

# 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

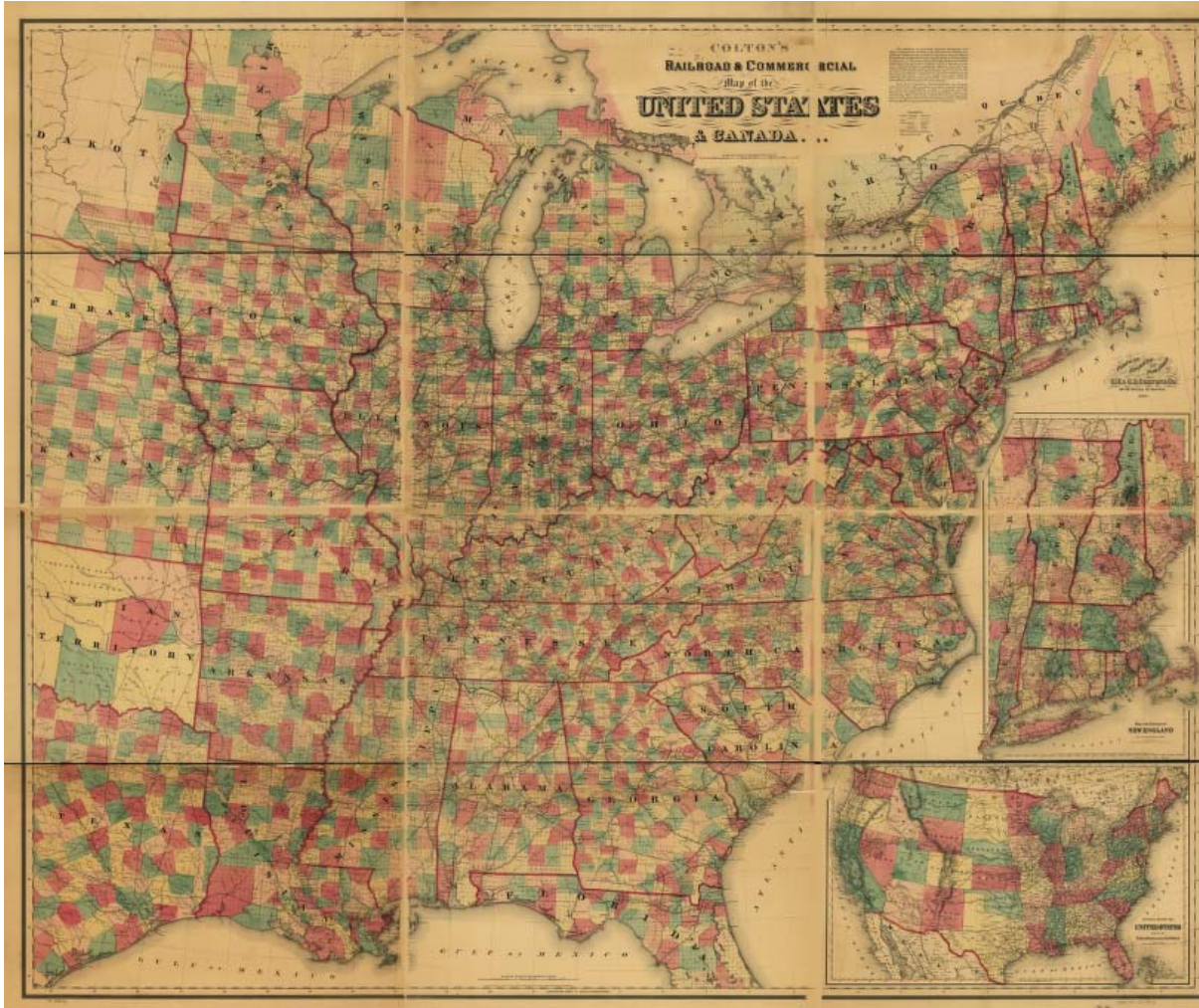
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- ❑ Open Standard without license fees or royalties in Part 1
- ❑ A single approach to lossless and lossy compression
- ❑ Progressive display with scalable resolution and quality
- ❑ Region-of-Interest (ROI) on coding and access
- ❑ Create compressed 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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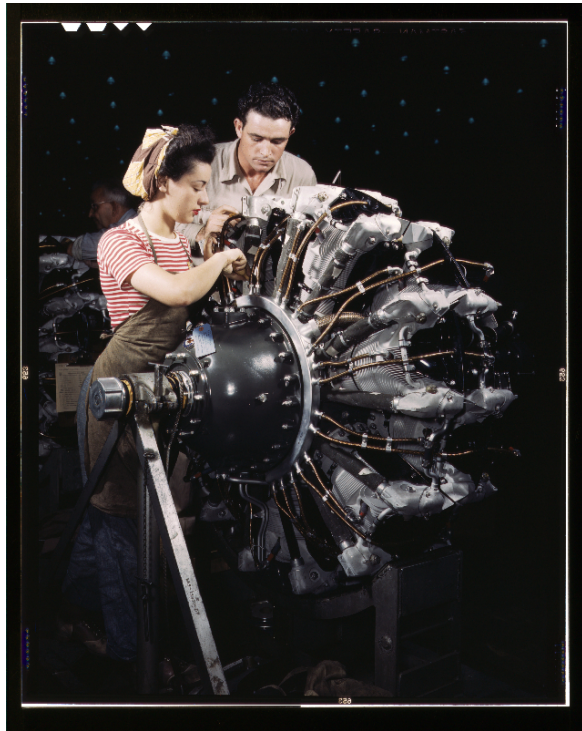
- Produces smaller files
  - Storage costs \$2000-\$4000/TB/year
  - Lossless 2:1 compression of 100 TB of uncompressed TIFF could save \$100,000 to \$200,000 per year
  - Lossy compression would save even more
- Eliminates need for multiple derivatives
  - Smart decoding with just-in-time imaging
  - 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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