The Utah
Automated Geographic Reference Center
Presents:

State of Utah Implementation of Image Server

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State Of Utah AGRC

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What Does the AGRC Do?

The Automated Geographic Reference Center …

Part of the Department of Technology Services. Charged by the CIO to facilitate the implementation of an enterprise approach to geospatial technologies.

Provide technical support and consulting services to federal, state, and local government and other organizations.

Provide stewardship, maintenance, and access to Utah's State Geographic Information Database (SGID), available through SDE, Image Server, and FTP.

Completes production work, projects, and data development.

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Prior to 9.2

Limited amount of imagery in SDE

Digital Orthophotoquads DOQ – 41 GB

1 meter black & white

Digital Raster Graphs DRG – 16.5 GB

1:24,000
1:100,000
1:250,000
1:500,000

National Elevation Dataset (NED) – 1.35 GB

Additional Imagery

Urban Area Orthophotos 2003 (UAO) – 98.8 GB

National Agricultural Imagery Program 2004 (NAIP) - 422 GB

Total size 580 GB

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Cramming it into SDE…

Time consuming

- Approximately 2 weeks to load the DOQ's   alone.

- Some imagery was never loaded.

Imagery Acquisition

- In 2006 Senator Bennett's office helped secure appropriations for the USDA to collect statewide imagery under the National Agricultural Imagery Program.

- Partnerships sought between federal, state, local governments, and private industry to purchase additional imagery.

The Result

- Statewide Products (85,000 square miles)
  - 1 meter natural color
  - 1 meter color infrared
  - 5 meter auto correlated DEM

- High-Resolution Products
  - 1 foot imagery (13,876 square miles)
  - 6 inch imagery (1,481 square miles)
  - High-res auto-correlated DEM (2,891 square miles)
  - Lidar (1,284 square miles)

Total cost $3,975,644

Size on disk

1 meter color – 797 GB

1 meter color infrared – 797 GB

5 meter auto correlated DEM – 75 GB

1 foot color – 2.25 TB

Lidar – 6.6 GB

Total – 3.89 TB

Total Combined – 4.48 TB

A Need For Change

Storage requirements have nearly quadrupled and will only continue to grow.

 - At 9.1 we had 2 TB allocated to SDE at .0015/MB a month = $3,145

Once the decision was made to change we began creating services on Wednesday and had it running by Monday.

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Why Image Server?

- **<u>MONEY</u>**
  - SDE pyramids add an additional 30% to the storage requirements.
  - Storage is money. With 4.48 TB of imagery, an additional 30% for pyramids adds on another 1.35 TB.
  - With SDE, imagery was loaded into the database and stored separately for FTP. Image Server eliminated redundant storage costs by accessing the same imagery available to FTP.

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SDE vs Image Server Storage Comparison

Image Server

    Imagery 4.48 TB

    Services 78 GB

Total Size 4.55 TB

SDE Database

    Imagery 4.48 TB

    Pyramids 1.35 TB

    FTP 4.48 TB

Total Size 10.31 TB

Storage savings 5.76 TB

SDE vs Image Server Cost Comparison

Our rates

Qualified Dedicated Storage - .0004 MB/Month

Database Storage - $100 for the first 2 GB, $75 for
each additional 2 GB (a month)

Image Server
4.48 TB = $1900 monthly
$22,800 annually

SDE
5.83 TB @ Database Storage Rate
= $223,900
+ $1,879 (FTP)
= $225,779 monthly
$2,709,348 annually
@ Qualified Dedicated Rate
= $4,324 monthly
$51,890 annually

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Why Image Server Continued?

- Authoring services is fast compared to SDE. Generally most statewide services take less than 24 hours to create, however, times may vary depending on how many service overviews are generated.

Statewide 1 meter color imagery - 6,097 images

- 1,113 service overviews
- Less than 24 hours

1 foot imagery - 3,239 images

- 3,451 service overviews generated

- Approximately 36 hours

Why Image Server Continued?

- Image Server is able to derive multiple products from a single source.

- On the fly processing allows changing service & tile boundaries without changing the original imagery.
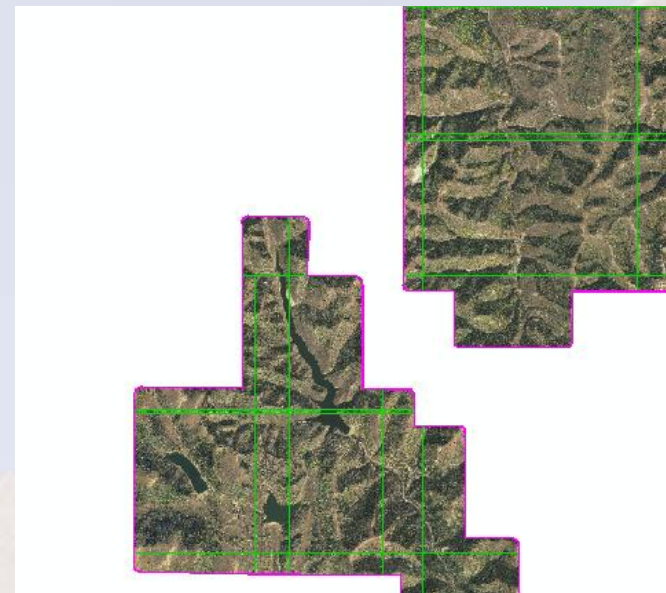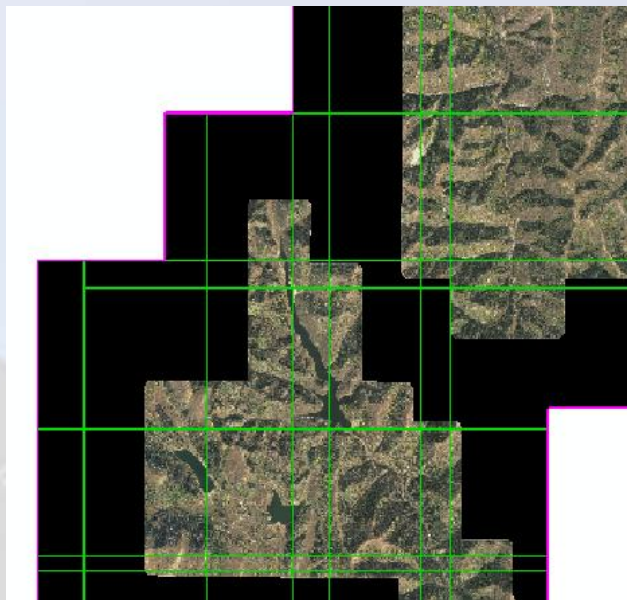
Why Image Server Continued?
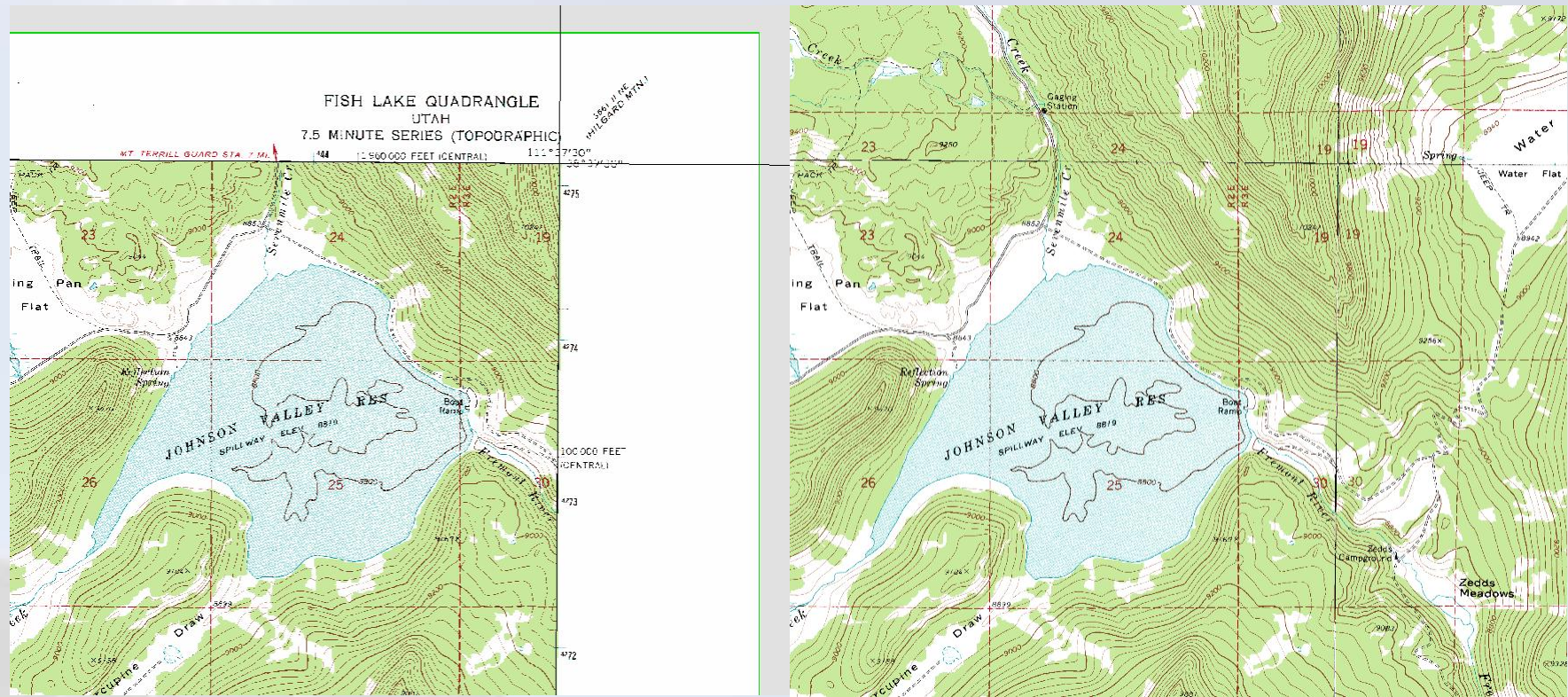
Hardware

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Image Server Environment
June, 2008
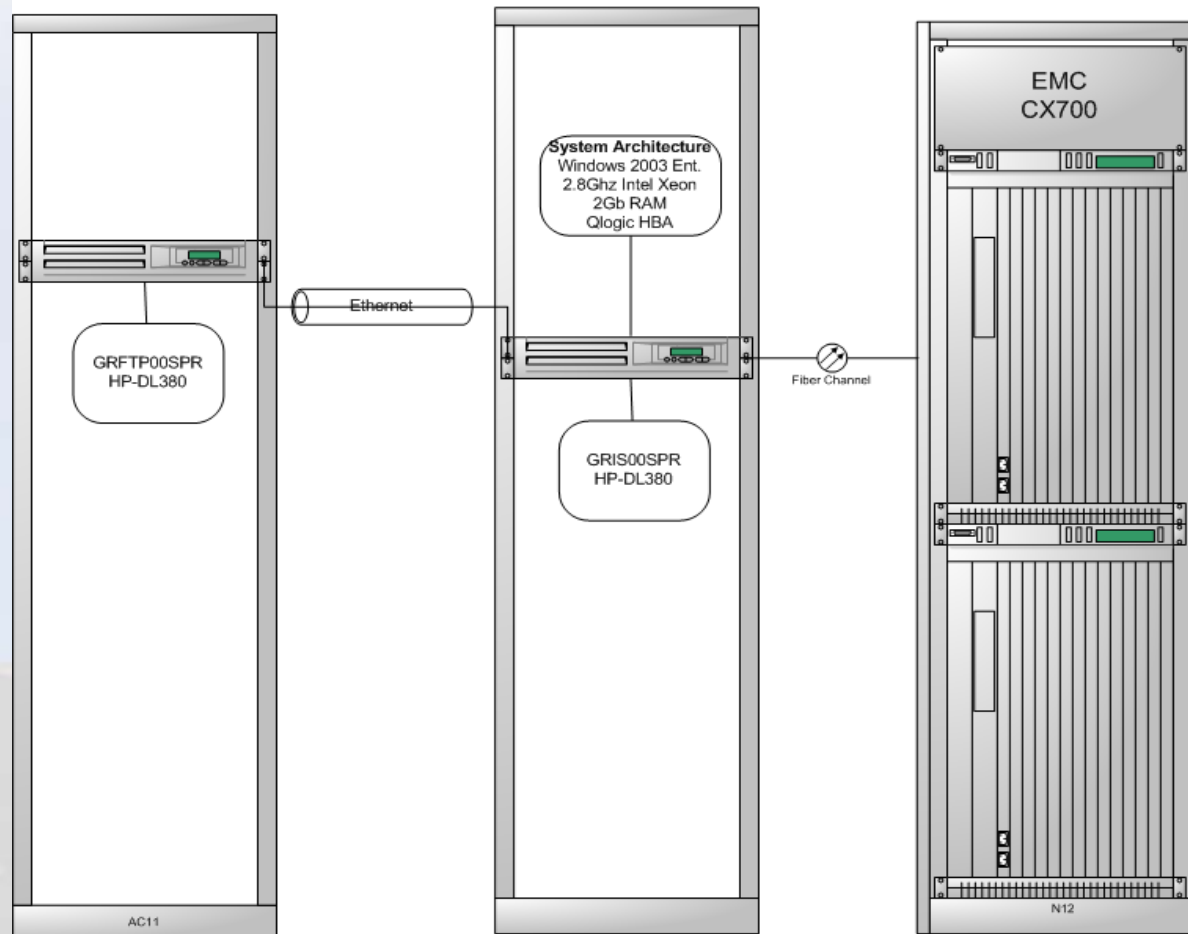
Services

- We are running 2 service providers – Default Service Provider and a failover on 3984

- 15 services total in folder structure based on imagery type.

- The number of connections is generally around 15-20, 50+ is not uncommon...

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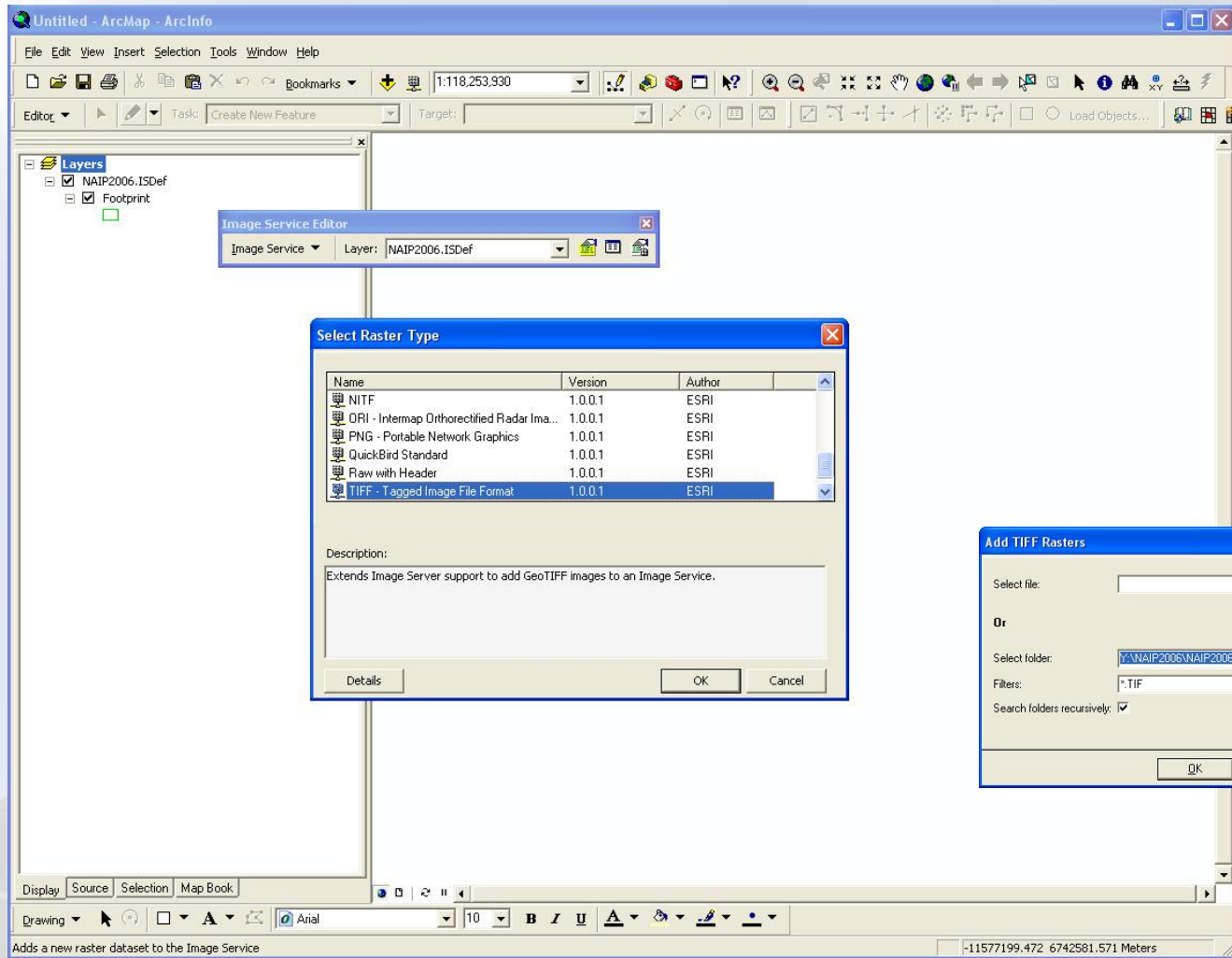Automated Geographic Reference Center
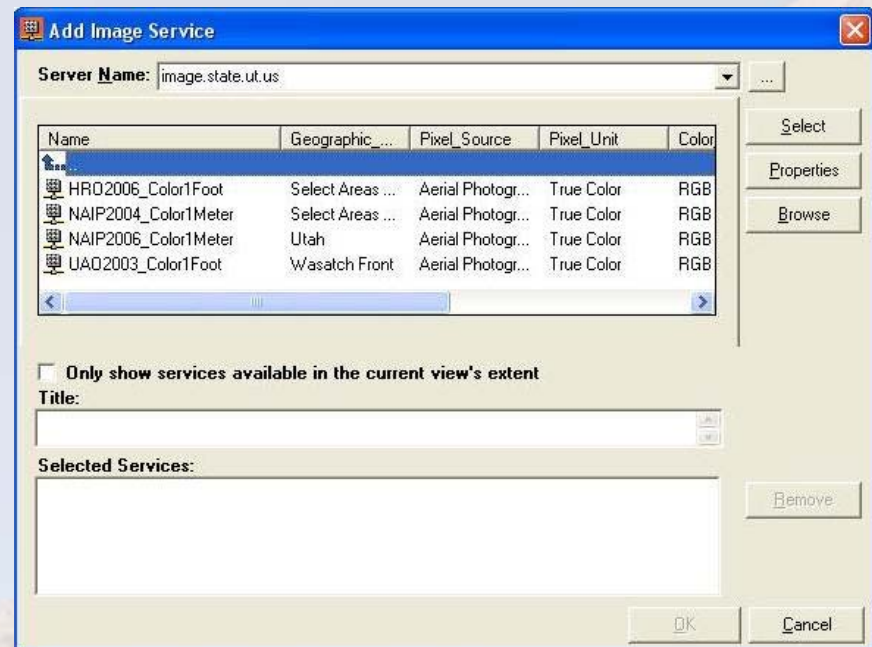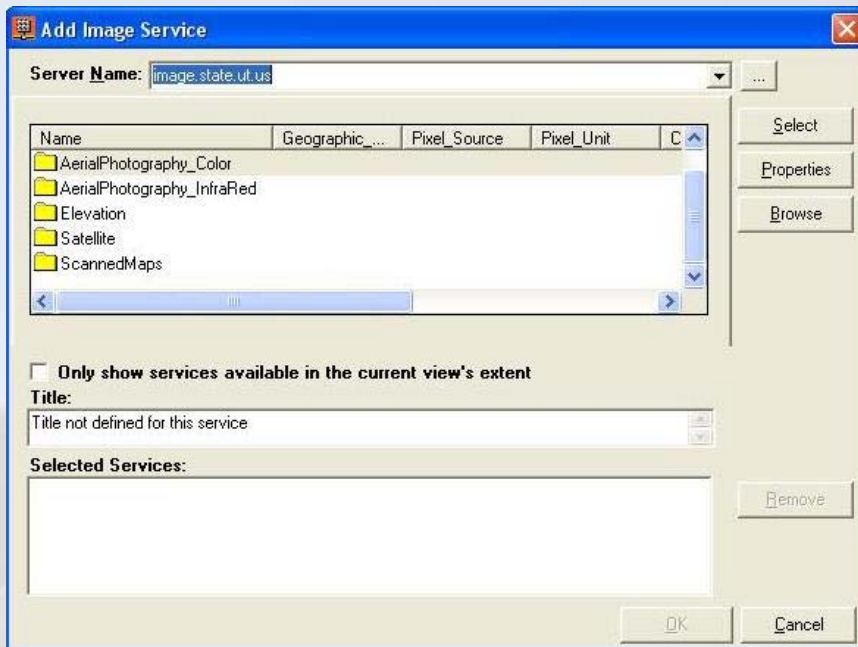
Creating a Service

- Multiple ways to create an image service
  - New Image Service Wizard
  - Advanced method
  - ISCommands

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Creating an image service using the advanced method
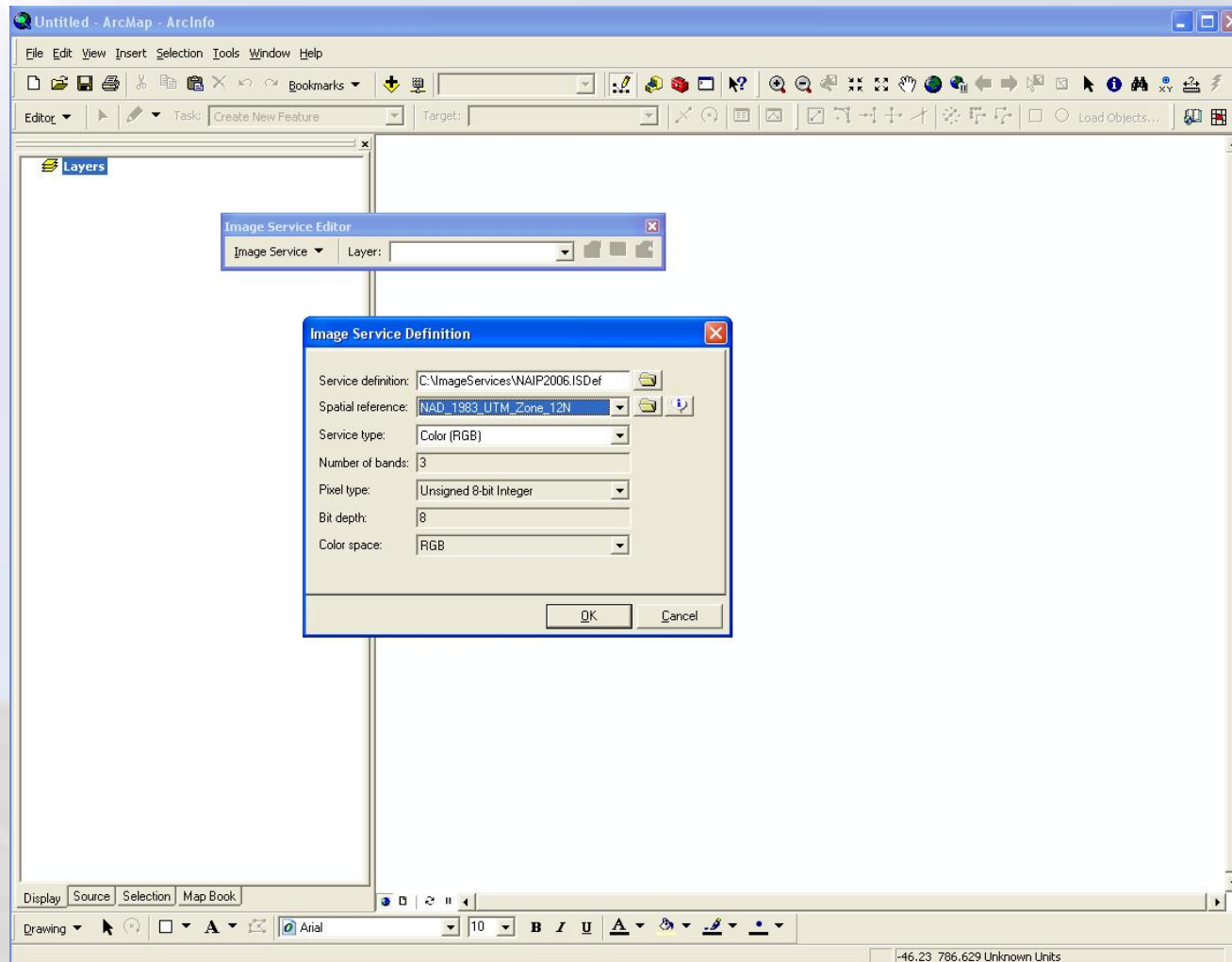
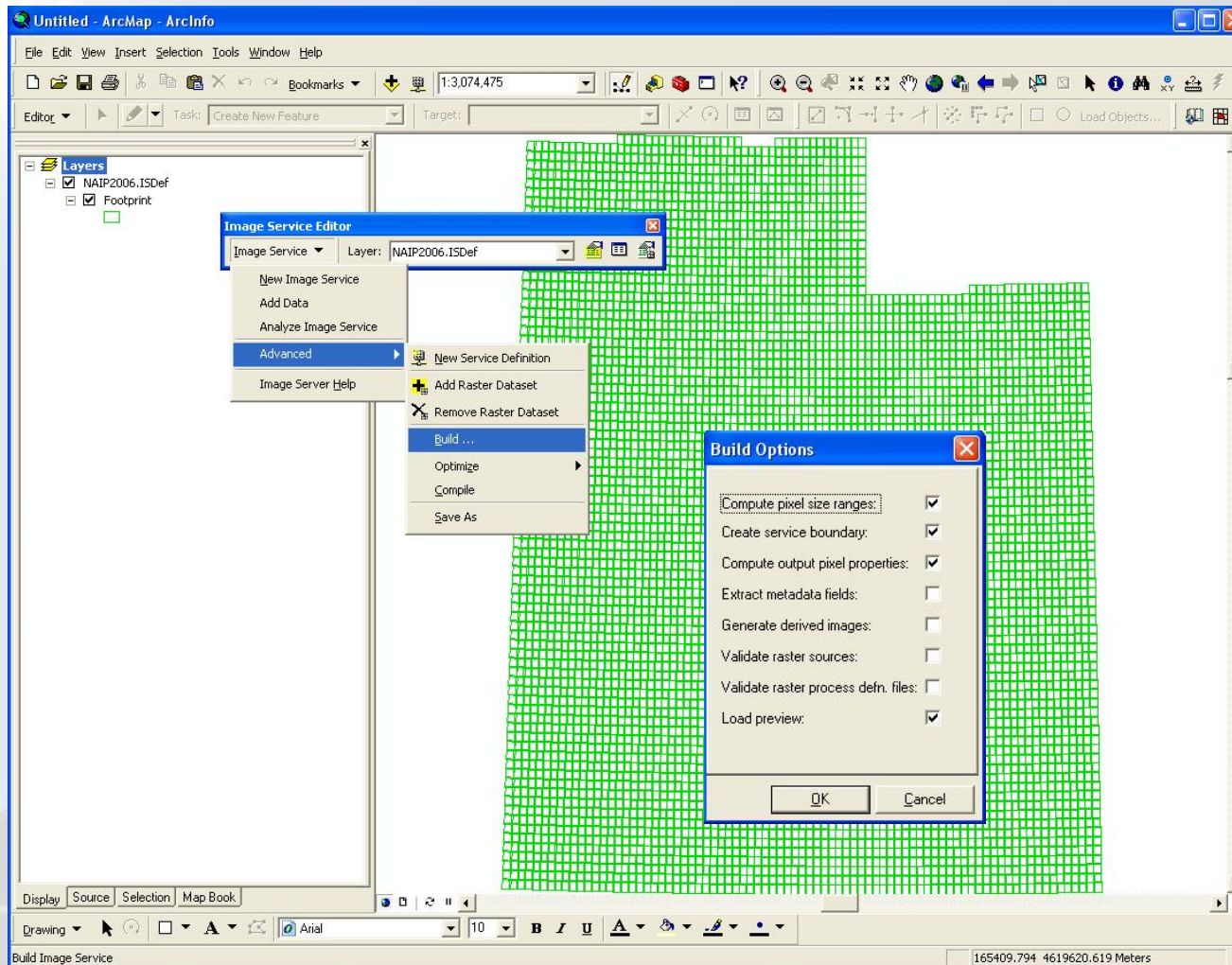# Creating a Service

Add raster data

Creating a Service

Build – Compute pixel size ranges, boundary etc
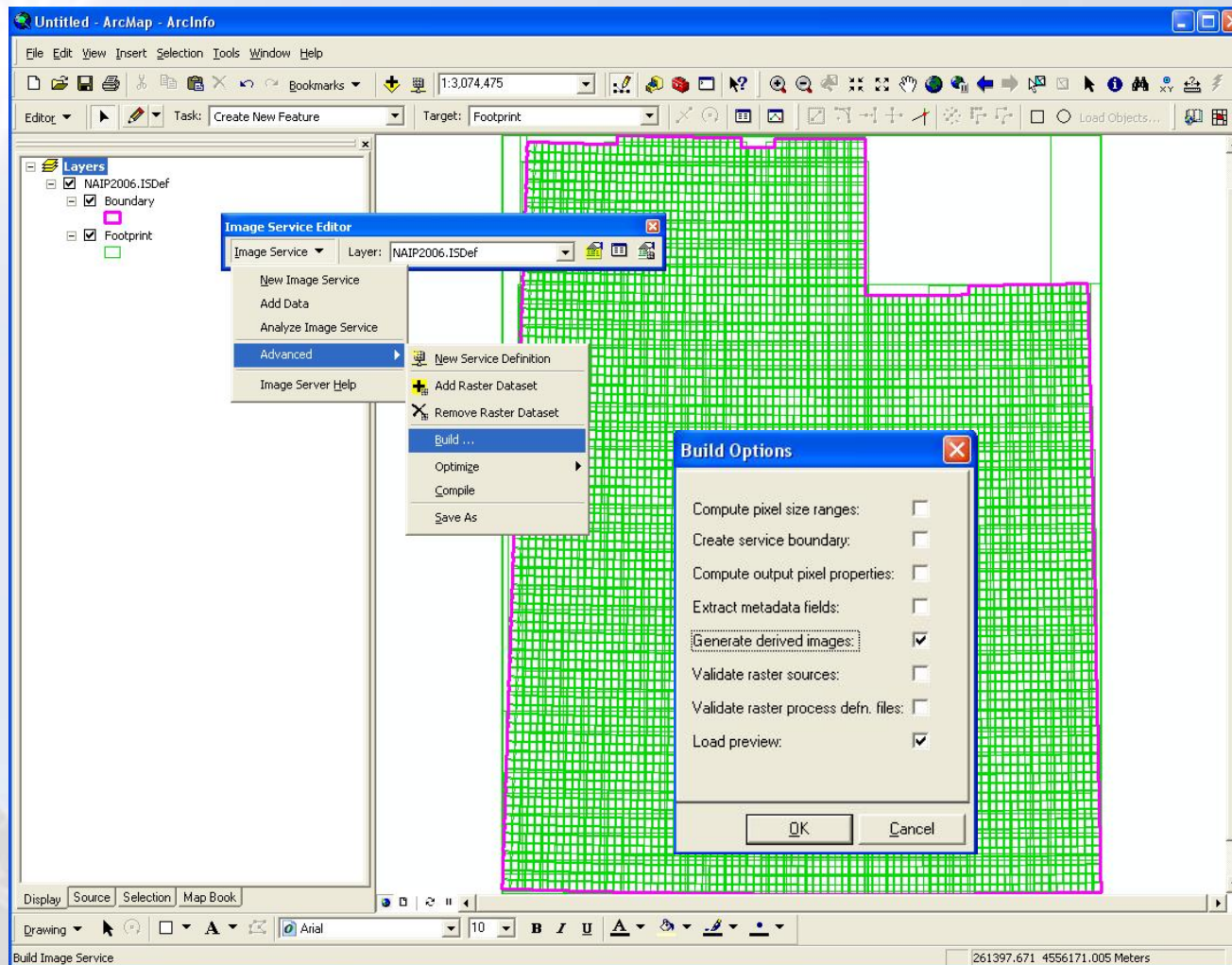
Creating a Service

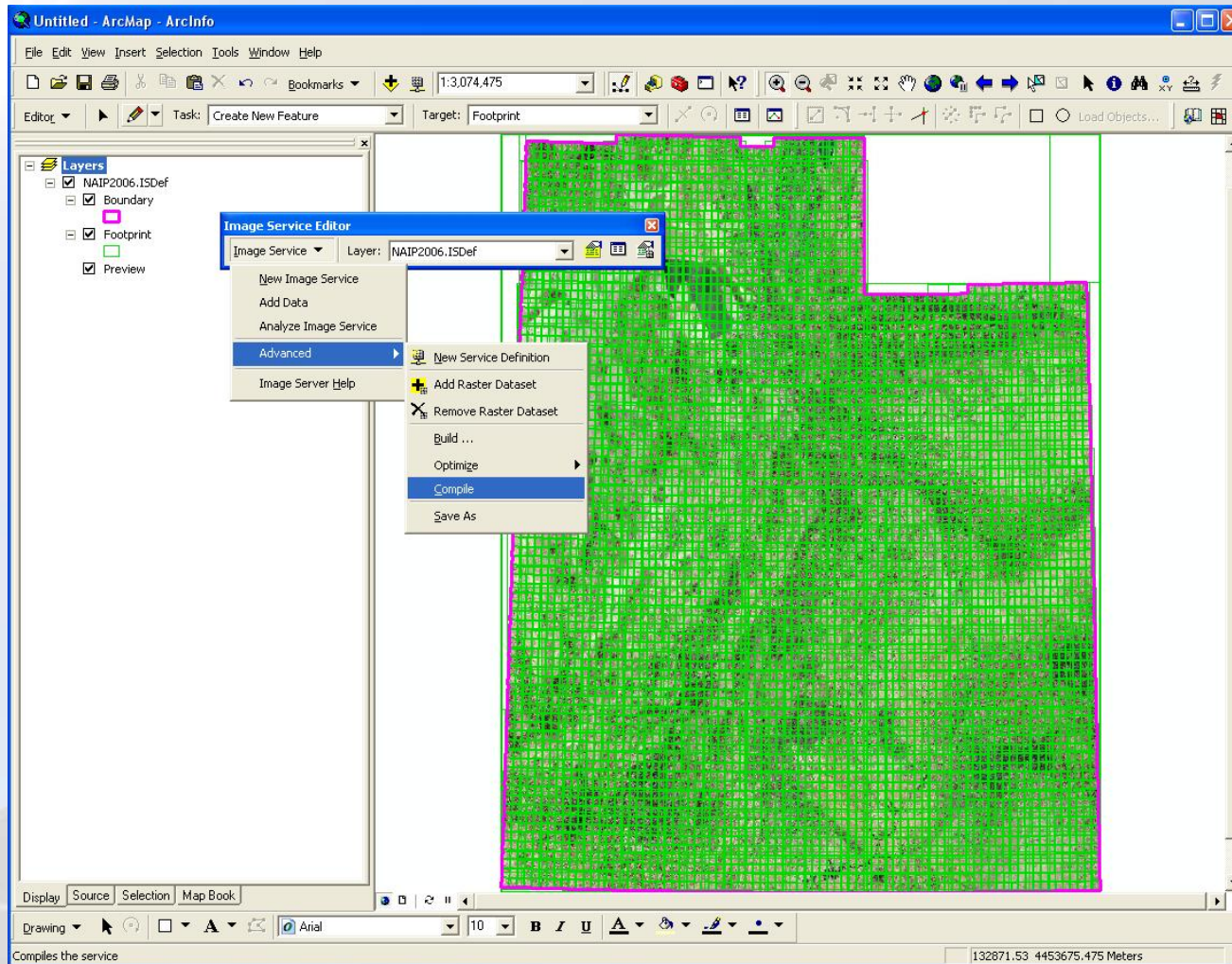
Define the service overviews

Creating a Service

Final build – generate the service overview images

Creating a Service

The good…and the bad

Past issues since resolved

- Service provider crashes when a service is draped on a globe surface.

- Incomplete service overviews are generated, or the service fails to build when authoring a service composed of thousands of tiles.

- Gaps between service overviews

- Failure to print at certain scales and resolutions. This can be resolved by modifying the ArcGIS.ISConfig file located in C:\Program Files\Common Files\ESRI\Image Server\XADefs.

Change >10000</MaxNCols to >20000</MaxNCols

>10000</MaxNRows to >20000</MaxNRows

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Questions, Comments??

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image.state.ut.us

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