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| *CR-Form-v12.2* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.113** | **CR** |  | **rev** |  | **Current version:** | **0.7.0** |  |
|  | | | | | | | | |
| *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 |  |

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|  | | | | | | | | | | |
| ***Title:*** | QoE metrics reporting provisioning procedure for RTC | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | InterDigital Communications | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | iRTCW | | | | |  | ***Date:*** | | | 13th November 2023 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | This pCR proposes the metrics reporting provisioning API in RTC-1 interface, metrics reporting configuration and the quality reporting scheme used for real-time media communication. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | Update to clause 8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# Introduction

The 5GMS protocols specification TS 26.512 discusses the procedures and APIs for metric measurement, collection and reporting in the 5G system networks for 5GMS services. The TS 26.512 does not address the procedures and APIs for Quality of Experience (QoE) metric measurement, collection and reporting in the 5G system networks for real-time media communication services which are defined in TS 26.506.

The TS 26.234 specification describes the list of QoE metrics used for progressive download and DASH streaming services. The specification also provides the Quality reporting scheme for configuring the UE to send the QoE metrics reports and Quality reporting protocol for reporting the QoE metrics by the UE to the Metrics server.

This contribution proposes the metrics reporting provisioning API used in RTC-1 interface. This contribution also proposes the metrics reporting configuration used in the metrics reporting API and the quality reporting scheme used in metrics reporting configuration resource.

# Changes

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| --- |
| **First Change** |

# Provisioning interface (RTC-1)

## Metrics Reporting Provisioning API

### General

The Metrics Reporting Provisioning API allows an 5G-RTC System operator or a 5G-RTC Application Provider to configure the Metrics Collection and Reporting procedure for real-time media streaming.

The metrics reporting provisioning procedure is as defined in clause 7.8 of TS 26.512.

### MetricsReportingConfiguration resource

The data model for metrics reporting provisioning API defined in clause 7.8.3 of TS 26.512 can be extended for 5G-RTC media services. The extended MetricsReportingConfiguration resource is specified in Table 1 below with the changes highlighted:

Table 1: Definition of MetricsReportingConfiguration resource

| Property name | Type | Cardinality | Description |
| --- | --- | --- | --- |
| *metricsReportingConfigurationId* | ResourceId | 1..1 | An identifier for this Metrics Reporting Configuration assigned by the 5GMS AF that is unique within the scope of the enclosing Provisioning Session. |
| *scheme* | Uri | 0..1 | The scheme associated with this Metrics Reporting Configuration. A scheme may be associated with 3GPP or with a non-3GPP entity.  For RTC media streaming, if not specified, the 3GPP metrics scheme urn:‌3GPP:‌ns:‌PSS:‌RTC:‌QM1 defined in clause 5.1.3 shall apply. |
| *dataNetworkName* | Dnn | 0..1 | The Data Network Name (DNN) which shall be used when sending metrics reports.  If not specified, the default DNN shall be used. |
| *reportingInterval* | DurationSec | 0..1 | The time interval between successive metrics reports. The value shall be greater than zero.  If not specified, a single final report shall be sent after the media streaming session has ended. |
| *samplePercentage* | Percentage | 0..1 | The proportion of media streaming sessions for which metrics shall be reported, expressed as a floating-point value between 0.0 and 100.0.  If not specified, reports shall be sent for all sessions. |
| *urlFilters* | array(String) | 0..1 | A non-empty list of Media Entry Point URL patterns for which metrics shall be reported.  If not specified, reporting shall be done for all media streaming sessions initiated within the scope of the parent Provisioning Session. |
| *samplingPeriod* | DurationSec | 1..1 | The time interval the RTC Client should wait between sampling the QoE metrics specified by this metrics reporting configuration. *SamplingPeriod* value shall be equal to or less than the *samplingDuration* value. |
| *samplingDuration* | DurationSec | 0..1 | The time duration specified in the media stream for which the QoE metrics will be reported by the RTC Client. There shall be only one range per measurement specification. If the " *samplingDuration*" field is not present, the metrics range shall be for the whole session duration. |
| *metrics* | array(String) | 0..1 | If present, a non-empty list of metrics which shall be collected and reported.  In the case of RTC media streaming and for the 3GPP scheme urn:‌3GPP:‌ns:‌PSS:‌RTC:‌QM1 the listed metrics shall correspond to one or more of the metrics as specified in clauses 9.1.2, and the quality reporting scheme and quality metric reporting protocol as defined in clauses 5.1.3 and 9.1.3, respectively, shall be used to produce and send metrics reports.  Metrics related to virtual reality media, as specified in TS 26.118 clause 9.3, may also be listed in the metrics configuration, and shall be reported according to the quality reporting scheme defined in clause 9.4 of TS 26.118.  If omitted, the complete (or default, as applicable) set of metrics associated with the specified scheme shall be collected and reported. |

### Quality Reporting Scheme for RTC

This clause specifies a 5G-RTC quality reporting scheme. The quality reporting scheme is signalled using in the **Scheme** element in the MetricsReportingConfiguration. The URN to be used for the **Scheme**@schemeIdUri shall be "urn:3GPP:ns:PSS:RTC:QM1".

The semantics and XML syntax of the scheme information for the 5G-RTC quality reporting scheme are specified in Table 2 and Table 3, respectively.

Table 2: Semantics of Quality Reporting Scheme Information

|  |  |  |  |
| --- | --- | --- | --- |
| Element or Attribute Name | | Use | Description |
|  | @apn | O | This attribute gives the access point that should be used for sending the QoE reports. |
|  | @format | O | This field gives the requested format for the reports. Possible formats are: "uncompressed" and "gzip". |
|  | @samplepercentage | O | Percentage of the clients that should report QoE. The client uses a random number generator with the given percentage to find out if the client should report or not. |
|  | @reportingserver | M | The reporting server URL to which the reports will be sent. |
|  | @reportinginterval | O | Indicates the time(s) reports should be sent. If not present, then the client should send a report after the streaming session has ended. If present, @reportingInterval=n indicates that the client should send a report every n-th second provided that new metrics information has become available since the previous report. For each report sent, only the newly collected information since the previous report shall be reported. |
|  | @measureinterval | O | Indicates the time over which each metrics value is calculated. This field splits the session duration into a number of equally sized periods where each period is of the length specified by measureinterval field. If the "measureinterval" field is not present, the metrics resolution shall cover the period specified by the "measurerange" field. If the "measurerange" field is not present the metrics measure interval shall be for the whole session duration. |
|  | @measurerange | O | Indicates the time range in the stream for which the QoE metrics will be reported. There shall be only one range per measurement specification. If the "measurerange" field is not present, the metrics range shall be the whole session duration. |
|  | @syncthreshold | O | Indicates the maximum allowed sync loss duration between the playback time of the last played frame of the video stream and the playback time of the last played frame of the speech/audio stream. This parameter is set to control the maximum amount of allowed sync mismatch. This parameter is specified in ms. When the parameter has not been set, it defaults to 100 ms. |
|  | @jitterthreshold | O | Indicates the maximum allowed jitter duration between the actual playback time and the expected playback time. This parameter is set to control the amount of allowed jitter. This parameter is specified in ms. When the parameter has not been set, it defaults to 100 ms. |
|  | **LocationFilter** | 0..1 | When present, this element indicates the geographic area(s) or location(s) where quality metric collection is requested. When not present, quality metric collection is requested regardless of the device’s location. The **LocationFilter** element comprises one or more instances of any combination of targeted cell-IDs, polygons and circular areas. Each cell-ID entry in **LocationFilter** is announced in cellList, and each polygon and circular area entry is announced in the polygonList or and circularAreaList elements, respectively. |
|  | Cellist | 0..N | This element specifies a list of cell identified by E-UTRAN-CGI or CGI. |
|  | Shape |  | Geographic area comprising one or more instances of polygonList and/or circularAreaList elements. |
|  | polygonList | 0..N | This element, when present, comprises a list of ‘Polygon’ shapes as defined by OMA MLP. |
|  | @confLevel | O | This attribute indicates the probability in percent that the 5G-RTC client is located in the corresponding polygon area. It is defined as ‘lev\_conf’ by OMA MLP. If not present, it has default value of 60. |
|  | circularAreaList | 0..N | This element, when present, comprises a list of ‘CircularArea’ shapes as defined by OMA MLP. |
|  | @confLevel | O | This attribute indicates the probability in percent that the 5G-RTC client is located in the corresponding circular area. It is defined as ‘lev\_conf’ by OMA MLP. If not present, it has default value of 60. |
|  | **SliceScope** | 0..1 | When present, this element indicates a list of network slices in which the QoE collection is requested. When not present, quality metric collection is requested for all network slices. The SliceScope is a list of S-NSSAIs. |
| Legend:  For attributes: M=Mandatory, O=Optional, OD=Optional with Default Value, CM=Conditionally Mandatory.  For elements: <minOccurs>…<maxOccurs> (N=unbounded)  Elements are bold; attributes are non-bold and preceded with an @ | | | |

Table 3: Syntax of Quality Reporting Scheme Information

|  |
| --- |
| <?xml version="1.0"?> <xs:schema targetNamespace="urn:3GPP:ns:PSS:RTC:2023:qm1"   attributeFormDefault="unqualified"   elementFormDefault="qualified"   xmlns:xs="http://www.w3.org/2001/XMLSchema"  xmlns:xlink="http://www.w3.org/1999/xlink"  xmlns="urn:3GPP:ns:PSS:RTC:2023:qm1">    <xs:annotation>  <xs:appinfo>5G RTC Quality Reporting</xs:appinfo>  <xs:documentation xml:lang="en">  This Schema defines the quality reporting scheme information for 5G RTC.  </xs:documentation>  </xs:annotation>     <xs:element name="ThreeGPQualityReporting" type="SimpleQualityReportingType"/>    <xs:complexType name="SimpleQualityReportingType">  <xs:sequence>  <xs:element name="LocationFilter" type="LocationFilterType" minOccurs="0"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:attribute name="apn" type="xs:string" use="optional"/>  <xs:attribute name="format" type="FormatType" use="optional"/>  <xs:attribute name="samplepercentage" type="xs:double" use="optional"/>  <xs:attribute name="reportingserver" type="xs:anyURI" use="required"/>  <xs:attribute name="reportinginterval" type="xs:unsignedInt" use="optional"/>  <xs:attribute name="measureinterval" type="xs:unsignedInt" use="optional"/>  <xs:attribute name="measurerange" type="xs:unsignedInt" use="optional"/>  <xs:attribute name="syncthreshold" type="xs:unsignedInt" use="optional"/>  <xs:attribute name="jitterthreshold" type="xs:unsignedInt" use="optional"/>  <xs:attribute name="sliceScope" type="UnsignedIntVectorType" use="optional"/>  <xs:anyAttribute namespace="##other" processContents="lax"/>  </xs:complexType>    <xs:simpleType name="FormatType">   <xs:restriction base="xs:string">  <xs:enumeration value="uncompressed" />  <xs:enumeration value="gzip" />  </xs:restriction>  </xs:simpleType>  <xs:complexType name="LocationFilterType">  <xs:sequence>  <xs:element name="cellID" type="xs:unsignedLong" minOccurs="0" maxOccurs="unbounded"/>  <xs:element name="shape" type="ShapeType" minOccurs="0"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute namespace="##other" processContents="lax"/>  </xs:complexType>  <xs:complexType name="ShapeType">  <xs:sequence>  <xs:element name="PolygonList" type="PolygonListType" minOccurs="0"/>  <xs:element name="CircularAreaList" type="CircularAreaListType" minOccurs="0"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute namespace="##other" processContents="lax"/>  </xs:complexType>  <xs:complexType name="PolygonListType">  <xs:annotation>  <xs:documentation> see [OMA MLP] </xs:documentation>  </xs:annotation>  <xs:sequence>  <xs:element name="Polygon" minOccurs="0" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:attribute name="ConfLevel" type="xs:unsignedInt" use="optional"/>  <xs:anyAttribute namespace="##other" processContents="lax"/>  </xs:complexType>  <xs:complexType name="CircularAreaListType">  <xs:annotation>  <xs:documentation> see [OMA MLP] </xs:documentation>  </xs:annotation>  <xs:sequence>  <xs:element name="CircularArea" minOccurs="0" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:attribute name="ConfLevel" type="xs:unsignedInt" use="optional"/>  <xs:anyAttribute namespace="##other" processContents="lax"/>  </xs:complexType>  <xs:simpleType name="UnsignedIntVectorType">  <xs:list itemType="xs:unsignedInt"/>  </xs:simpleType> </xs:schema> |

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| **End of Second Change** |

# Proposal

We propose to agree the proposed change in clause 2 into clause 5 of TS 26.113.