Federal GIS Conference 2014

February 10–11, 2014 | Washington DC

On-the-fly Image Analysis

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Agenda

- Brief overview
- On-the-fly Image Analysis
- Demo Esri
- ENVI for ArcGIS Services Edition
- Demo Exelis VIS
- Wrap up

Esri Terms

Mosaic Dataset	A geodatabase information model for working with collections of imagery.
Raster Function	a capability used for on-the-fly processing
Function Chain	a series of raster functions used together to create a single expression
Raster Function Template	a file used to save functions and parameters used for a given function chain.
Function Template Editor	a GUI used to create, modify, and save out raster function workflows
Model Builder	a GUI used for create, modify, and save out geoprocessing workflows
Image Analysis Window	a GUI used

On-the-fly Image Analysis

Raster Functions

- What are they?
- How do they work?
- How are they different than Geoprocessing Models?
- When to use them?

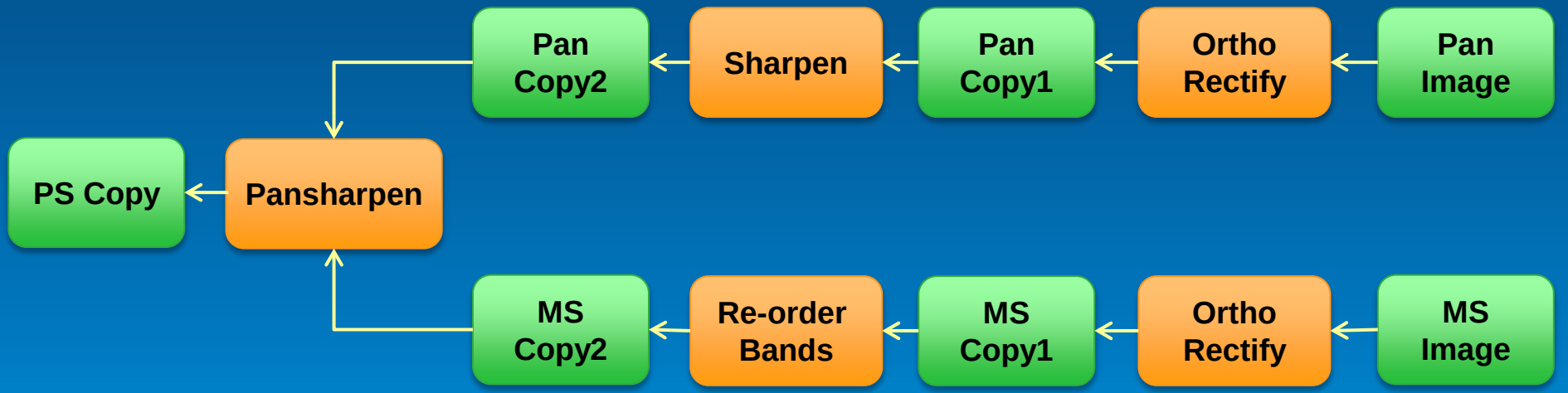
On-the-fly Image Analysis

- **Traditional**
  - Create products in advance of when they are needed
  - Requires file store and management considerations
  - May require significant time to process entire image

- **On-the-fly**
  - Processes what you need at the time you need it
  - Minimizes file storage and management burdens
  - Instantaneously create new image products

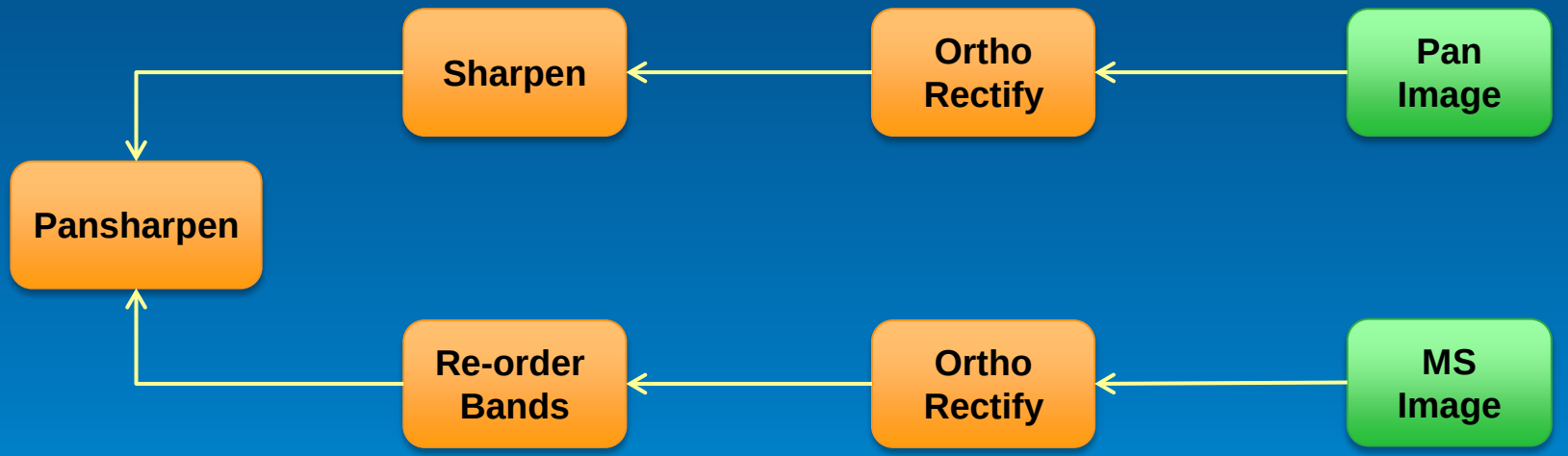
Traditional

- **Traditional Image Processing**



On-the-fly

- **On-the-fly Image Processing**

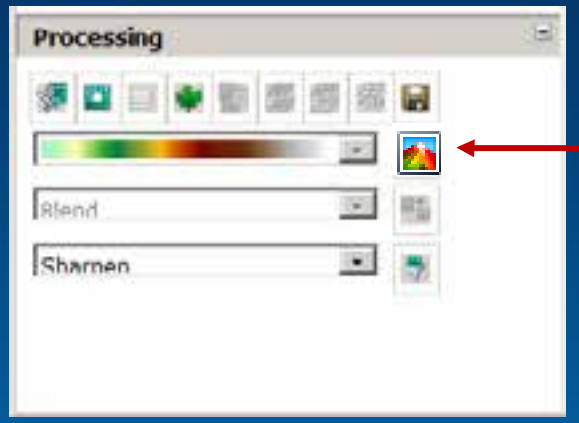


On-the-fly Processing

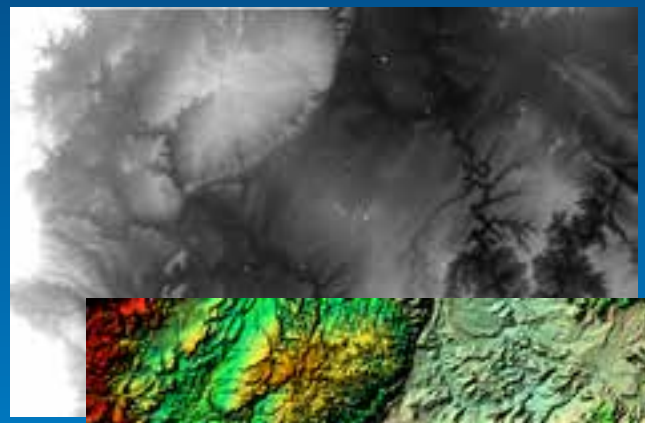
Perform operations on raster layers

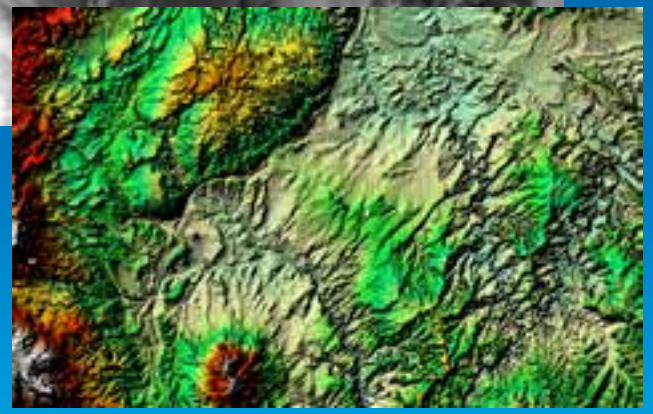
- Applied on the fly

Image Analysis Window



Elevation raster layer





Shaded relief raster layer

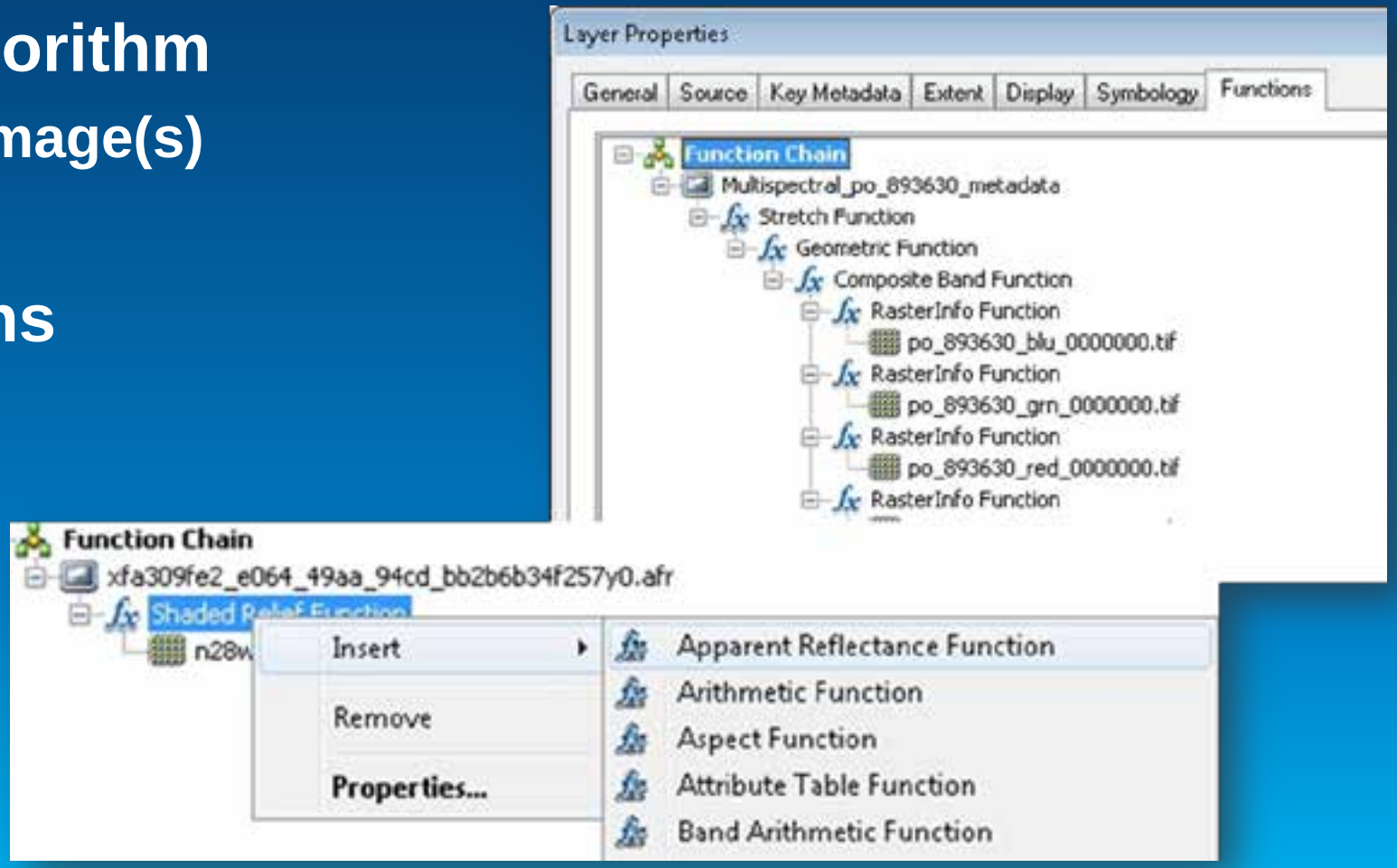
Processing buttons

Advantages

- No pre-processing
- No duplication of imagery
- Does not alter the original source rasters
- Save as a layer (.lyr) or layer package

Raster Functions

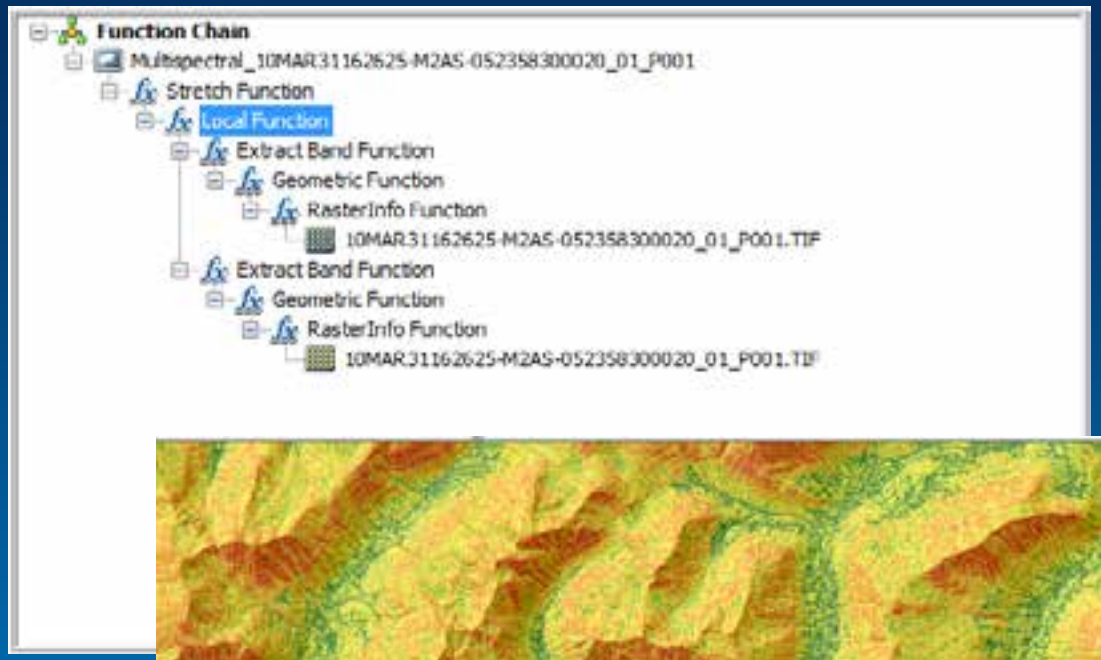
- A processing algorithm
  - Reference input Image(s)
  - Parameters
- Processing chains
- Customized
  - .NET
  - C++

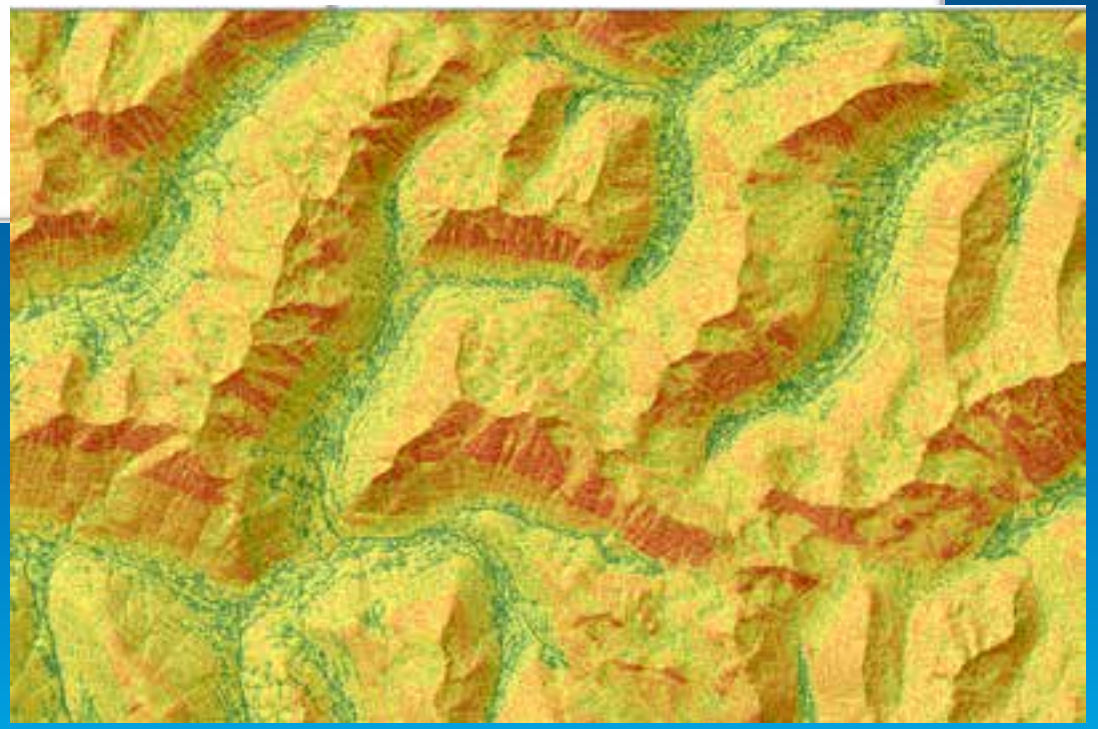


Local Function

New in 10.2

- Per-pixel operations
  - bitwise
  - stats
  - conditional
  - logical
  - math/trig





Example: On-the-fly Avalanche Risk Assessment

Demo

Deriving Earth at Night

On-the-fly

Kevin J. Butler - Esri

Esri and Exelis - Collaboration in the Cloud

- Integrated Desktop and Enterprise Solutions
- ENVI image analysis as geoprocessing tools within the ArcGIS platform
- Shareable as services via ArcGIS for Server and ArcGIS Online
- Customizable to serve the needs of the individual organization

Exelis Visual Information Solutions – Who are we?

EXELIS
Visual Information Solutions

- Image analysis software company - Boulder, CO
- Esri platinum-level business partner
- Interoperable with ArcGIS at many levels:
  - Data, tools, workflows, and applications
- ENVI image analysis as geoprocessing tools within the ArcGIS platform

esri Partner Network Platinum

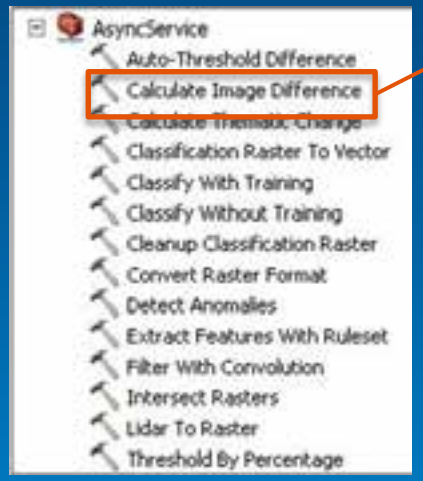
ENVI for ArcGIS – Services Edition

- Data Catalog and Server
- ArcGIS On-the-Fly Image Analysis
- Dissemination via Desktop, Mobile, and ArcGIS Online

- Advanced Image Analysis Engine
- Customizable tools for Multispectral, Hyperspectral, and LiDAR
- Shareable as a Geoprocessing Service via ArcGIS for Server

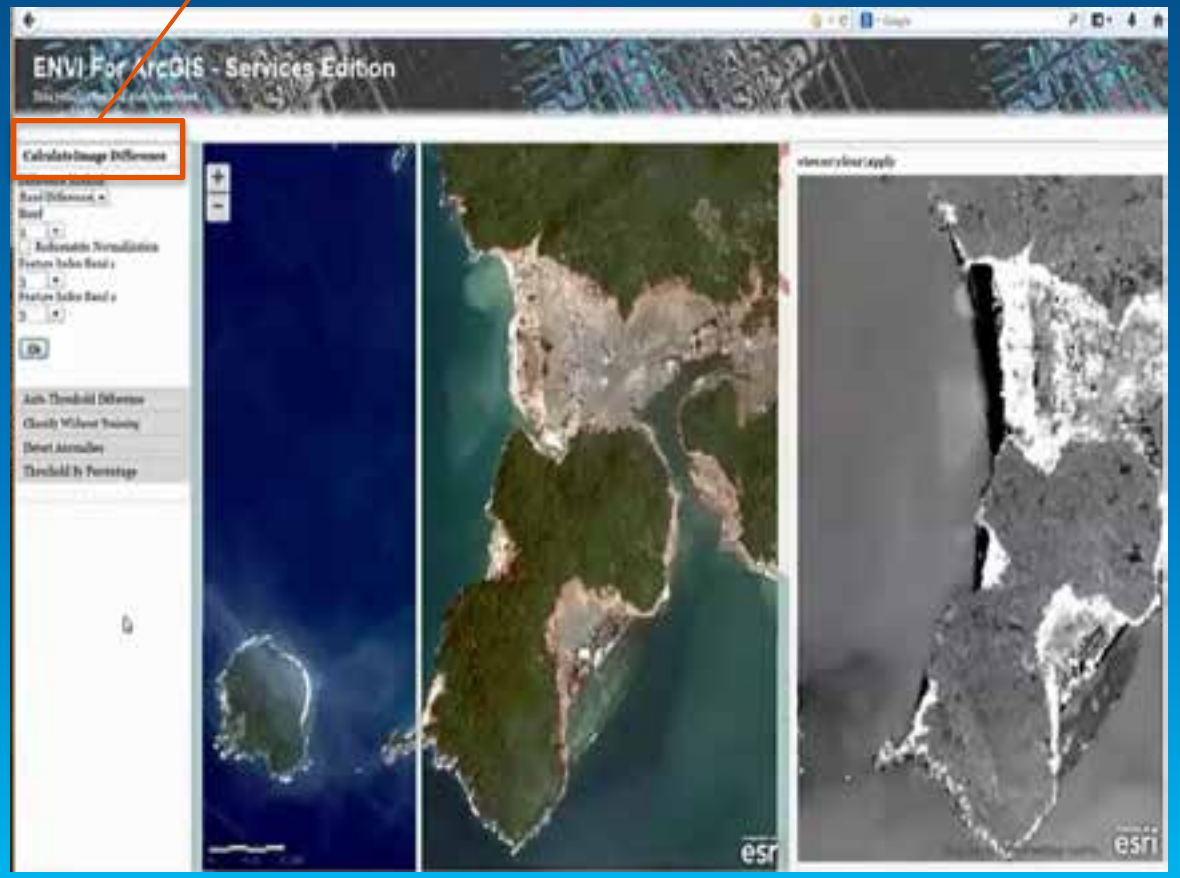
ENVI for ArcGIS – Services Edition

- 14 Analysis Tools Available Out of the Box
- Shareable Across the Entire ArcGIS Platform



ENVI for ArcGIS – Services Edition Tools

An ENVI Geoprocessing Task in ArcGIS Online



A Client Consuming ENVI Geoprocessing via ArcGIS for Server

Landsat Processing Client

Patrick Collins – Exelis VIS

Questions?

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Smithsonian National Museum of Natural History

Tuesday, 6:30 PM–9:30 PM

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Tuesday, 10:45 AM–4:00 PM

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