What's New?
ERDAS IMAGINE 2010, Version 10.1

April 8, 2010

ERDAS IMAGINE is the world's leading geospatial data authoring software. Why does the world use ERDAS IMAGINE?

- Easy to learn
- Increases productivity
- High level of accuracy
- Unparalleled flexibility
- It's from ERDAS, the inventor of commercial remote sensing software

ERDAS IMAGINE performs advanced remote sensing analysis and spatial modeling to create new information. In addition, with ERDAS IMAGINE, you can visualize your results in 2D, 3D, movies, and on cartographic quality map compositions.

With this latest release of the software, which upgrades ERDAS IMAGINE 2010 to Version 10.1, ERDAS continues to improve the efficiency with which information can be extracted from up-to-date imagery of all varieties. Below is a selection of some of the key new features which have been added to the software:

ERDAS IMAGINE (Essentials, Advantage, Professional)

Digital Globe sensor support improved [more efficiently handle DG tiled data and WorldView-2 multispectral imagery]

Support has been added for the Digital Globe .TIL format. Digital Globe often delivers images cut into smaller non-overlapping tiles. An ancillary .TIL text file provides a list of these tiles and their relationships. To use these files in georeferencing workflows, they must be assembled back into a single original image. The ERDAS IMAGINE Importer now allows you to select a .TIL file and import all the tiles into a single file. The georeferencing information (RPC) is preserved. Additionally, this support can be used for direct read scenarios, so the assembled tiles can be used directly in workflows without first processing into a new file. This method is only recommended for light exploitation and quick looks at local areas of the file. It can result in reduced viewing performance, particularly for multiple image sessions with a large number of tiles. Users can type *.TIL in the file chooser to expose this option. Note: this feature will work for both NITF and TIFF tiled files, and the .RPB file must be present for proper georeferencing.

WorldView-2 multispectral data had a slight format change in the text header files. ERDAS IMAGINE and LPS 2010, Version 10.0 only recognized certain keywords in the BandID field. The list of supported keywords has been expanded in Version 10.1. If you encounter any further issues reading this data (usually a crash on load), change the BandID field in the .IMD file to either "multi" or "MS1" and please report the field value that was causing the crash to customer support.

Inquire Cursor and Inquire Box report based on Active layer [faster access to attribute information]

The Inquire Cursor in ERDAS IMAGINE is used for a variety of tasks including driving to a specific geographic coordinate and also to report the attributes of pixels at a location. The Inquire Box is based on similar technology but is usually used to define a working rectangle for operations such as a subset or the area to add to a map report.

With this release the coordinates and attribute information reported by these dialogs can be controlled the active layer in the Table of Contents.
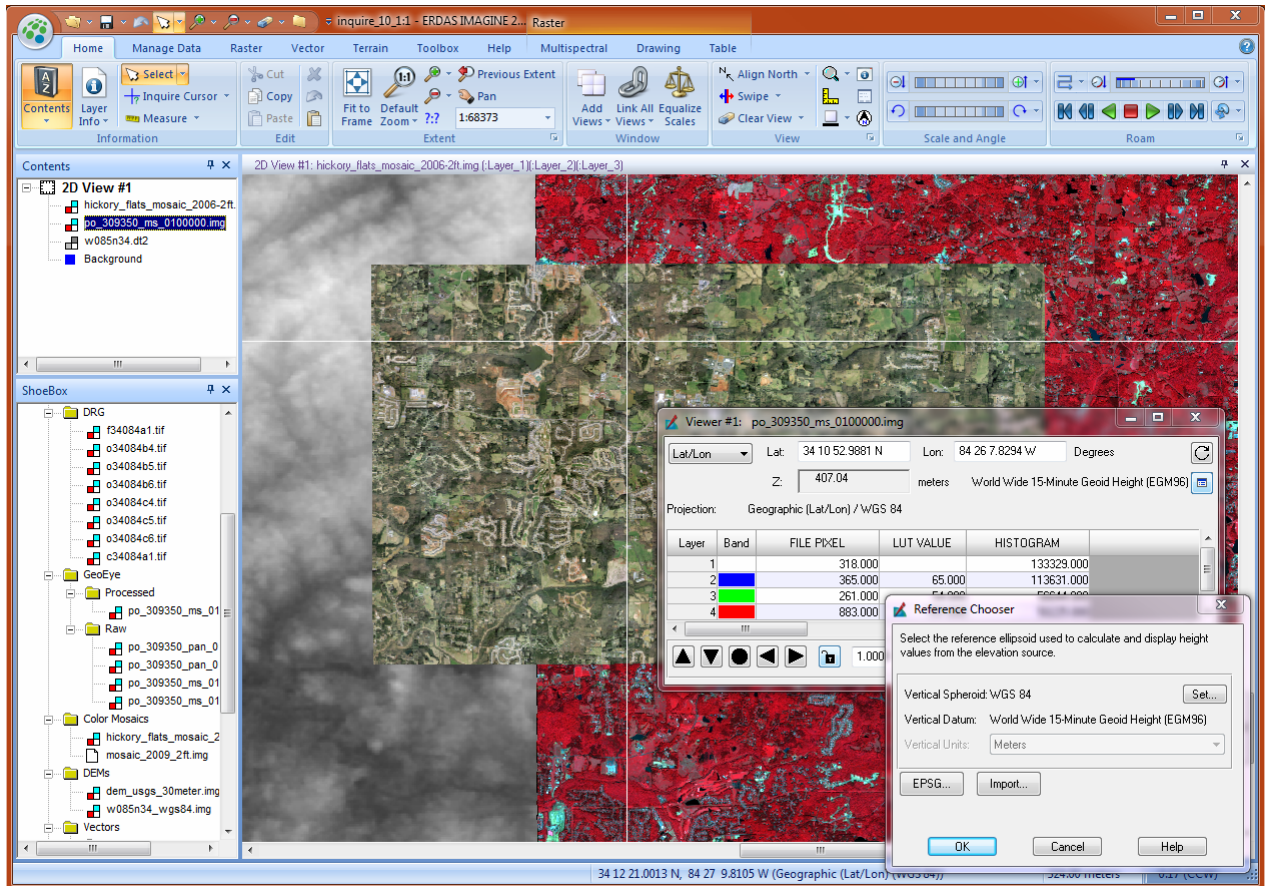
For example, in the screenshot shown above there are three images displayed in the 2D View, but the second image has been selected in the table of Contents to make it active. Consequently, the Inquire Cursor dialog is reporting the coordinates of the Cursor in the coordinate system of that layer (Geographic Latitude/Longitude) and the attribute fields are those of the active layer.

This change in behavior makes it much easier, to view the attributes of multiple data layers at a given geospatial location, by simply clicking on that layer in the Contents listing.

It also resolves an issue which could sometimes occur when using the Inquire Box. Previously, you could specify a box in coordinates not appropriate to the dataset being processed with the box.

Display elevations in ellipsoid, Mean Sea Level (MSL), or any other vertical datum [greater accuracy of coordinate mensuration]

Digital elevation sources, whether they are raster, vector, TIN or whatever type of formatting, must have their height values measured against a known reference or datum for those heights to be meaningful. For the majority of digital elevation sources, the reference is either Mean Sea Level (MSL – usually taken to be represented by the World Wide 15 Minute Geoid Height, or EGM96, model) or WGS84, and is specified in the header of the file being used.

The Inquire Cursor will now not only report the vertical datum against which the digital elevation source being used to display a Z value is referenced in its header (so that the user operator will not be potentially mislead by not knowing what the reference system being used is), but it will also enable the user to change the system in which the height value is reported. For example, in the screenshot shown in the section above, the raster digital elevation source physically stores its height values referenced against the WGS84 ellipsoid, but the values can be translated on-the-fly into another system, such as the Earth Gravity Model 96 (EGM96 or MSL) for easier reference.

Control over coordinate display precision [less confusion]

There is now a single preference for setting the precision with which coordinates are displayed in dialogs such as the Inquire Cursor, Measure Tool, Status Bar, GLT Coordinate System Display bar, Elevation Display, Geopoint annotation tool and ImageInfo.

In the Preference Editor, Viewer category there is now a "Precision Required for Linear Measurement" field that works in conjunction with the "Units for Calculating Number of Digits of Precision." This enables the user to set, for example, a precision of 1 cm. Wherever measurements are reported, those measurements will be displayed with a precision calculated from this Preference setting, such that even if the values are being reported in meters, kilometers, feet or decimal degrees, the number of decimal points used will be sufficient to report the measurement with a precision of, for example, 1 cm.

User-specified coordinates are retained [consistent accuracy]

Previously, the accuracy of a coordinate typed into the Inquire Cursor (such as to drive the 2D View to a known location) was tied to the accuracy of display at the current zoom scale. If the data was zoomed out (e.g. such that multiple image pixels were represented by a single screen pixel), the coordinate could become rounded to the coordinate represented by the center of the closest screen pixel, which could consequently result in the coordinate entered being altered.

With this release, the coordinate entered into the Inquire Cursor dialog generally remains constant even if the 2D View window is zoomed, roamed, etc. The coordinate should only update if the user types a new coordinate, or if the Inquire Cursor itself is grabbed and moved.

This change should result in more consistent accuracy when driving to and zooming in on a known location.

Upgraded to the ECW JP2 CODEC SDK 4.1 in all ECW and JPG2000 read and write functions [increased speed and greater use of system resources]

The latest ECW JP2 CODEC SDK, version 4.1 is now used throughout ERDAS IMAGINE. This new SDK allows more speed when dealing with the more difficult JPEG2000 variants, and is more efficient in the use of system resources. This enhancement also allows for support of Dynamic Quality Roam (DQR) in a 2D view.

Updated EPSG codes and GeoTIFF codes [increased portability of data coming from ERDAS IMAGINE]

ERDAS IMAGINE now supports more EPSG Projection codes and offers a more compatible GeoTIFF. With the rise of more Open Source software, ERDAS has worked with partners to develop an implementation of GeoTIFF to support Open Source development. Open Source developers interpret the GeoTIFF standard differently than professional software packages, so ERDAS IMAGINE now outputs GeoTIFF data to support both the traditional and Open Source development efforts.

Directly access image data cataloged in ERDAS APOLLO [increase productivity]

ERDAS IMAGINE now provides an option to handle data "out of band" when accessing cataloged data in ERDAS APOLLO. Because the customer does not have to access cataloged data stored on a LAN via WMC or WCS, the speed performance is greatly enhanced. This is achieved by the server passing the actual network path of the cataloged data to the ERDAS IMAGINE client application rather than providing a WCS or WMS service.

Large Address Aware benefits 64-bit operating system customers [leverage hardware investment by using more system resources]

Large Address Aware is a flag that can be set when compiling the software. This flag allows 32-bit applications to increase the memory it can address from 2GB to 4GB when running on a 64-bit operating system (or a 32-bit

operating system which has been enabled to use this option by the System Administrator). Many applications which need to access large volumes of memory can now run more efficiently. The large memory aware flags will be set on all ERDAS IMAGINE functions for the 2011 release version. For version10.1, the following are a subset of the features enhanced:

- Viewer, can now load more images when running on a 64-bit OS
- MosaicPro, process faster when running on a 64-bit OS
- ECW / JPEG2000 will complete on wider datasets when running on a 64-bit OS
- IMAGINE Radar Mapping Suite will create a full image interferogram when running on a 64-bit OS

True opacity for annotation layers and vector polygons [easier image analysis]

ERDAS IMAGINE now provides support for true opacity on vector polygons and annotation layers. This allows customers to more easily interpret data when overlying features onto imagery by providing a high quality "see-through" capability.
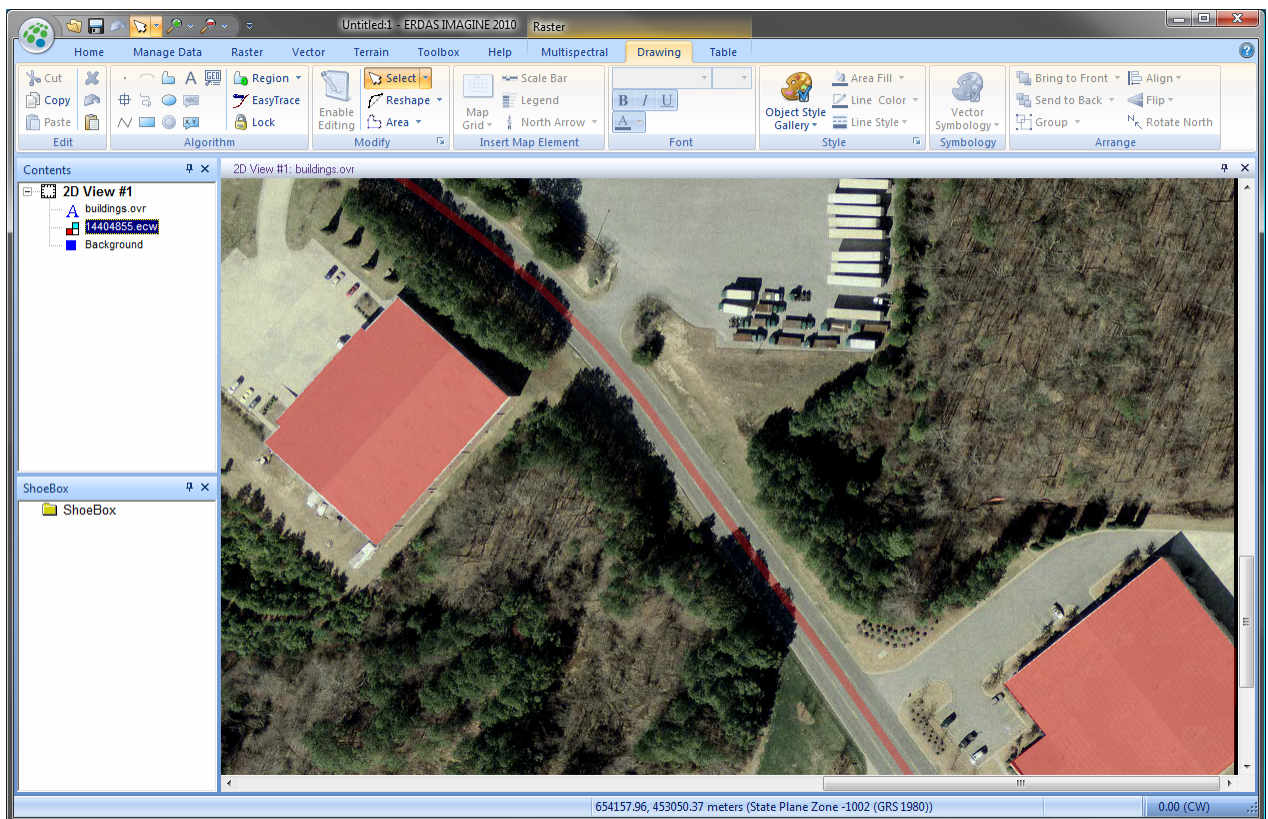
Segmentation supports processing in tiles [handle huge images efficiently]

The image segmentation algorithm available stand-alone in IMAGINE Professional (and also in the IMAGINE Objective) has been improved to enable processing of input images in tiles in system memory.

This change hugely increases the size of input imagery which can be segmented in a reasonable amount of time – it has been successfully tested with multi-gigabyte 16bit multispectral images.

The algorithm works by processing the input image in blocks or tiles and then running a post-process to stitch the blocks back together again. Edge segments are merged based on similarity, which means that you may still see "edge effects" especially with very large segments. Consequently, it is highly recommended that you classify the segments using an application such as IMAGINE Objective, which is capable of re-assembling separate segments into final features.

DPPDB footprints can be extracted and saved [utilize for active area constraints]

DPPDB images are not always useable to their full pixel extents. The metadata contains footprint coordinates for a polygon that defines the useable area. In the DPPDB Workstation, there is now an option to save off these footprints in several formats. They can be saved as individual shapefiles, AOI, or annotation layers, one per image, or all footprints can be saved in a single shapefile. File and polygon attribute names automatically match the image names.

NITF file handling improved [open larger numbers of files simultaneously]

Simultaneous opening of large numbers of NITF files was consuming excessive memory. This has been corrected resulting in improved performance. This improvement will be particularly noticeable on file types like RPF/CIB and ECRG that contain large numbers of small NITF tiles to make up a single product.

Options for improving JPEG2000 exploitation performance [faster loading and analysis of images]

The load times and roam/zoom display efficiency of very large JPEG2000 images can be improved by utilizing some added preferences. JPEG2000 images are stored in a tiled structure, often with embedded pyramids. Due to the nature of certain format variants, displaying full resolution imagery when roaming can result in a significant performance drain on the system. Additionally, to provide the fastest possible roam, ERDAS creates an index file (.j2i) when the image is first loaded. For very large images, the j2i generation can take some time, and for a quick look at a specific imagery section one may not want to generate it. Finally, some customers have noted a reduction in performance when using large JPEG2000 images over a high-latency network.
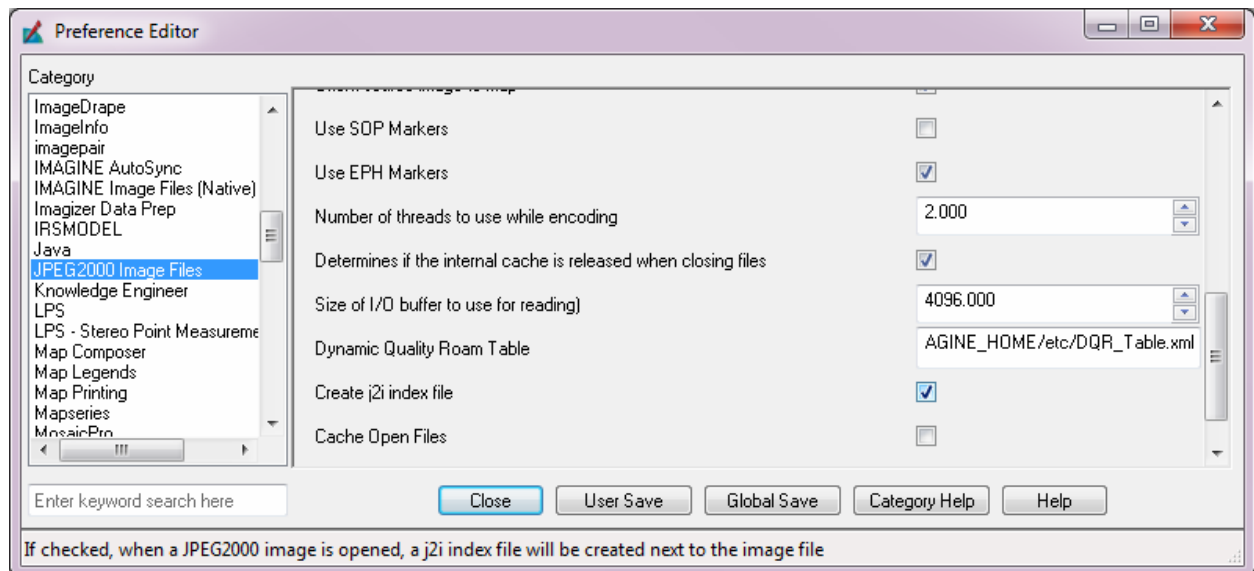
There is now a preference to disable j2i generation. This preference should generally be left on for everything but quick looks at very large images.

There is now a preference to control the size of the blocks that are requested when ERDAS IMAGINE is reading a JPEG200 file. For high latency networks, it has been found that reading a larger block size can improve overall performance. Users can experiment with this preference to obtain the optimum performance on a given architecture.

There is now a preference to enable Dynamic Quality Roam (DQR) for JPEG2000 images. This preference works together with a user-defined table. Based on these settings, the software will dynamically monitor the pixel roam rate, and reduce the quality of the imagery being displayed as the roam speed increases. This will result in less overhead and thus smoother and faster roaming. Note that this dynamic monitoring adds a little overhead to the display

process, so users are encouraged to experiment with this preference to determine if a performance improvement can be obtained with their specific JPEG2000 format variant.

MSP support added [utilize latest mensuration technology]

MSP (Mensuration Services Program) provides the ability to perform a variety of simple to complex precision image mensuration operations. MSP is the replacement for the legacy Ruler program. ERDAS IMAGINE now supports all output mensuration functions for all supported sensors, including single image, two image and multi-image mensuration. MSP support is only available to appropriately cleared US customers via the DPM add-on module. Note that Ruler support will be maintained concurrently while customer requirements for that package remain.

IMAGINE Radar Mapping Suite

Introduction of Spectral Shift Filter to IMAGINE SAR Interferometry [increase precision of interferometric processing]

Many enhancements have been made to the IMAGINE Radar Mapping Suite. One addition is the spectral shift filter. This new step in the wizard work-flow applies a range and azimuth spectral shift filter for Stripmap acquisition mode. Other enhancements include:

- Manual Baseline Tool added to assist in improving baseline refinement
- Improvement in rectification processing time in OrthoRadar
- Increase SAR Metadata capability to more SAR parameters

IMAGINE Objective

IMAGINE Objective process is Batchable [apply a standardized feature model to multiple input data sets]

The IMAGINE Objective user interface has been extended to provide support for adding the process to the Batch queue. This means that the process can be scheduled for a later start (such as to run overnight) or to be applied to multiple input images.

For example, a local government organization might have their county air photo mosaic stored as multiple TIFF tiles. A Batch process can now be set up for IMAGINE Objective to be applied to each image tile to perform a feature extraction process over the entire county extent with minimal user input. This increases the efficiency with which feature extraction can be performed across large areas by minimizing the interaction required form an operator.