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Information technologies — JPEG systems —

Part 6: JPEG 360

Technologies de l'information — Systèmes JPEG —
Partie 6: JPEG 360

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Foreword

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 19566-6:2019), which has been technically revised. It also incorporates the Amendments ISO/IEC 19566-6:2019/Amd 1:2021 and ISO/IEC 19566-6:2019/Amd 2:2025.

The main changes are as follows:

— incorporates the latest advancements in stereoscopic imaging as well as dealing with accelerated rendering of region of interest viewports.

A list of all parts in the ISO/IEC 19566 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

The ISO/IEC 19566 series is designed primarily for format and metadata storage and protection method of compressed continuous-tone photographic content.

There is increasing use of multi-sensor images from multiple image sensor devices, such as 360° capturing cameras or dual-camera smartphones available to consumers. Images from these cameras are shown on computers, smartphones, and head-mounted displays (HMD).

Because existing JPEG standards do not fully cover these new uses, incompatibilities have reduced the interoperability of these images, and thus reducing the widespread ubiquity which consumers have come to expect when using JPEG-based images.

Additionally, new modalities for interacting with images, such as computer-based augmentation, face-tagging, and object classification require support for metadata that was not part of the original JPEG scope.

This document defines "JPEG 360", building upon the features of JPEG Universal Metadata Box Format (JUMBF) (see ISO/IEC 19566-5).

This document defines the use of the JPEG 360 Content Type JUMBF superbox with respect to the sub-box components which include the definition of an XML box, the use of other boxes such as unstitched image elements for omnidirectional captures together with the main image and descriptive metadata, and encrypted parts of the image.

Information technologies — JPEG systems —

Part 6: JPEG 360

1 Scope

This document specifies omnidirectional/360° image and motion contents using Rec. ITU-T T.81 | ISO/IEC 10918-1, Rec. ITU-T T.800 | ISO/IEC 15444-1 and ISO/IEC 18477-3.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19566-5, *Information technologies — JPEG systems — Part 5: JPEG universal metadata box format (JUMBF)*

Rec. ITU-T T.81 | ISO/IEC 10918-1, *Information technology — Digital compression and coding of continuous-tone still images: Requirements and guidelines*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
box
binary structure that encapsulates an object embedded in a file

3.1.3
deserialization
extraction of data structure from a series of bytes

3.1.4
equirectangular projection
projection for mapping a portion of the surface of a sphere to a flat image

3.1.6
metadata
data that describes other data, including text, image, hypertext and combinations thereof