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AMENDMENT 1
2015-06-15

**Information technology — Dynamic
adaptive streaming over HTTP
(DASH) —**

**Part 1:
Media presentation description and
segment formats**

**AMENDMENT 1: High Profile and
Availability Time Synchronization**

[ISO/IEC 23009-1:2014/Amd 1:2015](https://standards.iso.org/iso/standards/catalogue.html)

<https://standards.iso.org/iso/standards/catalogue.html>
*Technologies de l'information — Diffusion en flux adaptatif
dynamique sur HTTP (DASH) —*

*Partie 1: Description de la présentation et formats de remise des médias
AMENDEMENT 1*

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[ISO/IEC 23009-1:2014/Amd 1:2015](https://standards.iteh.ai/catalog/standards/sist/c0c8973c-e6aa-41d4-b729-bbef30d4a69d/iso-iec-23009-1-2014-amd-1-2015)
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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 document 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats, AMENDMENT 1: High Profile and Availability Time Synchronization

Replace

5.2.3.2 Elements and Attributes added in this Revision

with

5.2.3.2 Elements and Attributes added in ISO/IEC 23009-1:2014 2nd edition

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Add

5.2.3.3 Elements and Attributes added in this Revision

This revision adds the following elements and attributes to the schema defined in Annex B compared to the 2014 revision (ISO/IEC 23009-1:2014) of this part of the standard:

— **MPD.UTCTiming**

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In Table 3 add UTCTiming row at the end after Metrics

UTCTiming	0 ... N	specifies information on ways to obtain a synchronization to wall-clock time as used in this Media Presentation. The order of the elements expresses a preference of choice by the Media Presentation author. For more details refer to 5.8.4.10.
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In 5.3.1.3 Replace

```

<!-- MPD Type -->
<xs:complexType name="MPDtype">
  <xs:sequence>
    <xs:element name="ProgramInformation" type="ProgramInformationType" minOccurs="0"
maxOccurs="unbounded"/>
    <xs:element name="BaseURL" type="BaseURLType" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="Location" type="xs:anyURI" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="Period" type="PeriodType" maxOccurs="unbounded"/>
    <xs:element name="Metrics" type="MetricsType" minOccurs="0" maxOccurs="unbounded"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="id" type="xs:string"/>
  <xs:attribute name="profiles" type="xs:string" use="required"/>
  <xs:attribute name="type" type="PresentationType" default="static"/>
  <xs:attribute name="availabilityStartTime" type="xs:dateTime"/>
  <xs:attribute name="availabilityEndTime" type="xs:dateTime"/>
  <xs:attribute name="publishTime" type="xs:dateTime"/>
  <xs:attribute name="mediaPresentationDuration" type="xs:duration"/>
  <xs:attribute name="minimumUpdatePeriod" type="xs:duration"/>
  <xs:attribute name="minBufferTime" type="xs:duration" use="required"/>
  <xs:attribute name="timeShiftBufferDepth" type="xs:duration"/>
  <xs:attribute name="suggestedPresentationDelay" type="xs:duration"/>
  <xs:attribute name="maxSegmentDuration" type="xs:duration"/>
  <xs:attribute name="maxSubsegmentDuration" type="xs:duration"/>
  <xs:anyAttribute namespace="##other" processContents="lax"/>
</xs:complexType>

<!-- Presentation Type enumeration -->
<xs:simpleType name="PresentationType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="static"/>
    <xs:enumeration value="dynamic"/>
  </xs:restriction>
</xs:simpleType>

```

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with

```

<!-- MPD Type -->
<xs:complexType name="MPDtype">
  <xs:sequence>
    <xs:element name="ProgramInformation" type="ProgramInformationType" minOccurs="0"
maxOccurs="unbounded"/>
    <xs:element name="BaseURL" type="BaseURLType" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="Location" type="xs:anyURI" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="Period" type="PeriodType" maxOccurs="unbounded"/>
    <xs:element name="Metrics" type="MetricsType" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="UTCTiming" type="DescriptorType" minOccurs="0" maxOccurs="unbounded"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="id" type="xs:string"/>
  <xs:attribute name="profiles" type="xs:string" use="required"/>
  <xs:attribute name="type" type="PresentationType" default="static"/>
  <xs:attribute name="availabilityStartTime" type="xs:dateTime"/>
  <xs:attribute name="availabilityEndTime" type="xs:dateTime"/>
  <xs:attribute name="mediaPresentationDuration" type="xs:duration"/>
  <xs:attribute name="minimumUpdatePeriod" type="xs:duration"/>
  <xs:attribute name="minBufferTime" type="xs:duration" use="required"/>
  <xs:attribute name="timeShiftBufferDepth" type="xs:duration"/>
  <xs:attribute name="suggestedPresentationDelay" type="xs:duration"/>
  <xs:attribute name="maxSegmentDuration" type="xs:duration"/>
  <xs:attribute name="maxSubsegmentDuration" type="xs:duration"/>
  <xs:anyAttribute namespace="##other" processContents="lax"/>
</xs:complexType>

<!-- Presentation Type enumeration -->
<xs:simpleType name="PresentationType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="static"/>
    <xs:enumeration value="dynamic"/>
  </xs:restriction>
</xs:simpleType>

```


Add the following section

5.8.4.10 UTC Timing Descriptor

Using the `UTCTiming` element, the Media Presentation author provides additional information for the client to optionally obtain wall-clock time to be used in Media Presentation. If multiple schemes are specified by the Media Presentation author, their order indicates their relative preference, first having the highest, and the last having the least priority. However, the client may choose any method, potentially having to deal with reduced accuracy.

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Add the following section

5.8.5.X DASH UTC Timing Schemes

This part of the Standard defines several methods, specified in Table X, by which DASH clients can obtain wall-clock times as used by the Media Presentation. Specifically this clock is synchronized to the one used to generate the MPD.

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Table X — Different UTC timing Methods

@schemeIdURI	Description
urn:mpeg:dash:utc:ntp:2014	The identifier indicates that the @value contains a white-space separated list of servers that are recommended to be used in combination with the NTP protocol as defined in IETF RFC 5905 for getting the appropriate time.
urn:mpeg:dash:utc:sntp:2014	The identifier indicates that the @value contains a white-space separated list of servers that are recommended to be used in combination with the SNTP protocol as defined in IETF RFC 5905 for getting the appropriate time.
urn:mpeg:dash:utc:http-head:2014	<p>The identifier indicates that the @value contains a white-space separated list of HTTP URLs that are recommended to be used in combination with the HTTP protocol as defined in IETF RFC 2616 for getting the appropriate time.</p> <p>The value of the @value attribute contains a white-space separated list of HTTP URLs to which HTTP HEAD requests can be made to obtain the Date information in the HTTP Header providing the wall-clock time for this Media Presentation</p>
urn:mpeg:dash:utc:http-xsdate:2014	<p>The identifier indicates that the @value contains a white-space separated list of HTTP URLs that are recommended to be used in combination with the HTTP protocol as defined in IETF RFC 2616 for getting the appropriate time.</p> <p>The value of the @value attribute contains a white-space separated list of HTTP URLs to which HTTP GET requests can be made to obtain the timing information. The timing information is contained in the message body of the HTTP response to the above HTTP GET request and contains time value formatted according to xs:dateTime as defined in W3C XML Schema Part 2: Datatypes specification. This value is based on a wall clock synchronized to the one used to generate the MPD.</p>
urn:mpeg:dash:utc:http-iso:2014	<p>The identifier indicates that the @value contains a white-space separated list of HTTP URLs that are recommended to be used in combination with the HTTP protocol as defined in IETF RFC 2616 for getting the appropriate time.</p> <p>The value of the @value attribute contains a white-space separated list of HTTP URLs to which HTTP GET requests can be made to obtain the timing information. The timing information is contained in the message body of the HTTP response to the above HTTP GET request and contains time value formatted according to ISO time code as defined in ISO/IEC 8601. This value is based on a wall clock synchronized to the one used to generate the MPD.</p>
urn:mpeg:dash:utc:http-ntp:2014	The identifier indicates that the @value contains a white-space separated list of HTTP URLs that are recommended to be used in combination with the HTTP protocol as defined in IETF RFC 2616