# *About This Information/Guidance Document*

**Current Status** *I/G-Active*

**Standard Identifier** **BPJ2K01.00**

**Title of Standard**

BIIF Profile for JPEG 2000, Version 01.00, 30 July 2004

**Standards History**

| Date Active | Date Inactive |
|---|---|
| 2007-11-06 | n/a |

**Standards Body** ISO Broken Link?

**URL to Access or Acquire** http://ismc.nga.mil/ntb/baseline/docs/bpj2k01/ISOJ2K_profile.pdf

**Standard Applicability**

**2007-11-08**

For remote sensing and imaging applications, the use/application of JPEG 2000 is specified by The National Imagery Transmission Format Standard (NITFS) and related NATO standards documentation. 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. See http://www.gwg.nga.mil/ntb/.

**Standard Abstract**

**2007-11-08**

JPEG 2000 [ISO/IEC 15444-1:2004 | ITU-T Rec. T.800] defines a set of lossless (bit-preserving) and lossy compression methods for coding bi-level, continuous-tone gray-scale, palletized color, or continuous-tone color digital still images. ISO/IEC 15444-1:2004 | ITU-T Rec. T.800 - Specifies decoding processes for converting compressed image data to reconstructed image data; - Specifies a code stream syntax containing information for interpreting the compressed image data; - Specifies a file format; - Provides guidance on encoding processes for converting source image data to compressed image data; - Provides guidance on how to implement these processes in practice. This BPJ2K01.00 profile defines the application of JPEG 2000 within NITFS, setting limits for generation and interpretation behavior according to the rules for profile definition defined in ISO/IEC 15444-1|ITU T.800. The JPEG 2000 structure is explained fully in the ISO/IEC/ITU standard profiled in this document.

**Products Incorporating This Standard**

Companies with commercially available implementations/products include: BAE Systems, DigitalGloge, GeoEye, Harris Corporation, ITT Industries, Leica Geosystems, OverWatch, PAR Government Systems, Raytheon, and Technology Services Corporation.

**Relevant Information**

This document is an implementation profile of International Standard ISO/IEC 15444-1:2004 | ITU-T Rec. T.800, Information Technology -- JPEG 2000 image coding system: Core coding system. See DISR citation for ISO/IEC 15444-1:2004 | ITU-T Rec. T.800. This citation is authored by the GWG NITFS Technical Board.

## Implementation Guidance

See STDI-0005, Implementation Practices of the NITFS, available at: http://www.gwg.nga.mil/ntb/baseline/docs/ipon/index.html The STDI-0005 document is a compilation of common practices, conventions, and guidelines for implementing the National Imagery Transmission Format Standard (NITFS). The objective is to help promote common specification and application of the NITFS suite of standards by all fielded and developmental digital imagery-related systems. It describes common conventions for implementing the suite of NITFS standards that promote and sustain NITFS compliance and interoperability for the production, storage, cataloging, discovery, selection, exploitation, and dissemination of digital imagery, raster map, and other related raster products.

## Standard Selection Criteria

### Net-Centric Interoperability

The BIIF Profile for JPEG 2000 (BPJ2K) tailors the ISO/IEC 15444-1 | ITU Recommendation T.800 JPEG 2000 standard for use with ISO/IEC 12087-5, Basic Image Interchange Format (BIIF). The BPJ2K is used with the National Imagery Transmission Format (NITF) and the NATO Secondary Imagery Format (NSIF), both of which are implementation profiles of BIIF that are intended to promote interoperability for the exchange of imagery among military Command, Control, Communications, and Intelligence (C3I) systems. This implementation profile is part of the National Imagery Transmssion Format Standard (NITFS) suite of standards. 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. JPEG 2000 promotes ease of scalability and interactive image viewing and exploitation within a net-centric environment.

### Technical Maturity

The implementation profile is technically mature and stable, to include established conformance test criteria, tools, services and technical consultation for the implementation profile used by the NITFS. Existing commercial products conforming to this profile include, but not limited to: OverWatch Electronic Light Table Products (PocketELT ELT/4000 ELT/1500 Global Image Viewer ELT/5500 ELT/View Image Light Table (ILT) Plus and ELT/5500 Pro), BAE Socet GXP, ERDAS Imagine, OverWatch RemoteView Professional and ITT's Environment for Visualizing Imagery (ENVI). The NITFS profile of this standard has been part of the NITFS suite of standards and STANAG 4545, NATO Secondary Imagery Format (NSIF) since 2004. A follow on standard for use within NITFS/NSIF is not currently in consideration. A sunset status should not yet be added for this currently mandated (for use with NITFS/NSIF) standard implementation profile.

### Public Availability

The BPJ2K01.00 is freely available at no charge from the following URLs: ISO/IEC International Register of Graphical Items (http://jitc.fhu.disa.mil/nitf/graph_reg/welcome.html). http://gwg.nga.mil/ntb/baseline/docs/bpj2k01/index.html

### Implementability

The BIIF Profile of JPEG 2000 is implemented by a variety of systems (data production, dissemination, library/archive, exploitation work stations, etc.) supporting the NITFS and NSIF suite of standards. Sample data, sample software, technical consultation, and conformance testing services are available to government and commercial implementers of the standard by contacting

the NITFS Test Facility operated by the Joint Interoperability Test Command (JITC) on behalf of the National Geospatial-Intelligence Agency (NGA). Contact information available at http://jitc.fhu.disa.mil/nitf/nitf.htm, 1-800-538-5482, x8-5458, and jitcn@disa.mil. A list of government and commercially developed conforming implementations of the NITFS suite of standards is available at http://jitc.fhu.disa.mil/nitf/register.html.

**Authority**

ISO/IEC JTC 1/SC 29 and ITU-T (Coding of audio, picture, multimedia and hypermedia information), jointly developed and maintain the JPEG 2000 standard. The process for maintaining and developing the standard is an internationally open process by members of national bodies and liaison organizations participating with ISO/IEC and ITU-T. The international documentation, BPJ2K01.00, was developed jointly by the NTB and NATO standardization activities (STANAG 4545 Custodial Support Team), and placed on the International Items Register through international ballot. The NTB has broad participation across the DoD/IC with open participation by commercial industry.

**Standard Type** Non-Military

**Keywords for Search** None