




oral Digital Impression Instrument Operation Manual PANDA P2, Panda P2 Plus

Ziyang Freqty Medical Equipment Co., Ltd.

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First of all, thank you for choosing our company's digital dental impression machine.

Before use, please take a few minutes to read this safety warning to avoid various dangers and damage to the equipment.

- ① Do not touch the device and its plug with wet hands or other objects with water.
- ② Please connect this equipment to a power source with protective grounding.
- ③ Please avoid pulling, knotting, stepping on the cable to avoid damage to the power cable.
- ④ If there is a problem during use, please do not disassemble the equipment privately, please contact our after-sales service personnel in time.
- ⑤ The P2 probe head assembly must be cleaned, disinfected and sterilized before and after use on the patient.
- ⑥ When using this equipment, please handle it gently, and do not drop or smash the equipment to avoid damage to the equipment.
- ⑦ Please do not block the heat sink under the device.
- ⑧ Do not use this equipment in an environment where it is too hot, humid, or cold.
- ⑨ Do not touch the reflector of the probe head assembly of the device with your hands or other objects, so as to avoid staining and damaging the mirror surface of the reflector.
- ⑩ Do not touch the lens of the probe of this equipment with your hands or other objects, so as to avoid staining and damaging the lens.
- ⊖ It is forbidden to directly irradiate the eyes of the operator, patient or other personnel with the laser, so as not to cause discomfort to their eyes.

1 Equipment Introduction

1.1 Product Use

This product uses the optical scanning method to obtain the three-dimensional geometric data of dentition directly, and provides the digital three-dimensional model of CAD / CAM denture design and

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processing, which can be used in the fields of dental restoration, orthodontics and implant.

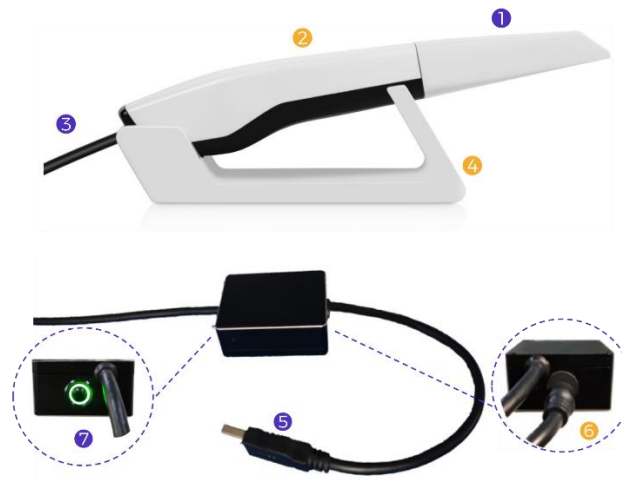
Compared with the traditional method of crown production, the Freqty impression scanner has great advantages.



ay powder when scans: improve the comfort of patients.

- ② Timely feedback: the corresponding 3D data can appear in the computer immediately, so that doctors and patients can understand the oral situation at the first time.
- ③ High precision: this product has ultra-high accuracy, the data can be directly sent to the processing factory for designing and processing.

1.2 Product Composition



- ① P2 probe head assembly
- ② Probe body
- ③ USB data cable
- ④ Probe bracket
- ⑤ USB interface
- ⑥ Power jack
- ⑦ power switch

This document applies to PANDA P2 and PANDA P2 Plus models of oral digital impression machine. The two models of product use the same version of software.

2 Computer Configuration

Necessary computer configuration

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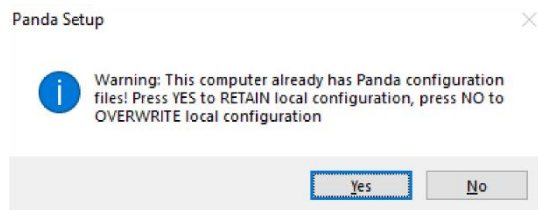


CUP	Intel i7-10870H/Intel i7 10875H Intel i711800H
RAM	16G/32G
	SSD 512G/more than 512G
	GTX1660TI/RTX2060/RTX3060
Computer operating system	Windows10*64 bit

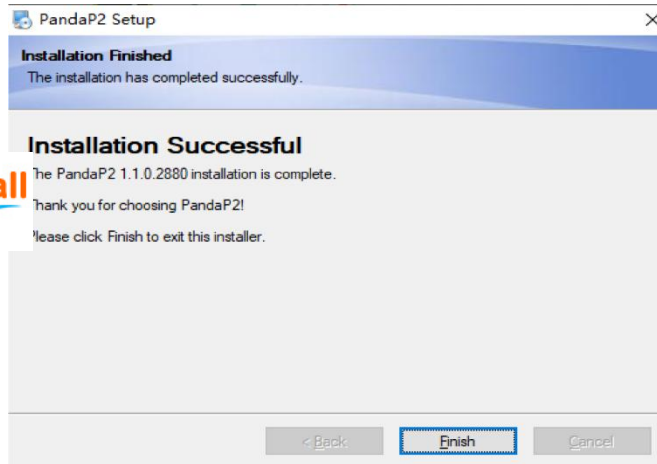
3 Software Instructions

3.1 Installation Instructions

Open the installation package > carefully read the license agreement and select agree > click "next" according to the prompts (> the uninstall is complete, click "yes" and continue installing) > complete —the installation is complete.

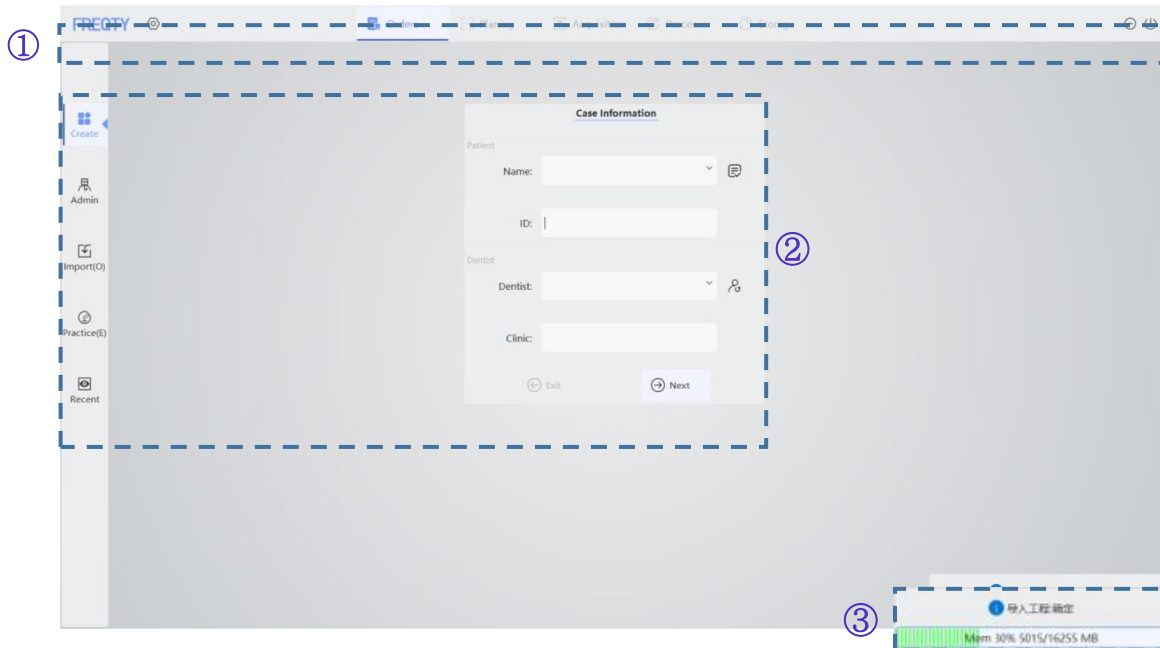


(If the user has not installed the company's software, this interface will not appear.)



3.2 Software Interface

Main Page



- ① Main menu: consists of Parameter Settings, orders Management, Scan Planning, Scan Acquisition, Model Processing and Data Storage. Click each module to enter the corresponding operation page.
- ② Display area: show the contents of each page.
- ③ Status bar: show the feedback information of each move and hints in the process of operation.



Settings button: click Settings to open the settings interface, you can set the language, format, save path, etc.



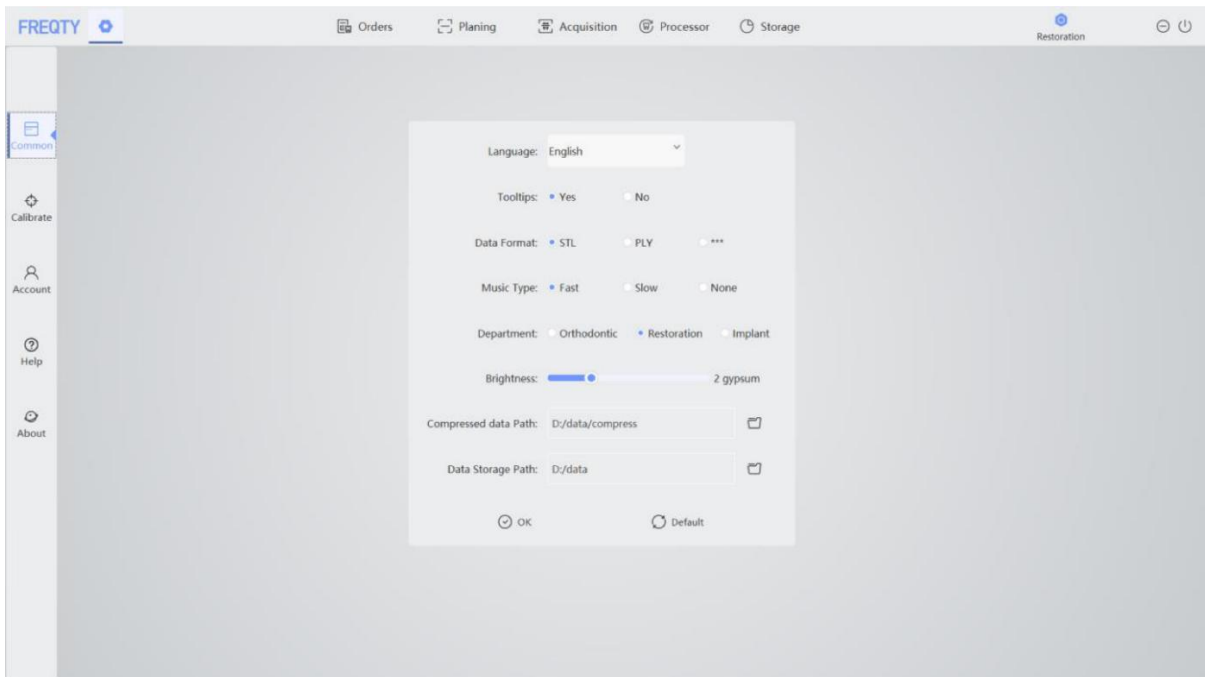
Minimize button: click to minimize the current software interface to a button on the taskbar.



Close button: click to close the software.

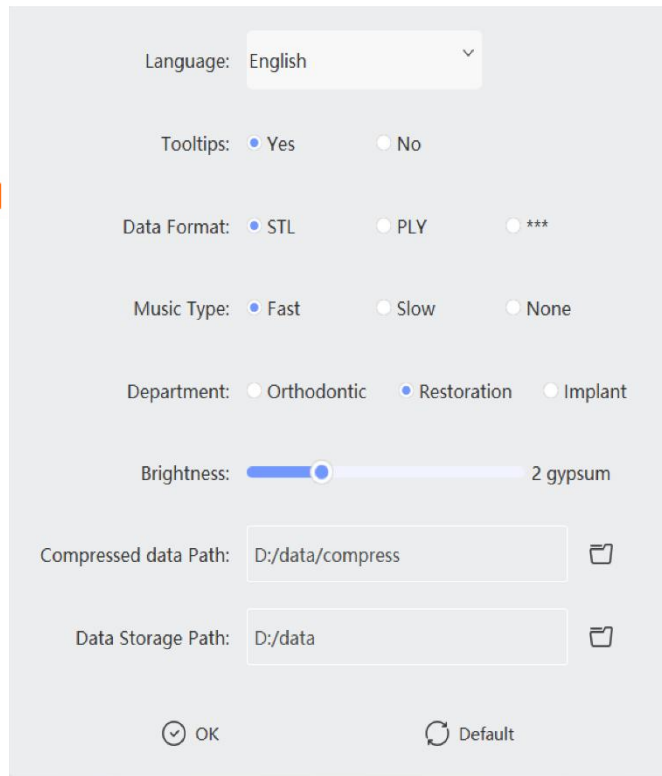
3.2.1 Settings

Software settings include system, network, registration and calibration. Click on the upper left corner to open the settings interface, as is shown in the following figure:



Common

Set some default options for scanning, including language, prompt, data format, etc.



- Language: Select different languages as you need, and only English and Chinese are supported now.
- Tooltips: Select whether to display the prompt box. “Yes” : a prompt box is displayed in the lower left corner during scanning. “No” : there is no prompt box during scanning.
- Music Type: Select the type of music when scans, and it includes three types: fast/slow/none.
- Data format: Select the default format for the output data, and there are three formats are supported: STY/PLY texture/PLY color.
- Frame Rate: Two options for the frame rate when scans.
- Path Name Format: Including eight formats for the name of the files output and users can select one as need.
- **Department:**
 - Orthodontics: no need of treatment setting.
 - Restoration: needs Treatment setting.
 - Implant: needs Treatment setting.
- **Brightness:**
 - First gear is for scanning white gypsum models.
 - Second gear is for scanning resin models and colored gypsum models.
 - Third gear is for scanning resin artificial teeth and real teeth.
- Compressed Data Path: the path to save the current compressed package project for the convenient

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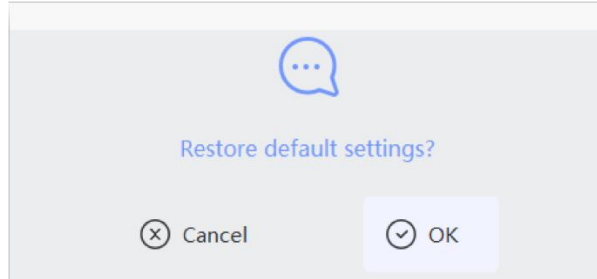
transmission of the data. The default path: “D:/data/compress” .

- Data storage path: the path to save the project data. The default path: “D:/data” .

If users need to restore the system default settings, click "Default" and the

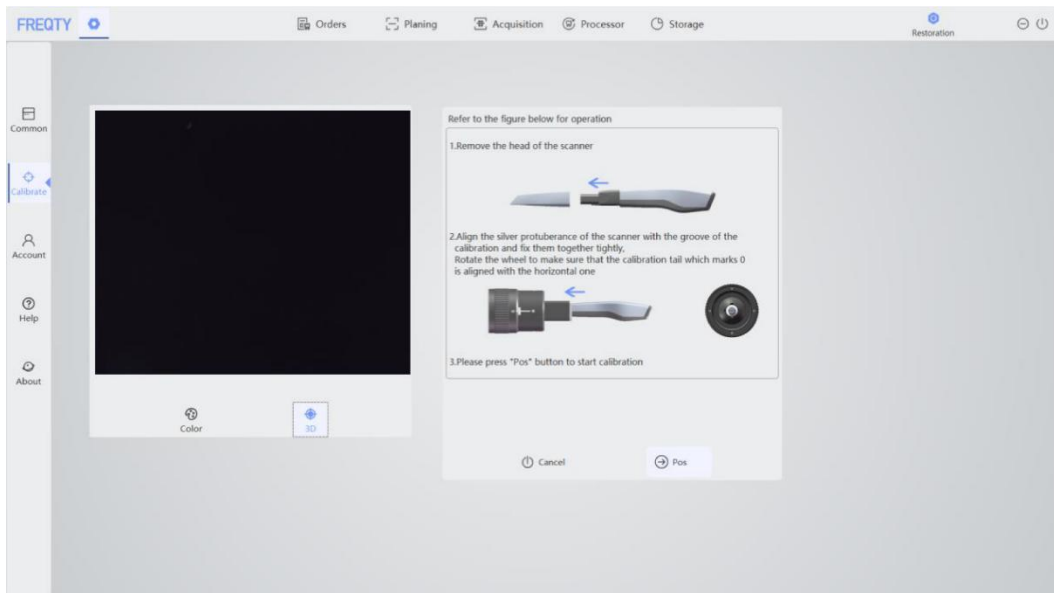


ip as is shown in the following figure.



Calibrate

When the scanner has undergone strong impact, severe temperature change or long transport, it should be calibrated immediately. Calibration should be taken regularly every 5-7 days for maintaining the accuracy of the scanner.



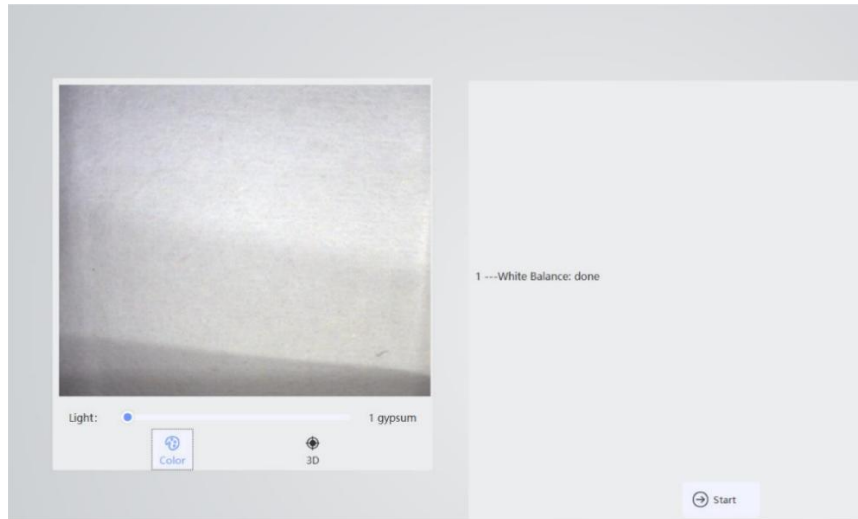
Color

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Color function is used to calibrate the color of the data. As is shown in the following picture, connect the device with computer and turn it on, then click “color” to turn the light on. Put the scanner close to the white paper (For automatic calibrator, put the window of probe head face down to the color calibration hole as image



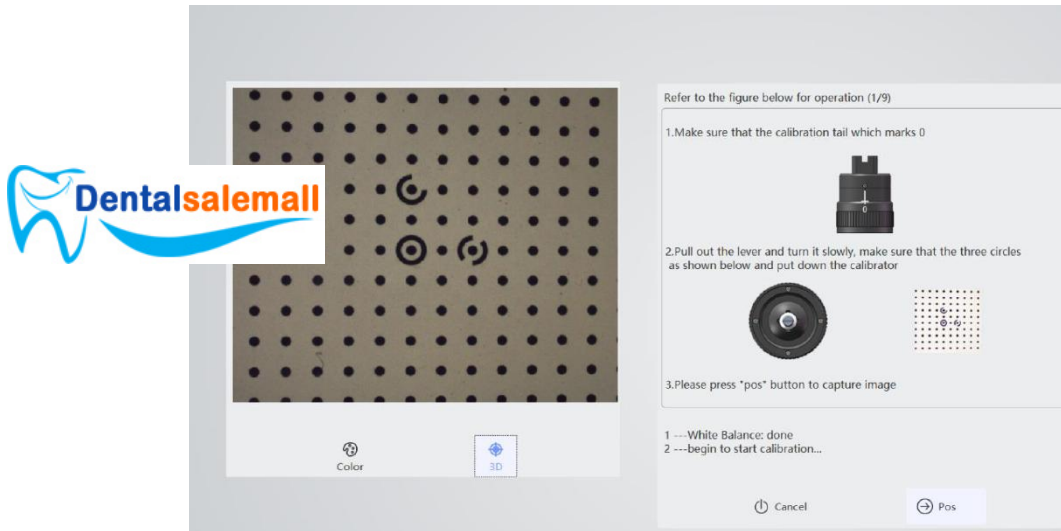
the progress, the information feedback area will display the information of the success or failure. In general, do not change it.



(image 2)

3D

After turning on the scanner, connect the calibrator, click Calibration Mode icon and start calibration mode. And the user can follow the prompts in the information feedback area. As is shown Below.



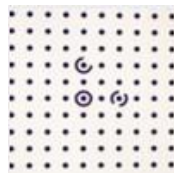
Calibration procedure

Manual calibrator calibration

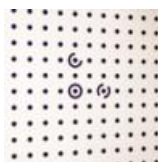
(1) Take off the probe head assembly of this product, align the silver protrusion of the probe body with the groove of the calibrator and insert it to make it tightly connected.

(2) Turn the calibrator wheel to align the "0" scale line with the horizontal scale line. Set the dial under the calibrator to the exact center; click on the position to display "start calibration".

(3) Confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and "Add position: No. 1" is displayed.

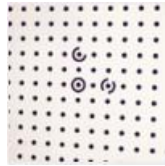


(4) Move the lever to the top, confirm that the scale line of the calibrator is aligned with the position "0", confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and "add position: 2nd" is displayed.

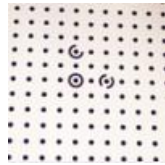


(5) Move the lever to the bottom, confirm that the scale line of the calibrator is aligned with the position "0", confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and "add position: No. 3" is displayed.

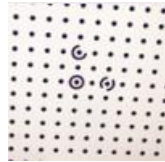
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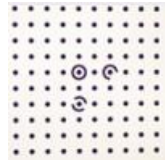
the far left, confirm that the scale line of the calibrator is aligned with the position "0", confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and "add position: 4th" is displayed.



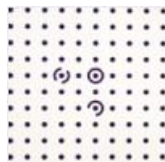
(7) Move the lever to the far right, confirm that the scale line of the calibrator is aligned with the position "0", confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and "Add position: No. 5" is displayed.



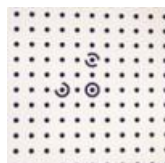
(8) Move the lever to the exact center, turn the wheel clockwise by 1 grid to align the graduation line with position "1", confirm that the three circles in the imaging frame are as shown in the figure below, put down the calibrator, click on the position, and display "Add position: No." 6".



(9) Move the lever to the exact center, and turn the wheel clockwise by 1 grid again to make the scale line align with position "2". Confirm that the three circles in the imaging frame are as shown in the figure below. Put down the calibrator and click on the position to display "Add position:" No. 7".

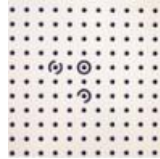
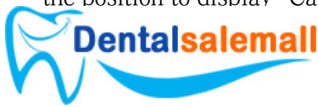


(10) Move the lever to the exact center, and turn the roller counterclockwise by 3 grids to align the graduation line to position "3". Confirm that the three circles in the imaging frame are as shown in the figure below. Click the position to display "Add position: No. 8".



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(11) Move the lever to the exact center, and turn the roller 1 grid counterclockwise again to align the scale line with position "2". Confirm that the three circles in the imaging frame are as shown in the figure below. Click the position to display "Calibration: Complete".



Automatic calibrator calibration

(1) Remove the probe head assembly of this product, and align the silver protrusion of the probe body with the groove of the calibrator and insert it to make it tightly connected.

(2) Click the position button to start calibration.

Account

User information display and system port configuration, as shown in the figure below:

A screenshot of a user configuration form. It contains several input fields: "Account Name:", "Account Space:", "Account Address:", and "System Port:" (with the value "5432" entered). Below these are two buttons: "Backup" for "System Backup:" and "Optimization" for "System Space Optimization:". At the bottom, there are "OK" and "Default" buttons.

(1) Orthodontic case sending: If you choose a third party, upload the data to the Angel of Age account; if you choose Direct, upload the data to the cloud platform.

(2) Multi-Buccal: Choose Yes, you can scan three bites to check the biting difference when scans the occlusion; choose No, then only one bite can be scanned when scanning the occlusion.

(3) ID creation: if you select automatic, the number when creates a case is generated by the system by default; if you choose self-fill, the number when creates a case is manually input by yourself.

Help

As shown in the figure below, if you need to feedback the software experience or upload bugs, you can send E-mail to support@freqty.com, or leave a message to our company's customer service on the WeChat public

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account "Fregty Technology". We will contact you as soon as possible.



Manufacturer: Ningbo Fregty Photoelectric Technology Co., Ltd

Company Website: www.fregty.com

User Feedback(E-mail): support@fregty.com

Common Problems: [web: Quick Operation Guide](#)



User Assistance: [web: User Manual](#)




Online Support(Wechat):



About

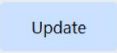
This software must be authorized before it can be used. As shown in the figure below, if the software does not have a license number and validity period, it can be regarded as expired or pirated software. Please stop using it immediately and contact us.

This software will be updated and maintained from time to time. Please pay attention to the software version number for specific situations. You can get the latest version of the software by clicking the icon  following the version number. (This function is to be opened).

User Name:

License ID:

Valid Period:

Software Version: 1.0.0.2897 

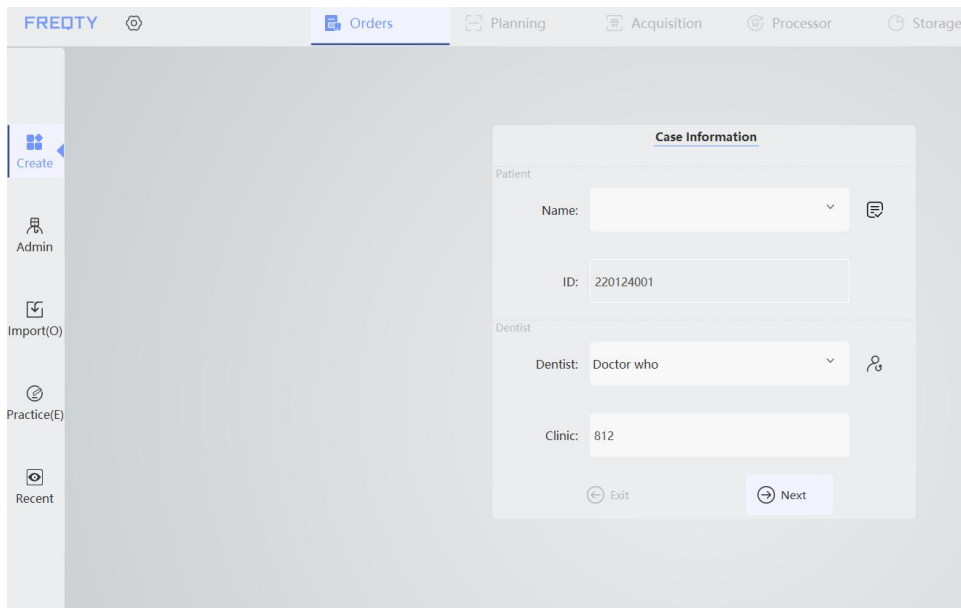
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(The software version shown is a sample diagram of the software version display, not necessarily the latest current version)



This part is for case management, and you can add, edit and view information of the patients and doctors.



Create button: click to enter the creation interface, you can create or modify dentist-patient related information.



Administration button: click to enter the administration interface, and you can view, edit dentists/patients list here, and also can manage patients' medical record information.



Import button: click to import the cases from the computer.



Practice button: you can directly enter the scan interface for exercise without creating doctor and patient information.



Recent button: click to open the recent case interface to view or open the selected case.



Create

- **Method 1 for creating patients and their cases**

Input the doctor and patient's name and ID > click   to complete data > click OK > next step——
create successfully

Case ID: Automatically generated by default (Year+ Month+ date+ Self-increasing serial number).

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The screenshot displays the PANDA P2 software interface. At the top, the 'FRETTY' logo is on the left, and navigation tabs for 'Orders', 'Planing', 'Acquisition', 'Processor', and 'Storage' are on the right. A sidebar on the left contains icons for 'Admin', 'Import(O)', 'Practice(E)', and 'Recent'. The 'Dentalsalemall' logo is overlaid on the left side. The main area shows a 'Case Information' form with fields for Patient Name (A), ID (0120001), Dentist (dentist1), and Clinic (clinic1). Below this, two expanded forms are shown: 'Dentist' with fields for Clinic, Name, Phone, and Notes; and 'Patient' with fields for Name, ID, Gender (Male, Female, Not specified), Age, and Notes. A 'Storage' button is visible on the right. A dashed blue line indicates the flow from the main form to the expanded forms.

- ▼ Drop-down button: display the name and ID of the patient of the last five cases.

After selecting any existing patient in the drop-down list, if any information is modified in

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this interface, it is considered to create a new patient. (If it is modified in the right extension window, it is considered to modify the patient.)

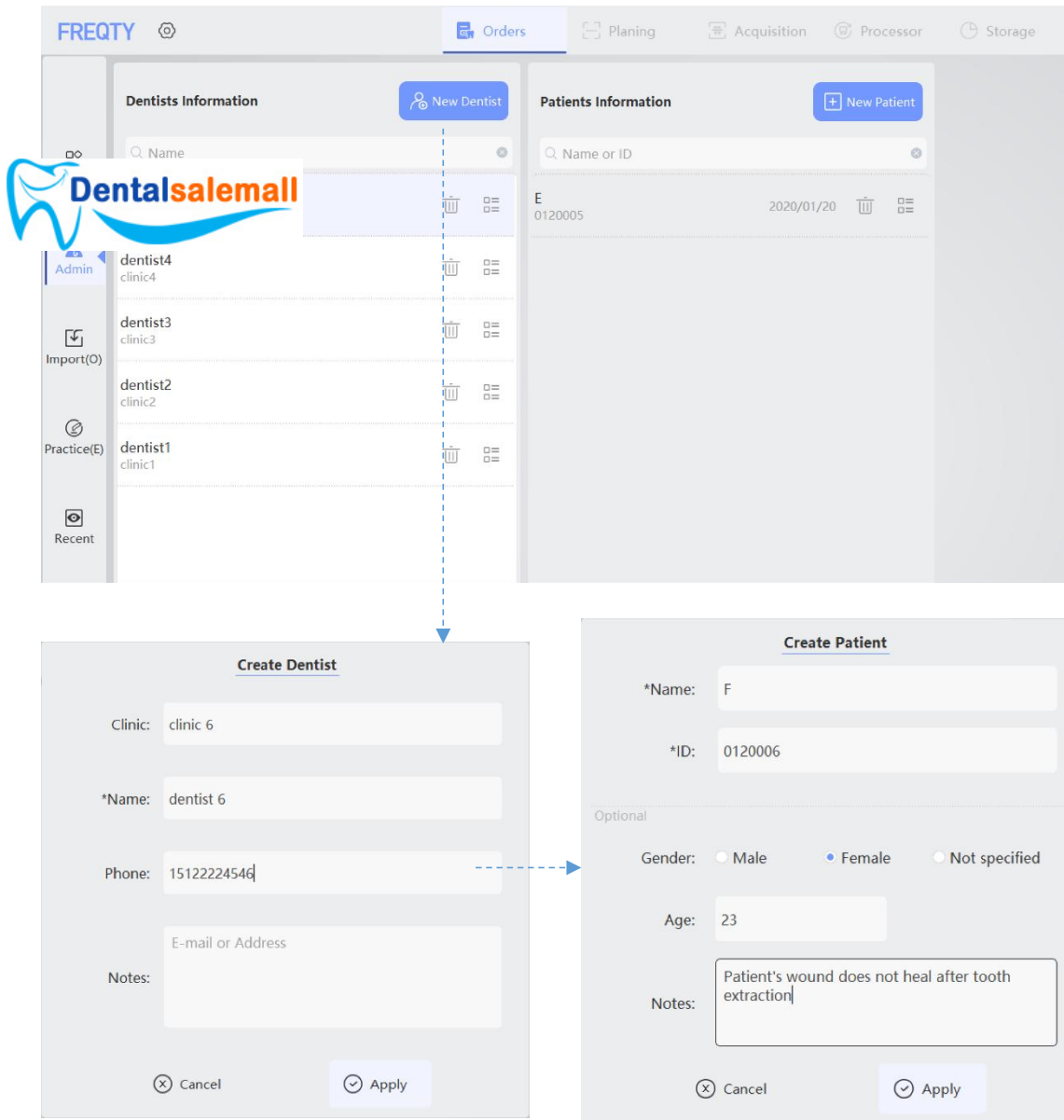


Admin

- **Method 2 for creating doctors and patients.**

Click New Dentist >> fill in doctor information and apply >> fill in patient information and apply ——
create successfully

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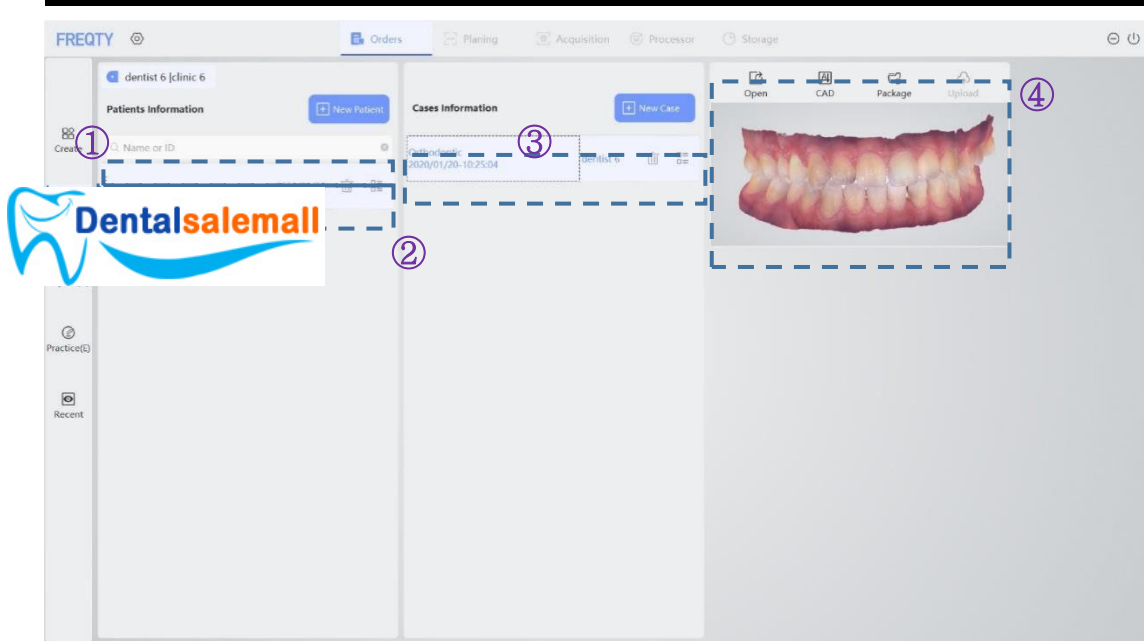


The "Tab" key is to switch the edit column.

- **Open the existing medical record information**

Select a doctor >> click to view the patient >> click Open — Open successfully

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- ① Search: search the doctor / patient information through the keyword (Doctor name / number).
- ② Patient basic information: including patient's name, ID and creation time.
- ③ Patient medical record: including patient scanning scheme, doctor and creation time of this diagnosis and treatment information.
- ④ Detailed function area: load the two-dimensional data in the patient medical record for viewing.



Delete button: click to delete the selected doctor/patient/medical record information.



Expand button: click to view the details of the changed patient or doctor.



Open

Open button: click to enter the processing interface to view the existing 3D data.



CAD

Design button: view data and design in EXO CAD



Package

Package button: package the data and open the location of the folder where is located.



Upload

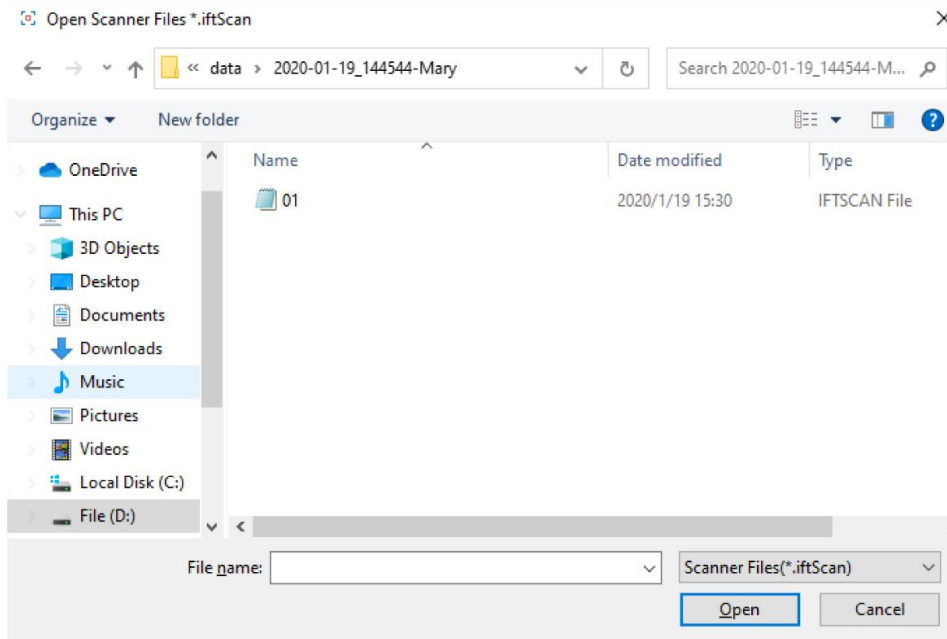
Upload button: upload the current data to the network. (This function is to be open)

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Import



- at the folder of medical records to view >> open the corresponding IFTSCAN file —
- successfully imported



Practice

- **Click to enter the scan interface directly for exercise without creating doctor and patient information.**

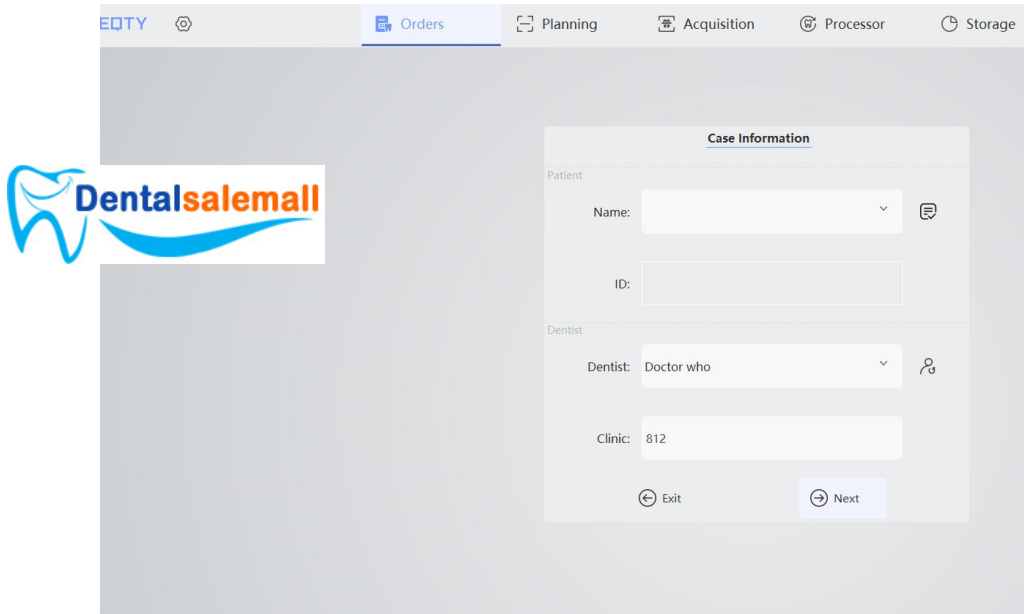
Click Practice >> enter the acquisition interface >> scan the teeth.

Under this mode, the data can only be processed in a simple way and cannot be saved.

- **Exit the Practice Mode:**

Click the “Orders” module, and click “exit” on the left bottom of the “case information” form” .

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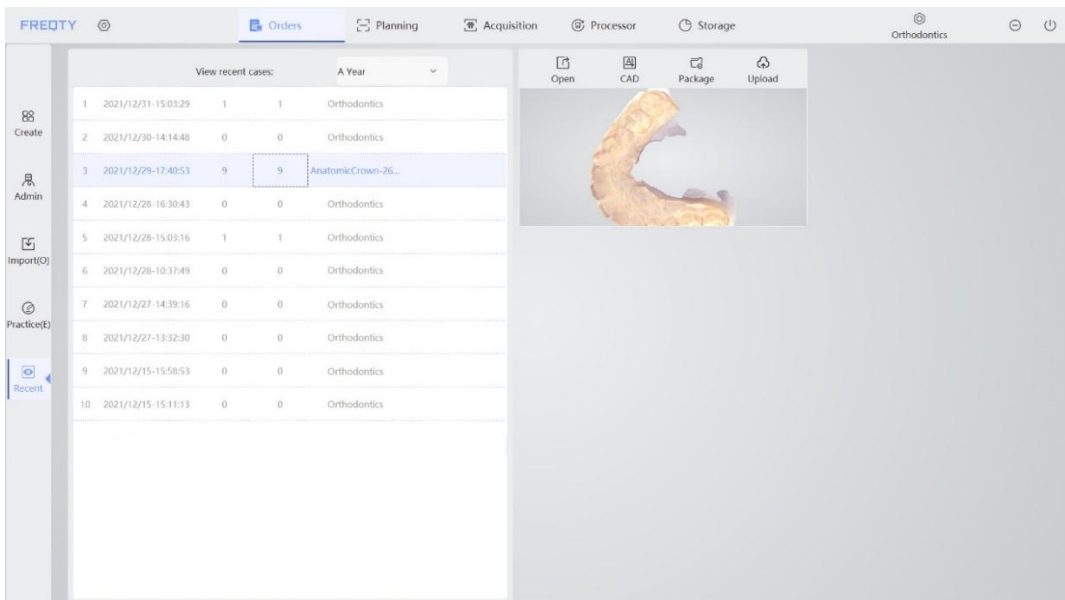
Recent

- View cases within the last 7 days/month/year.

Uncompleted cases after quick scanning can be automatically processed by clicking "Processing" in the "Recent" interface.

The "red dot" indicates the number of cases that need to be batched after a quick scan.

The Handle button is hidden when there are no cases to handle.

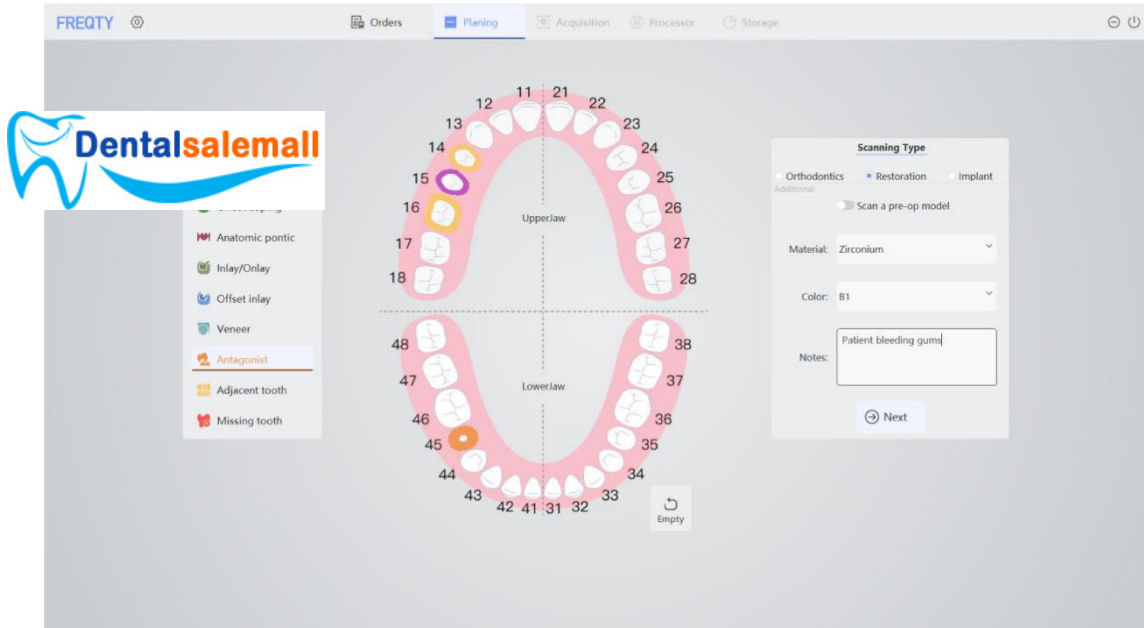



3.2.3 Planning


Planning selection


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Select tooth number >> select scanning type >> fill in information >> click next —successful selection



 **Empty** **Empty button:** click to empty all the selected teeth (click the selected tooth to cancel the selection).

 **Orthodontics** **Orthodontic mode:** just need to fill in the note.


 **Restoration** **Restoration mode:** fill material, color, remarks. You can choose the pre-preparation scan function.

 **Implant** **Implant mode:** fill the implanting brand, material, color and remarks.

Pre-preparation scan: after selection, the dentition before preparation and the abutment after preparation can be scanned. This procedure is only used in cases where the shape after repair is required to be consistent with that before repair.

Note: After the backup tooth scanning is selected, the occlusal displayed on the scanning image acquisition interface is the occlusal displayed before the backup tooth, and the occlusal displayed on the model processing interface is the occlusal displayed after the backup tooth

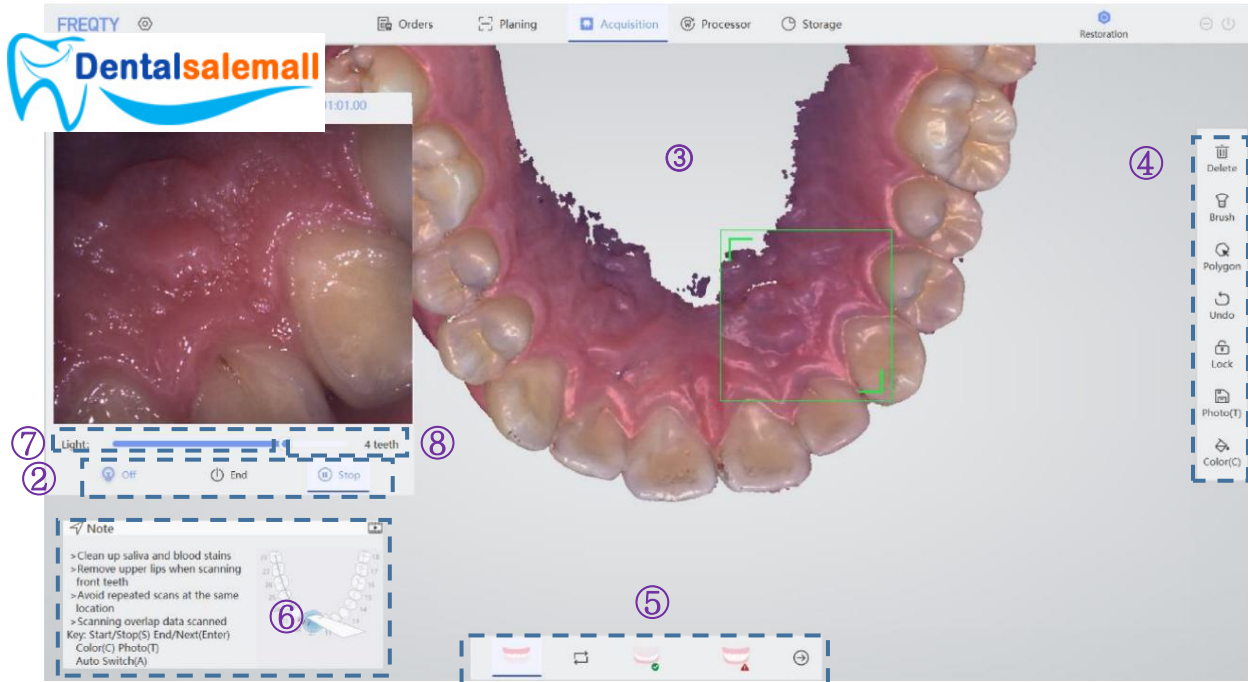
3.2.4 Acquisition

 Acquisition Page

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- Scan the upper and lower jaw

Click open (S) to open light >> click start (S) to scan >> click end (Enter)-scan ——completed



1、Detailed explanation of the image label area

① Two-dimensional real-time display area: Displays the real scanning situation in the port, prompting the number of scanned frames and the scanning time.

In this area there is the **A** Smart Clean Soft Tissue Switch Button and the **H** Black/Smoke Teeth Enhancement Scan Switch Button:

- - Blue during scanning: indicates that a smart scanning / h enhanced scanning has been enabled. Enabled only in 2nd and 3rd gear.
- - Black during scanning: indicates that a smart scanning / h enhanced scanning is not enabled. You can pause scanning, then click "a" / "H" on the keyboard to enable this function, and then start scanning.
- - Gray during scanning: indicates that it cannot be used. When it exists in the first gear, that is, the gear has no a intelligent function.

② Scanning control area: control the start, pause and end of scanning.

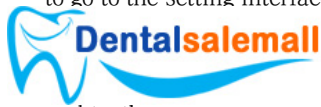
③ Scanning display area: displays the data scanned in the mouth. This area has the following operations:

- - Data control: after clicking data, the left mouse button controls data rotation, the mouse wheel controls data scaling, and the right mouse button controls data translation.
- -Scanning missing data: when missing data is detected, return to the scanning image interface, click start, and then scan the missing data location.

④ Auxiliary scanning tool area: provide auxiliary tools for data inspection and modification.

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- ⑤ Tooth and jaw selection area: select the area corresponding to the tooth and jaw position for scanning.
- ⑥ Prompt area: users can operate according to the prompt content. If you want to close this interface, you need to go to the setting interface to close it.

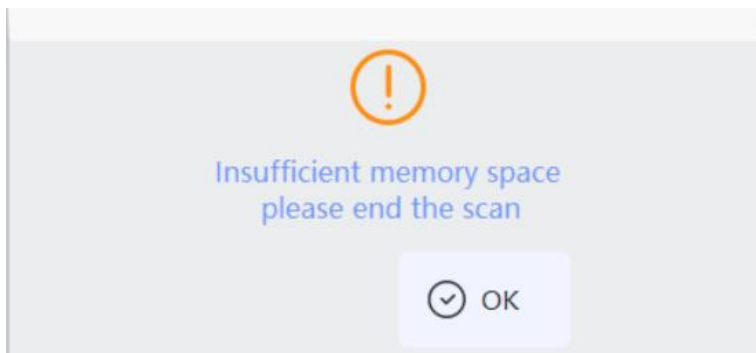


Area: 1-3 gears; 1st scanning gypsum model, 2nd scanning resin model, 3rd scanning real teeth.

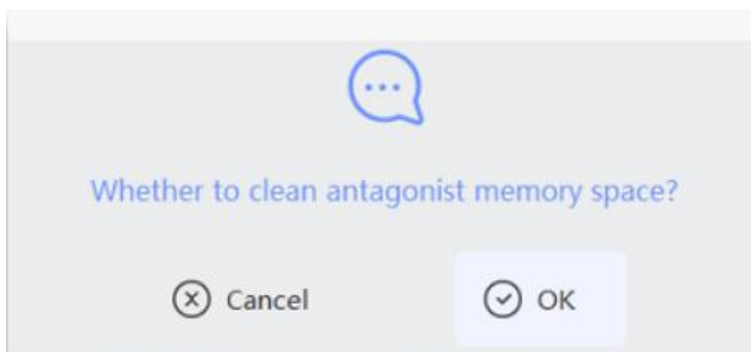
- ⑧ Depth of field selection area: 1-3 files; Shallow, medium and deep gears respectively; If deeper scanning is required for image acquisition, use deep gear.

2、 Insufficient memory

- (1) Insufficient memory is prompted when scans for image, as shown in Figure 1 below. It is necessary to immediately process the model and then come back to continue scanning.



- (1) Insufficient memory is prompted during supplementary scanning, as shown in Figure 2 below. After selecting [OK], the jaw will be processed automatically and the cached data will be cleared. The cleared jaw cannot be scanned again. After [Cancel] is selected, the current jaw cannot be scanned again.



3、 Scan Music:

The music will play normally during scanning, the volume turns down when scanning is interrupted, and the

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music stops when scanning is paused or finished.

Notice: - H black tooth/smoke tooth enhancement scanning mode is only used for supplementary data.



After the contour needs to be scanned normally, supplementary scanning shall be carried out for the smoke teeth where the data cannot be scanned.

-There is no need to turn on H mode for smoke teeth without black teeth.



Delete button: Click Delete to delete the whole jaw and make it replaced by the background color.

Brush button: After clicking, the mouse becomes a brush, and the swept part of the brush is replaced by the background color.



Polygon button: After clicking, the mouse changes to a multilateral shape, and the circled closed area is deleted.



Lock button: After clicking, you can circle a closed area. The circled area will not be affected during scanning.



Undo button: Click once to restore the previous state of this operation, and click again to restore all.

Save button: Saves the image of the current 2D imaging frame.



Color button: Click to switch the current 3D data between true color and gypsum color.

Upper jaw button: Click to enter the maxillary scanning interface for relevant operations.

Lower Jaw button: Click to enter the jaw scanning interface for relevant operations.



Buccal button: Click to enter the bite scanning interface for relevant operations.



Switch button: Click to swap upper and lower jaw.



Next button: Complete the scanning operation and enter the model processing.



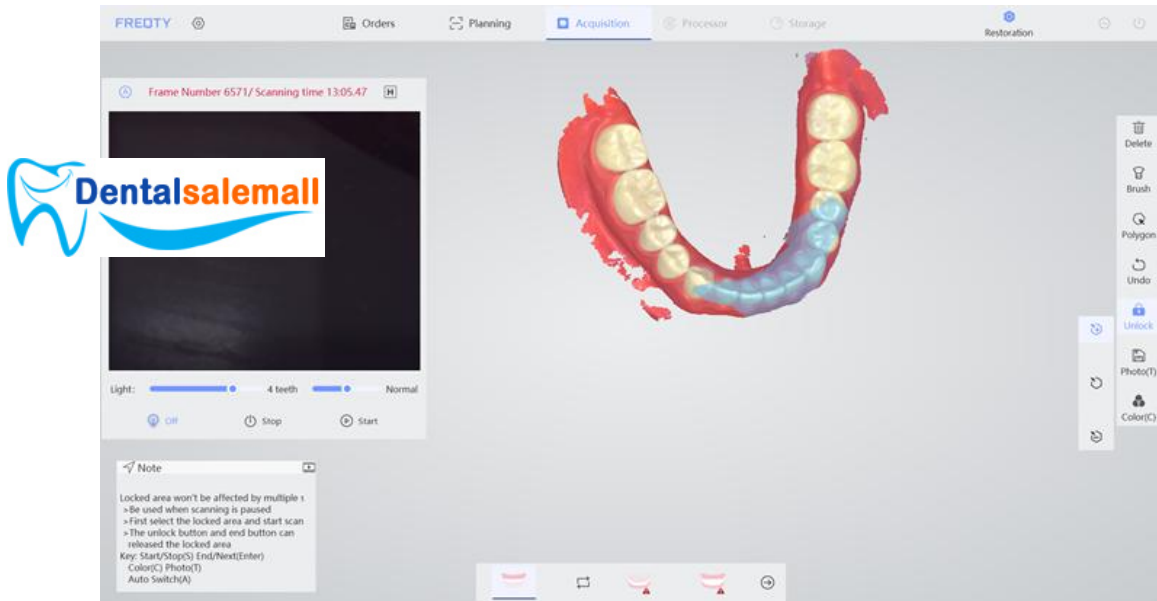
Clean button: Automatically clean up redundant data and use it at the end of scanning.

● Lock function

It is used to protect areas that do not want to be changed during scanning. It is used when scanning is paused.

Start scanning > scanning pause > click "lock" > circle 0 target area > continue scanning > scanning end

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Radio button: one area can be circled at a time, and only the last selected area will be retained for multiple circle selections.



Multi-select button: multiple circle selection to save all selected areas.



Remove button: circle the locked area to unlock the corresponding position.

Notice: The lock function can only be used when scanning is paused.



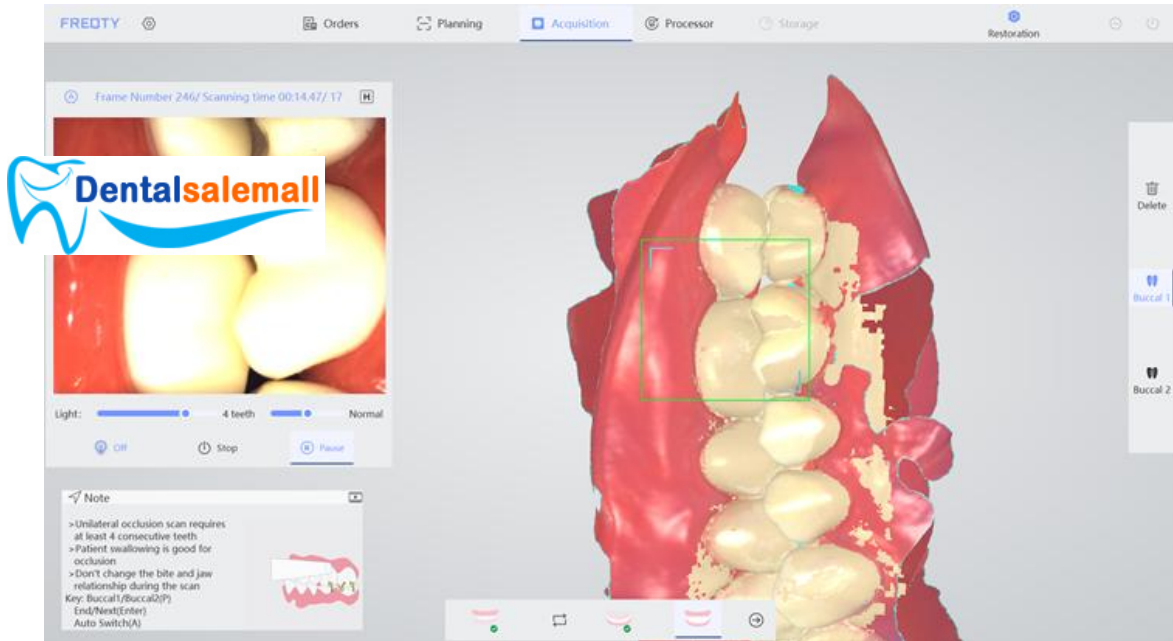
- Start scanning after selecting the locked area.
- The unlock button and the end button can release the locked area.

● Bite scanning

After the Buccal scan is registered, the color becomes light yellow


Click Start (S) to scan >> Scan occlusal point 1 (>Scan occlusal point 2)>Successful occlusion-scan completed


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 **Delete** **Delete button:** Click to delete the current data.

 **Buccal 1** **Bite point 1:** After clicking, switch to bite point 1 scan.

 **Buccal 2** **Bite point 2:** After clicking, switch to bite point 2 scan.

 **Quick scan button:** Use when you need to scan quickly, click to enter the create new case interface, and then the user can perform batch model processing in the "recent" interface.

 **Notice:** -Quick scan button: Use when you need to scan quickly, click to enter the create new case interface, and then the user can perform batch model processing in the "recent" interface.

- When there is no bite data, click the quick fusion button to get into next step.
- If you need to process quickly scanned cases in batches, users can click the "Recent" button in the left navigation bar of the software main page, enter the recent case interface and click "Process" to automatically process the cases.

Data scanning method

- **Intraoral operation principles**

- ◆ The scanning distance is constant, and you should not be too far or near.

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- ◆ Using fulcrums for intra-oral operations to ensure uniform and stable scanning.
- ◆ Please scans the occlusal surface first to determine the dental arch and then come back to scan the details.
- ◆ The current scan and the scanned data are multiplexed to confirm that the data is complete.

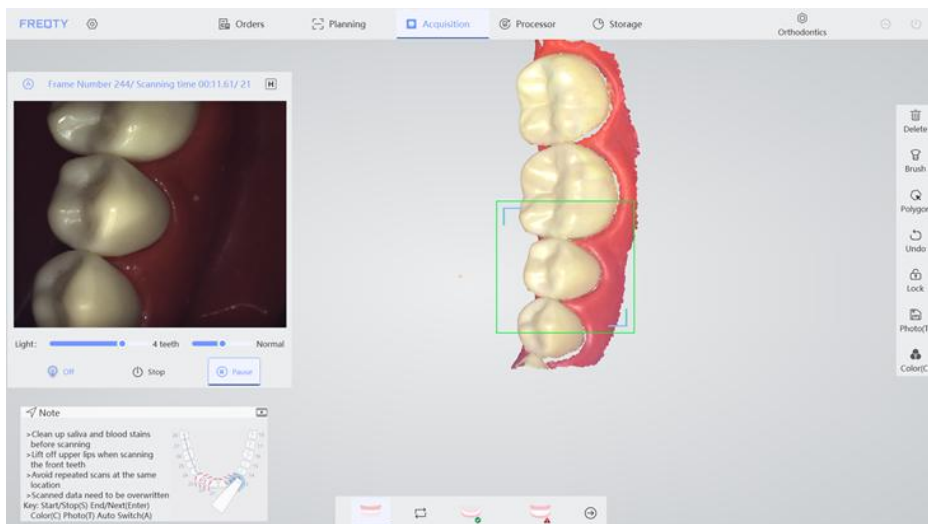


Upper Jaw and Lower Jaw scan

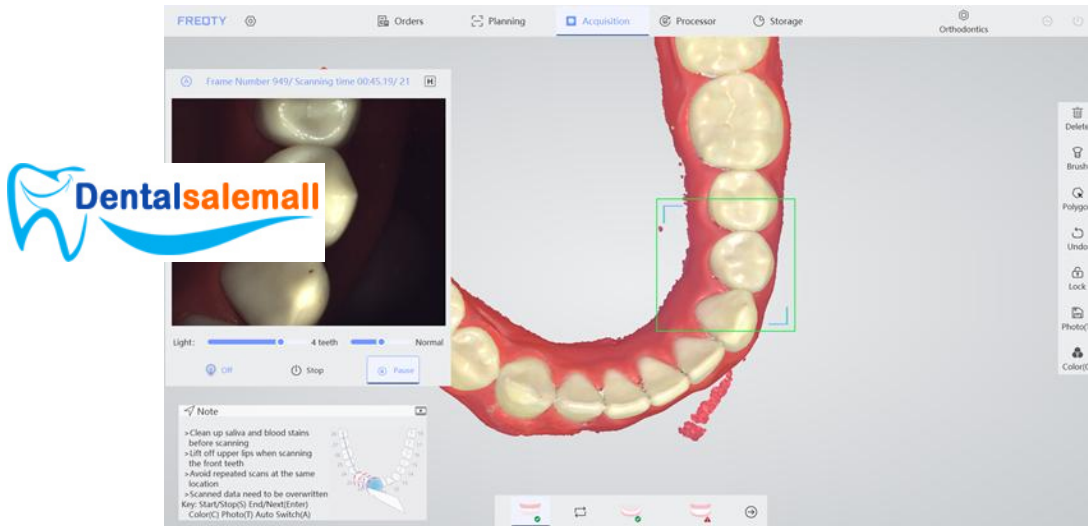
- ◆ Recommended grip position: pen-holding style
- ◆ Scan distance: 2mm~5mm
- ◆ Initial scan position: scan from the occlusal surface, and parallel to the occlusal surface, scan along the curvature of the dental arch;

Notice: When starts to scan, the probe is facing the occlusal surface, do not tilt the probe to scan the data!

- ◆ Scanning path: occlusal surface→tip of tongue/tongue surface→tip of cheek/lip surface→compensation of scan gap
- ◆ Scanning steps:
 - ① Place the scanning head directly on the posterior occlusal surface and start scanning.
 - ② When reaches the position of No. 3 tooth, the probe is tilted to the labial and cheek side, and the labial data and incisional data of the anterior teeth are collected at the same time.
 - ③ After crossing the midline, the probe slowly turns to the palatal side to collect lingual/palatal data, and from the palatal side to the opposite side, collect data on the contralateral commissure until the posterior teeth.
 - ④ Turn to the tongue/palate side to collect the palate side.
 - ⑤ Turn to the buccal side and collect data on the buccal side. After reaching the midline, take this product out of the mouth and place it on the opposite posterior occlusal surface. After repositioning, turn to the buccal side slowly to collect the buccal data completely.



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Notice: -Clean up saliva and blood stains before scanning



- When scans the front teeth of the upper and lower jaw, the lips need to be opened
- When scans the lip and tongue side, it is necessary to cover the cutting end data to avoid repeated scanning of the same position

- **Bite scanning:** When scans the occlusion, you need to scan 1 to 2 occlusal points to determine the occlusal relationship. When scanning the occlusion, if it is a full mouth, you can scan an occlusal point on the left and right cheeks; if it is a half mouth, you can scan an occlusal point directly.
- ①The patient clenches the upper and lower jaws (doing swallowing movements) and keeps them still;
- ②Place the probe on the buccal side of the patient, slowly move forward in an "S"-shaped path between the upper and lower jaws, take 4 teeth, and match the upper and lower jaws; then click the "S" button to pause and switch to the second bite point, move forward slowly in an "S"-shaped path between the upper and lower jaws, take 4 teeth, and click Enter to finish the upper and lower jaws.
- **Point switch:** After scanning one bite, pause the scan and switch to the second bite point. Switching bite point can be realized by quick "P".
- **Planting scan:** When the selected treatment plan scan plan is implant, there will be two types as shown in the figure below in the dental jaw selection area: dental jaw scan and scan bar scan.



- Implant working jaw: first remove the healing cap and scan the working jaw where the cuff is located.
- Implant scan body: put on the scan body, and then only need to scan the data of the scan body completely,

without scanning other data.

When the scan is completed, a small green check mark will appear in the lower right corner of the icon; when it is not scanning, the icon remains unchanged; when data are missed, a red exclamation mark will appear in the




Note: -The bite relationship of the patient must remain the same during the buccal scan,



and the swallowing action is good for the bite relationship.

-Before processing model, please use editing tool to remove extra data.

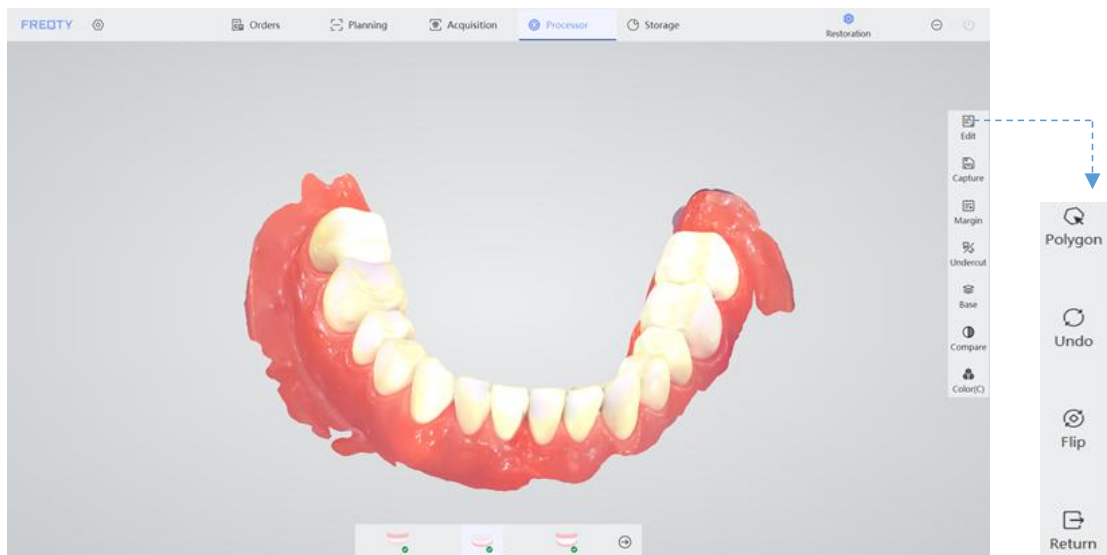
3.2.5 Processor

After the scan is finished and extra data are removed, please click  or the “Enter” to enter the model processing interface, and the scanned model will be processed.

Processor Page

- Upper/lower jaw interface

Click the maxillofacial selection button below the interface to switch the maxillofacial surface.



Edit

Edit button: click to enter the editing function area, including circle selection, restore, flip, return and other functions.

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Polygon button: after clicking, the mouse will become polygonal, and the circled closed area will be deleted.



Undo button: click once to restore the previous state of this operation, and click again to restore all.

Flip button: convert impression data into normal 3D data.



Clean button: it will clear the extra data automatically, and can only work when the scan is finished.



Return button: exit the current editing ribbon.



Capture button: capture the three-dimensional data of the current interface and save.



Margin button: click to mark the cervical margin of the selected tooth position.



Undercut button: click to check the concave situation from various directions.



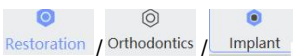
Base button: add the base for the data model; click the button again and cancel the base.



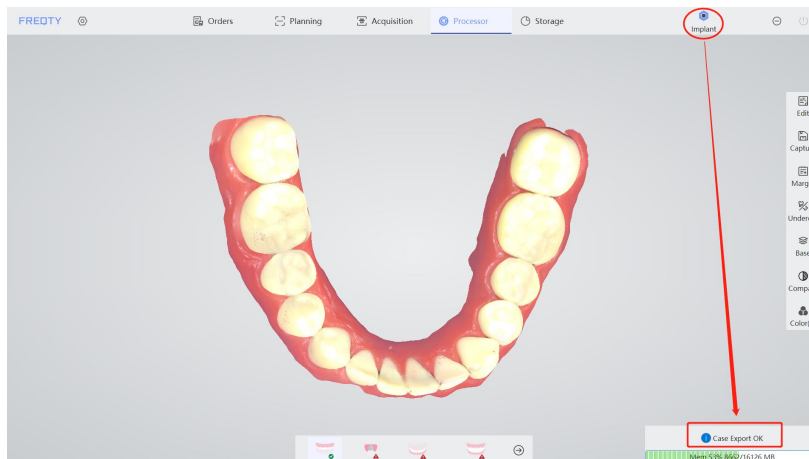
Compare button: you can select the target data to compare with the current model data and calculate the error.



Color button: Switch to gypsum or real tooth color.



Save button: This save function only exists in processor mode. Cases from import and batch processed does not have such save function.



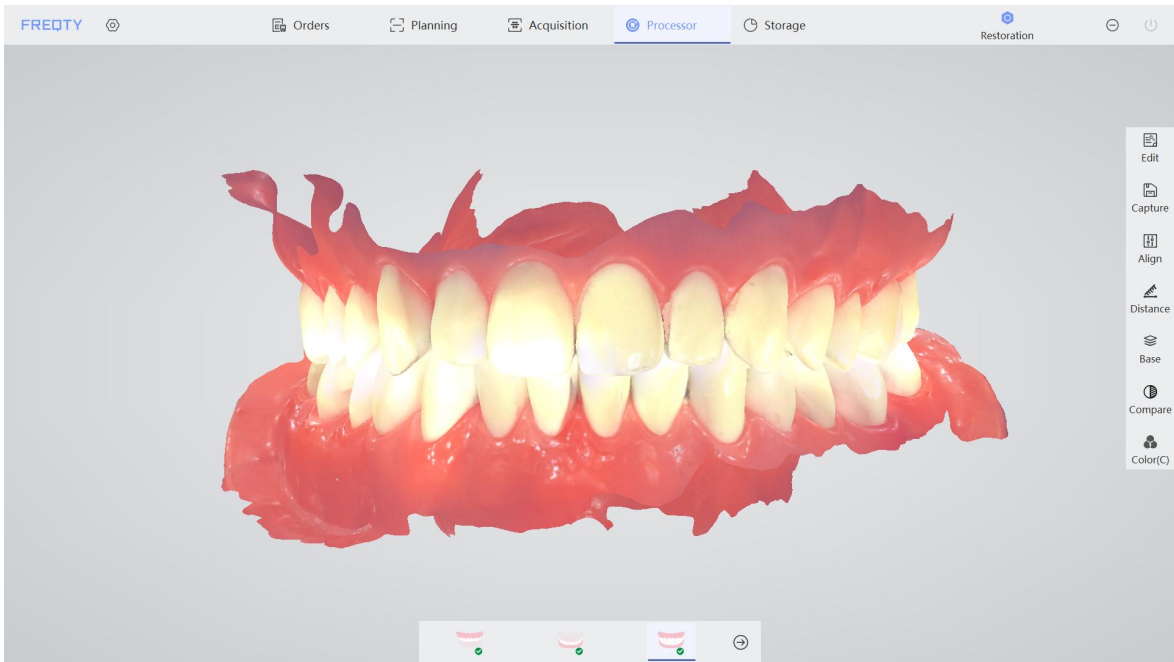


Note: –Hold down the left mouse button to rotate the current 3D model.

–Hold down the right mouse button to move the current 3D model.

–Scroll the mouse wheel to zoom in and out the current 3D model.

● Bite interface



Align

Align button: manually register the bite relationship.



Distance

Distance button: check the occlusal distance of the current model data.

● Button function introduction

● Margin

The cervical margin confirms the position of the shoulder edge by drawing the margin line, which provides a guidance basis for subsequent data processing, as is shown in the figure:

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Adjustment button: click to adjust, the cervical margin line is displayed in the form of small dots, drag the small dot to change the cervical margin line.



Clear button: click to clear, remove the cervical margin line of the selected tooth position.

Step 1

Hold down the left mouse button to draw the neck edge line in the abutment shoulder.

position.

Step 2

Click the "Trim" button, the margin line appears a lot of points, the left mouse button to select the need to adjust the position of the point, you can fine-tune the position of the margin line.



- Click the "clear" button to clear the currently marked line.
- When multiple teeth are restored, directly click the tooth number ID to switch the teeth position.

After finishing marking margin line, click the "Margin" again, and the data will be saved and the corresponding neck line data file is generated in the default save path. When the data is designed, the

marked neck line can be displayed after the file and the scan data are imported into the dental CAD software at the same time.



Double-click the model data to enlarge the position clicked.

- Only by selecting teeth in restoration mode can you use the margin function.
- Click the shortcut key C to switch to plaster color to help the margin mark.

● Undercut

Click the “Undercut” to check the undercut at different perspectives. The undercut area will be marked with gradient color.

Step 1

Adjust the data model to the point of view that needs to be observed.

Step 2

Click the “Undercut” button to view the concave condition. Hold the left mouse button to rotate the model data. Release the mouse and click the left button again to turn the data model to adjust the observation direction. Double-click to zoom in on the tooth. The direction of the arrow represents the current observation direction.




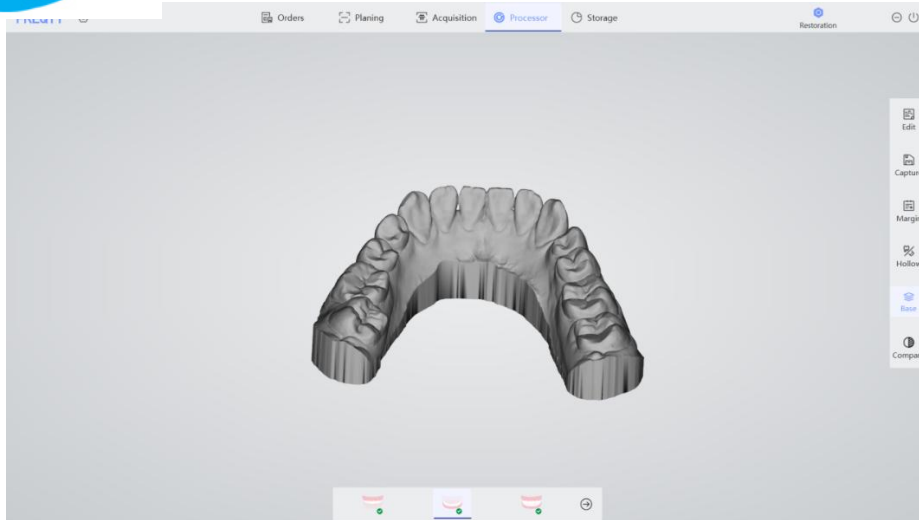
Freezes button: Click freezes to fix the angle of observation.

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● Base

Preview function to add a base to the data model, as is shown in the figure. Clicking again to cancel the

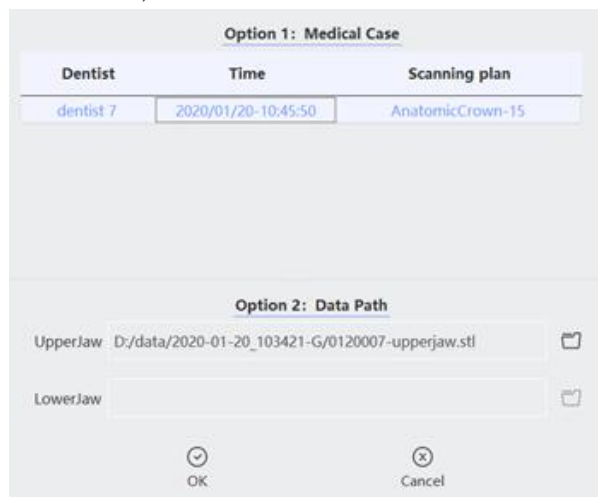
base. When the data is saved in “Storage” page with the “base” slider on (which is above the “notice”
d will be consistent with the base style of the current preview.



● Compare

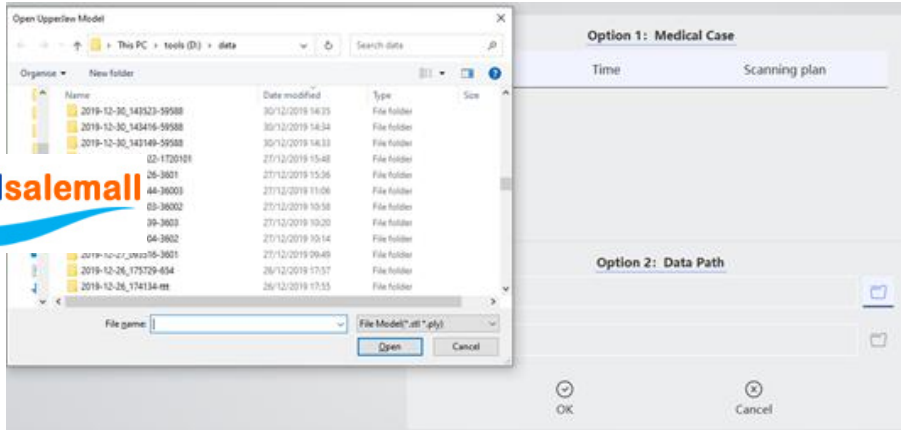
There are two ways for selecting the models to be compared.

- The first way is selecting the current historical case of the patients to get the data to compare. Double click the treatment history in Medical Case, and click the “OK” button to make a comparison.



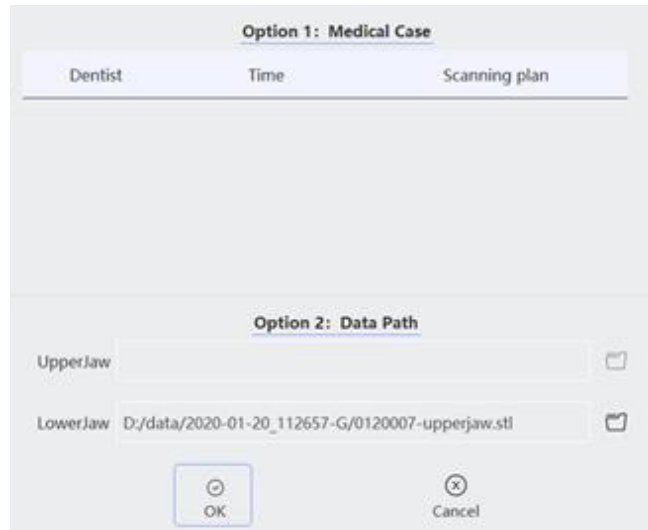
- The second way is directly selecting the data from the storage path, and click “Confirm” after selecting.

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Step 1

Click compare, select the object to be compared (patient-related medical records or upper and lower jaw storage path), and click "Confirm". As is shown below.



Step 2

Enter the model alignment interface, using direct automatic alignment or three-point alignment, and click "OK". As is shown below.

Direct alignment: the alignment interface is determined directly, and the software automatically carries out.

Three points alignment: select 3 distinctive points in corresponding places in the current standard data. And click "OK" to start.

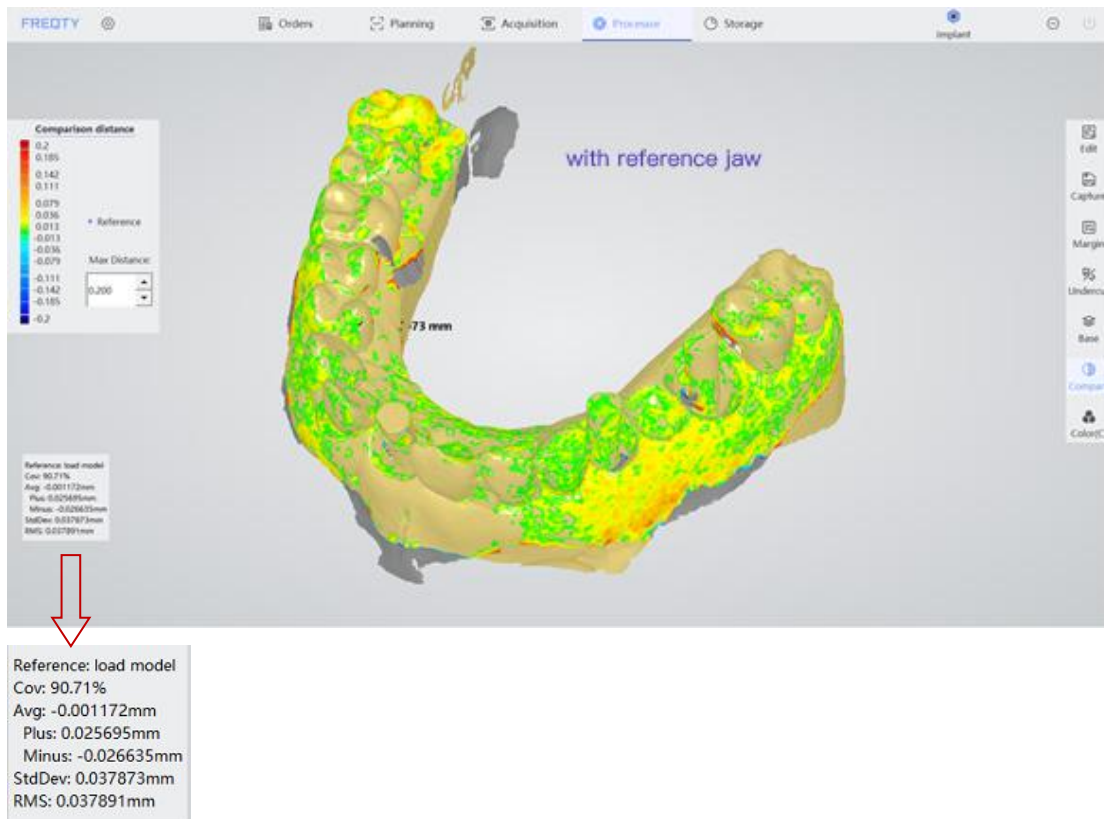
Unselect points: for unselecting some selected point, double click while pressing "Ctrl". For unselecting all the selected point, click "Reset" to clear all the points.

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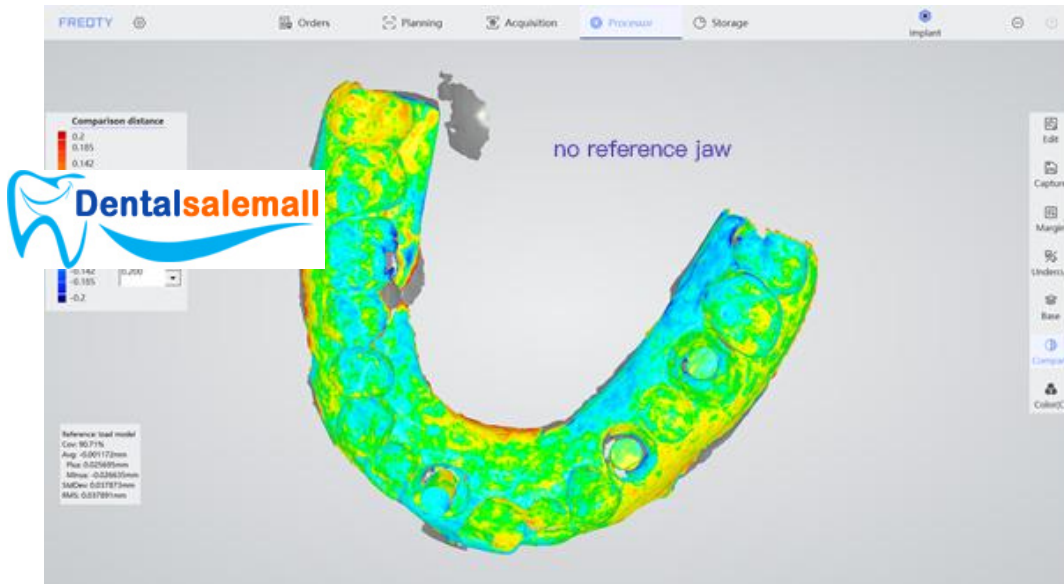


Step 3

After selecting, users can check the comparison results, as is shown below. The middle is the result of the alignment between the current model and the selected standard model. The left side is the maximum distance setting area. The different distances within the maximum distance are displayed in different colors. The lower left corner of the page is the calculated coverage and the Accuracy.



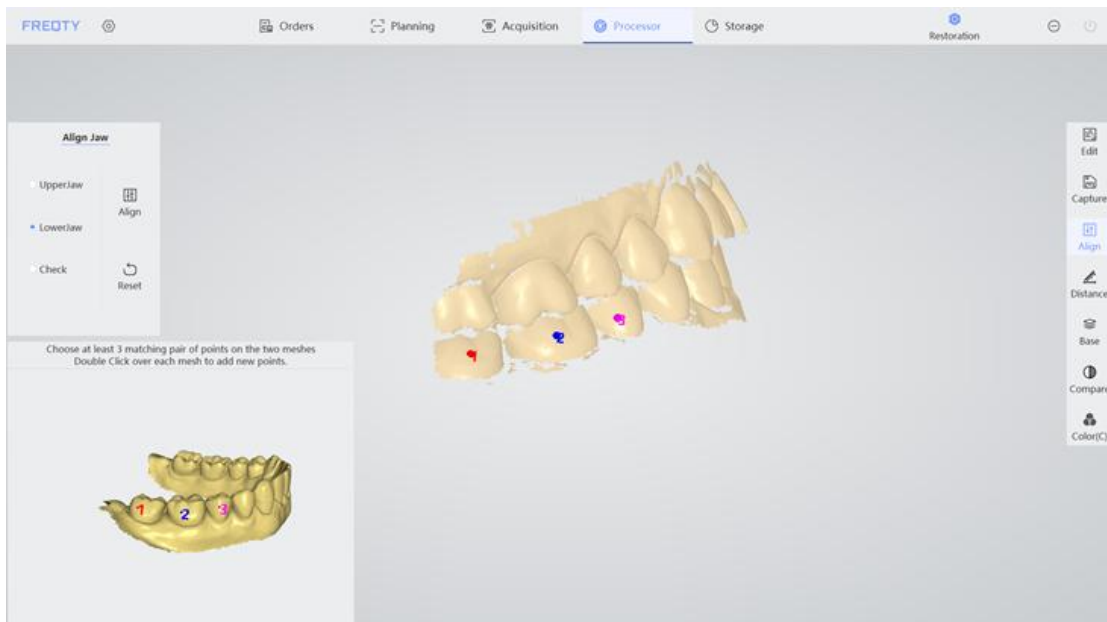
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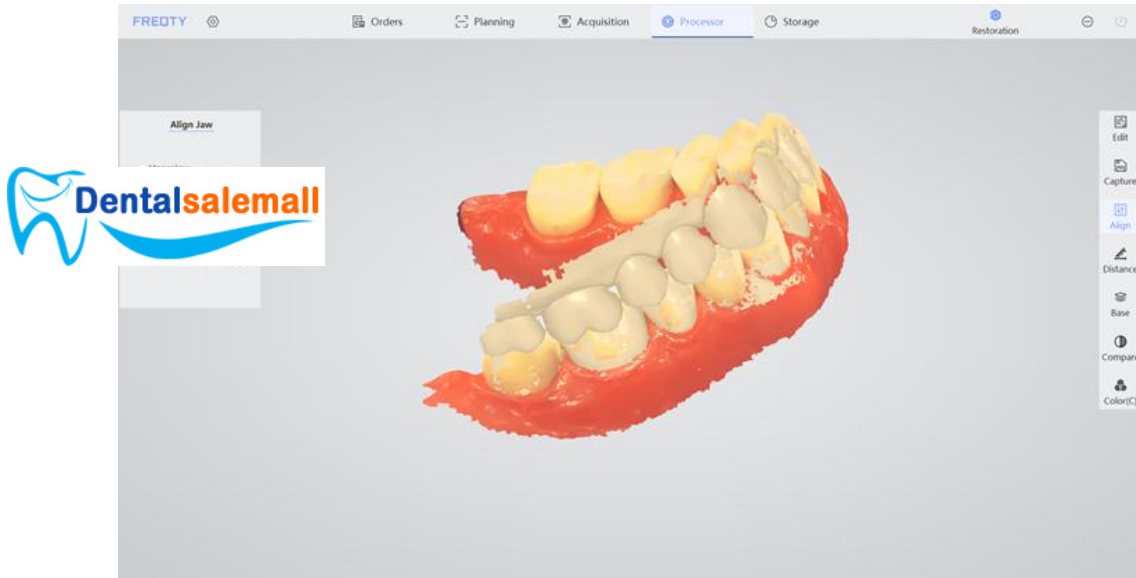


● Align

Recalculate the current occlusion relationship.

As is shown below, after the selection is completed, the middle zone is the bite registration data display area. The left side is the selection of upper / lower jaw, and the currently selected upper/lower jaw model data in the lower left corner.





Step 1

Click the “Align” button to enter the alignment interface.

Step 2

After selecting "Upper jaw", use the three-point alignment method or click “Align” directly.

Step 3

After selecting "lower jaw", use the three-point alignment method or click “Align” directly.

Step 4

Click the "check" button, and the display area will display the bite data after alignment.

Note: -Direct alignment: select the “Align” button on the right side of the upper and lower jaw for automatic alignment.



- Three-point alignment: select three points with obvious features in the corresponding place between the current data and the standard data, click the “Align” button for alignment. The “Reset” button can clear the selected points.

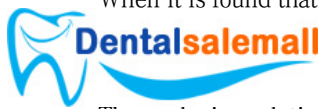
● Distance

After the alignment, click “Distance” to calculate the occlusal distance and show the result. As is shown below, the left side is the rainbow diagram for distance reference, and the middle zone is the calculated results of the two jaws.

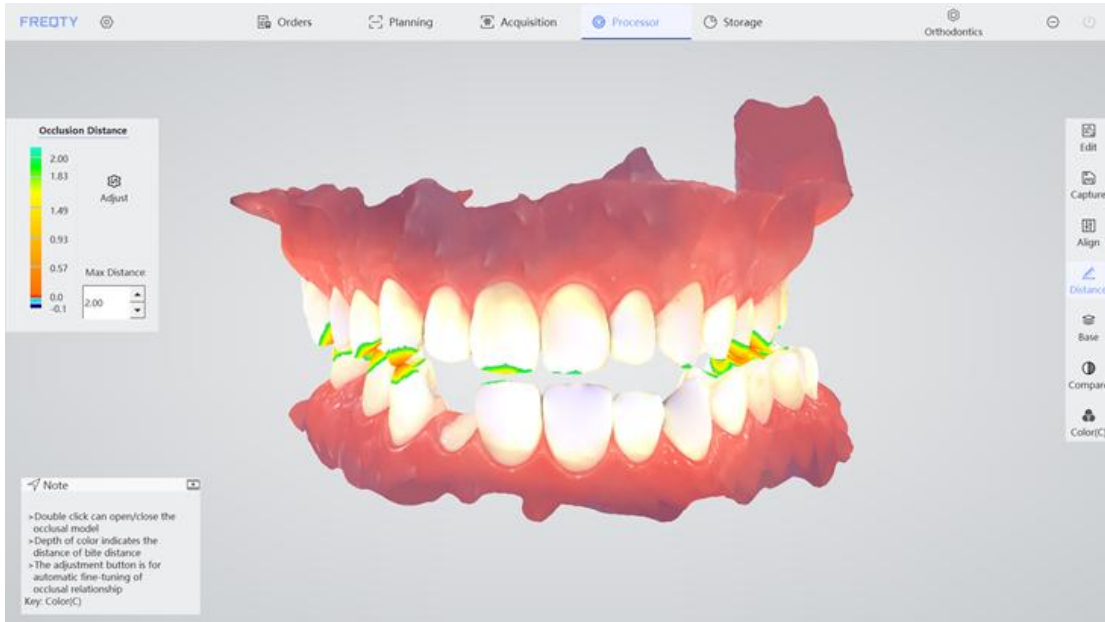
The darker the occlusal area is, the smaller the occlusal distance is. The lighter the occlusal area is, the larger the occlusal distance is. When the occlusal area is dark blue, it indicates that the distance is negative.

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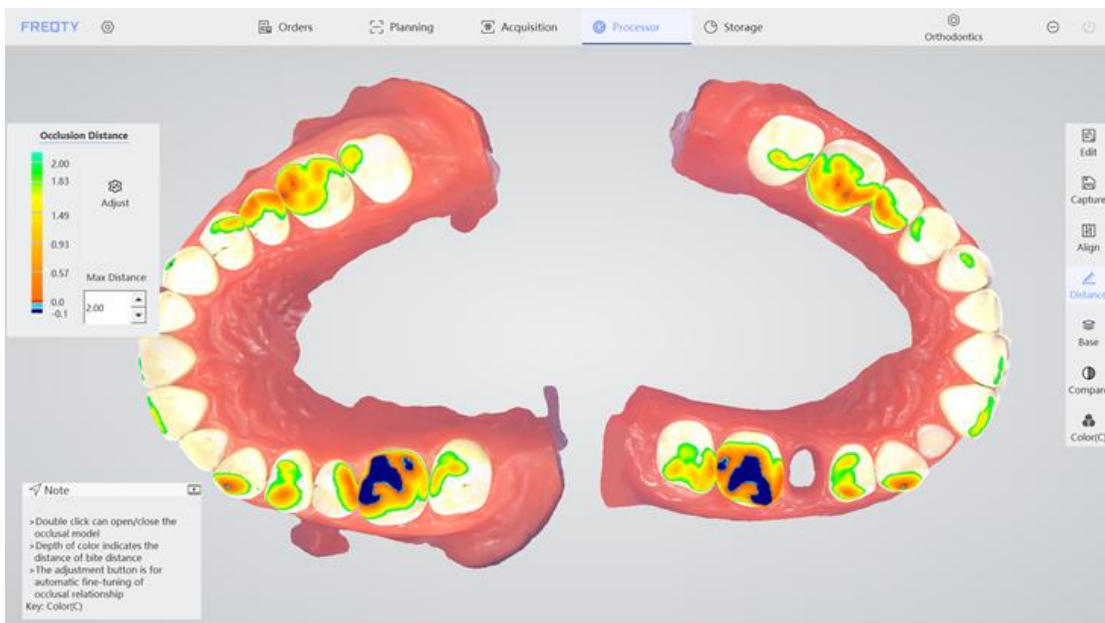
When there is no rainbow picture distribution in the occlusal face, it indicates that the occlusal distance between the upper and lower jaw in this area is greater than that of 2mm.

When it is found that the occlusion relationship of the scanned data is significantly different from the  can use the "Adjust" button to automatically optimize the occlusal jaw.

The occlusion relationship could be looked over by adjusting the Max distance.



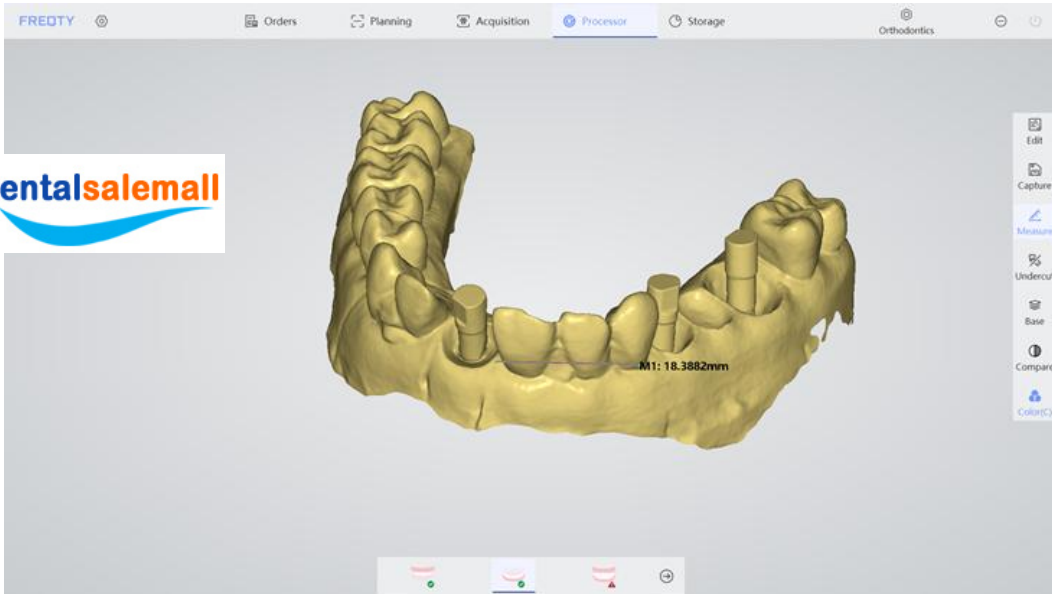
Double-click to separate the upper and lower jaw to see the distance, as is shown below, double click again to restore the occlusal state.



- **Distance**

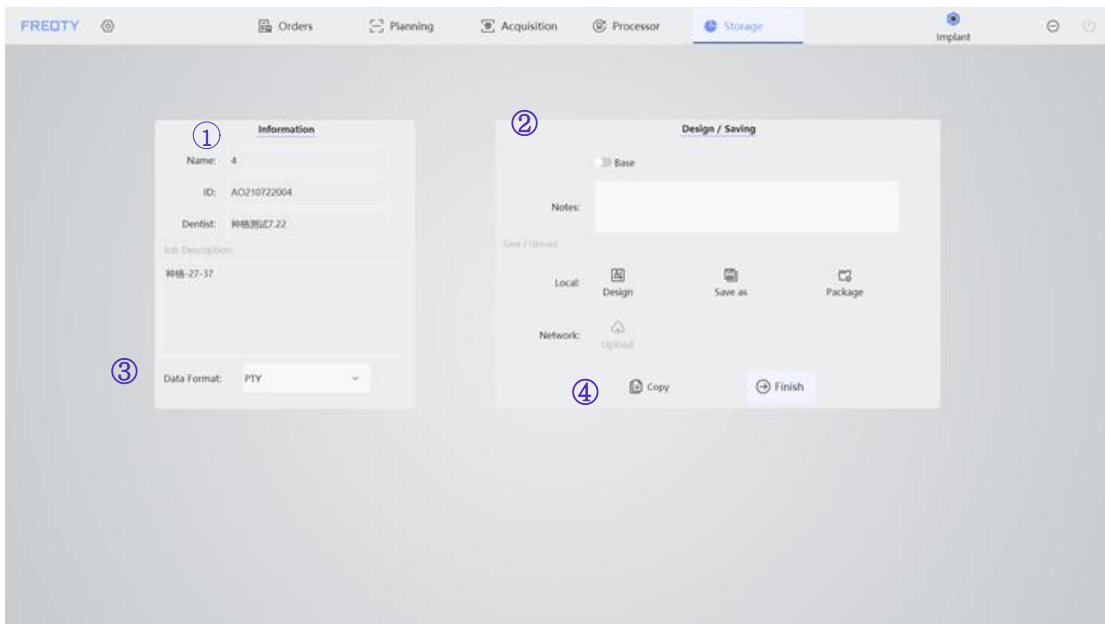
Choose two arbitrary points and measure the distance between them.

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Double-click could cancel all distance chosen. Distance could only work in “orthodontics” mode.

3.2.6 Storage



- ① Information display area: displays the relevant information of the current case, including the patient's name, number, treatment doctor, treatment plan description and tips for the current data preservation format.

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- ② Design / save area: including choosing whether to add a base to the saved data, editing and displaying the remarks bar, and connecting CAD software to open the data, saving the data, packaging the data, uploading the data on the network and other ways to save the data.



Choose the data format according to user's need.

- ④ Copy: Store the current case as backup data. After operating on the current case, the original data will also exist. It is suitable for taking multiple bite scenes.



Base: save after selection, and the stored data has a base, which is consistent with the preview of the base in the processor page.



Design: open the related dental CAD software directly, then create the project to process the scanned 3D data and design.



Save as: save the current case to the specified path.



Package: compress and package the scanned data and open the folder.




Upload: Click to update the data to third-party who is generally the factory.

3.3 Shortcut

Open external medical records	Ctrl + O	Save the current project	Ctrl + S
Minimize the program	Ctrl + M	Close the program	Ctrl + Q

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Color view	C	Real-time image storage	I
Finish scanning	Enter	Start scanning/pause scanning	S
	P	Jaw position switch	E/R
Intelligent cleaning of soft tissues	A	Black Tooth Smoke Tooth Enhanced Scan	H
Maximization program	Ctrl+W	Restore backup data	Ctrl+F

4 Daily Maintenance

- **Lens use:**

It is forbidden to use a three-purpose air gun to blow inside the probe to prevent dust from being blown into the photoelectric system of the device.

- **Equipment placement:**

The base is placed on a stable desktop, and the handle is placed in the bracket of the base after use. Take care to protect it to avoid unnecessary vibration or bumps.

- **Accuracy calibration:**

Under normal circumstances, calibration is performed once a week. If scanning is easily interrupted, calibration should be performed immediately.

5 Common Problems and Solutions of Hardware and Software

5.1 Software Startup Problem

5.1.1 The Software Cannot be Opened Normally

- Confirm whether the USB Key is connected normally and whether it is within the validity period (For users who use Dongle as the key of the scanner App).

- Confirm whether the Appstudio is logged in and the scanner is registered under user's account (for users who use Appstudio as the key of the scanner App) .
- It prompts "initialization failed" or "cannot open target file", please reinstall the software.



Software Opens very Slowly

- Confirm whether the computer power is properly connected.
- Confirm whether the scanning software is running as an administrator.
- Check whether the Windows system is being updated. If it is being updated, please complete the update before using the software.
- Confirm whether other computer software can be started.

5.1.3 The Desktop Shortcut Icon of the Running Program Turns White

- Check whether the computer is equipped with anti-virus software, if so, uninstall the anti-virus software or add the oral digital impression system software to the white list of anti-virus software.
- After turning white, double-click can not run, please reinstall the software.

5.1.4 Device Connection Problem

- Check whether the power is turned on normally, whether the computer power is tightly connected, and whether the USB interface is correctly connected to the USB3.0 interface.
- Replace the power interface, connect the hub, etc.
- If possible, try to replace the computer or replace the equipment.

5.2 Image Problem

5.2.1 No image Display in 2D Image Area

- Confirm that the USB Interface of the device is correctly connected to the USB3.0 interface of the computer.
- Restart the software and equipment to check whether the image can be displayed normally.

5.2.2 Two-dimensional Image Flicker

- Determine if the modulator is connected properly.
- Replace the USB connection port between the device and the computer.
- Computer networking.

5.3 Scanning Problem

5.3.1 The Oral Scan is Interrupted and not Smooth



ter configuration meets the requirements (above or equal to our recommended configuration).

- Too much scan data can delay (single jaw scan within 3 minutes as possible).
- Uninstall the antivirus software or add the scanning software run program to the whitelist.
- Check the Windows updates, if you update or update fails, use the scan software after the update finishes restart the computer.

5.3.2 Scanning Repositioning is Difficult

- Ensure the scan posture is consistent before the interruption.
- Avoid too long scan time.

5.3.3 No Data can be Scanned

- Re-calibration.

5.4 Scanning Abnormally Interrupted

- Check the Windows update status. If the update is in progress or there is an update failure, please restart the computer after the update is completed and then use the scanning software.
- Confirm whether the remaining storage space of C drive is sufficient.
- Turn off antivirus software.

5.5 Calibration Problem

- Add position failed, calibration failed.
- If there are obvious stains and sundries on the calibration board in the image display area on the left side of the software, please reverse the calibrator first and pour out the sundries first.
- Do not blow directly to the inside of the calibrator to avoid water vapor and spit.

5.6 Other Problems

5.6.1 The Computer Repeatedly Turned off and Restarted



- If there is still a problem, please replace the computer for use.

5.6.2 The Equipment Cannot be Powered up Normally

- Check that the adapter indicator is always on and confirm that the adapter is powered on.
- Check the current socket for power supply.
- Replace the adapter and the power cord.



Tips: If the above operation can not solve your problem, please timely contact the technical support.

6 Maintenance and technical support

If there is any problem with the device that you cannot solve, please do not disassemble the device privately.

If you have any questions or needs, please contact us through the following methods.