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Information technology — Computer graphics and image processing — Image Processing and Interchange (IPI) — Functional specification —

Part 5: Basic Image Interchange Format (BIIF)

*Technologies de l'information — Infographie et traitement de l'image —
Spécification fonctionnelle pour le traitement de l'image et l'échange (IPI) —
Partie 5: Format d'échange de l'image de base (BIIF)*



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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. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 12087-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 24, *Computer graphics and image processing*.

ISO/IEC 12087 consists of the following parts, under the general title *Information technology — Computer graphics and image processing — Image Processing and Interchange (IPI) — Functional specification*:

- *Part 1: Common architecture for imaging*
- *Part 2: Programmer's imaging kernel system application programme interface*
- *Part 3: Image Interchange Facility (IIF)*
- *Part 4: PICS — DTC*
- *Part 5: Basic Image Interchange Format (BIIF)*

Annexes A to C form an integral part of this part of ISO/IEC 12087. Annexes D and E are for information only.

Information technology — Computer graphics and image processing — Image Processing and Interchange (IPI) — Functional Specification —

Part 5: Basic Image Interchange Format (BIIF)

1 Scope

This part of ISO/IEC 12087 establishes the specification of the Basic Image Interchange Format (BIIF) part of the standard. BIIF is a standard developed to provide a foundation for interoperability in the interchange of imagery and imagery-related data among applications. This part of ISO/IEC 12087 provides a detailed description of the overall structure of the format, as well as specification of the valid data and format for all fields defined with BIIF. Annex C contains a model profile in tables to assist in profile development.

As part of the ISO/IEC 12087 family of image processing and interchange standards, BIIF conforms to the architectural and data object specifications of ISO/IEC 12087-1, the Common Architecture for Imaging. BIIF supports a profiling scheme that is a combination of the approaches taken for ISO/IEC 12087-2 (PIKS), ISO/IEC 10918 (JPEG), ISO/IEC 8632 (CGM), and ISO/IEC 9973 (The Procedures for Registration of Graphical Items). It is intended that profiles of the BIIF will be established as an International Standardised Profile (ISP) through the normal ISO processes (ISO/IEC TR 10000).

The scope and field of application of this part of ISO/IEC 12087 includes the capability to perpetuate a proven interchange capability in support of commercial and government imagery, Programmer's Imaging Kernel System Data, and other imagery technology domains in that priority order.

This part of ISO/IEC 12087 provides a data format container for image, symbol, and text, along with a mechanism for including image-related support data.

This part of ISO/IEC 12087 satisfies the following requirements:

- Provides a means whereby diverse applications can share imagery and associated information.
- Allows an application to exchange comprehensive information to users with diverse needs or capabilities, allowing each user to select only those data items that correspond to their needs and capabilities.
- Minimizes preprocessing and postprocessing of data.
- Minimizes formatting overhead, particularly for those applications exchanging only a small amount of data and for bandwidth-limited systems.
- Provides a mechanism (Transportable File Structure, TFS) to interchange PIKS image and image-related objects
- Provides extensibility to accommodate future data, including objects.

When the extensibility of this part of ISO/IEC 12087, or the inherent constraints of the structured format of BIIF, do not meet the needs of a more complex application, the concepts and features of 12087-3 (IIF) should be considered as a more appropriate method of image interchange. For example, the ability to support complex combinations of heterogeneous pixel types, self defining pixel structures, or abstract structures can be done with IIF.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 12087. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 12087 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 646:1991, *Information technology - ISO 7-bit coded character set for information interchange*.

ISO/IEC 8601:1988/Cor.1:1991, *Data elements and interchange formats - Information interchange - Representation of dates and times - Technical Corrigendum 1*.

ISO/IEC 8632-1:1992, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 1: Functional specification*.

ISO/IEC 8632-1:1992/Amd.1:1994, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 1: Functional specification - Amendment 1: Rules for profiles*.

ISO/IEC 8632-1:1992/Amd.2:1995, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 1: Functional specification - Amendment 2: Application structuring extensions*.

ISO/IEC 8632-2:1992, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 2: Character encoding*.

ISO/IEC 8632-3:1992, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 3: Binary encoding*.

ISO/IEC 8632-4:1992, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 4: Clear text coding*.

ISO/IEC 8632-4:1992/Amd.1:1994, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 4: Clear text coding - Amendment 1: Metafile for the storage and transfer of picture description information*.

ISO/IEC 8632-4:1992/Amd.2:1995, *Information technology - Computer graphics - Metafile for the storage and transfer of picture description information - Part 4: Clear text coding - Amendment 2: Application structuring extensions*.

ISO/IEC 9973:1994, *Information technology - Computer graphics and image processing - Procedures for registration of graphical items*.

ISO/IEC TR 10000-1:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework*.

ISO/IEC 10646-1:1993, *Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane*.

ISO/IEC 10646-1:1993/Amd.2:1996, *Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane - Amendment 2: UCS Transformation Format 8 (UTF-8)*.

ISO/IEC 10918-1:1994, *Information technology - Digital compression and coding of continuous-tone still images: Requirements and guidelines*.

ISO/IEC 10918-2:1995, *Information technology - Digital compression and coding of continuous-tone still images: Compliance testing*.

ISO/IEC 10918-3:1997, *Information technology - Digital compression and coding of continuous-tone still images: Extensions*.

ISO/IEC 10918-4:—¹, *Information technology - Digital compression and coding of continuous-tone still images: Registration of JPEG profiles, SPIFF profiles, SPIFF tags, SPIFF colour spaces, APPN markers, SPIFF compression types and Registration Authorities (REGAUT)*.

¹ To be published.

ISO/IEC 12087-1:1995, *Information technology - Computer graphics and image processing - Image Processing and Interchange (IPI) -- Functional specification - Part 1: Common architecture for imaging.*

ISO/IEC 12087-2:1994, *Information technology - Computer graphics and image processing - Image Processing and Interchange (IPI) -- Functional specification - Part 2: Programmer's imaging kernel system application programme interface.*

ISO/IEC 12087-3:1995, *Information technology - Computer graphics and image processing - Image Processing and Interchange (IPI) -- Functional specification - Part 3: Image Interchange Facility (IIF).*

ANSI/IEEE std 754:1985, *Standard for Binary Floating-Point Arithmetic.*

ITU-T T.4 (1993:03)/Amd.2:1995, *Standardisation of Group 3 Facsimile apparatus for document transmission*