



ERDAS APOLLO
Image Web Server 2011
Product Description

ERDAS Image Web Server

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ERDAS APOLLO Essentials - Image Web Server (IWS) is the fastest geospatial image server in the world. A single server with standard hardware can serve terabytes of data to thousands of concurrent users. IWS works with your GIS to provide geospatial data as quickly as possible. Examples of IWS in action can be seen at iws.erdas.com

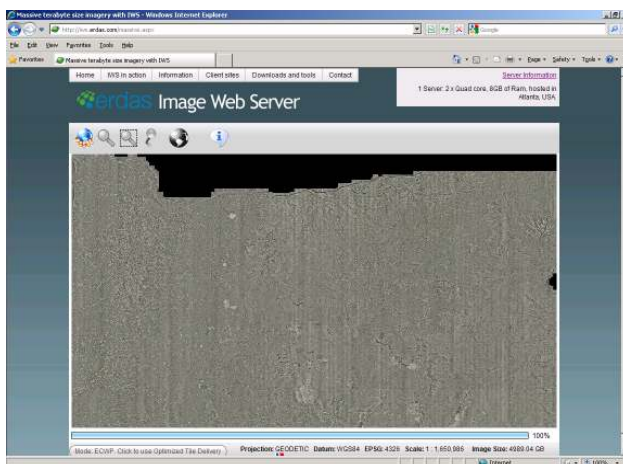
Key Features

Performance

The fastest image server in the world. See iws.erdas.com for benchmarks.

- Supports massive imagery - Deliver terabytes of image data with a single server
- Native 64 bit architecture - True 64-bit support enables more efficient access of memory
- Cache - ECWP controls cache data reducing bandwidth requirements and continually. Web browser plug-in permits cache persistence over multiple browser visits
- Low memory usage - efficient use of server resources due to intelligent design
- ECWP Streaming protocol:
 - IWS scales efficiently to support thousands of concurrent users on a dual processor system.
- ArcXML / ImageX (subsetting) protocols:
 - The Image Server support hundreds of concurrent JPEG image requests per second on a modern dual processor system..
- OGC-compliant Web Map Service (WMS) and Web Map Tiling Service (WMTS) protocols
 - High performance through standards- compliant interfaces
 - Allow OGC-compliant third-party applications to consume OTDF, ECW and many other formats
- Load balancing - Image Web Server works efficiently with Microsoft Network Load Balancing
- Support for “Web Gardens” under IIS 6.0 and above. FastCGI on Linux.
 - Enable multiple worker processes when using subsetting processes extensively
- Narrow to broadband availability
 - Capable of serving images on slower lines, including dial-up and DSL connections, as well as high speed intranet and internet connections.

Figure 1: A 5-terabyte image being served by Image Web Server



Multiple Image Serving Protocols

- Multi-protocol support
- Expose images with different protocols

Enhanced Compression Wavelet Protocol (ECWP) Image Streaming Protocol

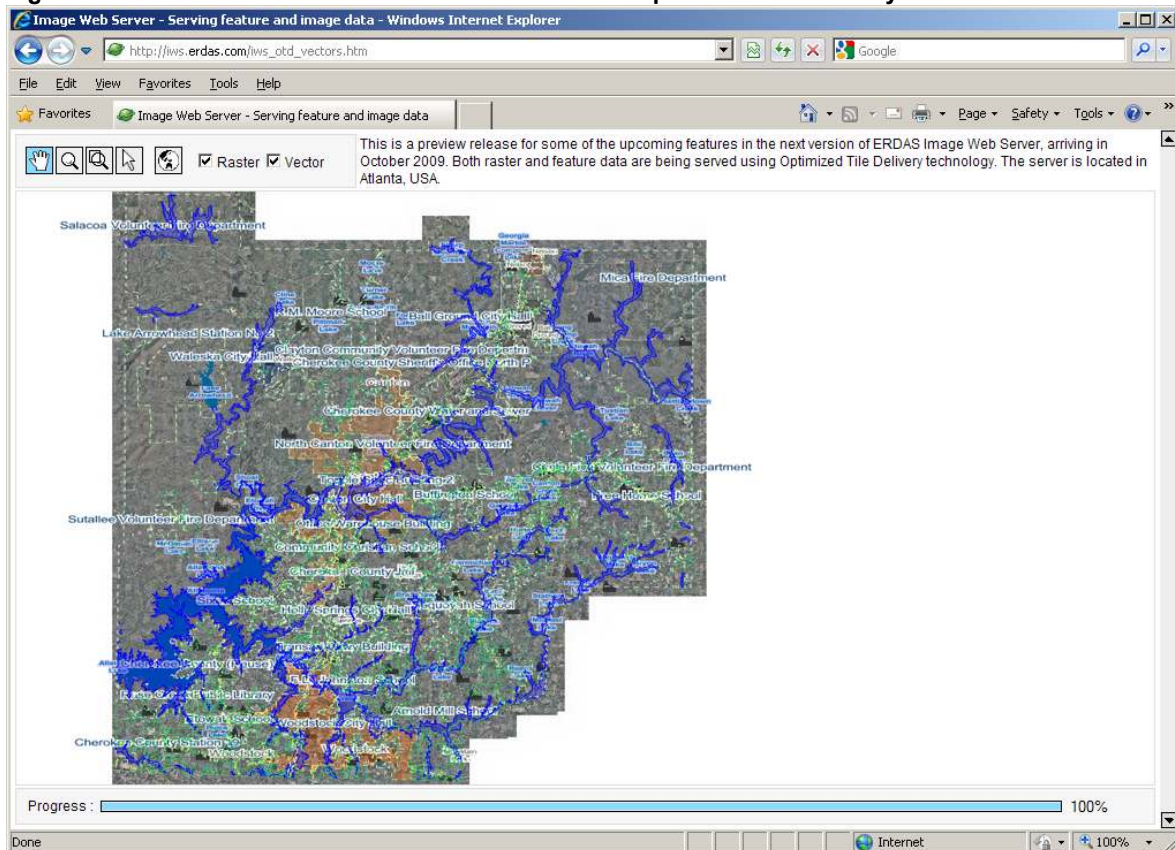
Client-side decompression of image data, providing:

- Asynchronous panning / zooming of imagery
- Intelligent client-side caching and image decompression
- Reduced bandwidth requirements
- Optimum user experience
- Serve ECW and JPEG 2000 files via this protocol

Optimized Tile Delivery

- Fast delivery of image tiles to browser-based applications
- Servers can be configured to deliver 4,000+ image tiles per second.
- No need for cache hardware / reduced hardware
- IWS's OTD features are extremely fast, eliminating the need to set up a complicated caching environment. Total server hardware is greatly reduced. A single IWS replaces a server farm.
- Deliver rasterized vector / feature data
- Serve your feature data with IWS. Create data from any WMS service.

Figure 2: Vector and Raster Data Served with IWS and Optimized Tile Delivery



OGC® WMS 1.1.1 / WMS-C

- XML-based requests
- On-the-fly image reprojection
- Configure multiple WMS services on the same Image Web Server
- Name and group WMS layers
- Custom tags for WMS services
- Complete control over services with per-service XML configuration files
- Combine multiple layer requests for image services into a single request
- Supports multiple SRs for each layer using reprojection on-the-fly
- Supports a default WMS service that is configurable from the management console
- Fully compliant with OGC WMS v 1.1.1
- Scale dependent images from WMS services

OGC WMTS 1.0

- High performance tile delivery through the OGC-compliant Web Map Tiling Service interface
- Allow third-party applications to consume OTDF, ECW and many other formats through WMTS
- Complete control over services with per-service XML configuration files.
- Enable only selected images through the WMTS service interface
- Configure layers name, title, abstract and keywords
- Select default Tiles Matrix Sets per layer or configure custom ones
- Fully compliant with OGC WMTS v 1.0
- No client-side plug-in is required
- Easily create mashups with OpenLayers and Google Maps™

ESRI® ArcXML Protocol

- Image Web Server can imitate an ArcIMS® server - sending / receiving information via the ArcXML protocol.
- On-the-fly image reprojection.
- Grouping of layers

ImageX

- Standard Web 2.0 / Tile delivery
- A simple HTTP protocol for efficiently generating image thumbnails and image extractions from the image mosaic files and combining them in a web browser

Other Protocols

- KML (Google)
- By using a simple WMS reflector component, Image Web Server image data can be brought in to Google Earth viewers.
- JPEG 2000 Interactive Protocol (JPIP)
- ISO Standard Streaming protocol

File Format Support

Premium file formats: Read and serve ECW and JPEG 2000 wavelet-based compressed data formats.

- These highly efficient file formats are read from disc – no database is involved. This provides a massive performance boost.
- Write JPEG / PNG (8 and 24bit) / JPEG 2000 (use the IWS Image Utility for a greater range of output options)
- Create small subsets of image mosaics

OTDF (Optimized Tile Delivery Format): File format for delivering “tiled” views of image data to a web browser.

Standard file formats: GeoTiff, IMG and MrSID

- Additional image formats to enable easy setup of IWS image serving solution. For optimal performance, conversion to ECW or JPEG 2000 is recommended.

Datums / Projections

- EPSG text descriptions
- Choose coordinate systems based on common EPSG text descriptions instead of datum/projection pairs
- Comprehensive projection support
- Over 3200 predefined coordinate systems.
- Over 1100 datum shifts.
- 50+ mathematical projections, local and global vertical datums
- Custom projections
- Simple tool for creating custom projections
- On-the-fly reprojection
- On-the-fly reprojection available in the server and web clients.

Security

- SSL communication
 - Image data is encrypted for protocols (ECWPS / HTTPS). Encryption strength based on browser capabilities
- Basic file system security
 - Images are secured on the server and user / group access is controlled by username / password (built on operating system security).
- Advanced security
 - Users and their permissions can be stored in a third-party credential management system that Image Web Server can access and use for authentication
- Security based on IP address . Filter user permissions based on originating IP address
- Image resolution / region security. Limit the resolution an image can be viewed at (ground scale). Deny access to particular regions of an image (e.g. security zone)

GIS integration

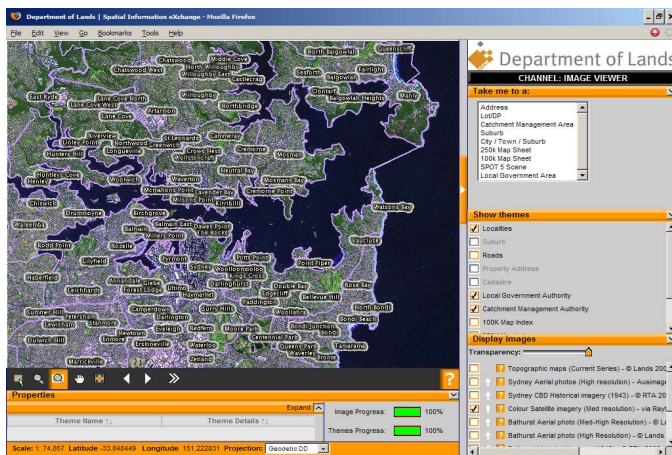
Desktop applications

- High degree of compatibility with geospatial workstations such as ArcGIS®, ArcView®, MapInfo™, AutoCAD®, PCI, ER Mapper, Microsoft® Office, Smallworld™, Bentley® MicroStation, etc.
- High performance image streaming for major GIS workstations
- Plug-ins are available for the following industry workstations to enable efficient streaming image access with client-side caching:
 - ESRI – ArcGIS 8x and 9x.
 - ESRI - ArcView
 - MapInfo® Pro
 - AutoCAD®

GIS Servers

- The Web Client software can simultaneously integrate the data from different GIS servers like MapXtreme®, ArcIMS®, ArcGIS® Server, MapGuide, and OGC WMS. Integration is asynchronous (data integrated and displayed as received by viewer).
- Google Earth
- Serve into Google Earth via WMS or KML (using a WMS reflector)
- ArcGIS Server 9.3 ECW Connector
- Installing Image Web Server on the same physical machine as an ArcGIS Server permits the ArcGIS Server to access ECW files.

Figure 3: Department of Lands, New South Wales, serves 20TB of image data with IWS, combining it with other GIS data.



Data Loading

- Fast and efficient data loading
- The administrator only needs to copy an image file into a designated folder on the Image Web Server disk, network drive or SAN.
- No database required
- Does not require database loading and subsequent pyramids be built in an RDBMS
- OTDF builder
- A simple application is included to allow the creation of Optimized Tile Deliver Format images. OTDF file can be created from raster files, algorithms or any WMS Service.

Virtual Images

- Algorithm support. IWS can publish algorithms created in ER Mapper Pro as “virtual images”. You can have different versions of the same image without having to duplicate the image data.

Image Viewing

- Dynamic roam and zoom. Fast and interactive experience for the user.
- Native streaming support in many applications. Many GIS / CAD applications offer ECWP readability natively.
- Free web browser plug-ins. ActiveX or Java plug-in for ECWP protocol.
- Free application plug-ins. Plug-ins for common applications so that users can take advantage of ECWP streaming
- Multi-layer image / GIS viewing

The client component (ActiveX / Java) supports a layered view display with an asynchronous independent update of each image layer. The viewing control is fully scriptable from JavaScript providing functions to:

- Set transparency on any image layer using a transparency slider
- Set visibility on any layer
- Set clipping on image layers to restrict an image view to a defined area
- Promote/demote the image order in the viewing “stack”
- Select bands from multi-band imagery
- Provide a means of measuring progressive image loading progress
- Display imagery from industry standard projections with ability to derive geodetic coordinates from a point
- Overlay the raster images with maps from GIS servers in a separate image plane.
- Set transparency on any color in an image plane
- Support standard image pan, zoom and zoombox tools
- Support basic red-lining capabilities for circle, rectangle and irregular polygons
- Support printing of a blended view from the viewing component
- Support viewing of images side by side (i.e. geolinked) with automatic extents tracking between each view. Web 2.0 control requires the use of server-side component to make GIS requests / knock-out colors on returned image for transparency
- NULL cell handling for JPEG 2000 images in all protocols
- NULL cell handling for ECW for WMS, ImageX and ArcXML. Exact delineation between null areas and images (no artefacts on the edges)

Image Metadata

The ActiveX control can extract the following information from the image mosaic header:

- Image filename
- Cell size X
- Cell size Y
- Cell units
- Datum
- Projection
- Image size X
- Image size Y
- Number of bands
- Top left X
- Top left Y
- Bottom right X
- Bottom right Y

Administration

- Powerful, flexible and straightforward administration console
- Add imagery datasets, define protocols / access levels, etc.
- Remote administration
- Administer the server from anywhere in the world
- View images within administration / console
- View images within the console to verify user experience

Online Image Processing Support

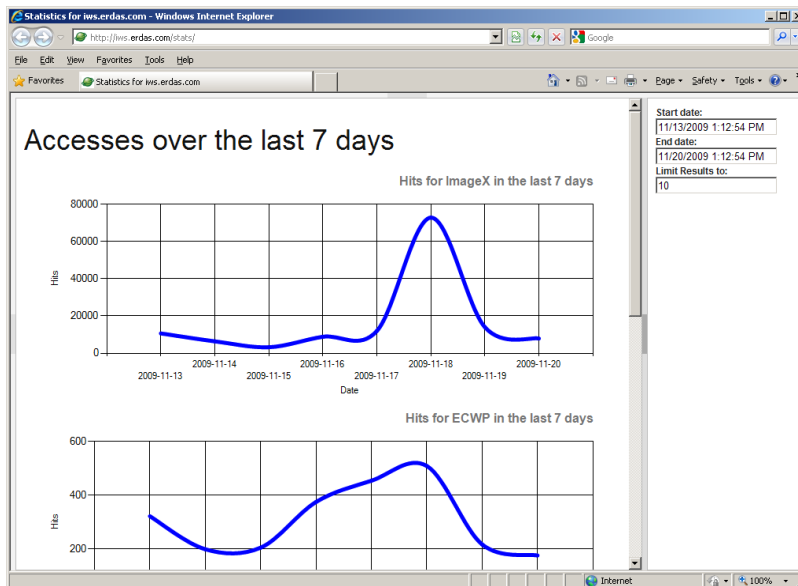
- Web-based client-side image processing
- Contrast and brightness control. It has the capability to generate histograms of the image and modify the image based on Look Up Tables (LUT)
- Desktop clients image processing
- ERDAS ER Mapper and other applications can be used to access “online images”
- Server-side reprojection on-the-fly
- Request images in any projection / datum for OGC WMS, HTTP, and ESRI ArcXML protocols

Statistics and Reporting

Data access logging with a geospatial context

- See who views data, when it is viewed, and what data is most popular. Generate your own custom reports from recorded data.

Figure 4: Example of IWS Statistics



Licensing

Floating and node-lock licensing. Ultimate flexibility in choosing the licensing mechanism suite to your organization. Per-CPU core licensing is used.



About ERDAS

ERDAS – The Earth to Business Company – helps organizations harness the information of the changing earth for greater advantage.

ERDAS creates geospatial business systems that transform our earth's data into business information, enabling individuals, businesses and public agencies to quickly access, manage, process and share that information from anywhere.

Using secure geospatial information, ERDAS solutions improve employee, customer and partner visibility to information, enabling them to respond faster and collaborate better. It also means better decision-making, increased productivity and new revenue streams.

ERDAS is a part of the Hexagon Group, Sweden. For more information about ERDAS or its products and services, please call +1 770 776 3400, toll free +1 866 534 2286, or visit www.erdas.com.