DJI Terra v5.2.0 | DJI Modify v1.6.0 | DJI Reality v1.0.0

Version Release Training

DJI Enterprise

DJI Terra v5.2.0

Version Update Contents

[New Features]

- Supports automatic GCP target recognition for **fully automatic GCP marking**; no repeated manual effort for re-surveys, labor cost for GCP marking **reduced to nearly zero.**
- New **Efficiency Mode and Power Mode settings** to **maximize PC hardware utilization**, reduce the project delivery window
- 2D output now supports GeoTIFF (COG) format, dramatically boosting loading and browsing speed in downstream software, making 2D results **ready to use immediately**
- Supports importing HEIF format photos captured by Zenmuse L3, which can save storage space by over **30%**
- Bug reports now support uploading more attachments

[Feature Optimizations]

- Before this update, when PPK does not achieve Fix and data would normally be discarded the L3 data, now trajectory correction via image data is supported, which could recover **90%+** of anomalous LiDAR data.
- Optimized Gaussian Splatting ultra-high quality in visible light reconstruction, the efficiency has also been improved under the high-quality mode.
- Optimized the fusion 2D visible reconstruction efficiency for Zenmuse L3 data, accelerating output delivery.
- Point cloud noise and accuracy optimization options are now defaults to [Enabled].
- Optimized base station center point parsing rules, improving positioning accuracy stability.
- Optimized quality report text details.

Automatic Target Recognition for Fully Automatic GCP Marking

Feature Description

After importing GCPs, manual marking is no longer needed. During aerotriangulation, standard targets can be automatically recognized and applied to optimize accuracy.

Steps

1. Under the settings, go to [Preprocessing (Aerotriangulation)] > [GCPs and Constraints].
2. Import GCP that meets the requirements.
3. Enable the [Auto GCP] option on the right panel; Terra will automatically marking GCPs.

Use Scenarios

For survey sites have large amount of GCPs or projects require periodic re-survey without repeated manual GCP marking, the automatic GCP marking would significantly reduce repetitive work;

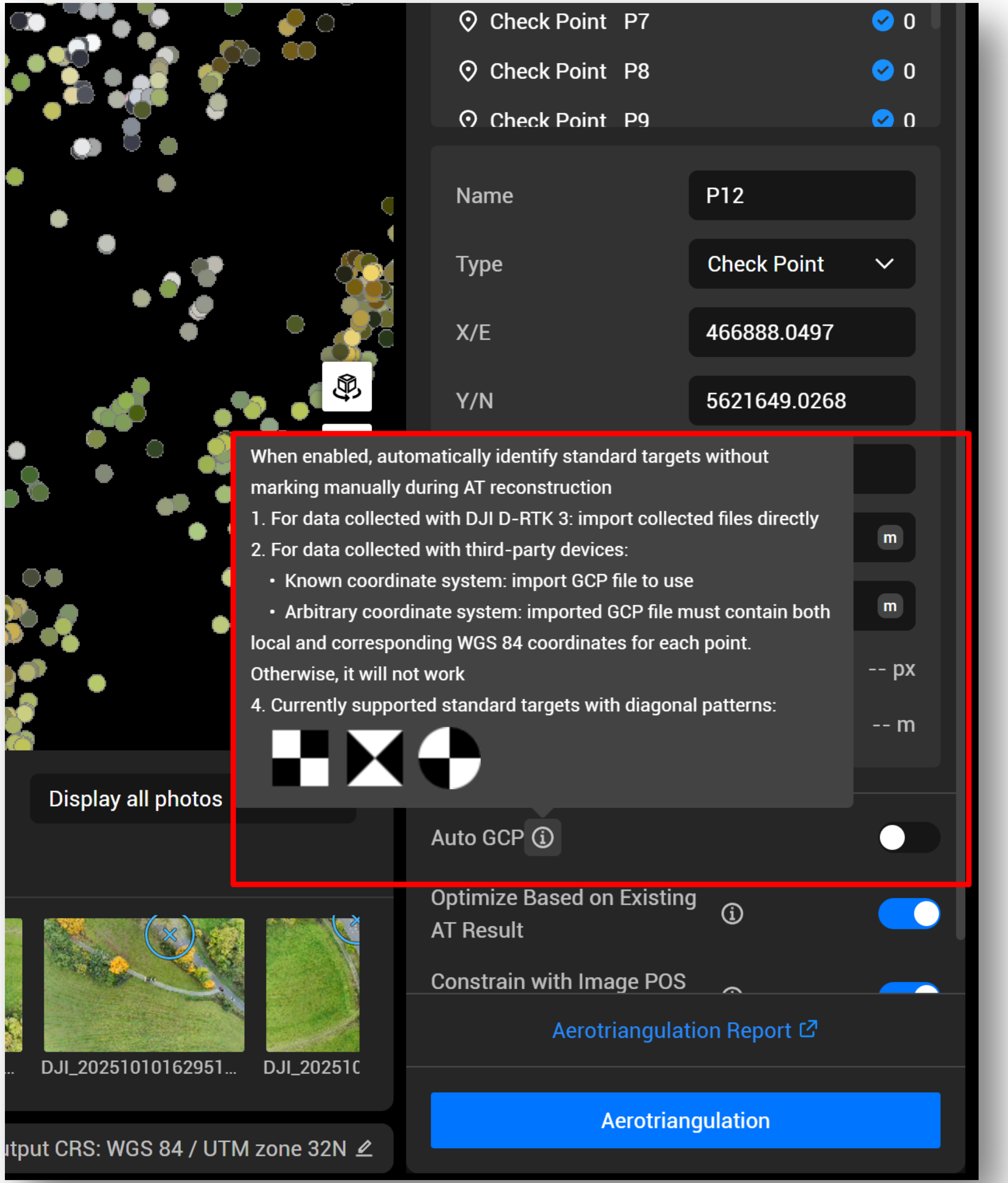
Notes

(1) If using **DJI D-RTK 3** collected GCP data, it can be directly imported and the software will auto-recognize.

(2) The following conditions must be met to enable [Auto GCP] If using third-party GNSS equipment:

- Known coordinate systems can be used directly by importing GCPs.
- If the GCP coordinate system is arbitrary, to ensure proper auto-recognition, the imported/added GCPs must include both local and corresponding WGS 84 longitude, latitude, and altitude.

(3) Currently supported standard target formats: Square, Diagonal and AeroPoints



Efficiency Mode and Power Mode Settings

Feature Description

1. **Efficiency Mode** supports three modes: **<u>Standard</u>**, **<u>High Performance</u>**, and **<u>Custom</u>**. **<u>High Performance and Custom modes</u>** enable multiple compute cores for reconstruction, utilizing computer resources more efficiently to improve processing speed.

2. **Power Mode**: supports **<u>Balanced</u>**, **<u>Best Power Efficiency</u>**, **<u>Best Performance</u>**, and **<u>Ultimate Performance</u>**.

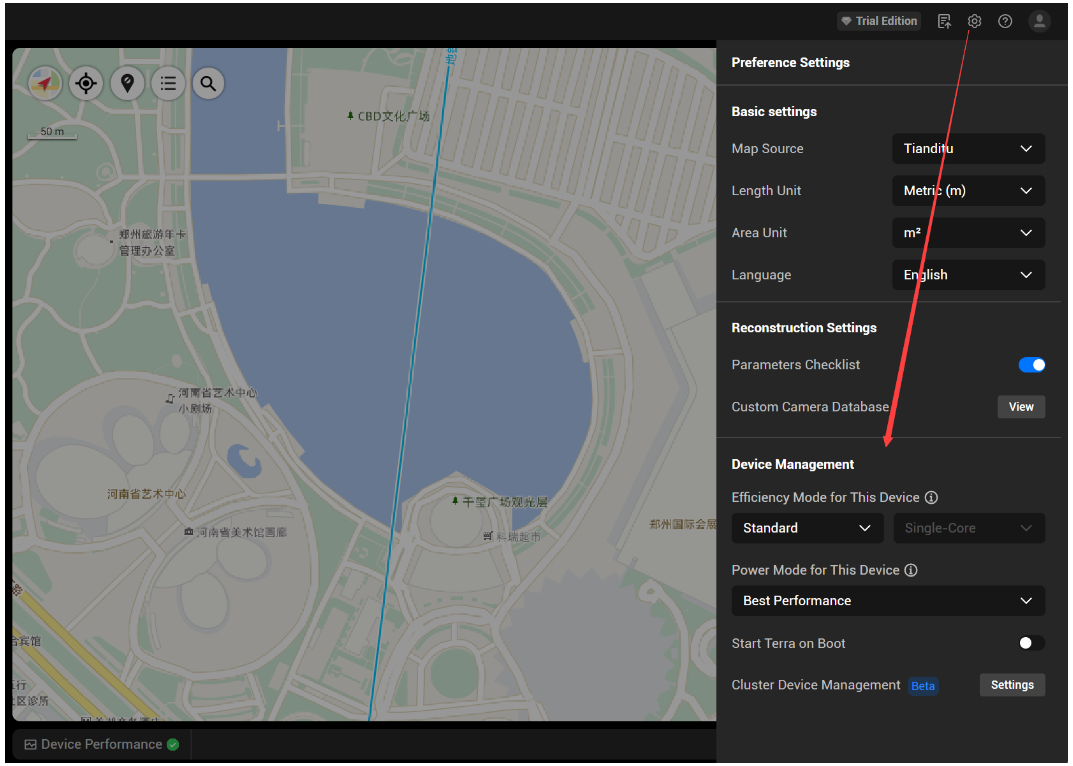
- **Balanced**: Default setting; the system dynamically adjusts performance and power consumption, balancing stability and efficiency
- **Best Power Efficiency**: For laptops or battery-priority scenarios only; noticeably lower performance but greatly extends battery life
- **Best Performance**: Used when Ultimate is not supported; also unlocks max performance, prioritizing compute output
- **Ultimate Performance**: For time-critical tasks; CPU runs at full frequency continuously for maximum speed, but more laggy and higher power consumption

Steps

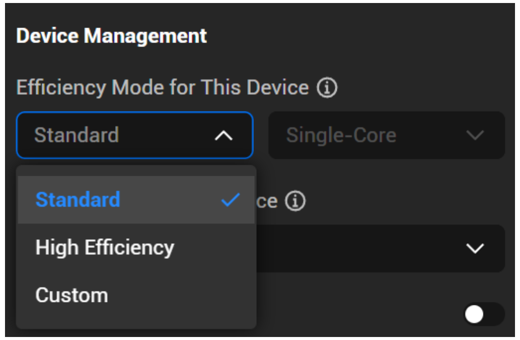
Go to [Settings] - [Device Management] to configure the Efficiency mode and Power mode.

Notes

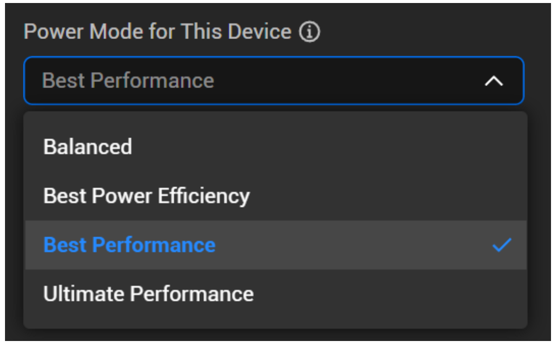
1. When configuring performance mode, enabling too many compute cores may cause resource conflicts and system instability. Recommended: **one compute core per 32GB free RAM + 4GB free VRAM**.
2. When modifying power mode, some Windows computers may fail to apply changes due to version limitations.



Open Settings



Set Device Performance Mode



Set Device Power Mode

Improved LiDAR Trajectory Quality via Visual Fusion

Feature Description

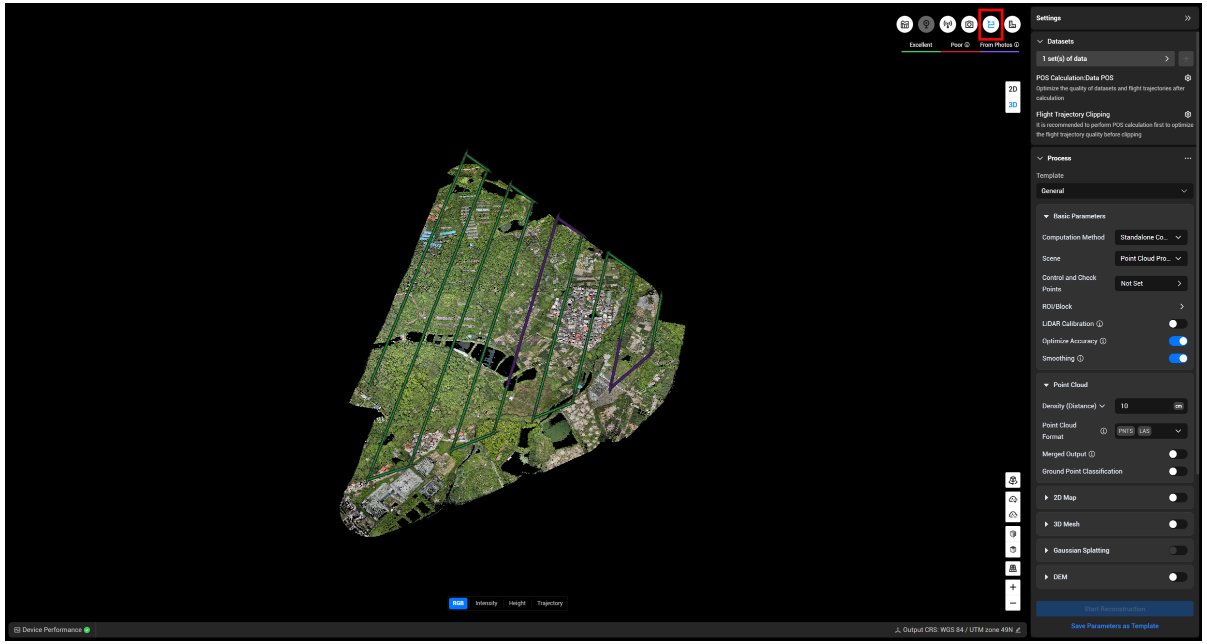
In LiDAR point cloud reconstruction tasks, when the LiDAR trajectory quality is poor but the photo poses are good, enabling point cloud smoothing uses photo poses to correct the LiDAR trajectory, **recovering areas that failed to reconstruct due to LiDAR signal issues and avoiding re-flights.**

Steps

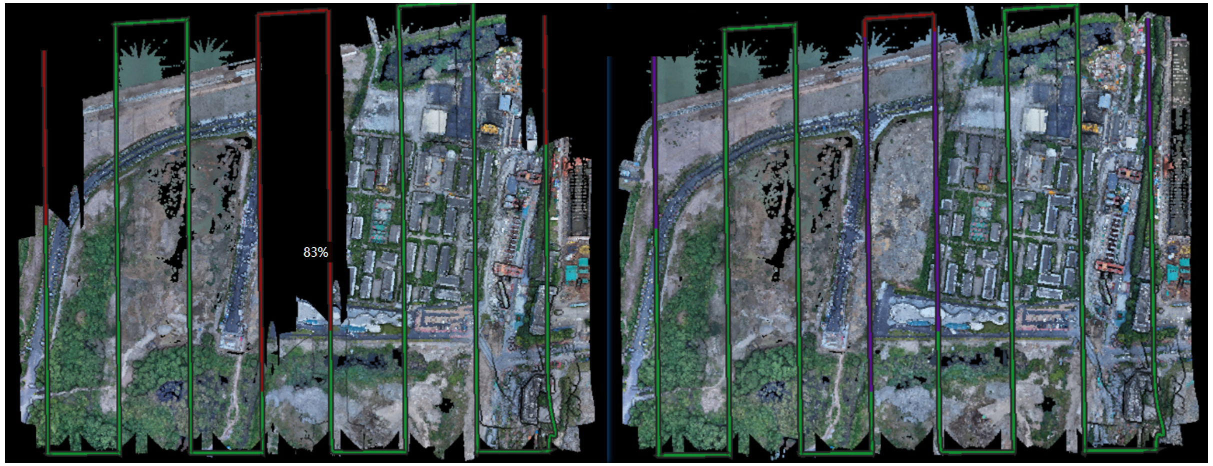
1. Click Process - Basic Parameters, enable **[Smoothing]**.
2. After reconstruction, click [Show/Hide Flight Trajectory] to view point cloud trajectories. Photo-optimized trajectories are shown in **purple**.

Use Cases

- **PPK Non-Fix scenarios**: Signal obstruction, long base station distance, data anomalies causing trajectory accuracy degradation;
- **Complex environments:** Mountains, urban, canyons, and other areas with unstable GNSS quality;
- **High-precision delivery projects:** Projects requiring high point cloud consistency and absolute accuracy.



Show Flight Trajectory



Before Smoothing

After Smoothing

Optimized Gaussian Splatting High and Ultra-High Quality Reconstruction in Visible Light Tasks

Feature Description

In visible light reconstruction tasks, the Gaussian Splatting ultra-high quality reconstruction results and high-quality reconstruction efficiency have been significantly optimized. In ultra-high quality mode, photo resolution is upgraded from 1.6k to **6k**, producing clearer and more realistic models.

Note: outputting ultra-high quality Gaussian models will approximately double the processing time.

Before

After

2D Map GeoTIFF (COG) Format Support

Feature Description

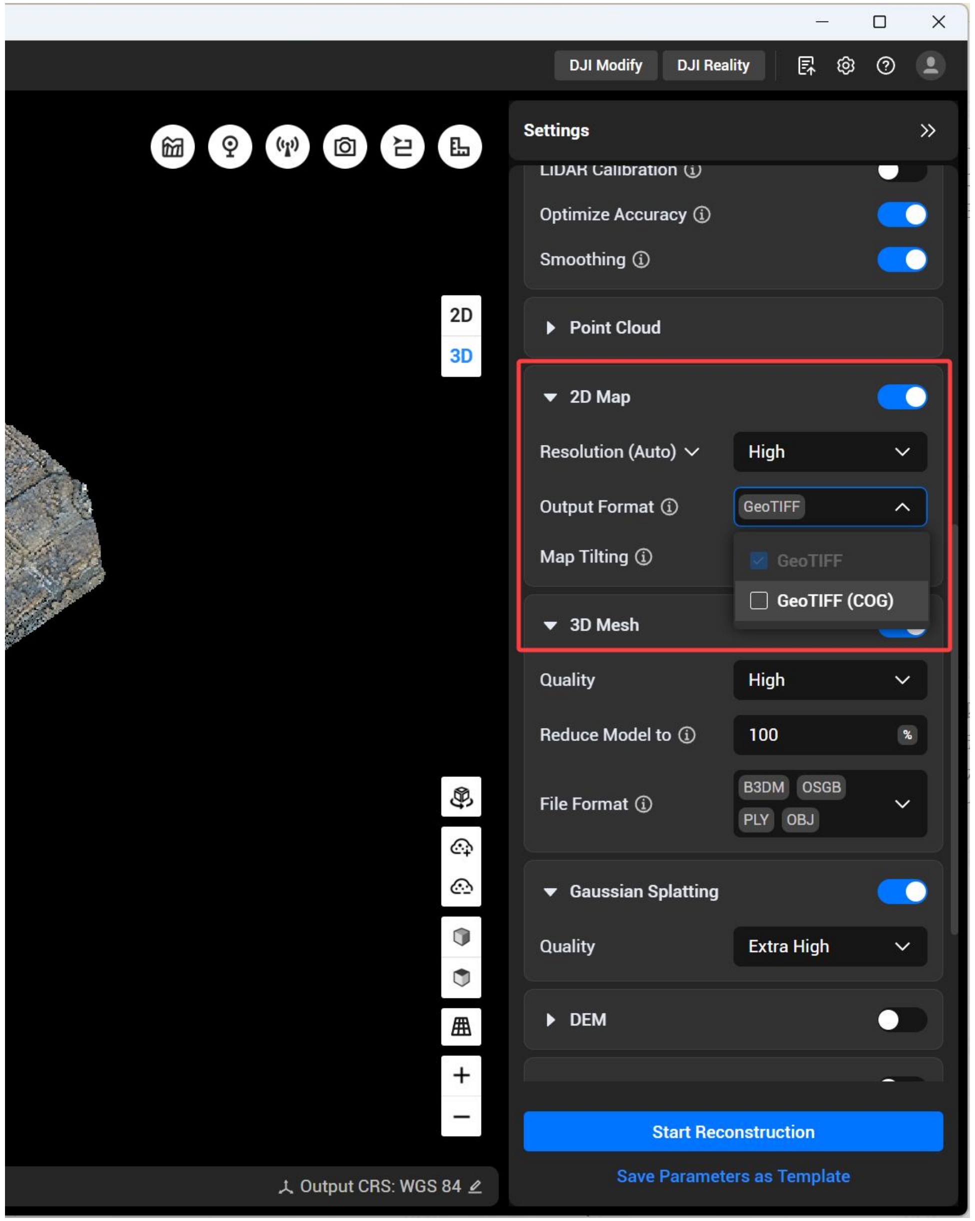
GeoTIFF (Geographic Tagged Image File Format) is a raster data storage format extending TIFF with geospatial reference information, defined by OGC (Open Geospatial Consortium). **GeoTIFF (COG)** format supports internal tile slicing. In downstream software supporting COG format (ArcGIS/QGIS, etc.), map browsing speed is greatly improved.

Steps

In [2D Map] > [Output Format], select GeoTIFF (COG).

Value Proposition

2D results are **ready to use immediately**; even 2D maps of several GB or tens of GB no longer require waiting **hours** to generate pyramid files.



Select GeoTIFF (COG) in Output Format

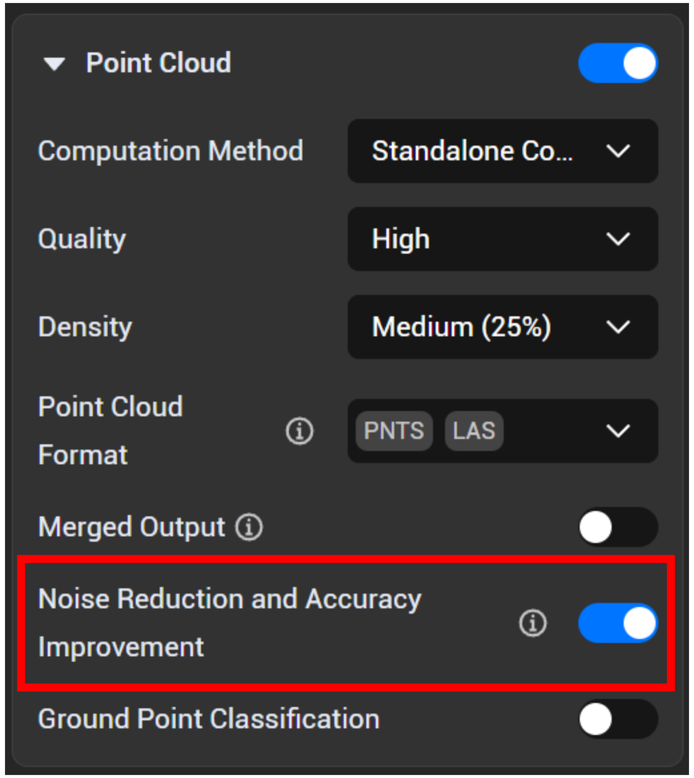
Point Cloud Noise and Accuracy Optimization Defaults to [Enabled] in Visible Light Projects

Feature Description

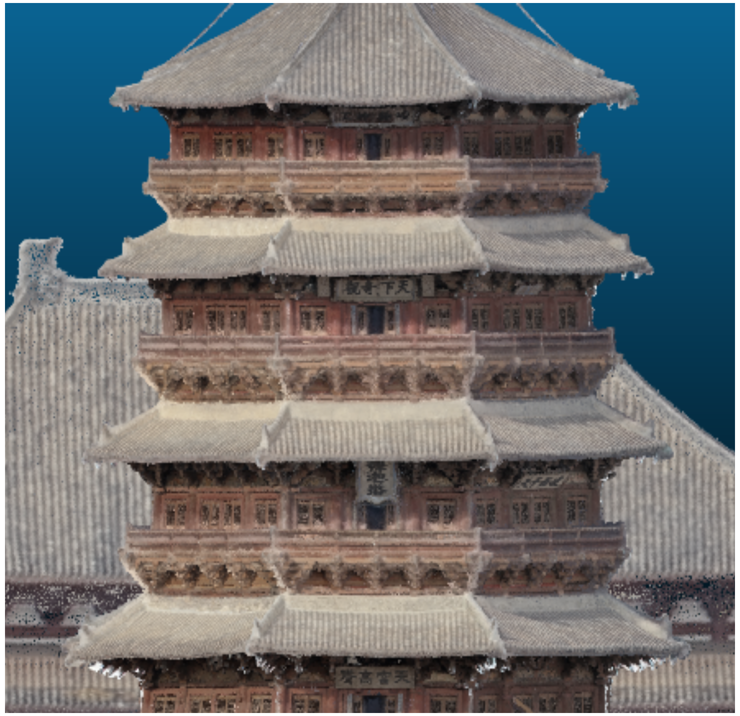
Noise and accuracy optimization is now enabled by default for visible light reconstruction tasks. Enabling this optimizes point cloud thickness and accuracy in low-texture areas (e.g., walls, ground), reduces noise, and improves coloring.

Steps

In a visible light project, enable the [Noise Reduction and Accuracy Improvement] option under [Point Cloud].



Disabled



Enabled

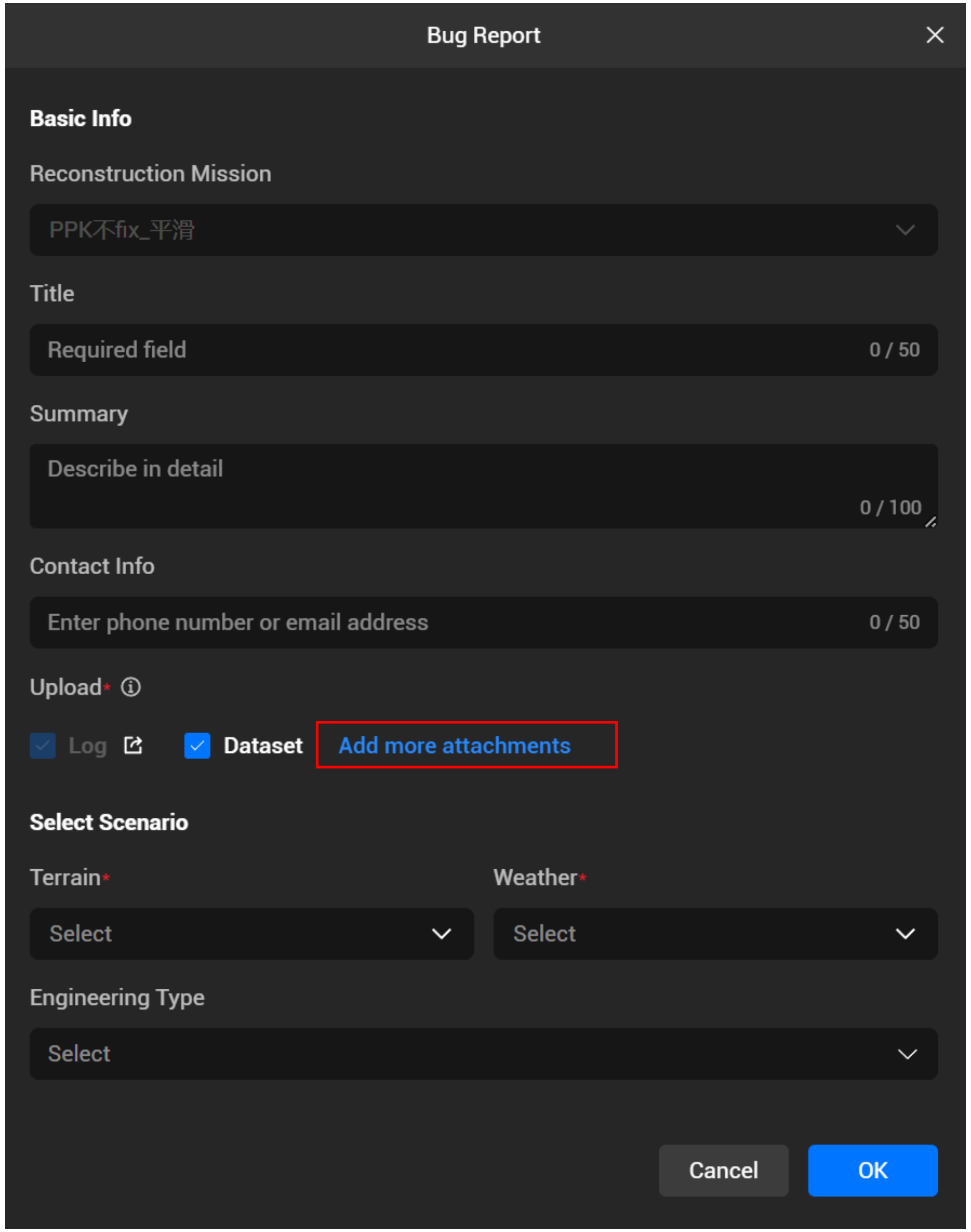
Other Features

- Supports importing HEIF format photos captured by Zenmuse L3 in visible light reconstruction projects

HEIF (High Efficiency Image File Format) is a photo format defined by the Moving Picture Experts Group under ISO/IEC. Compared to JPEG, **HEIF supports higher compression rates, significantly reducing file size and storage space for raw photos.** To support the new HEIF photo format newly added in Zenmuse L3 firmware, DJI Terra now supports direct import and processing of this data.

HEIF offers higher compression while maintaining image quality, reducing storage and transfer costs, ideal for supplementing visible light 2D results in LiDAR projects. Notes: (1) HEIF slightly increases loading time during reconstruction and preview; (2) Currently only supports HEIF data captured by L3.

- Bug reports now support uploading more attachments for more complete and efficient feedback.
- Optimized base station center point parsing rules, improving positioning accuracy stability.
- Optimized 2D reconstruction efficiency for Zenmuse L3 data, accelerating output delivery.



DJI Reality v1.0.0 — A Free Desktop 3D Model Viewer

Free Forever, Zero Cost

No login required, lightweight deployment, instant PC installation. Free professional 3D model viewer for large-scale deployment, significantly reducing viewing and delivery costs

Ultra-Fast Loading, Smooth Browsing

Optimized for point clouds, mesh, and Gaussian models. Smooth loading, perspective/orthographic view switching, and multi-model display with lag-free operation

Massive Scenes, Stable Performance

Supports stable rendering of billion-point clouds and massive mesh models with excellent frame rates. Multi-window browsing for different projects makes large scene viewing more efficient and stable

Professional Presentation

Supports path roaming and offscreen rendering, up to 4K output with seamless loading. Background settings and animation generation for professional model presentations

Ecosystem Integration

One-click jump from DJI Terra results to DJI Reality preview, with project file saving and rollback. Works with DJI Terra and DJI Modify to form a complete Modeling - Optimization - Presentation workflow

Dedicated to providing more efficient, professional 3D model viewing and presentation solutions

DJI Reality v1.0.0

Core Features

(1) Model browsing & rendering enhancements

- Multi-format compatibility: Support the loading and display of point clouds (PNTS/LAS), 3D mesh (B3DM/OBJ) and 3DGS (Terrags)
- Multi-mode rendering: Supports model parameters, rendering mode adjustment, perspective/orthogonal view switching, custom background...

(2) Path roaming

- Supports path drawing and real-time preview, as well as export and import of path files
- Compatible with currently supported model formats and achieve high-quality off-screen rendering

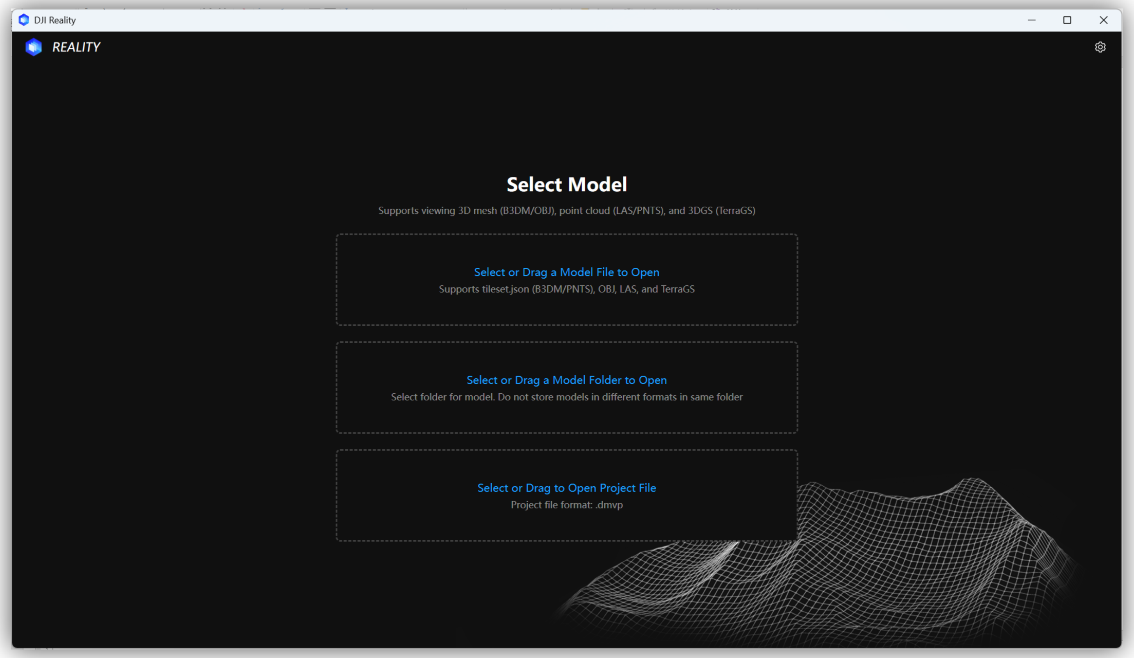
Download

Visit DJI Terra Download page, you can download the installer separate or installation package with DJI Terra.

Precautions Before Use

Model Import

- Support browsing 3D mesh (B3DM, OBJ), point cloud (LAS, PNTS), and TerraGS import
- Support multi-select files or import model files of entire folders with one click
- Support selecting or dragging a model file or folder to open



Compatibility with DJI Terra and DJI Modify Projects

Project Type	Compatibility
Modify Exported Project	V1.5 or above
Terra Reconstruction Project	V3.7、4.3、5.1

Performance

Type	format	Performance support (recommended CPU: i7-14700F Memory: 64G graphics card: RTX4070super + 12G video memory)
Point cloud	PNTS	Frame rate>=30FPS
	LAS	● When < = 1GB (30 million points), the frame rate >=30FPS ● At 1GB ~ 2GB (80 million points), the frame rate is 20-30FPS ● Rendering lag may occur due to the size of the model
Mesh	B3DM	Frame rate>=30FPS
	OBJ	● The maximum model supports 1.8GB obj, and the frame rate is guaranteed to be > = 30FPS ● Usage beyond guarantee may be unavailable due to insufficient memory
GS	TerraGS	Average frame rate 20FPS

Notes

- A project supports loading only one type of data, but supports loading multiple data format of the same type
- Models of the same type can be mixed loaded in different formats, but only the same coordinate system is supported

Browse General Settings

General View Settings

- **Switch perspective/orthogonal view:** Eliminate perspective deformation in orthogonal mode, making it easier to judge the size of objects and observe them accurately.
- **Background settings:** Support background settings for scenes, including solid color backgrounds and sky backgrounds, to enhance the overall rendering effect.

3D Mesh Model View Settings

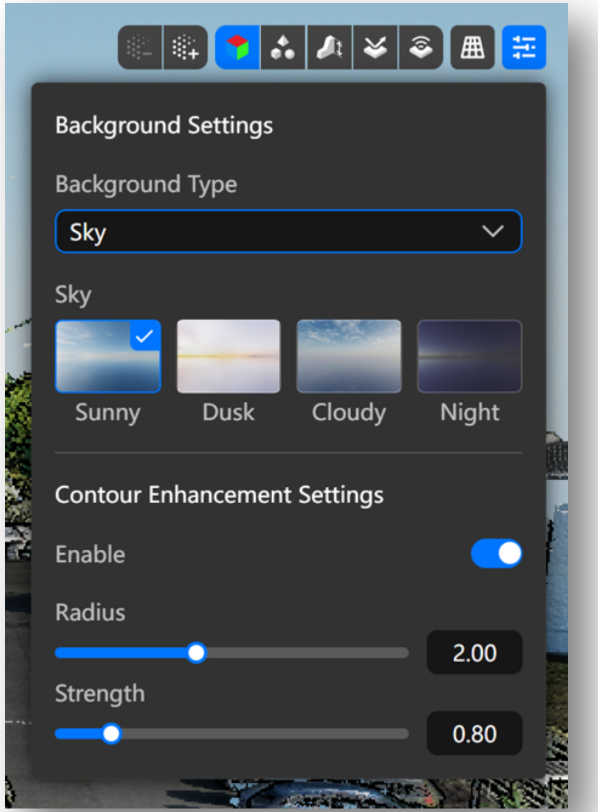
- **Show/hide textures**
- **Show/hide triangular nets**

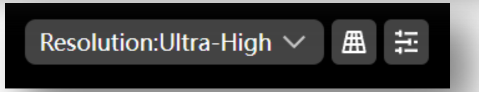
Point Cloud Model View Settings

- **Point Zoom Out/Point Increase:** Click - or + to shrink or zoom in on the point cloud, but note that it cannot be infinitely reduced or enlarged. Note that the larger the points, the easier it will be for interface rendering to freeze
- **RGB**: Display points in RGB color
- **Classification:** Click to view the point cloud based on the classification results
- **Elevation:** When clicked, the point cloud is mapped to a gradient color according to the elevation value
- **Reflection Intensity:** View point cloud colorized based on intensity values
- **Echo**: Display the corresponding color according to the different echo numbers at the time of data collection
- **Contour Enhancement Settings:** Point cloud models support enabling contour enhancement. The larger the radius value, the thicker the line; The greater the intensity, the darker the lines.

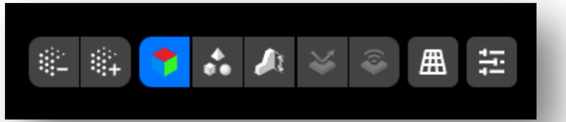
3D Gaussian Model View Setting

- **Resolution:** The default resolution is medium, which can be adjusted to low, medium, high, and ultra high to adjust the realism of complex details.





3D Gaussian Model View Setting



Point Cloud Model View Settings

3D Mesh Model View Settings

Path Roaming

Function description:

After loaded 3D model, DJI Reality supports automatic simulation of multi-angle cruising of the camera based on preset trajectories, and intelligently generates high-quality path animation videos.

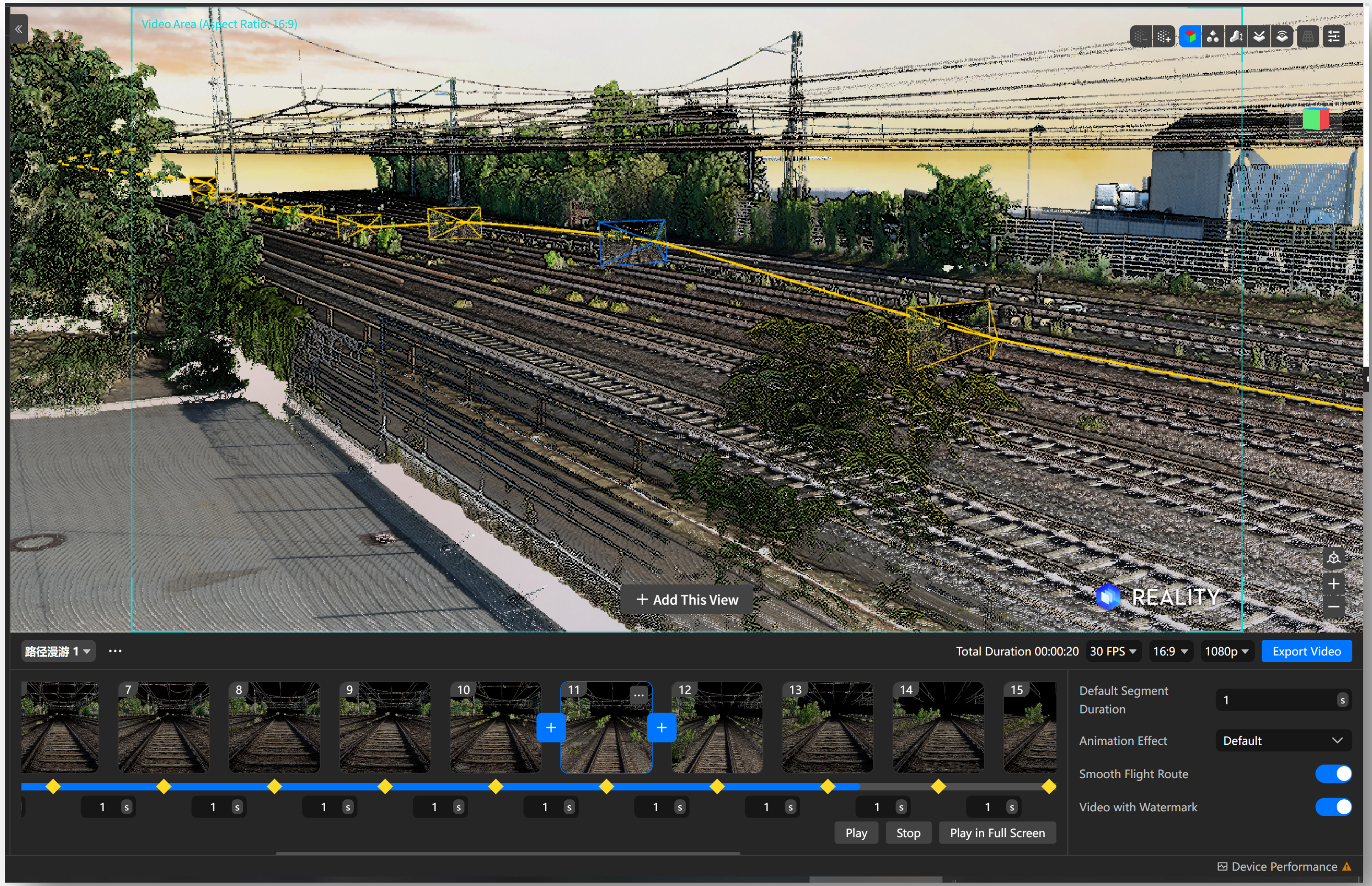
Procedure:

1. Add viewpoints: Browse the model, determine the render trajectory you want to preset, and add custom viewpoints. Once added, the viewpoints position and field of view would be recorded.

2. Adjust the viewing angle and the duration between viewpoints: Users can freely change the viewpoint order, and modify the duration between viewpoints. The default duration of each segment is 6s.

3. Preview the video: The light green border that appears in the main interface is the field of view of the video. After setting the path to roam, click [Play] to preview the video effect.

4. Export video: Once the video is confirmed to be correct, user can select the frame rate, ratio, and resolution and click [Export Video]. user can create multiple paths, and copy, delete, and import paths (in .json format).



Video frame rate: Support 25, 30 and 60FPS

Video aspect ratio: Support 16:9, 4:3 and 1:1

Video resolution: Support 480P-4K

DJI Modify v1.6.0

【New Features】

- Supports drawing a custom cube in 3D mesh models and exporting orthographic projections of any cube face. **Convert 3D models into standard 2D drawings for design and measurement in just a few steps**.
- Supports **merged export of 3D models** in PLY, OBJ, and FBX formats; supports **point cloud model merging** export, reducing data management and usage costs caused by data splitting.
- Supports switching between **perspective** and **orthographic views** in 3D mesh models. Toggle between realistic and engineering views.
- Supports setting **triangle faces and texture simplification ratio** in 3D mesh models, enabling smooth browsing and delivery of large models.
- Supports **invert selection** in the main viewport and cross-section of point cloud projects, quickly targeting areas and significantly improving data filtering efficiency in complex scenes.
- Supports importing and exporting **LAZ** format files in point cloud projects.
- Supports displaying 3D mesh **model coordinate system and position**, allowing direct viewing of spatial position info for alignment, positioning, and result verification.
- Supports **switching display units to feet or meters** in point cloud and 3D mesh projects.
- Supports syncing cross-section measurement markers to the main viewport in point cloud projects.

【Feature Optimizations】

- Optimized efficiency of mesh flattening, deletion, and texture editing in 3D mesh models — approximately **4–5x faster than competitors**
- Optimized display of coordinate system in point cloud projects.

Orthographic Export of Any Model Face

Description

Supports using orthographic projection in 3D mesh models to output 2D drawings of surfaces such as building facades, slopes, bridge sides, and undersides, with real-time preview and export.

Steps

1.In a 3D mesh model project, click **[Orthographic Projection]** in the top toolbar.

2.Draw the orthographic projection:

(1) Draw a cube to define the orthographic projection area:

① Select the top/bottom face of the cube: Click [Left Mouse Button] to start drawing a rectangle, then click [Left Mouse Button] again to finish

② Set the cube height: Vertically [Move Mouse], then click [Left Mouse Button] to confirm

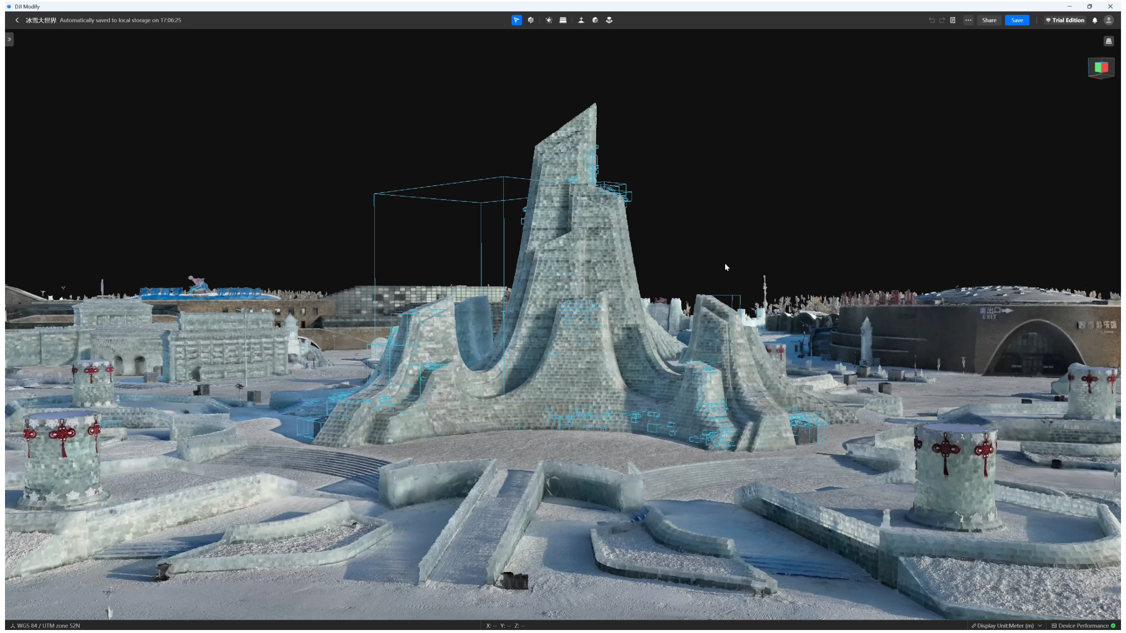
③ Drawing error handling: During drawing, click [Right Mouse Button / Esc] to cancel the current drawing

(2) Adjust cube position and range:

① Hover over an axis, then hold and drag along that axis to translate the cube and adjust the projection area position

② Hover over an axis ring, then hold and drag along that ring to rotate the cube and adjust the projection area angle

③ Hover over an orthographic face, then hold and drag upward or downward to stretch the cube, adjusting the projection depth or width



(3) After drawing, click [Orthographic Face] on the tool panel, preview the result, and export.

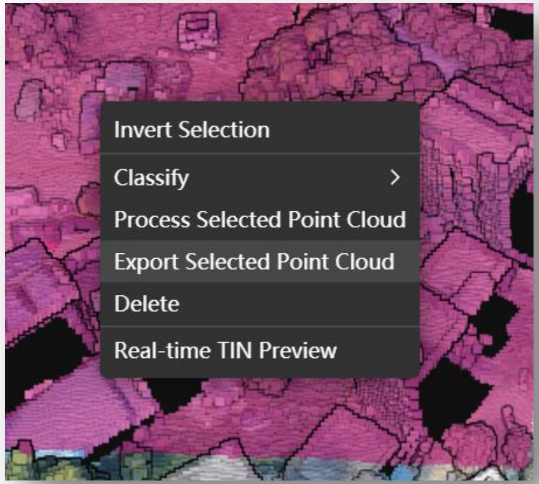
Merged Export Features

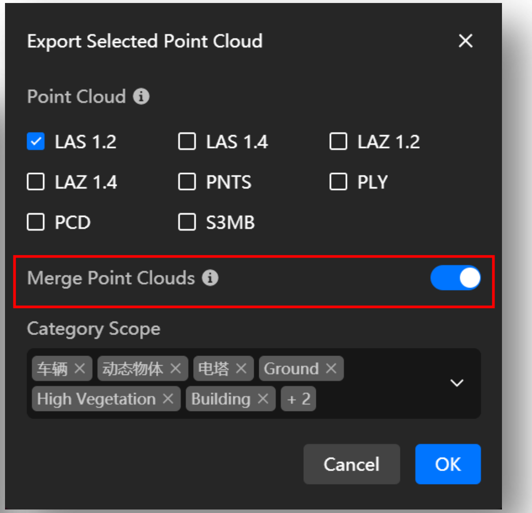
Point Cloud Model Merge

Supports **point cloud merged export**, merging multiple point clouds into a single output file.

Steps

In a point cloud project, select the point cloud area to export, **right-click**, choose [**Export Selected Point Cloud**] from the popup menu, then check [**Merge Point Cloud**].



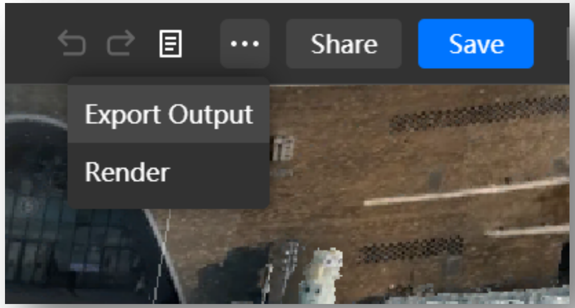


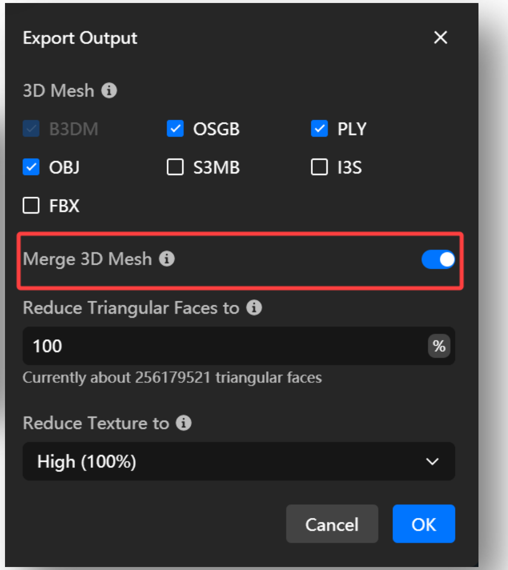
Mesh Model Merge

Supports **merged export of 3D mesh models** in the same format, including PLY, OBJ, and FBX.

Steps

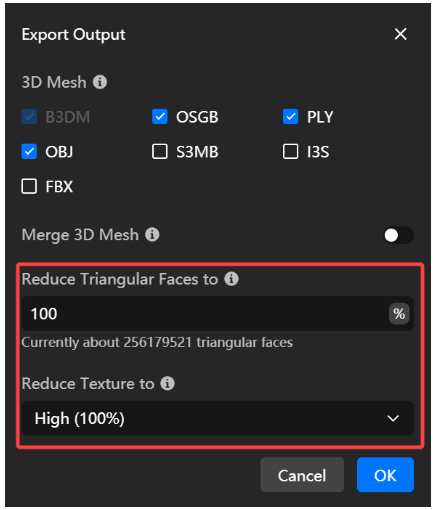
In a 3D mesh project, click [**Export Results**], select the format to merge, and click OK.



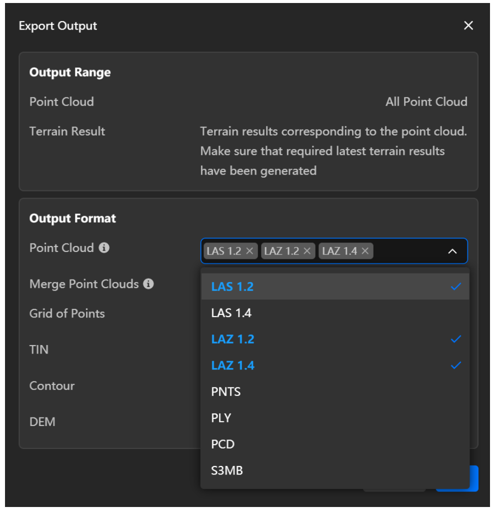


Other Updates

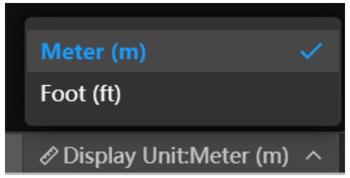
- Supports switching between perspective and ortho views in 3D mesh model viewer.
- Support reduce and simplify model by setting the number of the triangular faces
- Support reduce texture resolution for the 3D mesh models.
- The reverse selection function is supported in the main window and vertical profile window of the point cloud project.
- Support importing and exporting LAZ (1.2/1.4) format in point cloud projects
- Support point cloud and 3D mesh project display units to switch to feet or meters.
- When measure point coordinates and lengths in the vertical profile window of a point cloud project, the marker locations are displayed on both the section and the model.



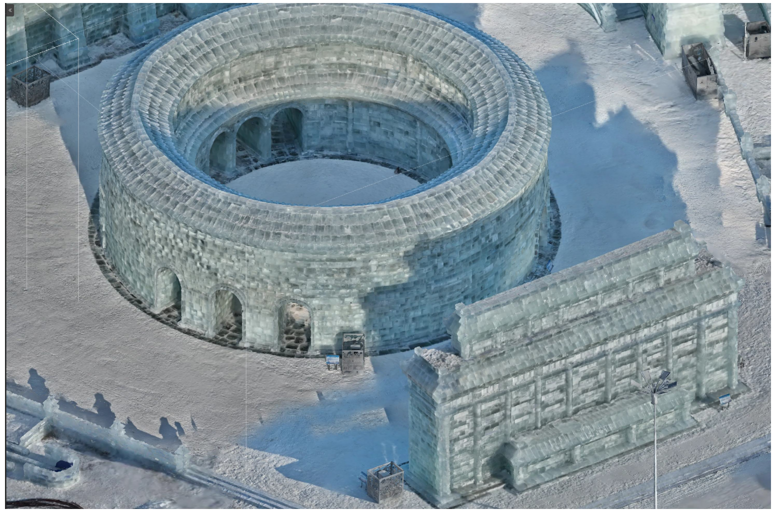
Simplify the model by set the number of the triangular faces



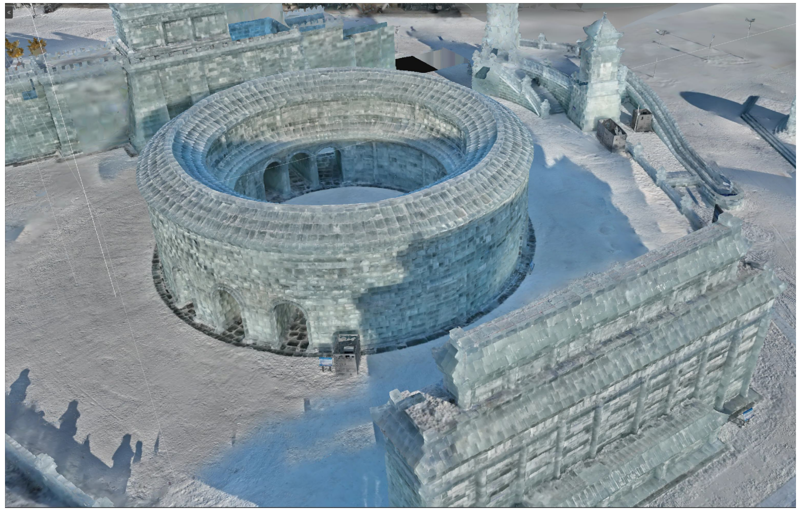
Import/export LAZ format



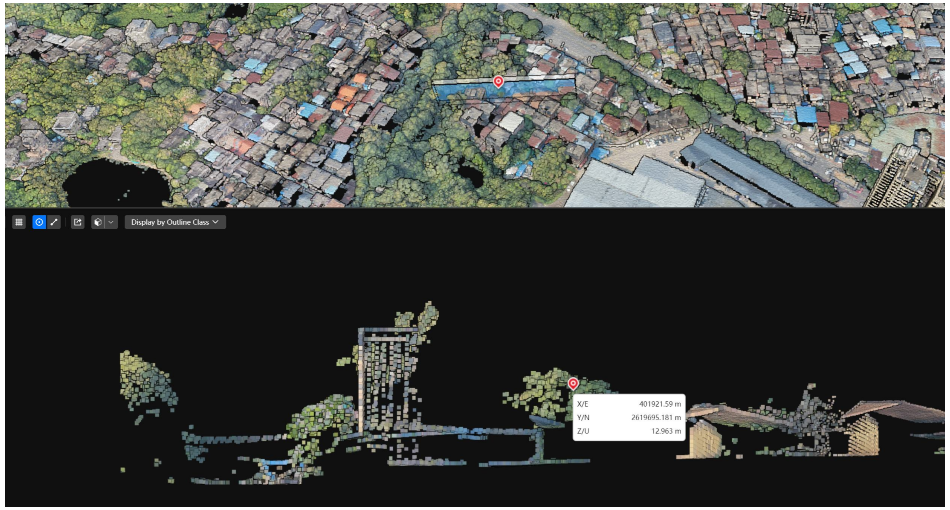
Switch unit between meter and foot



Orth View



Perspective View



The marker positions in the section are displayed synchronously on the model