



HOME OF 3DF ZEPHYR



3DF ZEPHYR FEATURE LIST

INPUT

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| IMAGERY | automatically process pictures taken by any terrestrial and aerial sensor (oblique multi-camera systems included) |
| VIDEO | automatically extract video frames (.avi, .mp4, .mov, .mpg, .wmv formats) using the smart blurriness and similarity detection |
| PICTURE ACQUISITION | take pictures with different lenses and cameras and process them together in the same project |
| MULTI-GPU SUPPORT | 3DF Zephyr leverages multiple Nvidia graphics cards, when available, to speed up processing |
| POSITIONING DATA | import cameras GPS/RTK/PPK coordinates and assign them a custom reference coordinate system |
| CAMERA OPTIMIZATION | use the Bundle Adjustment to improve the accuracy of the camera orientation phase |
| PROJECT EDITING | add pictures to the current project or further orient previously discarded images |
| FIXED RIG SUPPORT | load known internals and externals camera parameters to calibrate your fixed rig (e.g., 3D body scanning) |
| PROJECT MERGING | split large datasets and merge different projects using control points, nearest cameras or the reference system in common |
| IMAGE SWITCHING | create a 3D mesh using standard RGB images and then swap the corresponding NIR/thermal pictures before texturization |
| MODIFY CALIBRATION | import your custom calibration settings (.txt or .xml formats) when working with known camera parameters |
| IMPORT MENU | import any point cloud, mesh with custom UVs or drawing element (.dxf, .xml formats) from an external source (i.e., LiDAR) |

UTILITIES

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| 3DF MASQUERADE | create masks to pair with the images to be processed in 3DF Zephyr |
| MULTISPECTRAL IMAGERY | perform the image radiometric calibration, detect multiband layers automatically and create index maps (R, G, B, NIR, RE, NDVI) |
| SPHERICAL PICTURES | deal with any 360° image by decomposing each panorama into 6 pinhole-like cameras |
| IMAGE QUALITY INDEX | sort your pictures by their blurriness value before getting started on the camera orientation phase |
| MANUAL CALIBRATION | generate your calibration file by taking at least ten pictures of a random on-screen pattern |
| CALIBRATION MANAGER | often on the go? Use this handy tool to store and retrieve camera calibrations from the 3Dflow server |
| PRESET MANAGER | easily share and download 3DF Zephyr's presets from the 3Dflow server |
| DSLR REMOTE SHOOTING | manage multiple cameras for synchronized shooting |
| EXTRACT MPO FILES | extract Multi Picture Object files when using digital cameras with multiple stereoscopic lenses |
| IMAGE CONVERSION | convert input images to jpeg, tiff, and png formats, define the color space of your images or apply Gamma correction to them |
| BIM MANAGER | synchronize dense point clouds, laser scans and CAD drawings between 3DF Zephyr and Autodesk Revit |
| BATCH PROCESSING | schedule and run the 3D reconstruction steps at once and set up every single phase and related presets |
| DEM VIEWER | explore your DTMs and DSMs directly inside 3DF Zephyr and set your colormap to export them in .png, .jpg and .bmp formats |
| PYTHON SCRIPTING | access customization options and automate specific workflows in 3DF Zephyr |
| HARDWARE SUPPORT | take advantage of the stereo monitor and 3D mouse support in 3DF Zephyr to enhance your photogrammetry experience |

EDITING & TOOLS

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| BOUNDING BOX | define the 3D model volume and filter out points and polygons of non relevant areas to streamline the 3D reconstruction process |
| SELECTION TOOLS | pick among the selection by plane, color, points or triangles, and manual selection, or invert the current selection |
| FILTER SELECTED ITEMS | apply either smoothing or retopology filters to a selected portion of a mesh |
| VERTICAL AXIS DEFINITION | set the Z axis by choosing among three different ways (two vertical points, horizontal plane, two axes of the reference system) |
| NEW LAYER VIA CUT/COPY | create a new object in the workspace by making a cut or copy of the current selection |
| CONFIDENCE ANALYSIS | find those dense cloud areas covered by more (red points) or fewer pictures (blue points). Then apply your selection |
| MESH/DENSE CLOUD FILTERS | decimation, densification, smoothing, hole filling, mesh retopology, photoconsistency, point cloud classification |
| MESH SLICING | slice your meshes with a plane or with the bounding box |
| VOLUME OF INTEREST | temporarily freeze mesh/dense cloud areas outside the bounding box to simplify and speed up your 3D model editing |
| MARKER DETECTION | pinpoint the cross pattern of on-site targets and add control points from images either automatically or manually |
| SPHERE DETECTION | detect sphere targets on images and automatically place control points at their center (suitable for forensics industry) |
| PLANAR TEXTURE MAPS | generate and export planar texture maps by selecting a planar area of your textured mesh |
| NORMAL MAPS | bake normals maps in Zephyr starting from a high poly mesh to any textured mesh |
| CODED TARGETS | detect on-site coded targets automatically and convert them to control points after the camera orientation phase |

LASER SCANNING

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| INPUT DATA | import both native lidar (Faro, Riegl, Z+F, Stonex, Dot product) and common (.ply, .pts, .ptx, .las, .e57, .xyz, .txt, .rcp, .laz) file formats |
| 3DF SCARLET | the laser scan registration tool packed with Zephyr. Available registration options: manual, ICP-based and photogrammetry-based |
| DATA INTEGRATION | combine lidar and photogrammetry data to get high quality textured meshes |
| SCAN COLORING | leverage the bubble views or workspace cameras information to colorize your laser scans |
| SCAN-TO-MESH | create meshes and textured meshes from structured laser scans |
| EDITING & ANALYSIS | apply Zephyr's selection tools and filters to laser scans and assess the registration accuracy using the cloud comparison tool |
| SCAN-TO-ORTHOPHOTO | generate orthophotos from your lidar data by defining either a plane (control points) or a reference axis |
| SCAN-TO-CAD | extract drawing elements from the bubble views and export them in .dxf, .dgn, .shp, and .txt formats |
| SCAN-TO-BLUEPRINT | extract CAD plans from laser scans through the automatic plane recognition algorithm |

MEASURING

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| CONTROL POINT EDITING | import, place and edit GCPs or set control distances to accurately scale and georeference your 3D model |
| 2D COORDINATES | import control points 2D positions before or after data processing to add more control points at once and save time |
| CAMERA CONSTRAINTS | import camera position constraints from the Exif data while creating a new project |
| GPS/PPK/RTK DATA | load cameras GPS/PPK/RTK coordinates before processing or match them to the GCPs you have already placed |
| CONSTRAINT vs CHECK | Zephyr forces scaling to the points marked as constraints while using check points as a reference to keep the accuracy monitored |
| BUNDLE ADJUSTMENT | optimize the accuracy of camera positions (reprojection error) with the control points (e.g., when dealing with low-quality images) |
| MEASUREMENTS | define any distance, angle, area (even on 3D model selected regions) and perform up to 3 volume calculations |
| VOLUME CALCULATION | compute volume changes of the same scene/object across time (e.g., stockpile monitoring and mining applications) |
| GEOREFERENCING | set your coordinate system selecting its EPSG code or let Zephyr automatically detect it (custom geoid support included) |
| DTM EXTRACTION | automatically remove above-ground objects and extract the digital terrain model from dense point clouds and meshes |

DELIVERABLES

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| ORTHOPHOTO GENERATION | <ul style="list-style-type: none">- generate orthomosaics and orthophotos from a sparse/dense point cloud, LiDAR scan or mesh- choose up to three generation modes (control points, reference system axes or current view)- orthophoto editor to improve specific regions of a given orthophoto- tile generation when dealing with huge datasets- export formats available: GeoTIFF, .png, .jpg, .bmp, .KML, plus the Autocad script file option to export scaled orthophoto |
| DEM EXTRACTION | generate DSMs and DTMs with 3DF Zephyr and open or modify them directly inside the software thanks to the DEM viewer |
| CAD DRAWING | polylines/splines free-hand drawing, polylines/surfaces extraction, cross/track sections, contour lines and breaklines generation |
| ELEVATION PROFILE | draw your elevation profiles directly on DSM and export them to .dxf, .svg, and .pdf format |
| VIDEO ANIMATION | create video animations of your 3D models in Zephyr and export them to .avi, .wmv and .mp4 formats |
| MULTISPECTRAL OUTPUT | generate index maps (NDVI, DVI, SAVI, R, G, B, NIR, RE) and export them to GeoTIFF format |
| CAMERA & POINT EXPORT | export internal and external camera parameters, projection matrices, undistorted images, and your sparse point cloud |
| DENSE CLOUD EXPORT | available file formats: .ply - .xyz - .txt - .las - .pts - .ptx - .rcp - .dxf - .laz - .ncn - .e57 |
| MESH & LOD MESH EXPORT | available file formats: .obj, .stl, .fbx, .ply, .pdf 3D, .u3D, .dae (Collada), .dxf, .3mf, .kmz, .osgb, .ive, direct upload to Sketchfab and Nira |
| STATS AND REPORT | generate and export your 3DF Zephyr project report to .pdf format, including every single detail of your 3D reconstruction |

SUPPORTED INPUT DATA



Lidar - UAV



Tls



Cameras



Videos



Multiband



Spherical

HARDWARE SPECS



CPU: Quad-core Intel or AMD



OS: Windows 11/10



GPU: NVIDIA card with 2GB of RAM and Cuda Capabilities >= 3.0



MEMORY: 32GB RAM
HD: 20GB free HDD Space – SSD drive

LANGUAGE OPTIONS

English, Italian, German, Spanish, Chinese, Japanese, Korean, French, Turkish

INDUSTRIES

Surveying, Mapping, Mining, Construction, Agriculture, Architecture, Cultural Heritage, VFX & Gaming, Health & Care

ZEPHYR VERSIONS

3DF Zephyr Free, 3DF Zephyr Lite, 3DF Zephyr, 3DF Zephyr Education, FlowEngine (SDK)

PRICING PLANS

| FREE | LITE | SUBSCRIPTION | PERPETUAL |
|------------------------------|------------------------------|------------------------------------|------------------------------------|
| Free of charge | €199.00 + vat | €250.00 + vat / month | €4200.00 + vat |
| 50 photos limit | Unlimited images | Unlimited images | Unlimited images |
| Single NVIDIA GPU support | Dual NVIDIA GPU support | Full NVIDIA GPU support | Full NVIDIA GPU support |
| Basic exporting capabilities | Basic exporting capabilities | Full exporting capabilities | Full exporting capabilities |
| Basic tools and utilities | Basic tools and utilities | Full access to tools and utilities | Full access to tools and utilities |