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**Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats — Amendment 1: Support for media authentication, CMCD extension, and other enhancements**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](https://www.iso.org/directives-and-policies.html)).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO/IEC 14496 series can be found on the ISO website.

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**Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats — Amendment 1: Support for media authentication, CMCD extension, and other enhancements**

# Clause 5.3.3, Adaptation Sets

Clause 5.3.3.2 Semantics

Add the following entry in Table 6 — Semantics of AdaptationSet element:

|  |  |  |
| --- | --- | --- |
| **Element or Attribute Name** | **Use** | **Description** |
| **AdaptationSet** |  | Adaptation Set description. |
| … |  |  |
| @targetScreenOrientation | O | specifies a comma-separated list of targeted screen orientations for displaying the video component of this Adaptation Set.  The values are:   * any * landscape * portrait * square   Where “any” means that the video component is adapted to any screen orientation, “landscape”, “portrait” means that the video component is adapted to, respectively, portrait and landscape screen orientations as defined in 2.1 Screen orientation types in W3C Screen Orientation, and “square” means when the screen aspect ratio is equal to 1.0.  If not present, the value is “any”. |

Clause 5.3.3.3 XML syntax

Replace Clause 5.3.3.3 XML syntax as follows:

|  |
| --- |
| **<xs:complexType** name=*"AdaptationSetType"***>**  **<xs:annotation>**  **<xs:documentation** xml:lang=*"en"***>** Adaptation Set **</xs:documentation>**  **</xs:annotation>**  **<xs:complexContent>**  **<xs:extension** base=*"RepresentationBaseType"***>**  **<xs:sequence>**  **<xs:element** name=*"Accessibility"* type=*"DescriptorType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"Role"* type=*"DescriptorType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"Rating"* type=*"DescriptorType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"Viewpoint"* type=*"DescriptorType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"ContentComponent"* type=*"ContentComponentType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"BaseURL"* type=*"BaseURLType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"RequestParam"* type=*"up:ExtendedUrlInfoType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **<xs:element** name=*"SegmentBase"* type=*"SegmentBaseType"* minOccurs=*"0"***/>**  **<xs:element** name=*"SegmentList"* type=*"SegmentListType"* minOccurs=*"0"***/>**  **<xs:element** name=*"SegmentTemplate"* type=*"SegmentTemplateType"* minOccurs=*"0"***/>**  **<xs:element** name=*"Representation"* type=*"RepresentationType"* minOccurs=*"0"*  maxOccurs=*"unbounded"***/>**  **</xs:sequence>**  **<xs:attribute** ref=*"xlink:href"***/>**  **<xs:attribute** ref=*"xlink:actuate"* default=*"onRequest"***/>**  **<xs:attribute** ref=*"xlink:type"* fixed=*"simple"***/>**  **<xs:attribute** ref=*"xlink:show"* fixed=*"embed"***/>**  **<xs:attribute** name=*"id"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"group"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"lang"* type=*"xs:language"***/>**  **<xs:attribute** name=*"contentType"* type=*"RFC6838ContentTypeType"***/>**  **<xs:attribute** name=*"par"* type=*"RatioType"***/>**  **<xs:attribute** name=*"minBandwidth"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"maxBandwidth"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"minWidth"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"maxWidth"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"minHeight"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"maxHeight"* type=*"xs:unsignedInt"***/>**  **<xs:attribute** name=*"minFrameRate"* type=*"FrameRateType"***/>**  **<xs:attribute** name=*"maxFrameRate"* type=*"FrameRateType"***/>**  **<xs:attribute** name=*"targetScreenOrientation"* type=*"ScreenOrientation"***/>**  **<xs:attribute** name=*"segmentAlignment"* type=*"xs:boolean"* default=*"false"***/>**  **<xs:attribute** name=*"subsegmentAlignment"* type=*"xs:boolean"* default=*"false"***/>**  **<xs:attribute** name=*"subsegmentStartsWithSAP"* type=*"SAPType"* default=*"0"***/>**  **<xs:attribute** name=*"bitstreamSwitching"* type=*"xs:boolean"***/>**  **<xs:attribute** name=*"initializationSetRef"* type=*"UIntVectorType"***/>**  **<xs:attribute** name=*"initializationPrincipal"* type=*"xs:anyURI"***/>**  **</xs:extension>**  **</xs:complexContent>**  **</xs:complexType>**  **<xs:simpleType** name=*"RatioType"***>**  **<xs:annotation>**  **<xs:documentation** xml:lang=*"en"***>** Ratio Type for sar and par **</xs:documentation>**  **</xs:annotation>**  **<xs:restriction** base=*"xs:string"***>**  **<xs:pattern** value=*"[0-9]\*:[0-9]\*"***/>**  **</xs:restriction>**  **</xs:simpleType>**  **<xs:simpleType** name=*"FrameRateType"***>**  **<xs:annotation>**  **<xs:documentation** xml:lang=*"en"***>** Type for Frame Rate **</xs:documentation>**  **</xs:annotation>**  **<xs:restriction** base=*"xs:string"***>**  **<xs:pattern** value=*"[0-9]+(/[1-9][0-9]\*)?"***/>**  **</xs:restriction>**  **</xs:simpleType>**  **<xs:simpleType** name=*"ScreenOrientation"***>**  **<xs:annotation>**  **<xs:documentation** xml:lang=*"en"***>** Orientation of the targeted Sceen **</xs:documentation>**  **</xs:annotation>**  **<xs:restriction** base=*"xs:string"***>**  **<xs:enumeration** value=*"any"***/>**  **<xs:enumeration** value=*"landscape"***/>**  **<xs:enumeration** value=*"portrait"***/>**  **<xs:enumeration** value=*"square"***/>**  **</xs:restriction>**  **</xs:simpleType>**  **<xs:simpleType** name=*"RFC6838ContentTypeType"***>**  **<xs:annotation>**  **<xs:documentation** xml:lang=*"en"***>** Type for RFC6838 Content Type **</xs:documentation>**  **</xs:annotation>**  **<xs:restriction** base=*"xs:string"***>**  **<xs:enumeration** value=*"text"***/>**  **<xs:enumeration** value=*"image"***/>**  **<xs:enumeration** value=*"audio"***/>**  **<xs:enumeration** value=*"video"***/>**  **<xs:enumeration** value=*"application"***/>**  **<xs:enumeration** value=*"font"***/>**  **</xs:restriction>**  **</xs:simpleType>** |

# Clause 4.7, Overview / Schemes

*In clause 4.7, table 2, update the following line:*

|  |  |  |
| --- | --- | --- |
| urn:mpeg:dash:outputChannelPositionList:2012 | 5.8.5.4 | A list of output channel position to signal individual speaker positions as defined in ISO/IEC 23001-8.  Legacy format for backward-compatibility, it is recommended to use the signalling as defined in ISO/IEC 23091-3 instead. |

*to:*

|  |  |  |
| --- | --- | --- |
| urn:mpeg:dash:outputChannelPositionList:2012 | 5.8.5.4 | A list of output channel position to signal individual speaker positions as defined in ISO/IEC 23091-3.  Legacy @schemeIdUri format for backward-compatibility, it is recommended to use the signalling as defined in ISO/IEC 23091-3 instead. |

# Clause 5, Media Presentation

## Clause 5.3.3.1, Hierarchical data model / AdaptationSets / Overview

*Add a note in Clause 5.3.3.1 to alert readers to the Annex I exception:*

**Note:** Annex I defines specific schemeIdUri values that use a different processing model where values from multiple hierarchy levels are concatenated rather than overridden. Refer to Annex I.1.X for details on this special processing model.

## Clause 5.8.4.6, Frame Packing

*In clause 5.8.4.6 “Frame packing”, change both instances of:*

ISO/IEC 23091-3

*to*

ISO/IEC 23091-2.

## Clause 5.8.4.7, Audio Channel Configuration

*In clause 5.8.4.7 “Audio Channel Configuration”, change:*

The descriptor may carry audio channel configuration using the URN label and values defined for **ChannelConfiguration** in ISO/IEC 23001-8.

NOTE 2 In addition, a scheme for audio channel configuration is also defined in subclause 5.8.5.4. This scheme is maintained for backward compatibility, but it is preferable to use the signalling as defined in ISO/IEC 23001-8.

*to*

The descriptor may carry audio channel configuration using the URN label and values defined for **ChannelConfiguration** in ISO/IEC 23091-3.

NOTE 2 In addition, a scheme for audio channel configuration is also defined in subclause 5.8.5.4. This scheme is maintained for backward compatibility, but it is preferable to use the signalling as defined in ISO/IEC 23091-3.

# Annex I, Flexible Insertion of URL Parameters

## Clause I.1, General

*Add a new subsection immediately after the current Annex I introduction:*

**I.1.X Processing Model and Inheritance Behavior**

The processing of descriptors defined in this Annex deviates from the general inheritance principle described in Clause 5.3.3.1.

While it is forbidden that SupplementalProperty or EssentialProperty descriptors can be present at both AdaptationSet and Representation level (and if so, that descriptor on the lower level would take precedence over the default value from the higher level), the Annex I processing model is as follows: For descriptors with schemeIdUri values defined in this Annex, values from multiple levels are concatenated rather than replaced. The concatenation order is specified for each descriptor type in the respective subsections.

This special processing model only applies to all descriptors referencing schemeIdUri values defined in this Annex, unless explicitly stated otherwise for a specific schemeIdUri.

**Note:** Content authors and client implementers should be aware that this processing model differs fundamentally from the general DASH inheritance mechanism and requires specific implementation logic.

## Clause I.2.3.3, Computation of a final query string

*In clause I.2.3.3, replace the current text:*

When two or more occurrences of URL query descriptors exist within an MPD, the final query string used at the Representation level is a concatenation of the corresponding URL query strings of the occurrences in their orders of appearance in the MPD hierarchy.

*With:*

Deviation from general inheritance: Unlike the general inheritance principle defined in Clause 5.3.3.1, where lower-level values override higher-level values, URL query descriptors use a concatenation model. When two or more occurrences of URL query descriptors exist within an MPD, the final query string used at the Representation level is a concatenation of the corresponding URL query strings of the occurrences in their orders of appearance in the MPD hierarchy. This means that a Representation-level descriptor does not replace or override an AdaptationSet-level descriptor; instead, both are combined.

*Further, an example may be added after the existing concatenation order description:*

**Example:** If an AdaptationSet contains a SupplementalProperty with @schemeIdUri="urn:mpeg:dash:urlparam:2016" and @value="?param1=A", and a contained Representation has a SupplementalProperty with the same schemeIdUri and @value="&param2=B", the final query string for that Representation will be "?param1=A&param2=B", not just "&param2=B" as would be the case under general inheritance rules.

# Annex G, MPD Examples and MPD Usage

## Overall annex G

*In Annex G: MPD Examples and MPD Usage, replace all instances (8 in total) of*

**<AudioChannelConfiguration schemeIdUri="urn:mpeg:dash:23003:3:audio\_channel\_configuration:2011" value="X" />**

*to*

**<AudioChannelConfiguration schemeIdUri="urn:mpeg:mpegB:cicp:ChannelConfiguration" value="X" />**

*where X represents the existing value (used values in examples include 2 and 6).*