**3GPP SA4#127-bis-eS4-240569**

Online, 08-12 Apr 2024 revision of S4aI240035

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| *CR-Form-v12.2* |
| **PSEUDO CHANGE REQUEST** |
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|  | **26.510** | **CR** | pseudo | **rev** |  | **Current version:** | 1.1.4 |  |
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| *For* [***HELP***](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:***  | Signalling M4 contribution protocol |
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| ***Source to WG:*** | Tencent Cloud |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5GMS\_Pro\_Ph2 |  | ***Date:*** | 2024-01-20 |
|  |  |  |  |  |
| ***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 contribution protocol is missing in SAI. |
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| ***Summary of change:*** | Added the followings properties:1. Table 7.3.3.12-1: protocol
2. Table 8.3.3.1-1: uplinkContributionProtocols
3. Table 8.9.3.1-1: protocol.
4. Table 9.2.3.1-1: protocol.
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| ***Consequences if not approved:*** | Uplink streaming would not work. |
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| ***Clauses affected:*** |  |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** | Initial version: S4aI240035, presented at MBS adhoc, and agreed on the approach. |

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| **1st Change** |

#### 7.3.3.12 M1MediaEntryPoint type

Table 7.3.3.12-1: Definition of type M1MediaEntryPoint

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| --- | --- | --- | --- |
| Property name | Data type | Cardinality | Description |
| relativePath | RelativePath | 1..1 | A relative path (i.e., without a scheme or any leading forward slash characters) to the Media Entry Point document resource.The semantics are dependent on the value of the contentType property. |
| contentType | string | 1..1 | The MIME content type of this Media Entry Point. (See NOTE.) |
| protocol | Uri | 1..1 | A fully-qualified term identifier URI that identifies the media delivery protocol at reference point M4 for this Media Entry Point. (See NOTE.) |
| profiles | array(Uri) | 0..1 | An optional list of conformance profile identifiers associated with this Media Entry Point, each one expressed as a URI. A profile URI may indicate an interoperability point, for example.If present, the array shall contain at least one item. |
| NOTE: Exactly one of these properties shall be present. |

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| **2nd Change** |

#### 8.3.3.1 ContentProtocols resource

Table 8.3.3.1-1: Definition of ContentProtocols resource

| Property name | Data Type | Cardinality | Description |
| --- | --- | --- | --- |
| downlinkIngestProtocols | array(Content‌Protocol‌Descriptor) | 0..1 | An array of ContentProtocolDescriptor objects, as specified in clause 8.3.3.2, each one uniquely identifying a content ingest protocol supported at reference point M2 by the Media AS(s) associated with the target Media AF. |
| uplinkEgestProtocols | array(Content‌Protocol‌Descriptor) | 0..1 | An array of ContentProtocolDescriptor objects, as specified in clause 8.3.3.2, each one uniquely identifying a content egest protocol supported at reference point M2 by the Media AS instance(s) associated with the target Media AF. |
| downlink‌Contribution‌Protocols | array(Content‌Protocol‌Descriptor | 0..1 | An array of ContentProtocolDescriptor objects, as specified in clause 8.3.3.2, each one uniquely identifying a distribution protocol supported at reference point M4 by the Media AS instance(s) associated with the target Media AF. |
| uplink‌Contribution‌Protocols | array(Content‌Protocol‌Descriptor | 0..1 | An array of ContentProtocolDescriptor objects, as specified in clause 8.3.3.2, each one uniquely identifying a contribution protocol supported at reference point M4 by the Media AS instance(s) associated with the target Media AF. |
| geoFencingLocatorTypes | array(Uri) | 0..1 | An array of fully-qualified term identifiers, each one indicating a content geo-fencing locator type supported at reference point M2 by the Media AS instance(s) associated with the target Media AF. (See clause B.1.) |

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| **3rd Change** |

#### 8.8.3.1 ContentHostingConfiguration resource

Table 8.8.3.1-1: Definition of ContentHostingConfiguration resource

| Property name | Data Type | Cardinality | Description |
| --- | --- | --- | --- |
| name | string | 1..1 | A name for this Content Hosting Configuration. |
| ingestConfiguration | Ingest‌Configuration | 1..1 | Parameters for ingesting media content into the Media AS at reference point M2. |
|  | mode | Content‌Transfer‌Mode | 1..1 | Indicates whether media content is pulled by the Media AS from the Media Application Provider's origin server or pushed into the Media AS by the Media Application Provider (see clause 7.3.4.5). |
|  | protocol | Uri | 1..1 | A fully-qualified term identifier URL that identifies the content ingest protocol.The controlled vocabulary of content ingest protocols is not specified in the present document. |
|  | baseURL | AbsoluteUrl | 0..1 | A base URL (i.e., one that includes a scheme, authority and, optionally, path segments) from which content is ingested at reference point M2 for this ingest configuration.In the case of pull-based content ingest (mode is set to PULL), the base URL shall be provided to the Media AF to indicate the location from which content is to be pulled. A request received at reference point M4 is mapped by the Media AS to a URL at reference point M2 whose base is the value of this property.In the case of push-based content ingest (method is set to PUSH), this property shall be populated by the Media AF and returned to the Media Application Provider to indicate the base URL to which content for this Content Hosting Configuration is to be published. |
| distributionConfigurations | array(Distribution‌Configuration) | 1..1 | Specifies the distribution method and configuration for the ingested content.The array shall contain at least one member. Hence, more than one distribution may be configured for the same ingested content, e.g. to offer different distribution configurations such as DASH and HLS. |
|  | supplementary‌Distribution‌Networks | array(<Distribution‌NetworkType, DistributionMode> | 0..1 | Indicates that the content for this distribution configuration is to be distributed via one of more supplementary networks. Each member of the array is a duple mapping a type of distribution network to a mode of distribution.The same DistributionNetworkType value shall appear at most once in this array. |
|  | edgeResources‌ConfigurationId | ResourceId | 0..1 | A reference to an Edge Resources Configuration resource (see clause 8.6.2).When present, indicates that the Media AS supporting this content distribution shall be realised as a set of one or more EAS instances configured per the referenced resource. |
|  | content‌Preparation‌TemplateId | ResourceId | 0..1 | A reference to a Content Preparation Template resource (see clause 8.5.2).Indicates that the referenced content preparation is required prior to distribution. |
|  | certificateId | ResourceId | 0..1 | A reference to a Server Certificate resource (see clause 8.4.3.2).When content is distributed using TLS [TLS13], the referenced X.509 [X509] certificate for the origin domain is presented by the Media AS in the TLS handshake at reference point M4. This attribute indicates the identifier of the certificate to use. |
|  | canonical‌Domain‌Name | string | 1..1 | All resources exposed at reference point M4 shall be accessible through this default Fully-Qualified Domain Name assigned by the Media AF. |
|  | domainNameAlias | string | 0..1 | The Media Application Provider may assign another Fully-Qualified Domain Name (FQDN) through which media resources within the scope of this distribution configuration are additionally accessible from the Media AS at reference point M4.This domain name is used by the Media AS to set appropriate CORS HTTP response headers at reference point M4.If this property is present, the Media Application Provider is responsible for providing in the DNS a CNAME record that resolves domainNameAlias to canonical‌Domain‌Name.If the certificateId property is also present in this distribution configuration, the provided domain name alias shall match one of the subjectAltName extension fields in the referenced Server Certificate resource, allowing for wildcard matching. |
|  | baseURL | AbsoluteUrl | 1..1 | A base URL (i.e., one that includes a scheme, authority and, optionally, path segments) from which content is made available to Media Clients at reference point M4 for this distribution configuration.The value is chosen by the Media AF when the Content Hosting Configuration is provisioned. It is an error for the Media Application Provider to set this. |
|  | entryPoint | M1‌Media‌Entry‌Point | 0..1 | The Media Entry Point nominated by the Media Application Provider for this distribution configuration when it is used to describe a single content item (see clause 7.3.3.12).Omitted when this distribution configuration describes multiple content items. |
|  |  | relativePath | RelativeUrl | 1..1 | A relative path (i.e., without a scheme or any leading forward slash characters) to the Media Entry Point document resource. The semantics are dependent on the value of ingestConfiguration.protocol.The path shall be valid at reference point M2 when appended to the ingest base URL and at reference point M4 when appended to the distribution base URL. |
|  |  | contentType | string | 1..1 | The MIME content type of the Media Entry Point.Used by the Media Client to select a Media Entry Point. |
|  |  | protocol | Uri | 0..0 | This property shall not be present in a distribution configuration. |
|  |  | profiles | array(Uri) | 0..1 | An optional list of conformance profile identifiers associated with the Media Entry Point, each one expressed as a URI. A profile URI may indicate an interoperability point, for example.Used by the Media Client to select a Media Entry Point.If present, the array shall contain at least one item. |
|  | pathRewriteRules | array(Path‌Rewrite‌Rule) | 0..1 | An ordered list of rules for rewriting the request URL paths of media resource requests handled by the Media AS at reference point M4 and translating them to URL paths at reference point M2.If multiple rules match a particular resource’s path, only the first matching rule, in order of appearance in this array, shall be applied. |
|  |  | requestPathPattern | string | 1..1 | A regular expression [ECMA262] against which the path part of each Media AS request URL, including the leading “/”, and up to and including the final “/”, shall be compared. (Any leaf path element following the final “/” shall be excluded from this comparison.)In the case of pull-based content ingest, the M4 download request path is used in the comparison.In the case of push-based content ingest, the M2 upload request path is used in the comparison.In either case, if the request path matches this pattern, the path mapping specified in the corresponding mappedPath shall be applied. |
|  |  | mappedPath | string | 1..1 | A replacement for the portion of the Media AS request path that matches requestPathPattern.In the case of pull-based content ingest, ingestConfiguration.entryPoint is concatenated with the mapped path and any leaf path element from the original M4 download request to form the M2 origin request URL.In the case of push-based content ingest, canonical‌Domain‌Name (and, optionally, domain‌Name‌Alias) are concatenated with the mapped path and any leaf path element from the original M2 upload request to form the distribution URL(s) exposed over reference point M4. |
|  | cachingConfigurations | array(Caching‌Configuration) | 0..1 | A set of configurations of the Media AS content cache nominated by the Media Application Provider, each one affecting a matching subset of media resources ingested in relation to this Content Hosting Configuration. (See clause 7.3.3.13.)If present, the array shall have at least one member. |
|  |  | urlPatternFilter | string | 1..1 | A pattern used to match media resource URLs at reference point M2 to determine whether a given media resource ingested by the Media AS is eligible to be cached by it. The format of the pattern shall be a regular expression as specified in [ECMA262]. |
|  |  | cachingDirectives | object | 1..1 | If a urlPatternFilter applies to a resource, then the provided cachingDirectives shall be applied by the Media AS at reference point M4, potentially overwriting any origin caching directives provided by the Media Application Provider when that resource is ingested at reference point M2. |
|  |  |  | statusCodeFilters | array(integer) | 0..1 | The set of HTTP origin response status codes at reference point M2 to which these cachingDirectives apply.If the property is present, the array shall contain at least one item.If absent, the enclosing cachingDirectives shall apply to all HTTP origin response status codes. |
|  |  |  | noCache | boolean | 0..1 | If set to true, indicates that the media resources matching the filters shall be marked by the Media AS as not to be cached when it servers such media resources at reference point M4.Default value if omitted: false. |
|  |  |  | maxAge | Uint32 | 0..1 | The caching time-to-live period, expressed in seconds, of ingested media resources matching the filters. This determines the minimum period for which the Media AS shall cache matching media resources. If noCache is false, it also determines the time-to-live period signalled by the Media AS at reference point M4 when it serves such media resources.The time-to-live for a given media resource shall be calculated relative to the time it was ingested by the Media AS. |
|  | geoFencing | object | 0..1 | Directives limiting access to the content to the indicated geographic areas (see NOTE 1). |
|  |  | locatorType | Uri | 1..1 | The type of the members of the locators array shall be indicated using a fully-qualified term identifier URI from the controlled vocabulary specified in clause B.1, or else from a vendor-specific vocabulary. |
|  |  | locators | array(string) | 1..1 | Array of locators from which access to the resources is to be allowed. The format of the locator strings shall be determined by the semantics of the term identifier indicated in locatorType. |
|  | urlSignature | object | 0..1 | Defines the URL signing scheme to be enforced by the Media AS at reference point M4 (see NOTE 2). When present, only correctly signed and valid URLs are permitted to access the content resources within the scope of the enclosing distribution configuration. |
|  |  | urlPattern | string | 1..1 | A pattern that shall be used by the Media AS to match M4 media resource request URLs. The Media AS shall not serve a matching media resource at reference point M4 unless it includes a valid authentication token calculated over the portion of the M4 request URL that matches this pattern. The format of the pattern shall be a regular expression as specified in [ECMA262]. |
|  |  | tokenName | string | 1..1 | The name of the query parameter that the Media Access Function shall use to present the authentication token in the M4 request URL when required to do so. |
|  |  | passphraseName | string | 1..1 | The name of the token parameter to be used to refer to the passphrase when constructing the M4 authentication token. |
|  |  | passphrase | string | 1..1 | A string of between 6 and 50 characters to be used as the shared secret between the Media Application Provider and the Media AS for this distributionConfiguration.(This secret is used in the computation and verification of the M4 authentication token but is never sent in the cleartext part of the M4 request URL.) |
|  |  | tokenExpiryName | string | 1..1 | The name of the token parameter to be used to refer to the token expiry time point when constructing the M4 authentication token.The name of the query parameter that the Media Access Function shall use to present the token expiry time point in the cleartext part of the M4 request URL. |
|  |  | useIPAddress | boolean | 1..1 | If set to true, the IP address of the Media Access Function is included in the computation of the authentication token for resources that match urlPattern and access to matching media resources shall be allowed by the Media AF only when the M4 request is made from this IP address. |
|  |  | ipAddressName | string | 0..1 | The name of the token parameter that is encoded as part of the M4 authentication token if the useIPAddress flag is set to true.(The IP address is not passed in the cleartext part of the M4 request URL.) |
| NOTE 1: The geofencing feature used to restrict content requests to the Media AS at reference point M4 is specified in clause 7.6.4.6 of TS 26.512 [26512].NOTE 2: The format of the authentication token used to sign content requests to the Media AS at reference point M4 is specified in clause 7.6.4.5 of TS 26.512 [26512]. |

#### 8.9.3.1 ContentPublishingConfiguration resource

Table 8.9.3.1-1: Definition of ContentPublishingConfiguration resource

| Property name | Data type | Cardinality | Description |
| --- | --- | --- | --- |
| name | string | 1..1 | A name for this Content Publishing Configuration. |
| contribution‌Configurations | array(Contribution‌Configuration) | 1..1 | Specifies the Media Entry Point and content preparation required for the egested content.The array shall contain at least one member. Hence, more than one contribution may be configured for different content types. |
|  | edgeResources‌ConfigurationId | ResourceId | 0..1 | A reference to an Edge Resources Configuration resource (see clause 8.6.2).When present, indicates that the Media AS supporting this content contribution shall be realised as a set of one or more EAS instances configured per the referenced resource. |
|  | content‌Preparation‌TemplateId | ResourceId | 0..1 | A reference to a Content Preparation Template resource (see clause 8.5.2).Indicates that the referenced content preparation is required prior to egest. |
|  | certificateId | ResourceId | 0..1 | A reference to a Server Certificate resource (see clause 8.4.3.2).When content is contributed using TLS [TLS13], the referenced X.509 [X509] certificate for the origin domain is presented by the Media AS in the TLS handshake at reference point M4. This attribute indicates the identifier of the certificate to use. |
|  | canonical‌Domain‌Name | string | 1..1 | All resources exposed at reference point M4 shall be accessible through this default Fully-Qualified Domain Name assigned by the Media AF. |
|  | domainNameAlias | string | 0..1 | The Media Application Provider may assign another Fully-Qualified Domain Name (FQDN) through which media resources within the scope of this contribution configuration are additionally accessible from the Media AS at reference point M4.This domain name is used by the Media AS to set appropriate CORS HTTP response headers at reference point M4.If this property is present, the Media Application Provider is responsible for providing in the DNS a CNAME record that resolves domainNameAlias to canonicalDomainName.If the certificateId property is also present in this contribution configuration, the provided domain name alias shall match one of the subjectAltName extension fields in the referenced Server Certificate resource, allowing for wildcard matching. |
|  | baseURL | AbsoluteUrl | 1..1 | A base URL (i.e. one that includes a scheme, authority, and, optionally, path segments) to which content is contributed by Media Clients at reference point M4 for this contribution configuration.Nominated by the Media AF when the Content Publishing Configuration is provisioned. It is an error for the Media Application Provider to set this. |
|  | entryPoint | M1‌Media‌Entry‌Point | 1..1 | The Media Entry Point nominated by the Media Application Provider for this contribution configuration (see clause 7.3.3.12). |
|  |  | relativePath | Relative‌Url | 1..1 | A relative path (i.e., without a scheme or any leading forward slash characters) for this Media Entry Point which may point to a document resource. Nominated by the Media AF. |
|  |  | contentType | string | 0..1 | The MIME content type of this Media Entry Point. This property shall be present if the *protocol* is not present.Used by the Media Client to select a contribution configuration.Nominated by the Media Application Provider. |
|  |  | protocol | Uri | 0..1 | A fully-qualified term identifier URI that identifies the media contribution protocol at reference point M4 for this Media Entry Point. This property shall be present if the *contentType* is not present.Nominated by the Media Application Provider.The controlled vocabulary of media contribution protocols is specified in clause 10 of TS 26.512 [26512]. |
|  |  | profiles | array(Uri) | 0..1 | An optional list of conformance profile identifiers associated with this Media Entry Point, each one expressed as a URI. A profile URI may indicate an interoperability point, for example.Used by the Media Client to select a contribution configuration.Nominated by the Media Application Provider and, if present, the array shall contain at least one item. |
| egestConfiguration | Egest‌Configuration | 1..1 | Parameters for egesting media content from the Media AS at reference point M2. |
|  | mode | Content‌Transfer‌Mode | 1..1 | Indicates whether content is pulled from the Media AS by the Media Application Provider or pushed to the Media Application Provider by the Media AS (see clause 7.3.4.5).Nominated by the Media Application Provider. |
|  | protocol | Uri | 1..1 | A fully-qualified term identifier URI that identifies the content egest protocol.Nominated by the Media Application Provider.The controlled vocabulary of content egest protocols is not specified in the present document. |
|  | baseURL | Absolute‌URL | 0..1 | A base URL (i.e., one that includes a scheme, authority, and, optionally, path segments) to which content is published at reference point M2 for this publishing configuration.In the case of pull-based content egest (*mode* is set to *PULL*), this property shall be populated by the Media AF to indicate the location on the Media AS from which content is to be pulled. An uplink media streaming request received at reference point M4 is mapped by the Media AS to a URL at reference point M2 whose base is the value of this property.In the case of push-based content egest (*mode* is set to PUSH), this property shall be provided to the Media AF and indicates the base URL to which content for this Content Publishing Configuration is to be published. |
|  | entryPoint | M1‌Media‌Entry‌Point | 0..1 | The Media Entry Point for content egest used by the Media Application Provider at reference point M2.In the case of pull-based content egest (*mode* is set to PULL), this object shall be provided by the Media AF.In the case of push-based content egest (*mode* is set to PUSH), this object may be provided by the Media Application Provider.The semantics of the entry point are dependent on the value of the contentType property. |
|  |  | relativePath | Relative‌URL | 1..1 | A relative path (i.e., without a scheme or any leading forward slash characters) to the Media Entry Point document resource.Nominated by the Media AF for pull-based content egest.Nominated by the Media Application Provider for Push-based content egest. |
|  |  | contentType | string | 1..1 | The MIME content type of this Media Entry Point.Nominated by the Media Application Provider. |
|  |  | profiles | array(Uri) | 0..1 | An optional list of conformance profile identifiers associated with this Media Entry Point, each one expressed as a URI. A profile URI may indicate an interoperability point, for example.Nominated by the Media Application Provider and, if present, the array shall contain at least one item. |
|  | cachingConfigurations | array(Caching‌Configuration) | 0..1 | A set of configurations of the Media AS cache nominated by the Media Application Provider, each one affecting a matching subset of media resources intended for pull-based egest at reference point M2 in relation to this Content Publishing Configuration. (See clause 7.3.3.13.)Applicable only for pull-based content egest (*mode* is set to PULL). For Push-based egest (*method* is set to PUSH), this property shall not be present.If present, the array shall have at least one member. |
|  |  | urlPatternFilter | string | 1..1 | A pattern used to match media resource URLs to determine whether a given media resource is eligible for caching by the Media AS. The format of the pattern shall be a regular expression as specified in [ECMA262]. |
|  |  | cachingDirectives | object | 1..1 | If a urlPatternFilter applies to a resource, then the provided cachingDirectives shall be applied by the Media AS at reference point M2.Any caching directives set by the Media Streamer on content contributed at reference point M4 which define a shorter lifetime for the content shall take precedence over these parameters. |
|  |  |  | statusCodeFilters | array(integer) | 0..1 | The set of Media AS response status codes at reference point M2 to which these cachingDirectives apply.If the property is present, the array shall contain at least one item.If absent, the enclosing cachingDirectives shall apply to all Media AS responses. |
|  |  |  | noCache | boolean | 0..1 | If set to true, this indicates that the media resources matching the filters shall be marked by the Media AS as not to be cached when it serves such media resources at reference point M2.Default value if omitted: false. |
|  |  |  | maxAge | Uint32 | 0..1 | The caching time-to-live period, expressed in seconds, of media resources matching the filters. This determines the minimum period for which the Media AS shall cache matching media resources. If noCache is false, it also determines the time-to-live period signalled by the Media AS at reference point M2 when it serves such media resources.The time-to-live for a given media resource shall be calculated relative to the time it was contributed to the Media AS. |
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| **4th Change** |

#### 9.2.3.1 ServiceAccessInformation resource type

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

Table 9.2.3.1‑1: Definition of ServiceAccessInformation resource

| Property name | Type | Cardinality | Usage | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| provisioningSessionId | ResourceId | 1..1 | RO | Unique identification of the M1 Provisioning Session. | All types |
| provisioningSession‌Type | Provisioning‌Session‌Type | 1..1 | RO | The type of Provisioning Session. | All types. |
| streamingAccess | object | 0..1 | RO | Present if Content Hosting or Content Publishing is provisioned in the parent Provisioning Session. | 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 the contentType property shall also be present), or else the URL of a path at reference point M4 the subresources 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 | 0..1 | RO | The MIME content type of resource at locator. This property shall be present if the *protocol* is not present. |  |
|  |  | protocol | Uri | 0..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 present if the *contentType* is not present.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. |
|  |  | locationReporting | boolean | 1..1 | RO | Indicates whether the Media Session Handler is required to provide location data in consumption reporting messages (in case of MNO or trusted third parties).Shall be set false if the locationReporting parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
|  |  | accessReporting | boolean | 1..1 | RO | Indicates whether the Media Session Handler is required to supply consumption reporting units whenever the access network changes during a media delivery session.Shall be set false if the accessReporting parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
|  |  | samplePercentage | Percentage | 1..1 | RO | The percentage of media delivery sessions that shall send consumption reports, expressed as a floating-point value between 0.0 and 100.0.Shall be set to 100.0 if the samplePercentage parameter is omitted from the Consumption‌Reporting‌Configuration, as specified in table 8.11.3.1‑1. |
| dynamicPolicyInvocation‌Configuration | object | 0..1 | RO | Present if Policy Templates have been provisioned in the parent Provisioning Session and at least one of them is in the READY state. | 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. |  |
|  | 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 8.10.3.1). |
|  | 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 5.2.10). |
|  | dataNetworkName | Dnn | 0..1 | RO | The name of the Data Network which shall be used to send metrics reports.If not specified, the default DN shall be used. |
|  | *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(string) | 1..1 | RO | A list of QoE metrics which shall be reported.If empty, the complete (or default if applicable) set of metrics associated with the specified scheme shall be collected and reported. |
| networkAssistance‌Configuration | object | 0..1 | RO | Present if Network Assistance is provisioned in the parent Provisioning Session. | 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]. |