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CHAPTER

1

Read this first

The **Aoralscan 2** is an intraoral scanner that works with the supplied software programs. With **Aoralscan 2**, you can perform oral scanning and digitally acquire and save the 2D/3D color images of a patient's teeth for orthodontic, implant, and restoration use.

This *User Manual* provides important procedures and information on how to operate the scanner and configure the **IntraoralScan** software correctly and safely. Before attempting to operate the product, read this *User Manual* and strictly observe all warnings and cautions. We suggest that you have easy access to the *User Manual* whenever necessary. Pay extra attention to the information from Safety information on chapter 2.

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Shining3D Corporation to notify any person of such revision or changes.

Updates to hardware and/or software components are made regularly; therefore, some of the instructions, illustrations, and specifications mentioned in this *User Manual* may differ slightly from your particular situation. To obtain the most updated and accurate information, visit en.shining3d.com for the latest version of this User Manual.

Intended use

An optical impression system for computer assisted design and manufacturing (CAD/CAM) is a device used to record the topographical characteristics of teeth, dental impressions, or stone models by analog or digital methods for use in the computer-assisted design and manufacturing of dental restorative prosthetic devices. Such systems may consist of a camera, scanner, or equivalent type of sensor and a computer with software.



WARNINGS

- **Do not use the scanner for purposes other than those intended and expressly stated above.**
- **This product is designed and intended for use by persons with professions of dentistry and dental laboratory technology. The product can not be operated by the patients themselves.**
- **Do not misuse the scanner, and do not use or operate the software programs incorrectly.**
- **The clinical environments where the scanner and the software programs can be used include dental clinics, dental hospitals, and dental laboratories.**
- **Only trained medical personnel may use the scanner and the supplied software programs.**
- **Installation, use, and operation of the scanner are subject to the law in the jurisdictions in which it is used. Install, use, and operate the scanner only in such ways that do not conflict with applicable laws or regulations, which have the force of law. Use of the scanner for purposes other than those intended and expressly stated here, as well as incorrect use or operation, may relieve us or our agents from all or some responsibilities for resultant noncompliance, damage, or injury.**
- **The users of this scanner and software are responsible for image quality and diagnosis. They should ensure that the inspection data is being used for the analysis and diagnosis only, and furthermore the data is sufficient both spatially and temporally for the measurement approach being used.**
- **The images acquired by the scanner must be interpreted by a qualified medical professional. The software in no way interprets these images or provides a medical diagnosis of the patient being examined.**

Warnings

Before using the **Aoralscan 2**, read these warnings and Safety information on chapter 2.



WARNINGS

- Do not attempt to disassemble, repair, or modify the scanner and software. There are no user serviceable parts inside the scanner. Necessary modifications must be made only by the manufacturer or its designated agents.
- Do not allow any liquid to get inside this scanner and its cradle. Water and moisture may cause short-circuit to the electronic components and lead to malfunctions.
- Do not drop or apply shock/vibration to this scanner and its cradle. Strong impacts may damage the components inside.
- Do not cut, bend, modify, place heavy objects, or step on the cables. Otherwise the external insulation may be damaged and result in short-circuit or fire.
- To avoid electrical shock, use only supplied power adapter and connect it only to properly grounded wall outlets.
- The device should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the device should be observed to verify normal operation in the configuration in which it will be used.

WEEE

Disposal of Waste Electrical and Electronic Equipment and by users in private households in the European Union.

This symbol on the product or on the packaging indicates that this can not be disposed of as household waste. You must dispose of your waste equipment by handling it over to the applicable take-back scheme for the recycling of electrical and electronic equipment and/or battery. For more information about recycling of this equipment, please contact your city office, the shop where you purchased the equipment or your household waste disposal service. The recycling of materials will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and environment.



Disposal



CAUTION

The scanner must be reprocessed prior to disposal in order to prevent cross-contamination.

All electrical and electronic devices must be disposed of separately from your other household waste in order to promote reuse, recycling and other forms of recovery, to prevent any potential adverse effects of hazardous substances on the environment and human health, and also to reduce the amount of waste in landfill. This includes accessories such as power adapters, power cords, etc. Do safely dispose of the device and its accessories in accordance with applicable laws and regulations.

For specific information on disposal of your device and the packaging, contact your local distributor or service provider.

Typographics

Special notes, cautions, and warnings that appear throughout this *User Manual* are designed to ensure that you perform specific tasks properly, preventing unnecessary errors.



This icon marks NOTE(S); additional information for particular situation.



This icon marks CAUTION(S); improper actions or conditions that may damage the product or injury, and consequently void your warranty or service contract or lose the patient data or system data.



This icon marks WARNING(S); the safety instructions that you must precisely follow in order to avoid injury. Failure to observe can cause damages to your product, or result in personal injuries, or even death.

Warranty

The warranty is void if unauthorized personnel perform service or maintenance on the set of **Aoralscan 2**. To ensure correct product performance and to obtain warranty service, contact technical support. For more information, see the following.

Contact information

Manufacturer

Shining 3D Tech Co., Ltd.
No.1398, Xiangbin Road, Wenyan, Xiaoshan, Hangzhou, Zhejiang, China

en.shining3d.com

Customer Support

Email: dental_support@shining3d.com

Safety information

Precautions



WARNING

Follow the procedures carefully and ensure that the power/electrical/environmental requirements are satisfied. Failure to observe the instructions or disregard the warnings may result in damages to the product, personal injury, or even death of the user or the patient.

Observe the following precautions carefully.

- Do not use the hardware and software for any application until you have read, understood, and known all the safety information, safety procedures, and emergency procedures contained in this chapter. Operating the hardware and software without a proper awareness of safe use could lead to fatal damage to the hardware or permanent data loss.
- Ensure that the connection is performed correctly by following the instructions given in Connecting the scanner on chapter 4.
- Use only medical grade devices with the scanner in the patient environment.
- The hardware and software should only be used in a medical facility under the supervision of trained personnel.
- Only authorized service labs should perform maintenance. It is expressly prohibited to open the scanner with tools.
- The hardware and software have been fully adjusted and tested prior to shipment from the factory. Unauthorized modifications will void your warranty.

- If the hardware or software is modified, appropriate inspection and testing must be conducted to ensure continued safe use.
- Use only supplied accessories and approved software with the scanner in order to achieve the designed performance.
- Do not use a power adapter other than the one supplied with the package. Connecting the scanner to an unknown power adapter is very dangerous and may lead to fire or explosion.
- Using cables or accessories other than those specified for use with the scanner may result in increased emissions or decreased immunity of the device.
- The supplied medical grade power adapter should only be connected to a grounded power socket.
- Do not connect USB peripherals with an extended USB cable. Extended connection may cause unexpected usage fault.
- Always handle the scanner with care and avoid hitting or scratching the surfaces as it contains fragile components. Dropping the scanner on the floor may cause permanent damage. If you accidentally drop the scanner, you **MUST** dispose of the scanner tip immediately and do not use the same tip again. The mirror in the tip might shatter into small pieces, and using it again poses the highest risk of causing serious injury to the user and patient.
- The scanner might heat up to above the normal body temperature, yet this short-term exposure and contact with small areas will not pose a health or safety hazard to the patient.
- Never place any objects or load on the scanner and its cradle.
- Pay close attention to the hygiene guidelines given in Pre-cleaning, disinfection, and sterilization on chapter 9.
- Do not dispose of this scanner as unsorted municipal waste. The scanner must be collected separately and disposed of in accordance with the local laws and regulations. For proper disposal of this scanner, contact your local representative of Shining3D Corporation.

Legend of labels and symbols

The following symbols provide information on the product's labels and regulatory compliance.

On the device

Table 2-1 Labels and symbols on the device

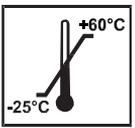
Symbol	Explanation
	General warning – caution.
	Indicates that the device complies with requirements for the BF type applied part according to IEC 60601-1, providing protection against electric shock.

On the carry box/package

Table 2-2 Labels and symbols on the carry box/package

Symbol	Explanation
	General warning – caution.
	Indicates that the device complies with requirements for the BF type applied part according to IEC 60601-1, providing protection against electric shock.

Table 2-2 Labels and symbols on the carry box/package

	<p>Indicates that the user should read the operating instructions for information on using this equipment.</p>
	<p>Indicates that the final disposal of the device complies with Waste Electrical & Electronic Equipment and waste regulations. It can no longer be used for its intended purposes.</p>
	<p>General warning – caution.</p>
	<p>Indicates that the contents of the transport package are fragile and therefore shall be handled with care.</p>
	<p>Indicates that the transport package shall be kept dry.</p>
	<p>Indicates correct upright position of the transport package.</p>
	<p>Indicates the stack limits. A maximum of 6 units of identical packages may be stacked.</p>
	<p>Indicates temperature limits. The product must be stored in the original shipping package in environments between -25°C and 60°C.</p>
	<p>Indicates the humidity limits. The product must be stored in the original shipping package in environments with 30% to 75% relative humidity and noncondensing.</p>
	<p>Indicates the atmospheric pressure limits. The product must be stored in the original shipping package in environments between 700 hPa and 1060 hPa air pressure.</p>
	<p>Indicates that the material shall be recycled.</p>

Compliance

Anyone creating or changing a medical electrical system through a combination with other devices in accordance with standard EN 60601-1-1:2001 based on 60601-1-1:2000 (specification for the safety of medical electrical systems)/UL 60601-1 Part 1: first edition 2003 is responsible for ensuring that the requirements of these standards are met to the full extent in order to ensure the safety of patients, operators and the environment.

FCC compliance statement

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.

Electrical safety

Only trained medical personnel should operate this scanner. The product complies with the following standards:

Electrical

- IEC 60601-1-2:2014
- IEC 60601-1:2015/A1:2012 (ed 3.1)
- IEC 60601-1-6: 2013.Con Ed 3.1 Rev. October 29. 2013.
- IEC 62366-1:2015
- IEC 62304:2006/AMD1:2015

Classification

- Type of protection against electric shock: Class II
- The degree of protection against electric shock: Type BF
- The mode of operation: Continuous operation
- Pollution degree 2

For maximum safety, observe the following guidelines strictly:



WARNINGS

- **Shock hazards exist if the power adapter is damaged or is not properly grounded. Use only the supplied medical grade power adapter.**
- **To avoid the risk of electric shock, connect the scanner only to properly grounded wall outlets.**
- **Only authorized service labs can make internal replacements of the scanner and modify the software.**

- **Do not use the scanner if its tip or cable is damaged. Contact technical support for replacement of the damaged equipment (see Contact information on chapter 1).**
- **To avoid risk of electrical shock hazards, always inspect the scanner and cable connections before use.**
- **Check the cable housing before use. Do not use if the housing is damaged or the cable is abraded.**
- **All devices connected to the Aoralscan 2 shall comply with IEC 60601-1 and IEC 60950.**

EMC notice

Electromagnetic emissions

Medical electrical equipment such as the **Aoralscan 2** requires special precautions regarding electromagnetic compatibility, and must be installed and put into service according to the following electromagnetic tables.

The **Aoralscan 2** is intended for use in the electromagnetic environment specified below. The customer or user of the **Aoralscan 2** should assure that it is used in such an environment.

Table 2-3 Guidance and manufacturer’s declaration – electromagnetic emissions

Emission measurement	Conformity	Electromagnetic environment - guidelines
RF emissions CISPR 11	Group 1	The Aoralscan 2 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Aoralscan 2 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class D	
Voltage fluctuations/ flicker according IEC 61000-3-3	Complies	

Interference immunity

The **Aoralscan 2** is intended for use in the electromagnetic environment specified below. The customer or user of the **Aoralscan 2** should assure that it is used in such an environment.

Table 2-4 Guidance and manufacturer's declaration – electromagnetic immunity

Immunity test	IEC 60601 test levels	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, a relative humidity of at least 30% is recommended.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.

Table 2-4 Guidance and manufacturer’s declaration – electromagnetic immunity

Immunity test	IEC 60601 test levels	Compliance level	Electromagnetic environment – guidance
<p>Voltage dips, short interruptions and voltage variations on power supply input lines</p> <p>IEC 61000-4-11</p>	<p>0% U_T (100% dip in U_T) for 0.5/1 cycle^a</p> <p>40% U_T (60% dip in U_T) for 5 cycles</p> <p>70% U_T (30% dip in U_T) for 25/30 cycles^a (for 0.5 sec)</p> <p>0% U_T (100% dip in U_T) for 250/300 cycles^a (for 0.5 sec)</p>	<p>0% U_T (100% dip in U_T) for 0.5/1 cycle^a</p> <p>40% U_T (60% dip in U_T) for 5 cycles</p> <p>70% U_T (30% dip in U_T) for 25/30 cycles^a (for 0.5 sec)</p> <p>0% U_T (100% dip in U_T) for 250/300 cycles^a (for 0.5 sec)</p>	<p>Mains power quality should be that of a typical commercial or hospital environment. If the user of the Aoralscan 2 requires continued operation during power mains interruptions, it is recommended that the Aoralscan 2 be powered from an uninterruptible power supply or a battery.</p>
<p>Power frequency (50/60 Hz) magnetic field</p> <p>IEC 61000-4-8</p>	<p>30 A/m</p>	<p>30 A/m</p>	<p>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</p> <p>If image distortion occurs, it may be necessary to position the Aoralscan 2 further from sources of power frequency magnetic fields or to install magnetic shielding. The power frequency magnetic field should be measured in the intended installation location to assure that it is sufficiently low.</p>
<p>NOTE: U_T is the a.c. mains voltage prior to application of the test level.</p>			
<p>^a For example, 10/12 means 10 cycles at 50 Hz or 12 cycles at 60 Hz.</p>			

Table 2-4 Guidance and manufacturer’s declaration – electromagnetic immunity

Immunity test	IEC 60601 test levels	Compliance level	Electromagnetic environment – guidance
Conducted RF	3 Vrms 150 kHz to 80 MHz outside ISM bands ^c	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Aoralscan, including cables, than the recommended separation distance calculated from the equation appliance to the frequency of the transmitter.</p> <p>Recommended separation distance: $d = 1.2 \sqrt{P}$</p>
IEC 61000-4-6 Radiated RF IEC 61000-4-3	6 Vrms 150 kHz to 80 MHz in ISM bands ^c 3 V/m 80 MHz to 2.7 GHz	6 Vrms 3 V/m	<p>IEC 60601-1-2: 2007 $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz IEC 60601-1-2: 2014 $d = 2.0 \sqrt{P}$ 80 MHz to 2.7 GHz</p> <p>Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^a, should be less than the compliance level in each frequency range^b.</p> <p>Interference may occur in the vicinity of equipment marked with following symbol:</p> 

Table 2-4 Guidance and manufacturer’s declaration – electromagnetic immunity

Immunity test	IEC 60601 test levels	Compliance level	Electromagnetic environment – guidance
<p>NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Aoralscan 2 is used exceeds the applicable RF compliance level above, the Aoralscan 2 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Aoralscan 2.</p> <p>^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p> <p>^c The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.</p>			

To limit exposure to electromagnetic interference from nearby equipment that can degrade image quality or launch warning messages, it is necessary to position the **Aoralscan 2** further from sources of electromagnetic interference or install electromagnetic shielding to block unwanted interference. The customer or the user of the **Aoralscan 2** should operate the device under EMI conditions that minimize power supply transients, mechanical interactions, vibration, and thermal, optical, and ionizing radiation.

Separation distances

The **Aoralscan 2** is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the **Aoralscan 2** can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the **Aoralscan 2** as recommended below, according to the maximum output power of the communications equipment.

Table 2-5 Recommended separation distances between portable and mobile RF communications equipment and the Aoralscan 2

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)				
	IEC 60601-1-2 : 2007			IEC 60601-1-2 : 2014	
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 2.7 GHz $d = 2.0 \sqrt{P}$
0.01	0.12	0.12	0.23	0.12	0.20
0.1	0.38	0.38	0.73	0.38	0.63
1	1.2	1.2	2.3	1.2	2.0
10	3.8	3.8	7.3	3.8	6.3
100	12	12	23	12	20
<p>For transmitters rated a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.</p>					
<p>NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>					

The medical electrical equipment is suitable for the professional healthcare environment per 60601-1-2:2014. It is suitable for use in physician offices, clinics, hospitals, and other professional healthcare environments except near HF surgical equipment and the RF shielded room of an ME system for magnetic resonance imaging or other environments where the intensity of electromagnetic disturbances is high.

The clinical environments where the device can be used include physician offices, clinics, hospitals, and clinical point-of-care for diagnosis of patients except environments where the intensity of electromagnetic disturbances is high.



WARNINGS

- **Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Aoralscan 2, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.**
- **If higher IMMUNITY TEST LEVELS than those specified in IEC60601-1-2 Table 9 are used, the minimum separation distance may be lowered. Lower minimum separation distances shall be calculated using the equation specified in IEC60601-1-2 Chapter 8.10.**

CHAPTER

3

Overview

Benefits of the product

The **Aoralscan 2** is designed to provide powder-free intraoral color scanning, with higher speeds resulting in greater accuracy and less time-lag for image acquisition. It can be used to scan a single tooth, multiple teeth, and whole dental arches. The captured 3D digital impressions of teeth and soft-tissue areas are designed to be used in conjunction with the supplied software programs, Dental Order System Module which helps manage the patient information and scanned records, and Scan module which assists you in acquiring digital impressions and is capable of exporting the scan data (in STL/OBJ format) to CAD/CAM systems for different purposes of dental care.

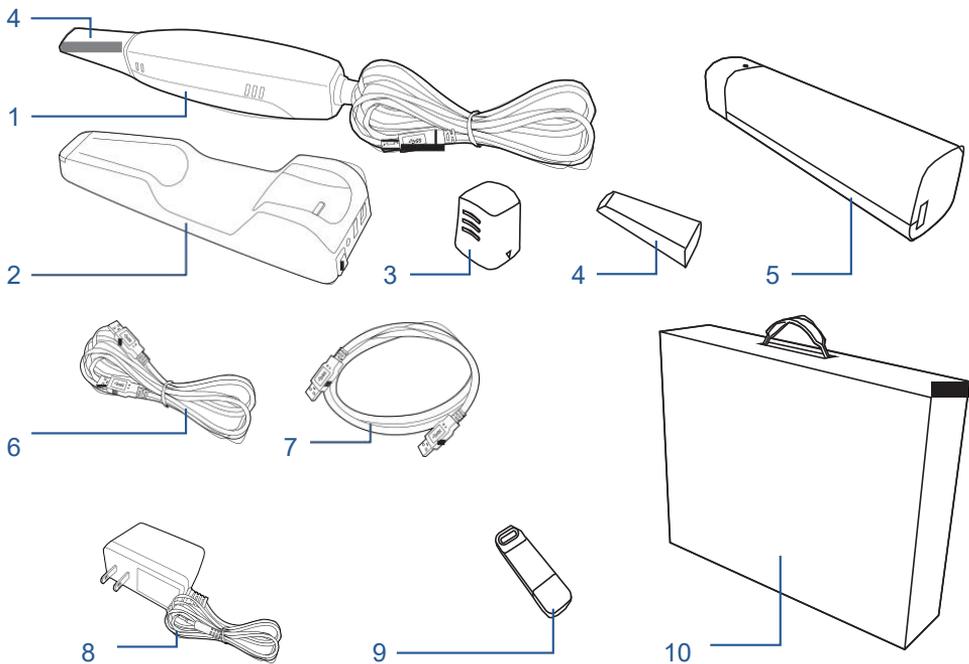
Carry box list

Check the carry box for the following items. If any item is missing or damaged, contact your place of purchase immediately.

1. 1 x Intraoral Scanner with a USB 3.0 upstream cable (length: 2 meters)
2. 1 x scanner cradle (12 Vdc, 1.67 A)
3. 1 x protection cap
4. 2 x scanner tip (1 is already attached to the intraoral scanner when shipped)
5. 1 x Calibrator
6. 1 x USB 3.0 cable (for the connection between the cradle and your computer; cable length: 1.5 meters)
7. 1 x USB 3.0 cable (for the connection between the Calibrator and your computer; cable length: 1 meter)
8. 1 x medical grade AC/DC power adapter (manufacturer: Adapter Technology Co., Ltd.; model name: ATM020-W120U; input: 100-240 V, 50-60 Hz, 0.45-0.27 A; output: 12 Vdc, 1.67 A; cable length: 2 meters)

9. 1 x 2-in-1 USB dongle (the license key for authorized access the **IntraoralScan** software program for Windows)

10. 1 x carry box



WARNINGS

- AC plug types vary by country/region.
- Using accessories, peripherals, or cables not supplied with the product or recommended by Shining3DCorporation can affect the device in the form of increased emissions or decreased immunity to external EMI/EMC occurrences. Non-specified peripherals, and cables in some cases, can also increase leakage current or compromise the safety of the grounding scheme.
- Using accessories or power supply units other than those specified may cause the warranty to void and result in increased emissions, decreased EMI immunity of the device, or even damages to the device and personal injuries.
- Use of other accessories results in non-compliance.
- Always store the 2-in-1 USB dongle in a safe place for later use.



NOTE

We recommend that you keep all the original packaging components in a safe place in case you need to transport or dispose of the scanner in the future. For details, see Storage for transport on chapter 9.

Software overview

The **Aoralscan 2** is designed to operate with the software programs included two modules (supplied in the 2-in-1 USB dongle):

1. Dental Order System Module

Designed to manage and store patient data, including cases, prescriptions, and restoration information, realizing functions such as order creation, editing, searching, scanning and deletion, as well as uploading, downloading, previewing and tracking of scanned order and data. ◦

2. Scan Module

The interface guides you through the entire scanning process of acquiring intraoral digital impressions via the scanner.

For information on how to use these software programs, see Using IntraoralScan on chapter 7

System requirements

Before installing and running the supplied software programs, your computer shall meet the following requirements:

Table 3-3 System requirements

CPU	Intel Core i7-8700 or higher
Memory	16 GB or higher
Hard drive	1 TB SATA Hard Drive (7200 RPM, 6.0 Gb/s) or higher
Graphic card (GPU)	NVIDIA GTX 1070 6GB DDR3 or higher (supporting NVIDIA CUDA)
Operating system	Windows 10 Professional (64-bit) or later versions of Windows operating system
I/O ports	More than 3 Type-A USB 3.0 (or higher) ports



WARNING

The computer or notebook you use shall meet the safety requirements of IEC 60601-1 and IEC 60950.

Scanner overview

Tip and scanner body

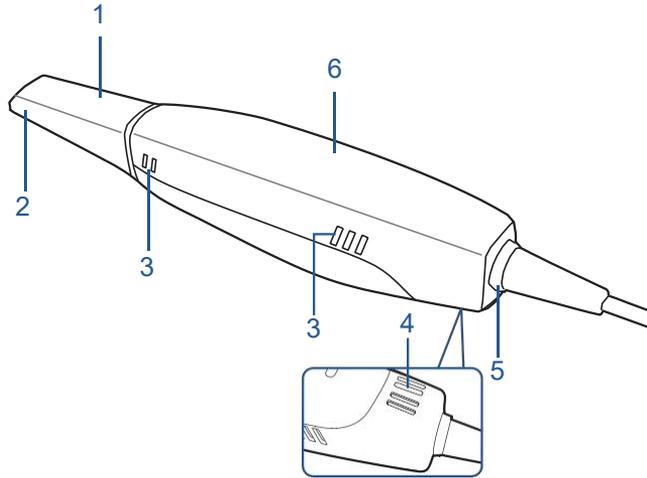


Table 3-1 Introduction to the scanner tip and scanner body

No.	Component	Function
1.	Scanner tip	Use the tip to scan the upper jaw, lower jaw, or full jaw. The tip(s) can be autoclaved up to 20 times.
2.	Heater	The anti-condensation heater prevents fogging on the mirror to ensure successful scanning.
3.	Exhaust vents	Allows the heat produced by the operation of scanner to be dissipated from the case.
4.	Intake vent	Allows the ambient cool air to enter into the case to help cool down the heat produced by the operation of scanner.  NOTE When scanning, do not hold the scanner in the way that covers or blocks the intake and exhaust vents. Otherwise the scanner may become overheated.
5.	LED ring light	Indicates the status of your scanner. <ul style="list-style-type: none"> • Blinking green: the scanner is in preparation/warm-up mode. • Solid green: the scanner is ready for use. • Solid blue: the scanner is processing the alignment of scanned data. • Solid amber: an error occurs and needs your attention.

Table 3-1 Introduction to the scanner tip and scanner body

No.	Component	Function
6.	Scanner body	Hold the scanner body on the sides and rotate the scanner body to obtain the best scan angle. The scanner body may get warm during scanning, yet the temperature won't cause harm to the user and the patient.

Scanner cradle

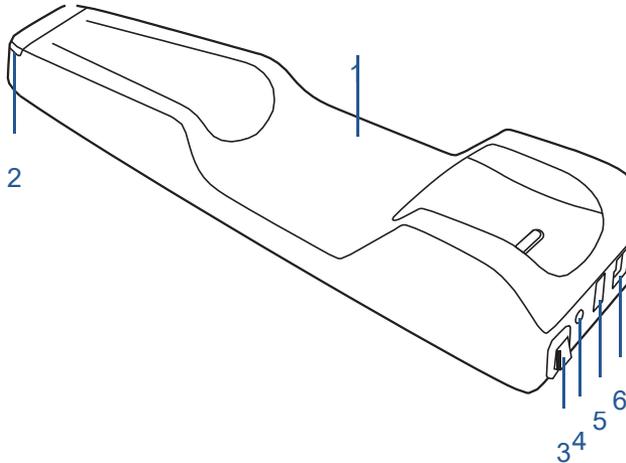


Table 3-2 Introduction to the scanner cradle

No.	Component	Function
1.	Cradle	Place the scanner in the cradle when you are not using it.
2.	LED indicator	Indicates the status of the cradle. <ul style="list-style-type: none"> • Solid green: power on. • LED off: power off.
3.	Power switch	To receive power from the power outlet, turn it on; to stop receiving power from the power outlet, turn it off.
4.	Power connector	Connect the power plug from the supplied power adapter to this power connector, and plug the power adapter to the power outlet.
5.	USB 3.0 downstream port	For connecting the scanner cradle and the USB port of your computer using the supplied USB cable. This port transfers data between the Aoralscan 2 and your computer.
6.	USB 3.0 upstream port	Connect the scanner cable to this port. This port provides power supply and data communication between the scanner and cradle. For details, see Connecting the scanner on chapter 4.



NOTES

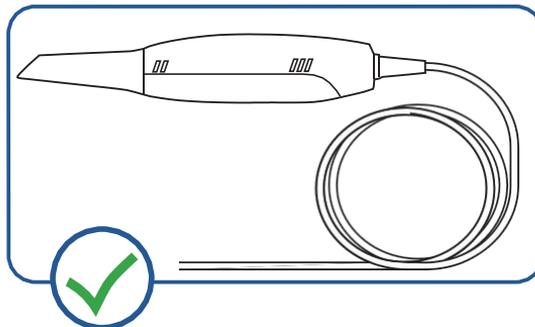
- ~~When the scanner is left idle for 10 minutes (including being placed on a~~

desk), it will go into standby mode. After 1 minute of inactivity, it will automatically go into sleep mode, and the LED ring light on the end of the scanner body will also go off.

- To activate the scanner, place it in the cradle. The scanner will go into standby mode within 3 minutes. If the scanner is left idle for more than 1 minute, it will automatically go into sleep mode.
- To lower the temperature inside scanner body, the cooling fan still operates for about 30 minutes after the scanner goes into standby or sleep mode. Then it will stop spinning.
- The scanner tip is being heated whenever power is supplied, even if the scanner is in standby or sleep mode.

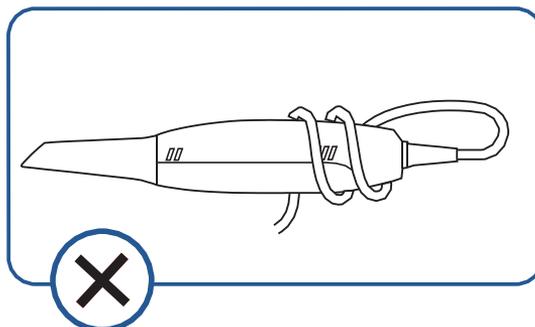
USB cable storage

To prevent the USB cable from getting damaged by excessive bending or twisting, you should loosely coil the cable and avoid making kinks or sharp bends.



CAUTION

Do NOT roll the cable over the handle of the scanner or even bend the cable sharply. The illustration below demonstrates improper cable storage.



Installing the software programs

The supplied 2-in-1 USB dongle contains the **IntraoralScan** software program.



CAUTIONS

- **Install the software programs in accordance with the instructions given here.**
- **When the installation is completed, do not plug the power adapter to the wall outlet or turn on the scanner yet. See Setting up the scanner on chapter 4 for more necessary procedures to get started.**

Follow the steps below to complete the installation of software programs:

1. Insert the supplied 2-in-1 USB dongle into the USB port of your computer.
2. Find the file named **IntraoralScanX.X.X.exe** and run it as administrator.
3. The **IntraoralScan InstallShield Wizard** window appears to start the installation.
4. Specify a language from the drop-down list.
5. Click OK.
6. Follow the on-screen instructions to complete the installation.

When done, four shortcut icons,



and



, will appear on your desktop for quick access.

CHAPTER

4

Setting up the scanner

Connecting the scanner



CAUTIONS

- Ensure the supplied software programs are installed on your computer before the connection.
- Install the scanner in accordance with the instructions stated in this *User Manual*.
- Use the scanner only in dental laboratories, dental clinics, and equivalent environment.
- Do not install, place, and use the scanner in dusty and damp environment or in the areas of temperature extremes or in direct sunlight.
- Prepare a flat surface, e.g. your desk, for the scanner and the cradle. Do not place them on a slanted surface.
- Before the installation is completed, do not plug the power adapter into the wall outlet or turn on the scanner until you are instructed to do so.
- Always return the scanner to the cradle when it is not in use. Do not place the scanner in heated or wet surfaces as this can cause damage to the tip and scanner.
- It is normal that the scanner gets warm when in use.

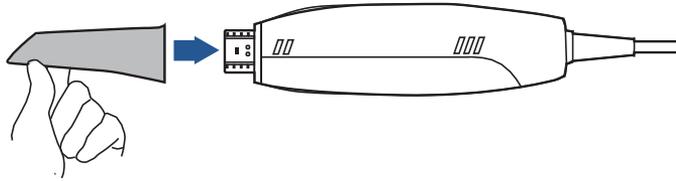


WARNING

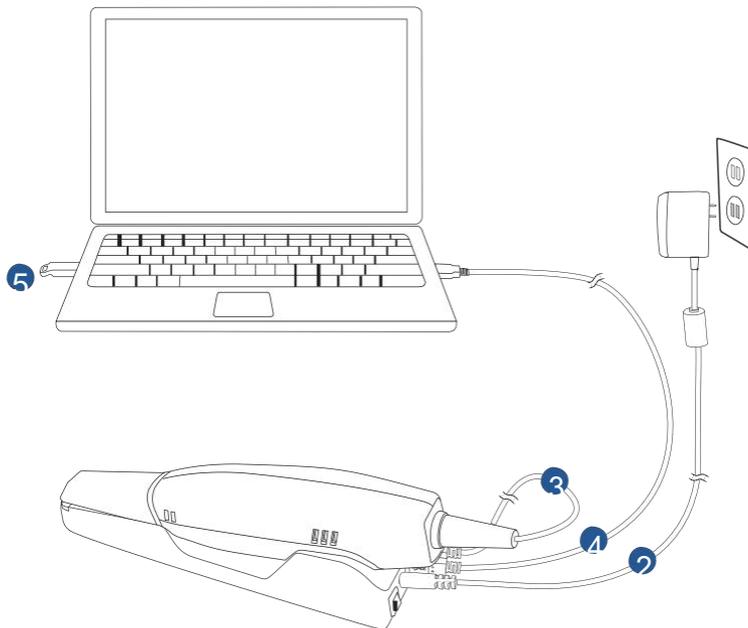
Ensure that you use only the supplied power adapter, power cable, and USB cable.

Follow the steps below to complete the connection:

1. Make sure the scanner tip is firmly attached to the front end of the scanner; otherwise, gently and firmly slide the scanner tip onto the front-end of the scanner, as illustrated.



2. Insert the power plug of the supplied power adapter into the power connector on the cradle, and plug the power adapter into a wall outlet.
3. Connect the scanner cable to the USB 3.0 upstream port on the cradle.
4. Connect the USB 3.0 downstream port on the cradle and your computer with the supplied USB 3.0 cable.
5. Insert the supplied 2-in-1 USB dongle into the USB port of your computer.



6. Turn on the power switch on the cradle.
7. Click the shortcut icon of **IntraoralScan**  on the desktop to launch the software.

Disconnecting the scanner



CAUTION

Do not attempt to directly disconnect the scanner by removing the power cable and USB cable.

Follow the steps below to safely disconnect the scanner:

1. Quit the **IntraoralScan** scanning software.
2. Turn off the power switch on the cradle.
3. Disconnect the scanner cable from the cradle.
4. Disconnect the USB 3.0 cable from the USB 3.0 downstream port on the cradle and your computer.
5. Right-click the “Safely Remove Hardware” icon on Windows taskbar and select “Eject Flash Drive”.
6. Unplug the 2-in-1 USB dongle and keep it in a safe place for future use.
7. Unplug the power adapter from the wall outlet and remove the power plug from the power connector on the cradle.



CAUTION

Do NOT roll the cable over the handle of the scanner or even create any sharp bends in the cable after you disconnect the scanner. See USB cable storage on chapter 3 for more details.

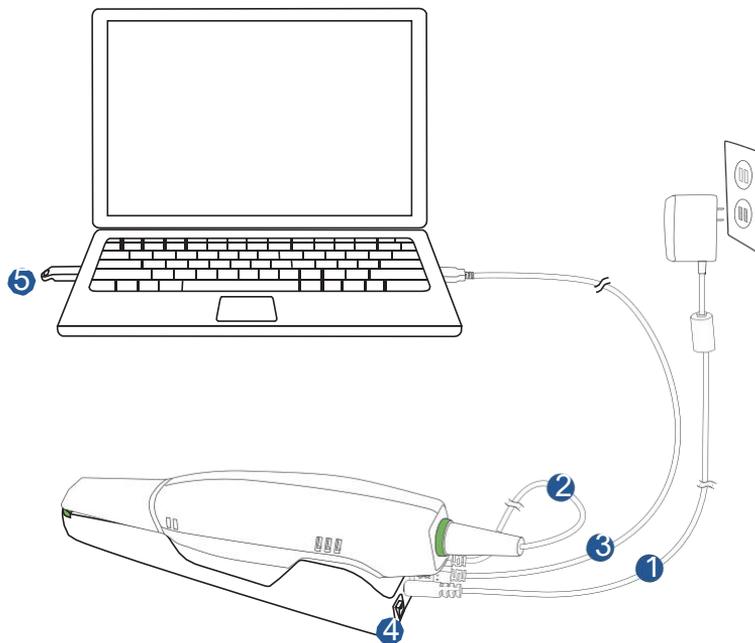
Calibrating the scanner

Under these circumstances, we recommend that you shall execute the calibration for the scanner to ensure the accuracy of scanned data:

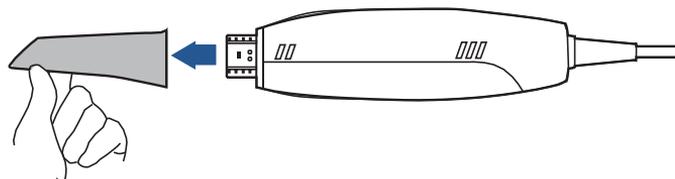
- The initial setup of the scanner is completed.
- The scanner has been used for a period of time (e.g. 2 weeks).
- The scanner is accidentally dropped.

Follow the steps below to perform the calibration:

1. Insert the power plug of the supplied power adapter into the power connector on the cradle, and plug the power adapter into a wall outlet.
2. Connect the scanner cable to the USB 3.0 upstream port on the cradle.
3. Connect the USB 3.0 downstream port on the cradle and your computer with the supplied USB 3.0 cable.
4. Turn on the power switch on the cradle.
The LED light ring on the end of the scanner body lights up green when the power connection is working properly.
5. Insert the supplied 2-in-1 USB dongle into the USB port of your computer.

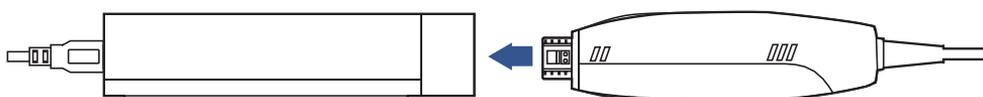


6. Hold the scanner tip firmly with your thumb and forefinger on both sides, and then gently slide the tip off from the scanner, as illustrated.



NOTES

- Do not place your finger(s) on the mirror of the tip when detaching as this may result in damage to the mirror.
 - Store the detached tip in a safe place, e.g. a dental instrument tray, for future use.
7. Connect the on the supplied Calibrator and your computer with the supplied USB 3.0 cable.
 8. Gently slide the Calibrator onto the front end of the scanner, as illustrated.



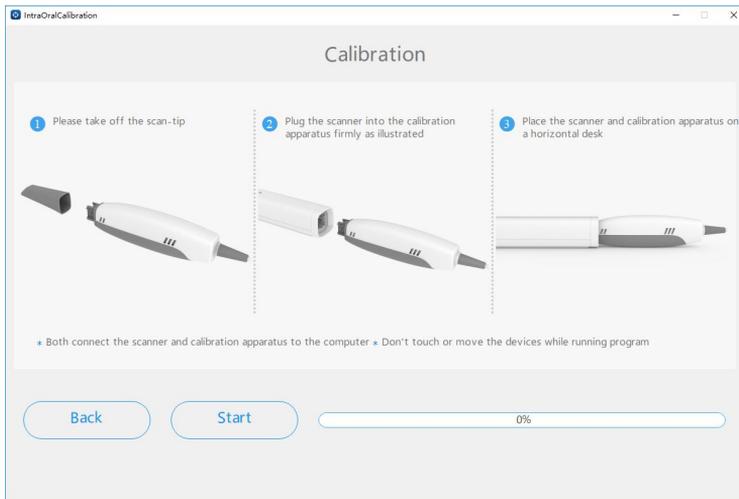
9. Double-click the shortcut icon of **IntraOralCalibration**  . Display the following screen.



10. Click **Calibration**. If the Calibrator was not closely plugged onto the scanner, a warning message would be popped. So, make sure the scanner be plugged into the calibration firmly before next operation.



11. Click **Start**. The status bar shows the percentage of completion.



NOTE

It is normal that the calibration takes approximately 5 minutes.

12. The following message appears once the calibration is completed. Click **OK** to exit.



13. Gently slide the Calibrator off the scanner.



CAUTION

Make sure that the Calibrator is removed from the scanner after the calibration is done. Otherwise, the Calibrator may get very warm.

14. Re-attach the scanner tip to the scanner for later use or put the protection cap onto the scanner to prevent damage and dust.

CHAPTER

5

Scanning preparation

Scanning basics

Read and follow the guidelines and tips given in this chapter prior to acquiring quality images.



WARNING

Concerning hand hygiene and personnel safety when performing a scan, you must wear clean surgical gloves through the whole process.

Tooth preparation

- Ensure that saliva is not blocking the vision of the working area for the scanner user. Dry the working area (lips, tongue, and tissues) whenever needed.
- If necessary, ask the patient to hold the tongue still and move it to the opposite side of the mouth.
- Dry the teeth thoroughly before starting a scan.
- When scanning, consider using the saliva ejector and tampons to keep the surfaces of teeth dry.
- If necessary, consider using the retractors to avoid excessive tissue from being scanned.
- If necessary, consider using tampons to help create space while working on narrow regions between teeth.

Scanner preparation

- Ensure that the scanner tip, scanner body, and cradle are properly pre-cleaned, disinfected, or sterilized. See Pre-cleaning, disinfection, and sterilization on chapter 9.
- Ensure that the scanner tip has no scratches or is not damaged. Additionally, the tip is firmly attached to the front end of the scanner body.

- Ensure that the scanner connection is ready; it is correctly connected to a power source and powered on, and **IntraoralScan** are launched and ready to work.
- To avoid condensation on the mirror of the tip when scanning, the scanner tip must have been warmed up. For details, see Heating the scanner tip on chapter 5.
- Calibrate the scanner and verify the accuracy of the acquisition regularly. For details, see Calibrating the scanner on chapter 4.

Scanning position and path

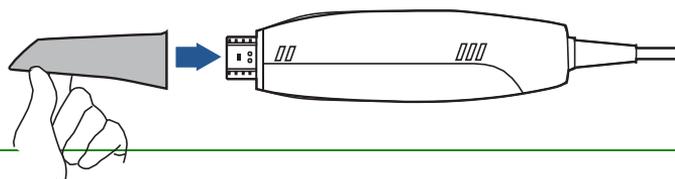
- Avoid direct light from any light source, e.g. dentist chair lamp, to shine on the area you are working on.
- Hold the scanner steady by resting it on the tooth surface and keep the scanner tip within 15 mm from the teeth.
- When scanning, slowly move the scanner and simultaneously check the scan results on the screen to ensure the scanning is of good quality.
- When scanning, the scanner tip should be centered over the teeth, and each movement should align with the cross-hairs, following the lower and upper dental arch shapes.
- A complete scan data of a single area includes the surfaces of occlusal, lingual, buccal, interproximal contacts of the adjacent teeth, and 2-3 mm buccal gingiva.
- A complete scan data of a single case includes the lower jaw, upper jaw, and bite registration.
- When scanning, change the scanning angle to 35-55 degrees in order to create overlaps. It is important to achieve an overlap of at least 30% between each acquisition. If the overlap is small, it may cause the alignment to fail.
- To scan the occlusal surface of the teeth, hold the scanner at a 90-degree angle; to scan the buccal and lingual surfaces of the teeth, hold the scanner at a 45-degree angle.
- Inspect the scanned image in the 3D scan view window (**IntraoralScan**) and pay attention to warning messages.

Heating the scanner tip

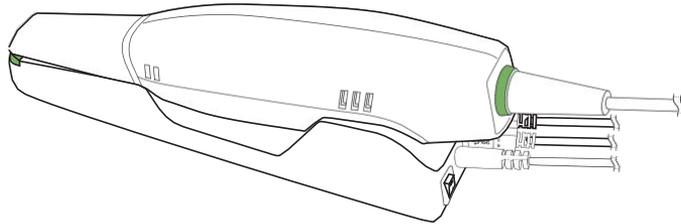
In order to obtain optimal image quality, you should prevent condensation on the scanner mirror before each scan by heating the scanner tip.

Follow the steps below to warm up the scanner before starting an acquisition:

1. Ensure that the scanner tip, scanner body, and cradle are clean and sterile. For details, see Pre-cleaning, disinfection, and sterilization on chapter 9.
2. Gently and carefully attach the scanner tip to the scanner body, with the mirror facing downward.



3. Connect the power supply to the **Aoralscan 2**. For details, see Connecting the scanner on chapter 4.
4. Place the scanner in the cradle to secure it in place.
5. When the LED ring light on the end of the scanner body lights up green, the heater automatically turns on and detects the temperature.



If the temperature of the scanner tip is lower than the set point for anti-fogging, a notification message of pre-heating and current temperature appears.

When the message disappears, the warm-up is done. The scanner is now ready for an acquisition.



NOTES

- **The heater maintains constant temperature on the scanner tip.**
- **The scanner tip is being heated whenever power is supplied, even if the scanner is in standby or sleep mode.**
- **If the heater does not reach the necessary temperature for preventing condensation during scanning, the message of “The scanner is pre-heating. Please wait” appears.**

CHAPTER

6

Clinical case quick guide

Connection the scanner

See Chapter 4-Connecting the scanner for detail.

Calibration

See Chapter 4-Connecting the scanner” for details.In order to ensure the quality of the scanned data, it is necessary to perform calibration periodically (recommended every 15 days).

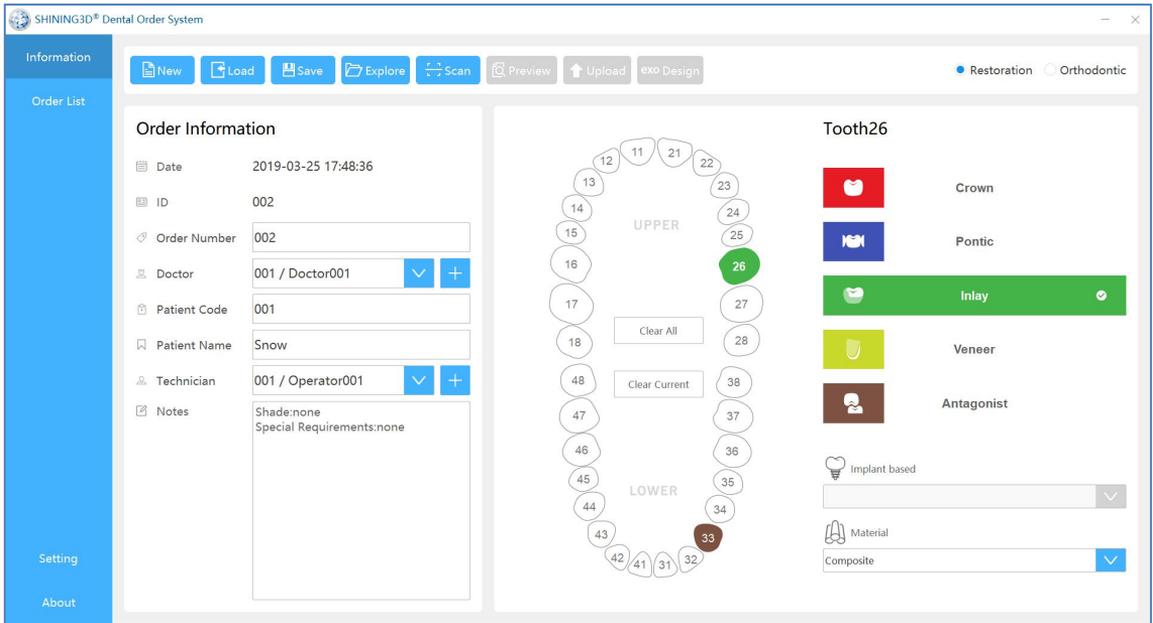
Create order



Double-click desktop icon and the software will open the Dental Order System.Click **Project** and select **New** to create a new order. Fill out the necessary order information, including the names of dentist(s), patient, and lab(s). Or select **Load** to open an existing project.

Select the desired type of restoration and the tooth number (the restoration site), and then click **Save.**)

Intraoral Scanner User Manual

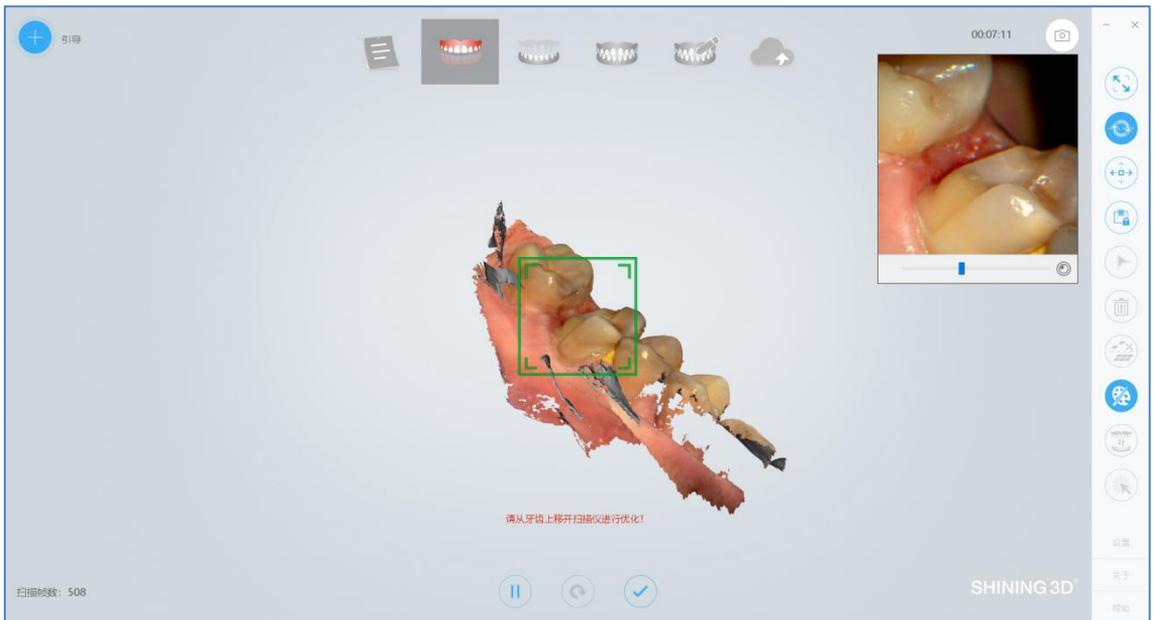


Finally, click the "Scan" button to automatically open Intraoral Scan interface.

Scan upper jaw

Confirm that the image of the camera window in the upper right corner of the software is

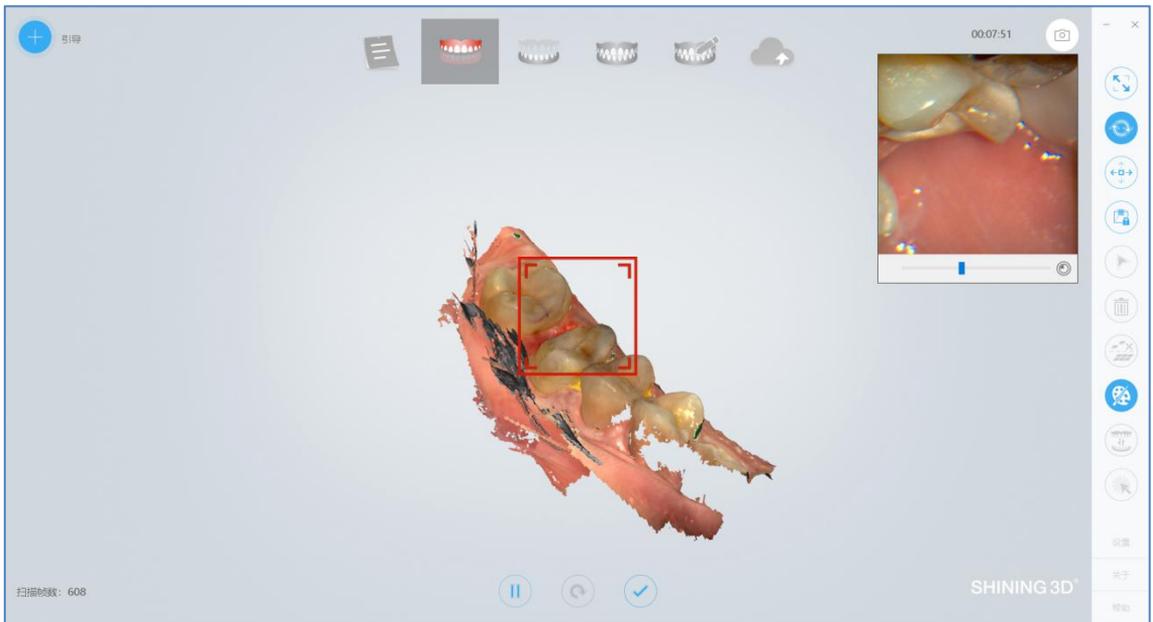
displayed normally. Click the Scan button  or the space bar to start scanning.



If it prompts "Please remove the scanner from the tooth for optimization", then remove the scanner for data optimization, and continue scanning after optimization is completed.

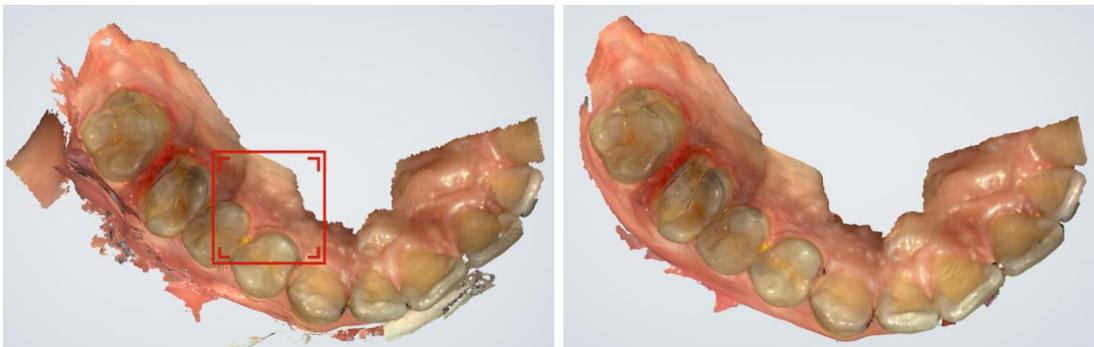
Intraoral Scanner User Manual

The green frame in the middle of the software interface indicates the data range of the current scanning. If the green frame changes to a red frame, as shown in the figure below, the scan position is incorrect. You need to move the scan head to scan the data displayed in the red frame.



If there is more buccal tongue side data during the scanning process, it is recommended to

press the pause button  to automatically delete, as shown below (effect image before and after pause)



Confirm that the model scan is complete, click the Finish button  or long press the space bar to process and save the data. After the completion, the upper jaw icon is green and ticked, indicating that the scanning process is finished.

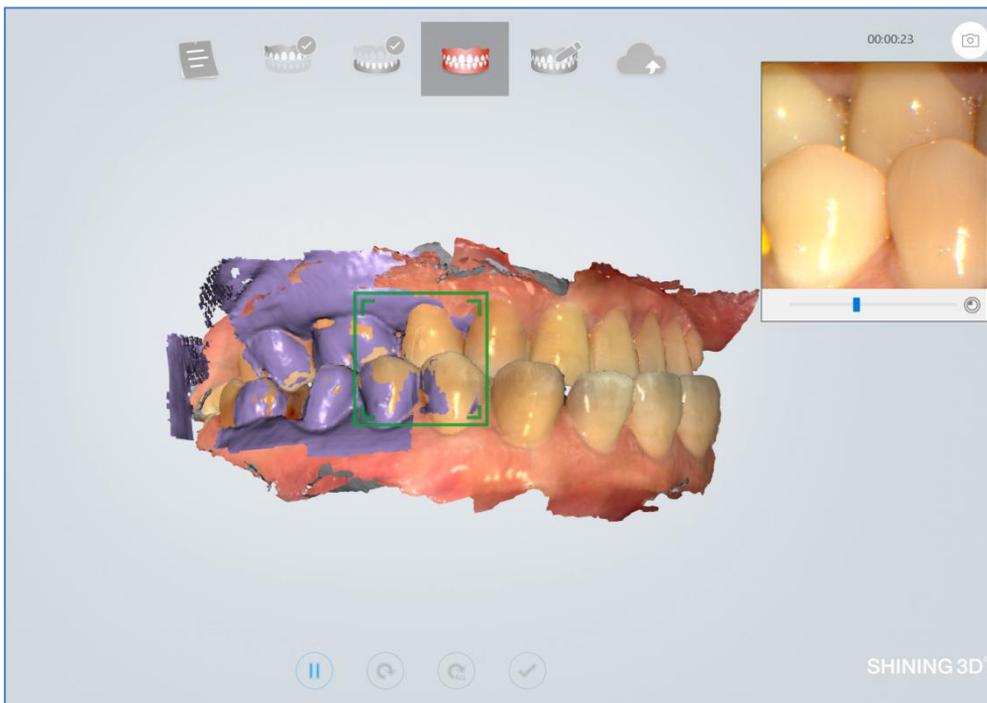
Scan lower jaw

The upper jaw completes the scanning data processing and automatically jumps to the lower jaw scanning process, which is the same as scanning the upper jaw.

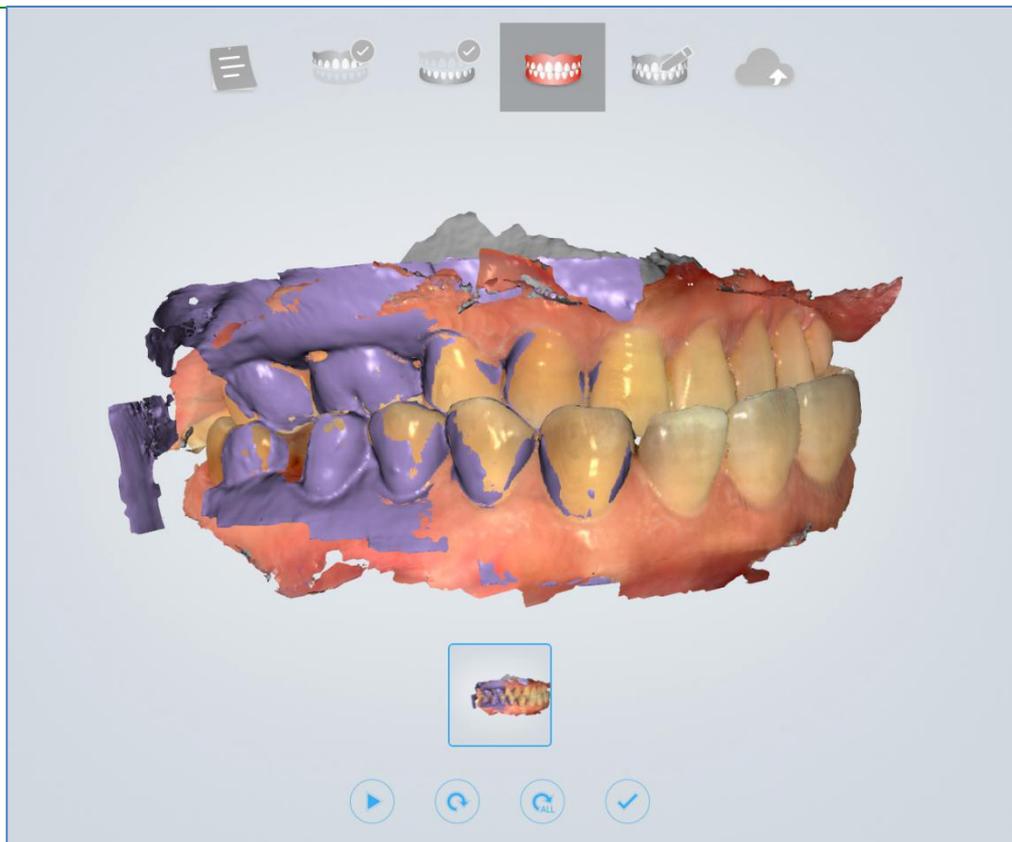
Scan total jaw

The lower jaw finish scan data processing ends and automatically jumps to the full jaw scan procedure.

Click the scan button  or the space bar to start scanning. After scanning some data, the software automatically performs dynamic bite stitching, as shown below.



If the upper and lower jaw data and the full jaw data are occluded properly, click  or space bar to pause the scan to see the bite effect.

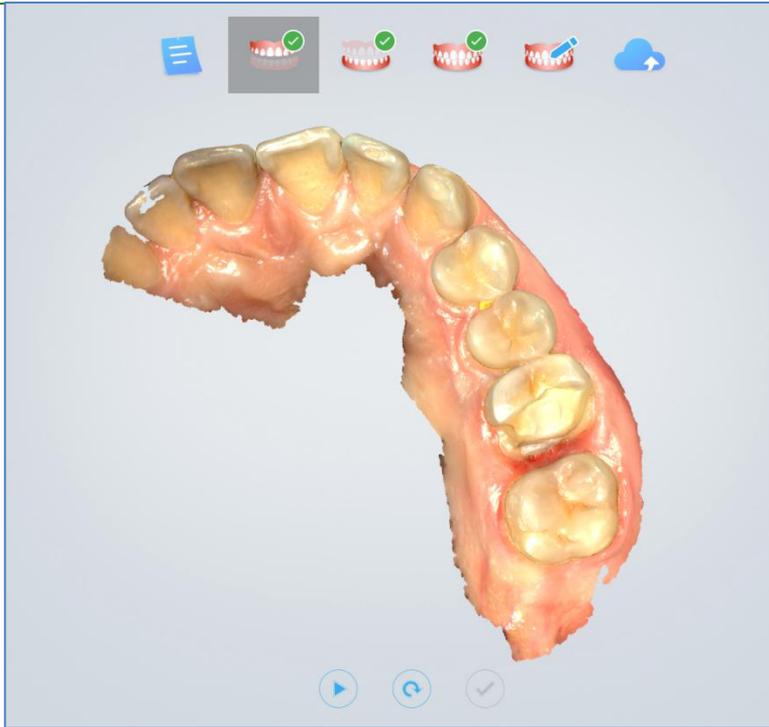


Confirm that the bite effect is appropriate. Click the Finish button  or long press the space bar to post-process the data.

View result data

View result data in IntraoralScan

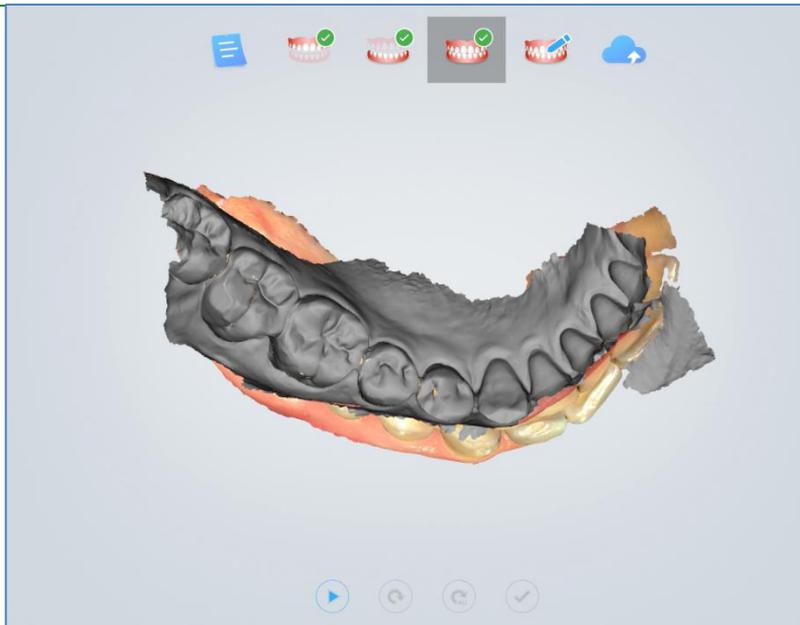
View upper jaw



View lower jaw



View the occlusal effect



View data storage path



Click the button

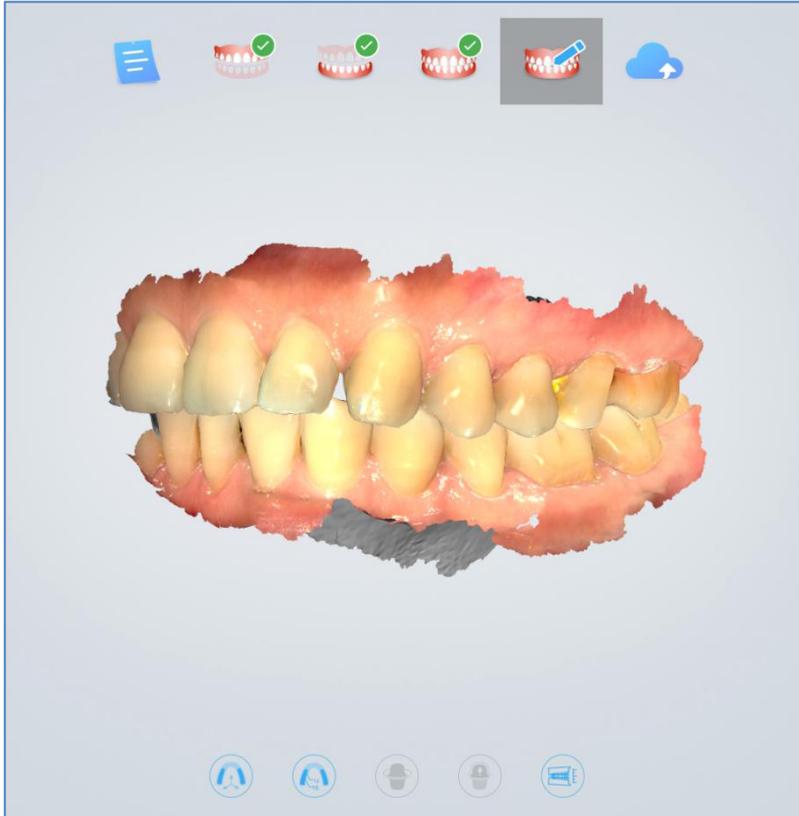
to return to the order interface and click



to open the

folder path of the current order storage.

Pre-Design



See Chapter 7 "Pre-Design" for details on pre-design functions.

Upload order



Click  icon to upload the scanned order. If you have not logged in, the software will prompt “No login to the account, go to the setup interface to log in?”, select “Yes” to open the “Configure Account” interface. Register the account on the webpage of the dental cloud, add the lab, refer to Chapter 9 “Registering Account” and “Building Relationship Network”. Then return to the Dental Order System login account, after the login is successful, upload the order.

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Upload order

Time: 2019-03-25 17:48:36
ID: 002
Doctor: Doctor001
Patient: Snow
Dentistry Type: Restoration
Notes: Shadenone
Special Requirements:none

Tooth Number	Reconstruction Type	Implant Based	Material
26	Inlay	No implant	Composite
33	Antagonist	No implant	Zirconium

Choose lab:
 Review design data?

CHAPTER

7

Using IntraoralScan

Introduction to IntraoralScan

IntraoralScan includes two modules: dental order system module and scan module. Dental order system is a module for dental order management, realizing management functions such as order creation, editing, searching, scanning and deletion, as well as uploading, downloading, previewing and tracking of scanned order and data. The scan module collects oral digital images, processes rendering data and outputs 3D data (STL/OBJ).



Note

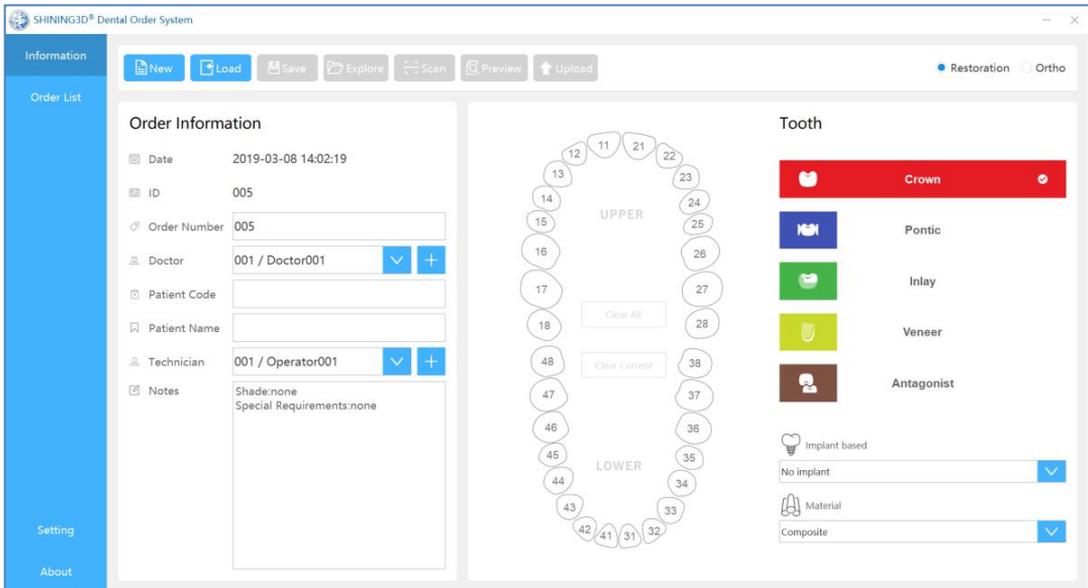
To run software, the following requirements must be met:

- The supplied 2-in-1 USB dongle is plugged into the USB port of your computer.
- The connection between the scanner and your computer is ready. For details, see chapter 4-Connecting the scanner.

Introduction to Dental Order System

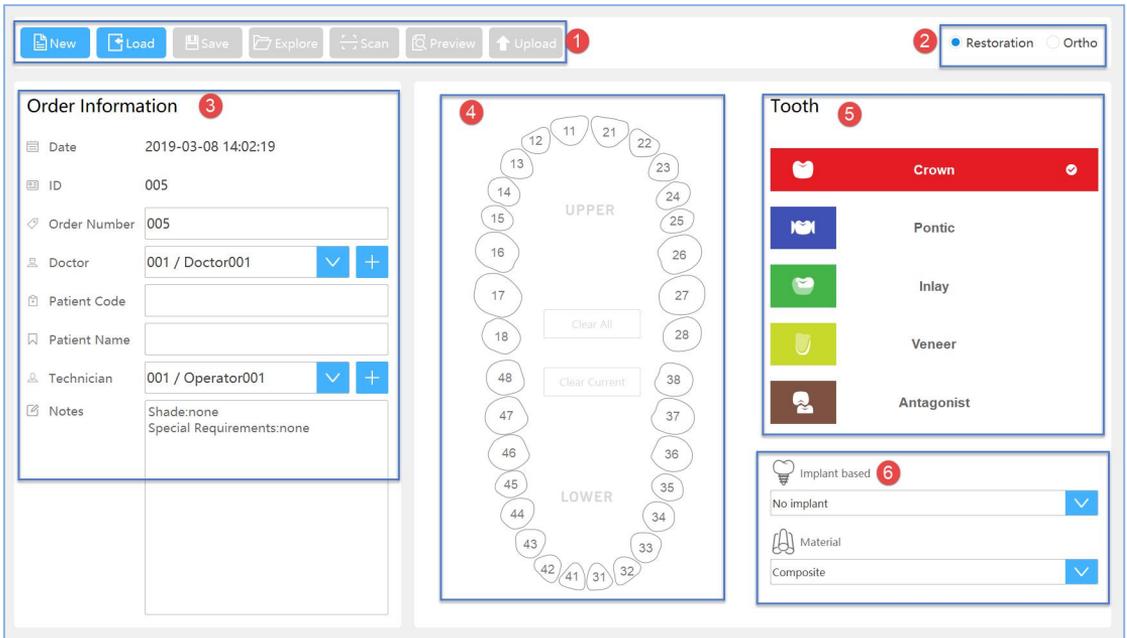


Double-click the desktop icon , open the software to dental order system, the interface is as follows:



The dental order system is mainly composed of three parts, 1. order information; 2. order list; 3. setting.

Information



① Button column

- ✦ New: Create a new order.
- ✦ Load: Load a saved order.
- ✦ Save: Save the new order with the completed order information.
- ✦ Explore: Open the folder where the saved order is located.
- ✦ Scan: Start scanning.
- ✦ Preview: After the order scan is completed, the scanned data is viewed through the DentalViewer.
- ✦ Upload: After the order scan is completed, the current order data is uploaded to the dental cloud.

Upload order
✕

Time: 2019-03-25 17:48:36

ID: 002

Doctor: Doctor001

Patient: Snow

Dentistry Type: Restoration

Notes: Shadenone
Special
Requirements:none

Tooth Number	Reconstruction Type	Implant Based	Material
26	Inlay	No implant	Composite
33	Antagonist	No implant	Zirconium

Choose lab: ▼

Review design data?

Cancel
Confirm and Upload

- ✓ Choose lab: choose a lab in drop-down list
- ✓ Review design data: Does the design data of the lab need a doctor to review it? The default is yes.
- ✓ Cancel: Cancel the upload.
- ✓ Confirm and Upload: Confirm upload order data to the dental cloud.
- ✧ exo Design: After the order scan is completed, open the EXOCAD design software directly for design. The first time you click this button, you need to set the path of the EXOCAD design software first.
- ② Order Type: Restoration and Ortho.
- ③ Order Information: Set the order number, doctor, patient, lab and notes information.
- ④ teeth map
- ✧ Left mouse button to select the tooth position.
- ✧ Right mouse button to cancel the defined repair type.
- ✧ Ctrl+left mouse button, copy the repair type defined by the previous tooth position to the currently selected tooth position.
- ✧ Shift+left mouse button, copy the type of repair defined by the previous tooth to all the teeth between the tooth position of the same jaw and the last tooth position.

- ❖ Clear Current: Clears the defined repair type of the currently selected tooth position.
- ❖ Clear all: Clear all defined types of fixes for the teeth position.
- ⑤ Types of dental restoration: crown, pontic, inlas, venees and antagonist. The crown is selected by default.
- ⑥ Implant based and Material: Set the planting type and materials. The type of dental restoration is defined as the crown to set the type of implant.

Order List

The order list lists the order status of all orders under the dental order path.

Order State	Order Name	Time	Patient	Doctor	Lab
Need Scan	2019-04-17_001_066	2019-04-17 13:45	066	Doctor001	
Need Upload	2019-04-17_001_065	2019-04-17 13:23	065	Doctor001	
Need Upload	2019-04-17_001_064	2019-04-17 13:12	064	Doctor001	
Need Upload	2019-04-17_001_063	2019-04-17 13:02	063	Doctor001	
Need Scan	2019-04-17_001_062	2019-04-17 12:51	062	Doctor001	
Need Upload	2019-04-17_001_061	2019-04-17 12:40	061	Doctor001	
Need Upload	2019-04-17_001_060	2019-04-17 12:30	060	Doctor001	
Need Upload	2019-04-17_001_059	2019-04-17 12:19	059	Doctor001	
Need Upload	2019-04-17_001_058	2019-04-17 12:08	058	Doctor001	
Need Upload	2019-04-17_001_057	2019-04-17 11:53	057	Doctor001	
Need Upload	2019-04-17_001_056	2019-04-17 11:41	056	Doctor001	
Need Upload	2019-04-17_001_055	2019-04-17 11:30	055	Doctor001	
Need Upload	2019-04-17_001_054	2019-04-17 11:19	054	Doctor001	
Need Upload	2019-04-17_001_053	2019-04-17 11:08	053	Doctor001	

① Refresh: Refresh the order list

② Import Order: Import orders that are not stored in the order path. If the import is successful, it will be displayed in the first line of the list. If an order with the same name already exists in the order path, the imported order is automatically renamed to "source order name + _import_*".

③ Search: Search by order date or by entering a doctor/patient/lab.

④ Order Status: Lists all status of the order, which can be filtered by order status.

❖ Need Scan: orders that have not been scanned. The right-click menu or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete.

- ✧ Need Upload: Orders that have been scanned and have not uploaded order data to the dental cloud. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Upload.
- ✧ Waiting Accept: The order data has been uploaded to the dental cloud, waiting for the order received by the lab. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Cancel Order/Delete/Re-upload.
- ✧ Accepted: The lab has received the order and waits for the order of the design plan. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Cancel Order.
- ✧ Need Confirm Design: The lab has uploaded the design plan and the doctor has not reviewed the approved order. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Download Design/Confirm Design/Request Re-design.
- ✧ Making: The design plan has been approved by the doctor, and the order of the lab is making. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Download Design/Request Re-design.
- ✧ Delivering: The lab has shipped the goods, and the doctor has not received the order for the goods. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Download Design/Delivery Information/Confirm Received/Request Re-delivery.
- ✧ Finished: The doctor has confirmed the order for the goods received. The right-click menu or operate icons for such orders is: Load/Open in Explore/Duplicate/Delete.
- ✧ Rejected: The order data has been uploaded to the dental cloud, and the lab refused to accept the order. The lab can refuse to accept orders before uploading the design. The right-click menus or operate icons for such orders are: Load/Open in Explore/Duplicate/Delete/Re-Upload.
- ✧ Canceled: Order data has been uploaded to the dental cloud, and the doctor has cancelled the order. Doctors can refuse to take orders before the labs upload the design. The right-click menu or operate icons for such orders is: Load/Open in Explore/Duplicate/Delete.

⑤ The descriptions for orders operation icons.

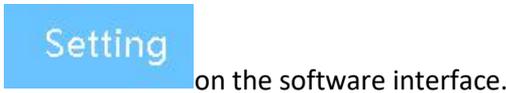
Icon Example	Description
--------------	-------------

	<p>Load the currently selected order.</p>
	<p>Open the folder where the currently selected order is located.</p>
	<p>Duplicate the currently selected order to a new order.</p>
	<p>Delete the currently selected order form the order list,you can choose whether to delete stored order files and scanned data.</p>
	<p>Upload the currently selected order to the dental cloud .</p>
	<p>Order data has been uploaded to the dental cloud, and the doctor has cancelled the currently selected order.</p>
	<p>Download Design.</p>
	<p>Confirm Design.</p>
	<p>Request Re-design.</p>
	<p>Delivery Information.</p>
	<p>Request Re-delivery.</p>

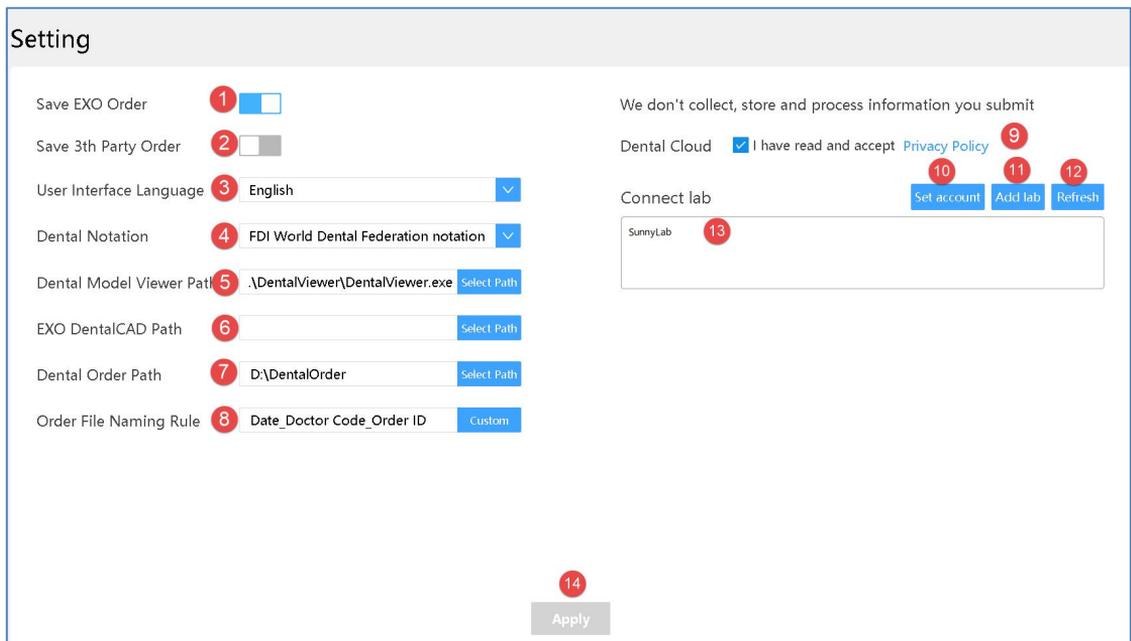


Setting

Users can view or set specific information through the setting button



on the software interface.



① Save EXO order: Save the order while saving the exocad order *.dentalProject, EXO design software to import the order, you can directly design. The default is on.

② Save the third-party order: Save the order and save the order of the third-party software. Generate thirdParty*.xml under the order path. The third-party design software can import the order and directly design. The default is off.

③ User interface language: User setting software interface language,Chinese (Simplified) and English. The default language is the language selected during software installation.

④ Dental Notation: FDI World Dental Federation notation and Universal numbering system, the default is FDI World Dental Federation notation.

⑤ Dental Model Viewer Path:Set the path of the DentalViewer program .After the order scan is completed, the scanned data is viewed through the DentalViewer.

- ⑥ EXO DentalACD Path: Set the path of the EXOCAD program so that you can launch the EXOCAD software instantly when you click the "Information" ->"exo Design" button.
- ⑦ Dental Order path: Set the order save path. The default is C:\DentalOrder.
- ⑧ Order File Naming Rule:Set the order file name.



- (A) Default :Restore default," Date_Doctor Code_Order ID" .
- (B) Clear :Clear all the selected items except "Order ID" .
- (C) Naming Rule items :Order ID/Date/Doctor Code/Patient Code/lab Code/Order Number/Doctor Name/Patient Name/lab Name.
- (D) Save :Save the current setting.
- (E) Cancel :Cancel and discard the current setting.



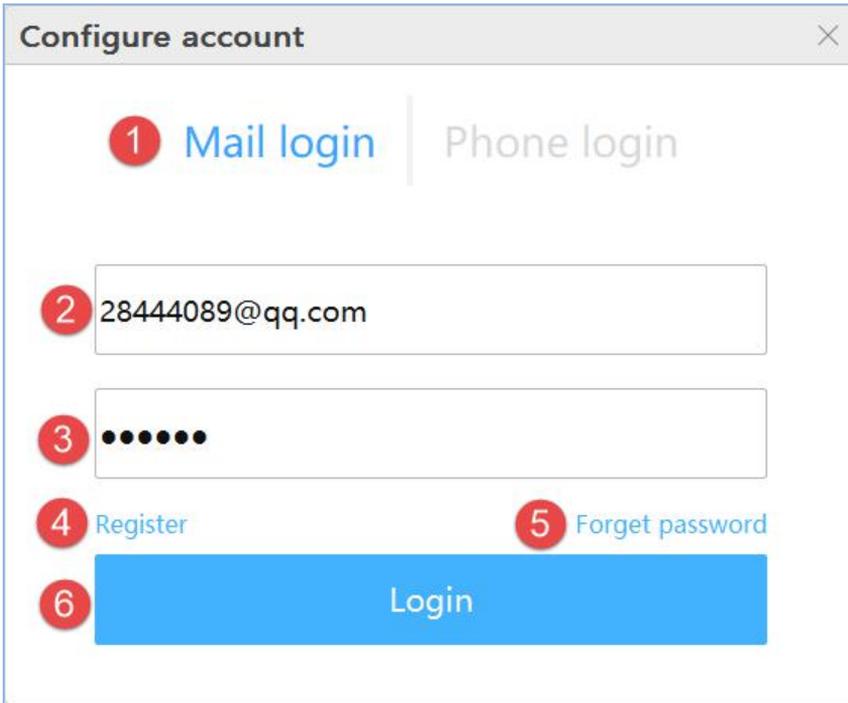
NOTE:

After modifying the setting "user interface language" / "Dental Notation" / "EXO DentalACD Path"/"Dental Order path" /"Order File Naming Rule"information, click "Apply" button,show the "New setting will take effect after restart,do you want to restart application now?" message box, click "Restart Now" button, auto restart the software to take effect.

- ⑨ Privacy Policy: Unchecked by default. Users must check the "I have read and agree

to the Privacy Policy” to activate the configuration information related to the dental cloud.

- ⑩ Set Account: Register or log in to the dental cloud account



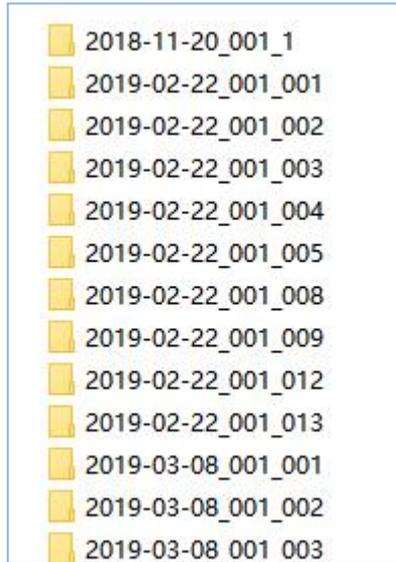
- ✧ ① Login method: email login and mobile number login. You should log in to the doctor or hospital/clinic account here, and you cannot log in to the lab's account.
- ✧ ② Enter the login email account.
- ✧ ③ Enter the login password.
- ✧ ④ Register: Unregistered users click this link to go to the dental cloud website to register.
- ✧ ⑤ Forget password: Forgot your password, click this link to go to the Dental Cloud website to retrieve your password.
- ✧ ⑥ Login: Fill in the correct account and password, login is successful, and the contact information filled in during registration is displayed in the upper left corner of the software.
- ✧ ⑦ mobile phone account: first select the area, then enter the mobile number. The default bit is the China region.

⑪ 9 Adding a lab: If you have not added a lab, you can click this button to go to the Dental Cloud website to add a network operation to establish a cooperative relationship with the lab.

- ⑫ 10 Refresh: Refresh the list of dental lab.
- ⑬ 11 Connected lab: List the accepted labs.

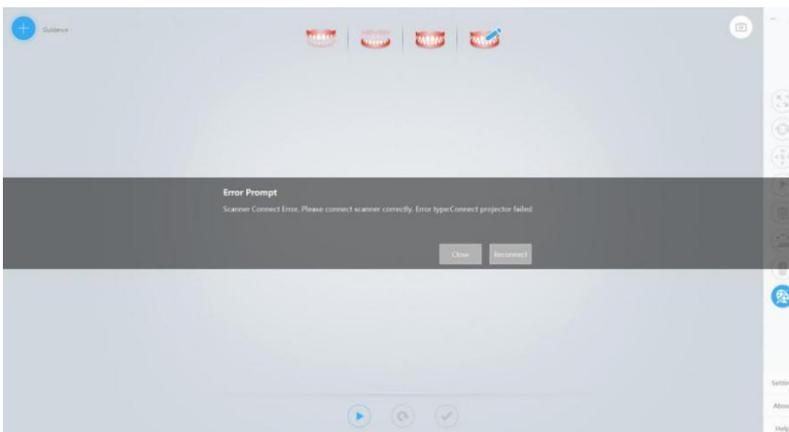
Data storage

The data save settings in the order directory, is saved by default in C:\DentalOrder, named by date, as shown below



Navigating IntraoralScan interface

In the Dental Order System created order, saved it, and will scan. If no scanner is connected, an error message appears to remind you to check and reconnect the scanner.

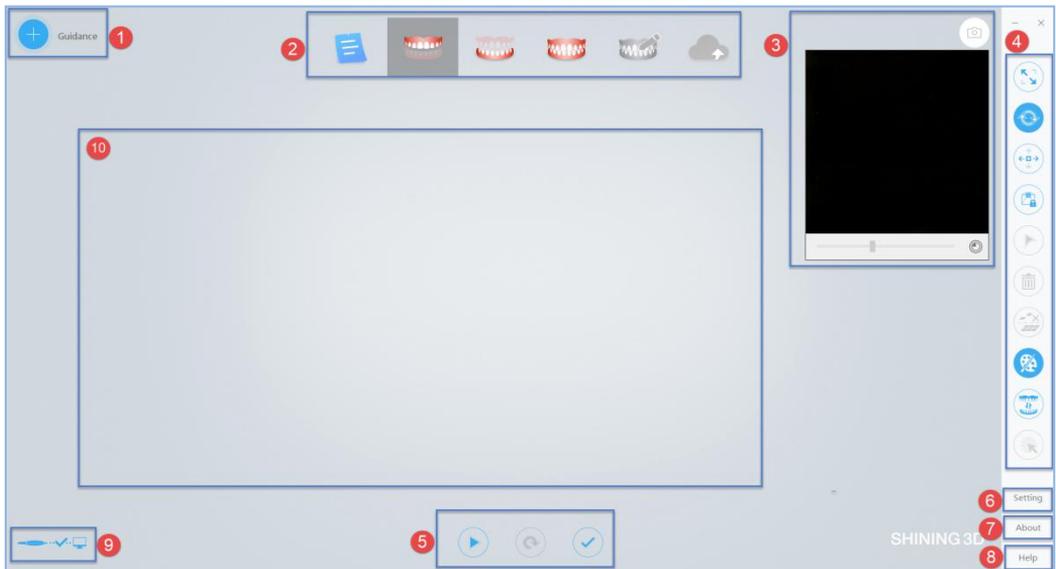


NOTE

If the scanner is connected yet the error message appears, remove then reconnect the scanner. If IntraoralScan still cannot detect

the scanner, quit IntraoralScan. Wait for a few seconds, and relaunch IntraoralScan again.

If the scanner is detected, the workspace appears as below.



- ① Guidance: Scan wizard description, prompt information, etc.
- ② Process: Includes Dental Order System, maxillary (maxillary implant), lower jaw (lower jaw implant), total jaw, pre-design, upload order.
- ③ Image window: View the video image of the camera.
- ④ Edit menu: from top to bottom respectively
 - ✧ Fit View button: Click this button to restore the default size of the model;
 - ✧ Rotate button: After clicking the button, press and hold the left mouse button to rotate the model;
 - ✧ Move button: After clicking the button, press and hold the left mouse button to pan the model;
 - ✧ View Lock button: When this button is clicked, the automatic view tracking function is enabled during scanning;
 - ✧ Select button: After clicking this button, hold down the left mouse button and select the area to be deleted on the model;
 - ✧ Delete button: Click the edit button to select the specified area, click the delete button to successfully delete the data;

- ✧ Remove Disconnected Data button: Click this button to automatically delete a number of large pieces of isolated data.
- ✧ Texture button: Whether the model data shows texture, the default is highlighted, indicating that the texture is displayed.
- ✧ Swap jaws button: After the scan is completed or after the post-processing is completed, the data of the upper and lower jaws are exchanged. It is suitable for the case where the upper and lower jaws are reversed during scanning.
- ✧ Refined Area button: Select the refined area and perform refinement processing after post processing.

⑤ Scan menu: scan start/pause (shortcut: space bar), reset and complete

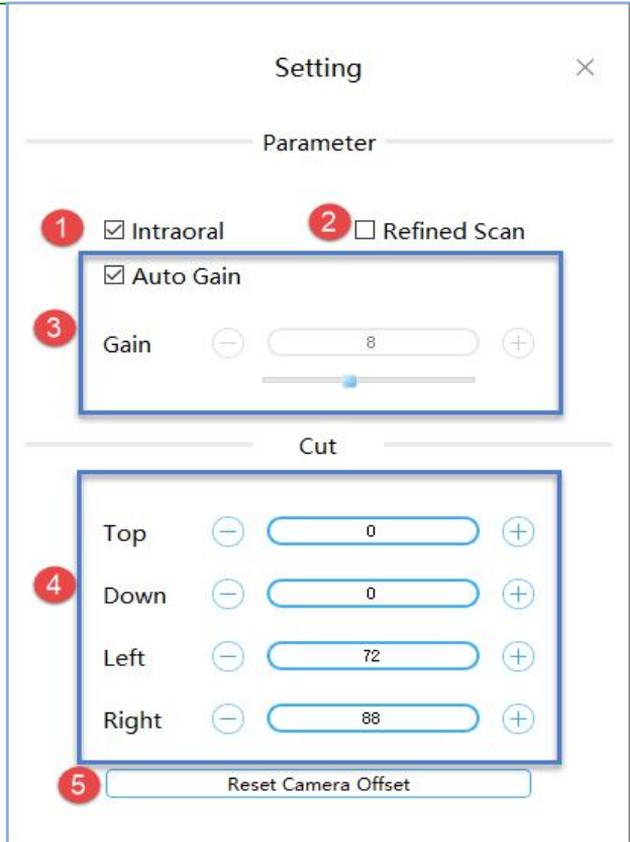
- ✧ Scan: Click the button  to start scanning; after starting the scan, the icon  changes  to indicate that the scan is in progress; if the scan is completed, click the scan button again to perform the sweep.

- ✧ Pause: Click the button  to pause the scan; after the pause, the icon  changes to , indicating pause;

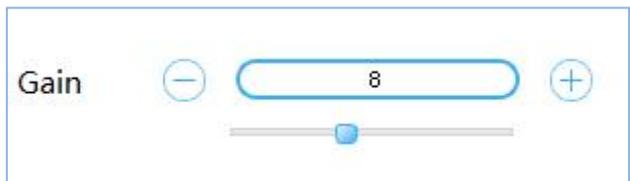
- ✧ Reset: Click  to delete the scanned model.

- ✧ Complete: Click  to save the data optimization process.

⑥ Setting: Set scan parameters, and camera window crop parameters.



- ✧ ① Intraoral: The default check box is suitable for intraoral scan. It is recommended not to check this box when scanning the dental model.
- ✧ ② Refined Scan: Unchecked by default. It is suitable for fine-grained areas to select the range of repaired teeth, and the post-processing data processing is more elaborate and enhances the data details.
- ✧ ③ Auto Gain: The default is to adjust the gain automatically. If the “Auto Gain” check box is not checked, you can manually set the gain by dragging the slider or entering a value.



Manually set the dental scan gain recommendation [0, 2];

Intraoral Scan gain is recommended to be 8.

- ✧ ④ Cut: By default, it is read from the camera. You can also manually set the cropping parameters of the top, bottom, left, and right sides of the camera

window.

✧ ⑤ Reset Camera Offset: Restores the cropping parameter values read in the camera.

⑦ About: View the version number, the software dongle serial number, and the number of days remaining for authorization;

⑧ Help: Open the user manual of the software;

⑨ Display device status icons during non-scanning:

Icon Example	Description
	Connecting
	Connected
	Not connected
	Connection error
	Standby
	Overheat
	Sleeping mode

During the scanning process, the number of scanning frames is displayed

here  .

⑩ 3D View: Displays the 3D model data acquired by the scan. Support the left mouse button to rotate the 3D model, and the right mouse button to translate the 3D model data.

⑪ The software supports the IMU operation, holding the scanner in a pen position to maintain a horizontal still state, and perform the following actions:

- ◇ When you push your wrist forward and downward, you can nod twice (swinging about 45 degrees), which is equivalent to pressing the space bar on the keyboard, and the software will start or pause the scanning operation;
- ◇ The wrist drives the forearm to swing up and down two times at the same time (the swing amplitude is about 45 degrees), and the software will stop scanning or complete the scanning operation;
- ◇ When the wrist is driven to swing the forearm to the left/right at the same time (the swing amplitude is about 45 degrees), the software will perform the ReScan operation. If there is a bullet box, the operation is used to switch the button selection function.
- At any time, the wrist rotates horizontally left/right two times to enter the IMU's view control mode and enter the IMU view control mode:
- Wars the wrist forward and downward, keeping the scanner head down and at an angle of more than 45 degrees with the horizontal plane for 0.5 seconds, the software will perform the view reduction operation;
- When the wrist moves the forearm to the center, keep the scanner head up and at an angle of more than 45 degrees with the horizontal plane for 0.5 seconds, the software will perform the view enlargement operation;
- When the wrist moves the forearm to the left/right, keep the scanner head tilted to one side and form an angle of 45 degrees or more with the horizontal plane for 0.5 seconds. The software will perform the view rotation/zoom mode switching operation;
- In the view rotation mode, the wrist drives the scanner to rotate slowly around the three spatial axes (keeping the angle between the scanner and the horizontal is less than 30 degrees), so that the view model can be rotated synchronously. If the model is to be rotated multiple times in one direction. The wrist can rotate the model at a certain angle and then quickly return to the position (the view will not respond at this time), and then slowly rotate in one direction to continue to rotate the view model;
- In the view pan mode, the wrist drives the scanner to rotate slowly around the three spatial axes (keeping the angle between the scanner and the horizontal is less than 30 degrees), so that the view model can be panned synchronously. If you want to manipulate the model to translate multiple times in one direction. The

wrist can rotate the model at a certain angle and then quickly return to the position (the view will not respond at this time), and then slowly rotate in one direction to continue to pan the view model;

- Keep the scanner level and stand still for 2 seconds to exit the IMU view operation mode;
- If the software starts scanning, it will automatically exit the IMU view operation mode.

Introduction to IntraoralScan function

Scan technique

The scanning technique of the software has certain requirements. During the scanning process, the speed cannot be too fast, and the model can be scanned to move to the next part to scan. During the scanning process, when scanning the previous area, the next area, the back side, and the front side, there must be a certain overlap area, otherwise the scanned model may have accumulated errors.

The scanner adopts S-type scanning, and the following figure a is taken as an example. The left distal tooth is used as the scanning starting tooth position (1 in the figure) and the S-shaped scanning is performed in the direction of the dotted arrow.

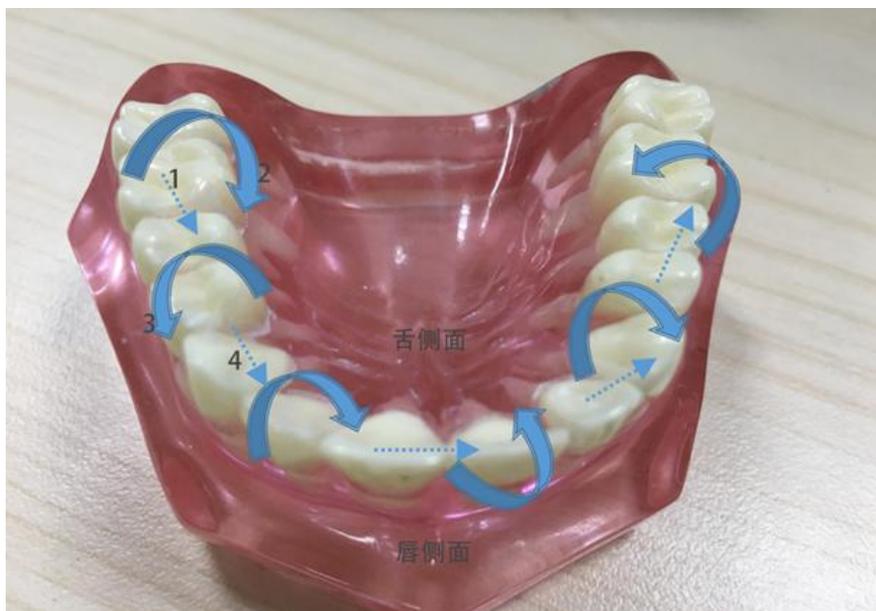


Figure a-scanning

The S-scan process is: face (1) -> lip side to tongue side (2) -> tongue side to lip side (3)

-> face (4). In Figure a, steps 1, 2, and 3 are performed as shown in Figure b below for a single S-scan:



图b-1

图b-2



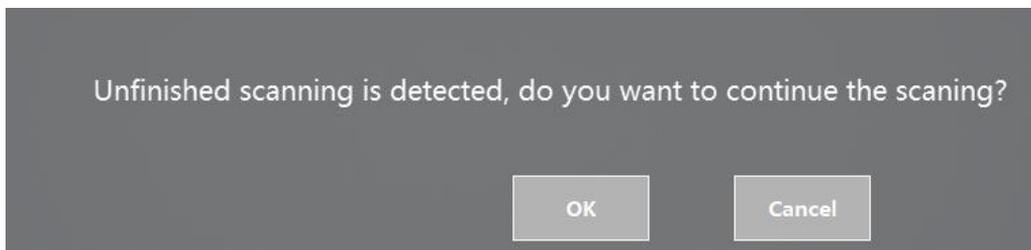
图b-3

图b-4

Figure b-S-type scanning

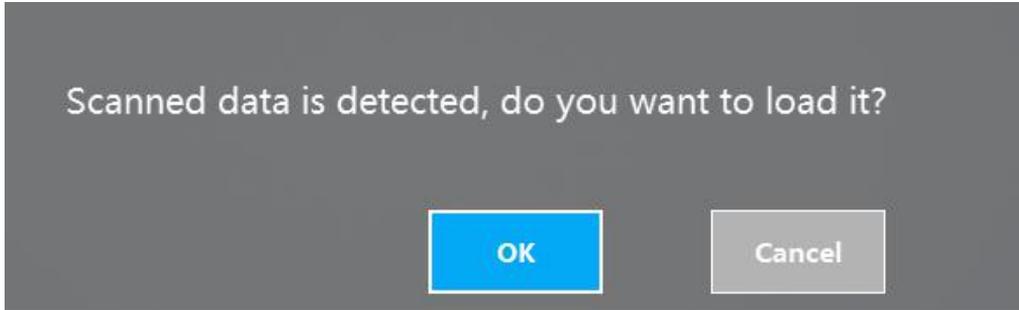
Loading project

Load the unscanned order (that is, the post-processing is not completed), open Intraoral Scan pop-up message:



Click "OK" to continue the last scan and the full jaw data must be rescanned. Click Cancel to restart scanning. After loading and processing the completed order, open Intraoral Scan pop-

up message:



Click "OK" to load the data that was last processed. Click Cancel to restart scanning.

Dental Order System



Click the icon to return to the dental order system and view/create/edit the order.

Scan Upper/Lower Jaw

Scan

To enter the jaws scanning process, first check whether the image display in the image

window is normal. After confirming the normal, click the button  or the space bar to start scanning.

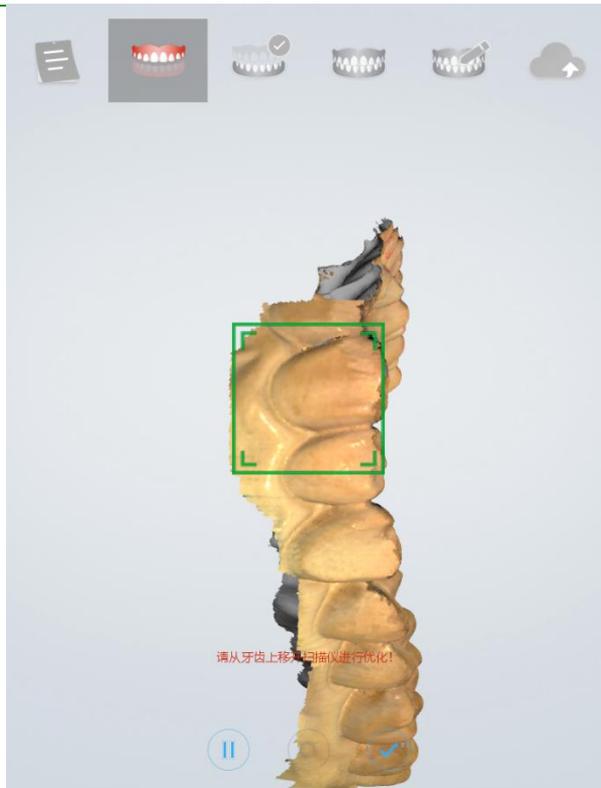


Figure 1 - Scanning process to support edge sweep optimization

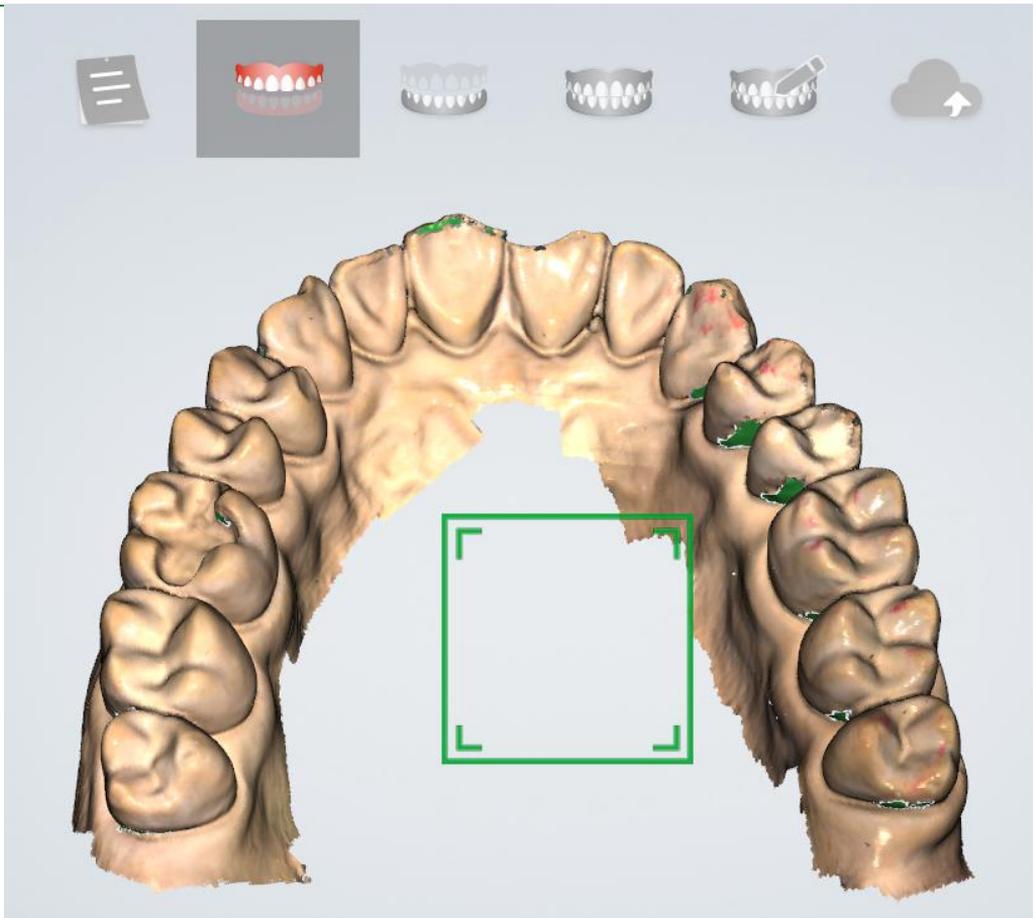


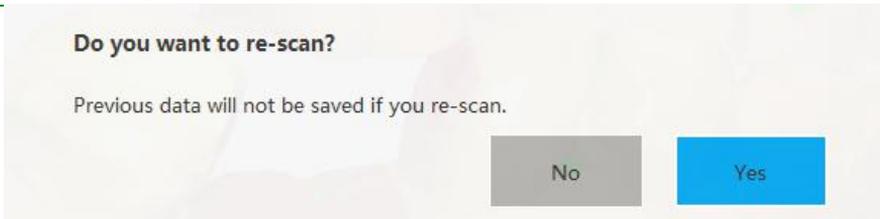
Figure 2 - Scan pause, hole area is indicated by green

Pause

During the scanning process, you can click the  or space bar to pause the scanning, and delete the buccal and lingual data in the mouth during the pause to facilitate the user to check the tooth sweeping situation. Click again to continue scanning.

Rescan

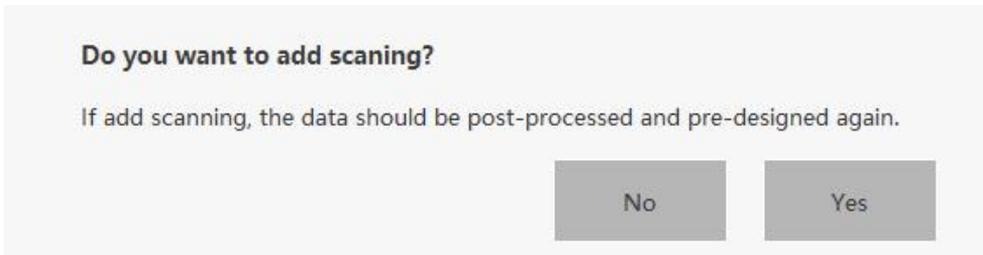
If the scan data is not satisfactory, you can re-scan it. Click the button  to pop up a prompt message box.



Select "Yes" to delete the previous data and restart the scan.

Add Scanning

After the scan or post-processing is completed, do not exit scan software interface and click scan button to re-scan the data.



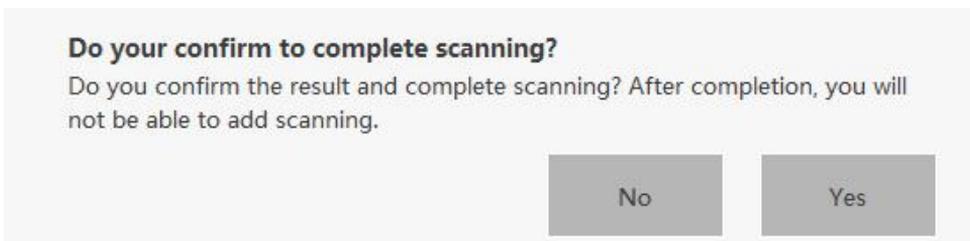
Scanning Completed

After confirming that the model scan is completed, click the Finish button  or long press the space bar to save. The green icon in the upper right corner of the icon as shown below indicates that the scanning process is finished.



Figure 3 - Scan completed

If the scan returns to the Dental Manager Pro or uploads the order, the prompt box "Do you want to confirm the scan completed?" is displayed.

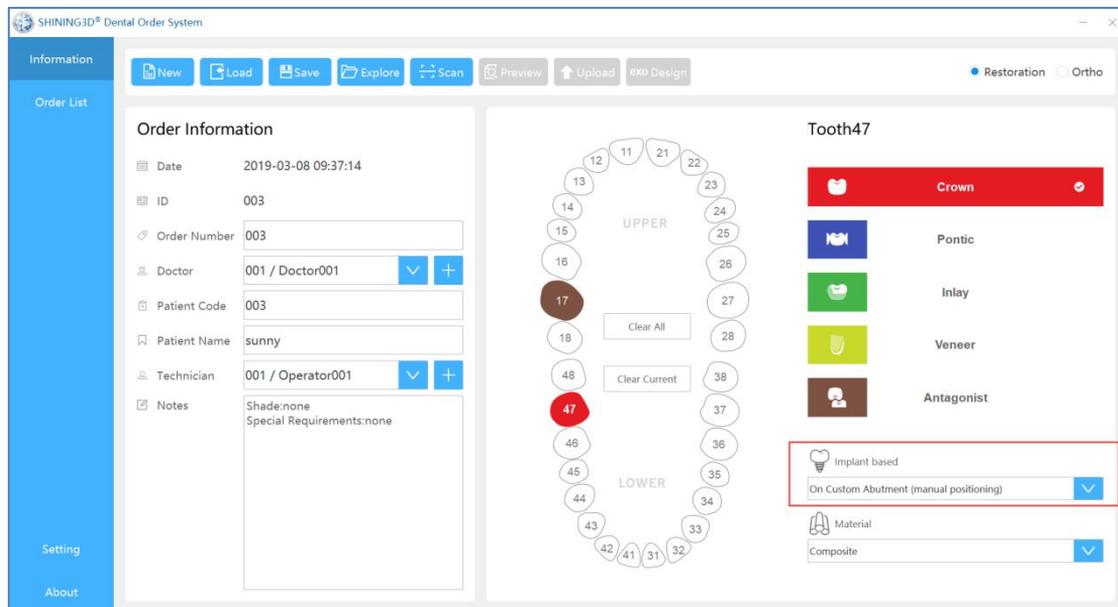


If you select "Yes", this order can no longer add scanning.

Note: The maximum number of frames for the upper/lower jaw scan is 3,000 frames. When scanning to 2,500 frames, it will prompt whether to stop scanning or continue to scan 500 frames.

Scan Upper Jaw/Lower Jaw Implant

Create an order to define the type of dental restoration as the type of planting. The scanning process has increased the process of scanning the implant.



Scan the lower jaw first (without Intraoral Scan bar). After the lower jaw scan is complete, directly enter the scanning lower jaw implant interface and select the implant area and delete.

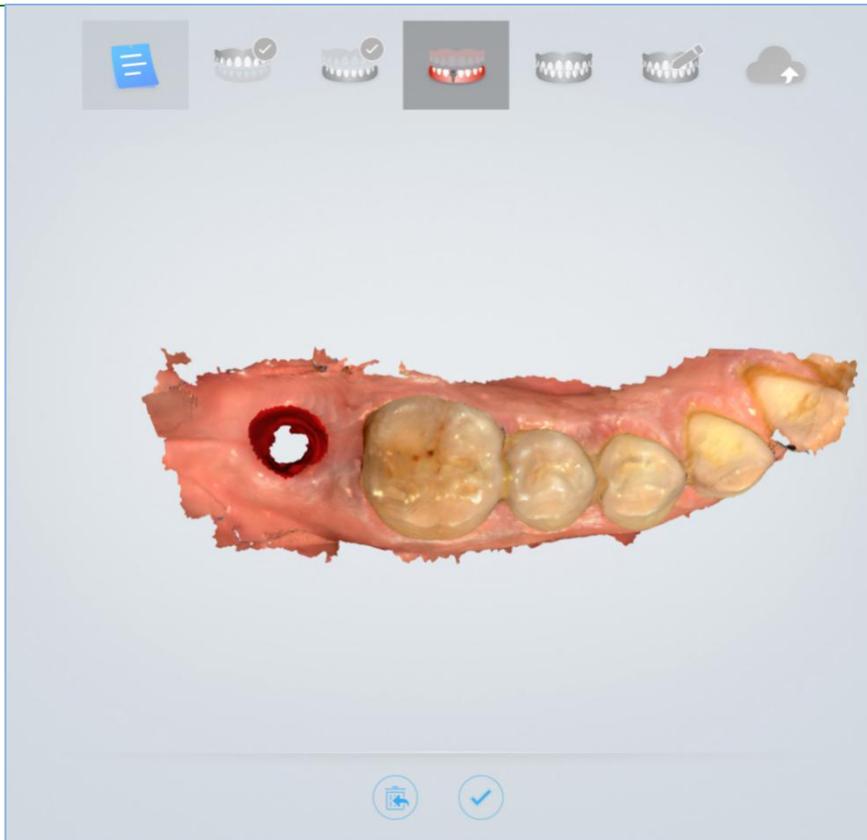


Figure 1 - Selecting the implant area



Figure 2 - Delete

Click the button  to enter the scanning implant process (must bring the planting rod before scanning).

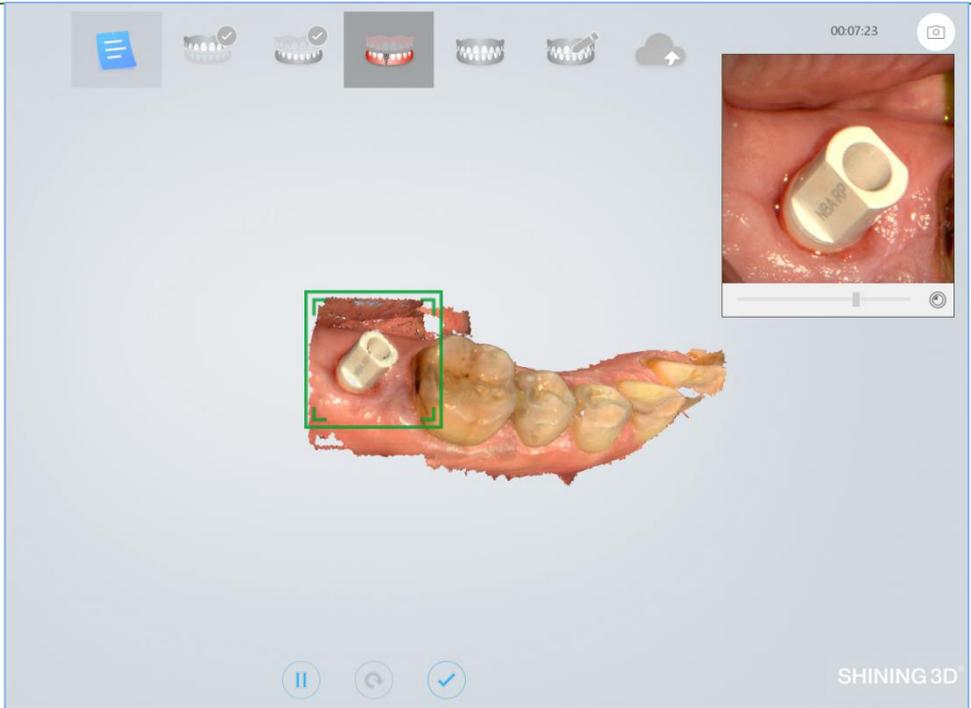


Figure 3- Scanning planting rod

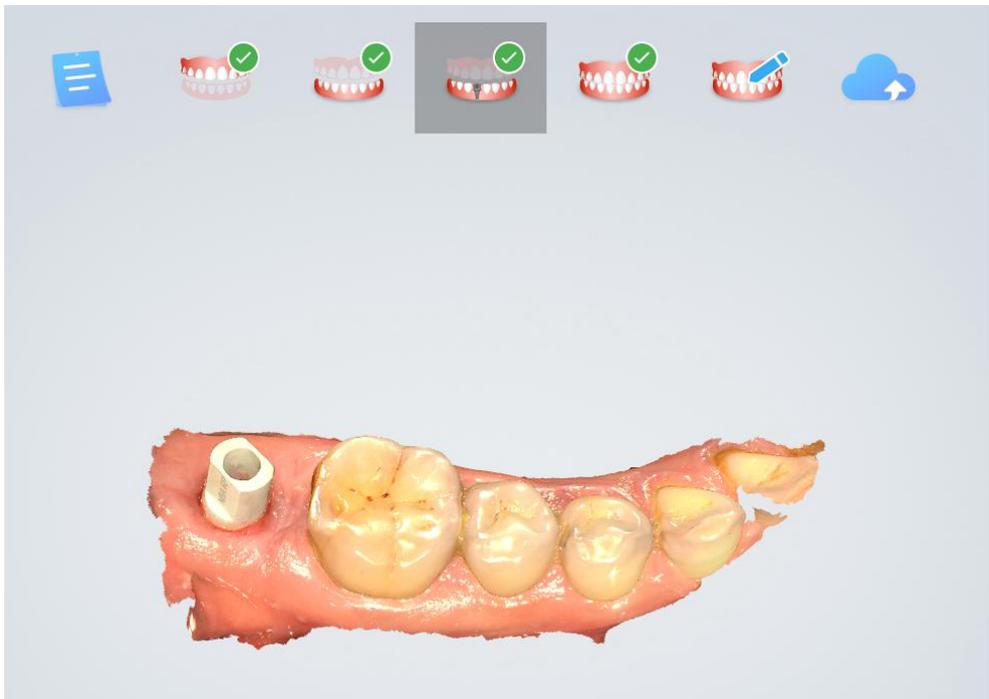


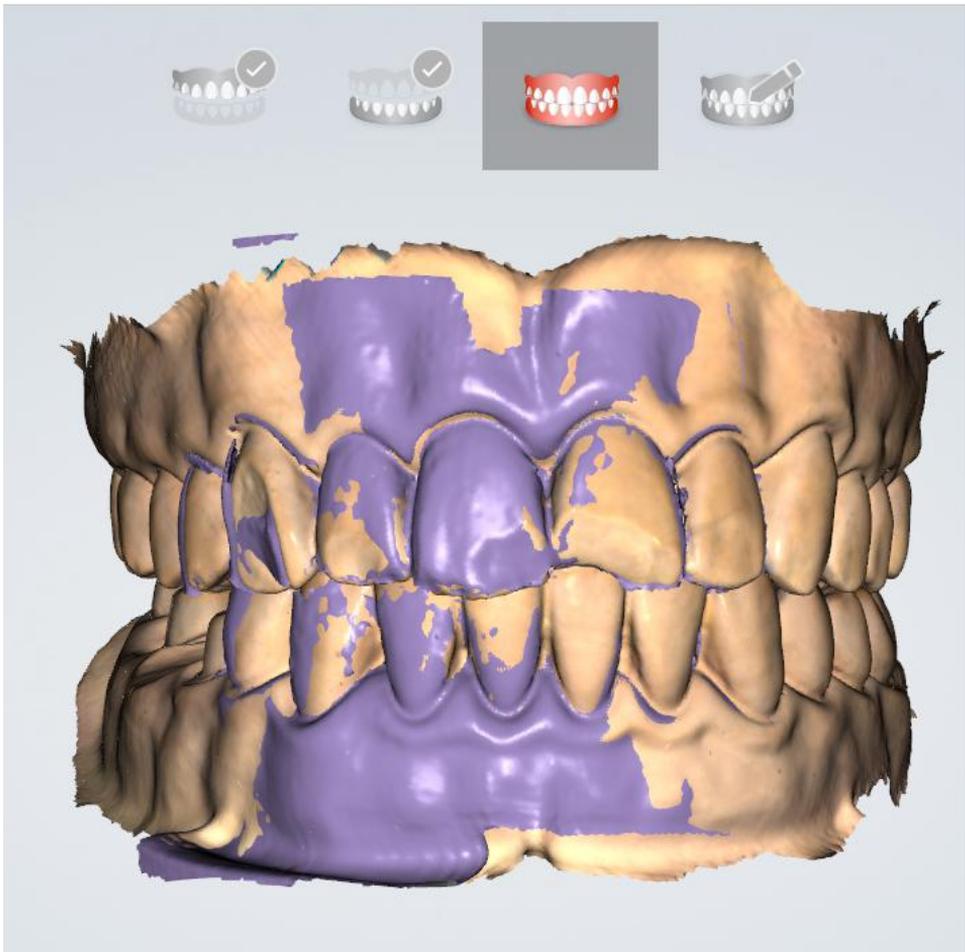
Figure 4 - Post-processed implant data

Scan Total Jaw

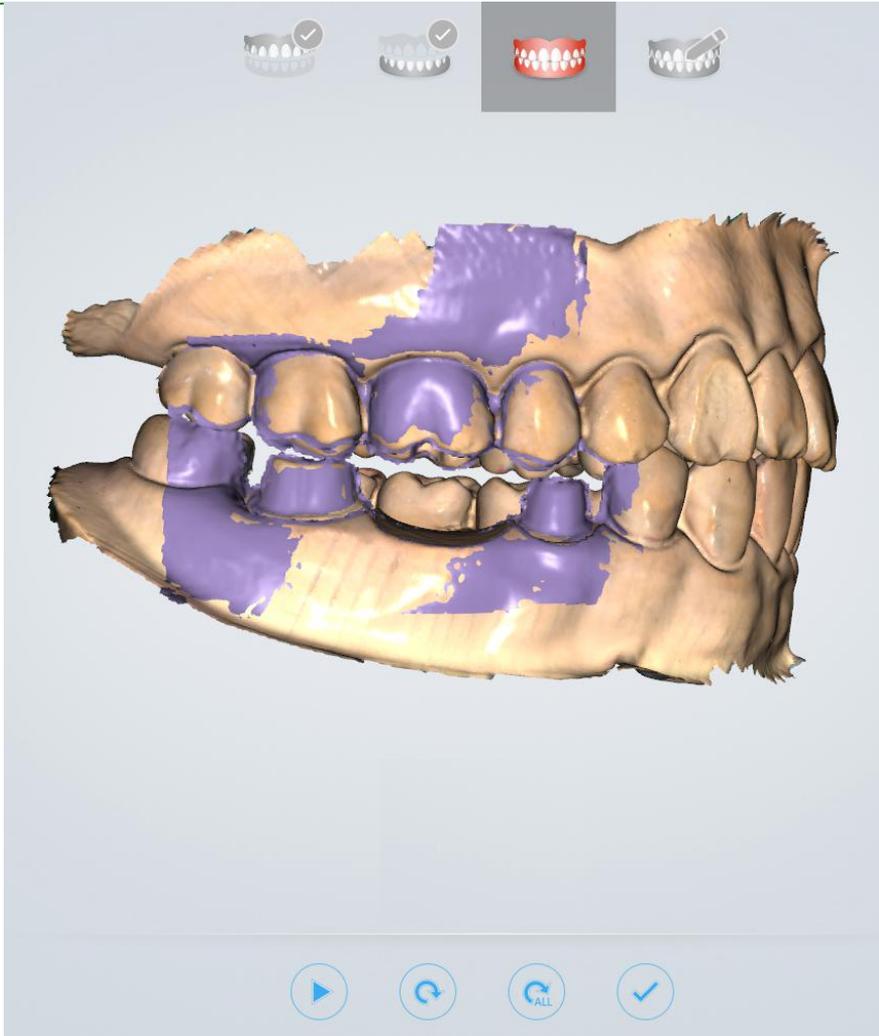
After the lower jaw scan is completed and saved, it automatically proceeds to the next

scanning process, such as the full jaw scanning procedure. The whole jaw does not need to scan the entire model, and supports scanning a whole jaw such as the anterior portion, two full jaws on the left and right sides (recommended), three full jaws on the left and right sides and the anterior teeth, so that the upper and lower jaw models of the scan are made. You can stop scanning after connecting. The maximum number of frames in the whole jaw is 800 frames. Scanning to 300 frames will prompt whether to stop scanning or continue to scan 500 frames.

An example of scanning a full jaw: the purple on the left is the data of the full jaw of the scan, and the tan is the result of the upper and lower jaws.

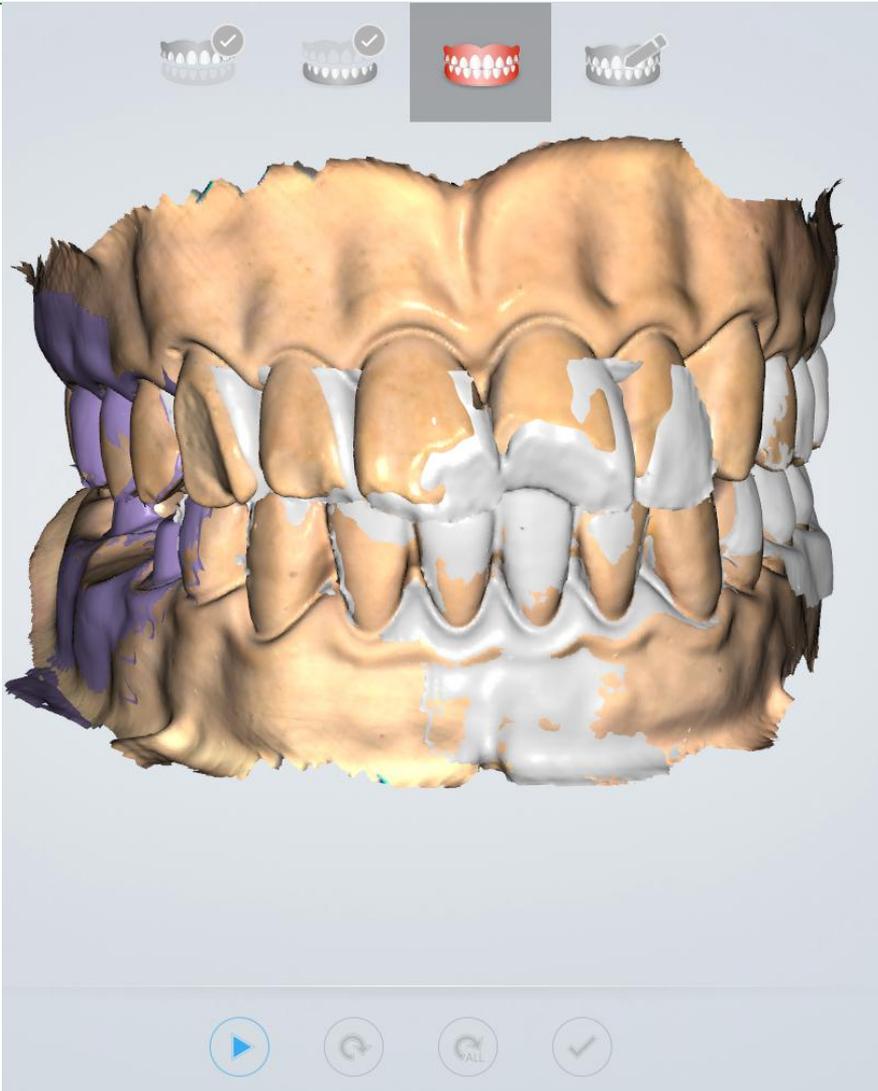


Scan a two-piece full jaw example (scan->pause, scan one piece of full jaw data once): the left image shows the full jaw data of the left side of the scan, and the right image shows the full jaw data of the left and right sides. .

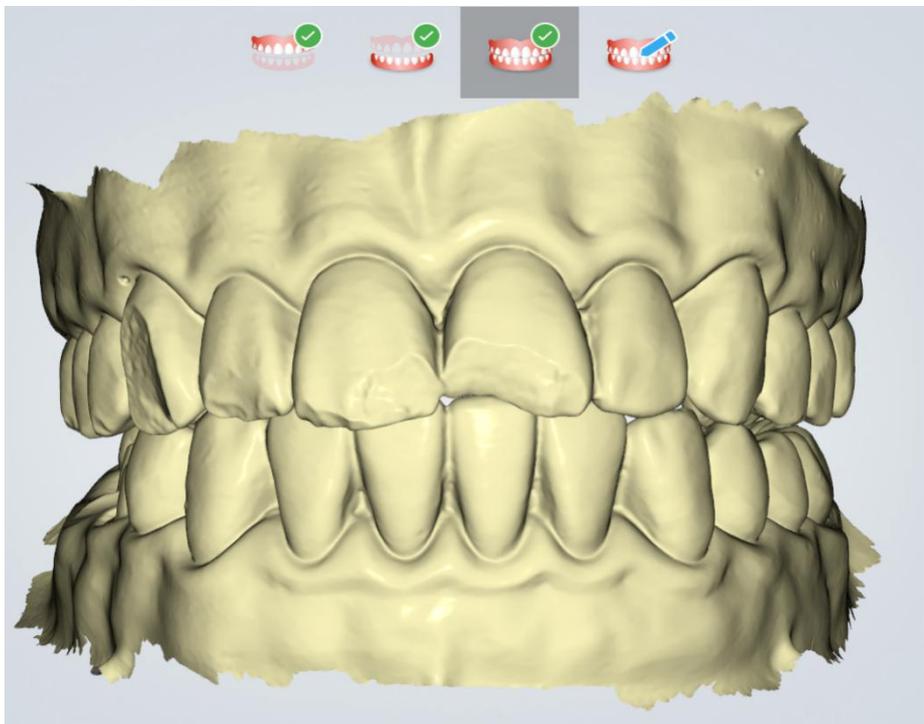




Scan a three-piece full jaw example:

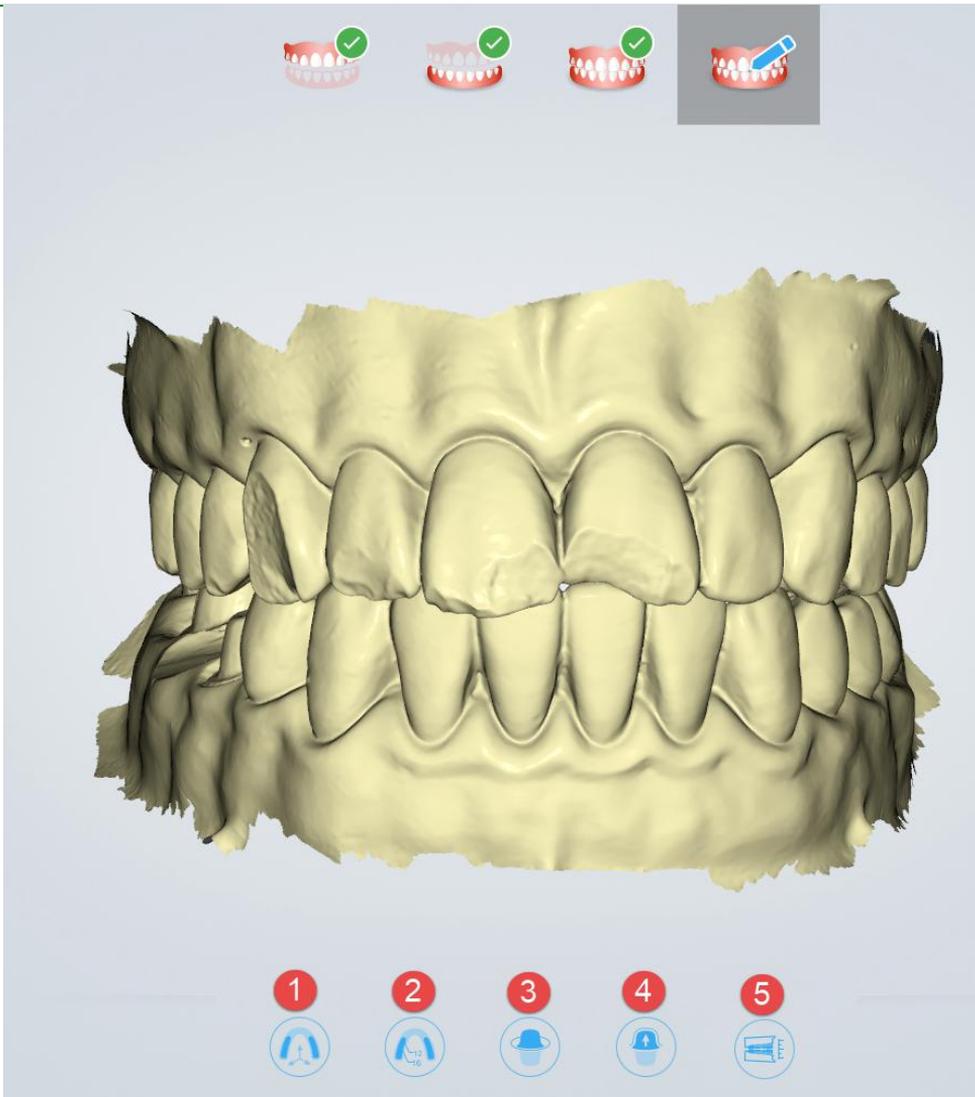


Stitching effect after software post-processing: texture effect and non-texture effect map:



Pre-design

Scanning data is added to the design software in order to make it easier to use in the design software. Users can skip this process and upload orders directly. This process has five functions:



① Adjust Coordinate: used to (manually) adjust the reference coordinate system of the dental jaw, and adjust the dental jaw data to the unified standard reference coordinate system (supporting the ExoCAD coordinate system) (the middle of the upper and lower incisors is the coordinate center, X outward (pointing to the observer), Y to the right (observer's perspective), positive on the Z-axis, forming the right-handed coordinate system);

② Mark Teeth: used to manually mark the corresponding position of the tooth specified in the order in the scanning model for subsequent extraction of the Margin line and viewing the undercut;

③ Extract Margin line: used to extract and save the Margin line of the marked (corresponding) teeth;

④ Check Undercut: Used to calculate and view the undercut area of the marked (corresponding to the order) teeth.

- ⑤ Check Bite: used to adjust and view the occlusal space of the upper and lower jaws;

Adjust Coordinate



Click the button under the "pre-design" process to enter the coordinate position interface of the adjustment data, as shown below:



Rotate the data with the left mouse button and right-click the data to adjust the position of the jaw.



Click the button to confirm and save the current adjustment result.

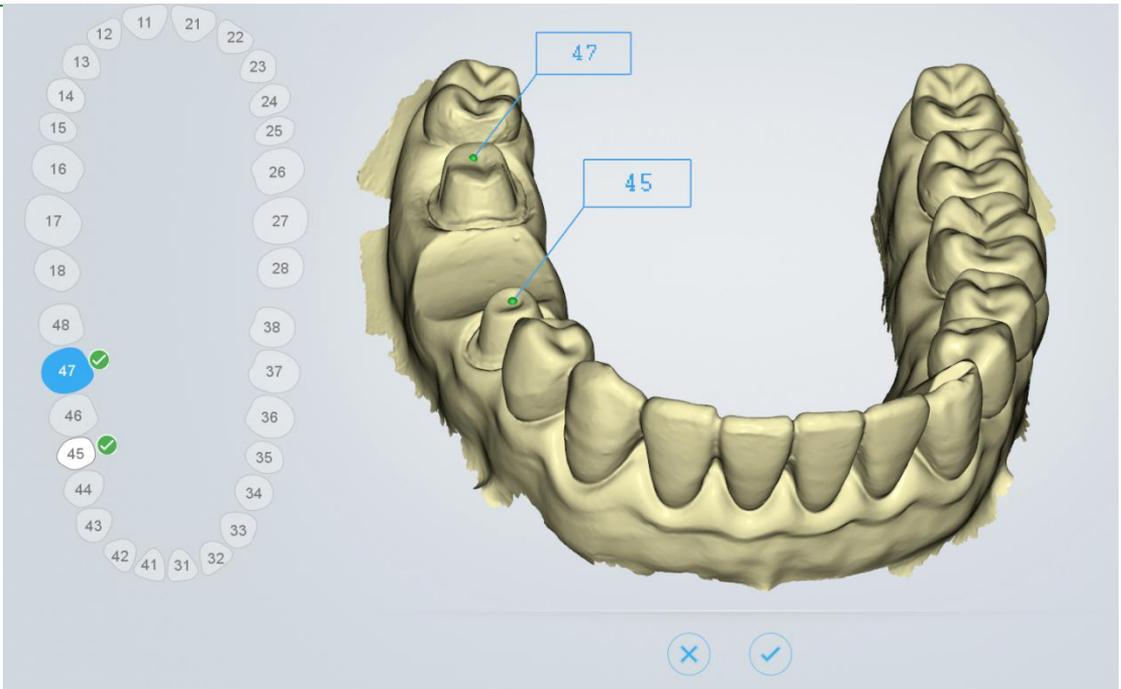


Click the button to cancel and discard the current adjustment result, and exit the adjustment coordinate process.

Mark Teeth



Click on the button under the "Pre-design" process to enter the marker tooth position interface, and the tooth map on the left side shows the teeth defined by the order.



Mark teeth operation: Select the tooth position to be marked in the tooth map, and then double-click the data corresponding tooth position to mark the tooth position information.

Click the Finish Teeth Marking button  to confirm and save the current tag.

Click the Cancel Teeth Marking button  to cancel and discard the current marker, and exit the marker tooting process.

Extract Margin line

Click the button  under the “Pre-design” flow to enter the extract margin line interface.

Double-click on a Margin line of a tooth to select four points, the system automatically draws the Margin line of the tooth.

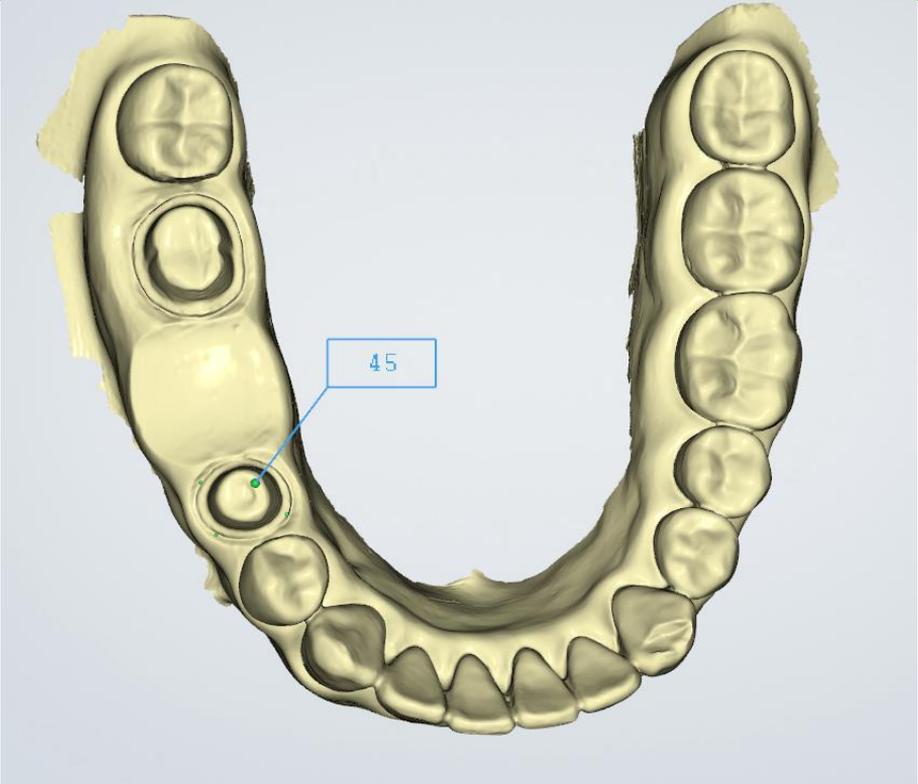


Figure 1 - Double click to select four points



Figure 2 - Automatically drawing the Margin line

Margin line editing operation: double-click to add a node; select a node, the node color turns green to yellow, you can move or delete (right mouse click double click or press Del

key or ) this node.

Click the "" button to extract the Margin line of the next tooth. Finally click "" to complete the extraction of all Margin line, and generate a "45-margin.xyz" Margin line file in the order directory.

Description of several operation buttons:



: Previous Tooth switches to the last marked tooth and its Margin line.



: Next Tooth switches to the next marked tooth and its Margin line.



: Delete Delete a node if some node on the Margin line is selected. If no node is selected, the Margin line of the current tooth is deleted.



: Cancel And Exit abandon the extracted Margin line and exit the process of extracting the Margin line.

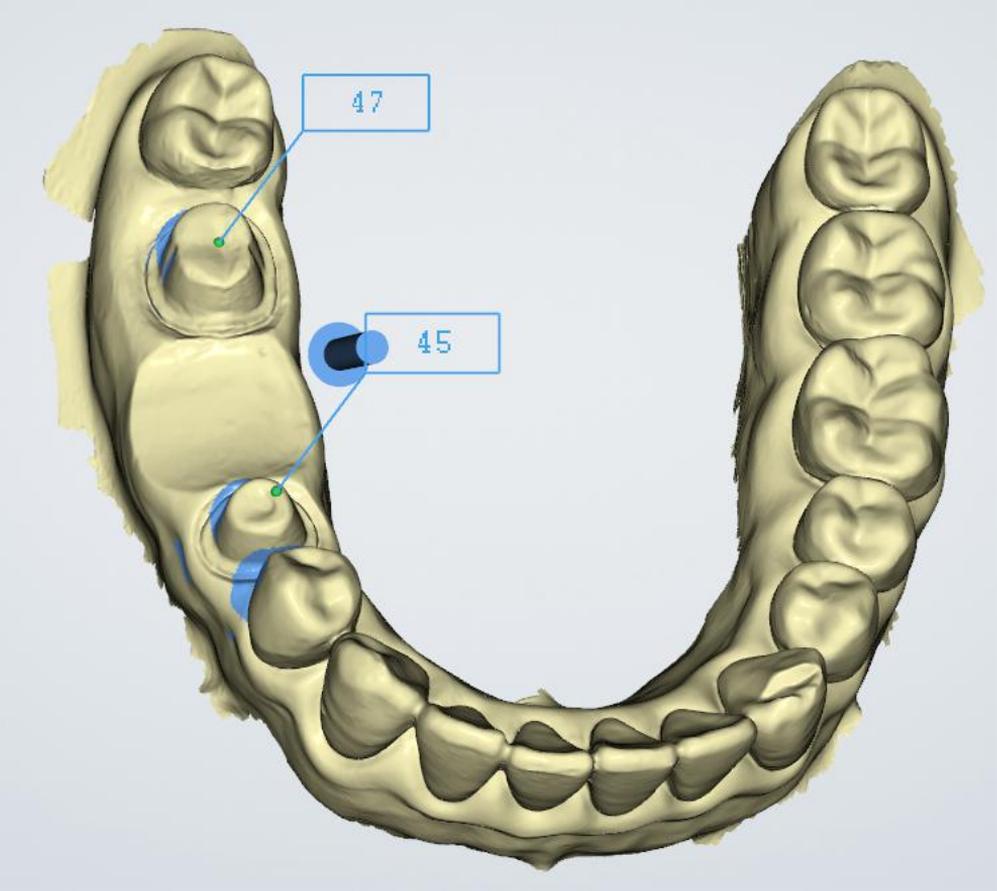
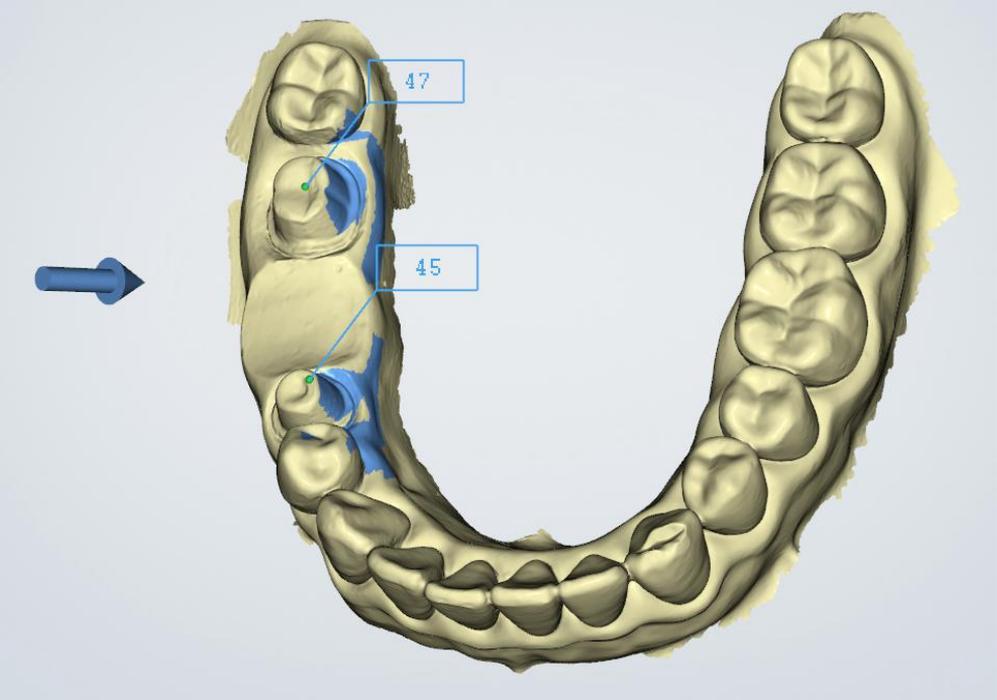


: Finish And Save confirms and saves the extracted Margin line and exits the extract Margin line process.

Check Undercut

Click the button  under the "Pre-design" flow to enter the inverted interface.

The following figure shows the effect of the undercut display in different visual directions: ~~the blue arrow indicates the visual direction, and the blue surface of the tooth indicates the~~



Undercut operation: Double click or click  button to adjust the undercut angle.

Description of several operation buttons:



or : Swap Jaws for upper and lower jaw switching



: Generate Undercut shows the undercut effect.



: Finish Undercut exit the undercut process.

Check Bite



Click the button  under the “Pre-design” process to enter the check bite interface. Green indicates the distant area of the two jaw teeth, red indicates the collision area of the two jaw teeth, and blue indicates the bite area of the two jaw teeth.

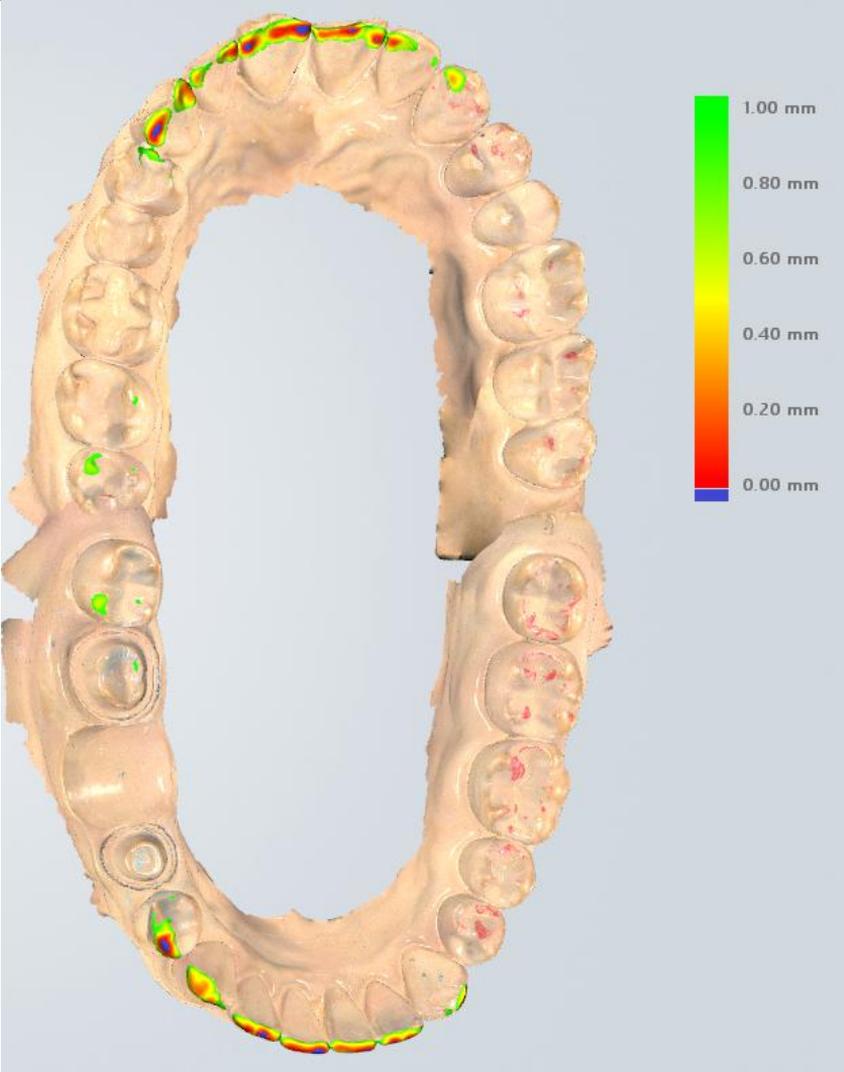


Figure 1 - Two jaw tile effect

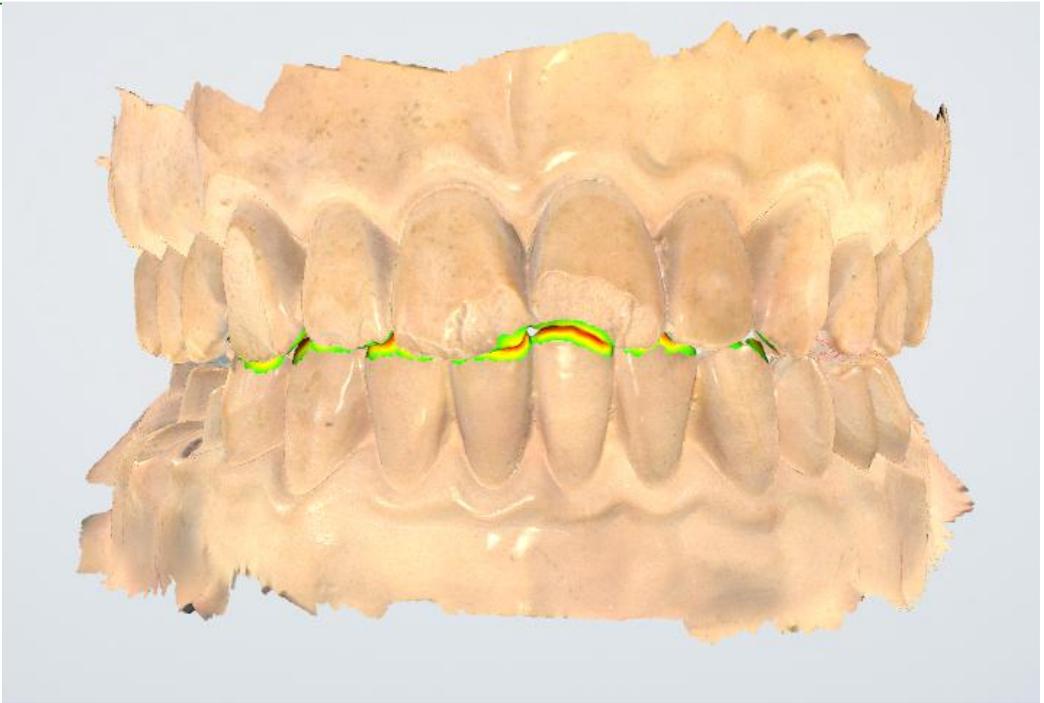


Figure 2 - Two jaw bite effect picture

Description of several operation buttons:



: Open/Close Jaws switches between the two jaws and the bite effect.



: Occlusal Adjust adjusts the bite.



; Cancel And Exit gave up the adjusted bite relationship and exited the test bite process.



: Finish And Save saves the adjusted snap closure and exits the detection bite process.

Upload Order

When uploading the order for the first time in Intraoral Scan, it will prompt “You have not logged in to the account. Whether to direct to the setting interface to log in?”, select “Yes” to open the “Configure Account” interface. See the "Upload Order" introduction of the

CHAPTER

8

Using Dental Cloud

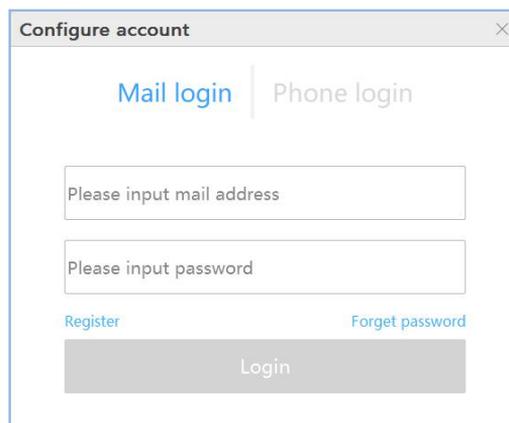
Introduction to Dental Cloud

Dental Cloud is a platform for connecting clinical and technical workers. In this platform, you can establish relationships with labs, doctors/clinics, and doctor users; you can manage order cases; manage organizations and maintain account information.

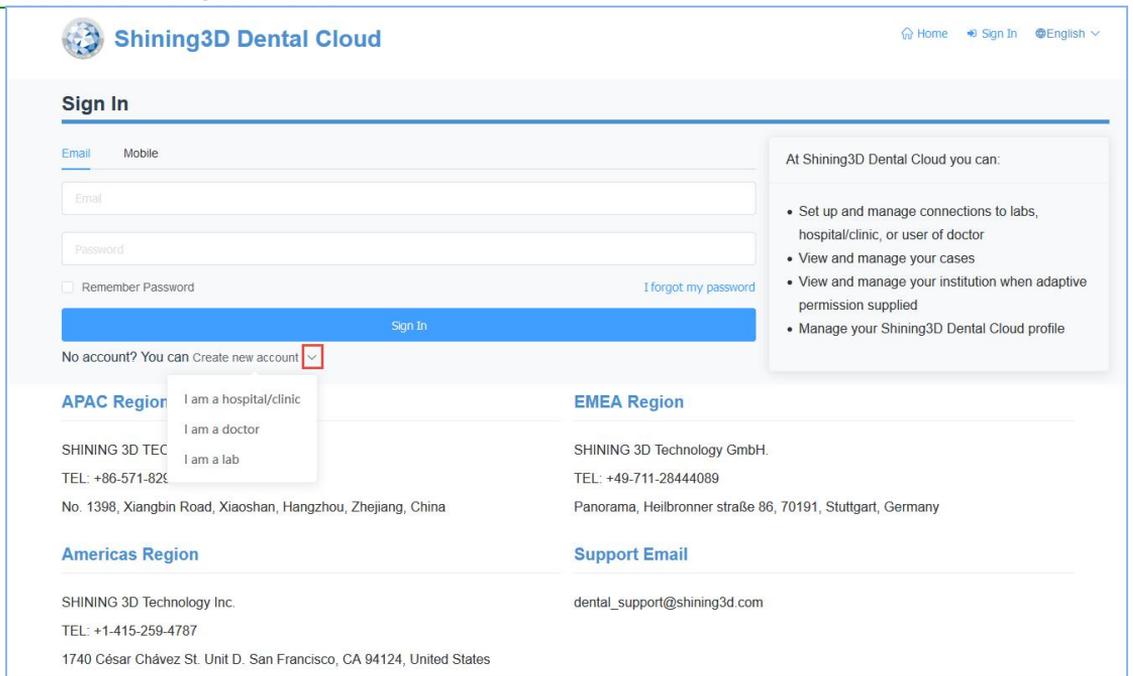
Visit the website: <http://dental.shining3d.com>

Register Account

To register for the dental cloud account, click the “Register” link to go to the dental cloud website to register. It is recommended to open the dental cloud website using browsers such as Chrome, Firefox, and Apple.



Click "Login" in the top right corner of the homepage to open the login page.



"Registration / Application", select the registration type.

- ✧ I am a hospital/clinic: a registered hospital/clinic institution and administrator. After registration is successful, you need to wait for the system administrator to review before you can log in.
- ✧ I am a doctor: Register an individual user. You can log in directly after registration.
- ✧ I am a lab: registered dental laboratory and administrators. After registration is successful, you need to wait for the system administrator to review before you can log in. Note that this type of account can only be used on the web side and cannot be used on the desktop client.

Fill in the real application information according to each content (the notification of information such as the relationship network and order status will be sent to the mobile phone number and email address to be filled in)

Apply to settle in to become a hospital/clinic

* Name ✓

* Addr. ✓

* Captcha bvKf ✓

Set up a default administrator account:

* Contact ✓

* Mobile ✓ ✓

* Email ✓

* Password ✓

* Password ✓

again

* Privacy You must agree to our [data protection policy](#) and check it out. Please read it carefully.

Or back to [Sign In](#)

After the registration is successful, the page automatically jumps to the login interface, enter the correct mailbox or mobile phone number and password, you can set the remember password to facilitate subsequent quick login.

Sign In

[Email](#) [Mobile](#)

✓

✓

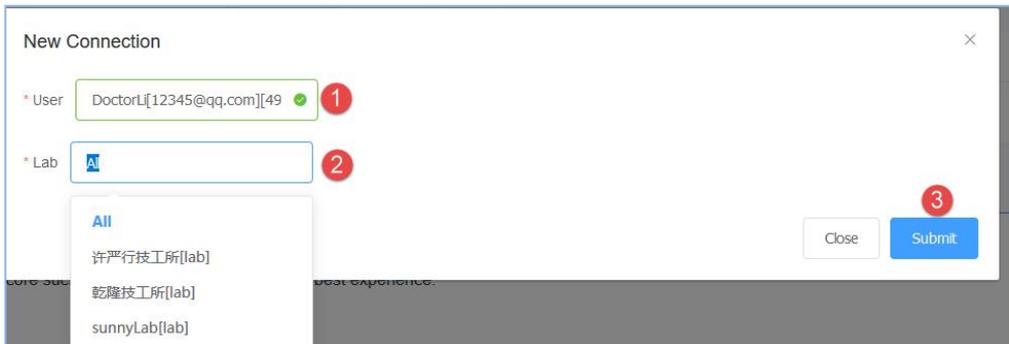
Remember Password [I forgot my password](#)

No account? You can [Create new account](#) ▾

After the login is successful, the hospital, clinic or doctor's account can establish a network connection with the partner technical institution (ie add the lab)

Establish a relationship network

The network can only be created by a doctor/hospital/clinic account and then accepted or rejected by the lab. The doctor can only upload the order data to the accepted laboratories. After logging in to the hospital, clinic or doctor account, select “Relational Network” in the upper right corner of the interface to create a new network.



- ① User: Select the user himself
- ② Lab: Select a cooperative from the drop-down list
- ③ Submit: Submit the newly created network.

The submission is successful and is displayed in the page list. The relationship status of the newly created relationship is “to be confirmed”. You need to wait for the lab to accept the confirmation (the relationship status is "active"), and only the relationship confirmed by the lab can upload the data.

Management institution

An organization administrator can add/remove members for this organization.

Add member

After logging in, "Admins" ->"Members", create a new administrator and ordinary members for the organization.

New Member ✕

Notes: Mobile or Email must supply one for password reset, announce, etc. Default password is 888888.

* Belongs

* Nick Name

Mobile

Email

Is Admin

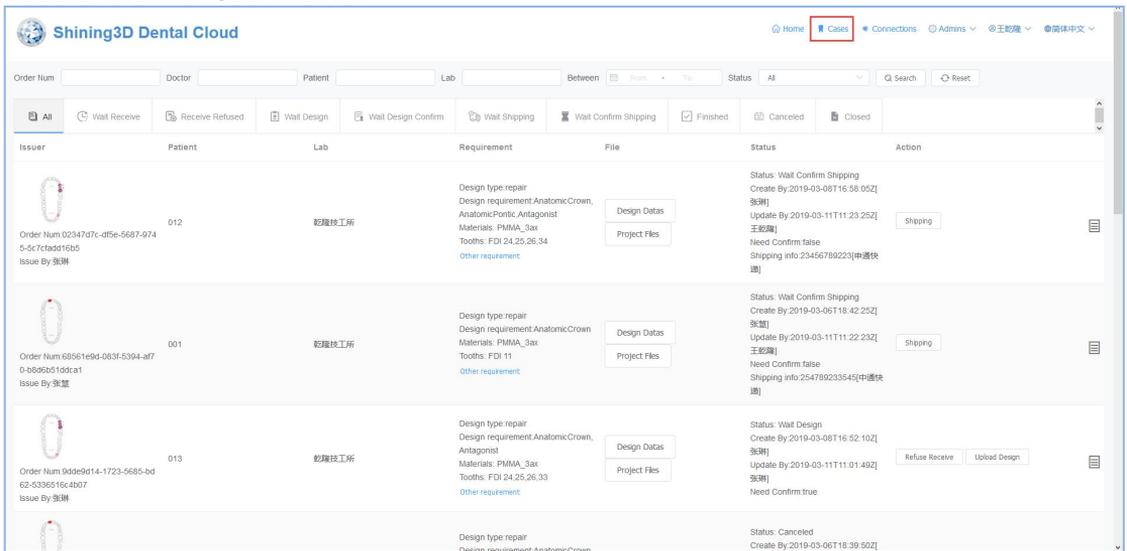
- ① Belongs: Select the name of the institution.
- ② Nick Name: member nickname.
- ③ Mobile: The mobile number of this member is also the account that the mobile phone logs in. The default password for login is 888888. Mobile phone and mailbox, you can choose one of the two.
- ④ E-mail: This member's e-mail is also the account that the e-mail is logged in. The default password for login is 888888.
- ⑤ Is Admin: Set whether it is an administrator. The default is No.
- ⑥ Submit: Fill in the information and submit the member successfully.

Delete member

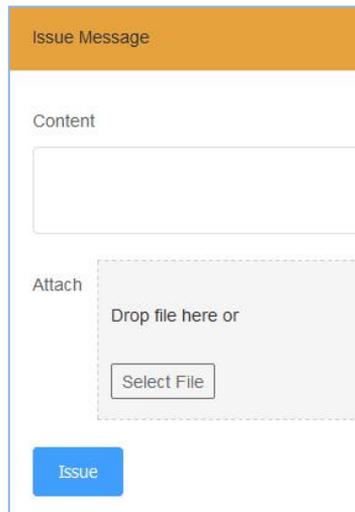
Select the member you want to delete and click the "Delete" button to confirm the deletion.

Management cases

The account is successfully logged in. Select "Case" in the upper right corner of the page to list all the use cases managed by this user.

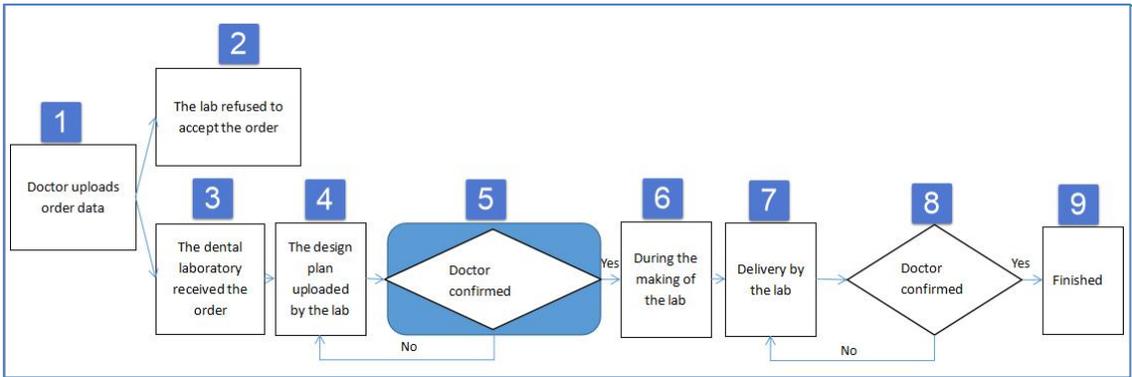


Each order doctor and lab can instantly communicate, click  , expand the communication box, and publish information or documents on the web page.



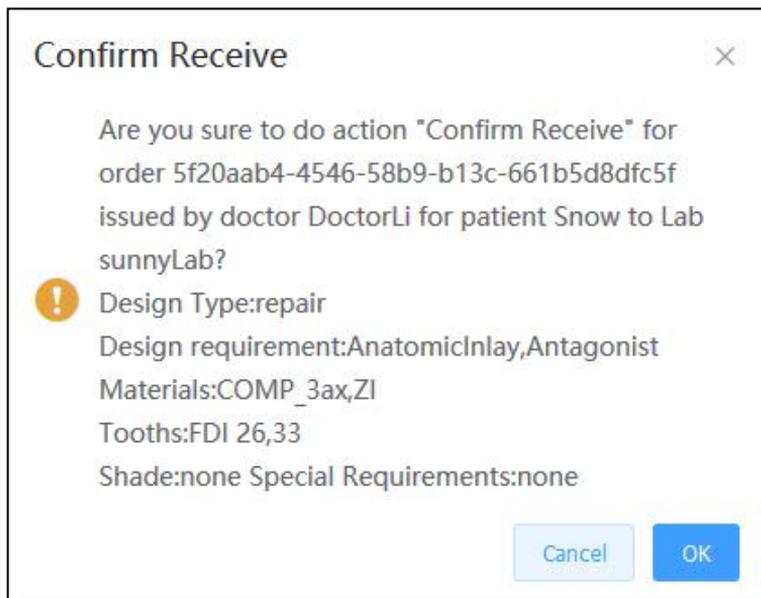
Order status process

The order is transferred between the hospital (clinic/doctor) and the laboratories, and the two parties cooperate to advance the entire process from one visit to completion of treatment. The doctor operates in the client Dental Manager Pro, and the lab operates on the web page side. The most common flow chart for uploaded order status is as follows:

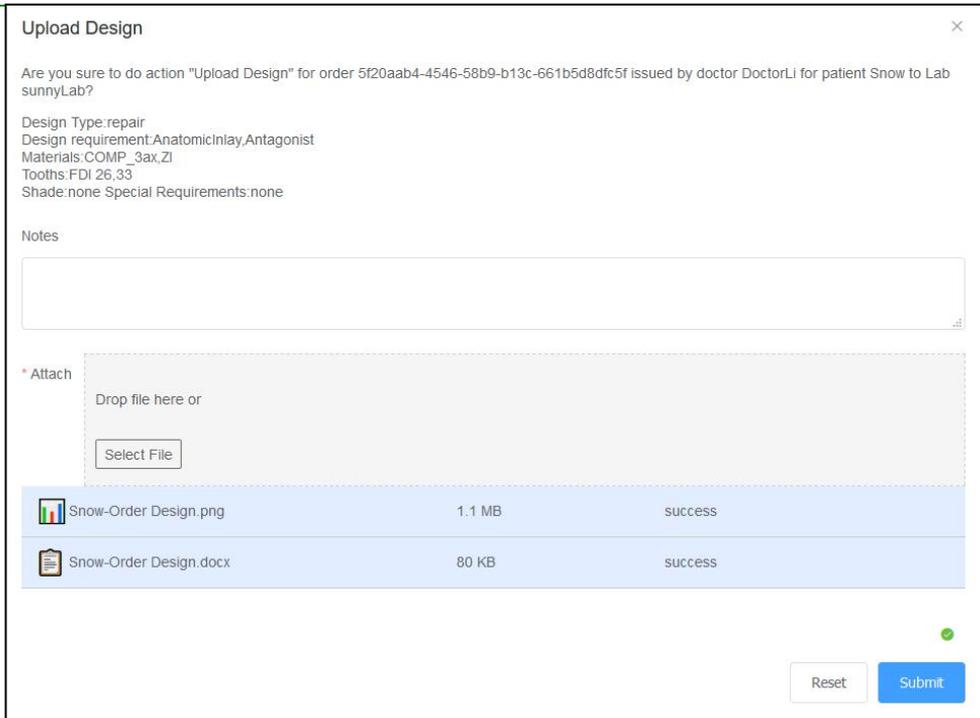


Brief introduction to the flow chart:

- 1) Doctor uploads order data: see the previous section for details.
- 2) The lab refused to accept the order: the lab of the lab refused to accept the order.
- 3) The lab received the order: the lab of the lab confirmed the order.

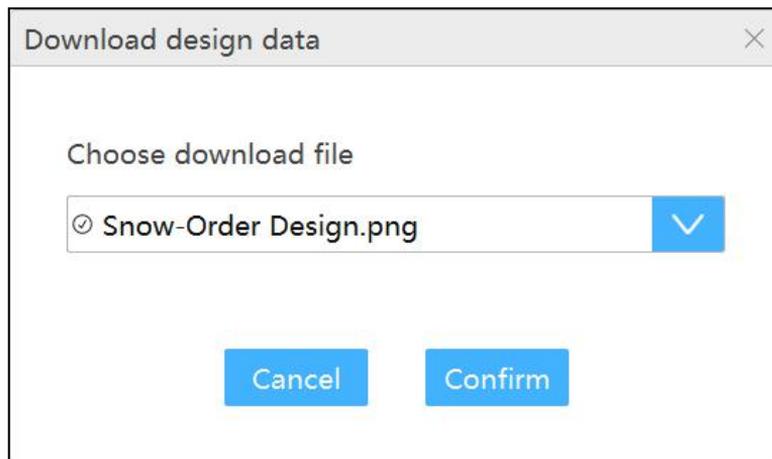


- 4) The design plan uploaded by the lab: the lab of the lab uploads the design plan, including the documents and data.

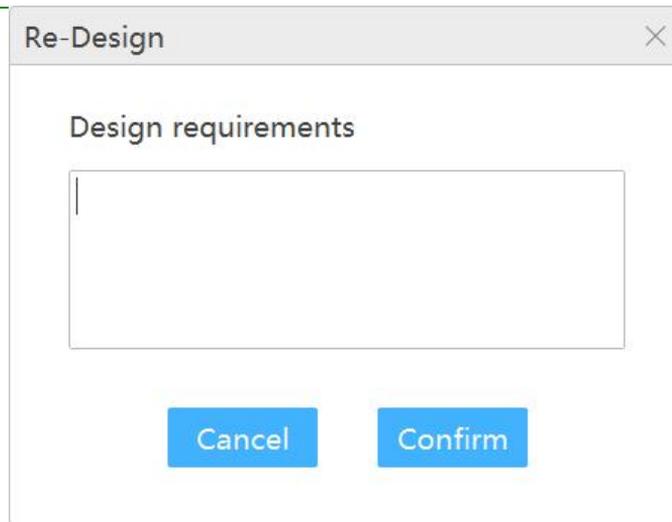


Select the file to be uploaded, wait for the file to be uploaded successfully, and submit.

5) Doctor confirmed plan: After the lab uploads the design plan, the order status is "Need Conirm Design", and the doctor can download the design plan in the client Dental Manager Pro.



The design data is saved by default in the DesignData folder of the order catalog. If the design plan is approved, the doctor "confirm Design" and the order status is "Making"; if not, the doctor "Request Re-design", fills in the design requirements, and the order status is "Accepted", which requires the lab to redesign the plan , upload, doctor confirm again.



If the doctor chooses not to review the design when uploading data, skip this process.

6) During the making of the lab: After the doctor confirms the design plan, the order status is "Making", indicating the processing data of the lab.

7) Delivery by the lab: The data processing of the lab's office is completed, and the logistics information is submitted and delivered. The order status is "Delivering".



8) Doctor confirmed the receipt: After the lab delivers the goods, the doctor can view the logistics information, and confirm the receipt after receiving the goods. The order status is "Finished". If the doctor does not receive the goods or the goods have problems, request re-delivery, the order status is "Wait Shipping", the lab needs to re-delivery, the doctor confirms the receipt again.

9) Finished: This order process ends.

Care and maintenance

Pre-cleaning, disinfection, and sterilization

The whole set of **Aoralscan 2**, including scanner tip, scanner body, and scanner cradle, requires proper care, cleaning, and handling. As individual part may be processed differently, read and follow the information and instructions given to help you effectively and thoroughly reprocess the set.

We suggest that you reprocess the **Aoralscan 2** in the following order:

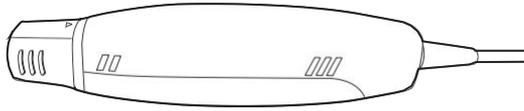
1. [Scanner cradle care](#)
2. [Scanner body care](#)
3. [Scanner tip care](#)



WARNINGS

- All parts are shipped non-sterilized. Follow the instructions prior to initial use.
- Ensure you have completely disconnected the power supply and all connections from the scanner.
- Follow the instructions given in this *User Manual* to pre-clean, disinfect, and sterilize each part of the scanner. Using other methods not approved by Shining3DCorporation will damage your scanner and void your warranty.
- Using detergent, disinfection solutions or wipes, sterilization procedures other than those specified in this *User Manual* may damage the product and void your warranty.
- Only sterilize the part(s) for which a sterilization method is specified. Do not attempt to sterilize all parts of the product. Shining3DCorporation is not liable for any damages due to improper sterilization.

- After sterilization, wait until each of the parts is at room temperature to prevent possible heat injuries to the user and the patient.
- To prevent cross-contamination, pre-cleaning, disinfection, and sterilization must be correctly performed after EACH use.
- When the scanner tip is detached from the scanner, always protect the subtle units and the inner optical components on the front end of the scanner body by putting on the supplied protection cap.



Scanner cradle care

The scanner cradle requires an intermediate-level disinfection.

Disinfection



WARNINGS

- Concerning hand hygiene and personnel safety when performing pre-cleaning and disinfection/sterilization, you must wear clean surgical gloves before you start.
- Always ensure that you have pre-cleaned and disinfected/sterilized the scanner body, scanner cradle, and scanner tip before each scan.
- The caring methods for the scanner cradle, scanner body, and scanner tip are different and must be executed separately. After disinfecting the scanner cradle, you may proceed with the scanner body and finally the scanner tip. See Scanner body care on chapter 9 and Scanner tip care on chapter 9 for details.
- Ensure that the scanner body is not placed in the cradle prior to disinfecting the scanner cradle.

Follow the steps below to complete the disinfection:

1. Disconnect the power of the **Aoralscan 2** (see Disconnecting the scanner on chapter 4).
2. Hold the cradle firmly with your hand.
3. Use new cotton gauze moistened with 70%-75% solution of ethanol to wipe the surface of cradle.



CAUTION

Avoid using detergent of any kind as some detergents or surfactants might penetrate into the surface of the cradle.

4. When done, store the cradle in a clean and safe place.
5. Proceed to the disinfection of the scanner body (see Scanner body care on chapter 9).

Scanner body care

The scanner body requires an intermediate-level disinfection.

Disinfection

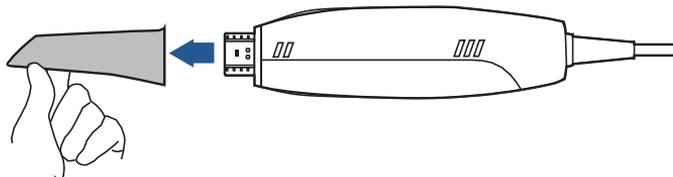


WARNINGS

- Concerning hand hygiene and personnel safety when performing pre-cleaning and disinfection/sterilization, you must wear clean surgical gloves before you start.
- Always ensure that you have pre-cleaned and disinfected/sterilized the scanner body, scanner cradle, and scanner tip before each scan.
- The caring methods for the scanner cradle, scanner body, and scanner tip are different and must be executed separately. Before disinfecting the scanner body, you shall start with the cradle first. See Scanner cradle care on chapter 9) for details.
- Ensure that the scanner tip is detached from the scanner, and the protection cap is put on the scanner when disinfecting the scanner body.

Follow the steps below to complete the disinfection:

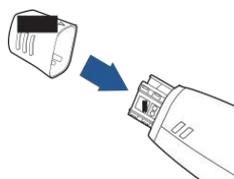
1. Disconnect the power of the **Aoralscan 2** (see Disconnecting the scanner on chapter 4).
2. Hold the scanner tip firmly with your thumb and forefinger on both sides, and then gently slide the tip off from the scanner, as illustrated.



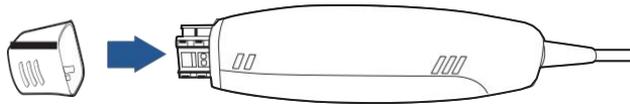
NOTE

Do not place your finger(s) on the mirror of the tip when detaching as this may result in damage to the mirror.

3. Store the detached tip in a safe place, e.g. a dental instrument tray, prior to disinfecting the scanner body.
4. Hold the supplied protection cap with the triangle mark facing upward. Then, align the protection cap blocks to the matching slots on the front end of the scanner body.



- Slide the protection cap onto the scanner to prevent damage and dust.

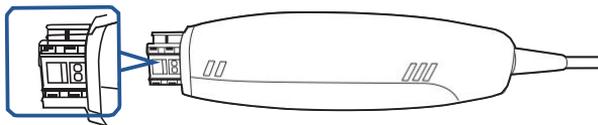


CAUTIONS

- When the scanner tip is detached, always protect the subtle units and the inner optical components on the front end of the scanner by putting on the supplied protection cap.



- Do not attempt to clean the outer units and inner optical components on the front end of the scanner with any sharp objects or other such tools, which may result in scratches and damage to the scanner.

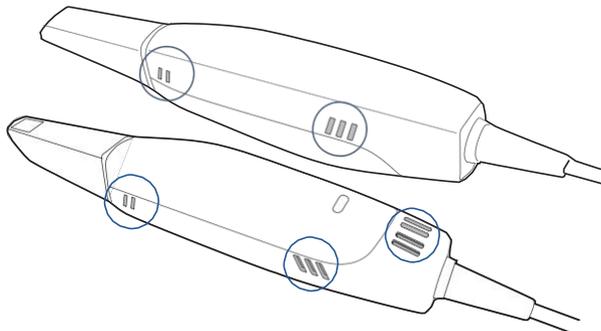


- Hold the scanner body with your hand.
- Use new cotton gauze moistened with 70%-75% solution of ethanol to wipe the surface of scanner body.



CAUTIONS

- Avoid using detergent of any kind as some detergents or surfactants might penetrate into the surface of the scanner body.
- Do not clean the intake and exhaust vents with any sharp objects or other such tools.



- When done, store the scanner body in a clean and safe place.
- Proceed to the cleaning, disinfection or sterilization of the scanner tip (see Scanner tip care on chapter 9).

Scanner tip care

The scanner tip is the most essential part of the scanner as it is inserted into your patient's mouth during scanning. Therefore, the tip must be thoroughly cleaned and sterilized before and after each patient contact in order to prevent cross-contamination in your operation.



WARNINGS

- Concerning hand hygiene and personnel safety when performing cleaning and disinfection/sterilization, you must wear clean surgical gloves and goggles before you start.
- Always ensure that you have pre-cleaned and disinfected/sterilized the scanner body, scanner cradle, and scanner tip before each scan.
- The caring methods for the scanner cradle, scanner body, and scanner tip are different and must be executed separately.
- Cleaning the scanner tip is an essential step before effective disinfection or sterilization.
- When inserting the scanner tip into the disinfectant solution, be sure to follow the instructions on the disinfectant label and limit the time and depth that the tip is soaked within the minimum time recommended.
- The scanner tip can be sterilized up to 20 times and must be disposed of afterwards. For more information on disposal, see Disposal on chapter 1.
- High-level disinfection and steam sterilization must NOT be combined. Apply only either of these methods to ensure the safe and effective reprocessing of the scanner tip, and thus to prevent damage of reusable tip.

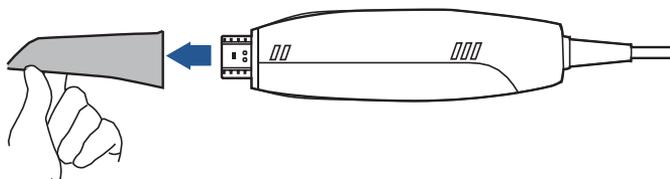
Two effective and approved methods of cleaning and disinfection/sterilization are recommended and described as below.

Either should be used to reprocess the scanner tip between each patient contact:

Cleaning and high-level disinfection

Follow the steps below to perform cleaning and high-level disinfection:

1. Disconnect the power of the **Aoralscan 2** (see Disconnecting the scanner on chapter 4).
2. Hold the scanner tip firmly with your thumb and forefinger on both sides, and then gently slide the tip off from the scanner body, as illustrated.

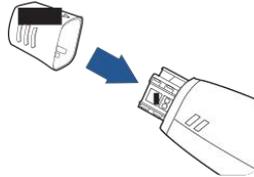




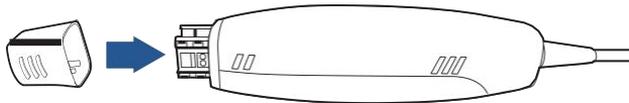
CAUTION

Do not place your finger(s) on the mirror of the tip when detaching as this may result in damage to the mirror.

3. Hold the supplied protection cap with the triangle mark facing upward. Then, align the protection cap blocks to the matching slots on the front end of the scanner body.



4. Slide the protection cap onto the scanner to prevent damage and dust.



5. Pay particular attention to inspect the mirror of the tip to ensure that the mirror is not cracked or broken and there is no scratch on it.



CAUTION

If the mirror of the tip has cracks or scratches, stop the cleaning process and contact your local distributor or service provider.

6. Gently clean the inner and outer sides of the tip using mild pH-neutral soap water and a soft brush for 3 minutes.
 - When cleaning the inner surface of the tip, insert the soft brush into the tip from both the front and rear ends, and move the brush lightly in tiny circles.
 - When cleaning the outer surface of the tip, move the brush lightly back and forth, and repeat for each side.

7. Repeat the previous step at least two more times.
8. Rinse the tip thoroughly with sterile water for at least 3 minutes.
9. If you notice stains, fingerprints, or smears on the mirror surface, repeat the previous step.
10. Dry the tip carefully with a clean soft lens tissue or lint-free cloth.
11. Pay particular attention to inspect the mirror surface of the tip again to make sure that the cleaning is done properly and the mirror is not damaged during the cleaning process.
12. Cautiously fill a container with the FDA-approved disinfectant solution, e.g. CIDEX OPA[®] Solution. Do not spill any of it.



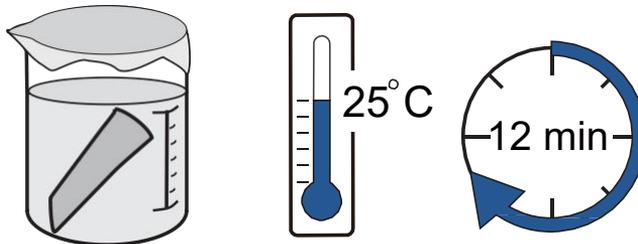
NOTE

Read the CIDEX OPA[®] manufacturer's instructions and warnings thoroughly before use.



CAUTIONS

- To avoid possible damage, use the disinfection solution verified by Shining3D Corporation and specified here only.
 - Once a spill occurs, follow disinfectant manufacturer's handling instructions.
13. Immerse the cleaned tip into the disinfectant and leave it for at least 12 minutes at 25°C.



14. Prepare a large container of sterile water, e.g. 2 L.
15. Take out the tip from the disinfectant.
16. Immerse the tip into the container of sterile water for at least 5 minutes.
17. Take out the tip and manually flush it with at least 500 ml of sterile water.



CAUTION

Discard the rinse water. Always use fresh volumes of sterile water for each rinse. Do not reuse the water for rinsing or any other purpose.

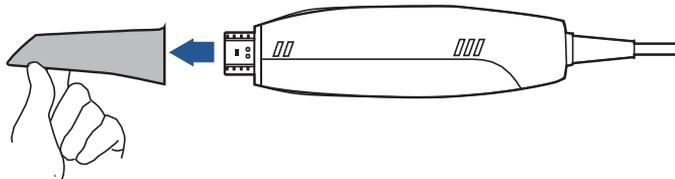
18. Repeat the rinsing process (step 14 to 17) at least two more times for removing the residue of disinfection solution.
19. Use a soft lint-free cloth to dry the tip.

20. Pay particular attention to inspect the mirror surface of the scanner tip again to make sure that the disinfection is done properly and the mirror is not damaged during the disinfection process.
21. Re-attach the scanner tip (see Attaching the scanner tip on chapter 9).
Or if you attempt to store the scanner tip with other dental instruments, e.g. a dental instrument tray, ensure that it is thoroughly dry.

Cleaning and steam sterilization

Follow the steps below to perform cleaning and steam sterilization:

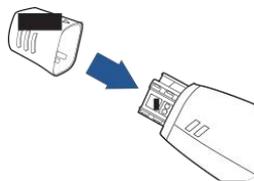
1. Disconnect the power of the **Aoralscan 2** (see Disconnecting the scanner on chapter 4).
2. Hold the scanner tip firmly with your thumb and forefinger on both sides, and then gently slide the scanner tip off from the scanner, as illustrated.



CAUTION

Do not place your finger(s) on the mirror of the tip when detaching as this may result in damage to the mirror.

3. Hold the supplied protection cap with the triangle mark facing upward. Then, align the protection cap blocks to the matching slots on the front end of the scanner body.



4. Slide the protection cap onto the scanner to prevent damage and dust.



5. Pay particular attention to inspect the mirror of the tip to ensure that the mirror is not cracked or broken and there is no scratch on it.



CAUTION

If the mirror of the tip has cracks or scratches, stop the cleaning process and contact your local distributor or service provider.

6. Gently clean the inner and outer sides of the tip using mild pH-neutral soap water and a soft brush for 3 minutes.
 - When cleaning the inner surface of the tip, insert the soft brush into the tip from both the front and rear ends, and move the brush lightly in tiny circles.
 - When cleaning the outer surface of the tip, move the brush lightly back and forth, and repeat for each side.
7. Repeat the previous step at least two more times.
8. Rinse the tip thoroughly with sterile water for at least 3 minutes.
9. If you notice stains, fingerprints, or smears on the mirror surface, repeat the previous step.
10. Dry the tip carefully with a clean soft lens tissue or lint-free cloth.
11. Pay particular attention to inspect the mirror surface of the scanner tip again to make sure that the cleaning is done properly and the mirror is not damaged during the cleaning process.
12. Wrap the cleaned tip with a cloth cautiously.
13. Place the wrapped tip in the autoclave and sterilize it at 121°C and with 1.5 atm pressure for at least 30 minutes.
14. Dry the sterilized tip for 30 minutes with the autoclave program before opening the autoclave.
15. Re-attach the scanner tip (see Attaching the scanner tip on chapter 9).

Attaching the scanner tip

There is a risk of damaging the mirror of tip if any improper actions are taken when attaching the tip to the scanner.

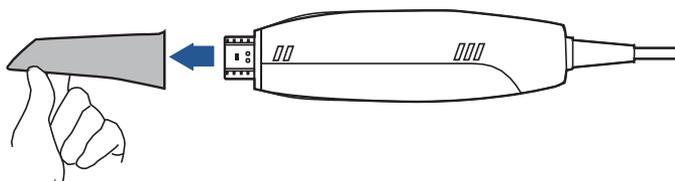


WARNINGS

- **Wear clean surgical gloves before you start.**
- **Ensure that the scanner cradle, scanner body, and scanner tip are pre-cleaned and disinfected/sterilized (see Scanner body care on chapter 9 and Scanner storage on chapter 9).**

Follow the steps below to complete the attachment:

1. Hold the scanner tip firmly with your thumb and forefinger on both sides, and then gently attach the tip facing downward to the scanner.



CAUTION

Do not place your finger(s) on the mirror of the tip when attaching as this may result in damage to the mirror.

2. Try swiveling the scanner tip around to ensure it is locked into position and stable.
3. Place the scanner in the cradle, and the set is ready for use.

Scanner storage

In case you need to transport the device, we strongly recommend that you keep the original packaging after unpacking your **Aoralscan 2**. Shipping the device without its original packaging material may cause possible product damage and result in additional service fees.

For information on temperature and humidity requirements, see “Environmental requirements on chapter 10”.

If the original packaging is no longer available or damaged, carefully package each part of the scanner with bubble wrap to protect against any possible damage during transportation.

Storage for transport

- Make sure that the scanner is clean and sterile before placing it in the original carry box/package to avoid any possible contamination.
- Place each part of the product, e.g. the tip, scanner body, cradle, power adapter, in the original package carefully and prevent kinks of the cable.
- Make sure that each cable is rolled up and tangle-free before placing it in the original carry box.
- Before closing the lid, make sure no part of the product is protruding from the package.

Daily and long-term storage

- Always place the scanner in the cradle when it is not in use.
- When the scanner tip is detached from the scanner body, always protect the subtle units and the inner optical components on the front end of the scanner by putting on the supplied protection cap.
- Ensure the scanner is clean and sterile before long-term storage.
- Avoid storing the scanner and accessories in areas of extreme temperatures or under direct sunlight
- Before storing the scanner, make sure the scanner tip, scanner body, and cradle are thoroughly dry.

Hardware specification

Specifications

Table 10-1

Type name	Intraoral Scanner
Model name	Aoralscan 2
Scanner	
Scan field	11 mm x 11 mm
Scan principle	Non-contact scanner with the (DLP) structured light
Dimension	Length: < 280 mm
	Width: < 40 mm
	Height: < 55 mm
Weight	≤ 325 g (without cable)
Output	STL, OBJ
Connector	USB 3.0
Power	Input: 5 Vdc/2 A
Cradle	
Dimension	Length: < 265 mm
	Width: < 82 mm
	Height: < 55 mm
Weight	900 ± 100 g
Power	Input: 12 Vdc/1.67 A
Product life	3 years

Environmental requirements

Operating and storage requirements

- Operating temperature: 10~40°C
- Storage/Transport temperature: -25°C~60°C
- Operating altitude: \leq 3000 M
- Storage/Transport/Relative humidity: 30%~75%
- MTBF: 14,600 hrs (except DMD/LED)
- Air pressure: 700 hPa~1060 hPa