

NITFS Standards Development

Bandwidth Compression Symposium

Arnold, MO

15 May 2002

DEFENSE STANDARDIZATION PROGRAM

Standards Coordinating Committee (SCC)

- **Geospatial Standards Management Committee (GSMC)**
- **Imagery Standards Management Committee (ISMC)**
 - NITFS Technical Board (NTB)
 - Format Working Group (FWG)
 - Bandwidth Compression Working Group (BWCWG)
 - Additional adhoc Working Groups as needed
 - Motion Imagery Standards Board (MISB)
 - CIGSS Standards Working Group (CSWG)

NIMA/PST (Standards) has the responsibility for the NITFS

NATO NSIF CST

NATO Air Forces Armaments Group (NAFAG)

Air Group IV, Intelligence, Surveillance, and Reconnaissance (ISR)

- NATO Secondary Imagery Format Custodian Support Team (NSIF CST)
 - STANAG 4545, NATO Secondary Imagery Format (NSIF)
 - US is the document custodian (SAF/AQIJ)
 - US is preparing a J2K profile for use with NSIF/NITF

Tightly coupled effort to keep NSIF and NITF technically aligned, to include the J2K Profile.

ISO/IEC JTC 1 Committees

- **SC24 Computer Graphics and Image Processing**
 - ISO/IEC 12087-5 Basic Image Interchange Format
 - International Register of Graphical Items
 - NSIF/NITF Profile of BIIF
 - NSIF/NITF Profile for using J2K in BIIF (proposal stage)
- **SC29 Coding of Audio, Picture, Multimedia, and Hypermedia Information**
 - ISO/IEC 15444-1 JPEG 2000 Part 1 (Baseline)
 - Includes Standard Profiles and Compliance Levels
 - ISO/IEC 15444-1 JPEG 2000 Part 4 (Testing)

NITFS J2K Test Services

- JITC is in the process of developing the capability to test JPEG 2000 within the context of NITFS.
 - NITF image subheader field options/constraints related to J2K compression processing.
 - Ability to unpack/interpret any compressed data stream compliant with ISO/IEC 15444, Part 1, Profile 1, Compliance Level 1 and 2(tbd).
 - Where applicable, ability to constrain compression processing to ‘preferred encoding options.’

J2K Test Development

- **NITFS JPEG 2000 Test Plan**
 - Test Criteria and Measures
 - Test Procedures
 - Test Files for Evaluation of Decoders
 - Test Scenarios for Evaluation of Encoders
 - Test Scenarios for Evaluation of Transcoding, Chipping, Partial Extraction, etc.
 - Test Tools for Evaluating Code Streams
- **Sample Files and Sample Test Scenarios to Aid Implementation Development Efforts**

NITFS/J2K Validation

- **Test Plan.** The NITFS/J2K test development will contribute toward ‘validating’ the NITFS/J2K implementation documentation.
- **Profile Review.** Community review and comment on the J2K Profile.
- **Implementer Feedback.** We solicit ‘feedback’ and ‘lessons learned’ from efforts to implement J2K within the context of NITFS.

Standards Validation Testing

- **Is the proposed standard/specification:**
 - Complete?
 - Technically Accurate?
 - Free of Conflicts?
 - Unambiguous?
 - Testable for Conformance?
- **Does a realization of the proposed specification do what was intended?**
- **Establish the criteria for determining if the specification has been implemented adequately.**

Validation Methodology

Conceptually a five step process:

- 1 - Identify the service, functional, and performance requirements**
- 2 - Develop proposed conformance test objectives, test criteria, and test cases.**
- 3 - Develop a Sample Implementation(s) and the Means of Test (MOT).**
- 4 - Test the sample until the specification, sample, and MOT are in harmony.**
- 5 - Evaluate the degree to which the sample meets service, functional, and performance objectives.**