
Information technology — Coding of audio-visual objects —

Part 12: ISO base media file format

Technologies de l'information — Codage des objets audiovisuels —

Partie 12: Format ISO de base pour les fichiers médias

Reference number

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Contents

Page

1	Scope	1
2	Normative references	1
3	Terms, definitions, and abbreviated terms.....	3
3.1	Terms and definitions	3
3.2	Abbreviated terms.....	5
4	Object-structured File Organization.....	6
4.1	File Structure	6
4.2	Object Structure.....	6
4.3	File Type Box	7
5	Design Considerations	8
5.1	Usage.....	8
5.1.1	Introduction	8
5.1.2	Interchange.....	8
5.1.3	Content Creation.....	9
5.1.4	Preparation for streaming.....	10
5.1.5	Local presentation	10
5.1.6	Streamed presentation.....	10
5.2	Design principles	11
6	ISO Base Media File organization	12
6.1	Presentation structure.....	12
6.1.1	File Structure	12
6.1.2	Object Structure	12
6.1.3	Meta Data and Media Data	12
6.1.4	Track Identifiers.....	12
6.2	Metadata Structure (Objects)	13
6.2.1	Box	13
6.2.2	Data Types and fields	13
6.2.3	Box Order	14
6.2.4	URLs as type indicators.....	17
6.3	Brand Identification.....	17
7	Streaming Support	18
7.1	Handling of Streaming Protocols	18
7.2	Protocol 'hint' tracks.....	18
7.3	Hint Track Format	19
8	Box Structures	20
8.1	File Structure and general boxes.....	20
8.1.1	Media Data Box.....	20
8.1.2	Free Space Box.....	21

8.1.3	Progressive Download Information Box	21
8.2	Movie Structure.....	22
8.2.1	Movie Box.....	22
8.2.2	Movie Header Box.....	22
8.3	Track Structure	24
8.3.1	Track Box.....	24
8.3.2	Track Header Box	24
8.3.3	Track Reference Box.....	26
8.3.4	Track Group Box	27
8.4	Track Media Structure	28
8.4.1	Media Box	28
8.4.2	Media Header Box.....	29
8.4.3	Handler Reference Box	29
8.4.4	Media Information Box.....	30
8.4.5	Media Information Header Boxes	30
8.4.6	Extended language tag.....	31
8.5	Sample Tables.....	32
8.5.1	Sample Table Box.....	32
8.5.2	Sample Description Box.....	32
8.5.3	Degradation Priority Box.....	34
8.5.4	Sample Scale Box.....	35
8.6	Track Time Structures	35
8.6.1	Time to Sample Boxes	35
8.6.2	Sync Sample Box.....	40
8.6.3	Shadow Sync Sample Box	40
8.6.4	Independent and Disposable Samples Box.....	41
8.6.5	Edit Box.....	43
8.6.6	Edit List Box	43
8.7	Track Data Layout Structures	45
8.7.1	Data Information Box	45
8.7.2	Data Reference Box	45
8.7.3	Sample Size Boxes.....	47
8.7.4	Sample To Chunk Box.....	48
8.7.5	Chunk Offset Box	49
8.7.6	Padding Bits Box	49
8.7.7	Sub-Sample Information Box.....	50
8.7.8	Sample Auxiliary Information Sizes Box	51
8.7.9	Sample Auxiliary Information Offsets Box	53
8.8	Movie Fragments	54
8.8.1	Movie Extends Box.....	54
8.8.2	Movie Extends Header Box.....	54
8.8.3	Track Extends Box	55
8.8.4	Movie Fragment Box	56
8.8.5	Movie Fragment Header Box	56
8.8.6	Track Fragment Box.....	57
8.8.7	Track Fragment Header Box.....	57

8.8.8	Track Fragment Run Box	58
8.8.9	Movie Fragment Random Access Box	60
8.8.10	Track Fragment Random Access Box	60
8.8.11	Movie Fragment Random Access Offset Box	61
8.8.12	Track fragment decode time	62
8.8.13	Level Assignment Box	63
8.8.14	Sample Auxiliary Information in Movie Fragments	65
8.8.15	Track Extension Properties Box	65
8.8.16	Alternative Startup Sequence Properties Box	66
8.8.17	Metadata and user data in movie fragments	66
8.9	Sample Group Structures	67
8.9.1	Introduction	67
8.9.2	Sample to Group Box	68
8.9.3	Sample Group Description Box	69
8.9.4	Representation of group structures in Movie Fragments	70
8.10	User Data	71
8.10.1	User Data Box	71
8.10.2	Copyright Box	72
8.10.3	Track Selection Box	72
8.10.4	Track kind	74
8.11	Metadata Support	75
8.11.1	The Meta box	75
8.11.2	XML Boxes	76
8.11.3	The Item Location Box	77
8.11.4	Primary Item Box	80
8.11.5	Item Protection Box	80
8.11.6	Item Information Box	81
8.11.7	Additional Metadata Container Box	83
8.11.8	Metabox Relation Box	84
8.11.9	URL Forms for meta boxes	85
8.11.10	Static Metadata	85
8.11.11	Item Data Box	86
8.11.12	Item Reference Box	87
8.11.13	Auxiliary video metadata	88
8.12	Support for Protected Streams	88
8.12.1	Protection Scheme Information Box	89
8.12.2	Original Format Box	90
8.12.3	IPMPInfoBox	90
8.12.4	IPMP Control Box	90
8.12.5	Scheme Type Box	90
8.12.6	Scheme Information Box	91
8.13	File Delivery Format Support	91
8.13.1	Introduction	91
8.13.2	FD Item Information Box	92
8.13.3	File Partition Box	92
8.13.4	FEC Reservoir Box	94

8.13.5	FD Session Group Box	95
8.13.6	Group ID to Name Box.....	96
8.13.7	File Reservoir Box.....	96
8.14	Sub tracks	97
8.14.1	Introduction	97
8.14.2	Backward compatibility.....	97
8.14.3	Sub Track box	98
8.14.4	Sub Track Information box.....	98
8.14.5	Sub Track Definition box.....	100
8.14.6	Sub Track Sample Group box	100
8.15	Post-decoder requirements on media.....	100
8.15.1	General	100
8.15.2	Transformation.....	101
8.15.3	Restricted Scheme Information box.....	102
8.15.4	Scheme for stereoscopic video arrangements.....	102
8.16	Segments	104
8.16.1	Introduction	104
8.16.2	Segment Type Box.....	104
8.16.3	Segment Index Box.....	105
8.16.4	Subsegment Index Box	109
8.16.5	Producer Reference Time Box.....	111
8.17	Support for Incomplete Tracks	112
8.17.1	General	112
8.17.2	Transformation.....	113
8.17.3	Complete Track Information Box	114
9	Hint Track Formats	114
9.1	RTP and SRTP Hint Track Format	114
9.1.1	Introduction.....	114
9.1.2	Sample Description Format	115
9.1.3	Sample Format.....	117
9.1.4	SDP Information	119
9.1.5	Statistical Information	120
9.2	ALC/LCT and FLUTE Hint Track Format.....	121
9.2.1	Introduction.....	121
9.2.2	Design principles	122
9.2.3	Sample Description Format	123
9.2.4	Sample Format.....	124
9.3	MPEG-2 Transport Hint Track Format.....	127
9.3.1	Introduction.....	127
9.3.2	Design Principles	128
9.3.3	Sample Description Format	130
9.3.4	Sample Format.....	132
9.3.5	Protected MPEG 2 Transport Stream Hint Track	134
9.4	RTP, RTCP, SRTP and SRTCP Reception Hint Tracks	134
9.4.1	RTP Reception Hint Track	134

9.4.2	RTCP Reception Hint Track	138
9.4.3	SRTP Reception Hint Track.....	140
9.4.4	SRTCP Reception Hint Tracks	142
9.4.5	Protected RTP Reception Hint Track	143
9.4.6	Recording Procedure	143
9.4.7	Parsing Procedure	143
10	Sample Groups	143
10.1	Random Access Recovery Points	143
10.2	Rate Share Groups.....	144
10.2.1	Introduction.....	144
10.2.2	Rate Share Sample Group Entry	146
10.2.3	Relationship between tracks	147
10.2.4	Bitrate allocation	147
10.3	Alternative Startup Sequences	148
10.3.4	Examples.....	149
10.4	Random Access Point (RAP) Sample Grouping.....	151
10.5	Temporal level sample grouping.....	152
10.6	Stream access point sample group.....	152
11	Extensibility	153
11.1	Objects.....	153
11.2	Storage formats.....	154
11.3	Derived File formats.....	154
12	Media-specific definitions.....	155
12.1	Video media.....	155
12.1.1	Media handler.....	155
12.1.2	Video media header	155
12.1.3	Sample entry.....	156
12.1.4	Pixel Aspect Ratio and Clean Aperture	156
12.1.5	Colour information.....	158
12.2	Audio media	159
12.2.1	Media handler.....	159
12.2.2	Sound media header	159
12.2.3	Sample entry.....	160
12.2.4	Channel layout	162
12.2.5	Downmix Instructions.....	163
12.2.6	DRC Information	165
12.2.7	Audio stream loudness	165
12.3	Metadata media.....	167
12.3.1	Media handler.....	167
12.3.2	Media header.....	167
12.3.3	Sample entry.....	167
12.4	Hint media.....	169
12.4.1	Media handler.....	169
12.4.2	Hint media header	169
12.4.3	Sample entry.....	170

12.5	Text media	170
12.5.1	Media handler	170
12.5.2	Media header	170
12.5.3	Sample entry	170
12.6	Subtitle media	171
12.6.1	Media handler	171
12.6.2	Subtitle media header	171
12.6.3	Sample entry	171
12.7	Font media	172
12.7.1	Media handler	172
12.7.2	Media header	172
12.7.3	Sample entry	172
12.8	Transformed media	172
Annex A	(informative) Overview and Introduction	173
A.1	Section Overview	173
A.2	Core Concepts	173
A.3	Physical structure of the media	174
A.4	Temporal structure of the media	174
A.5	Interleave	175
A.6	Composition	175
A.7	Random access	175
A.8	Fragmented movie files	176
Annex B	(void)	178
Annex C	(informative) Guidelines on deriving from this specification	179
C.1	Introduction	179
C.2	General Principles	179
C.2.1	General	179
C.2.2	Base layer operations	180
C.3	Boxes	180
C.4	Brand Identifiers	181
C.4.1	Introduction	181
C.4.2	Usage of the Brand	181
C.4.3	Introduction of a new brand	182
C.4.4	Player Guideline	182
C.4.5	Authoring Guideline	182
C.4.6	Example	183
C.5	Storage of new media types	183
C.6	Use of Template fields	183
C.7	Tracks	184
C.7.1	Data Location	184
C.7.2	Time	184
C.7.3	Media Types	185
C.7.4	Coding Types	185
C.7.5	Sub-sample information	185
C.7.6	Sample Dependency	185

C.7.7	Sample Groups	185
C.7.8	Track-level	186
C.7.9	Protection	186
C.8	Construction of fragmented movies	186
C.9	Meta-data	187
C.10	Registration	187
C.11	Guidelines on the use of sample groups, timed metadata tracks, and sample auxiliary information	187
Annex D	(informative) Registration Authority	190
D.1	Code points to be registered	190
D.2	Procedure for the request of an MPEG-4 registered identifier value	191
D.3	Responsibilities of the Registration Authority	191
D.4	Contact information for the Registration Authority	191
D.5	Responsibilities of Parties Requesting a RID	192
D.6	Appeal Procedure for Denied Applications	192
D.7	Registration Application Form	192
D.7.1	Contact Information of organization requesting a RID	192
D.7.2	Request for a specific RID	193
D.7.3	Short description of RID that is in use and date system was implemented	193
D.7.4	Statement of an intention to apply the assigned RID	193
D.7.5	Date of intended implementation of the RID	193
D.7.6	Authorized representative	193
D.7.7	For official use of the Registration Authority	194
Annex E	(normative) File format brands	195
E.1	Introduction	195
E.2	The 'isom' brand	196
E.3	The 'avc1' brand	197
E.4	The 'iso2' brand	197
E.5	The 'mp71' brand	198
E.6	The 'iso3' brand	198
E.7	The 'iso4' brand	199
E.8	The 'iso5' brand	199
E.9	The 'iso6' brand	200
E.10	The 'iso7' brand	200
E.11	The 'iso8' brand	201
E.12	The 'iso9' brand	201
Annex F	(void)	202
Annex G	(informative) URI-labelled metadata forms	203
G.1	UUID-labelled metadata	203
G.2	ISO OID-labelled metadata	203
G.3	SMPTE-labelled metadata	204
Annex H	(informative) Processing of RTP streams and reception hint tracks	205
H.1	Introduction	205
H.1.1	Overview	205

H.1.2	Structure.....	205
H.1.3	Terms and definitions	205
H.2	Synchronization of RTP streams	205
H.3	Recording of RTP streams	206
H.3.1	Introduction	206
H.3.2	Compensation for unequal starting for position of received RTP streams.....	209
H.3.3	Recording of SDP	210
H.3.4	Creation of a sample within an RTP reception hint track.....	210
H.3.5	Representation of RTP timestamps	211
H.3.6	Recording operations to facilitate inter-stream synchronization in playback	214
H.3.7	Representation of reception times	216
H.3.8	Creation of media samples.....	217
H.3.9	Creation of hint samples referring to media samples.....	217
H.4	Playing of recorded RTP streams.....	217
H.4.1	Introduction	217
H.4.2	Preparation for the playback.....	218
H.4.3	Decoding of a sample within an RTP reception hint track	218
H.4.4	Lip synchronization.....	219
H.4.5	Random access	220
H.5	Re-sending recorded RTP streams	221
H.5.1	Introduction	221
H.5.2	Re-sending RTP packets.....	222
H.5.3	RTCP Processing	223
Annex I	(normative) Stream Access Points	224
I.1	Introduction	224
I.2	SAP properties	224
I.2.1	General.....	224
I.2.2	SAP properties for layers	225
I.3	SAP types	226
Annex J	(normative) MIME Type Registration of Segments	227
J.1	Introduction	227
J.2	Registration	227
Annex K	: Segment Index Examples (informative).....	228
K.1	Introduction	228
K.2	Examples	228
K.2.1	Simple one-level indexing	228
K.2.2	Hierarchical	228
K.2.3	Daisy-chain	229
K.2.4	Combination hierarchical and daisy-chain	230

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).

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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

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

This fifth edition cancels and replaces the fourth edition (ISO/IEC 14496-12:2012), which has been technically revised. It also incorporates the Amendments ISO/IEC 14496-12:2012/Amd1:2013, ISO/IEC 14496-12:2012/Amd2:2014, ISO/IEC 14496-12:2012/Amd3:2015 and the Technical Corrigenda ISO/IEC 14496-12:2012/Cor1:2013, ISO/IEC 14496-12:2012/Cor2:2014 and ISO/IEC 14496-12:2012/Cor3:2015.

ISO/IEC 14496 consists of the following parts, under the general title *Information technology — Coding of audio-visual objects*:

- *Part 1: Systems*
- *Part 2: Visual*
- *Part 3: Audio*

- *Part 4: Conformance testing*
- *Part 5: Reference software*
- *Part 6: Delivery Multimedia Integration Framework (DMIF)*
- *Part 7: Optimized reference software for coding of audio-visual objects*
- *Part 8: Carriage of ISO/IEC 14496 contents over IP networks*
- *Part 9: Reference hardware description*
- *Part 10: Advanced Video Coding*
- *Part 11: Scene description and application engine*
- *Part 12: ISO base media file format*
- *Part 13: Intellectual Property Management and Protection (IPMP) extensions*
- *Part 14: MP4 file format*
- *Part 15: Carriage of NAL unit structured video in the ISO Base Media File Format*
- *Part 16: Animation Framework eXtension (AFX)*
- *Part 17: Streaming text format*
- *Part 18: Font compression and streaming*
- *Part 19: Synthesized texture stream*
- *Part 20: Lightweight Application Scene Representation (LAsER) and Simple Aggregation Format (SAF)*
- *Part 21: MPEG-J Graphics Framework eXtensions (GFX)*
- *Part 22: Open Font Format*
- *Part 23: Symbolic Music Representation*
- *Part 24: Audio and systems interaction*
- *Part 25: 3D Graphics Compression Model*
- *Part 26: Audio conformance*
- *Part 27: 3D Graphics conformance*
- *Part 28: Composite font representation*
- *Part 29: Web video coding*

- *Part 30: Timed text and other visual overlays in ISO base media file format*
- *Part 31: Video Coding for Browsers*

Introduction

The ISO Base Media File Format is designed to contain timed media information for a presentation in a flexible, extensible format that facilitates interchange, management, editing, and presentation of the media. This presentation may be 'local' to the system containing the presentation, or may be via a network or other stream delivery mechanism.

The file structure is object-oriented; a file can be decomposed into constituent objects very simply, and the structure of the objects inferred directly from their type.

The file format is designed to be independent of any particular network protocol while enabling efficient support for them in general.

The ISO Base Media File Format is a base format for media file formats.

It is intended that the ISO Base Media File Format shall be jointly maintained by WG1 and WG11. Consequently, a subdivision of work created ISO/IEC 15444-12 and ISO/IEC 14496-12 in order to document the ISO Base Media File Format and to facilitate the joint maintenance.

This technically identical text is published as ISO/IEC 14496-12 for MPEG-4, and as ISO/IEC 15444-12 for JPEG 2000, and reference to this specification should be made accordingly. The recommendation is to reference one, for example ISO/IEC 14496-12, and append to the reference a parenthetical comment identifying the other, for example "(technically identical to ISO/IEC 15444-12)".

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.

The ISO and IEC take no position concerning the evidence, validity and scope of this patent right.

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ISO (www.iso.org/patents) and IEC (<http://patents.iec.ch>) maintain on-line databases of patents relevant to their standards. Users are encouraged to consult the databases for the most up to date information concerning patents.

Information technology — Coding of audio-visual objects —

Part 12: ISO base media file format

1 Scope

This part of ISO/IEC 14496 specifies the ISO base media file format, which is a general format forming the basis for a number of other more specific file formats. This format contains the timing, structure, and media information for timed sequences of media data, such as audio-visual presentations.

This part of ISO/IEC 14496 is applicable to MPEG-4, but its technical content is identical to that of ISO/IEC 15444-12, which is applicable to JPEG 2000.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-2:1998, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO/IEC 9834-8:2005, *Information technology — Open Systems Interconnection — Procedures for the operation of OSI Registration Authorities: Generation and registration of Universally Unique Identifiers (UUIDs) and their use as ASN.1 Object Identifier components*

ISO/IEC 11578:1996, *Information technology — Open Systems Interconnection — Remote Procedure Call (RPC)*

ISO/IEC 14496-1:2010, *Information technology — Coding of audio-visual objects — Part 1: Systems*

ISO/IEC 14496-10, *Information technology — Coding of audio-visual objects — Part 10: Advanced Video Coding*

ISO/IEC 14496-14, *Information technology — Coding of audio-visual objects — Part 14: MP4 file format*

ISO/IEC 15444-1, *Information technology — JPEG 2000 image coding system: Core coding system*

ISO/IEC 15444-3, *Information technology — JPEG 2000 image coding system: Motion JPEG 2000*

ISO/IEC 15938-1, *Information technology — Multimedia content description interface — Part 1: Systems*

ISO/IEC 23001-1, *Information technology — MPEG systems technologies — Part 1: Binary MPEG format for XML*

ISO/IEC 23002-3, *Information technology — MPEG video technologies — Part 3: Representation of auxiliary video and supplemental information*

ISO/IEC 29199-2:2012, *Information technology — JPEG XR image coding system — Part 2: Image coding specification*

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ATSC Doc. A/52:2012, *ATSC Standard: Digital Audio Compression (AC-3, E-AC-3)*.

IETF RFC 5646, BCP 47, *Tags for Identifying Languages*, PHILLIPS, A., et al, September 2009