

User Manual

Intraoral scanner

Technoflux





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0. Preface

Thank you for purchasing the Intraoral Scanner manufactured by Guangdong Launca Medical Device Technology Co., Ltd.

Based on our proprietary technology, Guangdong Launca Medical Device Technology Co., Ltd. focuses on developing an intraoral 3D optical impression system, which is designed to make digital impression to provide accurate 3D teeth model for dental treatments.

The 3D scanning technology enables doctors to conveniently create high-accuracy digital impressions. The scanned digital data of the teeth is then transmitted through the internet to a chairside milling unit or a dental laboratory.

Compared to the traditional impression, digital impression by using the intraoral scanner has the following advantages:

- Avoids repeated impression and greatly reduces labor and material cost.
- Improves patient comfort in the impression process.
- Improves restorative quality: intraoral scanner acquires more accurate data than the traditional impression, consequently leading to better restorative quality.
- Speeds up the restorative process.

 **Note:** Operators who use this product must be professionals with appropriate qualifications in product operation. Before use, please read all contents of this manual.

 **Note:** This product can only be used for its intended purpose.

 **Warning:** Since the Intraoral Scanner is a precision device, we do not recommend or allow users or other non-authorized personnel to disassemble this device. If any failure occurs, contact an authorized Launca distributor for technical support.

Packing List of Intraoral Scanner DL-300P:

Intraoral Camera	1 piece
Camera tip (standard)	2 pieces
Camera tip (mini)	1 piece
Camera Adapter Unit	1 piece
Power Adapter	1 piece
Converter	1 piece
User Manual	1 piece
Certificate	1 piece

1. Product Overview

1 Intended Use

The intraoral scanner is a medical device designed to capture the topographical features of human teeth. It provides 3D digital models for CAD/CAM restoration and implantation.

2 Structure

2.1 Appearance

The intraoral scanner consists of camera, display unit and image processing system. Each component of the intraoral scanner is specifically shown in Figures 1-1 to Fig. 1-3:

Figure 1-1 Intraoral Scanner DL-300P

- 1- Notebook 2- Camera Adapter Unit 3- Intraoral Camera
4- Power Adapter 5- Converter

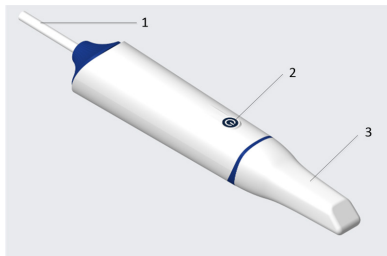
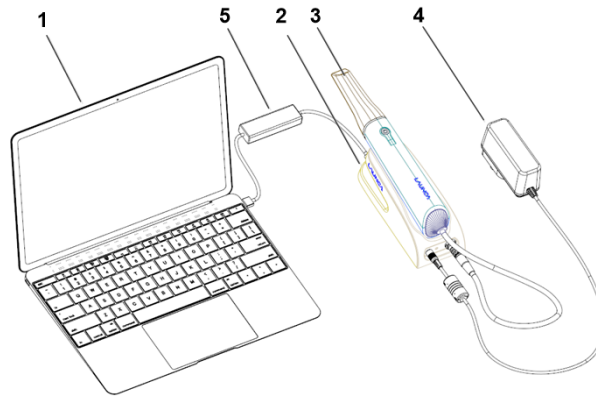


Fig. 1-2 Intraoral Camera
1 Data Cable
2 Start Button
3 Camera Tip

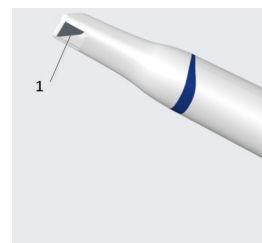


Fig. 1-3 Intraoral Camera
1 Reflective Mirror

2.2 Software Overview

The workflow of the entire software system is as shown in Fig. 1-4.

2.2.1 SCAN Application

The SCAN application has three main functions:

- Manager Setting

- Managing treatment information: it includes adding, modifying and deleting patient/case/order information;

- Scanning teeth and editing models.

With this application, dentists can create files of patients and cases, scan the teeth, and send out the final orders.

2.2.2 Manager Setting

The Manager Setting is into the SCAN application .it has two main functions:

- Managing clinic related information: it includes adding, modifying and deleting clinic/dentist/ laboratory information;

- Managing treatment configuration: it includes patients, cases and data configuration.

With this setting, the intraoral scanner administrator can easily configure the scanner device and the scanner application.

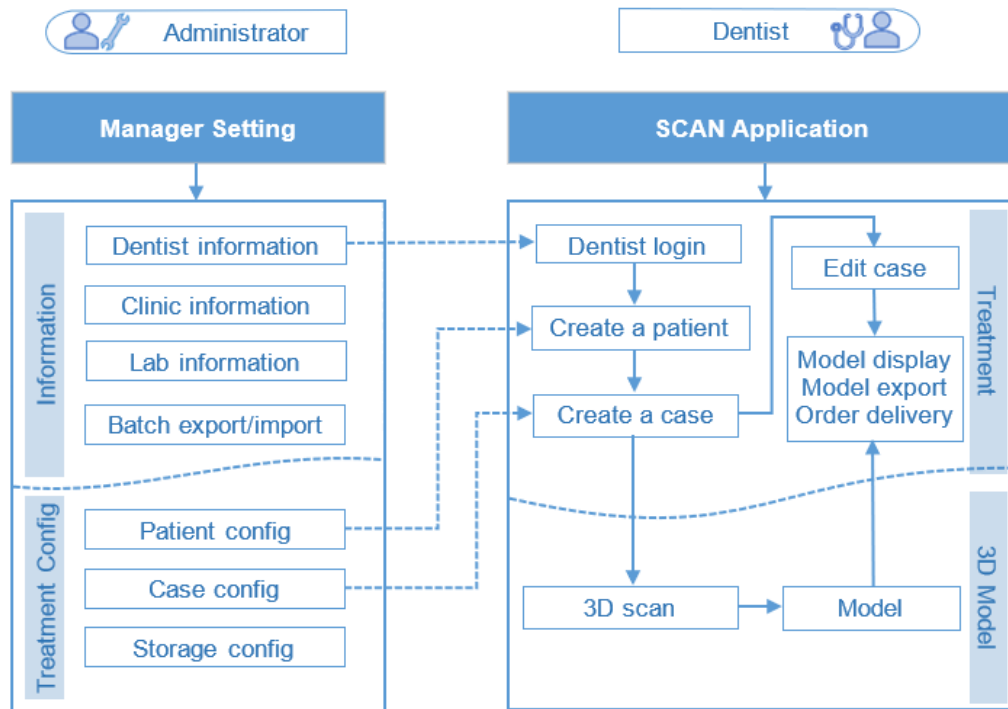


Fig. 1-4 The Workflow of the Intraoral Scanner Software System

2.3 Accessories

2.3.1 Standard Accessories

DL-300P

Camera Adapter Unit 1 piece

Power Adapter

Optional Plug :EU Plug AU Plug UK Plug CN Plug BR Plug US Plug 1 piece

Converter 1 piece

Camera tip (standard) 2 pieces

Camera tip (mini) 1 piece

The camera tip is a applied part.

2.3.2 Optional Accessories

Optional Accessories unit

Notebook 1 set

2.4 System Connection

This section describes connections of the system components.

2.4.1 Connection to the Power

When connecting the intraoral scanner to AC power, make sure that one end of the power adapter is properly connected to the power socket of the camera adapter unit, and the other end is plugged into an AC outlet.

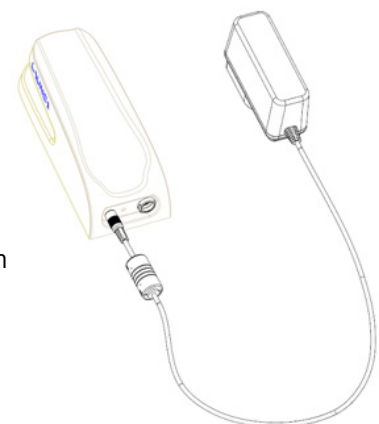
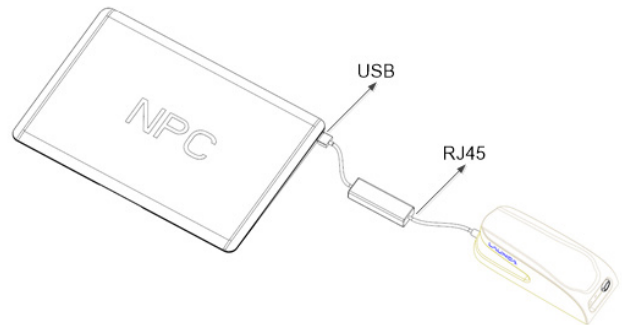


Fig. 1-5 Power Interface Diagram

2.4.2 Connection to a notebook

Plug the RJ45 data cable on the camera adapter unit into the Converter, then plug the USB data cable on the Converter into a Notebook

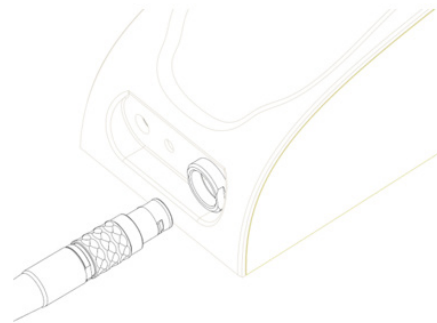
Fig. 1-6 Connection of USB data cab



2.4.3 Connection to an Intraoral Camera

Take the DL-300P intraoral camera out of the box, and connect the data cable to the socket of the camera adapter unit by keeping the red dot of the interface on the data cable in line with the red dot of the socket on the unit (as shown in Fig. 1-7). Then, shake it gently to check whether it is properly connected.

Fig. 1-7 Connection of Cable



2. Safety Precautions

1 Safety Precautions

- Warning signs and illustrations in the manual are intended to enable users to use the product safely and correctly and to avoid harm to users and other people or loss of property.
- Warning signs, illustrations and their meanings are as follows:

 Note, refer to the attached document

 Refer to the user manual

 B-type Device

IPX0 NO WATERPROOF

 UPWARD

 FRAGILE, HANDLE WITH CARE

 KEEP DRY

 STACKING LIMIT IS 5

 STORAGE AMBIENT TEMPERATURE

 STORAGE AMBIENT HUMIDITY

 Don't throw it away



- ⚠ **Note:** Do not hit or drop this unit or the intraoral camera of the scanner.
- ⚠ **Note:** Do not open the intraoral camera when not scanning.
- ⚠ **Note:** Do not pull hard on or bend the cable connecting the intraoral camera and the unit.
- ⚠ **Note:** Check all power supplies and connecting cables to ensure that there are no abnormalities (such as scratches, breaks, etc.).
- ⚠ **Note:** Check the intraoral camera and its connecting parts to ensure that there are no abnormalities (such as scratches, pieces falling off, looseness, etc.).
- ⚠ **Note:** If the product needs to be disposed at the end of its service life, please follow the relevant regulatory requirements for such products.
- ⚠ **Note:** The production and use of this product does not produce substances harmful to the human body or the environment.
- ⚠ **Note:** Do not position the product to make it difficult to operate the disconnection device.
- ⚠ **Note:** Operators who use this product must be professionals with appropriate qualifications in product operation. Before use, you should read all contents of this manual.
- ⚠ **Note:** This product can only be used for its intended use.
- ⚠ **Warning:** Since the Intraoral Scanner is a delicate optical device, we do not recommend users or other non-authorized personnel to dismantle this device. If any failure occurs, contact an authorized Launca distributor for technical support.

2 Environmental Requirements

2.1 Normal Working Conditions

- Ambient Temperature: 10 ~ 35
- Relative Humidity: 30% ~ 75%
- Atmospheric Pressure: 86kPa ~ 106kPa
- Power : Input 100-240V , 50/60Hz

2.2 Storage

The packaged scanner should be stored at an ambient temperature of -10 ~ +40 , relative humidity of less than 80%, in a well-ventilated room without corrosive gases.



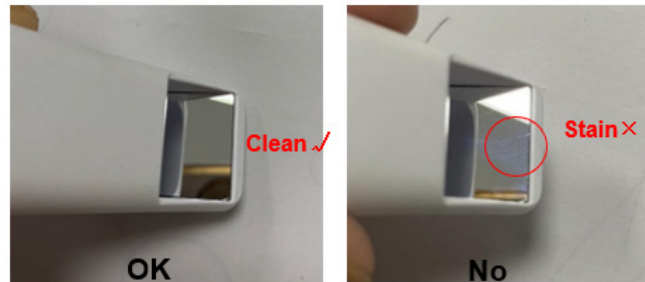
3 Electromagnetic Compatibility Information

Emission Measurement		
Radiated Emission	EC 60601-1-2:2014+A1:2020 CISPR 11:2015+A1:2016+A2:2019	PASS
Conducted Disturbance (0.15~30MHz)	IEC 60601-1-2:2014+A1:2020 CISPR 11:2015+A1:2016+A2:2019	PASS
Harmonic Current	IEC 60601-1-2:2014+A1:2020 IEC 61000-3-2:2018+A1:2020	PASS
Voltage Fluctuation and Flicker	IEC 60601-1-2:2014+A1:2020 IEC 61000-3-3:2013	PASS
Immunity Measurement		
Electrostatic Discharge	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-2:2008	PASS
RF Field Strength Susceptibility (80 2700MHz)	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-3:2006+A1:2007+A2:2010	PASS
IMMUNITY to proximity fields from RF wireless communications equipment	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-5:2006+A1:2007+A2:2010	PASS
Electrical Fast Transient/ Burst Tes	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-4:2012	PASS
Surge Test	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-5:2014+A1:2017	PASS
Conducted Susceptibility Test	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-6:2013	PASS
Power Frequency Magnetic Field Susceptibility Test	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-8:2009	PASS
Voltage Dips and Interruptions Test	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-11:2004	PASS
IMMUNITY to proximity magnetic Fields in the frequency range 9 kHz to 13.56 MHz	IEC 60601-1-2:2014+A1:2020 IEC 61000-4-39 :2017	PASS

3. Scanner Settings

1 Before Scanning

- Check whether the camera tip has been cleaned and disinfected. If not, you can refer to Chapter 5 for instructions on how to clean and disinfect it
- Ensure that there are no stains on the reflective mirror of the camera tip, as any stains can affect the scanning results



Note:

- Recommendation: Before scanning, warm up the intraoral camera for 5-10 minutes to ensure a smoother scanning process.
- If any fissures or damages are found on the reflective mirror or the window of the tip, it must be immediately taken out of use.

2 Operating Instructions for Manager Setting

You can configure the settings using the Manager Setting as needed. Dentists/clinics/labs information, patient/case configuration, scanned data storage paths, etc. can be configured in this setting.

Note: The Manager Setting should only be used by authorized intraoral scanner administrators.

2.1 Management User Login

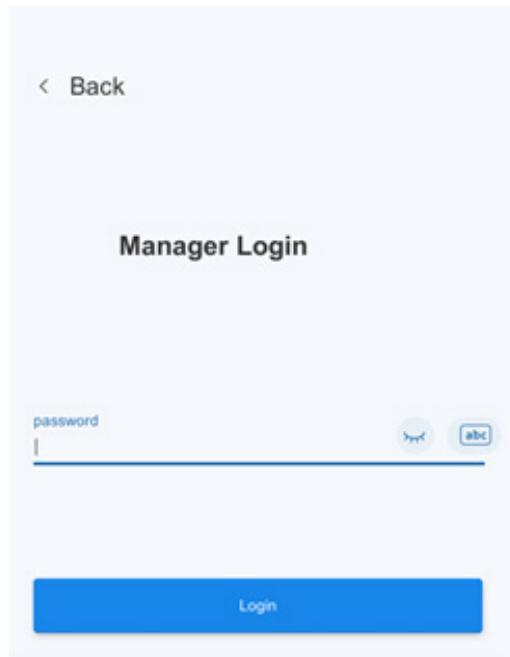
Start the SCAN application, then click the “ADMINISTRATION” as shown in Fig. 3-1. When loading is completed, the application enters the administrator login interface, as shown in Fig.3-2. Input the administrator password and click “Login” to enter the Manager Setting.

Note: The default password is “admin”.

Fig. 3-1 Manager Setting



Fig. 3-2 Administrator Login Interface



After logging in, you can modify the administrator password as needed. Click the “” on the upper right corner and a drop-down menu will pop up, as shown in Fig. 3-3. Click on “Password” to change administrator’s password. Then, click “OK” and the new settings will be applied immediately, as shown in Fig. 3-4.

Fig. 3-3 Open Administrator’s Password

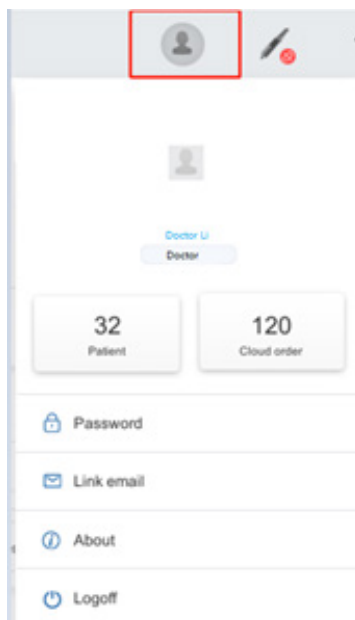
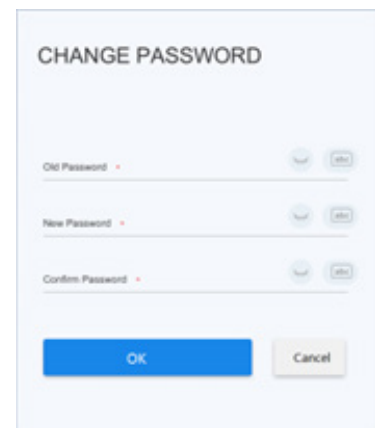
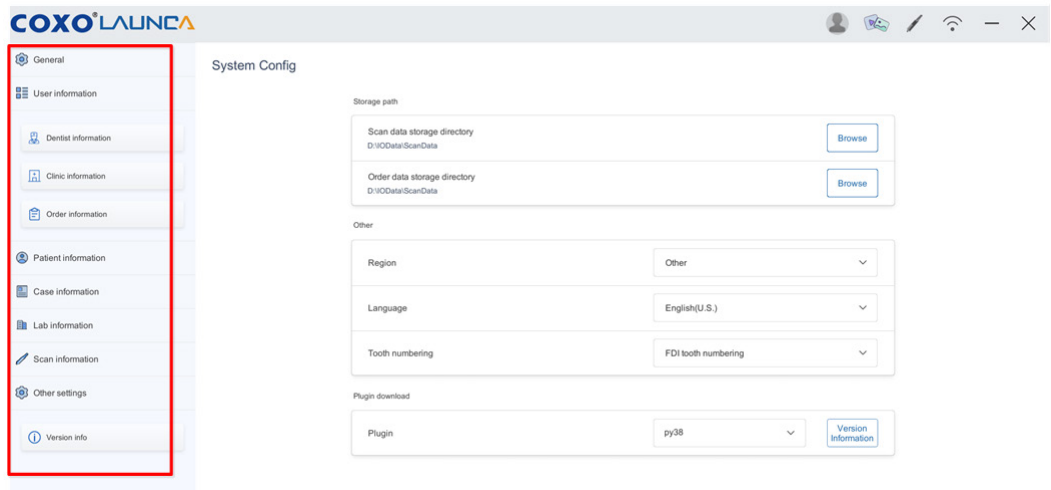


Fig. 3-4 Change Administrator’s Password



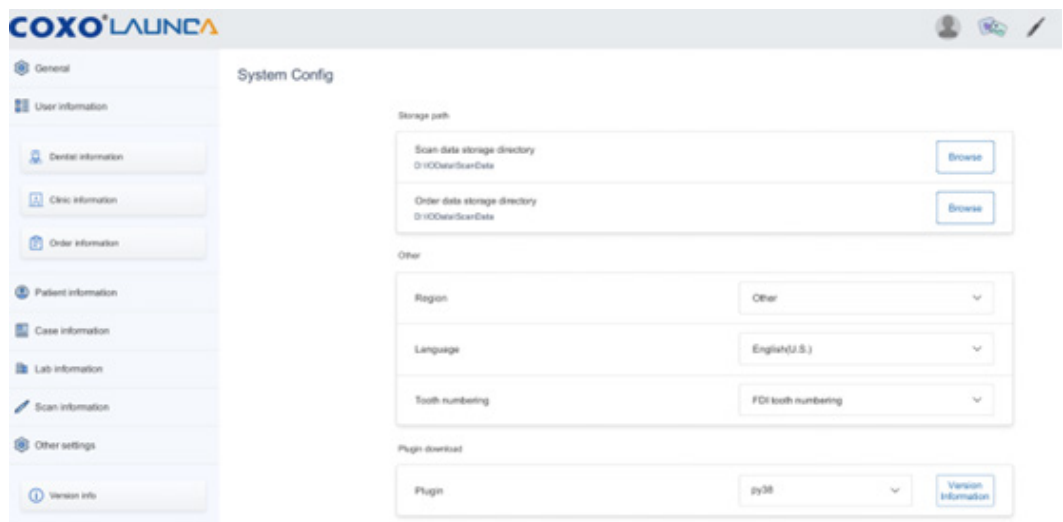
After logging in, a menu bar will appear on the left side of the interface, as shown in Fig. 3-5. You can create/amend the settings of user, patient, lab, case, camera and other.



2.2 General Settings

Click “General” in the menu bar to enter the general settings interface of the Manager Setting, as shown in Fig. 3-6

Fig. 3-6 General Settings Interface



- **Scan data storage directory:** You can set the scanned data storage directory for the Scanner application.
- **Order data storage directory:** You can set the order data storage directory for the Scanner application.
- **Language:** You can set the language preference for the user interface. Currently 6 languages are supported, including Simplified Chinese, Traditional Chinese, English, French, Spanish and Russian.
- **Tooth Numbering:** You can choose the tooth numbering method of the dental arch diagram in the Scanner application. Currently the FDI numbering system and the Common tooth numbering system are supported.
- **Machine code:** It shows the machine code of this product.

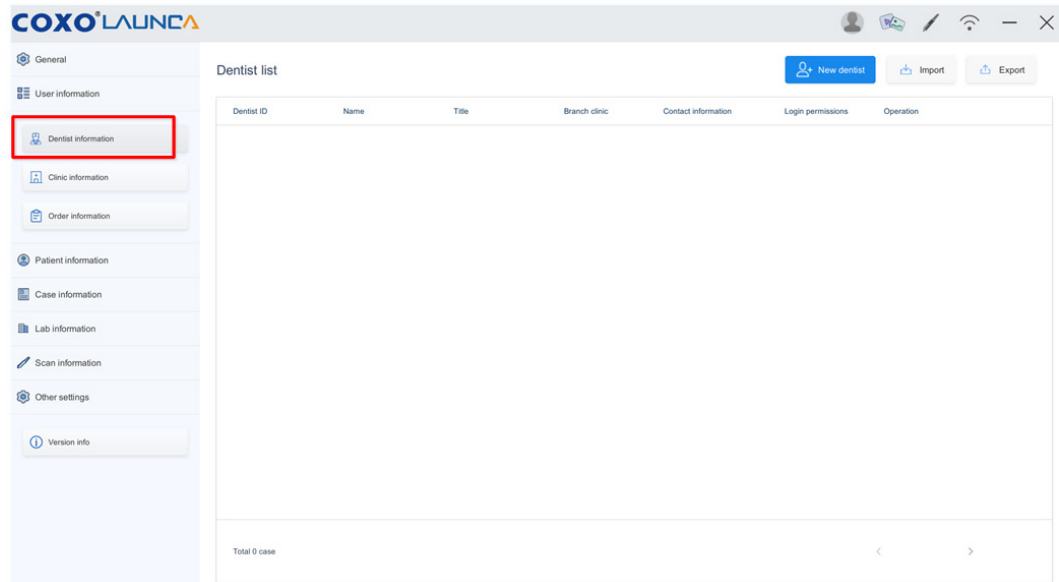
⚠ **Note:** After changing the language, restart the SCAN application to save the change.



2.3 User Information Settings

Click “User information”, from the drop-down menu bar, you can find edit the “Dentist Information” and “Clinic Information”, as shown in Fig. 3-7.

Fig. 3-7 User - Dentist Information

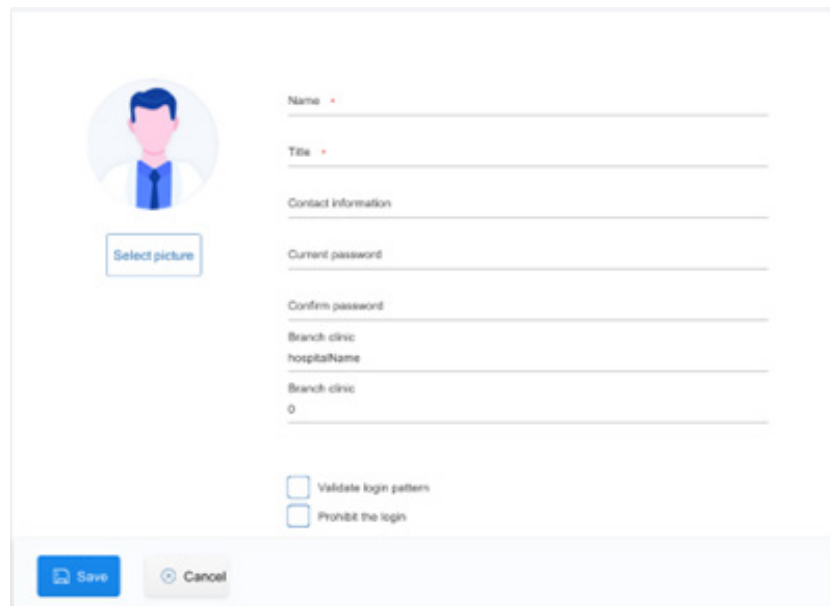


- Dentist Information: Add, delete or modify dentist’s account for the scanning application. The dentist’s account is used to login at the scanner application. After logging in, the dentist will be able to manage the patients at the scanner application.
- Import: Import bulk dentist accounts from an XML file.
- Export: Export part or all of existing dentist accounts to an XML file.

2.3.1 Add Dentist

To add a dentist account, click “New dentist” on the upper right corner of the interface to enter the dentist information, as shown in Fig. 3-7. After filling in the required information as in Fig. 3-8, click “Save” to exit. A “Dentist” account created for the first time is not activated, so the password input box will not be displayed. When you log in at the scanner application for the first time, the application will prompt the “Dentist” user to set a new password. After setting the password, the “Dentist” account will be activated.

- Name: The account name of the “Dentist”.
- Title: Enter the dentist’s title, such as “DDS”, “MD” and “DR”.
- Contact Information: When an order is sent to a lab, the dentist’s contact information will be displayed in the email.
- Current password: Set the doctor account password when setting up doctor information for the first time
- Confirm password: Confirm the doctor account password when setting up doctor information for the first time.
- Clinic: The name of the main clinic can be changed in “Clinic Information”, without filling in the information for each dentist.
- Set Branch Clinic: For large clinics, their branch clinic information can be added in the clinic information section. Branch information is shown in the branch list.



The form is titled "Dentist Information Input". It features a profile picture placeholder with a "Select picture" button. The input fields are as follows:

- Name: [Text input]
- Title: [Text input]
- Contact information: [Text input]
- Current password: [Text input]
- Confirm password: [Text input]
- Branch clinic: [Text input]
- hospitalName: [Text input]
- Branch clinic: [Text input]
- 0: [Text input]

At the bottom, there are two checkboxes: "Validate login pattern" and "Prohibit the login". At the very bottom are "Save" and "Cancel" buttons.

Fig. 3-8 Dentist Information Input

After inputting, click the “Save” button to add the “Dentist” information which can be viewed in the “Dentist List”.

Note:

- The dentist's contact information will be displayed in the order email when an order is sent to a lab. Therefore, it is recommended to complete this section properly.
- If a dentist needs to send orders through the Launca cloud platform, a valid email address binding to the dentist's account is required. Ensure the computer is connected to internet when adding the dentist's email. An email with a verification code will be sent from the Launca cloud to the dentist's mailbox. The administrator needs to enter the verification code to complete the binding.

2.3.2 Edit and Delete Dentist

After adding a dentist account, it can be viewed, edited or deleted in the “Dentist List” interface. As shown in Fig. 3-9, you can find “Edit” and “Delete” button within the Operation section.

- Edit: If the current dentist information is incorrect, it can be modified in the “Edit” interface. In addition, the dentist can change the account and password in this interface.
- Delete: If the dentist no longer has permission to use this device, the administrator can delete the dentist's information.

Dentist list						
				New dentist Import Export		
Dentist ID	Name	Title	Branch clinic	Contact information	Login permissions	Operation
2	Mr	doctor				Edit Delete

Fig. 3-9 Dentist List

Fig. 3-10 Clinic Information

- New Branch: A branch clinic can be added. If a dentist is set as a branch member, the branch mailbox is set as the default for sending orders.
- Import: Import bulk branch clinic data from an XML file.
- Export: Export part or all of existing branch clinic data to an XML file.

In the clinic information, you can input clinic information. Click “Edit” to modify the main clinic settings; click “New Branch” to add a new branch.

The default clinic information is Launca Medical, as shown in Fig. 3-11.

Fig. 3-11 Clinic Information Input

- Name: Input the name of the main clinic.
- Address: Input the address of the main or branch clinic.
- Contact Information: Input the telephone number of the main or branch clinic.
- Contact: Input the contact of the main clinic.

2.3.4 Order Information

Fig. 3-12 Order Information

- Area: The area where the order will be sent.
- Attachment encryption: Select whether to encrypt the order attachment.
- Attachment password: Select the encryption method for the order attachment.

2.4 Patient Information Settings

In “Patient Information”, you can select optional and required patient information in a clinical case. For details please see Fig. 3-13.

Fig. 3-13 Patient Information Settings

- Patient Information Settings: The SCAN application will show toggled information in the Patient Information interface.
- Required Information Settings: In the SCAN application, dentists must fill in required information in order to create a new patient.
- Patient folder name fields: The SCAN application will automatically create a folder on disk for each patient, the folder name is generated based on selected fields. For example, if “Patient ID”, “Name” and “Age” fields are toggled, a patient folder might be named as “id-1-name-ZhangSan-age-18”.

2.5 Lab Information Settings

The laboratory information can be edited here, as shown in Fig. 3-14.

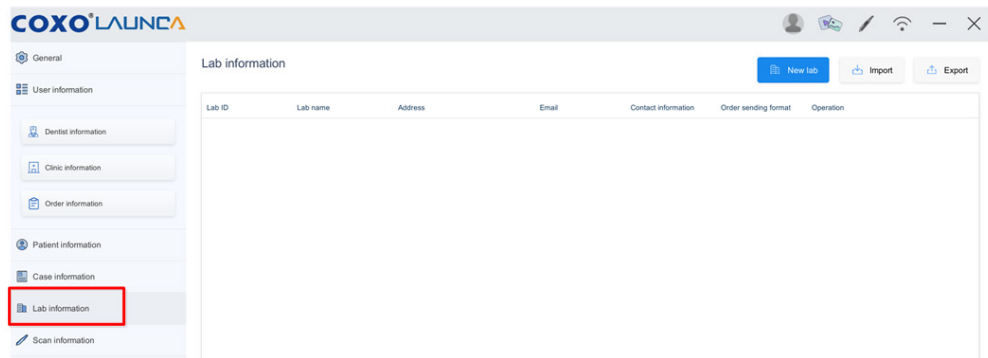


Fig. 3-14 Lab Information Settings

- New lab: Click “New Lab” to add dental laboratory information. The name of the lab, contact information, email address, etc. must be filled in the lab information input interface. Orders will be sent to this email address via the SCAN application.
- Import: Import bulk lab data from an XML file.
- Export: Export part or all of existing lab data to an XML file

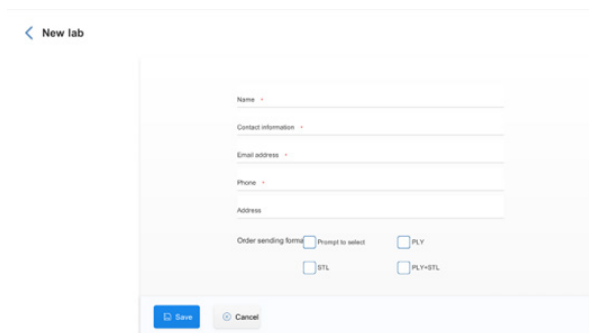
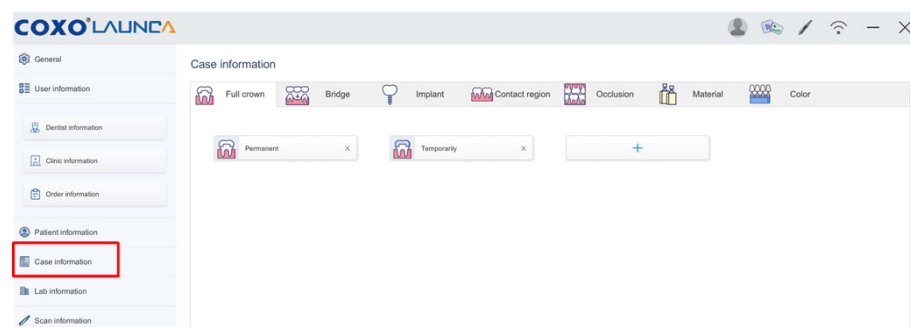


Fig. 3-15 Lab Information Settings

- Lab Name: Input the name of the Lab.
- Contact Information: Input the contact of the Lab.
- Phone: Input the telephone number of the Lab.
- E-mail address: Input the E-mail address of the Lab.
- Address: Input the contact of the Lab.
- Order sending format: You can select the data format of the orders sent to the lab.

2.6 Case Information Settings

You can set case information here, as shown in Fig. 3-16.



Contact region, buccal, material, color and other options can be edited as needed. Input the name of the item in the dialog box and then click “Add” button to add a new item to the option’s item list.

The administrator can choose default options for the SCAN application’s case menu.

Note: Default options cannot be edited or deleted.

2.7 Scan Information

You can set the scan quality and video store time in here, as shown in Fig. 3-17.

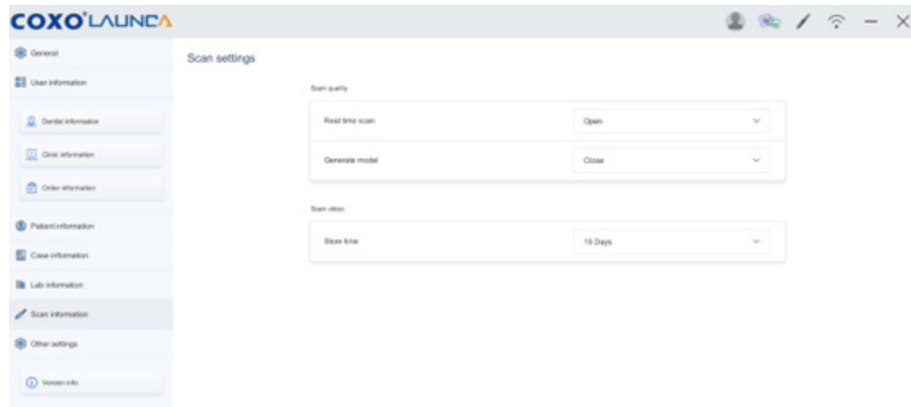


Fig. 3-17 Scan Information

2.8 Other settings

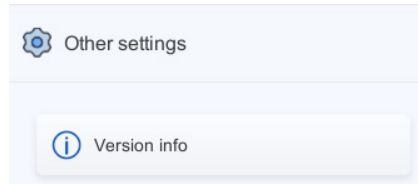


Fig. 3-18 Tool Menu Bar

Version info: The current software version is displayed.

5. Scanning Operation

1 SCAN Application Login

After login to the SCAN application, dentists can set up patient and case information, scan the teeth and send order to a laboratory.

Before using the SCAN application for the first time, please configure the intraoral scanner settings and add at least one dentist account in the “Manager Setting”. Refer to “Chapter III Scanner Settings” for details.

The dentist login interface is shown in Fig. 4-1.

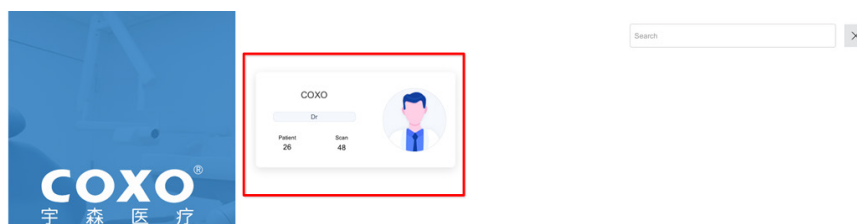


Fig. 4-1 SCAN Application Login Interface



Click on the “Dentist” icon as shown in Fig. 4-1, enter the password which was set in “Chapter III 2.3.1 Add Dentist “ to login as shown in Fig. 4-2.

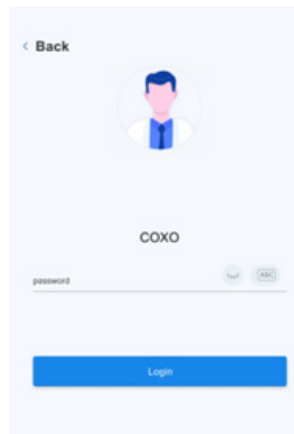


Fig. 4-2 Enter password to login

⚠ **Note:** If you forget the login password , ask your system administrator to find it in the manager setting.

2 Setting Before Scanning

2.1 Add Patient

Patient information	
Test	Mr Q
Patient ID	Phone
2	12345678901
Visiting time	Second visit time
9/18/2024 5:26:03 PM	9/18/2024 5:26:03 PM

Fig. 4-3 Create a New Patient

After login, you will enter the patient information interface. Input the patient information in the interface as shown in Fig. 4-3 and click “Create” to add a new patient.

- Patient ID: The patient’s ID is generated automatically by the system when a new patient is set up. It is used for inquiry purposes.
- Name: Enter the patient’s name.
- Gender: Select the patient’s gender.
- Age: Input the patient’s age.
- Phone: input the patient’s contact telephone number.
- Payment: Click “ ” to select the method of payment from the drop-down menu.
- Visit Time: This will be inputted automatically by the system. You do not have to fill it in.

⚠ **Note:** The information input box supports a fuzzy inquiry function. Input relevant information in the input box to inquire. If you cannot find the relevant user, you can add a new patient according to the above procedure.

2.2 View Patient Information

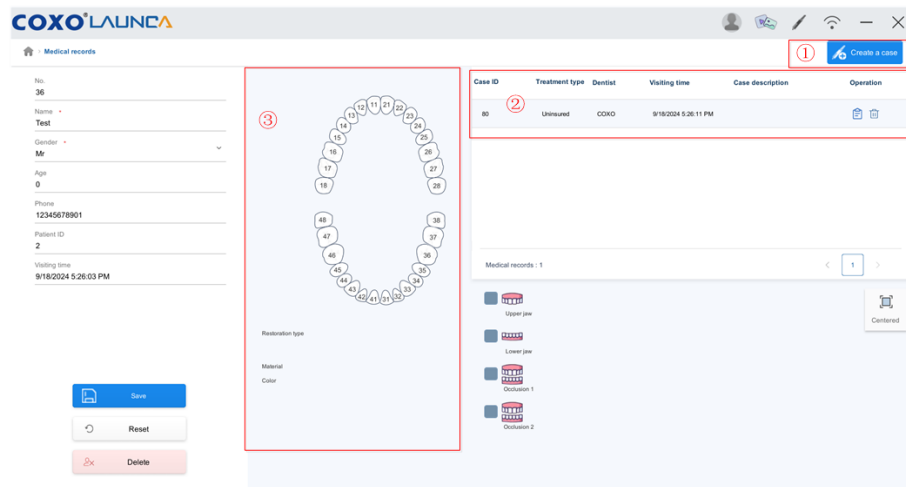


Fig. 4-4 View Patient Information and Case Records

No. Description

- 1 Create a case
- 2 Edit, view and delete a single case record
- 3 Corresponding to the dental arch information of the selected case record.

Note: Clicking the “Delete patient” button will delete all the patient’s case records, including scanned data and order records. This operation can NOT be undone. Therefore, please operate carefully.

2.3 Case Information

Click the icon in the existing case records (as shown in Fig. 4-4) to enter the case information interface as shown in Fig. 4-5. The case can be set up following the below steps:

1) The teeth in the dental arch diagram (area in Fig. 4-5) will be selected and edited one by one. The position number of the selected tooth will turn red. The Dentist can edit the selected tooth with the Case Menu in the area shown in Fig. 4-5. The area in Fig. 4-5 is the information area for the selected tooth.

2) If there is other necessary information in addition to the case options you can enter them in the “Case remarks” area in Fig. 4-5.

3) After all the information is completed, click “Next” start the scanning window.

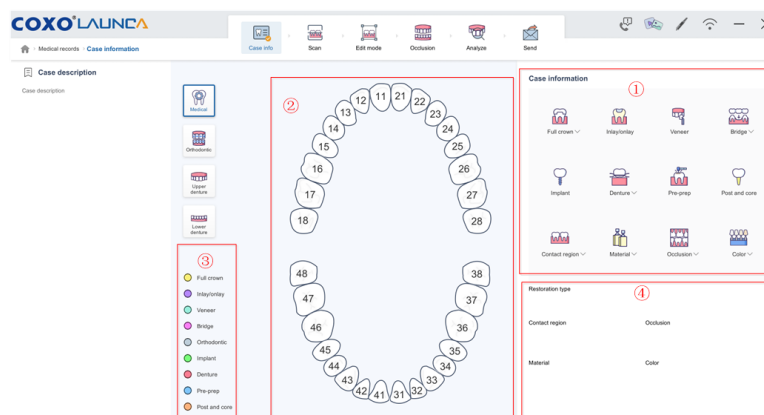


Fig. 4-5 Case Information

No.	Description
1	Case option menu.
2	Dental arch diagram and tooth numbering (currently both FDI notation and general tooth position recording methods are supported).
3	Selected treatment/material/colour for the tooth.
4	Case description or other necessary content.

The menu bar of case item and the dental arch diagram (including tooth numbering) can be set or modified in “Case Information” in the management application. For details, refer to “Chapter III 2.2 General Settings” and “Chapter III 2.6 Case Information Settings”.

Scanning workflow and status are displayed as shown in Fig. 4-6. If the scan is completed, a yellow status prompt “ ” will appear on its icon. During the whole workflow, the green status prompt “ ” appears only when “Scan” or “Edit Mode” or “Occlusion” is completed. This status prompt does not appear for the “Case information” “Analyze” and “Send” icons.



Fig. 4-6

⚠ Note: Information of areas No. 2, No. 3, and No. 4 in Fig. 4-5 will appear in the order information. Therefore, please confirm the contents before sending an order. Some of the options in the case menu will make the scanner enter different scanning modes, such as implant mode. Please select the case properly to enter the correct scanning mode.

3 Scanning

After confirming the case information, click “Scan” in the Scanning workflow to start the scan window. Fig. 4-7 shows that the scan window is loading. After the scan window starts, it will switch to the interface as shown in Fig. 4-8-1.

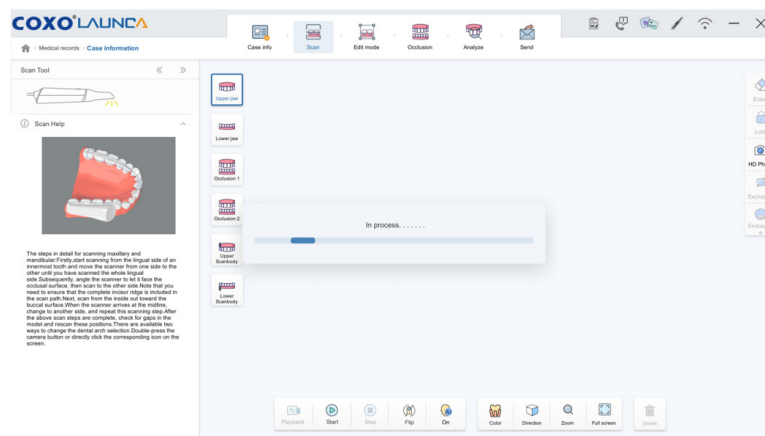


Fig. 4-7 The Scan window is Loading

3.1 Scan window Interface Description

3.1.1 General Scanning Mode

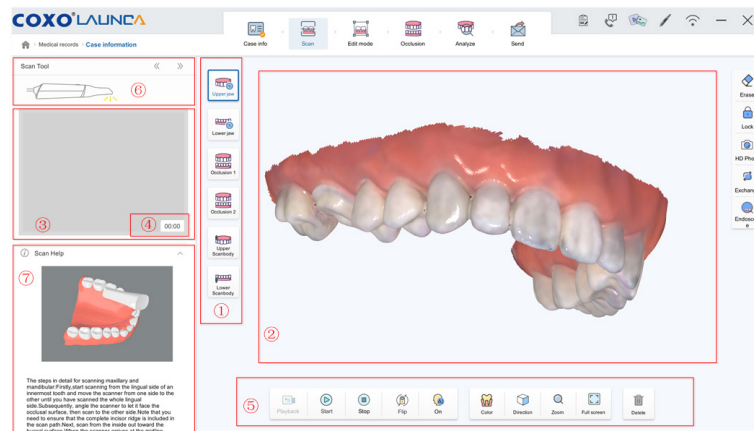
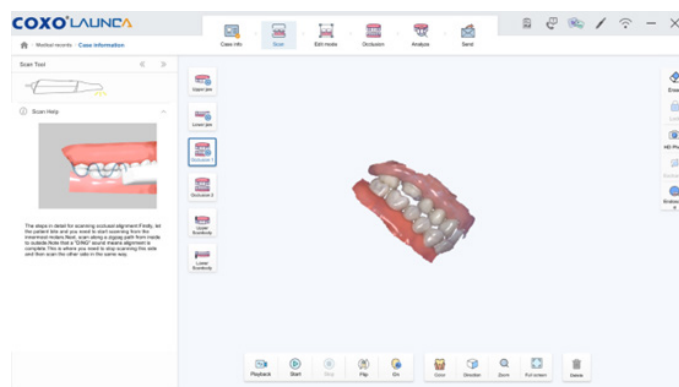


Fig. 4-8-1

3.1.2 Function Area Description

- | No. | Description |
|-----|---|
| 1 | <p>Scanning Target Bar: Upper jaw, lower jaw, buccal, upper scanbody, lower scanbody</p> <ul style="list-style-type: none"> • Upper Jaw: Click "Upper Jaw" to enter the upper jaw scanning mode. After scanning, the scanned data is saved as upper jaw data, and the icon  will show on the upper jaw icon. • Lower Jaw: Click "Lower Jaw" to enter the lower jaw scanning mode. After scanning, the scanned data is saved as lower jaw data, and the icon  will show on the lower jaw icon. • Scanbody Upper : Click "Scanbody Upper" to enter the upper jaw scanbody scanning mode. After scanning, the scanned data is saved as upper jaw scanbody data, and the icon  will show on the upper jaw scanbody icon. • Scanbody Lower : Click "Scanbody Lower" to enter the lower jaw scanbody scanning mode. After scanning, the scanned data is saved as lower jaw scanbody data, and the icon  will show on the lower jaw scanbody icon. • Occlusion : Click "Occlusion" to enter the occlusion scanning mode. In this mode, you don't need scan the whole model, you can scan one side, and then scan another side. After finishing scanning, it will show two side scanning data in the 3D Model display, and the icon  will show on the occlusion icon, as shown in Fig. 4-8-2. <p>They will be automatically transformed into a whole occlusion data in the next workflow.</p> |
| 2 | 3D Model Display Area: Real-time intermediate models or post-processed models are displayed in this area. |
| 3 | 2D Image Window: This window is displayed in real time during scanning. When scanning does not start, the window is in grey rectangular shown in the area (3) in Fig. 4-8-1. |
| 4 | Timer: Counts the effective time of the current scanning. |
| 5 | <p>Scanning Control Bar: Start, pause, stop, color, flip, delete.</p> <ul style="list-style-type: none"> • Playback : Playback the scanning process . • Start: The camera starts scanning. To start scanning, you can either click the "Start" button on the screen or press the start button on the handpiece. • Stop: To stop scanning, you can either click the "Stop" button on the screen or press the "start" button on the handpiece to stop scanning; You cannot resume scanning after clicking "Stop". Post-processing will automatically start when scanning stops; • Flip: Flip a 2D image horizontally. This function only affects real-time 2D images in the endoscopy window. This function does not affect 3D models. |

- AI On/Off: When “AI On” appear, the software automatically identifies the soft tissues of the mouth and the teeth , and only retains 3D data of the teeth and part of the gingiva in the area (2) in Fig. 4-9-1. When “AI Off” appear , this function is off.
 - Color: Indicates that the default 3D model is in color mode. Both “Color” and “Grayscale” modes are supported.
 - Direction : You can select a viewing angle of the 3D Model. It provides top, front, back, left, right and bottom for selecting.
 - Zoom : Zoom in/out the 3D Model display
 - Delete: Delete a final 3D model that has been post-processed
- 6 View wifi strength and camera battery power when wireless is connected (Applicable to DL-300 Wireless)
- 7 If you are not familiar with using the device, you can scan by referring to the camera scanning demonstration video.



3.1.3 Model Operation Instructions

Multi-touch Gesture Control

- Move: Hold and drag the model with two fingers.
- Rotate: Hold and rotate the model with two fingers. Buccal parts in the Edit mode interface can only be rotated by one finger.
- Zoom: Hold two points on the model with two fingers and move near or far to zoom in or out. Edit mode interface does not support the zoom function.

Mouse Control

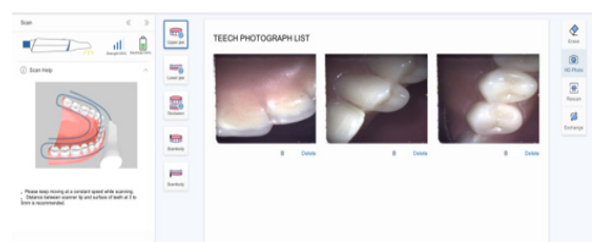
- Move: Hold down the right mouse button and drag.
- Rotate: Hold down the left mouse button and drag.
- Zoom: Scroll the mouse wheel up or down to zoom in or zoom out. Zoom function cannot be used under Edit mode interface.

Note: You must select a scan target properly from upper jaw, lower jaw, buccal, upper scanbody (implant mode), or lower scanbody (implant mode) before scanning. Otherwise, the models may not be correctly aligned in “Edit mode”.

The delete function is used to completely delete a 3D model, and can NOT be restored. Therefore, please operate with cautions to avoid scan data loss.

3.1.4 HD Photo Capture

Click the “HD Photo” icon in the right navigation bar to capture real-time photos during the scanning process.



3.2 Intraoral Camera Scanning Operation

3.2.1 Precautions of Intraoral Camera Operation

- 1) Make sure that the intraoral camera is properly connected to the Camera Adapter Bracket.
- 2) After pressing the start button on the handpiece for a few seconds, the intraoral camera indicator will light or flash. You can use the camera. It is not recommended if it is not lit.
- 3) Do NOT allow the laryngoscope, tongue or other objects to obstruct the scanning window during an intraoral scan.
- 4) Do NOT wipe the surface with a cotton pad or cotton stick when the scanning window of the intraoral camera appears misty. Any cotton product may pollute the front of the camera, dramatically decrease the quality of scan image.

3.2.2 Recommended Scanning Order

- 1) General Mode
Upper Jaw → Lower Jaw → Occlusion,
or
Lower Jaw → Upper Jaw → Occlusion
- 2) Single Upper Implant Mode
Upper Jaw → Upper Scanbody → Lower Jaw → Occlusion
or
Lower Jaw → Upper Jaw → Upper Scanbody → Occlusion
- 3) Single Lower Implant Mode
Lower Jaw → Lower Scanbody → Upper Jaw → Occlusion
or
Upper Jaw → Lower Jaw → Lower Scanbody → Occlusion
- 4) Upper and Lower Implant Mode
Upper Jaw → Upper Scanbody → Lower Jaw → Lower Scanbody → Occlusion
or
Lower Jaw → Lower Scanbody → Upper Jaw → Upper Scanbody → Occlusion

3.2.3 Operation of Intraoral Camera

The intraoral camera features a simple one-button operation. You can perform all operations with only one button: Each time you press the start button of the intraoral camera, the scan window will switch as shown in Fig. 4-9.

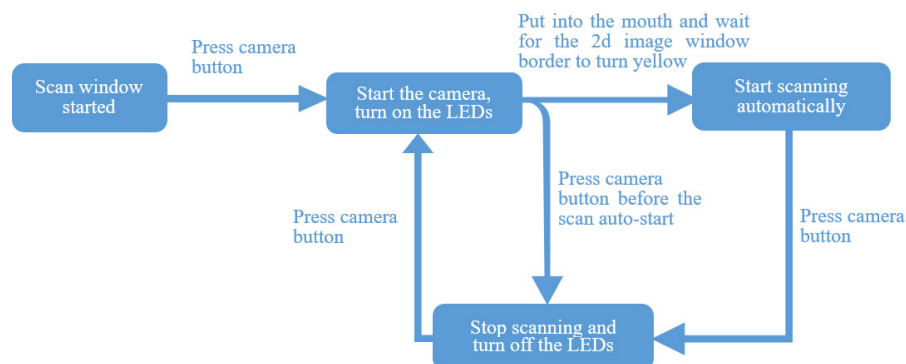


Fig. 4-9

B

1) Take out the intraoral camera, select one part to scan from the scanning target bar (upper jaw, upper scanbody, lower jaw, lower scanbody, buccal). Press the “Start” button on the handpiece, the LED lights at the front of the camera will begin to flash. Place the camera into the patient’s mouth. You can observe the mouth in real time from the 2D image window of the area (3) in Fig. 4-8-1.

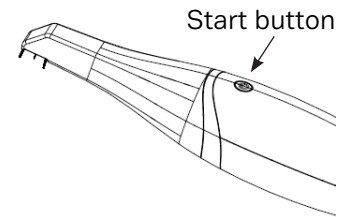


Fig. 4-10

2) Point the scanning window to the teeth to be scanned, and observe the teeth in the 2D image window in the area (3) of Fig. 4-8-1. Wait for the window border to turn yellow and keep the camera stable for two seconds, the scanning will start automatically, as shown in Fig. 4-11.

Note: To ensure the best quality of 3D scanning, it is recommended that the scanning window of the intraoral camera and the teeth to be scanned are kept at a constant distance of 5~15mm during scanning.

After starting the camera, the sensing status of the 2D image window is as shown in Fig. 4-11.



Fig. 4-11

- Yellow: Camera sensing succeeds. The camera will automatically start scanning when the yellow status remains stable for two seconds. Do not press the camera button again. If you press the camera button, scanning will stop.
- Green: Scanning is in progress.
- Red: Indicates interruption of scanning due to losing track of camera position. Possible reasons include: 1. No camera calibration file. 2. Abrupt change in position of intraoral camera (i.e., the intraoral camera moves too quickly).

Note: If the camera loses its position, point the camera’s scanning window at any previously scanned area. The camera will automatically recover the track of position and resume scanning. The model displayed in the 3D model preview area indicates positions that have been scanned. You can refer to the preview model to quickly recover the camera position.

3) When scanning, the prepared tooth and its adjacent teeth should be scanned completely so that a restoration can be properly designed based on the 3D model. Users can click the “Pause” button on the user interface to pause the scanning, then rotate the preview model to check the scanning quality.

4) Make sure that the clinically required 3D model has been completely acquired before the scan stops. There are two ways to stop scanning:

- Click the “Stop” button on the user interface (in the area (5) of Fig. 4-8-1) to finish the scanning.
- Press the button on the intraoral camera to finish scanning.

After post-processing is finished, a blue check mark will appear on the corresponding scanning target icon, as shown in Fig. 4-12.



Fig. 4-12

5) Check whether the 3D model is complete. After post-processing is finished, a complete 3D model will be displayed in the model preview area. Check the 3D model carefully by rotating, moving, or zooming in/out on the touch screen. If the 3D model does not meet the clinical requirements, you can click the “Delete” button to delete the model, and re-scan following the steps 2) -5).

6) Select another scan target for the next scanning. The steps are the same as in steps 2) - 6). Repeat steps from 2) to 6) and ensure the items in the scanning target bar are all toggled in green, as shown in area (1) of Fig. 4-8-1. This indicates that the data of all parts has been scanned and post processed. Thus, the scanning process has been completed.

3.3 Edit mode

After scanning, click “Edit mode” in the Fig.4-6 can enter the edit page, in which page the user can use “Erase”, “Fill” and “Invert” function to adjust the model,as shown in Fig. 4-13.

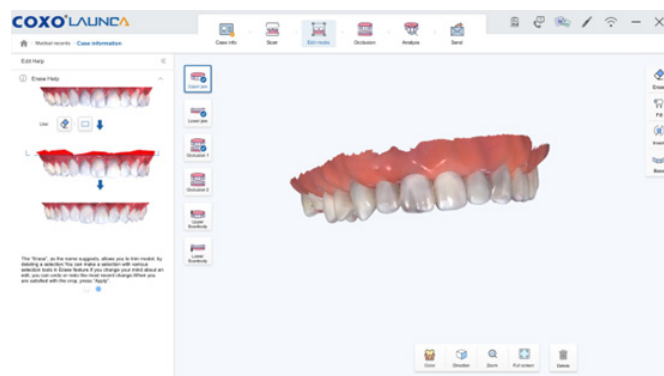


Fig. 4-13

- Erase: Trim unnecessary part of the model
- Fill: Fill the hole in the model automatically
- Invert: Invert the model direction automatically

4 Model Analyze

4.1 Occlusion analyze

Click “Occlusion” icon on the navigation bar to get the occlusion model which can be marked with different colors,as shown in Fig.4-14.

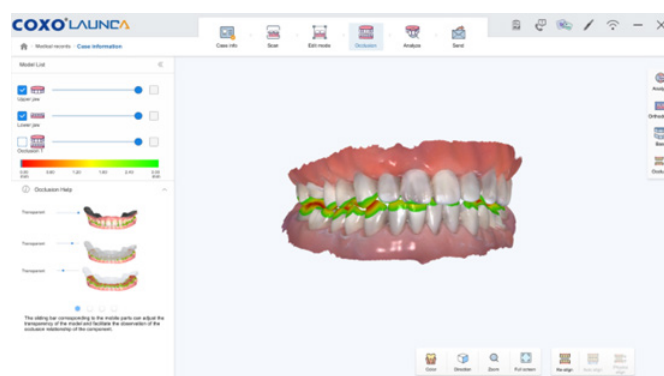


Fig. 4-14

Then click the “Analyze” icon in the right navigation bar of the “Occlusion” page to check the occlusion relationship of the model. User can analyze the distance between maxillary teeth and mandibular teeth, as shown in Fig. 4-15

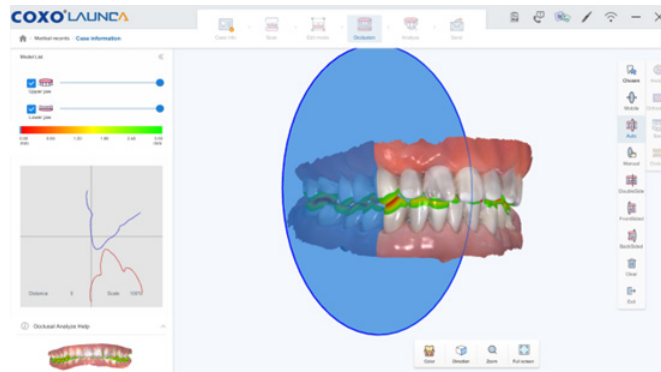


Fig. 4-15

4.2 Undercut and Margin line

Click the “Analyze” icon on the top navigation bar to enter the analyze page, in which page the user can check the undercut of the model and draw margin lines, as shown in Fig. 4-16-1 and Fig. 4-16-2.

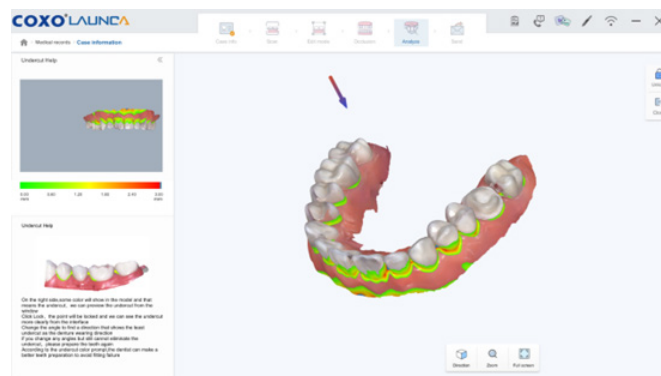


Fig. 4-16-1 Check the undercut

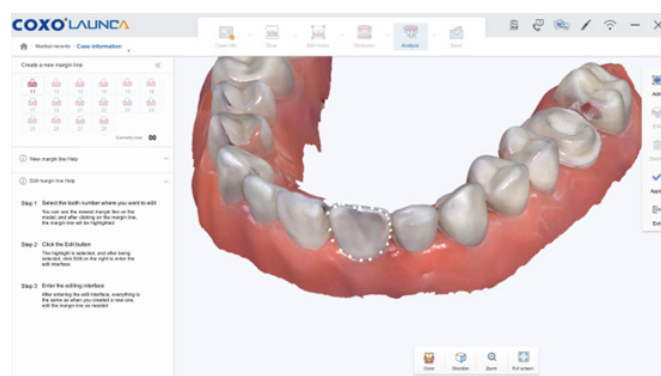


Fig. 4-16-2 Draw margin lines

5 Order Sending and Management

When the model scanning, editing and other processes are completed, click the “Send” button on the top toolbar to enter the order sending interface, as shown in Fig. 4-17.

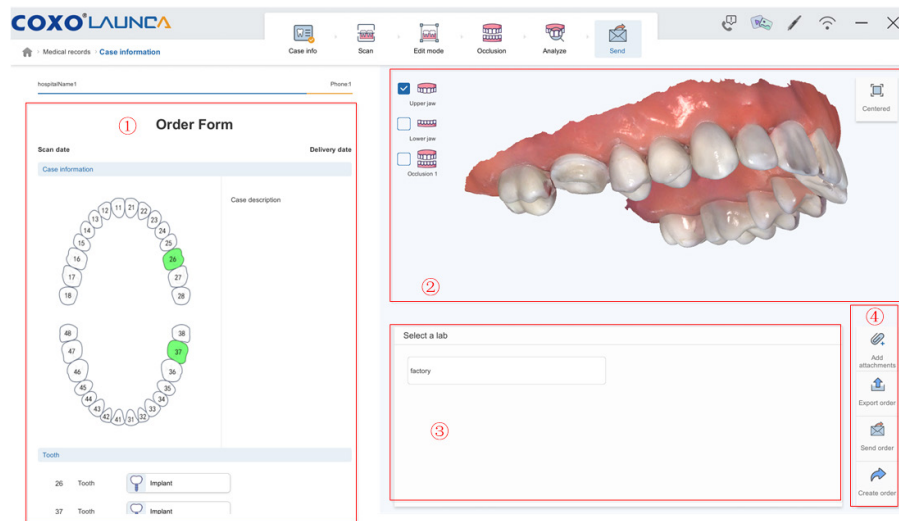


Fig. 4-17

- No. Description
- 1 Case Information Area:
 - 1) Scroll down to view the complete case information. Before the order is sent out, you can double check it and confirm the case information.
 - 2) You can select "Print" to print the order description file as needed, then select a printer for printing.
 - 2 Scanned Model Browsing Area: You can browse the scanned 3D data model here. If you filled in holes for the model, the filled in parts are displayed in light yellow in the sending interface.
 - 3 Select an appropriate lab and click the "Send Order" button to send an order.
 - 4 Order Processing Area:
 - Add attachments: Add attachment files for this case.
 - Export Order: The order is exported in ZIP format, which includes a PDF order description file and several model files (STL, PLY format supported, select as needed when exported).
 - Create Order: Create an order file for this case.
 - Send Order: Send the order file of this case. Different sending options (mail or cloud) and sending formats (PLY or STL) are provided. In the sending mode selection dialog, it will prompt that the format depends on the sending configuration in the management application. For details, please refer to "Chapter III 2.5 Lab Information Setting".

5. Repair and Maintenance

1 Repair

Warning: For repair or replacement of scanner parts, please contact an authorized Launca distributor. Unauthorized personnel are not allowed to repair the product.

2 Cleaning and disinfection

2 Cleaning and disinfection

2.1 Camera tip cleaning and disinfection

The reflective mirror of the camera tip is a delicate optical element. Any stains on the reflective mirror will affect the quality of the scan data. To ensure the proper use of this product, please follow these steps to clean and disinfect the camera tip:

Step 1: Pull out the tip from the camera and rinse the reflective mirror under cold water. After rinsing, thoroughly dry it with a clean, nonfat gauze or dust-free cloth.

Step 2: Take a dust-free cloth and dip it in a small amount of 75% alcohol (anhydrous alcohol works better). Gently wipe the reflective mirror of the camera tip, ensuring there are no stains. If any stains are present, repeat this step.

Note: Don't touch the mirror directly with your hands to avoid leaving stains.

⚠ **Note:** Carefully check the reflective mirror after cleaning. This step is crucial!



Step 3: Place a non-woven sponge (the same size as the scan window) on the mirror position of the dried camera tip, ensuring that the non-woven sponge completely covers the window.

Step 4: Place the tip in a sterilization pouch and ensure that the pouch is sealed air-tight. Then put it into an autoclave sterilizer set at 134°C for 5 minutes for sterilization, followed by an 8-minute drying cycle.



2.2 Device Cleaning

Before proceeding, make sure to turn off the power to the device.

Please wipe the device with wet gauze and then wipe it again with dry gauze. If the equipment is dirty, you can clean it with 75% alcohol and then wipe it with a dry cloth. Do not let disinfectant liquid to come into contact with the connections or inside the device.

⚠ **Note & Warning:**

Never immerse the intraoral camera in any liquid.

Only the camera tip can be autoclavable. Do not sterilize the entire intraoral camera using steam pressure. The number of times the camera tip is disinfected should not exceed 100 times.

Cleaning and disinfection before sterilization should be carried out in strict accordance with the hospital's cleaning and disinfection procedures.

The scanning window at the front of the intraoral camera is made of optical-grade glass. Avoid bumping or scratching it with hard objects. The scanning window of the intraoral camera does not need to be cleaned when it is free of dirt. Please minimize the frequency of wiping the scanning window.

Disinfection by higher temperature and pressure, irradiation and ethylene oxide or other means of disinfection may damage the precision parts, resulting in malfunction of the intraoral camera. Please note that this damage is not under the warranty.



3 Technical Data

Function Items	Parameters and Configuration
Scanning Features	Continuous collections with high-definition video
Application Range	Prosthetics and orthodontics
Recommended Operating Distance	0mm~20 mm
Scanning Accuracy	Single tooth $\leq 20 \mu\text{m}$ Bridge teeth $\leq 45 \mu\text{m}$ Full jaw $\leq 60 \mu\text{m}$
Camera Size	220mm(L)*35mm(W)*40mm(H)
Camera Weight	180g
Camera Tip	Standard model: 90mm(L)*33mm(w)*33mm(H), window:16mm*16mm ; Mini model: 90mm(L)*33mm(w)*33mm(H), window:13mm*13mm ;
3D Video Scanning	Real-time 3D scanning
Quick positioning for continuous scanning	Supported
Model optimization and hole filling	Supported
Automatic aligning	Supported
Contact analysis	Supported
Multi-touch screen operation	Not supported
Output Format	STL, PLY
Package Dimensions	470 mm (L) × 370 mm (W) × 150 mm (H)
Package Weight	2.5kg

6. Troubleshooting

Email server connectivity test failed

- 1) The network status of some clinics may cause the failure of the mailbox connectivity test. Please check your network environment.
- 2) Please check whether the "Mailbox SMTP Settings" in the management application is correct. Incorrect settings may also cause failure of mailbox connectivity testing.

Fail to send an order

- 1) Please check whether the network environment of the device is normal.
- 2) Please check whether the "Mailbox SMTP Settings" in the management application is correct. Incorrect settings may also cause failure of order sending.
- 3) Check whether the order file size is too large. Since the size of sending or receiving files is limited by some mailboxes, it may also cause the failure of order sending if the order file is too large. In this case, please select "Export Order" in the "Send" interface at the scanner application and send it by other means.

Chinese Input Method

The scanner application and management application use the Google input methods. Do not uninstall it without permission. If you want to use Chinese input method, press "Ctrl + space" on the soft keyboard.

Note: Since other Chinese input methods may not be compatible with the Scanner application, Do NOT install other input methods without permission to avoid system compatibility problems.



Fail to align models

- 1) Try to select auto align first. Select manual aligning only when the automatic aligning fails several times.
- 2) Before manual aligning, you need to check and confirm that the orientations of the upper jaw, lower jaw and buccal model to be aligned are similar. If the orientations are too far, you need to adjust the 3D model of the upper jaw or lower jaw orientations to be similar with the buccal model.
- 3) If the model of the upper jaw/lower jaw cannot align with the buccal model for several times, you may need to re-scan the models.

Improper intraoral camera connection

Improper connection of the intraoral camera may cause failure to start the camera or failure to scan. In this case, refer to “Chapter I 3.4.3 Connection of Intraoral Camera”, re-connect the intraoral camera and restart the scanner application.

Loose dongle

When the dongle that comes with the scanner becomes loose, and therefore the scan window cannot be started normally, a “Not Found Key” prompt dialog box will pop up. In this case, contact an authorized Launca distributor for technical support.

 **Note:** If you cannot solve the scanner problems with the above tips, contact an authorized Launca distributor for technical support.

Do not disassemble the device. Any failure caused by unauthorized disassembly of the device is not covered by the warranty.



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