ISO/IEC 23008-12:2022-09 (E)

Information technology - MPEG systems techno logies - Part 12: Image File Format

Contents

Page

Foreword ... **vi**

Introduction ... **vii**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms, definitions, and abbreviated terms ... **1**
3.1 Terms and definitions ... 1
3.2 Abbreviated terms ... 5

4 Overview ... **6**

5 General requirements ... **6**
5.1 General requirements on files ... 6
5.2 General requirements on readers ... 7
5.3 Multi-purpose files ... 7
5.4 Other boxes ... 7

6 Single image and image collection ... **7**
6.1 General ... 7
6.2 Derivation from the ISO base media file format ... 7
6.3 Derivation of an output image of an image item ... 8
6.4 Roles of images ... 8
6.4.1 General ... 8
6.4.2 Hidden images ... 8
6.4.3 Cover image ... 9
6.4.4 Thumbnail images ... 9
6.4.5 Auxiliary images ... 9
6.4.6 Master images ... 9
6.4.7 Pre-derived coded images ... 9
6.4.8 Multi-layer images ... 9
6.4.9 Predictively coded image items ... 10
6.5 Image properties ... 10
6.5.1 General ... 10
6.5.2 Decoder configuration and initialization ... 11
6.5.3 Image spatial extents ... 11
6.5.4 Pixel aspect ratio ... 12
6.5.5 Colour information ... 12
6.5.6 Pixel information ... 13
6.5.7 Relative location ... 14
6.5.8 Image properties for auxiliary images ... 14
6.5.9 Clean aperture ... 15
6.5.10 Image rotation ... 15
6.5.11 Layer selection ... 16
6.5.12 Image mirroring ... 17
6.5.13 Image scaling ... 17
6.5.14 Content light level ... 18
6.5.15 Mastering display colour volume ... 19
6.5.16 Content colour volume ... 19
6.5.17 Required reference types ... 19
6.5.18 Creation time information ... 20
6.5.19 Modification time information ... 21
6.5.20 User description ... 21

6.5.21 Accessibility text 22
6.5.22 Auto Exposure Information 22
6.5.23 White balance information 23
6.5.24 Focus information 24
6.5.25 Flash exposure information 24
6.5.26 Depth of field information 25
6.5.27 Panorama information 25
6.5.28 Sub-sample information 26
6.5.29 Target output layer set 27
6.5.30 Wipe transition effect 27
6.5.31 Zoom transition effect 29
6.5.32 Fade transition effect 30
6.5.33 Split transition effect 30
6.5.34 Suggested transition period 32
6.5.35 Suggested time display duration 32
6.5.36 Ambient viewing environment 33
6.6 Derived images and derived image items 33
6.6.1 General 33
6.6.2 Derived image types and derived image item types 34
6.7 Image metadata 36
6.8 Entity and sample groups 36
6.8.1 Relating an untimed item to a timed sequence 36
6.8.2 Burst images 37
6.8.3 `'tsyn'` entity group 38
6.8.4 `'iaug'` entity group 38
6.8.5 `'ster'` entity grouping 39
6.8.6 Bracketed sets/logically group of images at capture-time 39
6.8.7 User-defined image collections 43
6.8.8 Panorama 43
6.8.9 Slideshow 44
6.9 Auxiliary image item types and sample formats 45
6.9.1 CICP-compliant alpha plane 45
6.9.2 CICP-compliant depth map 46
6.10 Region items and region annotations 46
6.10.1 Region item 46
6.10.2 Mask item 50
6.10.3 Region annotation 51
6.11 Derived region items 52
6.11.1 General 52
6.11.2 Derived region item types 52

7 Image sequences 53
7.1 General 53
7.2 Derivation from the ISO base media file format 53
7.2.1 Track Header box 53
7.2.2 Handler type 53
7.2.3 Coding Constraints box 54
7.3 Presentation of an image sequence track 54
7.4 Sample groups 55
7.4.1 Direct reference samples list 55
7.5 Other tracks 56
7.5.1 General 56
7.5.2 Thumbnail image sequence track 56
7.5.3 Auxiliary image sequence track 57

8 Metadata support 57
8.1 General 57
8.2 Metadata for image items 58
8.2.1 General 58
8.2.2 Deductive information 58
8.3 Metadata for image sequence tracks 58
8.4 Integrity checks 59
8.4.1 General 59

8.4.2 Syntax 59
8.4.3 Semantics 60
9 Extensions to the ISO base media file format 60
10 Image File Format brands 60
10.1 General 60
10.2 Image and image collection brands 60
10.2.1 General requirements on brands 60
10.2.2 'mif1' structural brand 61
10.2.3 'mif2' structural brand 63
10.2.4 'pred' brand 63
10.2.5 '1pic' brand 64
10.3 Image sequence brands 64
10.3.1 'msf1' structural brand 64
Annex A (normative) **Storage of externally specified metadata 66**
Annex B (normative) **HEVC Image File Format 68**
Annex C (normative) **High efficiency image file MIME type registration 79**
Annex D (normative) **High efficiency image sequence file MIME type registration 82**
Annex E (normative) **AVC in the Image File Format 84**
Annex F (normative) **Advanced coding image MIME type registration 88**
Annex G (normative) **Advanced coding sequence MIME type registration 90**
Annex H (normative) **JPEG in the Image File Format 92**
Annex I (informative) **Guidelines for specifying storage of image coding formats 95**
Annex J (informative) **Examples of image collections 96**
Annex K (informative) **Guidelines for progressive refinement 100**
Annex L (normative) **VVC Image File Format 102**
Annex M (normative) **EVC Image File Format 112**
Annex N (informative) **Privacy and security considerations 117**
Bibliography 119