



ITT

ENVI/IDL For HDF

Bill Okubo, IDL Product Manager

November 17, 2008

The information contained in this document pertains to software products and services that are subject to the controls of the Export Administration Regulations (EAR). All products and generic services described have been classified as EAR99 under U.S. Export Control laws and regulations, and may be re-transferred to any destination other than those expressly prohibited by U.S. laws and regulations. The recipient is responsible for ensuring compliance to all applicable U.S. Export Control laws and regulations.

Engineered for life

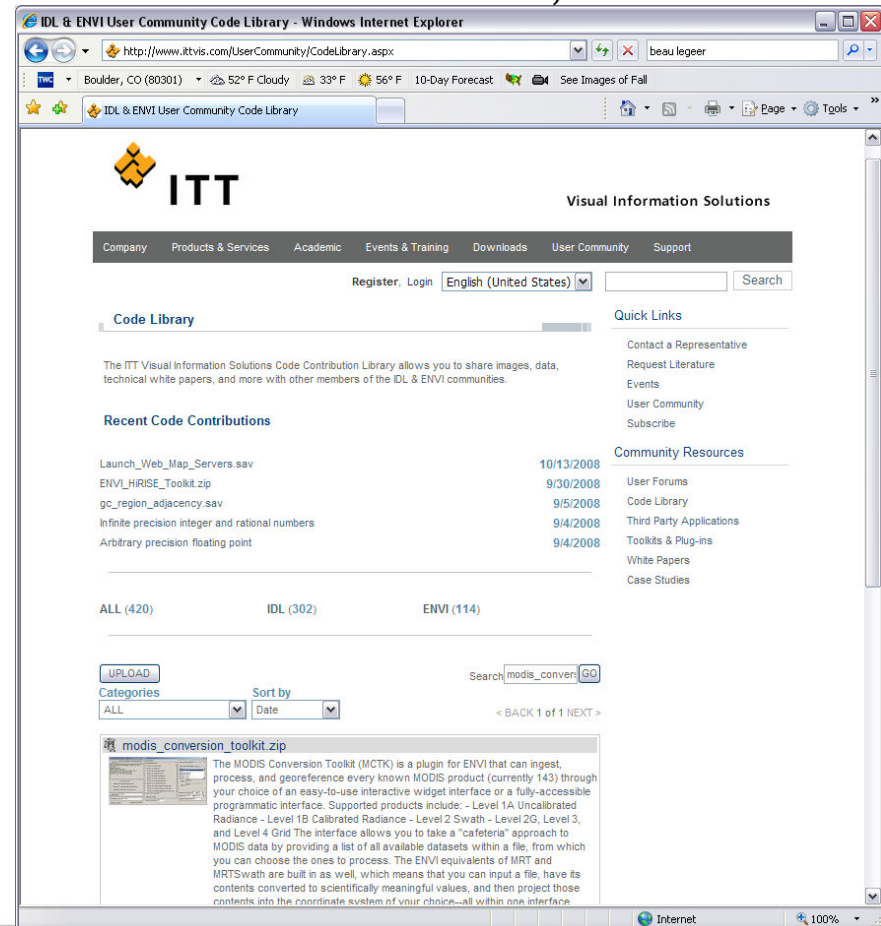
Toolkits & Enhancements For ENVI/IDL

- MODIS Conversion Toolkit
- ENVI Plugin for Ocean Color
- Hyperion Tools
- ASTER Level 2 RPC Orthorectification
- NOAA CoastWatch AVHRR
- AIRS Level 1B Radiance (prototype)

Devin White – Senior Programming Consultant, PhD
dwhite@ittvis.com

- H5_Browser GUI to open and browse HDF5 files
- H5_Parse automatically reads entire file into an IDL structure

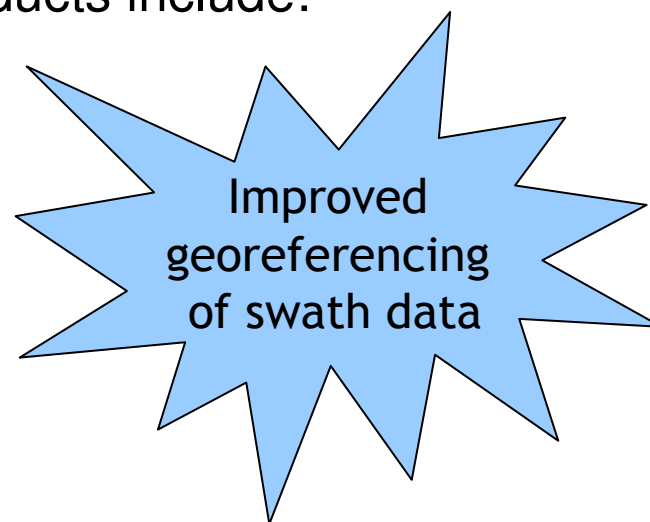
<http://www.ittvis.com/UserCommunity/CodeLibrary.aspx>
and search on modis, aster...



All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations

The MODIS Conversion Toolkit

- The MODIS Conversion Toolkit (MCTK) is a plugin for ENVI that can ingest, process, and georeference every known MODIS product (currently 143) through your choice of an easy-to-use interactive widget interface or a fully-accessible programmatic interface. Supported products include:
 - Level 1A Uncalibrated Radiance
 - Level 1B Calibrated Radiance
 - Level 2 Swath
 - Level 2G, Level 3, and Level 4 Grid
- Works with MODIS data from the Land, Cryosphere, Atmosphere, and Calibration groups.



All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



ITT

Visual Information Solutions

MCTK

The screenshot displays the ENVI 4.4 software interface. The 'File' menu is open, showing options like 'Open Image File', 'Open Vector File', and 'Open External File'. The 'Open External File' submenu is expanded, listing various data sources including 'EOS', 'ASTER', 'MODIS', and 'MODIS Conversion Toolkit'. The 'MODIS Conversion Toolkit' dialog box is open, showing the following details:

- Input HDF:** MOD021KM.A2007079.0855.005.20070791
- Product:** Level 1B Calibrated Radiance 1km - Terra Swath
- Type:** Swath
- Pixel Size:** 1000.00
- Native Projection:** Geographic Lat/Lon
- EOS Datafields Source:** MODIS_Swath_Type_L1B
- Acquisition Day / Year (Julian):** 079 / 2007
- Acquisition Start Time (UTC):** 08:55

Processing Options:

- Radiance / Emissivity
- Reflectance / Emissivity

Select items from the list:

- [1] EV_250_Aggr1km_RefSB
- [2] EV_500_Aggr1km_RefSB
- [3] EV_1KM_RefSB
- [4] EV_1KM_Emissive

Select Output Type:

- Standard: No georeferencing
- Projected: Triangulation-based georeferencing
- Standard and Projected: Both output types

Output Path: C:\MCTK\

Rootname for output: modis_ref_1b

Fill Value for Bad Data: NaN

Processing Options (Right Panel):

- Select Resampling Method:** Nearest Neighbor
- Select Output Map Projection:** New...
- Projection List:** Arbitrary, Geographic Lat/Lon, UTM, State Plane (NAD 27), State Plane (NAD 83), Argentina - Zone 1, Argentina - Zone 2, Argentina - Zone 3
- Datum:** WGS-84
- Units:** Meters
- Zone:** 34, N, S
- Number of Warp Points:** X: 50, Y: 50
- Perform Bow Tie Correction:** No
- Background Value to Use:** NaN

Buttons: Process, Cancel, Build Date: 10/09/2007

All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



ITT

Visual Information Solutions

ENVI 4.6 Themes

This release expands the value of ENVI in two primary areas:

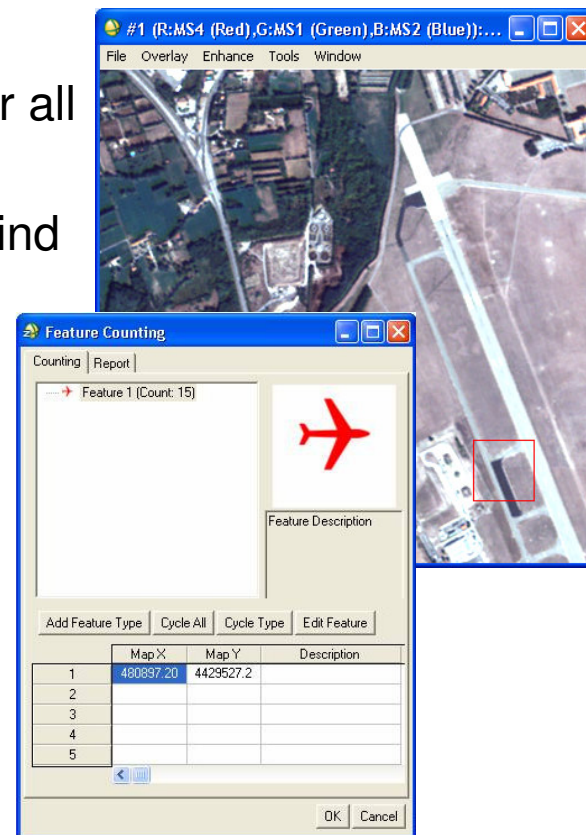
- **Automated Workflows:**

- Even more workflows to support a variety of tasks for all of their panchromatic, MSI and HSI data needs.
- Customers of all ability levels and backgrounds will find that the new workflows provide an intuitive way to perform rigorous image analysis.

- **Feature Extraction:**

- Enhanced results by adding additional datasets and ground truth data.
- Prepare results for sharing by adding pertinent annotations to the extracted features of interest.

- Release scheduled for January 12, 2009



Enhanced Results • Faster Workflows • Share Results

All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



ITT

Visual Information Solutions

IDL Product Goals

Key problems for today's IDL user

- Cannot read even the most common formats of data into IDL without using commands or programming*
- Cannot interact with visualizations and also control them using simple procedural commands or programs*

- Improve overall usability via Workbench integration
 - Make it easier to read data & interact with graphics
 - Provide easy-to-use modern, widget controls & behavior
 - Modernize the user experience
- Enhance core functionality

All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



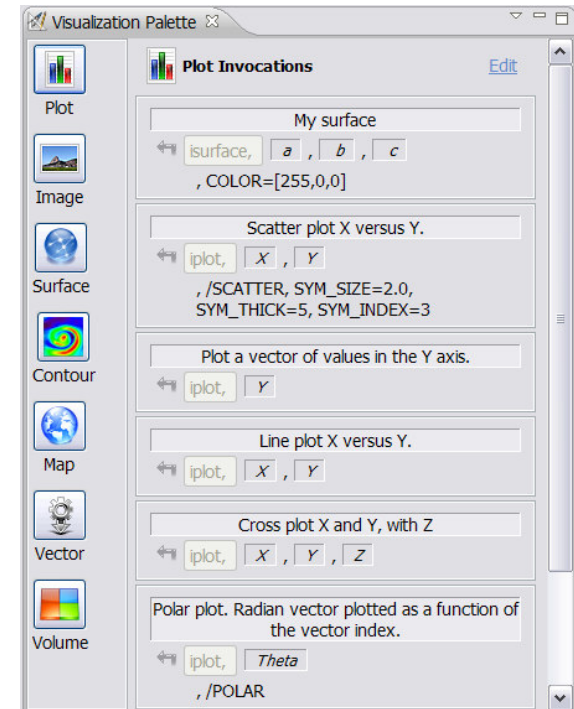
ITT

Visual Information Solutions

IDL 7.1 Feature Highlights

- IDL Workbench Visualization Manager
 - Open common file formats from File->Open
 - Drag & drop to create visualizations
 - Extensible – user-defined categories and action bars
- iTools Enhancements
 - Procedural API with simplified ID strings
 - Generate code to recreate visualizations
 - Better margins and zooming
- Internationalization phase 2
 - Fix File I/O issues
 - Multibyte text for object graphics
 - Support Unicode input for widgets
- IDL Workbench
 - Plug-in Update Site Wizard
 - Improvements & bug fixes

你好



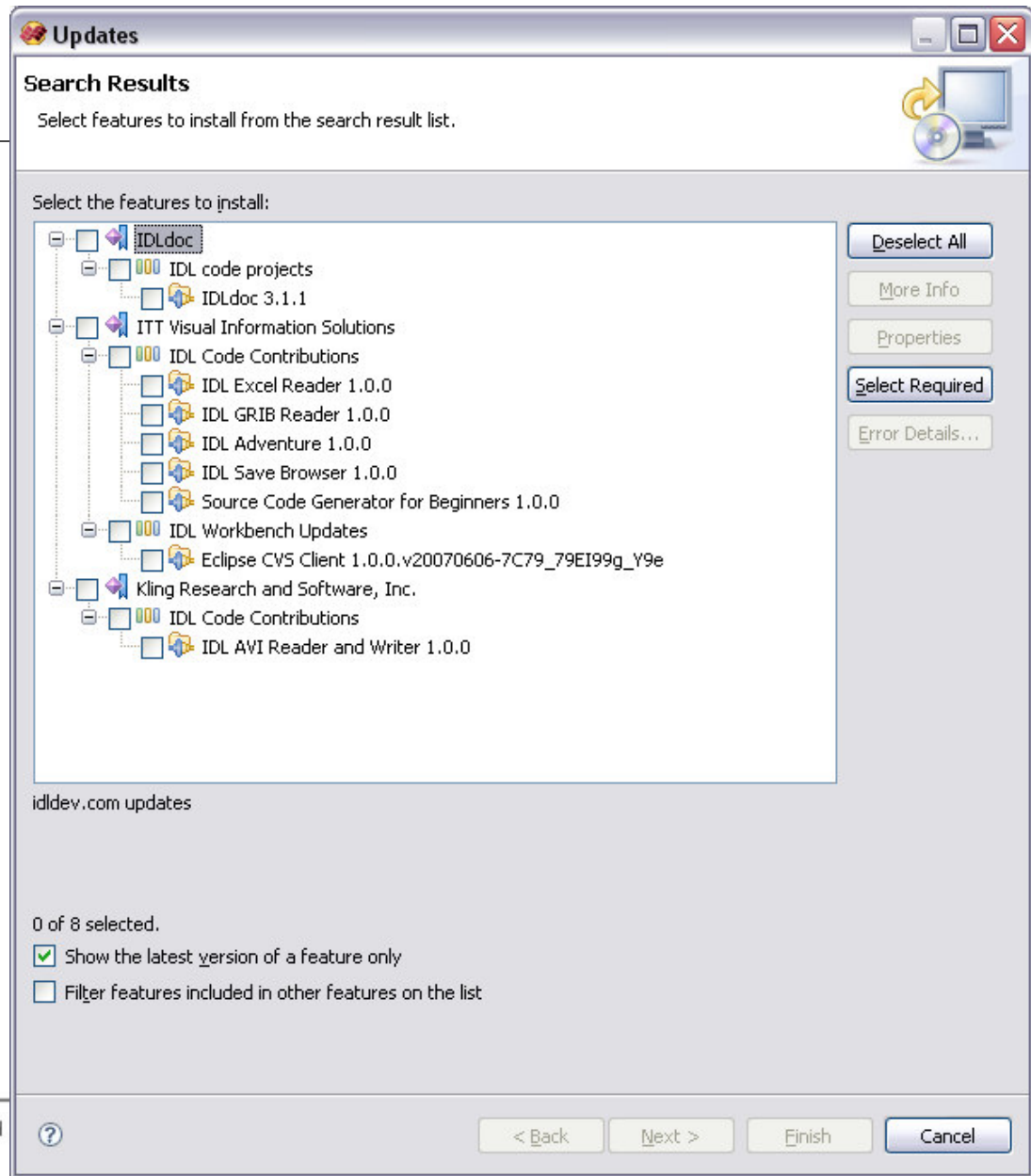
All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



ITT

Visual Information Solutions

Plugin Updates



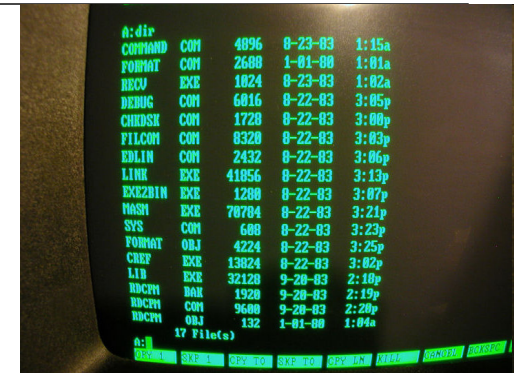
ITT

Visual Information Solutions

All products and generic services described

IDL 7.1 Feature Highlights (cont.)

- Data Access
 - Dataminer upgrade to latest version - MySQL
 - DICOMex for 64-bit Windows
 - AVI Read/Write Plugin – 3rd party Ronn Kling
 - CSV reader
- Image Processing – new algorithms TBD
- Integration
 - IDL→Python Bridge – Jacquette Consulting
- Cross Platform Support
 - Windows Command Line
 - Solaris 10 x86 64-bit, IDL command-line only
 - OMB FDCC non-admin mandate for Windows XP & Vista
 - Mac OS X 64-bit Intel (IDL 7.0.4)
- Scientific Data Formats
 - CDF-3.2, HDF4-r2.3, HDF5-1.6.7 (IDL 7.0.3)



File Name	Type	Size	Date	Time
COMMAND	COM	4096	0-23-03	1:15a
FORMAT	COM	2688	1-01-00	1:01a
RECV	EXE	1024	0-23-03	1:02a
DEBUG	COM	6016	0-22-03	3:05p
CHDSK	COM	1720	0-22-03	3:00p
FILCOM	COM	8320	0-22-03	3:03p
EDLIN	COM	2432	0-22-03	3:06p
LINK	EXE	41056	0-22-03	3:13p
EXECBIN	EXE	1280	0-22-03	3:07p
MASH	EXE	70704	0-22-03	3:21p
SYS	COM	600	0-22-03	3:23p
FORMAT	OBJ	4224	0-22-03	3:25p
CRF	EXE	13024	0-22-03	3:02p
LIB	EXE	32120	9-20-03	2:10p
HDCHI	MAN	1920	9-20-03	2:19p
HDCHI	COM	9600	9-20-03	2:20p
HDCHI	OBJ	132	1-01-00	1:04a



All products and generic services described herein have been classified as EAR99 under U.S. Export Control laws and regulations



ITT

Visual Information Solutions