ISO/IEC 23009-1:2012-04 (E)

Information technology - Dynamic adaptive streaming over HTTP (DASH) - Part 1: Media presentation description and segment formats

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms, definitions, symbols and abbreviated terms 2
3.1 Terms and definitions 2
3.2 Symbols and abbreviated terms 5
3.3 Conventions 6

4 Introduction 6
4.1 System description 6
4.2 DASH client model 7
4.3 DASH data model overview 8
4.4 Protocols 11
4.5 Media Stream and Representation properties 11
4.6 Brands 13
4.7 Schemes 13

5 Media Presentation 14
5.1 General 14
5.2 Media Presentation Description 14
5.3 Hierarchical data model 16
5.4 Media Presentation Description updates 54
5.5 MPD assembly 55
5.6 Base URL Processing 57
5.7 Program information 58
5.8 Descriptors 59
5.9 DASH metrics descriptor 65

6 Segment formats 67
6.1 Introduction 67
6.2 Segment types 67
6.3 Segment formats for ISO base media file format 69
6.4 Segment formats for MPEG-2 transport streams 72

7 Combined semantics of MPD and Segment formats 78
7.1 Introduction 78
7.2 General 79
7.3 Media Presentation based on the ISO base media file format 80
7.4 Media Presentation based on MPEG-2 TS 82

8 Profiles 84
8.1 Definition 84
8.2 Full profile 85
8.3 ISO Base media file format On Demand profile 85
8.4 ISO Base media file format live profile 87
8.5 ISO Base media file format main profile 88

8.6 MPEG-2 TS main profile 89
8.7 MPEG-2 TS simple profile 90

Annex A (informative) Example DASH client behaviour 92

A.1 Introduction 92
A.2 Overview 92
A.3 Segment list generation 93
A.4 Seeking 96
A.5 Support for trick modes 97
A.6 Switching Representations 97
A.7 Reaction to error codes 98
A.8 Encoder clock drift control 98

Annex B (normative) MPD schema 99

Annex C (normative) MIME type registration for MPD 105

C.1 Introduction 105
C.2 MIME type and subtype 105
C.3 Parameters 106

Annex D (normative) DASH Metrics 107

D.1 Introduction 107
D.2 DASH-Metrics client reference model 107
D.3 Definition of observation points 107
D.4 Semantics of the DASH metrics 108

Annex E (normative) Byte range requests with regular HTTP GET methods 114

E.1 Background 114
E.2 Construction rule 114
E.3 Examples 115

Annex F (informative) Guidelines for extending DASH with other delivery formats 116

F.1 Adding delivery formats to DASH 116
F.2 Media Presentation authoring rules 116

Annex G (informative) MPD Examples and MPD Usage 117

G.1 Example MPD for ISO Base media file format On Demand profile 117
G.2 Example for ISO Base media file format Live profile 118
G.3 Example for MPEG-2 TS Live profile 119
G.4 Example for multiple stereo views 120
G.5 Example for SVC alternative streams 121
G.6 Example for trick play support 122
G.7 Example for content protected by multiple schemes 123
G.8 Example for usage of Role descriptor 124

Bibliography 126