### 7.10.3.4.3.2 Enumeration: U2UReportingGranularity

Table 7.10.3.4.3.2-1: Enumeration U2UReportingGranularity

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| GROUP | The indication for requesting the analytics for all VAL UE-to-UE application sessions. |  |
| INDIVIDUAL | The indication for requesting the analytics for individual VAL UE-to-UE application sessions. |  |

\* \* \* End of changes \* \* \* \*