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Update: IDL & ENVI

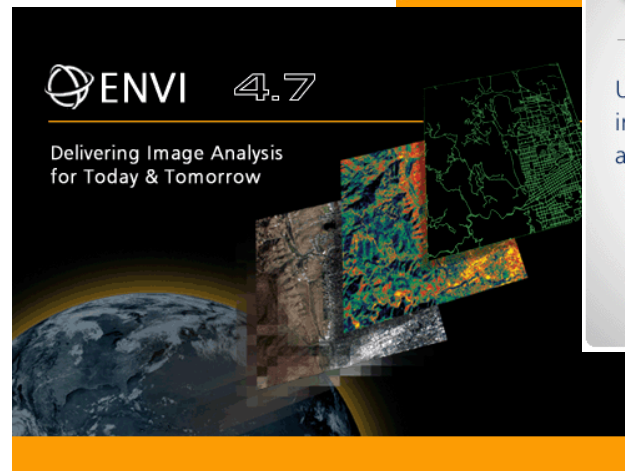
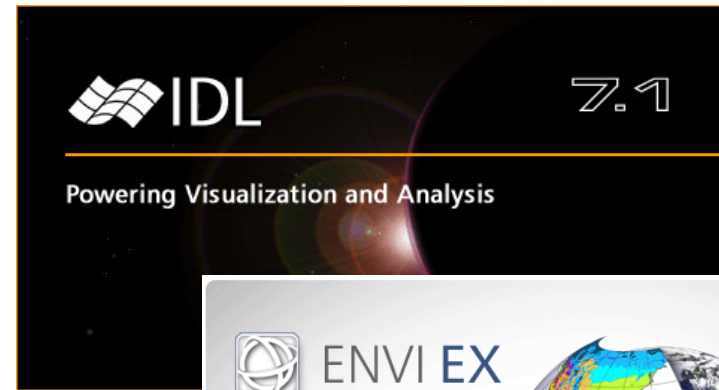
November 5, 2009 – Bill Okubo

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Engineered for life

Current Product Releases

- ENVI EX – Sep 2009
- ENVI 4.7 – Sep 2009
- IDL 7.1.1 – Sep 2009



Introducing ENVI EX

The image processing and analysis solution for GIS users

ENVI EX is a new addition to the ENVI product line

ENVI EX offers functionality specifically designed for GIS users including tight integration with ArcGIS® and step-by-step workflows



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Visual Information Solutions

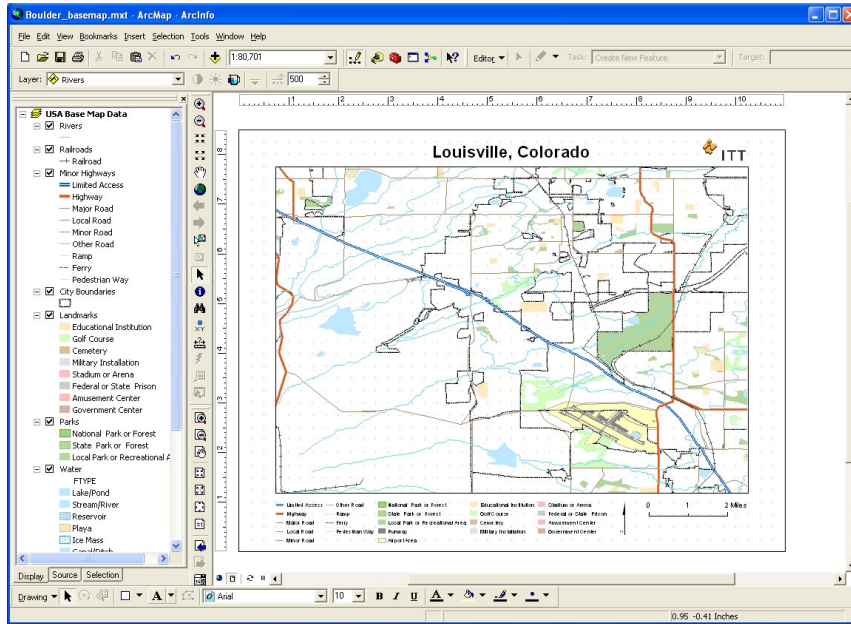
ENVI EX – Analysis & Display Workflows

The screenshot displays the ENVI EX software interface. The main window shows a satellite image of a city area with several colored polygons overlaid, representing training regions. A smaller inset window shows the classified output, with the same area rendered in a multi-color map. The interface includes a menu bar (File, Edit, Display, Help), a toolbar, and several panels: Overview, Layer Manager, and Toolbox. The Layer Manager shows a list of training areas, each represented by a colored polygon. The Toolbox contains various processing tools, including Feature Extraction, Classification, Image Difference, Thematic Change, and RPC Orthorectification. A 'Classification' dialog box is open, titled 'Supervised Classification Define Training Data'. It lists training regions: Parkland (3 Regions), Dense Urban (4 Regions), Water (3 Regions), Mid Urban (3 Regions), and Suburban (3 Regions). The 'Algorithm' dropdown is set to 'Maximum Likelihood'. The dialog also includes a 'Preview' checkbox and navigation buttons: '< Back', 'Next >', 'Skip', and 'Cancel'. The status bar at the bottom shows coordinates: Lat: 38°52'38.97"N, Lon: 76°56'51.10"W and UTM, Zone 18 North, WGS-84.

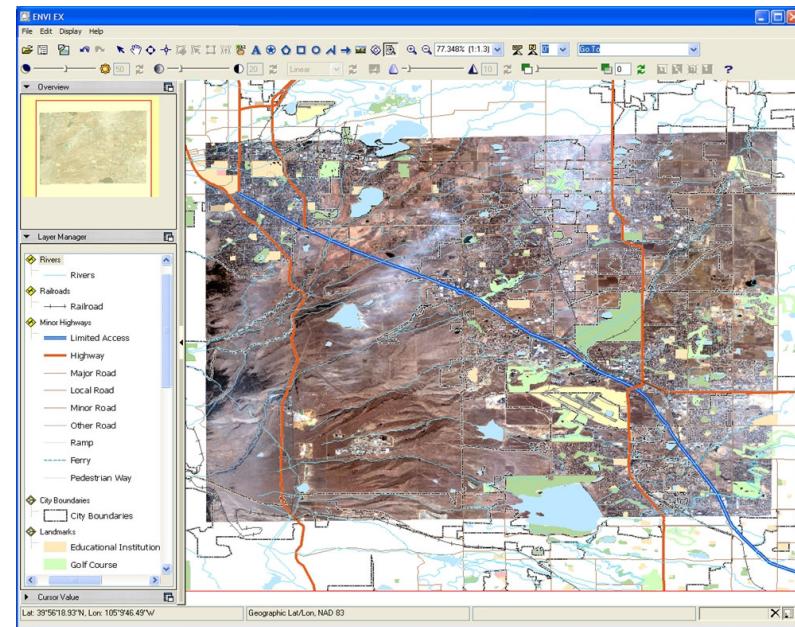


ENVI EX – ArcGIS Integration

- All of ENVI's robust file format support
- Drag-and-drop files and data from ArcMap into ENVI EX
- All ESRI symbology and styling preserved



Vector Layer files in ArcMap



Same Layer files in ENVI EX

Drag and Drop

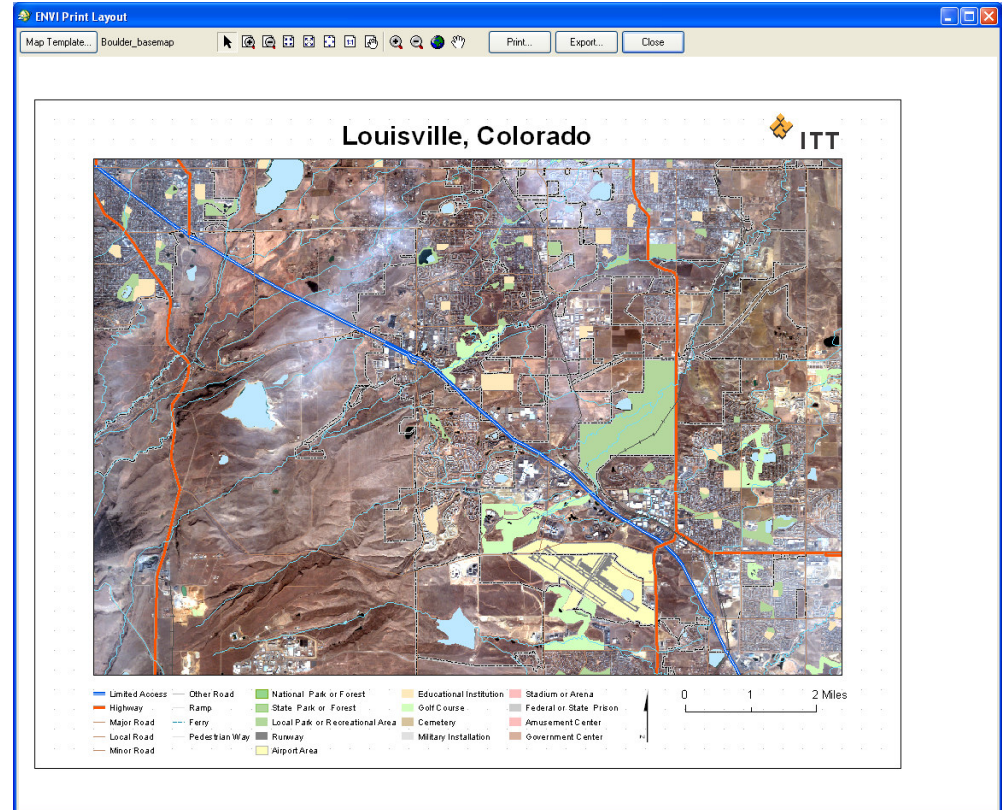


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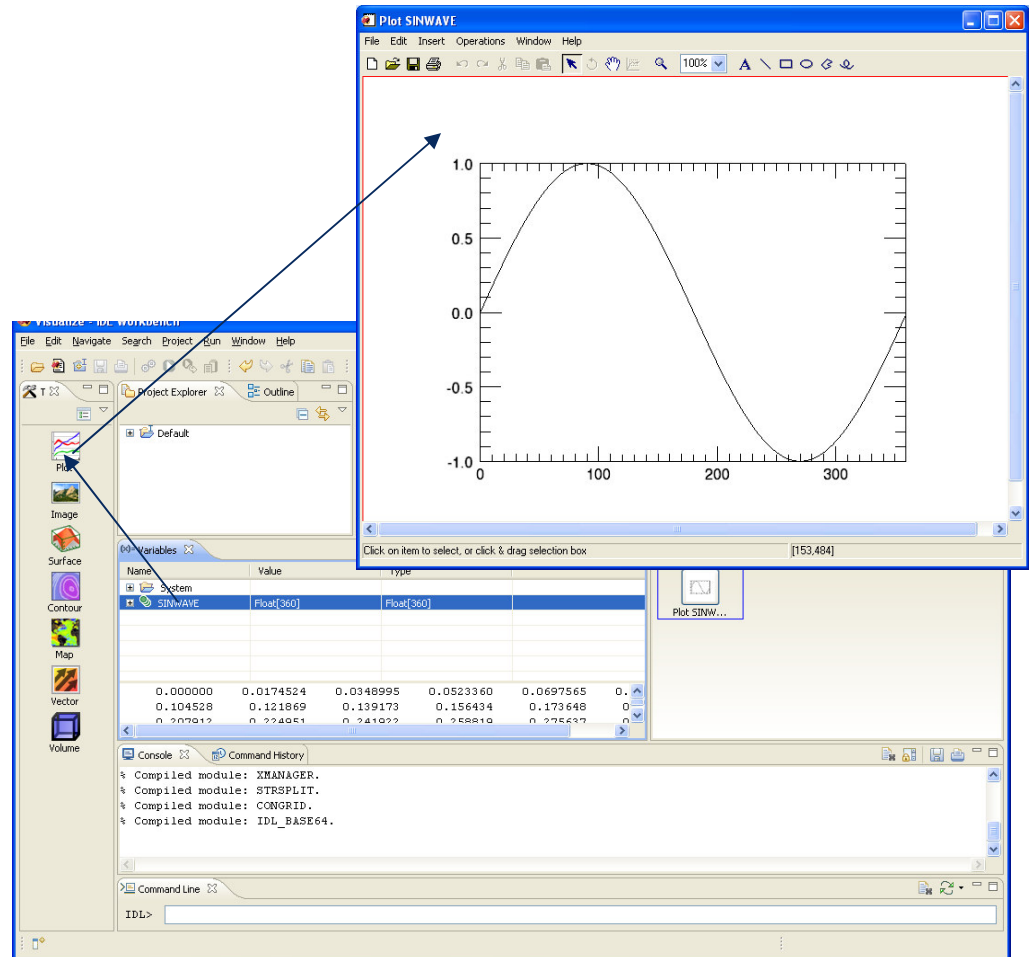
ENVI 4.7

- ZOOM
 - Drag-n-drop from filesystem or ArcMap/Catalog
 - New print capabilities
 - Toolbox concept
 - New file formats – Imagine, Landsat MTL, SPOT DIMAP, MrSID v3, RapidEYE, ESRI GRID, ESRI Layer
- 3W
 - New file formats – Landsat MTL
 - SPEAR tools output to GDB
 - New Landsat Calibration utility



IDL 7.1.1

- 7.1 Workbench enhancements
 - Click to open files
 - Integrated visualizations
 - Interactive graphics
 - Drag-and-drop
- Extended API for interactive graphics
- 7.1.1 fixes
 - Internationalization
 - MAC workbench editor



IDL 7.1 Sci Data Formats Update

- Now available on the download page at www.ittvis.com
- HDF5 1.8.3
- netCDF4
 - Read & Create a NetCDF 4 file
 - Configure chunking parameters – `CHUNK_DIMENSIONS` and `CONTIGUOUS` keywords
 - Compress – `GZIP` and `SHUFFLE` keywords
 - Create groups and query their membership
- CDF 3.3
- Released as a patch
 - Updates an existing IDL 7.1/7.1.x installation



Roadmaps

- ENVI 4.7 SP1 – Year end
 - Mensuration
 - JPEG2000 roaming optimization
 - Optimized linear stretch
 - THOR – Automatic workflows for target/material identification of HSI data
- IDL 8.0 – 2010
 - New language and graphics features
 - Simplified UI
- ENVI 5.0 & ENVI EX 2.0 – 2010
 - EX – Increase the value of image processing tools for GIS users
 - ENVI
 - Modern new interface
 - Provide backward compatibility of current ENVI routines/interfaces
 - Tools for 4-8 band high resolution airborne and satellite imagery



IDL 8.0 Roadmap

- New language features
 - Automatic Garbage collection
 - Operator overloading
 - List
 - Hash table (Dictionary)
- Simplified UI for ad-hoc and development workflows
 - New graphics API
 - Minimize the complexity and “busy” look of the Workbench
 - Interactive visualizations embedded in the Workbench
- File I/O enhancements



IDL 8.0 – Language Features

Object Simplification of our Graphics API

Creation – Uses a functional interface

```
myPlot = plot(myData)
```

Property Access – Uses a structure notation

```
myPlot.color = !sys.yellow
```

```
background = myPlot.background_color
```

Access Elements via Strings

```
axis = myPlot[“x axis”]
```

```
axis.title = “Number of Farms”
```

```
myPlot[“view”].color = !sys.lightgray ;; set view color - direct access to sub-items
```

```
allAxes = myPlot[“* axis”] ;; return all axis - wild card searches
```

Object Cleanup

```
myPlot = 0 ;; IDL does automatic object cleanup
```



Questions?

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