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Brochure

How can vast geospatial image data be compressed and distributed?

GeoCompressor is the solution



Meeting the Challenge

At Hexagon's Geospatial division, we strive to provide multiple industries the technology necessary to collect, analyze, and share data, making our world safer and lives easier. Our eyes are open to seeing and addressing new challenges. As a result, we noticed a cross-industry struggle to compress large, high resolution imagery and point clouds, creating a need for technology that:

- Can compress terapixel-sized imagery and point cloud files with billions of points.
- Can compress thousands of image files into a single mosaic or update a region within an existing mosaic.
- Can resize or resample pixels to shrink images where full resolution data is not required.
- Can clip to a polygon boundary to add the flexibility to create output products in accordance with arbitrary polygon definitions.
- Can be plugged into existing data processing workflows as a decoupled component.
- Supports Windows and Linux operating systems.
- Is cost effective.

GeoCompressor was created to address those needs and more, offering compression technology that quickly optimizes your organization's usage, storage, and performance with large imagery.

What is GeoCompressor?

GeoCompressor is a high-performance geospatial image and point cloud compression application that allows you to access our unparalleled compression technology. Throughput in excess of 180 MB/sec can be seen on commodity hardware and terapixel output images, making GeoCompressor the most high performance mosaicking and compression tool on the market regardless of imagery size or amount.

GeoCompressor is more than a service that compresses imagery data compatible with our solutions because it

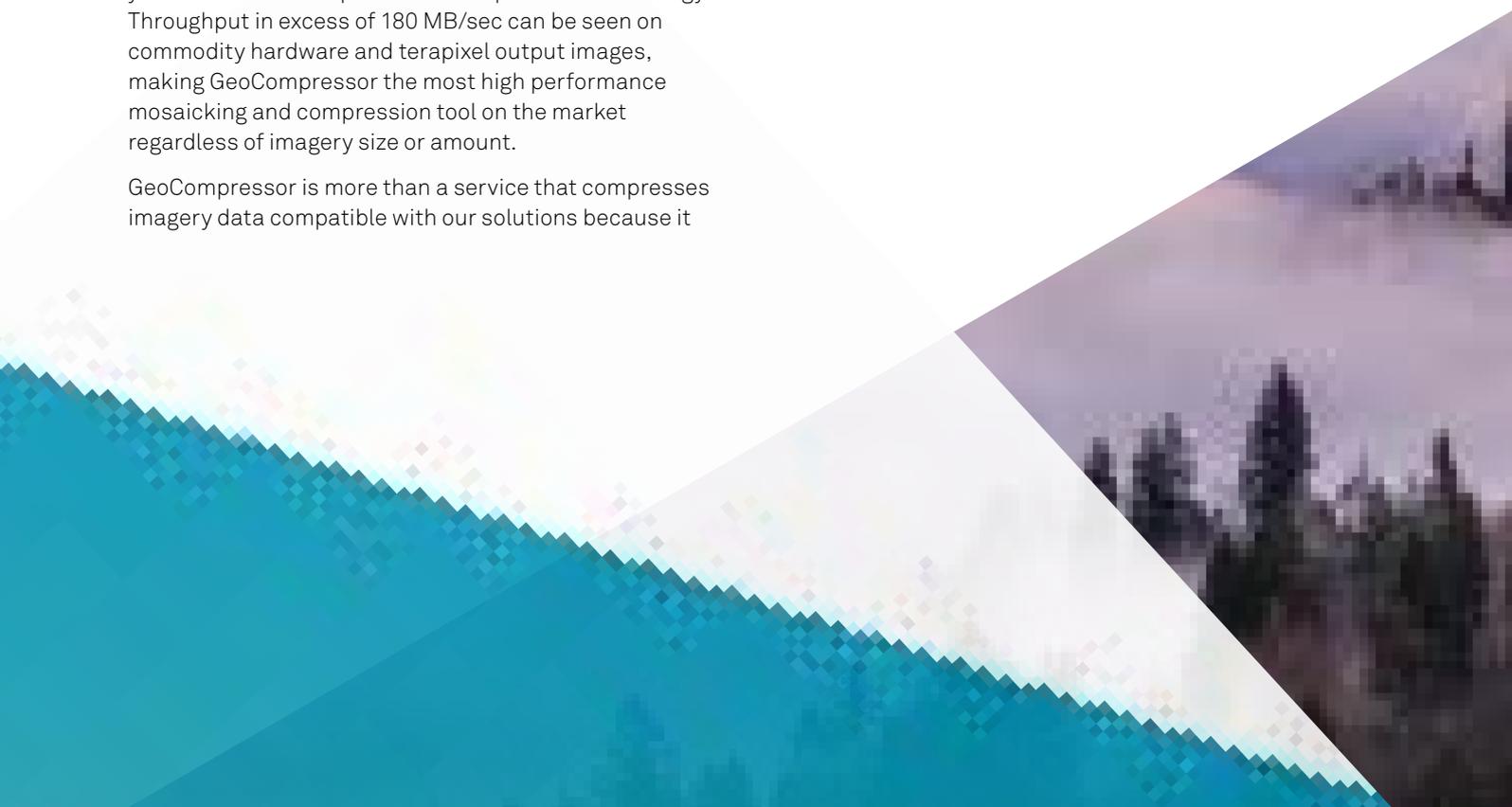
works with other data providers' processing workflows. It's also flexible enough to deliver the best options for your organization while staying within budget.

We designed this 64-bit system for compatibility with Windows and Linux operating systems, providing a simple wizard interface for both. While GeoCompressor's default settings included a streamlined compression process, command-line mode allows for even more specificity and control over resulting files.

What You Can Do with Image Compression

GeoCompressor offers multiple options when compressing data. The service allows you to input over 100 supported file types and output compressed Enhanced Compression Wavelet (ECW) and JPEG2000 (JP2) files. Within the system, you can:

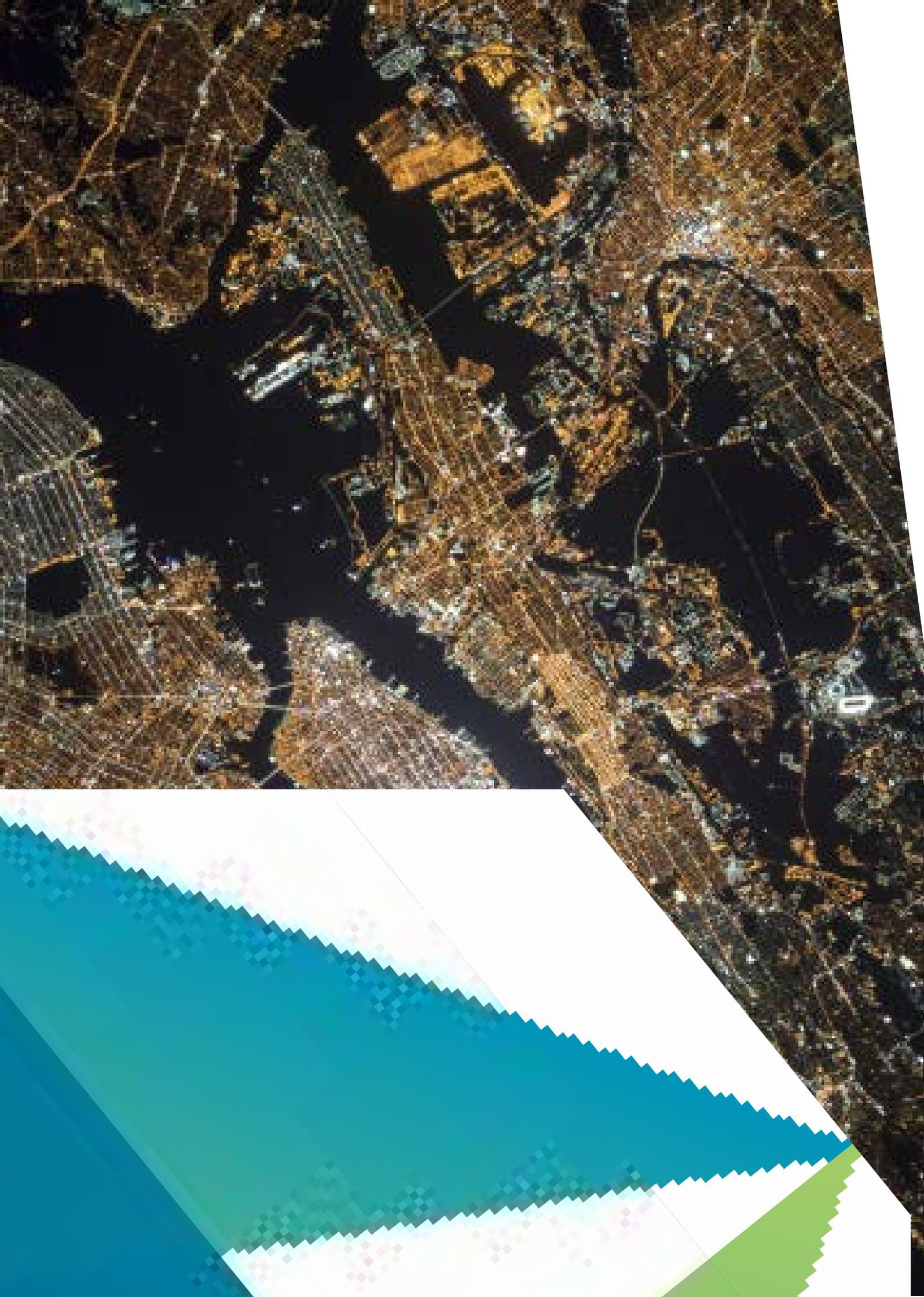
- Compress a single file.
- Compress a batch of images into a mosaic.
- Update a region within an existing ECW v3 file, eliminating the need to recreate a mosaic to include new data.
- Create multiple compressed output files clipped to polygon boundaries from a single mosaic.



“GeoCompressor 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's file output options offer varying capabilities:

Capability	ECW v2	ECW v3	JPEG2000
Line Compression	✓	✓	✓
Tile Compression	✓	✓	
8-bit unsigned	✓	✓	✓
16-bit unsigned		✓	✓
16-bit signed			✓
Visually lossless	✓	✓	✓
Numerically lossless			✓
Null block support		✓	
Opacity band support	✓	✓	✓
Data statistics, histogram		✓	
RPC storage		✓	
Custom metadata		✓	✓ *
Region Update		✓	
Geo-referencing	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 a Hexagon Geospatial-patented high-performance imagery format that can be used by nearly any product in the geospatial industry while providing the fastest compression and decompression rates.

When selected as the output, this format achieves 94% compression at a 15:1 ratio from the original file size, allowing you to free up space on your servers and GIS systems. These smaller files become easier to store, send and display, even on mobile devices.

Unlike other formats, ECW files are also optimized for display performance, so there's no need for generating, storing, managing, or maintaining image tiles, pyramids, overviews, and tile caches.



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

ECW in Action

Raw Imagery

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

4 Band, RGB

45,816 image files

28,996.53 GB uncompressed

Compressed to ECW

3 Band, RGB

Single image file

439.67 GB ECW compressed



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

What you can do with Point Cloud Compression

Point cloud compression accepts LAS/LAZ file input, which are standard formats for airborne lidar data. The content is compressed to Hexagon Point Cloud (HPC) files. HPC format is significantly faster than existing storage formats, contains internal levels of detail and, because of its patented storage and rendering engine, can be streamed in a server-to-client environment like ERDAS APOLLO.

These files can be viewed and utilized across other Hexagon's Geospatial applications and compressed up to ten times smaller than the original data.

Different Options for Your Needs

To further offer versatility, GeoCompressor is accessible with three licensing agreements:

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	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 is laser focused at rapid, high throughput mosaicking and image compression only ensuring no matter the size of the output, it will reach your customers faster than any other solution.

Should you require a full data processing pipeline, other Hexagon software solutions such as:

- ERDAS IMAGINE
- GeoMedia ImageStation

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

Visit our website to learn more:

[hexagongeospatial.com](https://www.hexagongeospatial.com)



Contact us  info@geosystems.de



About GEOSYSTEMS

GEOSYSTEMS is a software vendor and service partner for geospatial solutions and helps public authorities, private companies and educational organizations to easily transform location-based data into actionable information. As Hexagon Geospatial platinum partner, GEOSYSTEMS offers not only leading-edge products for remote sensing, photogrammetry, GIS and data management, but also Hexagon Smart M.App solutions for easy-to-use dynamic map experiences. In addition, GEOSYSTEMS develops customized applications, implements tailor-made workflows and provides excellent trainings.

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About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications. Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon's Geospatial division creates leading platforms, applications and solutions for visualizing, analyzing, and deriving insight from location data. By interconnecting the geospatial and operational worlds, we help customers of all sizes – from sites to cities to nations – use 5D location intelligence to solve real-world, mission-critical challenges.

From snapshots in time to real-time streams, our technology enables autonomous connected ecosystems that deliver reliable, repeatable location information. We shorten the loop from data acquisition to action, helping clarify what was, what is, what could be, what should be, and ultimately, what will be, so we can build a thriving, sustainable world.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 4.3bn USD. Learn more at hexagon.com and follow us @HexagonAB.