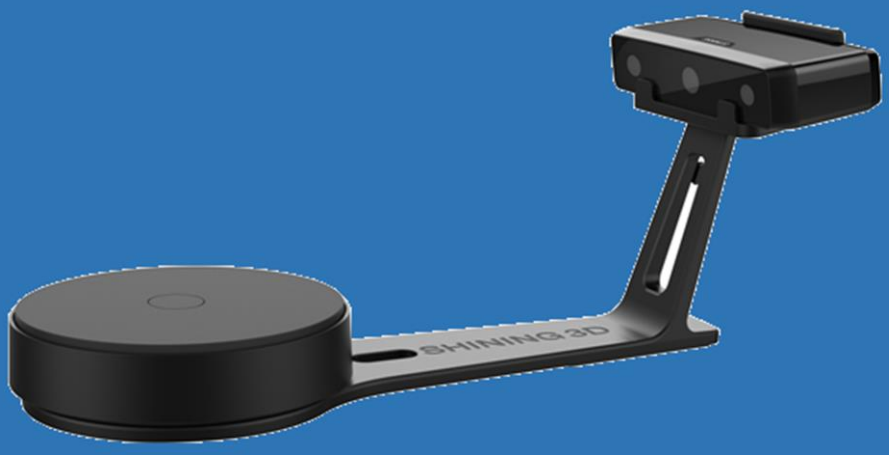
SHINING 3D

EinScan-SE

Desktop 3D Scanner

User Manual



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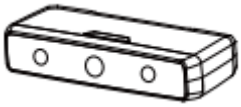
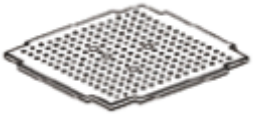
Device List and Specification

1.1. Device List

Items	Picture	Quantity
Scanner Head		1
Turntable		1
Scanner Stand		1
Scanner Bracket		1
Calibration Board		1
Calibration Board Holder		1
Power Adapter		1
Power Cord		1
USB Cable		1
USB Cable		1
Quick Guide		1

1.2. Specification Parameter

Model	EinScan-SE	
Scan Mode	Auto Scan	Fixed Scan
Scan speed	<2min	<8s
Point distance	0.17mm~0.2mm	
Accuracy	Single Scan Accuracy: 0.1mm	
Suitable distance	290—480mm	
Light source	White light LED	
Maximum scan volume	200mm*200mm*200mm	700mm*700mm*700mm
Minimum scan volume	30mm*30mm*30mm	30mm*30mm*30mm
Texture Scan	Yes	
Outdoor Operation	No (affected by strong light)	
Special Scan Object	For transparent, reflective and dark object, please spray powder first before scanning	
Printable Data Output	Yes	
Data Format	OBJ, STL, ASC,PLY,3MF	

1.3. System Requirement

Items	Recommended PC configuration
Operating System	Win7, 8, 10, 64bit
Port	at last one USB2.0/3.0 port
RAM	>8G
Graphic Card	NVDIA Series
Graphic Memory	>1G
CPU	i5 or higher

2

Installation Notes

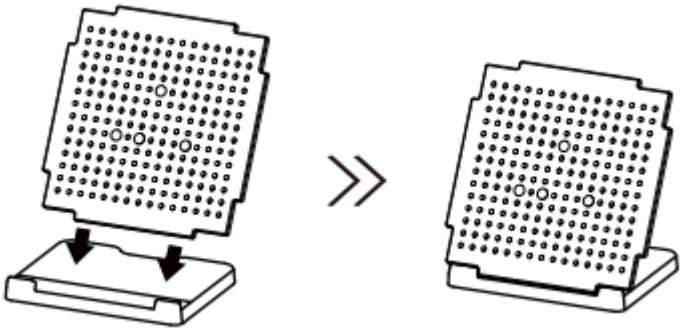
2.1. Hardware Installation

Scanner Set-up

◆ Step 1. Place the scanner head onto the bracket.

◆ Step 2. Insert calibration board onto the board holder .

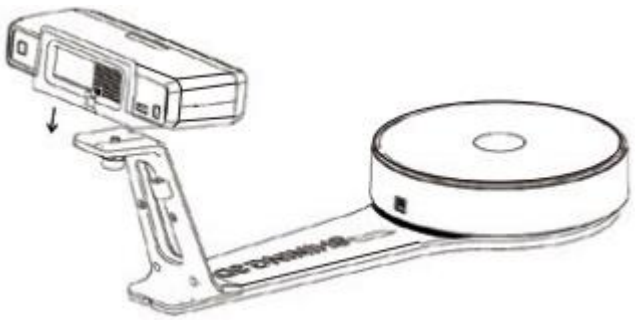
NOTE : Rotate the calibration board only while calibration.



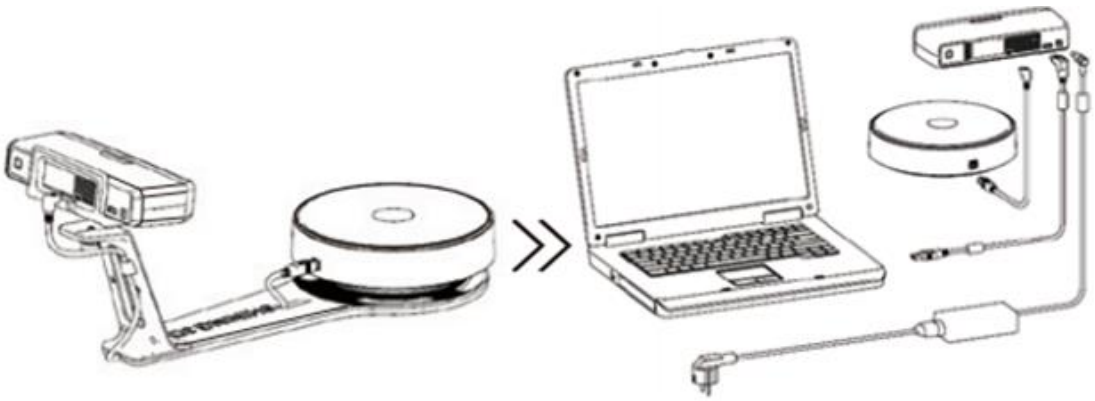
◆ Step 3. Turntable and Scanner installation.

1) Place the turntable onto scanner stand

2) Screw the scanner into the socket on the stand.



3) Plug power cord into outlet and the back of scanner;Plug USB cable into back of scanner and computer USB port;Plug USB cable into back of scanner, and turntable

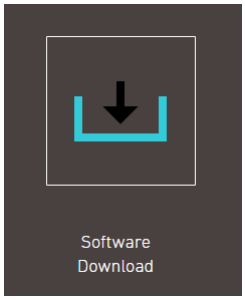


Scanner Turn-on/off

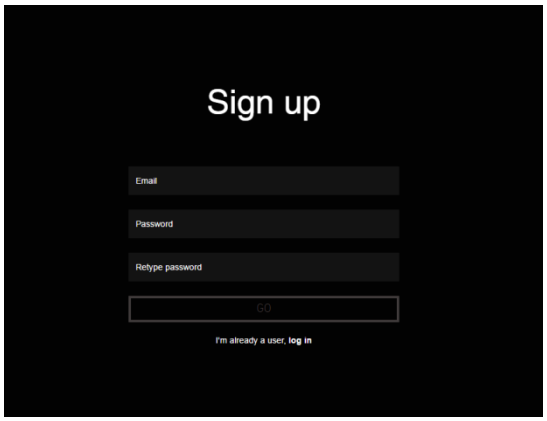
- Hold on the touch switch for about one second to turn the scanner on;
- Double-click on the touch switch and stay for one second each time to turn the scanner off.

2.2. Software download

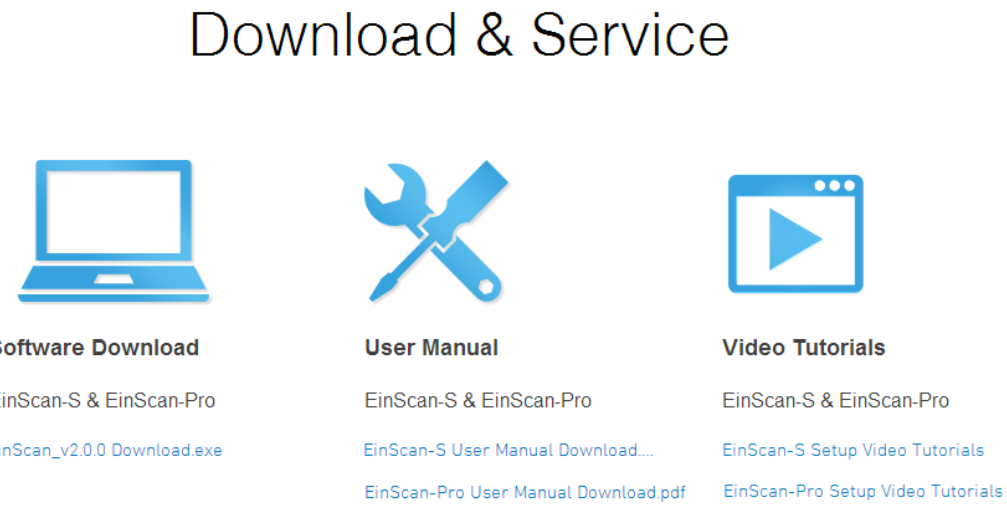
Firstly, enter the Support page: http://www.einscan.com/support. Click “Software download”, as shown below:



Secondly, please complete the registration, if registered, click log in.



After take the survey, it will enter the page http://www.einscan.com/software-download



Finally, click the icon to jump to the page of any file to download the software.

2.3. Software installation

Software Installation

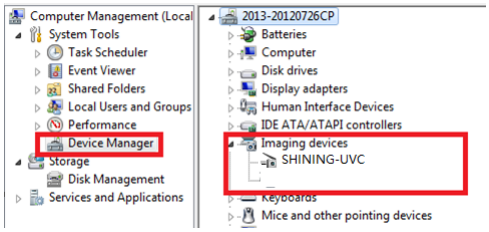
Double click installation package, Follow the instructions as the window pops up. Users can either choose the default installation path or click the Browse button to select the installation path. Default installation is suggested.

When installation is finished, there will be a shortcut of the software

on the desktop.

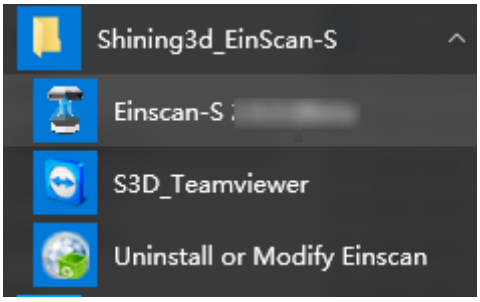
In the next step, connect the device and check whether the camera driver installation is successful, right click “Computer”, choose “Computer Management”-“Device Management”-“Imaging devices” to check if the camera display normally.

Note：You should One-click on the touch switch to turn the scanner on.



Software Uninstall

Open the start menu, choose Shining3d----Click “Uninstall or Modify Einscan”, as shown below.



3

Software Instroduction

3.1. Scan Preparation

Mode selection

(1) Fixed Scan (With Turntable): This mode is recommended for objects within the size of 200*200*200mm.

(2) Fixed Scan (Without Turntable): This mode is recommended for objects over the size of 200*200*200mm, as well as a comparative stable environment (without obvious vibration) are required.

Not recommended to scan objects within the size of 30*30*30mm.

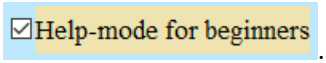
Special objects

Before scan objects in transparent, semi-transparent or black shall spray on the surface.

3.2. First Scan

Choose the device “EinScan-SE”, as shown below.

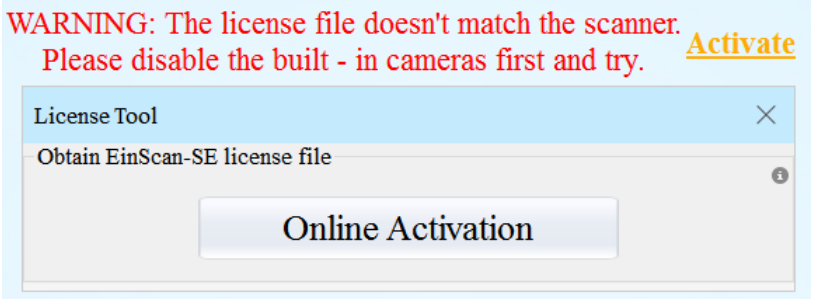
3.2.1. Help Mode for Beginners

Close Help Mode for Beginner by clicking the top right corner 

. To open Help Mode for Beginner, go to Menu -> User Setting ->Help Mode for Beginner

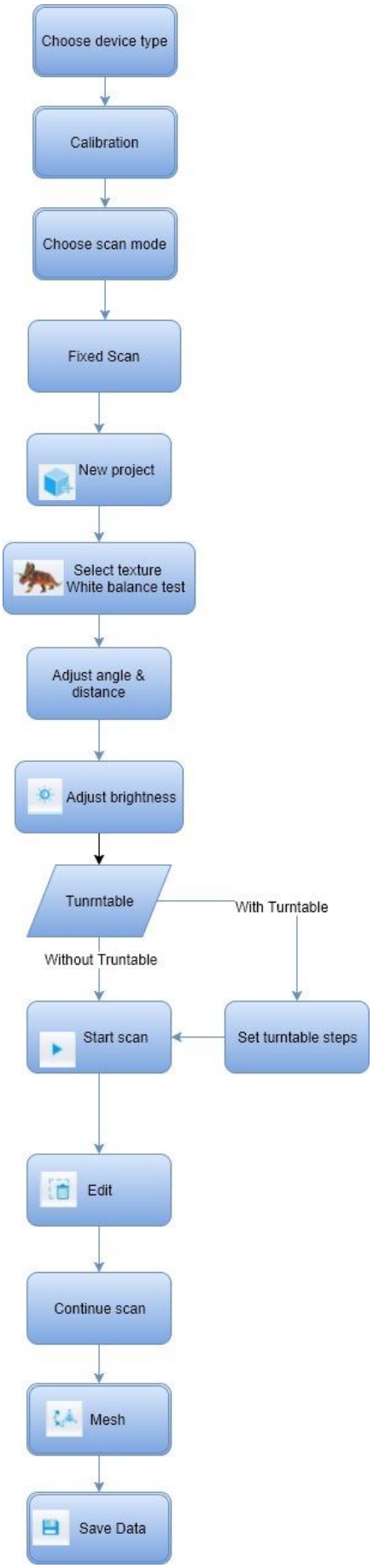
3.2.2. Obtain License File

When a warning of license file doesn’t match the scanner pops up when entering scanning mode, the license file can be acquired by clicking “ Activate”



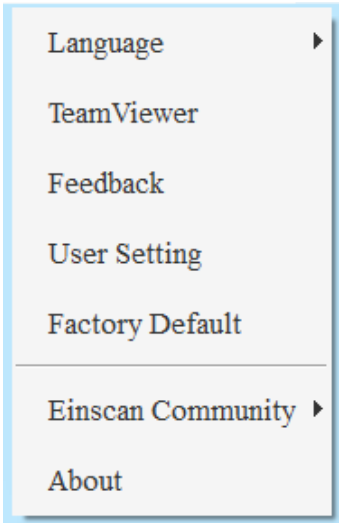
3.2.3. Operation Procedure

Operation Procedure



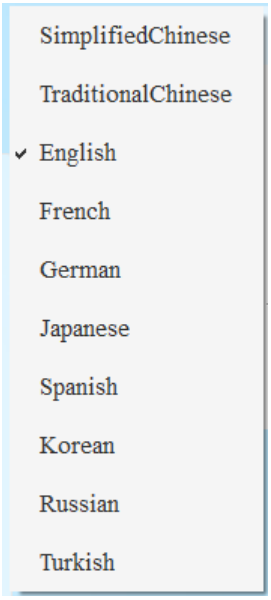
3.3. Drop down Menu

Click from the upper right to open drop down menu.



3.3.1. Language

This software version is including Simplifed Chinese, Chinese, English, German, Japanese, Spanish, French, Korean, Russian and Turkish. Language can be switched in the **choose device type interface.**

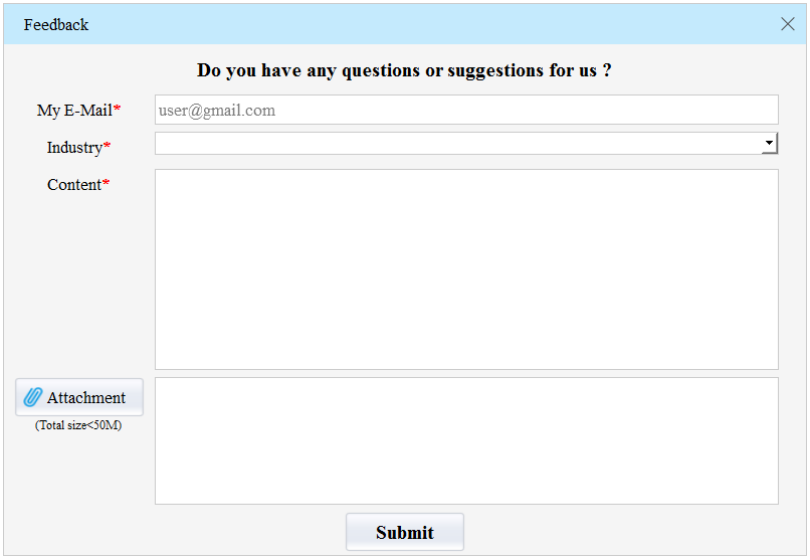


3.3.2. TeamViewer

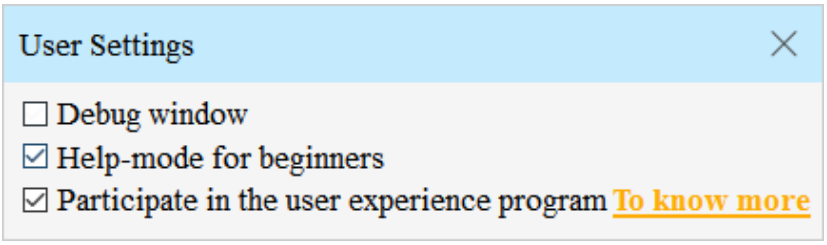
By clicking TeamViewer, you can go to the TeamViewer interface directly without installation.

3.3.3. Feedback

If you have any questions, or suggestions, please share with us by clicking “Feedback”. Leave your email in “ My E-mail”



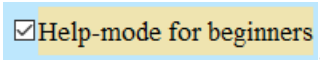
3.3.4. User Setting



Debug window

Tick the checkbox to open debug window; if you want to close it, unselect it.

Help Mode for Beginners

Help Mode for Beginner is the default selection, which is to guide the new users make a scan completely step by step. Close Help Mode for Beginner by clicking the top right corner 

. To open Help Mode for Beginner, go to Menu -> User Setting ->Help Mode for Beginner

User Experience Program

To help us improve the quality and user experience of Einscan, we hope to be allowed to collect usage information to Einscan Team. This information will not identify you and does not include your project data. By default, this checkbox is selected, and we strongly recommend you to select it.

3.3.5. Factory Default

System setting (brightness, turntable steps), calibration data will restore to the factory default settings. Language will be changed into English as default. Factory Default will require software restart.

3.3.6. Einscan Community

Official Website (http://www.einscan.com/) refers to SHINING3D official website for product and information.
Community (http://www.einscan.com/einscan-experts-forum) refers to SHINING3D forum for all EinScan users to discuss and share the experience.
Facebook (https://www.facebook.com/groups/einscan) refer to facebook for Einscan users to discuss and share the experience.

3.3.7. About

Software version information, and technical support mail can be found here.

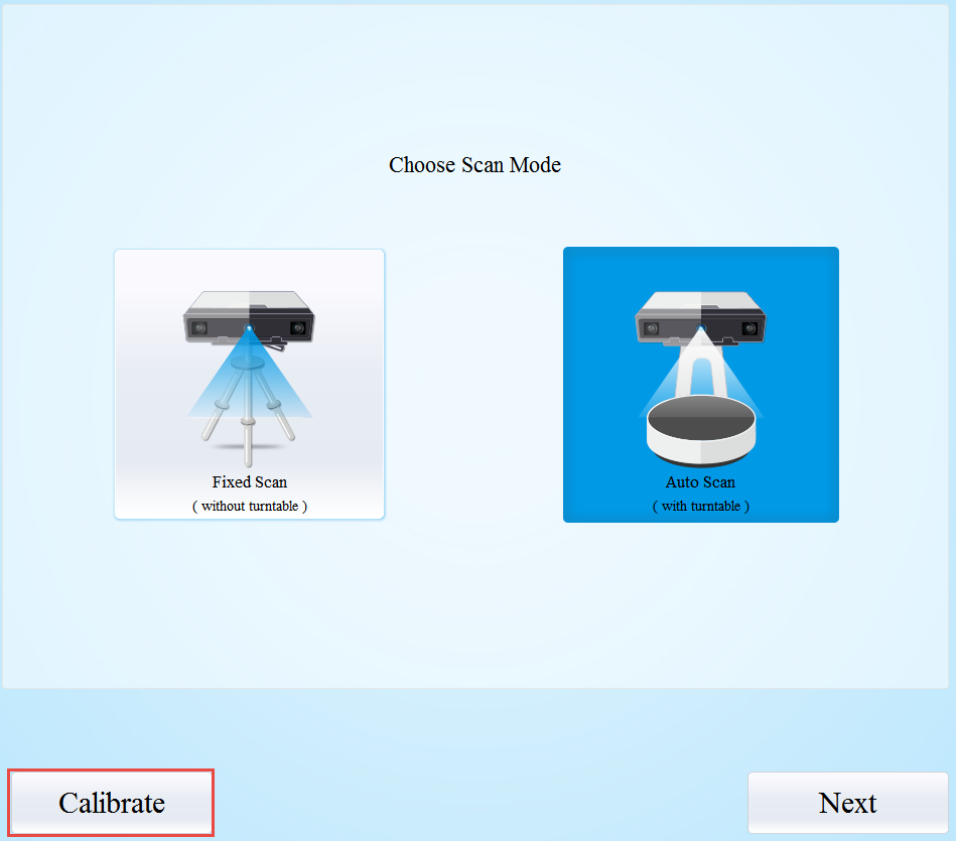
4

Calibration

Scanning cannot be entered if calibration is not done after installing the software. There is a WARNING: No calibration data, please calibrate first.

4.1. Calibration

Click ‘Calibrate’ to enter the interface of calibrate. The first time choose the device type and click “Next”, it will enter the calibration interface automatically.



The interface of calibrate:

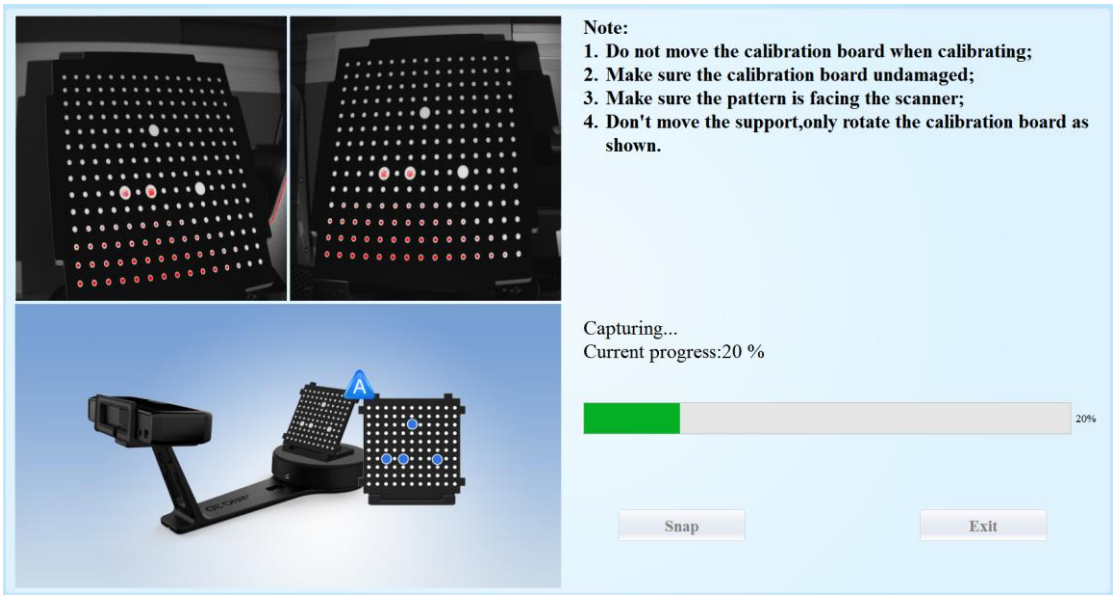
Calibrating your scanner is important in order to get accurate scan results. The following describes the three steps required to successfully calibrate your scanner.

Follow the software operation guide, adjust the distance between the projector and

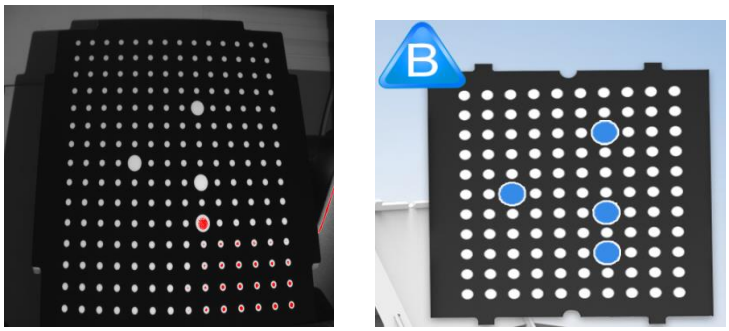
calibration board, and the cross from scanner should target at the calibration board n clearly.

Place the calibration support and board in the center of the turntable as shown in Figure A. Check that the calibration board is located at the center of the turntable with the Figure A pattern facing the scanner and click “Snap”. Do not interfere or touch the calibration board during the calibration sequence.

⚠ **Don’t move the support. Only rotate the calibration board.**

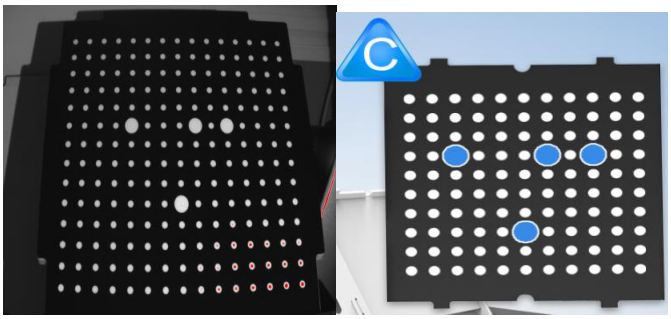


After the 1st calibration sequence, the turntable will stop and the display will show what is in FigureB. Being careful not to move the support, remove the calibration board, rotate it 90° counterclockwise and place the board back onto the support as shown in Fig. B.

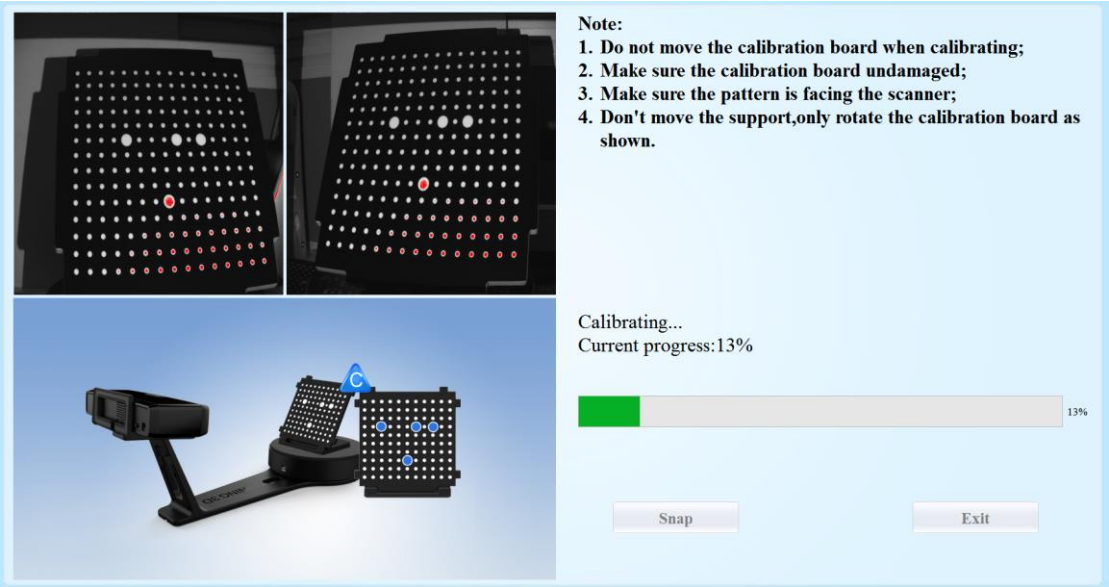


⚠ **Note：Don’t move the support. Only rotate the calibration board.**

Being careful not to move the support, remove the calibration board, rotate it 90° counterclockwise and place the board back onto the support as shown in Figure C.



Upon completion of the 3rd calibration sequence, the software will automatically calculate and archive the current conditions. This calculation may take several seconds but once complete, you are ready to start automatic turntable scanning.



When calibration is finished, the software will close the calibration window automatically and enter the scan mode selection page.

If the calibration fails, please try to re-calibrate following the instructions above. If calibration fails again, please contact your local support representative.

4.2. Calibration Precaution

You must finish all the calibration steps according to the instruction when you calibrate at the first time.

Situations as below need do calibration again:

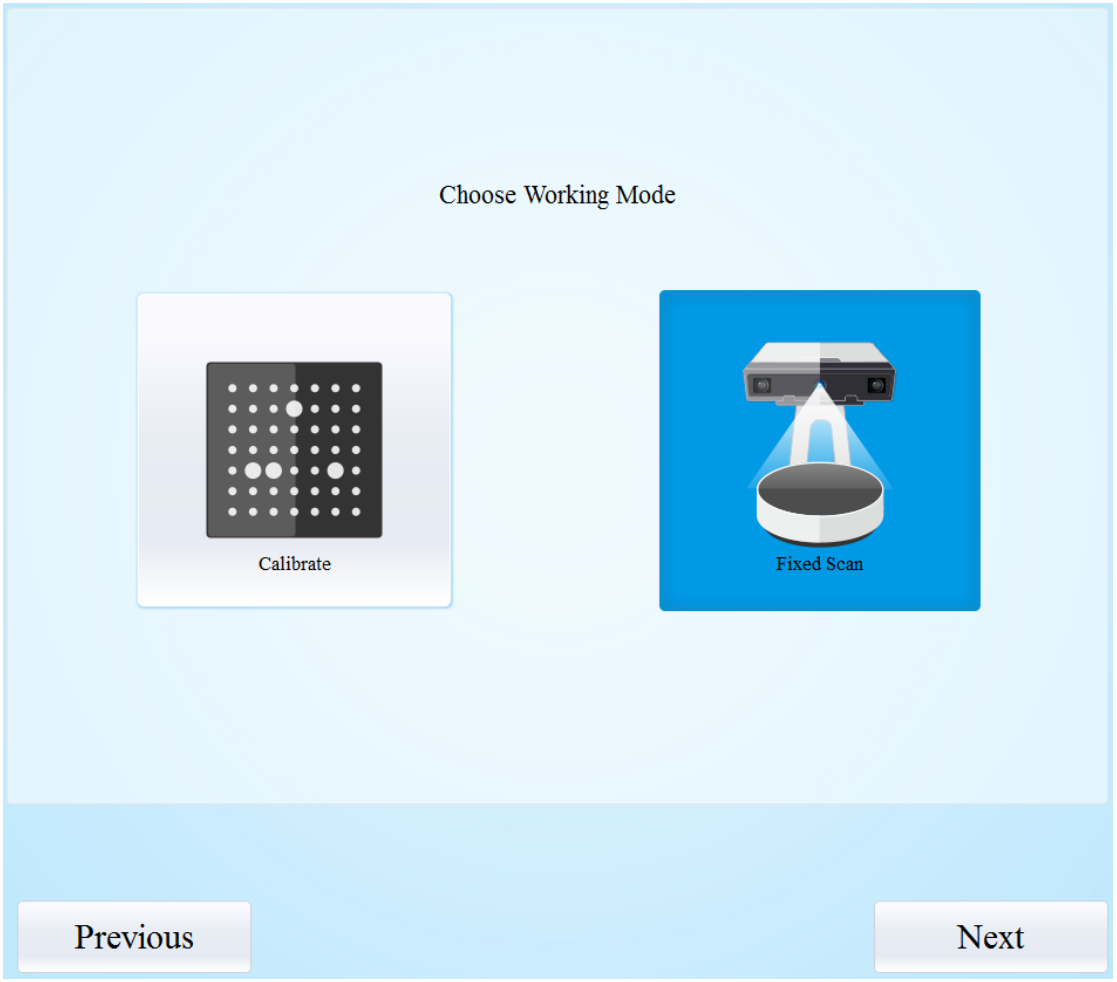
① When the scanner is used for the first time or after long time without using.
② When there is strong vibration during the transportation.
③ When alignment mistake or failure frequent appear during the scanning.
④ When scanning data is incomplete and quality is much worse during the scanning.

5

Fixed Scan

5.1. Help Mode for Beginner

Choose Fixed Scan, as shown below, click “Next”.

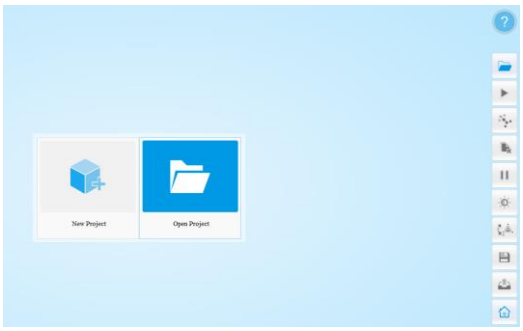


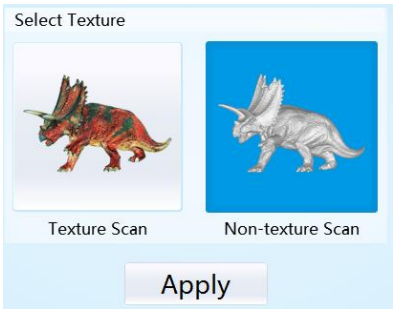
Help Mode for Beginner is the default selection, which is to guide the new users make a scan completely step by step. Close Help Mode for Beginner by clicking the top right corner ☑Help-mode for beginners. To open Help Mode for Beginner, go to Menu -> User Setting ->Help Mode for Beginner

Under the Help Mode for Beginner, following the guidance step by step, you will finish a scan following: **New Project -> Texture/Non-texture ->adjust brightness -> start scanning -> Edit -> ->Continue Scan/Mesh -> Mesh type: Watertight/ Un-watertight -> Post Processing -> Save data**

5.2. Before Scanning

Enter the interface of New Project and Open Project, the default project save location is the desktop, then it will remember where the user last created a new project. Click “New Project”, enter the project name, then click ‘Save’ to enter the interface of Non-texture Scan and Texture Scan selection.



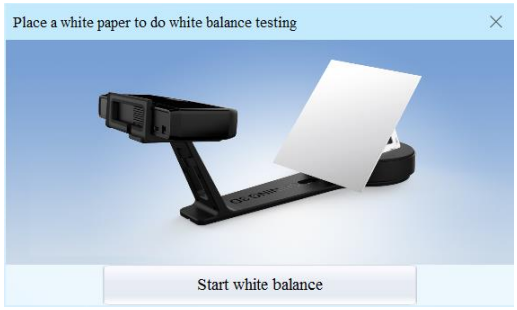


Choose ‘Texture scan’ to enter the white balance test.

White Balance Test

When scanning a colored object, you’ll need to perform a white balance test to achieve better scanning results. Place a sheet of white paper as shown below on the calibration plate and click “ Restarting white balance test”.

After the white balance test has completed, you are free to continue with the texture scan.

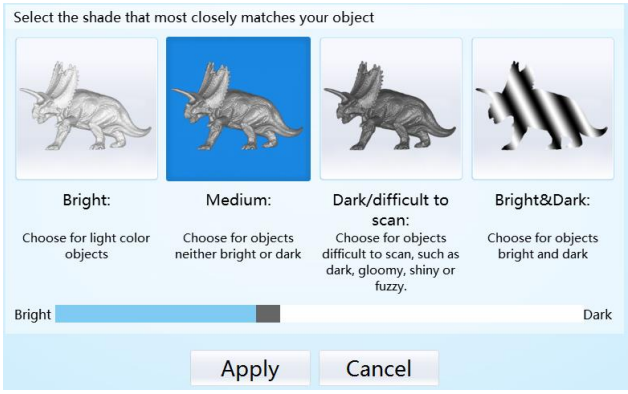


Adjust Brightness

Adjust the distance between the object and device (suitable working distance is 290 ~ 480mm), until the cross is clearly to be seen on the object.

Most users will find that the automatic settings work just fine but for more complex objects or lighting conditions, you can manually adjust scanner settings.

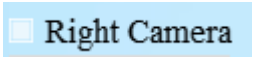
Choose your desired brightness setting if the object is over or under exposed. Click “Apply” to confirm, or click ” Cancel ” to not save.



Enter the interface of fixed scan, check “With Turntable”

Work distance： Adjust the distance between the object and device (suitable working distance is 290 ~ 480mm), until the cross is clearly to be seen on the object.

Camera viewport

Tick 

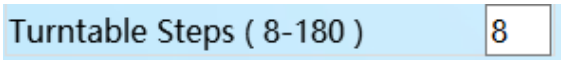
to display the right camera viewport and texture camera viewport. The left camera viewport always display.

Click in the lower right corner of the camera viewport to zoom the camera viewport

Adjust Brightness

Click the bottom on the right toolbar to open the adjust brightness window. Click the button again, and the camera viewport will be hidden. This function is the same as the adjust brightness when new a project.

If you don’t choose “With Turntable” option, you will get single piece of data; if choose this option, the scanner will use turntable to scan and choose turntable steps.



Turntable Steps

Before scanning, you can set the scan times per round under turntable scan. The default setting is 8 times.

HDR

Enable HDR brightness can scan bright and dark objects. The same function as Adjust brightness “Bright&Dark”.

5.3. Scanning

5.3.1. Start Scan

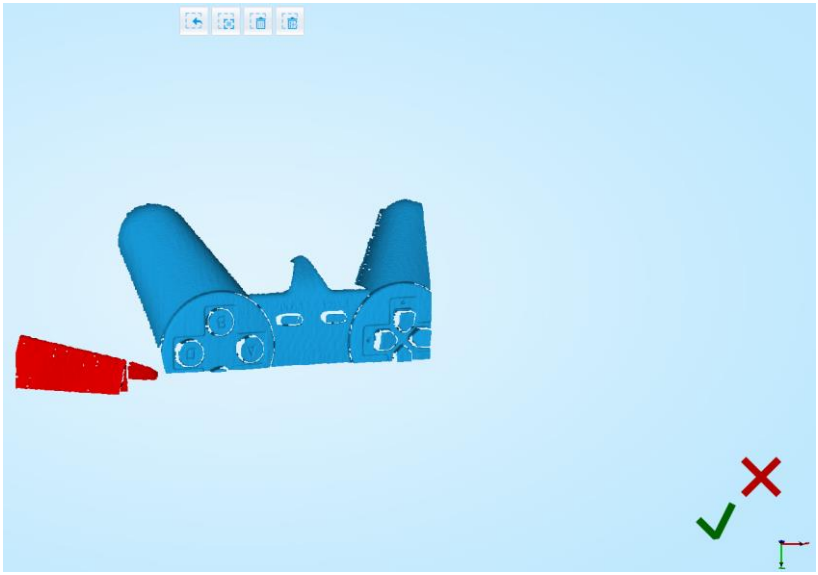
Click the button or press space button to start scanning. After the turntable has rotated one circle， you can change with turntable or not, turntable steps.

5.3.2. Edit Tool

Edit buttons:①Deselect ②Revert ③Delete ④Undo⑤Show/Hide Stripes ⑥Shift + Left mouse: choose data ⑦Ctrl + Left mouse: deselect selected data

You can edit the current part data after each scan. You can do the below edition if the data has excess parts.

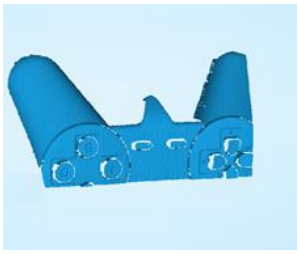
SHIFT+Left mouse：Select excess parts, the selected section is displayed in red, as shown below.



Ctrl + Left mouse: deselect selected data

Delete selected data

Click the button and “DELETE” in the keyboard to delete selected data.



Undo

You can only undo the last deleted data.

Show/Hide Stripes

Click the button to switch the texture display and hide. Non-texture scan, there is no such button.

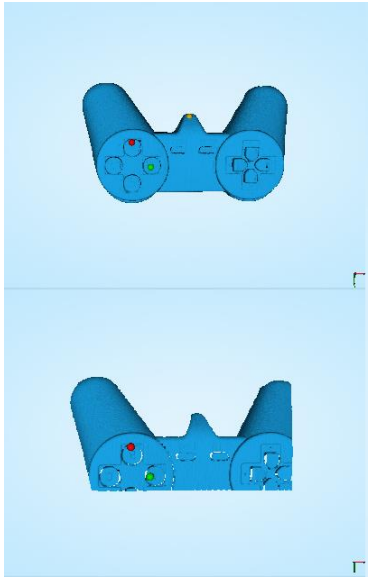
End single-piece edit

Click to save data and exit the single-piece edition; Click , delete the current scan data.

After end the single-piece edit, the right toolbar will display, and now can edit the whole scan data. The specific operation is the same as the single-piece edit.

5.3.3. Manual Align

If automatic alignment failed during scanning, you can use manual align. Click the button to open Manual Align view port on the left side of the software. Keep SHIFT down, and click left mouse button to select at least 3 non-collinear corresponding points in the 3D preview windows for Manual align, As shown on the right.



Note: If you choose wrong points under manual alignment, you may press Esc button to cancel the points one by one in order, until you exit manual alignment.

5.3.4. Delete Current Data

If you are not satisfied with current scanning data, or there is not enough overlapping region for registration, click the button to delete current data and then change the position of the scanner or the object to scan again.

When auto scan mode is scanning, you can click the button to stop the current scan. The current data will be deleted directly.

5.3.5. Pause

Click the button, scanning will pause; Click again to resume scanning.

5.4. After Scanning

5.4.1. Mesh

When the scan is completed, click the botton, proceed to post-processing. You will see two modes after clicking the button: Watertight and Unwatertight. Watertight usually slower than unwatertigt. Texture scan mode will take more time compared to Non-Texture scan mode.

Watertight

Closed model can be printed directly. After choose this mode, you should select the object details.

Select High for objects with fine texture, select Med or Low for objects in smooth surface or with less detail. The time for data processing is in relation to the detail setting. The higher the level of details is, the longer time the processing takes. It may keep for a long time in 95%, please be patient.

Select the object details：

Unwatertight

Unclosed model. The following picture is the watertight and unwatertight model.

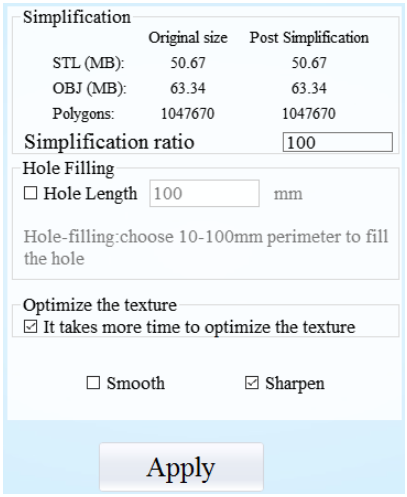
Watertight

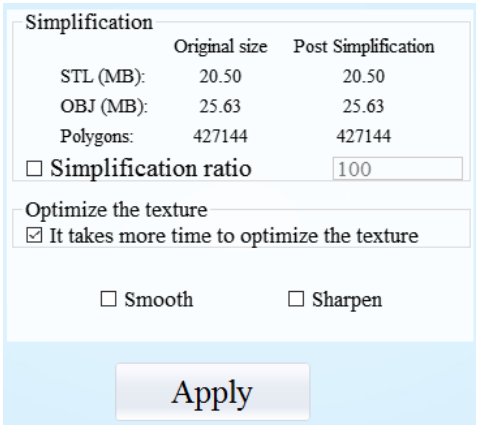
Unwatertight

Texture watertight results :

5.4.2. Data Post Processing

After meshing, the following dialogue box of data post processing will appear. You can simplify the data per your request, do fill holes, sharpening or smoothing operations. Unwatertight and watertight, the post processing of the interface as shown below.

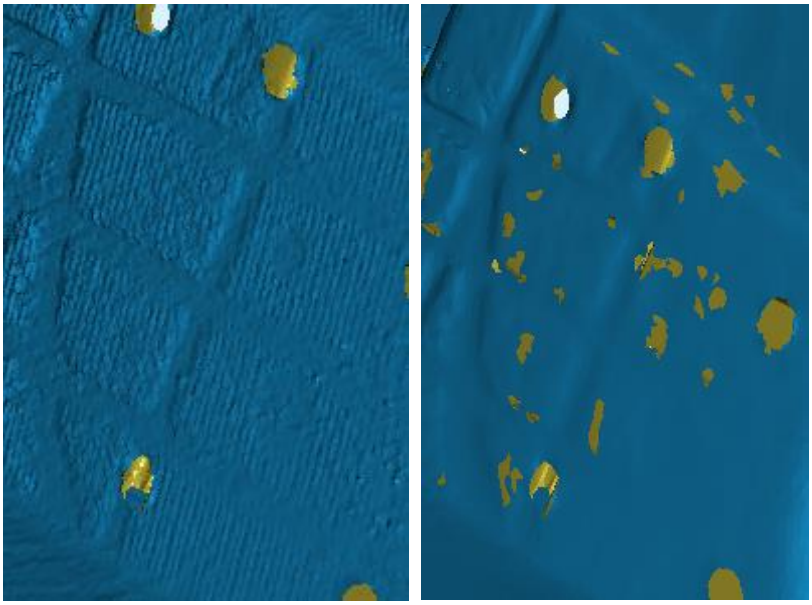




Data simplification

After simplification, the polygon numbers, size and surface detail of data will be reduced accordingly. Check the simplify check box and set the ratio, the default is 100%.

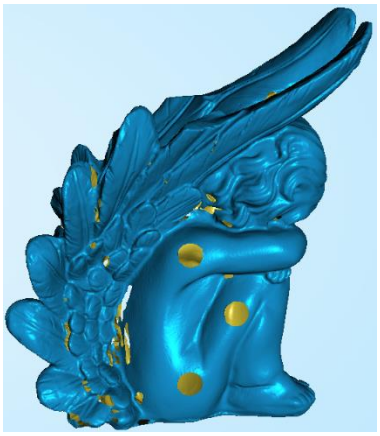
The comparison of detail between before simplification and after simplification (at 30% simplify proportion).



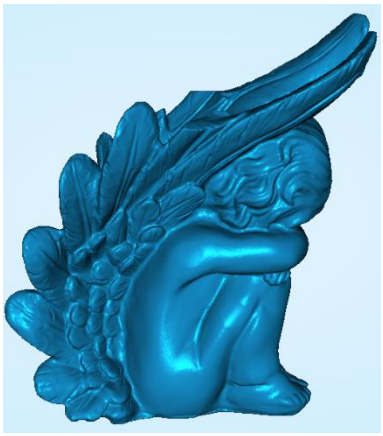
Before simplification After simplification

Fill holes

The default does not check the mark point and fill hole, check the fill hole you need set perimeter, choose 10-100mm perimeter to fill the hole, less than the perimeter of the hole will be filled.



After



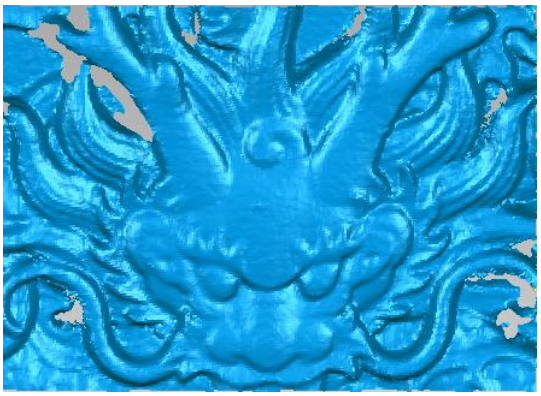
Before

Note:

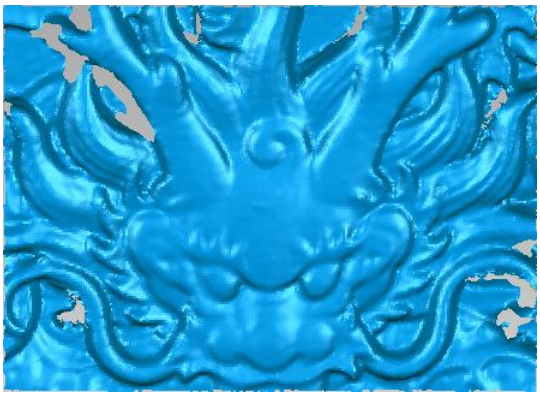
1. If the edge of the hole is not smooth may cause the effect is not good, not recommended to fill hole.
2. Hole-filling: choose 10-100mm perimeter to fill the hole;

Smooth

The data to denoise processing, improve data quality, the figure before and after smoothing:



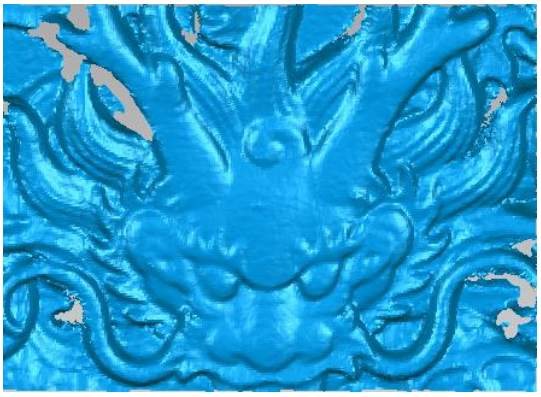
Before smooth

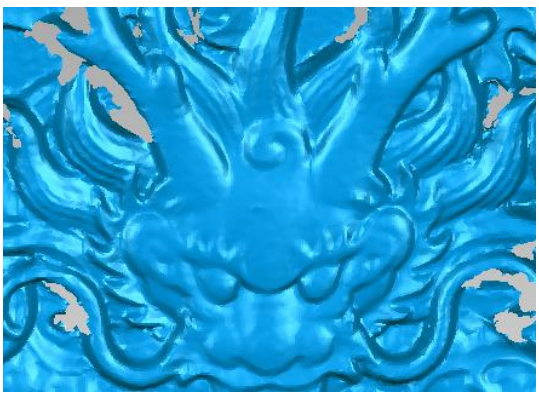


After smooth

Sharpen

Improve the overall clarity of the data, the figure below before and after sharpening:





Before sharpen After sharpen

Optimize the texture

This option is only available when the scan data is with texture. Click this function to optimize color texture of the model, which can make the color closer to the model but take more time for processing.

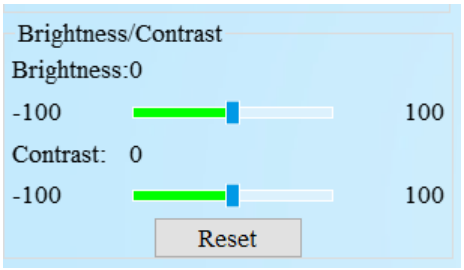
Not optimize Optimize texture

5.4.3. Brightness/Contrast

After meshing project with texture, you may adjust brightness/contrast under the camera viewport.

Brightness (-100—100): shows the brightness of the picture. The higher the value is, the brighter.

Contrast (-100—100): shows the contrast of the colors. The higher the value is, the more color gradient layers.



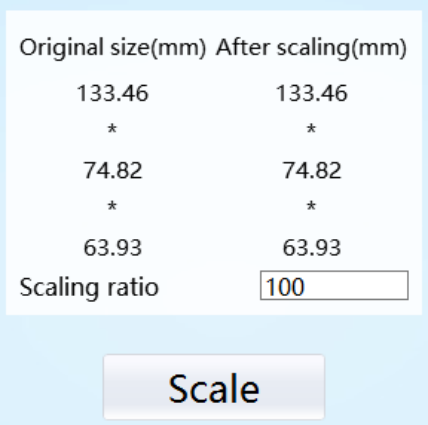
5.4.4. Save Your Data

Before merging can save data as asc single. After merging, it can be saved as asc, stl, ply and obj. To save color texture, please select Ply and obj.

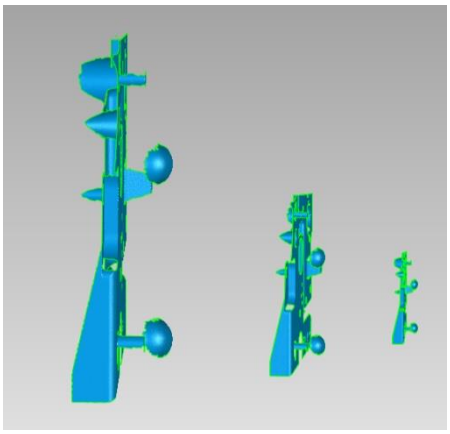
Scale

Scaling the volume of scanning data, while the quantity of triangular faces and size of data will not be changed.

Scaling result as reference: From left to right shows double size, original size and half size respectively.



Scale window



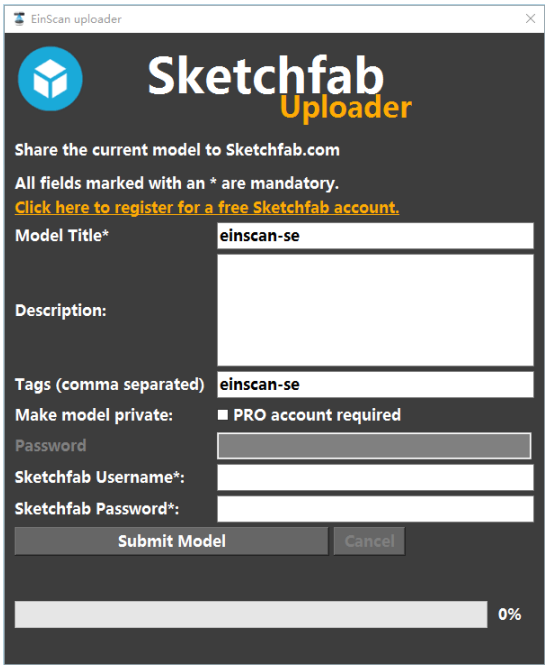
Scale result

5.4.5. Share Your Data

Click the button after merging to share data, it will show the dialog as below.

You can share your model to Sketchfab, while model title, username and user password are required. Register an account and look at the shared model at http://sketchfab.com.

> **Note:**
> Sketchfab Normal account can only upload data maximum 50M, while Professional account can share maximum 200M, and set model as private.



5.4.6. Project

You can new or open projects. The default project location is the desktop, then it will remember where the user last created a new project.

> **Note:**
> The projects created by auto scan and fixed scan can be reciprocally imported. After importing the project, direct access to scan, choose the scan mode based on whether the imported project is texture.

5.4.7. Back to home

If you want to change the scan modes, click the button to go back to the homepage to select the scan mode.

5.5. Others

5.5.1. Mouse Operation Prompts

Lower left corner of the interface is the mouse operation prompts:

- After scanned or imported project, the prompt text is as follows:
  Hold down the left mouse button: Rotate the object;
  Hold down the middle mouse button: pan the object;
  Hold down the mouse wheel: Scroll up and down to the object; scroll down to enlarge the object;
  Hold down the Shift + left mouse button: select the area on the object;
  Hold down the Ctrl + left mouse button: deselect selected data;

  Delete: Delete the selected area.

- Auto scan's manual align, the prompt text is as follows:

Press and hold shift + left mouse click: Select point to start manual align

5.5.2. Hot Key

Space button: To start scan or during single-piece edit to save data and exit the single-piece edition.

ESC button: To close the pop-up windows, such as new project, select texture, choose mesh type and so on.

5.5.3. Points and Triangles

Current Points	554235
Current Triangles	1103641

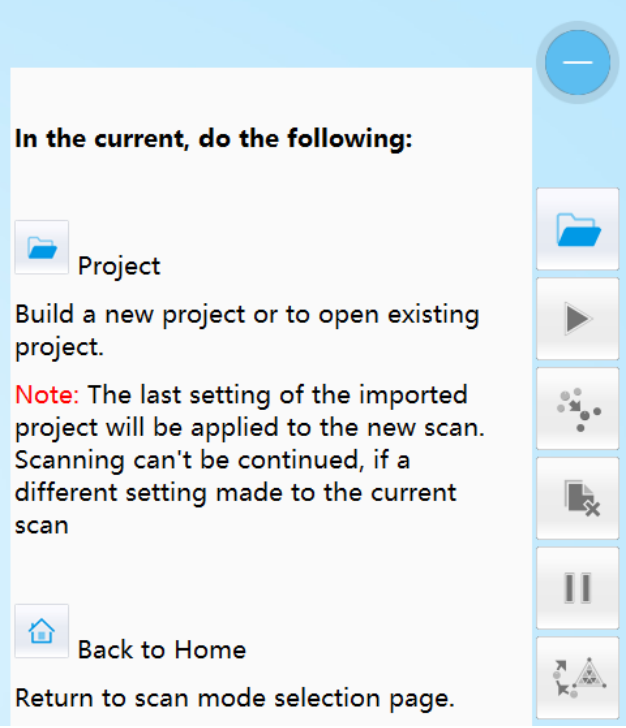
Current Points and Triangles

When scanning it will show the current points and current triangles in the lower right corner. When you edit the scan data, the current points and the current triangles change in real time.

5.5.4. Help

Click this button to get the operation manual and notes in more detail under the current step.

The following picture shows the help information of new project.



5.5.5. Model Viewer

Einscan software can be a 3d viewer for ASC, OBJ, STL format file. Drag the 3d model to Einscan software under scanning mode interface.

Click on the 3d viewer window will close the model view. The scanning window will be not affected.

5.6. Work Offline

You can use software without scanner connection. You can do edition, manual align, delete, mesh, save data, share data and so on.

6

FAQ

FAQ

1. How to scan objects in transparent, semi-transparent or black?

Solution：Scan before spraying on the surface.

2. Under auto scan mode, if the turntable is not moving, but with a humming sound, how to solve?

Solution：Disconnect power line and connect again in few seconds.

3． How to solve if after scan there is no data?

Solution：Open control panel→Region, then click “Additional settings”, decimal symbol choose “.”

7

Contact Us

Contact Us

Contact us

Email: einscan_support@shining3d.com

More scanning information

More scanning information can refer to http://www.einscan.com ---Support