International Standard

ISO/IEC 10918-4

Second edition
2024-05

Information technology — Digital compression and coding of continuous-tone still images —

Part 4: APPn markers

Technologies de l'information — Compression numérique et codage des images fixes à modelé continu —

Partie 4: Marqueurs APPn

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Foreword

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This document was prepared by ITU-T (as ITU-T Rec T.86) and drafted in accordance with its editorial rules, in collaboration with 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 10918-4:1999), which has been technically revised. It also incorporates the Amendment ISO/IEC 10918-4:1999/Amd 1:2013.

The main changes are as follows:

— cancels the provisions concerning the registration authority processes originally defined in the first edition.

A list of all parts in the ISO/IEC 10918 series can be found on the ISO and IEC websites.

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INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

Information technology – Digital compression and coding of continuous-tone still images: APPn markers

1 Scope

This Recommendation | International Standard provides definitions for JPEG application specific markers found in Rec. ITU-T T.81 | ISO/IEC 10918-1 and Rec. ITU-T T.84 | ISO/IEC 10918-3.

2 Normative references

The following Recommendations and International Standards contain provisions which, through references in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical ITU-T Recommendations | International Standards

- Recommendation ITU-T T.81 | ISO/IEC 10918-1, *Information technology – Digital compression and coding of continuous-tone still images: Requirements and guidelines*.
- Recommendation ITU-T T.84 | ISO/IEC 10918-3, *Information technology – Digital compression and coding of continuous-tone still images: Extensions*.

3 Definitions

The definitions used in Rec. ITU-T T.81 | ISO/IEC 10918-1, Rec. ITU-T T.84 | ISO/IEC 10918-3 and the following apply.

3.1 identifier string: The first *m* bytes of the application data APi (for *i* = 1 to *m*) of an application marker (APPn) segment containing a zero-terminated or multi-glyph character string, generally intended to serve as a unique identifier for the APPn marker segment.

4 Abbreviations and symbols

For the purposes of this Recommendation | International Standard, the symbols described in Rec. ITU-T T.81 | ISO/IEC 10918-1, Rec. ITU-T T.84 | ISO/IEC 10918-3 and the following abbreviation apply:

APPn Application specific marker segment of type n

5 Conventions

None.

6 General

Annex A of this Recommendation | International Standard contains a list of known application markers (APPn) along with identifier strings. APPn markers are reserved by Rec. ITU-T T.81 | ISO/IEC 10918-1 for "application use". While Rec. ITU-T T.81 | ISO/IEC 10918-1 recommends (but does not require) that these markers be removed for interchange between different application domains, readers should be aware that the markers documented in this Recommendation | International Standard are all part of the same application domain, and their removal within this domain is discouraged. Application marker segments based on the same application marker (APPn) can be disambiguated by their identifier string. During parsing, applications should skip over application marker segments they do not understand or do not plan to interpret and should preserve them when updating information.

The intended use of the APPn marker list in Annex A is to identify those pairs of application markers and identifier strings that are reserved, to avoid conflicts when allocating application markers and to serve as a reference for implementations of Rec. ITU-T T.81 | ISO/IEC 10918-1.

7 Purpose of an APPn marker

To make codestreams defined in Rec. ITU-T T.81 | ISO/IEC 10918-1 as flexible as possible, a provision has been made that allows applications to usefully add information to an application marker. It should be noted, however, that such use is application specific and other applications may not recognize these markers. APPn markers can be used to signal anything an application requires. They allow enhanced or expanded capabilities to be implemented.

More precisely, the use of an APPn marker shall not prevent the expansion of the coded image when the marker is not recognized by a given implementation. The utility of the resulting image, however, can be limited by failure to recognize an APPn marker.

NOTE – Some APPn markers have been reserved by ITU | ISO/IEC in additional Recommendations | International standards, and their use can be normatively defined there. Annex A lists some of such markers, along with their origin.

Annex A

Application-specific marker list

(This annex forms an integral part of this Recommendation | International Standard.)

Table A.1 lists pairs of application marker (APPn) code values and identifier strings that have been reserved. They shall only be used for the purposes described in Table A.1. The identifier string is encoded according to Rec. ITU-T T.50 or ISO/IEC 10646.

Table A.1 – List of reserved application markers (APPn)

Marker	Identifier string	Description
APP0	JFIF	Rec. ITU-T T.871 | ISO/IEC 10918-5 JPEG File Interchange Format
APP0	JFXX	JFIF Extension Tags Image Thumbnail
APP0	CIFF	Camera Image File Format (used by some Canon models)
APP0	AVI1	JPEG AVI (Audio Video Interleave) information
APP1	EXIF	CIPA (Camera & Imaging Products Association) DC-010-2020 Exchangeable Image File Format (including maker notes)
APP1	XMP	ISO 16684-1 Extensible Metadata Platform (multi-segment)
APP1	QVCI	Casio QV-7000SX QVCI information
APP1	PIC	Accusoft Pegasus custom fields
APP2	ICC_PROFILE	ISO 15076-1 International Color Consortium (multi-segment)
APP2	FPXR	FlashPix Ready (multi-segment)
APP2	MPF	CIPA (Camera & Imaging Products Association) DC-007-2009 Multi-Picture Format
APP2	PreviewImage	Samsung large preview (multi-segment)
APP3	Kodak Meta	Kodak Meta information (EXIF-like)
APP3	Stim	Stereo Still Image format
APP3	PreviewImage	Hewlett-Packard or Samsung (multi-segment) preview
APP4	Scalado	(presumably written by Scalado mobile software)
APP4	FPXR	FlashPix Ready in non-standard location (multi-segment)
APP4	PreviewImage	Continued Samsung preview from APP3
APP5	Ricoh RMETA	Ricoh custom fields
APP6	EPPIM	Toshiba PrintIM
APP6	NITF	National Imagery Transmission Format
APP6	HP TDHD	Hewlett-Packard Photosmart R837 TDHD information
APP7	NITF0003.A	NITF (National Imagery Transmission Format) directory data segment
APP8	SPIFF	Rec. ITU-T T.84 | ISO/IEC 10918-3 Still Picture Interchange File Format
APP10	Comment	PhotoStudio Unicode Comment
APP11	DD	ISO/IEC 18477-2 Still image extension
APP11	JP	ISO/IEC 18477-3 | ISO/IEC 19566-5 ISO Box-Based Format Extensions
APP12	Picture Info	Textual Picture Information
APP12	Ducky	Photoshop "Save for Web"
APP13	Photoshop IRB	Image Resource Block (multi-segment, includes IPTC)
APP13	Adobe CM	Adobe Color Management
APP14	Adobe	Adobe DCT filter, identical to ISO/IEC 18477-1 Component Decorrelation Control marker
APP15	GraphicConverter	GraphicConverter quality

Bibliography

– Recommendation ITU-T T.50, *International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) – Information technology – 7-bit coded character set for information interchange*.

– Recommendation ITU-T T.84 | ISO/IEC 10918-3, *Information technology – Digital compression and coding of continuous-tone still images: Extensions.*

– Recommendation ITU-T T.871 | ISO/IEC 10918-5, *Information technology – Digital compression and coding of continuous-tone still images: JPEG File Interchange Format (JFIF).*

– ISO 15076-1, *Image technology colour management – Architecture, profile format and data structure – Part 1: Based on ICC.1:2010.*

– ISO 16684-1, *Graphic technology – Extensible metadata platform (XMP) – Part 1: Data model, serialization and core properties.*

– ISO/IEC 10646-1, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane.*

– ISO/IEC 18477-1, *Information technology – Scalable compression and coding of continuous-tone still images – Part 1: Core coding system specification.*

– ISO/IEC 18477-2, *Information technology – Scalable compression and coding of continuous-tone still images – Part 2: Coding of high dynamic range images.*

– ISO/IEC 18477-3, *Information technology – Scalable compression and coding of continuous-tone still images – Part 3: Box file format.*

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

– CIPA DC-007-2009 – *Multi-Picture Format.*

– CIPA DC-010-2020 – *Exif2.32 metadata for XMP.*

– National Imagery Transmission Format Standard (NITFS) – *Bandwidth Compression Standards and Guidelines.*

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