OCTAVE

BROCHURE

Octave GeoCompressor

Across industries, there is a growing demand for technologies that can efficiently collect, process and disseminate data. A common challenge is the compression of large-scale, high-resolution imagery and point cloud datasets, creating a need for technology that can:

- Compress terapixel-sized imagery and point cloud files with billions of points
- Compress thousands of image files into a single mosaic or update a region within an existing mosaic
- Resize or resample pixels to shrink images where full resolution data is not required
- Clip to a polygon boundary to create custom output products
- Plug into existing data processing workflows as a decoupled component to complete the final mosaic and compression step prior to delivery
- Support Microsoft Windows and Linux operating systems

Octave GeoCompressor (formerly GeoCompressor) was created to address those needs and more, optimizing your organization's usage, storage and performance of large imagery datasets.

What is GeoCompressor?

GeoCompressor is a high-performance solution designed to compress geospatial imagery and point cloud data with Octave's advanced compression technology. It delivers throughput exceeding 250 MB/sec on standard hardware, even when processing terapixel-scale images. This exceptional speed and scalability make GeoCompressor one of the highest-performance mosaicking and compression tools available. In many cases, it is uniquely capable of handling datasets of this size and complexity.

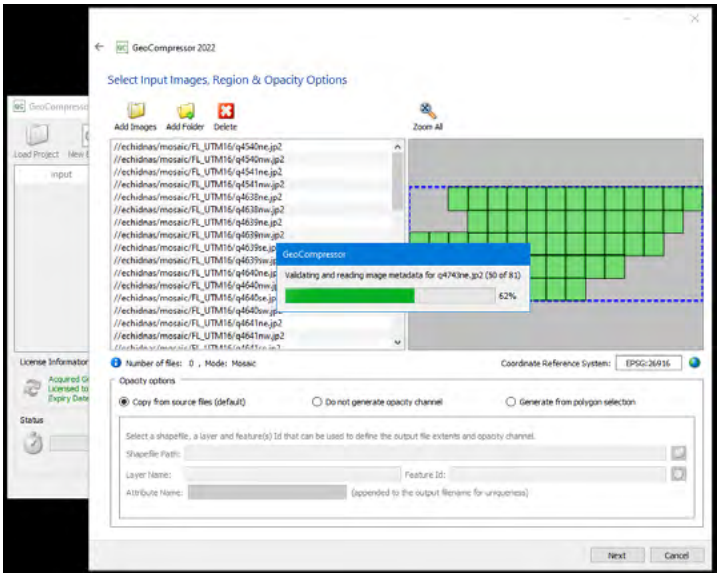
GeoCompressor is a targeted application designed to address data provider pain points, refining processing workflows. This targeted niche allows Octave to optimize it to a degree simply not possible with other, more general geospatial software products.

GeoCompressor combines industry-leading compression performance with a guided wizard-based workflow that helps users quickly create and deliver optimized imagery products.

What can you do with GeoCompressor?

GeoCompressor supports all common industry input file types and optimizes and compresses output to Enhanced Compression Wavelet (ECW) or JPEG2000 (JP2) formats.

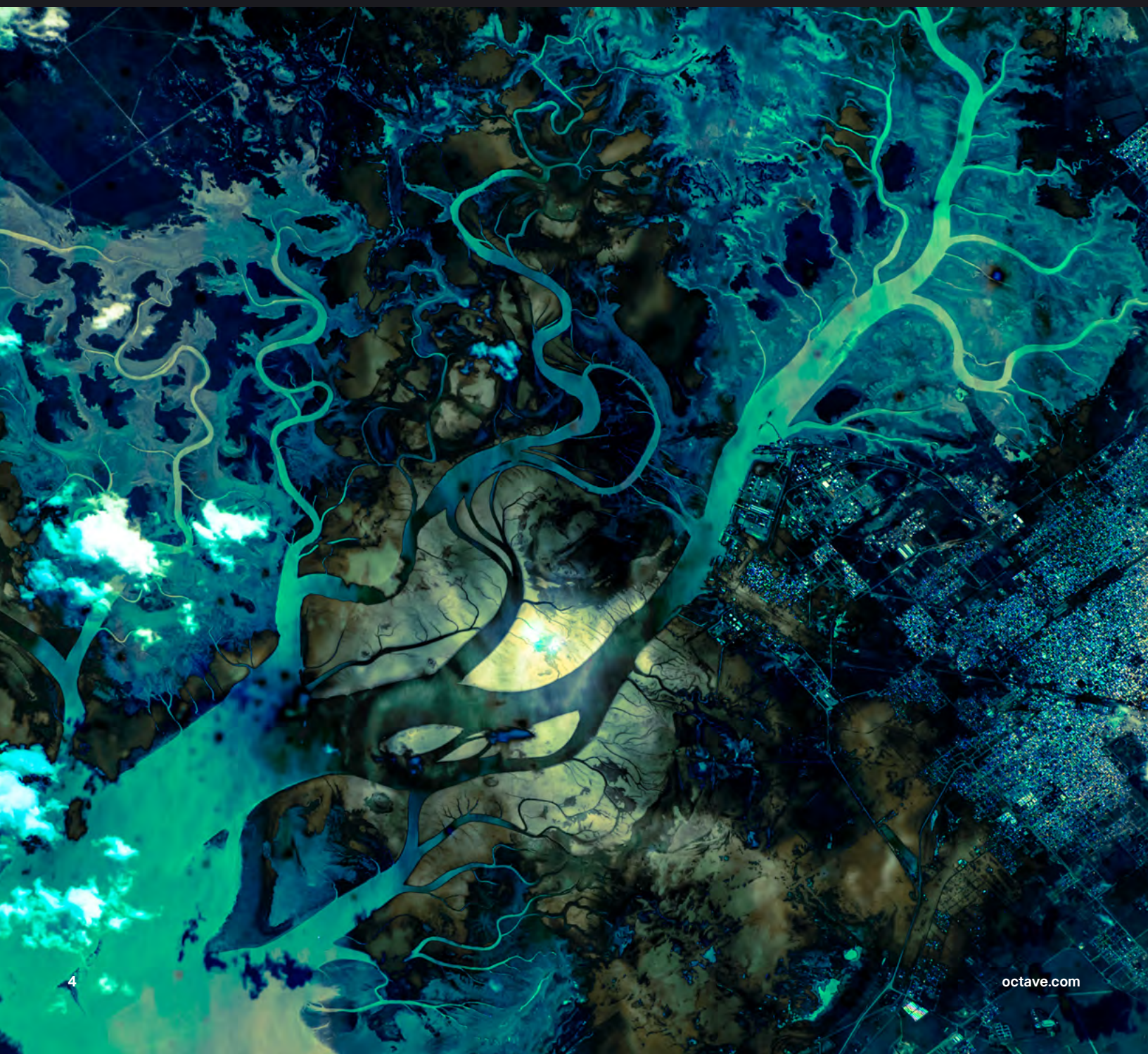
- Compress a single file
- Compress a batch of images into a mosaic
- Update a region within an existing ECW v3 file, eliminating the need to recreate a mosaic to include new data
- Create multiple compressed output files clipped to polygon boundaries from a single mosaic



GeoCompressor mosaic wizard

"GeoCompressor allowed GeoSpace to create a single mosaic from 49,000 separate image tiles, resulting in huge disk space savings and, most of all, an unparalleled performance and speed in displaying and using the resultant image."

GeoSpace International



GeoCompressor file output options

Capability	ECW v2	ECW v3	JPEG2000
Line compression (single-thread)	•	•	•
Tile compression (multiple-threads)	•	•	
8-bit unsigned	•	•	•
16-bit unsigned		•	•
16-bit signed			•
Visually lossless	•	•	•
Numerically lossless			•
Null block support		•	
Opacity band support	•	•	•
Data statistics, histogram (embedded)		•	
RPC storage		•	
Custom metadata		•	•
Region update		•	
Georeferencing	GDT	GeoTIFF tags	GML in JP2, GeoJP2
Color-space support	Greyscale, RGB, multiband	Greyscale, RGB, multiband	Greyscale, RGB, multiband
Largest-known image	32 terapixels	48 terapixels	756 gigapixels

More about ECW

ECW is Octave's proprietary, high-performance image format engineered specifically for large-scale geospatial imagery. As a mature and widely adopted format, ECW delivers industry-leading compression efficiency and exceptional decompression speed.

ECW delivers up to 94% compression at a 15:1 ratio compared to original file sizes. This significantly reduces storage requirements while enabling the use of a single, standardized format for all application types. The resulting smaller files are easier to store, share and display, even on mobile devices.

Unlike other formats, ECW files are already optimized for display performance, so there's no need to generate, store or maintain image tiles, overviews or tile caches. Compress and go.

ECW in action

Raw imagery	Compressed to ECW
3,659,118 x 2,836,274 px	3 Band, RGB
4 Band, RGB	Single image file
45,816 image files	439.67 GB ECW compressed
28,996.53 GB uncompressed	Output is visually indistinguishable from original

Point cloud compression

Point cloud compression accepts LAS / LAZ / E57 file inputs, which are standard formats for airborne LiDAR data. The content is compressed to Hexagon Special Point Cloud (HSPC) files. HSPC uses a tile-based output making it easy to deploy on a web server for direct access, or for viewing in Octave clients such as Octave Alto Browser (formerly LuciadRIA). HSPC adoption will continue to increase as more Octave software releases are announced.

These files can be viewed and used across other Octave geospatial applications and compressed to as little as one-tenth their original size.

A single ECW aerial image covering South Africa at 50 cm GSD

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.)

Different options for your needs

GeoCompressor is available across three packaging tiers:

Capability	Essentials	Advantage	Professional
Image compression <250 gigapixels per job	•	•	•
Image compression <500 gigapixels per job		•	•
Image compression unlimited per job			•
Image mosaicking (up to gigapixel limit)	•	•	•
Batch image compression (up to gigapixel limit)	•	•	•
Point compression unlimited			•
ECW v3 region update			•
Concurrent license	•	•	•
Subscription-only	•	•	•
CPU thread limit per job	4	8	Unlimited

Need a larger functional scope?

GeoCompressor is designed to complement existing data provider processing workflows for geospatial imagery and point cloud data. GeoCompressor focuses on fast, high-throughput mosaicking and image compression. It delivers outputs quickly, regardless of size.

Should you require a full data processing pipeline, other Octave software solutions are ideal, such as:

- Octave Imagine (formerly ERDAS IMAGINE)
- Octave GeoMedia (formerly GeoMedia)
- Octave ImageStation (formerly ImageStation)

Octave's industry expertise in large image compression means ECW and JPEG2000 are supported across a wide variety of other Octave and third-party software.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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GEOSYSTEMS is a leading GeoIT specialist, empowering public authorities, private companies, and research organizations to leverage geodata for informed decision-making. With over 37 years of expertise, the company develops downstream services that seamlessly process satellite imagery and integrate it with diverse data sources through highly automated workflows. The resulting insights are delivered via intuitive, interactive web applications. GEOSYSTEMS' products and solutions cater to a wide range of markets, including natural resource protection, green urban planning, infrastructure management, land surveying, climate adaptation, CO2 compensation, smart farming, forestry under climate change, and security. As Octave's diamond partner the company provides globally recognized software and platforms for remote sensing, photogrammetry, GIS, data management, browser-based applications, and 4D real-time solutions. Representing Skyline Software Systems, Inc. as its platinum partner, GEOSYSTEMS offers cutting-edge technology for 3D photogrammetry.

GEOSYSTEMS is an OHB subsidiary based near Munich. Further information: www.geosystems.de/en