How can I more effectively store my vast geospatial image archive?

When you start compressing it to Hexagon's ECW format
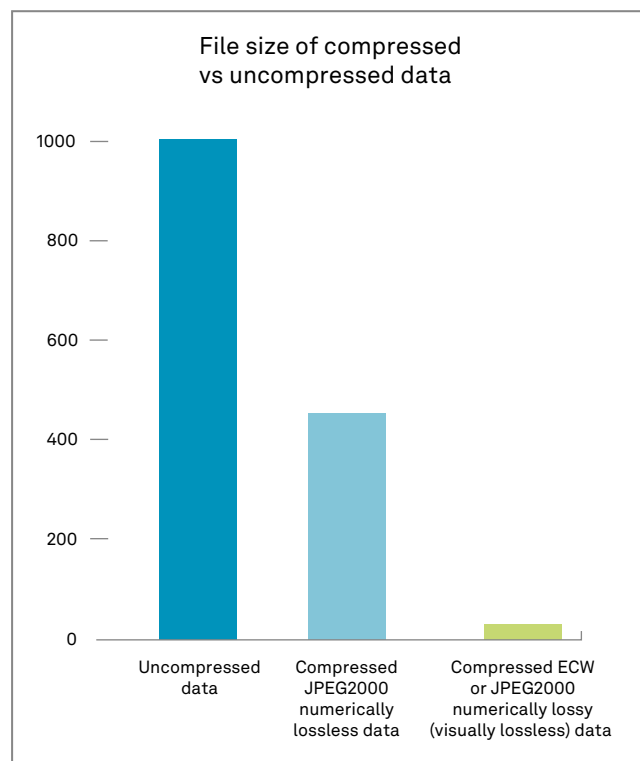
What is ECW?

Enhanced Compressed Wavelet (ECW) is a proprietary format from Hexagon that for more than 20 years continues to solve the geospatial image big data challenge by offering greater speed, flexibility and compression savings than any other storage mechanism.

Why is ECW the ultimate format for your geospatial image archive?

- High-performance compressed file format designed specifically for extremely large image sizes typically in the gigapixel or terapixel range

- Achieves 15:1 compression ratios (94% reduction) at visually lossless quality rates

- Fastest compression and decompression (rendering) rates in the industry

- ECW is supported across Hexagon software solutions as well as third-party solutions. It generally works everywhere.

- Improves workflows by consolidating imagery into large mosaics, rather than being forced to create smaller tiles, caches and other variants. Consolidate projects into 1x file and use it everywhere.

- Increased user satisfaction

ECW's 15:1 Target Ratio Produces Visually Lossless Compression Results

ECW outperforms all alternative storage formats

All geospatial image formats must adhere to a sliding scale of four critical format characteristics:

- Encoding speed
- Decoding speed
- Image quality
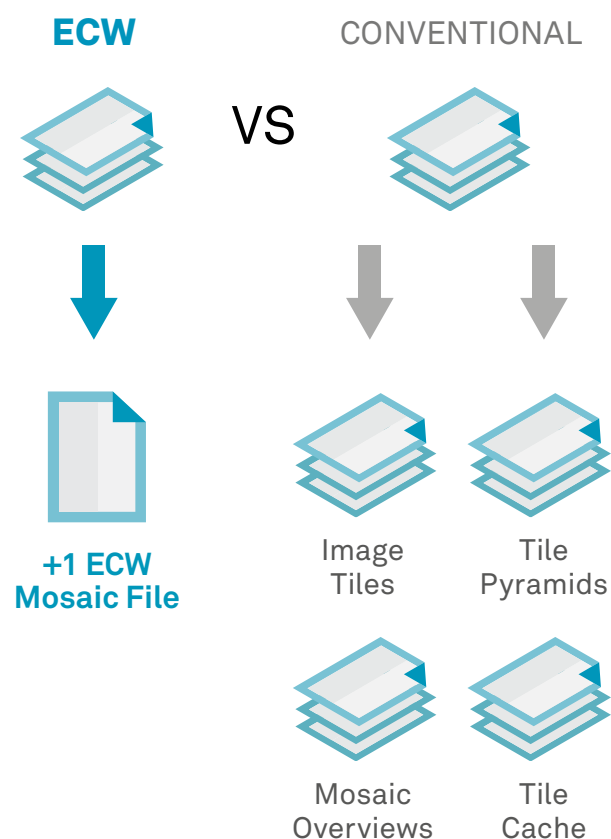- File size requirements or compression achieved

Most compression methods prioritise one factor limiting their overall effectiveness. What makes ECW unique is that it not only provides equivalent or significantly better performance for any individual factor, but it also does so across all four factors.

ECW delivers cost-savings and performance gains beyond those of all alternative methods. For example, JPEG2000 offers equivalent image quality at equivalent file size, but suffers from slow encoding and substantially slower decoding speed.

Quite simply, ECW provides more efficient data storage leading to improved management, reduced data duplicaton, faster delivery and display and retains visually lossless image quality.

ECW files vs. conventional compression files

One single file fulfills all the performance criteria, highlighting the simplicity of ECW. When an ECW file is created, it is already optimized for display performance and is ready for use, eliminating the significant overhead other formats suffer in generating, storing, managing and maintaining image tiles, image pyramids, tile caches and other duplicated data copies for specific applications.

ECW   CONVENTIONAL

VS

+1 ECW Mosaic File

Image Tiles

Tile Pyramids

Mosaic Overviews

Tile Cache

Get ECW solutions in these Hexagon products

	Read ECW files	Create (compress to) ECW	Read JPEG 2000	Create JPEG 2000	Read ECWP streams	Stream ECWP over the web
GeoCompressor	✓	✓	✓	✓	✓	
ERDAS IMAGINE	✓	✓	✓	✓	✓	
ERDAS APOLLO	✓	✓	✓	✓	✓	✓
GeoMedia	✓		✓	✓		
GeoMedia Smart Client	✓		✓		✓	
ImageStation		✓		✓		
LuciadLightspeed	✓		✓			
LuciadFusion	✓		✓			✓
Catalog Explorer					✓	

GeoCompressor

High-performance geospatial image and point cloud compression application simplifying the creation of ECW, JPEG2000, and Hexagon Special Point Cloud (HSPC) formats. Designed to augment existing data provider workflows to perform final mosaic and compression steps prior to delivery.

ERDAS IMAGINE

Create an unlimited number of ECW and JPEG2000 compressed images from input images of up to 250 Gigapixels, using either export or direct-write. Leverage ECWP's fast streaming to enable instant delivery into this rich image processing and analysis package.

ERDAS APOLLO

Securely disseminate massive volumes of imagery using ECWP to thousands of users.

GeoMedia

ECW display workflow is exactly the same as that for conventional imagery inside GeoMedia, only it's much quicker and uses less data.

GeoMedia Smart Client

Stream raster backdrops via ECWP to remove client pre-cache processing and cache volume requirements.

Get ECW solutions in these Hexagon products

	Read ECW files	Create (compress to) ECW	Read JPEG 2000	Create JPEG 2000	Read ECWP streams	Stream ECWP over the web
ECW for ArcGIS® Server	✓				✓	
ECW Plugin for ArcGIS® Desktop	✓		✓		✓	

Other third party products that provide ECW solutions are also available

ECW for ArcGIS® Server

Enables ECW imagery to be served through the Esri ArcGIS Server/Enterprise service interfaces.

ECW Plugin for ArcGIS® Desktop

Extend the significant format and streaming advantages of ECW and JPEG2000 into the Esri desktop environment. Includes simplified discovery and display of data served from ERDAS APOLLO.

Incorporate ECW into your own desktop, server or mobile application

	Read ECW files	Create ECW	Read JPEG 2000	Create JPEG 2000	Read ECWP streams	Stream ECWP over the web
ERDAS ECW/JP2 SDK	✓	✓	✓	✓	✓	

Read and write ECW, JPEG2000 file formats and read ECWP streams using the robust ERDAS ECW/JP2 SDK toolkit. This developer toolkit offers simple integration using C/C++/Java API's to add format support to your application. Supported environments include Windows, Linux, Android, iOS and MacOS. Refer to the user guide for more information.

Many other industry applications support ECW via the ECW/JP2 SDK. Generally speaking, ECW is supported everywhere you need it.

Image courtesy of GeoSpace International and the Chief Directorate: National Geo-spatial Information

Zoomed-in photo of the compressed image (near Upington, Northern Cape province, South Africa) Images courtesy of GeoSpace International and the Chief Directorate: National Geo-spatial Information

One country, one mosaic

A single aerial image covering South Africa @ 50 cm GSD

3,659,118 x 2,836,274 px

10.4 Terapixels

4 Band, RGB

45,816 image files

28,996.53 GB uncompressed

3 Band, RGB

Single image file

439.67 GB ECW compressed

A whole country mosaic in your pocket.

HEXAGON

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us @HexagonAB.