

## About This Standard

Mandated

**Standard Identifier** ISO/IEC 12087-5:1998

### **Title of Standard**

Information technology - Computer graphics and image processing - Image Processing and Interchange (IPI) Functional specification - Part 5: Basic Image Interchange Format (BIIF), 1 December 1998, with Technical Corrigendum 1:2001

### **Standards History**

Introduced to Registry	Date Emerging	Date Mandated	Last Status Update	Last Status Review	Inactive/Retired
2003-04-04	2003-04-04	2005-09-06	2005-09-06	2006-10-25	n/a

**Replaced** [ISO/IEC 12087-5](#)

**Standards Body** [ISO](#) [Broken Link?](#)

**URL to Access or Acquire** <http://www.ansi.org>

### **Working Group**

**Primary Owner** Geospatial Intelligence TWG (GWG)  
**Secondary Interest** Application / Messaging TWG

**Service Area** GEOINT: Still Imagery

**KIPs** No KIP Found

### **Standard Applicability**

#### **2006-10-25**

The Basic Image Interchange Format (BIIF) is a published international standard. It provides a commercial/international foundation for interoperability in the interchange of imagery and imagery-related data among applications. BIIF provides a data format container for image, symbol, and text, along with a mechanism for including image-related support data.

#### **2005-09-06**

The use/application of BIIF is specified by The National Imagery Transmission Format Standard (NITFS). NITFS is the DoD and Federal Intelligence Community suite of standards for the exchange, storage, and transmission of digital-imagery products and image-related products. Other image formats can be used internally within a single system; however, NITFS is the designated format for interchange between systems. NITFS provides the means for containing information about the image (e.g. sensor parameters, geospatial positioning, etc.), the image itself, image compression, overlay graphics, textual reports, elevation data, location grids, and a wide variety of additional imaging and raster map support data. NITFS supports the dissemination of digital imagery from overhead collection platforms. Guidance on applying the suite of standards composing NITFS can be found in NGA Document STDI-0005, Implementation Practices of the NITFS IPON, 29 January 2004. The NITFS allows for Tagged Record Extensions (TREs), which are a collection of data fields that provide space within the NITFS file structure for adding metadata-based functionality. Documented and controlled

separately within the NITFS suite of standards, TREs extend NITF functionality with minimal impact on the underlying standard document. TREs may be incorporated into an NITF file while maintaining backward compatibility because the identifier and byte count mechanisms allow applications developed prior to the addition of newly defined data to skip over extension fields they are not designed to interpret. These TREs are described in NGA Document STDI-0002, The Compendium of Controlled Extensions (CE) for the National Imagery Transmission Format (NITF). STANAG 4545, NATO Secondary Imagery Format (NSIF) documents the NATO agreement to use ISO/IEC BIIF. It is the NATO equivalent of NITF. NSIF Version 1.0 and NITF Version 2.1 have also been documented and internationally registered as a formal profile of BIIF ([http://jitc.fhu.disa.mil/nitf/graph\\_reg/class\\_pages/BIIF\\_profile\\_class.html](http://jitc.fhu.disa.mil/nitf/graph_reg/class_pages/BIIF_profile_class.html)) The 'Open Skies Treaty' calls out use of a specific profile of BIIF as documented in ISO/IEC 12087-5, Annex E.3, Open Skies Digital Data Exchange Profile example (Informative) (see: <http://www.state.gov/t/ac/rls/fs/12691.htm>)

### **2003-10-03**

The Basic Image Interchange Format (BIIF) is a published international standard. It provides a commercial/international foundation for interoperability in the interchange of imagery and imagery-related data among applications. BIIF provides a data format container for image, symbol, and text, along with a mechanism for including image-related support data.

## **Standard Abstract**

### **2006-10-25**

ISO/IEC 12087 Part 5, Basic Image Interchange Format (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 12087 family of image processing and interchange standards, BIIF conforms to the architectural and data object specifications of 12087-1, the Common Architecture for Imaging. BIIF supports a profiling scheme that is a combination of the approaches taken for 12087-2 (PIKS), 10918 (JPEG), 8632 (CGM), and 9973 (The Procedures for Registration of Graphical Items). It is intended that profiles of the BIIF will be established through the normal ISO registration processes. 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 and other imagery technology domains. 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 extensibility to accommodate future data, including objects

### **2005-09-06**

ISO/IEC 12087 Part 5, Basic Image Interchange Format (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 12087 family of image processing and interchange standards, BIIF conforms to the architectural and data object specifications of 12087-1, the Common Architecture for Imaging. BIIF supports a profiling scheme that is a combination of the approaches taken for 12087-2 (PIKS), 10918 (JPEG), 8632 (CGM), and 9973 (The Procedures for Registration of Graphical Items). It is intended that profiles of the BIIF will be established through the normal ISO registration processes. 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 and other imagery technology domains. 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 extensibility to accommodate future data, including objects

#### **2003-04-04**

BIIF provides a foundation for interoperability in the interchange of imagery and imagery-related data among applications. It provides a detailed description of the overall structure of the format, as well as specification of the valid data content and format for all fields defined within a BIIF file. It provides a data format container for raster, symbol, and text data, along with a mechanism for including image-related support data.

#### **Profiling Questions**

**GEOINT: Still Imagery** • Does your system exchange Still Imagery data with external systems?

#### **Products Incorporating This Standard**

Companies with commercially available implementations/products include: BAE Systems, DigitalGlobe, Harris Corporation, ITT Industries, Leica Geosystems, OrbImage, PAR Government Systems, Paragon Imaging, PhotoTelesis, Raytheon, Recon Optical, Research Systems, Inc. (RSI), Sensor Systems, Inc., Space Imaging, and Technology Services Corporation.

#### **Relevant Information**

None

#### **Implementation Guidance**

Guidance for using/implementing this standard is available from the NITFS Technical Board (NTB) [<http://www.ismc.nga.mil/ntb/>]. In particular, STDI-0005, Implementation Practices for the NITFS (IPON) is available from the NTB web site.

#### **Standard Selection Criteria**

### **Net-Centric Interoperability**

ISO/IEC 12087-5, BIIF, is the international standard upon which the National Imagery Transmission Format Standard (NITFS) is based. The NITFS is the common thread of interoperability for the formatting, imagery library storage and cataloging, dissemination, and exploitation of National Technical Means (NTM), Tactical Airborne, and Commercial imaging sources. NITF version 2.1, an implementation profile of BIIF, is the format upon which the Future Imagery Architecture (FIA) is based.

### **Technical Maturity**

The NITF 2.1 profile of the ISO/IEC BIIF Standard has been implemented and fielded since the 1998. The standard supports use of the ISO/IEC 15444-1 standard for imagery compression, JPEG 2000. Commercial implementations of the standard are largely driven by marketability to the DOD and Intelligence community. Companies with commercially available implementations/products include: BAE Systems, DigitalGlobe, Harris Corporation, ITT Industries, Leica Geosystems, OrbImage, PAR Government Systems, Paragon Imaging, PhotoTelesis, Raytheon, Recon Optical, Research Systems, Inc. (RSI), Sensor Systems, Inc., Space Imaging, and Technology Services Corporation.

### **Public Availability**

Available for download from the NITFS Technical Board (NTB) via the following URL: [http://www.ismc.nga.mil/ntb/baseline/docs/biif\\_5/index.html](http://www.ismc.nga.mil/ntb/baseline/docs/biif_5/index.html) Also available for purchase from the ISO Store (online): <http://www.iso.org/iso/en/prods-services/ISOstore/store.html>

### **Implementability**

Widely implemented within the DOD and Intelligence Community by National Technical Means (NTM), tactical airborne, commercial satellite imaging systems, imagery library and dissemination systems, and a variety of commercial exploitation workstations. A standards compliance and interoperability test program supports implementation of the capabilities specified within this standard. See entry on Technical Maturity for a partial list of commercial organizations that have developed implementations of this standard

### **Authority**

ISO/IEC JTC 1/SC24, Computer Graphics and Image Processing, developed and maintains this standard. NITF2.1 is a military standard (Mil-Std-2500B) prepared by the National Geospatial-Intelligence Agency (NGA) as an implementation profile of International Standard 12087-5, BIIF. It is the US documentation equivalent of STANAG 4545, NATO Secondary Imagery Format (NSIF). The NITFS Technical Board (NTB) [<http://www.ismc.nga.mil/ntb/>] is the DOD/IC focal point for the open process of maintaining and future development for this standard at ISO/IEC.

**Standard Type** Military

**Keywords for Search** None