What we will cover

• Session Topics
  - Map cache basics and what’s new in 10.1
  - Map cache workflows
  - Caching imagery
  - ArcGIS Online caching

• There is a separate session for “Advanced Map Caching Topics”
  - Wednesday, 3:15 PM, Room 4
  - Thursday, 8:30 AM, Room 10
Map cache basics
How does a map cache work?
Three reasons to care about map caches

- Performance
- Scalability
- Cartographic quality

• ArcGIS.com Map Viewer
Many layers fused into one tile

Cache tile

1:32000

1:16000

1:8000

1:4000

1:2000

Landbase

Hydrography

Transportation
What should you cache?

• Base maps

• Operational layers that satisfy one of the following:
  - High volumes of traffic
  - Don’t change often
  - Cover small scales only
Building a map cache at 10.1

- Defining cache properties
- Setting cached scale range
- Estimating cache size
- Viewing status reports
Strategies and best practices for map caches
Best performing image formats

- Vectors few colors: PNG
- Vectors many colors: PNG
  - MIXED with 90 quality if you need it to build faster
- Imagery: MIXED with 55 quality
Example: Tiles are too large

Aerial photo and vector blend using PNG 32
When should I use antialiasing?

- High quality line and label appearance on vector maps
- Web standard (Google, Bing, AGOL)

- Takes longer to cache
You don’t have to generate every tile at large scales
What about the tiles I don’t build?

- “Data not available” tile

OR

- Create tiles on demand
Build a test cache and note the following

- Tile creation time
- Tile appearance
- Tile performance in the browser
- Cache size (although this is estimated in 10.1)
Updating your cache

- Update everything

OR

- Update only changed areas
Helpful scripts for detecting changes

- Show Edits Since Reconcile Geoprocessing Tool
  - [http://esriurl.com/showedits](http://esriurl.com/showedits)

- Compare Two Feature Classes in a File Geodatabase
  - [http://esriurl.com/compare](http://esriurl.com/compare)
Cache Update Automation

- Use Model Builder to script Cache Update Automation
- Rebuild Specific Tiles
- Export to Python
- Schedule Run Time
Caching image services
What is image service caching

- Fast access to images as a tiled service
  - Out performs mosaic dataset and raster dataset
  - Imagery is not processed on the fly
- Provides access to data
  - Downloading
  - Item Access
  - Processing
  - Analysis
  - Query
Image resolution and cache scales

- ArcGIS Server chooses the optimal scales for Imagery
  - ArcGIS will not exceed raster resolution
- Neither should you!
  - ArcGIS Server resamples imagery exceeding raster resolution
  - ArcGIS Desktop zoom to raster resolution
- Scale based on 96 DPI

\[
\text{Scale (Ft)} = \left( \frac{x}{12} \right) \times 96 \\
\text{Scale (m)} = \left( \frac{x}{0.0254} \right) \times 96
\]

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Choosing the best image format

- Large number of continuous colors
  - JPEG (start with quality = 55)
  - Mixed (if transparency required)

Which one looks better?

JPEG 96 – 25KB      JPEG 96 – 30KB
Why should I cache image services

- Improved performance for basic images
  - Can not modify mosaic methods
  - Can not perform queries
- Skip overview generation
  - Tiles generate from large scales to small scales
- Improve performance for slow formats
  - Recommended for highly compressed formats
  - JPEG2000, MrSID
Building an image service cache

1. Prepare Mosaic Dataset
2. Share as Image Service
3. Setup Image Service Parameters
4. Create tiles
Building an Image Service Cache
ArcGIS Online Tile Services
Map Caching in ArcGIS Online

- Tile generation is highly scalable
  - Esri manages the server
  - Individual manages storage
- Organization accounts limited
  - Credits are used for building and storing tiles
- Constrain cache creation
  - Interactively define cache area
  - Cache by feature class
- Generate cache in iterations
  - User experience is the same
    - On premise
    - Amazon Cloud
    - ArcGIS Online hosted
Building a hosted tile service

1. Open ArcMap 10.1 & sign into ArcGIS Online

2. Share as a Service

3. Setup Tile Service Parameters

4. Manage Map Server Tiles
Publish a Hosted Tile Service
Recommended Sessions

- **Map Caching: Tips from ArcGIS Online Team**
  - Wed 7/25/2012 – 10:15 AM – 10:35 AM Room 3

- **Caching Tips and Tricks**
  - Wed 7/25/2012 -- 10:30 AM – 11:00 AM Demo Theater

- **Advanced Map Caching Topics**
  - Wed 7/25/2012 -- 3:15 PM - 4:30 PM Room 4

- **Publishing Image Services in ArcGIS**
  - Thu 7/26/2012 -- 8:30 AM - 9:45 AM Room 28D

- **Advanced Map Caching Topics**
  - Thu 7/26/2012 -- 8:30 AM - 9:45 AM Room 10

- **Best practices for caching imagery in services**
  - Thu 7/26/2012 -- 11:00 AM - 11:30AM Demo Theater
Steps to evaluate UC sessions

- My UC Homepage > “Evaluate Sessions”

- Choose session from planner
  OR

- Search for session

www.esri.com/ucsurveysessions
• Thank you for attending
• Have fun at UC2012
• Open for Questions

• Please fill out the evaluation:

  www.esri.com/ucsessionsurveys

  Tuesday’s session ID:  593
  Thursday’s session ID:  1923