GreenValley International

LiDAR360 V8.1 Release Note

Map The World In 3D

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• Convert to 3D Tiles

Displaying and even processing point clouds on the web is becoming increasingly popular. Therefore, in earlier versions, we supported converting point cloud or model data into universal or web-specific formats, such as *.obj, *.fbx, *.cityjson, etc. In V8.1, we have added support for 3D Tiles. Now, you can convert point clouds or models into the 3D Tiles format. The related features include the following:

Data Management > Point Cloud Conversion > Convert to 3D Tiles

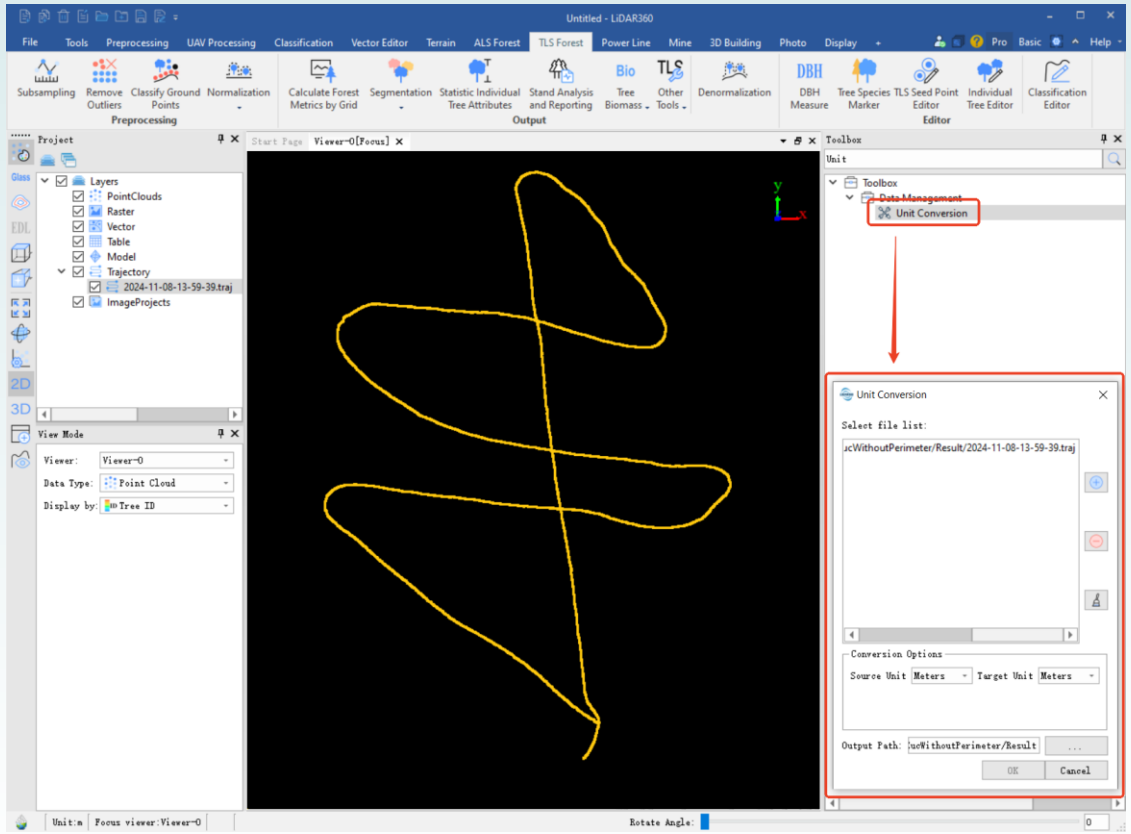
Data Management > Model Conversion > Convert LiModel to 3D Tiles

Data Management > Model Conversion > Convert LiBIM to 3D Tiles

• Trajectory Unit Conversion

In V8.0, we introduced the ability to process data in different units and perform unit conversions. In V8.1, we have optimized the operations related to trajectory file unit conversions. Now, after converting a trajectory file, the WKT information will be recorded in the file, and GridX, GridY, and GridZ will also be converted accordingly.

Usage: Data Management > Unit Conversion



• Classification Editor Optimization

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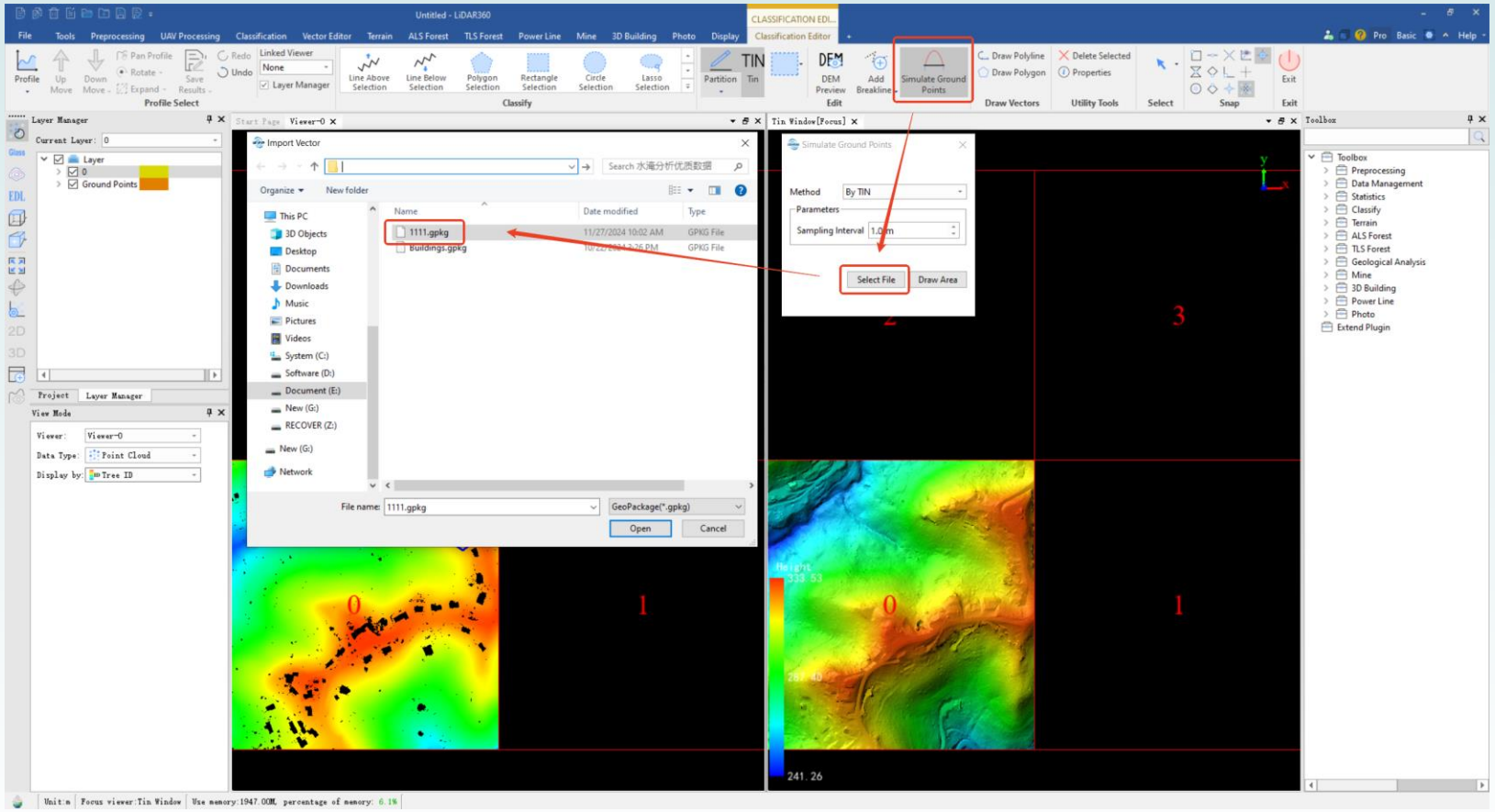
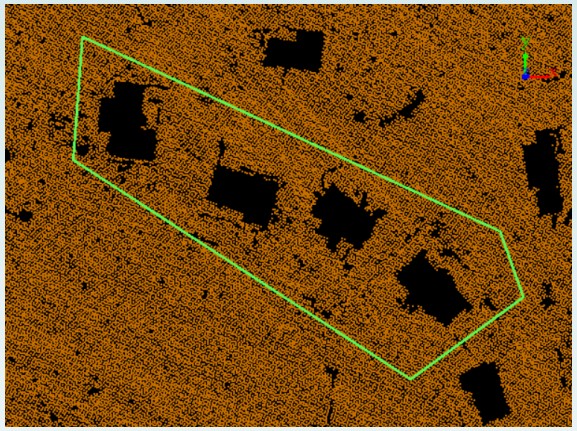
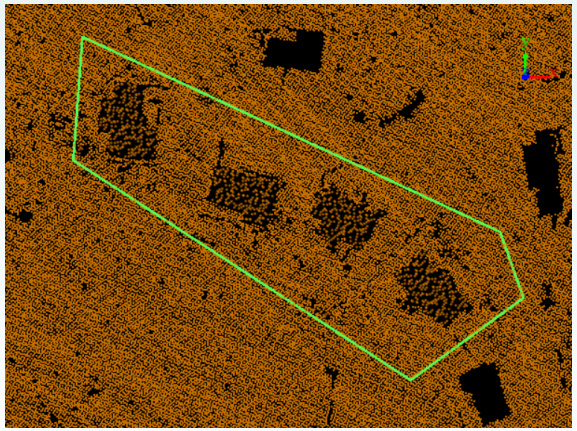
V8.1 introduces a new Simulate Ground Points option. You can import external vectors and select polygon areas for batch simulation. The selected area can be filled in bulk.

Usage: Classification > Classification Editor > Partition > TIN > Simulate Ground Points > Select File







• Deviation Analysis Report

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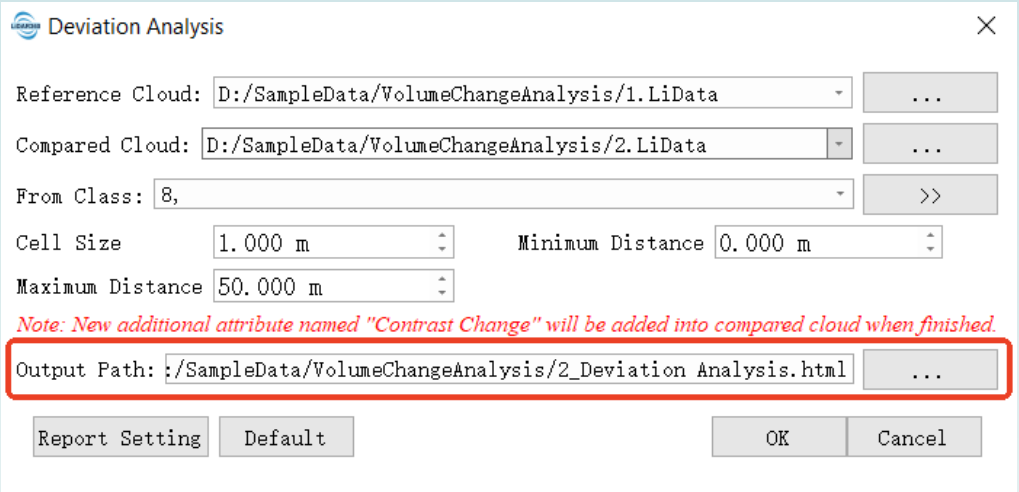


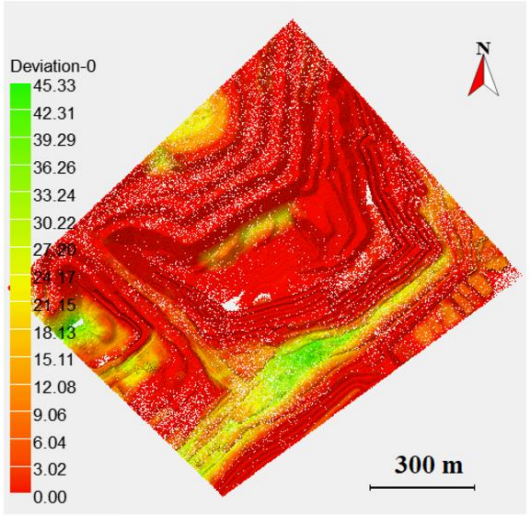
The Deviation Analysis feature calculates the changes between two point clouds. Previously, the results could only be viewed by setting the display to additional attributes. In V8.1, we've added a results report that includes various quantitative indicators and visualization charts. You will see a new "Output Path" option in the feature interface, which specifies the output path for the report.

Usage: Terrain > Deviation Analysis

3D Compare Result

Compared Cloud:	2.LiData
Reference Cloud:	1.LiData
Number of Points	23530324

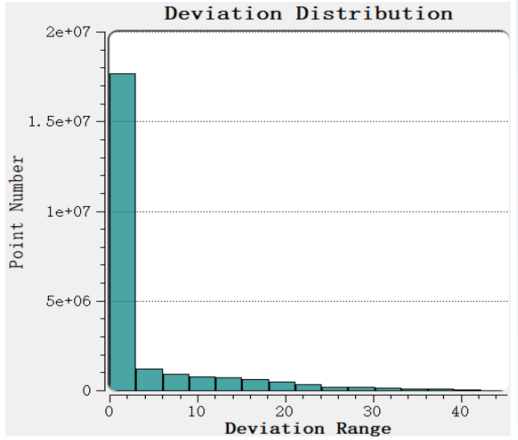
Tolerance Type	3D Deviation
Unit	m
Maximal Critical	50.0000
Minimal Critical	0.0000
Minimal	0.0000
Maximal	45.3343
Mean	3.6455
Standard Deviation	7.3482



Deviation Distribution

>=Min	<Max	Point Number	%
0.0000	3.0223	17687133	75.1674
3.0223	6.0446	1219882	5.1843
6.0446	9.0669	931183	3.9574
9.0669	12.0892	769108	3.2686
12.0892	15.1114	726343	3.0868
15.1114	18.1337	612874	2.6046
18.1337	21.1560	479865	2.0393
21.1560	24.1783	353330	1.5016
24.1783	27.2006	214042	0.9096
27.2006	30.2229	177085	0.7526
30.2229	33.2452	138472	0.5885
33.2452	36.2675	96828	0.4115
36.2675	39.2898	80975	0.3441
39.2898	42.3120	36229	0.1540
42.3120	45.3343	6975	0.0296

Greater Than Maximum	3	0.0000
Smaller Than Minimum	0	0.0000



• LiModel Editor Optimization

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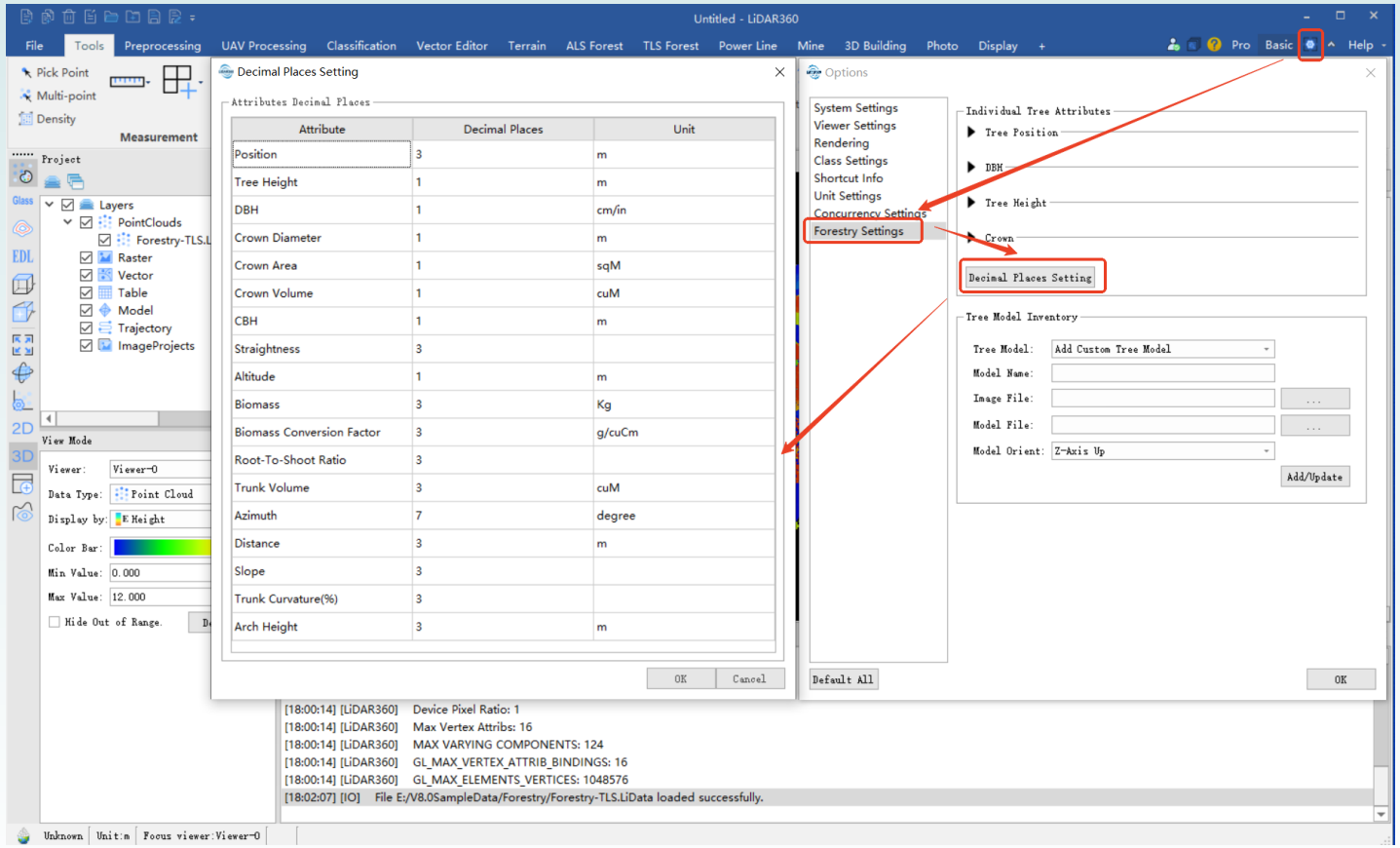
Some operations in LiModel Editor previously could not be assigned custom shortcuts. In V8.1, we've added support for this. Now, you can find the shortcut setting for more tools in the options. The shortcuts for Undo and Redo are fixed, while other tools support custom shortcut assignments.

Usage: Options > Shortcut Info > LiModel Editor

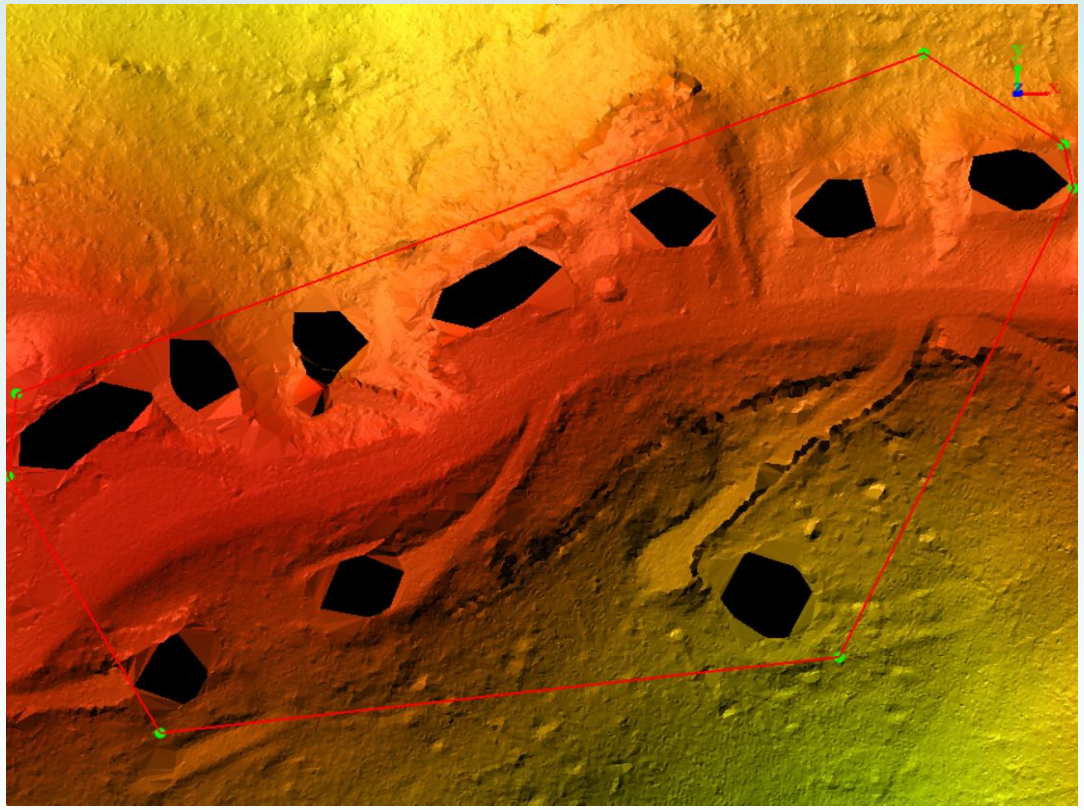


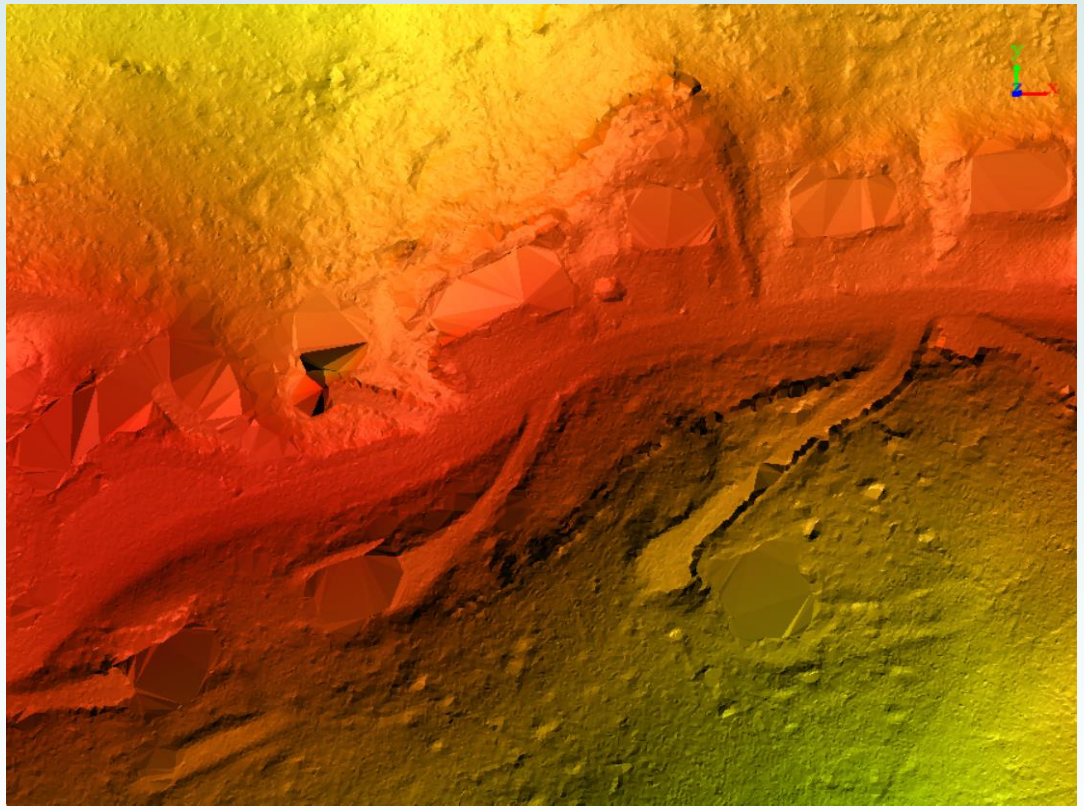
	Operation Name	Shortcut
1	Polygon Selection	
2	Lasso Selection	
3	Screen Selection	
4	Shp Selection	
5	Flatten Height	
6	Smooth Height	
7	Repair No Data	
8	Repair Height by Vari...	
9	Repair Height	
10	Delete Height	
11	Save DEM	
12	Cancel DEM	
13	Undo	Ctrl+Z
14	Redo	Ctrl+Y

• LiTIN Editor Optimization

In V8.0, the LiTN Editor could not fill holes on the TIN, such as those caused by buildings or dense forests. Enlarging the triangle edge length could fill these holes, but it also connected the terrain edges, which may not be the desired result for users. Therefore, in V8.1, we've added a new Fill Hole tool. Now, you can draw a polygon to select multiple holes and fill them all at once.

Usage: Terrain > LiTIN Editor > Start Editor > Fill Hole

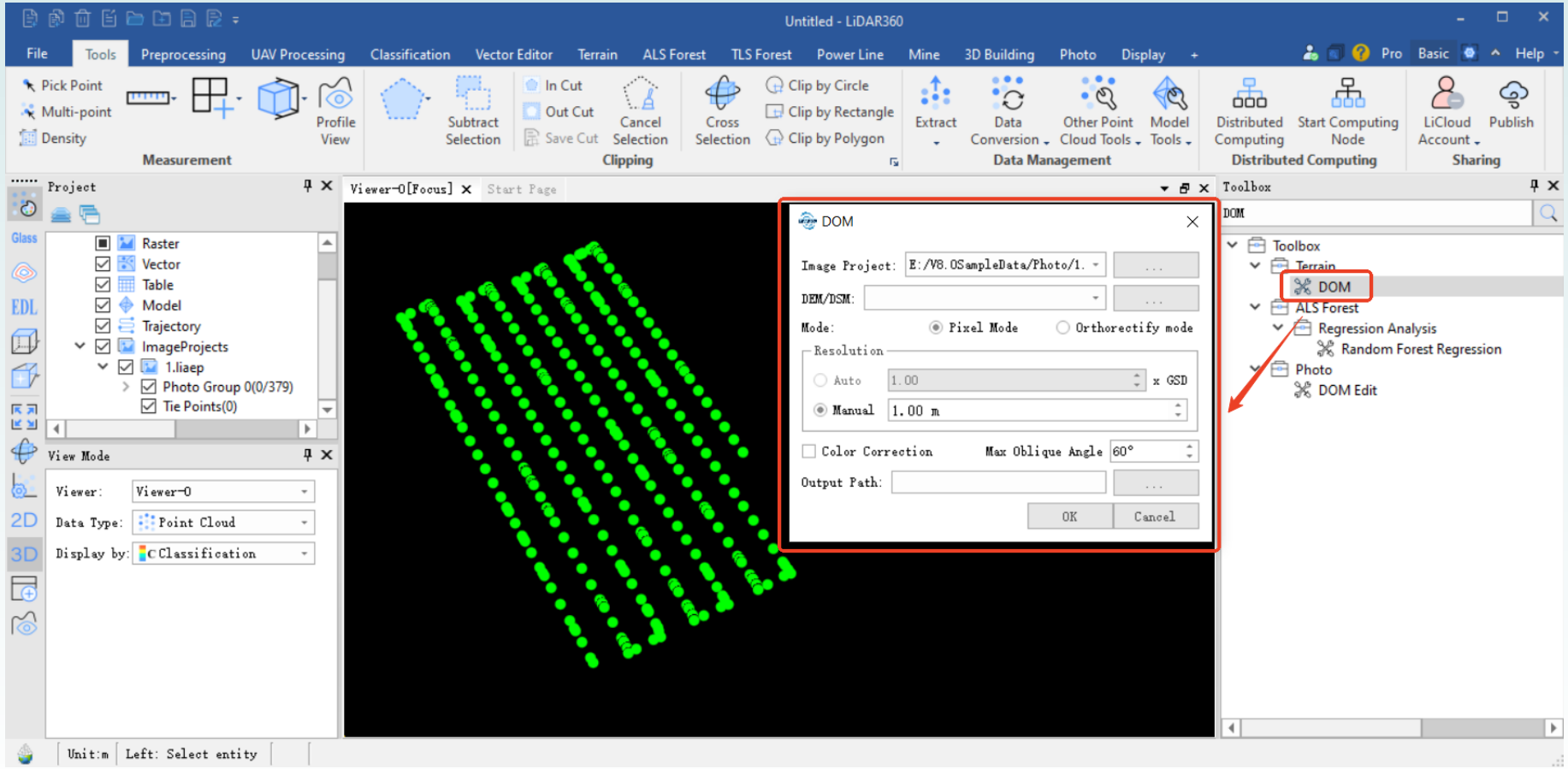




• DOM Optimization

In V8.1, the DOM functionality in the Terrain module has also been optimized. The default parameter settings have been adjusted and refined to ensure better adaptability for most data, producing more ideal DOM results regardless of how the parameters are adjusted.

Usage: Terrain >DOM



• Forestry Decimal Places Setting

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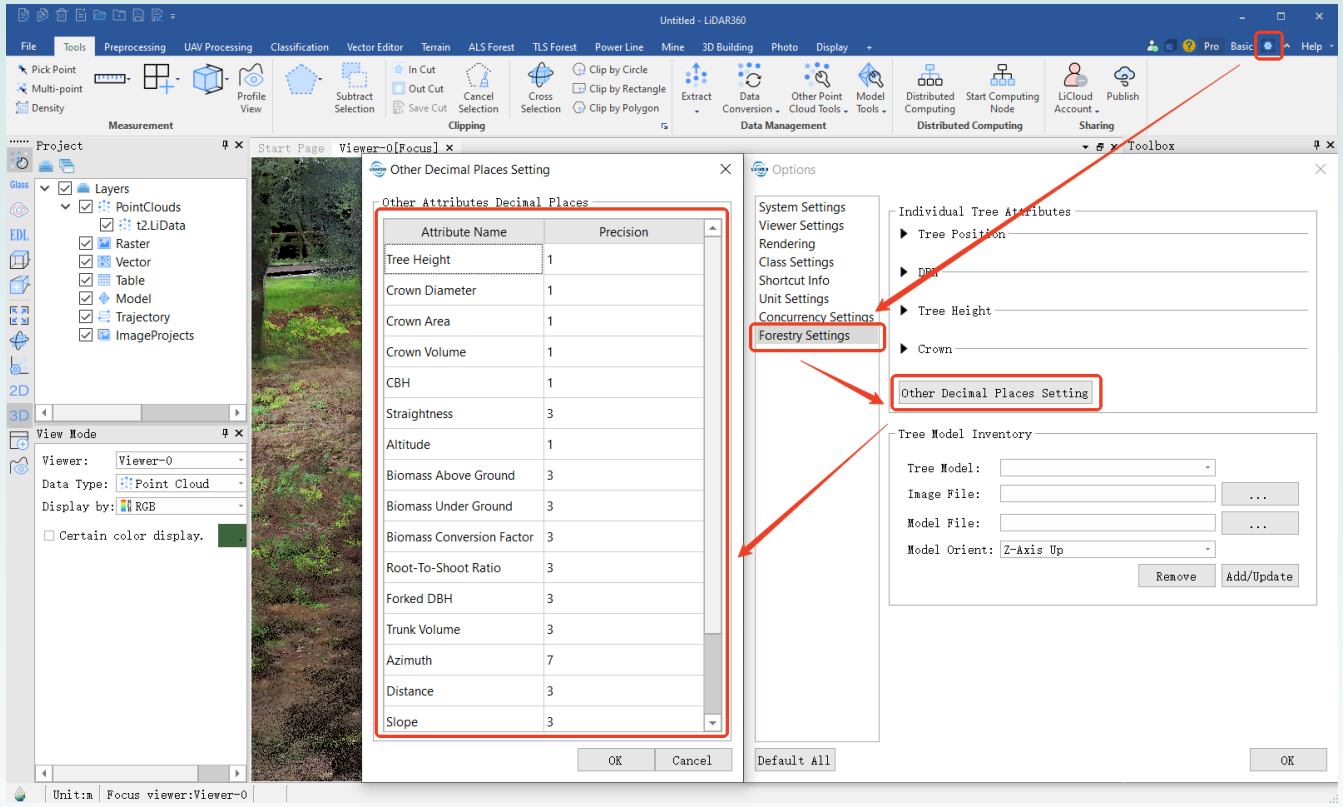

The decimal place requirements for individual tree attributes often vary across different standards; even within the same standard, different attributes may have different requirements.

Therefore, in V8.1, we have added a setting for decimal places in forestry results. Now, you can set the decimal places for any individual tree attribute. After making the settings, when performing individual tree segmentation, statistics, or calculating volume, biomass, etc., the resulting attribute table will ensure that all attributes have the decimal places consistent with your settings.

Usage: Options > Forestry Settings > Other Decimal Places Setting

• Trunk Based Segmentation Optimization

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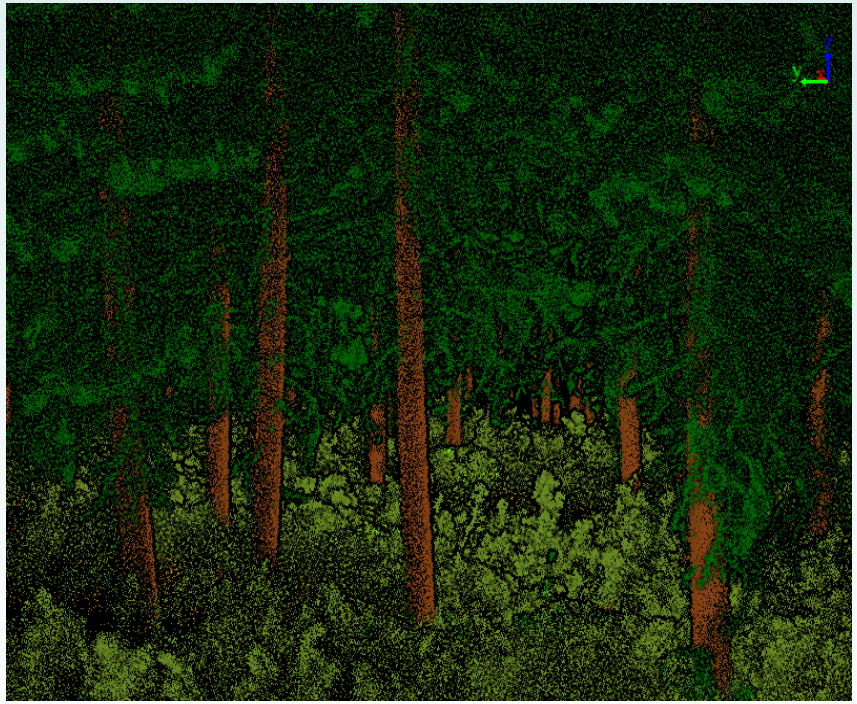
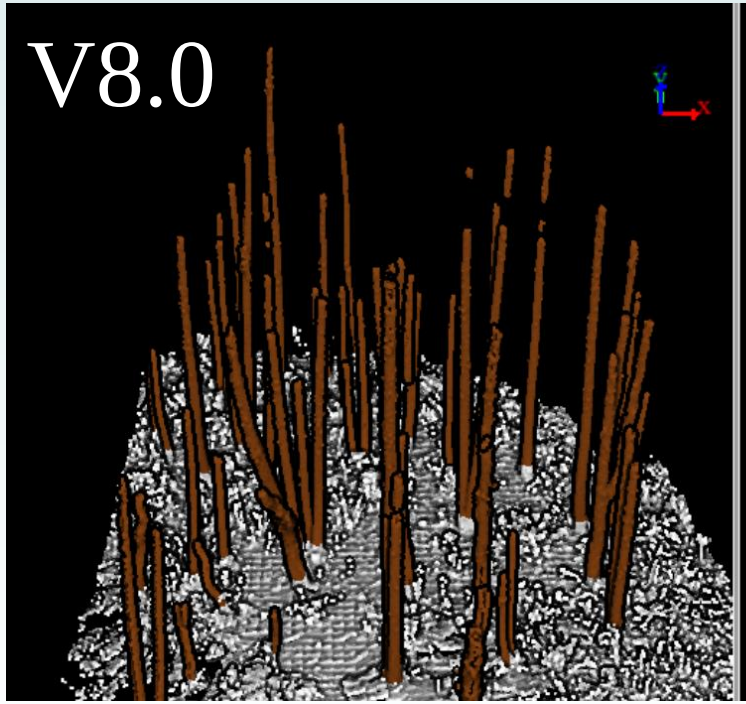
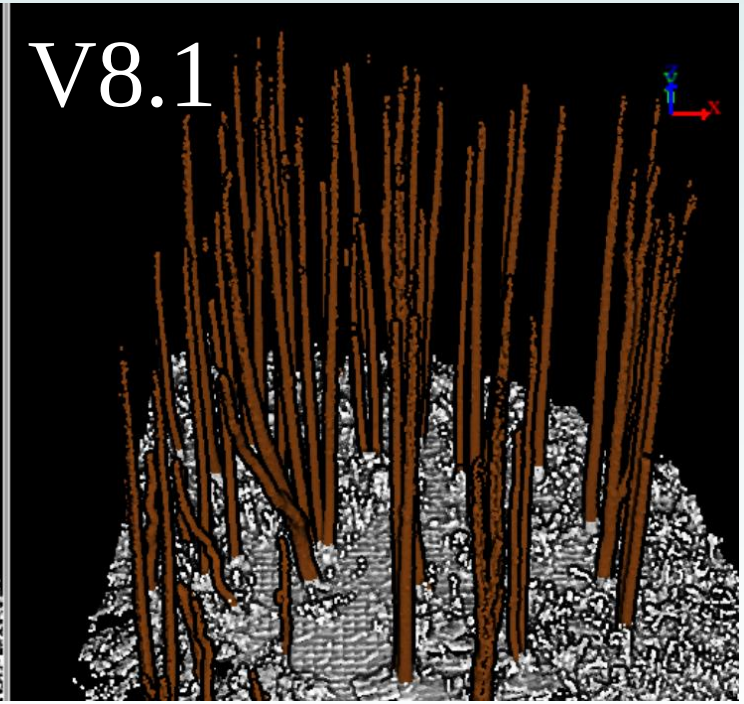
The Trunk Based Segmentation feature allows for extracting the trunks while performing individual tree segmentation, excluding the influence of weeds and shrubs on the tree diameter at DBH. This feature has garnered significant attention in recent versions and has provided users with richer and more accurate results. We are continuously working to optimize it. In V8.1, the trunk classification results have significantly improved, especially for trunks at higher positions, where is the results now more complete.

Usage: TLS Forest > Trunk Based Segmentation







• Seed Point Editor Optimization

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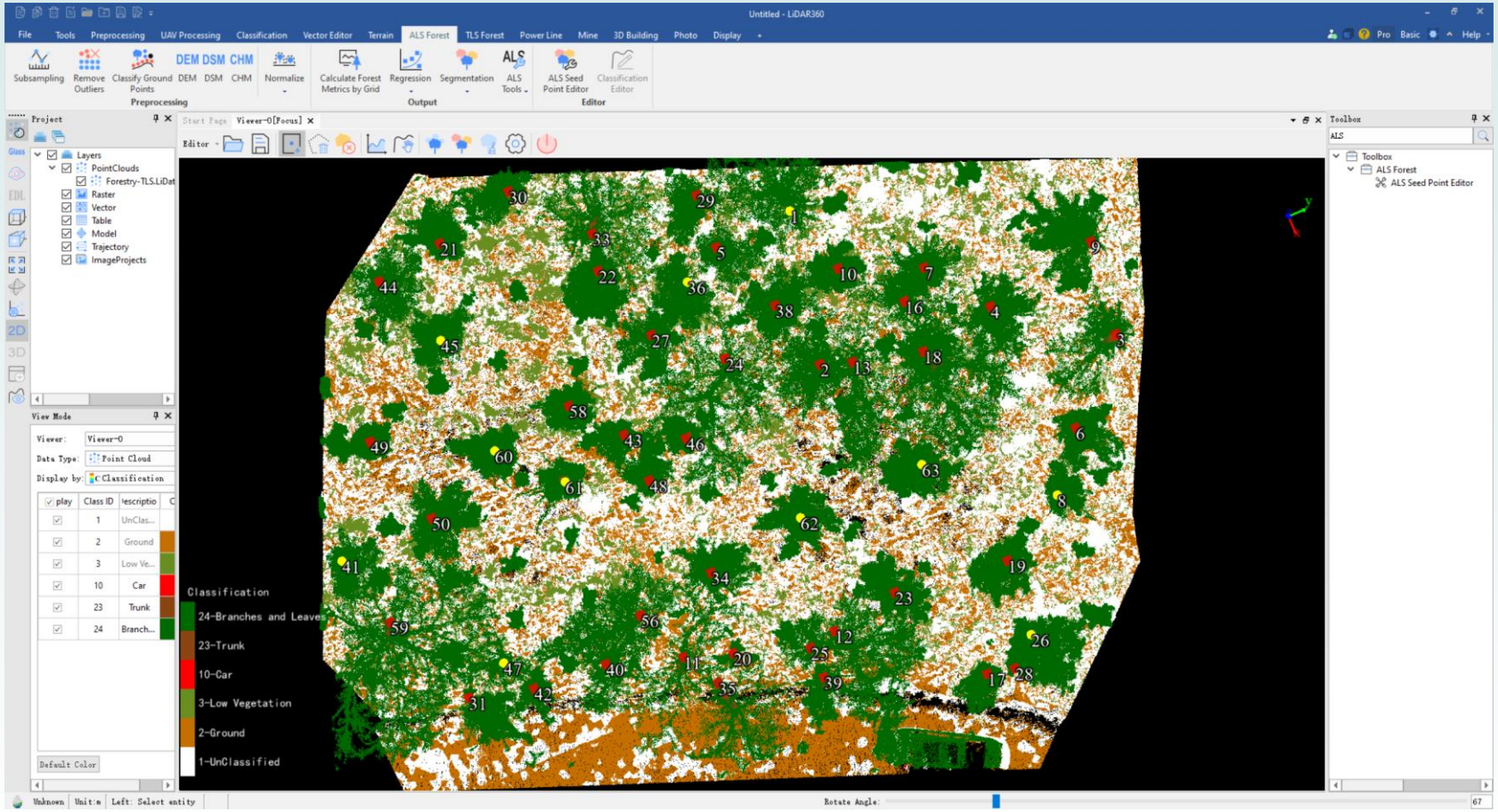
Previously, in the ALS Seed Point Editor, imported seed points and manually placed seed points were displayed in the same color. In version 8.1, we have optimized this, so that imported and manually placed seed points will be displayed in different colors, making the distinction much clearer.

Usage: ALS Forest > ALS Seed Point Editor > Open Seed Points File > Add Seed Points



• Stand Analysis and Reporting Optimization

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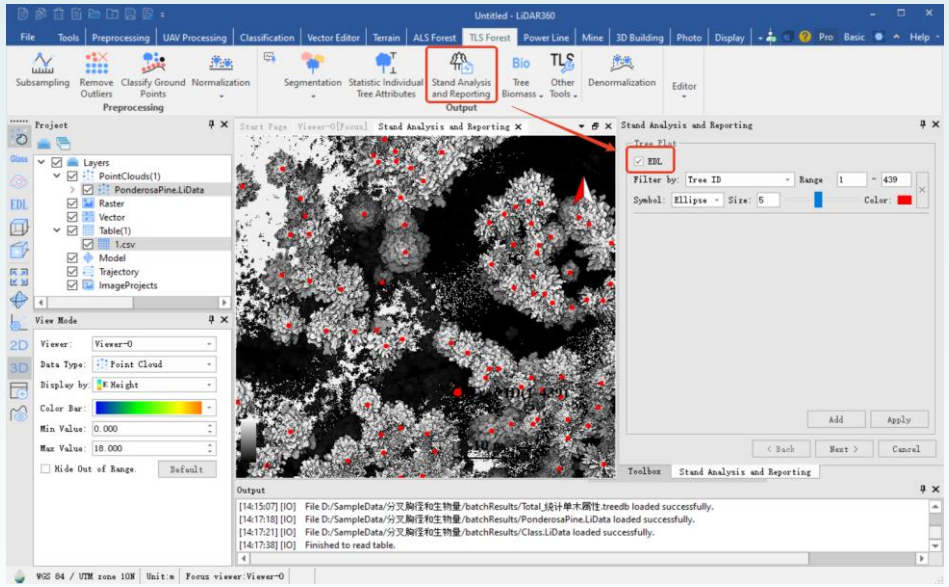
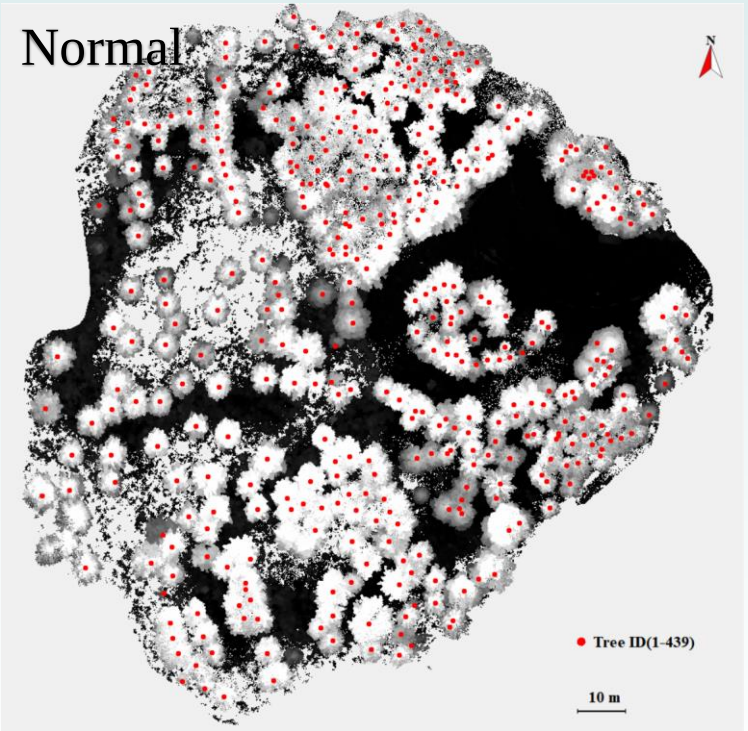
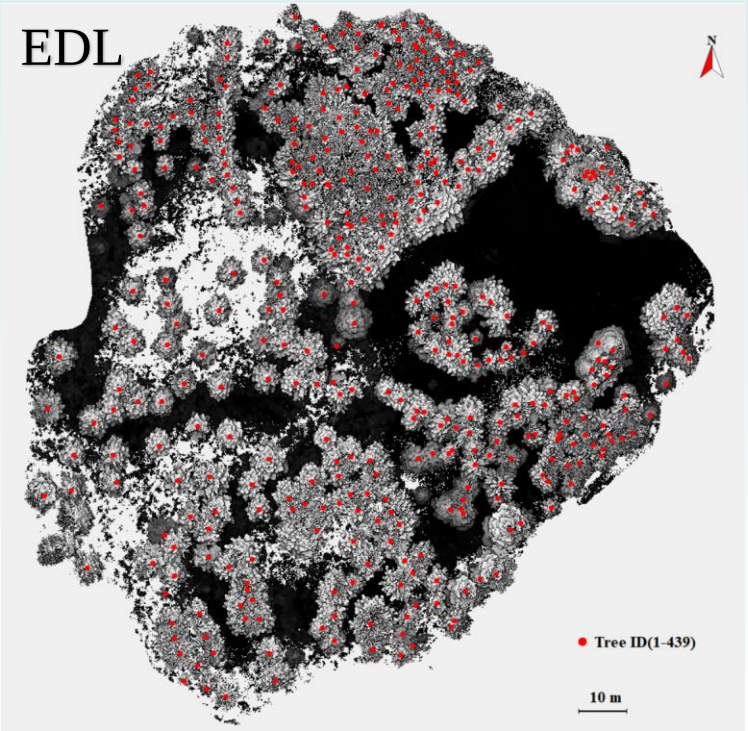
The Stand Analysis and Reporting feature was introduced in V8.0, which generates sample plot map and report. The format of the map is continuously being optimized. In V8.1, we've added an EDL effect to the background data of the sample plot, making the features of the plot more prominent. Click the EDL button in the interface to enable the EDL effect. The report generated with this setting will also include the EDL effect.

Usage: TLS Forest > Stand Analysis and Reporting







• Standing Tree Volume Analysis Optimization

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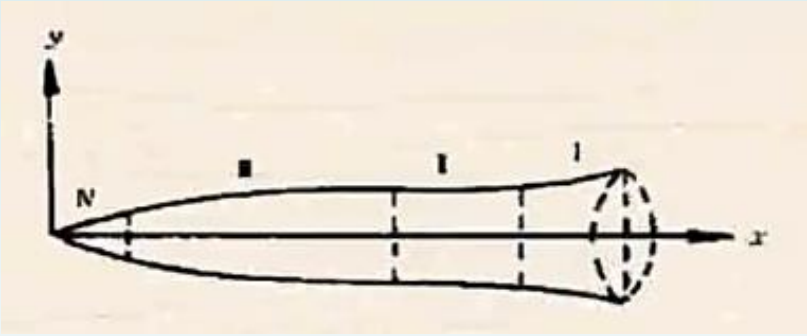
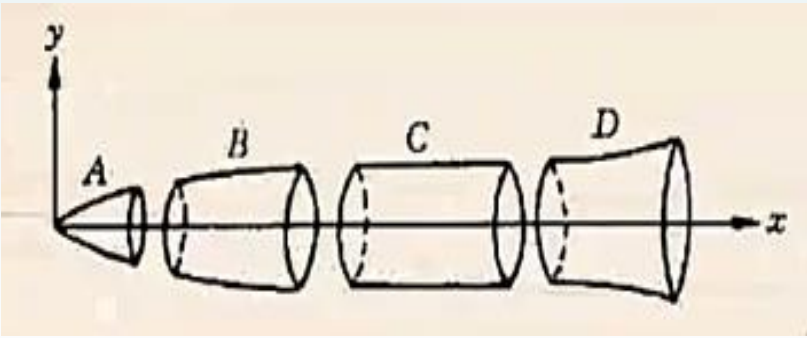
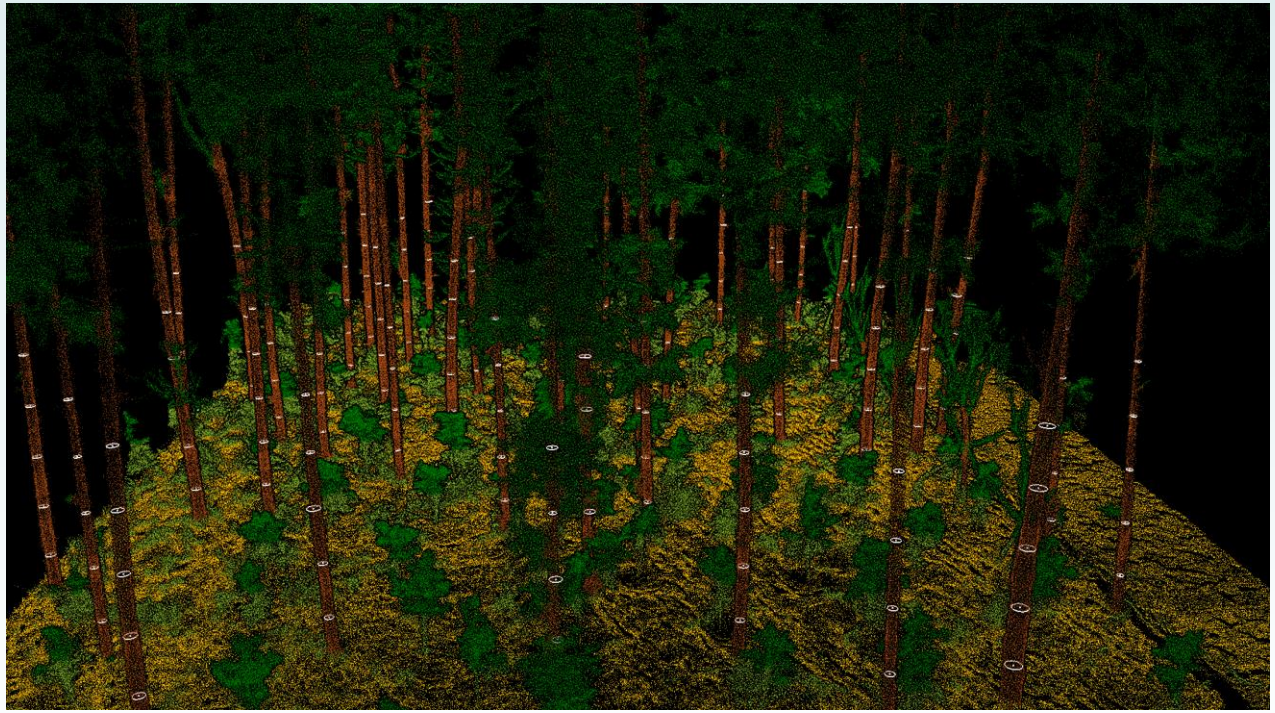
The Standing Tree Volume Analysis feature was introduced in V8.0. Previously, when the trunk could not be detected, the volume calculation would stop. In V8.1, we added the Kunze stem curve to fill the missing part of the trunk, making the cutting and trunk volume result more accurate. Now, even if the point cloud of the trunk at higher positions is missing, this feature will simulate a complete trunk and calculate a more accurate volume.

Usage: TLS Forest > Stand Analysis and Reporting > Standing Tree Volume Analysis







• Match Tree Locations

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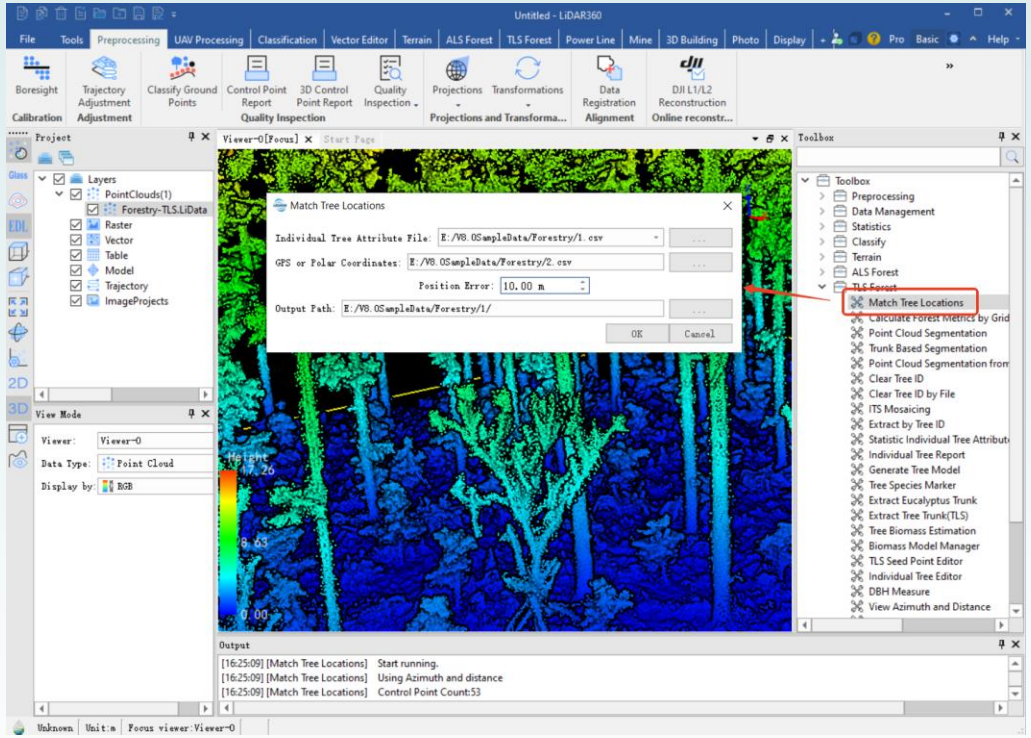
For ancient tree surveys and protection, in a compartment sample plot, RTK coordinate points or polar coordinate measurement data records relevant attributes such as tree species, ages, and other information. Users need to match this information with the individual trees. In V8.1, we've added this tool which can match and merge the survey attributes with the individual tree information into a new file based on relative position.

Usage: TLS Forest > Match Tree Locations



RTKID	RTKX(meter)	RTKY(meter)	RTKZ(meter)	TreeID(data)	TreePosX(data)	TreePosY(data)	TreePosZ(data)
1	64.816	977.503	-298.7	23	-18.196	-24.769	1.298
2	71.455	976.114	-298.698	18	-27.315	-19.546	1.301
3	75.253	988.427	-298.698	3	-24.747	-11.573	1.302
4	72.022	983.889	-298.701	6	-19.334	-14.475	1.289
5	65.033	973.96	-298.699	15	-23.312	-27.008	1.3
6	80.666	985.525	-298.711	3	-24.747	-11.573	1.302
7	69.35	981.9	-298.698	8	-19.331	-16.645	1.303
8	80.669	983.355	-298.697	9	-28.861	-11.005	1.303
9	71.139	988.995	-298.697	6	-19.334	-14.475	1.289
10	67.939	978.459	-298.698	14	-23.139	-21.634	1.3
11	80.806	965.714	-298.698	1	-35.184	-22.497	1.3
12	88.434	973.433	-298.723	9	-28.861	-11.005	1.303
13	71.906	977.457	-298.7	18	-27.315	-19.546	1.301
14	76.861	978.366	-298.7	4	-27.978	-16.111	1.299
15	76.688	972.992	-298.7	7	-30.65	-18.1	1.302
16	70.378	980.547	-298.698	8	-19.331	-16.645	1.303
17	86.612	977.542	-298.699	9	-28.861	-11.005	1.303
18	72.685	980.454	-298.699	3	-24.747	-11.573	1.302
19	82.446	980.264	-298.699	9	-28.861	-11.005	1.303
20	81.498	967.69	-298.692	1	-35.184	-22.497	1.3
21	60.205	963.005	-298.7	32	-25.862	-36.632	1.298
22	63.978	968.854	-298.682	46	-25.197	-30.105	1.229
23	81.804	975.231	-298.702	9	-28.861	-11.005	1.303

• Calculate Forest Metrics by Grid Optimization

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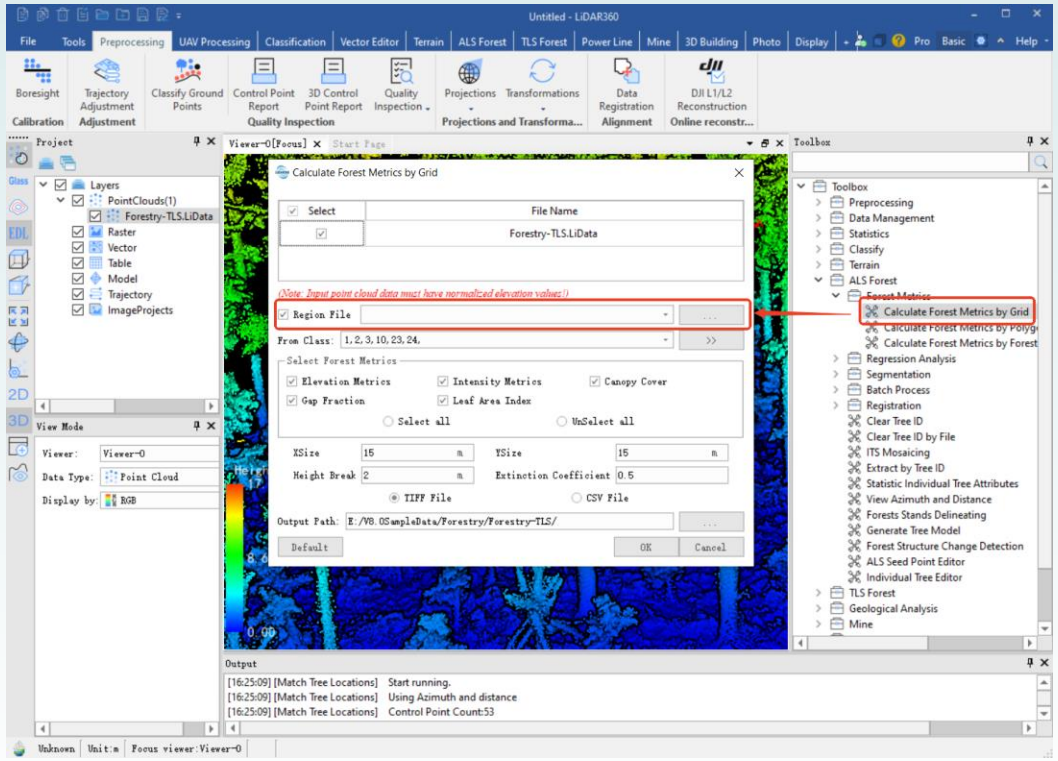
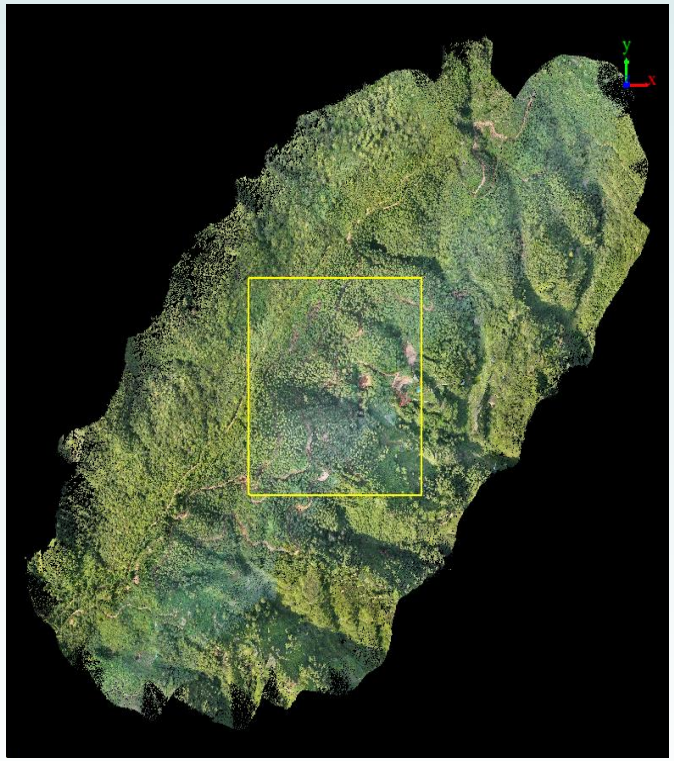
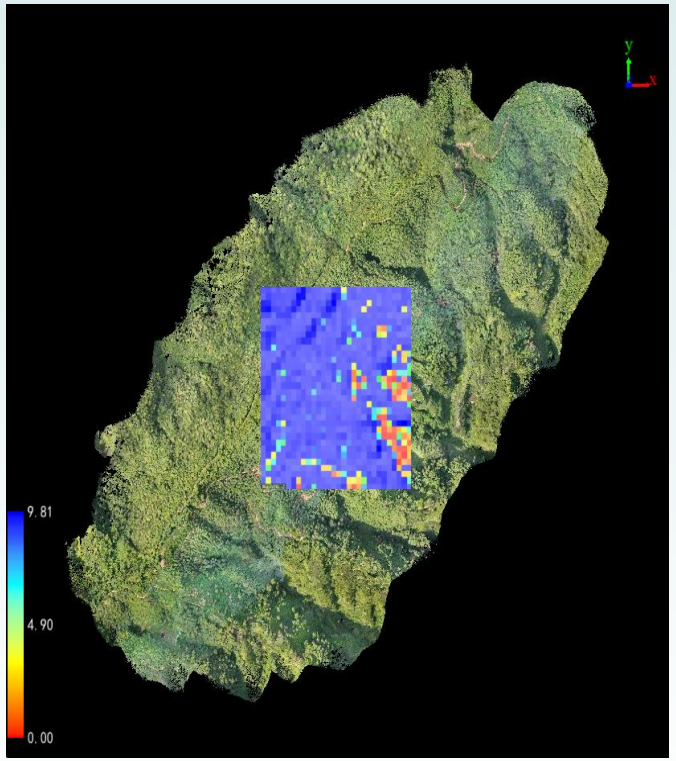
Some users requested the option to input vector files and calculate forest stand parameters within the range of the vector file using a grid-based method. Therefore, we've optimized this feature in version 8.1. Now, you can import vector polygon files directly from the interface, and the software will only use the data within the polygon's range to generate the results.

Usage: ALS Forest / TLS Forest > Calculate Forest Metrics by Grid





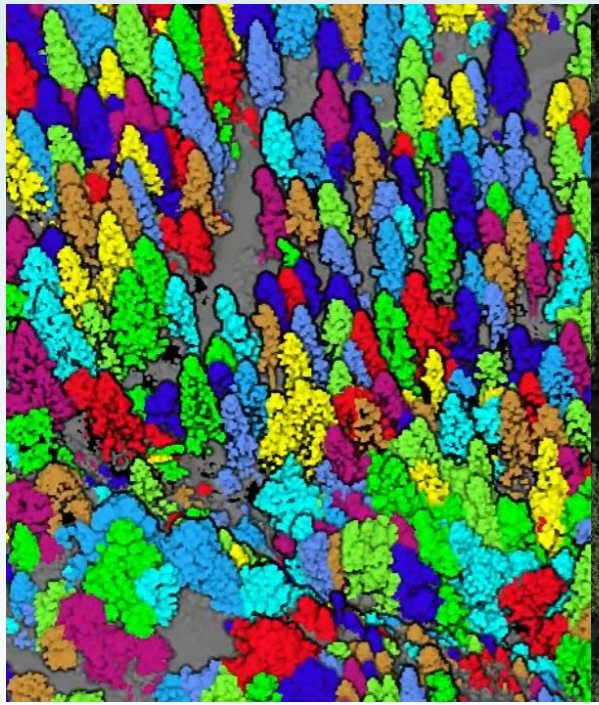


• Tree Model Management Optimization

GreenValley International

V8.0 included models for 70 tree species and supported user-defined models. Previously, models manually added by users might not be retained after software updates. To address this, we've optimized the management of the tree model database in V8.1.Now, you can freely add custom models, and all models will be retained locally in future updates, allowing you to use them directly without having to add them again.

Usage: ALS Forest / TLS Forest > Generate Tree Model

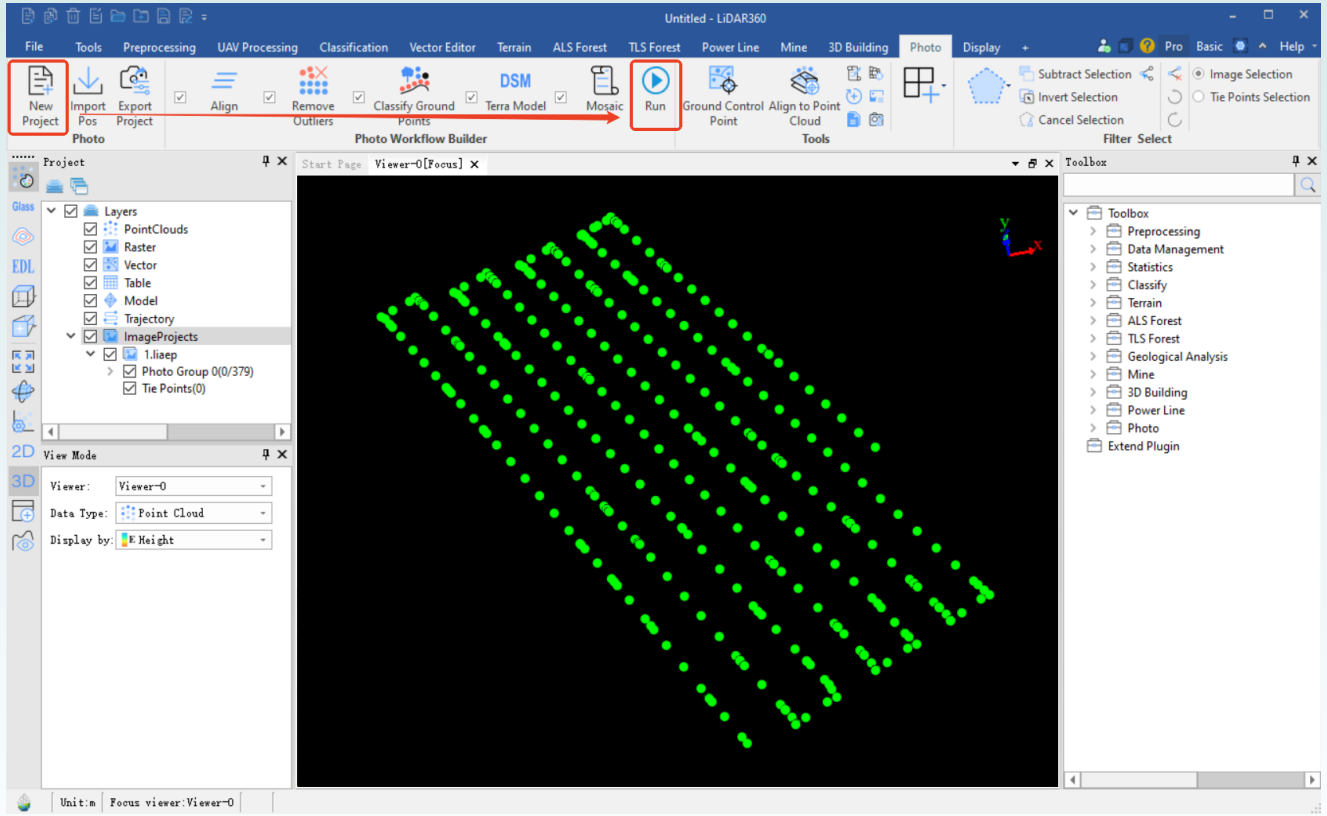


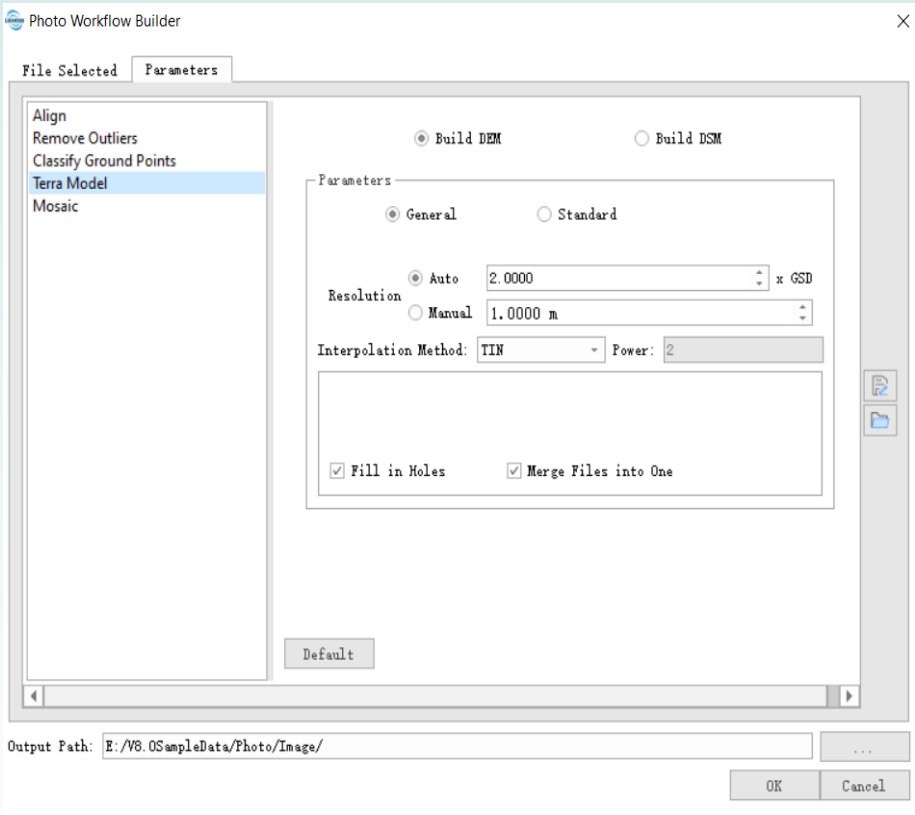
• Photo Module Optimization

GreenValley International

V8.0 introduced a workflow for generating DOM, but the results with the default parameters may not have been ideal. Therefore, in V8.1, we have optimized this workflow. Now, the default parameters for generating DOM in the workflow will produce optimal results in most cases.

Usage: Photo > New Project > Photo Workflow Builder



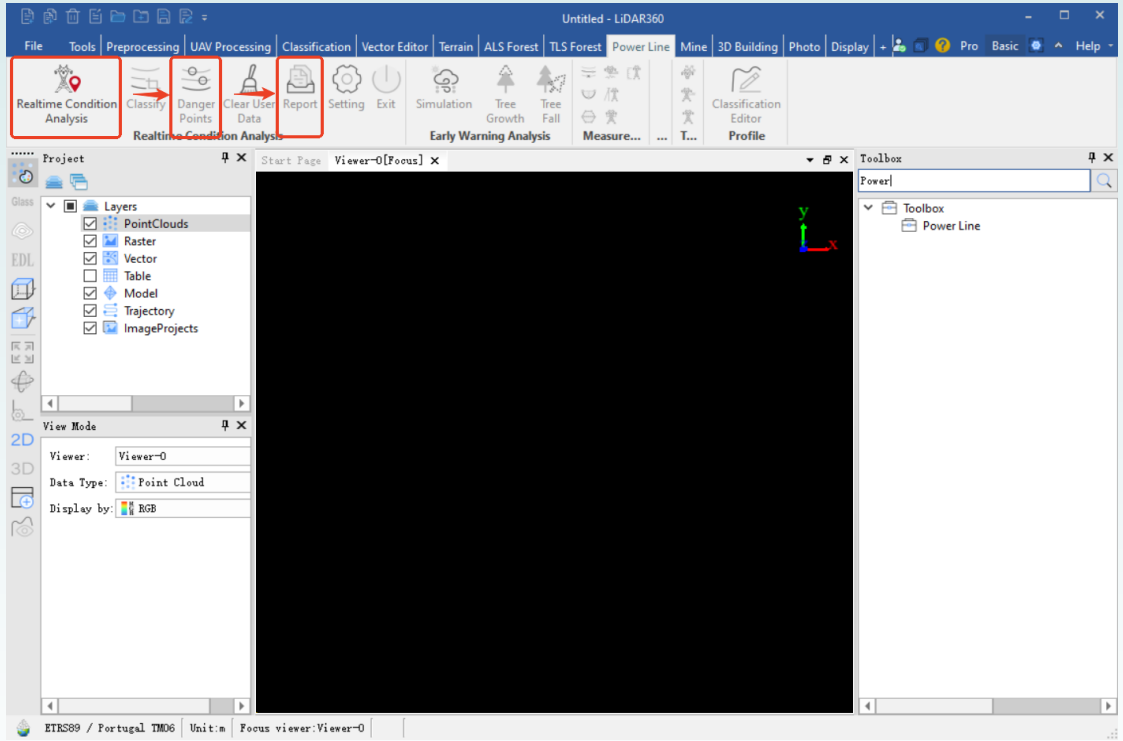


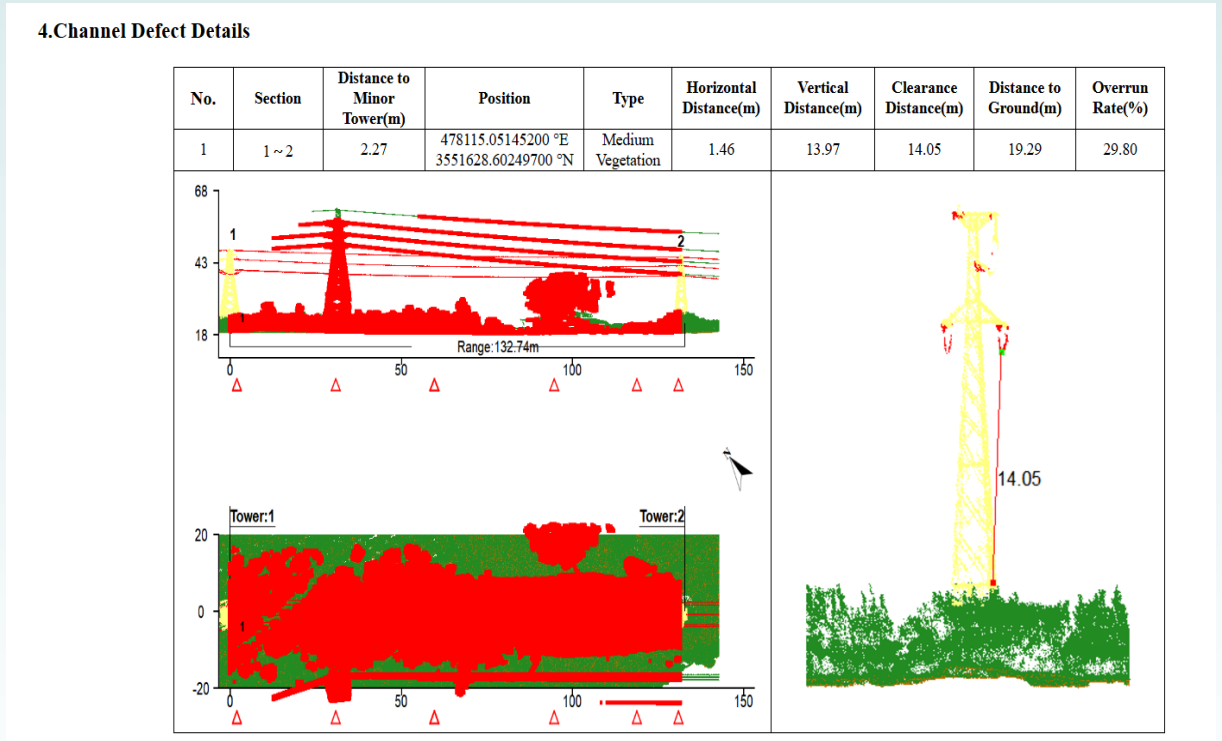
• Danger Points Report

GreenValley International

Previously, the hazard point analysis feature in the power module could only generate results in txt format, which lacked sufficient visualization. Therefore, in V8.1, we have added a dedicated report for this feature.

Usage: Powerline > Realtime Condition Analysis > Danger Points > Report

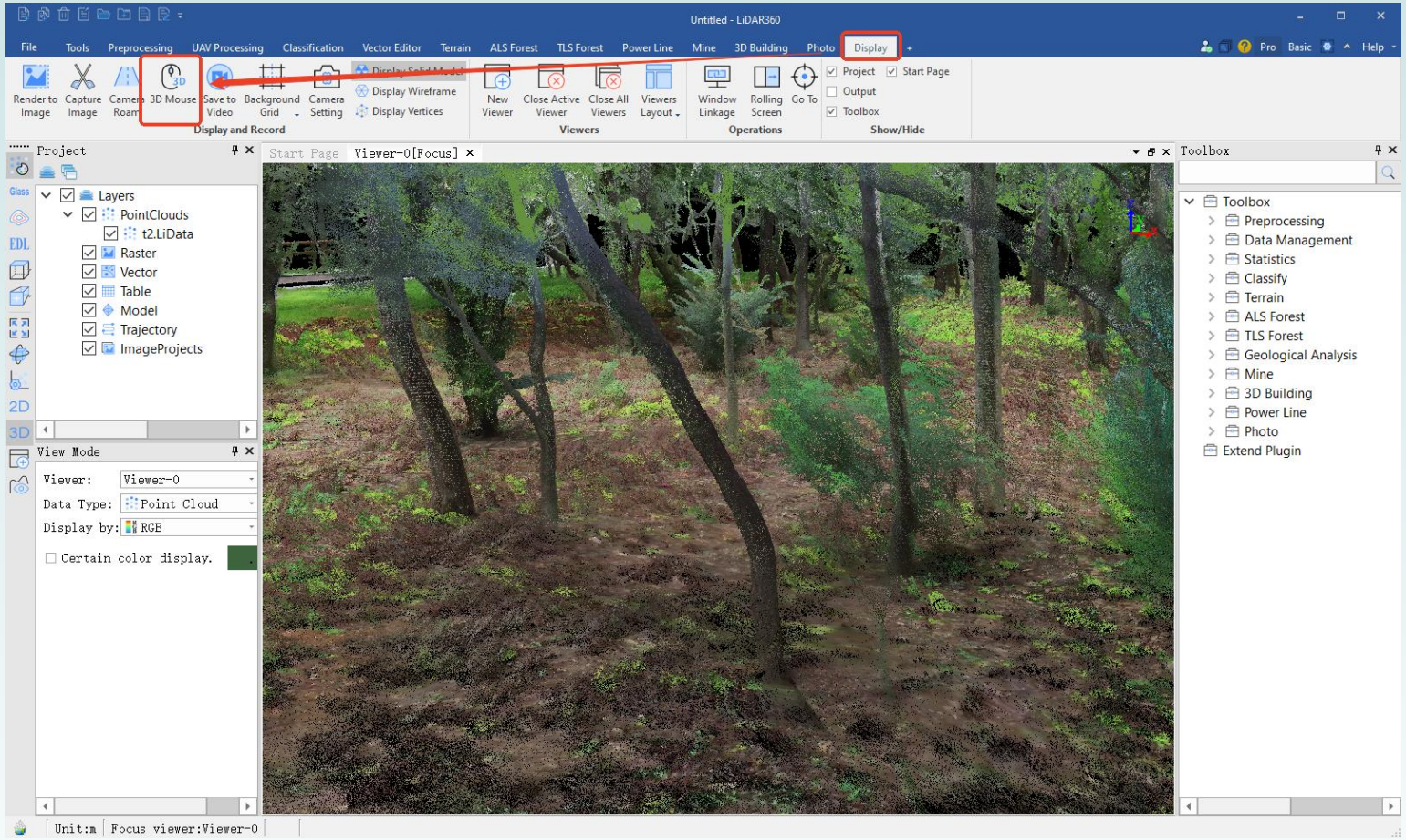




4.Channel Defect Details

No.	Section	Distance to Minor Tower(m)	Position	Type	Horizontal Distance(m)	Vertical Distance(m)	Clearance Distance(m)	Distance to Ground(m)	Overrun Rate(%)
1	1 ~ 2	2.27	478115.05145200 °E 3551628.60249700 °N	Medium Vegetation	1.46	13.97	14.05	19.29	29.80

• 3D Mouse Support



The 3D mouse provides more natural control for data navigation and other functions, and its ergonomic design is increasingly recognized by more customers. Therefore, in V8.1, we have added support for the 3D mouse. Now, you can enable the 3D mouse operation.

Usage: Display > 3D Mouse

• Trajectory Management Optimization

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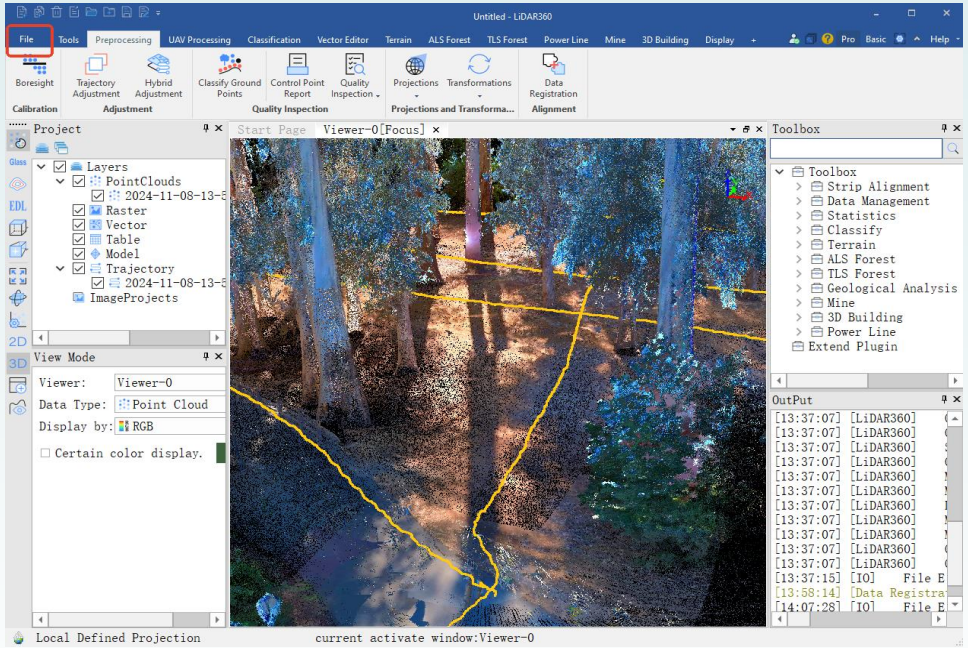
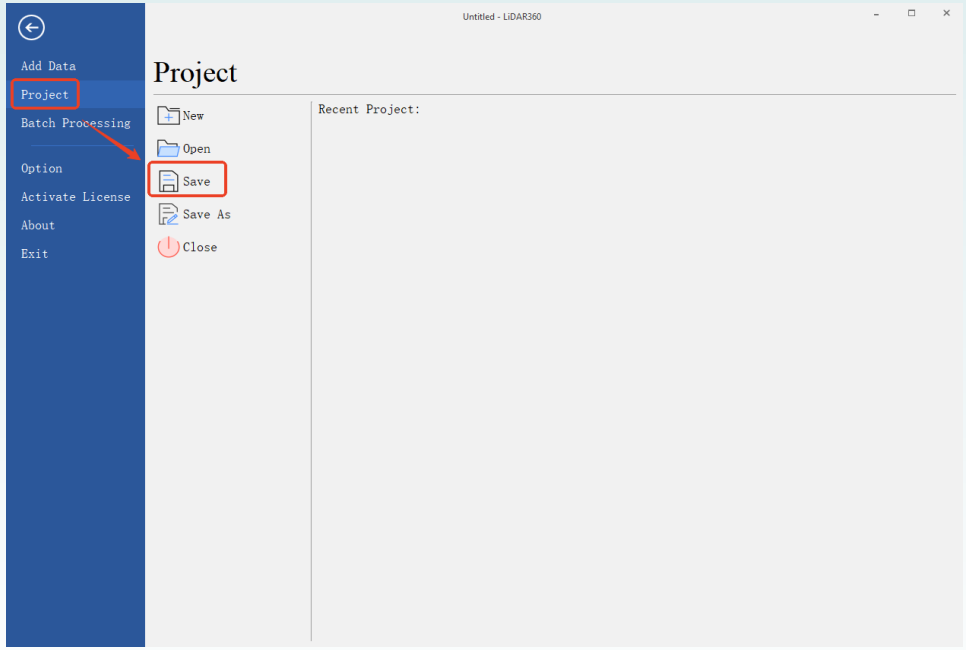
When you import a trajectory file, the parameter settings window would pop up each time, leading to repetitive actions. Therefore, we've optimized this in V8.1. Now, after successfully importing a trajectory file, you can save the entire project as a *.liprj file. When you open the *.liprj file again, the data and settings will be loaded, and your previous settings will be retained, so you won't need to reselect the parameters for the trajectory file.

Usage: File > Project >Save

File > Project > Open

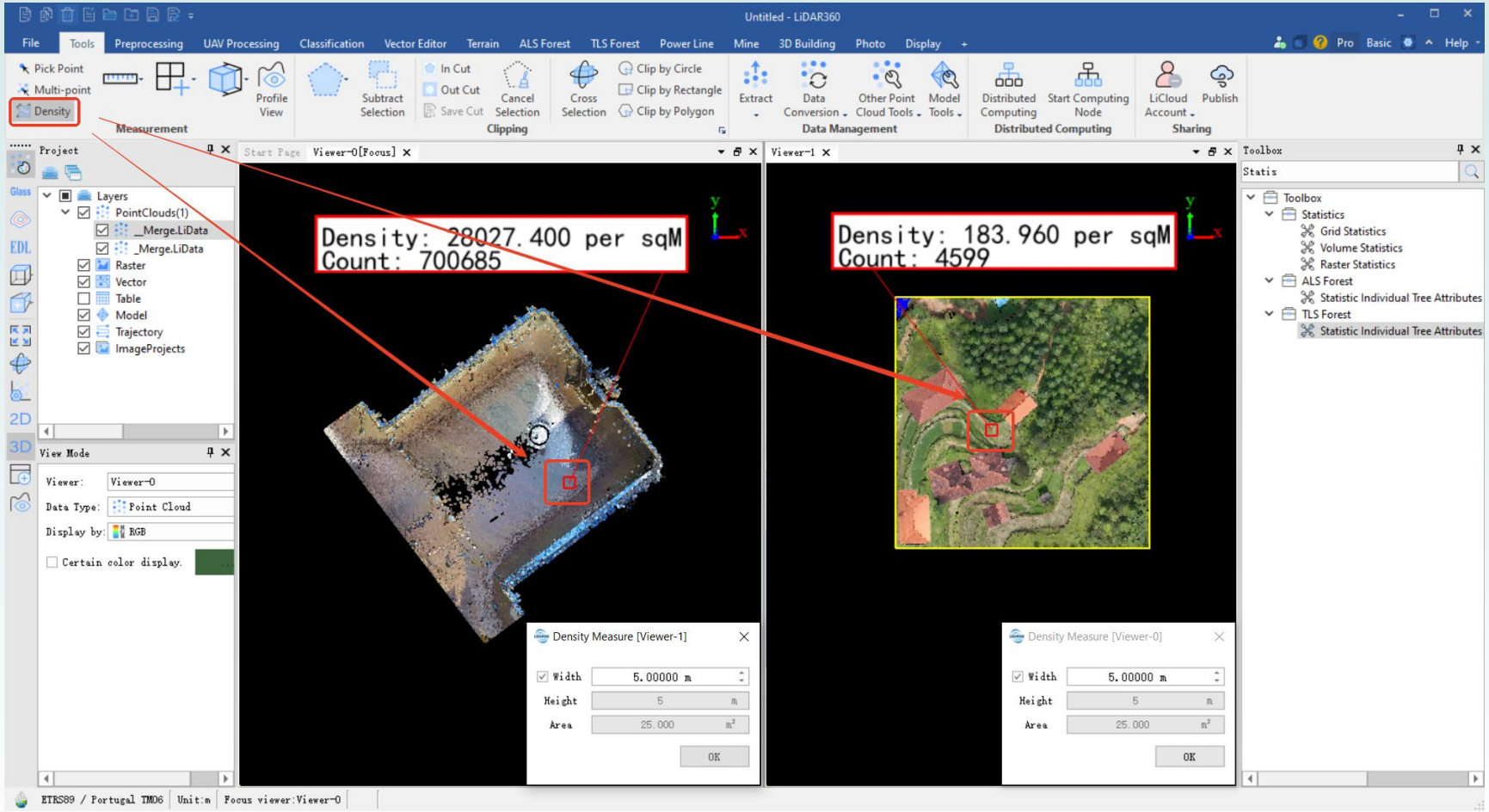




• Density Measurement Optimization

GreenValley International

Previously, when multiple windows were open in the software, various measurement tools could be used in all windows, except for the density measurement tool. In V8.1, the density measurement tool can now be used in multiple windows.



• Attributes Table Export Optimization

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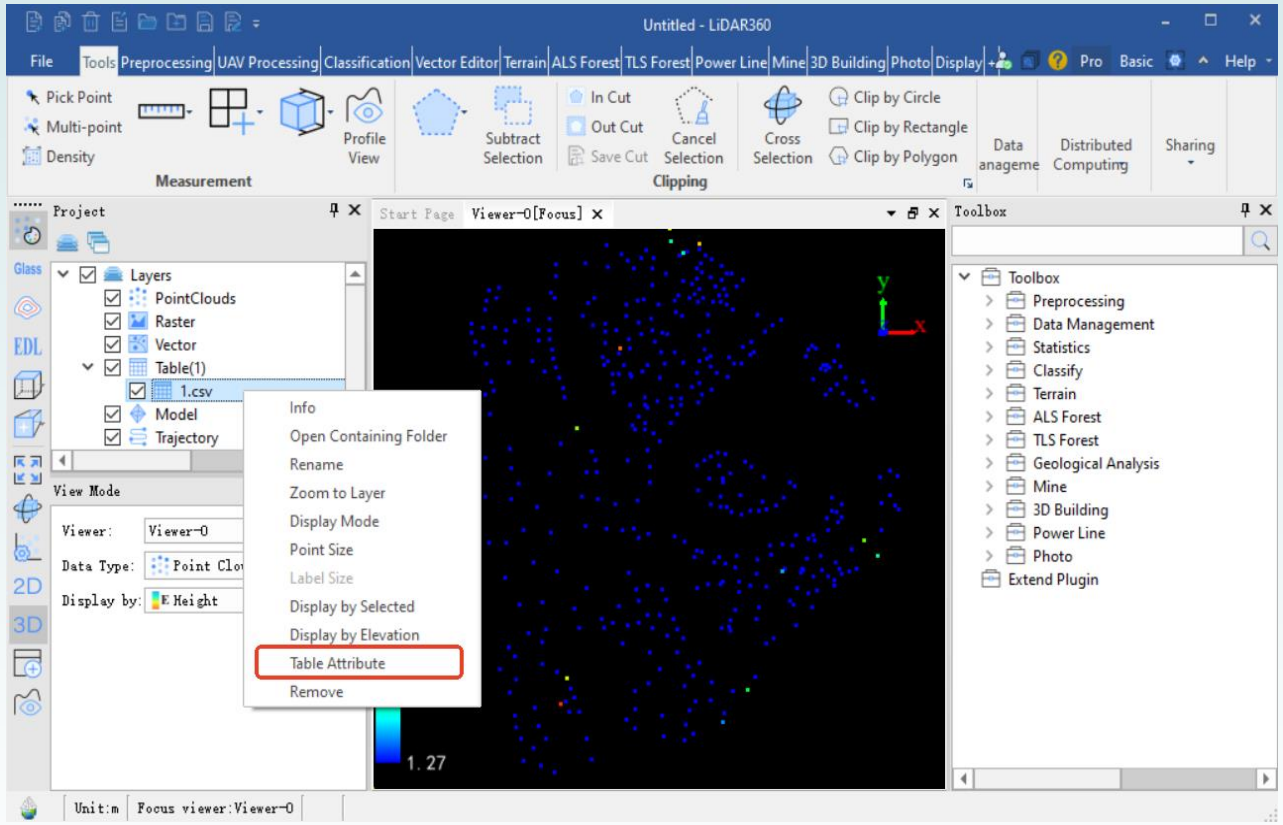
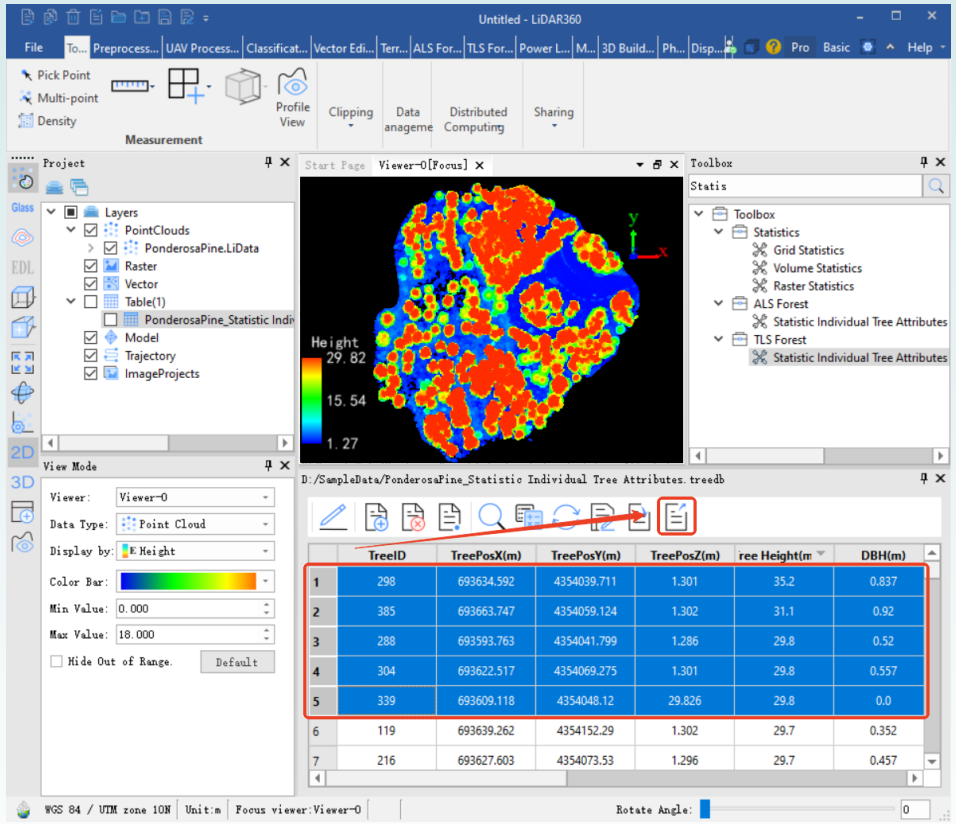
Some users have requested the option to export only a portion of the attribute table (e.g., sorting individual tree attribute files by tree height and exporting them into separate files based on different ranges). Therefore, in V8.1, we have added support for this operation. Users can now open any attribute table file, select specific rows, and export only the selected rows to generate a new file.





• Release Note

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Data Management

1. Add Convert to 3D Tiles for point cloud.
2. Add Convert LiModel to 3D Tiles / Convert LiBIM to 3D Tiles for model.
3. Optimize trajectory file unit conversion support.
4. Optimize the Convert to LAS tool to support Near Infrared and Laser Channel options.
5. Fixed the issue where the Trigonometric Fitting results could not be saved.

Classification

1. Optimize Simulate Ground Points, supporting simulate by select vector file.
2. Fix the failure of Classify Ground Points using concurrency setting in feet units.
3. Fixed the issue where the viewer could not switch between 2D/3D mode after partitioning in Classification Editor.

Terrain

1. Optimize CHM Segmentation, eliminating the impact of nodata values on the segmentation result.
2. Optimize Deviation Analysis, adding deviation analysis report.
3. Optimize Shortcut setting, supporting more LiModel Editor tools.
4. Optimize LiTIN Editor, adding the Fill Hole tool.
5. Fix the issue of sparse annotation points in some areas of TIN to Contour.
6. Fixed the issue where LiModel appeared blurry during editing when loading overlapping LiModel or other data from a distant location.

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Forestry

1. Optimize Calculate Forest Metrics by Grid, supporting generating by vector file area.
2. Optimize Trunk Based Segmentation’s trunk extraction accuracy.
3. Optimize Standing Tree Volume Analysis, adding Kunze stem curve to complete trunks.
4. Optimize Generate Tree Model, supporting version compatibility.
5. Optimize forestry setting for full attributes decimal places setting.
6. Optimize Stand Analysis and Reporting, supporting the display point cloud by EDL.
7. Optimize ALS Seed Point Editor, supporting different displays between imported and added seed points.
8. Fix the issue of ALS Point Cloud Segmentation failure without the “Smooth” Option.
9. Fix the occasional tree ID duplication issue of ITS Mosaicing Result.

Photo

10. Optimize orthophoto workflow, optimizing default parameters, adding DEM option.
11. Fix the incorrect focal length unit of the Australian model in camera parameters.

Power Line

1. Add clearance analysis report.

Platform

1. Add support for 3D mouse operations.
2. Optimize project configuration saving of trajectory importing settings.
3. Optimize density measurement, supporting operation for several viewers.
4. Optimize attribute table filtering and export.

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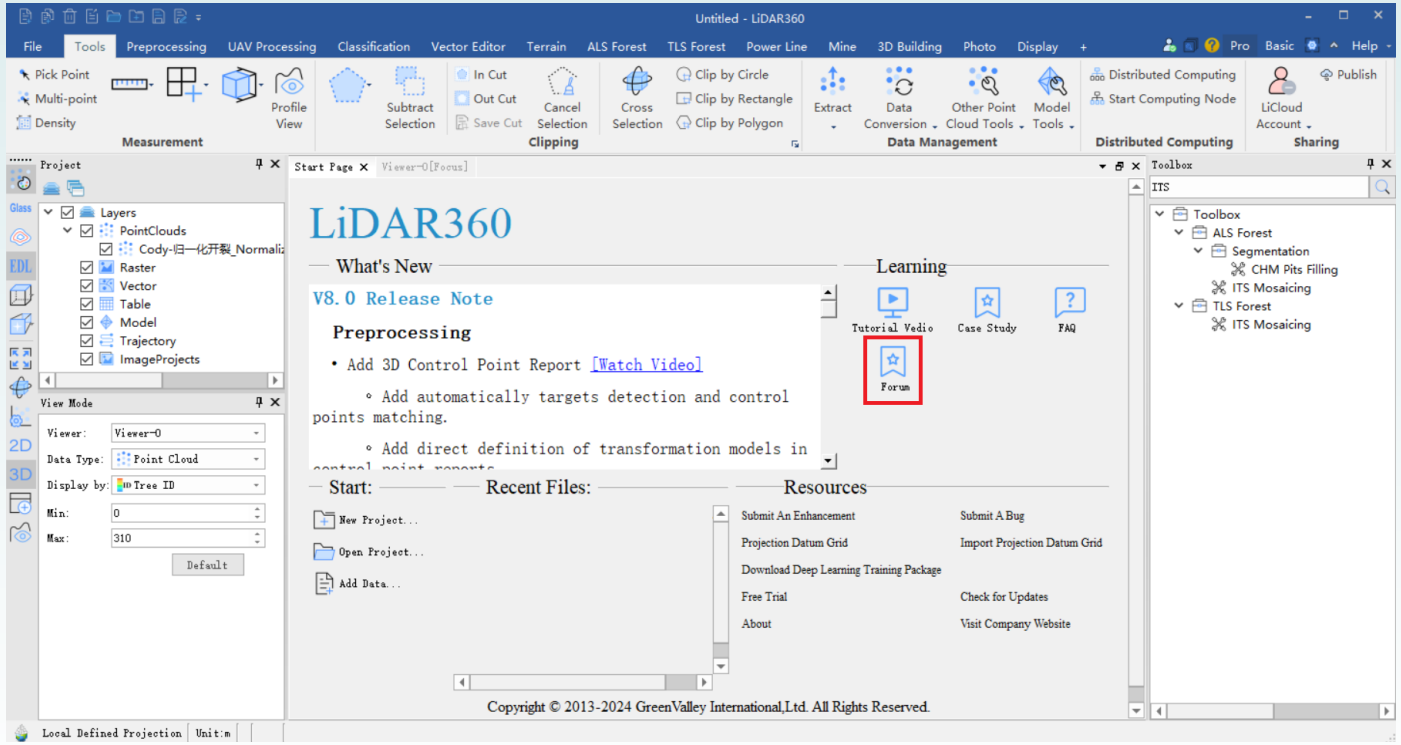
5. Fix the issue where *.obj models do not support window linkage operations.
6. Fix text size inconsistency in multi-screen display.
7. Fix header reset after row skipping of ASCII file importing.
8. Fix potential data display issue in the profile viewer of the profile tool in Data Registration.
9. Fix the lag issue of Camera Roam.
10. Fix the issue where projection fails to be written when generating TIFF file with vertical coordinate system.



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