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| *CR-Form-v12.2* |
| **PSEUDO CHANGE REQUEST** |
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|  | **26.510** | **CR** |  | **rev** |  | **Current version:** | **1.0.2** |  |
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| *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:***  | Update to QoE metrics reporting configuration resource |
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| ***Source to WG:*** | InterDigital Communications |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5GMS\_Pro\_Ph2 |  | ***Date:*** | 29th January 2024 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** |  |
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| ***Summary of change:*** | Addition of *samplingPeriod* parameter to the metrics reporting configuration resource used in the metrics reporting provisioning API in Maf\_Provisioning service. |
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| ***Consequences if not approved:*** |  |
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| ***Clauses affected:*** | 5.2.10, 5.3.5.1, 8.10.3.1, 9.2.3.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications |  |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
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| ***Other comments:*** | The 5GMS protocol specifications TS 26.510 and TS 26.512 discusses the procedures and APIs for metric measurement, collection and reporting in the 5G system networks for 5GMS services. TS 26.113 addresses 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.This contribution proposes updates to the metrics reporting configuration resource used in the metrics reporting provisioning API. The updated JSON schema of the Metrics reporting provisioning API is provided in the attached YAML file (TS26510\_Maf\_Provisioning\_MetricsReporting.yaml). |
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| ***This CR's revision history:*** |  |

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| **First Change** |

#### 5.2.10.1 General

These operations are used by the Media Application Provider at reference point M1 to provision QoE metrics reporting functionality associated with downlink or uplink media delivery. The Media Application Provider may provision several Metrics Reporting Configurations within the scope of a Provisioning Session with different properties which determine whether and how often the Media Session Handler submits QoE metrics reports to the Media AF as well as the format and contents of these reports. To this end, each Metrics Reporting Configuration shall specify a *metrics scheme*, which may be specified by 3GPP or by another party. The chosen metrics scheme URI is indicated in the scheme property of the Metrics Reporting Configuration. This clause defines the basic operations; more details are provided in clause 8.10.

A given Metrics Reporting Configuration is uniquely identified within the scope of its parent Provisioning Session by the metricsReportingConfigurationId property of the corresponding Metrics Reporting Configuration resource, as specified in clause 8.10.3.1.

Where metrics reporting is not required for the entire duration of a media delivery session, a *sampling duration* parameter may additionally be specified for a Metrics Reporting Configuration indicating the portion of the session for which metrics reports are to be submitted. This is expressed...

HTTP responses for successful and operation-specific failure cases are specified in the following clauses. For all other failure cases, an HTTP response indicating a response code in accordance with clause 7.1.6 shall be returned to the API client. In all failure cases a message body in accordance with clause 7.1.7 shall be included in the response message.

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| **Second Change** |

#### 5.3.5.1 Procedures

These procedures are used by the Media AS at reference point M3 or else by the Metrics Reporting functions of the Media Client and subsequently by the Media Session Handler at reference point M5 to submit a metrics report to one of the Media AF instances listed in the client metrics reporting configuration of the Service Access Information resource previously retrieved using the procedure in clause 5.3.2.3.

When the metrics collection and reporting feature is provisioned for a media delivery session using the operations specified in clause 5.2.10, one or more client metrics reporting configurations, each associated with a provisioned Metrics Reporting Configuration, shall be provided to the Media Session Handler in the Service Access Information. A given client metrics reporting configuration contains information including:

1. The subset of metrics from the provisioned metrics scheme to be collected and reported by the Media Client;

2. The frequency at which these metrics are to be sampled by the Media Client;

3. The proportion of media delivery sessions for which reports are to be sent by the Media Session Handler;

4. The interval at which metrics reports are to be sent by the Media Session Handler if reporting is enabled for a media delivery session; and

5. The Media AF address(es) to which metrics reports are to be sent.

Before a downlink media delivery session is started, the Media Session Handler shall check if the Service Access Information includes any Metrics Reporting Configurations. If any such configurations are present, the Media Session Handler shall initiate the metrics reporting procedure for the media delivery session based on these configurations. During the downlink media delivery session, the Media Session Handler shall periodically check if the Metrics Reporting Configurations are added to or removed from the Service Access Information and shall activate or deactivate the metrics reporting procedure as appropriate for the media delivery session in question. The Service Access Information indicating whether Metrics Reporting is provisioned for media delivery sessions is specified in clause 9.2.3.

Whenever a metrics report is produced for a given client metrics reporting configuration, the Media Session Handler shall reset its reporting interval timer for that configuration to the value of the clientMetrics‌Reporting‌Configurations[].‌reportingInterval property and it shall begin countdown of the timer again. Whenever the Media Session Handler terminates a media delivery session, it shall disable its reporting interval timer for all client metrics reporting configurations.

Details of the APIs supporting these procedures at reference points M3 and M5 are specified in clause 9.5.

HTTP responses for successful and operation-specific failure cases are specified in the following clauses. For all other failure cases, an HTTP response indicating a response code in accordance with clause 7.1.6 shall be returned to the API client. In all failure cases a message body in accordance with clause 7.1.7 shall be included in the response message.

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| **Third Change** |

### 5.4.5 Metrics reporting

When metrics reporting is active for a given media delivery session, the Media Session Handler shall periodically sample the metrics required by the metrics scheme(s) configured per clause 5.3.5.1 by invoking an appropriate API method at reference point M11 on the Media Access Function and shall use these to populate metrics reports.

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| **More changes follow on next page…** |

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| **Fourth Change** |

### 8.10.3.1 MetricsReportingConfiguration resource

Table 8.10.3.1-1: Definition of MetricsReportingConfiguration resource

|  Property name | Type | Cardinality | Description |
| --- | --- | --- | --- |
| *metricsReportingConfigurationId* | ResourceId | 1..1 | An identifier for this Metrics Reporting Configuration assigned by the Media AF that is unique within the scope of the enclosing Provisioning Session. |
| *scheme* | Uri | 0..1 | The QoE metrics scheme associated with this Metrics Reporting Configuration. Omitting this property signals to the Media AF that metrics reporting is currently disabled for the Provisioning Session in question. |
| *dataNetworkName* | Dnn | 0..1 | Identifies the Data Network which shall be used when sending metrics reports.If not specified, the default Data Network shall be used. |
| *reportingInterval* | DurationSec | 0..1 | The time interval between successive metrics reports to be sent by the Media Session Handler. The value shall be greater than zero.If not specified, a single final report shall be sent after the media delivery session has ended |
| *samplePercentage* | Percentage | 0..1 | The proportion of media delivery sessions for which QoE 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 media delivery sessions. |
| *urlFilters* | array(String) | 0..1 | If present, a non-empty list of Media Entry Point URL patterns for which QoE metrics shall be reported.If not specified, reporting shall be done for all media delivery sessions initiated within the scope of the parent Provisioning Session. |
| *samplingPeriod* | DurationSec | 1..1 | The time interval the Media Client should wait between sampling the QoE metrics specified by this metrics reporting configuration.The value shall be less than or equal to the samplingDurationvalue if that property is present. |
| *samplingDuration* | TimeWindow | 0..1 | The time duration specified in the media stream for which the QoE metrics specified by this metrics reporting configuration are to be reported by the Media Client.If absent, the metrics range shall be reported for the entire duration of the Media Delivery session. |
| *metrics* | array(String) | 0..1 | If present, a non-empty list of metrics which shall be collected and reported.A controlled vocabulary of QoE metrics shall be specified by each metrics scheme for use with this property.If omitted, the complete (or default, as applicable) set of metrics associated with the specified metrics scheme shall be collected and reported. |

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| **Fifrth Change** |

#### 9.2.3.1 ServiceAccessInformation resource type

The data model for the ServiceAccessInformation resource is specified in table 9.2.3.1-1 below. Different properties are present in the resource depending on the type of Provisioning Session from which the Service Access Information is derived (as indicated in the provisioningSessionType property) and this is specified in the *Applicability* column.

Table 9.2.3.1‑1: Definition of ServiceAccessInformation resource

| Property name | Type | Cardinality | Usage | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| provisioningSessionId | ResourceId | 1..1 | RO | Unique identification of the M1 Provisioning Session. | All types |
| provisioningSession‌Type | Provisioning‌Session‌Type | 1..1 | RO | The type of Provisioning Session. | All types. |
| streamingAccess | object | 0..1 | RO | Present if Content Hosting or Content Publishing is provisioned in the parent Provisioning Session. | DOWNLINK |
|  | entryPoints | Array(M5‌Media‌Entry‌Point) | 0..1 | RO | A list of alternative Media Entry Points for the Media Client to choose between. |
|  |  | locator | AbsoluteUrl | 1..1 | RO | A pointer to a document at reference point M2 that defines a media presentation e.g. MPD for DASH content or URL to a video clip file. |
|  |  | contentType | string | 1..1 | RO | The MIME content type of resource at locator. |  |
|  |  | profiles | array(Uri) | 0..1 | RO | An optional list of conformance profile URIs with which this Media Entry Point is compliant.If present, the array shall contain at least one item. |  |
|  | eMBMS‌Service‌Announcement‌Locator | AbsoluteUrl | 0..1 | RO | A pointer to an eMBMS User Service Announcement document. | DOWNLINK |
| clientConsumptionReporting‌Configuration | object | 0..1 | RO | Present if consumption reporting is activated for this Provisioning Session. | DOWNLINK |
|  |  | reportingInterval | DurationSec | 0..1 | RO | The time interval, expressed in seconds, between consumption report messages being sent by the Media Session Handler. The value shall be greater than zero.When this property is omitted, a single final report shall be sent immediately after the media streaming session has ended. |
|  |  | serverAddresses | array(AbsoluteUrl) | 1..1 | RO | A list of Media AF addresses (URLs) where the consumption reporting messages are sent by the Media Session Handler. See NOTE.Each address shall be an opaque base URL, following the format specified in clause 7.1.3 up to and including the {apiVersion} path element. |
|  |  | locationReporting | boolean | 1..1 | RO | Indicates whether the Media Session Handler is required to provide location data in consumption reporting messages (in case of MNO or trusted third parties).Shall be set false if the locationReporting parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
|  |  | accessReporting | boolean | 1..1 | RO | Indicates whether the Media Session Handler is required to supply consumption reporting units whenever the access network changes during a media delivery session.Shall be set false if the accessReporting parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
|  |  | samplePercentage | Percentage | 1..1 | RO | The percentage of media delivery sessions that shall send consumption reports, expressed as a floating-point value between 0.0 and 100.0.Shall be set to 100.0 if the samplePercentage parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
| dynamicPolicyInvocation‌Configuration | object | 0..1 | RO | Present if Policy Templates have been provisioned in the parent Provisioning Session and at least one of them is in the READY state. | DOWNLINK,UPLINK |
|  | serverAddresses | array(AbsoluteUrl) | 1..1 | RO | A list of Media AF addresses (URLs) which offer the APIs for dynamic policy invocation sent by the Media Session Handler. See NOTE.Each address shall be an opaque base URL, following the format specified in clause 7.1.3 up to and including the {apiVersion} path element. |  |
|  | policyTemplateBindings | array(object) | 1..1 | RO | A list of duples, each one binding an external reference to a Policy Template resource identifier. |  |
|  |  | externalReference | string | 1..1 | RO | Additional identifier for this Policy Template, unique within the scope of its Provisioning Session, that can be cross-referenced with external metadata about the media streaming session.Example: "HD\_Premium". |  |
|  |  | policyTemplateId | ResourceId | 1..1 | RO | The resource identifier of a Policy Template tagged with externalReference that is in the READY state. |  |
|  | sdfMethods | array(SdfMethod) | 1..1 | RO | A list of Service Data Flow description methods, e.g. 5-tuple, ToS, 2-tuple, etc., which should be used by the Media Session Handler to describe the Service Data flows at reference point M2 for media delivery sessions. |  |
| clientMetricsReporting‌Configurations | array(object) | 0..1 | RO | Present if QoE metrics reporting is provisioned in the parent Provisioning Session.If present, contains one or more client metrics reporting configurations. | DOWNLINK,UPLINK |
|  | metricsReporting‌ConfigurationId | ResourceId | 1..1 | RO | The identifier of this metrics reporting configuration, unique within the scope of the parent Provisioning Session.The value shall be the same as the corresponding identifier provisioned at reference point M1 (see clause 8.10.3.1). |
|  | serverAddresses | array(AbsoluteUrl) | 1..1 | RO | A list of Media AF addresses to which metrics reports shall be sent. See NOTE.Each address shall be an opaque base URL, following the format specified in clause 7.1.3 up to and including the {apiVersion} path element. |
|  | scheme | Uri | 1..1 | RO | A URI identifying the metrics scheme that metrics reports shall use (see clause 5.2.10). |
|  | dataNetworkName | Dnn | 0..1 | RO | The name of the Data Network which shall be used to send metrics reports.If not specified, the default DN shall be used. |
|  | reportingInterval | DurationSec | 0..1 | RO | The time interval, expressed in seconds, between metrics reports being sent by the Media Session Handler. The value shall be greater than zero.When this property is omitted, a single final report shall be sent immediately after the media streaming session has ended. |
|  | samplePercentage | Percentage | 1..1 | RO | The percentage of media delivery sessions that shall report QoE metrics, expressed as a floating point value between 0.0 and 100.0. |
|  | urlFilters | array(string) | 0..1 | RO | A non-empty list of Media Entry Point URL patterns for which QoE metrics shall be reported. The format of each pattern shall be a regular expression as specified in [ECMA262].If not specified, reporting shall be done for all media delivery sessions. |
|  | samplingPeriod | DurationSec | 1..1 | RO | The time interval the Media Client should wait between sampling the QoE metrics specified by this metrics reporting configuration. |
|  |  |  |  |  |  |
|  | metrics | array(string) | 1..1 | RO | A list of QoE metrics which shall be reported.If empty, the complete (or default if applicable) set of metrics associated with the specified scheme shall be collected and reported. |
| networkAssistance‌Configuration | object | 0..1 | RO | Present if Network Assistance is provisioned in the parent Provisioning Session. | DOWNLINK,UPLINK |
|  | serverAddresses | array(AbsoluteUrl) | 1..1 | RO | A list of Media AF addresses (URLs) that offer the APIs for AF-based Network Assistance at reference point M5. See NOTE.Each address shall be an opaque URL, following the format specified in clause 7.1.3 up to and including the {apiVersion} path element. |
| client‌EdgeResources‌Configuration | object | 0..1 | RO | Present only for Provisioning Sessions with client-driven edge computing management mode provisioned. | DOWNLINK,UPLINK |
|  | eligibilityCriteria | Edge‌Processing‌Eligibility‌Criteria | 0..1 | RO | Conditions for activating edge resources for media delivery sessions in the scope of the parent Provisioning Session. (See clause 7.3.3.8.) |
|  | easDiscoveryTemplate | EAS‌Discovery‌Template | 1..1 | RO | A template for the EAS discovery filter that shall be used by the EEC to discover and select a Media EAS instance to serve media delivery sessions at reference point M4 in the scope of the parent Provisioning Session. (See clause 9.2.3.2.) |
|  | easRelocation‌Requirements | M5EAS‌Relocation‌Requirements | 0..1 | RO | EAS relocation tolerance and requirements.If absent, the EEC shall assume that relocation is tolerated by all Media EAS instances in the scope of the parent Provisioning Session. (See clause 9.2.3.3.) |
| NOTE: In deployments where multiple instances of the Media AF expose the Media Session Handling APIs at reference point M5, the 5G System may use a suitable mechanism (e.g., HTTP load balancing or DNS-based host name resolution) to direct requests to a suitable Media AF instance. |

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| **End of Changes** |