CEREC Omnicam
From digital impression to restoration

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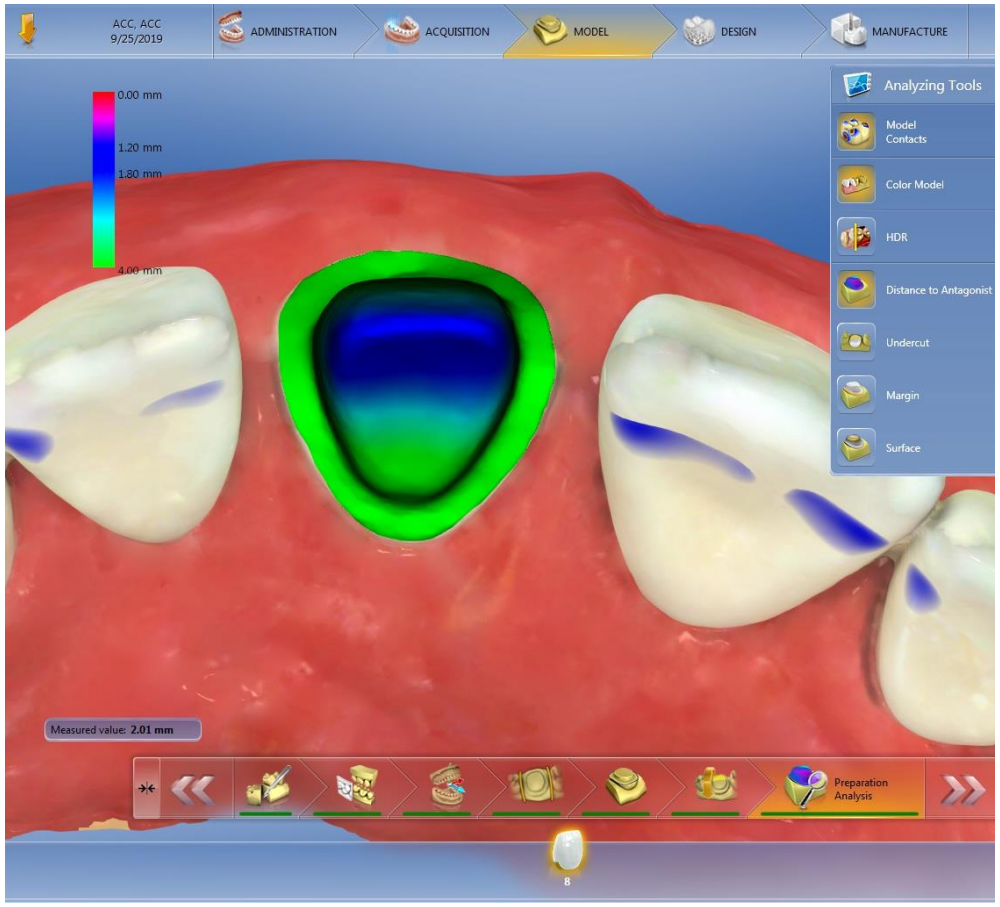
Digital dentistry

A new era in dental education.



Intra-oral scanning provides immediate digital feedback.

Collegiate Intraoral Digital Scanning Systems

For Patient cases

Intraoral Scanner

Omnicam (Cerec)

Omnicam # 6

Location: 4th floor (S436)

Request use: Schedule through **Axium** book (Digital Impression/CAD/ CAM)

Wi-Fi

Intraoral Scanner

Omnicam (Cerec)

Omnicam # 7-8

Location: 3rd floor (S306)

Request use: Schedule through **Axium** book (Digital Impression/CAD /CAM

Wi-Fi

Intraoral Scanner

Omnicam (Cerec)

Omnicam # 9-10

Location: 2nd floor (S262)

Request use: Schedule through **Axium** book (Digital Impression/CAD/ CAM)

Wi-Fi

Intraoral Scanner

TrueDefinition (3M)

Location: 3rd floor (S306)

Request use:

Schedule through **Axium** book (Digital Impression/CAD /CAM)

Wi-Fi

For Projects

Intraoral Scanner

Omnicam (Cerec)

Omnicam # 1-5

Location: 2nd floor (N200)

Request use: Schedule through **Axium** book (Digital Impression/CAD/ CAM)

Cable

Intraoral Scanner

BlueCam (Cerec)

BlueCam # 1-4

Location: 2nd floor (N200)

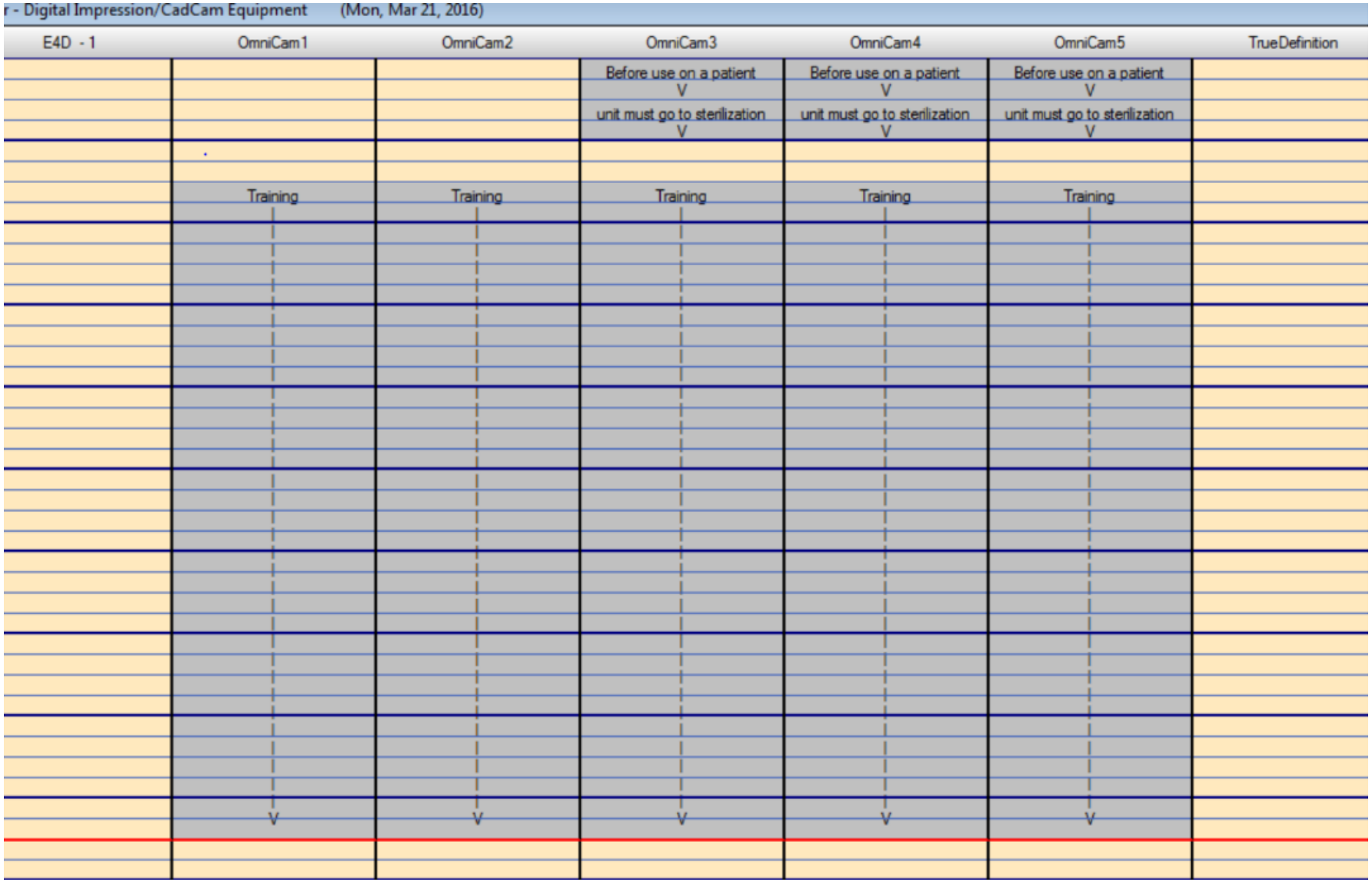
Request use: Scanners stay in SimClinic

(Schedule with Ms. Janet Glenn)

Appt. Books

Description	Access
Adms - Screen	Full Access
Adms - Urgent Care	Full Access
CCST-4th Floor-Chair	Full Access
Diag - Returns	Full Access
Diag-U	Full Access
Diag/Path - DSP	Full Access
Digital Impression/CadCam Equi...	Full Access
Endo - DSP/Grad	Read Only
Endo Trans	Full Access
FGP - DSP	Read Only

Request and sign up for a digital scanner on Axium w/Pros Clinic clerk

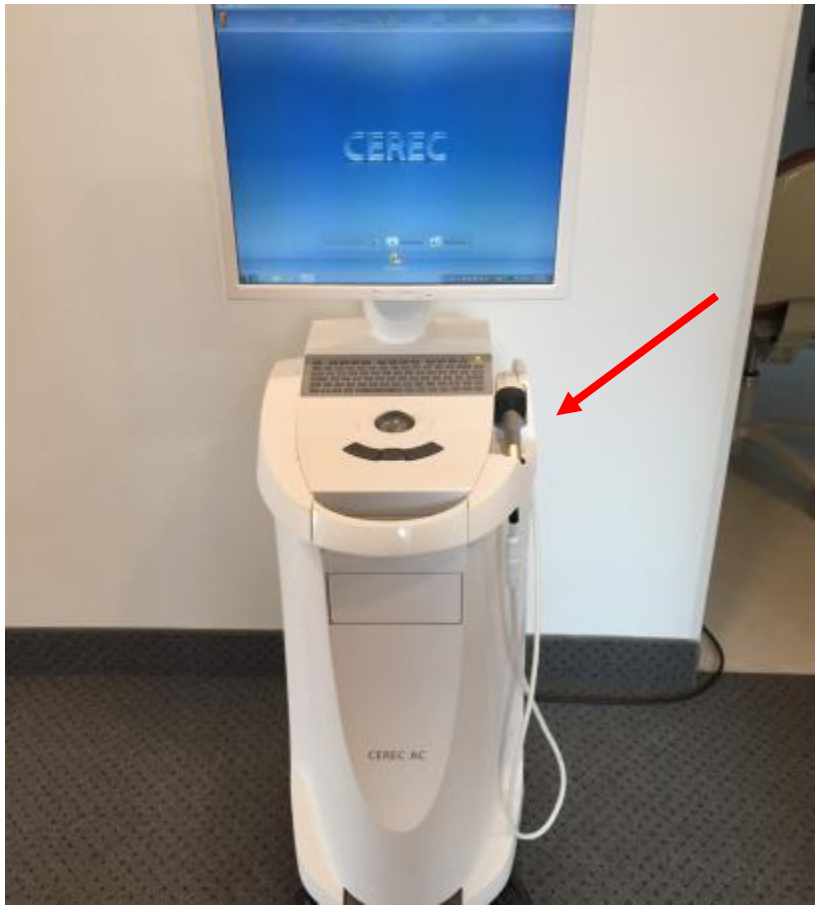


- **Please make sure your name and clinic unit are in the schedule when booking the equipment!**
- **All equipment must be returned by end of a morning or afternoon session in order to meet infection control protocol in preparation for the next user.**

CEREC OMNICAM mirror sleeve infection control processing protocol

Omnicam #1-5 (for projects)

- ❑ Book an Omnicam #1-5 from the simulation clinic.
- ❑ After the procedure is completed, the sleeve does **not** need to be processed for Omnicam #1-5.



All equipment must be returned by end of a morning or afternoon session in order to meet infection control protocol in preparation for the next user.

CEREC OMNICAM mirror sleeve infection control processing protocol

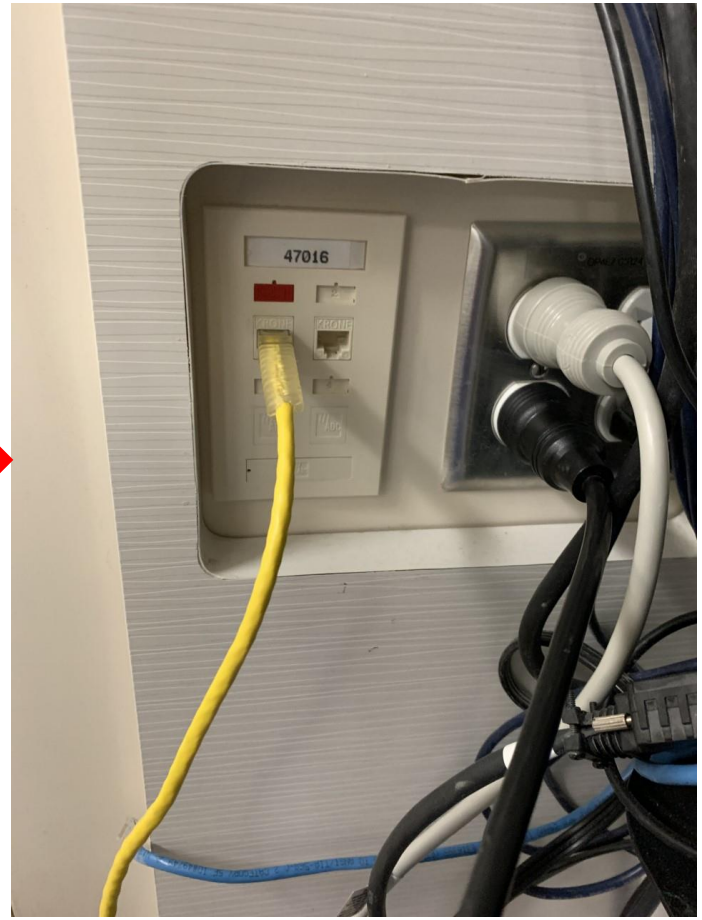
Omnicam #6-10 (for patient cases)

- ❑ Go to the **4th floor dispensary** to check out a mirror sleeve for the Omnicam. When the mirror sleeve is in a paper plastic pouch with a clean and disinfected by label on the pouch the mirror sleeve is ready to be placed on the camera body and used on a patient.

- ❑ After the procedure is completed, wipe everything with **CaviWipes** and then remove the mirror sleeve from the camera body **(do not twist).** Deliver the sleeve back to the **same** dispensary in a plastic pouch. **Sleeves must be handed to a dispensary staff.**
- ❑ Sleeves not checked back in by staff will run the chance of it getting lost damaged if the sleeve is just dropped off at dispensary window.

All equipment must be returned by end of a morning or afternoon session in order to meet infection control protocol in preparation for the next user.

Omnicam #1-5



For diagnostic scan and cast scan projects (Use Omnicam #1-5)

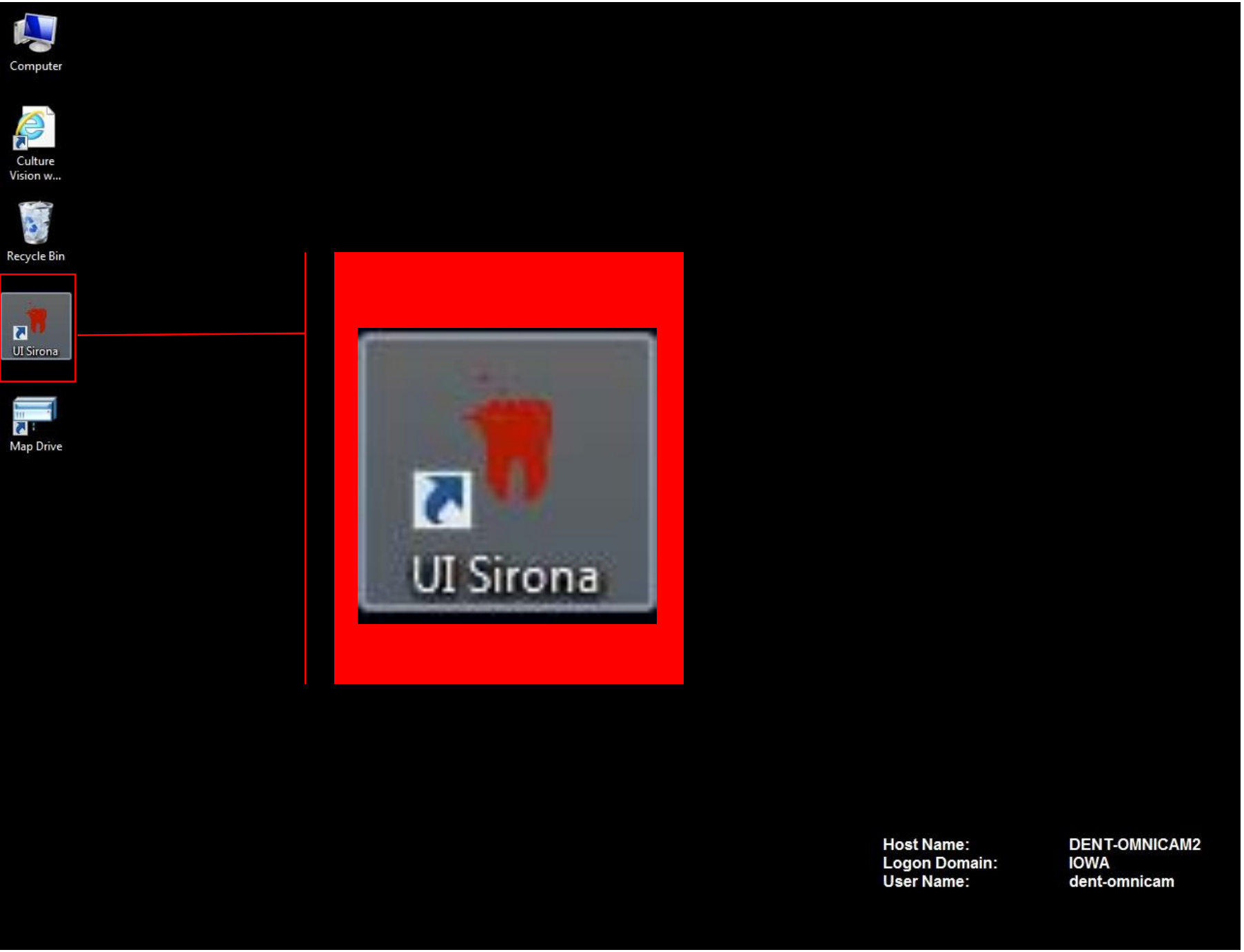
- Unplug the internet cable at your cubicle and replace with the CEREC Omnicam networking cable (this needs to be done before turning on the scanner)

For patient cases (Use Omnicam #6-10)

- **NO need to plug in the networking cable, it only uses our Wi-fi connection**

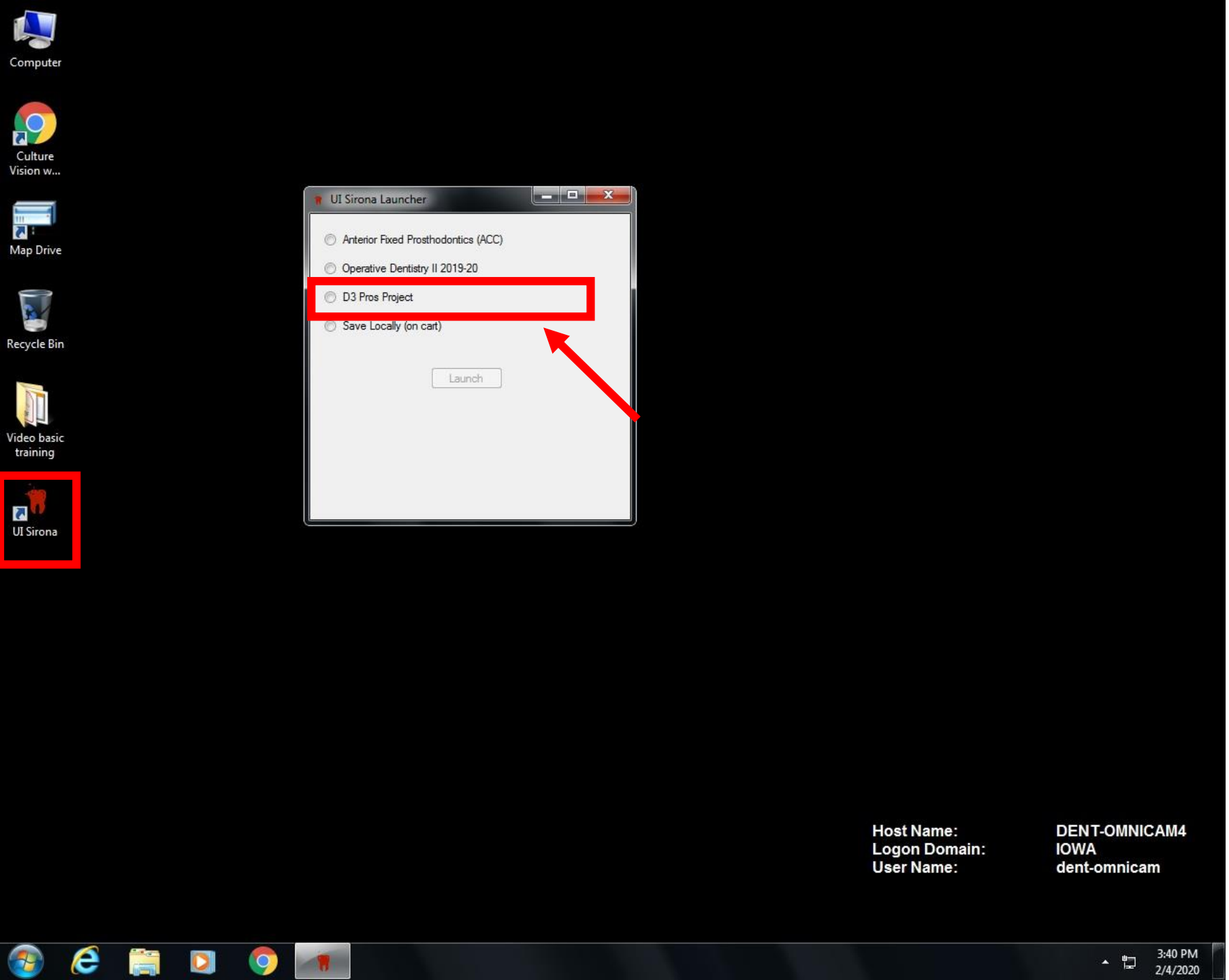
Getting started:

- Press the yellow button to turn on the scanner



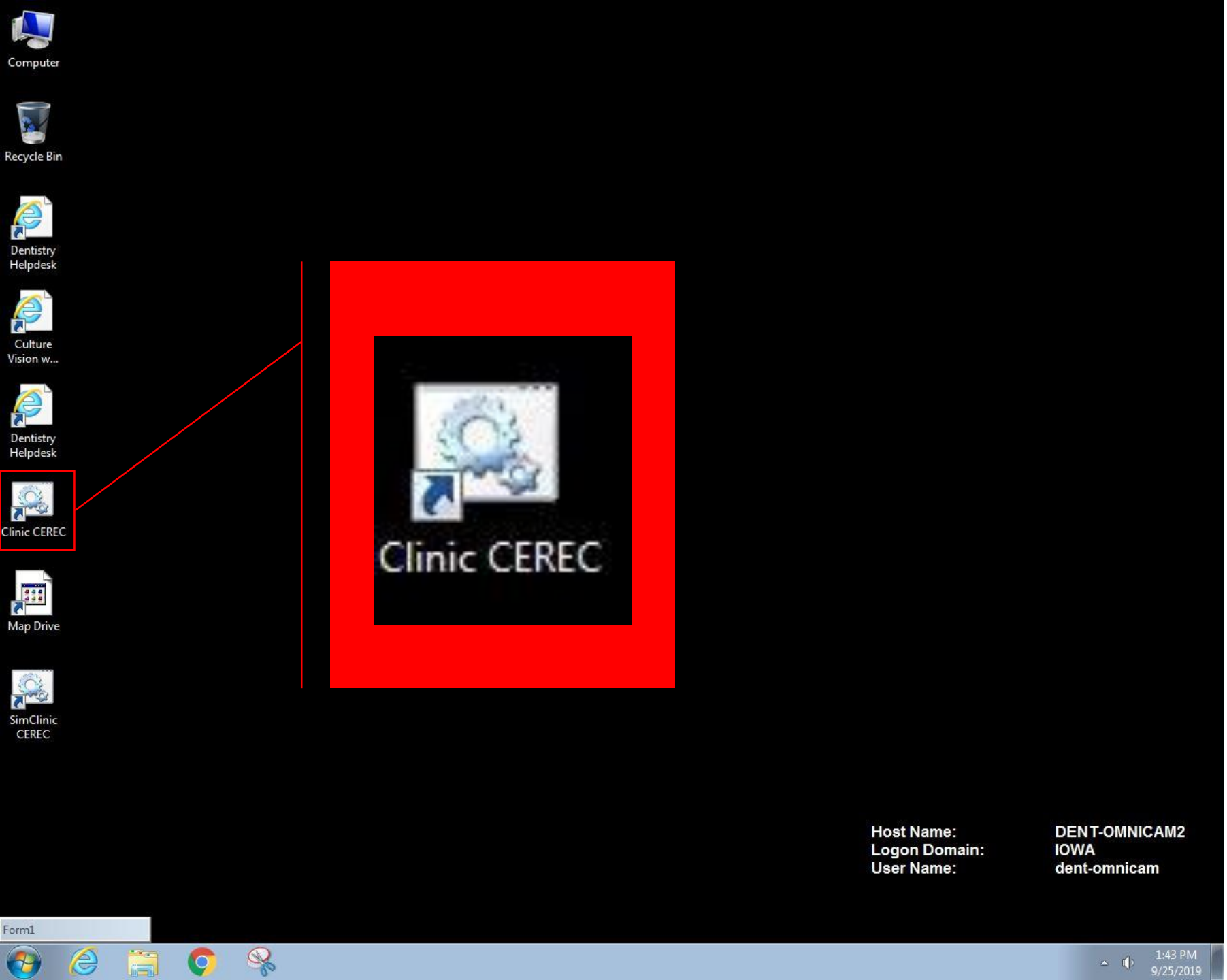
For diagnostic scan and cast scan projects (Omnicam #1-5)

- After turn on the computer, please wait 2-3 minutes or longer to allow the scanner to connect to the network.
- Double-click (left) on the **"UI Sirona" icon**



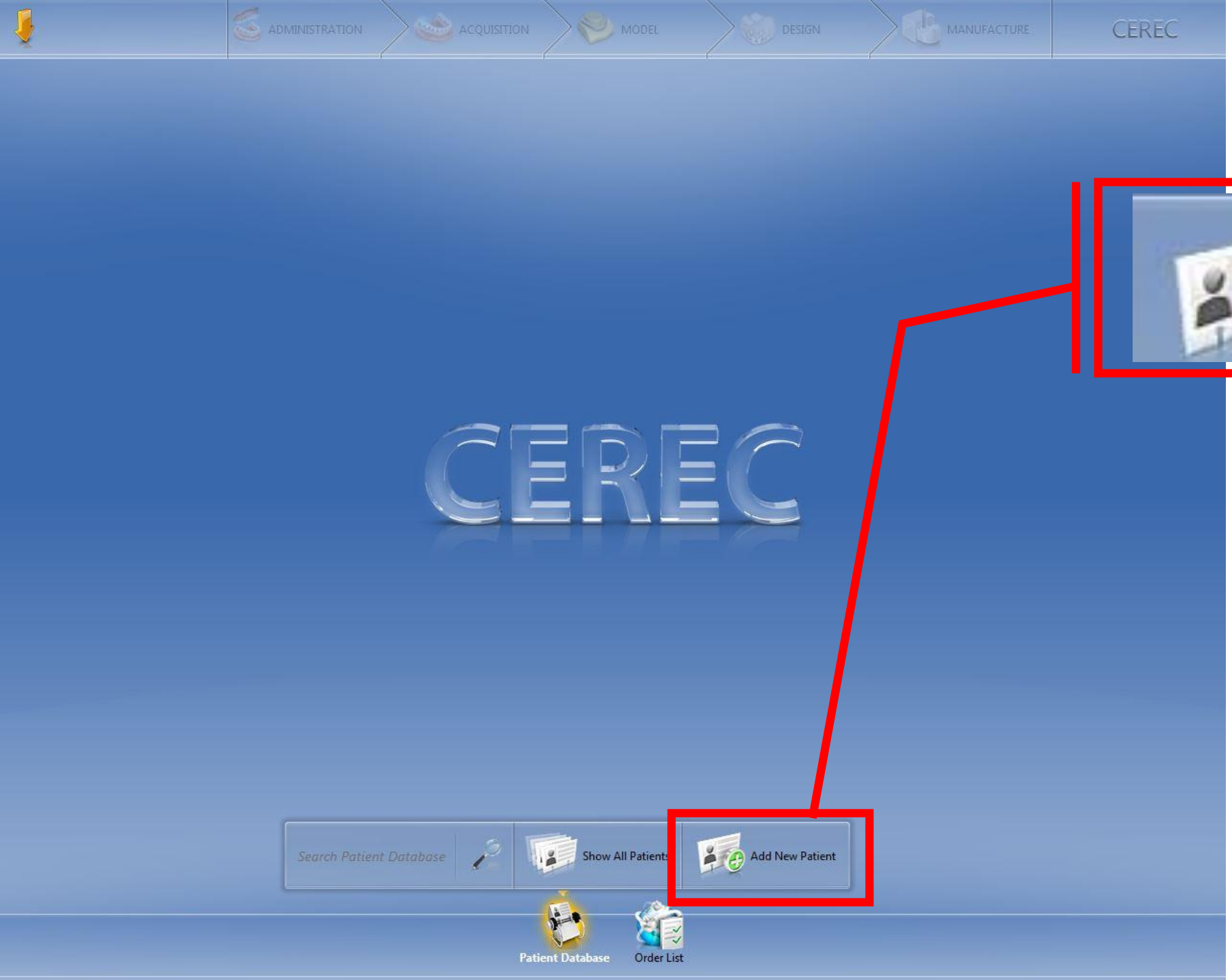
For diagnostic scan and cast scan projects (Omnicam #1-5)

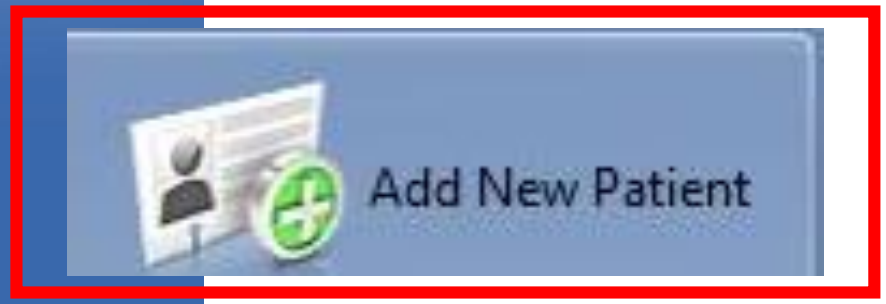
- Left-click on **"D3 Pros Project"**
- Then left click on the "Launch" button



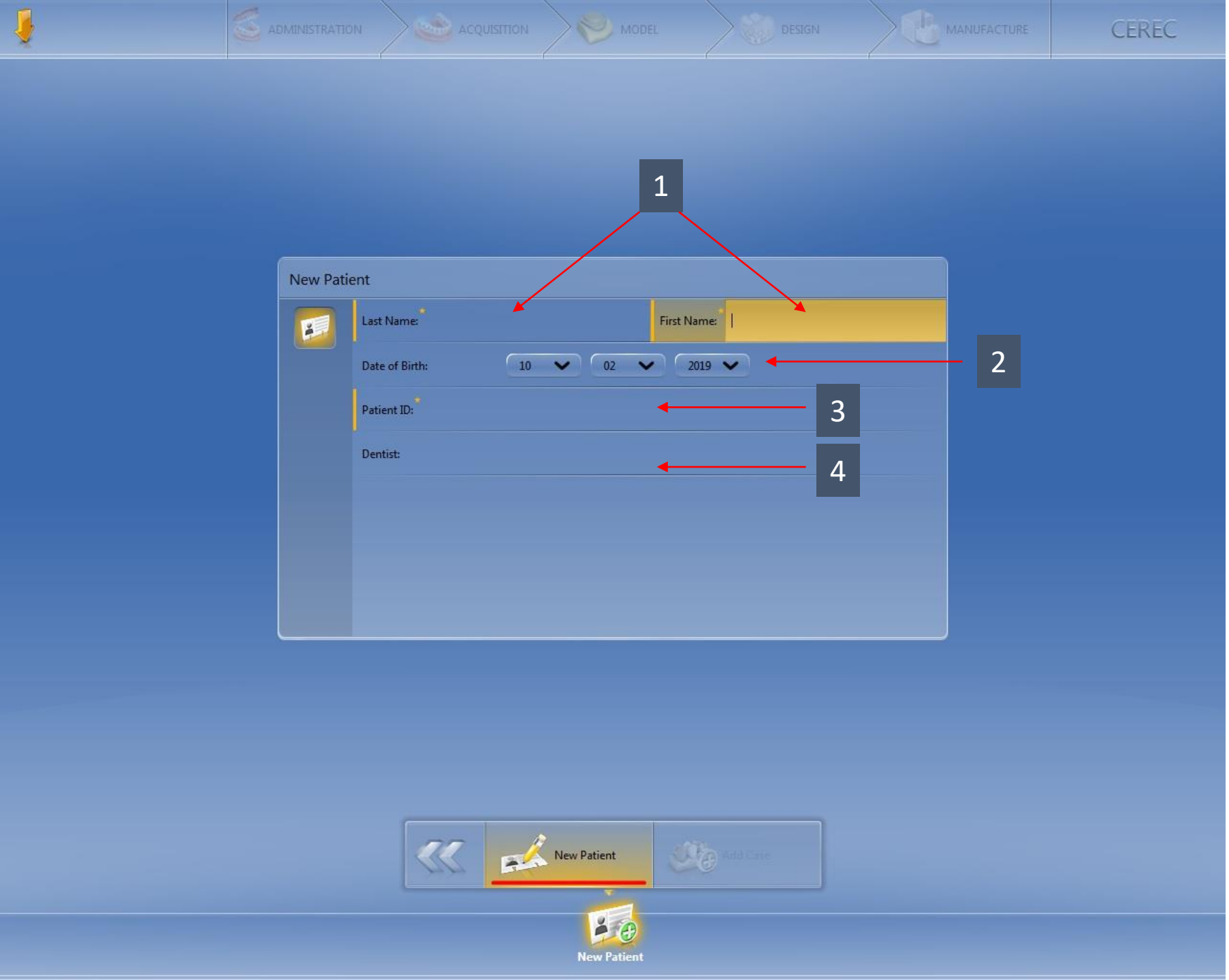
For patient cases (Omnicam #6-10)

- Left-click on **“Clinic CEREC”**



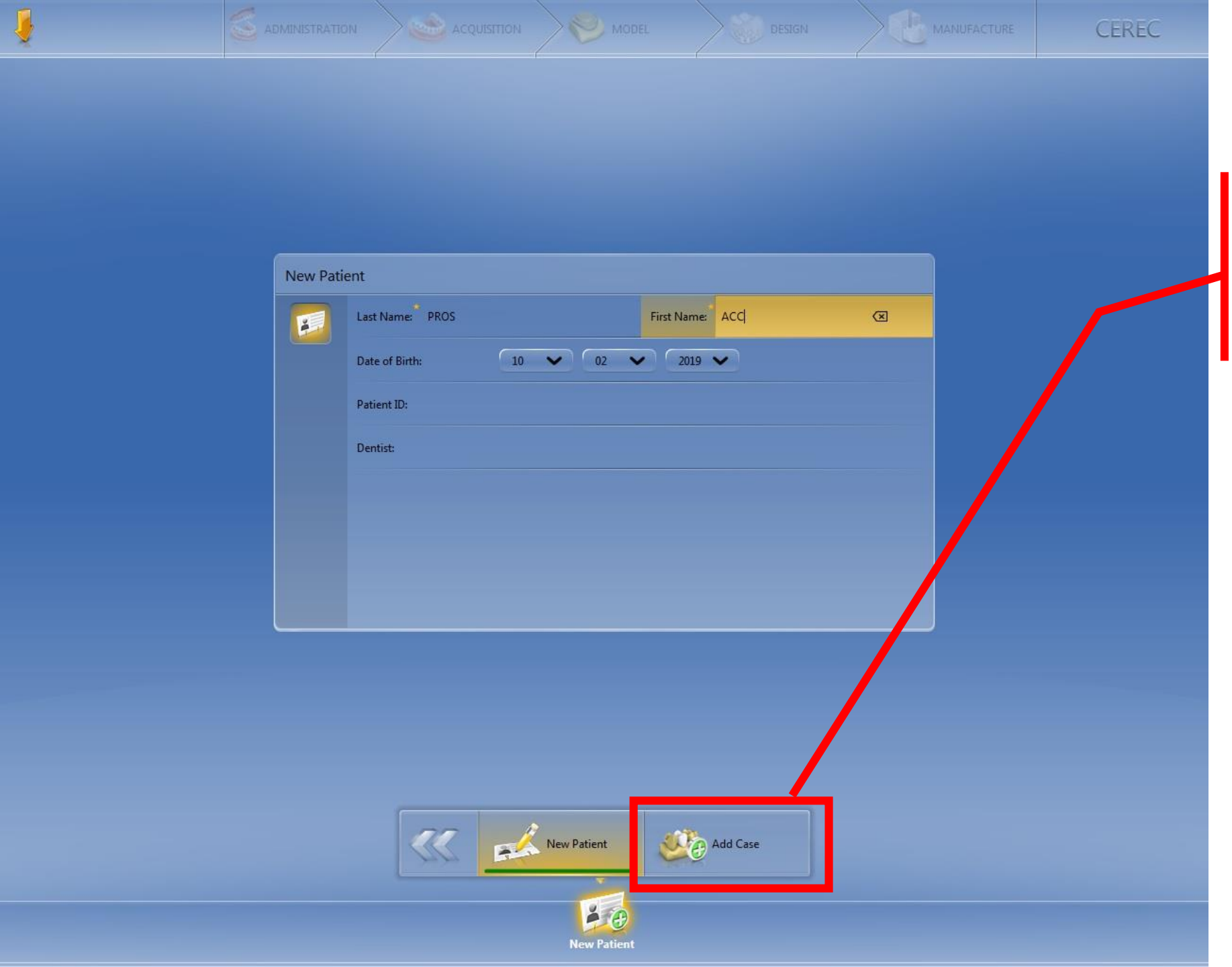


- Left click on “Add New Patient” icon

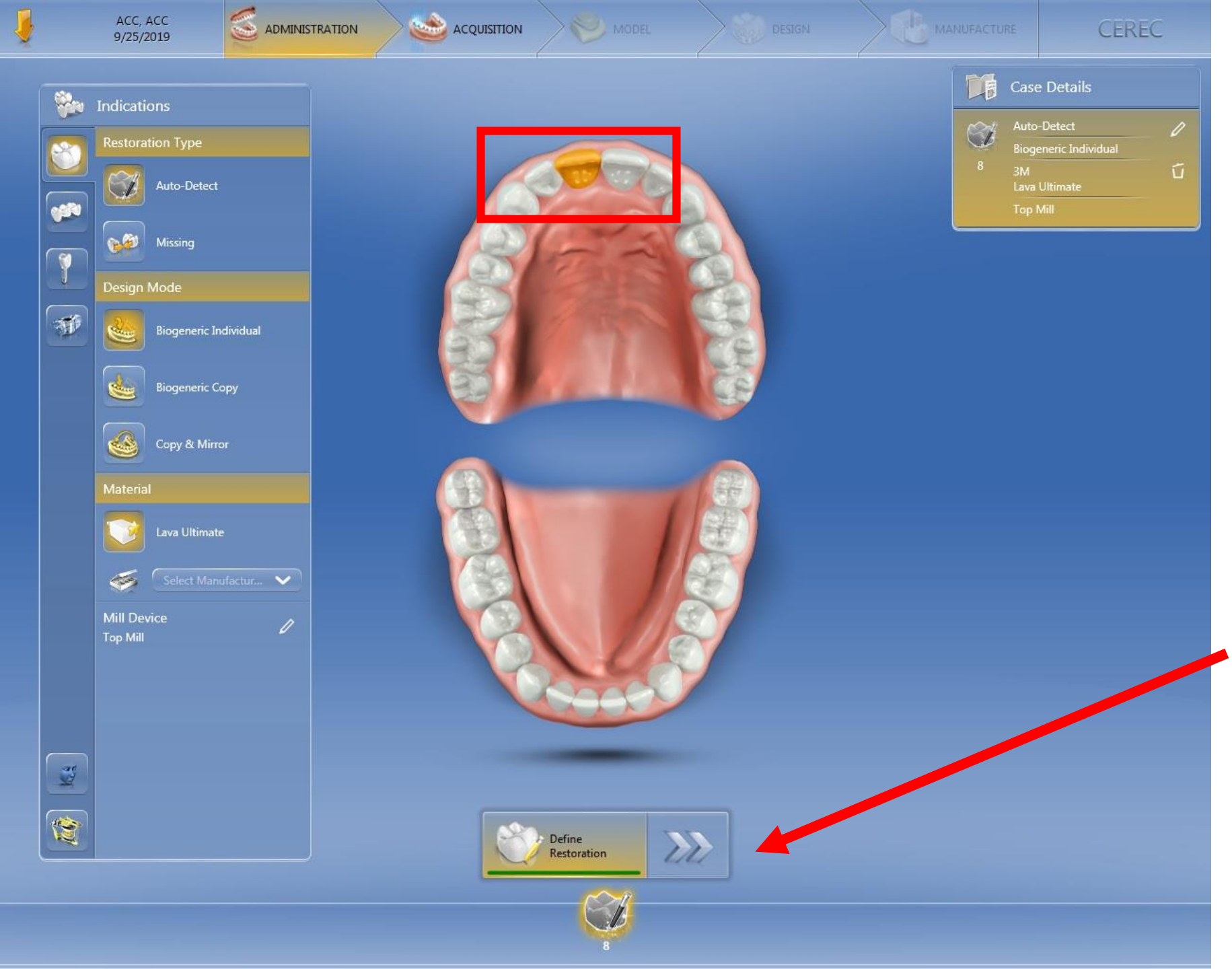


Complete the information:

1. Patient's name
2. Date of Birth
3. Patient ID
4. Dentist

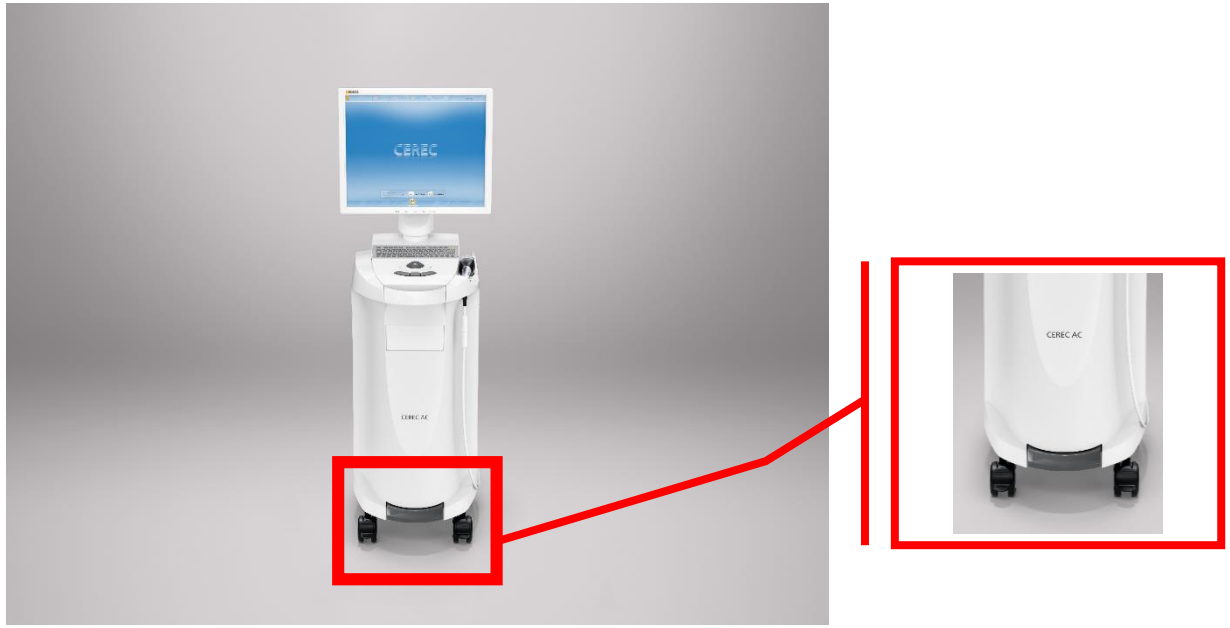


- After complete the information, left-click **“Add Case”**



Set up the information of the prepared teeth:

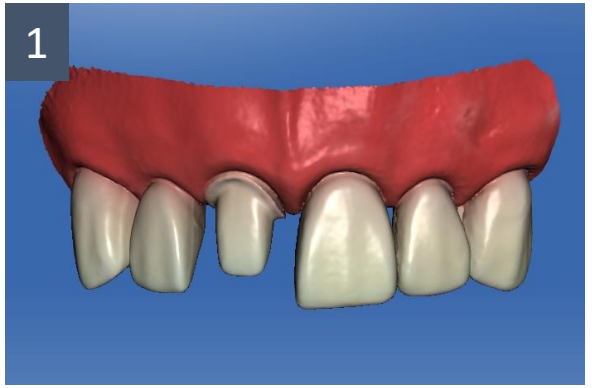
- Left-click on the prepared tooth. The selected tooth will turn yellow.
  - Select tooth #
  - Restoration type
  - Design mode
  - Material
- Click “>>” to begin the scan

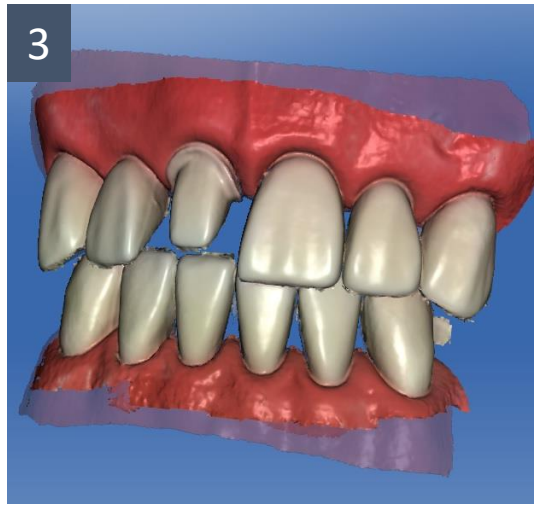


- Lift the foot pedal to start scanning
- Manikin is in the upright position and the dentist should stand up facing the patient/manikin

Scanning sequence (General guidelines)

- Prepared tooth and 1-2 teeth next to the preparation should be scanned
- Proximal contacts on mesial and distal to the prepared tooth should be completely covered
- 5 mm of gingival area should also be covered.
- Scan the opposing segment of teeth in the opposing arch from the prepared tooth (incisal/occlusal area should be covered)
- Buccal surfaces and 5 mm of gingiva in the opposing arch should also be scanned.
    - This is because the indexing of the maxillary teeth to the mandibular teeth keys off of the gingival margins of the both arches.





Scanning sequence (Project)

Maxillary arch

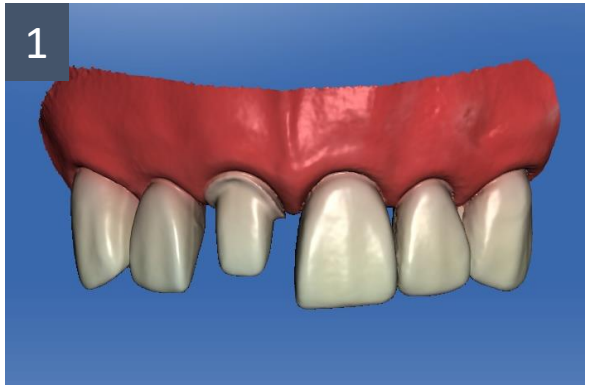
- Cover #6-11 and about 5 mm of buccal gingiva

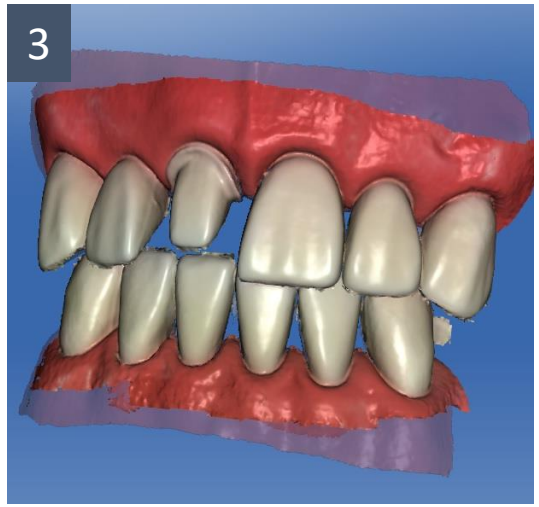
Mandibular arch

- Cover #22-27and about 5 mm of buccal gingiva

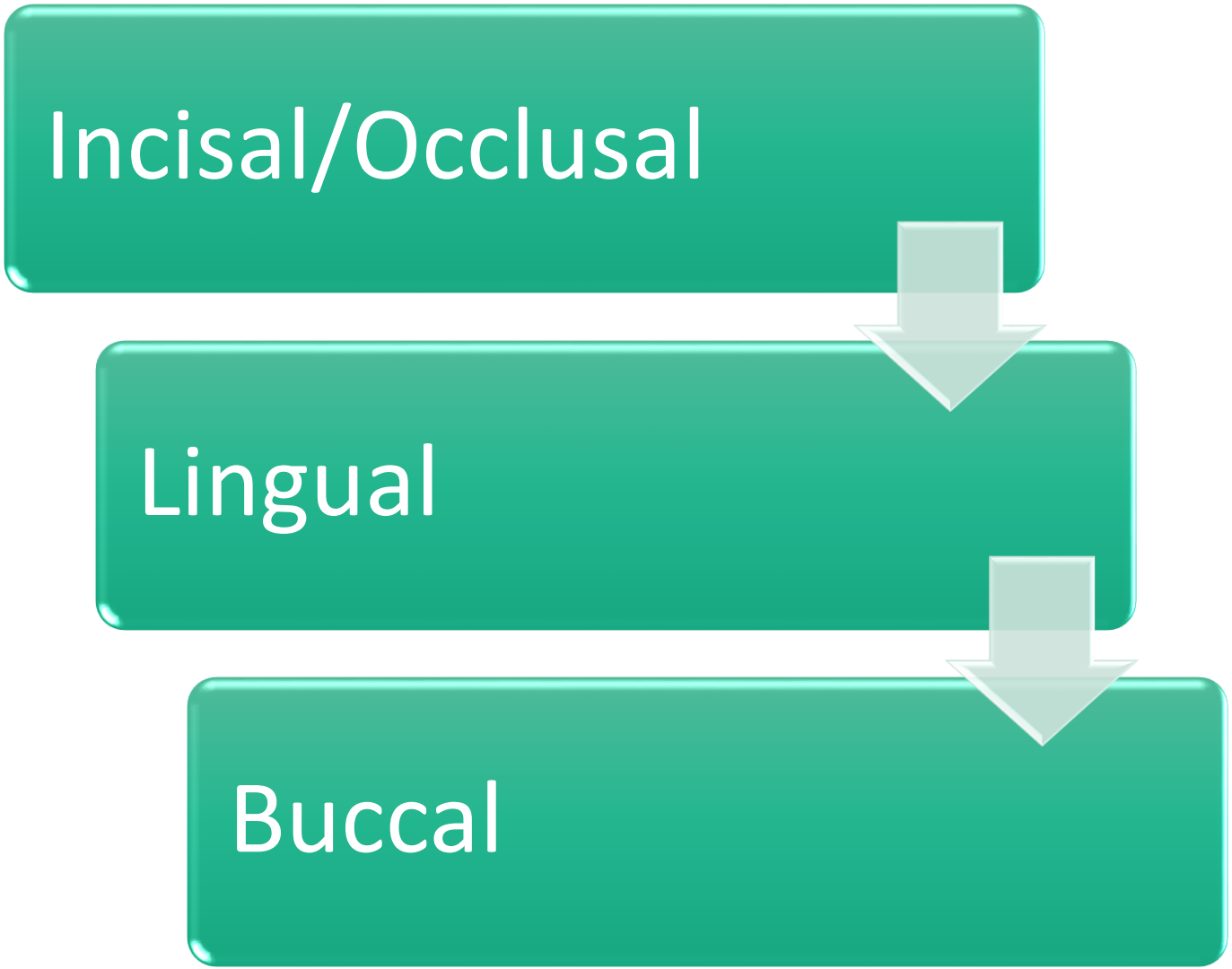
Interocclusal record (Buccal)

- Anterior area (Canine-Canine) including 5 mm of buccal gingiva





Scanning sequence



Scanning sequence: Maxillary arch overview

Scanning: incisial edge area

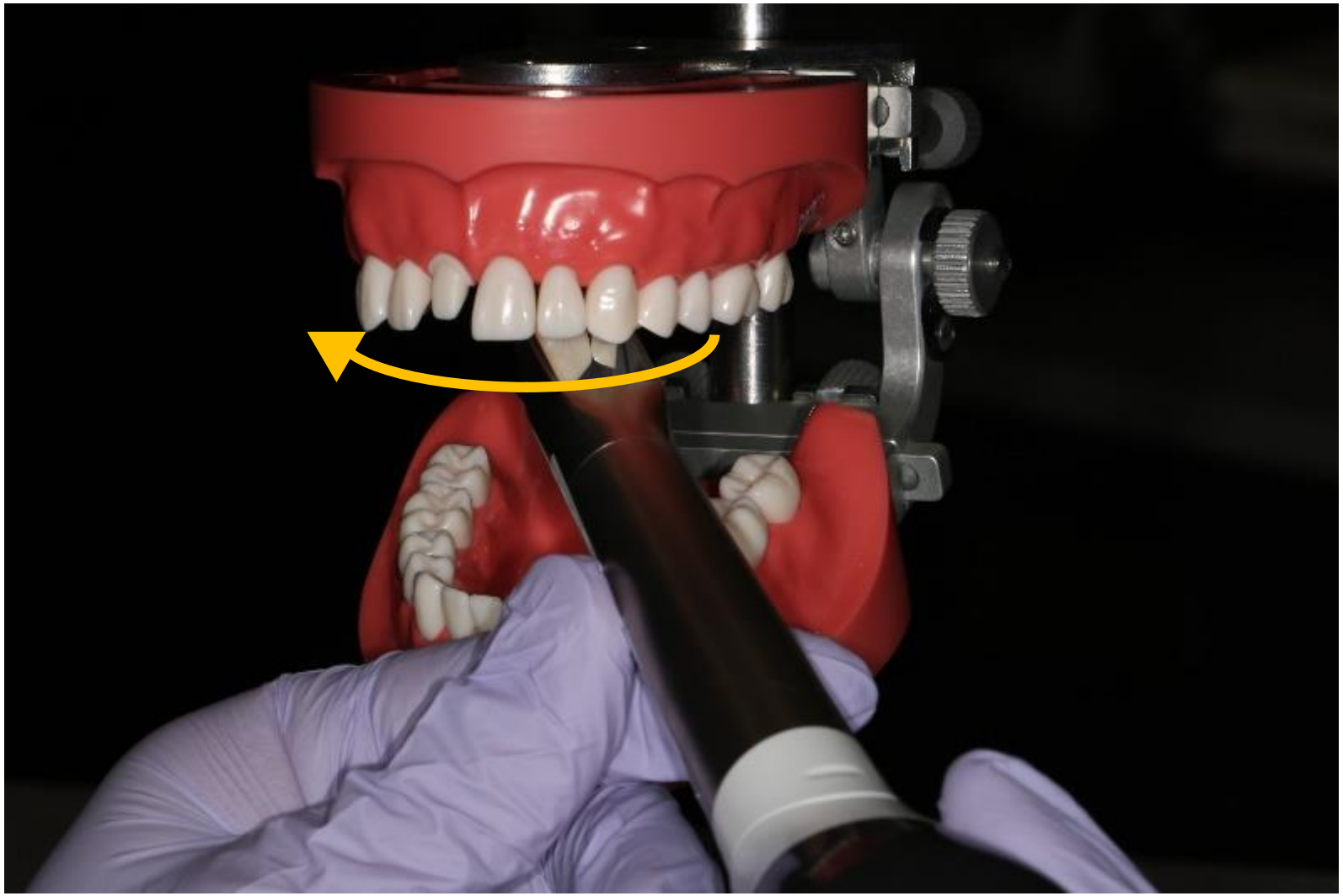
Scanning: lingual area

Scanning: buccal area

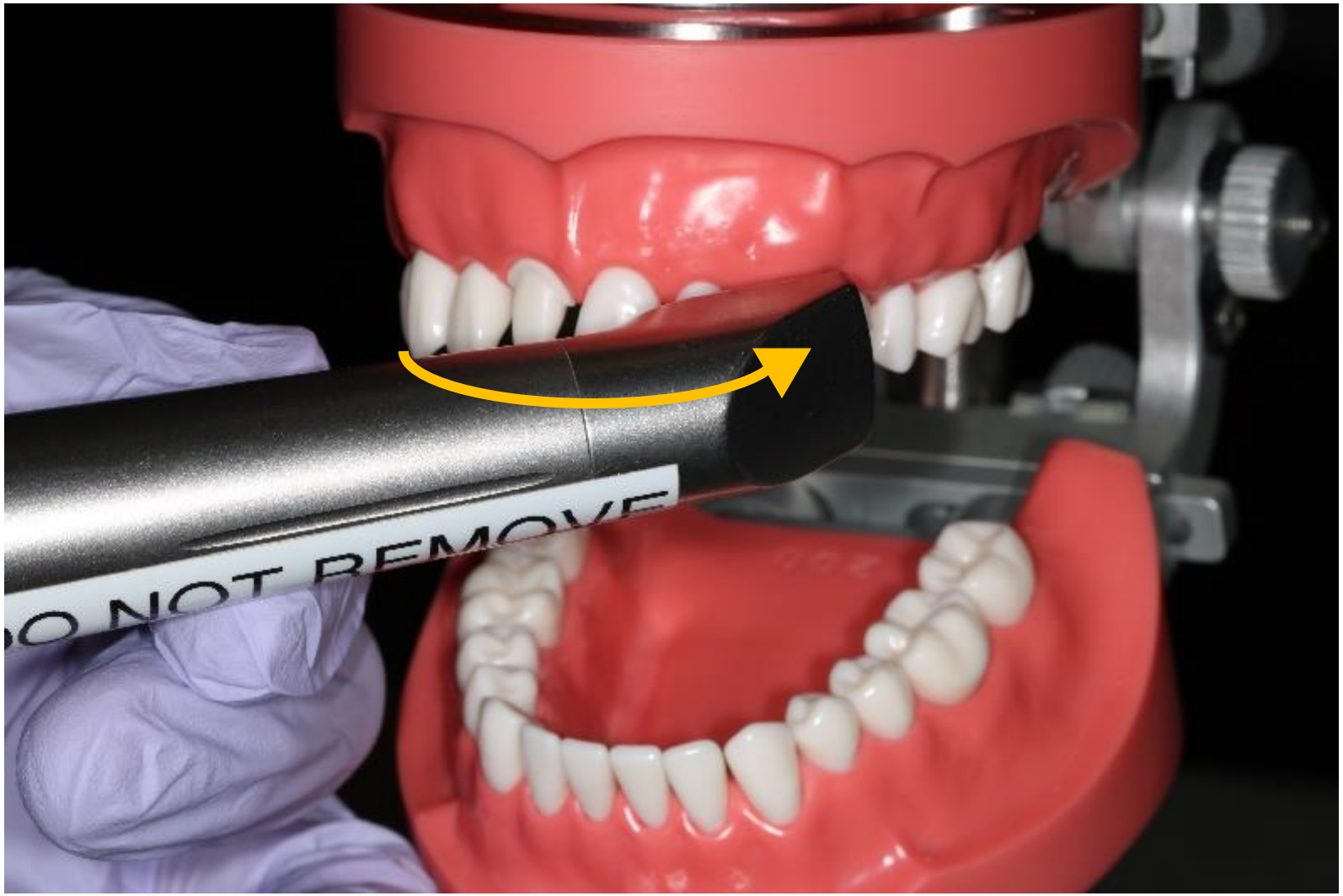
- Scan the maxillary arch from #6-11
  - Begin with incisal edge area, lingual area and buccal area, respectively

Scanning: incisial edge area – left-to-right

Scanning: lingual area – right-to-left

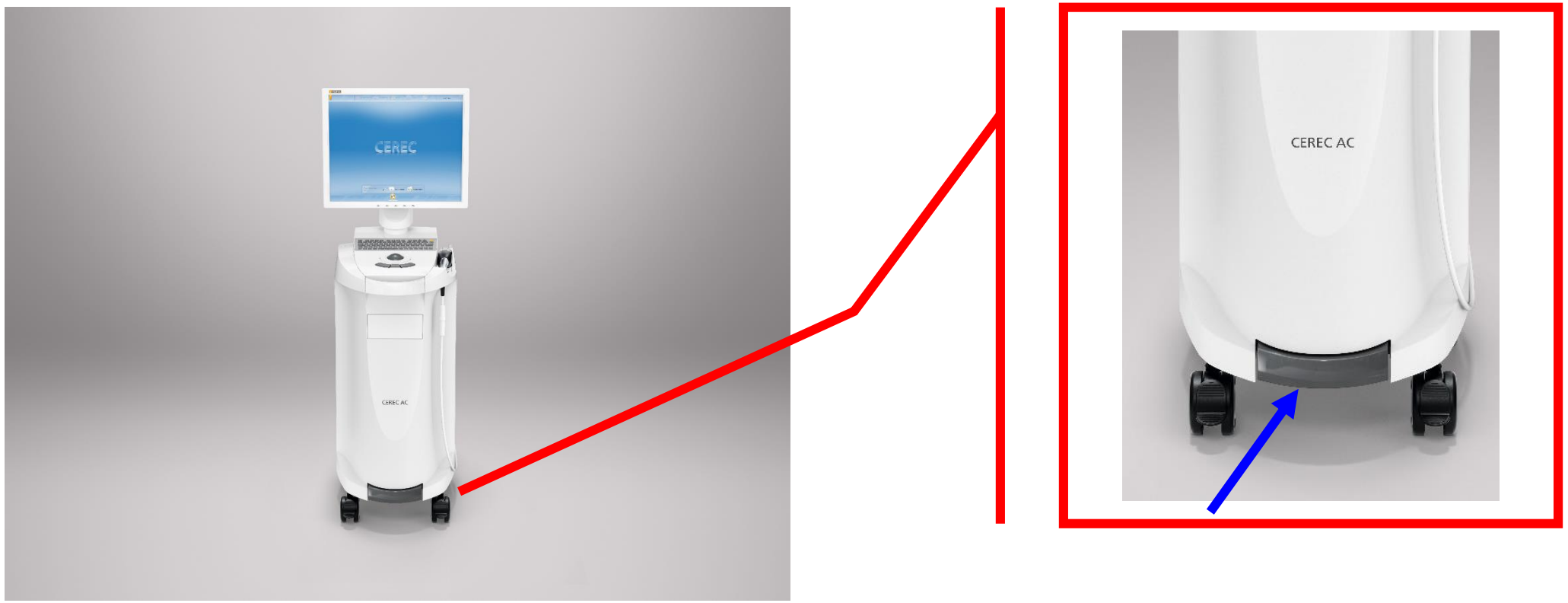


Scanning: facial/buccal area – left-to-right



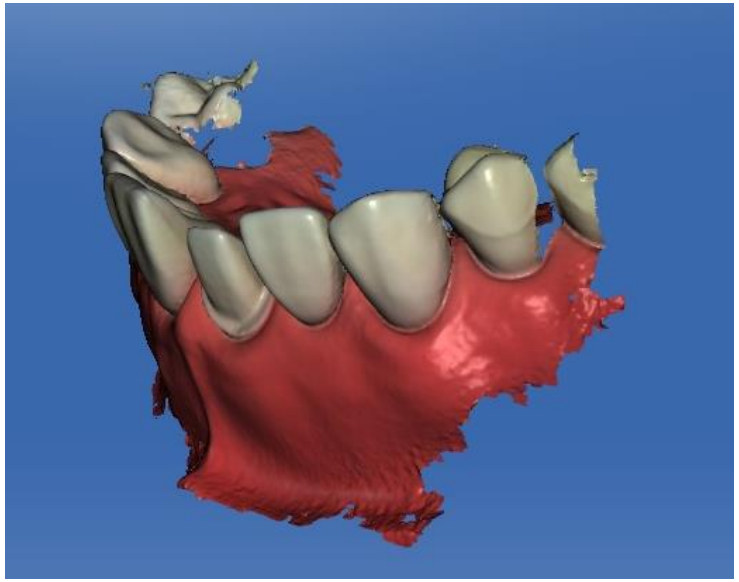
- Scan the maxillary arch from **#6-11 and about 5 mm of gingiva**
- Limited time if possible
  - **(Avoid excessive data)**

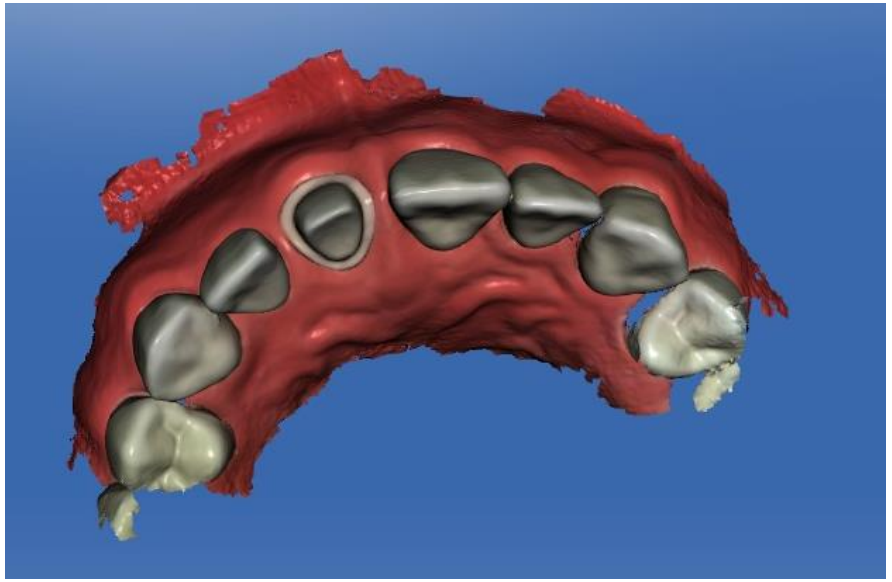
- Missing areas can be added on later.
- **Stop/start scanning** by using the foot pedal



- Start/Stop scanning

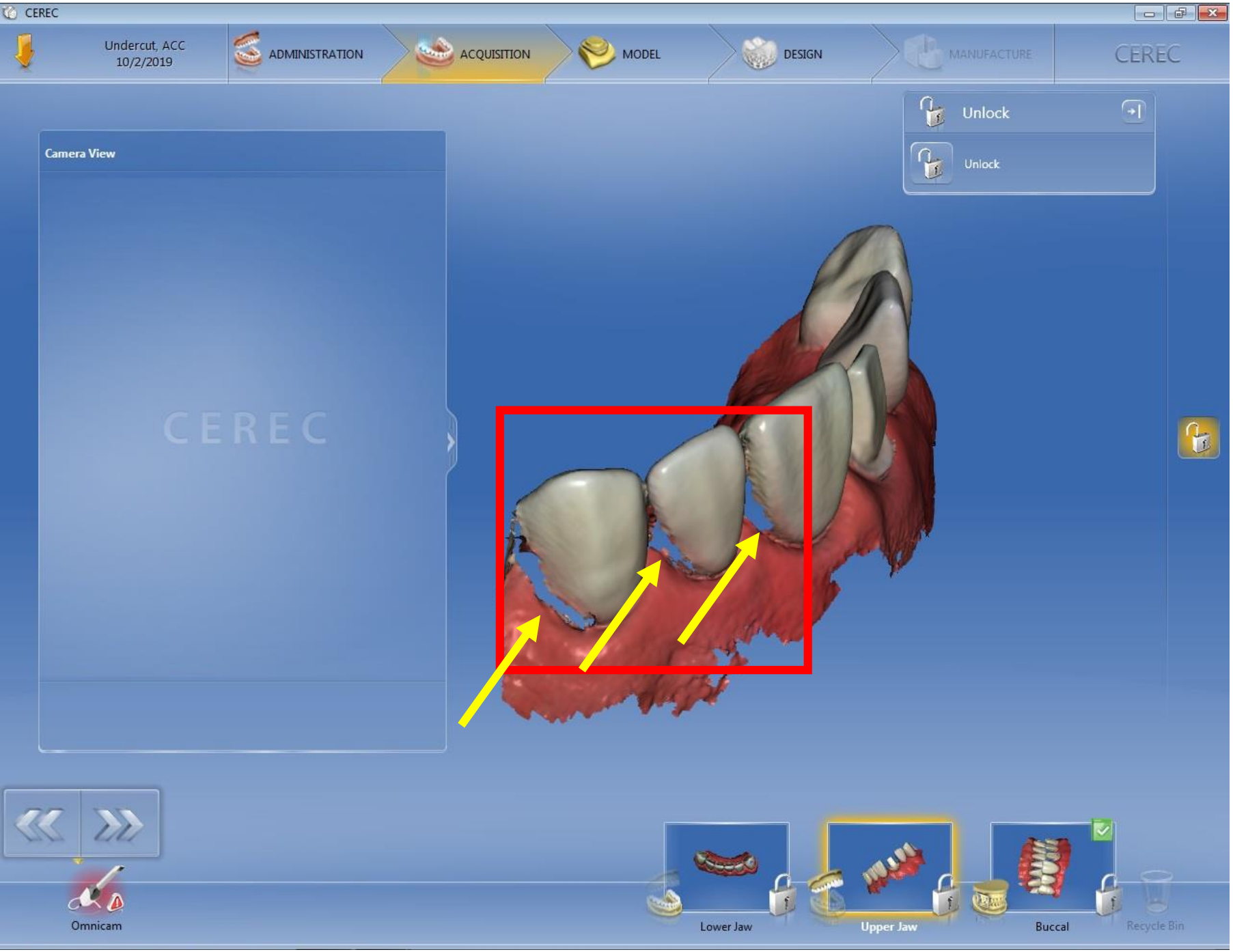
Evaluation: Maxillary arch



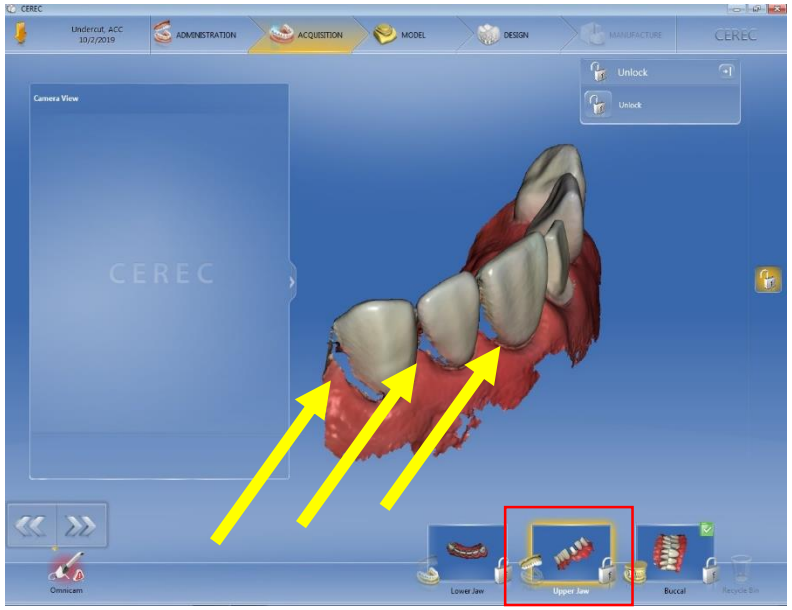


- **Cover the prepared tooth**
- **Cover the area of teeth #6-11**
- **Cover the gingiva about 5 mm from the cervical area**

- Make sure **not to have missing data on preparation #8 and proximal contacts on #7 mesial and #9 mesial**

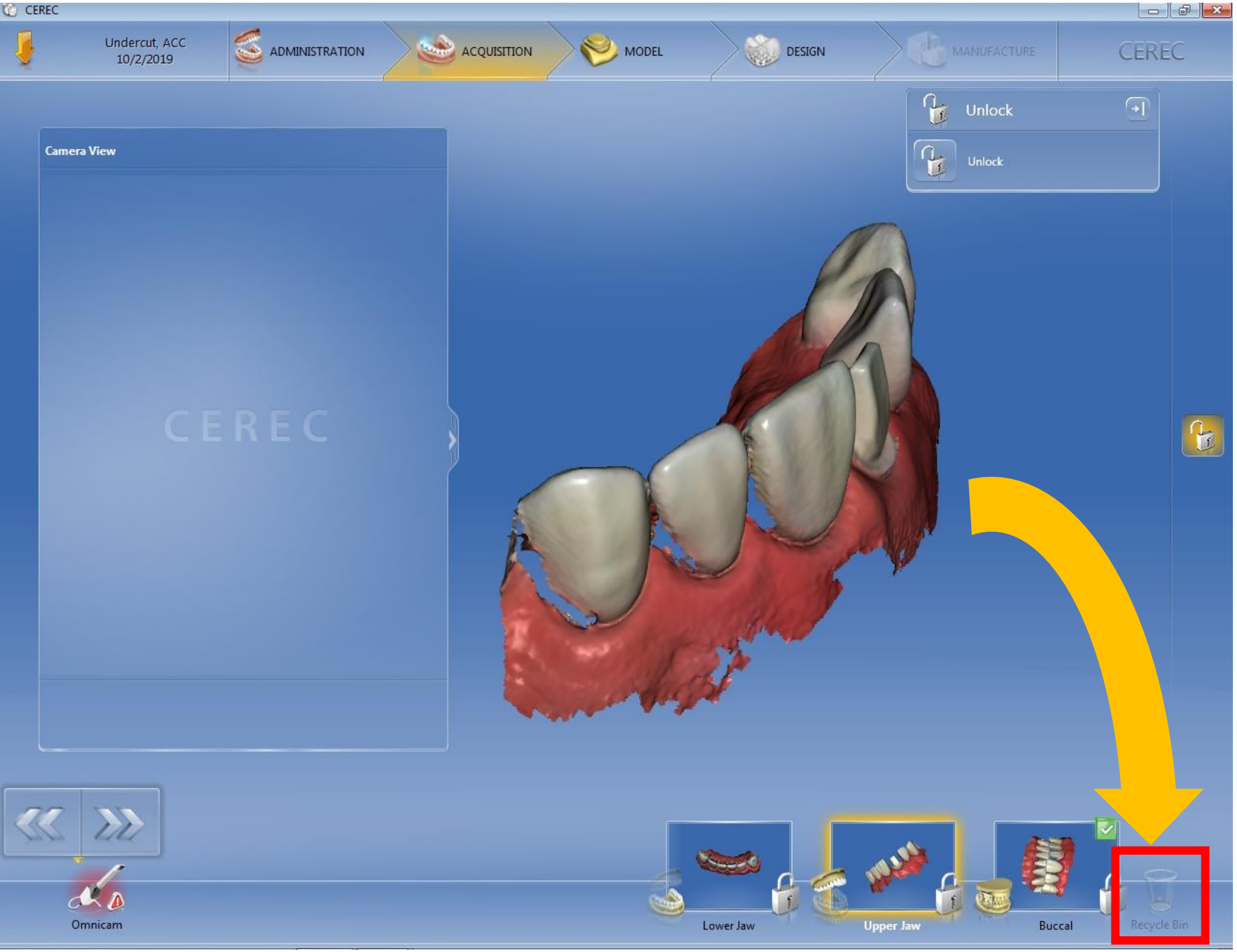


- *Acceptable missing areas on the maxillary arch:*
- **#7-mesial and #9-mesial need to be captured completely.**
- Missing a small area on the other teeth is considered *acceptable*. (arrow)



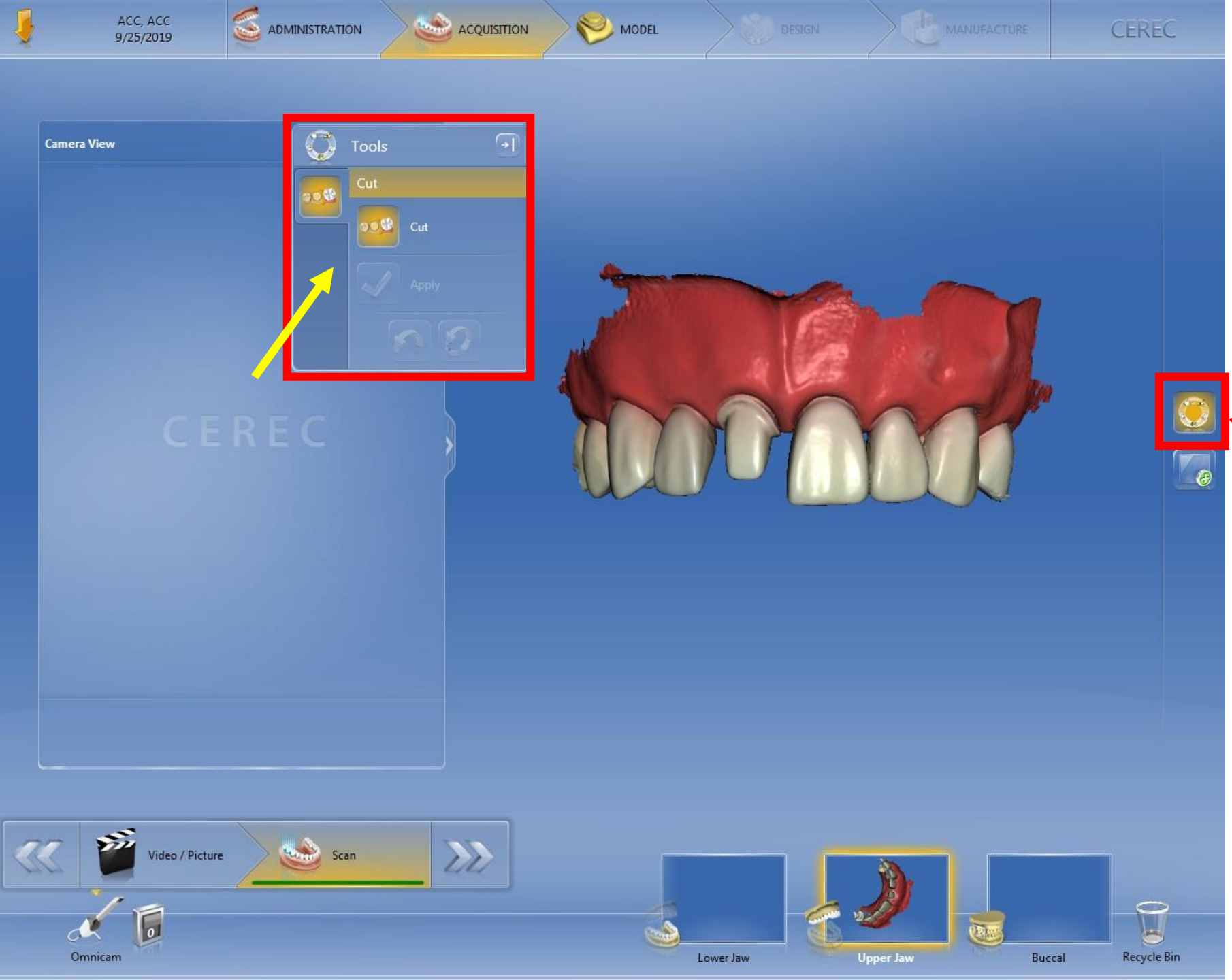
Adding the data

- Any missing data that needs to be scanned can be completed by:
  - Left-click to select the arch that needs to be re-scanned
  - lift the foot pedal and re-scan that area.



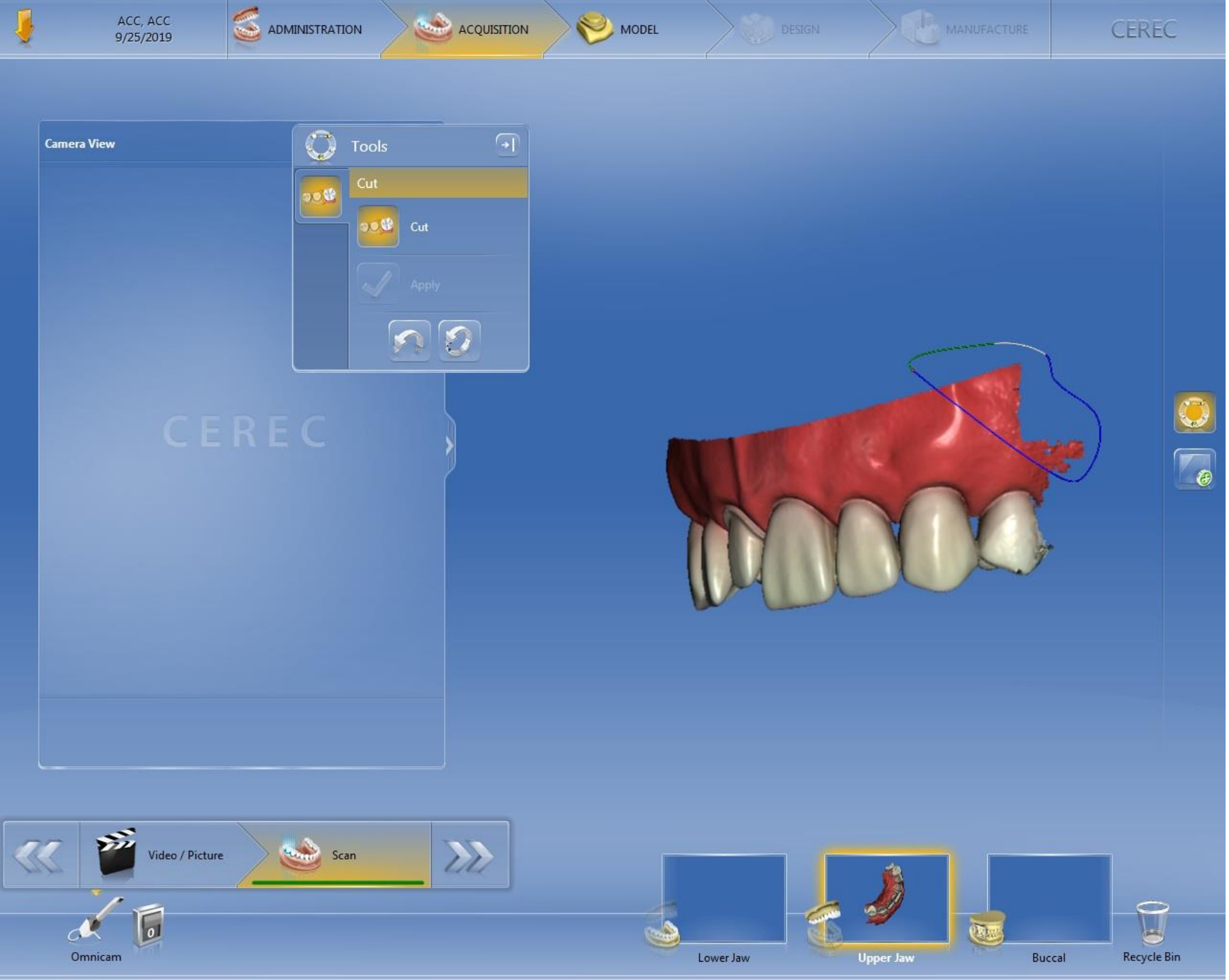
Re-scan/delete the data

- If you wish to completely re-scan, the data can be deleted by left-click and hold on the maxillary/mandibular arch, then drag to the recycle bin. (*arrow*)



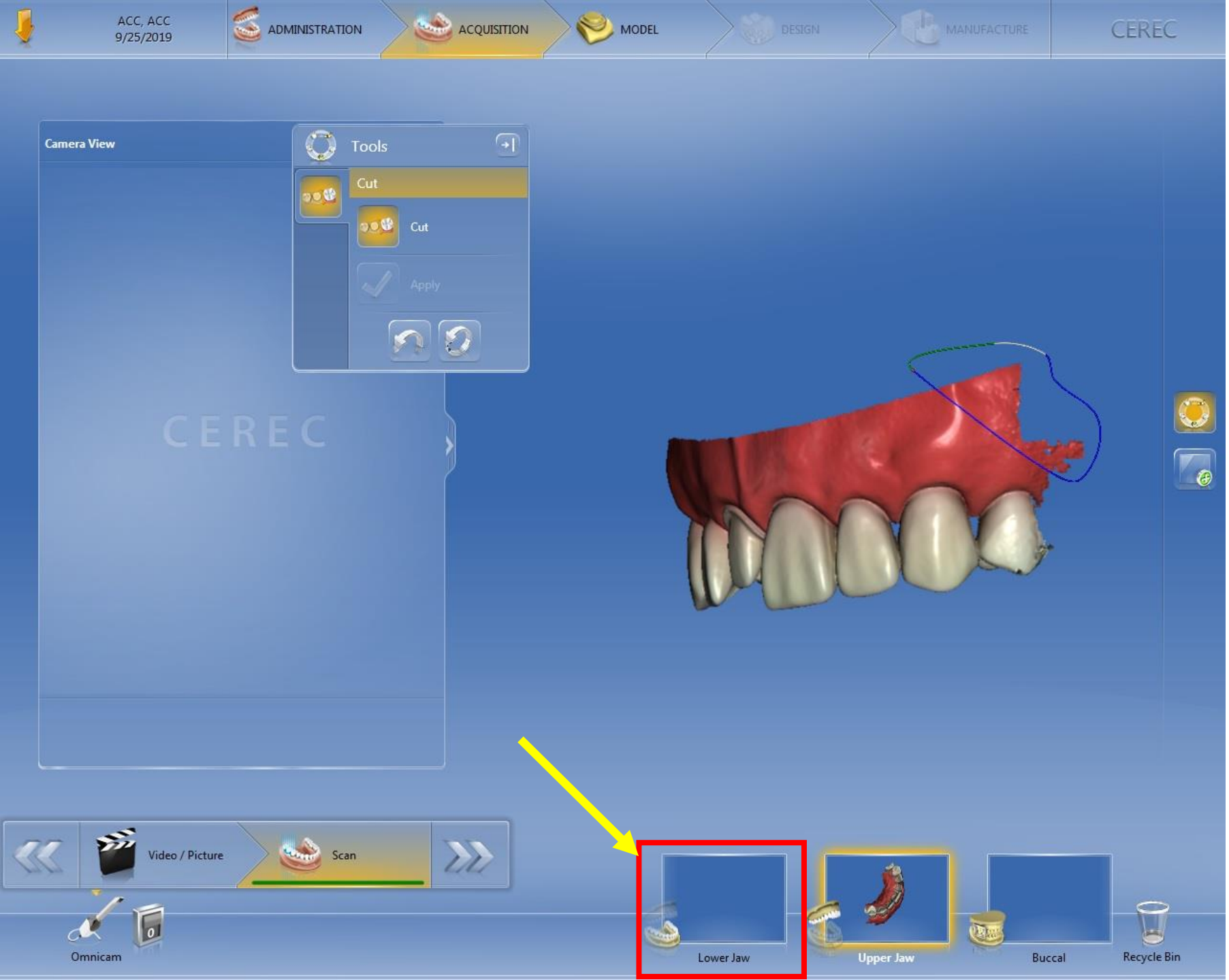
Trim the model

- Trimmed as needed
- Using “cut” tool
- Left double-click to activate the tool.
- Left click **(ONCE)** to outline the area that we want to cut.
- Left double-click when the outline is completed.



- Outline the area and trim the excessive data.

- Upper arch (trimmed)
- Keep only the area of #6-11 and about 5 mm of gingiva



- After completing the trimming of upper jaw, left-click on the lower jaw to begin the scanning of lower jaw

Scanning sequence: Mandibular arch

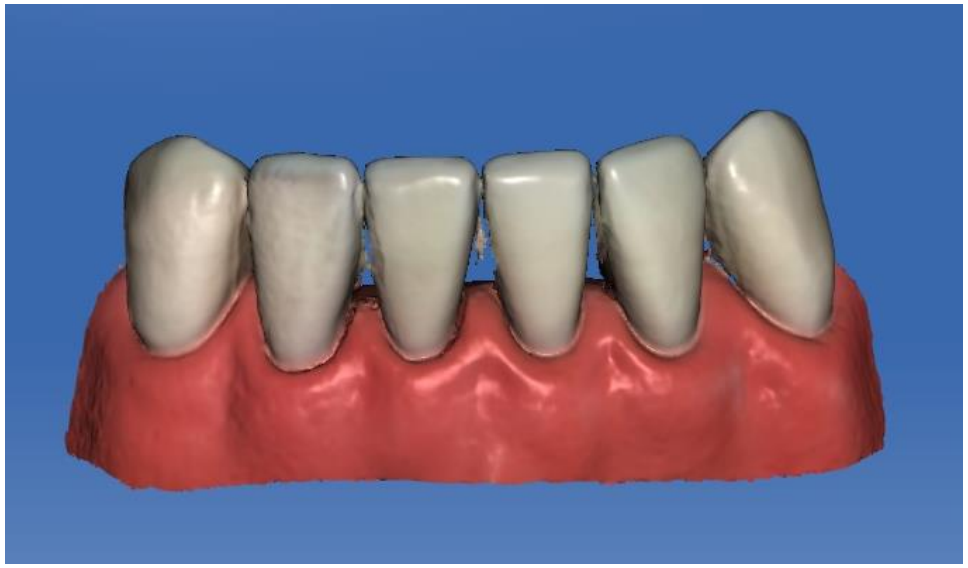
Scanning: incisial edge area

Scanning: lingual area

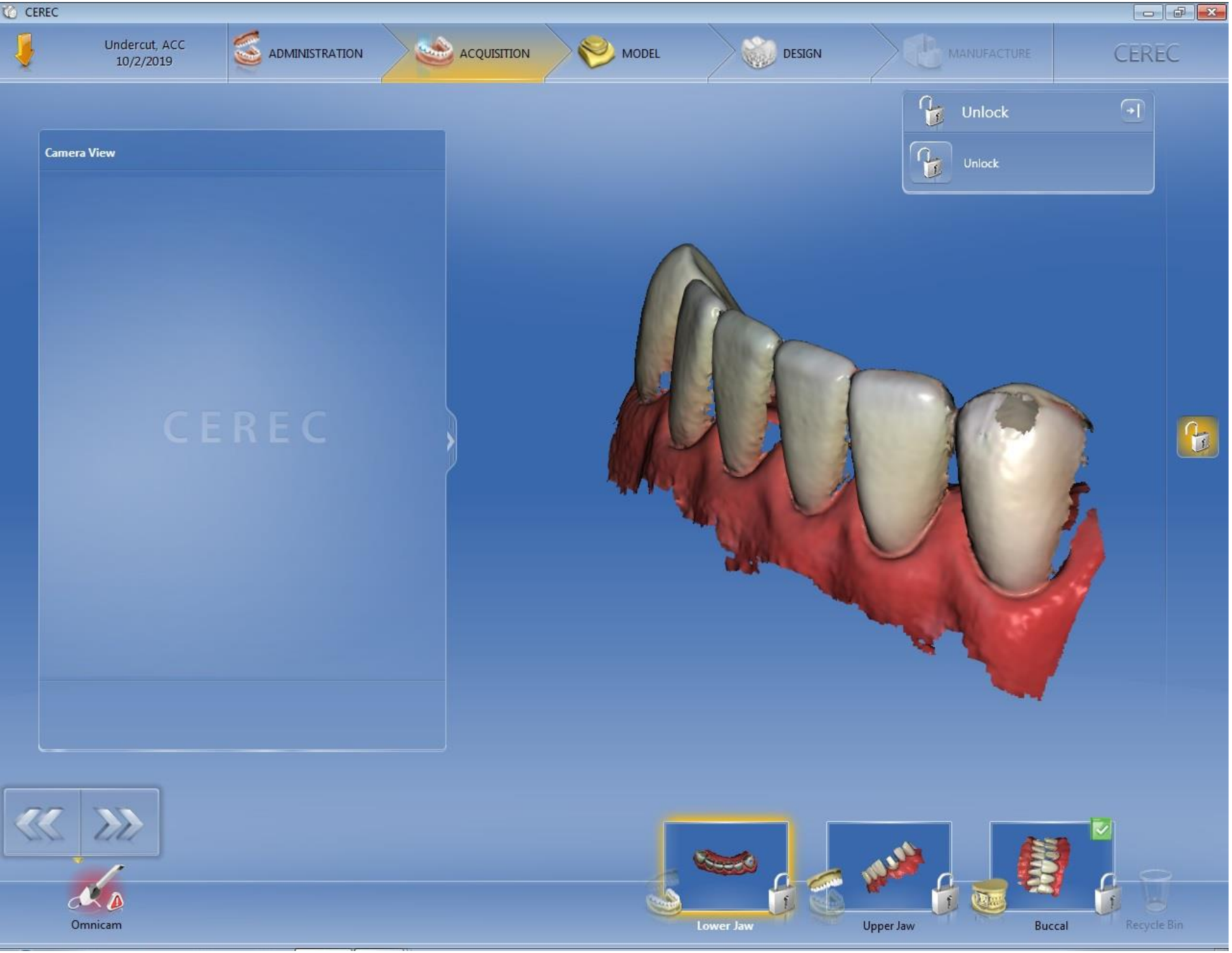
Scanning: buccal area

- Scan the mandibular arch from #22-27 with the same sequence
  - Begin with incisal edge area, lingual area and buccal area, respectively

Evaluation: Mandibular arch



- Evaluate the scan
  - **Cover the area of teeth #22-27**
  - **Cover about 5 mm of the gingiva apical to the cervical area**



- *Acceptable missing area* on the mandibular arch:
  - **Incisal edges of incisors need to be complete**
  - **Facial surface (minimum 80-90% completed)**
  - **Lingual area (minimum 70% completed)**

- Scan the mandibular arch from **#22-27 and about 5 mm of gingiva**

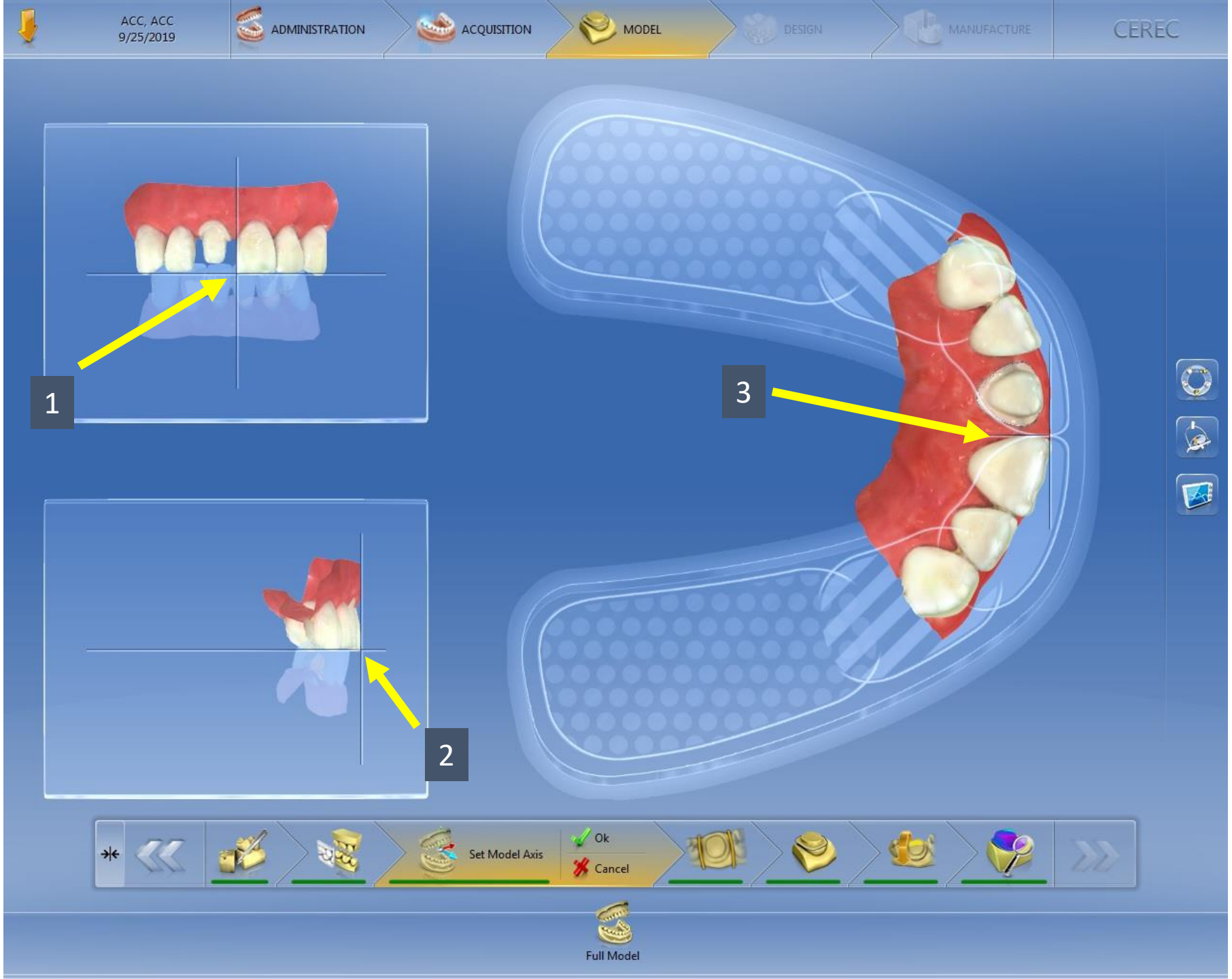
- Mandibular arch (trimmed)

- After completing the scanning of lower jaw, left-click on the buccal to begin the scanning of the occlusal registration

Scanning: interocclusal record (buccal)

- Scan the occlusal registration (buccal) from canine to canine
- **About 5 mm of gingiva apical to the gingival margin is needed as a reference for the computer to align the maxillary to the mandibular scan.**

- Scan buccal (occlusal registration) from **canine to canine and about 5 mm of gingiva**
- Limited time if possible
  - **(Avoid excessive data)**
- Click ”>>” to go to the next step (setting the model axis)



Set model axis

- Check midline and occlusal plane with arrows

1. Frontal view: align the incisal edges with the horizontal line and midline with the vertical line
2. Lateral view: align facial surface with the vertical line and occlusal plane with the horizonal line
3. Occlusal view: align facial surface with the vertical line and midline with the horizontal line and follow arch form

- Processing should be about 5 minutes.
- If it takes **more than 5 minutes (excessive data), please consider re-scanning.**

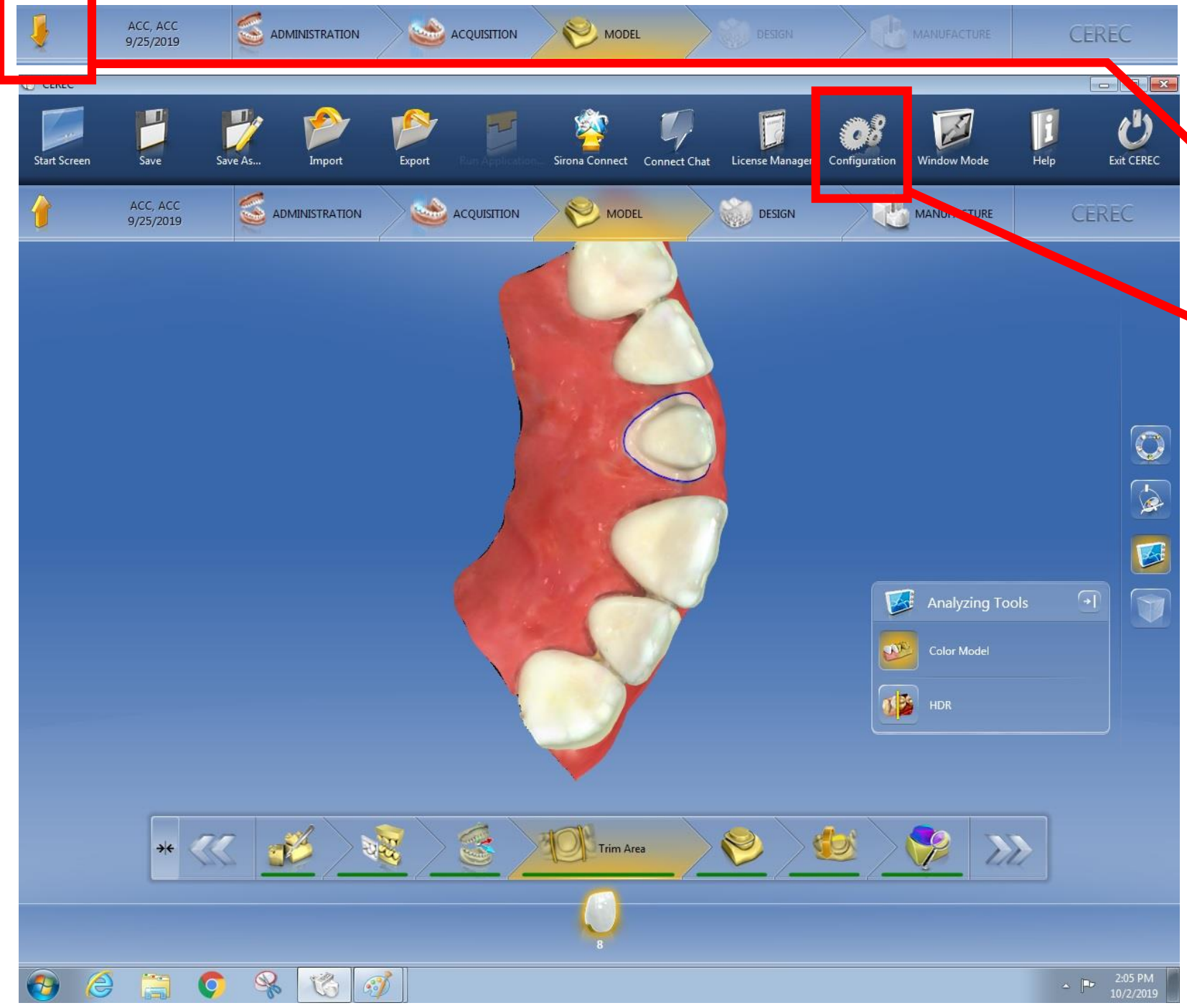
Basic function

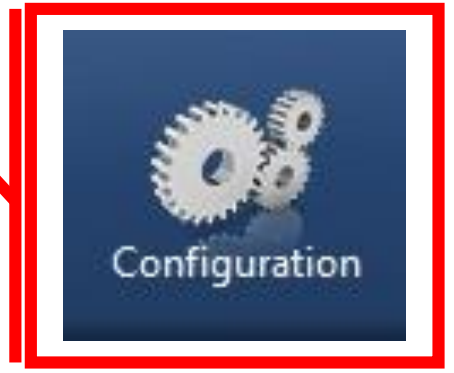
Zoom in and out – hold the middle click and use the ball to zoom in and out

Move the model – hold the right-click and use the ball to move the model

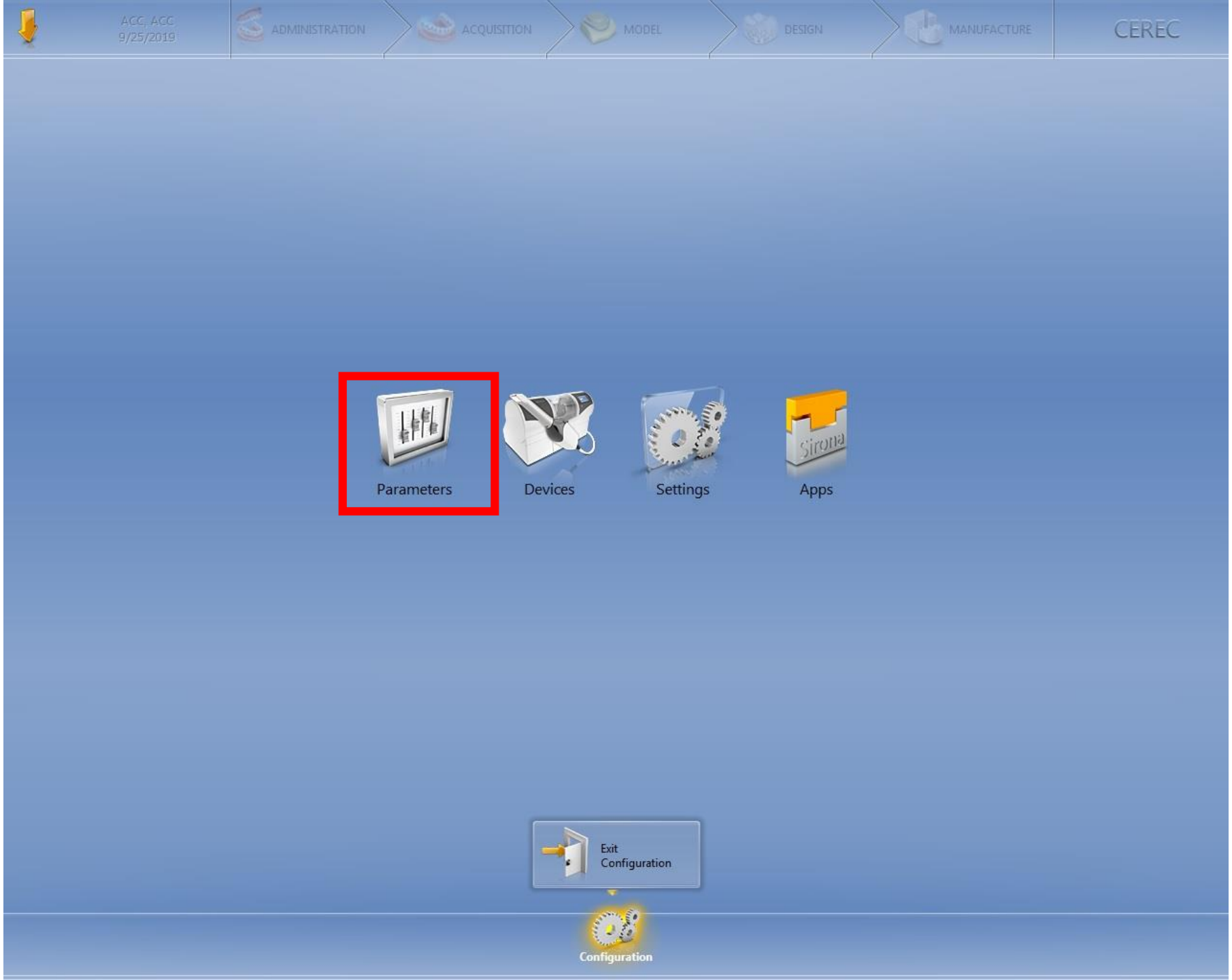
Rotate the model – hold the left-click and use the ball to rotate the model

- After processing, the program will begin with identifying the margin.

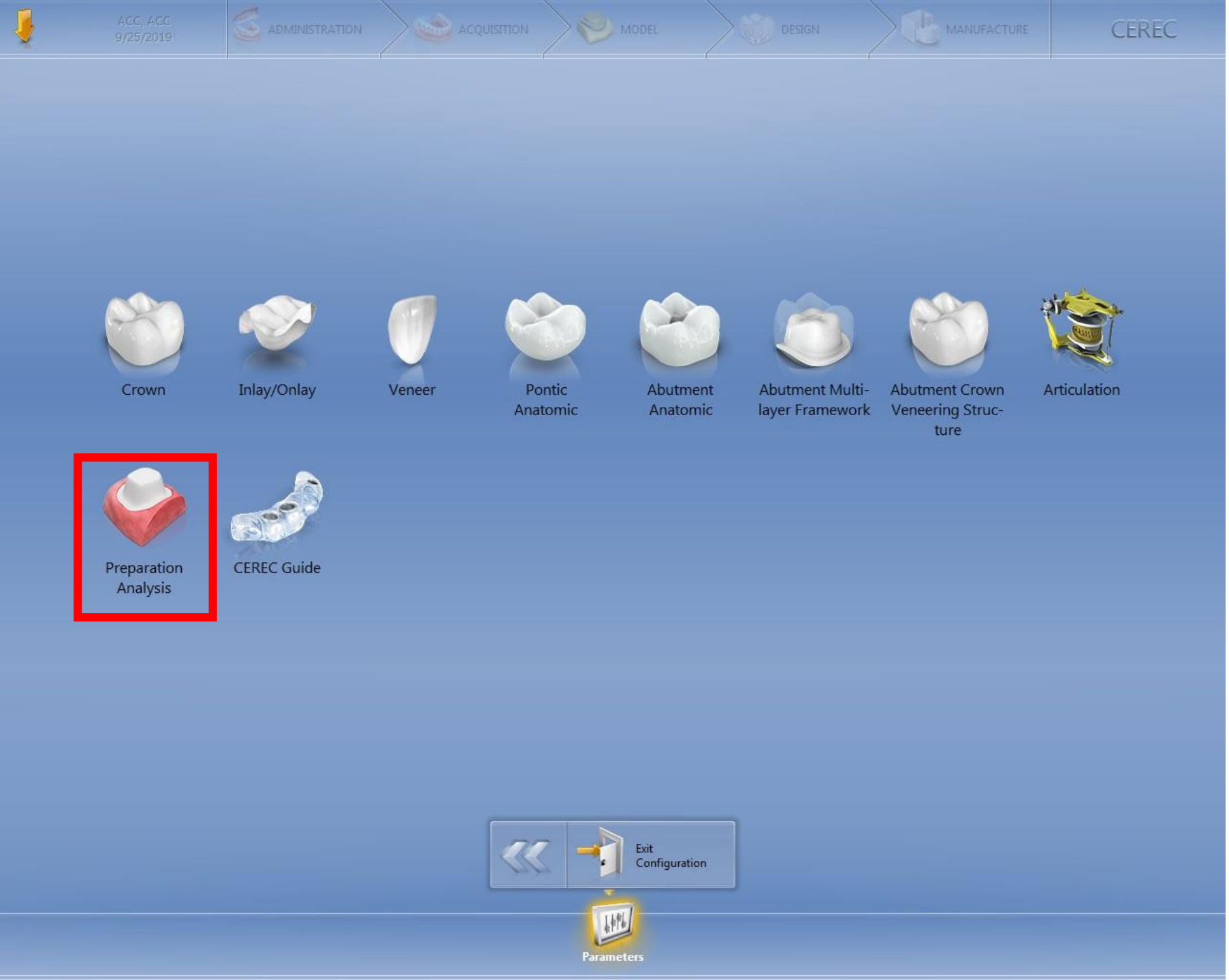




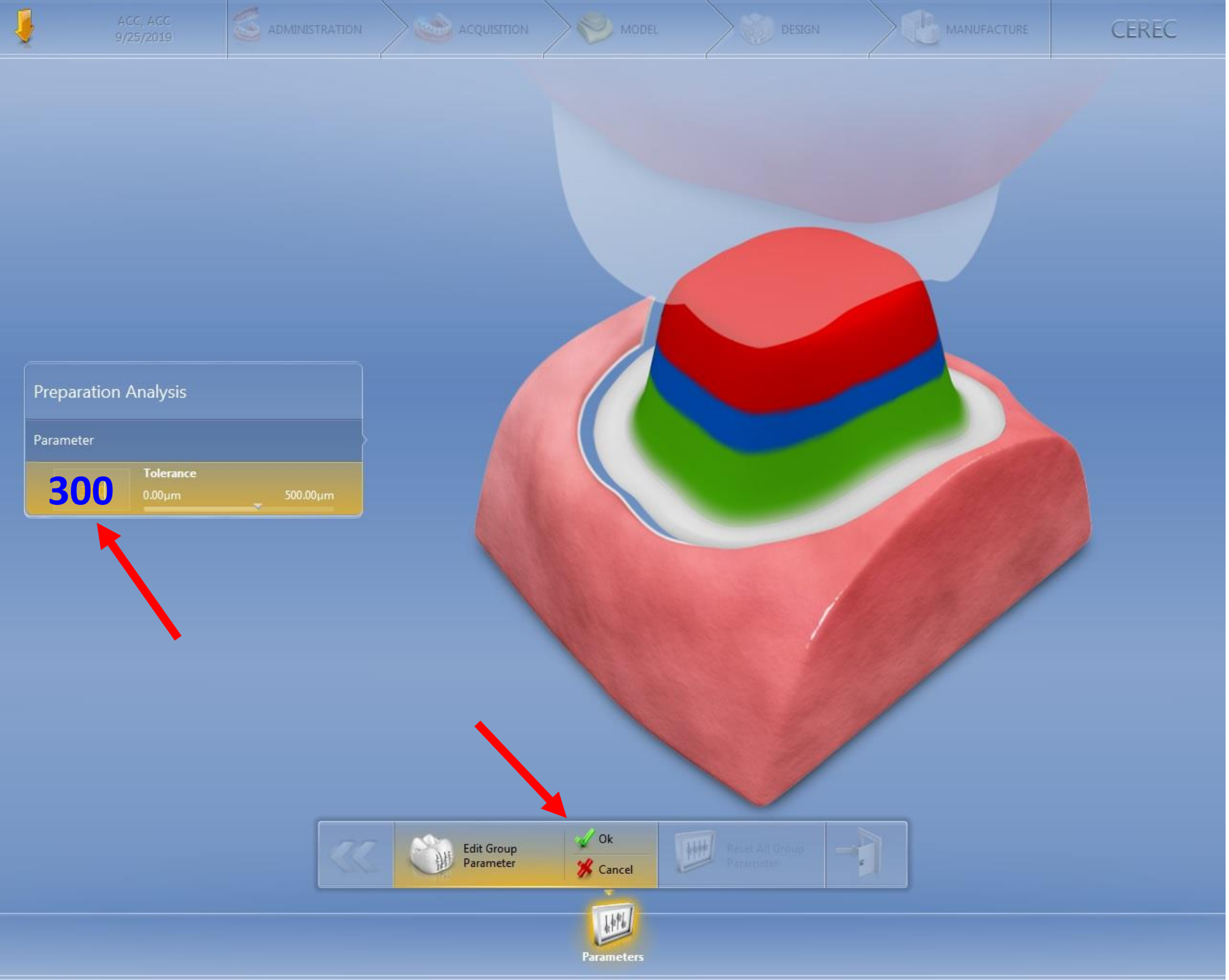
- Set up the configuration
- Click the arrow on the left
- Select **“Configuration”**



- Select **“Parameter”**



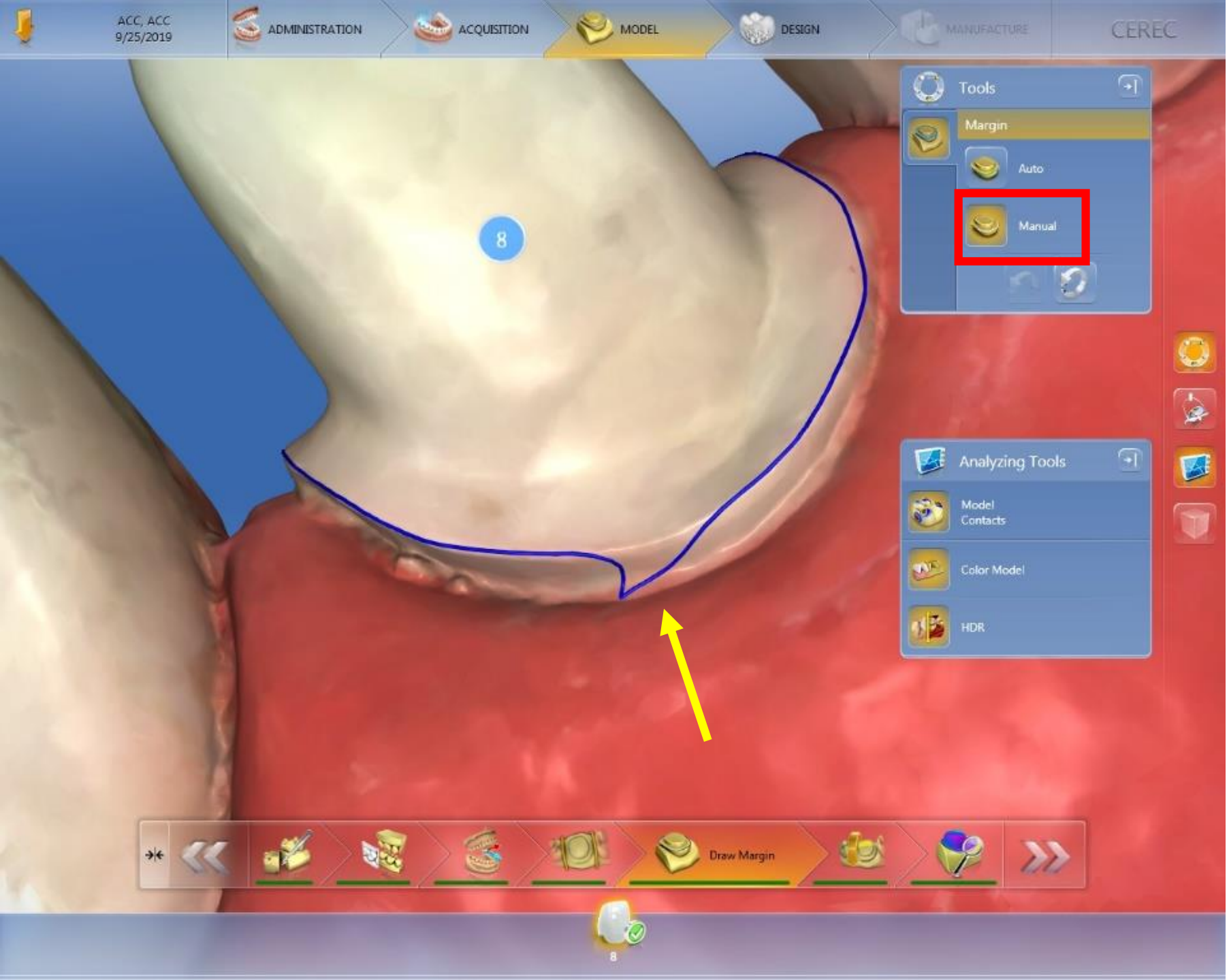
- Select **“Preparation analysis”**



- Set parameter as **300 microns**
- Click OK

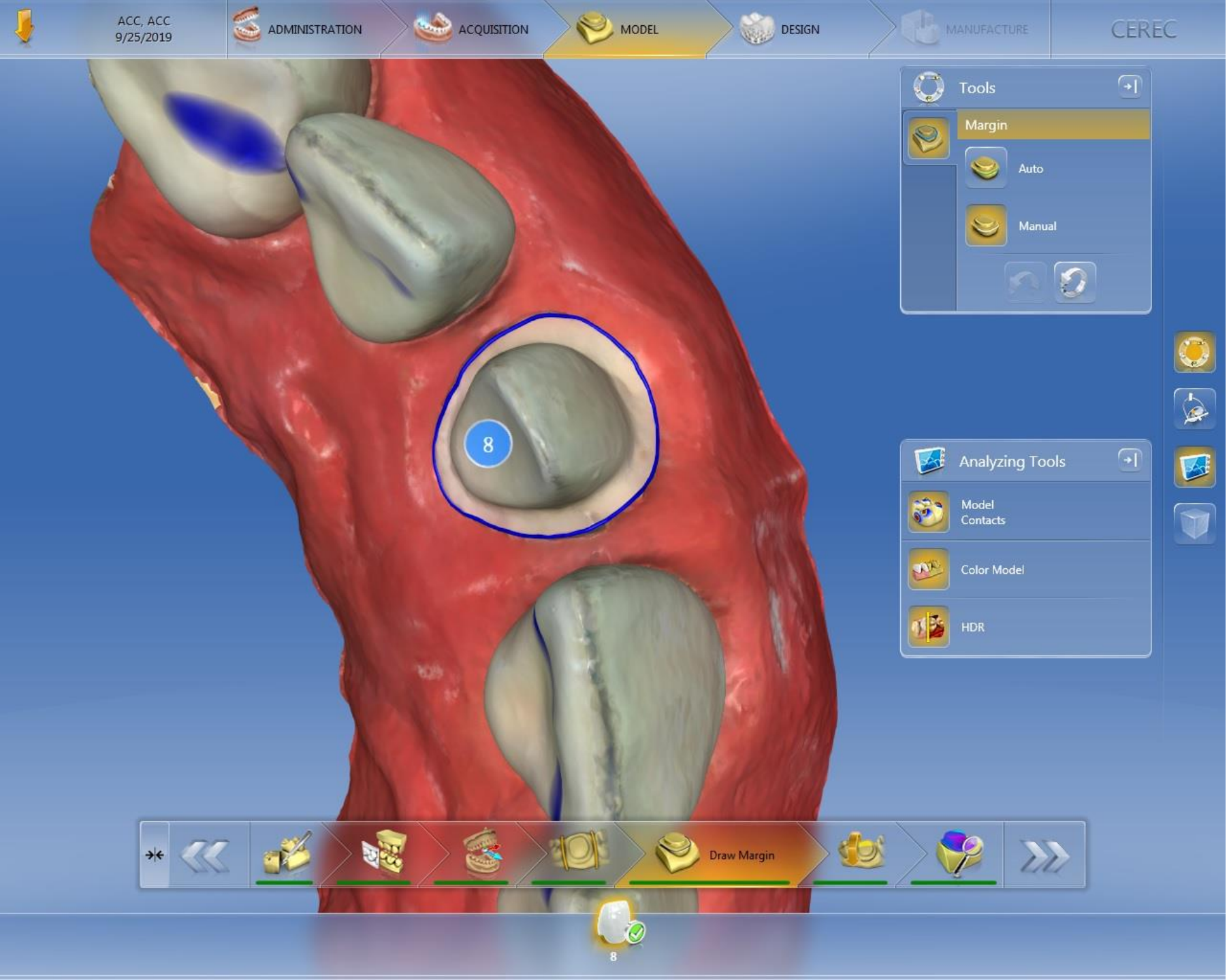
- Draw margin
- Start with “Auto”
- Left double-click to activate the function and continue by using single clicks to trace the cavosurface margin.
- Left double-click once you have circled back to the beginning point to complete the margin identification.

- Evaluate margin



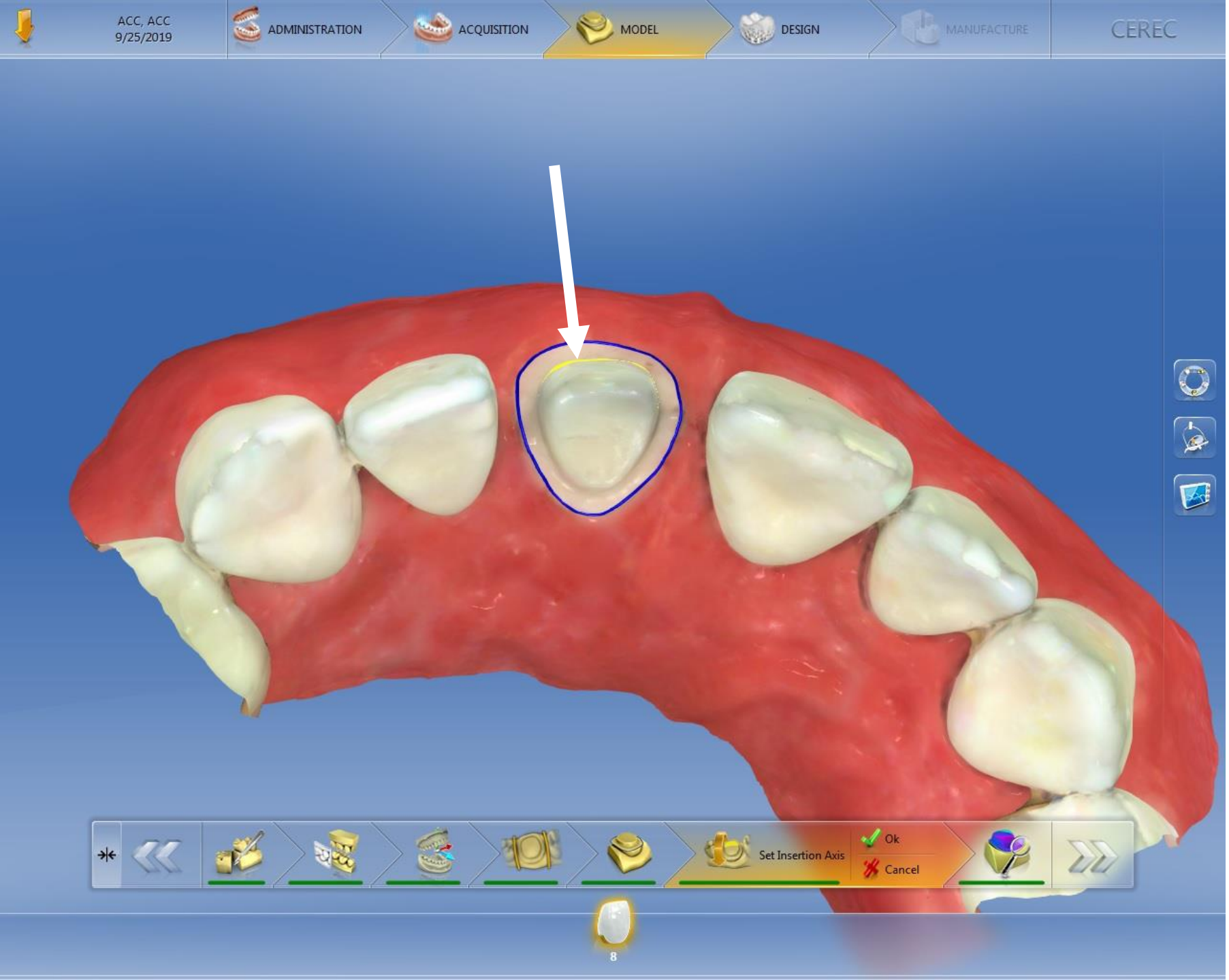
- Any inaccurate area (*arrow*) needs to be corrected the using “Manual”margin tool
- Click **“Manual”**
- Left double-click to activate the function and draw the outline
- Left double-click again when the outline is completed

- Correct as needed with “Manual” function

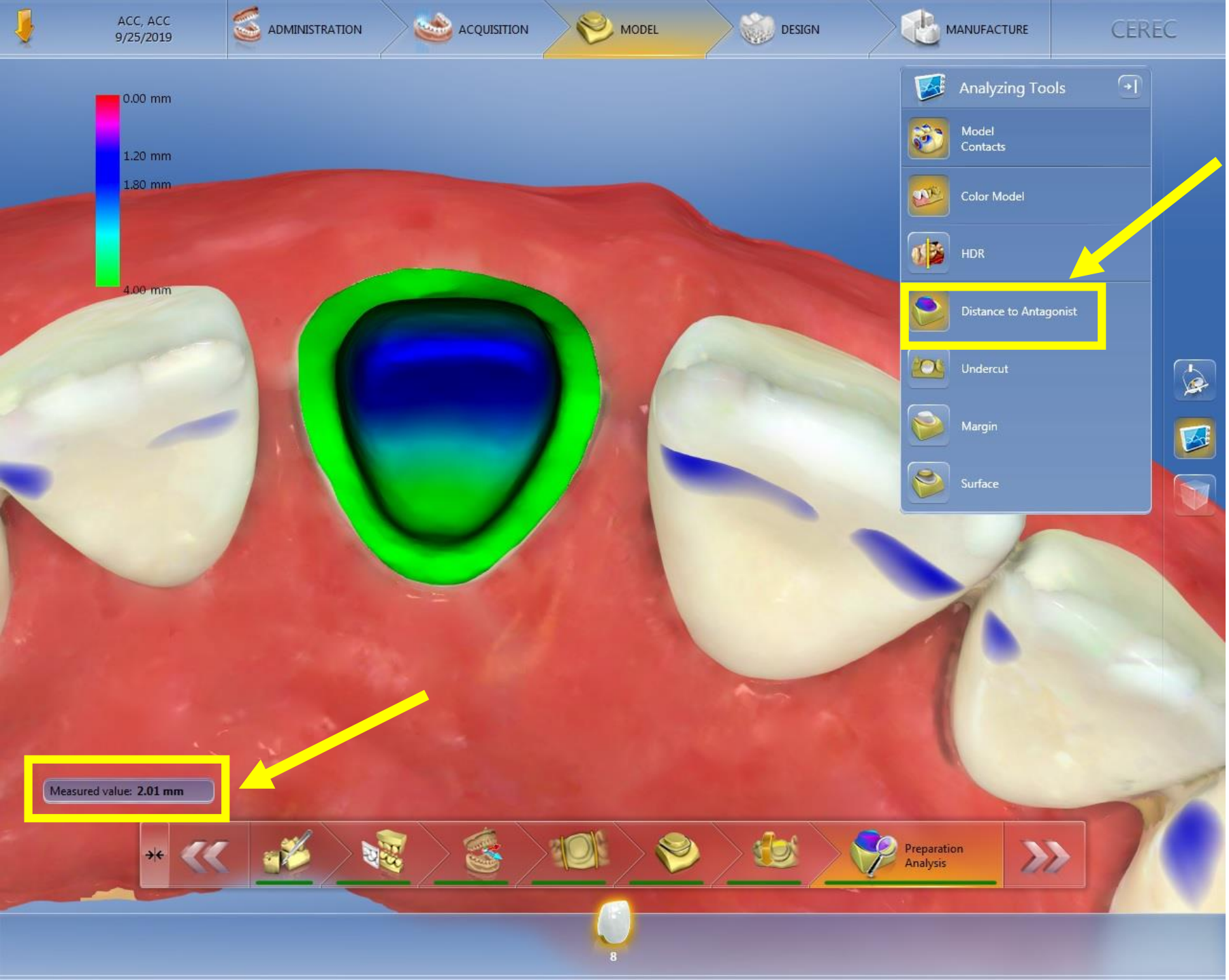


- Margin (completed)
- Use “zoom-in and out” function to evaluate the margin
- **Make sure that you also evaluate from all viewing angles by rotating the model (left-click and use the ball to rotate the model)**

- **Determine the insertion axis by finding a path where you are able to see the whole width of margin 360° around the preparation**
- **It should <u>not</u> show any yellow area(s) on the tooth preparation (= undercut)**

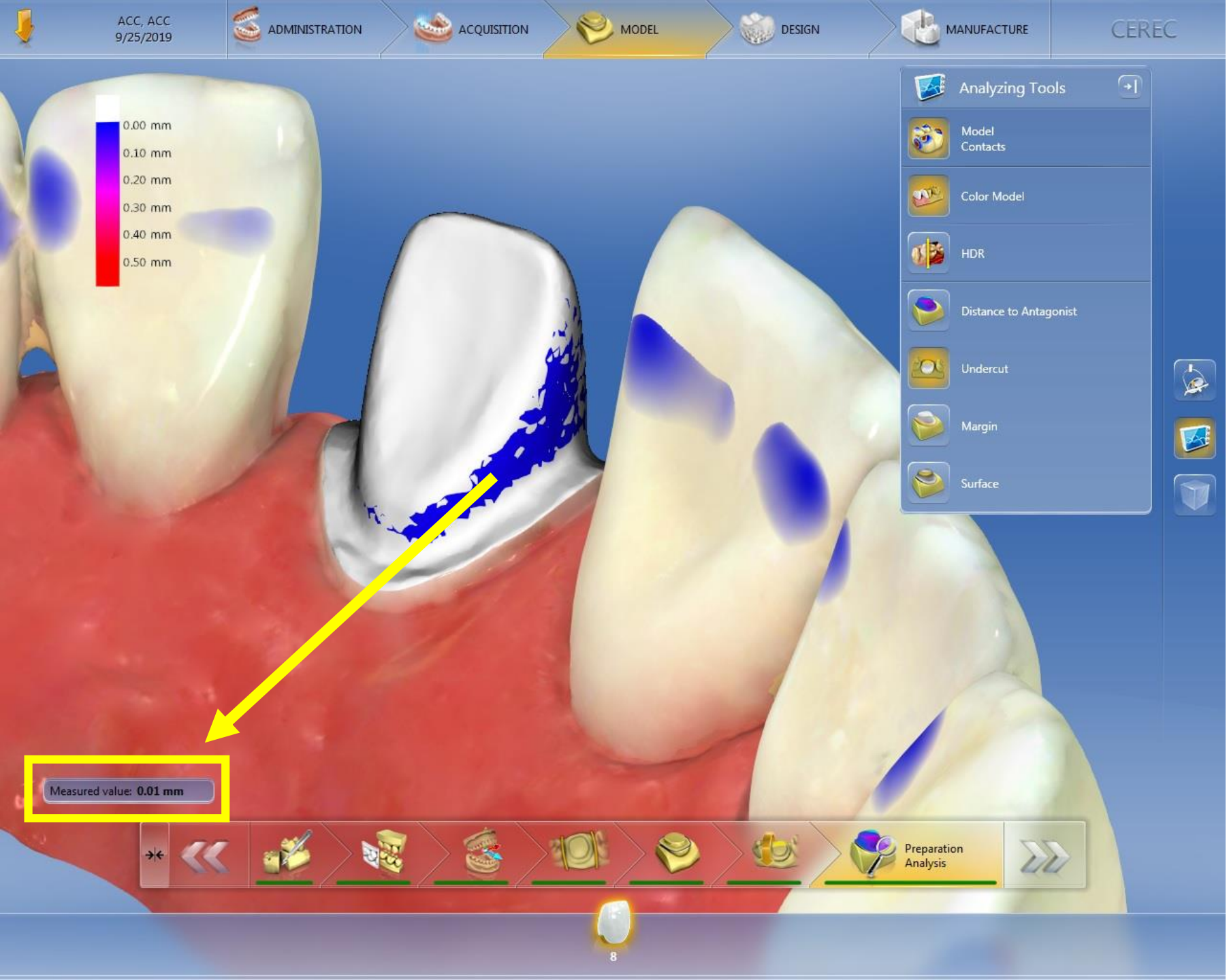


- A yellow area means your tooth preparation has an undercut. (You may have created the undercut by choosing an improper insertion axis.)

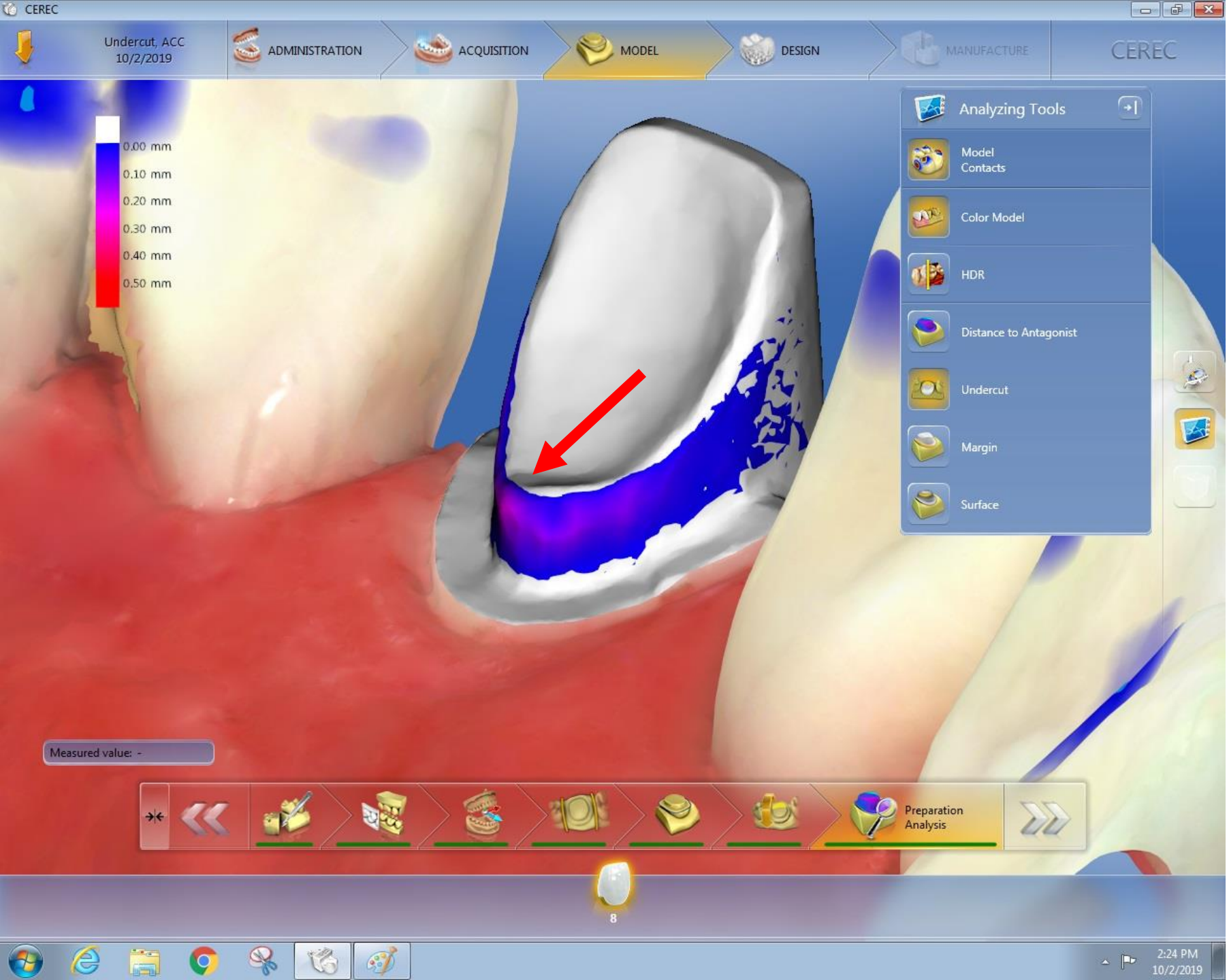


- Click **“Distance to antagonist”** icon
- Check the distance from the antagonist tooth **(This is clearance, NOT reduction)**
- Place the mouse on the area so that you can read how many mm of clearance you have in that area (shown on the bottom left)

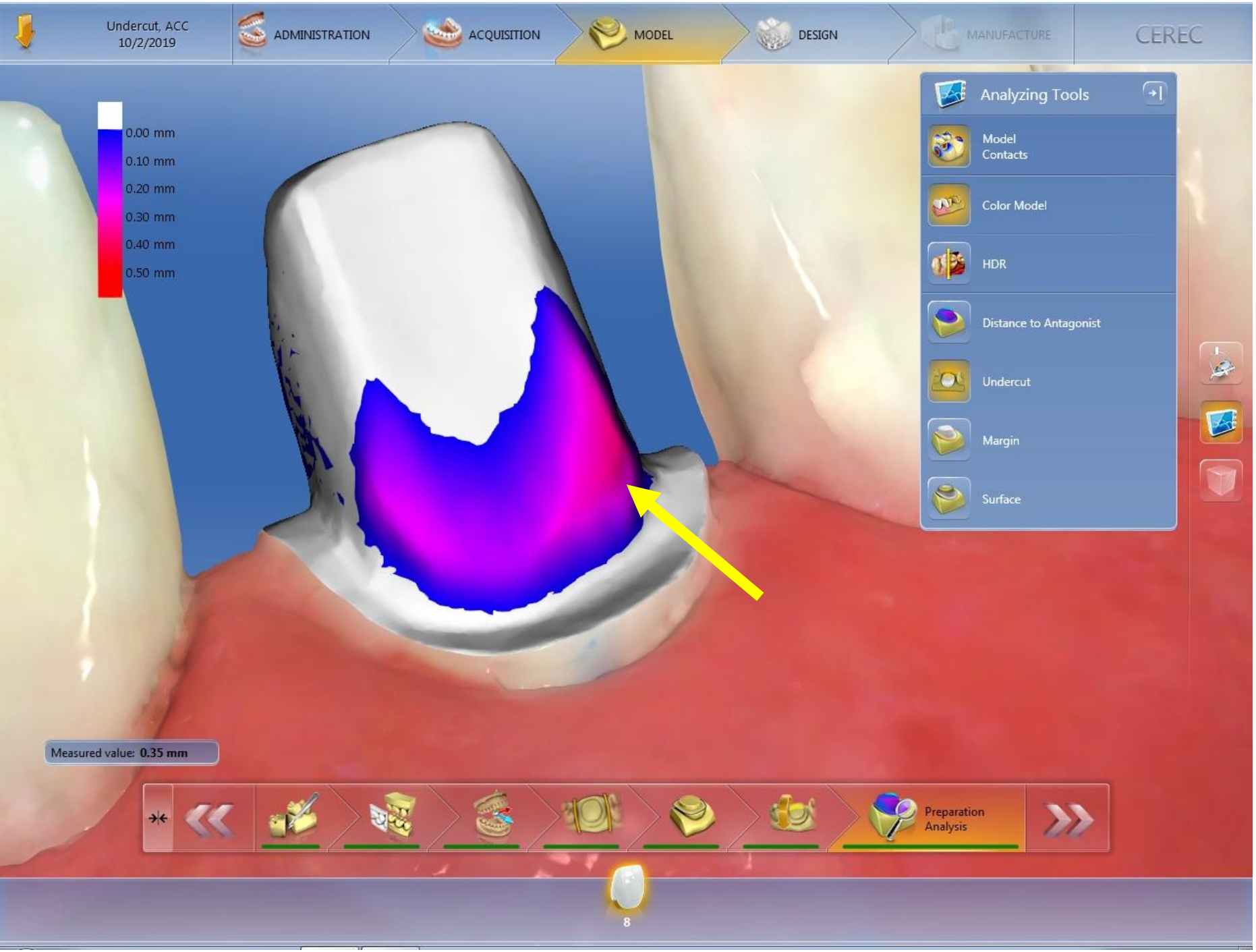
- Click **“Undercut”** icon
- Evaluate for undercut(s)
- **Should <u>not</u> have any non-tooth color showing on the prepared tooth**



- If you do have a colored area, place the mouse on the area so that you can read the measured value of undercut (mm)
- For clinically acceptable undercut, **it should not be more than 0.10 mm (should not have pink-red color)**

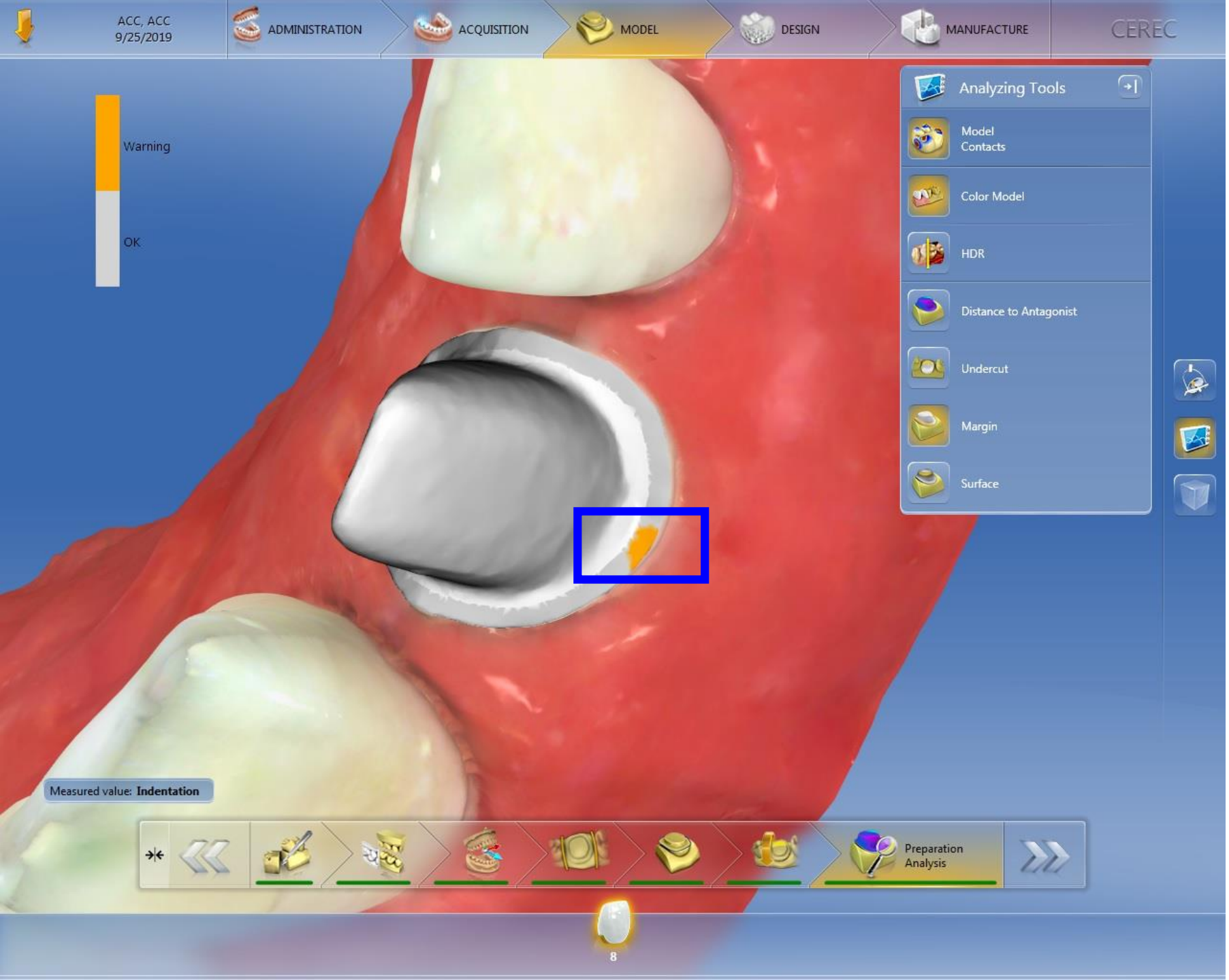


- **Unacceptable undercut area is shown in pink or red color** (*arrow*)

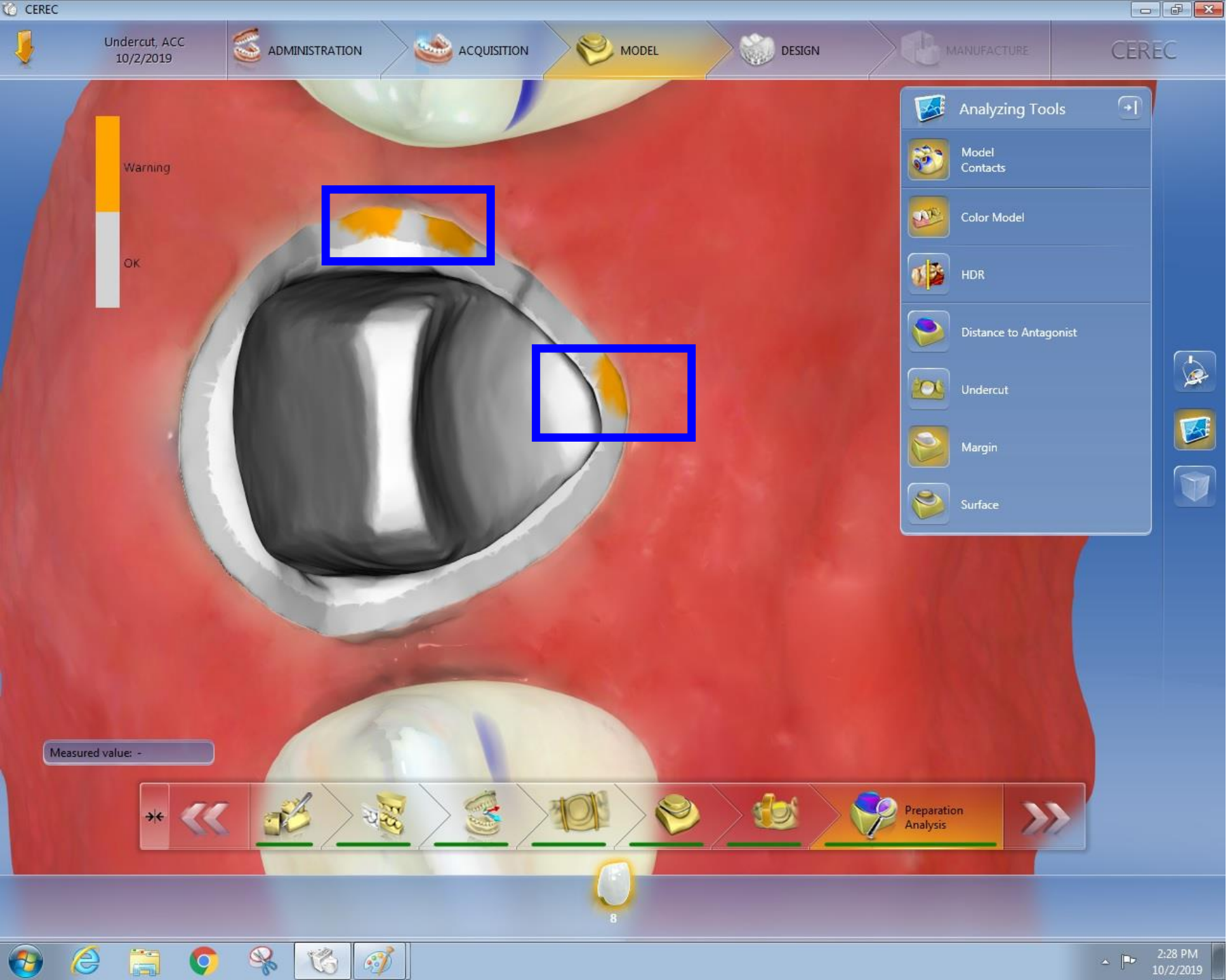


- **Unacceptable undercut area with pink or red color**

- Click **“Margin”**
- Evaluate for margin smoothness and continuity

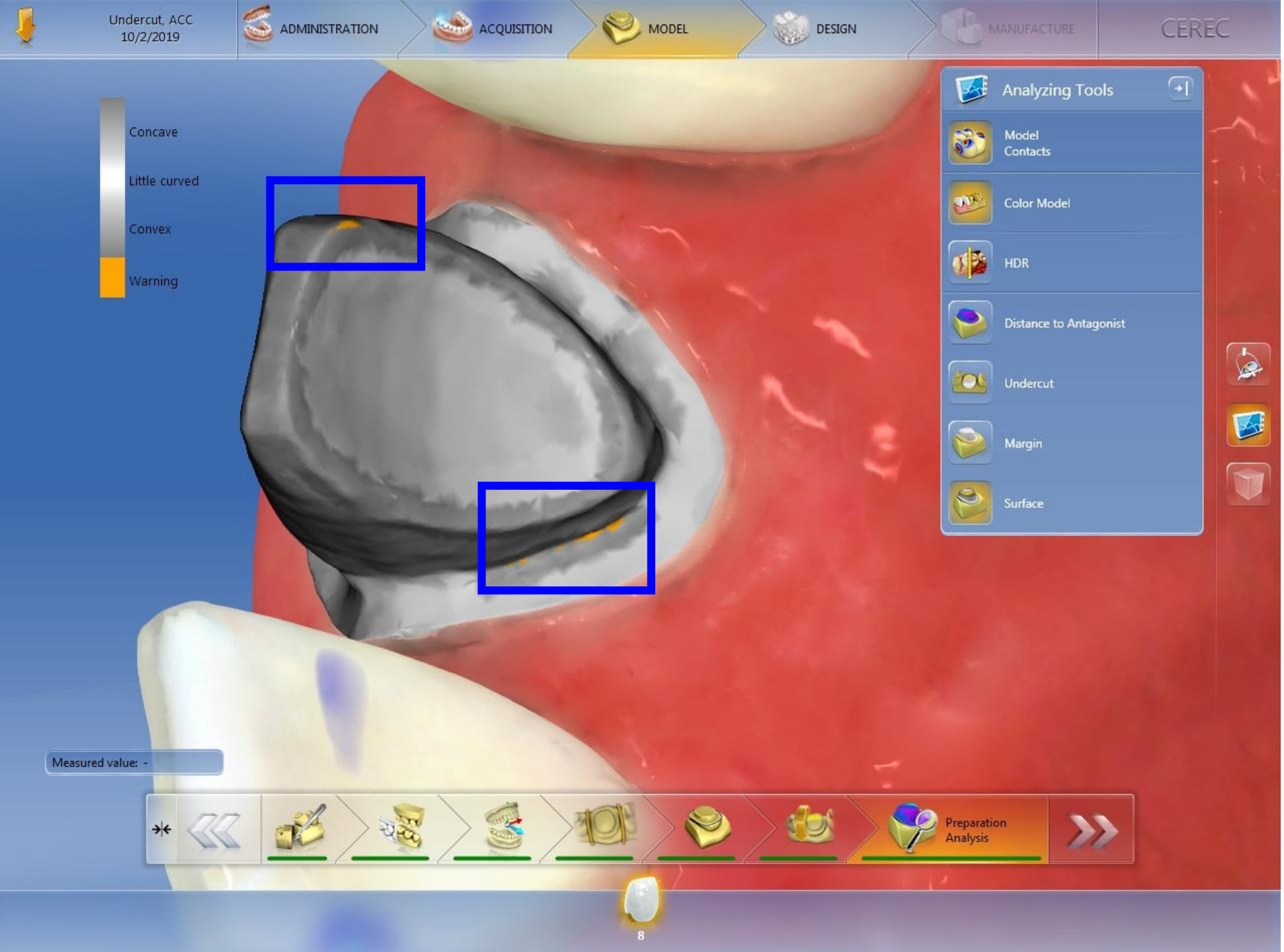


- A yellow area on the margin means the milling machine may have difficulty in milling the crown (indentation)
- **You may need to go back and smooth the margin in that area and rescan**

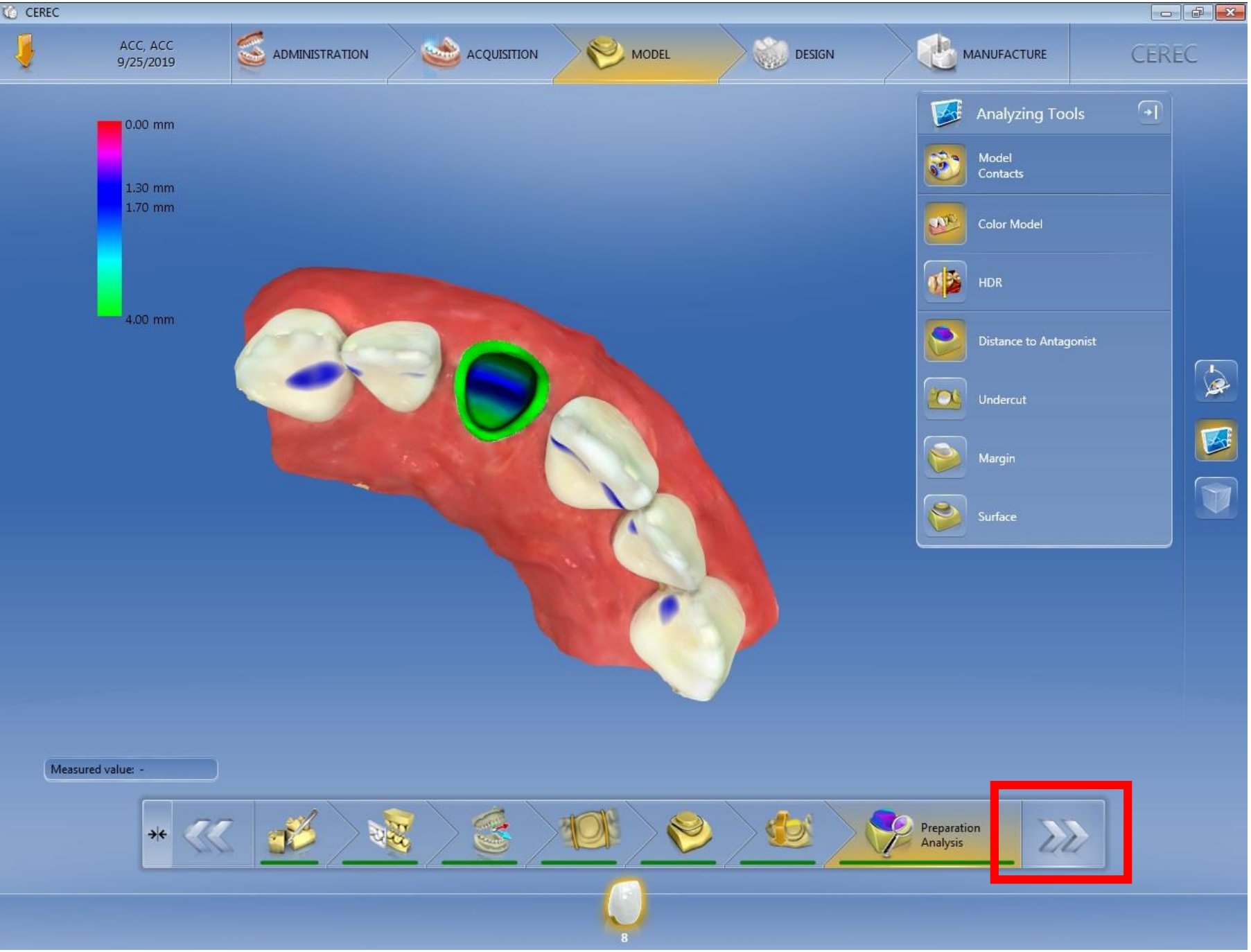


- A yellow area on the margin means the milling machine may have difficulty in milling the crown (indentation)
- **You may need to go back and smooth the margin in that area and rescan**

- Click **“Surface”**
- Evaluate the surface of the prepared tooth



- A yellow area on the margin means the milling machine may have difficulty in milling the crown (sharp transition angle)
- **You may need to go back and smooth the sharp surface in that area and rescan**



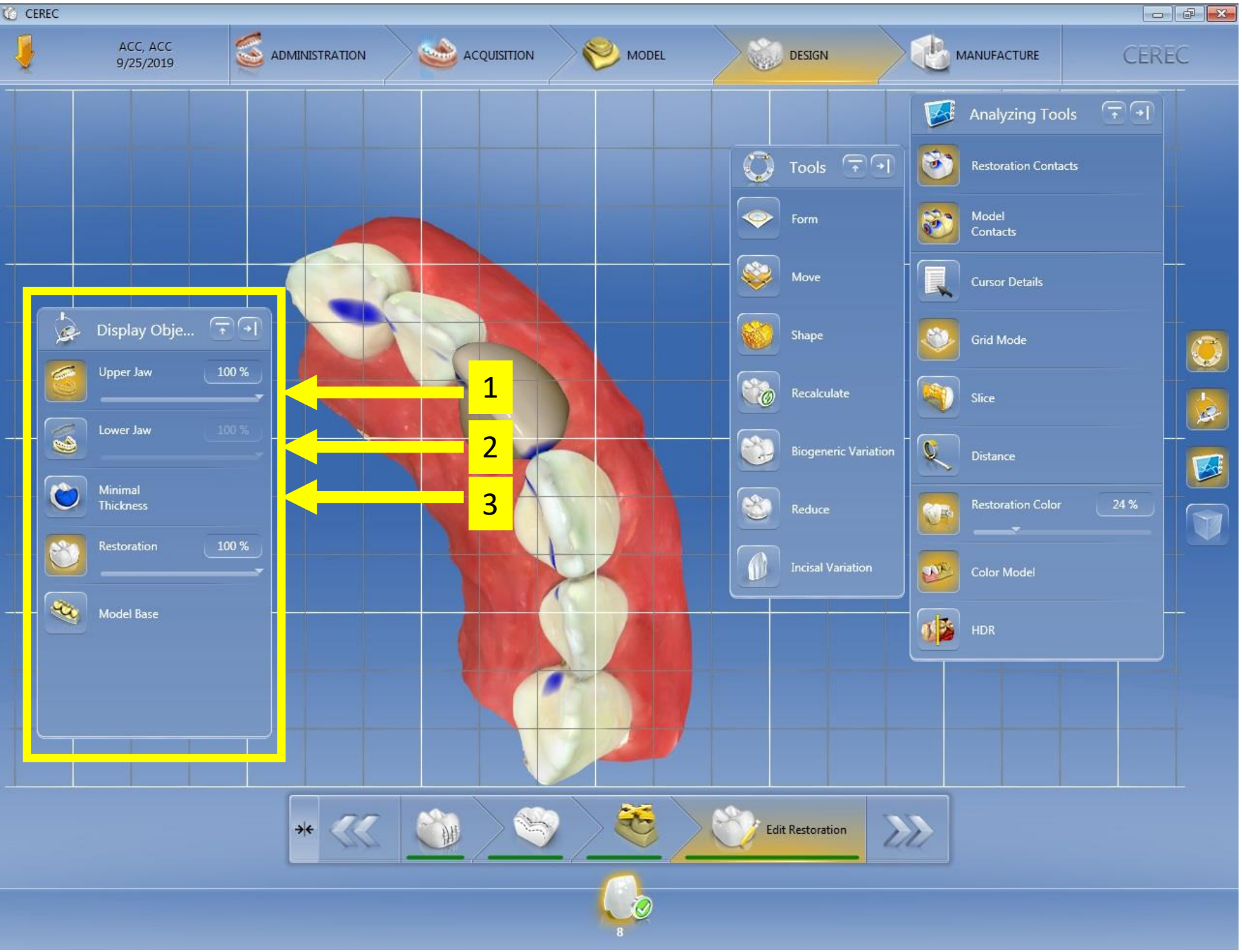
After complete preparation analysis, left-click on the ">>" to begin the crown design.

Main function

- Design tools
- Analyzing tools
- Display object

- Design tools
  - Used to design, modify and adjust the restoration

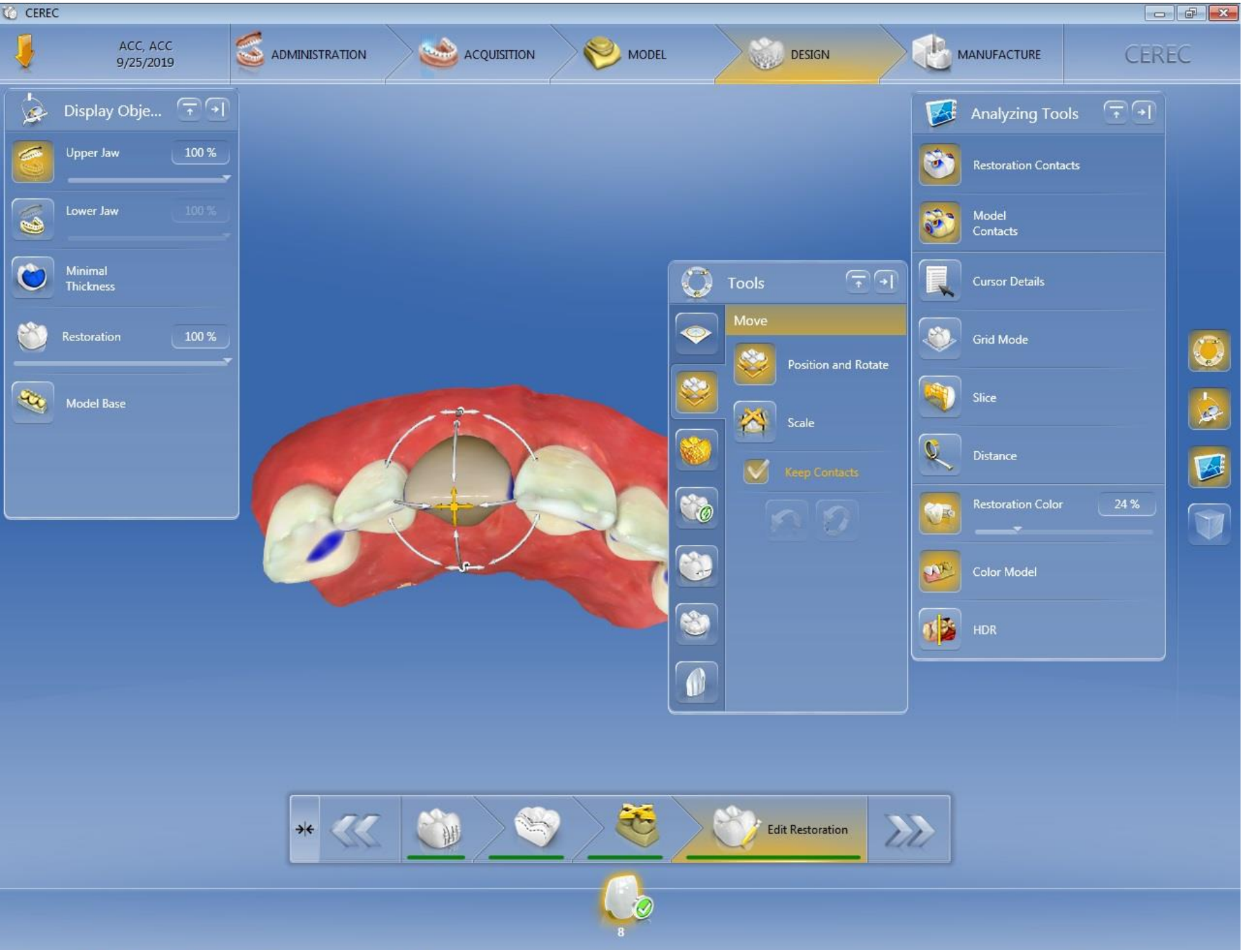
- Analyzing tools
  - Used to evaluate the design



- Display object
  1. Upper jaw: to display only the upper jaw
  2. Lower jaw: to display only the lower jaw
  3. Minimal thickness: to display the minimum thickness of the restoration

Steps

- Start with “Position and Rotate” and “Scale” to modify or adjust the restoration (major adjustment/large area)
- Use “Shape” (2-Directional) tool for a medium-sized area of adjustment
- Finalize the restoration by using ”Add”, “Smooth” or “Remove” tool. (minor adjustments/small area)



Designing tool

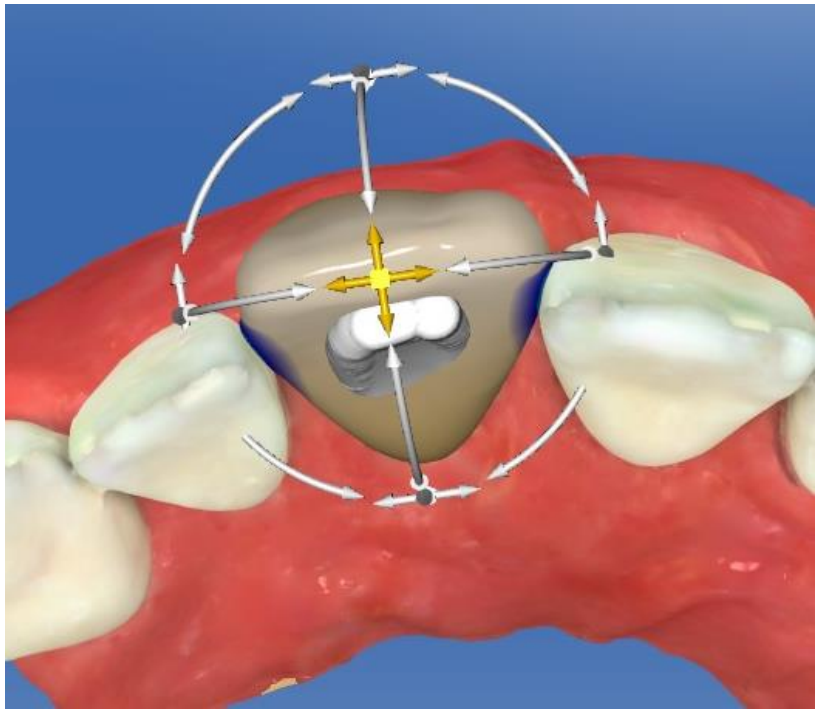
- **Move**: tool to rotate, translate or scale the restoration
  - *Rotate, Scale*

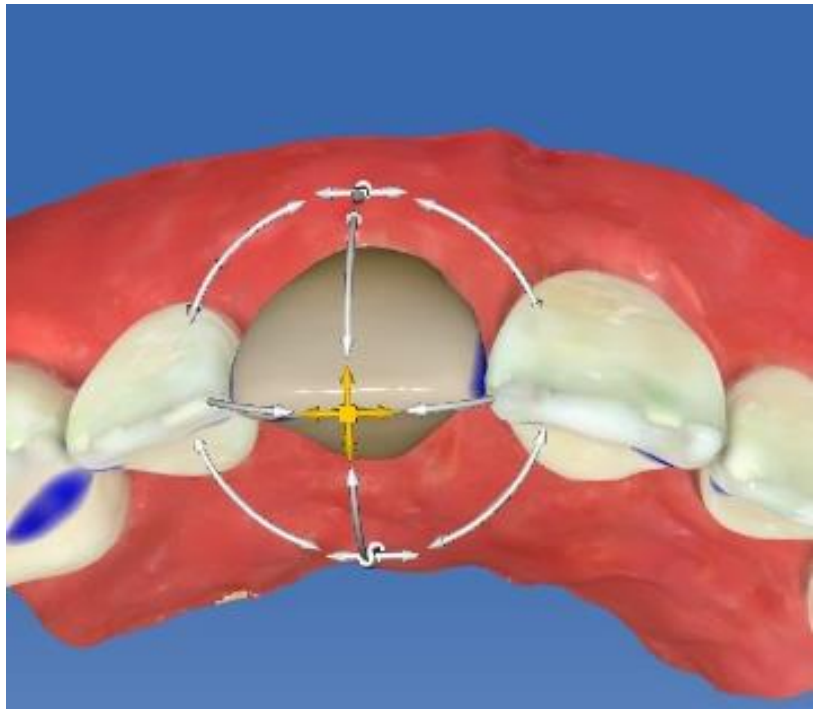
Designing tool

- ***Position and Rotate***
  - Place the mouse on the arrow (the selected arrow will turn yellow) and use left-click and move the trackball following the desired direction.

Position and Rotate

- Place the mouse on the arrow (the selected one will turn yellow)
- Use left-click and move the trackball to move the digital proposal in the desired direction.



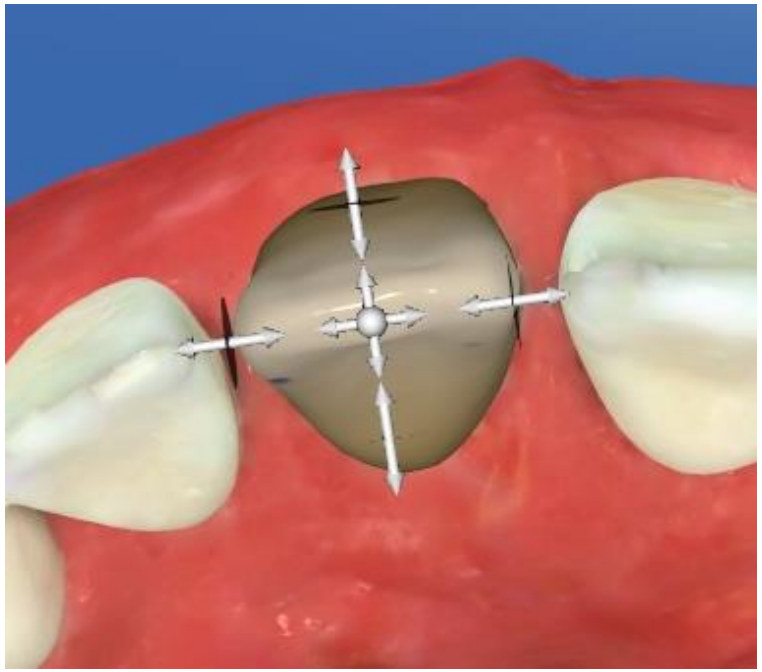


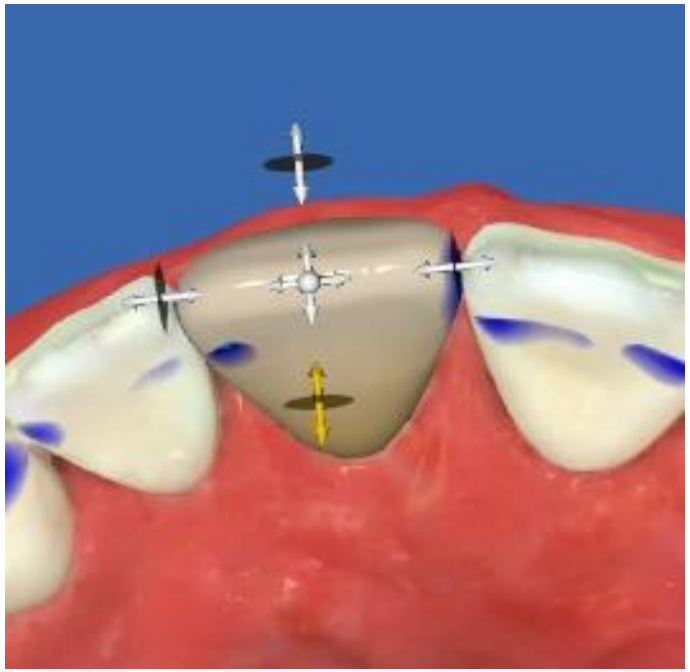
Designing tool

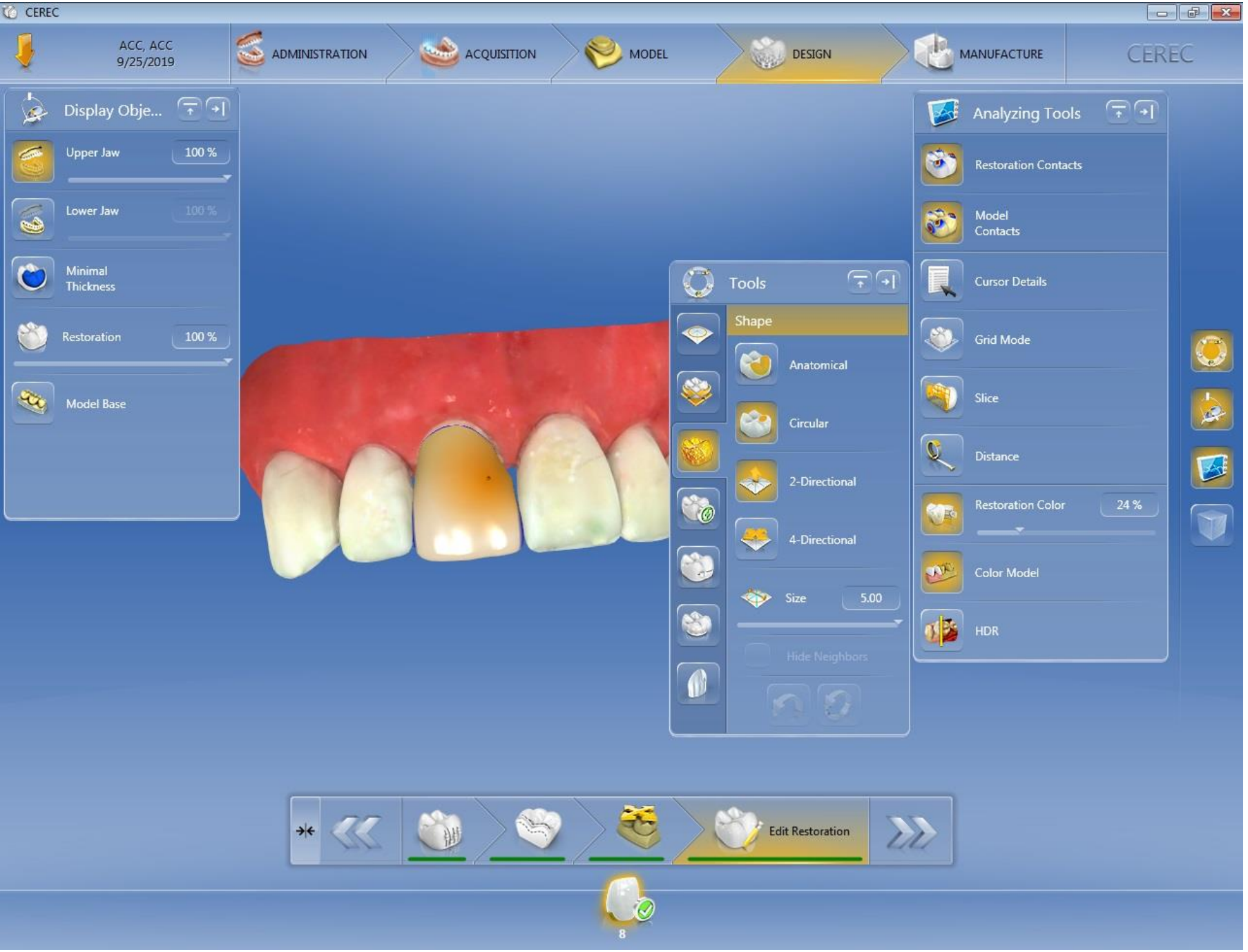
- **Scale**
  - Place the mouse on the arrow (the selected one will turn yellow) and adjust the scale of the crown using left-click and moving the trackball in the desired direction.

Scale

- Place the mouse on the arrow (the selected one will turn yellow)
- Adjust the scale of the crown using left-click and move the trackball to expand/contract the digital proposal in the desired direction.

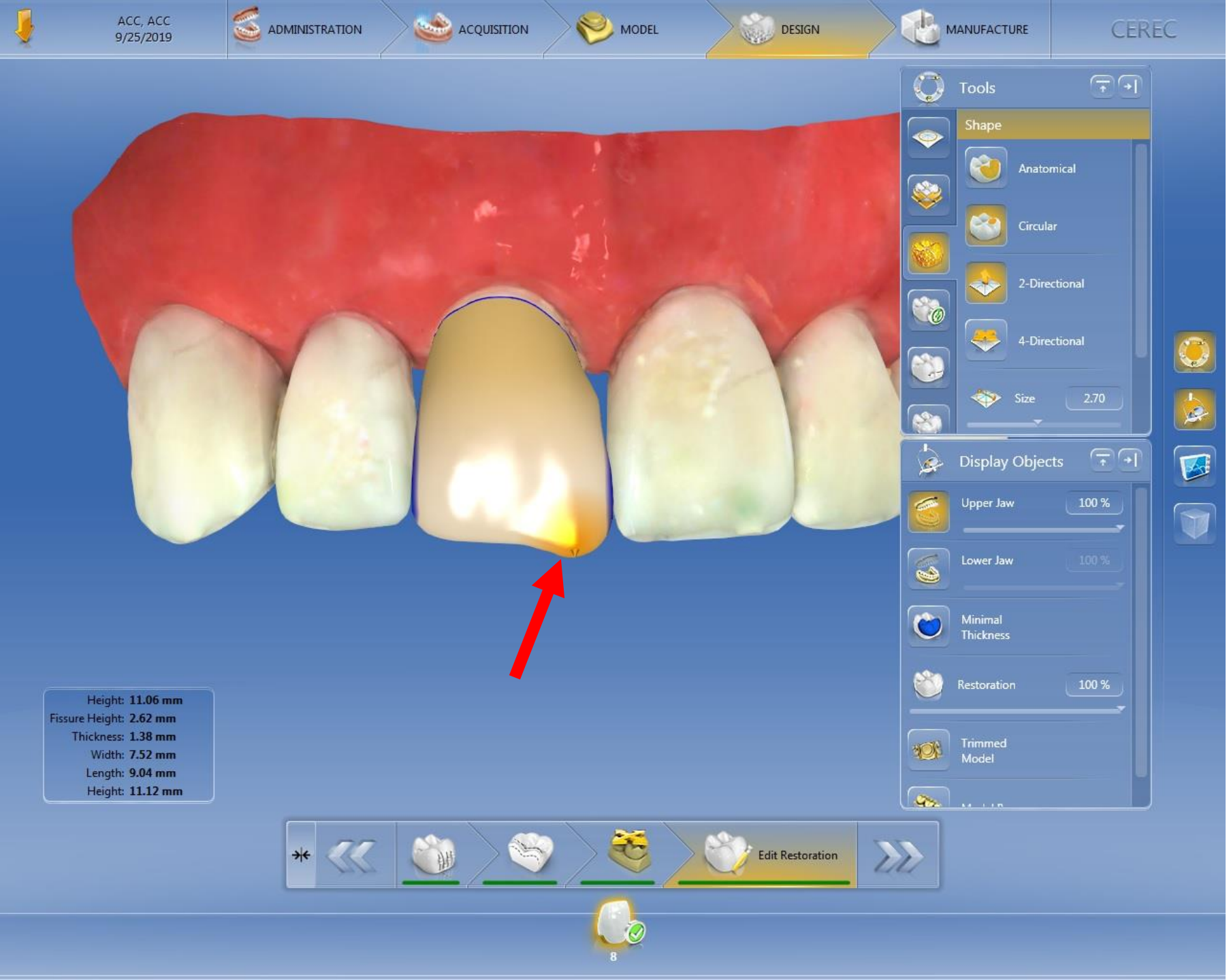






Designing tool

- **Shape**: tool to deform the restoration
  - *Anatomical*
  - *Circular*
  - *2-Directional*
  - *4-Directional*

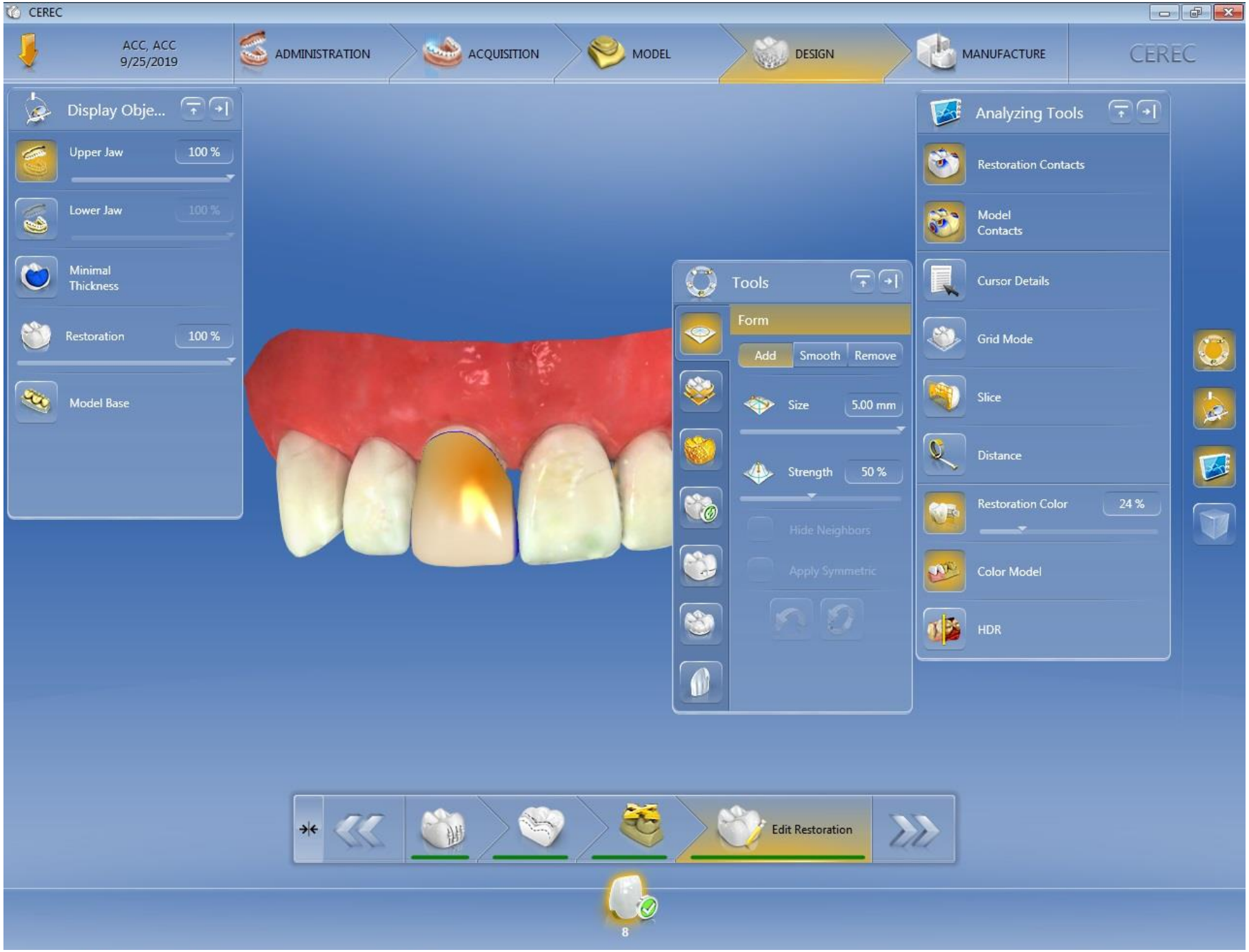


Designing tool

- ***2-Directional***: can use to deform the restoration
  - Adjust the small area (yellow)
  - Left-click and use the ball to control the direction (*pull and push motion*)

Designing tool

- ***2-Directional***
  - Adjust the small area (yellow)
  - Left-click and use the ball to control the direction (*pull and push motion*)



Designing tool

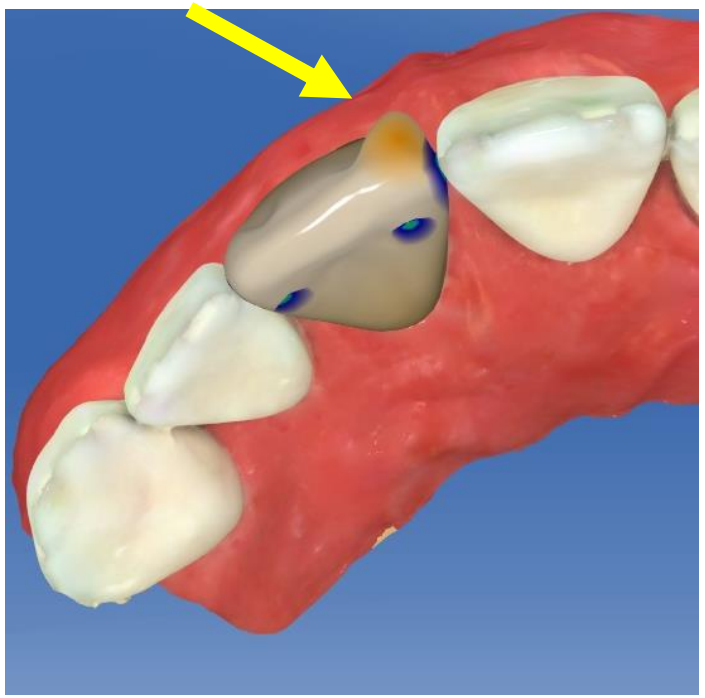
- **Form**: tool to add or remove material or to smooth the surface of the restoration
  - *Add, smooth, Remove*

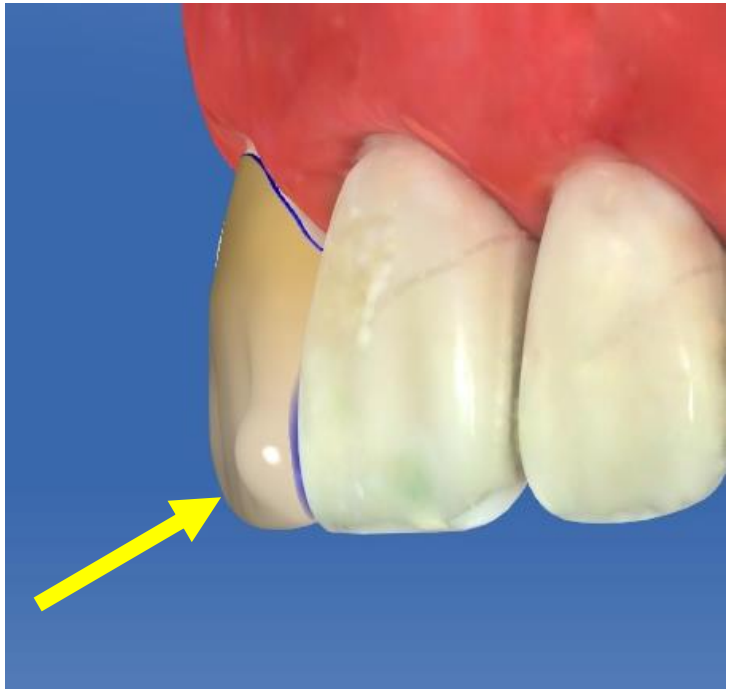
Designing tool

- **Add**
  - Size and strength can be adjusted (*red arrow*)
  - Left-click and move with the ball to the area that needs to be added.

Add

- Size and strength can be adjusted
- Left-click and move with the trackball to the area that needs to be added.



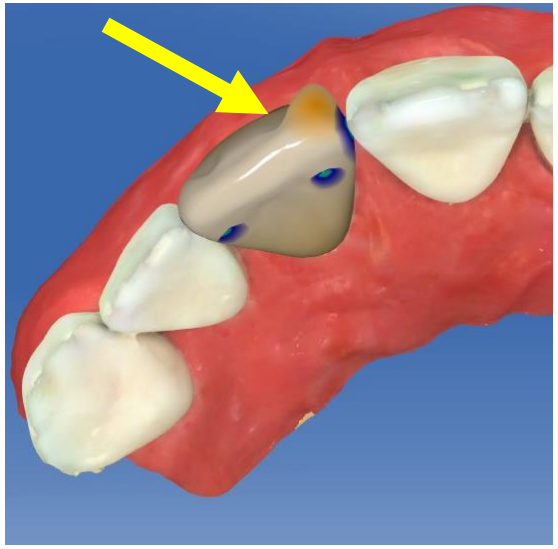


Designing tool

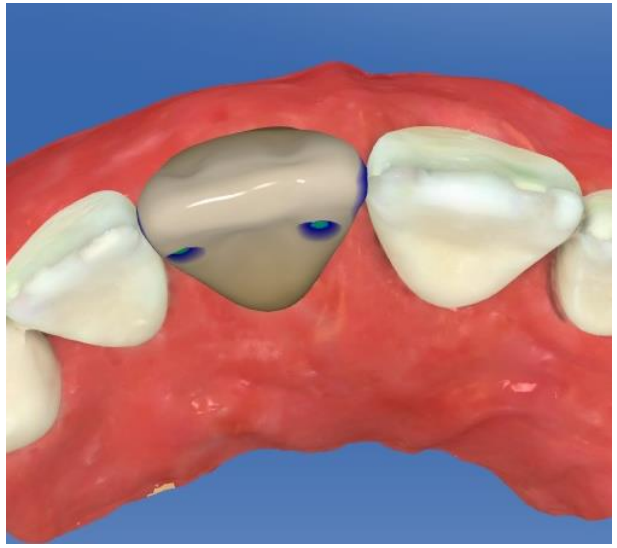
- ***Remove***
  - Size and strength can be adjusted (*red arrow*)
  - Left-click and move with the trackball over the area that needs to be removed.

Remove

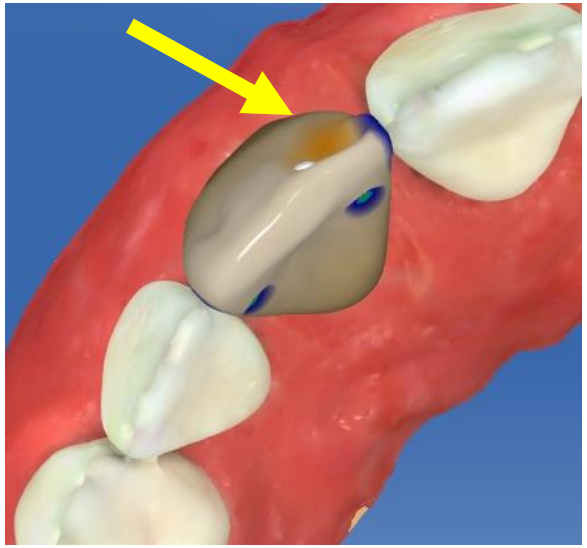
- Size and strength can be adjusted
- Left-click and move with the trackball to the area that needs to be removed/added.



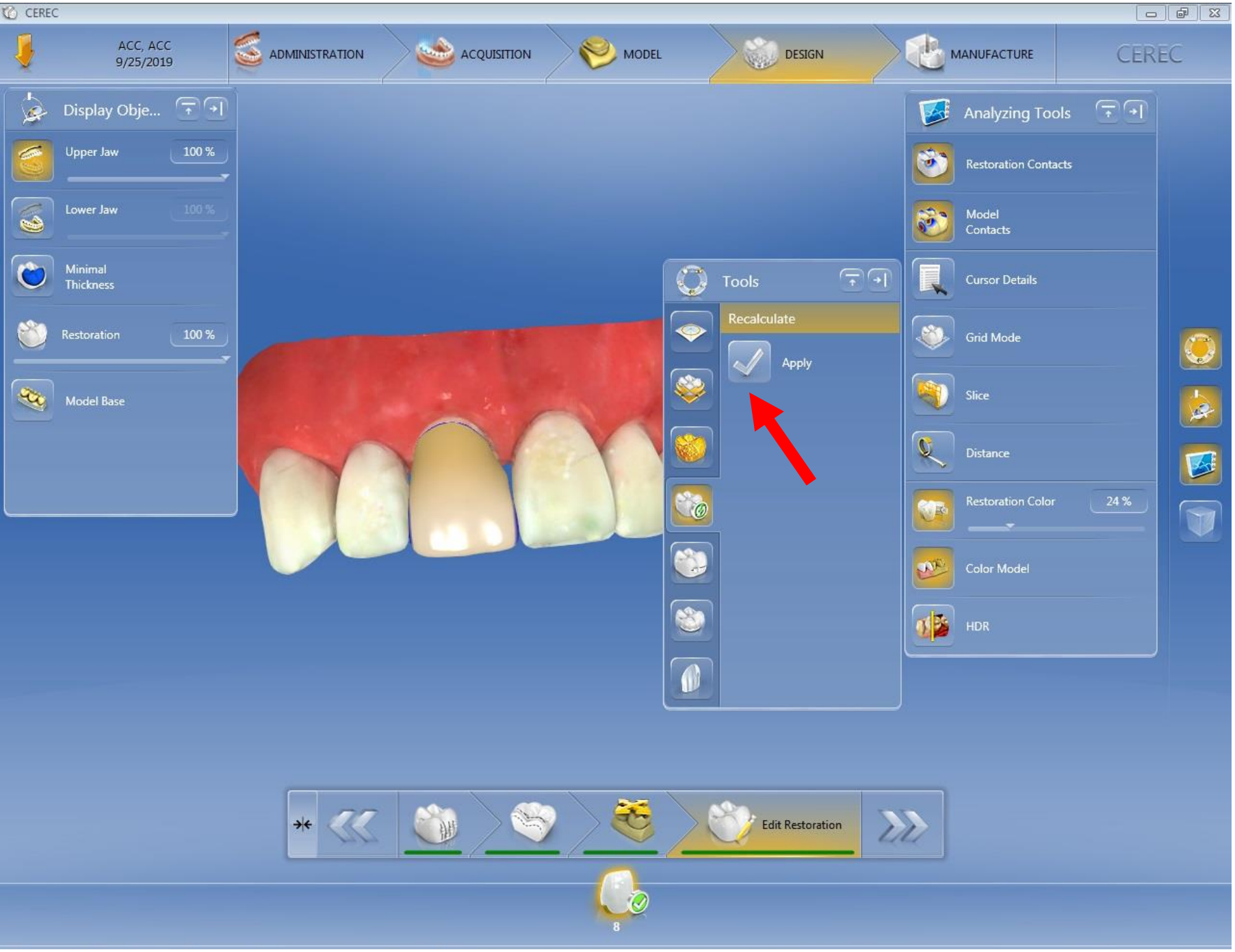
Overcontour (arrow)



Proper contour

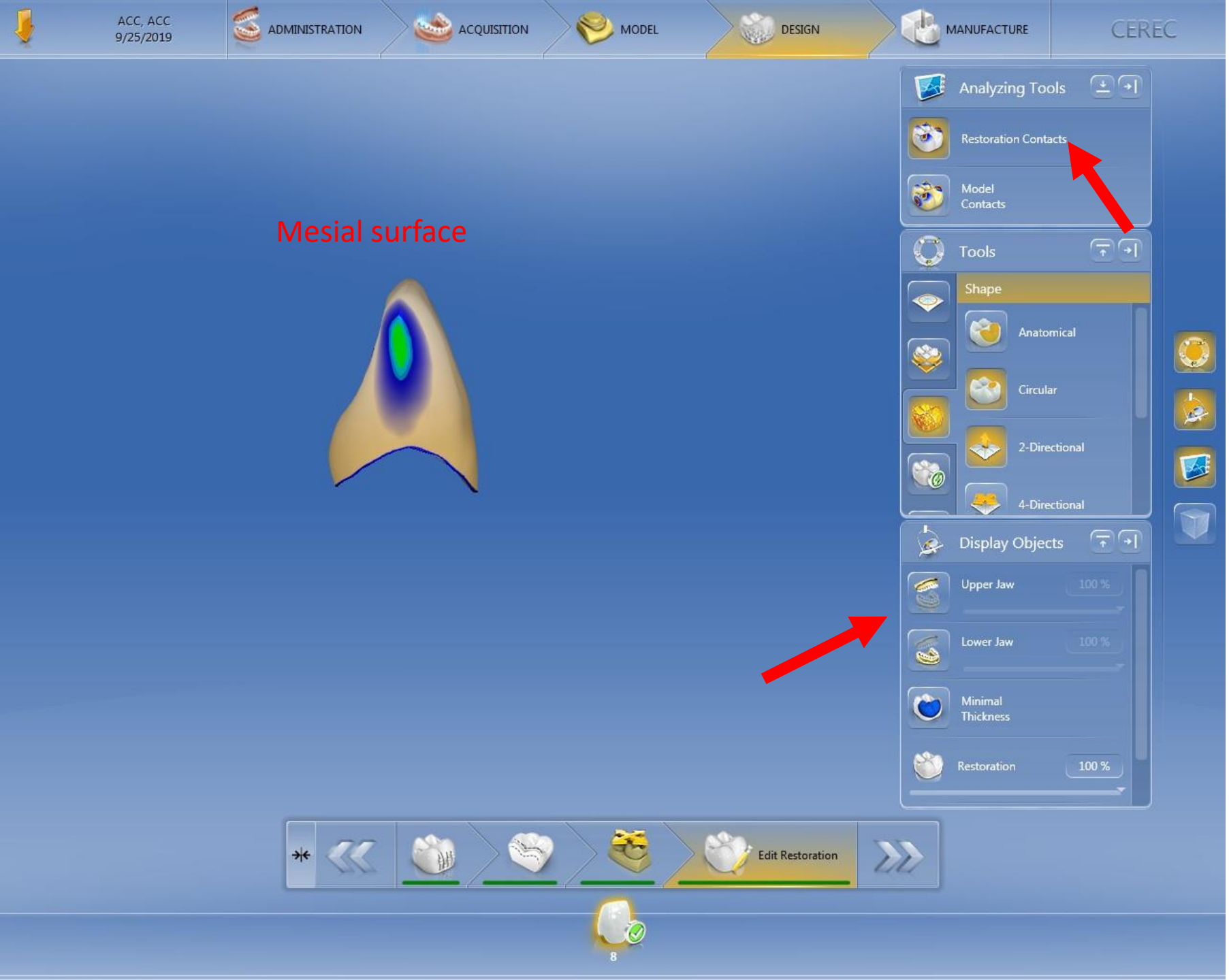


Undercontour (arrow)



Designing tool

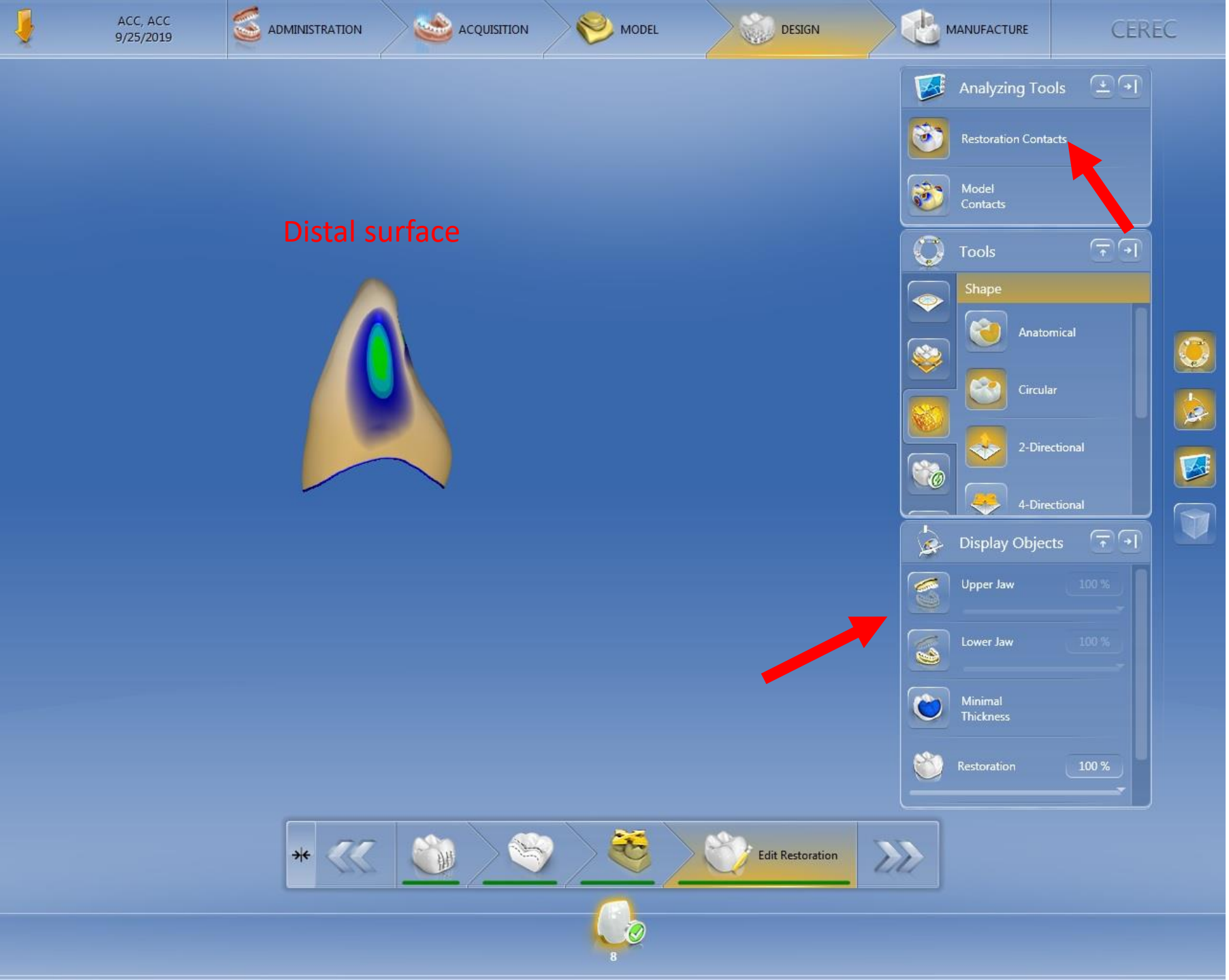
- **Recalculate**: tool to restore the initial proposal
  - Left-click on ”apply” button to recalculate the restoration



Analyzing tool

Evaluate the restoration

- Deselect the upper jaw and lower jaw to see only the restoration digital proposal
- Click on restoration proximal contact and evaluate the restoration
  - Proximal contacts (green area presented in the middle)
    - Mesial: incisal 1/3
    - Distal: junction of middle 1/3-incisal 1/3



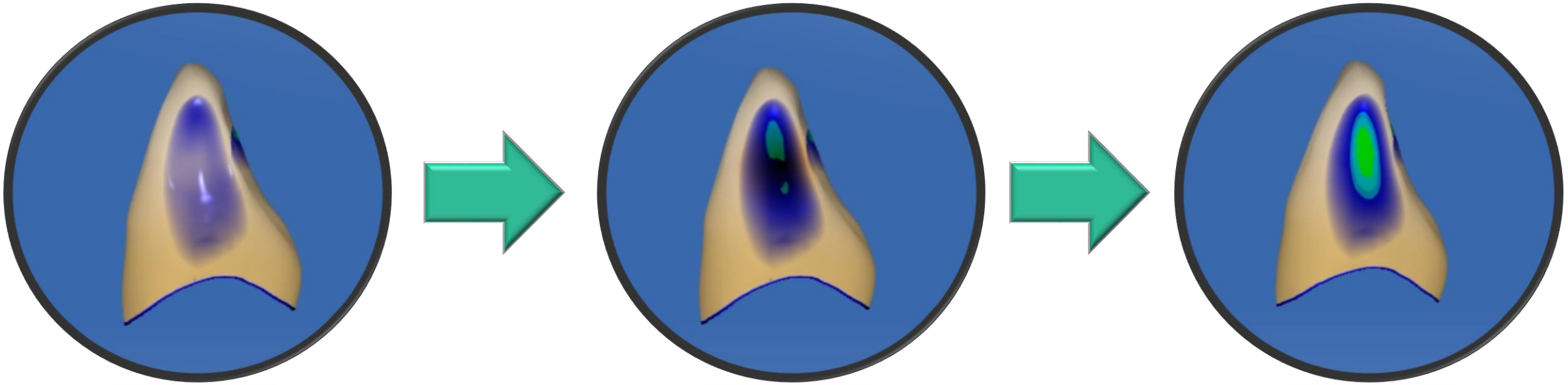
Analyzing tool

Evaluate the restoration

- Deselect the upper jaw and lower jaw to see only the restoration digital proposal
- Click on restoration contact and evaluate the restoration
  - Proximal contacts (green area presented in the middle)
    - Mesial: incisal 1/3
    - Distal: junction of middle 1/3-incisal 1/3

Add/Remove contact area

- **No contact**
  - If you do not have contact, use the ”add” function to add the contact area until you get the proper contact.



No contact

Add contact

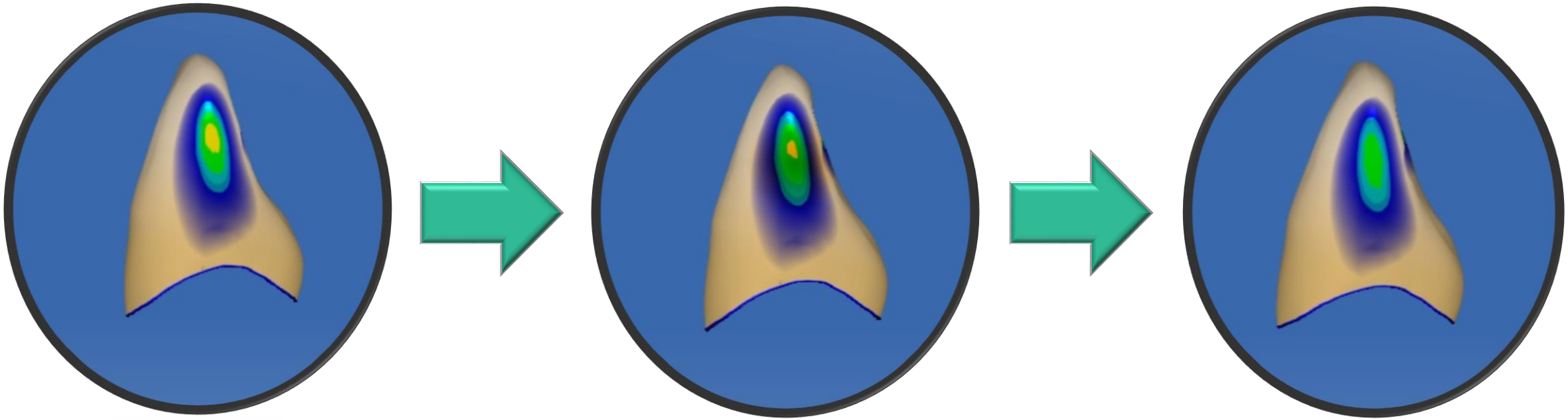
Using ”Add”

Proper contact

Green color showing

Add/Remove contact area

- **Heavy contact**
  - If you have heavy contact (yellow/red area showing), you can use the ”remove” function to reduce the contact area until you get proper contact



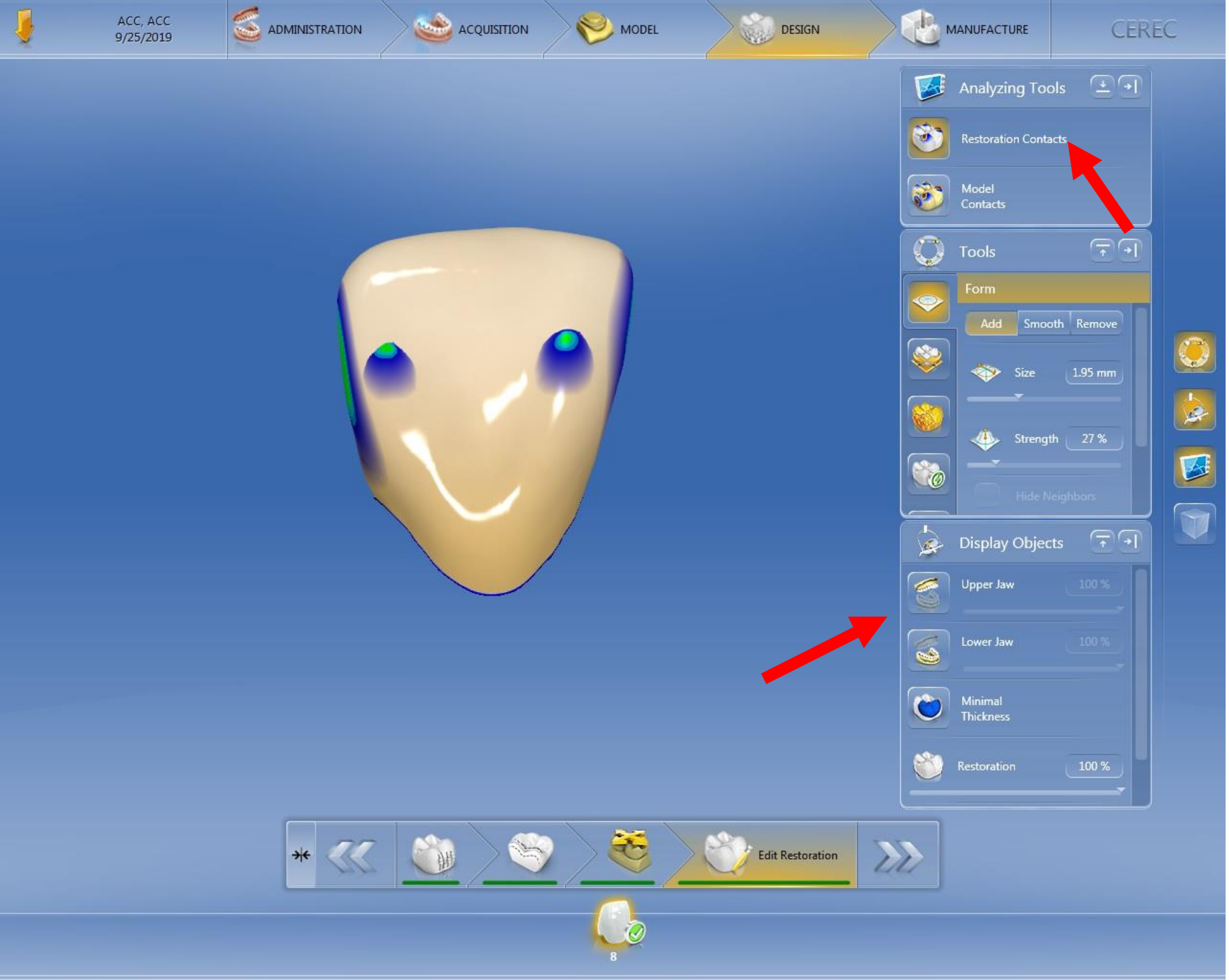
Heavy contact (arrow)

Reduce contact

Using ”Remove”

Proper contact

Green color showing



Analyzing tool

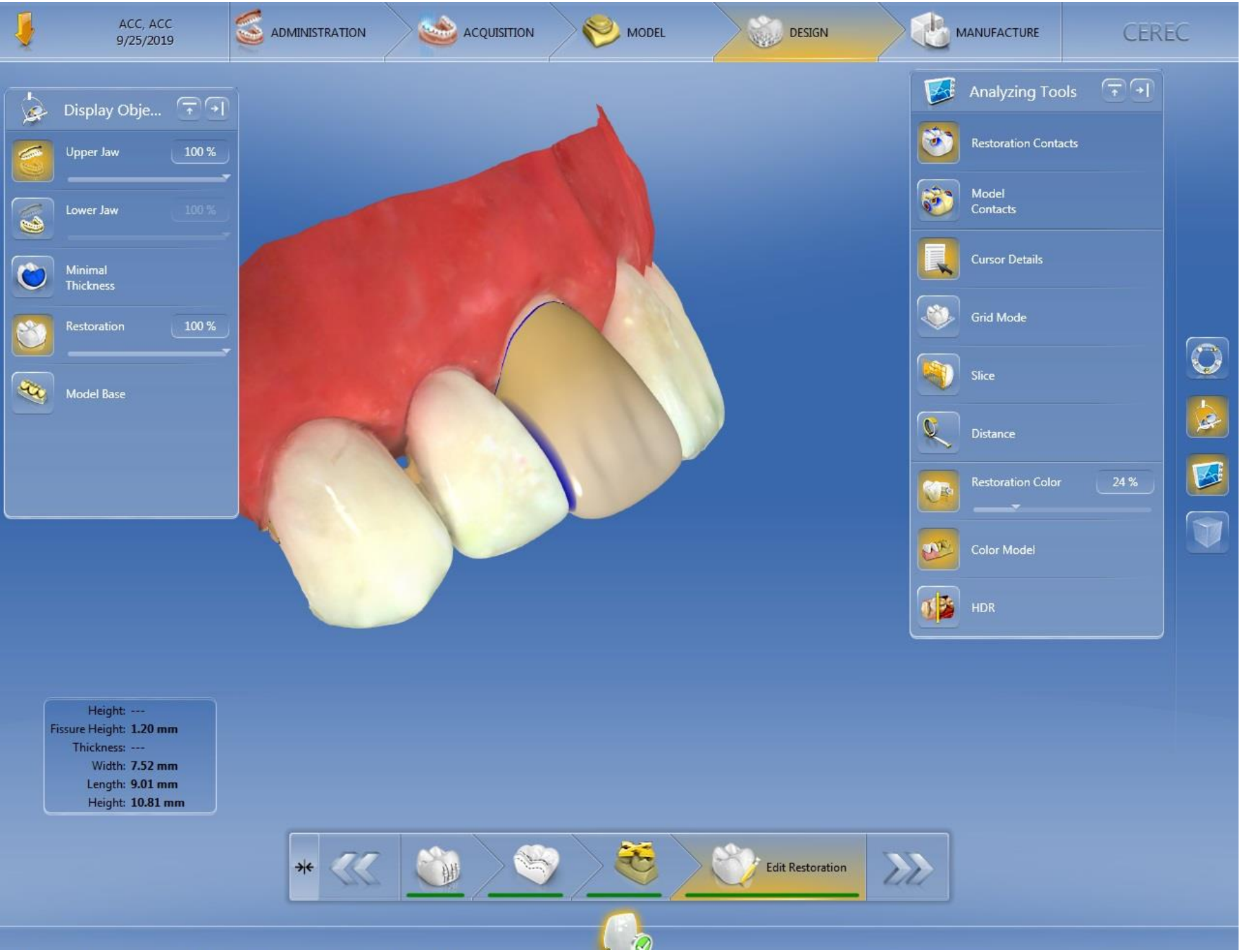
Evaluate the restoration

- Deselect the upper jaw and lower jaw
- Evaluate the restoration
  - Occlusion: lingual surface
    - Proper occlusal contacts (green area shows) or symmetry with the contralateral side (#9).

Analyzing tool

Evaluate crown contour

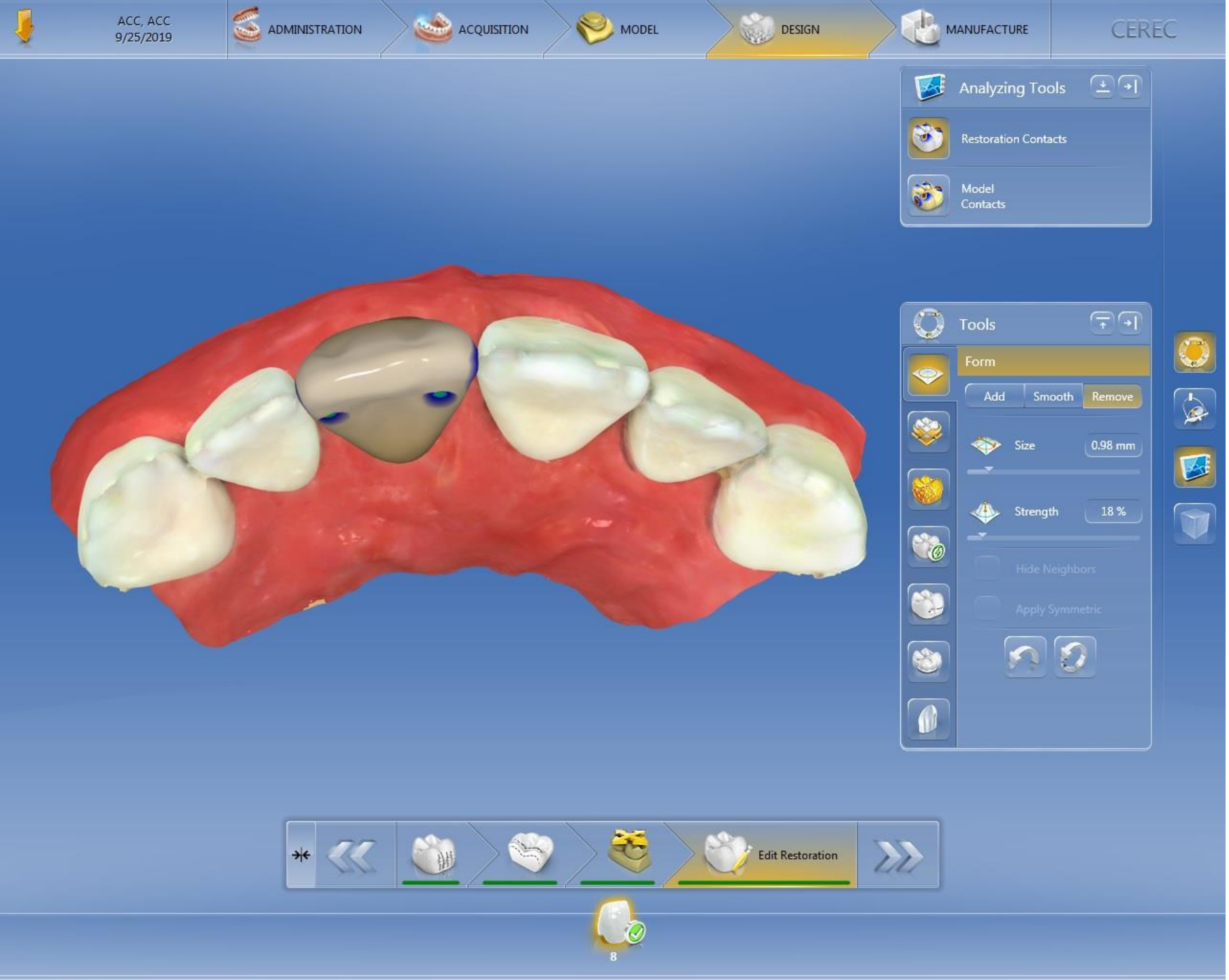
- Facial view
  - Incisal edge



Analyzing tool

Evaluate crown contour

- Lateral view



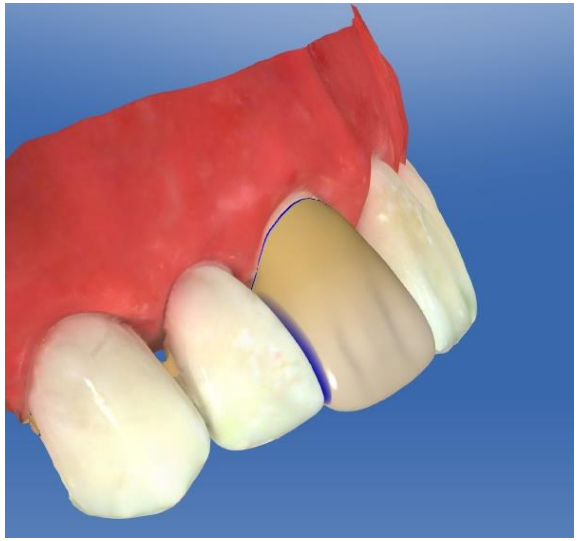
Analyzing tool

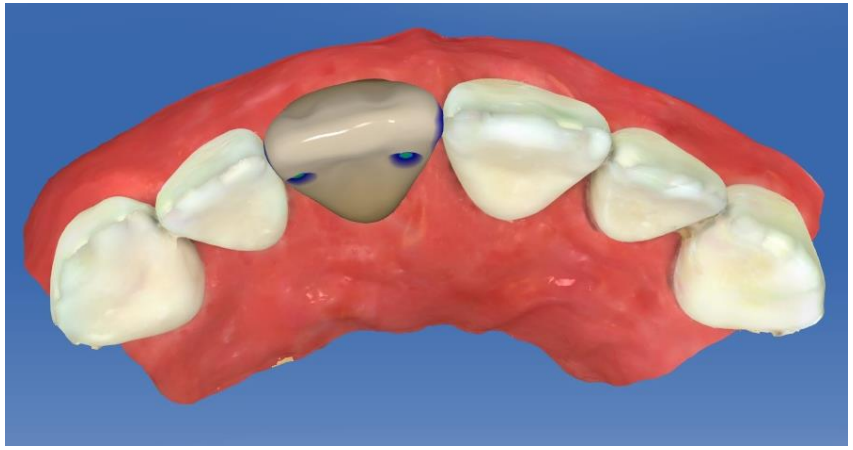
Evaluate crown contour

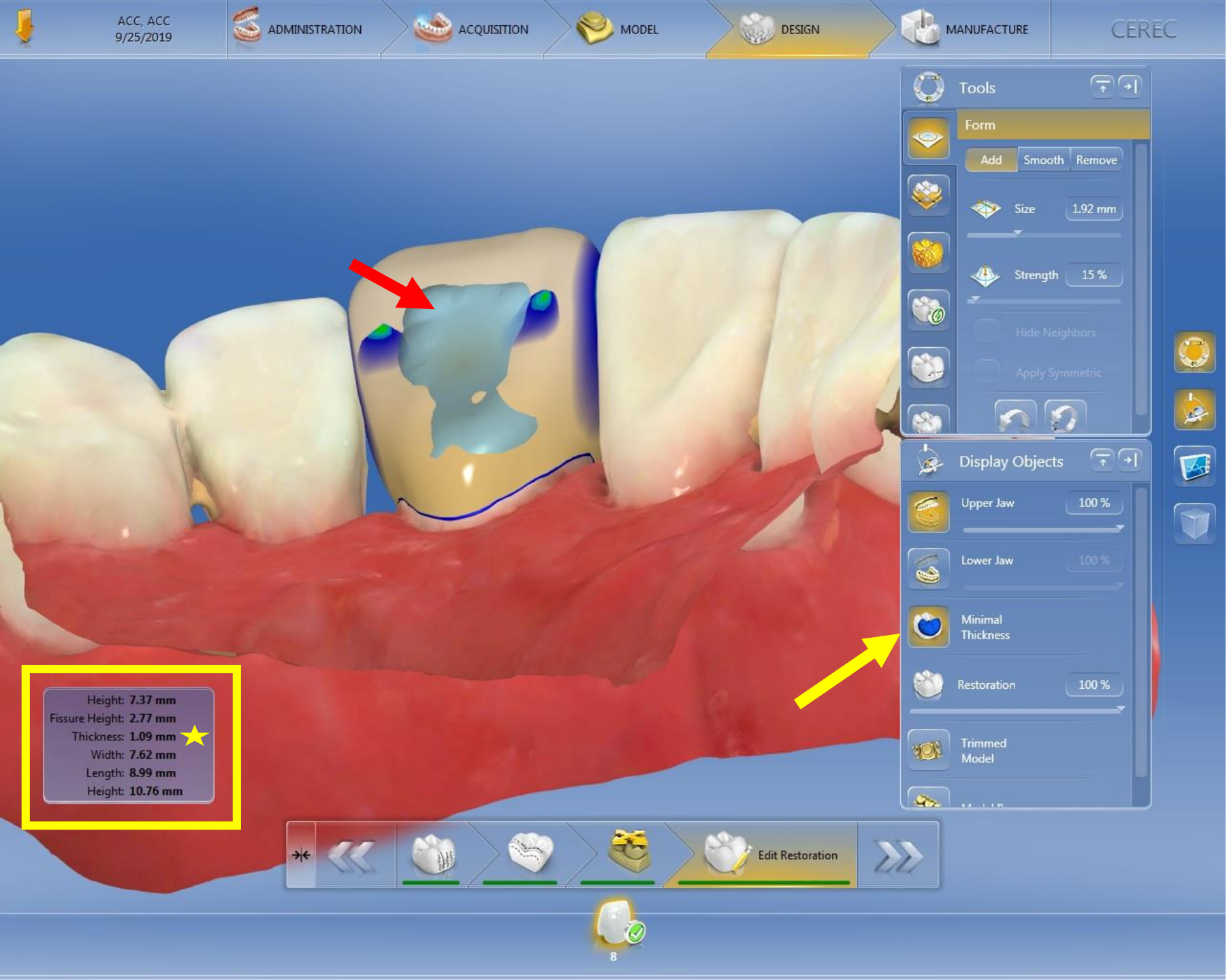
- Incisal view

Minor adjustment

- ”Smooth” is a tool to refine restoration.





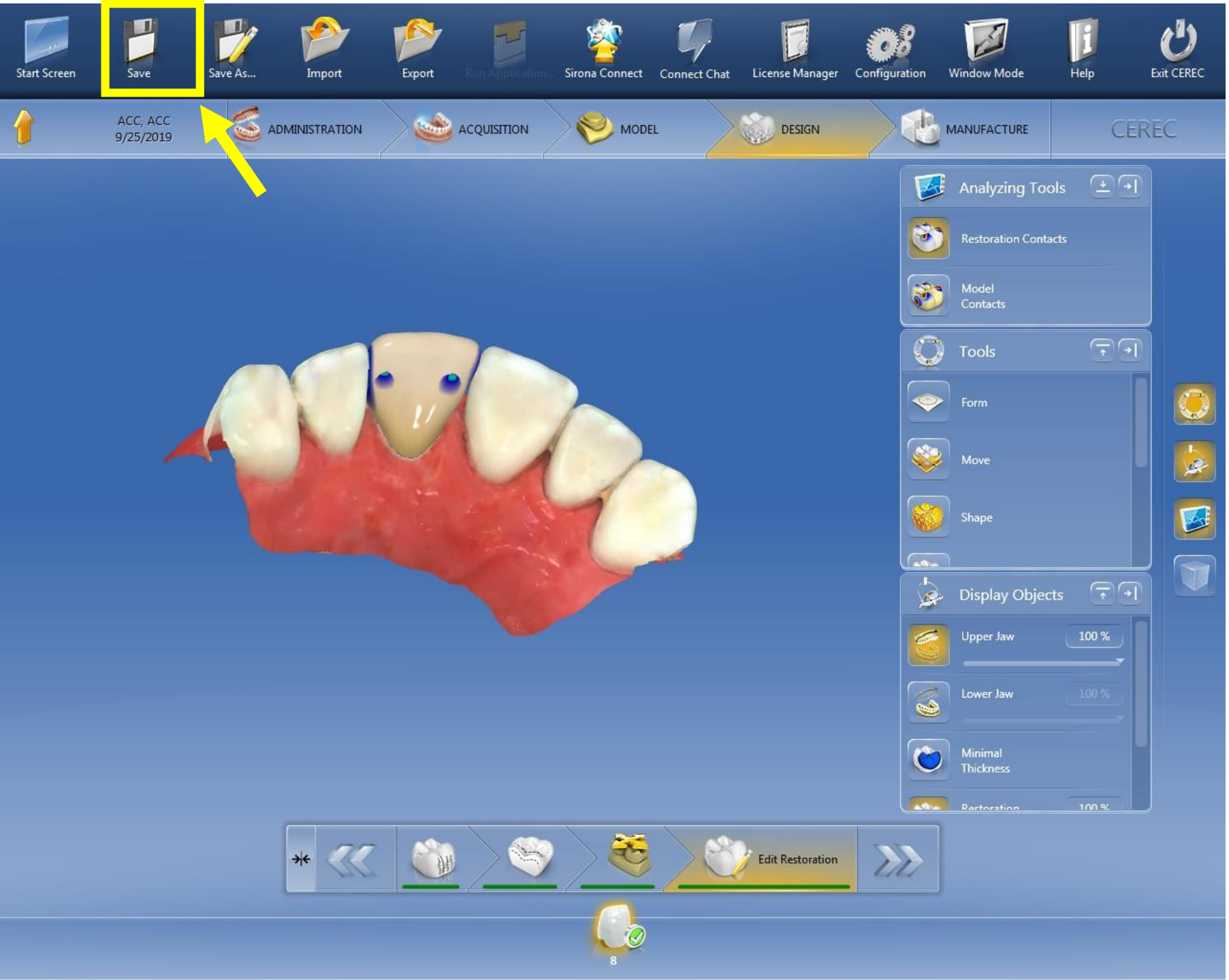


Evaluate the thickness of the restoration

- Click “Minimal thickness” to evaluate the thickness of the crown.
  - Place the mouse on the area of the crown and it will show the thickness (mm) on the bottom left of the screen.
- **Minimum 1 mm of thickness is acceptable**

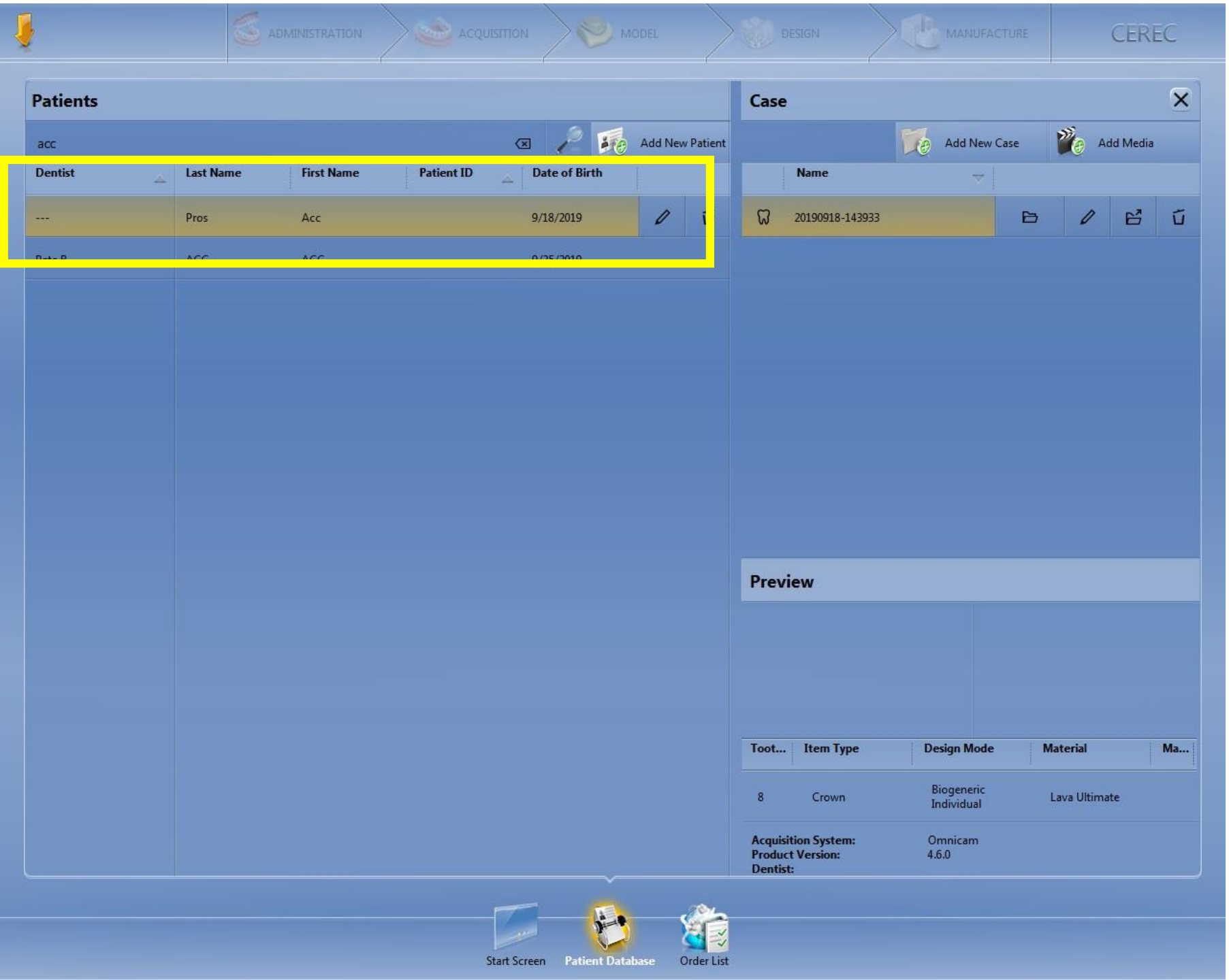
Save and exit

- After completing the design, click the arrow on the upper left corner to save and exit the software.

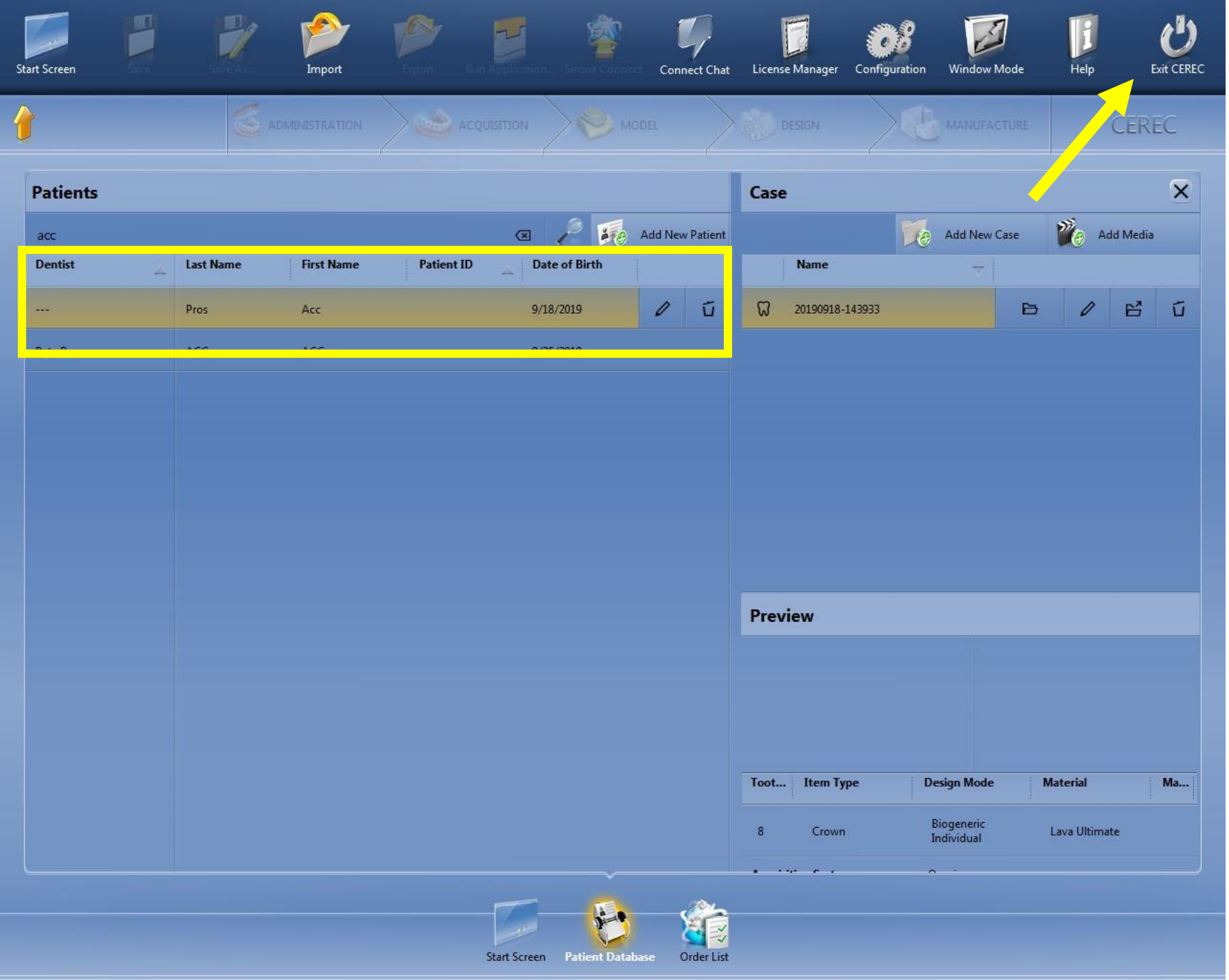


- Left-click on “save” to save your design.

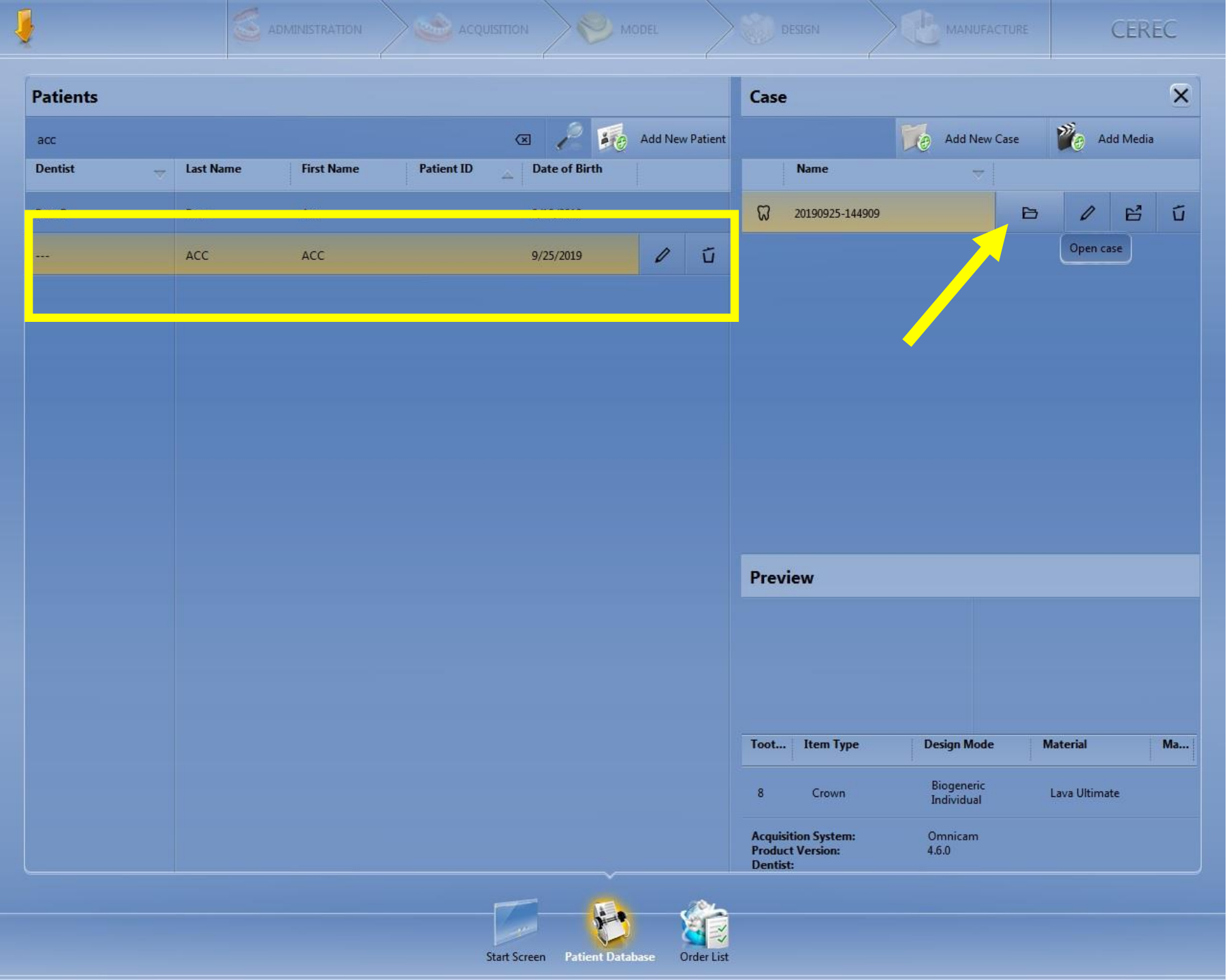
- Left-click on “Start screen” to review that you have only one file saved.



- Search patient's name (in clinic) or dentist's name (preclinic)
- Make sure that you have only one file saved under your name.



- Left-click “Exit” to exit the software



Re-open the existing file

- Left click on the “folder” (arrow) to open the existing file and modify the design.

You must exit from the CEREC software **before** removing the networking cable!

(for Omnicam #1-5).

After you finish working, please return the scanner back to the Sim Clinic (Omnicam #1-5) or its assigned location (Omnicam #6-10) and plug in the power cord.