

# **JPEG2000**

## **An Open Standard for Image Compression**

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# Abstract

The emerging JPEG2000 standard holds significant promise for the GIS community with regard to the compression and distribution of raster data. The standard describes features such as fully lossless compression, region of interest encoding and support for hyperspectral and multispectral data. An overview of the standard and the status of efforts to implement support for JP2 in ESRI applications is provided.

# JPEG2000

- ISO/IEC Standard 15444
- Part 1 (still images) published Dec 2000
- Open specification & architecture
- Designed specifically to address shortcomings of JPEG in critical markets (e.g., remote sensing, medical, printing.)

# JP2 Features

- Lossless/lossy compression
- Superior low bit rate performance
- Multiband/multispectral data support
- Video image compression
- Extensible metadata
- Region of Interest encoding

and more...

# JP2 also features...

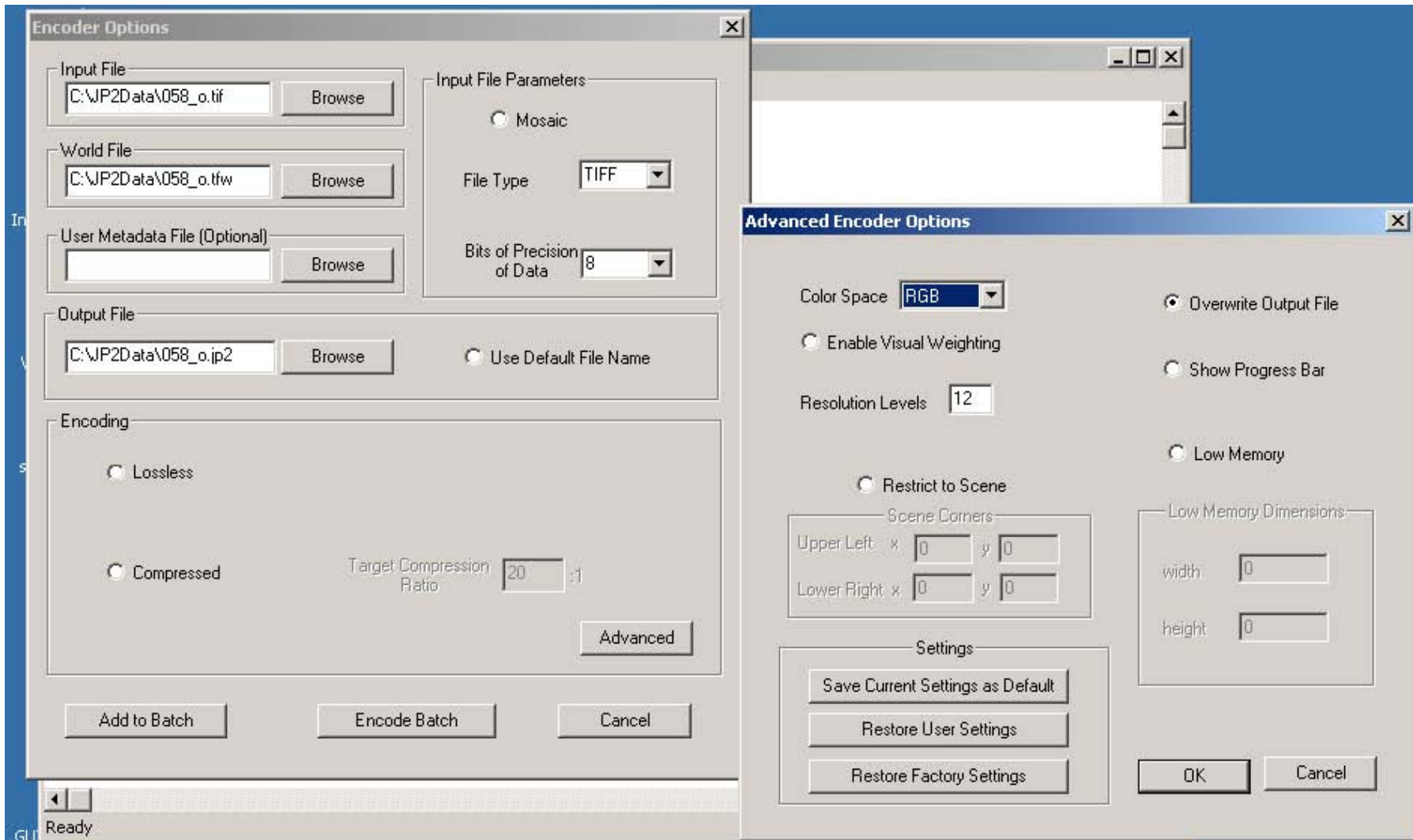
- Bit-error robustness (facilitates error checking in wireless situations)
- Progressive transmission by pixel accuracy or spatial resolution
- Security provisions
- Compressed domain processing (e.g., rotation and cropping)
- Limited memory implementations

# JPEG2000 does not feature

- Support for standard image file formats like TIFF, TFW, GeoTIFF, IMG, BIL, BSQ, NITF, GRID, ECW, ENVI, etc.
- Specific support for georeferenced data
- Support for very large (GB+ images)
- Mosaicing functions
- Metadata tools

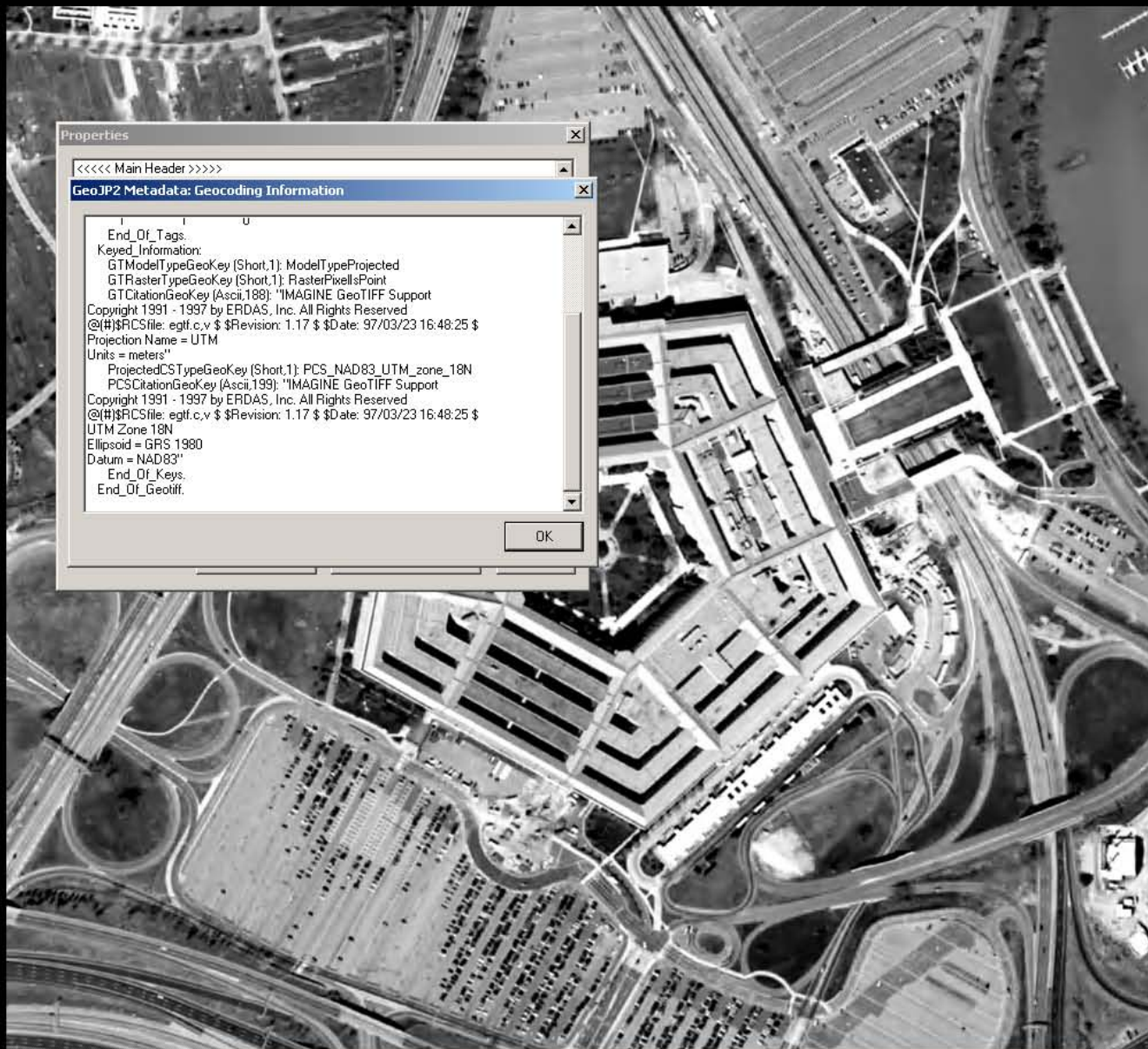
# What is GeoJP2™?

- An extension of the JPEG 2000 format developed by Mapping Science, Inc. where georeferencing and coordinate system information is included within the JPEG 2000 file.
- Includes support for all georeferencing modes and coordinate systems described by GeoTIFF.
- Other metadata formats easily added (NITF, FGDC)
- GeoJP2™ data viewable by JP2 readers that are not geospatially aware.
- Freely licensed to application developers



Mapping Science, Inc. has developed image encoder for conversion of raster data to .jp2 format.





Properties

<<<< Main Header >>>>

**GeoJP2 Metadata: Geocoding Information**

End\_Of\_Tags.

Keyed\_Information:

- GTModelTypeGeoKey (Short,1): ModelTypeProjected
- GTRasterTypeGeoKey (Short,1): RasterPixelsPoint
- GTcitationGeoKey (Ascii,188): "IMAGINE GeoTIFF Support

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@(#)\$RCSfile: egf.c.v \$ \$Revision: 1.17 \$ \$Date: 97/03/23 16:48:25 \$

Projection Name = UTM

Units = meters"

ProjectedCSTypeGeoKey (Short,1): PCS\_NAD83\_UTM\_zone\_18N

PCSCitationGeoKey (Ascii,199): "IMAGINE GeoTIFF Support

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@(#)\$RCSfile: egf.c.v \$ \$Revision: 1.17 \$ \$Date: 97/03/23 16:48:25 \$

UTM Zone 18N

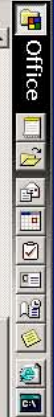
Ellipsoid = GRS 1980

Datum = NAD83"

End\_Of\_Keys.

End\_Of\_Geotiff.

OK



# JPEG2000 in ESRI Applications

- Free ArcView 3.x Extension
- Leica Geosystems and ESRI are testing .dll built by Mapping Science for use in ERDAS IMAGINE™ and ArcMap™, ArcCatalog™ and ArcIMS™.
- Release dates TBD





**Extensions**

Available Extensions:

- Graticules and Measured Grids
- IMAGINE Image Support
- JPEG (JFIF) Image Support
- Legend Tool
- MrSID Image Support
- MSI GeoPEG2000 Image Support
- NITF Image Support

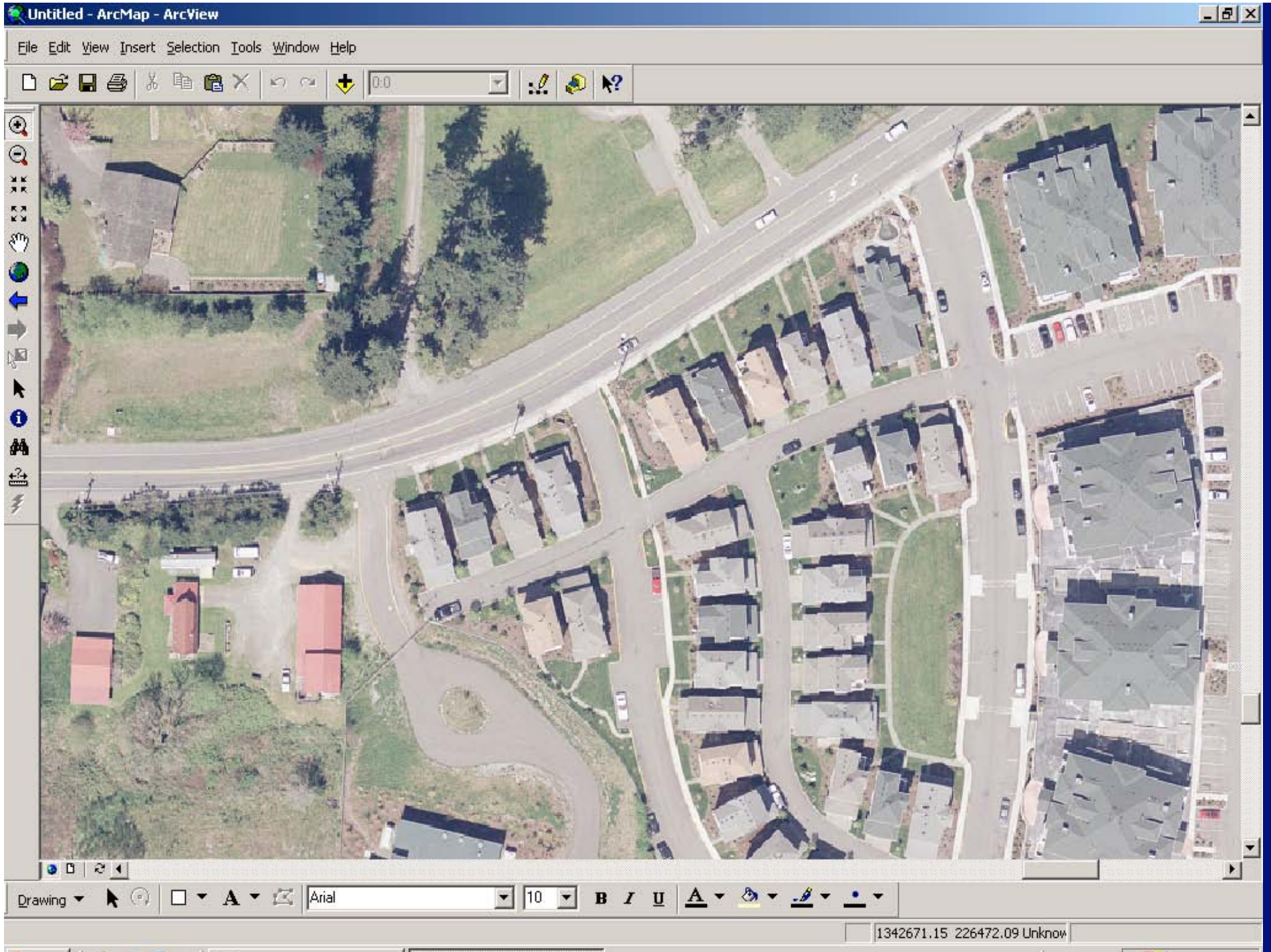
Buttons: OK, Cancel, Reset, Make Default

About:

[Empty text box]







# Questions?

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