Managing Imagery and Raster Data Using Mosaic Datasets

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Topics covered

• What is the mosaic dataset and why you should use it
• Sharing Imagery using mosaic datasets/image services
• Analyzing data with mosaic datasets/image services
Imagery and Raster Management Issues

- Multiple Sources
- Multiple times
- Multiple Formats
- Increasing Bit Depths, resolution and Bands
- Metadata standards vary
- Storage Requirements
- Access and Performance
What is a Mosaic Dataset?

- Catalog of
  - Imagery
  - Associated metadata
  - Processing functions to be applied
- Stored in Geodatabase
- Authored using ArcGIS for Desktop
- Enables
  - Dynamic Mosaicking
  - On-the-fly processing
Creating a Mosaic Dataset

Demonstration
Dynamic Mosaicking

• Mosaicking Multiple Images On Demand

• Mosaic imagery from multiple tiles
• User can query mosaic
  • Year = 2014
On-The-Fly Processing

- Creating Multiple Products from a Single Source

- Processes
  - Extract Bands
  - Hillshade, Shaded Relief
  - Stretch

- Applied to
  - Individual rasters
  - Complete Mosaic
Working with Mosaic Datasets

Demonstration
Sharing Imagery

2 Ways to Serve Imagery

- Directly from individual raster dataset
- From mosaic dataset (requires image extension)
Image Services
Empowering technology - On-the-fly Processing

- **On-The-Fly Processing - Raster Functions**
  - Image processing algorithms OTF
  - Process Imagery as Accessed
  - Multiple information products Directly from single source
  - May be chained together
  - 40+ image processing functions
  - Stretch, filters, orthorectification, NDVI, pan sharpening, hillshade, slope, etc.
Sharing Mosaic Datasets

Demonstration
Image Analysis

- Image Classification Tools
- Change Detection Workflows
- Geoprocessing Tools
Analysis
Demonstration
What’s coming in the next release
New Raster Types, New Functions, New GP Tools

- Multidimensional capability
- New Raster Types
- New Raster Functions
- New GP Tools
- Image Segmentation (Spatial Analyst Tools)
More on Mosaic Datasets

Resources

• **Mosaic Dataset Configuration Scripts**
  - [https://github.com/Esri/mdcs-py](https://github.com/Esri/mdcs-py)

• **Image Discovery Application**
  - [https://github.com/Esri/image-discovery-app-js](https://github.com/Esri/image-discovery-app-js)

• **Image Management Workflows**

• **Image Management Guidebook**