

PRESERVATION OF ANTERIOR GUIDANCE IN A DIGITAL WORKFLOW

CASEY D. GOSS, CAPT, USAF, DC



DISCLOSURE

- The views expressed are my own and do not reflect the official views or policy of the Department of Defense or its Components

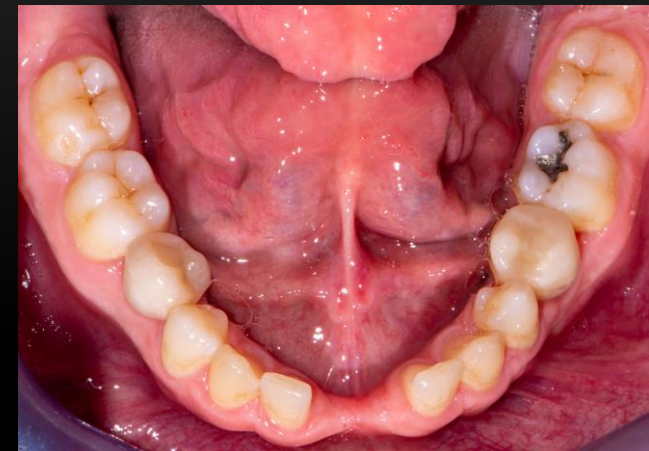
OUTLINE

- Patient info
- Analog workflow
- Digital workflow
- Results



DENTAL HISTORY

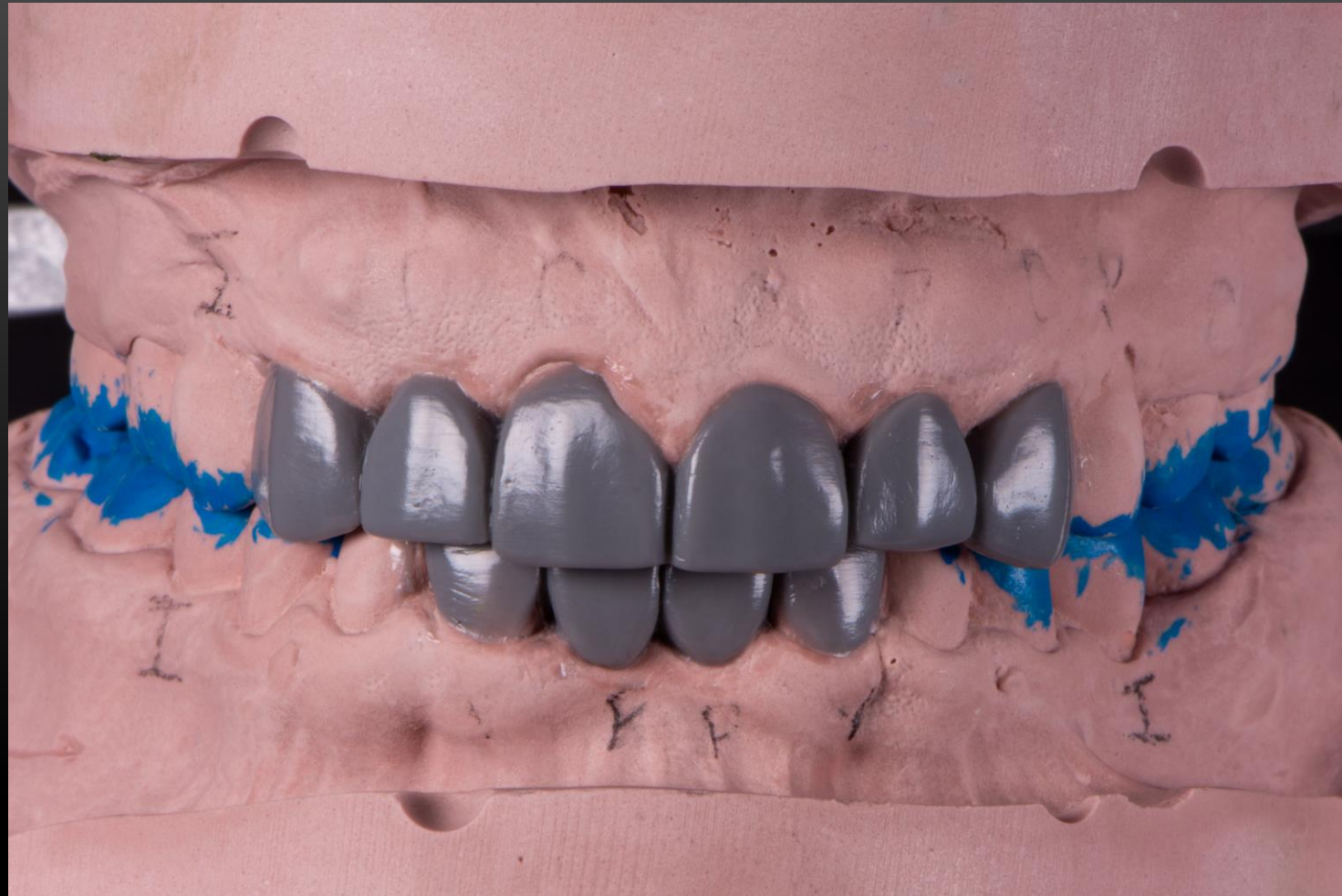
- Pt referred to the prosthodontics clinic following orthodontic treatment and orthognathic surgery
- Findings:
 - Missing: #7, 10, 24, 25
 - Implant #13 mobile and painful – failing and explanted by Perio
 - Occlusal contacts on left posterior teeth and implants only
- Pt expressed desire for non-implant restorations to complete his treatment



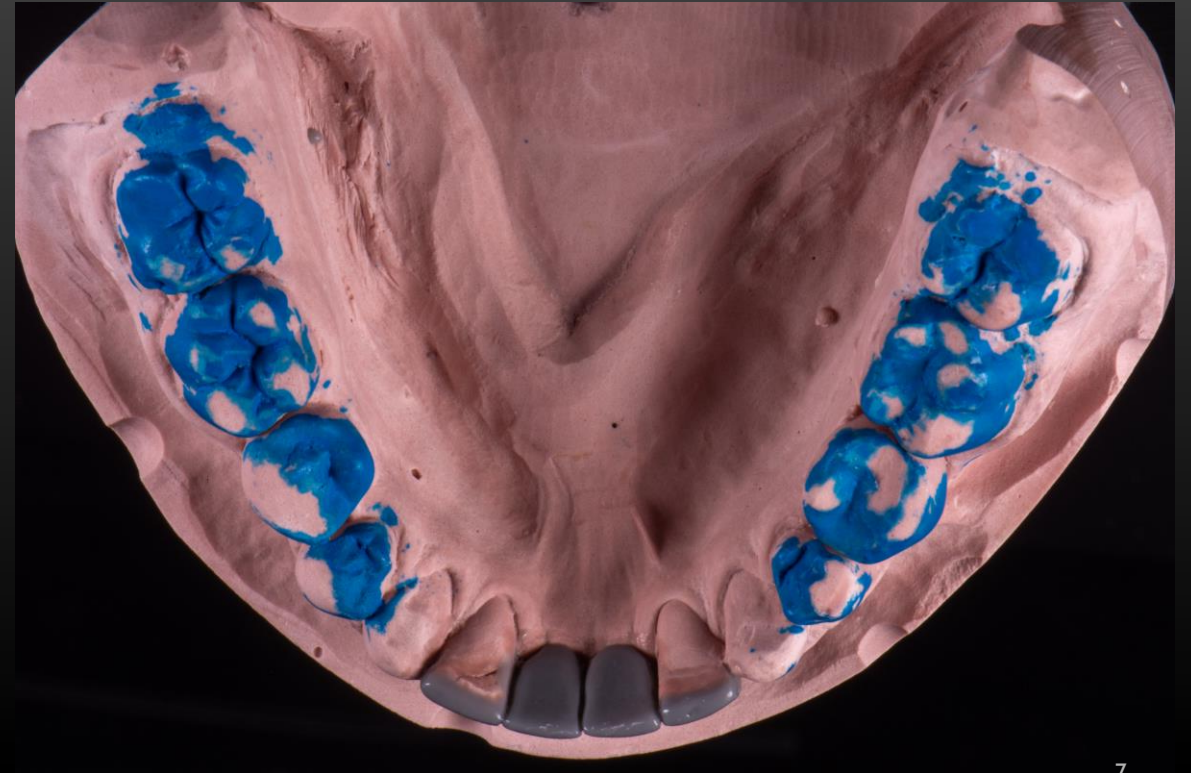
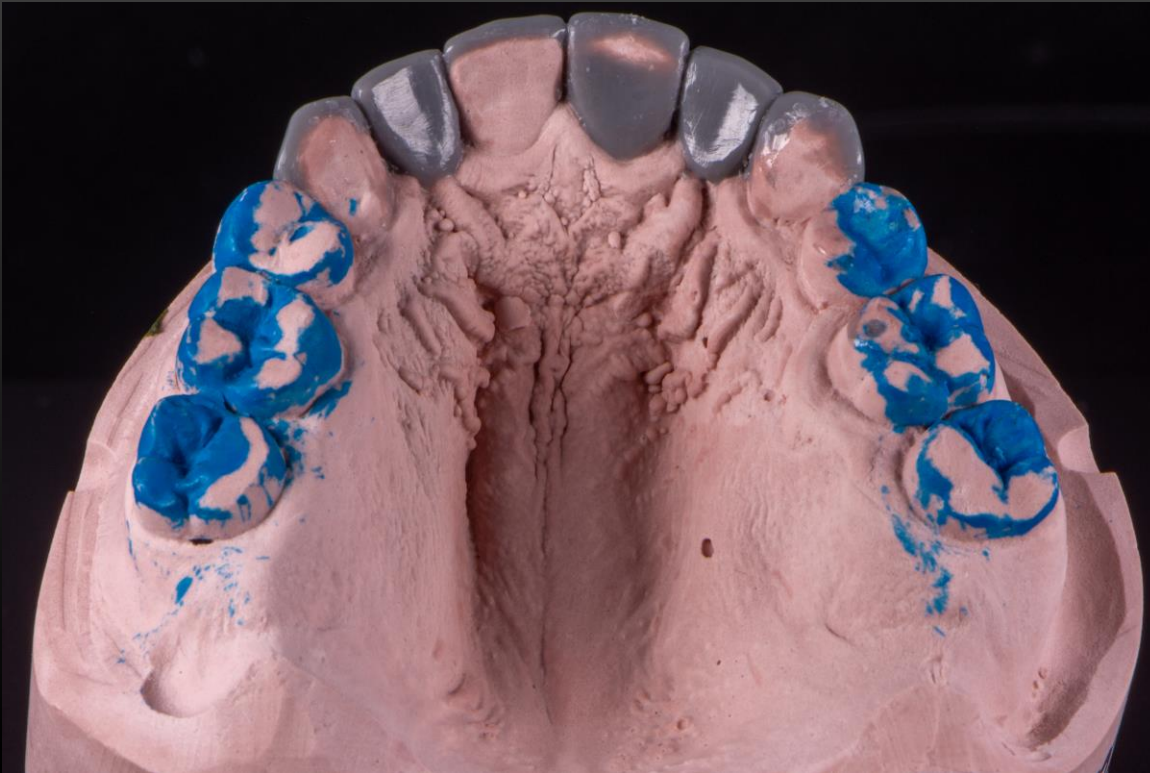
INITIAL PHOTOS



ANALOG WAX-UP



ANALOG WAX-UP





ANALOG WAX-UP



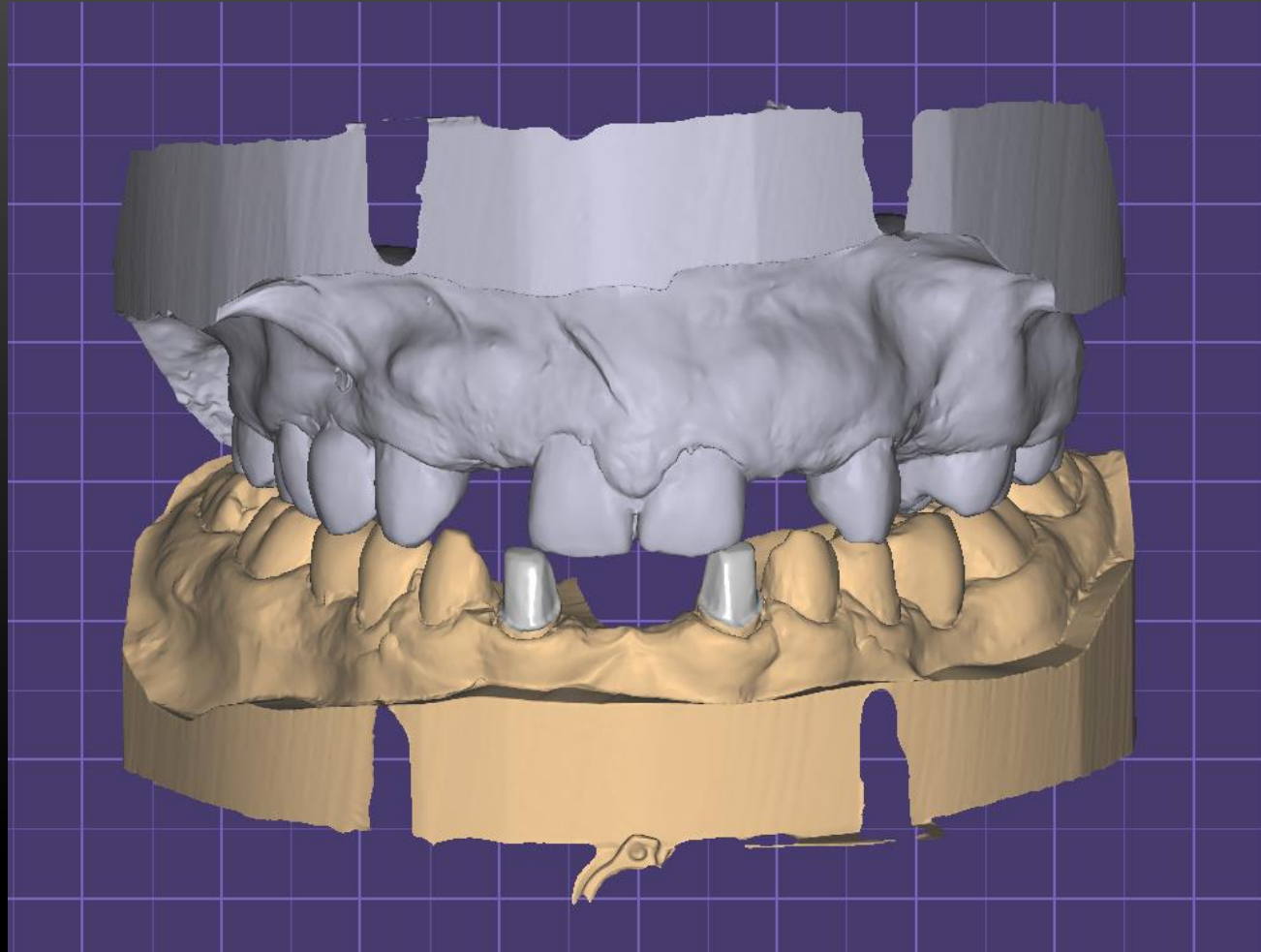
ANALOG WAX-UP



VENEER FDP PREPARATIONS AND PONTIC SITE DEVELOPMENT



IMPORTED CAST SCANS



PARAMETERS AND INSERTION DIRECTION

Create Inlay Bottoms

GAP BORDER UNDERCUTS

Cement Gap

☒ No cement gap

☐ Gap < 0.08 mm >

Add another zone...

Select Zones by Distance

☒ From margin < 1 mm >

Additional Spacing

OK

Cancel

Create Inlay Bottoms

GAP **BORDER** UNDERCUTS

Crown Border Parameters

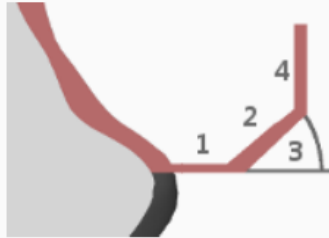
1. Horizontal < 0.05 mm >

2. Angled < 0 mm >

3. Angle < 0° >

4. Vertical < 0 mm >

Parameter Explanation



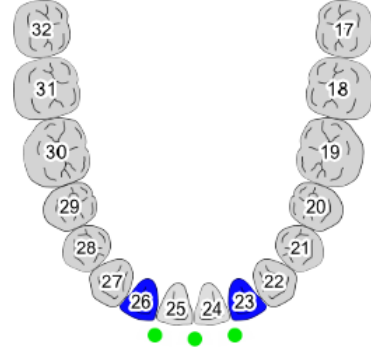
OK

Cancel

Insertion Direction

Define insertion direction for:

23-26



☒ Unique insertion direction for bridges

☐ Show and update design directly

Undercut Visualization

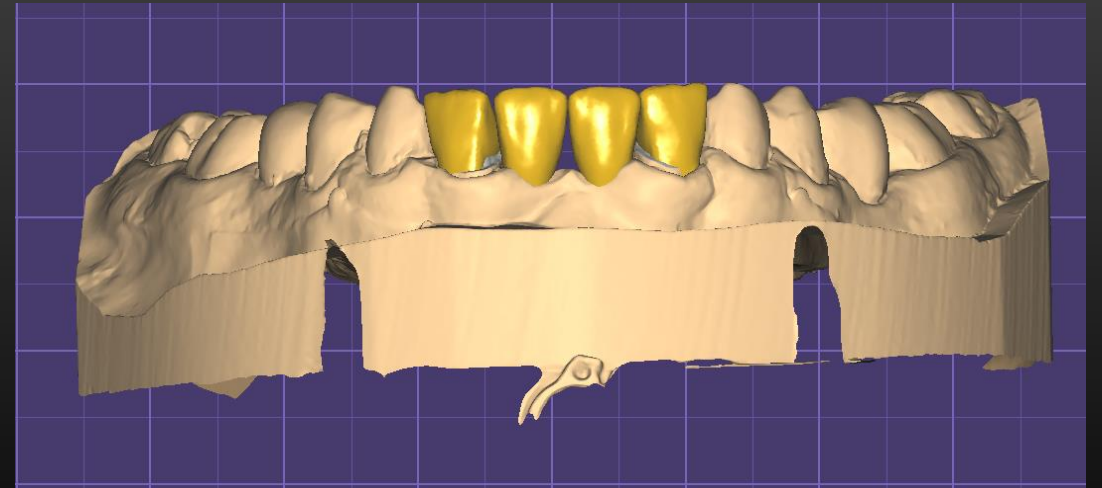
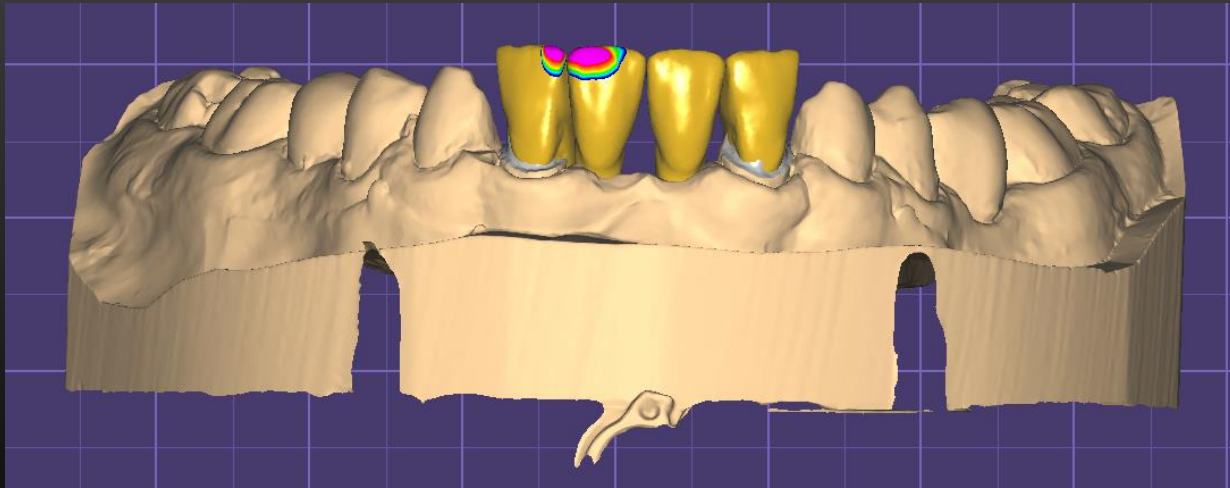
0 0.12 0.25 0.38 0.5

Set current view as insertion axis

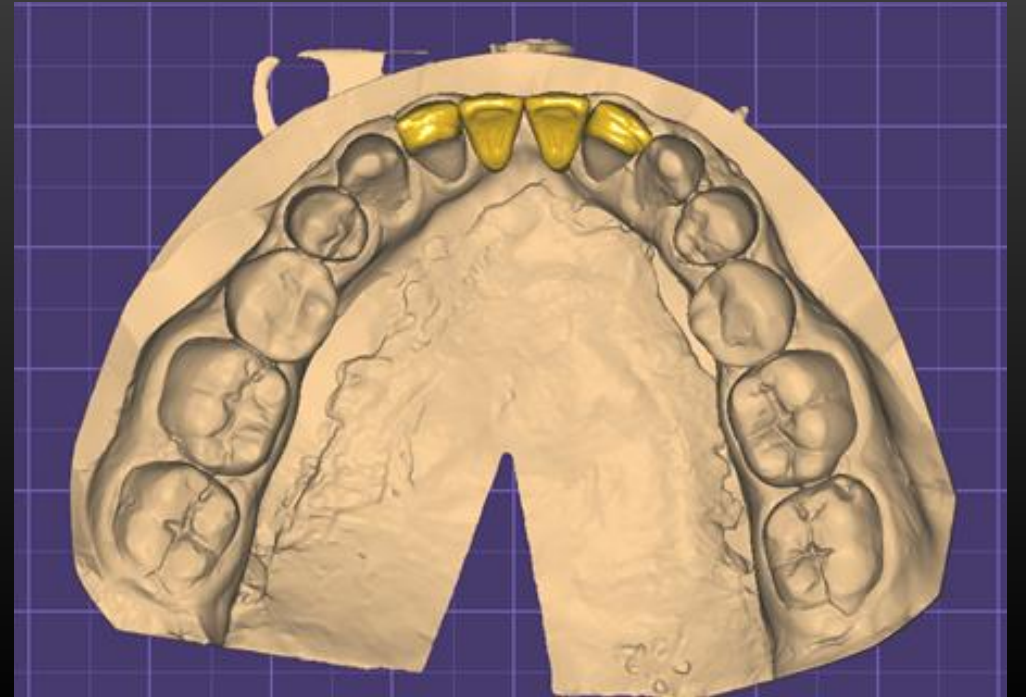
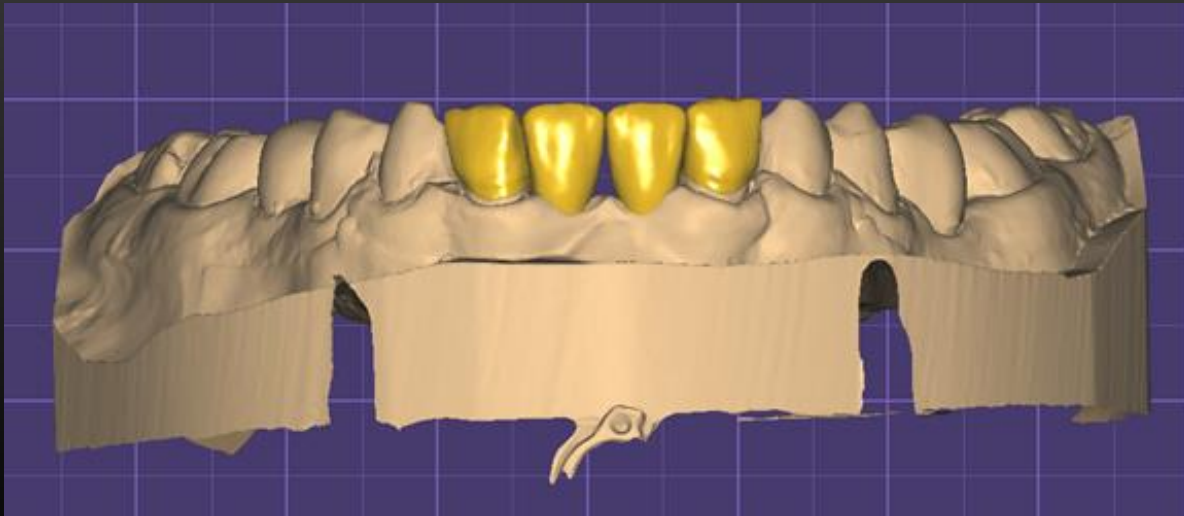
OK

Cancel

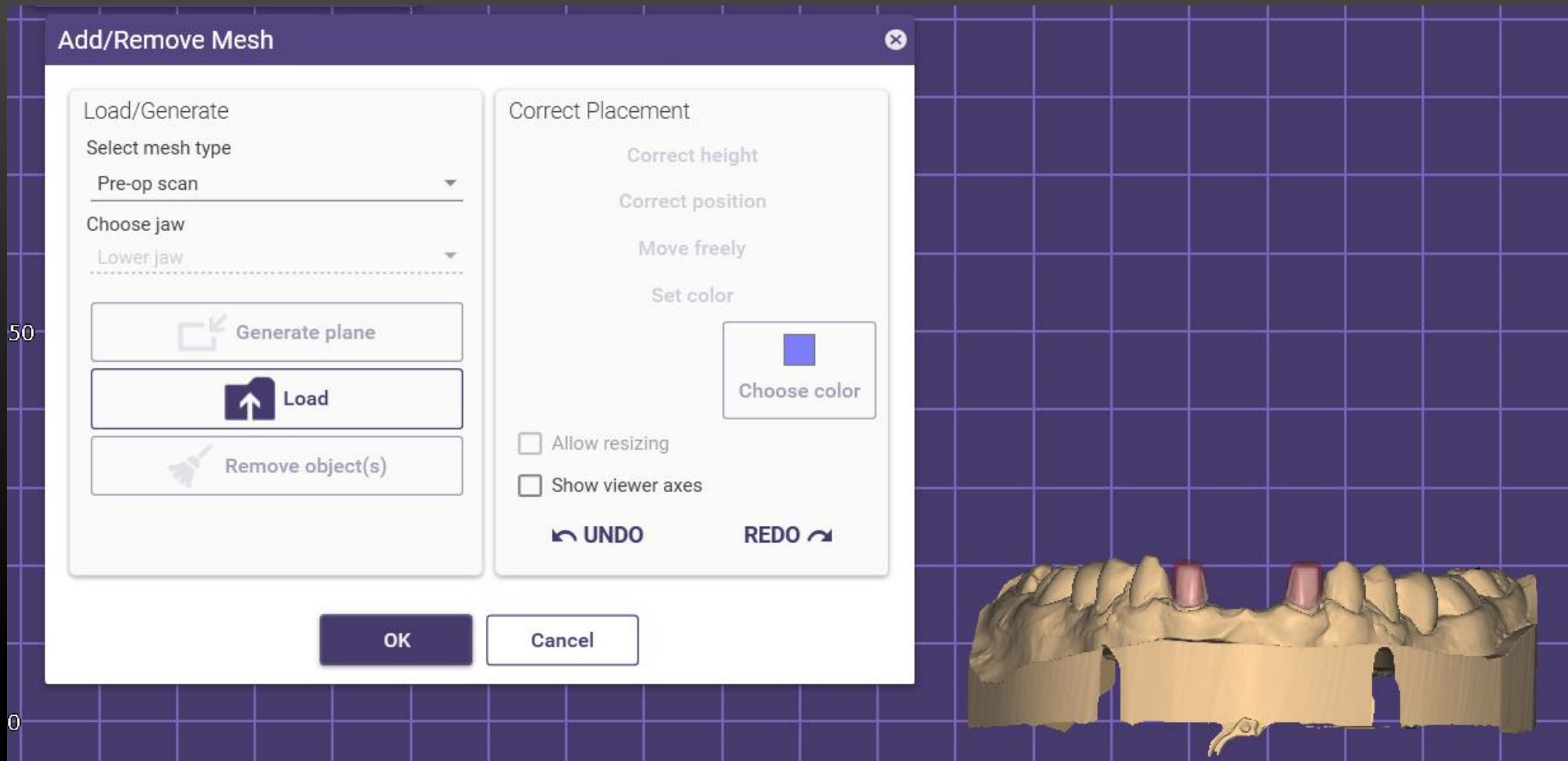
POSITIONING OF MODEL TEETH

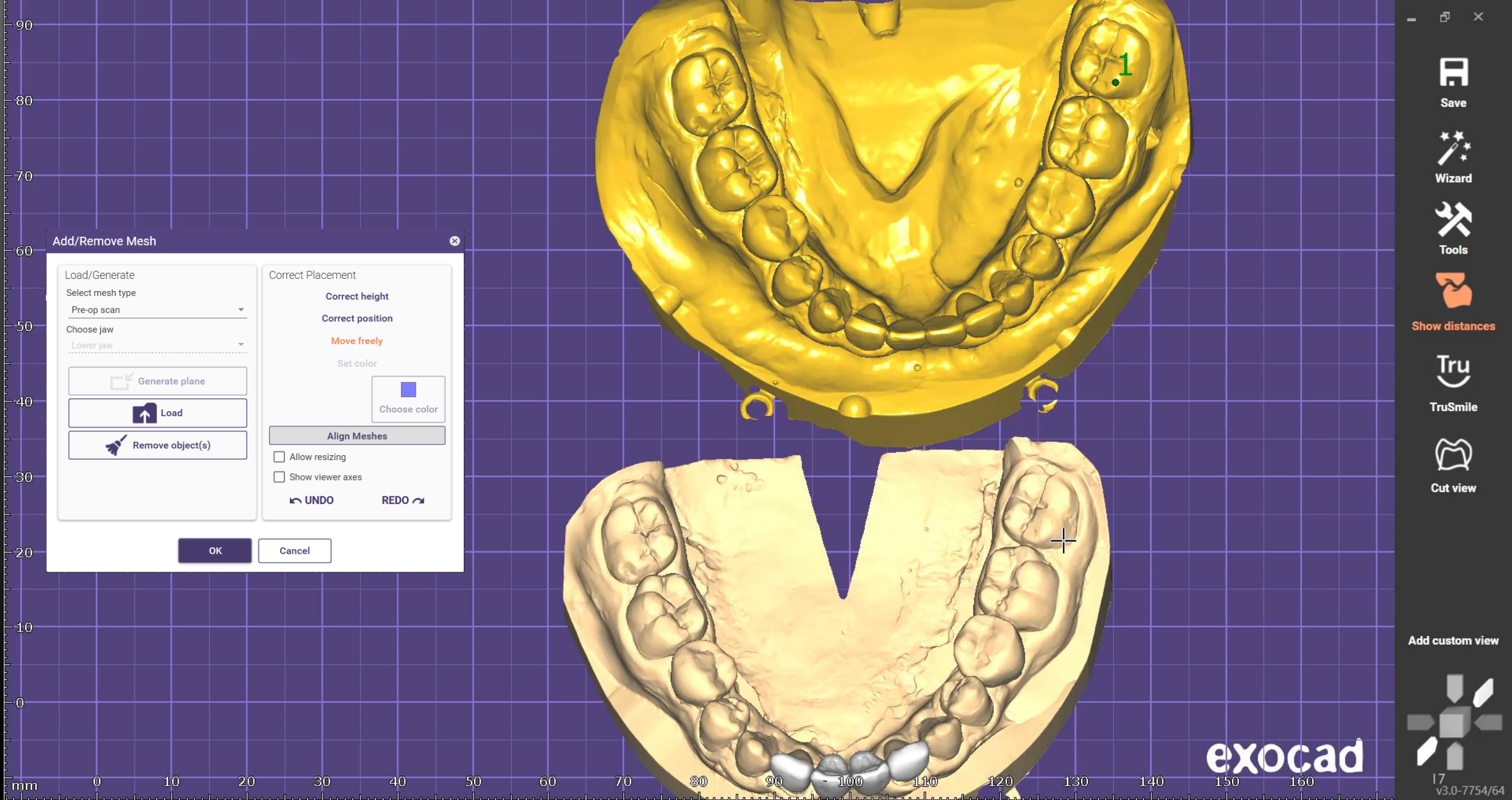


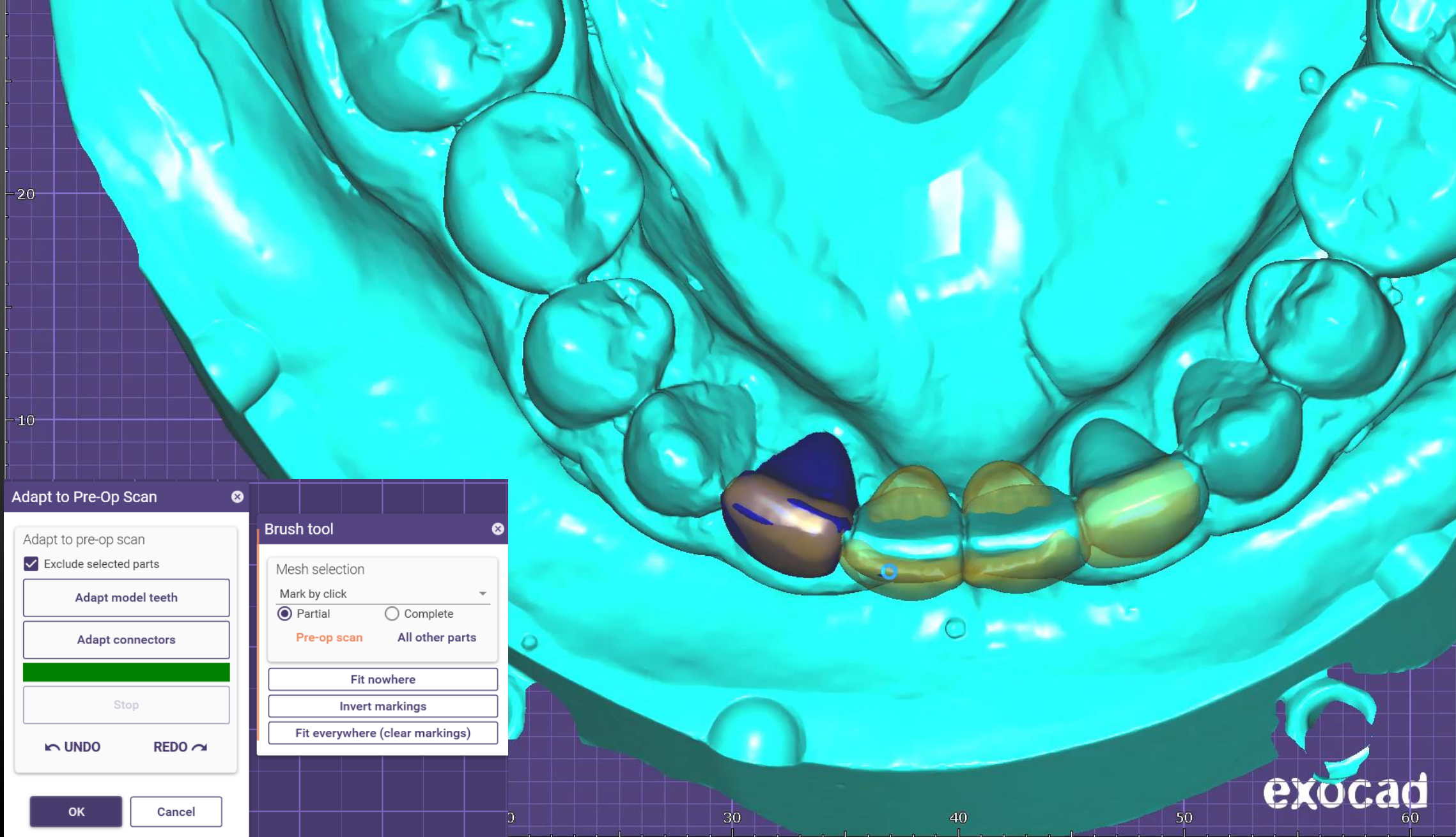
INITIAL FREE FORMING



ADD MESH – IMPORT PRE-OP SCAN







Adapt to Pre-Op Scan

Adapt to pre-op scan

☒ Exclude selected parts

Adapt model teeth

Adapt connectors

Stop

UNDO REDO

OK Cancel

Brush tool

Mesh selection

Mark by click

☒ Partial ☐ Complete

Pre-op scan All other parts

Fit nowhere

Invert markings

Fit everywhere (clear markings)

Save

Wizard

Tools

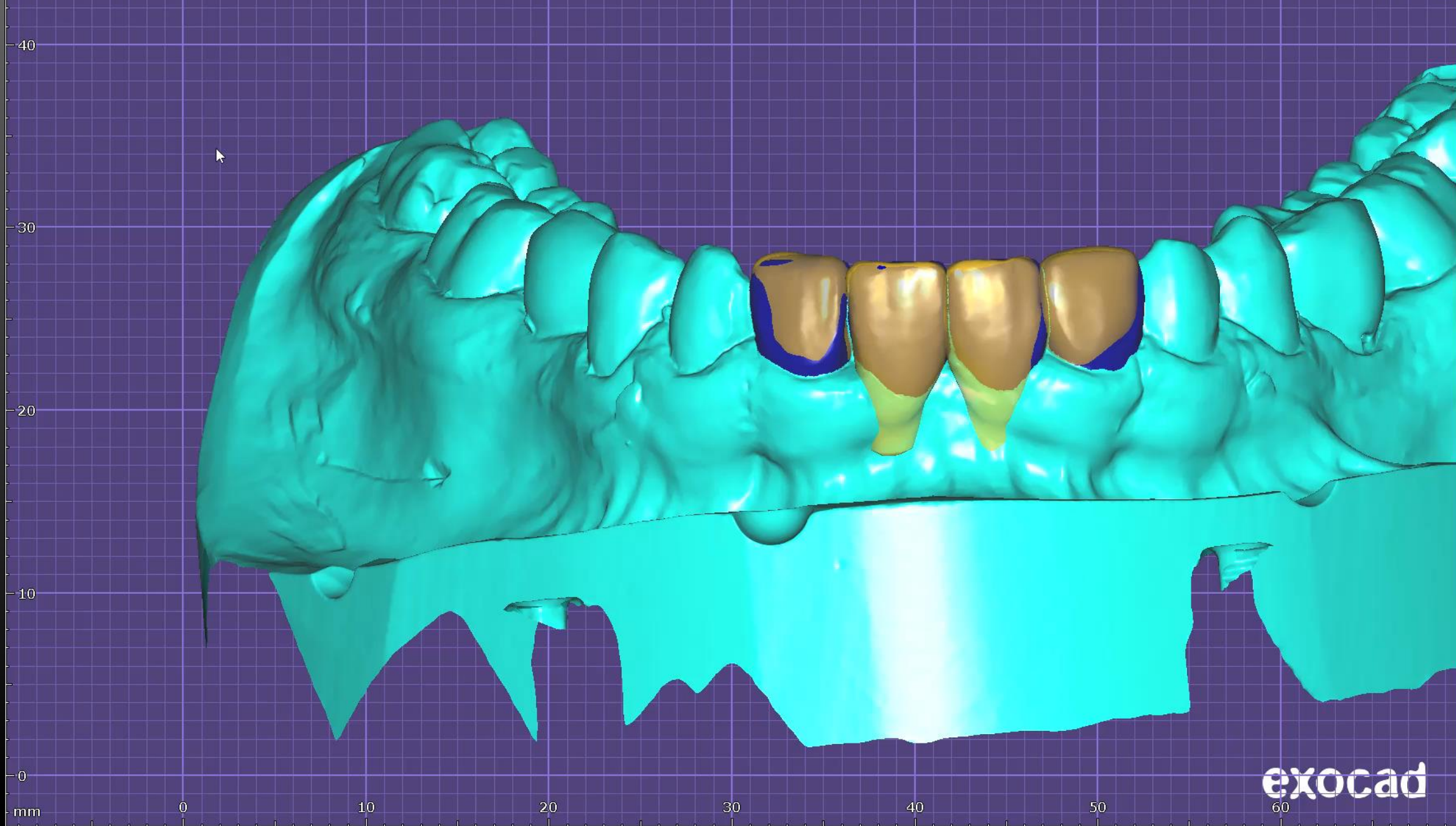
Show distances

Tru Smile

Cut view

Add custom view

v3.0-7754/64



exocad



Save



Wizard



Tools



Show distances



TruSmile



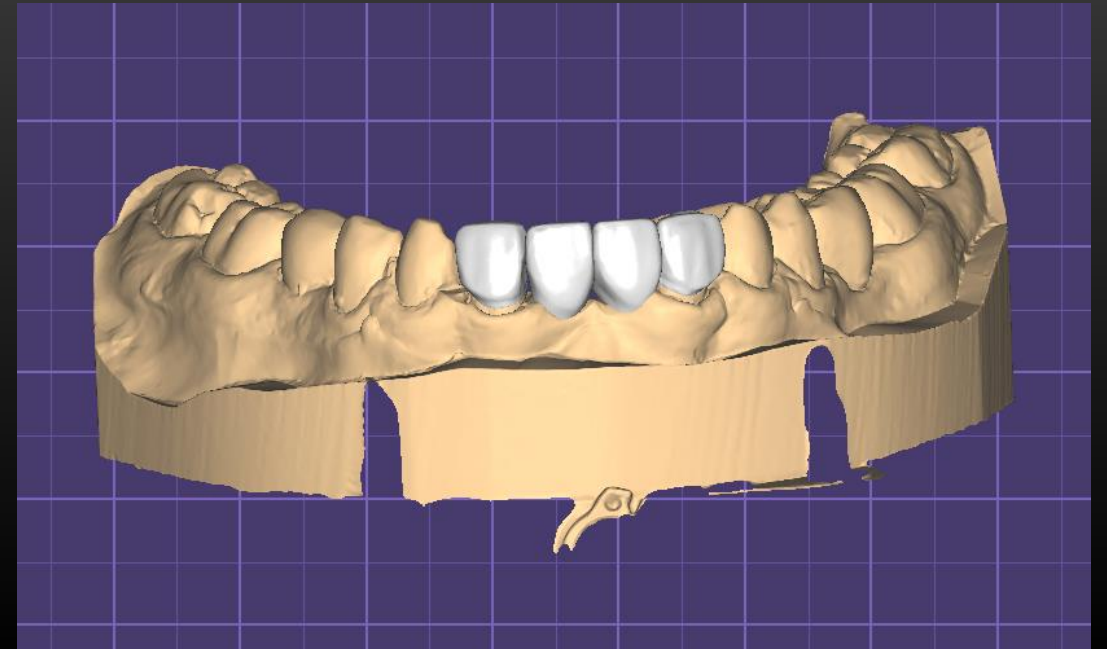
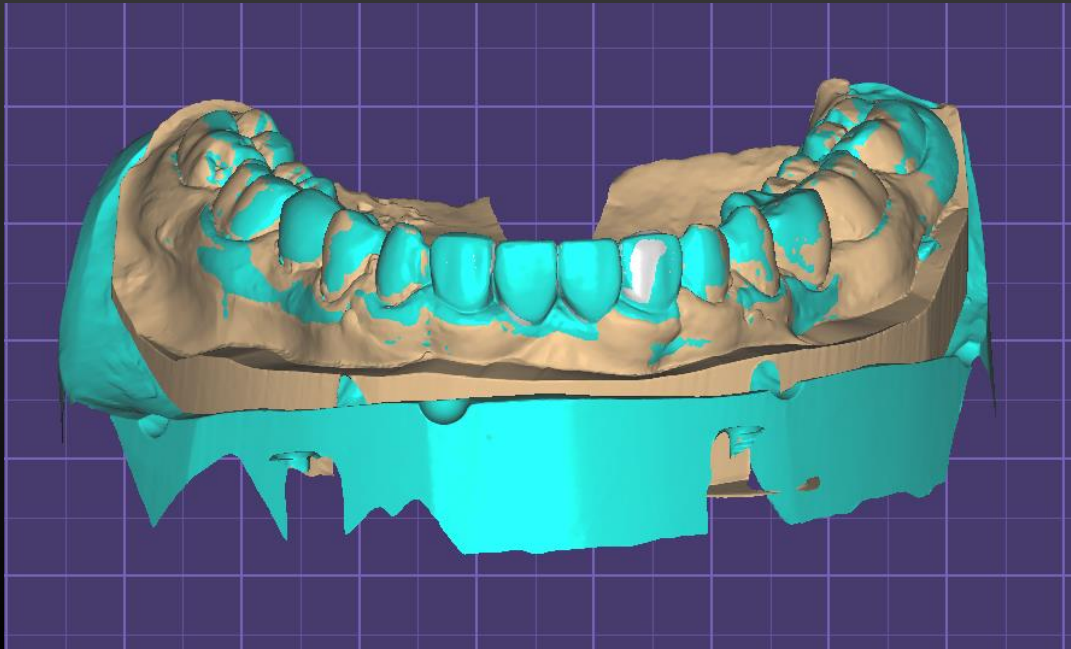
Cut view

Add custom view

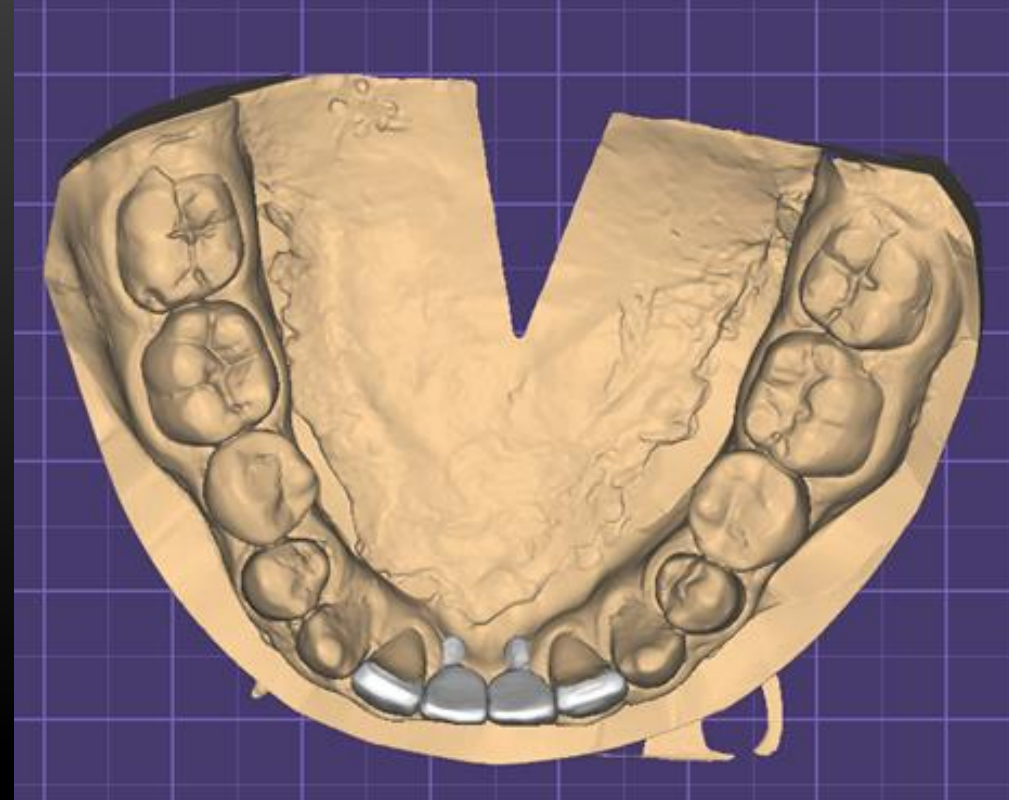
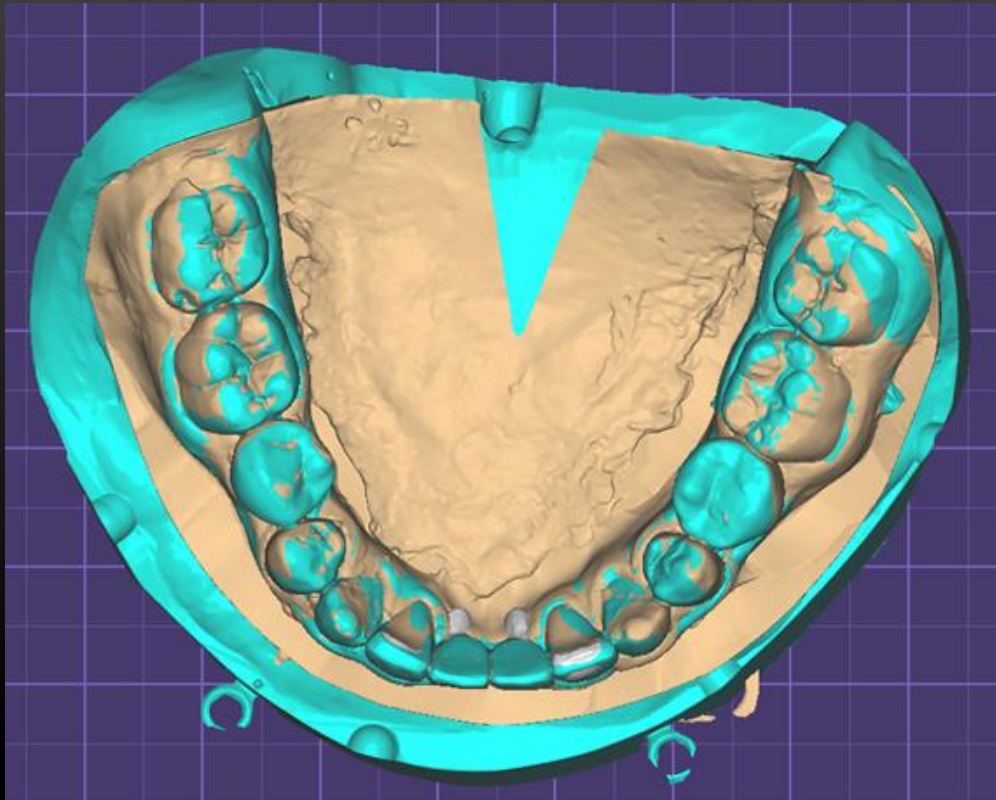


v3.0-7754/64

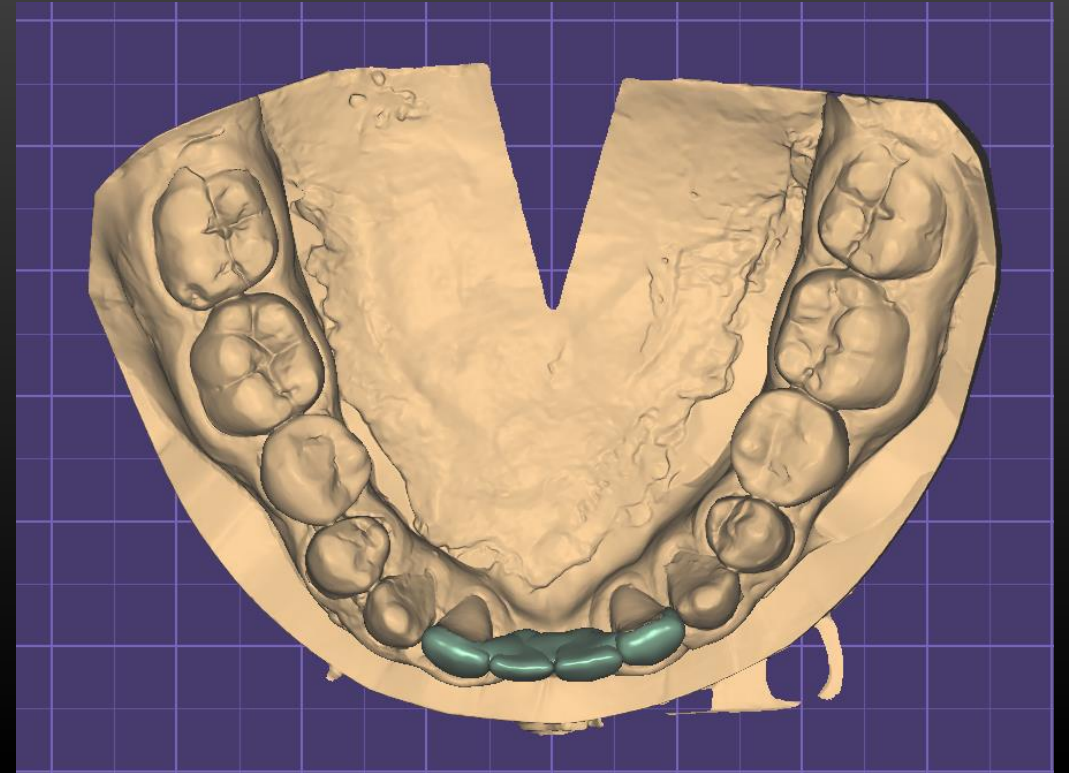
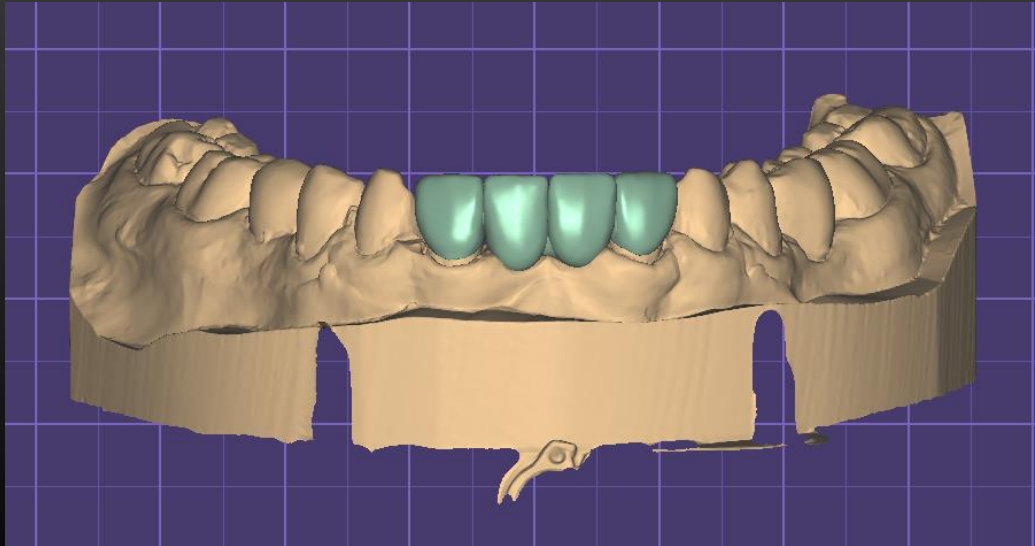
ADAPTED MODEL TEETH BEFORE FREE FORMING



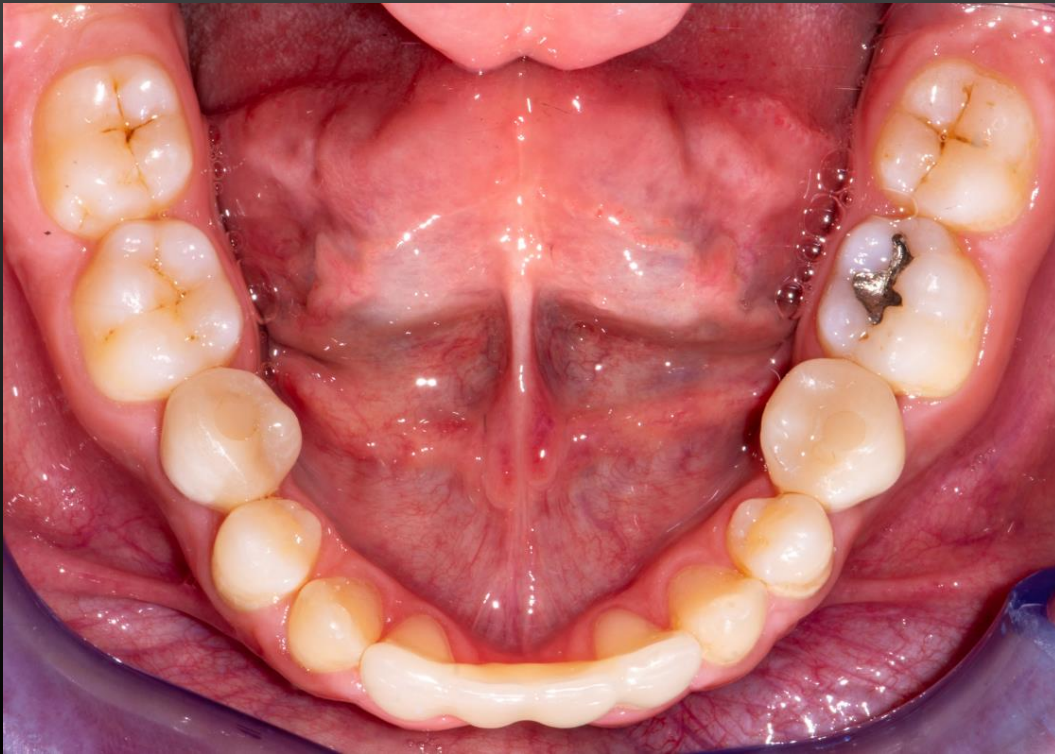
ADAPTED MODEL TEETH BEFORE FREE FORMING



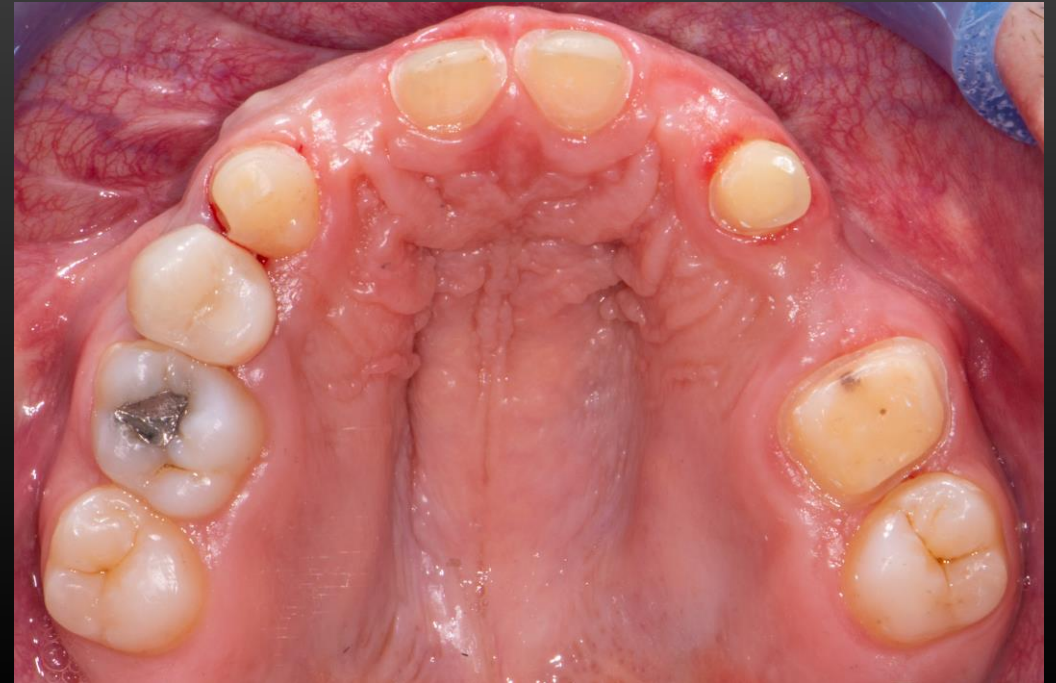
FINAL DESIGN



CLINICAL PHOTOS – VENEER FDP



MAXILLARY PREPARATIONS AND PONTIC SITE DEVELOPMENT



100
50
0
mm 0 50 100 150 200

Add/Remove Mesh

Load/Generate

Select mesh type

Pre-op scan

Choose jaw

Lower jaw

Generate plane

Load

Remove object(s)

Correct Placement

Correct height

Correct position

Move freely

Set color

Choose color

Align Meshes

☐ Allow resizing

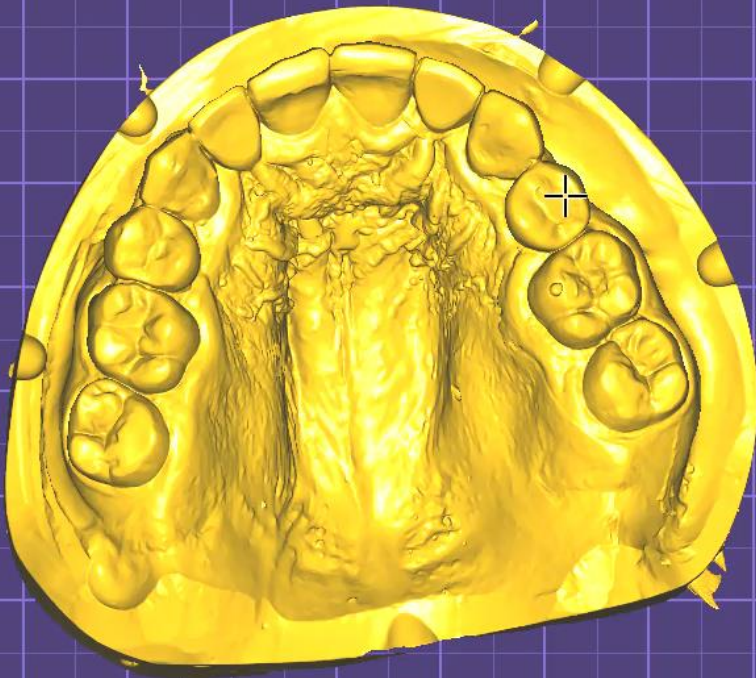
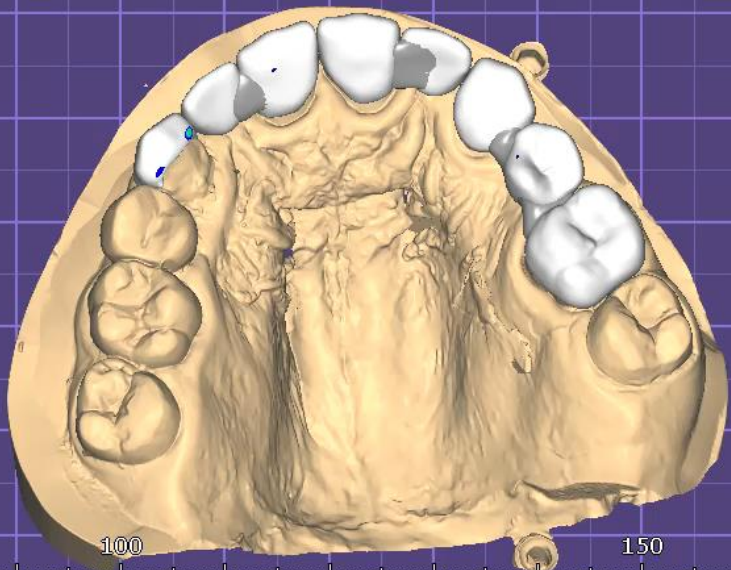
☐ Show viewer axes

UNDO

REDO

OK

Cancel



exocad

Save

Wizard

Tools

Show distances

TruSmile

Cut view

Add custom view

25

v3.0-7754/64

Adapt to Pre-Op Scan

Adapt to pre-op scan

☒ Exclude selected parts

Adapt model teeth

Adapt connectors

Stop

UNDO REDO

OK Cancel

Brush tool

Mesh selection

Mark by click

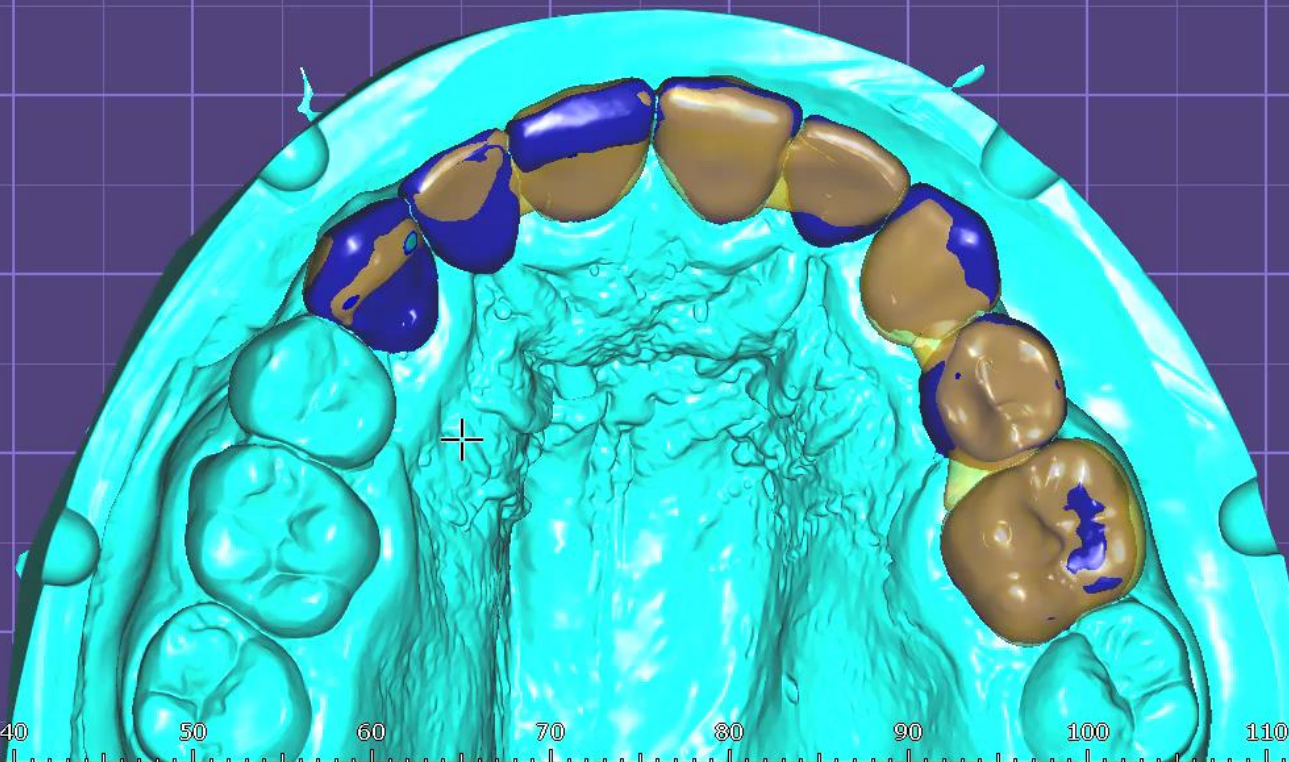
☒ Partial ☐ Complete

Pre-op scan All other parts

Fit nowhere

Invert markings

Fit everywhere (clear markings)



locad

Save

Wizard

Tools

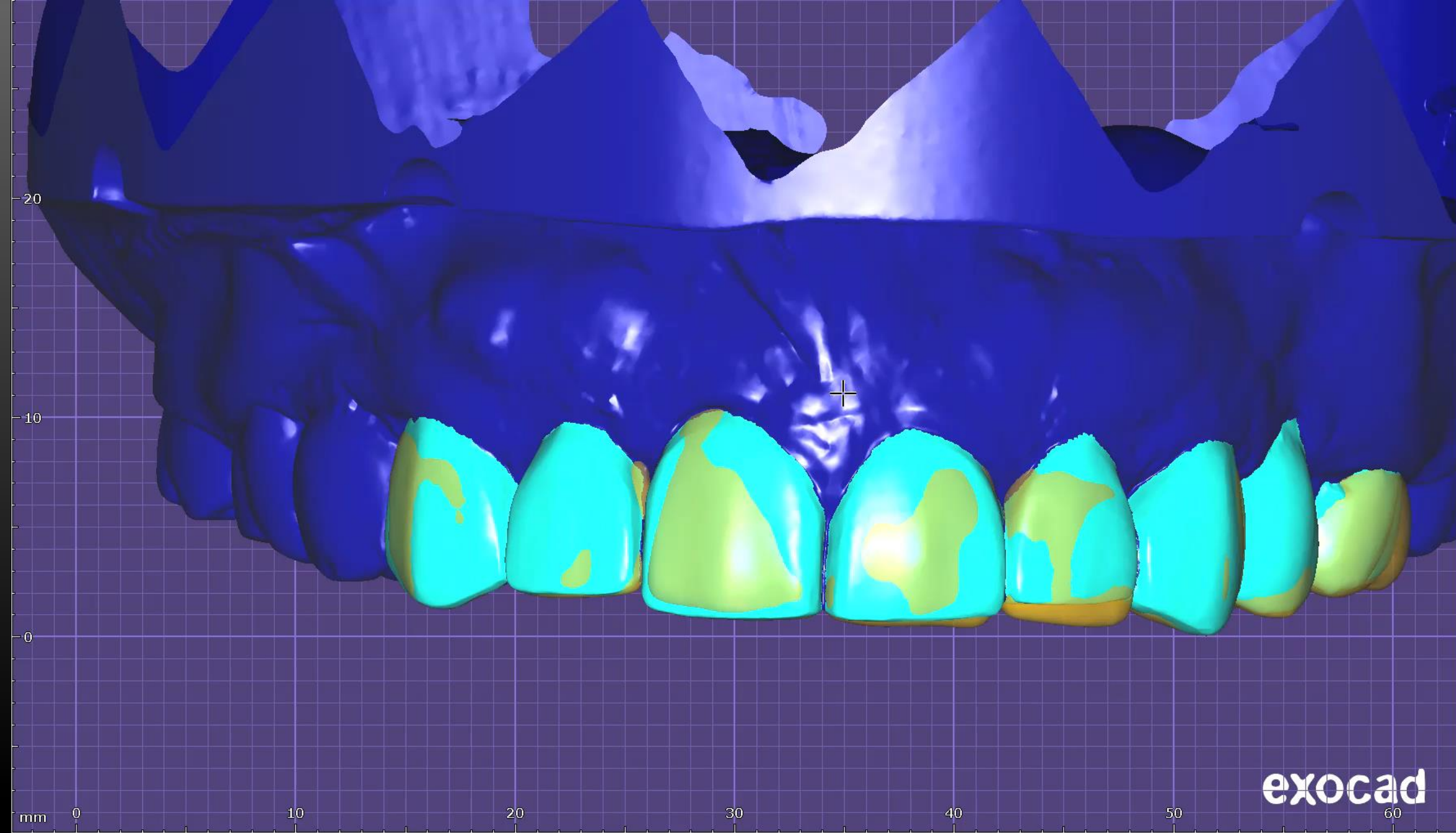
Show distances

TruSmile

Cut view

Add custom view

26 v3.0-7754/64



Save

Wizard

Tools

Show distances

TruSmile

Cut view

Add custom view

27
v3.0-7754/64

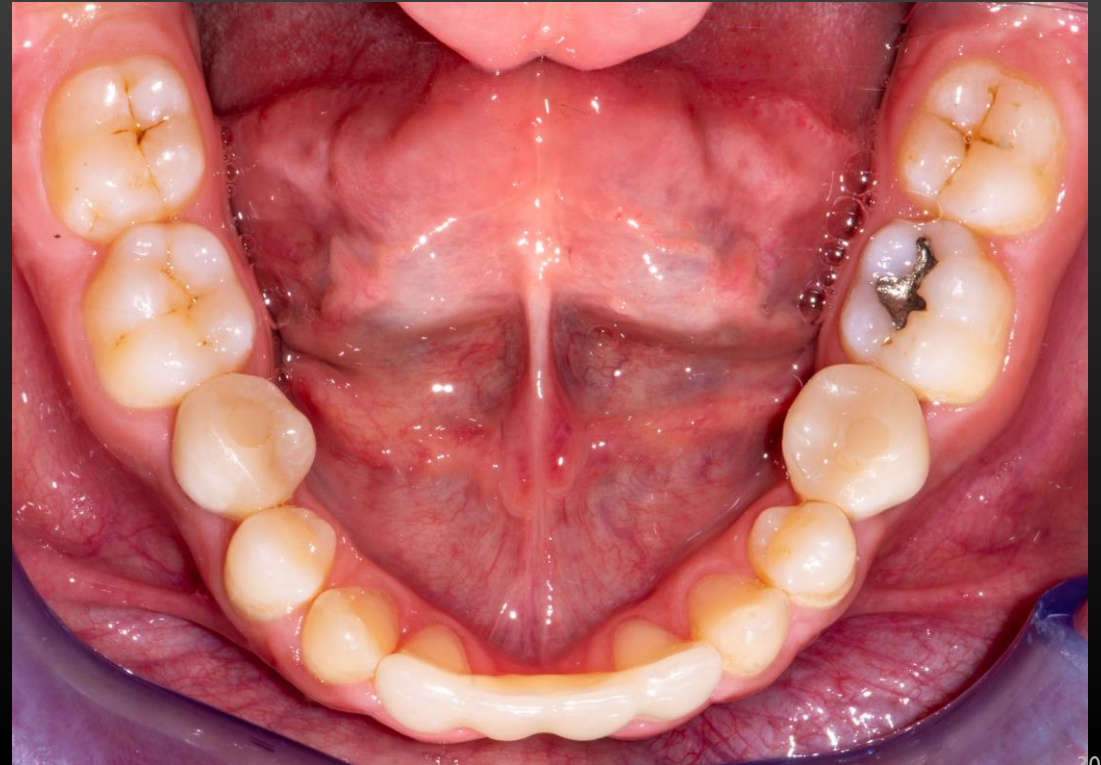
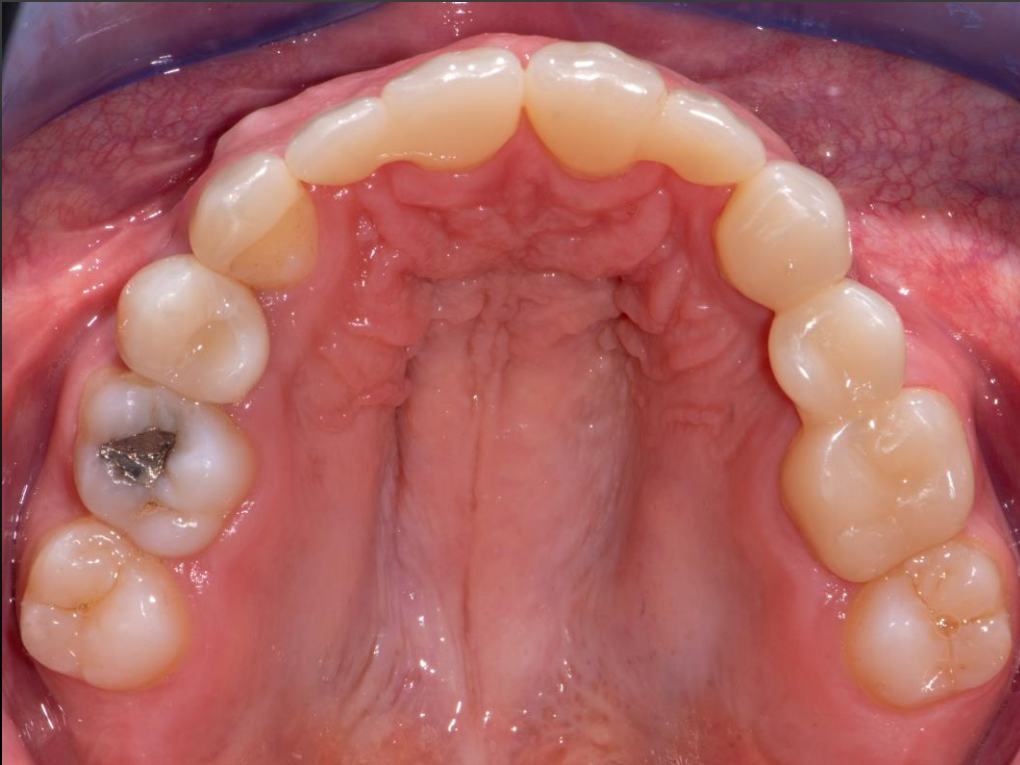
FINAL RESTORATIONS



FINAL RESTORATIONS



FINAL RESTORATIONS



FINAL RESTORATIONS



BEFORE AND AFTER



REFERENCES

- McHorris, W.M., The Importance of Anterior Teeth, The Journal of Gnathology, 1982, Volume 1, Issue 1, Pages 19-28.
- Pokorny PH, Wiens JP, Litvak H. Occlusion for fixed prosthodontics: a historical perspective of the gnathological influence. J Prosthet Dent. 2008 Apr;99(4):299-313.
- Shillingburg, H. T. (2012). *Fundamentals of fixed prosthodontics*. Quintessence Pub. Co.
- Vig RG, Brundo GC. The kinetics of anterior tooth display. J Prosthet Dent. 1978 May;39(5):502-4.

QUESTIONS?

