SHARE PointCloud Studio

Instructions

SHAREUAV Ltd

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Catalog

1. Software Introduction

SHARE PiontClouds Studio is an office processing tool software designed for SHARE handheld 3D laser scanners. The software provides functions such as project management, raw data parsing, and 3D point cloud viewing and analysis. Complementing SHARE handheld LiDAR products, it covers the entire workflow from data acquisition to data parsing and analysis, comprehensively supporting the application of 3D laser point clouds.

2. Installation & Licensing

2.1. Hardware and Software Requirements

To ensure smooth software operation, the recommended configuration is as follows:

Table 1 Recommended PC configuratio

CPU	Intel® Core™ i7-10700H@2.90 GHz（or AMD equivalent processor）
Graphics Card	GeForce RTX2060 4GB
RAM	32GB
Storage	64GB or more available hard disk space
Operating System	Windows 11 series

2.2. Software Installation

Method 1 to obtain the software installation package: Enter the interface (https://shareuavtec.com/S20) of the official website of SHAREUAV, click the "Download" button to download the software installation package.

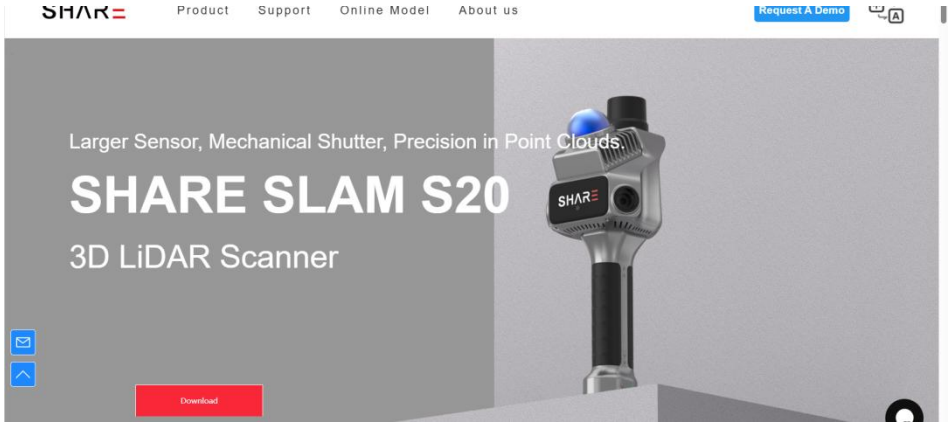


Figure 2-1 Official website software installation package download interface

Method 2: Scan the QR code on the device transport box and download the software installation package through the "SHARE PointClouds Studio download link".

Figure 2-2 The QR code of the transport box (left) and the download link displayed after scanning the code (right)

After the installation package is downloaded, double-click the software installation package and click Next step by step to complete the software installation

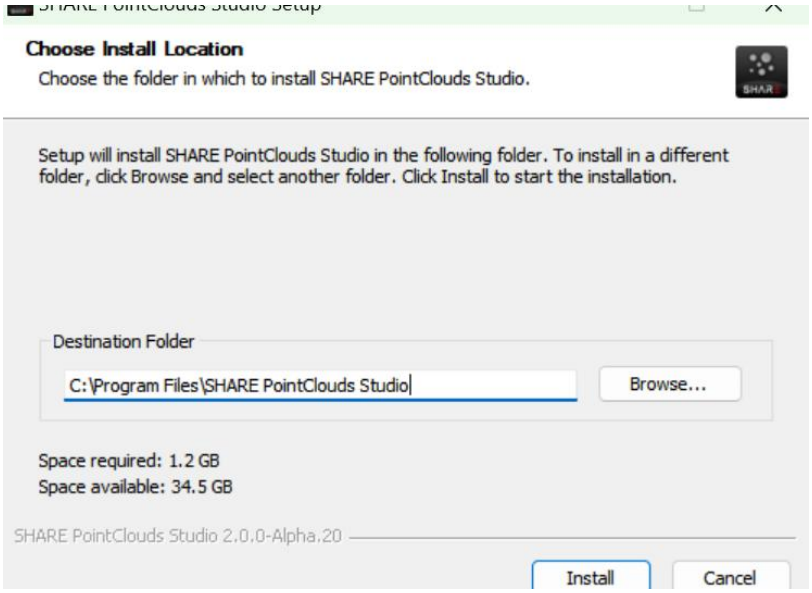


Figure 2-3 Software installation steps

2.3. Software Upgrades

When the software version is updated and optimized, the system will automatically push the latest software version and prompt you to upgrade, and you can upgrade to the latest version according to the prompts shown in the figure.

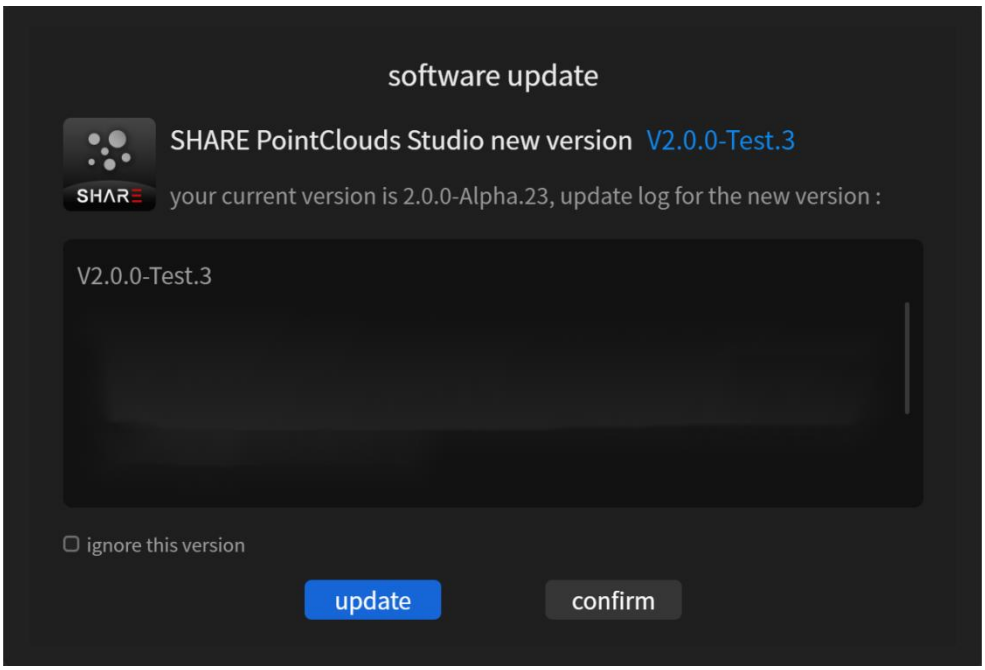


Figure 2-4 Upgrade pop-up prompt

At the same time, you can also check whether the current version is the latest software version through the "Check Updates" button on the "Settings" interface.

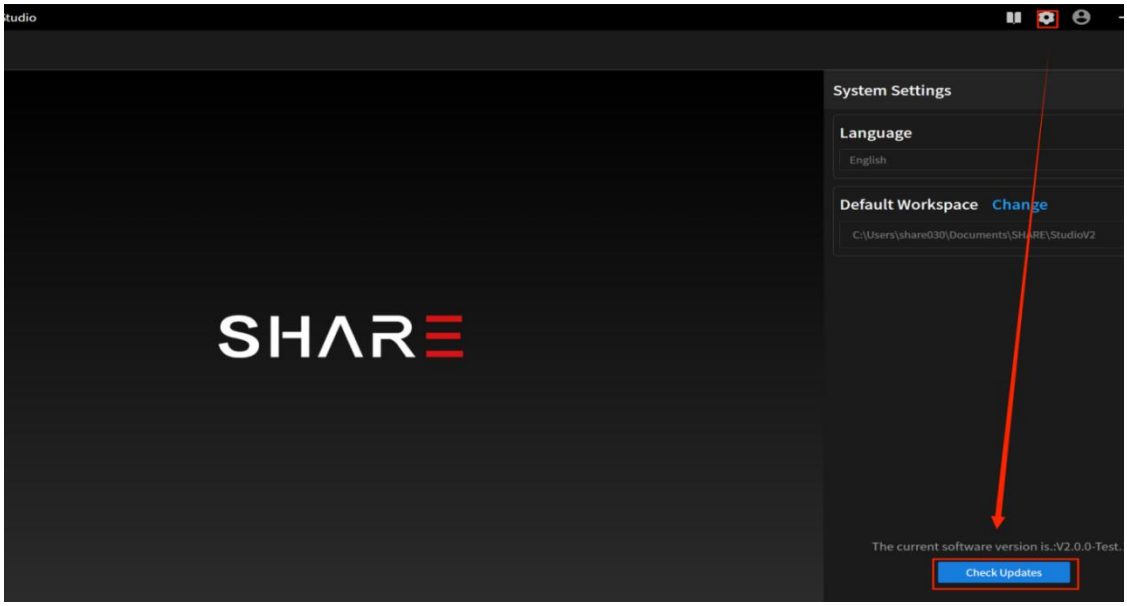


Figure 2-5 Check for update

2.4. Software Uninstallation

In the "Programs & Features" under "Control Panel", select SHARE PointClouds Studio, right - click - Uninstall, and click "Next" to uninstall the program step by step.

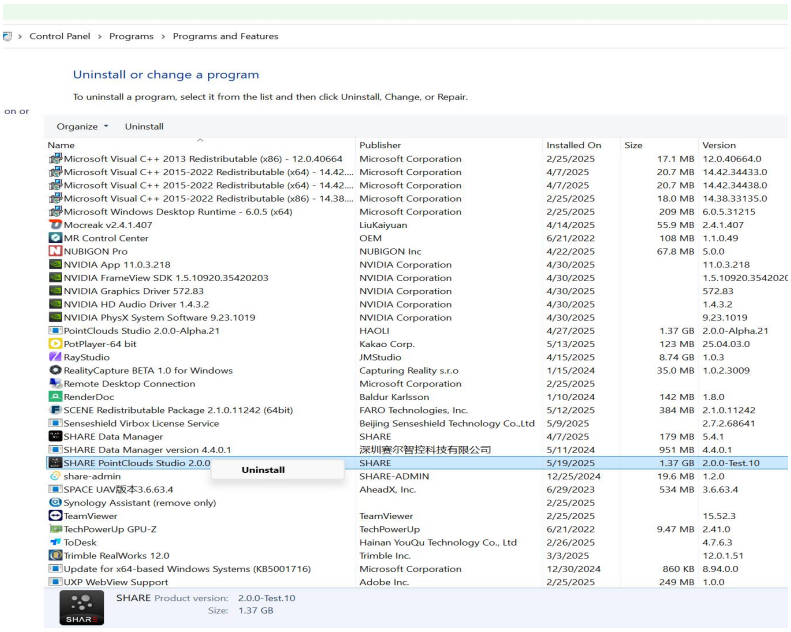


Figure 2-6 Uninstaller interface

2.5. Software Licensing

When using SHARE PointClouds Studio to process SHARE SLAM S10 data, you need to insert the dongle into the computer and then open the software to process the data. (SHARE SLAM S20 does not require it.)

Figure 2-7 The dongle

3. User Registration and Login

Users who use SHARE Pointclouds Studio for the first time need to register an account. Double-click the software icon, click "Register Account" on the login page, enter the corresponding information on the registration page to register, and then return to the login page to log in to your account.

Note: Before using the new device for the first time, you need to use SHARE PointClouds Studio to activate the device, and you need to log in to Point Cloud Manager to activate the device; For the second use, you can "skip login and use it directly", and whether you log in or not will not affect the software processing the solution data.

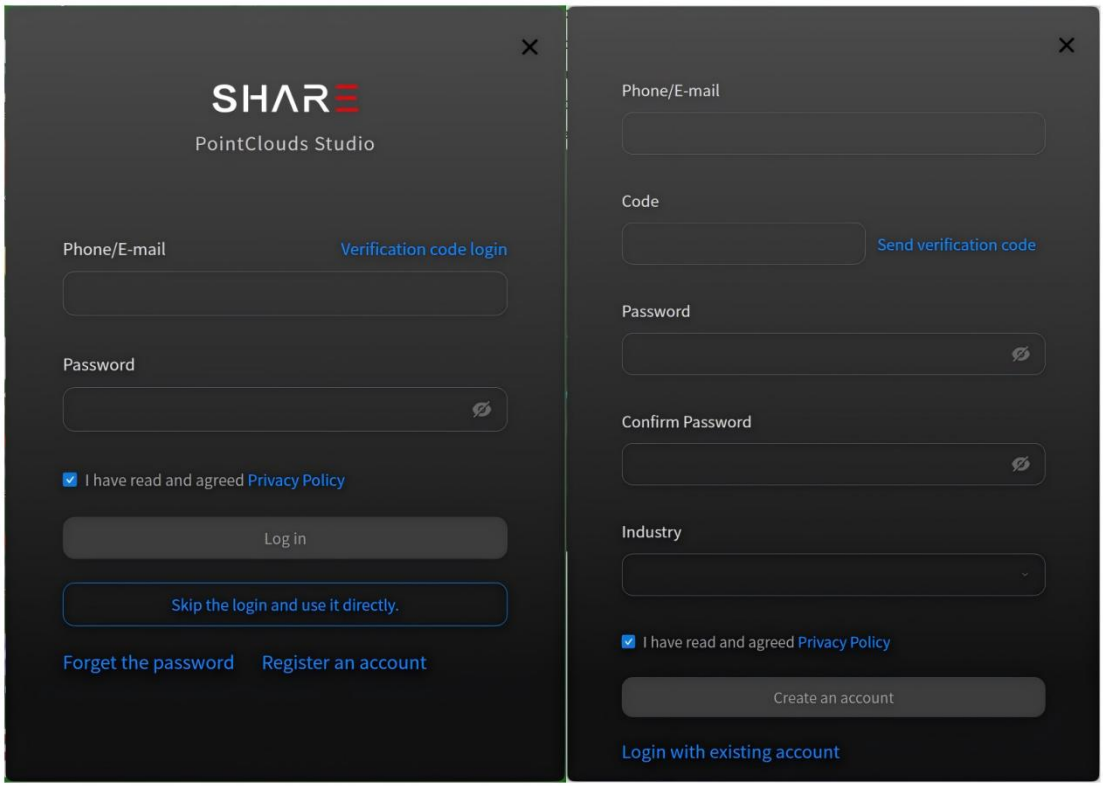


Figure 3-1 Login (left) & Registration (right)

4. Data Processing

4.1. Data Copy

Insert the TF card of the device into the card reader and connect it to the computer, open the "SLAM-S20" drive letter, select the project to be processed, and copy and paste it to the local computer. (Note: The TF card is an external card, and the direct import of data to the internal running map of the housekeeper is unstable and easy to handle)

Figure 4-1 TF-card interface

4.2. Data Processing

4.2.1. Data import

Click "New Project", select "Storage Path" and modify "Project Name" (you can also keep the default).

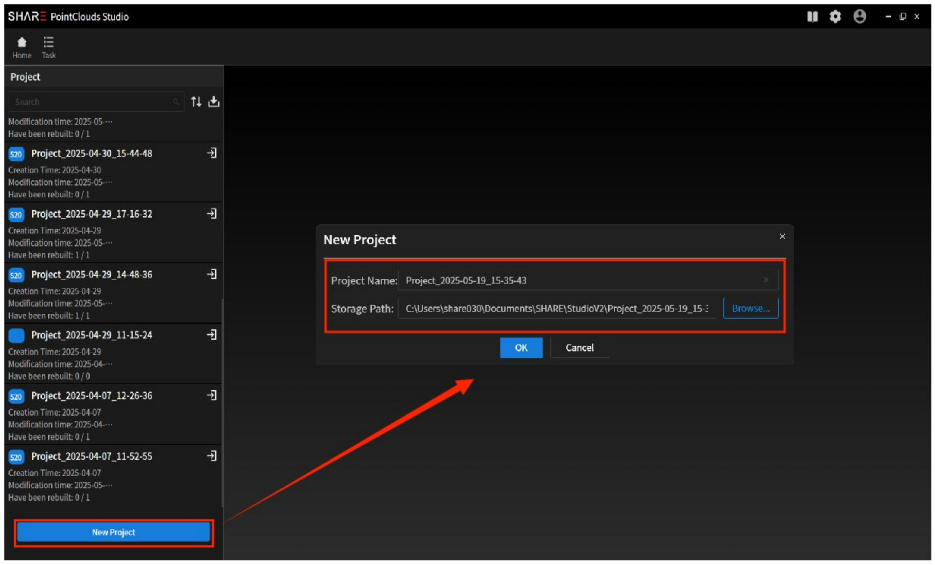
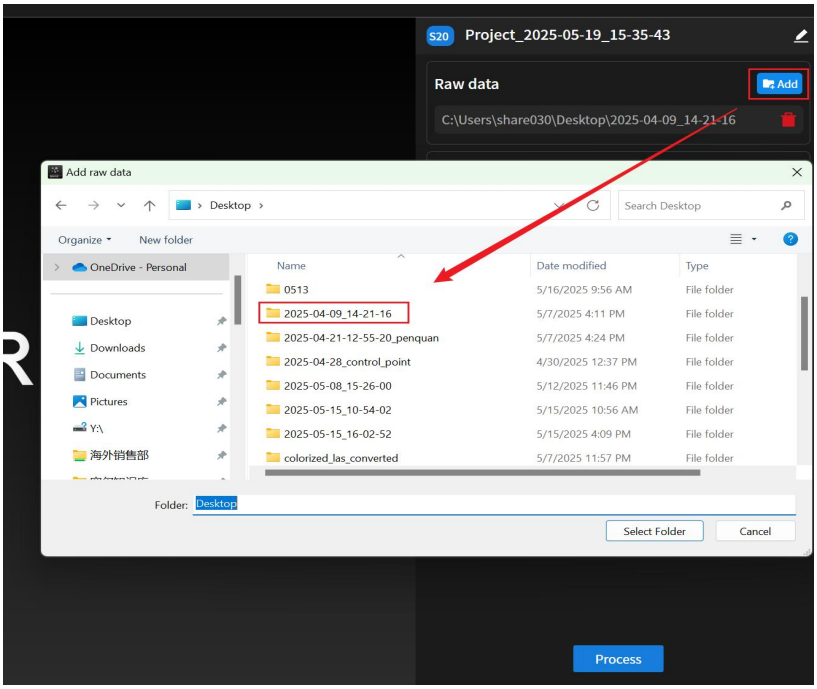


Figure 4-2 New project interface



Click "Add" and select the raw data file to be processed.

Figure 4-3 Add data

4.2.2.Mapping Parameters

4.2.2.1. RTK Fusion

After using RTK in the data acquisition process, you can turn on the "RTK Fusion" button, select the corresponding coordinate system to process the data, and output the point cloud data with accurate coordinate values.

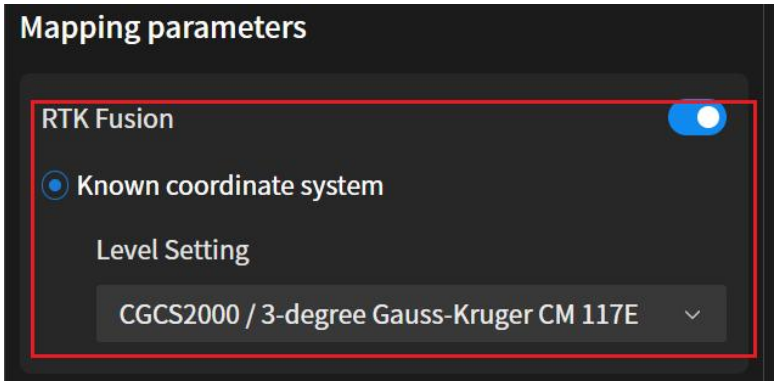


Figure 4-4 RTK fusion

You can click on the "Horizontal Coordinate System Database" below to retrieve the coordinate system you need, which currently supports the EPSG library.

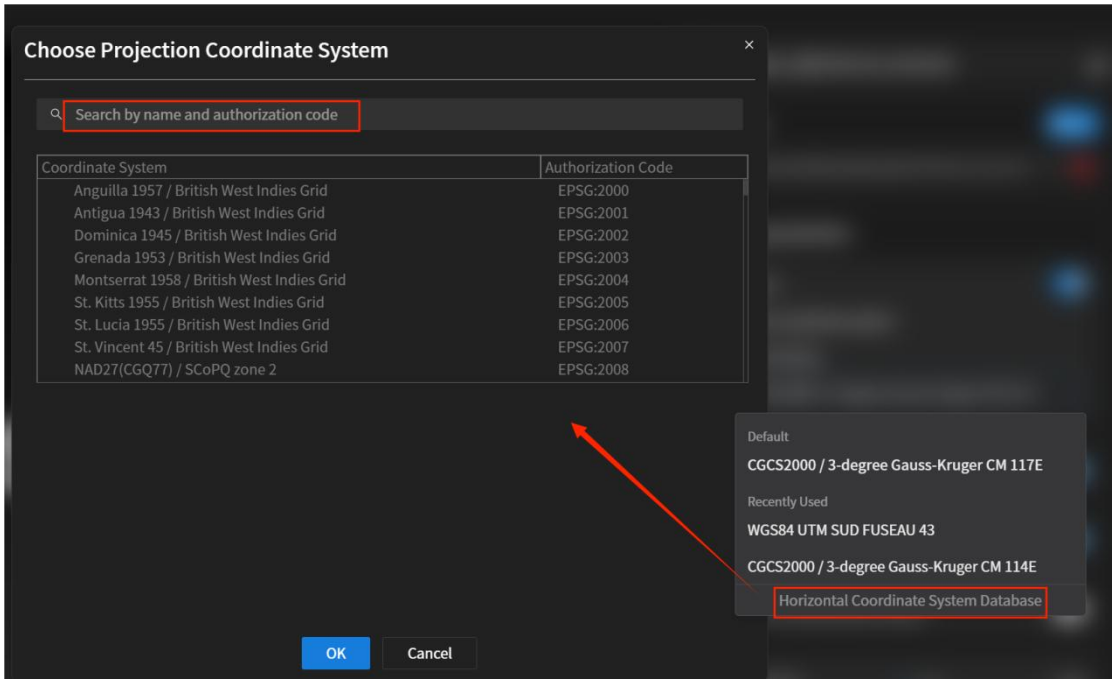


Figure 4-5 Search for a coordinate system

4.2.2.2. Control Point Calibration

The data acquisition process collects the data of the control points, and the "Control Point Calibration" button can be turned on to enter the exact coordinate values of the corresponding control points one by one and then process the data.

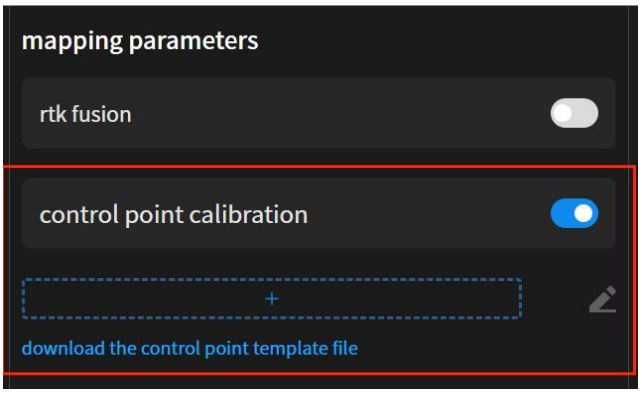


Figure 4-6 Enable "Control Point Calibration"

4.2.2.3. Point Clouds Colorization

If you need to output a color-assigned point cloud, you need to turn on the "Point Cloud Coloring" button, otherwise the data processing will only output the uncolored point cloud.

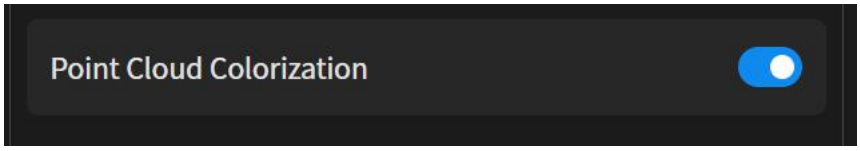


Figure 4-7 Point clouds coloring button

4.2.2.4. Dynamic Object Filtering

When there are moving vehicles, people and other objects in the operation scene, you can turn on the "Dynamic Object Filtering" button to clear the moving objects in the scene and make the point cloud clearer.

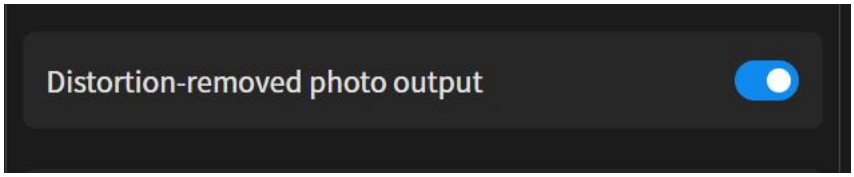


Figure 4-8 Dynamic object filtering button

4.2.2.5. Dedistort Photos

When opened, the distorted photos can be exported to the results folder.

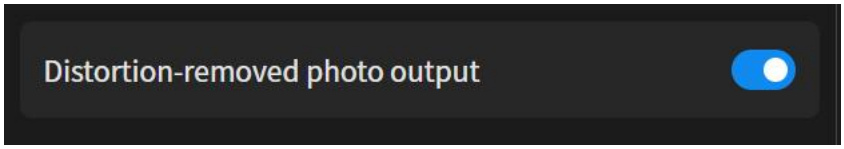


Figure 4-9 Dedistort photo switch

4.2.2.6. Output Format

The default output is a point cloud in LAS format, and you can select PLY and PCD format for point cloud output as needed.

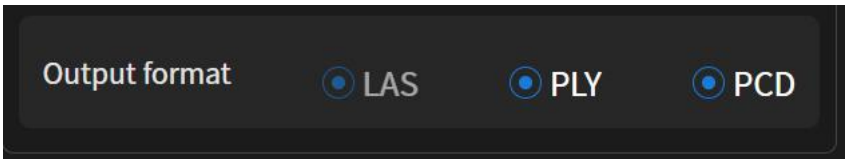


Figure 4-10 Output format

4.3. Processing Status

On the task management screen, you can view the data that is currently being processed and the historical processing tasks.

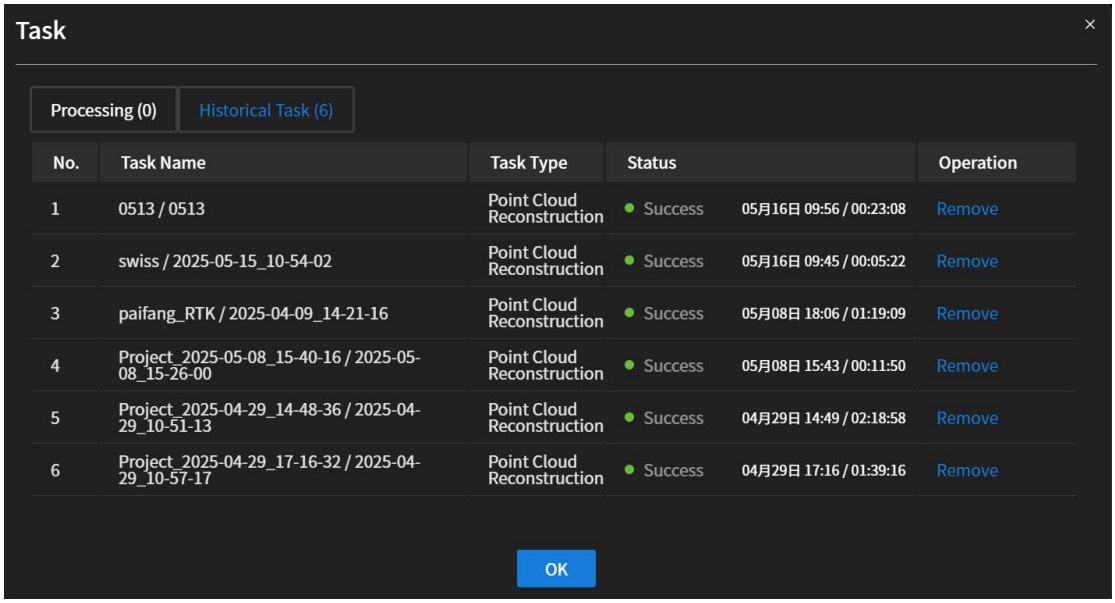


Figure 4-12 Historical Task

4.4. Results Viewing

After the project has been rebuilt, click the "Open Project" button or double-click the project to enter the point cloud browsing interface to view the point cloud.

Figure 4-13 Open project

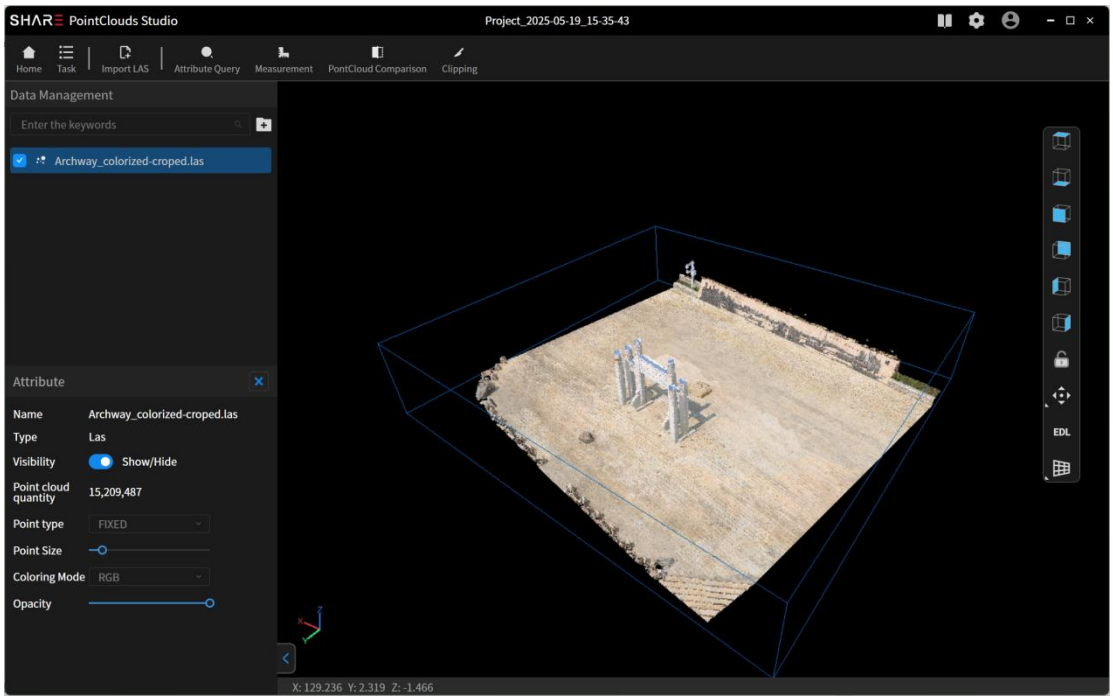


Figure 4-14 Point cloud browsing interface

5. Function Introduction

5.1. Main Interface

After the software is started, you will enter the main interface of the software by default, and the functional layout of the main interface is shown in the following figure:

Figure 5-1 Software Function Layout

Title bar: provides usage instructions, software settings, user login access, and operations to minimize, maximize, or close the software window;

Main function area: the entrance of common functions of the software, including returning to the main interface and viewing tasks;

[Project Management] panel: displays the existing projects and their statuses, and provides the operation entry of the project, including creating a new project, importing a project, opening a project, configuring the project, opening the folder where the project is located, deleting the project, and exporting the project.

5.2. Project Panel

5.2.1.[Project Management] Panel

It is used for the management of project, and its interface is as follows:

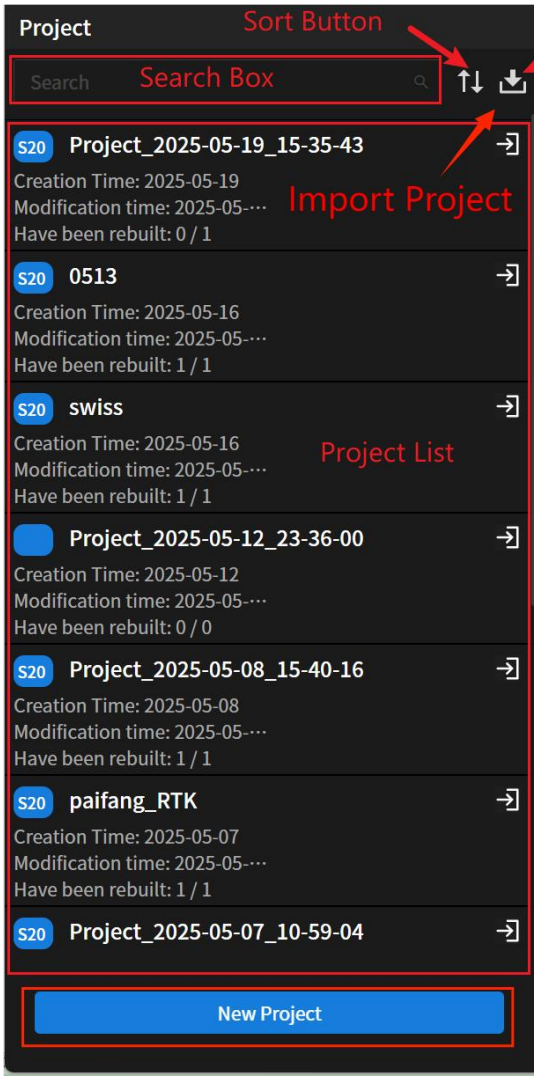


Figure 5-2 Project management panel

Search Box: Enter keywords in the search box to search and filter the project.

Sorting: Click the "Sort" button to sort according to the rules of "Creation Time" in the forward/reverse order;

Import Project: Support the import of external projects;

Project List: Displays all projects in the form of a list;

New Project: Create a new project.

5.2.2.Project Operation Interface

Click to select a project to display the related operation buttons at the bottom of the project, as shown in the following figure:

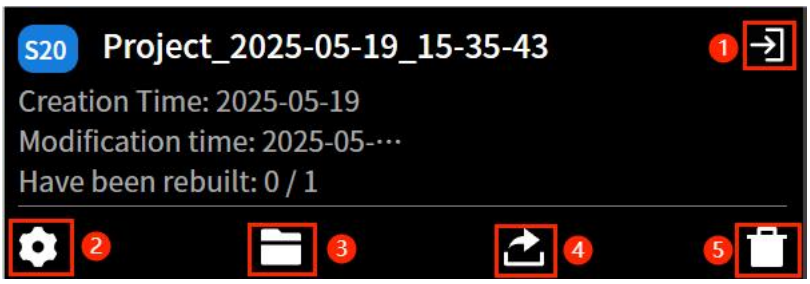


Figure 5-3 Project Operation Interface

① **Open the project:** click the "Open Project" button or double-click the project to open the project;

② **Project configuration:** open the project configuration interface;

③ **Open the folder where the project is located:** open the project folder;

④ **Export project:** generate a .zip package of "original file + project file" in the project folder;

⑤ **Delete project:** delete the project file.

5.3. Task Management

The task management interface allows you to view and operate the status of ongoing and completed tasks, and adjust the order of mapping tasks.

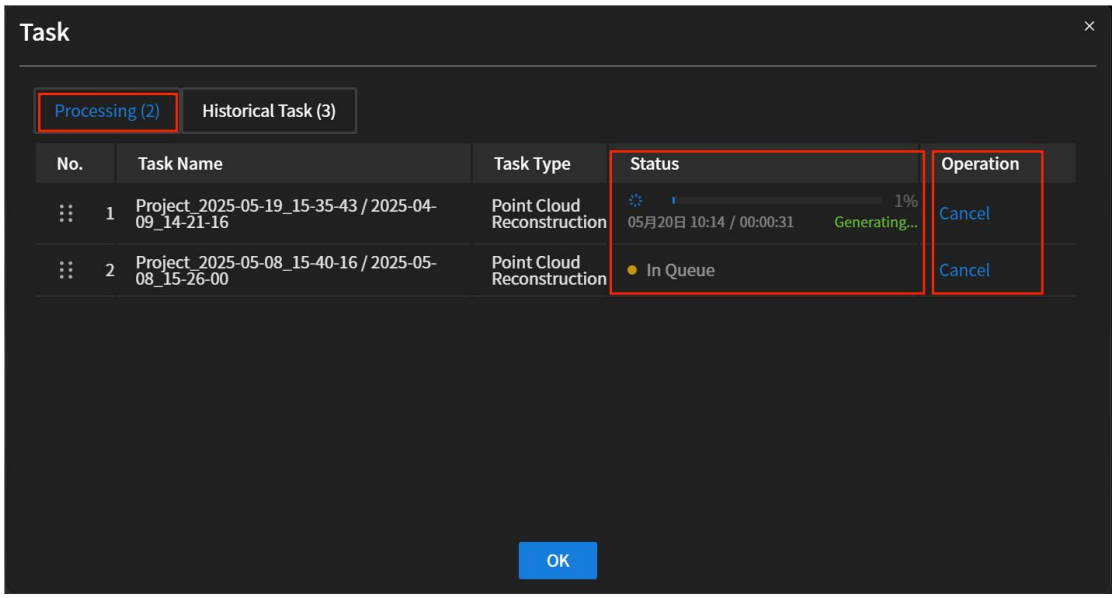


Figure 5-4 Task ongoing

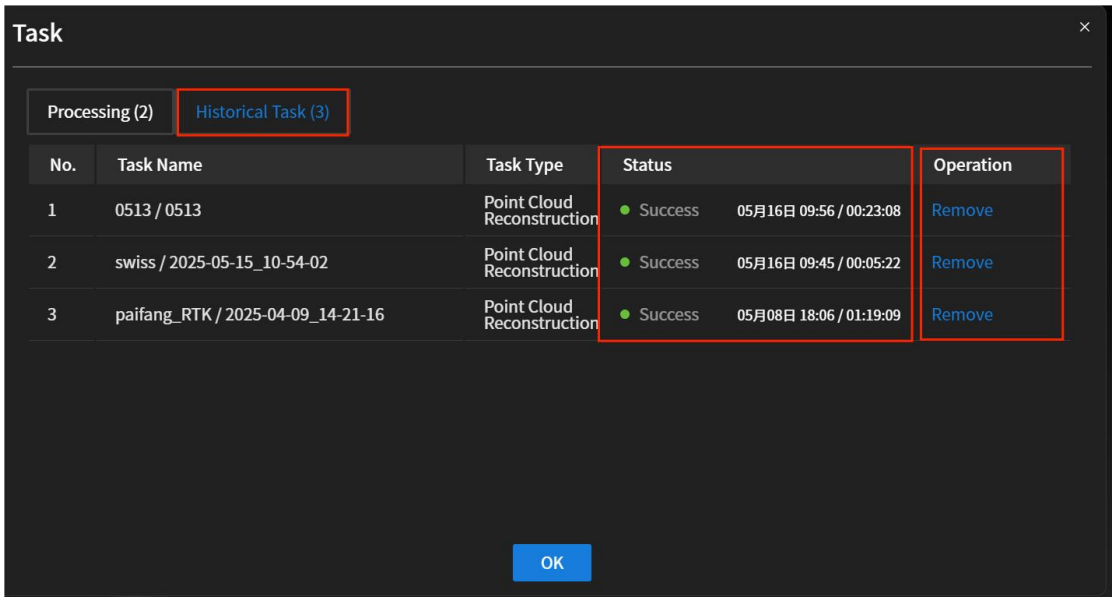


Figure 5-5 Historical task

5.4. Point Cloud Viewer

5.4.1.Project Browsing Interface

Click "Open Project" icon or double-click the corresponding project to enter the "Project Browsing Interface", and the functional layout of "Project Browsing Interface" is shown in the following figure:

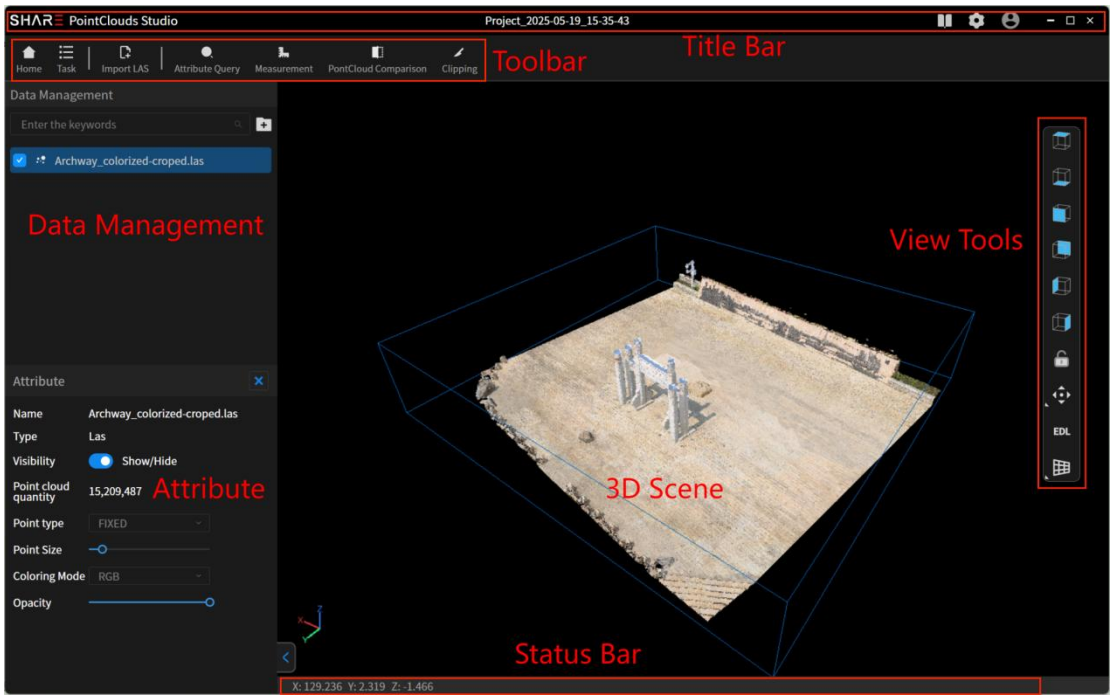


Figure 5-6 Project browsing and function layerout

Title Bar: in addition to providing the same function as the "title bar" on the main interface of the software, it also displays the name of the currently open project in the central area;

Toolbar: the main function entrance of the software. In addition to the "(Return) Main Interface, Task Management" function, it also includes "point cloud" related functions, such as import LAS, point cloud denoising, point cloud merging, measurement and other functions;

[Data Management] Panel: manage the data of the current project, including point clouds, measurement layers, trajectory lines, photo points, etc.;

[Attribute] Panel: displays the attribute information of point clouds, survey layers, and other data in the "Data Management Panel", and can modify some properties of the data;

3D Scene: 3D data display area, support translation, rotation, zoom and other operations; Axes are used to indicate the pose of the data in the scene;

View Tool: control the display of 3D scene data, including perspective control (top/front/left/rear/right/bottom), lock/unlock view, view mode switching, EDL effect, glass effect and roaming mode switching, etc.

Status Bar: displays data coordinate information and general prompts.

5.4.2.Toolbar

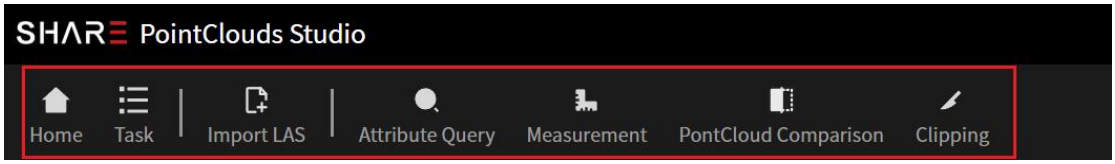


Figure 5-7 Toolbar interface

Main Interface: return to the main interface;

Task Management: open the Task Management page.

Import LAS: add external point cloud data in LAS/LAZ format, which is located in the root directory of the [Data Management] Panel.

Attribute query: click the "Attribute Query" button to activate the function, move the mouse to the point cloud to be queried in the scene, left-click to view the attribute information of the point cloud, including the coordinates, classification, RGB value, echo and intensity of the point cloud, and click the "Attribute Query" button again in the "Ribbon" to exit the function;

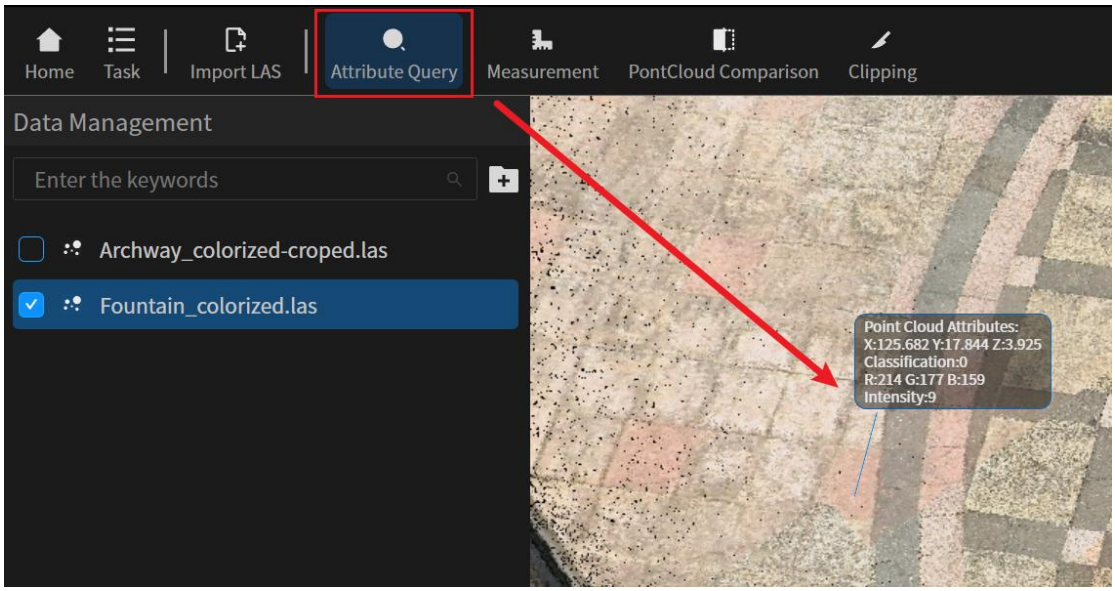


Figure 5-8 Attribute Query

Measurement: click "Measure" to activate the measurement function group,

which includes several sub-functions such as **position measurement**, **distance measurement, height measurement, area measurement, angle measurement and volume measurement**. The measurement results can be saved in the "Measurement" panel corresponding to the [Layer] window;

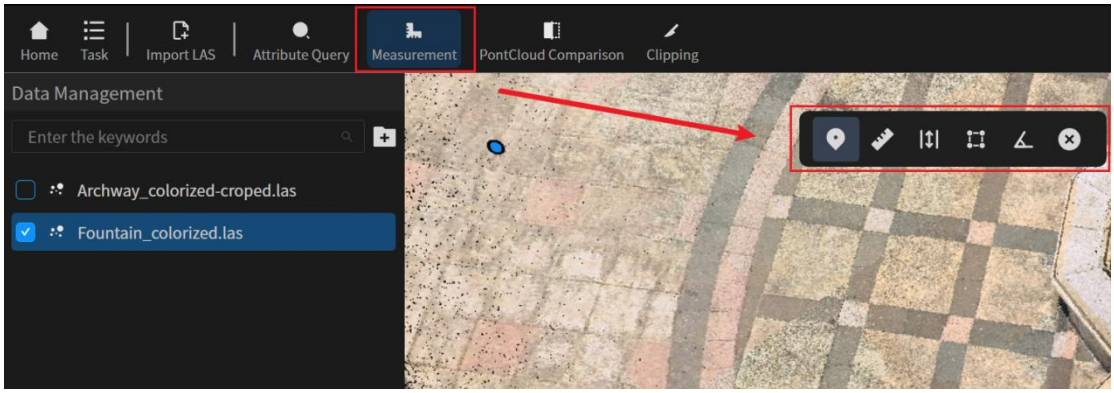


Figure 5-9 Measurement function group

Point cloud comparison: the point cloud views in two windows can be operated synchronously, and the point cloud data can be compared intuitively;

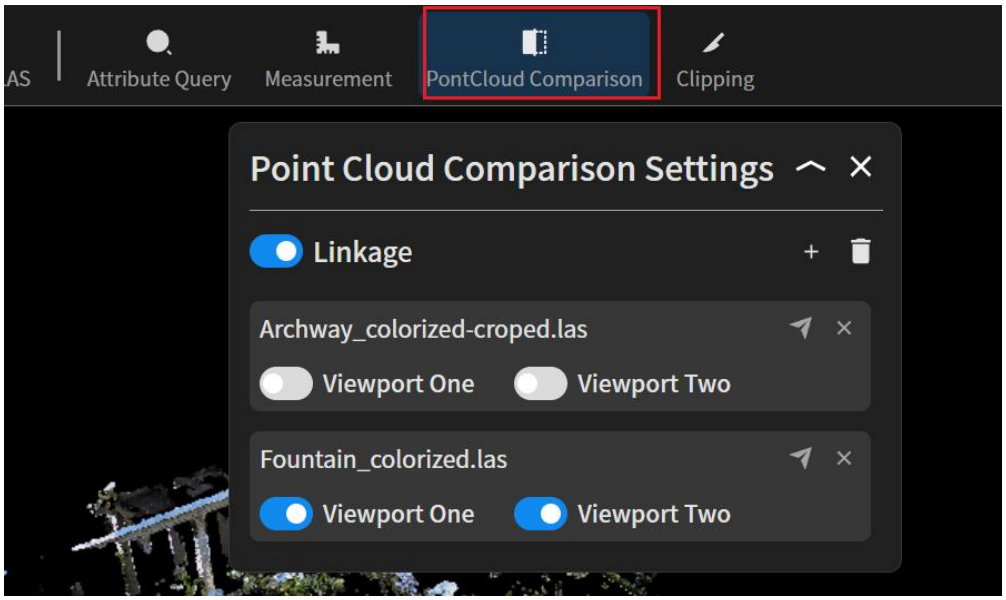


Figure 5-10 Activate the point cloud comparison function

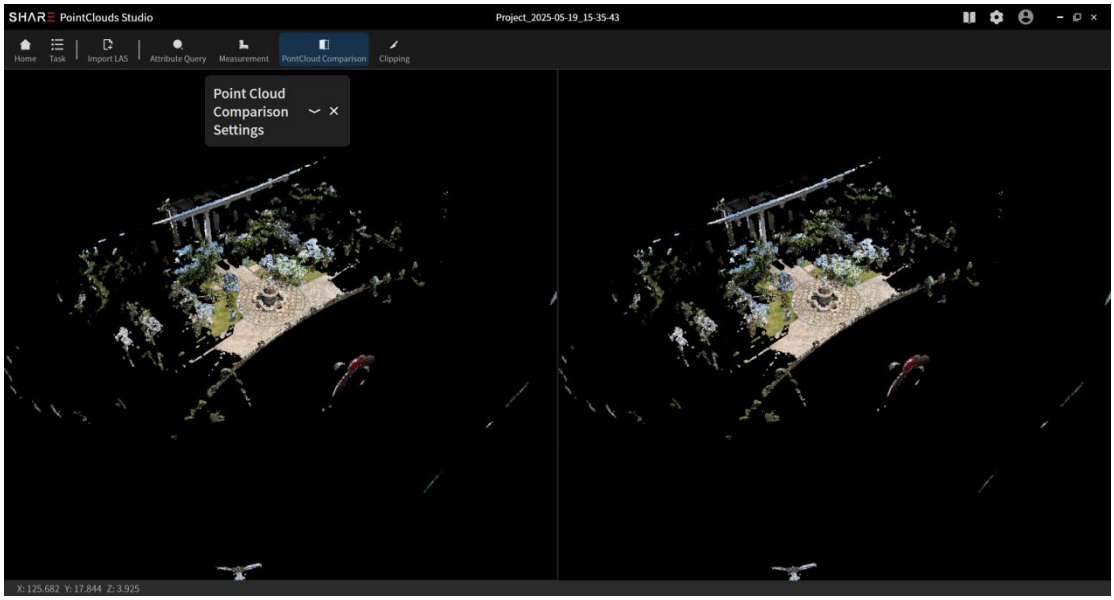


Figure 5-11 Point cloud comparison

Clipping: you can cut the point cloud simply for easy viewing. Cutting functions include: polygon selection, rectangle selection, inner cutting, outer cutting and 3D cutting.

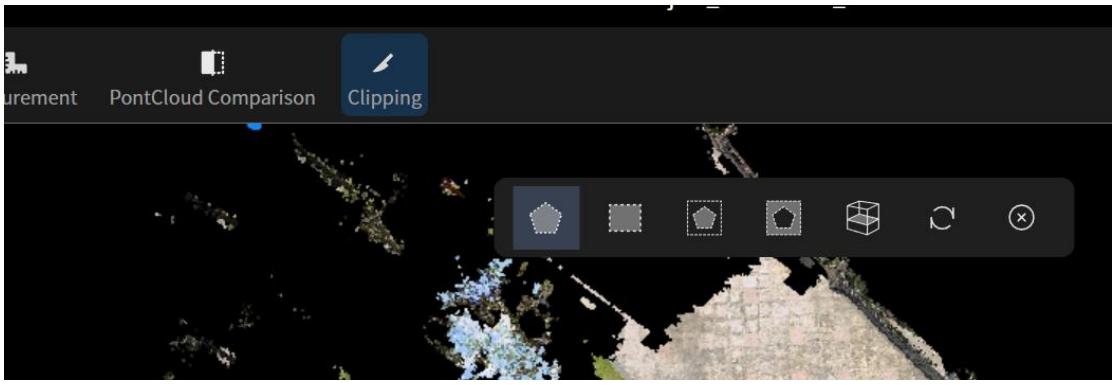


Figure 5-12 Clipping tools

5.4.3.[Data Management] Panel

In the [Data Management] panel, the point cloud layer supports operations such as positioning, renaming, opening the folder where it is located, removing and (viewing) properties. Select the point cloud layer with the left mouse button and right mouse button to display the operation list as shown in the figure below.

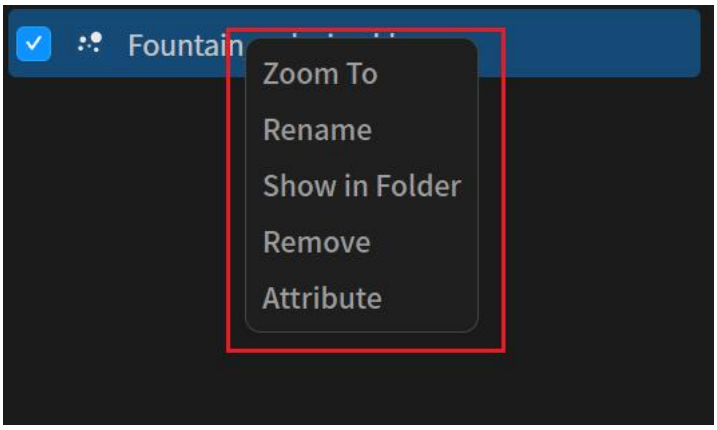


Figure 5-13 Point cloud layer operation list

The measurement layer supports operations such as positioning, renaming, removing and (viewing) properties. Select the measurement layer and right-click to display the operation list as shown in the figure below.

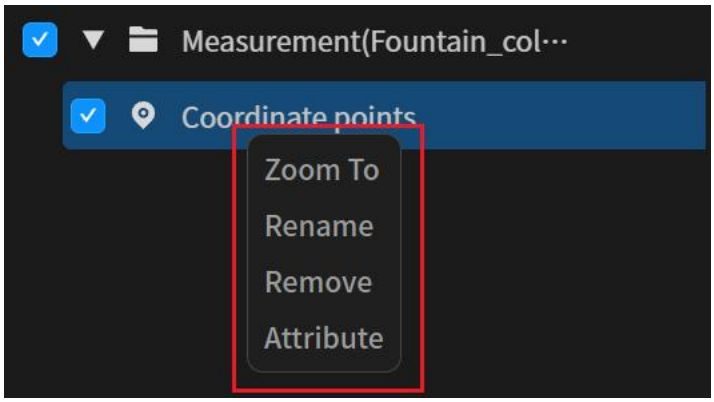


Figure 5-14 Measurement layer operation list

5.4.4.[Attribute] Panel

Select the corresponding point cloud in the "Data Management Panel" and you can view the properties of the point cloud layer in the "Properties Panel".

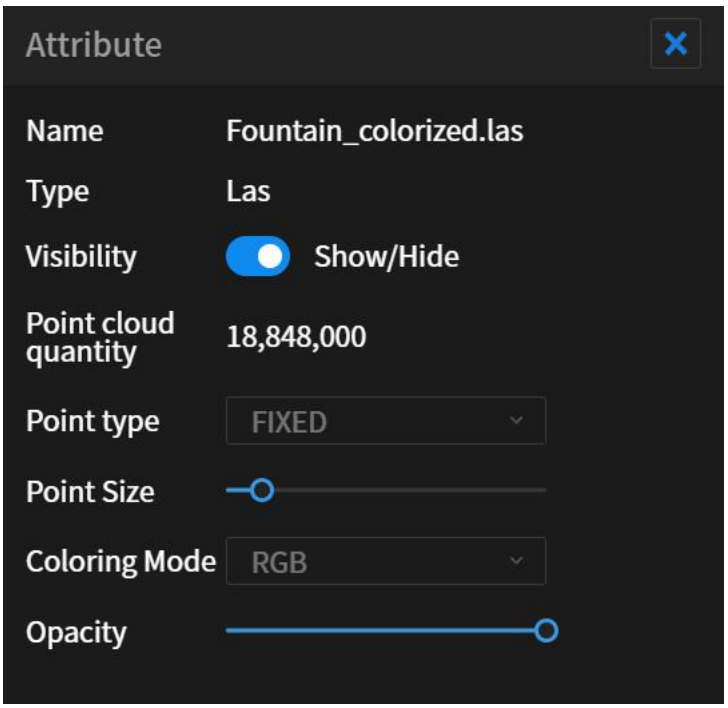


Figure 5-15 Point cloud attribute interface

The properties are as follows:

Point cloud quantity: Displays the total number of point clouds in the current point cloud;

Point size: Controls the size of the point cloud in the 3D scene. The default value is 2. You can drag the slider with the mouse to change the point cloud size;

Point type: Display type of point cloud size. You can choose fixed or adaptive;

Rendering mode: Controls the way point clouds are rendered in the 3D scene. It supports 3 rendering modes: RGB mode, elevation mode, and intensity mode. The default is "RGB mode";

Transparency: Controls the transparency of the point cloud. The default value is opaque. You can drag the slider with the mouse to change the transparency of the point cloud.

5.4.5.View Tools

The View Tools provide a set of functions for controlling the data displayed in the 3D scene.

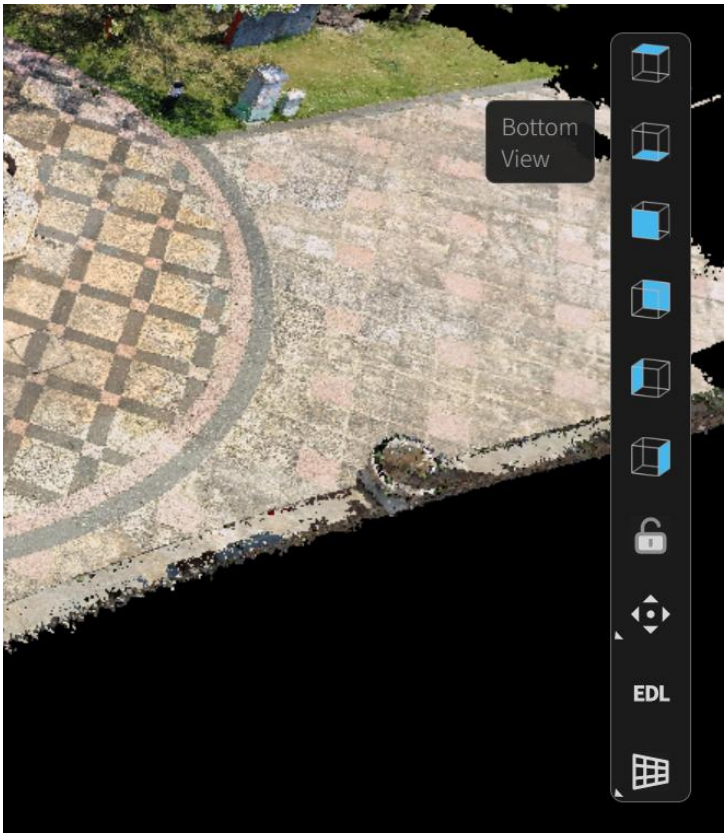


Figure 5-16 View tool interface

① **Observation perspective selection:** including six perspectives for quick viewing:

Top view: view 3D data from +Z to -Z;

Bottom view: view 3D data from -Z to +Z;

Forward view: view 3D data from -Y to +Y;

Back view: view 3D data from +Y to -Y;

Left view: view 3D data from -X to +X;

Right view: view 3D data from +X to -X.

② **Lock view/unlock view:** by default, the view is in the "unlock" state. Click this button to change it to the "lock" state. After the view is locked, the mouse cannot rotate the click, which is convenient for viewing point cloud data from a

specific posture.

③ **Interactive mode:** including roaming mode and first person view.

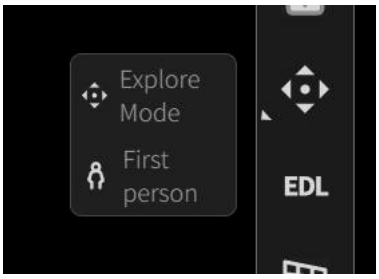


Figure 5-17 Interactive mode selection

Roaming mode: the default interactive mode. Use the mouse to control the browsing of point clouds in the 3D scene, such as translation, zooming and rotation. Among them:

Panning: hold down the right mouse button and drag to translate the scene;

Rotation: hold down the left mouse button and drag to rotate the scene;

Zooming: scroll the middle mouse button (scroll wheel) to zoom the scene;

Move to the center of the scene: double-click the scene to translate the position to the center of the scene.

First person: You can control the browsing of point clouds in the 3D scene through the keyboard. Among them:

W: forward;

S: backward;

A: move left;

D: move right;

Q: descend;

E: ascend;

④**EDL special effect:** EDL (Eye Demo Lighting) special effect is a visual effect enhancement technology that enhances the depth and contour clarity of the point cloud by simulating lighting effects, making the details of the model more prominent.

⑤**Projection mode:** Includes perspective mode and orthogonal mode.

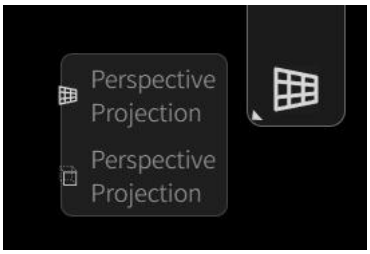


Figure 5-18 Projection mode selection

Perspective mode: This is the default projection mode, which conforms to the human eye's visual effect of "near is big and far is small", giving people a more realistic sense of space.

Orthogonal mode: "Orthogonal mode" is a view without perspective distortion, where all axes remain parallel and do not converge with distance. This view helps to accurately measure distances and compare sizes.

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SHAREUAV Ltd