

The Benefits of JPEG 2000 for Image Access and Preservation

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What's changing

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- Image files are getting bigger and there are more of them
- Demand for access to online image collections
- Several mass digitization projects underway
- The economics and sustainability of preservation

Why JPEG 2000?

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- Cost
- User Experience
- New Opportunities

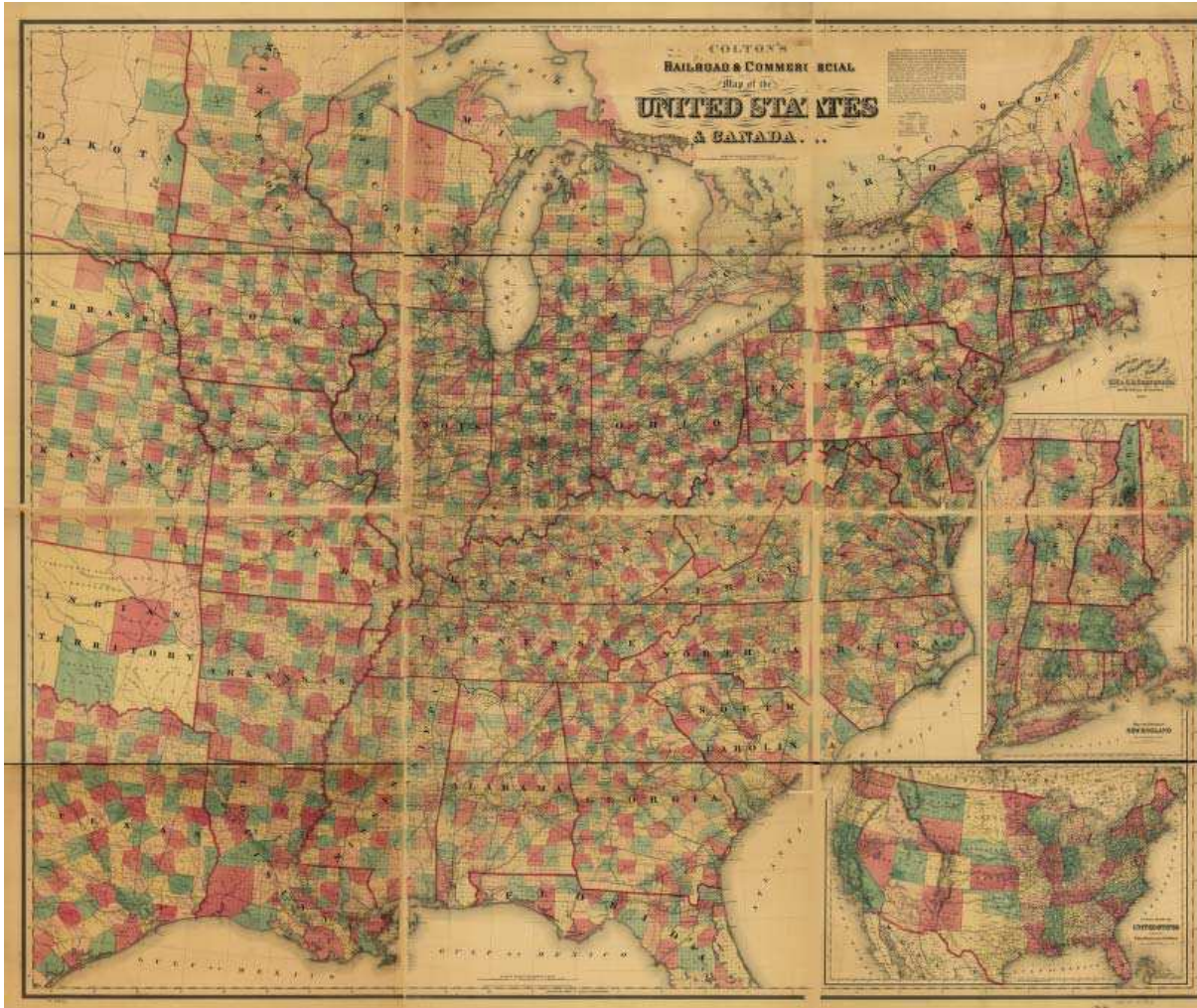
JPEG 2000 Features

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- ❑ Open Standard without license fees or royalties in Part 1
- ❑ A single approach to lossless and lossy compression
- ❑ Progressive display with scalable resolution and quality
- ❑ Region-of-Interest (ROI) on coding and access
- ❑ Create compressed image with specified size or quality
- ❑ Support for domain-specific metadata in file format
- ❑ Low loss across multiple decompress-compress cycles
- ❑ Error resilience

On-Demand / Just-in-Time Imaging

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Give me
x,y coordinates
of **c** component
at **z** resolution
and **p** quality

Error Resilience

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TIFF



JP2

Benefits of JPEG 2000

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- Reduced costs for storage and maintenance
 - ▣ Smaller file size compared to uncompressed TIFF
 - ▣ One master replaces multiple derivatives
- Enhanced handling of large images
 - ▣ Fast access to image subsets
 - ▣ Intelligent metadata support
- Enables new opportunities

Cost savings with JPEG 2000

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- Produces smaller files
 - Storage costs \$2000-\$4000/TB/year
 - Lossless 2:1 compression of 100 TB of uncompressed TIFF could save \$100,000 to \$200,000 per year
 - Lossy compression would save even more
- Eliminates need for multiple derivatives
 - Smart decoding with just-in-time imaging
 - Fewer files to create, manage and keep track of
- Does not require license fees or royalties

User Experience

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JPEG 2000 Profiles

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- Realizing the benefits of JPEG 2000
 - ▣ Matching JPEG 2000 capabilities with your application
- Managing JPEG 2000 use
 - ▣ Defined set of JPEG 2000 parameters
 - ▣ Establish reference point
- Performance tuning
 - ▣ Meet requirements
 - ▣ Allow optimizations

Looking ahead

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- JPEG 2000 = Compression + Services
 - ▣ Lossy compression: access
 - ▣ Lossless → Lossy compression: preservation
- What questions remain?
 - ▣ Sustainability, color support, implementation status
- Economics of preservation

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