

# Leica Ortho Accelerator

## Overview

Leica Ortho Accelerator (LOA) is an enterprise-enabled geospatial process management system for digital orthophoto production. It guides users through the orthorectification process to eventually produce image mosaics.

LOA integrates Leica photogrammetric processing components into the GeoCue geospatial process management framework. LOA is a CuePac add-on to GeoCue, which is a framework application for geospatial process management. A CuePac is a collection of GeoCue menus, checklist and auxiliary programs that implement a preset group of workflows. As such, LOA benefits from the many process management tools offered within GeoCue.

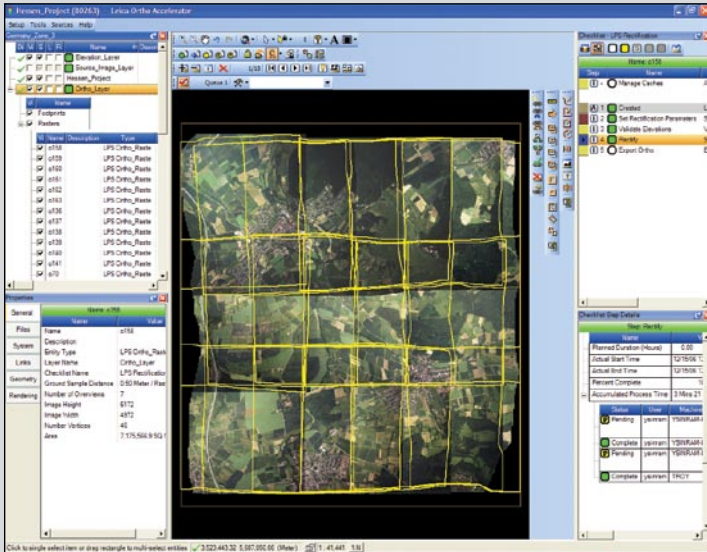
LOA takes maximum advantage of distributed and scheduled workflow processing provided by the command dispatch system in GeoCue. Dedicated workstations are used for alternative processing tasks while ortho jobs are dispatched to a series of computers, "nodes" which result in faster ortho production.

The system is capable of ingesting a variety of formats in terms of photogrammetric orientation data, imagery, and terrain. These inputs are then used in a project-based workflow.

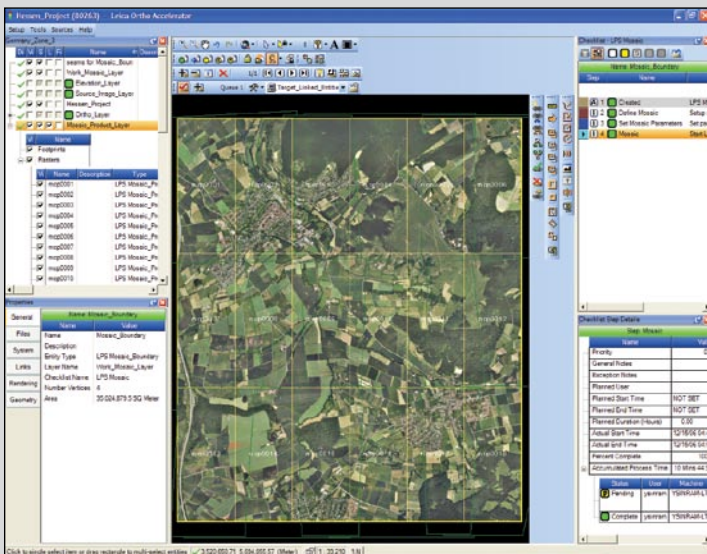
## Key Features

The user is guided through the processing steps using the strong process management system in GeoCue. The Leica Ortho and Mosaic tools are automatically invoked and the data is automatically loaded into the applications.

- Distributed processing enables the division of large ortho production tasks and dispatching to a series of nodes.
- Dispatch processing enables scheduled orthorectification and mosaic creation to occur at user defined times.
- Dispatched task can be run on a machine other than the one on which it was launched.
- The enterprise ortho production system of LOA enables simultaneous access to the same production project by multiple users from any workstation in the production network.
- Synoptic project status viewing enables monitoring the progress of scheduled tasks, rescheduling the tasks that have not started and terminating the scheduled tasks.
- Data is hosted in the GeoCue Server and each manipulation is incrementally saved via transaction processing against the database. The system is also protected from unauthorized access to data.



An LOA project showing ortho images of Hessen, Germany. DOP, (c) HVBG 2007



Mosaicked ortho images created in LOA of Hessen, Germany. DOP, (c) HVBG 2007

## ■ Benefits

- LOA is highly scalable and benefits both large and small customers. Larger organizations find utility in the managed workflows provided by LOA, while smaller organizations achieve greater throughput in their orthophoto production processes.
- Distributed processing increases throughput and frees up operators to perform other tasks.
- Distributed processing harnesses the processing power of several CPU nodes to achieve greater throughput.
- Purchasing nodes instead of full workstations represents lower costs.
- Project Status Viewing provides real-time and accurate status updates of all processing computers as the project progresses. This is very helpful for large projects.

## LOA Modules

### ■ Mosaic CuePac

- The Mosaic CuePac provides a rich set of tools for easy and effective seamline generation, seam feathering and smoothing, and also color correction options to improve the artifacts of the images.
- A tiled mosaic output can be produced defining mosaic grid parameters.
- A remote computer can be selected for processing the mosaic job.
- The mosaic job can be scheduled to be processed at a later time.

### ■ LOA Ortho CuePac

The LOA Ortho CuePac enables orthorectification processes to be executed within GeoCue. Leica ortho tools, based on Leica Photogrammetry Suite technology, are launched automatically within LOA. Various orthorectification parameters can be defined as a part of the workflow. With LOA, data collisions and operator error are kept to a minimum because of strong project management tools inherent to GeoCue.

#### Features

- Based on Leica Photogrammetry Suite orthorectification technology.
- Production step cuing guides the users through the steps necessary to create ortho images.
- Multiple users can access the same project from different workstations.
- Data locking mechanism prevents data collisions in a multi-user environment.

- Distributed processing enables:
  - o Users submitting large orthorectification jobs to different machines in order to reduce overall processing time.
  - o Orthorectification jobs to be submitted from different machines. LOA sorts them in a queue, allows users to choose which machine and when to run jobs.
  - o Scheduling of orthorectification jobs at a later time.
- Real-time and accurate status updates of all orthorectification jobs submitted from client workstations. Users are informed when the job is completed.

### ■ Project Importer

The LOA Project Importer introduces a photogrammetric project into the GeoCue managed workflow. LOA supports LPS Block files, BAE SOCET SET® projects, INPHO MATCH-AT projects and Intergraph Z/I Imaging® and ImageStation® Automatic Triangulation (ISAT) projects.

### ■ LIDAR 1 CuePac

LIDAR 1 is a CuePac for GeoCue. LIDAR 1 provides tools to integrate a TerraScan-based LIDAR processing workflow into a managed, synoptic production environment. The bottom line result is faster, higher quality and more profitable jobs.

### ■ DEM CuePac

The Digital Elevation Modeling (DEM) CuePac provides a range of functions for managing and processing elevation data within GeoCue.

### ■ GeoCue Server

GeoCue is a client-server, multi-user application, designed as a multi-tier architecture with "thick" clients running on each production desktop but with the actual project data stored in the centrally located GeoCue Server. GeoCue Server is the heart of the GeoCue process management system, providing the central control and management functions. The storage and management of project data is a critically important aspect of a process management system.

### ■ GeoCue Client

GeoCue Client is a graphical view into the GeoCue Server. The system provides instant and accurate views of the status of a project to all users logged into the same project. When one user performs an operation such as locking a data entity for editing, an event is sent to all GeoCue clients currently logged onto the same project.

### ■ PM CuePac

Project Manager (PM) is a new CuePac for GeoCue. This allows users to view the project status and plan production at any level - from synoptic process status to an individual checklist step on a single entity.

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- when it has to be **right** 