**3GPP TSG-SA4 Meeting #119-e *S4-220808***

**Electronic Meeting, Telco, May 11-20, 2022**

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| *CR-Form-v12.0* | | | | | | | | |
| **Draft CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | 0023 | **rev** |  | **Current version:** | 17.0.0 |  |
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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 | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Support for | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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). | | | | | | | |  | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Need to update TS 26.512 V17.0.0 to provide instantiation of generic data collection and reporting architecture for the 5G Media Streaming feature domain as specified in TS 26.531 and TS 26.532 for the EVEX Work Item. This includes the necessary specification text to assist CT3 in producing stage 3 text on 5GMS AF event exposure service APIs in TS 29.517 and TS 29.522. This CR incorporates the text in dCR in S4aI221340 whose contents were agreed by MBS during the 24-March MBS AHG meeting but it was agreed d that a revision should be submitted at SA4#118-e with an amended cover sheet (to delete “Stage 2.5” terminology). In addition, review of that document revealed bugs and missing content that are fixed/added in this dCR. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Additional references in clause 2; * Additional abbreviations in clause 3.3; * Additions to summary table of APIs relevant to downlink media streaming in clause 4.2; * New clause 4.3.10 on M1-specific Event Data Processing Provisioning procedures; * New clause 4.11 on R4 (Ndcaf\_DataReporting) interface procedures; * New clause 4.12 on R5 and R6 Event Exposure procedures; * Additions to summary table of APIs relevant to uplink media streaming in clause 5.2; * Modifications of clause 6.4.2 with additional common simple data types; * New clause 6.4.3.8 on EndpointAddress as additional structured data type; * New clause 6.4.4.4 on CacheStaus as additional enumerated data types; * Updates to clause 7.2.3.1 by adding under ProvisioningSession resources, reference to data exposure restriction rules on event exposure that can be exerted by the 5GMS Application; * New clause 7.11 on Event Data Processing Provisioning API; * New clauses 17 and 18 on R4, R5 and R6 APIs. * Modifications to OpenAPI common data types in clause C.2. * Annex C,3 on OpenAPI specification of M1\_EventDataProcessingProvisioning API. * New clause C.5 providing OpenAPI definition of 5GMS-specific data reporting record type(s). * Update to Annex D with new entry on HTTP request path element hierarchy regarding API invocation of EventDataProcessingConfiguration resource. * New Annex E defining controlled vocabularies of 5GMS UE data parameters for use when provisioning Data Access Profiles. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The mapping of 5GMS to EVEX will be incomplete in Release 17. | | | | | | | | |
| ***Q*** | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.3, 4.2, 4.3.11, 4.11, 4.12, 5.2, 6.4.2, 7.2.3, 7.9.1, 7.11, (new) 17 and 18, C.2, Annex C.3.10 (new), C.5 (new), Annex D, Annex E (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

FIRST CHANGE

# 2 References

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

(SNIPPED)

[43] 3GPP TS 23.502: "Procedures for the 5G System (5GS); Stage 2".

[44] 3GPP TS 29.517: "5G System; Application Function Event Exposure Service; Stage 3".

[45] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[46] 3GPP TS 26.531: "Data Collection and Reporting; General Description and Architecture".

[47] 3GPP TS 26.532: "Data Collection and Reporting; Protocols and Formats".

[48] 3GPP TS 29.522: “5G System. Network Exposure Function Northbound APIs; Stage 3".

NEXT CHANGE

## 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].

(SNIPPED)

NF Network Function

NWDAF Network Data Analytics Function

(SNIPPED)

NEXT CHANGE

## 4.2 APIs relevant to Downlink Media Streaming

Table 4.2‑1 summarises the APIs used to provision and use the various downlink media streaming features specified in TS 26.501 [2].

Table 4.2‑1: Summary of APIs relevant to downlink media streaming features

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5GMSd feature | Abstract | Relevant APIs | | |
| Interface | API name | Clause |
| Content protocols discovery | Used by the 5GMSd Application Provider to interrogate which content ingest protocols are supported by 5GMSd AS(s). | M1d | Content Protocols Discovery API | 7.5 |
| Content hosting | Content is ingested, hosted and distributed by the 5GMSd AS according to a Content Hosting Configuration associated with a Provisioning Session. | M1d | Provisioning Sessions API | 7.2 |
| Server Certificates Provisioning API | 7.3 |
| Content Preparation Templates Provisioning API | 7.4 |
| Content Hosting Provisioning API | 7.6 |
| M2d | HTTP-pull based content ingest protocol | 8.2 |
| DASH-IF push based content ingest protocol | 8.3 |
| M4d | DASH [4] or 3GP [37] | 10 |
| M5d | Service Access Information API | 11.2 |
| Metrics reporting | The 5GMSd Client uploads metrics reports to the 5GMSd AF according to a provisioned Metrics Reporting Configuration it obtains from the Service Access Information for its Provisioning Session. | M1d | Provisioning Sessions API | 7.2 |
| Metrics Reporting Provisioning API | 7.8 |
| M5d | Service Access Information API | 11.2 |
| Metrics Reporting API | 11.4 |
| Consumption reporting | The 5GMSd Client provides feedback reports on currently consumed content according to a provisioned Consumption Reporting Configuration it obtains from the Service Access Information for its Provisioning Session. | M1d | Provisioning Sessions API | 7.2 |
| Consumption Reporting Provisioning API | 7.7 |
| M5d | Service Access Information API | 11.2 |
| Consumption Reporting API | 11.3 |
| Dynamic Policy invocation | The 5GMSd Client activates different traffic treatment policies selected from a set of Policy Templates configured in its Provisioning Session. | M1d | Provisioning Sessions API | 7.2 |
| Policy Templates Provisioning API | 7.9 |
| M5d | Service Access Information API | 11.2 |
| Dynamic Policies API | 11.5 |
| Network Assistance | The 5GMSd Client requests bit rate recommendations and delivery boosts from the 5GMSd AF. | M5d | Service Access Information API | 11.2 |
| Network Assistance API | 11.6 |
| UE data collection, reporting and exposure | UE data related to downlink 5G Media Streaming is reported to the Data Collection AF instantiated in the 5GMSd AF for exposure to Event consumers. | M1d | Event Data Processing Provisioning API | 7.11 |
| R4 | Ndcaf\_DataReporting service | 17 |
| R5, R6 | Naf\_EventExposure service | 18 |

next change

### 4.3.11 Event Data Processing Provisioning procedures

#### 4.3.11.1 General

These procedures are used by the 5GMS Application Provider to configure the collection and processing of UE data related to 5G Media Streaming over reference point R4 (as defined in TS 26.531 [46]) and to restrict its exposure over reference points R5 and R6 by configuring the Data Collection AF instantiated in the 5GMS AF (as defined in clause 4.7 of TS 26.501 [2]) with one or more Event Data Processing Configurations and Data Access Profiles for a particular Event ID.

Each instance of a Data Access Profile specifies a set of data processing operations to be performed by the Data Collection AF on its collected UE data in order to synthesize the event data to be exposed to a specific Event service consumer entity. In this release, eligible Event service consumer entities of 5GMS event data are the NWDAF, the Event Consumer AF and the NEF.

The Event Data Processing Provisioning API is specified in clause 7.11.

#### 4.3.11.2 Create Event Data Processing Configuration

This procedure is used by the 5GMS Application Provider to create a new Event Data Processing Configuration in the form of one or more Data Access Profiles. The 5GMS Application Provider shall use the HTTP POST method for this purpose and the request message body shall include an EventDataProcessingConfiguration resource, as specified in clause 7.11.3.

If the procedure is successful, the 5GMS AF shall generate a resource identifier representing the new Event Data Processing Configuration. In this case, the 5GMS AF shall respond with a 201 (Created) response message and shall provide the URL to the newly created resource in the Location header field.

If the procedure is unsuccessful, the 5GMS AF shall provide a response code as defined in clause 6.3.

#### 4.3.11.3 Read Event Data Processing Configuration

This procedure is used by the 5GMS Application Provider to obtain the properties of an existing Event Data Processing Configuration resource from the 5GMS AF. The HTTP GET method shall be used for this purpose.

If the procedure is unsuccessful, the 5GMS AF shall provide a response code as defined in clause 6.3.

#### 4.3.11.4 Destroy Event Data Processing Configuration

This operation is used by the 5GMS Application Provider to destroy an existing Event Data Processing Configuration resource and to terminate the related distribution. The HTTP DELETE method shall be used for this purpose. As a result, the Data Collection AF shall process any reported UE data still outstanding and shall delete any corresponding data collection and reporting client configurations.

If the procedure is successful, the 5GMS AF shall respond with a 200 (OK) response message.

If the procedure is unsuccessful, the 5GMS AF shall provide a response code as defined in clause 6.3.

NEXT CHANGE

## 4.11 Data collection and reporting procedures at reference point R4

### 4.11.1 General

These procedures are used by the 5GMS AS, as a type of data collection client, to acquire its data collection and reporting client configuration from, and subsequently report media streaming access activity to, the Data Collection AF instantiated in the 5GMS AF. It does so by invoking the *Ndcaf\_DataReporting* service offered by the Data Collection AF at reference point R4, as specified in clause 7 of TS 26.532 [47].

### 4.11.2 5GMS AS data collection and reporting client configuration

The 5GMS AS shall use the service operations and procedures specified in TS 26.532 [47] to obtain its data collection and reporting client configuration from the Data Collection AF instantiated in the 5GMS AF at reference point R4:

- In the case where both the 5GMS AS and the 5GMS AF reside in the trusted domain, the 5GMS AS shall obtain its data collection client configuration directly from the Data Collection AF by invoking appropriate Ndcaf\_DataReporting service operations as specified in clause 7.2 of [47] according to the procedures specified in clauses 4.2.5 of [47].

- Should the 5GMS AS and the 5GMS AF reside in different trust domains, the 5GMS AS shall instead obtain its configuration from the Data Collection AF indirectly via the NEF by invoking the equivalent operations on the Nnef\_DataReporting service as defined in TS 26.531 [46].

In both cases, the 5GMS AS shall declare that it supports the MS\_ACCESS\_ACTIVITY data reporting domain in Data‌Reporting‌Session.‌supportedDomains (see clauses 7.2.3.2.1 and 7.2.3.3.1 of TS 26.532 [47]) and the Data Collection AF instantiated in the 5GMS AF shall request reporting for this domain by including the same value as a key to the Data‌Reporting‌Session.‌reportingConditions dictionary. The value of the ReportingCondition.type property at this key shall be INTERVAL, THRESHOLD or OFF.

The 5GMS AS shall refresh its data collection and reporting client configuration according to the procedures specified in clause 4.2.5.3 of TS 26.532 [47].

### 4.11.3 5GMS AS data reporting

The 5GMS AS shall use the service operations and procedures specified in TS 26.532 [47] to report media streaming access activity to the Data Collection AF instantiated in the 5GMS AF at reference point R4:

- In the case where both the 5GMS AS and the 5GMS AF reside in the trusted domain, the 5GMS AS shall submit media streaming access activity reports directly to the Data Collection AF by invoking appropriate Ndcaf\_DataReporting service operations as specified in clause 7.3 of [47] according to the procedures specified in clauses 4.2.7 of [47].

- Should the 5GMS AS and the 5GMS AF reside in different trust domains, the 5GMS AS shall instead submit media streaming access activity reports indirectly to the 5GMS AF via the NEF by invoking the equivalent operations on the Nnef\_DataReporting service as defined in TS 26.531 [46].

In both cases, the conditions for sending a downlink media streaming access activity report by the 5GMSd AS and the parameters of such report are signalled in the data collection and reporting client configuration obtained using the procedure specified in clause 4.11.2.

In order to submit a media streaming access activity report, the 5GMS AS shall send an HTTP POST message to the Data Collection AF instantiated in the 5GMS AF. The request body shall be a JSON document of type DataReport (as defined in clause 7.3.3.2.1 of TS 26.532 [47]) containing one or more MediaStreaming‌AccessRecord structures, as specified in clauses 17.2 and C.5.1 of the present document.

The Data Collection AF shall respond with a 200 (OK) message to acknowledge successful processing of the media streaming access activity report.

NEXT CHANGE

## 4.12 Event Exposure procedures at reference points R5 and R6

### 4.12.1 General

As specified in clauses 4.7.1 and 4.7.4 of TS 26.501 [2], Events relating to 5G Media Streaming are exposed to Event consumers at reference points R5 and R6 by the Data Collection AF instantiated in the 5GMS AF (playing the role of Event service provider). Procedures for event exposure are specified in clauses 5.11.3 (for downlink media streaming) and 6.8.3 (for uplink media streaming) respectively of [2].

The following *Naf\_EventExposure* service operations as defined in TS 23.502 [43] apply for such interactions between the Data Collection AF and consumer entities:

* *Naf\_EventExposure\_Subscribe*,
* *Naf\_EventExposure\_Unsubscribe*, and
* *Naf\_EventExposure Notify*.

In this release, eligible Event service consumers of 5GMS Event services are the NWDAF and NEF as NFs, and the Event Consumer AF of the 5GMS Application Provider.

### 4.12.2 Event Exposure subscription procedure

The definition of input and output parameters of the Naf\_EventExposure\_Subscribe service operation is identical to that specified in clause 5.2.19.2.2 of TS 23.502 [43], except that "AF" is replaced by "Data Collection AF" and "consumer NF" (or "NF consumer") is replaced by "Event service consumer".

### 4.12.3 Event Exposure unsubscription procedure

The definition of input and output parameters of the Naf\_EventExposure\_Unsubscribe service operation is identical to that specified in clause 5.2.19.2.3 of TS 23.502 [43], except that "AF" is replaced by "Data Collection AF" and "consumer NF" (or "NF consumer") is replaced by "Event service consumer".

### 4.12.4 Event Exposure notification procedure

The definition of input and output parameters of the Naf\_EventExposure\_Notify service operation is identical to that specified in clause 5.2.19.2.4 of TS 23.502 [43], except that "AF" is replaced by "Data Collection AF" and "consumer NF" (or "NF consumer") is replaced by "Event service consumer".

NEXT CHANGE

## 5.2 APIs relevant to Uplink Media Streaming

Table 5.2‑1 summarises the APIs used to provision and use the various uplink media streaming features specified in TS 26.501 [2].

Table 5.2‑1: Summary of APIs relevant to uplink media streaming features

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5GMSu feature | Abstract | Relevant APIs | | |
| Interface | API name | Clause |
| Content protocols discovery | Used by the 5GMSu Application Provider to query which content egest protocols are supported by 5GMSu AS(s). | M1u | Content Protocols Discovery API | 7.5 |
| Content preparation | Supports manipulation by the 5GMSu AS of streaming media content uploaded by 5GMSu Client over M4u, prior to egest of the manipulated content over M2u. | M1u | Content Preparation Templates Provisioning API | 7.4 |
| Metrics reporting | The 5GMSu Client uploads metrics reports to the 5GMSu AF according to a provisioned Metrics Reporting Configuration it obtains from the Service Access Information for its Provisioning Session. | M1u | Provisioning Sessions API | 7.2 |
| Metrics Reporting Provisioning API | 7.8 |
| M5u | Service Access Information API | 11.2 |
| Metrics Reporting API | 11.4 |
| Dynamic Policy invocation | The 5GMSu Client activates different traffic treatment policies selected from a set of Policy Templates configured in its Provisioning Session. | M1u | Provisioning Sessions API | 7.2 |
| Policy Templates Provisioning API | 7.9 |
| M5u | Service Access Information API | 11.2 |
| Dynamic Policies API | 11.5 |
| Network Assistance | The 5GMSu Client requests bit rate recommendations and delivery boosts from the 5GMSu AF. | M5u | Service Access Information API | 11.2 |
| Network Assistance API | 11.6 |
| UE data collection, reporting and exposure | UE data related to uplink 5G Media Streaming is reported to the Data Collection AF instantiated in the 5GMSu AF for exposure to Event consumers. | M1u | Event Data processing Provisioning API | 7.11 |
| R4 | *Ndcaf\_DataReporting* service | 17 |
| R5, R6 | Naf\_EventExposure service | 18 |

NEXT CHANGE

### 6.4.2 Simple data types

Table 6.4.2-1 below specifies common simple data types used within the 5GMS APIs, including a short description of each. In cases where types from other specifications are reused, a reference is provided.

Table 6.4.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type name | Type definition | Description | Reference |
| ResourceId | string | String chosen by the 5GMS AF to serve as an identifier in a resource URL. |  |
| Uri | string | Uniform Resource Identifier conforming with the URI Generic Syntax. | TS 29.571 [12] table 5.2.2‑1 |
| Url | string | Uniform Resource Locator, conforming with the URI Generic Syntax. | IETF RFC 3986 [41] |
| Percentage | number | A percentage expressed as a floating point value between 0.0 and 100.0 (inclusive). |  |
| DurationSec | integer | An unsigned integer identifying a period of time expressed in units of seconds. | TS 29.571 [12] table 5.2.2‑1 |
| DateTime | string | An absolute date and time expressed using the OpenAPI date-time string format. | TS 29.571 [12] table 5.2.2‑1 |
| IPv4Addr | string | IPv4 address formatted in "dotted decimal" notation | TS 29.571 [12] table 5.2.2‑1. |
| IPv6Addr | string | IPv6 address formatted in colon-separated hexadecimal quartet notation. | TS 29.571 [12] table 5.2.2‑1. |
| Uinteger | Integer | Unsigned integer. | TS 29.571 [12] table 5.2.2‑1. |

NEXT CHANGE

#### 6.4.3.8 EndpointAddress type

Table 6.4.3.8-1: Definition of EndpointAddress type

| Property name | Type | Cardinality | Description |
| --- | --- | --- | --- |
| ipv4Addr | Ipv4Addr | 0..1 | IPv4 address of the endpoint. |
| ipv6Addr | Ipv6Addr | 0..1 | IPv6 address of the endpoint. |
| portNumber | Uinteger | 1 | Port number of the endpoint. |
| NOTE: At least one of ipv4Addr or ipv6Addr shall be present. | | | |

NEXT CHANGE

#### 6.4.4.4 CacheStatus enumeration

Table 6.4.4.4‑1: Definition of CacheStatus enumeration

|  |  |
| --- | --- |
| Enumeration value | Description |
| HIT | The requested object is present in the 5GMS AS cache and is still valid. |
| MISS | The requested object is not present in the 5GMS AS cache. |
| EXPIRED | The requested object is present in the 5GMS AS cache but is stale. |

NEXT CHANGE

### 7.2.3 Data model

#### 7.2.3.1 ProvisioningSession resource

The data model for the ProvisioningSession resource is specified in Table 7.2.3.1-1 below. Different properties are present in the resource depending on the type of Provisioning Session indicated in the provisioningSessionType property, and this is specified in the *Applicability* column.

Table 7.2.3.1‑1: Definition of ProvisioningSession resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Property name | Type | Cardinality | Usage | Description | Applicability |
| provisioningSessionId | ResourceId | 1..1 | C: R  R: RO | A unique identifier for this Provisioning Session. | All types. |
| provisioningSession‌Type | Provisioning‌Session‌Type | 1..1 | C: RW R: RO  U: – | The type of Provisioning Session. | All types. |
| aspId | AspId | 0..1 | C: W  R: RO | The identity of the Application Service Provider responsible for this Provisioning Session, as specified in clause 5.6.2.3 of TS 29.514 [34]. | All types. |
| externalApplicationId | ApplicationId | 1..1 | C: RW R: RO U: RO | The external application identifier (see TS 29.571 [12]), nominated by the 5GMS Application Provider, to which this Provisioning Session pertains. | All types. |
| serverCertificateIds | Array(ResourceId) | 0..1 | C: –  R: RO | A list of Server Certificate identifiers currently associated with this Provisioning Session. | downlink |
| contentPreparation‌TemplateIds | Array(ResourceId) | 0..1 | C: –  R: RO | A list of Content Preparation Template identifiers currently associated with this Provisioning Session. | downlink,  uplink |
| metricsReporting‌ConfigurationIds | Array(ResourceId) | 0..1 | C: –  R: RO | A list of Metrics Reporting Configuration identifiers currently associated with this Provisioning Session. | downlink,  uplink |
| policyTemplateIds | Array(ResourceId) | 0..1 | C: –  R: RO | A list of Policy Template identifiers currently associated with this Provisioning Session. | downlink,  uplink |
| eventDataProcessing‌ConfigurationIds | Array(ResourceId) | 0..1 | C: –  R: RO | A list of Event Data Processing Configuration identifiers currently associated with this Provisioning Session. | downlink,  uplink |

NEXT CHANGE

## 7.9 Policy Templates Provisioning API

### 7.9.1 Overview

(SNIPPED)

When the Policy Template is used for QoS Flows, the qoSSpecification object (of type M1QoSSpecification) shall be present:

- The qosReference value is obtained with the Service Level Agreement. See TS 23.502 [43] for detailed usage.

(SNIPPED)

NEXT CHANGE

## 7.11 Event Data Processing Provisioning API

### 7.11.1 General

The Event Data Processing Provisioning API is used by a 5GMS Application Provider to provide Event Data Processing Configurations to the Data Collection AF instantiated in the 5GMS AF. Each such configuration is represented by an EventDataProcessingConfiguration resource, the data model of which is specified in clause 7.11.3 below. It comprises processing rules and parameters expressed by Data Access Profiles each of which defines a level of access by Event consumers to the UE data collected by the Data Collection AF. The RESTful structure of the Data Exposure Restriction Configuration resource collection, along with the operations and corresponding HTTP methods for managing resources of this type are defined in clause 7.11.2.

### 7.11.2 Resource structure

The Event Data Processing Provisioning API is accessible through the following URL base path:

{apiRoot}/3gpp-m1/{apiVersion}/provisioning-sessions/{provisioningSessionId}/

Table 7.11.2-1 below specifies the operations and the corresponding HTTP methods that are supported by this API. In each case, the Provisioning Session identifier shall be substituted into {provisioningSessionId} in the above URL template and the sub-resource path specified in the second column shall be appended to the URL base path.

Table 7.11.2‑1: Operations supported by the Data Exposure Restriction API

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Sub‑resource path | Allowed HTTP method(s) | Description |
| Create Event Data Processing Configuration | event-data-processing-configurations | POST | Used to create a new Event Data Processing Configuration resource. |
| Retrieve Event Data Processing Configuration | event-data-processing-configurations/{event‌Data‌Processing‌ConfigurationId} | GET | Used to retrieve an existing Event Data Processing Configuration. |
| Update Event Data Processing Configuration | PUT,  PATCH | Used to modify an existing Event Data Processing Configuration. |
| Destroy Event Data Processing Configuration | DELETE | Used to destroy an existing Event Data Processing Configuration. |

### 7.11.3 Data model

#### 7.11.3.1 EventDataProcessingConfiguration resource type

The data model for the EventDataProcessingConfiguration resource is specified in table 7.11.3‑1 below:

Table 7.11.3‑1: Definition of EventDataProcessingConfiguration resource

| Property name | Type | Cardinality | Description |
| --- | --- | --- | --- |
| *eventDataProcessing‌ConfigurationId* | ResourceId | 1..1 | An identifier for this Event Data Processing Configuration that is unique within the scope of the enclosing Provisioning Session. |
| *eventId* | AfEvent | 1..1 | One of the enumerated values specified in clause 5.6.3.3 of TS 29.517 [44] relating to 5G Media Streaming. |
| *authorizationUrl* | Url | 0..1 | A URL that may be used to authorize the Event consumer entity to enable its subscription to the Data Collection AF for event notification, subject to the data access restrictions of a Data Access Profile. |
| *dataAccessProfiles* | Array(Data‌Access‌Profile) | 1..1 | One or more Data Access Profile definitions, each one describing a set of data processing instructions to be applied by the Data Collection AF when exposing events to an associated Event consumer entity. (See clause 6.3.3.2 of TS 26.532 [47].)  The controlled vocabularies to be used with DataAccessProfile.‌parameters are specified in annex E of the present document. |

NEXT CHANGE

# 17 Media Streaming data reporting at R4

## 17.1 General

The following record types shall be used with the Ndcaf\_DataReporting\_Report service operation specified in clause 7.3.2.2.3.1 of TS 26.532 [47]. In each case, one or more records are included in a DataReport, as specified in clause 7.3.3.2.1 of [47].

The OpenAPI definitions of the record types are found in clause C.5.1 of the present document.

## 17.2 MediaStreamingAccessRecord type

As specified in clause 4.11.3, the MediaStreamingAccessRecord type shall be used by the 5GMS AS to report media streaming access

Table 17.2-1: Definition of MediaStreamingAccessRecord type

| Property name | Data Type | Cardinality | Description |
| --- | --- | --- | --- |
| timestamp | DateTime | 1..1 | The date and time of the media access. (See table 6.4.2-1.) |
| mediaStreamHandler‌EndpointAddress | Endpoint‌Address | 1..1 | The endpoint address of the Media Stream Handler accessing the 5GMS AS. (See clause 6.4.3.8.) |
| applicationServer‌EndpointAddress | Endpoint‌Address | 1..1 | The service endpoint on the 5GMS AS to which the Media Stream Handler is connected. (See clause 6.4.3.8.) |
| sessionIdentifier | string | 0..1 | An identifier for the HTTP session on which the Media Stream Handler request was made.  This should not contain any user-identifiable data. It may, for example, be a one-way hash of the transport connection identifier, if available from the underlying transport protocol. Alternatively, it could be a one-way hash of the 5-tuple formed from the Media Stream Handler and 5GMSd AS endpoint addresses and a transport protocol identifier. |
| requestMessage | Object | 1..1 | Details of the HTTP request message submitted to the 5GMS AS by the Media Stream Handler for this media access. |
| method | string | 1..1 | The request method. |
| url | Url | 1..1 | The request URL. (See table 6.4.2‑1.) |
| protocolVersion | string | 1..1 | The HTTP protocol version, e.g. "HTTP/1.1". |
| range | string | 0..1 | The value of the Range request header, if present. |
| size | Uinteger | 1..1 | The total number of bytes in the request message. |
| bodySize | Uinteger | 1..1 | The number of bytes supplied by the Media Stream Handler in the HTTP request message body.  Zero if there is no request body. |
| contentType | string | 0..1 | The MIME content type of the request message, if any. |
| userAgent | string | 0..1 | A string describing the requesting Media Stream Handler, if it supplies a User-Agent request header. |
| userIdentity | String | 0..1 | A string identifying the user that made the access, if supplied. |
| referer | Url | 0..1 | The URL that the Media Player reports being referred from, if the Referer request header is supplied. (See table 6.4.2‑1.) |
| cacheStatus | Cache‌Status | 0..1 | An indication of whether the 5GMS AS is able to serve an object corresponding to requestMessage,url from cache (HIT) or whether there is a stale object cached (EXPIRED) or the requested object is not present in cache (MISS). (See table 6.4.4.4.)  For non-caching implementations of the 5GMS AS, the property shall be omitted. |
| responseMessage | Object | 1..1 | Details of the HTTP response message returned by the 5GMS AS to the Media Stream Handler for this media access. |
| responseCode | Uinteger | 1..1 | The HTTP response code. |
| size | Uinteger | 1..1 | The total number of bytes in the response message. |
| bodySize | Uinteger | 1..1 | The number of bytes in the HTTP response message body. |
| contentType | string | 0..1 | The MIME content type of response message, if any. |
| processingLatency | Float | 1..1 | The time, expressed in milliseconds, taken by the 5GMS AS to respond to the Media Stream Handler request, measured from the first byte of the HTTP request being processed by the 5GMS AS to the last byte of the response being sent. |
| connectionMetrics | Object | 0..1 | Metrics about the performance of the transport connection underlying the HTTP session serving this media access. |
| meanNetwork‌RoundTripTime | Float | 1..1 | A rolling mean average, expressed in milliseconds, of the network round-trip time for the HTTP session. |
| networkRoundTrip‌Time‌Variation | Float | 1..1 | The variation in meanNetwork‌RoundTripTime, expressed in milliseconds, during the averaging period. |
| congestionWindowSize | Uinteger | 1..1 | The current size (in bytes) of the congestion window for the transport connection underlying the HTTP session. |

NEXT CHANGE

# 18 Event exposure at R5 and R6

The Naf\_EventExposure service specified in TS 29.517 [44] shall be used by event consumer to subscribe to the following types of 5G Media Streaming event notifications, identified by their respective Event IDs, from the Data Collection AF instantiated in the 5GMS AF, and subsequently to receive such notifications:

1. Media Streaming QoE Event, as specified in clause E1 of [44], comprising

a) 3GPP-defined QoE metrics information, and

b) non-3GPP-defined QoE metrics information.

2. Media Streaming Consumption Event, as specified in clause E2 of [44].

3. Media Streaming Network Assistance Invocation Event, as specified in clause E3 of [44].

4. Media Streaming Dynamic Policy Invocation Event, as specified in clause E4 of [44].

5. Media Streaming Access Event, as specified in clause E5 of [44].

In this release, eligible event consumer subscribers to the Naf\_EventExposure service as specified in [44] are the following:

- The NWDAF defined in TS 23.288 [45].

- The Event Consumer AF defined in TS 26.531 [46] when it is deployed in the Trusted DN.

[- The NEF defined in TS 23.501 [2] when it is used to expose the Naf\_EventExposure service to functions outside the Trusted DN via the Nnef\_EventExposure service defined in TS 23.502 [43].]

Implementations of the Data Collection AF instantiated the 5GMS AF shall support negotiation of the optional features relating to 5G Media Streaming specified in table 5.8‑1 of TS 29.517 [44]. Feature negotiation by event consumers is achieved as specified in clause 5.8 of [44].

NEXT CHANGE

# C.2 Data Types applicable to several APIs

For the purpose of referencing entities defined in this clause, it shall be assumed that the OpenAPI definitions below are contained in a physical file named "TS26512\_CommonData.yaml".

|  |
| --- |
| openapi: 3.0.0  info:    title: 5GMS Common Data Types    version: 1.1.0    description: |      5GMS Common Data Types      © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).      All rights reserved.  tags:    - name: 5GMS Common Data Types      description: '5G Media Streaming: Common Data Types'  externalDocs:    description: 'TS 26.512 V17.1.0; 5G Media Streaming (5GMS); Protocols'    url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.512/'  paths: {}  components:    schemas:      #################################      # Clause 6.4.2: Simple data types      #################################      ResourceId:        type: string        description: String chosen by the 5GMS AF to serve as an identifier in a resource URI.      Percentage:        type: number        minimum: 0.0        maximum: 100.0      #DurationSec is defined in TS29571\_CommonData      #DateTime is defined in TS29571\_CommonData      #Uri is defined in TS29571\_CommonData      Url:        type: string        format: uri        description: Uniform Resource Locator, comforming with the URI Generic Syntax specified in IETF RFC 3986.        #####################################      # Clause 6.4.3: Structured data types      #####################################      IpPacketFilterSet:        type: object        required:          - direction        properties:          srcIp:            type: string          dstIp:            type: string          protocol:            type: integer          srcPort:            type: integer          dstPort:            type: integer          toSTc:            type: string          flowLabel:            type: integer          spi:            type: integer          direction:            type: string      ServiceDataFlowDescription:        type: object        properties:          flowDescription:            $ref: '#/components/schemas/IpPacketFilterSet'          domainName:            type: string      M5QoSSpecification:        type: object        required:          - marBwDlBitRate          - marBwUlBitRate          - mirBwDlBitRate          - mirBwUlBitRate        properties:          marBwDlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          marBwUlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          minDesBwDlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          minDesBwUlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          mirBwDlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          mirBwUlBitRate:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          desLatency:            type: integer            minimum: 0          desLoss:            type: integer            minimum: 0      M1QoSSpecification:        type: object        properties:          qosReference:            type: string          maxBtrUl:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          maxBtrDl:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          maxAuthBtrUl:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          maxAuthBtrDl:            $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'          defPacketLossRateDl:            type: integer            minimum: 0          defPacketLossRateUl:            type: integer            minimum: 0      ChargingSpecification:        type: object        properties:          sponId:            type: string          sponStatus:            $ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/SponsoringStatus'          gpsi:            type: array            items:              $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'      TypedLocation:        type: object        required:          - locationIdentifierType          - location        properties:          locationIdentifierType:            $ref: '#/components/schemas/CellIdentifierType'          location:            type: string      OperationSuccessResponse:        type: object        required:        - success        properties:          success:            type: boolean          reason:            type: string      CellIdentifierType:        anyOf:          - type: string            enum: [CGI, ECGI, NCGI]          - type: string            description: >              This string provides forward-compatibility with future              extensions to the enumeration but is not used to encode              content defined in the present version of this API.      SdfMethod:        anyOf:          - type: string            enum: [5\_TUPLE, 2\_TUPLE, TYPE\_OF\_SERVICE\_MARKING, FLOW\_LABEL, DOMAIN\_NAME]          - type: string            description: >              This string provides forward-compatibility with future              extensions to the enumeration but is not used to encode              content defined in the present version of this API.      ProvisioningSessionType:        anyOf:          - type: string            enum: [DOWNLINK, UPLINK]          - type: string            description: >              This string provides forward-compatibility with future              extensions to the enumeration but is not used to encode              content defined in the present version of this API.  EndpointAddress:  type: object  required:  - portNumber  properties:  ipv4Addr:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'  ipv6Addr:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'  portNumber:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint16'  CacheStatus:  anyOf:  - type: string  enum: [HIT, MISS, EXPIRED]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API. |

NEXT CHANGE

## C.3.10 M1\_EventDataProcessingProvisioning API

|  |
| --- |
| openapi: 3.0.0  info:  title: M1\_EventDataProcessingProvisioning  version: 1.0.0  description: |  5GMS AF M1 Event Data Processing Provisioning API  © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  tags:  - name: M1\_EventDataProcessingProvisioning  description: '5G Media Streaming: Provisioning (M1) APIs: Event Data Processing Provisioning'  externalDocs:  description: 'TS 26.512 V17.1.0; 5G Media Streaming (5GMS); Protocols'  url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.512/'  servers:  - url: '{apiRoot}/3gpp-m1/v2'  variables:  apiRoot:  default: https://example.com  description: See 3GPP TS 29.512 clause 6.1.  paths:  /provisioning-sessions/{provisioningSessionId}/event-data-processing-configurations:  parameters:  - name: provisioningSessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Provisioning Session.'  post:  operationId: createEventDataProcessingConfiguration  summary: 'Supply an Event Data Processing Configuration for the specified Provisioning Session'  requestBody:  description: 'A JSON representation of a Event Data Processing Configuration'  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  responses:  '201':  description: 'Event Data Processing Configuration Created'  headers:  Location:  description: 'URL of the newly created Event Data Processing Configuration (same as request URL).'  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  /provisioning-sessions/{provisioningSessionId}/event-data-processing-configurations/{eventDataProcessingConfigurationId}:  parameters:  - name: provisioningSessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Provisioning Session.'  - name: eventDataProcessingConfigurationId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an Event Data Processing Configuration.'  get:  operationId: retrieveEventDataProcessingConfiguration  summary: 'Retrieve the specified Event Data Processing Configuration of the specified Provisioning Session'  responses:  '200':  description: 'Success'  content:  application/json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  put:  operationId: updateEventDataProcessingConfiguration  summary: 'Update the specified Event Data Processing Configuration for the specified Provisioning Session'  requestBody:  description: 'A JSON representation of a Event Data Processing Configuration'  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  responses:  '204':  description: 'Updated Event Data Processing Configuration'  '404':  description: 'Not Found'  patch:  operationId: patchEventDataProcessingConfiguration  summary: 'Patch the specified Event Data Processing Configuration for the specified Provisioning Session'  requestBody:  description: 'A JSON representation of a Event Data Processing Configuration'  required: true  content:  application/merge-patch+json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  application/json-patch+json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  responses:  '200':  description: 'Patched Event Data Processing Configuration'  content:  application/json:  schema:  $ref: '#/components/schemas/EventDataProcessingConfiguration'  '404':  description: 'Not Found'  delete:  operationId: destroyEventDataProcessingConfiguration  summary: 'Destroy the specified Event Data Processing Configuration of the specified Provisioning Session'  responses:  '204':  description: 'Destroyed Event Data Processing Configuration'  '404':  description: 'Not Found'  components:  schemas:  EventDataProcessingConfiguration:  type: object  required:  - eventDataProcessingConfigurationId  - eventId  - dataAccessProfiles  properties:  eventDataProcessingConfigurationId:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  eventId:  $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEvent'  authorizationUrl:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  dataAccessProfiles:  type: array  items:  $ref: 'TS26532\_Ndcaf\_DataReportingProvisioning.yaml#/components/schemas/DataAccessProfile' |

# C.5 OpenAPI representation of data reporting records

### C.5.1 R4 data reporting records

For the purpose of referencing entities defined in this clause, it shall be assumed that the OpenAPI definitions below are contained in a physical file named "TS26512\_R4\_DataReporting.yaml".

|  |
| --- |
| openapi: 3.0.0  info:  title: 5GMS Data Reporting data types  version: 1.0.0  description: |  5GMS Data Reporting data types  © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  tags:  - name: 5GMS Data Reporting data types  description: '5G Media Streaming: Data Reporting data types'  externalDocs:  description: 'TS 26.512 V17.1.0; 5G Media Streaming (5GMS); Protocols'  url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.512/'  paths: {}  components:  schemas:  MediaStreamingAccessRecord:  allOf:  - $ref: 'TS26532\_Ndcaf\_DataReporting.yaml#/components/schemas/BaseRecord'  - type: object  required:  - mediaStreamHandlerEndpointAddress  - applicationServerEndpointAddress  - requestMessage  - responseMessage  - processingLatency  properties:  mediaStreamHandlerEndpointAddress:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/EndpointAddress'  applicationServerEndpointAddress:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/EndpointAddress'  sessionIdentifier:  type: string  requestMessage:  type: object  required:  - method  - url  - protocolVersion  - size  - bodySize  properties:  method:  type: string  url:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  protocolVersion:  type: string  range:  type: string  size:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  bodySize:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  contentType:  type: string  userAgent:  type: string  userIdentity:  type: string  referer:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  cacheStatus:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/CacheStatus'  responseMessage:  type: object  required:  - responseCode  - size  - bodySize  properties:  responseCode:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  size:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  bodySize:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  contentType:  type: string  processingLatency:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'  connectionMetrics:  type: object  required:  - meanNetworkRoundTripTime  - networkRoundTripTimeVariation  - congestionWindowSize  properties:  meanNetworkRoundTripTime:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'  networkRoundTripTimeVariation:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'  congestionWindowSize:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger' |

NEXT CHANGE

Annex D (informative):  
5GMS AF API index

Table D-1: Index of Provisioning (M1) APIs

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| HTTP request path element hierarchy | Description | Allowed HTTP methods | | | | | Resource | OpenAPI |
| Create | Retrieve | Update | Destroy | Non-RESTful operation | structure definition clause | definition clause |
| provisioning-sessions | Provisioning Sessions collection | POST |  |  |  |  | 7.2.2 | C.3.1 |
| {provisioningSessionId} | Provisioning Session resource |  | GET |  | DELETE |  |
| certificates | Server Certificates collection | POST |  |  |  |  | 7.3.2 | C.3.2 |
| {certificateId} | Server Certificate resource |  | GET | PUT | DELETE |  |
| content-preparation-templates | Content Preparation Templates collection | POST |  |  |  |  | 7.4.2 | C.3.3 |
| {contentPreparationTemplateId} | Content Preparation Template resource |  | GET | PUT, PATCH | DELETE |  |
| content-protocols-discovery | Content Protocols resource |  | GET |  |  |  | 7.5.2 | C.3.4 |
| content-hosting-configuration | Content Hosting Configuration resource | POST | GET | PUT, PATCH | DELETE |  | 7.6.2 | C.3.5 |
| purge | Content Hosting cache purge operation |  |  |  |  | POST |
| consumption-reporting-configuration | Consumption Reporting Configuration resource | POST | GET | PUT, PATCH | DELETE |  | 7.7.2 | C.3.6 |
| metrics-reporting-configurations | Metrics Reporting Configuration collection | POST |  |  |  |  | 7.8.2 | C.3.7 |
| {metricsReportingConfigurationId} | Metrics Reporting Configuration resource |  | GET | PUT, PATCH | DELETE |  |
| policy-templates | Policy Templates collection | POST |  |  |  |  | 7.9.2 | C.3.8 |
| {policyTemplateId} | Policy Template resource |  | GET | PUT, PATCH | DELETE |  |
| event-data-processing-configurations | Event Data Processing Configuration collection | POST |  |  |  |  | 7.11.2 | C.3.10 |
| {event‌Data‌Processing‌ConfigurationId} | Event Data Processing Configuration resource |  | GET | PUT, PATCH | DELETE |  |

Annex E (normative):  
Controlled vocabularies of 5G Media Streaming UE data parameters

# E.1 General

The set of parameters used to provision processing and exposure of UE data is defined for each exposed Event by a controlled vocabulary with a unique name space identifier string in the form of a URN. Each parameter is specified as a term identifier string that is unique within the scope of its parent name space.

In the context of 5G Media Streaming, the values signalled in DataAccessProfile.parameters (see clause 6.3.2.3 of TS 26.532 [47]) shall be fully-qualified URIs formed from the name space identifier specified in the following clauses concatenated with a single hash character ('#') concatenated with the appropriate term identifier.

# E.2 Controlled vocabulary of DASH QoE metrics reporting parameters

The name space identifier for the controlled vocabulary of DASH QoE metrics is:

urn:‌3GPP:‌ns:‌PSS:‌DASH:‌QM10

and (for VR metrics):

urn:3gpp:metadata:2020:VR:metrics

The term identifiers in this controlled vocabulary shall be the set of key names defined in clause 10.2 of TS 26.247 [4] and clause 9.3 of TS 26.118 [42], using a single forward slash character ('/') as the hierarchical separator.

EXAMPLE: urn:‌3GPP:‌ns:‌PSS:‌DASH:‌QM10#AvgThroughput/numbytes

# E.3 Controlled vocabulary of 5GMS consumption reporting parameters

The name space identifier for the controlled vocabulary of 5GMS consumption reporting parameters is:

urn:3gpp:5gms:event-exposure:consumption-reporting

The term identifiers in this controlled vocabulary are specified in table E.3‑1 below.

EXAMPLE: urn:3gpp:5gms:event-exposure:consumption-reporting#locations

Table E.3-1: Controlled vocabulary of 5GMS consumption reporting parameters

| Term identifier | Description |
| --- | --- |
| start-time | The date and time of the consumption reporting unit. |
| duration | The duration of the consumption reporting unit. |
| media-player-entry | The entry pointer for the media streaming session. |
| reporting-client-identifier | Identifier for the reporting client that consumed the media. |
| media-consumed | Identifies the media consumed within the context of the media player entry. |
| media-base-url | The Base URL used to access the media consumed. |
| locations | The UE location(s) where the media was consumed.  (Only available to trusted event consumer.) |

# E.4 Controlled vocabulary of 5GMS Network Assistance reporting parameters

The name space identifier for the controlled vocabulary of 5GMS Network Assistance parameters is:

urn:3gpp:5gms:event-exposure:network-assistance

The term identifiers in this controlled vocabulary are specified in table E.4‑1 below.

EXAMPLE: urn:3gpp:5gms:event-exposure:network-assistance#requested-qos

Table E.4-1: Controlled vocabulary of 5GMS Network Assistance parameters

| Term identifier | Description |
| --- | --- |
| timestamp | The date and time of the Network Assistance invocation by the Media Session Handler. |
| service-data-flow-information | Identification of the media streaming application flow for which Network Assistance was requested. |
| policy-template-identifier | The policy template in force for the media streaming session. |
| requested-qos | The network Quality of Service requested by the media streamer. |
| recommended-qos | The network Quality of Service recommended by the 5GMS AF. |

# E.5 Controlled vocabulary of 5GMS Dynamic Policy reporting parameters

The name space identifier for the controlled vocabulary of 5GMS Dynamic Policy parameters is

urn:3gpp:5gms:event-exposure:dynamic-policy

The term identifiers in this controlled vocabulary are specified in table E.5‑1 below.

EXAMPLE: urn:3gpp:5gms:event-exposure:dynamic-policy#enforcement-bit-rate

Table E.5-1: Controlled vocabulary of 5GMS Dynamic Policy parameters

| Term identifier | Description |
| --- | --- |
| timestamp | The date and time of the dynamic policy invocation by the Media Session Handler. |
| policy-template-identifier | The policy template instantiated for the media streaming session. |
| service-data-flow-descriptions | The set of media streaming application flows managed by the Dynamic Policy. |
| qos-specification | The network Quality of Service described by the policy template currently in force. |
| enforcement-method | The Policy Enforcement Method set by the 5GMS AF. |
| enforcement-bit-rate | The bit rate currently being enforced by this Dynamic Policy. |

# E.6 Controlled vocabulary of 5GMS media access activity parameters

The name space identifier for the controlled vocabulary of 5GMS media access activity is:

urn:3gpp:5gms:event-exposure:access-activity

The term identifiers in this controlled vocabulary are specified in table E.6‑1 below.

EXAMPLE: urn:3gpp:5gms:event-exposure:access-activity#request-message/url

Table E.6-1: Controlled vocabulary of 5GMS media access activity parameters

| Term identifier | Description |
| --- | --- |
| timestamp | The date and time of the media access. |
| media-stream-handler-endpoint-address | The endpoint address of the Media Stream Handler accessing the 5GMS AS. |
| application-server-endpoint-address | The service endpoint on the 5GMS AS to which the Media Stream Handler is connected. |
| session-identifier | An opaque identifier for the HTTP session on which the Media Stream Handler request was made. |
| request-message | All term identifiers below prefixed request-message. |
| request-message/method | The request method. |
| request-message/url | The request URL. |
| request-message/protocol-version | The HTTP protocol version, e.g. "HTTP/1.1". |
| request-message/range | The value of the Range request header. |
| request-message/size | The total number of bytes in the request message. |
| request-message/body-size | The number of bytes supplied by the Media Stream Handler in the HTTP request body. |
| request-message/content-type | The MIME content type of the request message, if any. |
| request-message/user-agent | A string describing the requesting Media Stream Handler from the User-Agent request header. |
| request-message/user-identity | A string identifying the user that made the access. |
| request-message/referer | The URL that the Media Player reports being referred from in the Referer request header. |
| cache-status | An indication of whether the 5GMS AS served the response object corresponding from cache. |
| response-message | All term identifiers below prefixed response-message. |
| response-message/response-code | The HTTP response code. |
| response-message/size | The total number of bytes in the response message. |
| response-message/body-size | The number of bytes in the HTTP response message body. |
| response-message/content-type | The MIME content type of response message. |
| processing-latency | The time, expressed in milliseconds, taken by the 5GMS AS to respond to the Media Stream Handler request. |
| connection-metrics | All term identifiers below prefixed connection-metrics. |
| connection-metrics/mean-rtt | Mean network round-trip time for the HTTP session, expressed in milliseconds. |
| connection-metrics/rtt-variation | The variation in mean network round-trip time, expressed in milliseconds. |
| connection-metrics/congestion-window-size | The current size (in bytes) of the congestion window for the transport connection underlying the HTTP session. |

END OF CHANGES