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

**Part 2:
Conformance and reference software**

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

Partie 2: Conformité et logiciel de référence



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Contents

Page

Foreword	iv
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviated terms	1
4 Media presentation conformance	1
4.1 Overview	1
4.2 Software tools	2
5 MPD conformance	2
5.1 General	2
5.2 Static MPD conformance	3
5.3 Dynamic MPD conformance	4
5.3.1 General	4
5.3.2 Background and requirements	4
5.3.3 Dynamic conformance software design	6
6 Segment conformance	7
6.1 Overview	7
6.2 Representation conformance	8
6.2.1 ISO base media file format	8
6.2.2 MPEG-2 transport stream	9
6.3 Adaptation set conformance	12
6.3.1 ISO base media file format	12
6.3.2 MPEG-2 transport stream	14
6.4 Dynamic media presentation conformance	15
7 Profile specific conformance	15
7.1 ISO base media file format on demand profile	15
7.2 ISO base media file format live profile	15
7.3 ISO base media file format main profile	15
7.4 MPEG-2 transport stream simple profile	16
8 Conforming test vectors	16
9 Conformance software for ISO/IEC 23009-4	16
9.1 General	16
9.2 Design limitations and assumptions	16
9.3 Usage	17
Annex A (normative) MPD conformance checking	18
Annex B (normative) Test vectors	58
Annex C (normative) DASH access engine reference software	61
Annex D (informative) Sample software	63
Annex E (informative) Dynamic media presentation emulator	66
Annex F (informative) Coverage of DASH features	67
Bibliography	70

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 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 the following URL: www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO/IEC 23009-2:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

- a) Conformance and reference software to cover all the features of ISO/IEC 23009-1:2014, including:
 - Dynamic MPD conformance;
 - Updates to MPEG-2 TS validator include:
 - Added tests for:
 - PES packet validity (complete access units);
 - SAP types when the video stream is MPEG-4 AVC;
 - Single segment index and representation indexes;
 - Subsegment indexes and subsegment validity;
 - Initialization segment information;
 - System-level tests of common encryption;
 - Bitstream switching segment;
 - Segment alignment if @segmentAlignment is true;
 - Subsegment alignment if @subsegmentAlignment is true;

- Simple profile tests.
- Changes made to usability:
 - The conformance checker runs against an MPD and all of its segments at once;
 - The build system has been replaced with Autotools.
- b) Test vectors to cover the features of ISO/IEC 23009-1:2014.
- c) Feature list and coverage for ISO/IEC 23009-1:2014 is provided in [Annex F](#).

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

Introduction

The conformance and reference software of ISO/IEC 23009 serves three main purposes:

- validation of the written specification of the parts of ISO/IEC 23009;
- clarification of the written specification of the parts of ISO/IEC 23009;
- conformance testing for checking interoperability for the various applications against the reference software which aims to be compliant with ISO/IEC 23009.

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

Part 2: Conformance and reference software

1 Scope

This document specifies the conformance and reference software implementing the normative clauses of ISO/IEC 23009-1, that is test vectors comprising media presentation descriptions, segments, and combinations thereof that conform or do not conform to the normative clauses of ISO/IEC 23009-1 and corresponding software modules.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19757-3, *Information technology — Document Schema Definition Languages (DSDL) — Part 3: Rule-based validation — Schematron*

ISO/IEC 23009-1:2014, *Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats*

3 Terms, definitions, symbols and abbreviated terms

For the purpose of this document, the terms, definitions, symbols and abbreviated terms given in ISO/IEC 23009-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Media presentation conformance

4.1 Overview

A media presentation conforming to ISO/IEC 23009-1 obeys the rules for the media presentation description (MPD) and the segments referenced within the MPD. To verify the conformance of a media presentation, the following steps need to be completed:

- the conformance of the MPD according to [Clause 5](#).
- the conformance of the segments, which includes the conformance of individual segments and representations, as well as the conformance of representations that are jointly provided in adaptation sets and periods. For details, refer to [Clause 6](#).

The process of MPD and segment conformance checking is shown in [Figure 1](#).