Cristiano Plaza

Visible Light Project | Creation Time 2026-09-11

Contents

Reconstruction Duration

Time taken for reconstruction, including total duration and time spent on each module

5h 42min 44s

Total Duration

Module	Duration
Preprocessing (AT)	7min 11s
2D Map	8min 38s
3D Mesh	53min 31s
Point Cloud	4h 33min 13s
DEM	5s
Contour	0s
Grid of Points & TIN	6s
Total	5h 42min 44s

Datasets

Parameters

Photo Parameters

Number of Photos	917 Photos
POS Calculation	Photo POS
Camera Info	1 Cameras | From Datasets

Flight Parameters

Average Flight Altitude[1]	GSD[2]	Aerotriangulation Coverage Area[3]	Photo Color[4]
124.69 ft	0.54 in/px	13.488407 acres	3 bands, uint8

1. Average Flight Altitude: Average flight altitude of aircraft relative to ground in mapping area
2. GSD: Ground sample distance, which indicates actual size corresponding to pixel size of original image. Generally, select value twice GSD required for final output. For example, for 1:500, typically use 2.12 cm. 1 inch = 2.54 cm. Map distance = 2.54 cm/300 px = 0.008467. For 1:500, GSD = 0.008467 × 500 = 4.23 cm
3. Aerotriangulation Coverage Area: Reconstruction coverage area calculated through aerotriangulation. Due to ROI or noise interference, there may be difference compared to final 2D /3D map area
4. Photo Color: Number of photo channels and value types

Photo POS Accuracy

POS Status

Fix[1]	Floating[2]	Single[3]	Other[4]
924 Photos	0 Photos	0 Photos	0 Photos

1. Fix: high photo accuracy, positioning accuracy at centimeter level
2. Floating: average photo accuracy, positioning accuracy at decimeter level
3. Single: average photo accuracy, positioning accuracy at meter level
4. Other: poor photo accuracy, positioning accuracy at meter level

POS Positioning Accuracy[1]

	Horizontal Standard Deviation	Elevation Standard Deviation
Max Value	0.146 in	0.222 in
Avg Value	0.14 in	0.204 in
Min Value	0.138 in	0.203 in

1. POS Positioning Accuracy: POS positioning accuracy information of aircraft recorded during data collection. DJI Terra will use this accuracy information for model reconstruction

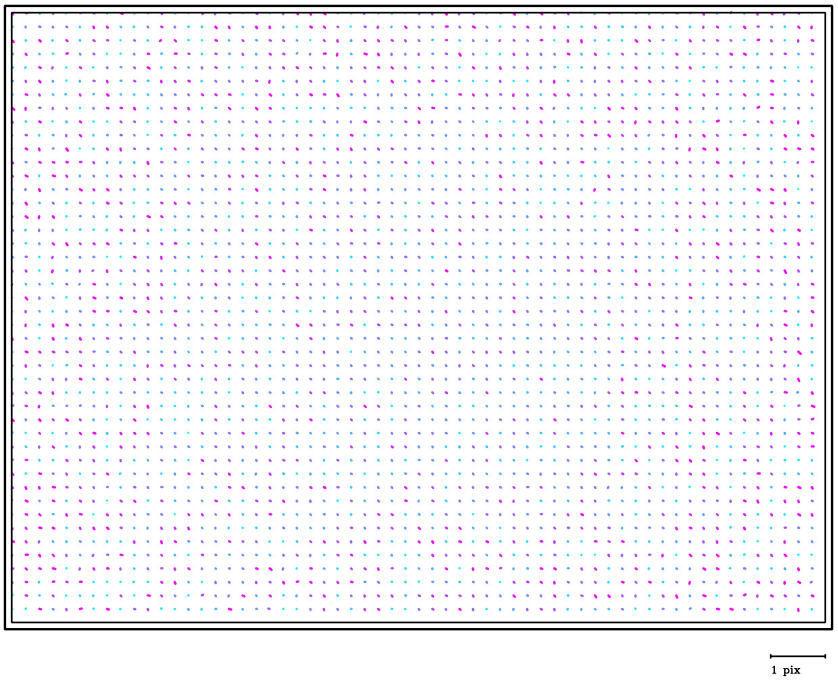
Photo Calibration

All Photos[1]	Photos with Pose Data (Proportion)[2]	Calibrated Photos (Proportion)[3]
924 Photos	924 Images (100%)	917 Images (99%)

1. All Photos: Total number of visible light photos added
2. Photos with Pose Data: Photos with valid pose after aerotriangulation
3. Calibrated Photos: Photos actually used in reconstruction after aerotriangulation

Camera Calibration

M4E_WideCamera



Camera Name
M4E_WideCamera

Camera SN
1581F7FVC266U00DQK9X

Lens Type
Standard

Fix Camera Parameters
Not Fix

Pre-calibration
No

Photo Resolution
5280*3956

Calibrated Photos
917 Photos

Image shows residuals of aerotriangulation tie points reprojected onto different positions on camera sensor. Smaller residuals indicate better calibration accuracy. In ideal camera self-calibration result, line segments in residual map appear random and evenly distributed, without strong directionality, systematic pattern, or clear trend

Intrinsic Camera Parameters[1]

	F	Cx	Cy	K1	K2	K3	P1	P2
Initial[2]	3713.29	2640	1978	-0.11257524	0.01487443	-0.02706411	-0.00008572	0.0000001
Optimized[2]	3723.621	2681.387	1959.92	0.001031596	0.000056322	-0.002382727	0.000050176	-0.000293997
Difference Value[2]	10.331	41.387	-18.08	0.113606836	-0.014818108	0.024681383	0.000135896	-0.000294097

1. Intrinsic Camera Parameters: Describes optical characteristics of camera, including focal length, principal point coordinates, and lens distortion. Each camera has only one set of intrinsic parameters, using largest photo block as reference data
   · F, Cx, Cy, K1, K2, K3, P1, and P2 are for common cameras, and F, Cx, Cy, K1, K2, K3, and K4 are for fisheye cameras
   · F: Camera focal length. Cx, Cy: Coordinates of image center. Point (0,0) located at upper-left corner of image. K1, K2, K3: Radial distortion parameters. P1, P2: Tangential distortion parameters

2. Initial: initial intrinsic camera parameters. Optimized: intrinsic camera parameters after optimization. Difference Value: Optimized – Initial

Intrinsic Camera Parameter Covariance Matrix[1]

	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	0.013	1	0.018	-0.046	-0.523	0.474	-0.418	0.006	0.014
Cx	0.015	0.018	1	-0.003	0.007	-0.007	0.008	-0.006	0.916
Cy	0.012	-0.046	-0.003	1	0	0	-0.001	0.747	-0.006
K1	0.000022439	-0.523	0.007	0	1	-0.971	0.92	-0.027	0.007
K2	0.000067718	0.474	-0.007	0	-0.971	1	-0.984	0.016	-0.009
K3	0.00006149	-0.418	0.008	-0.001	0.92	-0.984	1	-0.017	0.013
P1	0.000001113	0.006	-0.006	0.747	-0.027	0.016	-0.017	1	-0.011
P2	0.00000146	0.014	0.916	-0.006	0.007	-0.009	0.013	-0.011	1

1. Intrinsic Camera Parameter Covariance Matrix: Matrix of correlation coefficients for intrinsic camera parameters, measuring their mutual correlation

Camera POS Residual[1]

Located in project folder/report/POS_residual_of_camera.csv

1. Camera POS Residual: Difference between post-reconstruction and pre-reconstruction

Aerotriangulation

Parameters

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Route Type[1]	Normal
Feature Point Density[2]	High
GCP and Constraints	Not Set
XML Output	XML
XML CRS	WGS 84 / UTM zone 18N | Default

1. Route Type: Normal scenarios are suitable for most cases, including oblique and orthophoto scenarios. Circle scenarios are ideal for circular flight paths and reconstruction of small, vertical objects (such as base stations, towers, wind turbines). Power line scenarios are applicable only to reconstruction of power lines
2. Feature Point Density: Number of feature points extracted. High density provides better reconstruction quality, while low density yields faster reconstruction speed

Aerotriangulation Accuracy

Connected Components[1]	1
Max Components Images	917
Projections[2]	3417454
Tie Point[3]	195920
Reprojection Error RMS[4]	1.11 px
Georeferencing RMSE[5]	0.064 ft

1. Connected Components: Aerotriangulation output is divided into several independent parts. Ideally, number of connected components for reconstruction should be 1. If there are multiple components, it indicates insufficient overlap rate in some areas or significant differences between flights. Capture additional photos in areas with insufficient overlap rate in time periods with similar lighting conditions
2. Projections: Total number of projections of aerotriangulation sparse points. Generally, larger number of projections indicates stronger connectivity between photos and higher aerotriangulation accuracy. Layers are less likely to form. More projections require more aerotriangulation time and memory
3. Tie Point: Number of aerotriangulation sparse points. In scenarios with rich textures, there tend to be more tie points. Generally, larger number of tie points indicates stronger connection between photos and higher aerotriangulation accuracy. More tie points require more aerotriangulation time and memory
4. Reprojection Error RMS: Indicator for evaluating internal accuracy of aerotriangulation, essential for determining output accuracy, typically less than 1 px
5. Georeferencing RMSE: Root mean square error (RMSE) between calculated image positions and positions recorded in image

2D Map

Parameters

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Scene	Mapping Scenarios
Resolution[1]	Auto | High（100%）
Output Format[2]	GeoTIFF
Region of Interest	Set
Map Tiling[3]	Disabled
Fill Hole Intelligently[4]	Enable

1. Resolution: Resolution used for reconstruction output. When Auto is selected, following three options are available: High (baseline resolution), Medium (1/2 of High), and Low (1/4 of High). When Custom is selected, manually set value in cm/px
2. Output Format: If reconstruction fails for selected format, it will still be displayed here. To view formats for final output, refer to output format list in quality report
3. Map Tiling: Digital Orthophoto Maps (DOM) and Digital Surface Models (DSM) will be split into tiles based on configured tile size
4. Fill Hole Intelligently: Intelligently fills holes in 2D reconstruction models. Disabling not recommended when Smart Oblique is used for data collection

Accuracy

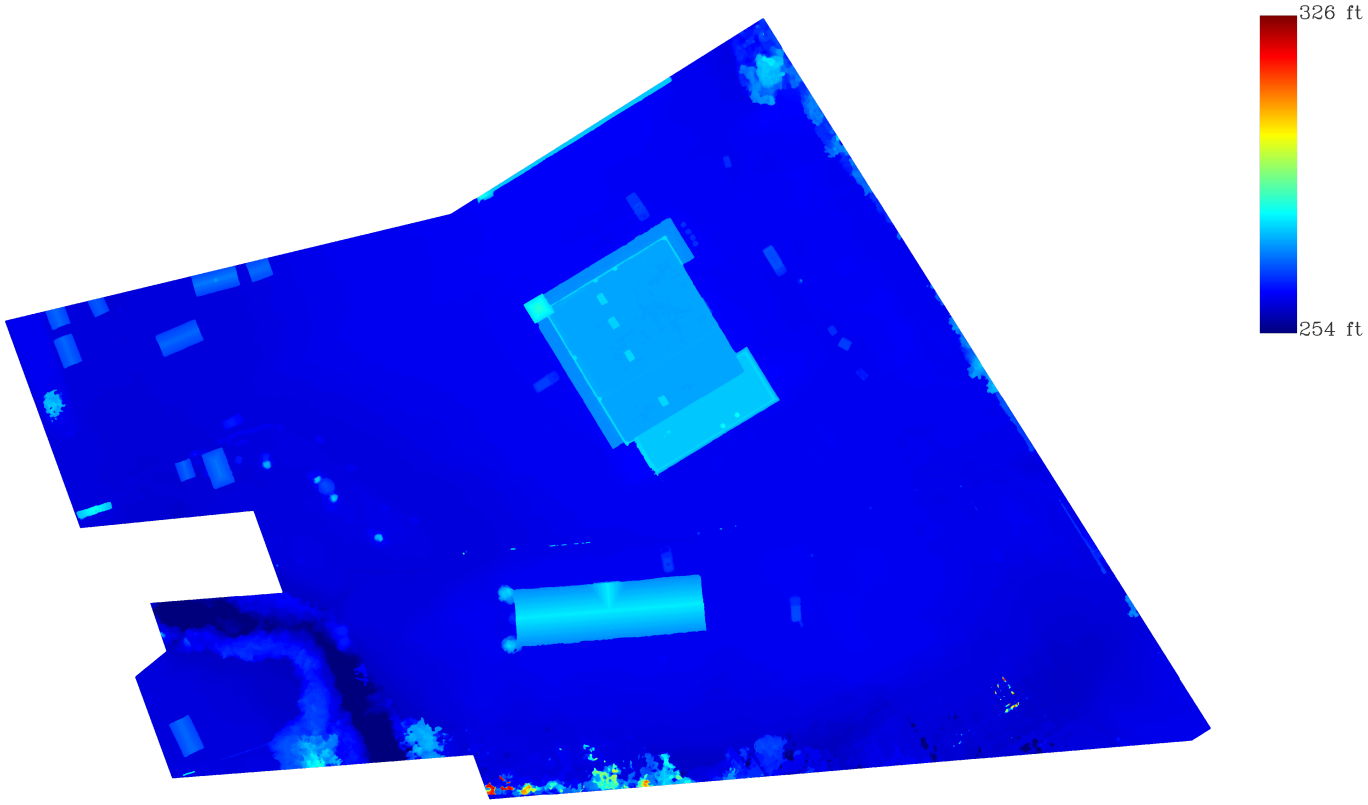
GSD	Coverage Area
0.472 in/px	4.162925 acres

Output Preview: TDOM

2D images generated by DJI Terra undergo geometric correction under map coordinate system, feature uniform scale, and minimize effects of perspective and terrain displacement, which can be directly used for measurement and cartography

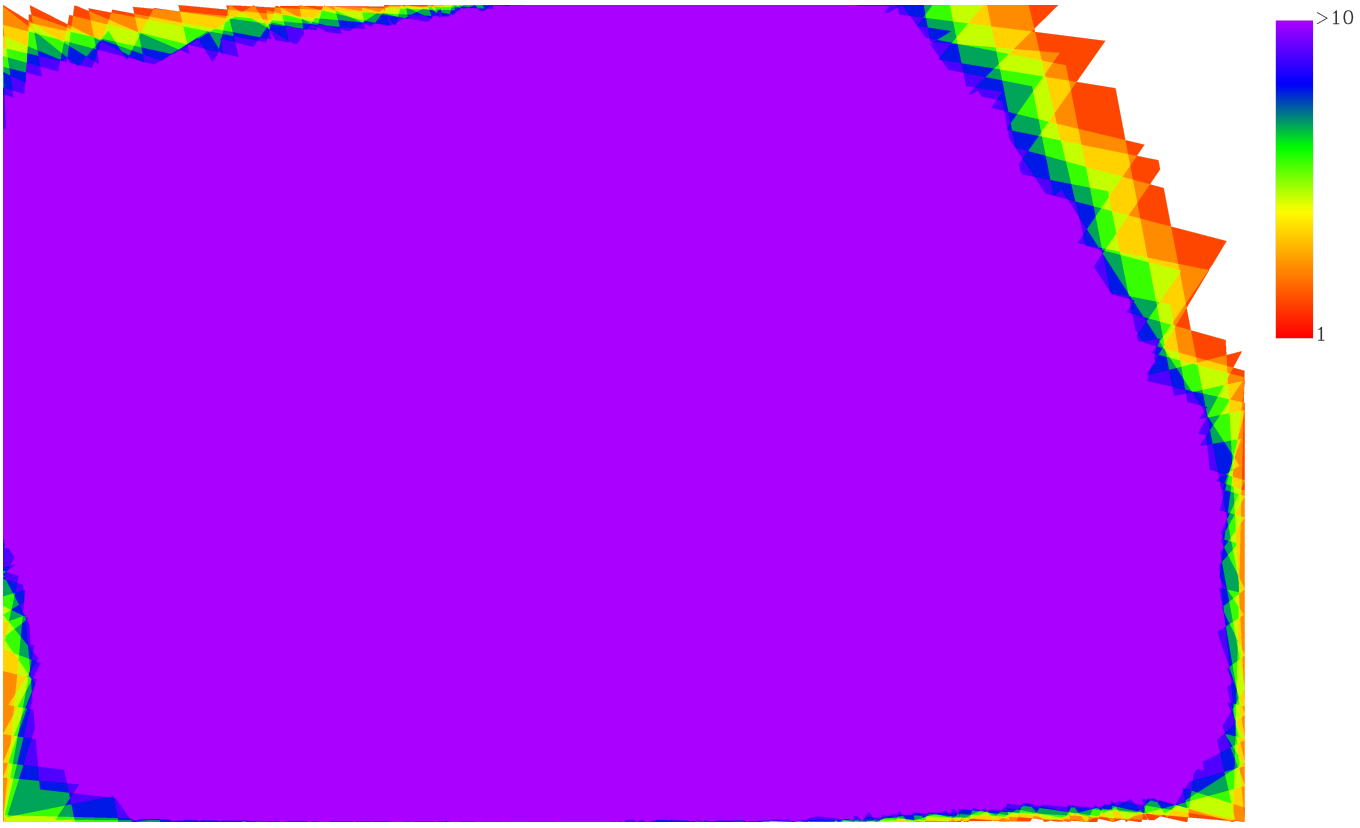
Output Preview: DSM

Digital surface models (DSM) are generated using remote sensing or photogrammetry technology. Output high-resolution digital surface models (DSM) can present accurate height information for ground objects such as buildings and vegetation



Output Preview: Scene Overlapping

Image Overlap Rate: Extent to which different areas of scenario are visible across multiple images. Different colors indicate varying levels of image coverage



3D Mesh

Parameters

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Quality[1]	High（100%）
Reduce Model to[2]	80%
Output Format[3]	B3DM | PLY | OBJ
Region of Interest	Set
Block[4]	Auto (Performance-based)
Refine Water Surface	Disable
Output Editable in DJI Modify[5]	Enable

1. Quality: Quality used for reconstruction output. Options are High (baseline quality), Medium (1/2 of High), and Low (1/4 of High)
2. Reduce Model to: Reduces number of model triangles to specified proportion, decreasing output size and improving performance for online viewing, model editing, and other downstream operations
3. Output Format: If reconstruction fails for selected format, it will still be displayed here. To view formats for final output, refer to output format list in quality report
4. Block Splitting: MVS block splitting mode. MVS is multi-view stereo reconstruction technology that restores 3D geometric information from images taken from multiple views
5. Output Editable in DJI Modify: Once enabled, block memory will be automatically restricted, reducing size of single model blocks and making it easier to load in DJI Modify and other downstream software

Point Cloud

Parameters

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Quality[1]	High（100%）
Density[2]	Medium (25%)
Output Format[3]	PNTS | LAS 1.4
Merged Output	Disabled
Noise Reduction and Accuracy Improvement[4]	Enable
Ground Point Classification[5]	Gentle Slope | Building Max Diagonal 65.62ft | Iteration Angle 6° | Iteration Distance 1.64ft

1. Quality: Quality used for reconstruction output. Options are High (baseline quality), Medium (1/2 of High), and Low (1/4 of High)
2. Density: Downsampling will be applied to point clouds after reconstruction. High: No downsampling is applied. Medium: 25% is retained. Low: 6.25% is retained
3. Output Format: If reconstruction fails for selected format, it will still be displayed here. To view formats for final output, refer to output format list in quality report
4. Noise Cancelling and Accuracy Optimization: System will optimize point cloud thickness and accuracy in weak texture areas (for example, walls and floors) and reduce noise and optimize color rendering
5. Ground Point Classification: When enabled, ground point classification will follow ASPRS classification standard for LAS and LAZ point clouds

Terrain Result

DEM

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Size[1]	Scale | 1:500
Output Format	GeoTIFF

1. Size: When scale is used, 1:500 corresponds to GSD 0.5 cm/px, 1:1000 corresponds to GSD 1 cm/px, and 1:2000 corresponds to GSD 2 cm/px

Contour

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Interval[1]	32.81 ft
Datum[2]	0 ft
Elevation Annotation Radius[3]	49.21 ft
Discard Invalid Contour Lines[4]	Disabled
Output Format	SHP | DXF

1. Interval: Difference in elevation between adjacent contour lines
2. Datum: Elevation of contour lines is calculated based on elevation datum and interval. For example, if datum value is 0 and interval is 10, elevation of contour lines will be –30, –20, –10, 0, 10, 20, and 30
3. Elevation Annotation Radius: Used to generate elevation points for topographic mapping
4. Discard Invalid Contour Lines: Contour lines shorter than minimum length will be removed

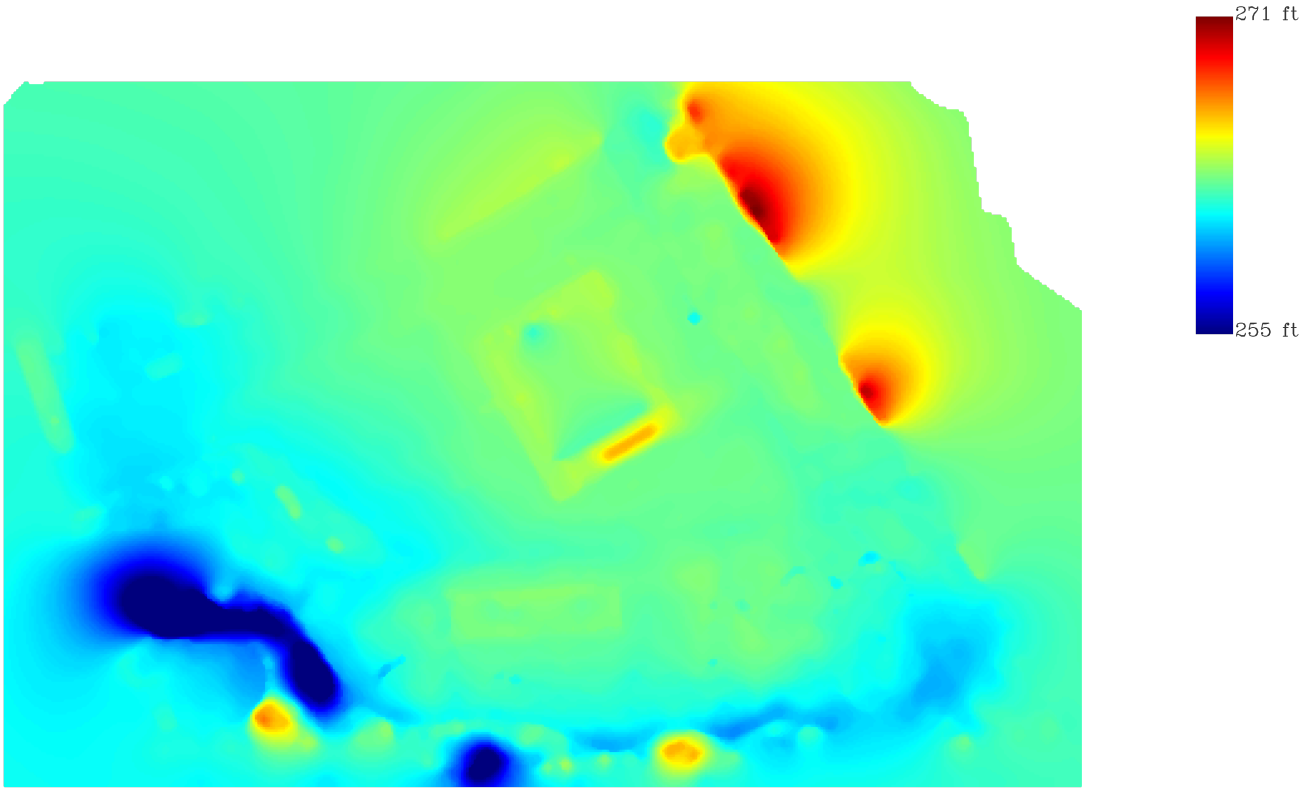
Grid of Points & TIN

Computation Method	Standalone Computation(Efficiency Mode:High Efficiency | Auto-Core)
Mode[1]	Standard
Sample Distance[2]	98.43 in
Point Grid Output Format	SHP | DXF | CSV | GeoJSON
TIN Output Format	LandXML | SHP | DXF

1. Mode: More details of original point cloud will be saved in standard mode. Smaller output file of grid of points will be generated in smart mode
2. Sample Distance: Distance between original grid points

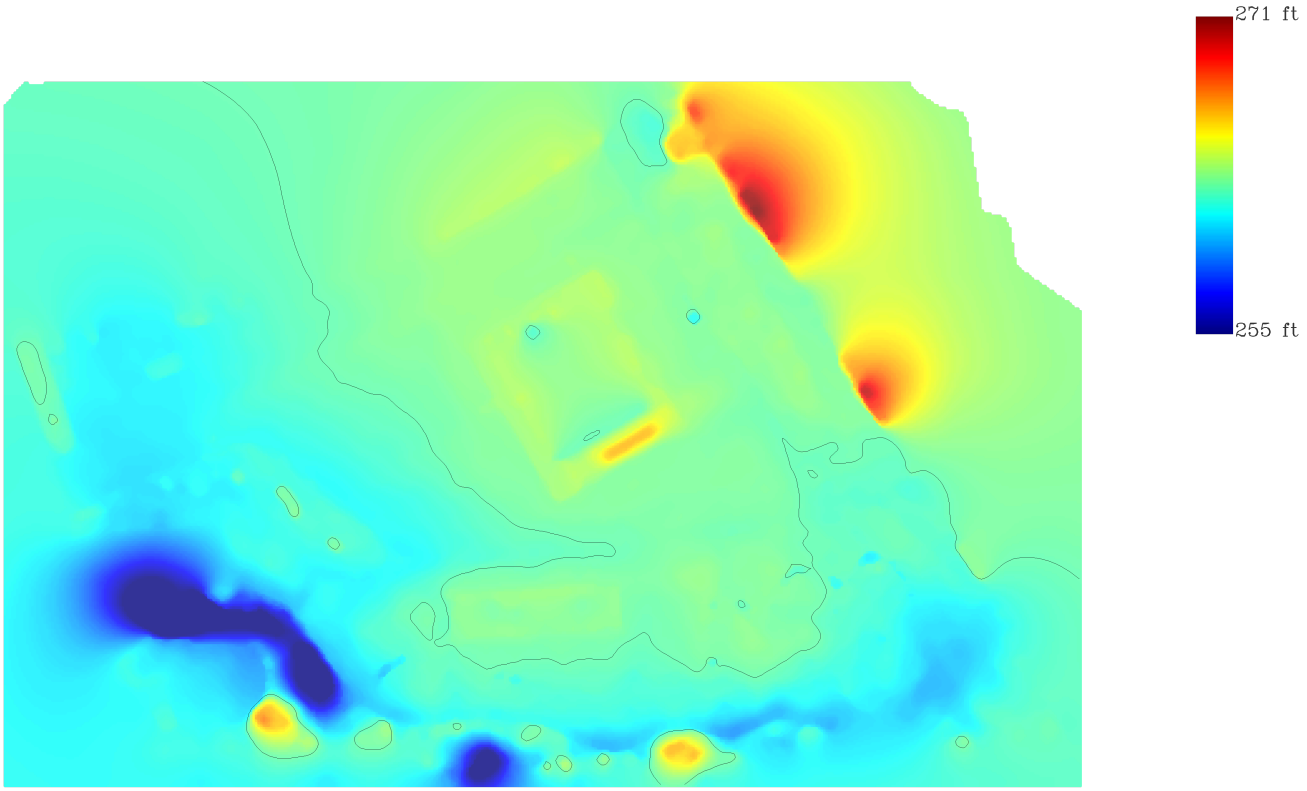
Output Preview: DEM

Digital model that represents surface elevation (relative to specific elevation datum) using regular grid or point set. DJI Terra extracts ground points from point cloud output to generate digital elevation models



Output Preview: Contour Lines

Closed curves connecting points with same elevation on surface are used on maps or topographic maps to represent topographic relief. These intuitively demonstrate hills, valleys, gradient, and landforms



Coordinates and Format

Output Coordinate System

WGS 84 / UTM zone 18N | Default

Output Format

Preprocessing (AT)	XML
2D Map[1]	GeoTIFF
3D Mesh[2]	B3DM | PLY | OBJ
Point Cloud[3]	PNTS | LAS 1.4
DEM	GeoTIFF
Contour	SHP | DXF
Grid of Points	SHP | DXF | CSV | GeoJSON
TIN	LandXML | SHP | DXF

1. 2D Map
   · GeoTIFF: Stands for Geographic Tagged Image File Format, which allows embedding geographic coordinate information into TIFF image files. DJI Terra supports GeoTIFF v1.1
   · GeoTIFF (COG): Indicates cloud-optimized GeoTIFF. With built-in tiles, large GeoTIFF files offer smoother browsing experience in downstream software
2. 3D Mesh
   · B3DM: Default generation for display in DJI Terra (LOD model format, suitable for display in Cesium)
   · OSGB: LOD model format
   · PLY: Non-LOD model format
   · OBJ: Non-LOD model format
   · S3MB: SuperMap LOD model format
   · I3S: Non-LOD model format
   · FBX: Non-LOD model format. LOD switching can be achieved through external software
3. Point Cloud
   · PNTS: Default generation for display in DJI Terra (LOD point cloud format, suitable for display in Cesium)
   · LAS: ASPRS LASer, three-dimensional point cloud format
   · LAZ: Lossless compressed version of LAS, defined by ASPRS
   · PLY: Non-LOD point cloud format
   · PCD: Non-LOD point cloud format
   · S3MB: SuperMap LOD point cloud format

Devices and Software

Device Performance

CPU	AMD Ryzen 7 7700 8-Core Processor 16 cores
GPU Count	1
GPU 0	NVIDIA GeForce RTX 3060 Ti
Memory	15480 M

Software Information

Software Name	DJI Terra
Software Version	V5.3.5