

	FEATURES	ADVANTAGES
INPUTS	Aerial and terrestrial images (JPG, JPEG, TIF, and TIFF)	Process RGB images in the Aerial and terrestrial images JPG, JPEG, TIF, and TIFF that support standard EXIF/XMP tags
	LiDAR and RGB images from PIX4Dcatch	Import and process PIX4Dcatch data, depth maps (LiDAR) and RGB images, for a full terrestrial workflow
	Point clouds (LiDAR)	Import external LiDAR point clouds (LAS/LAZ) for mesh, DSM, and orthomosaic generation
	Multi-camera support in the same project	Import images from different cameras and process them together in the same project
	Image geolocations and orientation (CSV and TXT)	Import image geolocation and orientation information in CSV or TXT
	Ground control points (GCPs) (CSV and TXT)	Import ground control points and checkpoints to accurately georeference your project
	GCPs marks	Import tie point (GCPs, MTPS, etc.) image marks from a PIX4Dmapper or another PIX4Dmatic project
	Known coordinate reference system (CRS)	Select a default coordinate reference system for easy setup, with EPSG or ESRI codes from known coordinate systems libraries
	Geoids support	Select a geoid from a list of the most commonly-used geoid models or select a geoid height
	Arbitrary coordinate reference system (CRS)	Georeference the project with GCPs in local or site specific coordinate systems
	Site localization (WKT and PRJ)	Import a site localization file to use a customer coordinate reference system in PRJ or in WKT generated with PIX4Dcatch
	Region of interest (ROI) (KML)	Import or draw a region of interest to delimit an area in order to reduce the extent of outputs generated for a project, speed up the processing, or create sharper outputs
	Scale constraint	Add known distances as scale constraints and indicate their accuracy to scale your project
	Orientation constraint	Add distances with known axis and direction to orient your project
PROCESSING	Open Photogrammetry Format (OPF)	Import a project in the Open Photogrammetry Format (OPF)
	Edit camera internals and externals parameters	Fine-tune internal and external camera parameters for enhanced control over calibration and project accuracy
	Vector files (DXF, SHP, ZIP, SHZ, GeoJSON, JSON)	Import vector files in DXF, SHP, zipped SHP or GeoJSON to view in your project
	Multicore CPU + GPU support	Increase the processing speed by leveraging the power of CPU cores and threads, as well as GPUs
	Backup mechanism	An automatic backup mechanism ensures that you do not lose your work, even if PIX4Dmatic unexpectedly stops
	Save copy	Save copy allows you to easily create a copy of your project, so that you can continue your work while being sure you have a copy of a previous state
	Processing templates	Select the <i>Nadir</i> , <i>Oblique</i> , <i>PIX4Dcatch</i> or <i>Custom</i> processing template
	Calibration	Define the <i>Template</i> , <i>Pipeline</i> , <i>Image Scale</i> , <i>Keypoints</i> and <i>Internals confidence</i> parameters for the optimization of internal camera parameters (e.g. focal length, principal point of autocollimation, and lens distortions) and external camera parameters (position, orientation) during calibration
	Reoptimize	Reoptimize internal and external camera parameters based on GCPs, MTPs, VTPs, or mITPs to improve the reconstruction
	Auto-mark	Auto-mark will automatically find more marks in images for tie points or geometry vertices, as long as you marked at least 2 images
	AutoGCP	Automatic detection of targets with known shape and texture without manual intervention
	Intersection tie points (ITPs)	Improve the calibration by generating intersection tie points automatically calculated with the scene's geometries, e.g. for indoor scenes
	Merge projects	Merge multiple PIX4Dmatic projects
	Depth point cloud	Create a depth point cloud based on LiDAR inputs from PIX4Dcatch
Readjust	Readjust the point cloud after having reoptimized the project. No need to densify again after having reoptimized a project	
Image pre-processing	Compute the data required for the object selection and image mask tools	
Dense point cloud	Define the point cloud Image Scale, Density, Minimum number of matches, Noise filter, Sky filter, and Mask-aware parameters to create a photogrammetry dense point cloud based on the sparse point cloud created during calibration	
Depth & dense fusion	Create a single point cloud based on the depth point cloud and the dense point cloud	
Point cloud outlier filtering	Automatically detect and remove noise from imported or generated point clouds for cleaner outputs	
Mesh	Define the <i>Pipeline</i> , <i>Template</i> , <i>Texture size</i> , <i>Deghosting</i> , <i>Decimation</i> , <i>Polygon-aware</i> , <i>Sky mask</i> , <i>Smoothing</i> , <i>Interior improvement</i> , and <i>Mask aware</i> parameters to create a 3D textured mesh with the point cloud	
Digital surface model	Define the <i>Input</i> , <i>Resolution</i> , <i>Surface smoothing</i> , <i>Interpolation</i> , and <i>Mask-aware</i> parameters to create a digital surface model with the point cloud	
Orthomosaic	Define the <i>Deghosting</i> , <i>Oblique</i> , and <i>Mask-aware</i> parameters to create an orthomosaic with the digital surface model and the images	
Quality report	Assess the calibration and other processing step results with the detailed quality report	
TOOLS	2D and 3D views (rayCloud)	Visually assess the accuracy of the initial and optimized image and tie point (GCPs, MTPs, etc.) positions, and visualize the automatic tie points, dense point cloud, mesh, digital surface model, and orthomosaic. In the 2D or 3D, and perspective or orthographic views
	Ground control points (GCPs)	Annotate GCPs with the highest accuracy, using both original images and 3D information at the same time
	Checkpoints	Annotate checkpoints with the highest accuracy, using both original images and 3D information at the same time to verify the absolute accuracy of the project
	Manual tie points (MTPs)	Create and mark manual tie points to improve the calibration of your project
	Intersection tie points (ITPs)	Create and mark manual ITPs or edit and delete automatic ITPs to improve the calibration of your project
	Vertex tie points (VTPs)	A geometry vertex can be converted to a vertex tie point (VTP), so that image marks of geometries are taken into account during calibration or reoptimization
	Undo/Redo	Undo/Redo your changes
	History	All actions of a given session are available in the history panel. Revert to the project at any stage, while keeping the other steps that were done as items in the history
	Status center	The status center displays tracking notifications and progress reports of different processing steps
	Distance measurement	Measure a distance in the 2D or 3D views, refine in the images for higher accuracy. Option to take projection distortions into account
	Volume measurement	Measure a volume in the 3D view and refine in the images for higher accuracy
	Marker	Create a marker to measure or highlight the position of a specific point
	Polyline	Create a polyline to vectorize objects
	Polygon	Create a polygon to vectorize a surface with the option to add a planarity constraint, add polygon holes, edit polygons or connect polygons into a polygonal mesh surface
	Vector layers and layers templates	Enhance workflows with customizable vector layers and layer templates for efficient data management
	ASPRS classes	Classify point clouds then edit, export, delete or show/hide each class
	Section view	Create vertical or horizontal sections, or along a polyline, to vectorize a profile or verify the quality of the results
	Focus on selection	Quickly navigate to selected point clouds, geometries, or sections in complex scenes
	Base maps	Get context about your scene by displaying map or satellite data in the background of your scene in the 2D viewer
	Disable point cloud points	Disable points in your point clouds for higher-quality meshes, DSMs, and orthomosaics.
	Restore disabled point cloud points	Added actions to restore disabled point cloud points
	Clipping box	Isolate a specific area of your point cloud for easier editing
	Views	Create views of your project to easily access the same view point again and to document a scene in a custom report
	Videos	Create a video animation with your saved views
Invert selection	Invert the point cloud selection	
Lock layers	Prevent accidental edits by locking layers during processing or visualization	
Color by elevation	Use a histogram and a selection of spectrums to display your point clouds by elevation value	
Color by relative confidence	Use a histogram and a selection of spectrums to interactively display your point clouds by relative confidence value	
Automatic defaults for missing camera parameters	Obtain default values when internal camera parameters are missing	
Minimum number of matches	Display points in the automatic tie points (ATPs), dense point cloud, or fused point cloud based on the number of matches to assess the point cloud quality	
Snapping window	Facilitates the picking of points when creating a geometry in the 3D view by giving a sense of depth	
Object selection tool	A smart object select tool which automatically selects a group of points identified as belonging to the same object in one click for point cloud classification	
Point cloud selection tools	Select points from the point cloud based on a rectangle, a polygon, or on their color.	
Split, join, and continue polylines	Easily vectorize with the features to split, join, and continue polylines	
Image masks	Create masks in images to improve the point cloud, mesh, DSM and orthomosaic by hiding obstructing objects and to measure objects	
EXPORT	Export GCPs	Export GCPs for enhanced workflow flexibility
	Export MTPs, mITPs, ITPs (TXT, CSV), ATPs	Export tie point marks
	Point cloud (LAZ, LAS 1.4, LAS 1.2, XYZ)	Export generated point clouds in LAZ, LAS (1.2 and 1.4 for better compatibility) and XYZ file formats
	Mesh (OBJ, PLY, Cesium 3D tiles, SLPK)	Export a 3D textured mesh in OBJ, PLY, Cesium 3D tiles (B3DM, JSON) and SLPK file format
	Point cloud from mesh (LAZ)	Export a point cloud from your mesh for better modeling in Revit
	Digital surface model (TIFF, TFW, PRJ)	Export a generated digital surface model in a single cloud optimized GEOTIFF or in tiles. Optionally with TFW and PRJ files. Select the compression rate of the file. LZW compression available
	Orthomosaic (TIFF, TFW, PRJ, JPG, JGW)	Export a generated orthomosaic in a single or tiled cloud optimized .geotiff with optional TFW and PRJ files, or as JPG with a JGW file for geolocation. Select the compression rate of the file. LZW or JPEG compression available
	Quality report (PDF and JSON)	Export the quality report to assess the accuracy and quality of projects
	Custom report (PDF)	Export custom reports with your logo containing an <i>Overview plan</i> , <i>Views</i> , and an <i>Inventory</i> describing your project
	Geometries (DXF, zipped SHP, SHP or GeoJSON)	Export created geometries (Markers, Polylines, Polygons) and layers to DXF, zipped SHP, SHP and CSV
	Direct export to PIX4Dsurvey	Seamless export of processed PIX4Dmatic projects (P4M) into PIX4Dsurvey
	Share to PIX4Dcloud	Upload results from PIX4Dmatic to PIX4Dcloud for sharing, inspection and collaboration
	Open Photogrammetry Format (OPF) 1.0	Export a project in the Open Photogrammetry Format (OPF) 1.0 specifications
	Video (WEBM)	Export a video of your project to share on social media or with stakeholders
Gaussian Splatting	Upload a PIX4Dcatch project from PIX4Dmatic to PIX4Dcloud to generate gaussian splats	
LANGUAGES	Language options	English, French, German, Japanese, Korean, Portuguese, Simplified Chinese, Spanish, Traditional Chinese, Turkish, Czech
	CPU: Quad-core or hexa-core Intel i5	
MIN HARDWARE SPECS	GPU: Any NVIDIA GPU that supports OpenGL 4.1 or higher	
	150 GB Free Space (2000-5000 images at 20MP). 350 GB Free Space (5000-10000 images at 20MP)	
	OS: Windows 10, 11 (64 bit) or macOS Sonoma (14.x) + Ventura (13.x)	
LICENSING OPTIONS	32GB (2000-5000 images at 20MP). 64GB (5000-10000 images at 20MP)	
	Organizational license support	If you are in a Pix4D organization, you can access those organizational licenses and see how many are available
	SSO support	SSO-enrolled companies can use their defined SSO provider to log in
	Offline license	Fully offline licensing available
	Proxy configuration	The usage of proxies is supported for system or manual proxy configurations