

## ISO/IEC 23008-12

# Information technology — High efficiency coding and media delivery in heterogeneous environments —

## Part 12: Image File Format

*Technologies de l'information — Codage à haute efficacité et livraison des médias dans des environnements hétérogènes —*

*Partie 12: Format de fichier d'image*

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CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
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<b>Foreword</b> .....	<b>vi</b>
<b>Introduction</b> .....	<b>vii</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms, definitions, abbreviated terms and symbols</b> .....	<b>2</b>
3.1 Terms and definitions.....	2
3.2 Abbreviated terms.....	6
3.3 Mathematical functions.....	7
<b>4 Overview</b> .....	<b>7</b>
<b>5 General requirements</b> .....	<b>7</b>
5.1 General requirements on files.....	7
5.2 General requirements on readers.....	7
5.3 Multi-purpose files.....	8
5.4 Other boxes.....	8
<b>6 Single image and image collection</b> .....	<b>8</b>
6.1 General.....	8
6.2 Derivation from the ISO base media file format.....	8
6.3 Derivation of an output image of an image item.....	8
6.4 Roles of images.....	9
6.4.1 General.....	9
6.4.2 Hidden images.....	9
6.4.3 Cover image.....	9
6.4.4 Thumbnail images.....	9
6.4.5 Auxiliary images.....	10
6.4.6 Master images.....	10
6.4.7 Pre-derived coded images.....	10
6.4.8 Multi-layer images.....	10
6.4.9 Predictively coded image items.....	11
6.5 Image properties.....	11
6.5.1 General.....	11
6.5.2 Decoder configuration and initialization.....	12
6.5.3 Image spatial extents.....	12
6.5.4 Pixel aspect ratio.....	13
6.5.5 Colour information.....	13
6.5.6 Pixel information.....	14
6.5.7 Relative location.....	15
6.5.8 Image properties for auxiliary images.....	15
6.5.9 Clean aperture.....	16
6.5.10 Image rotation.....	16
6.5.11 Layer selection.....	17
6.5.12 Image mirroring.....	18
6.5.13 Image scaling.....	18
6.5.14 Content light level.....	19
6.5.15 Mastering display colour volume.....	20
6.5.16 Content colour volume.....	20
6.5.17 Required reference types.....	21
6.5.18 Creation time information.....	21
6.5.19 Modification time information.....	22
6.5.20 User description.....	22
6.5.21 Accessibility text.....	23
6.5.22 Auto exposure information.....	24
6.5.23 White balance information.....	24
6.5.24 Focus information.....	25

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6.5.27	Panorama information.....	27
6.5.28	Sub-sample information.....	28
6.5.29	Target output layer set.....	28
6.5.30	Wipe transition effect.....	29
6.5.31	Zoom transition effect.....	30
6.5.32	Fade transition effect.....	31
6.5.33	Split transition effect.....	32
6.5.34	Suggested transition period.....	33
6.5.35	Suggested time display duration.....	33
6.5.36	Ambient viewing environment.....	34
6.5.37	Progressive derived image item information.....	35
6.5.38	Single stream.....	37
6.5.39	Camera extrinsic matrix.....	38
6.5.40	Camera intrinsic matrix.....	41
6.6	Derived images and derived image items.....	42
6.6.1	General.....	42
6.6.2	Derived image types and derived image item types.....	43
6.7	Image metadata.....	45
6.8	Entity and sample groups.....	45
6.8.1	Relating an untimed item to a timed sequence.....	45
6.8.2	Burst images.....	46
6.8.3	'tsyn' entity group.....	47
6.8.4	'iaug' entity group.....	47
6.8.5	'ster' entity group.....	48
6.8.6	Bracketed sets/logically group of images at capture-time.....	48
6.8.7	User-defined image collections.....	51
6.8.8	Panorama.....	52
6.8.9	Slideshow entity group.....	53
6.8.10	Progressive rendering entity group.....	53
6.9	Auxiliary image item types and sample formats.....	54
6.9.1	CICP-compliant alpha plane.....	54
6.9.2	CICP-compliant depth map.....	55
6.10	Text and font items.....	55
6.10.1	Text item.....	55
6.10.2	Text properties.....	56
6.10.3	Font item.....	58
6.10.4	Font properties.....	59
<b>7</b>	<b>Image sequences.....</b>	<b>60</b>
7.1	General.....	60
7.2	Derivation from the ISO base media file format.....	60
7.2.1	Track Header box.....	60
7.2.2	Handler type.....	60
7.2.3	Coding Constraints box.....	61
7.3	Presentation of an image sequence track.....	61
7.4	Sample groups.....	62
7.4.1	Direct reference samples list.....	62
7.5	Other tracks.....	63
7.5.1	General.....	63
7.5.2	Thumbnail image sequence track.....	63
7.5.3	Auxiliary image sequence track.....	64
<b>8</b>	<b>Metadata support.....</b>	<b>64</b>
8.1	General.....	64
8.2	Metadata for image items.....	65
8.2.1	General.....	65
8.2.2	Deductive information.....	65
8.3	Metadata for image sequence tracks.....	65

This is a preview of ISO/IEC 23008-12:2025. [Click here to purchase the full version from the ANSI store.](#)

8.4.2	Syntax.....	66
8.4.3	Semantics.....	66
<b>9</b>	<b>Extensions to the ISO base media file format.....</b>	<b>67</b>
<b>10</b>	<b>Image file format brands.....</b>	<b>67</b>
10.1	General.....	67
10.2	Image and image collection brands.....	67
10.2.1	General requirements on brands.....	67
10.2.2	'mif1' structural brand.....	68
10.2.3	'mif2' structural brand.....	69
10.2.4	'pred' brand.....	70
10.2.5	'pic' brand.....	71
10.3	Image sequence brands.....	71
10.3.1	'msf1' structural brand.....	71
<b>11</b>	<b>Region and region annotation.....</b>	<b>72</b>
11.1	Overview.....	72
11.2	Common definitions for image sequence or video tracks and for image items.....	72
11.2.1	Region geometry structure.....	72
11.2.2	Mask item.....	76
11.3	Regions and region annotations for an image item.....	77
11.3.1	General.....	77
11.3.2	Region item.....	78
11.3.3	Derived region item.....	79
11.4	Regions and region annotations for an image sequence or a video track.....	79
11.4.1	General.....	79
11.4.2	Region track.....	80
11.4.3	Sample groups for region track.....	82
<b>Annex A</b> (normative)	<b>Storage of externally specified metadata.....</b>	<b>85</b>
<b>Annex B</b> (normative)	<b>HEVC Image File Format.....</b>	<b>87</b>
<b>Annex C</b> (normative)	<b>High efficiency image file MIME type registration.....</b>	<b>98</b>
<b>Annex D</b> (normative)	<b>High efficiency image sequence file MIME type registration.....</b>	<b>101</b>
<b>Annex E</b> (normative)	<b>AVC in the Image File Format.....</b>	<b>103</b>
<b>Annex F</b> (normative)	<b>Advanced coding image MIME type registration.....</b>	<b>107</b>
<b>Annex G</b> (normative)	<b>Advanced coding sequence MIME type registration.....</b>	<b>109</b>
<b>Annex H</b> (normative)	<b>JPEG in the Image File Format.....</b>	<b>111</b>
<b>Annex I</b> (informative)	<b>Guidelines for specifying storage of image coding formats.....</b>	<b>115</b>
<b>Annex J</b> (informative)	<b>Examples of image collections.....</b>	<b>116</b>
<b>Annex K</b> (informative)	<b>Examples of progressive decoding, rendering and refinement.....</b>	<b>120</b>
<b>Annex L</b> (normative)	<b>VVC Image File Format.....</b>	<b>128</b>
<b>Annex M</b> (normative)	<b>EVC Image File Format.....</b>	<b>138</b>
<b>Annex N</b> (informative)	<b>Privacy and security considerations.....</b>	<b>143</b>
<b>Bibliography</b>	.....	<b>145</b>

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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 third edition cancels and replaces the second edition (ISO/IEC 23008-12:2022), which has been technically revised.

The main changes are as follows:

- clarification on the signalling of colour information in image items;
- support for the signalling of camera intrinsic and extrinsic matrices;
- support for progressive decoding, rendering and refinement;
- support for region annotations for image sequence or video track;
- support for renderable text items.

A list of all parts in the ISO/IEC 23008 series can be found on the ISO and IEC websites.

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The Image File Format is designed to enable the interchange of images and image sequences, as well as their associated metadata. It forms part of a family of specifications that are box-structured, and is built using tools defined in the ISO base media file format. This document specifies both structural brands that can be used with any codec and brands specific to High Efficiency Video Coding (HEVC). The file format specified in this document is referred to as the High Efficiency Image File Format (HEIF). It is suggested that HEIF be pronounced "heaff" (like heath with an ff ending). When the requirements of the HEVC-specific brands are applied, the file format can be referred to as the HEVC Image File Format.

This document is organized as follows:

[Clause 5](#) specifies general requirements on files and file readers conforming to the Image File Format.

[Clause 6](#) specifies the file structures for the storage of a single image and an image collection. Additionally, general requirements that shall be supported in all files using the Image File Format for the storage of a single image or an image collection are specified.

[Clause 7](#) specifies the file structures for the storage of image sequences. Additionally, general requirements that shall be supported in all files using the Image File Format for the storage of image sequences are specified.

[Clause 8](#) specifies the metadata structures for a single image, an image collection, and image sequences.

[Clause 9](#) specifies enhancements to the ISO base media file format.

[Clause 10](#) specifies structural brands for a single image and an image collection, as well as image sequences. Requirements on both files and file readers are specified.

[Clause 11](#) specifies tools to associate annotations, e.g. metadata or images with one or more regions of an image or an image sequence.

[Annex A](#) specifies the format for storing Exif, XMP, and MPEG-7 metadata in files conforming to the Image File Format.

[Annex B](#) specifies the format for encapsulating HEVC-coded images, image collections, and image sequences according to the Image File Format. [Annex B](#) also specifies HEVC-specific brands for a single image and an image collection as well as image sequences. Requirements on both files and file readers are specified.

[Annex C](#) and [Annex D](#) specify the MIME type registration for a single image or an image collection, and image sequences, respectively, for the structural and HEVC-specific brands.

[Annex E](#) specifies the format for encapsulating AVC-coded images, image collections, and image sequences according to the Image File Format.

[Annex F](#) and [Annex G](#) specify the MIME type registration for a single image or an image collection, and image sequences, respectively, for the AVC-specific brands.

[Annex H](#) specifies the format for encapsulating JPEG-coded images, image collections, and image sequences according to the Image File Format.

[Annex I](#) contains guidelines on defining new image formats and brands.

[Annex J](#) contains informative examples of single image and image collection file structures conforming to the Image File Format.

[Annex K](#) provides examples of content encoding, file structures and player operations for progressive rendering, progressive decoding and progressive refinement with the Image File Format.

[Annex L](#) specifies the format for encapsulating VVC-coded images, image collections, and image sequences according to the Image File Format. [Annex L](#) also specifies VVC-specific brands for a single image and an image collection as well as image sequences. Requirements on both files and file readers are specified.

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image collection as well as image sequences. Requirements on both files and file readers are specified.

[Annex N](#) contains considerations on privacy and security relating to the use of the Image File Format.