Considering a UAV – Now What?

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1. Variety of UAVs and sensors
2. Data collection, compression and other tools
3. Ability to share imagery
LizardTech® enable organizations to manage and deploy massive, high-resolution geospatial data such as aerial and satellite imagery and LiDAR data.
Imagery Solutions

- Provides support for multispectral and hyperspectral images - 255 bands

  Compression
  Editing
  Management
  Deploy
  Viewing and Sharing
Examples of Who We Serve

Infrastructure
Construction, Engineering
Agriculture
Energy
Data Collection
Utilities, Pipeline
Vegetative Analysis
Real Estate Analysis
National Security
Search & Rescue
Education
Do you plan to use a UAV in the next 5 years, and do you think compression will help manage UAV imagery?
Why Compress Imagery?

Explosion of Data Sources....and Sizes
Why Compress Imagery?

Detailed Images at a Reduced File Size

Save storage costs and speed up transfer time without sacrificing the quality of your images and pointclouds.

GeoExpress compresses your files to as little as 5 percent of the original size without sacrificing quality.
Raster Compression

GeoTIFF UX-5 image mosaic - 3GB

MrSID Compressed at 100:1 – 22MB
Lossless Compression Ratio

Original 3.04 GB TIFF

Compressed lossless 2:1
451.8 MB MrSID

UAV Collected Examples

Original 3.04 GB TIFF
Lossy Compression Ratios

Lossy 20:1
114 MB MrSID

Lossy 100:1
4.6 MB MrSID
Compression ratios

Original 3.04 GB TIFF

Compressed 500:1 4.6 MB MrSID
Compression ratios

Original 3.04 GB TIFF

Compressed 1000:1
2.3 MB MrSID
Compression ratios

Compressed
2000:1
1.1 MB MrSID

Original
3.04 GB TIFF
LiDAR Compression

LiDAR point cloud at 20:1 compression (128MB). Original size 660MB.
Manipulate Imagery

Simple, Intuitive Image Editing

GeoExpress has easy-to-use tools for color-balancing, mosaicking, cropping, re-projecting, and band re-ordering your compressed images

Powerful tools in a uncomplicated application
Mosaic both LiDAR and raster data into MrSID
Intuitive user interface allows you to preview your output image
Reproject any MrSID, JPEG2000, or NITF

Custom Coordinate systems supported through WKT
Color Balance

- Create visually appealing images
- Match histogram settings and save for future jobs
Metadata Editor

- Edit metadata to assign ownership and track version history
- Assign image keyword tags for indexing and searching later
Crop Your Data

- Crop by rectangle, coordinates, or shapefile to extract only the data you need.
Batch Processing

- Automate compression and edit tasks to more quickly prepare data for distribution and use
- Batch processing using Command Line is the most effective way to prepare large datasets and repeat jobs

```
DavieCreateMosaic.bat - Notepad

dir *.jpg /b /s > tiles.mos
mrsidgecoder -i tiles.mos -o mosaic.sid -mos -multires
mrsidgeometa -f mosaic.sid -awk "PROJCS["NAD83 / Florida East (ftUS)",GEOGCS
["NAD83",DATUM["North_American_Datum_1983",SPHEROID["GRS 1980",6378137,298.257222101,AUTHORITY["EPSG","7019"]],AUTHORITY
["EPSG","6269"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT
["degree",0.01745329251994328,AUTHORITY["EPSG","9122"]],AUTHORITY
["EPSG","4269"]],UNIT["US survey foot",0.3048006096012192,AUTHORITY
["EPSG","9003"]],PROJECTION["Transverse_Mercator"],PARAMETER
["latitude_of_origin",24.33333333333333],PARAMETER["central_meridian",-81],PARAMETER["scale_factor",0.999941177],PARAMETER
["false_easting",656166.667],PARAMETER["false_northing",0],AUTHORITY
["EPSG","2236"],AXIS["X",EAST],AXIS["Y",NORTH]]
```
Publish Directly To Web

- Once complete, publish your images directly to Express Server using the built-in tool in GeoExpress.
Providing Solutions Throughout Your Workflow
Distribute Data

Quickly Access Imagery Anywhere

- Pull imagery and LiDAR from file system catalogs for instant viewing from any device or connection using **OGC-standard WMS** and JPIP protocols.

Decrease Network Load Without Sacrificing Quality

- Express Server uses patented compression technology to reduce network usage, decrease image loading times and handle thousands of image requests without sacrificing visual quality.
The Fastest Way to Serve Images and LiDAR

We've provided you with sample catalogs and an open-source Leaflet viewer right out of the box. This is an example of an HTML page you can create for your catalogs. Your installation also comes with Express Zip, a professional clip, zip, and ship web application which you can modify to suit your workflow (see the documentation for details). You can also give your clients the WMS address so they can view Express Server data directly in any WMS application.

http://localhost/lizardtech/iserv/ows?request=getCapabilities

Any way you choose to deliver your images, Express Server makes it easy.
Express Server in ArcGIS

Use WMS to serve Express Server data for use in ArcGIS Desktop
Use the JPIP protocol to serve JPEG2000 images using the lowest possible bandwidth.
Simple Web-Based Image Export

**Express Server** comes with **ExpressZip**, a full-featured web tool that empowers users to browse, view, and export imagery and LiDAR across the enterprise in a variety of formats – JPEG, BMP, MrSID, LAS, LAZ and more.

**Customized Sample Applications**

**Express Server** includes multiple sample web applications so you can view your imagery with Javascript, Flash, and the Tomcat-based **ExpressZip** web tool.
Export Raster imagery in multiple formats and tile output options
Export LiDAR in native format or MrSID. DEMs created on the fly.
Providing Solutions Throughout Your Workflow

GeoExpress: Manage Express Server
- Retrieve Imagery
- Store Imagery
- Distribute Imagery
- Manipulate & Compress Imagery
- File System

Web Client
- JPII Client
- WMS Client
- Bentley Microstation
- AutoCAD Map
- Esri ArcGIS Online
- ArcMap
- GeoViewer Pro

LizardTech
Creators of MrSID Compression Technology
Seamless Interoperability

• ESRI incorporates our SDK and supports both MrSID and JPEG2000 in all of their products
• Express Server can be deployed alongside Image Server for dedicated compressed imagery
• Image Server will serve out MrSIDs without a problem, too

**Bottom line:**

• Create compressed imagery with GeoExpress
• Serve it out via Express Server/ESRI Image Server
• Exploit it in ArcGIS
Questions? Also visit our booth in the exhibit area - Thank You!

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