



CS 9300



9500



CS 8100 3D

SureSmile[®]

Carestream CBCT Systems

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About This Guide

The SureSmile treatment process supports three cone beam computed tomography (CBCT) systems from Carestream Dental: CS 9300, 9500 and CS 8100 3D. This document covers the SureSmile scanning protocols for each unit, followed by the ordering process for submitting CBCT scan data via SureScan software.

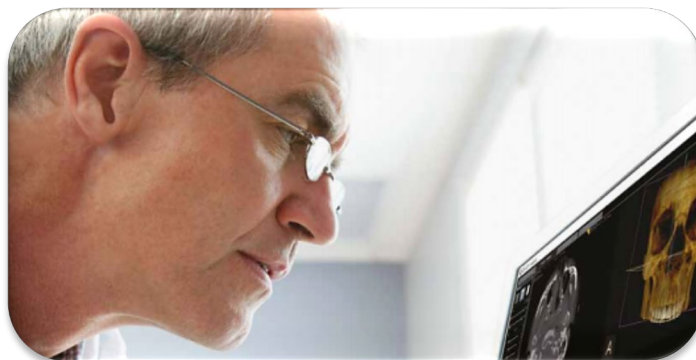


You may use your CBCT system to produce three types of models for SureSmile treatment:

- **Diagnostic Model** - a model of the malocclusion comprised of individual tooth models created from a scan of a plaster model or a patient. It is used for diagnostic purposes.
- **Therapeutic Model** - a model of the patient's tooth anatomy and bracket positions captured in an in-vivo CBCT scan during treatment. This model is required to produce custom archwires and aligner cases.
- **Final Model** - a model of the final tooth anatomy and positions after debonding created from a scan of a plaster model or a patient.

The table below illustrates that a model can be created from a CBCT scan of a plaster model or a CBCT scan of a patient (in-vivo), with the exception that the therapeutic model must be taken in-vivo. Notice an intraoral scan can supplement a CBCT scan to bypass limitations in CBCT processing or capture more teeth to produce a premium quality model (additional fee applies). Take the supplemental scan with an optical scanner such as an orascanner®, Carestream Dental CS 3600, iTero®, 3shape TRIOS®, 3M™ True Definition, CEREC® with Omnicam.

	Plaster	In-vivo	In-vivo + Supplemental Scan
Diagnostic Model	X	X	X
Therapeutic Model		X	X
Final Model	X	X	X



Prerequisite Training

Prior to conducting the SureSmile training and launch, the practice should be trained in the proper use of your CBCT system by an authorized trainer.

Cybersecurity Guidelines

1. Keep your computer's operating system up to date with patches and fixes.
2. Install and maintain an anti-virus program.
3. Install and maintain a firewall between your LAN and the internet.
4. Avoid installing browser add-ins or plug-ins.
5. Avoid downloading or installing software from unknown sites
6. Create a hard to guess password by using at least 8 characters of mixed case letters, numbers, and symbols.
7. Avoid using common words or phrases.
8. Do not reuse the same password for any accounts.
9. Consider using a password program to manage passwords, such as KeePass or LastPass
10. Do not display your password where others can see it.
11. Change your password periodically, every 60 to 90 days.
12. Logout or lock your workstation when leaving your desk.
13. Avoid clicking on links in email. Instead, go directly to the site and login using your user-id and password.

Contacts for service or software issues:

For issues with SureSmile orders, software, or CBCT protocols for SureSmile, contact SureSmile Customer Care per the listing on page 2 or in the SureSmile online help.

To access SureSmile online help, go to SureSmile via your web browser, click the? icon and select "Help Center."

For issues with Carestream Dental imaging systems or exporting data, please contact Carestream Dental customer support.



What is SureSmile®?

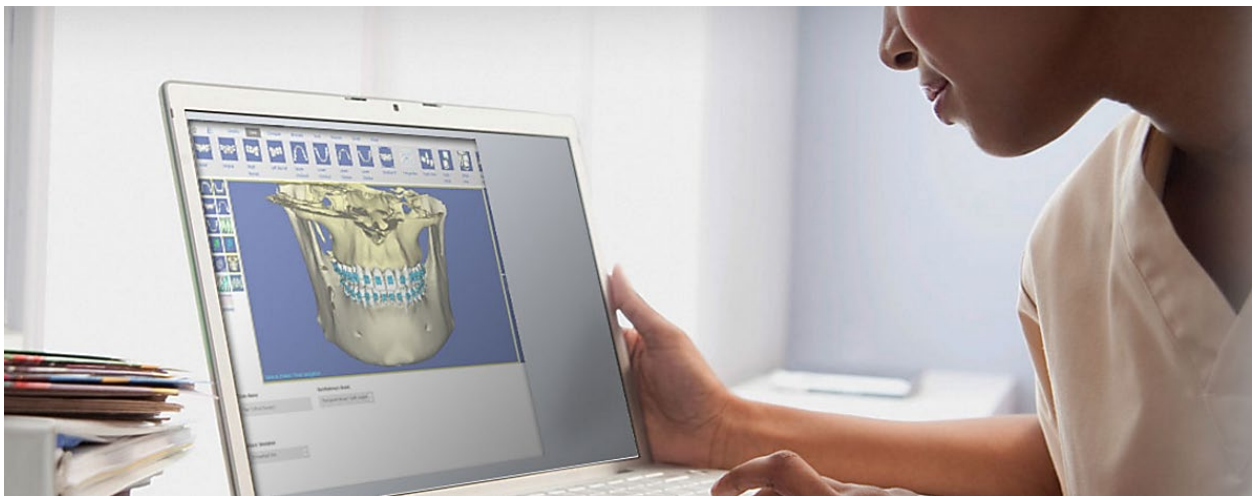
The SureSmile system is the first end-to-end solution that allows the orthodontist to apply 3D diagnostic imaging and computer-aided treatment planning to produce custom appliances. This results in greater control and efficiency for orthodontic care.

The SureSmile system is comprised of several technology components:

- Scanning technologies to produce a 3D model of the patient's dentition that may be captured in an optical scan by our orascanner or a certified third-party scanner; scans may also be captured by a certified CBCT system.
- SureSmile 3D software, which provides powerful visualization tools for precision diagnosis, treatment simulation and customized appliance design. The doctor can review the digital setup with this software and use it to communicate with patients and with the SureSmile Digital Lab.
- SureScan software primarily used for scan acquisition with the orascanner or CBCT data submission

The SureSmile Digital Lab provides scan and setup processing to produce precise robotically bent custom archwires and aligners; or you may order aligners.

IMPORTANT: SureSmile does not determine patient care. SureSmile provides therapeutics as directed by the doctor. The best possible results from the SureSmile process depend on the application of the doctor's diagnostic and clinical judgment.



Getting Started

Prior to sending CBCT data to SureSmile, your practice must meet prerequisites that enable us to produce high quality modeling.

Meeting System Prerequisites for Wire Therapy

1. Use an approved bracket family

Brackets in the SureSmile bracket library must be approved for use with CBCT Scan processing for therapeutic models. Just as you submitted bracket requests when you implemented SureSmile, you will need to notify us of the brackets you intend to use with CBCT. Please submit your request as soon as possible since it may take up to 60 days to approve brackets for use with CBCT.

IMPORTANT: Gold brackets are not acceptable for CBCT products such as CBCT scans or premium models.

To find out if your brackets are approved for CBCT use (“CT Approved”), visit: www.SureSmile.com/brackets and click on the Bracket Library button located on the bottom of the page

2. Validate your CBCT equipment

The CBCT equipment at your practice must be validated by SureSmile® to work with SureSmile before the Digital Lab can accept CBCT scans from your practice.

As part of the setup process, Customer Care will provide a “phantom” (plastic model) for you to scan. After we receive the scan data, we will test it for accuracy and inform you of the results within 30 days. Once your system is validated, please follow the manufacturer’s instructions for calibrating your equipment weekly.

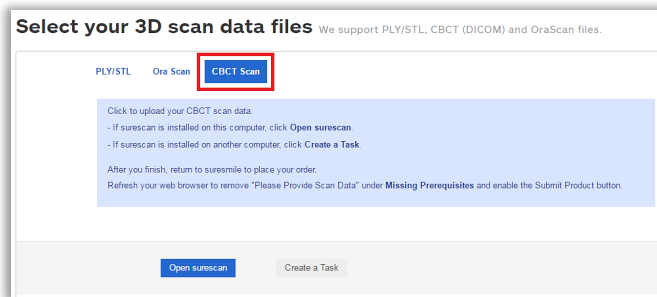


3. Set up a share drive for CBCT data

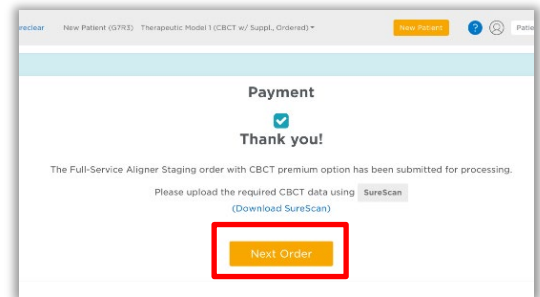
To facilitate SureSmile orders based on CBCT data, export your CBCT scan data from your CBCT system to a folder on your practice network. This folder can be located on the CBCT computer itself, a practice computer, a practice server or on some type of physical media. You will need to have your IT support provider or your Network Administrator set this up for you as SureSmile Customer Support cannot make changes to your practice network.

4. Check your CBCT order options

The SureSmile scan acquisition software is called SureScan. You will find the CBCT scan option in the SureSmile browser order page. If you do not see a CBCT selection under the **Select your 3D scan data files** section, your site has not been validated for CBCT. Please contact SureSmile Customer Care for assistance.



SureSmile Advanced



SureSmile Ortho and SureSmile Aligner

Ordering Supplies

Material for bite separation

You will need to keep bite wafers on hand to separate upper and lower teeth during the CBCT scan. (The Digital Lab cannot process CBCT scans where teeth are in contact.)

SureSmile recommends bite wafers that are a minimum of .5 mm to 1.0 mm thick. You may use any brand such as the U-Shaped wafers supplied by Modern Materials®.

Because the CS 9300 utilizes a chin cup instead of a bite block, you can use the same bite wafers for in vivo scans and plaster scans. For in-vivo scans with the CS 9300, you will need a bite registration material such as WAX BASEPLATE PINK #2 distributed by Patterson Dental.

Equipment and accessories for patient restraint

You may also need to stock up on any supplies or accessories that will help you eliminate patient movement. For example, you may need a footstool. Check with the manufacturer to obtain all of the options available for your system.



Selecting Patients

When selecting patients, remember the patient must be eligible for a CBCT scan according to the manufacturer's recommended use for the device and any state and local regulations.

Phase 2 Only

Complete Phase I treatment prior to taking the CBCT scan. The SureSmile system cannot create models for patients with metal appliances such as expanders.

NOTE: TADs and lingual buttons are acceptable as long as any metal appliance is not within 0.5 mm of teeth or brackets.



Considerations for Turbos

You may scan turbos whether they are composite or metal. However, if you can see the occlusal turbos on the x-ray, they will show up on the SureSmile model. Therefore, we recommend removing these turbos prior to the scan.

Alternatively, use a material for turbos that will not show up in the x-ray; for example, Transbond™ LR by Unitek.

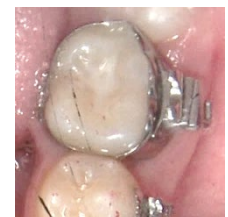


Additional considerations for turbos:

- Remember photos must match scan data. If you left the turbos on for the scan (because the material won't interfere), leave them on for the photos.
- Don't skip the step of using the bite wafer—it ensures you have adequate separation and helps stabilize the teeth so the patient doesn't shift during the scan.

Bands are Acceptable in CBCT Scans

The scatter caused by bands is within an acceptable level. You may CBCT scan patients with bands, and you do NOT need a supplemental scan.



Scheduling a Supplemental Scan

For SureSmile Ortho and SureSmile Aligner cases, a full upper and lower supplemental scan is required for all orders with CBCT scans.

A CBCT scanner works by transmitting x-rays and detecting where the rays meet hard tissue. If the rays meet metal, they are thrown off track and cause “scatter” in the data that makes the image less clear. The larger the amount of metal, the more scatter created.

Through testing and experience processing CBCT scans, we have found the limits where there is too much distortion to produce tooth models. We have the opposite problem with some non-metal restorations. In certain cases, the CBCT scanner does not capture these areas adequately for modeling because they do not have sufficient density.

If you have an orascanner or other certified 3rd party scanner in your office, you have the ability to take a supplemental scan to compensate for areas of the CBCT that cannot be processed due to these limitations. Whenever you discover during an exam that a supplemental scan will be needed, remember to allow time in your schedule for both procedures: CBCT scan and supplemental scan.



Restorations that cause too much “scatter” in the CBCT Scan:

Cannot support metal crowns or bridges with metal such as:

- Porcelain veneer crowns or porcelain fused to metal (PVC or PFM)
- Porcelain veneer bridges
- Cantilever bridges
- Gold Inlays, onlays and $\frac{3}{4}$ crowns

Cannot create tooth models for patients with a metal filling that is 3 mm or larger

WARNING: Patients with the restorations described above are not eligible for SureSmile treatment unless you capture the area in a supplemental scan with an orascanner (or a SureSmile-certified 3rd party intraoral scanner).

Restorations that are not captured adequately by a CT Scan:

- Porcelain jacket crowns
- Composite fillings on critical anatomy; i.e., incisal edges, contacting occlusal surfaces

WARNING: Patients with the restorations described above are not eligible for SureSmile treatment unless you capture the area in a supplemental scan with an orascanner (or a SureSmile-certified third party intraoral scanner).

Check the panoramic radiograph during the patient exam. If the tooth structure is not visible or appears as an outline, the restoration is not dense enough to be captured by your CBCT scanner.

NOTE: You do not need a supplemental scan to capture non-metal restorations in a therapeutic scan if ALL of these conditions can be met:

- The Digital Lab has already modeled the teeth in a diagnostic model.



- The anatomy hasn't changed from the time of the diagnostic scan to the therapeutic scan.
- The quality of the diagnostic scan was good and had no distortion or discrepancies in the diagnostic scan data.

When a Premium Model Service is Incurred

NOTE: This is required for SureSmile Ortho and SureSmile Aligner cases. Additional fee applies for SureSmile Advanced cases.

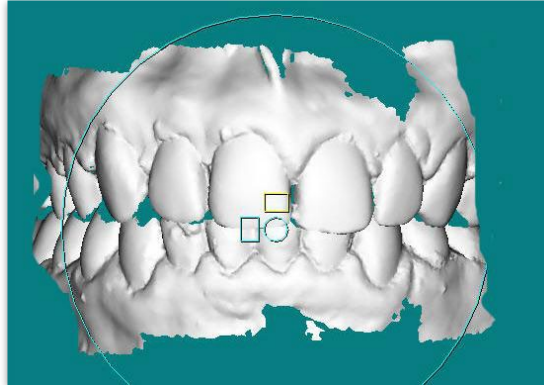


Extensive restorations as described above can compromise the quality of the CBCT data. Your options for using supplemental scan data to enhance modeling accuracy depend on the number of affected teeth:

Patient Condition	Appropriate Procedure(s)
No teeth with problem restorations.	<ul style="list-style-type: none"> • Eligible for CBCT scan. • Alternatively, capture a full scan (intraoral upper & lower) using your optical scanner if the patient declines to be irradiated.
Problem restorations in 6 teeth or less in one arch or 10 and less in total.	<ul style="list-style-type: none"> • Eligible for CBCT scan if a supplemental scan is provided. • Capture the problematic teeth with a full arch scan, or you may capture a partial segment (include adjacent teeth for a minimum of three teeth in a segment).
Problem restorations in 7 teeth or more in one arch or 11 or more in total.	<ul style="list-style-type: none"> • Eligible for CBCT scan if a premium supplemental scan is provided (additional fee required). Capture full arches to obtain the most benefit from the premium service. • Alternatively, capture a full scan (intraoral upper & lower) using your optical scanner to avoid the premium fee.
Treatment requires a premium model; for example, a surgical splint is planned. Patient may or may not have problematic restorations.	Schedule both a CBCT scan and a premium supplemental scan (additional fee required). Capture full arches, selecting the upper/lower options to include all teeth and gingiva.

Bite Scans for orascanner Users

Since the patient's bite is slightly open during the CBCT scan, orascanner users may optionally capture an intraoral bite scan with the supplemental scan feature to improve the model's bite registration.



Taking Required 2D Records

The SureSmile system requires current photos and x-rays any time a scan is taken to optimize 3D modeling accuracy. Each photo is used for a specific purpose in Digital Lab modeling or setup processing. A standard photo set consists of:

- **3 extraoral photos:** Extraoral photos indicate the natural jaw position and natural smile line. The Digital Lab uses this information when orienting the 3D model to the head position.
- **5 intraoral photos:** The Digital Lab references intraoral photos to confirm tooth anatomy, check bite registration, and confirm bracket placement.

The following table illustrates the records required (or recommended) for each model type.

	Required Photos	Required x-rays	Strongly Recommended
Diagnostic Model	-	-	Five standard intraoral + three facial + full mouth Panorex, ceph
Therapeutic Model	Five standard intraoral + three facial	Panorex + initial or current ceph* <i>(optional for SureSmile Ortho and SureSmile Aligner)</i>	Full Mouth + Overjet
Final Model	-	-	Five standard intraoral + three facial + full mouth Panorex, ceph

For best results, photos should be taken the same day as the scan. To meet minimum modeling requirements, they must be taken within 4 weeks before or 2 weeks after the scan.

* For the most accurate orientation of the model to the head position, the Digital Lab recommends importing a ceph that includes the Frankfort Plane. If the patient's CBCT scan does not capture this anatomy, you can import the ceph from the initial records.

Import Records on Time

Import required photos/x-rays into the patient's SureSmile record before the data is sent to SureSmile.

If the 3D data arrives at the Digital Lab without the required records, the order will be placed on "customer hold," and you will have to release the hold before work can begin in the Digital Lab.



Rules for 2D Equipment

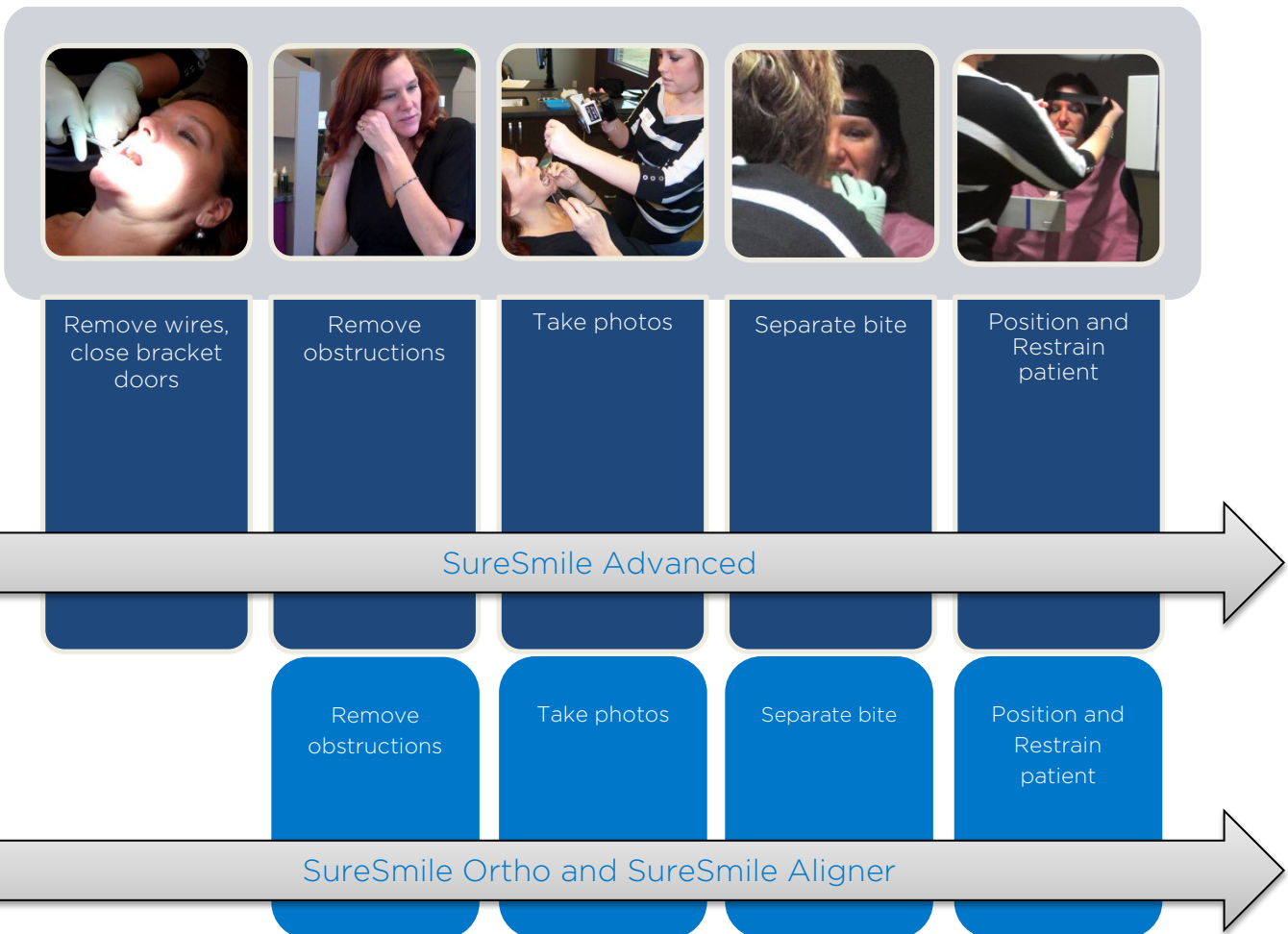
The CS 9300 and 9500 allow you to extract both the pano and cephal from your CBCT scan (the CS 8100 3D only allows an extracted pano). If you prefer to use your 2-D equipment for capturing the cephal or pano, SureSmile's requirements are:

- Panorex (and photos) should be taken within 4 weeks before or 2 weeks after the date of the scan.
- SureSmile does not require a current cephal if a cephal from the initial records is available.

Overview of the Therapeutic Scan Appointment

The illustration below (and continuing on the next page) outlines the steps of the therapeutic scan appointment. Remember prior appointments led to this point in treatment:

- Patient Exam—determined if a supplemental scan is required in addition to the CBCT scan
- Previous appointment—doctor determined the patient is ready for custom archwires (*SureSmile Advanced only*) and the therapeutic scan appointment was scheduled.

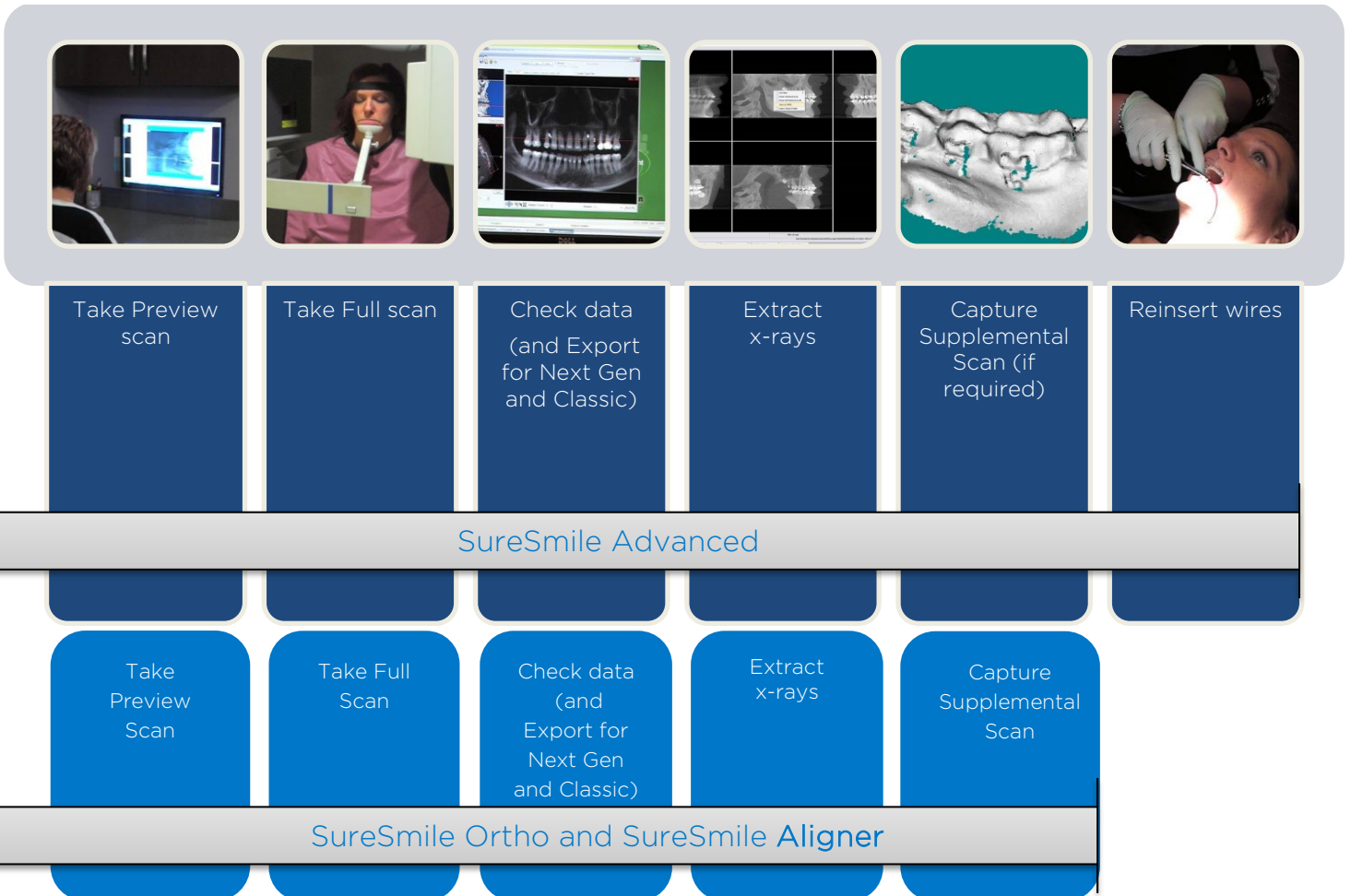


The steps for creating, assembling and submitting the SureSmile order do not have to be completed during the patient appointment:

- Create the SureSmile patient record before the appointment, or at the time you are ready to enter data.
- Upload photos and x-rays during the appointment, or as time allows during your workday.
- Enter the Dental Exam (including bracket information) during the appointment or any time before you submit the order.
- Import CBCT data any time before you submit the order.



To avoid delays to treatment, make sure you complete and submit orders by the end of the day.



Scanning Plaster Models

NOTE: Scanning of plaster models are not applicable for SureSmile Ortho and SureSmile Aligner

As noted earlier, you can use your Carestream Dental scanner to produce a diagnostic or final model from a scan of a plaster model.

When taking this type of scan, please follow similar steps for in vivo scans with some additional considerations:

- All appliances (such as a palatal expander) must have been removed prior to the impression.
- Patient models must NOT be bonded.
- Be sure to use the same bite wax recommended for in-vivo scans to keep upper and lower teeth in the model from touching. The models must be separated by a wax bite that is between .5 and 1.5 mm.
- Scan the model using the same settings for the in vivo SureSmile protocols.
- Upload the recommended records into SureSmile: Five standard intraoral + three facial + full mouth, panorex, ceph.
- When placing the SureSmile order, select the diagnostic or final model option for **CBCT plaster scan**.



WARNING: Use this model type for storage or diagnostic purposes. Do NOT scan a plaster model when you plan on using the model to produce appliances, such as aligners or IDB trays. Instead, take an optical scan, which produces a more detailed representation of the patient's teeth and gingiva that results in a better fit.

Procedure

1. Remove the 3D chin rest and insert the accessory that looks like a small platform (also used for scanning the phantom).
2. On the Unit Control Panel, press the 3D Head Adjustment button to move the 3D chin rest to the lowest position.
3. Place the plaster model on the platform.
4. Use a bite wafer to keep upper and lower teeth in the model from touching.
5. Adjust the model position as needed to mark the midsagittal plane.
6. Take the scan using these settings in the Parameter Pane:
 - kV: 80
 - mA: 6.3.
 - (Use the same voxel setting as in vivo scans.)
7. Export the data as you do for in-vivo scans.
8. Reset the unit as needed for the next scan.



CBCT Scan Procedure – CS 9300

This section describes how to take an in-vivo scan with your Carestream Dental CS 9300 that will produce clear data resulting in accurate tooth modeling and bracket positions. The steps for scanning should:

- Ensure the patient is comfortable and relaxed
- Ensure the patient's arms and legs are supported
- Ensure the patient's head is steady
- Eliminate patient motion during the CBCT scan

Scan Criteria

- No blurring, usually caused by patient movement
- No refraction (“scatter”), usually caused by metal in the patient’s mouth
- No contact between teeth
- For SureSmile Advanced, no contact between brackets.



There are three keys to submitting acceptable scans:

- No blurring
- No scatter
- No contact

Setting up for the Scan

Patient supports

1. Insert the 3D chin rest.
2. On the Unit Control Panel, press the 3D Head Adjustment button to move the 3D chin rest to the highest position.

Select Software Settings

3. Start or open a patient record.
4. In the Program Pane, select:
Medium Field of View (bottom middle setting).
5. Select: **10 cm height x 10 cm diameter**.
6. In the Parameter Pane, select:
 - kV: 90
 - mA: 10
 - Voxel size: 180



Preparing the Patient

(SureSmile Ortho and SureSmile Aligner – proceed to next section “*Remove Obstructions*” since no brackets are involved)

1. If the patient is in treatment, remove the patient’s upper and lower wires along with any metal appliances that are no longer needed for treatment. Save these wires for reinsertion following the CBCT scan.
2. For self-ligating brackets, make sure bracket doors are fully closed.

Remove Obstructions

- ✓ Remove any head or hair accessories that might prevent the patient’s head from being properly positioned, including ponytails, barrettes and hats.
- ✓ Remove any clothing outerwear, such as heavy coats, that might prevent the patient’s back from being properly positioned against the chair or wheelchair.
- ✓ Remove any metal items that the patient is wearing such as glasses.
- ✓ Remove all jewelry from the neck up, including lip and tongue piercings.



Separate the Teeth

Teeth must be separated at minimum by 0.5 to 1.5 mm. The Digital Lab cannot process scans of teeth and brackets that are in contact or closer than 0.5 mm. Use wax that is thick enough to prevent the teeth and brackets from touching.

SureSmile recommends softening the wax to allow the patient to gently bite into it to help “lock” the patient’s jaws to avoid movement. Remember the patient cannot bite through the wax or there will not be space between the upper and lower arches.



1. Warm the bite wax in warm water to make it soft and pliable, and trim it to fit the patient’s mouth.
2. Insert the wax into the patient’s mouth and place the wax against the upper teeth.
3. Ask the patient to press the upper and lower teeth together into the wax. Do not allow the anterior teeth to contact or any tooth and bracket contact.
4. Remove the wax bite and check it for show-through. If the bite wax seated correctly, proceed to restraining the patient. Otherwise, discard the wax and repeat these steps

WARNING: Do not use any type of bite block accessory that comes with your CBCT system. While it does separate the teeth, it does not help patients avoid moving their jaws.

Restraining the Patient and Capturing Scans

WARNING: It is critical that the patient remain still during the scan. ANY movement will cause blurring in the scan data that will prevent it from being processed for SureSmile. If the data's quality is insufficient, it will be rejected, and you will need to schedule the patient for an intraoral scan.

1. Cover the patient with the protective apron.
 2. Adjust the seat for the patient's height according to manufacturer's instructions.
 3. Seat the patient with his or her back against the back of the chair.
 4. Place the patient's feet flat on the floor—use a foot rest if needed so that the feet do not dangle.
 5. Using the Control Panel, adjust the unit height as needed.
 6. Ask the patient to lean forward slightly and reseat his or her teeth into the bite registration.
 7. Ask the patient to hold the handgrip using an underhanded position (palms facing up before gripping the bar). This grip keeps the patient's shoulders down.
 8. Adjust the unit height and patient seating further as needed to maintain a horizontal occlusal plane.
 9. On the Control Panel, press the Laser Beam button to activate the positioning lasers.
 10. Adjust the patient to position the midsagittal laser beam down the center of the patient's face.
- WARNING – For SureSmile Advanced, do not cut off anterior brackets.**
11. Adjust the unit height to capture the region of interest. The upper horizontal laser beam should be at the nose and the lower beam should be at the base of the chin.
 12. As an additional restraint, tighten the temple supports.



Launch Acquisition

1. Instruct the patient as follows:
 - The full rotation will take 23 seconds
 - You must remain completely still or the scans will not be clear
 - Take gentle, shallow breaths so that you do not move
 - Swallow now, do not swallow during the scan
 - Close your eyes
2. Take the scan according to manufacturer instructions. Remember you must press and hold the exposure button until the end of the acquisition.
3. As soon as it is safe, step into the room and reassure the patient while the machine is resetting.



Check for Signs of Motion

Before you release the patient, check the data:

In the panoramic view, check each tooth with special attention to the bicuspid. Examine edges of brackets—they should be very clearly defined. If the teeth images are fuzzy, stretched or look like double images, the patient moved during the scan.

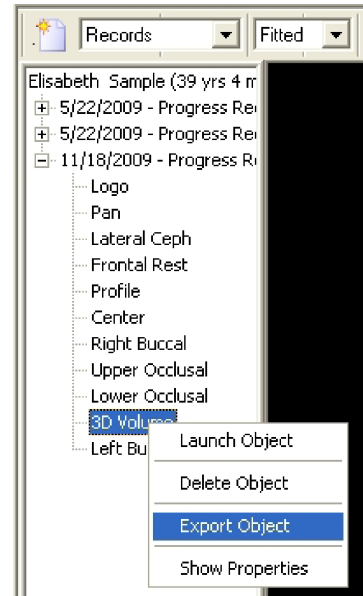
- ✓ If there are signs of motion, you may need to repeat the scan. Ask the doctor for instructions. Otherwise continue to the next step.
- ✓ Keep the patient seated until you have verified there are no issues with the scan. Volume processing could take 1-3 minutes.
- ✓ Send the patient for a supplemental scan (if needed and/or optional bite scan). If you removed wires, send the patient for wire reinsertion. *This step does not apply to SureSmile Ortho and SureSmile Aligner.*
- ✓ Discard the bite registration material and disinfect the 3D bite block for the next use.

Exporting the Data

Export the 3D volume

1. In the imaging software, return to the patient chart.
2. Right-click the 3D Volume in the appointment gallery, and choose Export Object.
3. When asked where to export the data, browse to your Desktop and click Make New Folder.

4. Type the patient's name exactly as it appears in your patient record and click Ok.
5. Minimize the imaging software and view your Desktop.
6. Drag the patient's folder you just created onto a shortcut that represents a drive mapped for this purpose.
7. Keep a record of exported patient data, such as a note in the patient's chart.



Export the Ceph

1. In the imaging software for the CS 9300, select the Orthogonal Slicing tab. (It may already be selected.)
2. Maximize the view in the lower-right quadrant of the screen.
3. In the Set Integration drop-down, choose the highest setting (for example, 96.7 mm).
4. In the Export section, click the screenshot icon (looks like a Camera).



Export a Panorex

1. Select the **Curved Slicing** tab.
2. In the Tools section, click the **Manually Create An Arch** icon. If the software prompts you to delete the default arch, click **Yes**.
3. Draw a custom curve starting at one condyle, going through the teeth, and ending at the other condyle. Double-click when you are finished drawing the curve.
4. To adjust the slice thickness of the panoramic image, click the **“Set Integration”** tool and select the desired thickness from the drop-down options such as **29.7**.
5. Click the maximize button for a larger view of the slice.
6. In the Export section, click the screenshot icon (looks like a Camera).



Copy Screen Captures (Pano, Ceph)

1. In the Export section, click the screenshot directory icon (looks like a folder).
2. Double-click the folder named Captures to open it.
3. Rename the image appropriately to patient-name-ceph.jpeg or patient-name-pano.jpeg, and click Yes to acknowledge the warning.
4. Copy the image(s) from the screenshot directory folder to the folder on the desktop you have created for this purpose.
5. Delete the files from the screenshot folder to keep it from getting cluttered.

CBCT Scan Procedure – 9500

This section describes how to take an in-vivo scan with your Carestream Dental 9500 that will produce clear data resulting in accurate tooth modeling and bracket positions. The steps for scanning should:

- Ensure the patient is comfortable and relaxed
- Ensure the patient's arms and legs are supported
- Ensure the patient's head is steady
- Eliminate patient motion during the CBCT Scan

Scan Criteria

- No blurring, usually caused by patient movement
- No refraction ("scatter"), usually caused by metal in the patient's mouth
- No contact between teeth
- For SureSmile Advanced, no contact between brackets.

There are three keys to submitting acceptable scans:

- No blurring
- No scatter
- No contact



Setting Up for the Scan

Patient supports

1. Insert the 3D chin rest.
2. Mount the 3D bite block (that you prepared with the patient's bite registration) onto the 3D chin rest.
3. On the Unit Control Panel, press the 3D Head Adjustment button to move the 3D chin rest to the highest position.



Select Software Settings

4. Start or open a patient record.
5. In the Program Pane, select: **Medium Field of View** (9 cm height x 15 cm diameter).

WARNING – do not choose Large Field of View to take a CBCT scan since it cannot capture the minimum voxel size required by SureSmile.

6. In the Patient Pane, select the appropriate patient size (usually medium).
7. In the Parameter Pane, select
 - kV: 90
 - mA: 10
 - Voxel size: 200

Preparing the Patient

(SureSmile Ortho and SureSmile Aligner – proceed to next section “Remove Obstructions” since no brackets are involved)

1. If the patient is in treatment, remove the patient's upper and lower wires along with any metal appliances that are no longer needed for treatment. Save these wires for reinsertion following the CBCT scan.
2. For self-ligating brackets, make sure bracket doors are fully closed.

Remove Obstructions

- ✓ Remove any head or hair accessories that might prevent the patient's head from being properly positioned, including ponytails, barrettes and hats.
- ✓ Remove any clothing outerwear, such as heavy coats, that might prevent the patient's back from being properly positioned against the chair or wheelchair.



- ✓ Remove any metal items that the patient is wearing such as glasses.
- ✓ Remove all jewelry from the neck up, including lip and tongue piercings.

Separate the Teeth

Teeth must be separated at minimum by 0.5 to 1.5 mm. The Digital Lab cannot process scans of teeth and brackets that are in contact or closer than 0.5 mm. Use wax that is thick enough to prevent the teeth and brackets from touching.

SureSmile recommends softening the wax to allow the patient to gently bite into it to help “lock” the patient’s jaws to avoid movement. Remember the patient cannot bite through the wax or there will not be space between the upper and lower arches.



5. Warm the bite wax in warm water to make it soft and pliable, and trim it to fit the patient’s mouth.
6. Insert the wax into the patient’s mouth and place the wax against the upper teeth.
7. Ask the patient to press the upper and lower teeth together into the wax. Do not allow the anterior teeth to contact or any tooth and bracket contact.
8. Remove the wax bite and check it for show-through. If the bite wax seated correctly, proceed to restraining the patient. Otherwise, discard the wax and repeat these steps

WARNING: Do not use any type of bite block accessory that comes with your CBCT system. While it does separate the teeth, it does not help patients avoid moving their jaws.

Restraining the Patient and Capturing Scans

WARNING: It is critical that the patient remain still during the scan. ANY movement will cause blurring in the scan data that will prevent it from being processed for SureSmile. If the data's quality is insufficient, it will be rejected, and you will need to schedule the patient for an intraoral scan.

1. Cover the patient with the protective apron.
 2. Adjust the seat for the patient's height according to manufacturer's instructions.
 3. Seat the patient with his or her back against the back of the chair.
 4. Place the patient's feet flat on the floor—use a foot rest if needed so that the feet do not dangle.
 5. Using the Control Panel, adjust the unit height as needed.
 6. Ask the patient to lean forward slightly and reseat his or her teeth into the bite registration.
 7. Ask the patient to hold the handgrip using an underhanded position (palms facing up before gripping the bar). This grip keeps the patient's shoulders down.
 8. Adjust the unit height and patient seating further as needed to maintain a horizontal occlusal plane.
 9. On the Control Panel, press the Laser Beam button to activate the positioning lasers.
 10. Adjust the patient to position the midsagittal laser beam down the center of the patient's face.
- WARNING – For SureSmile Advanced, do not cut off anterior brackets.**
11. Adjust the unit height to capture the region of interest. The upper horizontal laser beam should be at the nose and the lower beam should be at the base of the chin.
 12. As an additional restraint, tighten the temple supports.



Launch Acquisition

1. Instruct the patient as follows:
 - The full rotation will take 23 seconds
 - You must remain completely still or the scans will not be clear
 - Take gentle, shallow breaths so that you do not move
 - Swallow now, do not swallow during the scan
 - Close your eyes
2. Take the scan according to manufacturer instructions. Remember you must press and hold the exposure button until the end of the acquisition.
3. As soon as it is safe, step into the room and reassure the patient while the machine is resetting.



Check for Signs of Motion

Before you release the patient, check the data:

In the panoramic view, check each tooth with special attention to the bicusps. Examine edges of brackets—they should be very clearly defined. If the teeth images are fuzzy, stretched or look like double images, the patient moved during the scan.

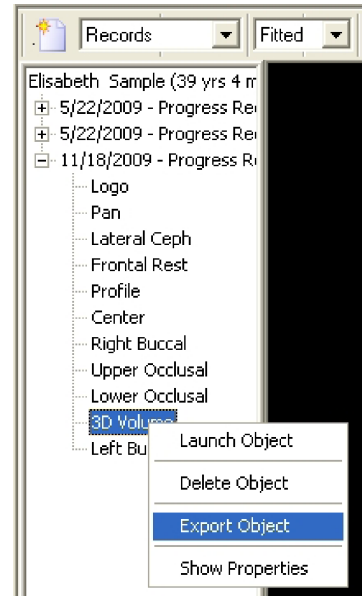
- ✓ If there are signs of motion, you may need to repeat the scan. Ask the doctor for instructions. Otherwise continue to the next step.
- ✓ Keep the patient seated until you have verified there are no issues with the scan. Volume processing could take 1-3 minutes.
- ✓ Send the patient for a supplemental scan (if needed and/or optional bite scan). If you removed wires, send the patient for wire reinsertion. *This step does not apply to SureSmile Ortho and SureSmile Aligner.*
- ✓ Discard the bite registration material and disinfect the 3D bite block for the next use.

Exporting the Data

Export the 3D volume

1. In the imaging software, return to the patient chart.
2. Right-click the 3D Volume in the appointment gallery, and choose Export Object.
3. When asked where to export the data, browse to your Desktop and click Make New Folder.

4. Type the patient's name exactly as it appears in your patient record and click Ok.
5. Minimize the imaging software and view your Desktop.
6. Drag the patient's folder you just created onto a shortcut that represents a drive mapped for this purpose.
7. Keep a record of exported patient data, such as a note in the patient's chart.



Export a Panorex

1. Select the **Curved Slicing** tab.
2. In the Tools section, click the **Manually Create An Arch** icon. If the software prompts you to delete the default arch, click **Yes**.
3. Draw a custom curve starting at one condyle, going through the teeth, and ending at the other condyle. Double-click when you are finished drawing the curve.
4. To adjust the slice thickness of the panoramic image, click the **"Set Integration"** tool and select the desired thickness from the drop-down options such as **29.7**.
5. Click the maximize button for a larger view of the slice.
6. In the Export section, click the screenshot icon (looks like a Camera).



Copy Screen Captures (Pano, Ceph)

1. In the Export section, click the screenshot directory icon (looks like a folder).
2. Double-click the folder named Captures to open it.
3. Rename the image appropriately to patient-name-ceph.jpeg or patient-name-pano.jpeg, and click Yes to acknowledge the warning.
4. Copy the image(s) from the screenshot directory folder to the folder on the desktop you have created for this purpose.
5. Delete the files from the screenshot folder to keep it from getting cluttered.



Continue to **Model Order...** section

CBCT Scan Procedure – CS 8100 3D

This section describes how to take an in-vivo scan with your Carestream Dental CS 8100 3D that will produce clear data resulting in accurate tooth modeling and bracket positions. The steps for scanning should:

- Ensure the patient is comfortable and relaxed
- Ensure the patient's arms and legs are supported
- Ensure the patient's head is steady
- Eliminate patient motion during the CBCT scan

Scan Criteria

- No blurring, usually caused by patient movement
- No refraction ("scatter"), usually caused by metal in the patient's mouth
- No contact between teeth
- For SureSmile Advanced, no contact between brackets.



There are three keys to submitting acceptable scans:

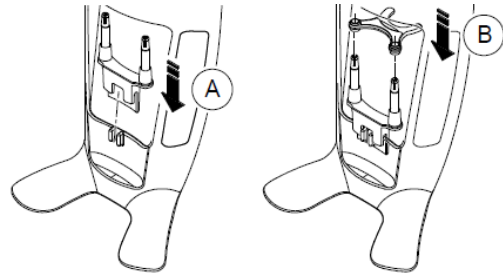
- No blurring
- No scatter
- No contact

Setting Up for the Scan

Patient supports

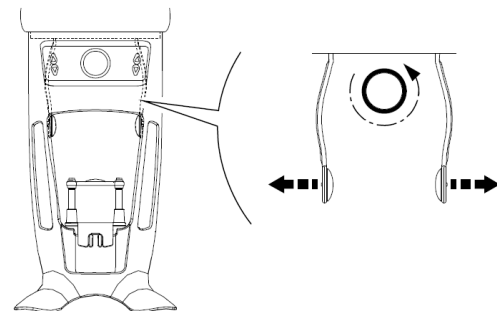
1. Prepare the 3D bite block (*labeled R1 on actual bite block*) with the patient's bite registration.
2. Fit 3D bite block support (A) and insert the 3D bite block (B) as shown. Make sure the bite block clicks into place.

Turn the adjustment knob to open the temple supports laterally (Note: you can adjust the temple supports manually to the back or front for a better head fit).



Select Software Settings

3. Start or open a patient record.
4. In the Program Pane, select: **Full Jaw exam** (9 cm height x 8 cm diameter).
5. In the Patient Pane, select the appropriate patient size.
6. In the Parameter Pane, select:
 - kV: 90
 - mA: 6.3
 - Voxel size: 150



Preparing the Patient

(SureSmile Ortho and SureSmile Aligner – proceed to next section “*Remove Obstructions*” since no brackets are involved)

1. If the patient is in treatment, remove the patient's upper and lower wires along with any metal appliances that are no longer needed for treatment. Save these wires for reinsertion following the CBCT scan.
2. For self-ligating brackets, make sure bracket doors are fully closed.

Remove Obstructions

- ✓ Remove any head or hair accessories that might prevent the patient's head from being properly positioned, including ponytails, barrettes and hats.
- ✓ Remove any clothing outerwear, such as heavy coats, that might prevent the patient's back from being properly positioned against the chair or wheelchair.



- ✓ Remove any metal items that the patient is wearing such as glasses.
- ✓ Remove all jewelry from the neck up, including lip and tongue piercings.

Separate the Teeth

Teeth must be separated at minimum by 0.5 to 1.5 mm. The Digital Lab cannot process scans of teeth and brackets that are in contact or closer than 0.5 mm. Use wax that is thick enough to prevent the teeth and brackets from touching.

SureSmile recommends softening the wax to allow the patient to gently bite into it to help “lock” the patient’s jaws to avoid movement. Remember the patient cannot bite through the wax or there will not be space between the upper and lower arches.



1. Warm the bite wax in warm water to make it soft and pliable, and trim it to fit the patient’s mouth.
2. Insert the wax into the patient’s mouth and place the wax against the upper teeth.
3. Ask the patient to press the upper and lower teeth together into the wax. Do not allow the anterior teeth to contact or any tooth and bracket contact.
4. Remove the wax bite and check it for show-through. If the bite wax seated correctly, proceed to restraining the patient. Otherwise, discard the wax and repeat these steps

WARNING: Do not use any type of bite block accessory that comes with your CBCT system. While it does separate the teeth, it does not help patients avoid moving their jaws.

Restraining the Patient and Capturing Scans

WARNING: It is critical that the patient remain still during the scan. ANY movement will cause blurring in the scan data that will prevent it from being processed for SureSmile. If the data's quality is insufficient, it will be rejected, and you will need to schedule the patient for an intraoral scan.

1. Cover the patient with the protective apron.
 2. Adjust the seat for the patient's height according to manufacturer's instructions.
 3. Seat the patient with his or her back against the back of the chair.
 4. Place the patient's feet flat on the floor—use a foot rest if needed so that the feet do not dangle.
 5. Using the Control Panel, adjust the unit height as needed.
 6. Ask the patient to lean forward slightly and reseat his or her teeth into the bite registration.
 7. Ask the patient to hold the handgrip using an underhanded position (palms facing up before gripping the bar). This grip keeps the patient's shoulders down.
 8. Adjust the unit height and patient seating further as needed to maintain a horizontal occlusal plane.
 9. On the Control Panel, press the Laser Beam button to activate the positioning lasers.
 10. Adjust the patient to position the midsagittal laser beam down the center of the patient's face.
- WARNING – For SureSmile Advanced, do not cut off anterior brackets.**
11. Adjust the unit height to capture the region of interest. The upper horizontal laser beam should be at the nose and the lower beam should be at the base of the chin.
 12. As an additional restraint, tighten the temple supports.



Launch Acquisition

1. Instruct the patient as follows:
 - The full rotation will take 23 seconds
 - You must remain completely still or the scans will not be clear
 - Take gentle, shallow breaths so that you do not move
 - Swallow now, do not swallow during the scan
 - Close your eyes
2. Take the scan according to manufacturer instructions. Remember you must press and hold the exposure button until the end of the acquisition.
3. As soon as it is safe, step into the room and reassure the patient while the machine is resetting.



Check for Signs of Motion

Before you release the patient, check the data:

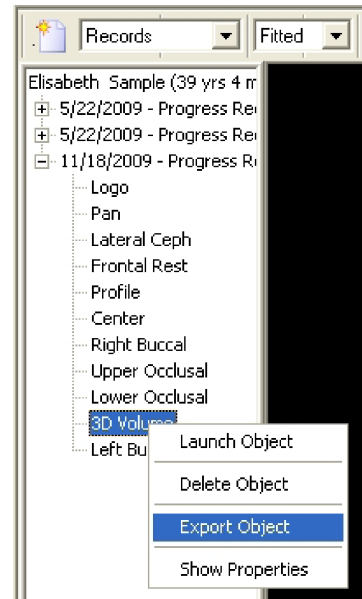
In the panoramic view, check each tooth with special attention to the bicuspid. Examine edges of brackets—they should be very clearly defined. If the teeth images are fuzzy, stretched or look like double images, the patient moved during the scan.

- ✓ If there are signs of motion, you may need to repeat the scan. Ask the doctor for instructions. Otherwise continue to the next step.
- ✓ Keep the patient seated until you have verified there are no issues with the scan. Volume processing could take 1-3 minutes.
- ✓ Send the patient for a supplemental scan (if needed and/or optional bite scan). If you removed wires, send the patient for wire reinsertion. *This step does not apply to SureSmile Ortho and SureSmile Aligner.*
- ✓ Discard the bite registration material and disinfect the 3D bite block for the next use.

Exporting the Data

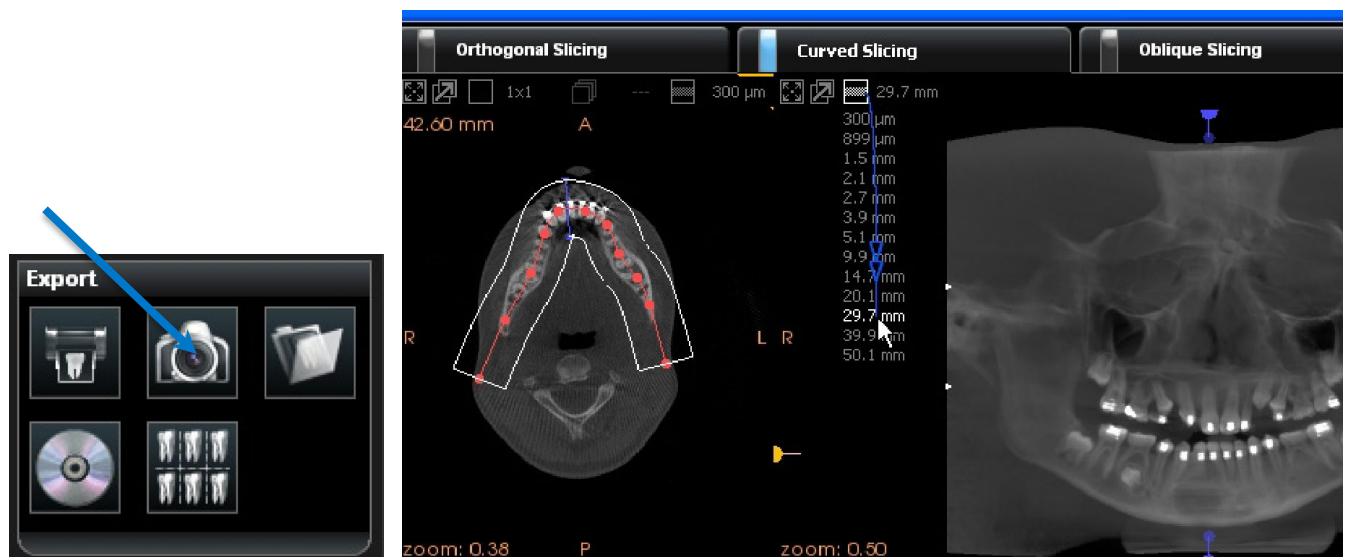
Export the 3D volume

1. In the imaging software, return to the patient chart.
2. Right-click the 3D Volume in the appointment gallery, and choose Export Object.
3. When asked where to export the data, browse to your Desktop and click Make New Folder.
4. Type the patient's name exactly as it appears in your patient record and click Ok.
5. Minimize the imaging software and view your Desktop.
6. Drag the patient's folder you just created onto a shortcut that represents a drive mapped for this purpose.
7. Keep a record of exported patient data, such as a note in the patient's chart.



Export a Panorex

1. Select the **Curved Slicing** tab.
2. In the Tools section, click the **Manually Create An Arch** icon. If the software prompts you to delete the default arch, click **Yes**.
3. Draw a custom curve starting at one condyle, going through the teeth, and ending at the other condyle. Double-click when you are finished drawing the curve.
4. To adjust the slice thickness of the panoramic image, click the "Set Integration" tool and select the desired thickness from the drop-down options such as 29.7.
5. Click the maximize button for a larger view of the slice.
6. In the Export section, click the screenshot icon (looks like a Camera).



Copy Screen Captures (Pano, Ceph)

6. In the Export section, click the screenshot directory icon (looks like a folder).
7. Double-click the folder named Captures to open it.
8. Rename the image appropriately to patient-name-ceph.jpeg or patient-name-pano.jpeg, and click Yes to acknowledge the warning.
9. Copy the image(s) from the screenshot directory folder to the folder on the desktop you have created for this purpose.
10. Delete the files from the screenshot folder to keep it from getting cluttered.



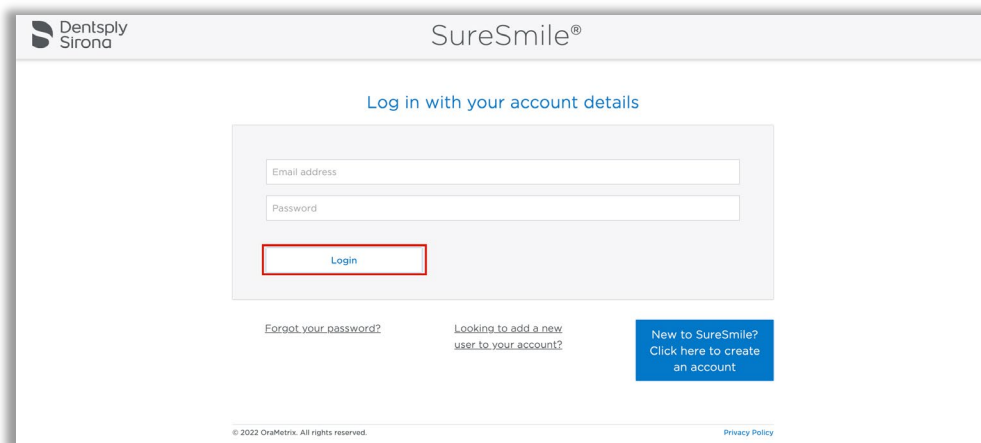
Continue to **Model Order...** section

Model Order for SureSmile Advanced

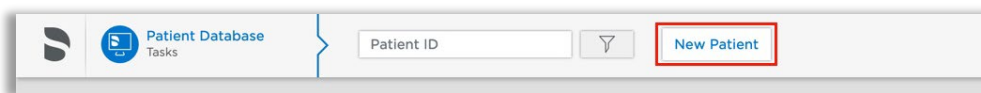
This section describes how to work with SureScan and SureSmile Advanced for a model order which includes CBCT scan data

Start with SureSmile

1. Log onto SureSmile on the web.



2. Add a new patient or open the Patient Overview for an existing patient.

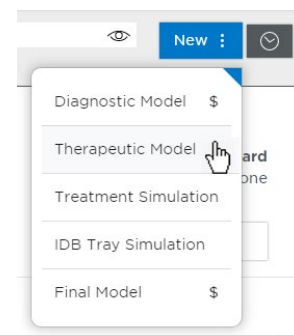


3. Click the **New** drop-down menu in the timeline and select the model you want to order.

The order page opens.

4. Fill out the **Dental Examination** section.

NOTE: Remember to load the patient's required photos/x-rays. The Digital Lab refers to these photos during tooth modeling, bracket verification and setup processes.



Model Unerupted Teeth:

To activate this function for a CBCT scan model order

1. Scroll down to **Select your 3D scan data files** section
2. Select **CBCT Scan**
3. Click **Create a Task** button. This will create a task in SureScan to upload CBCT data for this patient.
4. Refer back to **Dental Exam** section, select desired unerupted teeth and mark “to be modeled.”
 - For each unerupted tooth you would like the Digital Lab to model, select the tooth icon and click the **To be modeled** option.
 - If the doctor does not want to see an unerupted tooth in the therapeutic model, do not choose this option for that tooth. A diagonal line marks the teeth you do not elect to model.

Create a Task

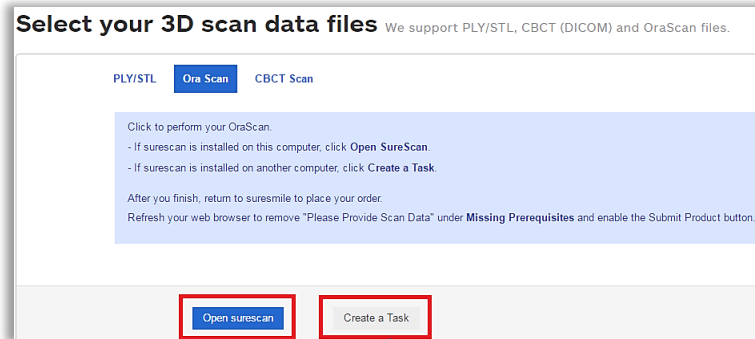
5. Apply a bracket set/assign brackets if appropriate for the model you are ordering.
6. Scroll down to the **Select your 3D Scan Data** files section.
7. Click the **CBCT Scan** tab as appropriate.

NOTE: This **Model Order** procedure does not cover PLY/STL 3D scan data files, because you upload these files directly within SureSmile without using SureScan.

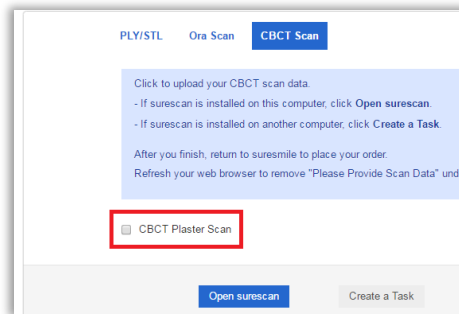
8. If SureScan is...

... on the same computer you are currently working on, click **Open surescan**.

... on another computer or a standalone orascanner 1 station, click **Create a Task**. A spinning wait/busy cursor appears for a moment, and then a message: *Task item already exists* appears to the right of the button. Go to the computer or scan station with SureScan installed.



9. **OPTIONAL:** If you are ordering a diagnostic or final model from a CBCT scan based on a plaster model, make sure you check the **CBCT Plaster Scan** check box before clicking the **Open SureScan** or **Create a Task** buttons. This ensures that the Digital Lab processes the CBCT scan correctly.



Go to SureScan

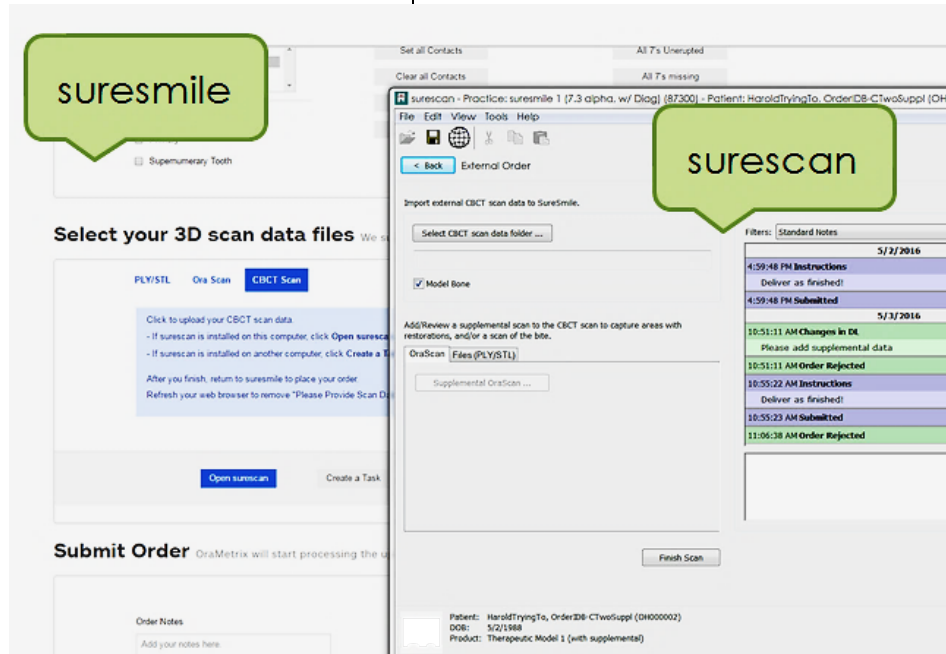
1. If you are...

...already logged onto SureScan

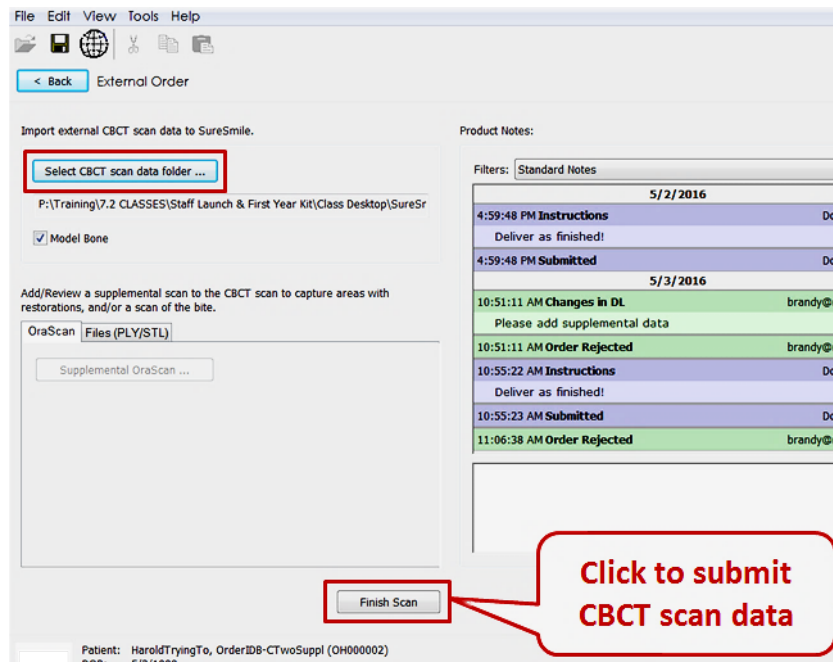
The SureScan External Order page opens on your computer screen on top of SureSmile.

...not logged into SureScan

Log on when the SureScan logon page opens. SureScan takes you directly to the External Order page for the patient.



2. Click the **Select CBCT scan data folder...** button to upload your CBCT scan now.



Browse to the patient's folder, select it and click OK. This process may take a moment as the software searches for the patient's name in the data.

- If you receive an error message of a “Possible Patient Mismatch,” click Yes if it is the same patient. This error may occur if the patient’s name or birthdate is different in the CT record and the SureSmile patient record.

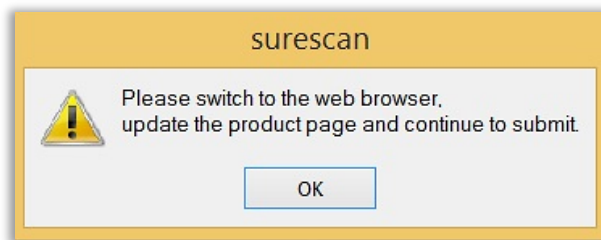
OR

If you accidentally selected the wrong data, click No and repeat the previous step.

- If you receive an error message regarding the voxel size, please do not send the order. This scan would be rejected. Instead, ask the doctor for instructions. You may recall the patient and retake the CBCT scan or take an intraoral scan.
- If you receive an error message regarding the data compression, do not send the order. Instead, return to the computer where you process CBCT data and re-export the data using the correct settings. Then, return to your SureSmile order and try importing the data again.

If a supplemental scan is needed, select the type of scan (OraScan or PLY/STL) and add the supplemental data.

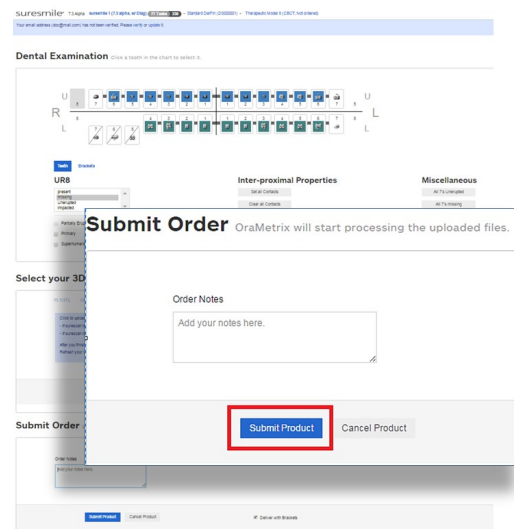
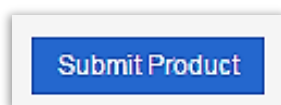
3. Click **Finish Scan** to submit the scan data.
4. Select **OK** and **return to SureSmile** in the browser to submit the product.



Return to SureSmile

1. After you’ve completed uploading the data for that patient in SureScan and have clicked Finish Scan to submit the scan data, return to SureSmile in the browser.
2. Open the order page for the patient and scroll down to **Submit Order** section.

Enter any additional information about the order for the Digital Lab if needed (optional).



If you have not fulfilled all of the prerequisites:

- when you return to the SureSmile browser, SureSmile opens to the Missing Prerequisites section of the Order page and shows which prerequisites are still missing.
- The system displays a reminder to refresh the screen. A message, Scan data missing, remains displayed until you manually refresh the web page. (Press the F5 key.)
- You must submit all missing prerequisites before you can submit the product order.
- Once you fulfill all missing prerequisites, click **Submit Product** to order the model.

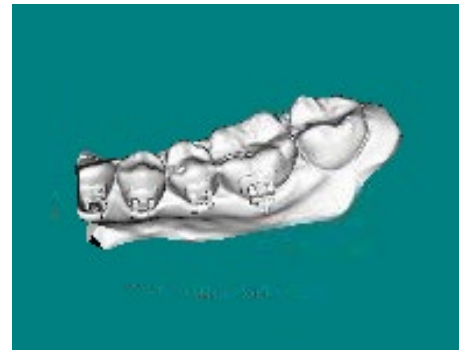
Adding a Supplemental Scan

If the patient does not have any restorations or other reasons for scheduling a supplemental scan as described in previous section, skip to the next section (“Importing CBCT Data”). Or, if a supplemental scan is needed, you must include it in the order before you click the **Submit** button.

A supplemental scan is always captured intraorally with an optical scanner such as the orascanner or a certified 3rd party scanner. Refer to the relevant SureSmile protocol for the steps to capture a segment, arch or both arches to provide a supplemental scan.

Capture the data according to the standards outlined in the scanner protocols, including:

- If you scheduled a required supplemental scan due to a large filling or other condition described in the CBCT limitations, you must capture a **minimum of three teeth** per segment to assist the DL in merging supplemental data with teeth/roots modeled from CBCT data.
- If you are taking a premium supplemental scan (additional fee applies), capture both upper and lower arches into the supplemental scan area to take full advantage of this service.



Continue to the next section on submitting the order.

NOTE: Once the data is attached, SureSmile begins the job of transporting the data to the Digital Lab. Since this process may take a while, leave this computer turned on for at least one hour after attaching the data. Even after the Digital Lab has received the data, a technician will not be assigned to work on the model until you submit the order.

Refer to the relevant SureSmile protocol for the steps to capture a segment, arch or both arches to provide a supplemental scan.

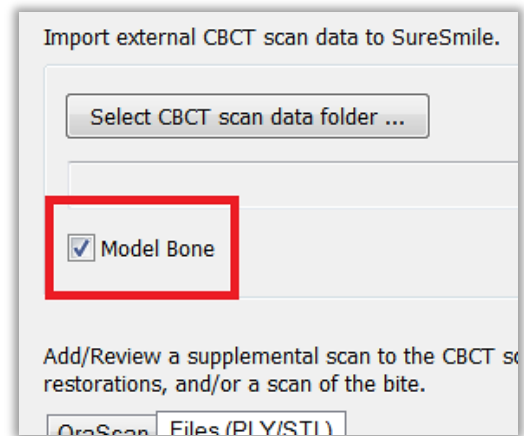
Submitting CBCT Orders

In SureScan:

1. In SureScan, select or deselect the **Model Bone** option, according to the doctor's preference.

In SureSmile:

2. For diagnostic or final model orders, click the “**Deliver as Finished**” checkbox as needed:
 - For diagnostic models, leave the box checked if you prefer the model to be delivered with a workflow task that includes options for starting an IDB tray or treatment simulation. Uncheck the box if you prefer the model to be delivered in a **Review Order** state.
 - For final models, leave the box checked if you prefer the model to be delivered without a task. Uncheck the box if you prefer the model to be delivered in a **Review Order** state.
3. For therapeutic model orders, click the “**Deliver with Brackets**” checkbox as needed:
 - In a therapeutic model order, the “**Deliver with Brackets**” checkbox is checked by default. If this is correct (the patient is bonded and will receive custom wires), continue to the next step.
 - OR, if you are scanning a patient that is NOT bonded (or will be debonded at the next appointment) to transition from braces to aligners, uncheck the “**Deliver with Brackets**” checkbox.
4. You may import the required photos and x-rays before or after you have taken the CBCT scan and placed the order. If you decide to add these records at the end of the day, it is possible that the order will arrive for processing in the Digital Lab before you import the photos/x-rays and be placed on “customer hold.” To avoid incurring a customer hold, import photos/x-rays within one hour of submitting the order.



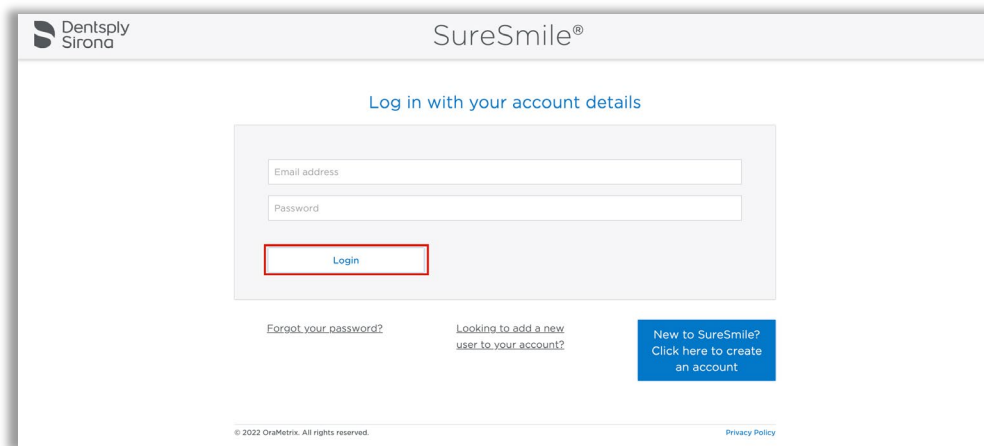
Model Order for SureSmile Ortho or SureSmile Aligner

This section describes how to work with SureScan and SureSmile Ortho or SureSmile Aligner for a model order which includes CBCT scan data.

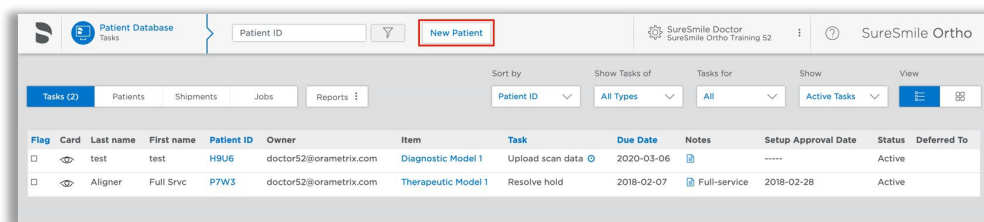
Start with SureSmile

1. Log onto SureSmile on the web.
 - Open your web browser and type <https://login.suresmile.com> into the address bar.
 - Type your Email address and Password and click Login

NOTE: You should use Google Chrome, Mozilla Firefox or Safari



2. Add a new patient or open the Patient Overview for an existing patient.



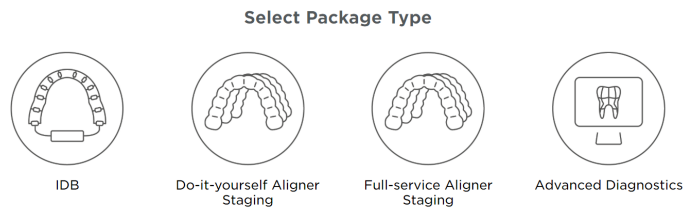
3. Enter patient information
 - Enter the patient's first name, last name and DOB. The orthodontist will populate automatically but you have the option to choose a different doctor if needed. Staff is optional.

Click on Case Selection Criteria to review the recommendations.

The screenshot shows the 'Start a new patient' form in the SureSmile Ortho software. The form is titled 'PATIENT INFORMATION' and includes fields for First Name, Last Name, Date of Birth (YYYY-MM-DD), Orthodontist (Dr. Test), and Staff. A 'Case Selection Criteria' link is visible below the form. A red box highlights the 'Next' button at the bottom right. The footer includes '© 2022 OraMetric. All rights reserved.' and a 'Privacy Policy' link.

4. Select Package type.

(this step does not pertain to SureSmile Aligner, only SureSmile Ortho)



5. Upload surface scan data. Check the check box for CBCT premium option (\$). If you select the check box, the system will prompt you to upload the CBCT scan files after the order has been placed.

Click Next.

The screenshot shows the 'Upload Scan Data' screen. It features a large cloud icon with an upward arrow and a 'Choose files to upload' button. Below this, there are two sections for 'Upper Arch' and 'Lower Arch', each with a 'Choose file to upload (PLY/STL files only)' button. A red box highlights the 'Choose files to upload' button. Below the arch sections, there is a checkbox for 'CBCT premium option (\$)' and a 'Next' button. The footer includes '© 2022 OraMetric. All rights reserved.' and a 'Privacy Policy' link.

6. Upload images

- Click 'Choose files to upload' to locate the photos & x-rays on your computer or drag them to this box.

Note: X-rays are optional for SureSmile Aligner

7. Complete Dental Examination

Mark any teeth that are not present in the scan as 'missing'

8. Complete Aligner Prescription

- Choose which arch(es) to treat and decide if you want to treat to 'Ideal' or choose 'Custom' to give the Digital Lab specific instructions.
- If you choose 'Custom' you will need to complete the aligner prescription we call MACROS. There is more information on MACROS in the next section.

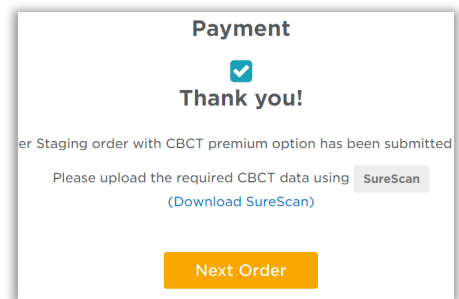
9. Select payment method and place order

You will then see a confirmation that your order was submitted for processing. The Digital Lab will process your case and return it for your review. Cases are typically returned within 6 business days but no longer than 10 business days.

10. If you selected the CBCT premium option (\$)

you will be prompted to upload your CBCT scan via SureScan. You will need to install SureScan on the computer where the CBCT scan files are located.

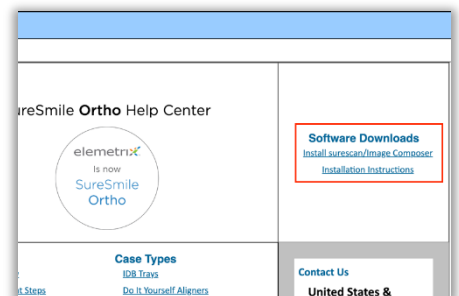
- If you already have the SureScan software installed on the computer you are using, jump to step 12.
- If you have SureScan installed on a different computer, jump to step 16. If you need to download SureScan to the computer you are working on, please continue to step 11.



NOTE: SureScan can only be used on Windows; you cannot use SureScan on a Mac.

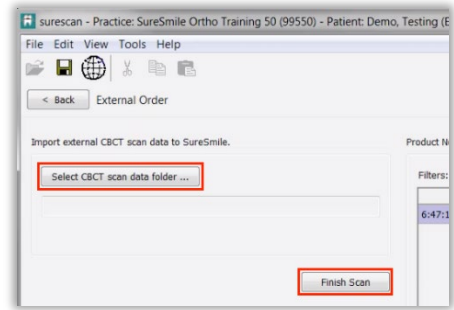
11. A few options to download SureScan:

- Click the (**Download SureScan**) link; the SureSmile Ortho/SureSmile Aligner Help Center will open.
- Click **Install SureScan/Image Composer** under Software Downloads and follow the prompts.
- You can also click Installation Instructions under the install link for instructions on how to download SureScan.



If you have SureScan on the computer, you are working on:

12. Click the SureScan button to open SureScan.
If you get a pop-up asking if you want to open SureScan, click the affirmative option to open the program.
13. Login with your SureSmile credentials.
14. The patient should open. If the patient does not automatically open, find the patient in the task list and double click their name to open it.
15. Click the Select CBCT scan data folder ... button and locate the CBCT scan files. Once the files have been uploaded, click **Finish Scan**.



OR

If you will be using SureScan on a different computer:

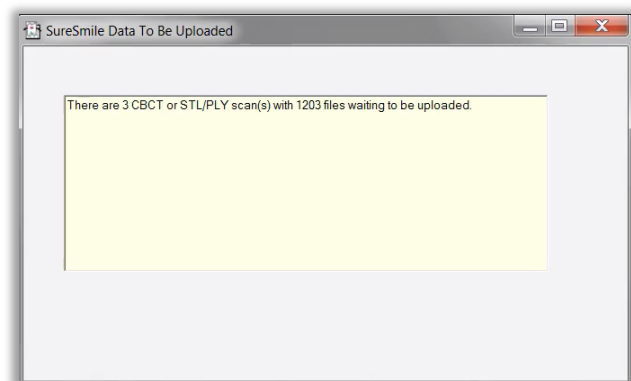
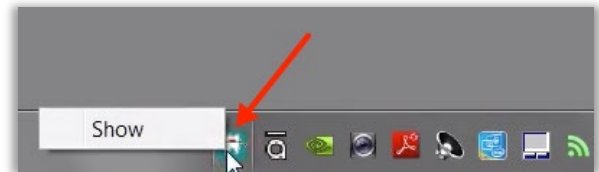
12. Open SureScan and login with your SureSmile credentials.
13. Find the patient in the task list and double click their name to open it.
14. Click the **Select CBCT scan data folder ...** button and locate the CBCT scan files. Once the files have been uploaded, click **Finish Scan**.

Once the CBCT data has been submitted, SureSmile begins transferring the data over to the Digital Lab. Due to the large size of the files, this process may take a while depending on your bandwidth.

Please do not close your computer or allow it to go into "sleep" mode for at least 3 hours after submitting so that all of the data can come across. If this is done at the end of the day, you may want to leave your computer on overnight.

If you want to check the transfer status you can right-click the green SureScan icon in the taskbar at the bottom right corner of your screen and select **Show**.

A window will display where you will see the number of files waiting to be uploaded. When the window is empty, all of the CBCT data has been transferred and it is safe to turn off your computer.



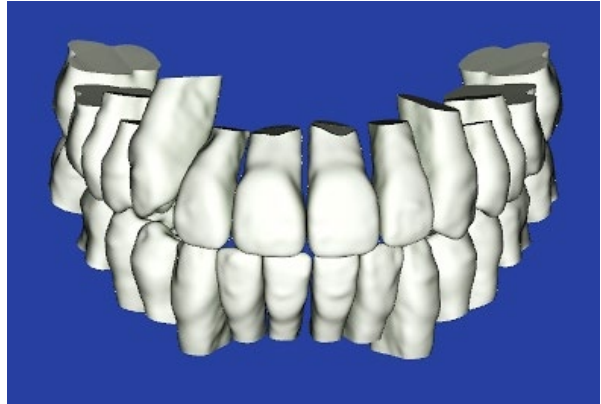
Receiving Models from CBCT Scans

When your order arrives at SureSmile, the Digital Lab temporarily loads the scan data into SureSmile matching it to the appropriate record. Due to data size, the CBCT scan is discarded after processing is complete and will not be available for viewing by the practice in the SureSmile software.

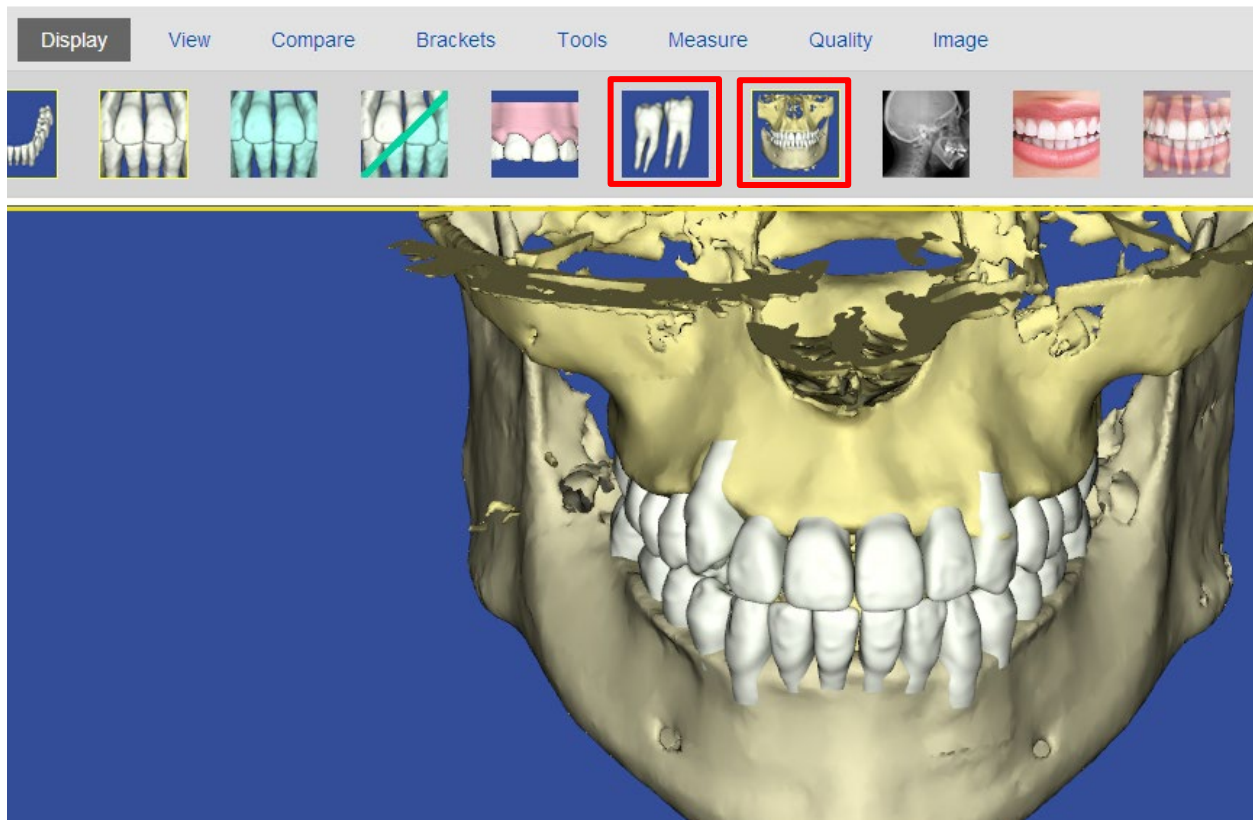
You will receive the digital model within five business days of sending the scan data and corresponding order to SureSmile.

Models produced from CBCT scans will appear the same as models from intraoral scans with a few exceptions:

- Gingiva is not available unless ordered with the premium service, or it was previously captured in a diagnostic model or prior therapeutic model.
- Roots are modeled and represent the patient's real tooth roots
- Tooth models are not as smooth



To view or hide roots or bone, click the corresponding icon:



Update Model Order (CBCT)

This section is not applicable for SureSmile Ortho and SureSmile Aligner.

You may have a case where a patient is bonded with brackets that are not listed in the SureSmile Bracket Library. This situation most often occurs if your practice is new to SureSmile or you have decided to change bracket systems. As soon as you realize the brackets are not in the SureSmile system, please follow this workflow:

1. Submit a bracket request (may take up to 8 weeks to fulfill).

Email Bracket Requests to: **brackets@SureSmile.com**. Please include:

- Doctor Full Name (i.e.: Dr. John Doe)
- Bracket Part Number (i.e.: 123-456A)
- Bracket Manufacturer (i.e.: GAC)
- Bracket Family (i.e.: Innovation R)
- Bracket Slot Size (i.e.: .022)
- Tooth Number (i.e.: UR5)
- Indicate needed for CBCT

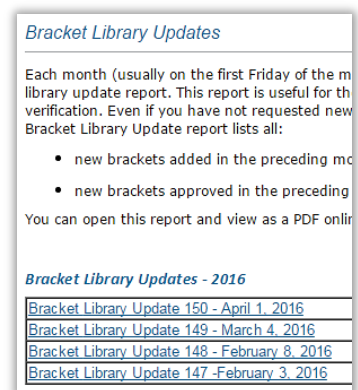
2. Perform the therapeutic scan on schedule.

- In the **Dental Exam**, assign brackets where they are available and skip the teeth that are bonded with brackets that are not yet in the SureSmile Bracket Library.
- Add product notes to explain the situation.
- The therapeutic model will be delivered in **Needs Review**. The doctor has the option of ordering a setup and wires by leaving the teeth out of treatment that were not assigned brackets.

3. Watch for the bracket update announcement (*displayed on the Clinic Overview in SureSmile*) to see if the brackets you requested have been added to the library.

If the announcement is no longer shown, check the Online Help for release notes on brackets. To access this area, go to SureSmile via your web browser, click the ? icon and select **Help Center**.

Next, find the “**Other Resources**” section in the lower-right corner of the window and select “SureSmile’s Bracket Library.” When this page opens, find the most recent announcements listed at the bottom of the page.



4. When they become available, submit an Update Model order.
 - This order is NOT a second CBCT scan. Do NOT scan the patient again!
5. After accepting the Update Model, submit a Setup order if Update Model included changes in teeth.
 - If you have already ordered Plan 1, you will need to submit Plan 2 to include the teeth added to treatment.
 - If update scan was only to update bracket information, then proceed with ordering wires
6. Proceed as usual with reviewing the setup and, ordering archwires.

Sending an Update Model with CBCT Scan Data

1. Open an existing patient record in SureSmile browser
2. Click **New** and select **Update Model** from list of options.

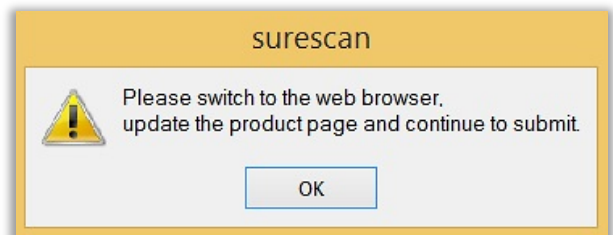
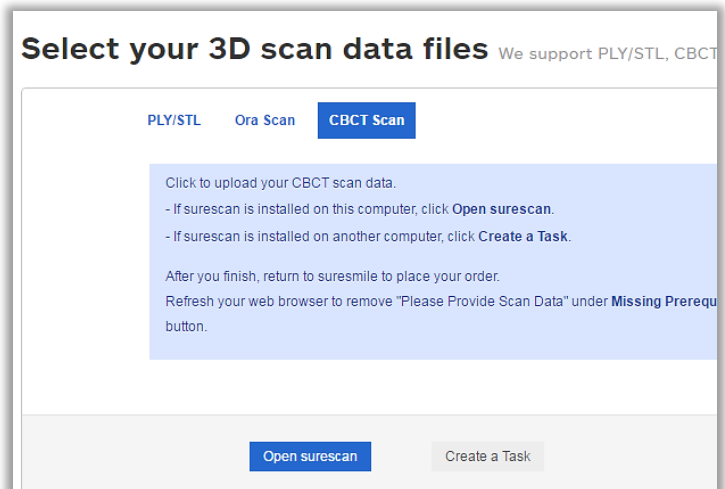
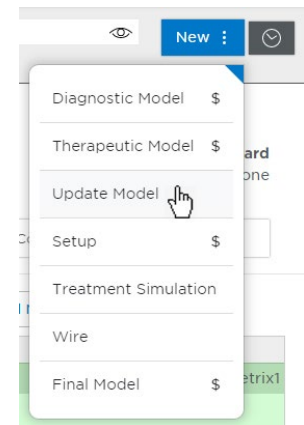
NOTE: The Update Model is not available as an option unless therapeutic CBCT scan was ordered for the patient. It is also not available if an intraoral therapeutic scan has been started after the CBCT scan was sent; however, you can cancel the unsubmitted intraoral scan and the Update Model option will become available again.

3. Complete Dental Examination
 - confirm the bracket assignments

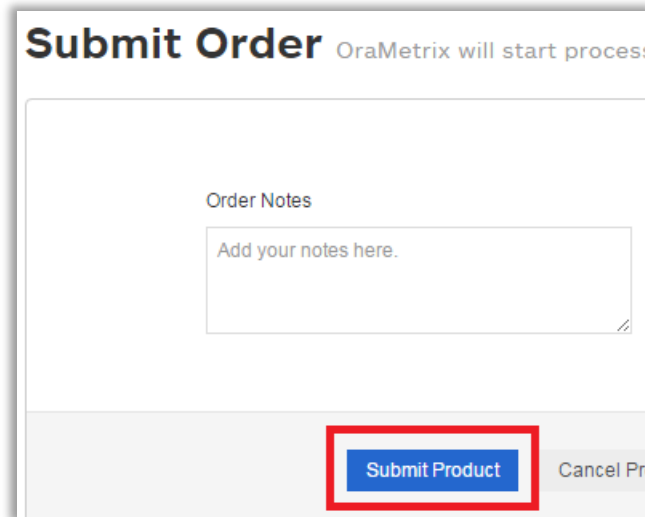
4. In Select your 3D scan data files section, select CBCT Scan

- If SureScan is installed on this computer, click Open SureScan.
- If SureScan is installed on another computer, click Create a Task

5. Go to **SureScan**. Locate and open patient from task list.
6. Click **Select CBCT scan data folder...** to import external CBCT scan data to SureSmile
7. After scan data has been uploaded, click **Finish Scan**



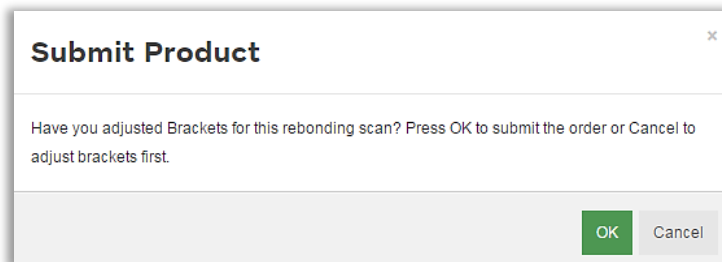
8. Select **OK** and return to SureSmile in the browser to submit the product.
9. Under **Submit Order** section, enter in any additional notes to the Digital Lab in regards to the product.
10. Click **Submit Product** to begin the processing of the Update Model.



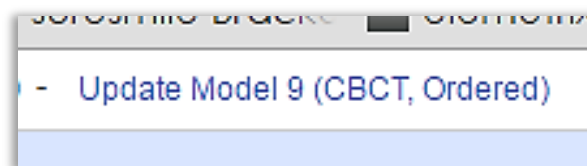
11. Confirmation window will be displayed.

Have you adjusted Brackets for this rebonding scan? Press OK to submit the order or Cancel to adjust brackets first.

Click **OK** to submit the order and begin the processing of the Update Model



12. **Return to SureSmile**, if you have new appointment dates for wire insertion or debond, update the dates.



Imaging Centers

The CBCT scan taken for SureSmile patients is a critical part of SureSmile treatment. SureSmile processes the scan the imaging center takes to produce individual tooth models that SureSmile doctors can reposition to plan care and then design prescription archwires and/or aligners.

Getting Started

Once the practice has recommended an imaging center, Customer Care will work with the center to validate the CBCT equipment. Before patients can be scanned successfully, the unit must be calibrated to produce data that we can process. Validation involves scanning a “phantom” that we have manufactured for this purpose. We will test the data and inform you of the results within 30 days.

Imaging Center Supplies

The imaging center will need to keep a few supplies on hand:

- Bite wafers, minimum thickness of .5 mm to 1.0 mm (any U-Shaped brand)
- CD envelopes for shipping
- DVDs or CDs (depending on the size of the data produced by your CBCT scanner)



Coordinating Appointments

Because the wires must be removed for a CBCT scan, the practice will need to coordinate the imaging center appointment between appointments at the practice to remove and then reinsert the patient's wires.

Sending the Data

The Imaging Center will store the CBCT data on a CD or DVD and send it to the practice, typically by mail. Enclose the signed lab slip (if provided) and the disc in a CD mailer to prevent damage in transit. Alternatively, some centers give the disc to the patient to take back to the practice.

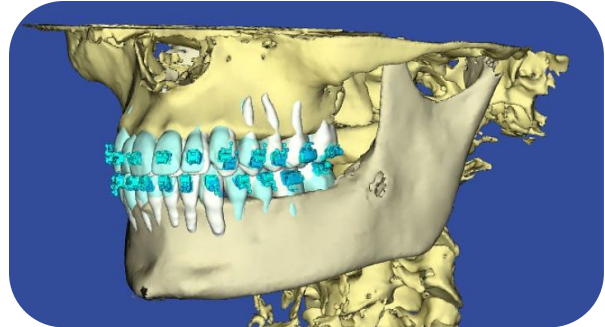
Once the data is at the practice, the records assistant will need to copy the data to a folder where he or she can access it to submit an order to the Digital Lab.

CBCT FAQs

NOTE: Please be aware that some of these questions may only pertain to SureSmile Advanced especially if it mentions brackets or wires.

Can I send in CBCT scans of any of my SureSmile patients?

For therapeutic scans, support is limited to patients with approved brackets. Also, there are limitations on metal restorations. If your practice has an orascanner or other certified 3rd party scanner, you can take a supplemental scan to overcome these limitations.



How long does it take to get my brackets approved for my brand of CBCT scanner?

At this time, this process may take as much as 60 days from the time of your request. SureSmile® engineers must scan and test each bracket family you request.

NOTE: Brackets manufactured with gold or plastic parts may be ineligible for CBCT approval.

How long does it take to get a model processed from a CBCT scan?

Up to 5 business days AFTER you send the SureSmile order and CBCT data.

Can I take a CBCT scan of the patient with the wires in?

No, the patient's wires must be removed for the scan and bracket doors must be closed.

What if the patient loses a bracket following the CBCT Therapeutic scan?

For the best treatment accuracy, use the orascanner or a certified 3rd party scanner to take an update scan to capture new bracket positions. Next, order replacement wires.

When is a supplemental scan required?

There are three situations when a supplemental scan is required:

1. During the initial examination, you determine that the patient has restorations* that do not meet our requirements for CBCT-only scans. (Remember to set time in your appointment schedule for a CBCT scan AND an intraoral scan.)
2. Your CBCT scan was rejected due to distortion (usually from metal fillings). In this case, recall the patient within two weeks of the date of the CBCT scan. At the appointment, reopen the SureSmile order and add a supplemental scan* according to DL instructions.

3. For SureSmile Ortho and SureSmile Aligner, full upper and lower supplemental scans are required for cases being submitted with CBCT data.

*If you have 7 or more teeth in one arch or more than 11 in total, a premium modeling fee is incurred

Do we need to take the CBCT scan and the supplemental scan the same day?

Yes. When you examine the patient at the beginning of treatment, you will determine when a supplemental scan is indicated. At that time, schedule the patient for the CBCT scan AND chair time with the scanning station at the same appointment. Since the data will be combined in the Digital Lab, the scans should be taken the same day.

Why are adjacent teeth needed in the scan?

The Digital Lab requires “anchor teeth,” which serve two important purposes in tooth modeling,

1. They provide a boundary to help us size a new tooth model correctly.
2. They also help us register new data from a supplemental scan with the data in the therapeutic model. We need two anchor teeth to help us register the scans together. If the neighboring tooth is missing, please scan to the next tooth. If there is not an anchor tooth available on each side of the restored tooth, scan two extra teeth on the side where they are available.



NOTE: For the patient pictured here, you would capture the molar due to the large filling plus the LL4 and LL5 to provide two anchor teeth.

Are patients with restorations in all quadrants eligible for a CBCT scan?

If the patient has 7 teeth in one arch (*or 11 total*) with problematic restorations, the CBCT scan will be very distorted.

To compensate for this issue, you may scan full arches in the supplemental scan area to request our premium service (*available for an additional fee*).

Or, to avoid the fee, do not submit a CBCT scan. Instead, submit a full intraoral scan of the patient using your orascanner or certified 3rd party scanner.



What are the reasons why the Digital Lab might reject my scan?

If you do not follow the protocol for taking a CBCT scan for SureSmile patients, you run the risk of sending the Digital Lab data that cannot be processed into an accurate model. In these situations, the DL will reject the scan and provide instructions (in the product notes) to indicate your options and next steps. The reasons for a rejection include:

- Incorrect Voxel size – the data may not have been captured with the correct settings or exported correctly.
- Full data not received – the data did not transfer successfully.
- Movement – the patient moved during the scan.
- Teeth/brackets touching during scan – You may have forgotten to use the bite wafer or the patient may have bitten down through the wafer.
- Supplemental scan needed – the patient has restorations requiring a supplemental scan but you did not include one with the order.

What if my CBCT scan is rejected for movement?

If you are replacing CBCT data only, reschedule the patient. You will need to schedule the appointment within 2 weeks of the prior appointment if you captured a supplemental scan. When you open the patient record in SureScan and select the rejected product, you will need to click “Yes” to acknowledge the message. Attach the new data (replacing the previous CBCT data), and submit the order again.

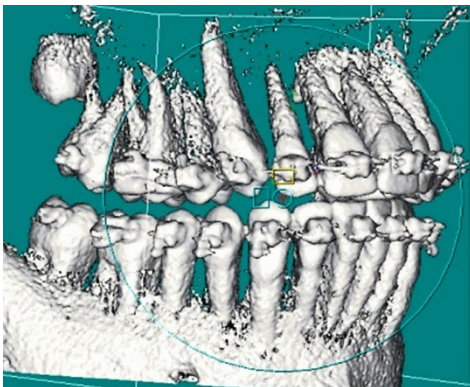
OR

If you are replacing the CBCT scan with an intraoral scan, reschedule the patient. When you open the patient record and select the rejected product, you will need to click “Yes” to acknowledge the message. Next, cancel the rejected scan, and order a new scan.

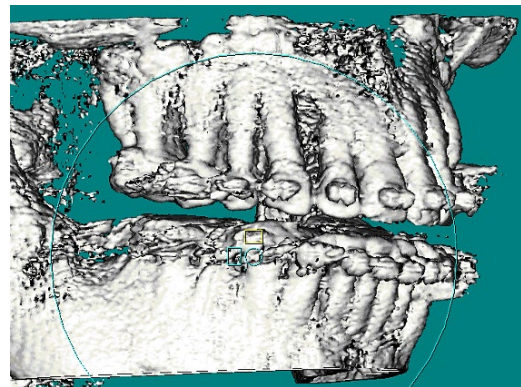
[TIP: If you are using a certified 3rd party scanner, it may be more convenient to open the SureSmile patient record on the web to cancel a rejected CBCT scan.](#)

Sometimes I can't tell the patient moved, how can the Digital Lab tell?

When the patient moves during the scan, the resulting data is not distinct enough to create tooth models and register brackets. Here is how the data appears in the Digital Lab software after the data is derived from the CBCT volume and the modeling process begins:



Accepted scan – tooth and bracket data is adequately defined



Rejected scan – teeth and brackets appear blurred

Will the Digital Lab reject a CBCT scan of a patient that is not accompanied by a supplemental scan of posterior composite fillings?

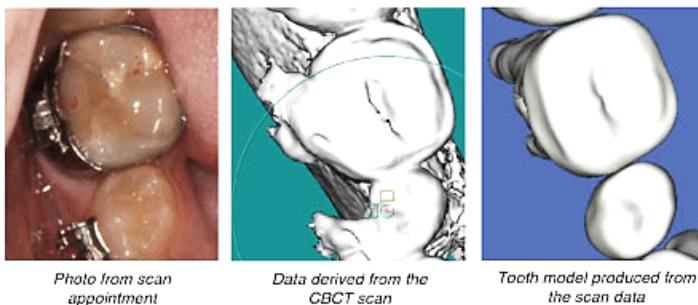
No, however the Digital Lab can only model the tooth anatomy that is present in the scan data you provide.

Consider these options:

- **Recommended:** Take a supplemental scan to achieve the most accurate model of the patient's dentition. This option can be the most efficient choice when you routinely take a bite scan (available to orascanner users) or if you are already planning to take a supplemental scan for metal crowns, bridges or metal fillings 3 mm or greater in size.
- **Alternative:** Order the therapeutic model and wait to see the result. If the tooth could not be modeled accurately, schedule an update scan. This option produces accurate tooth anatomy, but the bite may still be compromised.

NOT Recommended: Continue without a supplemental or update scan. In this option, the doctor takes the compromised modeling into consideration when planning the setup and bite.

Notice the model of the lower right second molar matches the scan data but not the real tooth.



What is needed for a CBCT diagnostic in vivo scan?

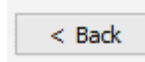
- The patient must NOT be bonded and all appliances (such as a palatal expander) must be removed.
- The mouth must be opened by a wax bite that is between 0.5 and 1.5 mm.
- You must take a supplemental scan of the restorations that do not meet our requirements for CBCT-only scans.
- Before submitting the SureSmile order, enter the dental exam and upload the recommended records: Five standard intraoral + three facial + full mouth, panoramic radiograph, ceph.
- When ordering, select the Diagnostic option for CBCT In-vivo Scan.

What if I don't have a supplemental scan to upload when I'm importing my CBCT scan?

If supplemental cannot be provided at the same time as importing of CBCT Data, **do not Finish Scan**

Click **Save**

Click **Back**. This will create a task for this patient and return you back to the Tasks page in SureScan



How can I include gingiva in my model?

TIP: If you are capturing gingiva for the purpose of fabricating aligners, SureSmile recommends taking an intraoral scan (rather than a CBCT scan) to capture data that includes gingiva and more detailed tooth models.

Recommended: To follow the most straight-forward approach for including gingiva in the model, order a premium model by checking the full arch options in the supplemental scan dialog and attaching complete data.

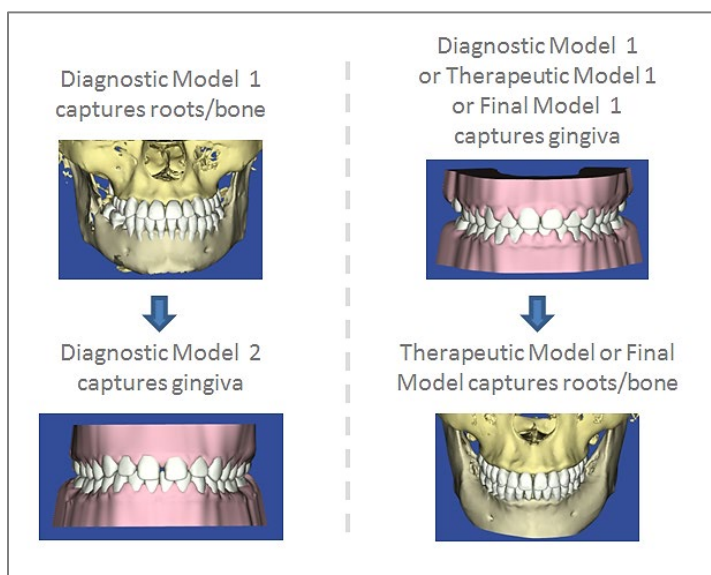
Alternative: Or, you can submit two orders with one order containing an optical scan that captures gingiva, and the other containing the CBCT data. When following this approach, you must be careful to submit orders in the correct sequence (see picture at right).

NOTE: If a supplemental scan is required to overcome limitations in CBCT processing, it must be included in the CBCT scan order.

Go to the supplemental scan feature and select the appropriate teeth for modeling. If you have STL data from your intraoral scan, attach it again here as needed.

orascanner users do not need a second patient scan; simply capture a few frames of data and type a note of explanation.

A premium model fee may apply.



Here are the advantages of each approach.

Premium model:

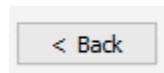
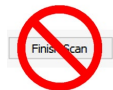
- If a diagnostic model was taken just to capture gingiva, you can receive more current gingiva by including an optical scan with the CBCT order.
- One order to submit – no issue with which model ordered first, less steps for staff.
- Encompasses any supplemental scanning required for restorations.
- One model for the doctor to view; no confusion on choosing the reference model.
- Highest modeling accuracy for tooth crown data (taken from the optical scan).
- Although a premium surcharge applies, this service produces the most detailed and complete model of the patient.

Two orders:

- The first model may be a diagnostic model (lower fee, records not required).
- A la carte fees may be lower than the premium surcharge.

What if I don't have a supplemental scan to upload when I'm importing my CBCT scan?

1. If supplemental cannot be provided at the same time as importing of CBCT Data, **do not Finish Scan**
2. Click **Save**
3. Click **Back**. This will create a task for this patient and return you back to the Tasks page in SureScan



Training Outline

This section recommends steps for rehearsing CBCT scans in your office.

Complete Carestream Dental Training

Complete training on your CBCT unit with a manufacturer representative. If the rep has not been trained on SureSmile CBCT scans, invite him/her to remain and be trained with you.

Prepare for SureSmile CBCT Training

1. Review the procedural steps in this guide.
2. Configure any settings recommended by the guide to get ready to take scans.
3. Watch a demonstration of an in-vivo scan by your AM on a volunteer. If your system offers a “dry-run” feature, use it to conduct the procedure without irradiating the volunteer. If not, the AM should go through the motions without taking a real scan.

Practice Scanning on Volunteers

Each person who will be operating the unit should volunteer to be scanned to experience proper restraints and the viewpoint of the patient. Once again, use the “dry-run” feature.

1. While following the guide in hand, practice scanning your field rep or a co-worker (using the dry-run feature or going through the motions). Next, perform the scan without looking at the guide or notes.
2. Continue practicing until you can take the scan quickly and confidently.

Practice the CBCT Workflow

If time allows, complete all of the steps for a CBCT Scan order on two volunteers. Do not skip any steps. For example, don't forget to include required photos and x-rays.

1. Take the CBCT scan.
2. Export data for this person's name (you can use a sample file).
3. Start a SureSmile patient record with the same name and click the “Demo” checkbox to indicate you are just practicing and this is not a real patient.
4. Take a supplemental scan (if your volunteer does not have metal restorations, pretend that the lower 6's and 7's are metal crowns).
5. Import the CBCT data into the SureSmile order and submit.

Practice Scanning Models

- If the doctor plans on scanning plaster models to capture initial or final records, turn off the “dry-run” feature and take a real scan of a model. Complete the SureSmile order.

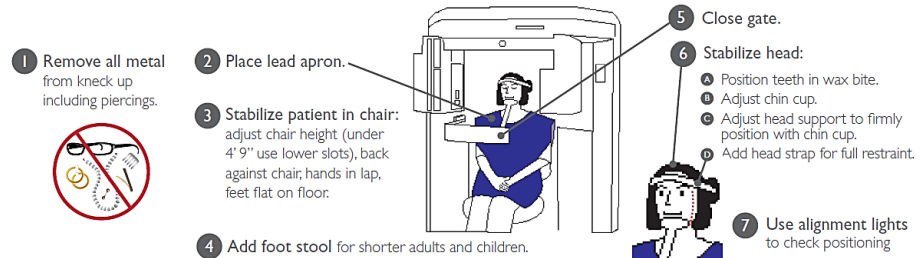
Job Aid for Carestream Dental® CBCT Systems

Is Your Patient Ready?

☐ **Wires out**
(SureSmile Advanced)
Prepare Patient

☐ **Doors closed**
(SureSmile Advanced)

☐ **Wax bite**
(Teeth separated by 0.5 to 1.5mm)



Scan Criteria

- No blurring, usually caused by patient movement
- No refraction (“scatter”), usually caused by metal in the patient’s mouth
- No contact between teeth or brackets

Select Software Settings

CS 9300

1. In the Program Pane, select: **Medium Field of View** (bottom middle setting).
2. Select: **10 cm height x 10 cm diameter**.
3. In the Parameter Pane, select:
 - kV: 90
 - mA: 10
 - Voxel size: 180

CS 8100 3D

1. In the Program Pane, select: **Full jaw exam** (9 cm height x 8 cm diameter)
2. In the Parameter Pane, select:
 - kV: 90
 - mA: 6.3
 - Voxel size: 150

9500

1. In the Program Pane, select: **Medium Field of View** (9 cm height x 15 cm diameter).
WARNING – do not choose Large Field of View to take a CBCT scan since it cannot capture the minimum voxel size required by SureSmile.
2. In the Patient Pane, select the appropriate patient size.
3. In the Parameter Pane, select:
 - kV: 90
 - mA: 10
 - Voxel size: 200

Take Scans

1. Instruct patient, then step out, and take **Scout**. Check for: lower jaw, condyle, spinal column, nose, ¼” space between nose and border.
2. Instruct patient, then step out, and **Capture** full scan.

Check Data

1. Select **CT** scan, click **Yes** to detect arches.
2. Check panorex view: brackets clearly captured. If signs of motion, consult doctor.

Exporting Data

CS 9300:

- ✓ Export 3D Volume
- ✓ Export ceph
- ✓ Export Panorex

9500:

- ✓ Export 3D Volume
- ✓ Export Panorex

CS 8100 3D:

- ✓ Export 3D Volume
- ✓ Export Panorex

Checklist for Your CBCT Order

Patient ID: _____

INITIALS

Start the Patient Record at Any SureSmile Computer

This step can be done chairside or any time before linking the CBCT data in SureSmile

- Create a new SureSmile patient record and enter demographic information.
- Create a **Therapeutic CBCT order**; enter Dental Exam including brackets.
- Save, but do NOT place the order if you close the record.

INITIALS

For SureSmile Advanced, Remove Wires/Close Bracket Doors

- Keep wires for reinsertion.

INITIALS

Take the CBCT Scan

- Follow SureSmile protocol for your equipment (*on other side of this checklist*).

INITIALS

Export the CBCT Scan

This step can also take place after patient appointment

- Export a panorex and the reconstructed scan data to the appropriate folders.

INITIALS

Mark Bite with Articulating Paper & Take Patient Photos

This step can be done anytime during the appointment after wires are removed, preferably BEFORE the supplemental scan (if needed)

INITIALS

Import the CBCT Scan - WITH a Supplemental Scan

The SureSmile patient record can be created and patient photos/x-rays can be imported at this step

- Go to a **scanning station**.
- Open or create a **Therapeutic CBCT Scan**; add the Supplemental Scan.
- Click **Import CBCT data** to link the data.

-OR-

Import the CBCT Scan - WITHOUT a Supplemental Scan

The SureSmile patient record can be created and patient photos/x-rays can be imported at this step

This step can also take place after patient appointment

- Go to a **Treatment Planning station**.
- If the order has already been started, see Tasks filtering for "Items to be ordered." Otherwise, start a Therapeutic CBCT Scan.
- Click **Import CBCT data** to link the data.

INITIALS

For SureSmile Advanced, Reinsert Wires

- Reinsert wires after patient brushes.

INITIALS

Import Photos & X-rays

To avoid a Customer Hold, perform this step before placing the order or within one hour

- Go to a **Treatment Planning station** where you have access to stored images.
- Find the patient record under the Patients tab and open it.
- Create a new image set and import the patient's photos and x-rays.
- Close and save the patient record if you are not ready to order.

INITIALS

Place the Order

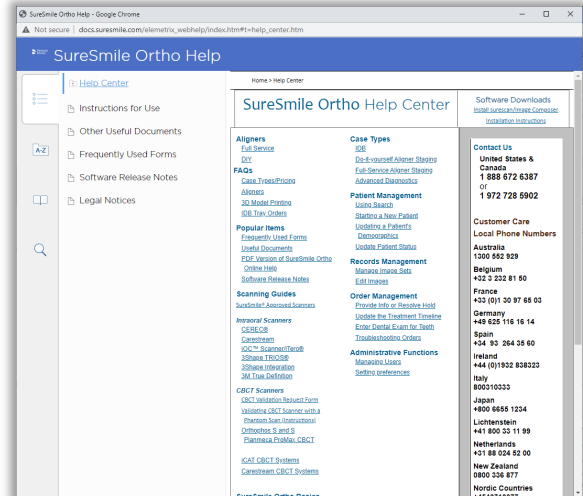
- If the record is closed, see Tasks filtering for "Items to be ordered"; open the Therapeutic CBCT Scan.
- Place the order when it is complete


Learning Resources

There is no requirement of specific training for the use of SureSmile Ortho Software 7.6. However, you can find additional information here:

Search the [Help Center](#) in SureSmile for:

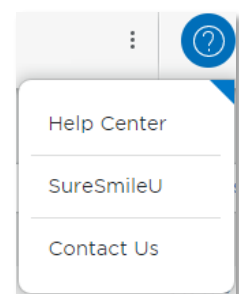
- Online help topics with step-by-step instructions
- Downloads including forms and reference documents
- Video demonstrations of software features



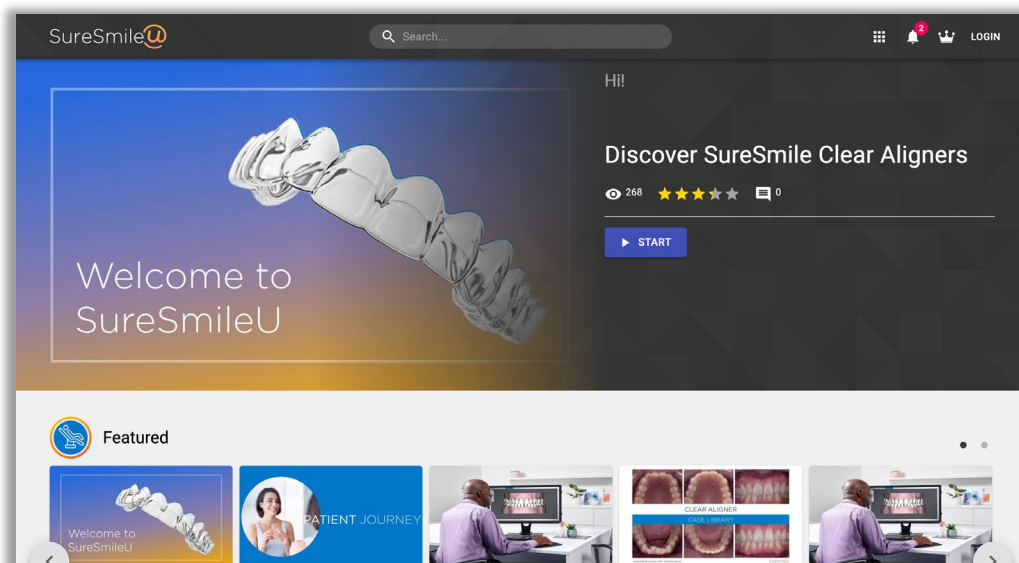
To open the Help Center, click the question mark button  and select **Help Center**.

Visit www.suresmileu.com for online learning resources including:

- Archived SureSmile webinars
- Recordings of presentations from events
- Class materials



To open SureSmileU from the SureSmile software, click the question mark button  and select SureSmileU.



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0281-EDUMAT-500277 Rev. 15

Issued 01-2023