



SHINING 3D



FreeScan UE Pro2

V2.1.0.4

User Manual

Table of Contents

Overview

Welcome
Getting Started

Hardware

Introduction
Connection

Software

Installation
Activation
Upgrade
Device Pairing
3Dconnexion SpaceMouse

Calibration

Calibration Preparation
Calibration

Scan

Project and Project Group
Preparation
Interface
Settings
Scanning

Data Editing

Functions

Alignment

- Post Processing

Mesh Optimization



Mesh Editing

- [Measurement](#)



Measurement

Create Features

Align

Measurement

- [Save and Export](#)



Save Data

Data Sharing

Third-party Software

- [Contact](#)

Overview

Welcome

Symbol Conventions

Symbol	Description
	Note: This symbol is used to inform you of the additional information of the product.
	Caution: This symbol is used to inform you of incorrect operations that may damage the device or result in data loss. Any damages resulting from misuse are not covered by the warranty.
	Warning: This symbol is used to inform you of the potential risks that may result in serious personal injury and other safety incidents.

The Declaration of Intellectual Property and Disclaimer

Thank you for using the products of SHINING 3D TECH CO., LTD. (hereinafter referred to as the "SHINING 3D"). Before you use the products, please carefully read and understand this declaration. Once you use this product, it means that you fully accept this statement and promise to comply with the relevant regulations.

1. The contents of the Product Instruction and User Manual (hereinafter collectively referred to as the "Product Usage Documentation") are critical to your personal safety, legal rights, and liabilities. Before you use the products, Please ensure that you have carefully read the Product Usage Documentation, and use the product correctly in accordance with the requirements of the Product Usage Documentation. We also recommend that the products be operated by trained professional technicians.
2. Please inspect and/or maintain the product before use. If the product is damaged, deformed or in any other abnormal condition, stop using it immediately and contact the after-sales service personnel for maintenance. SHINING 3D will not be responsible for any problems caused by your failure to inspect or maintain the product in a timely manner.
3. SHINING 3D does not guarantee the applicability of the outcomes of your use of the products, and you are responsible for verifying the quality and functionality of the outcomes. You should check and verify thoroughly that any outcomes meet your requirements before using them, for which you bear full responsibility. If any damage arising from using the outcomes of any products, you shall bear the corresponding risk, and SHINING 3D shall not bear any responsibility.
4. SHINING 3D owns complete intellectual property rights for the contents of the for which you bear full responsibility. Without the written consent of SHINING 3D, it is not allowed to copy, transmit, publish, adapt, compile or translate any contents of the Product Usage Documentation in any form for any purpose.

5. The Product Usage Documentation is a guidance for installing, operating, and maintaining the product instead of serving as the quality guaranty for the products. SHINING 3D makes all efforts to ensure the applicability of the Product Usage Documentation, but reserves the right of final interpretation. Images and diagrams in the product documentation are presented to provide convenience to user understanding. In the event that any images or diagrams are inconsistent with the physical products, the later shall prevail. In addition to the mandatory provisions of laws and regulations, the contents of the Product Usage Documentation are subject to changes without further notice.
6. SHINING 3D shall not be held responsible for any damages and/or losses caused by human factors, environmental factors, improper storage and use, or any other factors other than due to the quality of the product. SHINING 3D also shall not be held responsible for any indirect anticipated profit loss, loss of reputation and other indirect economic losses. Except as otherwise expressly provided by laws and regulations, the total liability assumed by SHINING 3D (regardless of cause) shall not exceed the purchase price of the products you paid to SHINING 3D.
7. Disputes arising from this Declaration and the Product Usage Documentation thereof shall be governed by the laws of the People's Republic of China, excluding its conflict of law rules. In the event that certain provisions are in conflict with the applicable law, these provisions will be reinterpreted in full accordance with the law, while other valid provisions will remain in force.
8. All disputes between you and SHINING 3D that arise from, shall first be resolved amicably through negotiation. If a dispute cannot be resolved through friendly negotiation, any party may submit the dispute to the Court of Xiaoshan District, Hangzhou City, Zhejiang Province, People's Republic of China for litigation and settlement.
9. In the event of any questions about the contents of this Declaration and application of Product Usage Documentation, please contact us by the contact information provided in the User Manual. Thank you for your cooperation and support! We hope that our products can bring you a great experience of using.

Getting Started

To find what you need quickly, a general guide to the hardware and the software of this product is presented as follows.

About Hardware

You can learn about the hardware here, including the appearance of the scanner and its cable connection.

→ [An introduction to the device](#)

→ [How to connect the device?](#)

About Software

You can learn about the software here, including its installation, activation and so on.

→ [How to install the software?](#)

- [How to activate my device?](#)
- [How to upgrade the firmware or the software?](#)
- [Basic settings for the software](#)

After installation and activation, follow the steps below to use the scanner.

1 Calibrate the scanner

Calibration ensures the accuracy of the scanner and improves the scanning quality. Calibrate the scanner if you first use it; when the calibration is completed, it will be skipped automatically next time you open the software.

- [Preparations before calibrating](#)
- [How to calibrate my device?](#)

2 Create a project group

Create a project group before scanning.

- [How to create / open a project group?](#)
- [How to create / open / delete a project in a project group?](#)

3 Set scanning parameters

When a project group is created, you can set relevant parameters to get a better scan result.

- [How to set scanning parameters?](#)

4 Scan

After you set scanning parameters, scan the objects.

- [An introduction to the interface](#)
- [Preparations before scanning](#)
- [In the scanning interface, what scanning modes can I choose for scanning?](#)

5 Edit scanned data

You can edit the scanned data when the scanning is paused or completed to reduce noises and get accurate data.

- [How to edit scanned data?](#)
- [An introduction of shortcuts](#)
- [An introduction of the context menu](#)
- [An introduction of the cutting plane tool](#)
- [How to align scanned data?](#)

6 Save and export

You can save the scanned data for importing or exporting.

- [How can I save my data?](#)
- [How can I share my data?](#)
- [Which third-party software can I import data into?](#)

[→ Other interactions](#)

[7] Post-process and measure scanned data

You can post-process and measure the scanned data.

[→ How to mesh my data?](#)

[→ How to edit mesh data?](#)

[→ How to create features for further interactions?](#)

[→ How to align my scanned data?](#)

[→ How to measure my scanned data?](#)

Hardware

Introduction

FreeScan UE Pro2 (referred to as the "scanner") is a handheld blue laser 3D scanner independently developed by SHINING 3D Tech Co., Ltd.. This scanner features high-precision scanning capabilities and utilizes an embedded edge computing module to achieve wireless scanning. With a lightweight design of 930 grams and compatibility with various standard specifications of power banks, it revolutionizes the portability of handheld laser 3D scanners, enhancing the overall scanning experience and efficiency.

Appearance

Appearance



Button



No.	Description
1	To indicate the scanning distance. Red: Too close. Yellow: Relatively close. Green: Suitable distance. Greenish-blue: Relatively far. Blue: Too far.
2	- Up and down buttons: Size adjustment buttons for data display in a 3D scene. Press the up button to zoom in the model; press the down button to zoom out the model. - Left and right buttons: Camera brightness adjustment buttons. Press the left button to decrease brightness; press the right button to increase brightness. - Press and hold the left button: To switch scan modes in a loop. - Press and hold the right button: To switch scan objects in a loop. - Middle button: Press to bring up the menu panel; then press the left button to quickly exit the menu panel. - Press and hold the middle button: To switch light source modes in a loop. - Power indicator: Only after the power indicator lights on, you can operate the device. Cyan: Power on. Blue: Standby. Green: Preview. Red: Scanning.
3	- In scanning interface, press the button to switch the scanning status in a loop: preview > scanning > pause / finish scanning. - In scanning interface, press and hold the button to perform global markers optimization in scan global markers mode and photogrammetry mode.
4	Port for a data cable
5	Port for a power cable

Laser Information

Class 2 Laser Product

Laser power: ≤ 4.7 mW

Wavelength: 450 nm

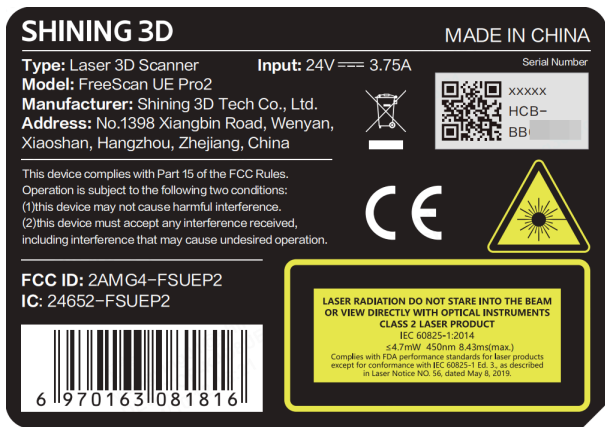
Complies with FDA performance standards for laser products except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice No.56, dated May 8, 2019.

Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Labels

Read the content on the yellow sticker carefully before using the device.



Logo	Description
	LVD/EMC Directive This product complies with the European Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU.
	WEEE Directive-2012/19/EU The product this manual refers to is covered by the Waste Electrical&Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

CE

This equipment has been tested and found to comply with the limits for a EN 300 440 v2.1.1 receiver Category 1. These limits are designed to provide reasonable protection against harmful interference in a residential installation. When placed in the vicinity of other device(s) radiating in the 5725.00MHz-5875 MHz band ,the wireless transmission function of this device may be affected. Please take appropriate measure to mitigate this eventuality.

FCC

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- When the device is so small or for such use that it is impracticable to label it with the statement specified under paragraph (a) of this section in a font that is four-point or larger, and the device does not have a display that can show electronic labeling, then the information required by this paragraph shall be placed in the user manual and must also either be placed on the device packaging or on a removable label attached to the device.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This device for operation in the band 5150-5250 MHz is only for indoor use.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. And user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- The device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue.

ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-003(A)/NMB-003(A)

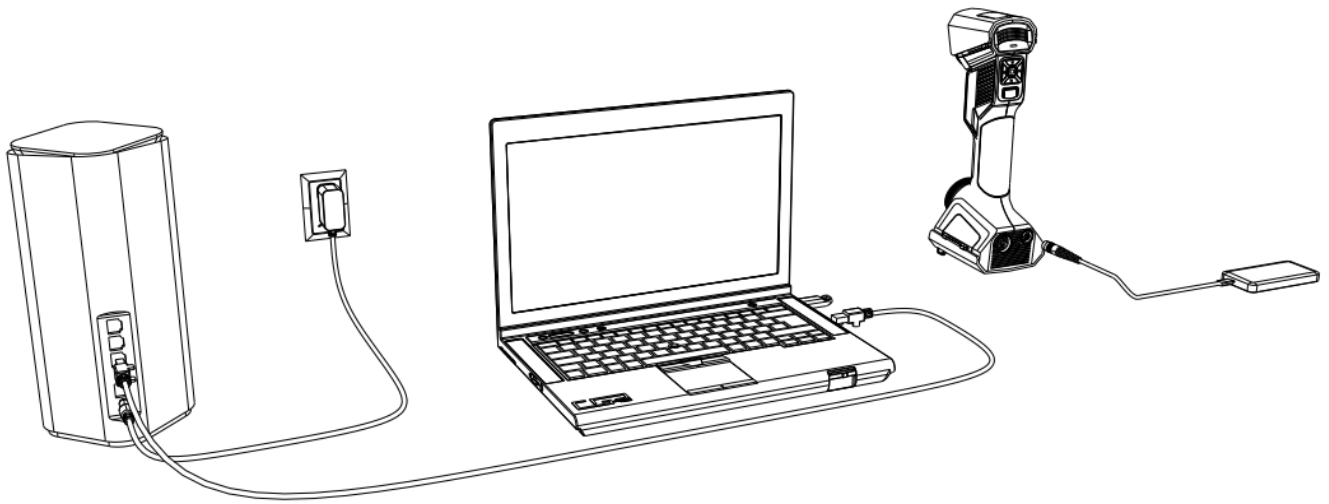
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

1) L'appareil ne doit pas produire de brouillage;

2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'encompromettre le fonctionnement.

Connection



 Caution

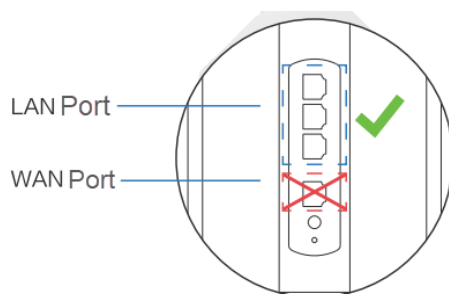
Make sure you are using the correct power adapter.

Steps

1. Connect the router to the computer via an Ethernet cable.

 Note

Insert the Ethernet cable into one of the LAN ports (not the WAN port).



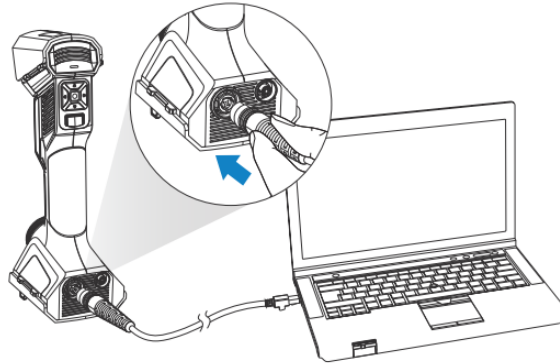
2. Power on the router and the indicator of the router turns yellow.
3. Power on the scanner by a power cable or a power bank.
4. Insert the dongle into the computer.

 Caution

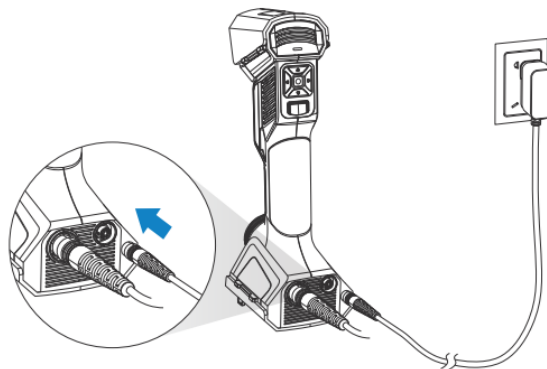
If you need to replace your router, choose one that supports a 5G frequency band and Wi-Fi 6 capability.

To switch to a wired connection for **wired pairing** or wired scanning, follow these steps for the connection:

1. Insert the circular end of the data cable into the UE Pro2. Connect the other end of the data cable to the Ethernet port on the computer.



2. Connect the power cable to the adapter.
3. Connect the device to the power cable and wait for the device to power on.



4. Insert the dongle into the computer.



Note

- If you need to use the full functionality, please insert the dongle.
- If you don't insert the dongle and only connect the device, the software will automatically enter the guest mode when you start it.
- If you don't insert the dongle and don't connect the device, the software will automatically enter guest mode after selecting the device type.

Software

Installation

Please install **FreeScan** to use the scanner (hereinafter referred to as the "software").

PC Configuration

Recommendation	
Processor	13th Gen Intel® Core™ i7-13700H or above
Graphics Card	NVIDIA GeForce RTX 4060 Laptop GPU or above
VRAM	8 GB or above
RAM	64 GB or above, DDR5 dual-channel
Interface	USB 3.0
Network Interface Controller	1 Gbit/s or above
Operating System	Windows 11 Professional 22H2 (64-bit)

 **Note**

It is recommended that you use a computer with dual-channel RAM to avoid potential low frame rates during scanning, as low frame rates could impact your scanning experience. You can check your RAM information in **Task Manager > Performance**.

Software Installation

Steps

1. Insert the flash drive.
2. Copy the installation file to the PC and run it.
3. Install the software by following the installation wizard.
4. Click **Finish** and run the software.



Note

- Administrator rights are required for the software installation. The initial installation environment may take a long time, please wait patiently.
- Please do not install the software in **C:\Program Files** or **C:\Program Files (x86)**. The software will not run when installed under these folders due to restricted rights.
- After installing the software, please follow these steps to ensure smooth operation: Go to **Windows Settings > About > Advanced system settings > Performance > Adjust for best performance**. By adjusting the system settings for optimal performance, you can ensure that the software runs smoothly.

Graphics Card

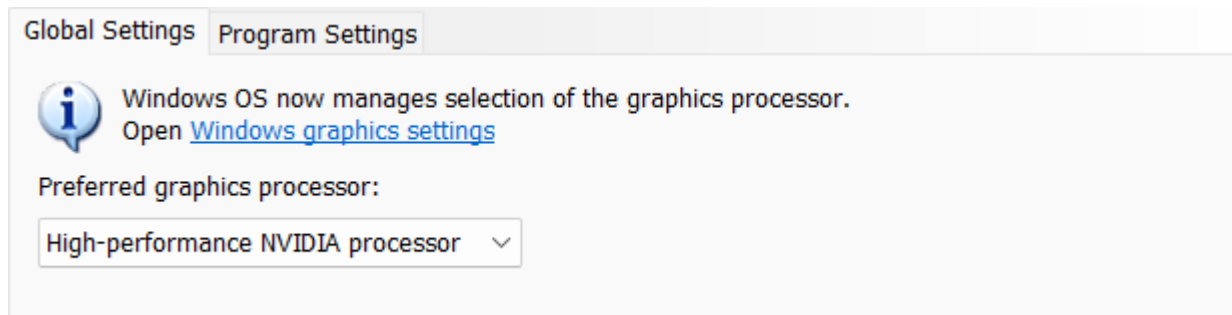
Please use a discrete graphics card instead of integrated graphics card for better performance.

Desktop

Connect your display to the port of discrete graphics card on the back of your computer.

Laptop

- Launch **NVIDIA Settings** on your laptop.
- In **3D Settings Manage 3D Settings > Global Settings**, select **High-performance NVIDIA processor** and click **Apply**.



Activation

If you are using the device for the first time, please start the software after installation and log in with your SHINING 3D user account to activate the device.

Registration

Click **Register** and fill in the account information in the registration pop-up.

Create an account

+86 China 中国

State/region do not support modification after submission, please choose cautiously

Enter phone number or email

>>Please slide to verify

Please enter the verification codeGet Code

Please enter your name

Enter at least 6 characters password

Please enter the password again

☐ Read and agree our [《Privacy policy》](#) [《Terms of use》](#)

☒ Subscribe to Shining3D products, services and software update service.

Sign Up



Note

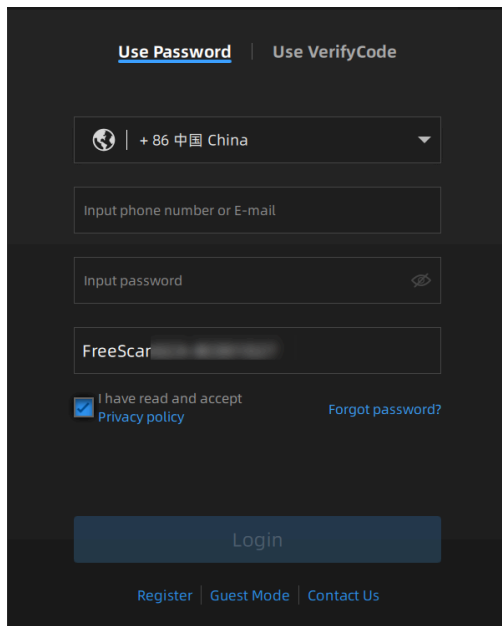
- Enter valid email or phone number to get verify code for registration.
- Fill in correct user information for better service.

Login

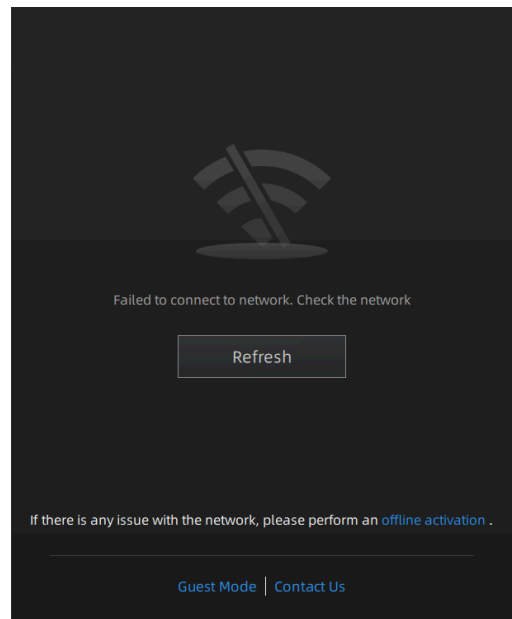
Log in SHINING 3D User Account from the pop-up window when launching FreeScan.

If your computer failed to connect to the network:

- Check the network connection and click Refresh to reconnect to the network. It will jump back to the login interface after successfully connecting to the network.
- If your computer can not connect to the network successfully, click offline activation to directly perform the offline activation.

The image shows a login interface for 'Passport'. At the top, there are two tabs: 'Use Password' (which is selected and underlined) and 'Use VerifyCode'. Below the tabs, there is a dropdown menu for country codes, currently showing '+ 86 中国 China'. Underneath is a text input field labeled 'Input phone number or E-mail'. Below that is another text input field labeled 'Input password' with an eye icon for toggling visibility. A third text input field contains the text 'FreeScar'. Below the input fields, there is a checkbox labeled 'I have read and accept Privacy policy' which is checked, and a link 'Forgot password?'. At the bottom of the form is a large blue button labeled 'Login'. Below the button are three links: 'Register', 'Guest Mode', and 'Contact Us'.

Passport



Network Not Available

Device Activation

Online Activation

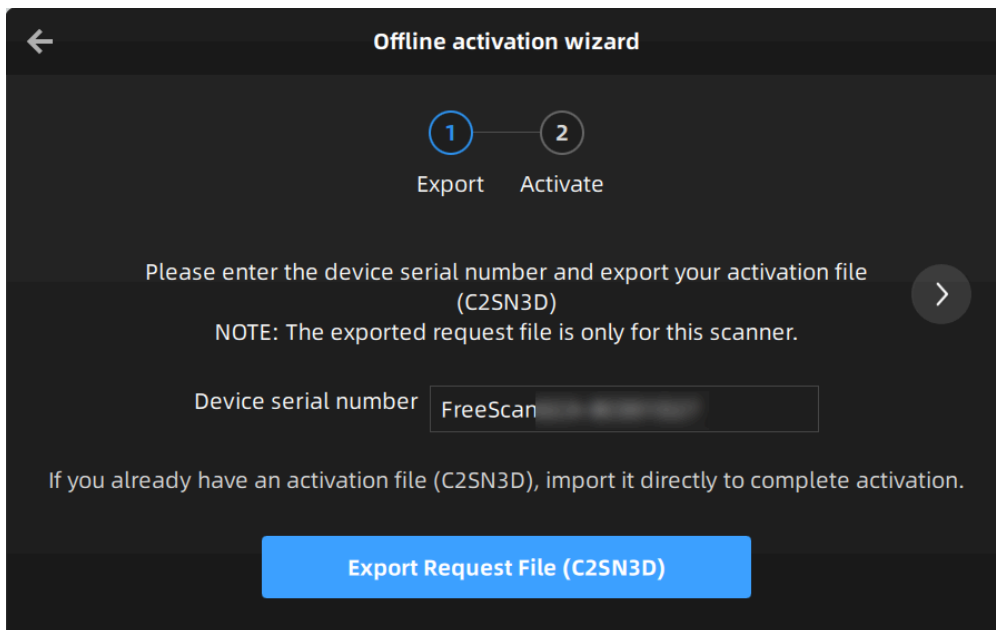
The activation will be completed automatically after logging in successfully on the networked computer.

Offline Activation

If the PC cannot be networked, activate the scanner offline.

1. Export C2SN3D file.

- (1) Prepare a USB flash drive or portable hard disk.
- (2) Insert the dongle to your PC.
- (3) Enter the device serial number.
- (4) Click **Export**. And save the C2SN3D file to a USB flash drive.

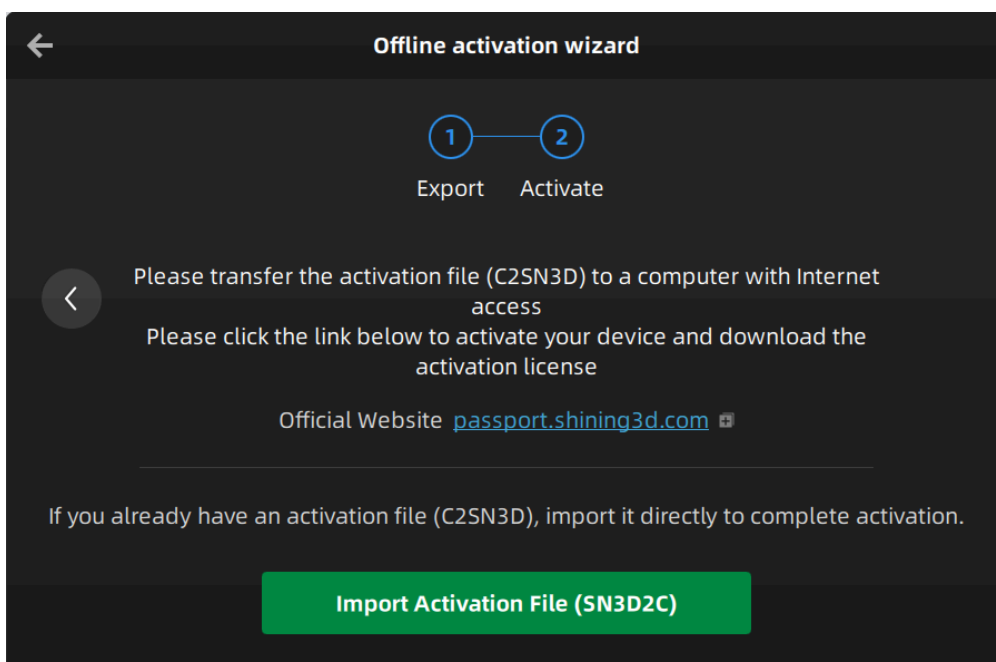


2. Upload C2SN3D file.

- (1) Enter <https://passport.shining3d.com/login> on the networked computer. Then log in or register a new account.
- (2) Click **Offline Activation**.
- (3) Upload the C2SN3D file.

3. Export the SN3D2C file corresponding to your scanner account to your USB flash drive.

4. Import the SN3D2C file to your Shining Pass (in your PC with the software). Then insert the dongle to the PC to enter the software main interface.





Note

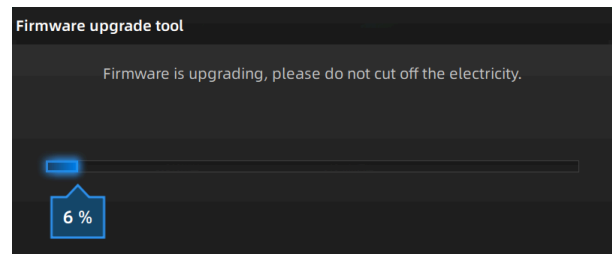
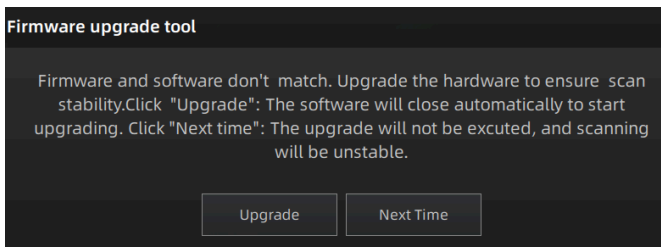
Please contact the supplier or [technical support](#) if none of the above methods can activate your device.

Upgrade

When a new version of the software is released or a higher firmware version is available, you will be prompted when launching the software.

Firmware Upgrade

Update the firmware for better performance, stability or bug fixing. Click **Upgrade** to start the firmware upgrade, as shown below.



Caution

- Make sure that the device is powered on during the upgrade; avoid interruption of the upgrade due to power cuts.
- Do not use mismatched firmware, because this may affect the scanning effect. If in doubt, please contact your supplier or technical support.
- If the upgrade fails, please power off the device and reconnect it to upgrade again.

Software Upgrade

Update the software for better performance, new functions or bug fixing.



Note

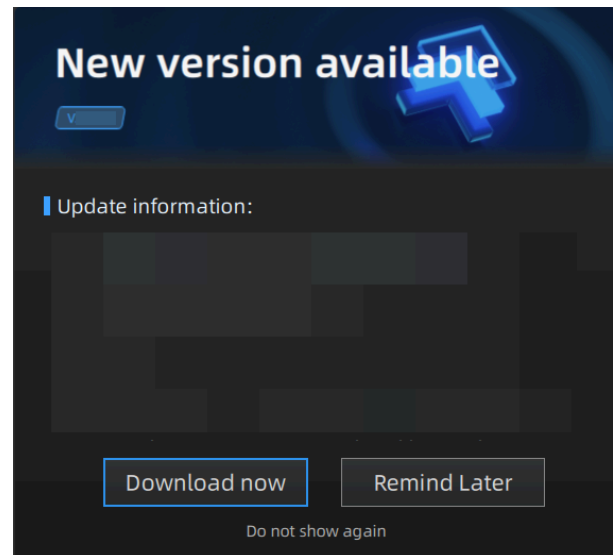
It is recommended that you use the latest software.

When the software detects a new version, it will display a pop-up after you run the software; you can also check the current software version and see if there are updates by going to **Help > About** interface.

Click **Download now** and download the installation package in the background.

When the download is completed, a window will pop up for users to decide whether the new version shall be installed immediately.

Click **Yes** to start installing.



Caution

- If the software is closed during the download process of the installation package, you can choose to continue downloading the installation package in the background.
- The software will automatically close during the installation. Please make sure to save the scanned data in advance to avoid any data loss.

Device Pairing

This software supports wireless scanning with wireless connected devices. If the [wireless connection](#) fails, you can choose the [wired pairing](#). Once the pairing is successful, you can use wireless scanning.

Wireless Connection

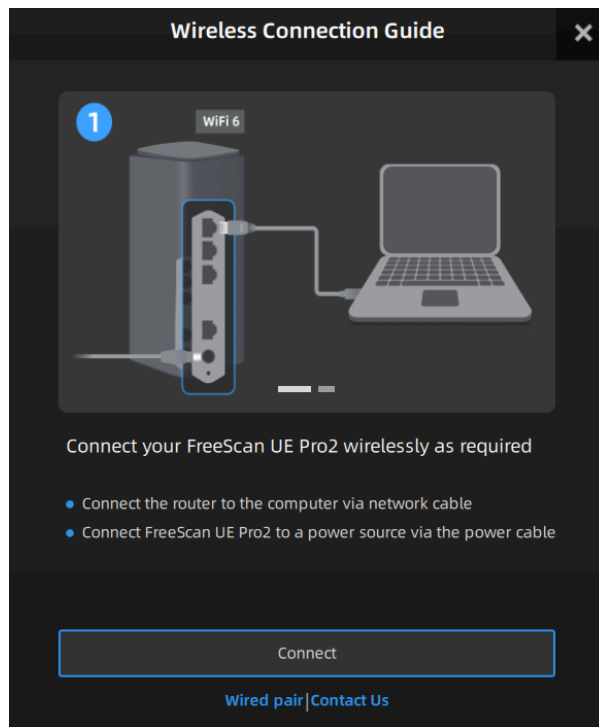
Please launch the software to establish a wireless connection. Once the wireless connection is successful, you can use the device for wireless scanning.

Connection Steps

1. After completing the [device connection](#), launch the software, and the device will automatically establish a wireless connection.
2. If the automatic wireless connection fails, you can reconnect the device by the following two methods:

Method 1: Click  on the corresponding position in the navigation bar to reconnect the device.

Method 2: Click  on the top right corner > Connection Guide, then click Connect in the pop-up window to connect the device.



Note

If the wireless connection fails multiple times, you can [connect the device to the computer using a data cable](#) for wired scanning. Alternatively, follow the instructions to do the [wired pairing](#). After the successful pairing, you can use the device for wireless scanning.

Wired Pairing

Caution

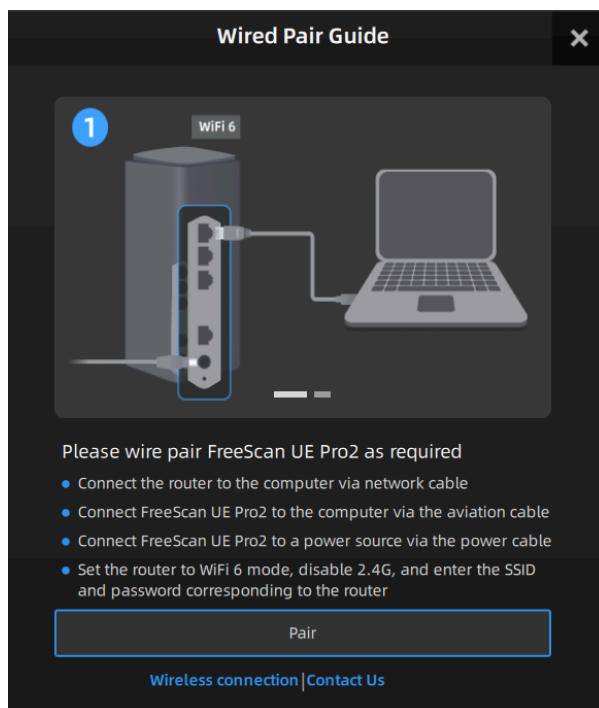
If you encounter the following situations, please connect the device to the computer using a data cable and complete the **wired pairing**. Only after the successful pairing can you use wireless scanning:

1. Multiple failed attempts at wireless connection.
2. Changed to a new router.
3. Altered the router's name or password.

Pairing Steps

1. Go to the router settings page, set the router to Wi-Fi 6 mode, and disable 2.4 GHz.
2. Launch the software and click  in the top right corner of the software.

3. Click **Connection Guide** in the pop-up window and switch to the wired pairing.



4. Click **Pair**, input the corresponding SSID and password of the router in the pop-up window, and click **Confirm**.

5. After successful connection, you can click  to view the connected device and the connection status.



Note

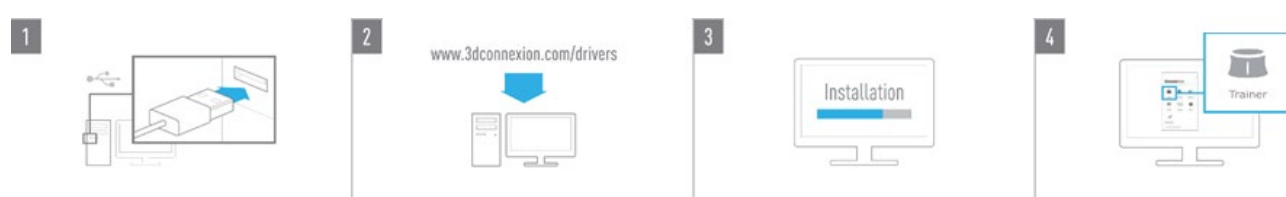
If the wired pairing ended in failure for several times, please contact [technical support](#) promptly.

3Dconnexion SpaceMouse

This software is compatible with 3Dconnexion SpaceMouse. With the 3Dconnexion SpaceMouse, you can quickly rotate, pan, zoom, and perform other shortcut operations on models in a 3D scene.

For more operations, please refer to the [3Dconnexion user manual](#) [🔗].

Connection



Steps

1. Take out the 3Dconnexion SpaceMouse from its packaging and insert the connecting cable into a USB port on your computer.
2. Open the [official website](#) [↗] for downloading the software.
3. Download and install the latest version of the 3Dconnexion software.
4. Run the software and click  **Trainer** for quick training and guide.

Interface

Icon	Description
	Learn how to quickly use the 3Dconnexion SpaceMouse.
	Here you can find the manuals for all 3Dconnexion products.
	Open the settings panel to customize your 3Dconnexion devices.
	Use the 3Dconnexion Viewer to review 3D models. Supported formats(.stp, .step, .igs, .iges, .obj, .stl, .ply, .jt, .glTF).
	You can create high-resolution picture collages with SpaceMouse by 3Dconnexion Collage.
	Test and practice your skills by assembling the landing gear of an aircraft.
	Register your product after the installation to benefit from 3Dconnexion services.
	Find instructive videos for your 3Dconnexion devices.
	Provide feedback to the 3Dconnexion product team.

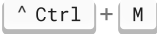
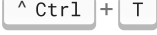
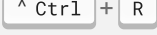
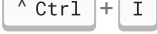
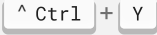
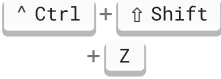
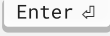
Buttons

Panel

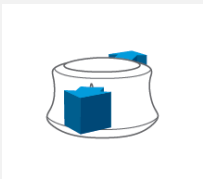
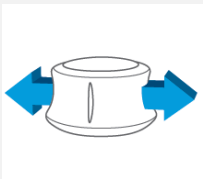


Button	Description
Color Display	It provides visual feedback on the assigned commands. You have the option to adapt the display brightness, switch between text or icons, and change the text size on the LCD in the 3Dconnexion Settings.
3Dconnexion Keys	The SpaceMouse Enterprise features twelve additional programmable function buttons. You can personalize commands assigned to the function buttons using the 3Dconnexion Settings.
CustomView Buttons	Above the QuickView Buttons, the SpaceMouse Enterprise also has 3 CustomView Buttons that allow you to store and retrieve your own views. To save a specific view, press and hold one of the CustomView Buttons until the message 3Dconnexion View saved appears on your screen. If you want to return to your saved view, just press the button once.
Control Cap	The Controller Cap is the heart of your SpaceMouse Enterprise. Its Six-Degrees-of-Freedom (6DoF) sensor allows you to push, pull, rotate, or tilt to pan, zoom and rotate your drawings and 3D models
Rotation Toggle Button	In the center between the QuickView Buttons is the Rotation Toggle Button. Pressing it once locks the rotation around all axes. The status LED will light up to indicate that rotation toggle is now active.
Keyboard Modifiers	The SpaceMouse Enterprise comes with eight Keyboard Modifiers that work like the corresponding keys on your keyboard. You can personalize the commands assigned to the Keyboard Modifiers using the 3Dconnexion Settings.
QuickView Buttons	The SpaceMouse Enterprise features five QuickView Buttons helping you to quickly bring your drawing or 3D model into the desired view. The buttons have a secondary assignment (blue font) that you can call up by a long press. You can program both the first assignment and the second assignment of the buttons in the 3Dconnexion Settings.
Menu Button	The Menu Button allows for fast and easy customization of your 3Dconnexion devices. Pressing it will take you directly to the 3Dconnexion Settings. Select the device you want to configure in the flyout window and customize it.
Fit Button	With the Fit Button, you will never lose sight of your drawing or 3D model. Press it to bring your drawing back to the center of your screen.

3Dconnexion Keys

No.	Keyboard Shortcut	Function
1		Toggle functions between point cloud edit and markers edit (only works in Scan).
2		Toggle functions between select visible and select through (only works in Post-processing).
3		To toggle the method of selecting data. For more, please see Data Edit .
4		Select all
5		Unselect
6		Connected domain
7		Invert
8		Delete selected data
9		Undo
10		Redo
11		Cancel edit
12		Apply edit

Control Cap

Figure	Description
	Tilt cap left/right to rotate the model on its Z axis.
	Rotate the model on its Y axis.
	Tilt cap forwards/backwards to tumble the model on its X axis.
	Zoom the model in and out.
	Move the model up and down.
	Move the model left and right.

Calibration

Calibration Preparation

You can re-adjust parameters of the device through calibration, which not only ensures the accuracy of the device, but also the scanning quality.



Note

Calibration is required under the following conditions:

- The first time for using the device.
- The scanner was severely shaken or vibrated during transportation.
- The scanner is used for the first time or it is not in use for a long period of time (1-2 weeks).
- The accuracy drops during scanning, such as frequent alignment failures or the inability to recognize markers.
- Incomplete data is acquired or the quality of scanned data drops during scanning.



Caution

- Do not wipe the calibration board with chemical liquids.
- Do not put heavy objects or sundries on the calibration board.
- After using the calibration board, put it in the flannel bag.
- The calibration board can only be used for the calibration of the device.
- Keep the calibration board away from corrosives, metals and sharp objects to avoid corrosion or damage.
- Make sure that the markers on the calibration board aren't damaged or stained, and that the front side of the calibration board is clean and free of scratches.
- The calibration board is matched to the scanner. Calibrating with an mismatched calibration board will lead to inaccuracy or fail to get good scanned data.
- After powering on the device, please heat it to a proper temperature before the calibration to ensure accuracy and precision.

Calibration

Follow the steps provided by the calibration wizard on the right side of the interface.

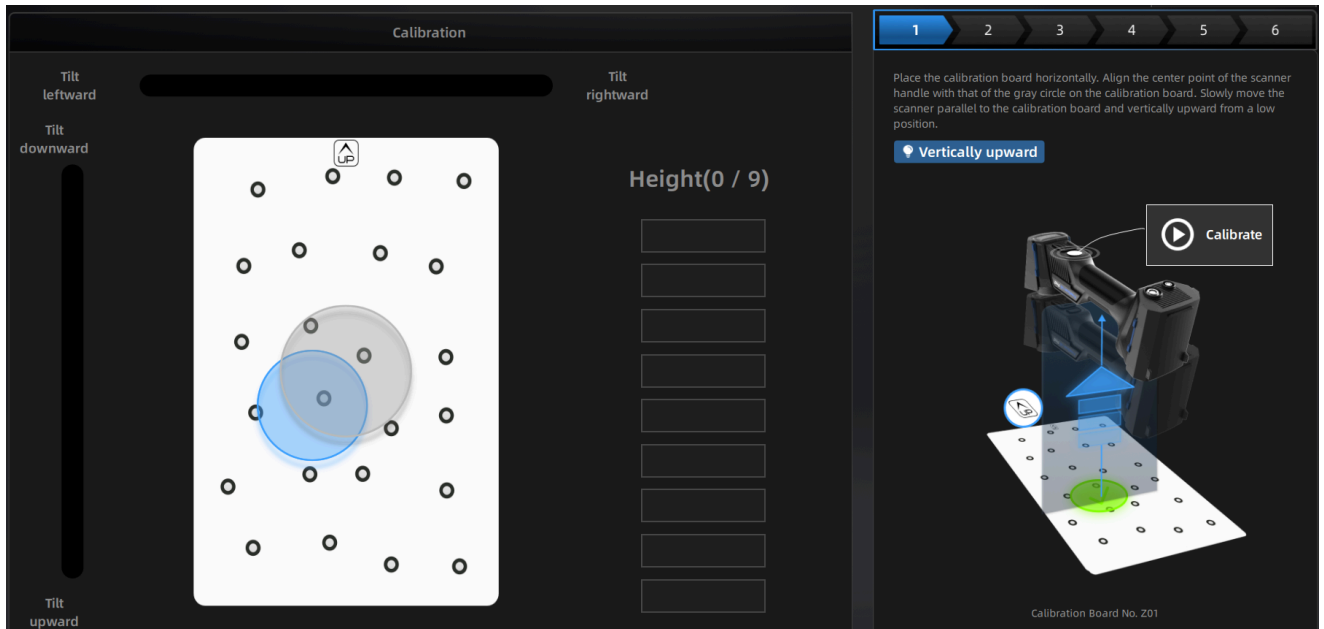


Caution

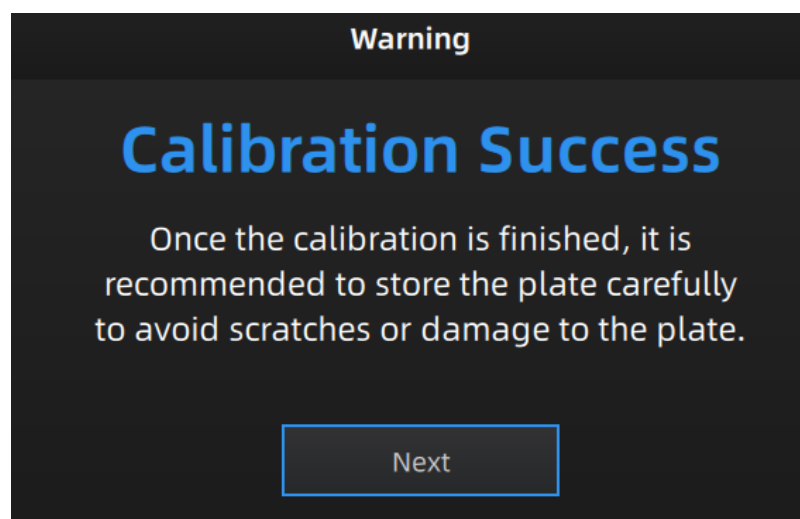
Please contact [technical support](#) if the message (**Wrong laser calibration file**) prompts.

Steps

1. Place the calibration board horizontally.
2. Place the scanner in the same direction as shown in the figure.
3. Align the center point of the device with the center point of the gray circle on the calibration board.
4. Press the start button on the scanner or click **Calibrate** on the interface to start calibration.



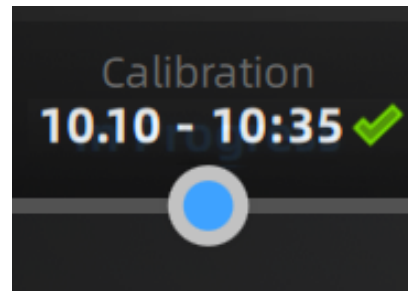
5. Move the device slowly and adjust the distance between the scanner and the calibration board according to the height indicating box.
6. Keep moving until all height boxes turn green.
7. Adjust the scanner position according to the prompts on the software interface. Repeat steps 4 to 5 to complete the calibration for the remaining directions.
8. Check the calibration result.



Note

- Please calibrate again if the calibration fails.
- During the calibration process, please ensure that there are not a large number of markers around the calibration board, so as not to affect the calibration accuracy.
- Please contact the supplier or [technical support](#) if the calibration still fails after several attempts.

The navigation bar at the top of the interface will display the calibration time when the calibration is completed successfully. If no further calibration is performed within 7 days after the completion of the previous calibration,  will appear. Please perform calibration again to ensure scanning accuracy.



Scan

Project and Project Group

Create or open a project group before scanning.

Project Group

Project group is the standard file structure of the software. It contains one project or more. Each project contains the scan data of its own. Project group is mainly used in the following scenarios:

Project Group	Scenario	Description
Only one project in the project group	One object needs to scan with only one alignment mode.	Only one alignment mode can be used in the same project.
Multiple projects in the project group	- One object needs to scan with multiple alignment modes. - Multiple objects or one large object need to scan with one or more alignment modes.	Please create multiple projects within one project group when scanning a large object or multiple objects. After scanning, you can align these projects one by one.



Create a Project Group

Two ways to create a project group:

Method One: Click **New project group** before scanning.

Method Two: Click  and select **New project group** in the scanning interface.

In the prompt window, select the storage path, name the project group and click **Confirm**. All scanned data will be saved to the folder with the name you just set.



Open a Project Group

Two ways to open a project group:

Method One: Click **Open project group** before scanning.

Method Two: Click  and select **Open project group** in the scanning interface.

In the prompt window, select the project group file and then click **Open**.

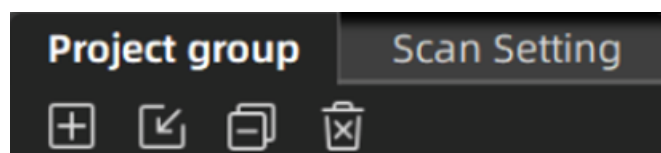


Note

- The current project group will be saved automatically when opening a project group.
- Only the project group scanned in the same scan mode can be opened.

Project Management

Each **project** is a part of the **project group**.
You can use these buttons to manage projects.



Icon	Function	Description
	New Project	Click to create a new project when the scanner is connected.
	Open Project	Click to import a project. You can right-click one in the list to rename it.
	Remove Project	Click to remove the project from the list, which still exists in the folder and you can add it in the list by opening it.
	Delete Project	Click to delete the project, which can not be recovered.
	Visible / Invisible	Click to show / hide the data or markers.



Note

- If the project being deleted or removed is the last project in the list (i.e., the current project), the previous project in the list becomes the current project, and you can perform scanning operations on it.
- If a project with the same name as an existing project in the list is opened from a different path, "_1" will be appended to the name of the opened project.
- If a project is imported into the project group from a different path, deleting it will not affect the original data in the original path. Only the project data copied to the project group folder will be deleted.

Preparation

Make some preparations when scanning different objects.

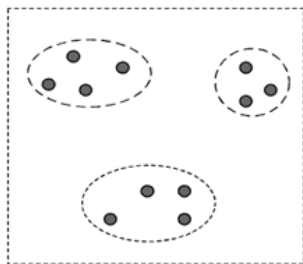
Markers

Markers shall be placed to models. If the device fails to catch markers, it will not emit laser lines in the **Laser Mode**.

- Place the markers evenly and randomly.
- Four markers are required for the alignment at communal areas.
- Ensure that the device's camera can scan at least 4 markers within the normal scanning range.
- Please place small markers on the edges or at small facets of the model.
- Do not place the markers on the surface with high curvature.
- Do not use damaged or incomplete markers.
- Do not use greasy, dusty, or dirty markers.

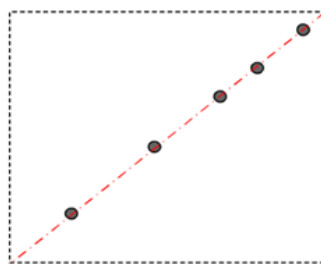
 note

3 mm markers are the minimum markers identified in the **Laser Mode**.



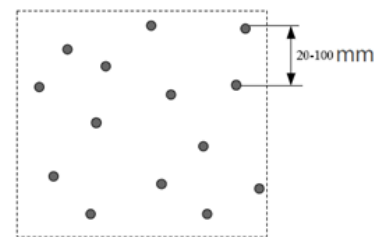
Artificial grouping of markers

⊗



Place markers only on one

line ⊗



Markers are scattered and
irregularly placed ✓

For Special Objects

Spray the washable or specified imaging agent on the transparent, shiny or reflective model before scanning.

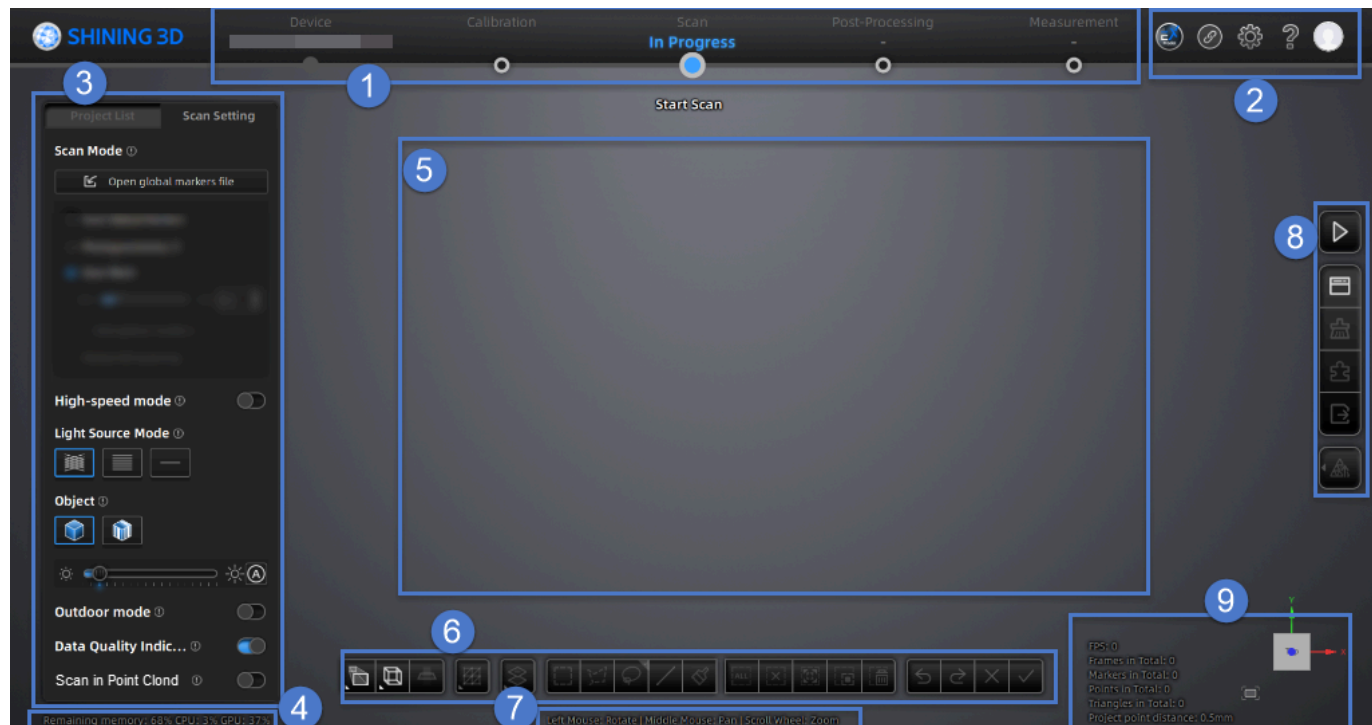
 Note

Types of objects not recommended for scanning:

- Soft material object that cannot be hung.
- Moving or vibrating objects. Frequent changes in the coordinates of such objects will result in poor scanning quality.

Interface

Overview



① Navigation Bar

- Device: Display the device status: online / offline.
Device online: Show the device name.
Device offline: Click  to reconnect the device.
- Calibration: Click  on the corresponding position in the navigation bar to start [calibration](#).
- Scan: Click  on the corresponding position in the navigation bar to start the [scanning](#).
- Post-processing: Click  /  after scanning, it will go into the post-process interface. You can also click  on the corresponding position in the navigation bar to switch to the post-process interface.
- Measurement tools: Click  on the corresponding position in the navigation bar to switch to measure interface where you can [measure](#) your model here.

② Settings and Help



View the relevant information for EXModel and our technical support contact.

- If you have not installed the EXModel, click  in the top-right corner and choose the corresponding version on the pop-up window to get it.
- If you have installed the EXModel, click  to directly switch to it.
- If you have installed the EXModel and you are in the **scan (Laser Mode), post-processing or measurement interface with mesh data**, click  to switch to the EXModel and import the data into it; if there is no mesh data, clicking this button will only switch to the EXModel.
- [Click here to download and learn how to activate EXModel.](#) 
- [Click here to learn how can I get access to EXModel.](#) 



Pairing Guide: You can refer to the wired / wireless pairing guide in the pop-up to complete the pairing process; if there are issues with pairing, please contact [technical support](#) promptly. For specific pairing operations, please refer to [Device Pairing](#).



(1) General Settings

- **Select Language:** Set the language displayed in the software.
- **Preview:** You can preview the scanning effect before the actual scanning when enabling the function.
- **Advanced Mode:** Enabling the function allows you to choose a smaller point distance when creating a new project. For more, see [resolution](#).
- **Shape Detection Optimization:** It can improve the accuracy of sphere diameter but may affect some details of the scanned data.
- **Scanner Tone:** Adjust the volume of the scanner's beep sound.
- **Compatible with 3Dconnexion SpaceMouse:** When enabled (default), it supports the connection and use of a 3Dconnexion SpaceMouse and related unique functions, including rotation axis and shortcuts.
- **Scanning Templates:** The software supports exporting and saving the current scan parameter settings as a template / as templates, which can be imported for scanning the same scene. The file saving format is templ_*.

Caution

- The template file currently does not support saving the brightness parameters in the scan global markers mode and the photogrammetry mode.
- If the **Confirm** button is not clicked after setting the parameters during the meshing process, the exported template will not include the parameter settings from the meshing interface.

(2) Laser Scan Settings

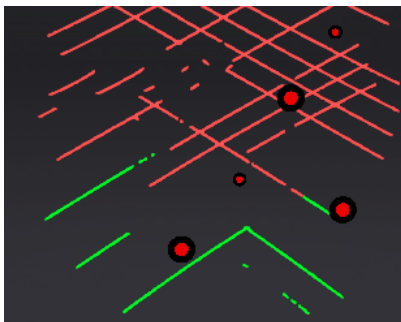
- Scanning distance indication method: There are two methods to indicate the scanning distance. During scanning, you can adjust the scanning distance based on the color indication. Here is the color code for distance adjustment:

Blue: It indicates that the scanning distance is too far.

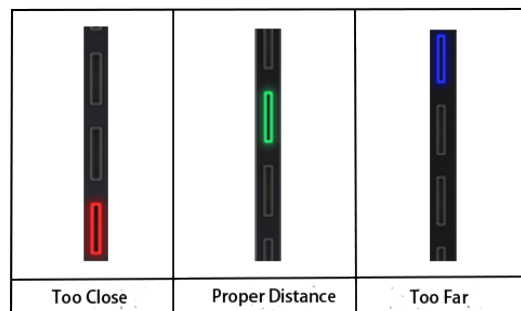
Green: It indicates that the distance is proper.

Red: It indicates that the scanning distance is too close.

By observing the color of the laser line or distance bar, you can make adjustments to ensure the scanning distance is appropriate.



Laserline Indicator



Scanning Distance Indicator

- The Laser Line Closes Intelligently: If the scanner fails to recognize enough markers, it will not project the laser line during scanning when enabling the function.

(3) Third-party Software Setting: You can select the third-party software to be launched and the path. Only the selected third-party software will be displayed in the third-party software list in the post-processing and measurement interfaces.

(4) Factory Default: Click **Recover** to initialize all settings and the software will automatically restart.



(1) About: You can view device name, serial number, calibration board, software version information, etc.; After checking **Download Updates Automatically**, when a new software version is detected, it will be automatically downloaded and prompt you to install it. Otherwise, you will need to manually download and update the software to the new version.

(2) System Diagnose: Check whether computer configuration meet the operating conditions. If it shows  , it means that the configuration meets the operation requirements. If not, please repair the problem according to the interface prompts. Click **Refresh** to diagnose again.

(3) Support: You can open the user manual, get remote assistance and check contact information of technical support here.



- Reverse Engineering Service: By sending us the scanned project files and specific information, you can get our assistance in the reverse engineering.
- Account: You can view login status, account information, and authorization period.
- Login: You can log in / log out of your account.
- My SHINING 3D Account: Click to enter the personal center.
- Official Website: Click to visit the [SHINING 3D official website](#) [↗] for more products and information.
- Facebook: Enter SHINING 3D's Facebook to view product introduction and other operations.

③ Scanning Settings

- Project Group: To manage projects and the project group. For more, see [Project and Project Group](#).
- Scanning Parameters: To set scanning parameters. For more, see [Settings](#).

④ Memory / CPU / GPU

- Remaining Memory: To display the percentage of remaining memory.
- CPU Usage: To display the CPU Usage of the computer in real time. You may need to close other unrelated software if it is too high.
- GPU Usage: To display the GPU Usage of the computer in real time.

⑤ Preview / Scanning Window

To preview the model and check the scanned model.

⑥ Edit Toolbar

To edit data after scanning. See more details in [Data Editing](#).

⑦ Shortcuts

To change the perspectives and move the model by the composition of keys.

⑧ Side Toolbar

For more, see [Scanning](#) and [Other Functions](#).

⑨ Other Information

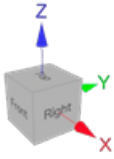
To show information about FPS, Frames in Total, Points in Total, etc.



Fit View:



Click  to center the model and adjust the view size to fit the screen automatically.



View Controller:

- When adjusting the model, a coordinate system reference is provided.
- You can quickly adjust the model view by clicking on different faces of the view controller.

Scanning

Settings

Scan Mode

Choose the proper scanning mode to scan.

Scan Global Markers

This mode is used to scan markers on the surface of an object. You can quickly obtain the markers data of an object in this way and switch to **Scan Mesh** to continue scanning.

Caution

- The scanner does not project laser lines during the scanning process.
- You can scan new markers after opening a global markers file.
- When switching to **Scan Global Markers**, the current scanned data will be cleaned up and the data can not be recovered.

Scan Mesh

Directly scan to generate mesh data. This mode is suitable for most scanning scenarios.

Note

When the markers are not fully scanned in **Scan Global Markers**, you can check **Add Global Markers** to scan new global markers.

Partial HD Scanning

This mode is used for scanning when there is a high requirement for details in a specific area or when there are missing data in certain regions. By using this mode for targeted scanning, it can save scanning time and make the scanned data more accurate and complete.

Photogrammetry

This mode is generally suitable for high-precision industrial measurements. Depending on the size of the scanned object(s), you can import an appropriate scale bar file and use the scale bar(s) during scanning to improve the overall accuracy of the global markers data.

Resolution

Note

- When there is only one project within the project group, you can adjust the resolution in real-time in the scan mesh mode.
- When there are multiple projects within the project group, you cannot adjust the resolution anymore in the scan mesh mode.

Scan Mode	Point Distance
Scan Mesh	Standard: 0.05 mm ~ 10.0 mm Advanced mode: 0.01 mm ~ 10.0 mm
Partial HD Scanning	Standard: 0.02 mm ~ 3.0 mm Advanced mode: 0.01 mm ~ 3.0 mm

High-speed Mode

The high-speed mode of the scanner will lose some details. Please turn off the mode when the point distance is less than 0.1 mm.

Caution

3 mm markers can not be recognized in this mode.

Light Source Mode