



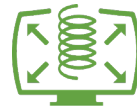
Next generation aerial image processing software  
Simply powerful



**Pix4D is your solution to convert thousands of aerial images taken by lightweight UAV or aircraft into georeferenced 2D mosaics and 3D surface models and point clouds.**



**Survey-grade accuracy:** Achieve up to cm grade, LiDAR like 3D precision from lightweight compact cameras and large photogrammetric sensors



**Scalable & editable:** standard laptops and desktops, any imagery, camera and project size. Edit and assess results with unique tools



**Intuitive & easy to use:** no training needed, easily process projects thanks to the fully automated workflow and visualize & edit results



**Integrated solution** tailored to your industry needs: seamlessly import results into any GIS and CAD software packages



**Cutting edge technology:** stay always one step ahead! We constantly provide you with ground breaking tools and the latest innovations of Computer Vision and Photogrammetry.



**Support for all project stages:** personal and Cloud based support from our customer-praised Support team and extensive Knowledge Base

**Pix4Dmapper features the rayCloud. Read more on [www.pix4d.com](http://www.pix4d.com)**

## Features

## Advantages

	Features	Advantages
<b>INPUTS</b>	Aerial (nadir and oblique) and terrestrial imagery support	Process images taken at any angle and from any aerial manned or unmanned platform as well as from the ground
	Any camera (compact, SLR, multi-spectral, GoPro, Tetracam, large format)	Use images acquired by any camera, from small to large sensors (up to 40 MP), from consumer-grade to highly specialized cameras
	Any lens, including Fisheye	Choose the lens that fits your project, use wide lenses to increase the content of each image, acquire data from closeby, interiors and narrow spaces
	Multi-camera support for the same project	Create projects using more than one camera and process them together (NIR and RGB for example)
	Standard camera rig support	Process camera rigs (arrays) of multiple multi-band synchronized cameras from known manufacturers (Tetracam, Airinov, MicaSense, WaldoAir) for more robust, accurate and faster processing
	Multiple file types (.jpg, single band or multi band .tiff)	Input various file types, including single or multi-band images
	Ground Control Point edit and import (.csv, .txt)	Import and edit Ground Control Points to improve the accuracy of your project
	Local, global and arbitrary coordinate reference system support in meters and feet	Choose from all known coordinate systems or your own local system
	Camera position and exterior orientation (omega, phi, kappa) support	Calculate optimized camera position and exterior orientation from a low grade GPS and without any IMU
External point cloud import	Import a point cloud from different sources, such as aerial LiDAR, and use it to create a DSM and orthomosaic	
<b>PROCESSING</b>	Rapid Check processing mode	Process initial project results in low-resolution in minutes only
	Rapid Check Quality report	Assess quality and completeness of acquired images while still on site
	Camera self-calibration	Optimize internal camera parameters, such as focal length, principal points and lens distortions, without the need of a camera calibration report
	Automatic Aerial Triangulation (AAT) and Bundle Block Adjustment (BBA)	Process automatically with or without known camera position and exterior orientation
	Automatic point cloud densification (and optional Semi-Global Matching)	Produce a dense and detailed 3D point cloud, which can be used as a basis for DSM and orthomosaic generation
	Automatic point cloud classification and DTM extraction (BETA)	Remove building and vegetation automatically in the point cloud to generate bare earth DTMs and contour lines. For additional control, select and delete points manually in the rayCloud to improve the DTM generation
	Point cloud filtering and smoothing	Use presets or edit point cloud filtering and smoothing options
	Automatic brightness and color correction	Compensate automatically for change of brightness, luminosity and color balancing of images
	Quality report	Assess quality of projects
	Project merging	Process parts of projects individually and merge them into one project
	Project area definition	Import (.shp) or draw specific orthomosaic and point cloud densification/filtering areas to generate results inside specific boundaries
	Project splitting	Split big projects automatically into smaller parts for more efficient large-scale mapping
	GPU support	Leverage the power of Nvidia GPU's for 10% - 75% faster initial processing (depending on image content and project size). GPU support also used for densification and Semi-Global Matching
<b>RAYCLOUD EDITOR</b>	Project viewing	Assess flight plan, camera positions, inspect automatic keypoint matching and add uncalibrated cameras
	Manual tie point editing	Annotate and edit GCPs (2D & 3D), Check Points and Manual Tie Points with the highest accuracy, using both original images and 3D information at the same time
	Project reoptimization	Reoptimize camera positions and rematch images based on GCPs and manual tie points to improve reconstruction of difficult areas

<b>RAYCLOUD EDITOR</b> <i>Continued</i>	Image annotation	Remove points from 3D point cloud and create filters based on image content
	Point cloud editing	Select and delete points from the point cloud
	Polyline object creation	Annotate and measure polylines (3D breaklines) in the point cloud and accurately refine polyline vertexes in multiple original images
	Surface object creation	Annotate and measure surfaces in the point cloud and accurately refine surface vertexes in multiple original images; use the surface to simplify, flatten and correct DSMs (e.g. for removing structures or tree stands)
	Volume object creation (volume measurement)	Annotate and measure volumes (stockpiles) in the point cloud. Import/export base planes of volumetrics
	Digitization tools / vector object editing	Draw and edit vector objects and export them in various formats (.dxf, .shp, .dgn, .kml)
	Fly-through animation	Create a virtual camera trajectory in the 3D point cloud, play the animation in real-time, export the animation as a video (in mp4 and avi format) and the flightpath waypoints in CSV format
<b>INDEX CALCULATOR</b>	Reflectance map editing	Set and edit map resolution
	Index generation (DVI, NDVI, SAVI, etc.)	Generate single-band and index maps based on pre-defined formulas
	Formula editing	Create and save your own formulas choosing among each available input band and generate custom index maps
	Color mapping	Edit color classes and gradients and export your index map with the most appropriate color scheme
<b>MOSAIC EDITOR</b>	Seamline editing	Create, edit and reorganize mosaic cells for seamline editing
	Planar / ortho projection selection	Select planar or ortho projection for each cell or groups of cells to remove orthomosaic distortions
	Mosaic color / brightness editing	Choose the best cell content from multiple underlying images (e.g. for deleting moving objects), adjust color and brightness balancing
<b>OUTPUT RESULTS</b>	2D output results	<ul style="list-style-type: none"> <li>• Geo-referenced orthomosaics in GeoTIFF output format</li> <li>• Google tiles export in KML and HTML output format</li> <li>• Mapbox tiles in MB format</li> <li>• Index maps (DVI, NDVI, SAVI, etc.) in GeoTIFF and SHP format</li> </ul>
	3D output results	<ul style="list-style-type: none"> <li>• Geo-referenced DSMs and DTMs in GeoTIFF format</li> <li>• Full 3D textured mesh in OBJ, PLY and Zipped OBJ format</li> <li>• Point cloud in LAS, LAZ, XYZ and PLY output format</li> <li>• Contour lines in SHP, DXF and PDF format</li> <li>• User-defined vector objects in DXF, SHP, DGN and KML format</li> <li>• 3D PDF for easy sharing of 3D mesh</li> </ul>
	Fly-through animations and flightpaths	<ul style="list-style-type: none"> <li>• Point cloud Fly-through animation in MP4 and AVI format</li> <li>• Fly-through waypoints and path in CSV format</li> </ul>
	Optimized camera position, external orientation and internal parameters, undistorted images	Import Aerial Triangulation results in traditional photogrammetry software solutions (e.g. INPHO, Leica LPS, DAT / EM Summit Evolution)
<b>SUPPORT</b>	Personal support	Get free access to personal support
	Extensive Knowledge Base	Find answers to most of your questions on our publicly available and continuously updated Knowledge Base
	Multi-device license	License can be activated on 2 computers: one for on-site Rapid Check and one for full processing mode
	Licensing server	Easily move your license among several computers by activating and deactivating devices at any time
	Training	Gain in-depth knowledge of Pix4D software with webinars and workshops organized on a regular basis

Hardware specifications:  
 Minimum requirements: Windows 64bit / 7, 8, Server / 2-Core CPU / 4GB RAM  
 Recommended: 6-Core CPU i7 or Xeon / 32GB RAM (or more depending on dataset size)



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