



HOME OF 3DF ZEPHYR



# 3DF ZEPHYR FEATURE LIST

## INPUT

IMAGERY	automatically process any picture (compressed and raw formats) taken by any terrestrial and aerial sensor
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 graphic 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

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

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 (selective and watertight), mesh retopology, photoconsistency
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

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

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

ORTHOPHOTO GENERATION	<ul style="list-style-type: none"> <li>- generate orthomosaics and orthophotos from a sparse/dense point cloud, LiDAR scan or mesh</li> <li>- choose up to three generation modes (control points, reference system axes or current view)</li> <li>- orthophoto editor to improve specific regions of a given orthophoto</li> <li>- tile generation when dealing with huge datasets</li> <li>- export formats available: GeoTIFF, .png, .jpg, .bmp, .KML, plus the Autocad script file option to export scaled orthophoto</li> </ul>
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



## HARDWARE SPECS



## 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	500 photos limit	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