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

Part 1: Media presentation description and segment formats

Technologies de l'information — Diffusion en flux adaptatif dynamique sur HTTP (DASH) —

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



Reference number
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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.

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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO/IEC 23009-1:2019), which has been technically revised. The main changes compared to the previous edition are as follows:

- the concept Service Description was added in order to enable signalling by the service provider on how the service is expected to be consumed;
- Initialization Sets, Groups and Presentations were added in order to simplify playback of Media Presentations across Period boundaries;
- leap second information was added to support the DASH Client in timing calculations when leap seconds occur;
- the producer reference time was added in order to allow signalling and mapping of media time to wall-clock time including the time of capture, encoding or other application defined context;
- the content popularity rate was added to indicate a level of popularity of the containing entity (i.e., the Adaptation Set, Representation or Preselection) within the Media Presentation;
- exact signalling and placement of content in a Period was added in order to simplify client operation in case of gaps and overlaps at Period boundaries;

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- the concept of failover content was added in order to signal time sections in the Media Presentation or specific Representations that are not representing the main content, but a failover version for example in error cases;
- the support of the use of the Segment Timeline for low-latency DASH content was enabled;
- the concept of Preselections was extended in order to define conformance and playback rules for Representations from different Adaptation Sets within one Preselection; other clarifications on events were added;
- the ability to signal forced subtitles, easyreader and karaoke in the DASH Role scheme was added;
- a descriptor to indicate that the quality ranking associated to Representations is equivalent and comparable across Adaptation Sets was added;
- the ability that DASH inband events can be added to a Period with a presentation time offset avoiding the necessity to rewrite the event times in the media stream was added, as well as other clarifications on Events;
- a segment type that permits to signal that content is missing, but also provides sufficient information the media duration of the missing content was added;
- detailed recommendations and guidelines on how location and reference resolution for DASH resources, i.e. MPDs and Segments, can be performed based on information in the MPD and HTTP headers were added;
- DASH metrics were updated to support device information and to support specific keys for start and stop reasons.

A list of all parts in the ISO/IEC 23009 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Dynamic adaptive streaming over HTTP (DASH) is intended to support a media-streaming model for delivery of media content in which control lies primarily with the client. Clients may request data using the HTTP protocol from standard web servers that have no DASH-specific capabilities. Consequently, this document focuses not on client or server procedures but on the data formats used to provide a DASH Media Presentation.

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of patents.

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