

ISO/IEC 23009-2:2020 (E)

Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 2: Conformance and reference software

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms, definitions, symbols and abbreviated terms
4	Media presentation conformance
4.1	Overview
4.2	Software tools
5	MPD conformance
5.1	General
5.2	Static MPD conformance
5.3	Dynamic MPD conformance
5.3.1	General
5.3.2	Background and requirements
5.3.2.1	MPD-specific checks
5.3.2.2	MPD times
5.3.2.3	General derivation
5.3.2.4	Requirements
5.3.3	Dynamic conformance software design
5.3.3.1	Overview
5.3.3.2	Data set creation
5.3.3.3	Conformance checks
5.4	Conformance checks for spatial relationship description
6	Segment conformance
6.1	Overview
6.2	Representation conformance
6.2.1	ISO base media file format
6.2.2	MPEG-2 transport stream
6.3	Adaptation set conformance
6.3.1	ISO base media file format
6.3.2	MPEG-2 transport stream
6.4	Dynamic media presentation conformance
7	Profile specific conformance
7.1	ISO base media file format on demand profile
7.2	ISO base media file format live profile
7.3	ISO base media file format main profile
7.4	MPEG-2 transport stream simple profile
8	Conforming test vectors
9	DASH access engine reference software
9.1	General
9.2	libdash overview
9.3	libdash-enabled example system
9.4	libdash availability

- 10 **Conformance software for ISO/IEC 23009-4**
 - 10.1 General
 - 10.2 Design limitations and assumptions
 - 10.3 Usage

- 11 **Conformance for ISO/IEC 23009-5 server and network-assisted DASH (SAND)**
 - 11.1 Conformance rules
 - 11.2 Software
 - 11.2.1 Design and architecture
 - 11.2.2 Usage
 - 11.2.2.1 SAND HTTP conformance client
 - 11.2.2.2 SAND HTTP conformance server
 - 11.2.2.3 SAND WebSocket conformance server
 - 11.3 Test vectors

- 12 **Conformance for ISO/IEC 23009-6 server push**
 - 12.1 Architecture
 - 12.2 Status
 - 12.3 Logistics
 - 12.4 Usage

Annex A (normative) MPD conformance checking

- A.1 General
- A.2 Step 1: XLink resolver
 - A.2.1 General
 - A.2.2 Example 1
 - A.2.3 Example 2
 - A.2.4 Example 3
 - A.2.5 Example 4
- A.3 Step 2: XML validator
 - A.3.1 General
 - A.3.2 Example 1
 - A.3.3 Example 2
 - A.3.4 Example 3
 - A.3.5 Example 4
- A.4 Step 3: Schematron validator
 - A.4.1 General
 - A.4.2 Schematron validation schema
 - A.4.3 Description of schematron rule
 - A.4.4 MPD examples for conformance checking
 - A.4.4.1 General
 - A.4.4.2 Example 1
 - A.4.4.3 Example 2
 - A.4.4.4 Example 3
 - A.4.4.5 Example 4
 - A.4.4.6 Example 5
 - A.4.4.7 Example 6
 - A.4.4.8 Example 7
 - A.4.4.9 Example 8
 - A.4.4.10 Example 9
 - A.4.4.11 Example 10
 - A.4.4.12 Example 11
 - A.4.4.13 Example 12
 - A.4.4.14 Example 13
 - A.4.4.15 Example 14
 - A.4.4.16 Example 15
 - A.4.4.17 Example 16
 - A.4.4.18 Example 17
 - A.4.4.19 Example 18
 - A.4.4.20 Example 19
 - A.4.4.21 Example 20
 - A.4.4.22 Example 21
 - A.4.4.23 Example 22

A.4.4.24	Example 23
A.4.4.25	Example 24
A.4.4.26	Example 25
A.4.4.27	Example 26
A.4.4.28	Example 27
A.4.4.29	Example 28
A.4.4.30	Example 29
A.4.4.31	Example 30
A.4.4.32	Example 31
A.4.4.33	Example 32
A.4.4.34	Example 33
A.4.4.35	Example 34
A.4.4.36	Example 35
A.4.4.37	Example 36
A.4.4.38	Example 37
A.4.4.39	Example 38
A.4.4.40	Example 39
A.4.4.41	Example 40
A.4.4.42	Example 41
A.4.4.43	Example 42
A.4.4.44	Example 43
A.4.4.45	Example 44
A.4.4.46	Example 45
A.4.4.47	Example 46
A.4.4.48	Example 47
A.4.4.49	Example 48
A.4.4.50	Example 49
A.4.4.51	Example 50
A.4.4.52	Example 51
A.4.4.53	Example 52
A.4.4.54	Example 53
A.4.4.55	Example 54
A.4.4.56	Example 55
A.4.4.57	Example 56
A.5	Step 4: Segment validator
A.5.1	ISO base media file format segments
A.5.1.1	General
A.5.1.2	Generating conformance results
A.5.2	MPEG-2 transport stream segments
A.5.2.1	General
A.5.2.2	Individual segment results
A.5.2.3	Overall test result
A.5.2.4	Audio and video gap matrices
A.5.2.5	Audio and video timing summaries
A.5.2.5.1	Example association-1
A.5.2.5.2	Example association-2
A.5.2.5.3	Example association-3
A.5.2.5.4	Example association-4
A.5.2.5.5	Example association-signalling1
A.5.2.5.6	Example association-signalling2
A.5.2.5.7	Example association-greenMetadata
A.5.2.5.8	Example association-invalid1
A.5.2.5.9	Example association-invalid2
A.5.2.5.10	Example association-invalid3
A.5.2.5.11	Example association-invalid4
A.5.2.5.12	Example association-invalid5
A.6	Step 5: Dynamic services conformance
A.6.1	General
A.6.2	Features provided
A.6.2.1	Segment list reconstruction and verification
A.6.2.2	Dynamic services with or without MPD updates
A.6.2.3	Additional features
A.6.3	Usage guide
A.6.3.1	General

- A.6.3.2** **Controls**
- A.6.3.2.1** **MPD input via UI**
- A.6.3.2.2** **MPD input via URL**
- A.6.3.3** **Outputs**
- A.6.3.3.1** **MPD status**
- A.6.3.3.2** **Segment request progress**
- A.6.3.3.3** **Response information**
- A.6.3.4** **Advanced controls**
- A.6.3.4.1** **RTT correction**
- A.6.3.4.2** **Dynamic clock skew correction**

Annex B (normative) Test vectors

Annex C (informative) Sample software

- C.1** **General**
- C.2** **Sample clients**
- C.2.1** **Sample player utilizing libdash**
- C.2.2** **GPAC client**
- C.3** **Sample segmenter**
- C.4** **Conformance testing service for ISO base media file format-based presentations**

Annex D (informative) Dynamic media presentation emulator

- D.1** **General**
- D.2** **Usage**
- D.3** **Availability**

Annex E (informative) Coverage of DASH features

- E.1** **DASH features**
- E.1.1** **General**
- E.1.2** **Documentation of DASH features**
- E.1.2.1** **General**
- E.1.2.2** **Major features**
- E.1.2.3** **Minor features**
- E.1.2.4** **Default/compression**
- E.1.2.5** **Typical**
- E.1.3** **DASH feature listing and conformance checking**
- E.1.4** **Design for DASH feature listing and conformance software**
- E.1.4.1** **General**
- E.1.4.2** **Software architecture and flowchart**
- E.1.4.2.1** **Overview**
- E.1.4.2.2** **Current status of software**
- E.2** **Feature coverage of DASH conformance software**
- E.3** **Feature coverage of DASH test vectors**

Page count: 87