



VECTRA^{m3}®

User Guide

software version 6.10

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IMAGING EXCELLENCE FROM



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3D SOLUTIONS • FACIAL IMAGING & ANALYSIS • IMAGING SOFTWARE • PHOTOGRAPHY • RESEARCH SYSTEMS & SERVICES • TRAINING

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Patent: <http://www.canfieldsci.com/patents/>

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VECTRA LIMITED ONE-YEAR WARRANTY

Coverage:

A one-year warranty is provided by Canfield Scientific, Inc. (“Canfield”) on VECTRA 3D capture systems. (For warranty information on the VECTRA software, please refer to the End User License Agreement in this user guide.) During the one year period beginning on the date of delivery, Canfield warrants that the VECTRA 3D capture system will be free from defects in material and workmanship. If the customer discovers a defect, Canfield will, at its option, repair or replace the defective component(s) at no charge to the customer, provided it is returned during the warranty period. The cost of shipping the replacement parts both ways (less any applicable custom duties, taxes and any other costs associated with exporting or importing goods) will be paid by Canfield for all warrantable repairs.

Canfield owns all parts removed from repaired products. If Canfield repairs or replaces a product, its warranty term is not extended.

After the first year, VECTRA’s Warranty Service and Support can be extended by fee-based yearly service agreements covering product hardware, technical support, and software upgrades.

State Law Rights:

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Exclusions:

This Warranty does not cover customer training, instruction, installation, set up adjustments, or LAN-network-related problems. (For warranty information on the VECTRA software, please refer to the End User License Agreement in the VECTRA User Guide.)

This Warranty does not cover damage due to external causes, including accident, abuse, misuse, problems with electrical power, servicing not authorized by Canfield, usage not in accordance with product instructions, failure to perform required preventive maintenance, and problems caused by use of parts and components not supplied by Canfield.

This warranty does not cover computer systems, computer peripherals, or other equipment not manufactured by Canfield. All such third-party equipment is covered by separate manufacturers’ warranties where applicable.

This warranty is expressly made in lieu of all other warranties, expressed or implied, including without limitation, warranties of merchantability and fitness for a particular purpose.

Our liability is limited to the repair or replacement, at our option, of any defective product and shall in no event include incidental or consequential commercial or property damages of any kind.

To request warranty service:

Customers located in the United States, Canada or Mexico, please phone Canfield technical support at 1-800-815-4330. Other international customers please call 1-973-434-1201.

The e-mail support address is techsupport@canfieldsci.com.

Should it be determined by Canfield technical support that a unit must be returned for service, a Return Merchandise Authorization (RMA) number will be provided. This RMA number must be clearly marked on the outside of all packaging. Information on packing and shipping will be included.

Shipping address: RMA # _____ (to be provided by Canfield prior to shipment)
Canfield Scientific, Inc.
4 Wood Hollow Road
Parsippany, NJ 07054 USA

EXTENDED CANFIELD CARE SERVICE AGREEMENT FOR VECTRA

One year of Canfield Care is included with your new VECTRA purchase. The initial Canfield Care agreement provides a warranty on the VECTRA 3D capture system, phone access to technical support¹, and free software upgrades for one year from date of delivery.

The most effective and efficient way to identify issues and upgrade software on your system is via an internet connection. It is assumed that your VECTRA computer will be connected to a land-based internet connection with the ability to connect to Canfield Scientific, Inc. (“Canfield”) via the www. Should this not be the case, additional costs may apply when providing support for your system.

Beyond this first year, Canfield Scientific, Inc. offers an extended Canfield Care service agreement for an annual fee. This extended service agreement extends the warranty for all VECTRA 3D capture system parts. All coverage and exclusion details for this extended warranty are the same as those described in the VECTRA Limited One-Year Warranty. In addition, the user continues to receive software upgrades and have phone access to technical support¹ for the term of the Canfield Care Agreement.

All renewal fees must be remitted to Canfield (or an authorized distributor where applicable) at least 30 days prior to the expiration date of the current VECTRA 3D Capture Service Agreement (initial or extended). Once a Canfield Care Agreement has expired, the hardware warranty may not be renewed; although system repair, technical support, and upgrades may still be obtained with individual service charges as noted below²⁻⁴.

To enter into an Extended Canfield Care Service Agreement, please contact Canfield by e-mail at support@canfieldsci.com or by phoning 1-800-815-4330 toll-free in the US, Canada or Mexico (other international customers phone 1-973-434-1201).

¹Note that for international customers (outside of the U.S. and Canada), technical support is provided locally through an authorized distributor where available.

²Out-of-warranty repairs to the VECTRA 3D capture system: The customer will be charged a fixed diagnostic fee of \$350, plus any parts and labor required for repairs. The customer is responsible for prepaying all transportation charges including insurance and any associated fees and any applicable custom duties and/or export taxes. *IMPORTANT:* A Return Merchandise Authorization (RMA) number must be obtained from Canfield prior to shipping any equipment.

³For customers without a current Agreement, technical support may be obtained at the rate in effect at the time of service.

⁴All pricing subject to change without notice.

SAFETY AND TECHNICAL INFORMATION

DESCRIPTION OF MARKS



CAUTION and/or WARNING – Please consult ACCOMPANYING DOCUMENTS and read carefully to ensure safe use of this equipment.



DANGER/HIGH VOLTAGE – This symbol indicates “dangerous voltage” inside the product that presents a risk of electric shock or personal injury.

ENVIRONMENTAL RESTRICTIONS

- Not suitable for use in WET LOCATIONS.
- Not suitable for use in the presence of a FLAMMABLE ANAESTHETIC MIXTURE WITH OXYGEN or NITROUS OXIDE.

AUTHORIZED STANDARDS



This device complies with the following Standards:

Safety of Information Technology Equipment



Federal Communications Commission (FCC)

Safety European Union

This device complies with the requirements of the Low Voltage Directive 2006/95/EC.

- EN60950-1: 2005-2nd Ed, EN 60950-1:2006—Information Technology Equipment

United States of America

- UL60950-1:2003-1st Ed, Rev: 2006—Safety of Information and Technology Equipment

Canada

- CAN/CSA C22.2 No. 60950-1:2003—Standard for Safety for Information Technology Equipment

EMC Standard European Union: EMC Directive 89/336/EEC

- EN 55022:2006 + A1:2007—Information Technology Equipment—Radio Disturbance Characteristics
- EN 55024:1998 + A1:2001 + A2:2003—Information Technology Equipment—Immunity Characteristics
- EN 61000-3-2:2006—Harmonic Emissions
- EN 61000-3-3:1995 + A1:2001 + A2:2005—Voltage Fluctuation and Flicker
- EN 61000-4-2:1995 + A1:1998 + A2:2000—Electrostatic Discharge
- EN 61000-4-3:2006 + A1:2007—Radiated RF Susceptibility
- EN 61000-4-4:2004—Electrical Fast Transients
- EN 61000-4-5:2005—Power Line Surge
- EN 61000-4-6:2003 + A1:2004 + A2:2006—Line Conducted RF Susceptibility
- EN 61000-4-8:1993 + A1:2000—Power Frequency Magnetics
- EN 61000-4-11:2004—Voltage Dips and Dropouts

United States of America:



Federal Communications Commission (FCC): This device complies with FCC CFR 47 Part 15 sub part B. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.



WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

Canada: This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Compliance with other EU directives Vectra M3 complies with the following European Union Directives aimed at environmental protection as well as consumer health and safety.

- Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE Directive)
- Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances (RoHS Directive)
- Directive on Packaging and Packaging Waste 94/62/EC



RECYCLING AND DISPOSAL INFORMATION

In accordance with these directives, all non-electronic components removed for replacement, and any related packaging material should be disposed of following your country's or local area's legislation for recycling.

Any electronic components or modules removed for replacement should be returned to Canfield or its local agent, using the packaging material supplied with the replacement component or module received.

Shipping address: Canfield Scientific, Inc., 4 Wood Hollow Road, Parsippany, NJ 07054 USA

SAFETY PRECAUTIONS



To prevent electrical shock, use only the power cable supplied with your system by Canfield Scientific.



Connect equipment only to a properly grounded electrical receptacle. The receptacle shall be located near the equipment and shall be easily accessible.



Do not make conversions and/or changes to the equipment without express authorization from the manufacturer. Unauthorized conversions and/or changes could jeopardize the safety of the system and will void the warranty.



Operate the system only with original and/or manufacturer authorized parts.



Always ensure that this device and any relevant accessory equipment are placed on a dry, stable surface.



Keep cables free and clear from traffic areas to prevent trip hazards.



Do not place food or liquid on the VECTRA imaging system. If the VECTRA system gets wet, contact Canfield Technical Support.



Using flammable substances near the unit's high-voltage areas may result in a fire or electrical shock.



If smoke or excessive heat is detected, turn the equipment off, unplug the power cord and contact Canfield Technical Support. Do not resume use unless authorized by Canfield Technical Support to do so.

CHAPTER 1**Overview of the VECTRA M3 3D Imaging System****1.1 VECTRA M3 SYSTEM OVERVIEW**

Canfield's VECTRA M3 3D Imaging System is designed to accurately capture the surface shape, contour, and color of the human face. VECTRA captures the anatomical shape by capturing stereo images of the subject, and then using photogrammetric algorithms to generate a high-resolution three-dimensional computer model of the subject.

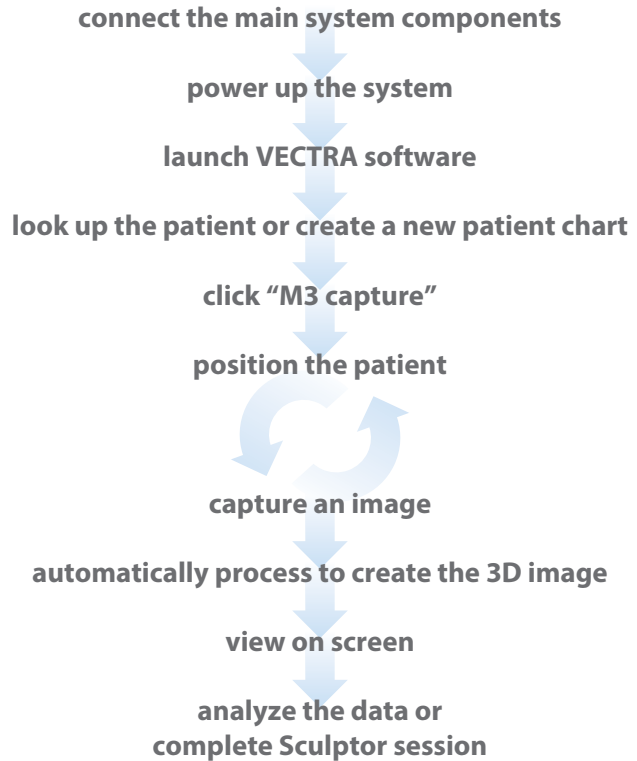
These three-dimensional images are obtained by capturing several carefully synchronized two-dimensional digital camera views of the subject. VECTRA's image processing software then uses information from the multiple views to compute a highly accurate map of three-dimensional shape and color coordinates of the observed surface. The entire capture process occurs in a few milliseconds making the system immune to subject movement (e.g., infants). The automatic 3D processing then takes a few minutes; the resulting 3D model is stored as a file on the computer, and is displayed on the screen.



3D computed image

The 3D data file contains precise sub-millimeter measurement information, which makes it possible to perform very accurate analyses, and to compare multiple data sets of a subject over time, without having to be concerned about the subject's exact positioning at capture time (unlike in traditional 2D photography, where this is a very important concern).

Using specialized software, the 3D data can be measured, analyzed, and manipulated. The typical work flow is summarized below:



1.2 VECTRA M3 TECHNICAL SPECIFICATIONS & REQUIREMENTS



System components

- VECTRA M3 capture system with
 - computer
 - calibration kit
- VECTRA software for capturing and managing images
- VECTRA Analysis Module (VAM) for analyzing 3D images
- Mirror[®] software for manipulating 2D images—3 seats

Options

- Face Sculptor[®] 3D aesthetic simulation software with RBX[®] image processing
- Facial Skin Analysis module

Dimensions

48 inches (122 cm) wide × 71 inches (180 cm) high × 22 inches (56 cm) deep

Power requirements

- voltage: 100 to 240 Volts AC
- frequency: 50/60 Hz
- current 4.0A (rms), 100-240VAC

Optional consultation computer system requirements

- Operating system: Windows 10 Professional, 64 bit (recommended) **NOT SUPPORTED**: Windows Home Edition or Windows VISTA
- Processor: 2.2Ghz Quad Core i5, 7th Gen or higher (Intel i7 7th Gen or higher, recommended)
- System memory (RAM): 16 GB or greater
- Minimum 1 GB available disk space for installing application
- Minimum 1 TB available disk space recommended for data
- Graphics card: 1 GB dedicated memory minimum (2 GB highly recommended)
 - Dedicated nVidia or AMD card (nVidia highly recommended)
 - Driver: latest available
 - 3.0 or later Open GL
- USB Ports: 2 dedicated ports (USB 2.0)
- Display: 1920 × 1080 (4K monitors not currently optimized)
- Microsoft Security Essentials anti-virus software recommended
- Wired printers (recommended for speed)
- 1 Gbps Ethernet connection for networking – Wi-Fi not supported

For optional networking to view VECTRA images in other rooms within your practice, find the current minimum specifications and requirements prior to purchasing/supplying optional consultation computers at www.canfieldsci.com

CHAPTER 2

Initialization, Calibration, and Maintenance

2.1 STARTING THE VECTRA SYSTEM


- 1 Make sure that the VECTRA capture system and its computer are both connected to a properly grounded, easily accessible electrical receptacle.
- 2 Turn on the computer.

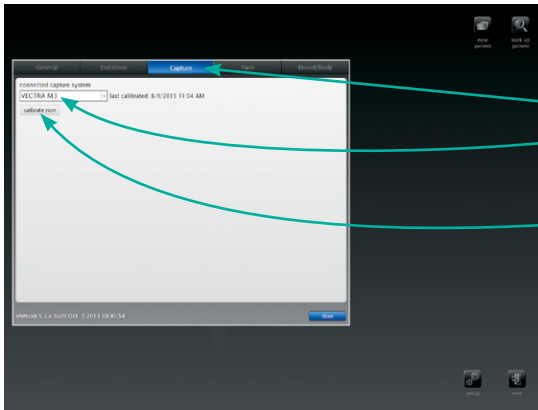
2.2 CALIBRATING THE VECTRA SYSTEM


Calibration of the VECTRA 3D system ensures that the relationship of the cameras and other components is understood and recorded by the system. This is critical to creating geometrically accurate 3D models.

- ✔ Calibration should be performed daily, prior to patient arrival, or whenever the system has been moved or altered.

The whole calibration process takes a few minutes, once you have become familiar with the process. You will find it easier to calibrate with two people—one to hold the calibration target, and the other at the computer controls—although with practice you will find that you can carry out all the calibration processes on your own using a remote mouse.

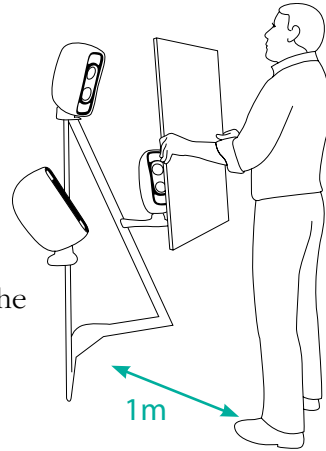
- 1 Make sure the VECTRA system and computer are powered on.
- 2 Double-click the  VECTRA icon on the Windows desktop to open the software.



3 Click the  **set up** button in the lower right corner of the screen.

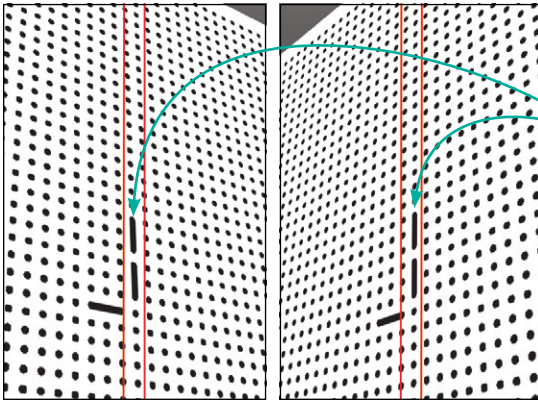
4 Select the **Capture** tab and make sure **VECTRA M3** is selected in the drop-down menu.

5 Click **calibrate now**.

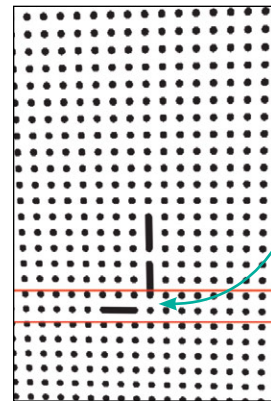



6 Position the calibration target for first capture:

- Stand about a meter from the VECTRA and hold the calibration target so that it is perpendicular to the floor and the L is upright.



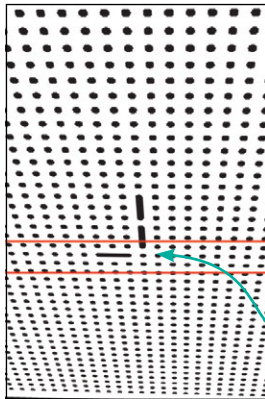
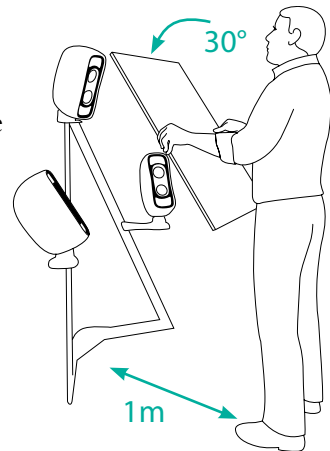
- First move closer or further from the VECTRA until the long leg of the L is between the vertical guides in the lower preview windows on screen.
- Then move the calibration target up or down until the short leg of the L is between the horizontal guides in the top preview window.



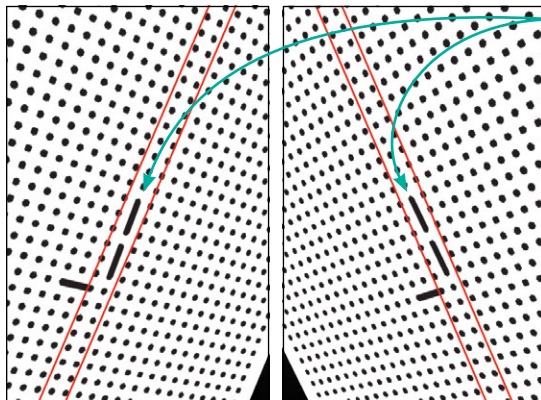
7 Click  **take picture** on screen, or click the right arrow button on the wireless mouse (see [Using the wireless remote mouse](#) in section 4.3).

8 Position the calibration target for the second capture:

- Stand about a meter from the VECTRA and hold the calibration target so that the L is upright and the short leg of the L is between the horizontal guides in the top preview window.
- Tilt the calibration target forward about 30 degrees.
- Move the target to achieve alignment as shown:



The short leg of the L is between the horizontal guides in the top preview window.



The long leg of the L is between the vertical guides in the lower preview windows.

9 Click  **take picture** (on screen or on the wireless mouse).

10 After the calibration images are processed, the **calibration completed successfully** dialog box is displayed. Click **OK**.

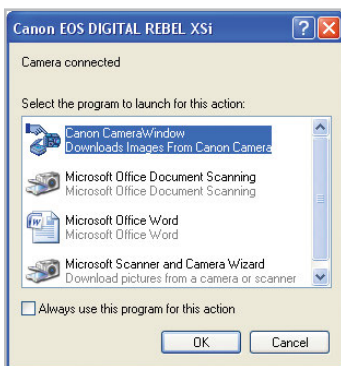
Troubleshooting calibration

- If the captured calibration images are dark, the flashes may not have fired correctly.
- Make sure that there is no bright ambient light reflecting off of the calibration target. This can cause a glare on the surface and negatively affect the calibration process.
- If the calibration process failed, the calibration target may have been incorrectly positioned. Calibrate again, taking care to ensure that the target is positioned as shown in the illustrations.

- ✓ After calibrating, take care to avoid knocking the system, as this may affect the quality of the resulting 3D data. If you think something might have affected the position of any of the main system components, then it is advisable to recalibrate before proceeding.

2.3 TROUBLESHOOTING: CAUSES AND SOLUTIONS

<i>problem</i>	<i>cause / solution</i>
One side of processed image appears dark.	There is a faulty flash on that side. Contact Canfield Technical support.
3D object exhibits geometric irregularities including visible divisions in object, dislocated image components, and/or image stitching flaws.	System calibration has been altered. Recalibrate the cameras.
Surface color is inconsistent and/or patchy between right and left halves of 3D surface.	Reflective surfaces in the camera area are affecting surface lighting. Remove reflective objects, such as mirrors or pictures, that may be reflecting light onto the subject.
<i>error message</i>	<i>cause / solution</i>
"Expected 6 cameras, but only found 0: giving up"	USB camera cable is not properly connected to the computer. Verify USB connections.



- Click **Cancel** to all popup windows.
- On successful connection to VECTRA, open “My Computer”. Under **Scanners and Cameras** you will see six Canon EOS Digital Rebel XSi cameras listed.
- Right-click on the first camera and open its properties.
- Open **Event** tab
- Click the **Take no action** option.
- Click **Apply**
- Click **OK**
- Repeat for each of the remaining five cameras.

Replacement of components

If components of your VECTRA system need to be replaced, please contact Canfield Scientific directly for assistance:

phone (USA): 1.800.815.4330

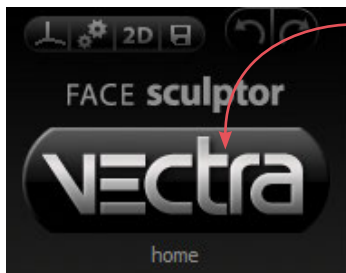
phone: +1.973.434.1201


techsupport@canfieldsci.com



All user-replaceable parts will be accompanied by instructions.

2.4 SHUTTING DOWN THE VECTRA SYSTEM



- 1 Click the **home** button (VECTRA logo) in the upper left corner of the screen to return to the patient chart.
- 2 Click the VECTRA logo from a patient chart to return to the home screen.
- 3 Click the  **exit** button in the lower right corner of the home screen.
- 4 Make sure no other software is running, then shut down the computer.



2.5 CLEANING THE VECTRA CAMERA SYSTEM

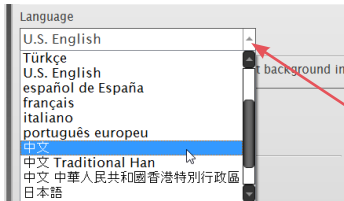
The exterior surfaces of the VECTRA camera system (mounting structure only—not the glass surfaces or monitors) should be cleaned with a slightly damp cloth or sponge with a mild detergent with water.




Do not attempt to clean the VECTRA camera system using alcohol, benzene, paint thinners or other flammable substances. Repeated use of these flammable substances near the unit's high-voltage areas may result in a fire or electrical shock.

The glass covers may be cleaned with an optical glass cleaner using a soft cloth. Do not rub this surface with hard materials since these materials can scratch the surface. **Do not touch the glass surfaces with your bare fingers. Finger prints may affect image capture.**

2.6 CHANGING THE USER INTERFACE LANGUAGE



- 1 Click  **setup** from the VECTRA home screen and select the **General** tab.
- 2 Click the arrow in the Language field and select the desired language from the drop down menu.


CHAPTER 3

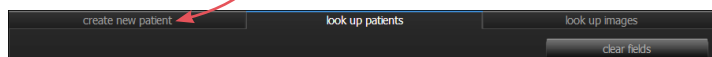
The VECTRA Patient Chart

3.1 CREATING A NEW PATIENT CHART

1 Double-click the  VECTRA icon on the Windows desktop to open the software.



2 Click  **new patient** on the VECTRA home screen, or click the **create new patient** tab from the Look Up Patient window.



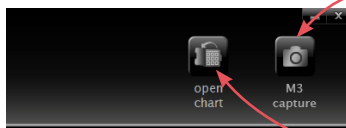
✓ **NOTE:** To avoid creating a duplicate chart, start by looking up the patient (see [3.2 Finding a Patient Chart](#)).



last name (required)		first name	
Roberts		Laura	
patient ID	date of birth	gender	
	1/8/1972	<input checked="" type="radio"/> female <input type="radio"/> male <input type="radio"/> N/A	
email			

3 Click in a field to enter patient information. Press the “Tab” key to move among fields. The more information you enter, the easier it will be to find the patient next time.

✓ Once you click in the date of birth field, the field will remain pink until a valid date is entered.



4 Click  **M3 capture** in the upper right corner of the screen to create the patient chart and take a picture (see [Chapter 4](#)), or click  **open chart** to view the new patient chart.

3.2 FINDING A PATIENT CHART

1 Double-click the  VECTRA icon on the Windows desktop to open the software.



✓ If VECTRA software is already open, click the VECTRA logo in the upper left corner of the screen to return to the patient chart, then click the VECTRA logo from the chart to return to the home screen.



2 Click  **look up patient** on the VECTRA home screen.

✓ If you wish to hide names while displaying search results, select the **patient privacy** checkbox.


The screenshot shows the 'look up patients' search form. It includes fields for 'last name', 'first name', 'patient ID', and 'date of birth' (format M/d/yyyy). There are radio buttons for 'gender' (female, male, N/A). A 'clear fields' button is in the top right. At the bottom left, the 'patient privacy' checkbox is checked and highlighted with a red arrow. At the bottom right, it says 'show 192 matches'.

3 Enter search criteria such as the patient's name, date of birth, and/or ID number. Press the "Tab" key to move among fields, or click in a field and type.

The screenshot shows the same search form as above, but with 'u' entered in the 'first name' field. The 'show matches' text at the bottom right now reads 'show 4 matches' and is highlighted with a red arrow. A red arrow also points to the 'first name' field.

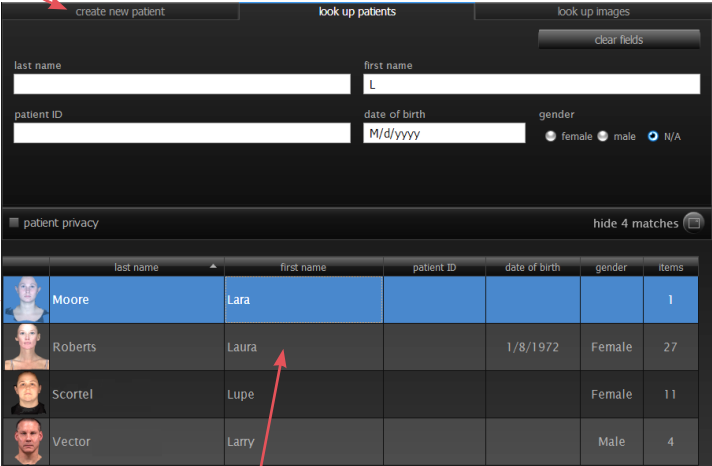
As you enter more information, **show matches** updates to display the number of records found that match the search criteria. Continue adding criteria if you wish to show fewer matches.





✓ Leave all fields blank to view *all* records.

4 Click  **show matches** (or press the “Enter” key) to display matching records.

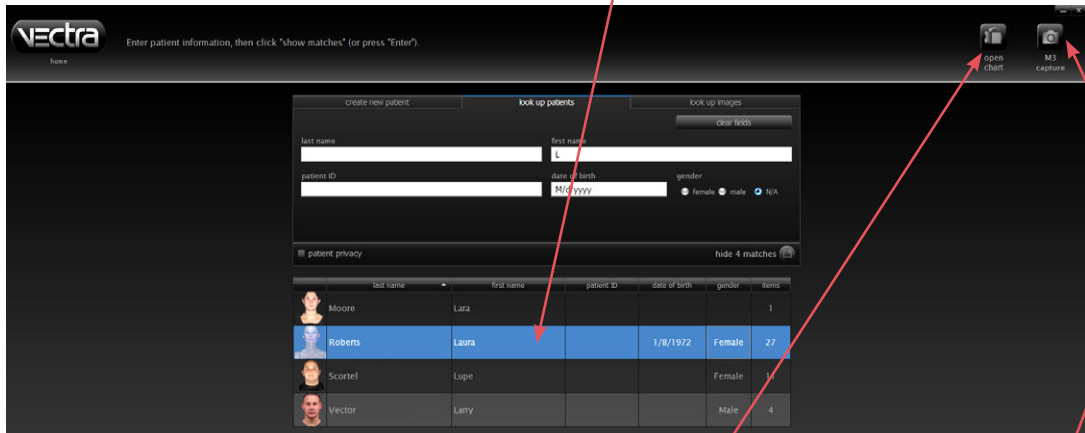
✓ If the correct chart is not found, click the **create new patient** tab to create a new patient chart (see [3.1 Creating a New Patient Chart](#)).

In this example, 4 records with a first name starting with the letter “L” were located. The first record is automatically selected (indicated by white type on a blue background).




	last name	first name	patient ID	date of birth	gender	items
	Moore	Lara				1
	Roberts	Laura		1/8/1972	Female	27
	Scortel	Lupe			Female	11
	Vector	Larry			Male	4

5 Click once on a row to select the patient.




To open the selected chart, click  **open chart** (or double-click a row or press the “Enter” key).

To take a picture of the selected patient, click  **M3 capture** (see [Chapter 4](#)).

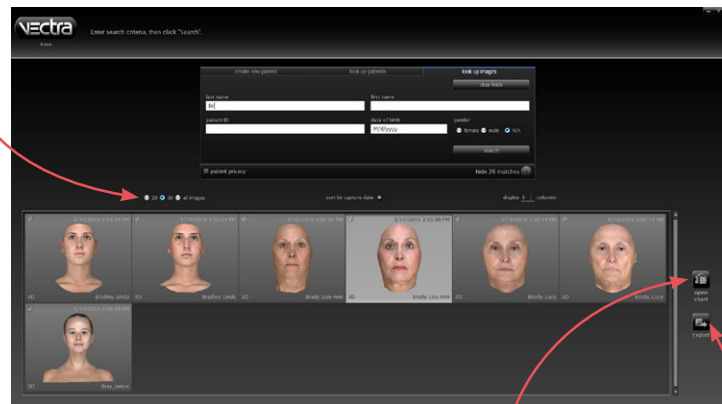
3.3 FINDING IMAGES



To locate images that fit certain criteria:

- 1 Click the **look up images** tab from the Create New Patient or Look Up Patient window.
- 2 Enter desired search criteria.
- 3 Click the **search** button.

- 4 Click  **show matches** to display matching images.

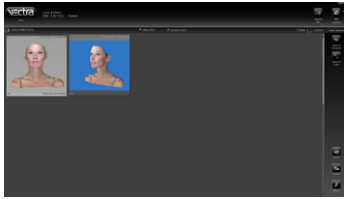
- Matches may be further filtered to show only 2D, only 3D, or all images.



- Double-click an image to view its patient chart, or click to select an image, then click  **open chart**.
- To export images, click to select one or more thumbnails, then click  **export**.

3.4 USING THE PATIENT CHART

Top bar buttons



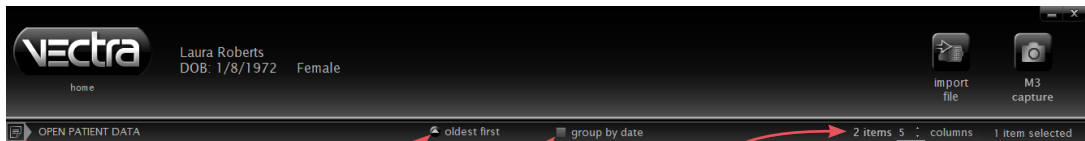
The buttons in the top bar are always available when a patient chart is open:



import file to add an existing file (avi, bmp, doc, docx, gif, jpg, jpeg, pdf, png, ppt, pptx, tif, tiff, tom, txt, or wmv) to the patient chart



M3 capture to take a picture that will be automatically added to the current chart



open patient data

*click to toggle
sort by newest or
oldest items first*

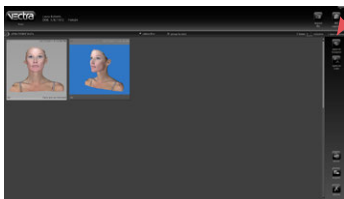
*select to group
images by
capture date*

*quantity
of items
in the chart*

*specify number of
columns displayed
(fewer columns =
larger thumbnails)*

*quantity
of items
selected*

Side bar buttons



The buttons in the side bar on the right of the patient chart vary according to the type of item(s) selected. If no thumbnail is selected, there are no buttons in the side bar.



open in Sculptor to open a 3D image in the appropriate Sculptor software













open in Analysis to open a 3D image in the VECTRA Analysis Module (VAM)




markerless tracking to automatically register and track 3D face images (see [5.13 Reviewing Previously Captured Images and Simulations](#))

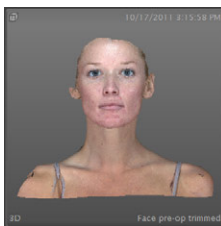


open in Comparison to compare two images in Sculptor

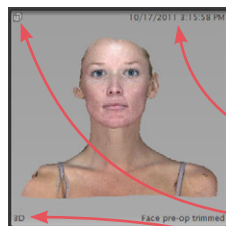
-  **open** to view a 2D image, movie, PowerPoint, PDF, or other type of document
-  **process** to finish processing a 3D capture
-  **stitch images** to automatically stitch multiple captures into one image
-  **move** to move or copy a file to a different chart
-  **print** to print 2D image(s) directly from the chart
-  **export** to make a file available outside of VECTRA
-  **export to PowerPoint** to export 2D image(s) directly to a Microsoft PowerPoint presentation
-  **extract 2D originals** to extract 2-dimensional images from the original 3D capture
-  **delete** to delete selected file(s)
-  **upload to 3D printing** to obtain a 3D model of an image from MirrorMe3D (see [Appendix C](#))

Thumbnails

- Click on a thumbnail to select it.
- Ctrl-click on a selected thumbnail to deselect it.
- Shift-click to select a range of thumbnails; Ctrl-click to select discontinuous thumbnails.
- If a thumbnail is selected, its frame reverses to light gray with dark type.
- Image type is noted in the corners of the thumbnail. For example,  in the upper left and **3D** in the lower left denotes a 3D image.



unselected

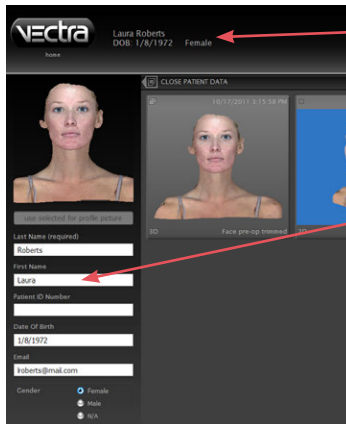
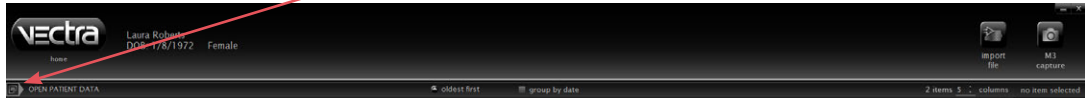


selected

Viewing and editing patient data

To open the patient data drawer, click

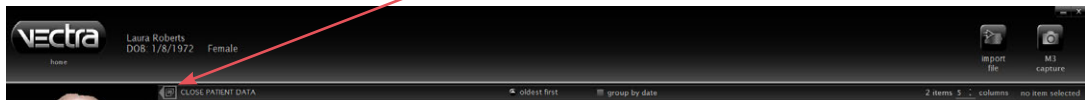
 OPEN PATIENT DATA.



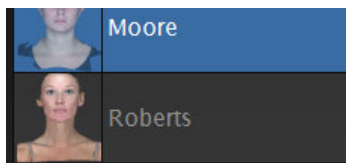
Patient information that was entered in the New Patient fields is displayed in the top bar.

Click in a field to add or change information.

To close the patient data drawer and apply changes, click  CLOSE PATIENT DATA.




Changing the profile picture

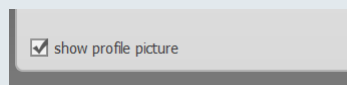


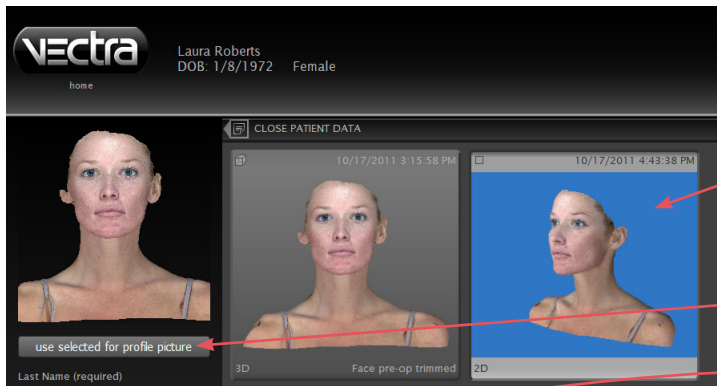
Each patient's profile picture is displayed in the Look Up Patient search results.* The first captured or imported image is the default "profile picture".


***NOTE:** Profile pictures may be displayed or hidden in the Look Up Patient search results.

To change the show/hide profile pictures setting:

- 1 Click  **set up** in the lower right corner of the VECTRA home screen, then click the **Database** tab.
- 2 Check or uncheck **show profile picture** in the lower left corner of the dialog.

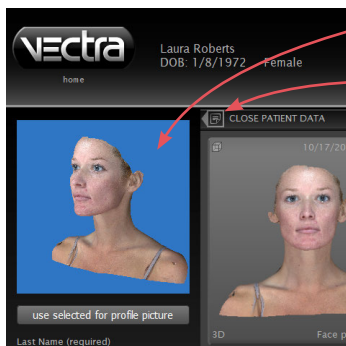





1 To change the profile picture, open the patient data drawer .

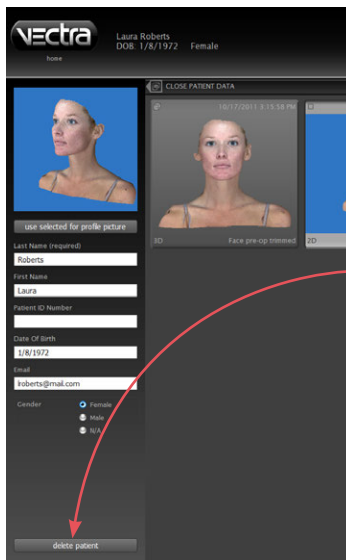
2 Click to select the desired thumbnail in the patient chart.



3 Click **use selected for profile picture** to replace the current picture with the selected thumbnail.




4 Click  to close the patient data drawer and apply changes.

Deleting a patient chart



 Individual images and files may be deleted from a patient chart by selecting the image(s) and clicking  **delete** in the bar on the right side of the screen.

1 To permanently remove a patient and all of the associated data and images from your VECTRA database, open the patient data drawer .

2 Click **delete patient**.

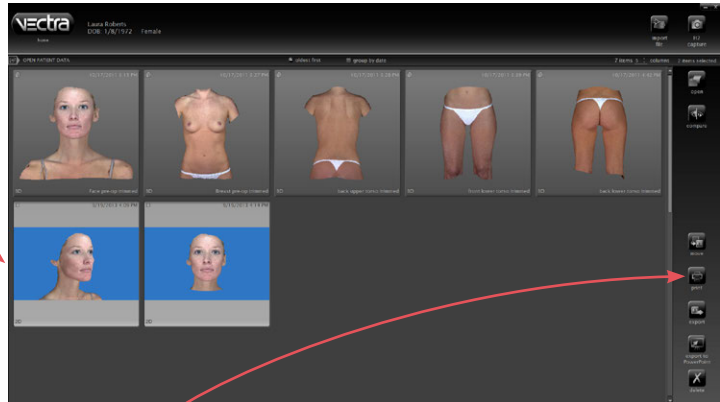
3 Click **Yes** in the confirmation dialog to permanently remove the patient and all associated data and images.


 **Delete patient cannot be undone.**

3.5 PRINTING AND EXPORTING 2D IMAGES

Printing 2D images directly from the patient chart

- 1 Click to select the image(s) you wish to print. Shift-click to select multiple thumbnails, or Ctrl-click to select multiple discontinuous thumbnails.



- 2 Click  **print**. (The **print** button is only available if a 2D image is selected.)

close print screen →

page orientation:
landscape (horizontal) →
portrait (vertical) →

number of columns →

number of rows →



duplicate images per page →

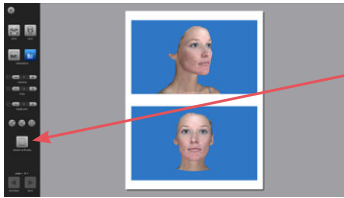
increase or decrease size
of the on-screen preview →

reset preview size to fit screen →


step through multiple
document pages →

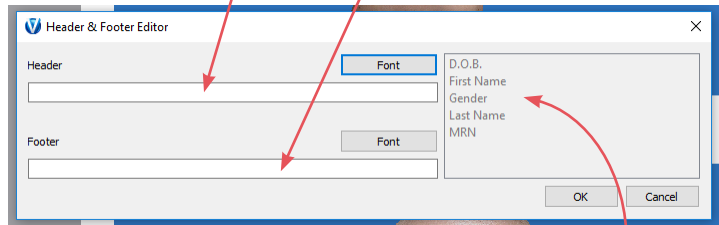
header & footer See [Adding or editing the header and/or footer](#) in next section.

- 3 Select desired layout parameters, then click  **print** (to print) or  **save** (to save as a PDF).

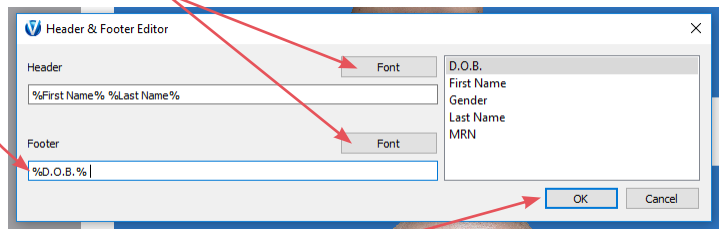


Adding or editing the header and/or footer

- 1 Click  header & footer.
- 2 Click in the Header or Footer field to select.

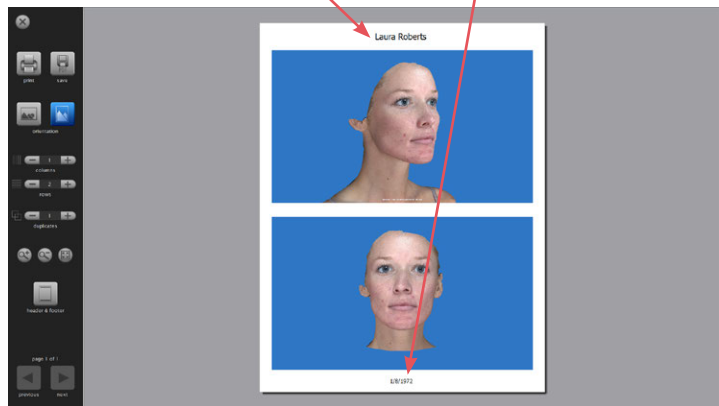


- Type desired information directly, or add a patient identifier by double-clicking its name in the list.
- You may combine direct entry, such as “Date of Birth:” with a patient identifier, such as “%D.O.B.%”.
- Click **Font** to change type style and/or size.



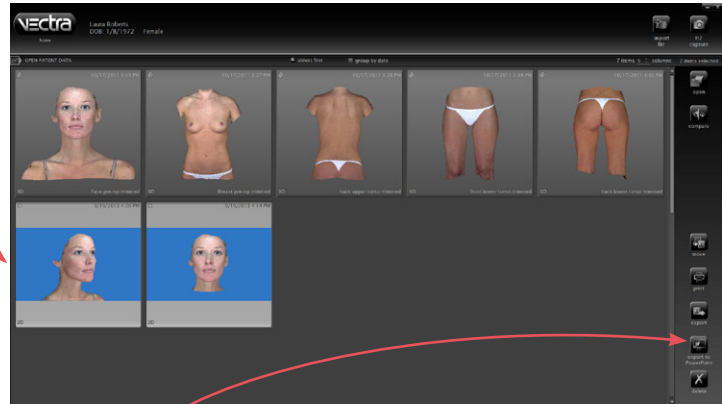
- 3 Click **OK** to apply.


The print preview displays the entered and/or selected information in the header and/or footer.

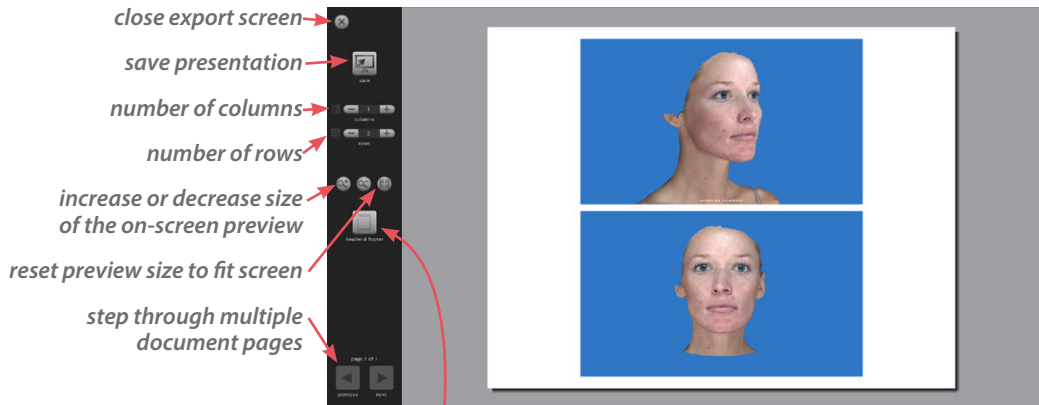


Exporting images to a PowerPoint presentation from the patient chart


1 Click to select the image(s) you wish to include. Shift-click to select multiple thumbnails, or Ctrl-click to select multiple discontinuous thumbnails.



2 Click  **export to PowerPoint**. (The **export to PowerPoint** button is only available if a 2D image is selected.)

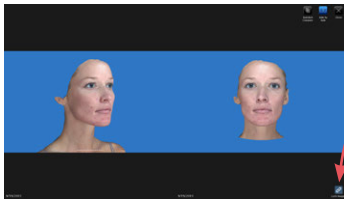
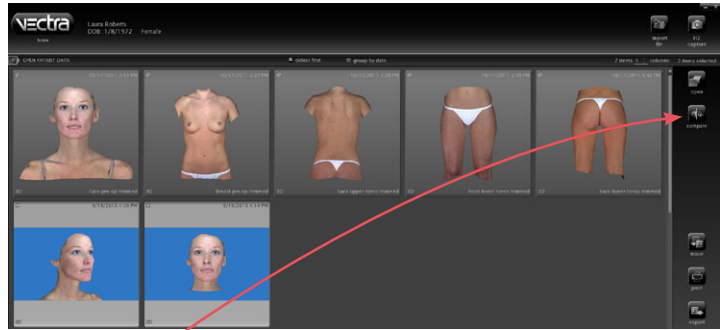


header & footer See [Adding or editing the header and/or footer](#) in previous section.


3 Select desired layout parameters, then click  **save**.


3.6 VIEWING A PAIR OF IMAGES IN COMPARISON MODE

1 Click to select an image to compare. Ctrl-click to select a second image.



2 Click  **compare** to display the images full screen, side by side. The first image selected appears on the left.


- The  **Lock Images** button in the lower right corner controls whether pan/zoom actions affect only one image or both.

Click  **Close** to close the images and return to the patient chart.

CHAPTER 4

Capturing Images





4.1 START THE VECTRA SYSTEM & SOFTWARE

- 1 Make sure that the VECTRA capture system and its computer are both connected to a properly grounded, easily accessible electrical receptacle.
- 2 Turn on the computer.
- 3 Double-click the  VECTRA icon on the Windows desktop to open the software.





Make sure the VECTRA system has been recently calibrated (see [2.2 Calibrating the VECTRA System](#)). Calibration should be performed daily, prior to patient arrival, or whenever the system has been moved or altered.

4.2 FIND OR CREATE A PATIENT CHART (see [Chapter 3](#) for more details)

- 1 Click the  **look up patient** button in the upper right corner of the VECTRA home screen.
- 2 Enter search criteria such as the patient's name, date of birth, and/or ID number.
- 3 Click  **show matches** (or press the “Enter” key) to display matching records.
- 4 Click  **M3 capture**. (If more than one matching record is displayed, first click to select the correct patient, then click  **M3 capture**.)

- ✓ If the correct chart is not found, click the **create new patient** tab to create a new patient chart.

To create a new patient chart without first searching for an existing chart:

- 1 Click the  **new patient** button in the upper right corner of the VECTRA home screen.
- 2 Enter patient information.
- 3 Click  **M3 capture**.

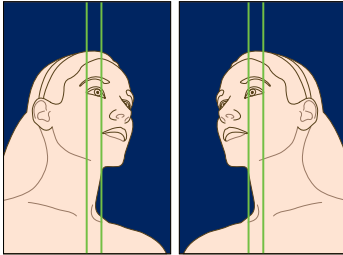
4.3 CAPTURE A 3D IMAGE

Before positioning the patient in front of the VECTRA

- All jewelry should be removed.
 - Remove sweat, oils, or anything shiny from the skin.
 - Remove all make-up.
 - The patient's hair should be secured away from the face, ears and neck.
- ✓ **For follow-up images:** Review the baseline image before initiating image capture, to assist in positioning the patient correctly.
 - ✓ Consistent patient positioning is the most important aspect of capturing medical images. Follow consistent methods to ensure consistent patient positioning.

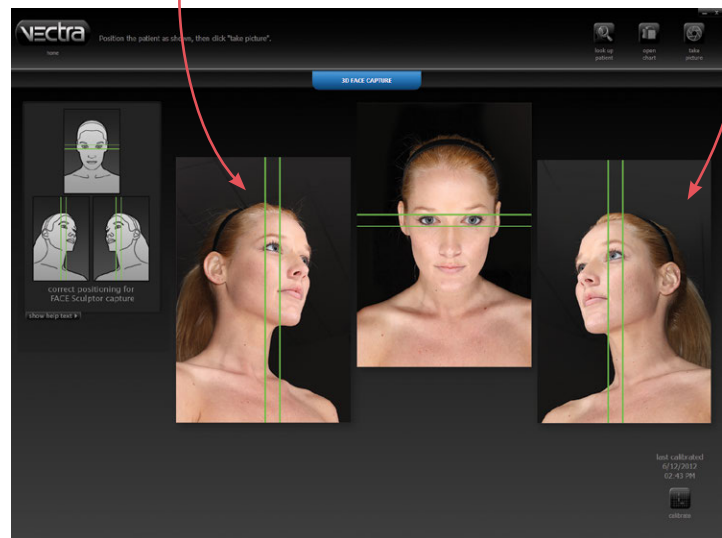
Positioning the patient

1 Have the patient sit on a stool facing the VECTRA system, centered side to side.

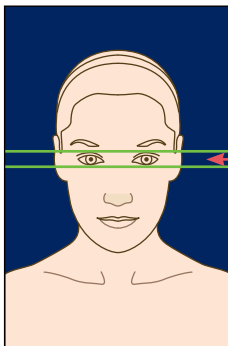


2 Move the patient and stool closer or farther from the VECTRA until the patient's eye is centered between the vertical (|) lines in each of the two side preview images.

3 Make sure the position of the face in the right preview window mirrors the position of the face in the left preview window.




4 Raise or lower the stool until the patient's eyes are centered between the horizontal (—) lines in the center preview image.





5 Just before image capture:

- Have the patient gently close his/her mouth to a natural, soft bite.
- Expression should be in repose or neutral—not smiling.

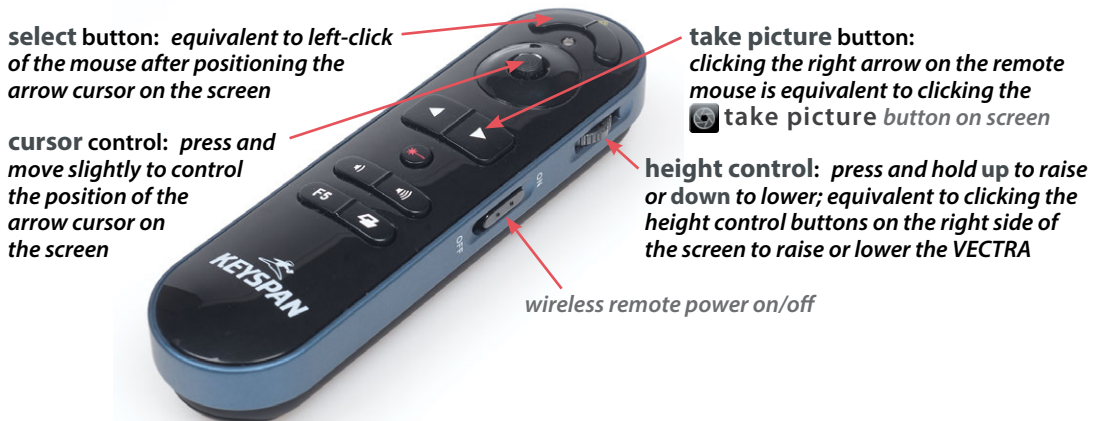
Capturing the 3D image

Click  **take picture** on screen, or click the right arrow button on the wireless mouse (see below). When processing is complete, the 3D image is automatically displayed.

- ✓ If you wish to interrupt the processing and retake the image (if, for example, the subject blinked or was in the wrong position) click  **discard & retake**.
- ✓ If you wish to save the unprocessed image in the patient's chart and capture a new image of the same patient, click  **keep & retake**.

Using the wireless remote mouse

The wireless remote mouse enables you to accomplish button “clicks” during image capture without being near the computer keyboard.



CHAPTER 5

Face Sculptor®

5.1 GETTING STARTED

Face Sculptor 3D aesthetic simulation software assists the surgeon during consultations enabling prospective patients to visualize the possibilities of their anticipated facial aesthetic procedures. This software module provides tools to assess the patient's face and enables the user to quickly make realistic surface and three-dimensional changes to the facial features of the patient's own 3D image. The results can then be reviewed with the patient to ensure mutually understood expectations between the surgeon and the patient. The pre-op and post-simulated images can also be used as references during surgery.

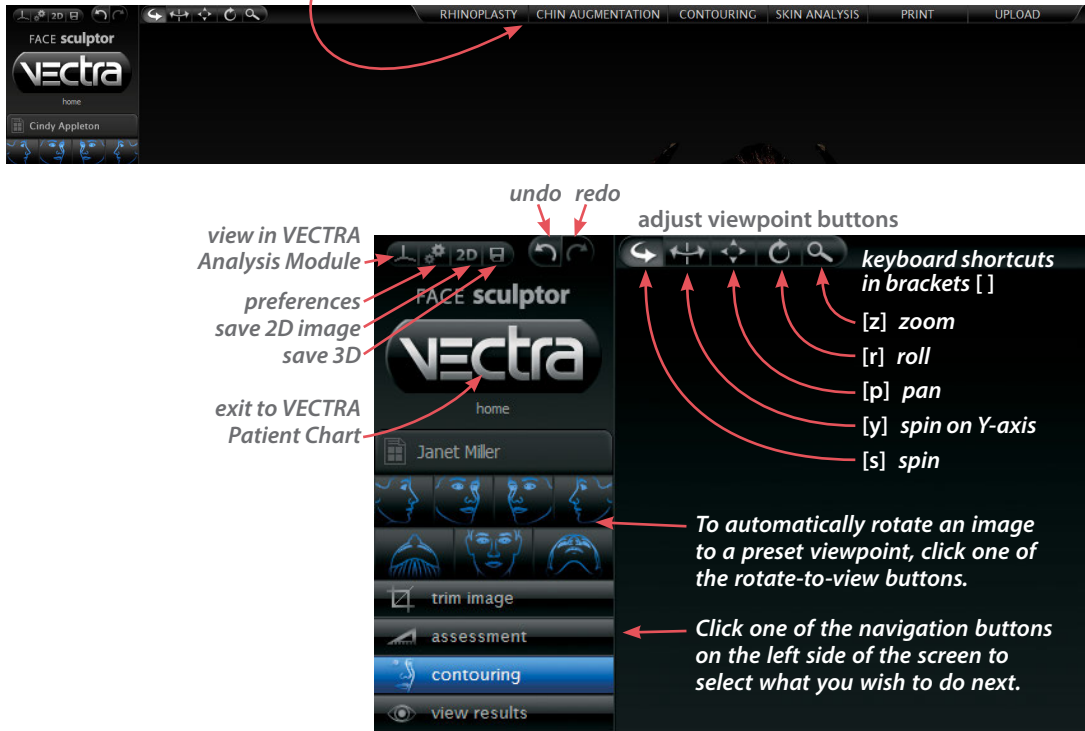
Open a 3D image in Face Sculptor


A newly captured 3D image of your patient's face is automatically displayed in Face Sculptor software after processing is complete (see [Chapter 4: Capturing Images](#)).


To open a previously captured image, open the patient chart and double-click a 3D face image (see [Chapter 3: The VECTRA Patient Chart](#)).

Face Sculptor overview

To get started, select the Rhinoplasty, Chin Augmentation, or Contouring module by clicking the corresponding tab at the top of the screen. You may select a different module by clicking its tab at any time.




To see the image(s) from any viewpoint at any magnification, select one of the adjust viewpoint buttons , then click within the image and drag.

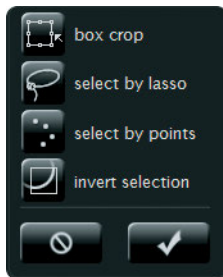
- Change the magnification by rotating the scroll wheel on your mouse.
- Temporarily change to the  **Spin** tool by holding down the **Alt** key on the keyboard.
- Press **Ctrl-Z** on your keyboard to undo the most recent action.
- Right-click in a viewport to open the rotate-to-view button set.





✓ See [Appendix D: Sculptor Software Tips](#) for more keyboard and mouse shortcuts.

5.2  trim image




TRIM IMAGE

If you wish to remove unwanted parts of the image, click the  **trim image** navigation button on the left side of the screen.



- The  **box crop** tool enables you to draw a rectangular boundary box, adjust it, and delete everything outside of the box.
- The  **select by lasso** tool enables you to circle unwanted parts of the image and delete them.
- The  **select by points** tool enables you to define the area you wish to keep by clicking multiple points on the image, then delete the unwanted areas leaving a clean, smooth perimeter.
- Click  **invert selection** to reverse what is and is not selected.
- Click  to clear your selection without applying or to undo crop.
- Click  to apply the cropping or delete the selected area.
- To remove all cropping/trimming, click  **reset**.

Using the Select By Points tool

- 1 Click  **select by points**.
 - 2 Place the  cursor over the edge of the area you wish to preserve, then click to place a point.
 - 3 Continue to place points in a **clockwise** order around the perimeter of the area you wish to preserve.
-  To temporarily enable the Spin tool, hold down the **Alt** key on the keyboard while you rotate the image.
- 4 Right-click the mouse after placing the last point. The area outside of the perimeter is painted green.






5 Click  **delete** to remove the highlighted area.

Using the Box Crop tool

1 Click  **box crop**.


2 Click and drag out a rectangle to define the area you wish to keep. The boundary box you have drawn is projected onto the three-dimensional surface.


 To adjust the size or position of the boundary box, click an edge or corner of the box and drag to the desired location.

3 Click  **crop** (or right-click the mouse) to delete everything outside of the box. If you wish to cancel this operation, you may click  **cancel**.

Using the Select By Lasso tool

1 Click  **select by lasso**.

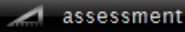
2 Place the  cursor over the edge of an area you wish to define, then click and drag around its perimeter.

3 Click  **delete** (or right-click) to remove the highlighted area.

 To delete everything outside of the highlighted area, first click  **invert selection**, then click  **delete**.

You may click  **deselect** if you wish to start over.

5.3



ASSESSMENT

Click the **assessment** navigation button on the left side of the screen to access the Face Sculptor assessments that are relevant for the current module (Rhinoplasty [**Rh**], Chin Augmentation [**Ch**], or Contouring [**Co**]).

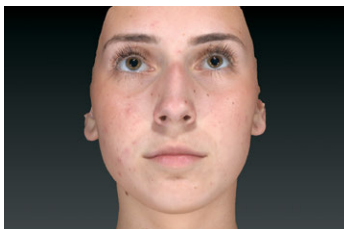
✓ To display another assessment, click its name on the left side of the screen.

✓ To view assessments for a different module, click its tab at the top of the screen, then click the **assessment** navigation button.

Symmetry [**Rh**, **Ch**, **Co**] helps to visualize asymmetries in the face.



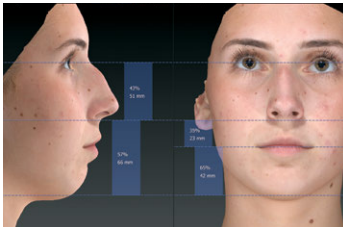
- The first viewport shows two right sides: The right side of the face is flipped and joined to the normal right side.
- The center viewport shows the normal face.
- The third viewport shows two left sides: The left side of the face is flipped and joined to the normal left side.



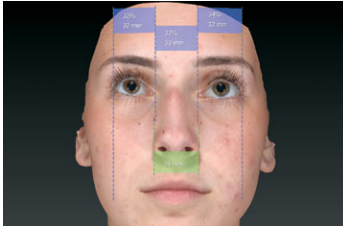
Reflection [**Rh**, **Ch**, **Co**] displays the view one sees in the mirror: The image is flipped (reflected) to further help visualize asymmetry.



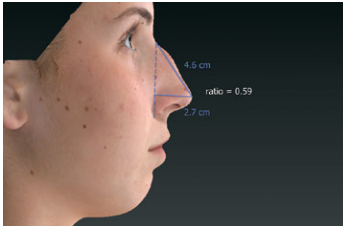
Oblique [**Co**] displays three viewing perspectives of the same image: right oblique, front, and left oblique.



Horizontal proportions [Rh, Ch] displays both straight-line distance measurements and proportions (%) for the lower segment of the face (menton to subnasale) and the middle segment of the face (subnasale to radix).



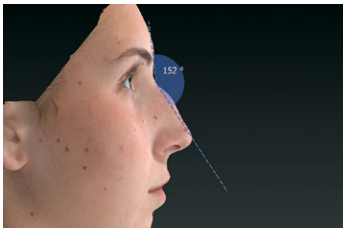
Vertical proportions [Rh] displays both straight-line distance measurements and proportions (%) for the right and left segments of the face (lateral to medial canthi) and the middle segment of the face (right to left medial canthi). The alar width (right alar rim to left alar rim) is also measured and compared.



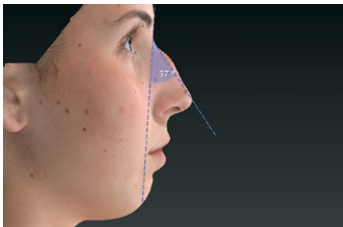
Tip projection [Rh] displays the ratio of the tip projection divided by the dorsal length. Tip projection is measured by drawing a perpendicular line to the nasal tip from a second line drawn from the radix to the alar rim. The dorsal length is measured from the nasal tip to the radix.



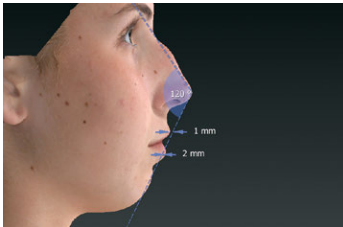
Columella-labial angle [Rh] displays the angle formed by lines drawn from the labrale superius to the subnasale and the subnasale to the columellar point.



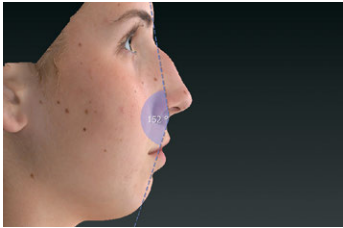
Nasofrontal angle [Rh] displays the angle formed by lines drawn from the nasal tip to the radix and the radix to the glabella.



Nasofacial angle [Rh, Ch] displays the angle formed by lines drawn from the pogonion to the glabella and the nasal tip to the radix.



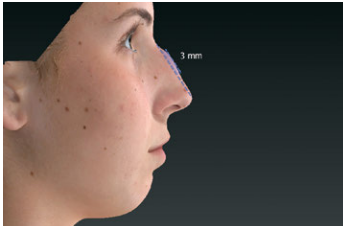
Nasomental angle [Rh, Ch] displays the angle formed by lines drawn from the pogonion to the nasal tip and the nasal tip to the radix. The horizontal distances from the labrale superius and inferius to the line drawn from the pogonion to the nasal tip is also provided.



Facial angle [Rh, Ch] displays the angle formed by lines drawn from the glabella to the subnasale and the subnasale to the pogonion.



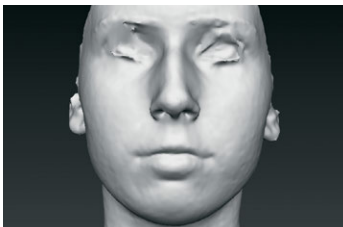
Tip deviation [Rh] displays the angle formed by the facial midline to the line drawn from the radix to the nasal tip. The horizontal distance from the nasal tip to the midline is also provided.



Dorsal height [Rh] displays the maximum point of projection from the line drawn from the nasal tip to the radix.



Color [Rh, Ch, Co] displays normal skin tone and texture.



Gray [Co] removes the distraction of complexion details for superior visualization of facial contours.




Click **Brown Spots** [Co] for enhanced visualization of pigmentation.




Click **Red Areas** [Co] for enhanced visualization of vascularity.





Red | Brown [Co] shows Red Areas and Brown Spots side by side. To view the image(s) in an alternative lighting mode click . Click again to toggle off.

Notes

To record your notes and recommendations, click  in the marker palette (upper right corner of screen).



Type in the box, then click **OK**. Content that you enter in the notes box will appear on notes-enabled versions of the printed report (see [5.11 Printing Reports](#)).

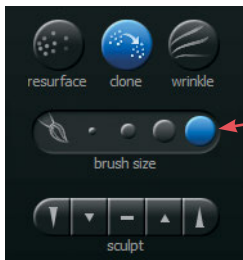
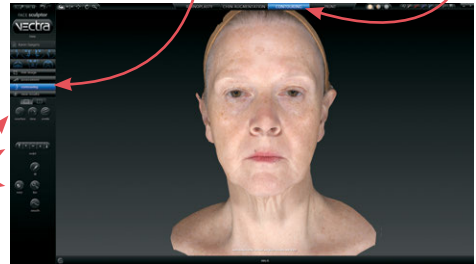
 **Notes are not saved to the patient chart.** If you wish to save your notes, save a notes-enabled report as a PDF: Click the **Print** tab at the top of the screen, select desired template(s), and click  **save PDF**. The PDF with notes is saved to the patient chart.

5.4 contouring

MODELING FACIAL CONTOURING OUTCOMES

Click the **Contouring** tab at the top of the screen, then make sure the **contouring** navigation button on the left side of the screen is selected (blue).

Sculptor's facial contouring module opens with its array of tools displayed on the left side of the screen.



Tool-specific options appear only when the relevant tool is selected:

- The brush size selector is displayed when **resurface**, **clone**, **wrinkle** or **sculpt** is selected.
- When **fill**, **lipo**, or **smooth** is selected (blue) and a region of the face has been circled, the slider bar is displayed.
- Help text for the current tool appears at the bottom of the screen.



Alternate view modes



- Click one of the shading mode buttons (located at the top of the screen) to view the image with alternate shading modes.



Natural photo mode (the default view). The image retains all of its photographic detail for a pleasing visual representation. Use to show skin resurfacing procedures.

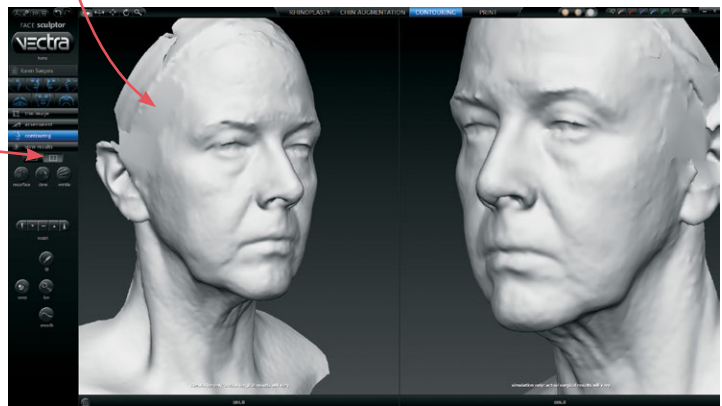


Dynamic photo mode. The image is skin colored, but with reduced detail. This helps to show shape and anatomical features under raked lighting.



Shape (gray) mode. This solid colored image helps to visualize shape and volume changes without the distraction of skin tones.

- Click the 2-viewports button in the navigation sidebar to see two independent views of the same image.




- To automatically rotate the image on the left to a preset viewpoint, click on the left side of one of the rotate-to-view buttons.

Click on the right side of one of the rotate-to-view buttons to automatically rotate the image on the right to a preset viewpoint.





About the brush tools

- The cursor changes to  when you mouse over the viewport and is surrounded by a translucent round shape when it's over the image. The translucent shape indicates the area affected by the tool.
- Brushing over a region twice doubles the effect.
- Selecting a different brush size does not affect the changes you have already made.
- It's okay to stop and start again.




Using the Resurface tool

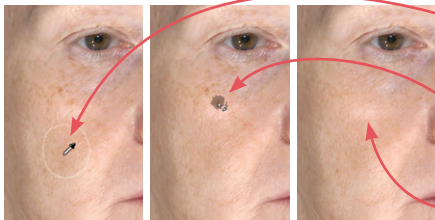
The Resurface tool smooths the skin's texture and is ideal for showing the effects of skin resurfacing procedures such as fractional laser and IPL treatments.



- 1 Click  **Resurface**.
- 2 *Optional:* Select a  **brush size**.
- 3 Click and drag over the region to be treated.

Using the Clone tool

With the Clone tool, you can select the desired skin appearance and apply it to areas that you wish to change, such as brown spots, blemishes and tattoos.




- 1 Click  **Clone**.
- 2 *Optional:* Select a  **brush size**.
- 3 Click the  eyedropper cursor in the section of skin you wish to replicate.
- 4 Click and drag where you wish to apply the selected sample. The characteristics of the sampled skin are copied to the brushed area in a context-sensitive manner.



- ✓ To select a different source, click  **Clone** again and then click the  eyedropper cursor in the desired area.

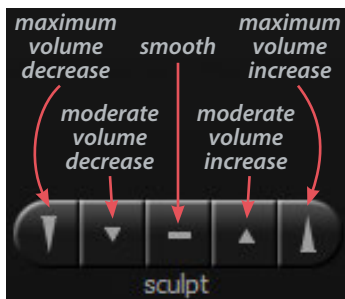
Using the Wrinkle tool



The Wrinkle tool is used for removing or softening wrinkles and demonstrating the results of procedures such as toxin and dermafiller injections.

- 1 Click  **Wrinkle**.
- 2 *Optional:* Select a  **brush size**.
- 3 Click the  eyedropper cursor in the section of skin you wish to replicate.
- 4 Click and drag over the region to be treated. The texture of the sampled skin is copied to the brushed area.

Using the Sculpt tool

The Sculpt tool is ideal for changing the shape of small, irregular-shaped regions of the face, such as pre-jowls and nasolabial folds.



- 1 Click a section of the  **Sculpt** button to select volume increase, decrease, or smooth and degree of change.
- 2 *Optional:* Select a  **brush size**.
- 3 Click and drag or use a series of clicks over the region to be treated. The color of the translucent round shape indicates your tool selection: red for decrease, green for increase, and yellow for smoothing.

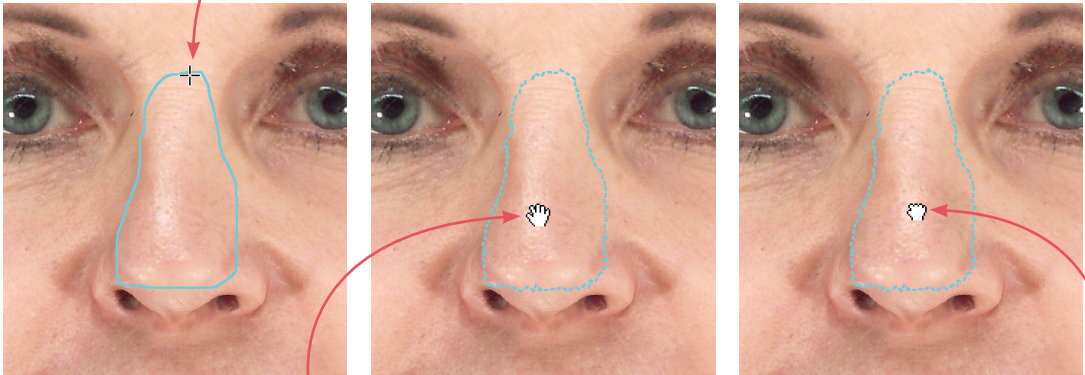
Using the Warp tool



The versatile free hand Warp tool can be used for shape adjustments to almost any part of the face.


1 Orient the image(s) so that the area you wish to warp is visible. Usually frontal view is best, but lateral view is better for defining some warp areas, such as the bridge of the nose.

2 Click  Warp.

3 Place the cursor (+) over the image, then click and drag to define the region to be adjusted. Release the mouse button when you are satisfied with the boundary.






4 Position the cursor near the part that you wish to warp (the cursor changes to an  open hand), then click and drag in the desired direction (the cursor changes to a  grabbing hand). Release the mouse button when you are satisfied with the adjustment.


-  For a stronger effect, click inside the defined area and drag. For a more subtle effect, click outside the defined area and drag.


Using the Fill, Lipo, and Smooth tools

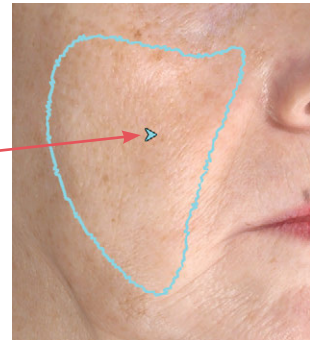
The Fill, Lipo, and Smooth tools are ideal for reshaping larger regions of the face, such as cheeks, or regions that are not easy to correct using the Warp tool, such as nasolabial folds.


1 Orient the image(s) so that the area you wish to treat is visible for circling (for example, oblique view for the cheeks).

2 Click  **Fill** to add volume,  **Lipo** to remove volume, or  **Smooth** to flatten unwanted contours.

3 Place the cursor () over the image, then click and drag to define the region to be adjusted. Release the mouse button when you are satisfied with the boundary.

4 Position the cursor within the circled region; the cursor changes to an arrow (). Click once to automatically apply a calculated adjustment. The change in volume added/removed is displayed below the slider bar.

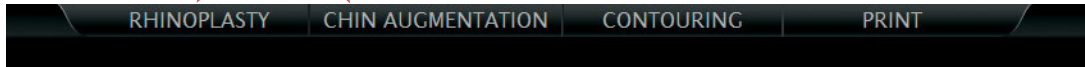


 If you wish to change the amount of adjustment, click and drag the bubble in the slider bar. To reset, click the triangle near the base of the slider bar.




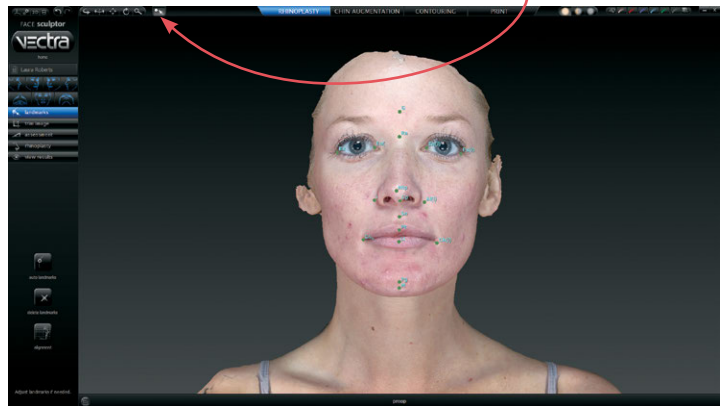
5.5 MODELING RHINOPLASTY OR CHIN AUGMENTATION OUTCOMES

With the patient's image open in Face Sculptor, click the **Rhinoplasty** or **Chin Augmentation** tab at the top of the screen.




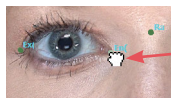
Auto landmarking


Face Sculptor software automatically identifies and places the landmarks needed for modeling outcomes in the selected module. The identified landmarks are displayed as green dots for review and adjustment, if needed. The landmark adjustment tool  is selected.






Adjusting landmarks (optional)

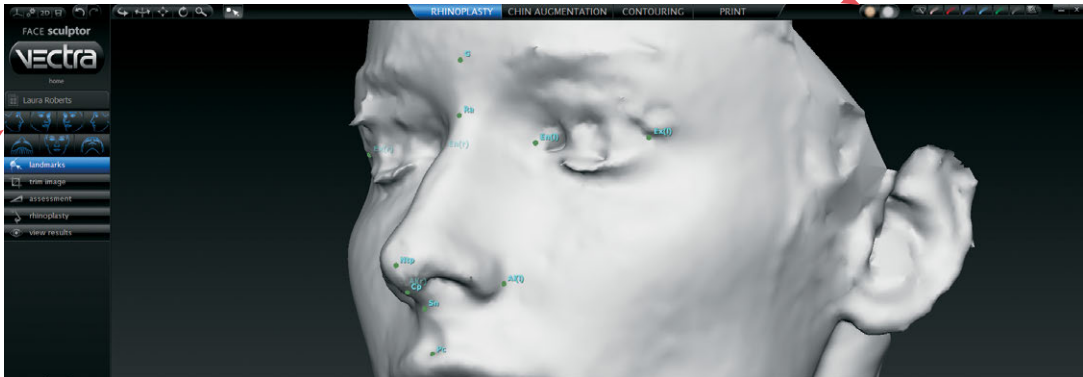
1 Position the tip of the cursor arrow over a landmark. The cursor changes to an  open hand when it's close enough to the landmark.






2 Click and drag (the cursor changes to a  grabbing hand). Release the mouse button when the landmark is in the correct position.

If you make a mistake, click  **undo** to move the landmark to its previous position.


- ✓ In some cases the anatomy may be more distinct in Shape (gray) mode. To see the image in Shape mode, click  (located at the top of the screen). To see the image in Natural photo mode (with normal skin color), click .




Rotating the image to inspect landmarks

- To automatically rotate an image to a preset viewpoint, click one of the rotate-to-view buttons on the left side of the screen.
- To see the image from any viewpoint at any magnification, select one of the adjust viewpoint buttons  at the top of the screen, then click within the image and drag. Click the landmark adjustment button to resume moving landmarks.
- With the adjustment tool  selected, press and hold the **Alt** key (on your keyboard) to temporarily switch to  **Spin**, then click within the image and drag to rotate. Release the **Alt** key to resume using the adjustment tool.

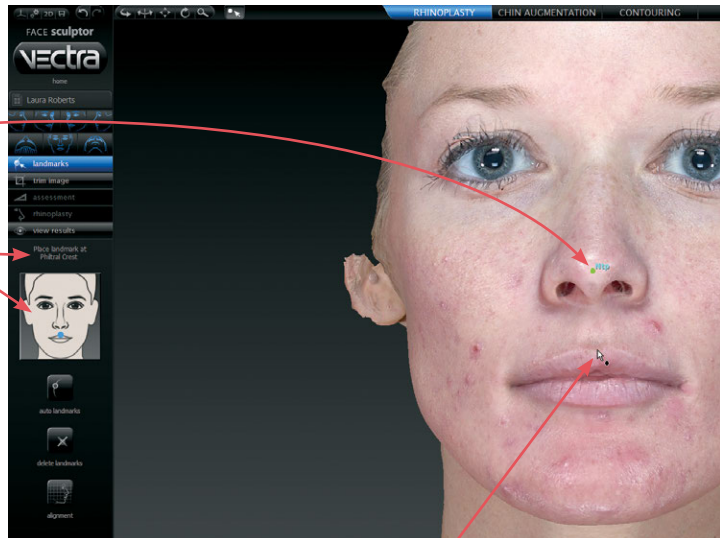
Resetting auto landmarks

To delete all of the previously set landmarks and have Face Sculptor software automatically identify and place landmarks, click  **auto landmarks** on the left side of the screen.

Placing user-identified landmarks (optional)

1 Click  **delete landmarks** (on the left side of the screen) if you wish to delete all of the previously set landmarks and have the software guide you through each landmark location with instructions (words and picture) on the left side of the screen.

- A green dot shows that the landmark is placed.
- Updated instructions show the next location to place a landmark.




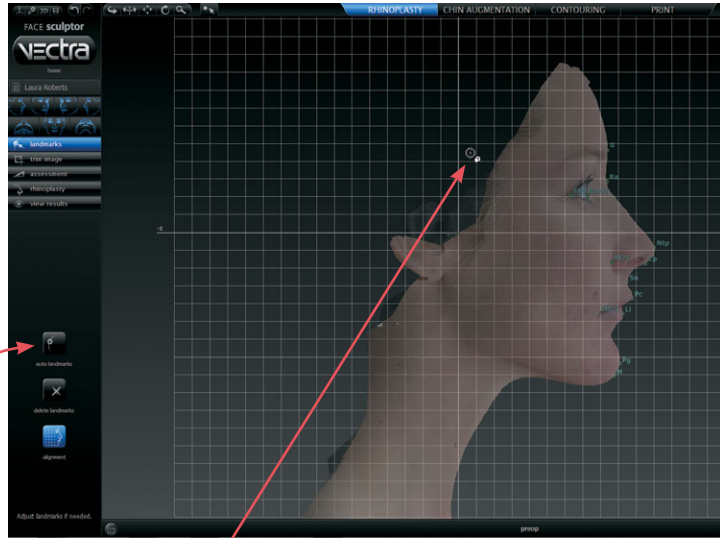
2 Position the tip of the cursor arrow over the appropriate anatomical location as described on the left side of the screen. Click once to place the landmark. As each location is clicked, the image rotates automatically to facilitate placement of the next landmark.



3 Repeat until each of the requested landmarks has been placed. When the final landmark has been placed, the image automatically rotates to frontal view.

4 Review landmark placement. If you wish to change the position of a landmark, see [Adjusting Landmarks](#) (previous pages).

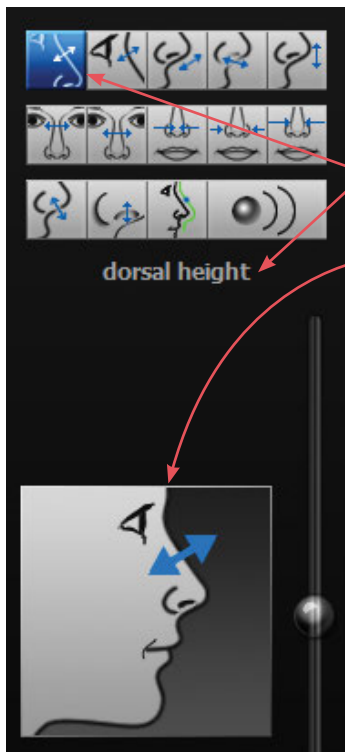
Adjusting the horizontal plane



- 1 Click  **alignment** (on the left side of the screen) if you wish to adjust a face image to the horizontal plane. A grid is displayed to guide the adjustment.



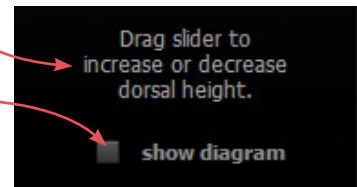
- 2 Position the  cursor over the image, then click and drag clockwise or counter-clockwise to align the image to the horizontal or vertical grid lines.
- 3 Once set, click  **auto landmarks** to reset the landmarks to the corrected alignment.

Adjustment tools for rhinoplasty and chin augmentation



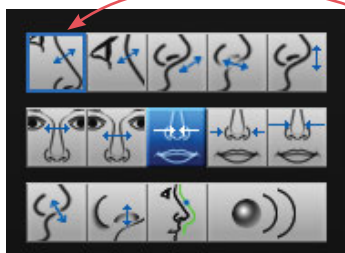
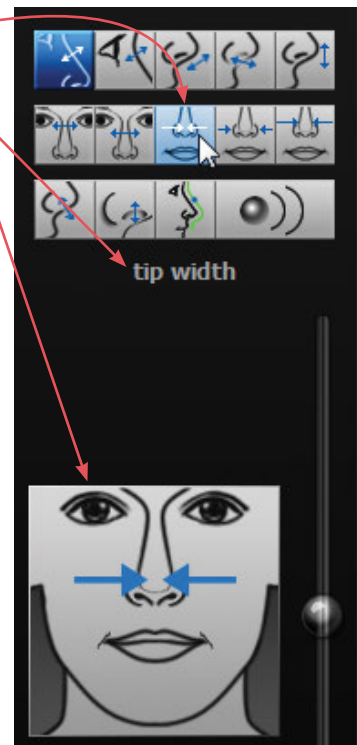
Click the  rhinoplasty or  chin augmentation navigation button on the left side of the screen to access the appropriate actions (tools) for the selected procedure.

- The caption below the tool palette identifies the currently selected tool.
- The diagram next to the slider bar illustrates the function of the currently selected tool.
- Help text for the current tool appears at the bottom of the screen.
- Click the **show diagram** check box to display the assessment diagram.



When you hover over an unselected button in the palette, the caption and diagram update to show the function of that tool.

- Click on a button to select the action described.



Tools that have been applied are highlighted with a blue box.

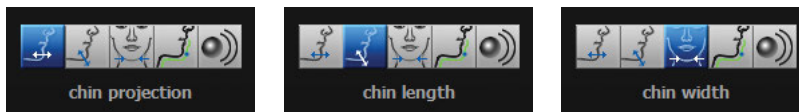
Overview of constrained adjustment tools for rhinoplasty

Move the slider **up** to add or increase; move the slider **down** to subtract or decrease.

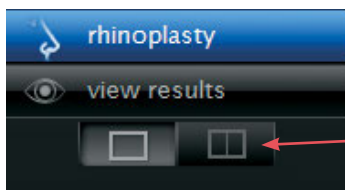


Overview of constrained adjustment tools for chin augmentation

Move the slider **up** to add or increase; move the slider **down** to subtract or decrease.

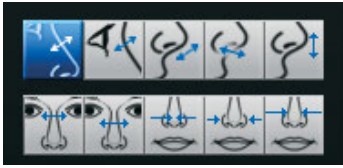


Using constrained adjusting tools



Constrained, single adjusting tools are for bidirectional adjustment to a single aspect of the face, such as the bridge of the nose or the tip of the chin.

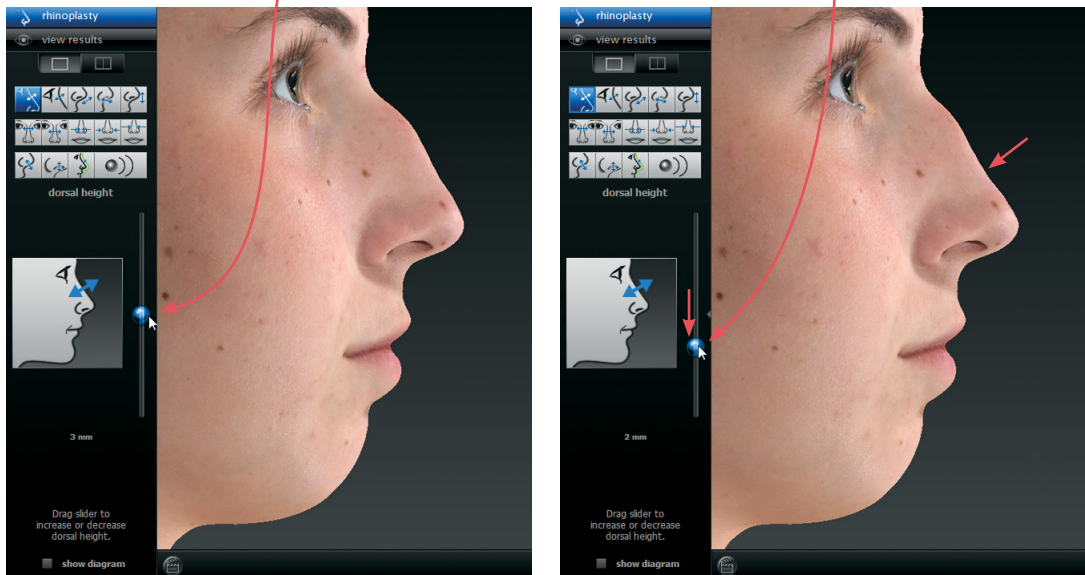
1 (Optional) Click the two viewports button to see two views of the 3D image as you're working on it.



2 Click an adjusting tool in the palette, for example, “dorsal height”. The caption, diagram and help text update to reflect the currently selected tool. The image in the left viewport automatically rotates to the optimal orientation for monitoring the selected adjustment.

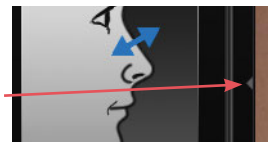
✓ If you wish, you may change the orientation and/or magnification in one or both viewports (see [Face Sculptor overview](#)).

3 Position the cursor on the bubble at the center of the slider bar. Click and drag the slider up or down to make the adjustment.



✓ Move the slider up to add or increase; move the slider down to subtract or decrease.

✓ If you wish to reset a particular adjustment, click the small triangle to the right of the slider bar.

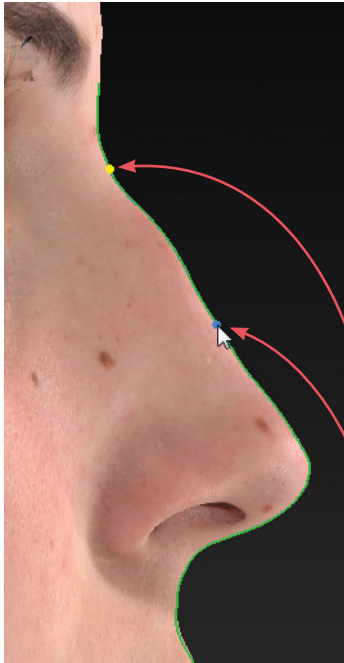


4 Click to select additional tools as needed.

Using unconstrained adjusting tools

The **profile warp tool** is for fine tuning, or non-standard adjustment.

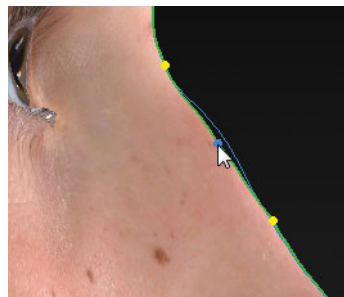
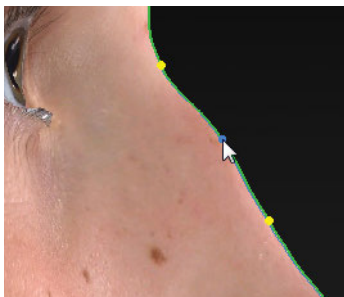
✓ **Recommended:** Use the constrained tools *first*.



1 Click the profile line tool. The image in the left viewport automatically rotates to profile view and a green line outlines the nose and upper lip (rhinoplasty) or the chin and neck (chin augmentation).

2 Mark the outermost boundaries of the area you wish to warp:

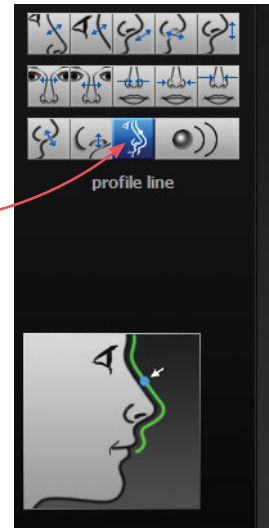
- Position the cursor over the green line at the uppermost point of the area to be warped. (The green line brightens when the cursor is over it.)
- Click once to place a marker (a blue dot which turns yellow when you release the mouse button).
- Position the cursor over the green line at the lowermost point of the area to be warped. Click once to place a marker.



3 Position the cursor at roughly the midpoint between the two edge markers. Click and drag the green line to move the edge of the face to the desired point.

Repeat steps 2 and 3 to make additional adjustments, if necessary.

✓ To remove a marker, right-click on it.



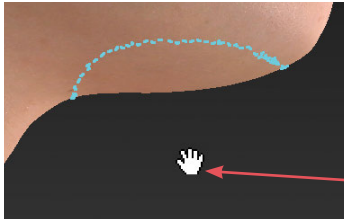
The **free hand warp tool** can be used for shape adjustments to almost any part of the face. Unlike the profile warp tool, a profile view is not required for free hand warp.



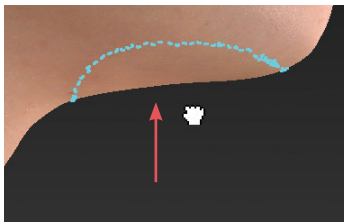
1 Orient the image(s) so that the area you wish to warp is visible.



2 Click the free hand warp tool.




3 Place the cursor (☞) over the image, then click and drag to define the region to be adjusted. Release the mouse button when you are satisfied with the boundary.




4 Position the cursor near the part that you wish to warp (the cursor changes to an ☞ open hand), then click and drag in the desired direction (the cursor changes to a ☞ grabbing hand). Release the mouse button when you are satisfied with the adjustment.

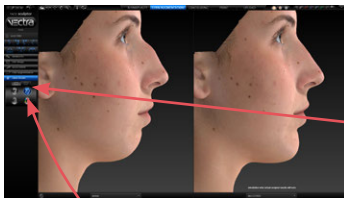
✔ For a stronger effect, click inside the defined area and drag. For a more subtle effect, click outside the defined area and drag.



5.6

 view results


VIEWING THE SIMULATED OUTCOME

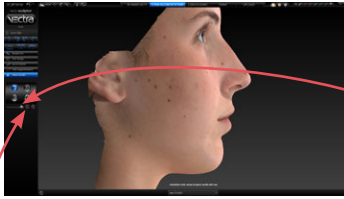
Click the  **view results** navigation button on the left side of the screen to review the simulated outcome in various view modes.






- The initial viewing option displays a side-by-side comparison of the pre-op image (on the left) and the simulated outcome (on the right.) To view in 3 viewports click . Click  to return to two.

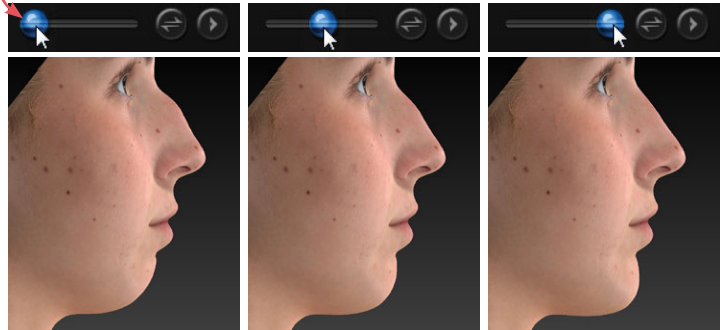
To change the image in one of the viewports, click its name in the bottom bar and select the desired image from the pop-up menu.



To return to this side-by-side view at any time, click .

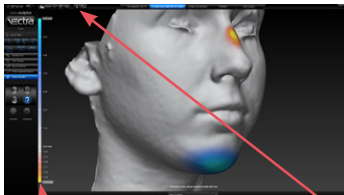
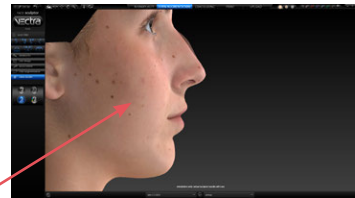


✓ To quickly toggle between the original image and the simulated outcome, click the  toggle button to the right of the slider, or click  to auto-animate the morph.


- To display a single image with a slider for morphing between pre-op and simulated outcome, click .
- Drag the slider bubble to display the original image, the simulated outcome, or any point in between:




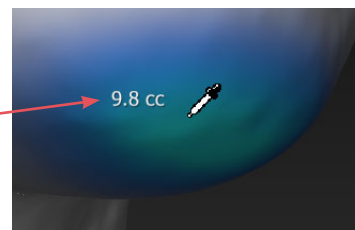
- Click  to view the pre-op image overlaid with a semi-transparent simulated outcome.
- Click  to toggle between showing the pre-op or simulated image opaque.

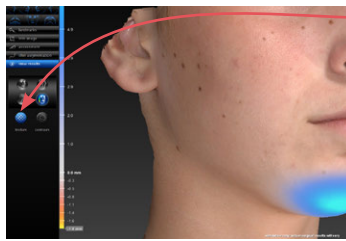



A scale along the left edge of the viewport shows the amount of change associated with each color.

- Click  to generate a color-coded view of the volume differences between the original image and the simulated image. Gray represents unchanged areas, blue represents the greatest increased volume, and yellow represents the greatest decreased volume in the simulated image. Intermediate values are represented by corresponding intermediate colors.

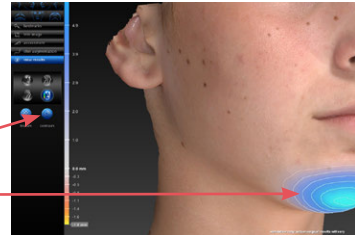
Click  and hover the cursor over modified areas to display the volume difference between the pre-op image and the simulated outcome.







Click  **texture** to show normal skin tone and texture; click again to toggle off.

Click  **contours** to reveal contour lines; click again to toggle off.



- To automatically rotate an image to a preset viewpoint, click one of the rotate-to-view buttons on the left side of the screen.
- To see the image from any viewpoint at any magnification, select one of the adjust viewpoint buttons  at the top of the screen, then click within the image and drag.
- To toggle automatic rotation on or off click  at the top of the screen.


5.7 USING MARKERS AND ADDING NOTES




Sculptor's color markers enable you draw colored lines on the 3D image, useful for communicating with your patient or adding treatment planning notes for future reference. The marker palette is displayed in the upper right corner of the screen.




1 Click a marker button () to select its color (pink, red, purple, blue, green, or black). The button becomes highlighted () and the cursor changes to the selected color marker ().

2 Position the cursor over the desired start point for the line, click and drag to draw a line on the surface of the 3D image, then release the mouse button.

- To draw with a different color, select one of the other marker buttons.
- To erase the most recent stroke, click  **undo** or press **Ctrl-Z** on your keyboard.

- To clear all recently drawn marker lines at once, click . (To toggle visibility, click , then .)



 Erase all mark-ups before applying Sculptor's texture tools (resurface, clone or wrinkle).

The marked up image may be saved as a 3D or 2D image and/or printed or saved in a Sculptor report.




To record your notes and recommendations, click  in the marker palette (upper right corner of screen).

Type in the box, then click **OK**. Content that you enter in the notes box will appear on notes-enabled versions of the printed report (see [5.11 Printing Reports](#)).


 **Notes are only saved to the patient chart if you save a notes-enabled report as a PDF.**

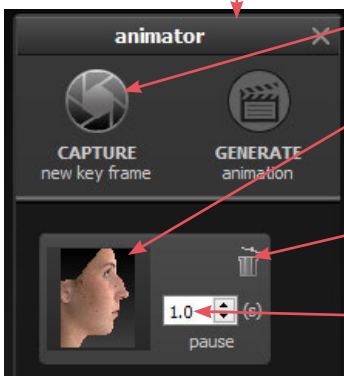
5.8 CREATING A 3D ANIMATION




1 Click  (bottom of the screen) to open Animator.

 Click the Animator title bar and drag to reposition the floating dialog box as needed.

2 Use adjust viewpoint buttons  to orient the image to the rotation and zoom desired for the first frame of the animation.

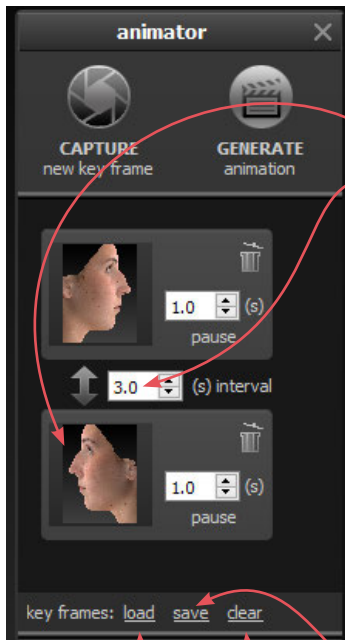


3 Click  **CAPTURE New Key Frame** to save this view as Key Frame 1.

- A thumbnail of the key frame appears in the Animator dialog. If you wish to return the image to this orientation and zoom, click the thumbnail.

- Click the trash icon if you wish to delete this key frame.

- *Optional:* Adjust the amount of time the animation should pause at this key frame.



4 Rotate and/or zoom the image to the next position, and then click **CAPTURE New Key Frame** to save this view as Key Frame 2.

- A second thumbnail appears in the Animator dialog.
- *Optional:* Adjust the interval between key frames.
- Notice that the **GENERATE animation** button is no longer disabled. A minimum of two key frames must be specified to generate an animation.

Repeat step 4 until you have specified all the key frames you wish to include in your animation. Animator will automatically insert the in between frames (“tweens”) to make smooth transitions between the key frames.

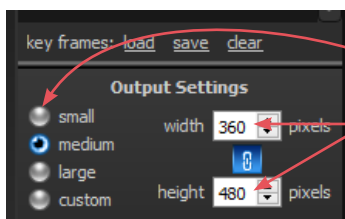
- ✓ If you would like the animation to loop back to Key Frame 1 at the end, click the first thumbnail, then click **CAPTURE New Key Frame**.

Saving key frames (optional)

If you plan to reuse a particular sequence, click **save** after you have specified all the key frames you wish to include in the template. Click **clear** if you wish to delete all of the key frames and start over. Click **load** to automatically generate a saved sequence.

Changing the pixel dimensions (optional)

Pixel dimensions determine how large the animation appears on screen during playback. Increasing the pixel dimensions also increases the size of the file. Smaller file sizes are recommended for web or e-mail.



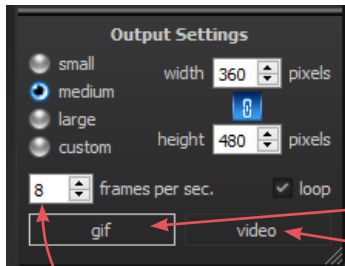
To change the pixel dimensions, select a preset size by clicking the radio button next to **small**, **medium** or **large** (see table on following page), or modify the values in the **width** and/or **height** fields.

- ✓ When **link** is selected, changing one dimension will automatically change the other dimension to maintain the aspect ratio. When **link** is unselected, the aspect ratio may be modified.

Preset output pixel dimensions:

	1 viewport	2 viewports*
small	180 x 240 pixels	360 x 240 pixels
medium	360 x 480 pixels	720 x 480 pixels
large	720 x 960 pixels	1440 x 960 pixels

*The preset pixel width is doubled for 2 viewports.

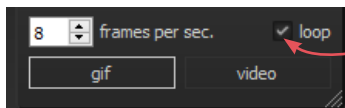


5 Select *type* of animation file to be generated: GIF or MP4 video.

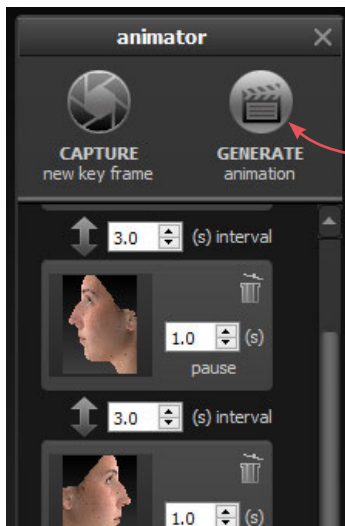
Changing the number of frames per second (optional)

To define the number of frames Animator will insert for each second of playback, modify the value in the **frames per sec.** field. More frames per second will result in smoother transitions, but increase the file size.

- The recommended value for GIF is 8 to 10 FPS (more than 12 is not recommended).
- The recommended value for video is 24 FPS.

**Changing the looping option (optional)**

If the **loop** check box is selected () , the animation will loop continuously. If the **loop** check box is unselected, the animation will play once and then stop. This only applies to GIF animation.



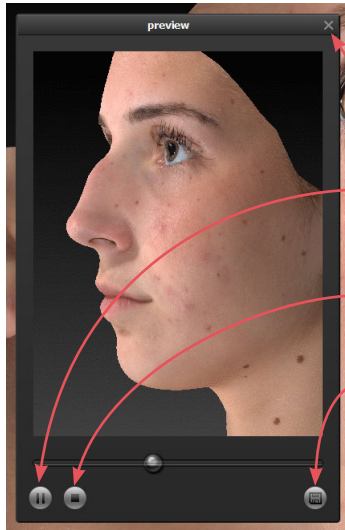
6 Make sure a minimum of two key frames have been specified and desired output settings are selected, then click **GENERATE animation**.

The Animator dialog box retains your specified key frames and settings until you close the image. You may change, for example, the number of open viewports or the view mode from color (textured) to gray (untextured), then generate a new animation.



◀ *Pre-op and simulated images in synchronized 2-viewport animation*

Review and save a GIF animation



The GIF animation is displayed in a floating Preview dialog box.

Clicking the X in the upper right corner of the Preview or Animator dialog closes the box.

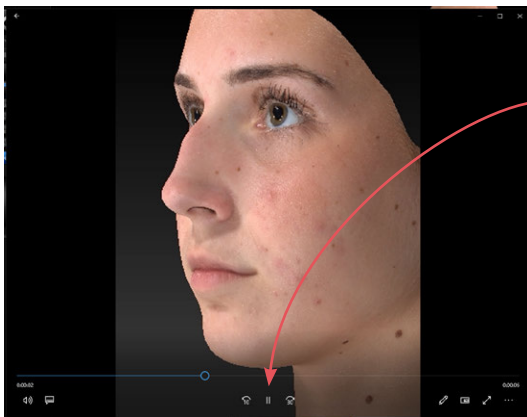
Click to pause playback. The icon changes to .

Click to resume playback.

Click to stop playback. The animation starts at the first frame when resumed.

Click to save the animation into the patient chart as an Animated GIF Image with the file extension, “.gif”.

Review and save a video animation

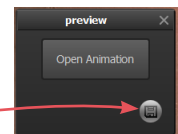


The video animation is displayed in a floating window.

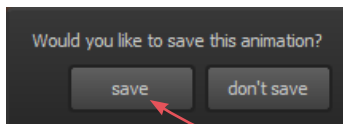
Click to pause playback. The icon changes to .

Click to resume playback.

Click X in the upper right corner to close animation and display Preview dialog box.



Click to save the animation into the patient chart as a video.

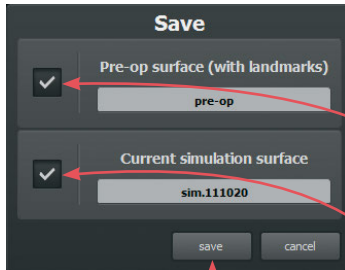


If you close the Preview dialog box (GIF or video) before saving, you will be prompted to save. To retain the generated animation, click **save**.

5.9 SAVING THE SIMULATED OUTCOME



1 Click  **save** (top left corner of the screen) or press **Ctrl-S** on your keyboard.



2 The **Save** dialog opens with automatically generated names for the pre-op image with trimming and/or landmarks and the simulated outcome image.

- To preserve trimming and/or landmarks that have been applied to the pre-op image, make sure the first checkbox is checked.
- To preserve the simulated outcome as a 3D image (.tom file), make sure the second checkbox is checked.
- If you wish to change a file name, highlight the name and type a new name in the field.

3 Click **save** to save the pre-op (if checked) and simulated 3D images into the patient chart.

- ✓ You will be prompted to save or discard the simulated outcome before you exit Face Sculptor.

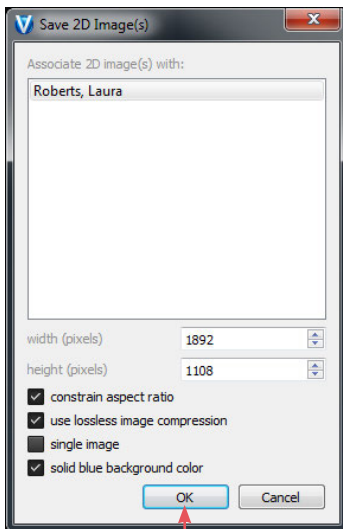
Saving 2D images

Sculptor enables you to save a 2D version of any image that appears on the screen into the patient chart. When the patient chart is opened in Mirror software, 2D images may be exported into PowerPoint presentations or be printed for use during surgery.

1 Make sure the orientation, zoom, and framing of the image(s) on screen reflect the desired 2D image(s).



2 Click **2D** 2D (top left corner of the screen).



3 Select desired image parameters:

- **Constrain aspect ratio** is recommended to avoid image distortion.

- **Lossless image compression:**



Unchecked will produce a compressed JPEG image with smaller file size and loss of quality.



Checked will produce a PNG with larger file size and sharper edges.

- **Single image:** If two or three views are displayed on screen, and **single image** is unchecked, a 2D image of each view will be saved. If checked, a single image of all views will be saved.
- **Solid blue background color:** Check to save 2D image with blue background; uncheck to save with the viewport background color selected in Settings (dark gray/light gray/gradient/solid).

4 Click OK.

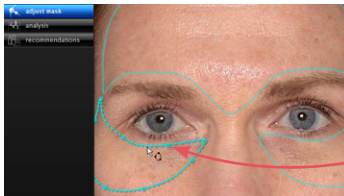
5.10 SKIN ANALYSIS SKIN ANALYSIS

Click the **skin analysis** tab at the top of the screen to open Sculptor's Facial Skin Analysis module.

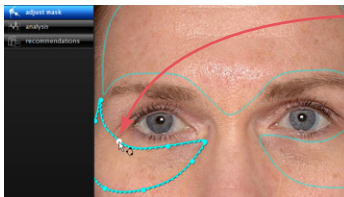
Adjust mask



Sculptor automatically identifies the areas of interest for Wrinkles, Spots, and Pores analysis. Each boundary, or "analysis mask", delineates the area in which Sculptor will perform Facial Skin Analysis for that feature. Each automatically generated analysis mask may be manually adjusted, if necessary.

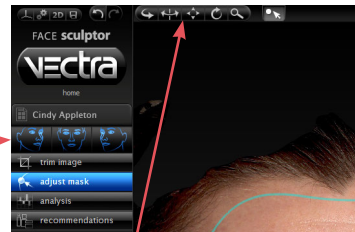


1 Hover over a section of the mask you would like to adjust. That section becomes brighter and the mask points (●) are made visible.



2 Click a mask point and drag to adjust the mask.

- To automatically rotate the images to a preset viewpoint, click one of the rotate-to-view buttons.



- To see the images from any viewpoint at any magnification, select one of the adjust viewpoint buttons (⏪ ⏩ ↺ 🔍) in the top bar, then click within the image and drag.

- Click (🖱️) to continue mask adjustments.

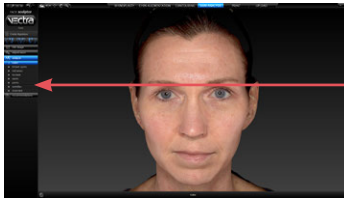


3 Click (📊) **analysis** in the navigation bar to perform analysis and view the Facial Skin Analysis results.

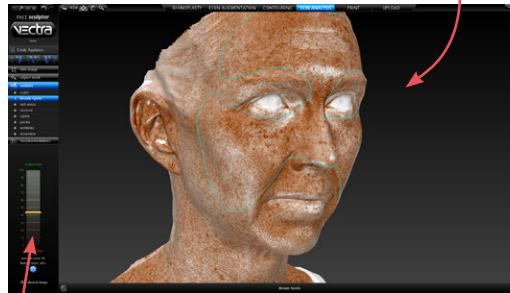
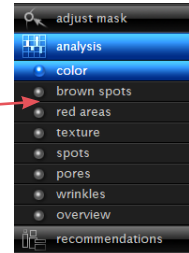
Analysis



1 While analysis is performed, the patient's image is displayed in "color" mode (no analysis) and a progress bar in the lower right corner of the screen shows that analysis is underway.



2 After analysis is complete, click each feature in the navigation bar on the left side of the screen to display results.

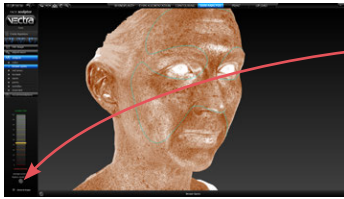


- **Graphs** depict the calculated *score* for each feature on a color-coded scale from 0 to 100. The top/green end of the graph is the highest possible score for the feature being analyzed: *100/excellent skin*. The bottom/red end of the graph is the lowest possible score: *0/needs attention*.

- **Average Score** provides a comprehensive measurement of the impact that the feature has on the client's complexion. *Score* factors in the total size and area as well as intensity of detected instances of the feature being analyzed. *Score* can be used to track treatment progress when the size and intensity of instances of a feature are the most relevant indicators of treatment effectiveness.

NOTE: If "hide analysis scores" was selected in Setup, Average Score and Feature Count will not be displayed.

- **Feature Count** provides a count of the number of discrete instances of the feature being evaluated, without regard to the size or intensity of each instance. *Feature Count* can be used to track treatment progress when a reduction in the number of discrete instances of a particular feature is desired.

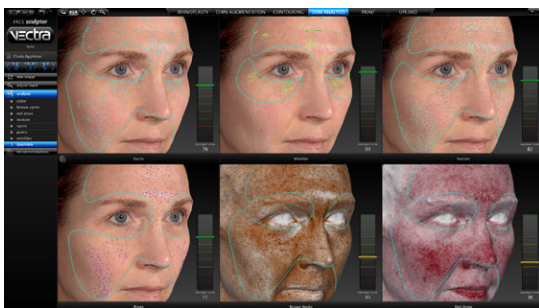


- To view Brown Spots or Red Areas in an alternative lighting mode, click . Click again to toggle off.
- Texture, Spots, Pores and Wrinkles are displayed with an analysis mask overlay to show where each instance of the feature has been identified. The **mask overlay** controls are available as a set of buttons in the lower left corner of the screen.

The analysis mask is on by default, may be turned off (color image only without analysis) or set to blinking (alternating between on and off).



- To display a feature definition, hover over its name in the navigation bar on the left side of the screen.

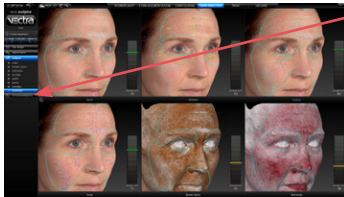



- Click **overview** to display all Skin Analysis features and their scores together on one screen.

Recommendations

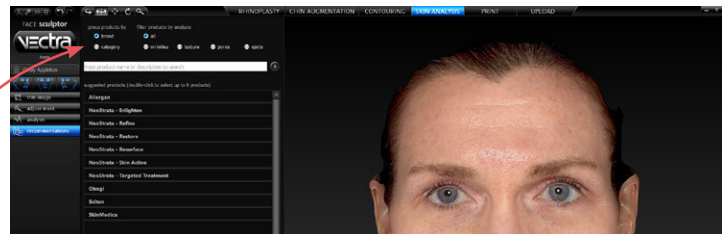
The Product Selector facilitates your recommendations for the specific products and treatments appropriate to skin conditions detected in your client. The products and treatments offered at your location and their attributes are defined during setup.

- ✓ If the Product Recommendations Library has not been configured, no products will appear in the Recommendations screen (see [A.2 Configuring the Product Recommendations Library](#)).



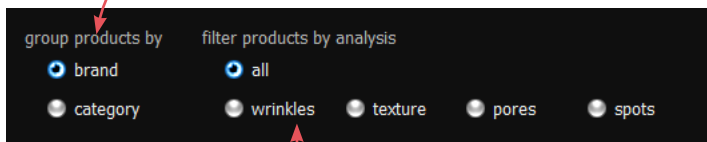
Click  **recommendations** in the navigation bar to select products and treatments.

The Recommendations screen displays the Product Selector alongside an image from the current session.



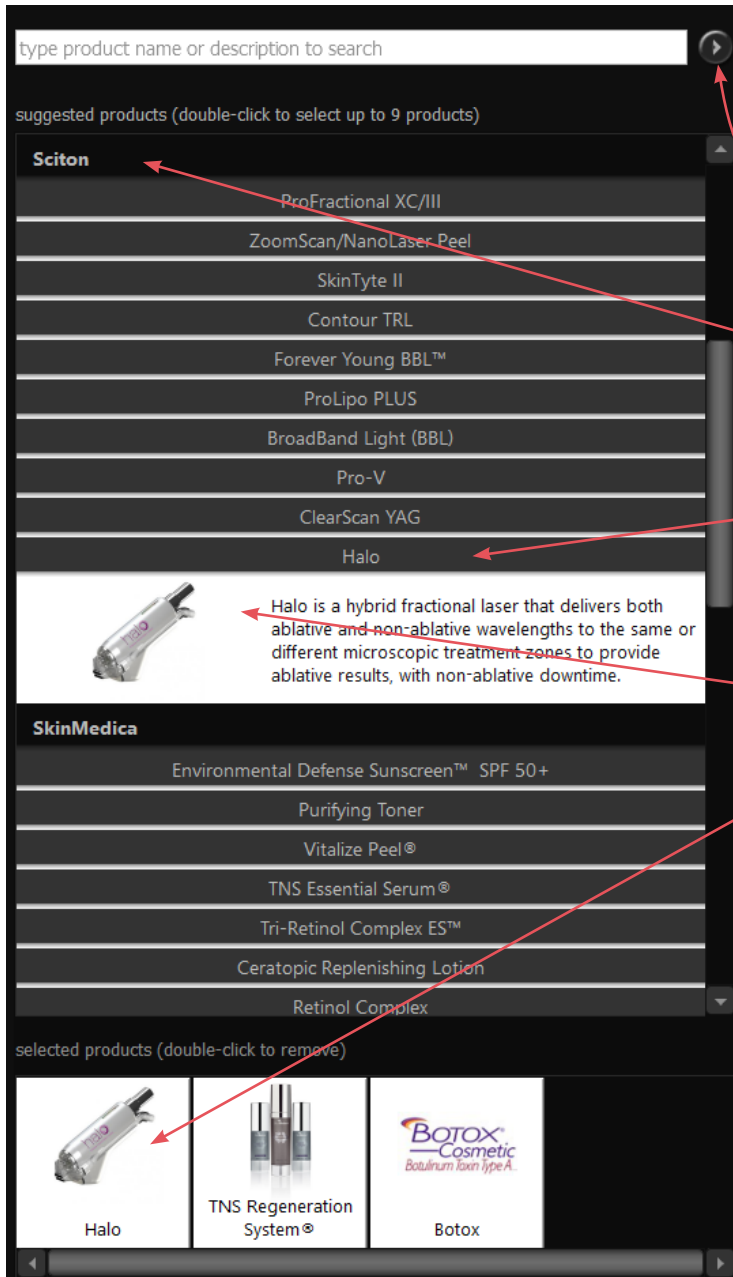
Use the radio buttons above the **suggested products** list to organize and filter products.

Products and treatments may be grouped by **brand** (organized by brand name with individual products listed under their respective brands) or grouped by **category** (organized according to category, such as “Moisturize”, with individual products listed under their respective categories).

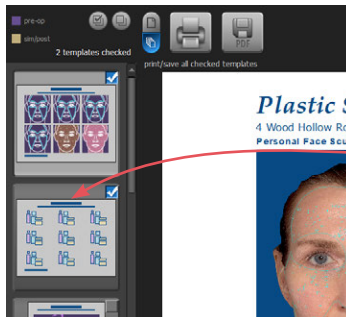


To display only the products which are designated to treat a particular skin feature, select the radio button next to **Wrinkles**, **Texture**, **Pores**, or **Spots**.

- ✓ See [A.2 Configuring the Product Recommendations Library](#) to change the default manufacturer-determined product designations.



- To locate a particular product, click in the search field and type its name or description, then click  to view each instance that matches the search criteria.
- Click a brand or category to display its products. Click again to hide.
- Click a product to display its picture and description. Click again to hide.
- Double-click a product to add it to the **Selected Products** pane at the bottom of the Product Selector. Up to nine products may be selected.
- To remove a product from **Selected Products**, double-click its thumbnail in the Selected Products pane at the bottom of the Product Selector.



Saving a record of your selected recommendations

- 1 Click the **PRINT** tab at the top of the screen to open Sculptor's print dialog.
- 2 Make sure the Product Recommendations template is selected (check mark in the upper right corner of the thumbnail).
- 3 Click **save PDF** to save an electronic version of the selected report(s) in the patient chart.

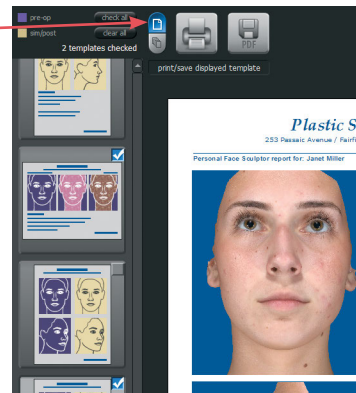
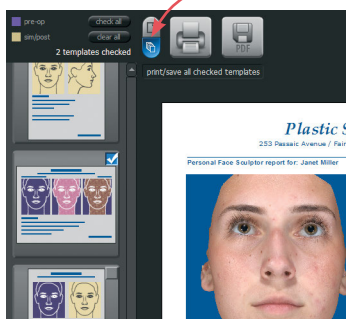
5.11

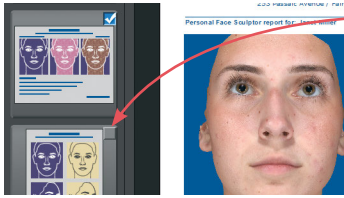
PRINT

PRINTING REPORTS

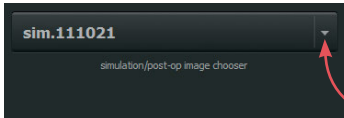



- 1 Click the **print** tab at the top of the screen to open Sculptor's print dialog.
- Thumbnail representations of Face Sculptor's report templates are displayed in the left column. Click on a thumbnail to view a full size preview of that report.
 - If the single print button is selected when **print** or **save PDF** is clicked, only the "current" report template—the one that is shown in the full size preview—is printed/saved. It doesn't matter whether the thumbnail is checked or not.
 - If the multiple print button is selected when **print** or **save PDF** is clicked, only the checked thumbnails are printed/saved. It doesn't matter which report is being currently previewed.
 - ✓ The single/multiple selectors enable you to identify certain report templates as your standard set for Face Sculptor consultations while keeping the standard set intact if a different template, or only one of the templates, is occasionally used.

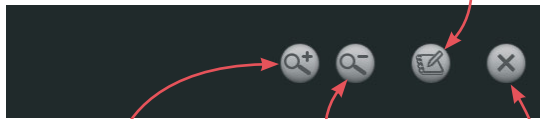




- Click the checkbox (☐) in the upper right corner of a thumbnail to add that template to the report set. Click a selected checkbox (☑) to remove that template from the report set.

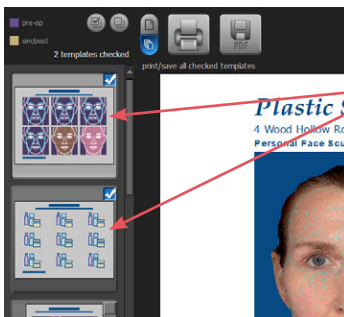


- The most recently viewed simulated outcome is represented in the print reports by default. To print/save a different simulation or post-op image, click the arrow next to the image name at the top of the screen and select the desired image from the drop down menu.
- If you wish your notes and recommendations to appear on the printed report, select a notes-enabled report template (e.g., *2 images, preop & sim, oblique, notes*). Click  **notes** to add or edit your notes and personalized recommendations for treatment.





click **zoom in**
to see a magnified
view of the preview

click **zoom out**
to reduce the magnification
of the preview



- If you wish to print Skin Analysis images and/or product recommendations, make sure the specialized Skin Analysis templates are selected.

2 Click  **print** to open the OS Print dialog and print a paper report, or click  **save PDF** to save an electronic version of the selected report(s).

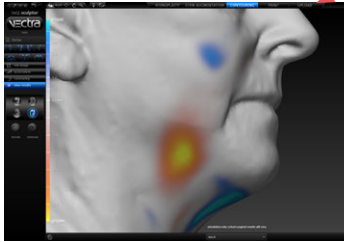
3 To exit Sculptor's print dialog and return to the review screen, click  **close** (top right of screen).

5.12 UPLOAD UPLOADING TO VIEWMYCONSULT.COM*

Facial simulations and/or Skin Analysis can be uploaded to Canfield's secure patient portal, ViewMyConsult.com. Licensed educational materials can also be made available for your patient to review while logged onto the portal.

You may upload current scenarios (up to two) at the end of the consultation, or select a previously saved simulation from a patient chart.

To upload current simulation(s)

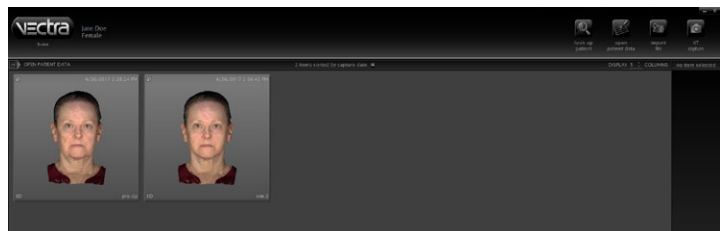


1 Click the **UPLOAD** upload tab at the top of the screen.

2 Complete the steps in [Uploading simulations to ViewMyConsult.com](#) below.

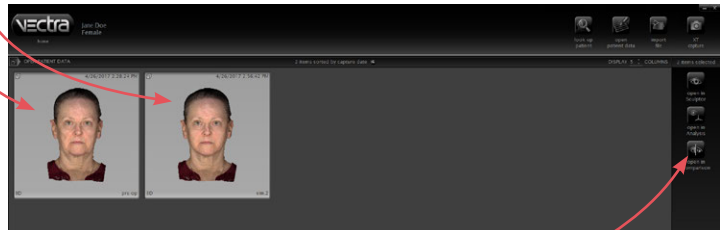
To upload previously saved simulations

1 Open the patient chart that includes the images you wish to upload to ViewMyConsult.com (see [3.2 Finding a Patient Chart](#)).



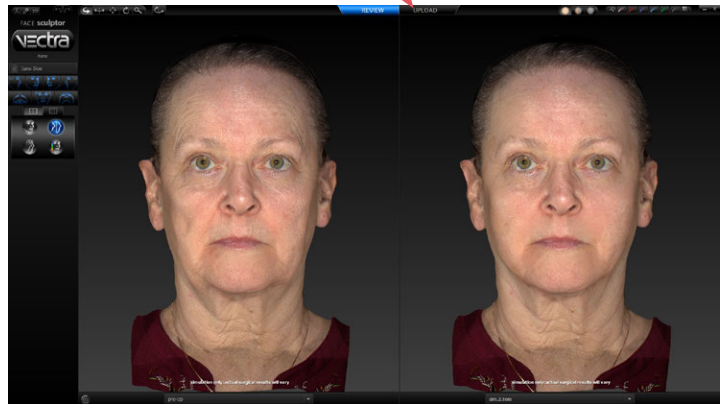
*Not available in every country. Only available to users with current Support & Upgrade contract.

- 2 Click to select the thumbnail for the first time point, then Shift-click to select the corresponding simulation (or Ctrl-click to select a discontinuous thumbnail).



- 3 Click  open in Comparison.


- 4 Click the **UPLOAD** upload tab at the top of the screen.



- 5 Complete the steps in [Uploading simulations to ViewMyConsult.com](#) below.

Uploading simulations to ViewMyConsult.com

1 Verify practitioner name and patient email address

- Make sure the correct practitioner is selected. (Click  to refresh list, if needed.)
- Make sure the patient's email address is correct.
- Re-enter the patient's email address.

The "Select availability of patient education materials" pane appears only if you are licensed to use Electronic Procedural Brochures from The American Society of Aesthetic Plastic Surgery.

2 Select availability of patient education materials


- If you are licensed to use Electronic Procedural Brochures from ASAPS, a selection form appears beneath the Patient Details pane. Check the materials you wish to make available to this patient while logged into ViewMyConsult.com.

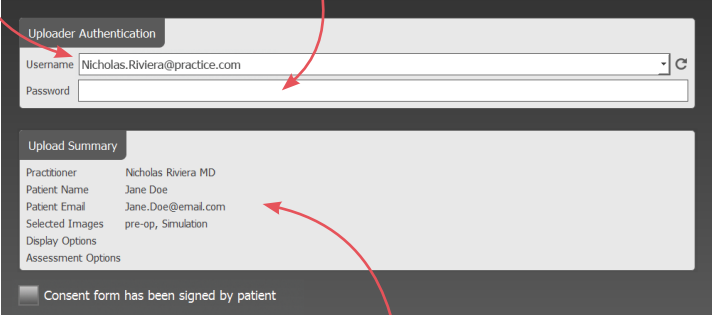
3 Select images to upload (if 2 scenarios are available)

- Both scenarios are selected by default. Uncheck a simulation if you do not wish to make it available.
- Select the simulation to be displayed when the portal is first opened. Simulation 1 is selected by default.


4 Click Next (upper right corner of screen).

5 Authenticate

- Make sure the correct Username is selected. (Click  to refresh list, if needed.)
- Enter the password for the selected Username, if requested.



Uploader Authentication

Username: Nicholas.Riviera@practice.com 



Password:

Upload Summary

Practitioner	Nicholas Riviera MD
Patient Name	Jane Doe
Patient Email	Jane.Doe@email.com
Selected Images	pre-op, Simulation
Display Options	
Assessment Options	

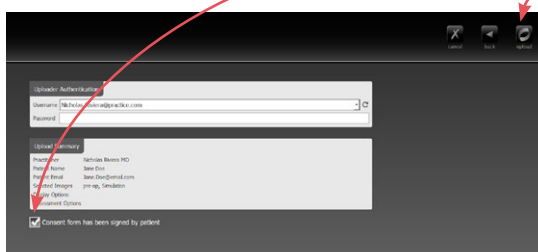
Consent form has been signed by patient

6 Review upload summary


- Review the upload summary information. If a change is needed, click  **back** (upper right corner of screen), make adjustments as needed, then click  **next**.

7 Obtain patient consent

- After the patient has signed the patient consent form, click the check box next to **Consent form has been signed by patient**.



Uploader Authentication

Username: Nicholas.Riviera@practice.com 

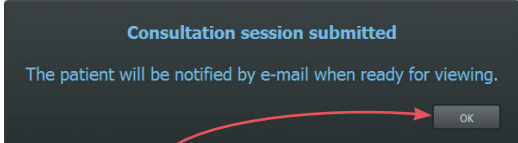
Password:

Upload Summary

Practitioner	Nicholas Riviera MD
Patient Name	Jane Doe
Patient Email	Jane.Doe@email.com
Selected Images	pre-op, Simulation
Display Options	
Assessment Options	

Consent form has been signed by patient

- 8 Click  **upload** (upper right corner of screen).



Consultation session submitted

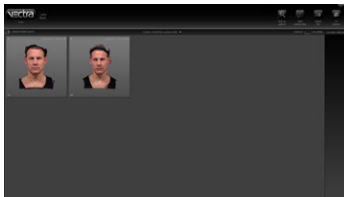
The patient will be notified by e-mail when ready for viewing.

- 9 Click **OK** in the confirmation message. The previous consultation screen is displayed.

5.13 REVIEWING PREVIOUSLY CAPTURED IMAGES AND SIMULATIONS

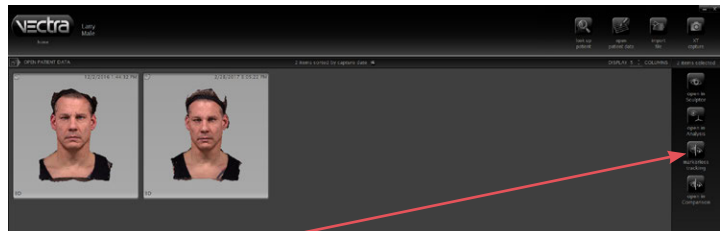
Markerless Tracking provides a dynamic assessment of skin surface changes. After automatically aligning a pair of 3D images, the skin surfaces are tracked and mapped. Colored vector arrows provide a precise indication of the direction and magnitude of skin movement, which is ideal for encouraging future treatments by showing patients their personal improvement results, confirming patient improvements with detailed evidence of treatment results, and educating through the review of outcomes and technique refinement.

Performing Markerless Tracking



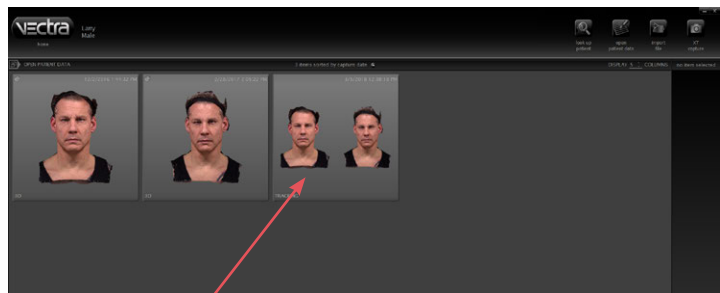
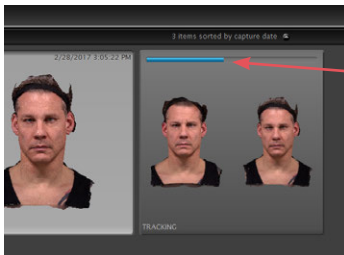
1 Open the patient chart that includes the images you wish to review (see [3.2 Finding a Patient Chart](#)).

2 Click to select two thumbnails for automated markerless tracking. Select the earlier time point first, then Shift-click to select the second thumbnail (or Ctrl-click to select a discontinuous thumbnail).



3 Click  markerless tracking.

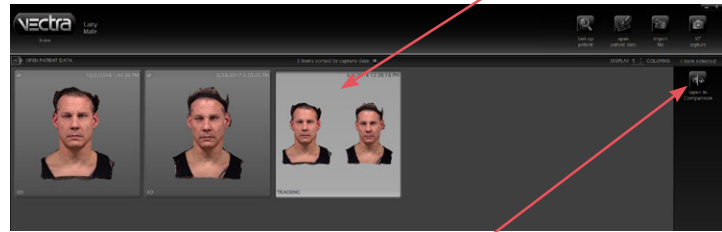
A progress bar is displayed as VECTRA performs automated markerless tracking on the selected images.



A new thumbnail representing the tracked images is created in the patient chart.


Reviewing tracked images in Comparison Mode

1 Click to select the tracked images thumbnail.




2 Click  open in Comparison.




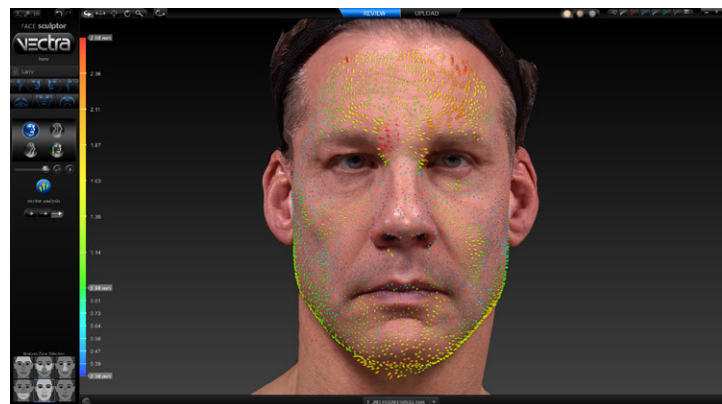
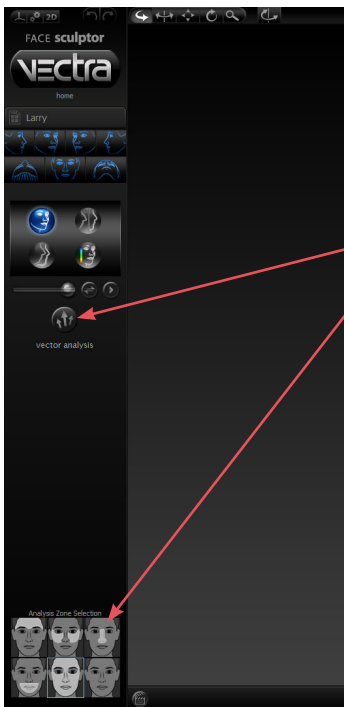
The initial viewing option displays a side-by-side comparison of the tracked images. To return to this side-by-side view at any time, click .

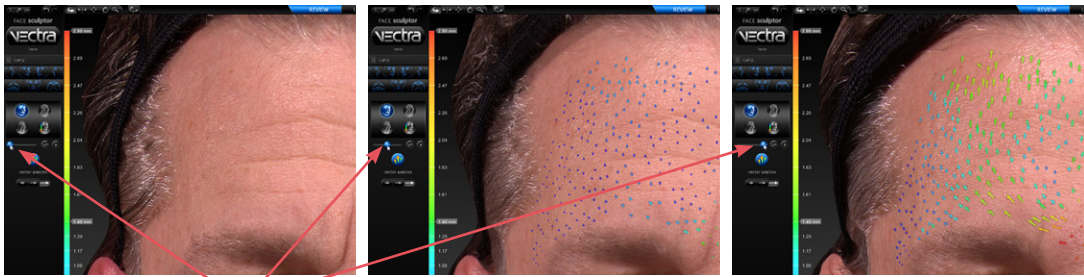
See [5.6 Viewing the Simulated Outcome](#) for Face Sculptor view modes. This section covers viewing options that are only available with tracked images.

To display the tracked images superimposed with a slider for morphing between the two, click .

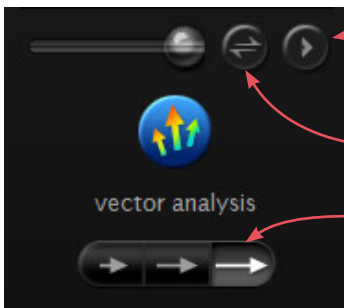


To display the colored vector arrows, click  **vector analysis**. To select analysis zone(s), click icon for desired zone; click again to deselect.





Drag the slider bubble to display the image and vector arrows for the earlier time point, later time point, or any point in between.



Click to auto-animate the morph.

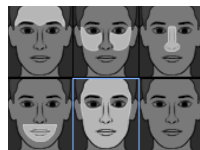
Click to quickly switch between time points.

Click one of the buttons to decrease or increase the size of the vector arrows.

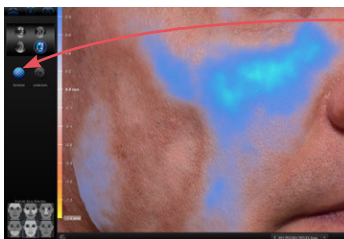


Click to generate a color-coded view of the volume differences between the images. Blue represents the greatest increased volume and yellow represents the greatest decreased volume between the two images. Intermediate values are represented by corresponding intermediate colors.

A scale along the left edge of the viewport shows the amount of change associated with each color.

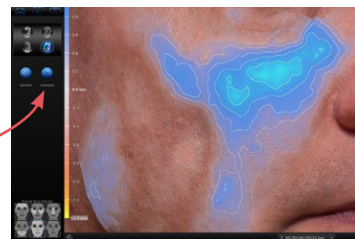


To select analysis zone(s), click icon(s) in the lower left corner of the screen; click again to deselect.



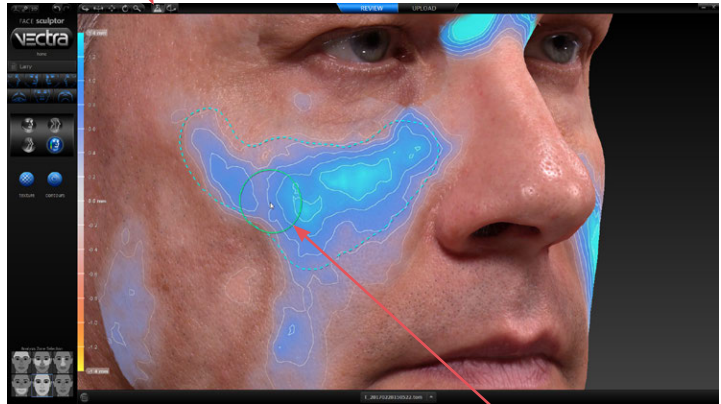
Click **texture** to show normal skin tone and texture; click again to toggle off.


Click **contours** to reveal contour lines; click again to toggle off.



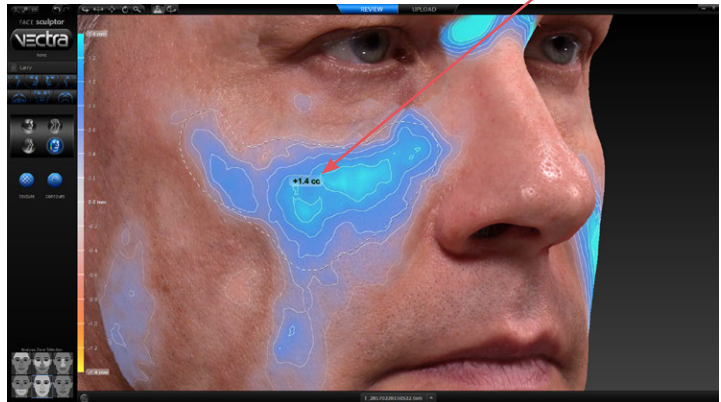
Measuring the volume difference

1 Click  in the top bar.



2 Click in the image area and drag the  brush to define the area you wish to measure.

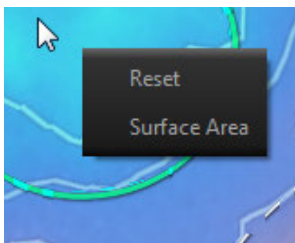
3 Release the mouse button to view the measurement.



✓ Click and drag again to add to the defined area. Each time the mouse button is released the measurement is updated.



✓ Right-click within the defined area to select

- **Reset** (remove defined areas) or
- **Surface Area** (display change in surface area, instead of volume difference).



5.14 CUSTOMIZING FACE SCULPTOR



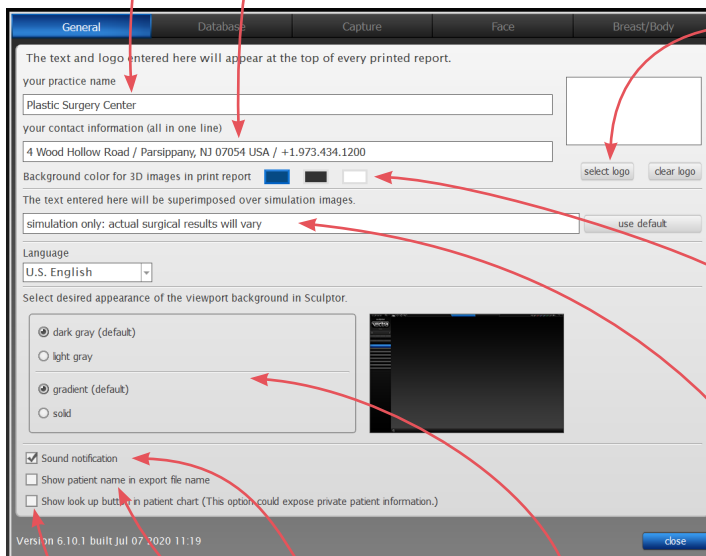
Click  **preferences** (top left corner of the screen) to open the preferences dialog box or click  **setup** from the VECTRA home screen.

1 GENERAL tab

- Enter your name or the name of your practice as you wish for it to appear at the top of every printed report.

- Enter your contact information, such as address, phone number, website. This will appear at the top of every printed report, below your practice name.

- ✓ The Practice Name field and the Contact Information field can each contain one line of text. Print a test to make sure your information fits the template.



- To add your logo to the top of every printed report, click **select logo**, browse to the .png, .jpg or .jpeg you wish to use, click **Open**. A thumbnail of your logo appears in the box.

- Click to select a different background color for 3D images in printed reports (default color is blue).

- If desired, modify or delete the disclaimer that is displayed over simulations.

- If desired, change the viewport background.

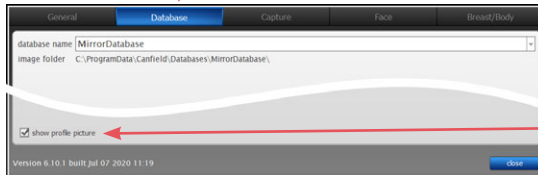
- If desired, click to turn off sound notification.

- If desired, select checkbox to show patient name in export file name.

- If desired, select checkbox to make the “look up” button available in patient chart. ⚠ This option could expose private patient information.

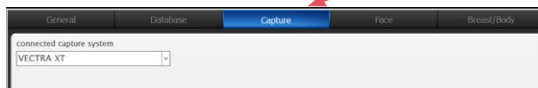
2 DATABASE tab

- Click on the **Database** tab if you wish to switch to a different database.



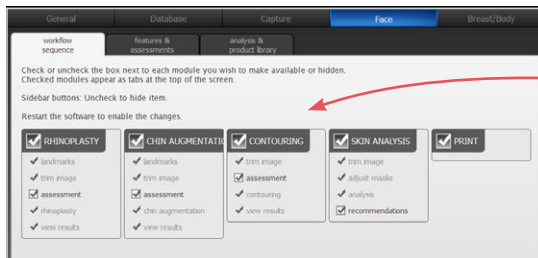
- Each patient's profile picture is displayed in the Look Up Patient search results. To hide profile pictures in search results uncheck **show profile picture** in the lower left corner of the dialog.

3 CAPTURE tab



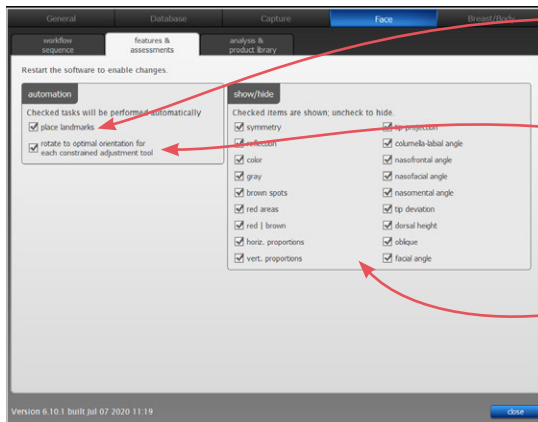
- Click on the **Capture** tab if you wish to change the connected capture system.

4 FACE tab—workflow sequence



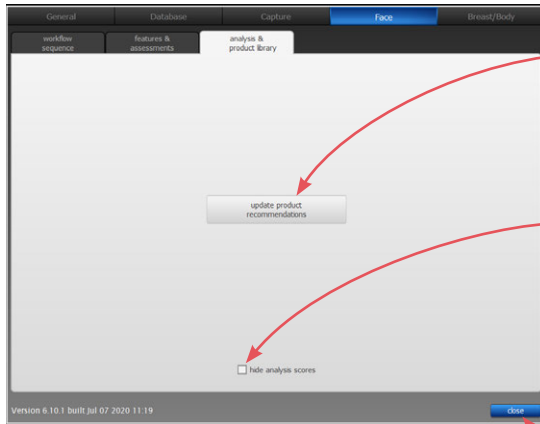
- Select or deselect the modules you wish to be displayed. *These changes take effect after you close and reopen Sculptor.*

5 FACE tab—features & assessments



- Uncheck “place landmarks” if you wish to turn off automatic placement of landmarks.
- Uncheck “rotate to optimal . . .” to disable automatic rotation to optimal orientation when you select a constrained rhinoplasty or chin augmentation adjustment tool.
- show/hide** Uncheck to disable some or all of Face Sculptor's assessment diagrams and modes (see [5.3 Assessment](#)).

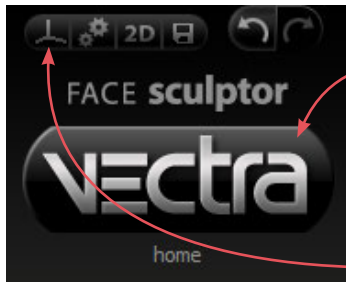
6 FACE tab—analysis & product library



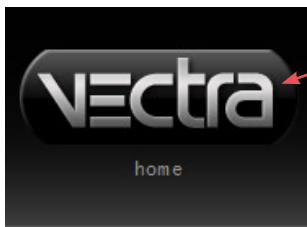
- Click the **update product recommendations** button to edit the Product Recommendations Library. See Appendix A, [A.2 Configuring the Product Recommendations Library](#).
- If desired, select “hide analysis scores” checkbox to hide all Skin Analysis numeric scores.

After you have made your selections, click the **close** button to apply.

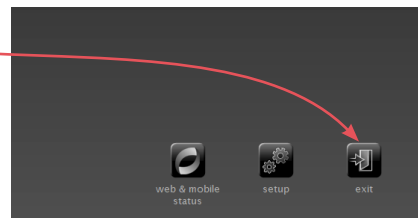
5.15 EXITING FACE SCULPTOR



- To close Face Sculptor and display the VECTRA patient chart, click the VECTRA logo in the upper left corner of the screen or click the **X** in the upper right corner of the screen.
- To close Face Sculptor and display the current image in VECTRA Analysis Module, click **home** in the upper left corner of the screen.



- To exit VECTRA software completely, click the VECTRA logo from a patient chart to return to the home screen, then click **exit** in the lower right corner of the screen.



CHAPTER 6

VECTRA Analysis Module (VAM) Overview

The VECTRA Analysis Module may be accessed from the VECTRA Patient Chart (see [Chapter 3: The VECTRA Patient Chart](#)) or it may run as a module within Mirror® imaging software (see [7.1 The Mirror Patient Chart](#)).

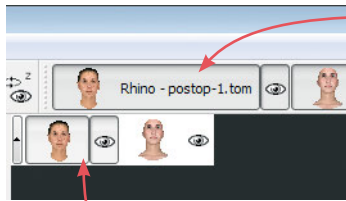
NOTE: The term “surface” refers to any 3D object, image, or part of an image displayed in a viewport.

6.1 THE VECTRA ANALYSIS MODULE SCREEN



Surface View Selector

The Surface View Selector controls the selection (whether the image is active) and visibility of the open image. Each open image is controlled by its own Surface View Selector.

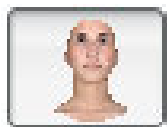


A *master* Surface View Selector for each open image is located at the top of the screen on the toolbar. Changes in a master Surface View Selector will affect its image in *all* viewports.

The visibility of the master Surface View Selector(s) is controlled by checking or unchecking **Preferences ▶ Show ▶ Surface View Selector**.

The master Surface View Selector(s) may display the name of the image (“surface”) next to or below the image icon (see [6.12 The Preferences Menu, Surface View Selector](#) for more on hiding/displaying Surface View Selector features).

A *viewport* Surface View Selector for each open image is located in the upper left corner of each viewport if **show selector in each viewport** is checked (**Preferences ▶ Surface View Selector ▶ show selector in each viewport**). Changes in a viewport Surface View Selector will affect only its image in *that* viewport. When “show selector in each viewport” is checked, the viewport selector(s) may be retracted or extended by clicking the arrow next to the selector(s).



active image



inactive image

The left side of the Surface View Selector contains an iconic representation of the image that it controls. When it appears selected (pressed), the image is active. When it appears deselected, the image is inactive and appears translucent in the viewport (if it is visible).

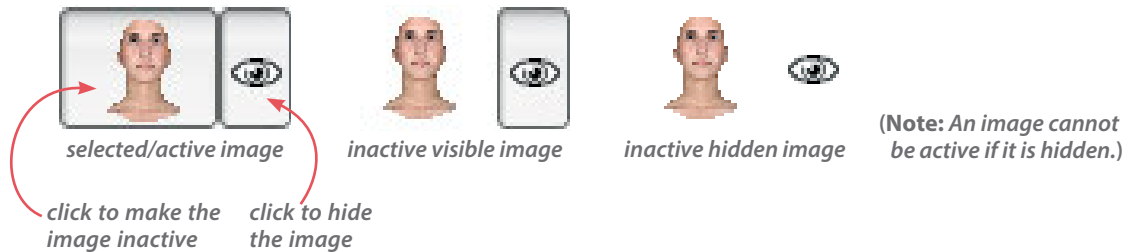


visible image



hidden image

























The right side of the Surface View Selector controls the visibility of its image. When the eye appears selected (pressed), the image is visible. When the eye appears deselected, the image is hidden.









6.2 TOOLBARS

Horizontal toolbar buttons

	import	import 3D object from directory location
	snap view	snap grid to nearest 90° alignment
	rock view	rotate viewport 1 back and forth continuously
	smooth shading	view image with smooth shading
	flat shading	view image with flat shading
	wireframe	view image in wireframe
	outline view	view image outline only
	textured	view image with texture (looks like skin)
	textured + lit	view image with texture + artificial light
	untextured	view image only—no texture (looks like clay)
	color by distance	view false color map (if created)
	perspective	perspective (with depth) view
	orthographic	orthographic (flat) view
	1 viewport	show 1 viewport
	2 viewports (vertical split)	show 2 viewports with vertical split
	2 viewports (horizontal split)	show 2 viewports with horizontal split
	4 viewports	show 4 viewports
	6 standard views	generate 6 standard + 2 custom views
	show axis grid	turn on all axis grids (x, y, z)

	highlight selected views	outline selected images
	brush size selector	choose size of Area Selection brush
	Face Sculptor®	switch to Face Sculptor 3D aesthetic simulation
	Body Sculptor®	switch to Body Sculptor 3D aesthetic simulation
	Breast Sculptor®	switch to Breast Sculptor 3D aesthetic simulation
Viewport Extras toolbar buttons This set of buttons becomes available by selecting Preferences ▶ Show ▶ <input checked="" type="checkbox"/> Viewport Extras .		
	side-by-side	show one image in each of two viewports
	synchronize viewports	lock/unlock synchronization between viewports
	spin X	spin point-of-view around X axis only
	spin Y	spin point-of-view around Y axis only
	spin Z	spin point-of-view around Z axis only
Vertical toolbar buttons		
	select views	select image in viewport
	spin	spin point-of-view
	pan	pan point-of-view right, left, up, or down
	zoom	zoom point-of-view (increase/decrease magnification)
	roll	roll point-of-view
	dolly zoom	move closer to image
	contra zoom	zoom with perspective distortion
	paint area selection	select area by painting over the image
	erase area selection	subtract from selection by painting over selected area
	open loop points	draw a curved line by clicking a series of points
	closed loop points	select area by clicking points around its perimeter
	select area by lasso	select area by drawing a line around its perimeter
	erase area by lasso	draw over selected area to subtract from selection
	box crop	draw a box and delete everything outside of it

	spin active surfaces	spin image spatial orientation
	pan active surfaces	pan image spatial orientation
	roll active surfaces	roll image spatial orientation
	place landmarks	place landmarks on image
	select landmarks	select placed landmarks (hold shift key for multiple)
	circumference	measure the circumference of a surface

Point-of-view

The direction from which the image is viewed. The image retains its spatial orientation relative to the axis grid as the point of view moves (see [6.10 The Surface Menu](#)). Tools of this type move the axis grid *and* the image, and are identified by an eye:

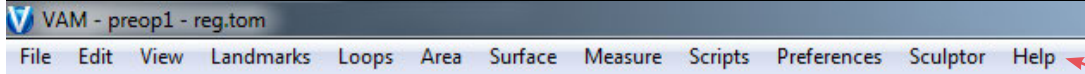


Spatial orientation

The viewing direction remains the same and the image moves relative to the axis grid (see [6.10 The Surface Menu](#)). **This action changes the spatial orientation of the image and will nullify registration of images if the change is saved.** Use only as directed and in the manner described. Tools of this type are identified with a cube:



6.3 ABOUT THE MENUS




The following sections briefly describe all of the commands that may appear in the main menu. Many of the functions provided in the menus are also available in the toolbars. Available keyboard shortcuts are noted [in **brackets**].

6.4 THE FILE MENU


Open Patient Chart... [Ctrl + O]

(only if opened from Mirror)

View the current patient's chart in Mirror (see *Mirror User Guide*, Chapter 7). Click  arrow in upper right corner of the screen to return to VAM.


Search for Patient... [Ctrl + Q]

(only if opened from Mirror)

Locate a patient record in Mirror's **Patient Search** tab (see *Mirror User Guide*, Chapter 7). Click  arrow in upper right corner of the screen to return to VAM.

Search for Images...

(only if opened from Mirror)

Locate an image in Mirror's **Image Search** tab (see *Mirror User Guide*, Chapter 7). Click  arrow in upper right corner of the screen to return to VAM.

Import...

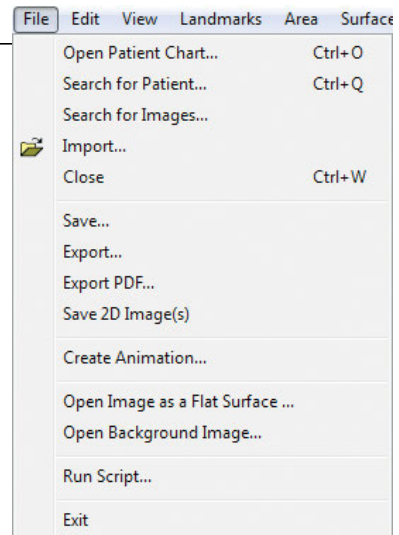
Import 3D files (with suffixes .obj, .stl, .tsb, or .tom): Browse to the desired file, select it, and click **Open**. The image opens in VAM.

Close [Ctrl + W]

Close active image(s).

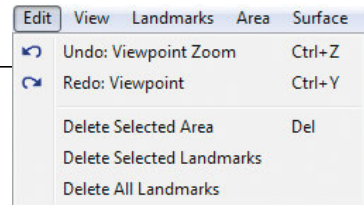
Save...

Opens a dialog box that enables the user to enter a new name for an image that has been captured, imported, or altered. A thumbnail with the new name will be added to the open **Patient Chart**.



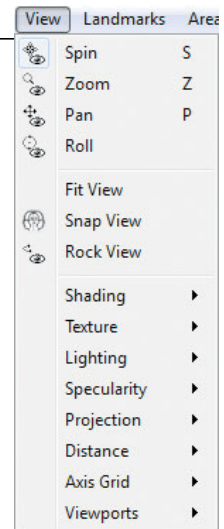
Export...	Exports the active image as a .tom file to the selected directory location.
Export PDF...	Exports the active image(s) as a 3D PDF file to the selected directory location.
Save 2D Image(s)	The current view in each viewport is saved as a two-dimensional image in the currently open Patient Chart.
Create Animation...	Opens the Animator dialog for creating an Animated GIF Image with the file extension, “.gif”.
Open Image as a Flat Surface...	Opens a two-dimensional image (.png, .jpg, or .jpeg) as a flat surface in the plane selected.
Open Background Image...	Opens a two-dimensional image (.png, .jpg, or .jpeg) as the background/wallpaper for the viewport.
Run Script...	Enables the user to run pre-configured scripts.
Exit	Closes VECTRA Analysis Module and returns the user to the patient chart.

6.5 THE EDIT MENU



Undo [Ctrl + Z]	Undoes the last action (in this example, undo Viewpoint Zoom).
Redo [Ctrl + Y]	Enables the user to redo the last action that was undone (in this example, redo Viewpoint).
Delete Selected Area	Deletes the area of the image that has been selected.
Delete Selected Landmarks	Deletes landmarks that have been selected.
Delete All Landmarks	Deletes all landmarks, regardless of whether they are selected or not selected.

6.6 THE VIEW MENU



Spin, Pan, and Roll enable the user to change the point of view without moving the image in relation to the axis grid.

These tools move the image *and* the grid; the image is locked in its spatial orientation relative to the axis grid.

- ✔ This operation is different from the Spin (Pan or Roll) Active Surfaces operation which moves the spatial orientation of the image in relation to the axis grid (see [6.10 The Surface Menu](#)).



Spin [S]

Rotates the image freely in any plane.
[**Alt + left mouse button** temporarily enables the Spin tool.]



Zoom [Z]

Increases or decreases the magnification of the image: Click in the image and drag up (to decrease) or down (to increase), or rotate the scroll wheel on the mouse (if your mouse has this feature).



Pan [P]

Moves the image left, right, up, or down within the viewport—x and y axes only. [**Alt + right mouse button** temporarily enables the Pan tool.]



Roll

Rotates the image in the XY plane.

Fit View

Changes the magnification of the image to the maximum size that will fit within the Viewport.




Snap View





Automatically moves/rotates the image to the nearest 90-degree alignment.







Rock View

The image(s) in viewport 1 continuously rotate back and forth (side to side) by approximately 45 degrees in each direction. Click  **Rock View** (in the toolbar or menu selection) to stop the rotation.

Shading ▶

-  **Smooth Shading**—This is the default view. When viewed in this mode, the image geometry is smoothed to create a more aesthetically pleasing appearance.
-  **Flat Shading**—Displays the image as flat-sided polygons representative of raw capture data.
-  **Wire Frame**—Displays the image as the geometric triangles that comprise the image. This view may be used to understand the image in greater detail.
-  **Show Outline Only**—Only the outline of the image is displayed (to demonstrate contour lines).

Texture ▶

-  **Textured**—This is the normal view, the image as originally captured or imported. Skin color and texture are visible.
-  **Textured + Lit**—Adds artificial lighting, such as shadows or highlights, for a clearer view of targeted areas. To *change* the lighting, use the **Lighting** options explained in the next section.
-  **Untextured**—Removes color texture detail leaving an image that visually represents the geometric data.
-  **Color by Distance**—Displays the results of the Color Surface by Distance tool (see [Using “Color Surface by Distance”](#) in section 8.1) if it has been previously executed for the selected image(s).

Lighting ▶

This feature works in conjunction with **Textured + Lit** (*see above*). Four Lighting options are available.*

classic—Adds artificial lighting as if one light is shining on the image from the front, top, left side.

front 2 top light—Adds artificial lighting as if two lights are shining on the image from the top. This is the default light setting.

front light—Adds artificial lighting as if one light is shining on the image from the front.

*Additional Lighting sources and/or Specularity options may be defined as needed—contact Canfield Scientific, Inc..

front top light—Adds artificial lighting as if one light is shining on the image from the top.

vectra3face—Lighting used in Face Sculptor.

vectra3torso—Lighting used in Body/Breast Sculptor.

capture lighting—Lighting used when image was captured.

Specularity ▶

This feature works in conjunction with **Untextured** and **Lighting** (*see above*). Four Specularity options are available.*

Matt—Displays the image in a matte finish. This is the default specularity setting.

Slightly Shiny—Displays the image in a slightly shiny finish.

Medium Shiny—Displays the image in a moderately shiny finish.

Shiny—Displays the image in the maximum shiny finish.

Projection ▶

The image may be viewed with or without depth.



Perspective—Provides depth to the image.



Orthographic—Displays the image as if it were flat.

Distance ▶

Two ways to zoom the user's point of view in relation to the image.



Dolly Zoom—Gives the effect of the viewer moving closer to or farther from the image. To dolly zoom, click in the image and drag up to move farther from the image or drag down to move closer to the image.



Contra Zoom—Zooms the point-of-view with perspective distortion (the rear of the image remains in place while the front of the image moves toward the viewer).

**Additional Lighting sources and/or Specularity options may be defined as needed—contact Canfield Scientific, Inc..*

Axis Grid ▶



Show Axis Grids [G]—Display (or hide) the three-dimensional axis grids for all planes.



Show XY Plane—Show/hide the grid in the XY plane.



Show YZ Plane—Show/hide the grid in the YZ plane.



Show ZX Plane—Show/hide the grid in the ZX plane.

Viewports ▶

Five presets enable simultaneous display of different images, or different views of the same image.



1 Viewport—A single viewport is displayed.



2 Viewports—Two viewports are displayed side-by-side vertically.



2 Viewports—Two viewports are displayed side-by-side horizontally.

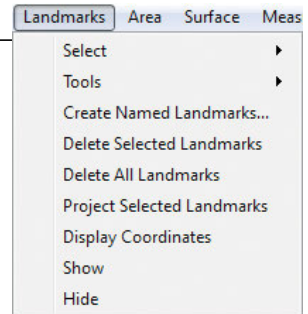


4 Viewports—Four viewports within a 2 x 2 grid.



6 Standard Views—Eight viewports within a 2 x 4 grid (six standard views and two custom views).

6.7 THE LANDMARKS MENU



Measurements are based on landmarks: significant user-defined points on the image.

Select ▶

All—Select all landmarks.

None—Deselect all landmarks.

Tools ▶



Place Landmarks—Create auto-numbered landmarks.



Select Landmarks—Select previously created landmarks. To select multiple landmarks, press and hold the **Shift** key after the first landmark selection.



[Ctrl] toggles between selection and deselection of landmarks, as well as between the placement of landmarks and the deselection of landmarks. For example, press the **Ctrl** key while using Place Landmarks to deselect a previously placed landmark.

Create Named Landmarks...	Opens the Named Landmarks window for placing landmarks that are assigned and named according to a preset list and are then used to generate a pre-defined set of calculations.
Delete Selected Landmarks	Deletes landmarks that have been selected. (The same command is available from the Edit menu.)
Delete All Landmarks	Deletes all landmarks, regardless of whether they are selected or not selected.
Project Selected Landmarks	Project selected landmarks onto a different image. <input checked="" type="checkbox"/> Landmarks can be properly projected only onto an image that has already been registered to the image on which the landmarks were created.
Display Coordinates	The values for the X, Y, and Z coordinates for all selected landmarks are displayed in the Log window.
Show	Show all previously hidden landmarks.
Hide	Hide all landmarks.

6.8 THE LOOPS MENU

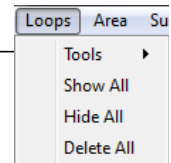
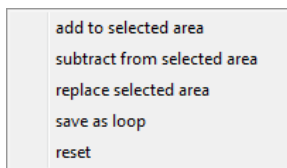
Tools ▶



Pick Multiple Points for Open Loop— Draw a smooth curved line by clicking a series of points.



Pick Multiple Points for Closed Loop— Select a smooth curved area by clicking points around its perimeter. Click counter-clockwise to select area inside, clockwise to select area outside of the perimeter. Then right-click and choose “add to selected area” to create a marked area, or “subtract from selected area” to erase this area from an existing marked area.



Show All

Show all loops that have been saved with names.

Hide All

Hide all loops that have been saved with names.

Delete All

Delete all loops that have been saved with names.


6.9 THE AREA MENU

Select ▶


All—Select all active image areas.

Clear—Deselect all image areas.


Inverse—Inverse the selected areas: The areas of the image that were not selected become selected and vice versa.


Extend Using Landmarks—A selection method: Click  **place landmarks** and then click at several points around the perimeter of the area you wish to select. Select **Area ▶ Select ▶ Extend Using Landmarks**. The landmark dots are connected and filled in as a selection.


Reduce Using Landmarks—Subtract from the selected area by defining a series of landmarks to create the shape that should be deselected.


-  If the landmarks are placed in a clockwise order, the area outside of the shape will be selected/deselected. If the landmarks are placed in a counter-clockwise order, the area inside of the shape will be selected/deselected.

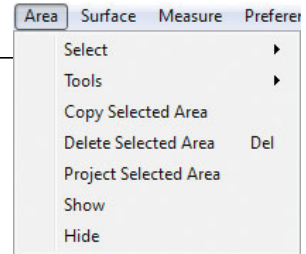
Tools ▶

 **Paint Area Selection**—Select area by painting over the image.

 **Erase Area Selection**—Subtract from selection by painting over selected area.

 **Select Area By Boundary**—Select area by drawing its boundary. Drawing in a counter-clockwise direction selects the area inside of the shape. Drawing in a clockwise direction selects the area outside of the shape.

 **Erase Area By Boundary**—Draw boundary of an area to subtract from selection. Drawing in a counter-clockwise direction subtracts the area inside of the shape. Drawing in a clockwise direction subtracts the area outside of the shape.



- ✓ [Ctrl] toggles between the Paint and Erase functions of Area Selection, as well as between the Select and Erase functions of Area By Boundary. For example, press the **Ctrl** key while using Paint Area Selection to temporarily switch to Erase Area Selection.

Copy Selected Area Create a new image from the selected area.

Delete Selected Area Remove the image within the selected area.

Project Selected Area Project a selected area onto a different image.

- ✓ An area can be properly projected only onto an image that has already been registered to the image on which the area was created.

Show Show all previously hidden image area selections.

Hide Hide all image area selections.

6.10 THE SURFACE MENU

Tools ▶

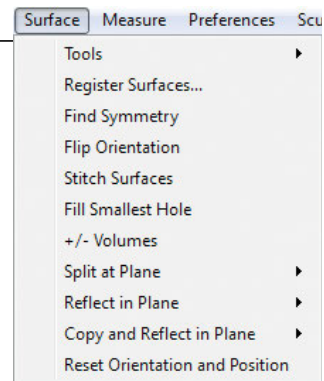
☞ **Select Views of Surfaces**— Click within an inactive image to make it active; all other open images become inactive.

- ✓ The next three tools (Spin Active Surfaces, Pan Active Surfaces, and Roll Active Surfaces) move the image relative to the axis grid while the point of view remains the same.

This action changes the spatial orientation of the image and will nullify registration of images if the change is saved.

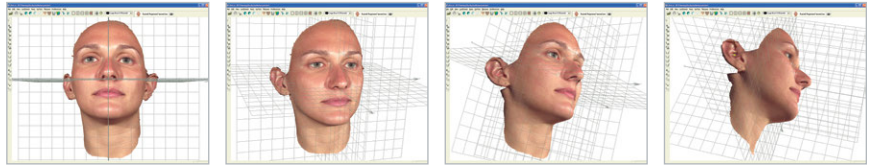
(See section [6.6 The View Menu](#) for tools that move the point of view and not the image.)

The difference between **View** menu tools and **Surface** menu tools becomes more apparent when the  Axis Grid is visible (**View ▶ Axis Grid ▶ Show Axis Grid**):

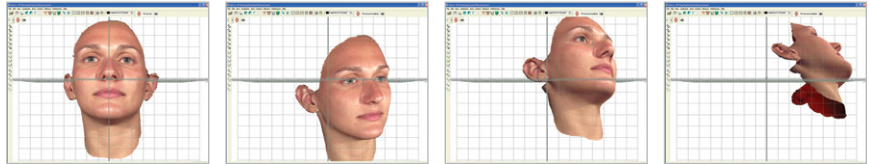





View / Spin:

The point of view moves while the image retains its spatial orientation relative to the grid.

**Spin Active Surfaces:**

The image moves relative to the axis grid while the point of view is fixed.



-  **Spin Active Surfaces**—Rotates the image freely in any plane, independent of the axis grid.
-  **Pan Active Surfaces**—Moves the image left, right, up, or down within the viewport—x and y axes only— independent of the axis grid.
-  **Roll Active Surfaces**—Rotates the image in the XY plane, independent of the axis grid.

Register Surfaces...

Enables the user to register two or more images so that they are aligned as closely as possible. This is useful for visual image comparison and necessary for some analytical processes.

Find Symmetry

Enables the user to establish midline symmetry—useful for evaluation and for registering two images.

Flip Orientation

Enables the user to change the orientation of a surface view from outside to inside, or from inside to outside.

- The result is discernible only if **Show Reverse in Different Color** is selected from the **Preferences** menu.

Stitch Surfaces

Enables the user to create a volumetric shape by joining (stitching) two surfaces together. This is useful for measuring difference in volume between two registered images, such as pre- and post-op.

Fill Smallest Hole

Enables the user to fill gaps in the surface. The software will identify the smallest hole in the surface and fill it.

Selecting this option a second time will cause the second smallest hole to be filled. This process can be repeated as many times as necessary to fill the holes in a surface.

NOTE: The filled surface will be untextured.

+/- Volumes

Allows the positive and negative volume components to be separated from any closed, or solid model, surface that has been generated using the Volume Between Two Surfaces (difference model) tool, created using advanced stitching techniques, or imported from a directory location. This will result in the creation of two surface models, one representing positive volumes and one representing negative volumes.

Split at Plane ▶

Divides the image based on the selected plane and reports the volume for each half in the **Log** window.

3 Landmarks—The plane is based on three user-placed landmarks.

- ✓ The order in which landmarks are placed determines the values of the measurements.

X = 0—The plane is based on the zero-point of the X-axis of the grid.

Y = 0—The plane is based on the zero-point of the Y-axis of the grid.

Z = 0—The plane is based on the zero-point of the Z-axis of the grid.

- ✓ The term “In front of split” refers to positive values in relation to the axis grid, and the term “Behind split” refers to negative values in relation to the axis grid.

Reflect in Plane ▶

Reflects the image around the X, Y, or Z axis. The result is a mirror image of the original.

Copy and Reflect in Plane ▶

A copy of the image is created and reflected around the X, Y, or Z axis or a user-defined plane. The result is a mirrored copy of the original image. The user may then overlay the original with its reflection, or display the two views side by side.

Reset Orientation and Position

Restores the original orientation and position of the image as it was captured or last saved. If **Spin**, **Pan**, and/or **Roll Active Surfaces** has been applied to change the spatial orientation of the image, the image will be reset to its original captured orientation and position. (Selecting this menu item will have no effect on **Viewpoint Spin**, **Pan**, or **Roll**.)

6.11 THE MEASURE MENU

Distance ▶

Straight Line Between Landmarks—Measures the straight-line distance between two landmarks regardless of the surface topography.

Across Surface Between Landmarks—Measures the shortest surface distance along a path defined by landmarks.

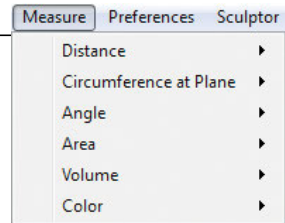
Landmark to Surface—Measures the distance between selected landmark(s) on one image and the nearest point on a second active image.

Perimeter of Selected Area—Measures the perimeter of a selected area, such as the perimeter of a lesion on a patient's skin.

Color Surface by Distance...—Calculates the distances between two images and colors the images according to the measurement data for visual feedback. Numerical data for min., max., RMS, mean, and standard deviation is also displayed. Useful for measuring accuracy of registration and identifying regions of dimensional difference. These regions can be selected and then separated and further analyzed.

Circumference at Plane ▶

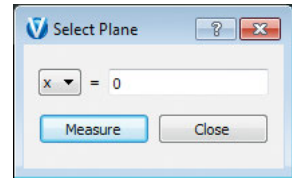
Circumference is measured at the cross-section of a user-selected plane and selected image. Each measurement is displayed in the **Log** window.



3 Landmarks—The plane is defined by three user-selected landmarks.

x, y, or z = n—The plane is defined by a user-selected point (n) along the selected axis (x, y, or z).

- ✓ The orientation of the image to the grid will determine where the cross-section will be created.



Angle ▶

from 3 Landmarks—Measures the angle formed at landmark 2 by landmarks 1 and 3 on the selected image.

Area ▶

of selection—Measures the area of the selected region.

of surface—Measures the area of active image(s).

Values are displayed in the **Log** window.

Volume ▶

to Interpolating Surface—Uses a mathematical algorithm to generate an independent interpolating surface based on the selected area. The volume between the interpolating surface and the original surface is then calculated and reported in the **Log** window.

of Closed Surface—Measures the volume of an object that is completely enclosed.

Between Two Surfaces (difference object)—

Measures the volume between two registered images by calculating the volume between a selected area on one image and the corresponding area on the other (registered) image. A closed model of the difference volume is created as a new image. The volume difference (or closed model) volume is reported in the **Log** window.

Between Two Surfaces (parallel projection)—

Measures the difference in volume between similar areas on two different images, the second image being projected parallel to a plane on the first.

Color ▶

Measures and displays color for the  **Textured** (normal skin-tone) view of the image.

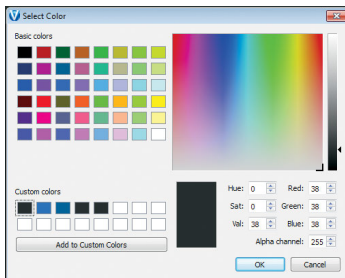
Display RGB Values for Landmarks—Displays the RGB (Red, Green, Blue) values at each landmark (dot).

Display Average RGB Values for Selected Area—Displays the average of the values for each color (Red, Green, Blue) for the selected area, as well as the size of the selection (in pixels) and the standard deviation within the sample.

Set White Point for CIE Measurements—Enables the user to set the white point for CIE measurements .

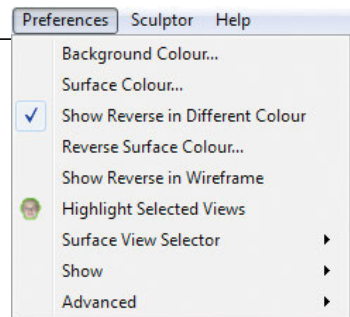
Display Average CIE L*a*b* Value for Selected Area—Displays the average of the values for each aspect of the Lab color space for the selected area, as well as the size of the selection (in pixels) and the standard deviation within the sample.


6.12 THE PREFERENCES MENU



Background Color...—Opens the **Select color** dialog box for changing the background color of the Viewport.

Surface Color...—Opens the **Select color** dialog box for changing the image color.



The image color is visible only when  **Untextured** view is selected.

Show Reverse in Different Color—Displays the reverse (inside or rear) of a surface in a different color from the outside (front).

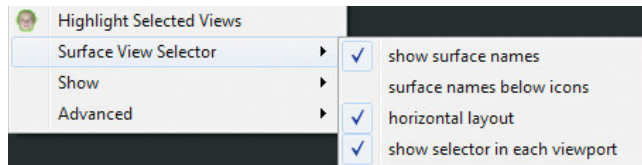
Reverse Surface Color—Opens the **Select color** dialog box for changing the color of the reverse (inside) surface.

Show Reverse in Wireframe—Displays the reverse (inside) of a surface in  **Wireframe** view.



Highlight Selected Views—Displays an outline around the edge of the image.

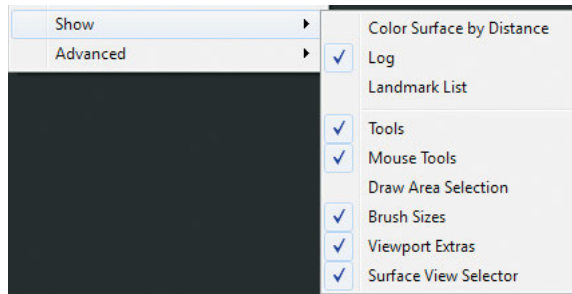
Surface View Selector ▶ Enables the user to customize the display of surface view indicators on screen.






- show surface names** displays the image name to the right of the icon (rather than the icon only).
- surface names below icons** displays the image name centered below its icon (rather than next to it).
- horizontal layout** displays the surface view information horizontally across the top of the screen (rather than stacked vertically). This option makes a difference only if more than one image is open.
- show selector in each viewport** displays a separate Surface View Selector in the upper left corner of each viewport, enabling the user to show or hide images separately for each viewport. This option makes a difference only if more than one viewport is displayed.

Show ▶

Enables the user to customize availability of tools and information on screen.



- ✓ **Color Surface by Distance** makes the Color Surface by Distance dialog box visible.
- ✓ **Log** makes the list of measurements and data visible.
- ✓ **Landmark List** makes the Landmark List dialog box visible.
- ✓ **Tools** makes the toolbar at the top of the screen visible.
- ✓ **Mouse Tools** makes the vertical toolbar visible.
- ✓ **Draw Area Selection** makes additional selection tools available in the vertical toolbar:  **select area by boundary** and  **erase area by boundary**.
- ✓ **Brush Sizes** makes the brush sizes drop down menu visible at the top of the screen.
- ✓ **Viewport Extras** makes additional toolbar buttons available at the top of the screen: .
- ✓ **Surface View Selector** makes the Surface View Selector visible.

6.13 NAVIGATING THE SOFTWARE

Software features are accessed by selecting commands from the main menus or by clicking buttons on the toolbars. Which commands are available depends upon the current state of the program (whether any images are open/selected, etc.).

Dialog boxes

Some commands (**Open Patient Chart**, for example) cause a dialog box to appear. A dialog box allows you to enter information, make selections or choose settings for the current operation.

When settings and data in a dialog box appear as you wish, you can execute the command by clicking a button that is typically marked with a descriptive label (**Save**, **Import**, etc.) or simply **OK**.

Most dialog boxes also contain a **Cancel** button. Clicking **Cancel** closes the dialog box without executing the command. Any data entered prior to clicking **Cancel** is discarded.

Moving

Moving the mouse will cause the cursor (pointer) to move on the screen.

Clicking

To “click”, move the mouse to position the cursor over the desired area, then press and release the left mouse button.

Right-clicking

To “right-click” press and release the right mouse button. A right-click is used to select from a contextual pop-up menu.

6.14 THE FILING SYSTEM


File management occurs within a database that is made up of individual patient records. Each patient record contains data pertaining to that patient (name, ID number, date of birth, etc.) along with images that have been saved for that patient. Each image may have additional data associated with it (image date, procedure, etc.).


A SQL database is used to store the data. The images and associated capture data are stored in individual image directories. The system may be configured to store the database and/or images on the local computer or on a network server. The number of patient records and images you can store in the database is primarily dependent upon the capacity of the hard drive or server.

6.15 CUSTOMIZING VECTRA ANALYSIS MODULE

You can move or close toolbars and sub-windows in VECTRA Analysis Module. For example, you can detach the **Log** window from the bottom of the frame and make it float in front of the viewport anywhere on the screen.

The viewport background color is customizable: Select **Preferences ▶ Background Color...** to open the **Select color** dialog box. Select desired color and click **OK**.

The color of  **Untextured** images is also customizable: Select **Preferences ▶ Surface Color...** to open the **Select color** dialog box. Select desired color and click **OK**.


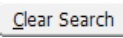
-  Changes to toolbar or sub-window size or position, background color, or image color will be retained when you restart VECTRA Analysis Module.

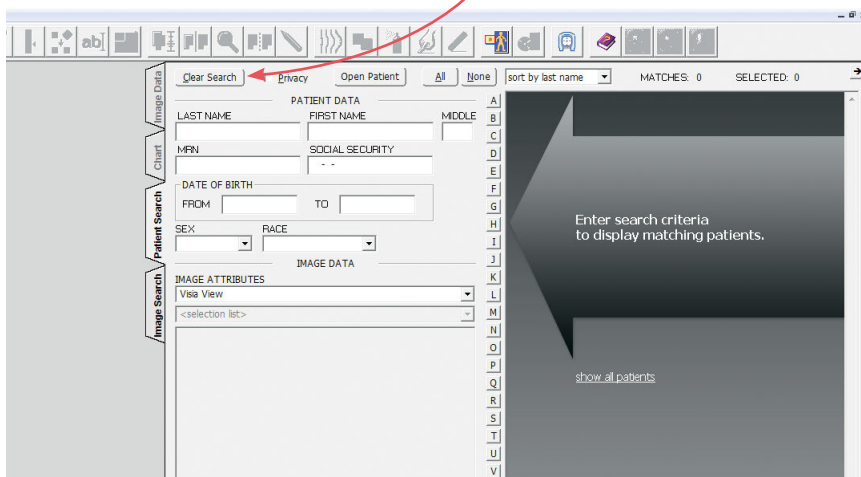
CHAPTER 7

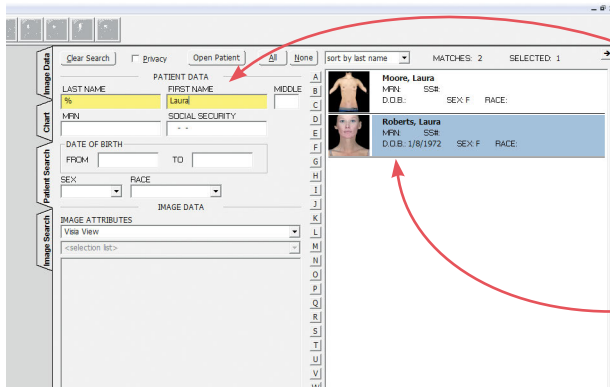
Viewing and Manipulating Images in VAM

7.1 THE MIRROR PATIENT CHART

Finding and opening an existing patient record

- 1 Double-click the  Mirror icon on the Windows desktop to open Mirror software.
- 2 Select **File ▶ Search for Patient**, or click the **Patient Search** tab on the right edge of the screen.
- 3 If the fields are not empty, click  **Clear Search**.





4 Enter search criteria such as the patient's name, date of birth, or social security number. Thumbnail images for patient(s) who fit the criteria will be displayed.

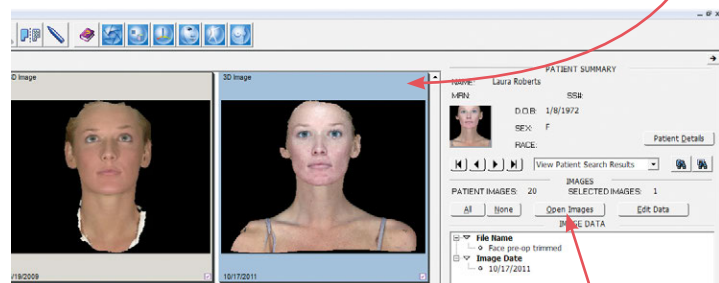
5 Click once on a thumbnail to select the associated patient chart. The background changes to blue, confirming that the chart is selected. To deselect a chart, click on the thumbnail again.

6 To open the selected patient chart, select **File ► Open Patient Chart** or click **Open Patient**, or just double-click on the highlighted thumbnail.

Opening image(s) from within the Mirror chart

1 Click once on a thumbnail to select the associated 3D image. The frame color changes, confirming that the image is selected.

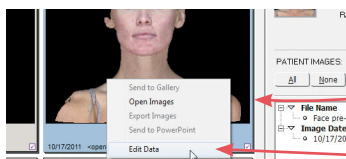
- ✓ Multiple images may be selected and opened at the same time: To select an additional image, click on its thumbnail. To deselect an image, click on the thumbnail again.



2 To open the selected image(s), click **Open Images** or double-click on a highlighted thumbnail.

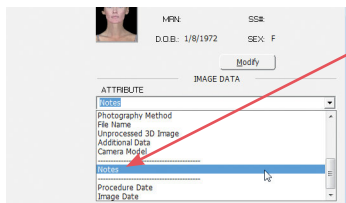
Saving data from VAM's Log window into the Mirror patient chart

- 1 Select **File ▶ Save...**, enter a unique file name, and click **OK**.
- 2 Click once inside the **Log** window (at the bottom of the screen).
- 3 Right-click and select **Select All** from the pop-up menu (or drag over data to select it).
- 4 Right-click and select **Copy** from the pop-up menu.
- 5 Select **File ▶ Open Patient Chart....**



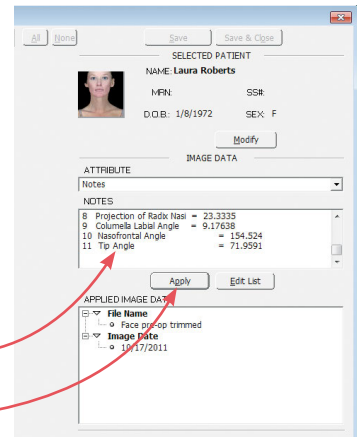
- 6 Click once on the corresponding thumbnail to select it (the border turns blue to show that it's highlighted.)

- 7 Right-click on the highlighted thumbnail and select **Edit Data** to open the **Edit Image Data** window.

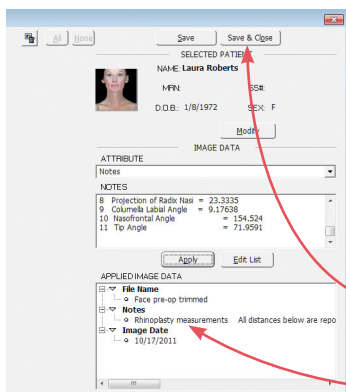


- 8 Select **Notes** from the **Attribute** drop-down menu.

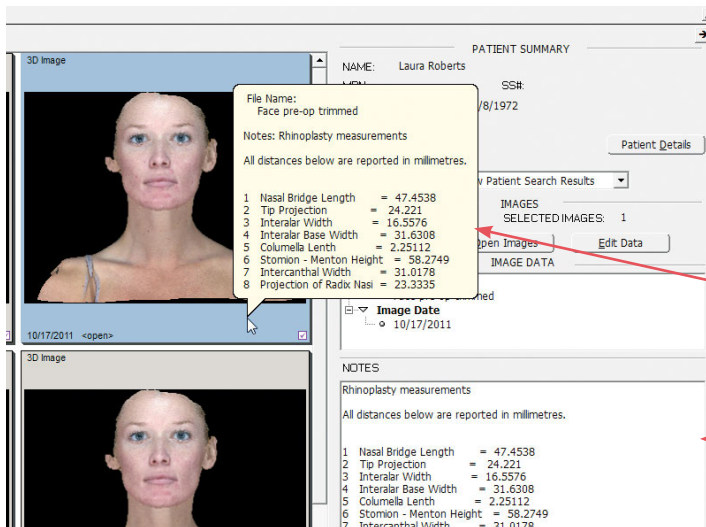
- 9 Click in the **Notes** field. Type a descriptor for the data that you are adding, such as "Rhinoplasty measurements" or "Area =". Right-click and select **Paste** from the pop-up menu. The data that was copied from VAM's Log window populates the Notes field.



- 10 Click **Apply**. The **Notes** attribute is added to **Applied Image Data**.



- 11 Click **Save & Close**.



The data that you pasted into **Notes** appears in the Mirror Patient Chart.

Float cursor over thumbnail to display data.

12 Repeat for each open image.

Saving data from VAM's Log window into a Word or other text file

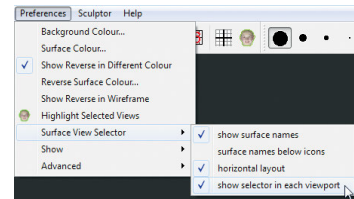
- 1 Select **File** ► **Save...**, enter a unique file name, and click **OK**.
- 2 Click once inside the **Log** window (at the bottom of the screen).
- 3 Right-click and select **Select All** from the pop-up menu (or drag over data to select it).
- 4 Right-click and select **Copy** from the pop-up menu.
- 5 Click within the destination document and press the **Ctrl** and **V** keys to paste.

7.2 VIEWING, SAVING AND CLOSING IMAGES IN VAM

Viewing multiple 3D images simultaneously in viewports

Five viewport presets (see [Viewports](#) in section 6.6) enable simultaneous display of different images, or different views of the same image. Multiple images will initially open in a single viewport (□), superimposed. To display images in more than one viewport, click a viewport button in the toolbar (□, □, □, □) or select the desired preset from the **View** menu (**View ▶ Viewports ▶**).



All open images will initially be active, visible, and superimposed in every viewport. Use the viewport-specific **Surface View Selectors** to activate/deactivate and show/hide images as needed (see [Surface View Selector](#) in section 6.1).



Select "show selector in each viewport" from Preferences

Comparing two 3D images side-by-side

This viewing method allows you to apply the point-of-view tools to two viewports simultaneously to review images side-by-side.

- 1** Select **Preferences ▶ Show ▶ Viewport Extras** to make the Viewport Extras toolbar available.
- 2** Click the  **Side-By-Side** button in the Viewport Extras toolbar. This will open two viewports with one image active in the left viewport and the second image active in the right viewport.
- 3** Click the  **Synchronize** button in the Viewport Extras toolbar to lock synchronization between the two viewports.
- 4** Use the point-of-view and texture tools to review the images in tandem.

Saving a modified 3D image

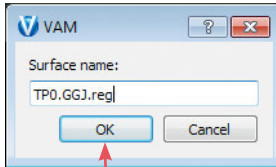
✓ **IMPORTANT:** *Changes, edits, landmarks will not be retained unless the image is saved.*

1 Select **File ▶ Save....**

2 Enter a unique and descriptive file name in the **Surface name** dialog box.

✓ The file name should describe the session number, the patient, and the status of the image. For example, in the filename TP0.GGJ.reg, “TP0” identifies the session number (TP0 = time point zero, or baseline; TP1 = time point one, or first follow up; etc.), “GGJ” are the patient’s initials, and “reg” indicates that the image is registered to the grid (if baseline) or to the baseline image (follow up visits).

3 Click . The modified image is saved as a separate 3D image in the patient’s chart and the original 3D image is preserved unchanged.

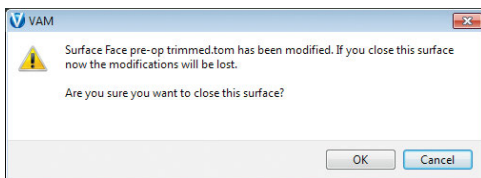


Closing a 3D image

1 Using the **Surface View Selector** (see [Surface View Selector](#) in section 6.1), make sure the image you wish to close is active and any other open images are inactive.



2 Select **File ▶ Close [Ctrl + W]**.

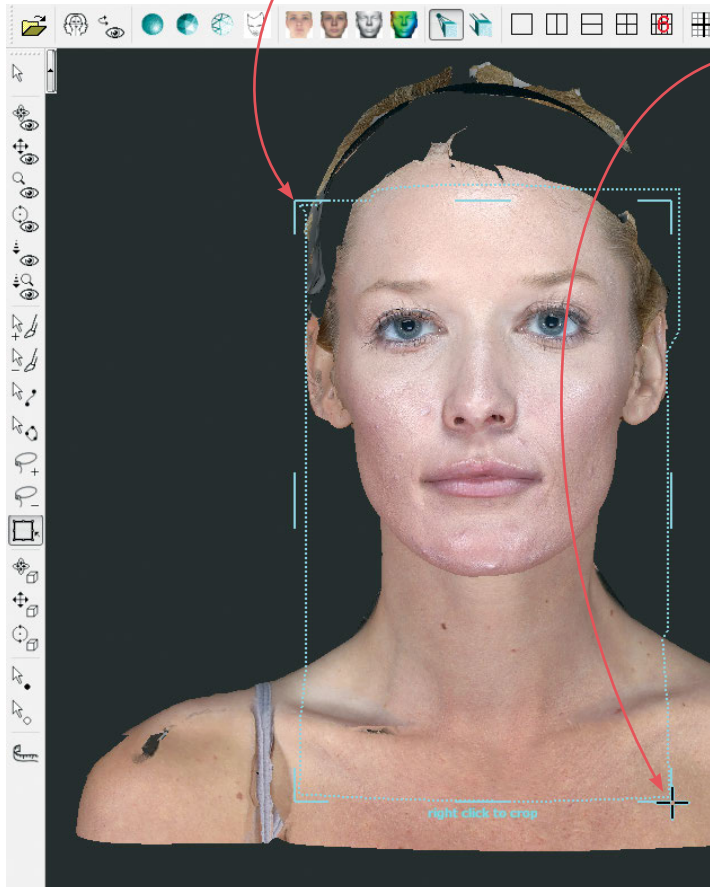
✓ If the image has been modified and the changes have not been saved, a prompt appears allowing you to discard the changes and close the image (click **OK**) or keep the image open so that you may save the changes (click **Cancel**).





7.3 REMOVING UNNEEDED FEATURES OR ARTIFACTS FROM AN IMAGE

Method 1 (good for quickly cropping an image)

- 1 Click the  **box crop** button in the vertical toolbar.
- 2 Place the  cursor at a corner of the area you wish to keep, then click and continue to hold down the mouse button.



3 Drag out a rectangle to the opposite corner of the area you wish to keep and release the mouse button. The boundary box you have drawn is displayed.

4 If you wish to adjust the size or position of the boundary box, click an edge or corner of the boundary box. The cursor changes to  (edge) or  (corner). Drag to the desired location.

5 Right-click the mouse to delete everything outside of the box.

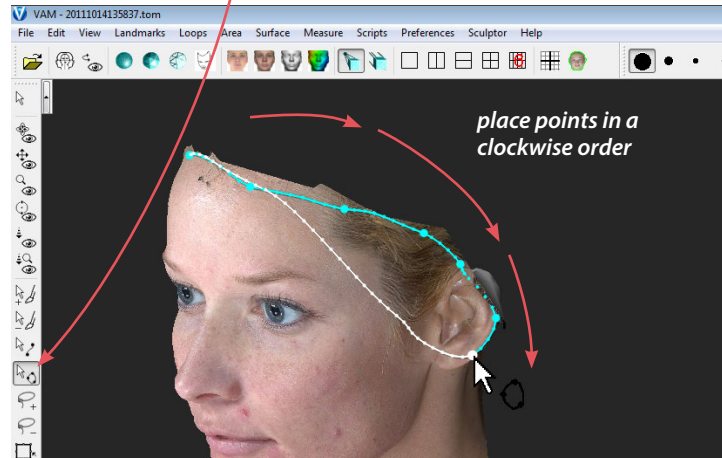
6 Save the changes (see [Saving a modified 3D image](#) in section 7.2).

Method 2 (good for creating a smooth perimeter)

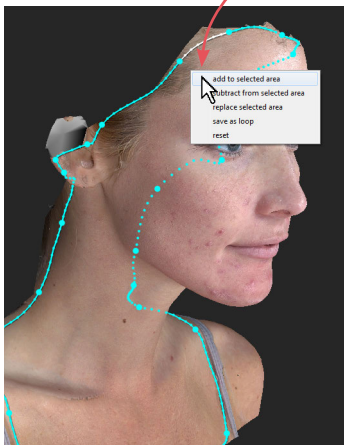
2 Click to place a series of points defining the perimeter of the area you wish to preserve.

✓ If the points are placed in a clockwise order, the area outside of the shape will be selected. If the points are placed in a counter-clockwise order, the area inside of the shape will be selected.

1 Click the **Closed Loop Points** button in the vertical toolbar.



3 After placing the last point, move the cursor away from the point and right-click within the defined area. Select “add to selected area” from the pop-up menu. The selected area is painted green.





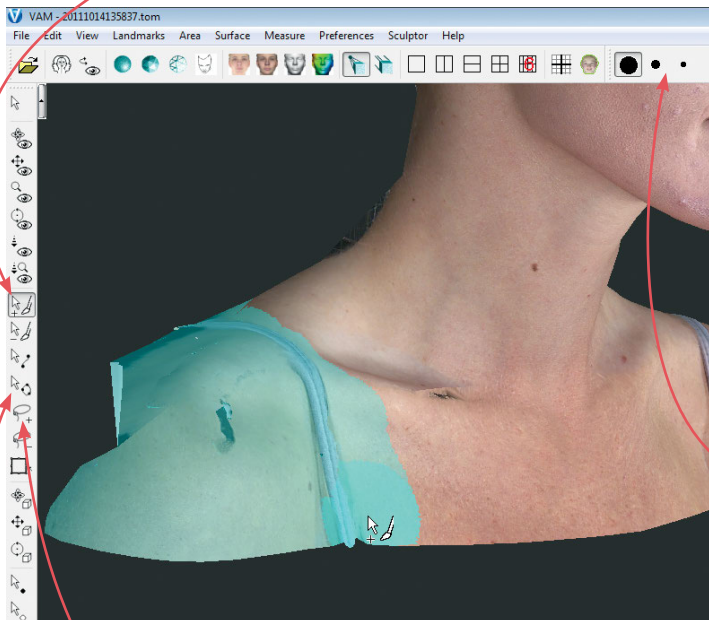
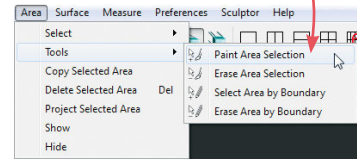
✓ If the area you wish to preserve (rather than the area you wish to remove) is painted green, select **Area ▶ Select ▶ Inverse**.

4 Select **Edit ▶ Delete Selected Area** or press **Delete** on your keyboard. The green area is deleted, leaving a smooth perimeter.

5 Save the changes (see [Saving a modified 3D image](#) in section 7.2).

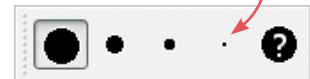
Method 3 (good for removing discontinuous areas)

1 Select **Area** ▶ **Tools** ▶  **Paint Area Selection** or click the  **Paint Area Selection** button in the vertical toolbar.






2 Drag the brush over the image (hold down the left mouse button while moving the mouse) to select the areas you wish to **remove**. The selected areas will be painted a contrasting blue-green color.

To change the size of the brush, click on a brush size in the horizontal toolbar.



3 Select **Edit** ▶ **Delete Selected Area** or press **Delete** on your keyboard.

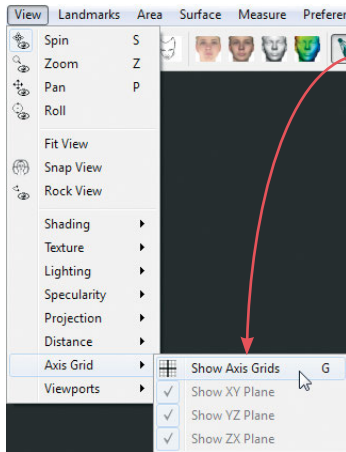
4 Save the changes (see [Saving a modified 3D image](#) in section 7.2).

NOTE:  **Closed Loop Points** or  **Lasso Select** may be used instead of the  **Paint Area Selection** tool throughout the examples in this user guide.

7.4 REGISTERING A BASELINE 3D IMAGE TO THE AXIS GRID

It is essential to register a baseline 3D image to the axis grid. This establishes the permanent reference to which all of the patient's future images will be registered.

Establishing midline symmetry

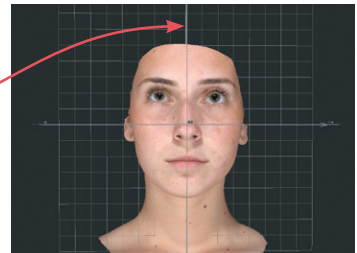


1 With a baseline 3D image open in a single viewport, select **View** ► **Axis Grids** ► **Show Axis Grids** (or type **G**). The X, Y, and Z planes will be displayed in the viewport.

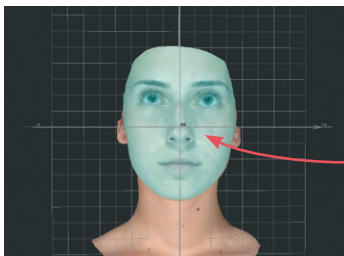
2 Select **View** ► **Snap View** or click the **Snap View** button in the horizontal toolbar. This will square the grid to the nearest 90° increment.

3 Select **Surface** ► **Tools** ► **Spin Active Surfaces** or click the **Spin Active Surfaces** button in the vertical toolbar.

4 Spin the image until it is bisected by the vertical (Y) axis.

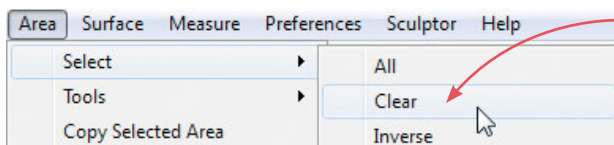
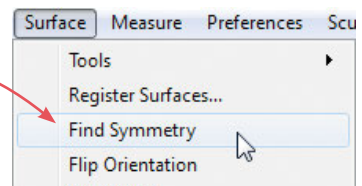


5 Click the **Paint Area Selection** button in the vertical toolbar.







6 Drag the brush over the image (hold down the left mouse button while moving the mouse) to select the entire front of the image.

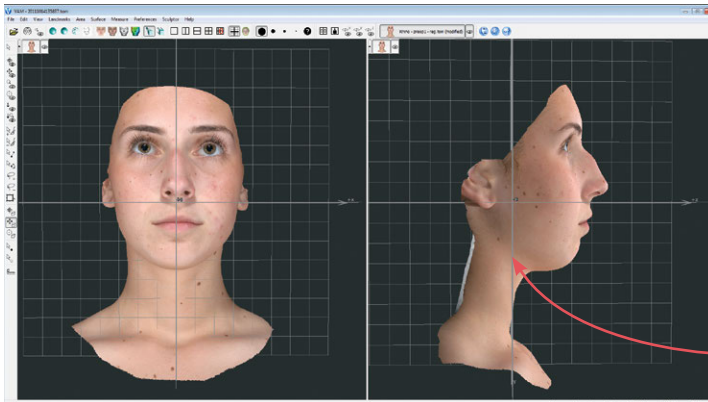
7 Select **Surface** ► **Find Symmetry**. This will cause the image to be automatically oriented to the vertical axis through its center.




8 Select **Area** ► **Select** ► **Clear** to deselect the image area.

Correcting image rotation

- 1 Select **View ▶ Viewports ▶  2 Viewports** (vertical split) or click the  **2 Viewports** button in the horizontal toolbar.
- 2 Click the  **Spin** button in the vertical toolbar (or select **View ▶  Spin**, or press the **S** key).
- 3 In the viewport on the right, rotate the grid and image to obtain a lateral view.




4 Select **View ▶  Snap View**.

5 Click the  **Roll Active Surfaces** button in the vertical toolbar.

6 Roll the image in the right viewport so that it is oriented to the vertical grid lines.

Establishing front-to-back orientation for registration

- 1 Click the  **Pan Active Surfaces** button in the vertical toolbar.
- 2 Move the image in the right viewport until it is centered on the main vertical axis line.

Saving the registered baseline image

- 1 Select **File ▶ Save...** to open the **Surface name** dialog box.
- 2 Enter a filename that includes “reg”, indicating that the image has been registered (see [Saving a modified 3D image](#) in section 7.2).
- 3 Click **OK**. The registered baseline image is saved as a separate 3D image in the patient’s chart.

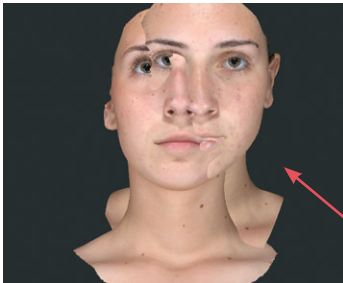
7.5 REGISTERING SUBSEQUENT 3D IMAGES TO THE BASELINE IMAGE

When comparing images (e.g., pre-op and post-op), it is important to ensure that the images are registered to each other. Typically, the original (first) image is aligned to the grid and serves as the baseline image (see [7.4 Registering a Baseline 3D Image to the Axis Grid](#)). All subsequent images are then registered to the baseline.


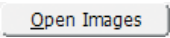
There are two methods that may be used to register follow-up images to a baseline image. It is possible, and sometimes even desirable, to employ both registration methods. This will help ensure precise registration.

Method 1: Using anatomical landmarks

1 Open a patient chart and select an image that needs to be registered and the baseline image that has been previously registered to the axis grid.






2 Open the two images in VECTRA Analysis Module:


- VECTRA chart: click  **open in Analysis**
- Mirror chart: click  (or double-click one of the thumbnails)

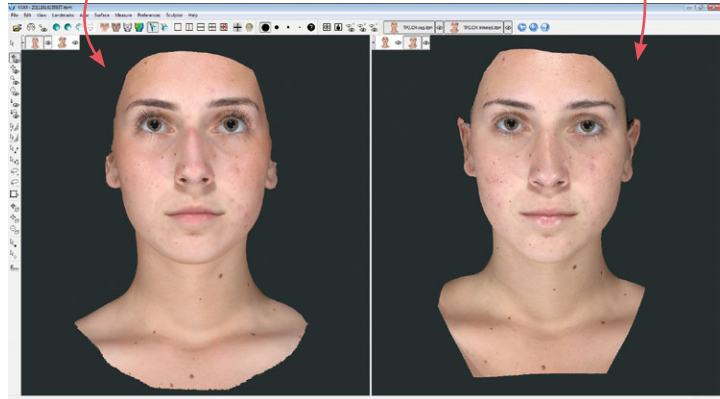
VECTRA Analysis will be launched and both images will open, superimposed in one viewport.

- Work with only two images at a time to ensure optimal computer performance and simplify the process.

3 Click the  **Side-By-Side** button in the Viewport Extras toolbar to put each image in its own viewport. (If you don't see , select **Preferences ▶ Show ▶ Viewport Extras.**)

4 Use the  **Synchronize** button in the Viewport Extras toolbar to toggle synchronization *off*.

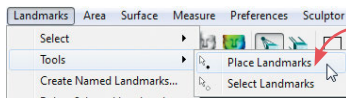
5 Use viewpoint  **Spin [S]** to rotate the follow-up image until its orientation is similar to the baseline image.





Place landmarks.

Identify and mark anatomical landmarks outside of the treatment area which are common to both images, such as canthi, moles, or permanent scars.

- ✓ For more on landmarks see the next section, [7.6 Using Landmarks](#).

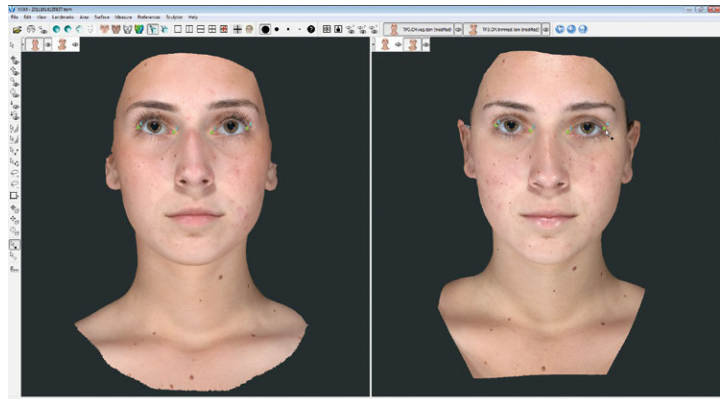


1 Select **Landmarks** ▶ **Tools** ▶  **Place Landmarks**, or click the  **Place Landmarks** button in the vertical toolbar.

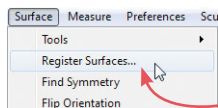
2 Click once at an anatomical landmark on the baseline image in the left viewport, then click at the corresponding point on the follow-up image in the right viewport. A numbered green dot appears at each click, indicating that the landmark has been placed.

- Corresponding landmarks on each image must have the same identifying number. The software will automatically assign “1” for the first click in each viewport, “2” for the second click in each viewport, etc.

- ✓ Use viewpoint  **Spin**,  **Pan**,  **Roll**, and  **Zoom** to help you find and place appropriate landmarks.

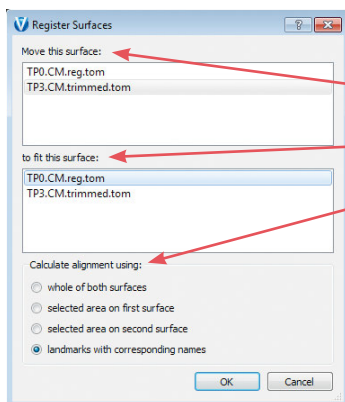


3 Repeat step 2 until four or more landmarks have been identified and placed.



Register the images.

1 Once the landmarks have been placed, select **Surface** ► **Register Surfaces**.



2 In the Register Surfaces dialog box make the following selections:

Move this surface: [follow-up image]

to fit this surface: [baseline image]

Calculate alignment using: landmarks with corresponding names

3 Click . The follow-up image is registered to the baseline image.

Save the registered follow-up image.

1 Select **View** ► **Viewports** ► **1 Viewport** or click the **1 Viewport** button in the horizontal toolbar.

2 Use **Surface View Selector** (see [Surface View Selector](#) in section 6.1) to hide the baseline image and make sure the follow-up image is active.

3 Select **File** ► **Save...** to open the **Surface name** dialog box.

4 Modify the filename to include “reg”, indicating that the image has been registered (see [Saving a modified 3D image](#) in section 7.2).

5 Click . The registered follow-up image is saved as a separate 3D image in the patient’s chart.


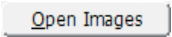
Verify registration.

Perform **Color Surface by Distance** to verify the registration. See [Using “Color Surface by Distance”](#) in section 8.1.


Method 2: Using image contour

1 Open a patient chart and select an image that needs to be registered and the baseline image that has been previously registered to the axis grid.



2 Open the two images in VECTRA Analysis Module:

- VECTRA chart: click  **open in Analysis**
- Mirror chart: click  (or double-click one of the thumbnails)

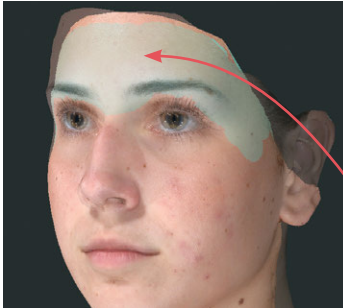
VECTRA Analysis will be launched and both images will open, superimposed in one viewport.

 Work with only two images at a time to ensure optimal computer performance and simplify the process.

3 Use **Surface View Selector** (see [Surface View Selector](#) in section 6.1) to deactivate the baseline image (it remains visible, but is displayed with low opacity) and make sure the follow-up image is active (displayed with full opacity).

4 Select **Surface ▶ Tools ▶  Spin Active Surfaces** or click the  **Spin Active Surfaces** button in the vertical toolbar.


5 Rotate the follow-up image so that its orientation is similar to the baseline image.



6 Use **Surface View Selector** to hide the follow-up image and activate the baseline image.

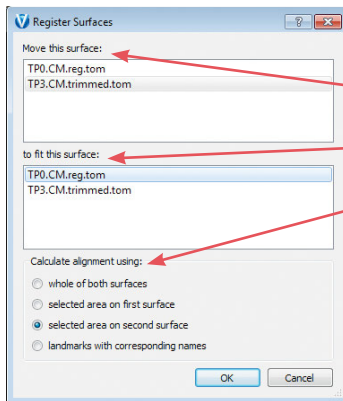
7 Click the  **Paint Area Selection** button in the vertical toolbar.

8 Drag the brush over the image (hold down the left mouse button while moving the mouse) to select the desired areas: bony or anatomically consistent areas outside the treatment area.

 It is important to avoid areas impacted by treatment.

Register the images.


1 Select **Surface ▶ Register Surfaces**.

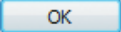


2 In the Register Surfaces dialog box make the following selections:

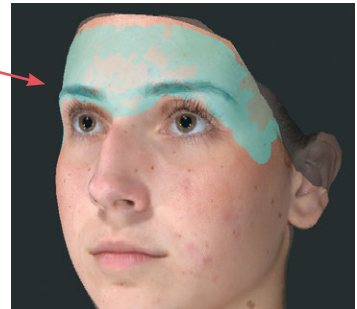
Move this surface: [follow-up image]

to fit this surface: [baseline image]

Calculate alignment using:  selected area on second surface

3 Click .

The follow-up image is registered to the baseline image.



Save the registered follow-up image.

1 Use **Surface View Selector** (see [Surface View Selector](#) in section 6.1) to hide the baseline image and activate the follow-up image.

2 Select **File ▶ Save...** to open the **Surface name** dialog box.

3 Modify the filename to include “reg”, indicating that the image has been registered (see [Saving a modified 3D image](#) in section 7.2).

4 Click . The registered follow-up image is saved as a separate 3D image in the patient's chart.





Verify registration.

Perform **Color Surface by Distance** to verify the registration. See [Using “Color Surface by Distance”](#) in section 8.1.

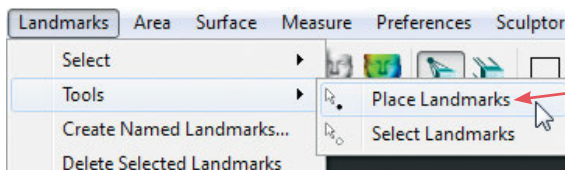
7.6 USING LANDMARKS



Landmarks are used for annotation, registration, and as markers for taking measurements such as the distance between two points over the image.

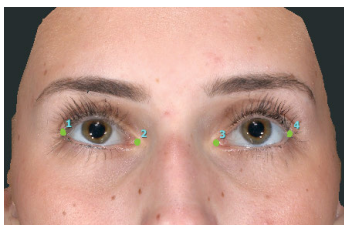
Moving the image while working with landmarks

As you place landmarks you may need to spin the image to view previously hidden areas. To temporarily access  **Viewpoint Spin**, press and hold the **ALT** key. The cursor changes to , allowing you to rotate the image. Release the **ALT** key, and the previous tool ( **Place Landmarks** or  **Select Landmarks**) becomes active again.

Creating auto-numbered landmarks



1 With at least one image open and active, select **Landmarks** ▶ **Tools** ▶  **Place Landmarks** (or click the  **Place Landmarks** button in the vertical toolbar).

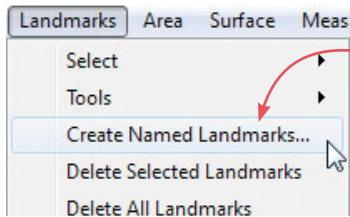


2 Click once on an active image to place a landmark.

- Each new landmark on the image is automatically assigned a numeric label: “1”, “2”, etc.
- The new landmark is displayed in a bright green color indicating that it is selected. (Deselected landmarks are displayed in a dark green color).

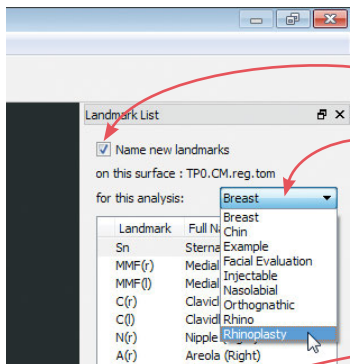
Creating named landmarks

A named landmark is identified by a label that describes its location on the body. Named landmarks are placed and named according to a preset list and are then used to generate a pre-defined set of calculations.



1 With a 3D image open and active in VAM, select **Landmarks** ► **Create Named Landmarks**. The Named Landmarks window opens on the right side of the screen.

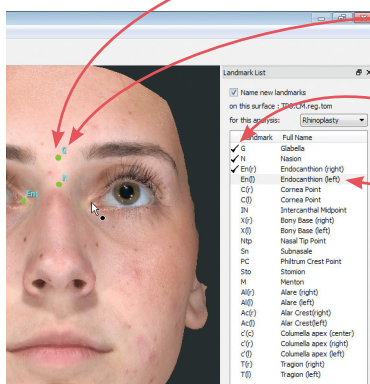
2 Select **Landmarks** ► **Tools** ► **Place Landmarks** or click the **Place Landmarks** button in the vertical toolbar.



3 Click to select the **Name new landmarks** check box.

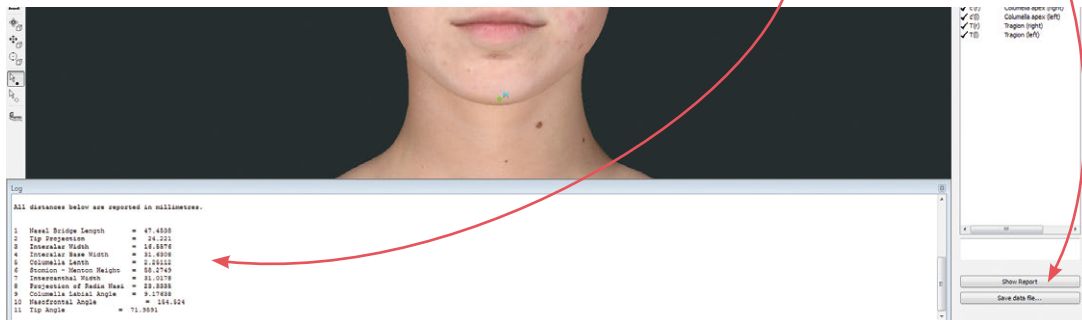
4 Select the desired landmark set from the drop down menu. The abbreviation and full name for each of the landmarks in the set is displayed. The first landmark is highlighted, ready to be placed.

5 Position the tip of the cursor arrow over the appropriate anatomical location and click once to place the landmark.



- The corresponding landmark abbreviation appears next to the placed landmark dot.
- A checkmark appears next to the abbreviation in the landmark list.
- The next landmark in the list becomes highlighted.

6 Once all of the landmarks in the set have been placed, click **Show Report** to display the resulting measurement data (mm) in the **Log** window at the bottom of the screen.



7 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

Selecting landmarks

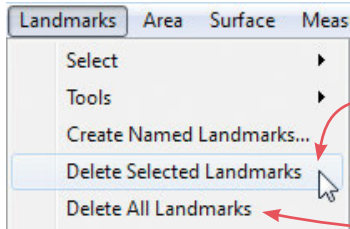
A landmark needs to be selected (bright green) in order to use it for measuring or for any other purpose (deselected landmarks are dark green).

1 Select **Landmarks** ▶ **Tools** ▶ **Select Landmarks** or click the **Select Landmarks** button in the vertical toolbar.

2 Click once on a dark green landmark to select it. The color will change to bright green, indicating that it is selected.

- If you click on a different landmark, it will become selected and all others will become deselected. To select multiple landmarks press and hold the **Shift** key as you click landmarks.
- To deselect a landmark press the **Ctrl** key as you click a selected landmark.

Deleting landmarks



1 Select the landmark(s) you wish to delete (see previous page).

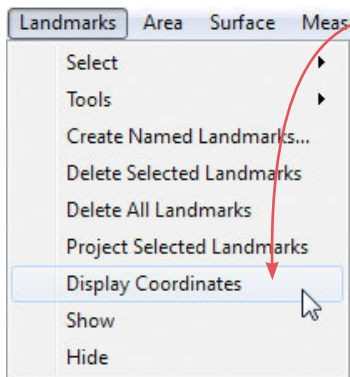
2 Select **Landmarks > Delete Selected Landmarks**.

To remove both selected and unselected landmarks, select **Landmarks > Delete All Landmarks**.

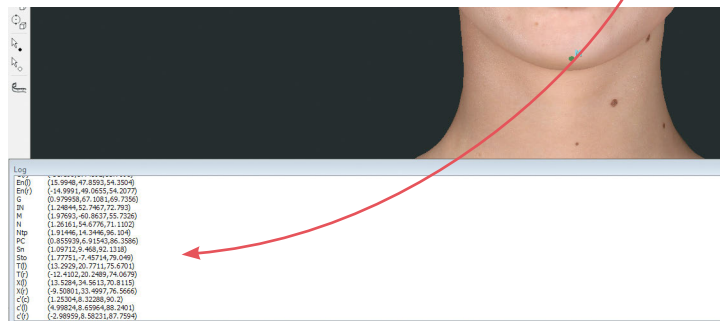
Landmarks on multiple images

- If more than one image is open, landmarks will be placed on whichever image is currently active.
- If more than one image is active, landmarks may be placed on either image.
- If active images overlap, landmarks will be placed on the uppermost active image (the one in the foreground).
- Each image has its own list of landmarks, numbered from 1 onward.

Viewing landmark coordinates



Select **Landmarks > Display Coordinates** to display the **x**, **y** and **z** values for landmarks. The **Log** window at the bottom of the screen displays the label and x, y, z coordinates for each landmark (whether or not it is selected).

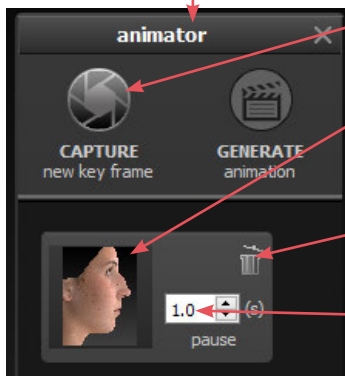



7.7 CREATING A 3D ANIMATION

1 Select **File ▶ Create Animation...** to open Animator.

✓ Click the Animator title bar and drag to reposition the floating dialog box as needed.

2 Use viewpoint  **Spin**,  **Pan**,  **Roll**, and/or  **Zoom** to orient the image to the rotation and zoom desired for the first frame of the animation.

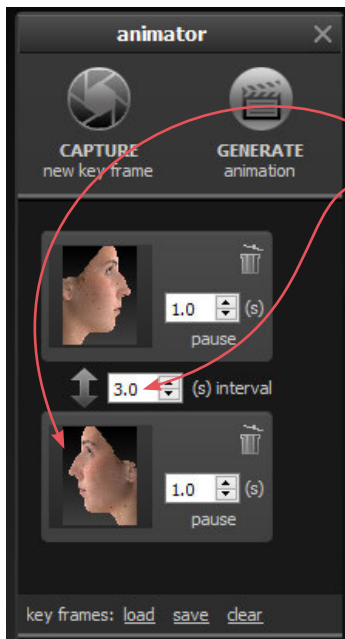



3 Click  **CAPTURE New Key Frame** to save this view as Key Frame 1.

- A thumbnail of the key frame appears in the Animator dialog. If you wish to return the image to this orientation and zoom, click the thumbnail.

- Click the trash icon if you wish to delete this key frame.


- *Optional:* Adjust the amount of time the animation should pause at this key frame.




4 Rotate and/or zoom the image to the next position, and then click  **CAPTURE New Key Frame** to save this view as Key Frame 2.

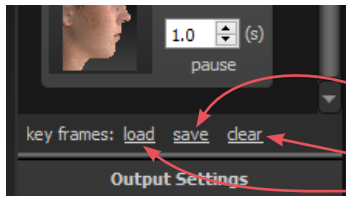
- A second thumbnail appears in the Animator dialog.

- *Optional:* Adjust the interval between key frames.

- Notice that the  **GENERATE animation** button is no longer disabled. A minimum of two key frames must be specified to generate an animation.

Repeat step 4 until you have specified all the key frames you wish to include in your animation. Animator will automatically insert the in between frames (“tweens”) to make smooth transitions between the key frames.

✓ If you would like the animation to loop back to Key Frame 1 at the end, click the first thumbnail, then click  **CAPTURE New Key Frame**.

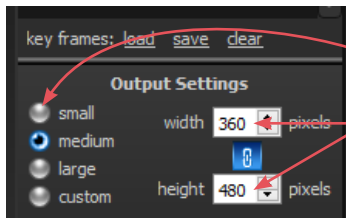


Saving key frames (optional)

If you plan to reuse a particular sequence, click **save** after you have specified all the key frames you wish to include in the template. If you wish to delete *all* of the key frames and start over, click **clear**. Click **load** to automatically generate a saved sequence.

Changing the pixel dimensions (optional)

Pixel dimensions determine how large the animation appears on screen during playback. Increasing the pixel dimensions also increases the size of the file. Smaller file sizes are recommended for web or e-mail.



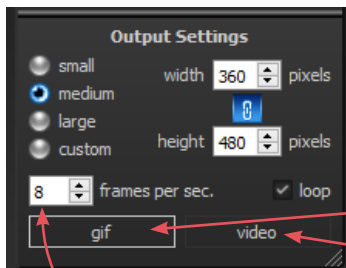
To change the pixel dimensions, select a preset size by clicking the radio button next to **small**, **medium** or **large** (see table on following page), or modify the values in the **width** and/or **height** fields.

✓ When **link** is selected, changing one dimension will automatically change the other dimension to maintain the aspect ratio. When **link** is unselected, the aspect ratio may be modified.

Preset output pixel dimensions:

	1 viewport	2 viewports*
small	180 x 240 pixels	360 x 240 pixels
medium	360 x 480 pixels	720 x 480 pixels
large	720 x 960 pixels	1440 x 960 pixels

**The preset pixel width is doubled for 2 viewports.*

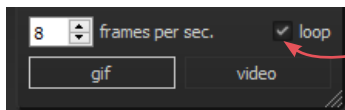


5 Select *type* of animation file to be generated: GIF or MP4 video.

Changing the number of frames per second (optional)

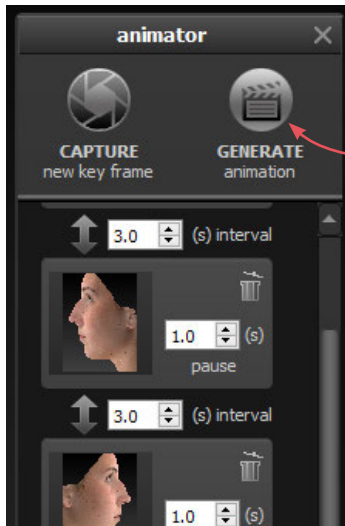
To define the number of frames Animator will insert for each second of playback, modify the value in the **frames per sec.** field. More frames per second will result in smoother transitions, but increase the file size.

- The recommended value for GIF is 8 to 10 FPS (more than 12 is not recommended).
- The recommended value for video is 24 FPS.



Changing the looping option (optional)

If the **loop** check box is selected () , the animation will loop continuously. If the **loop** check box is unselected, the animation will play once and then stop. This only applies to GIF animation.



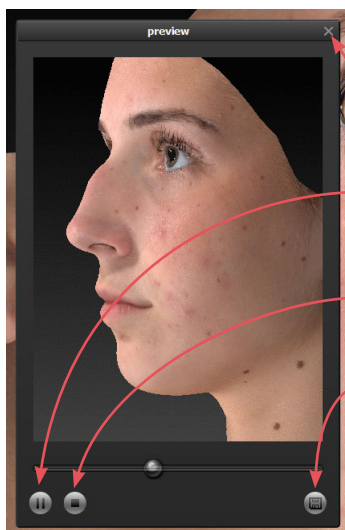
6 Make sure a minimum of two key frames have been specified and desired output settings are selected, then click **GENERATE animation**.

The Animator dialog box retains your specified key frames and settings until you close the image. You may change, for example, the number of open viewports or the view mode from color (textured) to gray (untextured), then generate a new animation.



◀ *Pre-op and simulated images in synchronized 2-viewport animation*

Review and save a GIF animation



The GIF animation is displayed in a floating Preview dialog box.

Clicking the **×** in the upper right corner of the Preview or Animator dialog closes the box.

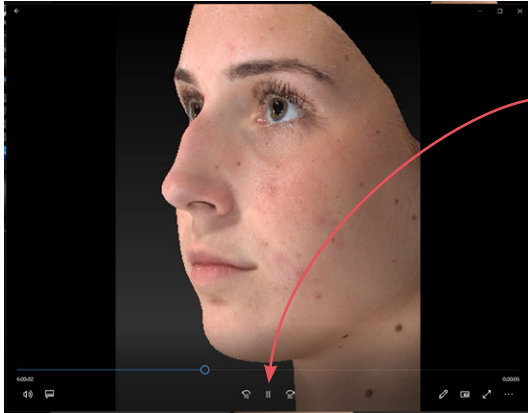
Click to pause playback. The icon changes to .

Click to resume playback.

Click to stop playback. The animation starts at the first frame when resumed.

Click to save the animation into the patient chart as an Animated GIF Image with the file extension, ".gif".

Review and save a video animation

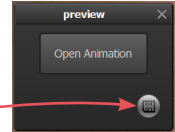


The video animation is displayed in a floating window.

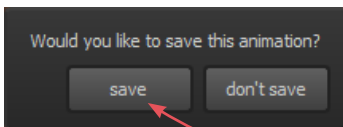
Click **||** to pause playback. The icon changes to **▶**.

Click **▶** to resume playback.

Click **×** in the upper right corner to close animation and display Preview dialog box.



Click **📁** to save the animation into the patient chart as a video.



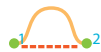
✔ If you close the Preview dialog box (GIF or video) before saving, you will be prompted to save. To retain the generated animation, click **save**.

CHAPTER 8

Image Analysis

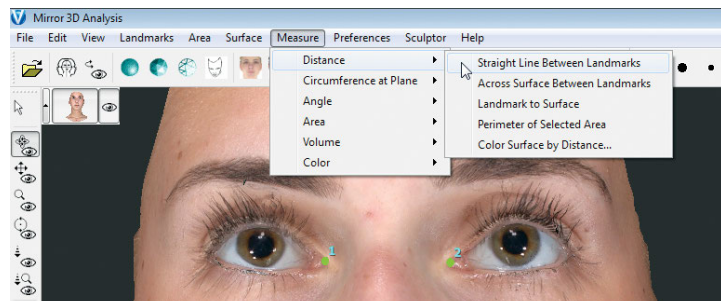
8.1 MEASURE AND COMPARE DISTANCES

Measuring the straight line distance between two landmarks



1 Select two landmarks.

2 Select **Measure** ▶ **Distance** ▶ **Straight Line Between Landmarks**.



The straight line distance between the selected landmarks (in millimeters) is displayed in the **Log** window at the bottom of the screen.

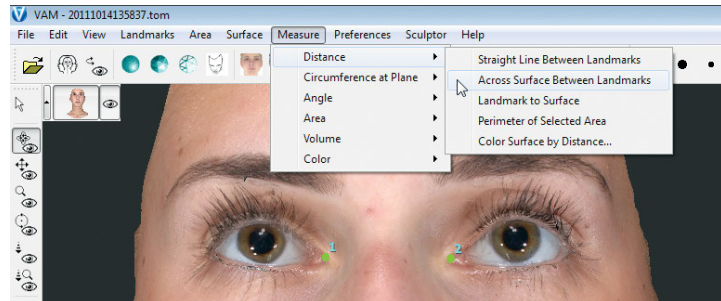
- ✓ Exactly two landmarks must be selected, but they don't have to be on the same image. You may use **Straight Line Between Landmarks** to measure the straight line distance from a landmark on one image to a landmark on a different image.

Measuring the distance across a surface

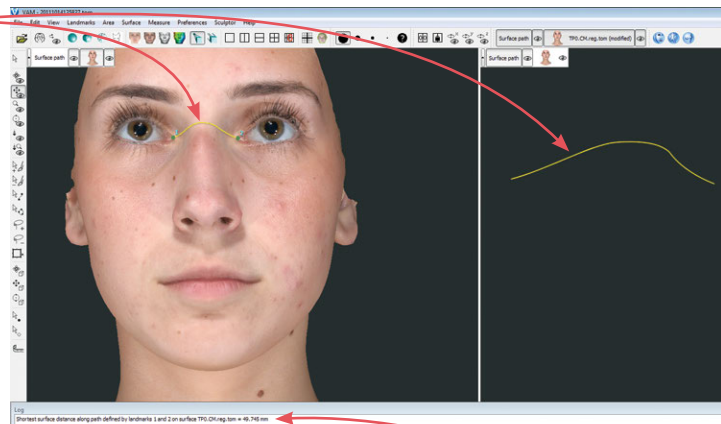


This tool measures the shortest surface distance along a path defined by landmarks.

- 1 Select two or more landmarks.
- 2 Select **Measure** ▶ **Distance** ▶ **Across Surface Between Landmarks**.





This generates a path along the shortest surface distance between the landmarks (in the order that they were selected).









The path length (mm) is displayed in the **Log** window.

The path may be deleted or saved in the same way as an image.

Measuring from a landmark to the nearest point on another image

- 1 Place  (or select ) a landmark on one image.
- 2 Select another image.
- ✓ Ensure there is one selected image with one or more selected landmarks, and one selected image with no selected landmarks. Any other open images should be deselected.
- 3 Select **Measure ▶ Distance ▶ Landmark to Surface**. The distance between the selected landmark(s) on the first image and the nearest point on the second image is displayed in the **Log** window.

Measuring the perimeter of a selected area

- 1 **Select the area to be measured:** Click  **paint area selection** or  **lasso select** (in the vertical toolbar). Drag over the area you wish to select with , or drag around the perimeter of the desired area with .
 - ✓ [Ctrl] toggles between the Paint and Erase functions of Area Selection, as well as between the Select and Erase functions of Area By Boundary. For example, press the **Ctrl** key while using Paint Area Selection to temporarily switch to Erase Area Selection.
- Another method to select the area: Click  **place landmarks** and then click at several points around the perimeter of the selection area. Select **Area ▶ Select ▶ Extend Using Landmarks**. The landmark dots are connected and filled in as a selection.
- ✓ The accuracy of the selection determines the accuracy of the perimeter measurement. To increase selection accuracy, increase magnification: Click  **zoom**, click in the image, and then drag downward while holding the left mouse button, or rotate the scroll wheel on your mouse.

2 Select **Measure** ▶ **Distance** ▶ **Perimeter of Selected Area**. The length of the perimeter of the selected area is displayed in the **Log** window.

Using “Color Surface by Distance...”


Color Surface by Distance... provides visual feedback and numerical data about the distance between two images, enabling the user to verify image registration and also identify regions of difference/change (e.g., pre- and post-op) for comparison and analysis.

1 Open two registered images.

2 Use **Surface View Selector** (see [Surface View Selector](#) in section 6.1) to hide the image that will be compared to the baseline image and make sure the baseline is active.

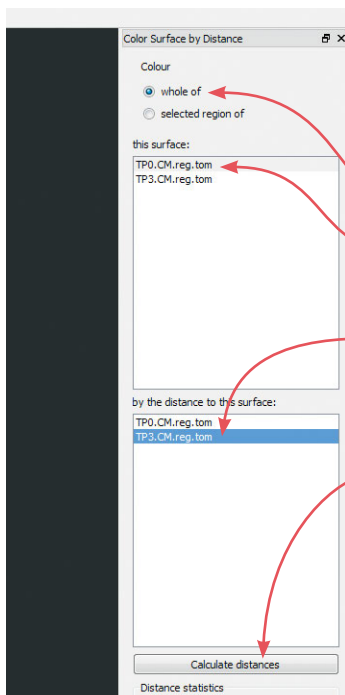
3 Select **Measure** ▶ **Distance** ▶ **Color Surface by Distance...**

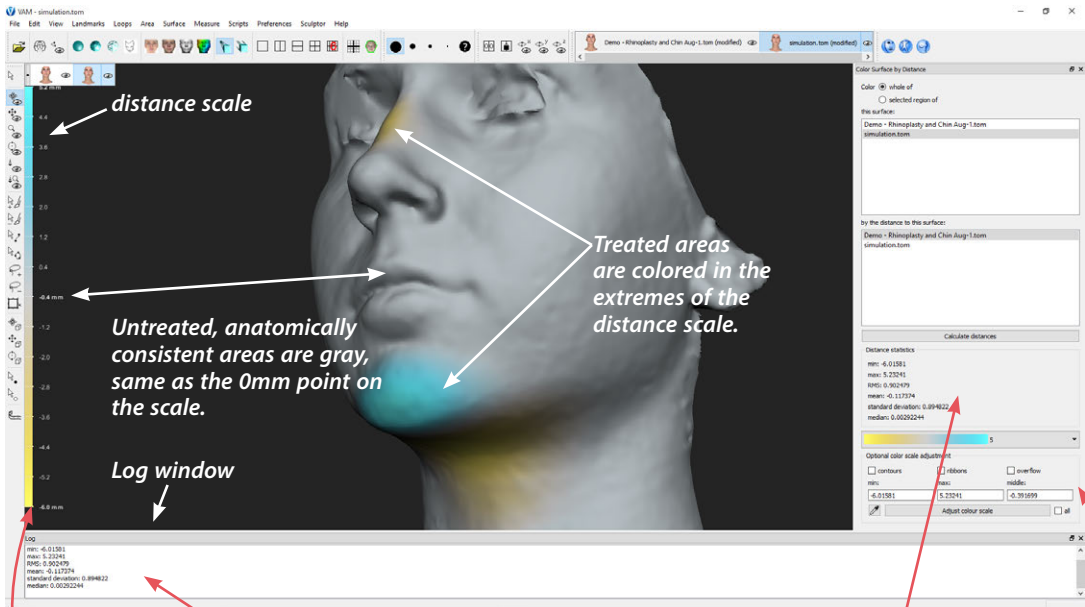
4 Make the following selections in the **Color Surface by Distance** window:

- **Colour:**  whole of
- **this surface:** select the .tom for the baseline image
- **by the distance to this surface:** select the .tom for the comparison image

5 Click the **Calculate distances** button.

VECTRA Analysis software calculates the distances between the two images and colors them according to the color scale parameters.









- Numerical data is displayed in the Distance statistics section of the **Color Surface by Distance** window and also in the **Log** window. Review the false color map to determine accuracy of the registration. The distance scale is located on the left side.
- The color in untreated, anatomically consistent areas should reflect the 0mm point on the scale with only slight variation. The color in treated area(s) should indicate a clear +/- change in image projection.

The color scale parameters may be adjusted to demonstrate image differences more clearly:

1 Enter the desired min/max (in mm) in the **Optional Color Scale Adjustment** fields.


2 Click the **Adjust Color Scale** button to apply. Standard recommended values are min = -7, max = 7. Adjust as necessary to demonstrate image differences.

- Untreated, anatomically consistent areas that are not close to the 0mm point on the scale indicate poor registration. This could result from selecting imprecise landmarks, numbering landmarks incorrectly, or a change in physical anatomy due to treatment or patient positioning.
 - To return to the standard image view select **View ▶ Texture ▶  Textured** or click  **Textured** in the top toolbar.
 - To view the false color map again select **View ▶ Texture ▶  Colored by Distance** or click  **Colored by Distance** in the top toolbar.
- ✔ To compare two regions of interest, first select the region in the baseline image, then select “selected region of” instead of “whole of”.

8.2 MEASURE AND COMPARE CIRCUMFERENCES



Using “Circumference At Plane” method

1 Open a patient chart and select the images to be analyzed in VECTRA Analysis (including registered baseline):

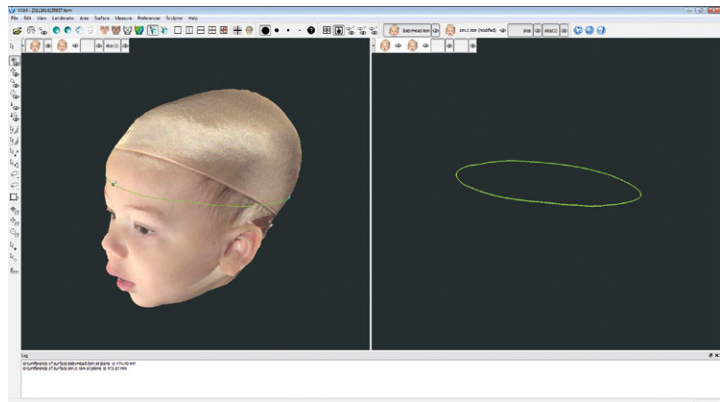
- VECTRA chart: click  **open in Analysis**
- Mirror chart: click (or double-click one of the thumbnails)

VECTRA Analysis will be launched and both images will open, superimposed in one viewport.

2 Use **Surface View Selector** (see [Surface View Selector](#) in section 6.1) to deactivate the follow-up image and make sure the baseline is active.

3 Select **Landmarks ▶ Tools ▶  Place Landmarks** (or click the  **Place Landmarks** button in the vertical toolbar).


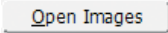
- 4 Place 3 landmarks (see [7.6 Using Landmarks](#)) to define the plane or course of the circumferential measurement.
- 5 Use **Surface View Selector** to activate the follow-up image (keep the baseline active).
- 6 Select **Landmarks ▶ Project Selected Landmarks**. The landmarks on the baseline image are projected onto the follow-up image.
- 7 Select **Landmarks ▶ Select ▶ All**.
- 8 Select **Measure ▶ Circumference At Plane ▶ 3 Landmarks**. The circumference of each image is calculated and displayed in the **Log** window (bottom of screen).





- 9 With the baseline as the only active image, select **File ▶ Save...** and click **OK** to retain the landmarks for analysis of future time-points.
- 10 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

Using tape measure and perimeter method

1 Open a patient chart and select the images to be compared in VECTRA Analysis:

- VECTRA chart: click  **open in Analysis**
- Mirror chart: click  (or double-click one of the thumbnails)

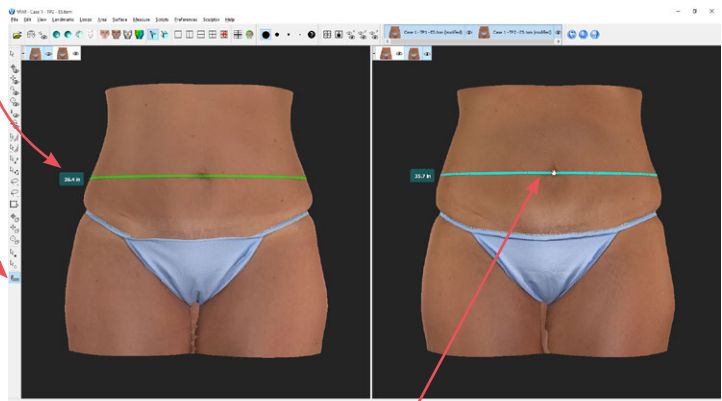
VECTRA Analysis will be launched and both images will open, superimposed in one viewport.

2 Click the  **Side-By-Side** button in the Viewport Extras toolbar to put each image in its own viewport. (If you don't see , select **Preferences ▶ Show ▶ Viewport Extras.**)

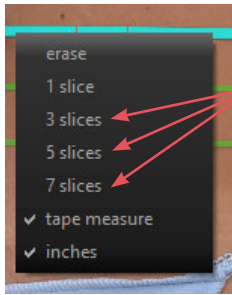
3 Click the  **Circumference** button in the vertical toolbar.

4 **Select the region you wish to measure:**

- Click on the first image at the desired height of measurement. A green ring is added and the circumferential measurement of a horizontal slice of the body at this height is displayed to the left of the ring.

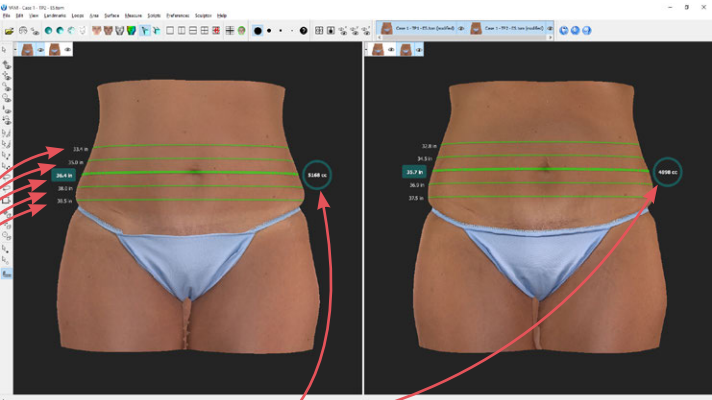


- Click on the second image at the corresponding location to place a measurement ring.

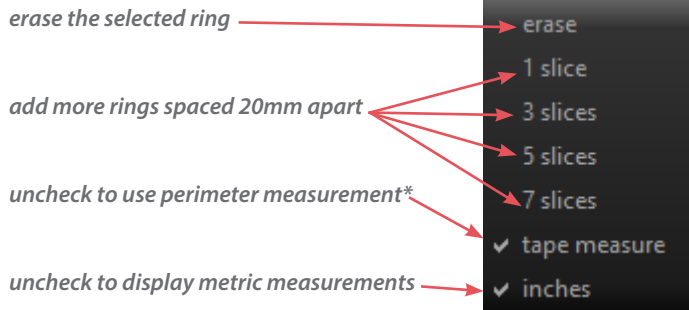


5 Right-click on a green ring to add slices (green rings) 20mm apart, above and below the initial slice. Select the number of slices from the pop-up menu.

Circumferential measurements are displayed to the left of each slice.



The volumetric measurement of the cylinder created by the uppermost and lowermost slices is displayed to the right.

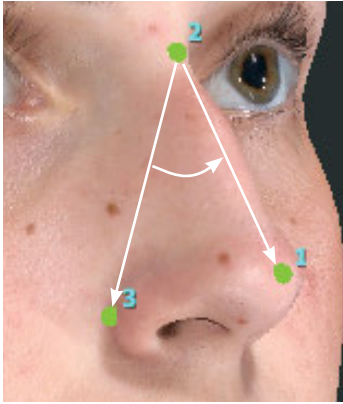


* **Perimeter** measures the true circumference of the surface, like a sticky string faithfully following all of the contours of the designated slice.



Tape measure spans the concave surfaces, like an actual tape measure held taut around the designated slice.

8.3 MEASURE AND COMPARE ANGLES



1 Place three landmarks on an active image to identify the angle that will be measured, or select three previously placed landmarks.

- The angle formed at landmark 2 by landmarks 1 and 3 will be measured.
- Exactly three landmarks must be selected.
- See [7.6 Using Landmarks](#) for more on placing and selecting landmarks.



2 Select **Measure ▶ Angle ▶ from 3 Landmarks**.

- The value for the specified angle is calculated and displayed in the **Log** window.


8.4 MEASURE AND COMPARE AREA

1 Open two registered images.

2 Use **Surface View Selector** to deactivate one image (see [Surface View Selector](#) in section 6.1).

3 Select the area to be measured: Click  **lasso select** (in the vertical toolbar) and drag (hold down the left mouse button) around the perimeter(s) of the area(s) to be measured. Alternatively, click  **paint area selection** and drag over the area you wish to select.

- ✓ [Ctrl] toggles between the Paint and Erase functions of Area Selection, as well as between the Select and Erase functions of Lasso Select. For example, press the **Ctrl** key while using Lasso Select to temporarily switch to Lasso Erase.

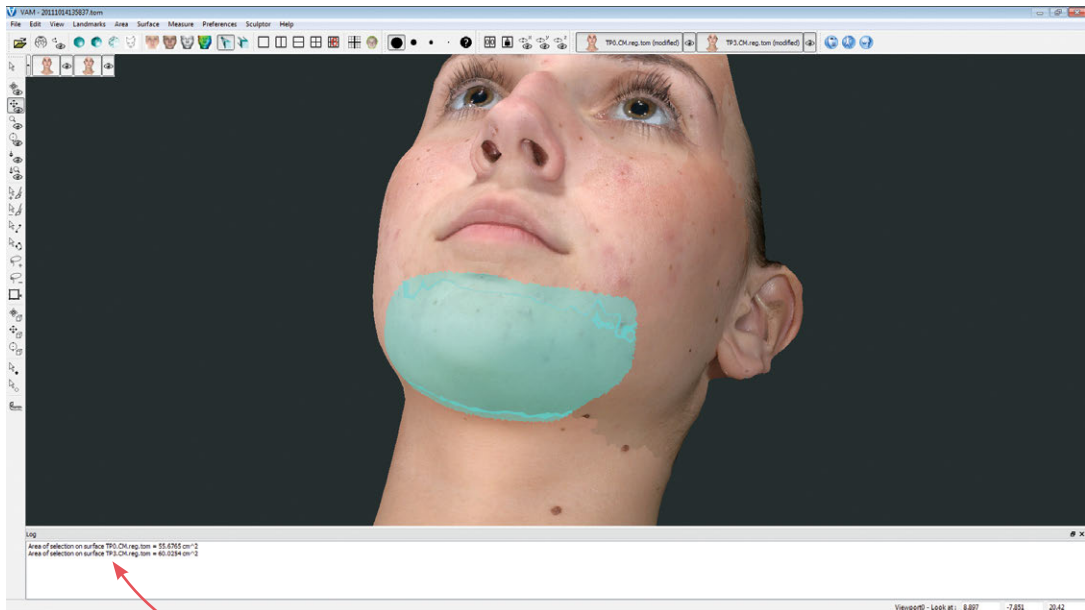
Another method to select the area: Click  **place landmarks** and then click at several points around the perimeter of the selection area. Select **Area ▶ Select ▶ Extend Using Landmarks**. The landmark dots are connected and filled in as a selection.

4 Use **Surface View Selector** to activate the other image.

5 Select **Area ▶ Project Selected Area**.

The corresponding area on the second image will become selected

6 Select **Measure ▶ Area ▶ of Selection**.



- The value for the specified area is calculated for each of the images and displayed in the **Log** window.

To calculate the area of each entire image, select **Measure ▶ Area ▶ of Surface**—useful for comparing selected area to total area.

7 Select **File ▶ Save...** and click **OK** if you wish to retain the selection(s) for future analysis.

8 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

8.5 MEASURE AND COMPARE VOLUME





Using Volume ▶ to Interpolating Surface

Allows the image to be measured against a system-generated reference image. This is useful for obtaining a general reference volume from a single time point (e.g., pre-operative breast patient) when a second image (post-treatment) is not yet available.

✓ **NOTE:** The calculated volume does not represent the actual volume as measured against the actual subsurface anatomical structure but may serve as a useful planning tool.

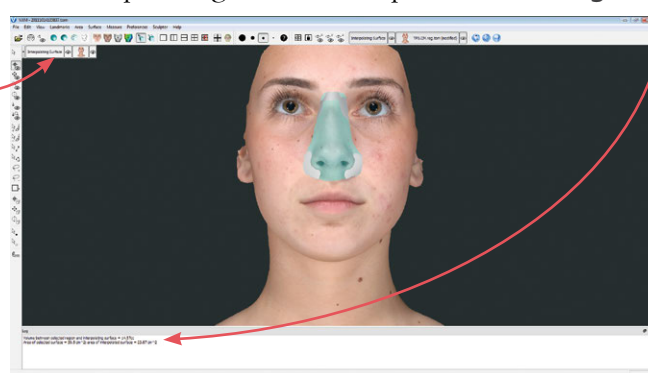
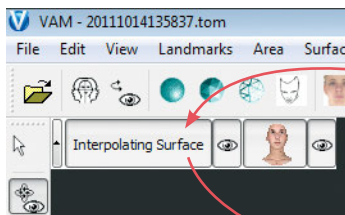
1 Open a single image.



2 **Identify the area for which you wish to determine the volume:** Click  **paint area selection** or  **lasso select** (in the vertical toolbar). Drag over the area you wish to select with , or drag around the perimeter of the desired area with .

✓ Include area slightly beyond the boundaries of the target when making the selection.

3 **Select Measure ▶ Volume ▶ to Interpolating Surface.** A new reference image is generated (with its own Surface View Selector and the name, “Interpolating Surface”). The volume difference between the original and interpolating surfaces is reported in the **Log** window.



4 To save the interpolating surface to the patient chart for future analysis deactivate the original image and select **File ▶ Save...** and click **OK**.

5 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

Using Volume ▶ of Closed Surface

Allows the volume measurement of any closed surface (solid model) that has been generated using **Volume ▶ Between Two Surfaces (difference object)**, created using advanced stitching techniques, or imported from a directory location.

1 Open or import a closed surface.

2 Select **Measure ▶ Volume ▶ of Closed Surface**. The volume of the closed surface is calculated and reported in the **Log** window.





3 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

Using Volume ▶ Between Two Surfaces (difference object)

1 Open two registered images.



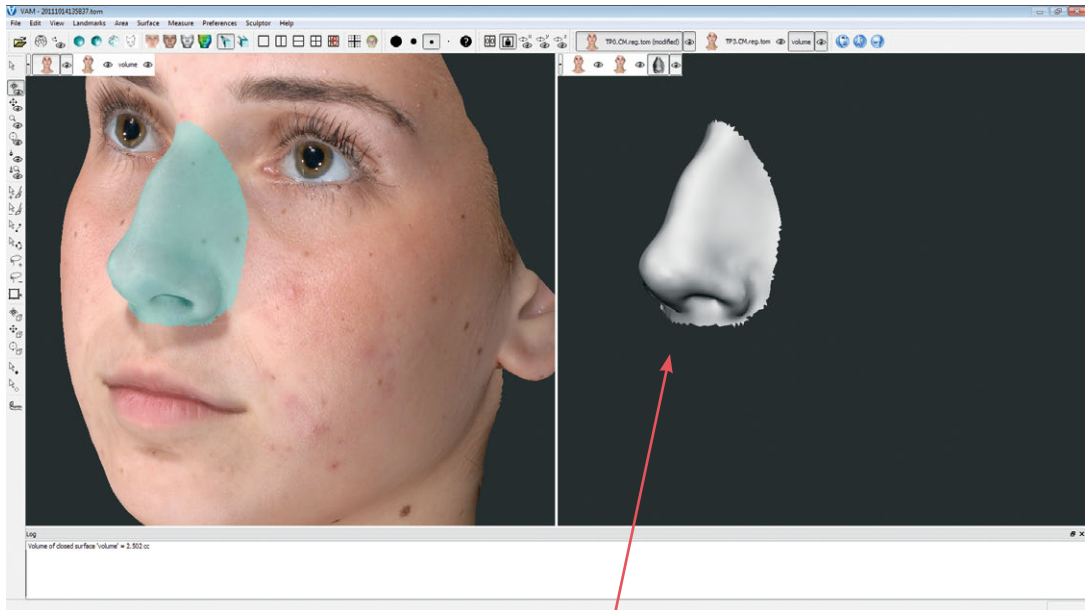
2 Use **Surface View Selector** to make sure the only active image is the baseline (see [Surface View Selector](#) in section 6.1).

3 Identify the area for which you wish to determine volume difference: Click  **paint area selection** or  **lasso select** (in the vertical toolbar). Drag over the area you wish to select with , or drag around the perimeter of the desired area with .



4 Use **Surface View Selector** to activate the other image.

5 Select **Measure ▶ Volume ▶ Between Two Surfaces (difference object)**. A new closed surface (with its own Surface View Selector and the name “volume”) is created depicting the difference in volume. The volume difference (volume of the difference object) is reported in the **Log** window.



The difference object may be viewed in isolation or in multiple viewports, and manipulated in the same ways as any other image.

6 Deselect the original images and select **File ▶ Save...** and click **OK** if you wish to save the difference object to the patient's chart.


7 Repeat step 6 for the image with the area selection (typically pre-treatment image) if you wish to retain the defined area for analysis against future images.

8 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window..

Using Volume ▶ Between Two Surfaces (parallel projection)

1 Open two registered images.

2 Use **Surface View Selector** to make sure the only active image is the baseline (see [Surface View Selector](#) in section 6.1).

3 **Select the area to be measured:** Click  **lasso select** and drag (hold down the left mouse button) around the area to be measured.

4 Use **Surface View Selector** to activate the other image.

5 Select **Area ▶ Project Selected Area**.

The corresponding area on the second image will become selected.

6 Select **Measure ▶ Volume ▶ Between Two Surfaces (parallel projection)**. The volume difference between the areas selected on the two images will be calculated and reported in the **Log** window at the bottom of the screen.

7 Select **File ▶ Save...** and click **OK** if you wish to retain the selection(s) for future analysis.

8 See section 7.1, [Saving data from VAM's Log window into the Mirror patient chart](#), or [Saving data from VAM's Log window into a Word or other text file](#) for how to save the data from the Log window.

APPENDIX A

Installing and Configuring the Software

A.1 INSTALLING THE SOFTWARE

NOTE: The software is pre-installed on the capture computer that comes with your VECTRA M3. See [A.2 *Configuring the Product Recommendations Library*](#).

Follow these software installation instructions for a consultation workstation computer that was *not* supplied by Canfield along with the VECTRA M3 system.

System requirements

Before installing the software on a computer not supplied by Canfield, ensure that it meets the minimum specifications listed below.

- Operating system: Windows 10 Professional, 64 bit (recommended) **NOT SUPPORTED:** Windows Home Edition or Windows VISTA
- Processor: 2.2Ghz Quad Core i5, 7th Gen or higher (Intel i7 7th Gen or higher, recommended)
- System memory (RAM): 16 GB or greater
- Minimum 1 GB available disk space for installing application
- Minimum 1 TB available disk space recommended for data
- Graphics card: 1 GB dedicated memory minimum (2 GB highly recommended)
 - Dedicated nVidia or AMD card (nVidia highly recommended)
 - Driver: latest available
 - 3.0 or later Open GL

- USB Ports: 2 dedicated ports (USB 2.0)
- Display: 1920 × 1080 (4K monitors not currently optimized)
- Microsoft Security Essentials anti-virus software recommended
- Wired printers (recommended for speed)
- 1 Gbps Ethernet connection for networking – Wi-Fi not supported

Expect the software installation process to take approximately 20 minutes.

Installation 1: Mirror software

Follow the steps below to install Mirror software on a single computer or on multiple computers that are not connected by a network.

- 1** Run Windows Update to ensure that you are running the most current version of the operating system.
- 2** Log on to the computer with a user account that has local administrative access privileges.
- 3** Close any programs that may be running on the computer.
- 4** Temporarily disable any antivirus software.
- 5** Insert the software installer flash drive into an available USB port on your PC.
- 6** Open the Windows Start Menu.
- 7** Click **Computer** to see connected drives.
- 8** Double click **CANFIELD SW** to open the flash drive.
- 9** Double click **Start**.
- 10** Click to select Mirror software installation.

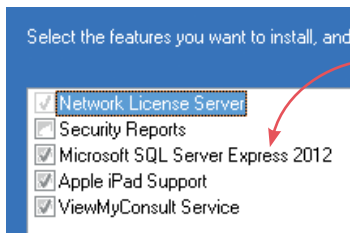
11 Click **Install**.

12 When the InstallShield welcome screen appears, click **Next** to proceed with installation.

13 Read the Software License Agreement. If you agree to the terms of the License Agreement, select “I accept the terms of the license agreement” and click **Next** to continue with software installation. If you select “I do not accept the terms of the license agreement,” the Setup program will close.

14 Installation Type Click to select the setup type that best suits your needs, then click **Next**.

- STAND-ALONE - Install the application, Microsoft SQLServer and the Web Portal service.
- WORKSTATION (Client) - Install application and configure to get data from network server.
- SERVER - Computer is on a network. Install application and manage the license and databa



15 Select Features For installation on a stand-alone PC, make sure “Microsoft SQL Server Express” is checked.

- “Apple iPad Support” should be *checked*, if you have purchased this option.
- “ViewMyConsult Service” should be *checked* to enable uploads to Canfield’s secure patient portal.

After confirming that correct items are checked/unchecked, click **Next**.

16 A summary of installation details appears. If you wish to review or change any settings, click **Back**. If you are satisfied with the settings, click **Next** to begin copying the program files to the computer’s hard drive.

17 InstallShield Wizard Complete If prompted, click the radio button next to “Yes, I want to restart my computer now”. Click **Finish**. Proceed with VECTRA software registration and installation.

Installation 2: Canfield Connect® registration

After the Mirror software installation is complete, follow the steps below to register and install VECTRA software.

You are required to register your Product Key in order to use your Canfield software.



An internet connection is required to complete the Canfield Connect Registration.

- 1 Open the Windows Start Menu.
- 2 Click **Computer** to see connected drives.
- 3 Double click **CANFIELD SW** to open the flash drive.
- 4 Double click **Start**.

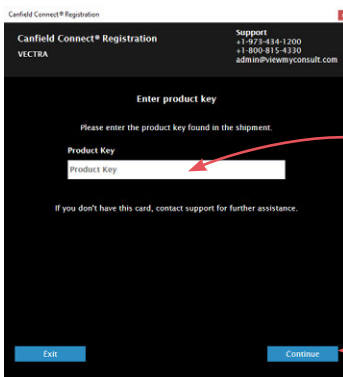
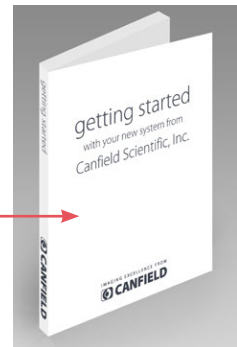
- 5 Click to select VECTRA software installation.
- 6 Click **Install**.



- 7 Click **Continue** in the Canfield Connect® Registration dialog.

- 8 Locate your VECTRA Product Key in the white Getting Started box that came with your system.

The Product Key consists of a unique string of 16 characters.



- 9 Enter the Product Key, then click **Continue**.

10 Enter the email address of your “Super Admin”.

This user will manage general Company information, user privileges, the product recommendations library, and other account features via the Canfield Connect website.

Click **Continue**.

11 Verify the email address, then click **Continue**.

12 Complete the information requested in the “Finish setting up your Company” screen, then click **Continue**.

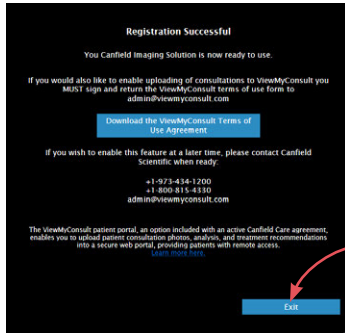
13 Verify your information, then click **Continue**.

Canfield Connect Registration is complete when the “Registration Successful” screen is displayed.

14 Activate the ViewMyConsult® option by completing the steps below, or click **Exit** in the “Registration Successful” screen.

ViewMyConsult is an option included with an active Canfield Care Agreement, enabling the upload of patient consultation photos, analysis and treatment recommendations to a secure, interactive web portal, and providing patients with remote access. To activate ViewMyConsult:

1 Click the big blue button in the “Registration Successful” screen to download the **Terms of Use Agreement**.



2 Complete the agreement form and return the signed form to Canfield Scientific at admin@viewmyconsult.com.

3 Press the **Alt** and **Tab** keys on the keyboard to return to the Canfield Connect Registration screen.

4 Click **Exit** in the “Registration Successful” screen, and complete the VECTRA software installation.

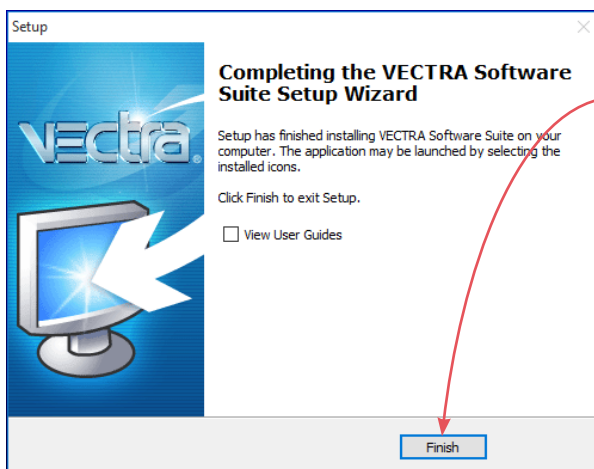
Installation 3: VECTRA software

1 When the InstallShield welcome screen appears, click **Next** to proceed with installation.

2 Read the Software License Agreement. To accept the terms of the License Agreement, select “I accept the terms of the license agreement” and click **Next** to continue with software installation. If “I do not accept the terms of the license agreement” is selected, the Setup program will close.

3 Click **Next** in the first “Installation options” window.

4 Select the appropriate implant library if using Breast Sculptor.



5 Click **Install**.

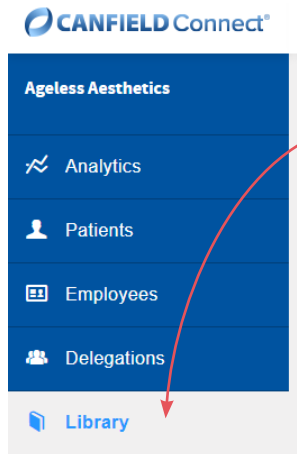
6 Click **Finish** to exit Setup.

7 Remove the flash drive.
Installation is complete.


A.2 CONFIGURING THE PRODUCT RECOMMENDATIONS LIBRARY

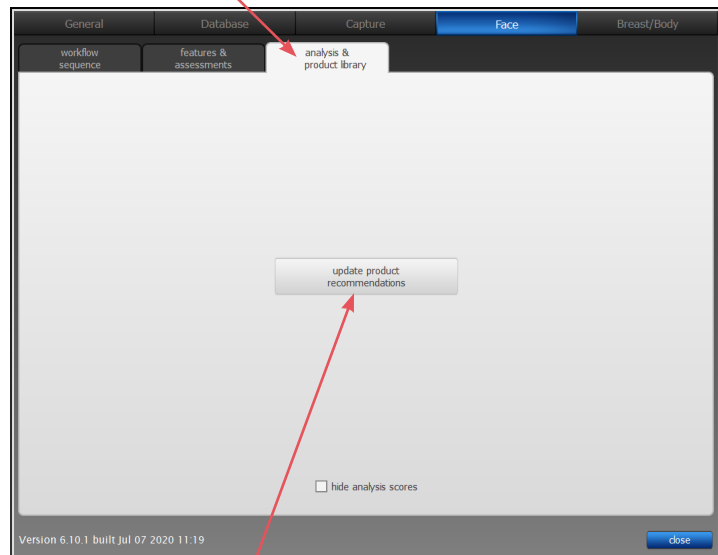


An internet connection is required for first time users to configure and update the Product Recommendations Library.



After completing the Canfield Connect Registration process, you are ready to configure the product library. The product library is accessible by selecting the **Library** tab in CanfieldConnect.com, or from the VECTRA home screen:

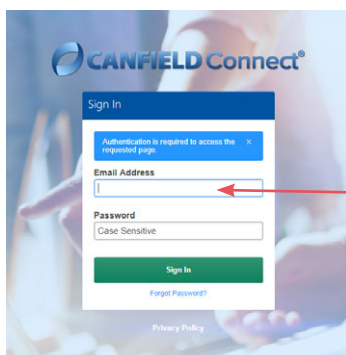
- 1 Click  **setup** at the bottom right of the VECTRA home screen.
- 2 Click to select the **Face** tab, then click to select the **analysis & product library** tab.



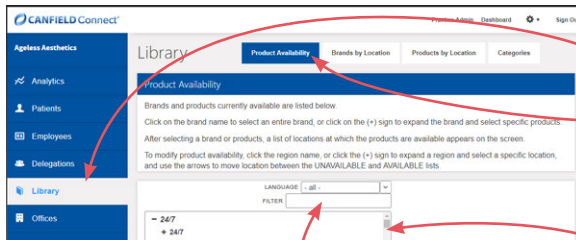
- 3 Click the **update product recommendations** button.

- 4 Sign in to Canfield Connect.

If your login is associated with multiple companies (or practices), the system provides a list of associated companies and prompts you to select one.



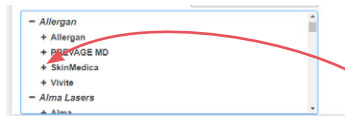
Assigning Product Availability



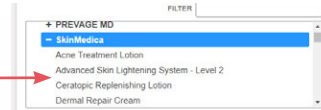
To begin the product library setup, select **Library** from the left of the Canfield Connect home screen. The **Product Availability** tab is selected.

To select a brand:

1 Scroll through the product list to find the desired brand, or begin typing the brand or product name into the **FILTER** box.



2 Click on the brand name, or click on the **+** sign to select a product within the brand. The list expands to display the available product names.



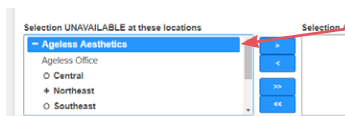
3 After selecting a brand or product, the **Selection UNAVAILABLE at these locations** and **Selection AVAILABLE at these locations** boxes appear at the bottom of the screen.

By default, the selection will show as **UNAVAILABLE** at all company locations.

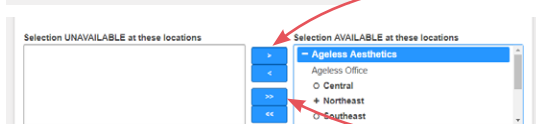
Click on the **+** sign next to the region name to view all locations within the region.

NOTE: Only one brand or product can be selected at a time.

To make the product or brand selected available at a location:



1 Click to select the name of the region or a location within that region.



2 Click **>** to move the region or location to the **AVAILABLE** box. To move *all locations* from **UNAVAILABLE** to **AVAILABLE**, click **>>**.

The brand or product selected is now available at that location.

Repeat this selection process for all brands and products available at the region and/or its associated locations.

To move a location to the UNAVAILABLE box, click < or click << to move *all locations* to the **UNAVAILABLE** box.

- If one or more products within a brand are **AVAILABLE** at a region or location, the selected brand name appears as **AVAILABLE** at these locations even though not all products within that brand are **AVAILABLE**.
- To make all products within a brand **AVAILABLE** at a location after already making one or more of the products available, make the brand name **UNAVAILABLE** at the location and then move the brand to the **AVAILABLE** column. All products within the brand name will now be available at that location.

Reviewing Brands by Location

The screenshot shows the 'Brands by Location' tab in the CANFIELD Connect software. The table displays the following data:

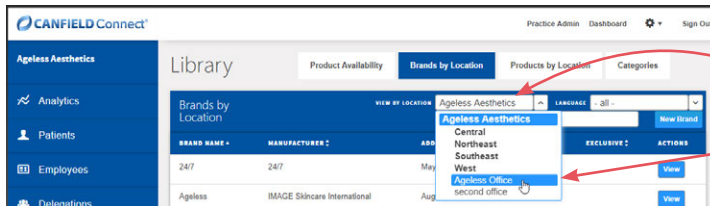
BRAND NAME	MANUFACTURER	ADDED ON	LAST MODIFIED	EXCLUSIVE	ACTIONS
247	247	May 4, 2017	Dec 12, 2017		View
Ageless	IMAGE Skincare International	Aug 22, 2016	Dec 12, 2017		View
Allergan	Allergan	Oct 3, 2013	Apr 11, 2018		View
AlumierMD	Alumier Labs	Aug 22, 2016	Dec 12, 2017		View
Artid	Artid	May 4, 2017	Dec 12, 2017		View

The **Brands by Location** tab allows you to view the brands, associated manufacturer, and date on which a brand was last modified in the product library database.

Any brands exclusive to your company are identified by a “Yes” in the **EXCLUSIVE** column.

- See [Creating a New Brand](#) below for additional information on **EXCLUSIVE** products.
- Click on the header of any column to sort the brands by the information within that column.

To see which brands are active for a specific region or location:

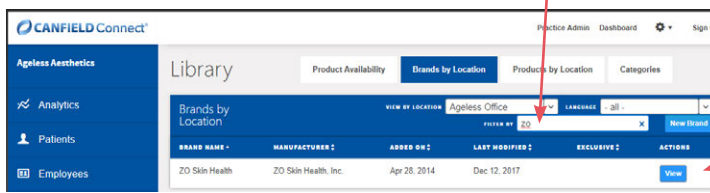


1 In the **VIEW BY LOCATION** field, click on the .

2 Click to select the name of a region or location.

Brands available at that region or location appear on the screen.

To see if a specific brand is active for the region or location selected, begin typing the name of the brand in the **FILTER BY** field.

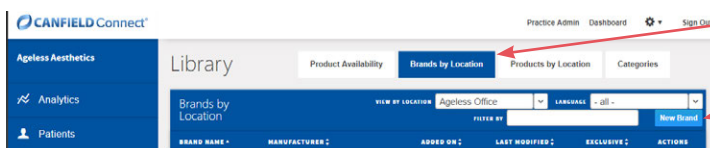


The screen displays the brands that contain the letters specified.

NOTE: The VECTRA product library includes non-exclusive brands and products provided by our brand partners. These brands and products can be made **AVAILABLE** or **UNAVAILABLE** at your locations, but cannot be edited or removed from the library.

Creating a New Brand

To add a brand to the product library that is not included with the VECTRA software, add an exclusive brand on the **Brands by Location** screen.

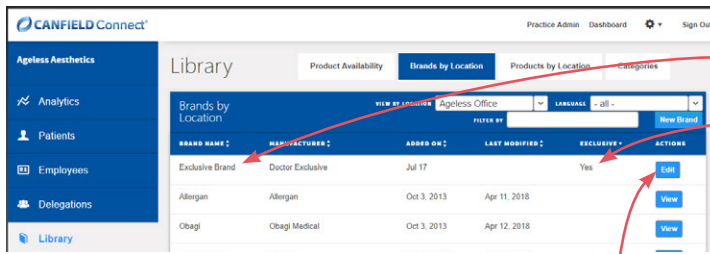


1 Click on the **New Brand** button.

2 Type the Brand Name and Manufacturer.

3 Select language from the drop down menu, if desired.

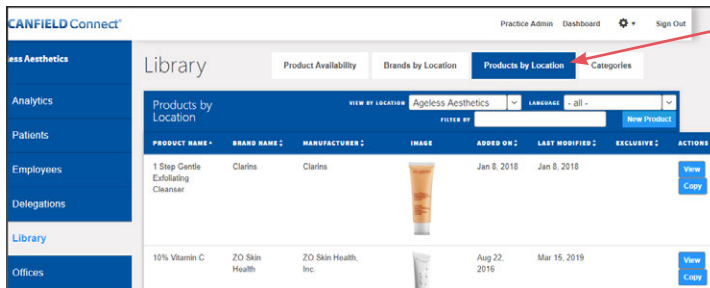
4 Click **Add New Brand**.



The exclusive brand is added to the **Brands by Location** screen and “Yes” appears in the **EXCLUSIVE** column.

The **View** button is for viewing brand information only, except for **EXCLUSIVE** brands, which have an **Edit** button to modify Brand Name and/or Manufacturer.

Reviewing Products by Location

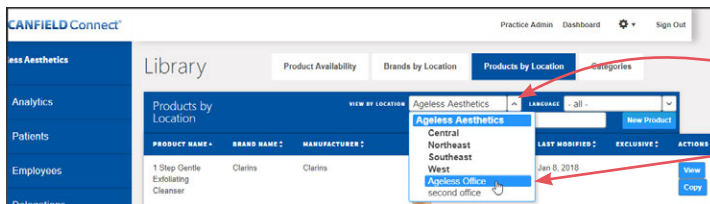


The **Products by Location** tab allows you to view the products, associated brands and manufacturers, and dates on which the products were modified in the product library database.

Any products exclusive to your company are identified by a “Yes” in the **EXCLUSIVE** column.

- See [Creating a New Product](#) below for additional information on **EXCLUSIVE** products.
- Click on the header of any column to sort the products by the information within that column.

To see which products are active for a specific region or location:

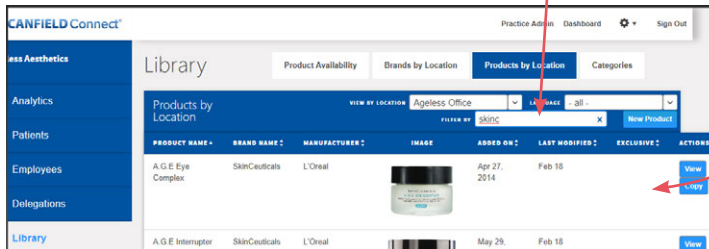


1 In the **VIEW BY LOCATION** field, click on the .

2 Click to select the name of a region or location.

Products available at that region or location appear on the screen.

To see if a specific product is active for the region or location selected, begin typing the name of the product in the **FILTER BY** field.



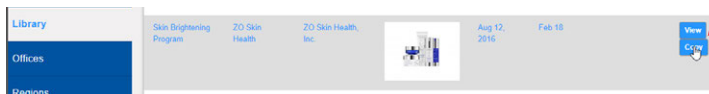
The screen displays the products that contain the letters specified.

Creating a New Product

To add a product to the product library that is not available in the product library within the VECTRA software, add an exclusive product on the **Products by Location** screen. There are two ways to create a new product.

Creating a New Product—Method 1:

Copy Existing Product Entry to create an exclusive product that is similar to a product that already exists on the **Products by Location** screen.



1 Click **Copy** to the right of the product.

Private Copy of Existing Product
✕

Product Name

Brand

Description

Special Usage Instructions

Language

Purchase Link

The “Private Copy of Existing Product” dialog appears.

2 Edit the **Product Name**.


3 Click in the **Brand** field. A list of all available brands appears. Select a brand.

4 Edit the **Description** and **Special Usage Instructions** as needed.

5 Select language from the drop down menu, if desired.

6 Enter a purchase link, if desired.

Purchase Link

Current Image


Select New Image

CATEGORIES

Available

Purpose

- Supplement
- Facial Mist
- Treat & Repair
- Body Care
- Makeup Removal
- Cleanser
- Acne Cleanser
- Peel
- Scrub

Selected

Feature

- Texture
- Spots
- AM Spots
- Red Areas
- Brown Spots

Treatment

- Dull Skin Tone
- Melasma
- Dark Spots / Uneven Skin Tone

Add New Product


7 Click on **Select New Image** to upload an image (jpg or png file) of the product.

8 Modify the Selected **CATEGORIES** as necessary. See the [Reviewing Categories by Group](#) section below for more information on Categories.

- Use the scroll bar to the right of the available category list to view and select all categories.
- Ctrl-Click to select more than one category at a time.
- Click **>** to move the category to the **Selected** field or **<** to move the category back to the **Available** field.
- Repeat as necessary.

9 Click **Add New Product**.

The new product is added to the **Products by Location** screen and “Yes” appears in the **EXCLUSIVE** column.

PRODUCT NAME	BRAND NAME	MANUFACTURER	IMAGE	ADDED ON	LAST MODIFIED	EXCLUSIVE	ACTIONS
Exclusive-Skin Brightening Program	ZO Skin Health	ZO Skin Health, Inc.		Jul 17	Jul 17	Yes	Edit

Creating a New Product—Method 2: Create New Product Entry

New Product x

Product Name

Brand

Description

Special Usage Instructions

Language

Purchase Link

1 Click on the **New Product** button.


2 Type the **Product Name**.

3 Click in the **Brand** field. A list of all available brands appears on the screen. Select a brand.

4 Type a short **Description** and **Special Usage Instructions** in their respective fields as needed.

5 Select language from the drop down menu, if desired.

6 Enter a purchase link, if desired.



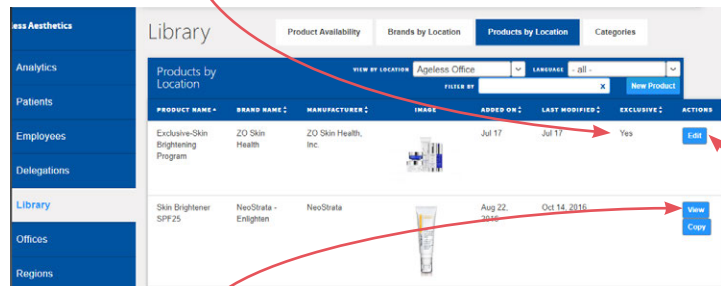
7 Click on **Select New Image** to upload an image (jpg or png file) of the product.

8 Assign one or more **CATEGORIES** to the product.

- Use the scroll bar to the right of the available category list to view and select all categories.
- Ctrl-Click to select more than one category at a time.
- Click **>** to move the category to the **Selected** field.
- Repeat as necessary.

9 Click **Add New Product**.

The new product is added to the **Products by Location** screen and “Yes” appears in the **EXCLUSIVE** column.

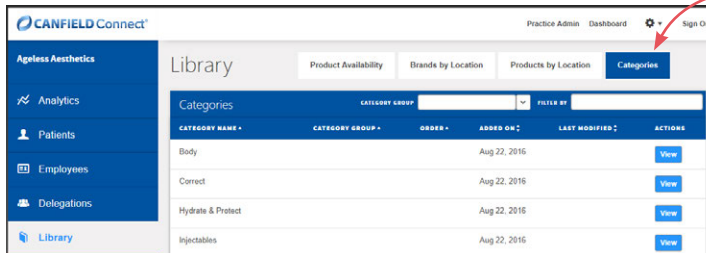


PRODUCT NAME	BRAND NAME	MANUFACTURER	IMAGE	ADDED ON	LAST MODIFIED	EXCLUSIVE	ACTIONS
Exclusive-Skin Brightening Program	ZO Skin Health	ZO Skin Health, Inc.		Jul 17	Jul 17	Yes	Edit
Skin Brightener SPF 25	NeoStrata - Erginon	NeoStrata		Aug 22, 2016	Oct 14, 2016		View Copy

NOTE: The **View** button is for viewing product information only, except for **EXCLUSIVE** products, which have an **Edit** button to modify product information as necessary.

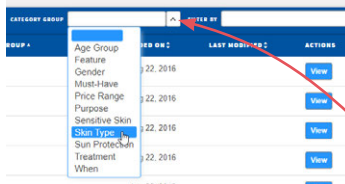
Reviewing Categories by Group

Categories are used for more efficient browsing of the products when selecting recommendations in a VECTRA consultation.



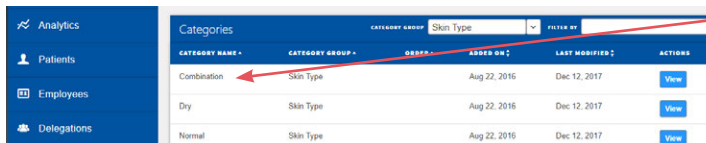
The **Categories** tab allows you to view category names by group.

- Click on the header of any column to sort the categories by the information within that column.
- Category information is defined by the system and cannot be modified.

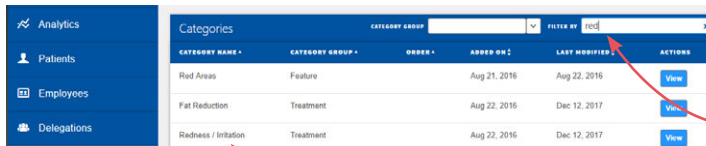


To view the categories within a specific category group:

Click on the **CATEGORY GROUP** drop-down at the top of the screen and select a group.



The category names within the group appear on the screen.



To find a specific category name, begin typing the name of the category in the **FILTER BY** field.

The screen displays the category names that contain the letters specified.

NOTE: Category is pre-set for brand partner products and cannot be modified. To Edit Categories for exclusive products, go to the **Products by Location** tab.

APPENDIX B

Data Back-up

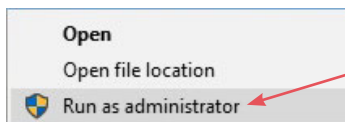



IMPORTANT: Failure to properly back up your digital images and client records subjects you to potential loss of data. Canfield Scientific accepts no responsibility or liability for lost or damaged data.

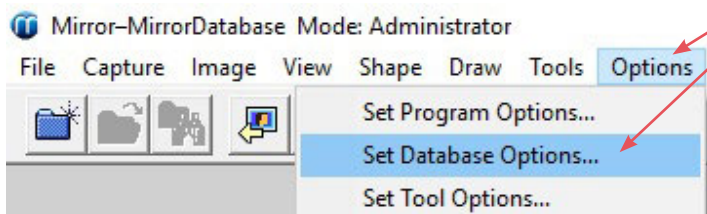
Canfield recommends you consult a qualified IT professional to assist you in developing a back-up plan. An IT professional should install and configure the necessary equipment and software, and train the staff member designated to perform back-ups.

Canfield's VECTRA software is a highly reliable program that will function predictably under ordinary circumstances. However, problems may occur as a result of power surges, disk failure, viruses or other damaging events that could render your database inaccessible or unstable. For this reason, it is essential that you regularly create back-up copies of your data and images so that you can restore the database if you experience a problem.

Method 1. Use Mirror Backup to create a backup copy of the Mirror database on your local drive.

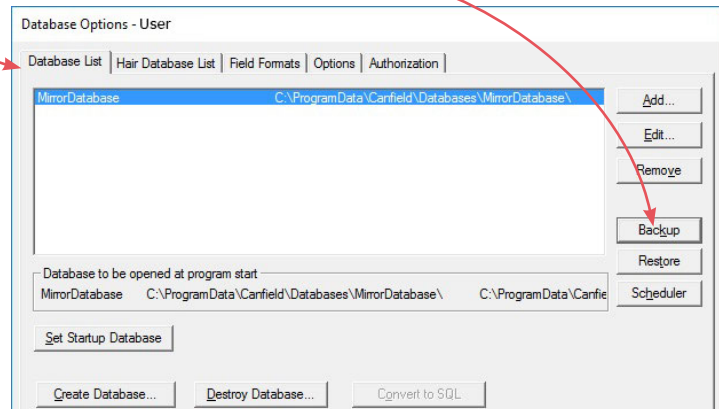


1 Right-click the  Mirror icon on the Windows desktop and select **Run as administrator** to open Mirror software in Administrator mode.

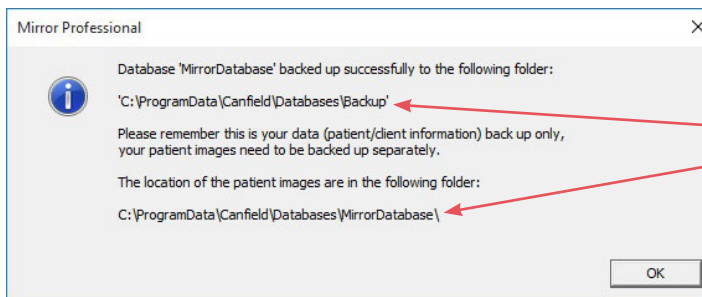


2 Select **Options** ▶ **Set Database Options...** from the top menu tabs.

3 In the **Database List** tab, select the desired database and click the **Backup** button.



Mirror's utility proceeds to back up the Mirror database to an easy-to-access location on your local drive.



4 When the Mirror backup process is finished, a dialog box provides the paths to **database backup** and **image files** locations. Note the locations, then click **OK**.

Default database backup and image file locations:

Database backup: C:\ProgramData\Canfield\Databases\Backup\

Image files: C:\ProgramData\Canfield\Databases\MirrorDatabase\

5 Use your backup solution to copy the files from both locations (database backup and image files) to external backup storage. Include the directories and all associated subdirectories.



IMPORTANT: The back up process is not complete until the database backup *and* image files have been copied to external backup storage. Make sure the image files are copied in addition to the database backup.

Method 2. Advanced back up plan: IT professional backs up the data directly, without using Mirror's backup utility.

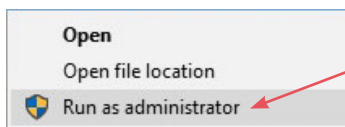
The practice IT resource should be directed to include the directories (and all associated subdirectories) listed below as part of the established back up procedures or as a separate, regularly scheduled procedure.


The default database and image file locations are:

Database: C:\Program Files\Microsoft SQL Server\MSSQL11.CANFIELD

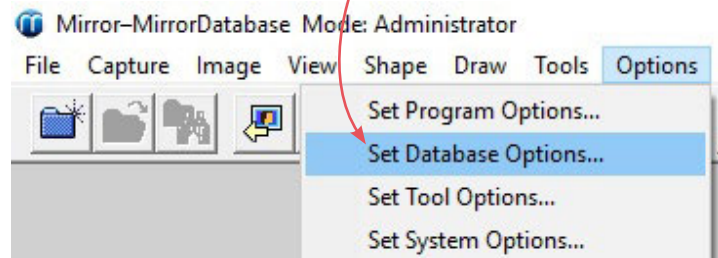
Image files: C:\ProgramData\Canfield\Databases\MirrorDatabase\

To determine the location of the Mirror database and Mirror image files, complete the following steps.

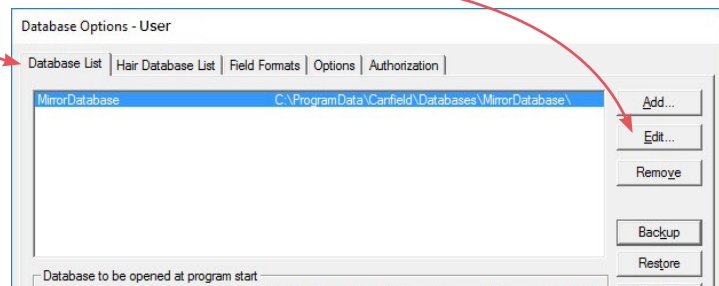


1 Right-click the  Mirror icon on the Windows desktop and select **Run as administrator** to open Mirror software in Administrator mode.

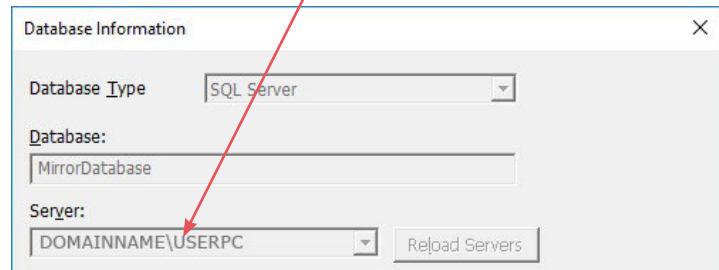
2 Select **Options** ► **Set Database Options...** from the top menu tabs.



3 In the **Database List** tab, select the desired database and click the **Edit** button.

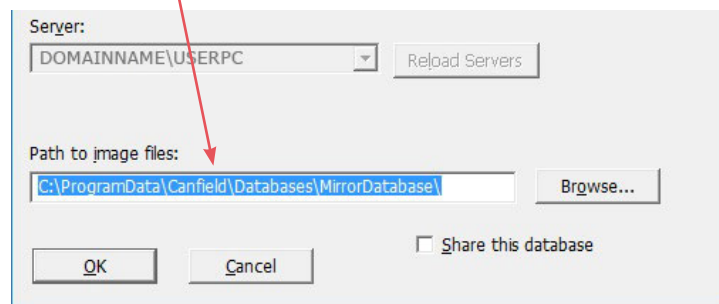


4 The Database Information dialog displays the name of the server where the database is located. Find and access the displayed server.



5 Open File Explorer **on this server** and navigate to **C:\Program Files\Microsoft SQL Server\MSSQL11.CANFIELD**. Select this directory to back up Mirror **database** files.

6 The Database Information dialog also displays the directory path for the Mirror image files.



Select this directory to back up Mirror **image files**.



IMPORTANT: Image files are crucial for complete backup.

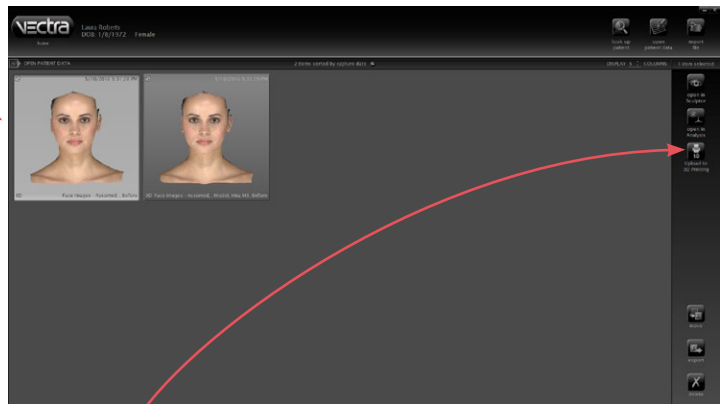
- If the image data is stored on the network, that directory location must also be included in the back-up process.
- If there more than one database, all operations above should be performed for each database.
- If VECTRA was installed in client server configuration, the backup process should include all machines where VECTRA software is installed.

APPENDIX C

Uploading 3D Images to MirrorMe3D

VECTRA 3D images can be uploaded directly to MirrorMe3D for printing color 3D models of the images. 3D images are uploaded using a secure FTP site. To add this capability to your VECTRA software, please contact Canfield or your Canfield representative.

- 1 Click to select the 3D image(s) you wish to upload for 3D printing. Shift-click to select multiple thumbnails, or Ctrl-click to select multiple discontinuous thumbnails.



- 2 Click  **upload to 3D printing**. (This button is only available if a 3D image is selected.)

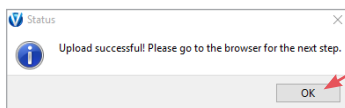
A screenshot of the 'Vectra Uploader' dialog box. It has a 'Form' tab and a 'Settings' tab. The 'Form' tab contains the following fields:

- Account: 708901371
- Physician Name: Dr. Paul Smith
- Physician Email: paul.smith@paulsmithPS.com
- Practice/Company: Paul Smith Plastic Surgery Inc.
- Patient ID: 123456

At the bottom of the form are 'OK' and 'Cancel' buttons. A red arrow points from the text below to the 'OK' button.

- 3 Complete the Vectra Uploader form. (Physician and practice information is auto-filled for subsequent uploads until modified or removed. Patient ID is required each time.)

- 4 Click **OK**. A progress bar is displayed as the image(s) are uploaded to MirrorMe3D.



- 5 When the "Upload successful" message is displayed, click **OK**, Alt-Tab to bring your browser window to the front, and log into the MirrorMe3D portal.

APPENDIX D

Sculptor Software Tips


Keyboard and mouse shortcuts

Quickly change between preset views Right-click in a viewport to open the rotate-to-view button set at the point of click. These mimic the views in the top left corner of the screen.

Undo Press **Ctrl-Z** on your keyboard to undo the most recent action.

Change magnification by rotating the scroll wheel on your mouse. To zoom in, move the wheel towards you. To zoom out, move the wheel away from you.


Double-click zoom Double-clicking anywhere on an image will zoom into that spot.


Temporarily change to the  Spin tool Press and hold the **Alt** key on the keyboard while you click and drag the image using the **left** button on the mouse.

Temporarily change to the  Pan tool Press and hold the **Alt** key on the keyboard while you click and drag the image using the **right** button on the mouse.


Image viewing buttons at the top of the screen


(These buttons are context sensitive, not always available.)


Rotate the image around the Y (vertical) axis Click the  **Y-spin** tool to spin the image left and right while maintaining the X and Z axes.

Auto-rotate the image around the Y (vertical) axis Click the  **Auto-spin** tool to spin the image from side to side without using the mouse to drag.

Alternate shading modes

 *Natural photo mode* (the default view). The image retains all of its photographic detail for a pleasing visual representation. Use to show skin resurfacing procedures.

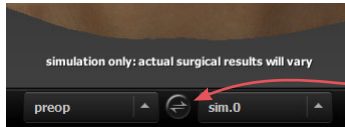
 *Dynamic photo mode*. The image is skin colored, but with reduced detail. This helps to show shape and anatomical features under raked lighting.


 *Shape (gray) mode*. This solid colored image helps to visualize shape and volume changes without the distraction of skin tones.

View Results

Superimposed view mode

 (Face Sculptor) or  (Breast/Body Sculptor)




View the pre-op image overlaid with a semi-transparent simulated outcome. Click  (center, bottom of the screen) to toggle between showing the pre-op or simulated image opaque.

Morph view mode



 (Face Sculptor) or 



View a single image with a slider for morphing between the original image, the simulated outcome, or any point in between.

To snap back and forth between the original image and the simulated outcome, click the  toggle button to the right of the slider.

To auto-animate the morph from original to simulated outcome, click .

Combine the  auto-animate morph and  auto-spin features to show the total simulation while continuing the consultation discussion.

APPENDIX E**Support Information****Technical support**

Technical support is available at 1-800-815-4330. Hours of support are from 6:00 a.m. EST to 8:00 p.m. EST Monday-Friday.

Warranty/repair

A one-year warranty is provided on VECTRA parts. Your warranty is automatically extended for one year if you have purchased our annual support and upgrade contract.

Should our technical support technicians determine that a part must be returned for service, a Return Merchandise Authorization number will be provided to you. In addition, a replacement part and a shipping carton will be mailed to you within two business days. Information on packing and shipping will be included.

Our shipping address is: Canfield Scientific, Inc.
4 Wood Hollow Road
Parsippany, NJ 07054 USA

Canfield Scientific (US):

support@canfieldsci.com

+1-973-434-1201

+1-800-815-4330 (toll-free in US, Canada, Mexico)

Canfield Scientific (Europe):

support@canfieldsci.com

+49 (0) 521 329 8560