



CS 7200



User and Installation Guide

Notice

The CS 7200 User Guide describes and illustrates the workflow for digital dental radiography using an imaging plate (storage phosphor screen) for radiographic diagnostic intraoral images. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.



Important:

- **Read and follow the operating instructions in this guide carefully and always keep it within easy reach.**
- **The room in which this unit is to be installed must comply with all official applicable regulations.**
- **Improper use and handling can create hazards and cause damage to the unit.**
- **To prevent personal injury or material damage, you must observe all safety information.**
- **Consult the CS 7200 Safety, Regulatory and the Technical Specifications User Guide before using the CS 7200.**

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U.S. Federal law restricts this device to sale by or on the order of a dentist or physician.

This document is originally written in English.

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List of Consumables		

1 Conventions in this Guide

Conventions in this Guide

The following special messages emphasize information or indicate potential risk to personnel or equipment:



WARNING: Warns you to avoid injury to yourself or others by following the safety instructions precisely.



CAUTION: Alerts you to a condition that might cause serious damage.



Important: Alerts you to a condition that might cause problems.



Note: Emphasizes important information.



Tip: Provides extra information and hints.

2 CS 7200 Overview

Indications for Use

The CS 7200 is intended for digital dental radiography using an imaging plates (phosphor storage screens) for dental intra-oral X-ray imaging.

Introduction



Note: The CS 7200 is intended for dental professionals. You are required to have training to use the CS 7200.

The CS 7200 system is used to scan and review intraoral dental X-ray images. When scanning the X-ray exposed imaging plate a digital image is displayed on the workstation screen. After scanning, the scanner erases the imaging plate and ejects it. The imaging plate is ready for re-use.

The exam acquisition's scanned image is sent to the Dental Imaging Software on the workstation. Using the Dental Imaging Software, the image is processed and reviewed.

The system is composed of the following elements:

- CS 7200 scanning device ([page 4](#))
- Imaging plates ([page 7](#))



Note: The scanner is supplied with a separate viewing and archiving software package: *Dental Imaging Software*, approved by Carestream Health.



Note: The CS 7200 User Guide is provided on the supplied CD/DVD-ROM.

CS 7200 Components Overview

Scanner Overview

The CS 7200 scanner includes the functions necessary for scanning and acquiring images from the imaging plates.

Figure 1 CS 7200 Front View



On/Off switch

Turn scanner On: press for 1 second

Shut down the scanner:

- 1
 - press for 2 seconds to reset the scanner, run BIT.
The scanner remains turned on.
 - press for 5 seconds to turn off the scanner.

2 Indication LEDs

3 Cover

4 Base

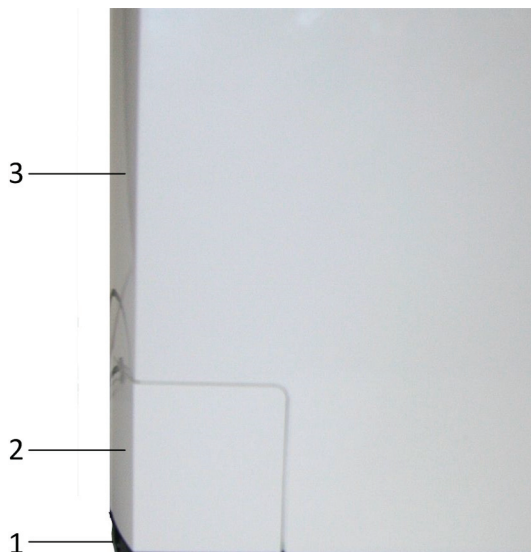
5 Intraoral imaging plates tray

6 Plate insertion entry

7 Plate size selection knob

8 Insertion panel.

Figure 2 CS 7200 Back View



- 1 Base
- 2 Cables compartment
- 3 Cover

Figure 3 Cables Compartment in detail





- 1 Power supply inlet
- 2 USB port
- 3 Cable Compartment cover



Indication LEDs Statuses




The scanner LEDs status indicator shows the following scanner states:

LED Color	Scanner State	Remark
Off	Off	
Blinking Yellow	 Power up/unload	Blinking yellow
Yellow	 Stand by (door closed)	Yellow
Yellow	 Disconnected	Type 1: Blinking yellow 1 - cable is disconnected Type 2: Fast Blinking yellow - no driver Type 3: Constant yellow: no UltraLite or scanner is not ready
Blinking Cyan	 Plate is fully loaded. Take out envelope.	Beeps twice, sync with light,
Green	 Insert plate (Door opened)	Green
Green	 Load & recovery	Green
Green	 Recovery	If plate is not fully loaded for a number of times (three consecutive attempts), the scanner performs a reset and returns to loading position.
Green	 Ready for scan	Green
Blinking Green	 Scanning	
Fast Blinking Green	 Erasing/Eject	
Blinking Red	 Error	

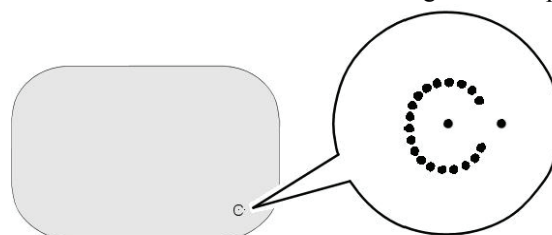
Imaging Plates Overview

The CS 7200 works with three imaging plate sizes: 0, 1 and 2. The scanned image file size depends on the imaging plate size and the scanning resolution set by the user.

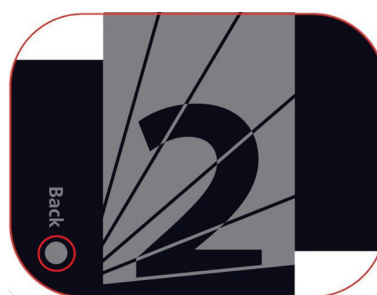
Table 2-1 Intraoral imaging plates sizes

Size	Illustration	Application
0		Periapical exam (Pediatric dentistry)
1		Bitewing exam (Pediatric dentistry)
2		Periapical exam (Adult)

The imaging plate has two sides: the active side for capturing the X-ray image and the inactive side. The active side of the imaging plate includes an orientation 'c' mark with a dot inside to facilitate positioning protocols within the patients' mouth. The inactive side has a printed dot that corresponds to the location of the orientation mark on the active side. This dot is visible through the transparent side of the hygienic sheath.



Active side

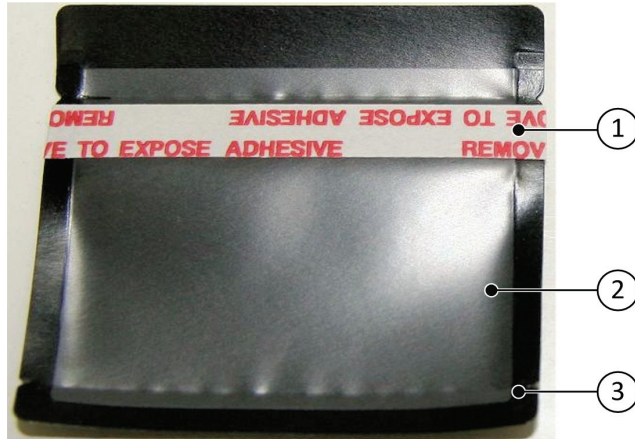


Inactive side

Hygienic Sheaths

For each imaging plate size, a one-time use, disposable, hygienic sheath is used for preventing cross contamination. The transparent side allows you to see the dot, while the opaque side protects the active side of the inserted imaging plate from image degradation.

Figure 4 Hygienic Sheath (front view)



- 1 Adhesive strip (for sealing the hygienic sheath)
- 2 Sheath transparent side to see the plate reference
- 3 Tear line to be opened when inserting the plate into the scanner

3

Setting Up CS 7200

Environmental Requirements

Check the following ambient operating condition requirements of the room, before installing the unit:

Temperature: 15–35 °C

Relative humidity: 30–85 % Non-condensing

Atmospheric pressure: 700–1060 hPa

For optimal results it is recommended that the light level in the room is approximately 500 lux (normal light conditions) to minimize the imaging plates exposure to light.



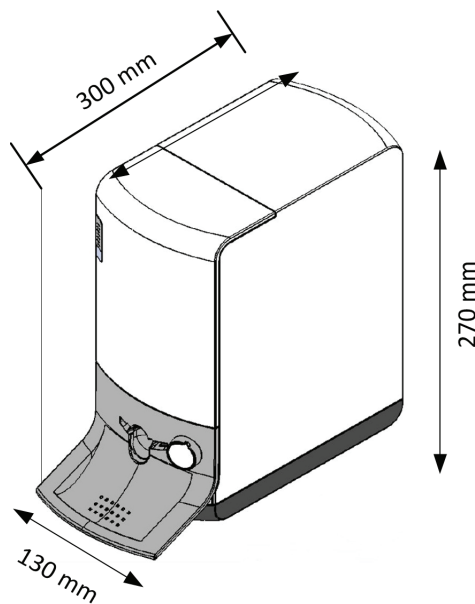
Important: The scanner should be positioned so that there is always easy access to the mains power supply socket.



Important: It is recommended not to install the scanner close to the opened window to prevent the exposure to the direct sunlight.

Unit dimensions and Space Requirements

The scanner should be placed on a flat stable surface.



The unit dimensions illustrated in the above figure are as follows:

- Height of the unit 270 mm. (10.6 in.)
- Width 130 mm. (5.1 in.)
- Depth 250 mm. (9.8 in.)

Electrical Requirements

Table 2 Electrical installation specifications

Electrical Installation Specifications	
Power Supply	100 V AC – 240 V AC, 08 - 04 A
Frequency	50/60 Hz
UPS (online, recommended)	700 VA (UPS is connected to the scanner, computer and monitor)
Minimum clearance between the table and the mains wall outlet	10 cm / 3.5 in.

Minimum System Requirements

For installation of the CS 7200 intraoral imaging software, the computer must meet the minimum computer system requirements, specified in the *CS 7200 Safety, Regulatory & Technical Specification Guide*.



Important:

It is MANDATORY to check that the computer system configuration is compatible with the computer minimum system requirements specified in the Safety, Regulatory & Technical Specifications Guide. If necessary you must update your computer system configuration.

Setting Up CS 7200

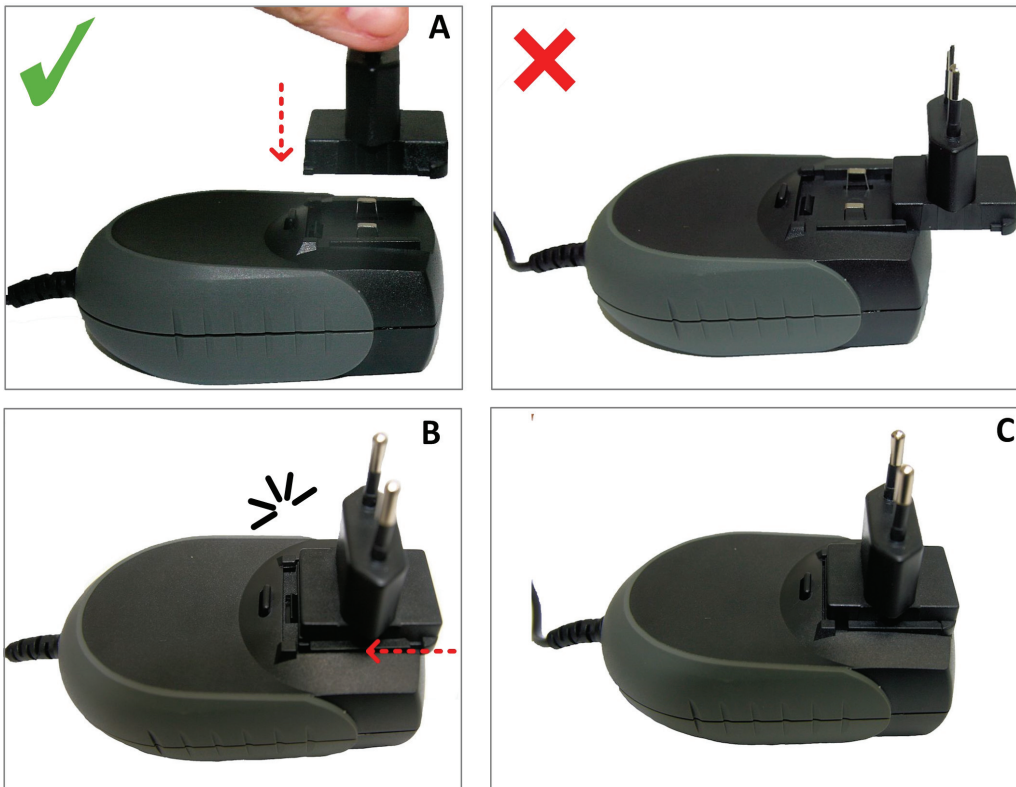
Connecting Cables

This chapter describes how to connect the Power Supply and USB cables to CS 7200:



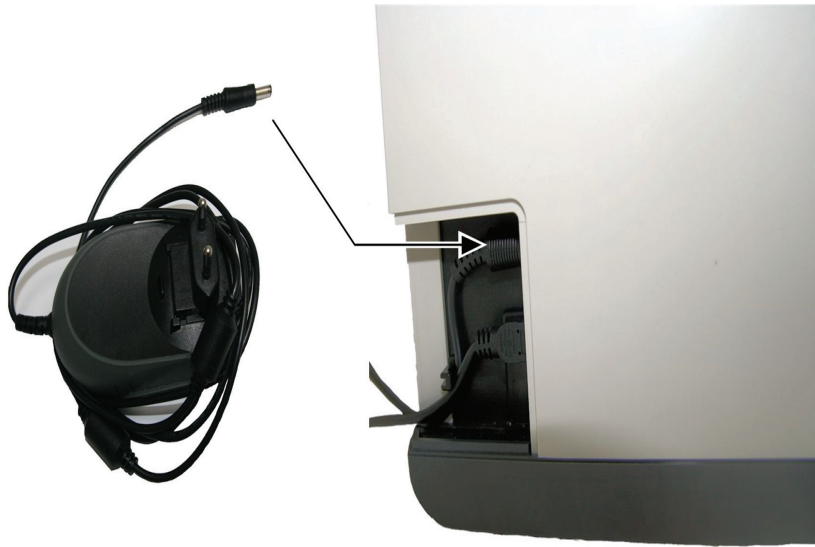
Note: CS 7200 must be powered by the dedicated AC/DC adapter model TR30RAM240, manufactured by Cincon Electronics Co., Ltd.

1. Install the power supply adaptor on power supply as shown below:

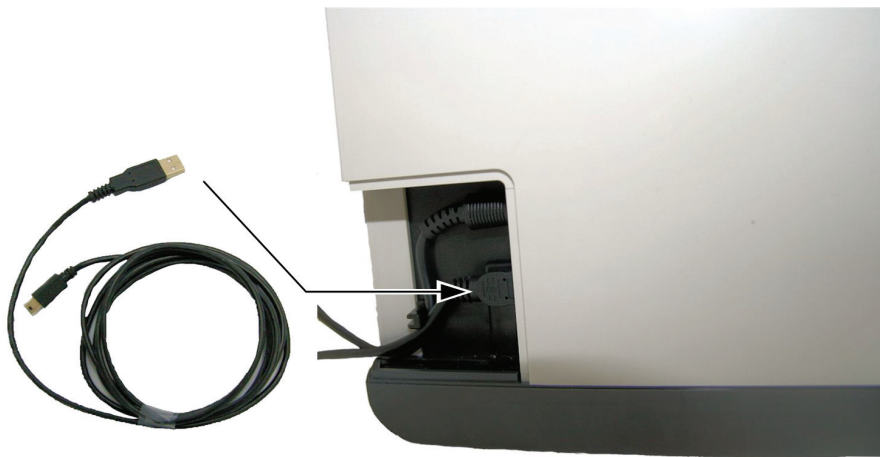


2. Remove the cable compartment cover.

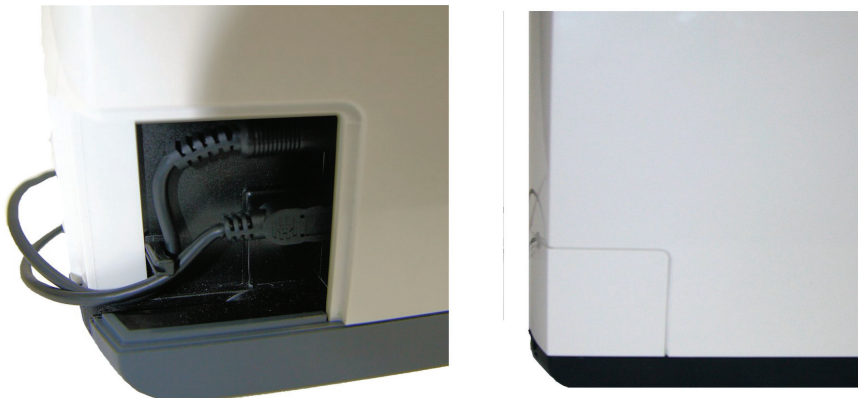
3. Connect the Power supply cable to the power supply inlet in the cable compartment and route the cable as shown on the below image to secure the cable in its place:



4. Connect the USB cable to the dedicated connector in the cable compartment, and route the cable as shown on the below image to secure the cable in its place:



5. Close the cable compartment cover.



6. Connect the free end of the USB cable to the main USB port in the back of the computer.

7. Connect the Power Supply cable plug to the Mains wall socket.

Dental Imaging Software Installation

This chapter describes the installation procedure of the Dental Imaging Software.

Before installing dental imaging software, check that:



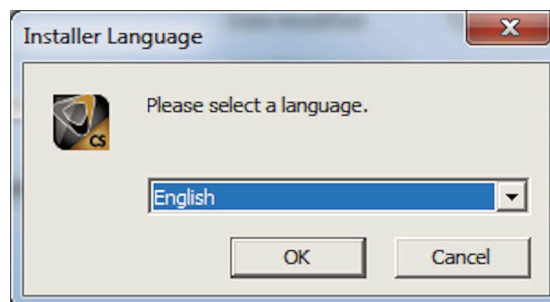
NOTE:

Before installing dental imaging software, check that:

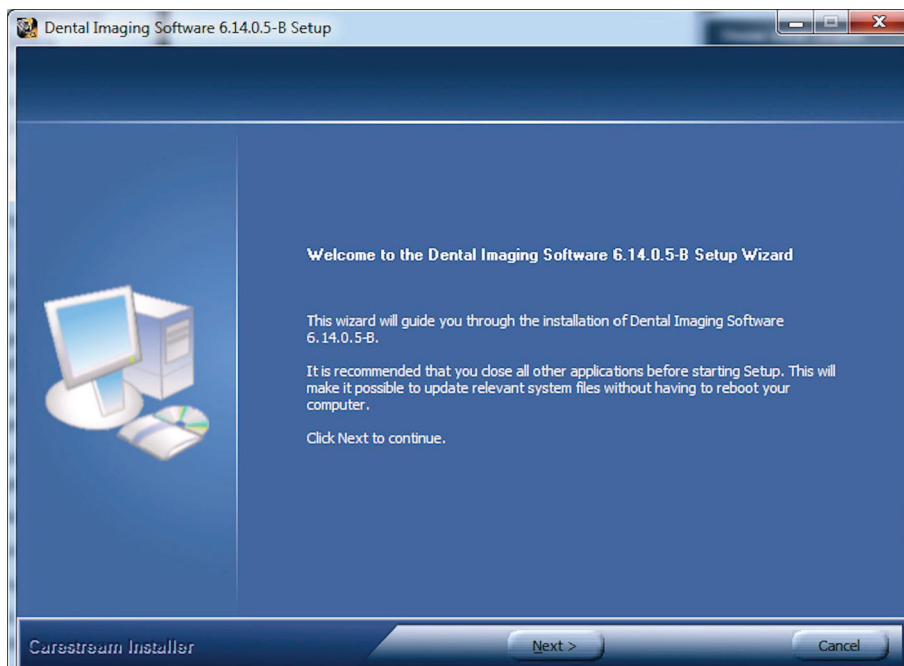
- **The computer meets the minimum computer system requirements. See CS 7200 Safety, Regulatory & Technical Specifications Guide.**
- **You have the two software DVD-ROMs: one for Carestream Dental Imaging Software and the other one for Scanner Driver Software.**
- **The sleep mode in the computer is disabled.**

To install the Dental Imaging Software, follow these steps:

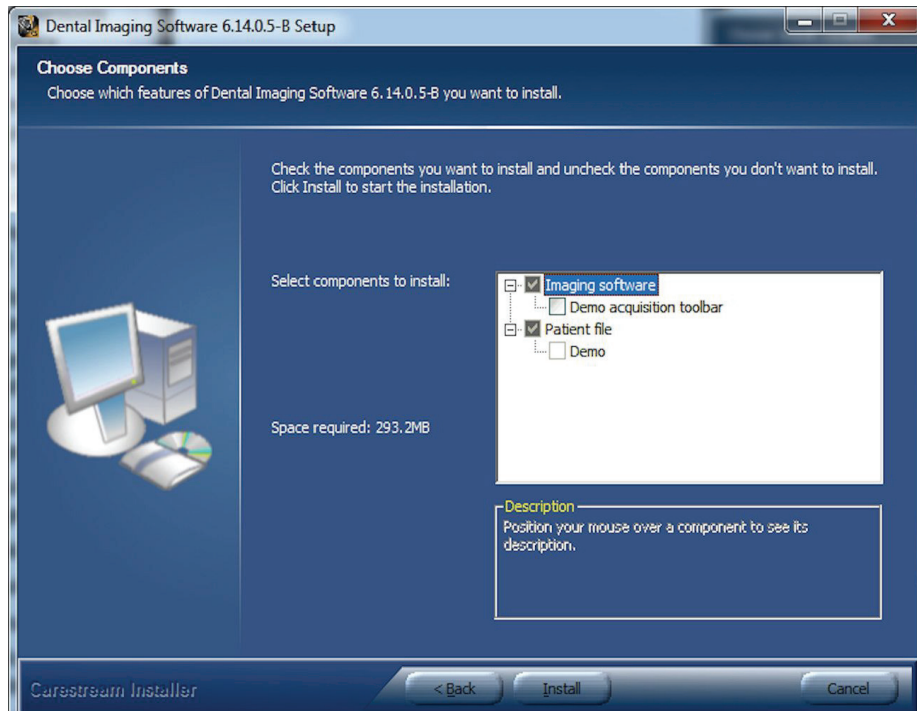
- 1 Insert the Carestream Dental Imaging Software DVD-ROM in the DVD-ROM drive of the PC.
- 2 The **Choose Setup Language** dialog box is displayed. Select the installation language and click **OK**.



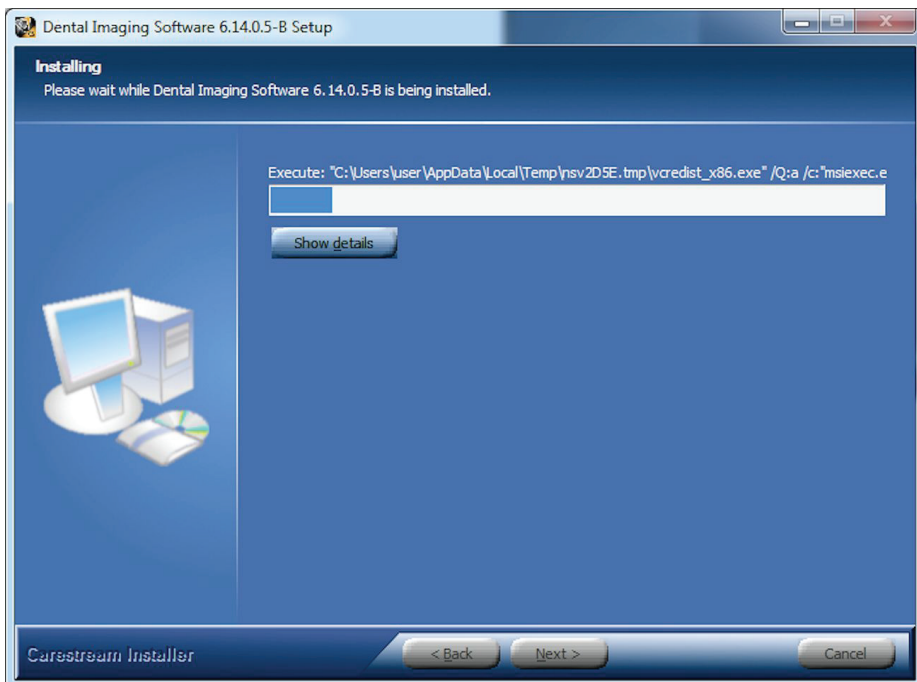
- 3 The **Welcome** screen is displayed. Click **Next** to continue.



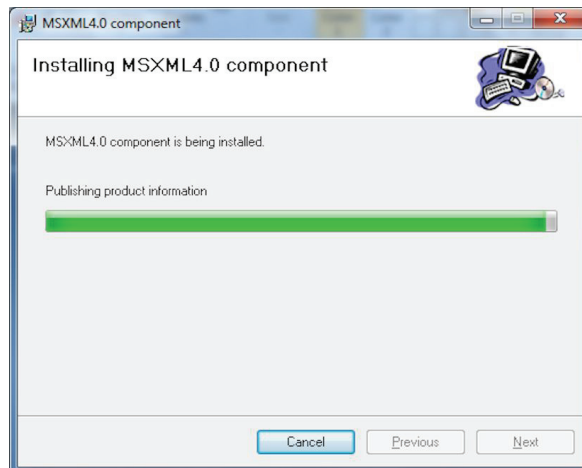
- 4 When you reach the **Choose Components** screen, you can optionally choose to install or upgrade the following:



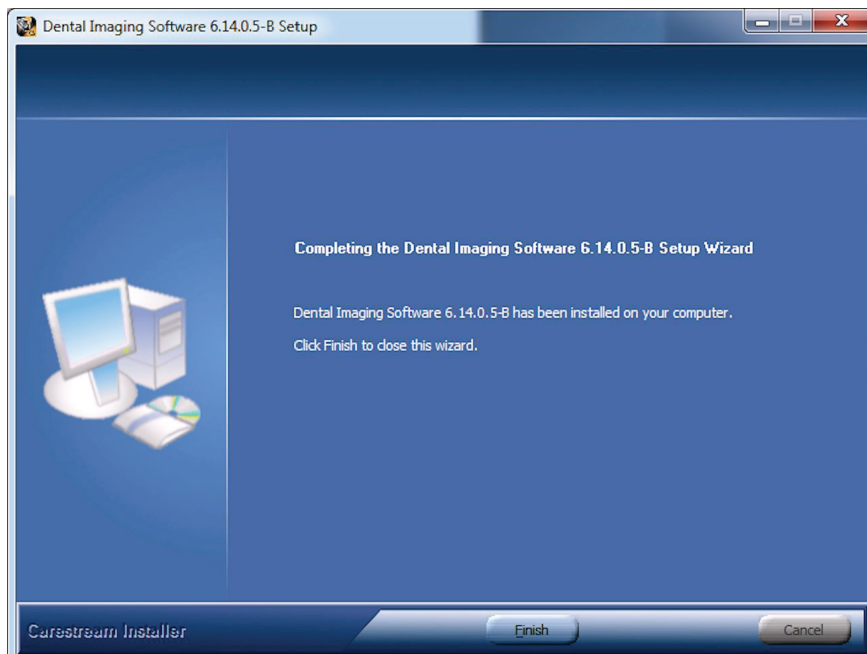
- **Patient file:** is selected by default. You can deselect, if you do not want the patient database.
5. Click **Install** to continue.
6. The **Installing** wizard screen is displayed. Let the installation process run automatically.



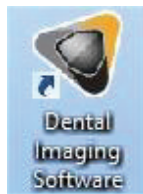
- 7 The **Installing MSXML4.0 component** screen is displayed. Let the installation process run automatically. When the installation is complete, click **Next**.



- 8 The **Installation Complete** screen is displayed when the installation is finished. Click **Finish**.

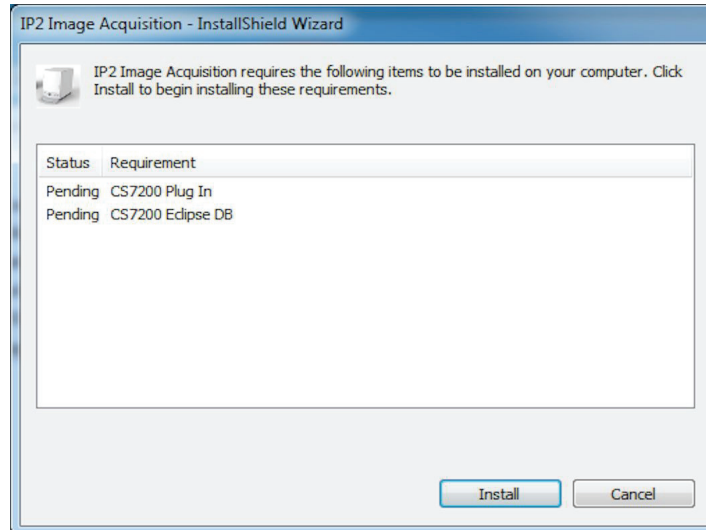


The Dental Imaging Software shortcut icon is installed on your desktop.

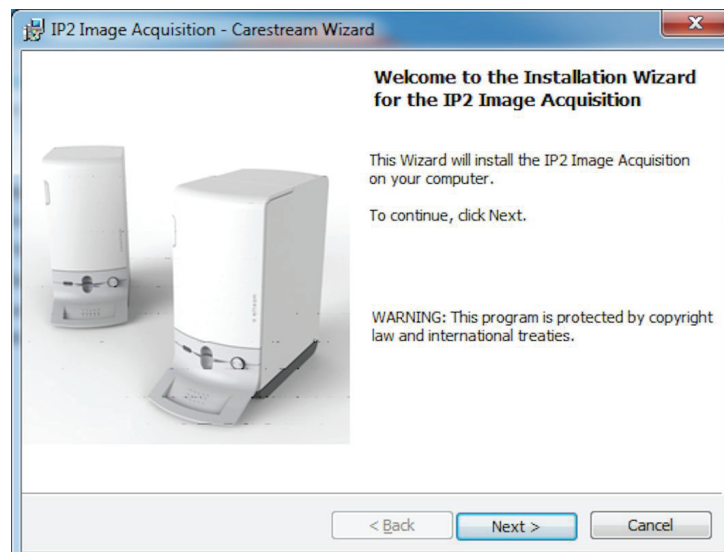


CS 7200 Drivers Installation

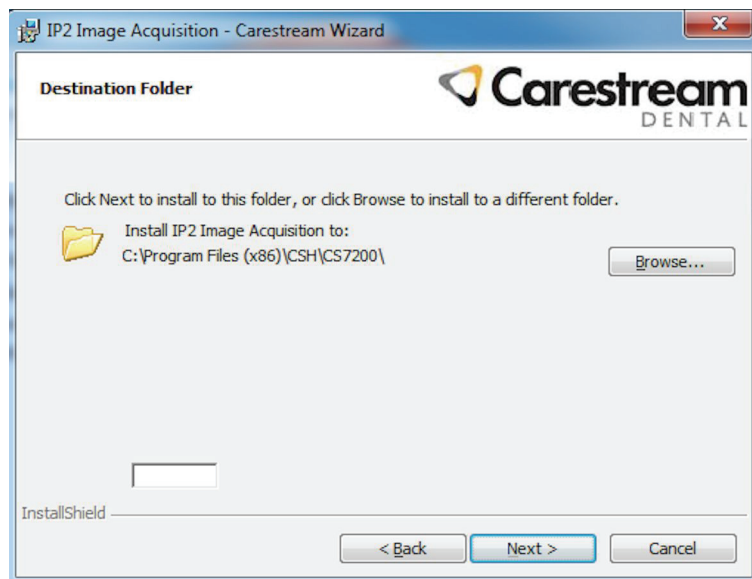
1. Insert the Scanner Driver Software DVD-ROM into the DVD-ROM drive.
2. Wait for the installation program to start.
3. The installation wizard window is displayed. Click **Install** to install the required plug-ins.



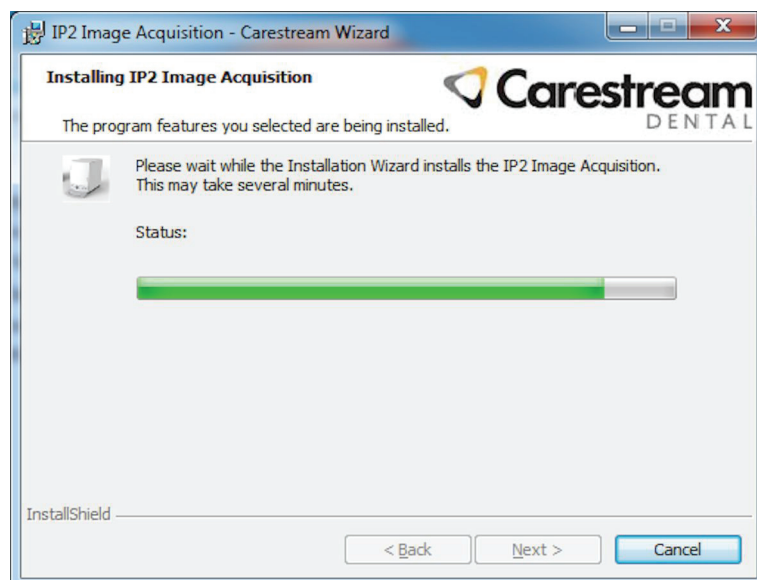
4. The **Welcome** window is displayed. Click **Next** to continue the installation process.



5. The **Destination Folder** window is displayed. Click **Next**, if you accept the default destination folder or browse to choose another destination folder, and then click **Next**.



6. Wait until the system installs the software.

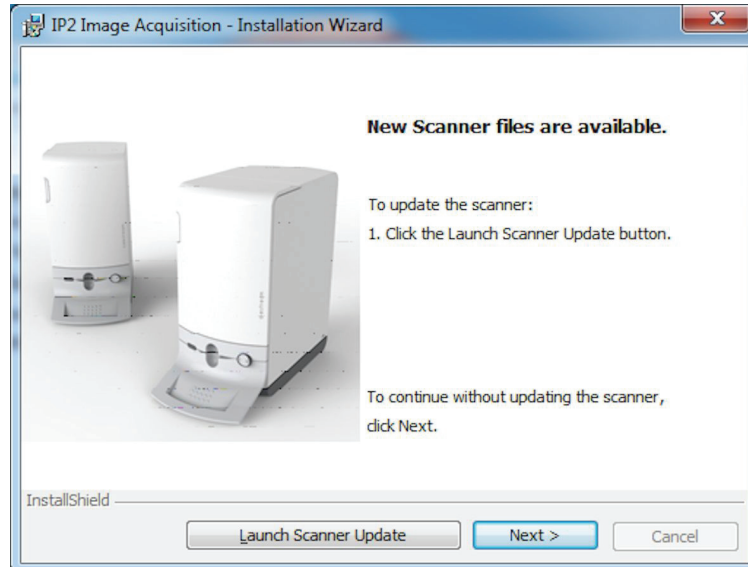


7. The **New Scanner Files** window is displayed.
8. Turn on the CS 7200.

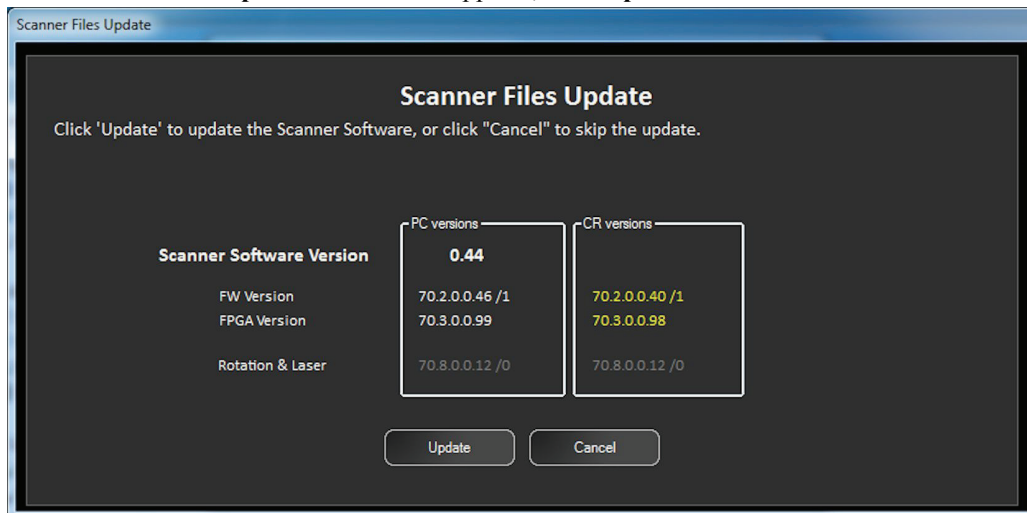
Wait for the system to complete the USB driver installation. During the installation, the LED blinks orange.

After the installation is complete, the LED turns steady orange meaning the installation succeeded.

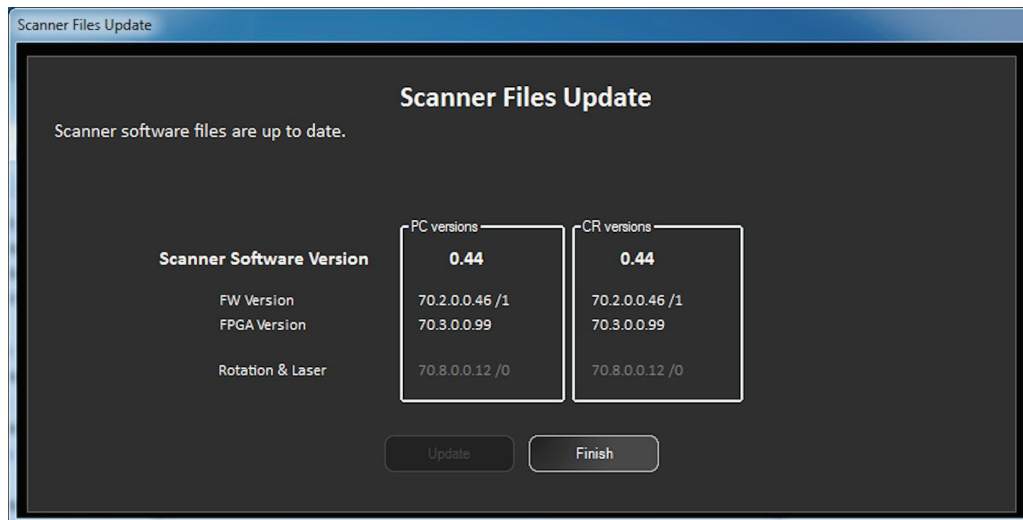
- Click **Launch Scanner Update** to update the scanner files.



- In the **Scanner Files Update** window that appears, click **Update**.

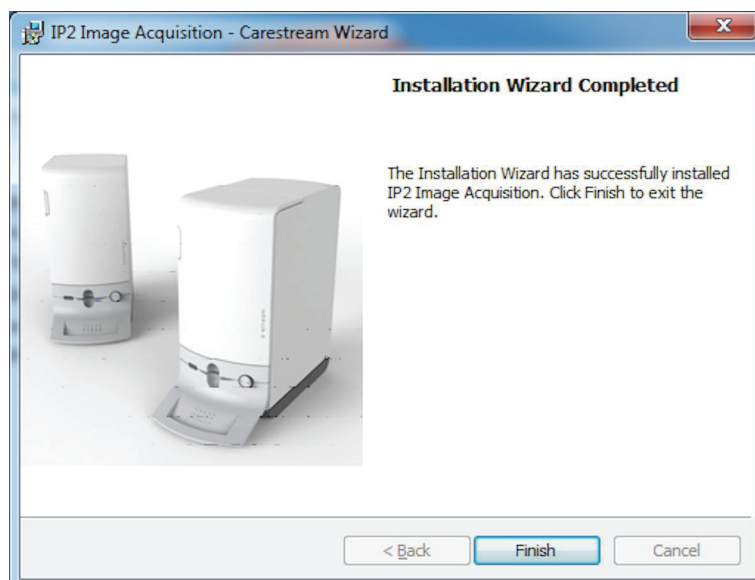


- Wait until the update is complete, and then click **Finish** to close the **Scanner Files Update** window.



You are returned to the **New Scanner Files** window.

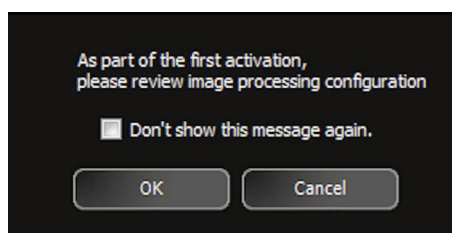
12. In the **New Scanner Files** window, click **Next**.
13. The **Installation Wizard Completed** window is displayed, when the installation is finished. Click **Finish**.



CS 7200 Post Installaiton Test

After software and scanner installation, check that all scanner components are properly installed and the scanned images are properly displayed in the Dental Imaging Software.

1. Start the Dental Imaging Software and select or create test patient. See “Starting the Imaging Software” on page 34.
2. The following dialog box appears:



3. Click **Cancel** to close the dialog box.
4. Expose a plate size 2 with a metal object (such as coin or key) on it.

5. Load the exposed plate into the scanner and wait until the scan is complete and the image is displayed on the Dental Imaging Software main screen. .



6. Close the Dental Imaging Software main screen.

Dental Imaging Software Adjustment Mode

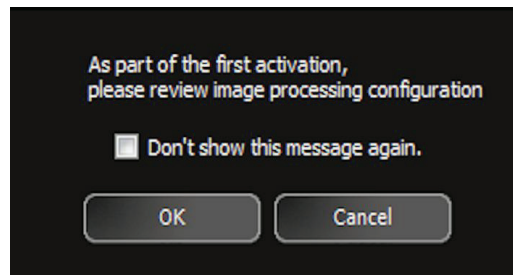
After the installation is complete, image adjustment is required. To adjust the image enhancement, perform the following steps:



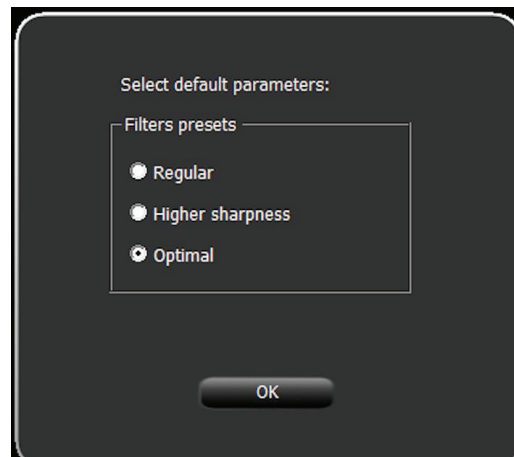
Note: The adjustment should be performed on a real patient image. After the adjustment is complete, the image is saved to a patient file.

1. Start the Dental Imaging Software and select or create the existing patient. See “Starting the Imaging Software” on page 34.

The following dialog box appears:

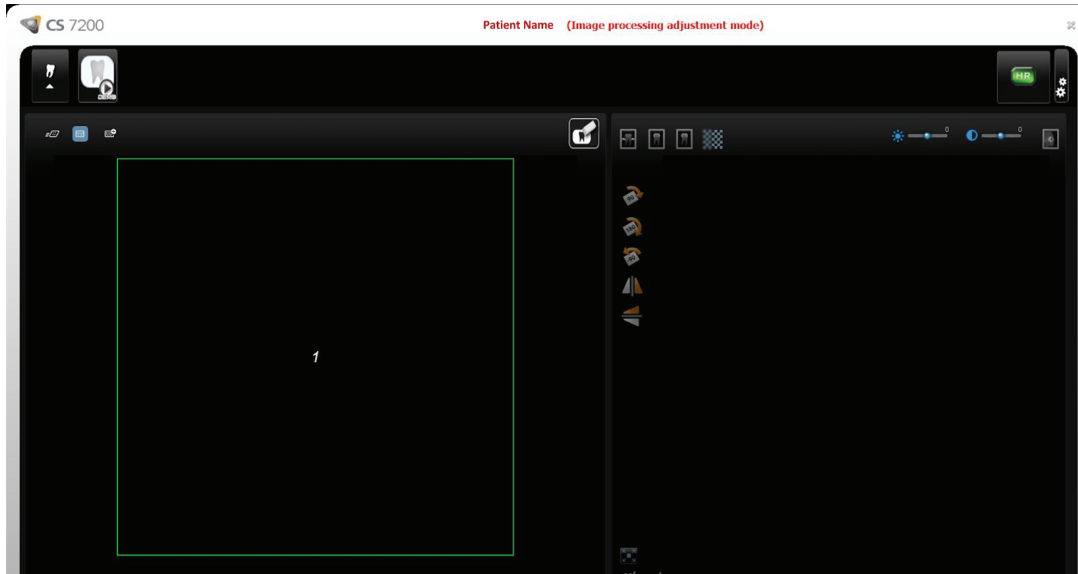


2. Click **OK** to proceed to processing configuration setup. Select Default Parameters window appears:



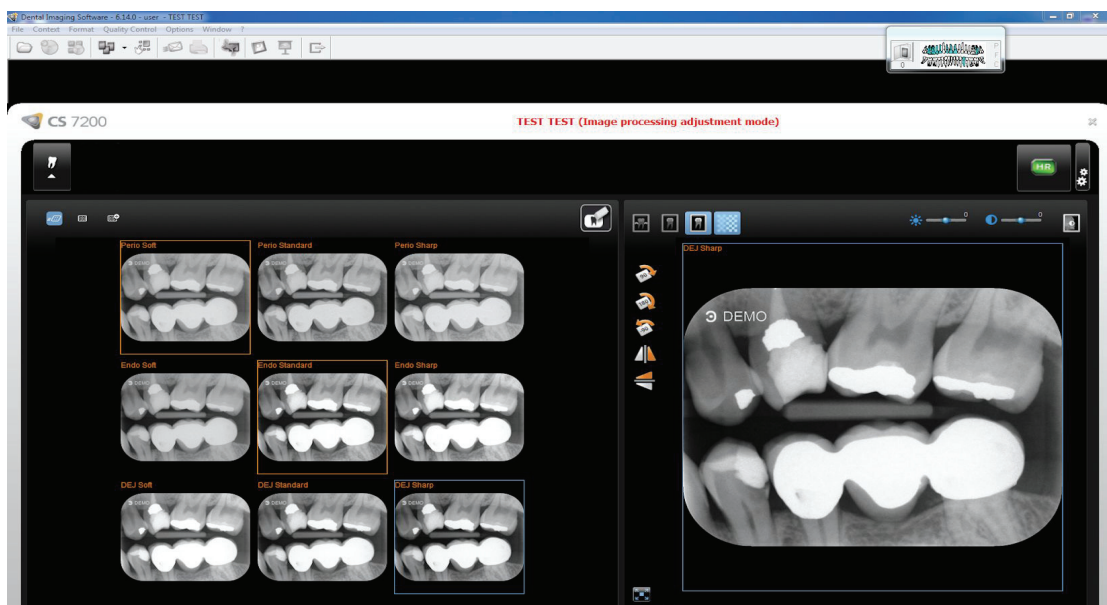
3. Click **OK** to proceed.

Image Processing Adjustment Mode window appears.



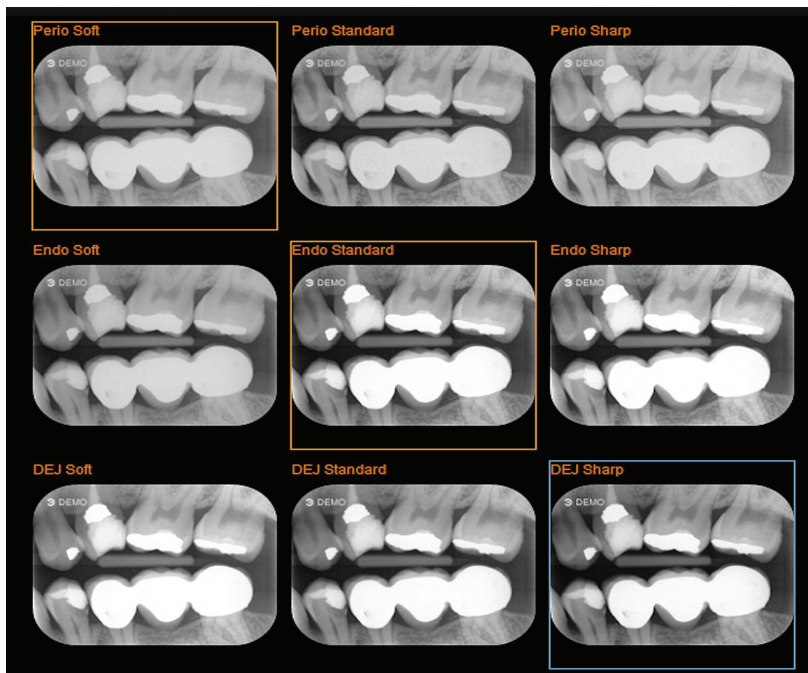
4. Perform the X-ray. See “Performing the X-rays” on page 36.
5. Load the plate into the scanner. See “Scanning Imaging Plate” on page 39.

The scanned image is displayed on the main screen as shown below:.

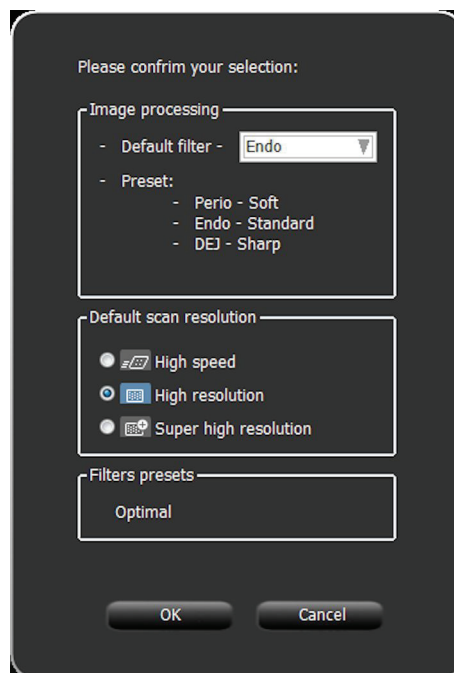


6. Select the preferred look for each image of dental structure.

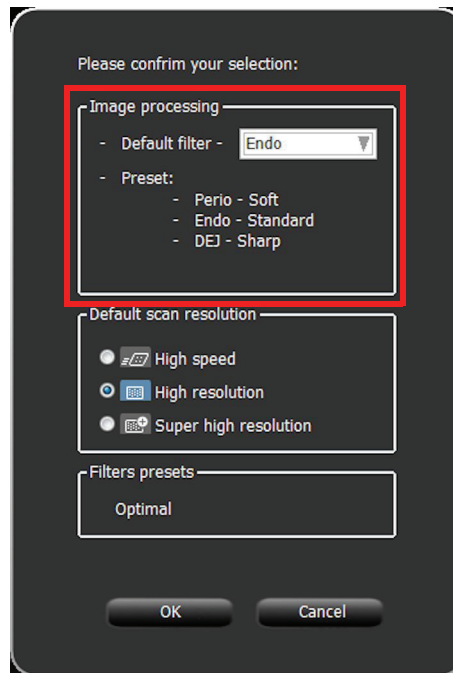
The selected look appears in the orange frame. The last selected image appears in a blue frame and will be set as a default each time when uploading scanned image into the Dental Imaging Software.



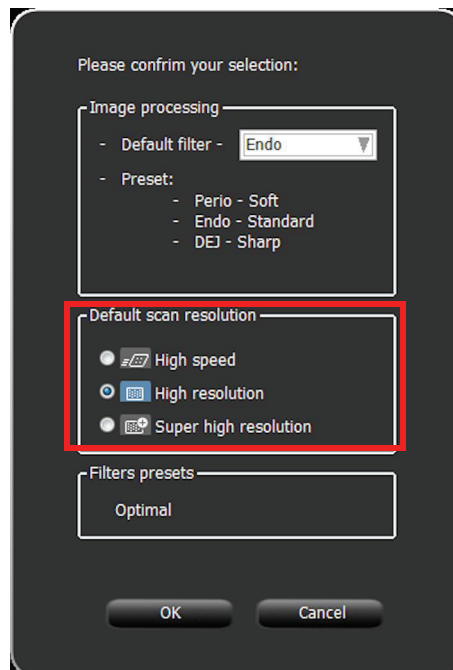
7. Close the Adjustment Mode window. The selection confirmation dialog window appears.



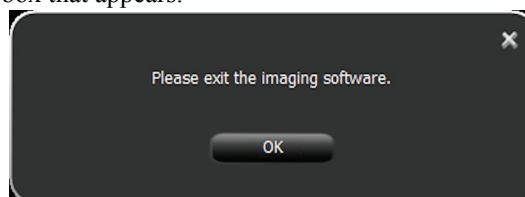
8. Verify the Default filter and dental structure selection. You can change the default filter, if required, by selecting another filter from the **Default filter** list.



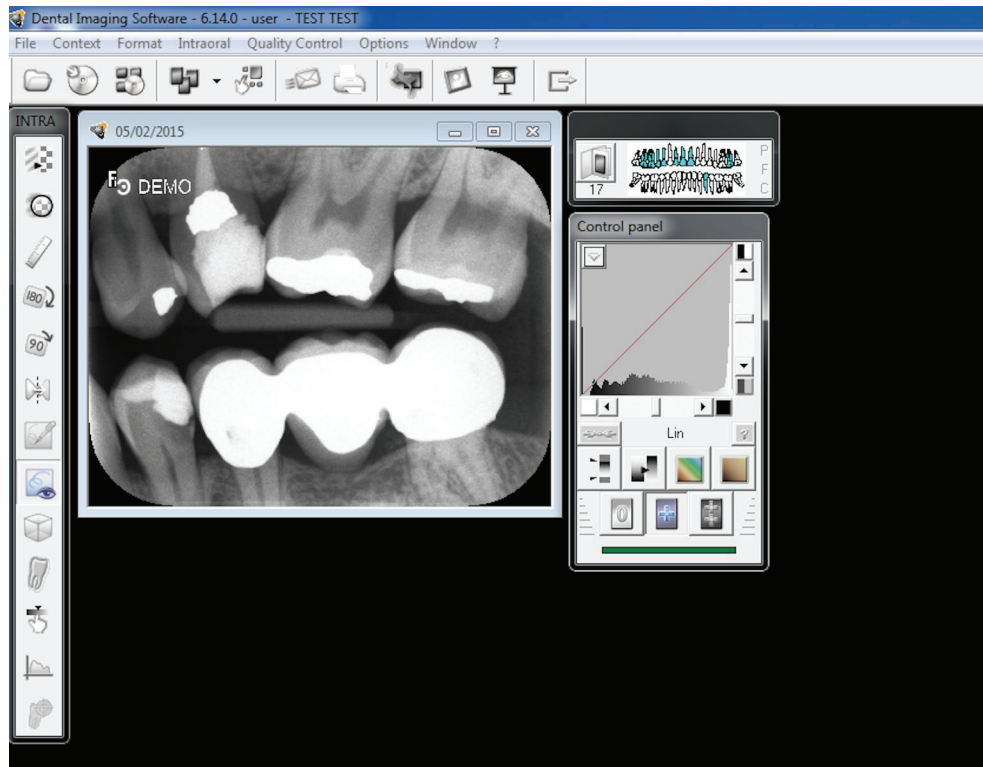
9. Select the default resolution and click **OK** to confirm and save the selection.



10. Click **OK** in the dialog box that appears.



You are returned to the software main window.



11. Exit the Dental Imaging Software.

The scanner is ready for operation.

End of the adjustment procedure.

4 CS 7200 Software Overview

General Software Overview

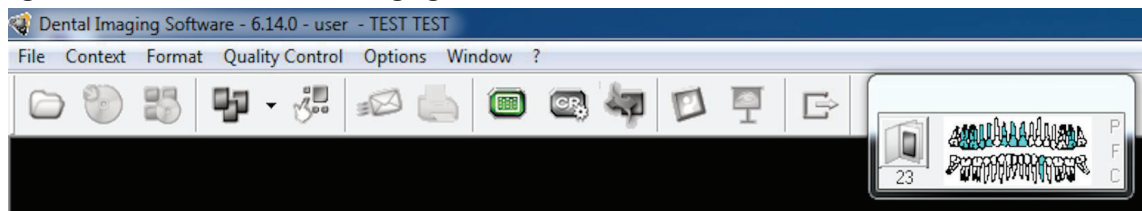
CS 7200 operates with the Carestream Dental Imaging Software. You can acquire:

- Single images.
- Full Mouth Series (FMS).

Single Image Acquisition Overview

You can acquire individual images using the Carestream Dental Imaging Software.

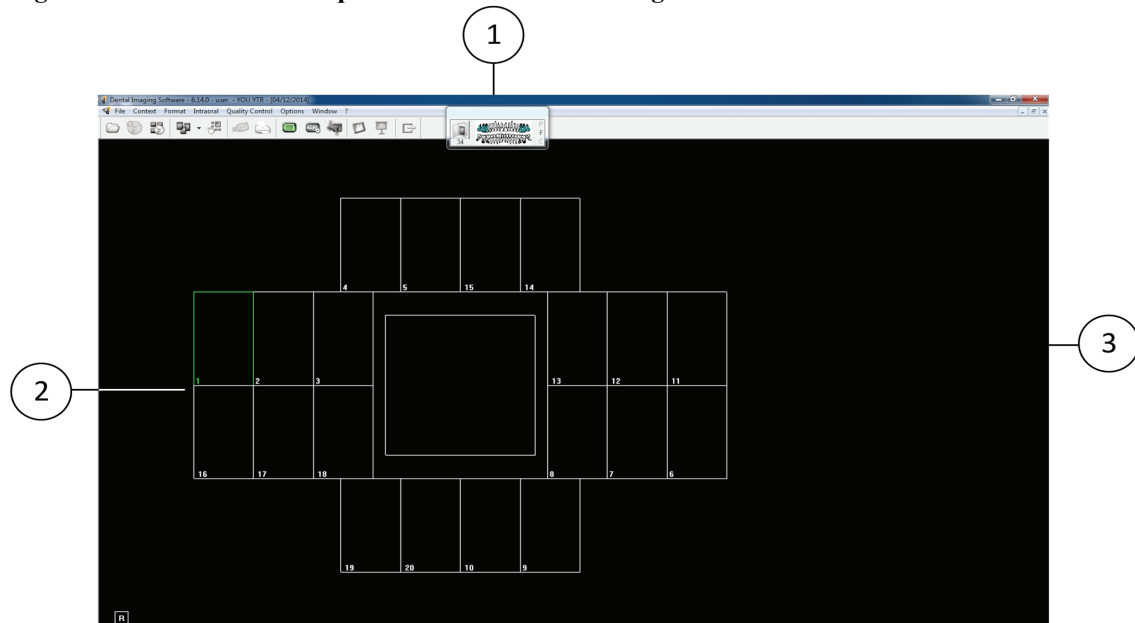
Figure 5 Carestream Dental Imaging Software with Active CS 7200 Scanner Connected



Full Mouth Series (FMS) Image Acquisition Overview

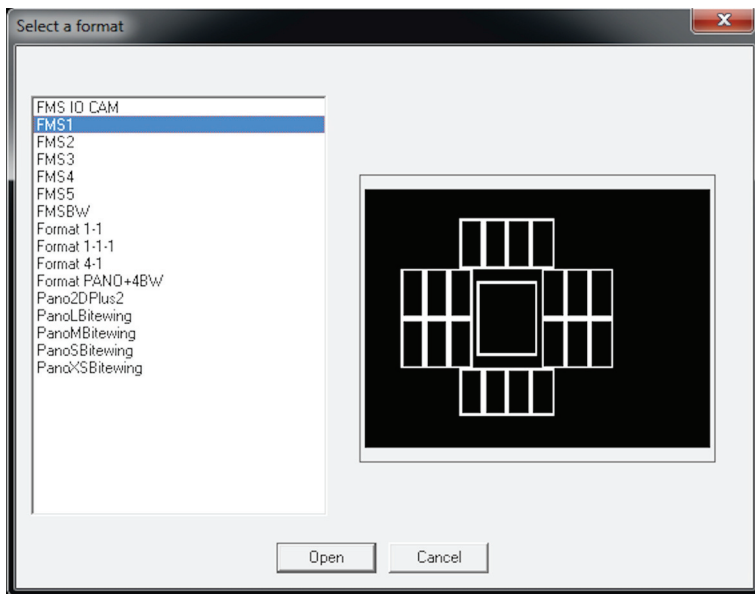
The Full Mouth Series (FMS) is a static representation of the mouth of the patient using a series of intraoral images. The images are placed in fixed numbered frames.

Figure 6 CS 7200 FMS Acquisition Interface Home Page



- ① **Dental arch:** Highlights the acquisition zone.
- ② **FMS template:** Displays frame templates for acquisition.
 - Green highlight: Frame ready for new acquisition
 - Blue highlight: Frame in the revue and retake mode. This mode interrupts the automatic acquisition sequence.
- ③ **Preview screen:** Displays the currently acquired image.

Figure 7 FMS Select a Format



Select a Format enables you to select FMS template options to select for acquisition. You can modify existing templates and create new templates (see the *Carestream Dental Imaging Software Online Help*).



Note: Only FMS templates for CR images can be used. Using other FMS will cause images not to be displayed.

Figure 8 Control Panel



Control Panel: enables you to adjust the brightness and contrast of the image. For more information on Control Panel functions, see the *Carestream Dental Imaging Software Online Help*.



Perio: Optimizes the display of periodontal tissues.



Endo: Optimizes the contrast values over the entire range.



Dentin-enamel Junction: Optimizes the values at the crown, the amelo-dentinal junction and roots.



Optiview: Maps pure black to blue and pure white to green, leaving other shades unchanged.



Negative: Displays the image as a photo negative.



Colors #1: Maps pure black to blue and pure white to red.



Colors #2: Maps middle-gray to orange and leaves pure white and pure black in their original states.

Figure 9 Intraoral Toolbar



INTRA toolbar: enables you to adjust the image display. For more information on Intraoral toolbar functions, see the *Carestream Dental Imaging Software Online Help*.



Sharpness filter: click to apply sharpnes filter on the image.



Highlight: click to optimize contrast within a region of interest.



Measurements: click to draw measuring lines on the image.



Flip: .click to rotate the image by 180° clockwise..



90° rotation:click to rotate the image by 90° clockwise.



Acquisition correction:click to create a mirror image of the original image.



Edit annotations: click to open the image in an annotations editor.



Display annotations: click to display any annotations on the image. Click again to hide the anotations.



Pseudo - 3D: click to display gray scale levels as height values.



Relief filter: click to enhabce the outlines of the shapes in an image by displaying the image in relief mode.



Isodensity dots: click to apply color to pixels of the same bone density.



Densitometric analysis: click to analyze bone density.



Caries Detector: click to open the Logicon Caries module for detecting interproximal caries.

5 Acquiring Images

Image Acquisition Workflow

This chapter describes the acquisition procedure for acquiring dental images.

A typical workflow consists of the following steps:

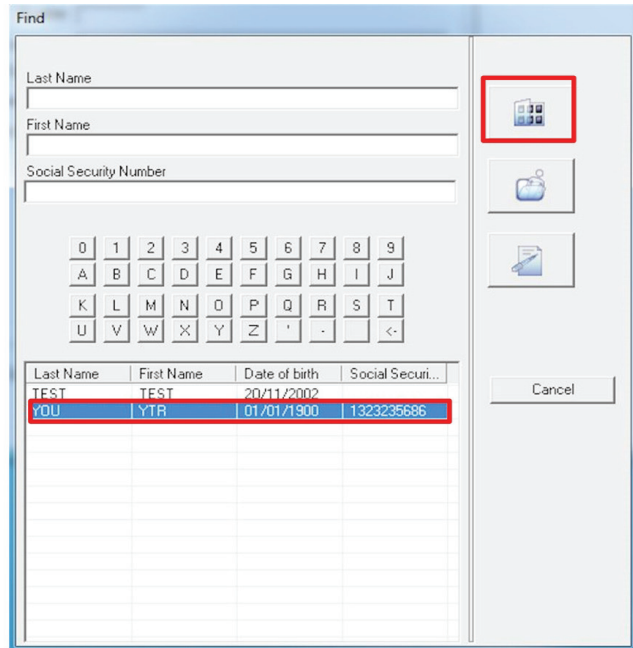
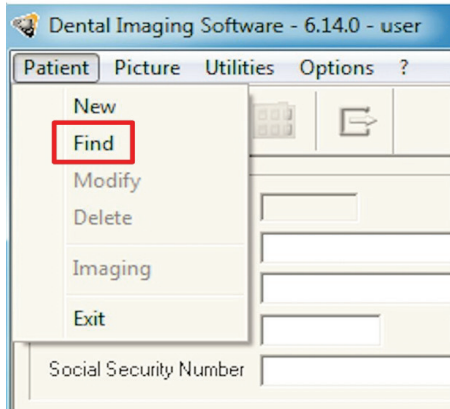
- 1 Selecting or Creating a Patient Record and Accessing the imaging window. See “Starting the Imaging Software” on page 34.
- 2 Inserting the Imaging Plate into a hygienic sheath and sealing it. See “Preparing the Imaging Plates” on page 35.
- 3 Positioning, exposing and removing the imaging plate from the patient’s mouth . See “Performing the X-rays” on page 36.
- 4 Disinfecting the Hygienic Sheath. Refer to the CS 7200 Safety and Regulatory Guide (6K9678).
- 5 Scanning the imaging plate and reviewing the image. See “Scanning Imaging Plate” on page 39.

Acquiring Single Image

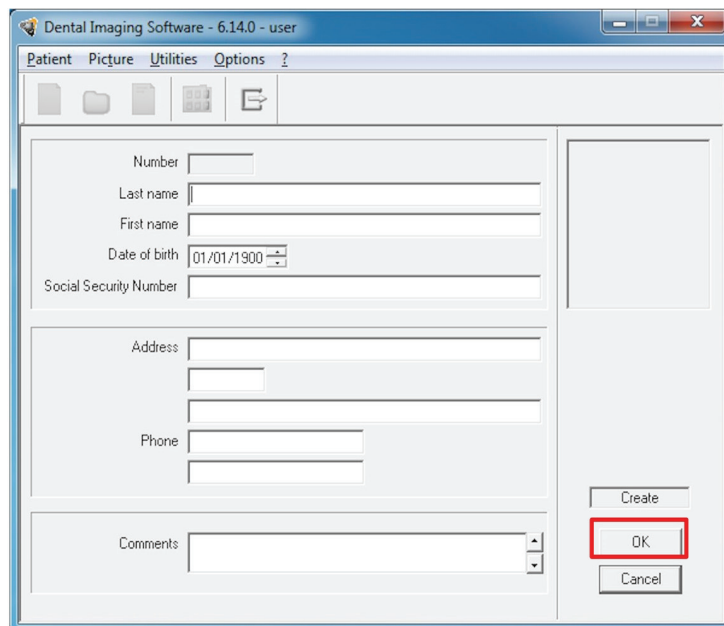
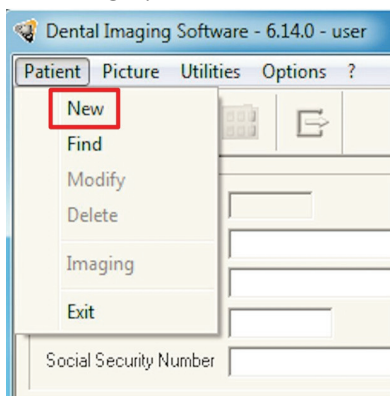
Starting the Imaging Software

Open your Imaging Software.

- 1 On your desktop, double-click the Imaging Software icon or click **Start > All Programs > (the name of your) Dental Imaging Software.**
- 2 Create or open an existing patient record:
 - **To open an existing patient record:** Click **Patient > Find**, select the required patient from the list and click the Dental Imaging Software button..



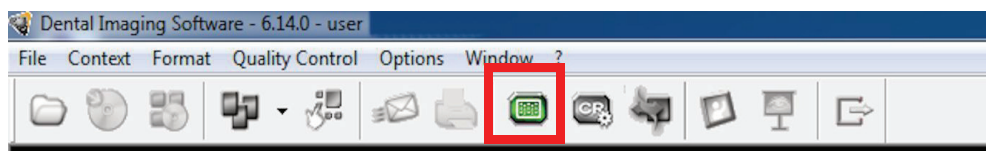
- **To create a new patient record:** Click **Patient > New**, fill in the required patient details and click **OK**.



The newly created patient becomes an existing patient. Click **Patient > Find**, select the newly created patient from the list and click the Dental Imaging Software button to proceed.

The CS 7200 indication LED turns from yellow to green, indicating that the scanner is ready for use and the **Imaging Window** appears.

3. Wait for the Scanner Status icon to turn green on the **Imaging Window** toolbar indicating that the CS 7200 scanner is connected to the workstation and is ready for acquisition.



Preparing the Imaging Plates

To prepare the intraoral imaging plate, follow these steps:

- 1 Choose an imaging plate of the appropriate size for your examination.



Important: Use only CS 7200 intraoral imaging plates from Carestream and hygienic sheaths from Carestream. The use of plates or hygienic sheaths from a third party supplier may cause a malfunction of the system and void the warranty.



Important: Use a NEW hygienic sheath for each new patient to prevent cross contamination.



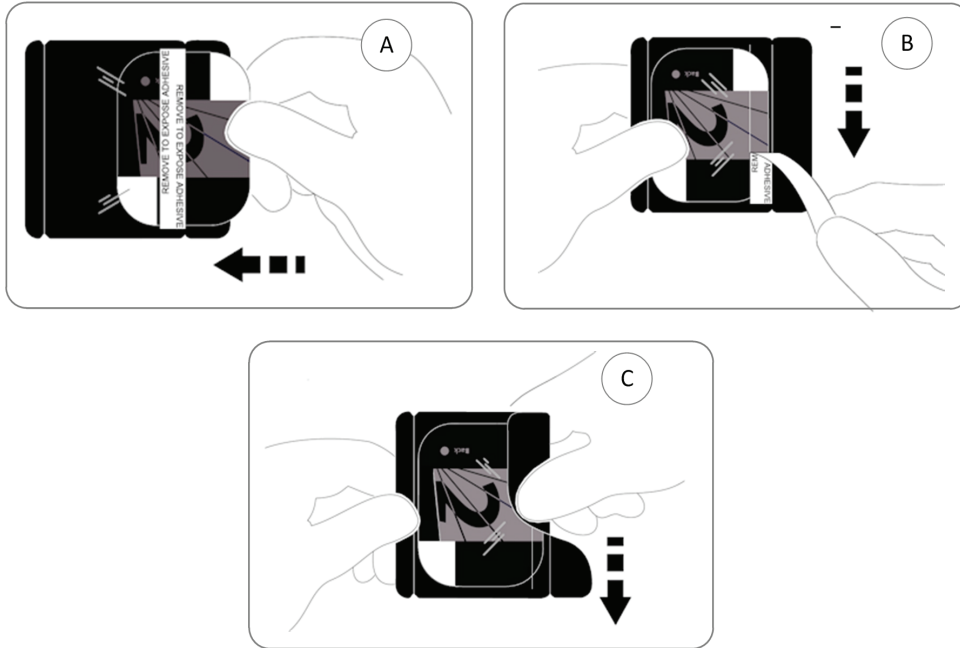
Important: Use a NEW hygienic sheath for each new image to prevent humidity and contamination of the plate.



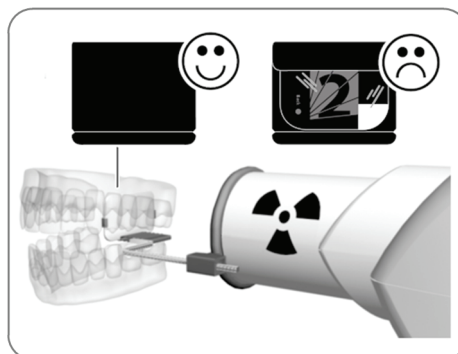
Tip: If the imaging plate has not been used for a while, proceed to erasing it first. See Erasing the Imaging Plates.

- 2 Insert the imaging plate into its protective hygienic sheath with the inactive side facing the adhesive strip, so the imaging plate's size number is seen through the transparent side of the hygienic sheath and the orientation mark visible in the bottom corner (A).

- 3 Peel the adhesive strip's protective paper to seal the hygienic sheath (B) and (C).



- 4 Handle the imaging plate by holding the hygienic sheath's empty edge where the silicone strip is.
- 5 Select an appropriate positioner for the region of interest and the size of the plate.



Performing the X-rays

Perform the required X-rays according to your clinical procedure.

It is recommended to continue using X-ray positioning techniques and tools to ensure the resulting image is complete and includes all the information required for diagnosis. To facilitate matching the orientation of the image in the software to the clinical reality, we recommend to position the imaging plate in the mouth of the patient with the orientation mark always towards the bottom.



Important: Make sure the active side of the imaging plate is facing the X-ray tube.

- 1 Select the X-ray exposure time according to the region of interest and the patient type. Follow the user instructions of your X-ray generator. The following tables provide **guidelines** for exposure times for an X-ray generator at **70 kV** and **7 mA**. Add your values for the exposure time in seconds in the column on the right.



Important: These are suggested exposure times and need to be adjusted for your specific X-ray generator.

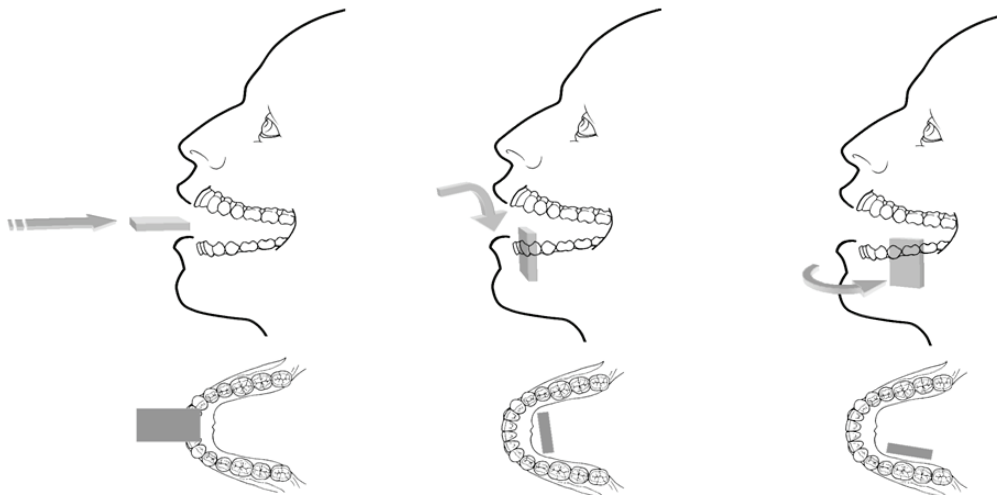


Tip: If images are too dark, reduce the exposure time. If images are too white or look grainy, increase the exposure time.

Table 3 Exposure times

Parameter	DC-emitter, 7mA, tube length 20 cm		DC-emitter, 7mA, tube length 30 cm	
	recommended exposure time (s)		recommended exposure time (s)	
Upper jaw	60kV	70kV	60kV	70kV
incisors	0.1	0.08	0.2	0.16
pre-molars	0.125	0.1	0.25	0.2
molars	0.16	0.125	0.32	0.25
Lower jaw	60kV	70kV	60kV	70kV
incisors	0.1	0.08	0.2	0.16
pre-molars	0.125	0.1	0.25	0.2
molars	0.125	0.1	0.25	0.2
Bitewing	0.16	0.125	0.32	0.25

2. Position the CS 7200 imaging plate in the mouth of the patient depending on the region of interest.



3. Move the X-ray generator tube head close to the patient and align it with the tooth of the patient and the CS 7200 imaging plate.



Important: Respect the X-ray techniques to avoid image distortion and minimize magnification.



Important: Make sure that the tube head is not shaking.



Important: Perform the required X-rays according to your clinical procedure.

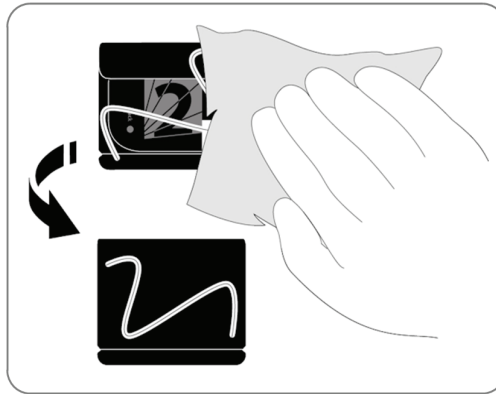
4. Tell the patient to remain still without moving the tongue.
5. Position yourself either two meters behind the X-ray generator or outside the room.



Important: Make sure you can keep visual contact with the patient during the X-ray.

6. Trigger the X-ray with the remote switch of the X-ray generator.
7. Remove the CS 7200 imaging plate from the mouth of the patient.

8. Clean and disinfect the hygienic sheath after each patient (see the CS 7200 *Safety, Regulatory, and Technical Specifications User Guide (6K9678)*).

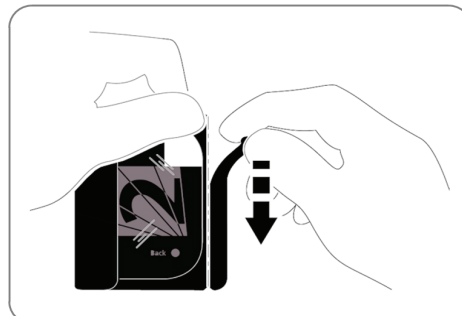


Scanning Imaging Plate

1. Move to the CS 7200 scanner and make sure the plate size selector knob is set for the same size as indicated on the plate.



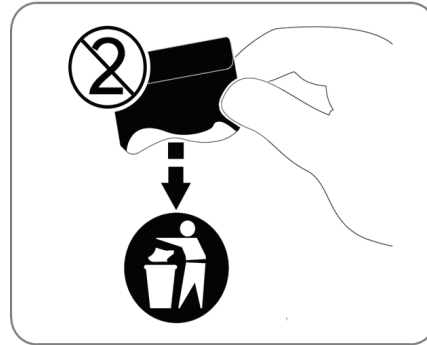
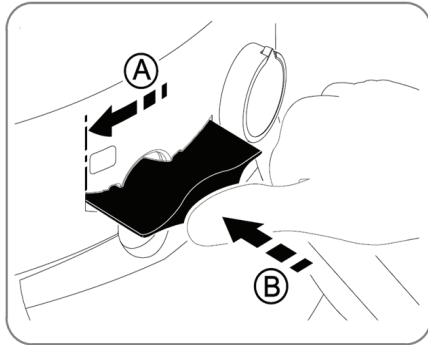
2. Open the hygienic sheath.



- 3 Load the plate into the scanner while positioning the plate to the left direction. The indication LED is blinking blue, indicating that the plate is loaded and the hygienic sheath can be removed.

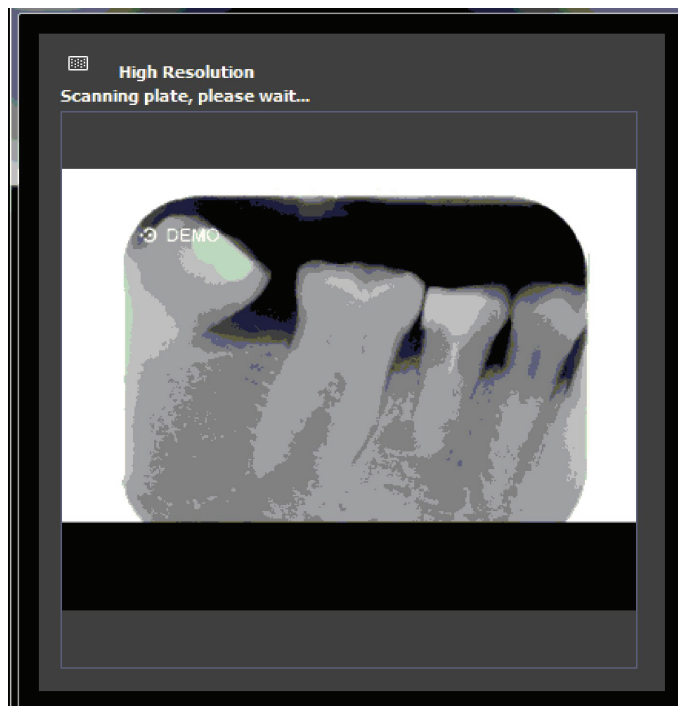


Note: Make sure you insert the plate with the active side facing up. If the plate is inserted when positioned upside down, an error message is displayed: *Plate loaded upside down.*



- 4 Remove the hygienic sheath to start the scanning process.

CS 7200 starts scanning. The indication LED is blinking green during the process and the Preview window appears showing the scan progress.

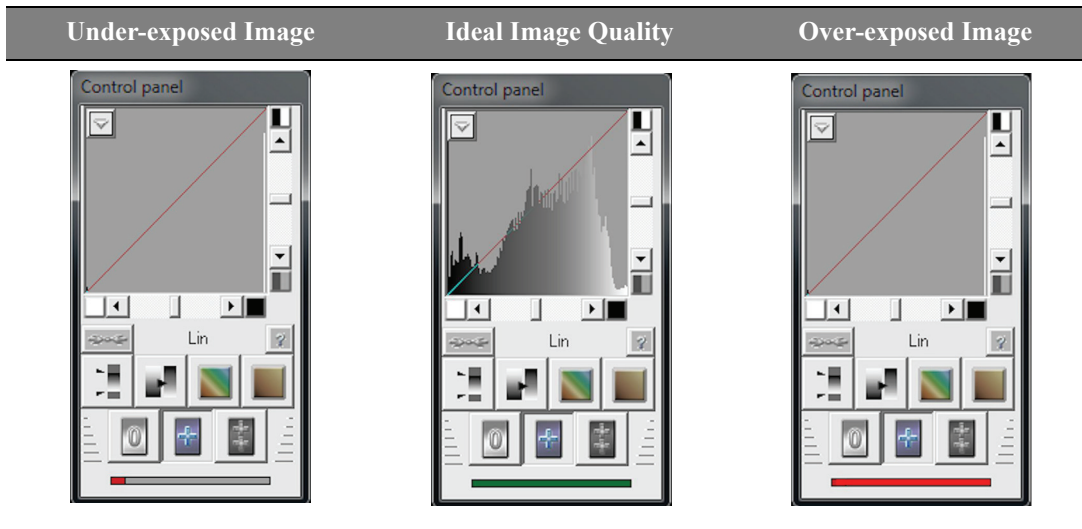


When the scan is complete, the imaging plate is erased and then ejected. The indication LED stops blinking and remains steady green.

The image is displayed on the imaging software main screen.

5. Check the image quality.


The ideal image quality is when the indicator of the quality of exposure is a full green bar in the Control Panel. Avoid under-exposed or over-exposed images indicated by a partial or full red bar.

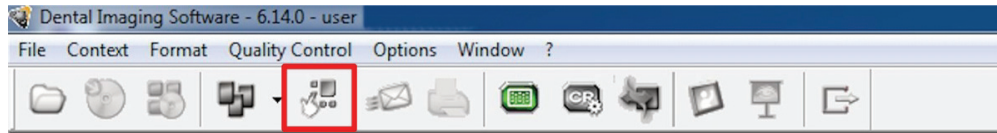


Acquiring Multiple Images

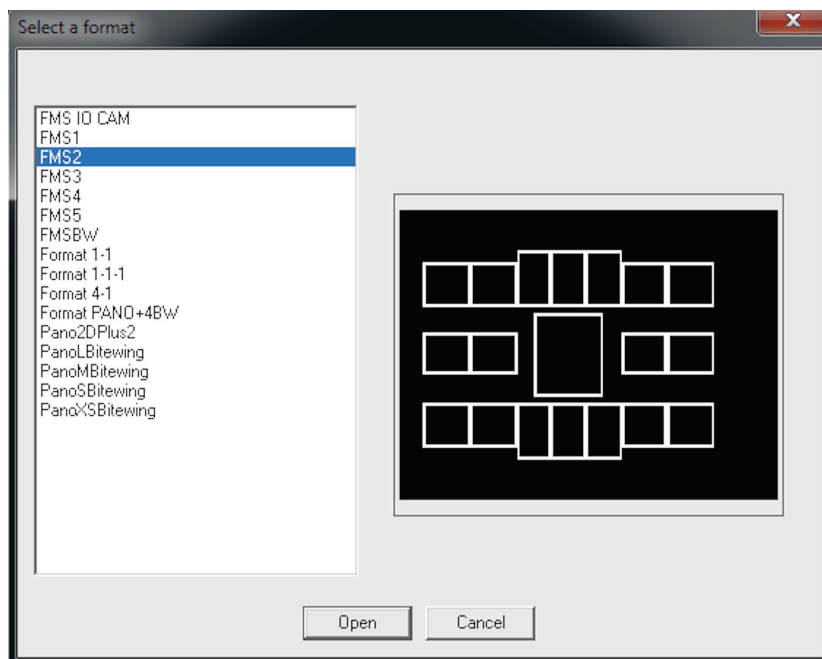
Preparing the Acquisition of FMS Images

To prepare the acquisition of FMS images, follow these steps:

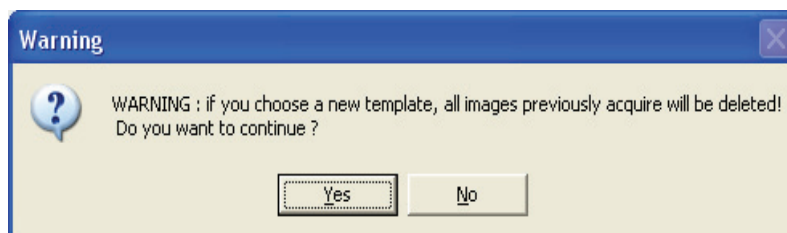
- 1 Access the **Dental Imaging Software**. See “**Starting the Imaging Software**” on page 34.
- 2 Click  in the **Imaging Window** toolbar to access the **Select a format** window.



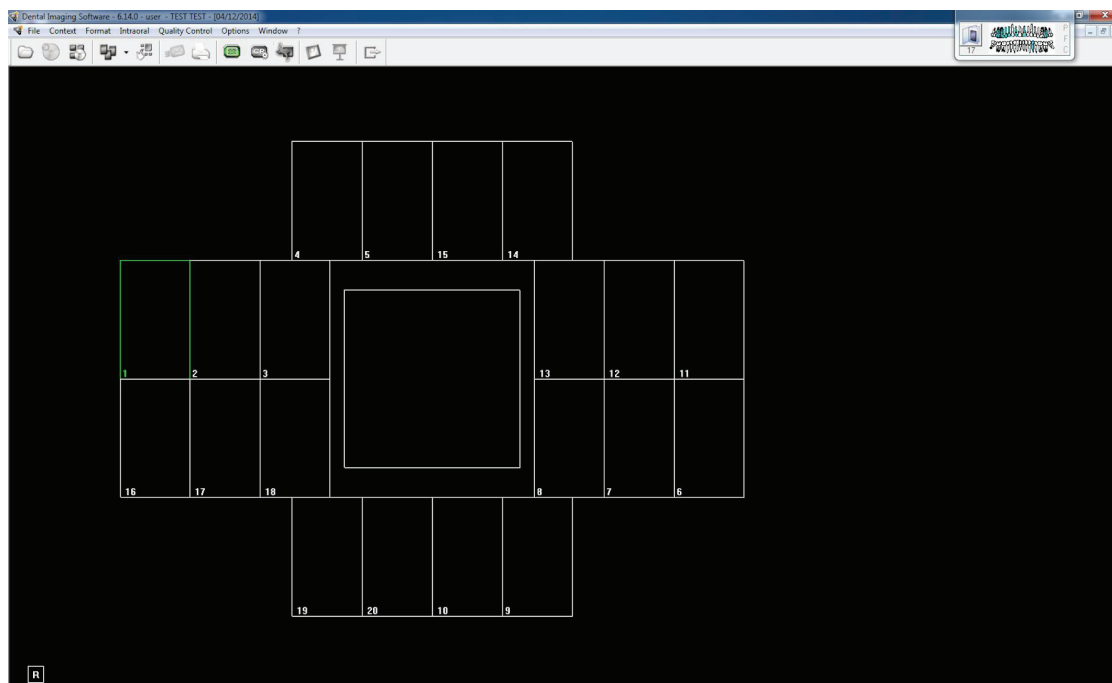
- 3 From the list of available formats (templates), select the required template and click **Open**.



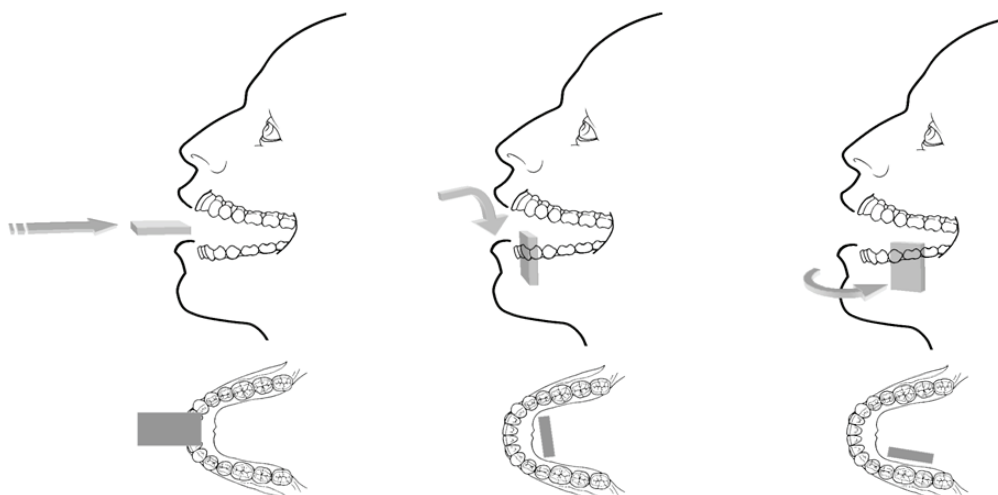
If you try to change the FMS template after you have finished your image acquisitions you are prompted with a warning that indicates that you risk losing some of the images.



The selected format is loaded and displayed in the Dental Imaging window. The first frame for scan is highlighted in green.



4. Select an appropriate positioner for the region of interest and the size of the plate.
5. Prepare all imaging plates required for completing FMS template. See [“Preparing the Imaging Plates”](#) on page 35.
6. Position the imaging plate in the mouth of the patient depending on the region of interest.



7. Move the X-ray generator tube head to the patient and align it with the tooth of the patient and the imaging plate.



Important: Make sure that the tube head is not shaking.

8. Select the X-ray exposure time according to the region of interest and the patient type. Follow the user instructions of your X-ray generator. The following tables provide **guidelines** for exposure times for an X-ray generator at **70 kV** and **7 mA**. Add your values for the exposure time in seconds in the column on the right.

Table 4 Exposure times

Parameter	DC-emitter, 7mA, tube length 20 cm		DC-emitter, 7mA, tube length 30 cm	
	recommended exposure time (s)		recommended exposure time (s)	
Upper jaw	60kV	70kV	60kV	70kV
incisors	0.1	0.08	0.2	0.16
pre-molars	0.125	0.1	0.25	0.2
molars	0.16	0.125	0.32	0.25
Lower jaw	60kV	70kV	60kV	70kV
incisors	0.1	0.08	0.2	0.16
pre-molars	0.125	0.1	0.25	0.2
molars	0.125	0.1	0.25	0.2
Bitewing	0.16	0.125	0.32	0.25



Important: These are suggested exposure times and need to be adjusted for your specific X-ray generator. For dark images, reduce the exposure time and for grainy images, increase the exposure time.

Acquiring FMS Images

To acquire FMS images, follow these steps:

1. For each imaging plate you prepared, perform the X-ray. See “Performing the X-rays” on page 36.
2. Scan all X-rayed imaging plates in the required order displayed on the Dental Imaging screen. See “Scanning Imaging Plate” on page 39.

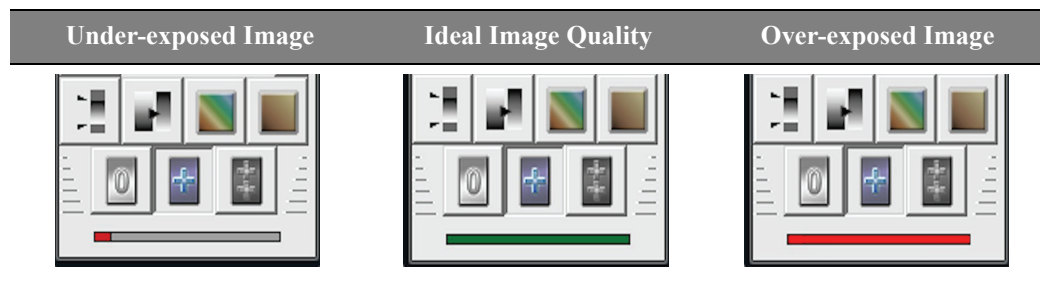
The next frame to be scanned is always highlighted in green on the displayed FMS format.



Tip: For FMS, it is recommended to use the transportation box that helps to sort the plates in the correct order.

3. Check the image quality.

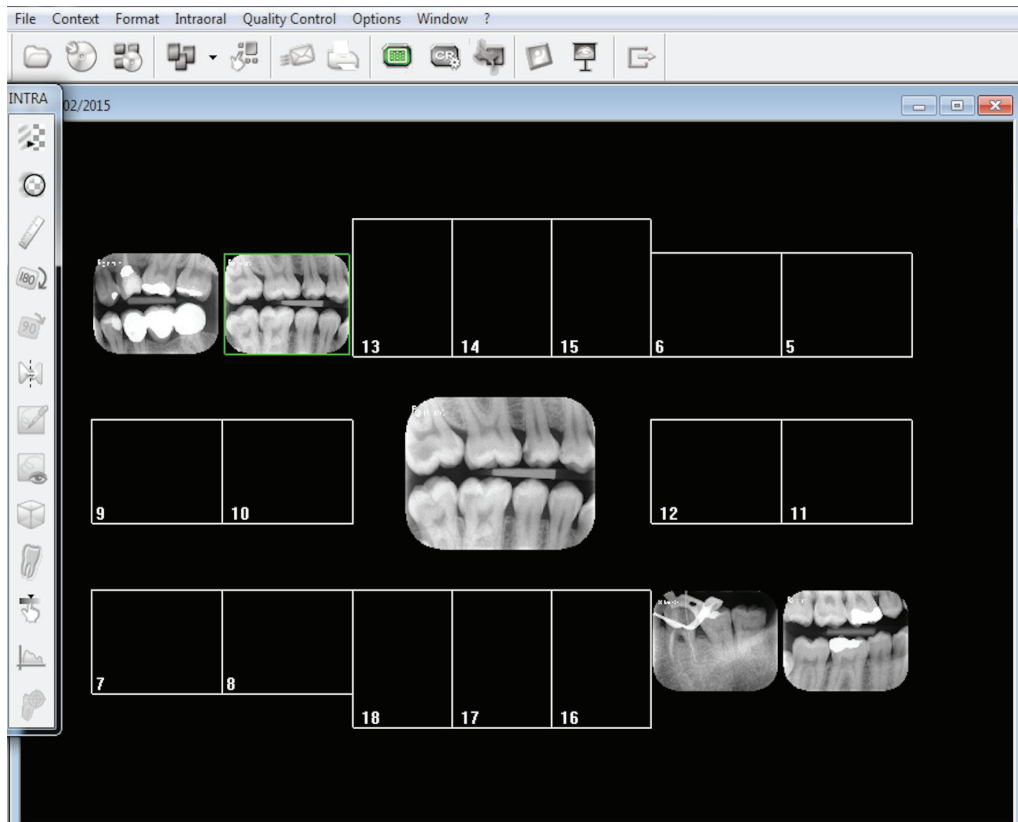
The ideal image quality is when the indicator of the quality of exposure is a full green bar in the **Control Panel**. Avoid under-exposed or over-exposed images indicated by a partial or full red bar.



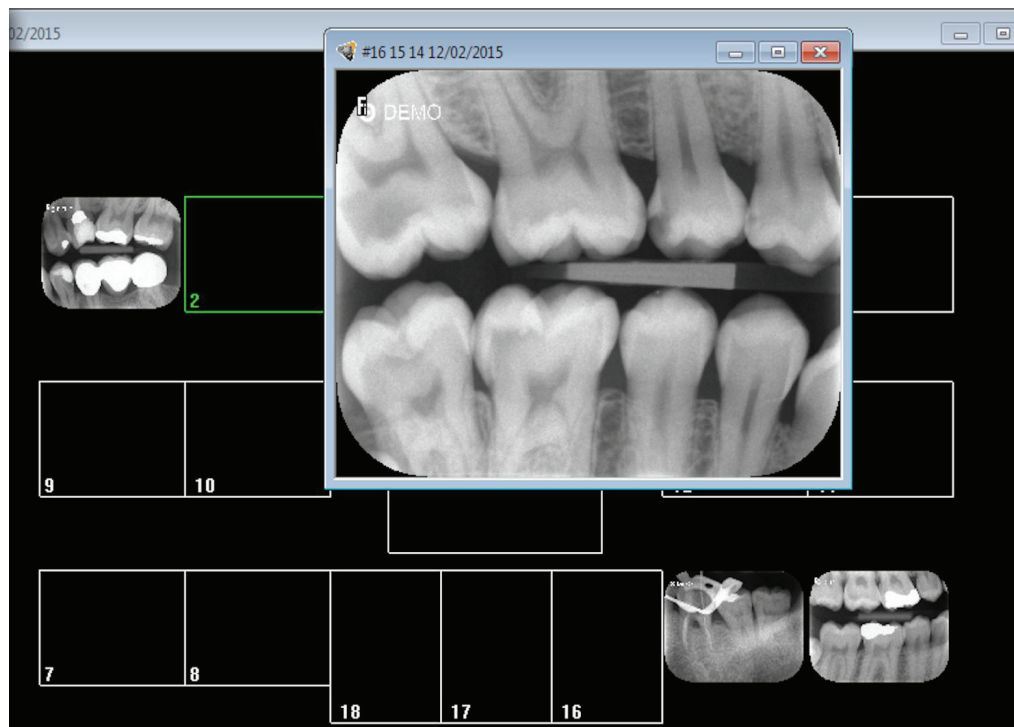
Retaking Images

If you need to retake images, after the FMS template acquisition is complete, follow these steps:

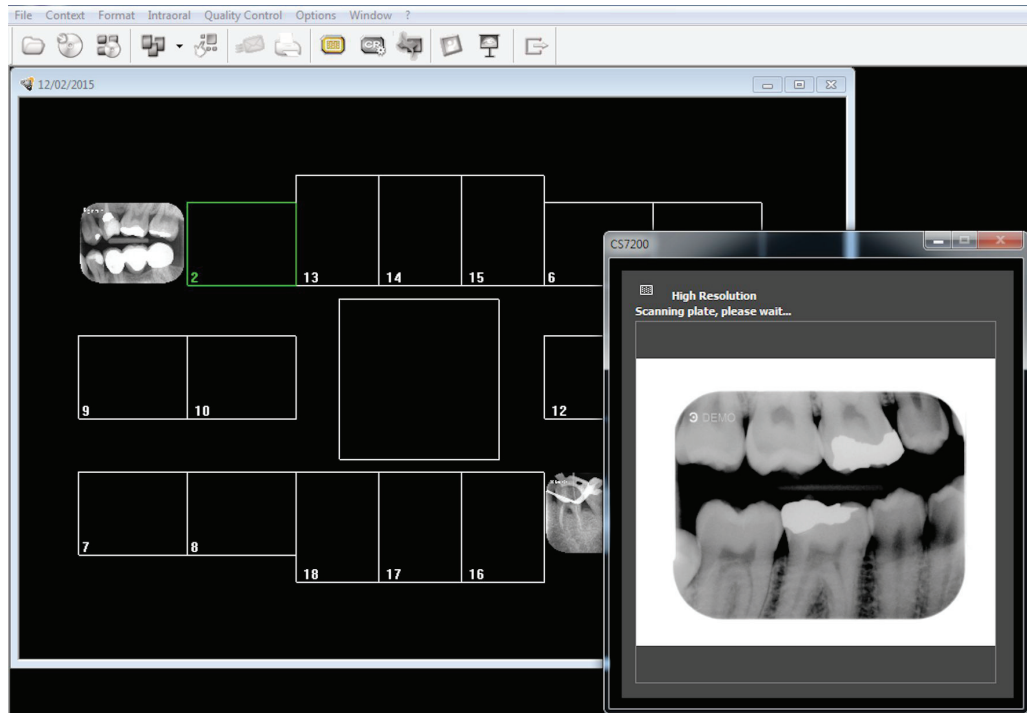
1. Click the frame for which you want to retake images. The selected frame is highlighted in green.



2. Using the mouse cursor, drag the selected image outside the template.



- 3 Close the CS 7200 window with the image to be replaced. The image is deleted from the template.
- 4 Perform a scan again.



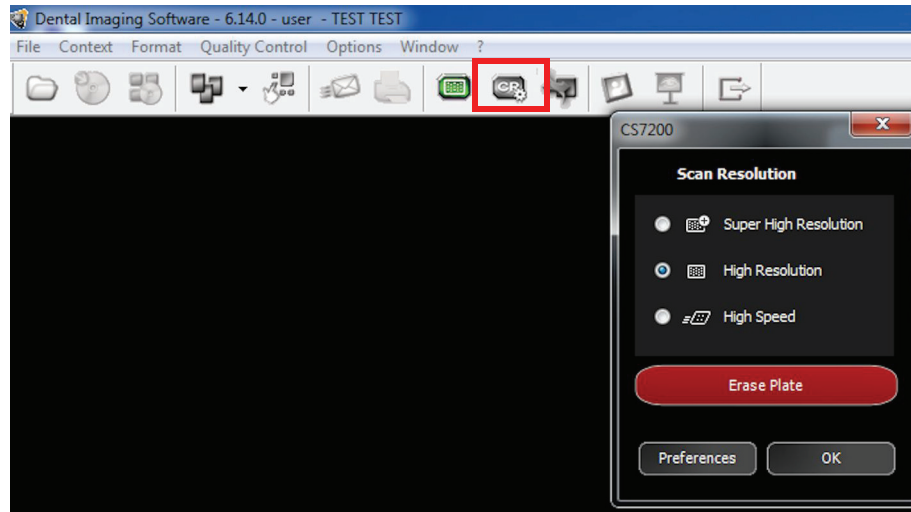
- 5 After the scan is complete, the new image appears in the FMS template.
- 6 Close the template window to save the performed changes.

Manually Erasing the Plate

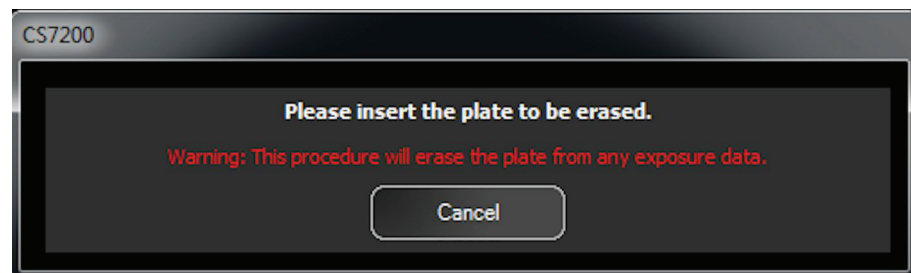
To manually erase a plate, perform the following steps:

- 1 On the Dental Imaging Software main tool bar, click the **CS 7200 Configuration** icon.

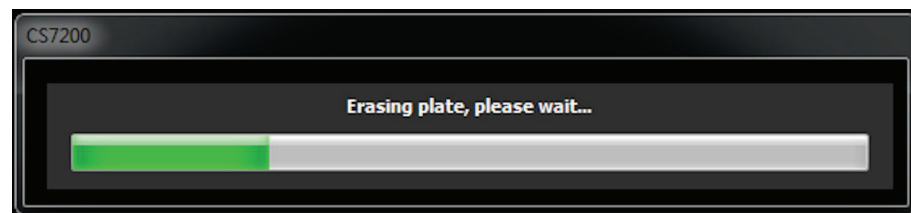
The CS 7200 window appears:



- 2 Click **Erase Plate**. The following dialog box appears:



- 3 Load the plate into the scanner.
- 4 Wait until the erase process is complete.



To erase more plates, perform steps 1 - 4.

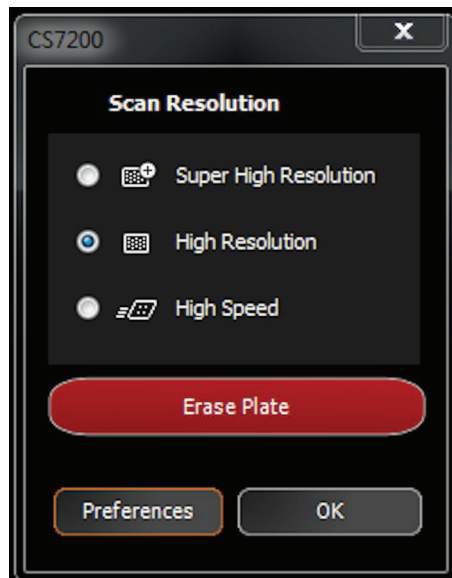
- 5 After the erase process is complete, close the CS 7200 window.

Changing Scanner User Preferences

To change the Scanner User Preferences, perform the following steps:

- 1 On the Dental Imaging Software main tool bar, click the **CS 7200 Configuration** icon.

The CS 7200 window appears:



- 2 Click **Preferences** to open the CS 7200 Preferences window.

The CS 7200 Preferences window contains three tabs:

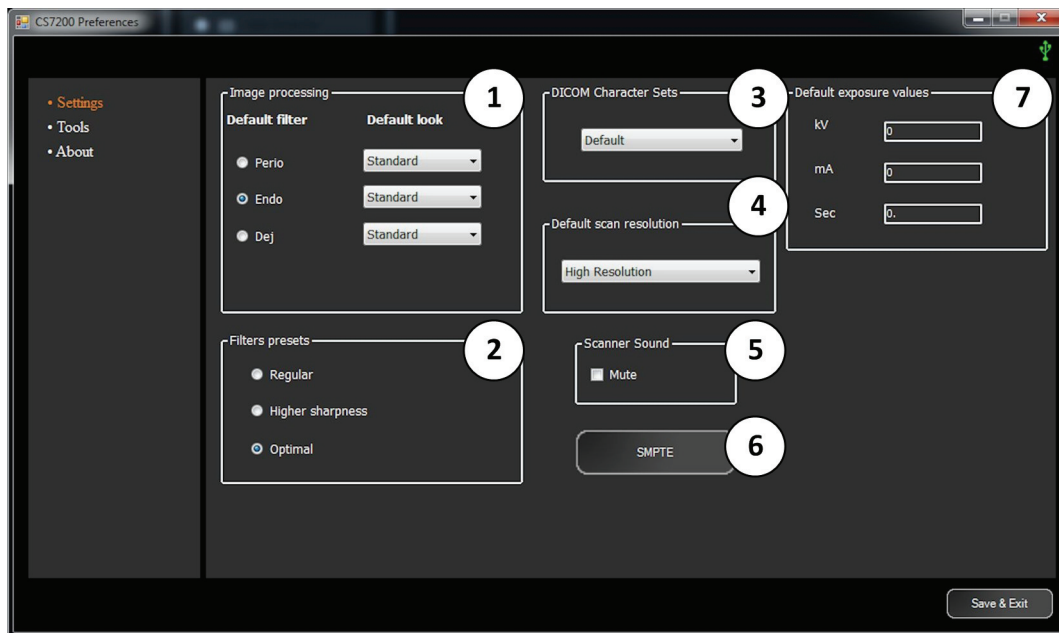
- Settings
- Tools
- About

Settings Tab

The Settings tab enables user to change the scanner preferences:

- 1 **Image Processing settings**: select the default filter and default look for the scanned image.
- 2 **Filters Presets**: select one of the available options:
 - Regular
 - Higher sharpness
 - Optimal
- 3 **DICOM Character Sets**: select from the list of the available options.
- 4 **Default scan resolution**: select one of the available scan resolutions from the list
 - High resolution
 - High speed
 - Super high resolution
- 5 **Scanner sound**: select the check box to mute the scanner sound.
- 6 **SMPTE**: click to adjust monitor brightness and contrast.

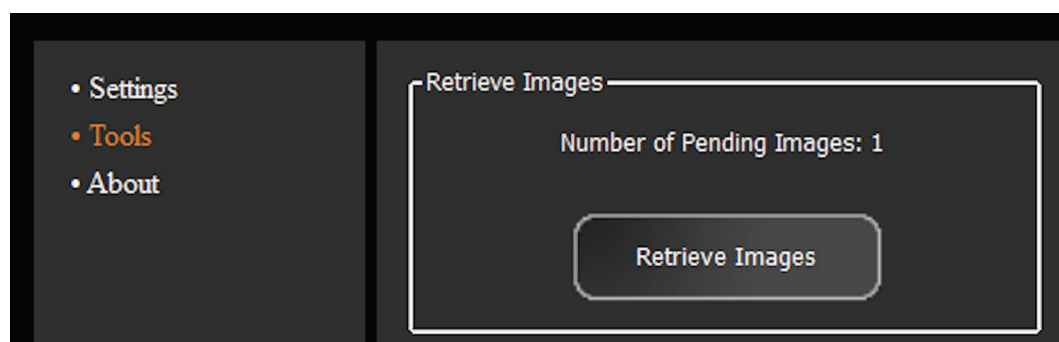
- 7 **Default exposure values:** change the default exposure values if required.



Tools Tab

The tools tab enables the user to retrieve a scanned image in case the Dental Imaging Software crashed unexpectedly during the scan. To retrieve the images, perform the following steps:

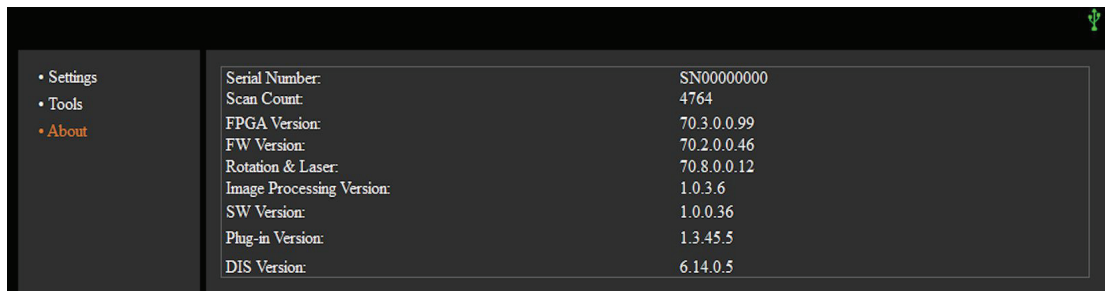
- 1 Start the Dental Imaging Software.
- 2 Open the file of the patient whose images you want to retrieve.
- 3 On the Dental Imaging Software main tool bar, click the **CS 7200 Configuration** icon.
The CS 7200 window appears.
- 4 Click **Preferences** to open the CS 7200 Preferences window and select the Tools tab.
The Retrieve Images button is enabled and the number of pending images is displayed.



- 5 Click **Retrieve Images**.
The retrieved images are uploaded to the patient file that is currently opened.
- 6 Click **Save & Exit** to close the CS 7200 Preferences window.

About Tab

Open the about tab to view scanner information that includes firmware, hardware and software versions, serial number and other details.



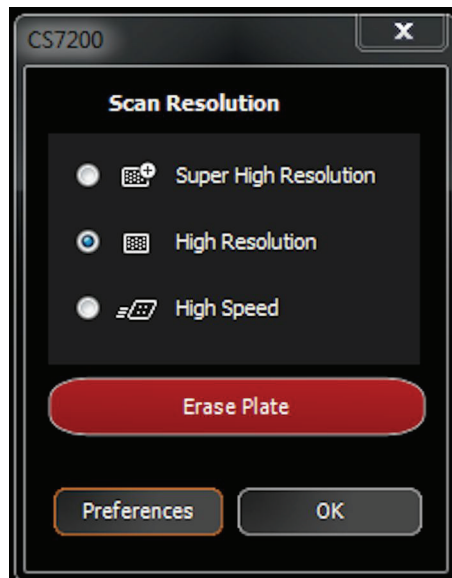
Serial Number:	SN00000000
Scan Count:	4764
FPGA Version:	70.3.0.0.99
FW Version:	70.2.0.0.46
Rotation & Laser:	70.8.0.0.12
Image Processing Version:	1.0.3.6
SW Version:	1.0.0.36
Plug-in Version:	1.3.45.5
DIS Version:	6.14.0.5

Changing Scan Resolution

To change scan resolution, perform the following steps:

- 1 On the Dental Imaging Software main tool bar, click the **CS 7200 Configuration** icon.

The CS 7200 window appears:



- 2 Select the desired scan resolution and click **OK** to save the selection.

6 Maintenance

For all maintenance information, refer to CS 7200 Technical Specifications, Safety and Regulatory Guide.

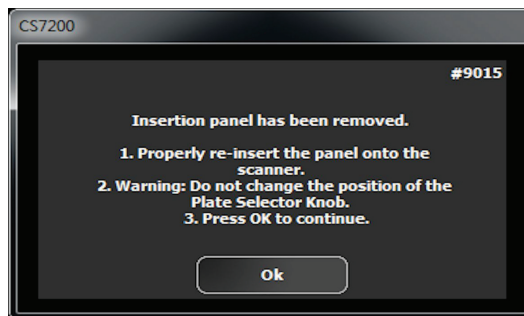
7 Troubleshooting

Quick Troubleshooting

Occasionally, malfunctions can occur during use in the event of an incorrect action. An error message is displayed.

During the scanner power up, system performs a self test: ejects a plate (if left in the scanner) and reports whether the system is ready for operation or a malfunction is detected.





The detected malfunction is indicated by the scanner LED status and sound notification and/or by an error message that appears on screen.



When the system functions properly, the LED is green. If the LED color is yellow or red, it indicates an existence of the malfunction.

Indication LEDs Statuses

The below table lists the scanner LEDs status indicator states that require a corrective action:

LED Color	Scanner State	Remark
Blinking Yellow	 Power up/unload	
Yellow	 Stand by (door closed)	
Yellow	 Disconnected	Type 1: Blinking yellow - cable is disconnected Type 2: Fast Blinking yellow - no driver Type 3: Constant yellow: no UltraLite or scanner is not ready
Blinking/Steady Red	 Error	

The following table lists the error messages, their description and the action to take:



IMPORTANT

If an Error Code message is displayed, the malfunction persists or more serious conditions occur, contact a qualified technician. When you call the qualified technician have the following information ready:

- **Model Serial Number**
- **Error Code Message**

Table 5 System Errors

Symptom	Cause	Corrective Action
Plate size selector knob is stuck.	<ul style="list-style-type: none"> • The scanner is turned off. • The Dental Imaging Software main screen is not opened. 	<ul style="list-style-type: none"> • Turn on the scanner. • Open the Dental Imaging Software main screen.
The plate cannot be loaded into the scanner.	<ul style="list-style-type: none"> • The scanner is turned off. • The Dental Imaging Software main screen is not opened. 	<ul style="list-style-type: none"> • Turn on the scanner. • Open the Dental Imaging Software main screen.
Scanner returns to home position unexpectedly.	The scanner was exposed to a very strong ambient light or to a camera flash directed to the insertion panel.	Reduce the ambient light to the level specified in CS 7200 Technical Specifications, Safety and Regulatory Guide.
Scanner performs a spontaneous reboot.	Electrical noise from the peripheral devices.	<ul style="list-style-type: none"> • Make sure the scanner is located away from the suspected noise generators. • Connect the power supply to a separate mains wall outlet.
The plate loading process is not smooth and requires some force to apply.	The hygienic sheath is partially sealed.	Make sure the hygienic sheath is fully open, before loading the plate.
Scanner returns to home position before the loading is completed.	The imaging plate was retrieved before it was completely loaded into the scanner.	<ul style="list-style-type: none"> • Wait for the scanner to return to its home position. • Perform a complete loading process.
Vertical lines appear on the scanned image.	Scanner was not stable or hit during the scan.	<ul style="list-style-type: none"> • Make sure the scanner is positioned on a stable surface. • Make sure you do not touch the scanner during the scan.
During the power up, scanner remains off and the indication LED is off. The CR icon disappears from the Dental Imaging Software toolbar.	There is no power supply to the system: <ul style="list-style-type: none"> • Power Supply is not connected to the mains wall outlet. • Power supply is not connected to the scanner. • Problems with the facility power supply. • Power Supply is damaged. • Scanner malfunction. 	Make sure the Power Supply is properly connected
LED indicator is steady yellow.	The Dental Imaging Software is closed.	<ul style="list-style-type: none"> • Start the Dental Imaging Software. • If the problem persists, restart the scanner.
LED indicator remains blinking yellow for more than one minute.	<ul style="list-style-type: none"> • There is no USB communication between the scanner and the computer. • Scanner malfunction. 	<ul style="list-style-type: none"> • Make sure you use the USB cable supplied with the scanner. • Make sure the USB cable is properly connected on both sides. • Try to connect the USB cable to another USB port on the computer. • Replace the USB cable. • Call Service.

Symptom	Cause	Corrective Action
LED indicator is red. Error code #9011	Scanner hardware malfunction.	<ul style="list-style-type: none"> Restart the Scanner. If problem persists, call Service.
LED indicator blinks red Error code #9012	Scanner hardware malfunction.	<ul style="list-style-type: none"> Restart the Scanner. If problem persists, call Service.
LED indicator is red or off. Error code #9014	Scanner hardware malfunction.	<ul style="list-style-type: none"> Restart the Scanner. If problem persists, call Service.
LED indicator blinks red Error code #9015	Insertion panel is detached from the scanner.	<ul style="list-style-type: none"> Properly attach the panel to the scanner. <p>Warning: Do not change the position of the plate selector knob.</p> <ul style="list-style-type: none"> Click OK to close the error message and proceed.
LED indicator blinks red Error code #9016	The plate was not scanned and remained inside the scanner.	<ul style="list-style-type: none"> Remove the insertion panel. While holding the visible part of the plate, lift the scanner protection door. Remove the plate from the scanner. If the plate fell inside the scanner, remove the service tray and remove the plate. Attach the insertion panel. Click OK to close the error message. Perform a scan.
LED indicator blinks red Error code #9021, 9022, 9023	Scanner hardware malfunction.	<ul style="list-style-type: none"> Restart the Scanner. If problem persists, call Service.
LED indicator blinks red Error code #9024	<ul style="list-style-type: none"> Scanner hardware malfunction. Power Supply malfunction. 	<ul style="list-style-type: none"> Restart the Scanner. Replace Scanner Power Supply. If problem persists, call Service.
LED indicator blinks red Error code #9025	Scanner hardware malfunction.	<ul style="list-style-type: none"> Turn off the scanner. Wait for five minutes and restart the Scanner. If problem persists, call Service.
LED indicator blinks red Error code #9030	Software files version does not match the scanner files version.	Update scanner files.
LED indicator blinks red Error code #9031	Scanner hardware malfunction.	<ul style="list-style-type: none"> Click OK to shut down the scanner. Restart the scanner. The plate is ejected. Rescan the plate. If the problem persists, call Service.
LED indicator blinks red Error code #9032, 9036	Scanner hardware malfunction.	<ul style="list-style-type: none"> Click OK to eject the plate. Rescan the plate. If the problem persists, call Service.
LED indicator blinks red Error code #9039	Scanner hardware malfunction.	<ul style="list-style-type: none"> Restart the scanner. If the problem persists, call Service.
LED indicator blinks red Error code #9043	<ul style="list-style-type: none"> Plate was not loaded properly. Scanner hardware malfunction. 	<ul style="list-style-type: none"> Click OK to eject the plate. Rescan the plate. If the problem persists, restart the Scanner. If the problem persists, call Service.
LED indicator blinks red Error code #9044, 9047	<ul style="list-style-type: none"> Plate was not ejected and erased properly. Scanner hardware malfunction. 	<ul style="list-style-type: none"> Click OK to eject the plate. Erase the plate manually. If the problem persists, restart the Scanner. If the problem persists, call Service.
LED indicator blinks red Error code #9045, 9048, 9052, 9053, 9054, 9061 - 69	Scanner hardware malfunction.	<ul style="list-style-type: none"> Click OK to eject the plate. Rescan the plate. If the problem persists, restart the Scanner. If the problem persists, call Service.

Symptom	Cause	Corrective Action
LED indicator blinks red Error code #9046, 9049	<ul style="list-style-type: none"> • Plate was not lscanned properly. • Scanner hardware malfunction. 	<ul style="list-style-type: none"> • Click OK to eject the plate. • Rescan the plate. • If the problem persists, restart the Scanner. • If the problem persists, call Service.
LED indicator blinks red Error code #9060	Scanner hardware malfunction.	<ul style="list-style-type: none"> • Click OK to close the error message. • Call Service and continue with regular scanner operation. • Note: This error will appear on each power up, until it is fixed by the Service.
LED indicator blinks red Error code #9080	Scanner hardware malfunction.	<ul style="list-style-type: none"> • Click OK to close the error message. • Restart the Scanner. • If the problem persists, call Service.
LED indicator blinks red Error code #9081	<ul style="list-style-type: none"> • Scanner hardware malfunction. • Plate was not erased properly. 	<ul style="list-style-type: none"> • Click OK to eject the plate. • Manually erase the plate. • If the problem persists, call Service.
LED indicator is steady red Error beeps are sounded when loading a plate	Plate was loaded upside down or diagonally.	Retrieve the plate and load the plate properly.
LED indicator blinks red Error code #9090	<ul style="list-style-type: none"> • Plate was loaded upside down or diagonally. • Plate was not scanned. 	<ul style="list-style-type: none"> • Click OK to eject the plate. • Load the plate properly.
LED indicator blinks red Error code #90120	Scanner hardware malfunction.	<ul style="list-style-type: none"> • Click OK to shut down the scanner. • Restart the Scanner. • Rescan the plate. • If the problem persists, call Service.
LED indicator blinks red Error code #90800	The Scanner files are not up to date.	Update the scanner files.
LED indicator blinks red Error code #90801	Scanner drivers files are not up to date.	Update the Scanner drivers files.
LED indicator blinks red Error code #90852	<ul style="list-style-type: none"> • Scanner hardware malfunction. • Plate was not scanned or erased properly. 	<ul style="list-style-type: none"> • Click OK to close the error message. • Restart the Scanner. • Reload the plate for scan. • If the problem persists, call Service.
Plate was not ejected	Plate was not properly ejected.	<ul style="list-style-type: none"> • Remove the insertion panel. • Remove the service tray and remove the plate. • Attach the insertion panel.

8 Contact Information

Manufacturer's Address



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9 List of Consumables

List of Consumables

Carestream Dental

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For more information, visit: www.carestreamdental.com

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