**3GPP TSG-SA4 Meeting #113e *S4-210440***

**Electronic meeting, Telco, Apr 06-14, 2021**

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| *CR-Form-v12.0* |
| **Draft CHANGE REQUEST** |
|  |
|  | **26.512** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.2.0** |  |
|  |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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| --- |
|  |
| ***Title:***  | DeviceId for Consumption and Metrics Reporting, and Dynamic Policy and Network Assistance Access |
|  |  |
| ***Source to WG:*** |  Qualcomm Incorporated |
| ***Source to TSG:*** | SA4 |
|  |  |
| ***Work item code:*** | 5GMS3 |  | ***Date:*** | 2020-03-31 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Device (UE) identification during incidences of consumption or QoE metrics reporting, as well as Dynamic Policy and Network Assistance access by the 5GMS Client, is not fully specified in TS 26.512. More complete definition of “DeviceId” and ensuring its inclusion during the occurrence of these events via M5 interaction is necessary to enable unambigous identification of the subscriber device generating the information associated with these events, for collection and correlation by upstream network function such as the Application Service Provider, as well as OAM or data analytics servers in the operator’s network. |
|  |  |
| ***Summary of change:*** | Specification of the type and format of the “DeviceId” parameter to be included in consumption reporting, metrics reporting, Dynamic Policy invocation request, and Network Assistance request related messages sent by the 5GMS Client to the 5GMS AF. |
|  |  |
| ***Consequences if not approved:*** | Inability to ensure UE data available at the 5GMS AF can be properly utilized by Network Function consumers of such information in the form of AF Event Exposure services. |
|  |  |
| ***Clauses affected:*** | 2, 3.3, 4.7.3, 4.7.4, 4.7.5, 4.7.6, 7.7.1, 11.2.3.1, 11.3.3.1, 11.4.1, 11.4.3, 11.5.4, 11.6.4 |
|  |  |
|  | **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:*** |  |
| ***56***  |  |
| ***This CR's revision history:*** |  |

1st CHANGE: Added new references to clause 2

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

*---- <snipped> ----*

[X] 3GPP TS 23.501: "5G; System architecture for the 5G System (5G)".

[Y] 3GPP TS 23.003: "Numbering, addressing and identification".

END OF 1st CHANGE

2nd CHANGE: Added new abbreviations to clause 3.3

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GMS 5G Media Streaming

*---- <snipped> ----*

GPSI Generic Public Subscription Identifier

*---- <snipped> ----*

IMSI International Mobile Subscription Identity

*---- <snipped> ----*

MSISDN Mobile Subscriber ISDN number

NAI Network Access Identifier

*---- <snipped> ----*

SUPI Subscription Permanent Identifier

*---- <snipped> ----*

END OF 2nd CHANGE

3rd CHANGE: Changes to clause 4.7.2

### 4.7.2 Procedures for Service Access Information

#### 4.7.2.1 General

Service Access Information is the set of parameters and addresses needed by the 5GMS Client to activate reception of a downlink media streaming session or to activate an uplink media streaming session for contribution. The data model of the ServiceAccessInformtion resource acquired by the Media Session Handler of the 5GMS Client is shown in clause 11.2.3. Typically, the 5GMSd Client receives via M8 a media entry point (e.g. a URL to a DASH MPD or a URL to a progressive download file) that can be consumed by the Media Player and is handed to the Media Player through M7. In addition, the media entry point URL may trigger the Media Session Handler to fetch the Service Access information from the 5GMS AF for this media streaming session.

This clause specifies the procedures whereby the 5GMS Client fetches the Service Access Information from the 5GMS AF.

END OF 3rd CHANGE

4th CHANGE: Changes to clause 4.7.4

### 4.7.4 Procedures for consumption reporting

These procedures are used by the Media Session Handler and the Consumption Reporting functions of the 5GMSd Client to submit a consumption report via the M5d interface if Consumption Reporting is applied for a downlink streaming session.

The Service Access Information indicating whether Consumption Reporting is provisioned for downlink streaming sessions is described in clause 11.2.3. When the ClientConsumptionReportingConfiguration.samplePercentage value is 100, the Media Session Handler shall activate the consumption reporting procedure. If the samplePercentage is less than 100, the Media Session Handler shall generate a random number which is uniformly distributed in the range of 0 to 100, and the Media Session Handler shall activate the consumption report procedure when the generated random number is of a lower value than the samplePercentage value.

If the consumption reporting procedure is activated, the Media Session Handler shall submit a consumption report to the 5GMSd AF when any of the following conditions occur:

* Start of consumption of a downlink streaming session;
* Stop of consumption of a downlink streaming session;
* Upon determining the need to report ongoing 5GMS consumption at periodic intervals determined by the ClientConsumptionReportingConfiguration.reportingInterval property.
* Upon determining a location change, if the ClientConsumptionReportingConfiguration.locationReporting property is set to True.

Whenever a consumption report is sent, the Media Session Handler shall reset its reporting interval timer to the value of the reportingInterval property and it shall begin countdown of the timer again. Whenever the Media Session Handler stops the consumption of a downlink streaming session, it shall disable its reporting interval timer.

In order to submit a consumption report, the Media Session Handler shall send an HTTP POST message to the 5GMSd AF. If several 5GMSd AF addresses are listed in the ClientConsumptionReportingConfiguration.‌serverAddresses array (see table 11.2.3.1-1), the Media Session Handler shall choose one and send the message to the selected. The request body shall be a ConsumptionReport structure, as specified in clause 11.3.3.1.The server shall respond with a 200 (OK) message to acknowledge successful processing of the consumption report.

The Consumption Reporting API, defining the data formats and structures and related procedures for consumption reporting, is described in clause 11.3.

Furthermore, as defined by the ServiceAccessInformation resource data model in clause 11.2.3, a device identifier (DeviceId) in the form of a GPSI and represented by an MSISDN or External Identifier as defined in TS 23.003 [7],, may be included in the ConsumptionReport.

END OF 4th CHANGE

5th CHANGE: Changes to clause 4.7.5

### 4.7.5 Procedures for metrics reporting

The M5 procedures for QoE metrics reporting pertain to the combination of the provisioning of metrics collection and reporting in the Media Session Handler using relevant Service Access Information, and the sending of collected metrics by the Media Session Handler to the 5GMS AF in accordance with the configured metrics scheme(s). A metrics scheme may be 3GPP-defined or non-3GPP-defined.

When the metrics collection and reporting feature is activated for a downlink media streaming session, one or more metrics configuration sets, each associated with a metrics scheme, may be provided to the 5GMS Client. A given metrics configuration set contains information such as the 5GMS AF address(es) to which metrics are to be sent by the Media Session Handler, metrics reporting interval, target percentage of media streaming sessions for which reports should be sent, and the set of metrics to be collected and reported. See TS 26.501 [2] for additional details.

For progressive download and DASH streaming services, the listed metrics in a given metrics configuration set are associated with the 3GPP metrics scheme and shall correspond to one or more of the metrics as specified in clauses 10.3 and 10.4, respectively, of TS 26.247 [4].

Details of the metrics reporting API are provided in clause 11.4, and for 3GP-DASH based downlink media streaming services, the 3GPP-defined metrics reporting scheme and metrics report format are defined in clause 11.4.3.

In addition, as defined by the ServiceAccessInformation resource data model in clause 11.2.3, a device identifier (DeviceId) in the form of a GPSI and represented by an MSISDN or External Identifier as defined in TS 23.003 [7], may be included in the message body of the metrics report.

END OF 5th CHANGE

6th CHANGE: Correction to clause 7.7.1

## 7.7 Consumption Reporting Provisioning API

### 7.7.1 Overview

The Consumption Reporting Provisioning API is a RESTful API that allows a 5GMSd Application Provider to configure the Consumption Reporting Procedure for a particular downlink media sreaming Provisioning Session at interface M1d. The different procedures are described in clause 4.3.8. The Consumption Reporting Configuration is represented by a ConsumptionReportingConfiguration, the data model for which is specified in clause 7.7.3 below. The RESTful resources for managing the Consumption Reporting Configuration are specified in clause 7.7.2.

END OF 6th CHANGE

7th CHANGE: Changes to clause 11.2.3.1

### 11.2.3 Data model

#### 11.2.3.1 ServiceAccessInformation resource type

The data model for the ServiceAccessInformtion resource is specified in Table 11.2.3.1-1 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 11.2.3.1‑1: 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 |  | downlink |
| mediaPlayerEntry | Url | 0..1 | RO | A document or a pointer to a document that defines a media presentation e.g. MPD for DASH content or URL to a video clip file. |
| DeviceId | Object | 0..1 | RO | The device identifier, in the form of a GPSI as defined in TS 23.501 [X], to be provided by the Media Session Handler to the 5GMS AF when invoking any one of the Media Session Handling APIs as defined in clauses 11.3 and 11.4.A GPSI-based device identifier, if available to the 5GMS Client, shall be represented as an MSISDN or External Identifier,The formats of MSISDN and External Identifier are defined in TS 23.003 [Y]. |  |
| mSISDN | Integer | 0..1 | RO | Device identifier encoded as an MSISDN (see TS 23.003 [7]). |  |
| externalIdentifier | String | 0..1 | RO | Device identifier encoded as an External Identifier (see TS 23.003 [7]). |  |
| ClientConsumptionReporting‌Configuration | Object | 0..1 | RO |  | 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(Url) | 1..1 | RO | A list of 5GMSd AF addresses (URLs) where the consumption reporting messages are sent by the Media Session Handler. See NOTE.(Opaque URL, following the 5GMS URL format.) |
| locationReporting | Boolean | 1..1 | RO | Stipulates whether the Media Session Handler is required to provide location data to the 5GMSd AF in consumption reporting messages (in case of MNO or trusted third parties). |
| samplePercentage | Percentage | 1..1 | RO | The percentage of media streaming sessions that shall send consumption reports, expressed as a floating point value between 0.0 and 100.0. |
| DynamicPolicyInvocation‌Configuration | Object | 0..1 | RO |  | downlink,*uplink* |
| serverAddresses | Array(Url) | 1..1 | RO | A list of 5GMSd AF addresses (URLs) which offer the APIs for dynamic policy invocation sent by the Media Session Handler. See NOTE.(Opaque URL, following the 5GMS URL format.) |
| validPolicyTemplateIds | Array(ResourceId) | 1..1 | RO | A list of Policy Template identifiers which the 5GMS Client is authorized to use. |
| sdfMethods | Array(SdfMethod) | 1..1 | RO | A list of recommended service data flow description methods (descriptors), e.g. 5-Tuple, ToS, 2-Tuple, etc, which should be used by the Media Session Handler to describe the service data flows for the traffic to be policed. |
| externalReferences | Array(String) | 0..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". |
| ClientMetricsReporting‌Configurations | Array(Object) | 0..1 | RO |  | downlink,uplink |
| serverAddresses | Array(Url) | 1..1 | RO | A list of 5GMS AF addresses to which metrics reports shall be sent. See NOTE.(Opaque URL, following the 5GMS URL format.) |
| dataNetworkName | Dnn | 0..1 | RO | The DNN which shall be used when sending metrics reports. If not specified, the name of 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 streaming sessions that shall report metrics, expressed as a floating point value between 0.0 and 100.0. |
| urlFilters | Array(String) | 0..1 | RO | A non-empty list of URL patterns for which metrics reporting shall be done. The format of each pattern shall be a regular expression as specified in [5].If not specified, reporting shall be done for all sessions. |
| metrics | Array(String) | 1..1 | RO | A list of metrics which shall be reported. |
| NetworkAssistanceConfiguration | Object | 0..1 | RO |  | downlink,uplink |
| serverAddress | Url | 1..1 | RO | Address of the 5GMS AF that offers the APIs for 5GMS AF-based Network Assistance, for access by the 5GMSd Media Session Handler. See NOTE.This address shall be an opaque URL, following the 5GMS URL format. |
| NOTE: In deployments where multiple instances of the 5GMSd AF expose the Media Session Handling APIs at M5, the 5G System may use a suitable mechanism (e.g. HTTP load balancing or DNS resolution) to direct requests to a suitable AF instance. |

END OF 7th CHANGE

8th CHANGE: Changes to clause 11.3.3.1

#### 11.3.3.1 ConsumptionReport format

This type represents the format of a consumption report instance. This structure is used by the Media Session Handler to report the consumption.

Table 11.3.3.1-1: Definition of ConsumptionReport format

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute name | Data type | Cardinality | Description |
| mediaPlayerEntry | string | 1..1 | Identifies the Media player entry.In the case of DASH, the media player entry pointer shall be the URL of the MPD. |
| reportingClientId | string | 0..1 | Identifier of the UE that consumes the streaming media service associated with this consumption report.This attribute, if available to the 5GMS Client, shall be presented as a GPSI as specified in clause 11.2.3.1. |
| consumptionReportingUnits | Array(Consumption‌Reporting‌Unit) | 1..1 | An array of consumption reporting units. |

END OF 8th CHANGE

9th CHANGE: Changes to clause 11.4

## 11.4 Metrics Reporting API

### 11.4.1 General

The Metrics Reporting API allows the Media Session Handler to send QoE metrics reports to the 5GMS AF. This procedure is configured by the ServiceAccessInformation resource, as defined in clause 11.2.3. Note that multiple metrics configurations can be active at the same time, each identified by a unique metricsReportingConfigurationId.

### 11.4.2 Reporting procedure

Metrics reports related to a specific metricsReportingConfigurationId shall be submitted to one of the URLs selected from the ClientMetricsReportingConfiguration.serverAddresses array of the ServiceAccessInformation resource (see clause 11.2.3). The path of the URL should conform to the following general format:

{apiRoot}/3gpp-m5/v1/metrics-reporting/{provisioningSessionId}/{metricsReportingConfigurationId}

where {provisioningSessionId} shall be substituted by the 5GMS Client with the relevant Provisioning Session identifier and {metricsReportingConfigurationId} shall be substituted with the relevant Metrics Reporting Configuration identifier.

The only HTTP method supported by this endpoint is POST.

### 11.4.3 Report format

Metrics reports shall be submitted by the Media Session Handler in a format specified by the metrics reporting scheme in question. The Content-Type HTTP request header shall be set in accordance with the relevant metrics reporting scheme specification.

NOTE: For downlink media streaming, TS 26.247 [7] clauses 10.6.1 and 10.6.2 specify the required MIME content type and metrics report format for the 3GPP urn:‌3GPP:‌ns:‌PSS:‌DASH:‌QM10 metrics reporting scheme.

In XML documents representing metrics reports for 3GP-DASH downlink media streaming services, the **ReceptionReport**@clientID attribute, if present, shall include a GPSI as specified in clause 11.2.3.1.

END OF 9th CHANGE

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10th CHANGE: Changes to Annex C

Annex C (normative)
OpenAPI representation of the 5GMSA HTTP REST APIs

# C.1 General

This annex is based on the OpenAPI 3.0.0 specification [23] and provides corresponding representations of all APIs defined in the present specification.

NOTE 1: An OpenAPIs representation embeds JSON Schema representations of HTTP message bodies.

This annex shall take precedence when being discrepant to other parts of the specification with respect to the encoding of information elements and methods within the API(s).

NOTE 2: The semantics and procedures, as well as conditions, e.g. for the applicability and allowed combinations of attributes or values, not expressed in the OpenAPI definitions but defined in other parts of the specification also apply.

# C.2 Data Types applicable to several APIs

(SNIPPED)

*<Note to Richard, Thorsten and Imed – please provide the necessary changes to this section – thanks!>*