REVO 3D SCANNER

Revo Studio - User Manual

2022.4   V.2.0.0

Content

Introduction

Revo Studio is a post-processing application released by the Revopoint team to edit individual 3D models created by Revo Scan and to align multiple 3D models so that they can be merged into a new 3D model. In this instruction manual, we will introduce the details about the application and how to adjust parameters in it.
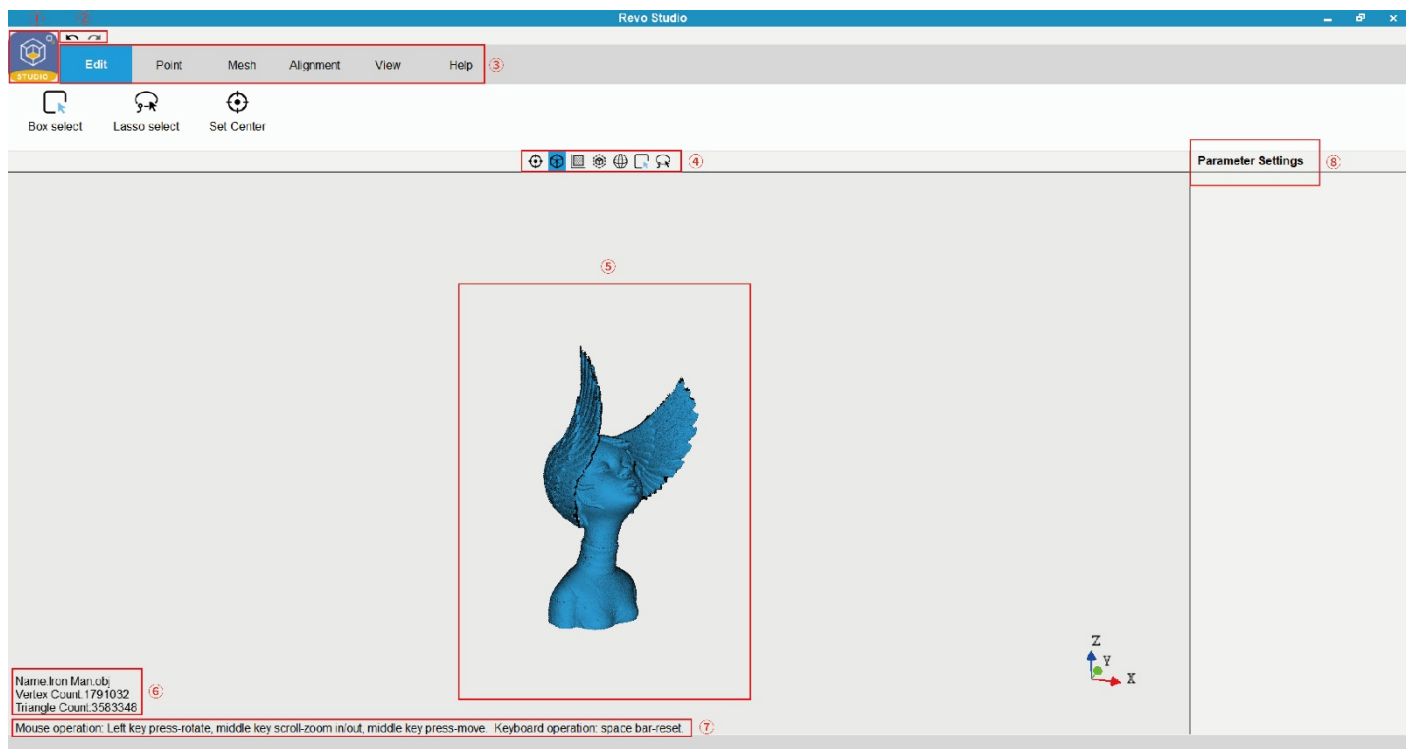
System Requirements

Windows: Win 8/Win 10 (64 bit）
Memory：≥ 8G
*The Windows 7 is not supported.

Mac with Intel × 86 chip: Mac OS 10.15 and models after；
Mac with Apple M1 chip: Mac OS 11.0 and models after；
Memory: ≥ 8G

Main Menu Panel

① **Studio Icon:**   Includes *Import*, *Export*, *Recent Files* and *Exit*.
② **Undo & Redo:**   Click the *Undo* icon to reverse the action of the previous step(s) as many times as necessary.   As needed, click *Redo* to move forward to the desired step.
③ **Function Buttons:**   Includes *Edit*, *Point*, *Mesh*, *Alignment*, *View* and *Help*.
④ **Toolbar:**   Includes shortcuts to *Set Center*, *Orthogonal*, *Show/Hide Bounding Box*, *Show/Hide Track Ball*, *Box Selection* and *Lasso Selection*. These functions are described in their sections later.
⑤ **Center Window:**   Displays the name of the model being processed.
⑥ **Information of the 3D model:**   Provides details of the model (such as name & number of points) to verify identity.
⑦ **Mouse Command Prompt:**   Displays the mouse's function commands.
⑧ **Parameter Settings:**   Adjust the parameters for any function allowing custom configurations.

Process Model

1. Edit

In the *Edit* module, the available commands are: *Box Selection*, *Lasso Selection* and *Set Center*.
(Note: The words or phrases on the following UI will be improved.)
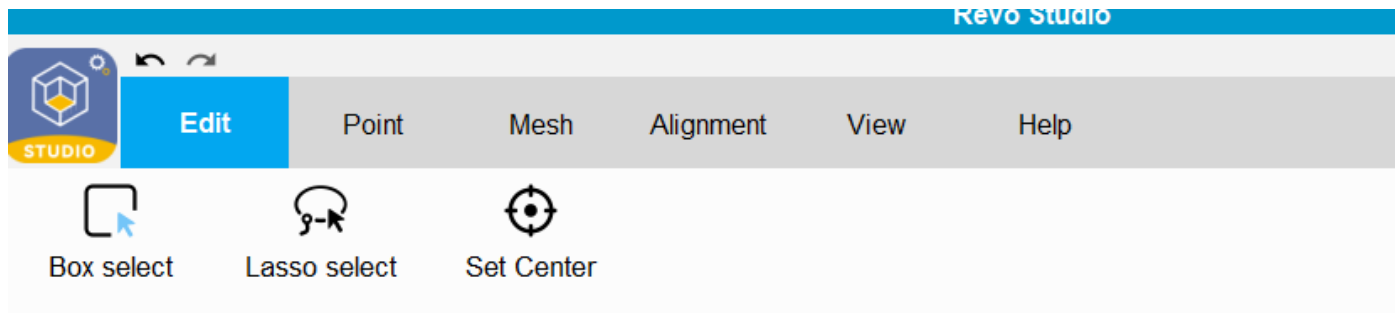
Box Selection: Select features of a model by drawing a rectangle around them.
Lasso Selection: Create a completely free-form selection around the desired features by drawing a lasso.
Set Center: Change the center coordinate of the 3D model. The object is re-positioned so that the selected center is in the middle of the work screen. Any rotations will be around this center point.

2. Point

In the *Point* module, the available commands are: *Clip*, *Smooth*, *Isolation*, *Simplify*, *Overlap Detection* and *Meshing* to edit the point cloud of a 3D model.
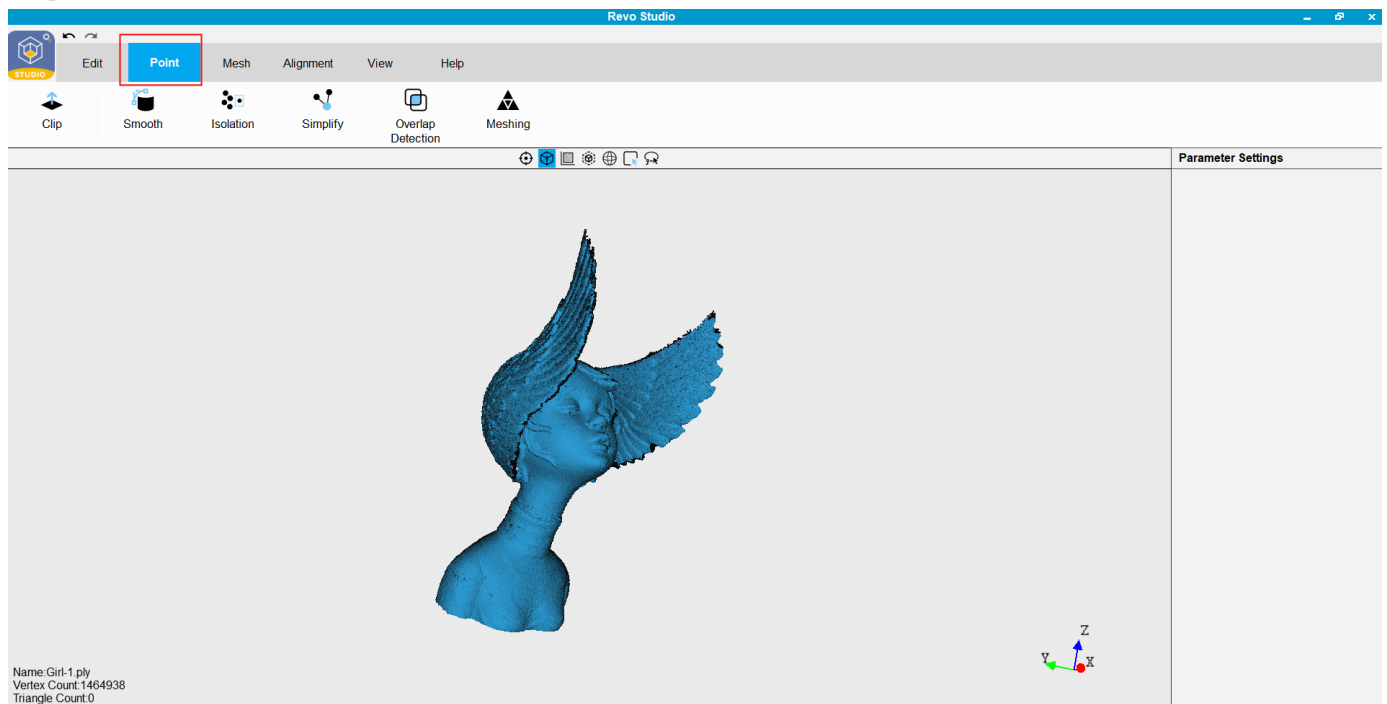
Clip: Clip the model plane. Use this function to remove unnecessary parts of the scan. Click the right mouse button and drag; the clipping plane will appear as a line (the plane is seen on-edge). The portion of the model in the direction of the arrow will be saved. Click *Apply* to finish. If needed, click the right mouse button again to cancel the operation.

Smooth: Smooth flat or curved surfaces; this function can be applied repeatedly as needed. Adjust the Parameters：
There are two smoothing methods: Geometry and Normal.
Geometry refers to the features in the scanned object.

Normal refers to the calculated directions of each facet.

In the BASIC and ADVANCED parameters, set the amount of smoothing as needed. In ADVANCED, higher values for Radius and Iteration result in smoother surfaces.

Isolation: Automatically remove point cloud data that is isolated from the main body of the object (for example, a portion of the arm when scanning a person's head). For parameters in ADVANCED, higher values for *Radius*, *Angle* and *Isolation Rate* remove more of the point cloud data.

Simplify: Simplify the point cloud (remove data points that do not improve the accuracy of the scan).

Overlap Detection: Detect and delete overlapping, and unnecessary, data points in the point cloud.

Meshing: Convert the point cloud into a meshed 3D model.

3. Mesh

In the *Mesh* module, the available commands are *Clip*, *Smooth*, *Isolation*, *Simplify*, *Enhance*, *Fill Hole* and *Convert to Point cloud*.
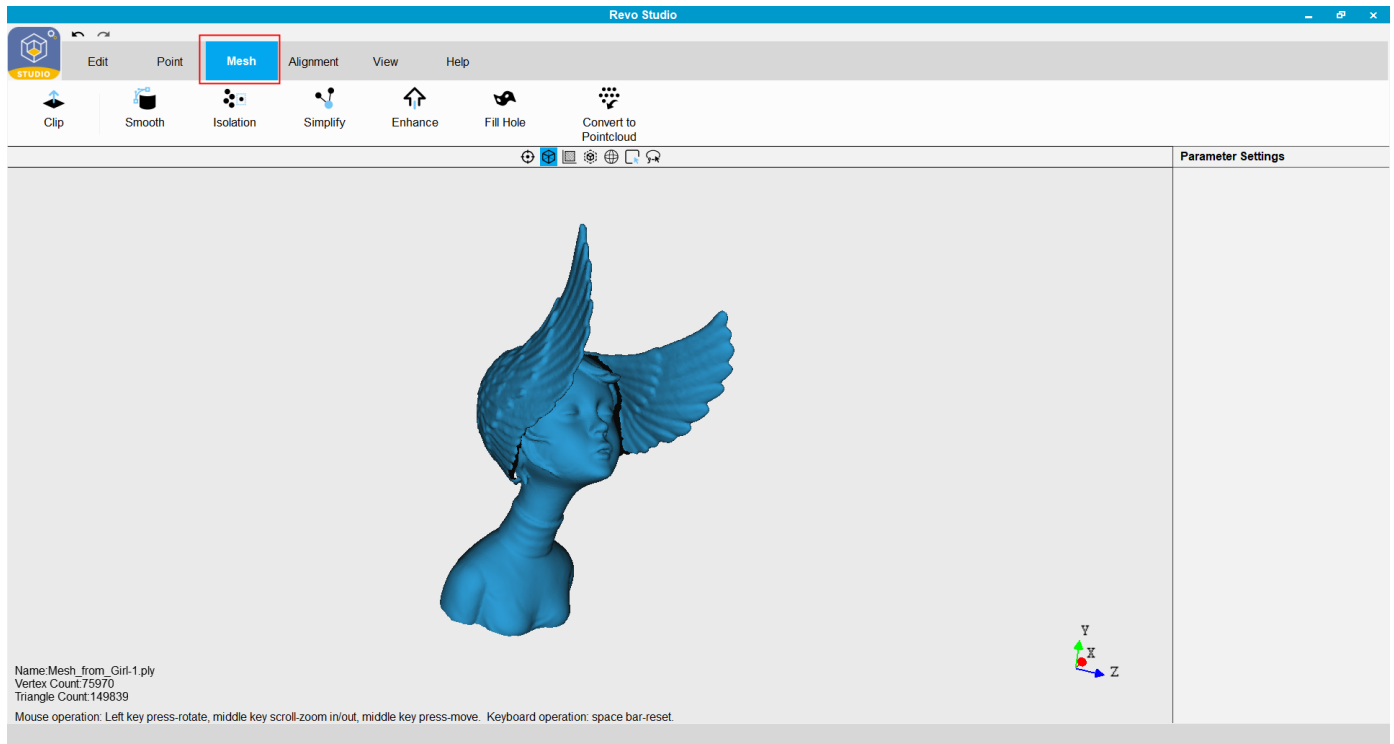
Clip: Clip the model plane. If there are unnecessary surfaces or meshed data that would not be excised by the *Isolation* command, use this function to manually remove it.

Smooth: Smooth flat or curved surfaces; this function can be applied repeatedly as needed.

In the parameters for BASIC and ADVANCED, set the amount of smoothing as needed.

There are two smoothing options for ADVANCED: Geometry and Denoise.

Isolation: Remove extraneous meshed data that is separated or only loosely connected to the main body.

Simplify: Simplify the mesh file (reduce the number of polygons in the model while retaining as much detail as possible).

**Enhance**: Sharpen the details of the 3D model.

Fill Holes: Fill the missing part(s) on the model's surface. Currently, this function only works when filling small holes because gross distortions typically result when filling holes that are a significant portion of the object's volume.

Convert to Point Cloud: Convert the meshed 3D model into a point cloud.

4. Alignment

In the *Alignment* module, multiple scans can be combined and merged into one object, two at a time.

Select *Add Float File* to import every new scan that is to be merged with the current model. *Merge Type* allows for automatic (*By Feature*) and manual (*By Mark Points*) alignment. Automated alignment needs a minimum amount of overlapping areas with the same, unique features; 20% in common is a good starting point for most projects. Both point clouds and mesh objects can be aligned. Manual alignment requires a minimum of 3 pairs of corresponding points on the two scans.
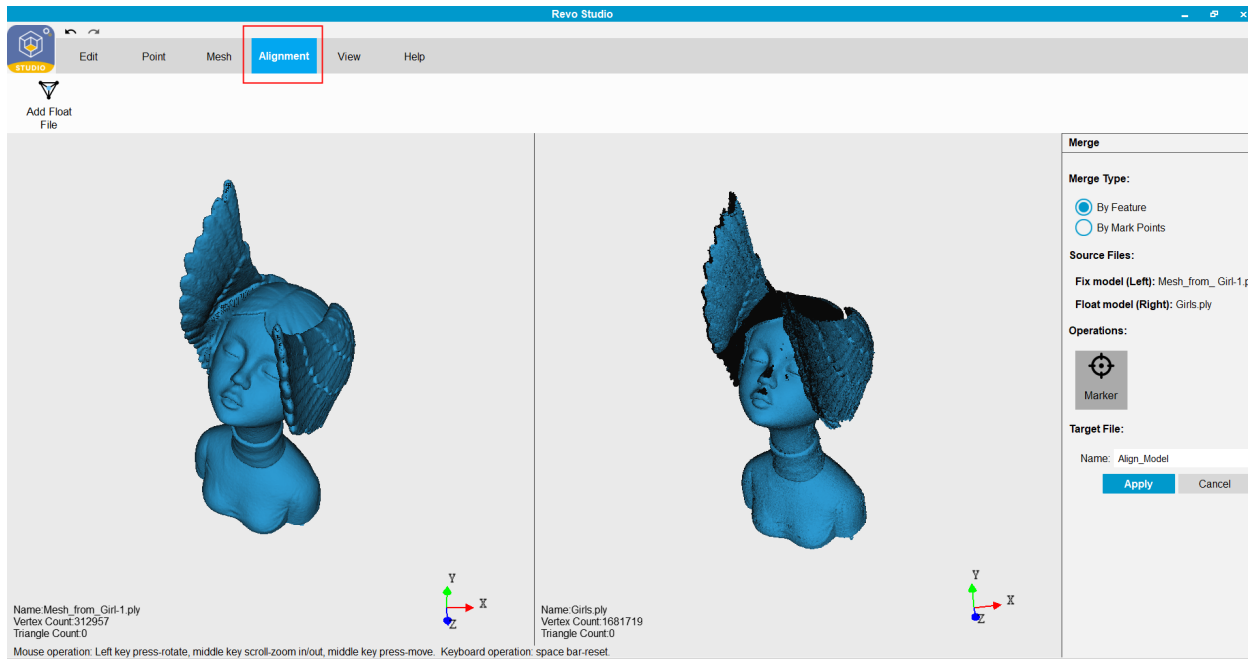
5. View

In the *View* module, the available commands support visual aids for reviewing the model.
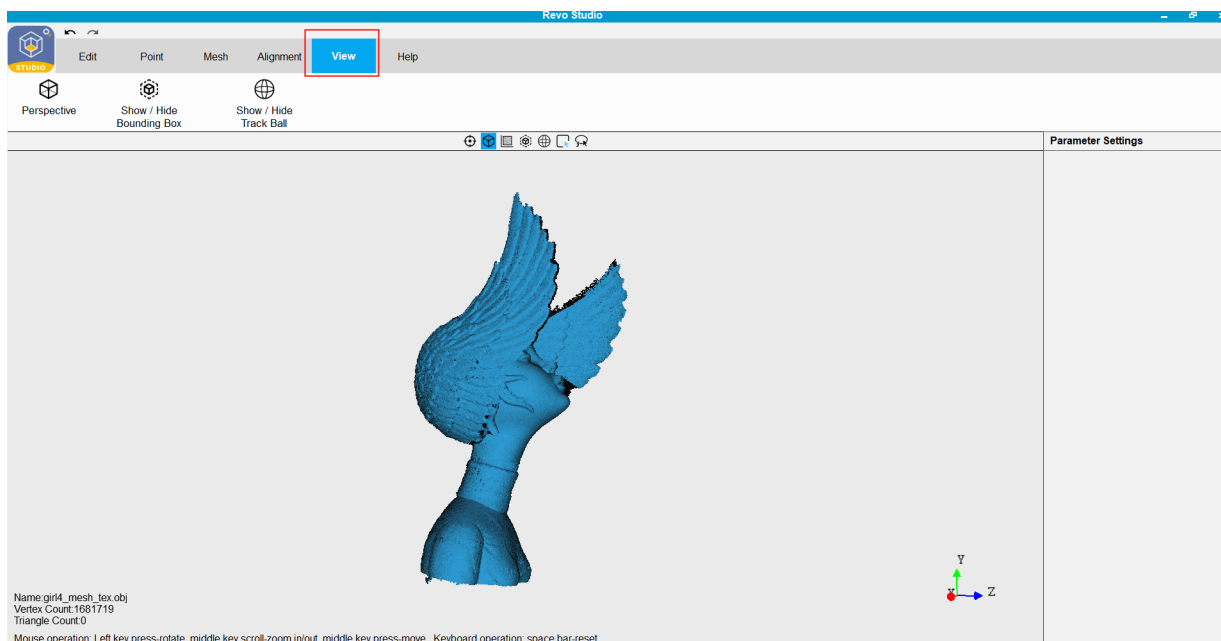
Icon ⬡ :   Switch between Perspective and Orthogonal.

Icon ⚙ :   Display or hide the bounding box.
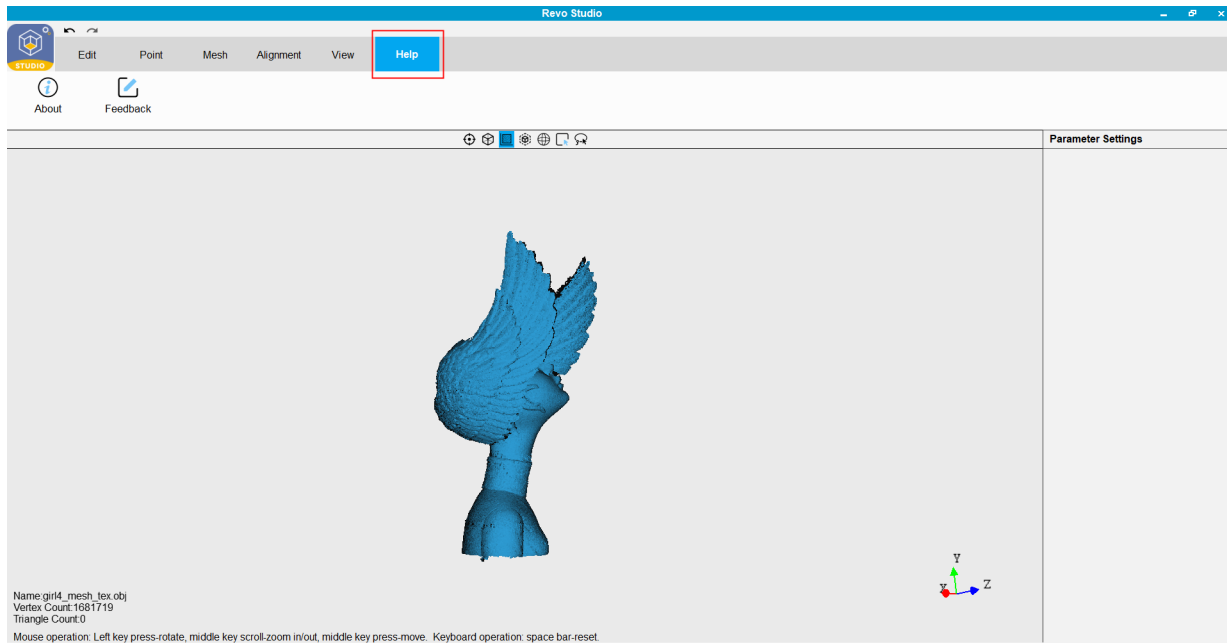
Icon ⊕ :   Display or hide the track ball.

6. Help

The *Help* section contains the *About* information and *Feedback* popup.

    The *About* popup includes the Revo Studio version and links to the official website & user forum.

    The *Feedback* popup supports bug reporting and general feedback to our developers.

Warning

The product cannot be returned if the **"Warranty Void If Seal Is Broken"** label is damaged or removed.

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https://forum.revopoint3d.com/

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Our customer service team provides **24-hour online services support**.

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