**3GPP TSG-S4 Meeting #128 S4-240924**

**Jeju, Korea, May 20th - 24th, 2024**

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| *CR-Form-v12.2* |
| **PSEUDO CHANGE REQUEST** |
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|  | **26.510** | **CR** |  | **rev** |  | **Current version:** | **1.2.3** |  |
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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:***  | pCR on Defining the Notification Channel to the MSH |
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| ***Source to WG:*** | Qualcomm Inc. |
| ***Source to TSG:*** | S4 |
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| ***Work item code:*** | 5GMS\_Pro\_Ph2 |  | ***Date:*** | 14th May 2024 |
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| ***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:*** | The procedure for notifications between the MSH and the Media AF is underspecified and may not be implemented in an interoperable manner. |
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| ***Summary of change:*** | Add reference to the MQTT specification. Generalize the notification procedure to carry different types of notifications and to clearly identify the related session. |
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| ***Consequences if not approved:*** | The usage of the notification procedure will remain ambiguous and interoperability cannot be guaranteed. |
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| ***Clauses affected:*** | 2, 5.3.2.1, 5.3.2.3, 5.3.3.1, 5.3.4.1, 9.2.3.1, 9.3.3.1, 9.4.3.1, 9A (new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **First Change** |

# 2 References

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

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[MQTT] OASIS: "MQTT Version 5.0",
<https://docs.oasis-open.org/mqtt/mqtt/v5.0/mqtt-v5.0.html>

[RFC7519] IETF RFC 7519: "JSON Web Token (JWT)", May 2015.

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| **2nd Change** |

#### 5.3.2.1 General

Service Access Information is the set of parameters and addresses needed by the Media Client to activate reception of a downlink media delivery session or to activate an uplink media delivery session for content contribution.

The Media Session Handler may obtain Service Access Information in one of two ways:

1. From the Media-aware Application via reference point M6. In this case, the Service Access Information is initially acquired by the Media-aware Application from the Media Application Provider via reference point M8 and the Media-aware Application shall pass the parameters to the Media Session Handler using one of the session launch mechanisms specified in clause 10.2.

2. From the Media AF via reference point M5. In this case, the Service Access Information is derived by the Media AF from a Provisioning Session established at reference point M1 and the Media AF exposes this to the Media Session Handler using the operations specified in this clause. At the start of a media delivery session, a minimal set of baseline Service Access Information parameters is passed to the Media Session Handling using one of the session launch mechanisms specified in clause 10.2 and this causes it to fetch the full Service Access Information from the Media AF using the procedure specified in clause 5.3.2.3.

 The Service Access Information resource may include an MQTT [MQTT] endpoint address that allows the Media Session Handler to subscribe to receive asynchronous notifications from the Media AF concerning updates to Service Access Information. The usage and message formats for MQTT are described in clause 9A.2.

The data model of the Service Access Information resource acquired by the Media Session Handler of the Media Client is specified in clause 9.2.3.

Typically, the Service Access Information for media streaming according to TS 26.512 [26512] includes a set of Media Entry Points that can be consumed by the Media Access Function. One of these is selected by the Media Session Handler or by the Media-aware Application and is handed to the Media Access Function via reference point M11 or M7 respectively.

The Service Access Information for RTC according to TS 26.113 [26113] specifies a configuration for the Media Client to assist in establishing interactive connectivity with other RTC session participants.

Service Access Information additionally includes configuration information to allow the Media Session Handler to invoke procedures for dynamic policy (see clause 5.3.3), network assistance (clause 5.3.4), QoE metrics reporting (clause 5.3.5) and consumption reporting (clause 5.3.6).

If an Edge Resources Configuration with client-driven management (EM\_CLIENT\_DRIVEN) is provisioned in the applicable Provisioning Session (see clause 5.2.6), the Media AF shall convey a Client Edge Resources Configuration to the Media Session Handler as part of the Service Access Information it provides at reference point M5.

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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| **2nd Change** |

#### 5.3.2.3 Retrieve Service Access Information resource operation

This operation shall be used by the Media Session Handler to acquire Service Access Information from the Media AF. The Media Session Handler shall use the GET method for this purpose, citing the external service identifier associated with the target Provisioning Session (see clause 5.2.3) in the request URL. The request message body shall be empty.

If successful, the Media AF shall reply with a 200 (OK) HTTP response message that includes a representation of the Service Access Information associated with the target media streaming session resource in the response message body, along with HTTP response headers in line with clause 7.1.3.2.

Once it has obtained an initial set of Service Access Information, the Media Session Handler should periodically check for updated Service Access Information by issuing a conditional HTTP GET request in line with clause 7.1.3.2. The periodicity of polling for updated Service Access Information shall be guided by the value of the Expires and/or Cache-control: max-age headers that shall be included along with every response message for this operation.

If the notificationURL property is populated in the Service Access Information resource, the Media Session Handler should subscribe to the MQTT notification channel in order to receive asynchronous notifications of updates to the Service Access Information resource. The usage and message formats for MQTT are described in clause 9A.2. On receiving such a notification, the Media Session Handler should retrieve the updated Service Access Information resource using a conditional HTTP GET request in line with clause 7.1.3.2.

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| **2nd Change** |

#### 5.3.3.1 Procedures

To take advantage of the Dynamic Policy feature of the Media Delivery System, a Media Session Handler instantiates a Policy Template that was previously provisioned within the scope of a Provisioning Session using the operations specified in clause 5.2.7. The parameters in the Policy Template are used by the Media AF in combination with a dynamic QoS specification supplied by the Media Session Handler to request specific QoS and/or charging policies from the PCF (either directly or via the NEF, as specified in clause 5.5.2) for that media delivery session.

The following procedures are followed by a Media Session Handler to manage Dynamic Policy Instance resources in the Media AF via reference point M5. Instantiating a Policy Template as a dynamic policy requires a Policy Template identifier (provided in Service Access Information that is either retrieved from the Media AF using the operation specified in clause 5.3.2.3 or else supplied via reference point M6), a set of Service Data Flow description(s), an optional dynamic QoS specification and potentially other parameters defined in clause 5.7 of TS 26.501 [26501].

- The Policy Template identifier identifies the desired Policy Template (as previously provisioned per clause 5.2.7.3) to be applied to the specified application flow(s). A Policy Template includes properties such as specific QoS (e.g. background data) or different charging treatments.

- The Media AF combines the information from the Policy Template with dynamic QoS specification supplied by the Media Session Handler and uses this complete set of parameters to invoke the PCF according to clause 5.5.2.

- The set of Service Data Flow description(s) allow the identification and classification by the 5G System of the application traffic involved in a media delivery session. These take the form of an IP packet filter set (as defined in clause 5.7.6 of [23501]) or the Fully-Qualified Domain Name (FQDN) of a Media AS at reference point M4.

NOTE: It is not defined in this release how a Media AF in an external Data Network selects a specific DNN or S‑NSSAI.

Application Identifiers, referring to one or more Packet Flow Descriptions (PFDs), may be used as alternative traffic filtering parameters for dynamic policy invocation. The Media AF shall first provision a PFD in the NEF's PFD Function (PFDF) for one or more (external) Application IDs by sending an HTTP POST message to the NEF as specified in clause 4.4.10 of TS 29.122 [29122]. The mapping between the (external) Application Identifiers and PFDs stored in the PFDF will then be pushed to or pulled from the SMF and installed in the UPF for future traffic identification.

The Dynamic Policy Instance resource created as a result of instantiating a Policy Template may include an MQTT [MQTT] endpoint address that allows the Media Session Handler to subscribe to receive asynchronous notifications from the Media AF concerning Background Data Transfer opportunities available in relation to that Dynamic Policy Instance. The usage and message formats for MQTT are described in clause 9A.2. On receiving such a notification, the Media Session Handler should retrieve the updated Dynamic Policy Instance resource using a conditional HTTP GET request in line with clause 7.1.3.2.

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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| **3rd Change** |

#### 5.3.4.1 Procedures

The following procedures are followed by the Media Session Handler to request Network Assistance from one of the Media AF instances listed in the serverAddresses property of the Network Assistance Configuration which is part of the Service Access Information that is either retrieved from the Media AF using the operation specified in clause 5.3.2.3 or else supplied via reference point M6.

1. The Media Client first creates a Network Assistance Session with its chosen Media AF instance. It provides information that will later be used by the Media AF to request a particular network QoS to be applied by the PCF to one or more application data flows, and to recommend a bit rate to the Media Client. The Media AF assigns a resource identifier to the Network Assistance Session at the point of creation. This procedure is further specified in clause 5.3.4.2.

 When a Network Assistance Session is created, the responding Media AF instance may nominate an MQTT [MQTT] endpoint URL in the notificationURL property in the Network Assistance Session resource representation it returns to the Media Session Handler. If this property is present, the Media Session Handler shall subscribe to the MQTT channel provided at the indicated endpoint and shall expect to receive notifications from the Media AF of type M5QoSSpecification with an up-to-date bit rate recommendation whenever this changes. The usage and message formats for MQTT are described in clause 9A.2. On receiving such a notification, the Media Session Handler should retrieve the updates Network Assistance Session resource using a conditional HTTP GET request in line with clause 7.1.3.2.

2. The Network Assistance Session resource may be retrieved by the Media Session Handler using the procedure specified in clause 5.3.4.3.

3. At any time after the Network Assistance Session resource is created, the Media Client may use the Network Assistance Session resource identifier to explicitly request a bit rate recommendation by invoking a remote procedure call provided for this purpose by the Media AF. This procedure is further specified in clause 5.3.4.4.

4. Using the Network Assistance Session resource identifier, the Media Client may also request a delivery boost to be provided by the 5G System at any time by invoking a remote procedure call provided for this purpose by the Media AF. This procedure is further specified in clause 5.3.4.5.

5. The information provided when first creating a Network Assistance Session may be modified subsequently by the Media Session Handler using the session modification operation specified in clause 5.3.4.6.

6. In order to terminate a Network Assistance Session, the Media Client destroys the Network Assistance Session resource using the procedure specified in clause 5.3.4.7.

Details of the APIs supporting these procedures at reference point M5 are specified in clause 9.4.

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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| **3rd 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. |
| locationReporting | boolean | 1..1 | RO | If true, the Media Session Handler is required to provide UE location data in Dynamic Policy interactions (see clause 9.3.3.1), Network Assistance interactions (see clause 9.4.3.1), QoE metrics reporting interactions (see clause 9.5.3) and consumption reporting interactions (see clause 9.6.3.2).Shall be set false if the locationReporting parameter is omitted from the ProvisioningSession, as specified in table 8.2.3.1‑1. | All types. |
| notficationURL | AbsoluteUrl | 0..1 | C: ROR: ROU: RO | An MQTT channel URL, nominated by the Media AF, over which notifications pertaining to this Service Access Information resource are to be sent by the Media AF. | All types |
| streamingAccess | object | 0..1 | RO | Present if Content Hosting or Content Publishing is provisioned in the parent Provisioning Session. | MS\_DOWNLINK,MS\_UPLINK |
|  | 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 | Populated from information in the Content Hosting Configuration or Content Publishing Configuration as specified in clause 8 of TS 26.512 [26512].For downlink media streaming, either a pointer to a document at reference point M4 that defines a media presentation (e.g. a DASH MPD) whose resources are mapped to a content ingest configuration at reference point M2, or else the URL of a single media resource (e.g. an MP4 asset) available for download at reference point M4 that is mapped to reference point M2 by a Content Hosting Configuration. In both cases, the contentType property shall also be present.For uplink media streaming, either a pointer to a document at reference point M4 that defines a media presentation (e.g. a DASH MPD) whose resources are mapped to an egest configuration at reference point M2 (in which case the contentType property shall also be present), or else the URL of a path at reference point M4 the sub-resources of which are mapped to reference point M2 by a Content Publishing Configuration (in which case the protocol property shall also be present). |
|  |  | contentType | string | 1..1 | RO | The MIME content type of resource at locator.This property shall be mutually exclusive with *protocol*. |  |
|  |  | protocol | Uri | 1..1 | RO | A fully-qualified term identifier URI that identifies the media delivery protocol at reference point M4 for this Media Entry Point.This property shall be mutually exclusive with *contentType*.The controlled vocabulary of media delivery protocols at this reference point is specified in clause 10 of TS 26.512 [26512]. |  |
|  |  | 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. |  |
|  | mbs‌External‌Service‌Identifier | string | 0..1 | RO | The external service identifier of an MBS User Service. |  |
| clientConsumptionReporting‌Configuration | object | 0..1 | RO | Present if consumption reporting is activated for this Provisioning Session. | MS\_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 1).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. |  |
|  |  | 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 8.12.3.1‑1. |  |
|  |  | 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 8.12.3.1‑1. |  |
| 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. | MS\_DOWNLINK,MS\_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 1.)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. |  |
|  |  | bdtWindows | array(BDTWindow) | 0..1 | RO | A list of Background Data Transfer time windows during which the application may request the activation of a Background Data Transfer policy by instantiating the Policy Template identified by policyTemplateId. The actual usage quotas for data volume and bit rate are determined by the Media AF upon instantiation of the Policy Template by the Media Session Handler.BDTWindow is specified in clause 7.3.3.14. |  |
|  | 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. | MS\_DOWNLINK,MS\_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 8.11.3.1). |
|  | serverAddresses | array(AbsoluteUrl) | 1..1 | RO | A list of Media AF addresses to which metrics reports shall be sent. (See NOTE 1).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. |
|  | sliceScope | array(Snssai) | 0..1 | RO | The set of network slice(s) for which metrics collection and reporting shall be executed in connection with this metrics reporting configuration (see NOTE 2).If present, the array shall identify at least one network slice.If absent, metrics shall be collected and reported for media delivery sessions within the scope of the parent Provisioning Session regardless of network slice. |
|  | scheme | Uri | 1..1 | RO | A URI identifying the metrics scheme that metrics reports shall use (see clause 5.2.11).The set of QoE metrics schemes valid for use in 5G Media Streaming along with their respective scheme identifiers is specified in clauses 4.7.5 and 7.8.1 of TS 26.512 [26512].The QoE metrics scheme valid for use in RTC along with its respective scheme identifier is specified in clause 15 of TS 26.113 [26113]. |
|  | dataNetworkName | Dnn | 0..1 | RO | The name of the Data Network which shall be used to send metrics reports.If not specified, the default Data Network shall be used. |
|  | reportingStartOffset | DurationSec | 0..1 | RO | The time offset (expressed in seconds) from the start of a media delivery session when the Media Client is required to begin submitting metrics reports.If omitted, the value of this parameter is assumed to be zero, i.e., directing the Media Client to start reporting metrics from the start of the media delivery session. |
|  | reportingDuration | DurationSec | 0..1 | RO | The period of time (expressed in seconds) measured relative to the reporting start point, after which the Media Client is required to stop reporting metrics.If omitted, reporting is required to continue until the end of the media delivery session. |
|  | 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(Uri) | 0..1 | RO | A list of one or more QoE metrics, each indicated by a fully-qualified term from a controlled vocabulary, which shall be reported.If omitted, 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. | MS\_DOWNLINK,MS\_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 1.)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. | MS\_DOWNLINK,MS\_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 7.3.3.10.) |
|  | 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 1: 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.NOTE 2: The Snssai data type is specified in TS 29.571 [29571]. |

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| **3rd Change** |

#### 9.3.3.1 DynamicPolicy resource

Table 9.3.3.1-1: Definition of Dynamic Policy Instance resource

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| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| dynamicPolicyId | ResourceId | 1..1 | RO | Unique identifier for this Dynamic Policy assigned by the Media AF when the resource is created. |
| provisioningSessionId | ResourceId | 1..1 | C: ROR: ROU: RO | Uniquely identifies the parent Provisioning Session, which is linked to the Application Service Provider. |
| session‌Id | MediaDelivery‌SessionId | 1..1 | C: RWR:ROU: RO | Unique identifier of the current media delivery session assigned by the Media Session Handler. |
| policyTemplateId | ResourceId | 1..1 | C: RWR: ROU: RW | Identifies the Policy Template to be applied to the application flow(s). |
| sliceInfo | Snssai | 0..1 | C: RWR: ROU: RW | Identifying the target slice in which the Policy Template is instantiated. |
| dataNetworkName | Dnn | 0..1 | C: RWR: ROU: RW | The name of the target Data Network in which the Policy Template is instantiated. |
| location | TypedLocation | 0..1 | C: RWR: ROU: RW | The location of the UE when the Dynamic Policy was created or last updated. |
| serviceDataFlowDescriptions | array(Service‌Data‌Flow‌Description) | 1..1 | C: RWR: ROU: RW | Describes the Service Data Flows managed by this Dynamic Policy. |
| mediaType | MediaType | 0..1 | C: RWR: ROU: RW | The type of media carried by the application flows listed in service‌DataFlow‌Descriptions. |
| qosSpecification | M5‌QoS‌Specification | 0..1 | C: RWR: ROU: RW | The network Quality of Service requirements of this Dynamic Policy (see clause 7.3.3.6). |
| bdtSpecification | M5‌BDT‌Specification | 0..1 | C: RWR: ROU: RW | The Background Data Transfer time windows and traffic limits that apply to this Dynamic Policy. |
| qosEnforcement | boolean | 1..1 | C: ROR: ROU: RO | Indication that the Quality of Service described in qosSpecification is being enforced by the 5G System.Populated by the Media AF. |
| notficationURL | AbsoluteUrl | 0..1 | C: ROR: ROU: RO | An MQTT channel URL, nominated by the Media AF, over which notifications pertaining to this Dynamic Policy resource are to be sent by the Media AF. |

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| **3rd Change** |

#### 9.4.3.1 NetworkAssistanceSession resource

Table 9.4.3.1-1: Definition of NetworkAssistanceSession resource

| Property name | Type | Cardinality | Usage | Description |
| --- | --- | --- | --- | --- |
| naSessionId | ResourceId | 1..1 | C: ROR: ROU: RO | Unique identifier for this Network Assistance Session assigned by the Media AF when the resource is created. |
| provisioningSessionId | ResourceId | 1..1 | C: ROR: ROU: RO | Uniquely identifies the parent Provisioning Session, which is linked to the Application Service Provider. |
| session‌Id | MediaDelivery‌SessionId | 1..1 | C: RWR:ROU: RO | Unique identifier of the current media delivery session assigned by the Media Session Handler. |
| sliceInfo | Snssai | 0..1 | C: RWR: ROU: RW | Identifying the target network slice in which Network Assistance is sought. |
| dataNetworkName | Dnn | 0..1 | C: RWR: ROU: RW | The name of the target Data Network in which Network Assistance is sought. |
| location | TypedLocation | 0..1 | C: RWR: ROU: RW | The location of the UE when the Network Assistance Session was created or last updated. |
| serviceDataFlowDescriptions | array(Service‌Data‌Flow‌Description) | 1..1 | C: RWR: ROU: RW | Identifying one or more application flows for which Network Assistance is sought, e.g. 2‑tuple (IP addresses) or 5-tuple (IP Addresses, protocol and ports). |
| mediaType | MediaType | 0..1 | C: RWR: ROU: RW | The type of media carried by the application flows listed in service‌DataFlow‌Descriptions. |
| policyTemplateId | ResourceId | 0..1 | C: RWR: ROU: RW | Identification of the policy (if any) that is currently in force for the media delivery session. |
| requestedQoS | M5QoSSpecification | 0..1 | C: RWR: ROU: RW | The QoS parameters requested by the Media Session Handler. |
| recommendedQoS | M5QoSSpecification | 0..1 | C: ROR: ROU: RO | The QoS parameters currently recommended by the Media AF. |
| notficationURL | AbsoluteUrl | 0..1 | C: ROR: ROU: RO | An MQTT channel URL, nominated by the Media AF, over which notifications pertaining to this Network Assistance Session resource are to be sent by the Media AF. |

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| **4th Change** |

# 9A Ancillary network media session handling services

## 9A.1 Overview

This clause specifies ancillary network media session handling services used by a Media AS at reference point M3 or by a Media Session Handler at reference point M5 to interact with the Media AF.

## 9A.2 Resource update notification channel

### 9A.2.1 General

The Media Session Handler and the Media AF shall support the usage of an MQTT notification channel that is used by the Media AF to notify the Media Session Handler about updates to certain resources specified in clause 9. For this purpose, the MQTT protocol [MQTT] shall be used over TLS as specified below.

For each ongoing media delivery session that provides a URL to a notification channel, the Media Session Handler shall subscribe to that MQTT notification channel.

The Media AF shall use a trusted MQTT broker for the exchange of these notifications. The MQTT broker shall use appropriate client authentication mechanisms, such as a token-based authentication mechanism (JWT) [RFC7519] to secure access to the notification channel.

The MQTT Topics shall be structured as defined in clause 9A.2.2.

The MQTT Messages shall be formated according to clause 9A.2.3.

### 9A.2.2 Usage of MQTT Topics

The Topic shall be formatted according to the following ABNF syntax:

Topic= provisioningSessionId "/" client\_id "/" media\_delivery\_session\_id

Where:

* provisioningSessionId is the Provisioning Session identifier associated with the notifications over this notification channel.
* The client\_id is a unique identifier that is assigned by the Media AF to the MSH in the client.
* media\_session\_id is a unique identifier, assigned by the Media AF to a media streaming session.

The Media Session Handler shall at least subscribe to the {provisioningSessionId}/# topic, enabling the reception of all notification messages that are associated with a particular Provisioning Session.

### 9A.2.3 Notification message format

The Media AF shall format each notification it publishes to the Media Session Handler as an MQTT Application Message conveyed as the payload of an MQTT PUBLISH message.

- The *Topic* property of the Variable Header shall be as specified in clause 9A.2.2.

- The *Payload Format Indicator* property of the Variable Header shall indicate UTF-8 encoding of the *Payload* field.

The notification message shall be conveyed in the *Payload* field which shall be a formatted as a NotificationMessage JSON [JSON] object using the UTF‑8 character encoding as specified in table 9A.2.3-1. The object shall include the resource identifier of the resource to which the notification pertains. The Media Session Handler may then retrieve the updated resource using the indicated resource identifier.

Table 9A.2.3‑1: NotificationMessage data type

|  |  |  |  |
| --- | --- | --- | --- |
| Property name | Type | Cardinality | Description |
| type | NotificationMessageType | 1..1 | The type of notification message (see table 9A.2.3‑2). |
| resourceId | ResourceId | 1..1 | The resource identifier of the resource that has been modified. |

Table 9A.2.3‑2: NotificationMessageType enumeration

|  |  |
| --- | --- |
| Enumeration value | Description |
| NOTIFICATION\_‌SERVICE\_‌ACCESS\_‌INFORMATION | Notification of a change to a Service Access Information resource. |
| NOTIFICATION\_‌DYNAMIC\_POLICY\_‌INSTANCE | Notification of a change to a Dynamic Policy Instance resource. |
| NOTIFICATION\_‌NETWORK\_‌ASSISTANCE\_‌SESSION | Notification of a change to a Network Assistance Session resource. |