



VDS100 & VDS100 PRO

User Manual



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1. BASIC INFORMATION

1.1 Expected Usage

Desktop dental 3D scanners are designed to digitally record the positional features of dental models. The system outputs 3D scans for dental CAD and dental CAM.

The scanner is designed to be used for situations below :

- Single coping
- Bridges
- Full anatomic crown
- Full anatomical bridge
- Inlay / Onlay / Inlay bridge
- Veneer
- Single wax-up / Wax-up bridge
- Over-press crowns and bridge
- Post and core
- Telescopic crown
- Custom abutments
- Implant bars and bridges
- Removable partial denture
- Orthodontic cases
- Full denture
- Replica denture
- Provisional crown and bridge
- Appendix
- Splint

1.2 Work Flow

The workflow is aimed at delivering high-quality scan data of any shape and size in the dental office or laboratory.

① Model scan or Impression scan

The scanner itself scans the model based on the information entered in the Link order. Compared to conventional restoration fabrication methods, this method allows you to create a restoration directly from the scanned impression.

② CAD processing

The restoration is designed with a CAD program.

③ Manufacture

The restoration is manufactured by one machine based on CNC machining data.

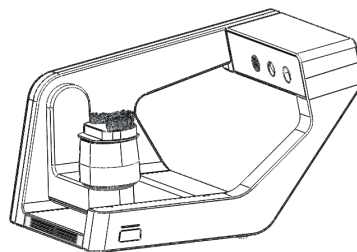
④ Completion

Finishing process for manufacturing restorations.

1.3 Dental Scanner & Accessories

① Dental scanner : DentalManager scanner

The scanner is designed to acquire scan data from various dental models or impressions in a convenient manner. A full mouth scan takes only 13 seconds.



② Accessories

DentalManager : Accompanying software is user-friendly, making acquisition of scan data easy.

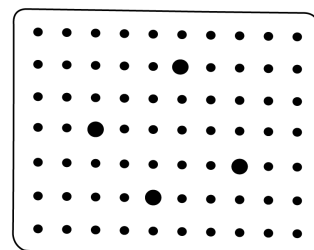
① USB cable



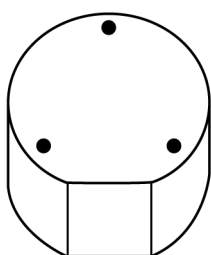
② Power cable & external adapter



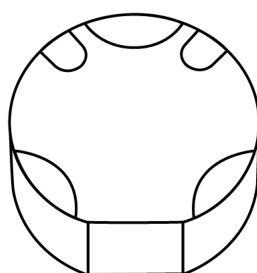
③ Calibration board



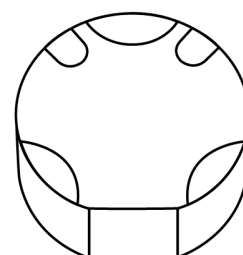
④ Ordinary block



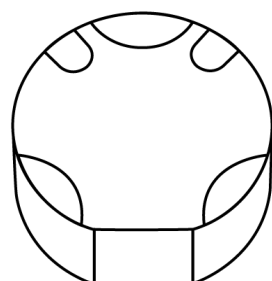
⑤ Jaw transfer spacer



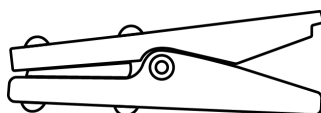
⑥ Base Jig



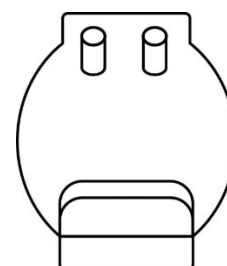
⑦ Full Jaw Clamp Base



⑧ Impression Fixture



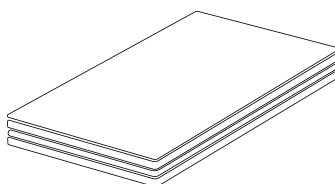
⑨ Dental Mold Fixture



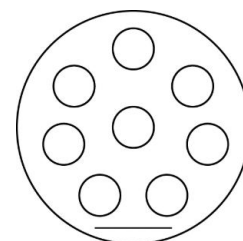
⑩ Flash Driver



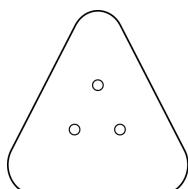
⑪ Flash Driver



⑫ Multi-die Jig



⑬ Articulator Plate



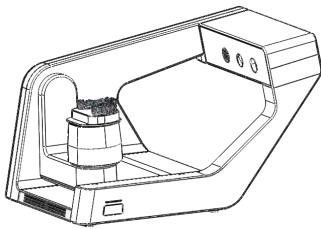
1.4 Software

Software : DentalManager

DentalManager : Software is user-friendly, making acquisition of scan data easy.

1.5 Hardware Installation

How to connect the scanner :



After the software is installed and your computer is restarted, you can begin to do

⚠ Warnings : The scanner cable should be properly connected to the computer.
(Inside the package contains a power cable and a usb cable)

*Please use the USB 3.0 porter when you connect the scanner with your computer.

① Connect power cable



- ② Connect the USB cable through USB 3.0 (Blue) porter. (*Very important)

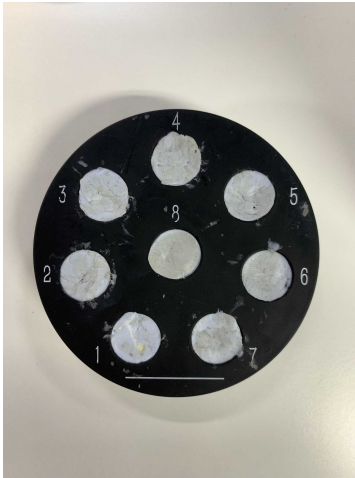


- ③ Turn on the switch button on the side of the scanner.



1.5.1 Accessories preparation

- ① Fill each die tray with blue tac.



- ② Preparing blue tac for fixture surfaces.



- ③ Prepare to use blue tac on full jaw jig surfaces.



1.6 Technical Parameters

Parameter details	
Product Name	DentalManager
Light Source	Blue light
Scan Area	100*100*75mm
Scan Strategy	Non-touch scan
Accuracy	< 10µm
Scan Time	6s for bite scan; 13s for upper/lower jaw scan / 17s for 1-8 dies scan, 50s for impression scan
Camera Pixels	130Wpx / 300Wpx
Weight	5kg
Work Temperature	0°C-30°C
Input Power	DC 24V
Data Output Format	STL、PLY
System Requirement	Win 10 64-bit
Colour Texture	Black and white texture scan
Connection	USB 3.0
Power	AC 100-240V, 50-60 Hz

2. INTRODUCTION AND OVERVIEW

2.1 DentalManager Introduction

DentalManager is a software program for scanning models and impressions using the DentalManager range of desktop scanners. Users can edit the data to make it ready for CAD /CAM process. Clear explanations and instructions are provided on the left side of the window at each stage.

DentalManager can only run on the computers that meet the requirements listed below.

Otherwise, the scanner can't work normally. USB 3.0 will not function normally if Windows is not updated prior to installation.

✖ Notice

- The device can only be connected via a USB 3.0 port. Make sure you are using a USB 3.0 connection.
- This device is only compatible with Windows 10 and above. It is not available on Mac OS.
- Before installing the scanning software, please make sure that the version of Windows, motherboard, graphics card and USB driver you are using are all the latest versions.

2.2 Configuration Requirements

The minimum requirements

	Desktop computer	Laptop
CPU	Intel Core i3-9100F and above	Intel Core i3-9100F and above
Memory card	16 GB and above	
Graphics card	Nvidia Geforce GTX 1050ti and above	
Operating system	Window 10 64-bit	

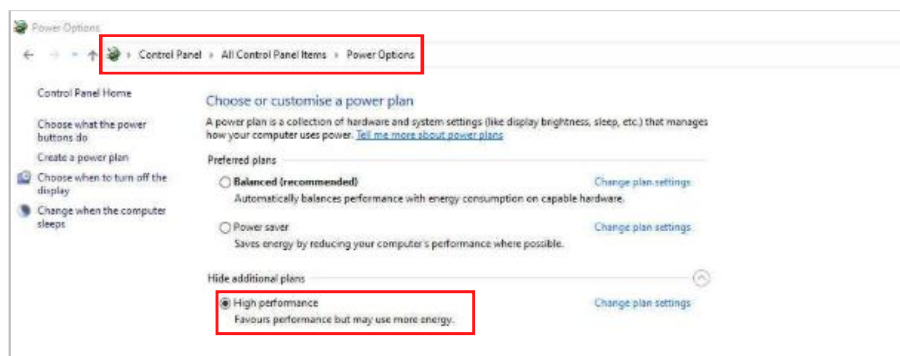
Recommended requirement

	Desktop computer	Laptop
CPU	Intel Core i7-8750H and above	Intel Core i7-8700K and above
Memory card	32 GB and above	
Graphics card	Nvidia Geforce GTX 1060 6G and above	
Operating system	Window 10 64-bit	

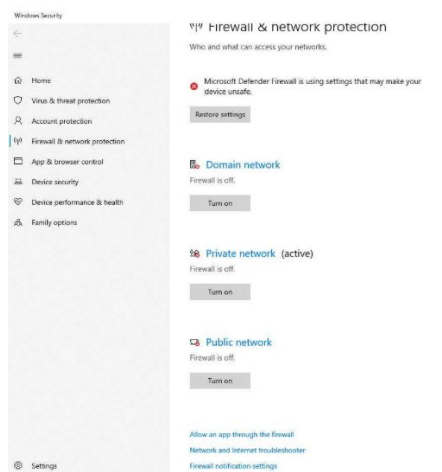
2.3 Software installation

Preparation work before use

- ① Make sure whether the computer is running in high performance mode.

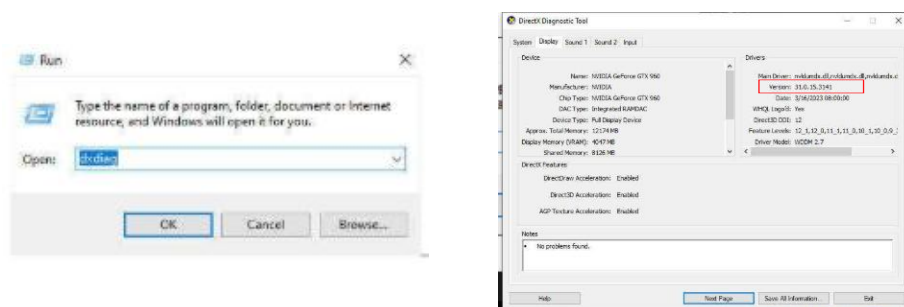


- ② Make sure that 360 security guards and antivirus software are turned off.

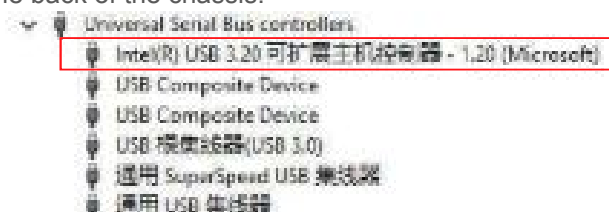


- ③ Make sure the GPU driver is at the latest version.

Use the dxdiag tool to check the GPU driver version. The method is to enter the dxdiag command in the running command in Windows to view it.



Confirm whether the USB chipset is an intel chipset, and the USB cable is plugged into the USB port on the back of the chassis.



Scanner program installation

- Extract the installation package

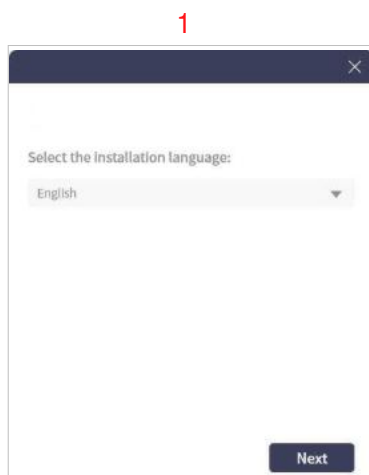
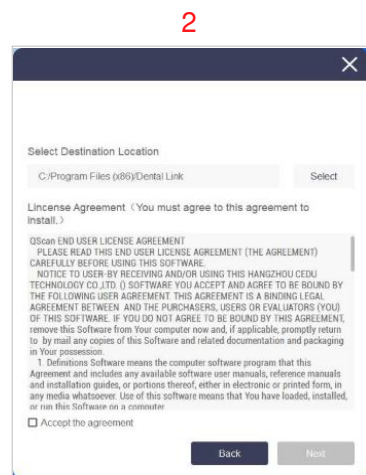
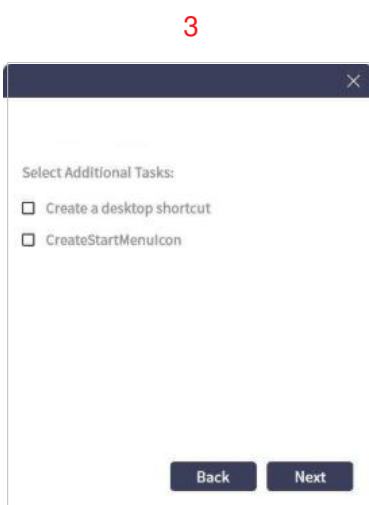
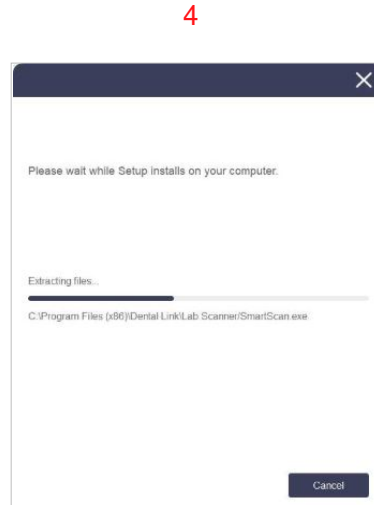
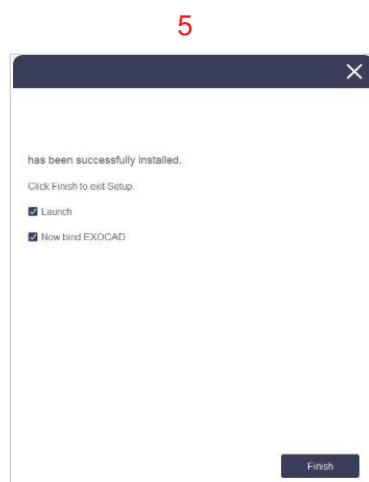
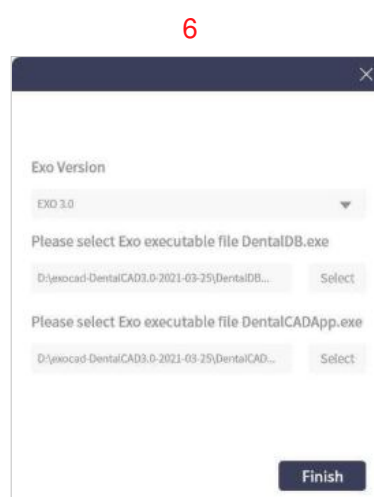
Open the contents of the U disk and copy the software installation package and user manual to the computer.

- Run the installation package

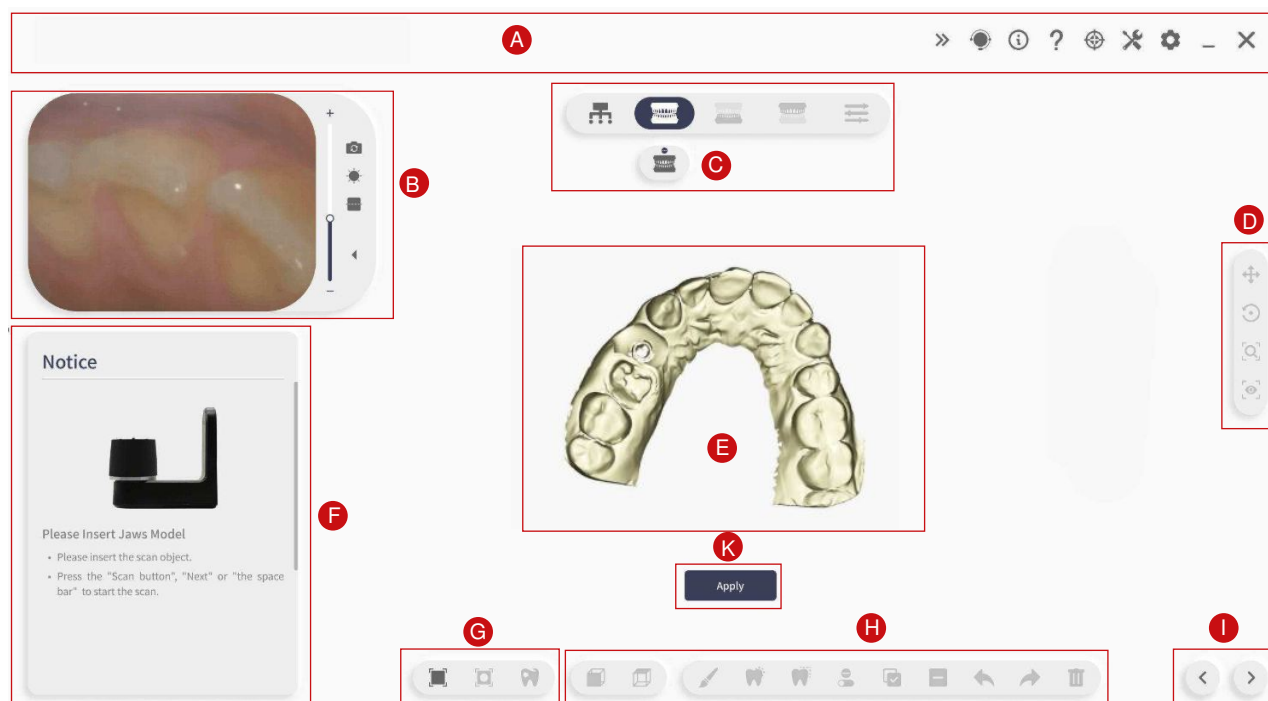
Double click DenatManager.exe follow the guide to install the software.

During the installation process, click ' Next' to finish the installation and then click ' Close'.

- Some options are as follows :



3. DentalManager : Guide



- A. Title B. Scanner camera view C. Navigation Bar D. Right toolbar
 E. Display area F. Guide image and information G. Operation Bar H. Lower toolbar
 I. Forward / Backward

3.1 Title

3.1.1 Teamviewer

Open Teamviewer



3.1.2 Product information

Information about the product

About			
Software	Product		
	Version	3.0.0	
Equipment	Type	QScan	
	Version of the main	WUNB.01.01	
	Version of the vice	1.0	
Deploy	Processor	Intel(R) Core(TM) i3-9100F CPU @ 3.60GHz	3.60 GHz
	Display adapters	NVIDIA GeForce GTX 1050 Ti	
	Driver version	30.0.15.1215	
	Installed RAM	16.0 GB	
	Edition	Windows 10 Pro 21H2	
Connect	Equipment	Connected	
			Close

3.1.3 User Manuel

3.1.4 Calibration

Calibrate scanner accuracy

Calibration is recommended for proper scanning and performance of the device.

Please calibrate the scanner if:

- The quality of the scan data has decreased compared to previous scans.
- External conditions such as the temperature of the device change during use.
- The configuration calibration period has passed.

To set the calibration period, go to Settings-Calibration period (days) option.



The calibration plate is a very sensitive part.

Don't touch the surface of the calibration plate directly. If the calibration process does not proceed normally, please check the calibration plate. If the calibration plate becomes dirty, please contact the manufacturer or your local service dealer.

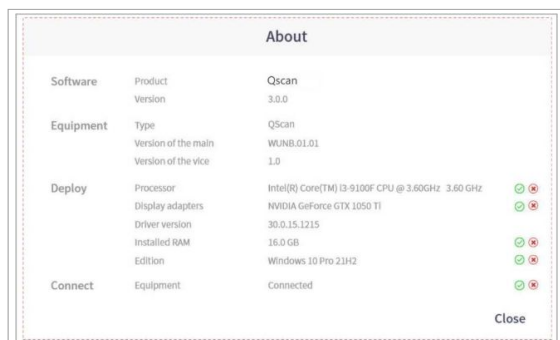


Periodic calibration of the device is recommended.

Go to Settings and configure the calibration period in the Calibration period (days) option. The initial calibration period is 15 days.

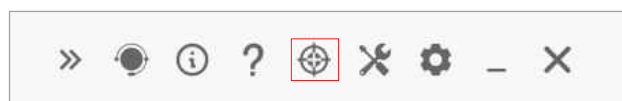
Scanner Calibration

- Before calibrating, please check whether the scanner connection is normal. You can check whether the scanner is connected properly by clicking the 'About' button on the menu, as it shows in the picture below :

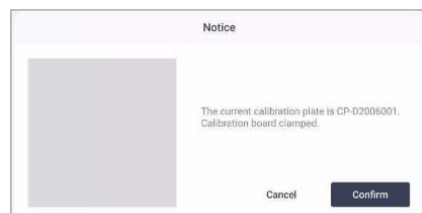


- Open the software desktop icon "DentalManager"
- Click the 'Calibration' button on the menu to enter the calibration process.

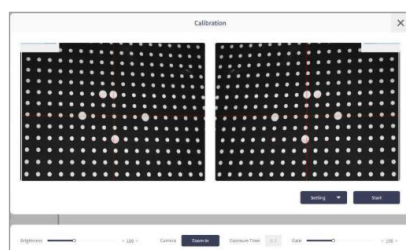
(Notice: Be careful not to touch and damage the surface of the calibration plate and keep the calibration surface clean and complete when using the calibration plate.)



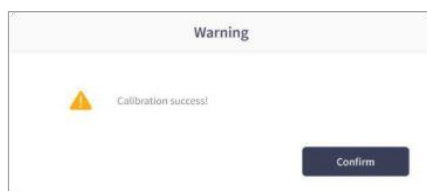
- Place calibration plate as it shows in the picture and click 'Confirm' to enter the calibration surface.



- Adjust camera and projector brightness

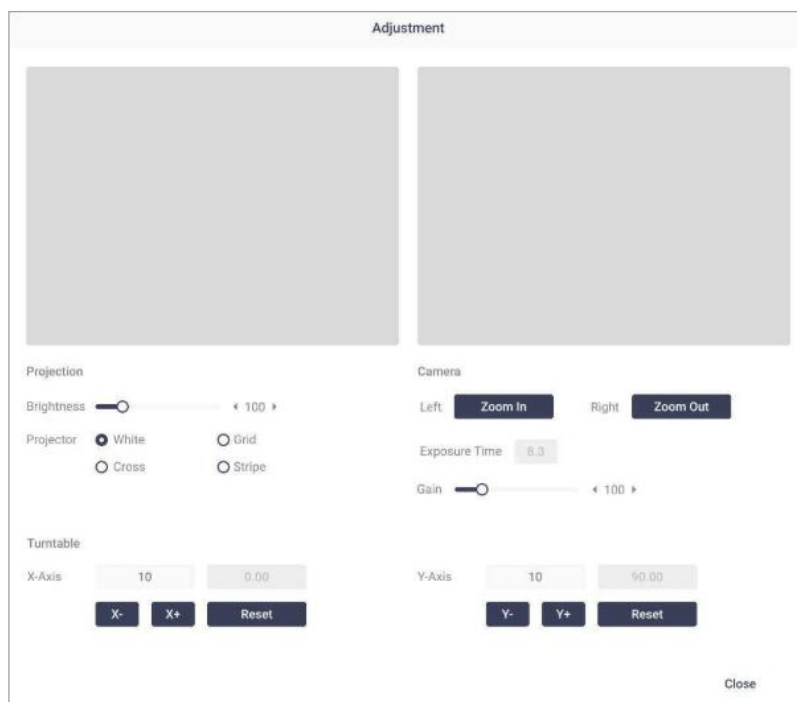


- Click "Start" to start to calibrate
- Wait for prompt Calibration success !



3.1.5 Debugging

Adjust camera and projector brightness



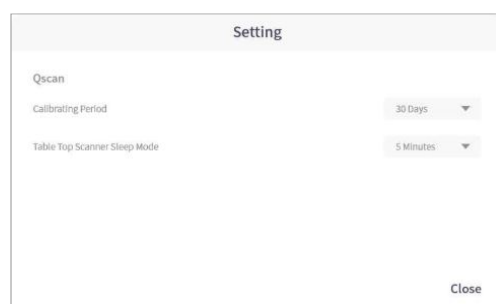
Projector Adjust projector light brightness and pattern

Camera Zoom in / out left and right cameras, adjust camera exposure

Turning Adjust the X, Y axis angle

3.1.6 Setting

Set machine sleep and calibration time



3.1.7 Minimize

Minimize the program window

3.1.8 Closure

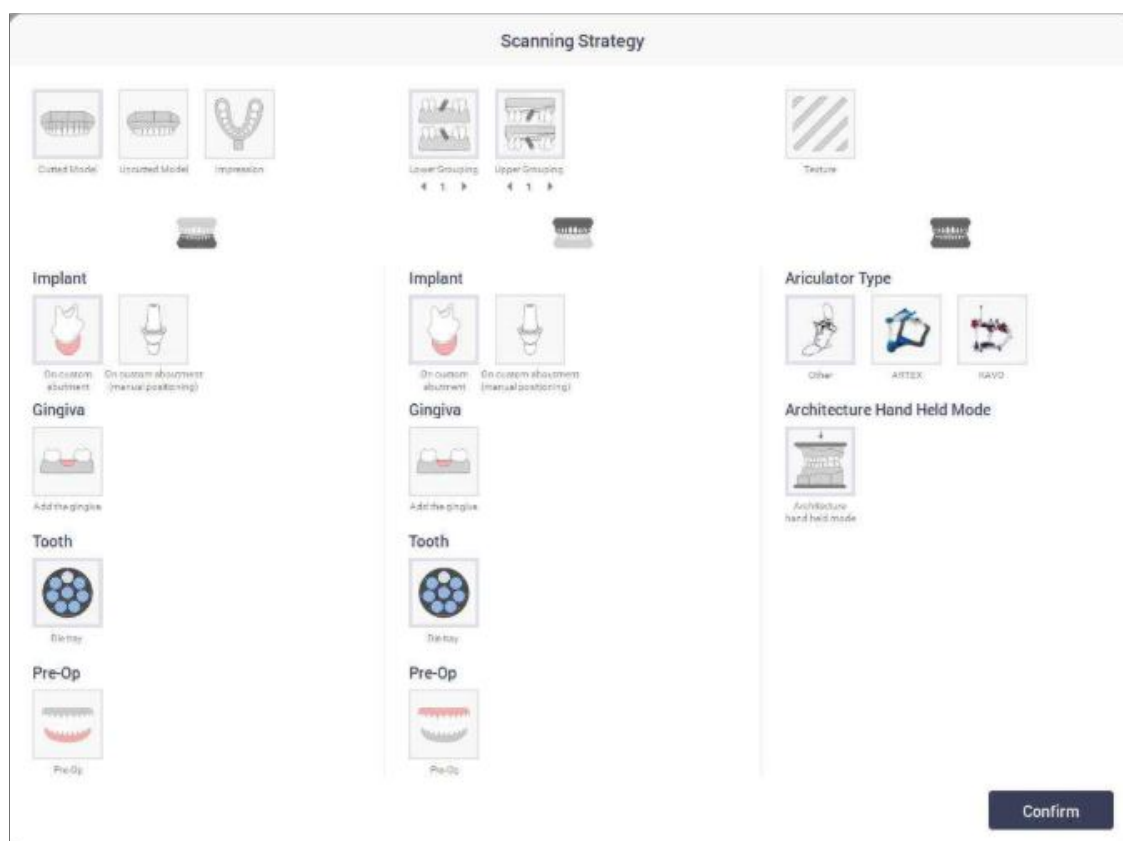
Exit the program.

3.2 Navigation Bar

3.2.1 Scan Strategy

When the scanner is correctly connected to your computer, the 'Scan Strategy' page will be displayed as below.

Select options that define the scanning process, such as scan type, occlusion scan strategy, scan boom group scan, gingival scan, etc.



① Scan type selection

	Cut Model	Select this option when the preparation tooth can be disassembled from the model. Scan the preparation tooth on the replica tray, align it and place it back on the model.
	Uncut Model	Select this option when the preparation tooth can't be disassembled from the model. No separate scan phase for prepared teeth.
	Impression	Select this option when doing impression scan.

② Scan options

Based on the selected options, scan modes will be added to the basic steps.



Texture

Can insert and scan one detachable scan wand. The number of each prepared tooth is displayed on the right side of the interface.



Displays texture during the process

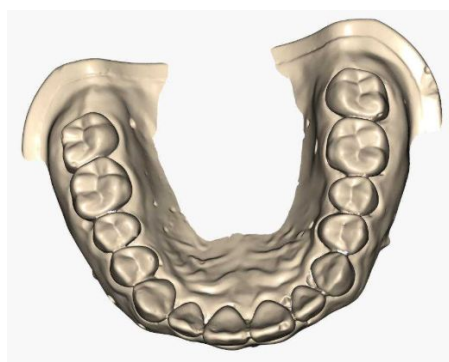
Can scan gingival material

Example : Texture

Textures on



Textures off



③ Bite Strategy

Select a suitable accessory for the occlusion scan.



OTHERS

Select this option when you want to scan the bite using only the jig / hand held frame.



ARTEX

Select this option if you use an ARTEX articulator.



KAVO

Select this option if you use a KAVO articulator.

Scan Phase Options



Upper and Lower Jaw

Cut Model

Scan Pod : Select a scan strategy for the scan pod

	Personalized Abutment Manual Positioning Die Tray	Without using the scan bar. Manual positioning of the screw channel.
	Die tray	Personalized abutments are scanned on the die tray, aligned and placed back on the model.

Sample : Scan Process



Gingival : Choose to scan with or without gingival

	With Gingival	Select this option to scan and align the gingival individually
---	----------------------	--

Preoperative : Choose when preoperative scans are required

	Preoperative	Select this option to scan the preoperative model
---	---------------------	---

Die tray : Choose to scan when you need to scan the prepared tooth and the manual positioning of the personalized abutment.

	Die tray	Select this option to scan and align preparations/personalized abutments for manual positioning
---	-----------------	---

Uncut Model

Scan Bar Alignment : Select a scan strategy for the scan bar

	Personalized abutments	Scanning of scanbody data
	Group	<p>This option is used to group the scan pod scanning process</p> <p> Select this option group when scanbodies overlap or missing</p>

Sample: Scan Process

One group	
Multiple groups	

Gingival : Choose to scan with or without gingival

	With gingival	Select this option to scan and align the gingival individually
---	----------------------	--

Preoperative : Choose when preoperative scans are required

	Preoperative	Select this option to scan the preoperative model
---	---------------------	---

Impression

Preoperative : Choose where to scan before surgery



Preoperative

Select this option to scan the preoperative model

3.2.2 Scan Steps



DentalManagerTwo options are available for scanning existing data :



1) Rescan "Scan"



2) Add to existing data "Add Scan"

The first option is used when you want to delete all existing data and rescan.

The second option allows you to keep existing data and scan only newly added parts.

Scan Subphase :

The sub-stages and their number are based on the scan strategy you set for the case.

Preoperative Scan



**Preoperative
Model(Lower Jaw)**

Scan preoperative model of the lower jaw



**Preoperative
Model (Upper Jaw)**

Scan preoperative model of the upper jaw

Waxup Scan



Waxup

Scan wax-up after placing it on the model

Gingival Scan



Gingival

Scan gingival materials

Scan Pod Scan



Scan Pod

Scan the scan boom placed on the model

3.2.3 Check

The stage looks at all alignment data and makes modifications if necessary. Use tools to edit data located at the bottom of the window.



Brush selection

Use a brush to select models



Irregular selection

Select model of any shape



Rectangular selection

Select models by rectangle



Select deselect switch

This button can make irregular selection and rectangular selection into deselect



Inverse selection

Select the unmarqueeed area



Deselect all

Deselect all selected areas

3.3 Camera View

Switch Camera	Left and right camera view switching
Auto Exposure	Automatically adjusts projector brightness based on ambient and model colors.
Cutting Board Adjustment	Adjusting the cutting board
Manual exposure	Adjust brightness manually
Hiding the function	Hide the function. Double-click the camera to expand

3.4 Guide images and information

Guide the user to operate, the dynamic diagram of the operation process



	Scan / Rescan	Scan model display
	Rescan	Choose to do ' Rescan' in the place with bad data
	Hole-filling	Fill holes in the model where there are loopholes

3.5 Model Display Areas

3.5.1 Cancel

View data in real-time during scanning and cancel scanning if problems are found.

3.6 Cutting board

Adjust cutting board	Adjust the position of cutting board manually(± 40)
Reset	The reset of the cutting board

3.6.1 Application

Application	Post-processing the data
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3.7 Lower toolbar

	Front view	Make the model front view
	Top view	Make the model look down
	Brush selection	Use a brush to select a model
	Irregular selection	Select a model of any shape
	Rectangle selection	Select a model by a rectangle
	Minus selection switch	This button can make irregular selection and rectangular selection into deselection
	Invert selection	Select the unmarqueeed area
	Deselect all	Deselect all selections
	Undo / Rollback	Cancel the editing of the model in the previous step/Retrieve the data revoked in the previous step
	Delete	Delete the selected model data
	Confirm selected point	After selecting the corresponding points, click to perform manual splicing.
	Clear selected point	Clear selected corresponding points

3.8 Right toolbar

	Pan	Control the left button to pan
	Rotate	Control the left button to rotato
	Enlarge/Shrink	Control the left button to enlarge/Shrink
	Suitable view	Maximize view

3.9 Forward/Backward



Forward

Proceed to the next operation according to the process.



Backward

Proceed to the next operation according to the process.

3.10 Operation shortcut key

Button	Operation	Use	Diagram
Left key	Click	Select or delete when using the polyline selection or polyline trim tools entities in the display.	
	Drag	Select or delete displays when using the Brush Selection or Brush Trim tools entity on screen.	
Mouse wheel	Scroll wheel	Enlarge or reduce the data in the display.	
Right key	Drag	Rotate the data in the display.	
Mouse wheel	Drag	Data in mobile display.	

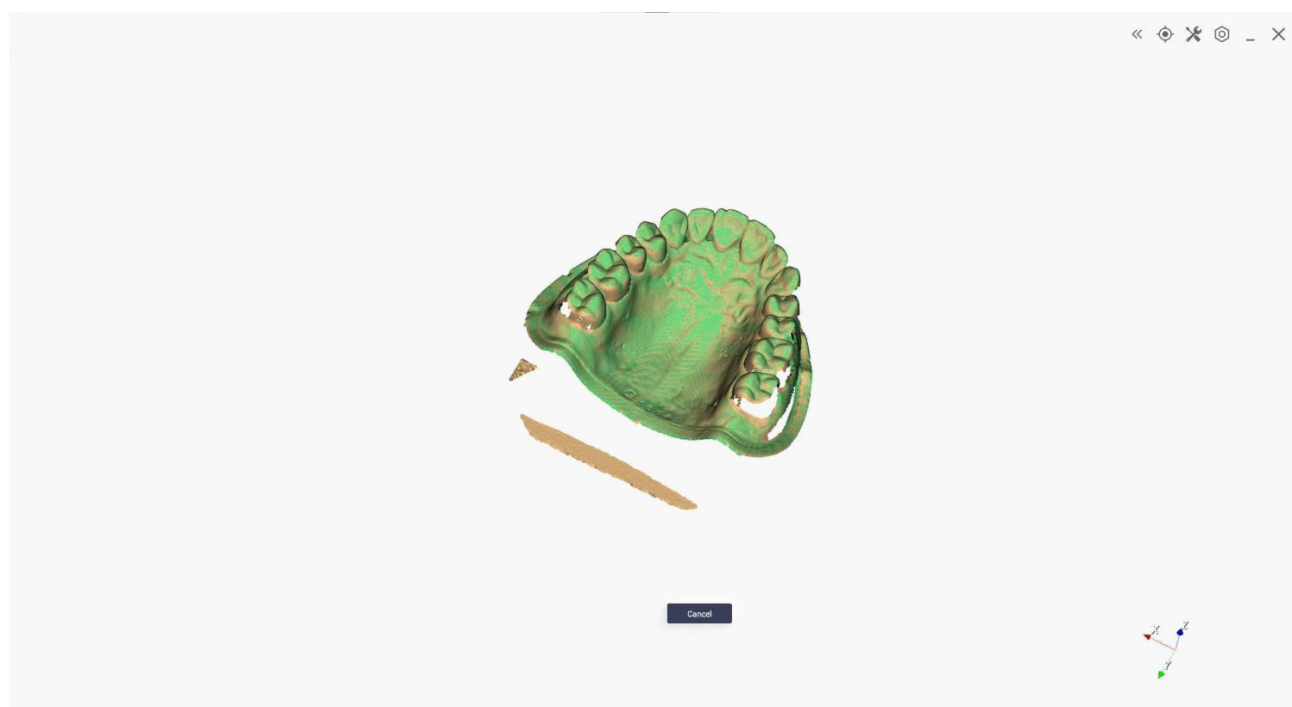
4. EXAMPLE OF CASE FLOW

4.1 Before scan

- ① In the scan strategy, select preoperative scan and click “Confirm”.



- ② Click  to scan



③ Adjust the cutting board, click “Apply”.



④ The scan result shows below.

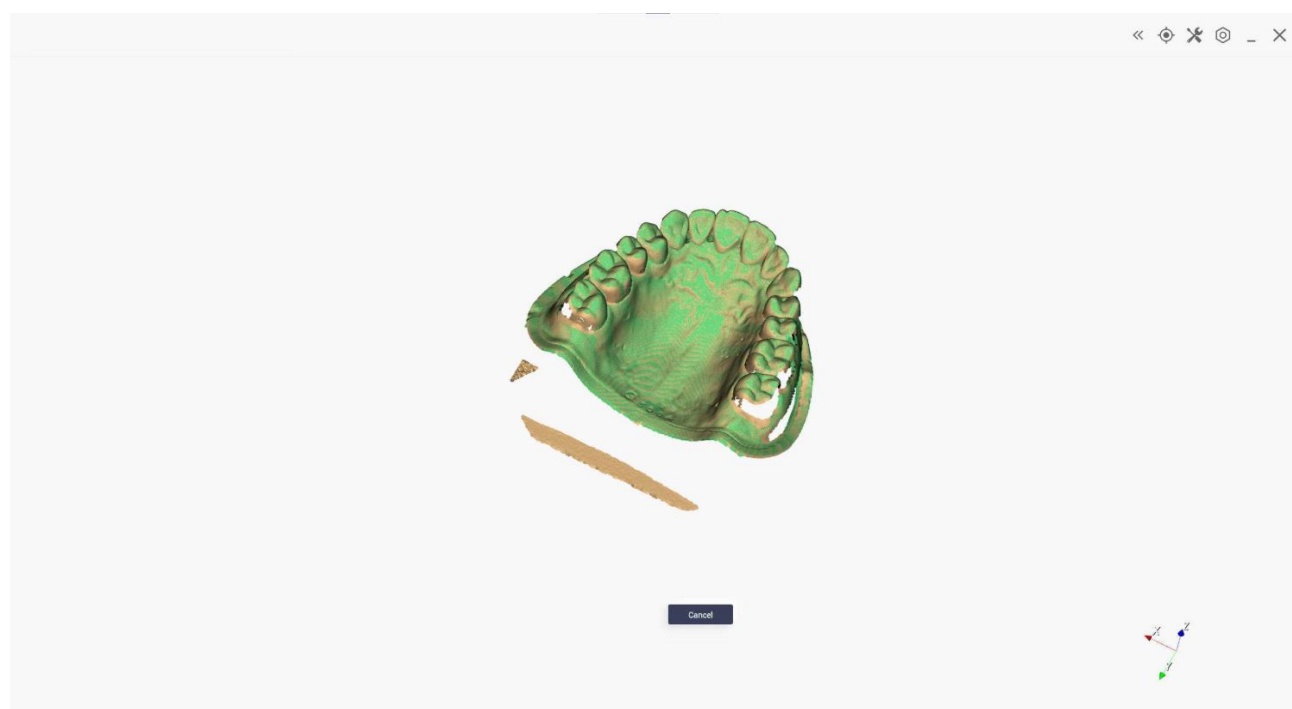


4.2 Gingival scan

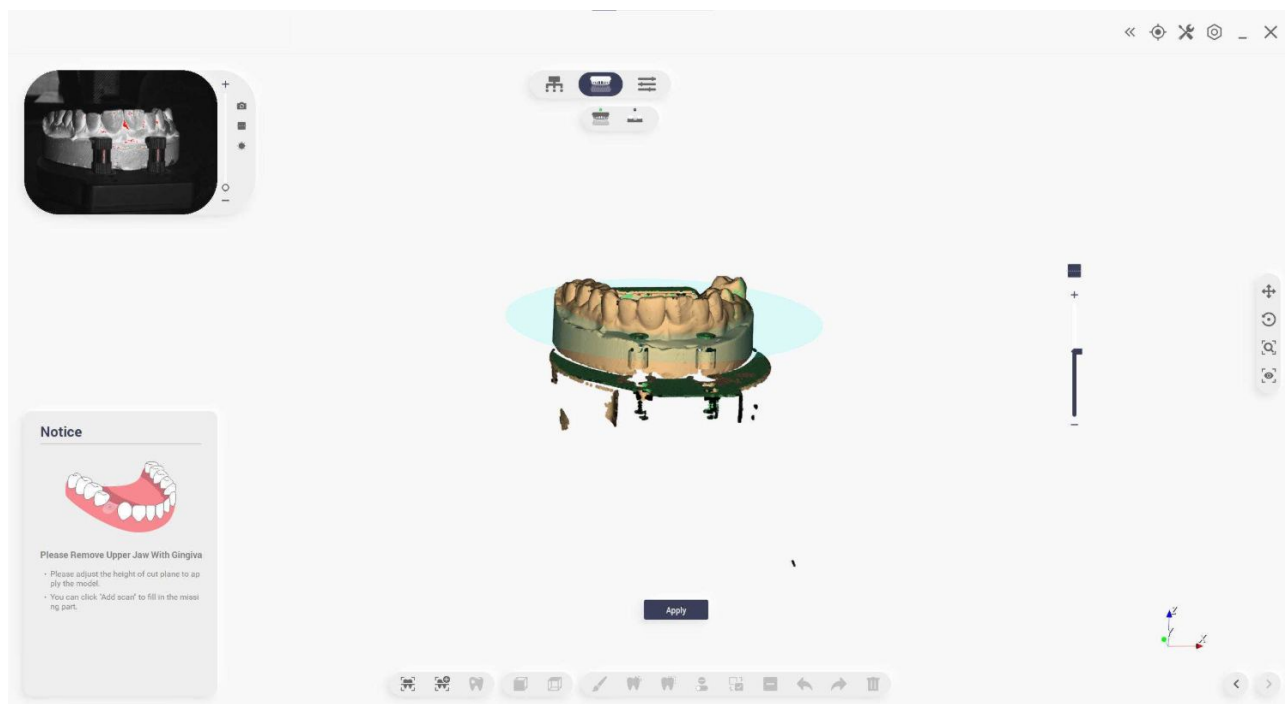
- ① Select gingival scan in the scan strategy, click “Confirm”.



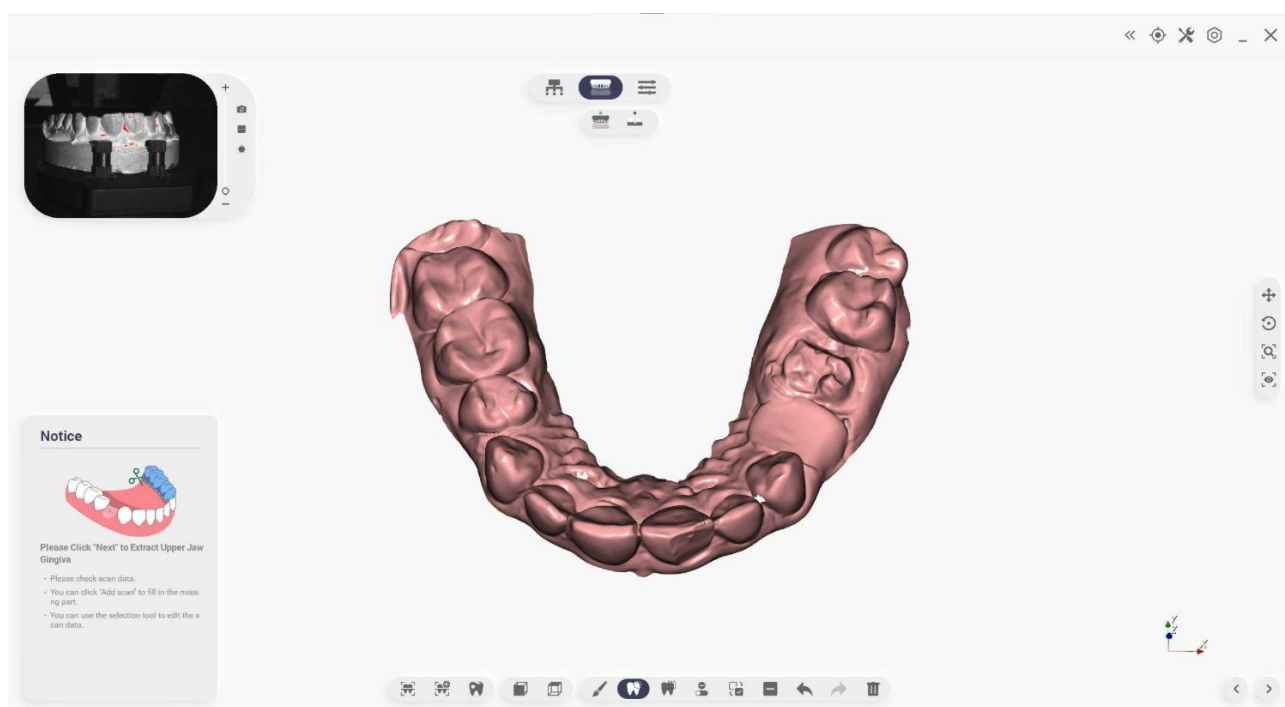
- ② Click  to scan



③ Adjust the cutting board and click “Apply”.



④ The scan result shows below.

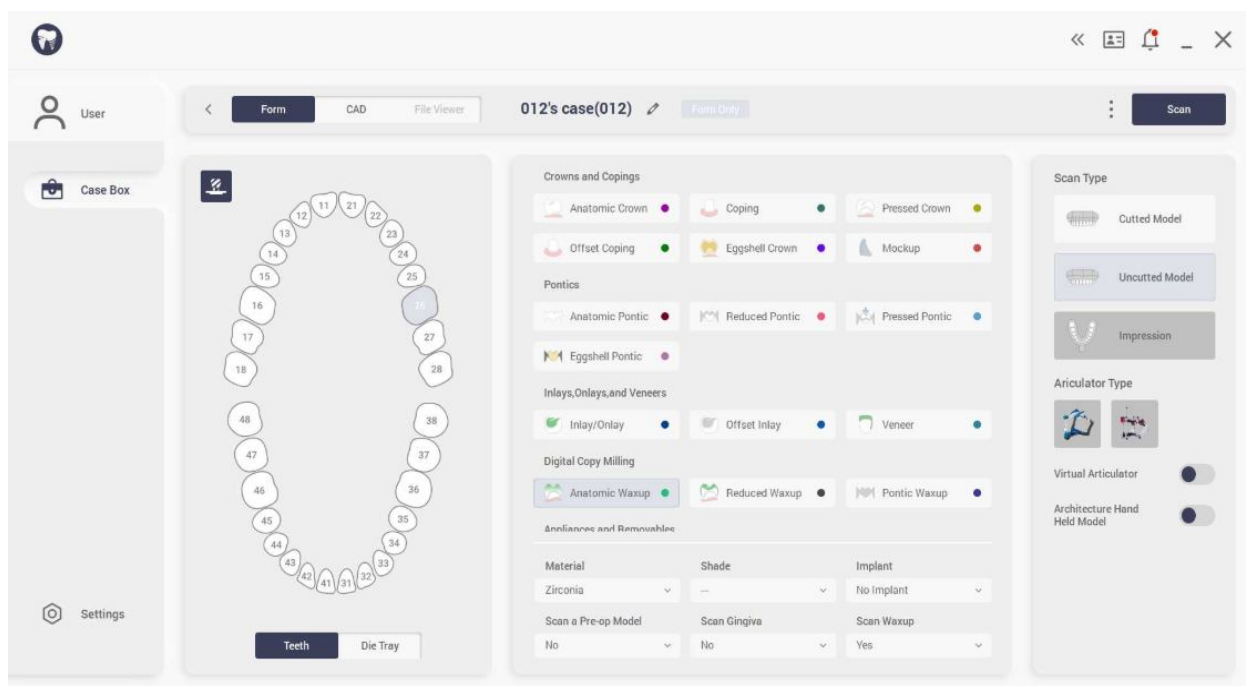


⑤ Click “Next” to do Gingival Extraction.

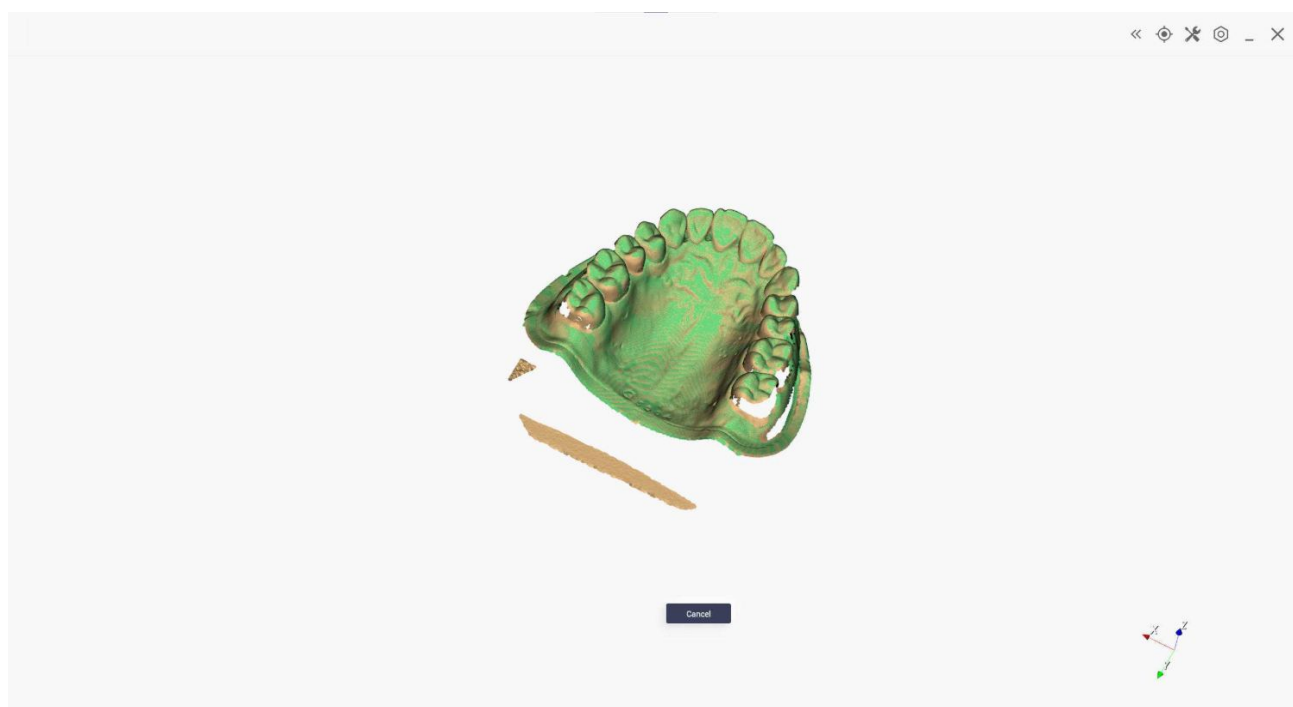


4.3 Scan Waxup

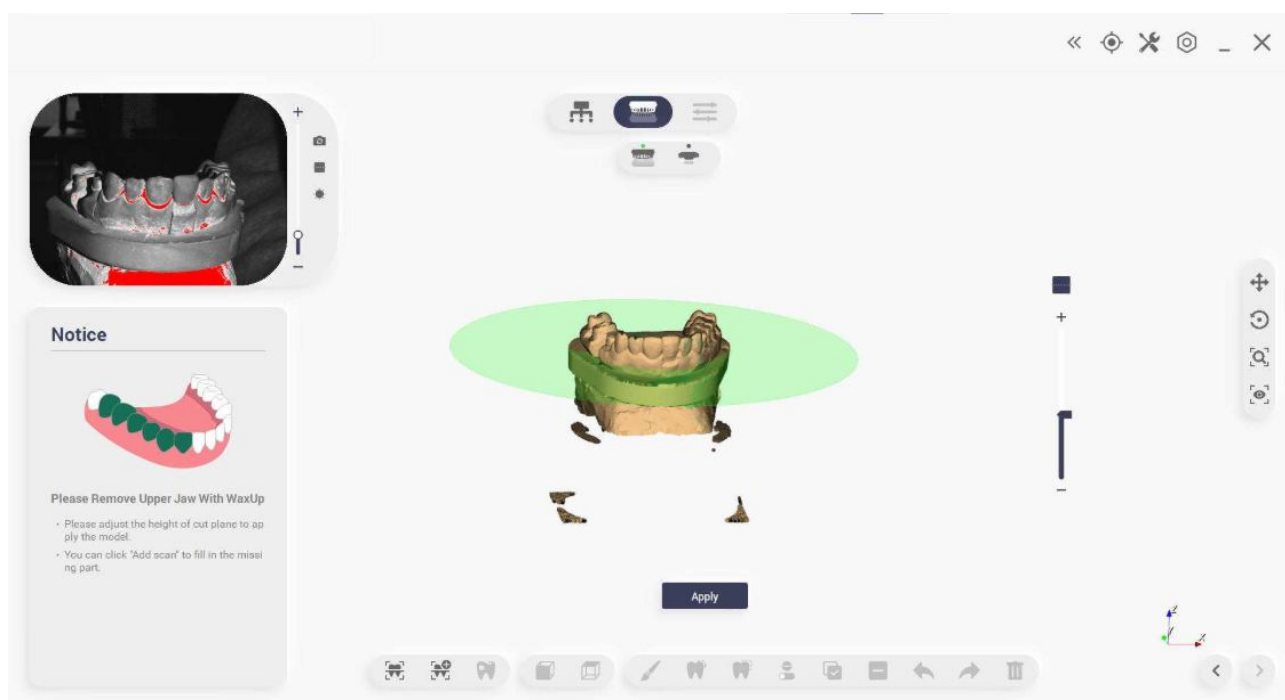
- ① Create a list to select the wax type.



- ② Click  to scan



③ Adjust the cutting board and click “Apply”.



④ Scan result shows below.



⑤ Scan result shows below.



4.4 Scanning Boom

Scanning Boom : Select a scan strategy for the scanboom

4.4.1 All

① Strategy selection Personalized abutments



② According to the prompt in the lower left corner, put the corresponding Scanbody.



③ After the scan is complete, click 'Apply' and the results are as follows



④ Click "Next" to do scanboom extraction



4.4.2 Group

Select this option to divide the scanning process into two phases: Scan Pole without base, Scan Pole group.

1.Scan bar group

2.Align by category separately and align them in the Align



Data step, which can be selected when base data is required for overlapping scanbodies or missing parts of the scanbodies.

① Strategies for selecting personalized abutments.



② According to the prompt in the lower left corner, put the corresponding Scanbody.



③ First set of extraction scanbodies.



④ Click next According to the prompt in the lower left corner, put the second group into the corresponding scanbody.



⑤ Second set of extraction scanbodies.

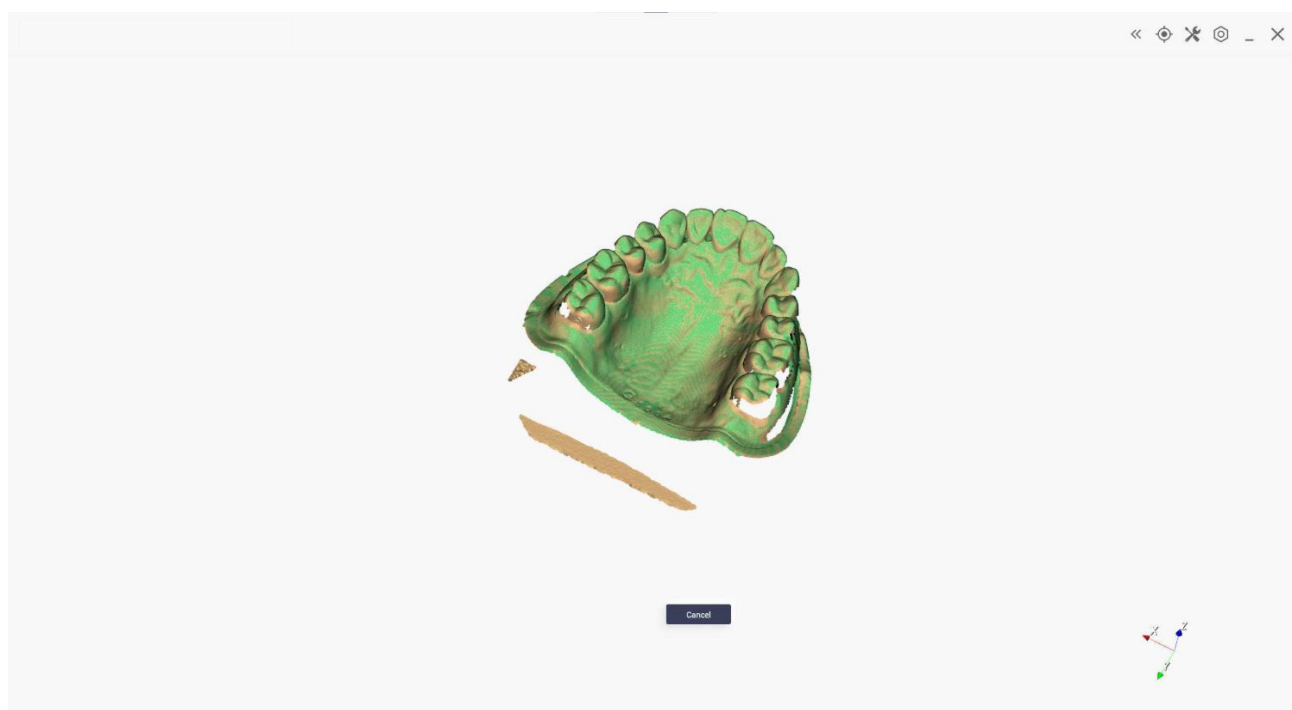


4.5 Cut Model Scan

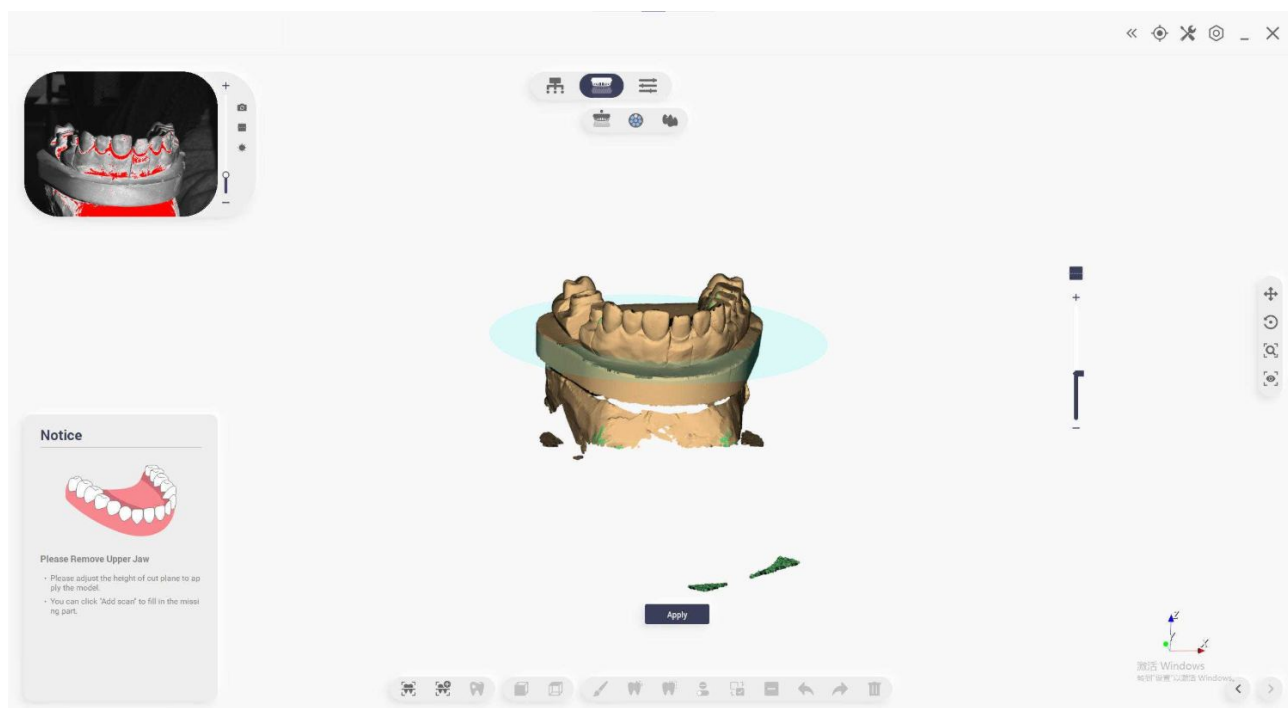
- ① Select cut model scan in scan strategy and click “ Confirm ”.



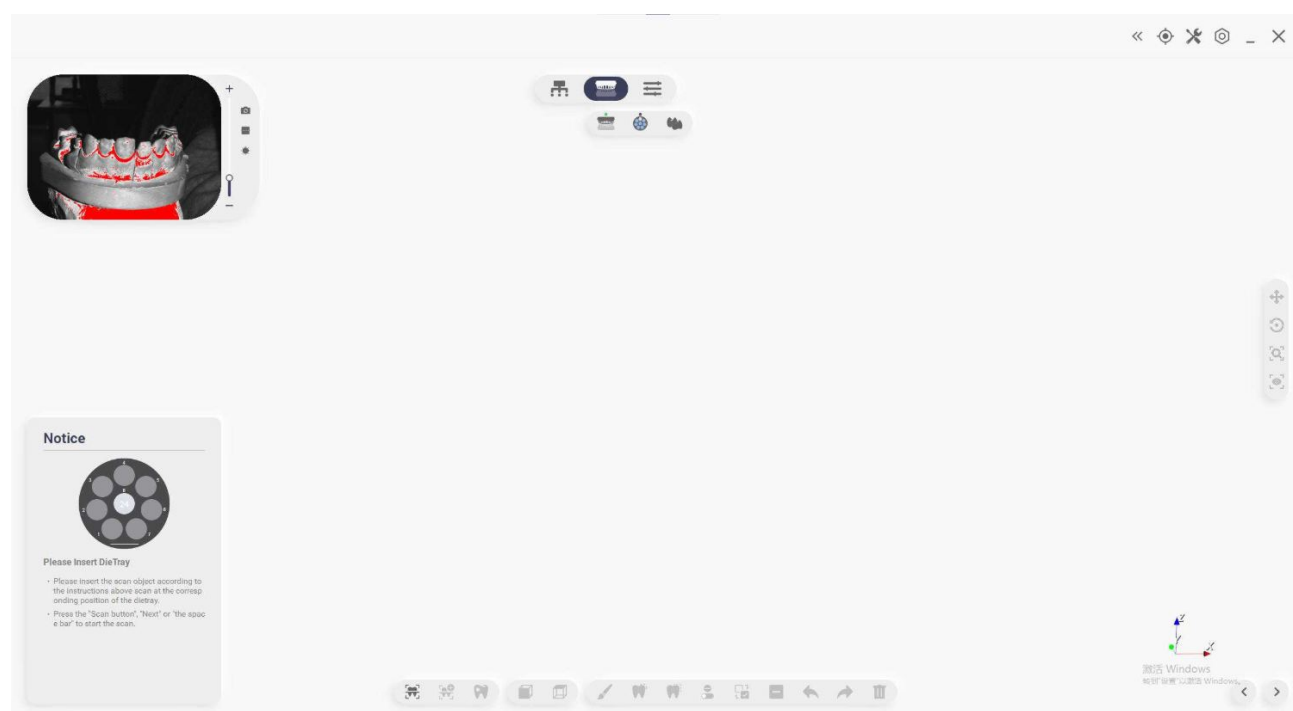
- ② Click  to scan



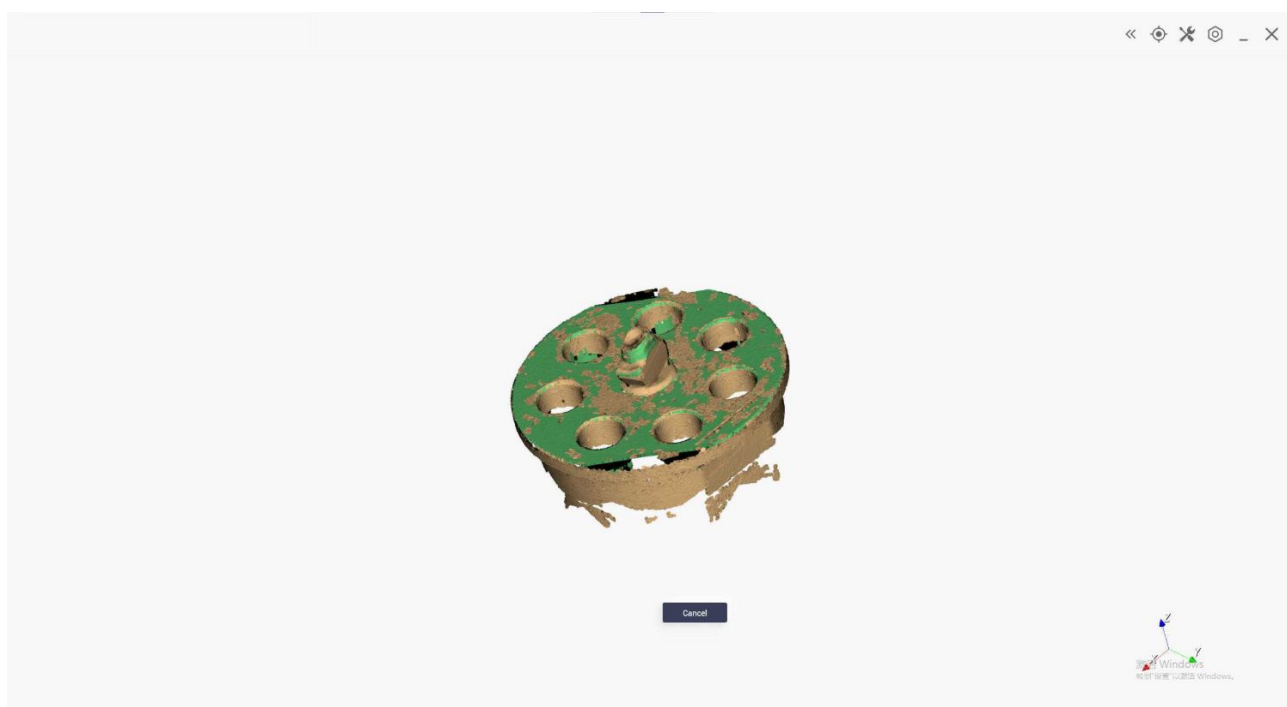
③ Adjust cutting board and click “Apply”.



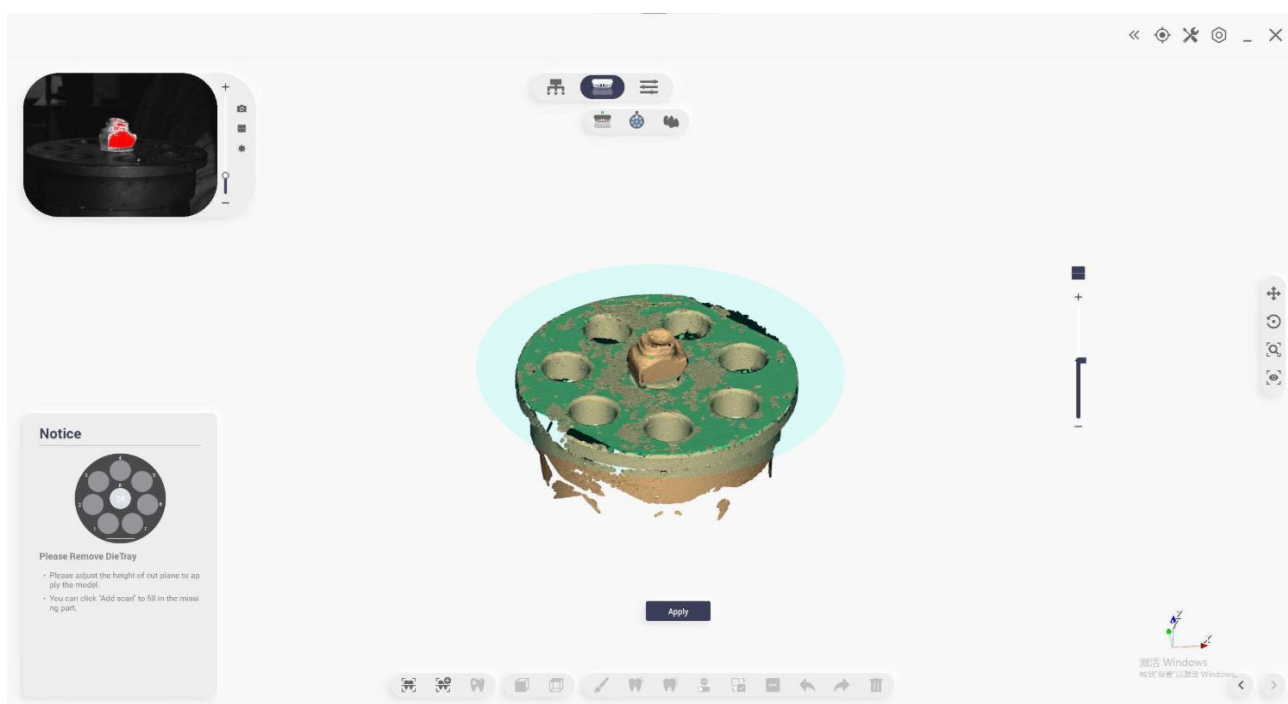
④ Click “NEXT” to enter the scan of the die plate. Put the teeth according to the prompt bar.



⑤ Click  to scan



⑥ Adjust the cutting board and click “Apply”.



⑦ Scanning result shows below



⑧ Click “NEXT” to align.

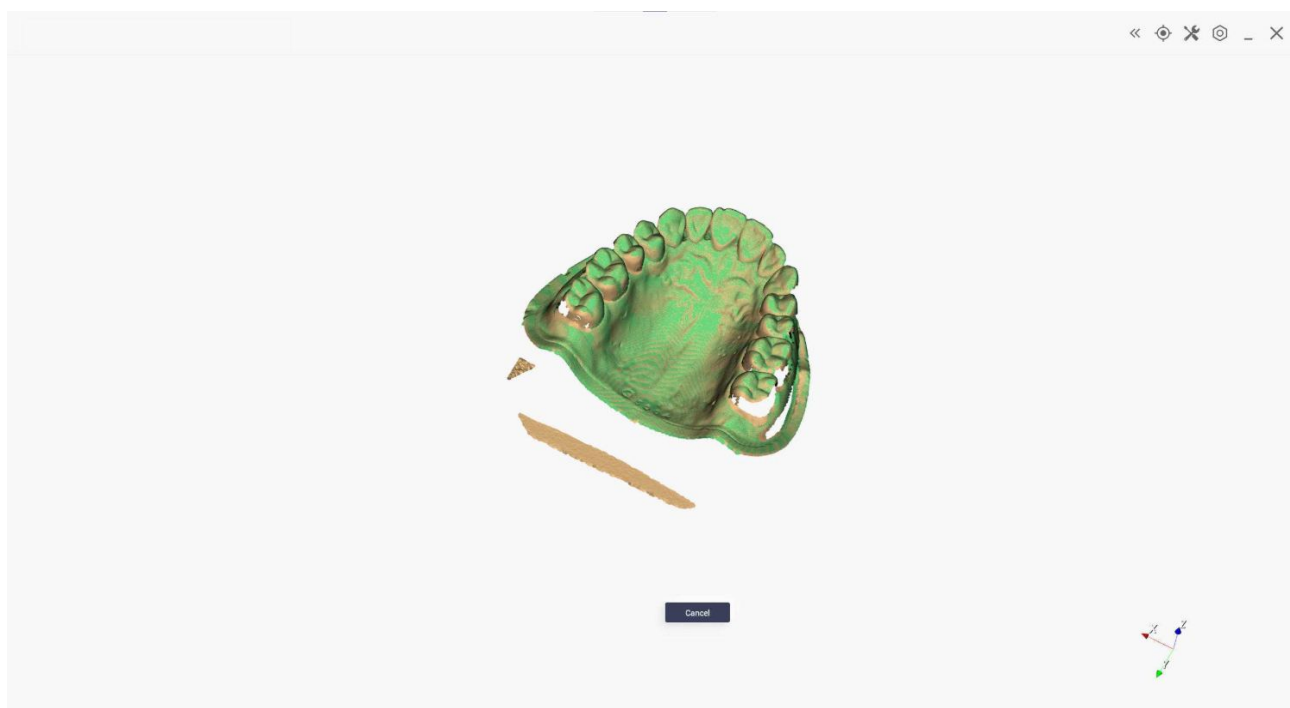


4.6 Uncut Model Scan

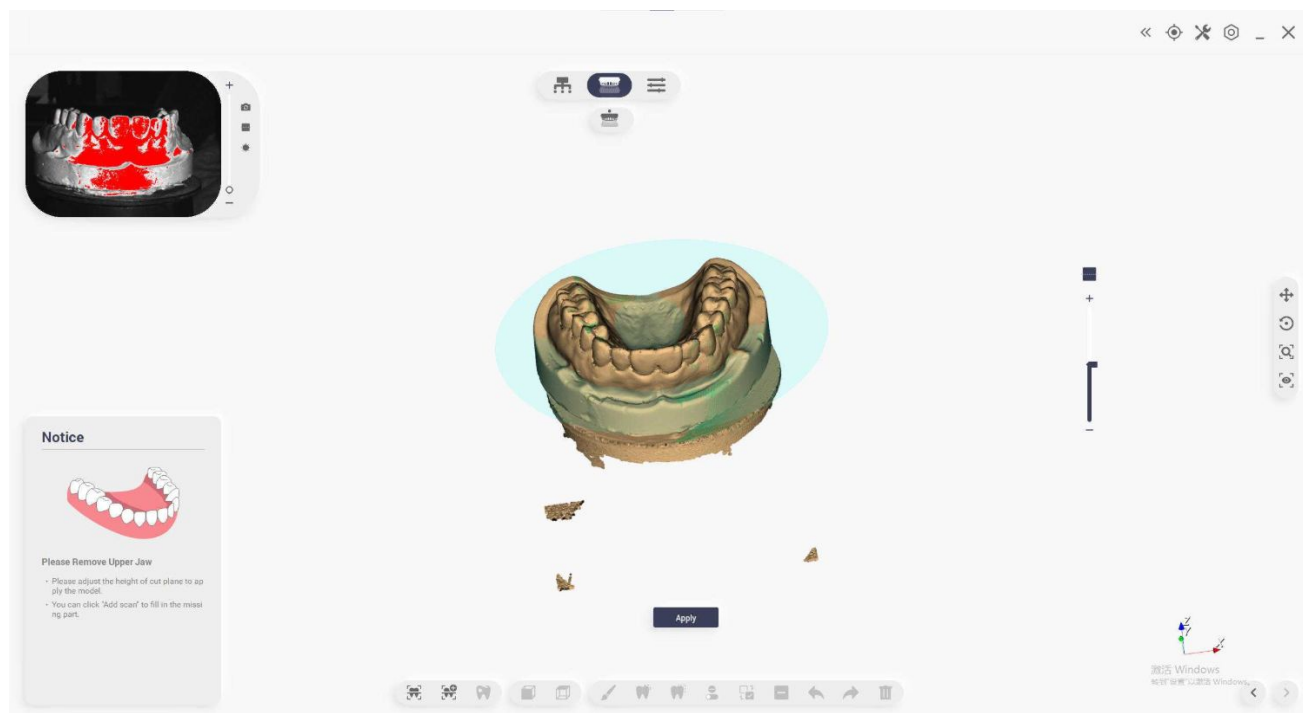
- ① Choose uncut model scan in the scan strategy and click “ Confirm ”.



- ② Click  to scan



③ Adjust the cutting board and click “Apply”.



④ Scan result shows below.

