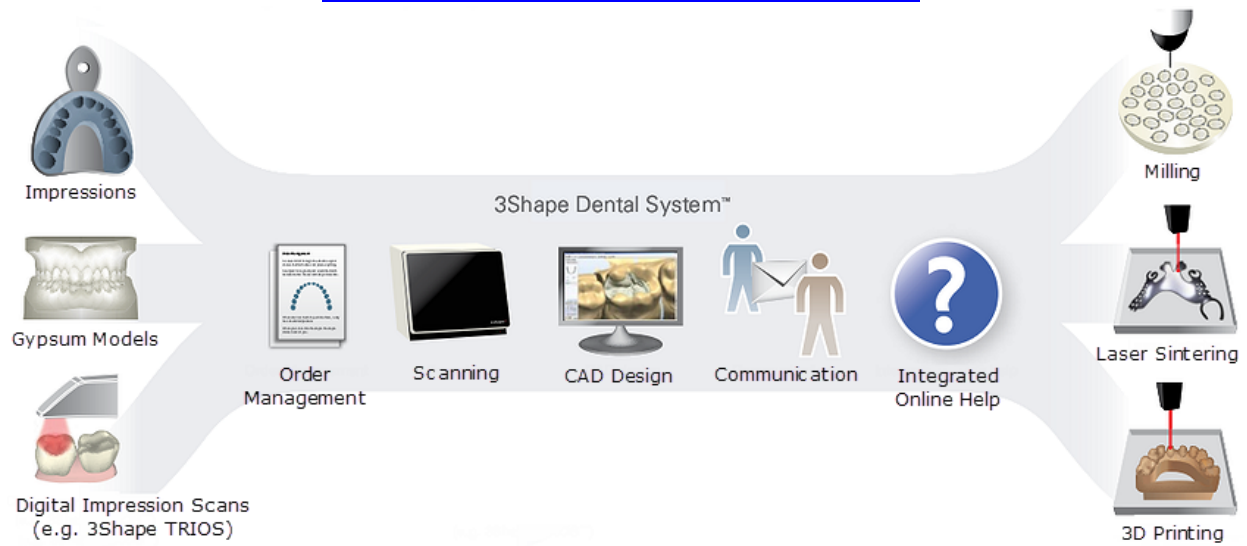


3Shape Lab Solution 2019

Technical Documentation



RX ONLY

Lab-2.19.3.0-A-EN

Table of Contents

Introduction	10
Intellectual Property	11
Graphic Symbols List	12
Intended Use of Abutment Designer Module of Dental System™	13
Warnings and Disclaimers	14
Dental System Installer	15
System Installation	17
System Upgrade	24
Dental System™ Subscriptions	33
Workflow	40
1. How Do I Create	41
1.1. Single Coping	49
1.1.1. Single Coping Order Creation	49
1.1.2. Single Coping Scanning	51
1.1.3. Single Coping Design	55
1.2. Bridge Framework	72
1.2.1. Bridge Framework Order Creation	72
1.2.2. Bridge Framework Scanning	74
1.2.3. Bridge Framework Design	80
1.2.4. Stock Abutments	85
1.2.5. Abutment Bridge	92
1.3. Full Anatomical Crown	92
1.3.1. Full Anatomical Crown Order Creation	92
1.3.2. Full Anatomical Crown Scanning	95
1.3.3. Full Anatomical Crown Design	101
1.3.4. Preparation for Manufacturing	102
1.4. Full Anatomical Bridge	111
1.4.1. Full Anatomical Bridge Order Creation	111
1.4.2. Full Anatomical Bridge Scanning	113
1.4.3. Full Anatomical Bridge Design	113
1.5. Anatomical Copings and Framework	114
1.5.1. Anatomical Copings and Framework Order Creation	114
1.5.2. Anatomical Copings and Framework Scanning	117
1.5.3. Anatomical Copings and Framework Design	117
1.6. Split Bridge	128
1.6.1. Split Bridge Order Creation	128

1.6.2. Split Bridge Scanning	131
1.6.3. Split Bridge Design	131
1.7. Temporaries	140
1.7.1. Temporary Order Creation	143
1.7.2. Temporary Scanning	149
1.7.3. Temporary Design	152
1.7.4. Physical Diagnostic Wax-up	164
1.7.5. Reuse Design	167
1.8. Inlay/Onlay and Maryland Bridges	169
1.8.1 Inlay/Onlay and Maryland Bridges Order Creation	170
1.8.2. Inlay/Onlay and Maryland Bridge Scanning	174
1.8.3. Inlay/Onlay and Maryland Bridges Design	174
1.9. Veneer	181
1.9.1. Veneer Order Creation	181
1.9.2. Veneer Scanning	183
1.9.3. Veneer Design	183
1.10. Tabletops and Non-prepared Veneers	183
1.10.1. Tabletops and Non-prepared Veneers Order Creation	184
1.10.2. Tabletops and Non-prepared Veneers Scanning	185
1.10.3. Tabletops and Non-prepared Veneers Design	192
1.11. Multi-layer Crowns and Bridges	198
1.11.1. Multi-layer Crowns and Bridges Order Creation	198
1.11.2. Multi-layer Crowns and Bridges Scanning	201
1.11.3. Multi-layer Crowns and Bridges Design	201
1.12. Single Wax-up	207
1.12.1. Single Wax-up Order Creation	207
1.12.2. Single Wax-up Scanning	209
1.12.3. Single Wax-up Design	216
1.13. Wax-up Bridge	218
1.13.1. Wax-up Bridge Order Creation	218
1.13.2. Wax-up Bridge Scanning	221
1.13.3. Wax-up Bridge Design	236
1.14. Primary and Secondary Telescopes	238
1.14.1. Primary and Secondary Telescopes Order Creation	238
1.14.2. Primary and Secondary Telescopes Scanning	243
1.14.3. Primary and Secondary Telescopes Design	243
1.15. Post & Core	256
1.15.1. Post & Core Order Creation	256

1.15.2. Post & Core Scanning	258
1.15.3. Post & Core Design.....	269
1.16. Customized Abutments.....	284
1.16.1. Customized Abutments Order Creation.....	284
1.16.2. Customized Abutments Scanning	286
1.16.3. Customized Abutments Design	293
1.17. Anatomical Abutment and Screw-Retained Crown.....	310
1.17.1. Anatomical Abutment and Screw-Retained Crown Order Creation	311
1.17.2. Anatomical Abutment and Screw-Retained Crown Scanning	315
1.17.3. Anatomical Abutment and Screw-Retained Crown Design	315
1.18. Wax-up Abutment and Implant Bridge.....	324
1.18.1. Wax-up Abutment and Implant Bridge Order Creation	325
1.18.2. Wax-up Abutment and Implant Bridge Scanning	329
1.18.3. Wax-up Abutment and Implant Bridge Design	340
1.19. Implant Bars and Bridges.....	341
1.19.1. Implant Bars and Bridges Order Creation	341
1.19.2. Implant Bars and Bridges Scanning	345
1.19.3. Implant Bars and Bridges Design	345
1.20. Implant Bridge from Dentures	371
1.20.1. Implant Bridge from Dentures Order Creation	371
1.20.2. Implant Bridge from Dentures Scanning.....	373
1.20.3. Implant Bridge from Dentures Design	379
1.21. Removable Partial Dentures	388
1.21.1. Removable Partial Dentures Order Creation	388
1.21.2. Removable Partial Dentures Scanning	392
1.21.3. Removable Partial Dentures Design	399
1.21.4. Metal Dummies and Backings	425
1.22. Full Dentures	430
1.22.1. Full Dentures Order Creation.....	433
1.22.2. Scanning	437
1.22.3. Full Dentures Design	446
1.22.4. Full Dentures Smile Composer®	468
1.22.5. Workflow Involving Try-Ins	484
1.23. Digital Model	498
1.23.1. Digital Model Order Creation	499
1.23.2. Crown and Bridge Models	501
1.23.3. Implant Models	510
1.23.4. Model Types.....	528

1.23.5. Virtual Trimming Settings	532
1.23.6. Pre-Milled blank Articulator Interface	538
1.24. Splints	544
1.24.1. Splints Order Creation	544
1.24.2. Splints Scanning	546
1.24.3. Splint Design	553
1.25. Customized Impression Tray	554
1.25.1 Customized Impression Tray Order Creation	554
1.25.2. Customized Impression Tray Scanning	556
1.25.3. Customized Impression Tray Design	557
1.26. Implant Studio	568
1.26.1. Implant Studio Order Creation	569
1.26.2. Implant Studio Scan Import	572
1.26.3. Implant Studio Design	572
1.27. Gingiva/Anatomical Gingiva	573
1.27.1. Gingiva/Anatomical Gingiva Order Creation	573
1.27.2. Gingiva/Anatomical Gingiva Scanning	578
1.27.3. Gingiva/Anatomical Gingiva Design	578
1.28. Positioning Guide	586
1.28.1. Positioning Guide Order Creation	586
1.28.2. Positioning Guide Scanning	588
1.28.3. Positioning Guide Design	588
1.29. Copy Denture	595
1.29.1. Copy Denture Order Creation	595
1.29.2. Copy Denture Scanning	598
1.29.3. Copy Denture Design	603
2. How Do I Use	609
2.1. Order Creation & Management	609
2.1.1. User Interface	610
2.1.2. Creating Orders	617
2.1.3. Modifying Orders	628
2.1.4. Handling Orders in Dental Manager	632
2.1.5. Additional Options	666
2.1.6. Dental Manager Inbox	677
2.2. Scanner and Scanning Software	684
2.2.1. Unpacking and Installation	686
2.2.2. ScanSuite	688
2.2.3. Scanner Calibration	691

2.2.4. Auto-occlusion Calibration	693
2.2.5. Scanner Transportation.....	707
2.2.6. Scanning with ScanIt Dental	709
2.3. Models Scanning	740
2.3.1. All-in-One Scanning	740
2.3.2. Models with Dies Scanning	745
2.3.3. Texture Scanning.....	754
2.3.4. Occlusion Handling.....	755
2.3.5. Additional Scans	772
2.3.6. Multi-Die Scanning	787
2.4. Impression Scanning	791
2.4.1. Preparing for Scanning	791
2.4.2. Two Single Trays and Bite Scanning	793
2.4.3. Posterior/Anterior Triple Trays Scanning	799
2.4.4. Two Single Trays and Centric Tray	804
2.5. Third-party Digital Impressions.....	807
2.5.1. 3M C.O.S.	809
2.5.2. iTero	811
2.5.3. Sirona	814
2.6. 3Shape Communicate Inbox.....	817
2.6.1. Connection Setup	818
2.6.2. Receiving Orders	819
2.6.3. Send and Communicate.....	828
2.6.4. Invalid Orders	829
2.7. Design	830
2.7.1. User Interface.....	831
2.7.2. Prepare Digital Impressions	840
2.7.3. Smile Composer	854
2.7.4. Sculpt Toolkit.....	882
2.7.5. Dynamic Virtual Articulation.....	890
2.7.6. RealView™ Engine	903
2.7.7. Additional Scans	915
2.7.8. Advanced Design Tools	919
2.8. Manufacturing Orders	935
2.8.1. Local Manufacturing	936
2.8.2. Remote Manufacturing.....	939
2.8.3. Automated Manufacturing with CAMbridge™	942
2.8.4. Manufacturing Device Compatibility.....	943

2.9. 3Shape Communicate	944
2.9.1. Getting Started	945
2.9.2. 3Shape Communicate Workflow	956
2.9.3. 3Shape Communicate Portal	963
2.9.4. Scan and Design Sharing	985
3. How Do I Configure	999
3.1. System Settings	1001
3.1.1. System Settings	1001
3.1.2. Design Options	1010
3.1.3. Services	1012
3.1.4. Auto Workflow	1013
3.2. Dental Manager	1015
3.2.1. General	1015
3.2.2. Manufacturing Inbox	1022
3.2.3. ERP and Processing Time	1025
3.2.4. Order Import	1030
3.2.5. Working Days	1033
3.2.6. 3rd Party Applications	1033
3.2.7. Milling Machines	1038
3.3. Site Settings	1040
3.3.1. This site	1040
3.3.2. Dentists	1044
3.3.3. Labs	1049
3.3.4. Manufacturers	1054
3.3.5. Operators	1059
3.3.6. Countries	1060
3.3.7. Manufacturing Processes	1061
3.4. Tools	1065
3.4.1. Subscription Manager	1066
3.4.2. Import/Export	1068
3.4.3. Download Center	1074
3.4.4. Dental System Training Center	1075
3.4.5. 3Shape Communicate®	1076
3.5. Basic Elements	1079
3.5.1. Materials	1079
3.5.2. Colors	1085
3.5.3. Margin Line	1086
3.5.4. Attachments	1087

3.5.5. 2D Design Overlays.....	1091
3.5.6. CAD Blocks	1092
3.5.7. Press Multi sprues	1095
3.6. Anatomy Elements	1097
3.6.1. ScanIt Library	1097
3.6.2. Anatomy & Pontic Libraries	1098
3.6.3. Smile Libraries	1099
3.6.4. Artificial Teeth.....	1102
3.6.5. Crowns	1106
3.6.6. Crown Pontics	1109
3.6.7. Inlays	1109
3.6.8. Onlays/Veneers	1110
3.6.9. Temporaries	1111
3.6.10. Tabletops	1114
3.7. Frame Elements.....	1115
3.7.1. Copings	1115
3.7.2. Frame Pontics	1118
3.7.3. Waxups.....	1118
3.7.4. Primary Telescopes	1119
3.8. Abutments	1122
3.8.1. Top Cap Libraries.....	1122
3.8.2. Implant Systems	1122
3.9. Post and Core	1146
3.9.1. Post and Core Systems	1146
3.9.2. Post and Cores	1147
3.10. Bridge Elements	1147
3.10.1. Bars	1147
3.10.2. Connectors	1152
3.11. Full Dentures	1153
3.11.1. Design Settings	1154
3.11.2. Gingivae.....	1154
3.11.3. Smile Libraries Chart	1157
3.12. Removables.....	1158
3.12.1. Frames.....	1159
3.12.2. Connectors and Rests	1160
3.12.3. Wax Profile Strips.....	1162
3.12.4. Retentions	1165
3.12.5. Stippled Waxes.....	1167

3.13. Digital Model	1168
3.13.1. Digital Model Design	1168
3.13.2. Articulator Interfaces	1174
3.14. Appliances.....	1179
3.14.1. Orthodontics Control Panel	1179
3.14.2. Positioning Guide	1180
3.15. Custom Libraries	1180
3.15.1. Configuring Scan Settings.....	1181
3.15.2. Creating Anatomy and Pontic Library	1183
3.15.3. Creating a Smile Library	1202
3.15.4. Examples of Smile Libraries	1219
Appendix	1221
Appendix A: System Requirements	1221
Appendix B: Shortcut Keys.....	1221
Appendix C: Motion Controllers Support	1228
Appendix D: Recommended Scan Sprays	1229
Appendix E: Multiple PC Installation	1230
Appendix F: Hewlett-Packard PC with Dental System	1232
Appendix G: Implant Libraries for 3Shape Dental System™	1233
Appendix H: Terms and Abbreviations	1233
App. I: Technical Guidelines	1234
Appendix I.a: Cybersecurity	1234
Appendix I.b: Backup Considerations	1235
Appendix I.c: Windows Security and Network Configuration	1237
Appendix J: Contact Information	1238
Appendix K: Regulatory Representatives.....	1239

Introduction

3Shape Lab Solution embraces the total professional scope of modern dentistry. The Lab Solution brings accurate 3D scanning, intuitive CAD design, efficient order management and reliable communication tools to provide streamlined workflow with increased productivity. 3Shape Lab Solution is a bundle of 3D CAD software products that together with a 3D Scanner allow to create accurate, customized dental restorations with high esthetics.



This technical documentation describes 3Shape Lab Solution consisting of the following applications:

- [Order creation & management - Dental Manager™](#)
- [Scanning models - ScanIt Dental™](#)
- [Scanning impressions - ScanIt Dental™](#)
- [Lab model design - Model Builder™](#)
- [Modeling - Dental Designer™](#)
- [System configuration - Dental System Control Panel™](#)
- [Custom libraries - ScanIt Library™](#)
- [Installation - Dental System Installer™](#)

3Shape Lab Solution supports multiple languages throughout the applications.

The Software described in the technical documentation is covered by the Terms and Conditions according to the End User License Agreement issued either by 3Shape A/S or 3Shape A/S Partner from whom you have acquired the Partner version software.

This product and/or parts of this product, such as hardware and/or software, may be patent pending, and this product and/or parts of this product may be protected by one or more granted patents.

Should you have questions regarding the content of a particular software version or system configuration, please contact your local 3Shape solution provider.

Before using the software, please acquaint yourself with the warnings and disclaimers listed in the [Warning and Disclaimers](#) section.

Intellectual Property

This product and/or parts of this product, such as hardware and/or software, may be patent pending, and this product and/or parts of this product may be protected by one or more granted patents.

Graphic Symbols List



Electronic Instructions for Use - indicates that information on product usage is available in an electronic form rather than, or in addition to, a printed paper form.



Note! The technical documentation, which is part of the 3Shape Dental System software, is supplied in an electronic and not in a printed format. The technical documentation in .pdf format is available for download at www.3shape.com. You can obtain a free printed copy of the technical documentation within 7 days by contacting 3Shape support.

Intended Use of Abutment Designer Module of Dental System™

The 3Shape Abutment Designer software is intended as an aid to the restoration of chewing function in partially or fully edentulous mandibles and maxillae. The 3Shape Abutment Designer software is intended for use by a dental practitioner or dental laboratory staff for designing the patient specific component of a two-piece, one-piece, or hybrid dental implant abutment. The single or multi-unit abutment design is intended to be used by the manufacturer of an endosseous dental implant abutment to create the final device.

Warnings and Disclaimers



Note! 3Shape Dental System is intended for use by dental assistants/technicians operating the 3D scanner and scanning software, and dental clinic technicians/lab technicians operating the CAD/CAM dental software.



Note! Prior to using the software on clinical cases, please make sure to have received appropriate training and instructions on how to properly operate the software.



Note! The dental workflow for designing indications of Removable Partial Dentures and Full Dentures do not change in the digital process compared to the conventional process.



Note! Surface scans can be obtained from TRIOS® or any 3Shape lab scanner, as well as a number of other 3rd party scanners (such as 3M, iTero, Sirona CEREC, UDX, Planscan and 3M True Definition). You need to ensure that the surface scan is of the required quality for planning the case, and that the relevant areas for the case fully exist.



Caution! The user must be able to recognize red and green colors to detect warnings such as *"Cantilever part of the implant bar exceeds A-P Spread"*.



Warning! Do not use Dental System to design Crown lengthening Guides.

Dental System Installer

Installation and upgrade of 3Shape Dental System is done using the 3Shape Dental System Installer application.

The 3Shape Dental System Installer comes in the 64-bit version. The 64-bit application allows 64-bit Windows to allocate significantly more memory to Dental System™ during scanning and design. This smoothens the workflow and prevents out-of-memory issues for very large cases, e.g., multi-layer bridge cases.

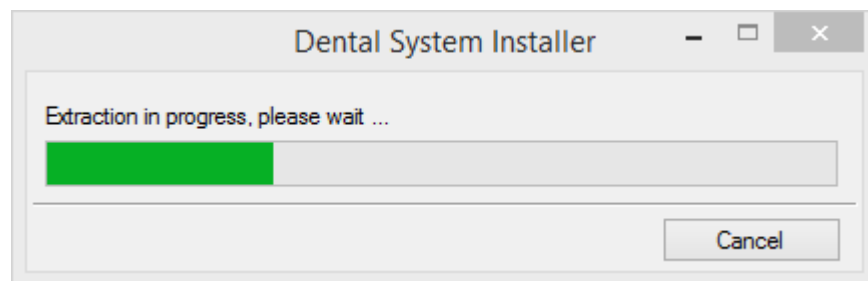
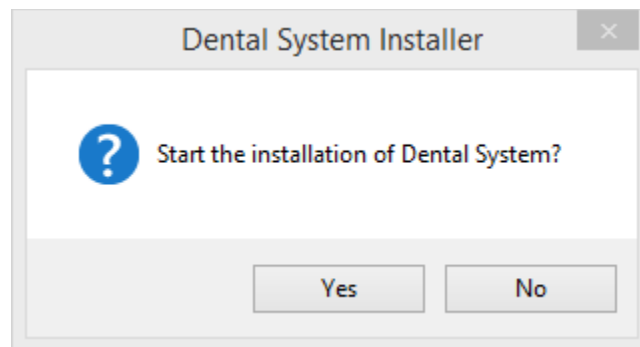


Note! It is strongly recommended to have your system connected to the internet during installation. If you cannot be online, you are still able to complete the installation, but it may have limited material settings, etc. However, the settings can be updated later via Dental System Control Panel.

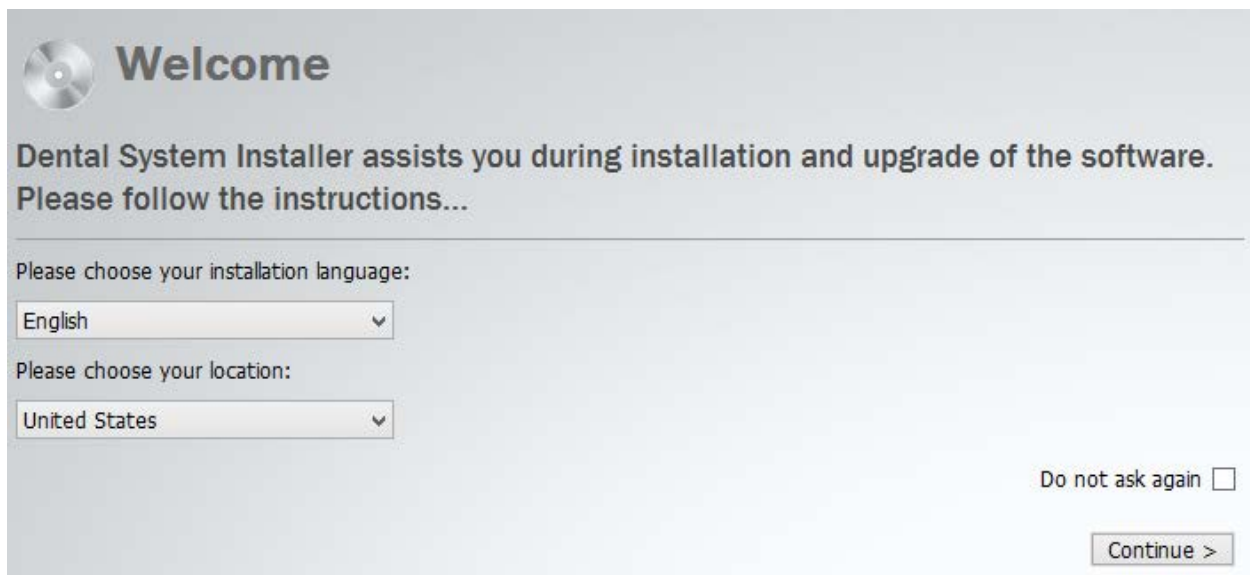
To install or upgrade the system:

► Step 1: Launch the 3Shape Dental System Installer

Click **Yes** and wait for the files to extract.



► Step 2: Choose the installation language and the location

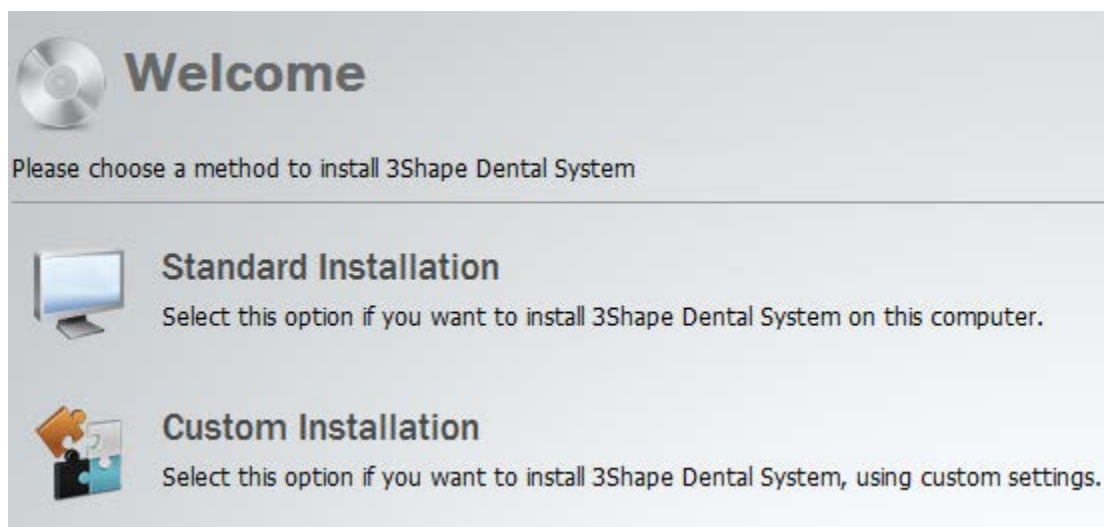


Click **Continue**.

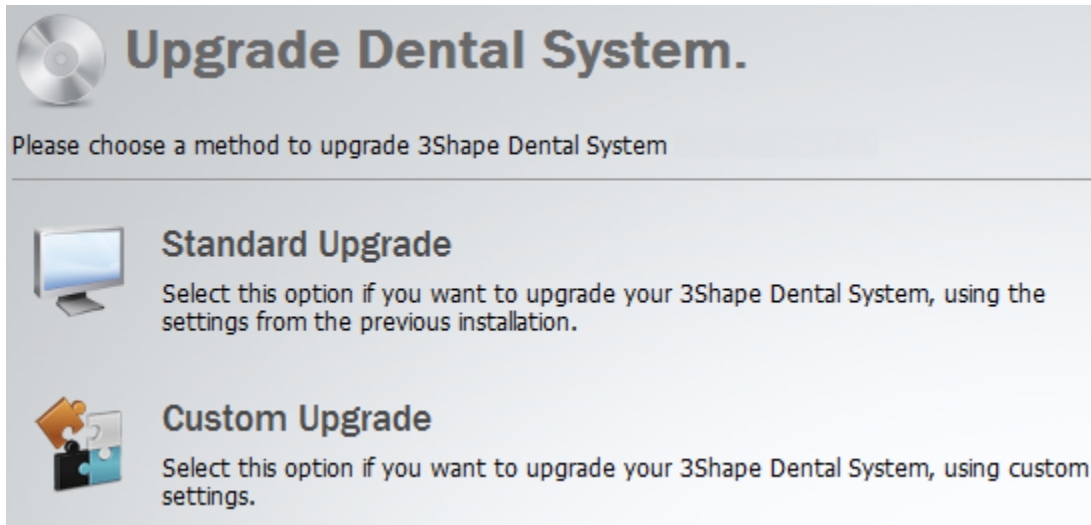
►Step 3: Read and accept the license terms

After you have read the 3Shape software general license terms and conditions, select the **I have read and I accept the license terms** checkbox to accept the license terms and click **Continue** to proceed with the installation.

►Step 4: Select the installation/upgrade method - Standard or Custom



Installation



Upgrade

Standard Installation/Upgrade is a quick way to install or upgrade your system with only a few clicks (backup, materials update and download).



Note! The Standard upgrade option employs the same choices/settings used in the previous installation/upgrade except for materials, which are always updated.

Custom Installation/Upgrade allows you to customize your installation/upgrade settings in the process (you can choose the backup type, customize the materials update, choose sites for downloading materials, etc.).

See the chapters [System Installation](#) and [System Upgrade](#) for details.

System Installation



STANDARD INSTALLATION

Once you have [selected Standard Installation](#), the installation process starts automatically and requires only a few clicks to complete.

►Step 1: Wait for installation to complete

It will take a few minutes for the installer to complete all steps.



Installation

The Dental System Installer is now copying files to your computer. The installation may take several minutes. If installing using cdrom please don't remove the cdrom during the installation.

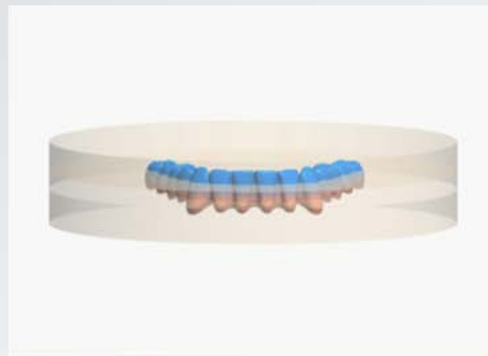
Cost efficient manufacturing

Design and manufacture a denture prosthesis consisting of two pieces: a denture base and a teeth arch. The latest generation of coupling mechanism ensures good fit of the two pieces and simplicity of gluing operation.

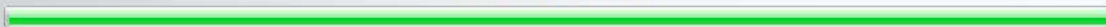


Custom manufactured teeth with color gradient

You can accurately control the color shades of the teeth during design by placing the denture teeth inside the gradient disc.



Downloading documentation

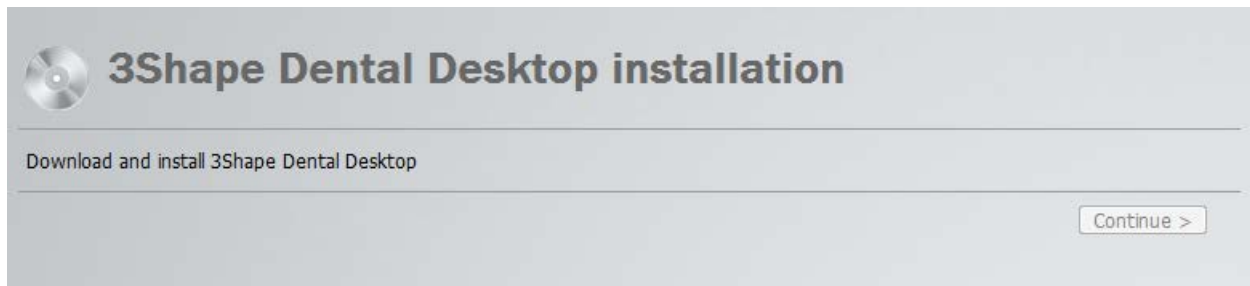


Overall progress: 32 of 32 steps are completed.



Verified the installation

The installer also includes automatic download and installation of 3Shape Dental Desktop as part of Dental System, after which the installation procedure continues.



► Step 2: Exit the Installer or install licensed modules

Click **Finish** to complete the installation.

You can opt to download and install additionally licensed modules, e.g., 3Shape Splint Designer™. The attached dongle must have the corresponding licenses in order for the additional modules to be offered for installation.



Read the automatically loaded **What's New** document to learn about new features in 3Shape Dental System™.



CUSTOM INSTALLATION

► Step 1: Specify installation settings

After you have [selected Custom Installation](#), the program asks you to customize your settings:

Advanced Options

Make sure the following are not blocked by firewall programs:
TCP: port 27027

Custom Settings

Choose installation

Please choose an installation type:

Standalone
Server Install
Standalone
Network Client
Restore Backup
Clone System

Advanced Dongle Settings

Use local dongle ☒

Please specify network location of the 3Shape Dental System server:

Advanced Database Settings

Use existing database settings ☒

MSSQL server: {ComputerName\SQLServerInstance}

Database name:

User:

Password:

Admin User:

Admin Password:

Internet Proxy Settings

Use internet proxy ☐

Proxy type:

Host:

Port:

Proxy username:

Password:



Documentation Settings

Download user manual during installation ☐ Choose language:

Download technical documentation during installation ☒ Choose language:

Choose Installation

- **Standalone** - this installation is ideal if you want to run all 3Shape Dental System applications on one computer (i.e. the scanner-PC). The software and orders data are stored locally on the computer. The **Standalone** installation is recommended if the software is only going to be used on a single computer within the site.
- **Server Install / Network Client** - please refer to [Multiple PC Installation](#) appendix for details.
- **Restore Backup** - select this option to restore your previous local backup of the system.

	<div>  Note! The backup can be retrieved automatically from the previous installation. </div> <div> <ul style="list-style-type: none"> • Clone System - select this option if you want to load settings of already installed Dental System during its installation on another PC (see chapter Import/Export on how to clone system on your Dental System). </div> <div>  Note! The file with a cloned system works only with identical versions of Dental System and operation system. </div>
Advanced Dongle Settings	You can choose to use either the local dongle or a network PC with the running 3Shape Dongle Service.
Advanced Database Settings	You can choose either the default database on the local PC or a remote MSSQL server. For the remote MSSQL server you must specify the location of the server and enter the user name and password.
Internet Proxy Settings	If you are behind a proxy server - specify the required proxy settings.
Documentation Settings	Choose which help documentation file - a User Manual with instructions for use or a more detailed Technical Documentation - and in which language to download it during the installation. Click Check for other languages to refresh the drop-down menu of available languages.

Click **Continue** when finished.

►Step 2: Continue installation

It will take a few minutes for installer to complete all steps.



Installation

The Dental System Installer is now copying files to your computer. The installation may take several minutes. If installing using cdrom please don't remove the cdrom during the installation.

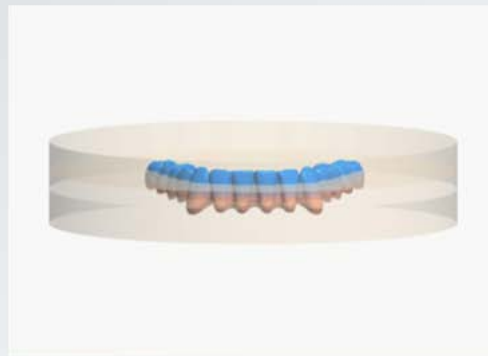
Cost efficient manufacturing

Design and manufacture a denture prosthesis consisting of two pieces: a denture base and a teeth arch. The latest generation of coupling mechanism ensures good fit of the two pieces and simplicity of gluing operation.

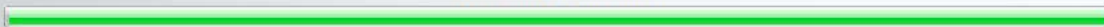


Custom manufactured teeth with color gradient

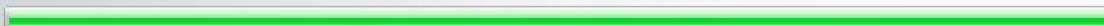
You can accurately control the color shades of the teeth during design by placing the denture teeth inside the gradient disc.



Downloading documentation



Overall progress: 32 of 32 steps are completed.



Verified the installation

► Step 3 (optional): Select materials for import

Select material libraries to download from FTP and click **Import**.



General material download

Import >

Please select which libraries you wish to download from FTP:

All <input type="checkbox"/>	Library name	Provider	Library type	Version	Size	Description
<input checked="" type="checkbox"/>	AB Dental	AB Dental Devices	Implant library	3.0	1.818 KB	The library contains multi-unit systems and single unit systems restorations. CE approved.
<input type="checkbox"/>	AIDI Dental Implant Systems	AIDI Biomedical	Implant library	1.0	2.318 KB	Advanced Immediate Dental Implant Systems. FDA approved.
<input type="checkbox"/>	Alpha-Bio Tec - Scan Body 10mm	Alpha BioTec	Implant library	03.12.2017	25.931 KB	Alpha-Bio Tec. library for use with 10mm Scan Body. Includes TiBases, premilled blanks, and analogs for printed models for Cement (IH, CHC) and Screw retained (TCT-N) platforms.
<input type="checkbox"/>	Alpha-Bio Tec - Scan Body 7mm	Alpha BioTec	Implant library	03.12.2017	25.661 KB	Alpha-Bio Tec. library for use with 7mm Scan Body. Includes TiBases, premilled blanks, and analogs for printed models for Cement (IH, CHC) and Screw retained (TCT-N) platforms.
<input type="checkbox"/>	Ankylos CX Ti-Interface	DENTSPLY Friadent	Implant library	1.0	711 KB	Original Dentsply implant library for abutments and bars supporting the DENTSPLY Friadent ANKYLOS implant system.
<input type="checkbox"/>	ARDS Implants library	ARDS Implants	Implant library	1.0	620 KB	The library contains ARDS internal hex and conical platforms
<input type="checkbox"/>	BioHorizons® CAD-CAM	Vulcan Custom Dental	Implant library	Revision E	1.933 KB	Original BioHorizons® CAD-CAM solutions. Includes Custom Ti (Custom Milled) Abutments, Ti Base (Hybrid Base) Abutments, and Multi-unit Ti Base Abutment (Passive Fit Coping). FDA Approved.
<input type="checkbox"/>	Biomet 3i FlexLink™ TiBase	Biomet 3i	Implant library	1.0	2.500 KB	Biomet 3i FlexLink™ TiBase digital library for 3Shape including: Certain® and Ex Hex FlexLink™ TiBase components and Scan Posts.
<input type="checkbox"/>	Biomet LDA & LDAC	Biomet 3i	Implant library	2.0 (2015)	18.668 KB	Original Biomet implant library for abutments and bars supporting Biomet and 3rd party implant systems. FDA approved.
<input type="checkbox"/>	BoneTrust® – CAD/CAM Flex Base	Medical Instinct®	Implant library	2015-05-01	1.486 KB	Original Medical Instinct® Library enables the designing of Bridges, Bars and hybrid-constructions on BoneTrust® implants.
<input type="checkbox"/>	BoneTrust® – CAD/CAM Ti-Base	Medical Instinct®	Implant library	2015-05-01	2.621 KB	Original Medical Instinct® Library enables the designing of hybrid abutments, double crowns etcetera on BoneTrust® implants. REGULAR VERSION.
<input type="checkbox"/>	BoneTrust® – Direct Ti-Base	Medical Instinct®	Implant library	2015-05-01	303 KB	Original Medical Instinct® Library for Bridges, Bars and Hybrid-Solutions supporting the BoneTrust® Implant System.

If your Site settings are configured to download materials from other Sites, a page appears during installation to download Manufacturer specific materials. Select the sites you want to download materials from and click **Continue**.



Manufacturer specific material download

Please select which sites you wish to download materials from:

☒ Select all

Site name	Material file name	Version	Size, bytes	Last modified
<input checked="" type="checkbox"/> Materials Site	Materials.dme	Unversioned	1,725,615	2/27/2015 19:28:43

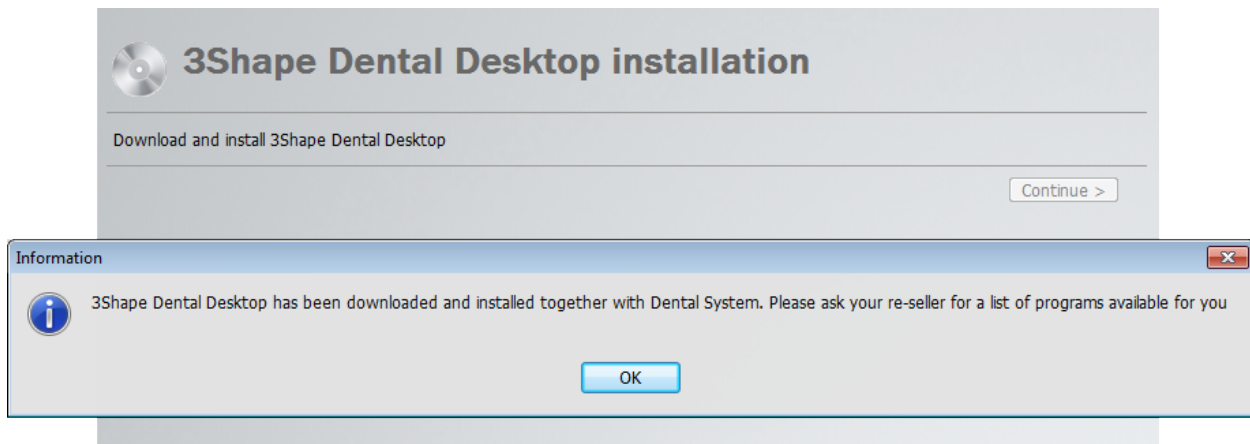
Continue >



Note! The download of materials is performed automatically during **Standard Installation**.

►Step 4: Continue after 3Shape Dental Desktop is installed

After 3Shape Dental Desktop has been downloaded and installed as part of Dental System, a notification window appears, informing you to ask your reseller for a list of programs available for you. Click **OK** to proceed with the installation.



►Step 5: Exit the Installer or install licensed modules

The process is the same as described [above](#) for the **Standard Installation** procedure.

System Upgrade



STANDARD UPGRADE

Once you have [selected Standard Upgrade](#), the program asks you to confirm that all Dental System settings will be overwritten with default values. After your confirmation, the installation process starts and requires only a few clicks to complete.

►Step 1: Wait for upgrade to complete

It will take a few minutes for the installer to complete all steps. The Dental System installer automatically creates a full backup of your files and updates materials if necessary.



Installation

The Dental System Installer is now copying files to your computer. The installation may take several minutes. If installing using cdrom please don't remove the cdrom during the installation.

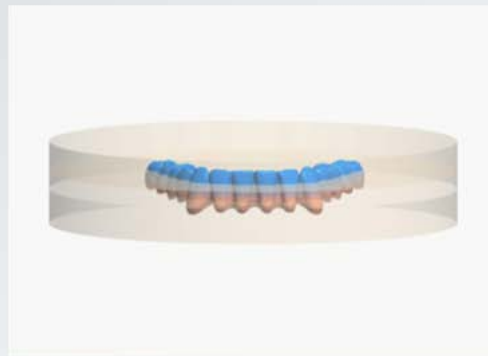
Cost efficient manufacturing

Design and manufacture a denture prosthesis consisting of two pieces: a denture base and a teeth arch. The latest generation of coupling mechanism ensures good fit of the two pieces and simplicity of gluing operation.

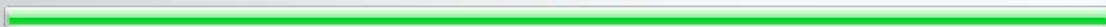


Custom manufactured teeth with color gradient

You can accurately control the color shades of the teeth during design by placing the denture teeth inside the gradient disc.



Downloading documentation

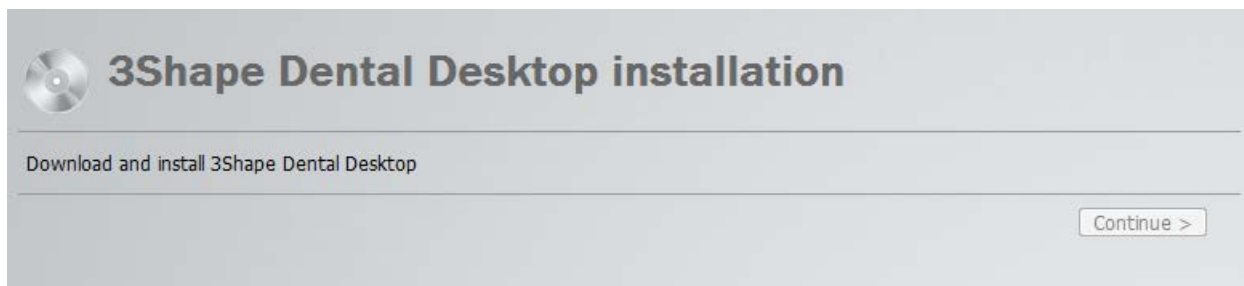


Overall progress: 32 of 32 steps are completed.



Verified the installation

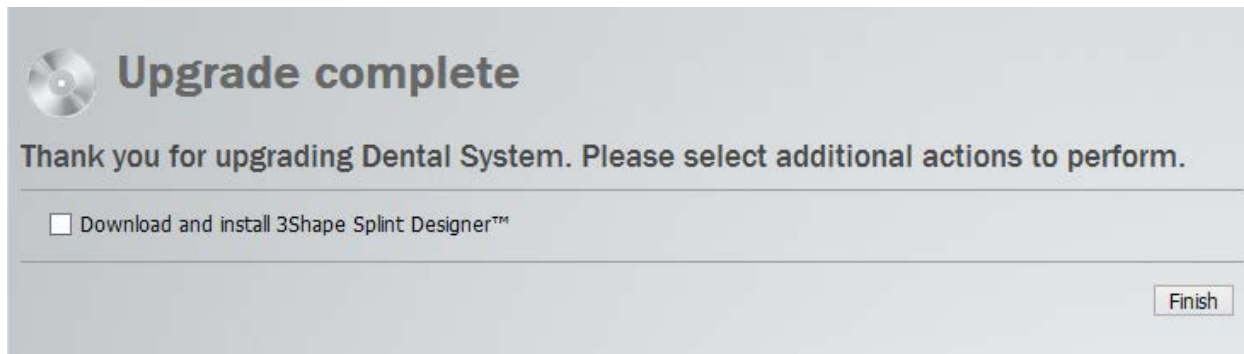
The installer also includes automatic download and installation of 3Shape Dental Desktop as part of Dental System, if not previously installed, after which the installation procedure continues.



► Step 2: Exit the Installer or upgrade licensed modules

Click **Finish** to complete the upgrade.

You can opt to download and upgrade additionally licensed modules, e.g., 3Shape Splint Designer™. The attached dongle must have the corresponding licenses in order for the additional modules to be offered for upgrade.



Read the automatically loaded **What's New** document to learn about new features in 3Shape Dental System™.



CUSTOM UPGRADE

► Step 1: Specify the installation settings

After you have [selected Custom Upgrade](#), the program asks you to customize your settings (please see [System Installation](#) chapter for details).

Advanced Options

Make sure the following are not blocked by firewall programs:
TCP: port 27027

Custom Settings

Choose installation

Please choose an installation type: Standalone

- Server Install
- Standalone
- Network Client
- Restore Backup
- Clone System

Advanced Dongle Settings

Use local dongle ☒

Please specify network location of the 3Shape Dental System server: Browse...

Advanced Database Settings

Use existing database settings ☒

MSSQL server: {ComputerName\SQLServerInstance}

Database name:

User:

Password:

Admin User:

Admin Password:

Internet Proxy Settings

Use internet proxy ☐

Proxy type: <None>

Host:

Port: 3128

Proxy username:

Password:

Documentation Settings

Download user manual during installation ☐ Choose language: English

Download technical documentation during installation ☒ Choose language: English

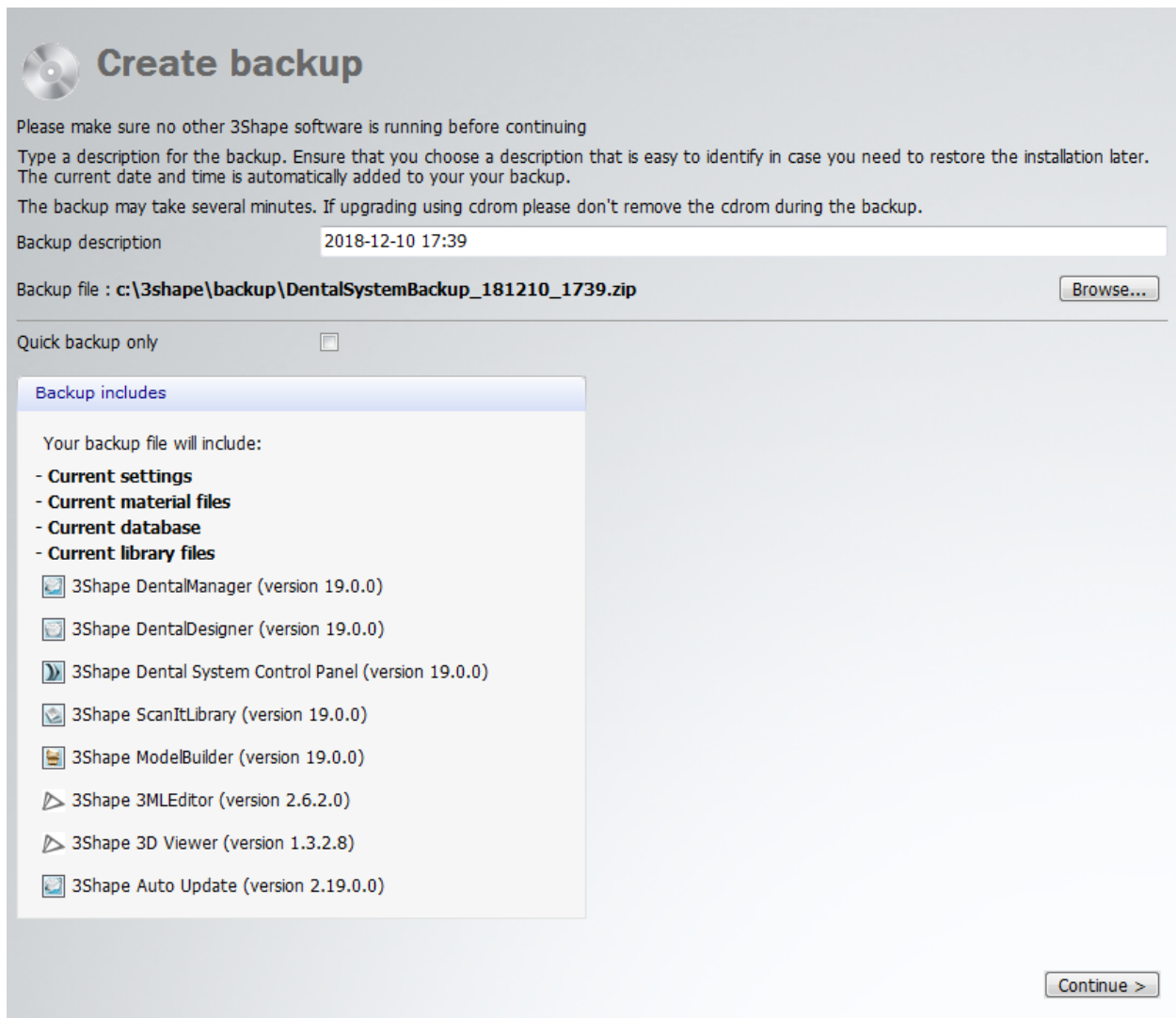
Check for other languages

Continue >

Click **Continue** when finished.

► Step 2: Create backup

Please read instructions in the window to create your backup successfully. You can view the content of your backup under the **Backup includes** tab. When creating **Quick backup only**, your backup will not include library files.



Click **Continue** when finished.

► Step 3: Continue installation

It will take a few minutes for installer to complete all steps.



Installation

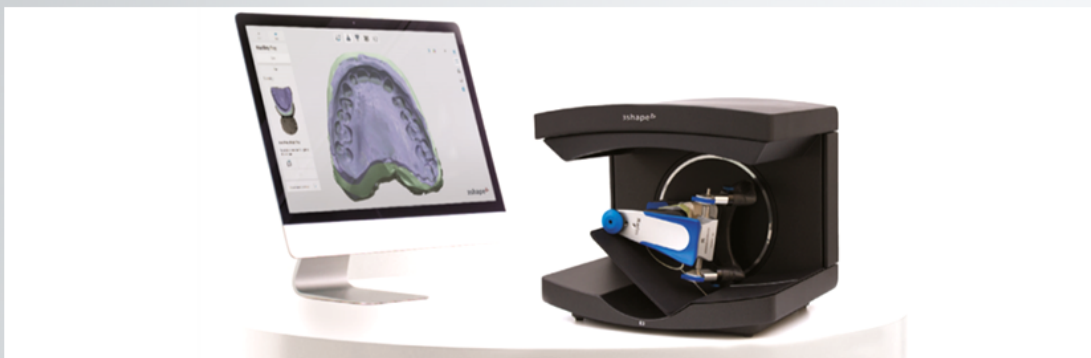
The Dental System Upgrade is now copying files to your computer. The upgrade may take several minutes. If upgrading using cdrom please don't remove the cdrom during the upgrade.

Your success matters. 3Shape makes it a priority to work closely with lab professionals, be the labs reliable partner and create leading technology that maximizes their profitability. With 3Shape Dental System, 3Shape ensures that labs of all sizes can get a robust and powerful CAD/CAM solution that is fast, accurate and packed with digital workflows enabling high-revenue lab service options and a secure future.

Innovation never stops at 3Shape and 3Shape Dental System enables the widest range of treatment workflows and provides the largest suite of digital tools and libraries. Users get integrated and intuitive workflows, value-packed care programs, and an open ecosystem that freely lets you combine equipment, materials, and 3rd party services so that you can take advantage of all that digital dentistry has to offer.

All new major additions introduced in Dental System 2018 are described in this document. This includes.

- Strengthened reliability and performance, introduced improvements to the core design tools and added new functionality.
- Significantly increased the flexibility of the software. The new flexible scan handling allows technicians to combine any scans to make even complicated designs faster, easier and better. Additionally, technicians can now save their design at any step, to store intermediate designs or save their applied design steps for future use.
- A new version of Smile Design – a new powerful solution for very fast and easy creation of digital smile designs – with photo-realistic simulation to show the patient.
- Greatly improved removable prosthetics, enabling you to make flexible partial dentures and improvements to full denture design.



Installing 3Shape Dental System Control Panel

Overall progress: 9 of 30 steps are completed.

► Step 4 (optional): Update materials

If the materials existing in the local material file are different from the provided in the Installer, the *Update materials* window appears. Click **Update/Rename** to update to new item values (recommended). You can view the list of existing and updated materials by unfolding the **Advanced** tab.

The item Fixed Implant Denture (LinkType22) already exists in the local material file but with different values.

Advanced

Select "Keep existing" to keep existing item values.

Select "Update" to update to new item values. (RECOMMENDED)

Do the same for all similar cases ☐

Keep existing

Update

Cancel

Item with another ID but the same name Red Wax already exists in the local material file.

Advanced

Select "Keep name" to keep item name.

Select "Rename" to give the imported item new name. (RECOMMENDED).

Do the same for all similar cases ☐

Keep name

Rename

Cancel

Select material libraries, if any, to download from FTP and click **Import**.



General material download

Import >

Please select which libraries you wish to download from FTP:

All <input type="checkbox"/>	Library name	Provider	Library type	Version	Size	Description
<input checked="" type="checkbox"/>	AB Dental	AB Dental Devices	Implant library	3.0	1.818 KB	The library contains multi-unit systems and single unit systems restorations. CE approved.
<input type="checkbox"/>	AIDI Dental Implant Systems	AIDI Biomedical	Implant library	1.0	2.318 KB	Advanced Immediate Dental Implant Systems. FDA approved.
<input type="checkbox"/>	Alpha-Bio Tec - Scan Body 10mm	Alpha BioTec	Implant library	03.12.2017	25.931 KB	Alpha-Bio Tec. library for use with 10mm Scan Body. Includes TiBases, premilled blanks, and analogs for printed models for Cement (IH, CHC) and Screw retained (TCT-N) platforms.
<input type="checkbox"/>	Alpha-Bio Tec - Scan Body 7mm	Alpha BioTec	Implant library	03.12.2017	25.661 KB	Alpha-Bio Tec. library for use with 7mm Scan Body. Includes TiBases, premilled blanks, and analogs for printed models for Cement (IH, CHC) and Screw retained (TCT-N) platforms.
<input type="checkbox"/>	Ankylos CX Ti-Interface	DENTSPLY Friadent	Implant library	1.0	711 KB	Original Dentsply implant library for abutments and bars supporting the DENTSPLY Friadent ANKYLOS implant system.
<input type="checkbox"/>	ARDS Implants library	ARDS Implants	Implant library	1.0	620 KB	The library contains ARDS internal hex and conical platforms
<input type="checkbox"/>	BioHorizons® CAD-CAM	Vulcan Custom Dental	Implant library	Revision E	1.933 KB	Original BioHorizons® CAD-CAM solutions. Includes Custom Ti (Custom Milled) Abutments, Ti Base (Hybrid Base) Abutments, and Multi-unit Ti Base Abutment (Passive Fit Coping). FDA Approved.
<input type="checkbox"/>	Biomet 3i FlexLink™ TiBase	Biomet 3i	Implant library	1.0	2.500 KB	Biomet 3i FlexLink™ TiBase digital library for 3Shape including: Certain® and Ex Hex FlexLink™ TiBase components and Scan Posts.
<input type="checkbox"/>	Biomet LDA & LDAC	Biomet 3i	Implant library	2.0 (2015)	18.668 KB	Original Biomet implant library for abutments and bars supporting Biomet and 3rd party implant systems. FDA approved.
<input type="checkbox"/>	BoneTrust® – CAD/CAM Flex Base	Medical Instinct®	Implant library	2015-05-01	1.486 KB	Original Medical Instinct® Library enables the designing of Bridges, Bars and hybrid-constructions on BoneTrust® implants.
<input type="checkbox"/>	BoneTrust® – CAD/CAM Ti-Base	Medical Instinct®	Implant library	2015-05-01	2.621 KB	Original Medical Instinct® Library enables the designing of hybrid abutments, double crowns etcetera on BoneTrust® implants. REGULAR VERSION.
<input type="checkbox"/>	BoneTrust® – Direct Ti-Base	Medical Instinct®	Implant library	2015-05-01	303 KB	Original Medical Instinct® Library for Bridges, Bars and Hybrid-Solutions supporting the BoneTrust® Implant System.

If your Site settings are configured to download materials from other Sites, a page appears during upgrade to download Manufacturer specific materials. Select the sites you want to download materials from and click **Continue**.



Manufacturer specific material download

Please select which sites you wish to download materials from:

☒ Select all

Site name	Material file name	Version	Size, bytes	Last modified
<input checked="" type="checkbox"/> Materials Site	Materials.dme	Unversioned	1,725,615	2/27/2015 19:28:43

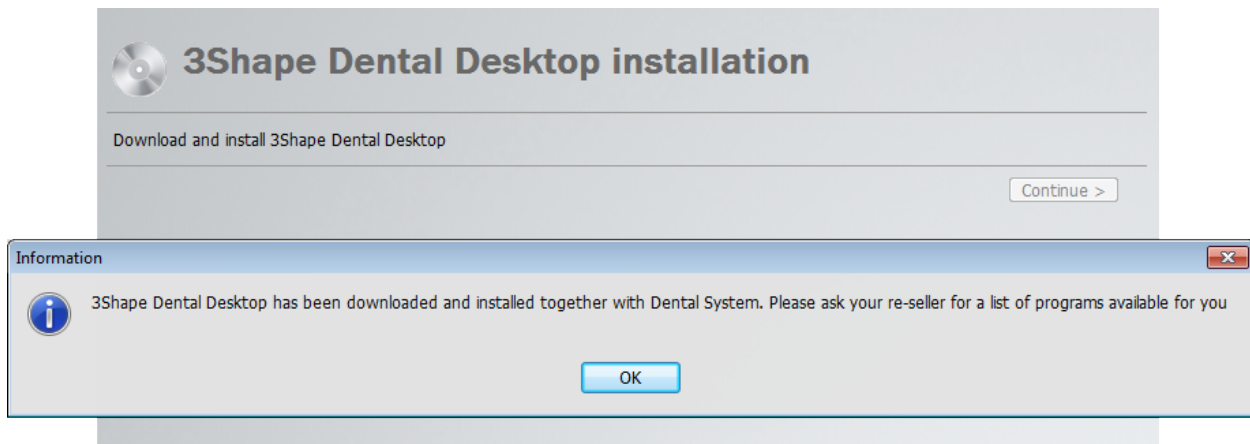
Continue >



Note! The download of materials is performed automatically during the **Standard** upgrade.

► **Step 5: Continue after 3Shape Dental Desktop is installed**

After 3Shape Dental Desktop has been downloaded and installed as part of Dental System, if not previously installed, a notification window appears, informing you to ask your reseller for a list of programs available for you. Click **OK** to proceed with the installation.



► **Step 6: Exit the Installer or upgrade licensed modules**

The process is the same as described [above](#) for the **Standard Upgrade** procedure.

Dental System™ Subscriptions

SOFTWARE PACKAGES

Dental System™ covers every business need through five software packages - **Scan Only**, **Crown & Bridge**, **Premium**, **Complete Restorative** and **Removable**, as well as upgrade options, add-on modules and the use of CAD points.

Dental System™ Scan Only - An optimal solution for labs that want to scan in-house and use an external design partner service. This software package includes the ability to receive TRIOS cases and use Manufacturing Inbox™ (50 connections).





Dental System™ Crown & Bridge - A cost-efficient solution with the basic indications needed in professional labs of any size or budget seeking an easy entry into CAD/CAM.





Dental System™ Premium - The CAD/CAM Dental Lab package containing the advanced indications and design tools.

Dental System™ Complete Restorative - The complete CAD/CAM Dental Lab package providing unlimited access to designing any restorative case while significantly reducing costs for customers using multiple add-on design modules.

Dental System™ Removable - The comprehensive CAD/CAM Dental Lab package most widely used to create removable prosthetics for partially and completely edentulous arches.

The tables below contain the detailed information on the Dental System™ scanner and software configurations:

3Shape Scanners				
Scanner Features	E1	E2	E3	E4
Cameras	2 x 5.0 Megapixels	2 x 5.0 Megapixels	2 x 5.0 Megapixels	4 x 5.0 Megapixels
Accuracy (ISO 12836:2015 Annex A&B)	10 µm	10 µm	7 µm	4 µm
Gypsum model scanning (w. antagonist)	+	+	+	+
Impression scanning	Add-on	Add-on	+	+
Multi-Die Scanning	Add-on	Add-on	+	+
Expanded interior space	+	+	+	+
Texture scanning	Not available	Black and White	Color	Color
Full arch scan time	40 sec	30 sec	22 sec	9 sec
Full arch impression scan time	130 sec	90 sec	80 sec	45 sec
Scanning Strategy	Standard	Standard	Standard	Die-in-model

Dental System™				
CAD Indications	Dental System™ Complete Restorative	Dental System™ Premium	Dental System™ Crown and Bridge	Dental System™ Removable
Copings and bridge frameworks	+	+	+	Upgrade
Anatomical copings and bridge framework	+	+	+	Upgrade
Full anatomical crown and bridges	+	+	+	Upgrade
Gingiva on all indications	+	+	CAD Points / Upgrade	Upgrade
Single wax up / Wax up bridge	+	+	+	Upgrade
Inlay / Onlay / Inlay bridge / Veneers	+	+	+	Upgrade
Tabletops and Non-prepared veneers	+	+	CAD Points / Upgrade	Upgrade
Multi-layer crowns and bridges	+	+	CAD Points / Upgrade	Upgrade
Digital temporaries	+	+	CAD Points / Upgrade	Upgrade
Virtual diagnostic wax-ups	+	+	CAD Points / Upgrade	Upgrade
Post & core	+	+	CAD Points / Upgrade	Upgrade
Telescopes	+	+	CAD Points / Upgrade	Upgrade
Customized abutments and screw-retained crowns	+	Add-on / CAD Points	Add-on / CAD Points	Add-on / CAD Points
Implant bars and bridges	+	Add-on / CAD Points	Add-on / CAD Points	Add-on / CAD Points
Full dentures	+	Add-on / CAD Points	Add-on / CAD Points	+
Removable partial dentures	+	Add-on / CAD Points	Add-on / CAD Points	+
Customized impression trays	+	+	CAD Points / Upgrade	+
Model Builder™	+	Add-on / CAD Points	Add-on / CAD Points	Add-on / CAD Points

Positioning Guides	+	+	CAD Points / Upgrade	Upgrade
Splints, night guards and protectors	+	+	CAD Points / Upgrade	Upgrade
Orthodontics / Orthodontic appliances	Add-on	Add-on	Add-on	Add-on
Implant Planning and Surgical Guides	Add-on	Add-on	Add-on	Add-on / CAD Points
Advanced Tools	Dental System™ Complete Restorative	Dental System™ Premium	Dental System™ Crown and Bridge	Dental System™ Removable
Smile Composer™ including Sculpt Toolkit	+	+	+	+
Mirroring teeth	+	+	+	+
Simultaneous modeling on upper & lower	+	+	+	+
Dynamic virtual articulation	+	+	+	+
Attachments	+	+	+	+
RealView™ Engine with 2D design guidelines	+	+	Upgrade	+
Align and re-use design	+	+	+	+
CAD block placement	+	+	+	+
3Shape Communicate® (2 GB storage included)	+	+	+	+
3Shape Communicate Inbox and Shade measurement	+	+	+	+
Basic / Expert mode	+	+	+	+
Advanced design validation tools	+	+	+	+
Manufacturing Inbox™	50 connections	50 connections	50 connections	50 connections
Full manufacturing equipment compatibility	+	+	+	+
3Shape LabCare™ included in subscription	+	+	+	+

+	Included in the specific Dental System™ Software version.
Add-on	Requires purchase of an add-on module (sold separately).

Add-on accessory is required	Requires purchase of an add-on accessory (sold separately).
Add-on / CAD Points	You can either use CAD points for each case or purchase an add-on module (sold separately).
Upgrade	Requires upgrade to the Dental System™ Premium or Dental System™ Complete Restorative edition (sold separately).
CAD Points / Upgrade	You can either use CAD points for each case or upgrade to the Dental System™ Premium or Dental System™ Complete Restorative edition (sold separately).
Not available	Not available for this scanner model / software version.



Note! Contact your reseller to upgrade your Dental System to the Premium or Complete Restorative edition.

LABCARE SUBSCRIPTION OPTIONS

3Shape lets you choose between two service agreements: **3Shape LabCare** and **Basic package**.

3Shape LabCare subscription package gives you high-value services plus the option to protect your investment with an attractive warranty and scanner replacement agreement. **Basic package** is a no-subscription program offering limited services free of charge. Please find the details in the table below:

	3Shape LabCare The comprehensive service package that keeps you ahead and constantly productive	Basic package Limited services with no subscription payment for the cost-conscious lab
Software upgrades New software releases with latest developments including libraries, workflows and tools.	All	Patches only
Support Authorized experts help you in your local language and time-zone.	+	Pay per call
Training & events Comprehensive user events and trainings by leading dental technicians and 3Shape experts.	+	
Special discounts Save money on additional scanners and software.	Up to 25%	

Availability The packages are available with the following scanners:	E1, E2, E3, E4, and D2000	E1, E2, E3 and E4
--------------------------------------------------------------------------------	---------------------------	-------------------


CAD POINTS

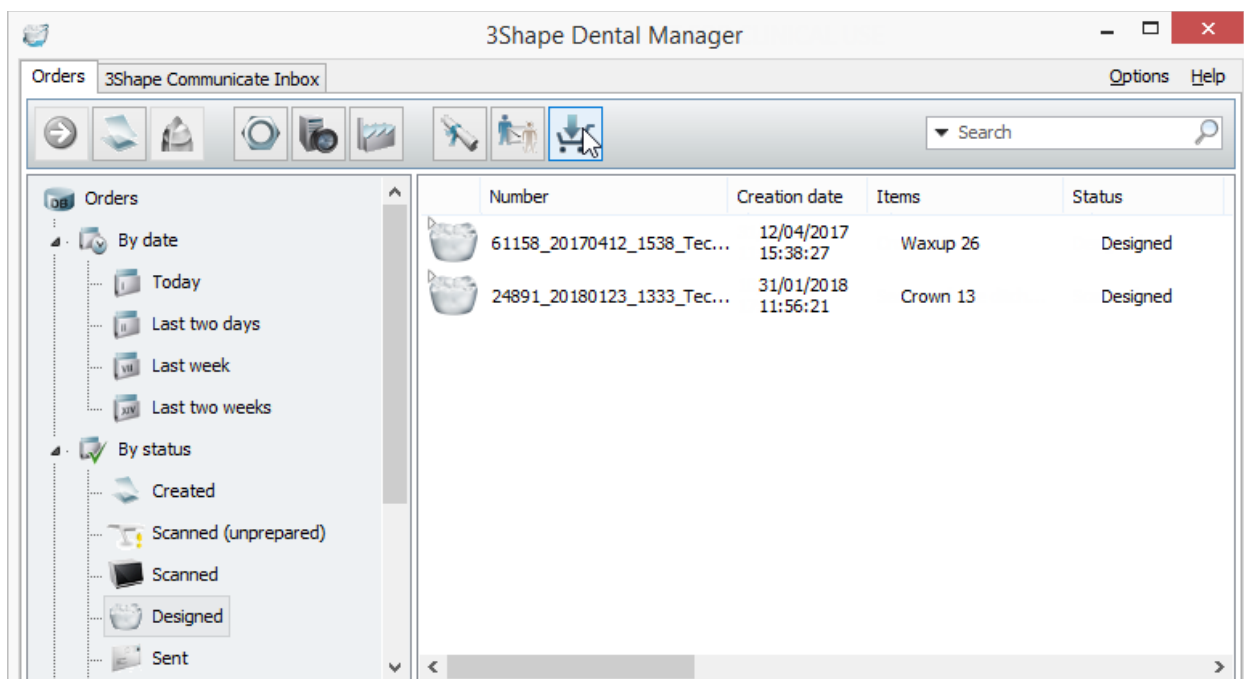
What is CAD points?

3Shape CAD Points is a getting started package for labs that want to offer the full range of dental indications with a minimum up-front investment. Labs with a 3Shape scanner can now purchase their own CAD Points and use them to apply 3Shape's advanced modeling software modules when they need them. The lab can apply 3Shape CAD Points to cost-efficiently ramp-up the production of Abutments, Implant Bars & Bridges, Removable Partial Dentures, Full Dentures, and Model Builder for TRIOS and 3rd party scans. When monthly production increases, the lab can easily upgrade to 3Shape's standard add-on modules with unlimited production.

How to purchase CAD points?

3Shape CAD Points can be purchased any time from the 3Shape Webshop - www.3shape.com/shop - by entering the address in your browser or clicking the **3Shape**

Shop  button in 3Shape Dental Manager:



Using your username and password, log into your account to purchase the CAD points (contact your local reseller for a username and password):



How to check the available CAD points?

To check the current status of CAD Points, open 3Shape Dental System™ Control Panel and go to [Subscription Management \(Dongle\)](#). The number of CAD Points left is shown in the **Applications enabled** window:

3Shape Subscription Management

This page is used for updating the dongle connected to the PC with the 3Shape Subscription Management.

Applications

Dongle number

2131496721

Applications enabled

3Shape CAD Points (20 points left)

Abutment Designer Module (1 client points, expiry date 12/1/2016)

CAM for imes-icore CORITEC 140i (SUM3D) (expiry date 12/1/2016)

CAM for imes-icore CORITEC 140i, 240i, 240i+, 250i, 340i, 440i, 450i (expiry date 12/1/2016)

CAM for LYRA Mill (expiry date 12/1/2016)

CAM for Roland DWX-4 (SUM3D) (expiry date 12/1/2016)

CAM for Roland DWX-4W (SUM3D) (expiry date 12/1/2016)

CAM for VHF (K4, S1, S2) (expiry date 12/1/2016)

CAM for VHF N4 (expiry date 12/1/2016)

CAM Server

Dental Desktop (1 client points, expiry date 12/1/2016)

Dental System Full Contour (-35 saves left, 1 client points, expiry date 12/1/2016)

DentalDesigner Premium (1 client points, expiry date 12/1/2016)

DentalManager (5 client points, expiry date 12/1/2016)

Internet update

Details

How do CAD points work?

At the order creation step, in the Order Form, the software notifies you of the number of CAD points required to complete an order and about the number of CAD points left on the dongle. After order completion, at the **Save** step in Dental Designer, the appropriate amount of CAD points is subtracted for the order.

It is important to know:

- When changing an order in the Order Form:
 - If indications are changed, CAD points will be recalculated and subtracted for the second time.
 - If a material change is performed and you do not want to keep design, CAD points will be recalculated and subtracted for the second time.
 - If a material change is performed and you want to keep design, CAD points will be not subtracted additionally and Dental Designer will just rebuild the order with new parameters.
- No additional CAD points are subtracted if you generate CAM output.
- If an order requires being modeled in Model Builder after having been designed in Dental Designer, CAD points are subtracted at the end of modeling in Model Builder.



Note! CAD points will be subtracted for the second time in case of remodeling in Model Builder.

- When an order with implants in the **Scanned** status is sent to the manufacturer, the appropriate number of CAD points is subtracted at the sender's side.

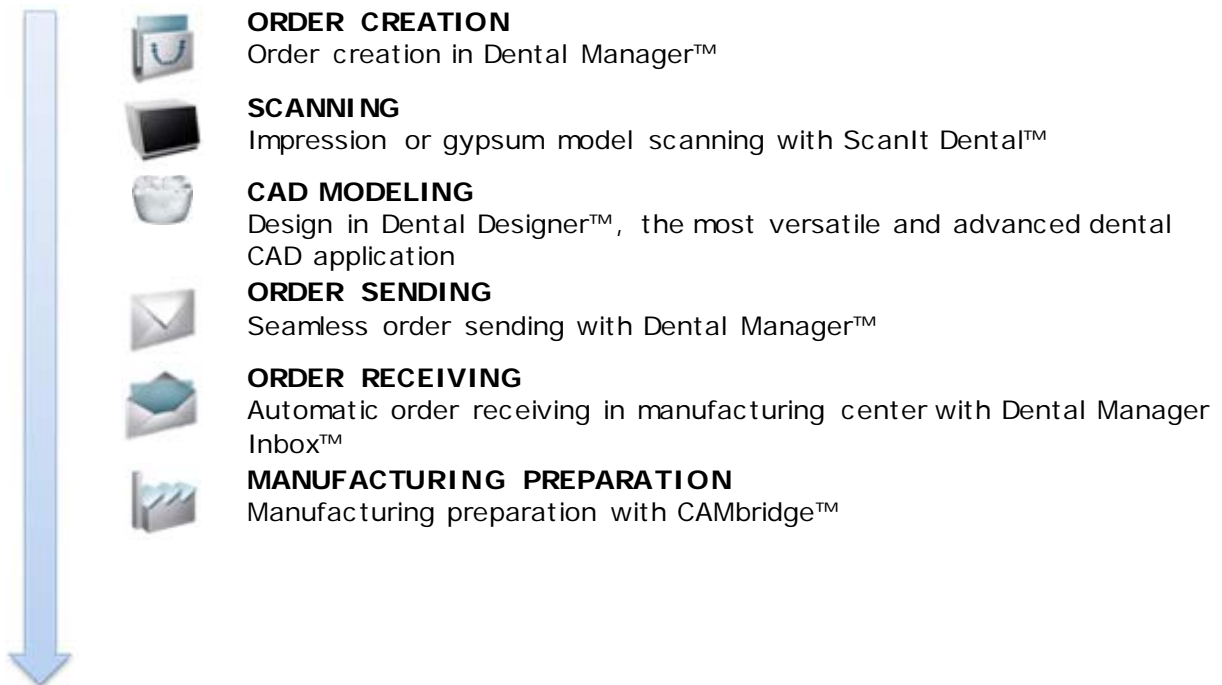
Workflow

3Shape Dental System gives laboratories of any size the opportunity to offer the highest level of output quality, improve their productivity and turnaround time, and future-proof their business.

Through an intuitive and user-friendly interface, users can scan and design an extensive list of supported restorative indications, applicable for manufacturing in any suitable material (or as determined by your 3Shape solution provider and/or manufacturing facility).

Depending on the system configuration and software modules purchased, and the model of 3Shape scanner utilized, some functionality of 3Shape Dental System may not be included or supported in your particular set-up. Hence, some of the features described and images shown within the technical documentation may not apply to your solution, and may require additional subscription fees if applicable.

As an example of this, design based upon impression scanning requires the presence of the 3Shape lab scanner and the Impression Scanning add-on software module. Also, the design of customized abutments, bars and implant bridges require the Abutment Designer™ add-on software module.




1. How Do I Create






3Shape Dental System supports a wide range of indications. You can follow the links and go through the chapters of the technical documentation describing dental workflows for order creation, scanning and design process for various dental cases. A working internet connection is required to watch training videos.



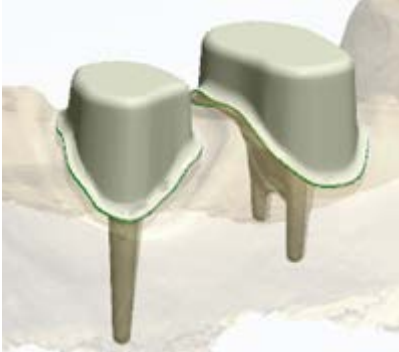

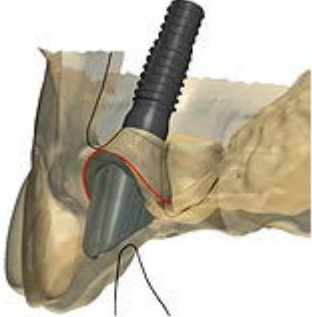









Dental Workflow		Workflow Steps	Training Videos
	Single Coping	<ul style="list-style-type: none"> ▪ Order creation ▪ Scanning ▪ Design 	Single Coping Design 
	Bridge Framework	<ul style="list-style-type: none"> ▪ Order creation ▪ Scanning ▪ Design 	





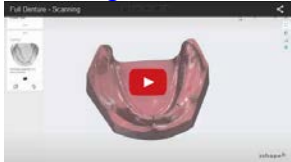
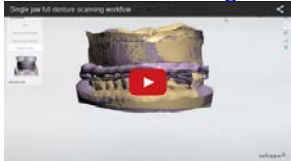


	<p><u>Full Anatomical Crown</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Full Anatomical Crown Order Creation</u></p>  <p><u>Full Anatomical Crown Scanning</u></p>  <p><u>Full Anatomical Crown Design</u></p>  <p><u>Full Anatomical Crown Design from TRIOS Scan</u></p> 
	<p><u>Full Anatomical Bridge</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	

	<p><u>Anatomical Copings and Framework</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Anatomical Coping Order Creation</u></p>  <p><u>Anatomical Coping Design</u></p> 
	<p><u>Split Bridge</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Temporaries</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Digital Temporaries Design</u></p> 
	<p><u>Inlay /Onlay and Maryland Bridges</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Inlay design</u></p> 

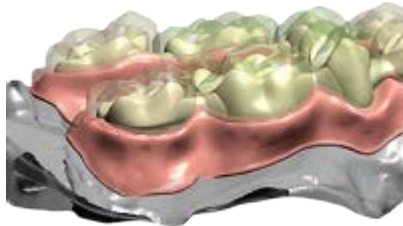


	<p><u>Veneers</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Tabletops and Non-preparation Veneers</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Tabletops and Non-prepared Veneers Design</u></p> 
	<p><u>Multi-layer Crowns and Bridges</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Single Wax-up</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	

	<p><u>Wax-up Bridge</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Primary and Secondary Telescopes</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Primary Telescopes Design</u></p> 
	<p><u>Post & Core</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Post & Core TRIOS Case Design</u></p> 
	<p><u>Customized Abutments</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Customized Abutment and Crown Design</u></p> 

	<p><u>Anatomical Abutment and Screw-Retained Crown</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Screw-Retained Crown Design</u></p> 
	<p><u>Wax-up Abutment and Implant Bridge</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Implant Bars and Bridges</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Implant Bars Design</u></p> 
	<p><u>Implant Bridge from Dentures</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	

	<p><u>Removable Partial Dentures</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Removable Partial Dentures Scanning</u></p>  <p><u>Removable Partial Dentures Design</u></p> 
	<p><u>Full Dentures</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	<p><u>Full Dentures Scanning</u></p>  <p><u>Single Jaw Full Denture Scanning</u></p>  <p><u>Full Dentures Design</u></p>  <p><u>Designing Dentures Using Try-Ins</u></p> 

	<p><u>Digital Model</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Crown and Bridge Models</u> ▪ <u>Implant models</u> ▪ <u>Model types</u> 	<p><u>Receiving TRIOS® Orders in Dental System™</u></p>  <p><u>Digital Model Design</u></p> 
	<p><u>Splints</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Customized Impression Tray</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	
	<p><u>Implant Studio</u></p>	<ul style="list-style-type: none"> ▪ <u>Order creation</u> ▪ <u>Scanning</u> ▪ <u>Design</u> 	

	Gingiva/Anatomical Gingiva	<ul style="list-style-type: none"> ▪ Order creation ▪ Scanning ▪ Design 	
	Positioning Guide	<ul style="list-style-type: none"> ▪ Order creation ▪ Scanning ▪ Design 	Positioning Guide Design 

1.1. Single Coping

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Single Coping order:


- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.1.1. Single Coping Order Creation

To create a Single Coping order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

►Step 1: Select preparation in the teeth overview

►Step 2: Click the *Frame* button

►Step 3: Select the *Coping*  button



After creating the order, proceed to [scanning](#).

1.1.2. Single Coping Scanning

The simplest scanning operations that can be performed are scanning a single die or a stock abutment.

►Step 1: Create an order

Before scanning a die [define your order](#) in the Order form and click **Scan**.

►Step 2: Mount the Die on the interface plate



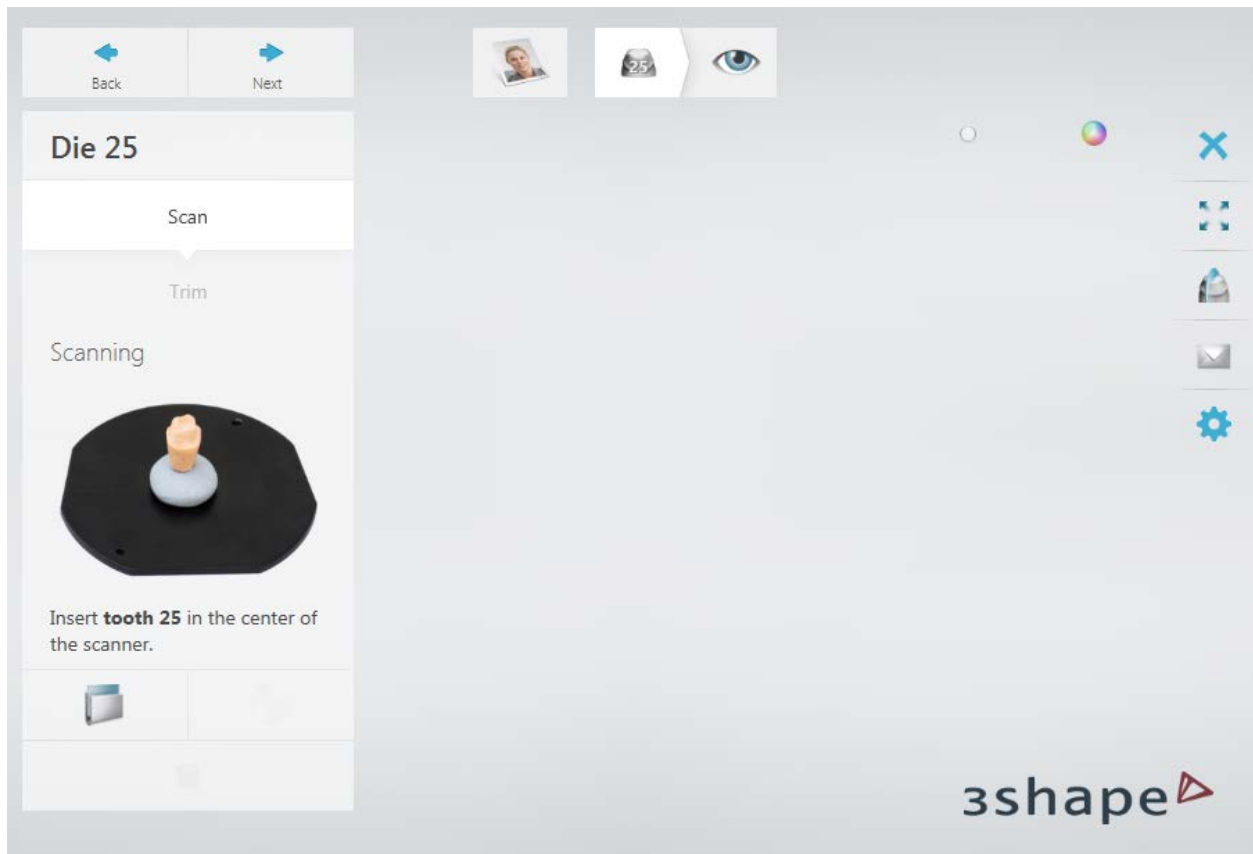
When the program opens, insert the requested tooth into the scanner.



Hint! Place the die at the center of the plate with the proximal side being parallel to the front.

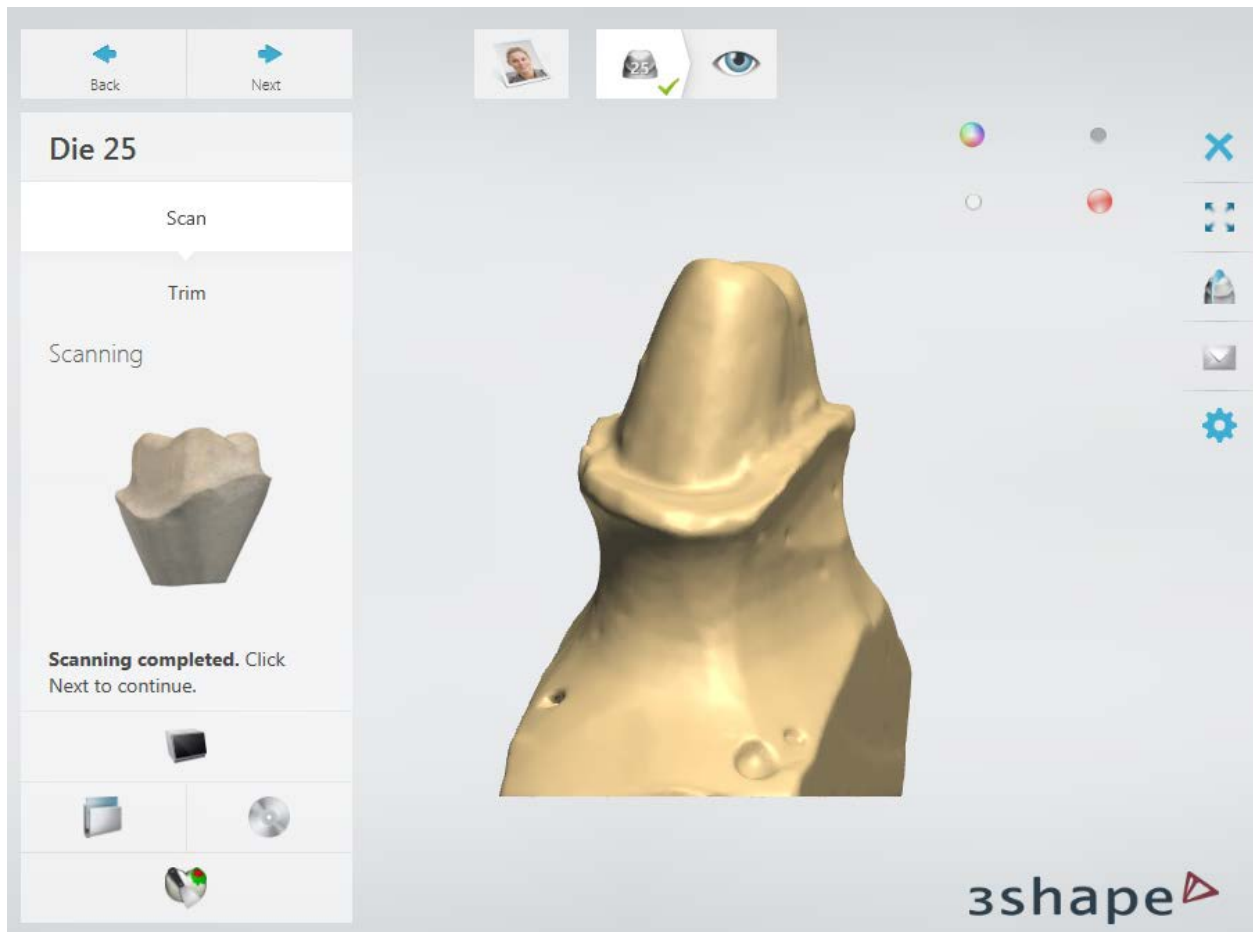
►Step 3: Start scanning

The scanning process starts on clicking the **Next** button.



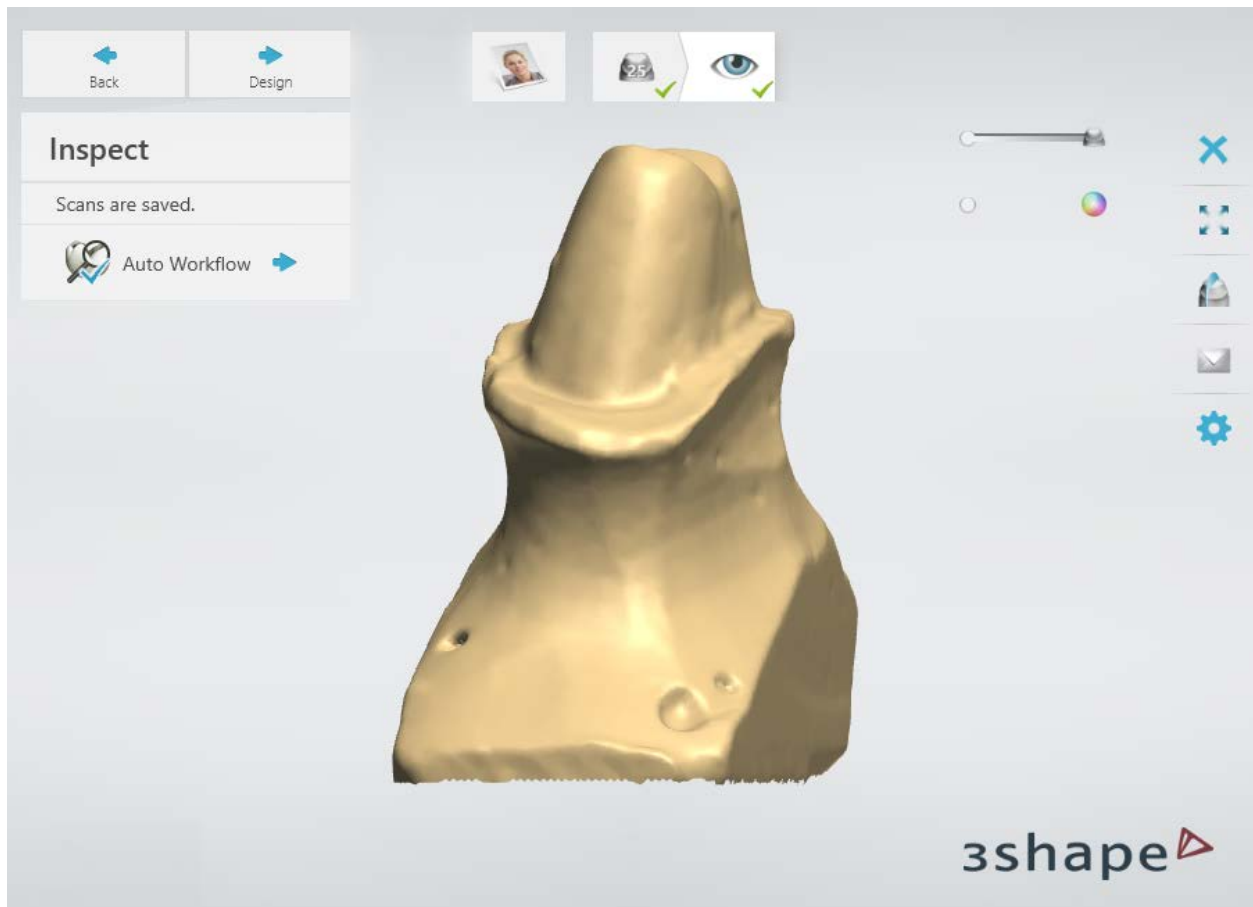
►Step 4: Finish scanning and preview

It may take a minute for the post-processing to finish.



In a case when your scan appears to have areas with holes, you can fix that by applying the [Adaptive Scanning](#) option.
Click **Next** to inspect your scan.

Now your model is scanned and saved. If you would like to start the modeling process in Dental Designer, click the *Design* button or the [Auto Workflow](#) button.
It is not necessary to close down the ScanIt Dental after each scanning process.



PREPARING STOCK ABUTMENTS

When you want to place a coping on top of a stock abutment, this is how you prepare it optimally for scanning:



- Create a flat surface like a rotation stop to support user and software aligning the abutment (standard abutments are quite narrow and symmetric).
- Avoid sharp edges.
- Close the screw hole with wax.
- Scan on model analog.
- Use scan spray to avoid reflections.
- Navigate to [Settings](#) > *Detail Levels* > "Die scanning optimized for" and set it to "Details".

Continue to the [design section](#).

1.1.3. Single Coping Design



► Step 1 (optional): Prepare scans

In the **Prepare** step, set the occlusal plane and modify the upper and/or lower jaw scans using the Sculpt toolkit. In case of digital impressions you can refine, trim and align the scans (see the chapter [Prepare scan](#) for details on how to prepare digital impressions). You can skip the **Prepare** step if the scan preparation is not necessary by going straight to the **Directions** step.



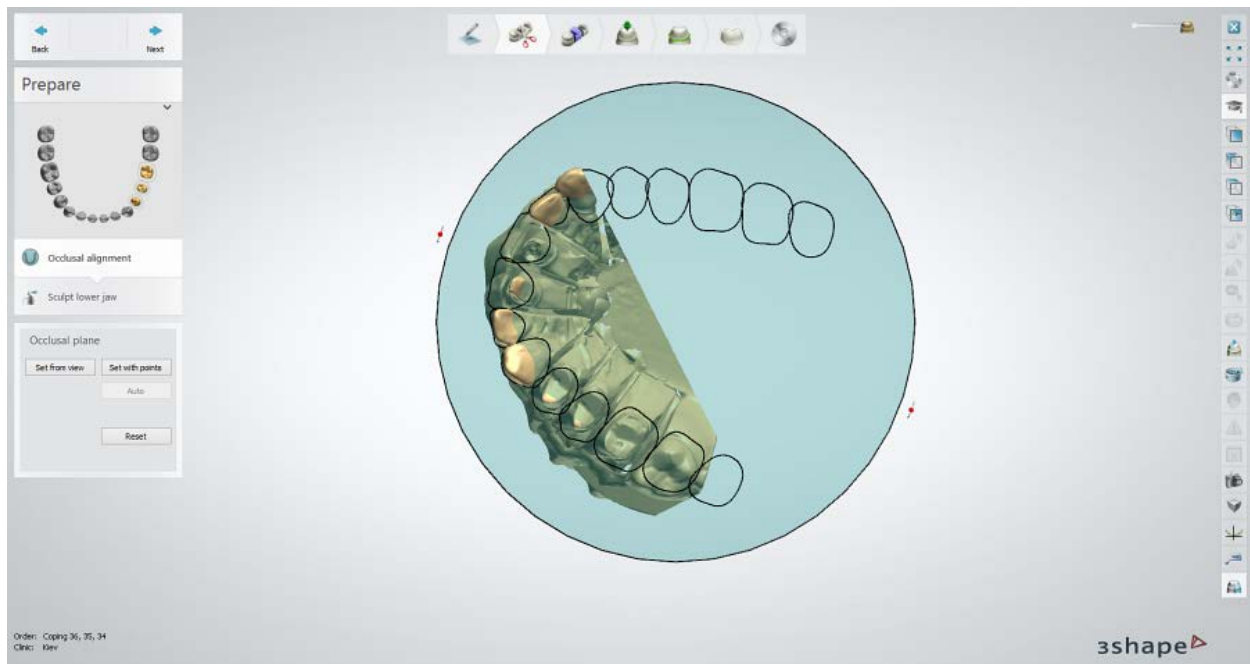
Note! It is recommended to set the occlusal plane in the **Prepare** step, as the position of the occlusal plane is used for calculating the insertion direction and for initial placement of the restoration later in the design process.



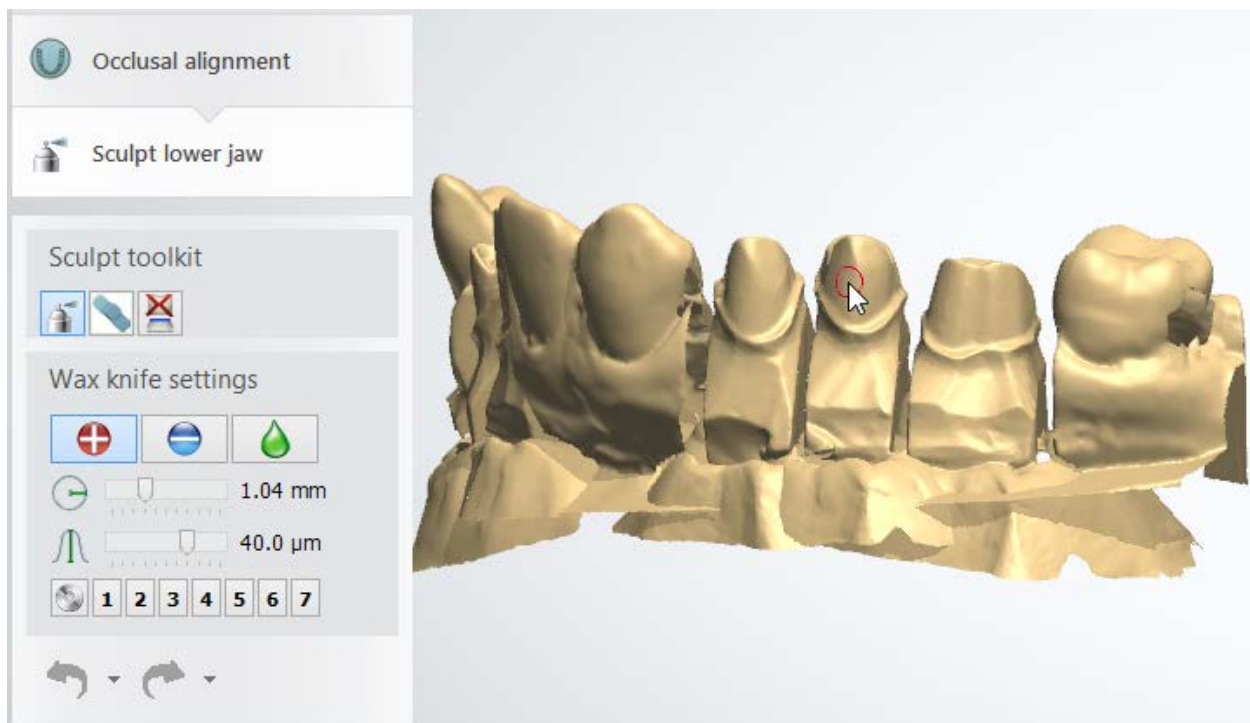
Hint! To automatically skip the **Prepare** step, enable the **Skip prepare step** option in *Dental System Control Panel* -> *System settings* -> [Design options](#). You can still return to this step and make adjustments to the scan if needed.

The software automatically sets the occlusal plane. To manually adjust its position, use the control points: **blue** to move the plane up and down, **red** to tilt and rotate the plane, or move the plane by dragging it with the mouse. The optimal plane position can also be obtained by using the **Set from view**, **Set with points** or **Auto** options. To restore the initial placement of the occlusal plane, click the **Reset** button.

For orders with an antagonist scan, you can use the Virtual Articulator tool to adjust the occlusal plane position (refer to the [Dynamic Virtual Articulation](#) section for details).



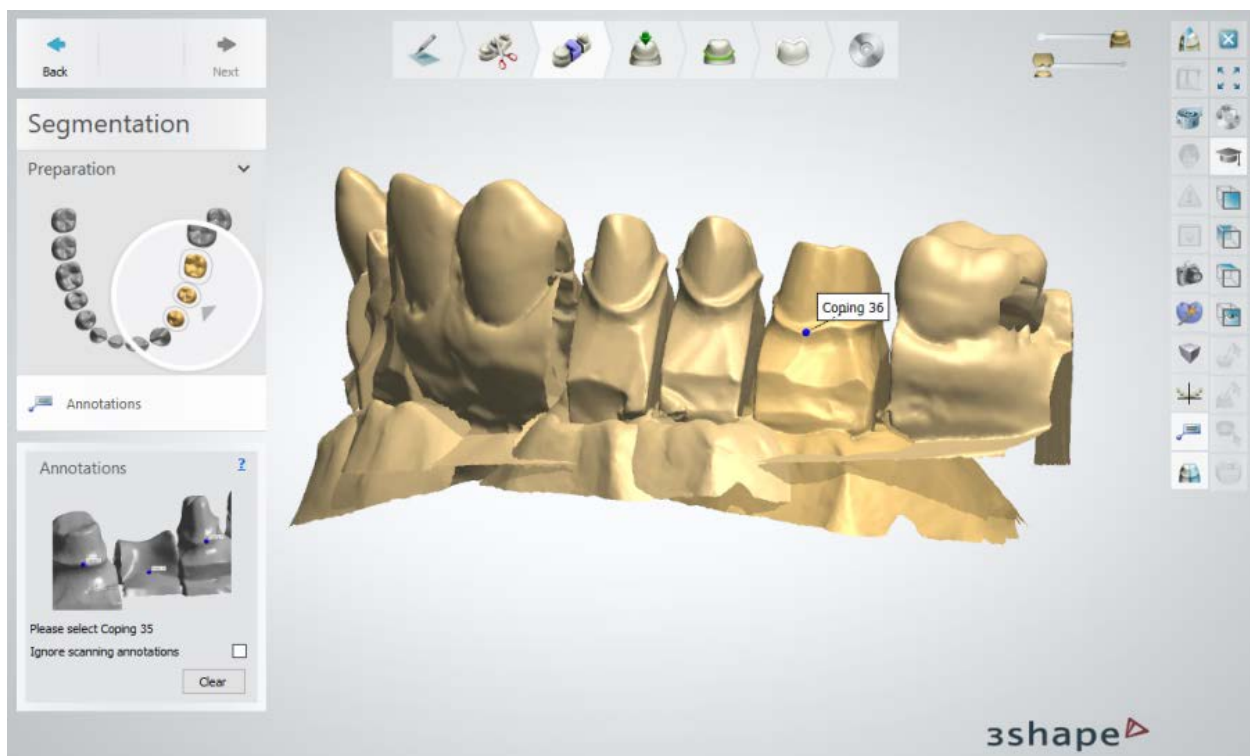
The Sculpt toolkit lets you sculpt the upper and/or lower jaw. See the chapter [Sculpt Toolkit](#) to learn how to use the sculpting tools.



► Step 2: Place Annotations

The **Annotations** step serves two purposes:

- Specifies parts of the scan preparation belonging to a particular restoration job. This specification is done with the help of blue control points located on each of the restoration items and white labels with job names and index numbers (see image below). Check the **Ignore scanning annotations** check box to remove the labels and points that automatically appear on the scan after it is loaded (only needed if these have been misplaced during the scanning process).
- Approximately identifying the margin line. Abutment Designer is equipped with a versatile semi-automatic margin recognition function. This means that you need to point the edge where the margin line approximately lies, and Dental Designer algorithm will take care of finding the exact position of the margin line so you could modify it later. The action of indicating where the margin line lies is done by positioning the blue control point next to where the margin line is. If it's a pontic, there is no margin line there and you need to place the control point in the front central part of the stump as shown on the following image.



You can place and move the points with the mouse and click **Clear** to delete them. Click **Next** to move to the **Insertion direction** step (or **Telescope direction** if you're working on a telescope).

► Step 3: Set Insertion Direction

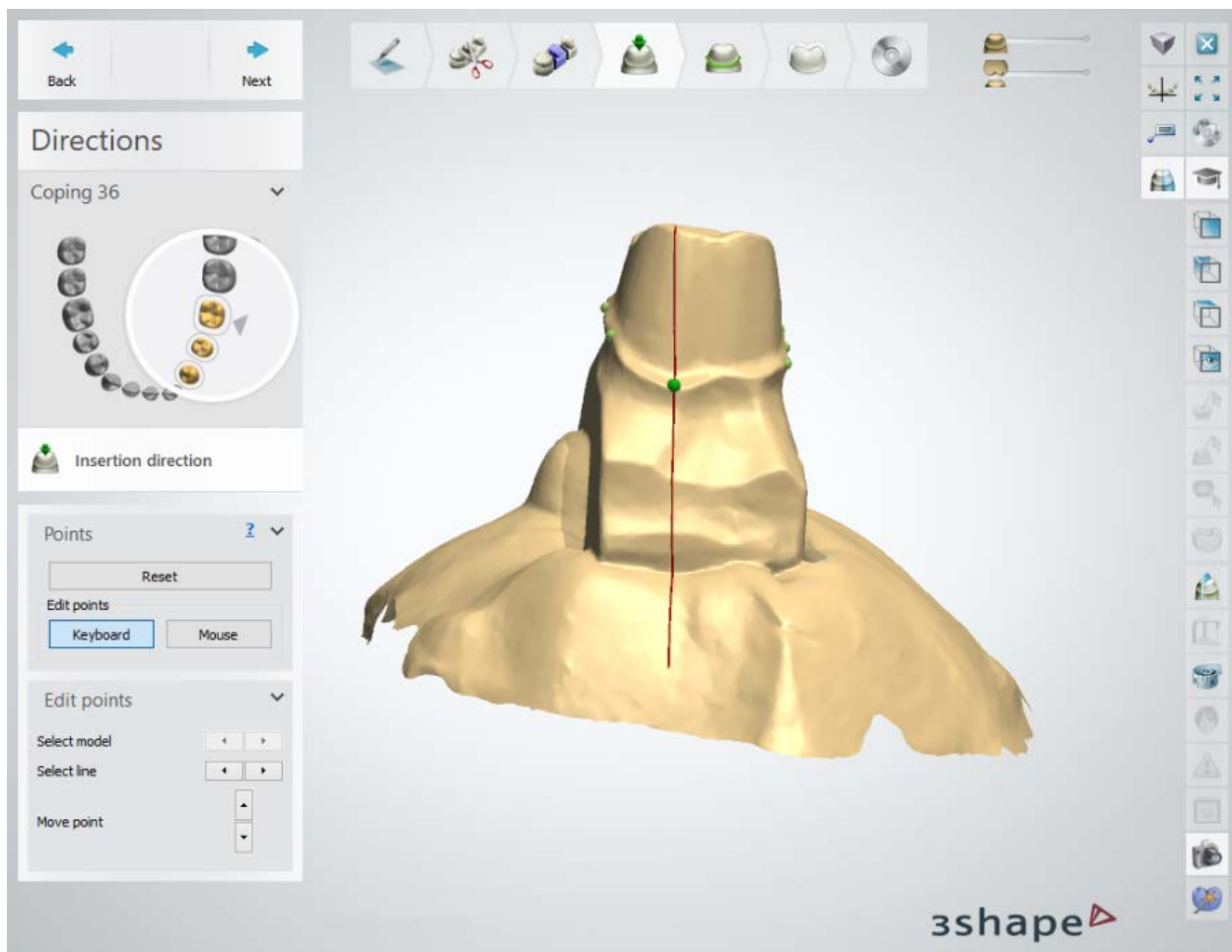
The **Insertion direction** step comes next after **Annotations** or **Telescope Direction** and serves two purposes:

1. Defining the insertion direction, i.e. the direction according to which the restoration is inserted on top of the die. The insertion direction is defined automatically. You can redefine or change it using tools displayed in the Design Tools.

2. Setting the margin line. The **Insertion Direction** step provides only a rough estimate of the margin line, the actual margin line is defined in the *Margin line* step. You are able to modify the margin line using keyboard, mouse or the **Edit points** tool displayed in the Design Tools. You can preliminary select the margin line detection algorithm in [Design options](#) of the DSCP.

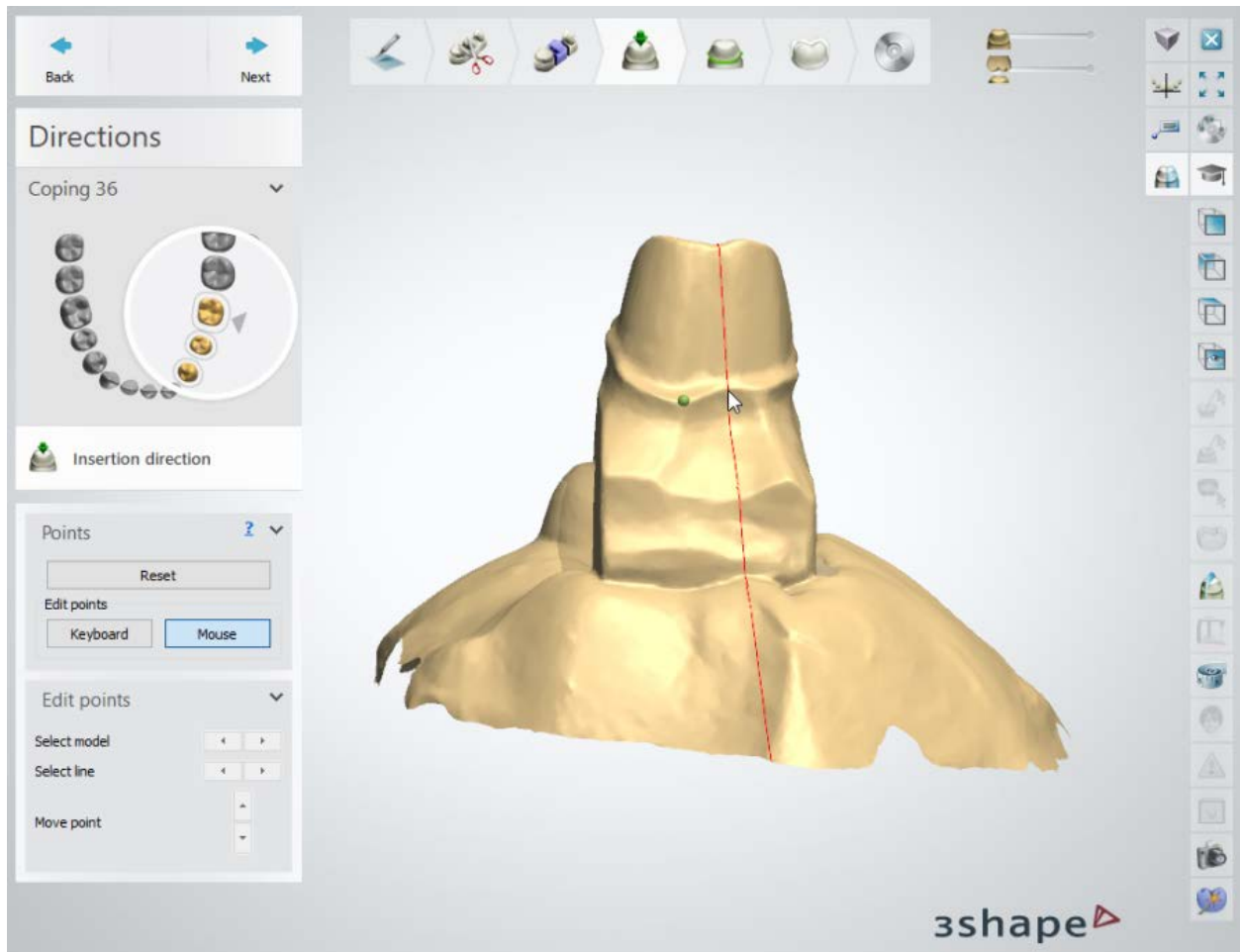
Using keyboard:

1. Click the **Keyboard** button.
2. Press the LEFT/RIGHT arrow keys on the keyboard to change between points.
3. Press the UP/DOWN arrow keys on the keyboard to move the points up and down (press **Ctrl+Shift** to make the points move faster).

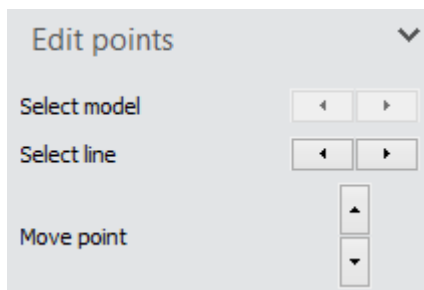


Using mouse:

1. Click the **Mouse** button.
2. Place a point on the die by pressing the left mouse button. The die will rotate so that the next point can be placed by pressing the left mouse button once again. A spline appears between the points during the placement. After you make a full circle and click on the first point the spline is automatically closed.



Using Edit points:



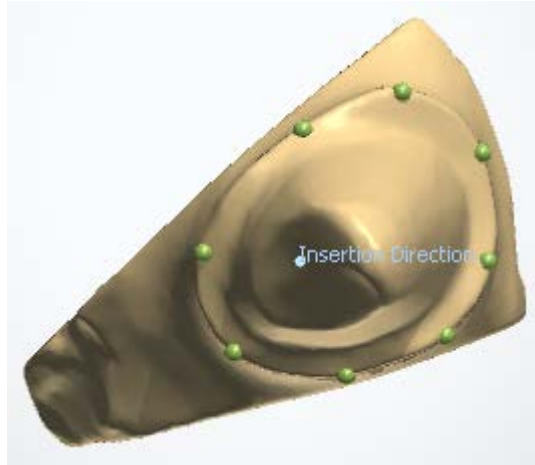
This tool is active when the **Keyboard** button is selected. Click the arrows to move from point to point and to move the points up and down.




Note! The green points only reflect an estimate of the margin line (hence they do not need to be placed exactly on the margin line). A detailed definition of the margin line is performed at the **Interfaces** step of the modeling process.

Insertion direction

The current die is automatically positioned so that the current view reflects the calculated insertion direction, as shown on the image below.



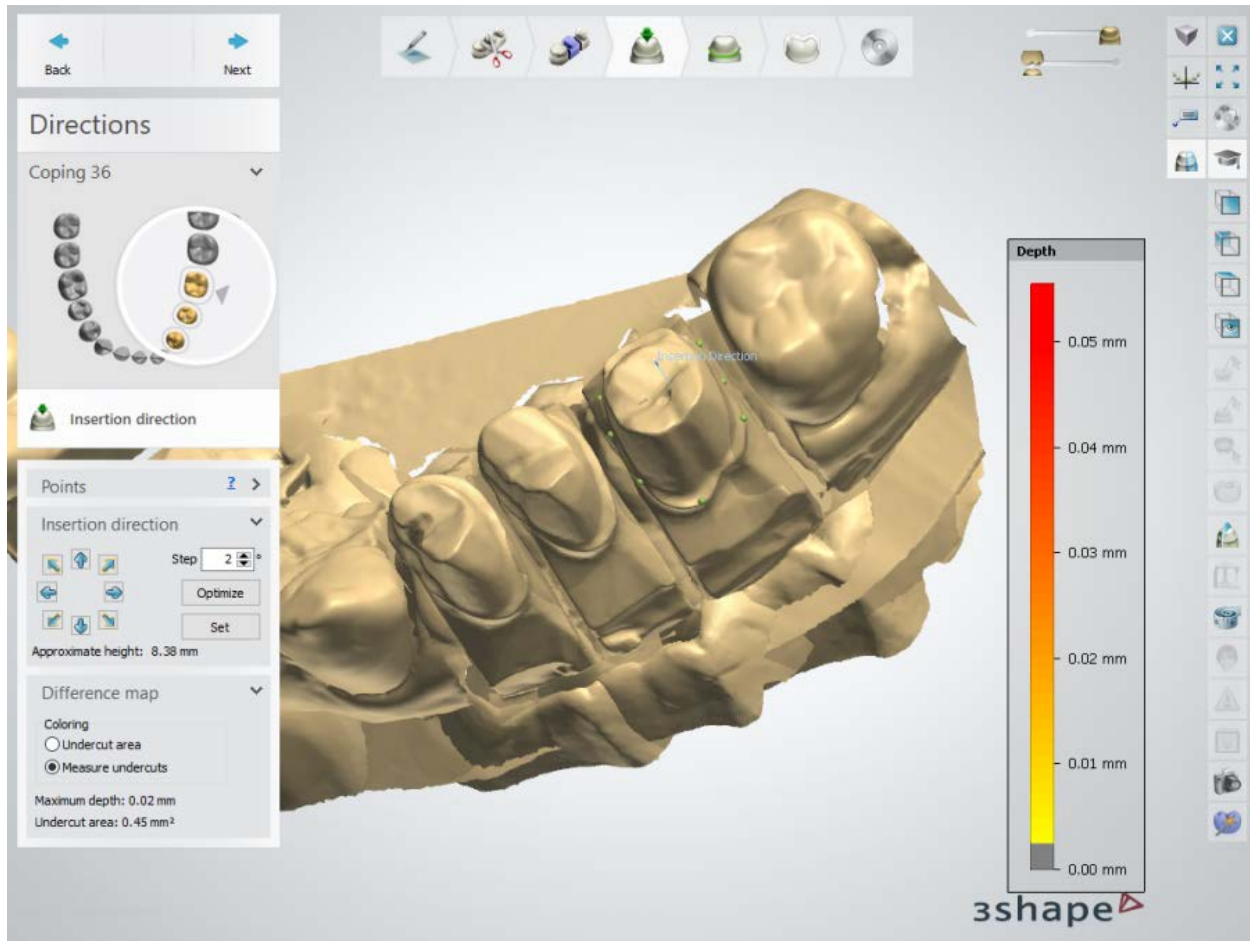
You can always rotate the die and click the **Set** button to redefine the current view as the insertion direction.

The direction can also be changed by clicking the blue arrows  in the Design Tools. To increase or decrease the angle of direction positioning, set up the desired angle in the **Step** box by choosing the corresponding number and then click on arrows.

In addition, the optimization can always be calculated again by pressing the **Optimize** button.

Two blue arrows display the calculated insertion direction. The dark red shading indicates undercut areas for the given insertion direction.

Undercuts are areas that need compensation during the modeling process, and it is important that the area above the margin line is not part of the undercut area. The undercuts can be measured by selecting **Measure undercuts**, where the total undercut area as well as the depth of the undercuts is visualized.

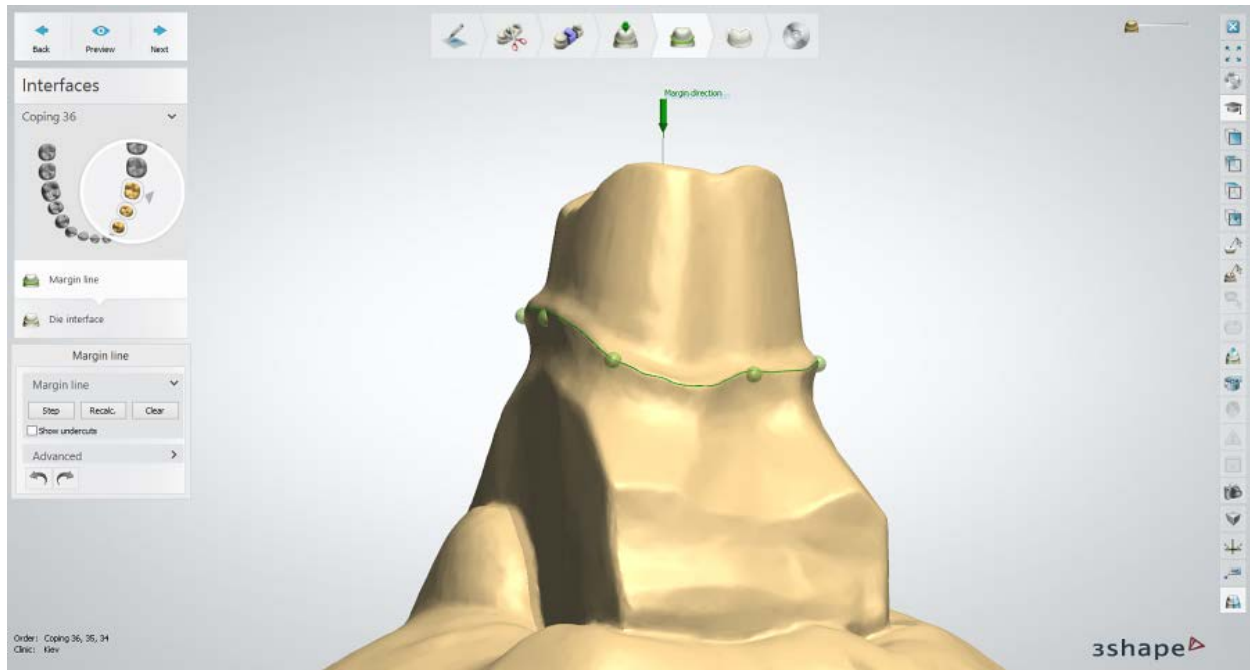


Click **Next** to complete the process and move to the next step **Margin line**.

►Step 4: Place Margin Line

The aim of this step is to define the exact margin line for the item being modeled. The margin lines are defined for all dies before moving to the **Die interface** step. A well-defined margin line is essential for obtaining a good final fit and hence, this step is one of the most important steps in the entire modeling process. This step only marks the margin line. The actual cutting of the die is performed in the next modeling step.

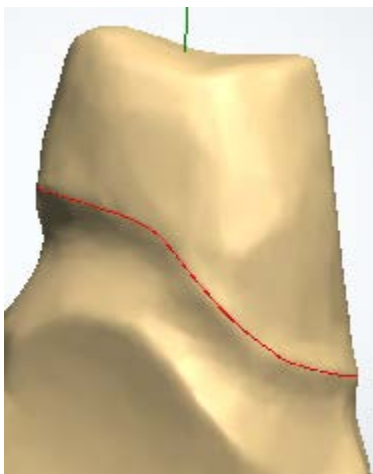
A number of green points is automatically placed on the margin line of the model at the **Insertion direction** step. The **Margin Line** step then automatically places the red spline based on these points. The margin line is extracted based on the “red pencil” margin line approach which simulates the manual approach used by many technicians.



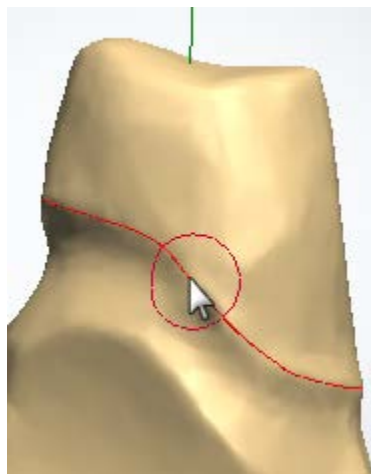
Note! It is recommended to visually inspect the automatically detected margin line and, if needed, to edit it using the **Fast edit** functionality. By using the mouse cursor to draw (or simply click) on the model you can modify the margin line easily. As described below, there are other ways of modifying or adding the margin line, but the Fast edit functionality is the preferred method in general.

If for some reason the margin line cannot be placed automatically, the program will ask you to place it manually.

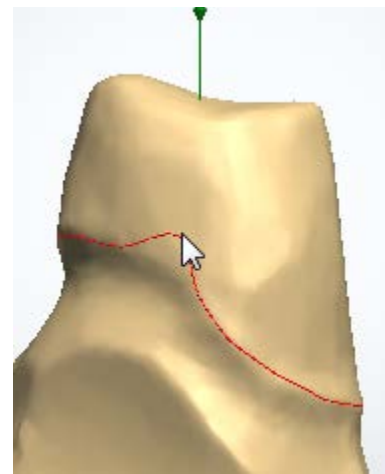
The images below show margin line editing in fast edit mode with a selection of the applied radius:



Margin line drawn



Keep the **Ctrl** key pressed to view the applied radius and change it with the mouse scrolling wheel.

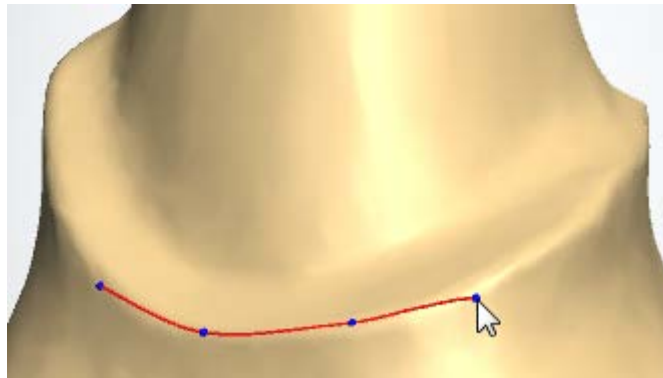


When you click on preparation to edit the margin line, the size of the affected spline

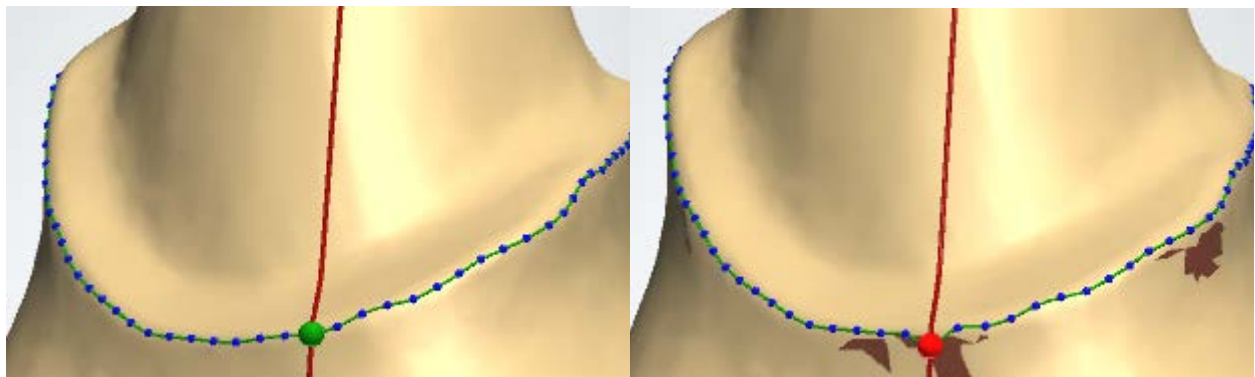
equals to the previously set radius.

MARGIN LINE SETTINGS

Place the margin line by left-clicking on the model and placing the points until the full circle is formed. The points on the line can be visualized if you press F on your keyboard; to view the undercuts areas check **Show undercuts**.



The points turn red (they are blue initially and active point is green) when they are in the undercut areas to draw your attention to this potential problem.



Hint! Move the points out of undercut areas, since undercuts at the margin line may result in a bad fit.

Therefore, visualize the automatically extracted points in order to check if one or more points are in the undercut area.

The individual points can be moved either manually or using the **Step** button. When the **Step** button is pressed, the points on the spline can be moved using the keyboard:

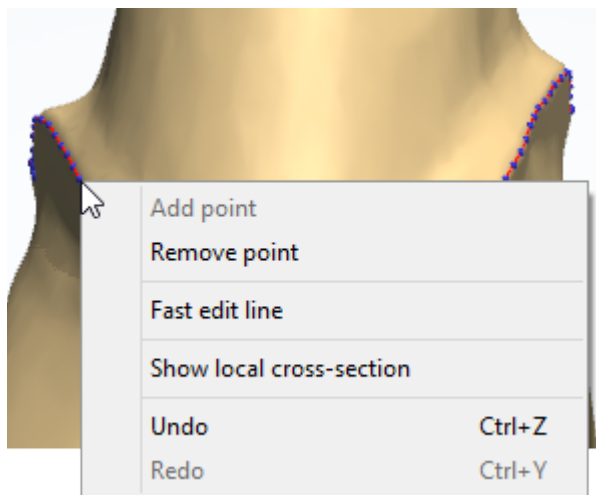
- Press the RIGHT and LEFT arrow keys on the keyboard to change between the points (each point is displayed as a green ball placed on a red line) on the individual die.

- Press the UP and DOWN arrow keys on the keyboard to move the points up and down

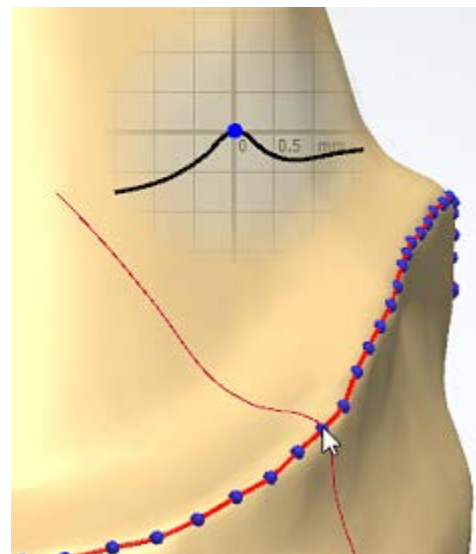
If a point needs to be moved a long distance and faster, press **Ctrl** + UP/DOWN or **Shift** + UP/DOWN.

When the points are moved using keyboard, the *2D Margin line* window appears for a precise positioning of the individual points in the margin line.

When the **Step** button is not pressed, you can move points with the mouse by clicking and dragging them. Right-click on a point and choose **Remove point** to delete individual points, choose **Add point** to create new points, and choose **Fast edit line** to edit the margin line by drawing it with the cursor. When the **Show local cross-section** option is enabled, you can view the local cross-section at one of the spline points. You can also turn on/off the **Show local cross-section** option in *Dental System Control Panel* -> *System Settings* -> [Design Options](#).



Right-click menu line operations



Show local cross-section is "ON"

It is always possible to remove the spline by pressing the **Clear** button and get a new estimate of the margin line by pressing the **Recalc.** button.




You can Undo/Redo margin line operations with the **Undo/Redo** buttons that become active once you start editing the margin line.

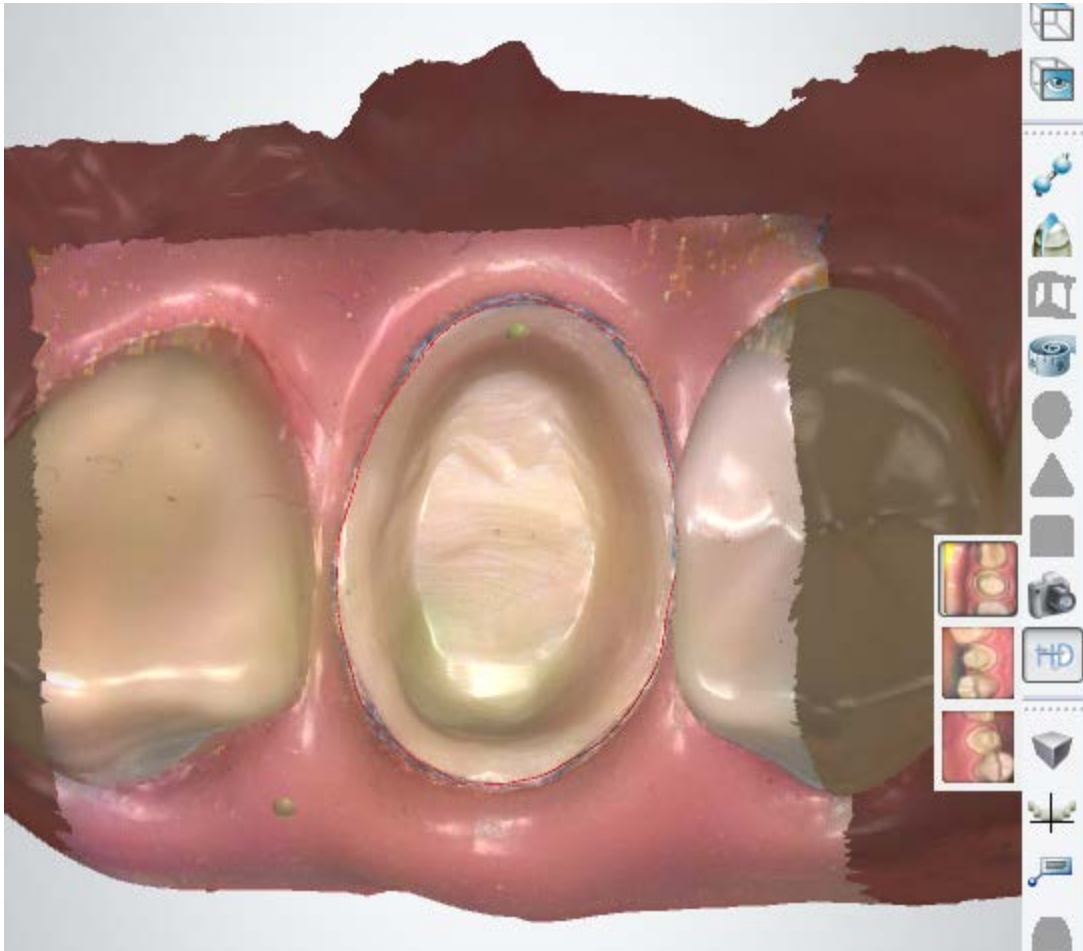
Alternatively, Undo/Redo from the right-click menu or **Ctrl + Z/Ctrl + Y** keyboard keys can be used for the same purpose.



Note! The margin line Undo/Redo functionality only works during margin line editing and is disabled on activation of another tool.

TRIOS HD PHOTOS

TRIOS orders can contain high definition photos that can be opened at the Margin line step of Dental Designer by clicking the **HD**  button on the right as shown on the picture. Select a photo from the appeared thumbnails to apply to the model in order to help you position the margin line correctly.



SCANNER ACQUIRED TEXTURE

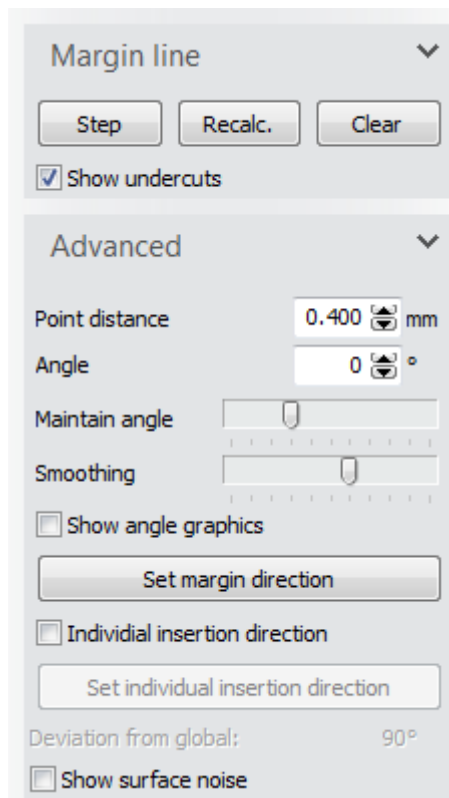
3Shape [lab scanners with texture scanning](#) support can accurately capture hand-drawn markings penciled directly on a physical model. To acquire texture during scanning, select the **Scan Texture** checkbox on the ScanIt Dental [Settings](#) page. For more information, see the chapter [Texture Scanning](#).

Click on the  **Show scanner acquired texture** icon in the **Viewing tools** to view the hand-drawn markings on a die:



ADVANCED SETTINGS

The **Point distance** box defines the distance between each point on the automatically extracted spline.



The **Angle** is the angular difference between the margin direction (see description below) and the angle used in the "red pencil" margin line algorithm.

The **Maintain angle** slide bar defines the importance of the **Angle** value. With a high value the angular difference described above is the important parameter in the margin line algorithm, while lower values result in the local curvature of the die being more important in the margin line algorithm.

The **Smoothing** slide bar defines the amount of post-processing applied to the automatically extracted spline.

The **Show angle graphics** checkbox enables or disables the advanced angle graphics.

The **Set margin direction** button defines the direction which best represents the current die and helps to place a more precise margin line. Margin direction is visualized with the help of green arrows, as shown in the image above.

The **Set individual insertion direction** button provides an alternative direction to the individual dies, which may be relevant for certain bridge orders.

Check the **Individual insertion direction** check-box first to activate this function. The **Deviation from global** shows you the deviation from the global insertion direction.

Click **Preview** to see the result, click **Next** to move to the next **Die interface** step.

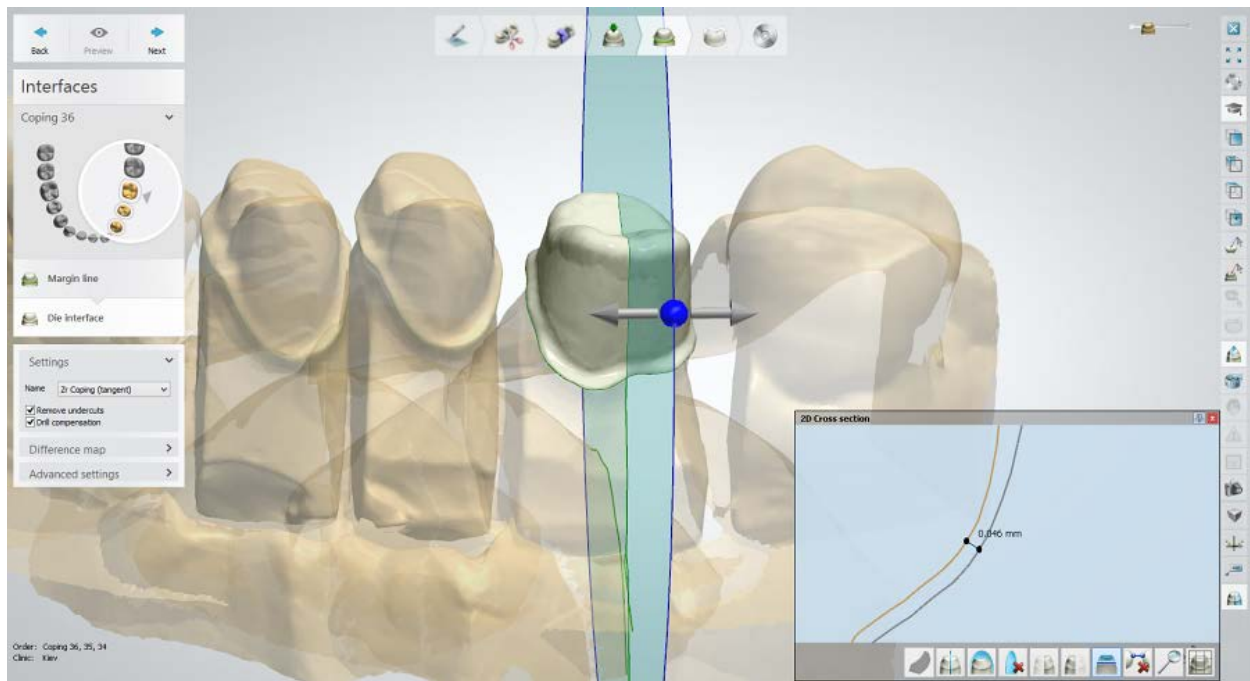


Note! Please make sure that your manufacturing device supports individual insertion direction (usually RP machines or 5 axis milling machines are recommended here).

►Step 5: Apply Die Interface

In this step the scanned model is being cut with the help of the defined margin line. The remaining part of the model is offset to create the inside (called "interface") of the item being modeled.

The modeling window on this step looks similar to the following image:



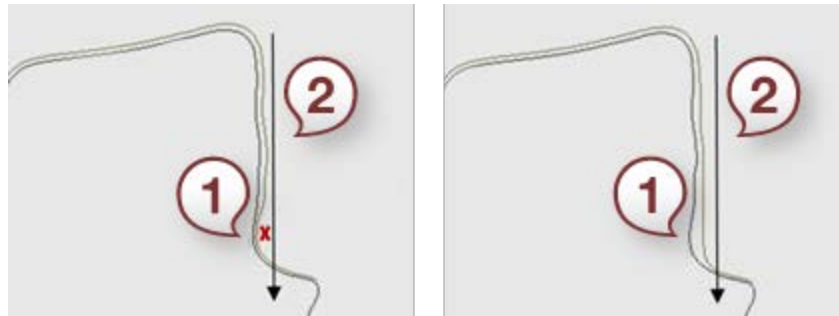
2D Cross section (Cement gap, mm)

SETTINGS

Elements in the **Name** drop-down menu are used for creating the interface. Each element corresponds to the material specified in Dental System Control Panel (and selected in the Order Form, thus, users can build up a list of preferred settings using this application.

Undercut areas are often compensated for, to make it possible to insert the restoration onto the dies. There may also be production issues having undercuts in the final models. The

undercuts are removed by checking the **Remove undercuts** check-box. The effect is illustrated in images below:



1. Undercut
2. Insertion direction

1. Undercut removed
2. Insertion direction

If a milling machine is used for production, it might be necessary to use the **Drill compensation** function. This compensation adds additional offset to the interface in areas having too high curvature compared to the radius of the applied drill tool. This ensures that milling of the interface is possible, which, in turn, guarantees a better fit to the final manufactured restoration.

DIFFERENCE MAP

The amount of offset can be visualized using the radio buttons in the *Difference map* settings.

To view the difference between the offset model and the scanned reference model, select the **Thickness** button. The die interface becomes colored accordingly.

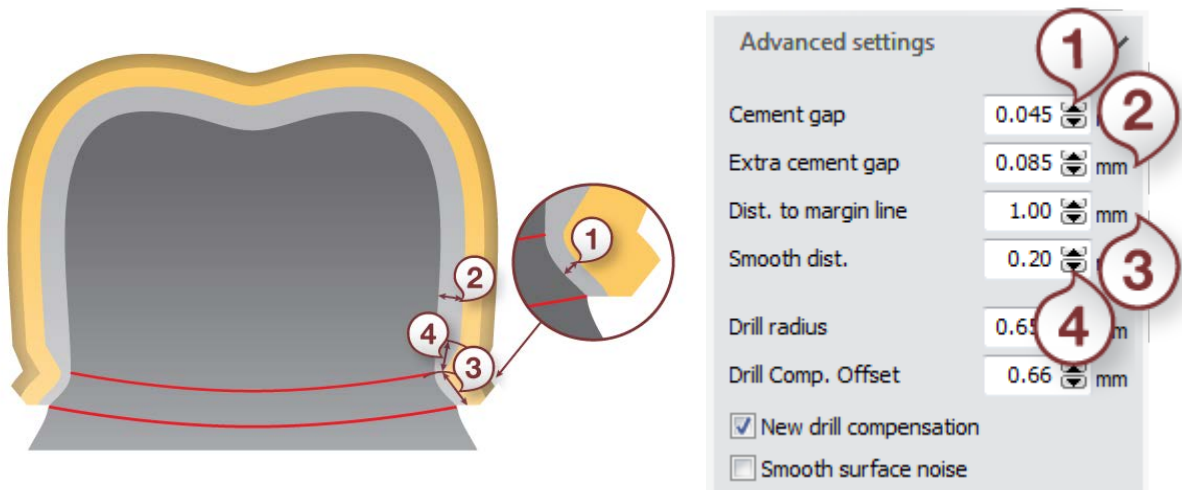
When the **Undercut removal** button is selected (it is only enabled when **Remove undercuts** in the Settings group is checked), the color map displays the amount of undercut removal performed.

When the **Drill compensation** button is selected (it is only enabled when **Drill compensation** is checked in the Settings group), the color map displays the amount of drill compensation performed.

The **Depth value** shows the offset when you move the mouse cursor over the item.

ADVANCED SETTINGS

The properties of the die interface are specified under *Advanced Settings*.



(1) **Cement gap** is the amount of offset in the area of the margin line.

(2) **Extra cement gap** is the amount of offset in the upper part of the interface.

(3) **Dist. to margin line** is the distance from the margin line to the borderline marking the border between the cement gap and the extra cement gap offsets.

(4) **Smooth dist.** is the area around the borderline in which the interface is smoothed. This ensures a smooth transition between the two parts of the interface having different offsets.

Drill radius is the radius of the spherical drill tool applied (only relevant when applying milling machines in the production step). **Drill Comp.offset** is the distance from the margin line that defines where the drill radius is applied.

New drill compensation - select this checkbox to use the improved drill compensation feature. The new drill compensation has been optimized for better and smoother results. It also saves space, leaving more room for the final restoration. The software remembers the last choice you made with the checkbox.

Smooth surface noise - smoothes out noisy surface when enabled.

Click **Preview** to view the result, click **Next** to move to the next **Design** step.



Note! If you are designing an Anatomical coping, the workflow will be different from that of the Standard coping. An anatomical coping is designed from a crown ("outside-in"), which means that during the modeling process you have to go through **Anatomy Design** step first to design a crown and then model a coping at the **Frame Design** step.

►Step 6: Design a Coping

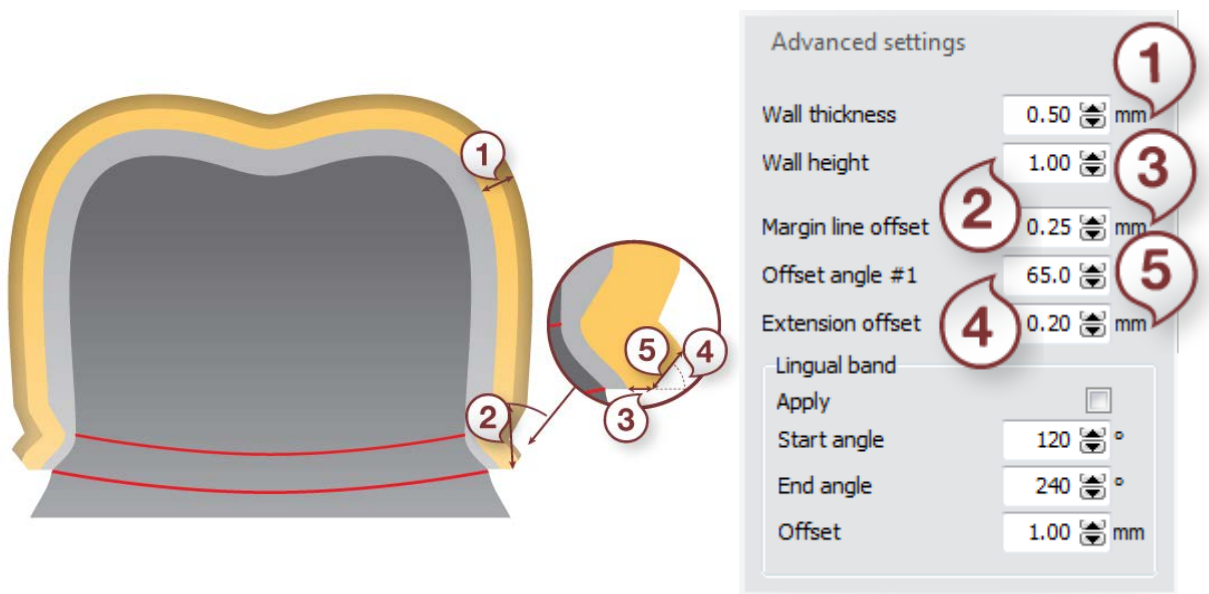
This section describes the modeling processes for a standard coping. For the anatomical coping design, see [Anatomical coping](#) in Anatomical Copings and Framework Design chapter.

STANDARD COPING

When you proceed to the **Frame design** step, Dental Designer automatically places copings and pontics but you can always modify them as desired.

Click on the **Coping** button in the Design steps to specify the settings for your coping (see image below).

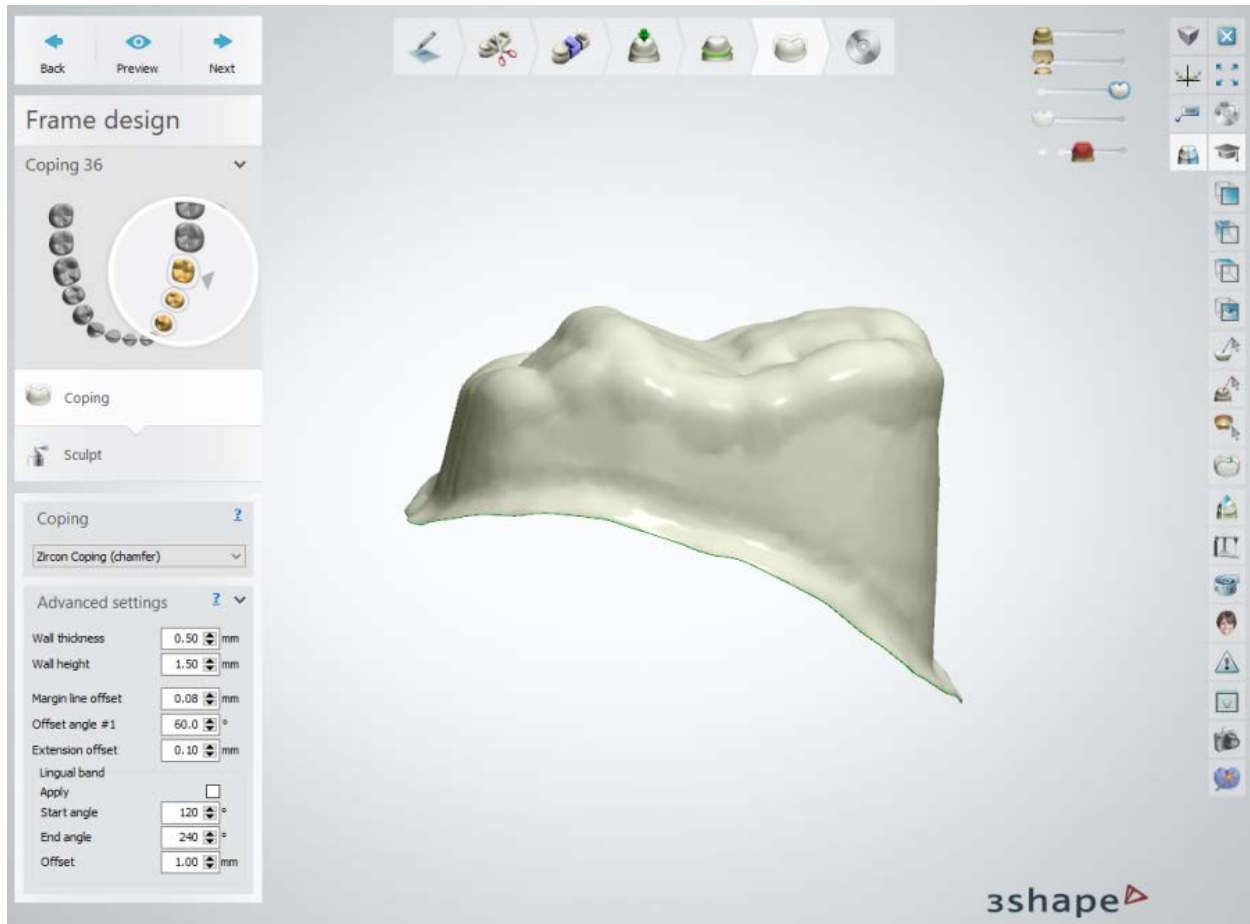
Select the element from the **Coping** drop-down menu to choose the settings for creating the outside of the coping (the settings are pre-defined in Dental System Control Panel).



(1) Wall thickness is the normal amount of offset i.e. the thickness of the coping.

(2) Wall height is the distance from the margin line to the borderline marking the beginning of the area where the wall thickness is applied.

(3) Margin line offset, the **(4) Offset angle #1**, and the **(5) Extension offset** are all used for defining the overlay shape near the margin line.



The **Lingual band** settings define the lingual band of the coping (see image above).

When **Apply** is checked, the lingual band is created.

Start angle defines the starting angle of the lingual band (counting from the user defined annotation in counter-clockwise direction).

End angle defines the end angle of the lingual band (counting from the user-defined annotation in counter-clockwise direction).

Offset is the offset applied in the lingual band area.

Click **Preview** to view changes, click **Next** to go to [Sculpt](#).

► Step 7: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

► Step 8: Save your design

Continue to [manufacturing](#) if required.

1.2. Bridge Framework

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Bridge Framework order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.2.1. Bridge Framework Order Creation

To create a Bridge Framework order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► Step 1: Select preparations in the teeth overview

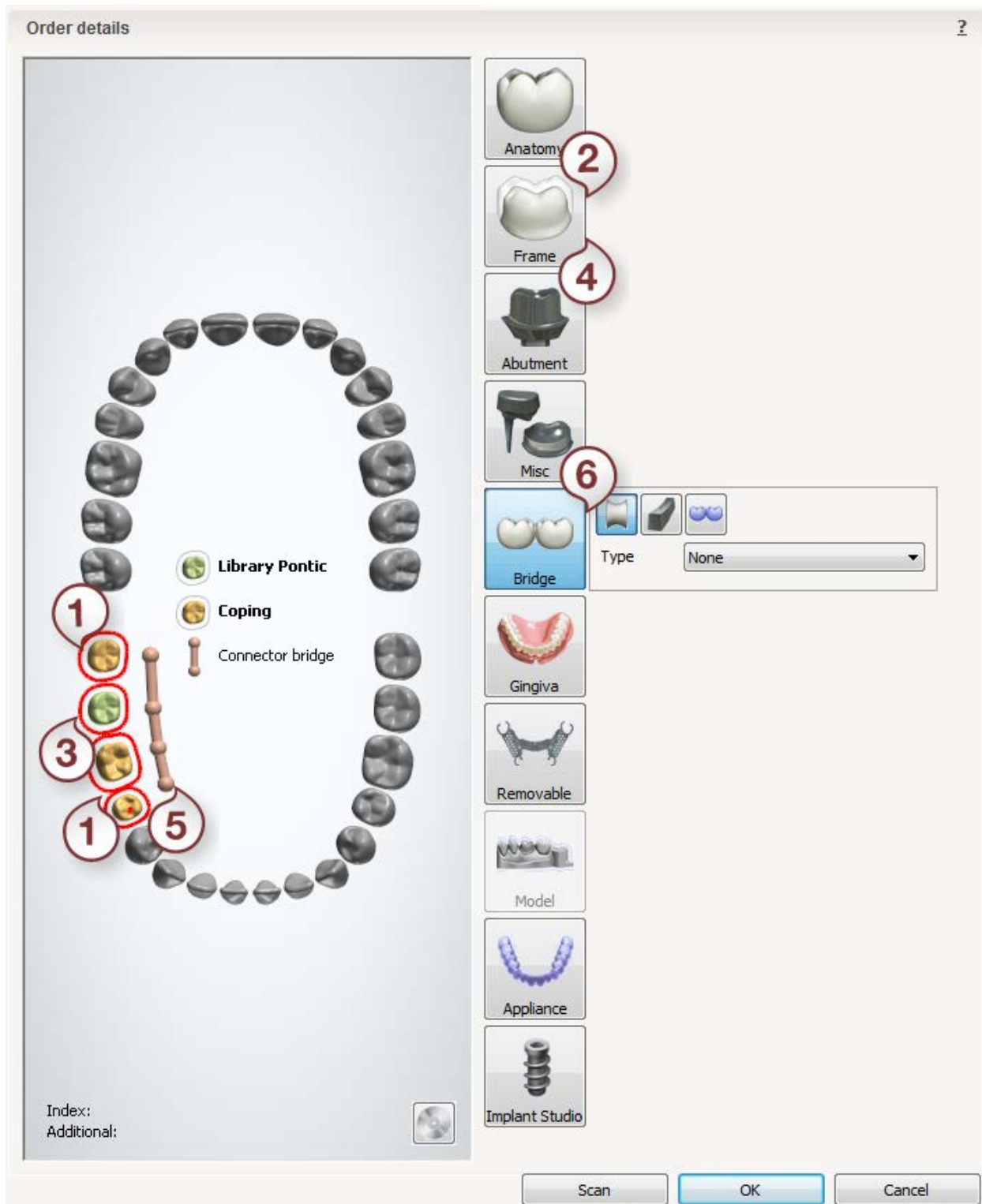
► Step 2: Click the *Frame* button and select the *Coping* button

► Step 3: Select pontic in the teeth overview

► Step 4: Click the *Frame* button and select the *Library Pontic* button

► Step 5: Select all units in the bridge in the teeth overview

► Step 6: Click the *Bridge* button



After creating the order, proceed to [scanning](#).

1.2.2. Bridge Framework Scanning

►Step 1: Create an order

[Create a new order](#) in Dental Manager and make necessary settings for a bridge framework in the Order Form. Before starting the scanning procedures, you should have sectioned your cast model so that the individual dies can be separately inserted into the scanner after having performed the scan of the sectioned cast model, as described below.

►Step 2: Scan the arch

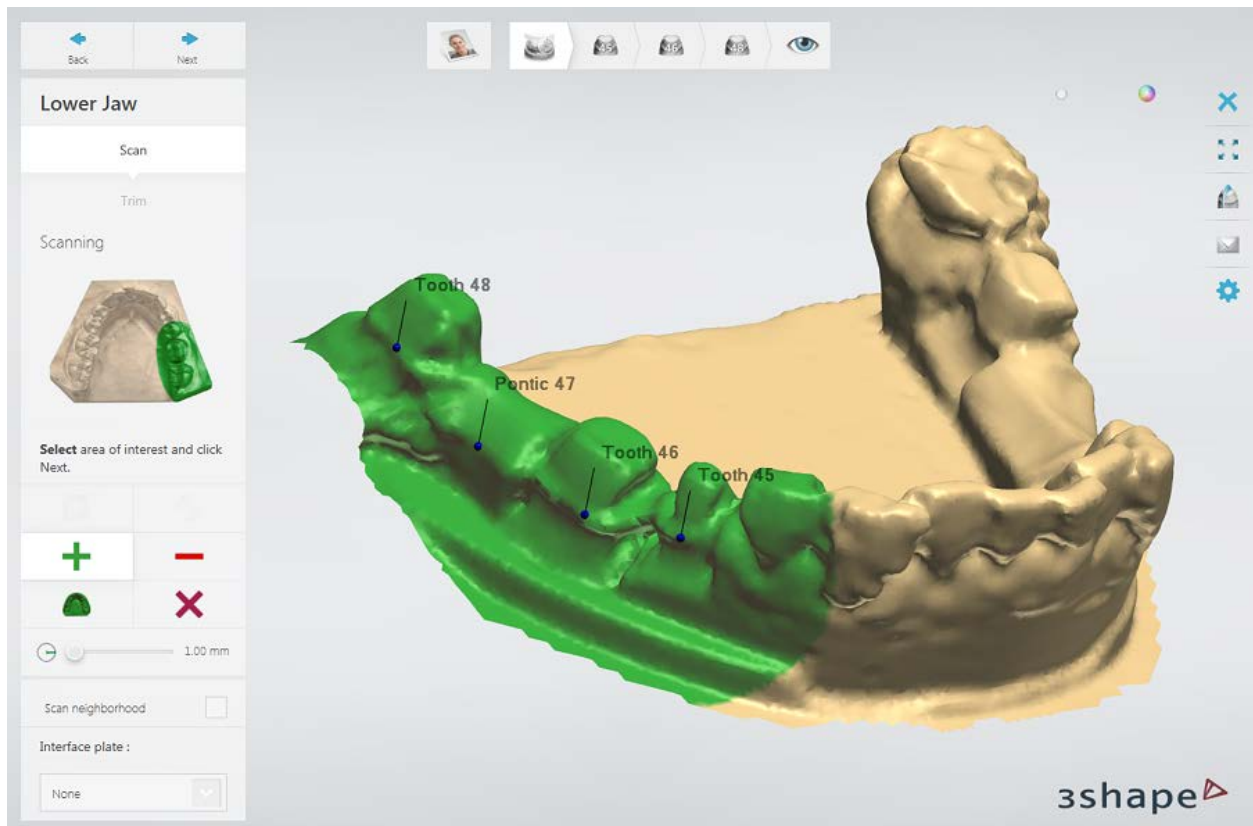
Having completed defining a new order, click the **Scan** button to proceed to the scanning step. This opens ScanIt Dental window asking you to insert the arch as a sectioned cast model. The sectioned cast should be affixed with its flat bottom side facing the black interface plate. It is very important that the object is secured and cannot move during scanning. Both should then be placed into the scanner (the plate will click into the correct position inside the scanner with the help of the fixing spheres and markers on the plate).

The scanning process starts on clicking the **Next** button.

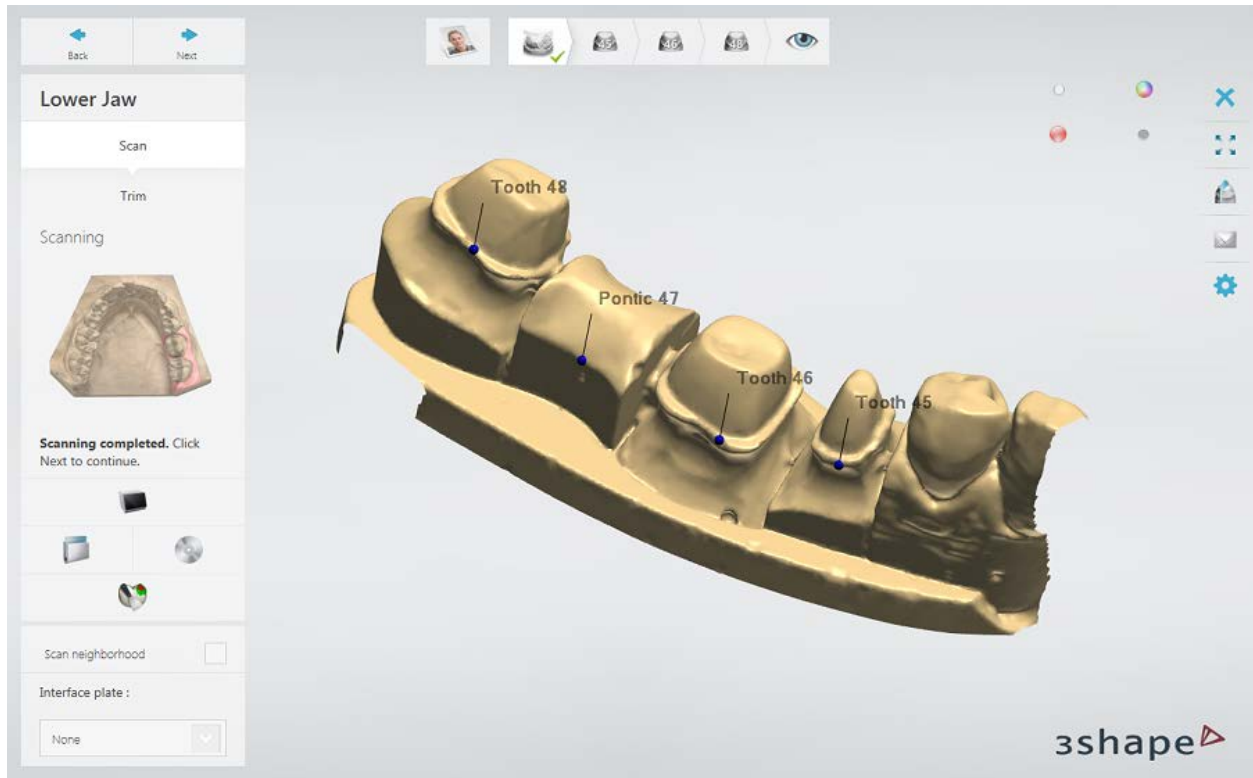


►Step 3: Annotate teeth and scan the area

Set tooth annotations on the initial scan and correct the automatically marked area of interest if necessary.



Click the **Next** button to scan the marked area.

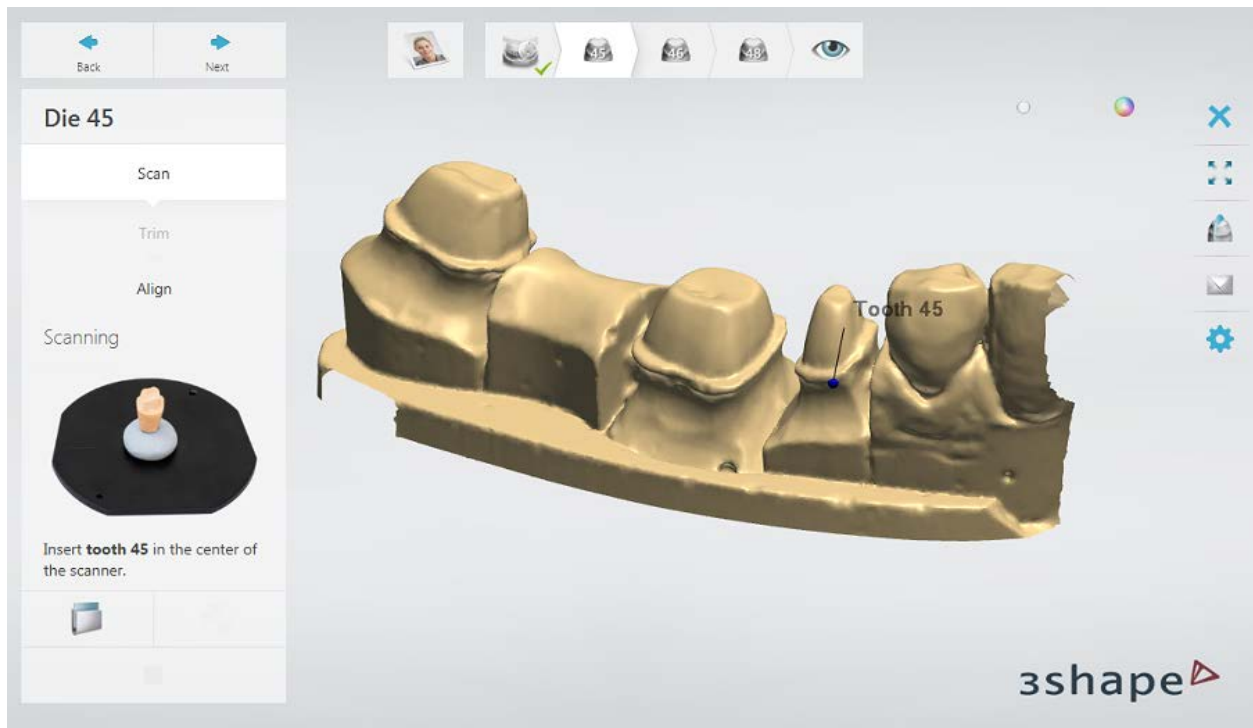


► Step 4: Scan and align teeth separately

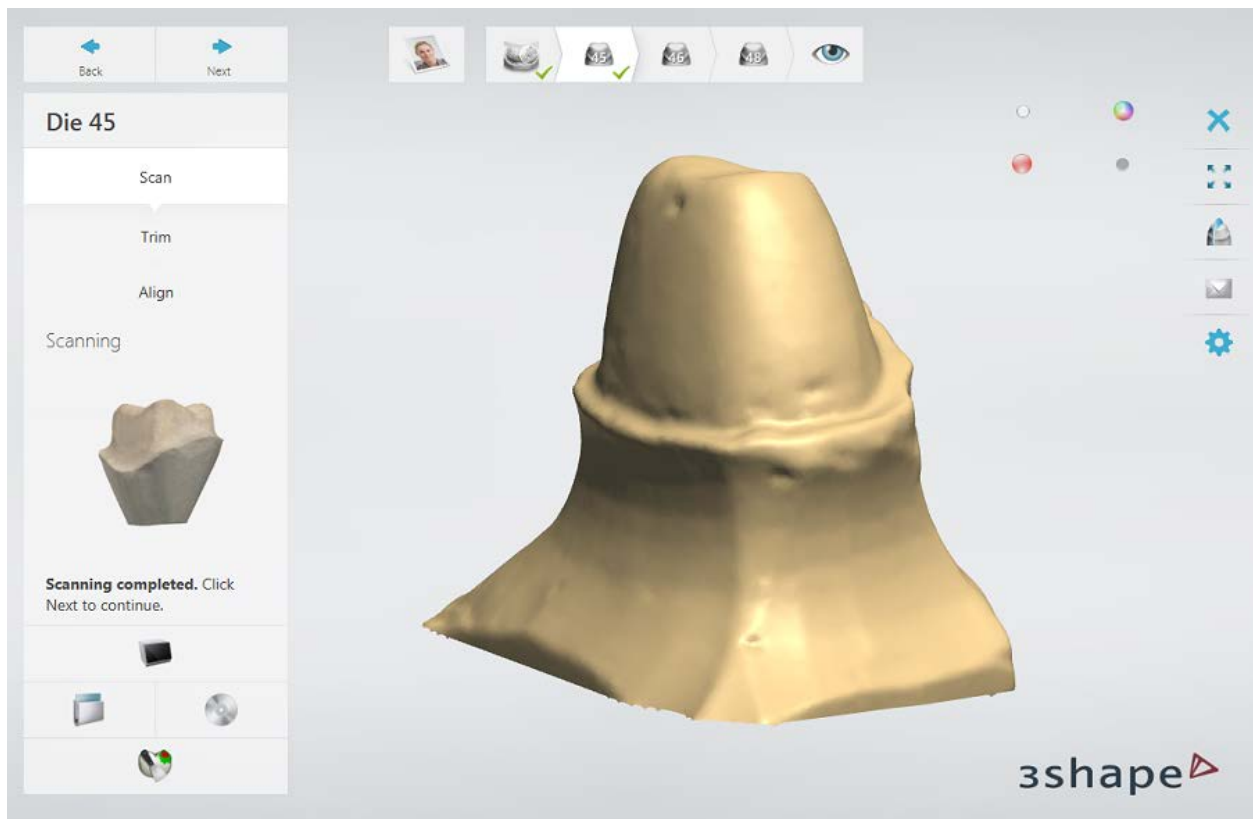


Next, you are required to scan prepared teeth separately by inserting them into the scanner as prompted by the software dialog.

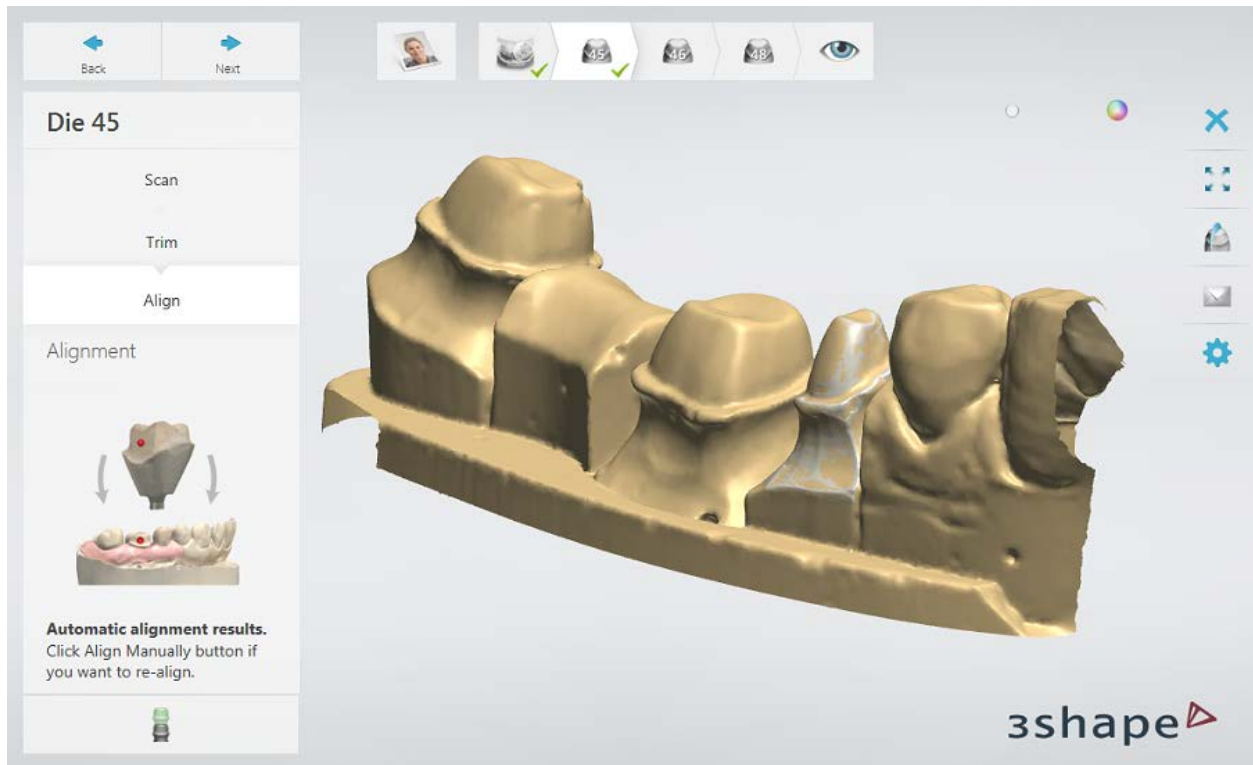
Insert the first, prepared, mounted on a plate tooth into the scanner and click **Next**.



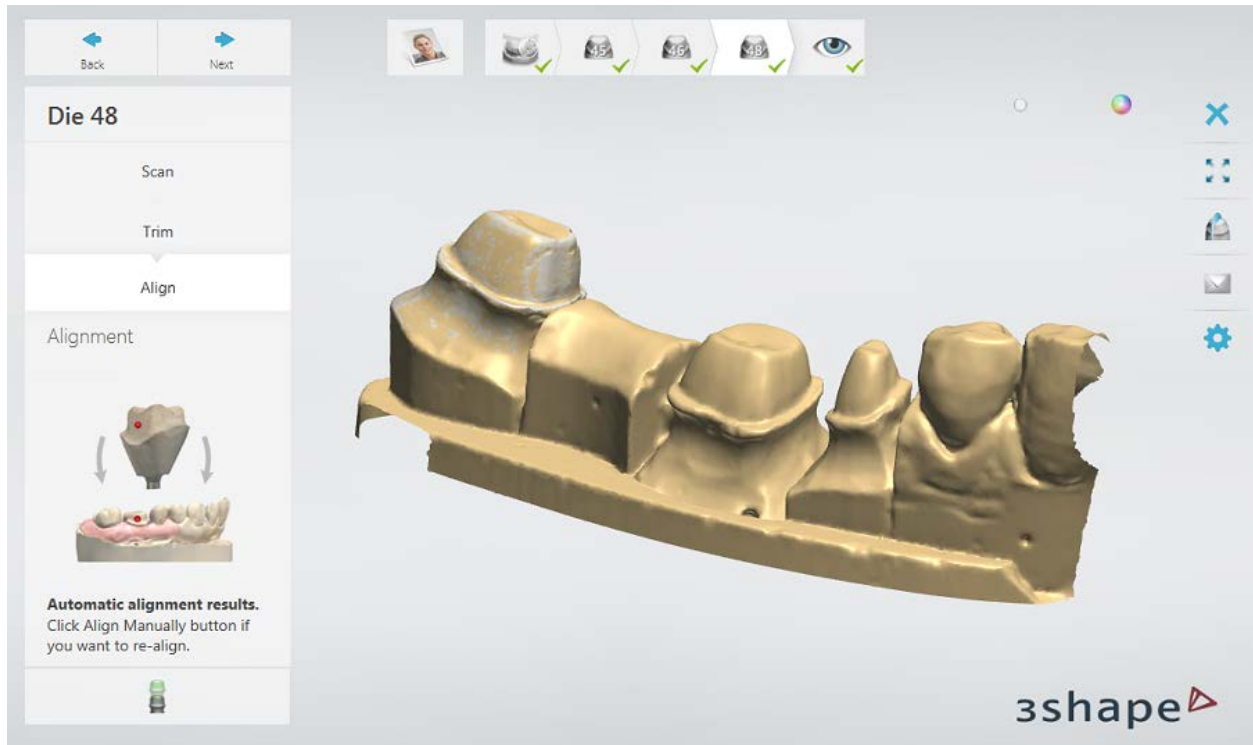
The scanning is completed:



Proceed to the scan alignment by clicking the **Next** button. The alignment is done automatically. You can also correct the alignment manually if required.

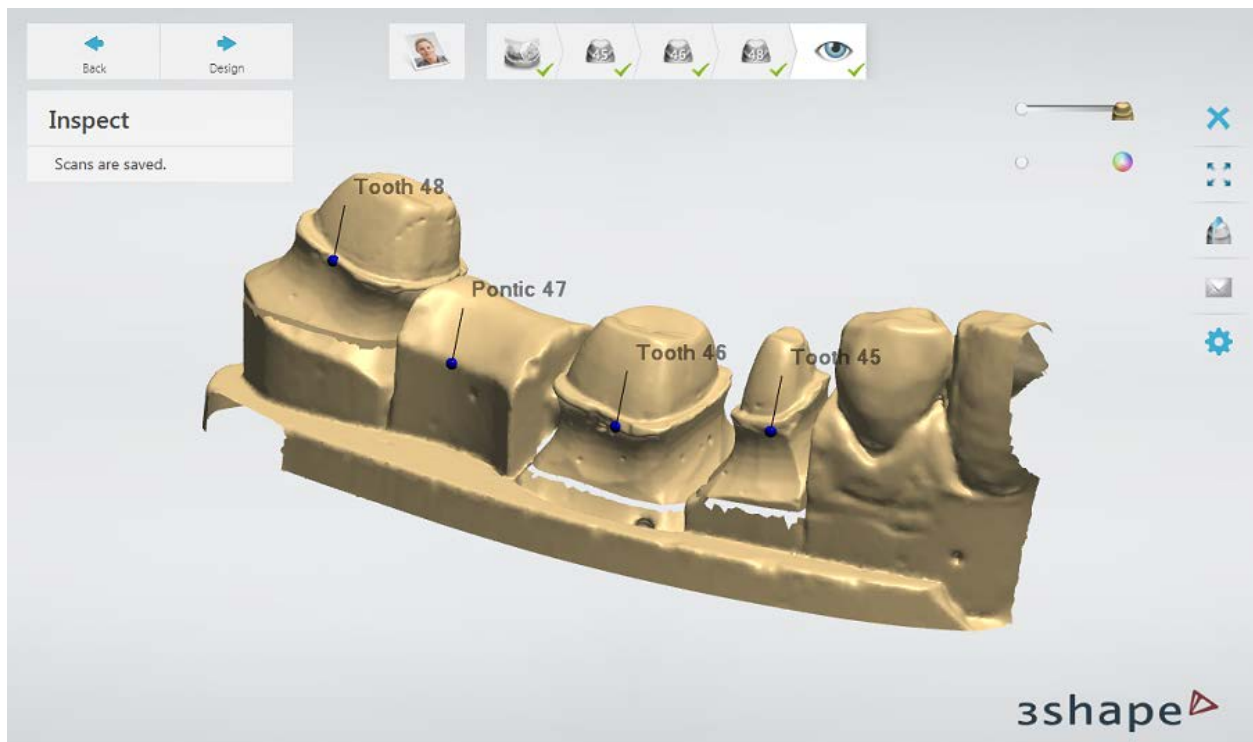


Repeat the procedure to scan and align the remaining teeth.



► Step 8: Finish scanning

Click **Next** to save the scans and go to the Inspection step. You can now go to the modeling procedure by clicking the **Design** button.



Continue to the [design section](#).

1.2.3. Bridge Framework Design



►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

If you design a frame layer with standard copings, pontics and bridge connector, you can use the [Split Bridge](#) option at this step as described in Split Bridge Design chapter.

Other than that, this step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place the Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

Please see instructions on how to use Smile Composer described in [Smile Composer](#) chapter.

►Step 7: Sculpt

This step is similar to the described in [Sculpt Toolkit](#) chapter.

►Step 8: Design a Coping

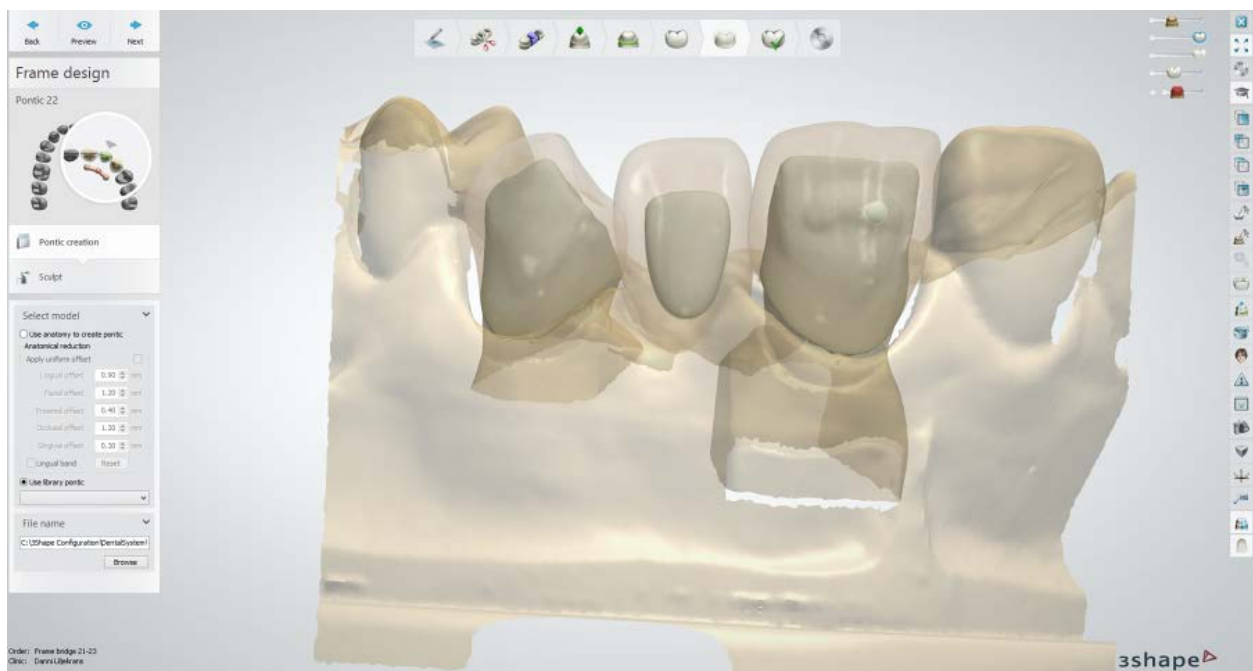
This step is identical to [Coping](#) described in Single Coping chapter.

►Step 9: Load Pontic Model

STANDARD PONTIC

Select **Use library pontic** to load a pontic model from the library. Click **Browse** to look for more pontic templates.

In this step you only load a pontic model while on the following step **Sculpt** you can modify its position and shape (please see chapter [Sculpt Toolkit](#)).



ANATOMICAL PONTIC

Select **Use anatomy to create pontic** to create a pontic with the help of the "outside-in" anatomical reduction (offset). An anatomical offset is an internal offset from the crown ("outside-in") that creates the anatomical pontic.

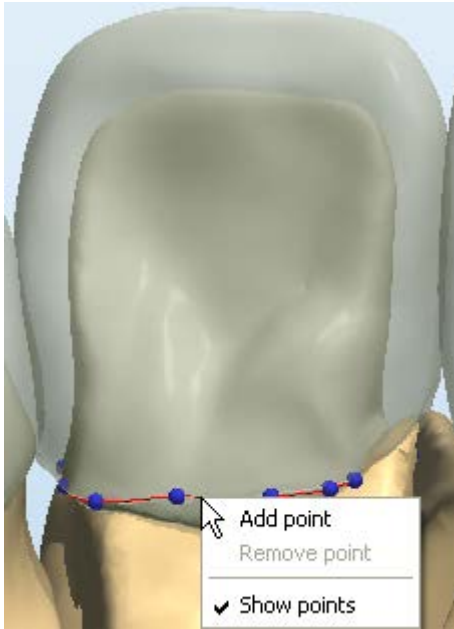


Apply uniform offset - a uniform reduction is applied; otherwise, non-uniform offset parameters become available. A non-uniform reduction is the solution for durability, efficiency and esthetics of porcelain veneering. The offset types are illustrated in [Anatomical Copings and Framework Design](#) chapter.

With the right-click over the offset values you can:

- **Apply parameter to all items in the job** - all items will have the same indicated offset value.
- **Apply same offset settings to all items in the job** - all items will have identical offset values.

The **Lingual band** checkbox places a lingual band on a pontic that can be manually corrected if desired either by dragging its points or drawing the lingual band with the cursor in the 3D window.



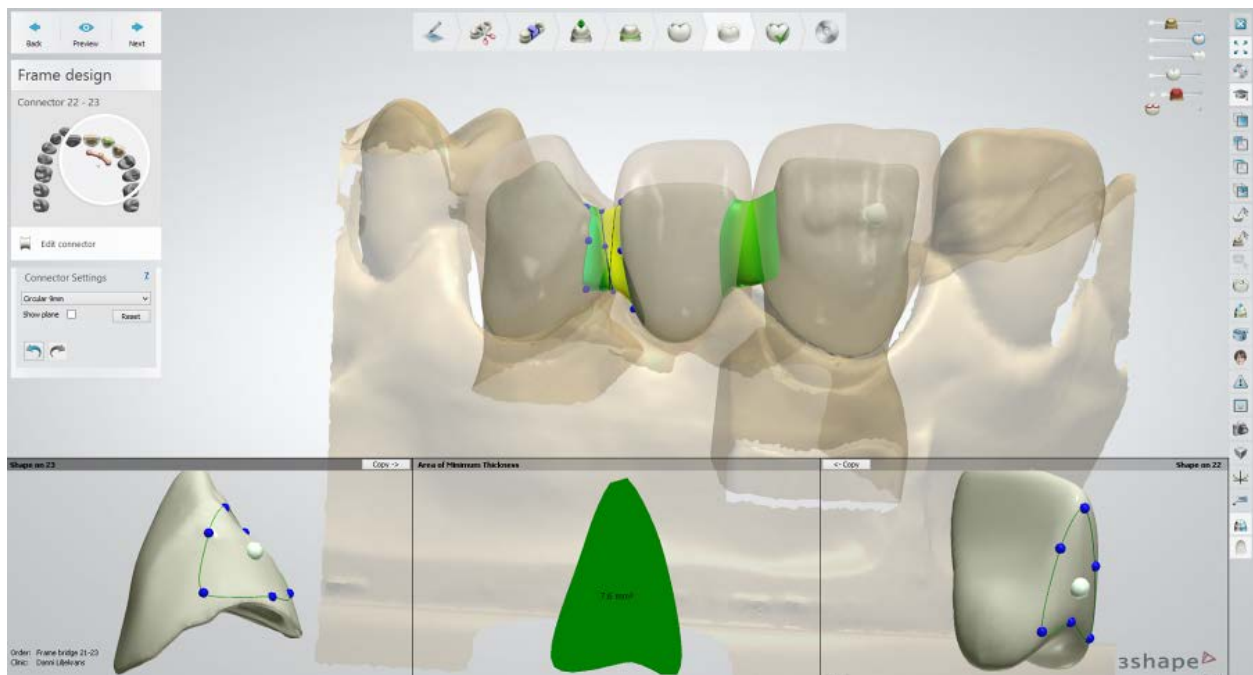
A right-click on the lingual band opens a menu with the options shown on the image

Once the "Show points" from the right-click menu is unselected you can edit the lingual band by drawing it with the cursor

Click the **Reset** button when you need to delete the lingual band and start the process over.

► Step 10: Edit Connector

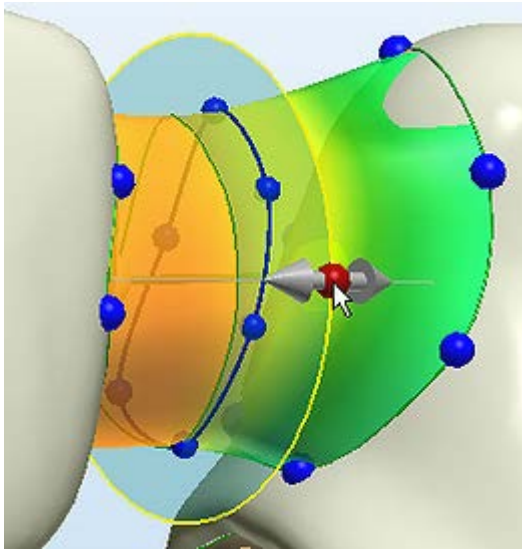
To modify connectors created by Dental Designer automatically, click the connector in the modeling window or in the Order overview to enter the editing mode.



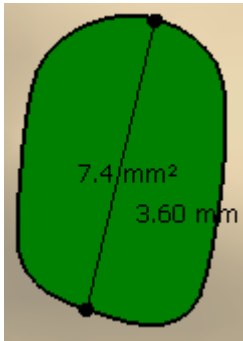
Dental Designer automatically defines the shape of the connector using the default shape set in the Dental System Control Panel. You can change the shape by selecting a new one from the **Connector Settings** drop-down menu (*Silhouette*, *Circular* etc.). The **Reset** button discards your changes to the selected connector, while the **Preview** button invokes them.

Two connector editing windows and 2D cross-section preview window appear at the bottom of the screen. You can modify the connector directly in these windows by dragging its blue control points to obtain the desired shape. You can also click and drag the white control point in the middle to move all control points simultaneously.

Once you have done modeling of one side of the connector you can use the **Copy** button to apply the same changes to the other side of the connector.

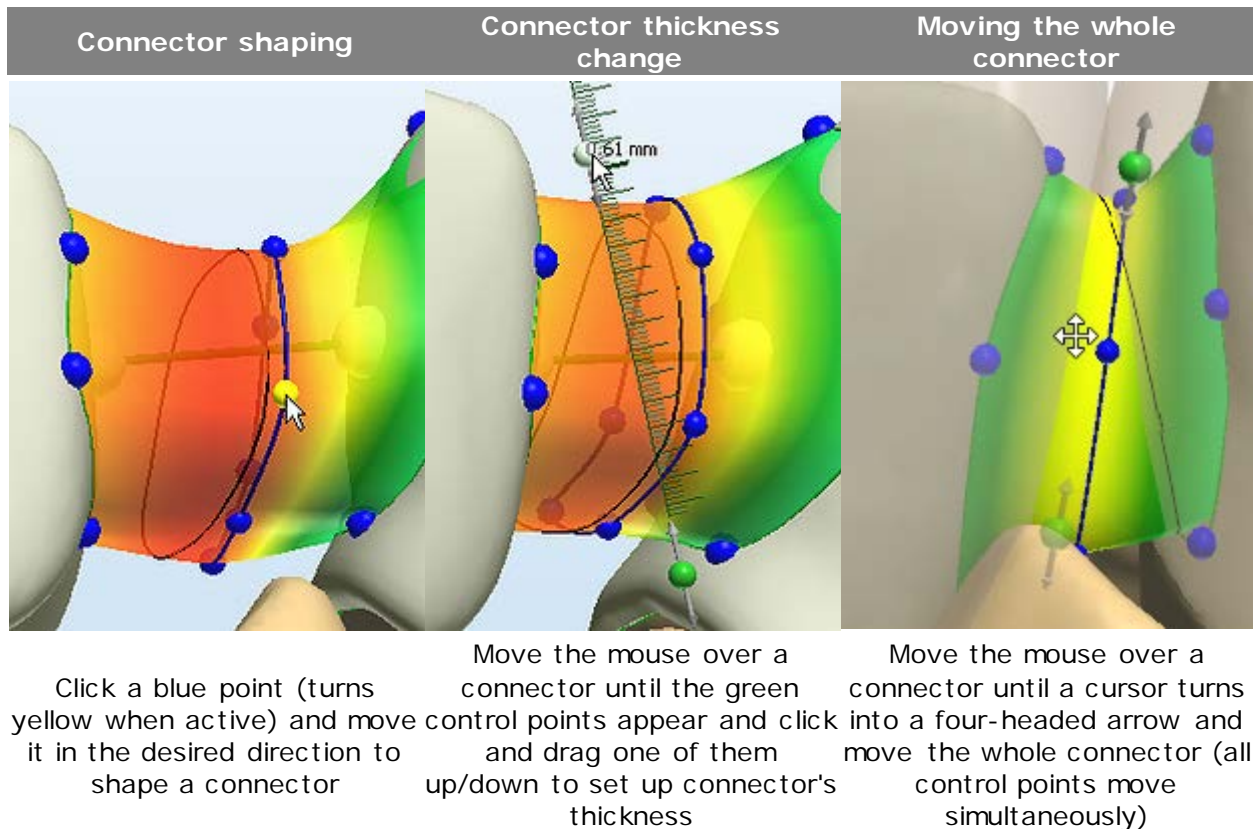


The **Show plane** checkbox makes the 2D cross-section appear on the screen. Its position can be moved along the connector with the **Cross-section** slider where the connector length is indicated in real time.



The 2D preview window shows the size of the area at the cross-section and allows you to make distance measurements.

The following images illustrate the connector editing options in the 3D window:



►Step 11: Sculpt

Finalize frame design using the Sculpt toolkit. This step is similar to the described in [Sculpt Toolkit](#) chapter.


If you used the Split Bridge option at the Insertion Direction step, click **Next** to go to the Finalize step where you can [Design Attachment](#) as described in Split Bridge Design chapter.

►Step 12: Save your design

Continue to [manufacturing](#) if required.

1.2.4. Stock Abutments

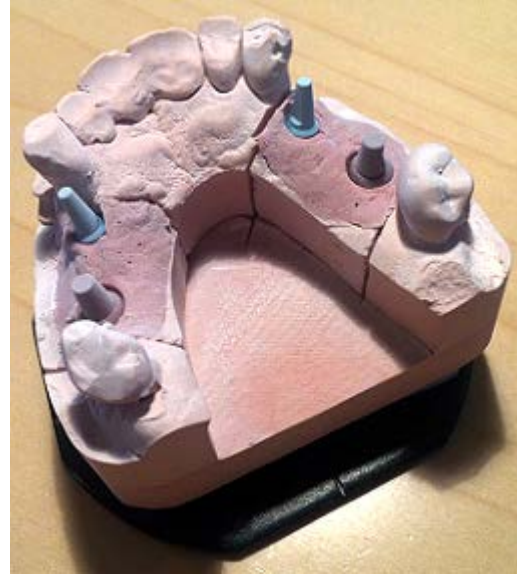
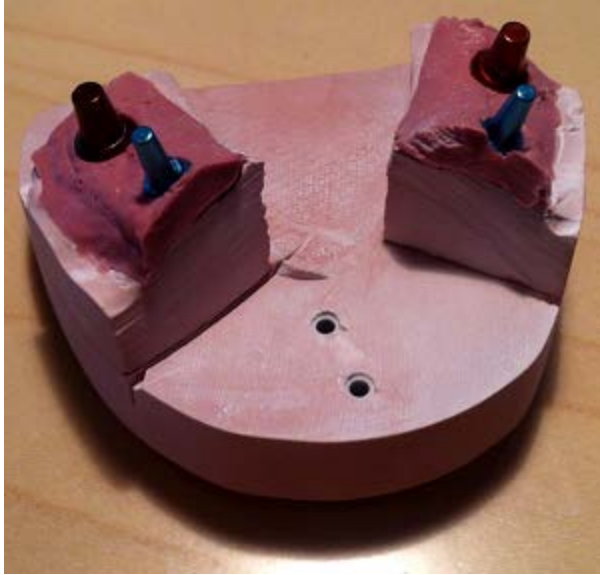
►Step 1: Create an order

- Select preparations in the teeth overview.
- Select dental indications as a regular bridge.
- Choose **Double preparation/Wax-up**  when using a gingival mask.
- Select **Scan** and proceed to scanning the model. Alternatively, click **OK** and double click on the newly created order.

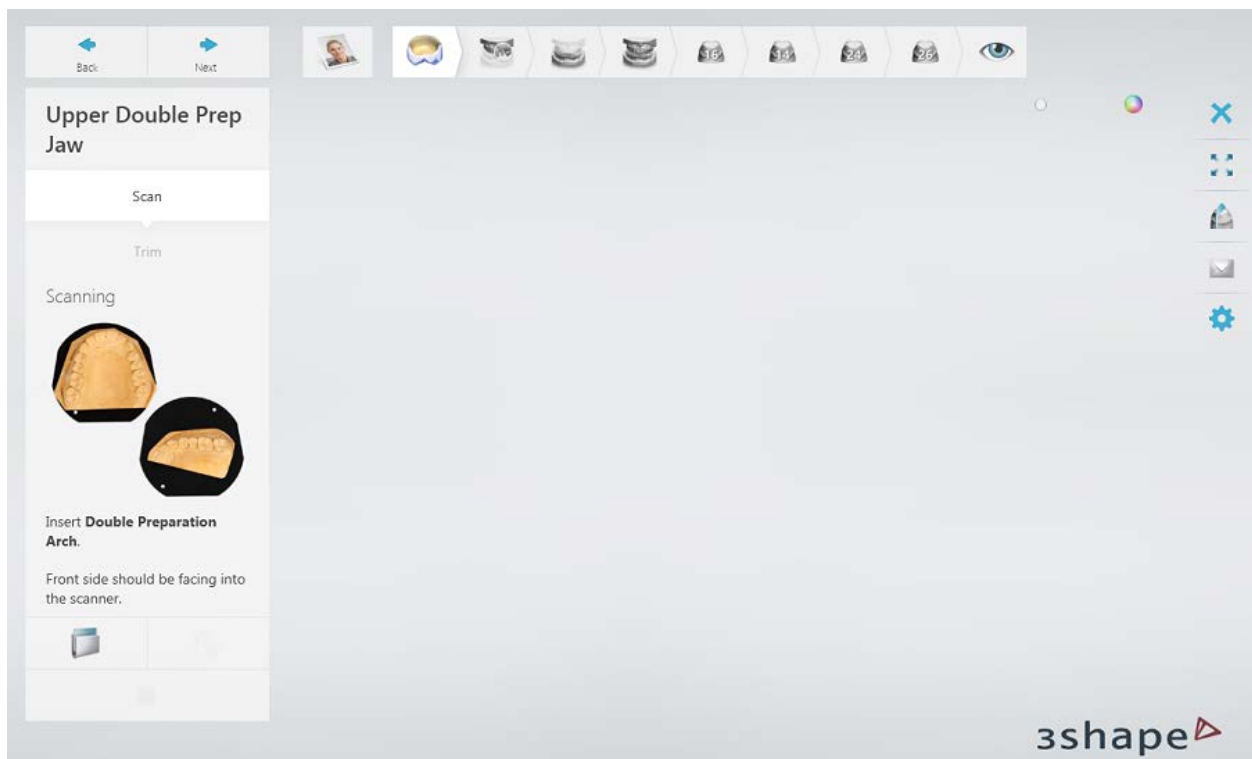
Lab information Operator: <input type="text" value="Tech 01"/>	Order settings Order number: <input type="text" value="97728_20170217_1613_Te"/> Importance: <input type="text" value="Normal"/> Design Module: <input type="text" value="DentalDesigner 2017"/>	Scan settings Object type: <input type="text" value="Model"/> Antagonist: <input type="text" value="Antagonist model"/> Neighborhood scan: <input type="text" value="Sectioned"/>
External Lab Information External Lab: <input type="text" value="- none -"/>		
Customer information Customer: <input type="text" value="Dental L"/> Contact person: <input type="text"/> Create date: <input type="text" value="2/17/2017"/> Shipping date: <input type="text" value="2/17/2017"/> <input type="button" value="Send information"/>	Order details	
Patient information Last name: <input type="text"/> First name: <input type="text"/> Clinical photos: <input type="button" value="+"/>		
Comments <input type="text"/>	<div> <input type="button" value="Anatomy"/> <input type="button" value="Frame"/> <input type="button" value="Abutment"/> <input type="button" value="Misc"/> <input type="button" value="Bridge"/> <input type="button" value="Gingiva"/> <input type="button" value="Removable"/> <input type="button" value="Model"/> <input type="button" value="Appliance"/> <input type="button" value="Implant Studio"/> </div>	
	Index: Additional:	
	<input type="button" value="Scan"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/>	

► Step 2: Scan model

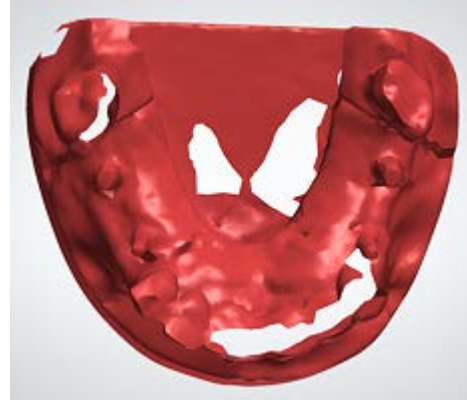
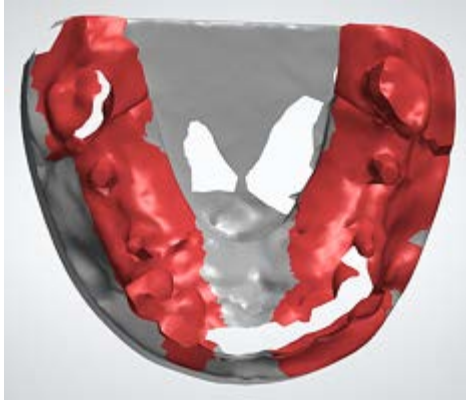
- Remove everything except abutment and gingival mask. Apply a scan spray.
- Carefully place other segments back onto the model and affix it to the interface plate with a Blu Tack.



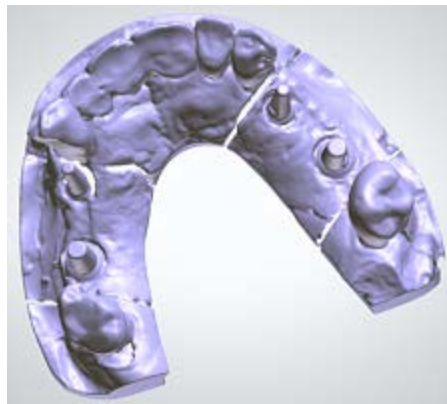
- Insert the plate with attached model into the scanner with model front facing towards the inside of the scanner. Close the lid and perform a pre-scan.



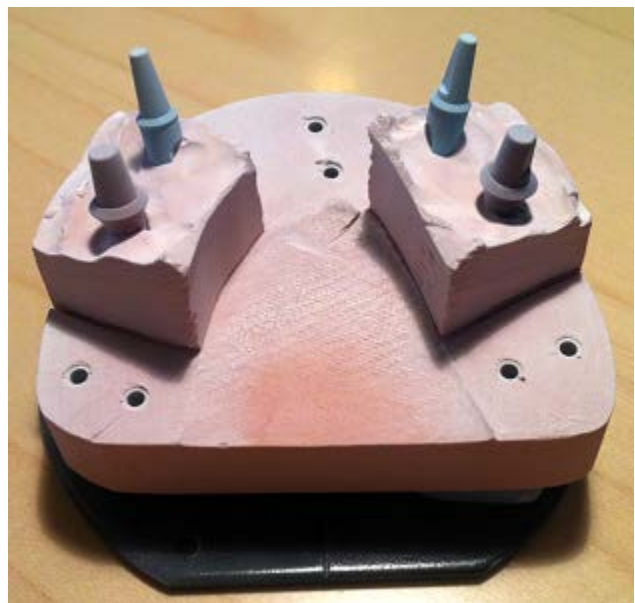
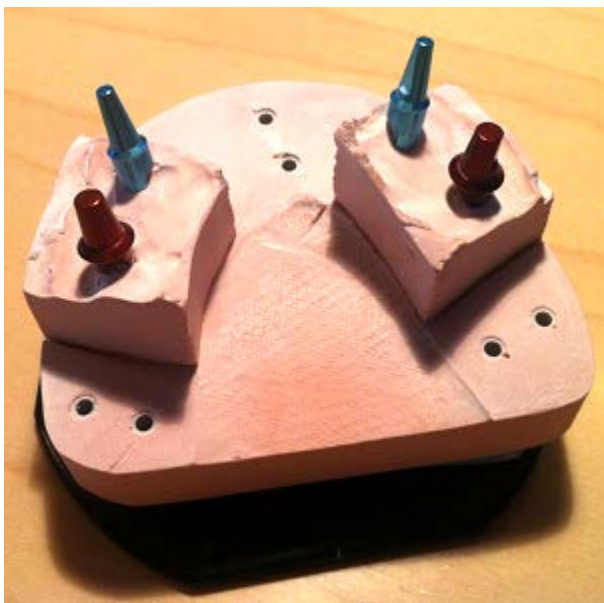
- Select the desired area and click **Continue**. The proper double preparation scan will be performed. With this step, you can blend in the gingival mask when designing.



- You are asked to trim the double preparation scan. Do so if necessary and proceed.
- Once the pre-preparation scan is done, you are asked to remove the additional teeth, which are the gingival mask in this procedure.



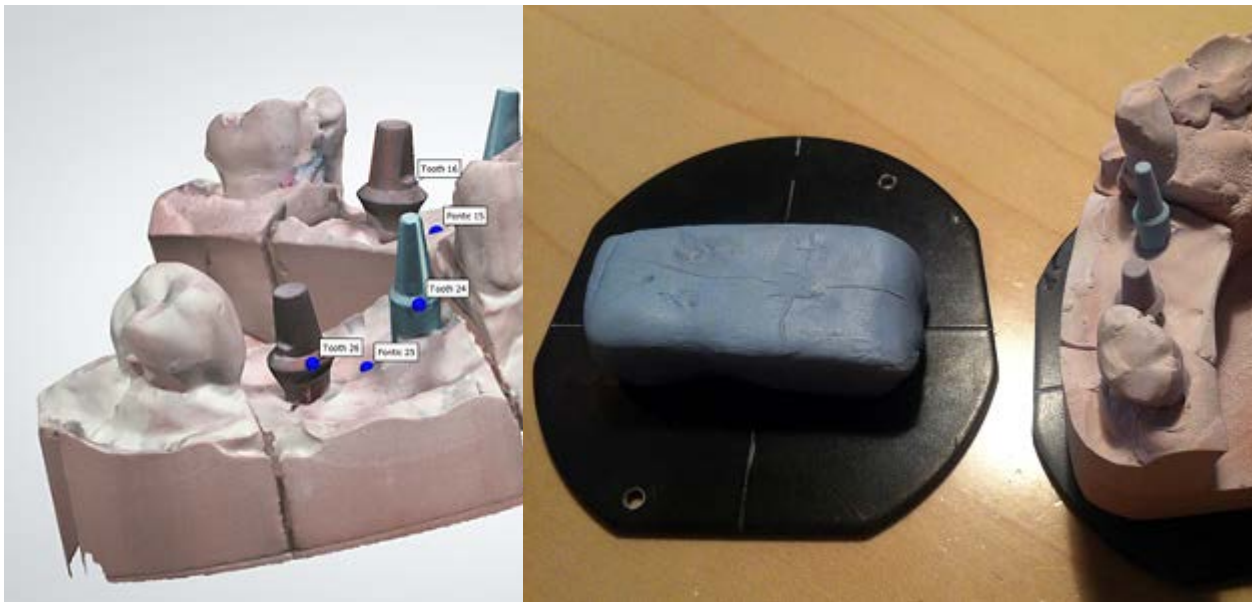
- Remove the gingival mask, clean abutments and apply a scan spray for the second time.



- Place teeth back into the model and place model into scanner. Close the lid and follow the instructions to scan.



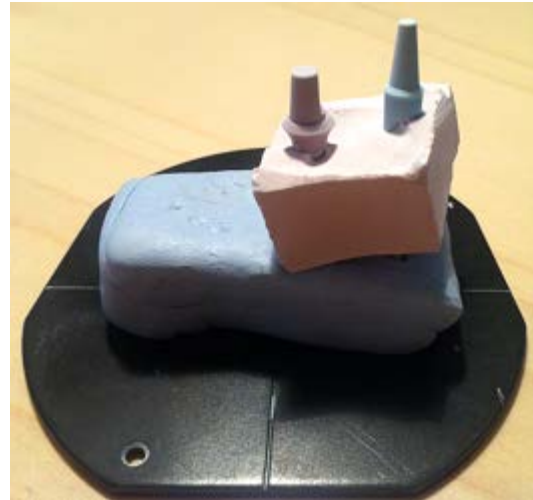
- Follow instructions given by the software. Insert required teeth (abutments) to scan and match individually.



- Position abutment 16 on the interface plate. Since both abutments are in the same segment, place the abutment which is going to be scanned slightly out of the center. Therefore the other abutment will be out of the scan area and is unlikely to be scanned. Also make sure the angle of the abutment is close to 90° to let the scanner have an optimal view of all areas.



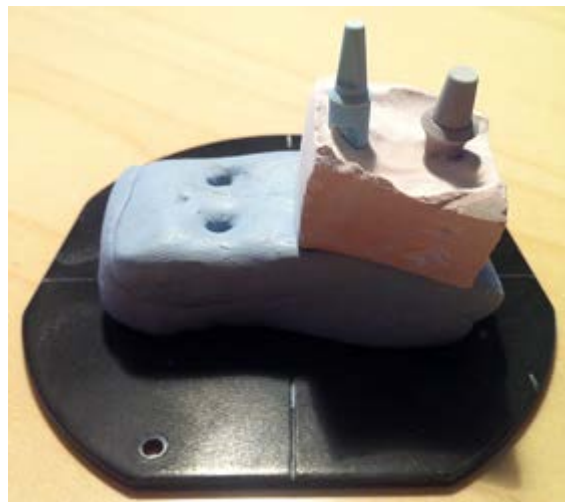
View of abutment 16 from the top



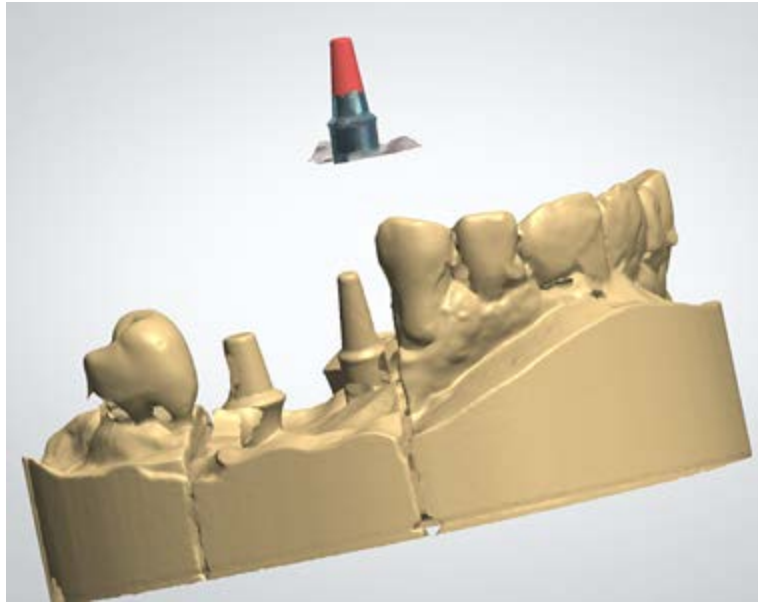
View of abutment 16 from the side



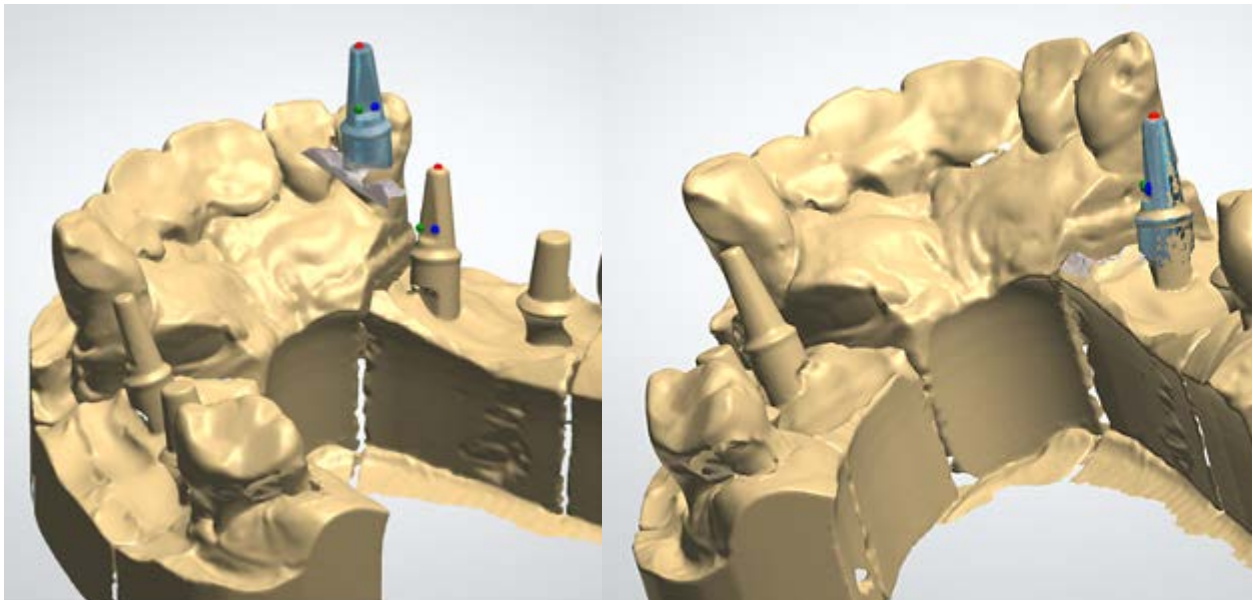
View of abutment 24 from the top



View of abutment 24 from the side



- If the scans could not be matched automatically, align them manually either by 1 or 3 point alignments by placing point(s) in the same area on both scans and click **Align**. Please make sure the points are not placed on edges/corners.

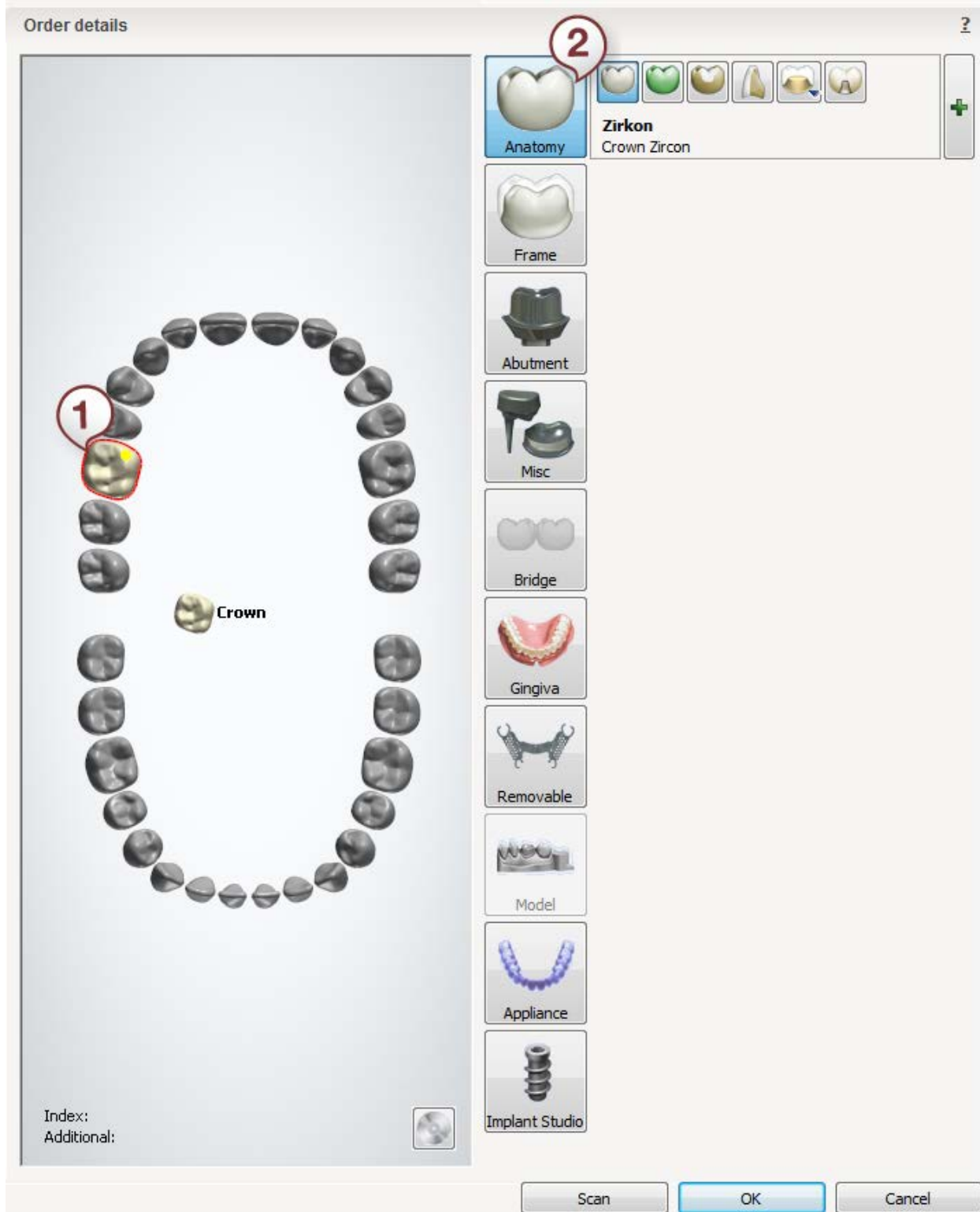


- To complete scanning, click **Design** and continue with designing the dental indication in Dental Designer.

To create a Full Anatomical Crown order, follow the steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparation in the teeth overview**

► **Step 2: Click the *Anatomy* button (the *Crown*  button is selected by default)**



After creating the order, proceed to [scanning](#).

1.3.2. Full Anatomical Crown Scanning

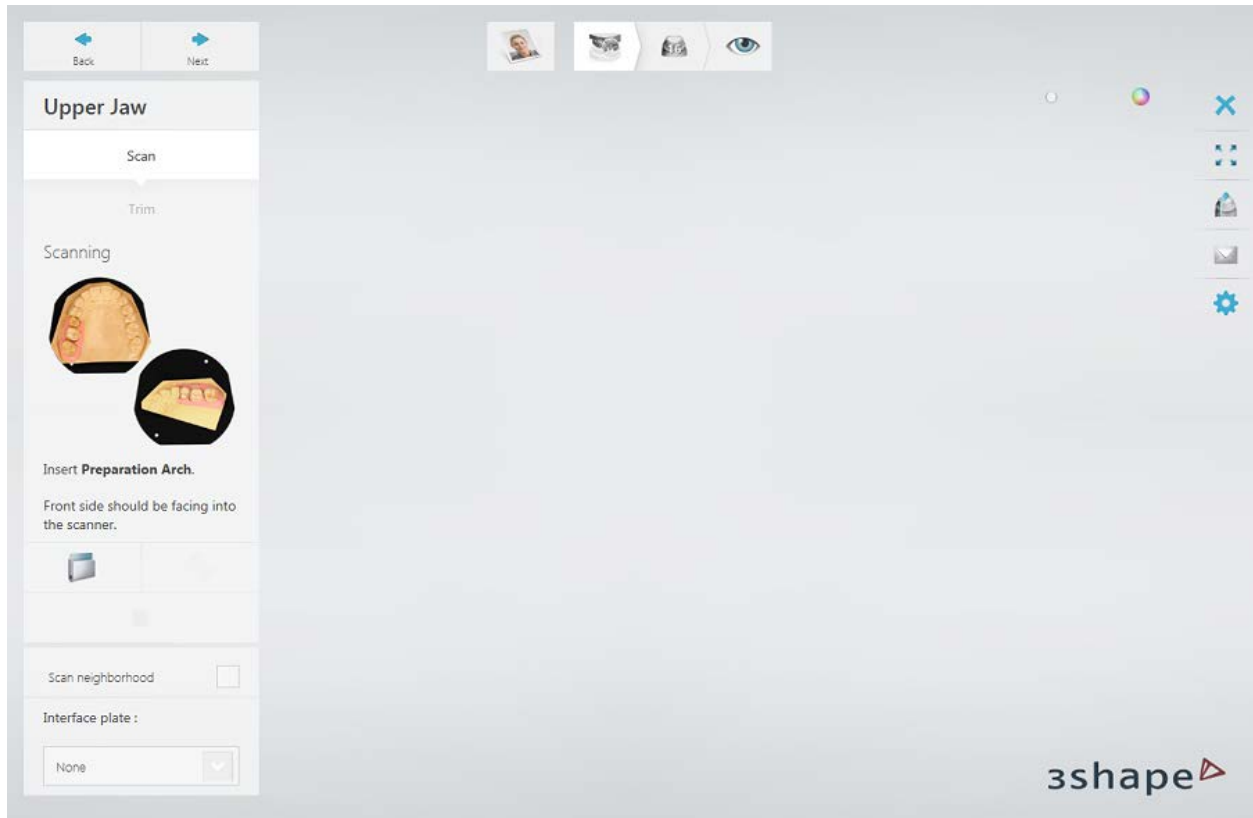


►Step 1: Create an order

[Create a new order](#) in Dental Manager and make necessary settings for a bridge framework in the Order Form. Before starting the scanning procedures, you should have sectioned your cast model so that the individual dies can be separately inserted into the scanner after having performed the scan of the sectioned cast model, as described below.

►Step 2: Scan the arch

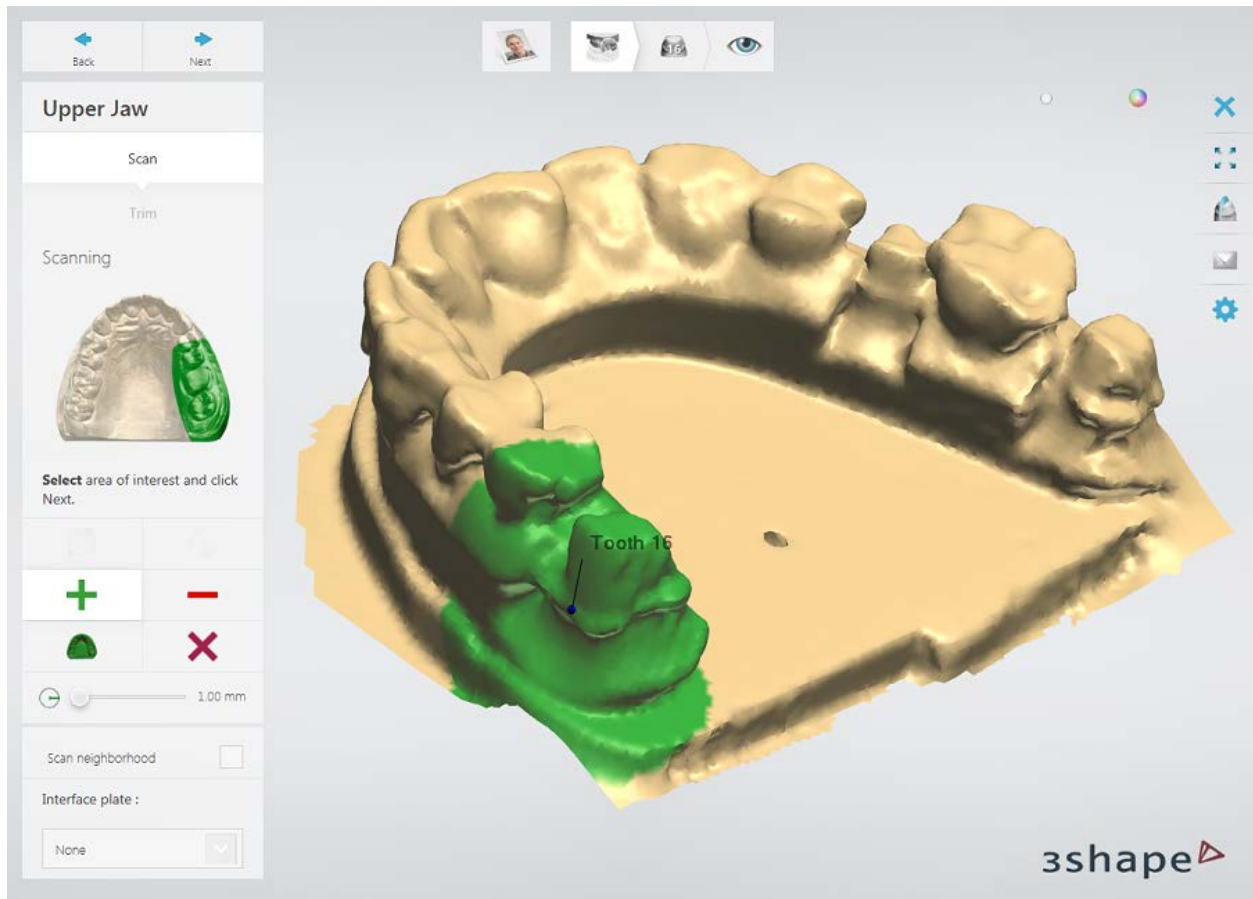
Having completed defining a new order, click **Scan** button to proceed to the scanning step. This opens ScanIt Dental window asking you to insert the arch as a sectioned cast model. The sectioned cast should be affixed with its flat bottom side facing the black interface plate. It is very important that the object is secured and cannot move during scanning. Both should then be placed into the scanner (the plate will click into the correct position inside the scanner with the help of the fixing spheres and markers on the plate).



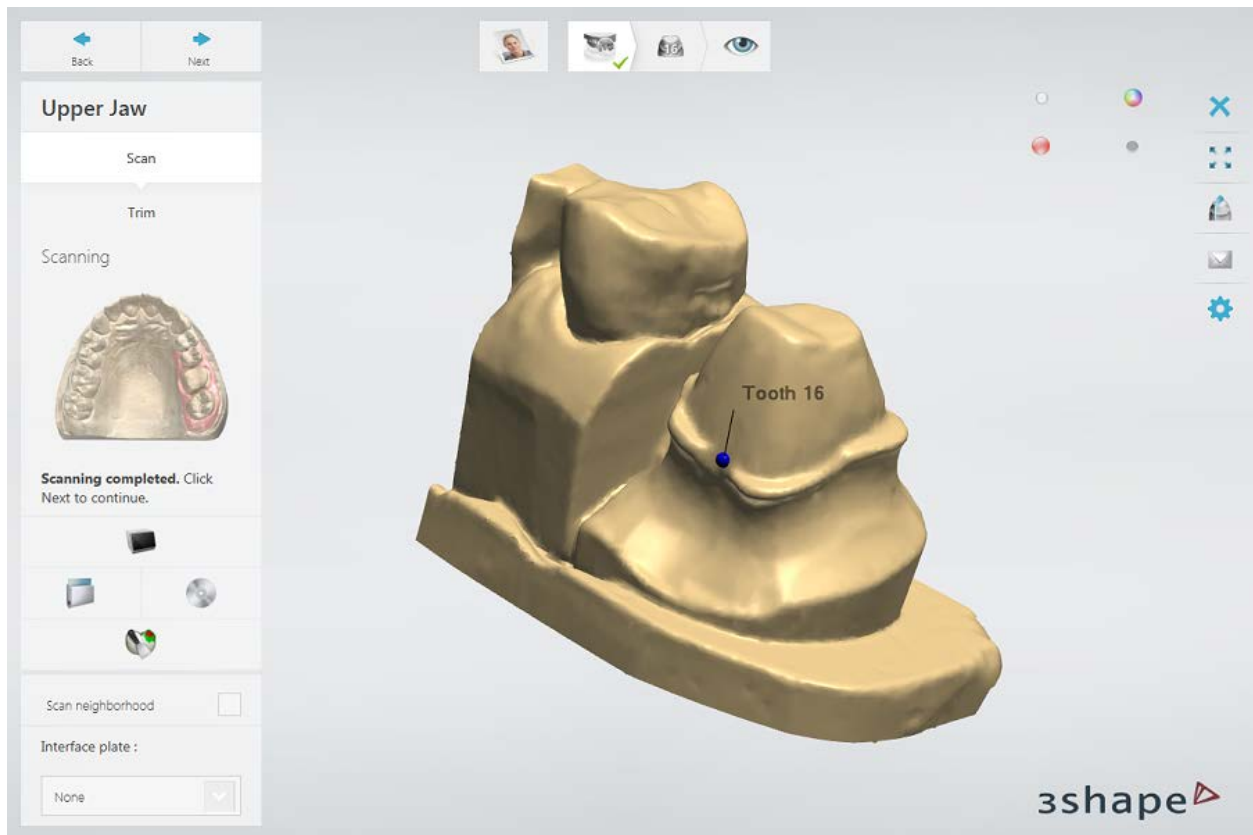
The scanning process starts on clicking the **Next** button.

►Step 3: Annotate teeth and scan the area

Set tooth annotations on the initial scan and correct the automatically marked area of interest if necessary.



Click the **Next** button to scan the marked area.

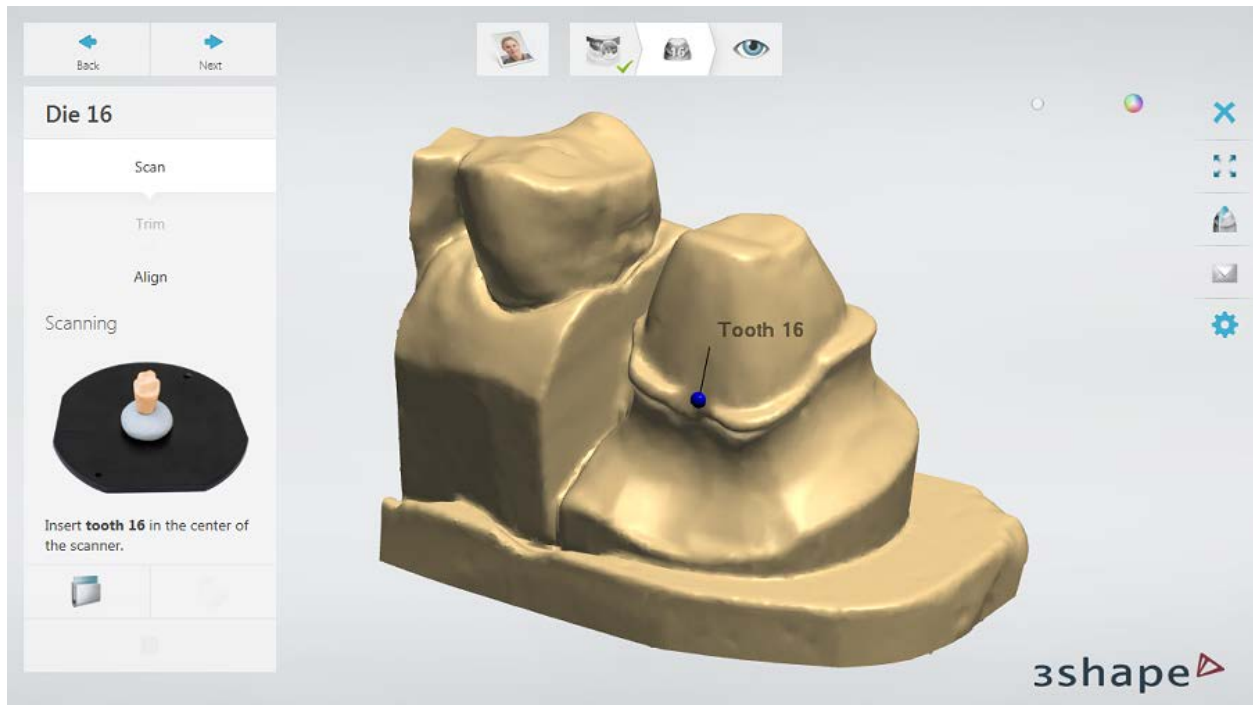


► Step 4: Scan and align the tooth

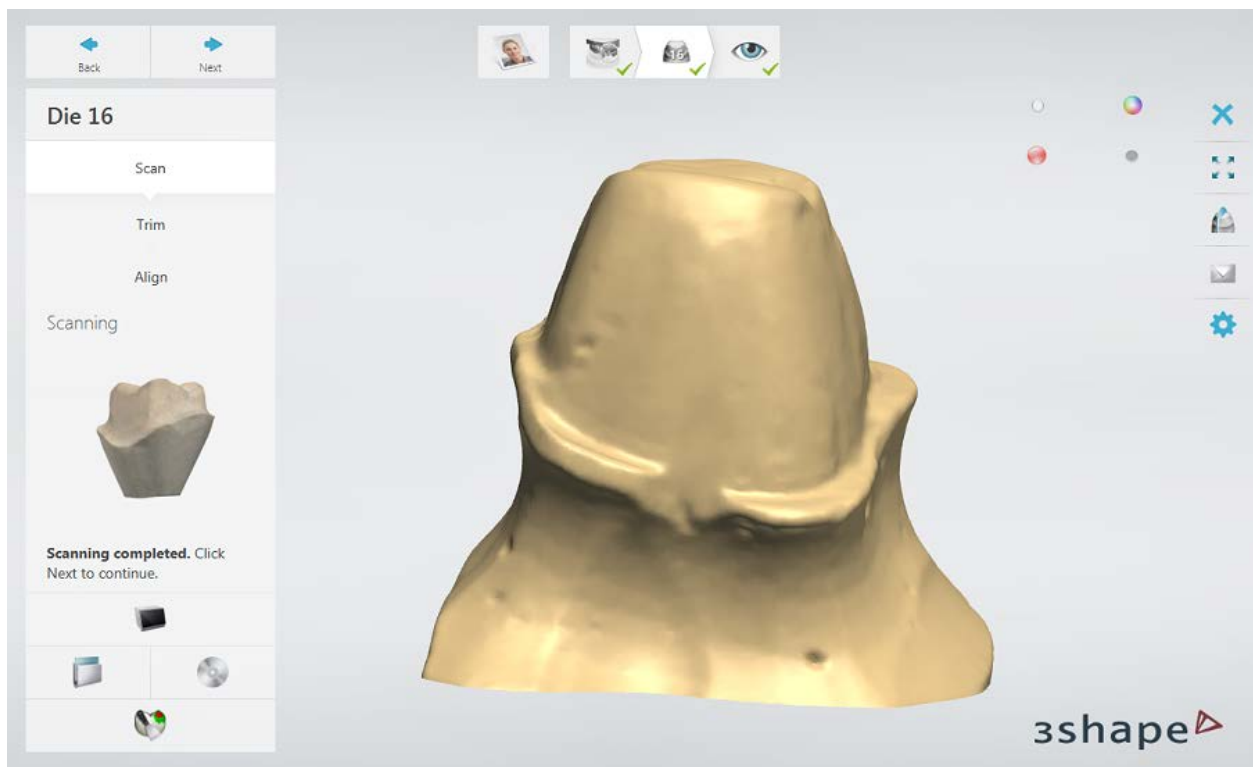


Next, you are required to scan prepared tooth by inserting it into the scanner as prompted by the software dialog.

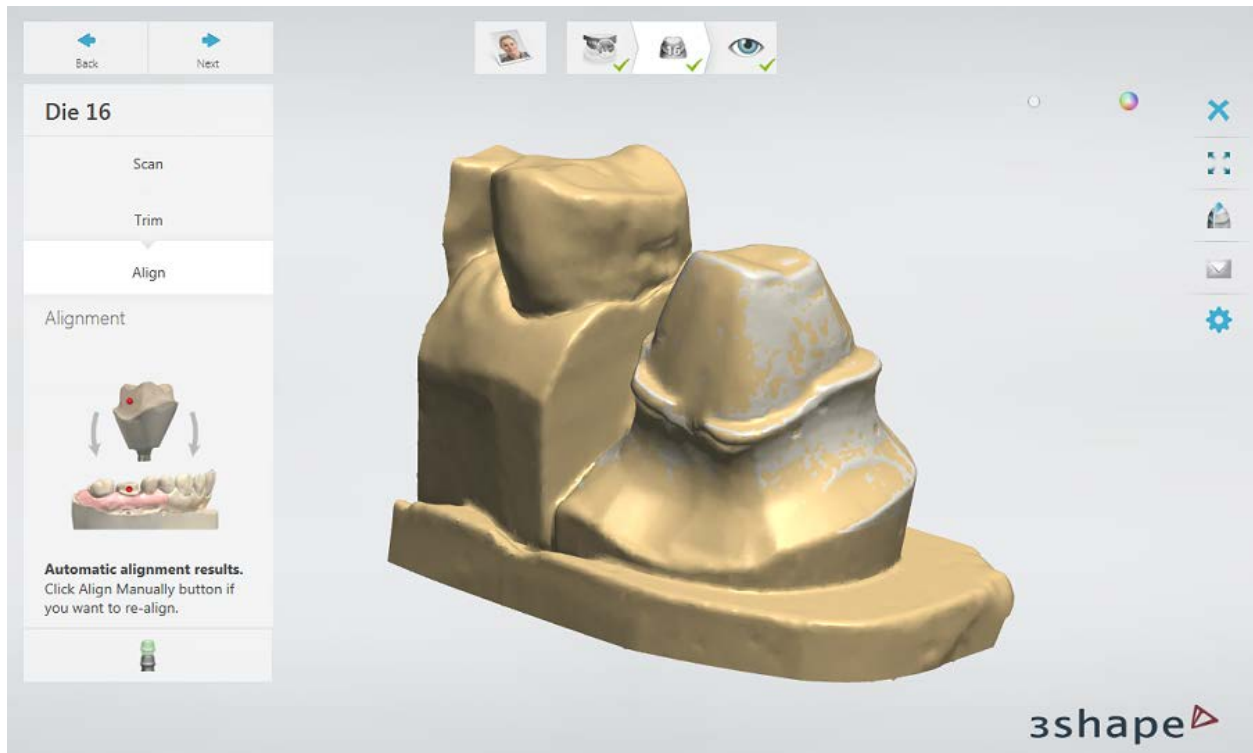
Insert the first, prepared, mounted on a plate tooth into the scanner and click **Next**.



The scanning is completed:

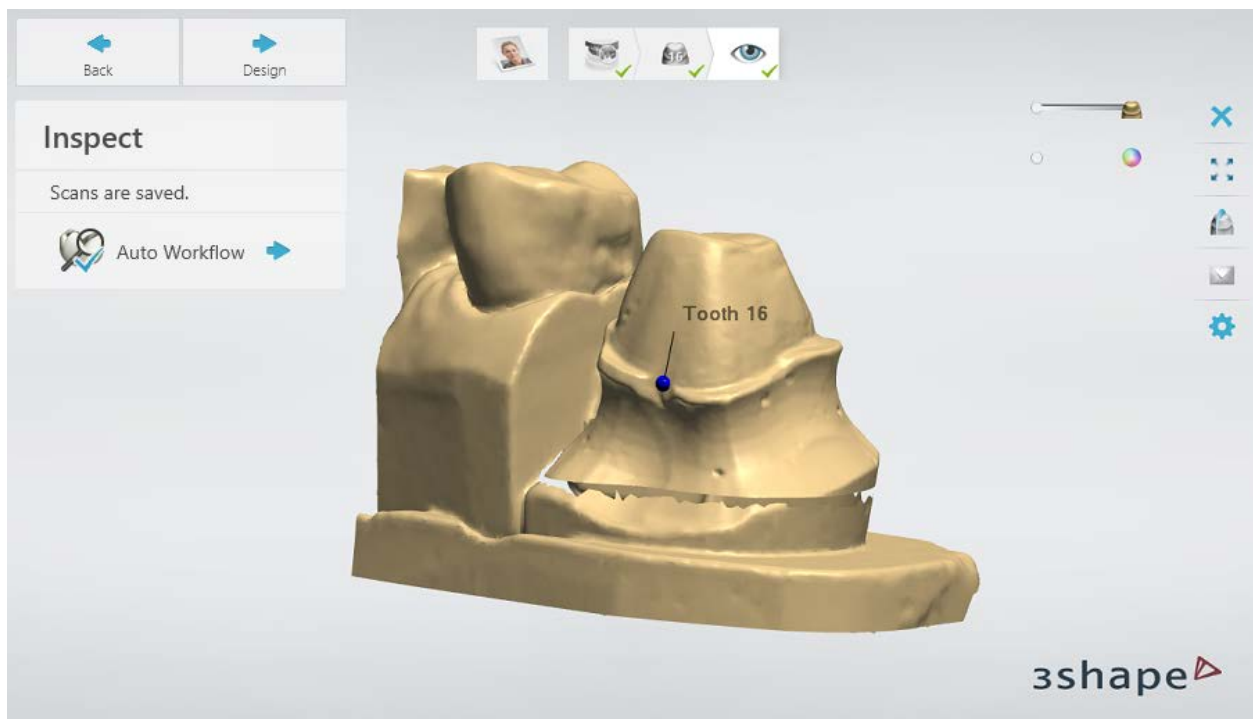


Proceed to the scan alignment by clicking the **Next** button. The alignment is done automatically. You can also correct the alignment manually if required.



►Step 5: Finish scanning

Click **Next** to save the scans and go to the Inspection step. You can now go to the modeling procedure by clicking the **Design** button or the [Auto Workflow](#) button.



Continue to the [design section](#).

1.3.3. Full Anatomical Crown Design



►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

Design of single crowns is done with the [Smile Composer](#) tool.

►Step 7: Sculpt

This step is described in [Sculpt Toolkit](#) chapter.

►Step 8 (optional): Preparation for manufacturing

The step is based on settings in the Control Panel according to which you can position the designed crown inside the CAD block ([Place in Block](#) step) or attach the sprue to it ([Premanufacturing](#) step).

►Step 9: Save your design

Continue to [manufacturing](#) if required.

1.3.4. Preparation for Manufacturing

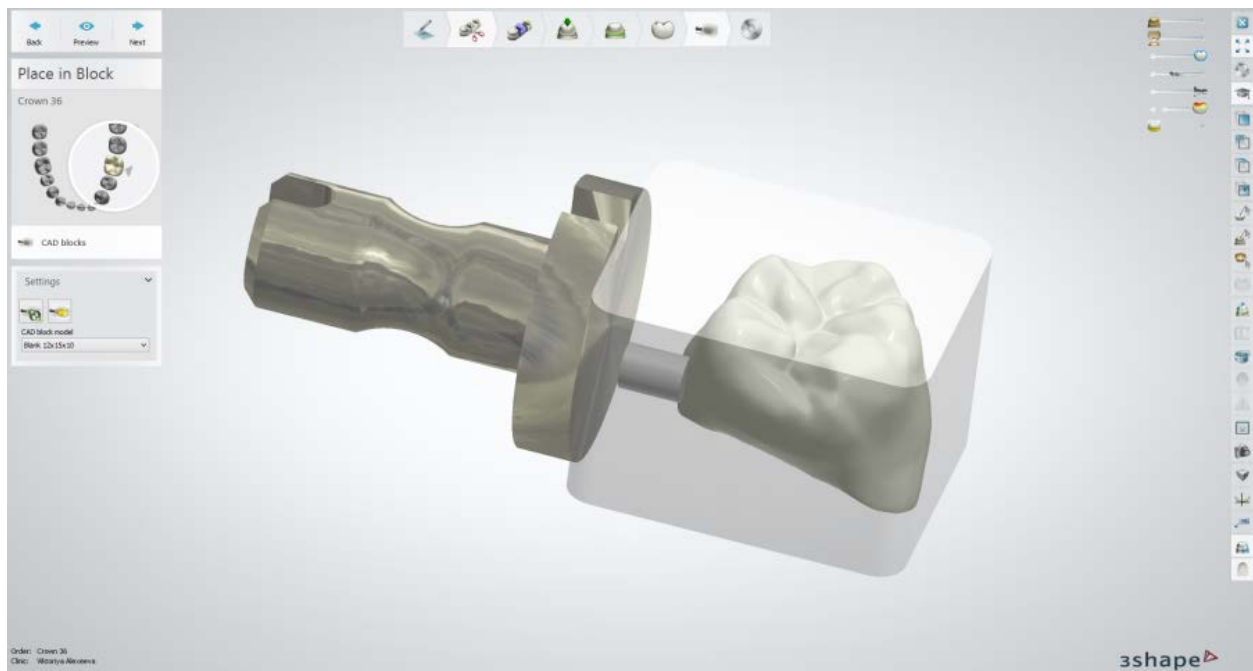
The step of preparation of the designed crown for manufacturing can be configured as [Place in block](#) or [Premanufacturing](#).

PLACE IN BLOCK



The **Place in block** step allows you to position a crown inside a block for further CAD block milling. To make the step available in the Workflow bar of Dental Designer, configure the CAD block and material settings in Dental System Control Panel (please read more in chapter [CAD Blocks](#)).

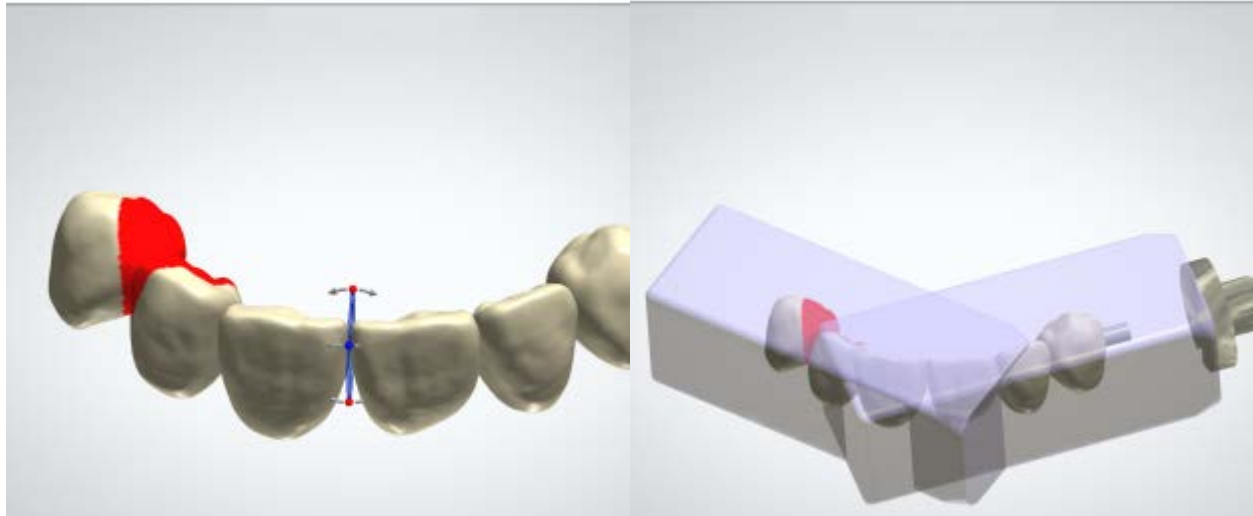
Select the CAD block material in the order form and model your crown as usual. In the **Place in block** step, the software automatically places the CAD design inside a true representation of a CAD Block – one which is automatically selected according to the crown's size and the CAD Block type/material setup in the order form. With various tools, you can adjust both the crown's position inside the Block and placement of the sprue (see description below).



PLACE IN BLOCK - SETTINGS



Cut - click to place a cutting plane to divide teeth and place them into separate CAD blocks. Change the value for the **Width of cut** if necessary. Click **Preview** to cut teeth and place them in blocks.



Cutting teeth

The teeth are cut and placed into the blocks



Reset cutting planes and re-align CAD blocks - click to go back to the initial placement of the planes and blocks.



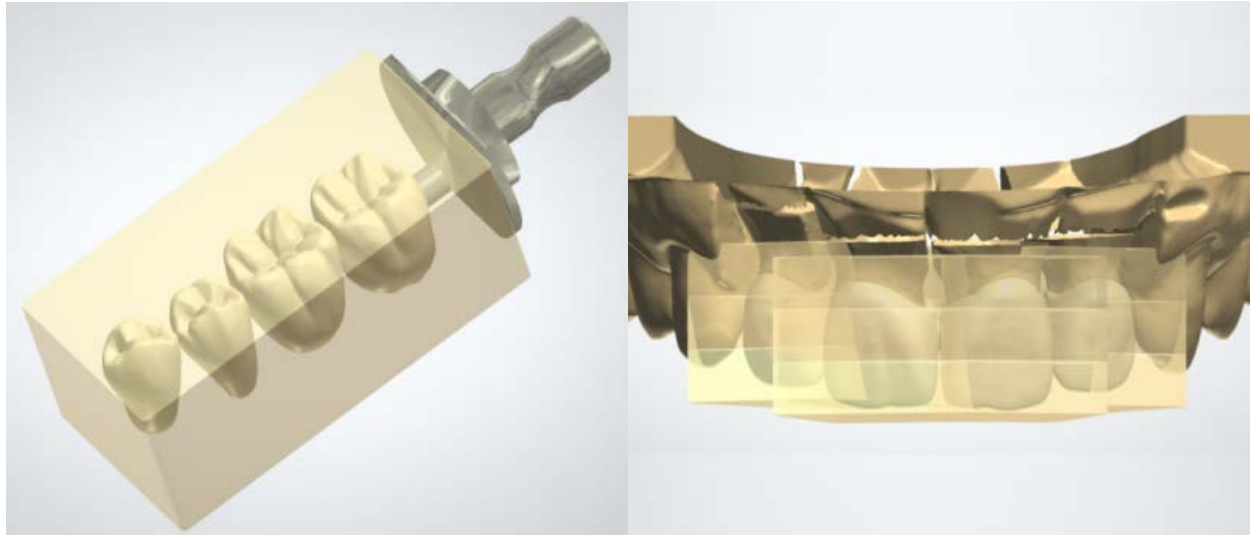
Push to end - click to move the CAD block so that the crown is placed closely to the front side of the block (taking into account the Safety Zone value).



Remove active CAD block - click to delete an active CAD block (to make a block active, select it with a mouse click).

Blank model - choose a CAD block model (predefined in Dental System Control Panel - > [CAD Blocks](#)).

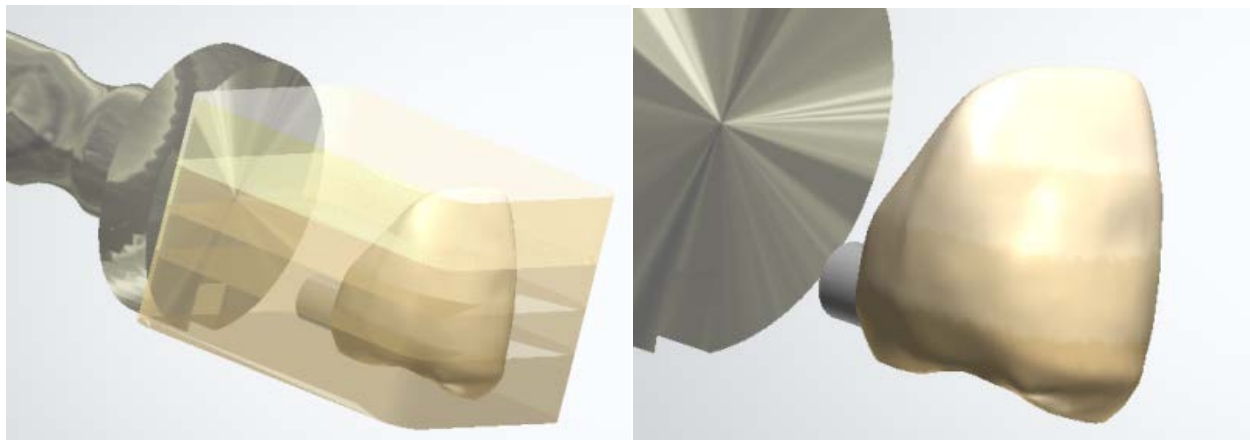
3Shape Dental System supports Blocks and Mandrels of different types and sizes **(1)** as well as simultaneous placement of single and multiple blocks **(2)**:



(1)

(2)

3Shape Dental System also supports multilayer CAD-blocks (3) which help to design and manufacture multicolor crowns (4). The harmoniously matched colors of a multilayer CAD block (e.g. VITABLOCS® TriLuxe forte) guarantee a veneer structure with a natural color gradient.



(3)

(4)

You can easily align the block layers optimally across multiple teeth when using the multilayer CAD Block materials.



Note! The material file with CAD blocks can be added to 3Shape Dental System on request. Please contact your local re-seller for information.

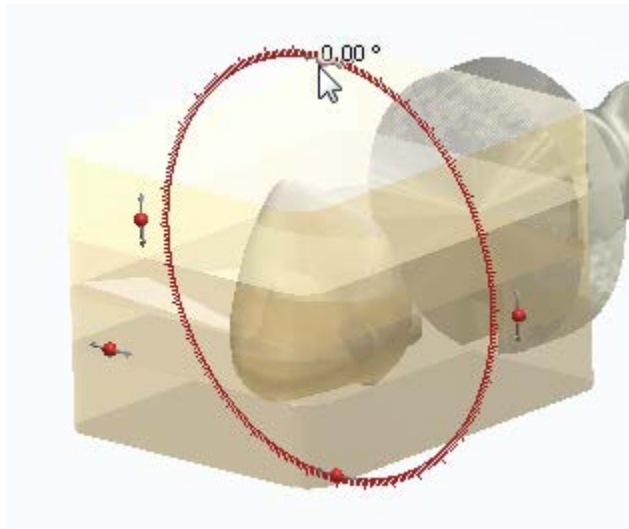
PLACE IN BLOCK - MODELING

In the 3D modeling window you can:

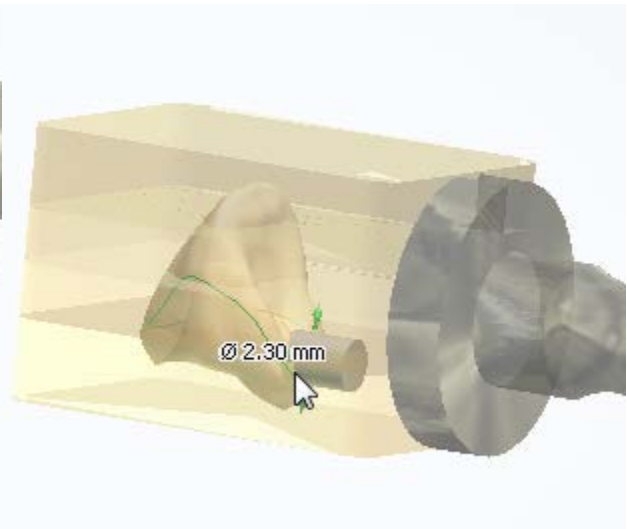
- Rotate a CAD block using the handles
- Move the block by clicking and dragging it with the cursor
- Correct the sprue placement by clicking and dragging it with the cursor
- Change the diameter of the sprue by hovering a mouse cursor over the sprue and scrolling the mouse wheel.



Note! It is recommended to place a sprue on the equator line.

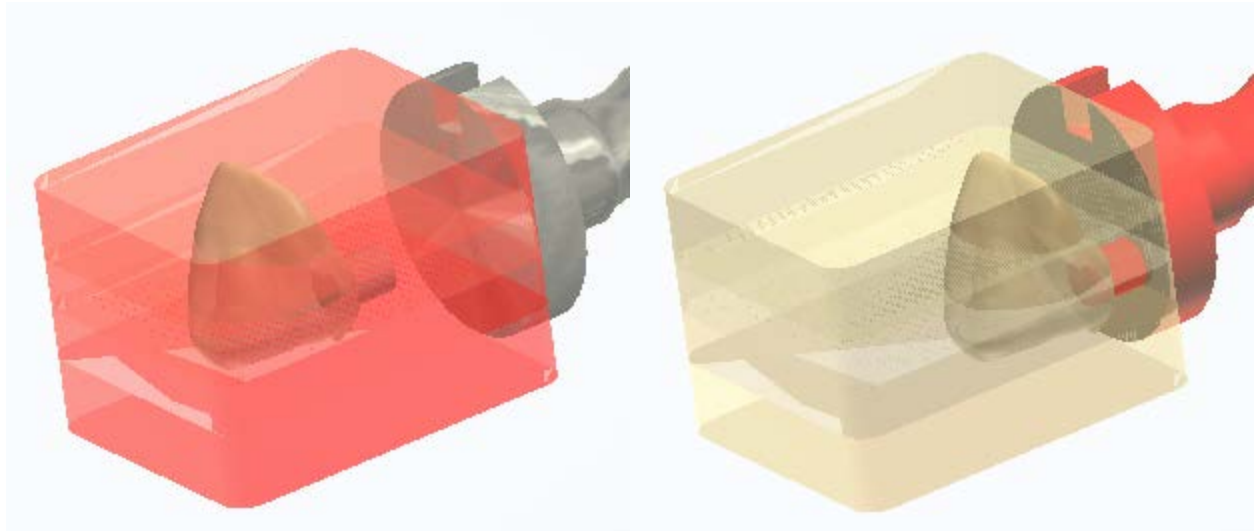


Rotating a block



Placing a sprue

While moving/rotating the block, the software will warn you if the minimum distance to a CAD block or mandrel is violated:

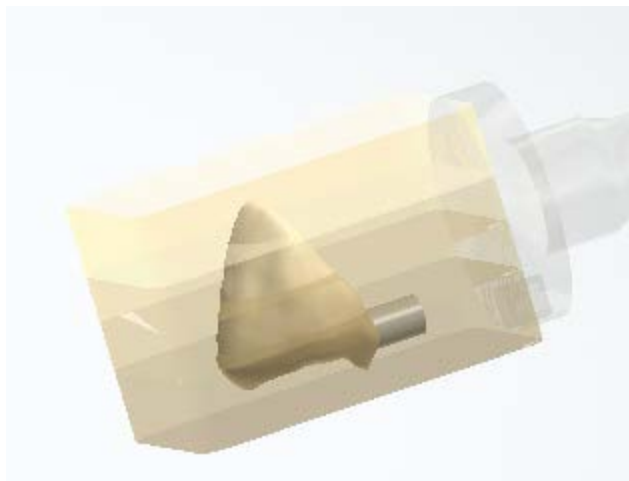


Minimum distance to block is violated

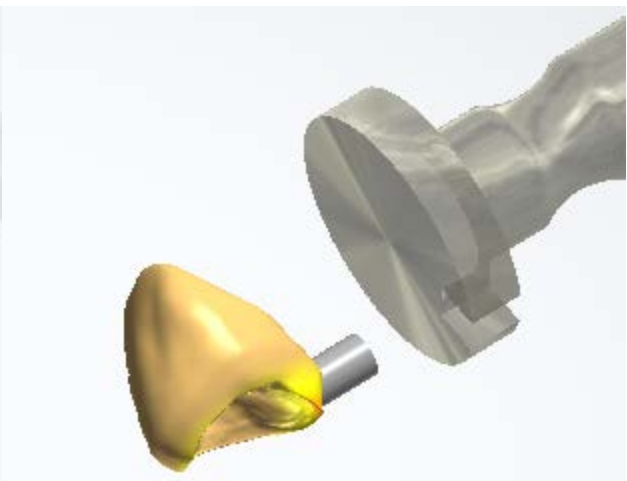
Minimum distance to mandrel is violated

PLACE IN BLOCK - SLIDERS

Use sliders in the upper-right corner of the modeling window for better visualization:



*The **Mandrel** slider in use*



*The **Safety zone** slider is ON*

Move sideways the **Inactive CAD block**



and **Active CAD block**



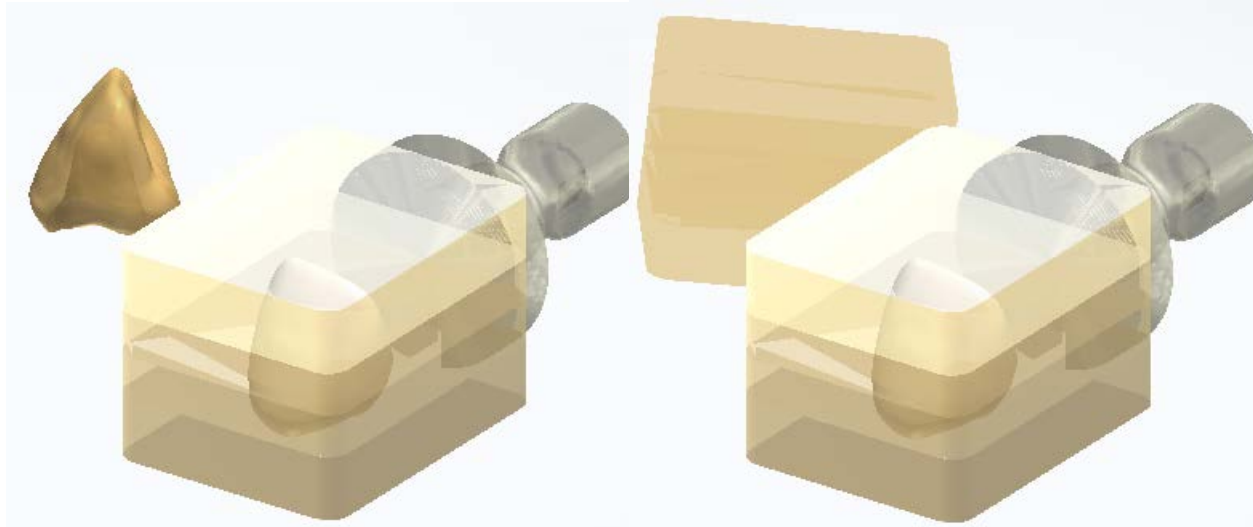
sliders to show/hide respective blocks. Move the **Inactive item**



and **Active item**



sliders to show/hide the respective crowns:



The visualization of inactive CAD block is turned off

The visualization of inactive crown is turned off

Once the design is optimally placed in the virtual CAD Blocks, you simply press a button in Dental System™ to send the design directly for automated manufacturing.

PREMANUFACTURING

IPS e.max® Press Multi

The **IPS e.max® Press Multi** substep of the Premanufacturing step allows you to attach the sprue to a crown for further manufacturing of the pressed restoration using the IPS e.max® Press ingot.

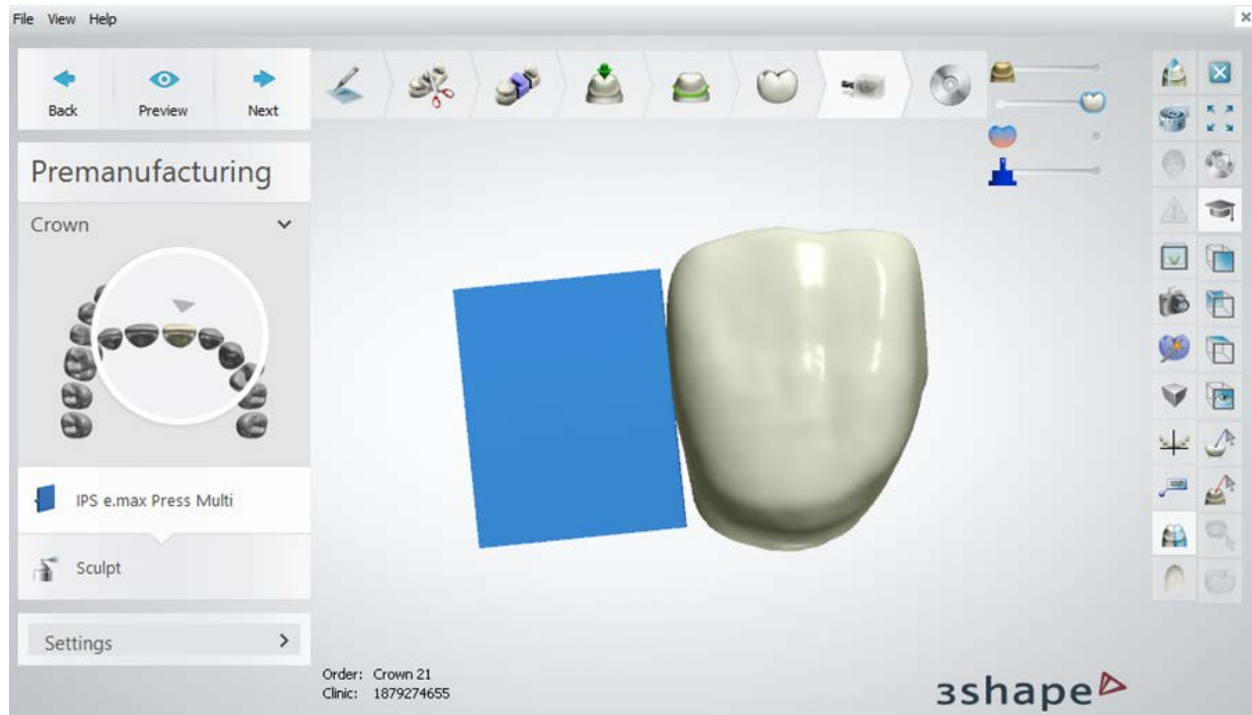


Note! To enable IPS e.max® Press Multi functionality contact, please, your re-seller.



The **Premanufacturing** step allows you to attach a sprue to the designed crown for further manufacturing of the pressed restoration using the IPS e.max® Press ingot. To make the step available in the Workflow bar of Dental Designer, configure the Press Multi sprue settings in Dental System Control Panel (for more information, see the chapter [Press Multi sprues](#)).

At the **IPS e.max® Press Multi** substep, the sprue is attached to a crown automatically.



Select the suitable **Sprue type**:

- **Wax Pattern A** – is used for veneers, anterior and posterior crowns, and also for screw-retained crowns.
- **Wax Pattern B** – is used for delicate crowns on very narrow preparations, e.g. mandibular anterior crowns.



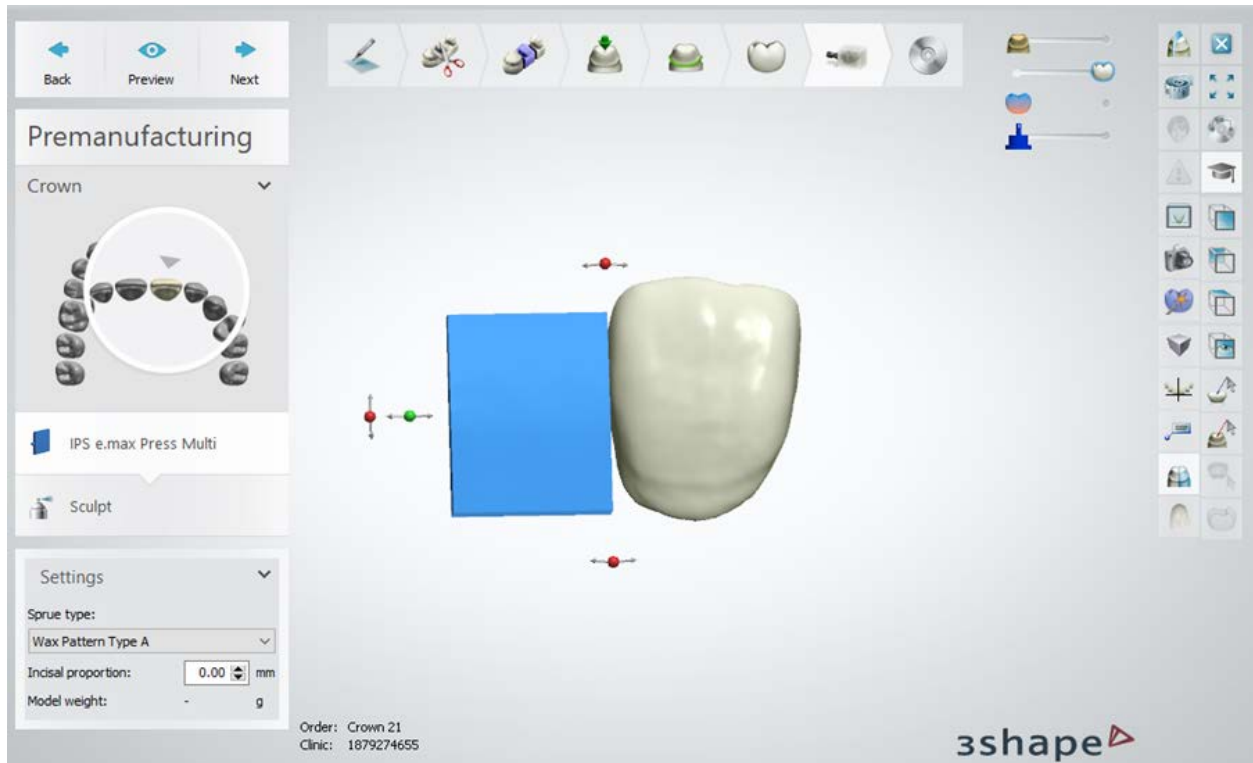
Wax Pattern A




Wax Pattern B

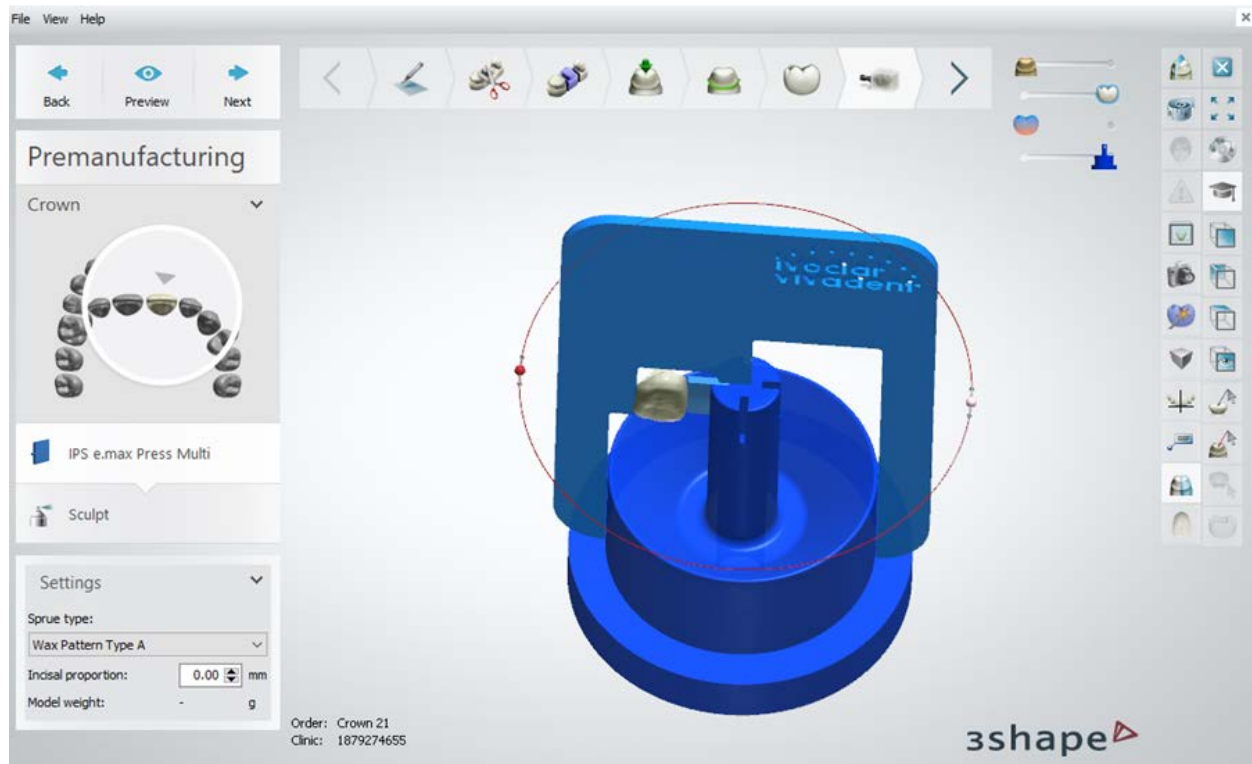
Adjust the position and the width of the sprue:

- Move the sprue by dragging it.
- Rotate the sprue by dragging the **red** control points. The control points appear when you hover the cursor over the sprue.
- Change the width of the sprue by dragging the **green** control point.

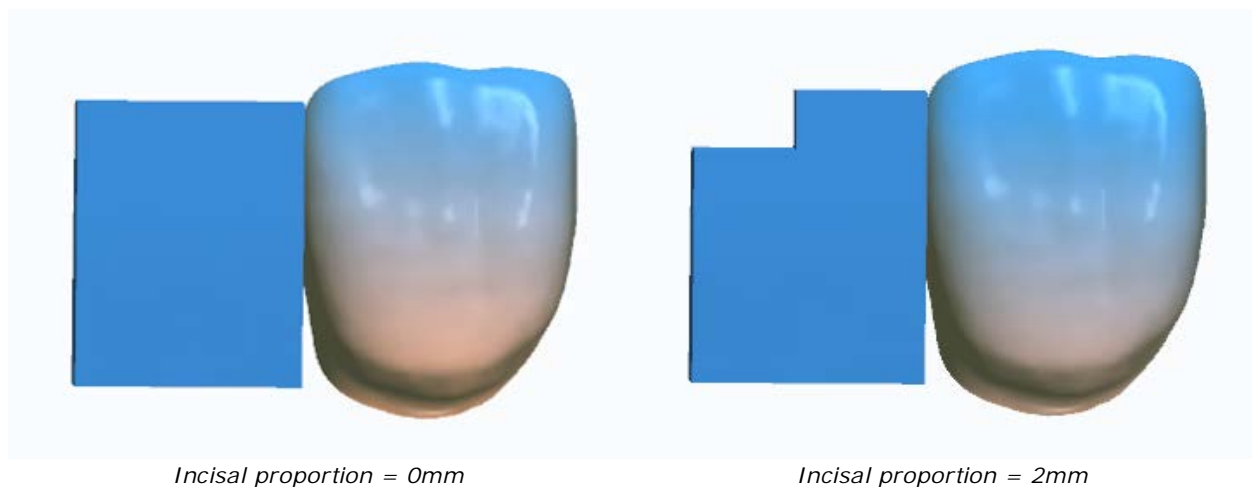


Use the **Sprue guide**  slider in the upper-right corner of the modelling window to make the sprue guide and the investment ring base visible and check the correct positioning of the sprue and the restoration.

You can rotate the sprue guide along the investment ring base using the **red** control points which appear when you incline the model.



Incisal proportion – cuts the sprue and increases the incisal area on a restoration (maximum shift: 2 mm). Turn on the visibility of **Ingot colors** in the upper-right corner of the modelling window to see the shade gradation.



Sculpt

Modify the shape of the sprue using the sculpt tools. For more information about the sculpt tools, see [Sculpt Toolkit](#) chapter.

Select the **Sculpt on protected surfaces** checkbox to enable sculpting on the sprue surface.

1.4. Full Anatomical Bridge

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.


The included sub-chapters describe a workflow for a Full Anatomical Bridge order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)


1.4.1. Full Anatomical Bridge Order Creation

To create a Full Anatomical Bridge order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

▶ **Step 1: Select preparations in the teeth overview**

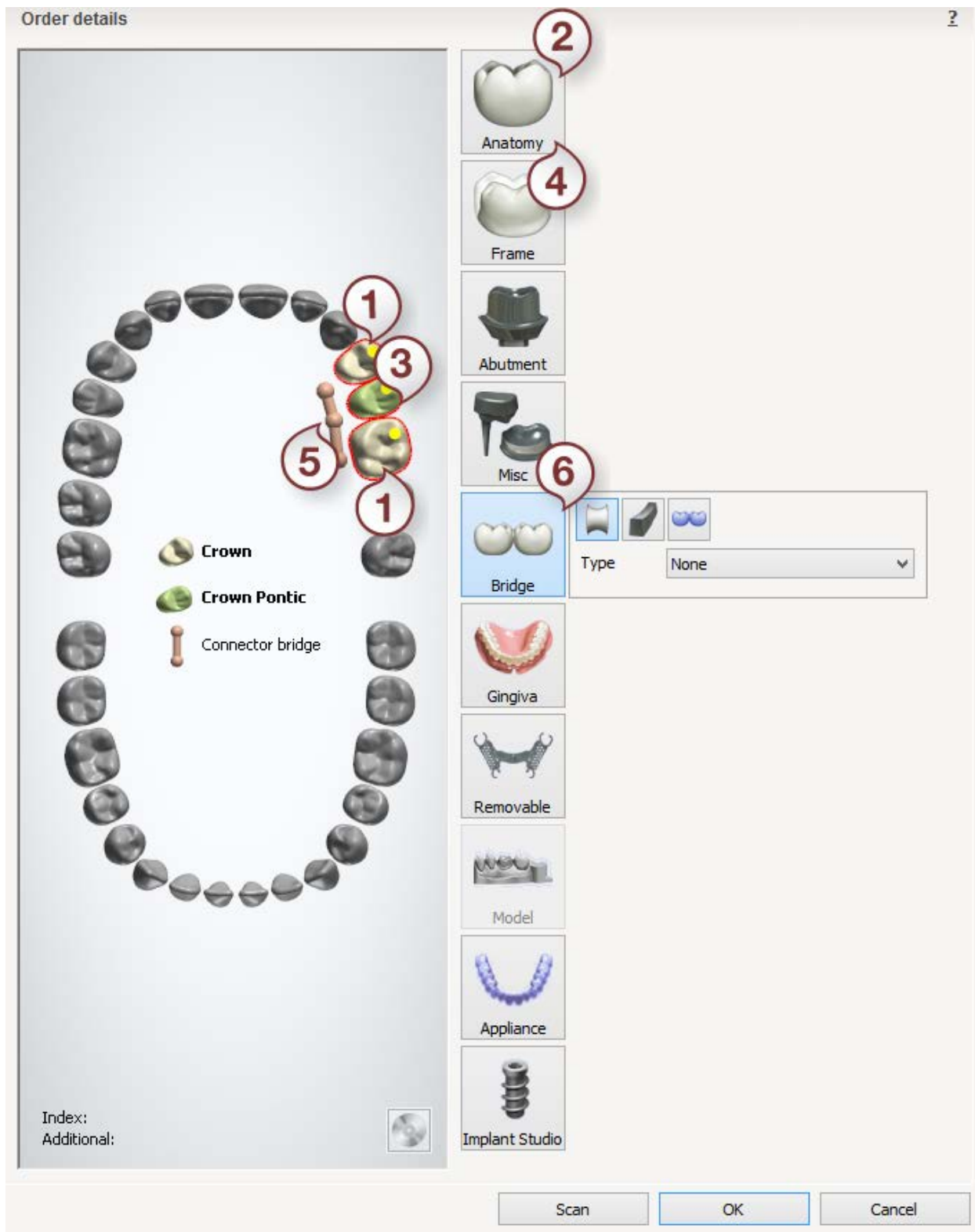
▶ **Step 2: Click the *Anatomy* button, the *Crown*  button is selected by default**

▶ **Step 3: Select pontic in the teeth overview**

▶ **Step 4: Click the *Anatomy* button and select the *Crown Pontic*  button**

▶ **Step 5: Select all units in bridge in the teeth overview**

▶ **Step 6: Click the *Bridge* button**



After creating the order, proceed to [scanning](#).

1.4.2. Full Anatomical Bridge Scanning

Full Anatomical Bridge scanning is similar to the [Bridge Framework](#) indication, please see the chapter for details.

Continue to the [design section](#).

1.4.3. Full Anatomical Bridge Design

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

If you design an anatomical layer with crowns, crown pontics and bridge connector, you can use the [Split Bridge](#) option at this step as described in Split Bridge Design chapter.

Other than that, this step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

Please see Bridge Smile Composer chapter for details on smile composer design.

►Step 7: Load Pontic Model

This step is identical to [Load pontic model](#) described in Bridge Framework chapter.

►Step 8: Edit Connector

This step is identical to [Edit connector](#) described in Bridge Framework chapter.

►Step 9: Sculpt

This step is described in [Sculpt Toolkit](#) chapter.

If you used the Split Bridge option at the Insertion Direction step, click **Next** to go to the Finalize step where you can [Design Attachment](#) as described in Split Bridge Design chapter.

►Step 10 (optional): Preparation for manufacturing

The step is based on the corresponding settings in the Control Panel according to which you can position the designed crown inside the CAD block ([Place in Block](#) step) or attach the sprue to it ([Premanufacturing](#) step).

Continue to [manufacturing](#) if required.

1.5. Anatomical Copings and Framework

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for an Anatomical Copings and Framework order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.5.1. Anatomical Copings and Framework Order Creation



To create an Anatomical Copings and Framework order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

►Step 1: Select preparations in the teeth overview

►Step 2: Click the *Frame* button (the *Anatomical Coping*  button is selected by default)

►Step 3: Select pontic in the teeth overview

►Step 4: Click the *Frame* button and select the *Anatomical Pontic*  button

► Step 5: Select all units in bridge in the teeth overview

► Step 6: Click the *Bridge* button



After creating the order, proceed to [scanning](#).

1.5.2. Anatomical Copings and Framework Scanning

Anatomical Copings and Framework scanning is similar to the [Bridge Framework](#) indication, please see the chapter for details.

Continue to the [design section](#).

1.5.3. Anatomical Copings and Framework Design



►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

If you design an anatomical frame layer with anatomical copings, pontics and bridge connector, you can use the [Split Bridge](#) option at this step as described in Split Bridge Design chapter.

Other than that, this step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

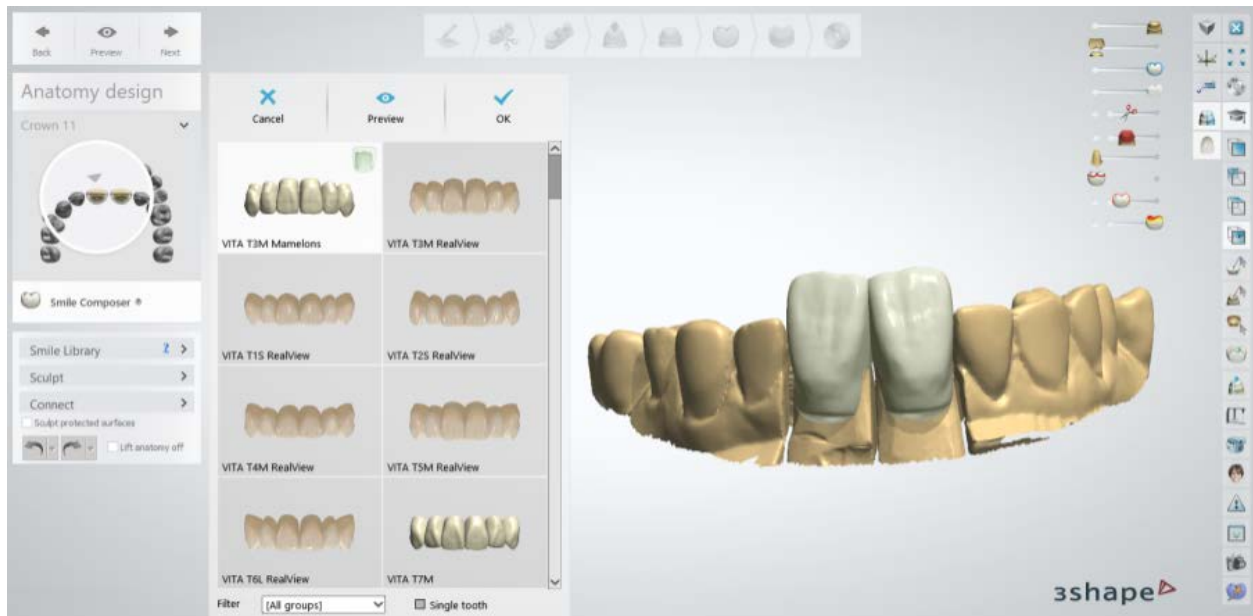
This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design anatomy

Use [Smile Composer](#) to design the anatomy first. When mamelon structure is required, please select it from the smile library.



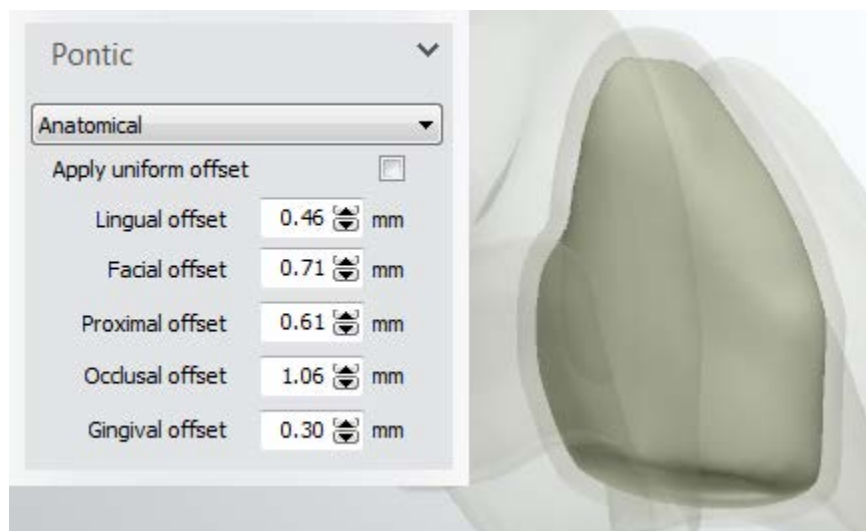
► Step 7: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

► Step 8: Load Pontic Model

You can choose from **Anatomical**, **Lingual band**, **Facial reduction**, **Library pontic** or **External file** from the drop-down menu:

- **Anatomical pontic**



Anatomical - applies predefined non-uniform or uniform offset to the selected anatomical pontic.

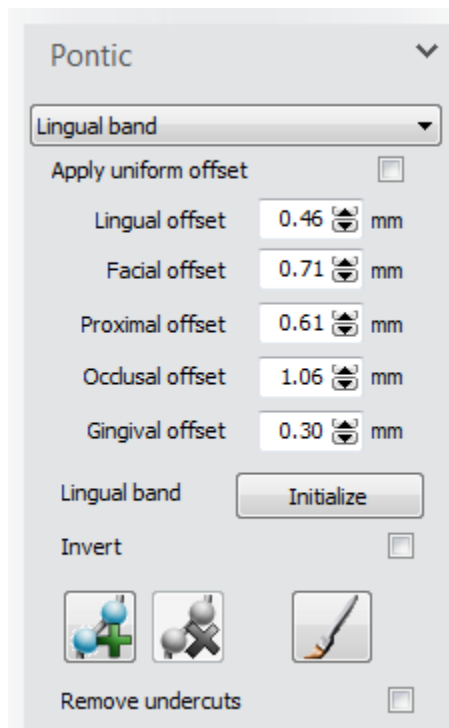
- **Lingual band pontic**

Lingual band - applies predefined non-uniform or uniform offset to the edge of the anatomical pontic.

You can use either Line or Paint mode to create Lingual band during the anatomy edge design.



- **Switch to Paint mode** from Line mode button.



The following shortcuts become available in Paint mode:

Hold **Ctrl** key to remove paint selection. Hold **Shift** key and scroll the mouse wheel to change the paint radius.

Click **Initialize** to reset the spline to the default position.

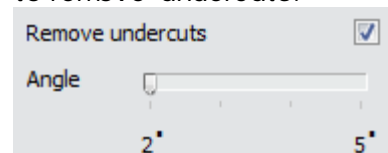


- **Add new occlusal stop spline** - lets you draw a new spline.

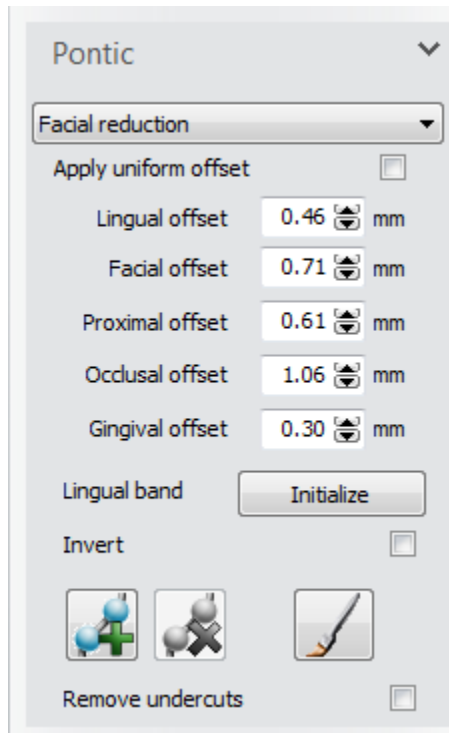


- **Delete selected occlusal stop spline** - removes the active spline.

Remove Undercuts - lets you define the **Angle** value from the insertion direction to remove undercuts:



- **Facial reduction pontic**



Facial reduction - used to cut back the facial and cusp sides of an anatomical pontic.

You can use either Line or Paint mode to create facial reduction.



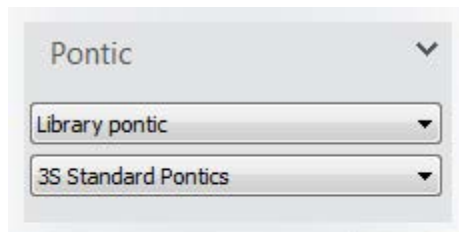
- **Switch to Paint mode** from Line mode button.

The following shortcuts become available in Paint mode:

Hold **Ctrl** key to remove paint selection. Hold **Shift** key and scroll the mouse wheel to change the paint radius.

Click **Initialize** to reset the spline to the default position.

- **Library pontic**



Library pontic - lets you select a pontic with the drop-down menu from the existing library.

- **External file pontic**

Pontic ▼

External file ▼

File name ▼

Browse

External file - browse to select and load your pontic from an external file.

► Step 9: Design Anatomical coping

After your crown has been modeled and appears at the **Frame Design** step, specify **Edge design** and **Advanced Settings** for the coping in the Design Tools.

EDGE DESIGN

You can choose **Simple edge**, **Lingual band** or **Facial reduction** for the edge design from the drop-down menu:

- **Simple edge**



Simple edge - applies **Margin line offset**, **Offset angle** and **Extension offset** parameters to the coping edge.

- **Lingual band**

Lingual band - applies **Lingual**, **Proximal #1**, **#2** and **Facial** settings to the coping edge.

You can use either Line or Paint mode to create Lingual band and Occlusal stop during the anatomy edge design.

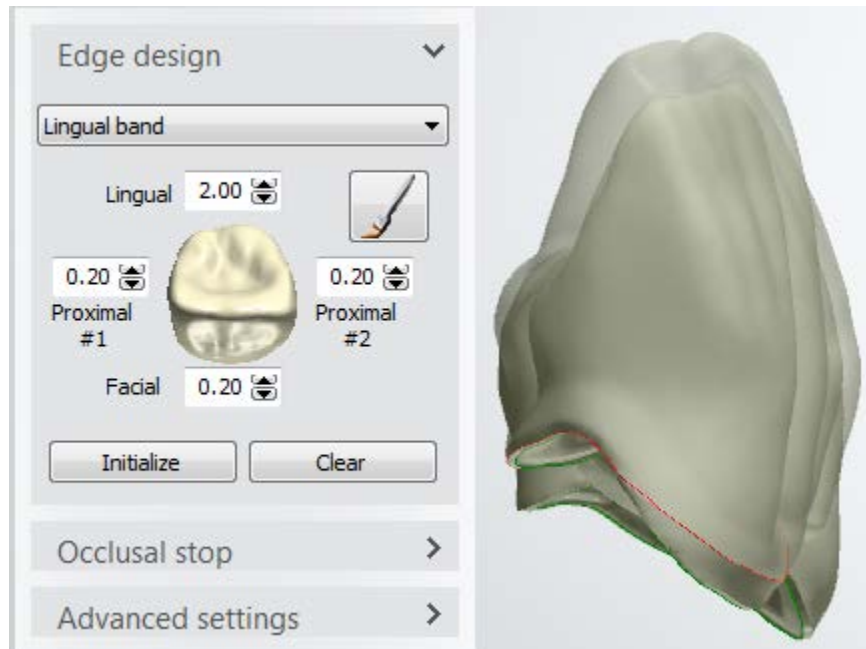


- **Switch to Paint mode** from Line mode button.

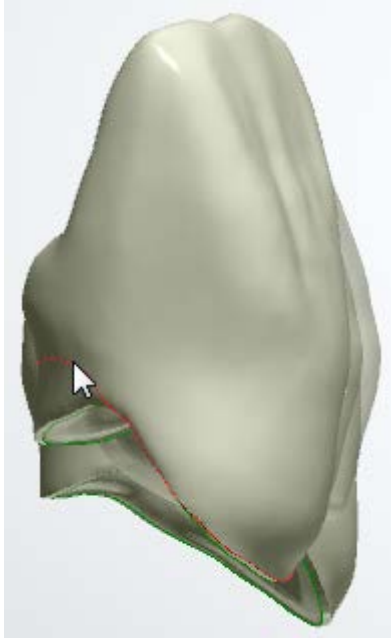
The following shortcuts become available in Paint mode:

Hold **Ctrl** key to remove paint selection. Hold **Shift** key and scroll the mouse wheel to change the paint radius.

Click **Initialize** to reset the spline to the default position. Click **Clear** to discard the changes.



Lingual band creation, line mode versus paint mode:



Line mode drawing



Paint mode drawing

- **Facial reduction**

Facial reduction - used to cut back the facial and cusp sides of an anatomical coping for veneering.

Use **Shift** and **Facial** values to define the position of the drawn spline.

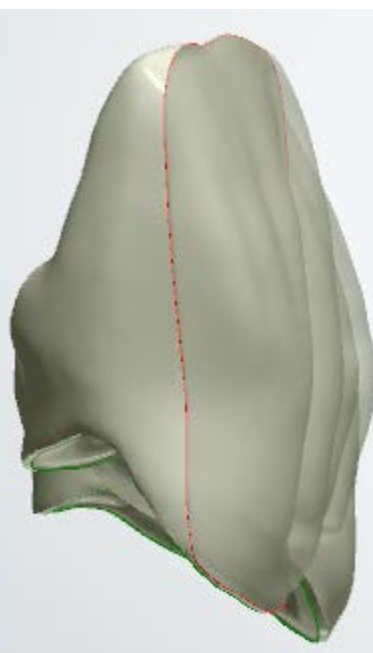
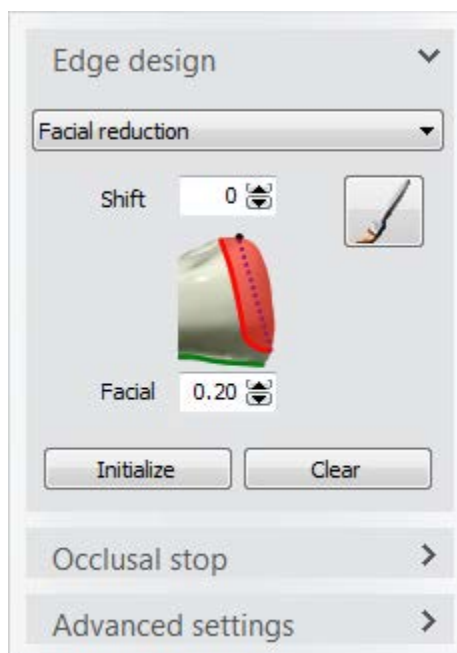
You can use either Line or Paint mode to create facial reduction.



- **Switch to Paint mode** from Line mode button.

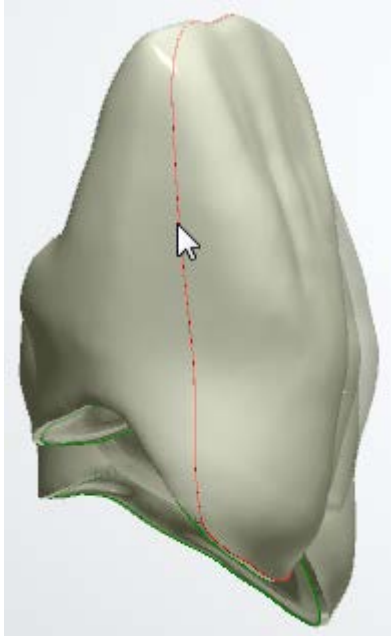
The following shortcuts become available in Paint mode:

Hold **Ctrl** key to remove paint selection. Hold **Shift** key and scroll the mouse wheel to change the paint radius.

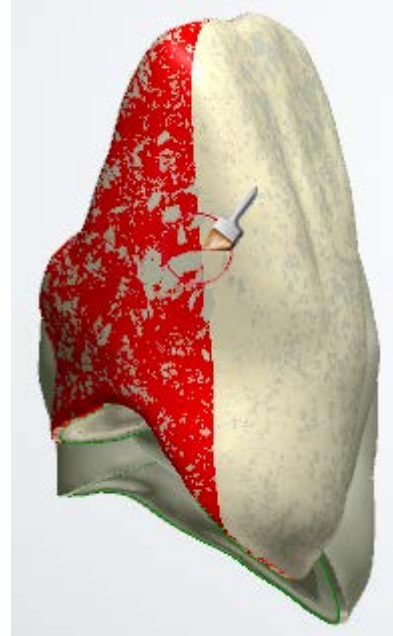


Click **Initialize** to reset the spline to the default position. Click **Clear** to discard the changes.

Facial reduction creation, line mode versus paint mode:



Line mode drawing

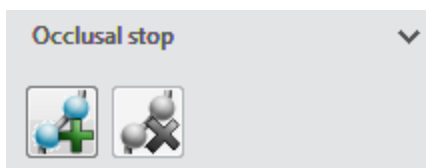



Paint mode drawing


OCCLUSAL STOP

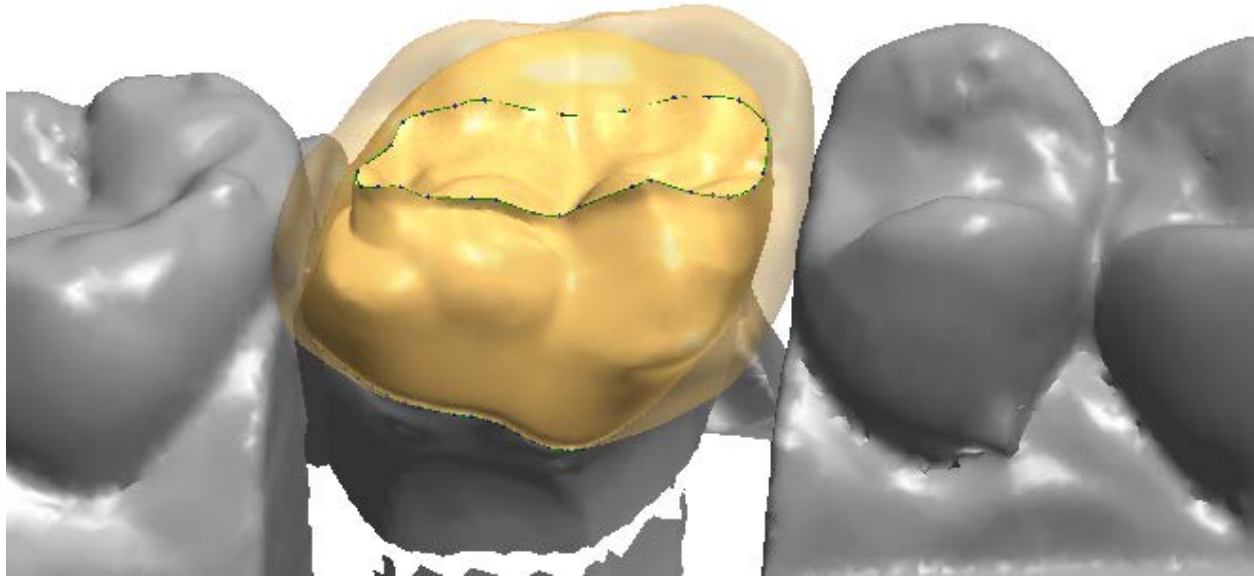
Use an **Occlusal stop** to outline an area on a coping that you want to be snapped to anatomy.

Occlusal stops are usually used in zones where there is no space left for decent level of ceramic. Occlusal stops can also be used to adjust the bite height.



Click  and draw an occlusal stop spline. Press **Preview** to view the result (see image below).

Click  to remove an active spline (to make spline active (red), click on one of its control points).



A coping with an occlusal stop placed

ADVANCED SETTINGS

Advanced settings

Min. coping thickness

0.50 mm

Transition height

1.50 mm

Anatomical coping

☒

Apply uniform offset

☒

Offset

0.90 mm

Remove undercuts

☐

Min. coping thickness - minimum wall thickness of an anatomical coping.

Transition height - an approximate distance from the margin line to the borderline, marking the beginning of the area where the wall thickness is applied.

Anatomical coping - enables the settings for the anatomical coping.

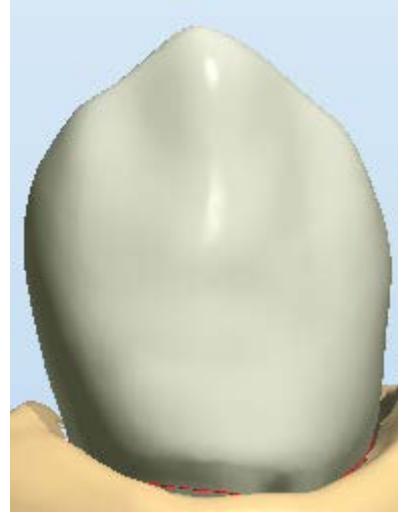
Apply uniform offset - a uniform reduction is applied when marked; otherwise, non-uniform offset parameters apply.

While the lowest value of the non-uniform offset is limited to 0.3 mm, the uniform offset can be set to zero to produce solid crown and anatomical coping models as shown on the following images.

Remove Undercuts - lets you define the **Angle** value from the insertion direction to remove undercuts.



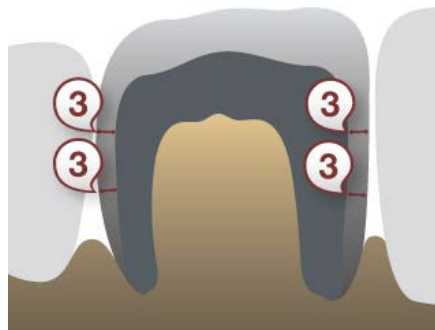
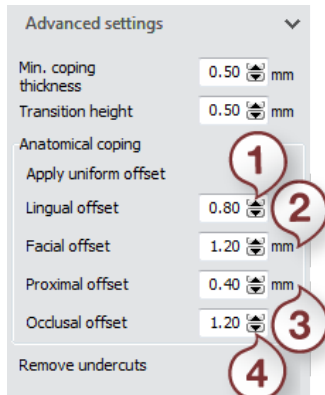
Uniform offset = 0.3 mm



Uniform offset = 0

A non-uniform reduction is the solution for durability, efficiency and esthetics of porcelain veneering. An anatomical offset is an internal offset from the crown "outside-in" that creates the anatomical coping.

The following images explain offset parameters:



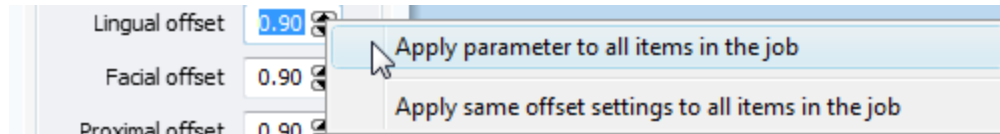
Proximal offset



Occlusal, Lingual and Facial offsets

With the right-click over the **Advanced settings** values you can:

- **Apply parameter to all items in the job** - all items will have the same indicated parameter value.
- **Apply same offset settings to all items in the job** - all items will have identical offset values.



Click **Preview** to view changes, click **Next** to go to [Sculpt](#).



►Step 10: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

►Step 11: Edit Connector

This step is identical to [Edit Connector](#) described in Bridge Framework chapter.

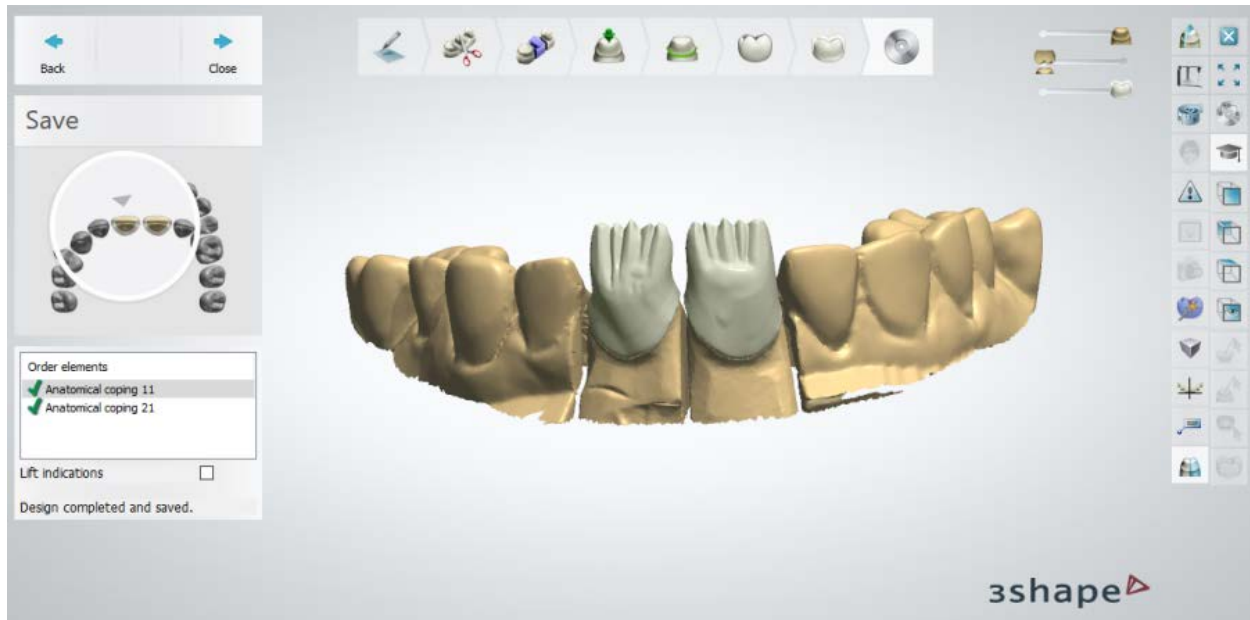
►Step 12: Sculpt frame bridge

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

If you used the Split Bridge option at the Insertion Direction step, click **Next** to go to the Finalize step where you can [Design Attachment](#) as described in Split Bridge Design chapter.

►Step 13: Save your design

The following image shows an example of maxillary arch modeled and ready for sending.



Continue to [manufacturing](#) if required.

1.6. Split Bridge

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Split Bridge order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)



1.6.1. Split Bridge Order Creation

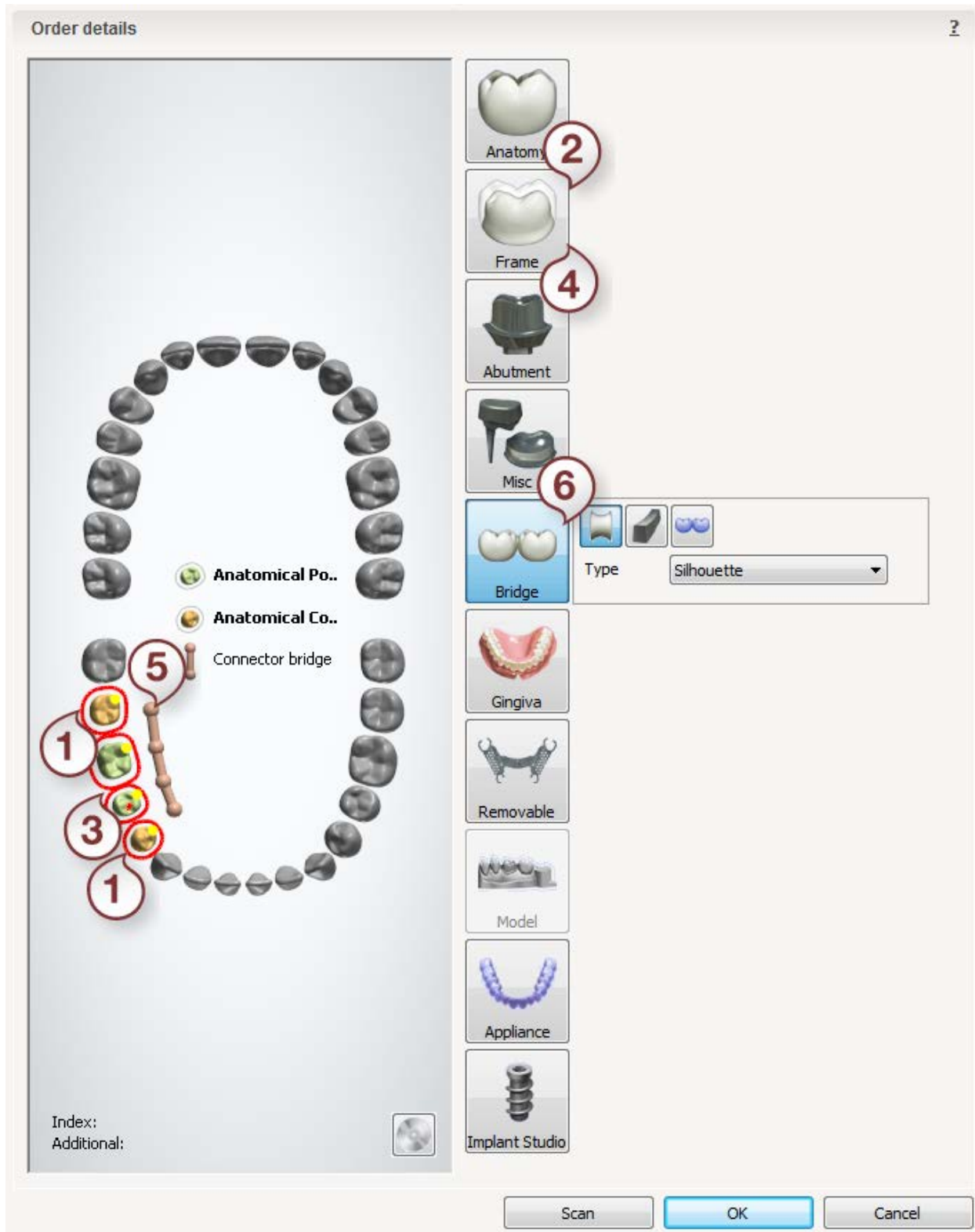
Depending on your need, you have three options for creating a Split Bridge order:

1. Choose an anatomical frame layer with anatomical copings, pontics and bridge connector as described in the chapter [Anatomical Copings and Framework Order Creation](#).
2. Choose a frame layer with standard copings, pontics and bridge connector as described in the chapter [Bridge Framework Order Creation](#).
3. Choose an anatomical layer with crowns, crown pontics and bridge connector as described in the chapter [Full Anatomical Bridge Order Creation](#).

To create a Split Bridge order described in the first option, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► Step 1: Select preparations in the teeth overview

- ▶ Step 2: Click the *Frame* button (the *Anatomical Coping*  button is selected by default)
- ▶ Step 3: Select pontic in the teeth overview
- ▶ Step 4: Click the *Frame* button and select the *Anatomical Pontic*  button
- ▶ Step 5: Select all units in bridge in the teeth overview
- ▶ Step 6: Click the *Bridge* button



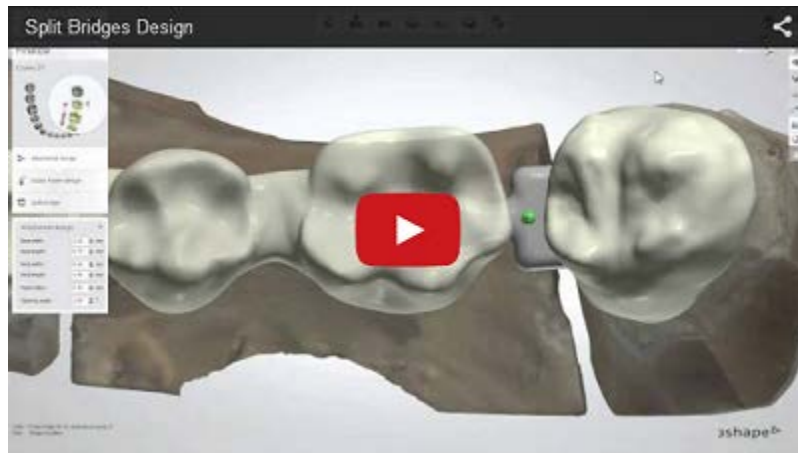
After creating the order, proceed to [scanning](#).

1.6.2. Split Bridge Scanning

Split Bridge scanning is similar to the [Bridge Framework](#) indication, please see the chapter for details.

Continue to the [design section](#).

1.6.3. Split Bridge Design



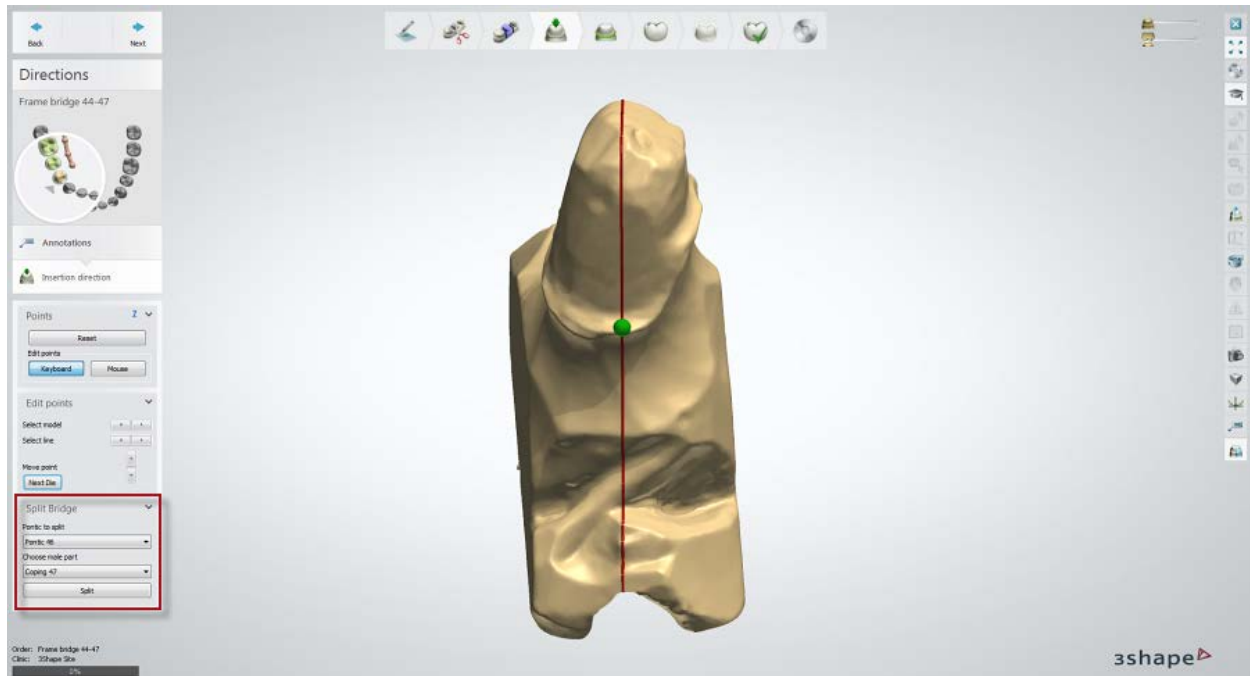
►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

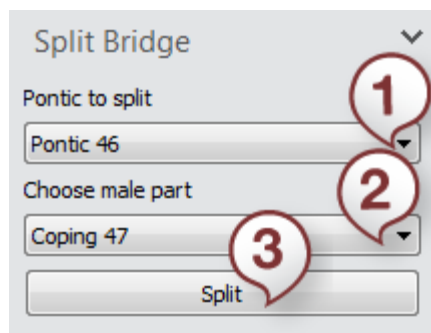
►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Define the split



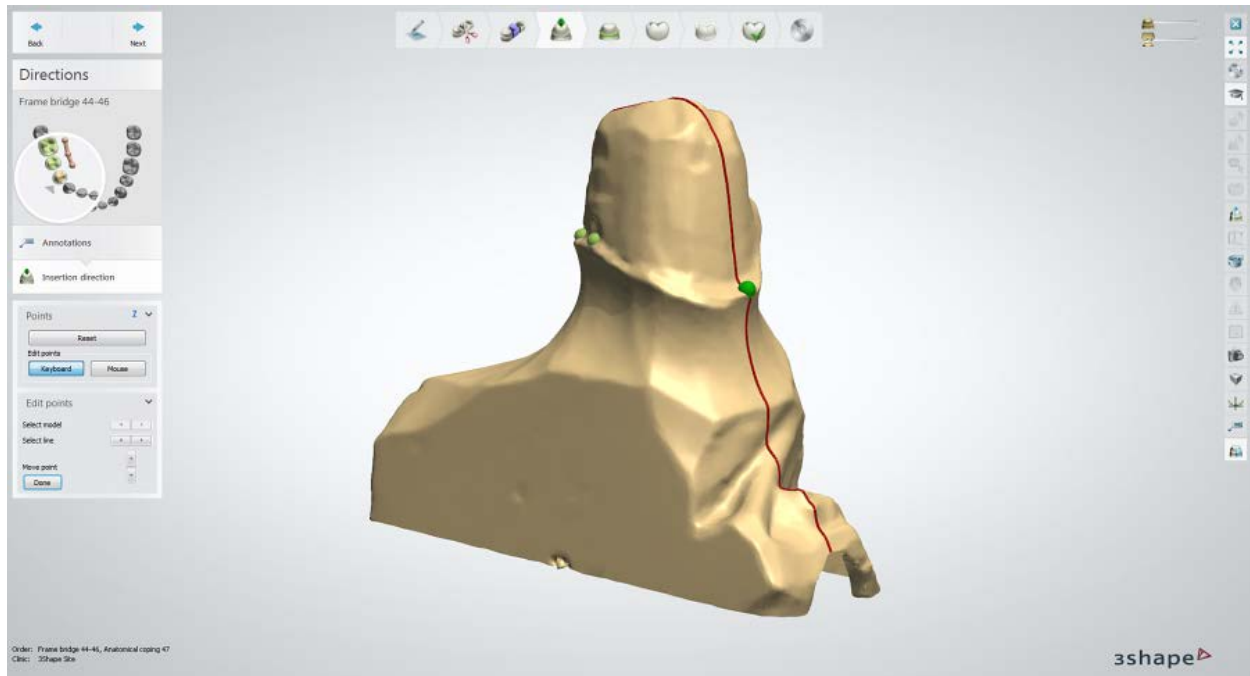
In the Split Bridge menu (highlighted on the image above) of the Insertion direction substep, choose the indications – a pontic **(1)** and a coping **(2)** – where the split should be done and click the **Split (3)** button. The software will calculate two different insertion directions for both parts of the split bridge.



Note! You can enforce a split only between a coping and a pontic rather than between two pontics.

►Step 4: Set Insertion Direction

Define [Insertion Direction](#) for the first part of the bridge as described in Single Coping chapter, then press **Next** and do the same for the second one.



►Step 5: Place the Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 6: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 7: Design Anatomy

Please see instructions on how to use Smile Composer described in [Smile Composer](#) chapter.

►Step 8: Sculpt

This step is similar to the described in [Sculpt Toolkit](#) chapter.

►Step 9: Design a Coping

If you design a standard pontic, this step is identical to [Coping](#) described in Single Coping chapter. If you design an anatomical coping, this step is identical to [Anatomical coping](#) in Anatomical Copings and Framework Design chapter.

►Step 10: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

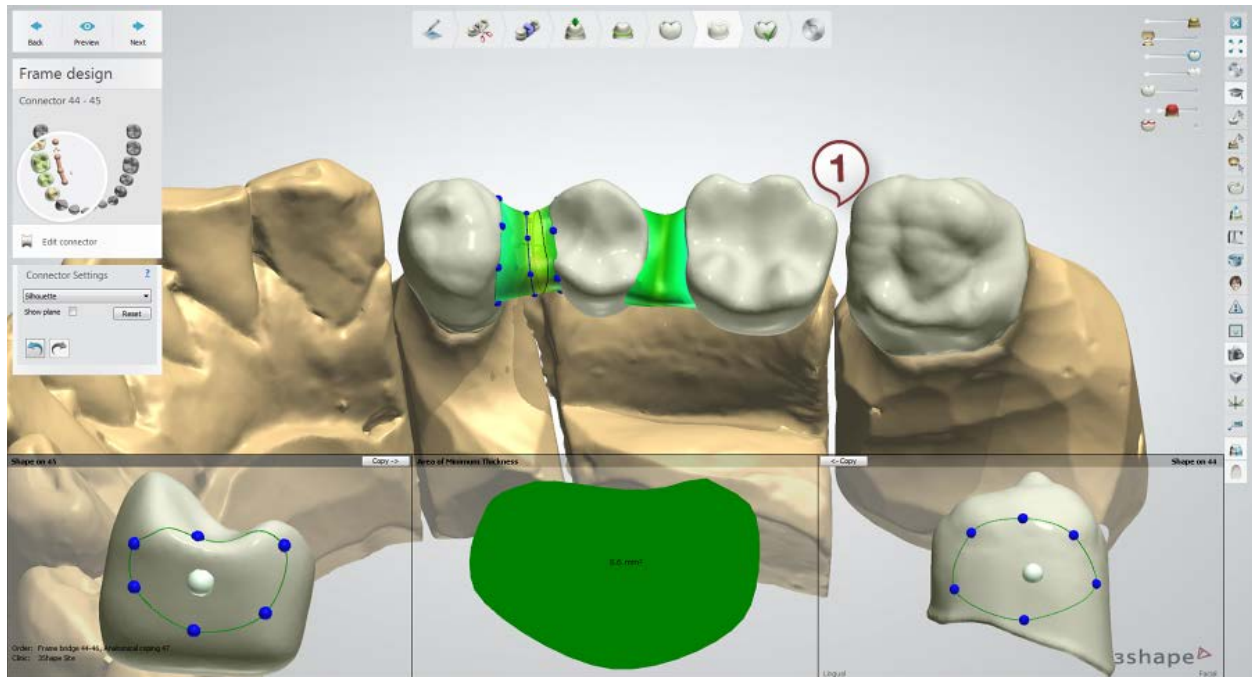
►Step 11: Load Pontic Model

This step is identical to [Load Pontic Model](#) described in Bridge Framework chapter.

► Step 12: Edit Connector

This step is similar to [Edit Connector](#) described in Bridge Framework chapter.

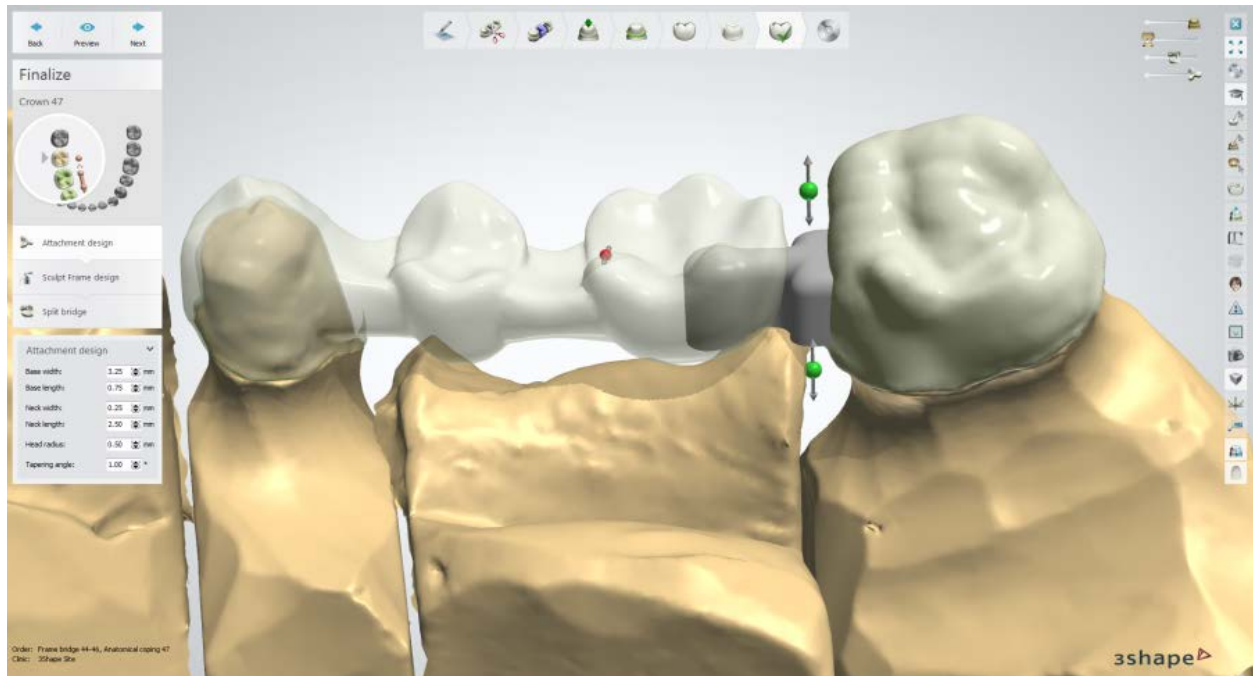
At this step, you can see the difference between a one-piece bridge and a split one, which is the absence of one connector (1). This is actually the area which is going to be designed at the next step.



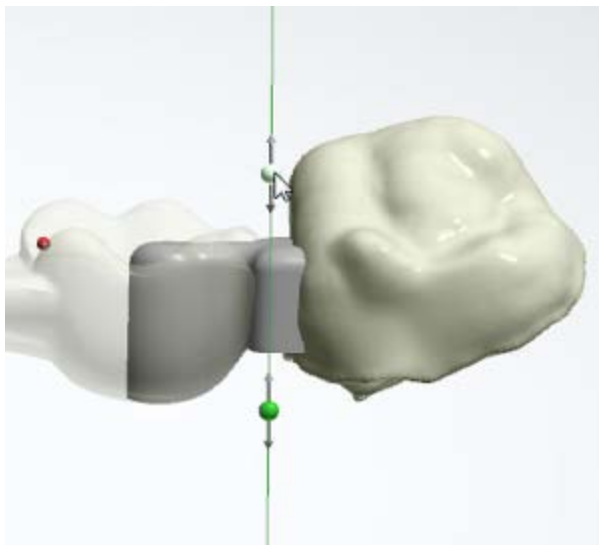
► Step 13: Design Attachment

Construct and position the male attachment, which is going to be subtracted from the pontic to form the female socket, thus creating the sliding mechanism.

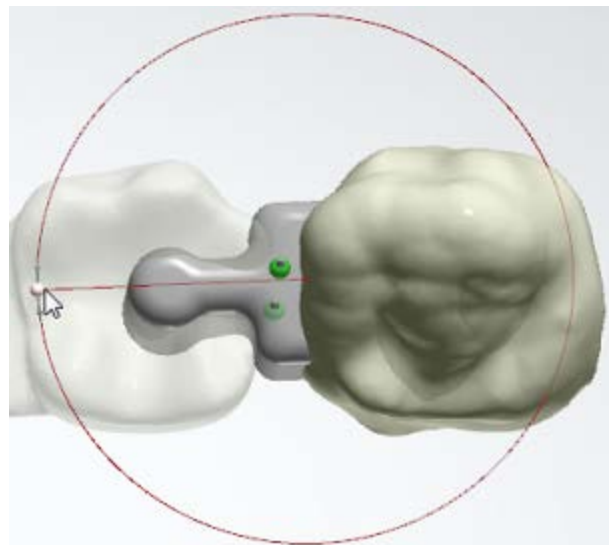
Using options in the Attachment design menu, you can change the shape of the male attachment by modifying the following parameters: Base width and length, Neck width and length, Head radius and Tapering angle (makes the attachment tapered on sides).



You can also adjust the height of the upper and lower part of the attachment using the green points as well as rotate the attachment using the red point:



Adjusting attachment height



Rotating attachment

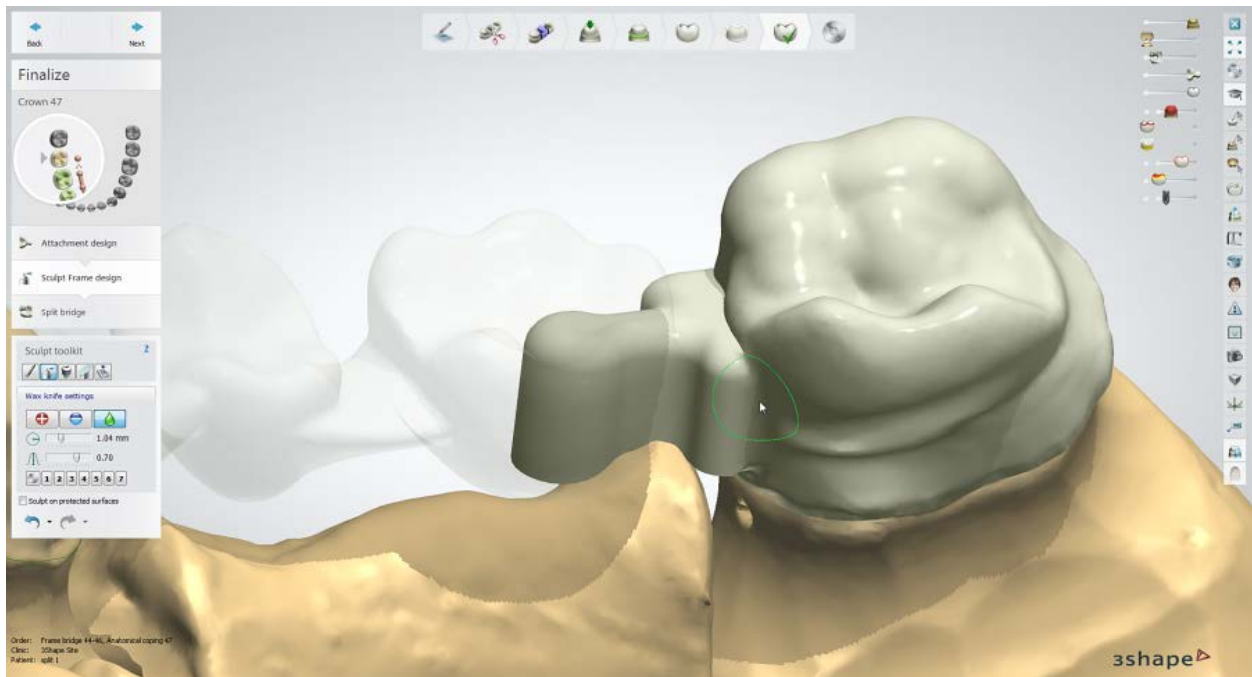


Note! For a stable construction, please make sure that the head of the attachment is placed in parallel with the alveolar bone.

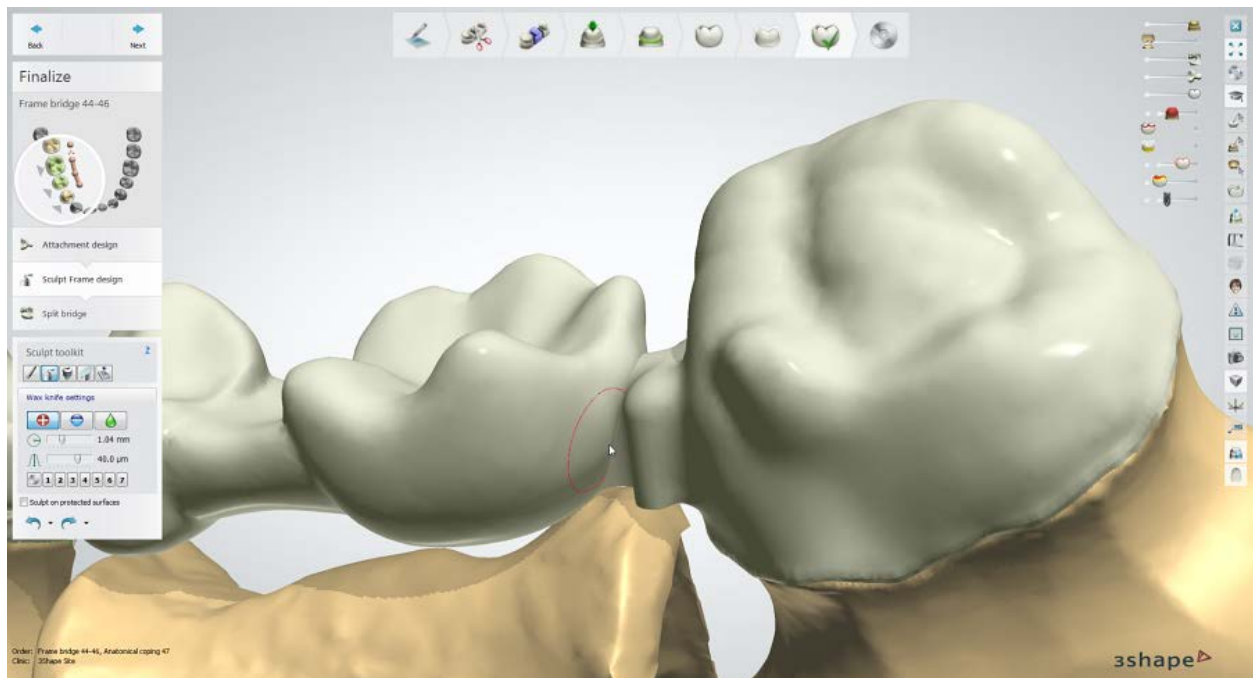
► Step 14: Sculpt Frame design

At the next Sculpt Frame design substep, you can use Sculpt toolkit to make final adjustments to the design. The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

Make sure you create enough space for the ceramic layer, which will be added after production, and smooth the connection between the attachment and coping.



Move to the female part and adjust it if necessary so it rests nicely on the base of the attachment. This way you can avoid bridge rotation.



If you are satisfied with the design, click **Next** to go further.

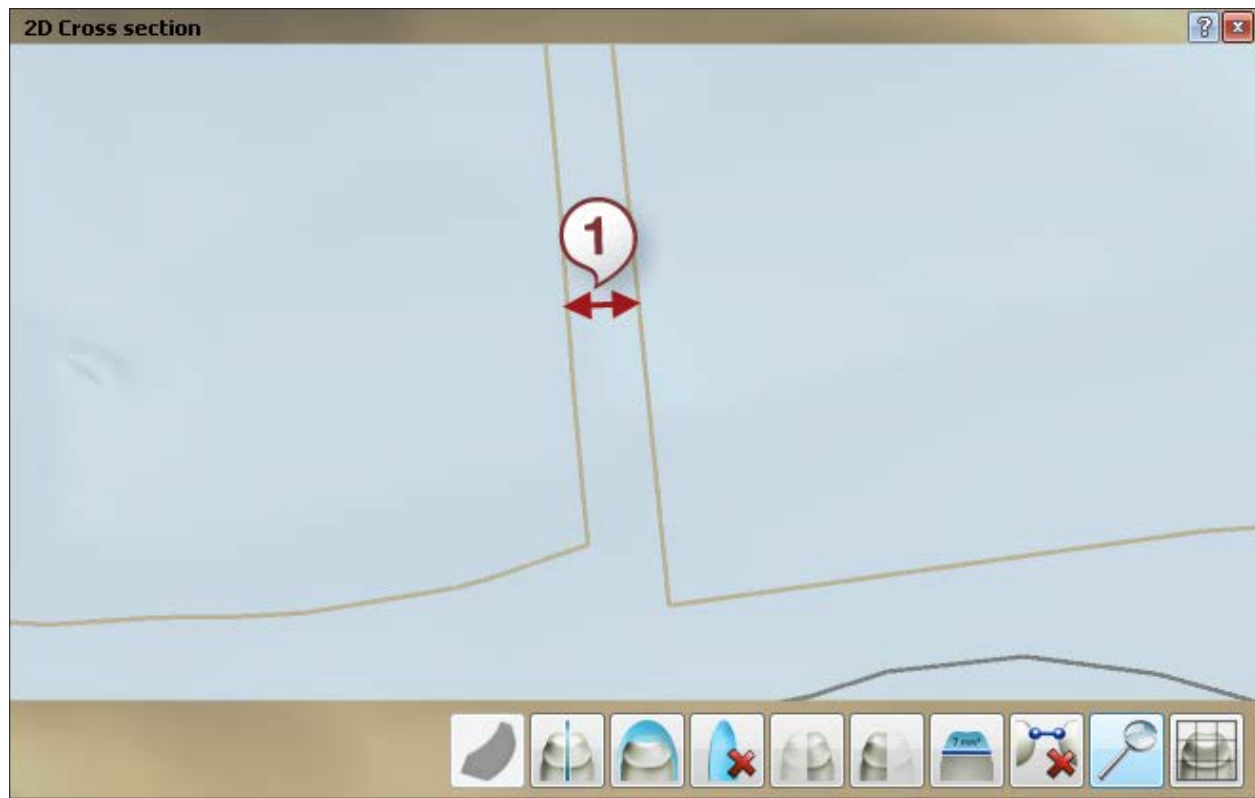
►Step 15: Specify Friction level

The final Split bridge substep allows you to define the friction between the male and female parts of the bridge by specifying the cement space parameter.

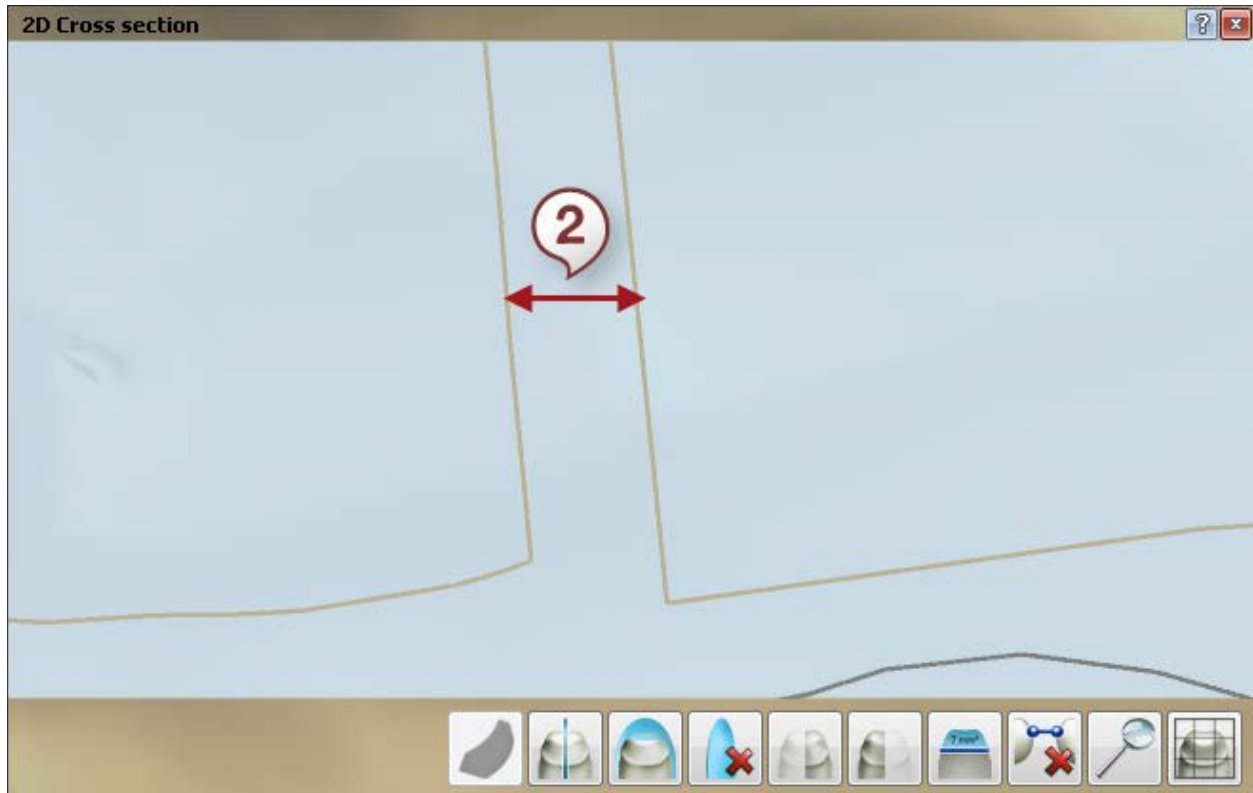


Use the 2D cross section viewing tool for better inspection of this parameter. For more details on how to use the tool, read chapter [2D Cross-Section Window](#).

Click **Preview** to see the changes applied.



(1) 2D cross section view: Cement space = 0.050 mm



(2) 2D cross section view: Cement space = 0.100 mm

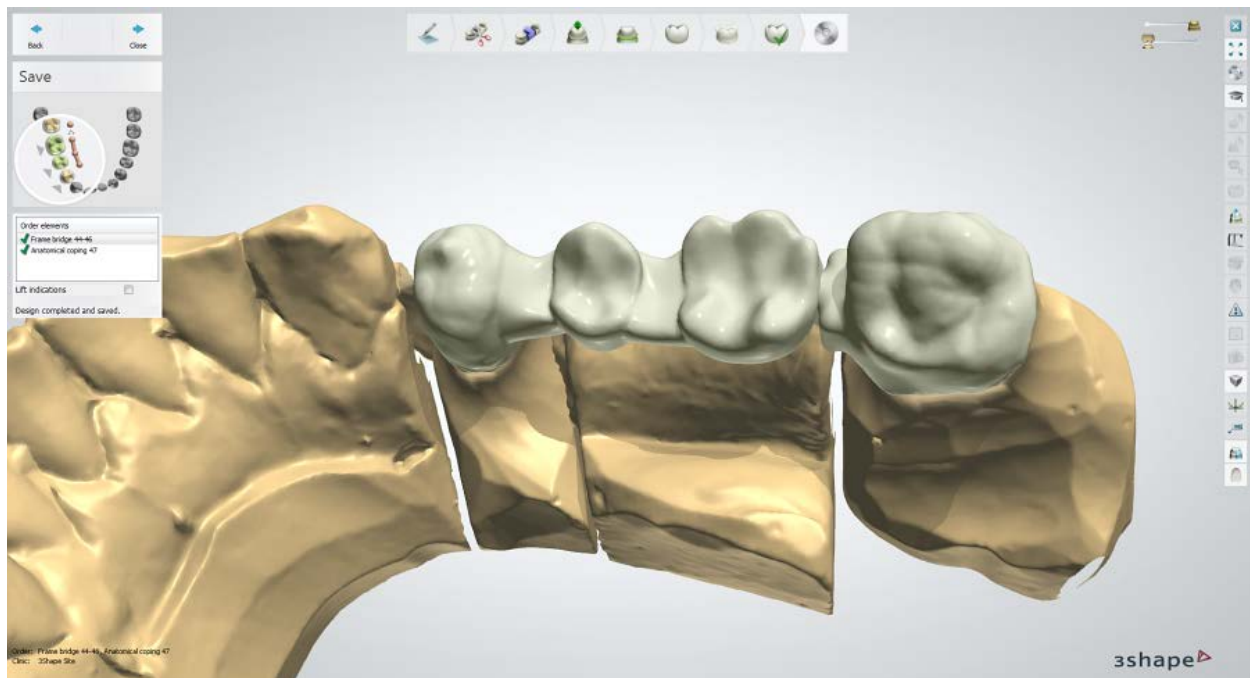
Click **Next** to go to the Save step.

►Step 16: Save your design

If you are satisfied with your design, make sure it's saved and continue to [manufacturing](#) if required. Otherwise, you can always go back and redesign the bridge.



Note! Remember that the male part always goes first in the patient's mouth and then you can fit the female part on top.



1.7. Temporaries

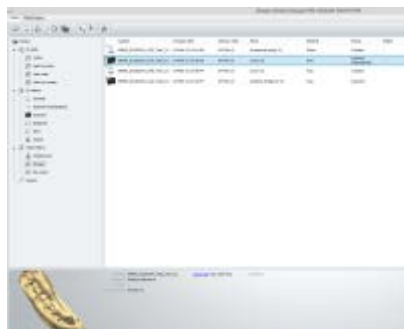
In Dental System you can create dental temporary restoration models, which are placed on top of the patient's prepared teeth until the final restoration model is ready to be mounted.

Below are the steps of the Temporaries workflow:



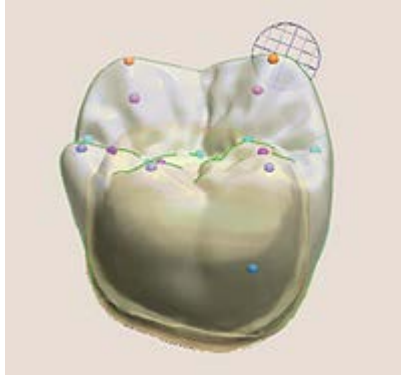
► Step 1: Create an impression of unprepared teeth [Dental Clinic]

Dentist takes a silicon impression or uses the TRIOS intraoral scanner to capture the original situation to send to the lab.



► Step 2: Create and scan/import order in Dental System [Dental Lab]

If a silicon impression is used – scan it with a desktop scanner; in case of a TRIOS order – import it into the system.



►Step 3: Design Temporaries [Dental Lab]

Design Temporaries in Dental Designer using various CAD tools.



►Step 4 (optional): Approve the design using 3Shape Communicate

Send a before-and-after visualizations of the designed teeth and a resulting smile to the dentist and patient for online approval.



►Step 5 (optional): Model a physical diagnostic wax-up [Dental Lab]

Please see chapter [Physical Diagnostic Wax-up](#) for details.

►Step 6: Manufacture temporaries [Dental Lab]

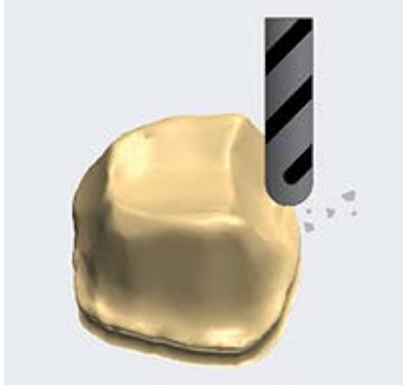
After approval, the laboratory can manufacture the temporary (diagnostic wax-up and/or physical diagnostic wax-up) directly from the digital design using economically practical temporary materials and send it to the dentist.

Diagnostic Wax-up - a physical (printed/milled) temporary restoration model that reproduces a desired anatomy of patient's teeth.

Physical Diagnostic Wax-up - a printed model of an arch (created in Model Builder) that holds non-extractable Diagnostic wax-ups (designed in Dental Designer) and serves mainly as a mould, used for creating temporaries. When the Physical Diagnostic Wax-up model is manufactured, a dentist prepares teeth, puts liquid ceramic into the mould and puts it over patient's teeth to make the temporary. Later dentist



sends an impression made from the prepared teeth back to lab to continue the "[Reuse CAD design](#)" workflow.



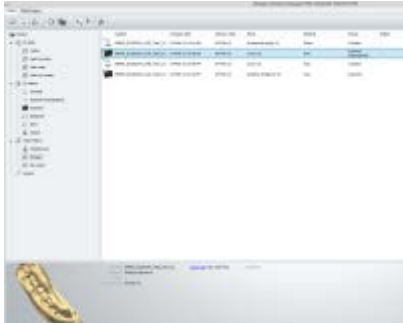
► **Step 7: Prepare patient's teeth and take a new Impression** [Dental Clinic]

Dentist prepares patient's teeth and takes an impression of the new situation (a silicone impression or using TRIOS) before seating the new temporary.



► **Step 8: Fit a temporary** [Dental Clinic]

Fit a diagnostic wax-up or use a physical diagnostic wax-up model as a mould to manufacture temporaries in the patient's mouth over the prepared teeth.



► **Step 9: Receive impression at a Lab** [Dental Lab]

Import an order into Dental System if TRIOS was used for taking the impression. For the silicone impression – copy and [reuse the CAD design](#).



► **Step 10: Align and Design final dental indication** [Dental Lab]

The Lab utilizes the previously made digital temporary design to efficiently create an anatomy design. Using 3Shape's [Reuse Design](#) technology, the temporary design files are brought together with the digital prep-model, to create an accurate final dental indication in record time.

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

Please see the [Anatomy elements](#) chapter in Dental System Control Panel for details on configuring the Temporaries settings.

See the included sub-chapters for details on Temporaries workflow:

- [Order Creation](#)
- [Scanning](#)

- [Design](#)
- [Physical Diagnostic Wax-up](#)
- [Reuse Design](#)

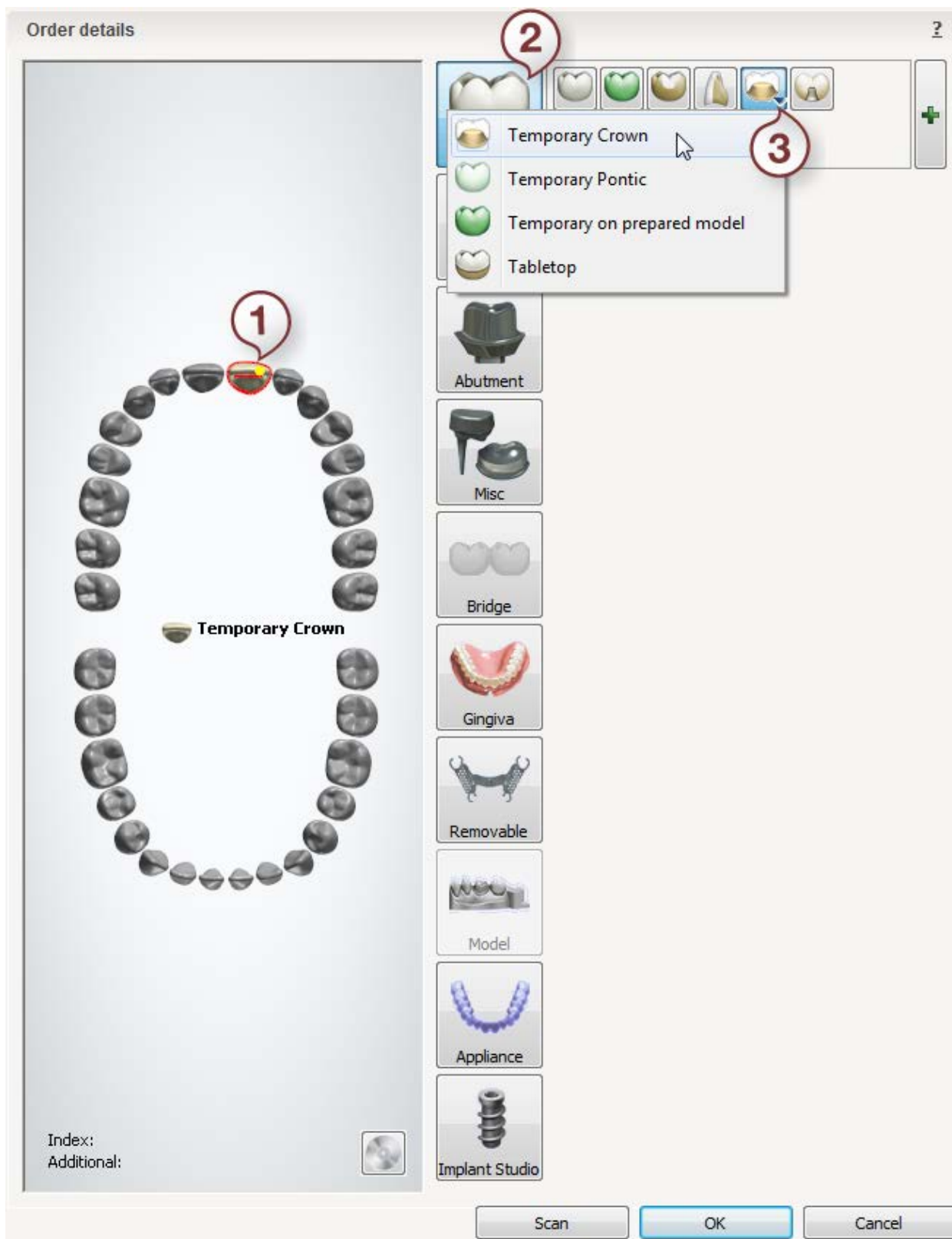
1.7.1. Temporary Order Creation

To create a [Temporary Crown](#), [Temporary Bridge](#) or [Physical Diagnostic Wax-up](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

TEMPORARY CROWN

(For unprepared tooth, unsectioned scan order, with virtual teeth preparation)

- ▶ **Step 1: Select preparation in the teeth overview**
- ▶ **Step 2: Click the *Anatomy* button**
- ▶ **Step 3: Select "Temporary Crown" from the drop-down menu**



TEMPORARY BRIDGE

(For unprepared teeth, unsectioned scan order, with virtual teeth preparation)

- ▶ **Step 1: Select dies in the teeth overview**
- ▶ **Step 2: Click the *Anatomy* button and select "Temporary Crown" from the drop-down menu**
- ▶ **Step 3: Select pontic(s) in the teeth overview**
- ▶ **Step 4: Click the *Anatomy* button and select "Temporary Pontic" from the drop-down menu**
- ▶ **Step 5: Select all units in the bridge of the teeth overview**
- ▶ **Step 6: Click the *Bridge* button**

Order details

1 3 1

5

Temporary Crown

Temporary Pon..

Connector bridge

Index:

Additional:

Anatomy

Frame

Abutment

Misc

Bridge

Type None

Gingiva

Removable

Model

Appliance

Implant Studio

Scan OK Cancel

PHYSICAL DIAGNOSTIC WAX-UP

- ▶ Step 1: Select "Digital impression" from the Object type drop-down menu
- ▶ Step 2: Select preparation in the teeth overview
- ▶ Step 3: Click the *Anatomy* button and select "Temporary Pontic" from the drop-down menu
- ▶ Step 4: Click the *Model* button

You can also order a bridge with Temporary pontics in the same manner.

Order settings

Order number: 97728_20170217_1818_Te
Importance: Normal
Design Module: DentalDesigner 2017

Scan settings

Object type: Digital impression

Antagonist: Antagonist

Order details



Anatomy

Frame

Abutment

Misc

Bridge

Gingiva

Removable

Model

Appliance

Implant Studio

Zirkon

Virtual Gingiva Pontic

Model Material

Digital Model

Index:
Additional:

Scan

OK

Cancel

After creating the order, proceed to [scanning](#).

1.7.2. Temporary Scanning

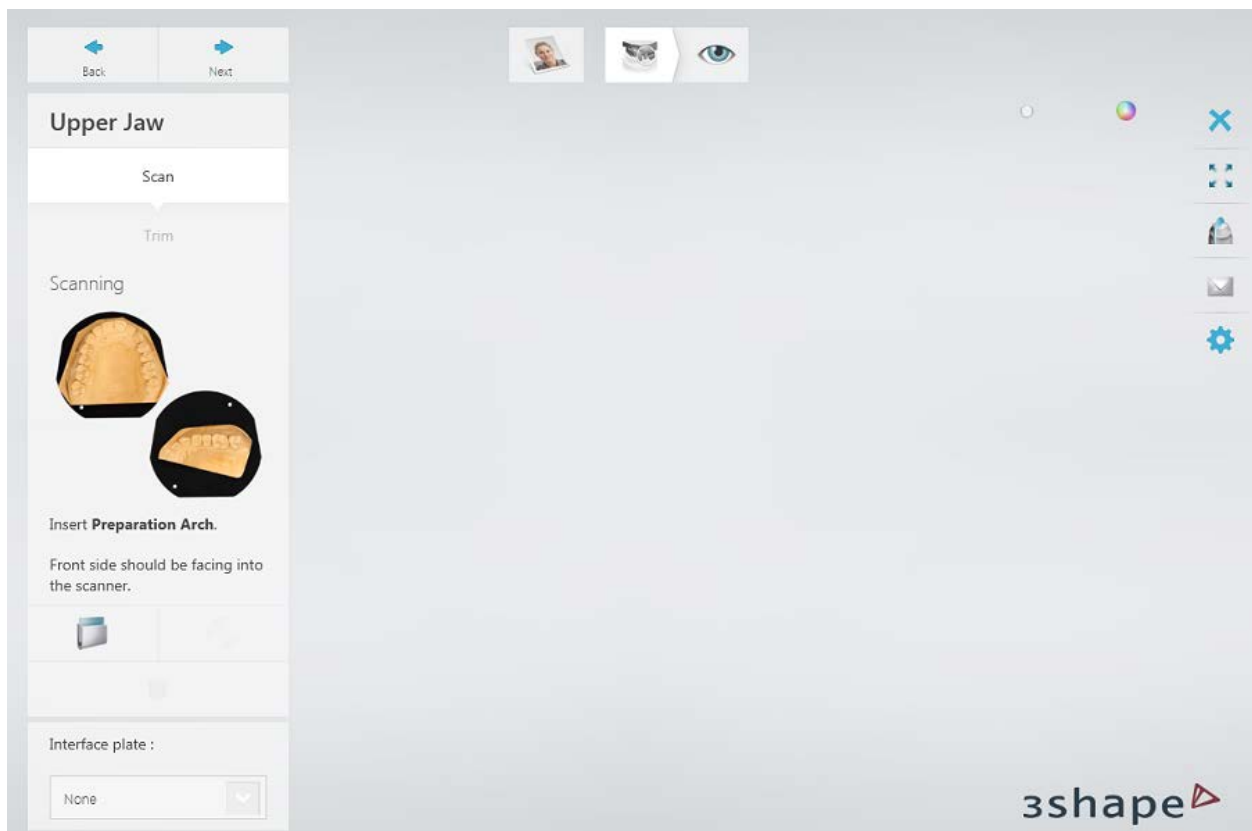
DIGITAL TEMPORARIES AND DIAGNOSTIC WAX-UPS

►Step 1: Create an order

Create a new order in Dental Manager and make necessary settings for digital temporaries or diagnostic wax-ups in the Order Form.

►Step 2: Insert arch into the scanner

Click the **Scan** button to proceed to the scanning step. This opens ScanIt Dental window asking you to insert unsectioned, not prepared arch with its front side facing the inside of the scanner.



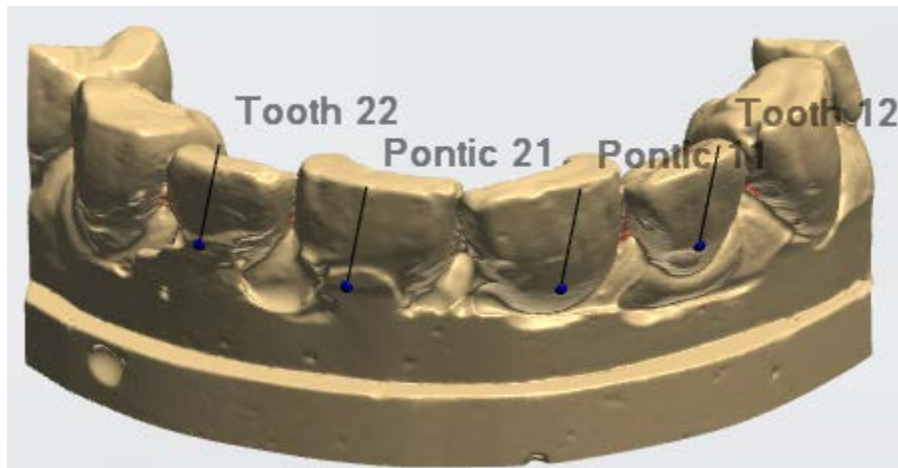
►Step 3: Start an overview scan

Click the **Next** button to start the overview scan.

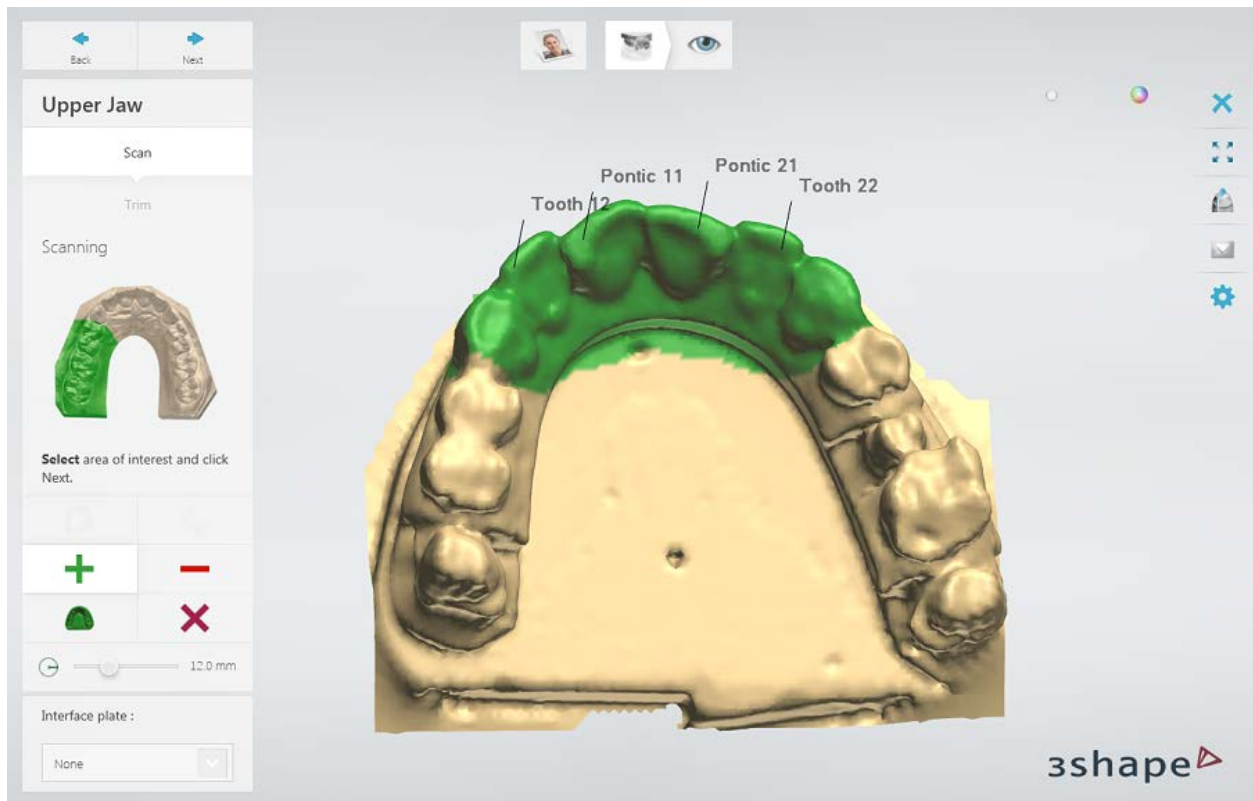


► Step 4: Run detailed area scan

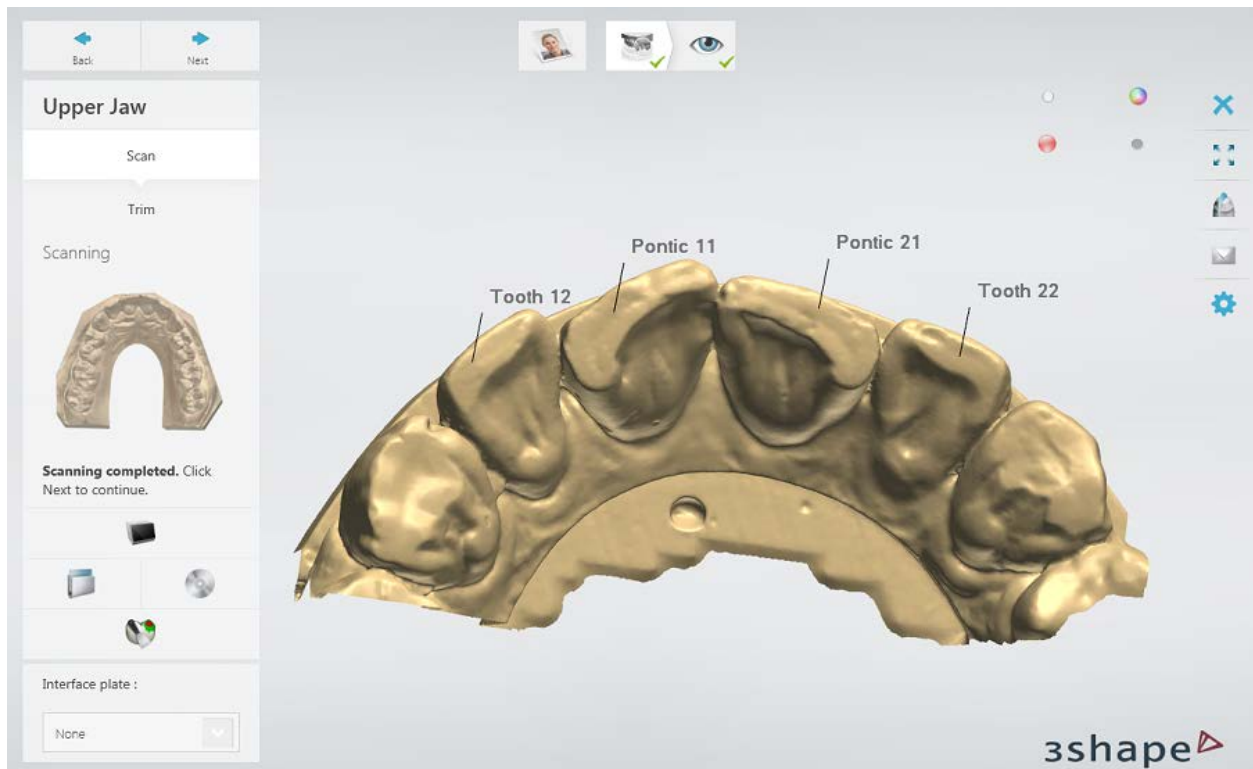
Annotate teeth as prompted.



The area for a detailed scan is marked automatically. You can edit the area with the provided tools if required.

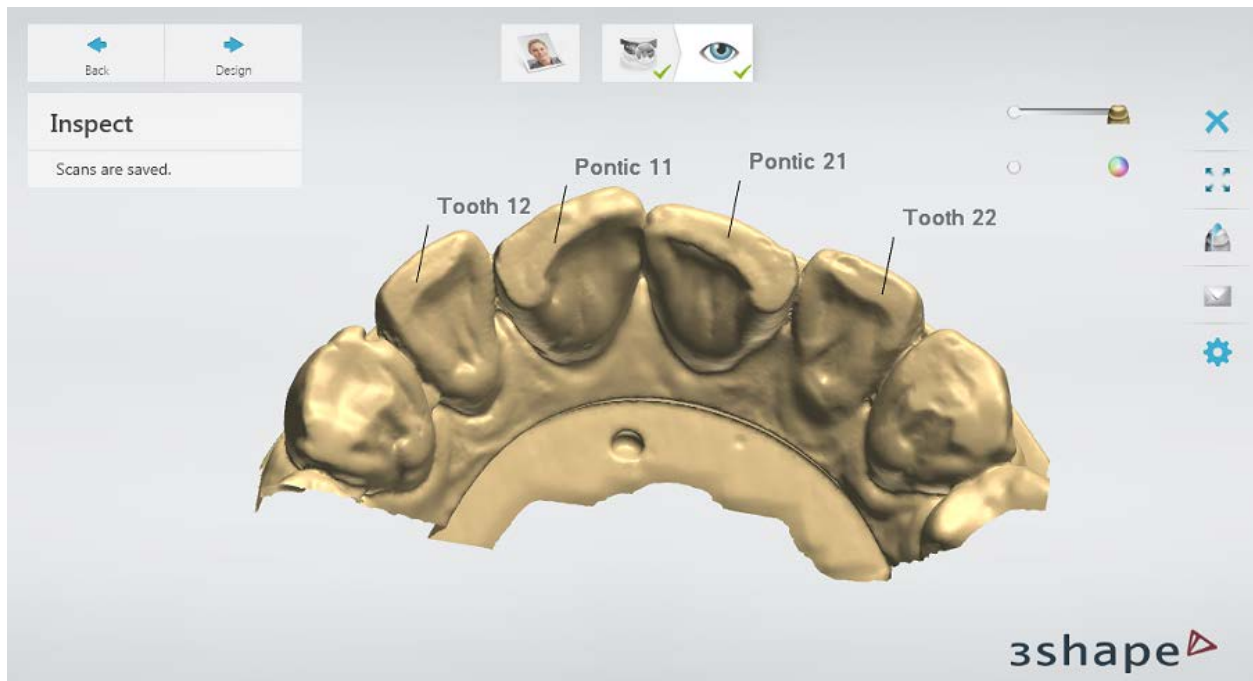


Click **Next** to proceed.



►Step 5: Finish scanning

Click **Next** to finish scanning and save it.



PHYSICAL DIAGNOSTIC WAX-UPS

In order to create a Physical Diagnostic wax-up, you need to use a digital impression scan, e.g. 3Shape TRIOS®.

Continue to the [design section](#).

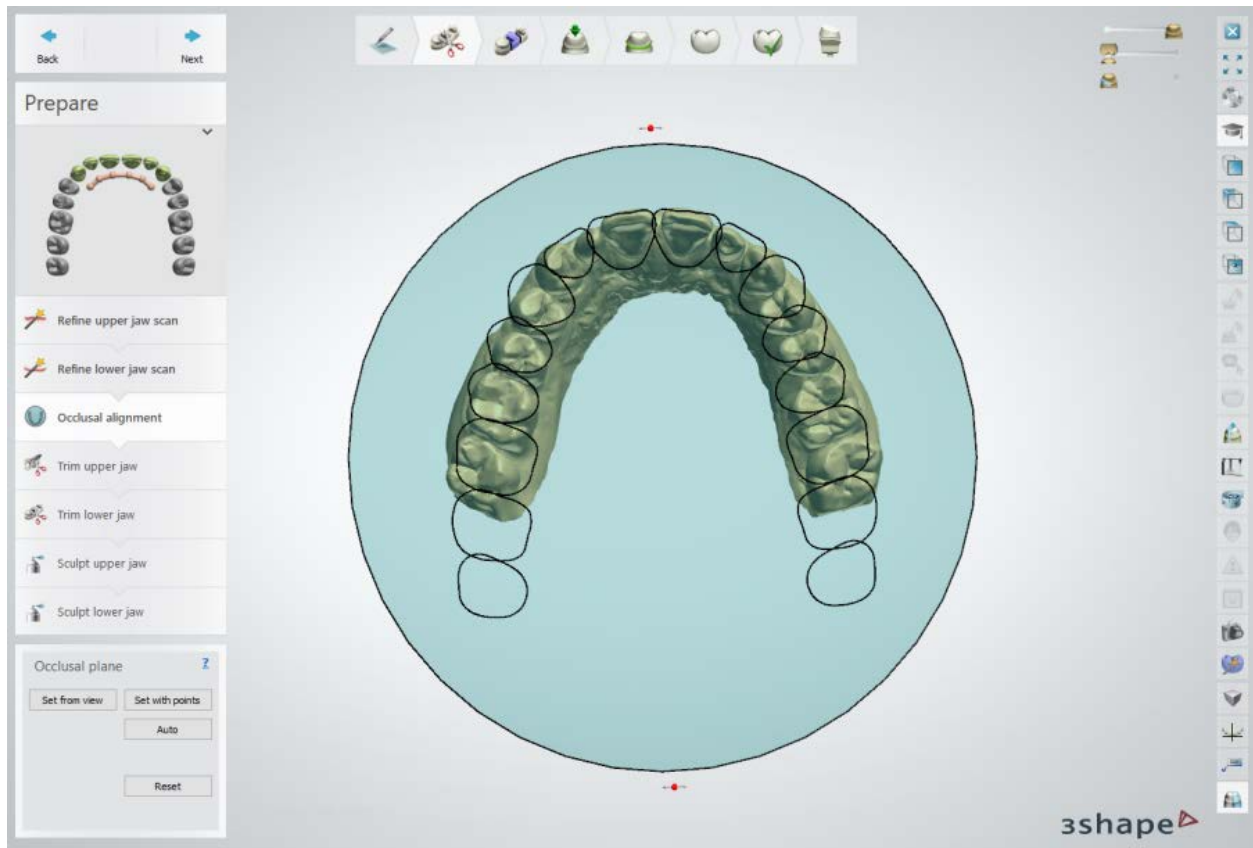
1.7.3. Temporary Design

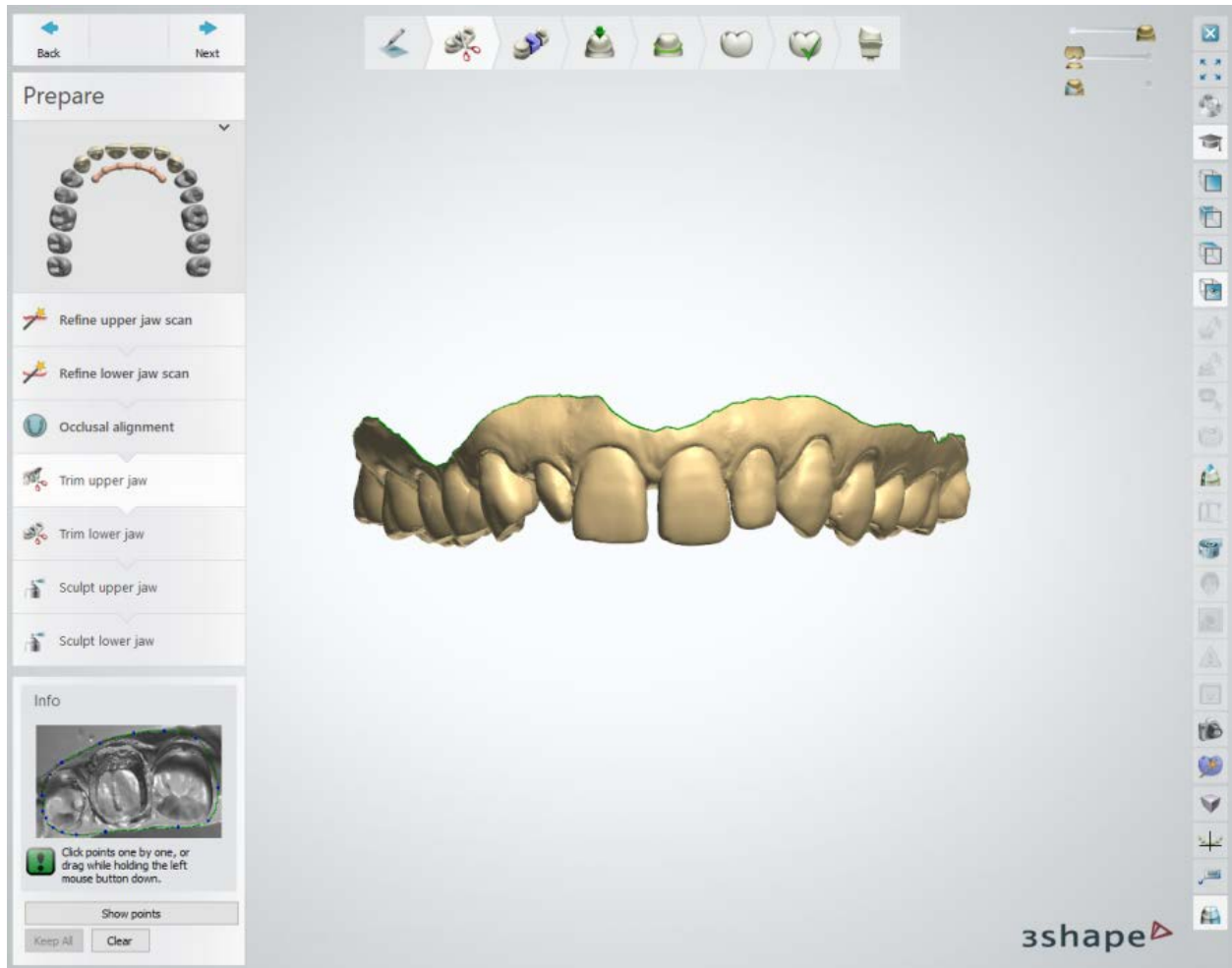
The design involves virtual preparation of teeth and virtual gingiva creation in places of the planned retractions.



► Step 1: Prepare your scan

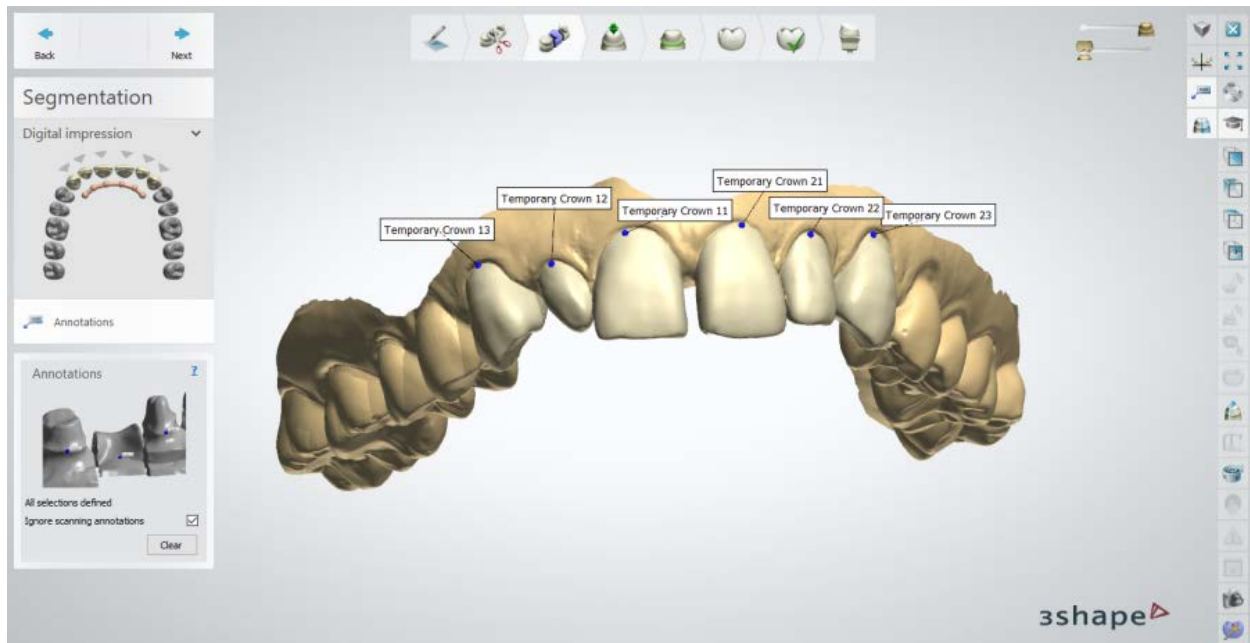
See the [Prepare Scan](#) chapter for details.





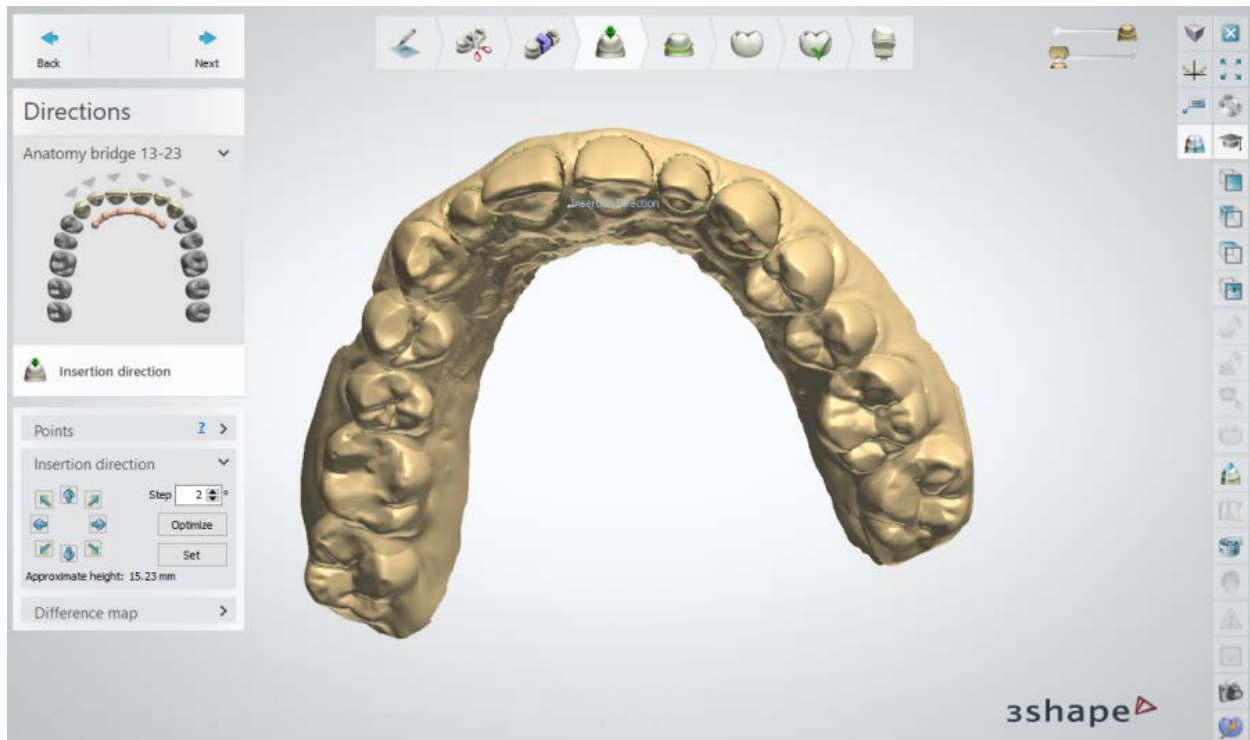
► Step 2: Place Annotations

This step is identical to [Annotations](#) described in the Single Coping Design chapter.



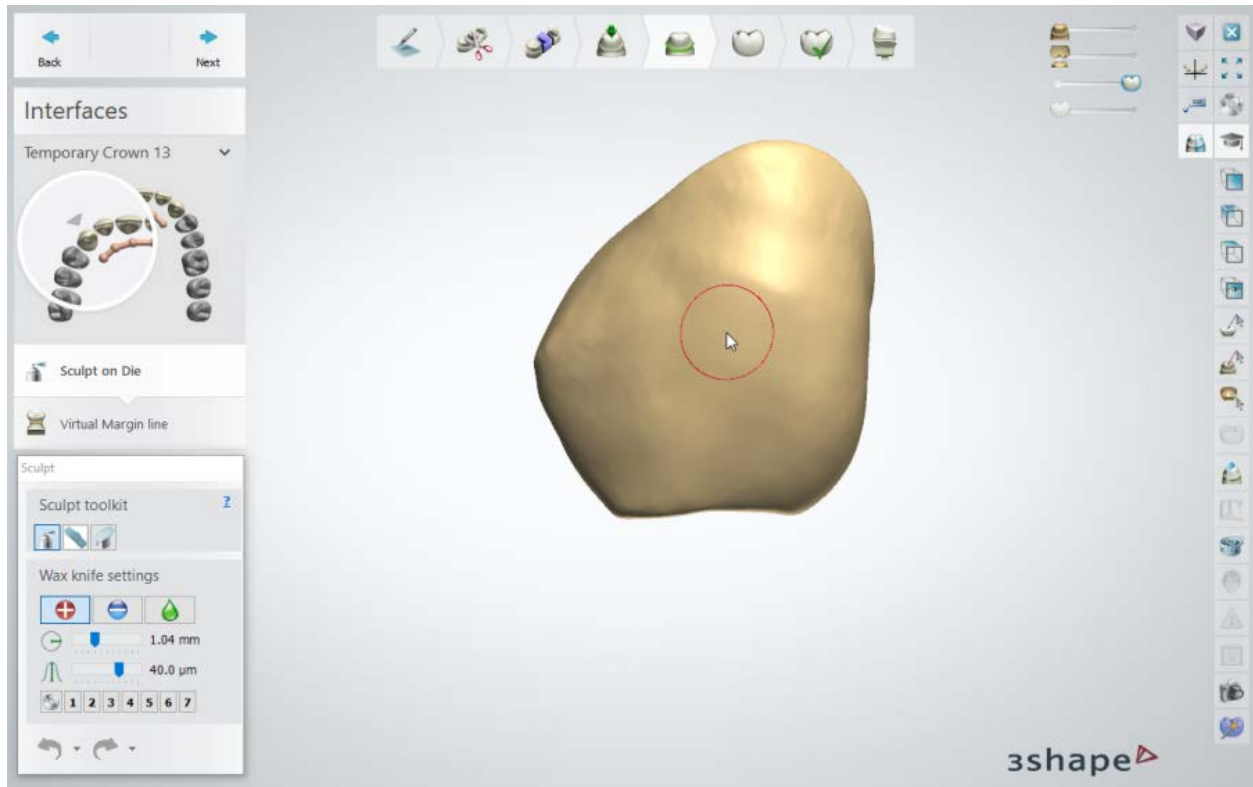
► Step 3: Set Insertion Direction

Specify common [Insertion Direction](#) by positioning the dies perpendicular to the screen and clicking the **Set direction** button.



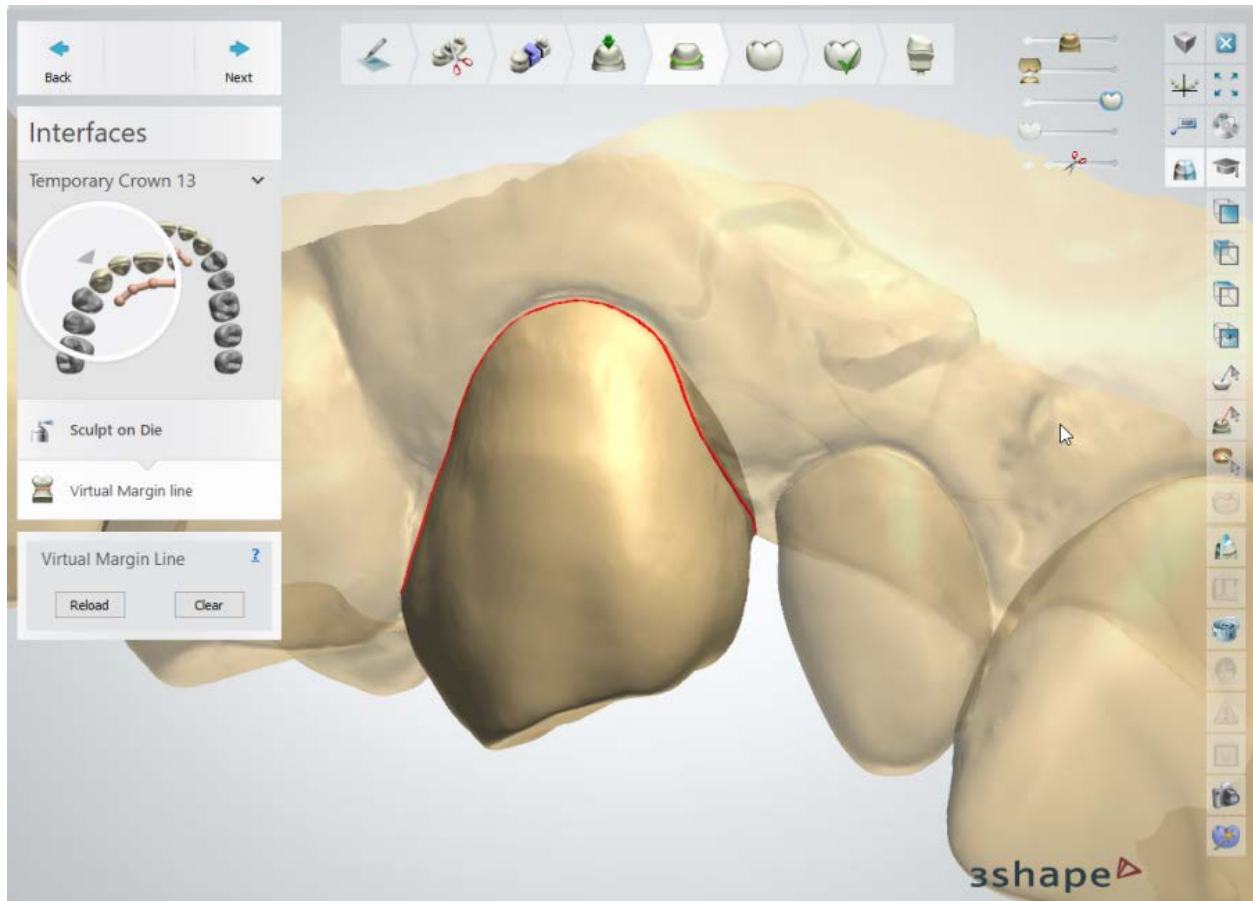
► Step 4: Use Sculpt for a crown

This step is described in [Sculpt Toolkit](#) chapter.



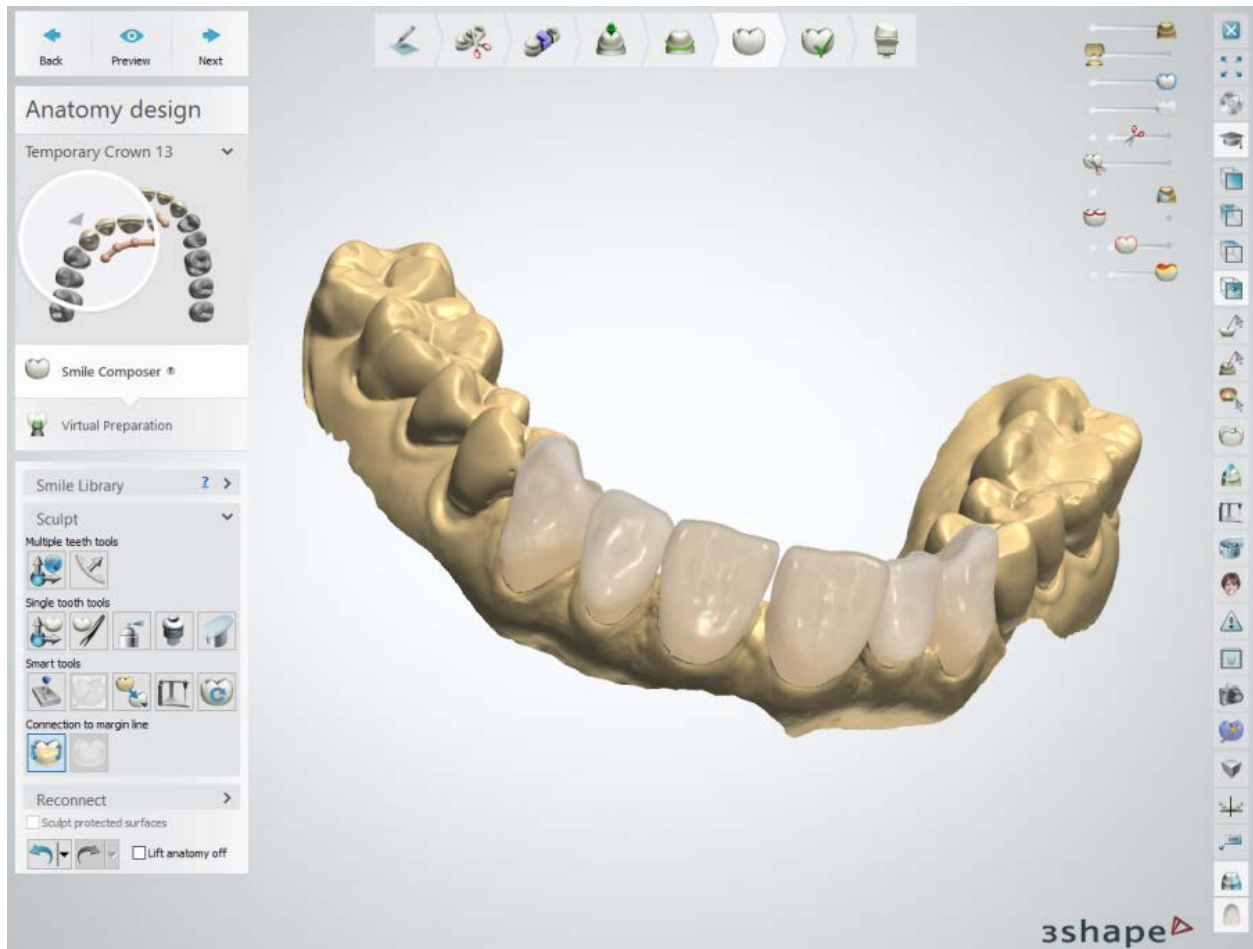
►Step 5: Place Virtual Margin Line

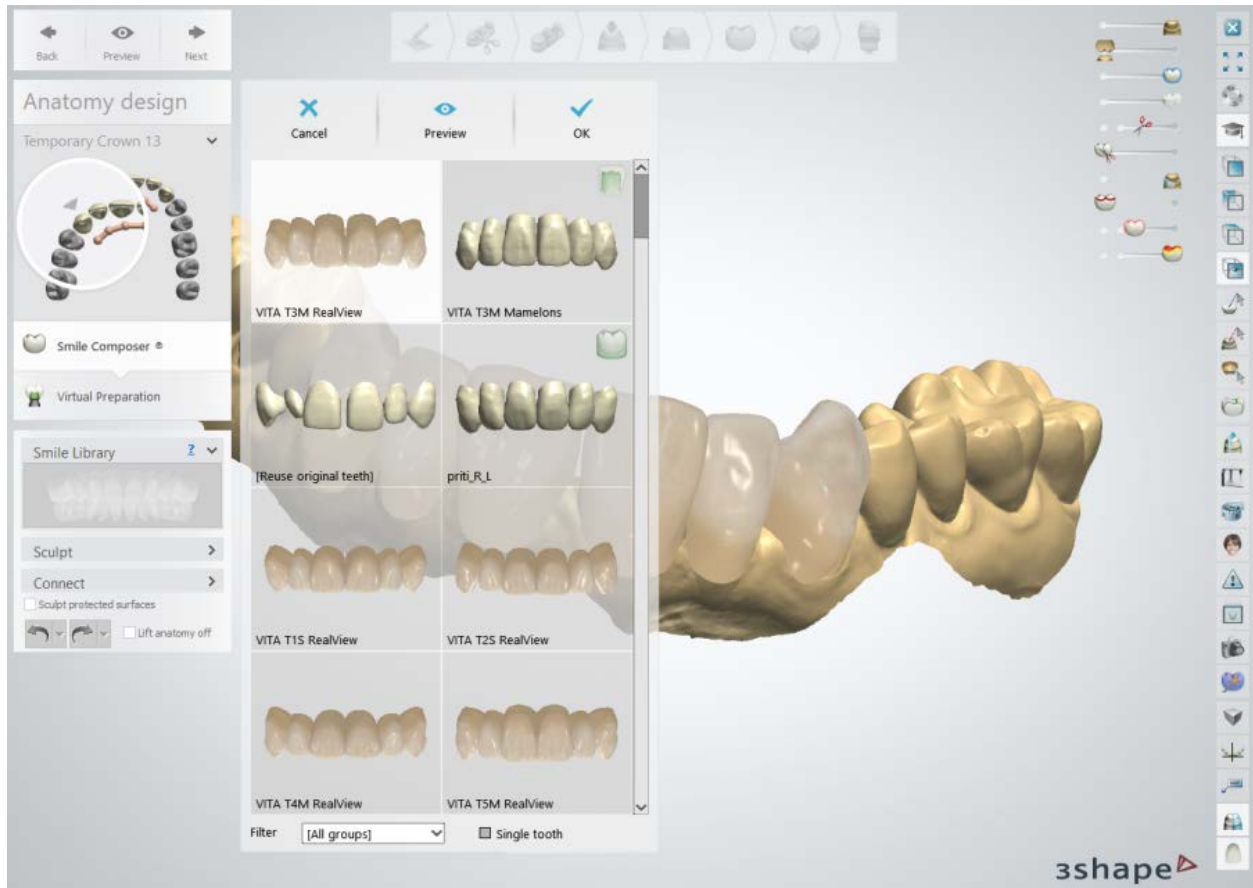
Use the cursor to draw the virtual margin line for each tooth.



►Step 6: Design Anatomy

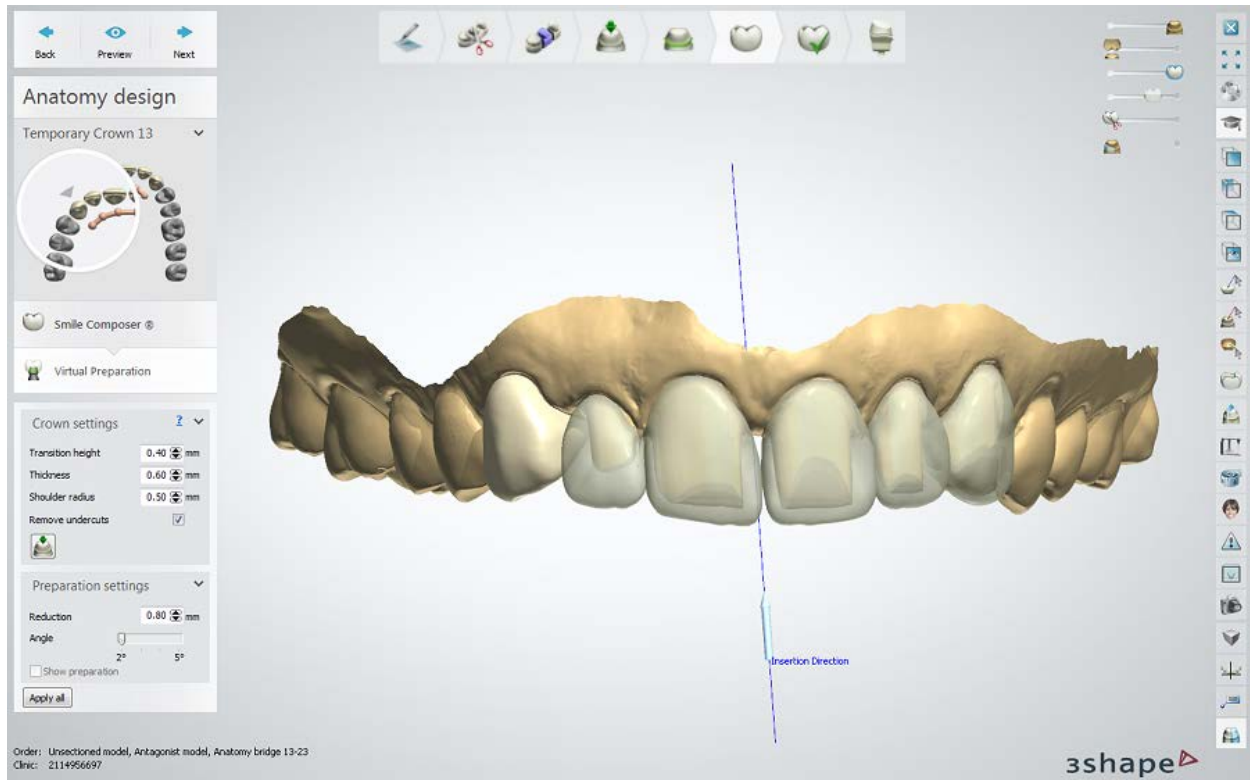
Use the [Smile Composer](#) tool to design the anatomy.




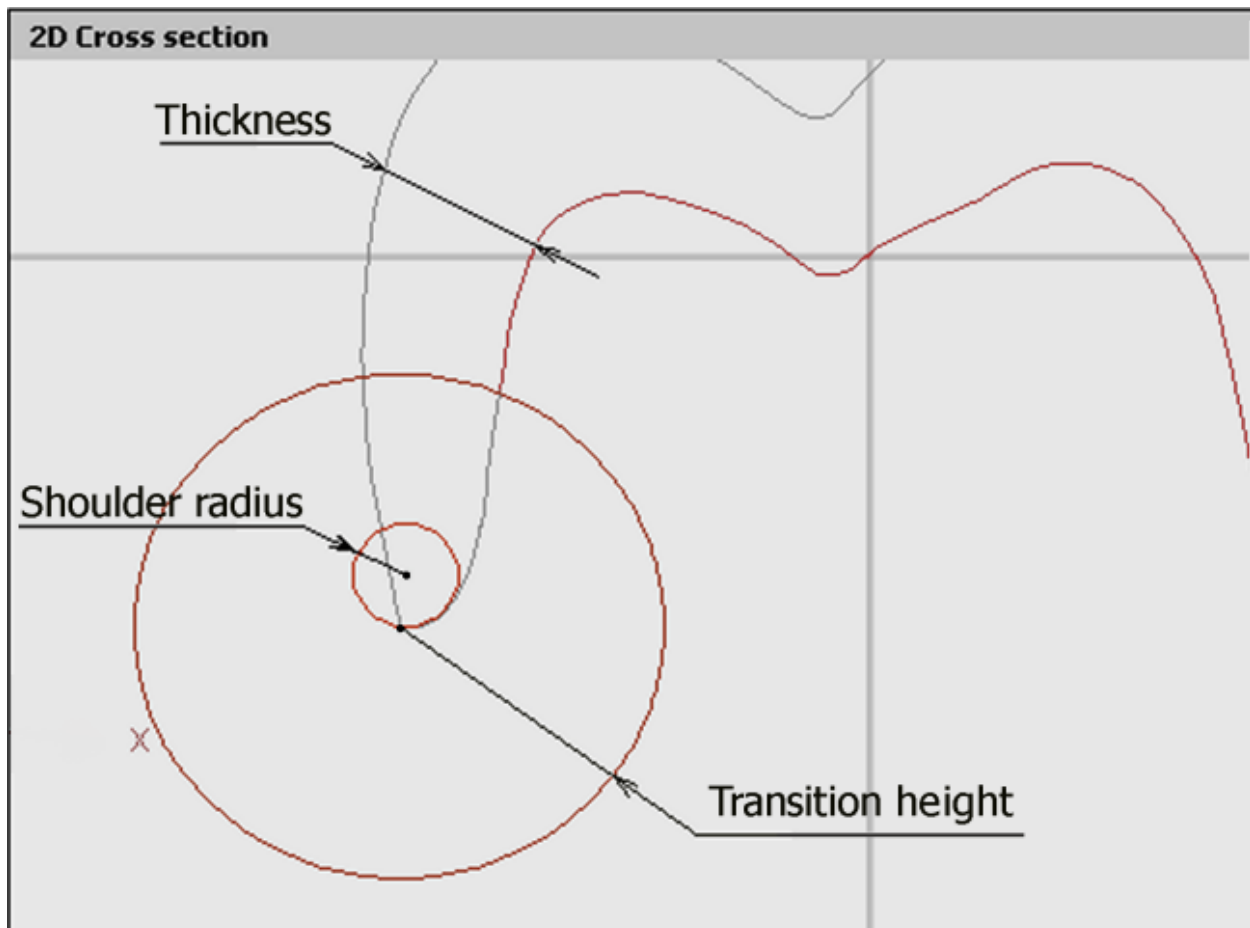


► Step 7: Perform Virtual Preparation

Apply the selected parameters to the crowns.



Crown settings	
Transition height	- the transition curve of the shoulder radius from the margin line (see 2D Cross section below).
Thickness	- crown thickness (see 2D Cross section below).
Shoulder radius	- the radius of the transition curve from the margin line (see 2D Cross section below).
Remove undercuts	- enables Angle selection to avoid undercuts.
	- sets the insertion direction from view.



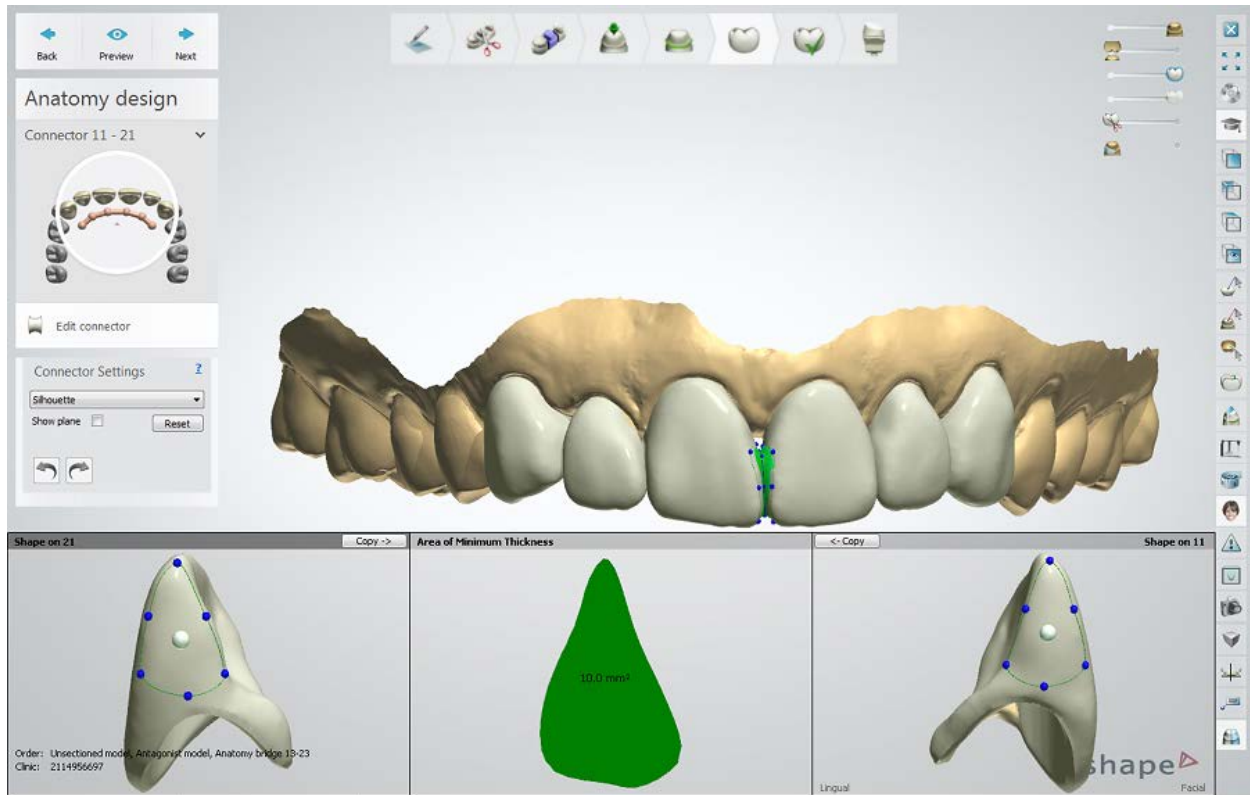
Preparation settings	
Reduction	- the amount of a reduction to apply to a preparation for a crown.
Angle	- vertical Angle adjustment slider.
Show preparation	- lifts up the selected crown to show preparation when enabled.



You can adjust the visibility of the original teeth with the slider located in the modeling window.

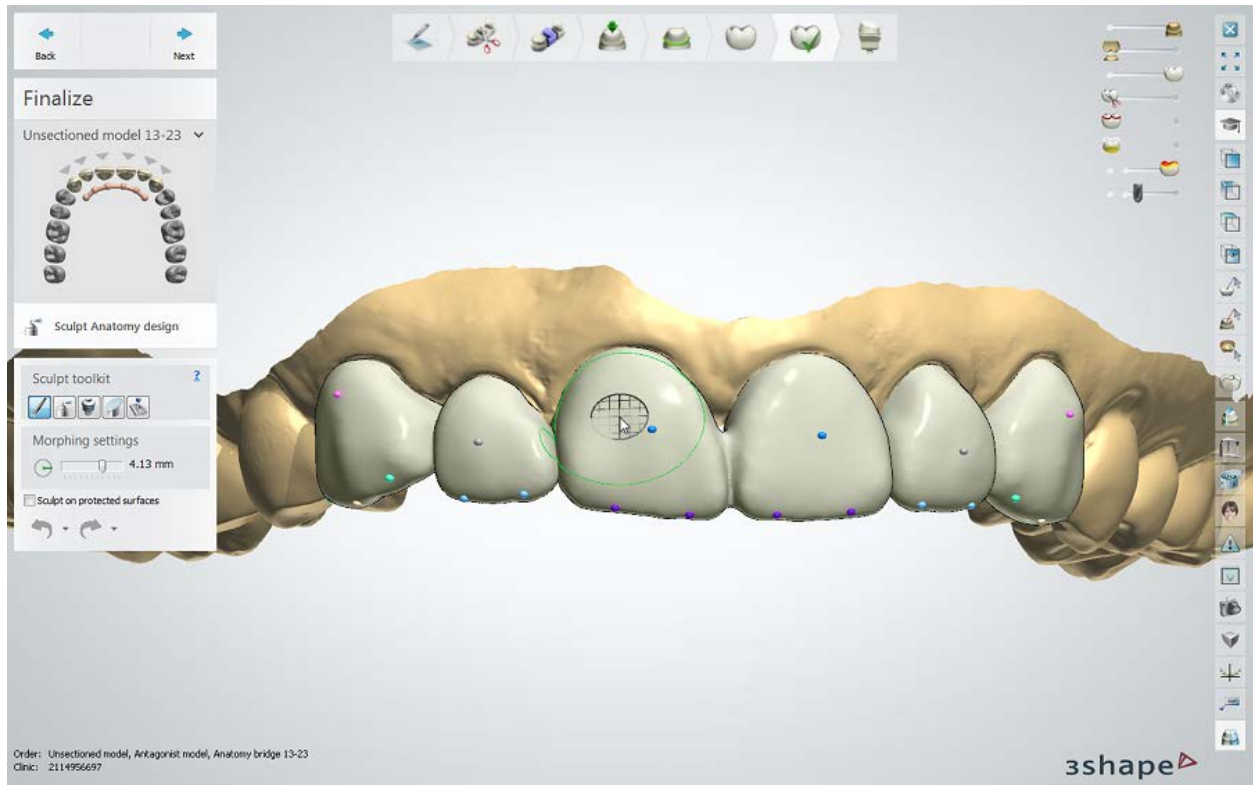
► Step 8: Edit Bridge Connector

Edit the [bridge connector](#) as described in the Bridge Framework Design chapter.



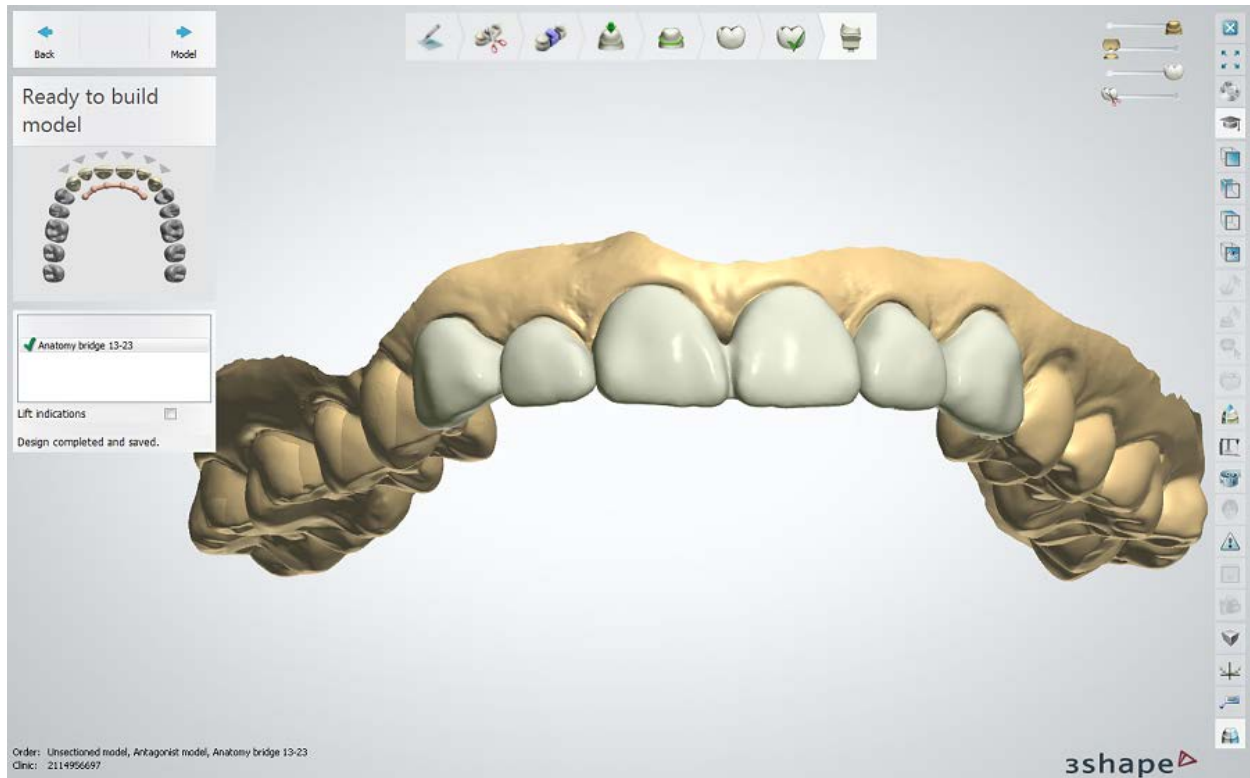
► Step 9: Sculpt Anatomy Design

Finalize the temporary design. This step is described in the [Sculpt Toolkit](#) chapter.



►Step 10: Save the result

Close the window to save the design and return to Dental Manager. Press the **Model** button. If you ordered a Physical Diagnostic Wax-up and need to create a model in [Model Builder](#).



See the [Reuse Design](#) chapter for details on reusing the CAD design.

Continue to [manufacturing](#) if required.

1.7.4. Physical Diagnostic Wax-up



Create your Physical Diagnostic Wax-up model with the help of Model Builder:

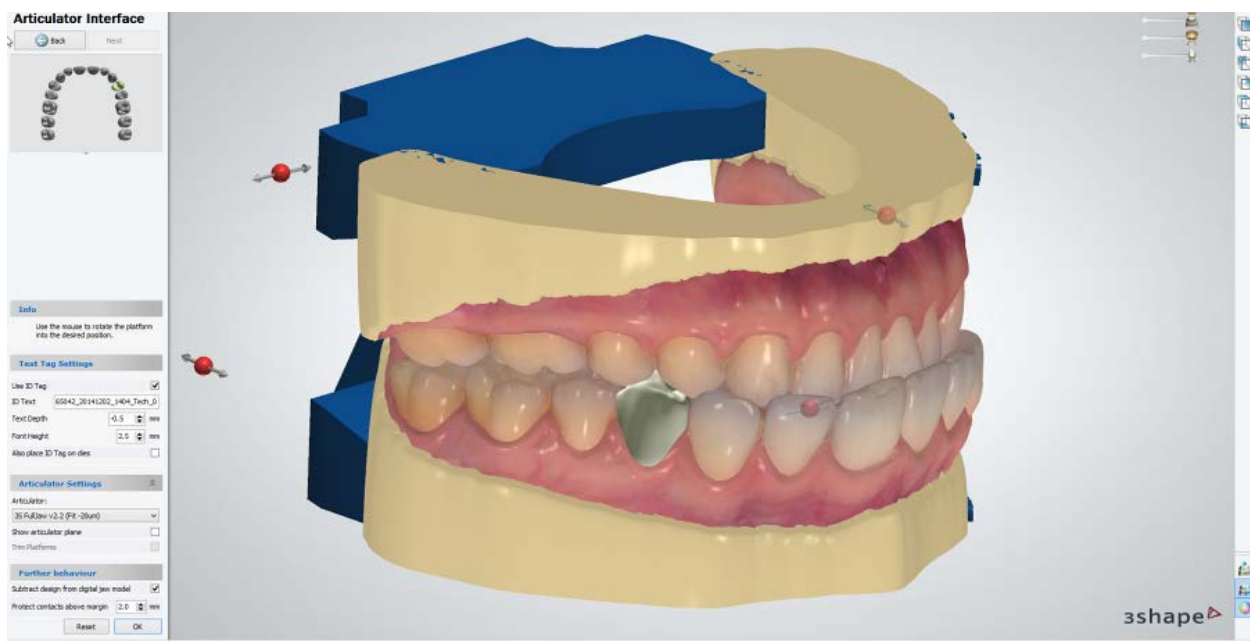
► Step 1 (optional): Prepare scans

At this point the designed temporary model is not yet placed on scan and will appear at the next step.



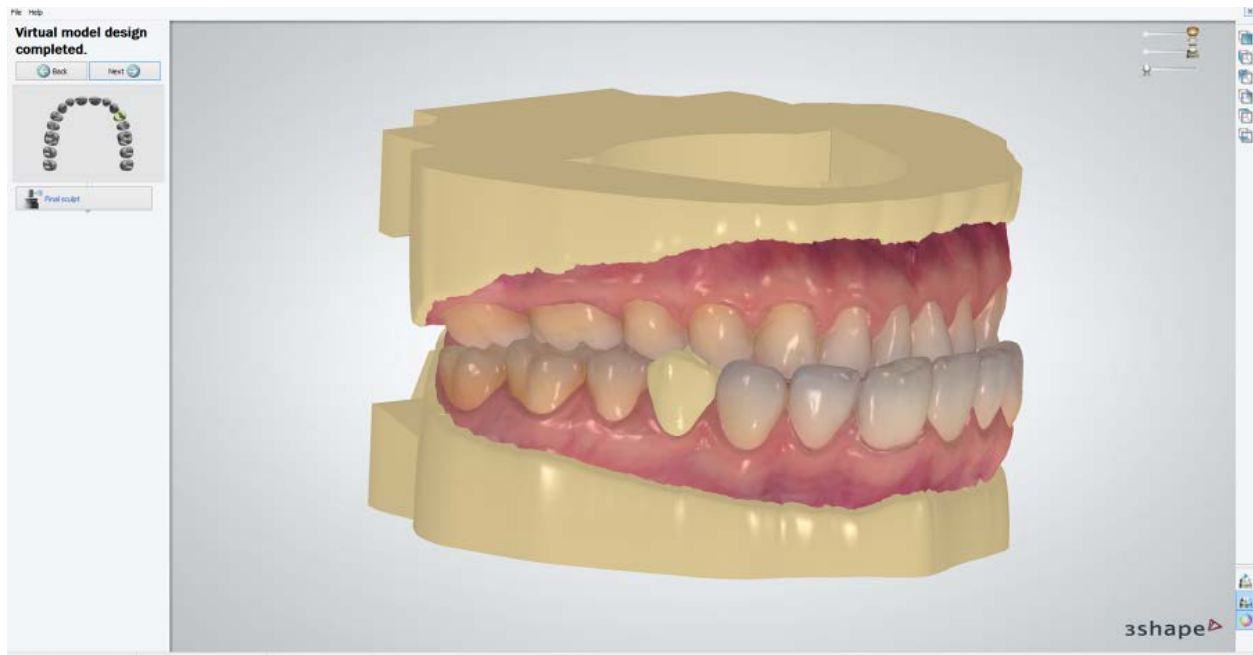
► Step 2: Setup the Articulator interface

Click **OK** to move to the next step where the software will automatically merge a designed temporary and an arch model into one single unit.



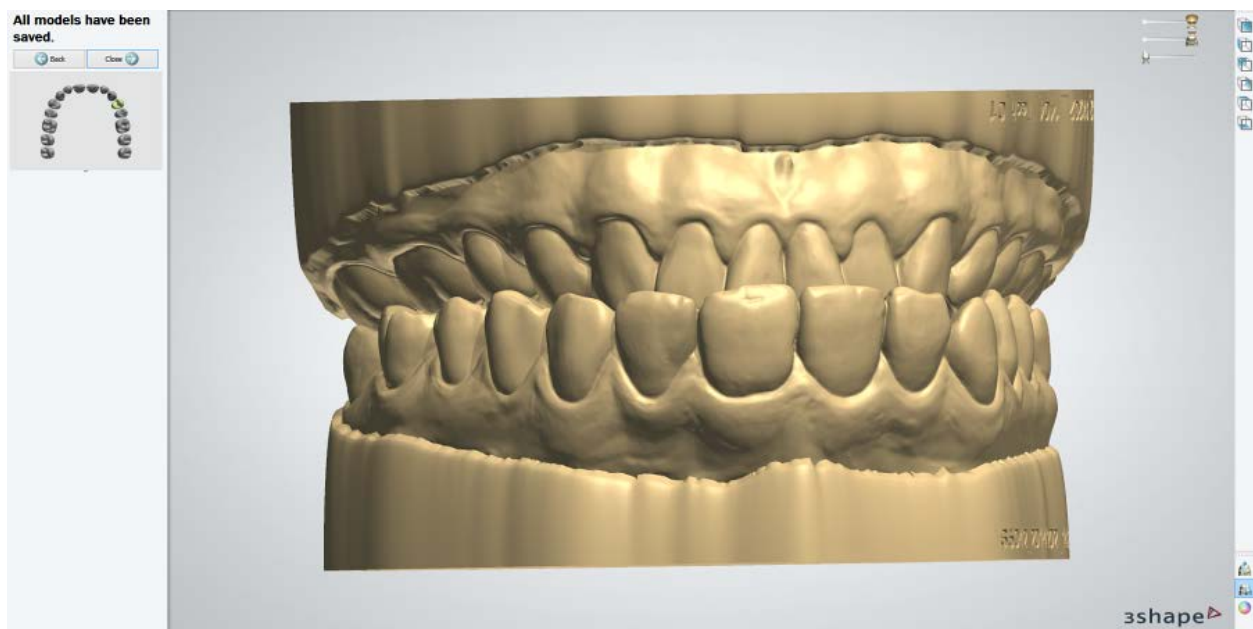
► Step 3: View and finalize the result

The model is now ready. You can use the **Designed models** slider to hide the designed temporary and see that it has now become a part of the jaw model. Optionally, use the Sculpt toolkit to finalize the model.



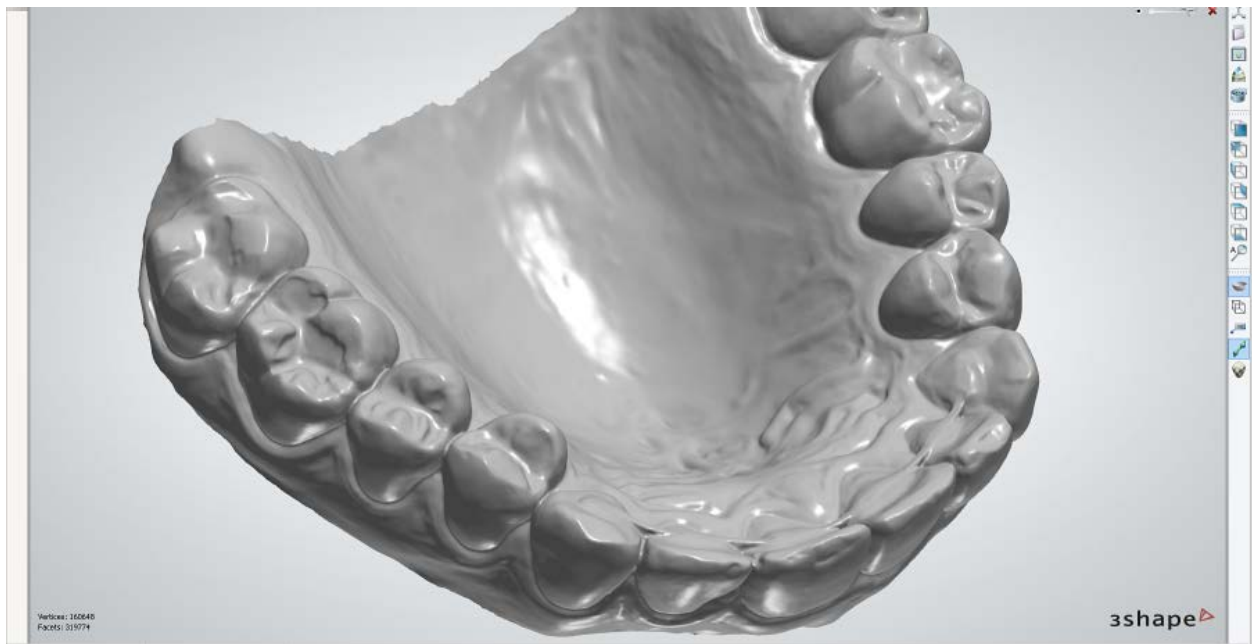
► Step 4: Save the result

Disable the  **Show scanner acquired texture** option to view the final model that will be manufactured.

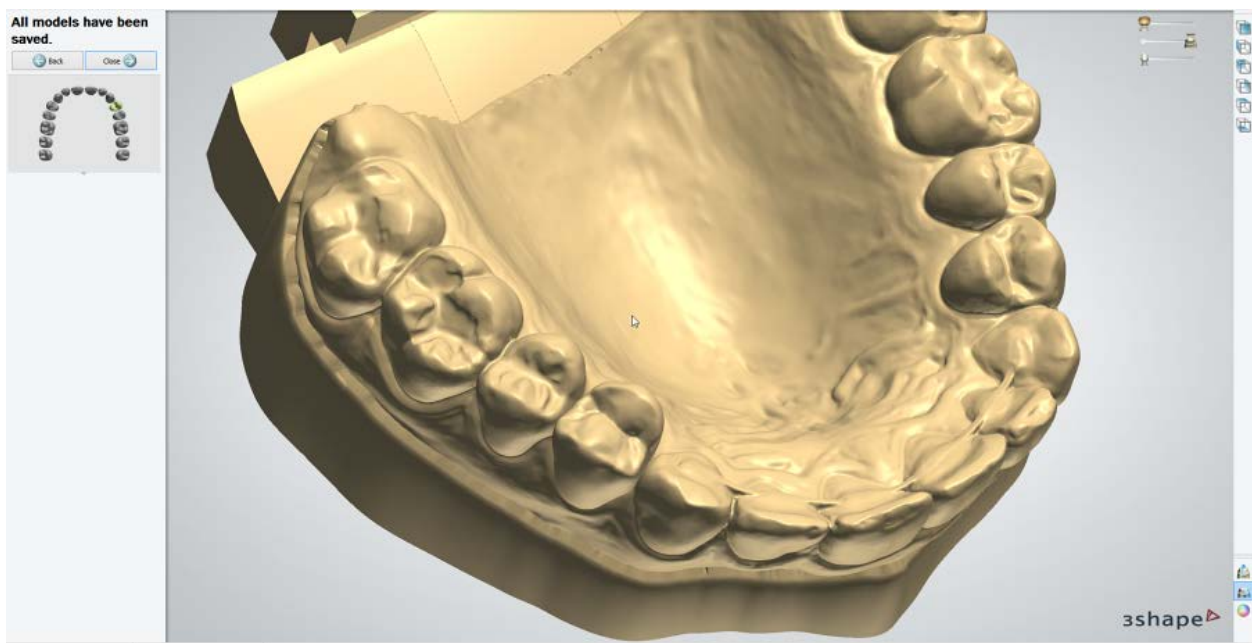


You can see the before-and-after images of creating a Physical Diagnostic Wax-up model:

1. A raw scan of a patient's jaw with an unprepared tooth #24 that needs a temporary.



2. A one-piece model of a patient's jaw and a designed new temporary. After manufacturing, this Physical Diagnostic Wax-up model will serve as a mould for creating a temporary for a prepared patient's tooth.

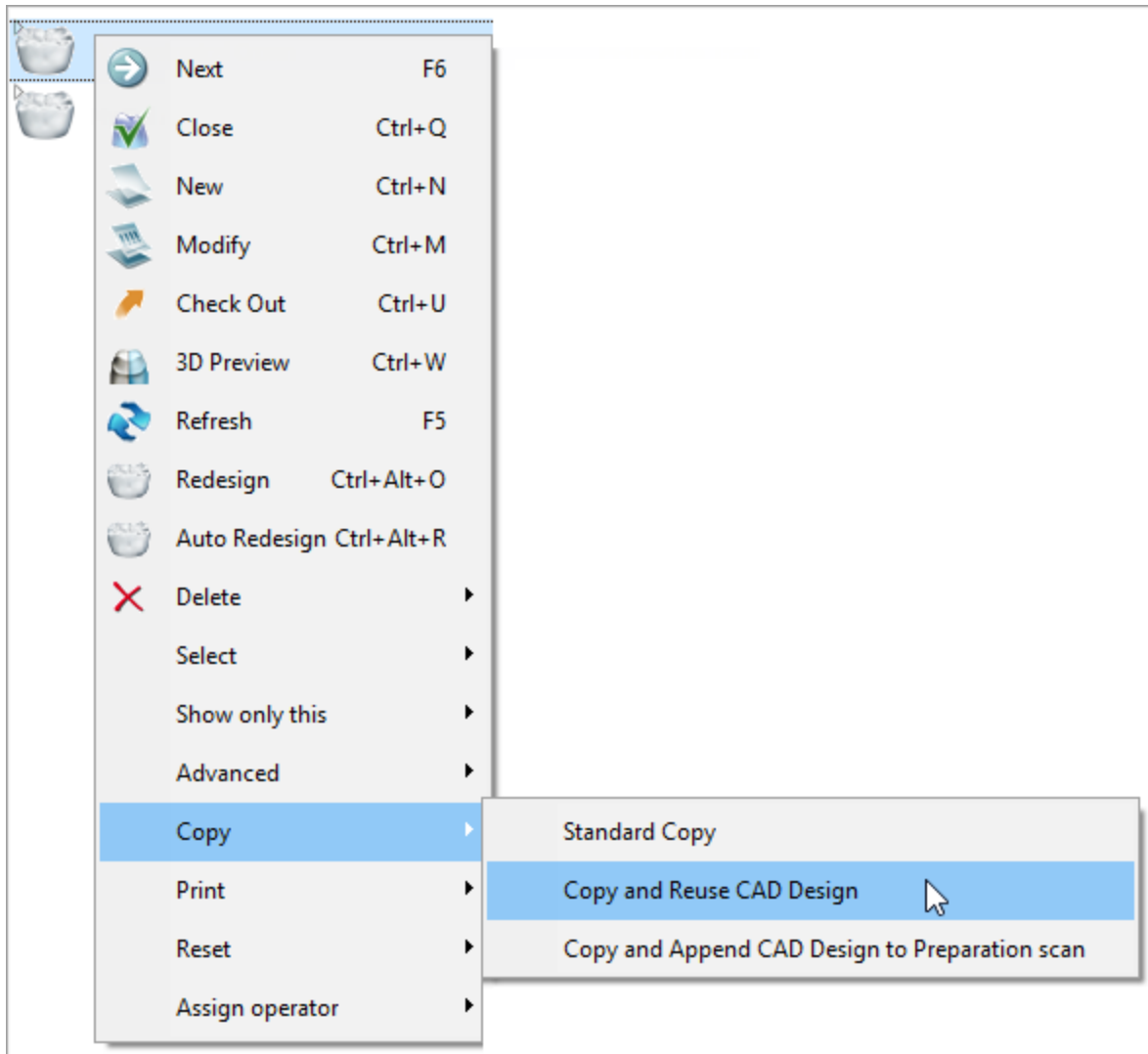


1.7.5. Reuse Design

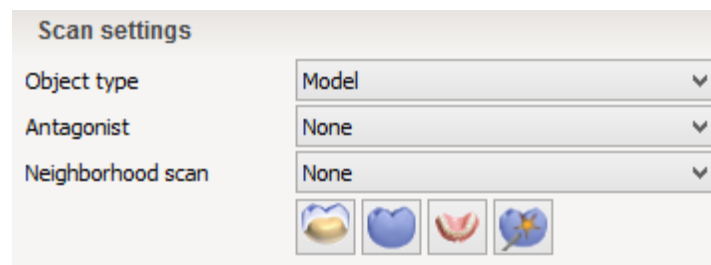
You can reuse the CAD design of the previously created Temporaries:

► **Step 1: Create copy of an order**

Right-click a designed order and select **Copy>Copy and Reuse CAD Design**.



A copy of an order is created with the **Waxup/Pre-preparation**  scan enabled in the Order form:

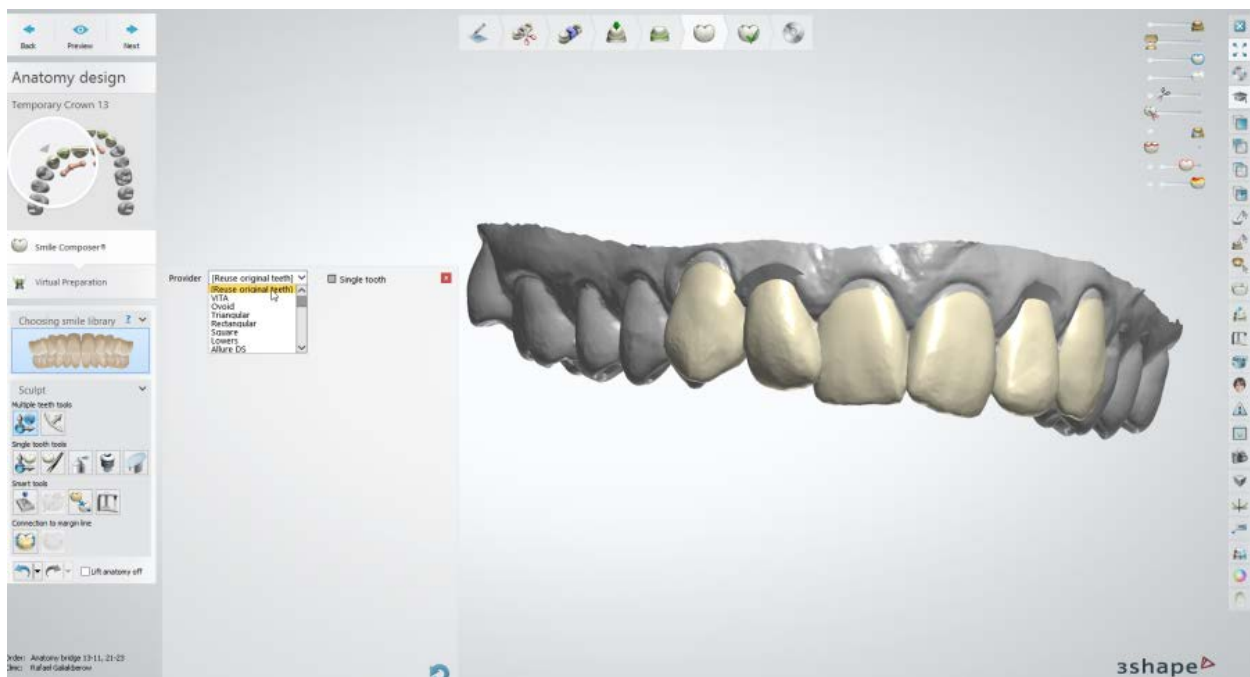


► **Step 2: Scan order or import scan**

Select the newly created order and perform [scanning](#) or import a scan of the preparation. When you import the preparation scan from the copied order it is renamed to "PrePreparationScan" in the current one.

►Step 3: Design

The design workflow repeats the one described in the [Temporaries](#) chapter with a difference at the **Smile Composer** of the **Anatomy design** step. When you perform anatomy design of digital temporaries and diagnostic wax-ups, you can select **Reuse original teeth** option under **Choosing smile library** -> **Provider** to apply scans of the original teeth to the created crowns and pontics.



Continue with the design to finalize your order.

1.8. Inlay/Onlay and Maryland Bridges

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for an Inlay/Onlay and Maryland Bridges order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.8.1 Inlay/Onlay and Maryland Bridges Order Creation

To create an [Inlay/Onlay Bridge](#) or [Maryland Bridge](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

INLAY/ONLAY BRIDGE

► **Step 1: Select preparations in the teeth overview**

► **Step 2: Click the *Anatomy* button and select the *Inlay/Onlay*  button**

► **Step 3: Click the *Bridge* button**



MARYLAND BRIDGE

▶ Step 1: Select preparations in the teeth overview

▶ Step 2: Click the *Anatomy* button and select the *Inlay/Onlay*  button

▶ Step 3: Select pontic in the teeth overview

▶ Step 4: Click the *Frame* button and select the *Anatomical Pontic*  button

▶ Step 5: Select all units in bridge in the teeth overview

▶ Step 6: Click the *Bridge* button



After creating the order, proceed to [scanning](#).

1.8.2. Inlay/Onlay and Maryland Bridge Scanning

The scanning is identical to the framework bridge scanning, so please see section [Bridge Framework](#) for details.

Continue to the [design section](#).

1.8.3. Inlay/Onlay and Maryland Bridges Design

INLAY/ONLAY BRIDGE



►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

Use [Smile Composer](#) to design your inlay/onlay.

►Step 7: Edit Connector

This step is identical to [Edit Connector](#) described in Bridge Framework chapter.

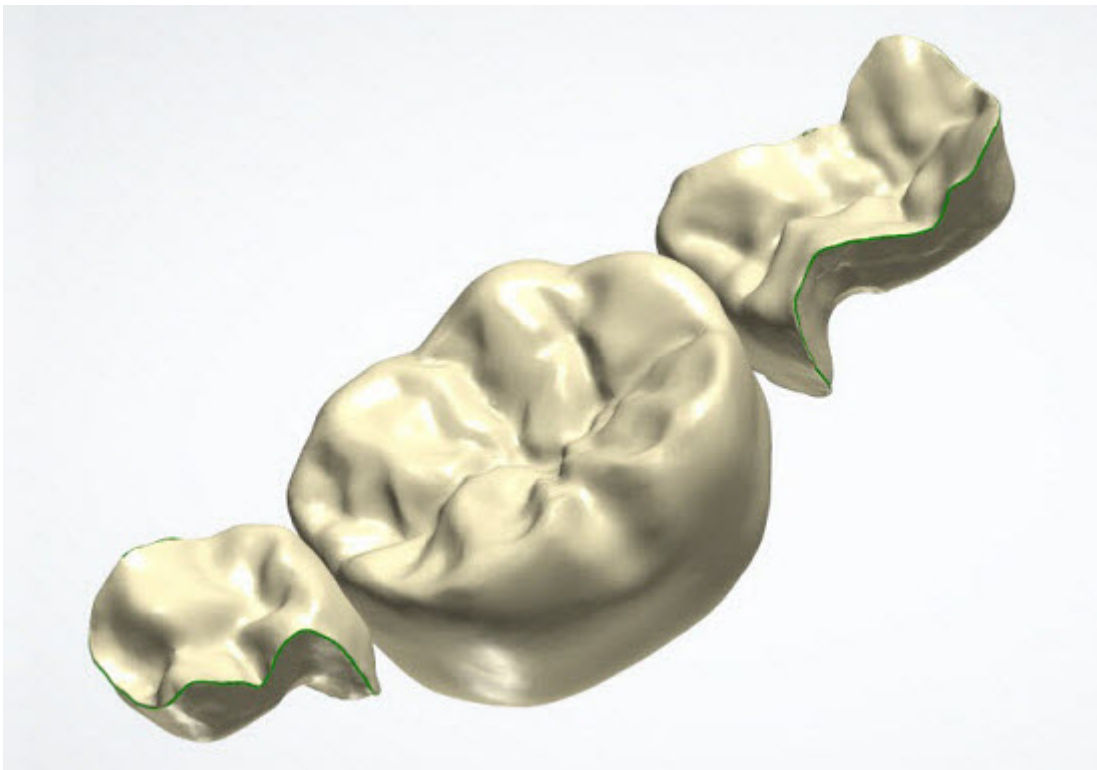
► **Step 8: Sculpt anatomy design**

This step is described in [Sculpt Toolkit](#) chapter.

► **Step 9 (optional): Preparation for manufacturing**

The step is based on the corresponding settings in the Control Panel according to which you can position the designed crown inside the CAD block ([Place in Block](#) step) or attach the sprue to it ([Premanufacturing](#) step).

► **Step 10: Save your design**



MARYLAND BRIDGE



►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

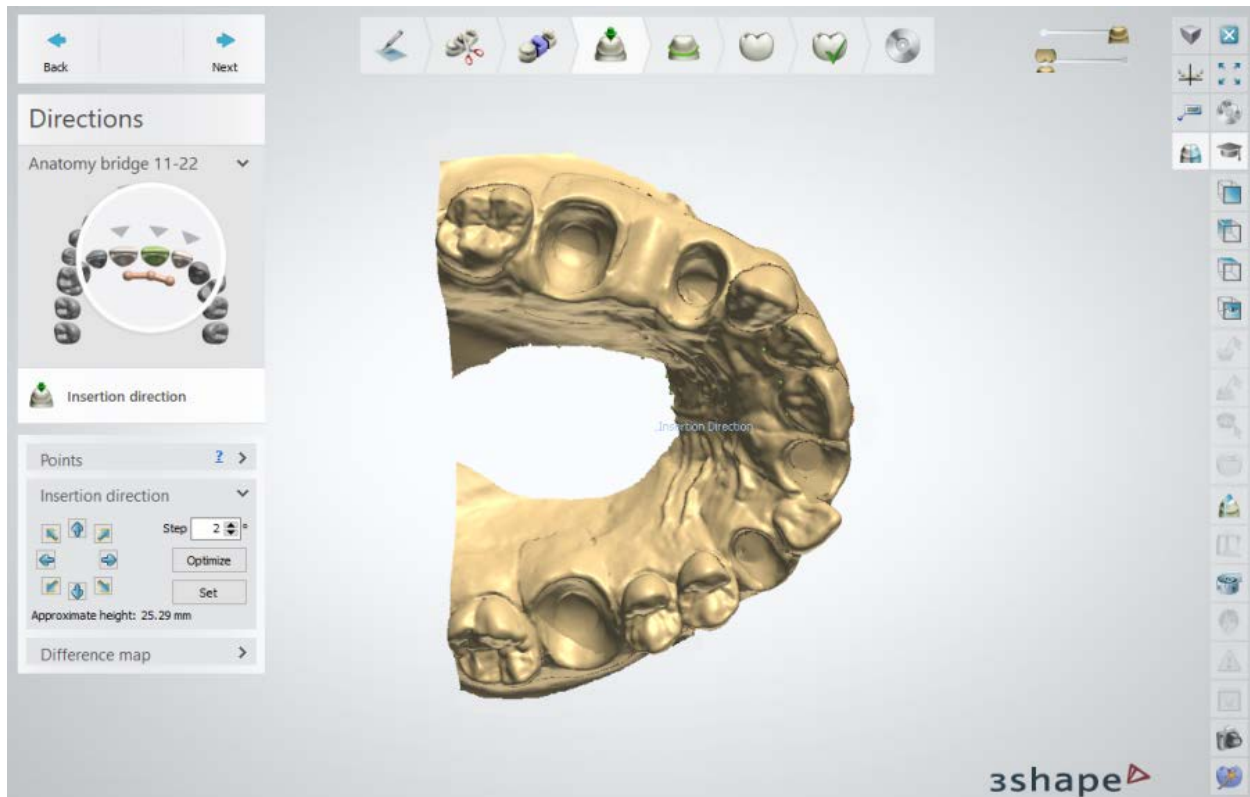
►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.



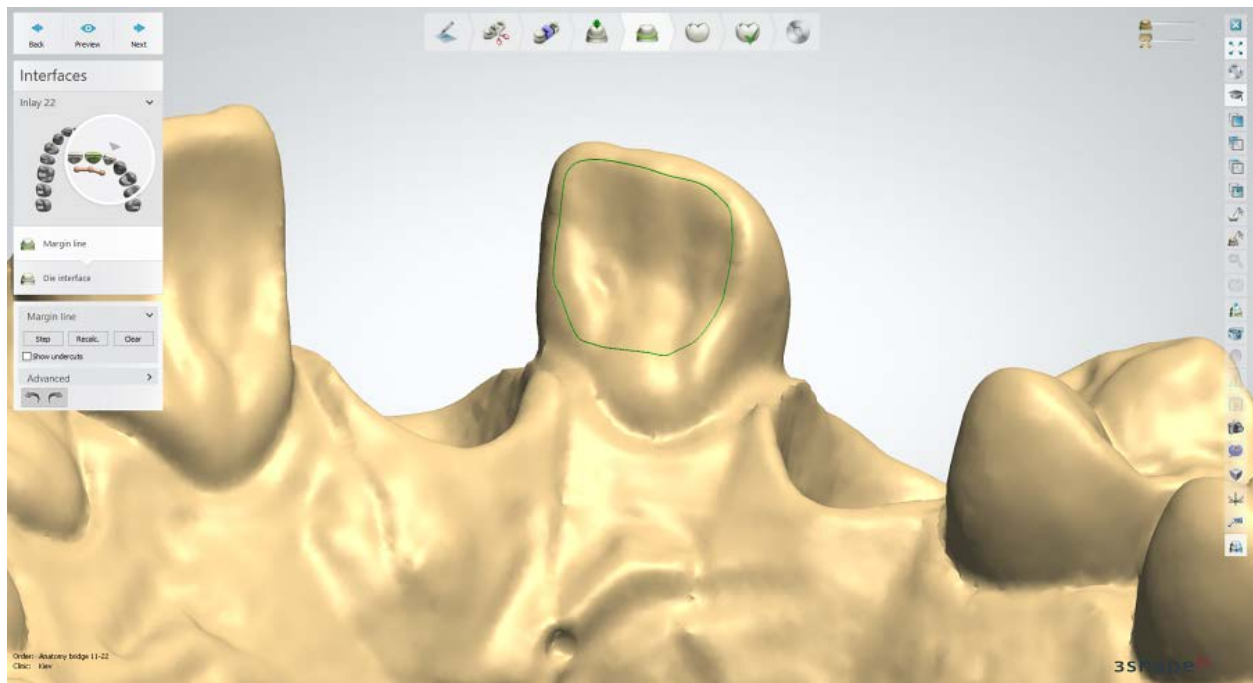
►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.



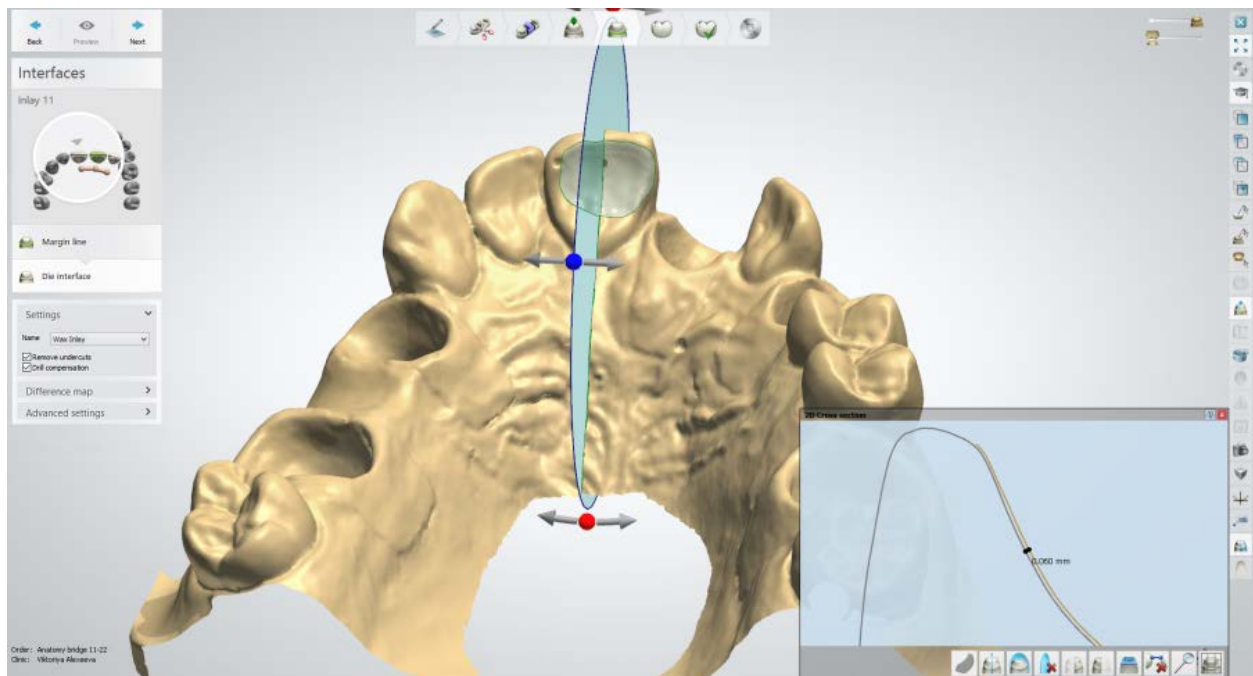
► Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.



► Step 5: Apply Die Interface

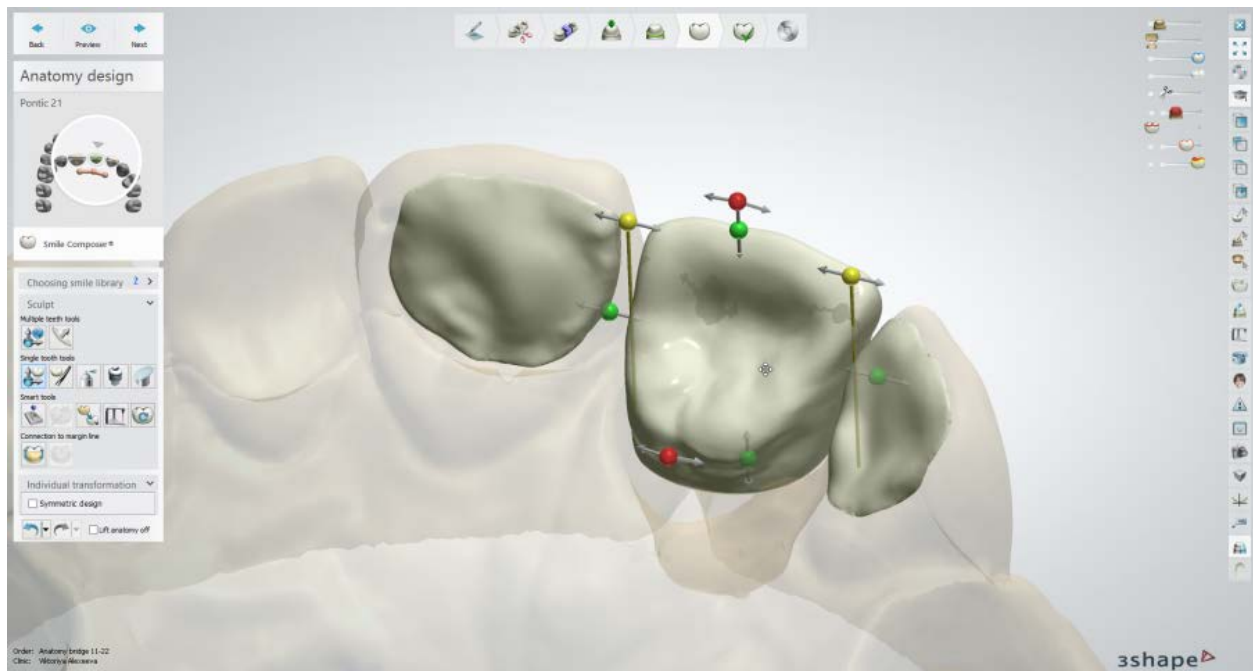
This step is identical to [Die Interface](#) described in Single Coping chapter.



2D cross section (Extra cement gap, mm)

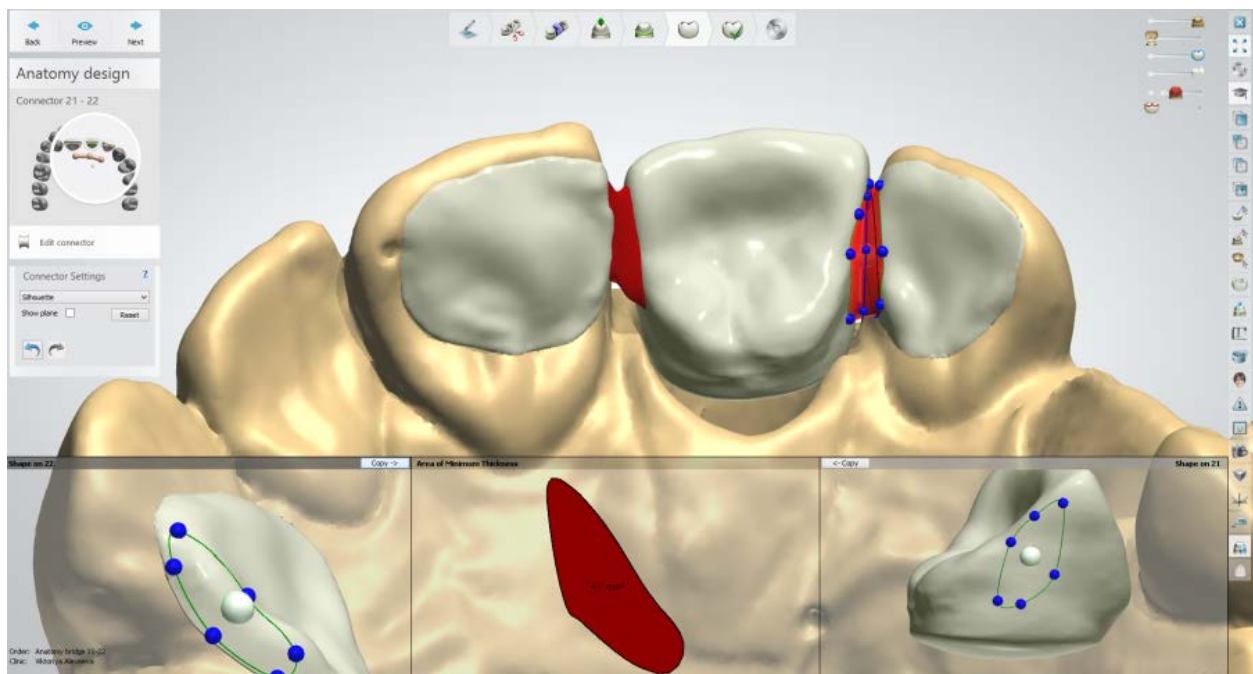
► Step 6: Design anatomy

Use [Smile Composer](#) to design the bridge.



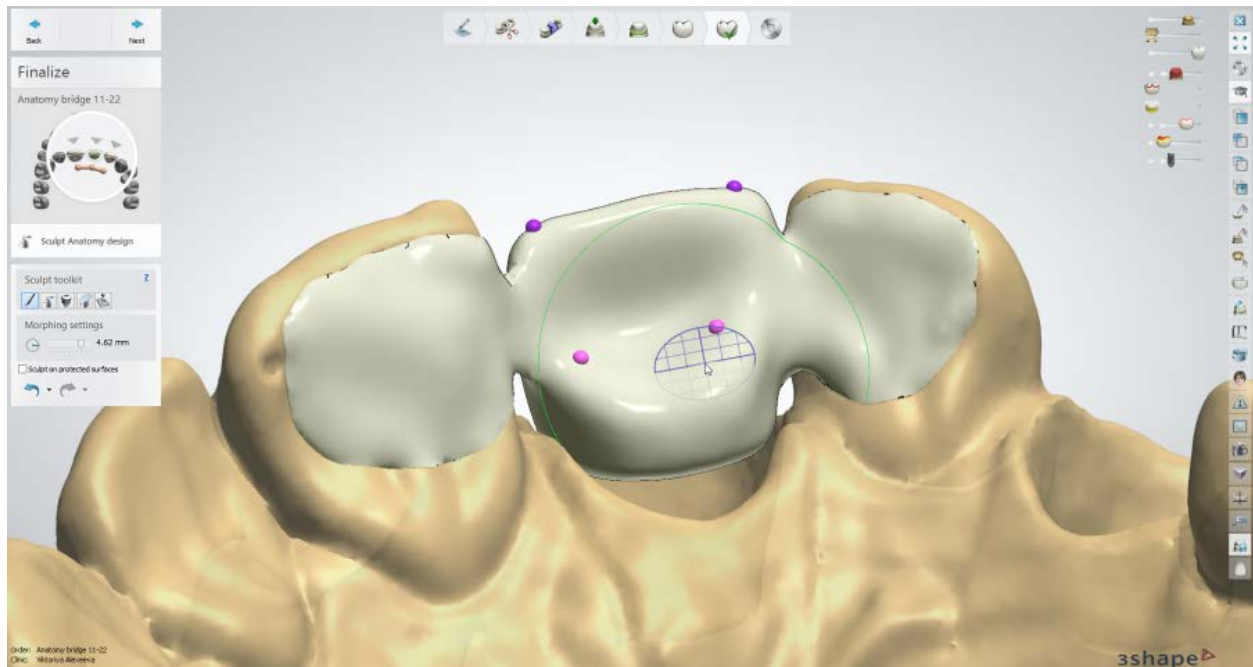
►Step 7: Edit Connector

This step is identical to [Edit Connector](#) described in Bridge Framework chapter.



►Step 8: Sculpt anatomy design

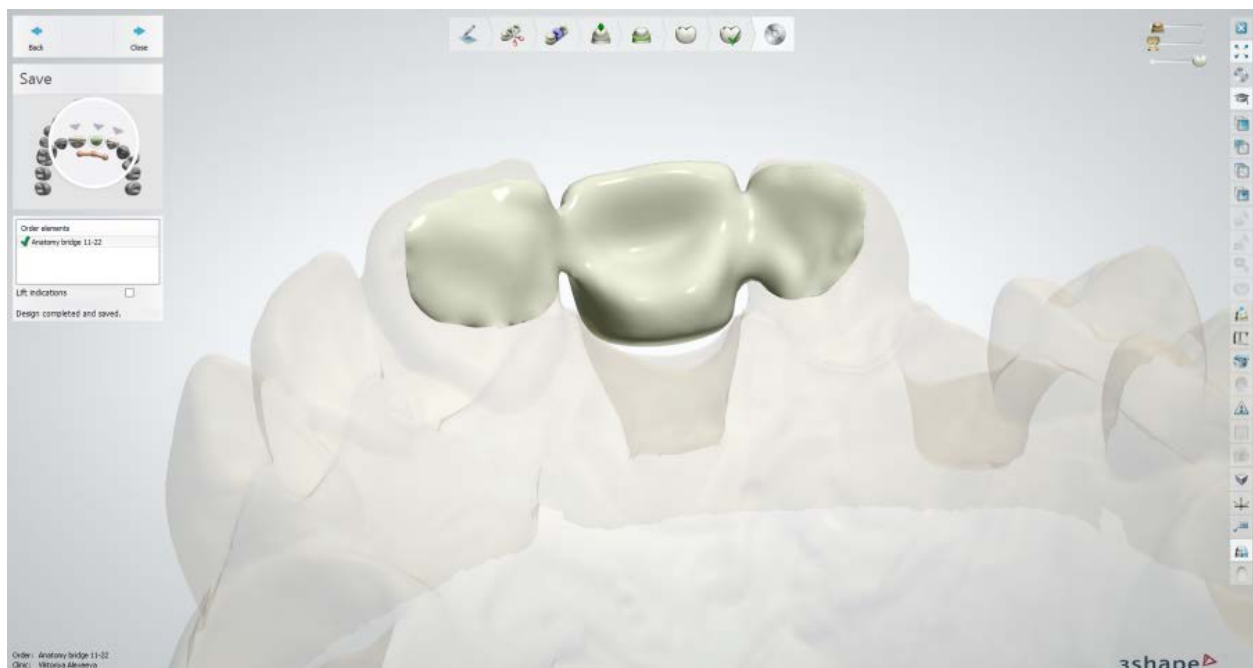
This step is described in [Sculpt Toolkit](#) chapter.



► Step 9 (optional): Preparation for manufacturing

The step is based on the corresponding settings in the Control Panel according to which you can position the designed crown inside the CAD block ([Place in Block](#) step) or attach the sprue to it ([Premanufacturing](#) step).

► Step 10: Save your design



Continue to [manufacturing](#) if required.

1.9. Veneer

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Veneer order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

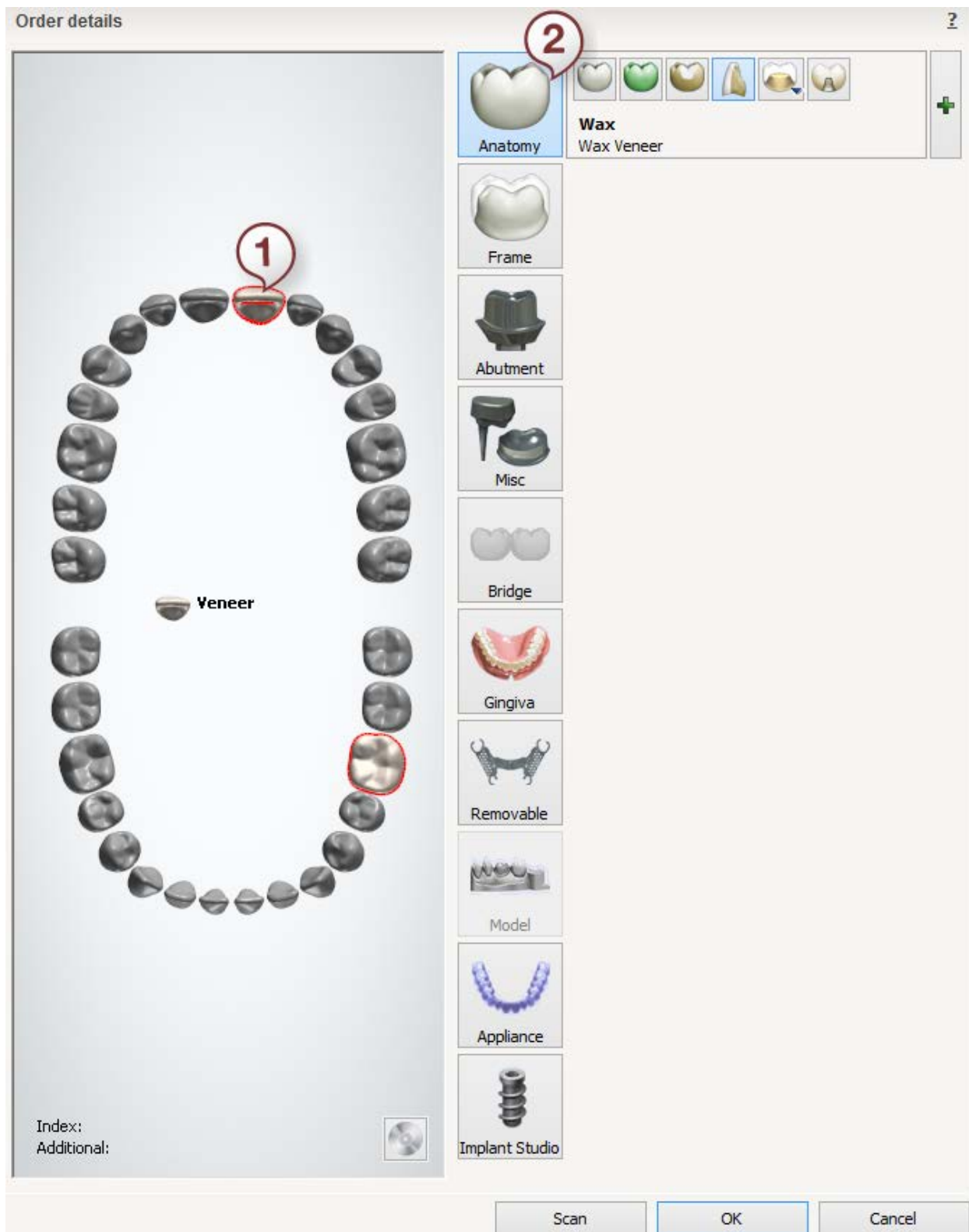
1.9.1. Veneer Order Creation

To create a Veneer order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparation in the teeth overview**

► **Step 2: Click the *Anatomy* button and select the *Veneer* button**





After creating the order, proceed to [scanning](#).

1.9.2. Veneer Scanning

The scanning of a veneer is similar to the [Bridge Framework](#) indication, please see the chapter for details.

Continue to the [design section](#).

1.9.3. Veneer Design

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

This step is similar to Smile Composer operations described in [Smile Composer](#) chapter.

►Step 7: Sculpt

This step is described in [Sculpt Toolkit](#) chapter.

►Step 8 (optional): Preparation for manufacturing

The step is based on the corresponding settings in the Control Panel according to which you can position the designed crown inside the CAD block ([Place in Block](#) step) or attach the sprue to it ([Premanufacturing](#) step).

►Step 9: Save your design

Continue to [manufacturing](#) if required.

1.10. Tabletops and Non-prepared Veneers

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Tabletops and Non-prepared Veneers order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)


1.10.1. Tabletops and Non-prepared Veneers Order Creation

This type of indication is used to create temporary tabletops for raising the bite in bite correction cases. You can create tabletop orders both for a single tooth and a bridge.

To create a Tabletops order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select unprepared teeth in the teeth overview**

► **Step 2: Click the *Anatomy* button**

► **Step 3: Click the *Temporary, Diagnostic Wax-up & Snap-On smiles*  button and select *Tabletop***



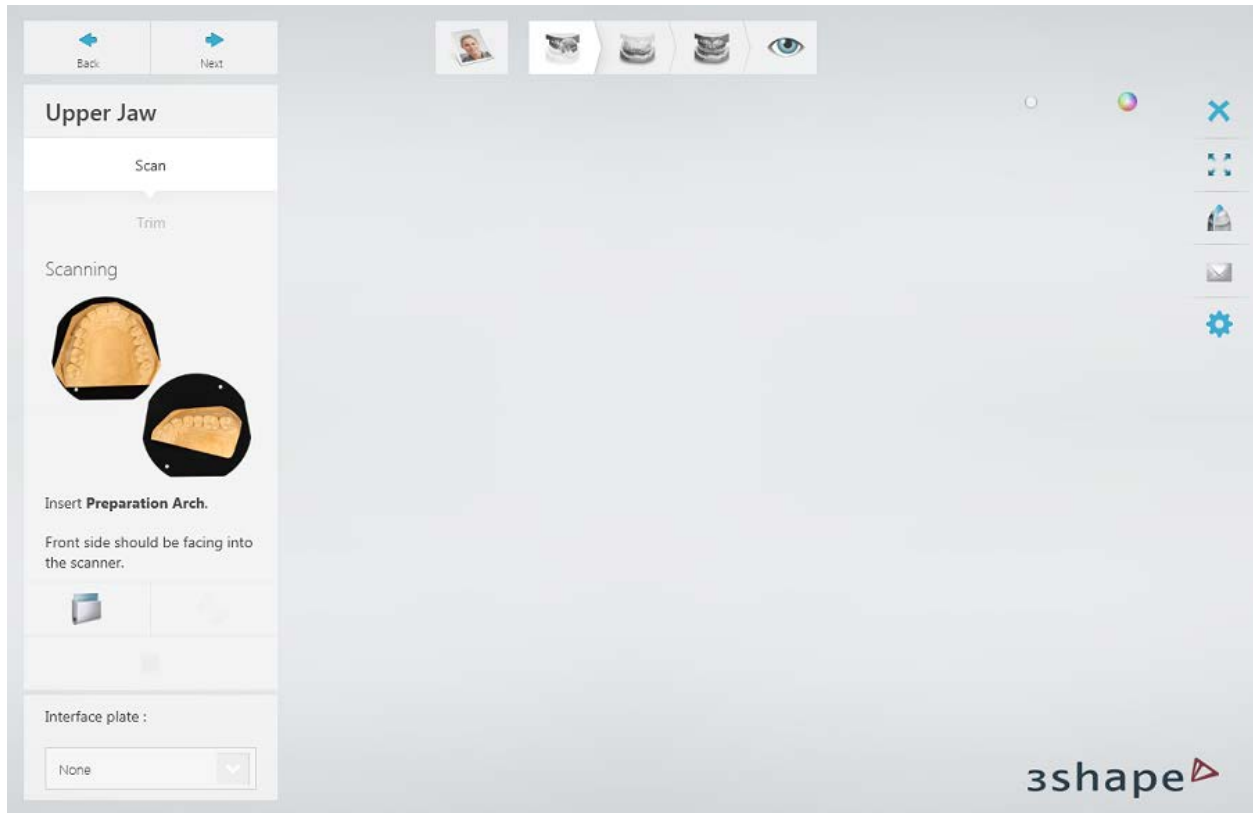
After creating the order, proceed to [scanning](#).

1.10.2. Tabletops and Non-prepared Veneers Scanning

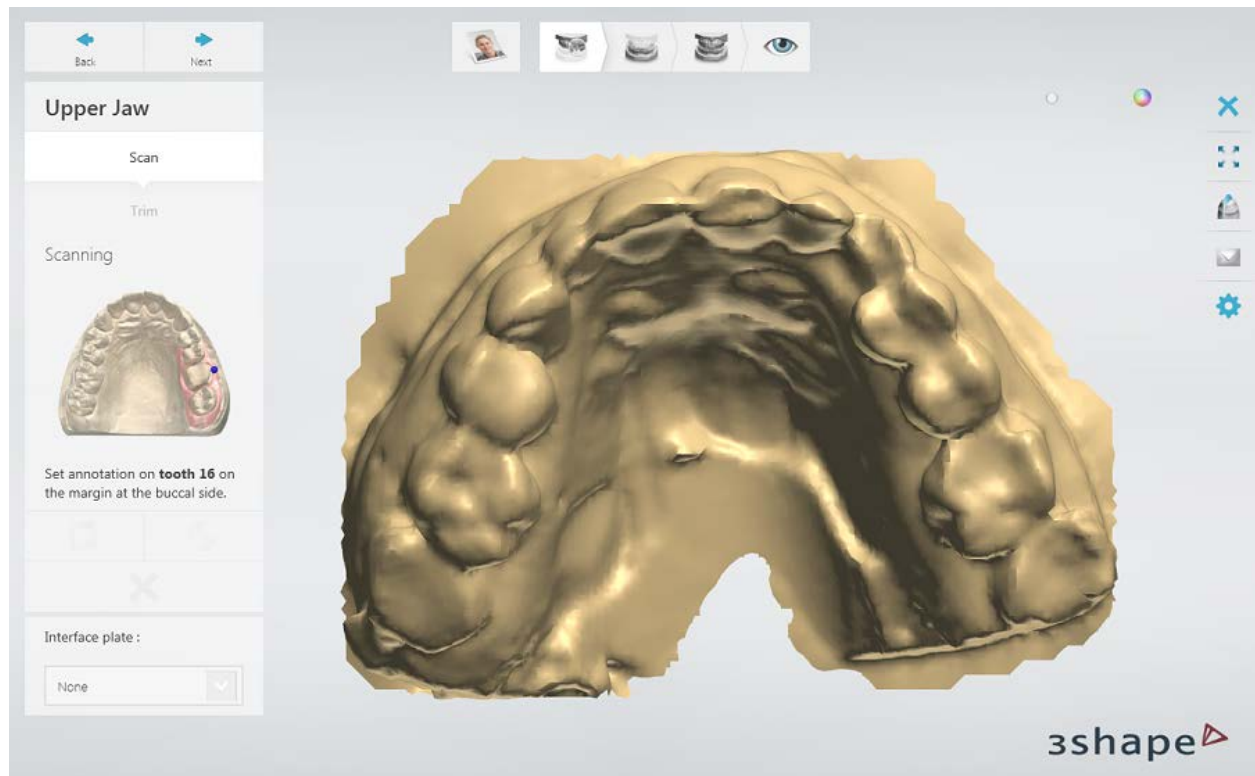
Follow the onscreen instructions and steps below to complete the Tabletop scanning:

► Step 1: Scan preparation arch

Place the preparation arch into the scanner as instructed by the software.

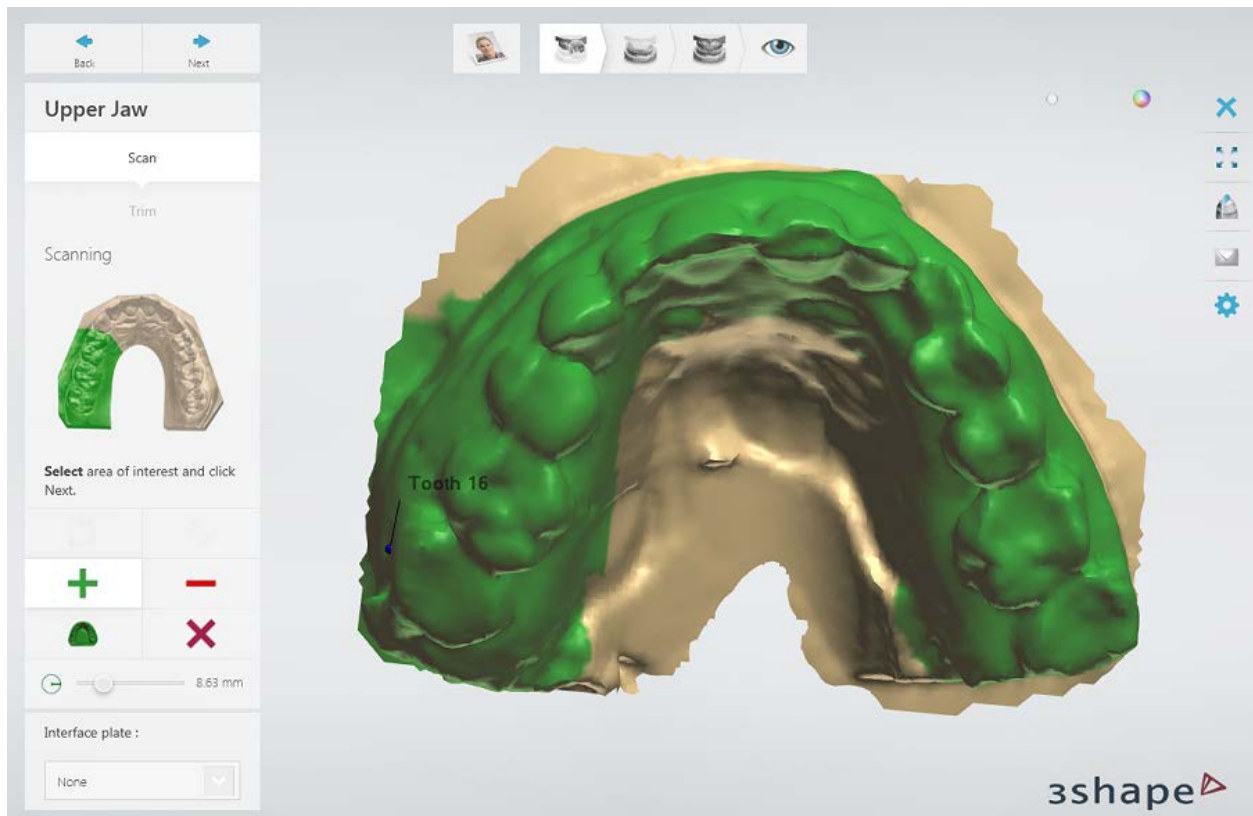


Run the initial scan by pressing the **Next** button.

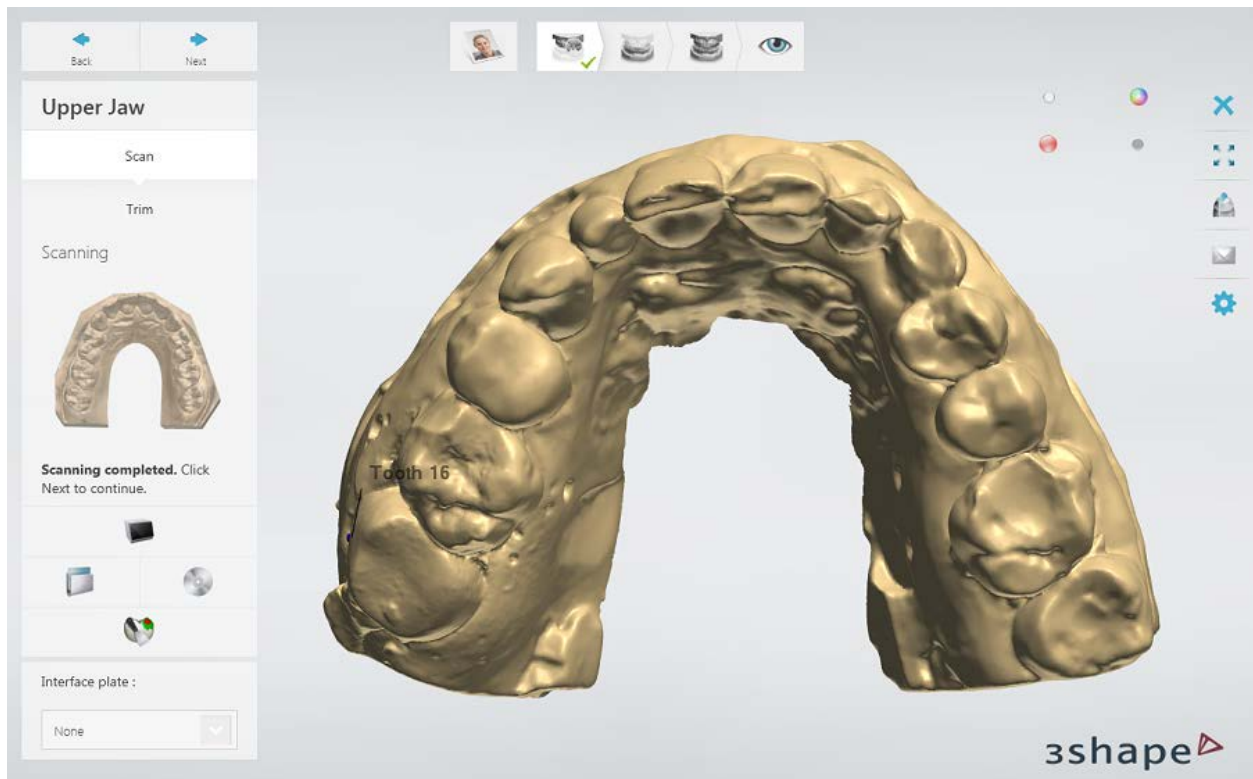


►Step 2: Annotate teeth and scan the area

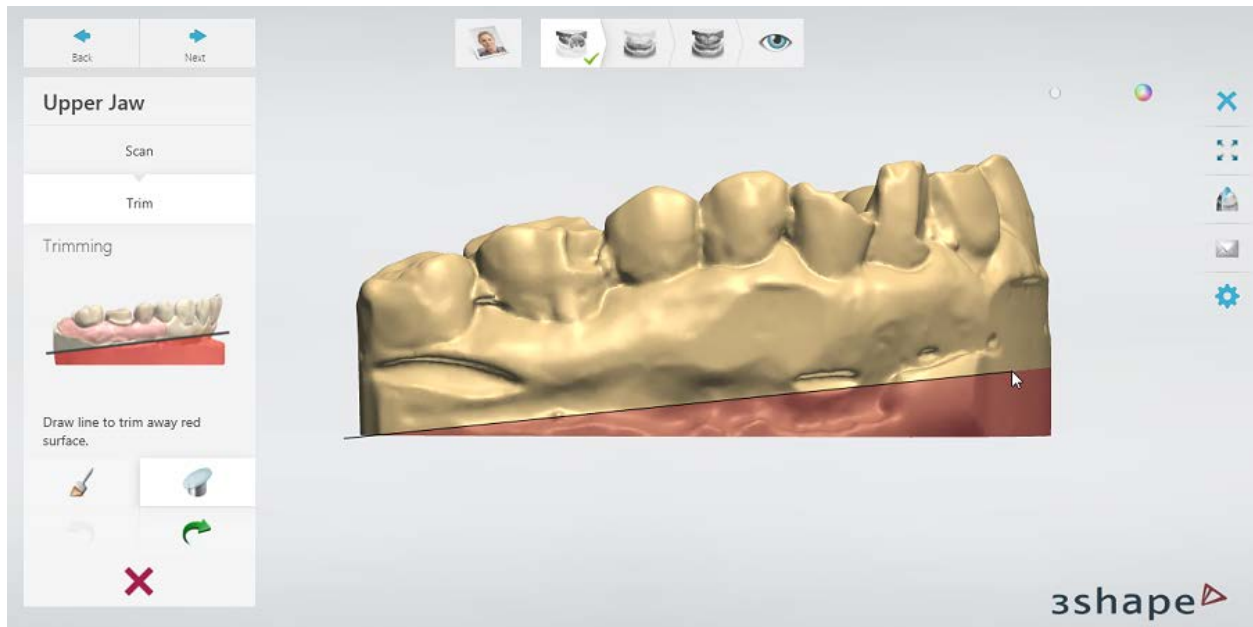
Set tooth annotations on the initial scan and correct the automatically marked area of interest if necessary.



Press **Next** to scan the marked area.

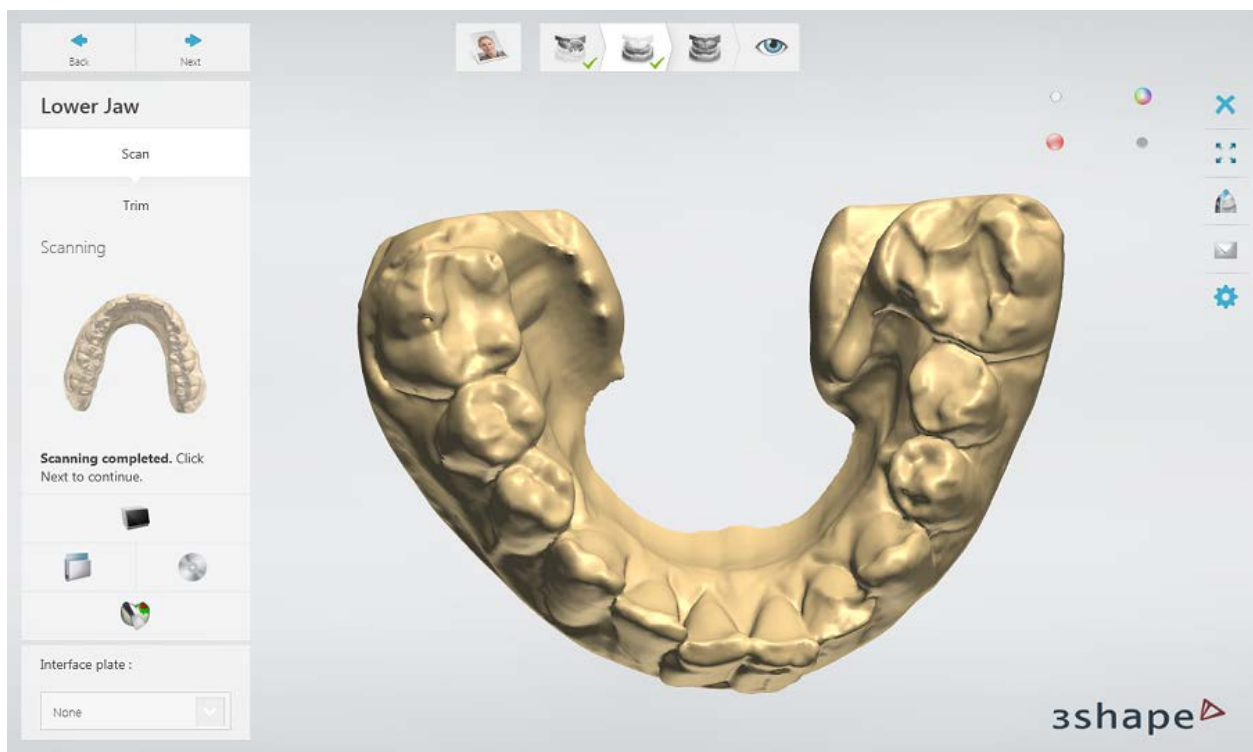


[Trim](#) the scan if necessary.



►Step 3: Scan antagonist

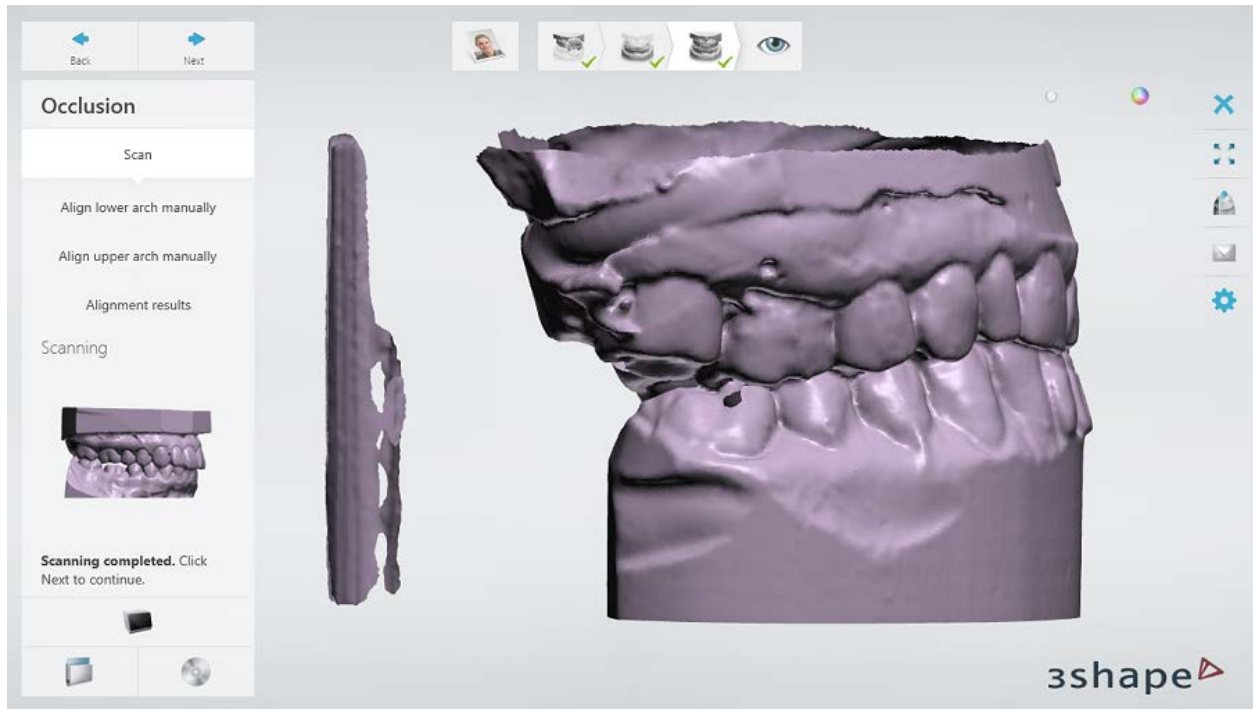
Repeat the [procedure](#) for antagonist.



►Step 3: Scan occlusion

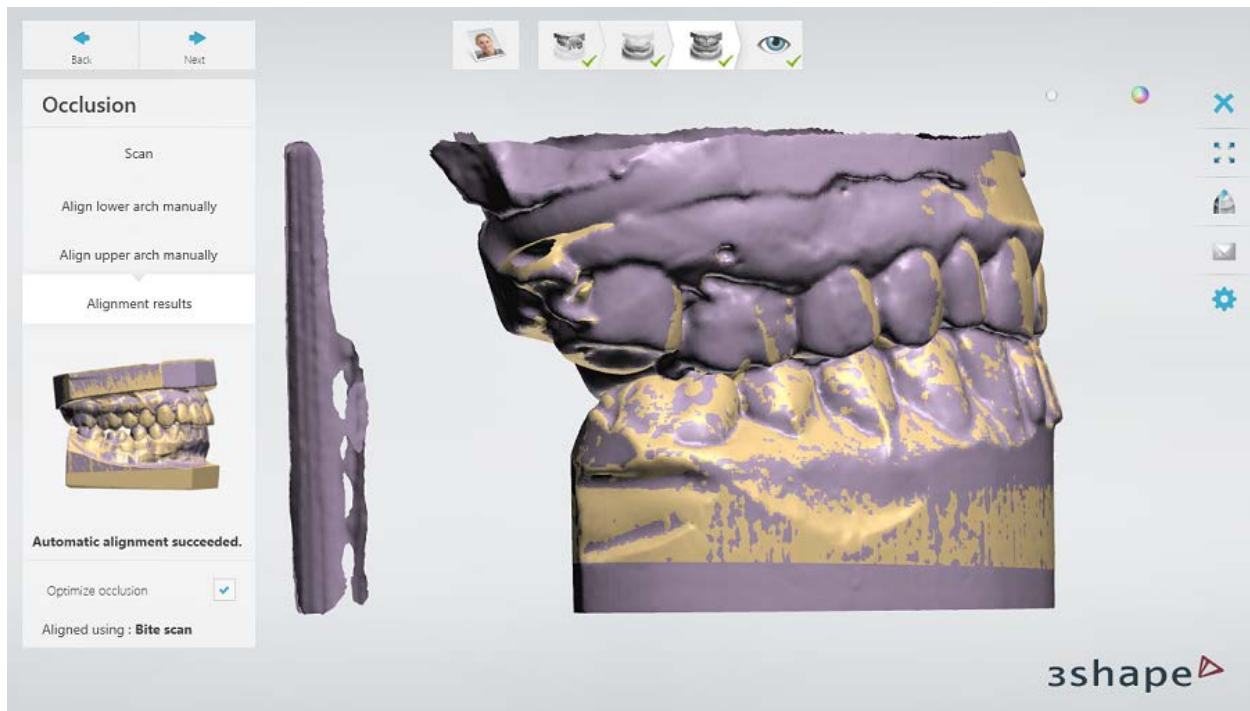
Please see the [Occlusion Handling](#) chapter for information about fixtures and the supported scanners.

Place the fixture with arches into the scanner and press **Next** to proceed.



►Step 3: Align occlusion with the arches

Align the occlusion with the arch scans automatically or manually.

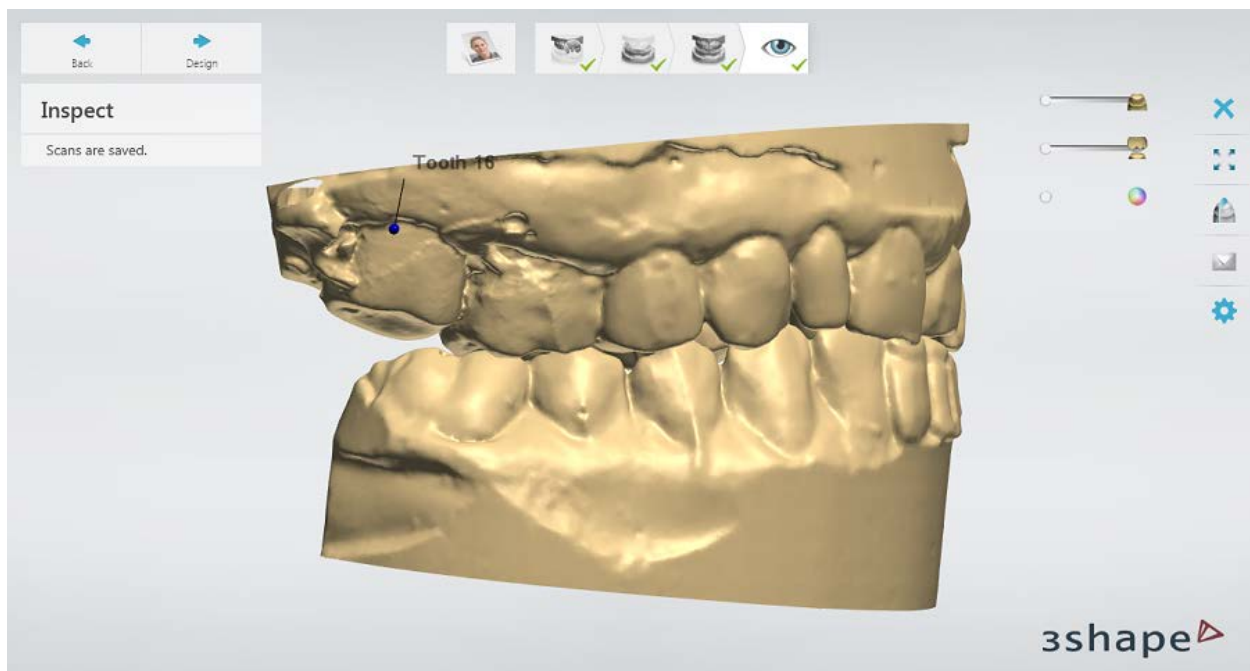


►Step 4: Finish scanning

Press **Next** to save the scans in your order.

When all scans have been saved the step is marked with a green tick as completed in the workflow toolbar, otherwise a message is displayed about the missing information.

You can close ScanIt Dental or press the **Design** button to open the order in Dental Designer.



Continue to the [design section](#).

1.10.3. Tabletops and Non-prepared Veneers Design

There are four main phases in designing the tabletops:

- I. [Prepare](#)
- II. [Directions](#)
- III. [Anatomy pre-design](#)
- IV. [Anatomy design](#)



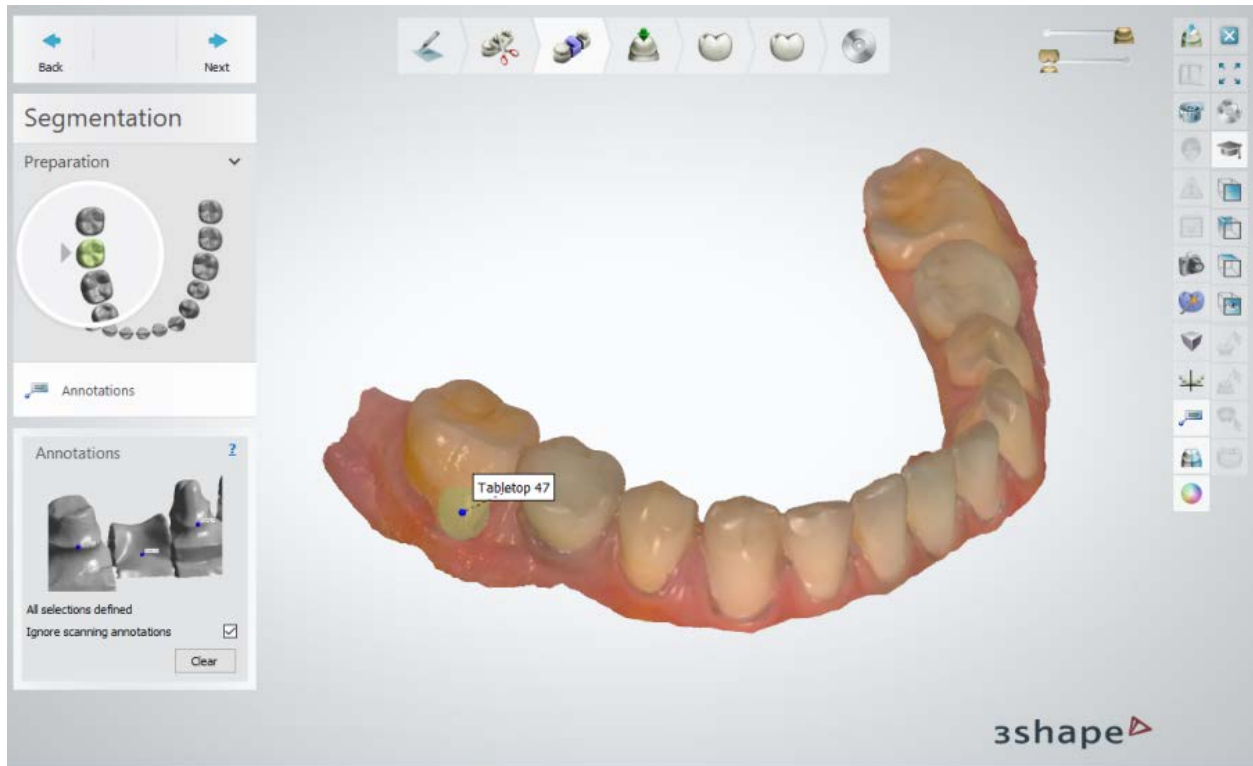
►Step 1 (optional): Prepare your scan

Go through the **Prepare** step if needed (see details on how to prepare scans in the [Prepare scan](#) chapter), otherwise go to the **Annotations** and **Insertion Direction** steps.



► Step 2: Annotations

Position the blue control point in the front central part of the tooth to be restored next to where the margin line is as shown on the following image.



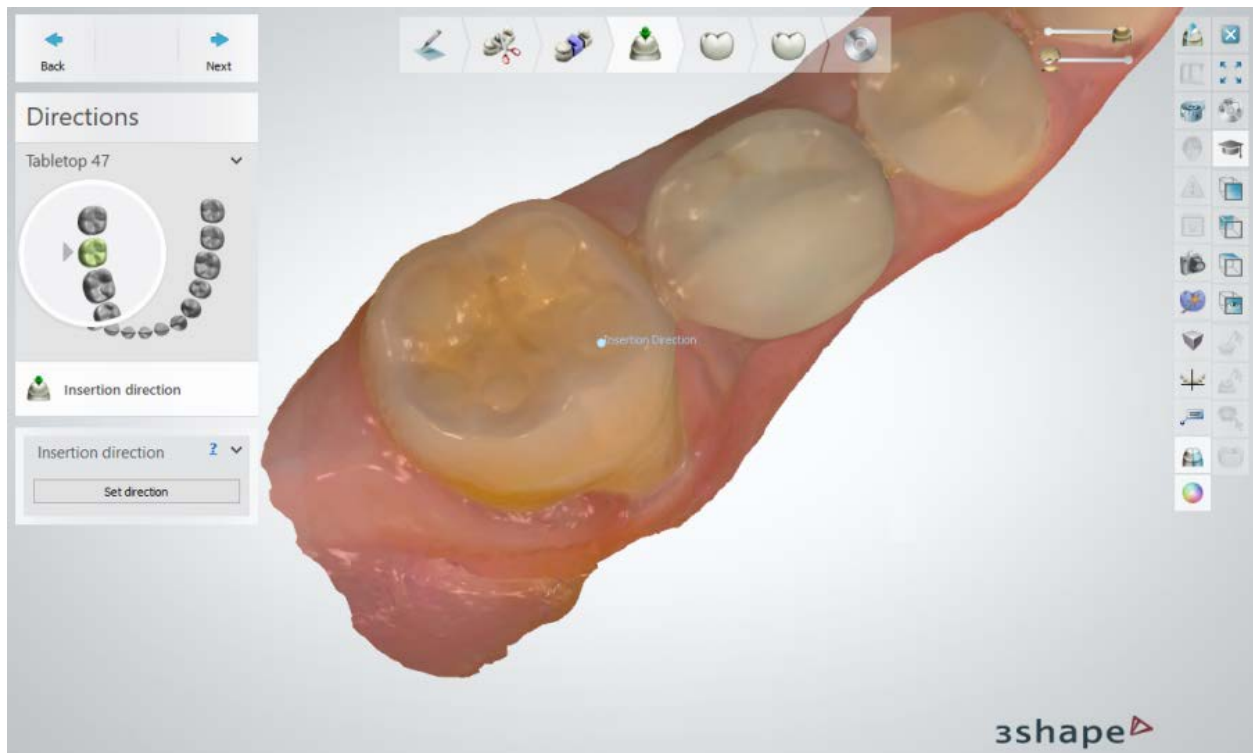
You can place and move the points with the mouse, and click **Clear** to delete them.

Click **Next** to move to the **Insertion direction** step.

►Step 3: Set Insertion direction

The **Insertion direction** step comes next after **Annotations** and serves for defining the insertion direction.

In this step, you can rely on the automatically calculated insertion direction or rotate the item and press the **Set direction** button to redefine the current point of view as the insertion direction.



Click **Next** to go to the **Anatomy pre-design** step.

►Step 4: Predesign tabletop

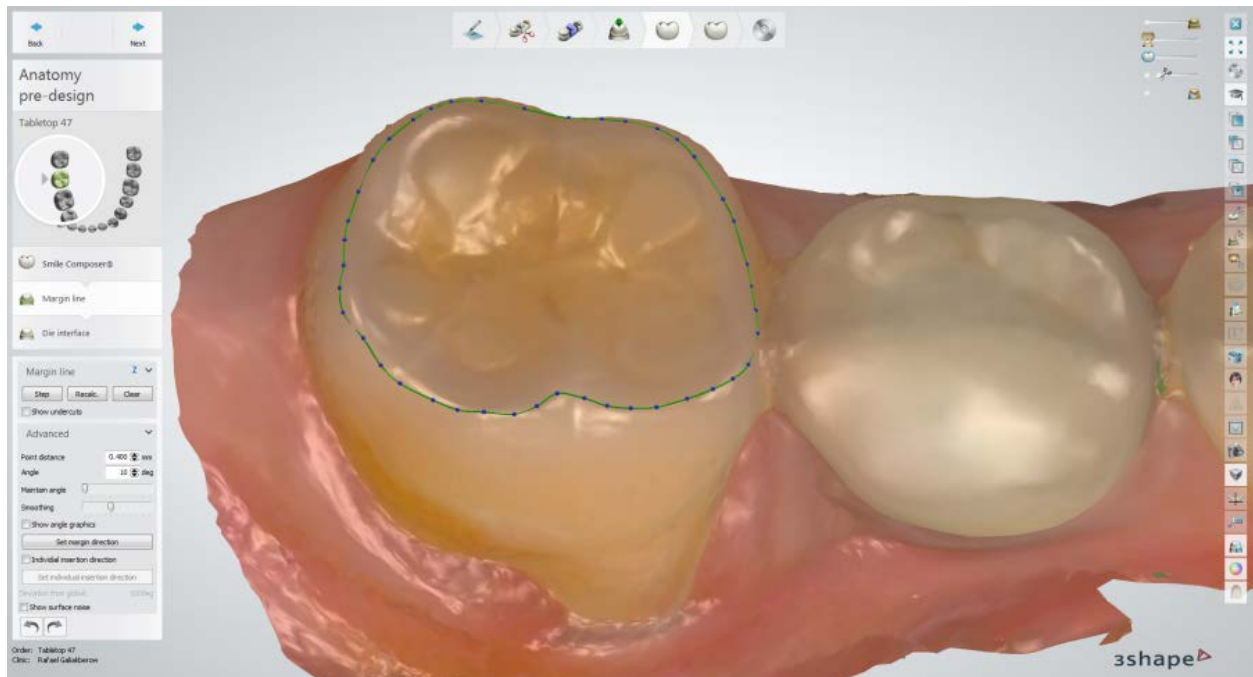
Use the Smile Composer tools to predesign your tabletop so you could design an optimally shaped tabletop further in the process. Please see [Smile Composer](#) chapter for details.



Click **Next** to go to the **Margin line** step.

►Step 5: Place Margin line

The margin line is automatically detected at the intersection between the tooth scan surface and pre-designed tabletop body. You can use the available tools and settings to adjust the margin line. This step is identical to [Margin Line](#) described in Single Coping Design chapter.



►Step 6: Apply Die interface

This step is identical to [Die Interface](#) described in Single Coping Design chapter.

Click **Preview** to see the result.



► Step 7: Design tabletop

Use Smile Composer in the **Anatomy design** step to create the final design of your tabletop. If the preliminary design is done well at the **Anatomy pre-design** step, you will need just to do minor adjustments if any. Please see [Smile Composer](#) chapter for details.



► Step 8: Save your design



Continue to [manufacturing](#) if required.

1.11. Multi-layer Crowns and Bridges

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Multi-layer Crowns and Bridges order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.11.1. Multi-layer Crowns and Bridges Order Creation

To create a Multi-layer Crowns and Bridges order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparations in the teeth overview**

► **Step 2: Click the *Frame* button and select a *Coping***



► **Step 3: Click the *Anatomy* button, the *Crown***




button is selected by default

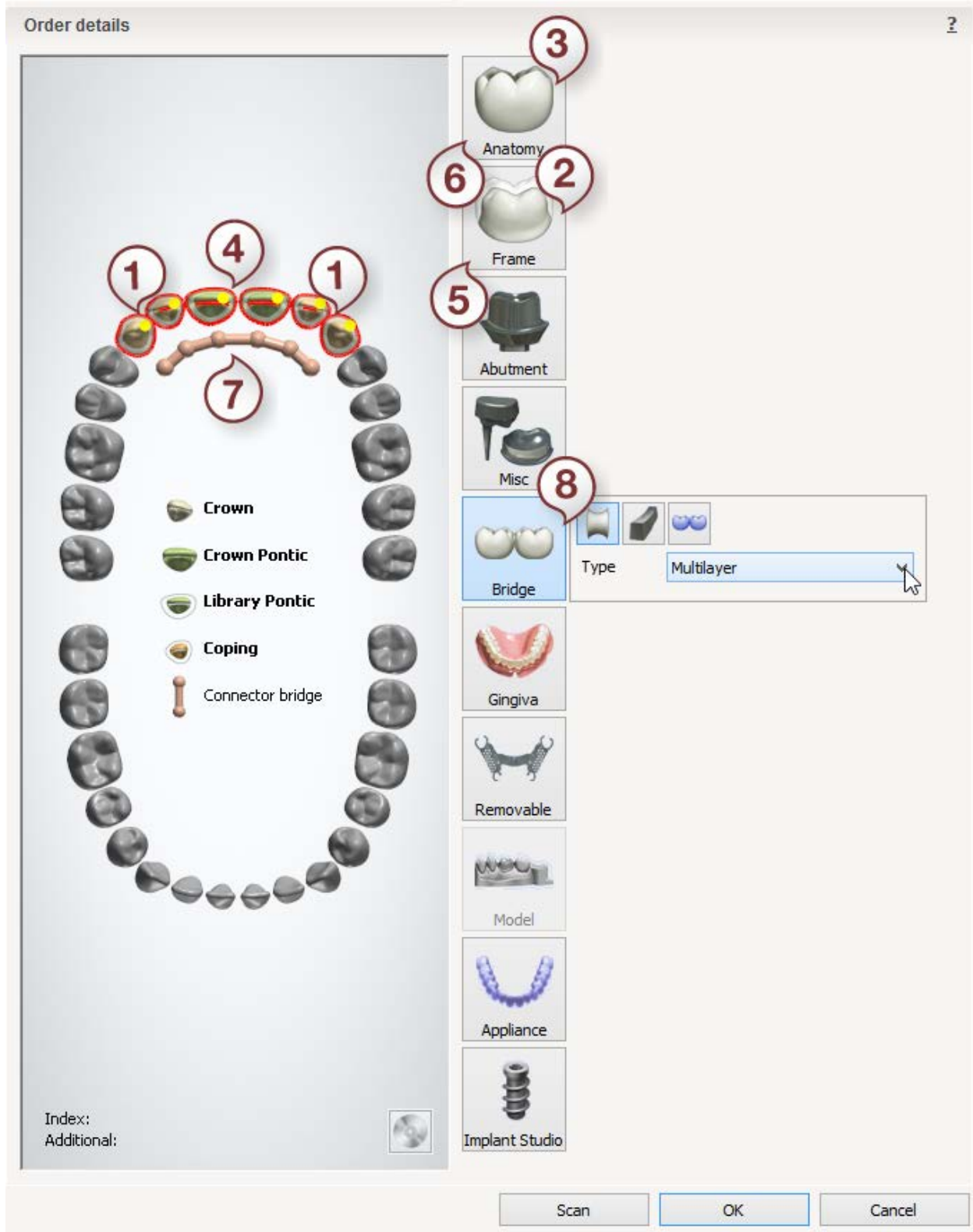
► **Step 4: Select *Pontic* in the teeth overview**

► **Step 5: Click the *Frame* button and select the *Library Pontic***



button

- Step 6: Click the *Anatomy* button, the *Crown Pontic*  button is selected by default
- Step 7: Select all units in bridge in the teeth overview
- Step 8: Click the *Bridge* button and select the Multilayer connector



After creating the order, proceed to [scanning](#).

1.11.2. Multi-layer Crowns and Bridges Scanning

Multi-layer Crowns and Bridges scanning is similar to the [Bridge Framework](#) indication, please see the chapter for details.

Continue to the [design](#) section.

1.11.3. Multi-layer Crowns and Bridges Design

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design Anatomy

This step is similar to the [Anatomy Design](#) described in Full Anatomical Crown chapter. The difference is in selecting the Smile library [linked](#) to the frame library at the Smile Composer step.

►Step 7: Design a Coping

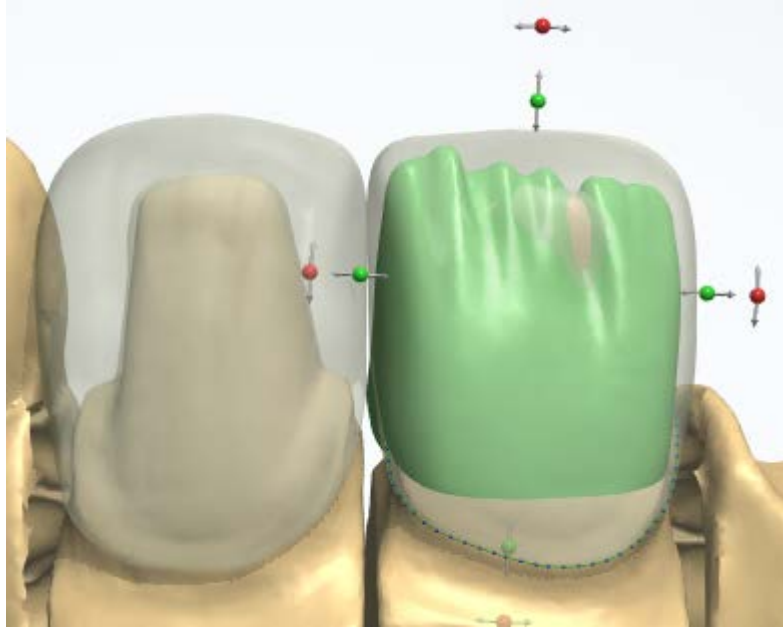
This step is similar to [Coping](#) described in Single Coping chapter. The differences are:

- A green frame model indicates the position of a coping. Visualization of the selected

frame is changed with the slider

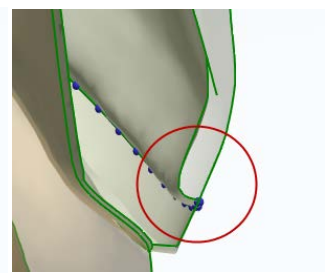
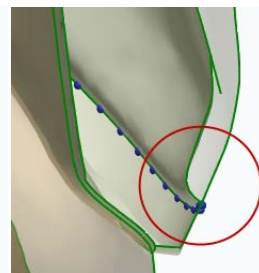
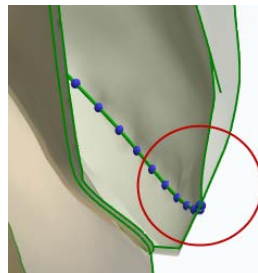
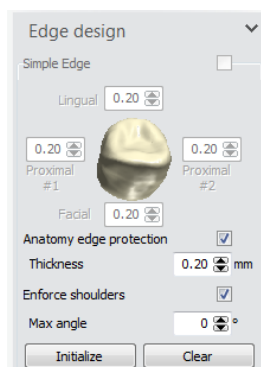


The frame coping can be modified by dragging the corresponding handlers around it. It must not extrude the crown.



- **Anatomy edge protection** and **Enforce shoulders** checkbox option settings are available at **Edge design** and help you avoid the crown becoming too thin at the spline edge.
 - **Anatomy edge protection** - Sets the minimum thickness of a crown at the spline edge.
 - **Enforce shoulders** - Sets maximum deviation angle from a plane perpendicular to the insertion direction.

Examples of the Anatomy edge protection and Enforce shoulders operations are shown on the images below:



Multilayer Edge design

Anatomy edge protection:
OFF

Anatomy edge protection:
ON

Enforce shoulders: ON

►Step 8: Edit Connector

This step is identical to [Edit Connector](#) described in Bridge Framework chapter.



For designing a Multilayer bridge, it is recommended to select a [Multilayer connector](#).

A **Multilayer** connector extends down to the margin line of a coping/pontic and is cut/intersected with the anatomy, so that it fits with the anatomy at the bottom.

►Step 9: Sculpt on Coping

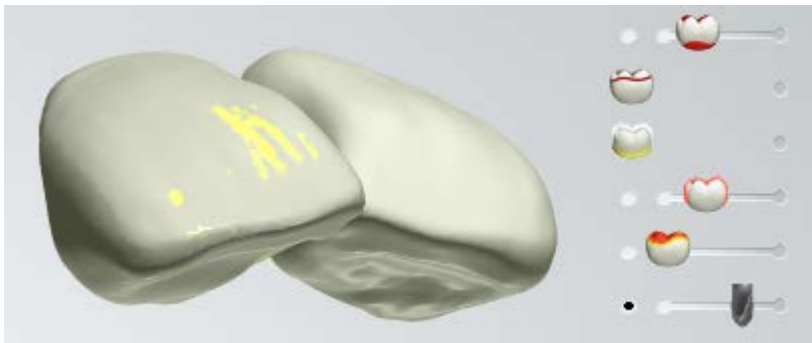
This step is identical to [Sculpt Toolkit](#) chapter.

►Step 10: Sculpt Frame design

This step is described in [Sculpt Toolkit](#) chapter.

►Step 11: Sculpt Anatomy design

This step is described in [Sculpt Toolkit](#) chapter.



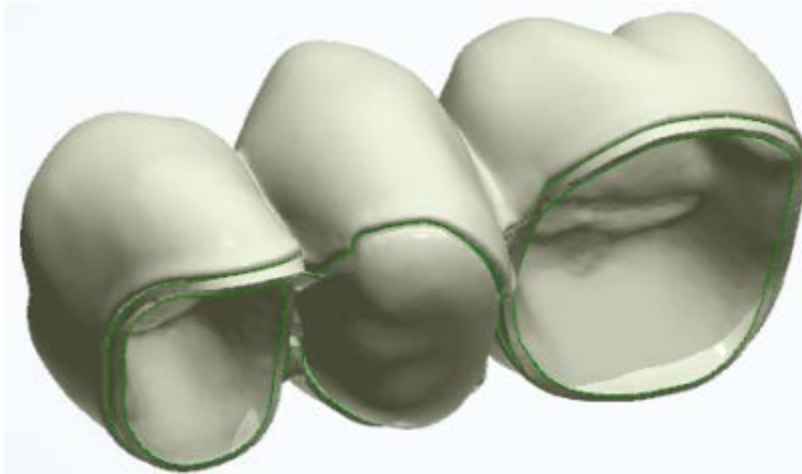
The **Non-millable** areas

visualization slider shows areas on a model that cannot be milled with the drill of a specified radius.

The drill radius is selected by dragging slider sideways.

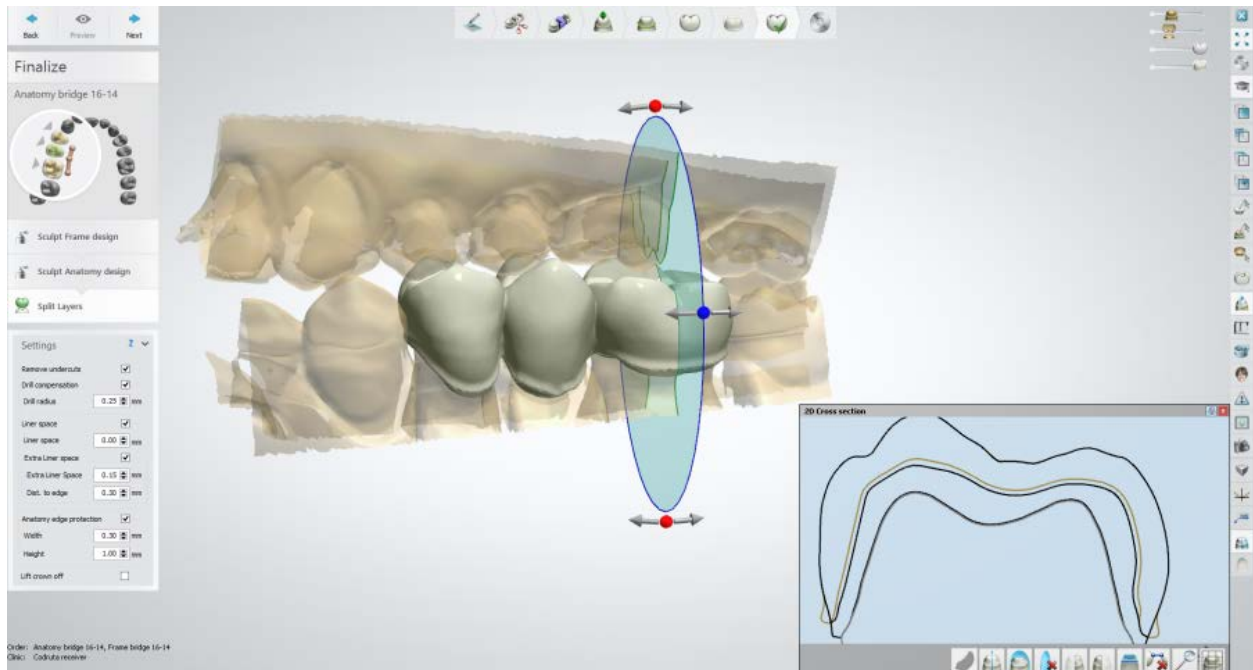
Blue color - area is non-millable. **Yellow** - area is close to millable.

►Step 12: Split Layers



The **Split Layers** step allows for the simultaneously combined design of a substructure and an overlying anatomical pattern for multi-layer crowns and bridge structures.

Two separate files are automatically prepared for the output: one for the anatomically correct coping and the second one for the pressed pattern. These files can be then automatically transferred to the respective manufacturing equipment.



Settings ? v

Remove undercuts ☒

Drill compensation ☒

Drill radius 0.25 mm

Liner space ☒

Liner space 0.00 mm

Extra Liner space ☒

Extra Liner Space 0.15 mm

Dist. to edge 0.30 mm

Anatomy edge protection ☒

Width 0.30 mm

Height 1.00 mm

Lift crown off ☐

Remove undercuts - when checked, removes undercuts in anatomical copings and pontic constructions.

Drill compensation - when checked, applies drill compensation on inside of the anatomy layer.

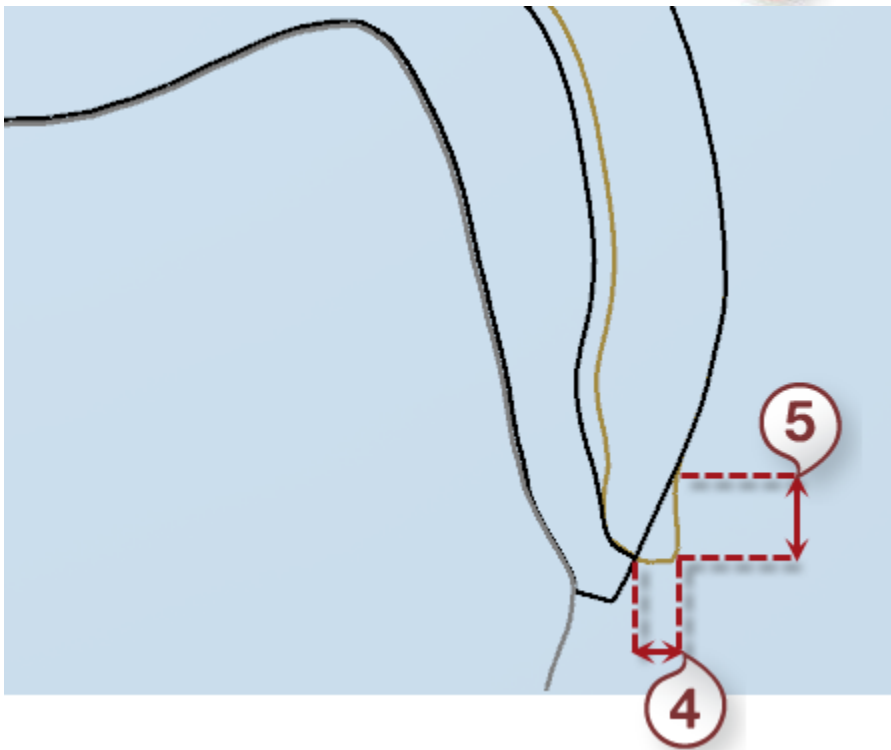
Drill radius - allows you to specify the radius of a drill.

Liner space (1) - when checked, allows you to specify the amount of liner space between the anatomy and the framework bridge (see 2D cross section below).

The **Extra Liner Space (2)** option creates the liner space in the upper part of the interface (see 2D cross section below).

Distance to edge (3) - is the distance from the margin line to the borderline marking the border between the **Liner space** and the **Extra liner space** offsets (see 2D cross section below).

Anatomy edge protection - allows you to add additional material to anatomy around the edge so that it does not chip off during manufacturing. You can specify the **Width (4)** and the **Height (5)** of the **Anatomy edge protection**.





After you click **Preview**, the **Lift crown off** check-box becomes active.

Lift crown off - when checked, lifts the anatomy from the framework.

Continue to [manufacturing](#) if required.

1.12. Single Wax-up

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.


The included sub-chapters describe a workflow for a Single Wax-up order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.12.1. Single Wax-up Order Creation

To create a Single Wax-up order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparation in the teeth overview**

► **Step 2: Click the *Frame* button and select the *Waxup*  button**



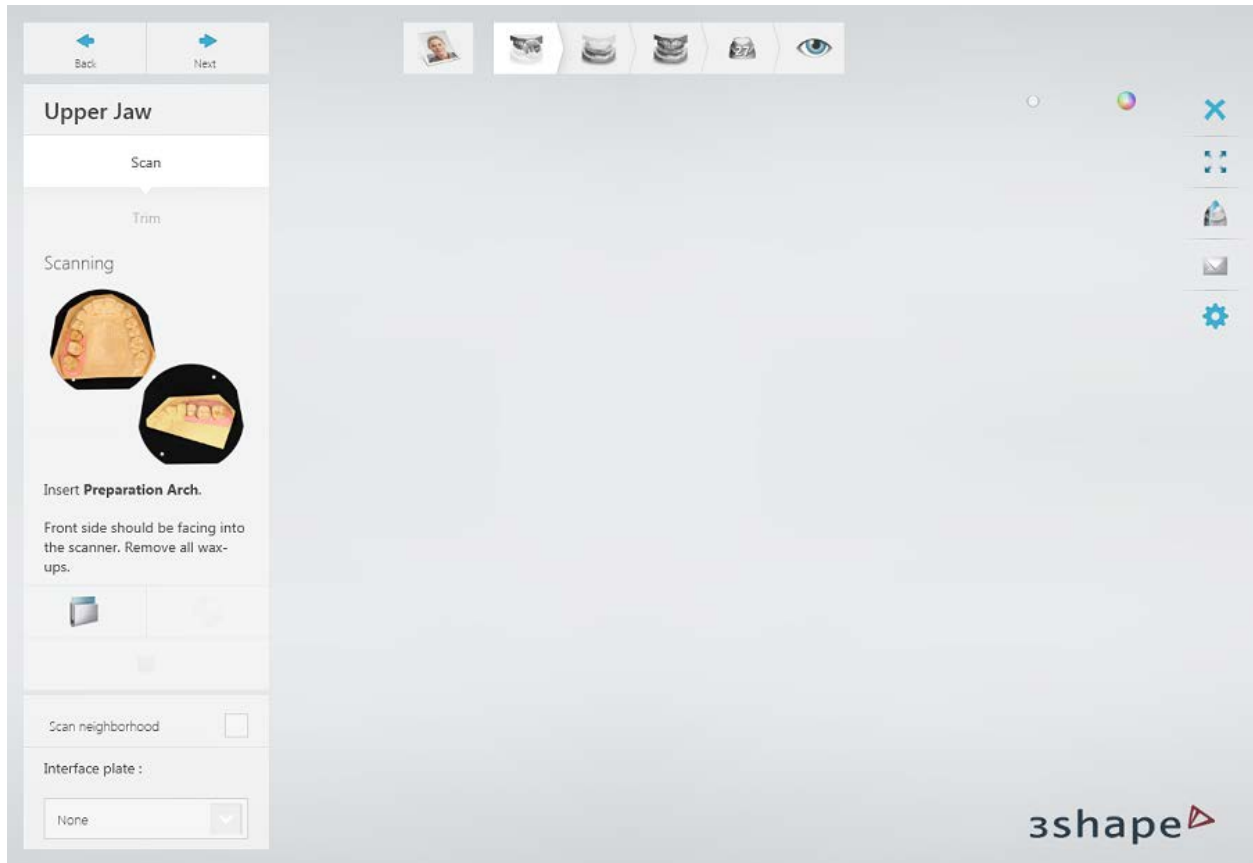
After creating the order, proceed to [scanning](#).

1.12.2. Single Wax-up Scanning

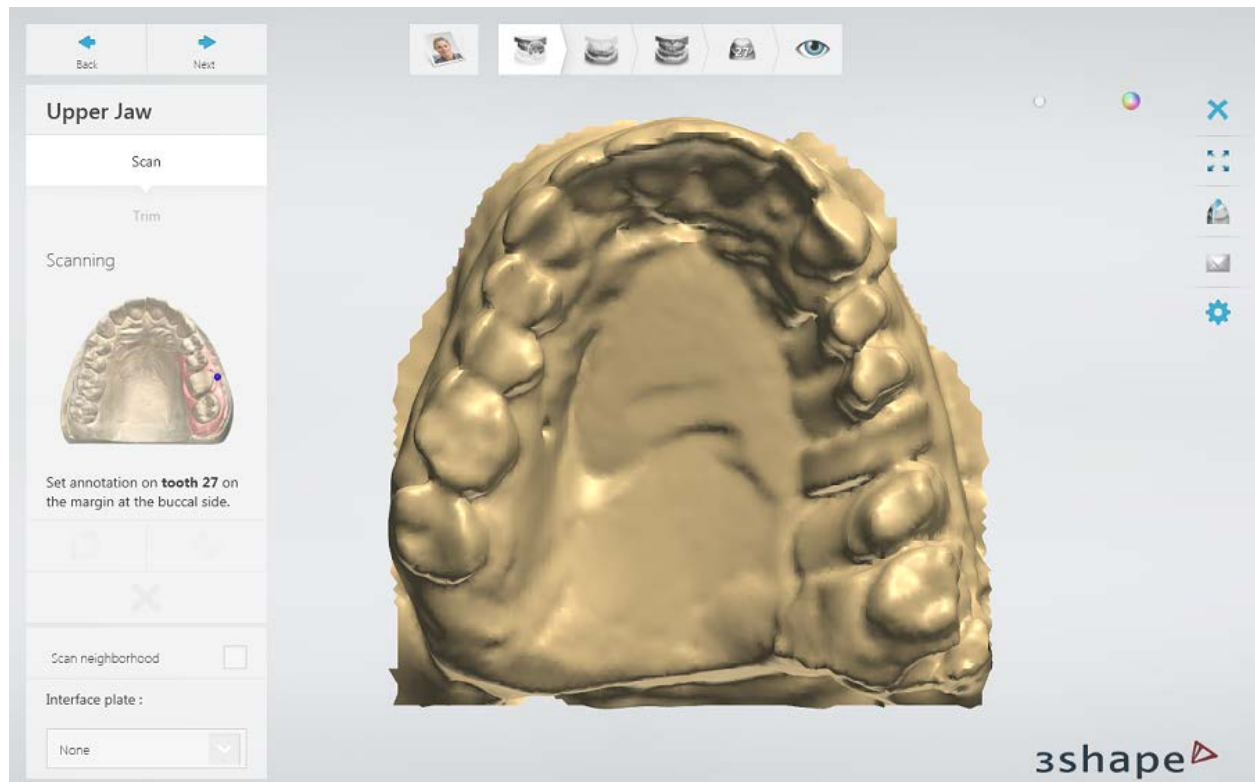
Follow the onscreen instructions and steps below to complete Single Wax-up scanning:

► Step 1: Scan preparation arch

Place the preparation arch without wax-up into the scanner as instructed by the software.

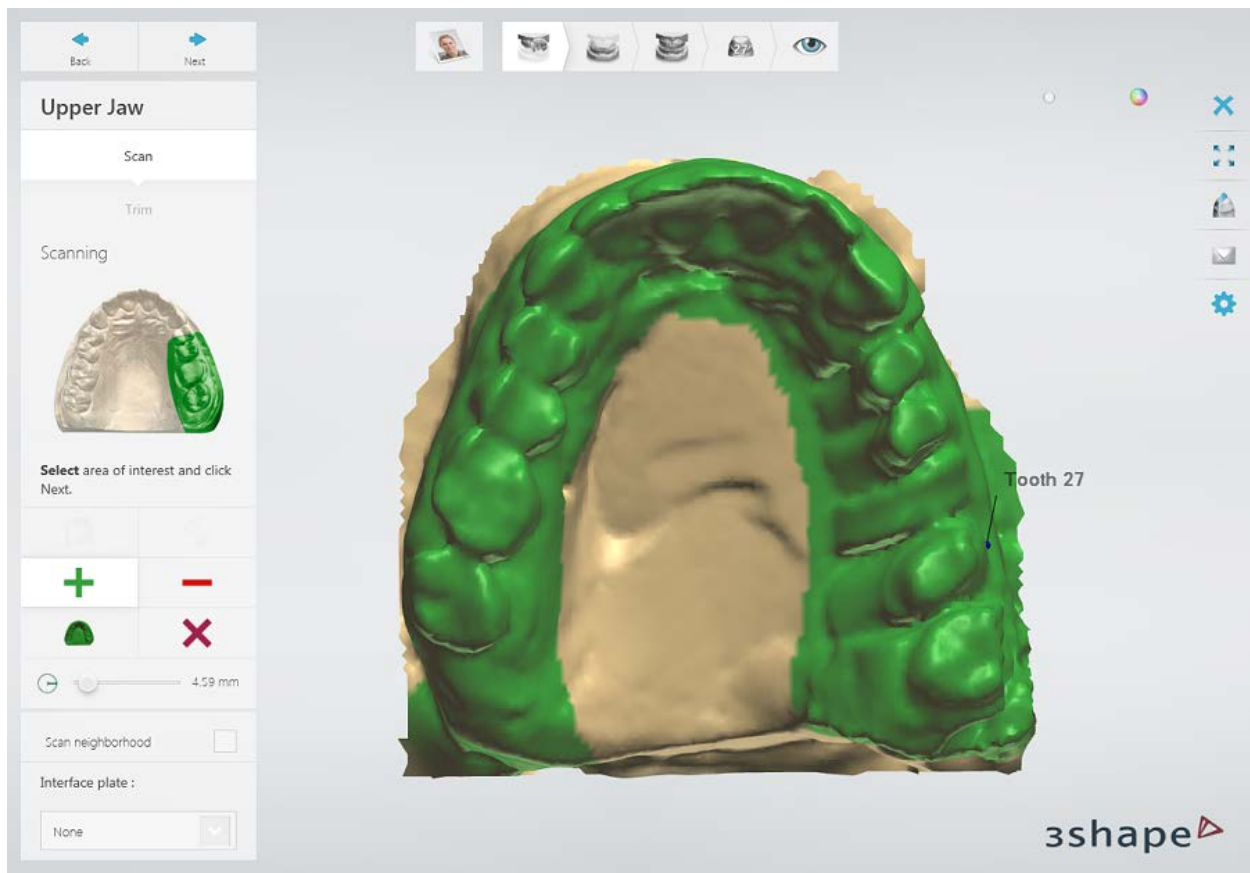


Run the initial scan by clicking the **Next** button.

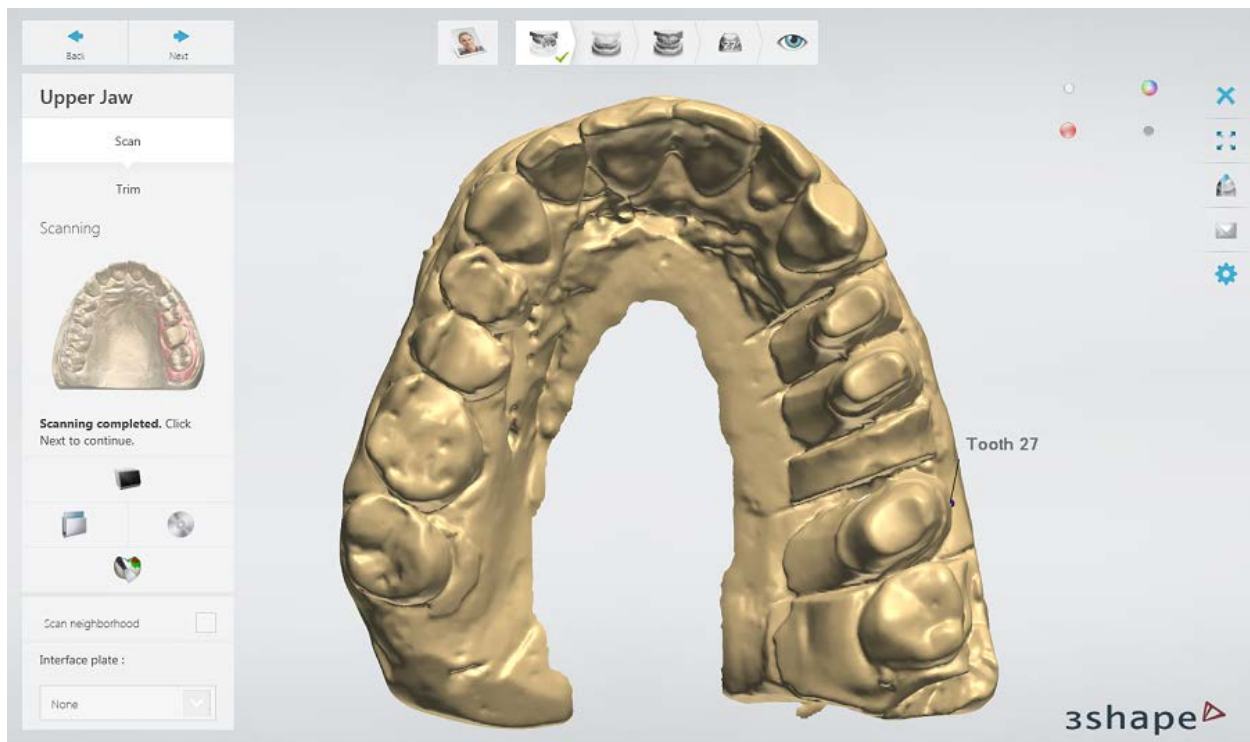


► **Step 2: Annotate teeth and scan the area**

Set tooth annotations on the initial scan and correct the automatically marked area of interest if necessary.



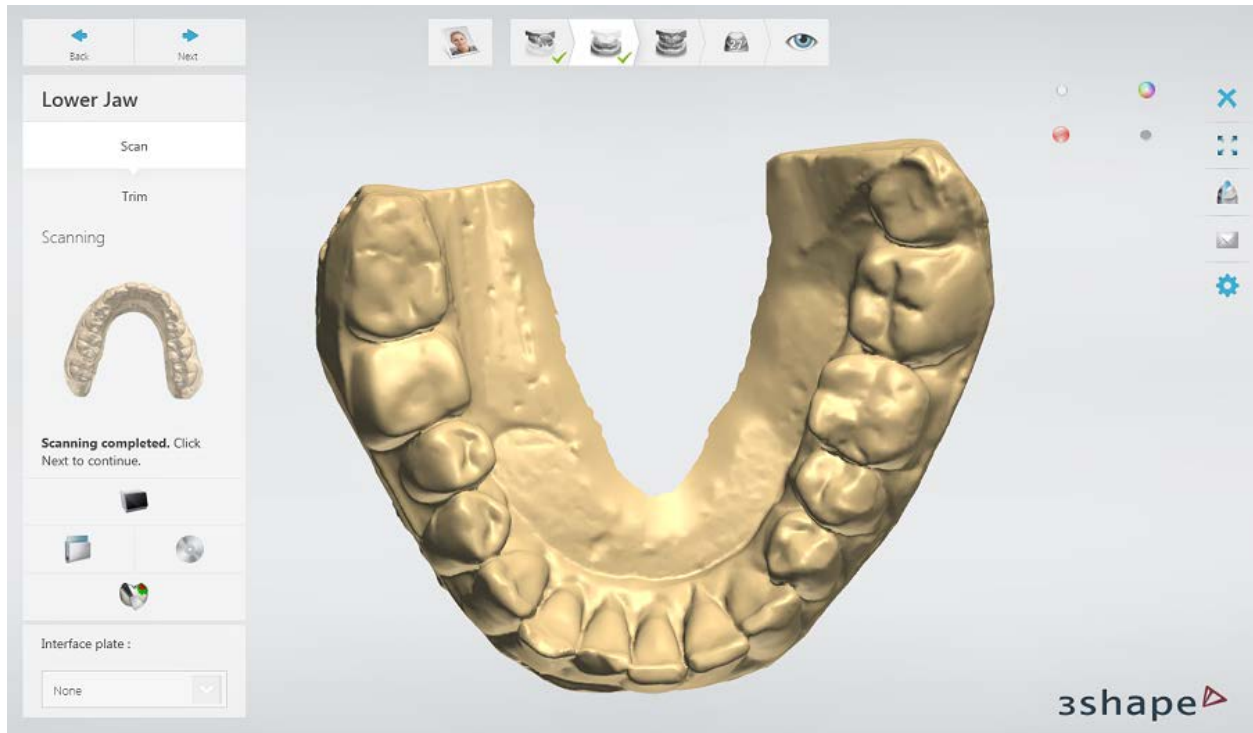
Click **Next** to scan the marked area.



[Trim](#) the scan if necessary.

►Step 3: Scan antagonist

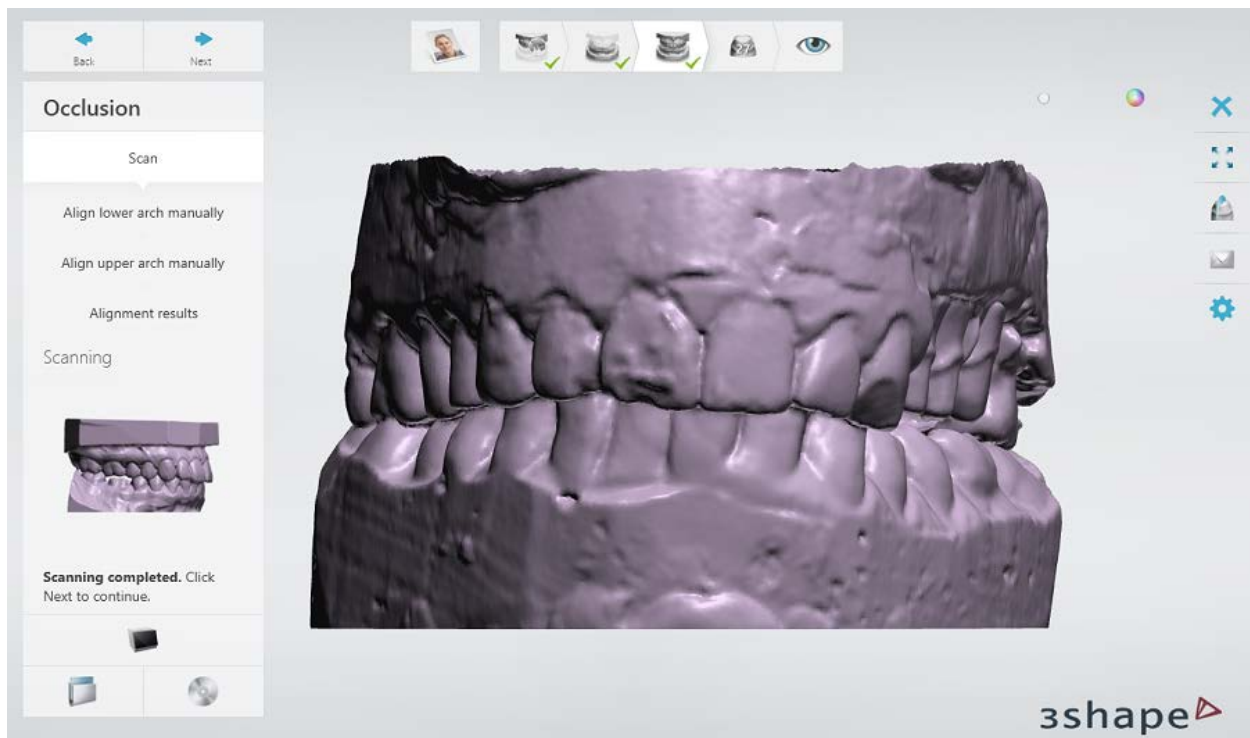
Repeat the [procedure](#) for antagonist.



►Step 4: Scan occlusion

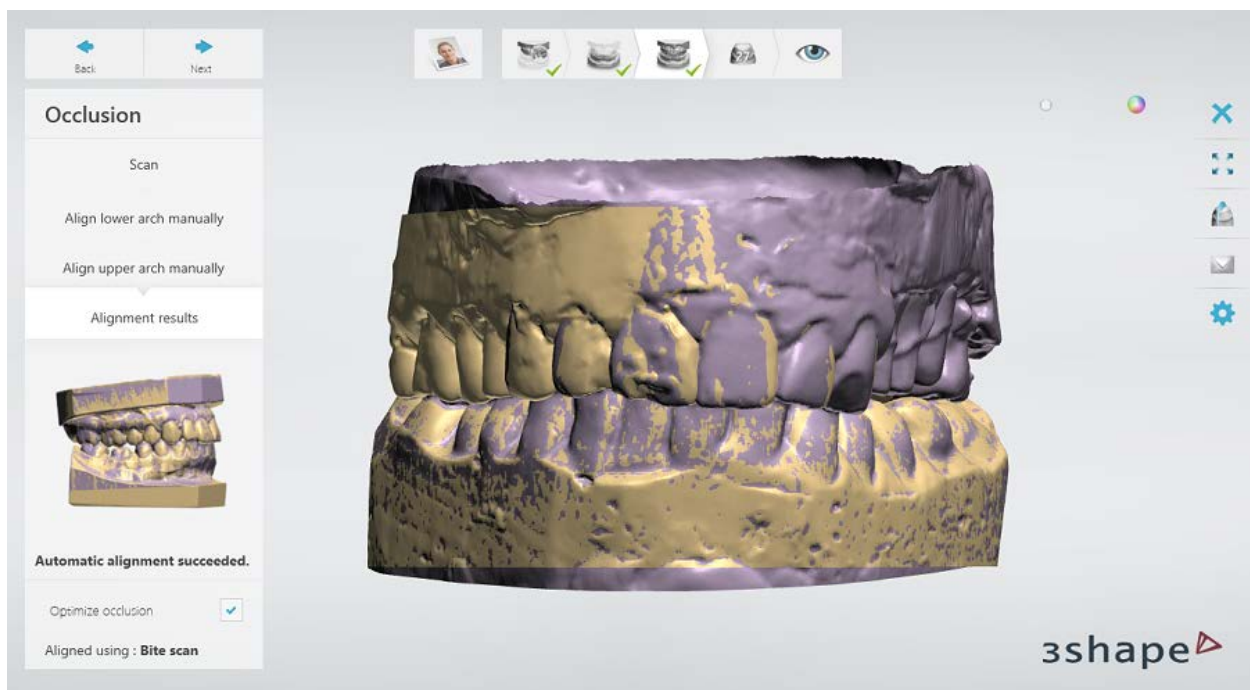
Please see the [Occlusion Handling](#) chapter for information about fixtures and the supported scanners.

Place the fixture with arches into the scanner and click **Next** to proceed.



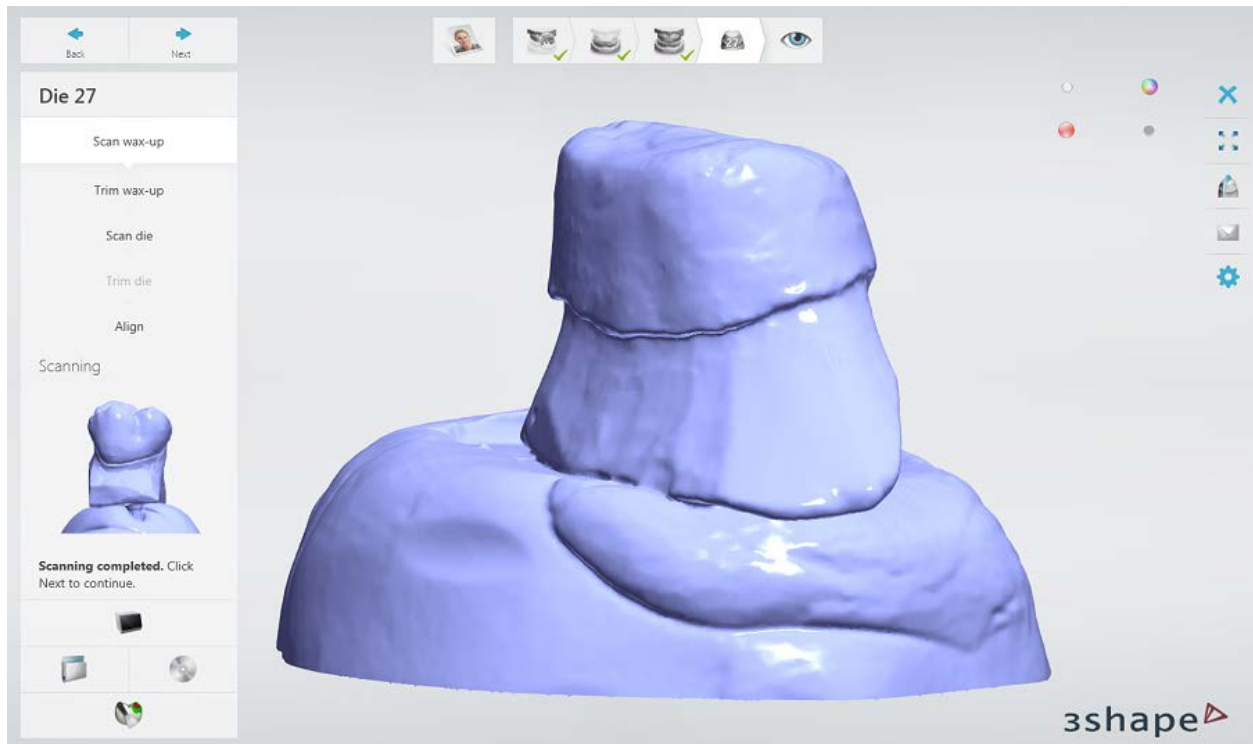
► Step 5: Align occlusion with the arches

Align the occlusion with the arch scans automatically or manually.



► Step 6: Scan wax-up

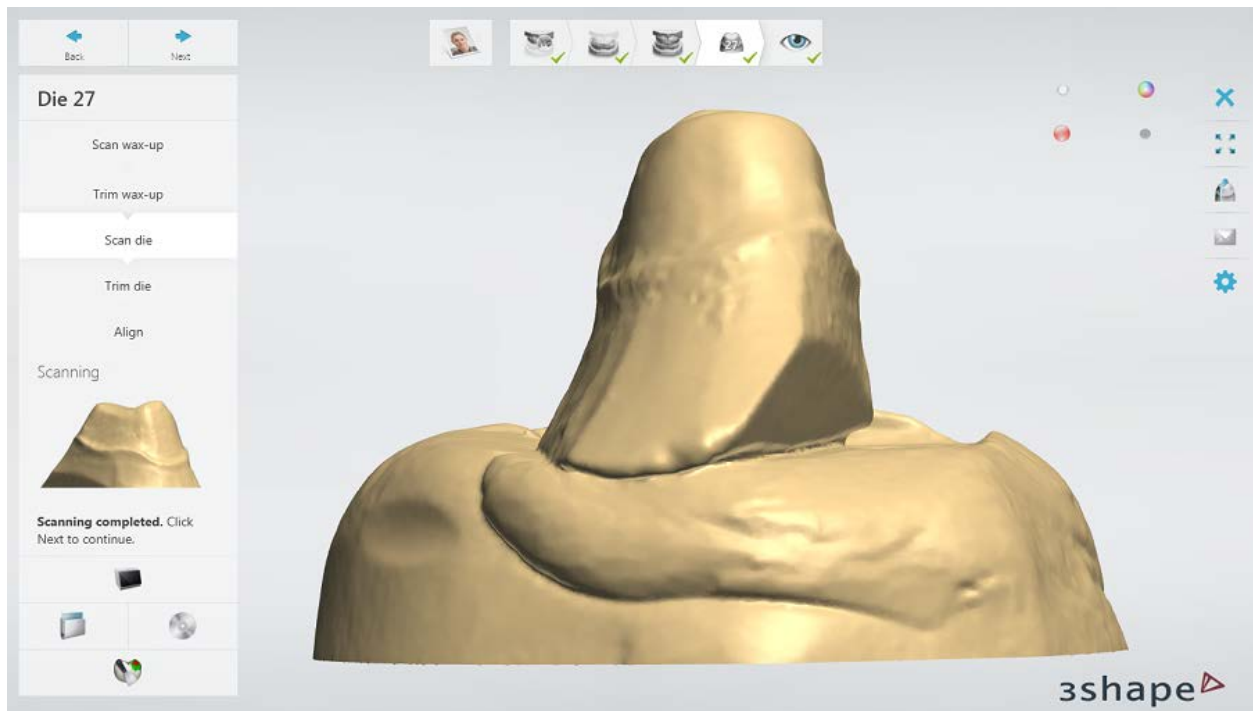
Position the wax-up on the die into the scanner and click **Next** to scan.



[Trim](#) out the BluTack from the scan if necessary.

► Step 7: Scan the die

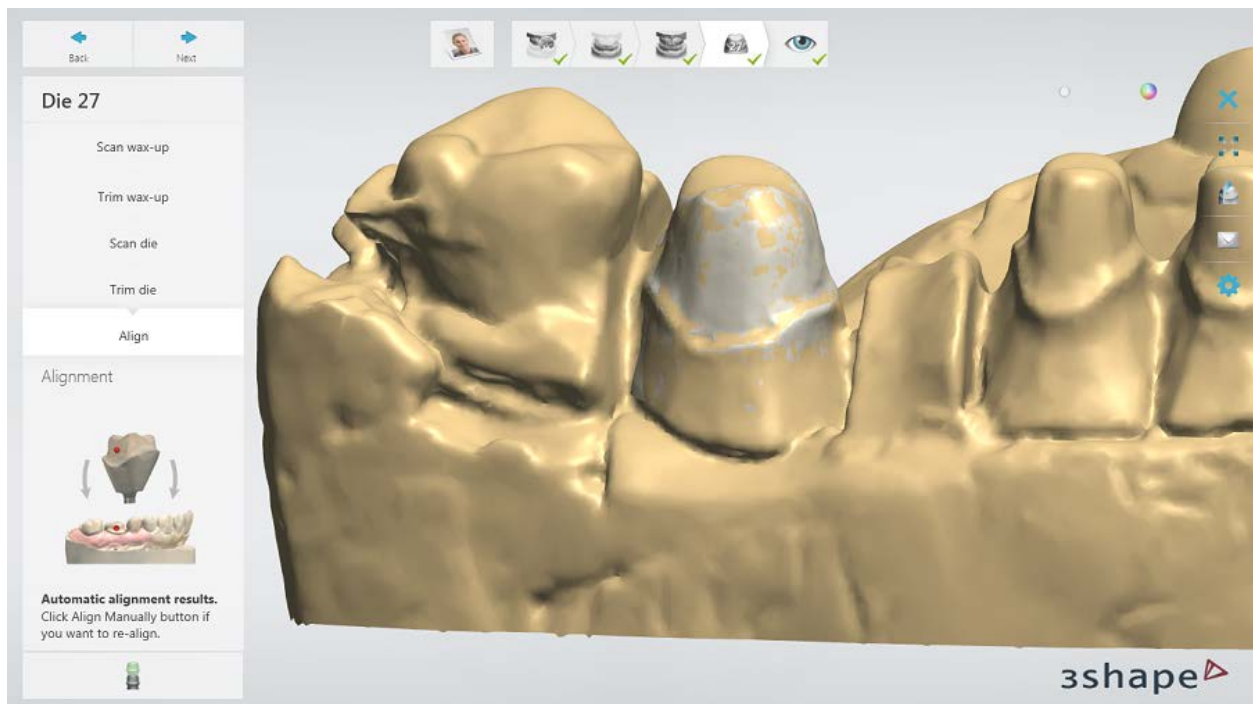
Carefully remove the wax-up from the tooth and click **Next** to scan the die separately.



[Trim](#) out the BluTack from the scan if necessary.

►Step 8: Align the die

Align the die and preparation arch scans.

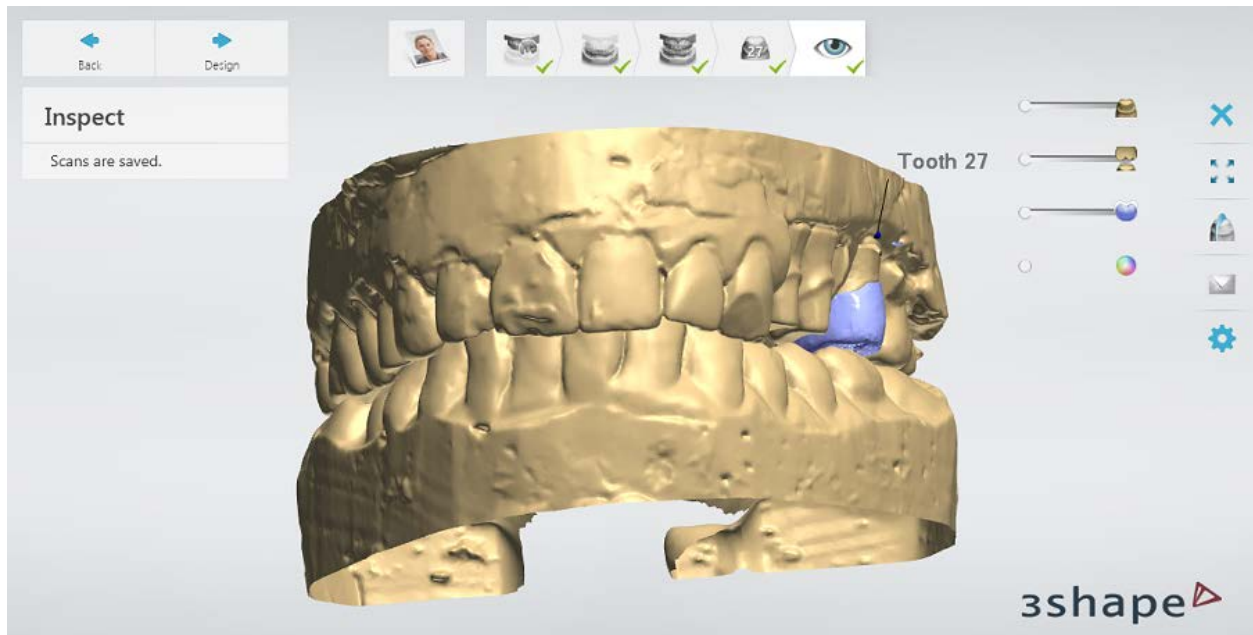


►Step 9: Finish scanning

Click **Next** to save the scans in your order.

When all scans have been saved the step is marked with a green tick as completed in the workflow toolbar, otherwise a message is displayed about the missing information.

You can close ScanIt Dental or click the **Design** button to open the order in Dental Designer.



Continue to the [design section](#).

1.12.3. Single Wax-up Design

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design a Wax-up

The screenshot shows the 'Coping' software interface. At the top, there is a 'Coping' header with a help icon. Below it is a dropdown menu currently set to 'WaxupOverlay Ti'. The main section is titled 'Advanced settings' and contains several adjustable parameters:

- Wall thickness: 0.40 mm
- Wax-up offset: 0.00 mm
- Cut offset: 2.00 mm
- Margin line offset: 0.10 mm
- Offset angle #1: 65.0 °
- Extension offset: 0.10 mm
- Lingual band: A sub-section containing:
 - Apply: A checked checkbox.
 - Start angle: 120 °
 - End angle: 240 °
 - Offset: 1.00 mm

At the bottom of the settings panel are two buttons: 'Reinitialize active cut spline' and 'Check cut splines'.

A wax-up can be both a part of a bridge and an individual item. All wax-ups have similar default settings during an operation.

The wax-up step connects a previously scanned wax-up with a modeled interface.

Select an element in the **Coping** drop-down box for the settings used in creating the outside of the wax-up.

The Advanced settings define the shape of the overlay.

The **Wall thickness** is the minimal wall thickness allowed. This parameter is useful to ensure a minimum thickness when offsetting the wax-up inwards.

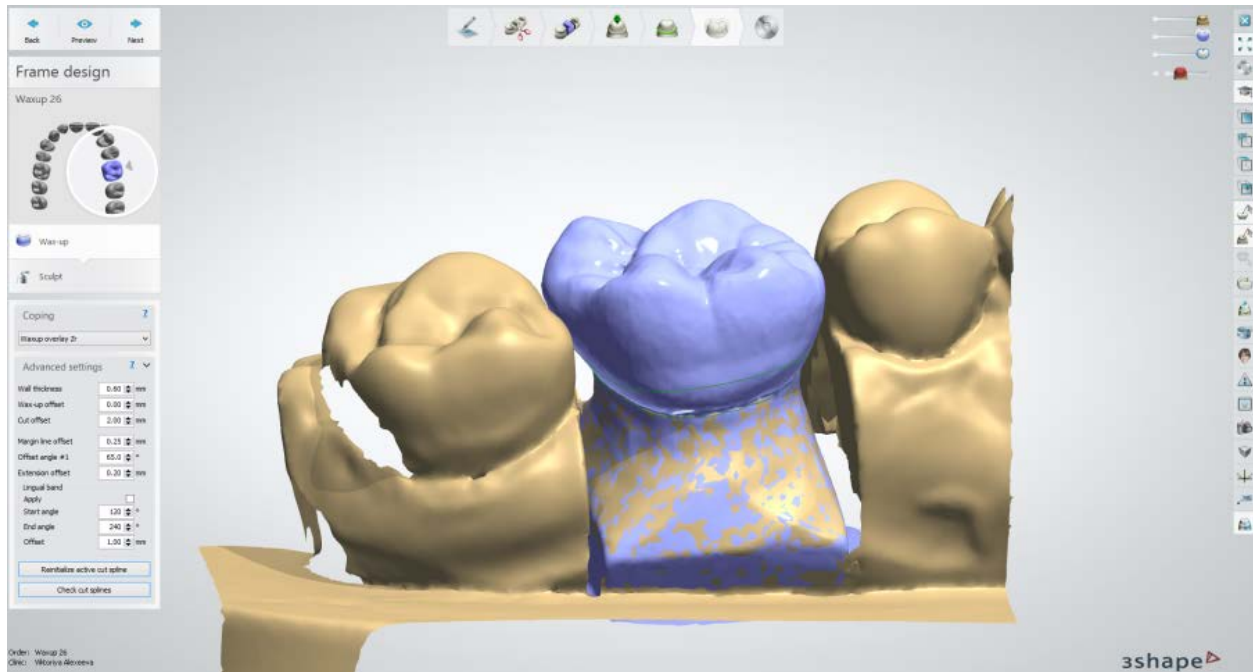
The **Wax-up offset** is the outer wax-up surface offset parameter allowing to offset modeled wax-ups inwards in order to make room for ceramics.



Note! A negative offset is applied inwards, whereas a positive offset is applied outwards.

The **Cut offset** is the distance between the margin line and the cut spline (indicated by the green arrow). The cut spline is used for cutting the scanned wax-up; the part above this spline is used when designing the wax-up model. The default placement of the cut spline can always be edited with the help of a Fast edit functionality which, when activated, lets you easily draw or click on the model for a quick and easy editing.

The rest of the settings (**Margin line offset**, **Offset angle #1** and **Extension offset**) are similar to the [Coping](#) settings.



►Step 7: Sculpt

This step is described in [Sculpt Toolkit](#) chapter.

►Step 8: Save your design

Continue to [manufacturing](#) if required.

1.13. Wax-up Bridge

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Wax-up Bridge order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

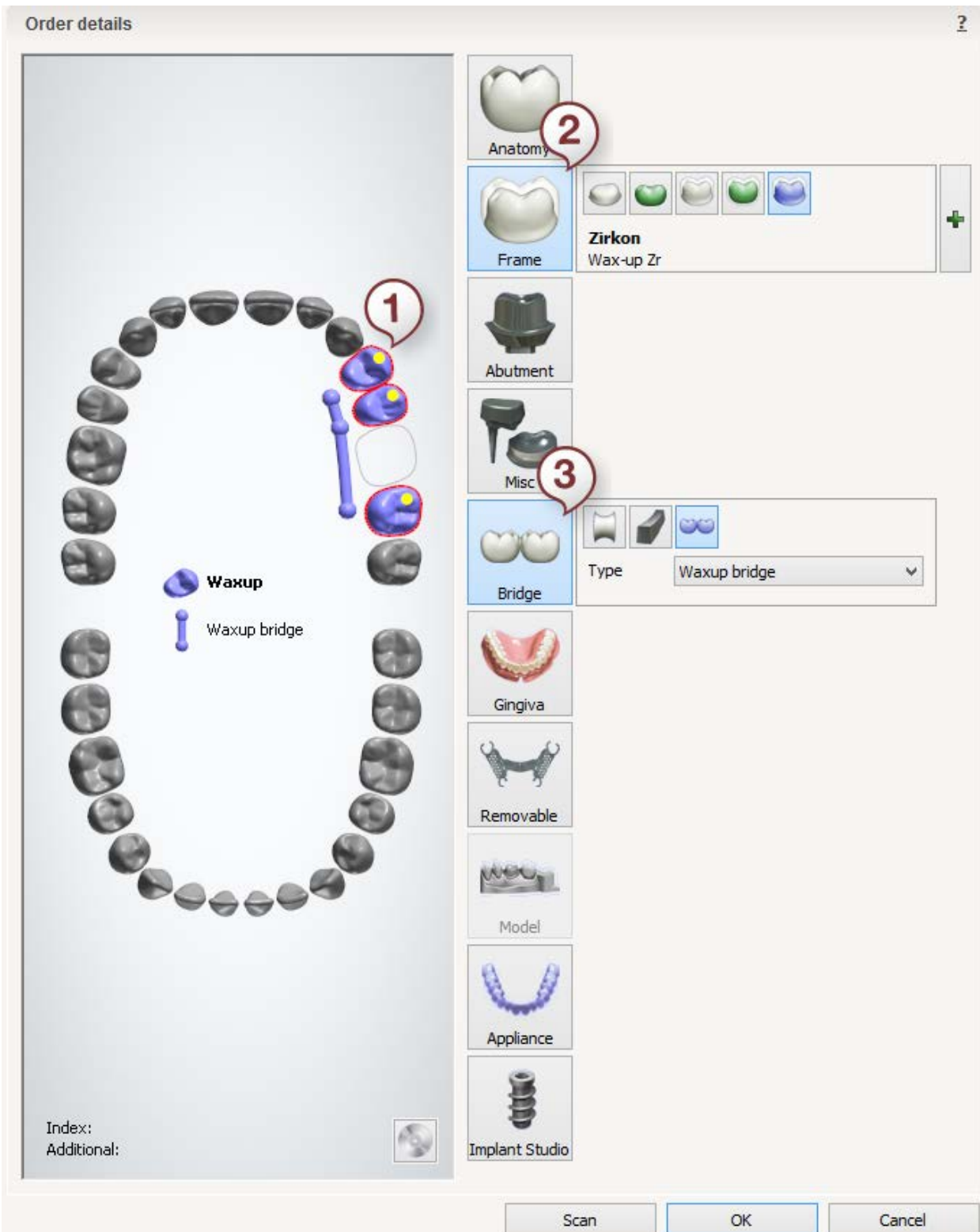
1.13.1. Wax-up Bridge Order Creation

To create a Wax-up Bridge order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

►Step 1: Select preparations in the teeth overview

► Step 2: Click the *Frame* button and select the *Waxup*  button

► Step 3: Click the *Bridge* button; the *Waxup offset bridge*  button is selected by default



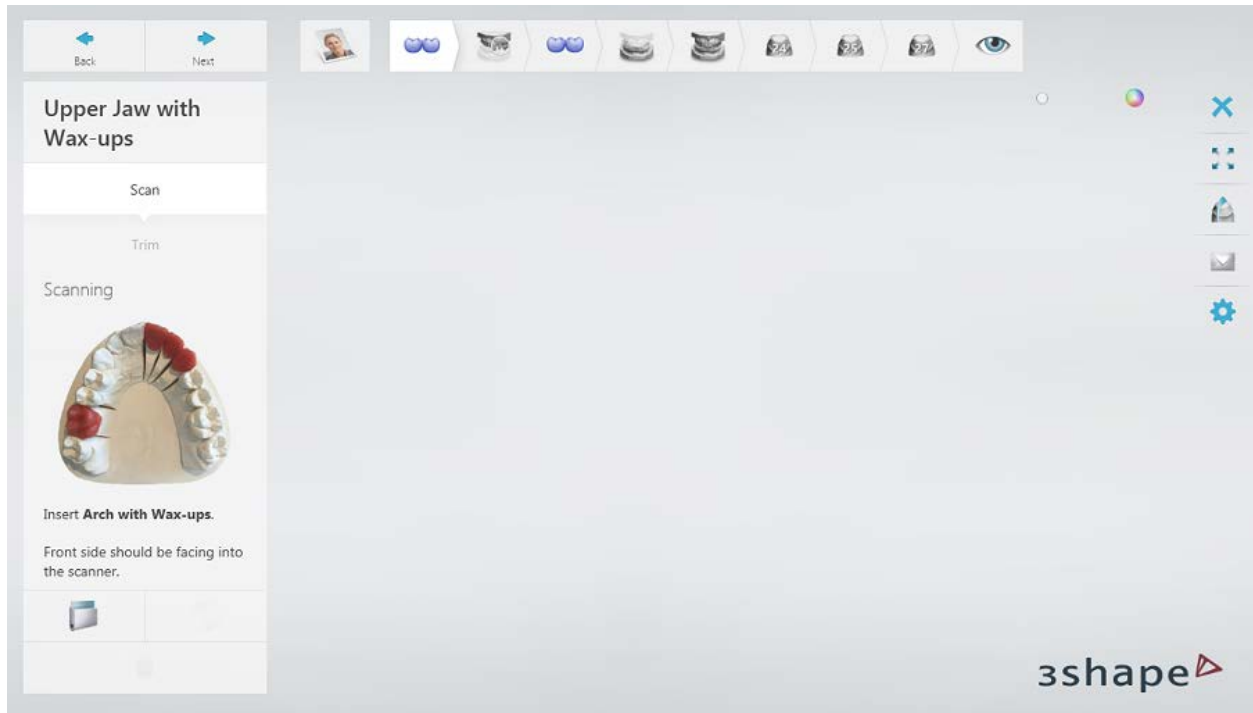
After creating the order, proceed to [scanning](#).

1.13.2. Wax-up Bridge Scanning

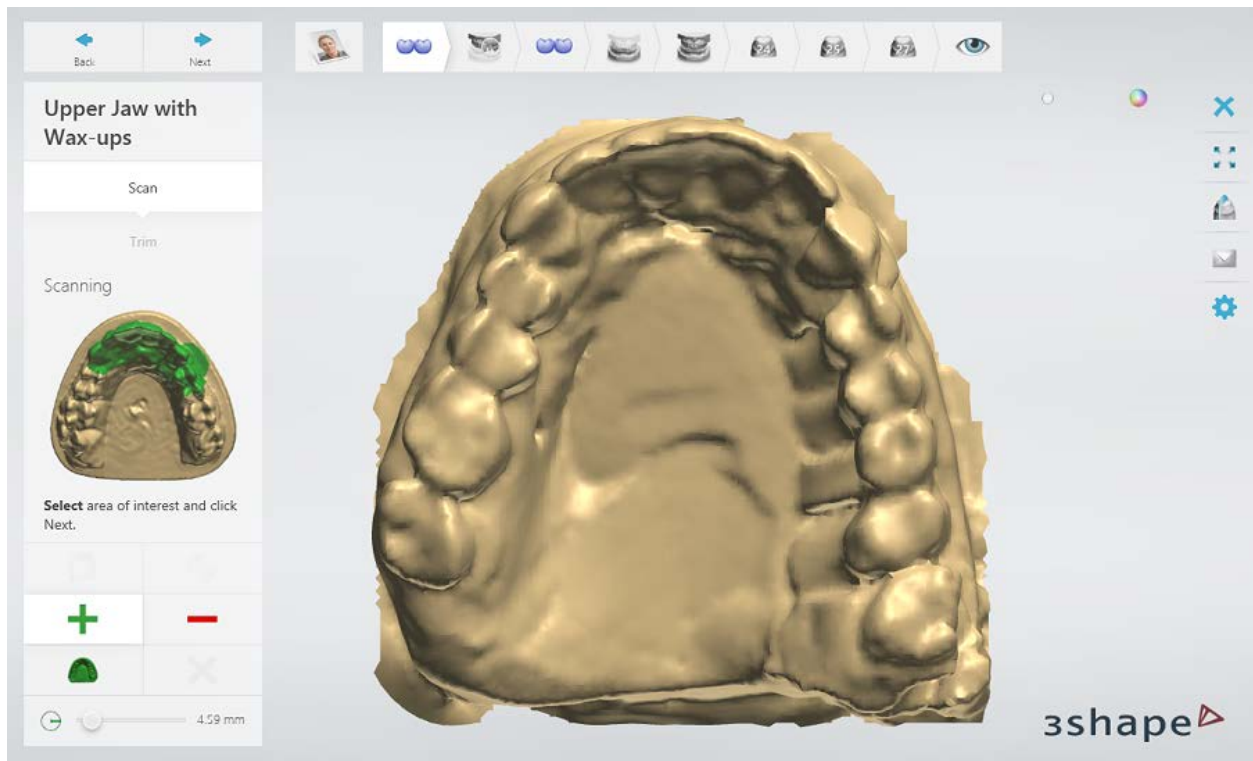
Follow the onscreen instructions and steps below to complete Wax-up Bridge scanning:

► Step 1: Scan the arch with wax-up

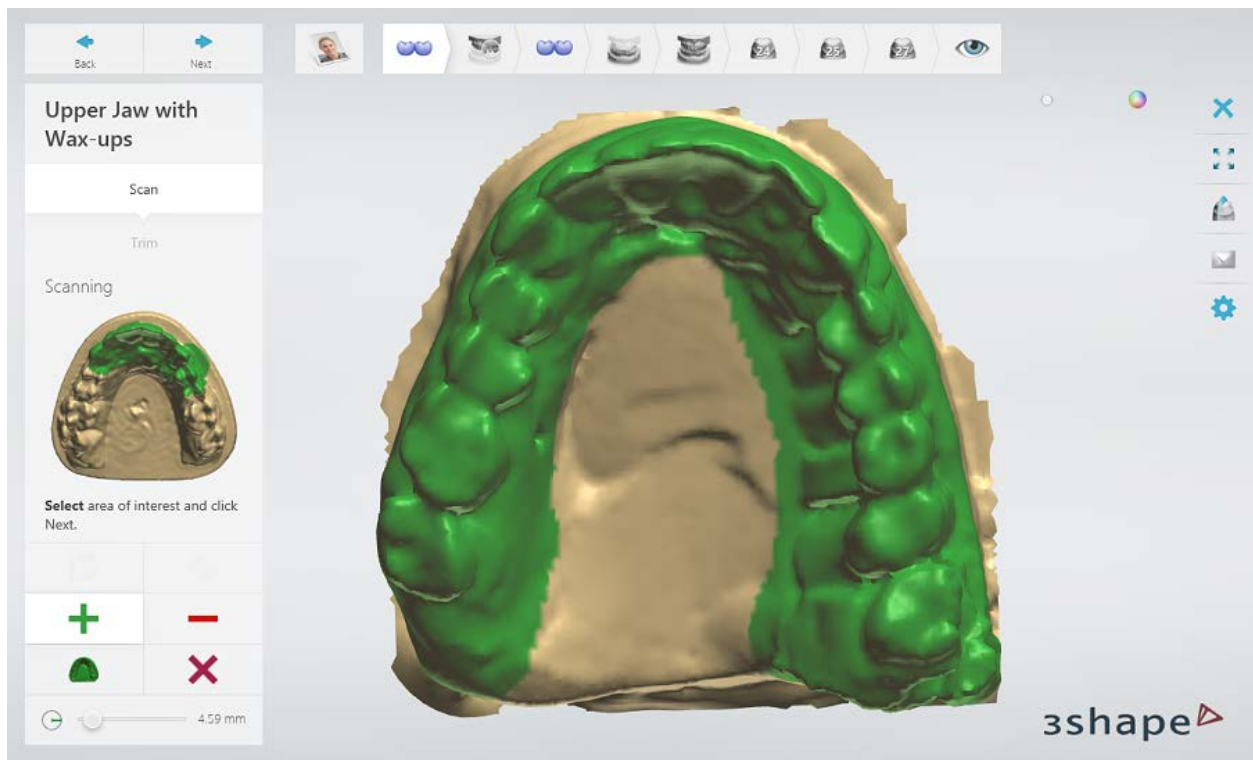
Place the preparation arch with wax-up into the scanner as instructed by the software.



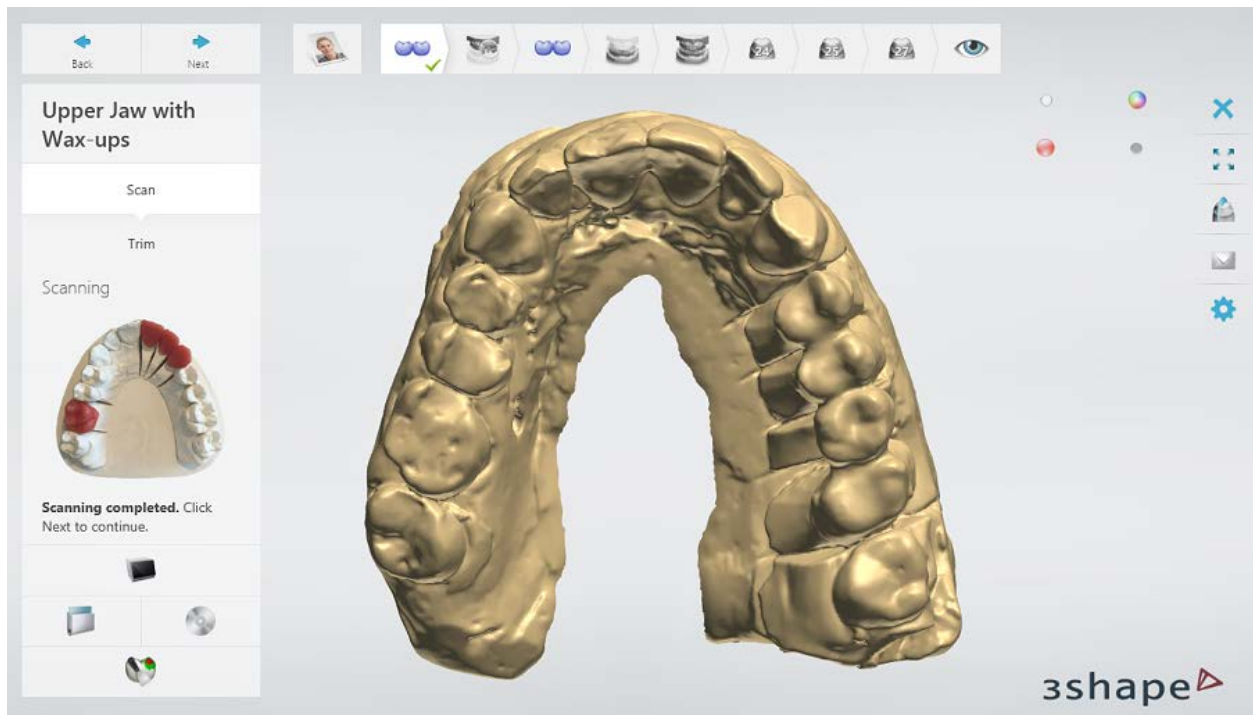
Run the initial scan by clicking the **Next** button.



Mark the area for a detailed scan.



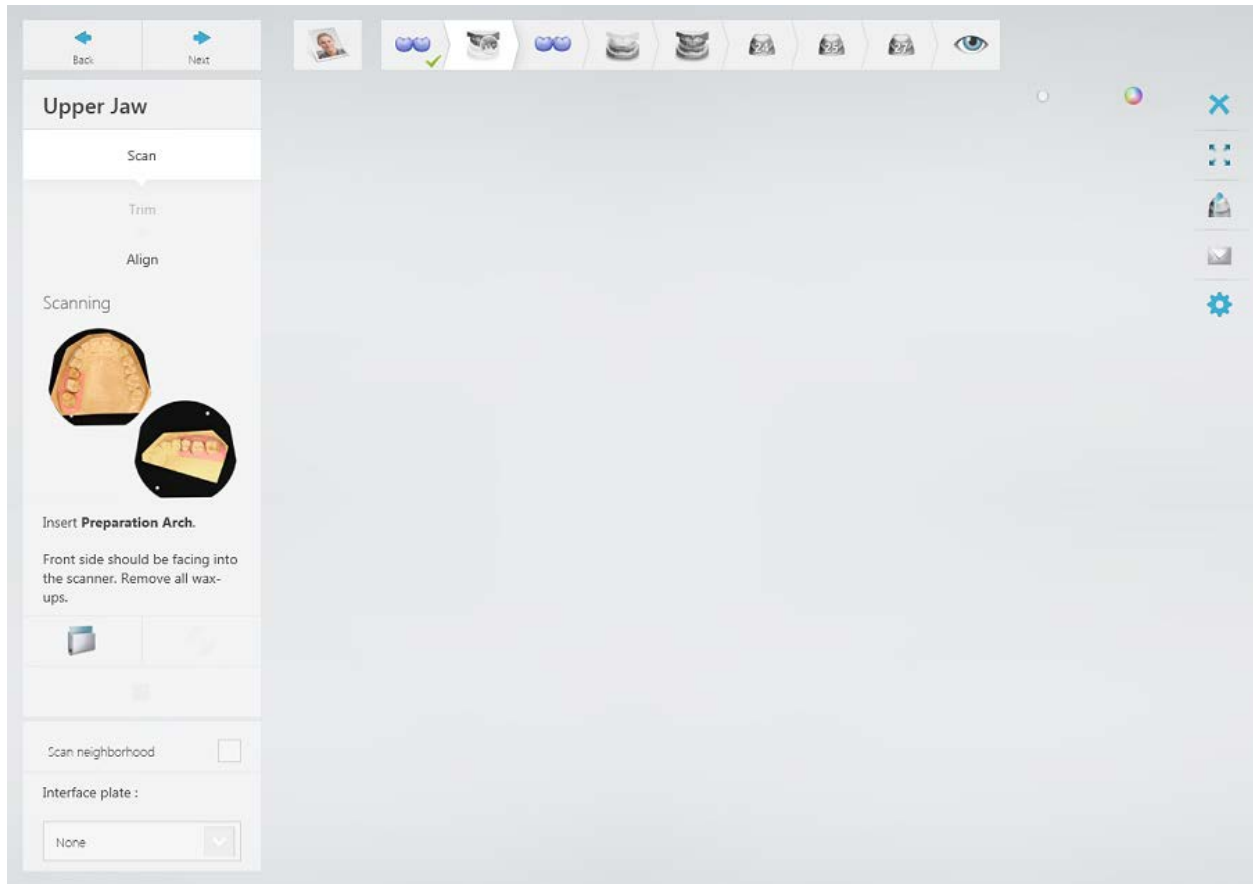
Click **Next** to scan the marked area.



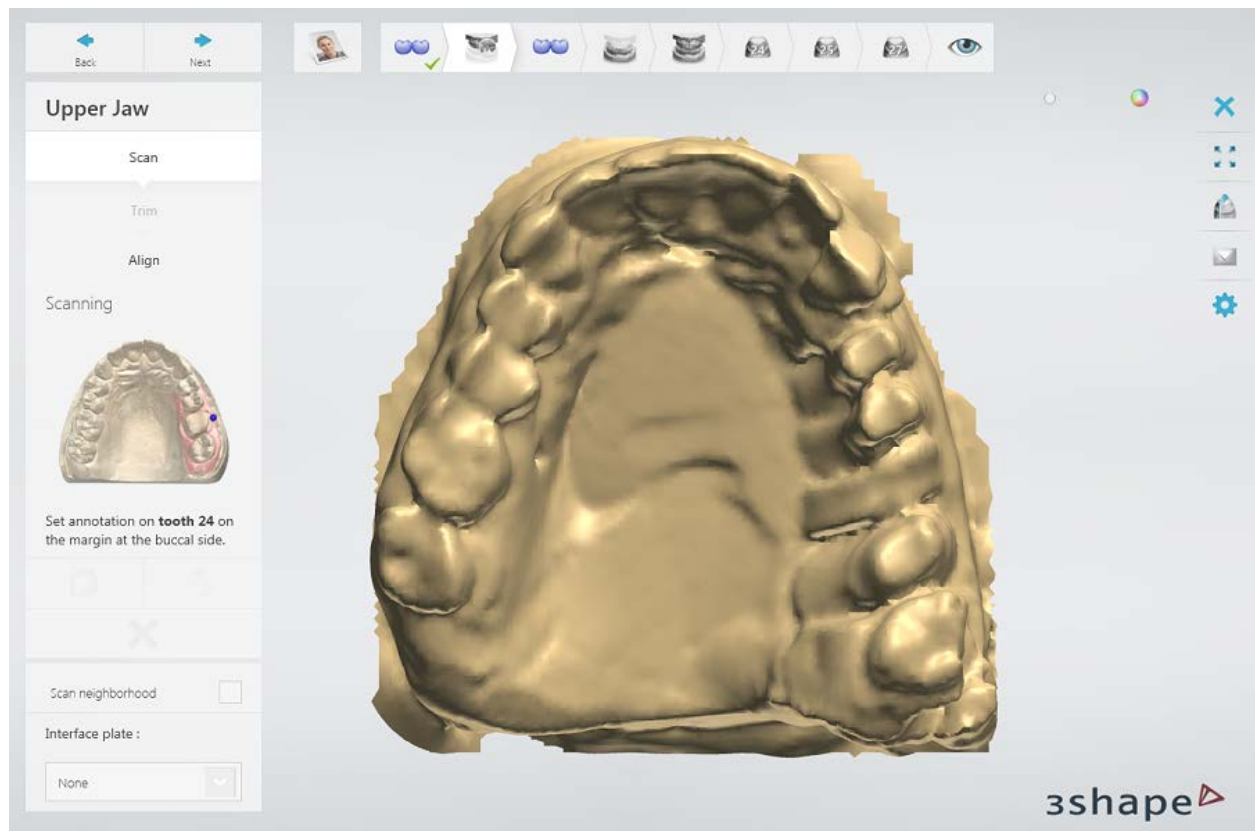
[Trim](#) the scan if necessary.

► Step 2: Scan the arch without wax-up

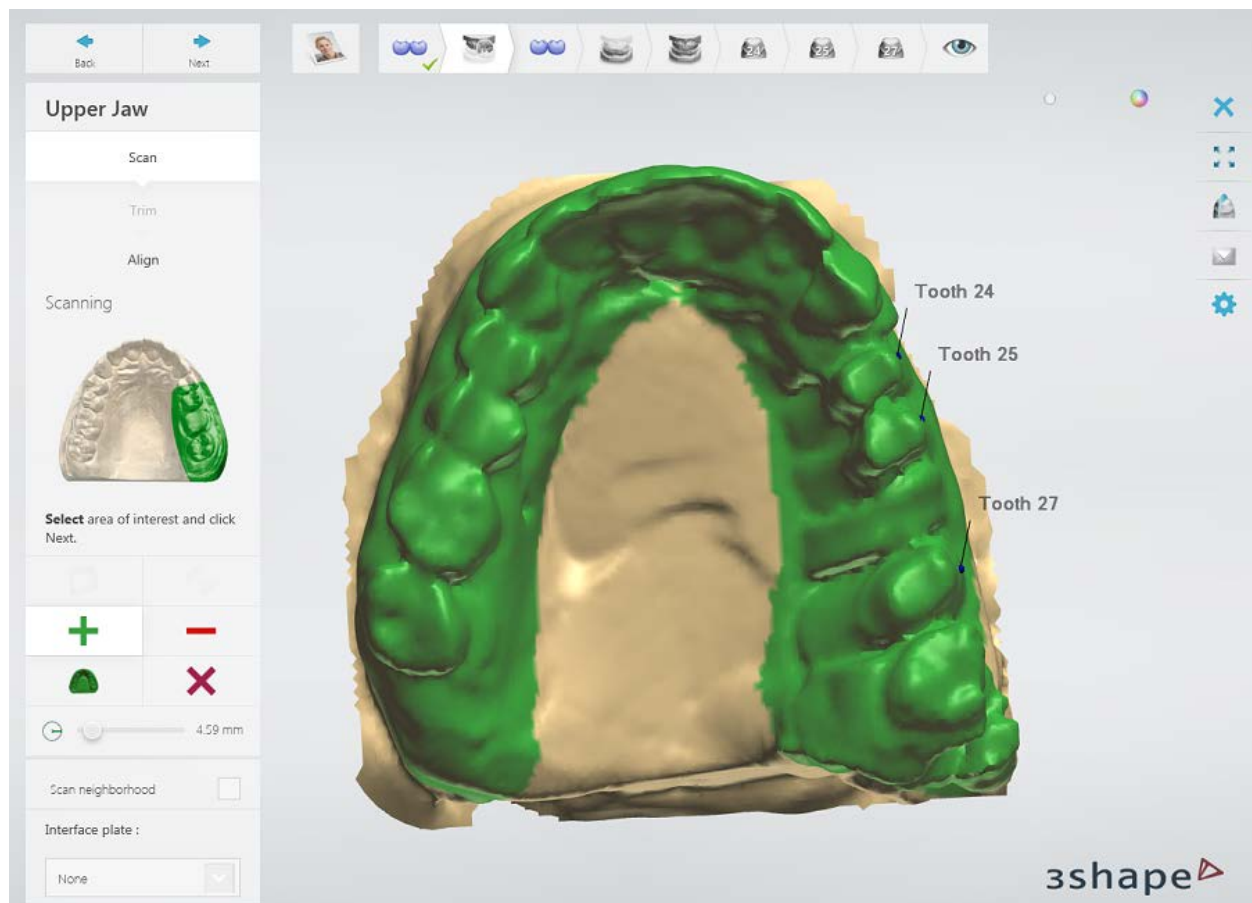
Remove the wax-up bridge from the arch.



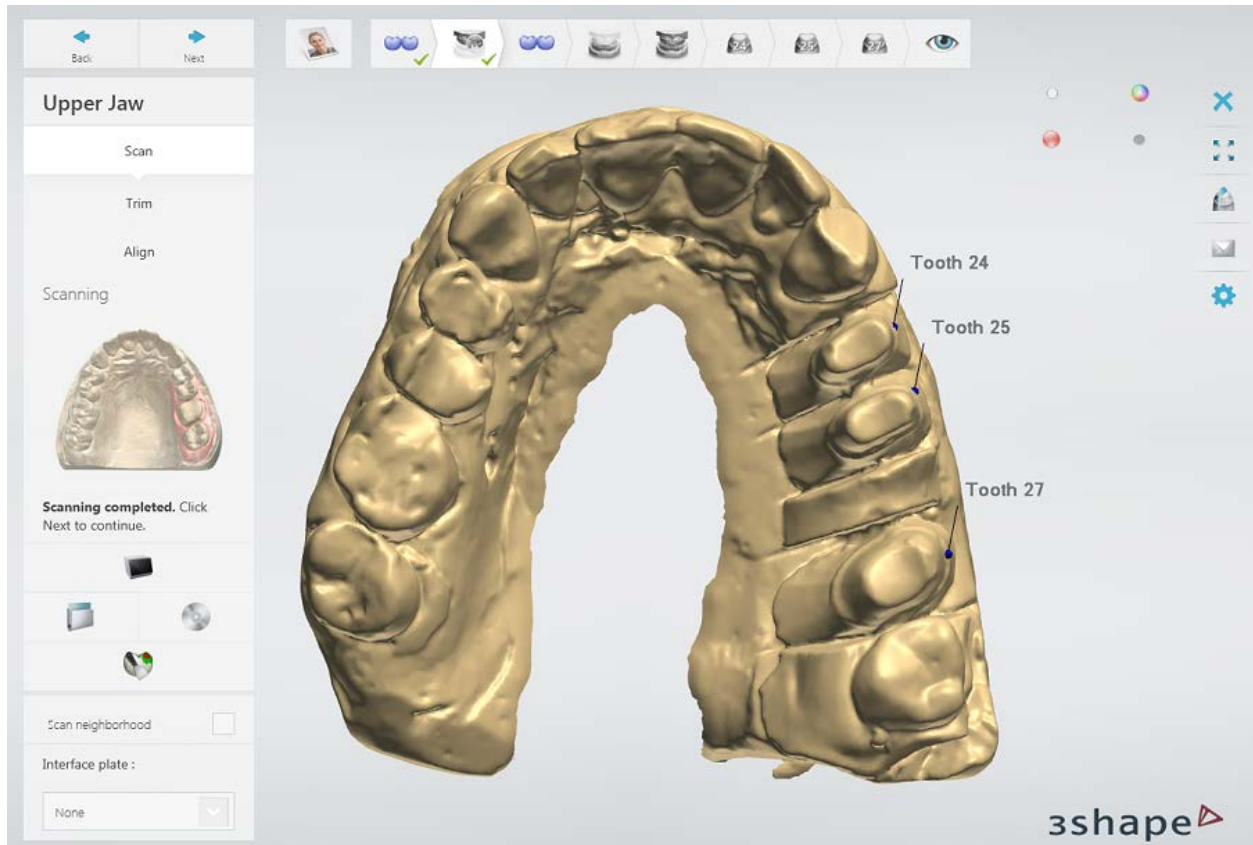
Run the initial scan by clicking the **Next** button.



Annotate the teeth and mark the area for a detailed scan.

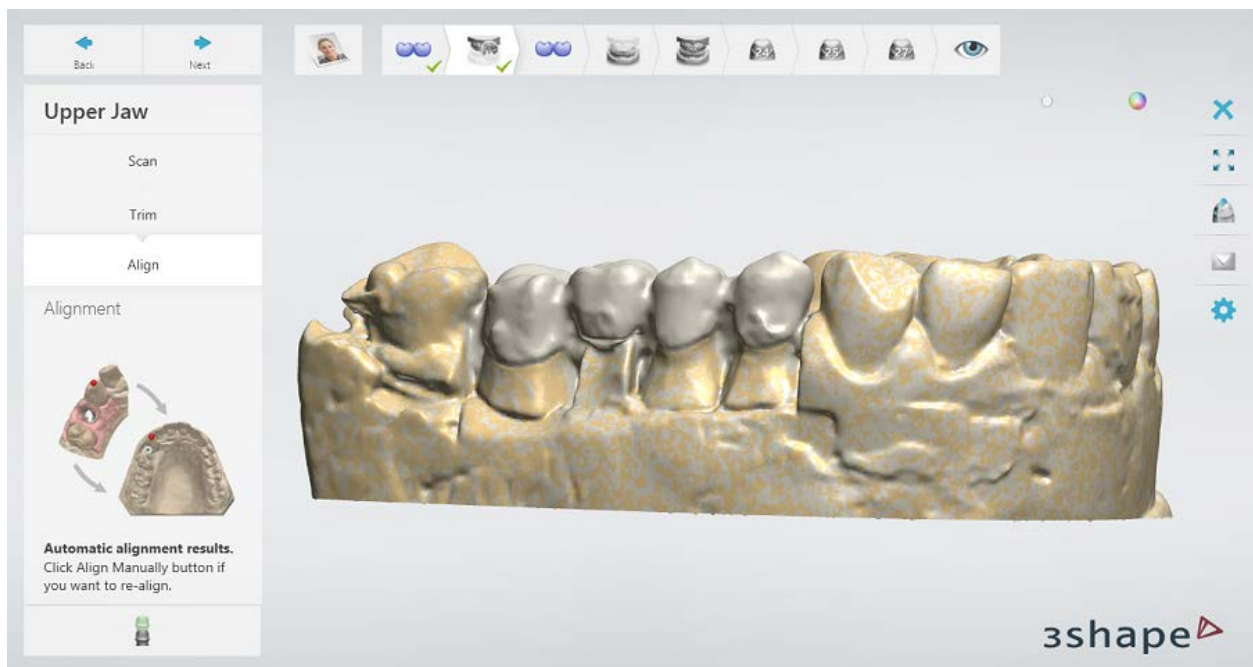


Click **Next** to scan the marked area.



[Trim](#) the scan if necessary.

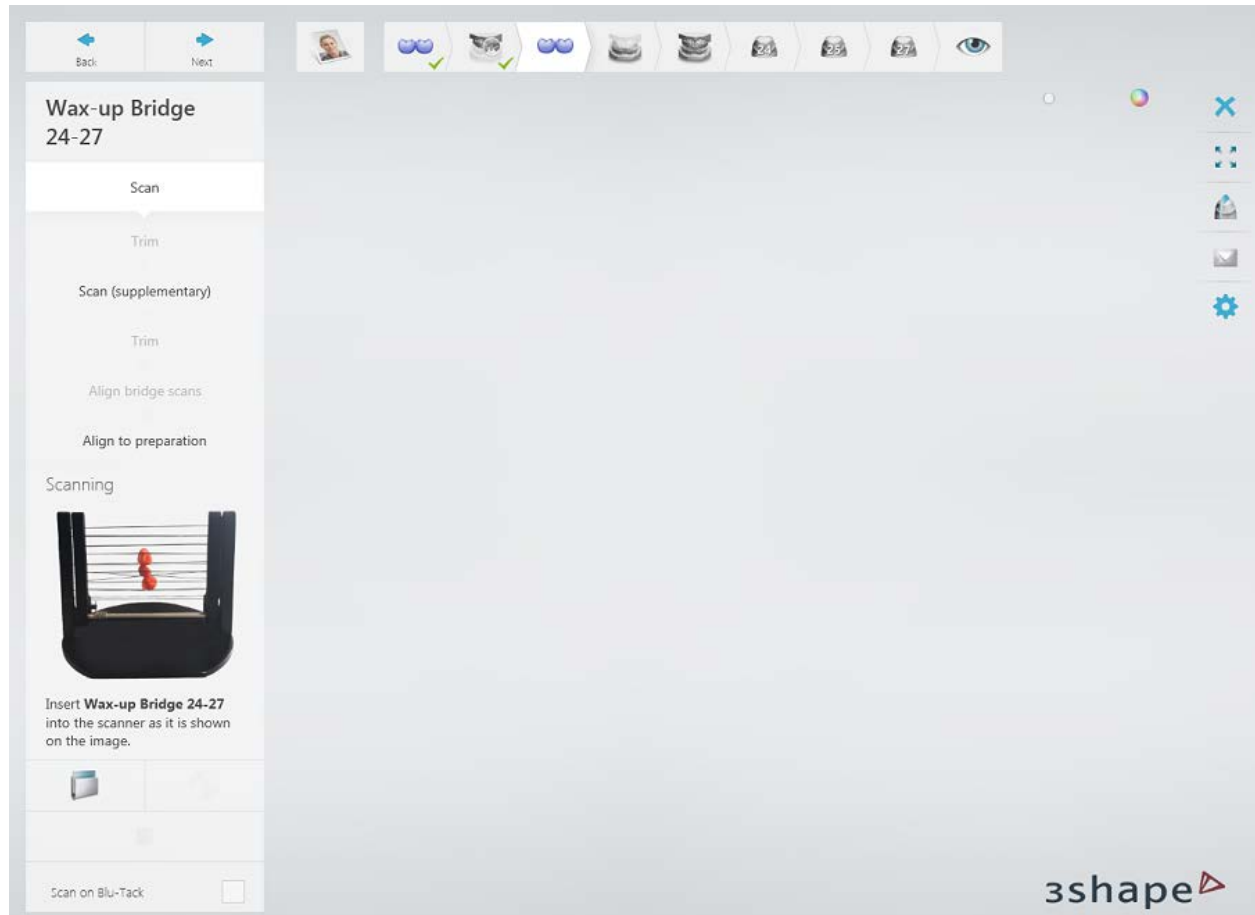
► Step 3: Align the preparation with and without wax-up scans



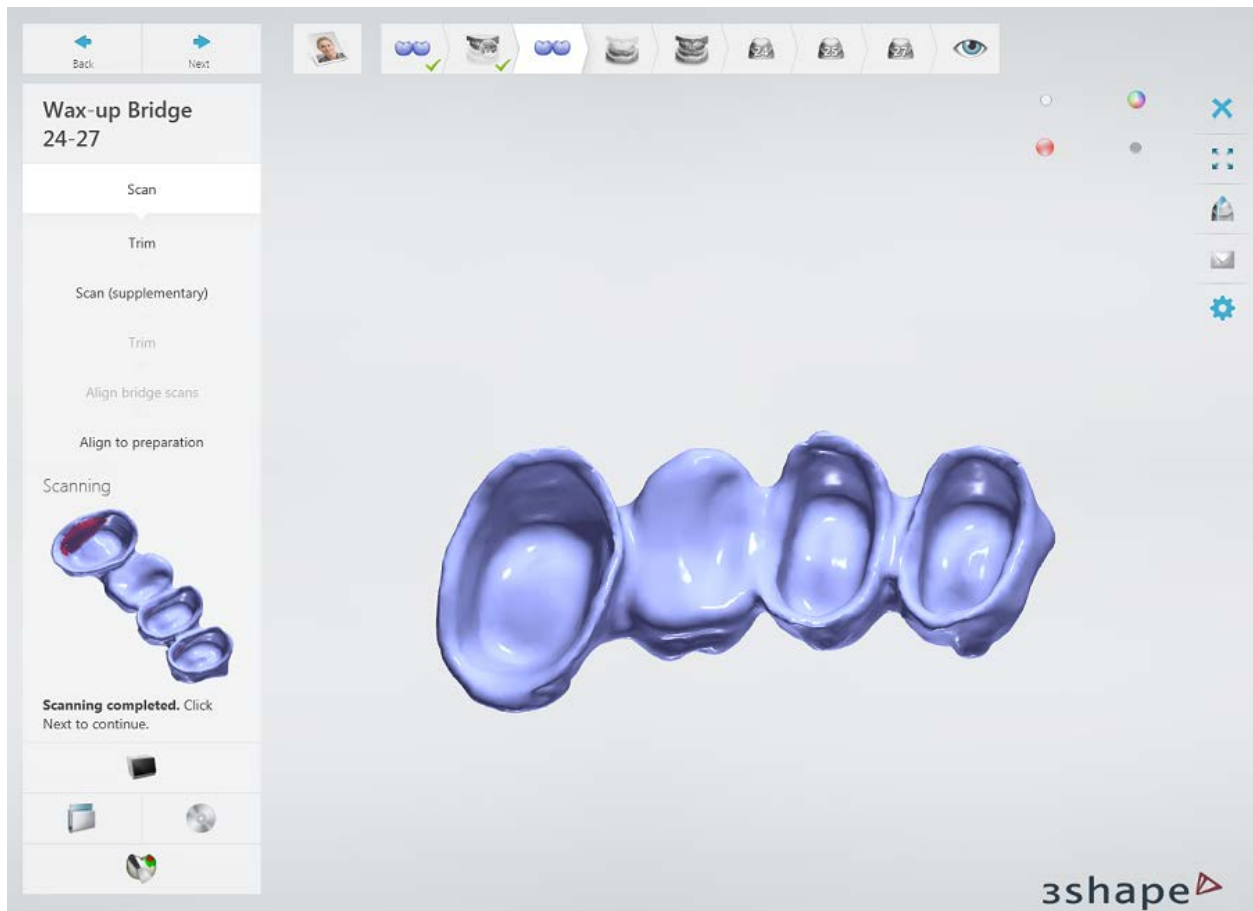
►Step 4: Scan the wax-up separately

Remove the arch from the scanner and insert the wax-up bridge positioned on a fixture or attached to the scan plate with a BluTack.

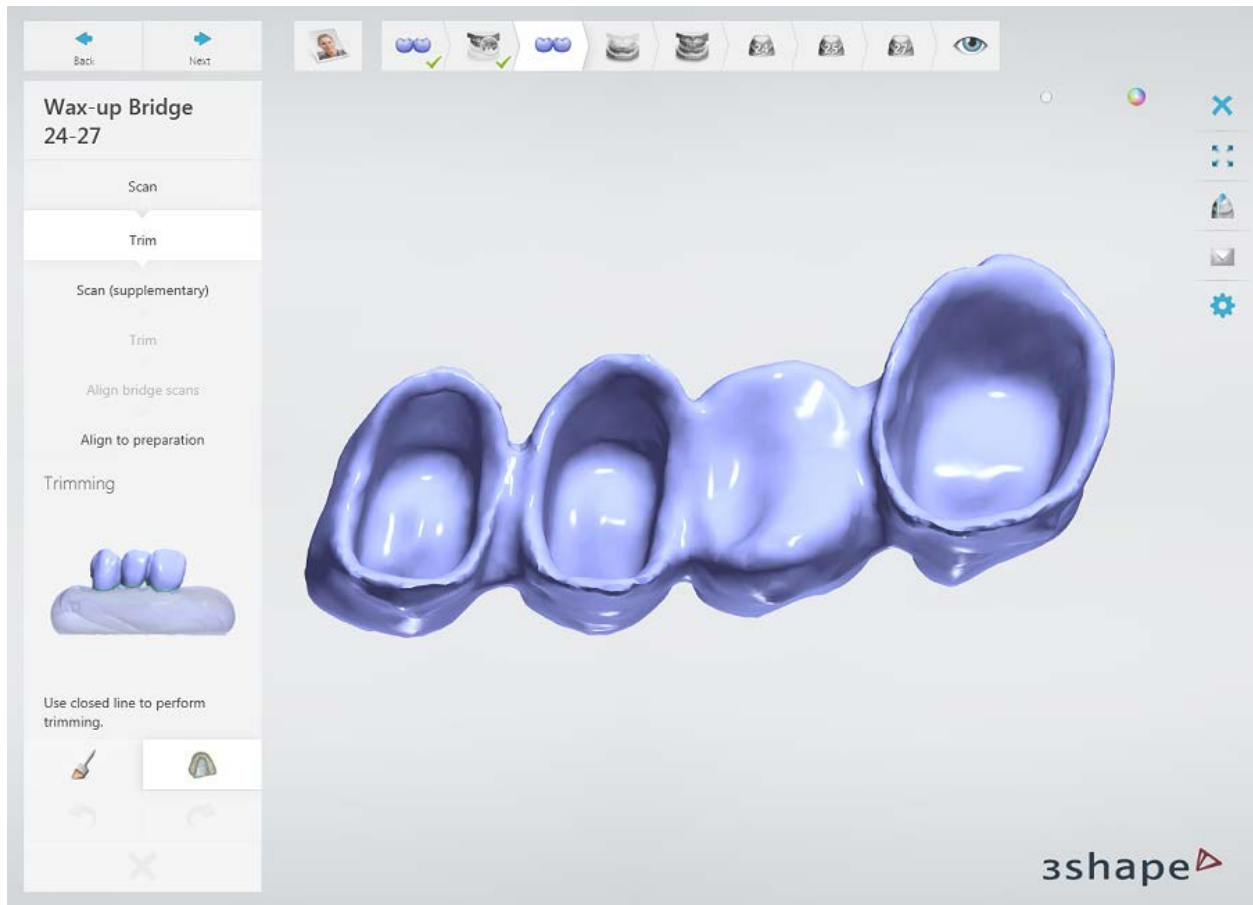
Mark the **Scan on BluTack** checkbox if using the second option.



Click the **Next** button to scan the wax-up.



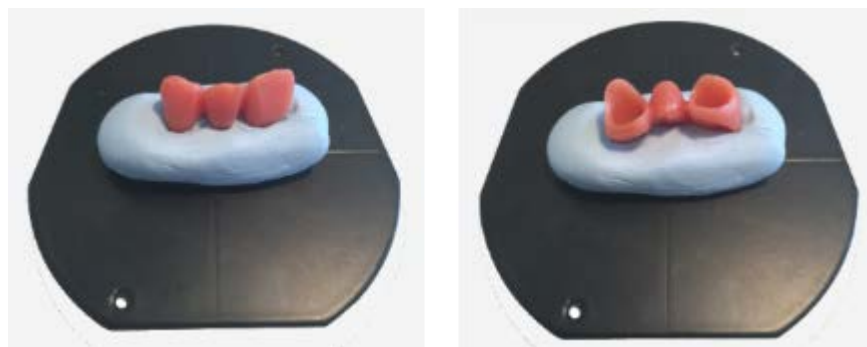
[Trim](#) the scan if necessary.



A supplementary scan of the wax-up bridge, shifted against the fixture may be required due to the fixture supporting strings interfering with the scanning process.

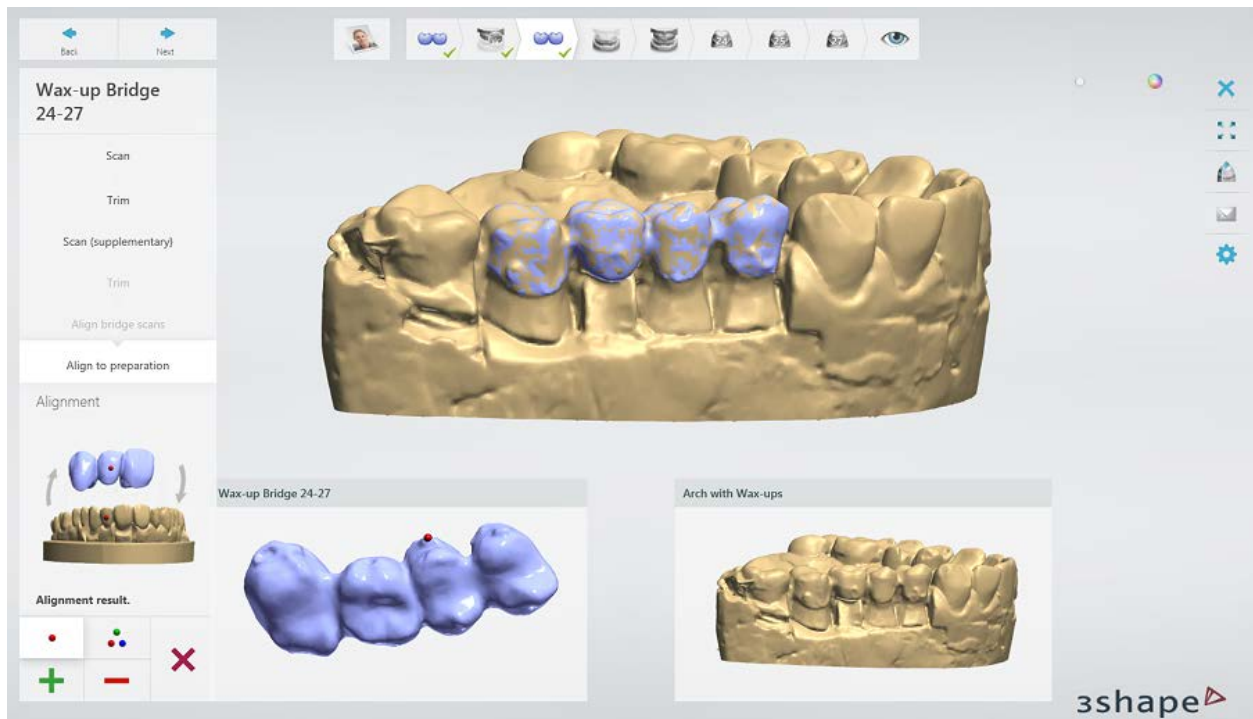
In some cases, you may want to scan the wax-up bridge afixed to the scan plate with a BluTack instead of using a special wax-up fixture.

When the **Scan on Blu-Tack** check box is marked at the Scan step, you will be able to scan the wax-up bridge from the top and the bottom.



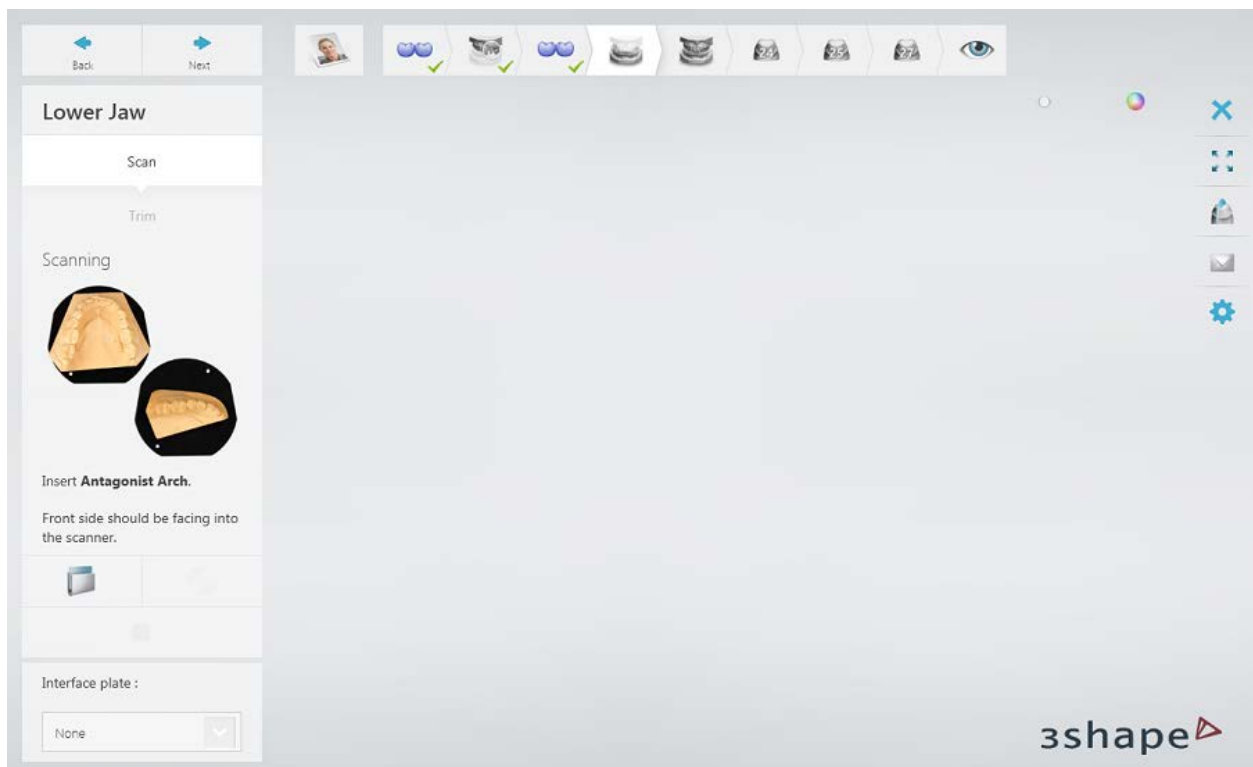
[Trim](#) out the BluTack from the wax-up bridge scan with a quick option of the line trimming tool.

Align the wax-up bridge scan with arch and wax-up bridge scan.

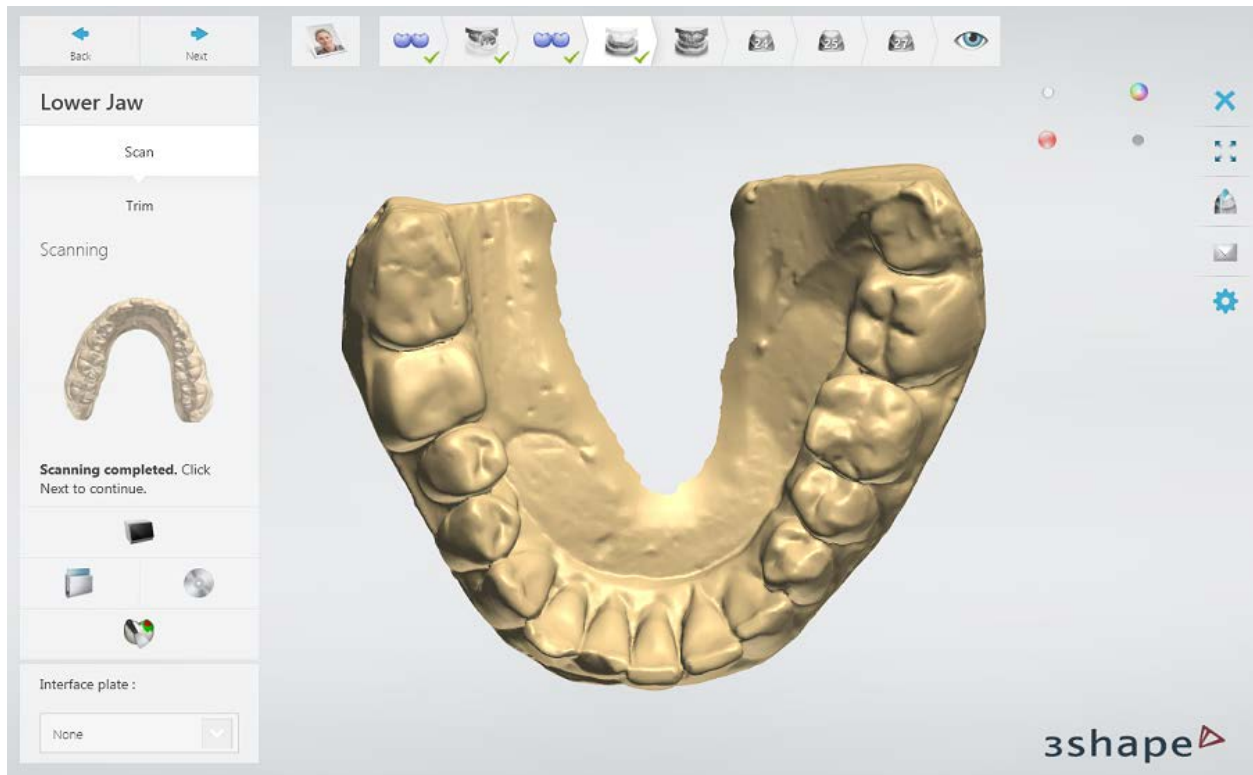


► Step 5: Scan the antagonist arch

Insert the antagonist arch into the scanner.

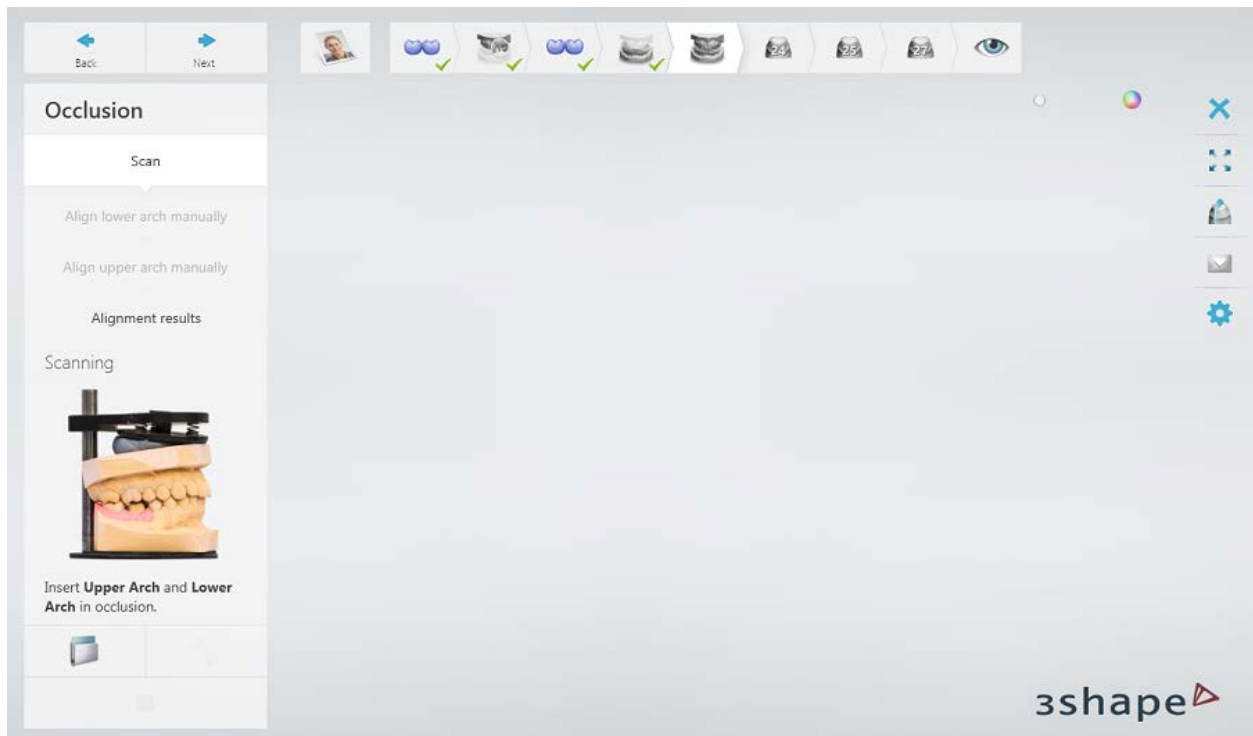


Run pre-scan, mark the area and run a detailed scan.

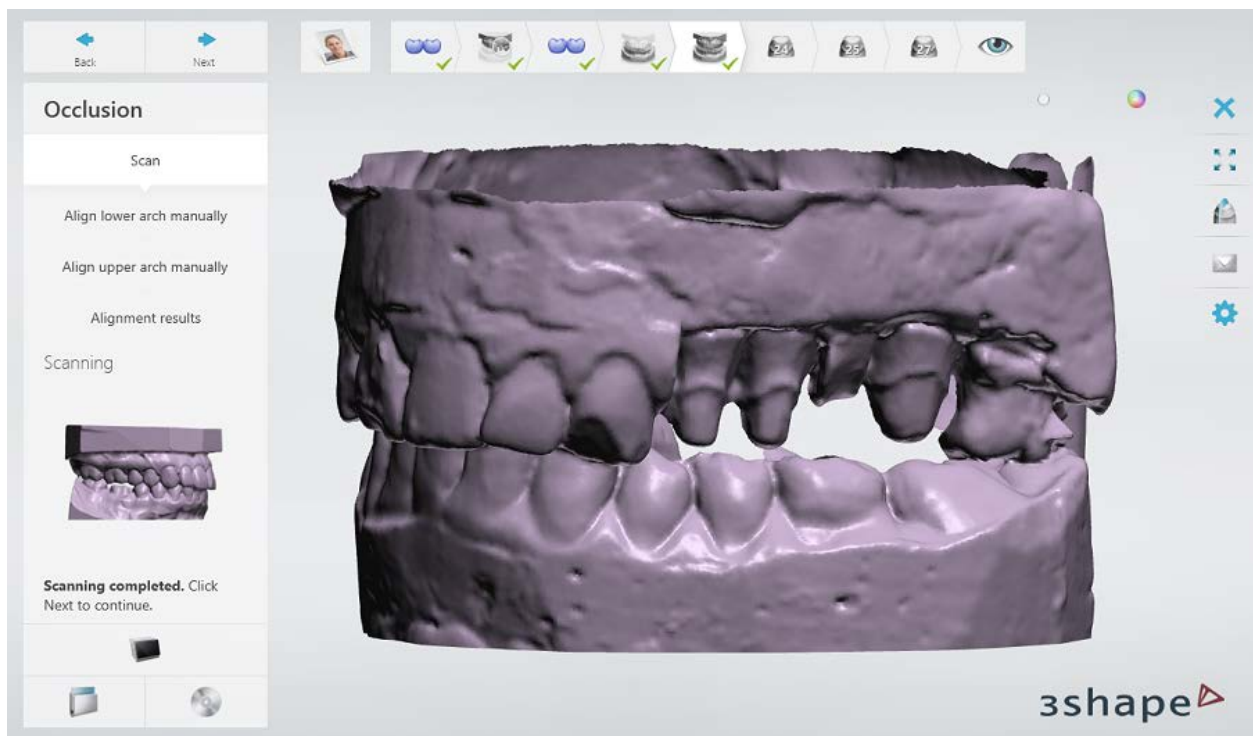


► Step 6: Scan occlusion

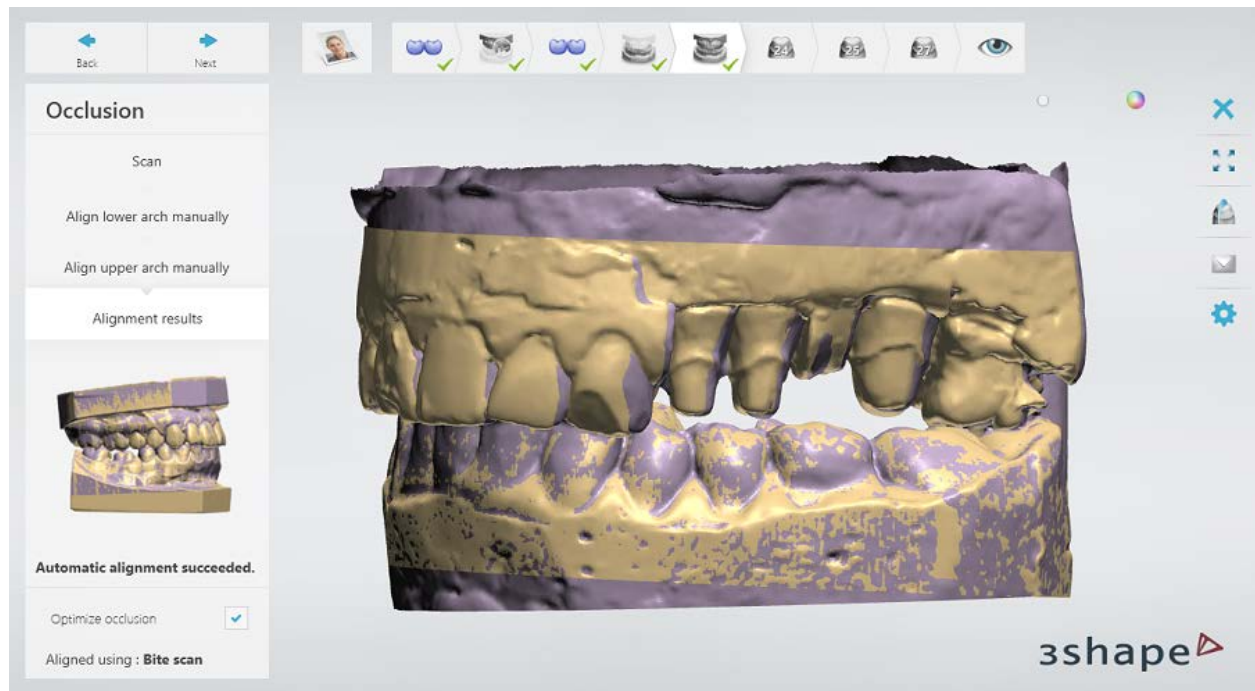
Insert the upper and lower arches in an occlusion without wax-ups into the scanner.



Click **Next** to scan the occlusion

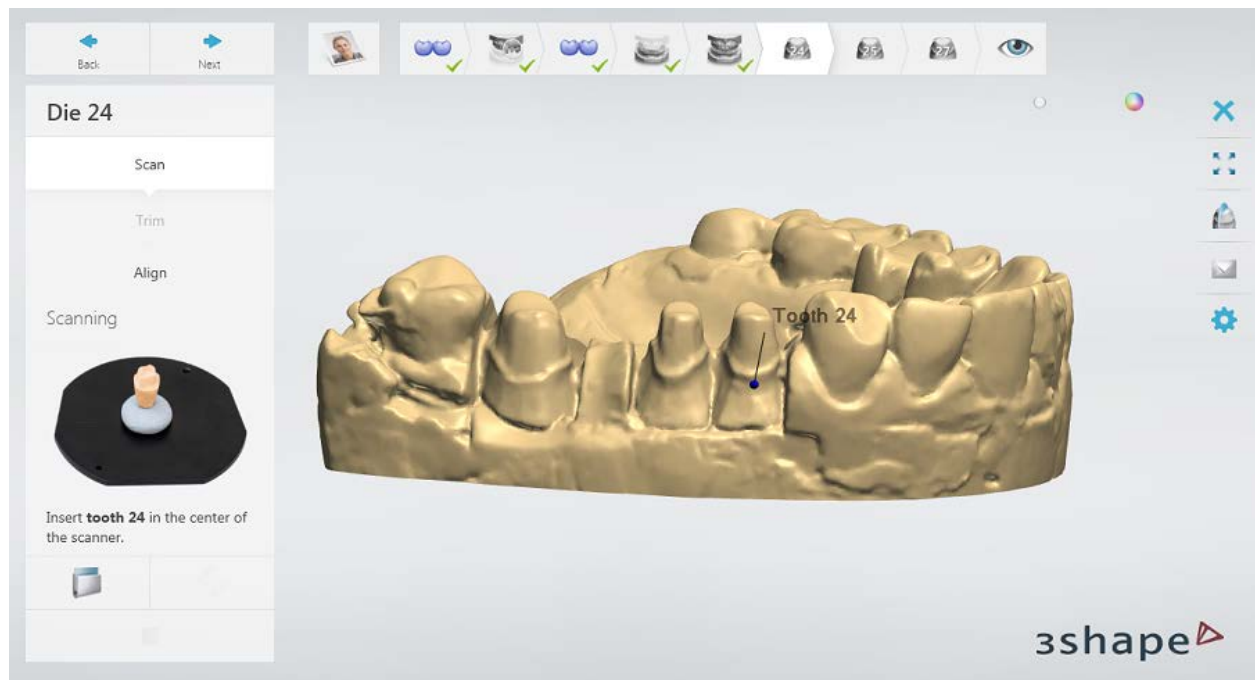


Align the arch scans with the occlusion scan.

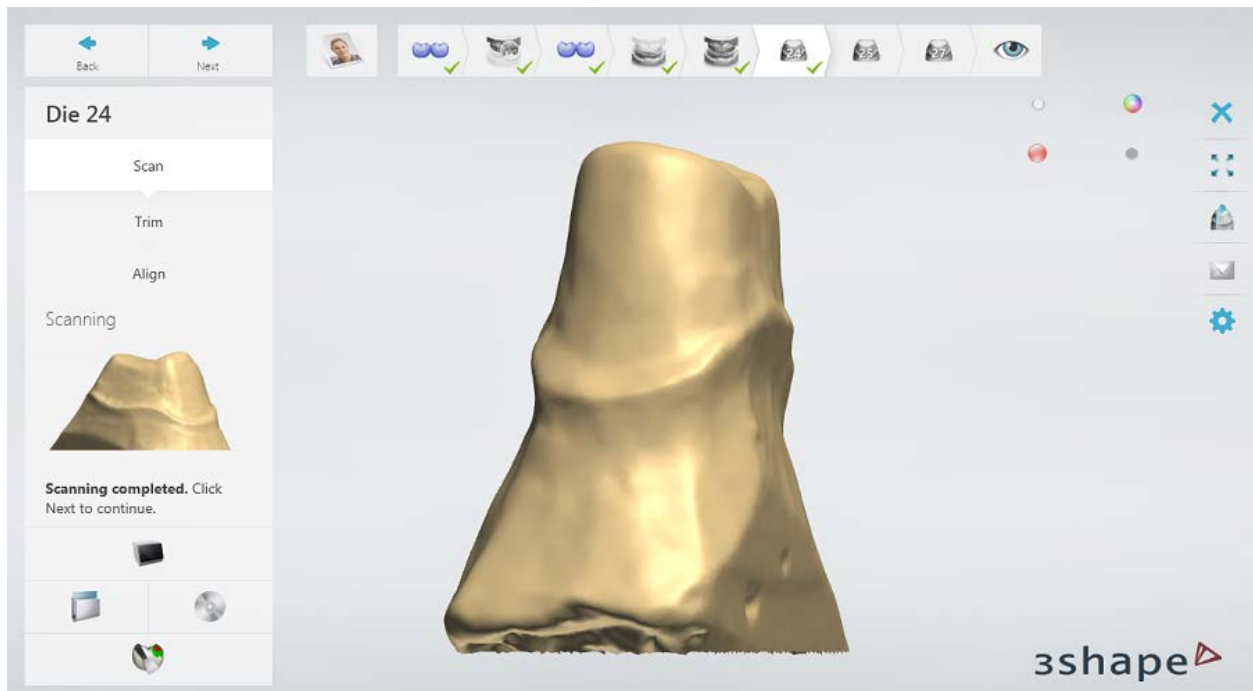


►Step 7: Scan prepared teeth separately

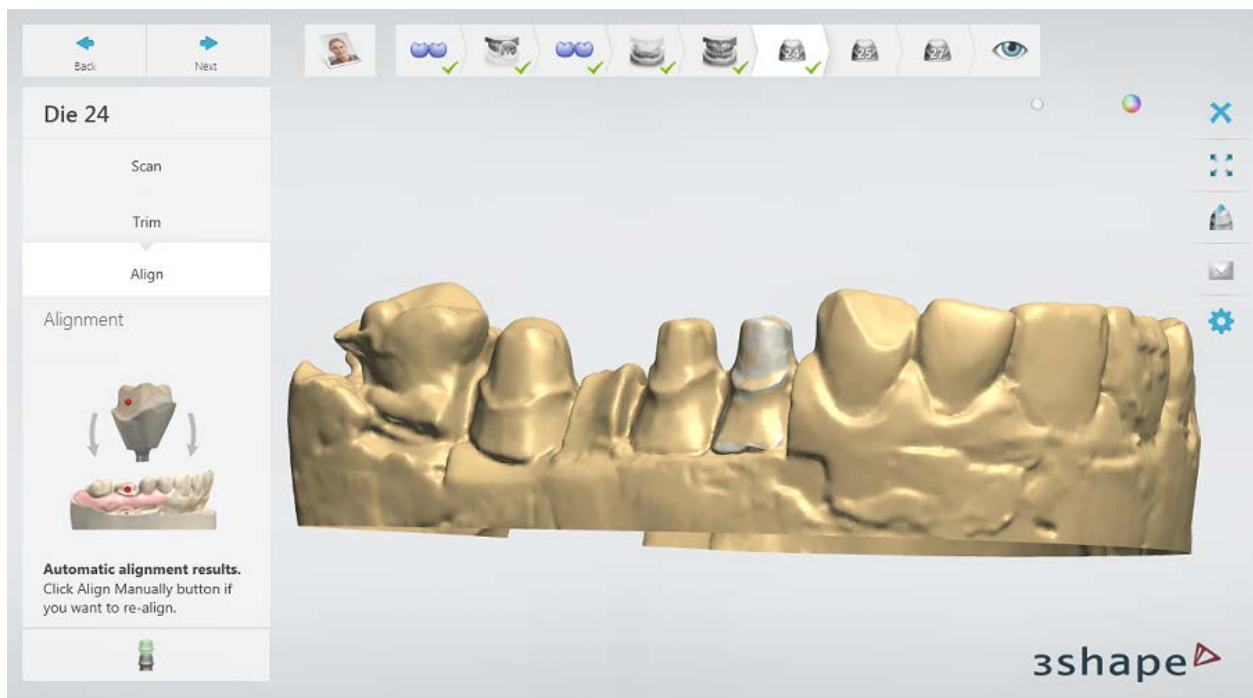
Insert the indicated tooth into the scanner.



Click **Next** to scan it.



Align the tooth and arch scans.

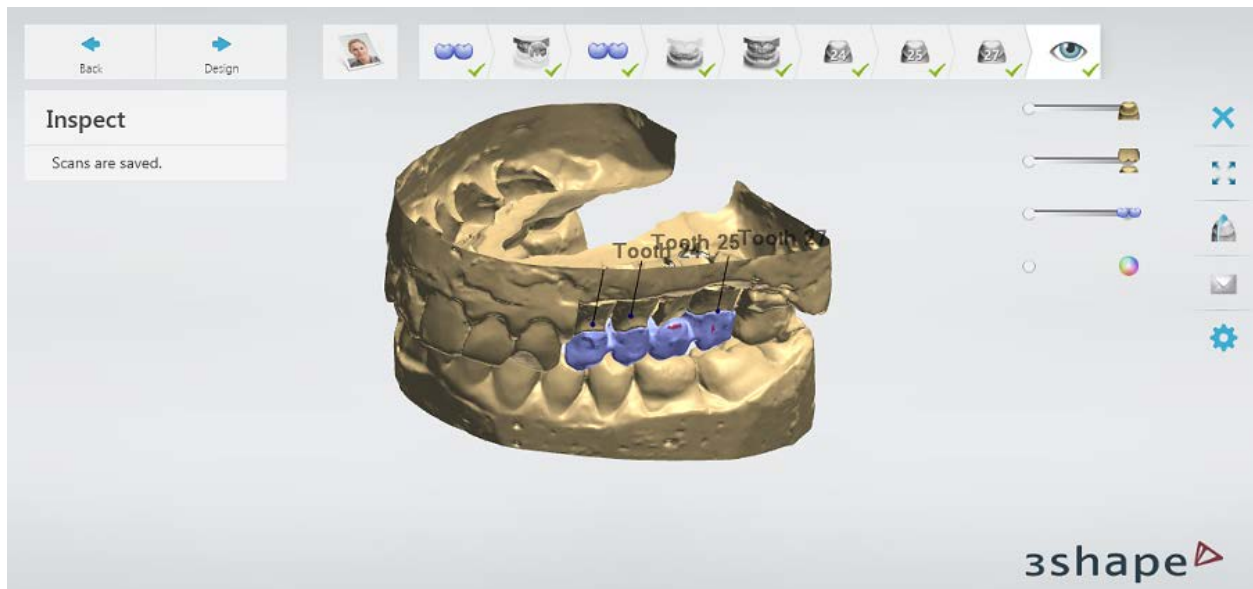


Repeat the procedure for the remaining teeth.

► Step 8: Finish scanning

Click **Next** to save the scans in your order.

When all scans have been saved the step is marked with a green tick as completed in the workflow toolbar, otherwise a message is displayed about the missing information. You can close ScanIt Dental or click the **Design** button to open the order in Dental Designer.



Continue to the [design section](#).

1.13.3. Wax-up Bridge Design

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Place Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Design a Wax-up Bridge

Waxup bridge

Coping ?

Waxup overlay Zr ▼

Active model

Active cut spline
Waxup 24 ◀ ▶

Use connector planes ☐

Active connector plane
◀ ▶

Advanced settings ? ▼

Bridge offset 0.00 mm

Min. wall thickness 0.60 mm

Smoothing 0.0

Cut offset 0.78 mm

Margin line offset 0.25 mm

Offset angle #1 65.0 °

Extension offset 0.20 mm

Lingual band ☐

Apply ☐

Start angle 120 °

End angle 240 °

Offset 1.00 mm

Reinitialize active cut spline

Check cut splines

When you model a wax-up bridge in Dental Designer at the **Frame Design** step, the program automatically places a wax-up bridge scan over the preparation scan and provides you with the necessary settings for further modeling.

Active cut spline arrows help you navigate between the wax-ups, making one cut spline active (green) at a time so you can easily edit it. The cut spline is used for cutting the scanned wax-up; the part above this spline is used when designing the wax-up model. The **Reinitialize active cut spline** button places the active cut spline in the initial position. The **Check cut splines** button validates the positioned cut splines and informs you if there is a problem (e.g. there appears a message *"Spline does not lie on the model surface, please reposition the spline"*). The default placement of the cut spline can always be edited with the help of a Fast edit functionality which, when activated, lets you easily draw or click on the model for a quick and easy editing.

Active connector plane arrows help you navigate between the connectors, making one connector plane active at a time.

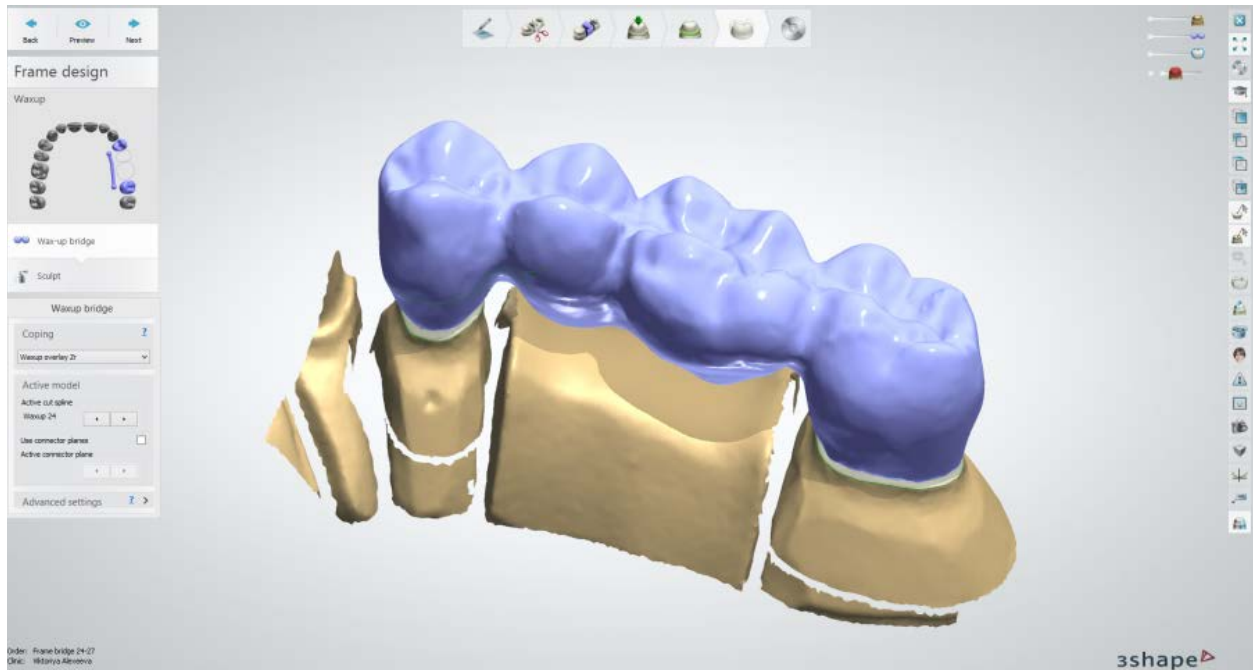
The **Bridge Offset** is the outer wax-up bridge surface offset parameter, which allows a modeled wax-up bridge to be offset inwards to make room for ceramics.

The **Smoothing** parameter lets you change the smoothness of the wax-up surface.

The **Cut offset** is the distance between the margin line and the cut spline.

The rest of the settings are similar to the standard coping (please see [Coping](#) section of the Single Coping chapter for more details).

Click **Apply** to view the changes. Click **OK** to go from the **Wax-up bridge** step to the **Sculpt** step.



►Step 7: Sculpt

This step is described in [Sculpt Toolkit](#) chapter.

►Step 8: Save your design

Continue to [manufacturing](#) if required.

1.14. Primary and Secondary Telescopes

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Primary and Secondary Telescopes order:



- [Order Creation](#)
- [Scanning](#)
- [Design](#)

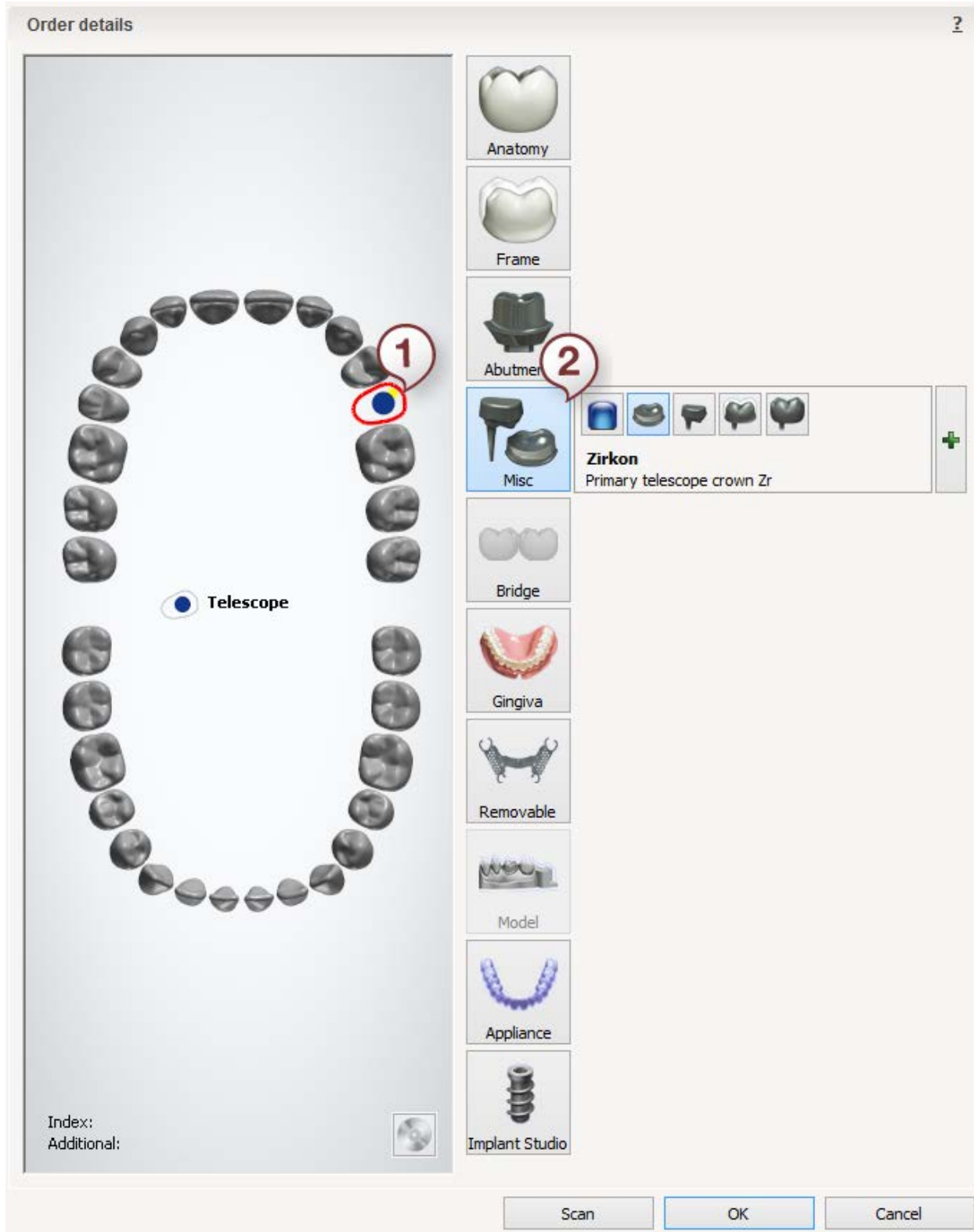
1.14.1. Primary and Secondary Telescopes Order Creation

To create a [Primary Telescope](#) or [Secondary Telescope](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

PRIMARY TELESCOPE



►Step 1: Select preparation in the teeth overview

►Step 2: Click the *Misc* button, Robotic Telescope  is selected by default but you can change it to Standard  if necessary



SECONDARY TELESCOPE

► Step 1: Select preparation in the teeth overview

►Step 2: Click the *Misc* button, Robotic Telescope  is selected by default but you can change it to Standard  if necessary

►Step 3: Click the *Frame* button



After creating the order, proceed to [scanning](#).

1.14.2. Primary and Secondary Telescopes Scanning

Primary and Secondary Telescopes scanning is identical to the bridge framework scan, please see section [Bridge Framework](#) for details.

After scanning, continue to the [design section](#).

1.14.3. Primary and Secondary Telescopes Design



This section describes the step-by-step description of the **Primary** (Robotic / Standard) and [Secondary](#) Telescopes.

PRIMARY TELESCOPES

-  **Robotic Telescope**

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Set Insertion Direction

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

►Step 4: Draw Margin Line

This step is identical to [Margin Line](#) described in Single Coping chapter.

►Step 5: Apply Die Interface

This step is identical to [Die Interface](#) described in Single Coping chapter.

►Step 6: Use Smile Composer / Design Crown

Smile Composer is described in [Smile Composer](#) chapter and [Anatomical Crown](#) is described in Full Anatomical Crown chapter.

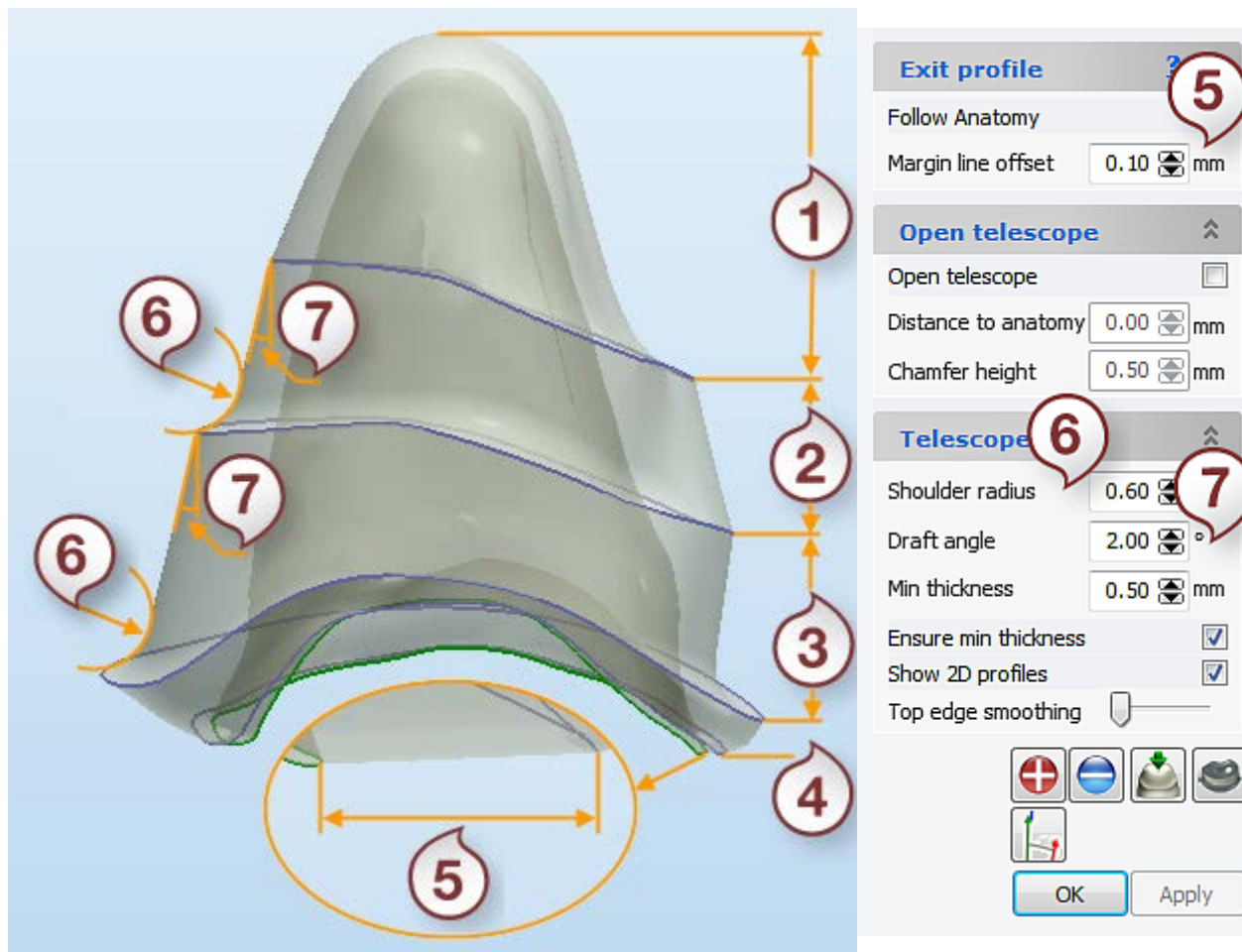
The Smile Composer is used for the anterior teeth while the Crown tools are used for the others.

►Step 7: Sculpt (Optional)

This step is described in [Sculpt Toolkit](#) chapter.

►Step 8: Design Primary Telescope

This step allows you configure **Exit Profile**, **Open Telescope** and **Telescope** settings as shown on the images below.










Robotic Telescope

- 1. Top cap
- 2. Band 2
- 3. Band 1

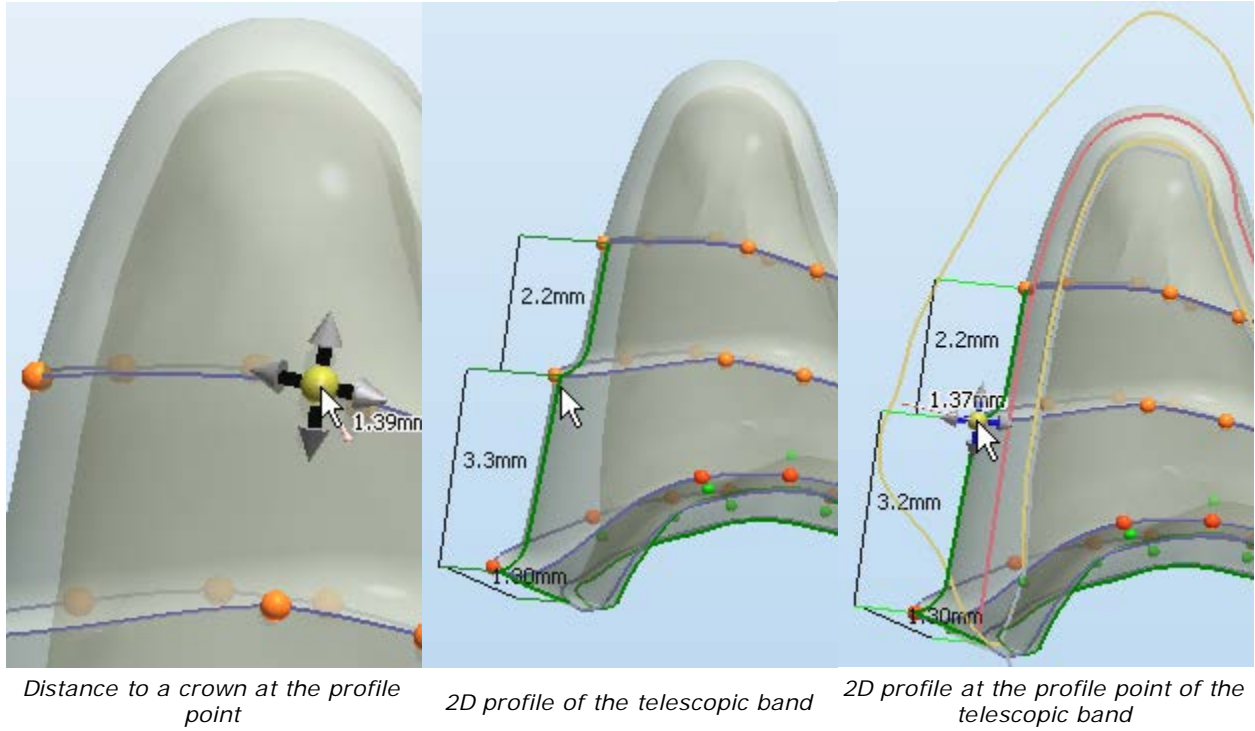
4. Exit profile.

- 5. Margin line offset
- 6. Shoulder radius
- 7. Draft angle

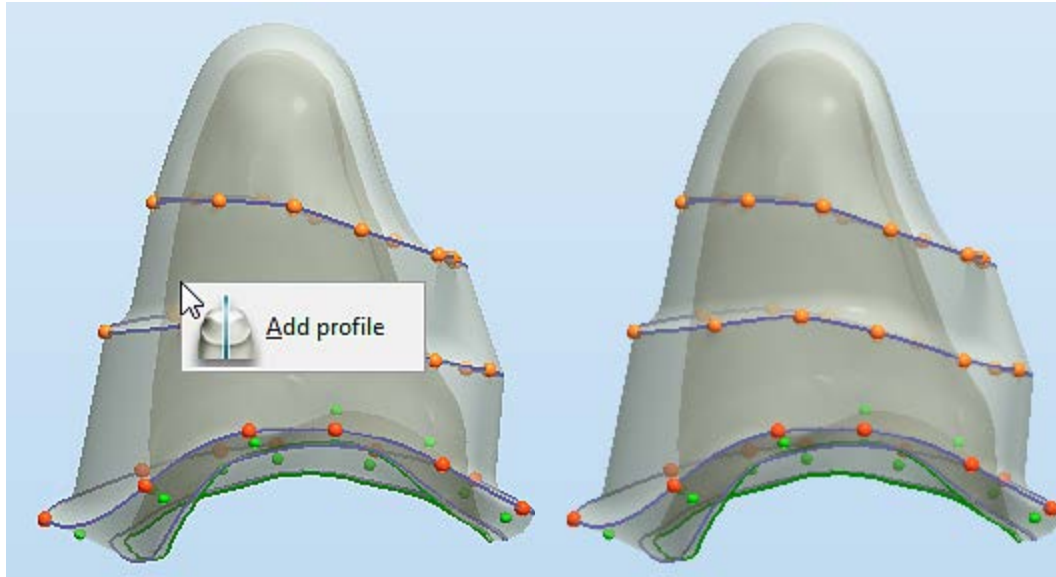
-  - Use **Add Band** button to add additional bands to the telescope when required.
-  - Spare bands can be removed with the **Delete Band** button.
-  - **Set Direction** for a telescope group button.
-  - **Reset** button. Resets all your changes.
-  - Show/hide the Insertion and Telescope directions.
-  - **Undo** your last operation.
-  - **Redo** your previous operation.

The Primary telescope settings:

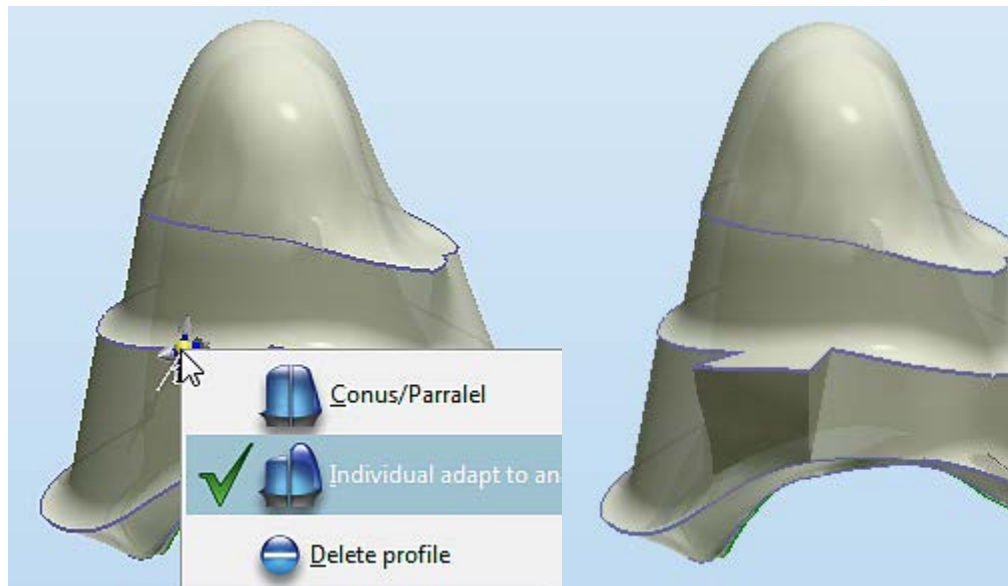
Exit Profile	
Follow Anatomy	- The shape of the exit profile follows the anatomical crown when enabled.
Margin Line Offset (5)	- The distance from the edge as shown on the image.
Open Telescope	
Open Telescope	- When enabled, allows you to design open telescopes, not fully enclosed by the crowns.
Distance to Anatomy	- The minimal allowed distance between the telescope and the crown.
Chamfer Height	- Chamfer height at the top of the telescope.
Telescope	
Shoulder Radius (6)	- The radius of the telescope shoulder at the part of a band.
Draft Angle (7)	- The angle between the telescope insertion direction and its shoulder.
Min. Thickness	- Defines the minimum thickness of a telescope.
Ensure Min. Thickness	- When enabled, the telescope thickness cannot go lower the set value.
Show 2D Profile	- Shows telescope cross-section profile dimensions at the point indicated by the cursor.
Top edge smoothing	- Smoothes the edge of the top band.



The right-click menu options:



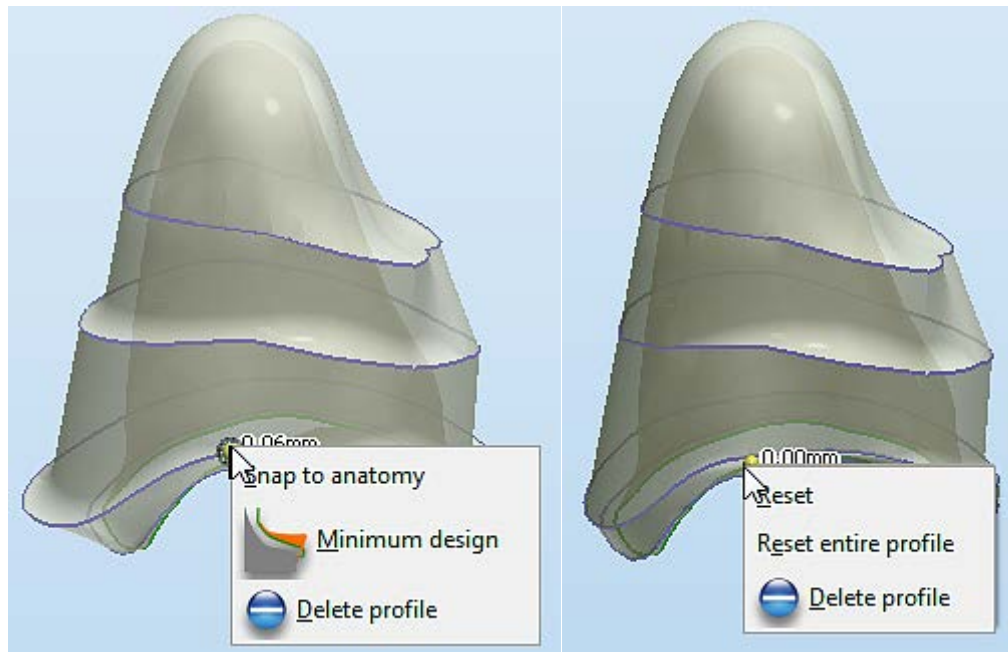
- **Add profile** - An additional profile can be added via a right-click on a telescope.



Right-click menu of the upper profile point at the band

Ledge created

- **Conus/Parallel** - Toggles the shape of the telescope band in relation to the telescope direction.
- **Individual adapt to anatomy** - Creates a ledge on the telescope band adjusted to the anatomical shape of a crown.
- **Delete profile** - Deletes the selected profile.



- **Snap to anatomy** - Adjusts the lower shape of the band to the anatomy of a crown.
- **Minimum design** - Makes the emergence exit to follow the anatomical shape of a crown.
- **Reset** - Resets the anatomical shape of the selected profile.
- **Reset entire profile** - resets the anatomical shape of the entire profile.

Right-click menu of the lower profile point of the band

►Step 9: Use Sculpt toolkit (Optional)

This step is described in [Sculpt Toolkit](#) chapter.

►Step 10: Save your design

Once the design process has been completed, click the **Close** button. The order appears under the status **Designed** in the Dental Manager.

-  **Standard Telescope**

► **Step 1 (optional): Prepare scans**

This step is identical to [Prepare](#) described in Single Coping chapter.

► **Step 2: Place Annotations**

This step is identical to [Annotations](#) described in Single Coping chapter.

► **Step 3: Set Telescope Direction**

While the telescope direction remains perpendicular to the screen during the procedure, orient the model to obtain the desired telescope direction and click the **Set Direction** button. Click **OK** to continue.

► **Step 4: Set Insertion Direction**

This step is identical to [Insertion Direction](#) described in Single Coping chapter.

► **Step 5: Draw Margin Line**

This step is identical to [Margin Line](#) described in Single Coping chapter.

► **Step 6: Apply Die Interface**

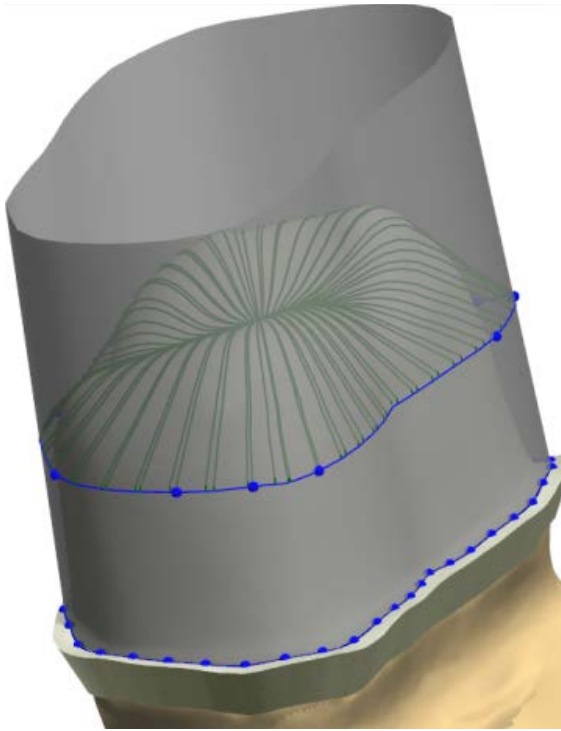
This step is identical to [Die Interface](#) described in Single Coping chapter.

► **Step 7: Design Primary Telescope Overlay**

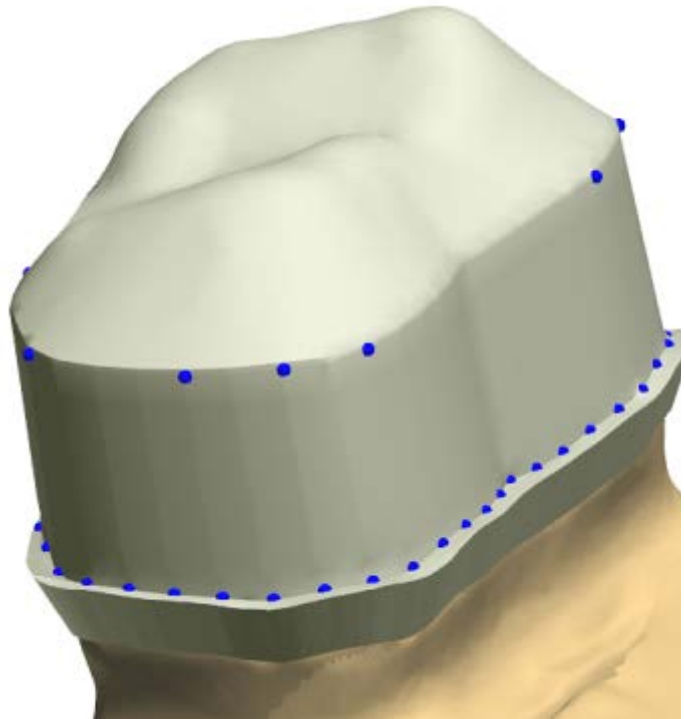
At the **Primary Telescope Overlay** step the program automatically creates initial telescope that can be modified as desired.

The primary telescope consists of two separate parts: the basis coping and the telescope cone (grey).

The basis coping defines the shape of the telescope rim and guarantees minimum distance between the final telescope surface and the interface. The basis coping settings can be adjusted on the *Base coping settings* group, which contains the same options as a regular coping (please see [Coping](#) section of the Single Coping chapter for more details). After the modeling, the telescope surface replaces the basis coping overlay surface.



Before clicking **Preview**



After clicking **Preview**

The **upper** and **lower** limits of the telescope cone are defined by the shape of the (blue) upper and lower control points.

- The upper control points define the transition between the angular telescope cone and the curved telescope top.
- The shape can be adjusted both manually by dragging the control points along the telescope cone surface or using the settings.
- The points can be added and removed with the right-click on the blue line and selecting **Add/Remove**.
- The right-click menu also offers a **Fast edit** functionality which, when activated, lets you easily draw or click where desired for the program to place points automatically. See the chapter [Line Editing](#) for details.
- The lower control points define the transition between the telescope cone and the basis coping surface as well as the shape of the cone.
- The shape can be adjusted manually by dragging the control points.
- If the telescope cone surface intersects with the basis coping surface, the lower control points (and the connecting lines) that need moving are marked in red.



Note! You are not allowed to complete a telescope with the intersecting cone and basis coping surfaces.

Telescope Crown

Settings ? ▼

Type TelescopeOverlay Ti ▼

Base coping settings ▼

Min. wall thickness 0.40 mm

Wall height 1.00 mm

Margin line offset 0.10 mm

Offset angle #1 65.00 °

Extension offset 0.10 mm

Lingual band

Apply ☒

Start angle 120 °

End angle 240 °

Offset 1.00 mm

Primary crown settings ▼

Angle 2.00 °

Smooth 1.00

Telescope spline control

Min. height 3.00 mm

Prep. line shape ☒

Point distance 0.75 mm

Preview
Initialize

The shape of the telescope can be adjusted through the **Primary crown settings** group:

- The **Angle** of the telescope is measured along the telescope primary direction and can be adjusted dynamically.
- The **Smooth** slide bar changes the smoothness of the (green) telescope top lines, which define the shape of the top. When no smoothness is applied, the lines follow the surface of the basis coping.
- The **Min. height** parameter shows the current minimum telescope cone height, defined as the minimum distance between the upper and lower control points. When changing the value, the current upper control points will be moved up or down to adjust to the new height.



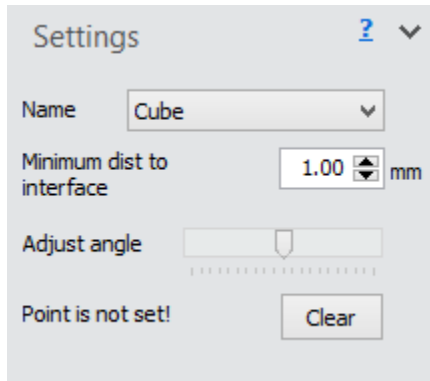
Hint! To obtain the maximum height, write a very large number and the upper control points will be moved as high as possible.

- When selecting the **Prep. line shape** checkbox, the upper control points are initialized to have the approximate shape of the margin line.
- Specify the desired distance between the points using the **Point distance** parameter.
- To initialize all control points, press the **Initialize** button.
- For a fast preview of the final telescope surface shape, press the **Preview** button. The telescope surface will then be visualized, as it would look upon completion.

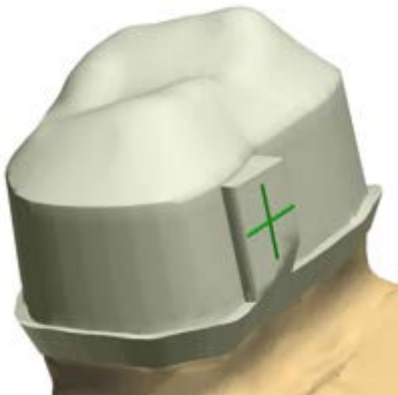
Press **Preview** to generate a complete primary telescope or click **OK** to finish.

►Step 8: Add Optional Components

The **Optional Components** step offers the option to attach a model component on the side of the telescope. Click the telescope surface to set the position for the attachment. A point, indicating the position, will appear. This point can be dragged along the surface or removed by pressing the **Clear** button. The green cross at the point indicates the angle and depth of the attachment. These parameters can be adjusted using the following settings:



- The **Name** drop-down box offers a list of components that you can choose from.
- The **Adjust angle** slide bar changes the insertion direction angle of the attachment.
- In the **Min. dist to interface** edit box, the minimum distance between the telescope interface and the frontal surface of the attached component can be adjusted. The green cross is moved either inwards or outwards accordingly.
- To attach the component press **Preview**. The component can be repositioned by moving the attachment point (remember to also readjust the angle) or remove by pressing **Clear**.



Click **OK** to complete the step.

►Step 9: Use Sculpt toolkit (Optional)

When you want to modify a telescope, go to the **Sculpt** step to use the tools described in the [Sculpt Toolkit](#) chapter.

►Step 10: Save your design

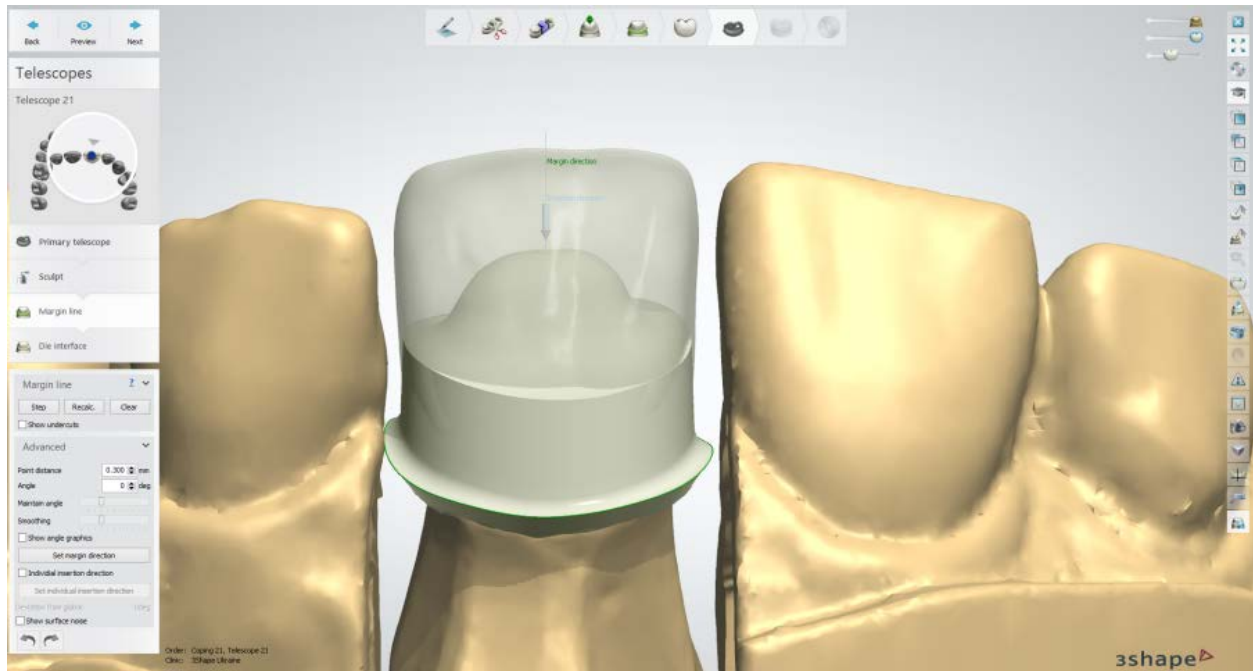
SECONDARY TELESCOPES

The workflow of designing a **Secondary Telescope** is similar to the one of a **Primary Telescope**.

► **Steps 1-9:** Go through the steps described above for the [Primary Robotic Telescope](#).

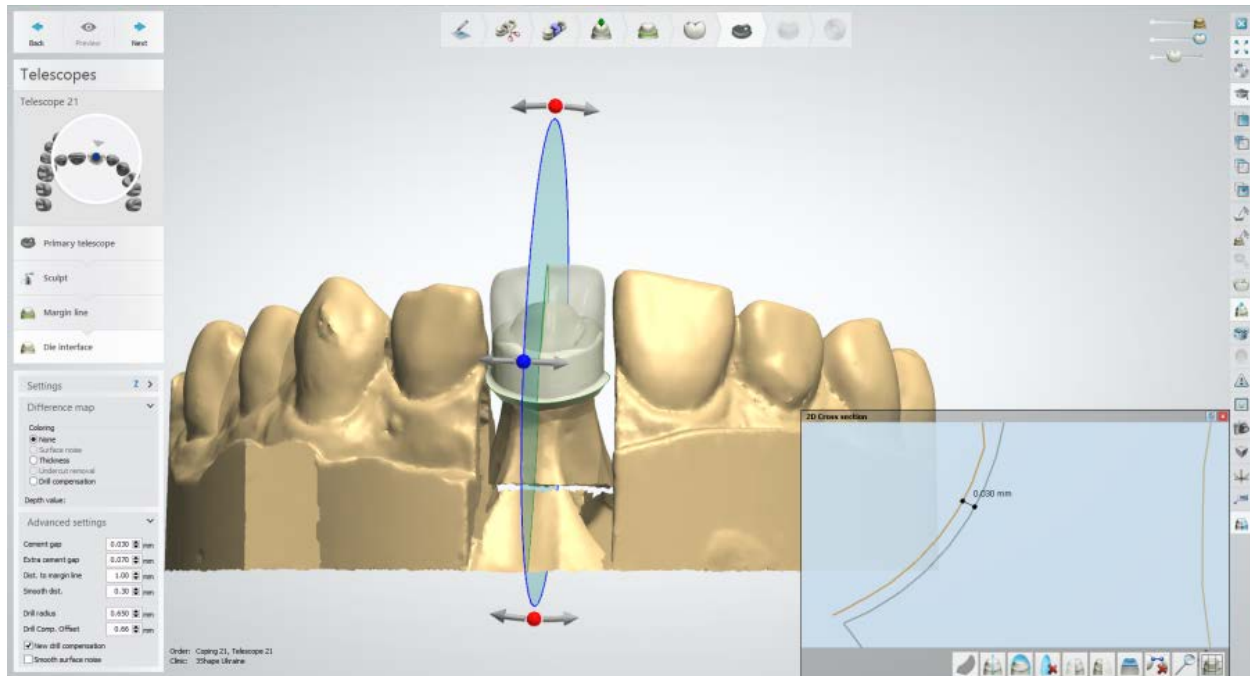
► **Step 10: Draw Margin line**

The telescope margin line placement and settings are similar to the ones of a [Single Coping](#).



► **Step 11: Apply Die Interface**

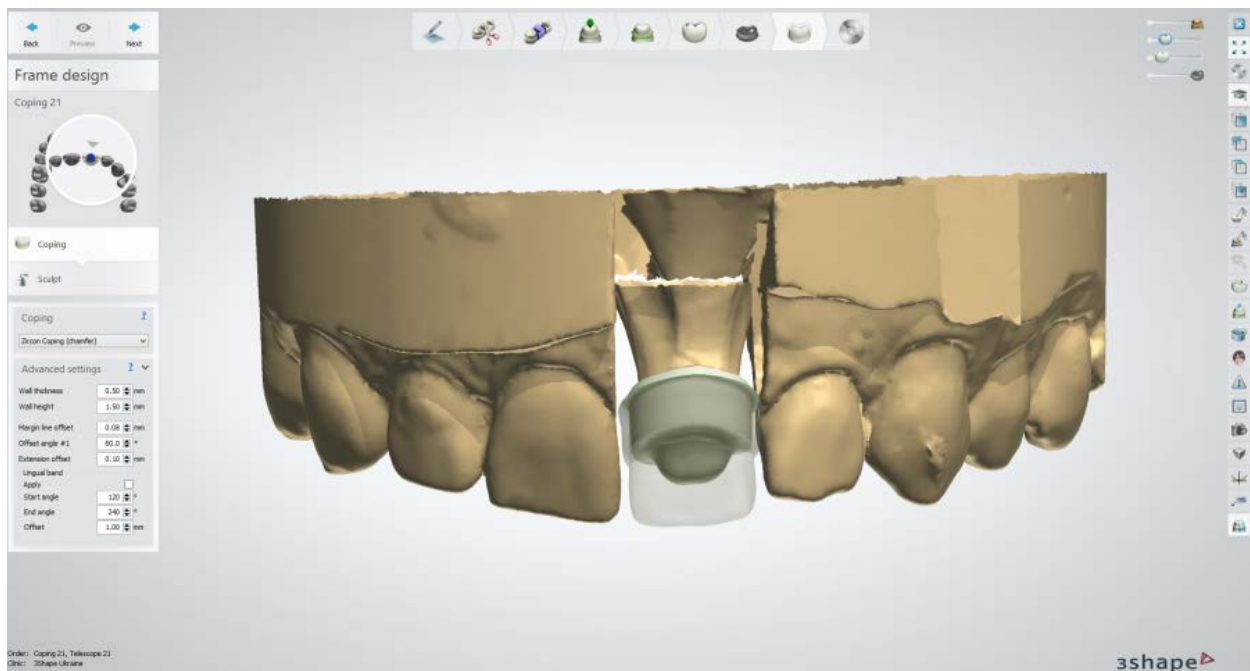
The telescope die interface creation and settings are similar to the ones of a [Single Coping](#).



2D cross section (**Cement gap** = 0.030 mm)

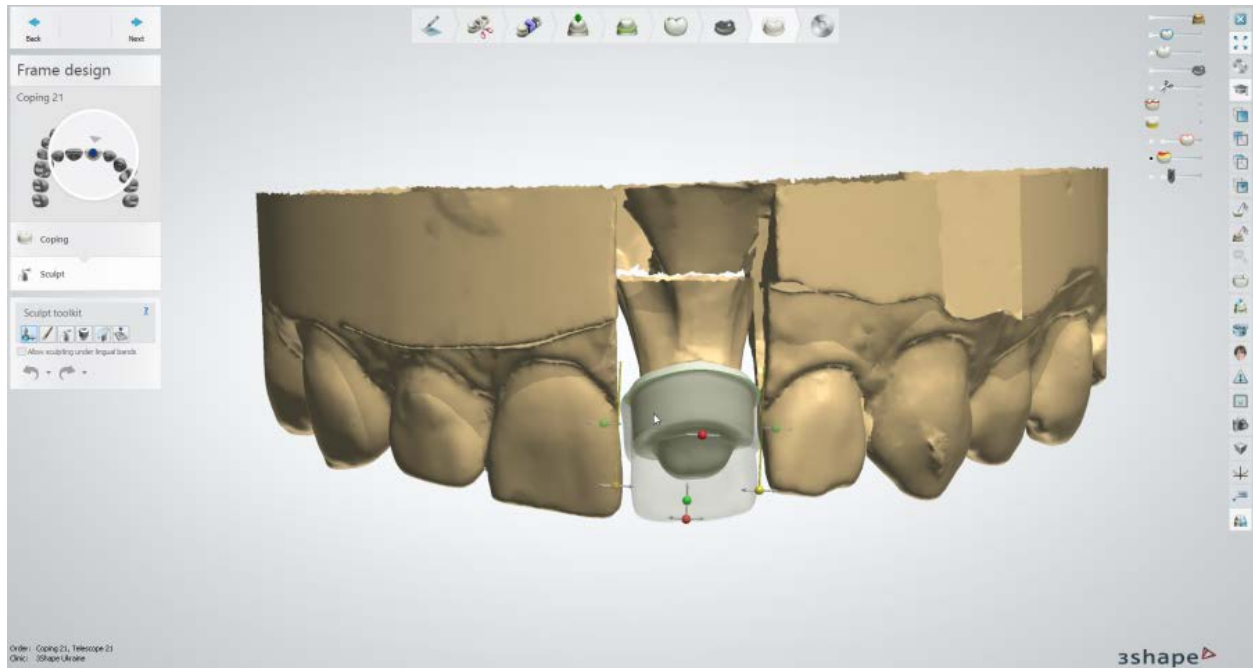
► Step 12: Design Coping

The Standard Coping settings are described in section [Single Coping](#).

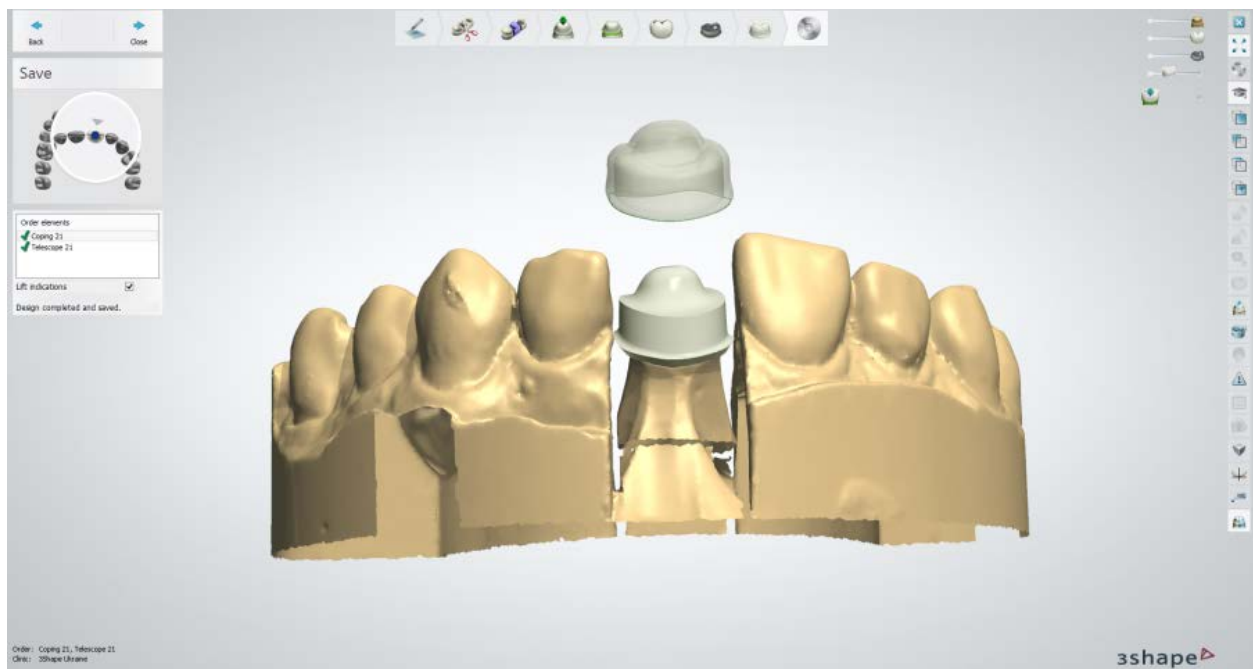


► Step 13: Use Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



► Step 14: Save your design



Continue to [manufacturing](#) if required.

1.15. Post & Core

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Post & Core order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.15.1. Post & Core Order Creation

To create a Post & Core order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparation in the teeth overview**

► **Step 2: Click the *Misc* button**

► **Step 3: Select the *Post and Core* button: *Standard*  , *Anatomical*  or *Retained-Crown* **



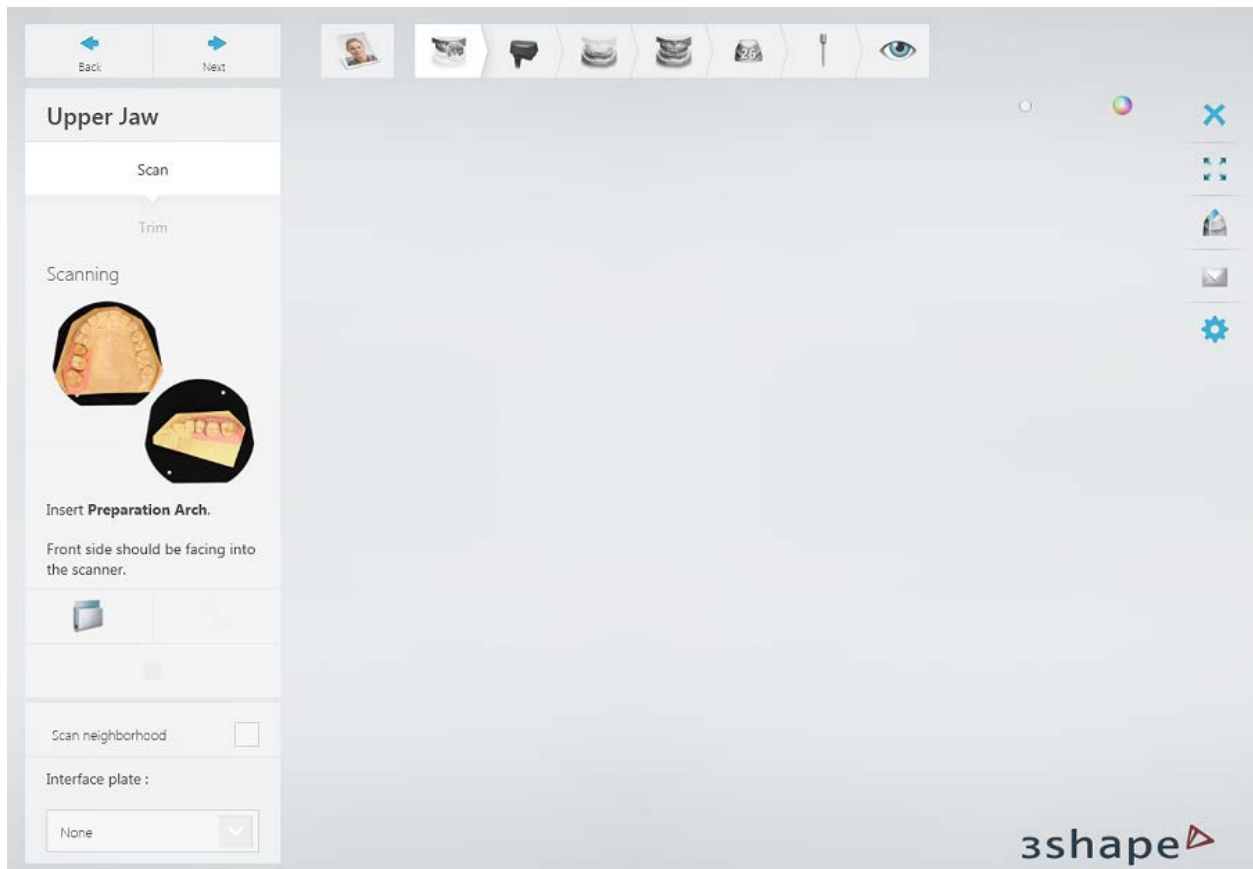
After creating the order, proceed to [scanning](#).

1.15.2. Post & Core Scanning

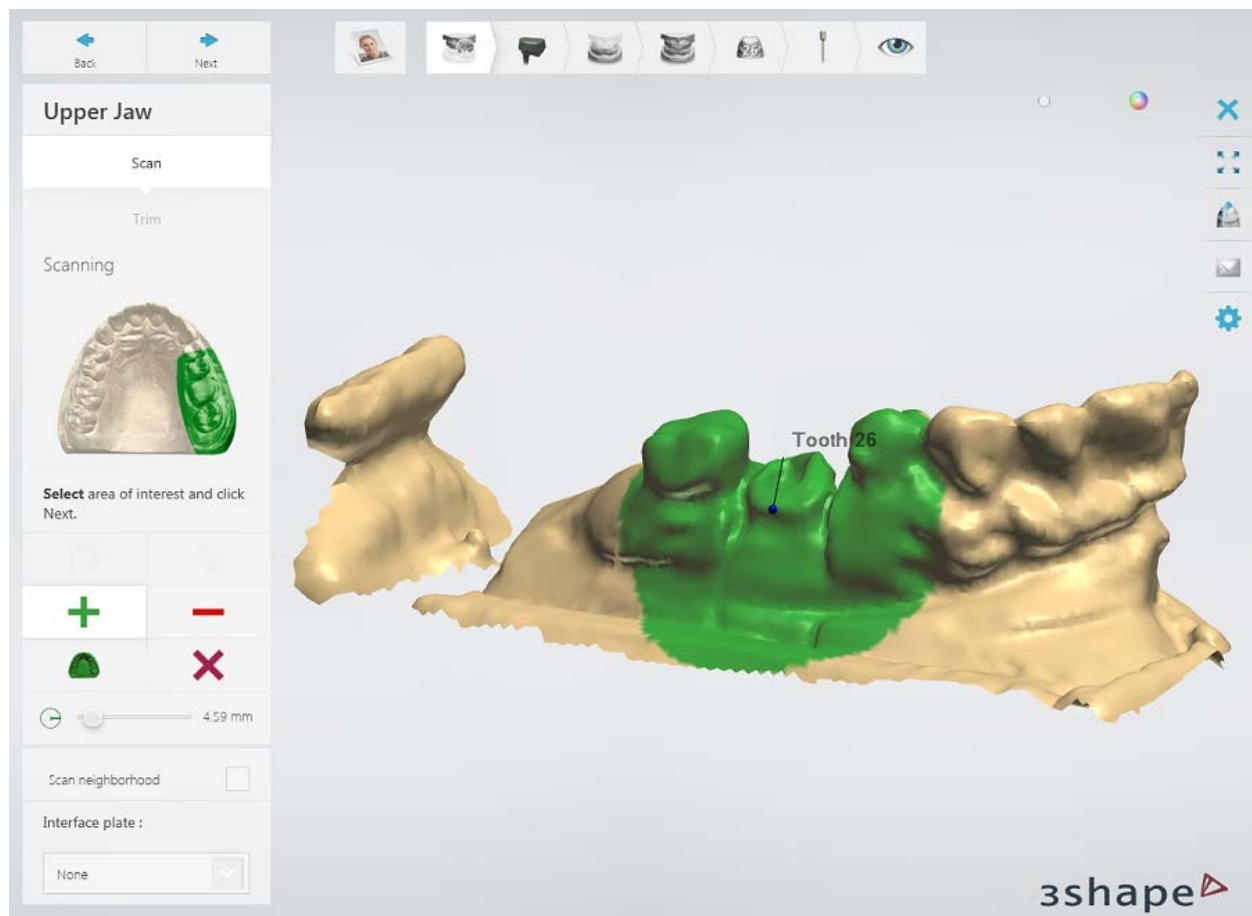
Follow the on-screen instructions and steps below to complete the Post and Core model scanning:

►Step 1: Scan preparation arch

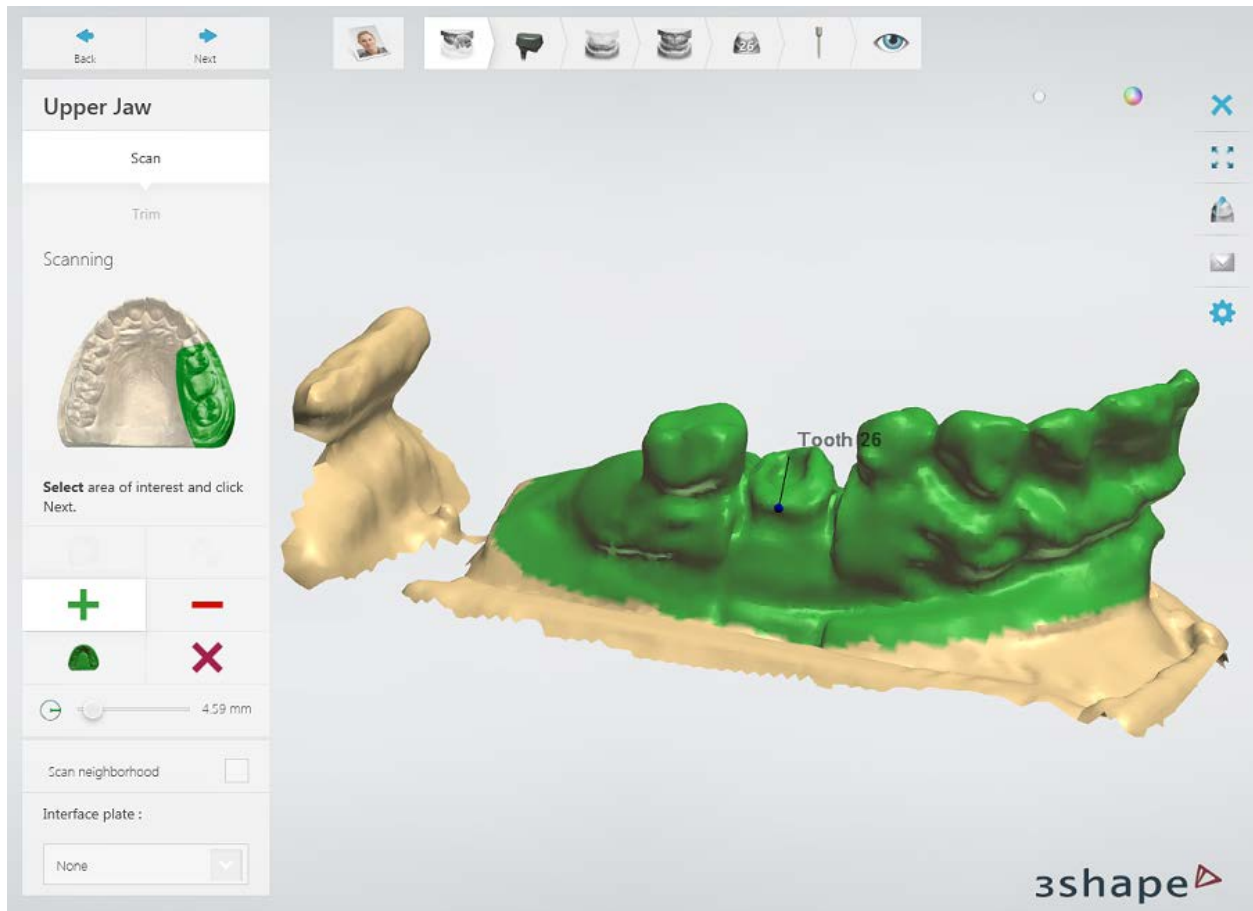
Insert a sectioned arch into the scanner.



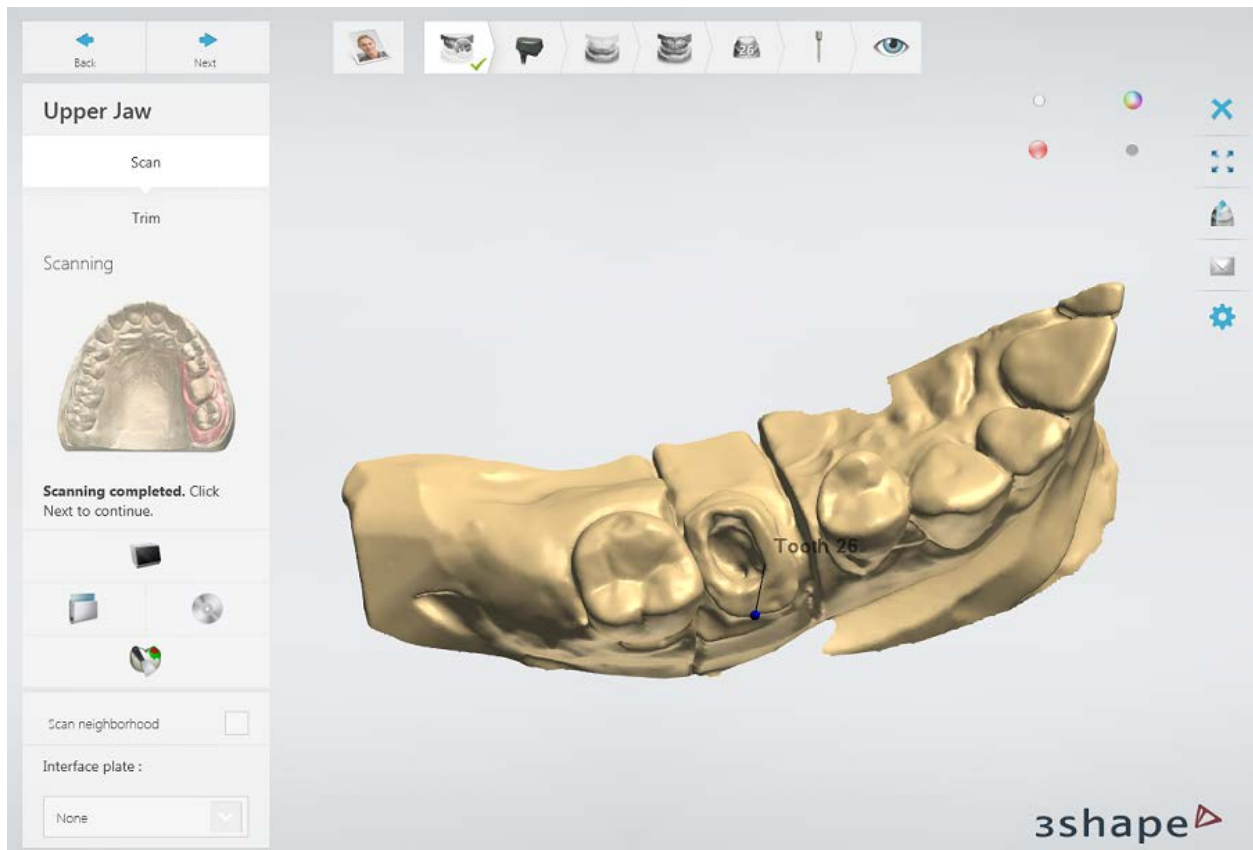
Run the initial scan by clicking the **Next** button.



Mark the area for a detailed scan.

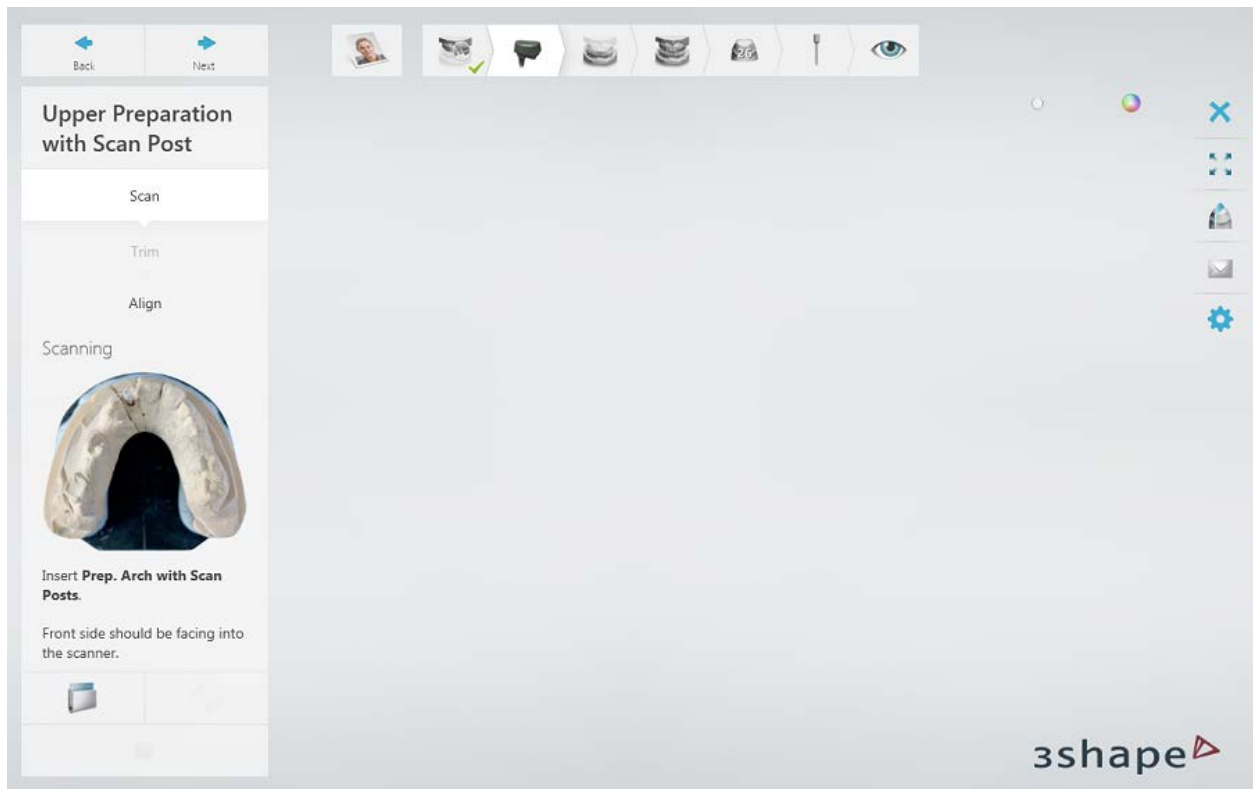


Click **Next** to scan the marked area.

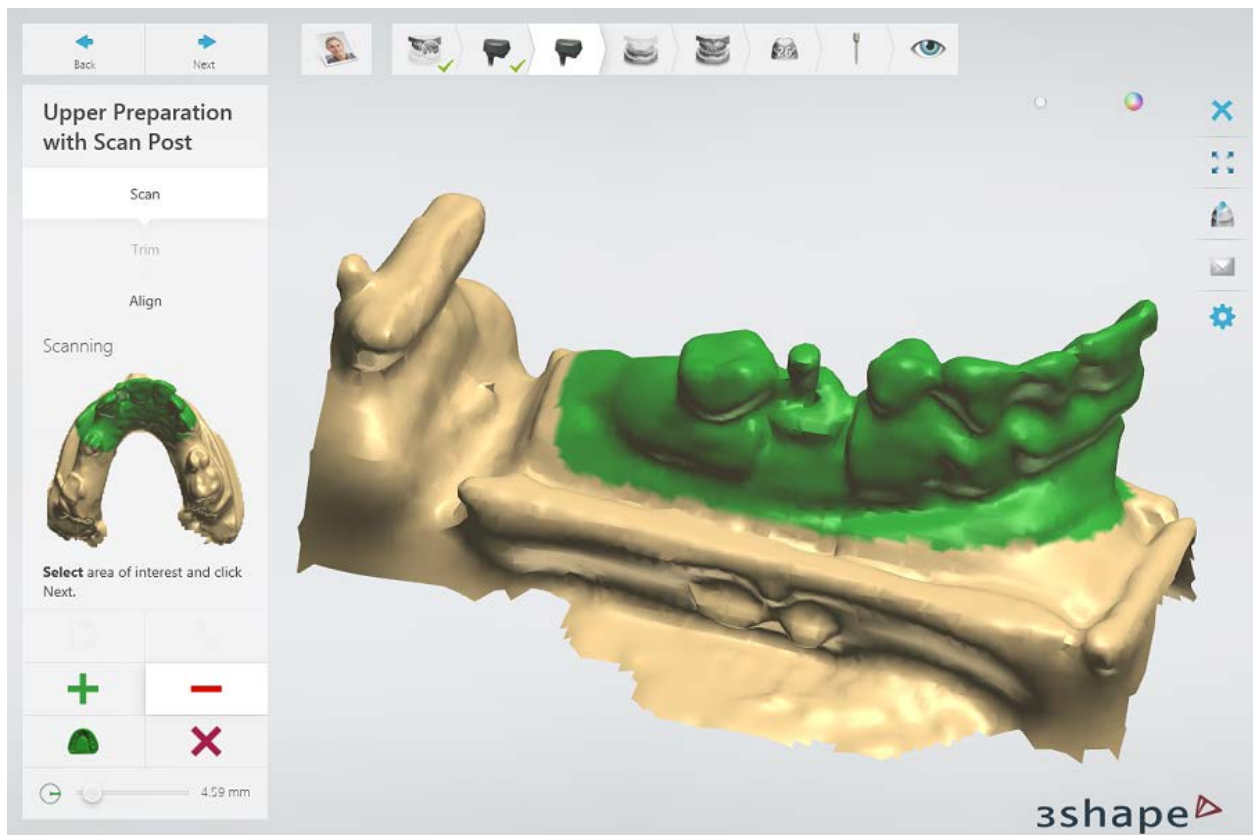


► **Step 2: Scan the arch with a scan post**

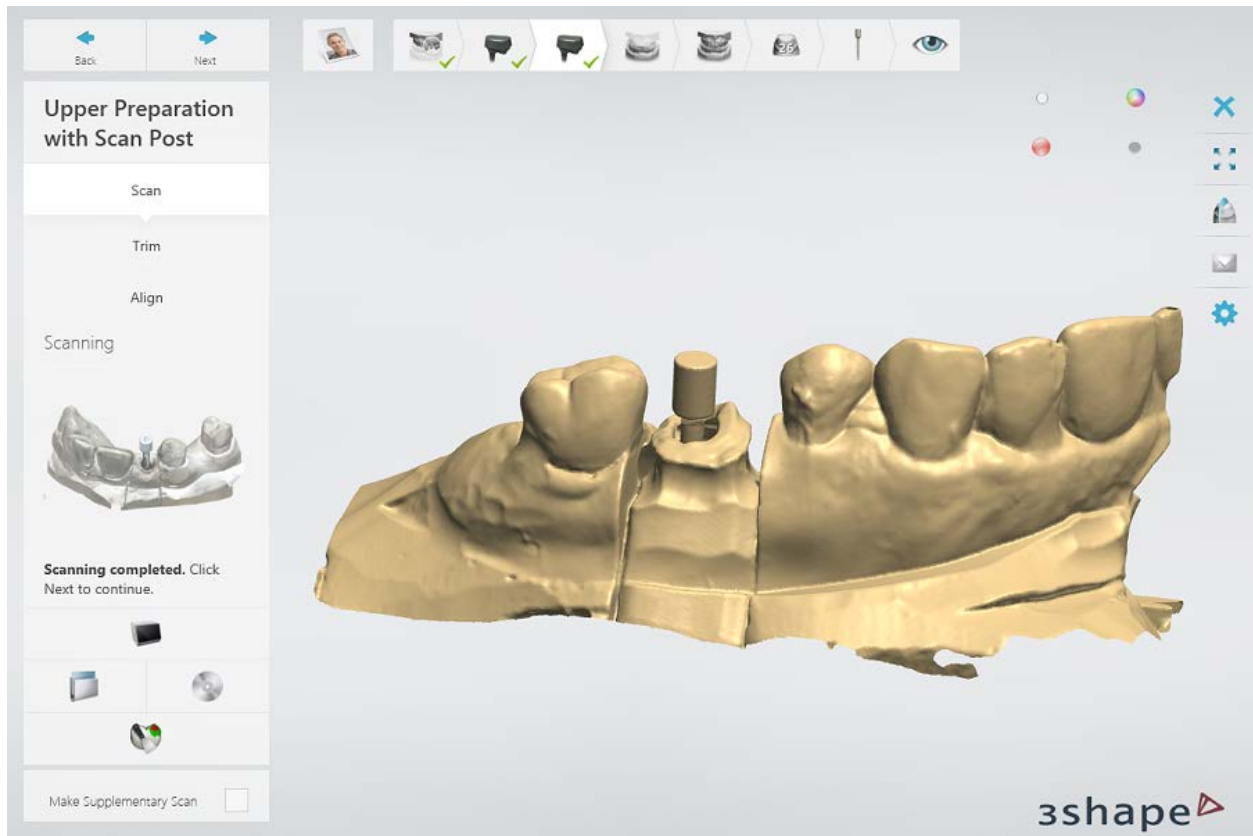
Position the correct post in the preparation and insert the preparation into the scanner.



Run the initial scan by clicking the **Next** button, then mark the area for a detailed scan.



Click **Next** to scan the marked area.



When there is more than one scan post in a tooth, replace the first scan post with the next one and scan the arch with a second scan post.

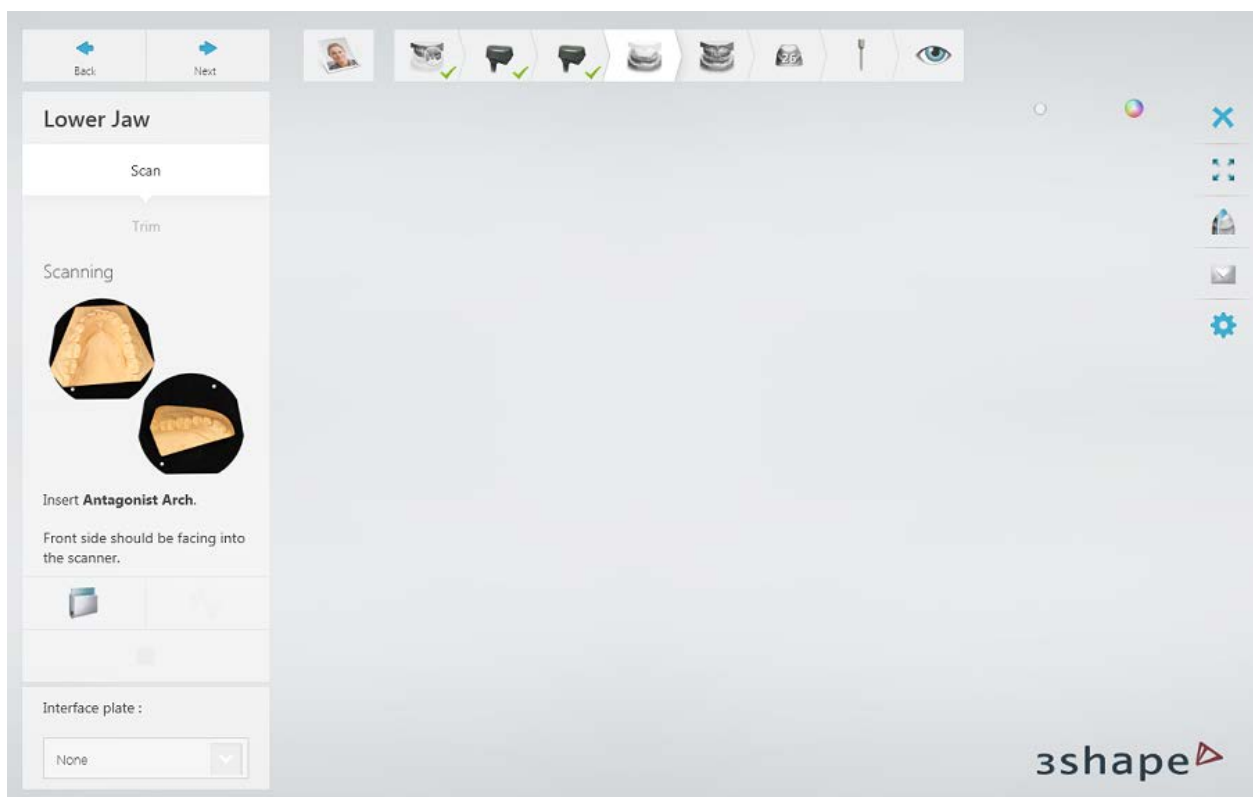
► Step 3: Align the scans

Align preparation scans.

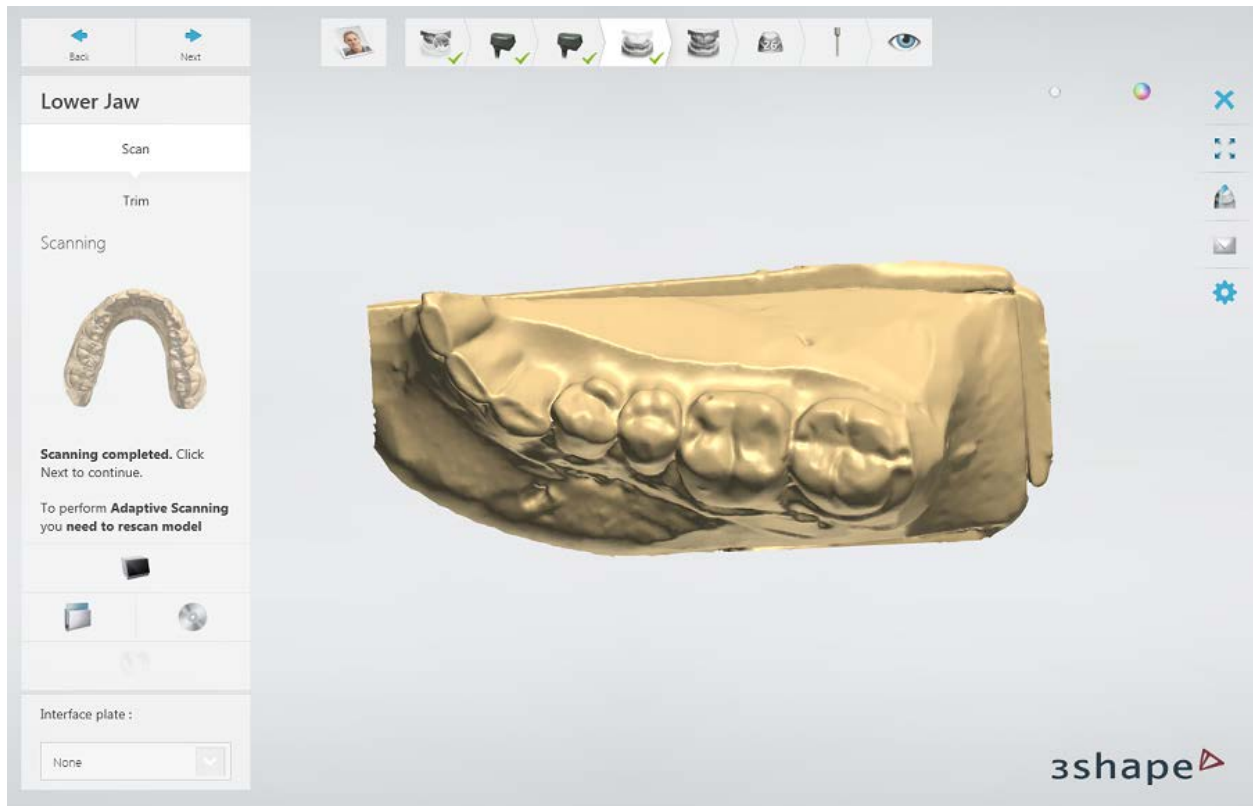


► Step 4: Scan the antagonist arch

Insert the antagonist arch into the scanner.

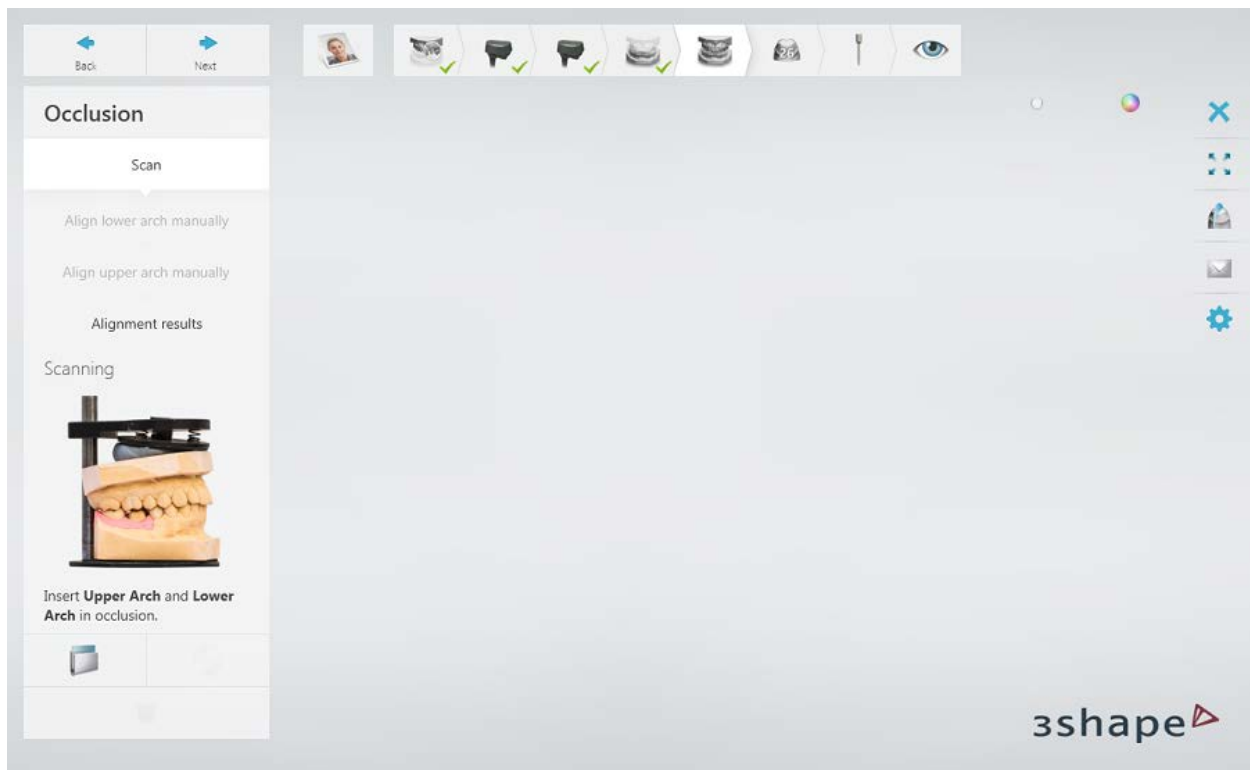


Run pre-scan, mark the area and run a detailed scan.

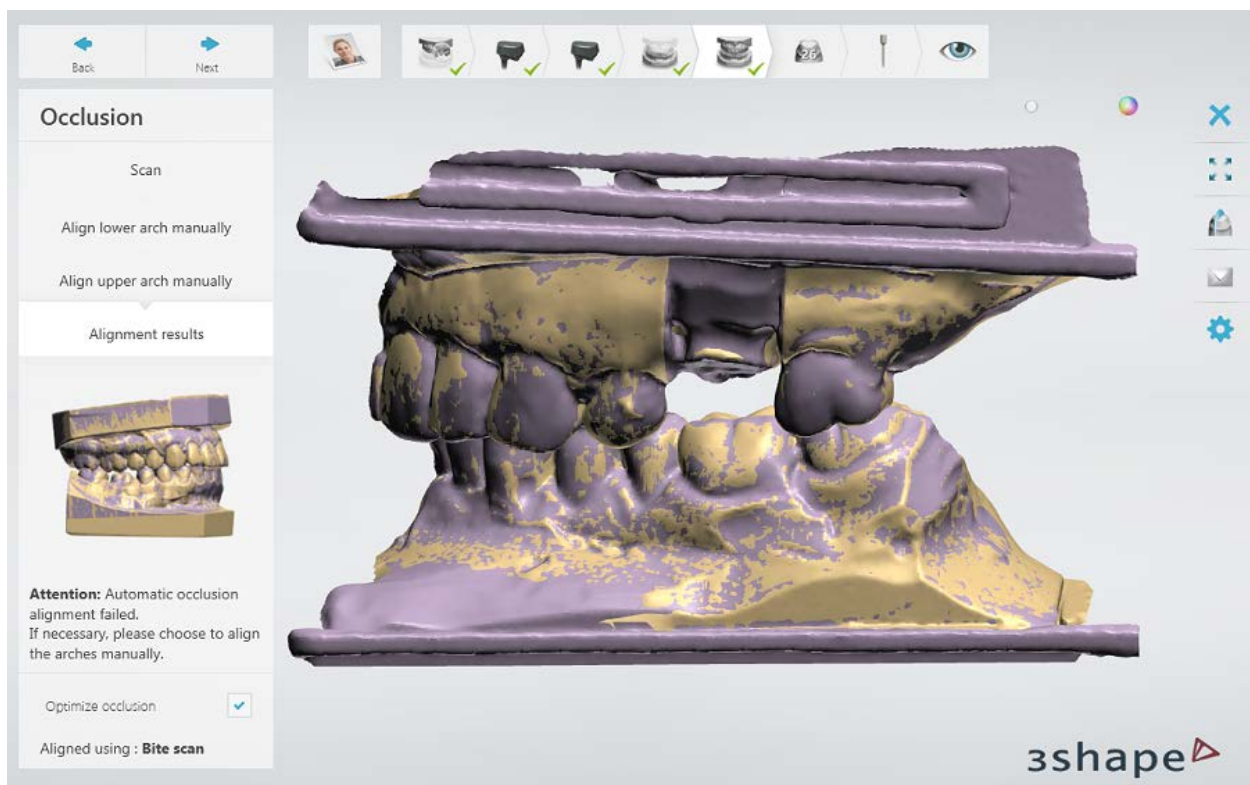


►Step 5: Scan occlusion

Insert the upper and lower arches in an occlusion into the scanner.

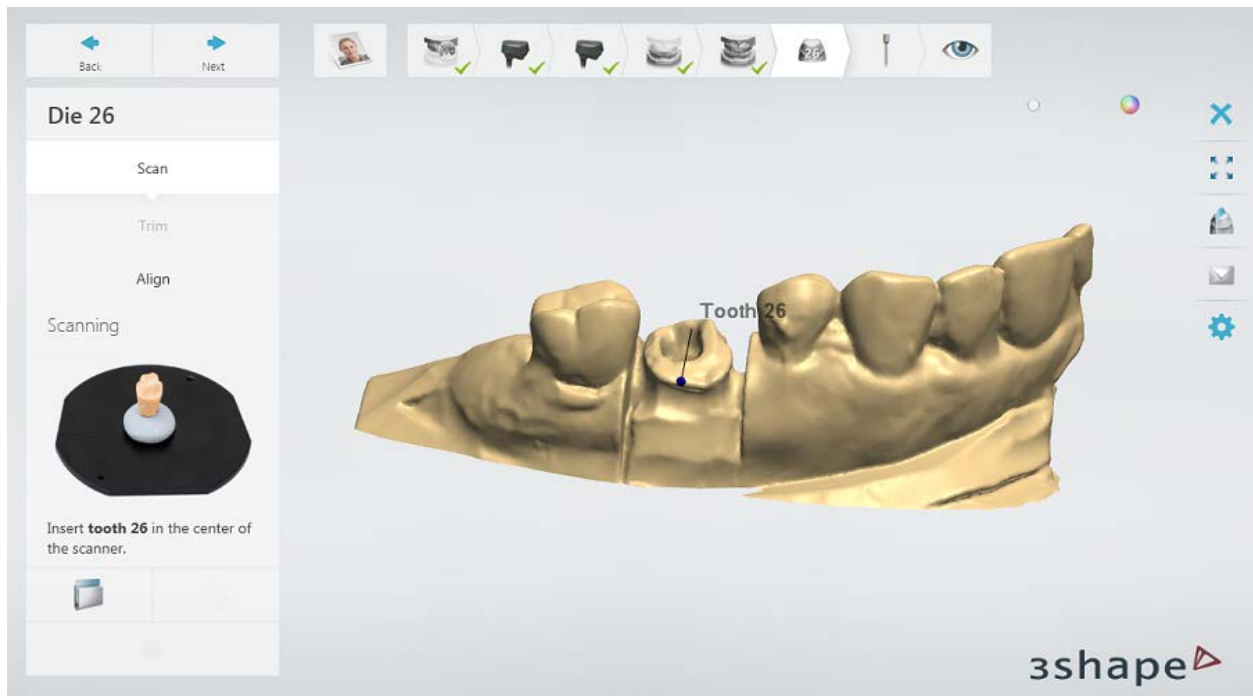


Click **Next** to scan the occlusion. Align the arch scans with the occlusion scan.

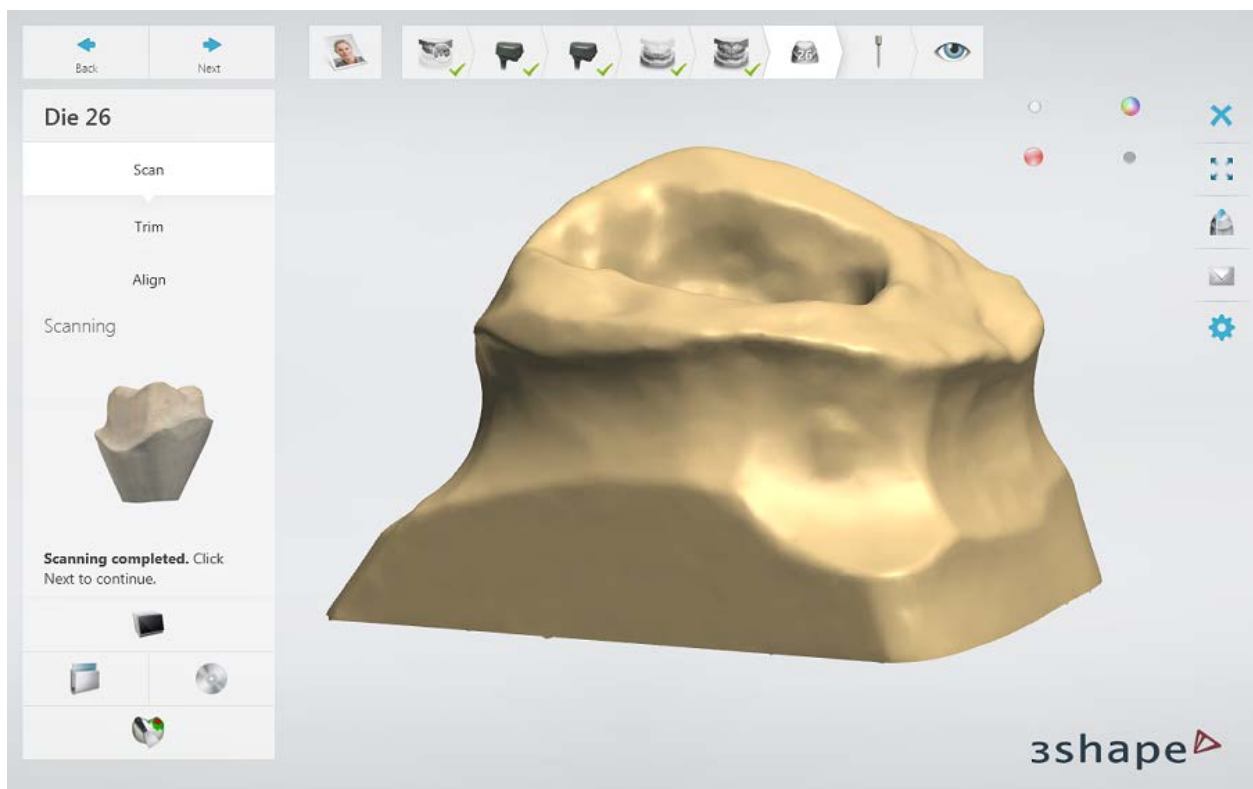


► **Step 6: Scan prepared tooth separately**

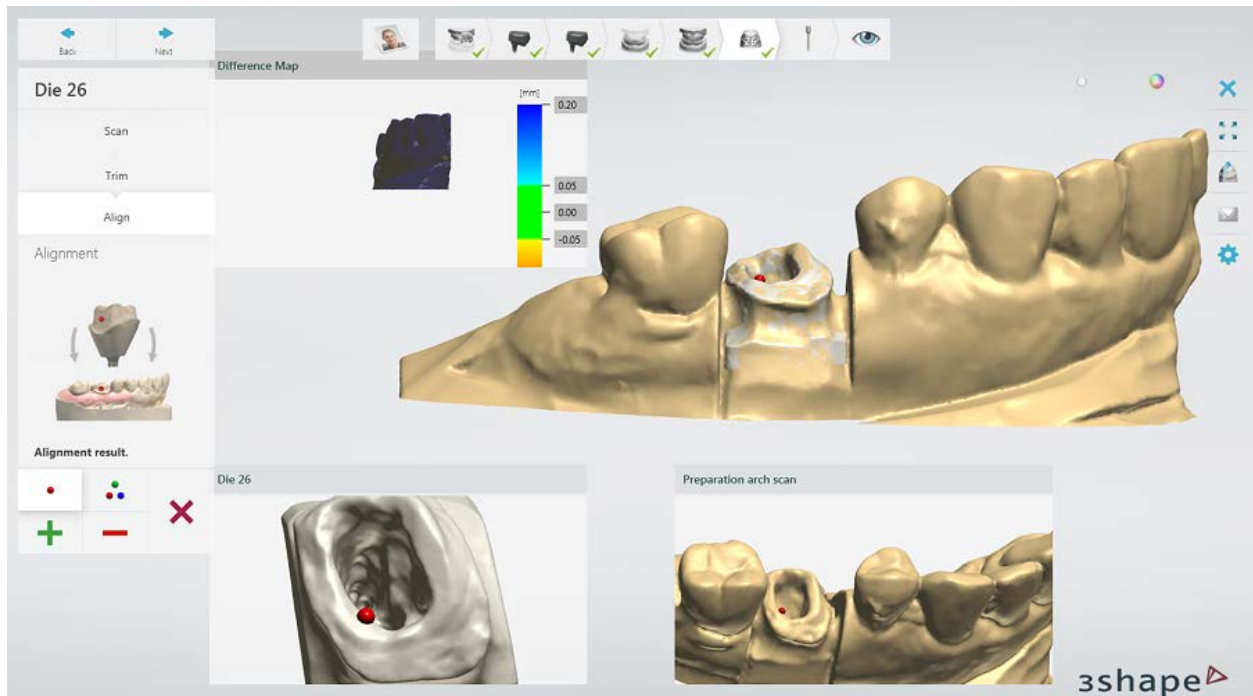
Remove the indicated tooth from the preparation and place it into the scanner.



Click **Next** to scan it.

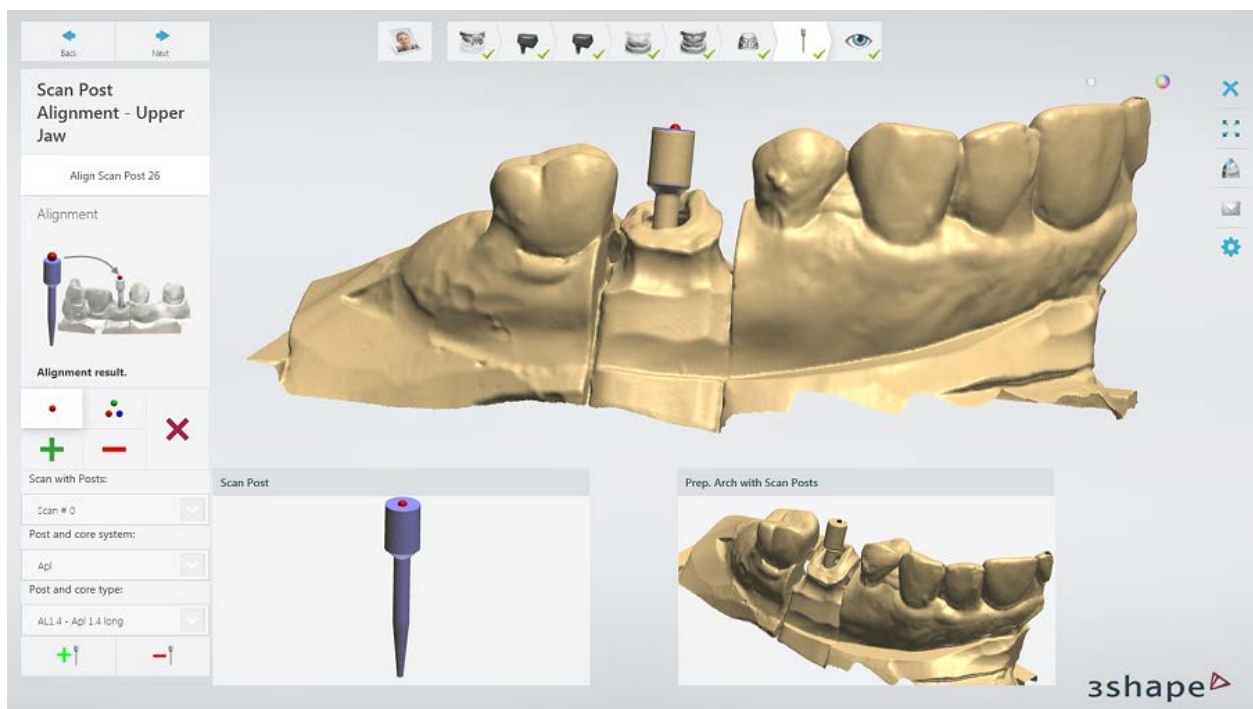


Align the tooth and preparation arch scans.



► Step 7: Align scan posts

Align a scan post with the scan post on the preparation arch scan.

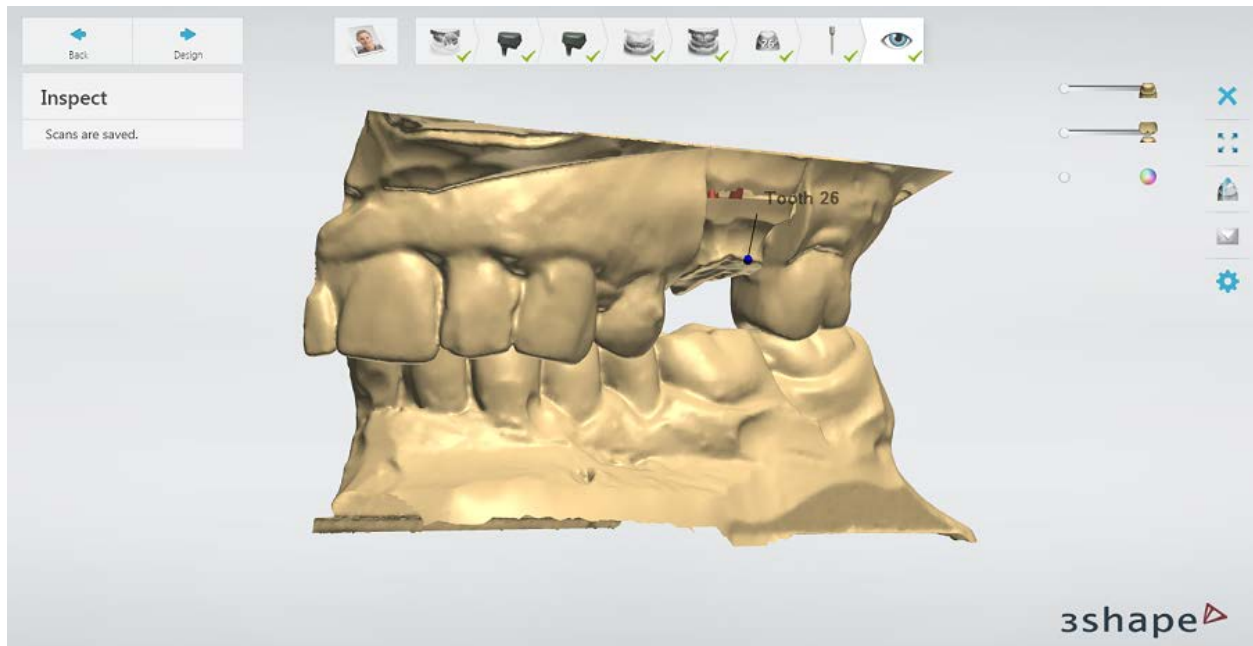


►Step 7: Finish scanning

Click **Next** to save the scans in your order.

When all scans have been saved the step is marked with a green tick as completed in the workflow toolbar, otherwise a message is displayed about the missing information.

You can close ScanIt Dental or click the **Design** button to open the order in Dental Designer.



Continue to the [design section](#).

1.15.3. Post & Core Design





There are three types of Post and Cores supported by the 3Shape Dental System: **Standard, Retained Crown** and **Anatomical**.

Below is a step-by-step description of the **Standard Post and Core** design with a Crown:

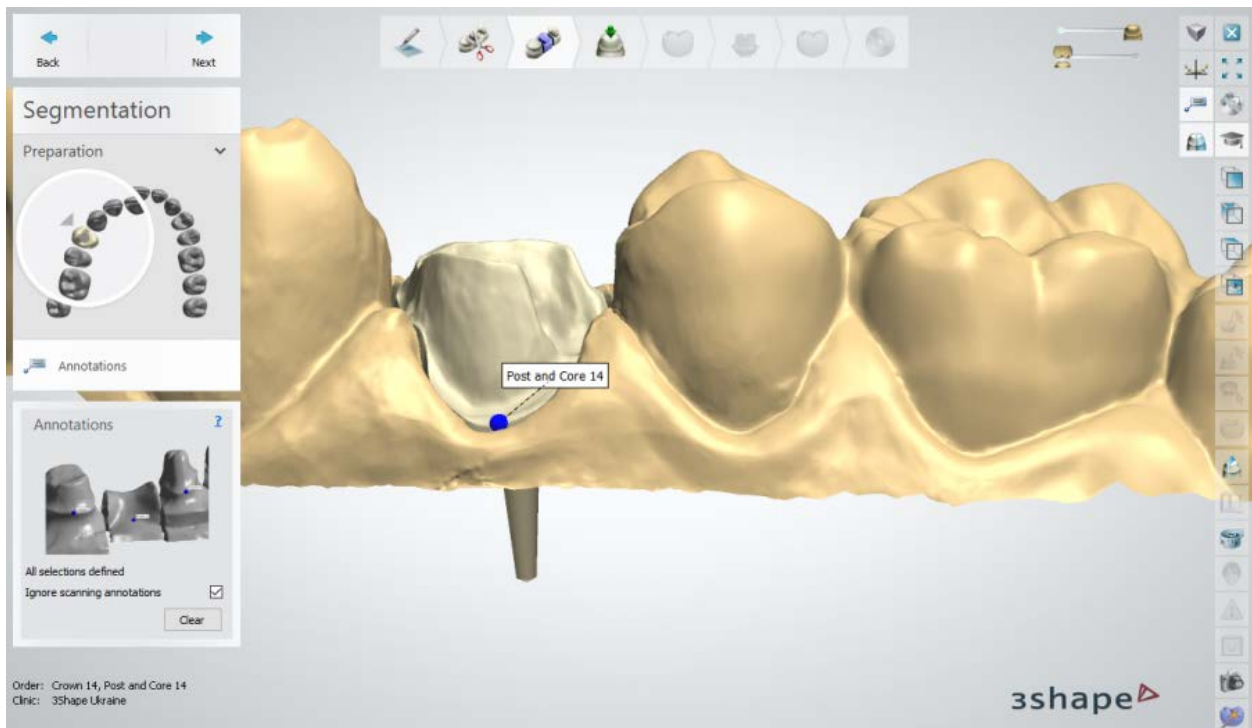
►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

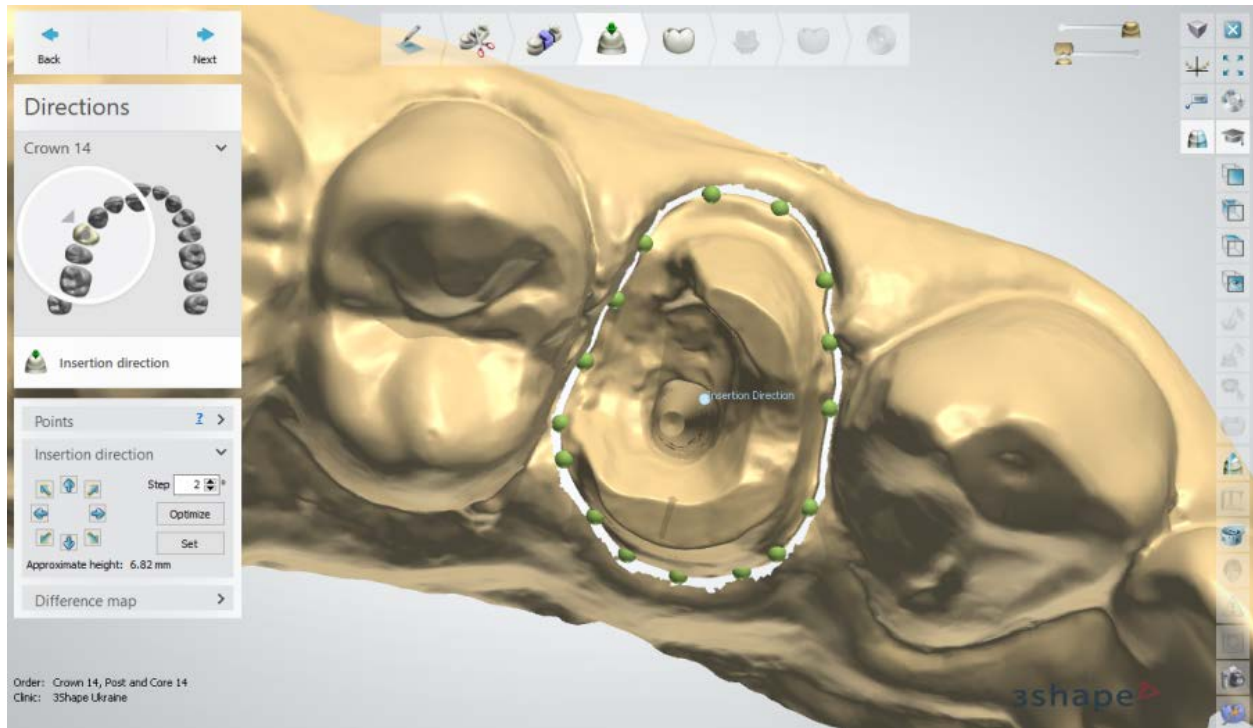
This step is similar to [Annotations](#) described in Single Coping chapter.

Correct placement of annotation point for Post and Core operation is shown on the image:



►Step 3: Set the Insertion Direction



Define anatomy or framework **Insertion direction**:

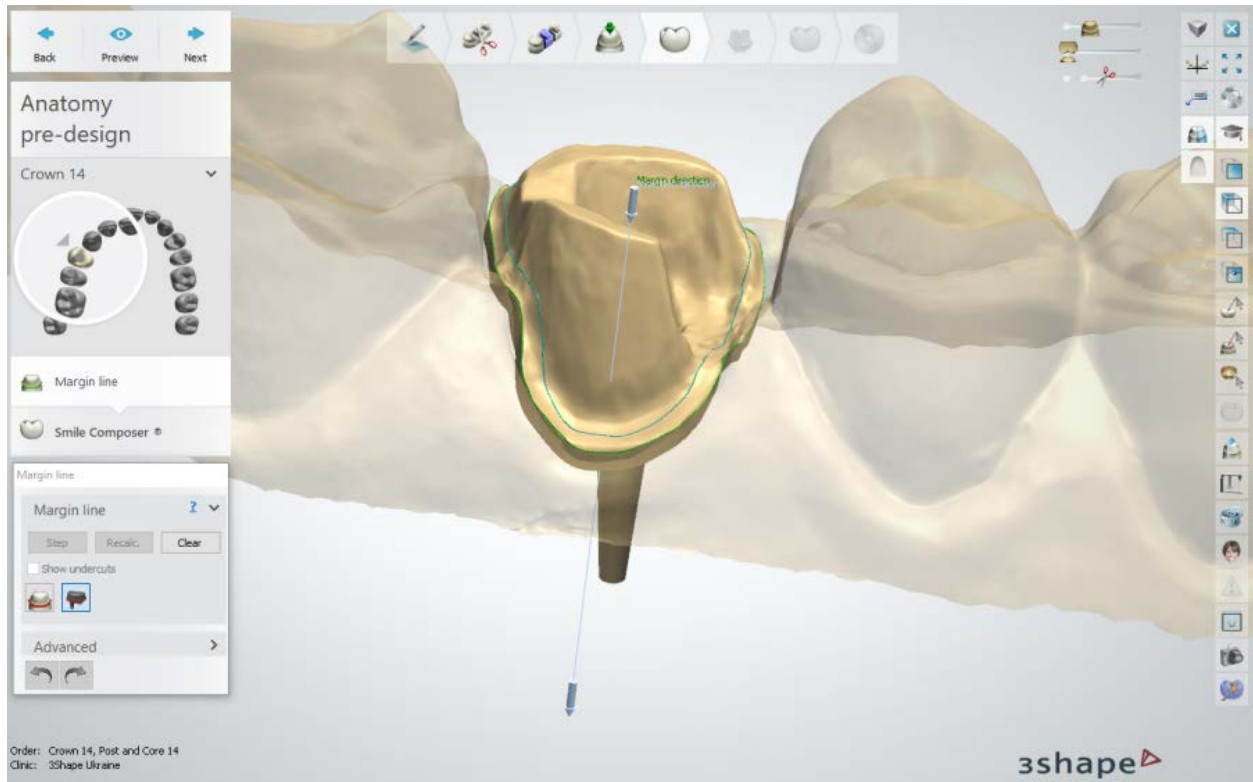


See chapter Single Coping - [Insertion Direction](#) - for details.

► Step 4: Place the Margin Line

If you order a crown or a coping on top of the Post & Core, two margin lines will be placed - one for the Post and Core (blue) and one for the anatomy or framework (red). Switch

between the **Edit Crown margin line**  and the **Edit Post & Core margin line**  buttons to modify the splines:

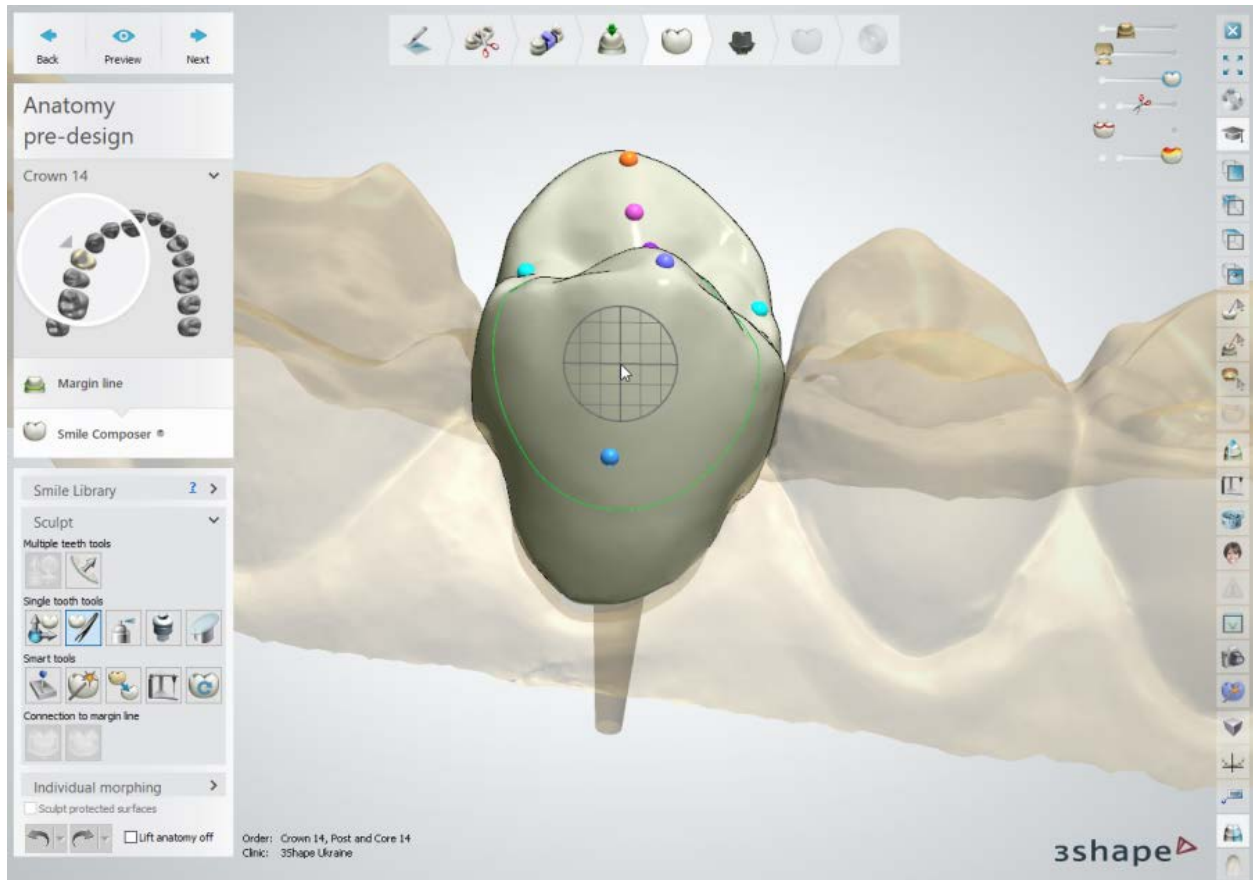


Note! To create a correct die interface further in the process, please make sure to place the margin lines so they do not have any sharp edges between them.

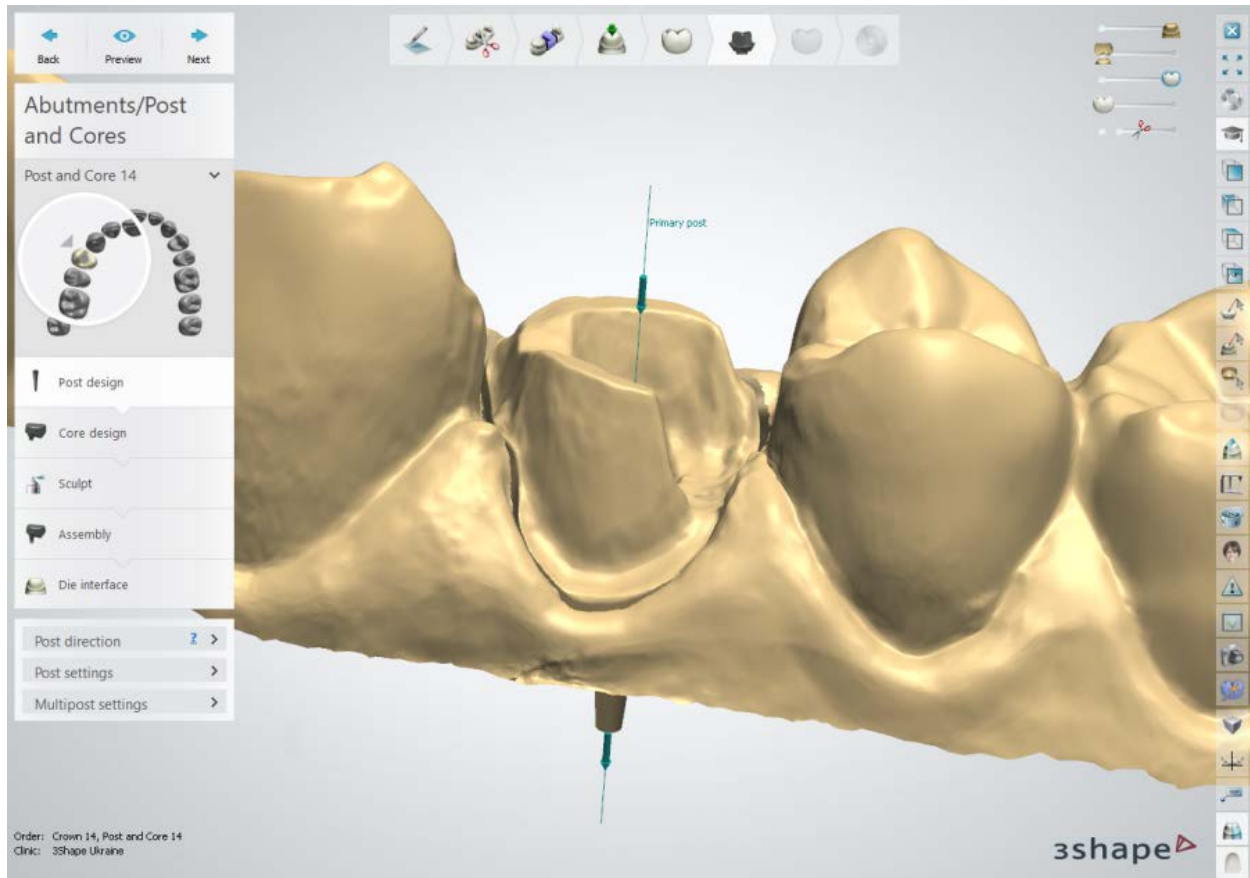
See chapter Single Coping - [Margin Line](#) - for details.

►Step 5: Design Crown

By designing the anatomy layer first, you can model an optimally shaped Post and Core further in the process. Please see [Smile Composer](#) chapter for details on smile composer design.



► **Step 6: Perform the Post design**



Define **Post direction** for insertion.

Post settings:

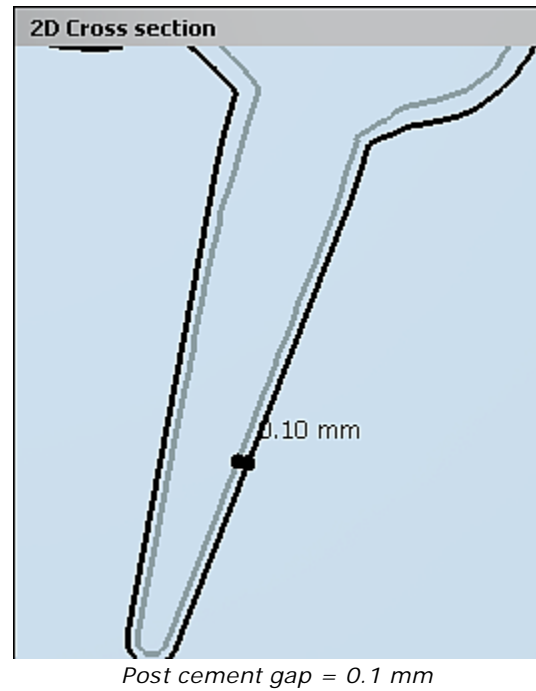
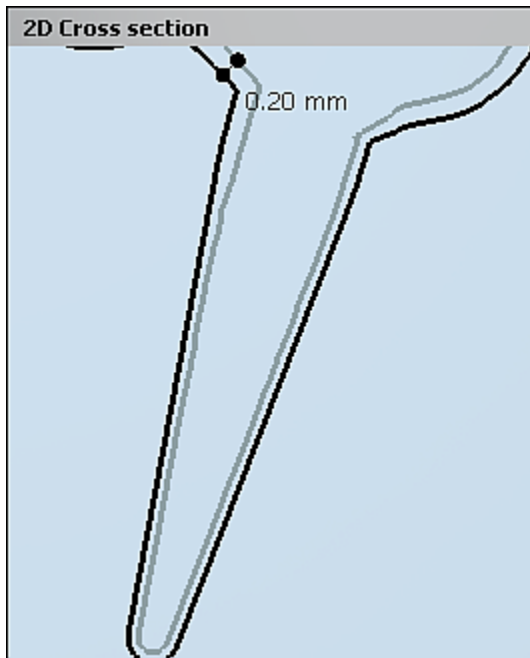
Cement gap - The amount of offset in the area of the margin line (see below).

Post cement gap - The amount of offset around the post (see below).

Remove undercuts - When selected, removes undercuts while creating the cement space.


Drill Compensation - When selected, rounds the inward corners of a die and a model to facilitate the manufacturing process.

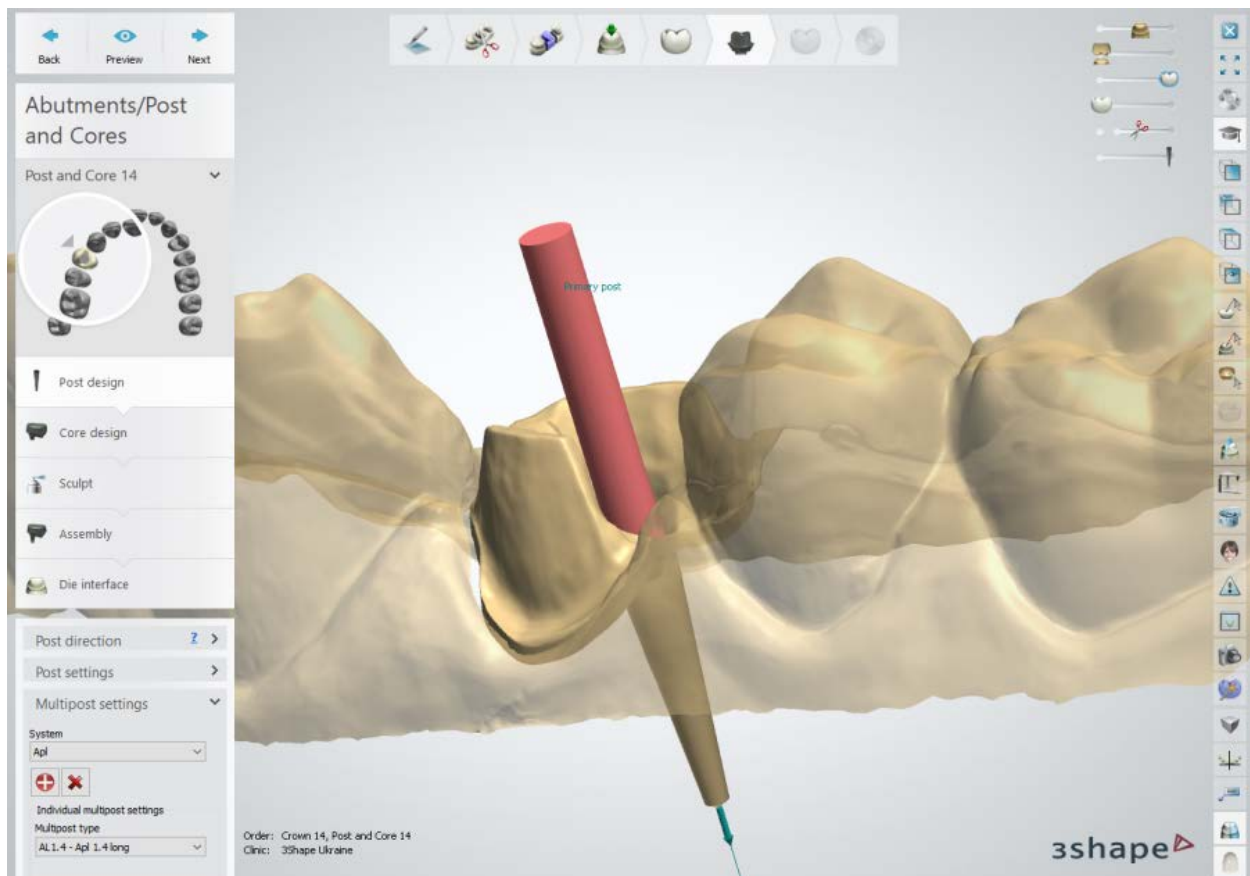
Drill radius is the radius of the spherical drill tool applied (only relevant when applying milling machines in the production step). **Drill Comp.offset** is the distance from the margin line that defines where the drill radius is applied.




MULTIPLE POSTS

3Shape Post and Core solution supports cases with multiple posts. At this step you can add the additional posts by doing the following:

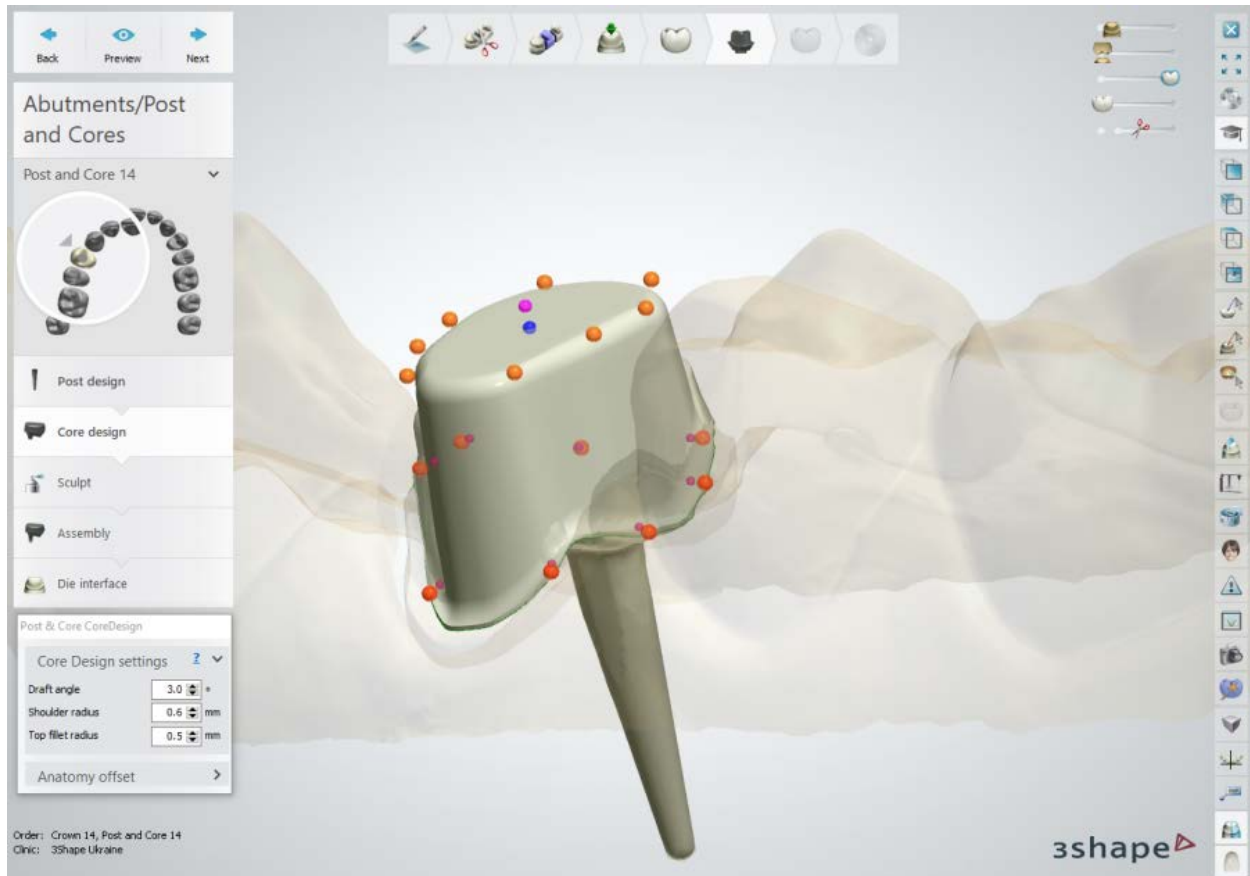
1. Select a relevant Post and Core system and type (predefined in the [Dental System Control Panel](#)).
2. Press the **Add new pin**  button.
3. Click on the relevant post on the model.



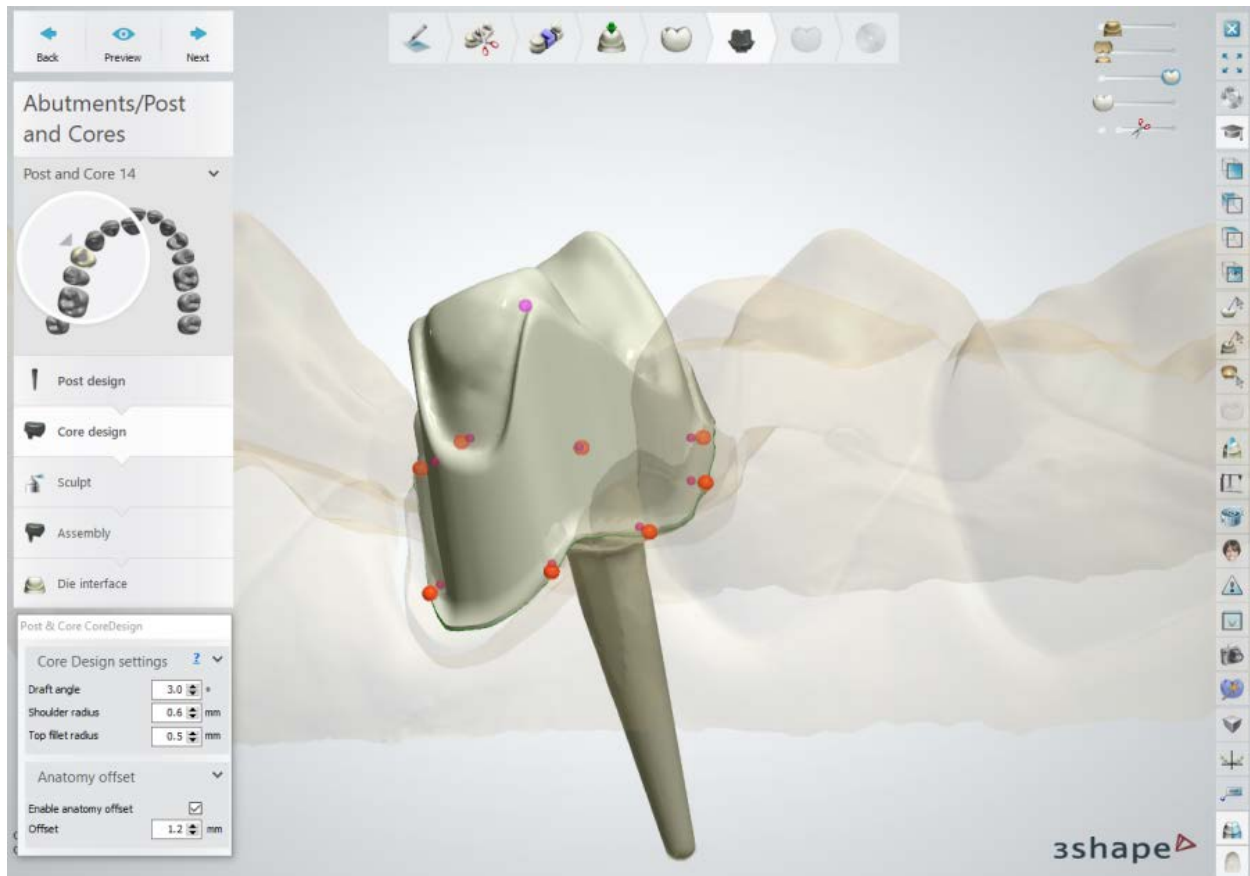
- Click on a post to make it active (turns red) and change its type if necessary.
- Press the **Remove pin**  button to remove the active post.

► Step 7: Perform the Core design

Design a core on top of the post. The **Core Design settings** are similar to the ones of the Abutment (see chapter [Customized Abutments](#)).

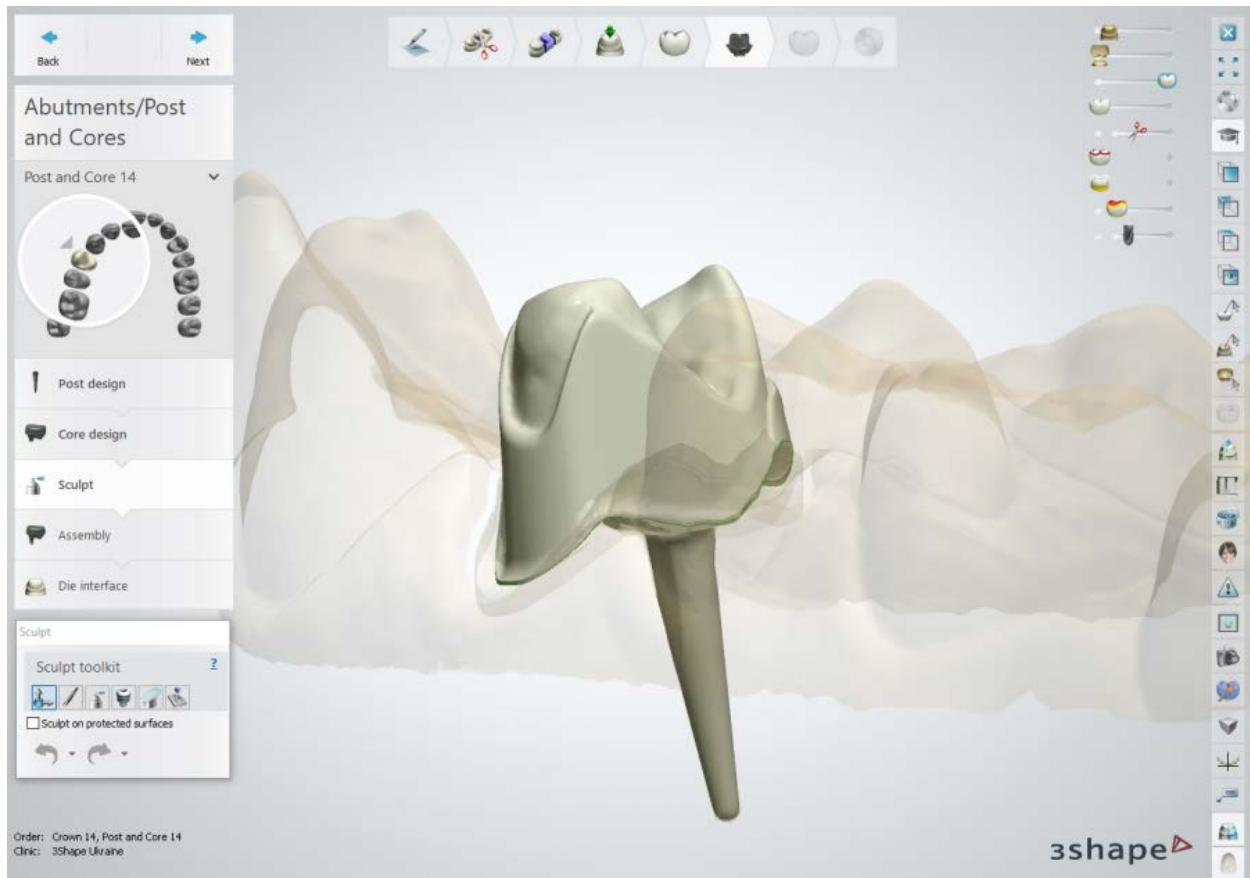


For standard Post and Core orders, marking the **Enable anatomy offset** checkbox in **Anatomy offset** tool adjusts the top of the post and core to the shape of the crown as shown on the image below. The amount of the offset can be changed.



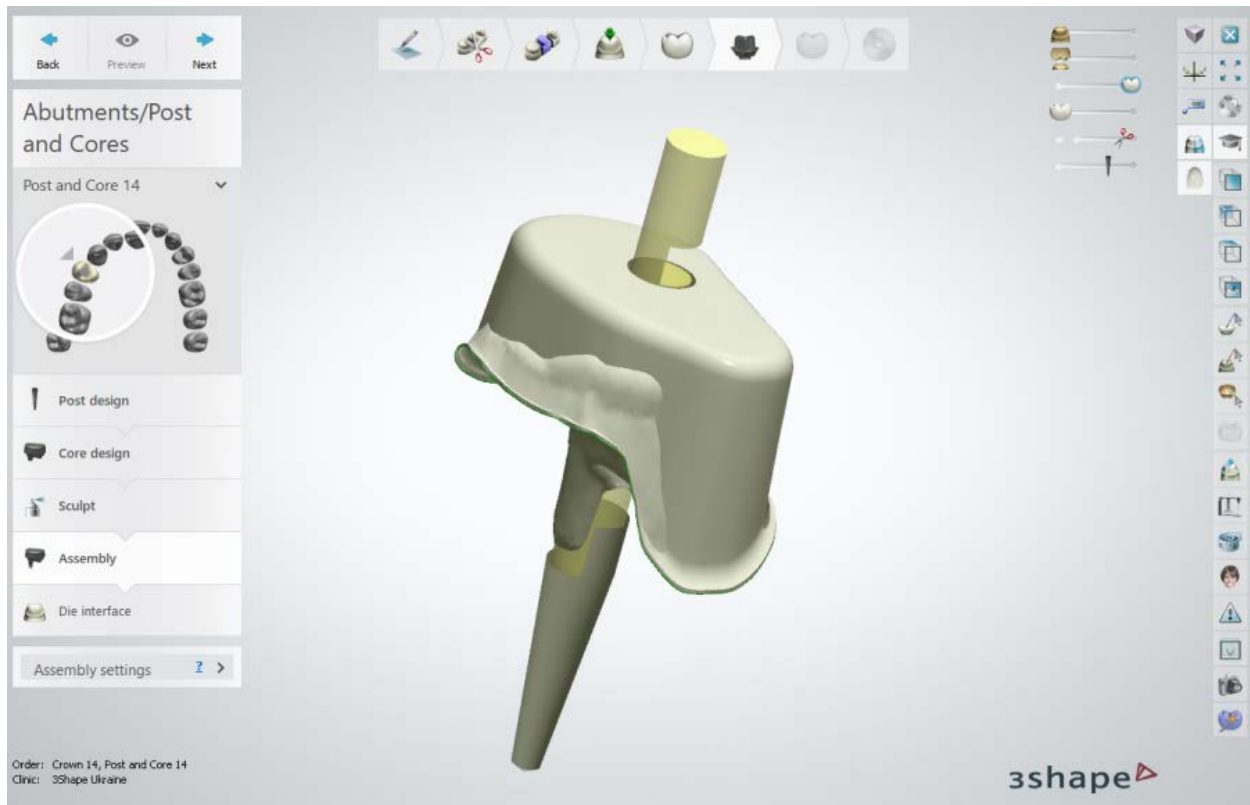
► Step 8: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#). Use the **Distance map** slider to visualize the distance between a model and an antagonist and/or neighbors:



► Step 9: Perform the Post and Core Assembly

In this step, the software sets the insertion channels for the additional posts, if you added them on the **Post design** step.



Assembly settings (see illustration below):

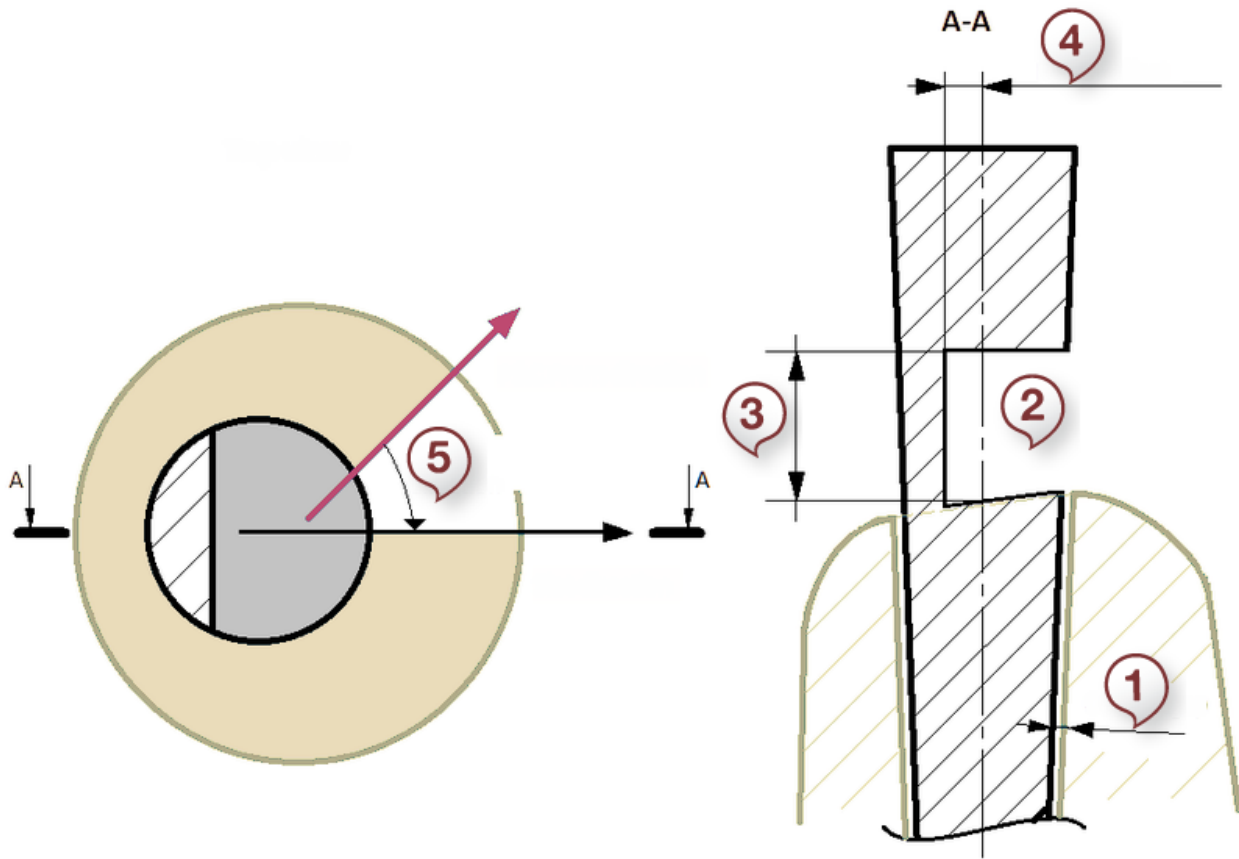
Cement gap (1) - the amount of offset between a multipost and a Post and Core.

Cut slots in multiposts (2) - creates an indent in the post so the upper part of the post could be easily snapped off.

Slot height (3) - defines the height of the indent.

Slot depth offset (4) - defines the depth of the indent.

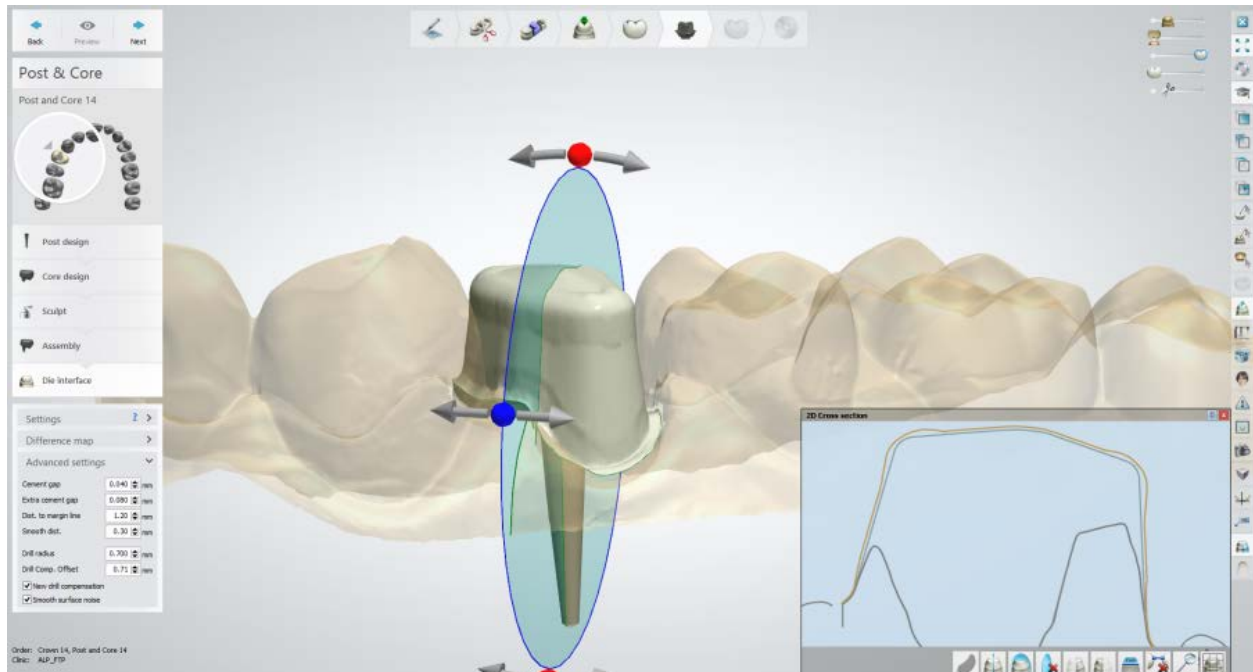
Front direction offset (5) - changes the front direction of the slot, that was initially defined by the annotation.



Assembly settings illustration (top view and cross section)

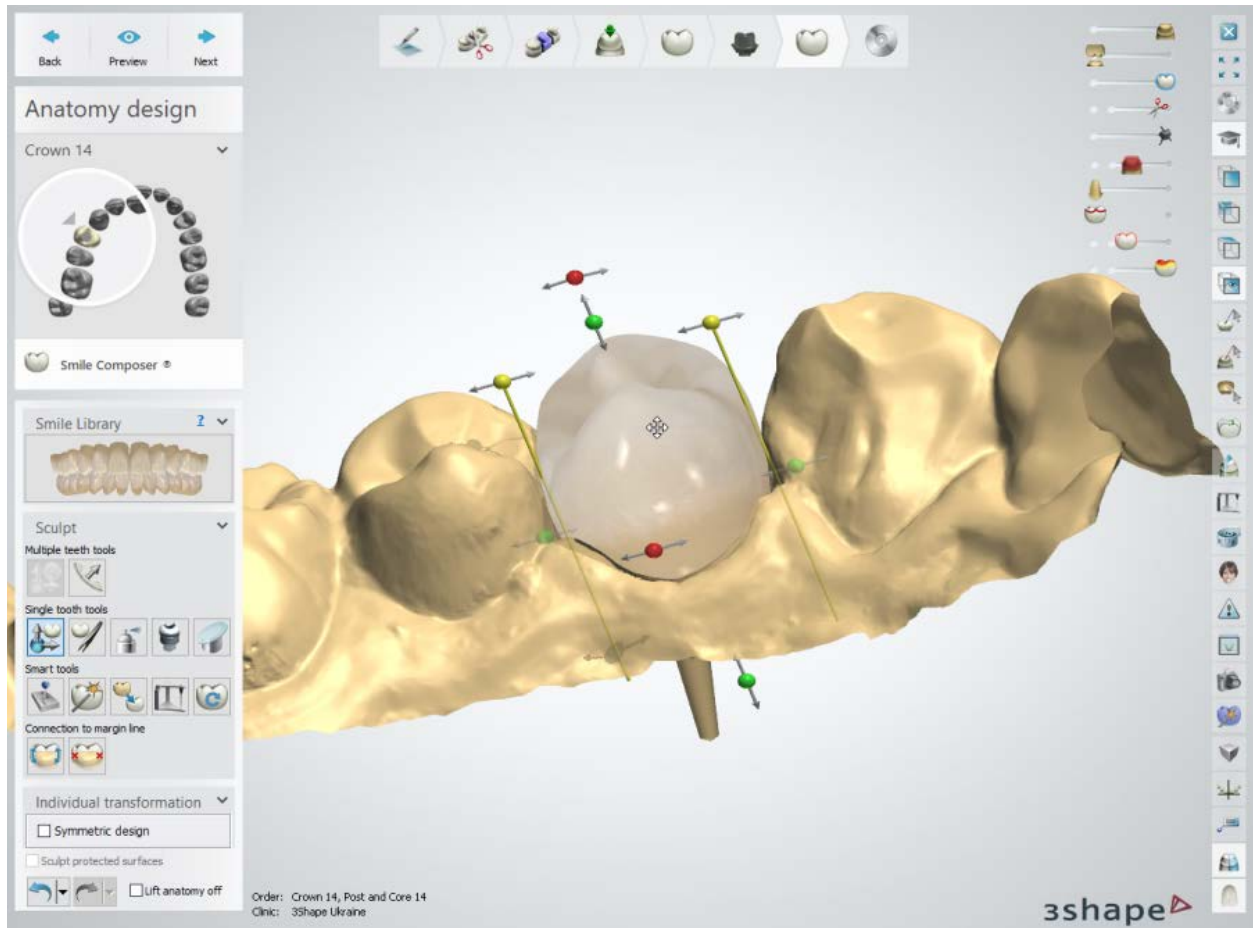
►Step 10: Create the Die Interface

This step is similar to [Die Interface](#) described in Single Coping chapter. Click **Preview** to see the result:



► Step 11: Use the Smile Composer

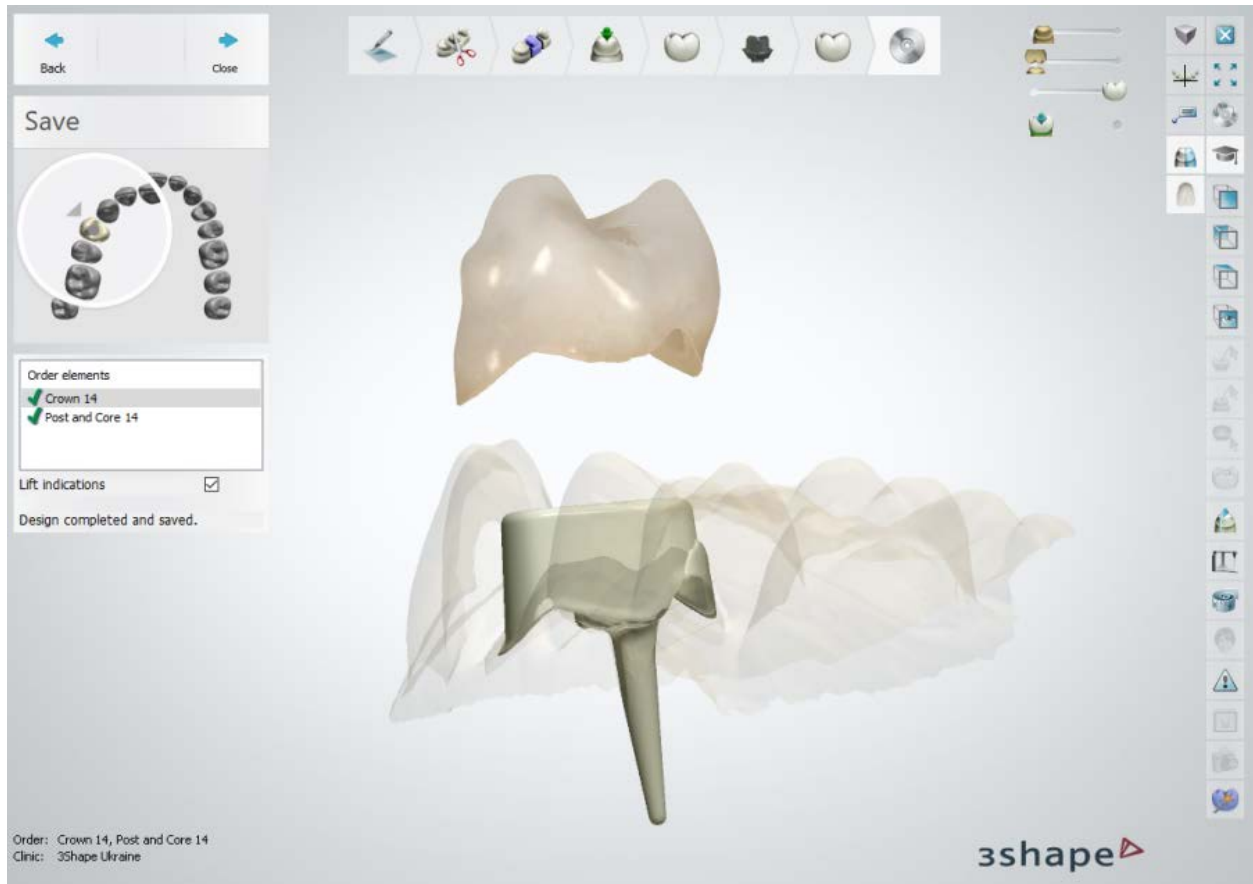
Use the Smile Composer tools to perform the final anatomy design.



► **Step 12 (optional): Use the Sculpt toolkit**

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).

► **Step 13: Save and close your design**



Continue to [manufacturing](#) if required.

1.16. Customized Abutments

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.


The included sub-chapters describe a workflow for a Customized Abutments order:

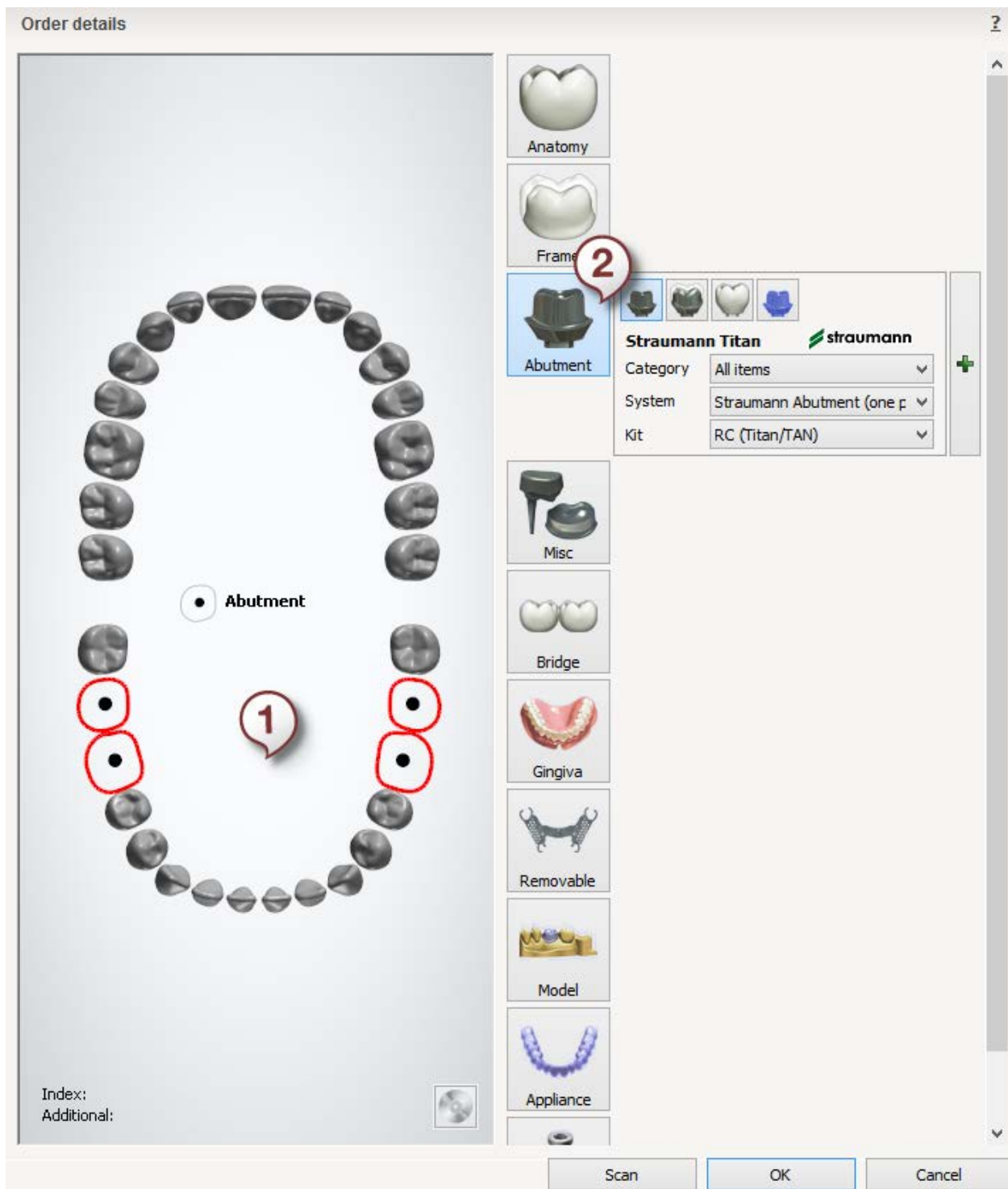
- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.16.1. Customized Abutments Order Creation

To create a Customized Abutments order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select preparations in the teeth overview**

►Step 2: Click the *Abutment* button (Customized Abutment  is selected by default)



The process of defining an order for the customized abutment design is identical to the one used with the other types of dental indications, but requires attention to additional details in defining the order settings:

- **Category** - allows you to select categories of implant systems defined in [Dental System Control Panel](#).
- Depending on what category you have selected, the **System** menu will list implant systems that belong to that category, otherwise all implant systems will be listed.
- The type of **Kit** selected depends fully on the given scan abutment configuration. If the implant kit type does not correspond to the type of scan abutment detected during the scanning process, the system will fail to process the order further.

Please see chapter [Abutments](#) for more details on implant systems and abutment kit.

Abutments can also be arranged in groups (see the chapter [Create an Order](#) for information).



Hint! You can define (and later on design) items on top of the abutments.

After creating the order, proceed to [scanning](#).

1.16.2. Customized Abutments Scanning

Once your order is [defined](#) and ScanIt Dental is started, you can proceed with scanning.

► Step 1: Insert the arch with scan flags

Mount the arch with scan flags (specific scan abutments) on an [Implant Cast Fixture](#) and insert it into the scanner as guided by the software. If you do not have the Implant Cast Fixture, you can fix the model on an interface plate.



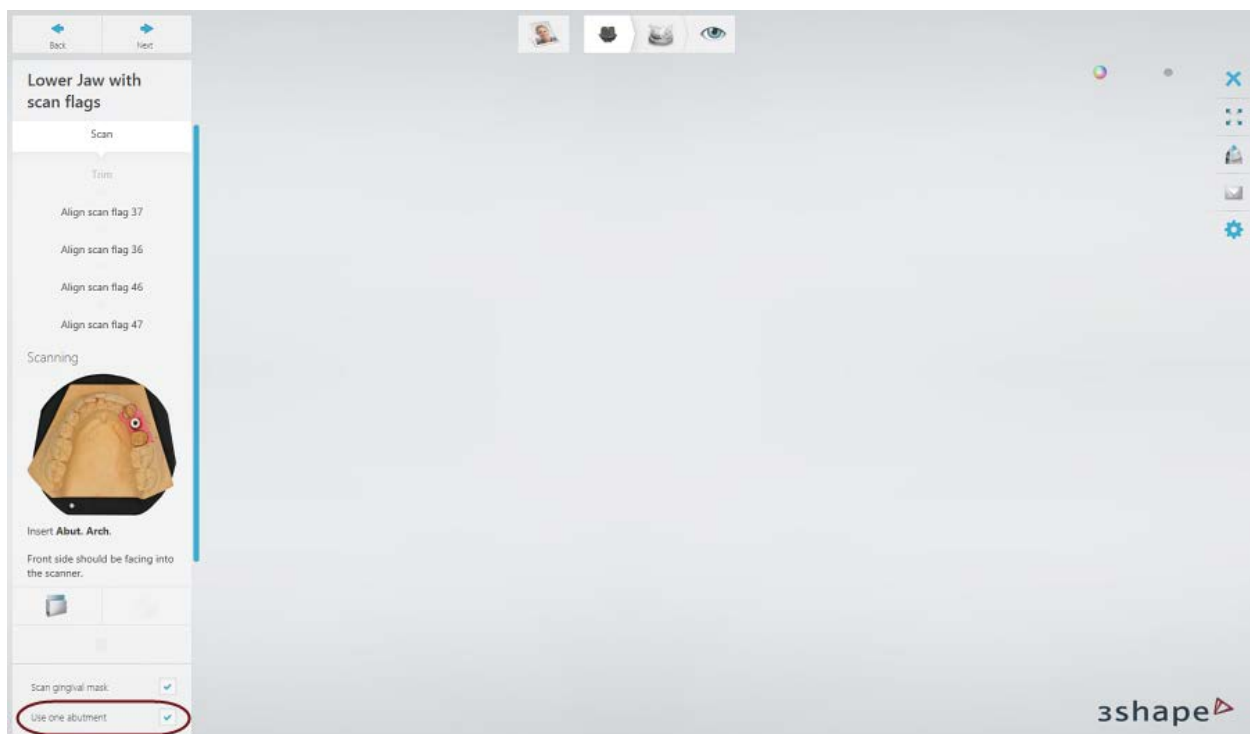
Model with scan abutments mounted on the Implant Cast Fixture

You can obtain scan abutments from your re-seller or the third party provider. Please ensure the correct orientation of scan abutments so that the details of their shape are easily visible. Preferably, no gingival mask should be mounted in order to enhance visibility of the scanned abutments.

When there are **more than one abutments** defined in your order, the scanning software gives you the following options to choose from:

- insert all required scan abutments at once
- use only one scan abutment at a time for sequential scanning (this option can be helpful when you need to run a scan but do not have enough scan abutments)

For sequential scanning using one scan abutment, enable the **Use one abutment** checkbox (see the image below) and insert the arch with one scan abutment into the scanner.

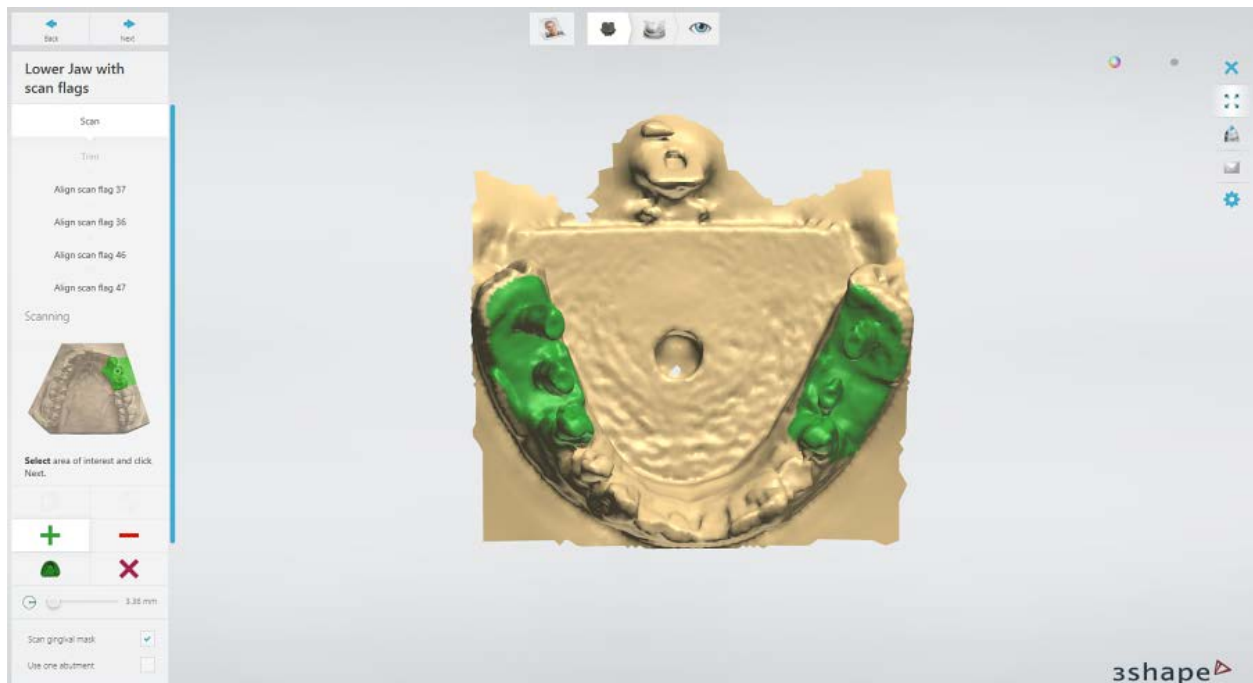


If your gypsum model does not contain a gingival mask, unselect the **Scan gingival mask** checkbox. This will remove the corresponding scanning step from the workflow bar.

►Step 2: Scan the arch with scan flags

Click **Next** to start scanning. When the initial scan is completed, you are asked to select the area of interest for a detailed scan.

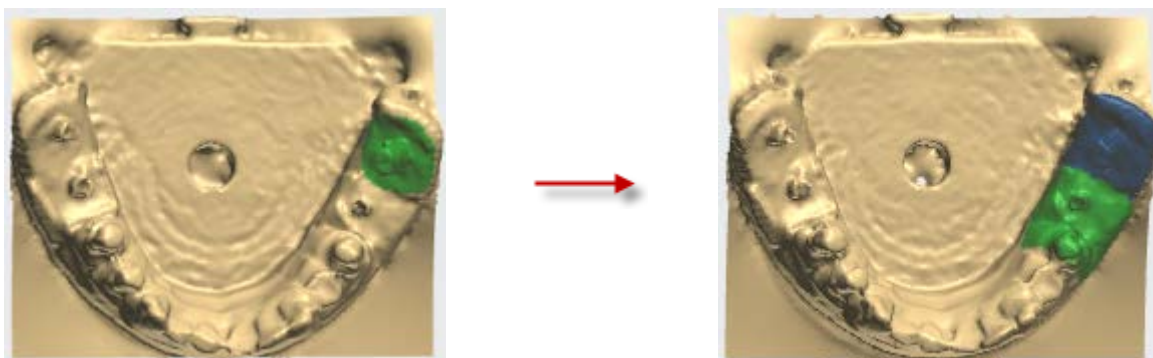
When scanning a model with all scan abutments at once, select scan abutments and the area around them including the nearest neighboring teeth with the [provided tools](#) and click **Next** to continue scanning.



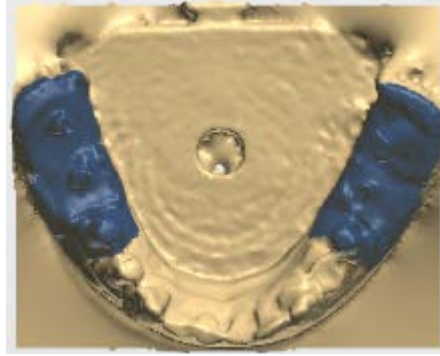
For sequential scanning using one scan abutment, please do the following:

1. Select the area around implants one by one as prompted by the software. It is recommended to select the area larger than the implant including the nearest neighboring teeth but not including the other implants.

When one implant is selected, click **Next**. The selected area will turn blue and you will be asked to select the next implant to scan:



When all implants have been selected (see the image below), you can proceed with scanning.

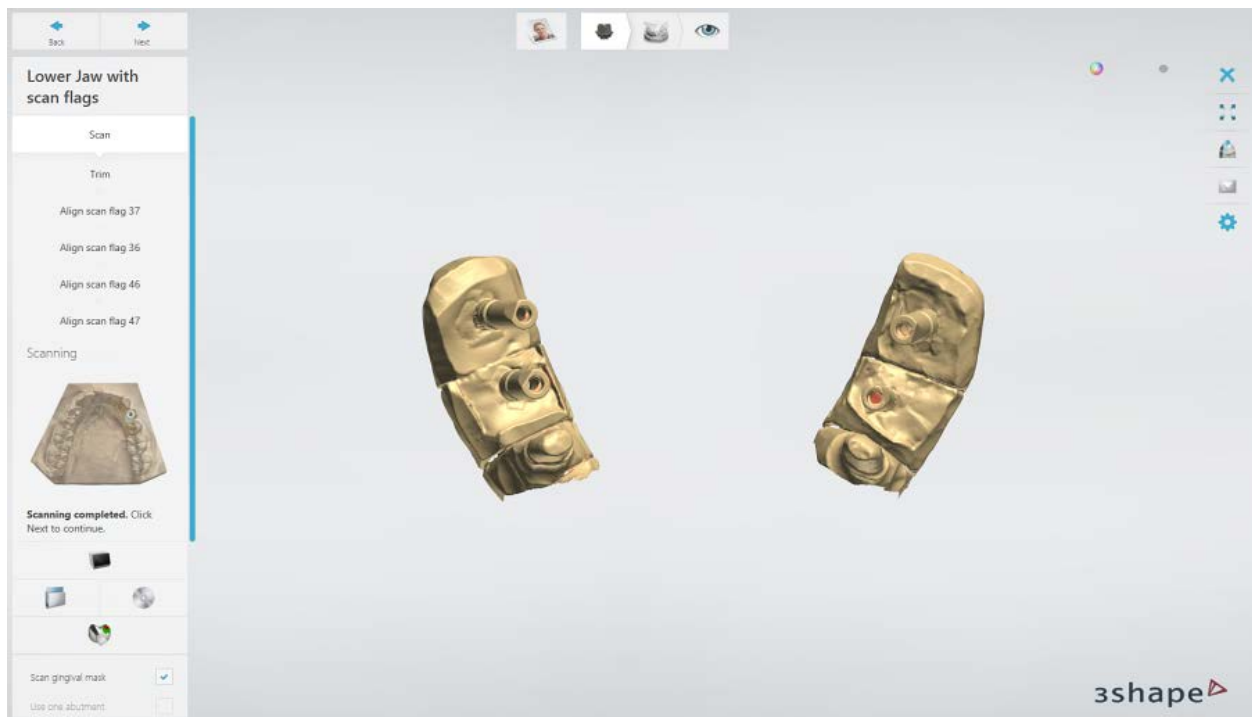


2. Ensure the scan abutment is fixed on the model as prompted by the software and click **Next** to start detailed scanning.
3. Move the scan abutment to the next position when prompted and run scanning again. Repeat this procedure until the scan abutment becomes scanned in all required positions.





Caution! Be careful not to change the position of the cast on the Implant Cast Fixture or the interface plate.

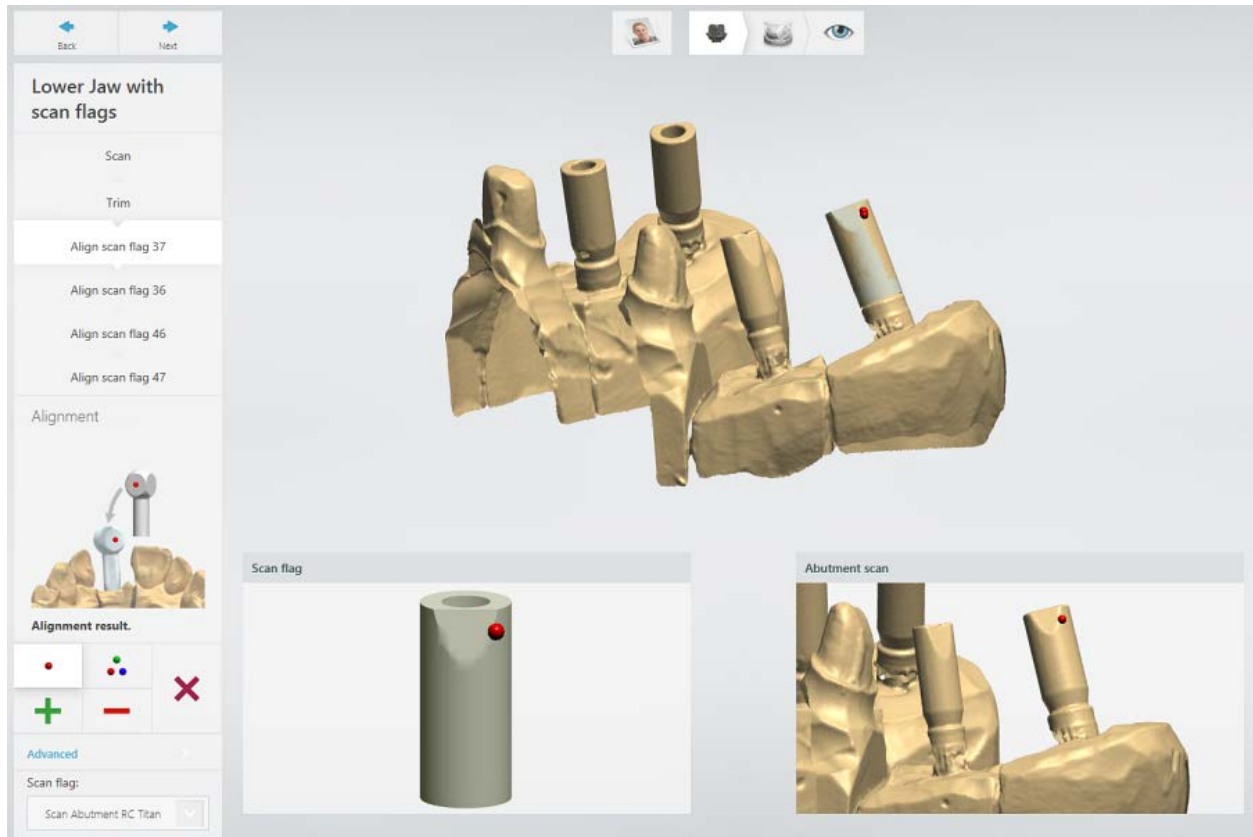
When scanning is completed, inspect the result:



You can [trim](#) the scan if needed by going to the **Trim** substep. Click **Next** to proceed to the scan flag alignment.

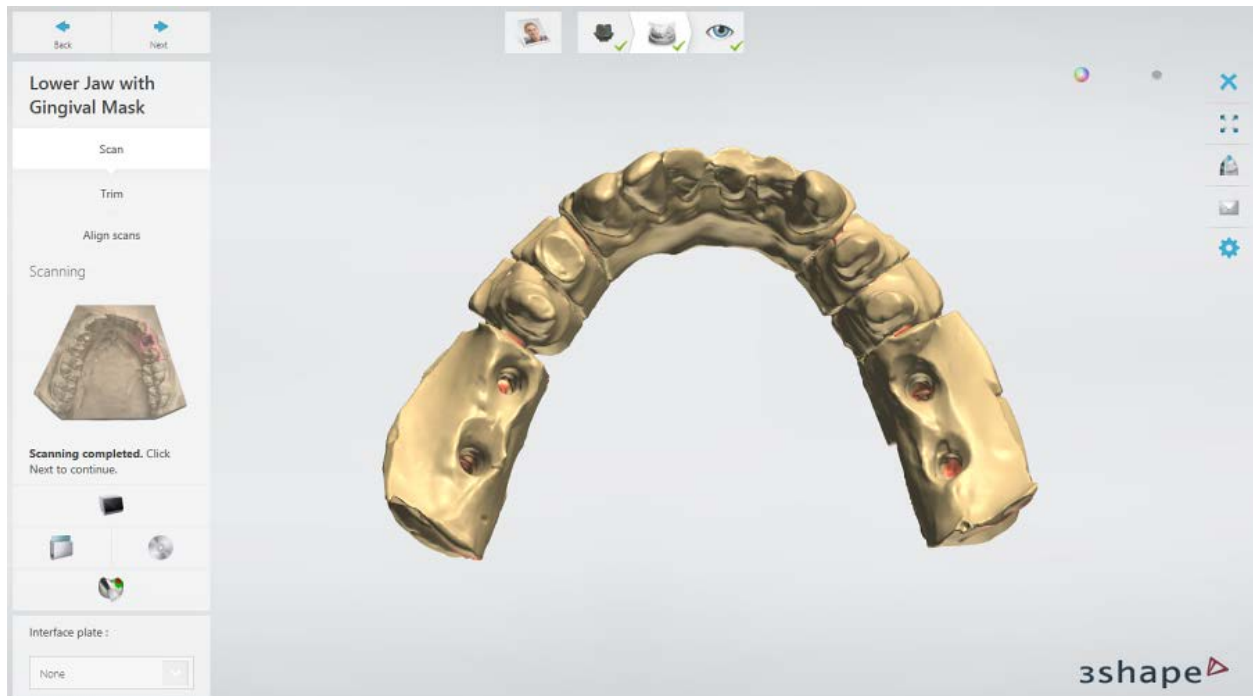
►Step 3: Align scan flags

[Align](#) library scan flag models with the corresponding scan abutments in the scan one by one. You can use either one  or three-point  alignment method. When one scan flag is aligned, click **Next** to proceed to the alignment of the next scan flag.



►Step 4: Scan the gingival mask

Remove scan abutments from the model and place the gingival mask on it. Scan the model with the gingival mask.




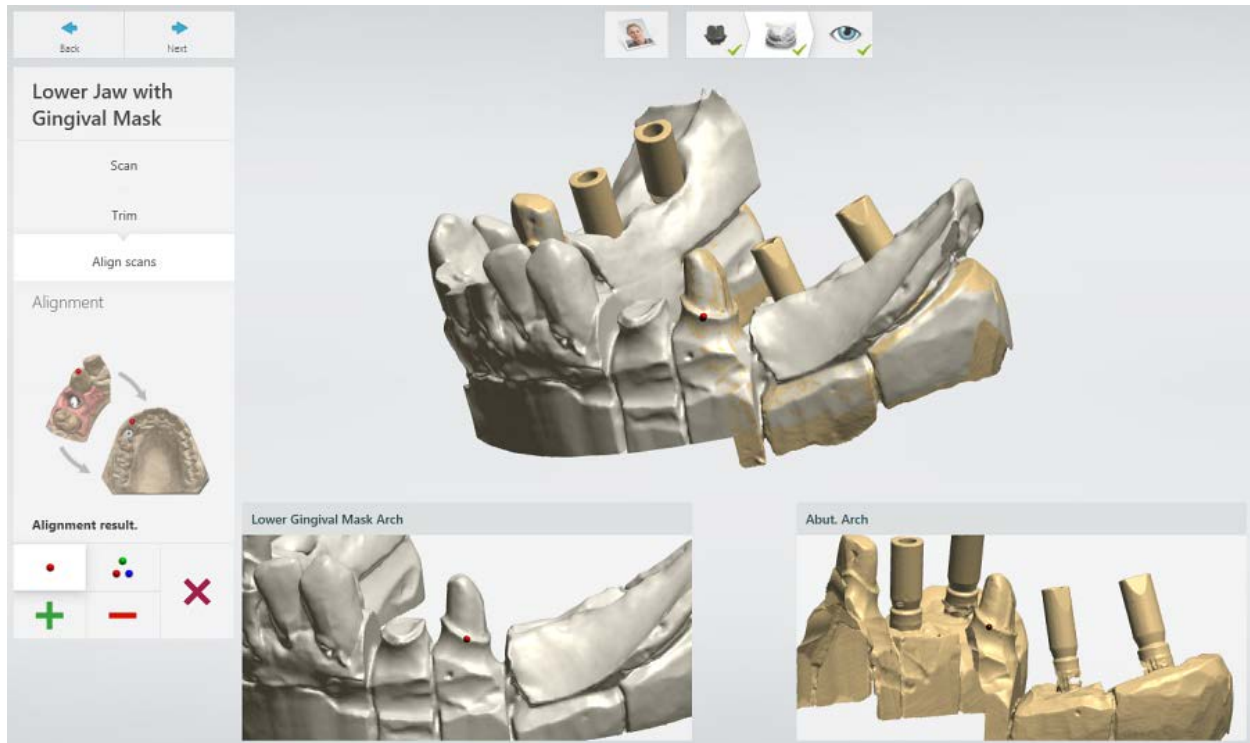
[Trim](#) the scan if needed by going to the **Trim** substep or click **Next** to proceed to the gingival mask alignment.

► Step 5: Align the gingival mask

The gingival mask scan is automatically aligned with the abutment scan.



You can do the manual alignment if required by clicking the **Align manually**  button. Use either one or three-point alignment method.



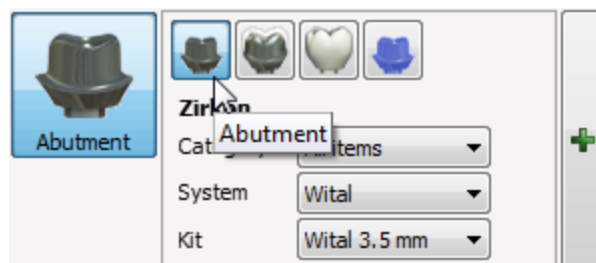
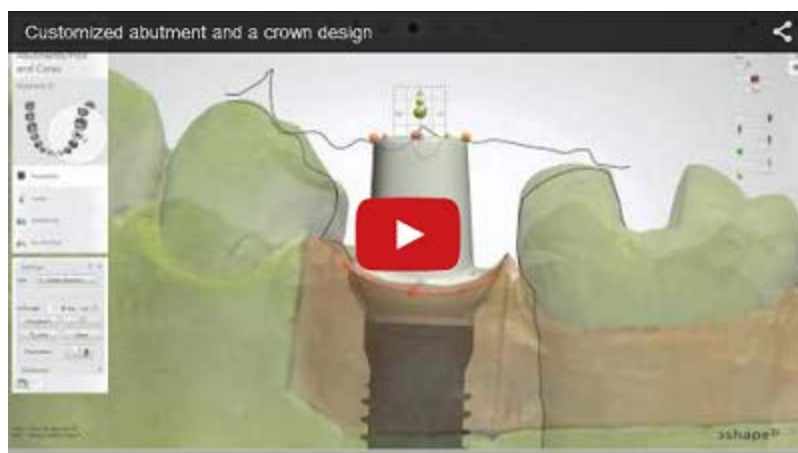
Click **Next** to save the scans and go to the last step.

►Step 6: Finish scanning

Once scanning is finished and scans are saved, you can proceed to the [Customized Abutments design](#) by clicking the **Design** button.



1.16.3. Customized Abutments Design



There are four types of Abutments supported by the 3Shape Dental System: **Customized**, **Anatomical**, **Screw Retained Crown** and **Wax-up**.

- Modeling of an **Anatomical** and **Screw-retained crown** abutments results in a one-piece design (i.e. abutments and anatomy are a whole).

- While modeling a **Wax-up** abutment, we apply the wax-up design to the abutment and also receive one solid unit at the end of the design process.
- **Customized** abutments, on the contrary, consist of separate items at the end of the design process, if a crown or/and a coping has been ordered.

Customized abutment design differs from the **Anatomical**, since **Customized** abutments require a top cap design. Thus, the workflow and settings are different.

The modeling of Anatomical and Screw-Retained Crown Abutments is described in chapter [Anatomical Abutment and Screw-Retained Crown](#).

CUSTOMIZED ABUTMENT

There are three types of a **Customized Abutment**:

1. **Custom Abutment**
2. **Bar interface**
3. **Robotic Abutment**



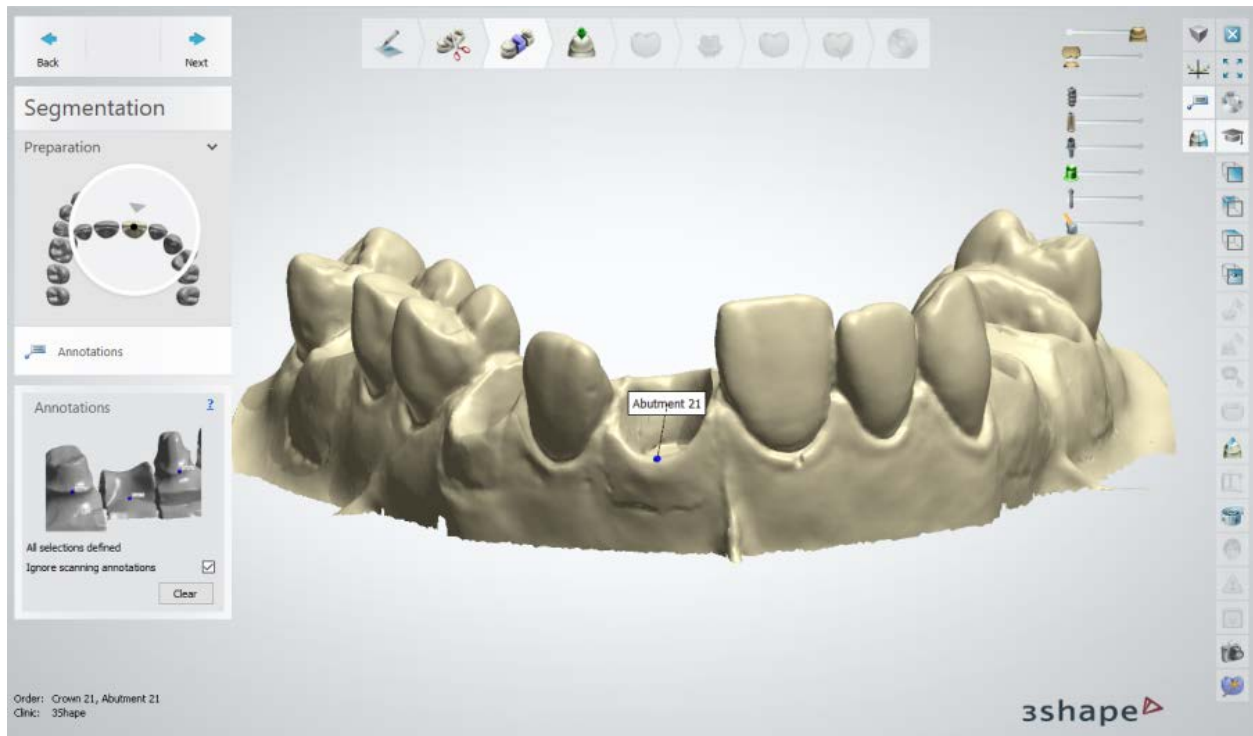
Below is a step-by-step description of the **Robotic Abutment** design with a Crown:

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is similar to [Annotations](#) described in chapter *Single Coping*.

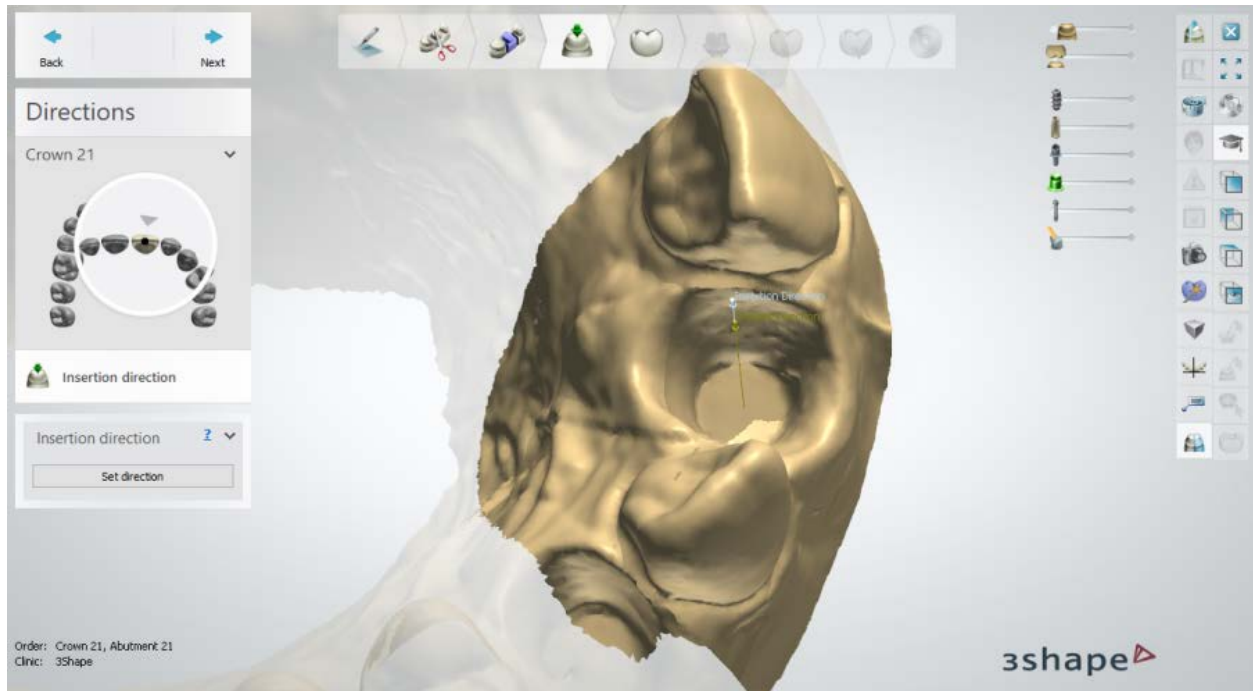


►Step 3: Set the Insertion Direction

Once you have annotated the implants it is necessary to specify insertion directions for the abutments:

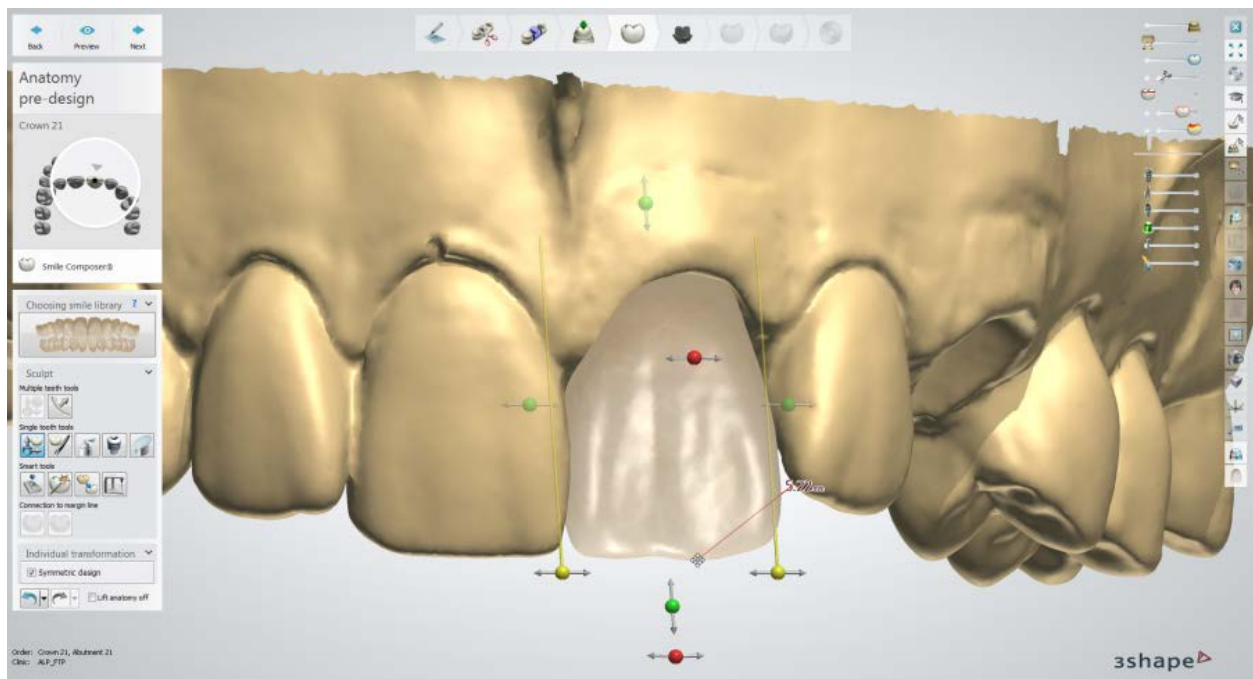
1. Position the 3D model with a view of the insertion direction being perpendicular to the screen.
2. When the desired position is found, click the **Set direction** button to save its position.

If you have a few abutment groups defined at the order form stage, they will have their insertion directions specified separately.



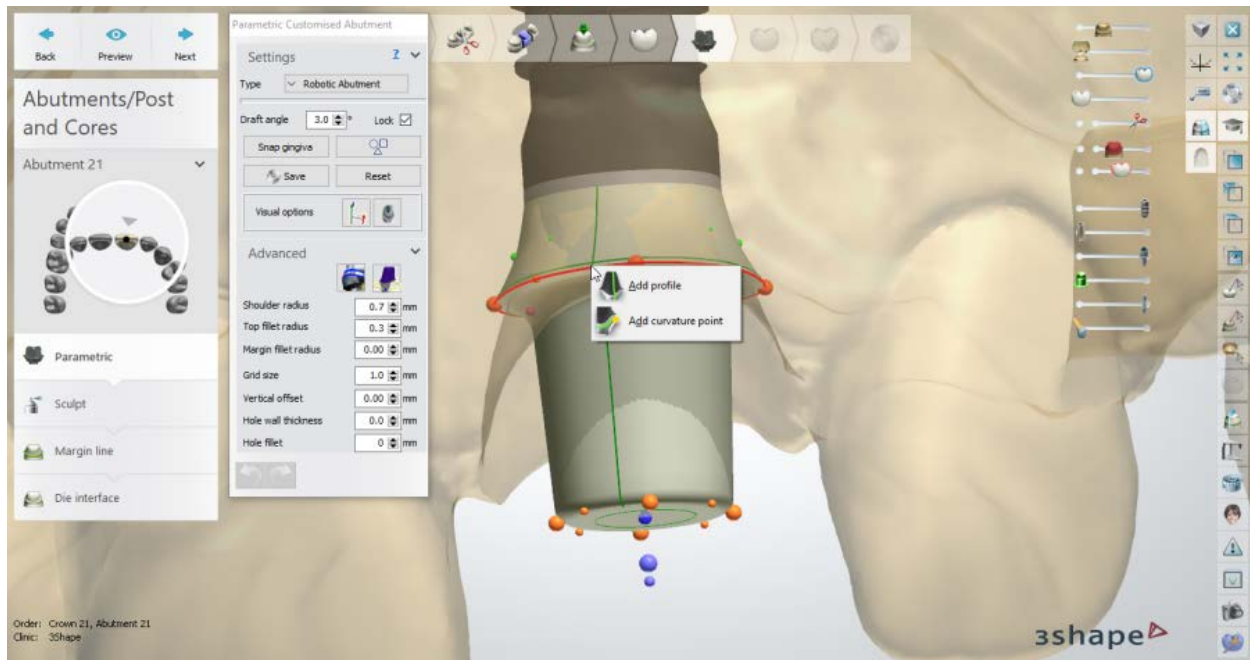
►Step 4 (optional): Use Smile Composer

By designing the anatomy layer first, you can model an optimally shaped Abutment further in the process. Please see [Smile Composer](#) chapter for details on smile composer design.




►Step 5: Design the Abutment

- Use the available control points and settings to design the abutment top cap and emergence profile.
- Right-click on the abutment and select **Add profile** to add additional vertical profiles with points for a better manipulation of the whole abutment. Right-click the profile to remove it.
- Right-click on the emergence profile and select **Add curvature point** to place extra horizontal profiles with points for a better manipulation of the emergence profile. Right-click the point to remove it.




Robotic Abutment Settings:



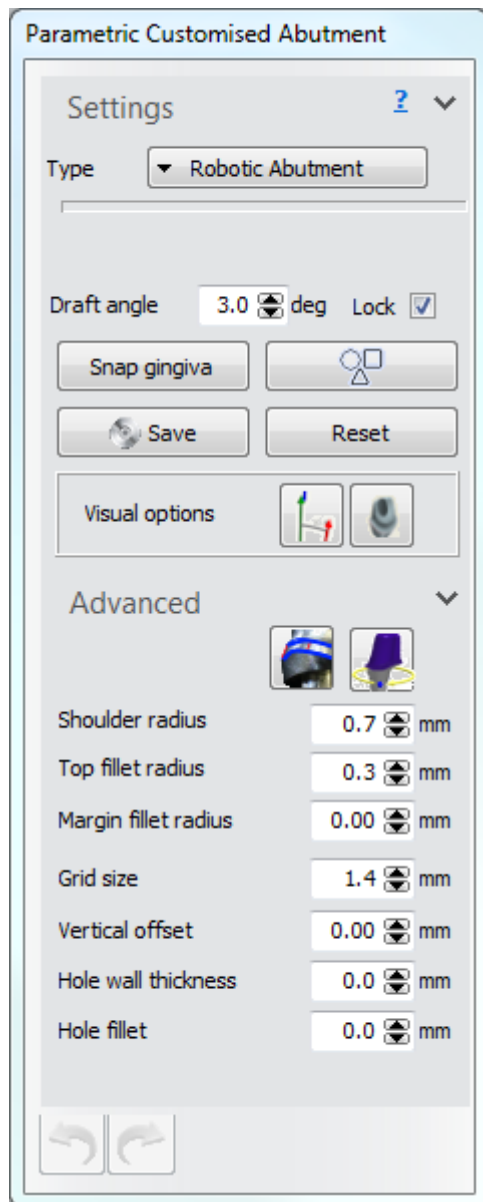
Hint! If necessary, you can change the abutment settings (e.g. an Implant Kit)

in the Order form by clicking the corresponding

Workflow bar.



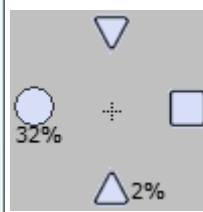
button in the



Draft angle - the side angle of the upper part of a top cap.

Lock - when marked, locks the draft angle during manual editing of the selected abutment.

Snap gingiva - automatically places abutment margin line on gingiva.



Modify margin shape - opens a window (see image) to select a suitable margin shape with the purpose to initially match the gingiva before manual editing of the abutment margin line.

Save - saves modified values as a default for the current and symmetrical abutments.

Reset - resets modified unsaved values to default.

Visual options:




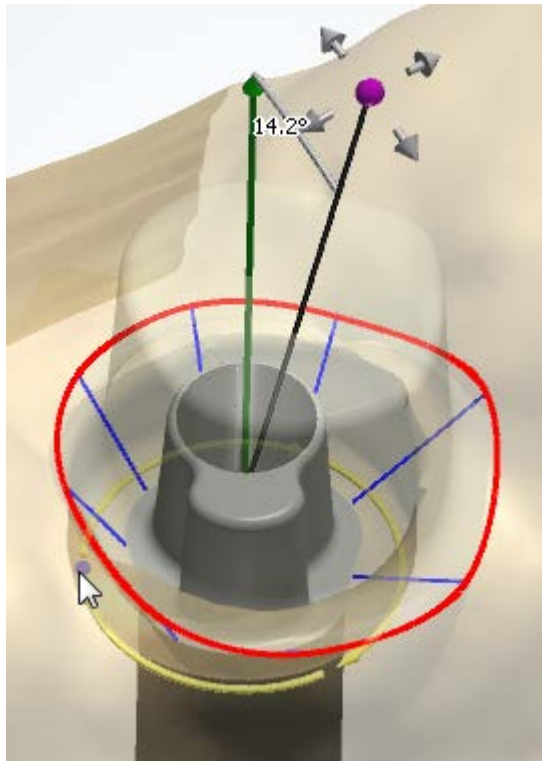
Shows/Hides angle graphics (insertion direction and implant direction).



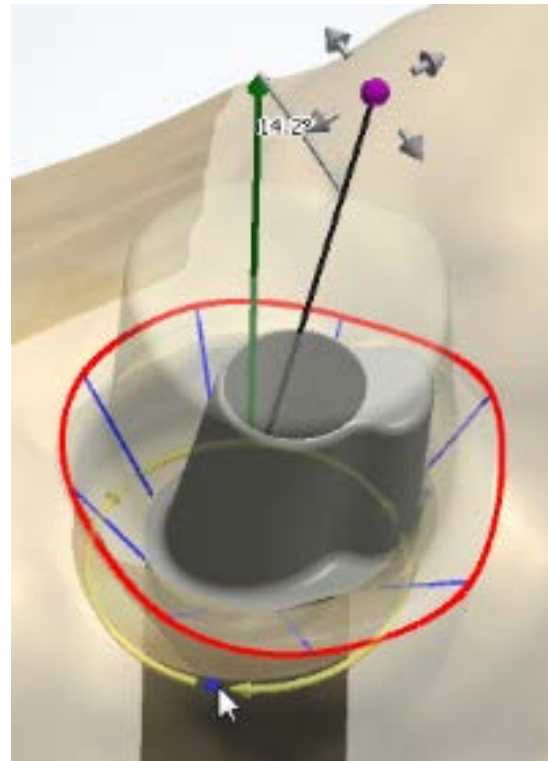
Shows/Hides abutment screw hole

Advanced:

- The **Edit Implant Models**  button, in **Advanced** settings, lets you rotate the abutment base and position the axis of the screw hole at an angle with the cursor.



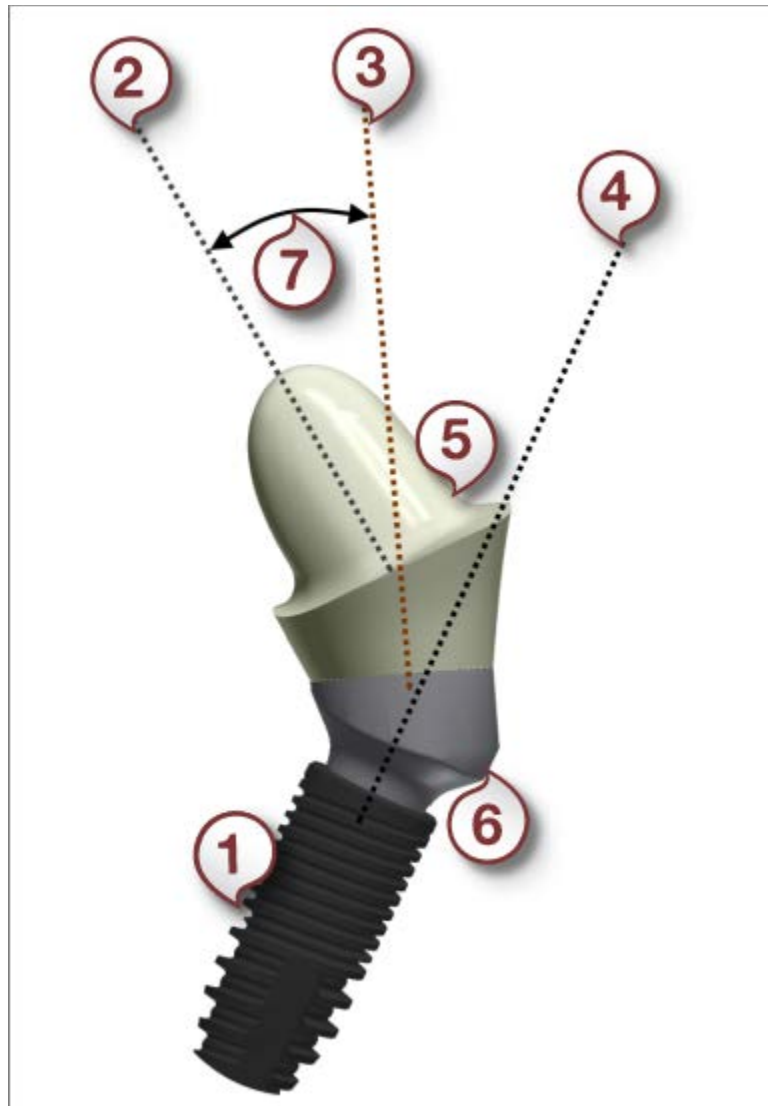
Initial position



Abutment interface rotated

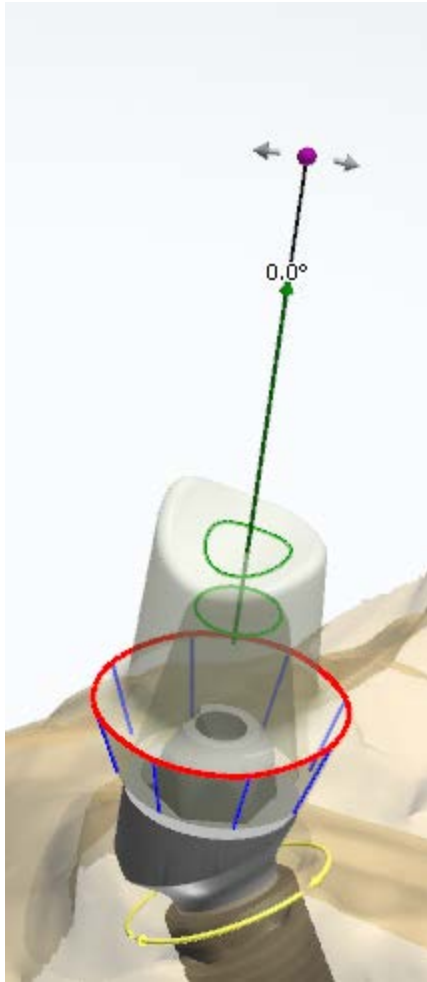
Multi-unit abutment

For most abutments the abutment interface direction is the same as the implant direction. The exception to this are Multi-unit abutments, where an angled interface makes the interface direction differ from the implant direction as seen in the image below.

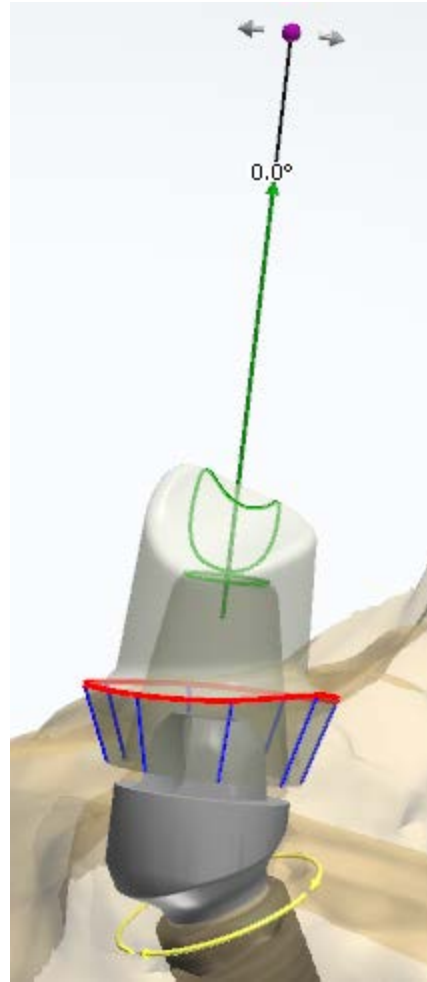


- (1) Implant
- (2) Abutment top cap insertion direction
- (3) Abutment interface direction
- (4) Implant direction
- (5) Abutment top cap
- (6) Abutment interface
- (7) Top cap angle


By rotating the interface of a Multi-unit abutment, you can change the abutment interface direction.

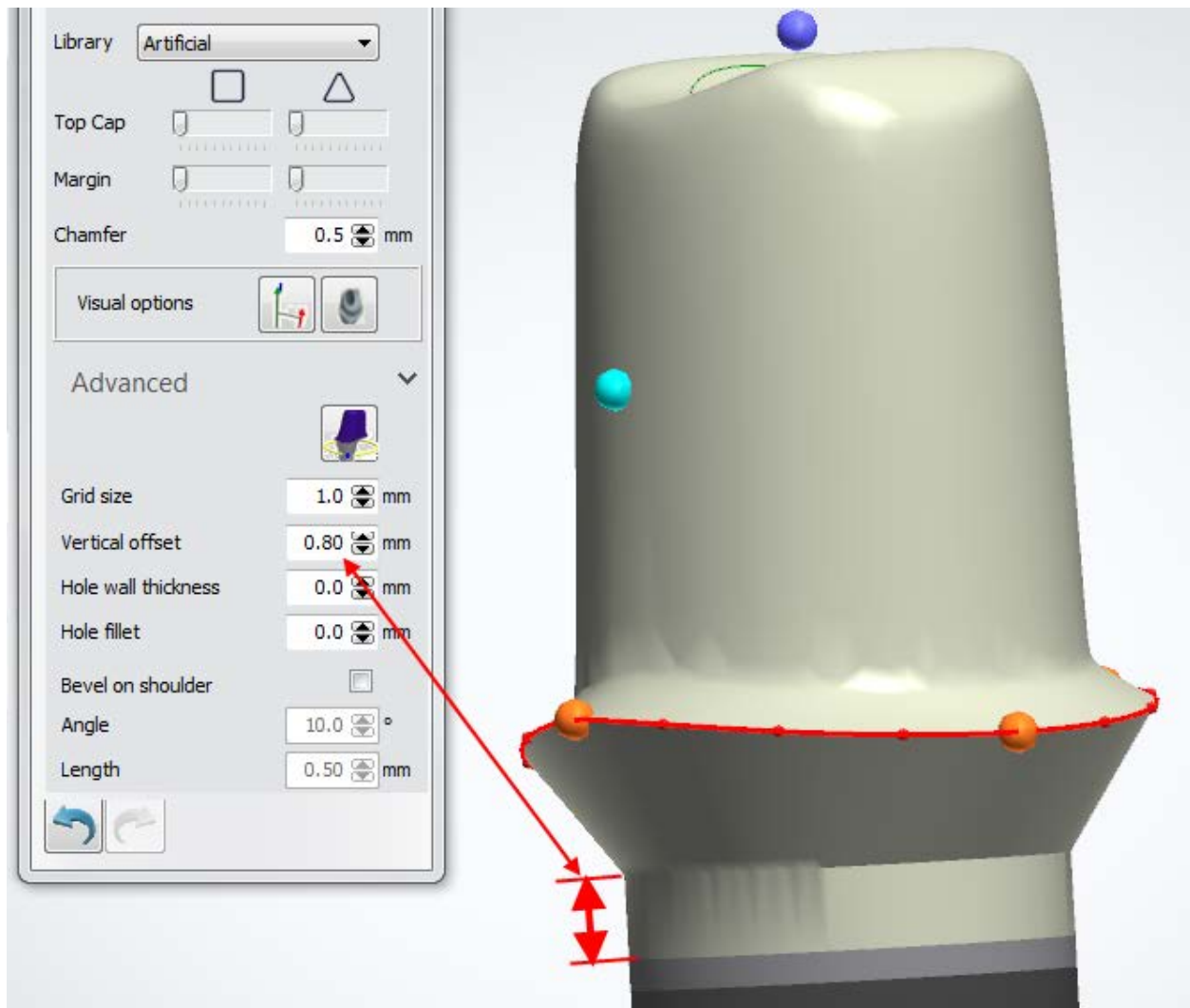


Initial position



Abutment interface rotated

- The **Add bevel on shoulder**  button lets you select the **Bevel on shoulder** option to create an additional surface above the emergence profile with the **Angle** and **Length** parameters set in relation to the top cap direction.
- **Shoulder radius** - the rounding radius of the lower part of a top cap.
- **Top fillet radius** - the rounding radius of the upper part of a top cap.
- **Margin fillet radius** - the rounding radius of abutment near the margin line.
- **Grid size** - the size of a grid that appears when you point a mouse over a control point. The grid is used to measure distances, for example, between a point and an antagonist.
- **Vertical offset** - the length of the additional vertical cylinder surface before the emergence exit.



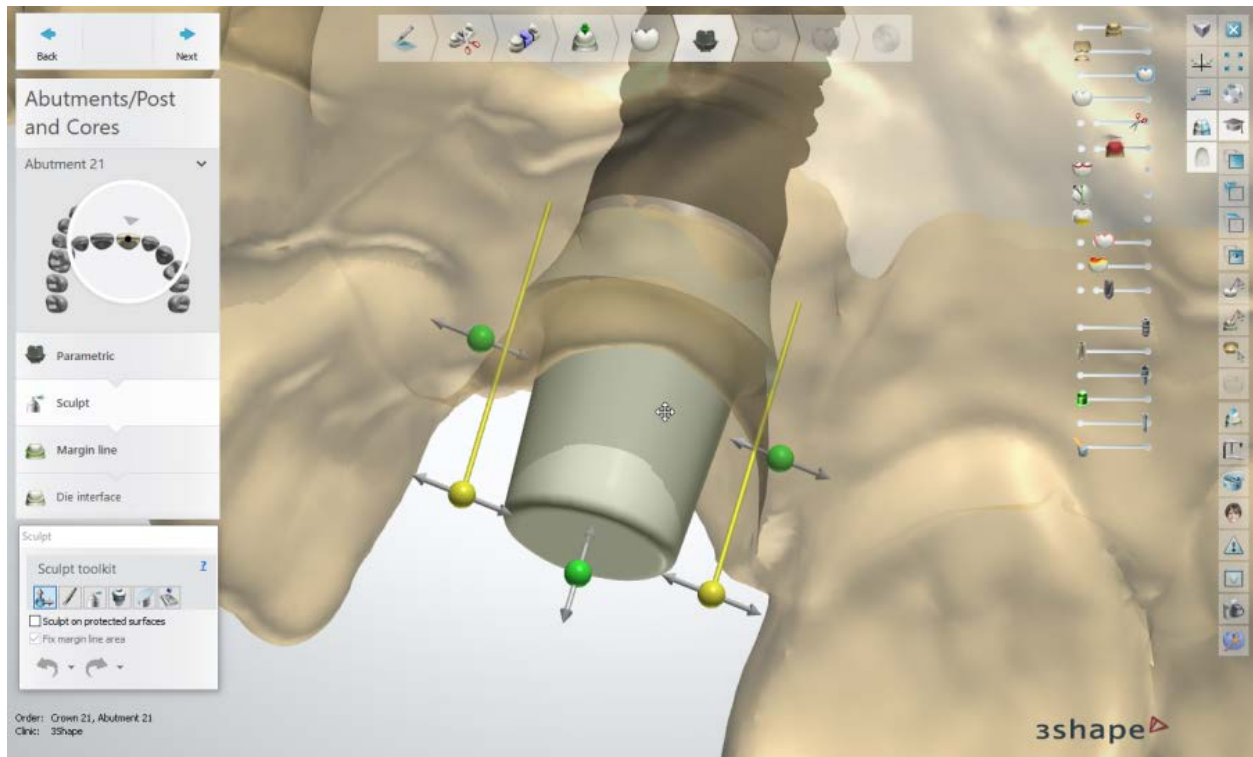
- **Hole wall thickness** - defines the minimum thickness parameter around the screw hole.
- **Hole fillet** - insures that the wall thickness around the fissure at the anatomy side is not less than specified.



In order to simplify the bar interfaces creation, some of the parameters can be applied to all abutments simultaneously by right-clicking on such a parameter and selecting **Apply to all**.

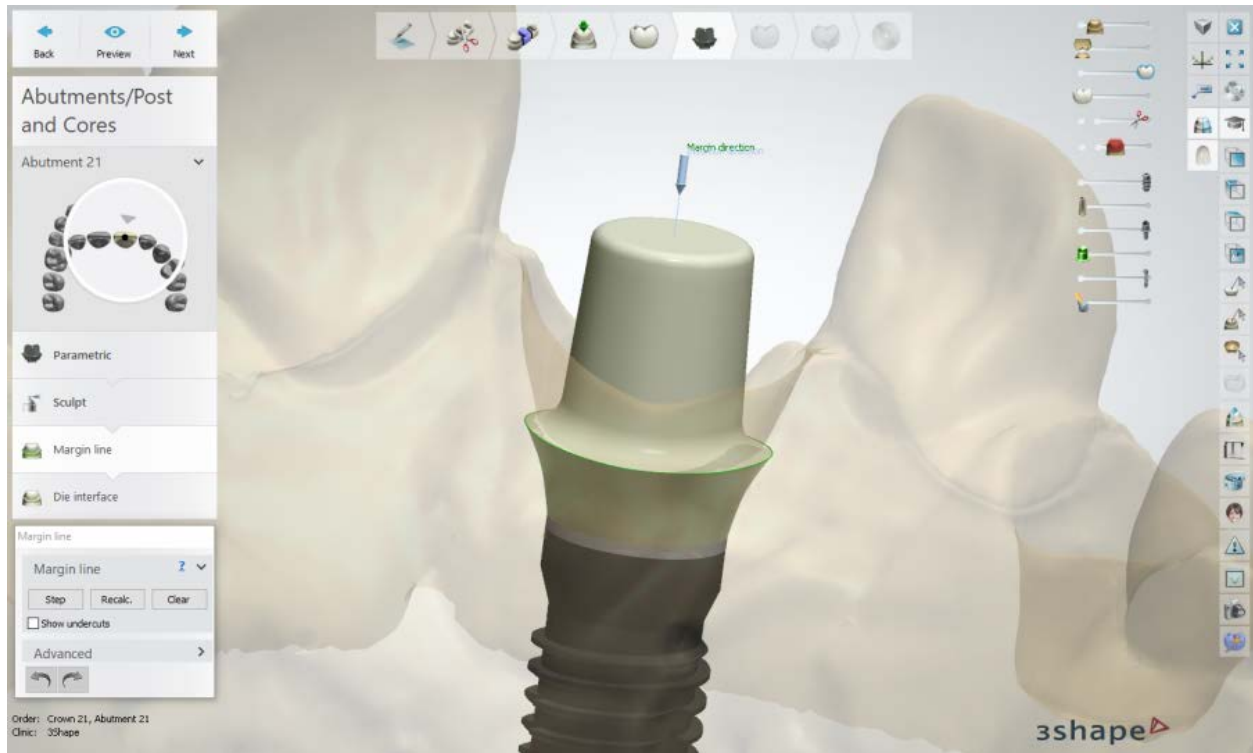
►Step 6: Use the Sculpt toolkit

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



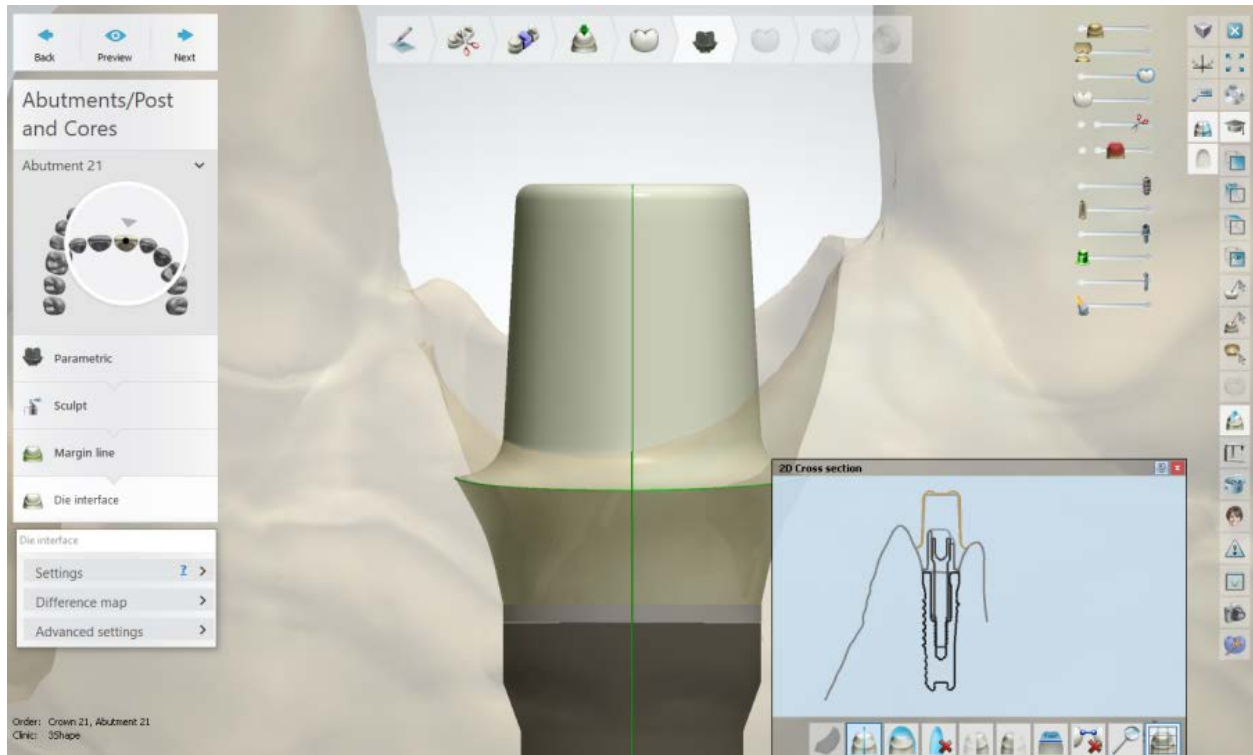
►Step 7: Place the margin line

The abutment margin line placement and settings are similar to the ones of a [Single Coping](#).



► Step 8: Create Die interface

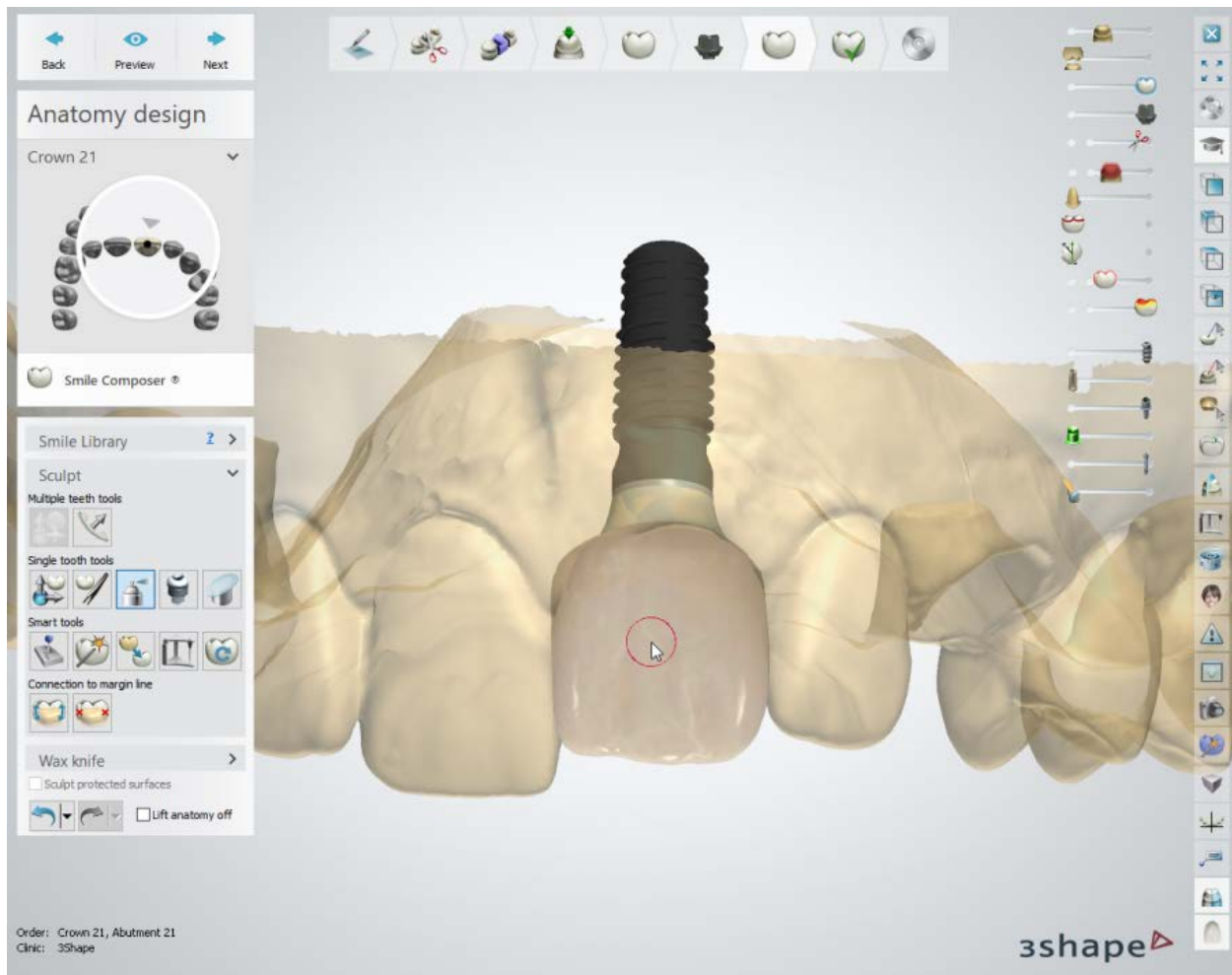
The abutment die interface creation and settings are similar to the ones of a [Single Coping](#).



2D cross-section of an abutment; Extra cement gap = 0.080 mm

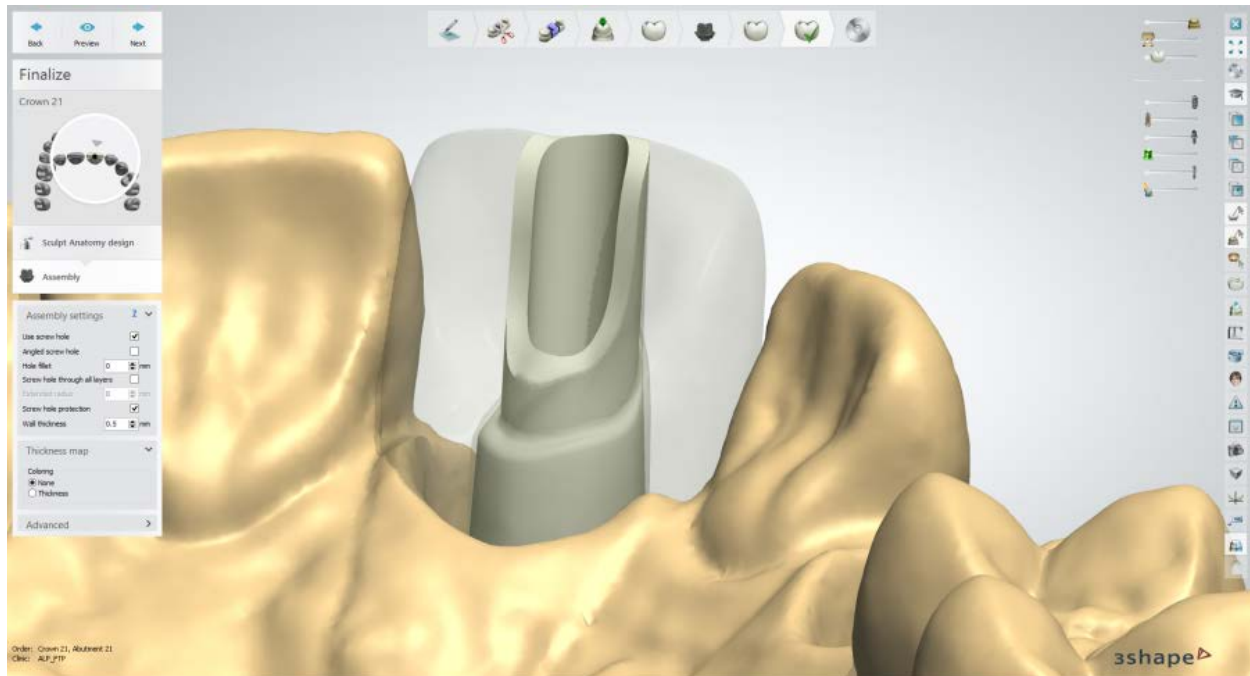
► Step 9: Use Smile Composer

Use the Smile Composer tools to correct the anatomy design. The details on how to use the tools you can read in chapter [Smile Composer](#).



► Step 10: Perform the Assembly

- Choose the **Use screw hole** check-box to create a screw hole in the abutment. To place the screw hole at a specific angle, select the **Angled screw hole** checkbox and move the appeared control point to set the desired angle.
- Select the **Screw hole through all layers** checkbox to make an abutment screw hole passing all the way through anatomy and frame layer or select the **Screw hole protection** checkbox to create a hole protector in your model, that will prevent the veneering from going down into the screw hole.



Advanced Settings:

- **Vertical screw offset** - vertically offsets the screw hole.
- **Extra drill hole radius** - applies additional radius to the screw hole.

► Step 11: Save and close your design







The **Custom abutment** design is similar to the **Robotic abutment** design described above.



Parametric Customised Abutment

Settings ? ▾



Type ▾ Custom abutment

Library ▾ Artificial


Top Cap  

Margin  

Chamfer 0.1 mm

Visual options  

Advanced ▾



Grid size 1.4 mm

Vertical offset 0.00 mm



Hole wall thickness 0.0 mm

Hole fillet 0.0 mm

Bevel on shoulder ☐



Angle 10.0 deg

Length 0.50 mm

The **Custom abutment** settings:

Note! If necessary, you can change the abutment settings in the Order form (e.g. an Implant Kit) by clicking

 the corresponding  button in the Workflow bar.

Library - Select the desired library (Anatomical, Artificial etc.) to create a top cap for your abutment.

Top cap and **Margin** slide bars help you shape the top cap and the margin line of the abutment respectively. You can choose either the rectangle or the triangle shape for this purpose.

Chamfer - the rounding radius of the upper part of a top cap.

Visual options:



Shows/Hides angle graphics (insertion direction and implant direction).



Shows/Hides abutment screw hole

Grid size - the size of a grid that appears when you point a mouse over a control point. The grid is used to measure distances, for example, between a point and an antagonist.

Vertical offset - offsets the lower part of an abutment to increase the distance between the implant and the abutment.

Hole wall thickness - adds the specified value to the minimum thickness parameter.

Hole fillet - ensure that wall thickness is not less than specified.

Bevel on shoulder - when selected, creates an additional surface above the emergence profile with the **Angle** and **Length** parameters set in relation to the top cap direction.



The **Bar interface** settings are described in section [Implant Bars and Bridges](#).

WAX-UP ABUTMENT

A Wax-up abutment is designed in a similar way as a [Single Wax-up](#).

The **Assembly** step and settings are similar to the ones described in [Anatomical Abutment and Screw-Retained Crown](#) chapter.



Wax-up design with the 2D cross-section view

Continue to [manufacturing](#) if required.

1.17. Anatomical Abutment and Screw-Retained Crown

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for an Anatomical Abutment and Screw-Retained Crown order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.17.1. Anatomical Abutment and Screw-Retained Crown Order Creation

To create an [Anatomical Abutment](#) or [Screw-Retained Crown](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

ANATOMICAL ABUTMENT

► **Step 1: Select preparations in the teeth overview**

► **Step 2: Click the *Abutment* button and select the *Anatomical Abutment* button**







Hint! You can define (and later on design) items on top of the abutments (e.g. a Crown).

SCREW-RETAINED CROWN

► Step 1: Select preparations in the teeth overview

► Step 2: Click the *Abutment* button and select the *Screw-Retained Crown* button





For the abutment settings in the Order form, see the chapter [Customized Abutments](#).

After creating the order, proceed to [scanning](#).

1.17.2. Anatomical Abutment and Screw-Retained Crown Scanning

An anatomical abutment and screw-retained crown scanning is identical to the customized abutments scan, please see section [Customized Abutments](#) for details.

After scanning, continue to the [design section](#).

1.17.3. Anatomical Abutment and Screw-Retained Crown Design



ANATOMICAL ABUTMENT

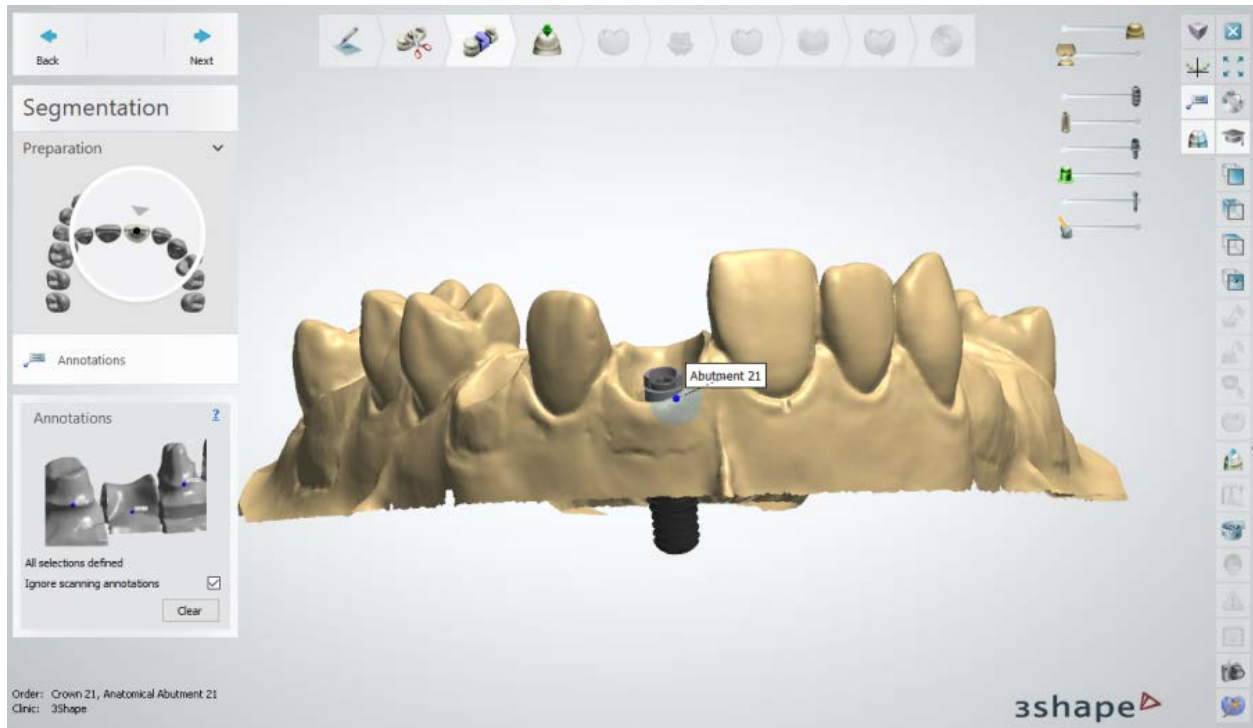
Below is a step-by-step description of the **Anatomical Abutment** design with a Crown:

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is similar to [Annotations](#) described in chapter *Single Coping*.

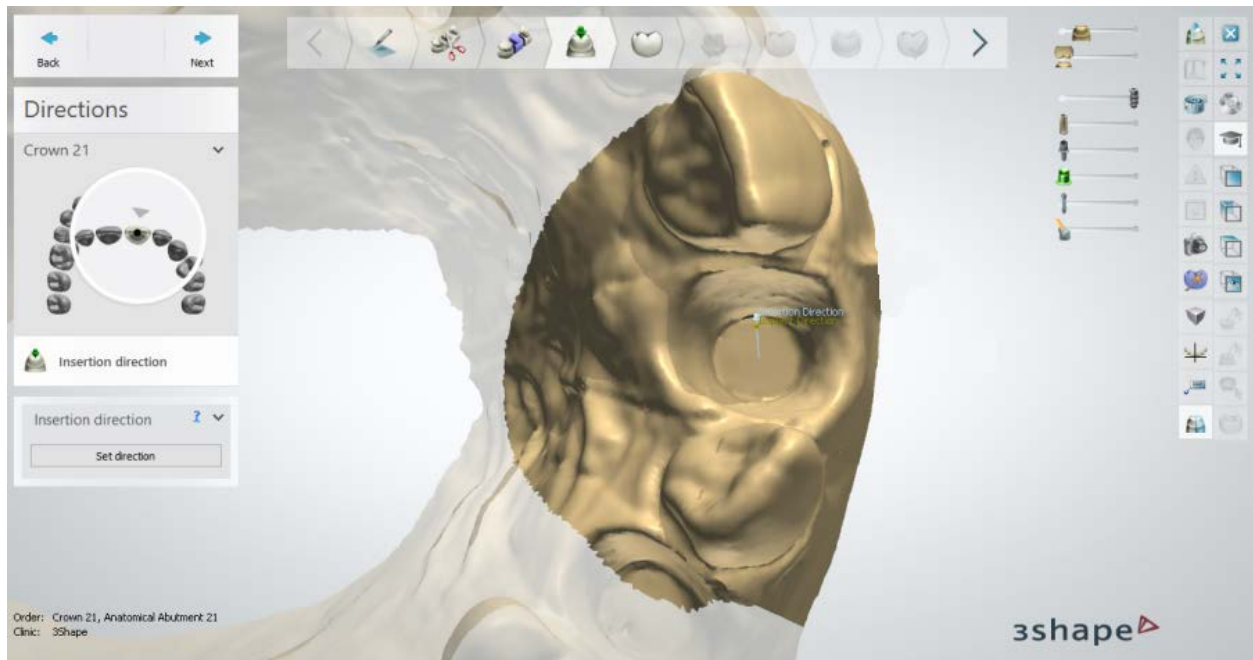


► Step 3: Set the Insertion Direction

Once you have annotated the implants it is necessary to specify insertion directions for the abutments:

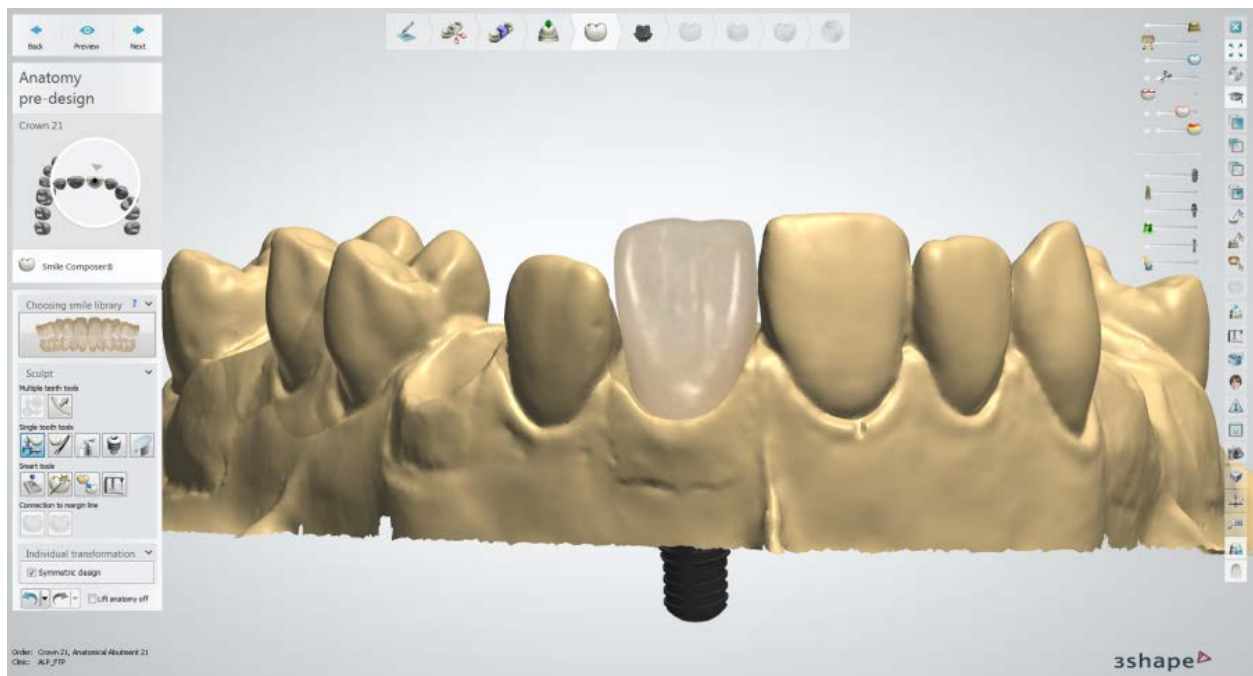
1. Position the 3D model with a view of the insertion direction being perpendicular to the screen.
2. When the desired position is found, click the **Set direction** button to save its position.

If you have a few abutment groups defined at the order form stage, they will have their insertion directions specified separately.



► Step 4: Use Smile Composer

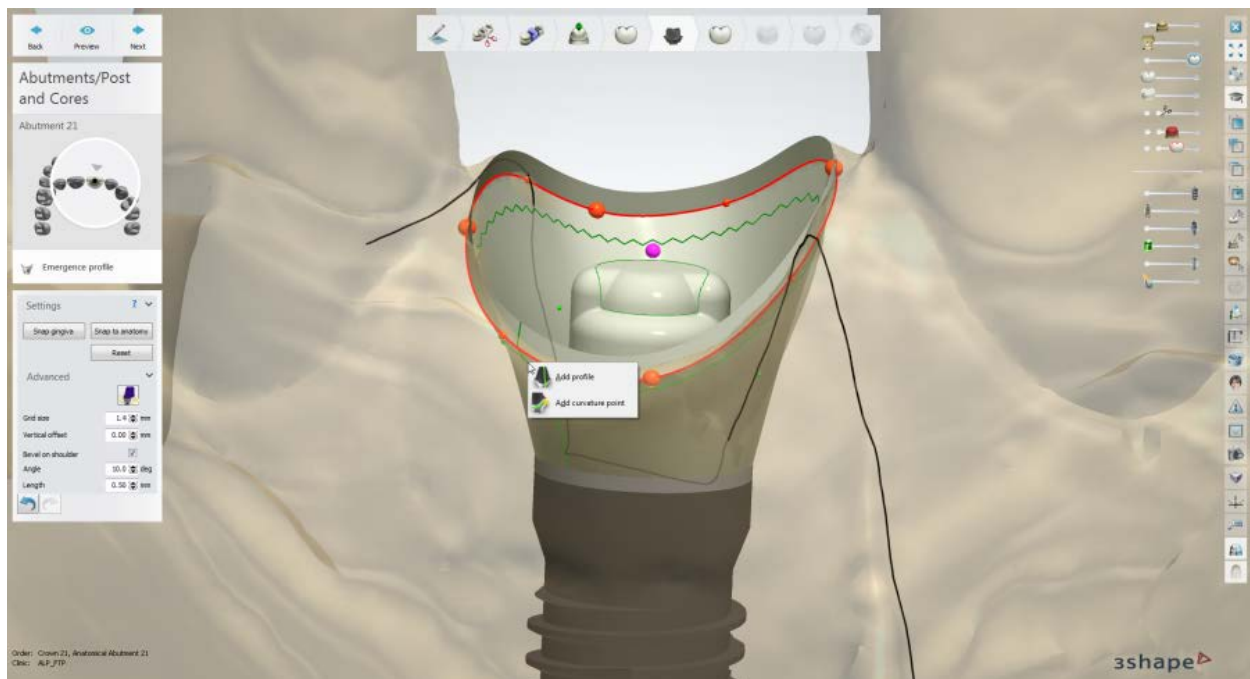
By designing the anatomy layer first, you can model an optimally shaped Abutment further in the process. Please see [Smile Composer](#) chapter for details on smile composer design.




► Step 5: Design the Emergence profile

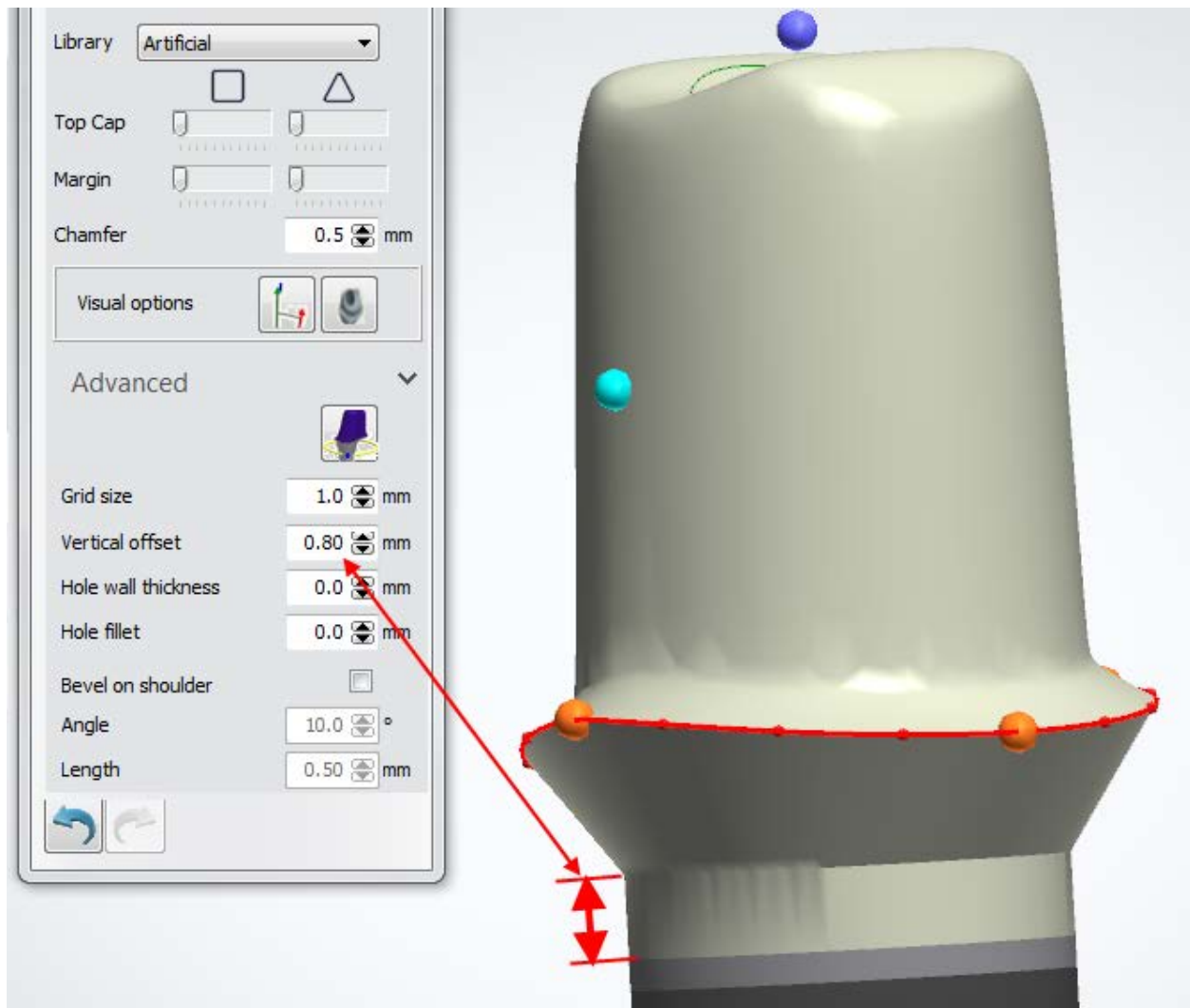
- Use the available control points to design the abutment emergence profile.

- Right-click on the abutment and select **Add profile** to add additional vertical profiles with points for a better manipulation of the whole abutment. Right-click the profile to remove it.
- Right-click on the emergence profile and select **Add curvature point** to place extra horizontal profiles with points for a better manipulation of the emergence profile. Right-click the point to remove it.
- The **Snap gingiva** and **Snap to anatomy** buttons change the form of the emergence profile to fit the gingiva or anatomy respectively.



Advanced Settings:

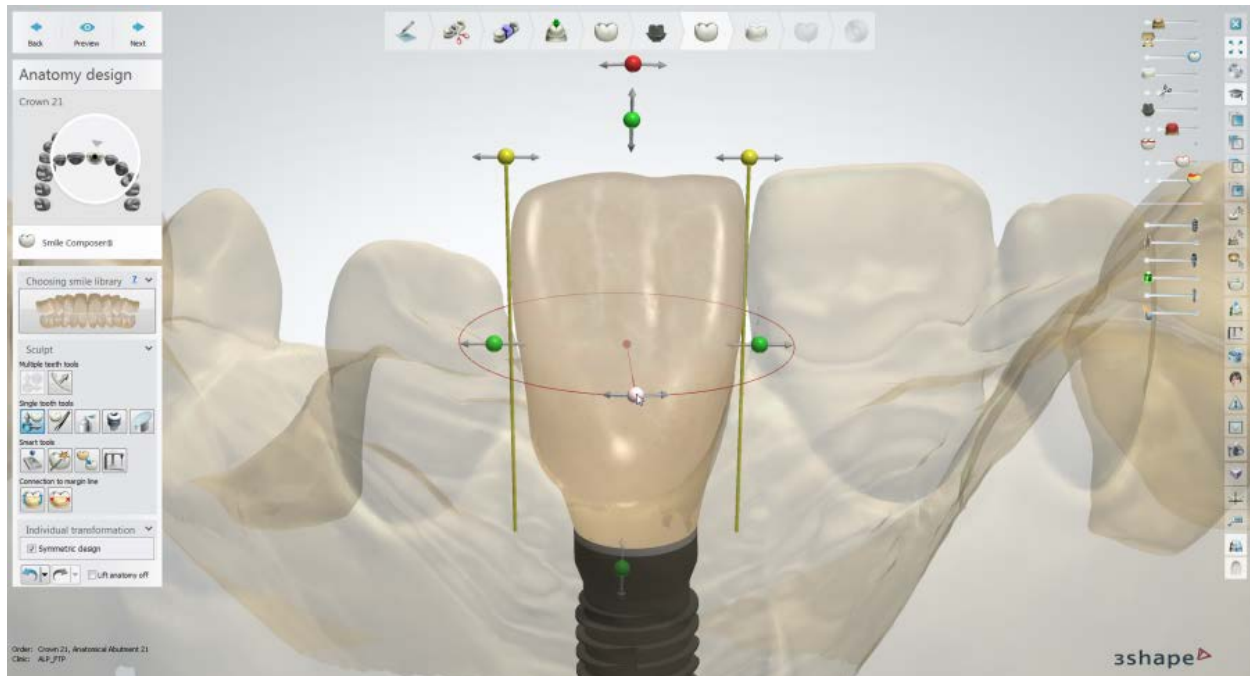
- The **Edit Implant Models**  button, in **Advanced** settings, lets you rotate the base and position the axis of the screw hole at an angle with the cursor (the number of possible base rotation angles is configured in Control Panel -> Abutments -> Implant systems - see the chapter [Implant Systems](#)).
- **Grid size** - the size of a grid that appears when you point a mouse over a control point. The grid is used to measure distances, for example, between a point and an antagonist.
- **Vertical offset** - the length of the additional vertical cylinder surface before the emergence exit.



- **Bevel on shoulder** - when selected, creates an additional surface above the emergence profile with the **Angle** and **Length** parameters set in relation to the top cap direction.

►Step 6: Use Smile Composer

Use the Smile Composer tools to correct the anatomy design. The details on how to use the tools you can read in chapter [Smile Composer](#).



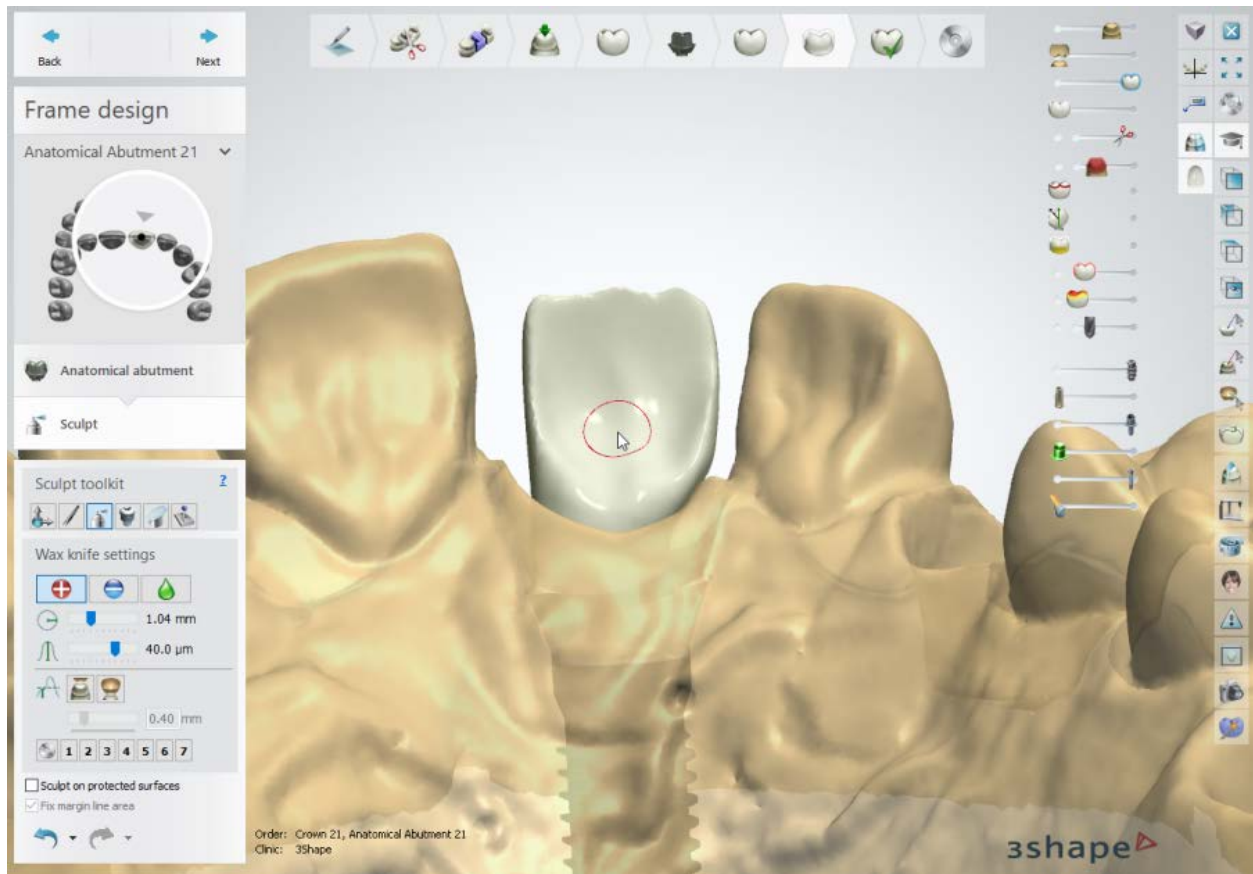
►Step 7: Design frame (Anatomical abutment)

Design your anatomical abutment using the settings similar to the ones of an [Anatomical coping](#):



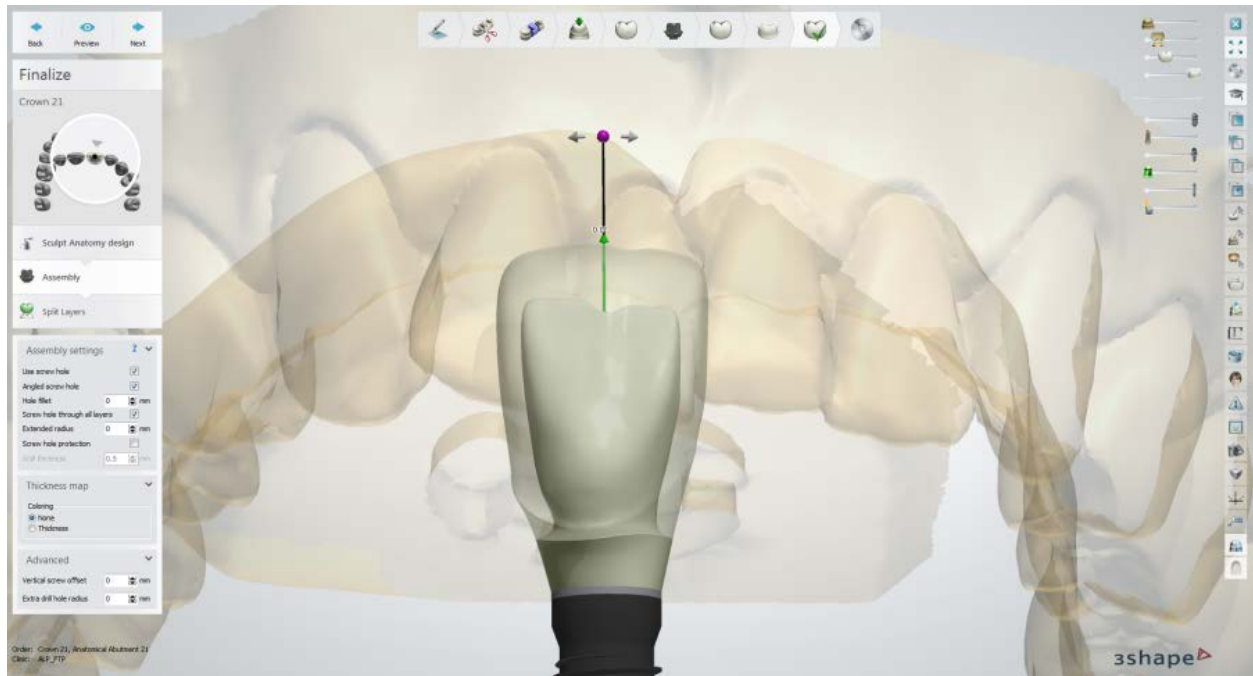
►Step 8: Use the Sculpt tools on Frame

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



► Step 9: Perform the Assembly

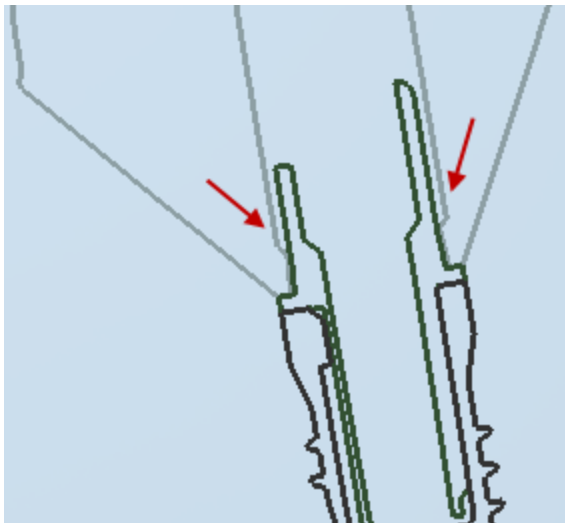
- Choose the **Use screw hole** checkbox to create a screw hole in the abutment. To place the screw hole at a specific angle, select the **Angled screw hole** checkbox and move the appeared control point to set the desired angle.
- Select the **Screw hole through all layers** checkbox to make an abutment screw hole passing all the way through anatomy and frame layer or select the **Screw hole protection** checkbox to create a hole protector in your model, that will prevent the veneering from going down into the screw hole:



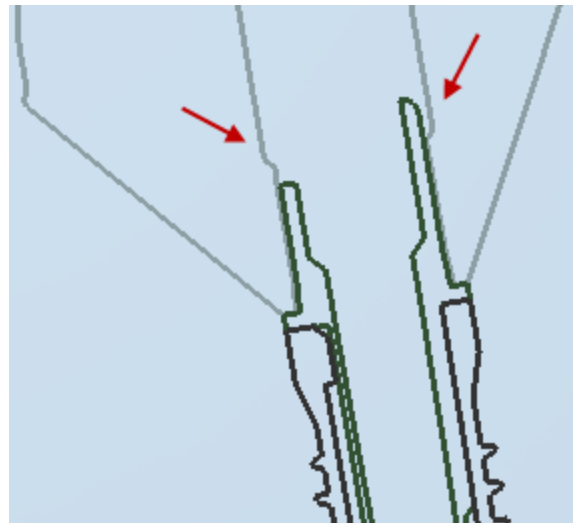
Advanced Settings:

- **Vertical screw offset** - vertically offsets the screw hole.
- **Extra drill hole radius** - applies additional radius to the screw hole.

Vertical screw offset - 2D Cross section



Vertical screw offset = 0 mm



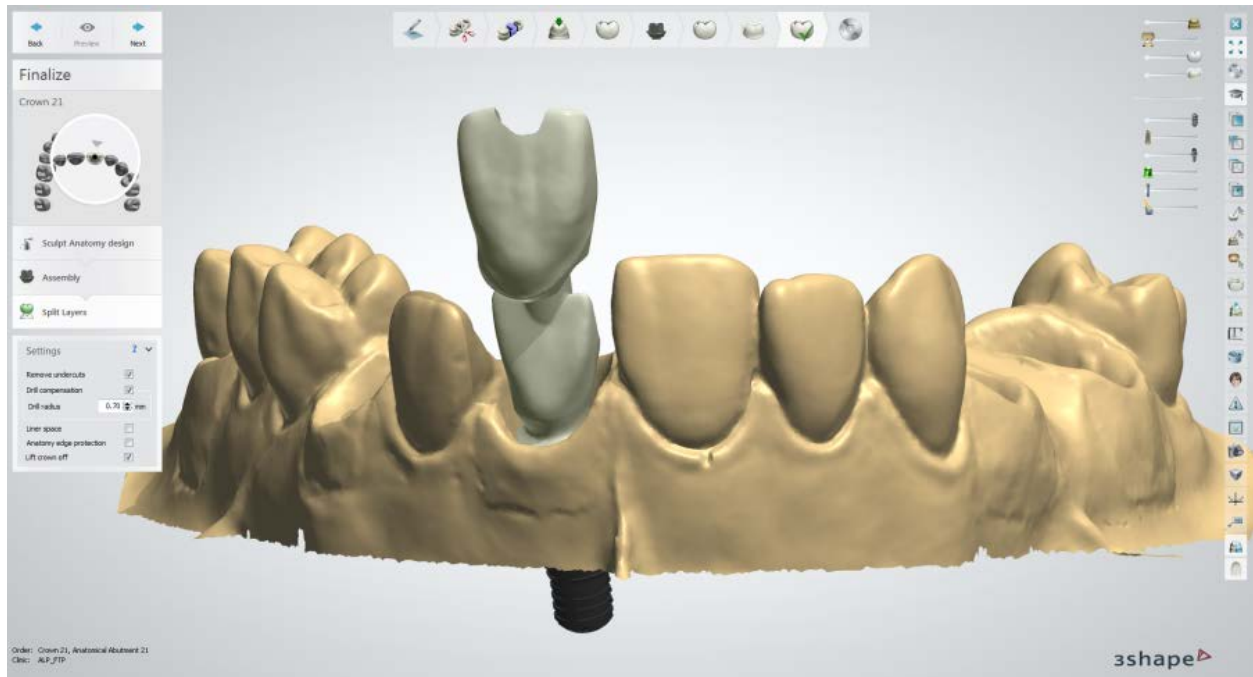
Vertical screw offset = 2 mm



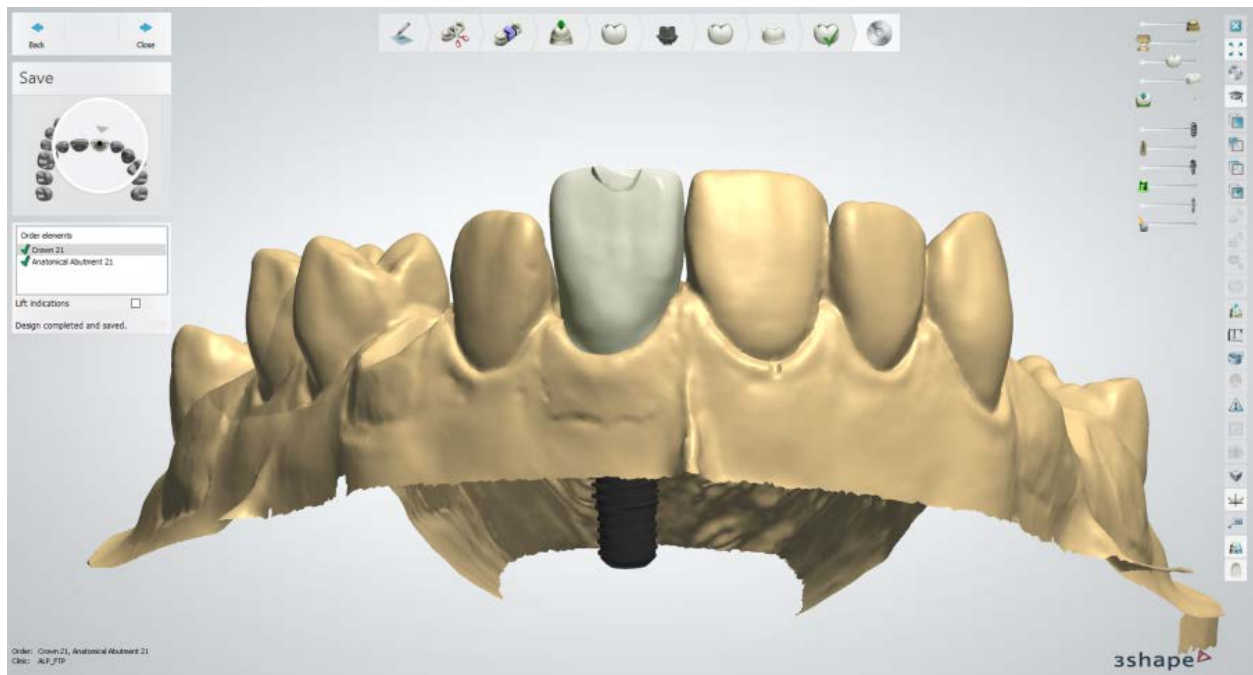
Note! The result of the **Screw hole through all layers** and **Screw hole protection** options will be visible on anatomy only after previewing the Split Layers step.

► Step 10: Split Layers

Click **Preview** to split the layers - an anatomical abutment and a crown. After this, the **Lift crown off** checkbox becomes available, which (when selected) shows two layers separately:



► Step 11: Save and close or send your design

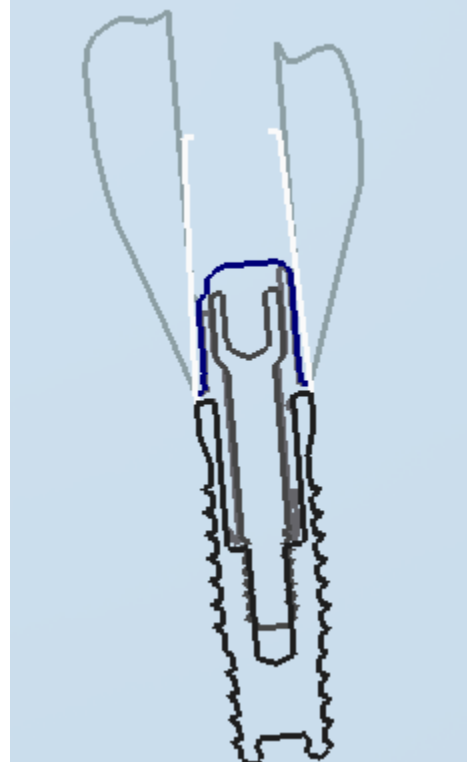


SCREW RETAINED CROWN

In case of a **Screw retained crown**, the anatomy is brought together with the customized abutment, and a hole through the upper anatomy is automatically made, so that the entire design can be affixed to the implant with a screw:



A screw-retained crown



2D cross section of a screw-retained crown

The workflow and settings for the Screw retained crowns are similar to the ones of the [Anatomical Abutments](#) described above.

It is also possible to design a Screw-Retained Bridge.

Continue to [manufacturing](#) if required.

1.18. Wax-up Abutment and Implant Bridge

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Wax-up Abutment and Implant Bridge order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.18.1. Wax-up Abutment and Implant Bridge Order Creation

To create a [Wax-up Abutment](#) or [Wax-up Implant Bridge](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

WAX-UP ABUTMENT

► **Step 1: Select preparations in the teeth overview**

► **Step 2: Click the *Abutment* button and select the *Waxup Abutment*  button**

For the abutment settings in the Order form, see the chapter [Customized Abutments Order Creation](#).

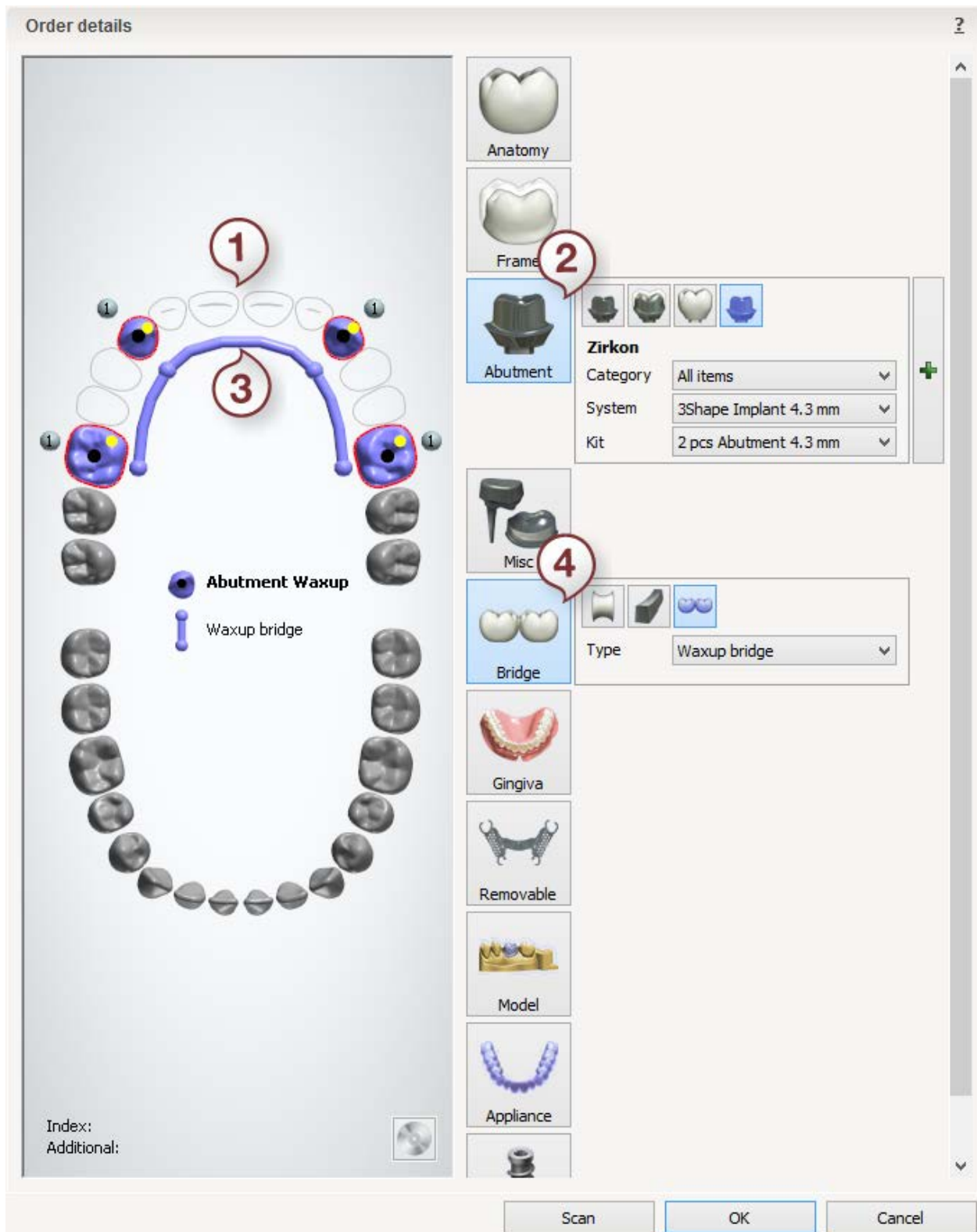
WAX-UP IMPLANT BRIDGE

► Step 1: Select preparations in the teeth overview

► Step 2: Click the *Abutment* button and select the *Waxup Abutment*  button

► Step 3: Select all units in a bridge in the teeth overview (if not already selected)

► Step 4: Click the *Bridge* button and select the *Waxup offset bridge*  button



After creating the order, proceed to [scanning](#).

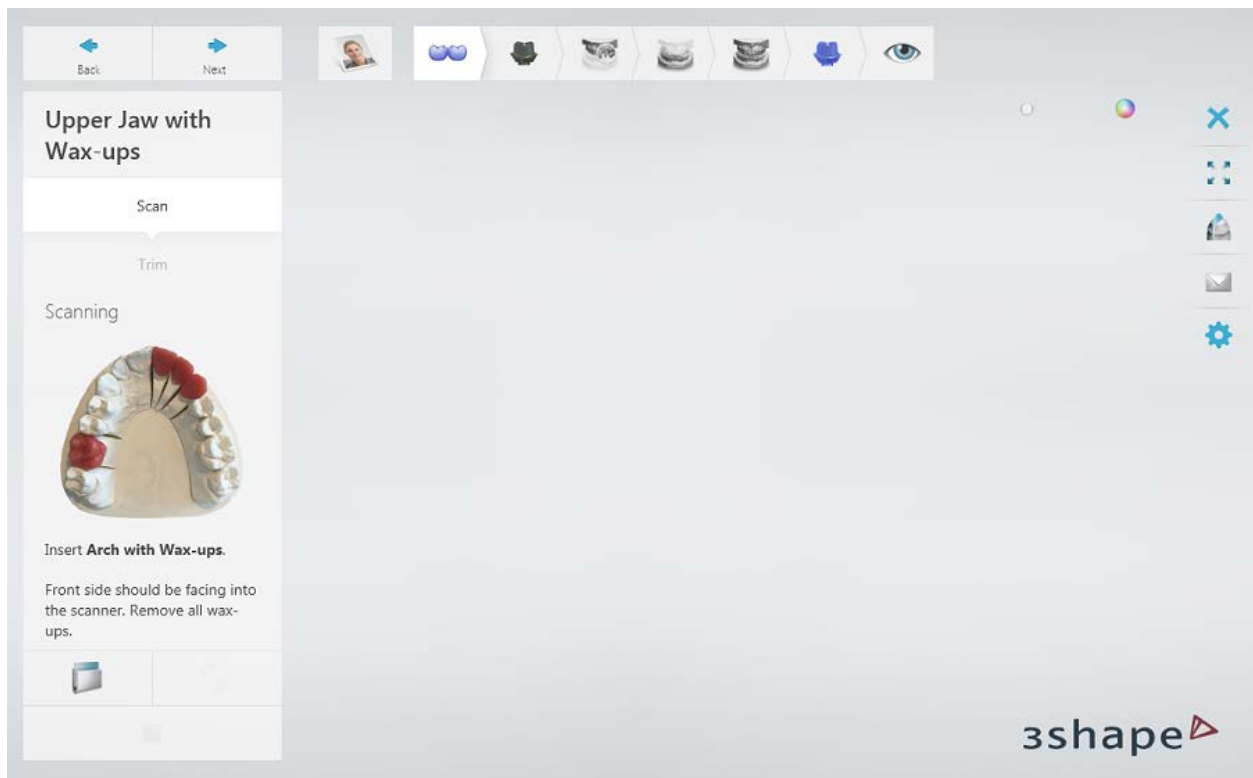
1.18.2. Wax-up Abutment and Implant Bridge Scanning

Wax-up abutment and implant bridge scanning is a combination of [customized abutments](#) and [wax-up bridge](#) scanning.

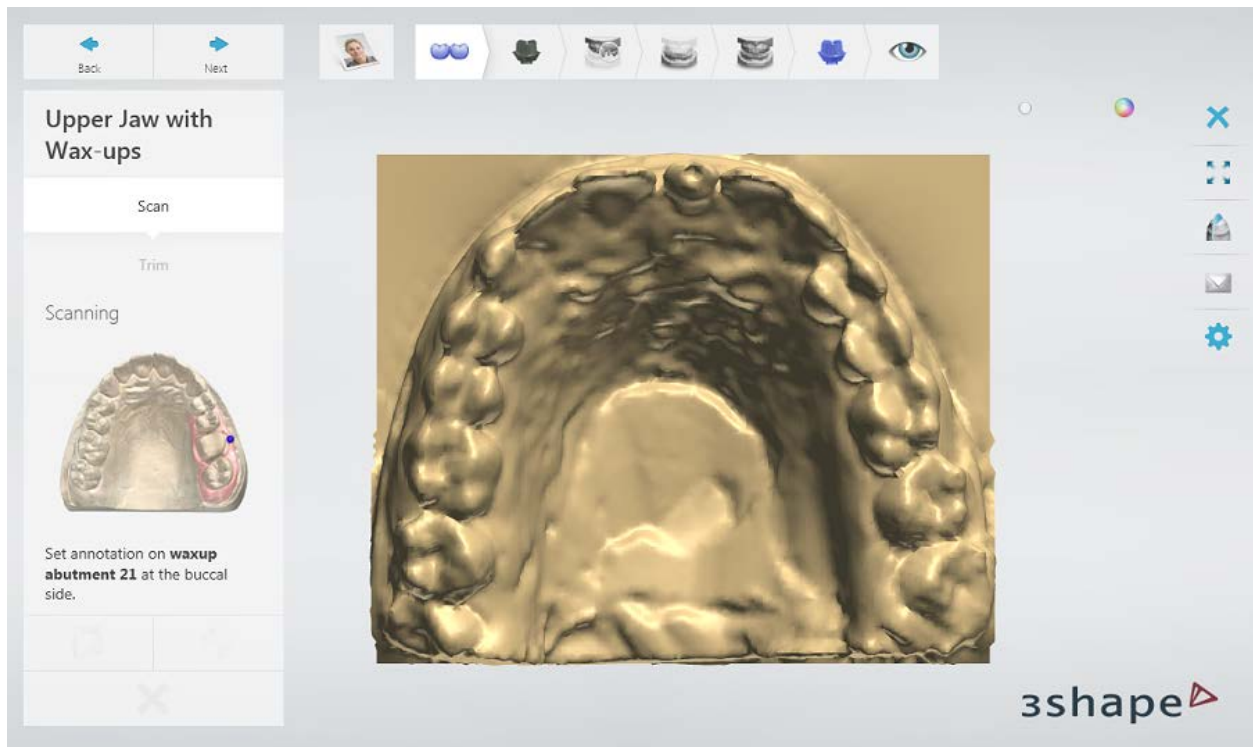
Follow the onscreen instructions and steps below to complete Wax-up Abutment order scanning:

►Step 1: Scan the arch with wax-up abutment

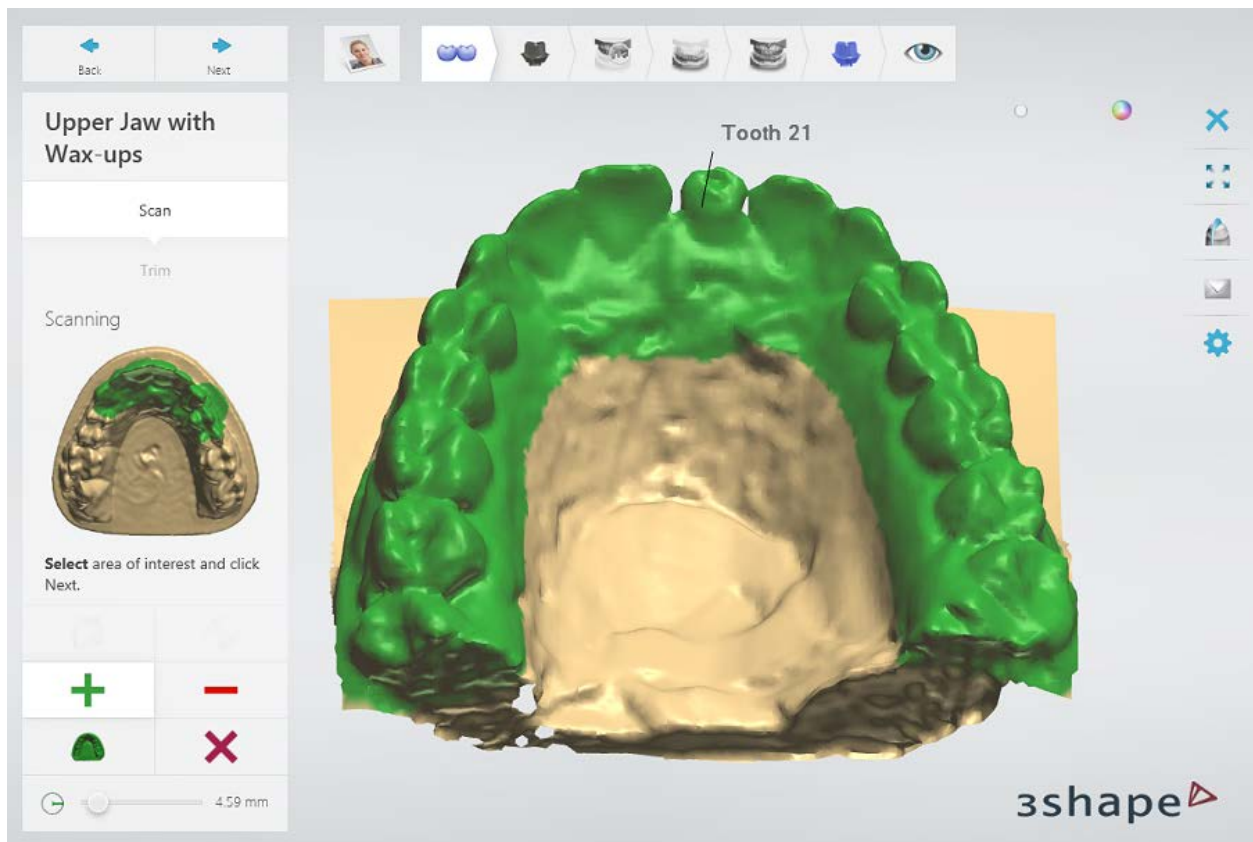
Place the preparation arch with wax-up abutment into the scanner as instructed by the software.



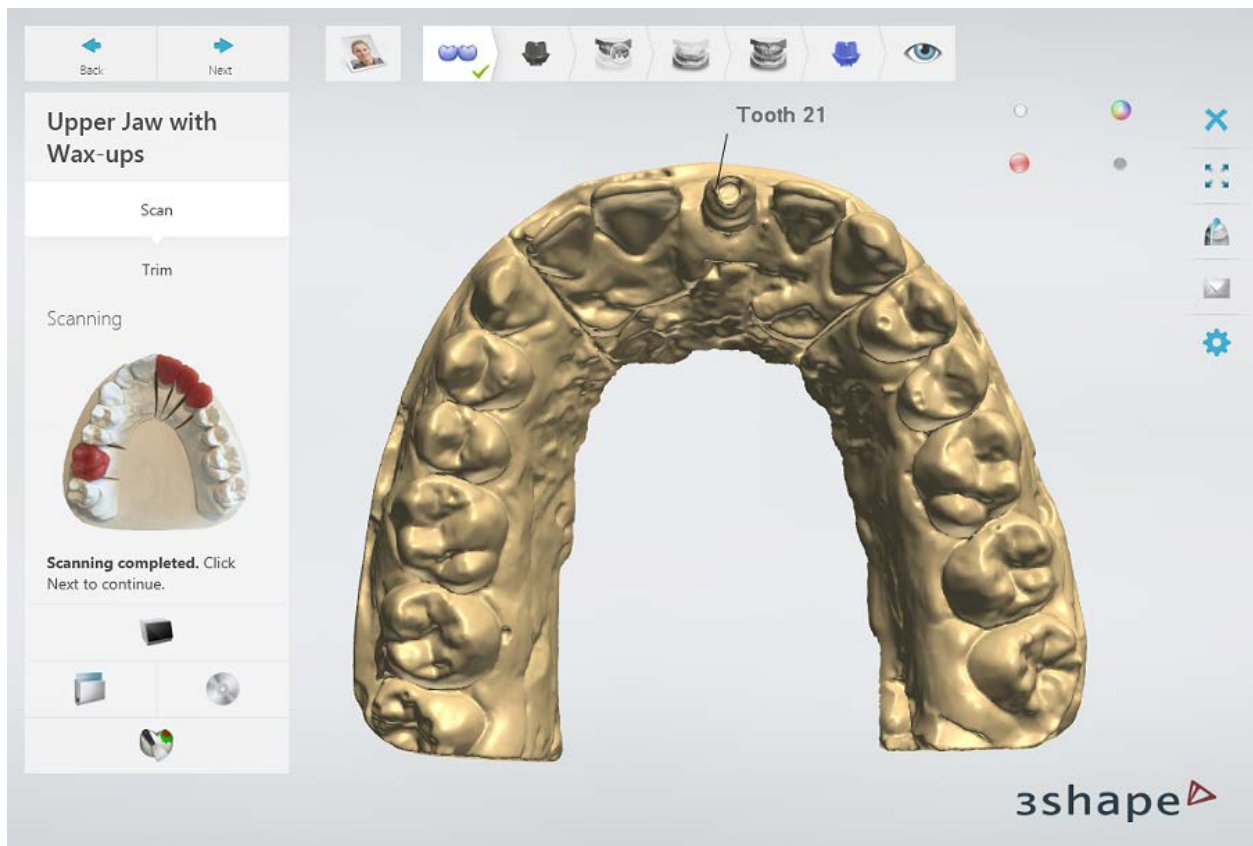
Run the initial scan by clicking the **Next** button.



Mark the area for a [detailed scan](#).



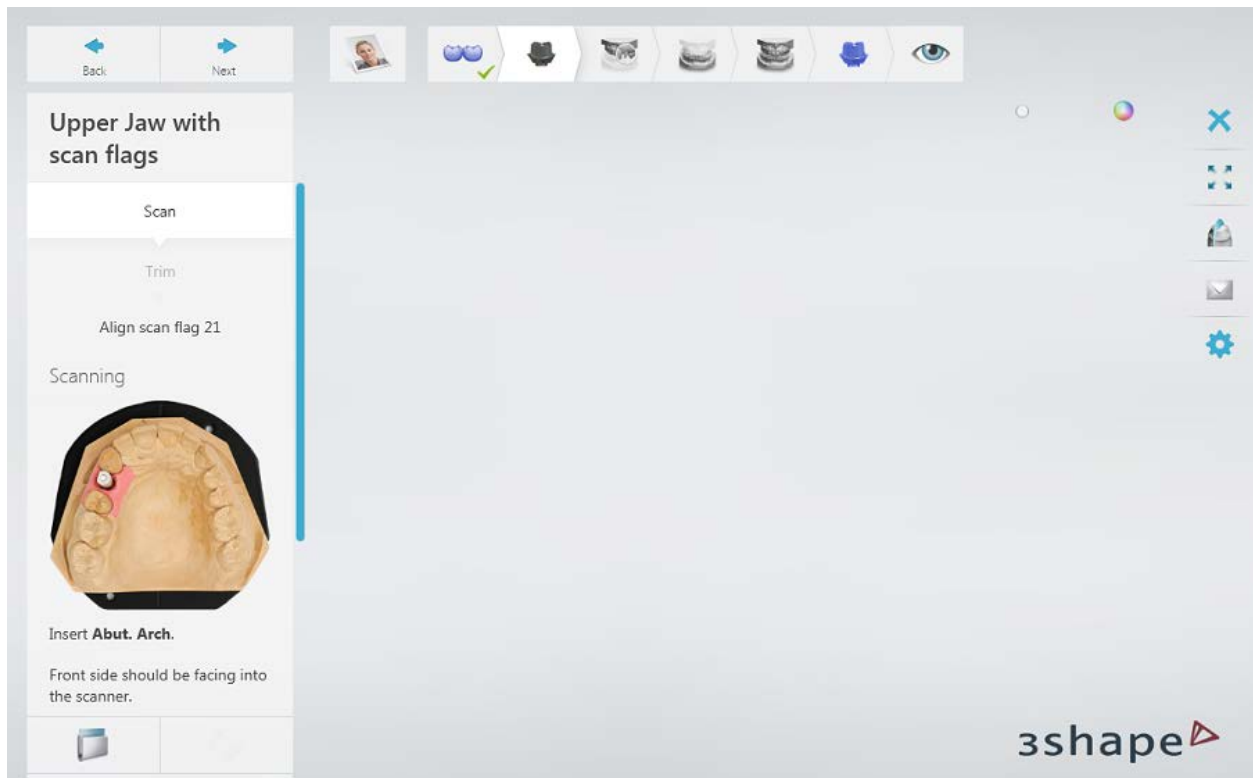
Click **Next** to scan the marked area.



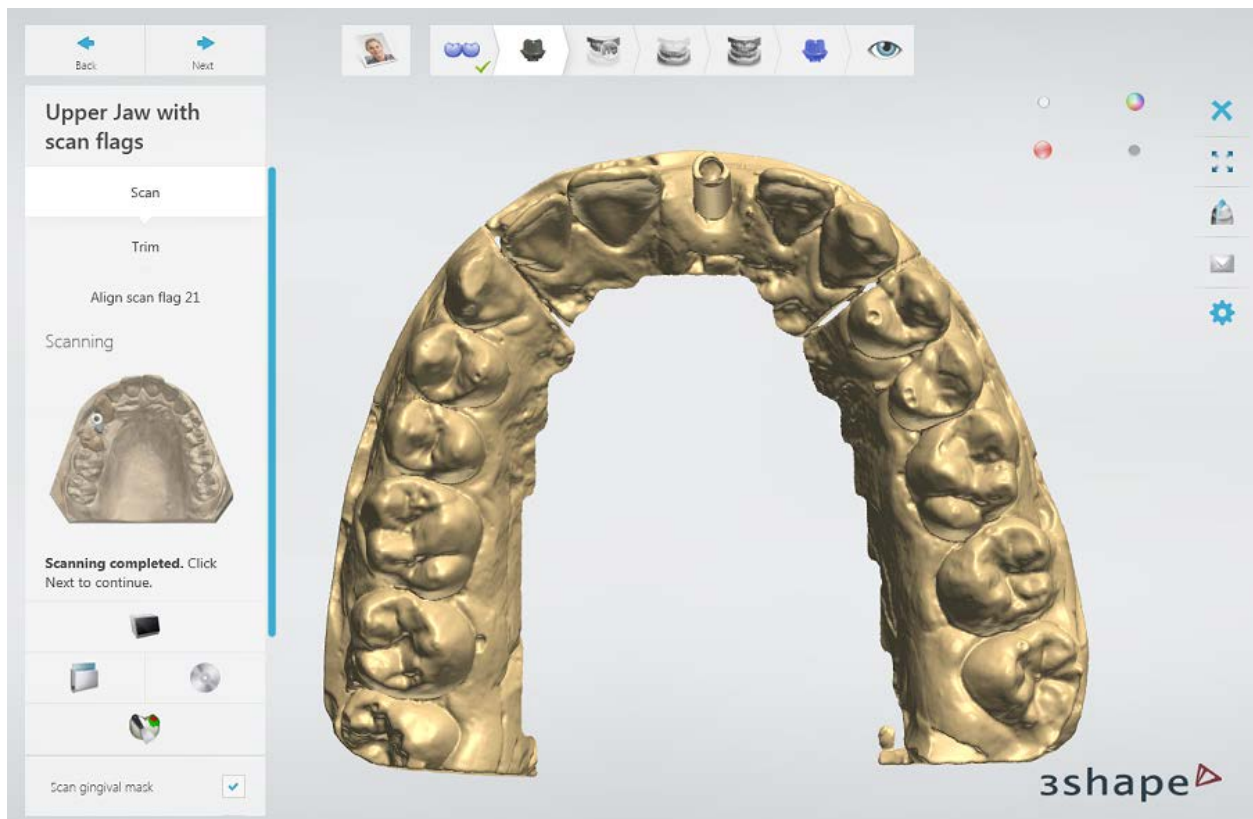
[Trim](#) the scan if necessary.

► Step 2: Scan the arch with a scan flag

Remove the wax-up abutment from the arch and insert a scan flag.



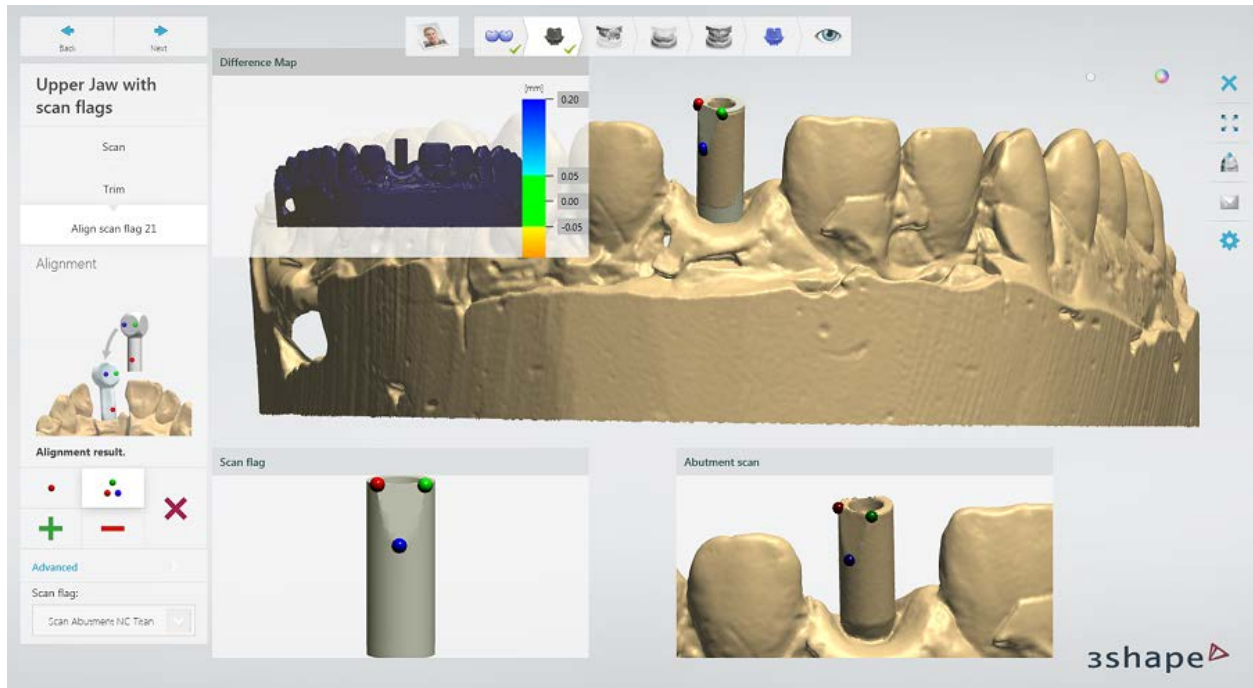
Run the initial scan of the arch with a scan flag, then mark the area and run a detailed scan.



[Trim](#) the scan if necessary.

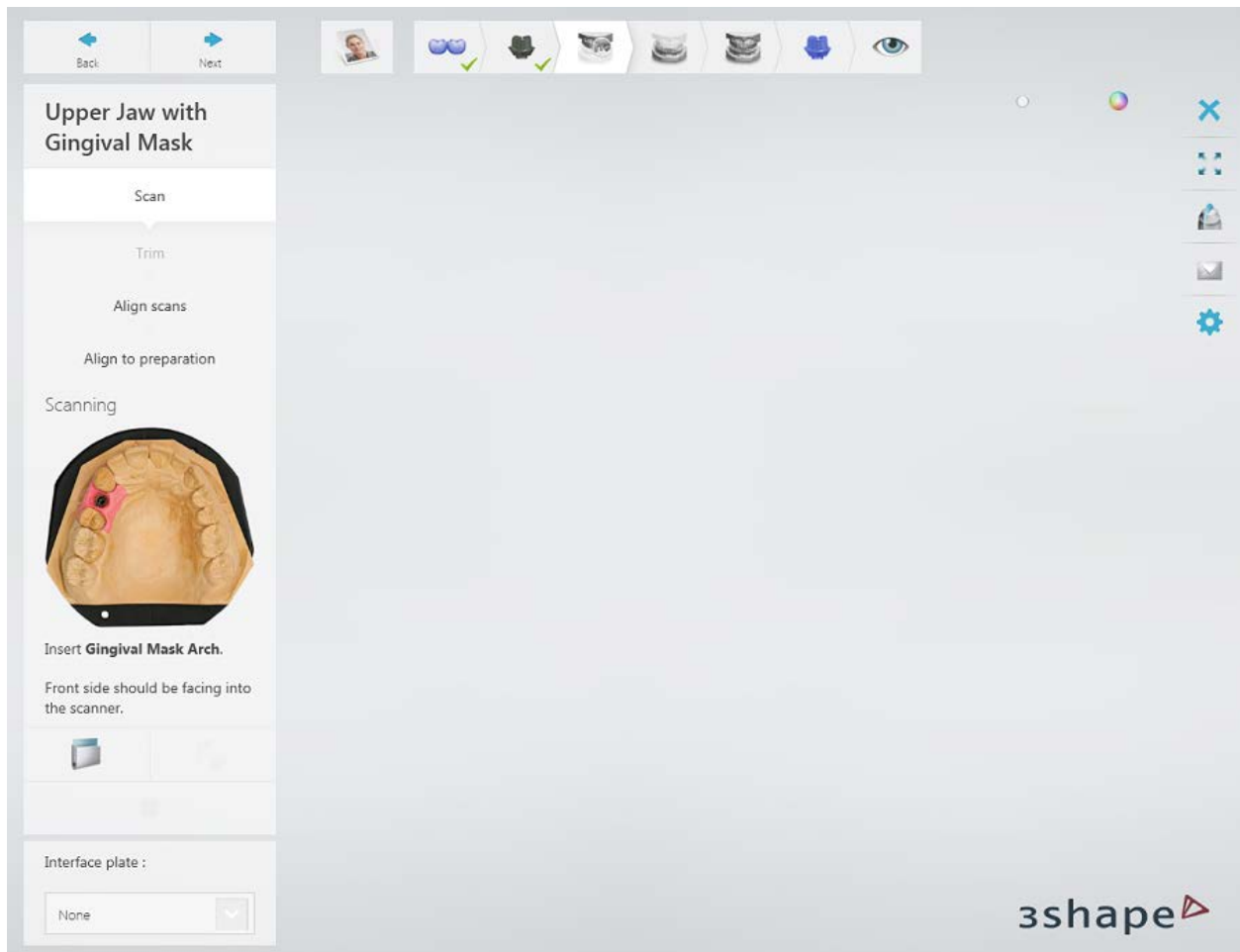
►Step 3: Align the scan flag scans

Use one of the methods to [align](#) the scans.

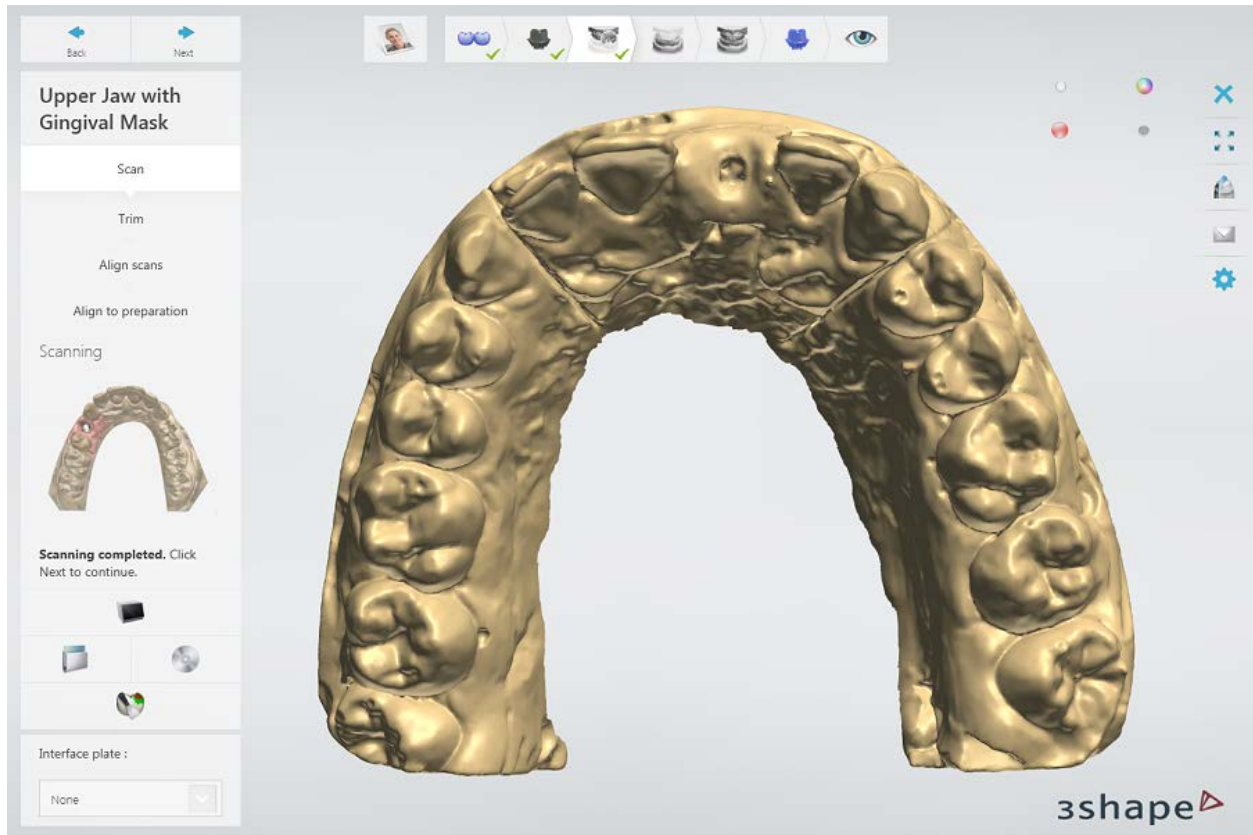


►Step 4: Scan the arch with gingival mask

Place the preparation arch with gingival mask into the scanner.



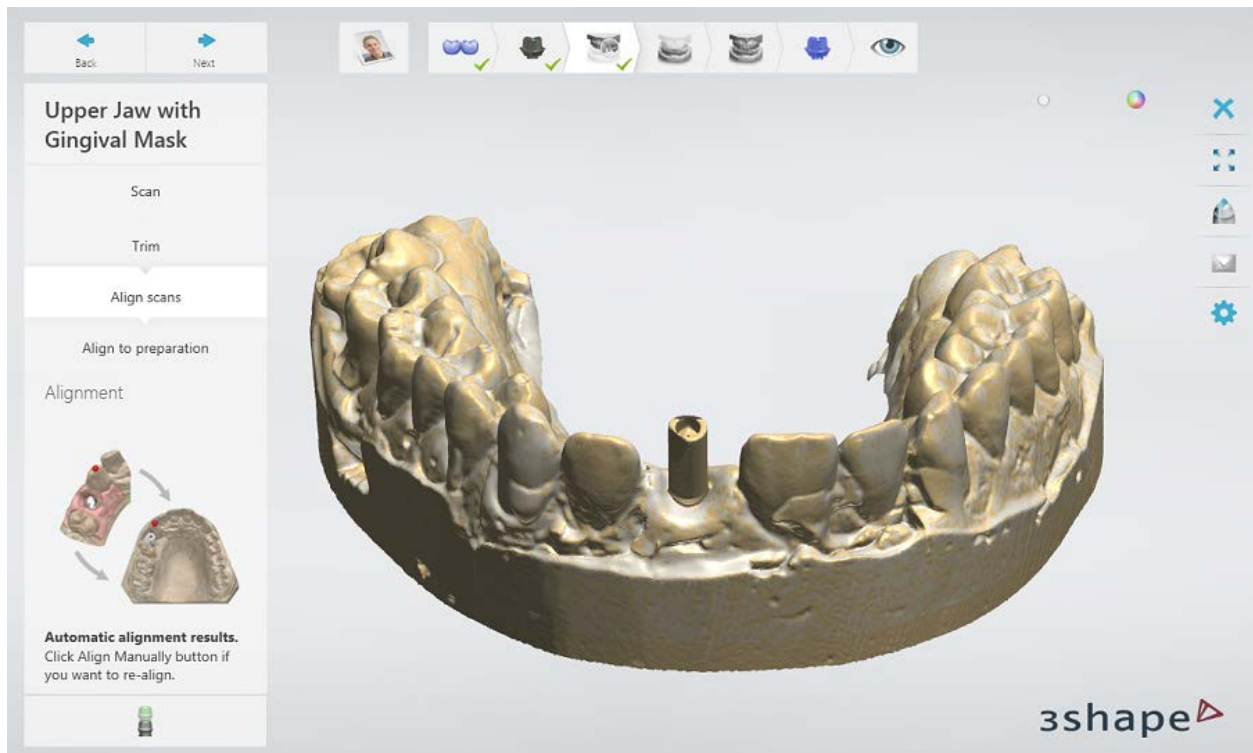
Run the initial scan, then mark the area and run a detailed scan.



[Trim](#) the scan if necessary.

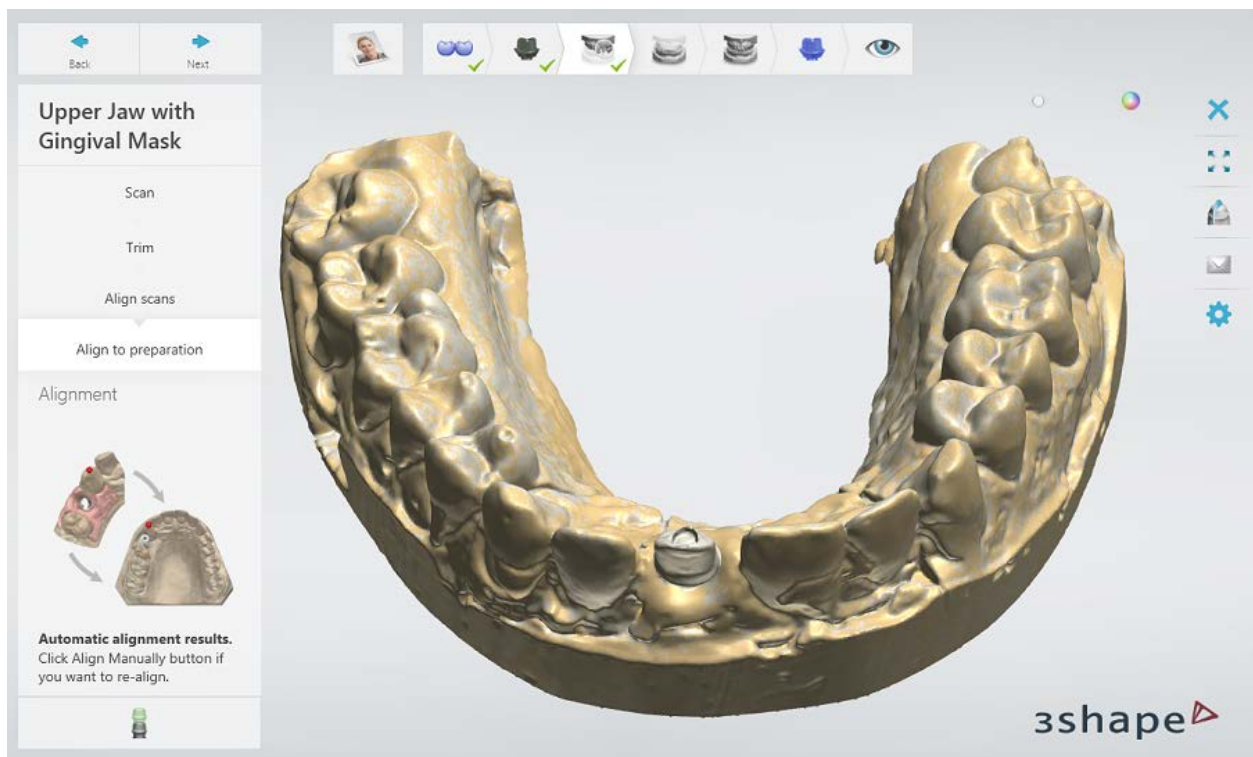
► **Step 5: Align the arch with gingival mask and the arch with abutment scans**

Use one of the methods to [align](#) the scans.

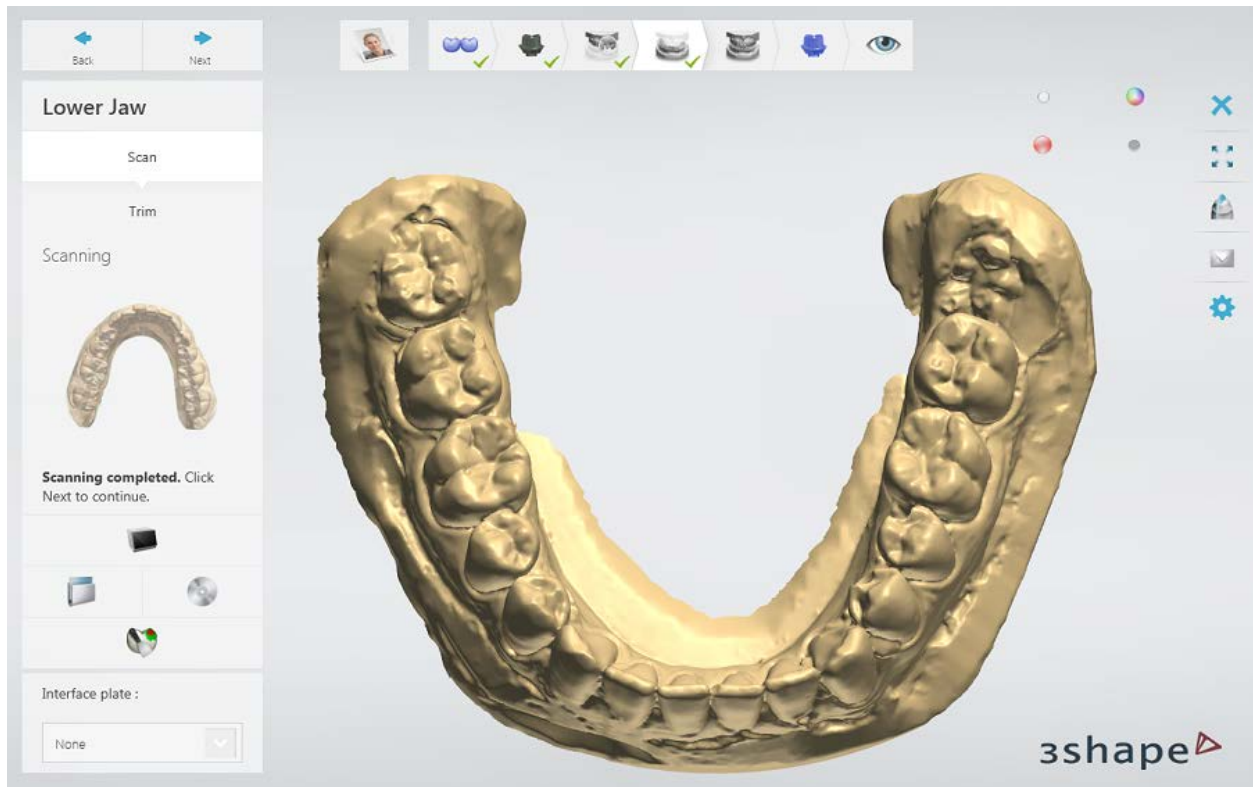


► **Step 6: Align the arch with wax-up and the arch with gingival mask scans**

Use one of the methods to [align](#) the scans.

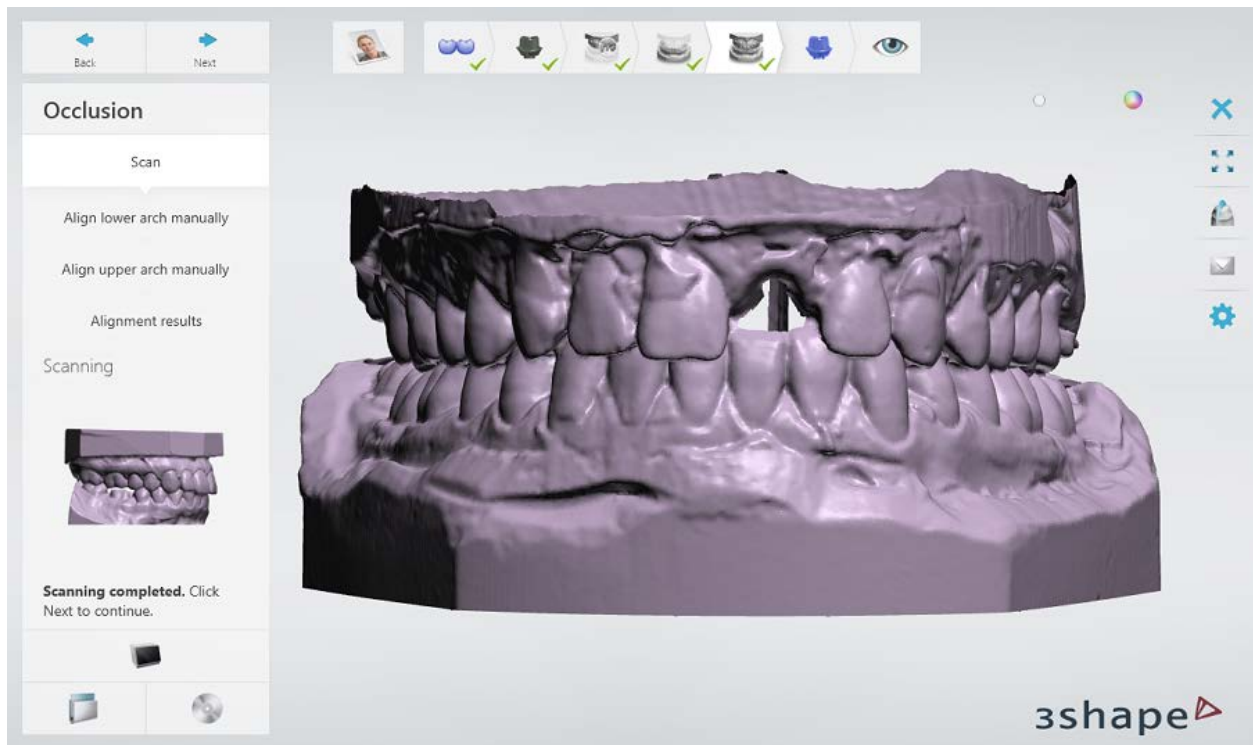


► **Step 7: Scan antagonist arch**



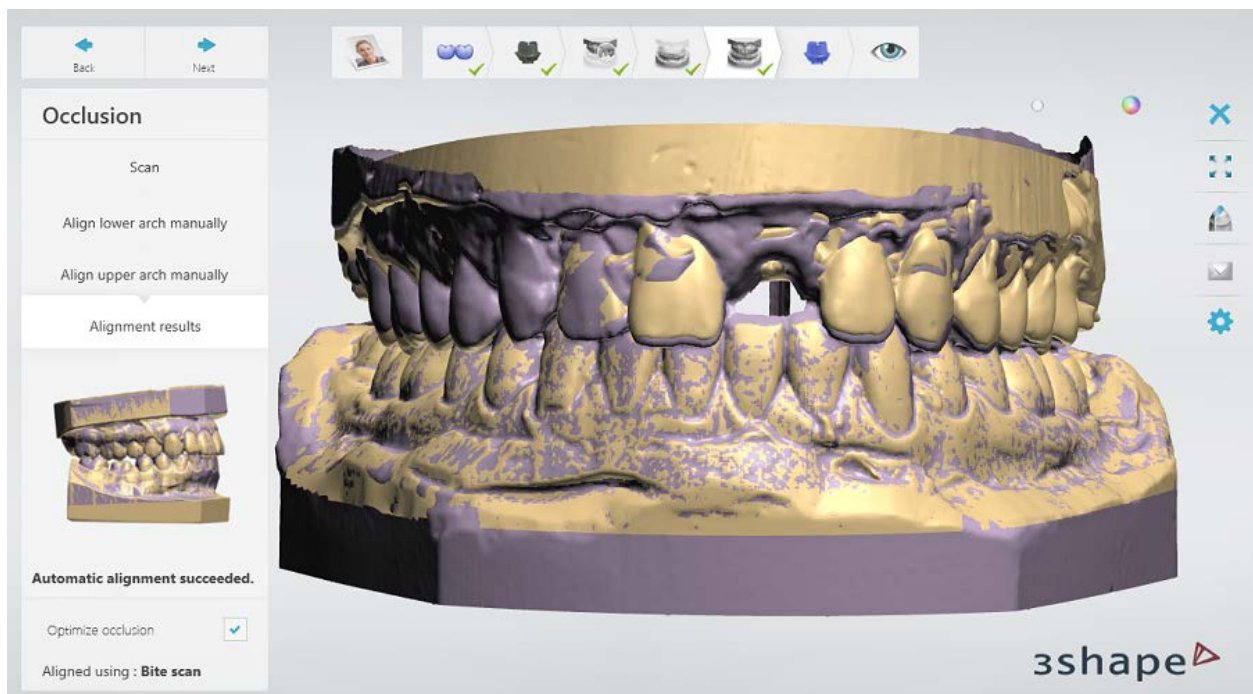
[Trim](#) the scan if necessary.

► **Step 7: Scan occlusion**

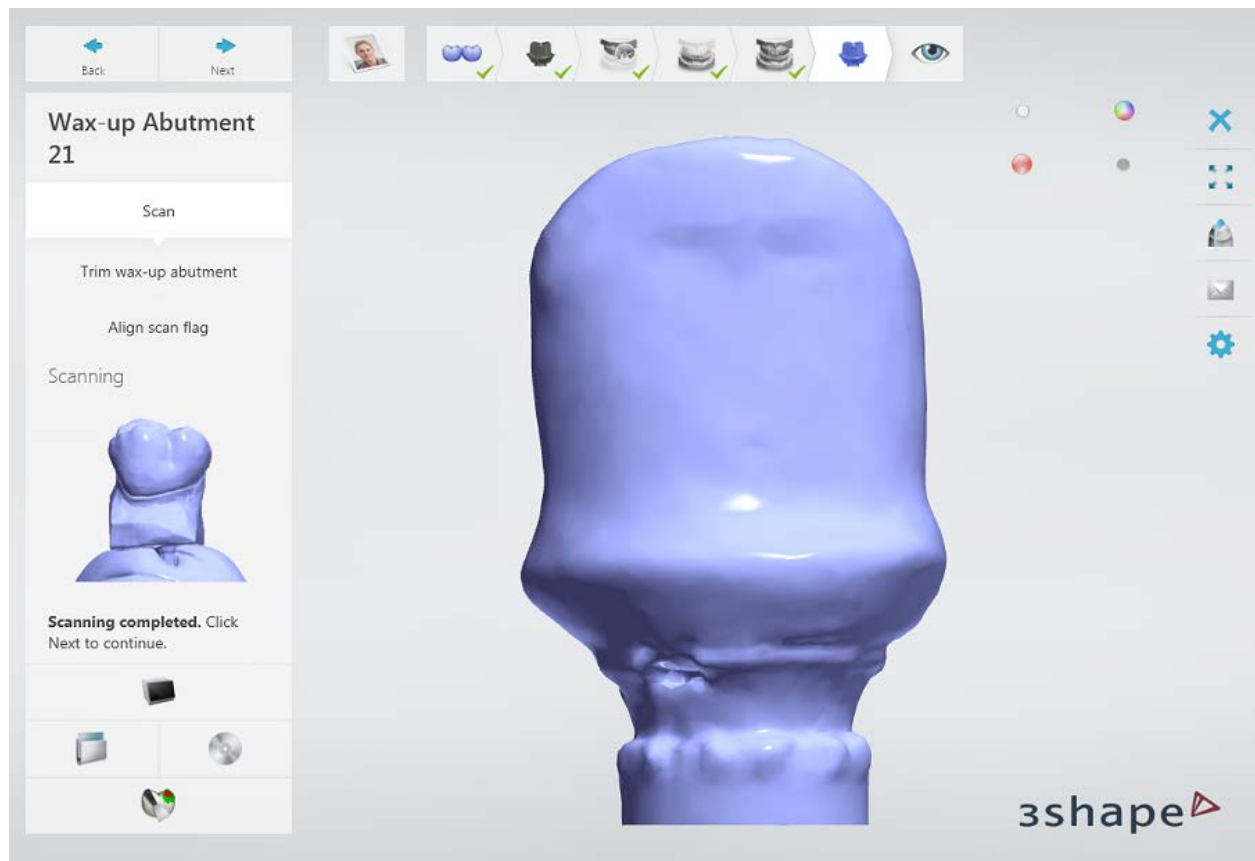


► Step 8: Align occlusion with the arch scans

Use one of the methods to [align](#) the scans.



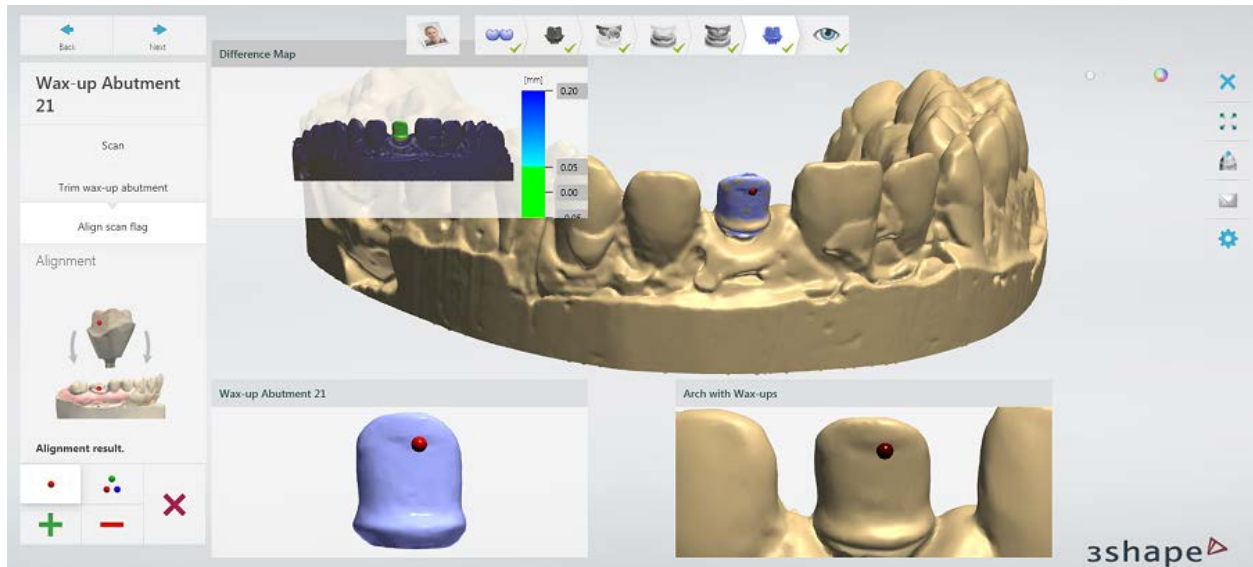
► **Step 9: Scan the wax-up abutment**



[Trim](#) the scan if necessary.

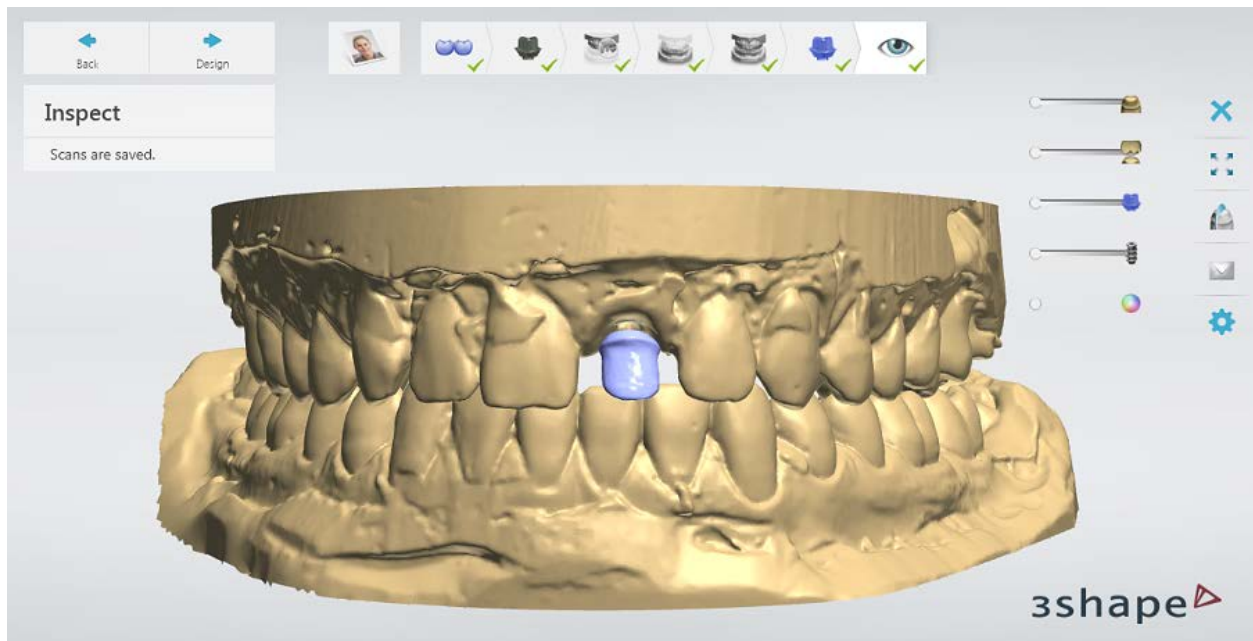
► **Step 10: Align the wax-up abutment and the arch with wax-up abutment scans**

Use one of the methods to [align](#) the scans.



►Step 11: Finish scanning

Click **Next** to save the scans and go to the Inspect step. You can now go to the modeling procedure by clicking the **Design** button.



Continue to the [design section](#)

1.18.3. Wax-up Abutment and Implant Bridge Design

Wax-up abutment and implant bridge design is similar to [Customized Abutments](#) and [Wax-up Bridge](#) orders.

Continue to [manufacturing](#) if required.

1.19. Implant Bars and Bridges

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.


The included sub-chapters describe a workflow for an Implant Bars and Bridges order:

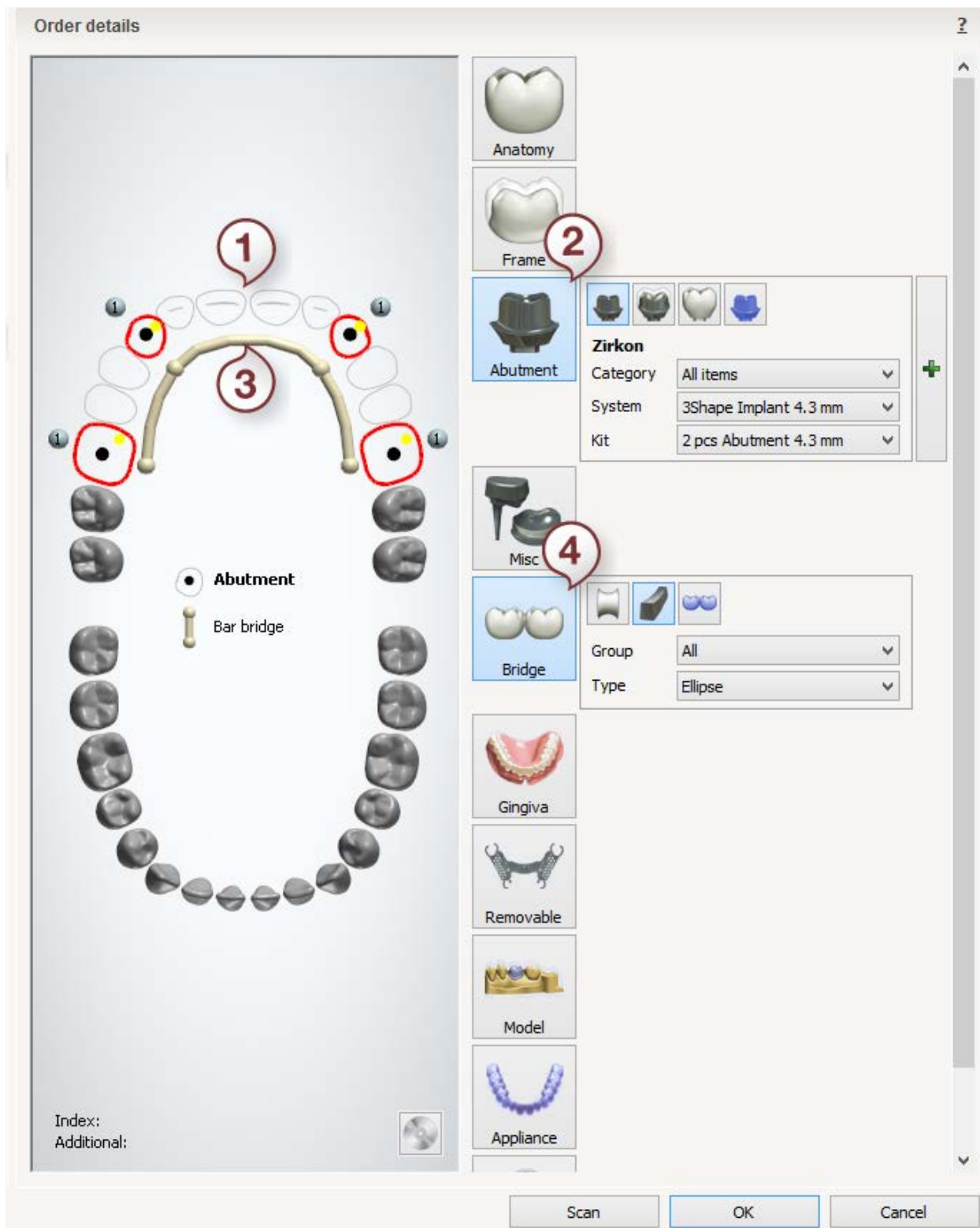
- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.19.1. Implant Bars and Bridges Order Creation

To create an [Implant Bars](#) or [Implant Bridges](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

IMPLANT BARS

- ▶ **Step 1: Select preparations in the teeth overview**
- ▶ **Step 2: Click the *Abutment* button**
- ▶ **Step 3: Select all units in a bridge in the teeth overview** (if not already selected)
- ▶ **Step 4: Click the *Bridge* button and select a Bar bridge  type**



IMPLANT BRIDGES

► Step 1: Select preparations in the teeth overview

► Step 2: Click the *Abutment* button

► Step 3: Select pontic in the teeth overview

► Step 4: Click the *Frame* button and select the *Library Pontic*  button

► Step 5: Select all units in bridge in the teeth overview

► Step 6: Click the *Bridge* button

Order details

Index:
Additional:

Library Pontic
Abutment
Connector bridge

1 5 3 1

Anatomy
Frame
Abutment
Misc
Bridge
Gingiva
Removable
Model
Appliance
Implant Studio

Type: None

Scan OK Cancel



Note! An implant bridge can include screw retained crowns, anatomical abutments, crown pontics, and anatomical pontics joined together with connectors, the gingiva, or both.

After creating the order, proceed to [scanning](#).

1.19.2. Implant Bars and Bridges Scanning

Implant Bars and Bridges scanning is identical to customized abutments, please see section [Customized Abutments Scanning](#) for details.

Continue to the [design section](#).

1.19.3. Implant Bars and Bridges Design



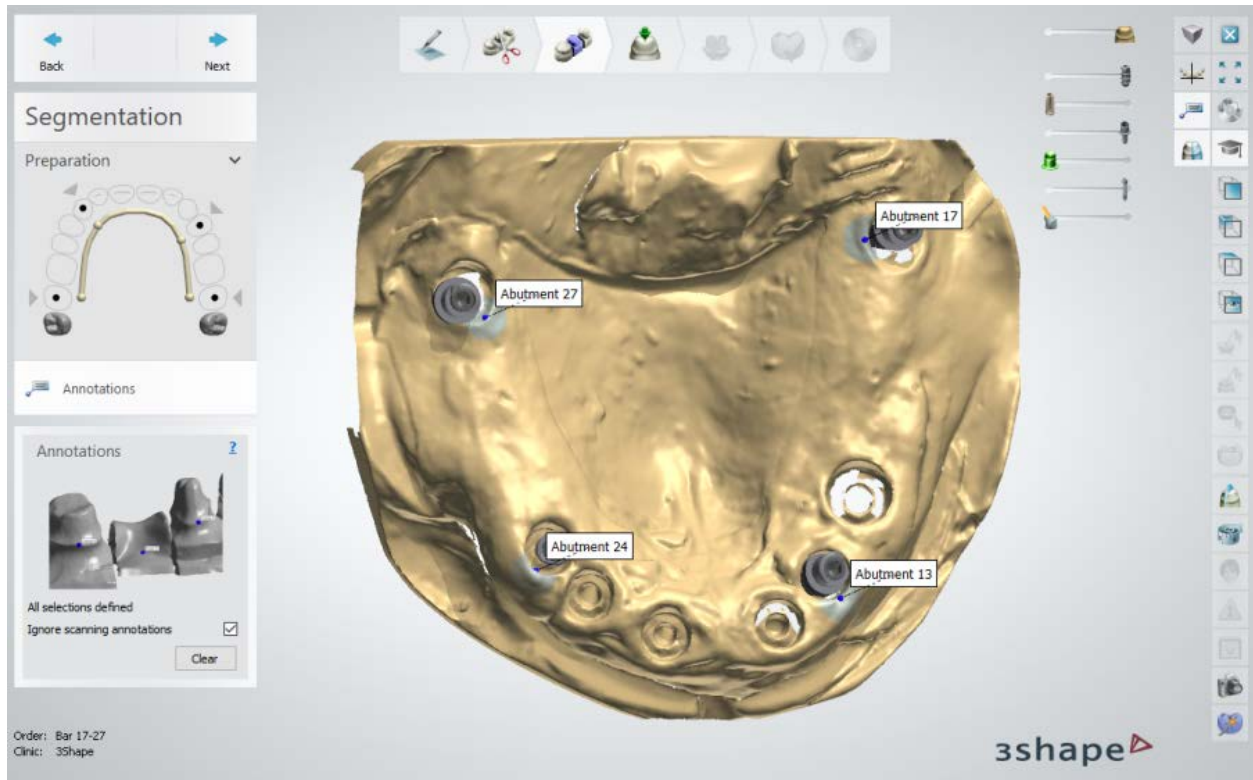
IMPLANT BARS

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

Place annotations for abutments. This step is identical to [Annotations](#) described in Single Coping chapter.



►Step 3: Set the Insertion Direction

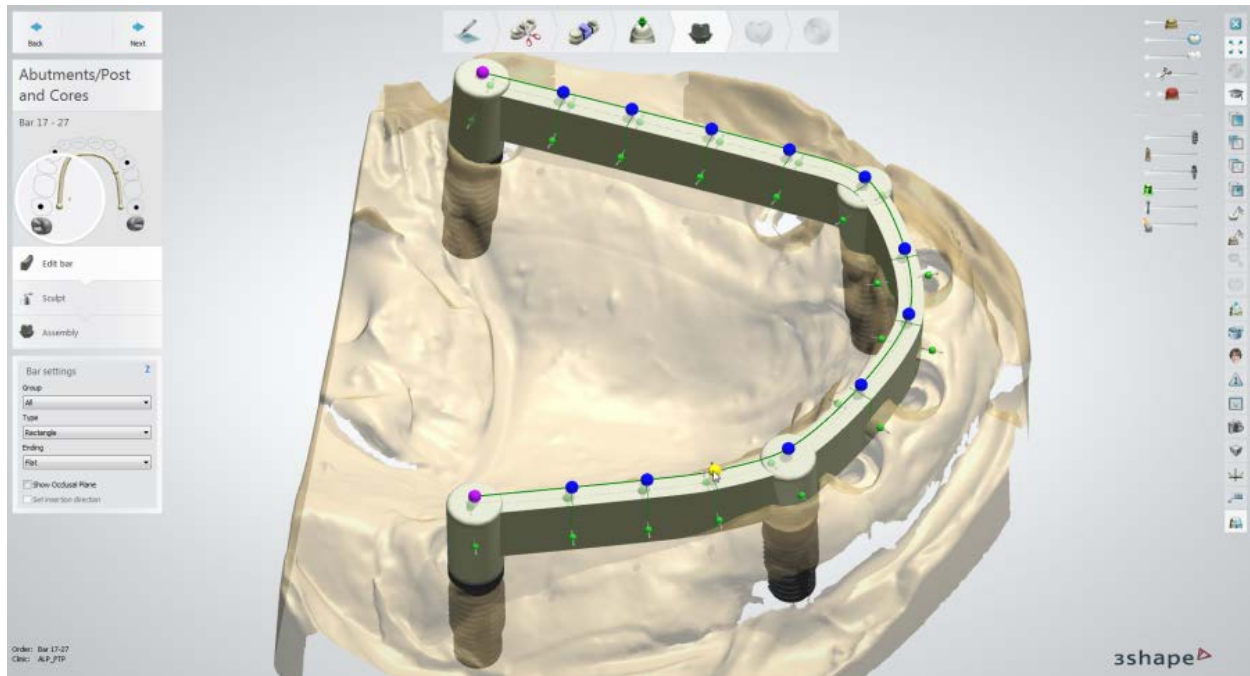
Specify the Insertion Direction for the bar by positioning the implants perpendicular to the screen and clicking the **Set direction** button.



► Step 4: Edit the Bar and Abutments



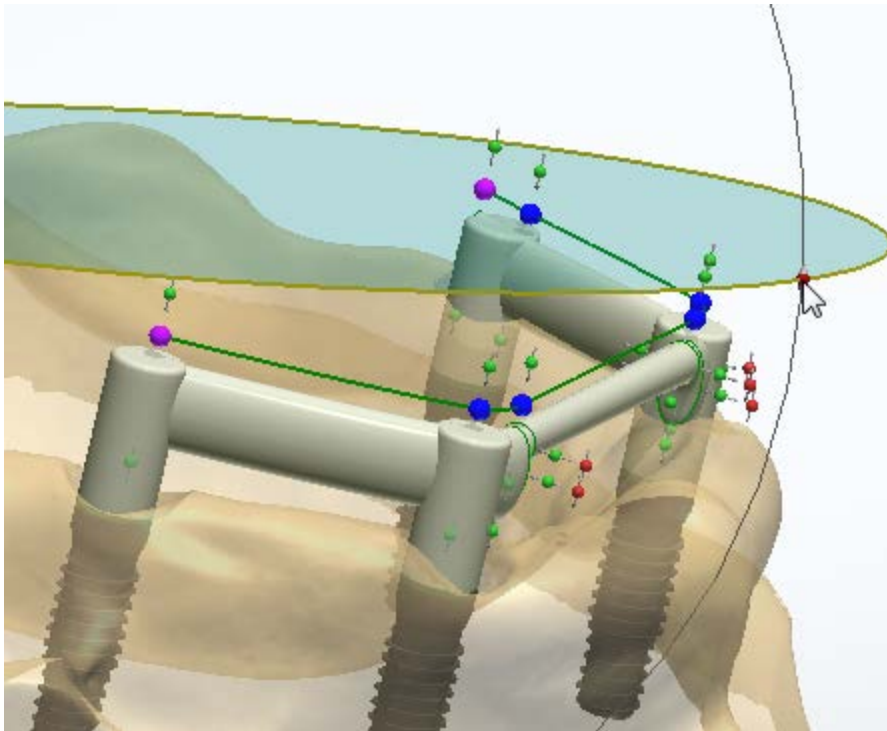
Hint! You can switch between a bar and an abutment to model either one or another. To do so, click a bar or an abutment in the modeling window and go to the required step in the [Design Steps](#).



Hint! If you enabled the **Show info message** checkbox in [Dental System Control Panel](#), the info message will appear on entering this step.

BAR SETTINGS AND MANIPULATION

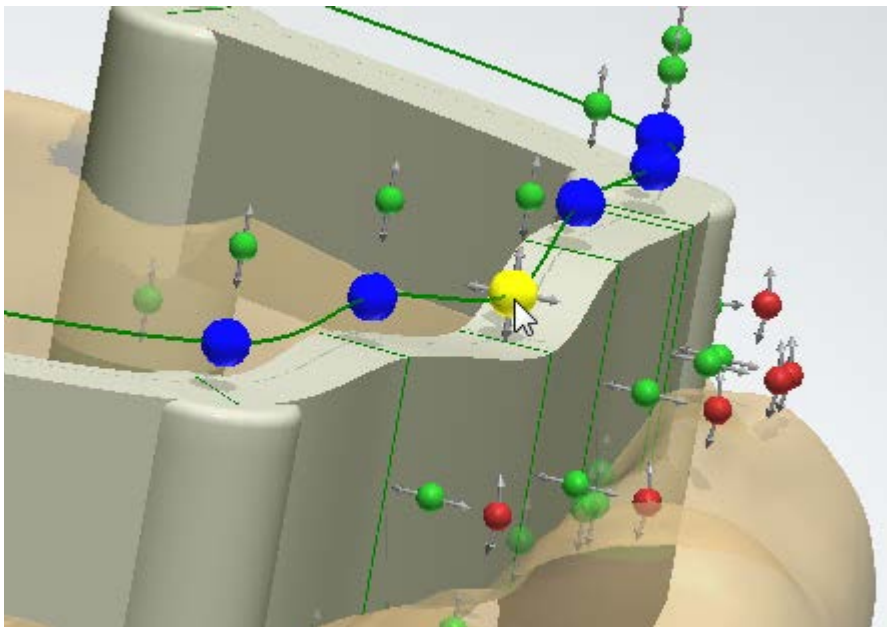
Select the required Bar **Group**, **Type** and **Ending**, which are predefined in Dental System Control Panel (see section [Bars](#)).



Show Occlusal Plane - when selected, displays the occlusal plane, which allows you to create a better bite.

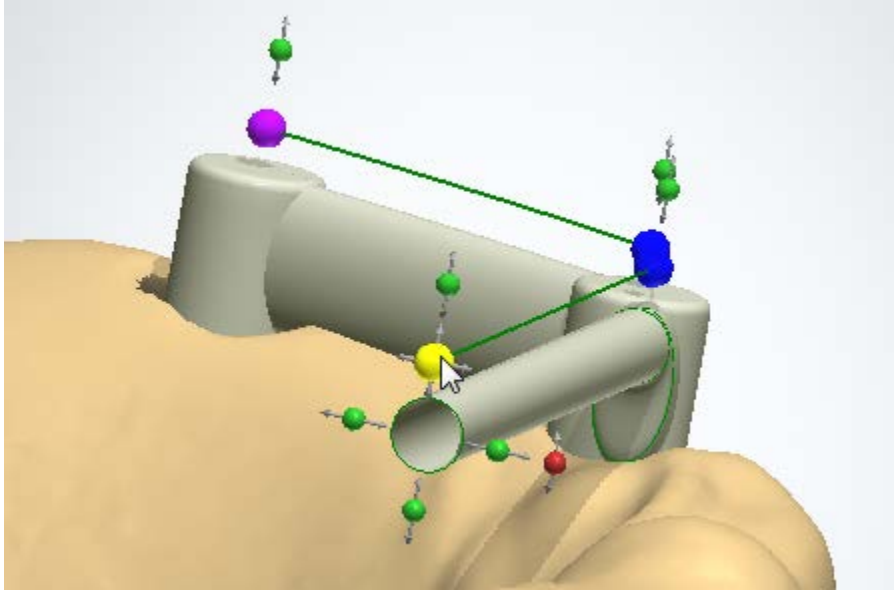
- Rotate the plane with the help of **red** control points or by dragging the edge of the plane (see image).
- Move the plane up/down with the help of a **blue** control point.

Set insertion direction - when selected, sets the insertion direction of a bar according to the position of the occlusal plane.



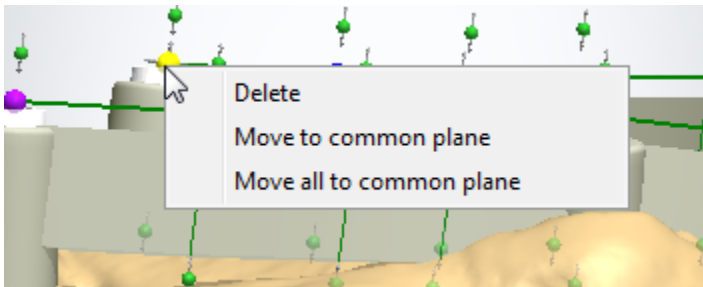
- Rotate the model and adjust the shape of the bar by dragging the **blue** points up/down and in/out depending on the way you look at it.
- Click and move the **green** points to change the bar width.
- Click and move the **red** points to rotate the bar.

Press **Shift** to select and move all points of the same direction.



Double-click the blue and magenta control point to get a cross-section of the bar. Double-click again to return to the normal view.

When required, you can add additional manipulation points to the bar by clicking the control line.

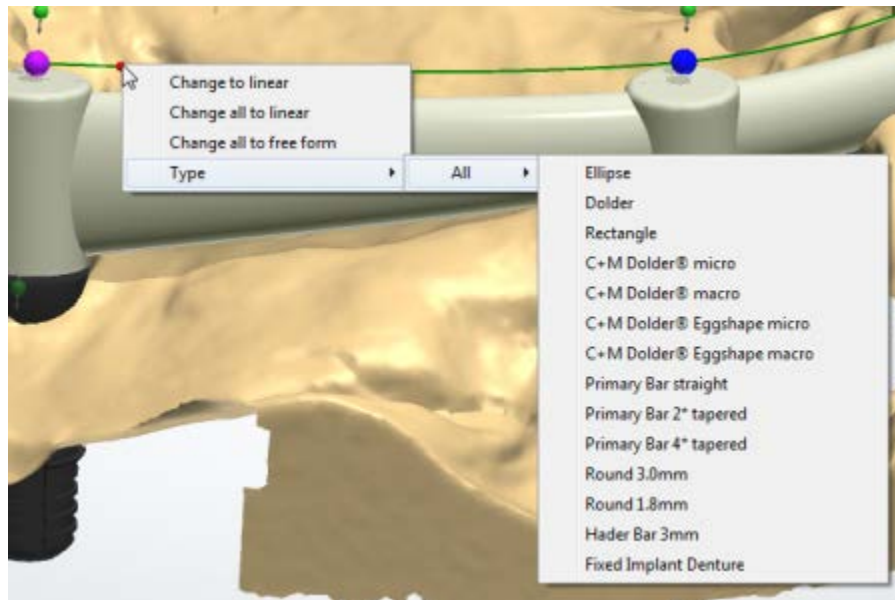


Right-click the point to use the following options:

Delete - Deletes the selected point.

Move to common plane - A point is leveled with the common (occlusal) plane.

Move all to common plane - All points are leveled with the common (occlusal) plane.



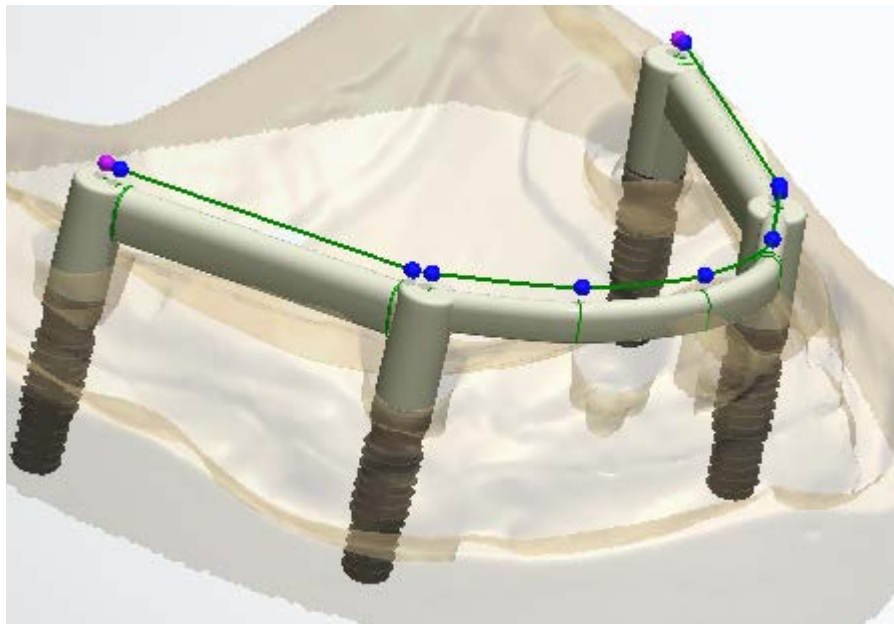
Right-click the spline to access the following options:

Change to linear - The selected spline section is shaped to linear.

Change all to linear - All sections of the spline are shaped to linear.

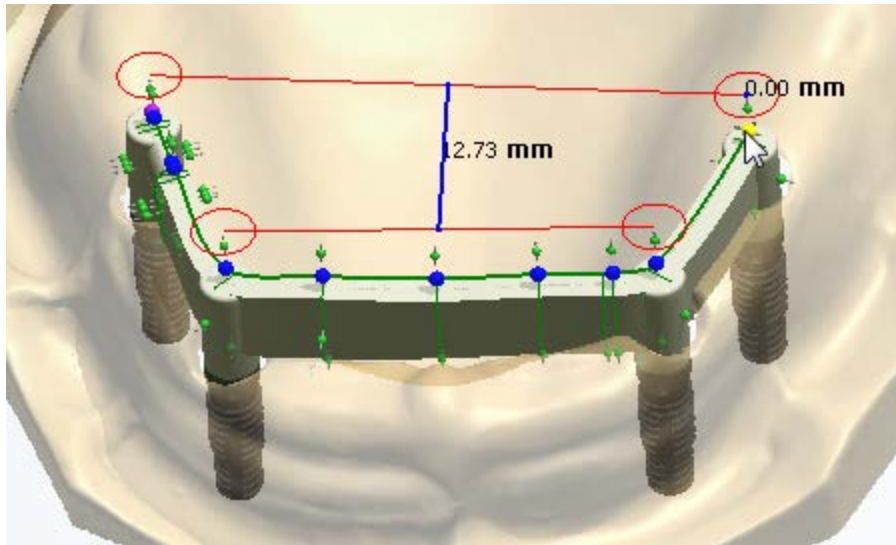
Change to free form - The selected spline section can be changed from linear to free form.

Change all to free form - All sections of the spline are shaped to free form.

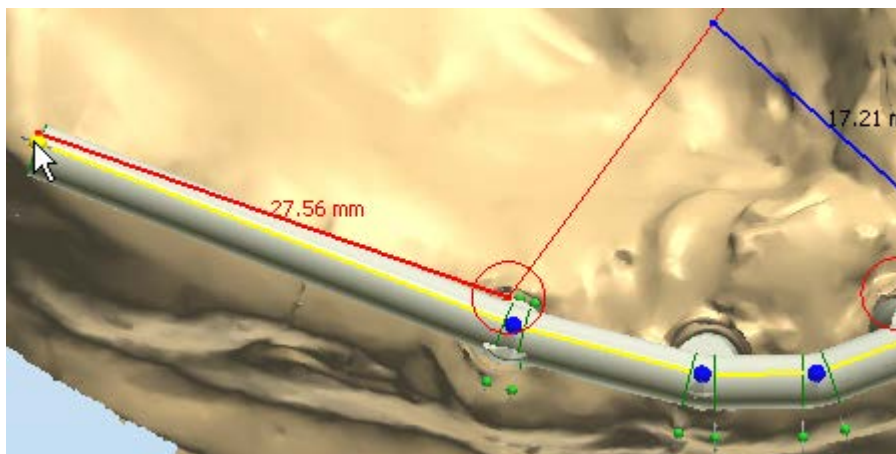


Type - Change the bar type of a specific bar section. The whole bar type is changed directly in the Bar settings.

The image illustrates an implant bar with the two bar types: **C+M Dolder® micro** and **C+M Dolder® macro**.



You can control the bar dental dimensions and manipulate them by dragging the magenta control points at the end of the bar.



When a cantilever part of the implant bar exceeds the [A-P spread](#) value of 1.5, that part is highlighted in red (see picture).

It is essential to observe this limitation to ensure the reliability of the design.

Example with A-P spread equal to 1.6 (27.56mm / 17.21mm)



BAR INTERFACE ABUTMENT SETTINGS

Click the abutment you want to edit to go to the bar interface abutment settings.

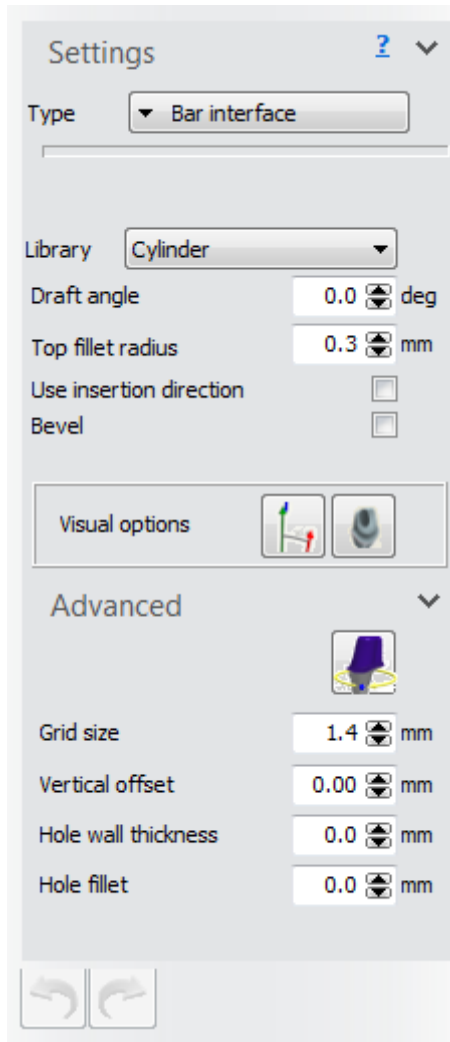


Hint! If necessary, you can change the abutment settings (e.g. an Implant Kit)

in the Order form by clicking the corresponding



button in the Workflow bar.



The **Bar interface** abutment type is relevant when working with implant bridges, but you can also select it while working with single abutments.

Library - The program offers you two kinds of shapes for the bar interface: **Cylinder** and **Cylinder with shoulder**.

Draft angle - the side angle of the upper part of a top cap.

Top fillet radius - the rounding radius of the upper part of a top cap.

Use insertion direction - when selected, the user specified insertion direction of the occlusal plane applied for the bar is used instead of the default implant direction.

Bevel - when checked, creates a plane cut on the top cap for better alignment of abutments and the bar.

Visual options:



Shows/Hides angle graphics (insertion direction and implant direction).



Shows/Hides implant direction cylinder

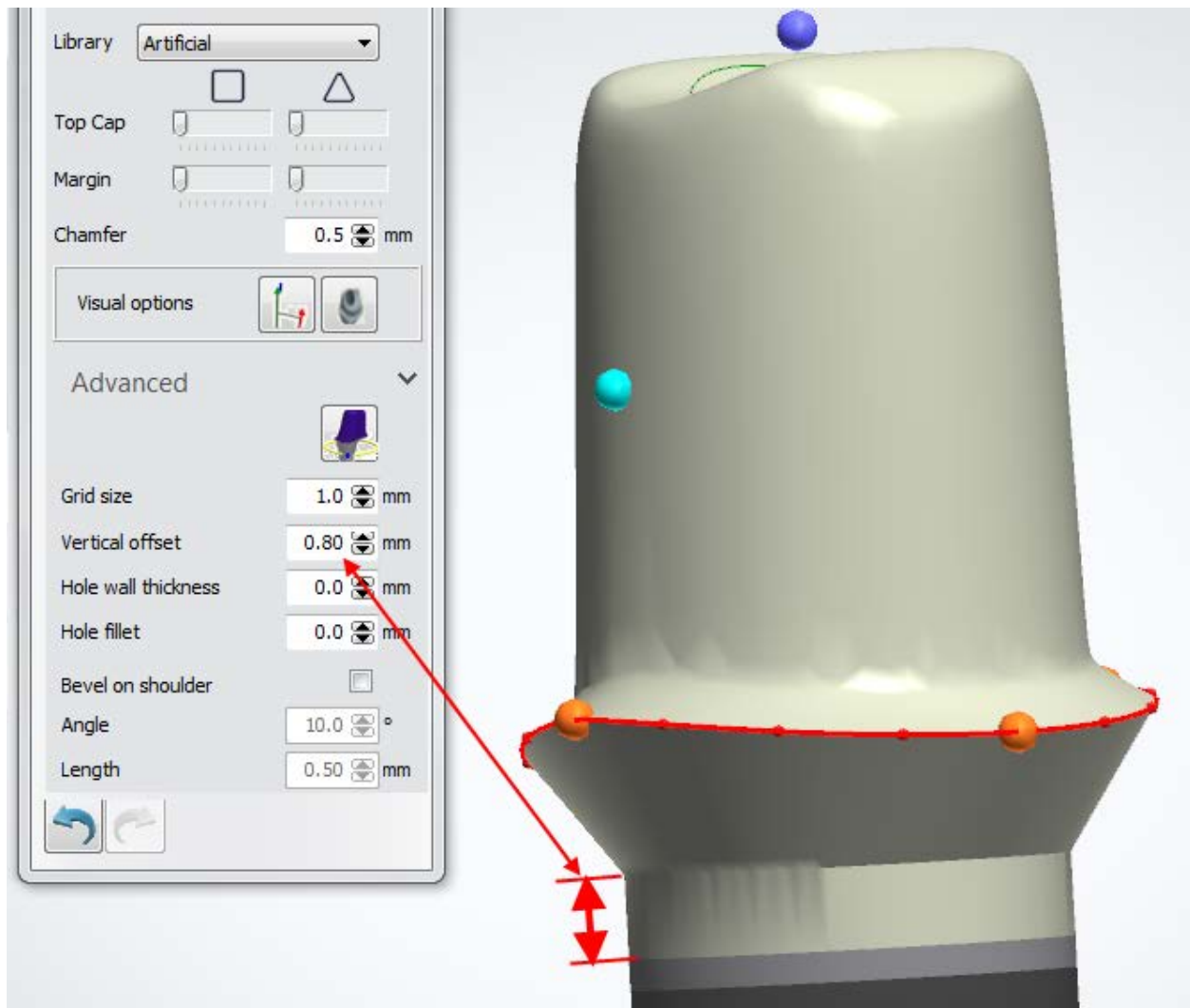
The shoulder angle can be adjusted directly from the 3D window by clicking on the corresponding control points.



The **Edit Implant Models** button, in **Advanced** settings, lets you rotate the abutment base and position the axis of the screw hole at an angle with the cursor (the number of possible base rotation angles is configured in Control Panel -> Abutments -> Implant systems - see the chapter [Implant Systems](#)).

Grid size - the size of a grid that appears when you point a mouse over a control point. The grid is used to measure distances, for example, between a point and an antagonist.

Vertical offset - the length of the additional vertical cylinder surface before the emergence exit.

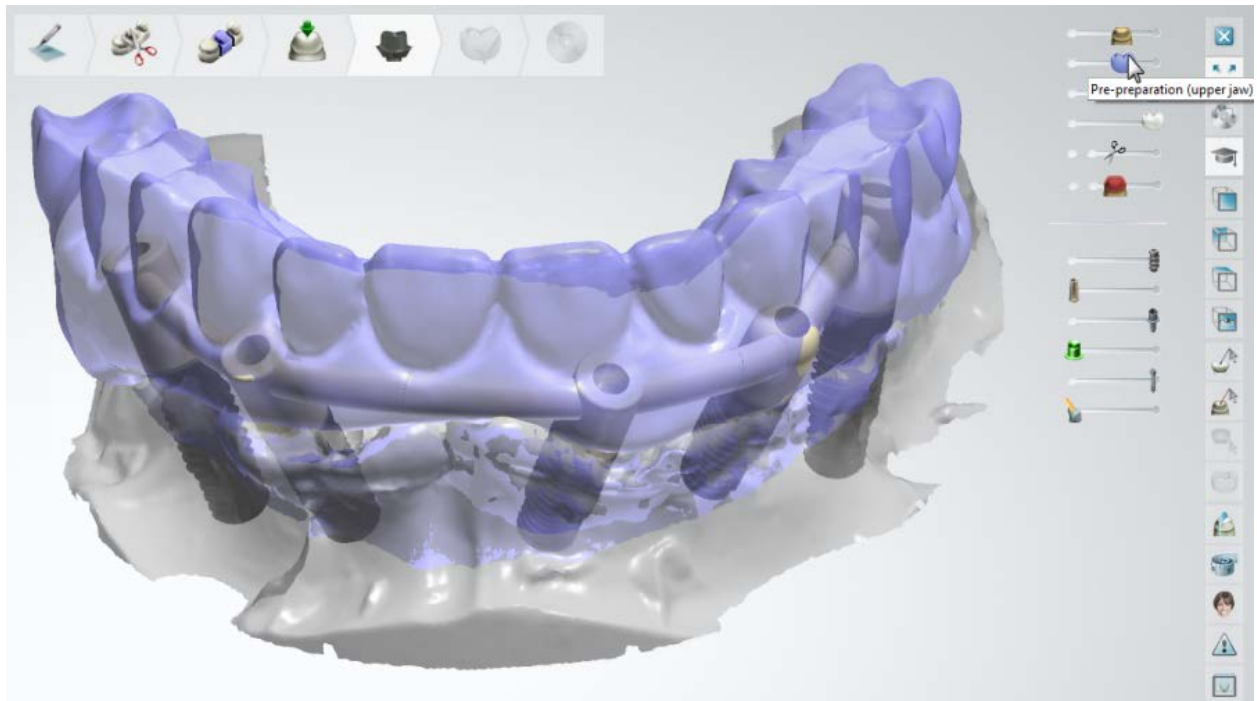


Hole wall thickness - adds the specified value to the minimum thickness parameter.

Hole fillet - ensure that wall thickness is not less than specified.

In order to simplify the bar interfaces creation, some of the parameters can be applied to all abutments simultaneously by right-clicking on such a parameter and selecting **Apply to all**.

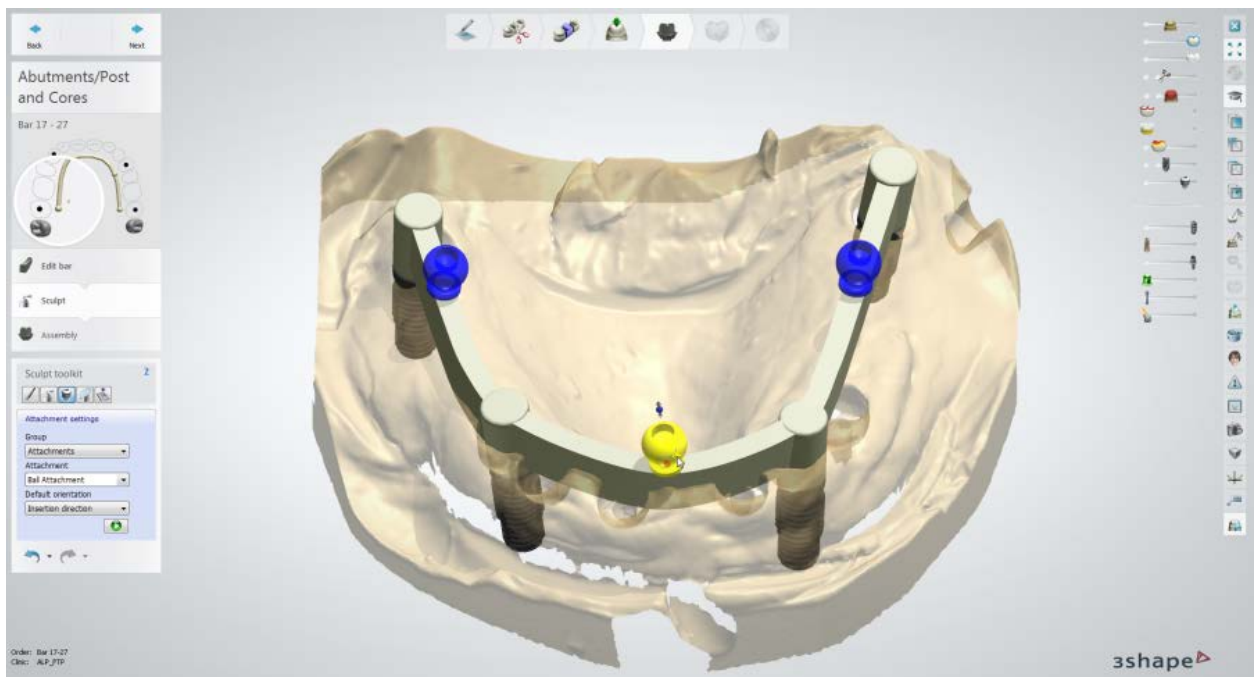
Use the **Pre-preparation** slider to visualize the denture scan, if used, and adjust your bar accordingly for a better bite:



►Step 5: Sculpt the Bar

Modify your bar with the sculpting tools and place [attachments](#).

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



►Step 6: Sculpt the Abutments



Hint! You can switch between a bar and an abutment to model either one or another. To do so, double-click on a bar or an abutment in the modeling window and go to the required step in the [Design Steps](#).

The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



►Step 7: Perform the Assembly

This step is identical to [Assembly](#) described in Customized Abutments chapter.

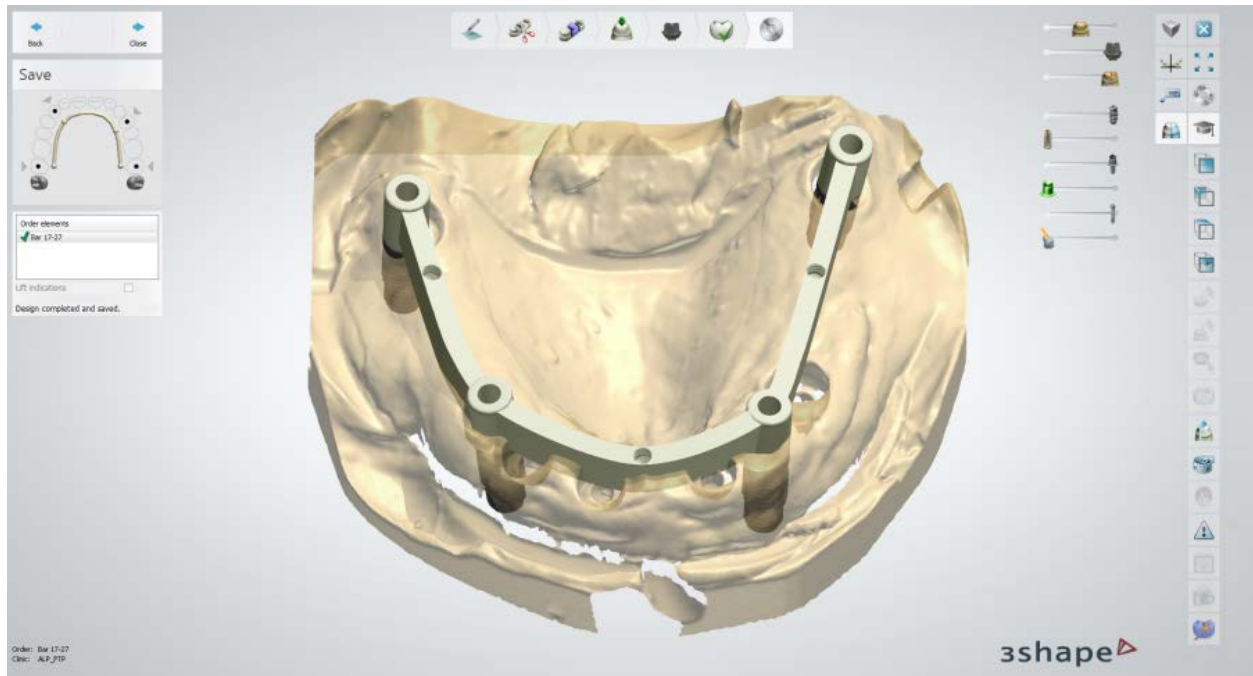


► Step 8: Use the Sculpt toolkit

To finalize your design, use the [Sculpt toolkit](#) on both the bar and the abutments.



► Step 9: Save and close your design



IMPLANT BRIDGES

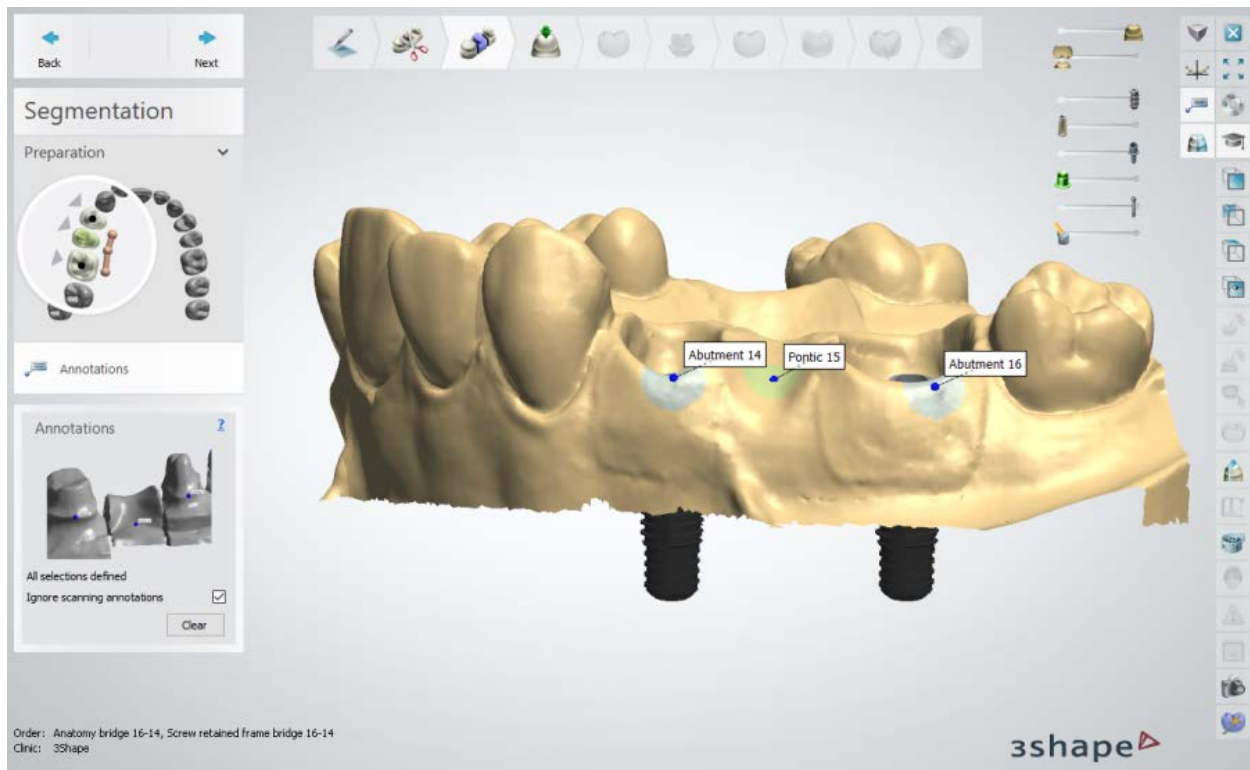
This section describes the step-by-step workflow of designing an implant bridge, which contains two anatomical abutments and an anatomical pontic with anatomy on top.

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

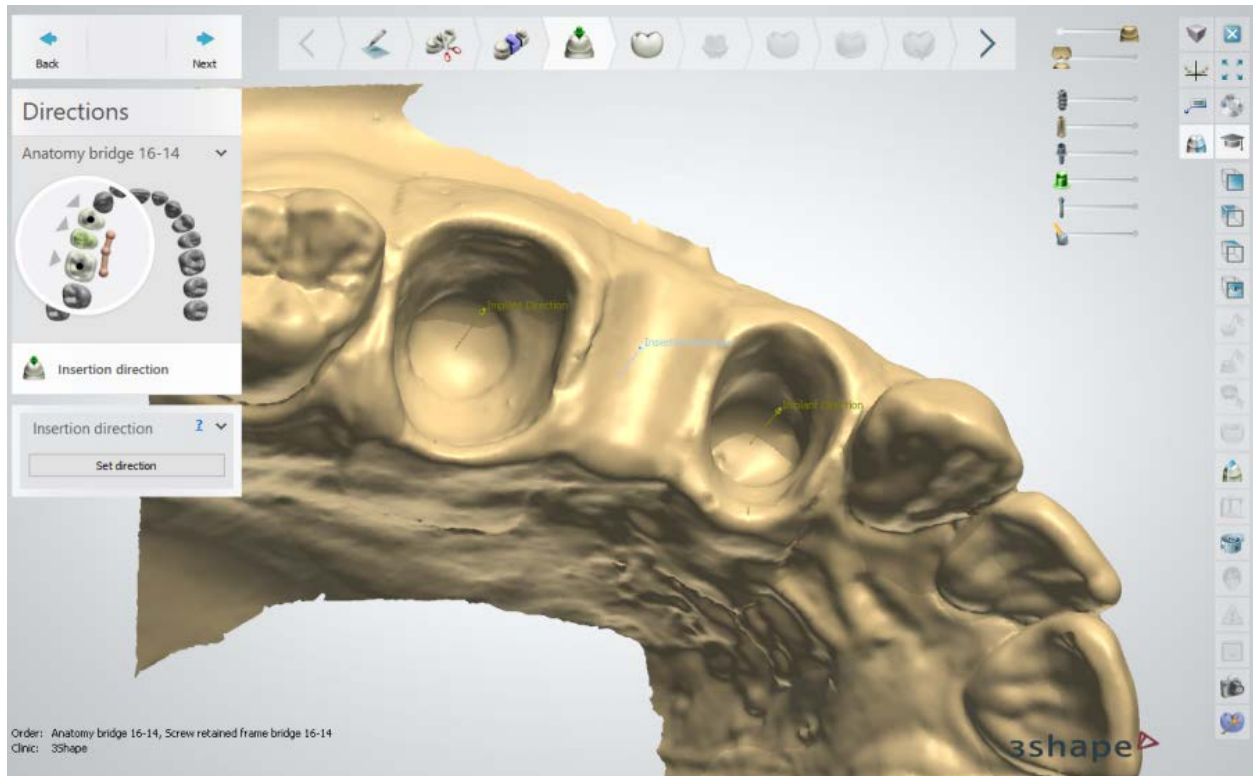
►Step 2: Place Annotations

Place annotations for abutments and a pontic. This step is identical to [Annotations](#) described in Single Coping chapter.



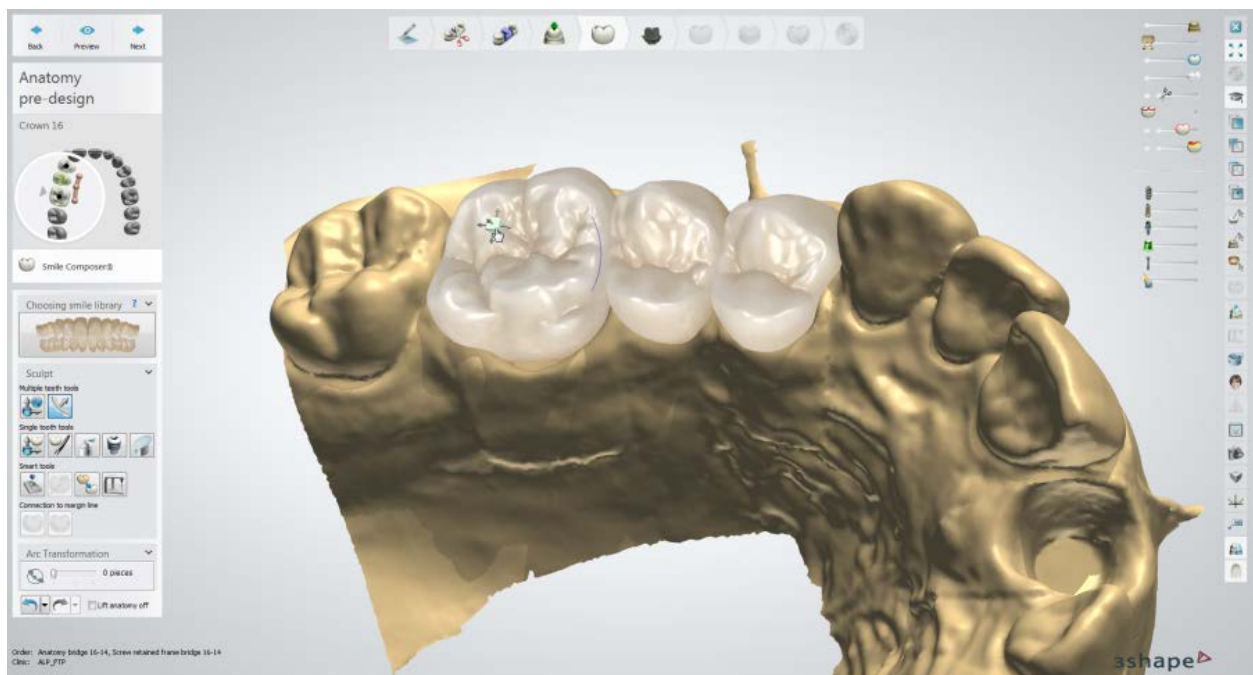
► Step 3: Set the Insertion Direction

Specify the Insertion Direction for the implant bridge by positioning the implants perpendicular to the screen and clicking the **Set direction** button.



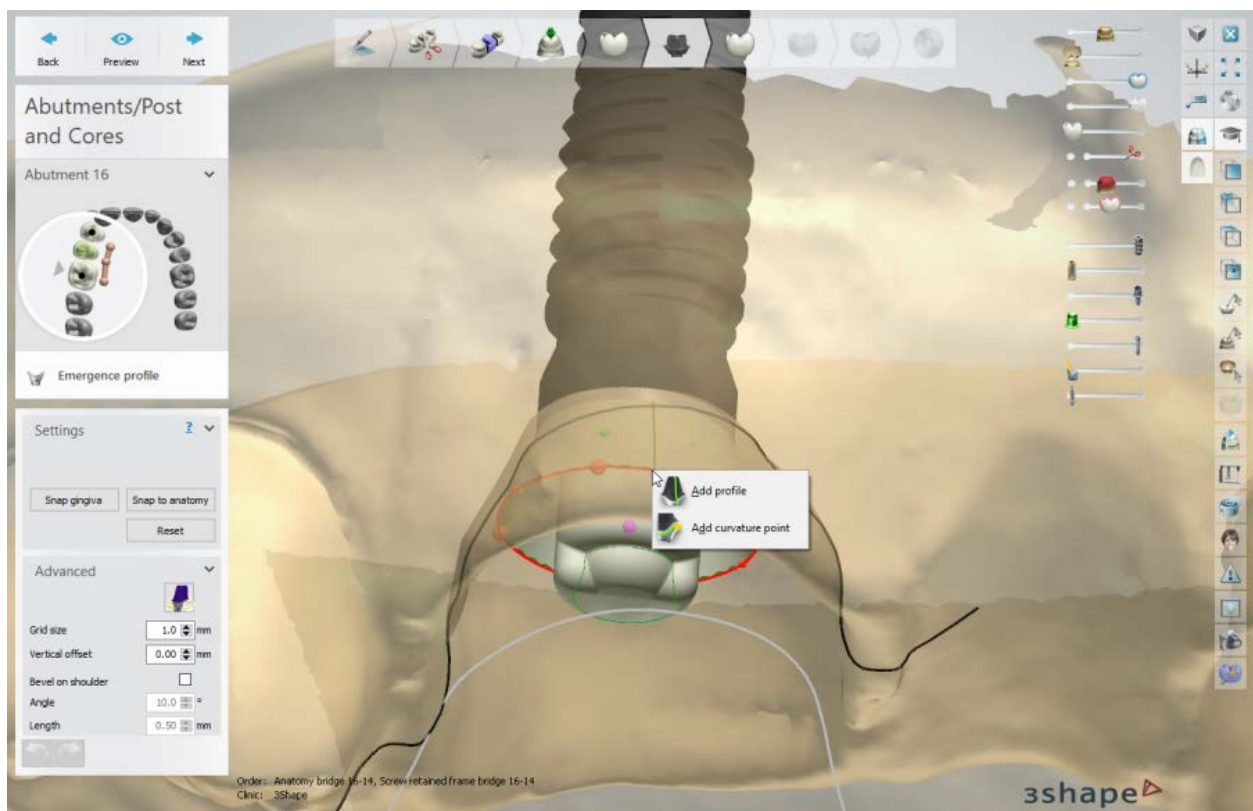
►Step 4 (optional): Use Smile Composer

By designing the anatomy layer first, you can model an optimally shaped abutments and pontic further in the process. Please see [Smile Composer](#) chapter for details on smile composer design.




►Step 5: Design the Emergence profile

- Use the available control points to design the emergence profile of the abutments.
- Right-click on the abutment and select **Add profile** to add additional vertical profiles with points for a better manipulation of the whole abutment. Right-click the profile to remove it.
- Right-click on the emergence profile and select **Add curvature point** to place extra horizontal profiles with points for a better manipulation of the emergence profile. Right-click the point to remove it.
- The **Snap gingiva** and **Snap to anatomy** buttons change the form of the emergence profile to fit the gingiva or anatomy respectively.



Advanced Settings:

- The **Edit Implant Models**  button, in **Advanced** settings, lets you rotate the base and position the axis of the screw hole at an angle with the cursor (the number of possible base rotation angles is configured in Control Panel -> Abutments -> Implant systems - see the chapter [Implant Systems](#)).
- **Grid size** - the size of a grid that appears when you point a mouse over a control point. The grid is used to measure distances, for example, between a point and an antagonist.
- **Vertical offset** - offsets the lower part of an abutment to increase the distance between the implant and the abutment.

- **Bevel on shoulder** - when selected, creates an additional surface above the emergence profile with the *Angle* and *Length* parameters set in relation to the top cap direction.

►Step 6: Use Smile Composer

Use the Smile Composer tools to correct the anatomy design. See instructions on how to use them in chapter [Smile Composer](#).



►Step 7: Edit connectors

You can add and edit connectors on the anatomy layer by clicking the required connector in the modeling window or in the Order overview (see the image below).



In this case the teeth are located close to each other, you may not add connectors on the anatomy:

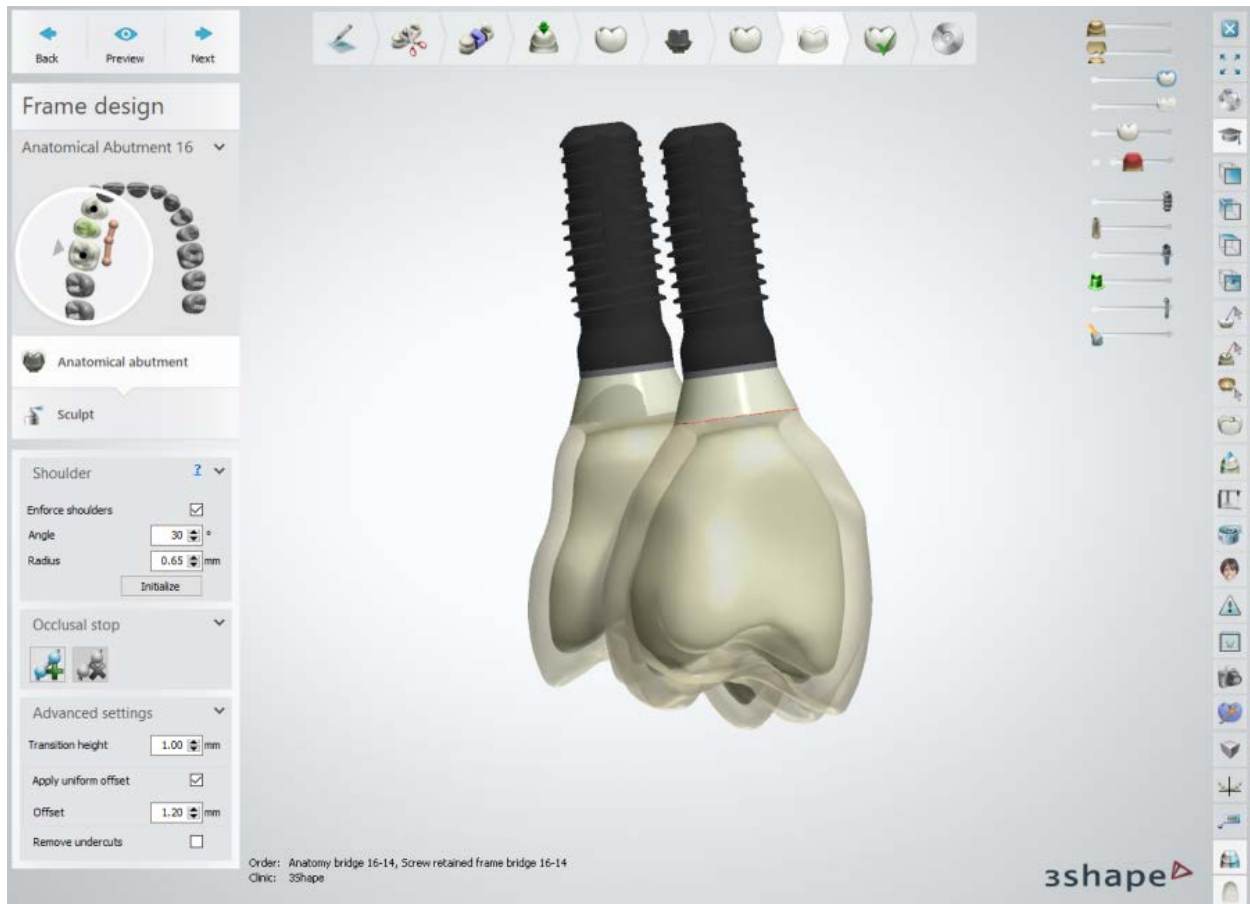


►Step 8: Design frame

This step allows you to design and sculpt abutments and pontics.

- Design your anatomical abutment using the settings similar to the ones of an [Anatomical coping](#).
- Design, if necessary, the cut-back crowns by defining the necessary cut-back shape with a spline.


- Use sliders in the upper right corner of the modeling window to show/hide the anatomy design, preparation etc. for a more convenient and better design of your framework.



- In the **Sculpt** step, you can modify the abutment's position and shape (please see chapter [Sculpt Toolkit](#)).

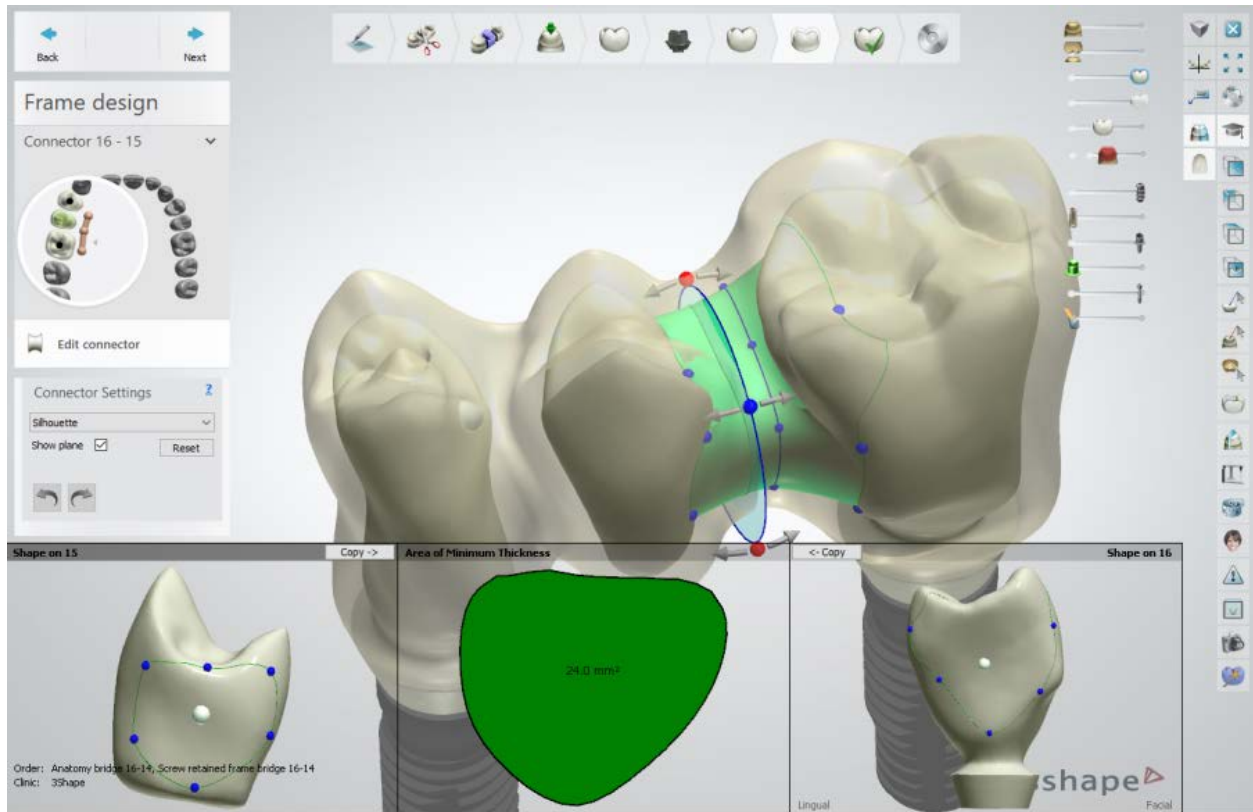
Select the pontic by clicking it in the modeling window or in the Order overview. Then design and sculpt your pontic as described in chapter [Bridge Framework](#):



You can turn off the **Material shaders**  in the Viewing tools for a better view of your abutments and a pontic.

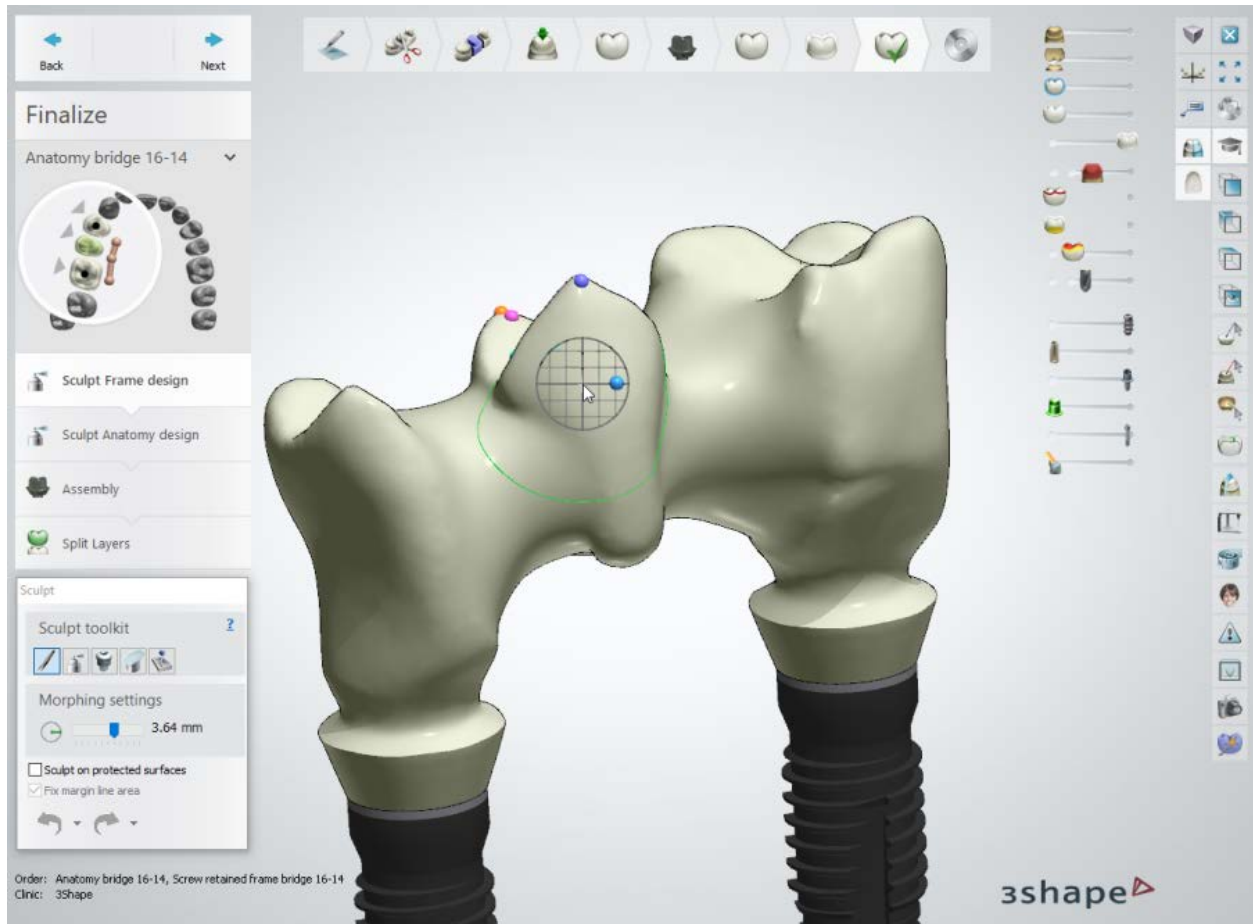
►Step 9: Edit connectors

Design connectors for your bridge as described in chapter [Bridge Framework](#):



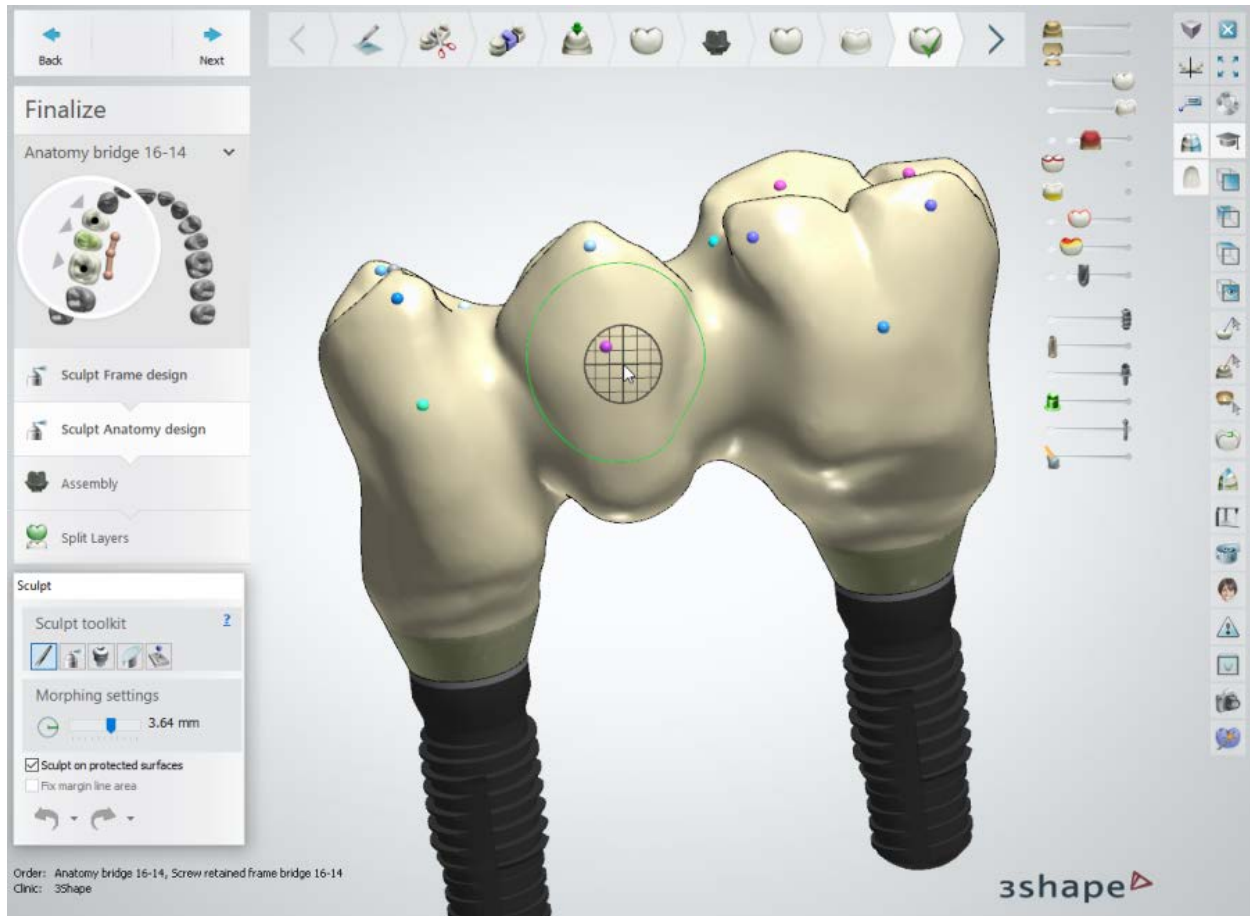
► Step 10: Sculpt the Frame design

Use the Sculpt tools to modify your framework. The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



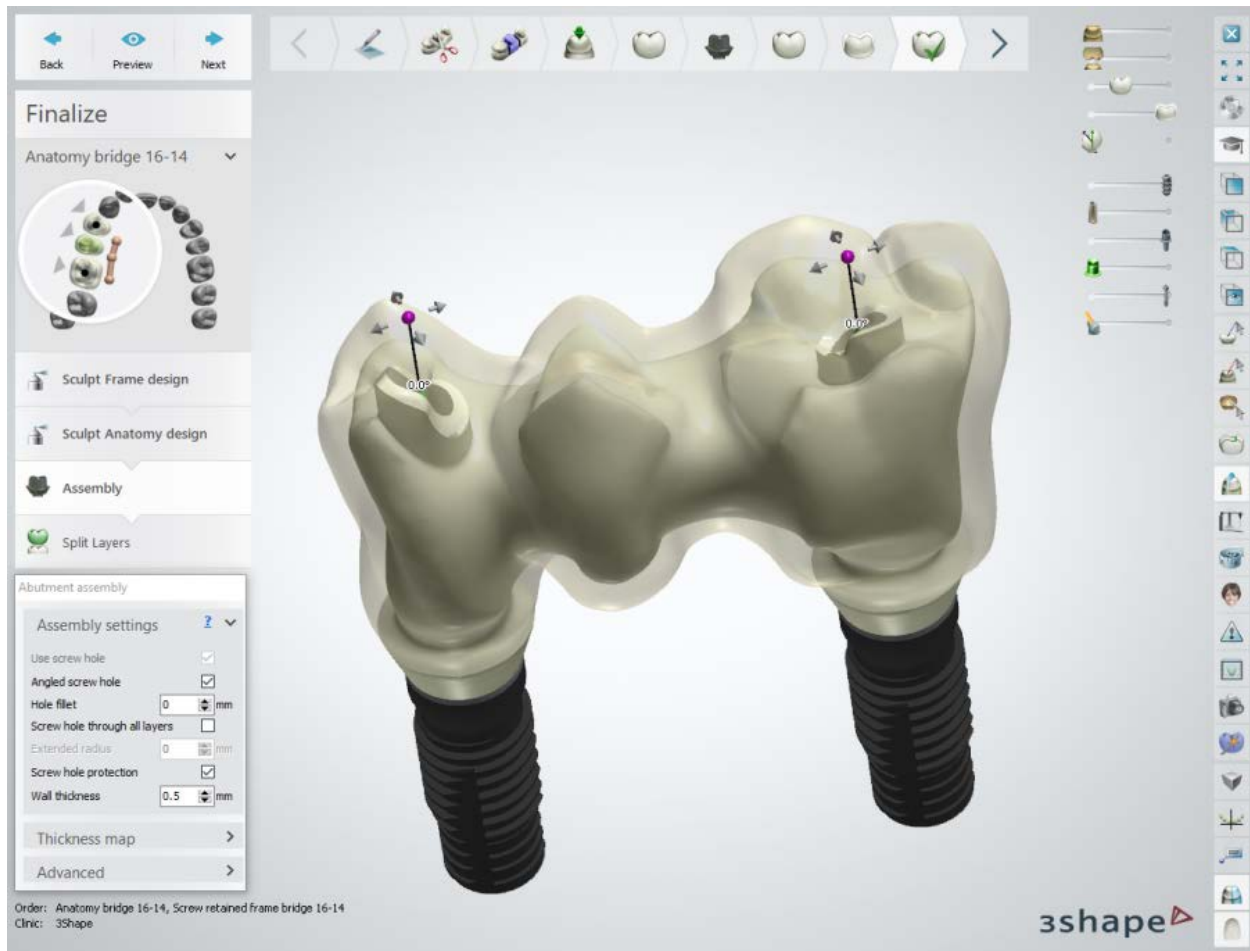
► Step 11: Sculpt the Anatomy design

Use the Sculpt tools to modify your anatomy. The details on how to use the tools you can read in chapter [Sculpt Toolkit](#).



►Step 12: Perform the Assembly

- Choose the **Use screw hole** check box to create screw holes in abutments. To place the screw hole at a specific angle, select the **Angled screw hole** checkbox and move the appeared control point to set the desired angle.
- Select the **Screw hole through all layers** checkbox to make an abutment screw hole passing all the way through anatomy and frame layer or select the **Screw hole protection** check box to create a hole protector in your model, that will prevent the veneering from going down into the screw hole:



Advanced Settings:

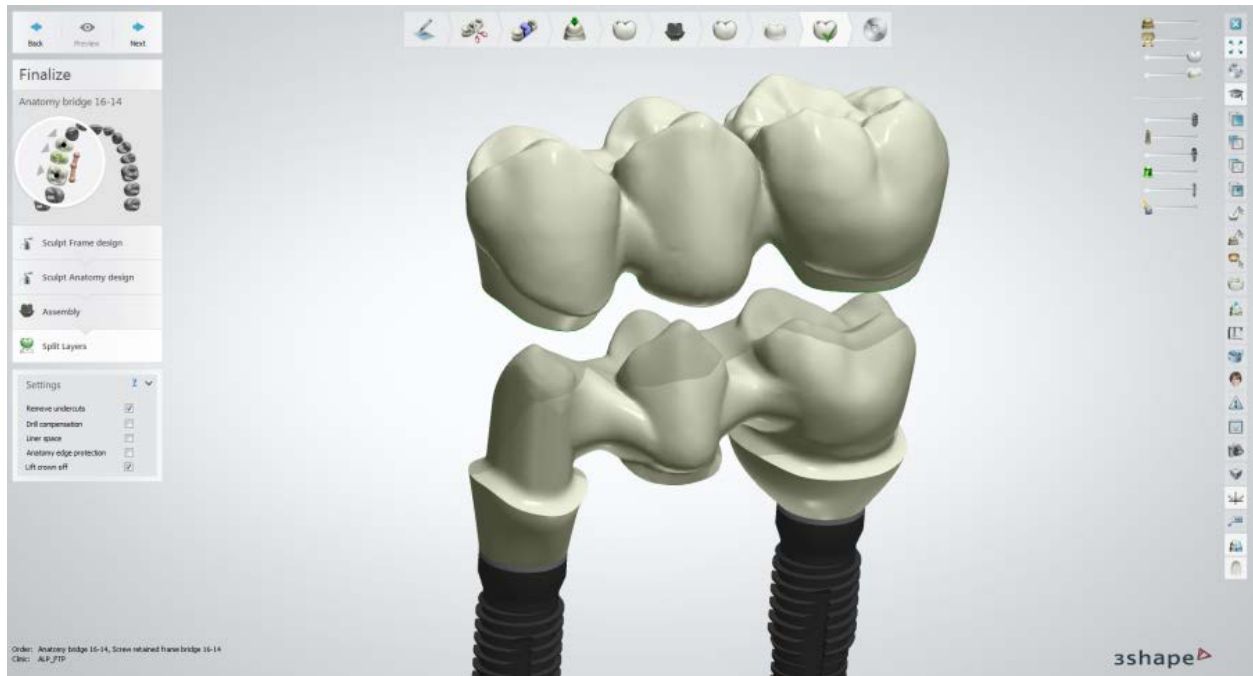
- **Vertical screw offset** - vertically offsets the screw hole.
- **Extra drill hole radius** - applies additional radius to the screw hole.



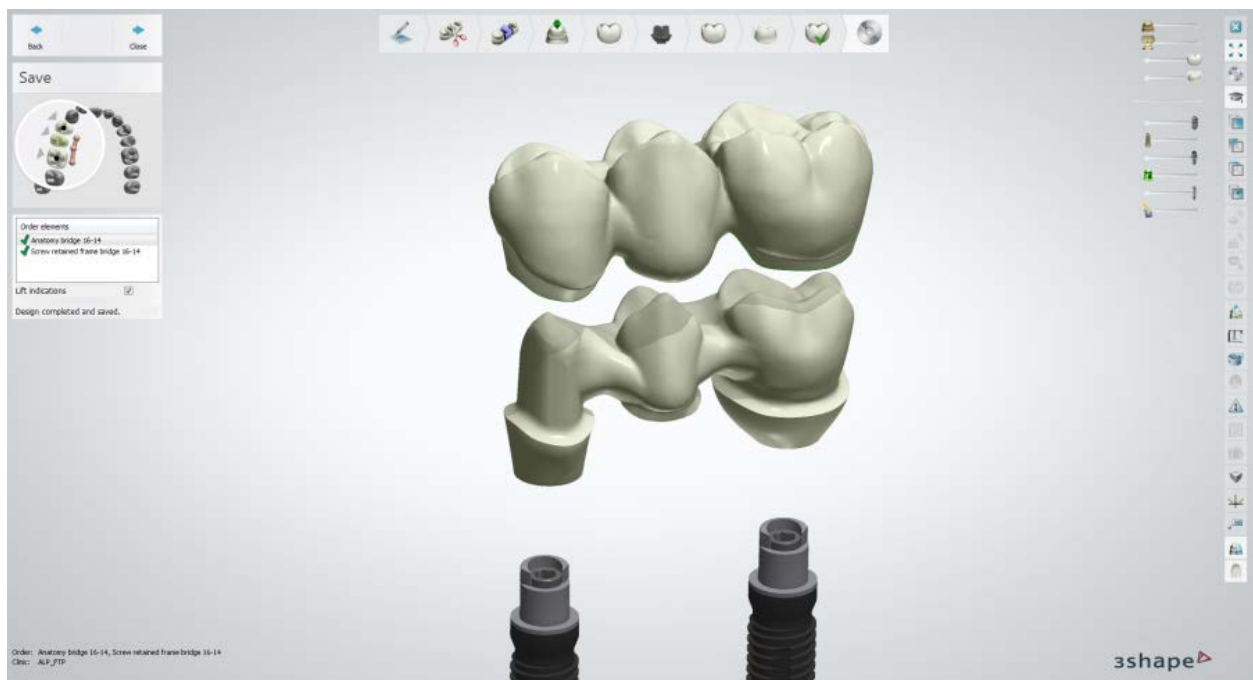
Note! The result of the **Screw hole through all layers** and **Screw hole protection** options will be visible on anatomy only after previewing the Split Layers step.

► Step 13: Split Layers

Click **Preview** to split the layers - framework and anatomy. After this, the **Lift crown off** checkbox becomes available, which (when selected) shows two layers separately:



► Step 14: Save and close your design



Continue to [manufacturing](#) if required.

1.20. Implant Bridge from Dentures

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.


The included sub-chapters describe a workflow for an Implant Bridge from Dentures order:

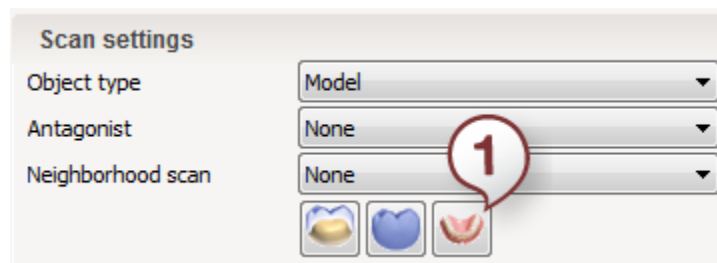
- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.20.1. Implant Bridge from Dentures Order Creation


To create an Implant Bridge from Dentures order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

You can use the shape of already existing, well-fitting dentures to create implant retained bridge.


► **Step 1: Select Model for the Object type and the *Full Denture Scan*  button in Scan Settings**






► **Step 2: Select pontics in the teeth overview**

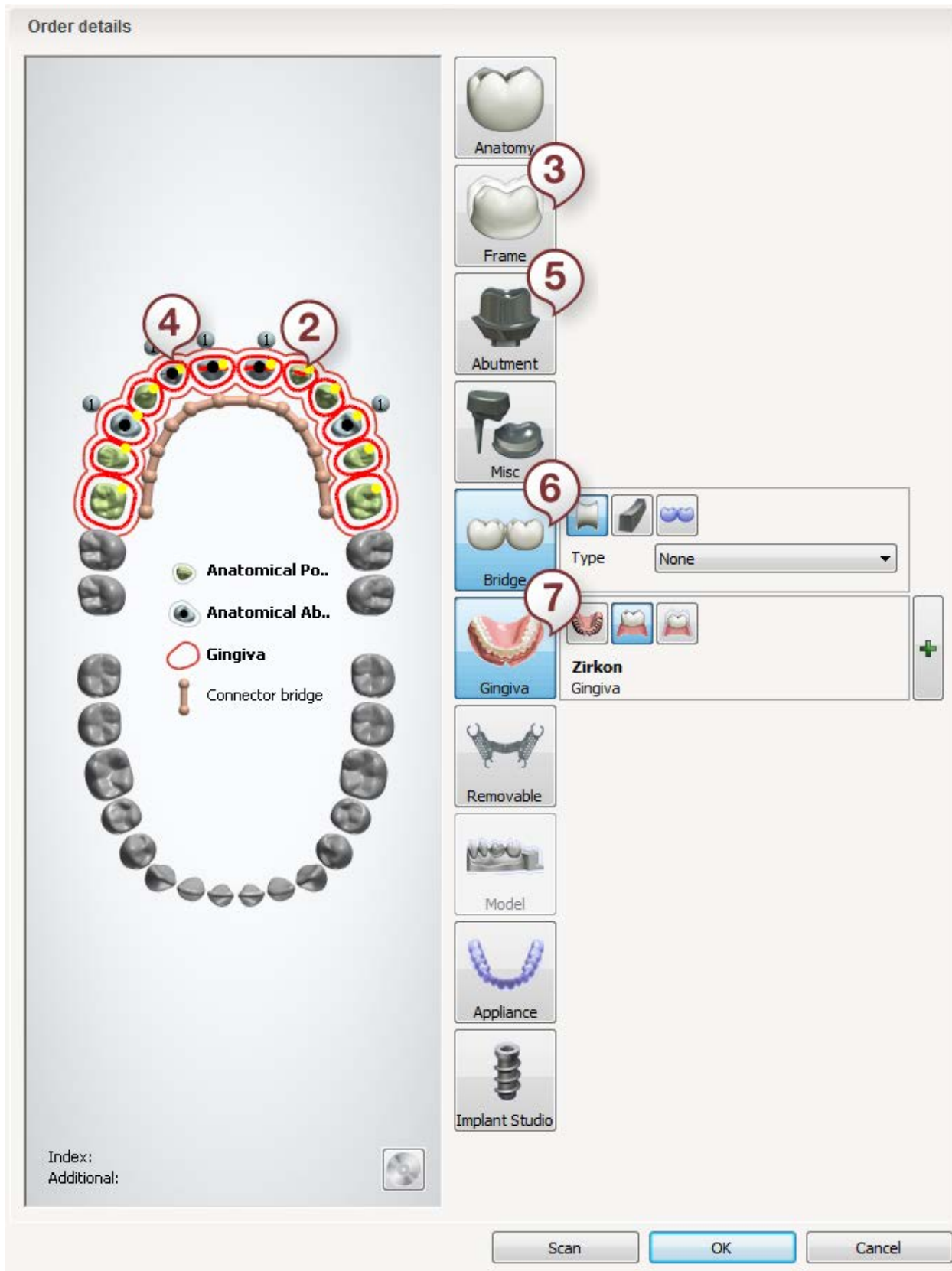
► **Step 3: Click the *Frame* button and select the *Anatomical Pontic*  button**

► **Step 4: Select preparations in the teeth overview**

► **Step 5: Click the *Abutment* button and select the *Anatomical Abutment*  button**

► **Step 6: With all units selected in the teeth overview, click the *Bridge* and *Connector Bridge*  buttons**

► **Step 7 (optional): Click the *Gingiva* and then either *Gingiva*  or *Anatomical Gingiva*  button**



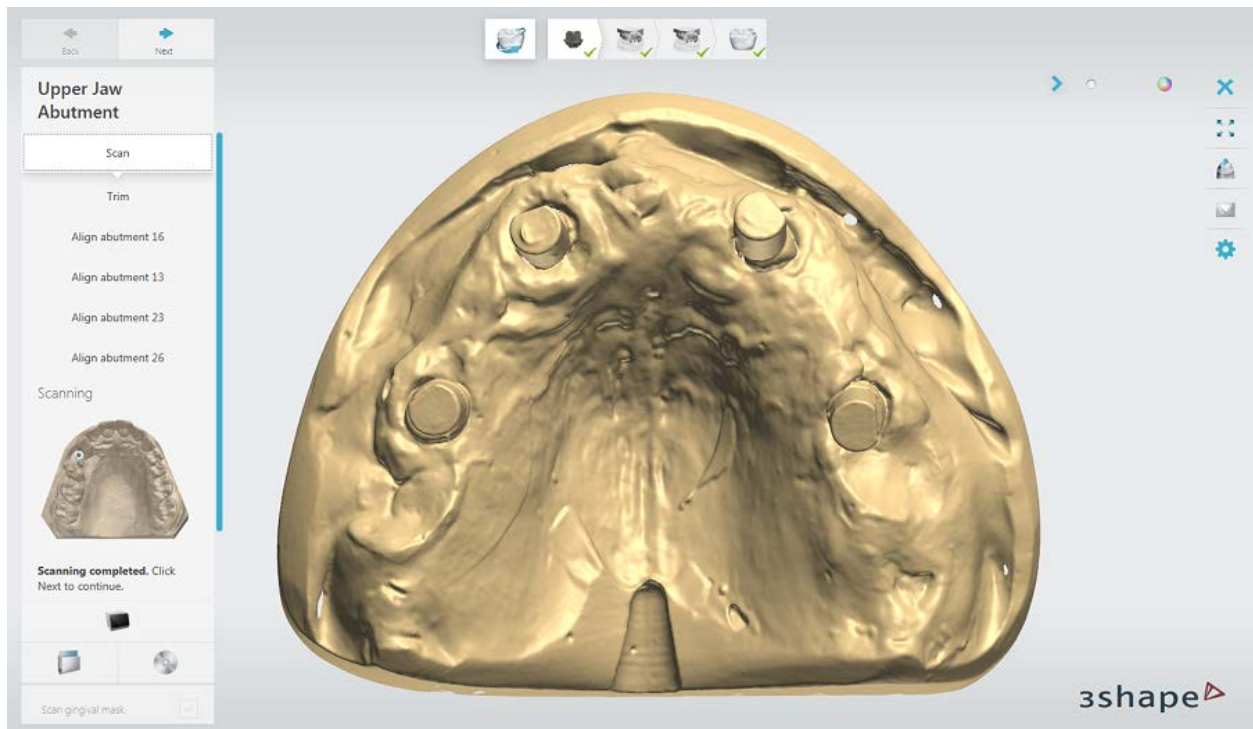
After creating the order, proceed to [scanning](#).

1.20.2. Implant Bridge from Dentures Scanning

Once your order is [defined](#) and ScanIt Dental is started, you can proceed with scanning.

► Step 1: Scan gypsum jaw model with inserted scan abutments

Insert the model into the scanner and run scanning.

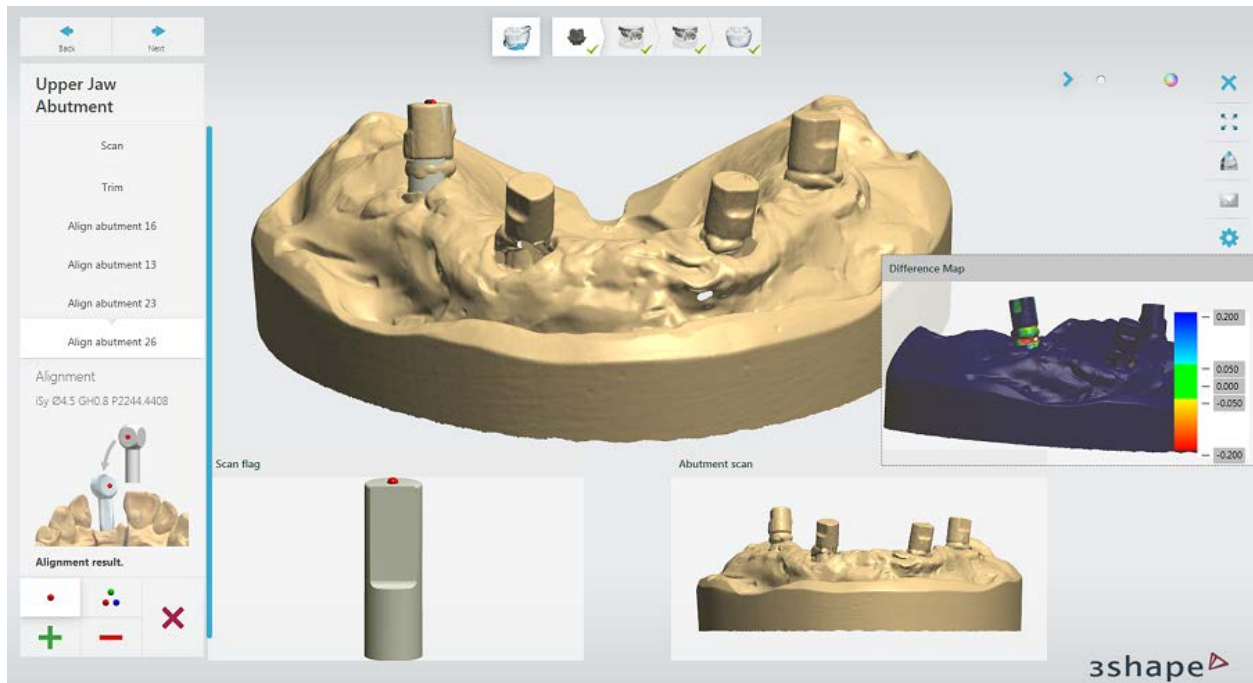


Trim the scan if necessary using the provided tools:



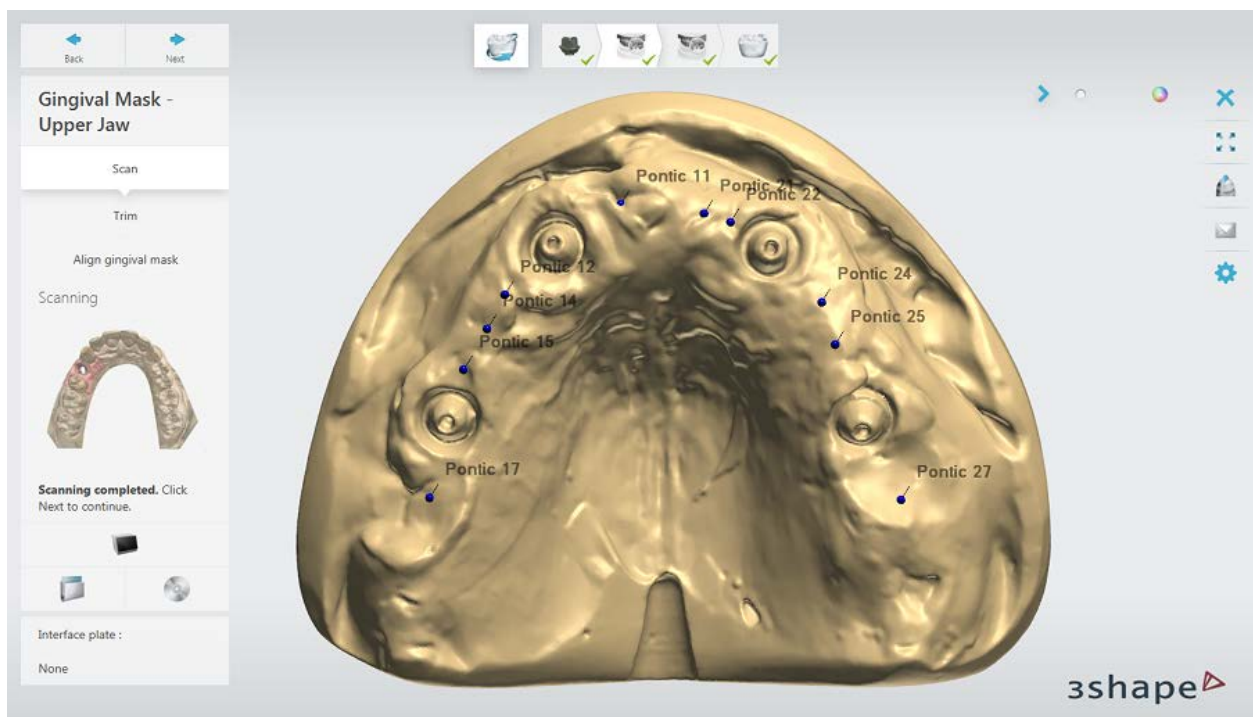
► Step 2: Align library abutments with scan abutments

You can use either one or three-point alignment methods.



► Step 3: Scan Gingival Mask

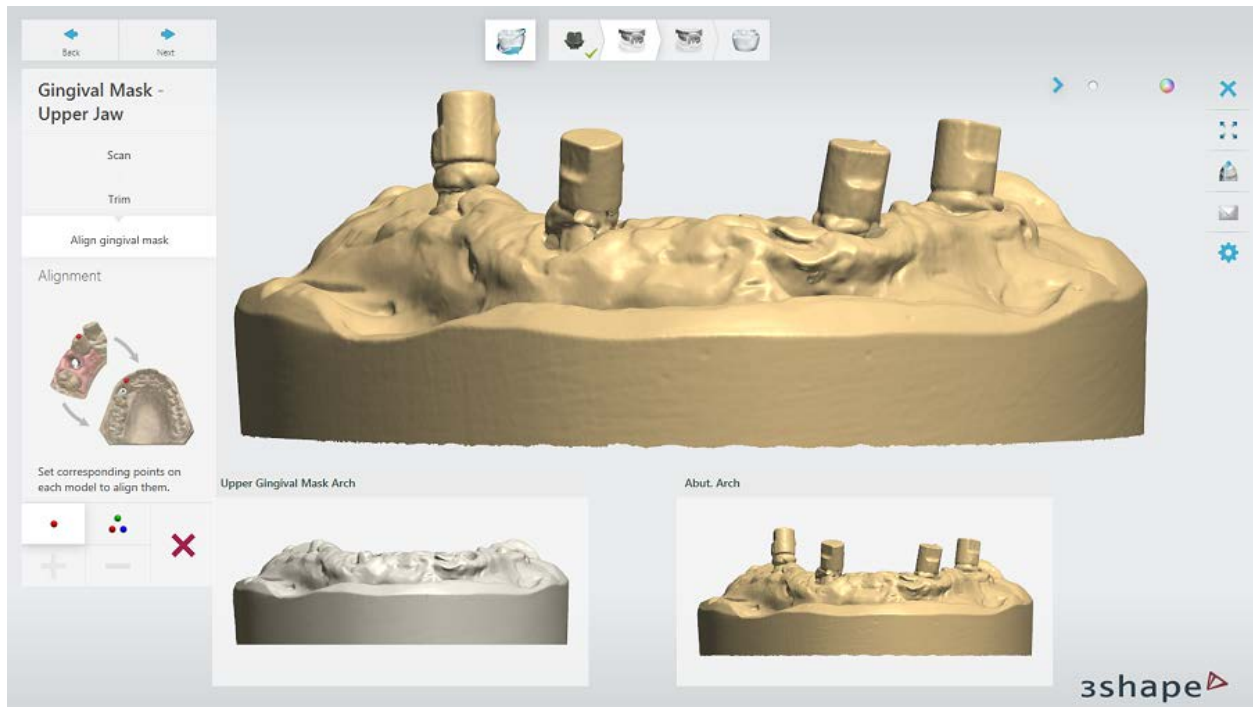
Place gingival mask on the gypsum model without scan abutments and scan it.



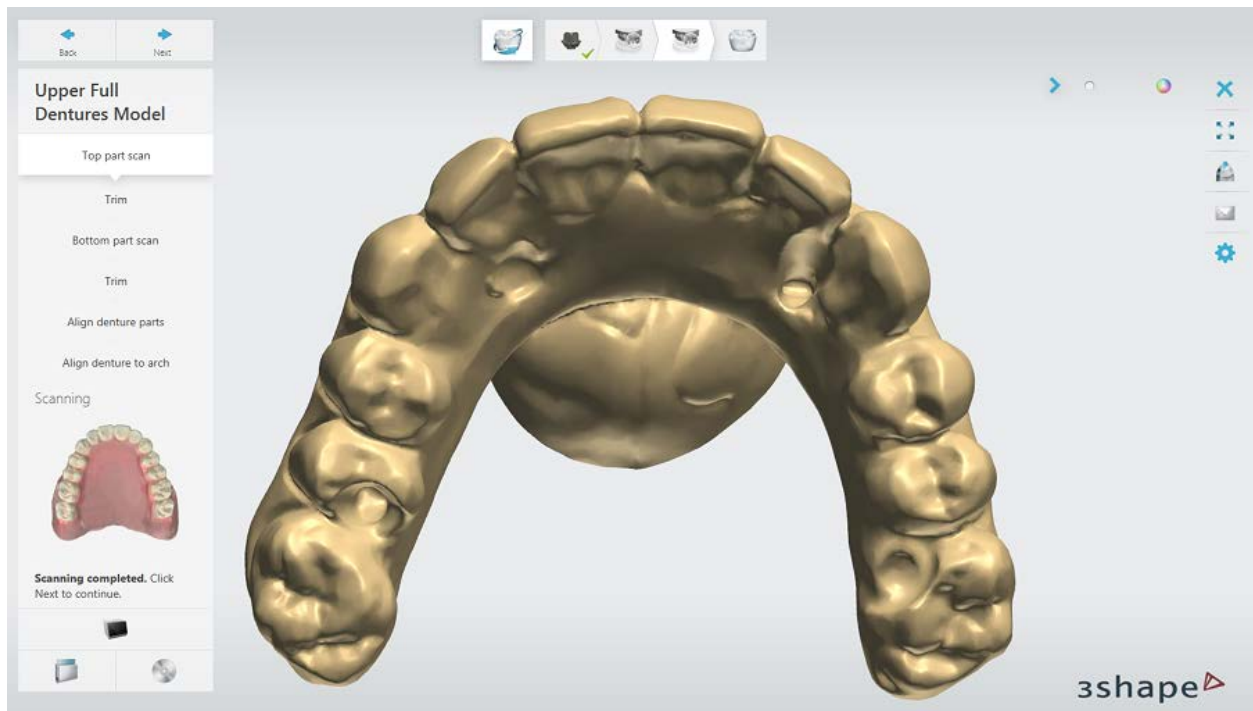
[Trim](#) the scan if necessary using the provided tools.

►Step 4: Align Gingival Mask

Alignment is done automatically, you can also use the manual alignment of one or three-point methods.

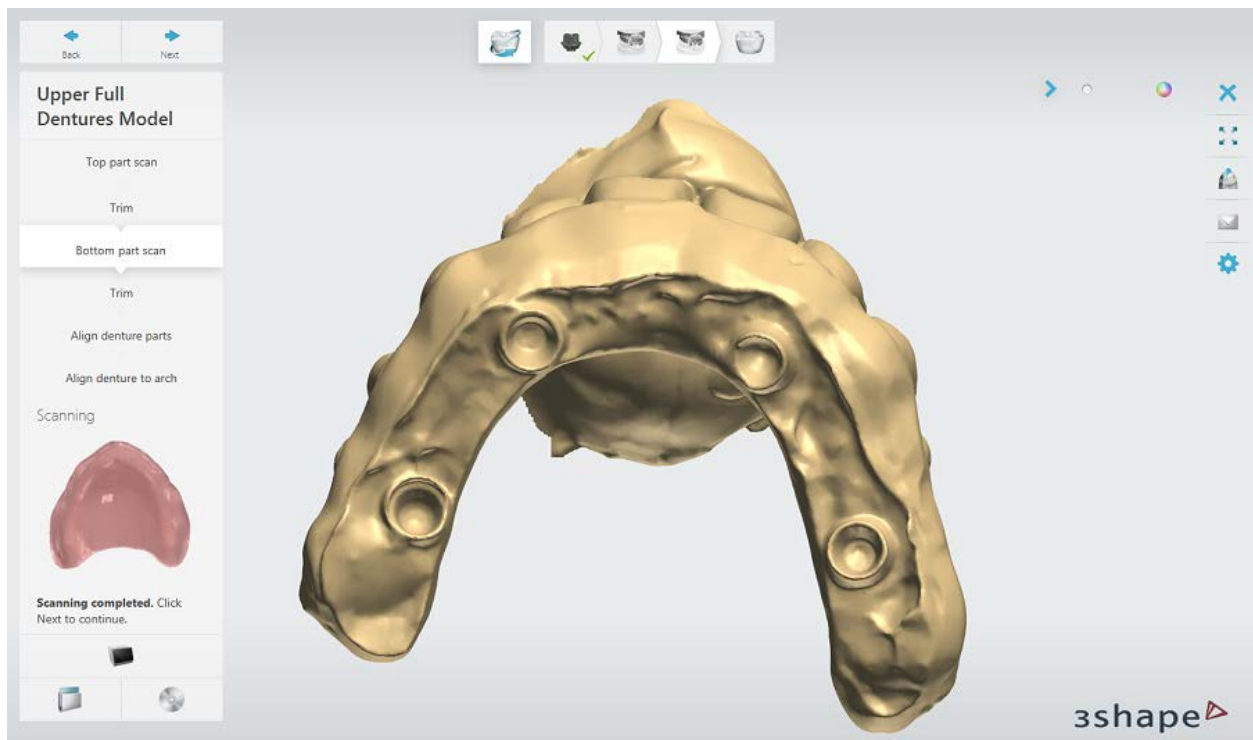


►Step 5: Scan the Top Part of the Denture



[Trim](#) out the BluTack from the scan.

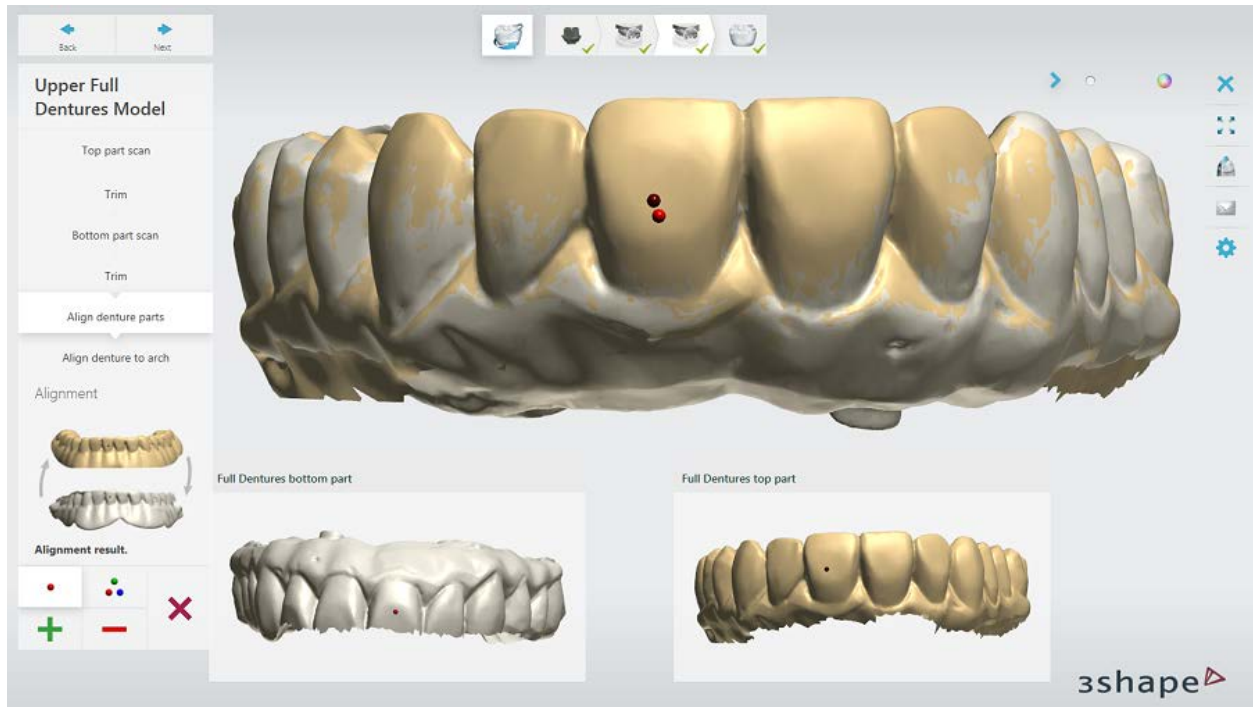
►Step 6: Scan the Bottom Part of the Denture



[Trim](#) out the BluTack from the scan.

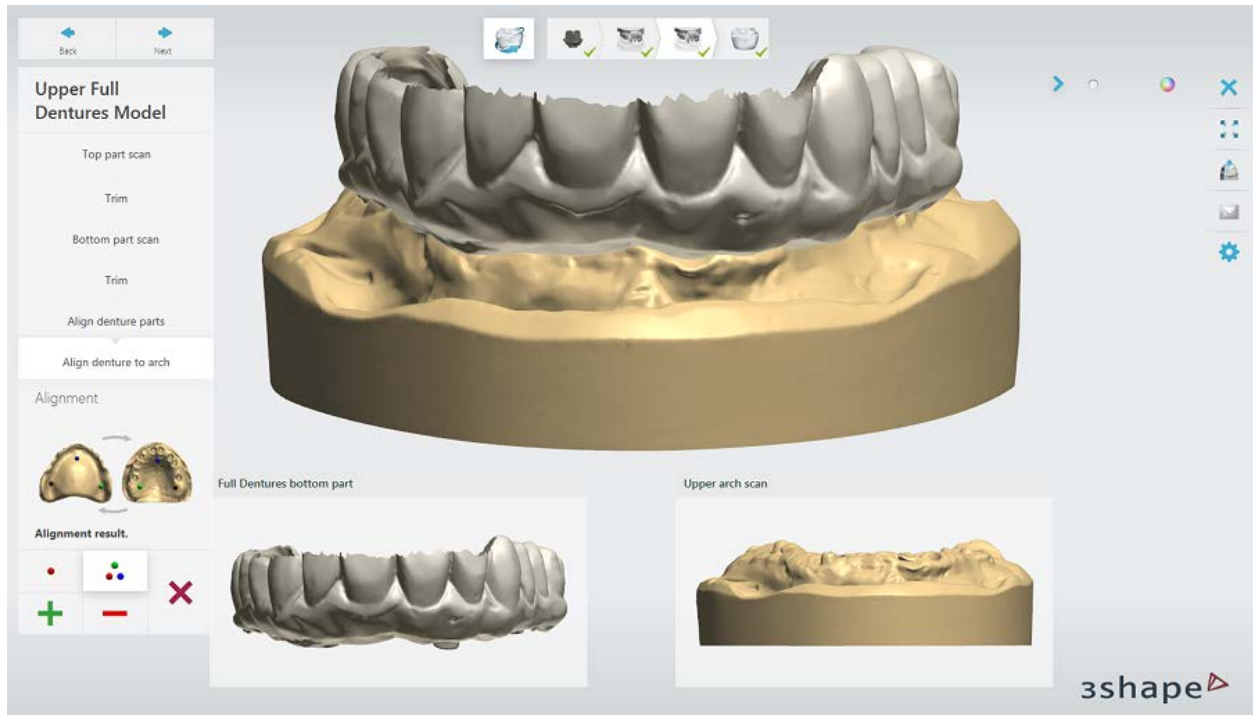
►Step 7: Align Denture Parts

You can also use the manual alignment of one or three-point methods.



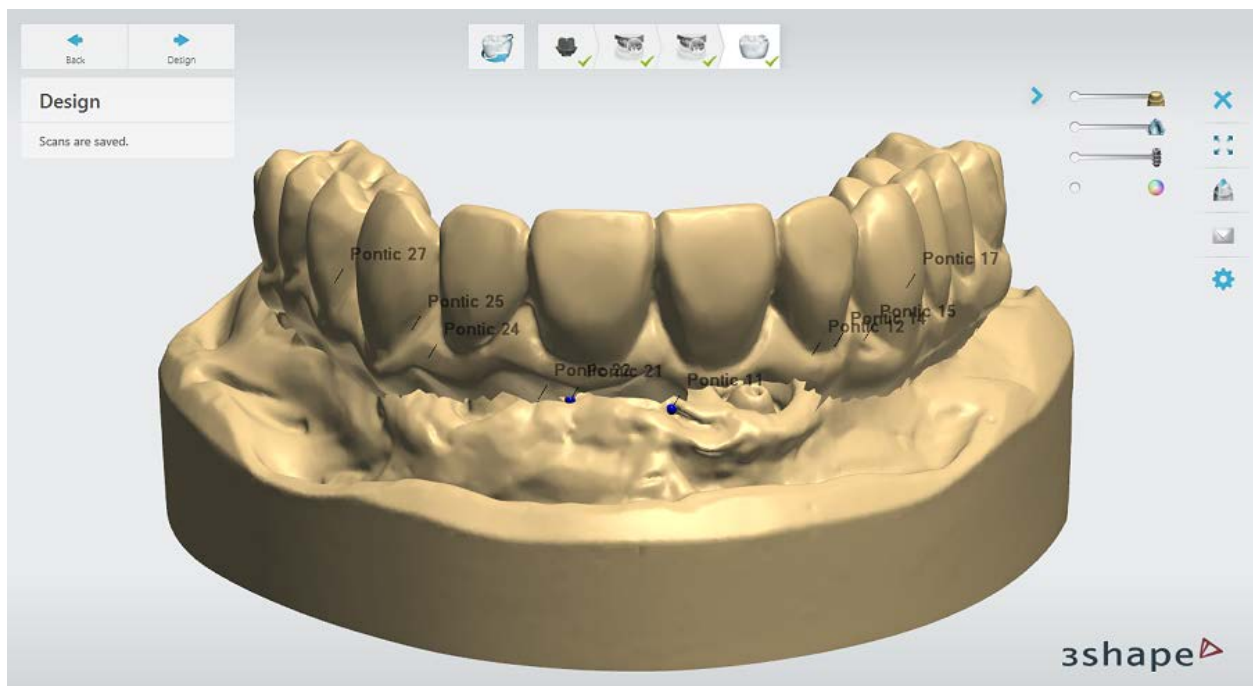
►Step 8: Align Dentures to Arch

You can also use the manual alignment of one or three-point methods.



► Step 9: Save Scans

Click **Next** to save your work.

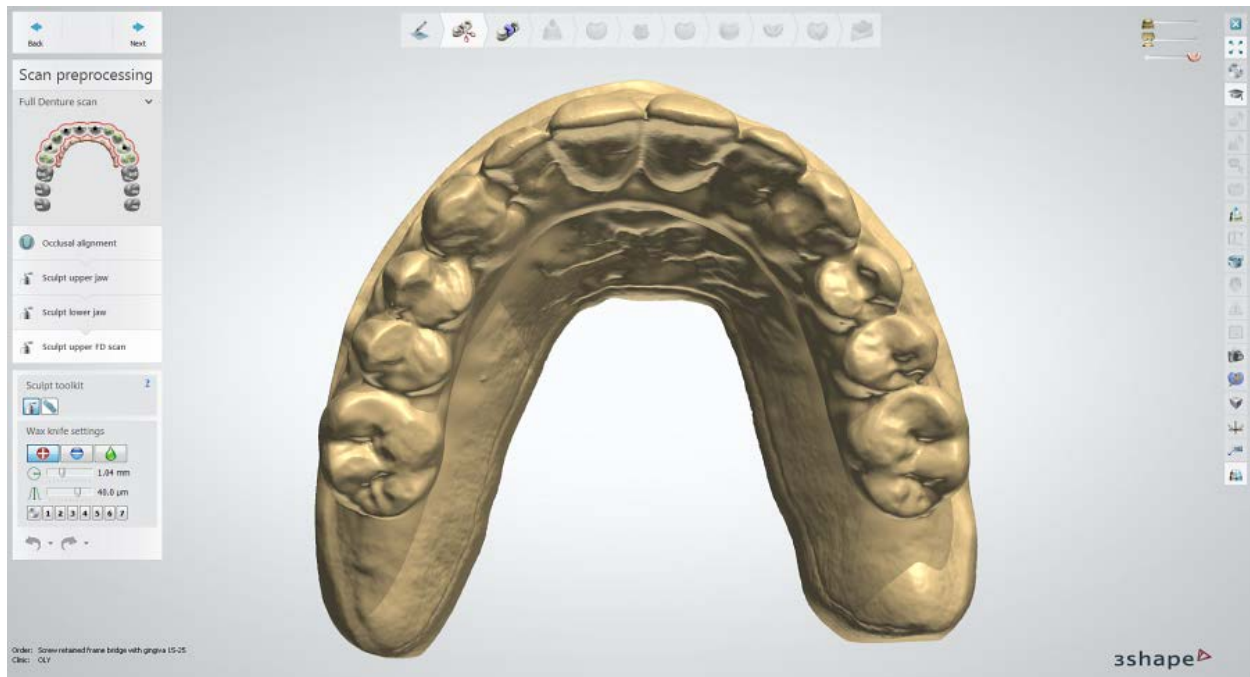


Press **Design** to continue to the [design section](#).

1.20.3. Implant Bridge from Dentures Design

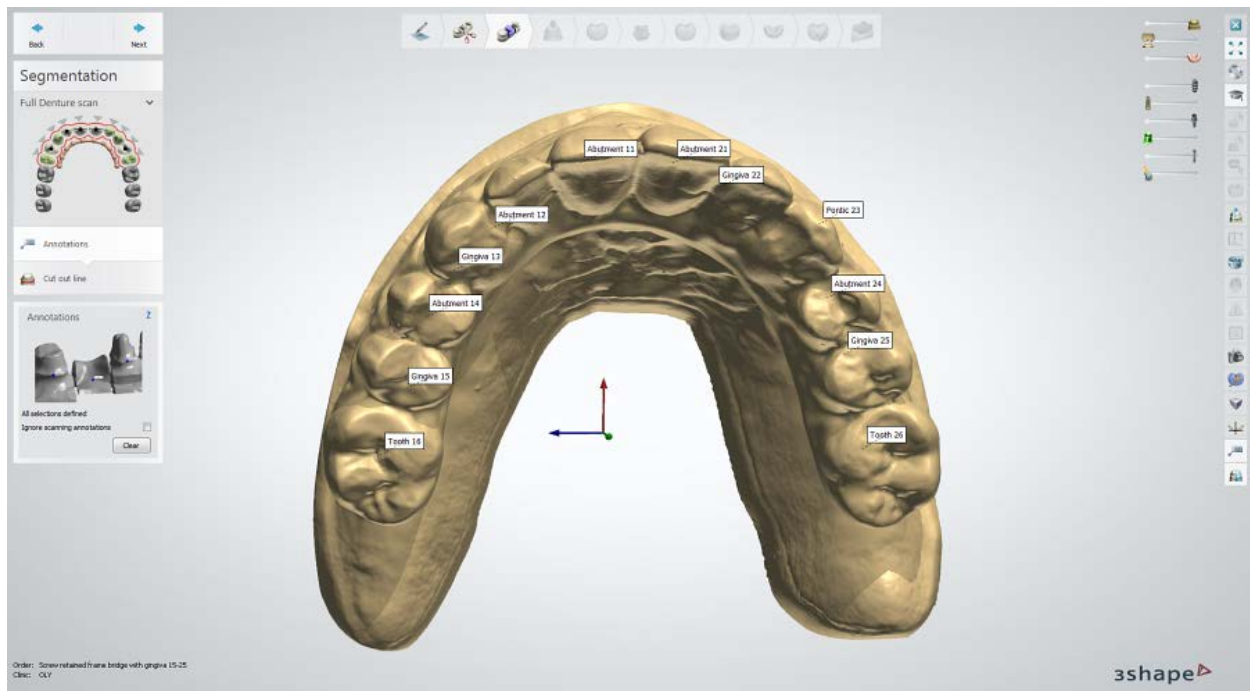
► Step 1: Scan Preprocessing

When necessary do scan preprocessing using the provided [Sculpt](#) tools:



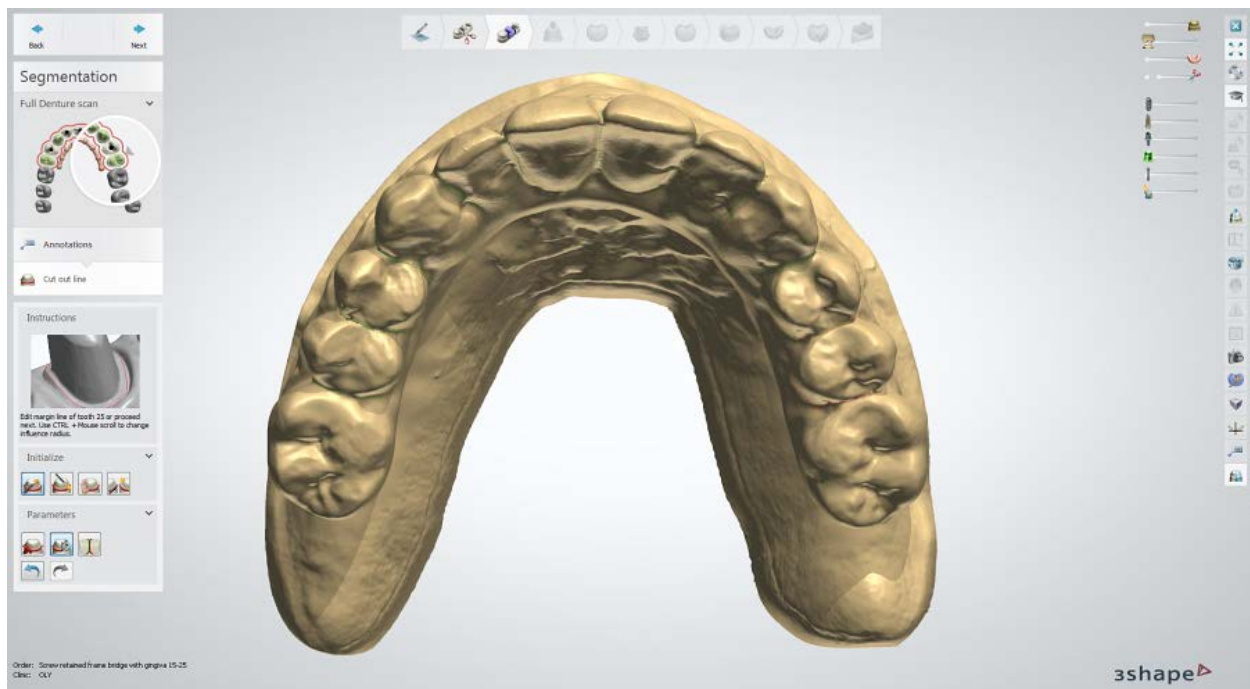
► Step 2: Place Annotations

Place annotations for all units in the bridge. This step is identical to [Annotations](#) described in the Single Coping chapter.



► Step 3: Scan Sectioning

Define the teeth cut out lines using the provided **Initialize** tools and **Parameters** options.



Initialize

Use the **Ctrl** key + **Mouse scroll wheel** to adjust the radius of influence.

There are a few ways to draw cutout lines:



Click on top - Click on top of a tooth.



Click on margin - Click on margin line of a tooth.



Draw manually - Draw margin line manually by setting the control points.



Initialize all - Click on top of all teeth for one by one sectioning.

Parameters

The following options can help you draw the cutout line:



Clear - Clears all margin lines.



Snap to edge - Keeps the margin line you draw on the edge.



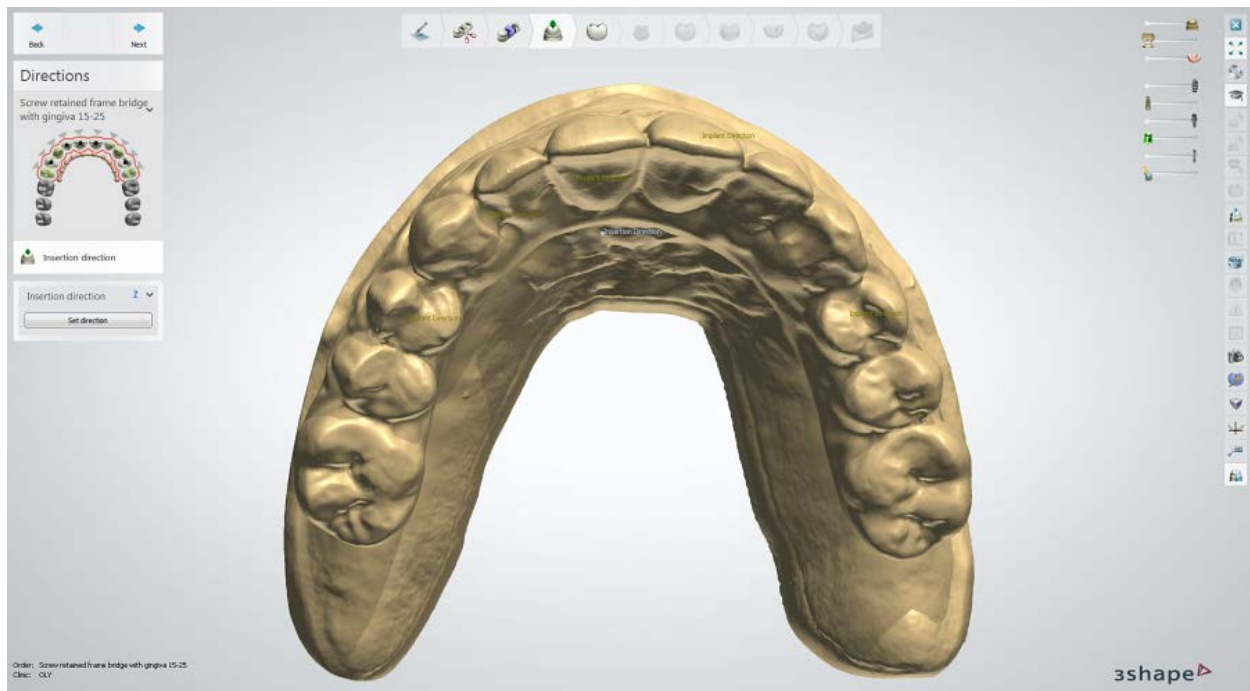
Avoid line intersection - Makes sure the adjacent margin lines do not intersect.



Undo / Redo buttons.

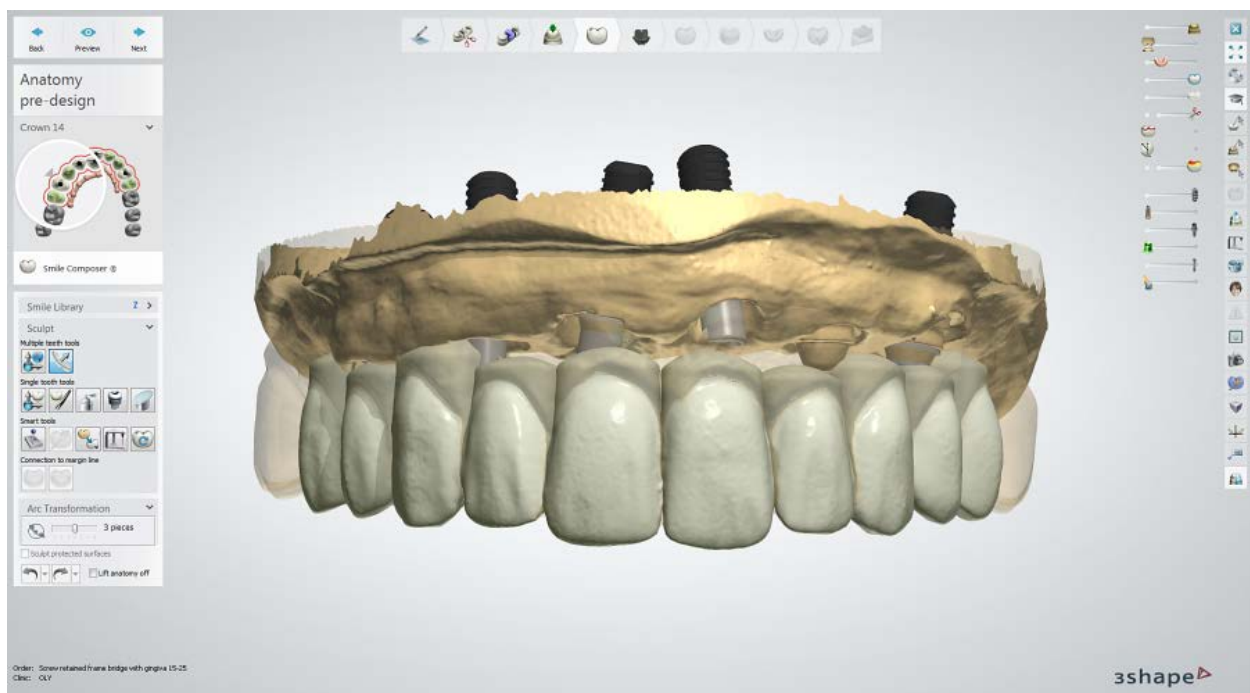
►Step 4: Set Insertion Direction

Specify the Insertion Direction for the bridge by positioning the denture perpendicular to the screen and pressing the **Set direction** button.



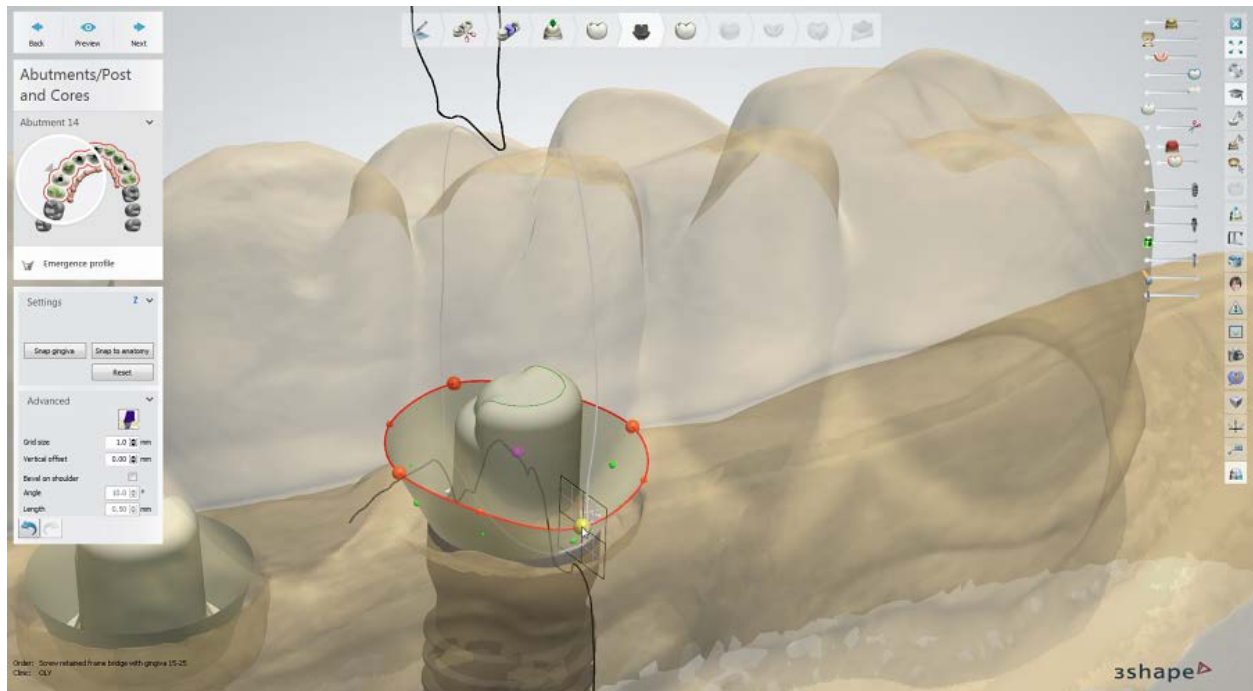
►Step 5: Pre-design Anatomy

Use the Smile Composer tools to design anatomy. Sectioned denture teeth are automatically loaded from the anatomy library. See the [Smile Composer](#) chapter for more information.



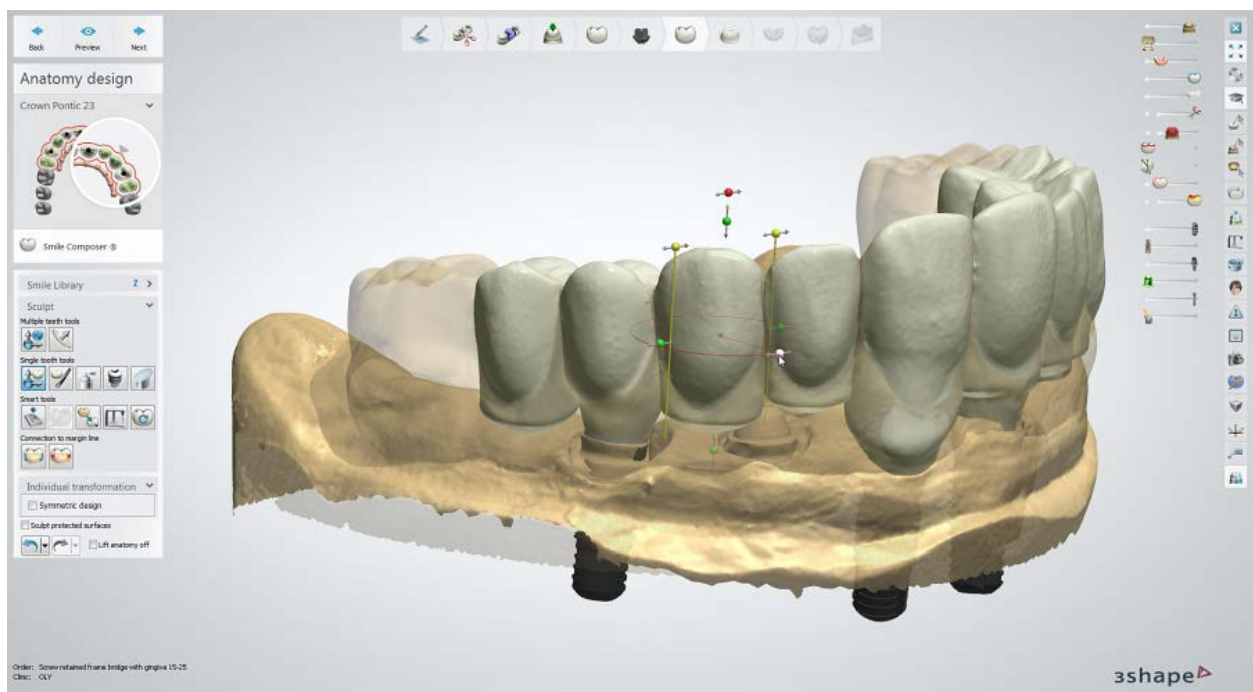
►Step 6: Design Emergence Profile

Use the available control points to design the abutment emergence profile - see the [Anatomical Abutment and Screw-Retained Crown Design](#) chapter for more information.



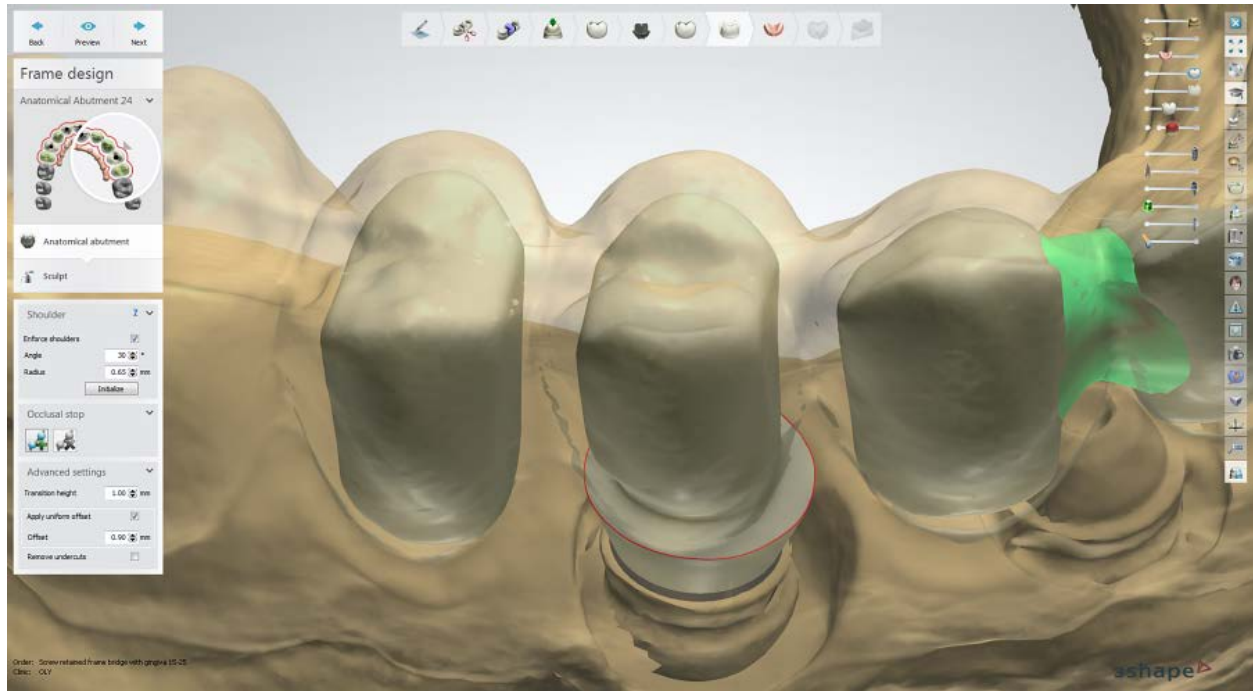
► Step 7: Design Anatomy

Use the [Smile Composer](#) tools to design anatomy.



► Step 8: Design Frame

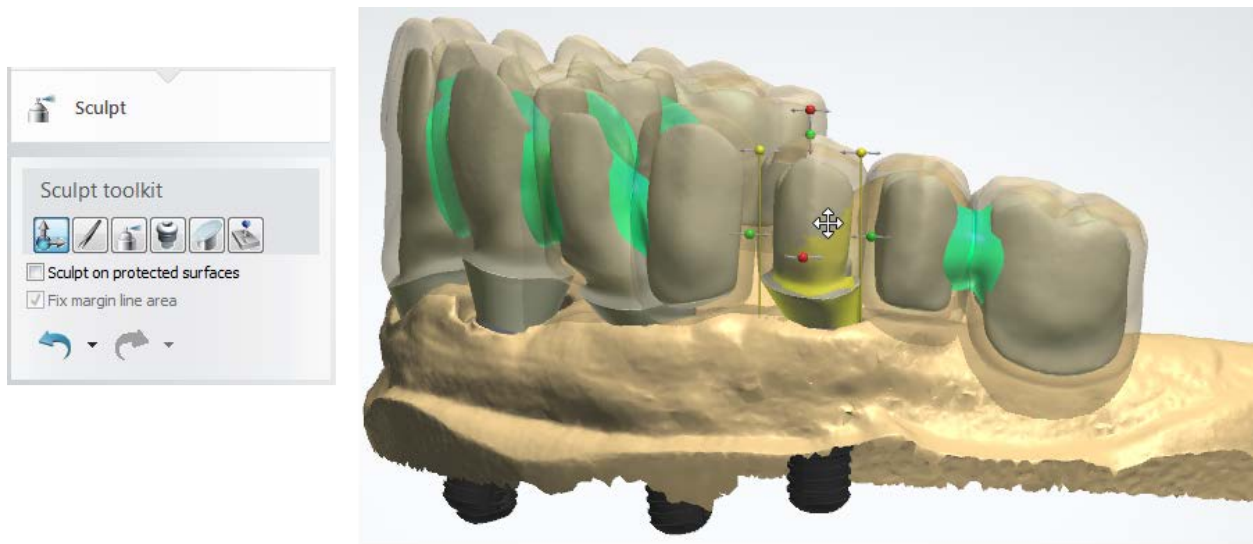
Design anatomical abutments within the frame.



Use the Anatomical Abutment **Shoulder** and [Occlusal stop](#) options to design abutments:

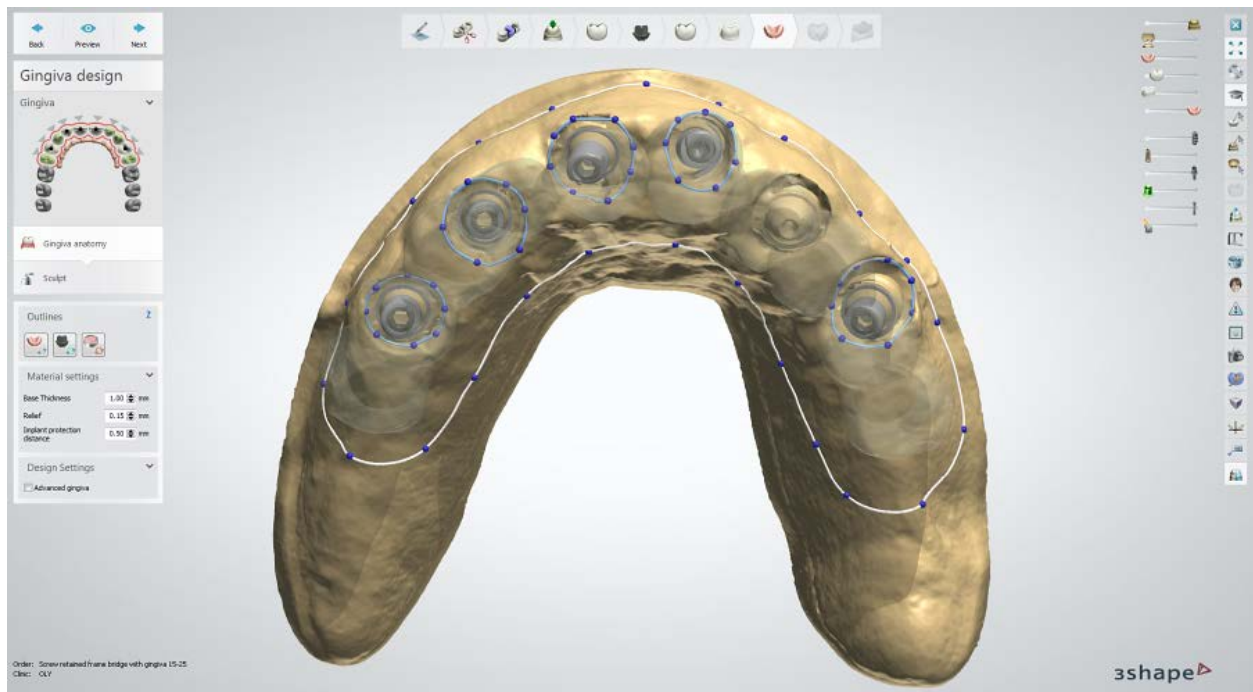


Apply the [Sculpt](#) tools to abutments where necessary:



► Step 9: Design Gingiva Anatomy

Use the available tools to design gingiva - see the [Gingiva/Anatomical Gingiva Design](#) chapter for more information.



Apply the [Sculpt](#) tools where needed:



► Step 10: Finalize Design

Finalize your frame design using the [Sculpt](#) tool:



Adjust the required assembly settings:

Assembly settings ▾

Use screw hole ☒

Angled screw hole ☒

Hole fillet 0 mm

Screw hole through all layers ☐

Extended radius 0 mm

Screw hole protection ☐

Wall thickness 0.5 mm

Thickness map ▾

Coloring

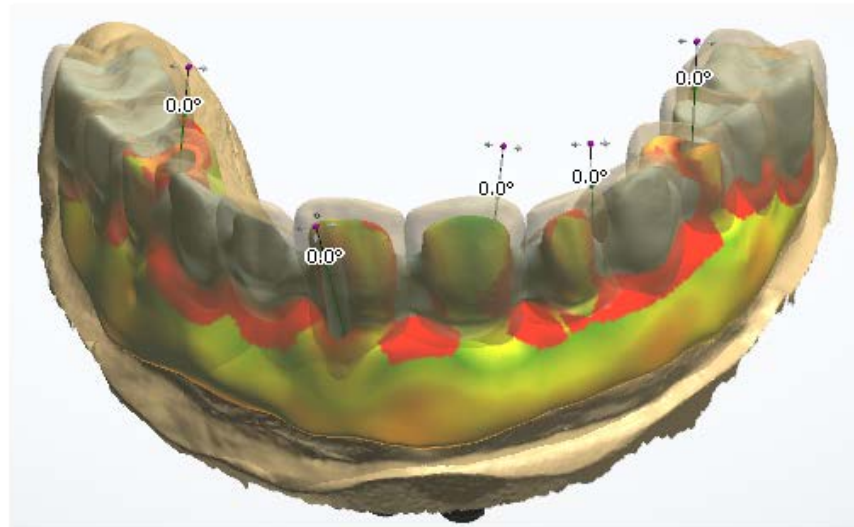
☐ None

☒ Thickness

Advanced ▾

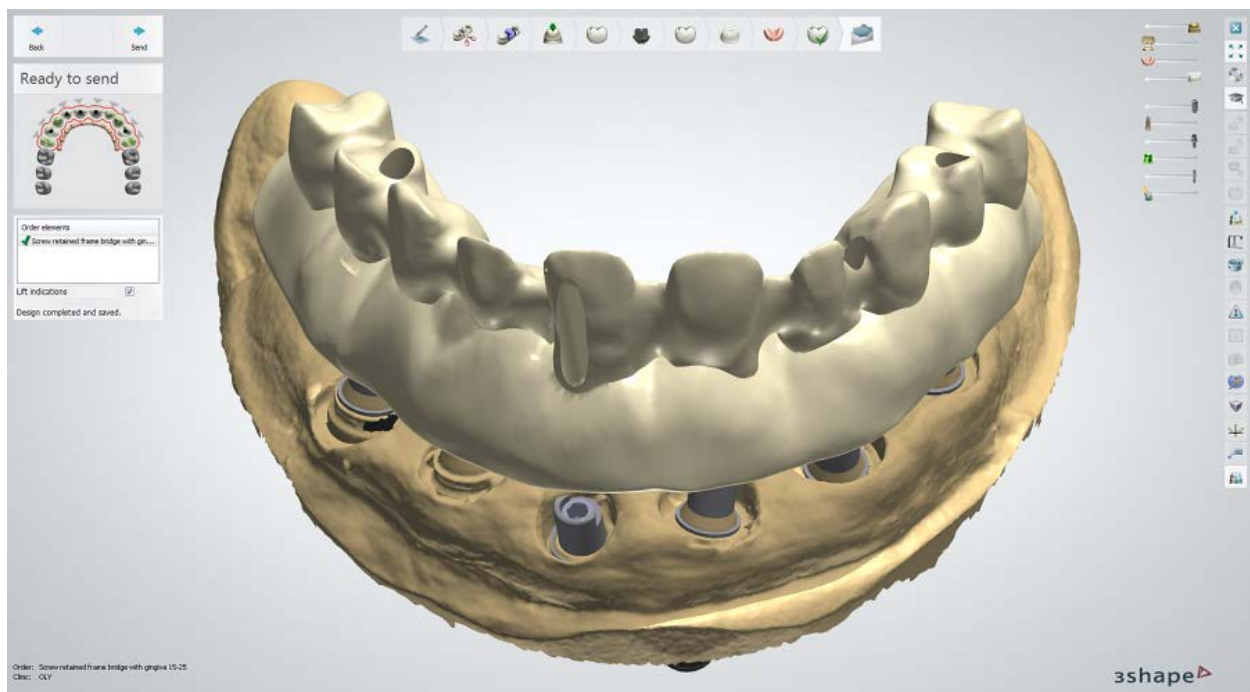
Vertical screw offset 0 mm

Extra drill hole radius 0 mm



► Step 11: Send Order

Save or send the order to your customer:



1.21. Removable Partial Dentures

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Removable Partial Denture (RPD) order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.21.1. Removable Partial Dentures Order Creation

To create an [RPD with Artificial Teeth](#) or [RPD with Metal Dummies and Backings](#) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

RPD WITH ARTIFICIAL TEETH

► **Step 1: Select artificial teeth in the teeth overview**


► **Step 2: Click the *Removable* button**

► **Step 3: Click the *Anatomy* button, the *Artificial tooth*  button is selected by default**

RPD WITH METAL DUMMIES AND BACKINGS

▶ Step 1: Select dummy teeth in the teeth overview

▶ Step 2: Click the *Removable* button

▶ Step 3: Click the *Anatomy* button and select the *Crown pontic*  button

▶ Step 4: Select the backings in the teeth overview

▶ Step 5: Click the *Frame* button and select the *Anatomical Pontic*  button

Order settings

Order number: 97728_20170320_1232_Tec

Importance: Normal

Design Module: DentalDesigner 2017

Scan settings

Object type: Model

Antagonist: None

Neighborhood scan: Sectioned

Order details

1 Crown Pontic

2 Anatomical Po..

3 RPD frame

4 Index:

5 Additional:

Anatomy

Frame

Zircon Pontic

Abutment

Misc

Bridge

Gingiva

Removable

Zircon RPD Frame

Model

Appliance

Implant Studio

Scan

OK

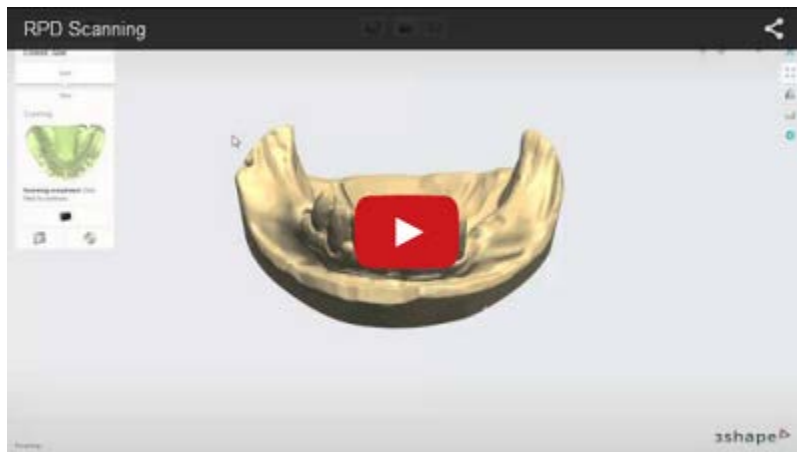
Cancel



Note! The Removable Partial Dentures cannot be ordered with other dental indications.

After creating the order, proceed to [scanning](#).

1.21.2. Removable Partial Dentures Scanning

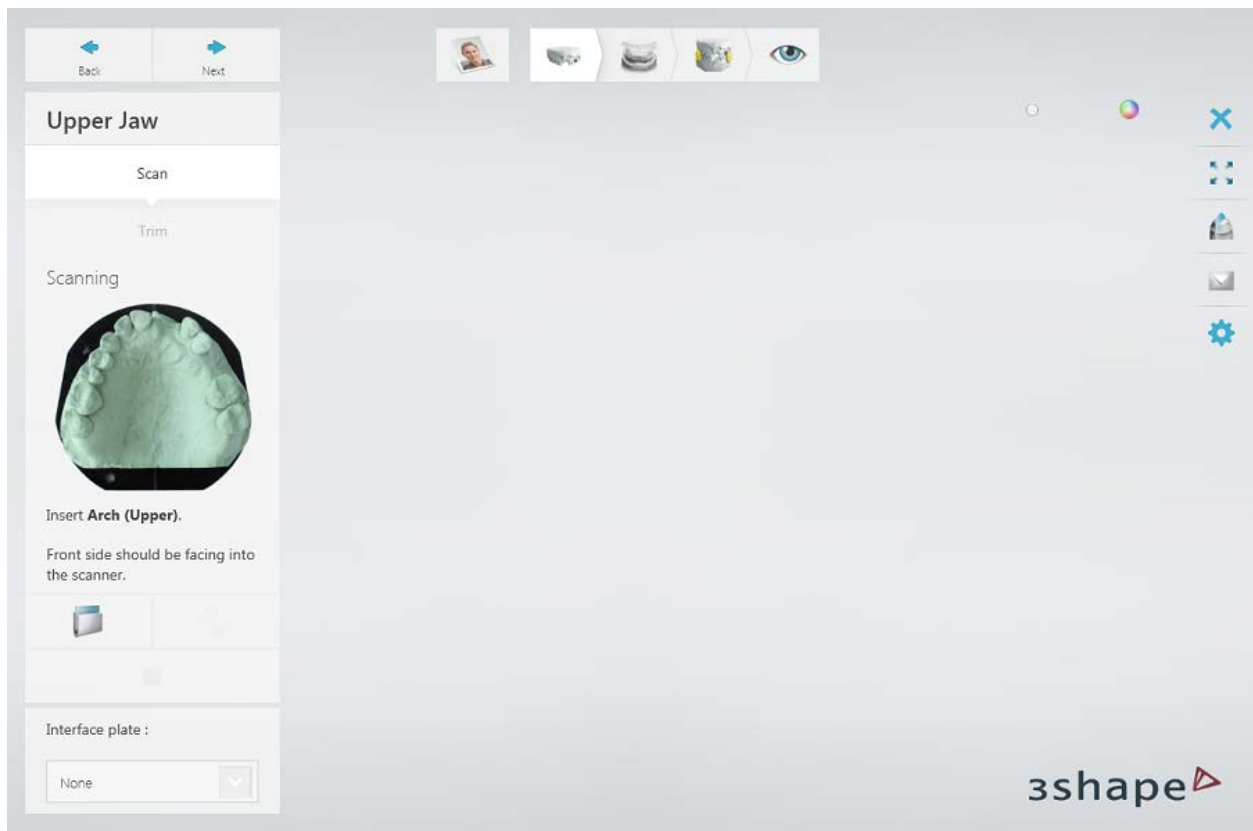


Note! It is not necessary to set an excessive "Arch scan height" in [Settings](#) for RPD orders as the scan height is adjusted automatically to make sure the palatine part is scanned.

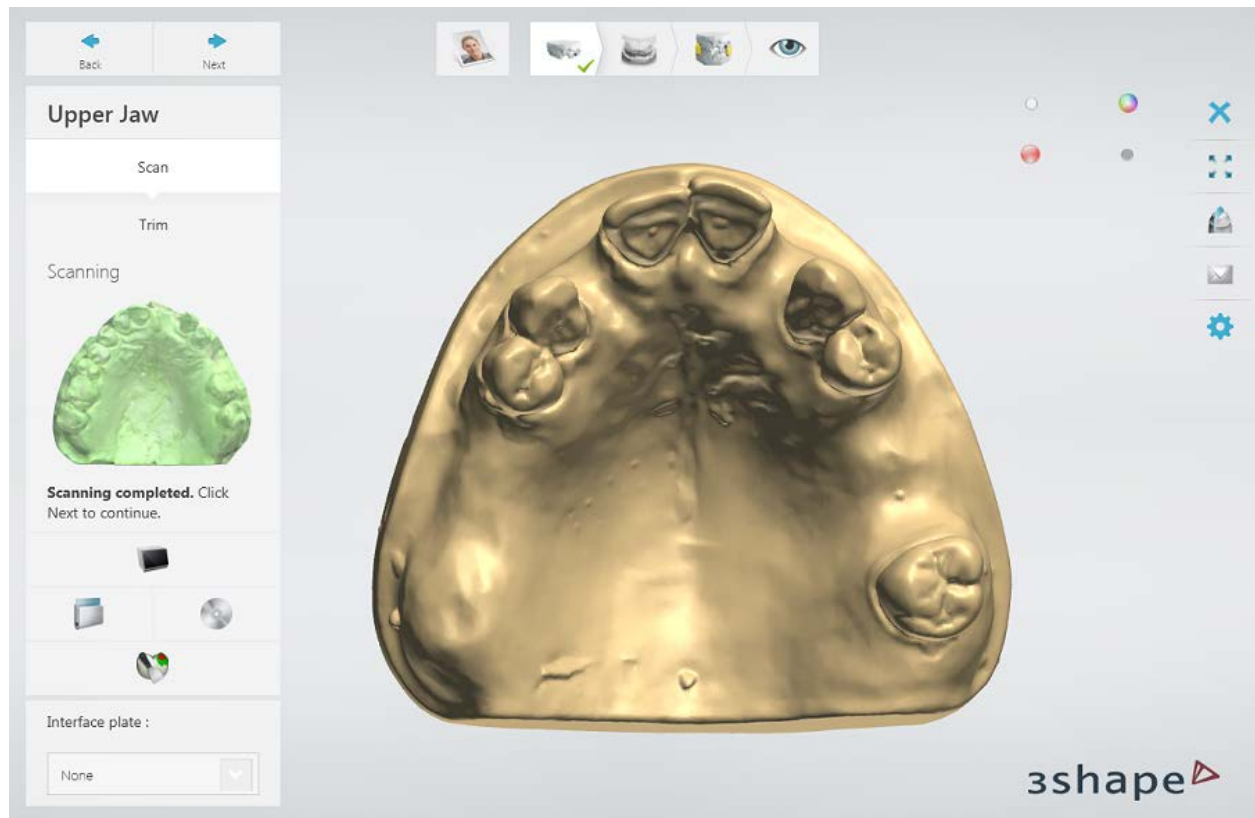
Follow the onscreen instructions and steps below to complete Removable Partial Dentures scanning:

►Step 1: Scan the arch

Place the arch model into the scanner as instructed by the software.



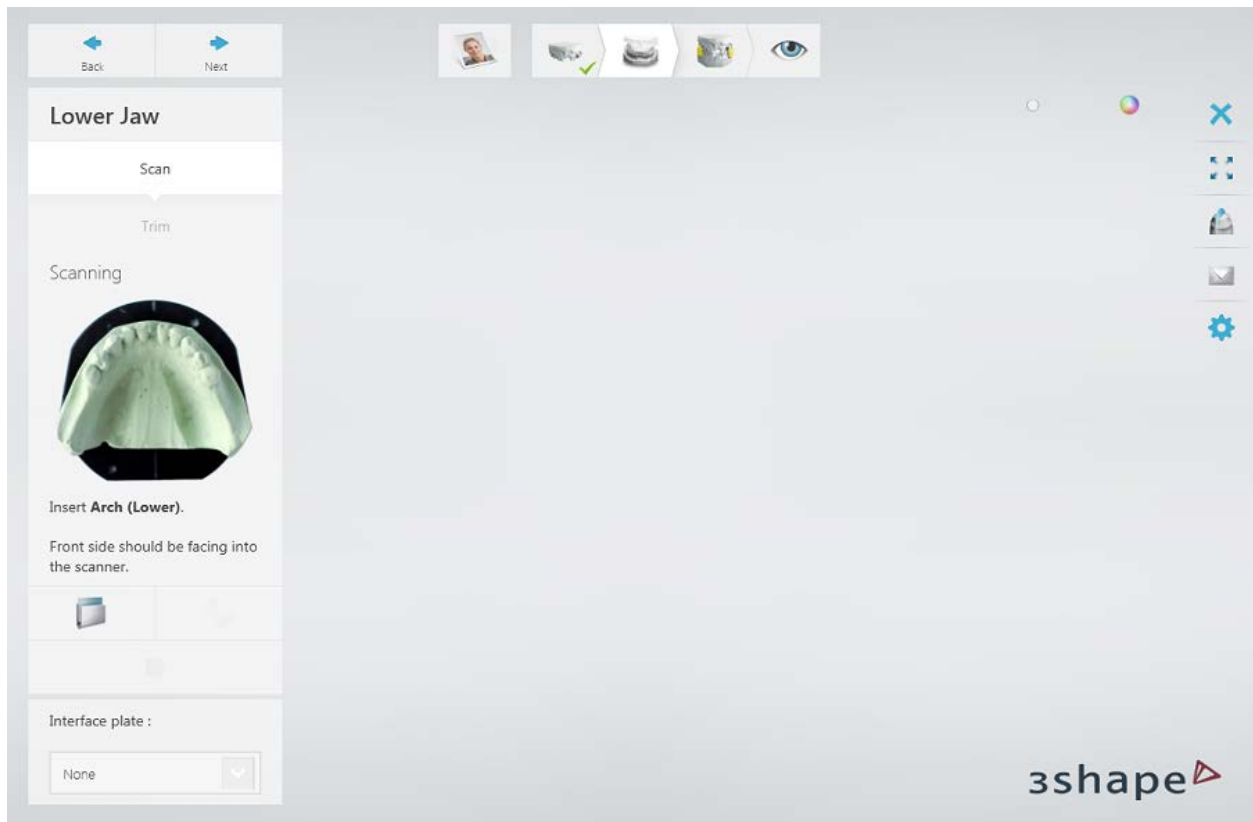
Scan the model by clicking the **Next** button.



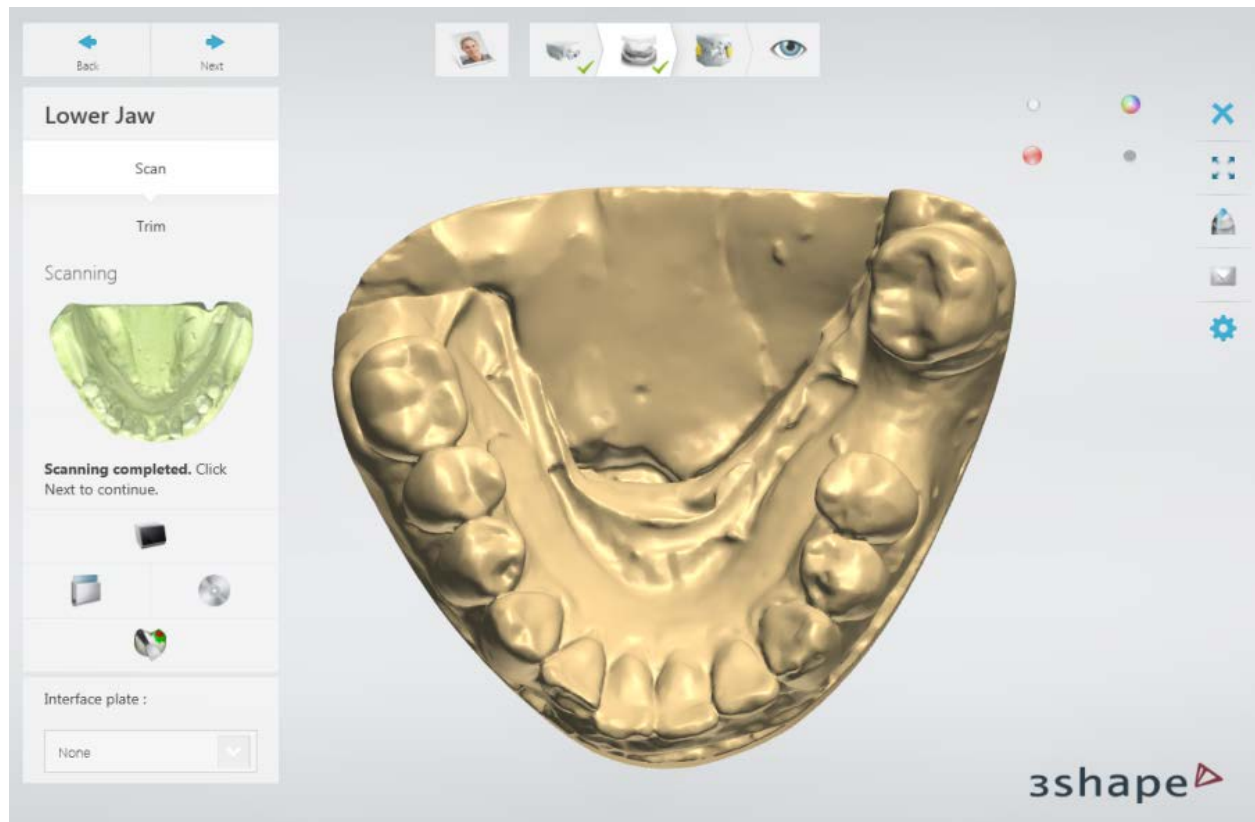
[Trim](#) the scan if necessary.

► Step 2: Scan antagonist

Insert the antagonist arch into the scanner.



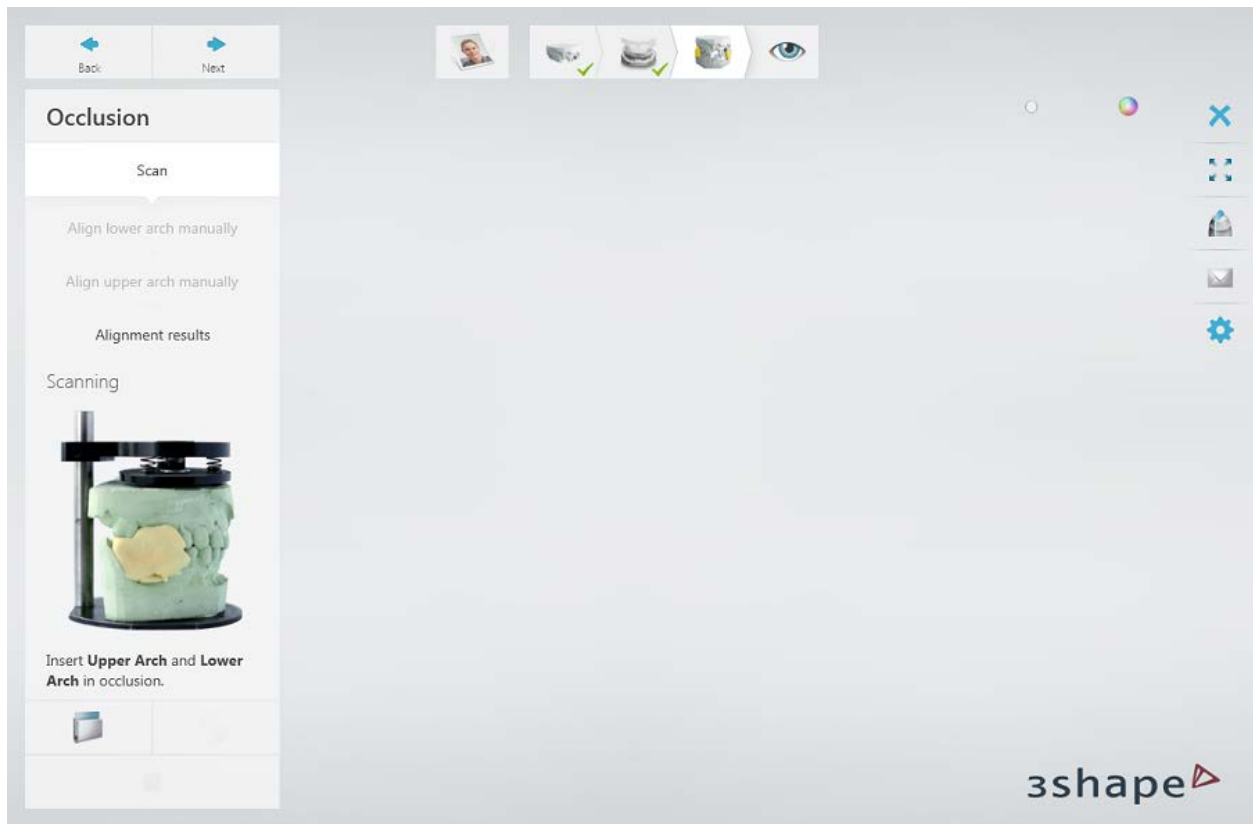
Scan the antagonist model by clicking the **Next** button.



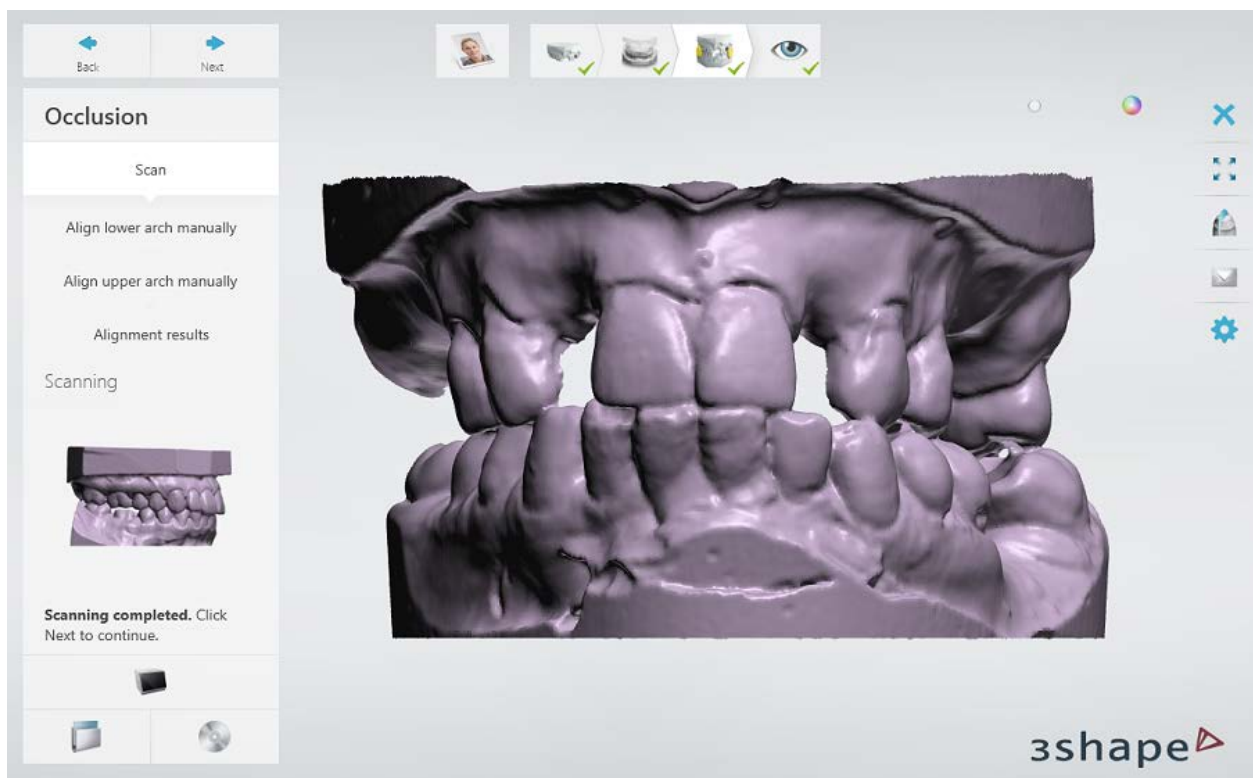
[Trim](#) the scan if necessary.

►Step 3: Scan occlusion

Insert the upper and lower arches in an occlusion into the scanner.



Click **Next** to scan the occlusion.



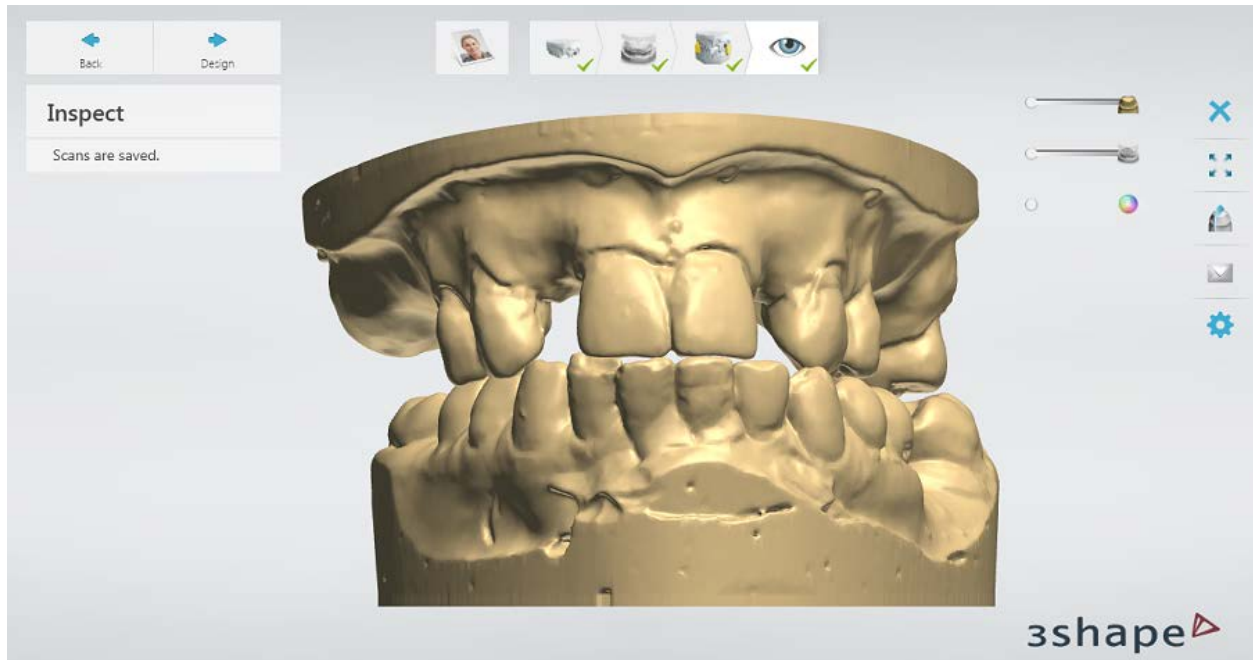
Align the arch scans with the occlusion scan.



►Step 4: Finish scanning

Click **Next** to save the scans in your order.

When all scans have been saved the step is marked with a green tick as completed in the workflow toolbar, otherwise a message is displayed about the missing information. You can close ScanIt Dental or click the **Design** button to open the order in Dental Designer.



Continue to the [design](#) section.

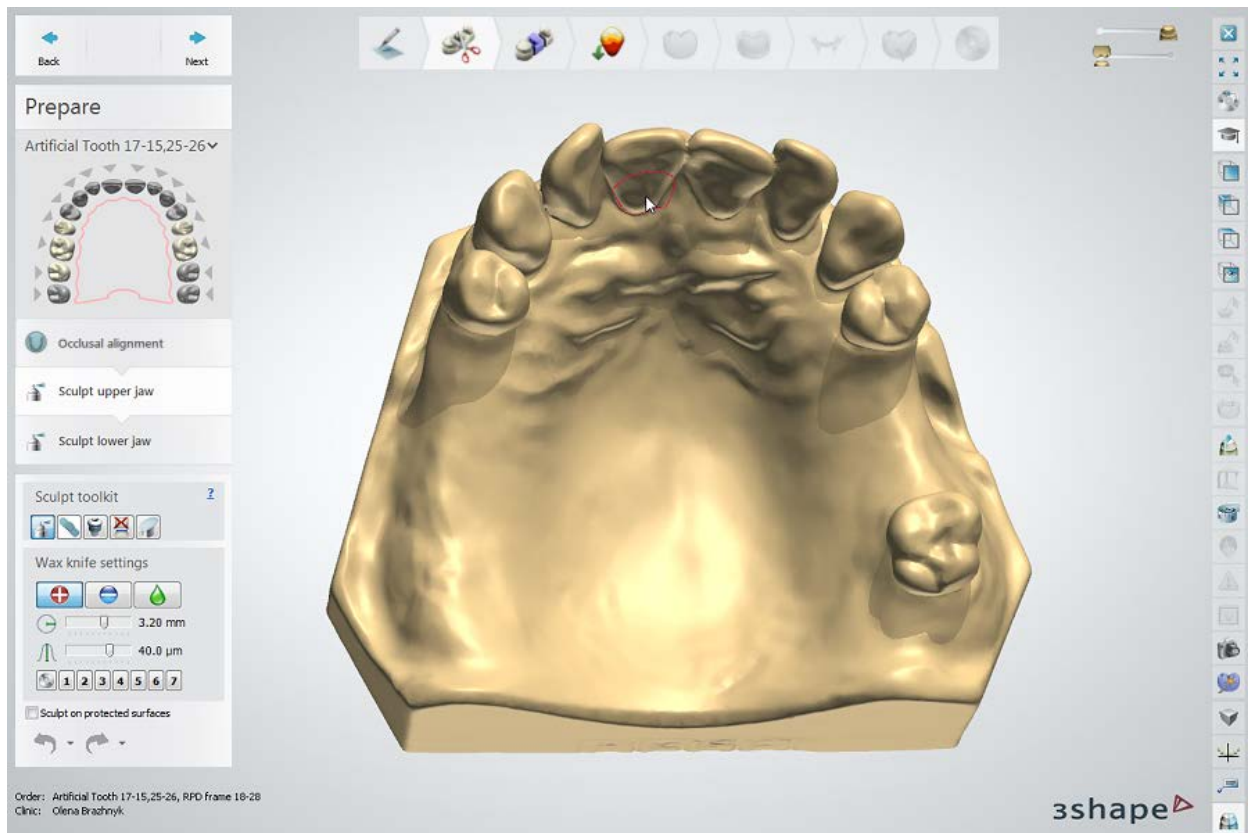
1.21.3. Removable Partial Dentures Design



This chapter explains how to design an RPD with artificial teeth. On how to design an RPD with metal dummies and backings, see the chapter [Metal Dummies and Backings](#).

► Step 1: Prepare scans


The step lets you [orient the occlusal plane](#) as well as remove artifacts, place secondary attachments (for the orders created in "Copy and Append CAD Design to Preparation scan" workflow), extract teeth and cut preparation sculpt with a plane. See the [Sculpt Toolkit](#) chapter for information on how to use the tools.



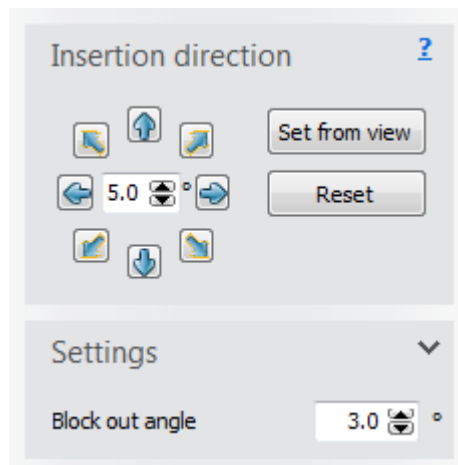
►Step 2: Place Annotations


This step is identical to [Annotations](#) described in the Single Coping chapter.

►Step 3: Block out the undercuts

In the **Blocking out**  step, you block out the undercuts with the help of wax, and then remove wax exposing undercuts in places where clasps will be located.

Choose the insertion direction in which the wax is applied to block the undercuts.

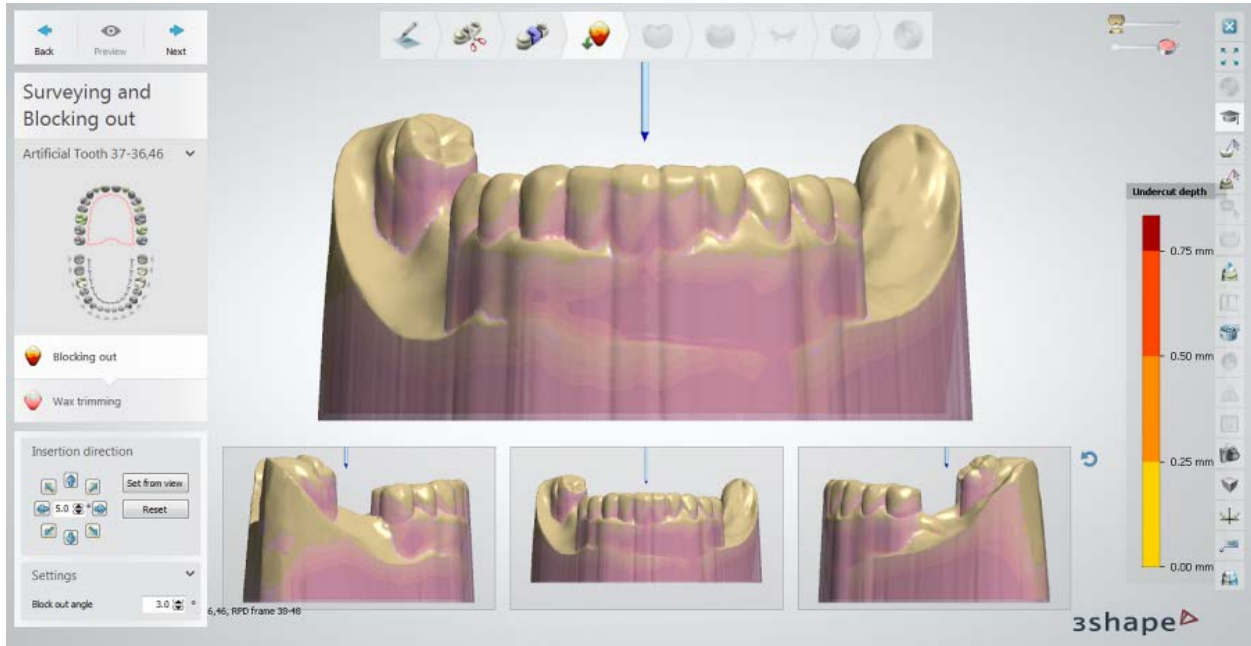


Right from the start, the program automatically offers you an insertion direction, which can be further tilted with the help of blue arrows . You can change the desired tilt increment in the corresponding edit box of the **Insertion direction** tab. Alternatively, you can click the **Set from view** button to set a new insertion direction from your viewing perspective. The three preview windows allow you to examine your model from different sides, eliminating therefore the need to rotate it.

Click **Reset** to return the insertion direction to its original position.


Unfold the **Settings** tab to change the blocking out angle. The **Block out angle** parameter (predefined in [Dental System Control Panel](#)) defines the angle, at which the wax is applied. To make the removal of a framework easier, set up the angle value to more than a zero.

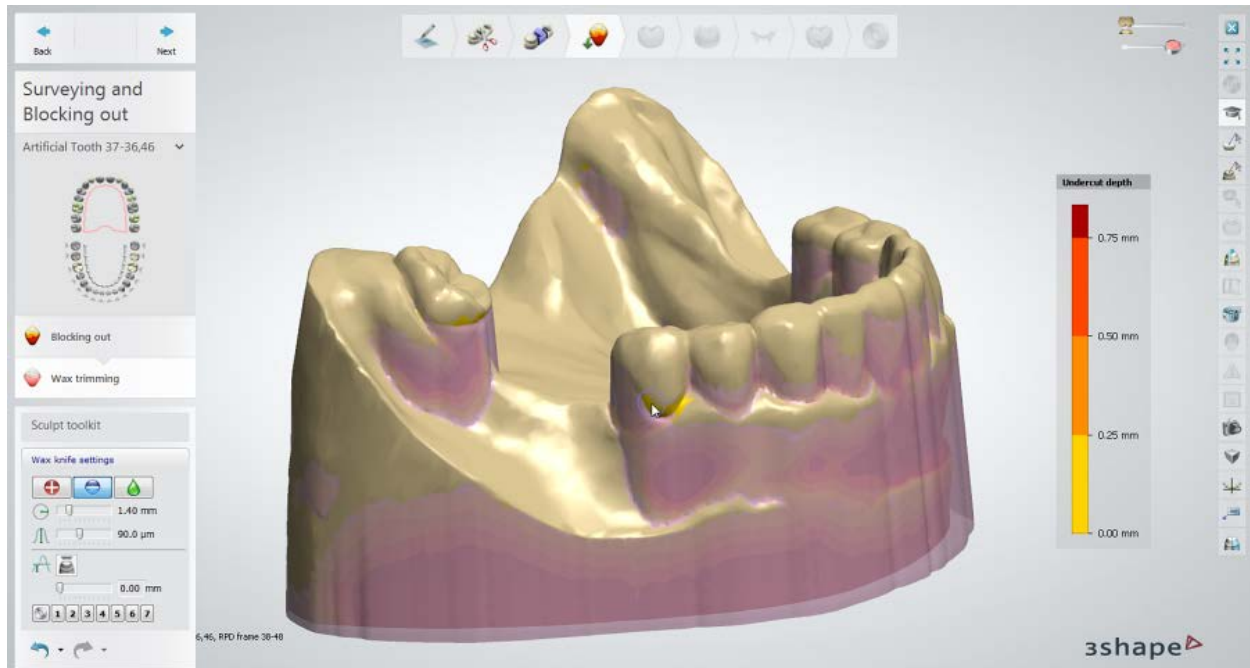
Click **Preview** to block the undercuts with wax.






If you are satisfied with the blocking out result, click **Next** to proceed to the **Wax trimming** step.


►Step 4: Trim wax


In the **Wax trimming**  step, you trim the wax in the places where clasp retaining parts will be located.



Click the **Remove**  button under [Wax knife settings](#), then click and drag in places where the wax needs to be trimmed. Perform the same for the rest of the clasps and click **Next** when finished.

Additionally, the wax can be smoothed  and added  in places where you want to remove artifacts and add relief to the scan surface.

Use the **Desired thickness**  slider or the corresponding edit box to set the preferred thickness of the added/removed material.

Use the **Blocking wax**  slider in the upper right corner of the window for better visualization. Move the slider to the left to make the wax transparent or move it to the right to make the wax more opaque.

► Step 5: Design anatomy

Use [Smile Composer](#) to design the anatomy.



Note! Only the SmileLibraries allowed for local manufacturing can be sent to CAM output.

Click **Next** to proceed to **RPD design**, where the creation of retention grids, a major connector, clasps etc. takes place.

► Step 6: Draw Retention grids

Use the available options to create **Retention grids**  for your RPD.

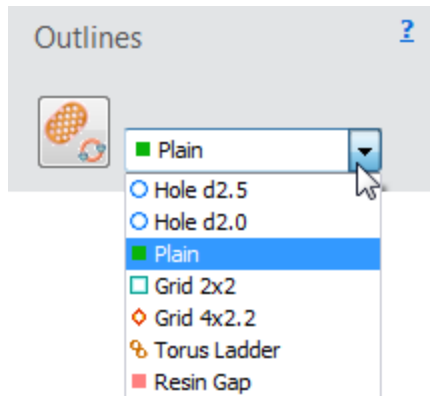
There are four main types of retentions:

- **Hole d2.5/d2.0**
- **Plain**
- **Grid 2x2/4x2.2**
- **Torus Ladder**

and one auxiliary:


- **Resin Gap** (used for creating Open Lattice mesh)

To draw retention grids on the model:



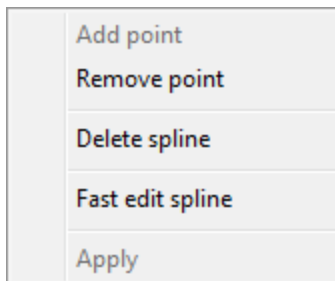
1. Select a retention grid type (predefined in [Dental System Control Panel](#)).

2. Click the **Draw retention grid outline**  button.

3. Move your cursor (it now appears in the form of a pencil ) to the model and start drawing the grid outline.

You can make a retention outline by using either the point-by-point drawing or the continuous drawing without releasing the mouse button. To finalize a retention grid, the last point should be placed on top of the first one to close it. For the **Torus Ladder** retention, you need to click twice its end point to finalize the spline.

You can move the point by clicking on it (turns yellow when active) and dragging it in the desired direction.




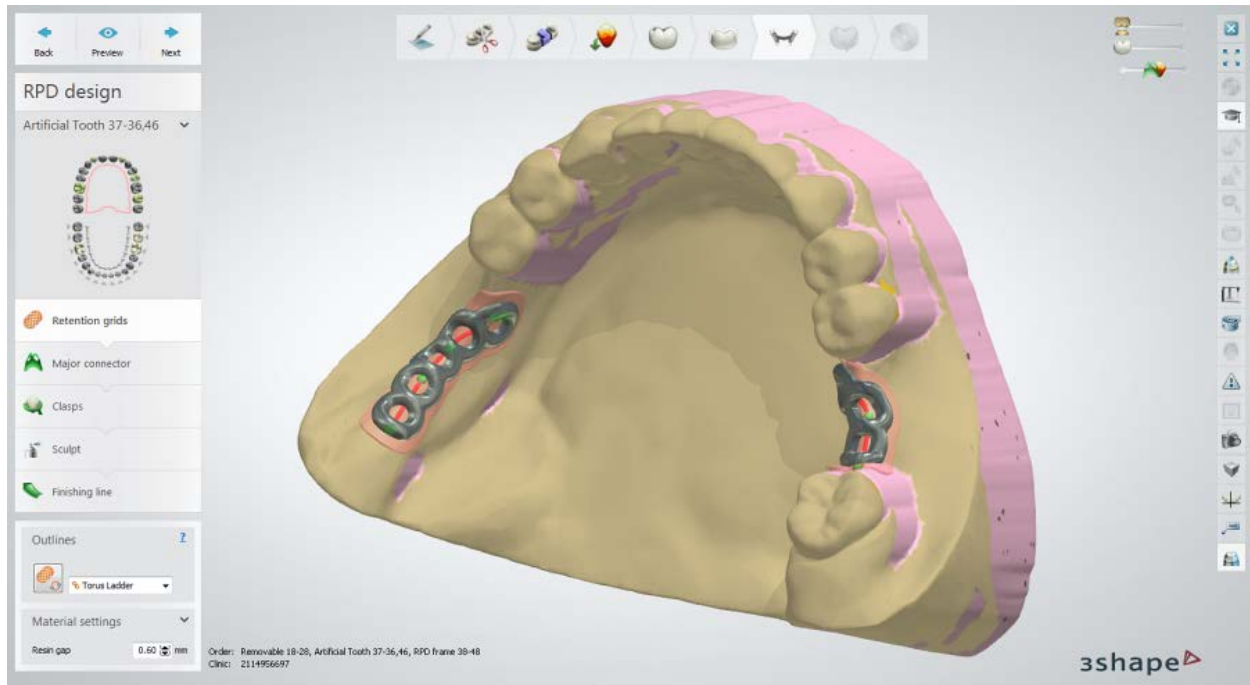
When the retention outline is complete, a pop-up menu is available by right-clicking the outline (or one of its control points). Select **Remove point** from the menu (see the image to the left) to delete the point from the outline or add one by selecting **Add point**.


The same menu offers you also to **Fast edit spline** or **Delete spline** and the retention (if built).

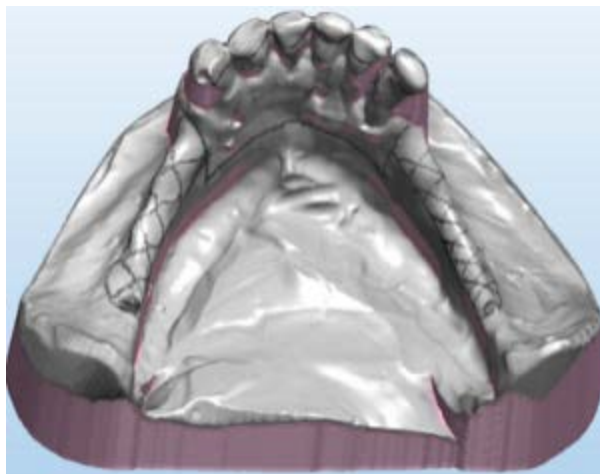
Select **Apply** to build the selected grid.

When the pattern is in optimal position, select **Apply** from the pop-up menu once more to generate a final retention.

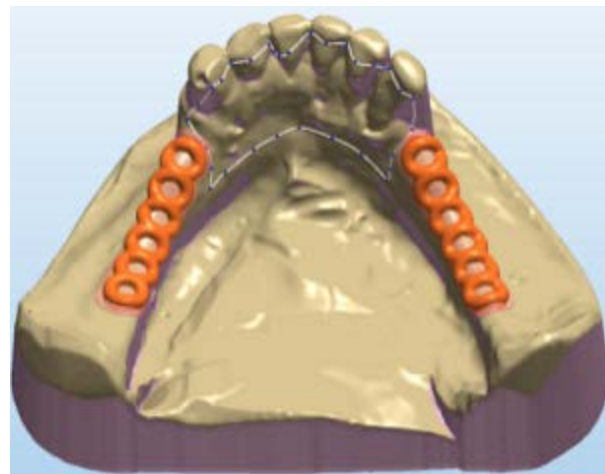
Select the **Material shaders**  button in the Viewing tools to view the removable partial denture with the shade of the relevant material.



Click the  **Show scanner acquired texture** icon in the Viewing tools (if available) to view the hand-drawn markings on the scan and design RPD correspondingly (see the images below).



The mode for showing texture is enabled



Retentions and major connector repeat the texture outlines

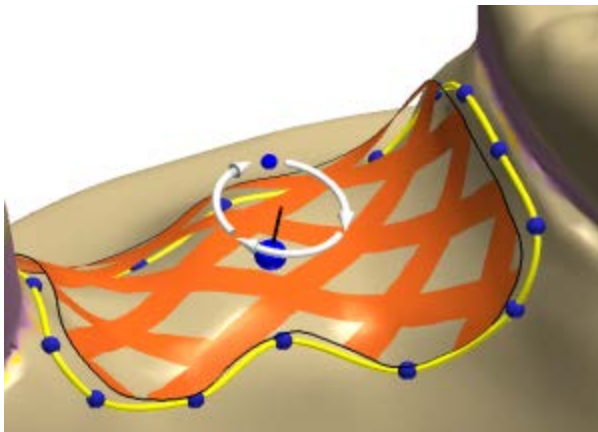


Note! 3Shape [lab scanners with texture scanning](#) support can accurately capture hand-drawn markings penciled directly on a physical model. For more information, see the chapter [Texture Scanning](#).

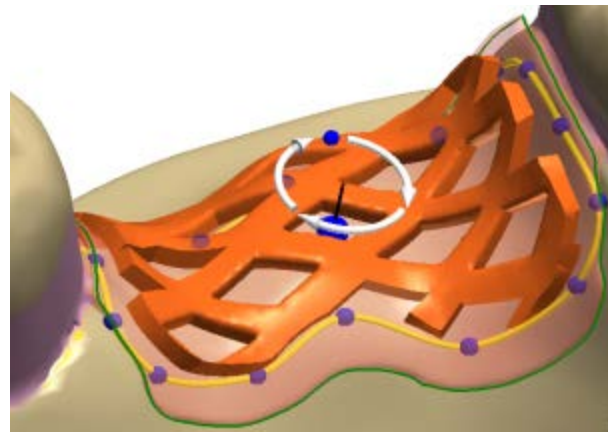


Caution! It is not recommended to place an outline exactly on the border between gingiva and interproximal zone of a tooth (see the **WRONG** grid placement on the image to the left). Instead, leave some space between the interproximal side of a tooth and the retention outline. Alternatively, the retention outline can be placed climbing up the tooth side.

In case of a perforated retention (e.g. **Hole**, **Grid**), it is possible to control position and orientation of its pattern with the help of a special joystick, which needs to be activated first by selecting the respective retention outline with a mouse click:

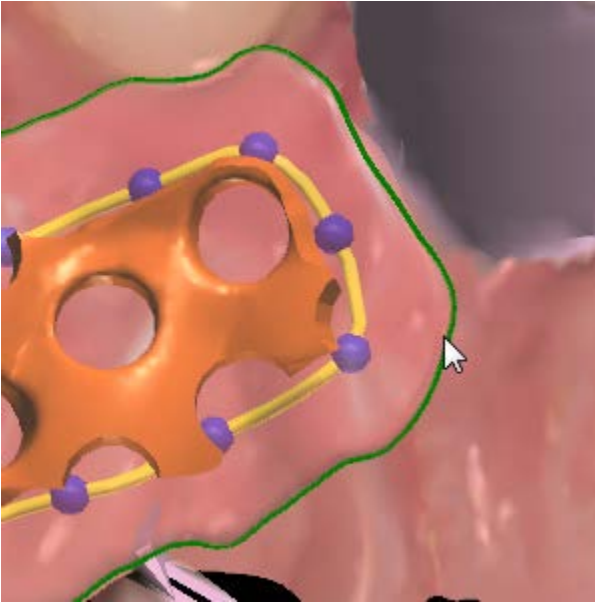


Retention grid - pattern preview

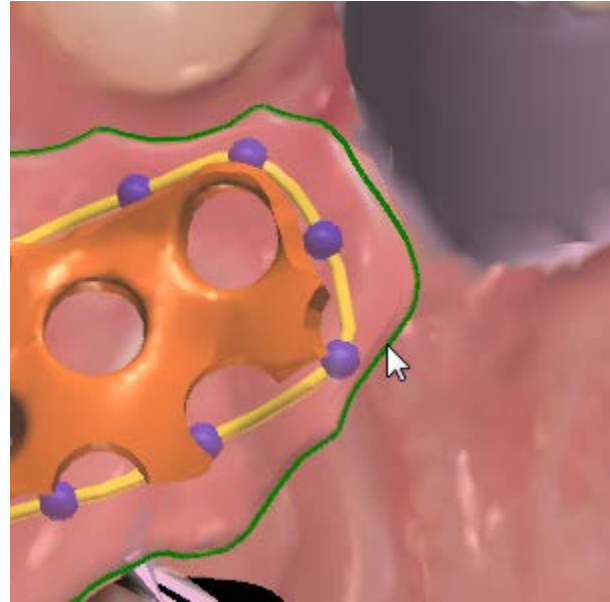


Retention grid - final result

It is possible to adjust the resin gap of the retention, making it narrower, in order to provide a prosthesis with a self-cleaning effect in the interproximal zones. To change the resin gap width, select the outline of the respective retention, then hover a mouse cursor over its edge and scroll holding **Shift**.

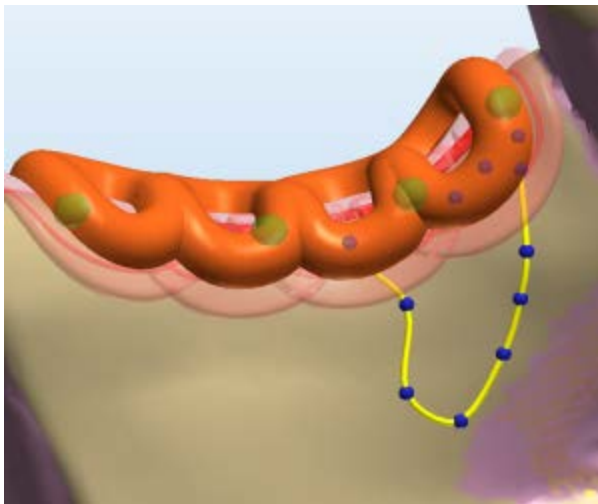


Resin gap - Before

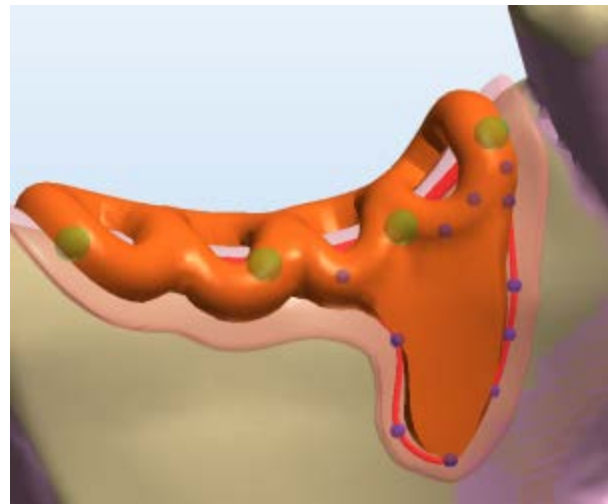


Resin gap - After

The combination of a **Torus ladder** and **Plain** retention is mainly used for creating retention structures on the lower jaw. In this case, holes should be made manually using the [Attachments](#) tool at the **Sculpt RPD design** step. To create a hole, select the "hole" subtractive model and place it correctly on a jaw.



Torus Ladder with Plain retention

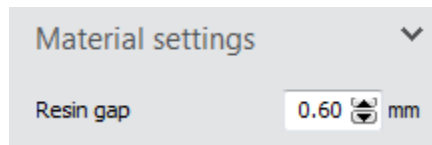


Combined Torus Ladder and Plain retention



Caution! Any other combination of the retention types (other than a single **Torus Ladder** and **Plain** retention) is not allowed. Use one single retention instead of the multiple ones joint together.

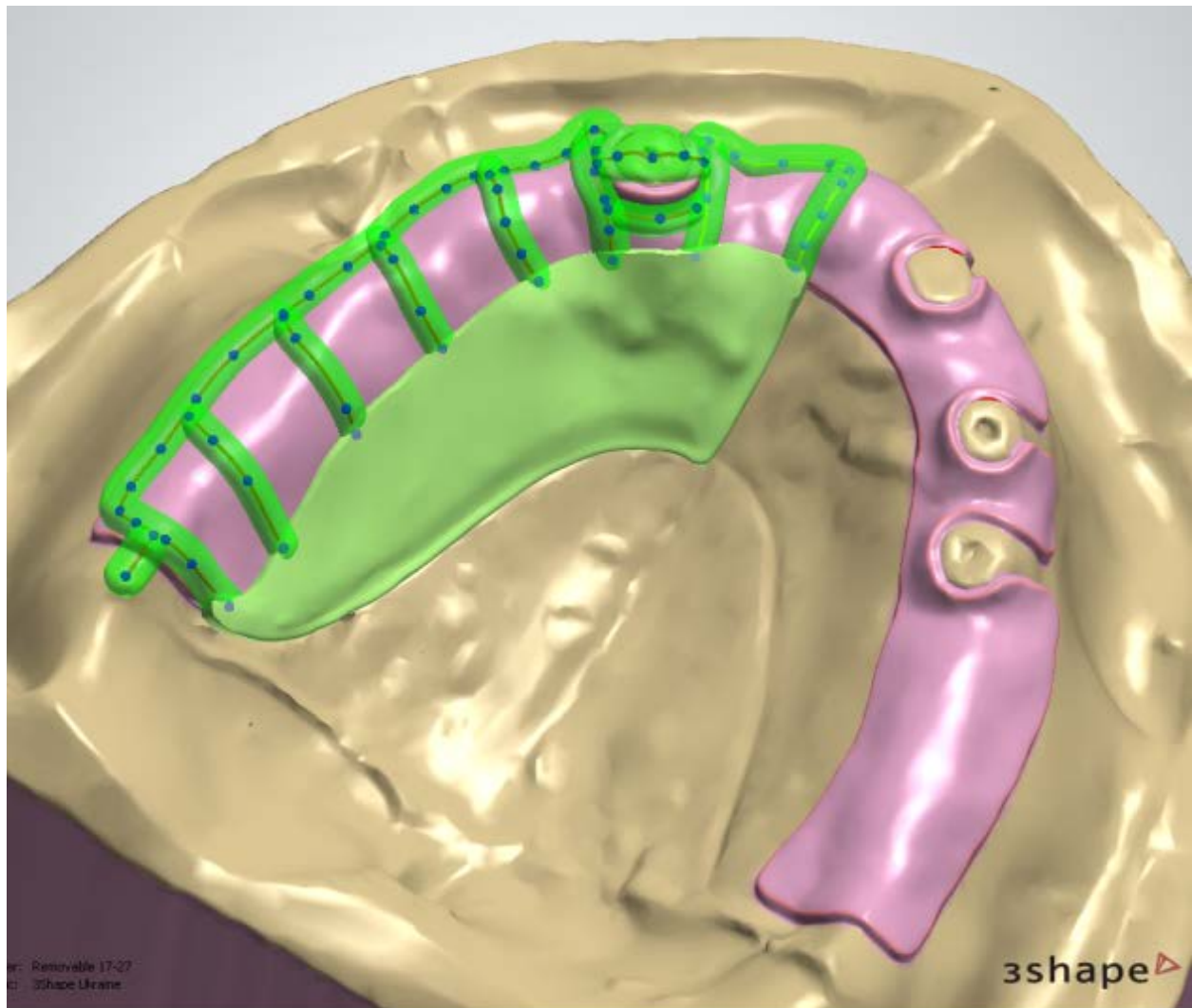
The **Plain** retentions are also used for the upper jaw with little space between the teeth.



Use the **Material settings** in the form to set up the desired **Resin gap** value (predefined in [Dental System Control Panel](#)).


Click **Preview** to create all retentions on your model. Click **Next** to continue to placing **Major connector**.

The [Open Lattice mesh](#) retention is designed in a two-steps sequence. During the first step, an outline of the future retention is drawn using an auxiliary retention type called **Resin Gap**. This type creates a blank retention construction, providing only a resin gap. The actual retaining structures are to be placed by the user when designing [Clasps](#):








Click **Next** to move to the **Major connector** step.

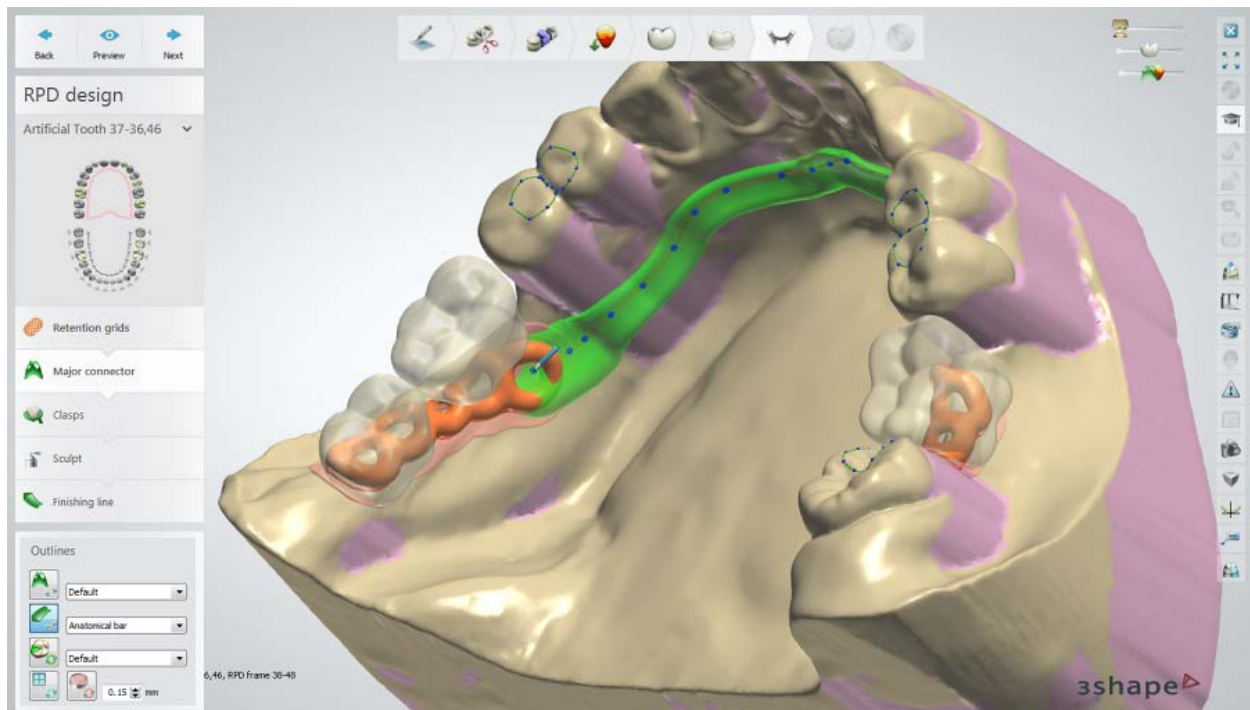
► Step 7: Create Major connector

In the **Major connector**  step, you connect the retention grids with the help of an outline and create a major connector (or a plate) for an upper jaw and a lingual bar for a lower jaw (see the [images](#) below).

Select the needed tool under **Outlines** to perform the following actions:


	Draw major connector outline - Select this tool to draw a major connector outline on your model.
	Draw lingual bar - Select this tool to draw a lingual bar on the lower jaw. You can choose between an Anatomical or Standard bar.
	Draw occlusal rest outline - Select this tool to draw occlusal rests on teeth.
	Draw window in a major connector - Select this tool to draw a special opening (a window) in the major connector.
	Draw relief zone - Select this tool to draw a relief zone on the inner part of the removable partial denture. In the provided edit box, set up the thickness value (predefined in Dental System Control Panel) of the wax layer, which will be applied to the relief zone.

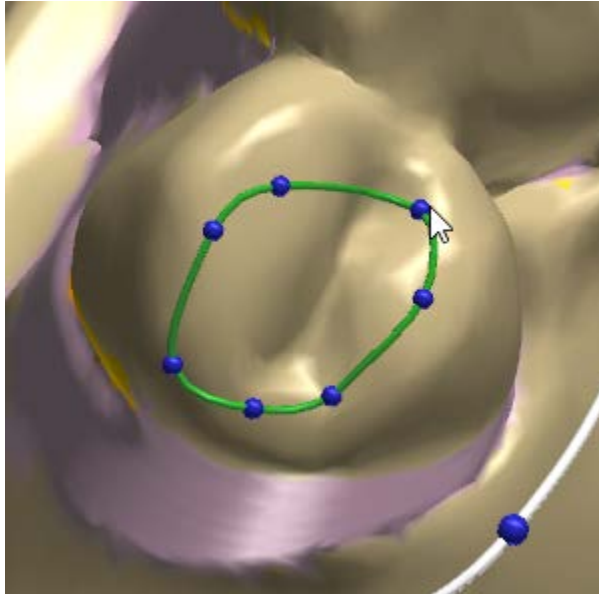
To finalize the outlines of a major connector, window and a relief zone, the last spline point needs to be clicked twice.



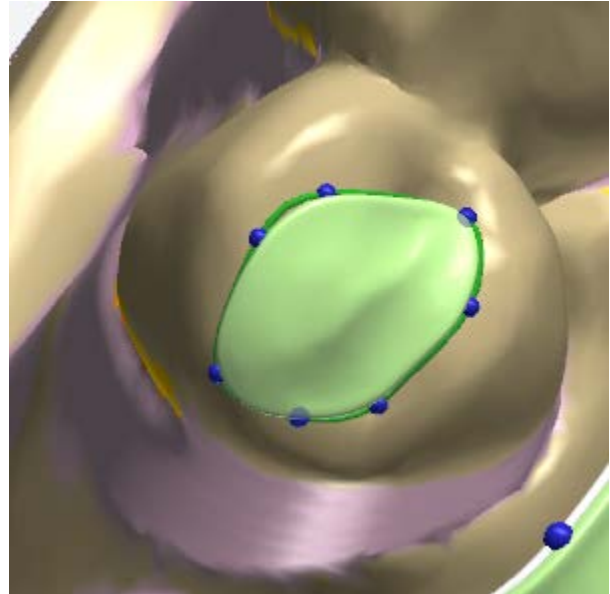
Hint! A major connector does not necessarily have to repeat a red retention outline in the place of adjoining the retention grid. You can draw a major connector roughly through the retention grid, and the program will automatically trim it up to retentions.

Place an outline and click **Preview** to see the result.

-  **Drawing an occlusal rest:**

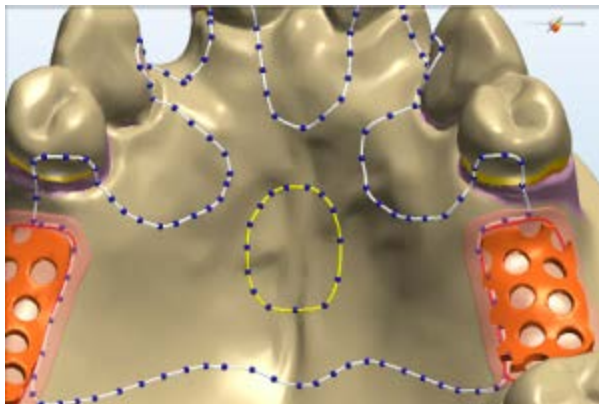


Drawing an occlusal rest

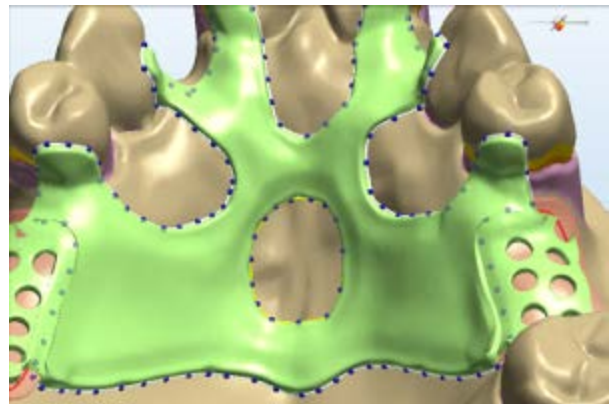


An occlusal rest has been created

-  **Drawing a window:**

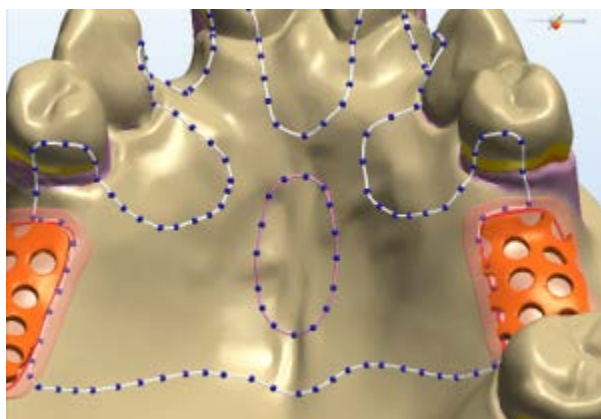


Drawing a window in a major connector

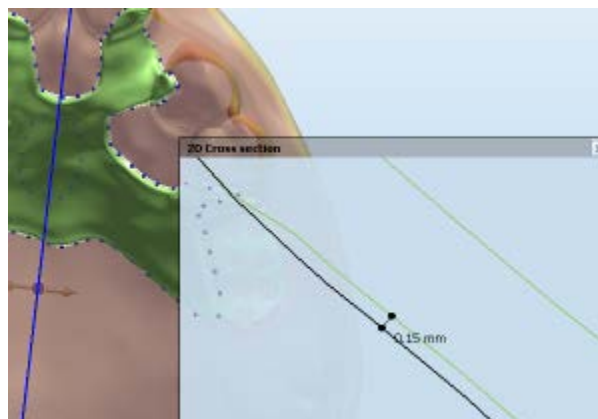


A window has been created

-  **Drawing a relief zone:**

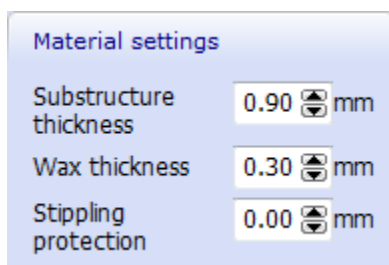


Drawing a relief zone in a major connector



A relief zone has been created (2D cross-section view)

The **Material settings** (predefined in [Dental System Control Panel](#)) differ depending on the outline type selected:

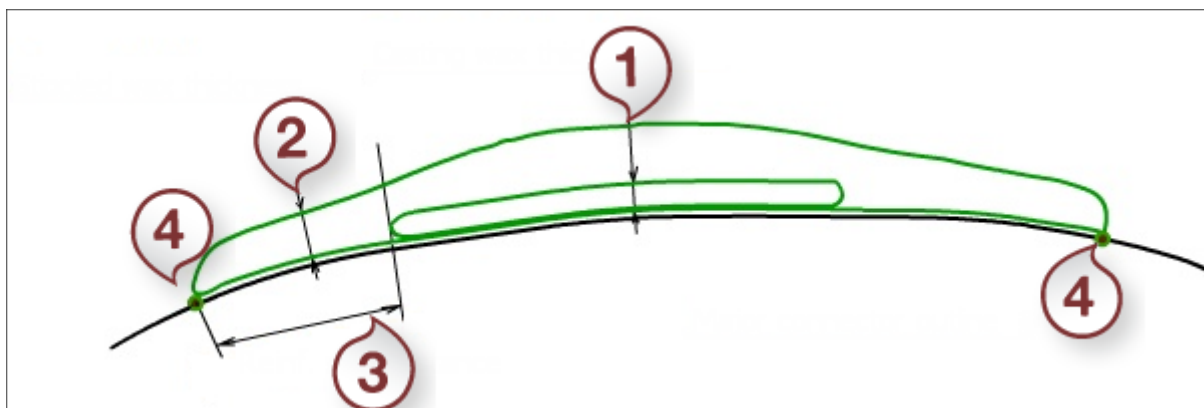


Substructure thickness (1) - the thickness value of the reinforcing wax layer. This layer starts at 2 mm (3) from the edge for smooth transition.

Wax thickness (2) - the thickness value of the wax layer, which together with the reinforcing wax layer constitute central thickness of the entire structure. For lingual bars and major connectors, this is usually a stippled wax sheet.

Stippling protection - the width of the rim along the edge of the major connector, which is not influenced by the stippled wax pattern. This rim is visualized at the **Sculpt RPD design** step when using [Surface selection tool](#).

Note that the [Stippled wax settings](#) (for major connectors and lower jaw lingual bars) can be configured in Dental System Control Panel.



- (1) Substructure thickness
- (2) Wax thickness

- (3) Start distance for the reinforcing wax layer (2 mm)
- (4) Major connector outline



Note! The internal finishing line is created automatically in the place, where major connector and the retention grid adjoin. For better understanding of the internal finishing line behavior see the explanation and strategies description below.

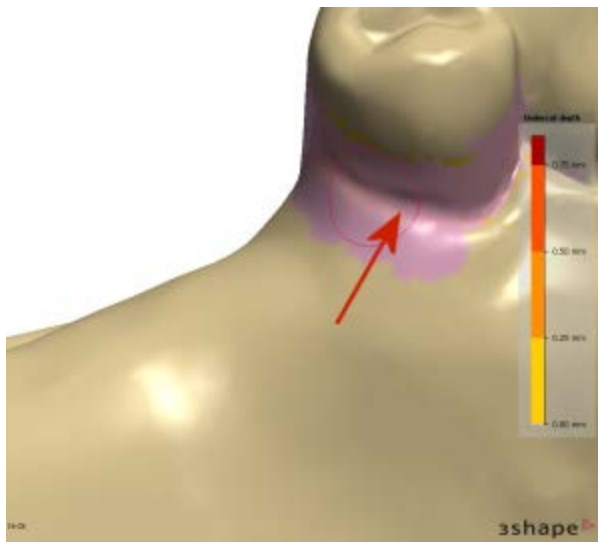
Understanding of the inner finishing lines behavior needs to be kept in mind during every step of the RPD frame design.

There are two strategies of relief behavior in the interproximal zone. The major connector placement defines the selection of the strategy.

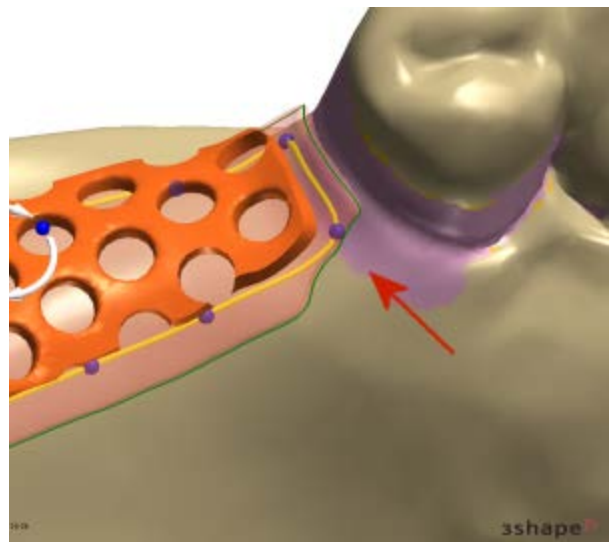
Strategy #1: To provide the acrylic flow under the minor connector, which results in the acrylic contact with a tooth.

- (1) Add some additional blocking out wax in the zone where the interproximal side of a tooth intersects with gingiva.
- (2) Decrease the resin gap rim width to make the major connector as narrow as possible to allow the food pass easily under the minor connector.
- (3) Place the major connector so it only slightly enters the interproximal zone.
- (4) During the clasp design step place the minor connector so its surface finely flows into the major connector.

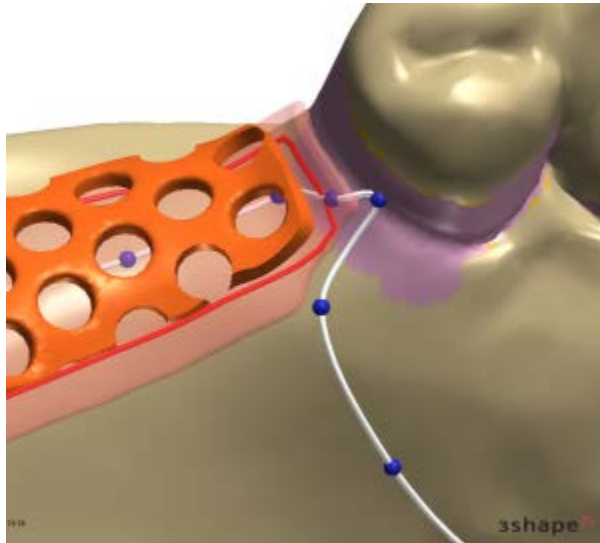
Images below illustrate these four steps:



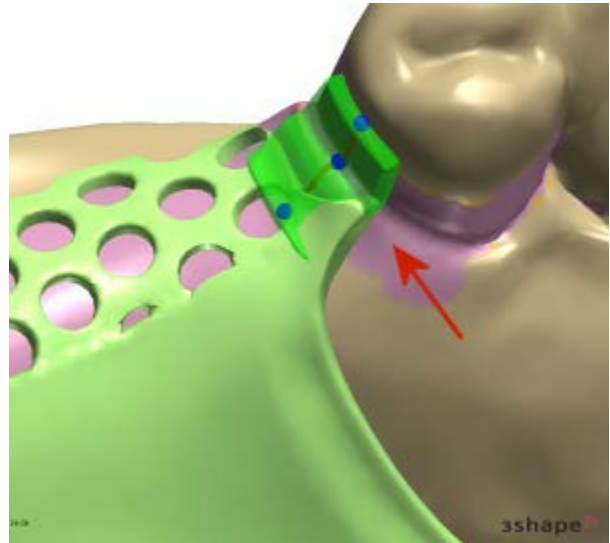
(1) Adding blocking out wax



(2) Reduction of resin gap rim

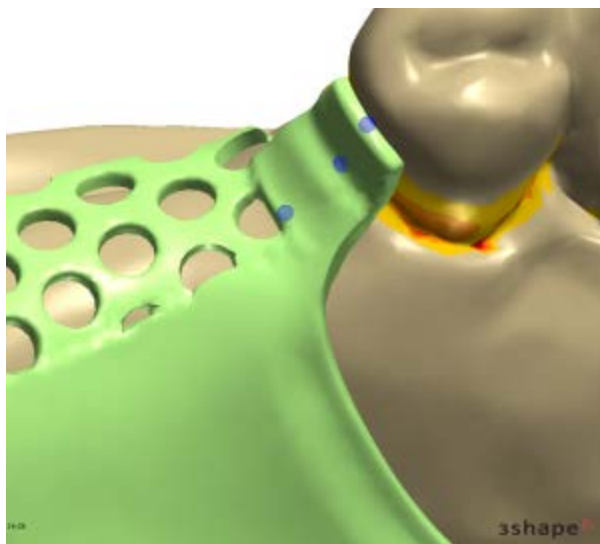


(3) Major connector design

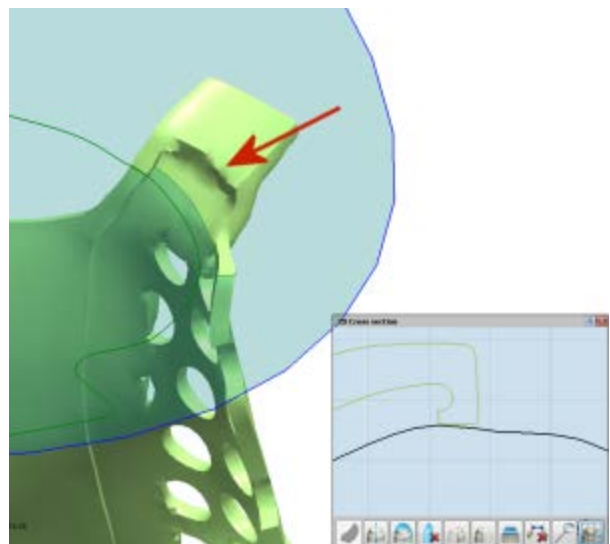


(4) Minor connector placement

The result of the process is shown below:

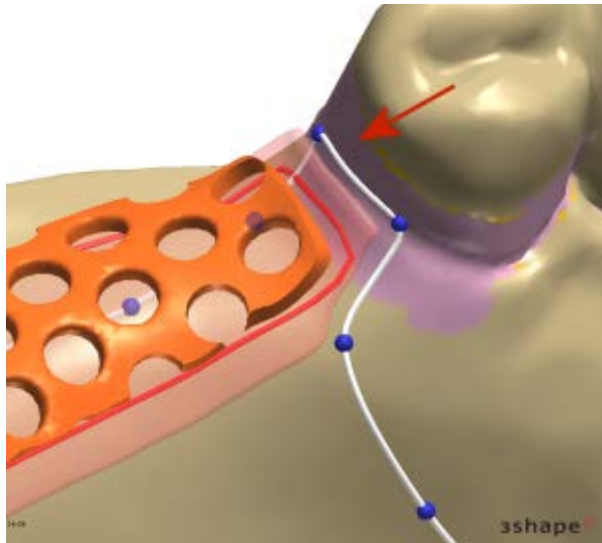


Frame structure (top view)

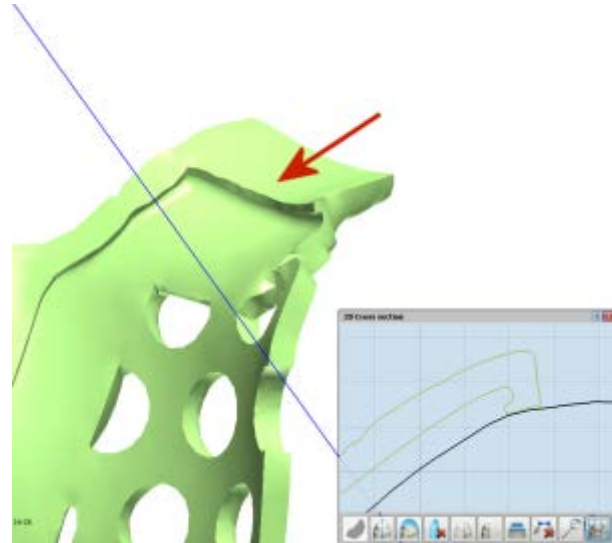


Frame structure (bottom view)

Strategy #2: To stop acrylic, which results in the metal/air to tissue contact, by placing the major connector outline as shown below:

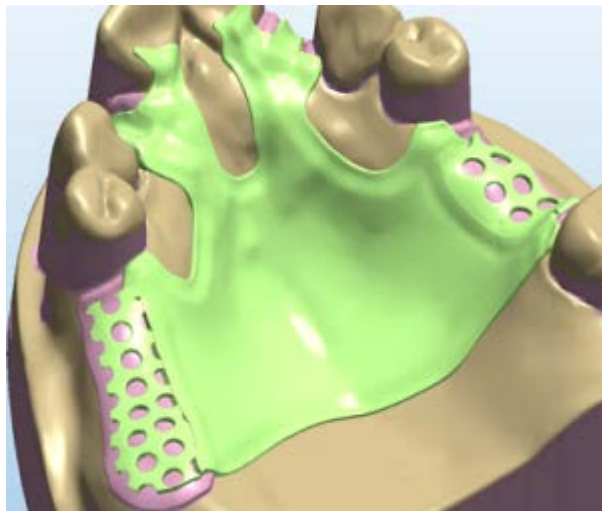


Major connector design

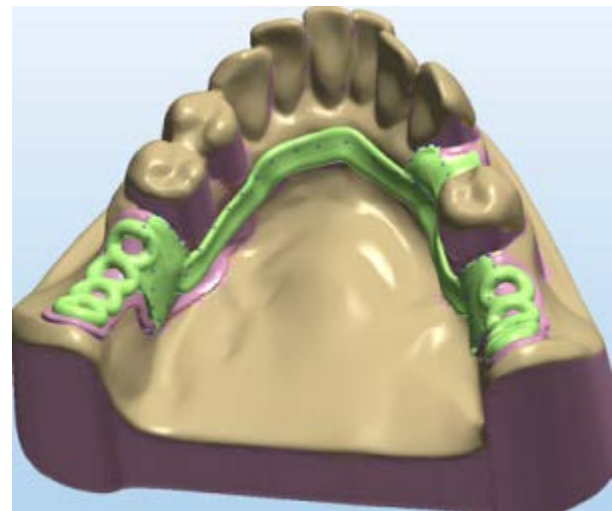


Frame structure (bottom view)

Click **Preview** to create a major connector or a lingual bar. The result for both cases is illustrated on the images below:



Major connector (upper jaw)



Lingual bar (lower jaw)




Note! Lingual bars get automatically relieved on a value defined in *Dental System Control Panel* > *Removables* > [Wax Profile Strips](#).




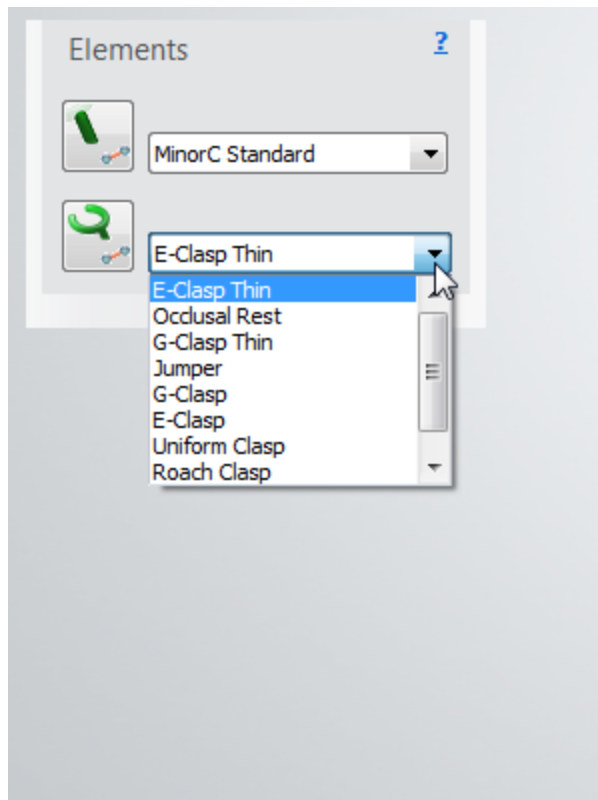
Hint! To go back and see the splines in the spline-editing mode again, double-click with the left mouse button anywhere on the screen.

Click **Next** to move to designing **Clasps**.

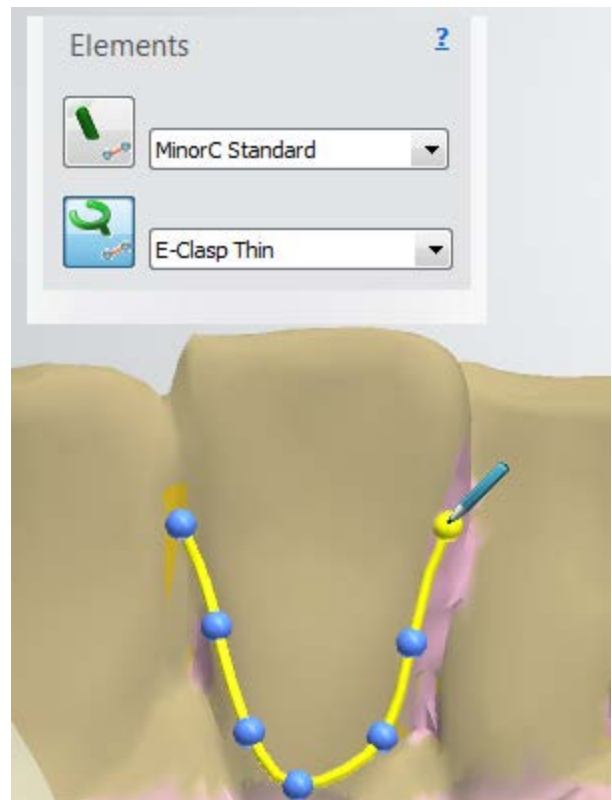
► Step 8: Design Clasps and Minor Connectors

- In the **Clasps**  step, choose a needed clasp type from the corresponding dropdown list **(1)**. Available clasp types include clasps of different geometries (**G-Clasp Thin**, **G-Clasp**, **E-Clasp**, **Uniform Clasp** and **Roach Clasp**), **Occlusal Rest**, **Roach Arm** and **Jumper**, which are predefined in [Dental System Control Panel](#).

Then click the **Draw clasp**  button to place a clasp on your removable partial denture **(2)**. The clasp spline is finalized with a double click on the last control point.



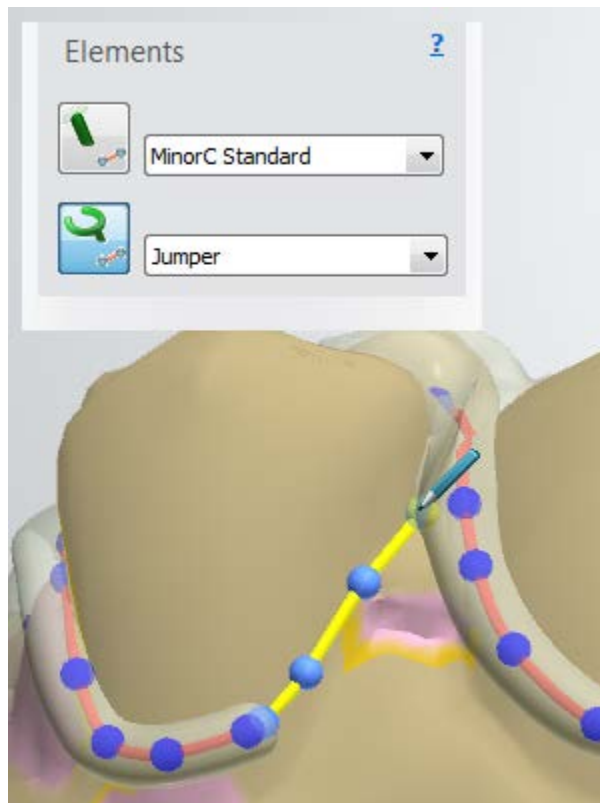
(1) Choosing a clasp type



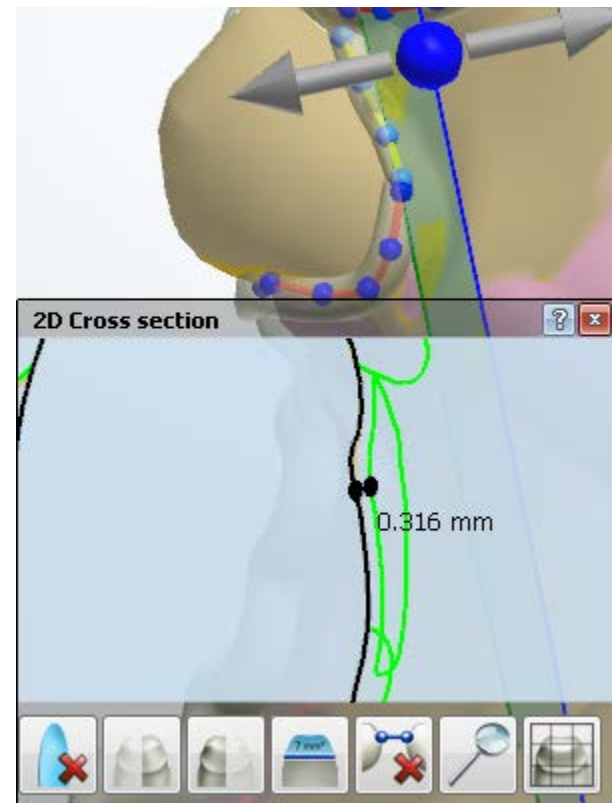
(2) Placing the G-Clasp Thin spline



Hint! For better manufacturing experience aimed at reinforcing the structure, use the **Jumper** clasp type to place a clasp segment which is elevated on the tooth surface to the distance predefined in [Dental System Control Panel](#). The elevation of this segment helps easily identify the cut-off area of the manufactured RPD.



Placing the Jumper segment



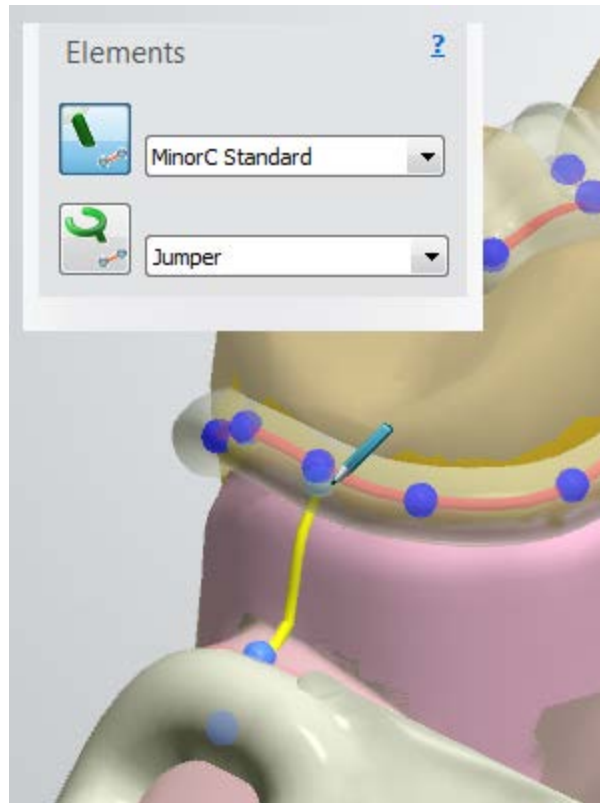
Jumper in the 2D Cross section view (offset = 0,316 mm)

- This step is also intended for placing minor connectors. Choose the minor connector type from the corresponding dropdown list: **MinorC Standard** and **MinorC Thick**, which are also predefined in [Dental System Control Panel](#). Then click the **Draw**

minor connector

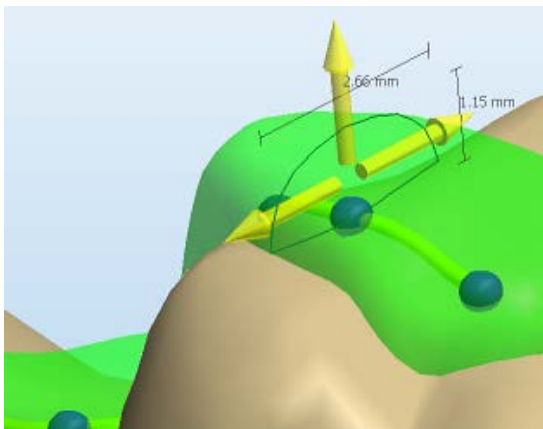


button and place a spline as with clasps.



Placing a minor connector (MinorC Standard)


You can change the clasp's width and/or height by clicking one of the control points on a clasp and holding down the appropriate key on your keyboard:



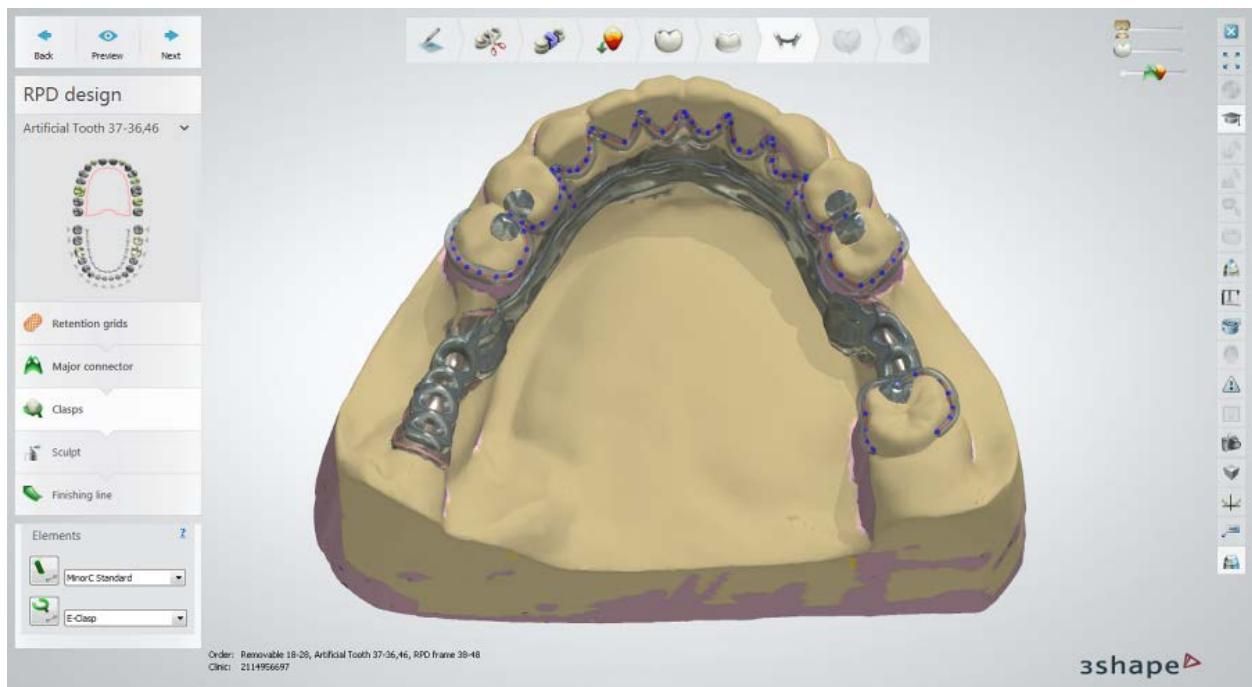
Key	Operation
Ctrl	Hold down Ctrl while scrolling the mouse wheel to change the clasp height.
Shift	Hold down Shift while scrolling the mouse wheel to change the clasp width.
Ctrl + Shift	Hold both keys down while scrolling the mouse wheel to change the clasp width and height simultaneously (see the image to the left).
Alt + Ctrl/Shift	Hold down Alt with Ctrl and/or Shift to change the clasp width and/or height along its entire length.

The height/width dimension arrows indicate the direction of scaling and also display the height/width values (mm).

The same operations can be performed for changing the width and height of a minor connector.

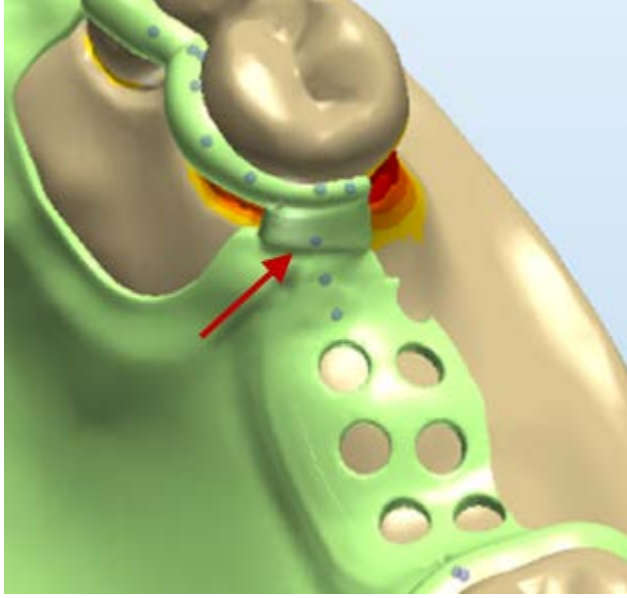
Use the **Blocking wax**  slider for better visualization: move the slider to the left to make the scan model invisible (or partially visible); move the slider to the right to change the blocking wax transparency.


Click **Preview** to implement the changes (see the image below), click **Next** to go to **Sculpt**.



Hint! To go back and see clasps in the spline-editing mode again, double-click with the left mouse button anywhere on the screen.

► Step 9: Sculpt with Wax knife



At the **Sculpt**  step, you should smooth the sharp inner corners near the interproximal zone since placing the finishing line on sharp corners may lead to undesired results.

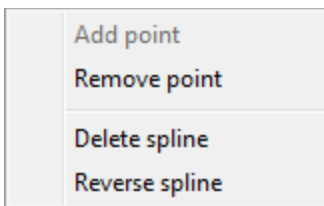
Click **Next** to move to placing **Finishing line**

►Step 10: Place Finishing line

In the **Finishing line**  step, place the finishing line by clicking the corresponding button



and drawing the spline on the model. The types of the finishing line are predefined in [Dental System Control Panel](#). Click **Preview** to see the result.




To swap the finishing line spline direction, right-click the spline and select **Reverse spline**.

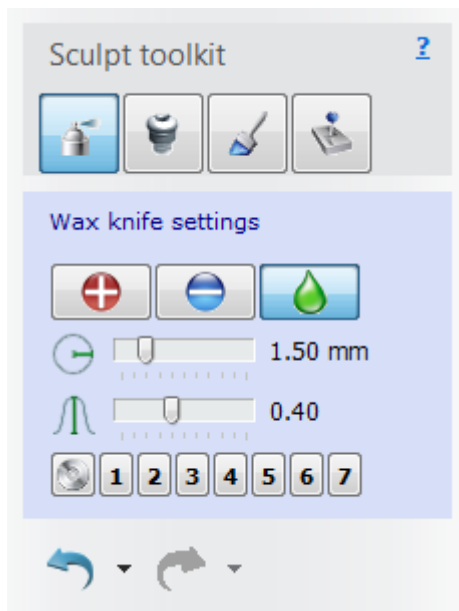


During this step the internal finishing lines are shown with thin guiding contours, helping the user to place the external finishing line correctly. Always try to have approximately 1mm of space between the outer and the inner finishing lines - this will make the construction more rigid.



Click **Next** to proceed to the next step, where you perform the final editing of your removable partial denture and prepare it for manufacturing.


►Step 11: Sculpt RPD design

In the **Sculpt RPD design**  step, use the available tools to apply finishing adjustments to your RPD design.



Use the Wax knife  button or the Contacts

and smoothing  button to shape your removable partial denture, improve its visual appearance and, if necessary, make it stronger by adding some extra material. To do so, click the **Add**  button, move the cursor to the place that needs to be thickened and click there to add the material.

The **Attachments** tool  allows you to manually place the additive/subtractive CAD models (e.g., retaining posts and holes for the acrylic flow).



The **Surface selection** tool allows you to choose an area on your removable partial denture to which the stippled wax will be applied at the next step **Pre-manufacturing**.

Selecting **RPD** in the **Group** tab of the **Attachment settings**, gives you an ability to choose models of posts and holes. Note, that additional attachment models are configured in [Dental System Control Panel](#).

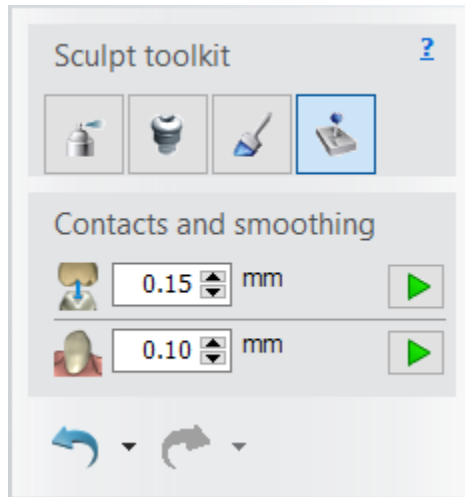
The general information on attachments can be found in the chapter [Smile Composer](#).




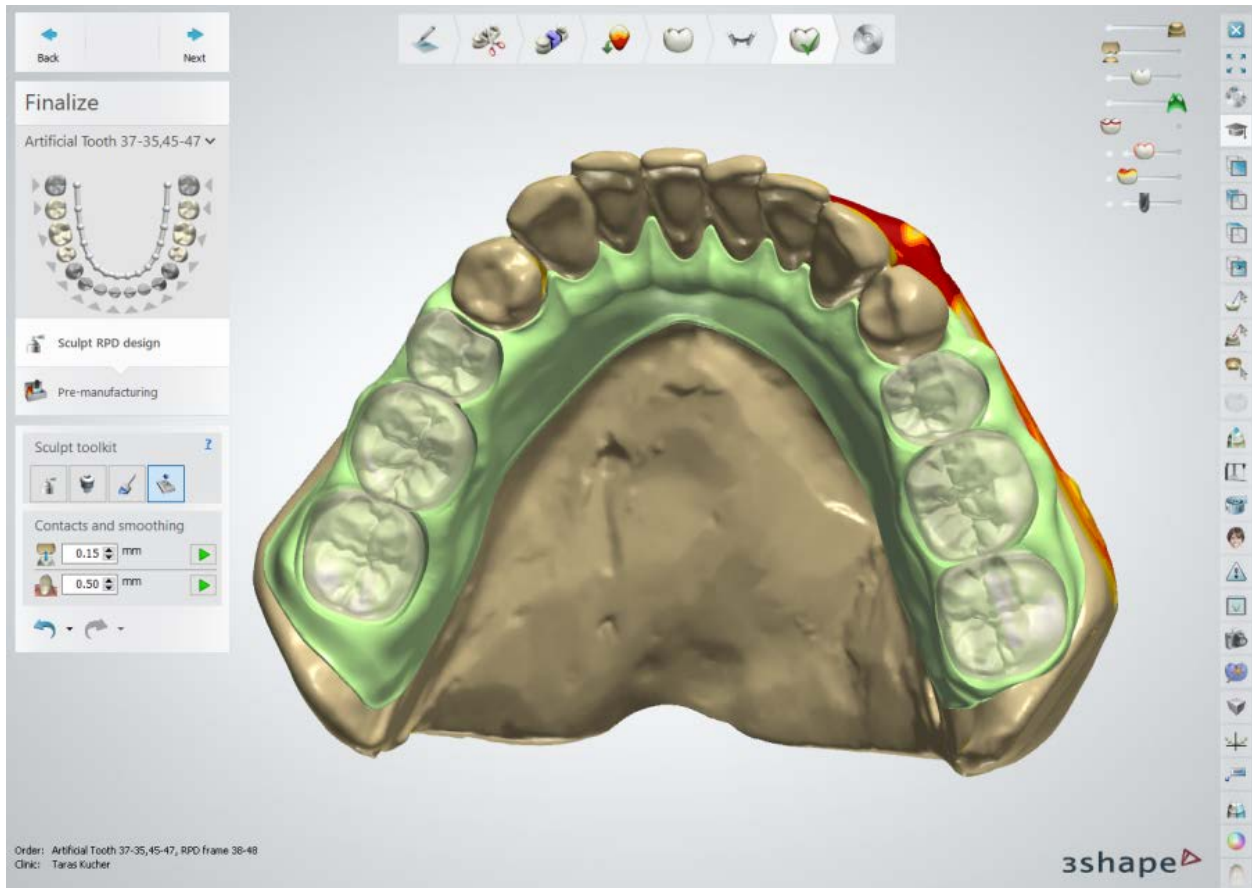
Use the **Thickness map** slider in the upper right corner of the window to visually control the thickness of the RPD:

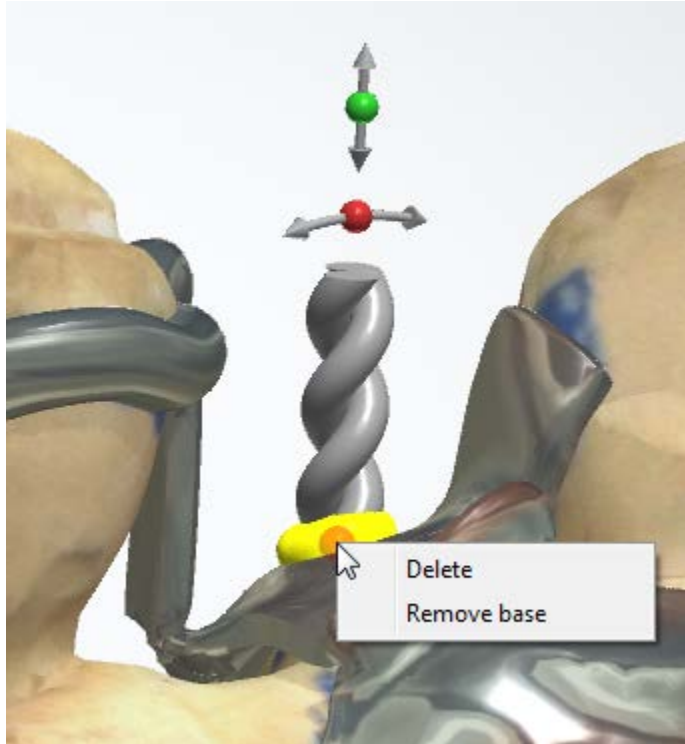


The **Create pockets for teeth** option of the **Contacts and smoothing** tool in the Sculpt RPD design toolkit lets you create pockets for artificial teeth in RPD base for flexible dentures.



Specify the value of the glue gap and click the **Play**  button to create pockets. The tool identifies the optimal insertion direction for each tooth and creates undercut-free pockets (drill compensation is not applied).






When you place an additive attachment (e.g., **RPD Post string**), the auxiliary model is automatically added at the base of the attachment.


The role of this auxiliary model is to make the attachment base less susceptible to breaking off. The main axis of the auxiliary model follows the surface normal (regardless of the selected attachment direction).

This option can be disabled by selecting **Remove base** from the right-click pop-up menu.

► Step 12: Pre-manufacture


In the **Pre-manufacturing**  step, you can add tissue stops and support bars to your removable partial denture.






Click the **Add Tissue Stop**  button, specify the desired diameter (predefined in [Dental System Control Panel](#)) of stops and click on the model to place the tissue stops **(1)** - see the image below. Right-click on the stop and select **Remove tissue stop** to delete it. If you want to move the stop, activate it with a click (turns yellow) and drag the stop with the cursor.




Select the desired diameter (predefined in [Dental System Control Panel](#)) of the

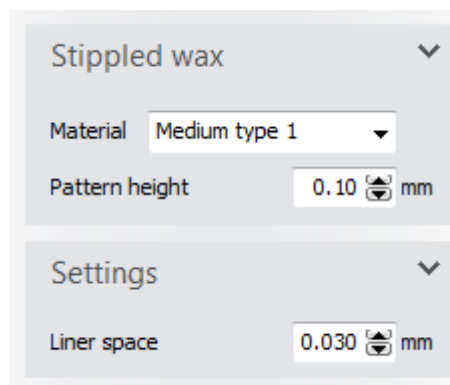
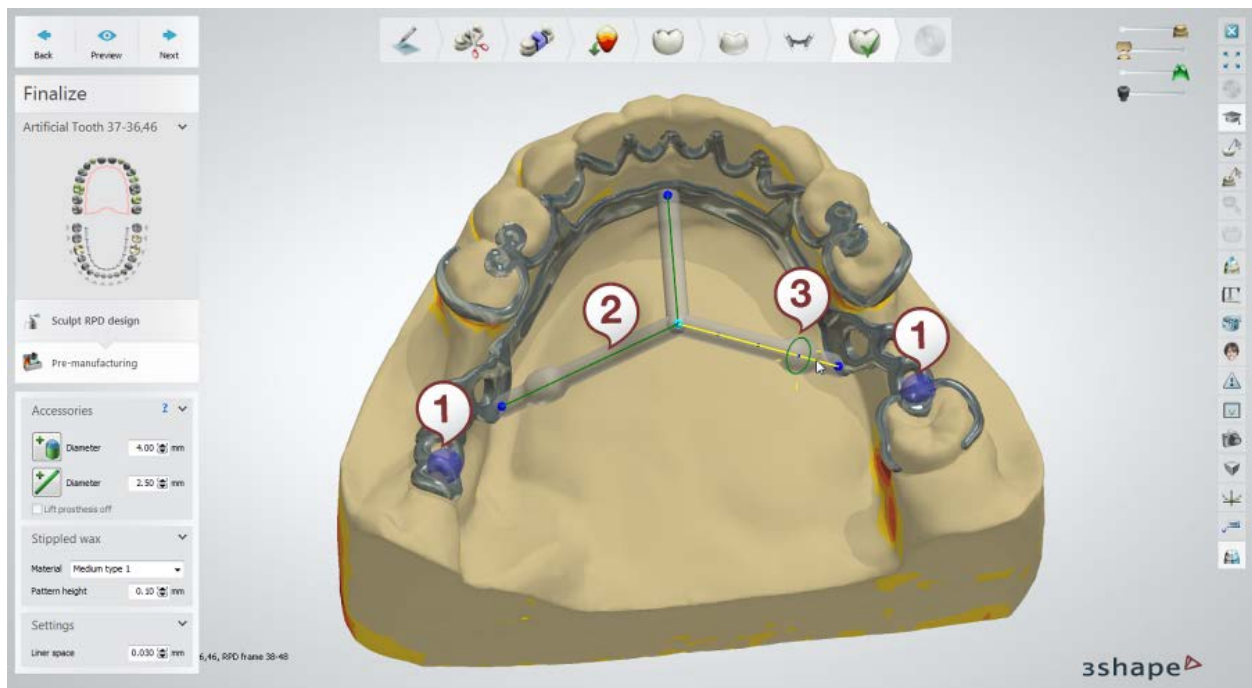


support bar and click the **Add Support bar**  button. Create the bar by placing two control points on the model with a mouse click - the bar will be automatically created **(2)** - see the image below.

The following options are available while working with the support bars:

	To move the support bar, hover the mouse cursor over its control point (the point turns yellow) and drag it holding down the left mouse button. By default, the moved point is automatically snapped to the underlying model.
	Hold down the Shift key while dragging the point to prevent it from snapping to the underlying model.
	You can place one end of a support bar on another existing bar to create various configurations. In this case, the control point of such configuration is colored magenta. You can right-click the bar and select Split to create two adjoined bars.

	If you connect bars with their control points, they assemble in one group. Their common control point turns light blue. Right-click the point and select Disassemble to dismantle the bars into separate independent pieces. Right-click one of the points and select Delete to remove the support bar.
	It is possible to create bars with one (or even both) end(s) floating in the air. The blue control point of the free end suggests that the support bar is not attached to another bar.
	Position the cursor over the bar's center line to activate the smaller blue control points which allow you to create the casting reservoirs (3) - see the image below. Hover the cursor over one of the points to visualize the yellow arrows and scroll the mouse wheel to increase/decrease the size of the casting reservoir.



The Stippled wax type, which you can select from the drop-down menu, can be configured in [Dental system Control Panel](#) and defines applied stippled wax.

If you do not wish to use stippling, choose **None** in the Material drop-down menu.

Pattern height - controls the prominence of stippling.

Liner space - creates additional space (predefined in [Dental System Control Panel](#)) between the prosthesis and scan, compensating the frame manufacturing tolerance.

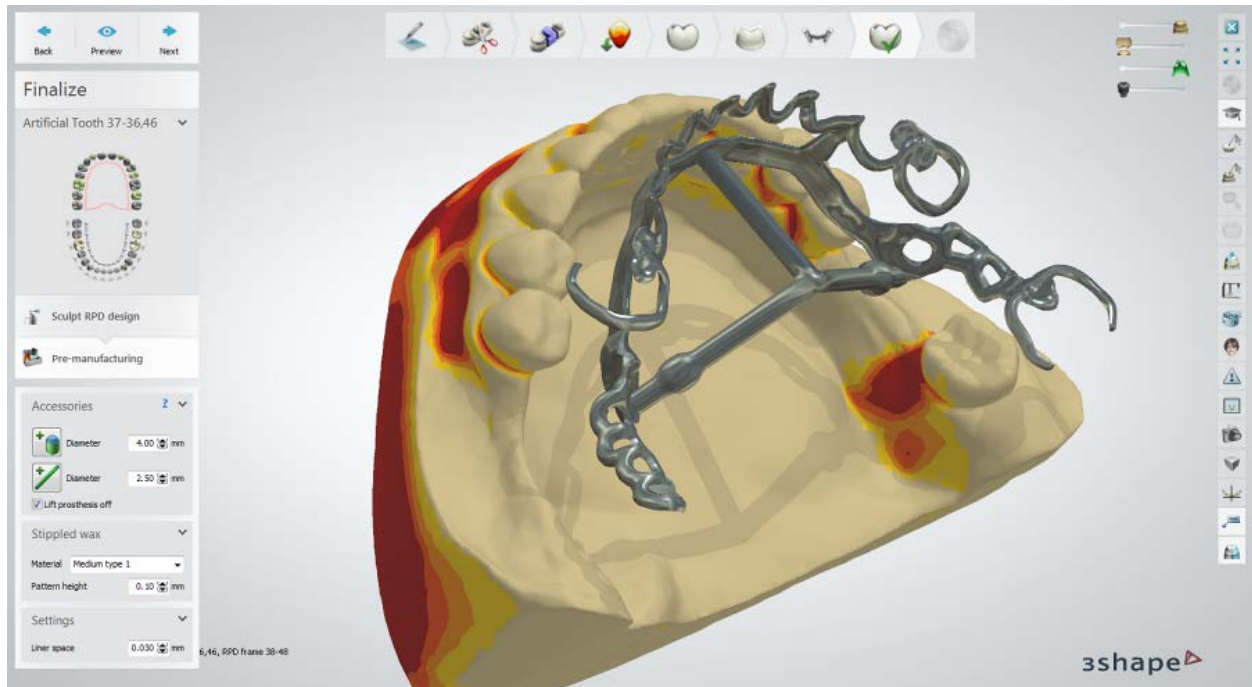


Preparation - Move slider to the left to make the preparation model transparent; move it to the right to make the preparation fully visible.



RPD design - Move slider to the left to make the removable partial denture transparent; move it to the right to make the removable partial denture fully visible.

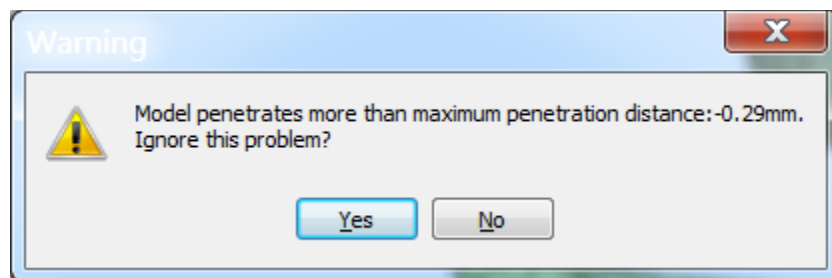
Click **Preview** to see the result of your design. After that, you can lift the removable partial denture off the cast for examination by selecting the **Lift prosthesis off** checkbox (see the image below).



Click **Next** to move to the final step **Save**.

During the design of an RPD frame, special attention is paid to the continuous control over the precise model fit. In some cases, elements of a frame may start penetrating the model, particularly, the surface parts that have direct contact with the gingiva or teeth:

1. If penetration is more than 0.27 mm, the place of penetration is highlighted with a red ball (in case of clasps, lingual bars and minor connectors the whole construction flashes to indicate the problem). The following warning appears afterwards:



Click **Yes** to ignore the problem and proceed with the modeling.

Click **No** to go back and re-design the highlighted element.

2. If penetration is less than 0.27 mm, the program will try to handle it automatically at the end of the modeling process on step **Pre-manufacturing**.

►Step 13: Save the design

Click **Close** to save the output result.



Continue to [manufacturing](#) if required.

1.21.4. Metal Dummies and Backings

►Step 1 (optional): Prepare scans

This step is identical to [Prepare](#) described in Single Coping chapter.

►Step 2: Place Annotations

This step is identical to [Annotations](#) described in Single Coping chapter.

►Step 3: Block out the undercuts

This step is identical to [Blocking out](#) described in Removable Partial Dentures chapter.

►Step 4: Trim wax

This step is identical to [Wax trimming](#) described in Removable Partial Dentures chapter.

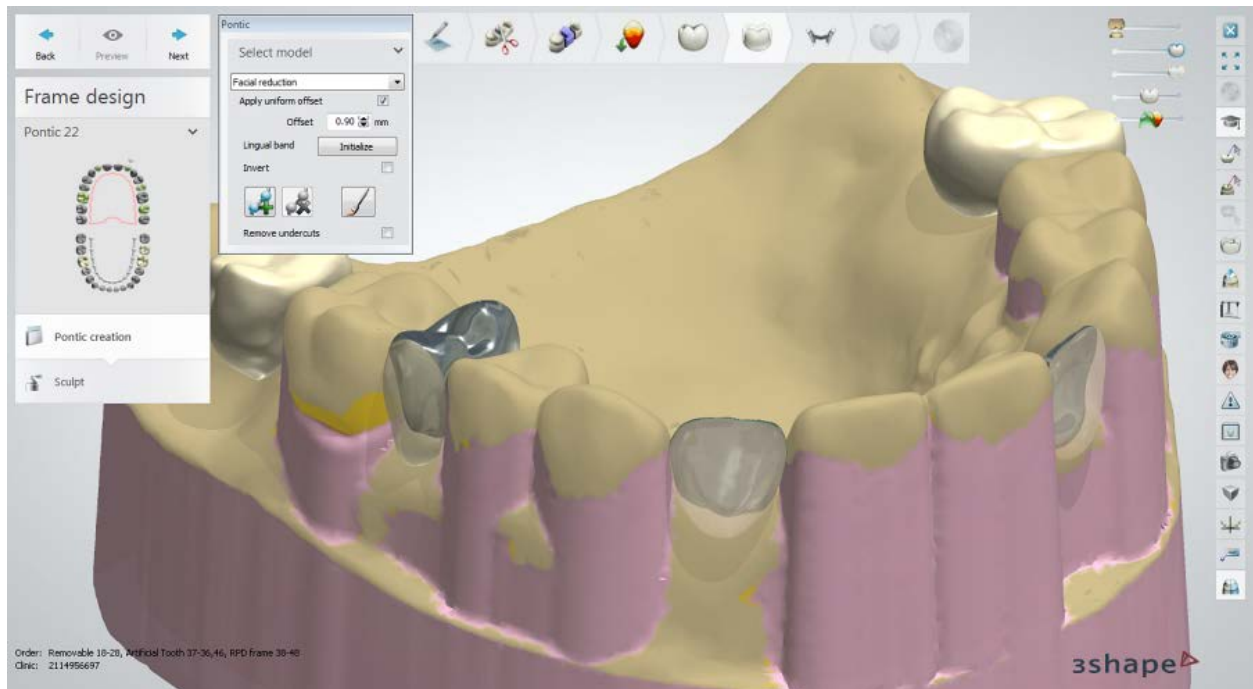
►Step 5: Design anatomy

Use [Smile Composer](#) to design the anatomy of metal dummies which will be further merged within the framework, anatomically reduced teeth and artificial teeth if any.

►Step 6: Design pontics

In this step, you create metal backings to support anatomically reduced teeth. Metal backings will be merged within the framework as well.

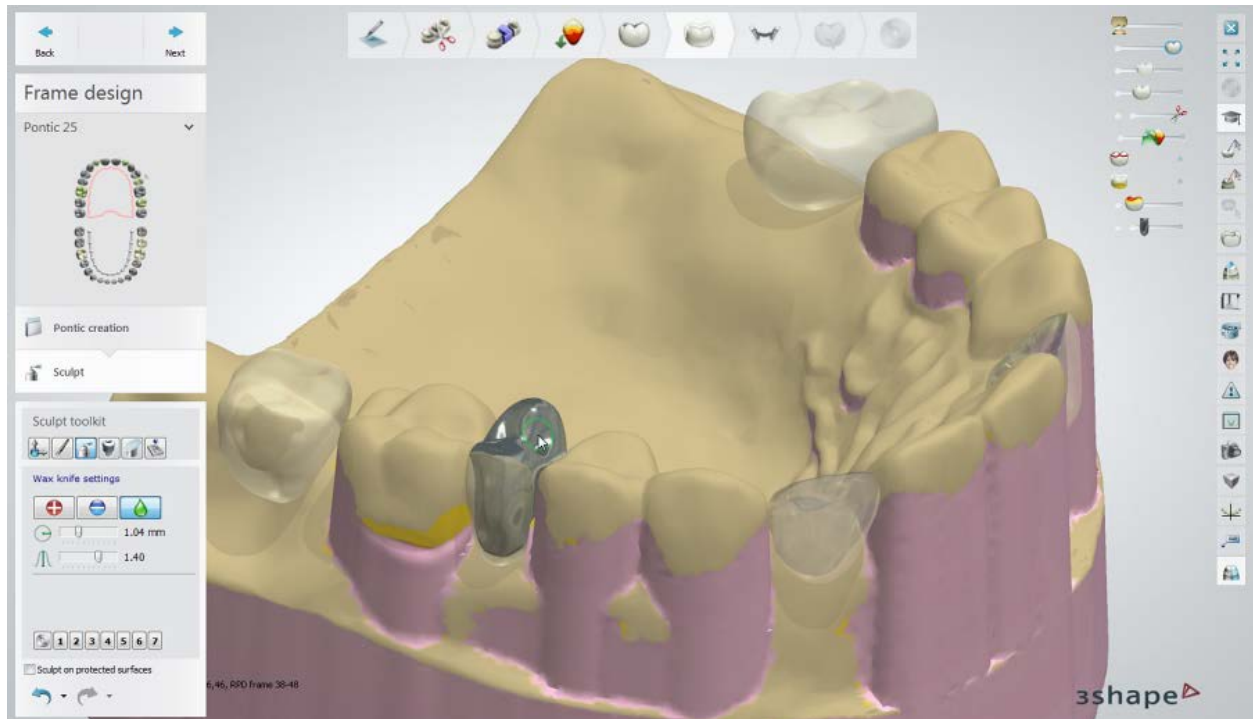
This step is identical to [Load Pontic Model](#) described in Anatomical Copings and Framework chapter.



Click **Next** to proceed to the **Sculpt** step.

►Step 7: Use the Sculpt toolkit

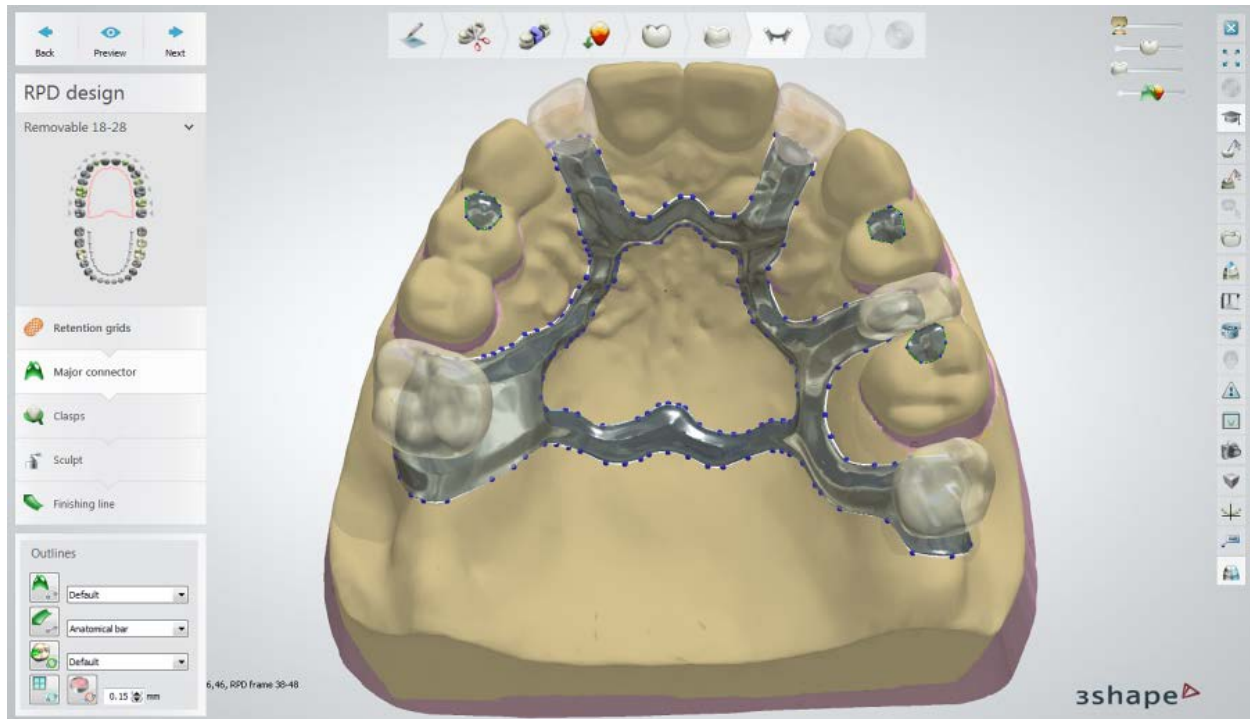
Do the final adjustments to your pontic design using the Sculpt toolkit. See [Sculpt Toolkit](#) chapter for details on how to use the tools.



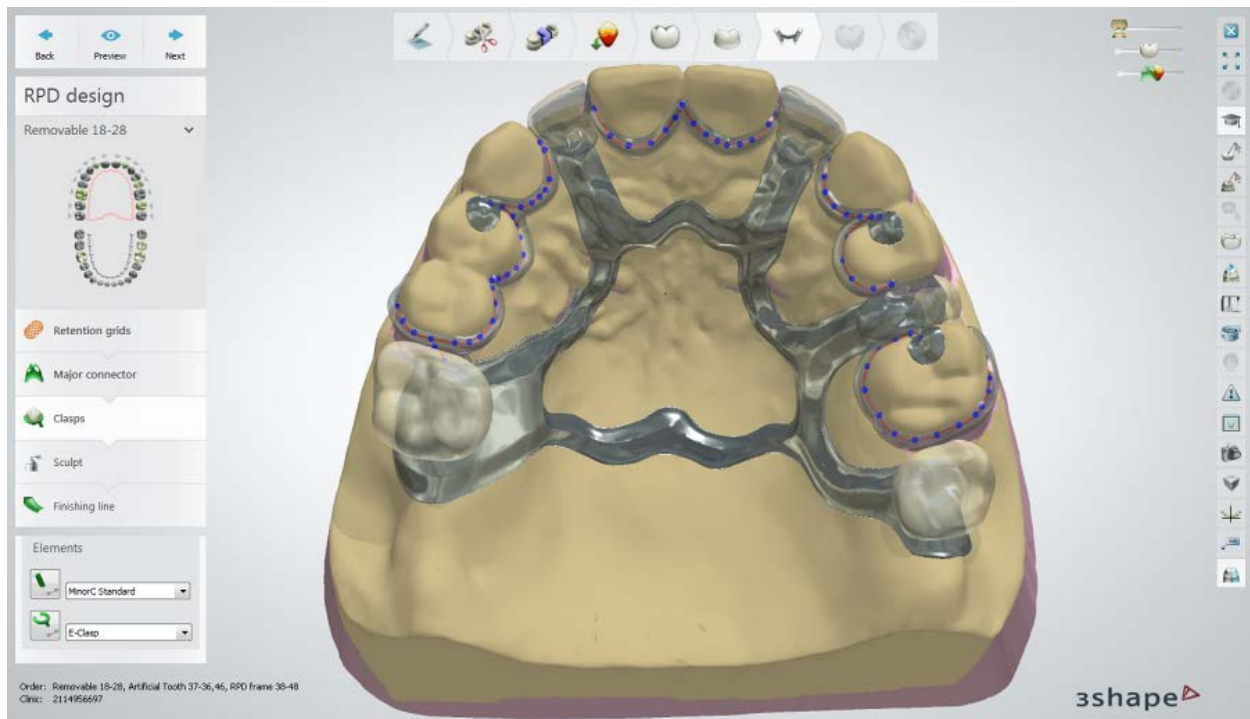
Click **Next** to proceed to **RPD design**, where the creation of retention grids, a major connector, clasps etc. takes place.

►Step 8: Design and sculpt RPD framework

Design and sculpt procedures are identical to the ones described in [steps 5 - 10](#) of the Removable Partial Dentures chapter.



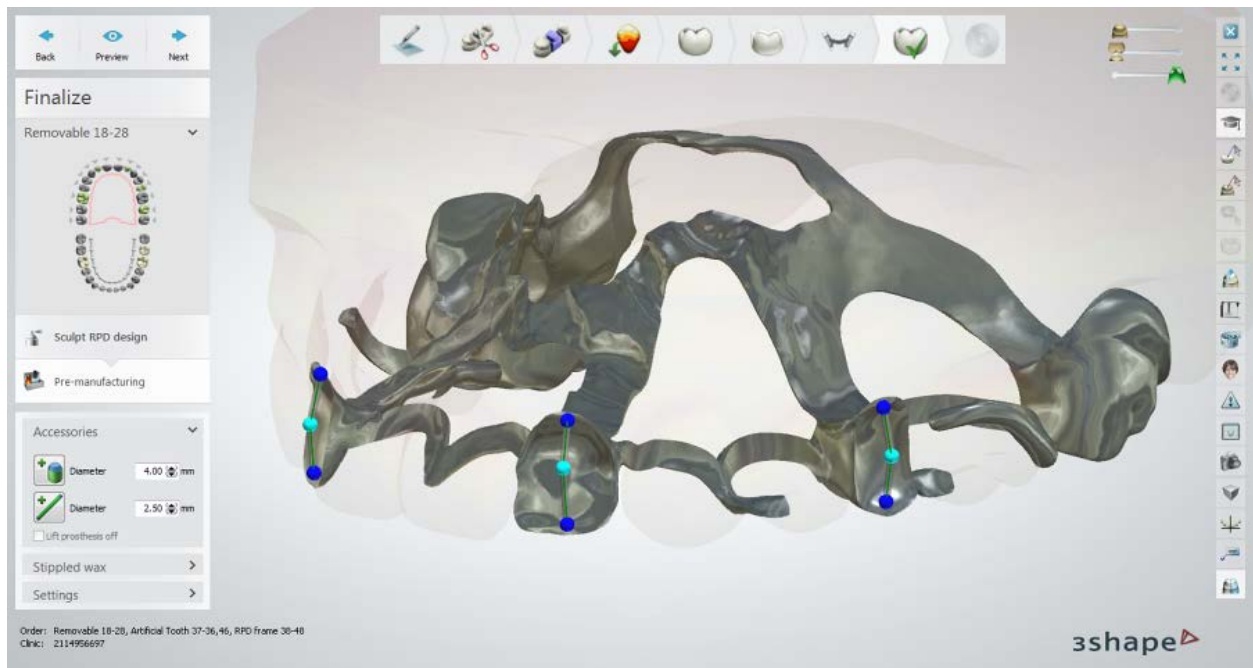
Creating a major connector



Designing clasps

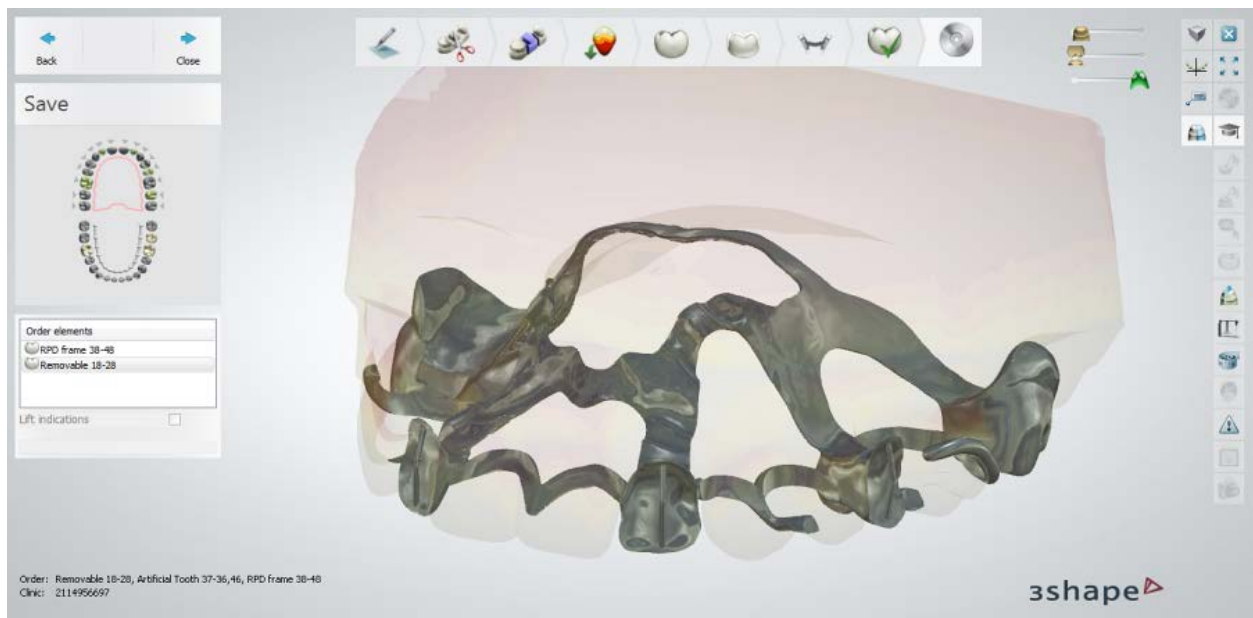
► Step 9: Pre-manufacture

This step is identical to [Pre-manufacturing](#) described in Removable Partial Dentures chapter.



► Step 10: Save the design

This step is identical to Save described in Removable Partial Dentures chapter.



Continue to [manufacturing](#) if required.

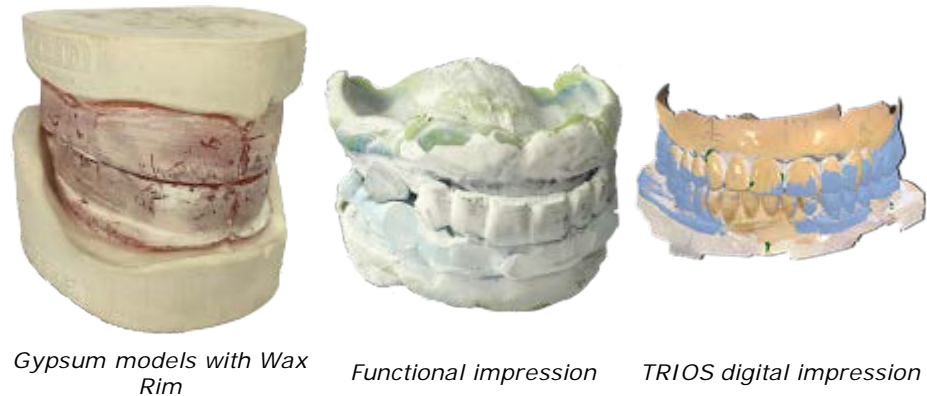
1.22. Full Dentures

With Dental System you can create full dentures either for both jaws ([Simultaneous Full Dentures](#)) or one jaw only ([Single Jaw Full Denture](#)). Please see the diagrams describing the detailed workflow for each of these cases below.

SIMULTANEOUS FULL DENTURES WORKFLOW

Lab input

Lab input options for Full Dentures order:



[Order Creation](#)

[Scanning](#)

[Design](#)

Lab output

Lab output options for Full Dentures order:



Lab input

Lab input for Update Try-In Design order:



Order Creation



Scanning



Redesign



Full dentures

Lab output

Lab output for
Update Try-In Design
order:

SINGLE JAW FULL DENTURE WORKFLOW

Lab input

Lab input
options
for
Full
Denture
s order:



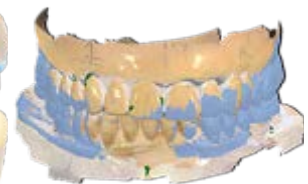
*Gypsum models with Wax
Rim*



*Functional impression
with gypsum antagonist*



*Full denture tray
with gypsum
antagonist*



TRIOS digital impression

Order Creation



Scanning



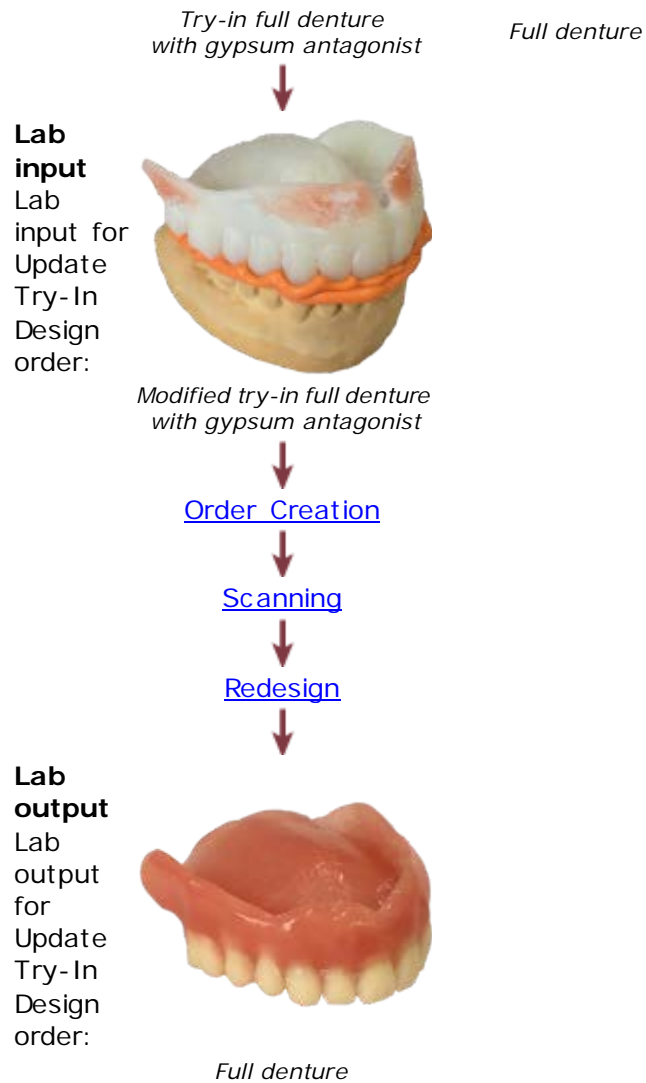
Design



Lab output

Lab output
options
for
Full
Denture
s order:





Please see the How Do I Use section for an in-depth information on the Dental System [Order Creation & Management](#) process.

The included sub-chapters describe the Simultaneous Full Dentures and Single Jaw Full Denture workflows in details:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)
- [Workflow Involving Try-Ins](#)

1.22.1. Full Dentures Order Creation

To create a [Simultaneous Full Dentures](#) (upper and lower jaws) or [Single Jaw Full Denture](#) (upper or lower jaw) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

SIMULTANEOUS FULL DENTURES

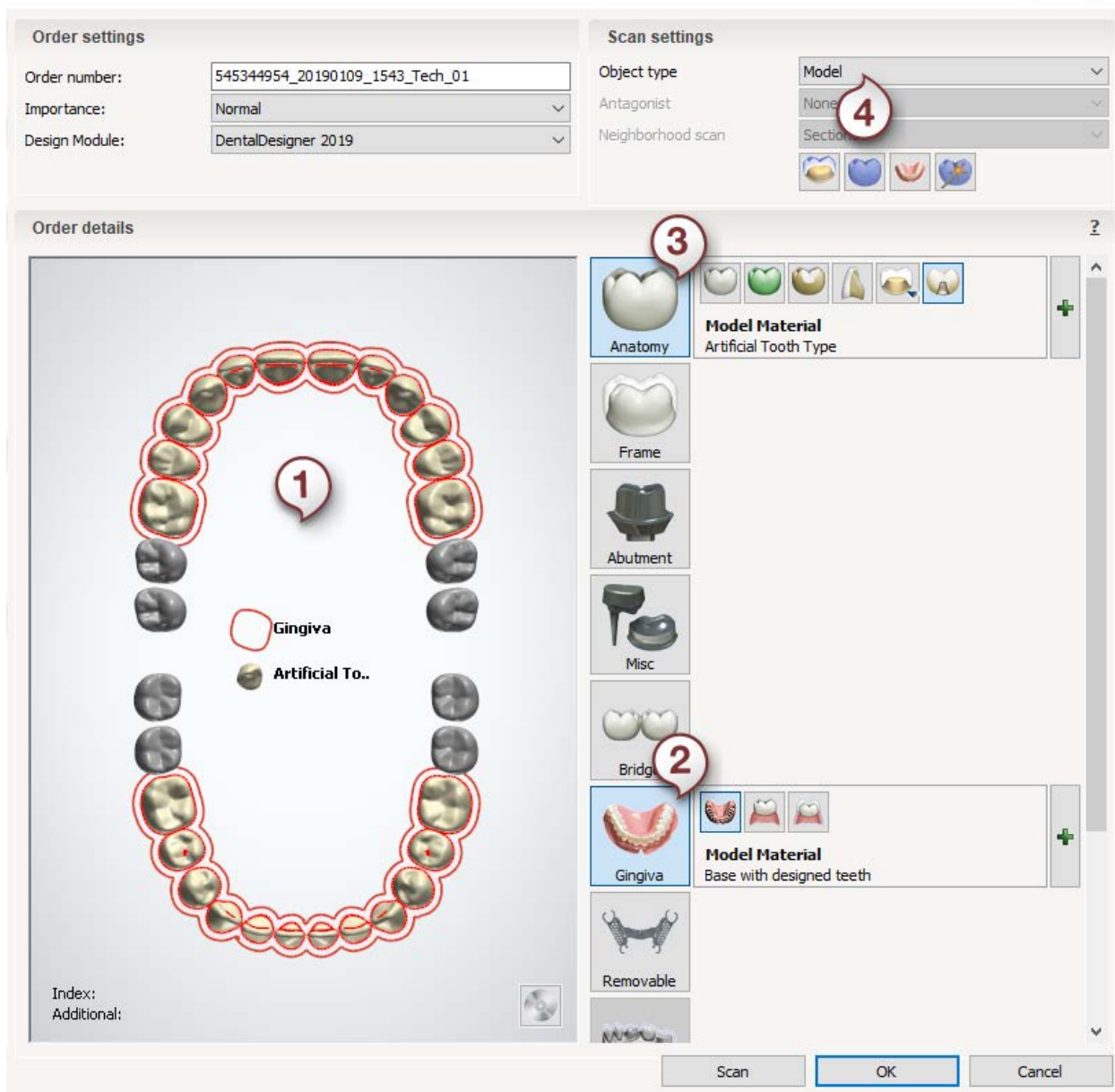
►Step 1: Select artificial teeth on both jaws in the teeth overview

►Step 2: Click the *Gingiva* button, the *Dentures Gingiva*  button is selected by default

►Step 3: Click the *Anatomy* button, the *Artificial tooth*  button is selected by default

►Step 4: Select the Object type in Scan Settings:

- **Model** - to scan gypsum models with a wax rim.
- **Impression** - to scan a functional impression.
- **Digital impression** - to import intraoral TRIOS scan orders.



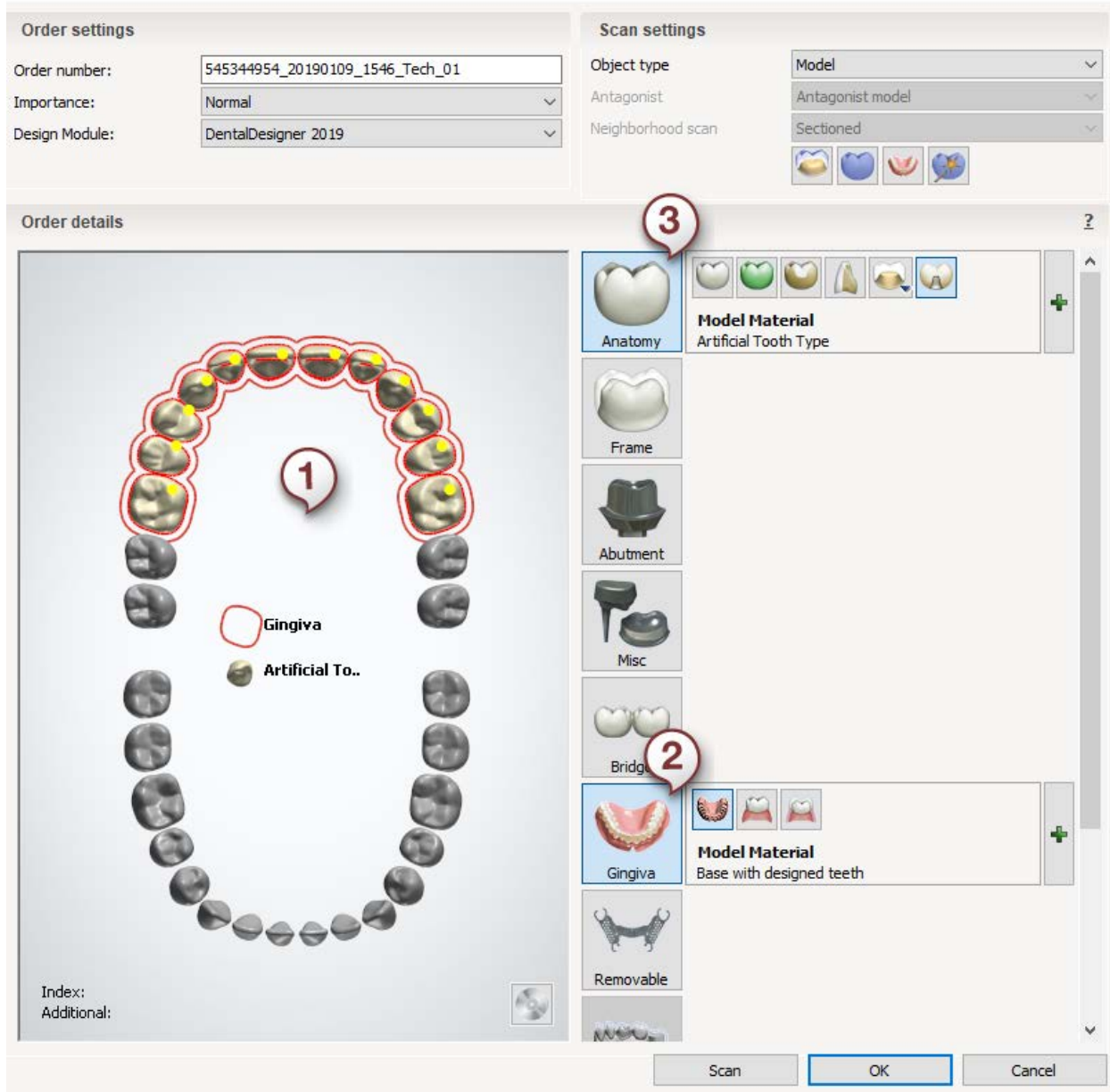
After creating the order, proceed to [scanning](#).

SINGLE JAW FULL DENTURE

►Step 1: Select artificial teeth on one jaw in the teeth overview

►Step 2: Click the *Gingiva* button, the *Dentures Gingiva*  button is selected by default

►Step 3: Click the *Anatomy* button, the *Artificial tooth*  button is selected by default



Note! The choice of Object type for the preparation arch is made inside the ScanIt Dental application.

After creating the order, proceed to [scanning](#).

TEETH IN BLOCKS

You may want to group and design the artificial teeth for a Full Denture in blocks. For more information on order creation, see the chapter [Create an Order](#).

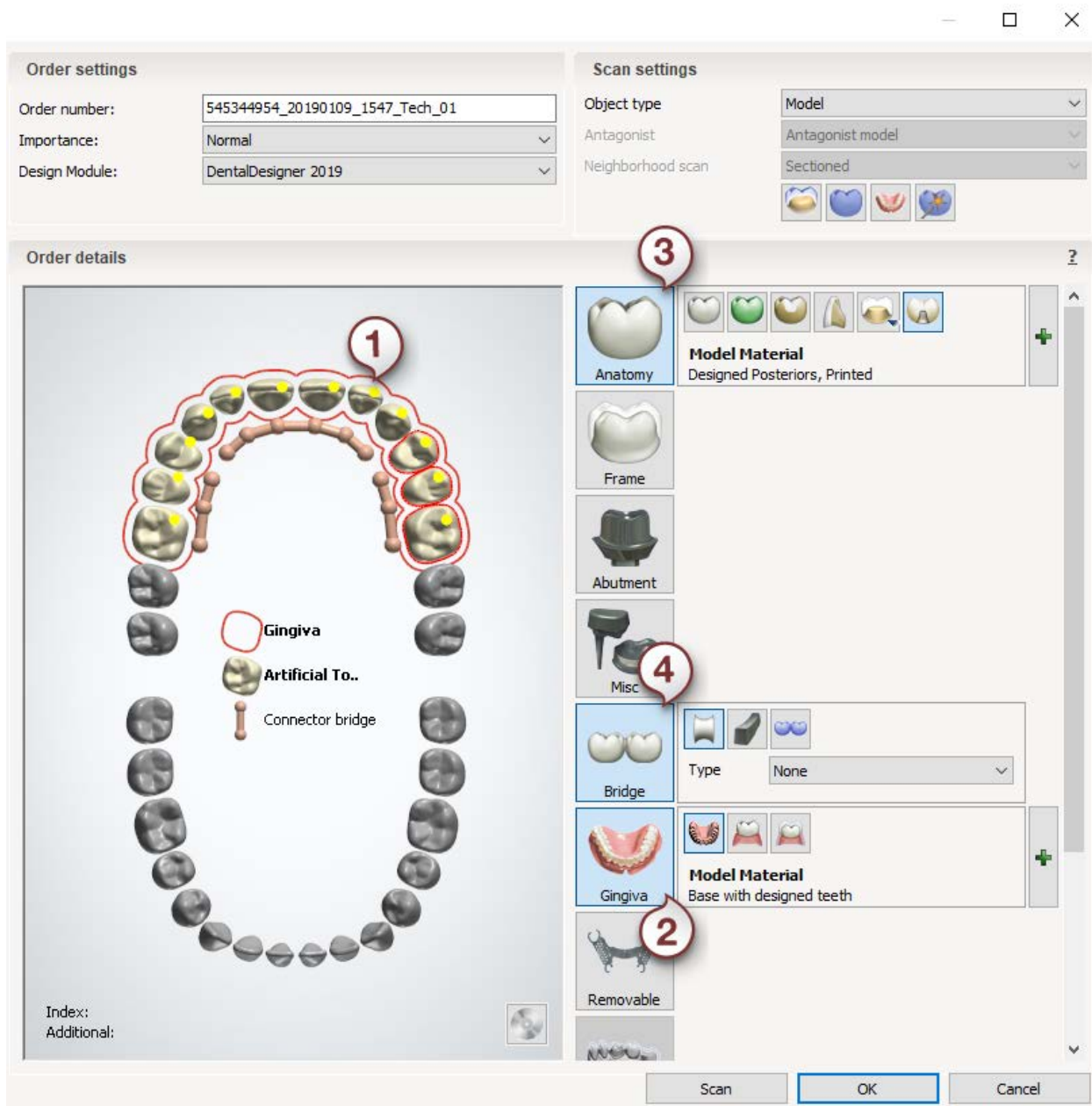
►Step 1: Select one block of artificial teeth in the teeth overview

►Step 2: Click the *Gingiva* button, the *Dentures Gingiva*  button is selected by default

►Step 3: Click the *Anatomy* button, the *Artificial tooth*  button is selected by default

►Step 4: Click the *Bridge* button

►Step 5: Repeat the above procedure for the remaining block of teeth



You can design Full Denture with artificial teeth in a block without the merging connector for better aesthetics. The teeth are output as a single model, ready for printing. Omit the Step 4 for adding a bridge as it is not required in this case.

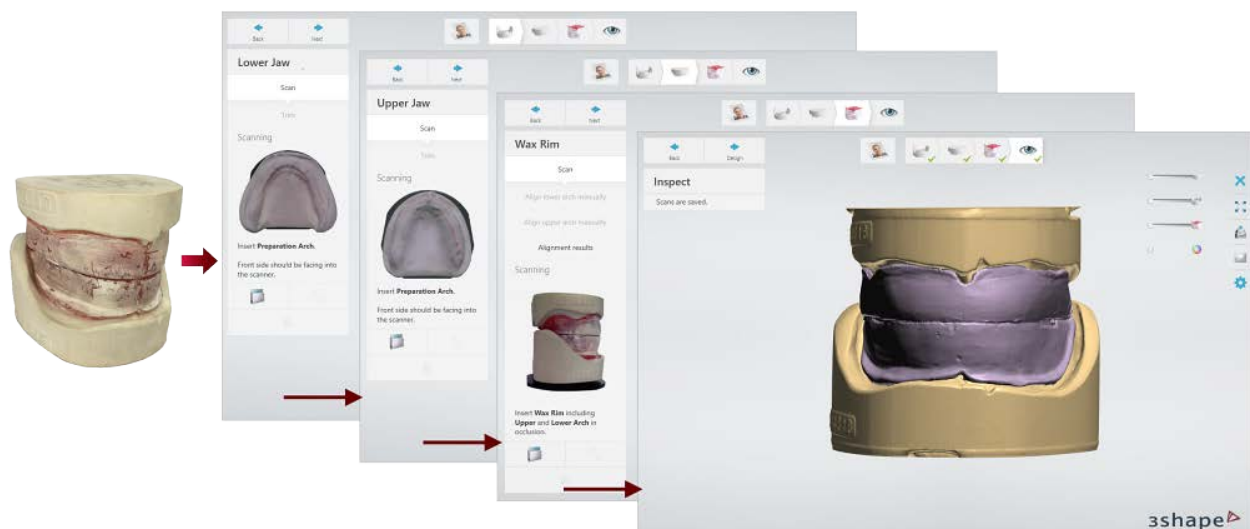
After creating the order, proceed to [scanning](#).

1.22.2. Scanning

Full Dentures scanning slightly differs depending on the object to be scanned. However, the workflow steps and tools available during the scanning are similar. Below in this chapter you can find the general information on all of the Full Dentures scanning workflows. For detailed description of the scanning procedure, see the chapter [Models with Wax Rim Scanning](#). For details on order creation, see the chapter [Full Dentures Order Creation](#).

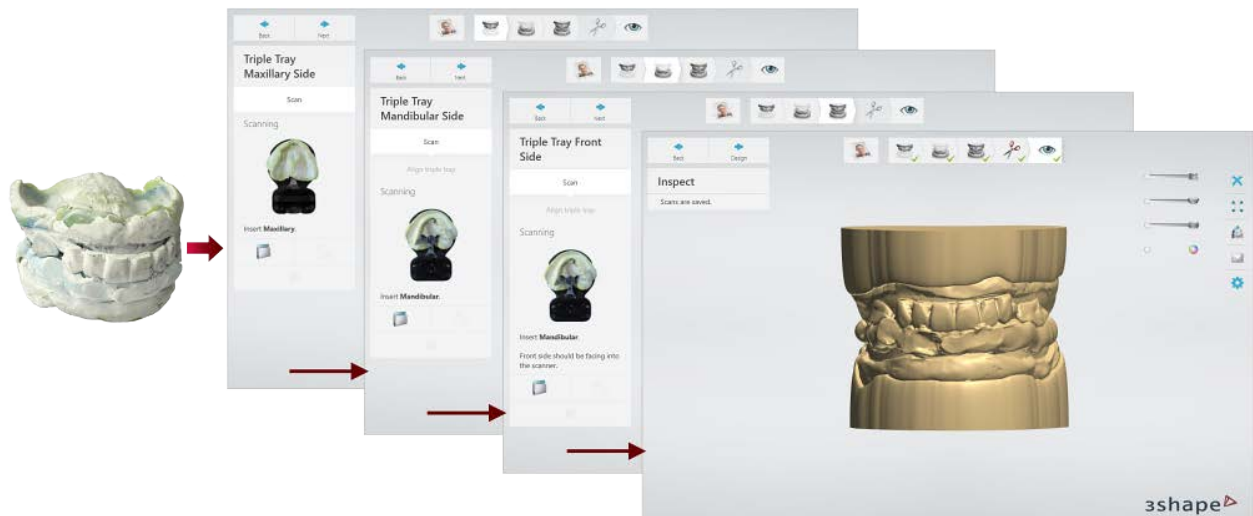
SIMULTANEOUS FULL DENTURES SCANNING WORKFLOW

- **Gypsum models with wax rim scanning** - for details on this scanning workflow, see the chapter [Models with Wax Rim Scanning](#).



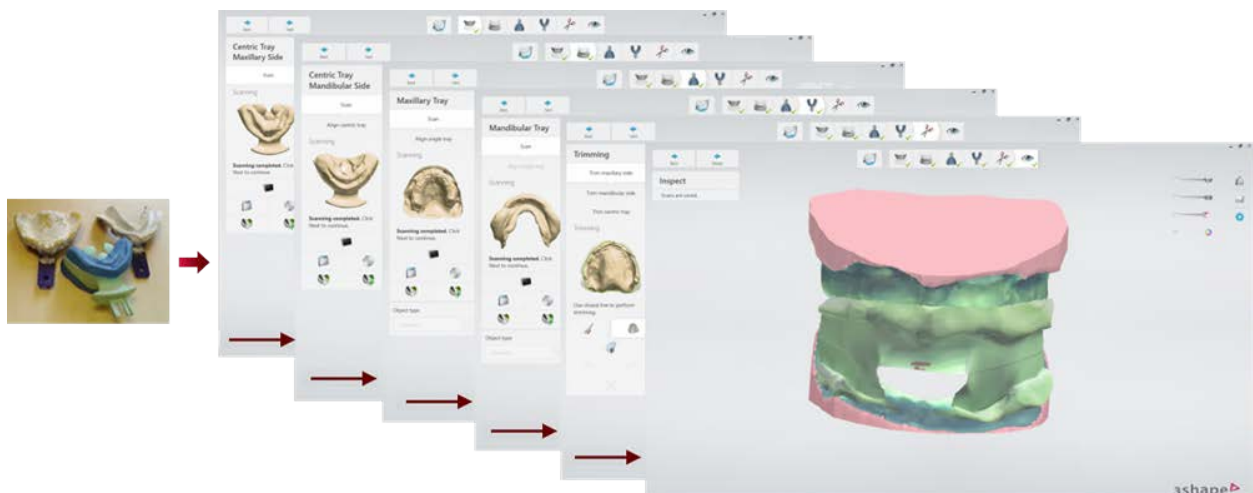
Scanning gypsum models with a wax rim

- **Functional impression scanning** - is intended for scanning a functional impression of upper and lower jaws created using the Full Denture impression tray system (such as Ivoclar 3d Bite Plate). To mount the impression inside the scanner, either a Wieland Impression Fixture or a Full Denture Fixture is used. You can also fasten the impression on the interface plate with Blu Tack.



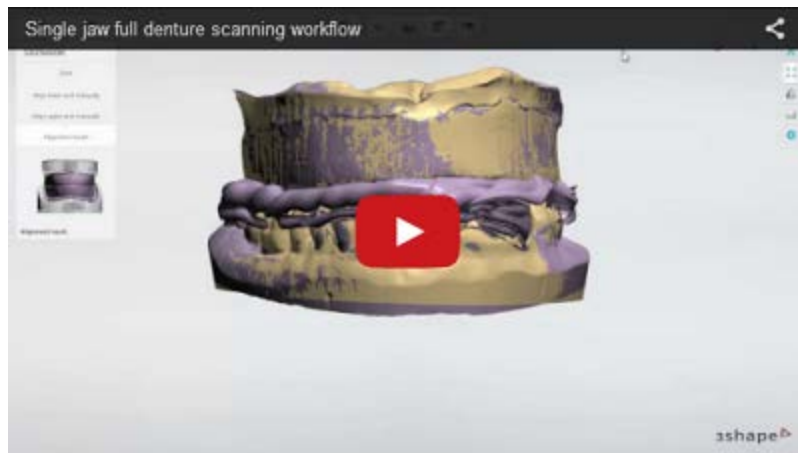
Scanning a functional impression

- **Functional impression scanning with a centric tray** - is intended for scanning a functional impression of the preparation arch accompanied by a centric tray. For details on this scanning workflow, see the chapter [Two Single Trays and Centric Tray](#).



Scanning a functional impression with a centric tray

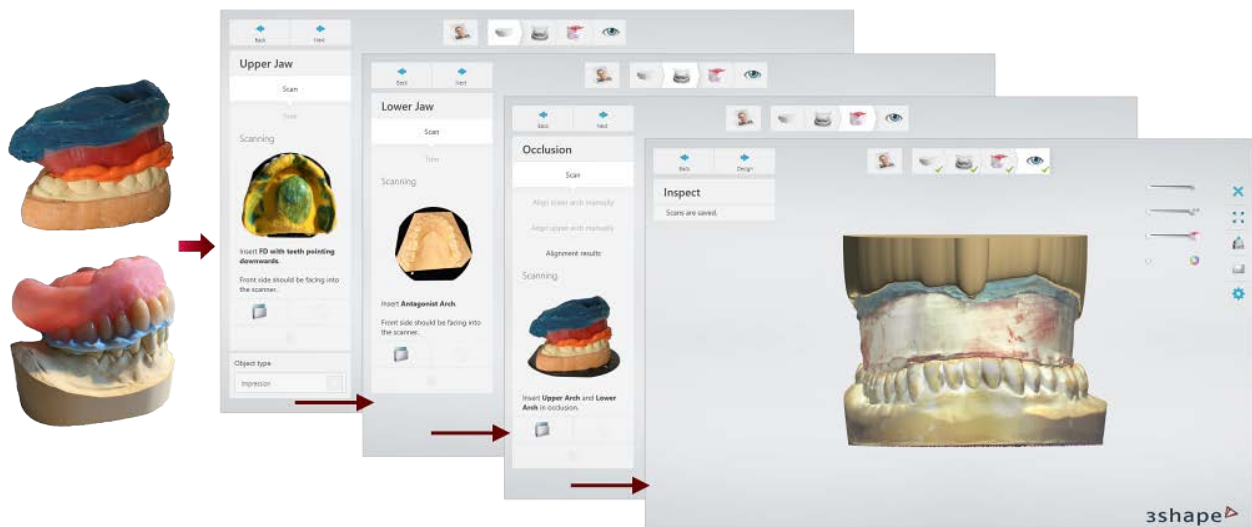
SINGLE JAW FULL DENTURE SCANNING WORKFLOW



- **Functional impression scanning** - is intended for scanning a functional impression of the preparation arch accompanied by a gypsum antagonist. A patient's existing full denture can be used as an impression tray.



Note! Before scanning, select **Impression** from the **Object type** drop-down list in the lower left corner of the ScanIt Dental window.



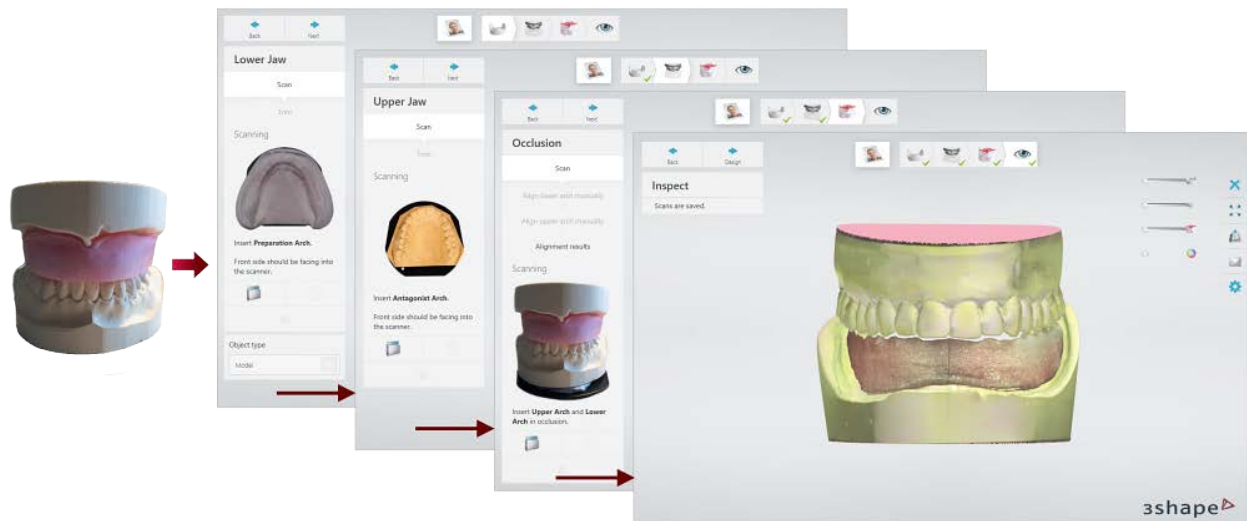
Scanning a functional impression with a gypsum antagonist

If your functional impression contains deep narrow cavities that cannot be scanned effectively, cast a gypsum model and scan the model.

- **Gypsum models with wax rim scanning** - the scanning procedure is similar to the described in the chapter [Models with Wax Rim Scanning](#).

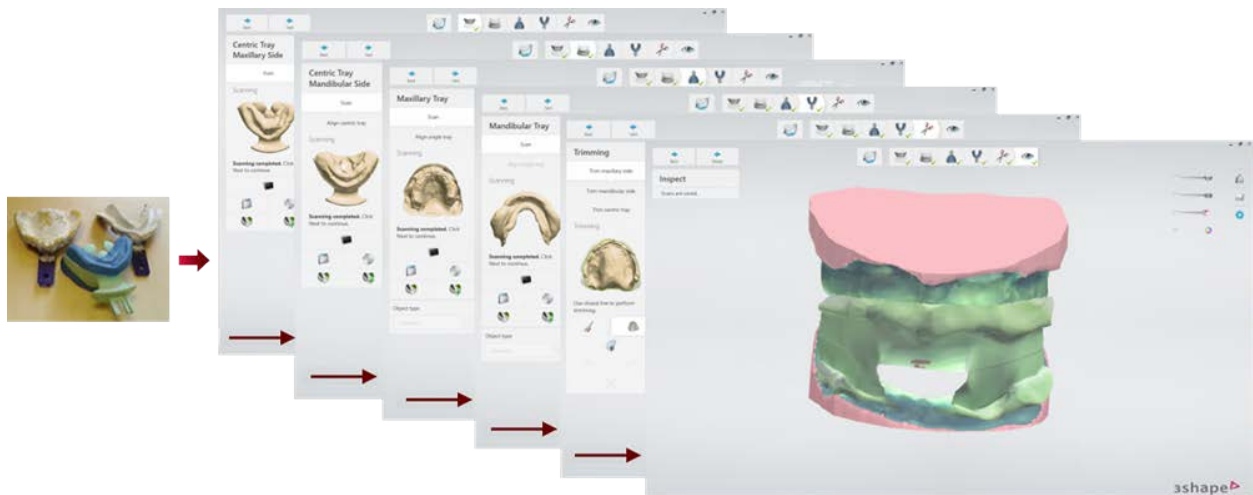


Note! Before scanning, select **Model** from the **Object type** drop-down list in the lower left corner of the ScanIt Dental window.



Scanning gypsum models with a wax rim

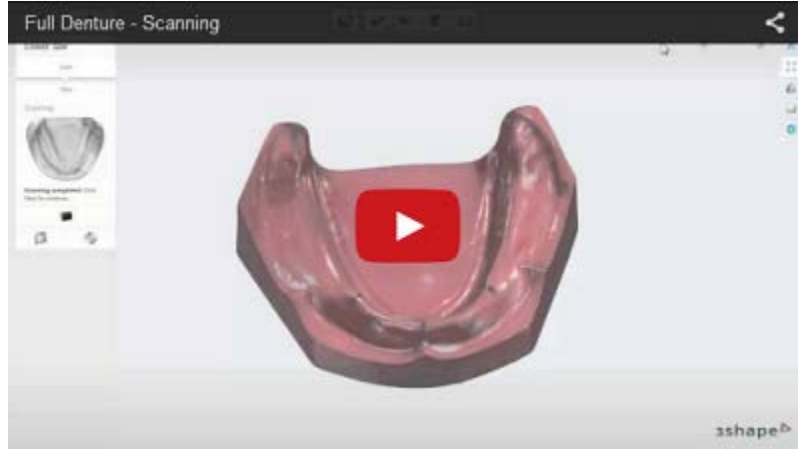
- **Functional impression scanning with a centric tray** - is intended for scanning a functional impression of the preparation arch accompanied by a centric tray. For details on this scanning workflow, see the chapter [Two Single Trays and Centric Tray](#).



Scanning a functional impression with a centric tray

When scanning is completed, proceed to [design](#).


1.22.2.1. Models with Wax Rim Scanning



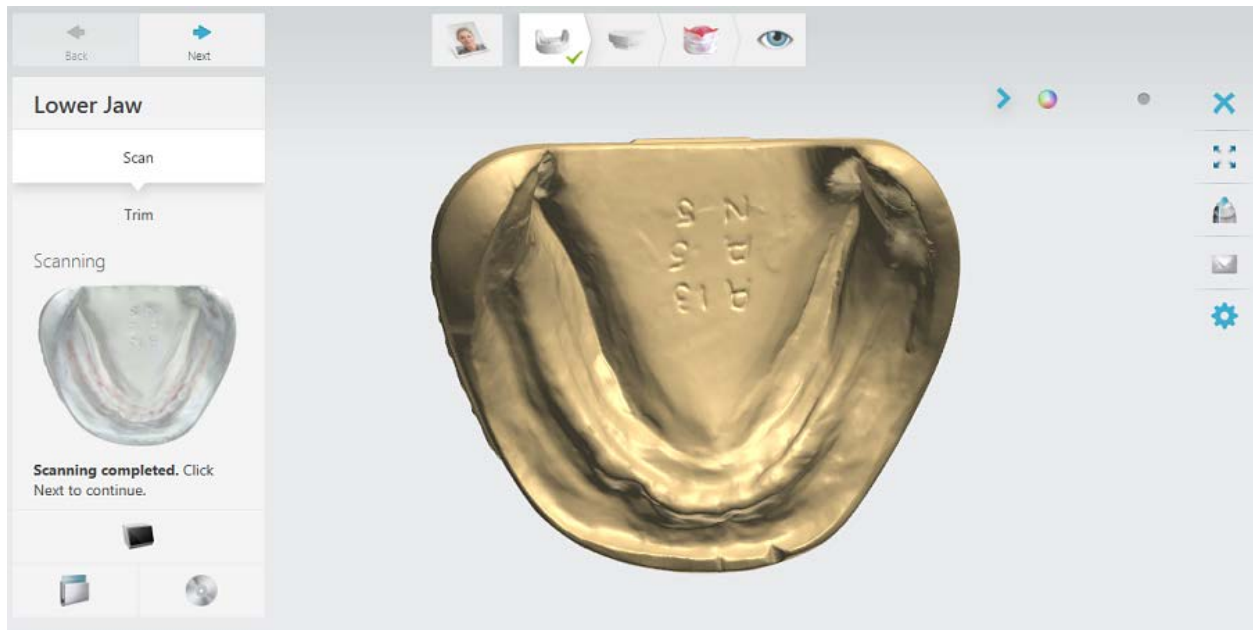
Note! TRIOS users, please see the [Prepare Scan](#) chapter for information on how to prepare a digital impression for design.

Follow the on-screen instructions and steps below to complete scanning of gypsum models with a wax rim for the Full Dentures order:

► **Step 1: Scan the lower arch**

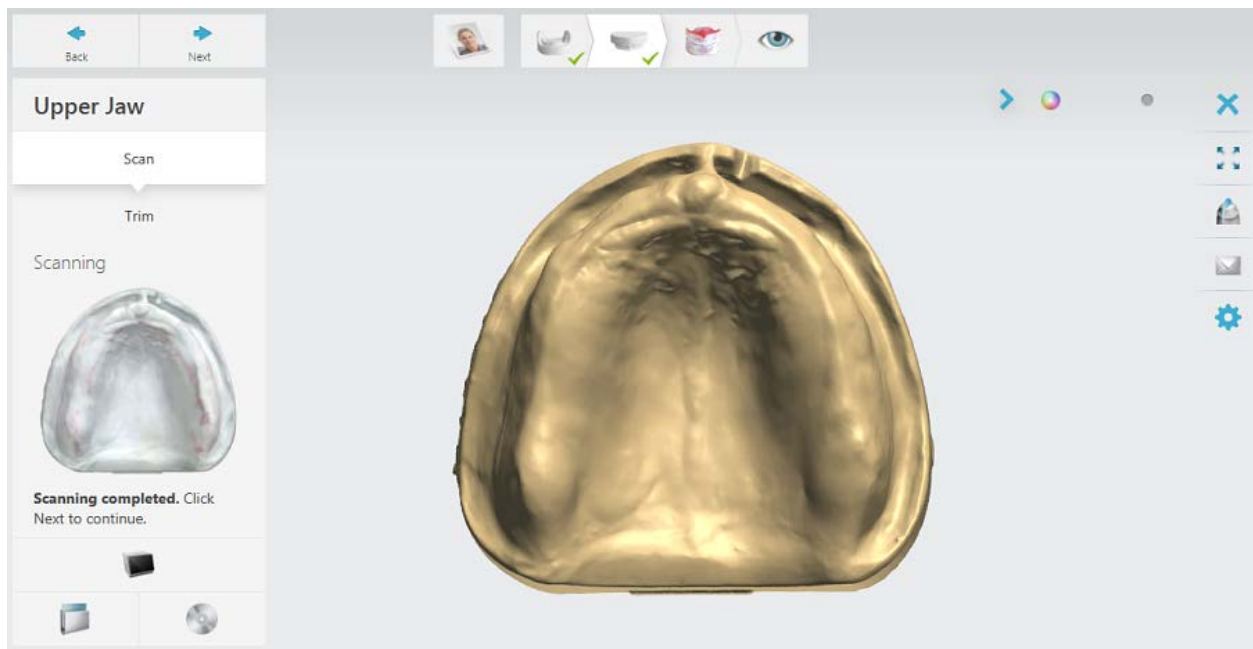
Insert the lower arch into the scanner. Make sure that the front side of the arch faces the inside of the scanner. The arch scanning height can be modified on the [Settings](#)  page. The scanning process starts on clicking the **Next** button.

When scanning is completed, click **Next** to continue.



►Step 2: Scan the upper arch

Insert the upper arch into the scanner and scan it. When scanning is completed, click **Next** to continue.

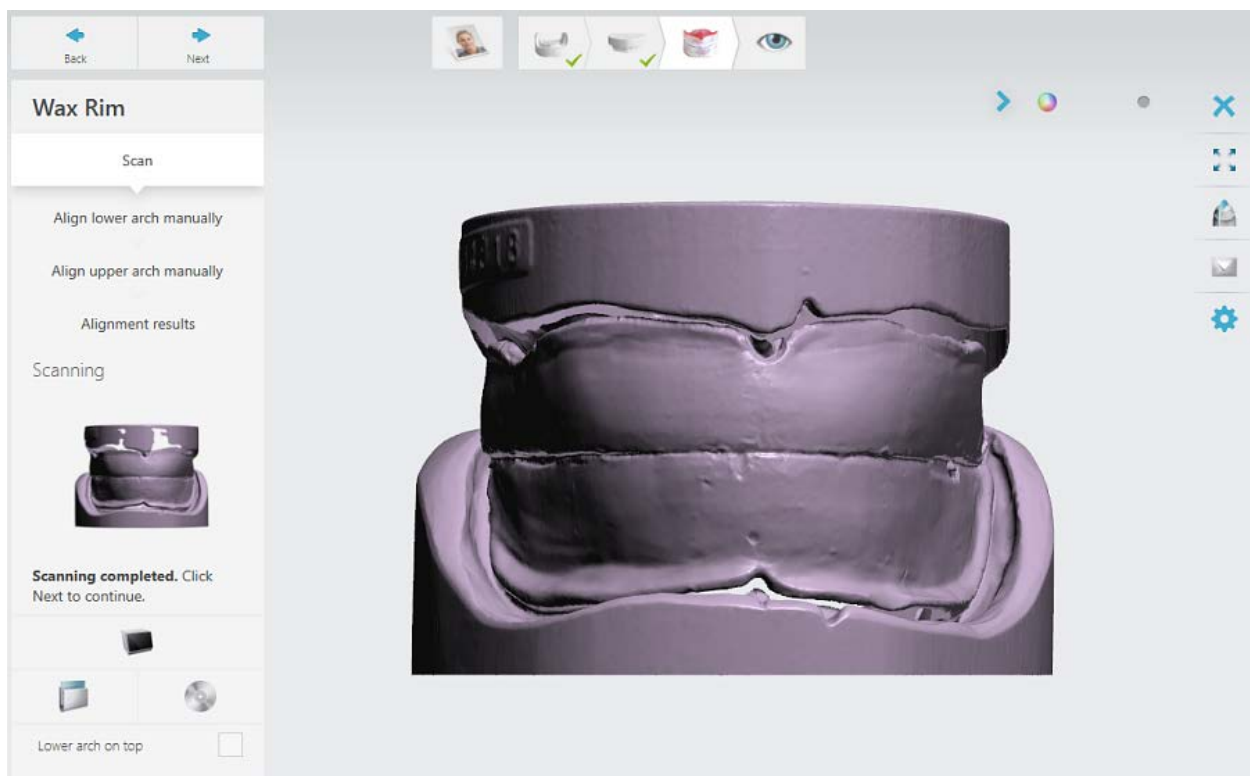


►Step 3: Scan arches with the wax rim



When both upper and lower arches are scanned separately, scan the wax rim mounted on the models as guided by the software.

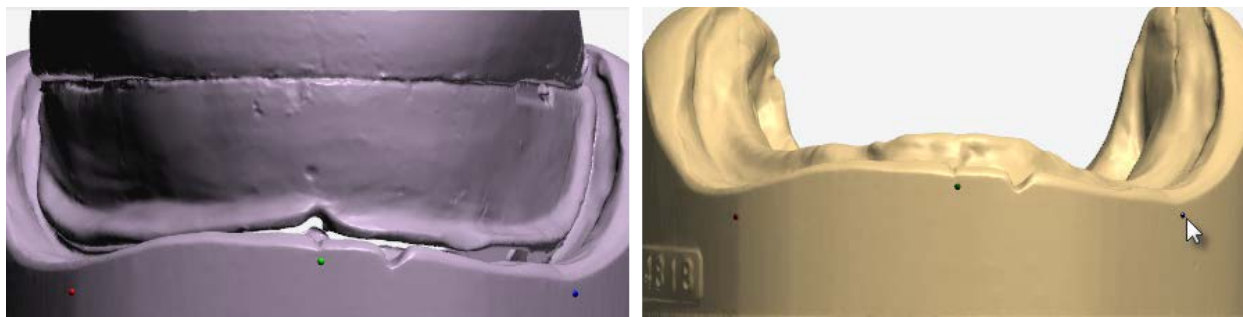


When scanning is completed, click **Next**.

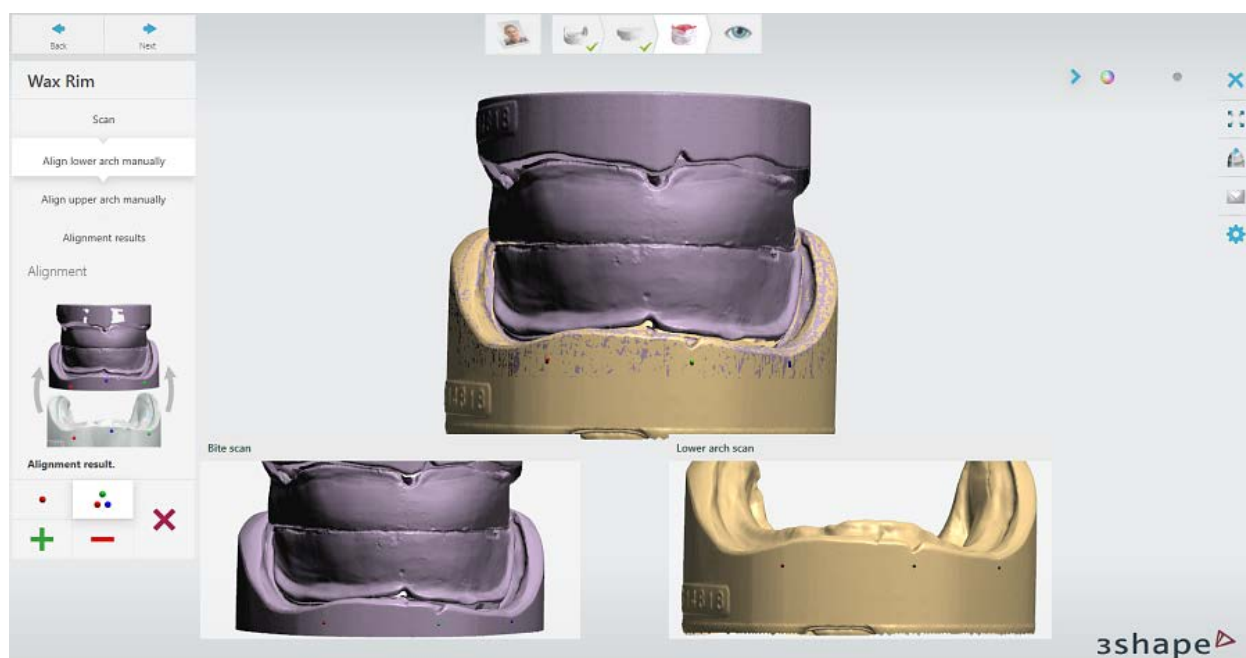


► Step 4: Align the wax rim to the lower arch


You can use the one-  or three-point  alignment method to align the wax rim scan to the lower arch scan. Place the corresponding points on both models to align them.

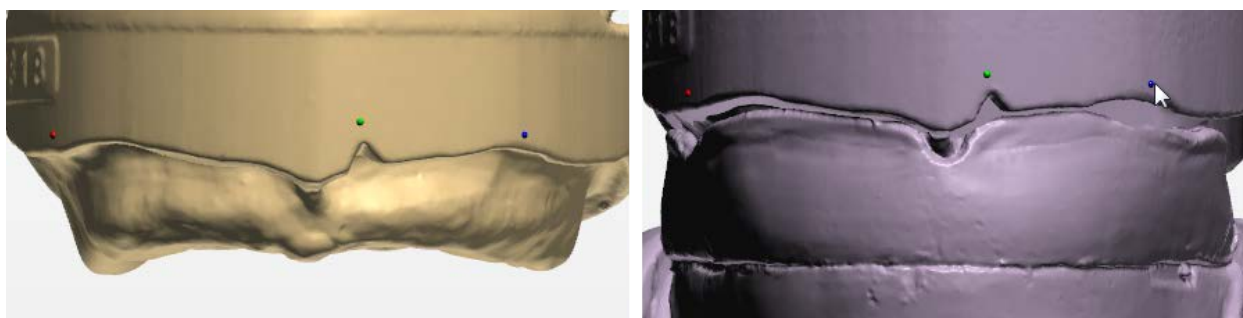


When finished, click **Next**.

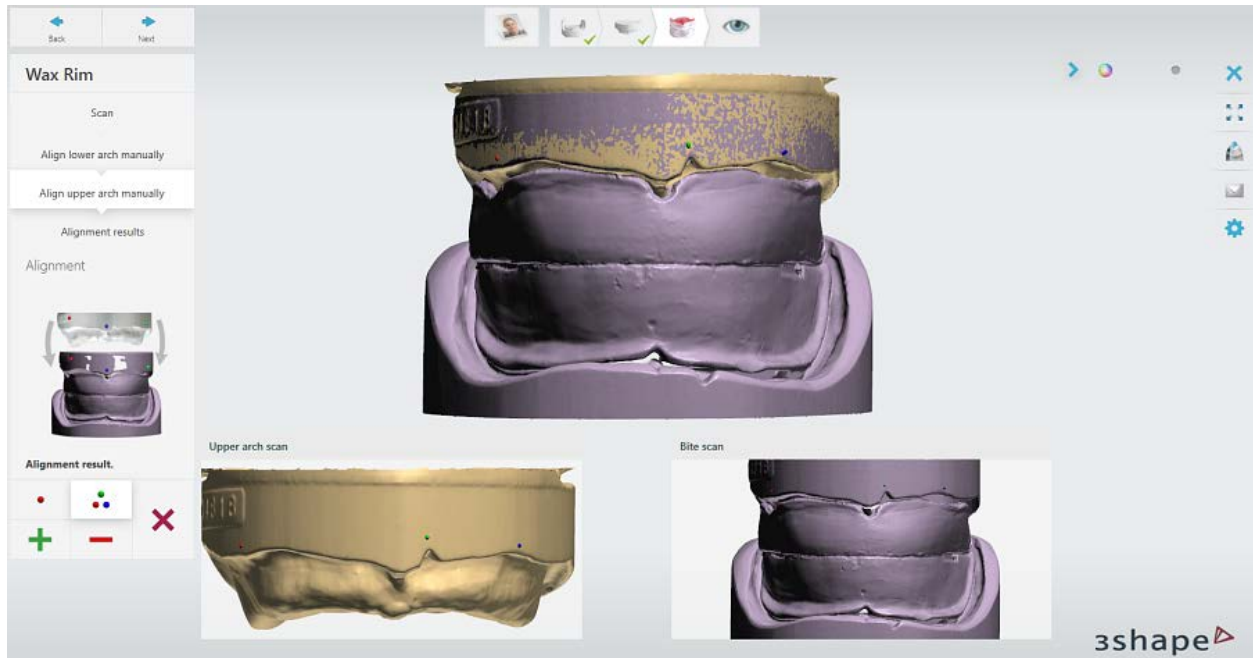


► Step 5: Align the wax rim to the upper arch

You can use the one-  or three-point  alignment method to align the wax rim scan to the upper arch scan. Place the corresponding points on both models to align them.



When finished, click **Next**.



► Step 6: Finish scanning

Your full denture is now scanned and saved. Click **Design** to start [modeling it in Dental Designer](#) or close the scanning application.



Continue to the [design](#) chapter.

1.22.3. Full Dentures Design



This chapter explains how to design simultaneous full dentures cases. The design workflow for a single jaw full denture is similar to the one described below.



Caution! Full Denture is not intended to be used as a surgical guide nor as a bone reduction guide. For the creation of surgical guides, please refer to the chapter [Implant Studio](#).

►Step 1: Prepare

In this step, orient the occlusal plane and adjust the upper/lower jaw scans with the Sculpt toolkit. In case of digital impressions, you can also trim and align the scans. See the [Prepare scan](#) chapter for details on how to prepare digital impression scans.

If scan preparation is not necessary, skip this step and click **Next**.



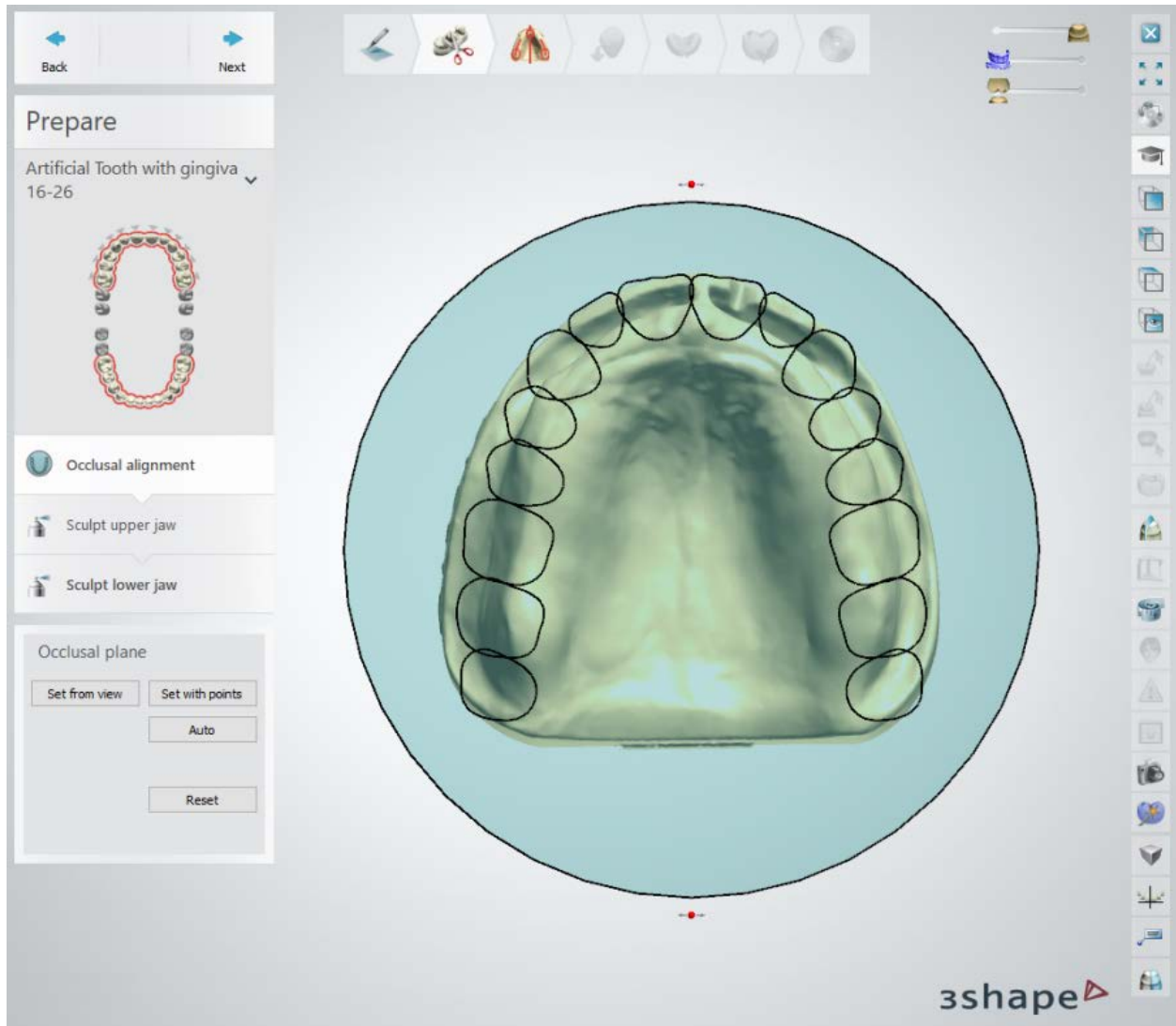
Note! It is recommended to orient the occlusal plane in the **Prepare** step, as the occlusal plane orientation is used for calculating the insertion direction and initial restoration placement later in the design process.



Note! To automatically skip the **Prepare** step, enable the **Skip prepare step** option in *Dental System Control Panel* -> *System settings* -> [Design options](#). To adjust the scans, disable the option and return to the **Prepare** step.

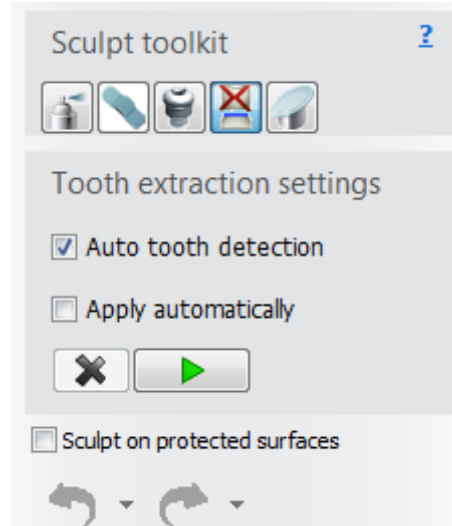
- **Orienting the occlusal plane**

The software automatically orients the occlusal plane. To adjust its position, use the control points: **blue** to move the plane up and down, and **red** to tilt and rotate the plane. You can also move the plane by dragging it with the mouse. To reset the occlusal plane, use the **Set from view**, **Set with points** or **Auto** options. To restore the initial position of the plane, click the **Reset** button.






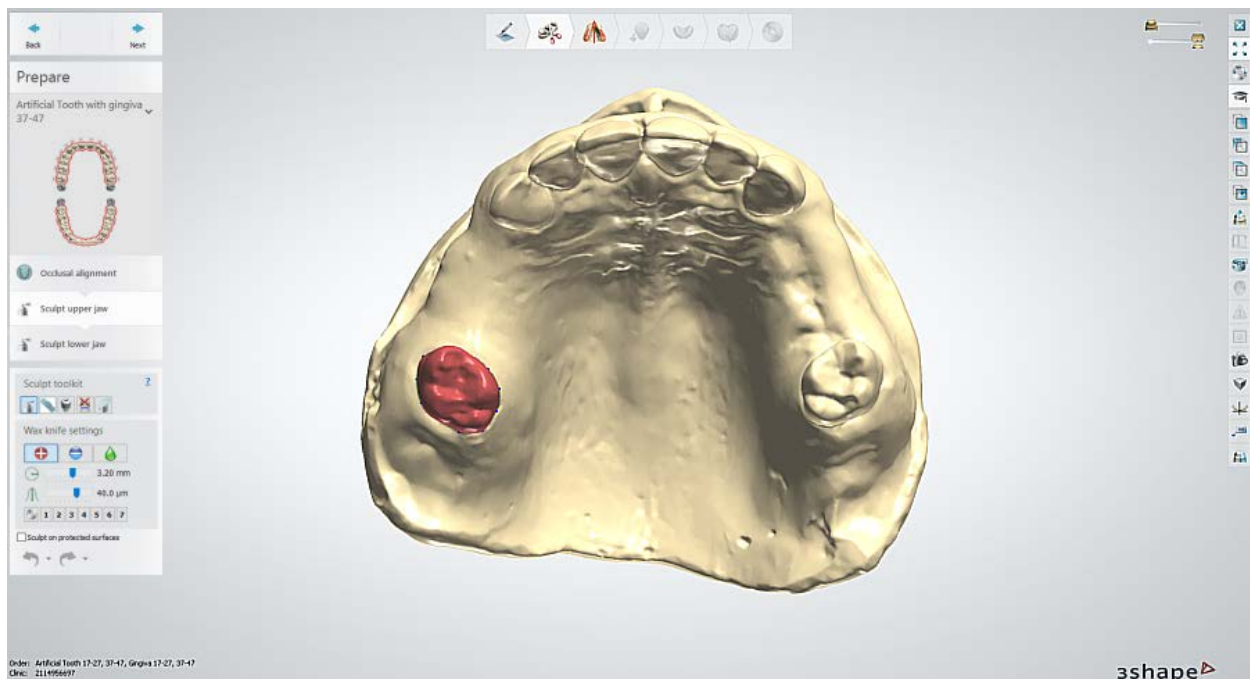
- **Sculpting**

The [Sculpt toolkit](#) lets you virtually extract teeth to produce immediate dentures and form the gingiva.






To virtually extract teeth for immediate dentures:


- Click the **Tooth extraction**  button in the Sculpt toolkit.
- Select/confirm preferred **Tooth extraction settings** and extract teeth:
Auto tooth detection - if enabled, automatically draws a spline around the indicated tooth. You can then correct the spline with its points if needed. Otherwise, you can manually circle the tooth if the **Auto tooth detection** option is disabled.
Apply automatically - if enabled, applies tooth extraction automatically. Otherwise, click the **Apply**  button to extract the selected tooth.
The **Clear spline**  button removes the created spline and lets you start the process over.

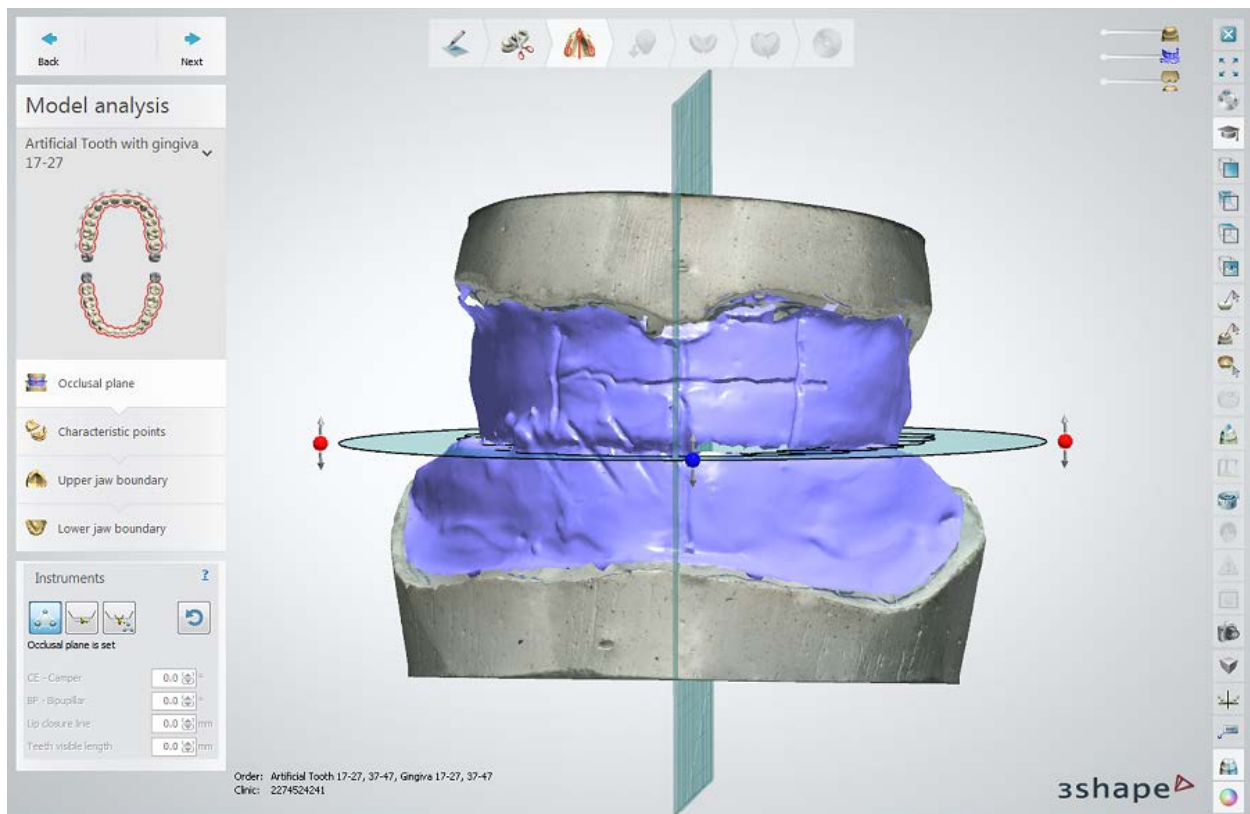


►Step 2: Set Occlusal plane

Set the occlusal plane using one of the available tools:

-  **Set with points** - place three points to define the occlusal plane.
-  **UTS CAD with Centric Tray** - set the occlusal plane by entering the values from UTS CAD instrument and papillameter measuring device.
-  **UTS CAD with Bite Fork** - set the occlusal plane by entering the values from UTS CAD instrument and papillameter measuring device. When the UTS CAD instrument is mounted on a bite fork instead of a centric tray, the three-points method is used to define the horizontal plane first.

When using the **Set with points**  method, place three control points in the place where an upper and a lower wax rims meet:



Hint! The position of the second control point defines the front direction and needs to be placed over the central mark made by the dentist.



Click the **Reset** button to clear the plane and start over. Use the occlusal plane control points to correct its position: **blue** to move the plane up and down and **red** to tilt and rotate the plane. You can also pan the occlusal plane by dragging it with the mouse.

► Step 3: Place Characteristic points

Place the characteristic points on the upper and lower jaw correspondingly:

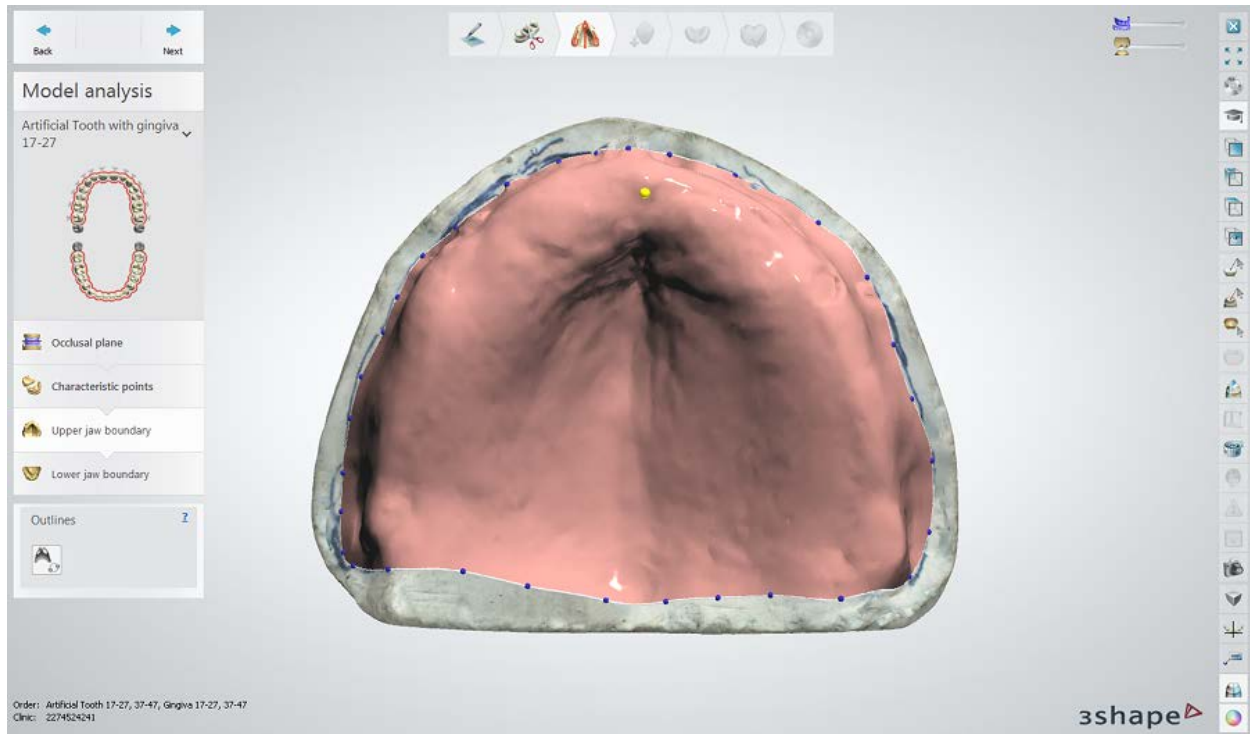


Hint! The canine points should be placed on the model next to marks made by the dentist. Their position defines the selection of the tooth library further on during the design process.

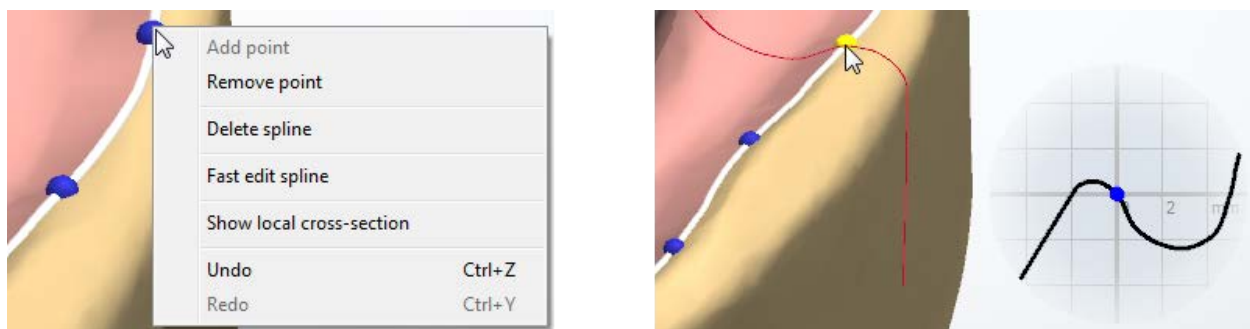
► Step 4: Draw Upper jaw boundary



Click the **Draw outline** button to place a spline outlining the upper base. To close the spline, click its starting point once again:

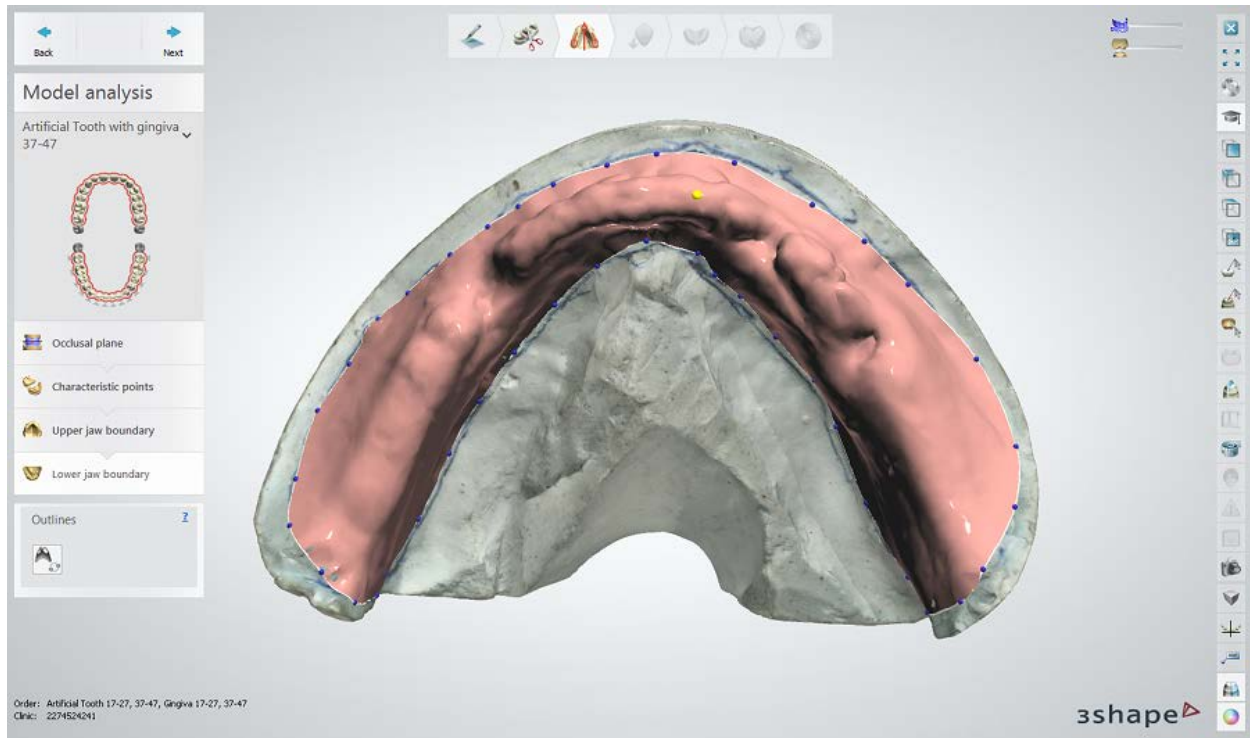


A few spline editing options are available from the right-click menu. When the "Show local cross-section" menu option is enabled, you can view the local cross-section at one of the spline points while keeping the left mouse button pressed. The cross-section provides easy way to control the position of the boundary against the mucolabial fold.



►Step 5: Draw Lower jaw boundary

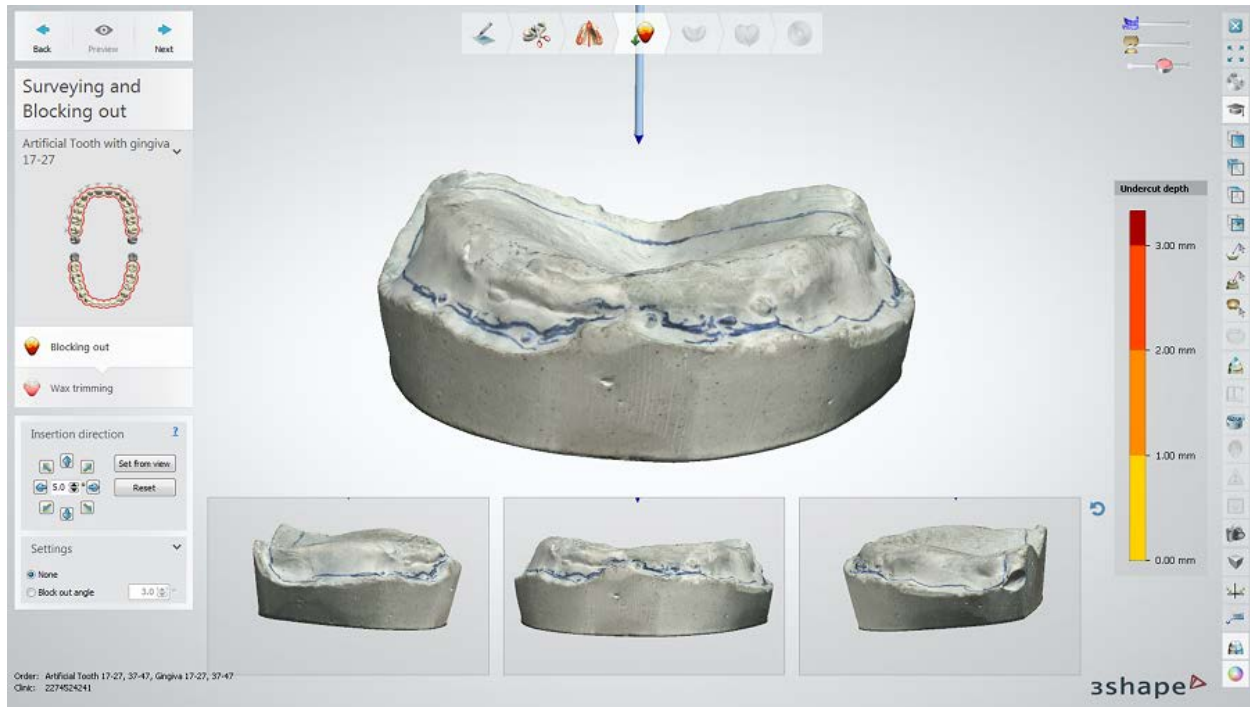
Draw the outline of the lower base as you did with the upper one:



Click **Next** to continue to blocking out the undercuts.

► Step 6: Block out undercuts and trim wax

In the **Blocking out** and **Trimming wax** steps, you block out the undercuts with the help of wax and trim wax if needed. The workflow is identical to the one in [steps 2 - 3](#) of the Removable Partial Dentures chapter.

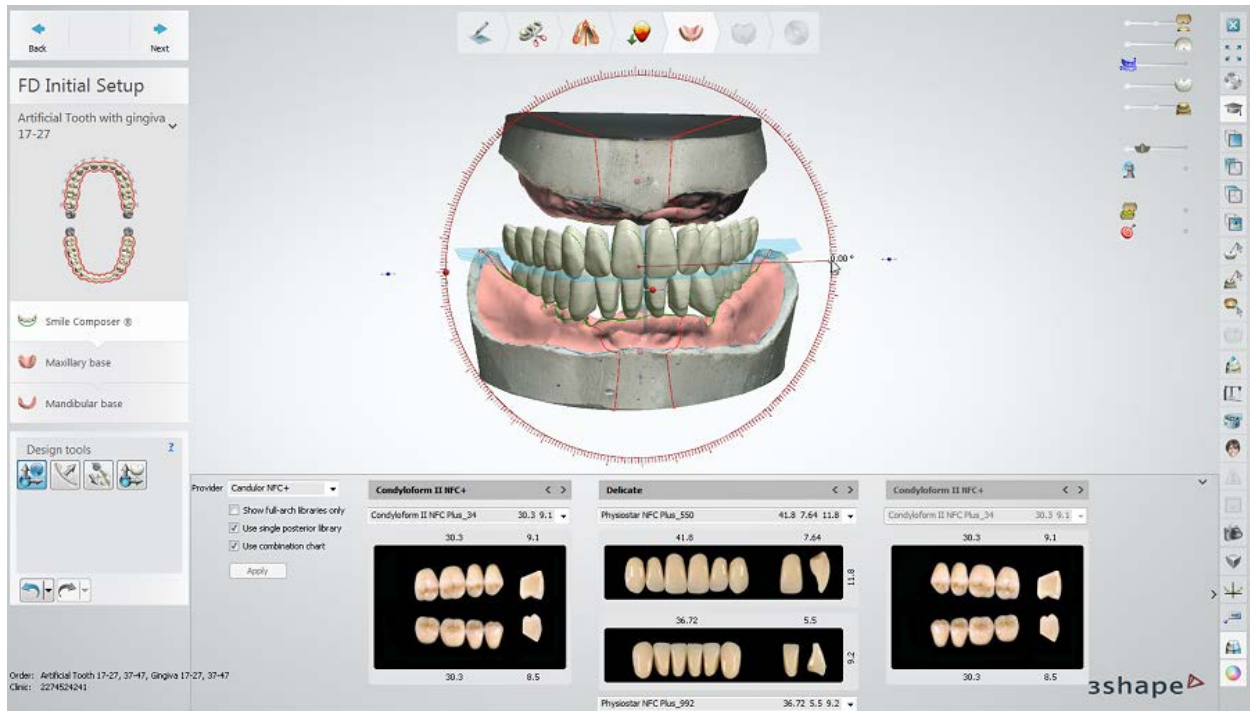




Click **Next** to proceed to designing your full denture.

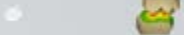
►Step 7: Place the teeth

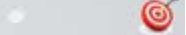


Use the [Smile Composer®](#) tools and visualization sliders to create a desired occlusion. If you edited scans at the [Prepare](#) step, you will be able to adjust visibility of the original scans with the slider:

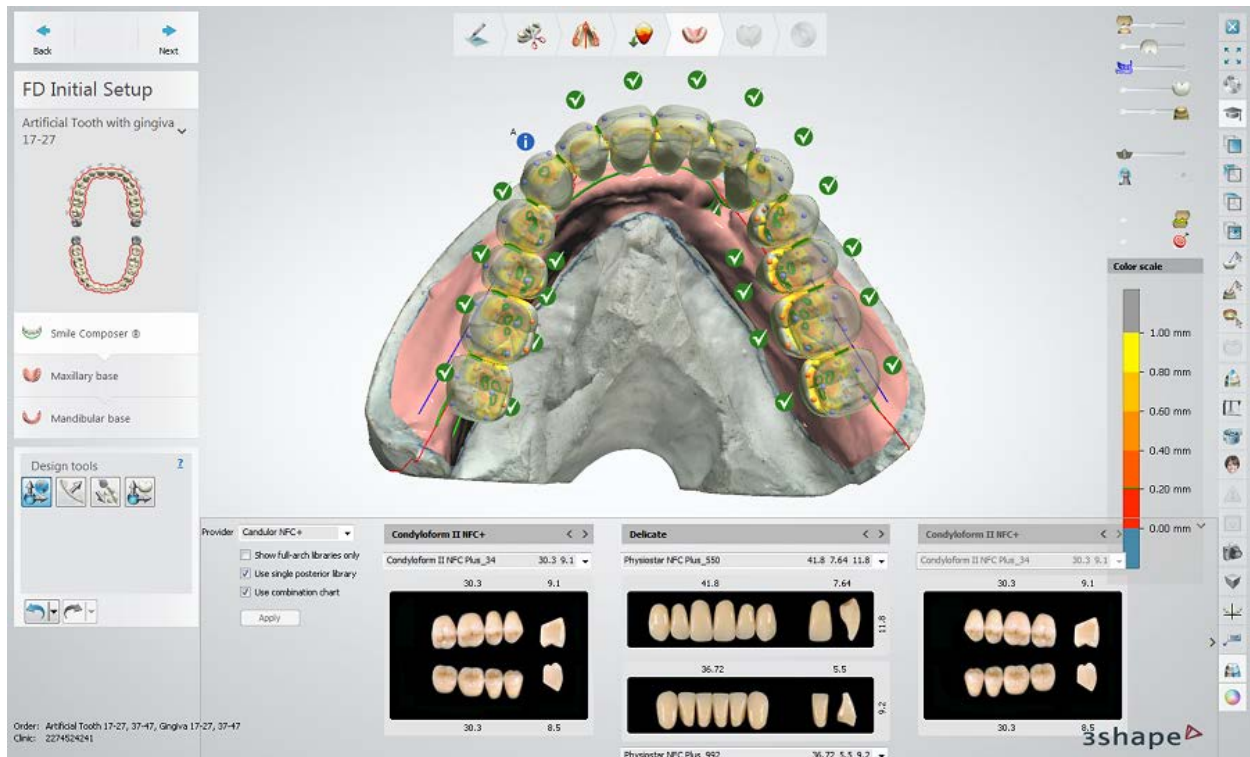
- Turn the **Wax rim occlusal plane** slider on/off to show/hide two diagonal planes of symmetry and use them for placing the teeth. Similarly, you can use the **Monson template** slider to visualize the corresponding planes:





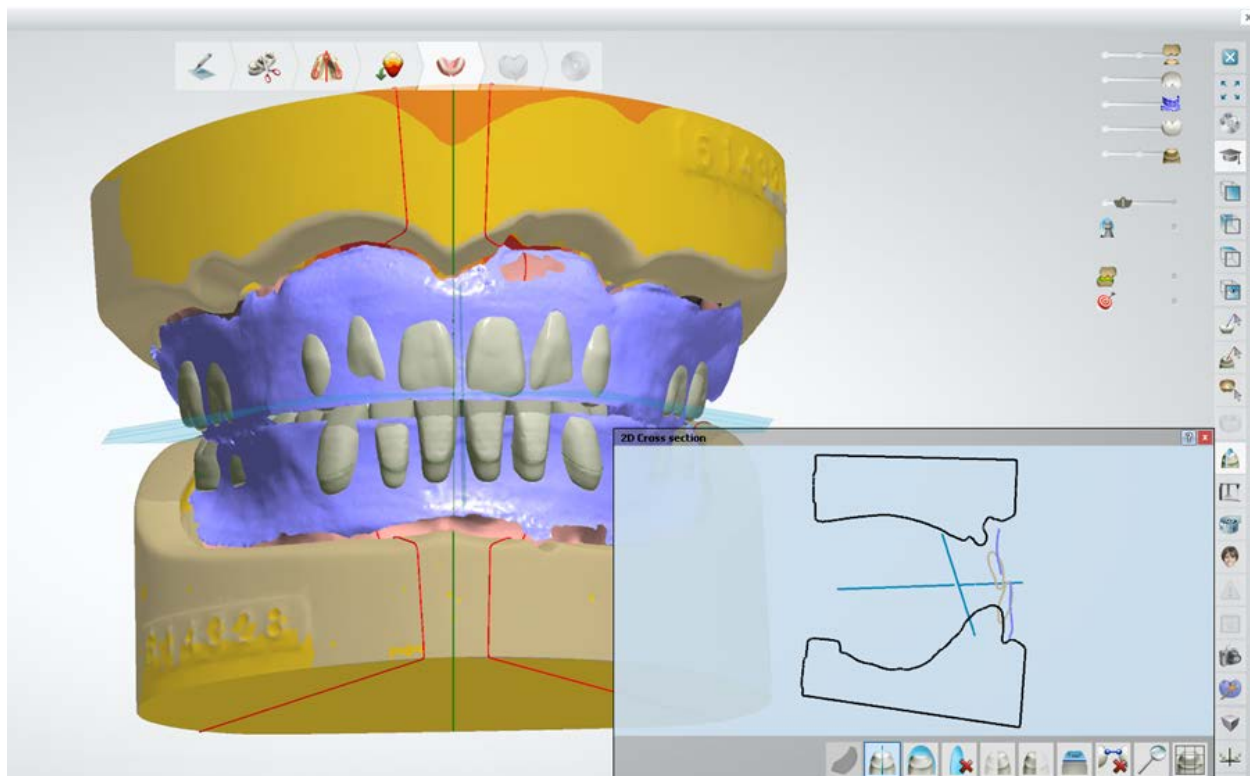
- Click the **Arch Setup**  button, then hide the upper preparation with the **Upper jaw**  slider and move the teeth in the upper arch with the cursor to place them as desired. All other teeth will adapt to the moved part.

Use the **Occlusion map**  slider to interpret the distances between neighboring and antagonist teeth with the help of the provided color scale.

Turn the **Show collision details**  slider on to check the teeth for mutual collisions. In this case, each tooth is marked either with a tick  when there are no collisions between this tooth and the other teeth, or an information icon  when collisions have been detected. Letters near the information icon indicate the collision type: 'A' stands for collision with the antagonist teeth, 'D' - with the neighbor from the distal side, and 'M' - with the neighbor from the mesial side.



- You can also turn the **Wax rim** slider  on and use the **2D cross section**  tool for easier placement:



For more details on how to design full dentures with Smile Composer®, see the chapter [Full Dentures Smile Composer](#).

►Step 8: Create Maxillary base

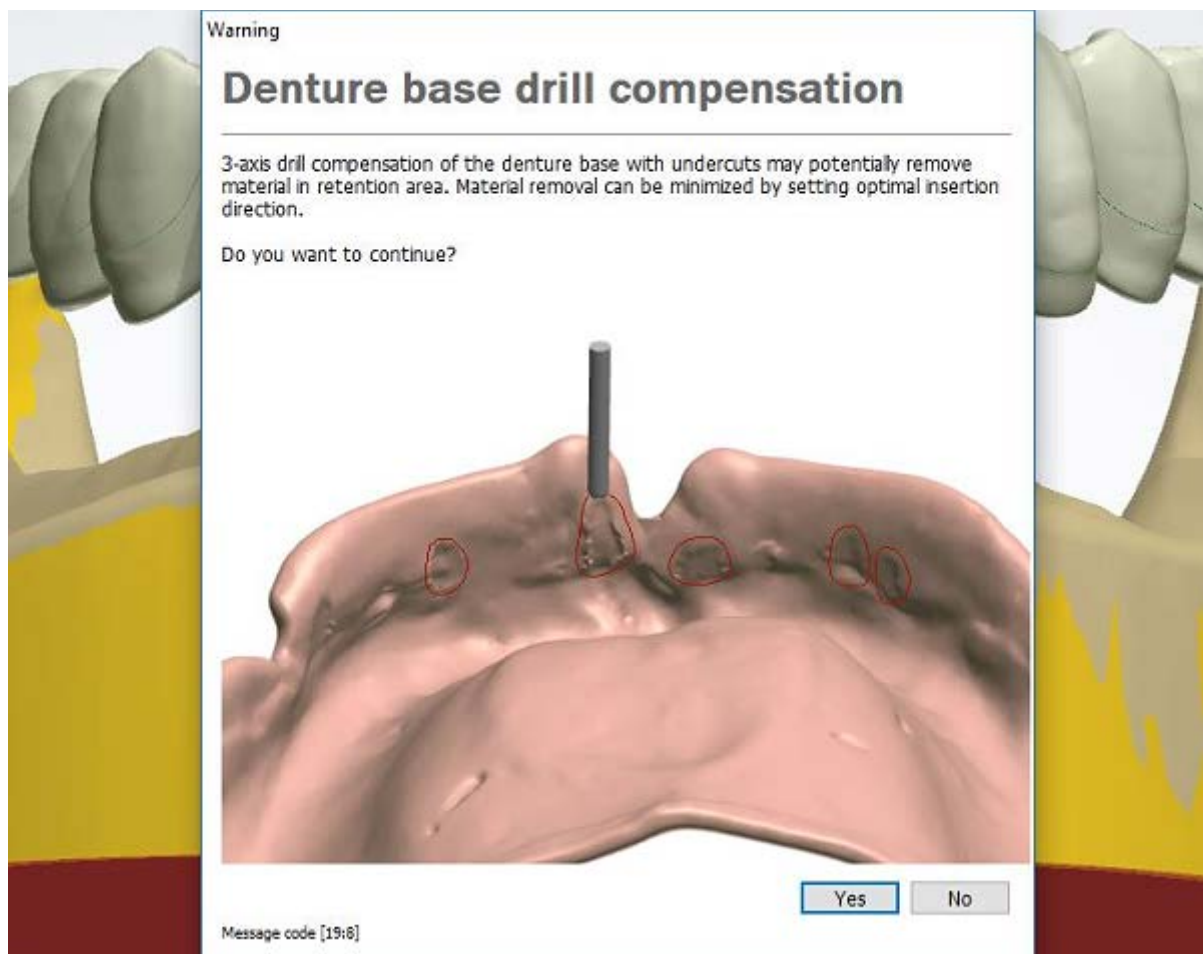
In this step, you can set the **Base thickness** value to make the base thicker or thinner. You can also adjust the base outline as well as draw auxiliary ones, such as windows and relief

zones using the **Draw window in a base**  or **Draw relief zone**  tools respectively as described in the chapter [Removable Partial Dentures](#).

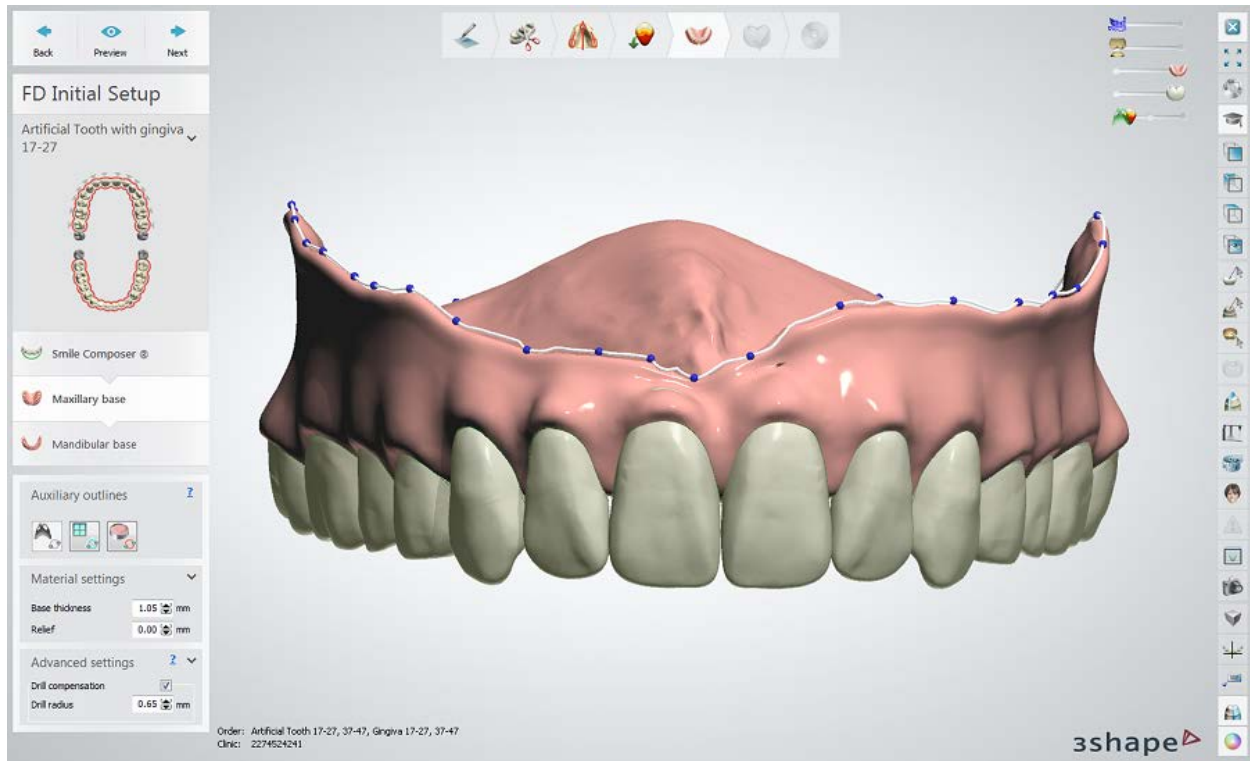
Advanced settings let you enable **Drill compensation** and specify the **Drill radius**. The default **Drill Compensation** value is pre set in and taken from *DSCP- >Site Settings- >Manufacturing processes*.

The 3-axis drill compensation of the denture base with undercuts may remove some material from the retention area (vacuum seal zone).

This can be minimized by setting an optimal insertion direction at the [Blocking out](#) step.



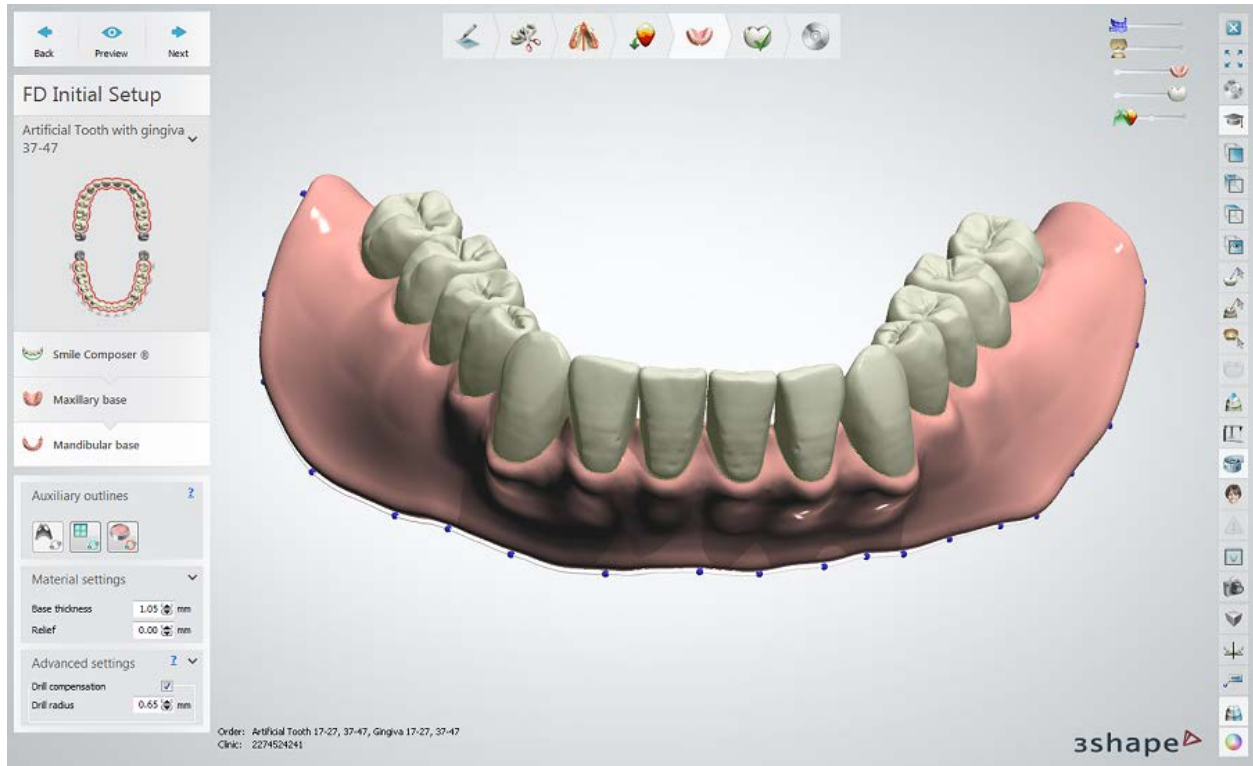
Click **Preview** to generate the base and view the result.



Click **Next** to move to the next step.

► Step 9: Create Mandibular base

Create the mandibular base as you did with the maxillary one. Click **Preview** to generate the base and view the result:

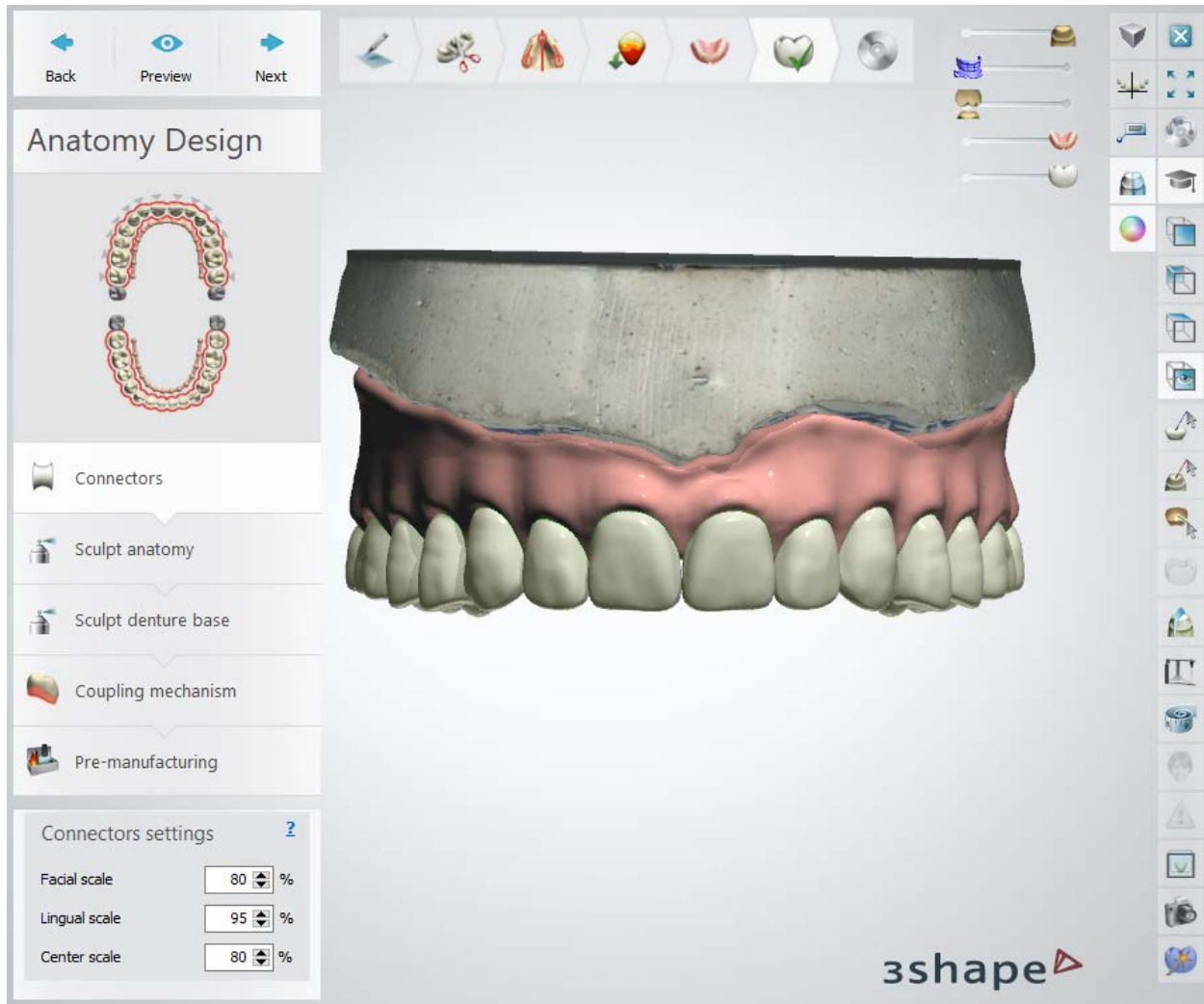


Click **Next** to proceed to finalizing your full denture design.

► **Step 10: Generate Connectors** (teeth in block orders)

To generate connectors based on the parameters predefined in *Dental System Control Panel* > *Anatomy Elements* > [Artificial teeth](#), click **Next**.

To adapt connectors for a particular order, define the [Facial scale](#), [Lingual scale](#) and [Center scale](#) values under **Connectors settings**, and click **Next**.

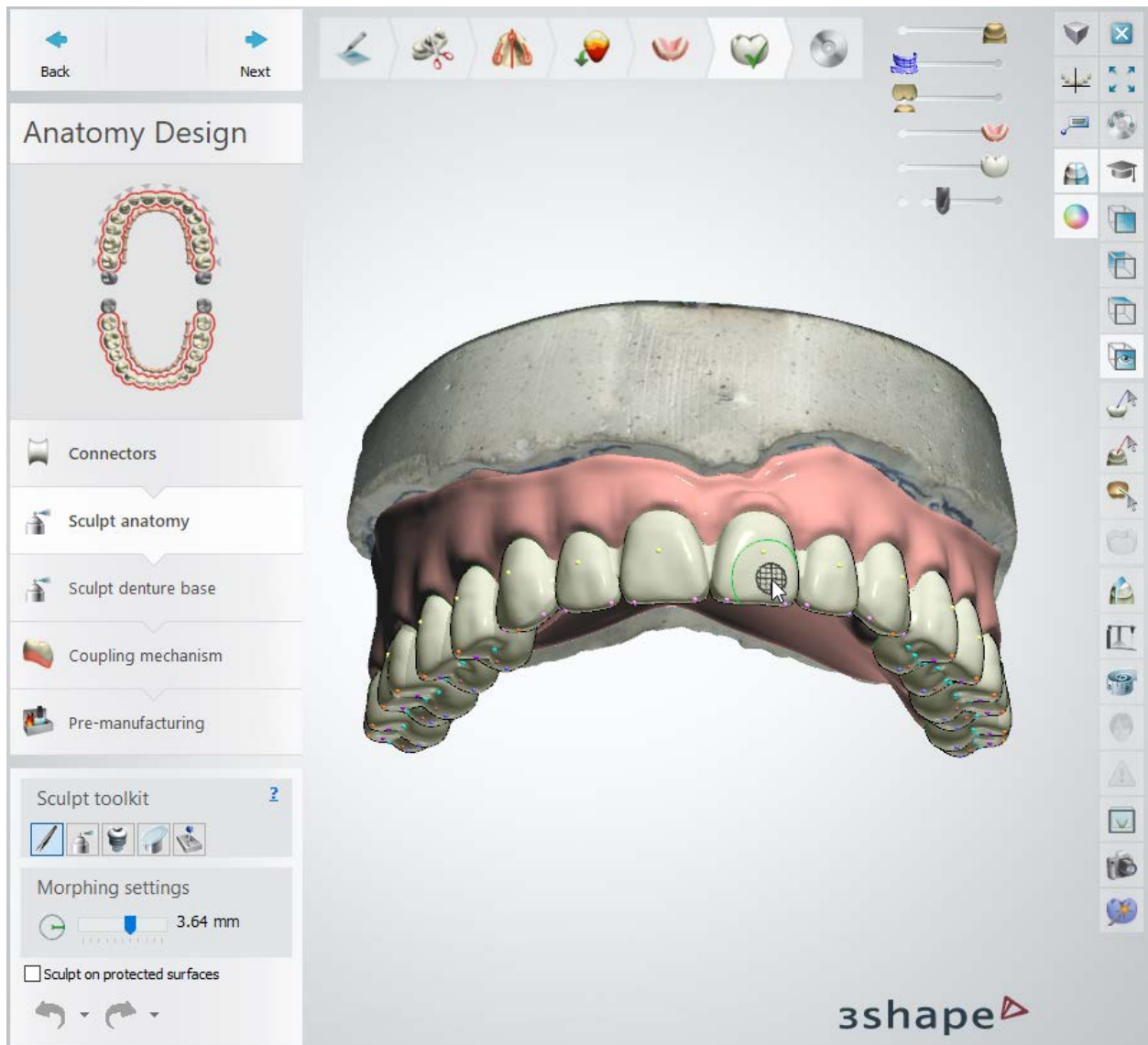


►Step 11: Use Sculpt toolkit

For detailed information on how to use the Sculpt tools, please see the [Sculpt Toolkit](#) chapter.

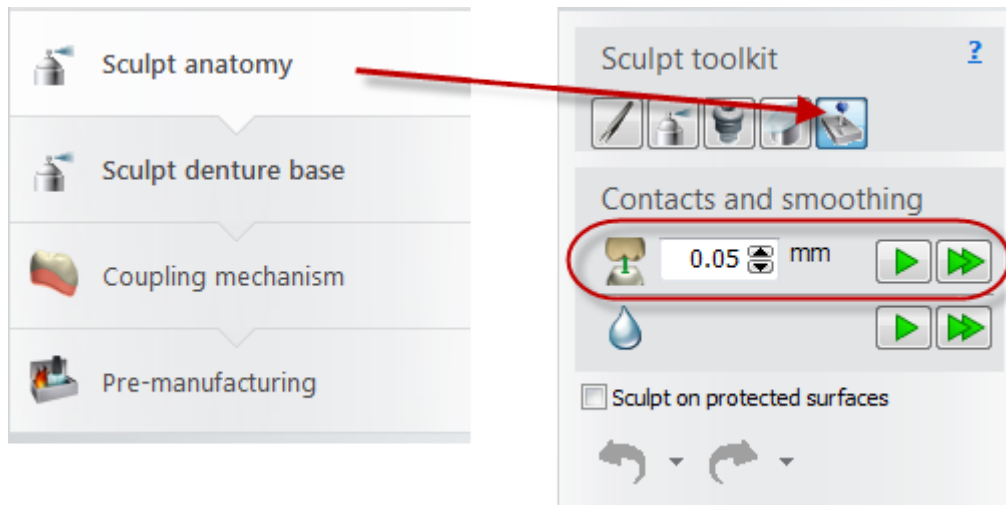
- **Sculpt Anatomy**

Sculpt Anatomy is available only for the [Teeth in Block](#) orders.



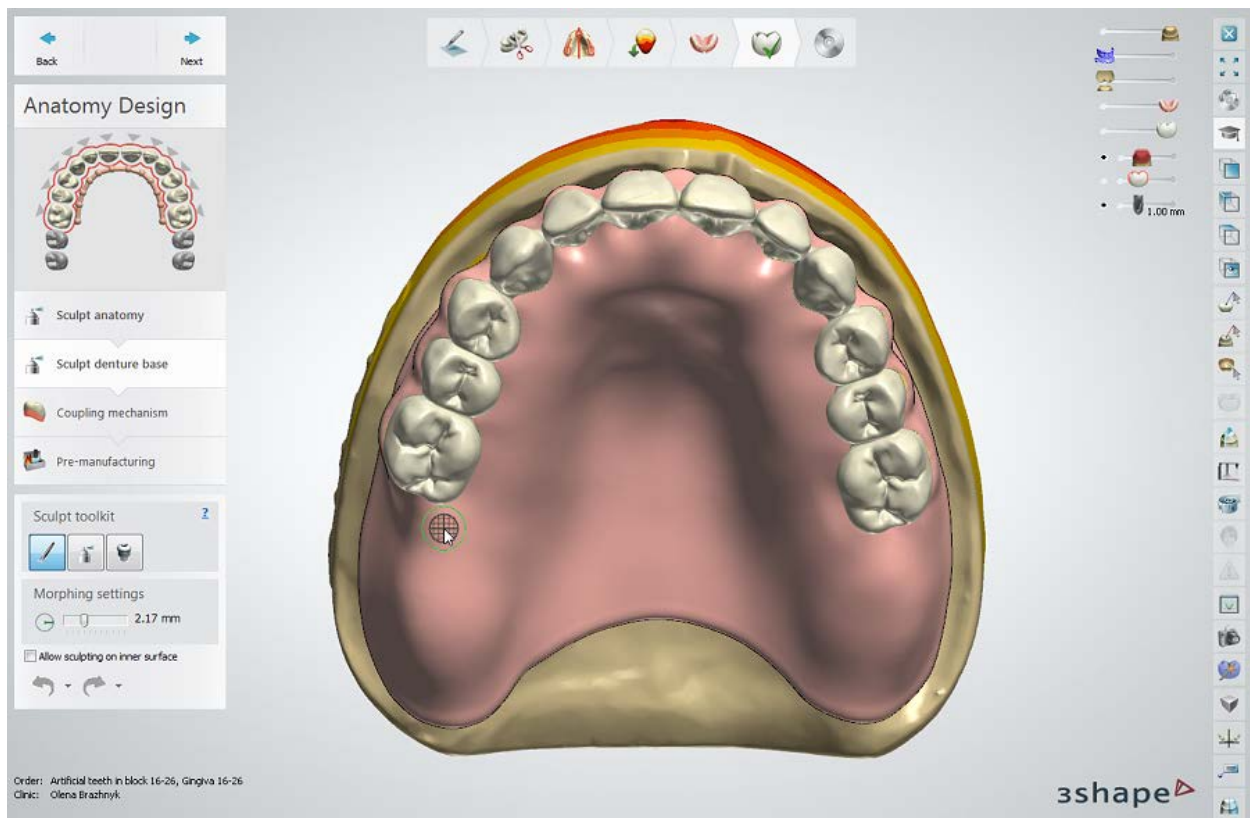
Use the  - **Desired distance to antagonist** tool to cut the designed item to the antagonist model to ensure the correct bite.


Define the required distance and click the **Apply**  button to remove premature contact.



- **Sculpt denture base**

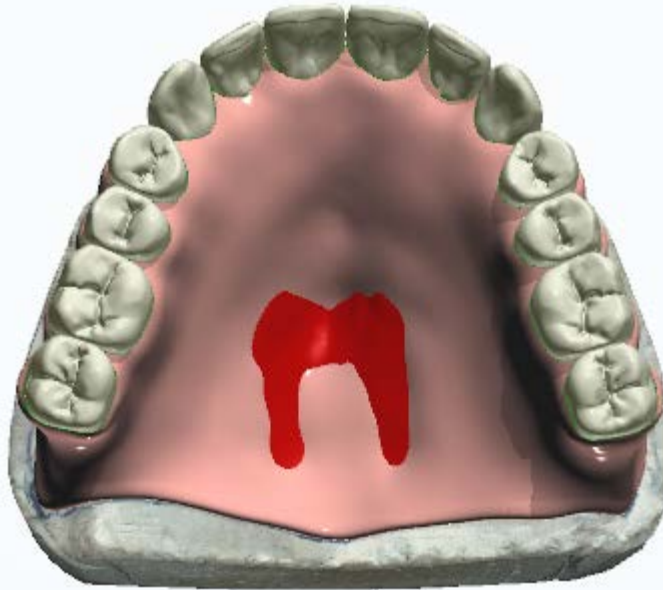
Use the provided tools to modify your denture bases. Click the upper or lower base to make it active for sculpting.

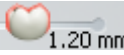


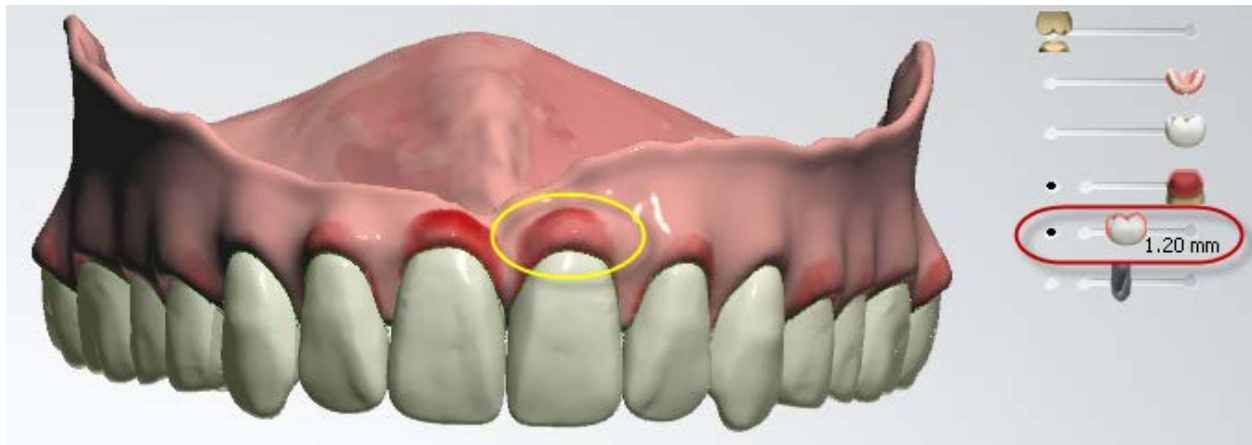
-  - **Minimum thickness** - shows the area on the shell violating minimum thickness requirements for the chosen material and thus prone to breakage.

A hint with a pre-set minimum thickness value is displayed when the cursor hovers over the slider.

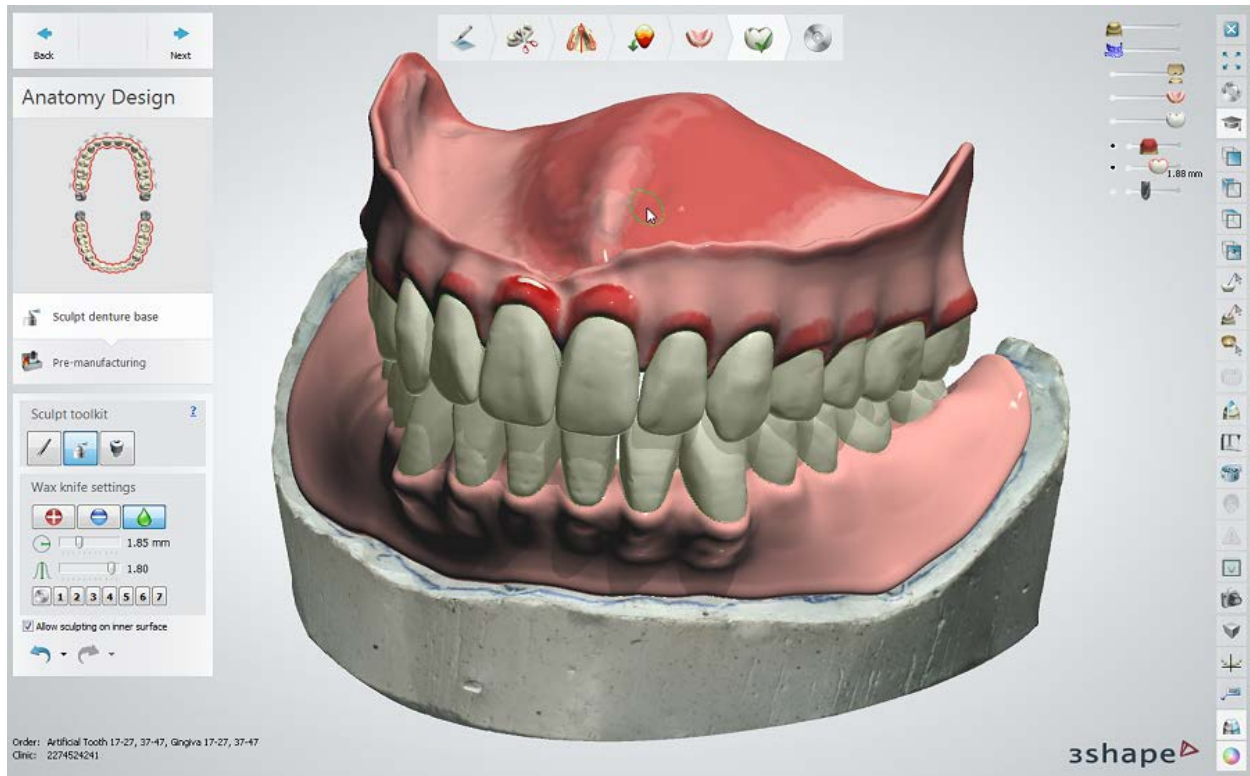
The minimum material wall thickness is set in the **Control Panel > Basic elements > Materials** page.



-  1.20 mm - **Thickness map** - provides visual information on the gingiva thickness, while the desired thickness value can be set with the slider. The problematic, thin areas are highlighted with the varying color intensity.



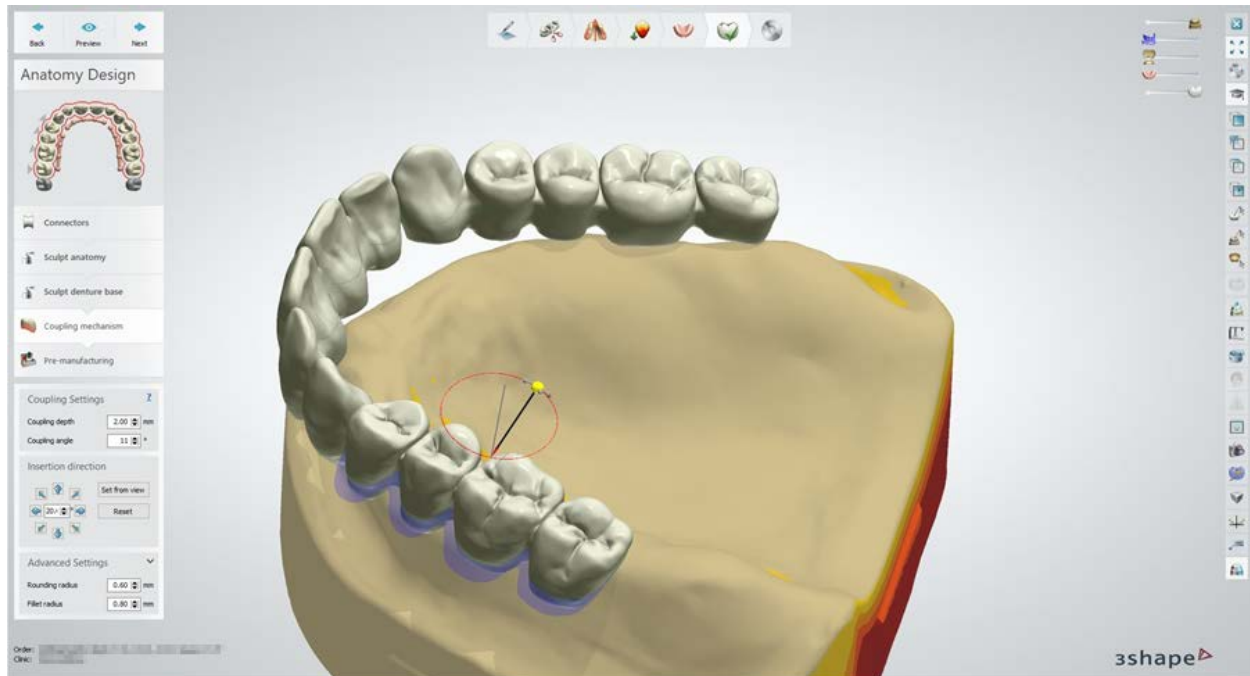
Select the **Allow sculpting on inner surface** checkbox to modify surfaces that are adjacent to the scan.



► Step 12: Coupling mechanism (teeth in block orders)

The **Coupling mechanism** tool is only applicable to the Teeth in Block orders. The **default Coupling mechanism** parameters are predefined on the *DSCP > Anatomy Elements > Artificial teeth* page and can be modified in the **Coupling tools** area during Anatomy Design described below:

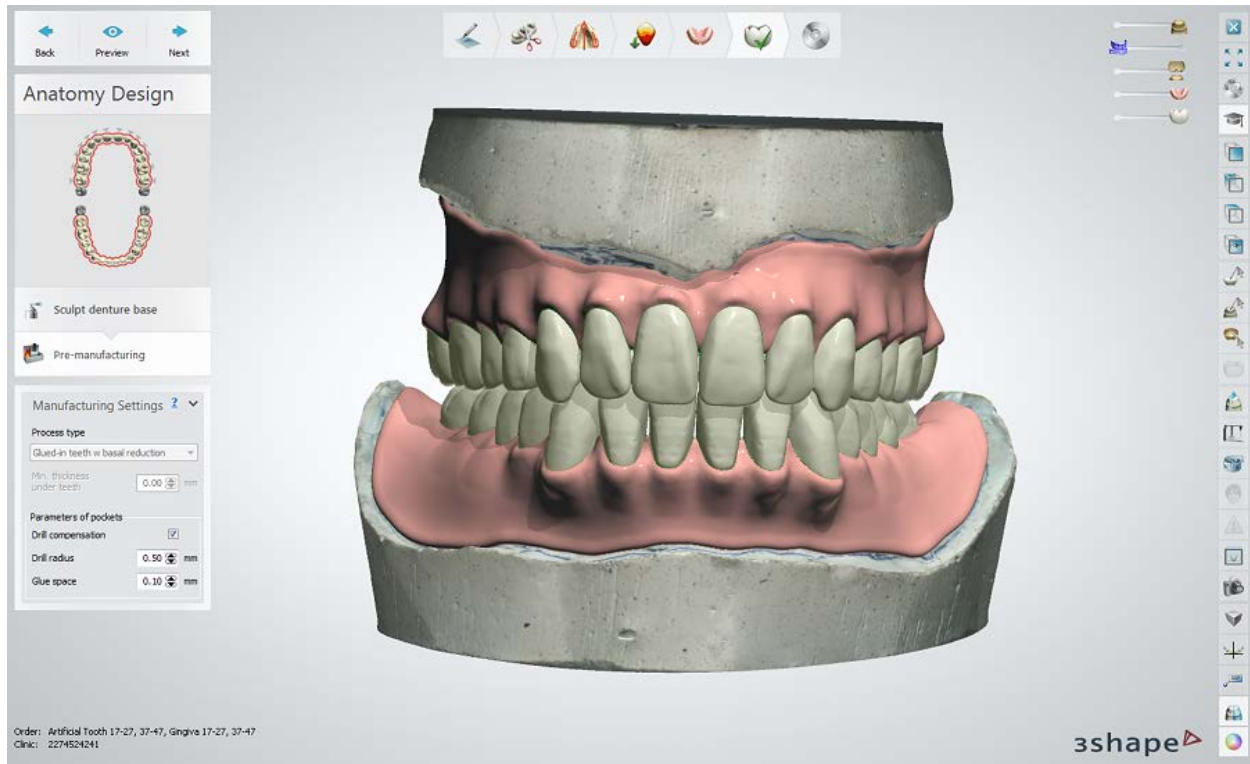
- **Coupling Settings** - **Coupling depth** and **Coupling Angle** are set by adjusting the numerical values.
- **Insertion direction** - **Insertion direction** is set three different ways:
 - Entering a numerical value on the **Arrow wheel**.
 - Use your **view** of the 3D model to **set** the insertion direction. (**Set from view**)
 - Grabbing the **Coupling joystick** with your mouse and positioning the block where you want it.
- **Advanced settings** - **Rounding radius** and **Fillet radius** are set by adjusting the numerical value or using the up/down toggle.



►Step 13: Pre-manufacture

In this step, the teeth are cut observing the distance to the scan. Afterwards, a placeholder for each exact tooth is generated using the glue parameters:

- **Process type** - provides a list of manufacturing processes for producing full dentures.
- **Glue space** - controls the amount of distance between each tooth and its respective placeholder surface in the denture base.
- **Min. thickness under teeth** - is the minimum base thickness under each tooth (the surface of every tooth, which is closer to the scan than the value provided, is cut away).
- **Drill compensation** - removes material from the inward corners of the teeth pockets to guarantee the teeth fit.
- **Drill radius** - specifies the radius of the drill used to prepare pockets.



► Step 14: Occlusal bite aligner (Requires dongle option)

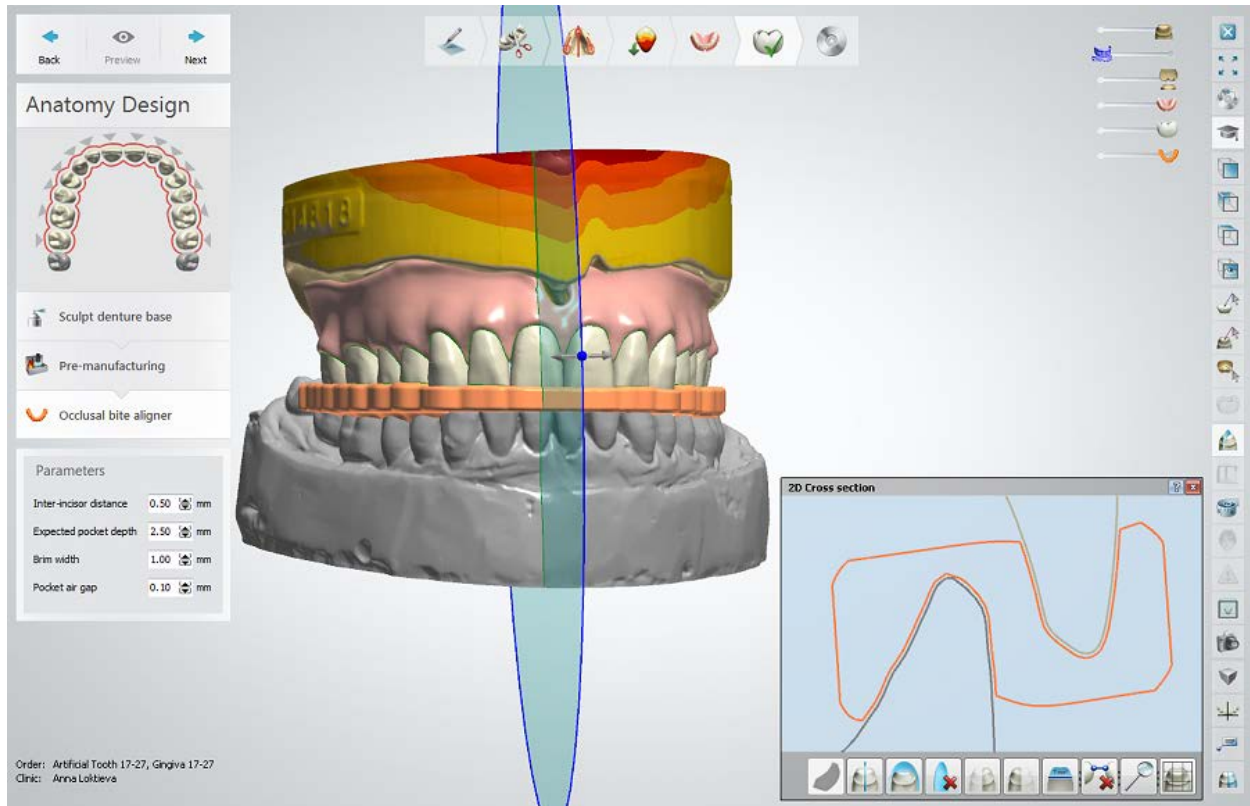
The **Occlusal bite aligner** lets you preserve patient's occlusion during the delivery of interim prosthesis.

This step is present in Full Dentures orders when the [Occlusal bite aligner](#) is enabled in the Dental System Control Panel.

Select *Dental System Control Panel* > *Full dentures* > *Gingivae* to modify the setting.

The software generates the Occlusal Bite Aligner with the user-defined parameters:

- **Inter-incisor distance** - The distance between the upper and lower incisors.
- **Expected pocket depth** - The maximum pocket depth at the bite.
- **Brim width** - The distance from the pocket to the edge of the occlusal bite aligner.
- **Pocket air gap** - The gap between the pocket and tooth.



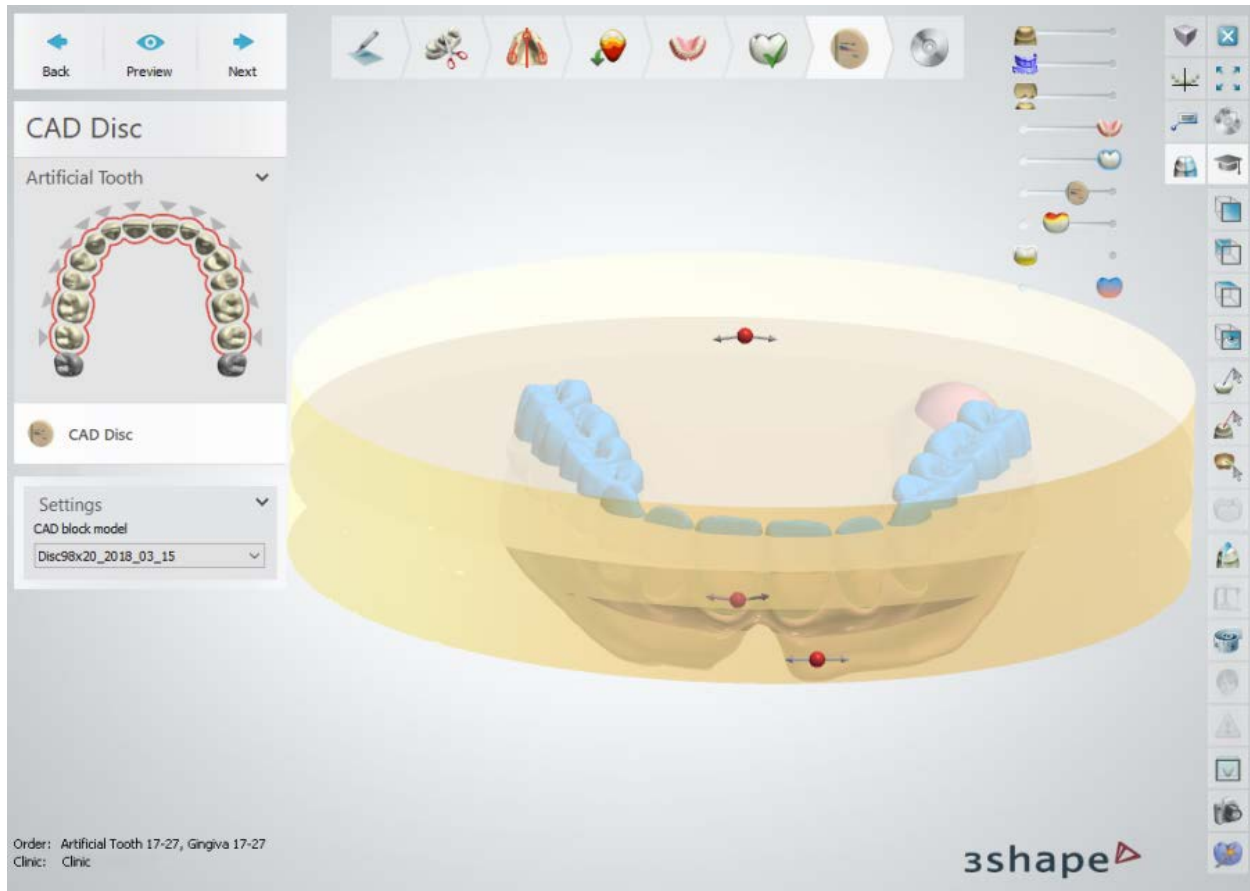
Click **Next** to proceed to saving.

►Step 15 (optional): CAD disc

An artificial block of teeth can be positioned in a multicolor CAD block to observe the appearance of teeth before milling.



- The MultiColor slider switch lets you enable visual coloring of teeth inside the block.



The **CAD Disc** step is available when:

- Artificial teeth material is enabled for use with a CAD block in the *Basic elements > Materials > [Premanufacturing](#)* options of the DSCP, and
- CAD block for this material is predefined in the DSCP.

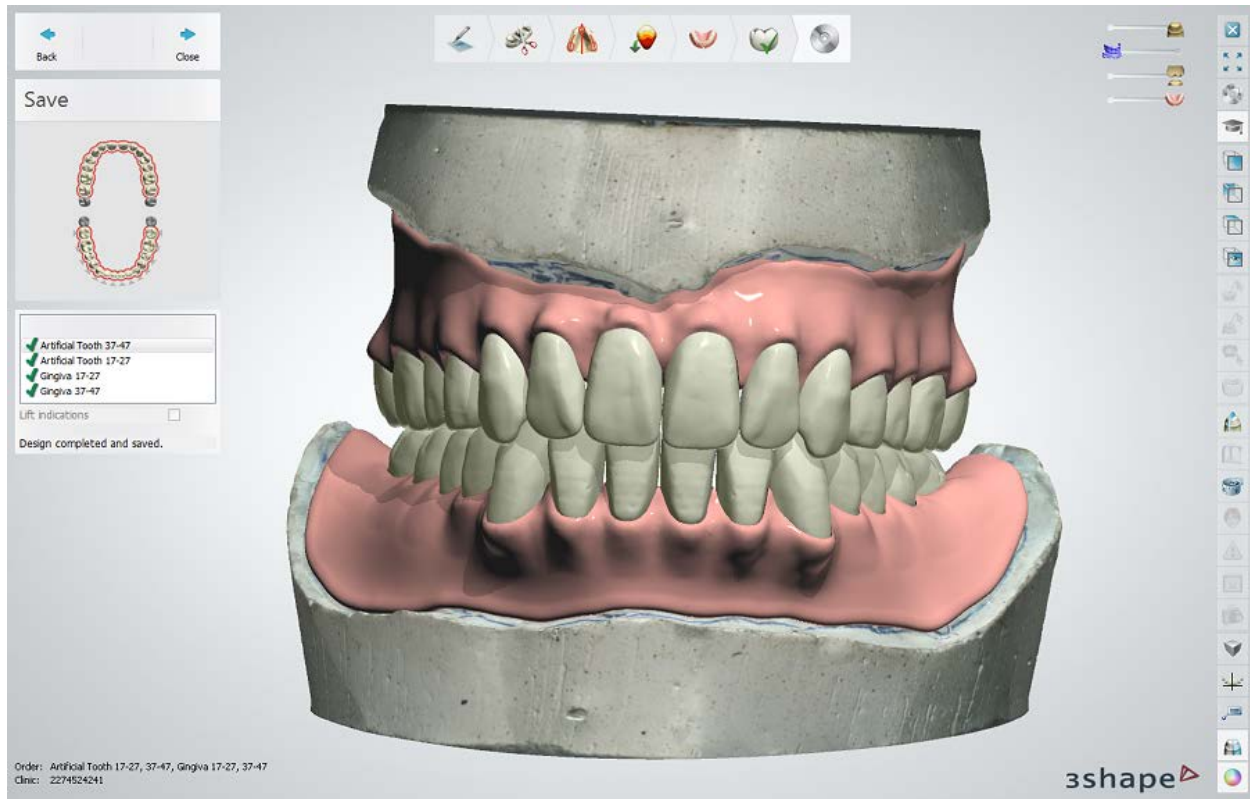
Navigate to *Basic Elements > CAD blocks* and enable materials for a new or existing [CAD blocks](#).

The functionality is similar to the [CAD block](#) step described in the **Preparation for Manufacturing** chapter.

Click **Next** to proceed to saving.

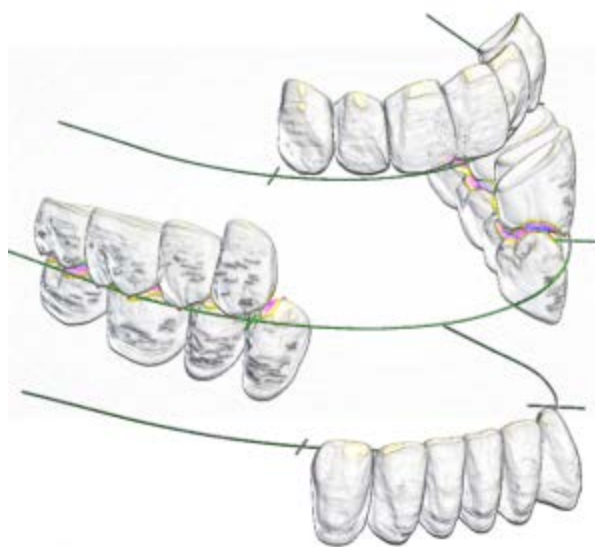
►Step 16: Save the design

Click **Close** to close the order and save the output.



Continue to [manufacturing](#) if required.

1.22.4. Full Dentures Smile Composer®

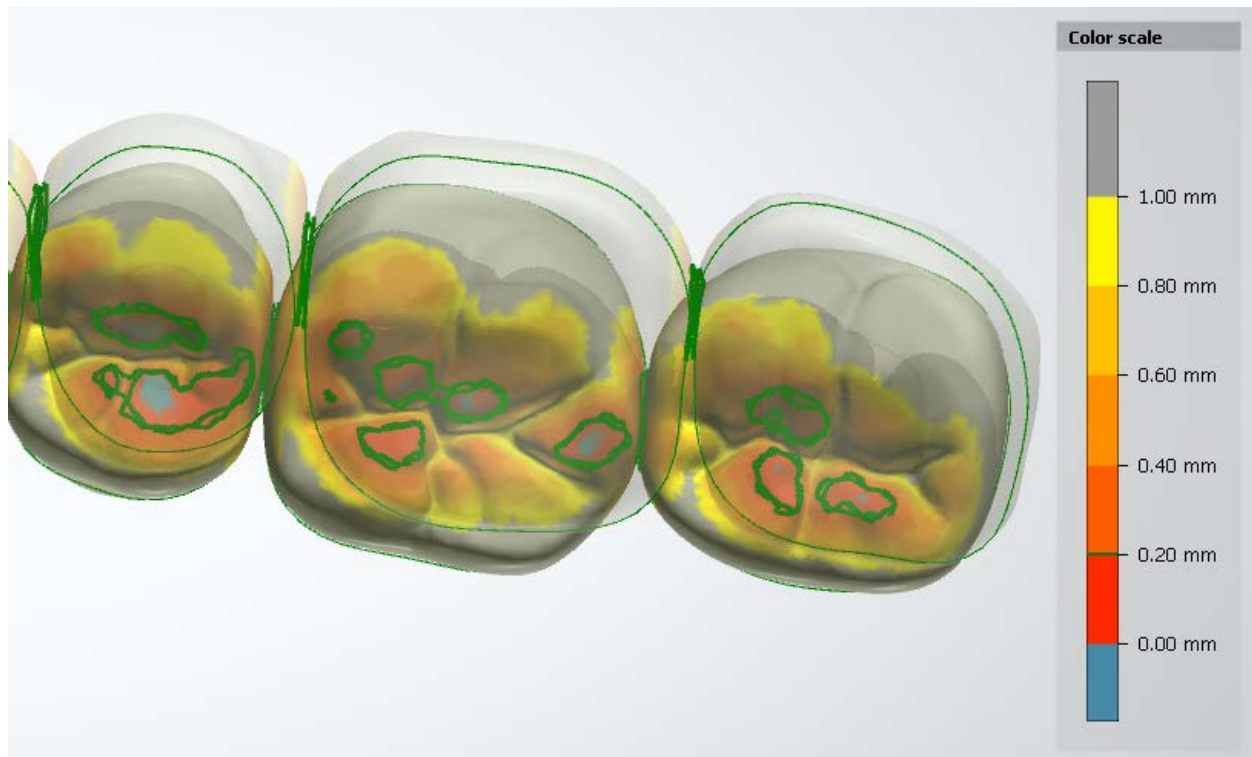


For the design of a full denture with Smile Composer®, 28 of the patient's teeth are split into three logical blocks in [ScanIt Library](#): posteriors, upper anterior teeth and lower anterior teeth.

The upper and lower anterior teeth are set up in occlusion separately from each other in arch-shaped blocks.

The upper and lower posterior teeth are set up in a mutual anatomical occlusion, observing, for example, the curve of Spee, curve of Wilson and teeth intercuspation.

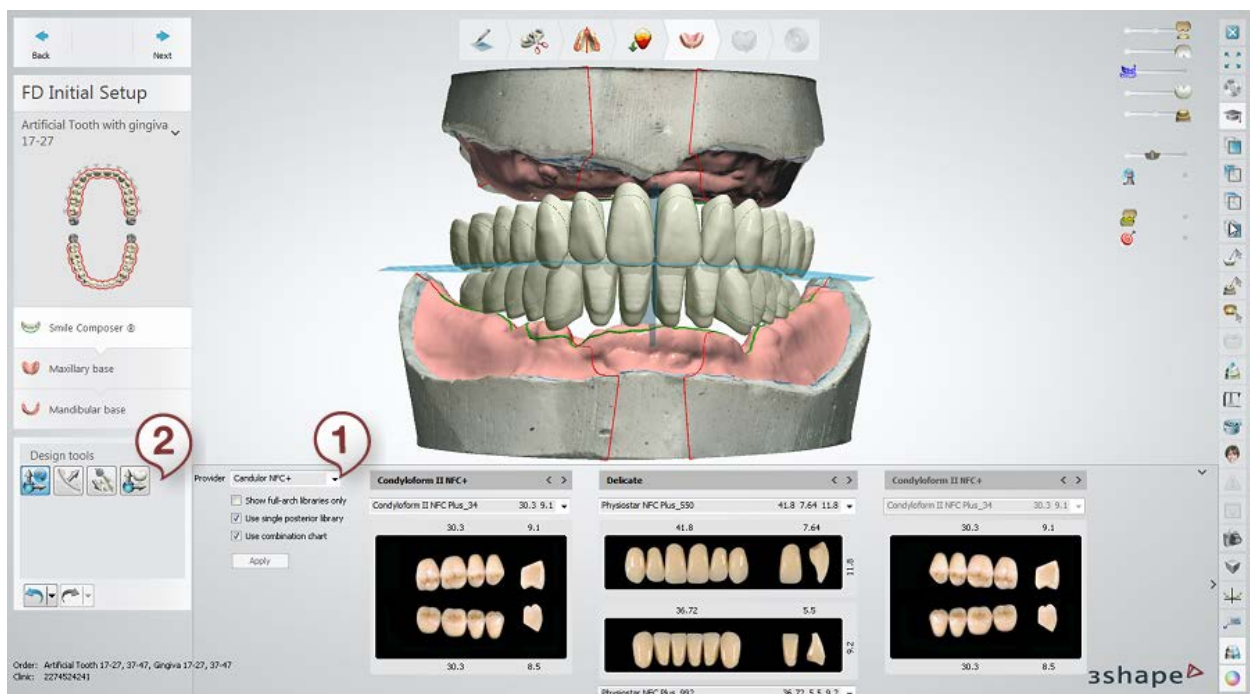
In addition to the normal bite occlusion, these auxiliary setups can be made to serve patients with Overbite or Crossbite.



Posterior teeth intercuspation setup

Full Dentures Smile Composer® consists of:

- [Smile library selector](#) (1) - allows to choose smile libraries appropriate for a particular case.
- [Design tools](#) (2) - these are tools for composing a smile.

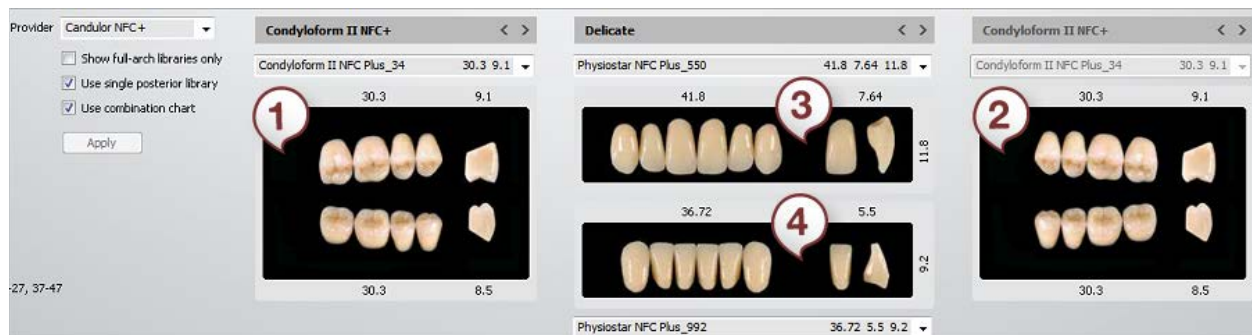


► Step 1: Select a smile library for teeth blocks

The **Smile library selector** allows you to choose a library **Provider** (e.g. 'Condulor NFC+'), its **Type** (e.g. 'Bonartic II NFC+' for posterior teeth or 'Individual' for anterior teeth), as well as its **Size** (e.g. 'Bonartic II NFC Plus_02_Small').

The type and size of your library can be selected for:

- Right posterior teeth **(1)**
- Left posterior teeth **(2)**
- Upper anterior teeth **(3)**
- Lower anterior teeth **(4)**



Show full-arch libraries only checkbox - shows only libraries with the upper and lower teeth prepared as one set with predefined arch shape and overbite/overjet.

Use single posterior library checkbox - applies the same library for both, the left and right posterior teeth.

Use combination chart checkbox - shows only posterior and lower anterior libraries that match the selected upper anterior library following particular combination rules. These rules are set in *Dental System Control Panel* -> *Full Dentures* -> [Smile Libraries Chart](#).

► Step 2: Use Design tools to adjust your full denture

The **Design tools** enable you to modify your full denture using the following options:



Occlusal plane adjustment - allows you to move and scale both arches in occlusion (see the detailed workflow below).



Arch setup - allows you to shape the form of the arch, move individual teeth and adjust anterior teeth inclination, and when you do so, all other teeth automatically adapt to the moved part (see the detailed workflow below).



Manual arrangement - allows you to freely move blocks of teeth or an individual tooth without other teeth adapting to that moved part.



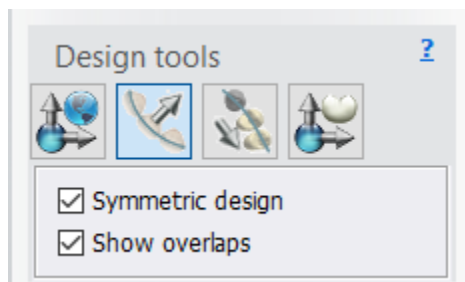
Individual setup - allows you to move and scale an individual tooth without effecting the other teeth (see the details below).



Individual morphing - allows you to shape an individual tooth (can be enabled/disabled in *Dental System Control Panel* -> *Full Dentures* -> [Design Settings](#)). See the chapter [Smile Composer](#) for details on using this tool.

The process of composing a smile in full dentures includes two subsequent concepts (explained below):

1. [Initial automatic teeth placement](#) (based on libraries chosen in **Smile library selector**)
2. [Block adaptation by the user](#) (using **Design tools**)



The [Symmetric design](#) option is available in the following tools: Arch setup, Manual arrangement and Individual setup.

the [Show overlaps](#) option is available for simultaneous full dentures cases and is used in Arch setup and Manual arrangement tools

INITIAL AUTOMATIC TEETH PLACEMENT

The initial teeth blocks placement is done by following positions of the arch-shaped mandibular and maxillary alveolar crests while also taking into account the other anatomical data, such as midline, occlusal plane, characteristic points, etc.

The placement sequence is made of three stages:

1. The maxillary anterior block is placed first observing 7 mm shift from the papilla.
2. The left/right posterior blocks are placed with the first premolar teeth touching the canines.
3. The mandibular anterior teeth are positioned observing overbite and overjet values.

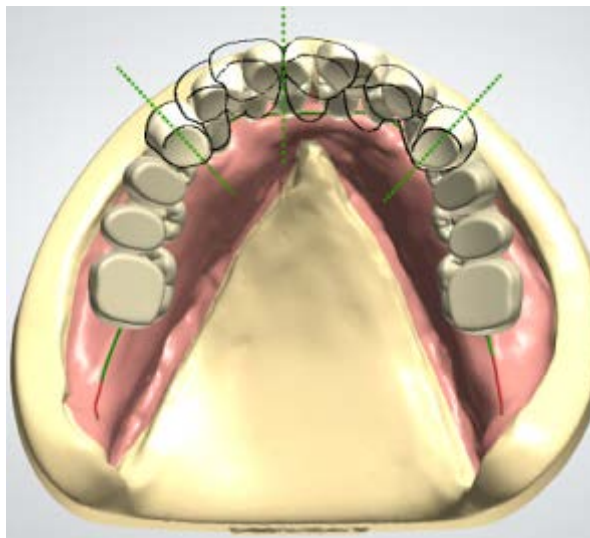


Block placement sequence

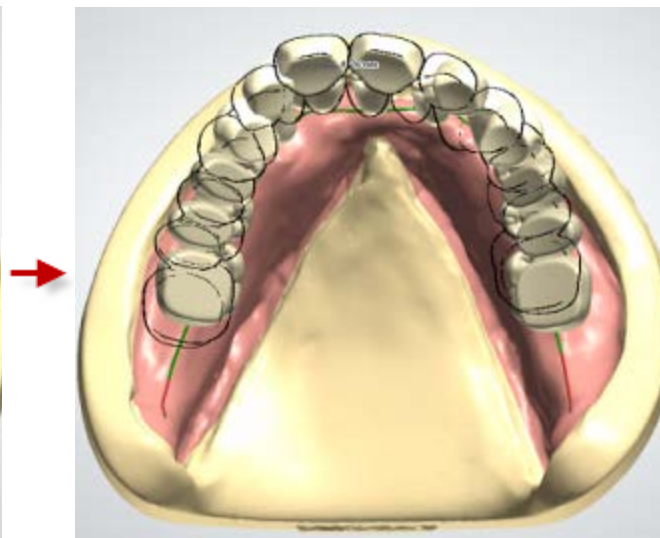
BLOCK ADAPTATION BY THE USER

The user can further shape the blocks by adapting the automatically pre-occluded teeth to the edentulous mouth of the patient as describe below.

- Anteriors: The midline splits each anterior block into two half-blocks. The shape of the anterior block can be changed by applying transformation to any of the teeth in the half-block. The canine teeth are the anchor points of the arch, standing still while the other anterior teeth are moved. The software algorithm ensures that the specified distance between the teeth is met by performing post-movement operations (the distance can be set negative, resulting in a protrusion).
- Posteriors: The shape of the posterior blocks and position of individual teeth cannot be changed. The posterior blocks can be moved and rotated only. This ensures the position of the pre-set up occlusion.



The silhouette of the anterior arch deformation overlaid on top of the initial teeth position. The deformation is operated by the two front incisors moved to the left. Pay attention to the gaps and protrusions between the teeth.



The silhouette of the final anterior arch shape overlaid on top of the user transformation. The posterior block on the left is moved distally to provide space for protruding teeth (at the same time the right block is moved mesially closing gaps).

- Anterior-posterior interaction: The whole posterior block is moved distally if space for its placement is needed. The teeth positions are sequentially analyzed in the distal direction resulting in preservation of the user specified overjet between the upper and lower anterior teeth. The real-time collision detection algorithm ensures that the specified distance between the teeth is met.

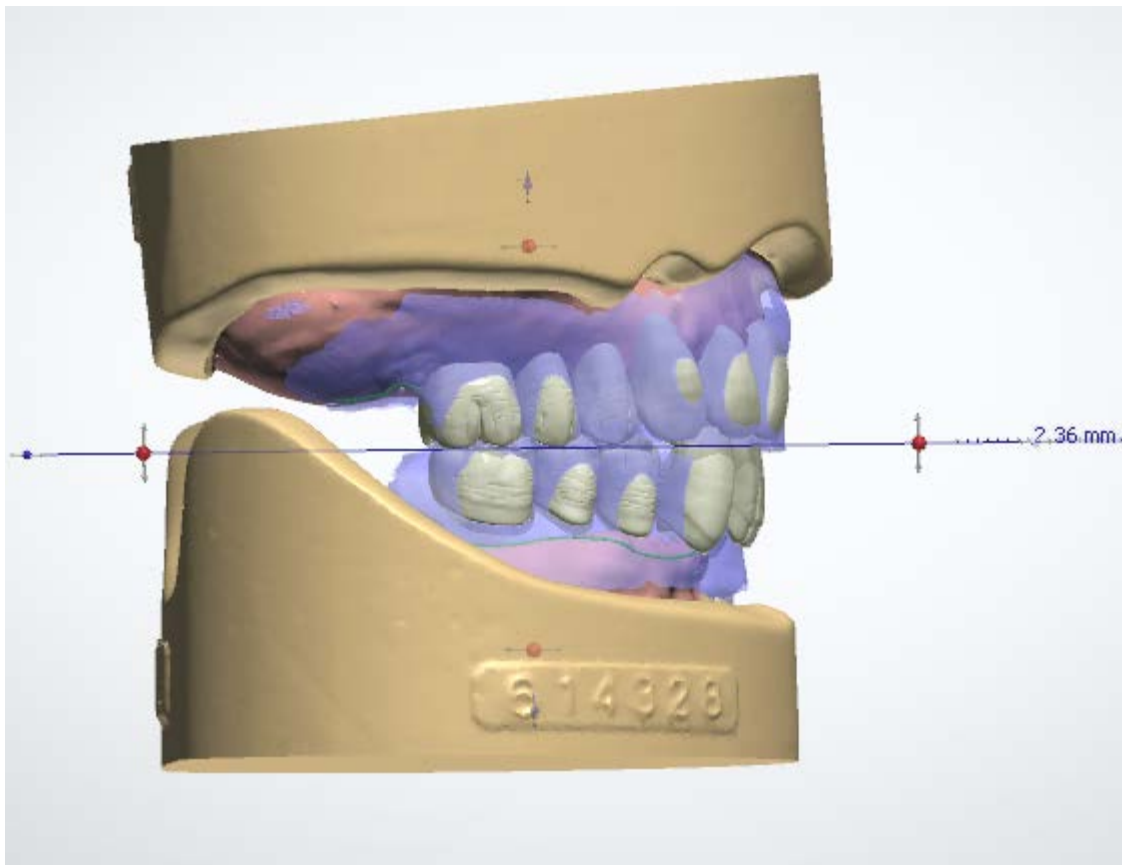


Occlusal plane adjustment



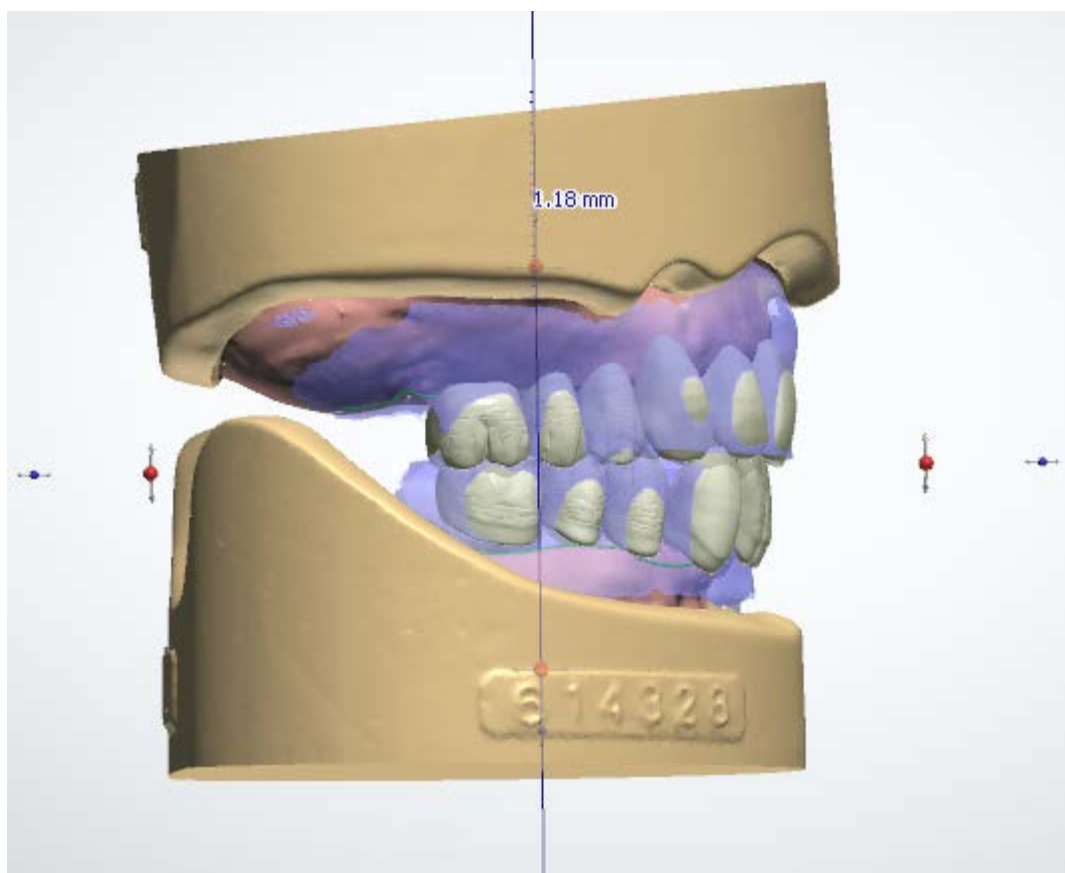
► Step 1: Perform sagittal view operations

- Move teeth outwards/inwards of the mouth to provide the correct lip support:



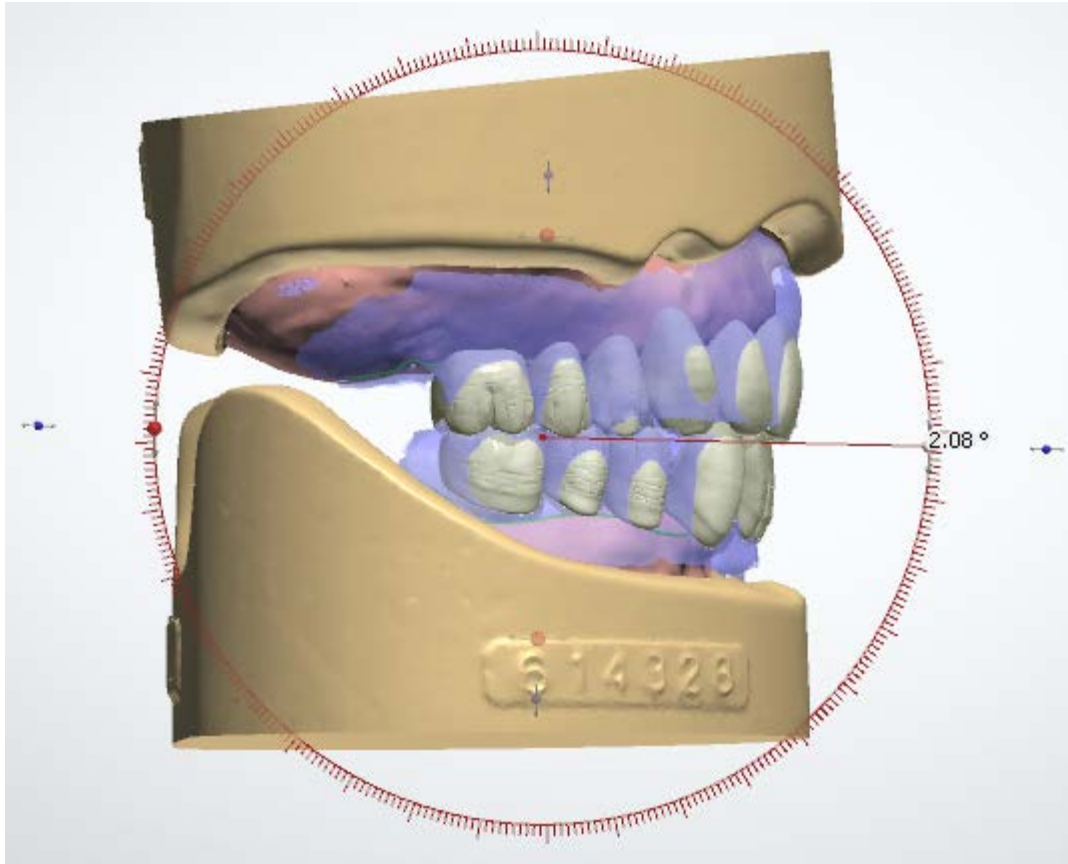
Lip support correction

- Move teeth upwards/downwards to correct the occlusal plane height:



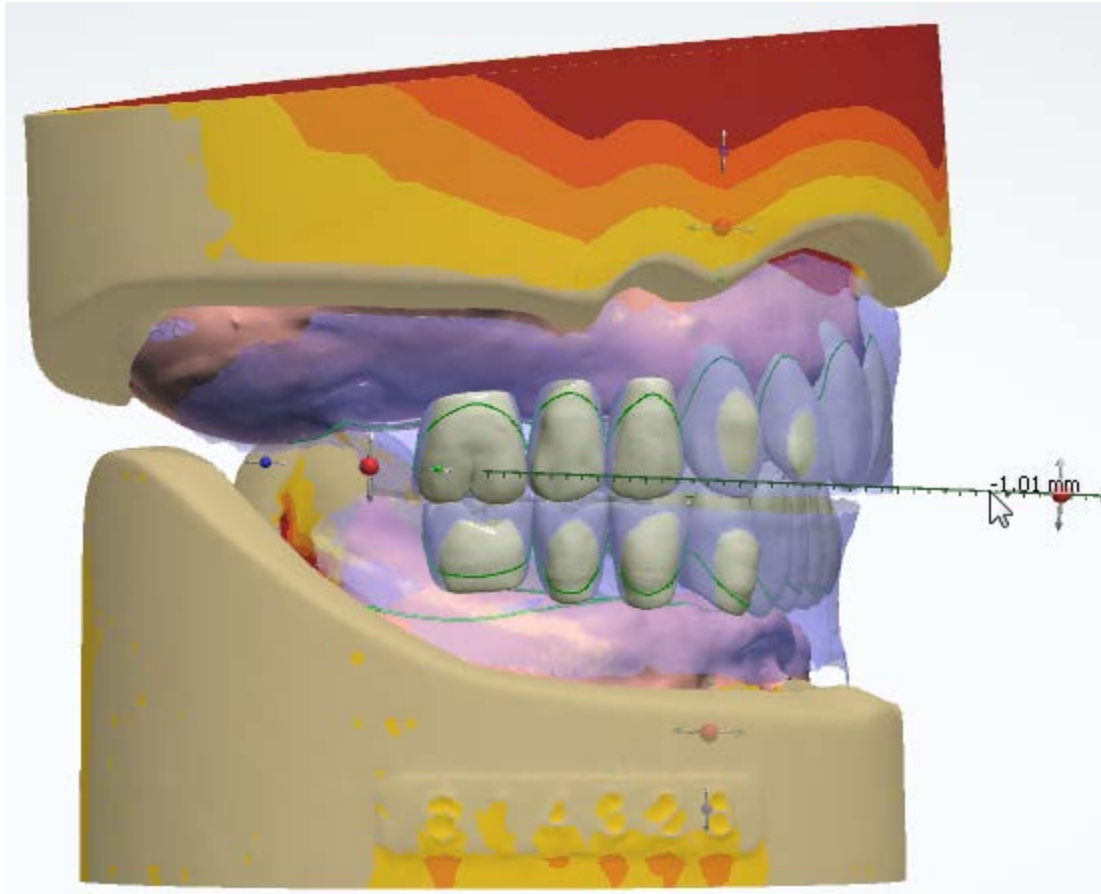
Occlusal plane height correction

- Rotate teeth to correct the occlusal plane inclination:



Occlusal plane inclination adjustment

- Hold down **Ctrl** to switch between proportional and one-direction modes of scaling when dragging the green points:

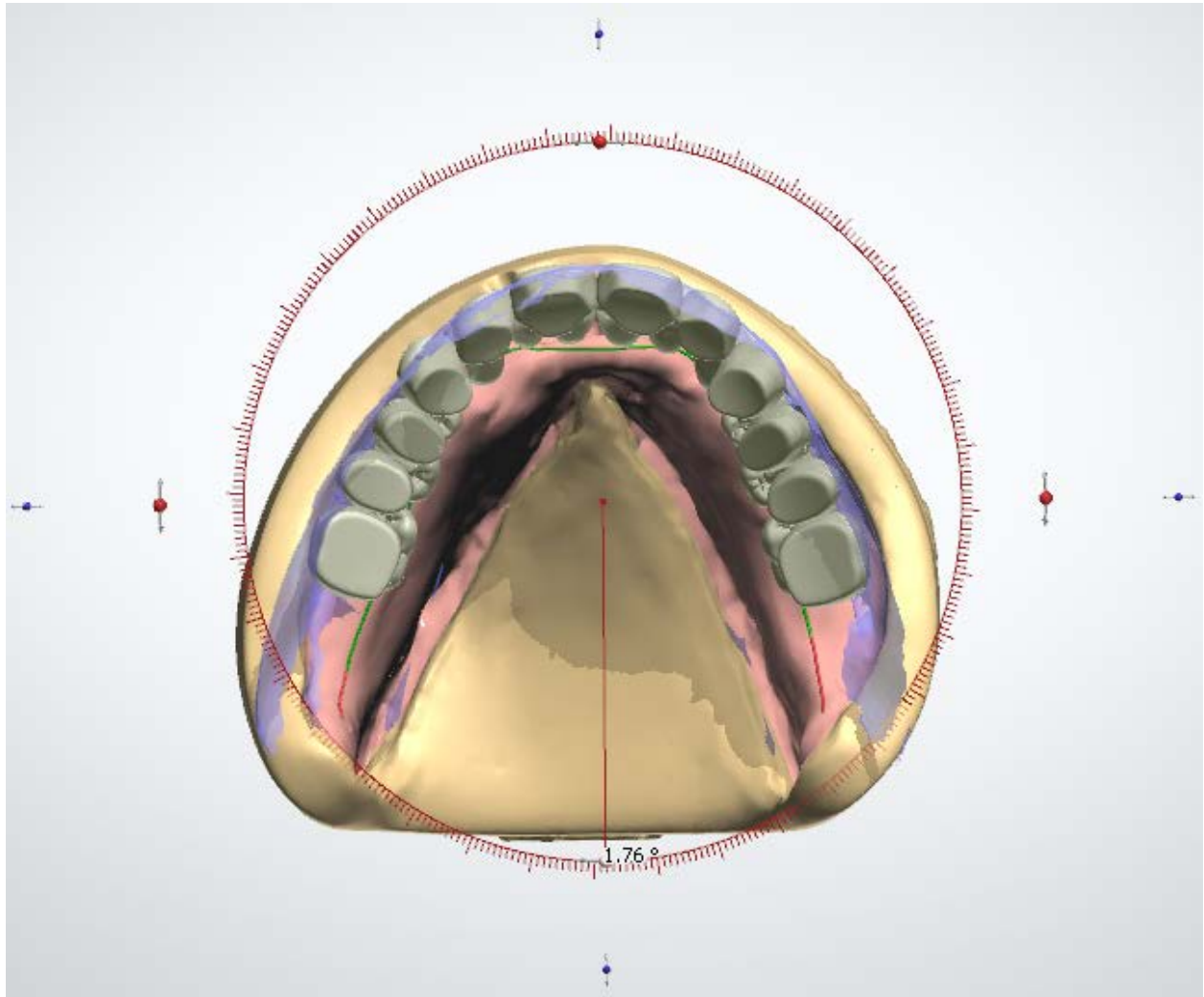


Scaling of teeth



► **Step 2: Perform transverse view operations**

Rotate teeth to correct the front direction.

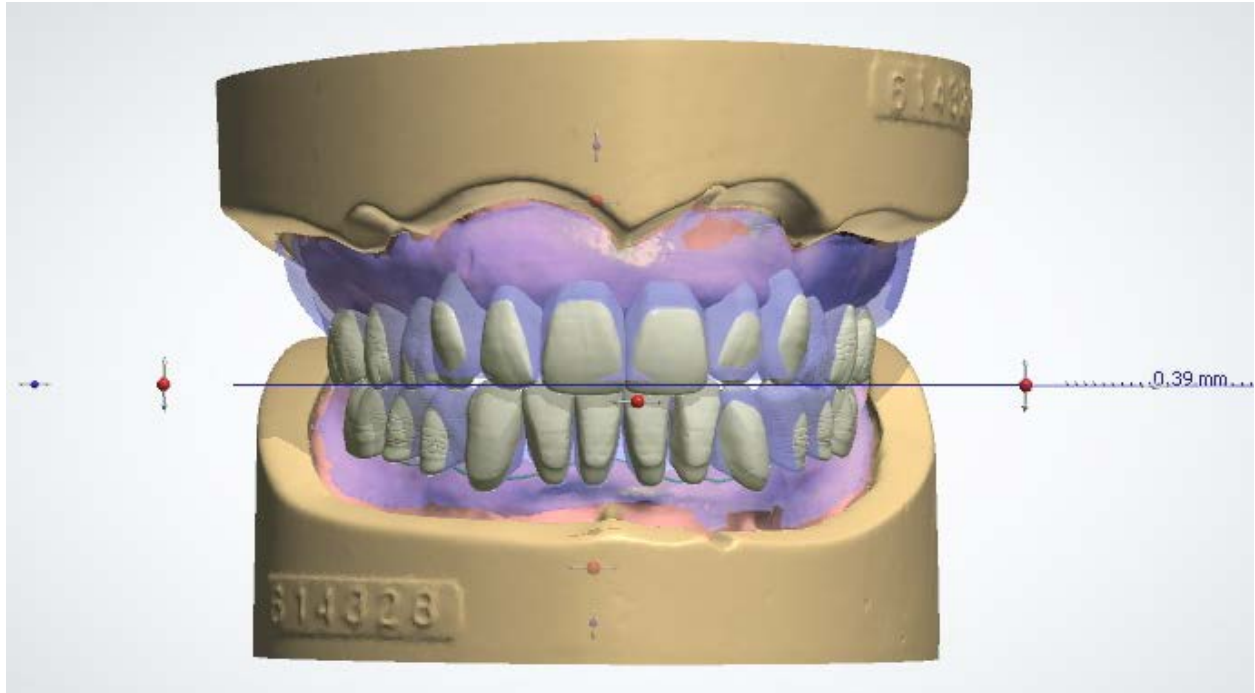


Front direction adjustment



► **Step 3: Perform coronal (frontal) view operations**

Move teeth to the right/left to correct the midline position.




Midline position correction

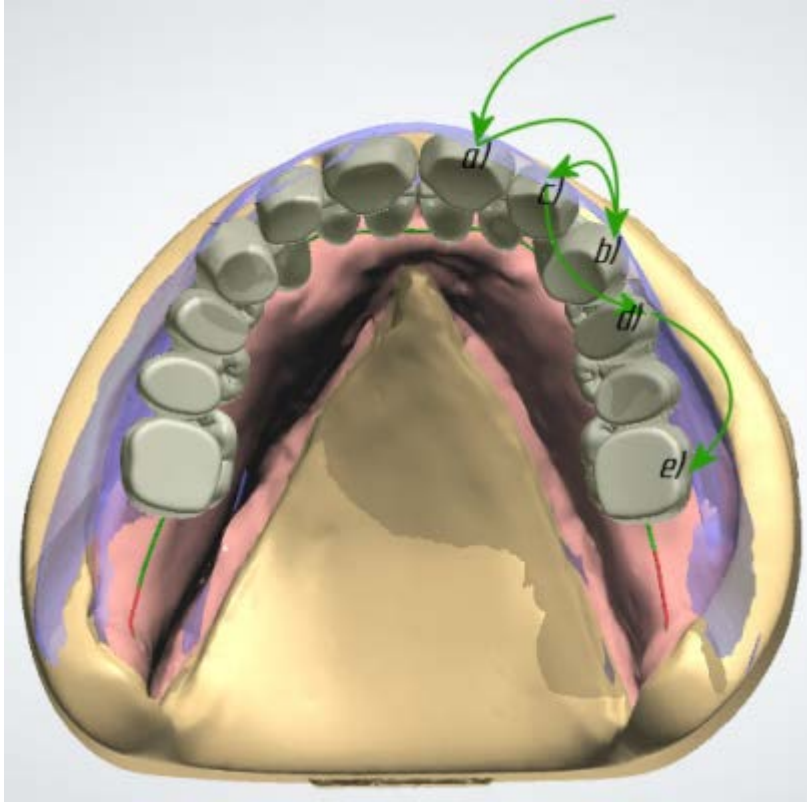


Arch setup



► Step 1: Shape the arch in the transverse view (top to down direction)

Hide the maxillary scan and the base using the  visualization slider. The mandibular anterior and posterior blocks automatically adapt to every operation performed on maxillary teeth.



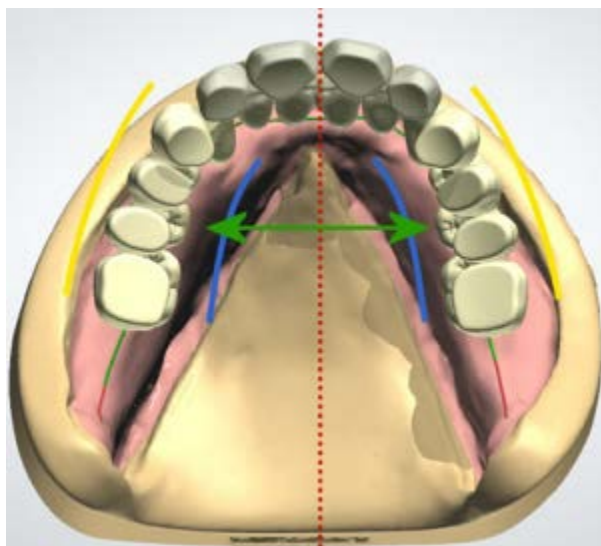
Maxillary Arch setup strategy

1. Insure the central incisors are correctly positioned in relation to the lip support.
2. Move the maxillary canines to their new positions.
3. Move the maxillary lateral incisors to their new position to shape the anterior arch.
4. Move the maxillary first premolars to their new position to shape the anterior arch. The posterior blocks will adapt.
5. Align the facial side of posteriors with the wax rim by rotating the posterior blocks. The block rotation is operated with any tooth in the posterior block except the first premolar.

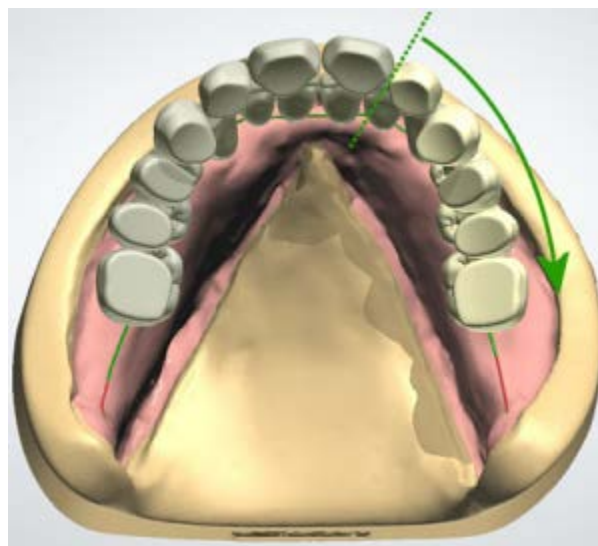
The full adaptation sequence is shown in the image.

Operation key options:

- Hold down **Shift** to move the right and left half-arches simultaneously.
- Hold down **Ctrl** to move the distal teeth (starting from the tooth pointed by the cursor) in a single block.



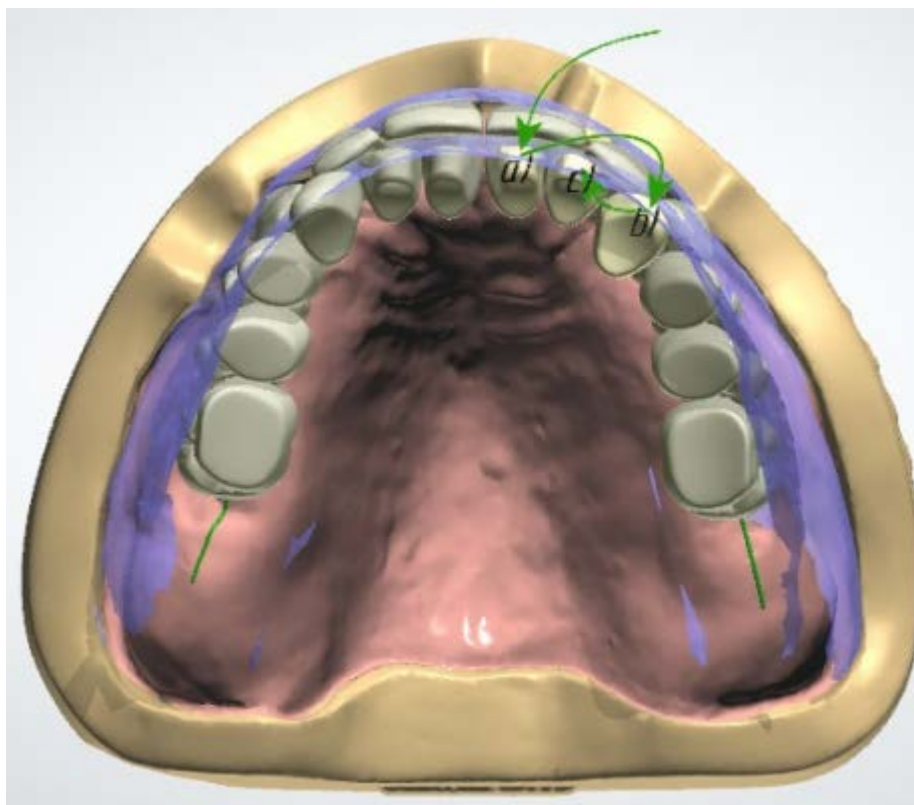
Shift key enables simultaneous movement
(the affected teeth are highlighted)



Ctrl key enables the distal mode



► **Step 2: Shape the arch in the transverse view (down to top direction)**



Mandibular arch setup strategy

1. Hold down **Ctrl** and move the mandibular central incisors outwards/inwards of the mouth until the desired overjet value is met.
2. Move the mandibular canines to their new positions.
3. Move the mandibular lateral incisors to their new position to shape the anterior arch. (Maxillary anteriors are not affected).

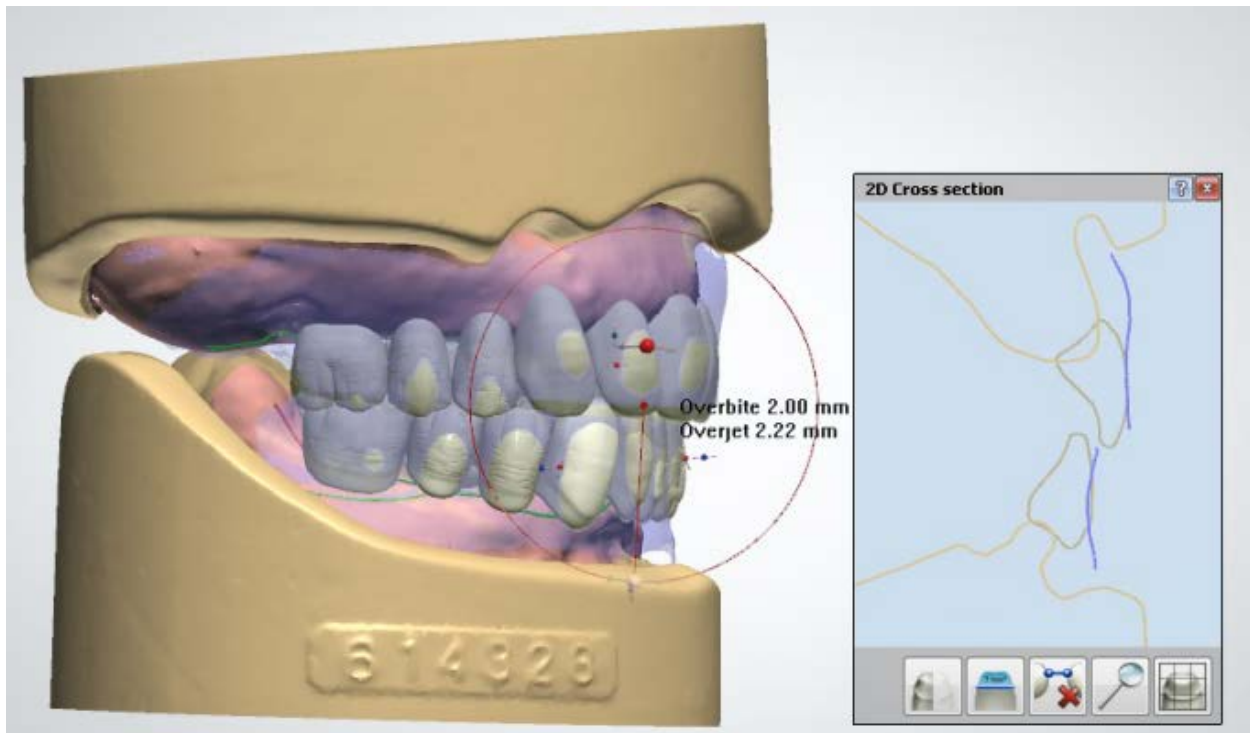
The full adaptation sequence is shown in the image.



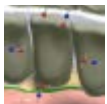
► Step 3: Incline teeth in the sagittal view

Select one of the anterior teeth to activate joysticks that regulate inclination of the anterior teeth. The inclination can be controlled separately for maxillary and mandibular teeth while respecting the jaw the selected tooth belongs to. The inclination is performed either with preservation of overjet (each tooth rotates around its incisal edge) or without (each tooth rotates around its cervical line).

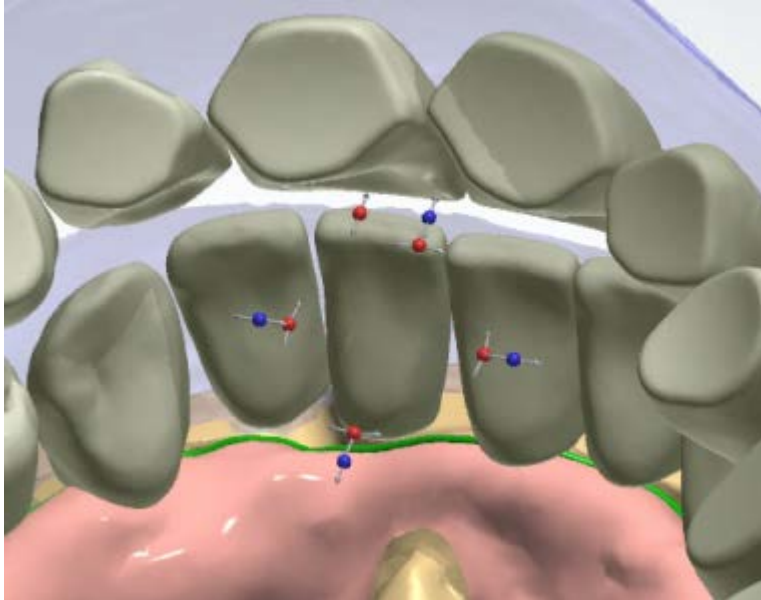
The [Show overlaps](#) option is used to visualize the overbite and overjet values and can be activated/deactivated by marking the **Show overlaps** checkbox.



Anterior teeth inclination change in cross section



► Step 4: Set up individual teeth



Anterior teeth inclination change

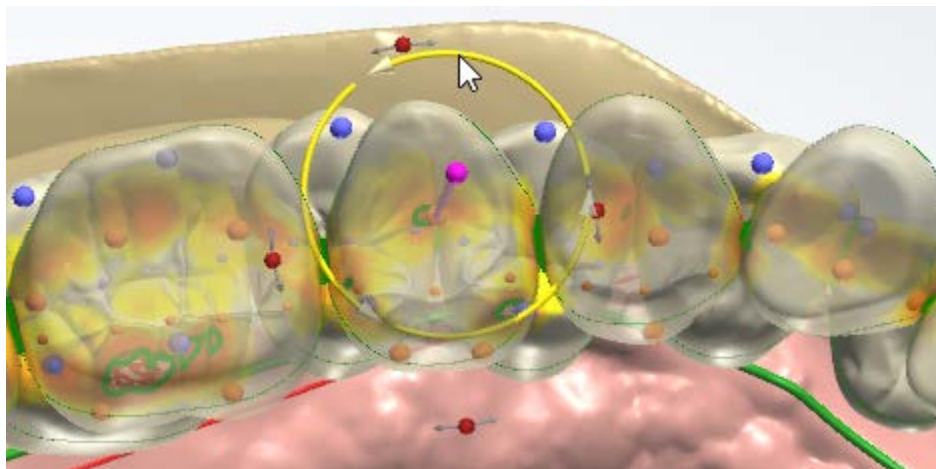
1. Click one of the teeth once to activate the individual tooth setup mode. In this mode, the position and orientation of the tooth can be controlled separately from its neighbors. The collision algorithm performs post-adaptation after every user operation.
2. Click the tooth (or anywhere on a blank space) once more to get back to the normal mode.



Individual setup

Click the tooth to activate interactive joysticks. In this mode, you can move, scale and rotate the tooth without effecting the other teeth. For details on how to scale a tooth, see the chapter [Smile Composer](#). Tooth scaling can be enabled/disabled in *Dental System Control Panel* -> *Full Dentures* -> [Design Settings](#).

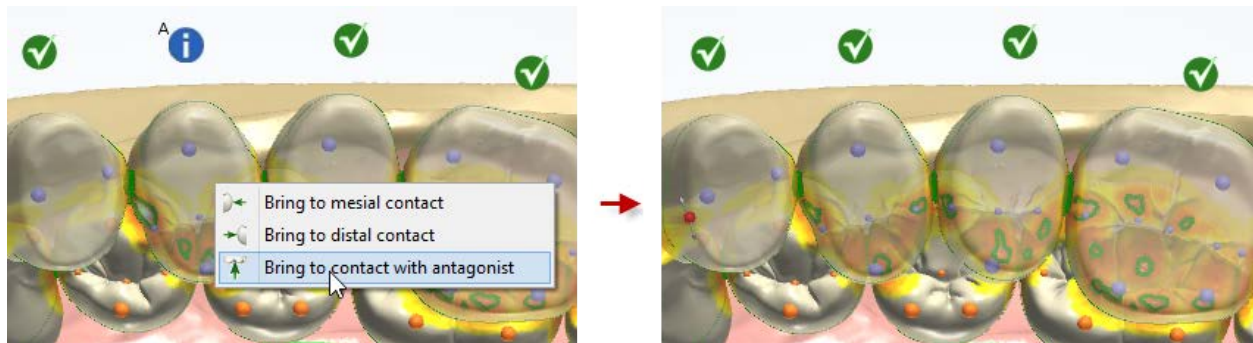
Dragging the red joysticks rotates the tooth around its center. Furthermore, you can rotate the posterior tooth around its central fossa matching cusp with the help of the magenta inclination joystick or the rim around it.



Rotating the tooth around its cusp by dragging the rim

There are a few editing options available from the teeth right-click menu while in the ***Individual setup*** mode:

- The **Bring to** options (Bring to mesial contact, Bring to distal contact and Bring to contact with antagonist) help you position the tooth in space relatively to neighbors as shown in the image below:

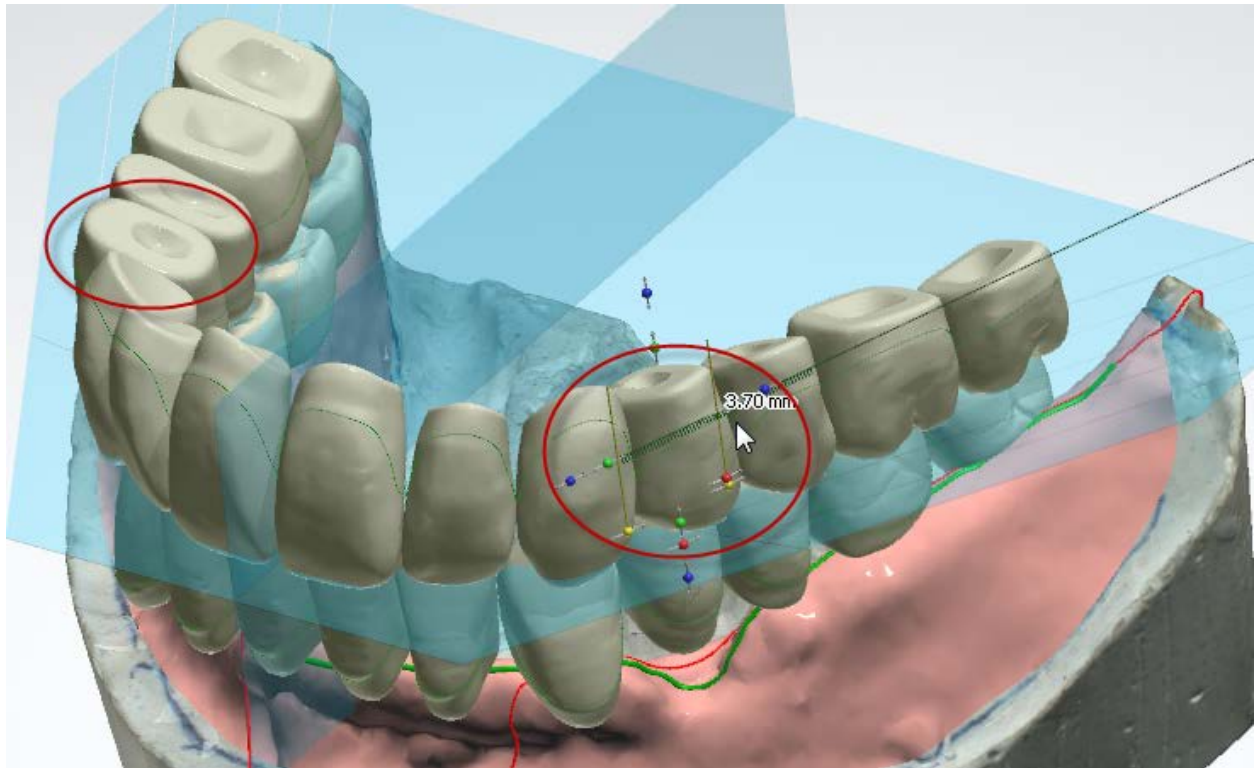


- Teeth extraction on the fly can be performed for the second premolar and second molar teeth at one or both sides as shown in the following image:



[Symmetric design](#) option in **Individual setup** is used to apply the same transformation changes to the manipulated tooth and to the symmetrical one simultaneously.

The **Symmetric design** option is activated either by marking the Symmetric design checkbox or holding down the **Shift** key while performing individual transformation using the appeared handlers or the cursor. The **Symmetric design** option also works for proportional scaling while holding down the **Ctrl** key.



1.22.5. Workflow Involving Try-Ins

The included sub-chapters describe a workflow for redesigning a Full Dentures order by taking information from modified Try-Ins:

- [Order Creation](#)
- [Scanning](#)
- [Redesign](#)

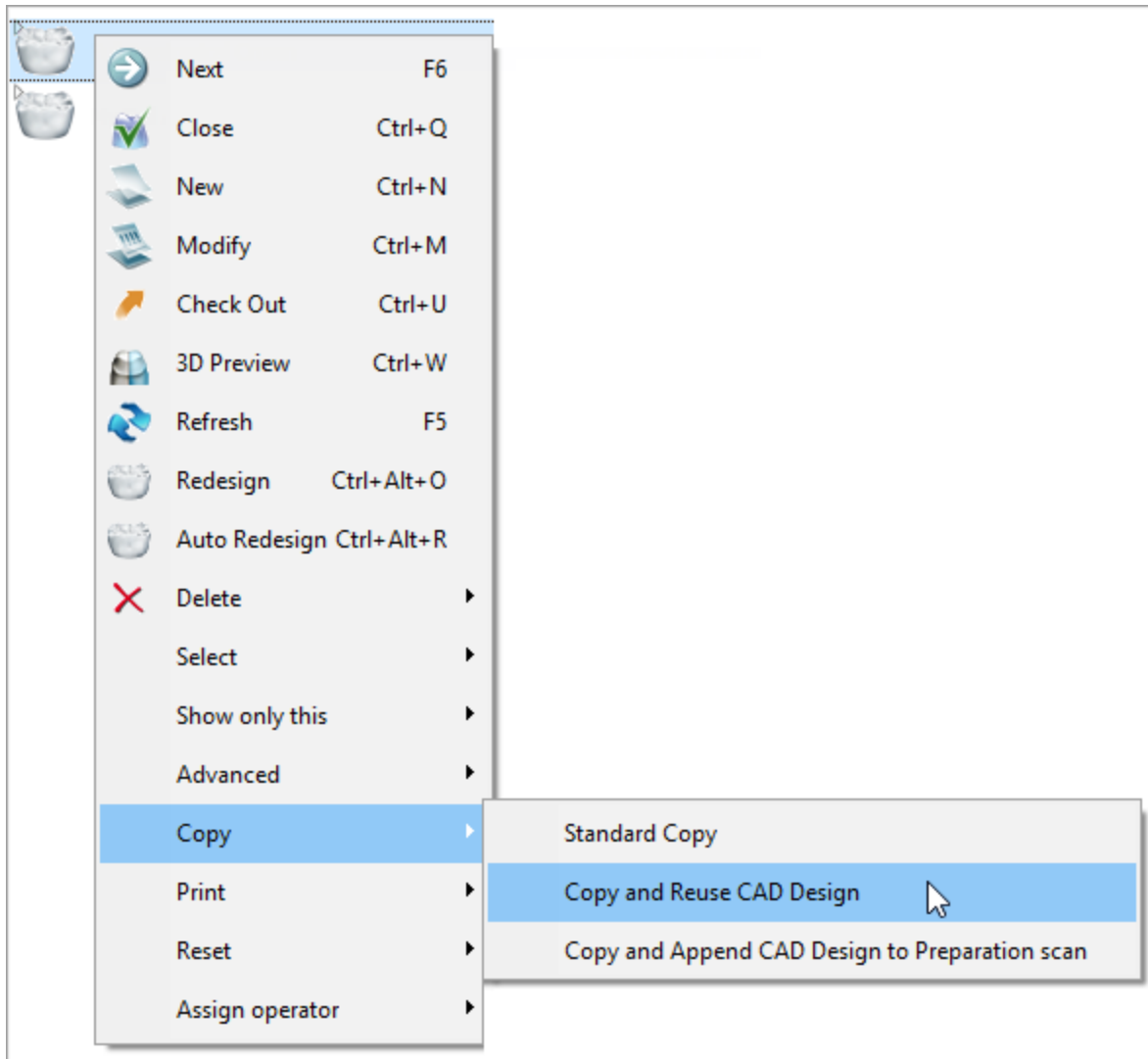
1.22.5.1. Full Dentures Order Creation (Involving Try-Ins)

You can reuse the CAD design of the previously created try-in full dentures when designing the final prosthesis. To do that, you need to scan the modified try-ins to capture adjustments and update the initial dentures design to achieve the optimal fit.




To begin with, follow the steps below to copy and modify the Full Dentures Try-In order:

►Step 1: Create a copy of the Full Dentures order

In Dental Manager, right-click on the designed Full Dentures order and choose **Copy->Copy and Reuse CAD Design** from the appeared menu:



A copy of the order is created with the **Denture Pre-design**  scan enabled in the Order form:

Scan settings	
Object type	Model
Antagonist	None
Neighborhood scan	Sectioned
  	

►Step 2: Modify the created order

In the Order form, update the denture assembling type from Monoblock (injection molding) to the type required for manufacturing of the final dentures (see [Full Denture Assembling Types](#) for details):

Bridge	Material:	Zirkon	
	Color:	Any color	
	Type:	Monoblock	+
Gingiva	Manufacturer:	Monoblock Base with artificial teeth (milled reduction) Base with artificial teeth (manual reduction) Base with designed teeth	
	Manufacturing process:		

After copying and modifying the order, click **Scan** in the Order Form to proceed to [scanning](#).

1.22.5.2. Full Denture Try-Ins Scanning



Follow the on-screen instructions and one of the scanning workflows described below to complete scanning of trial full dentures (try-ins):

- [Scan occlusion](#) (when the surface of the try-ins has not been modified)
- [Scan occlusion and both sides of modified try-ins](#)

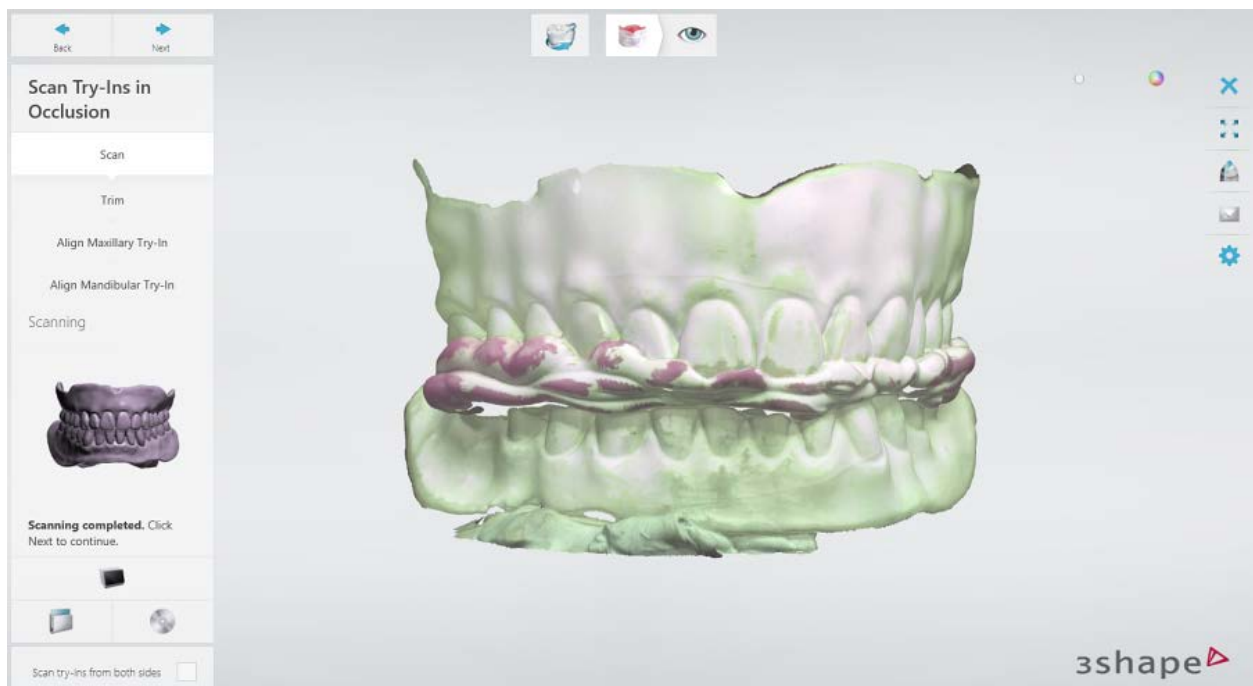


Modified try-ins in the modified occlusion

SCAN OCCLUSION

► Step 1: Scan try-ins in occlusion

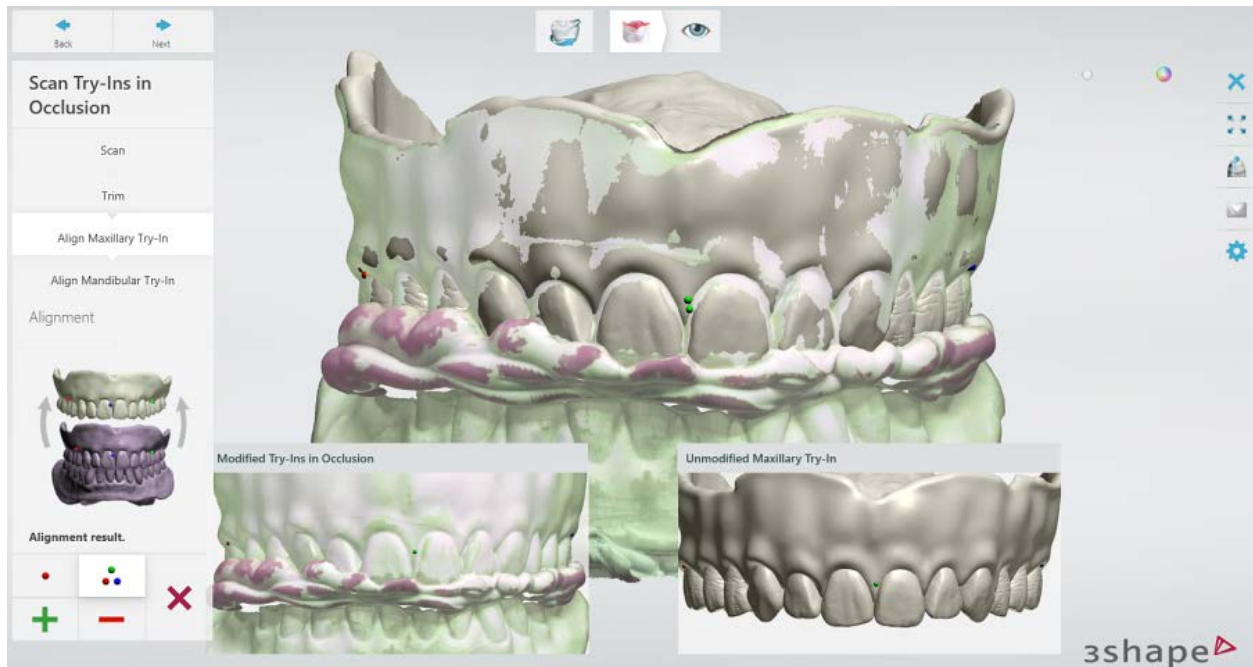
Insert the try-ins positioned in occlusion into the scanner and run scanning.



[Trim](#) the scan if necessary.

► Step 2: Align the scanned try-ins with the designed model of the maxillary try-in

It is recommended to use the three-point alignment method. For more information, see the chapter [Align Scans](#).



Completing this step lets you reuse the maxillary try-in design later in Dental Designer.

► **Step 3: Align the designed model of the mandibular try-in with the scanned try-ins**

Repeat the alignment procedure for the mandibular try-in.

► **Step 4: Inspect the result and finish scanning**

Once scans are saved, you can proceed to [design](#) by clicking the **Design** button or close the scanning application.



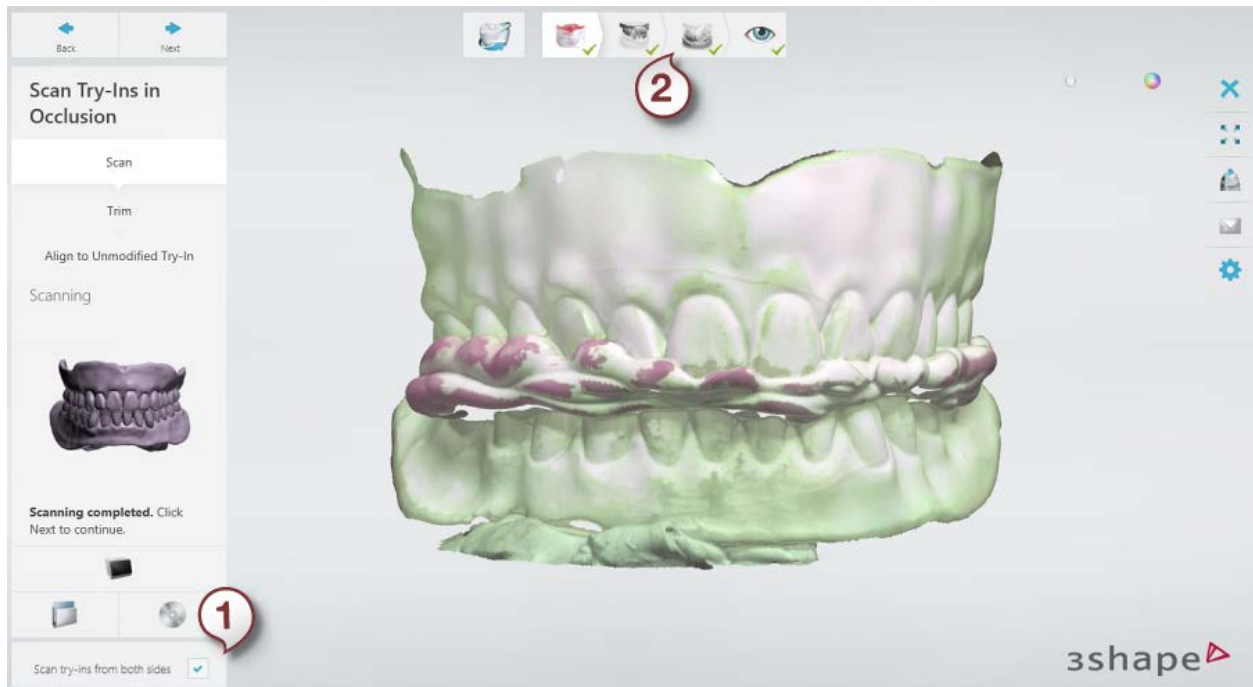
Scans of upper and lower jaws aligned with try-ins in modified occlusion (position of the lower jaw has been adjusted)

SCAN OCCLUSION AND BOTH SIDES OF MODIFIED TRY-INS

► Step 1: Scan try-ins in occlusion

Scan the try-ins positioned in occlusion.

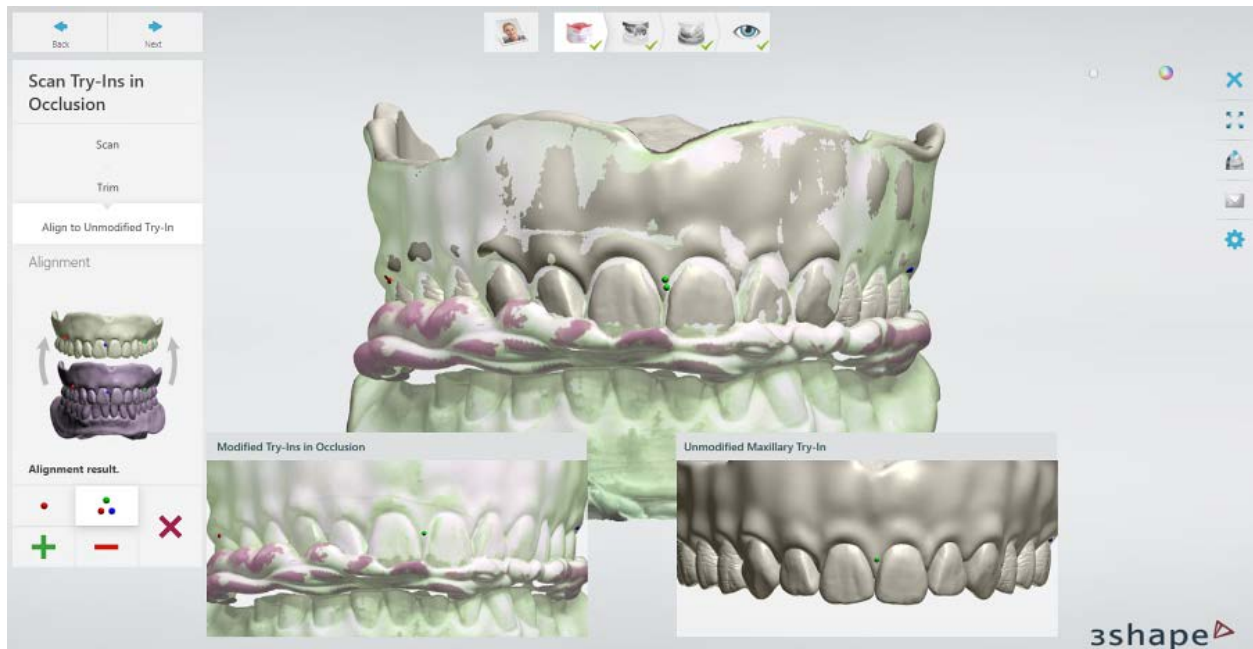
Select the **Scan try-ins from both sides** checkbox **(1)**. This will add the additional scanning steps **Scan Maxillary Try-in** and **Scan Mandibular Try-in** to the workflow bar **(2)** allowing you to scan the top and bottom sides of the try-ins.



[Trim](#) the scan if necessary.

► **Step 2: Align the scanned try-ins with the designed model of the maxillary try-in**

It is recommended to use the three-point alignment method. For more information, see the chapter [Align Scans](#).



Completing this step lets you reuse the maxillary try-in design later in Dental Designer.

►Step 3: Scan the top side of the maxillary try-in

Insert the upper try-in with the teeth facing upwards into the scanner and perform scanning.

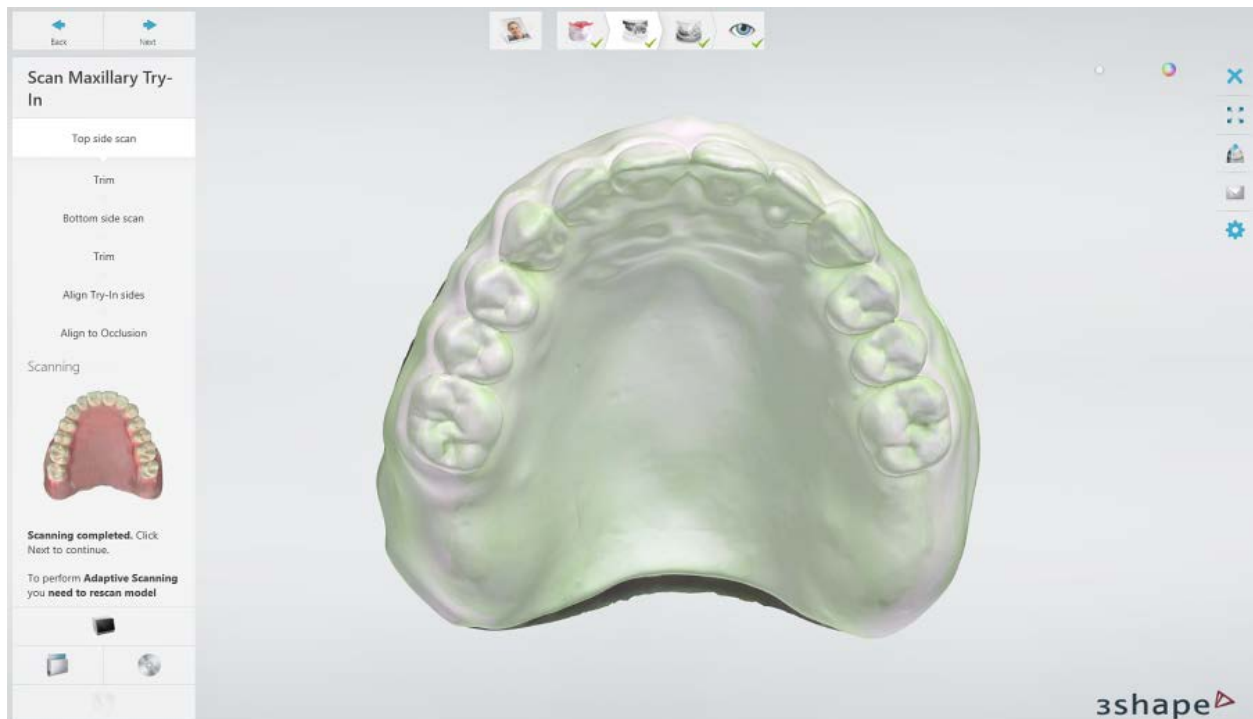


Hint! It is recommended to place Blu Tack only under the front part of the model as shown in the images below. This will simplify the trimming of Blu Tack from the scan in the [Cutting plane](#) mode.



Fixing the model on an interface plate

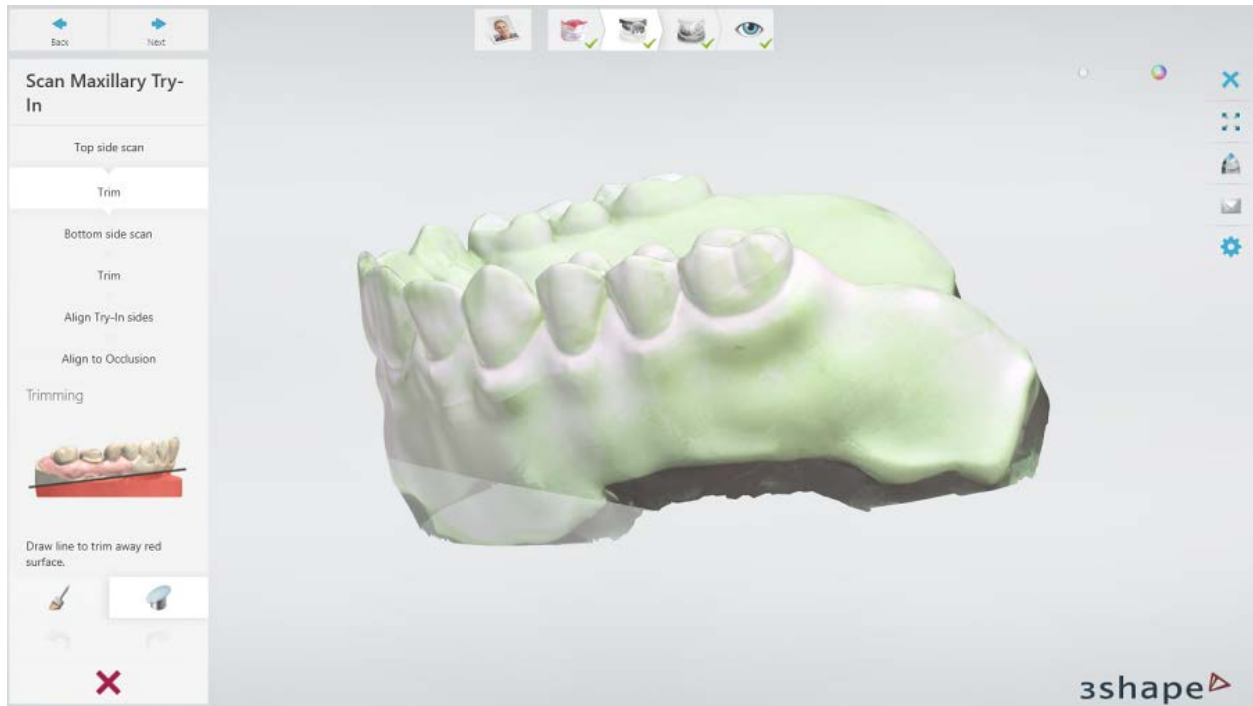
The scanning of the top side of the maxillary try-in is completed:



[Trim](#) out the Blu Tack from the scan.

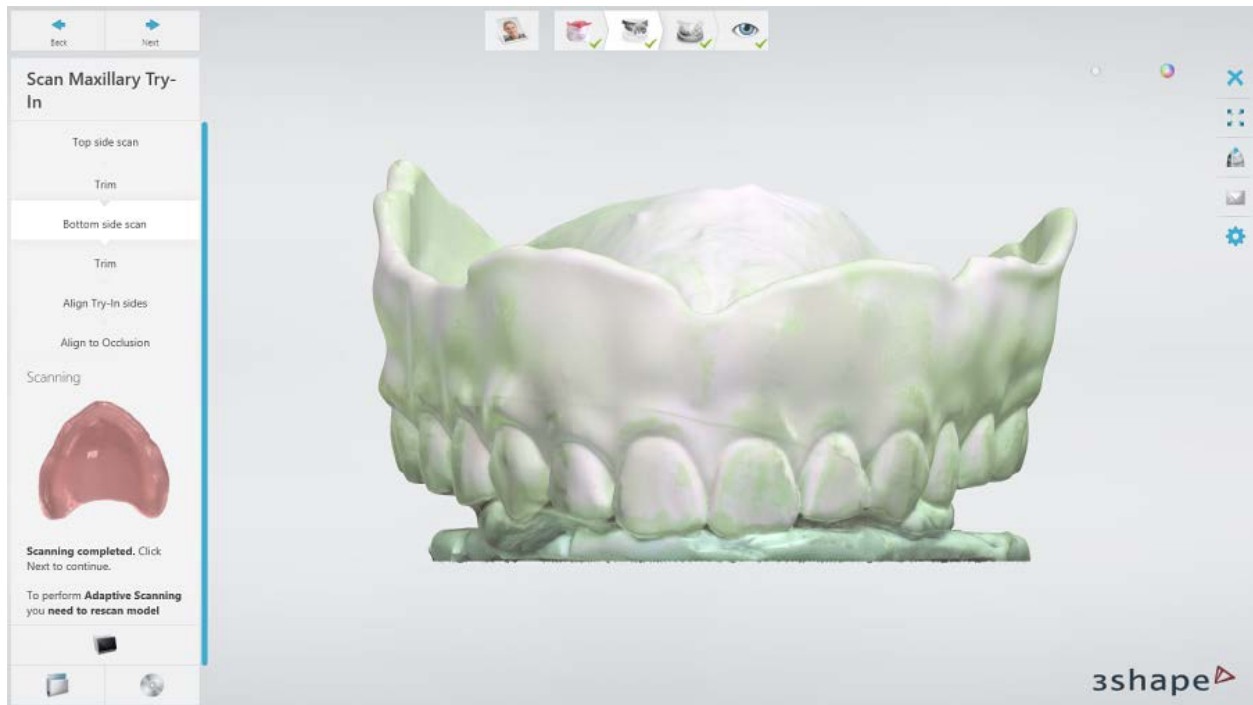


Note! It is important to trim out all the Blu Tack from the try-in top side scan. You can cut off a part of the scanned try-in that are adjacent to the Blu Tack provided that the trimmed areas are included in the try-in bottom side scan.



► **Step 4: Scan the bottom side of the maxillary try-in**

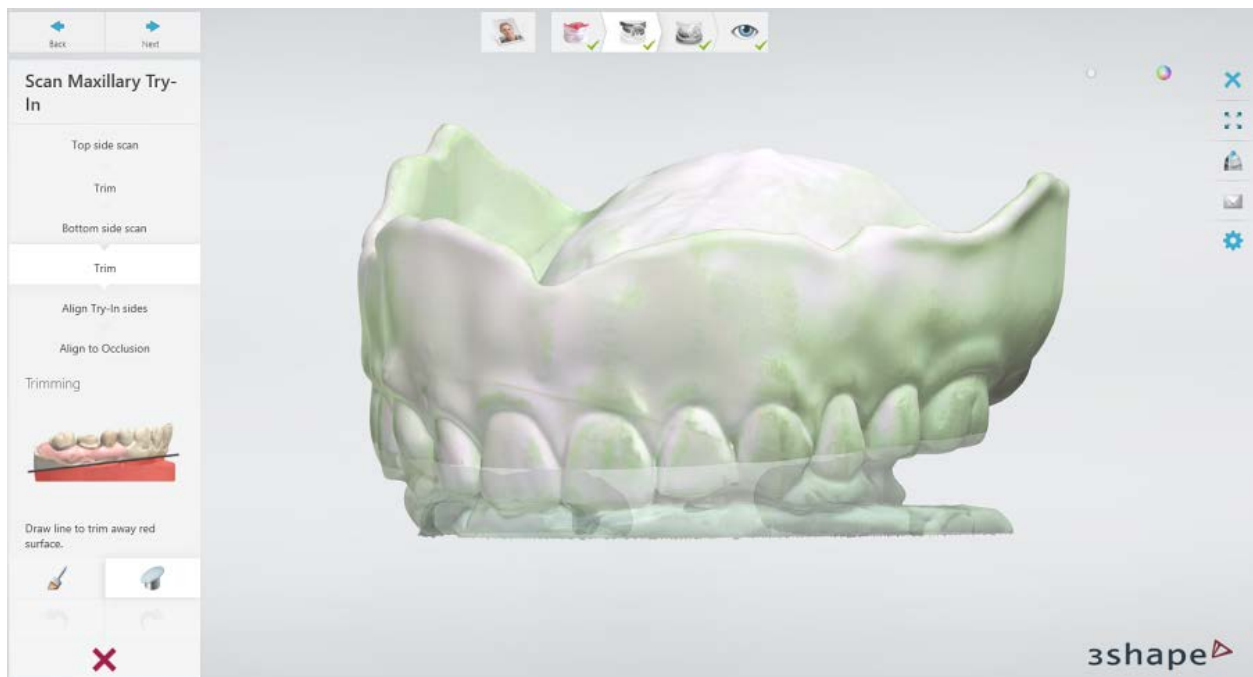
Insert the upper try-in with teeth facing downwards into the scanner and run scanning.




[Trim](#) out the Blu Tack from the scan.



Note! It is important to trim out all the Blu Tack from the try-in bottom side scan. You can cut off a part of the scanned try-in that are adjacent to the Blu Tack provided that the trimmed areas are included in the try-in top side scan.



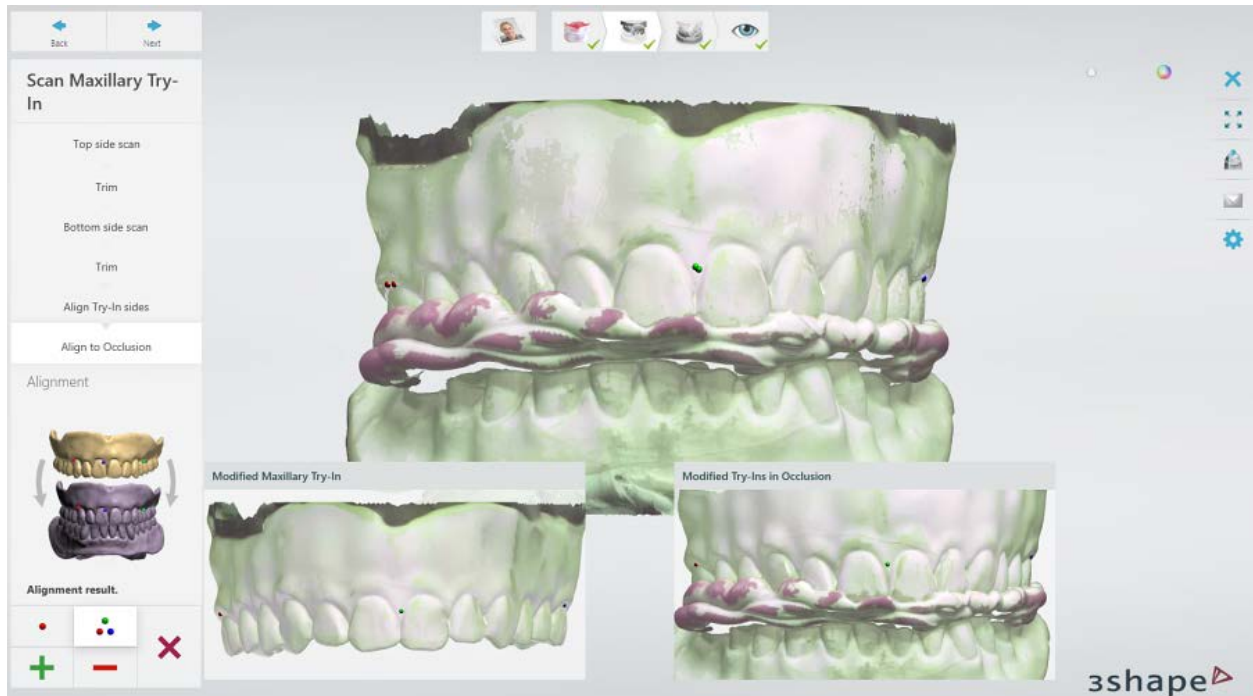
► **Step 5: Align the scans of maxillary try-in top and bottom sides**

Alignment is done automatically. You can re-align the scans manually if required by clicking the **Align manually**  button and using the three-point alignment method:



► **Step 6: Align the scanned maxillary try-in with the try-ins in occlusion**

It is recommended to use the three-point alignment method.



►Step 7: Scan the mandibular try-in

Repeat the scanning and alignment procedures for the mandibular try-in in the same way as you did for the maxillary try-in.

►Step 8: Align the designed model of the mandibular try-in with the mandibular try-in scan



Completing this step lets you reuse the mandibular try-in design later in Dental Designer.

►Step 9: Inspect the result and finish scanning



Once scans are saved, you can proceed to [design](#) by clicking the **Design** button or close the scanning application.



Scans of upper and lower jaws aligned with modified try-ins in modified occlusion (position of the lower jaw has been adjusted)

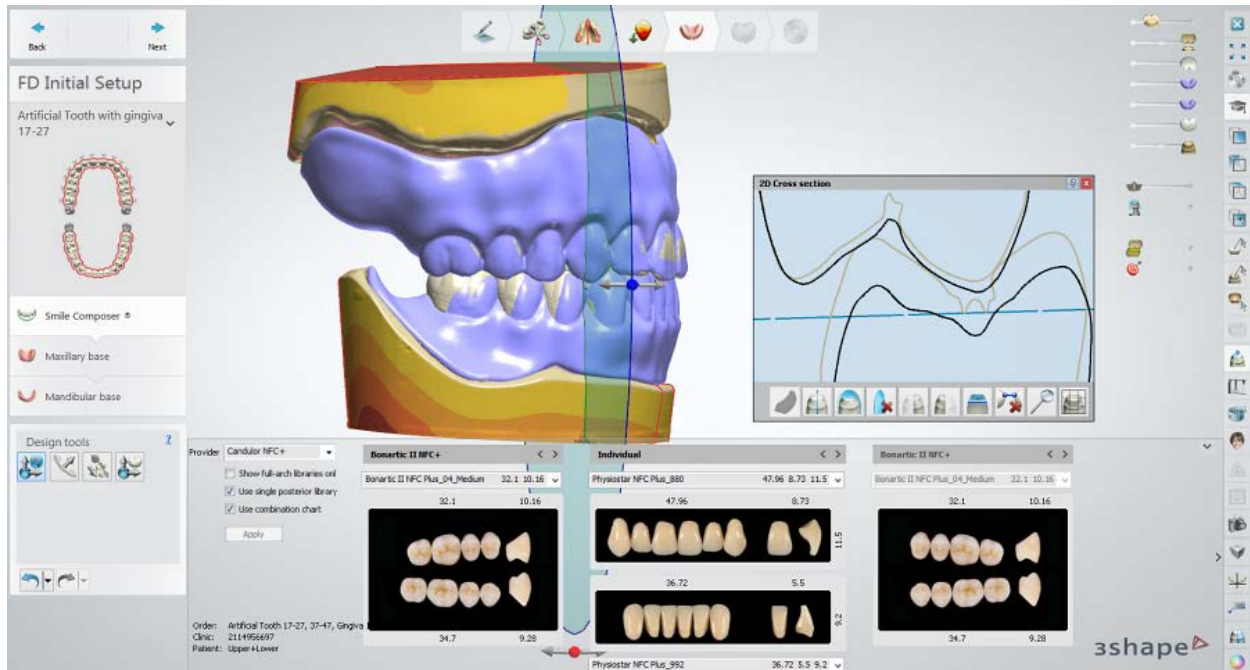
1.22.5.3. Full Dentures Redesign

Once the modified try-in full dentures have been [scanned](#), go through the [Full Dentures Design](#) workflow modifying the initial full dentures design where necessary.

Use scanned try-ins as a visual reference for adjustments. The visibility of the scanned try-ins can be toggled with the **Upper denture pre-design**  and **Lower denture pre-design**  sliders.



Note! Position of the lower jaw has been adjusted during scanning, while the dentures design, including occlusion, has remained unchanged. Adjust the occlusion if needed using the [Full Denture Smile Composer®](#) tools.

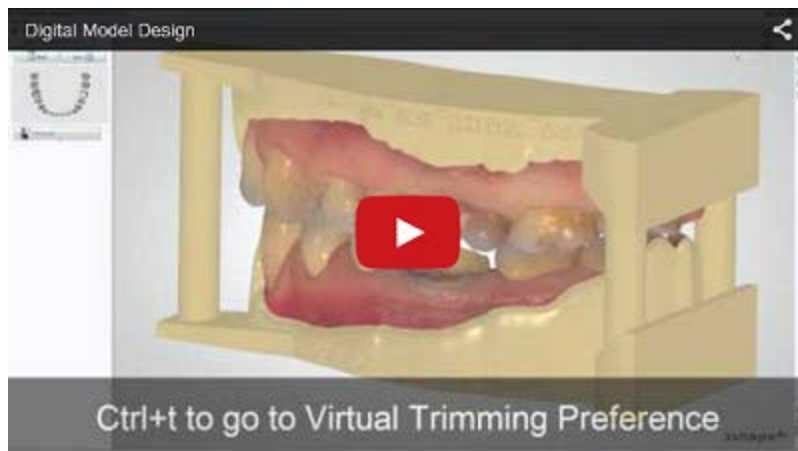


Full Denture Smile Composer with the upper and lower dentures pre-design visible

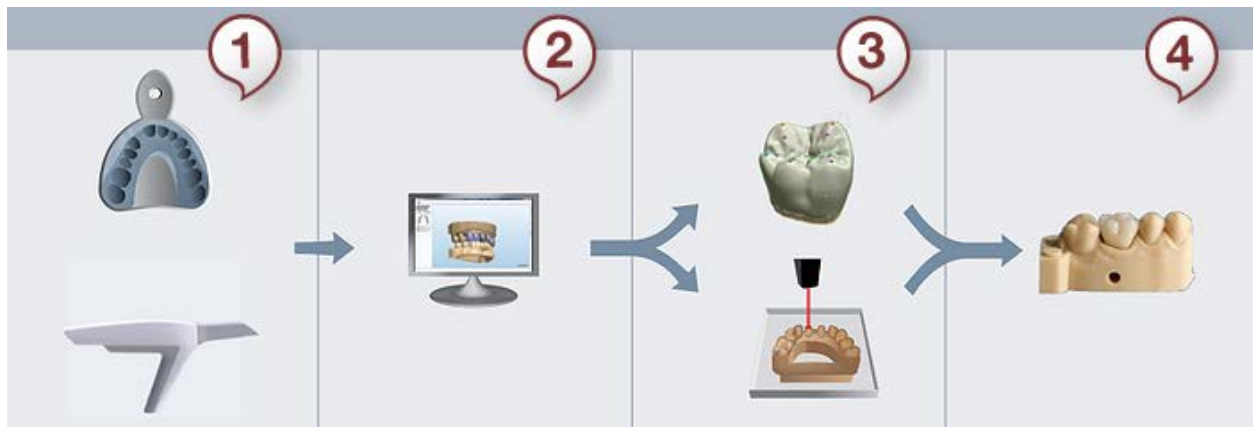
1.23. Digital Model

3Shape Model Builder™ allows you to design lab models for an extensive range of indications including implant models, from intraoral scans, physical impression scans and gypsum scans. You can easily produce all lab models locally, either in-house or through your manufacturing center, bypassing slow and expensive manufacturing services bound to the scanner device.

3Shape Model Builder™ supports 3Shape TRIOS and many other validated digital impression-taking solutions, 3D-printers and milling machines while storing machine-specific parameters in editable, reusable profiles.



The following image shows 3Shape Model Builder™ workflow:



Step 1: Intraoral or Impression Scanning

Step 2: Virtual Model Design

Step 3: Design and Model Manufacturing

Step 4: Finalizing Restoration

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe [Order Creation](#) and workflows for [Crown, Bridge](#) and [Implant](#) digital models.

1.23.1. Digital Model Order Creation

To create a Digital Model order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).




► **Step 1: Select Digital impression from the Object type**

► **Step 2: Select Antagonist if present**

► **Step 3: Select required teeth in the overview map**

► **Step 4: Choose the restoration type e.g., Coping**

► **Step 5: Click the *Model* button, the Sectioned (die ditched)  model creation is set by default**

You can also choose to create **Sectioned (cut)** , **Unsectioned**  and **Dies**  models.

Order settings

Order number: 44000_20161003_1657_Tech_0
Importance: Normal
Design Module: DentalDesigner 2016

Scan settings

1

Object type: Digital impression

2

Antagonist: Antagonist


Order details



4


Anatom


Frame


Abutment


Misc


Bridge


Gingiva


Removal

5


Model


Appliance


Implant Studio



1

2

Zirkon
Zr Coping (tangent)

+



5

Model Material
Digital Model

+

Index:
Additional:

Scan

OK

Cancel

Please see the following chapters for detailed information on creating a Digital Model.

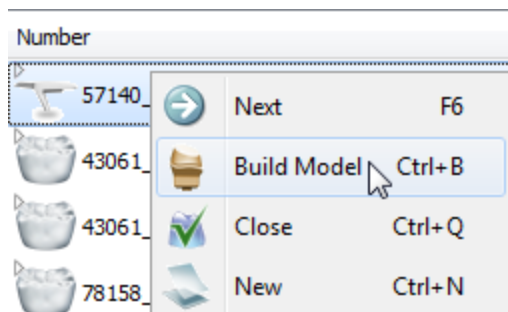
500

1.23.2. Crown and Bridge Models

The following describes how to create models in the Model Builder application. Unprepared scans should go through the preparation and sectioning procedures in Dental Designer first, see the [Prepare Scan](#) section for details.



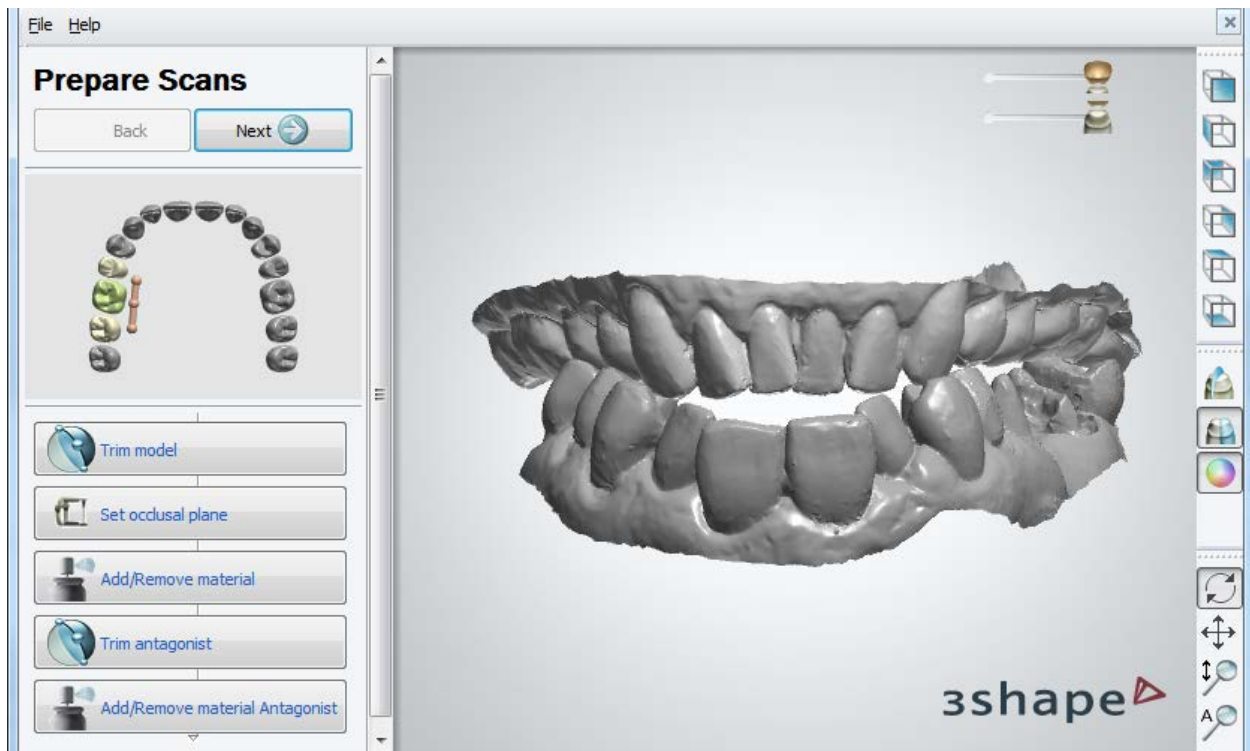
►Step 1: Open prepared order



Select **Build Model** from the right-click menu in the Dental Manager list.

►Step 2 (optional): Prepare scan

Go through the **Prepare Scan** steps and if corrections are required, repeat preparation steps done in Dental Designer, otherwise skip to section dies step.



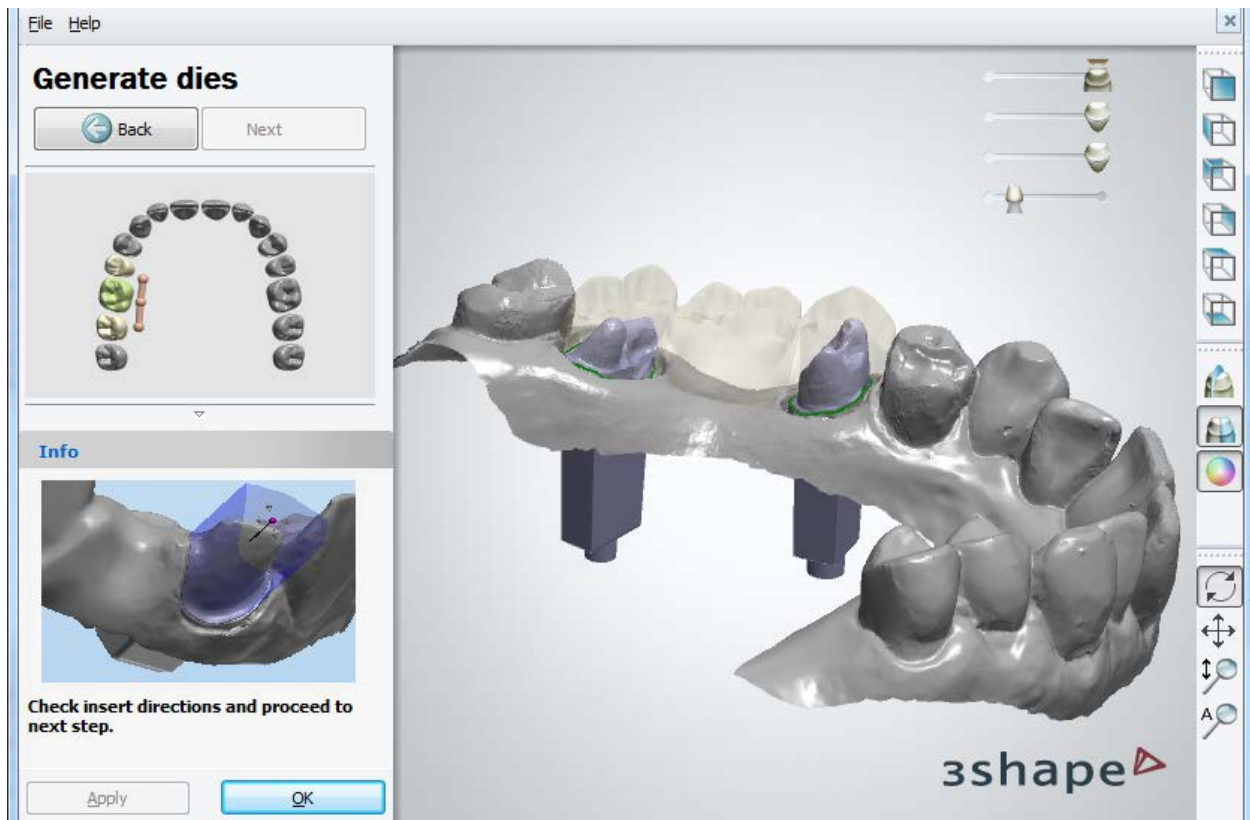
► Step 3: Section scan

At this step you can section neighbors in your scan by clicking the **Neighbor** button. Follow the on-screen instructions to section the teeth and click **OK** to go to the next step.

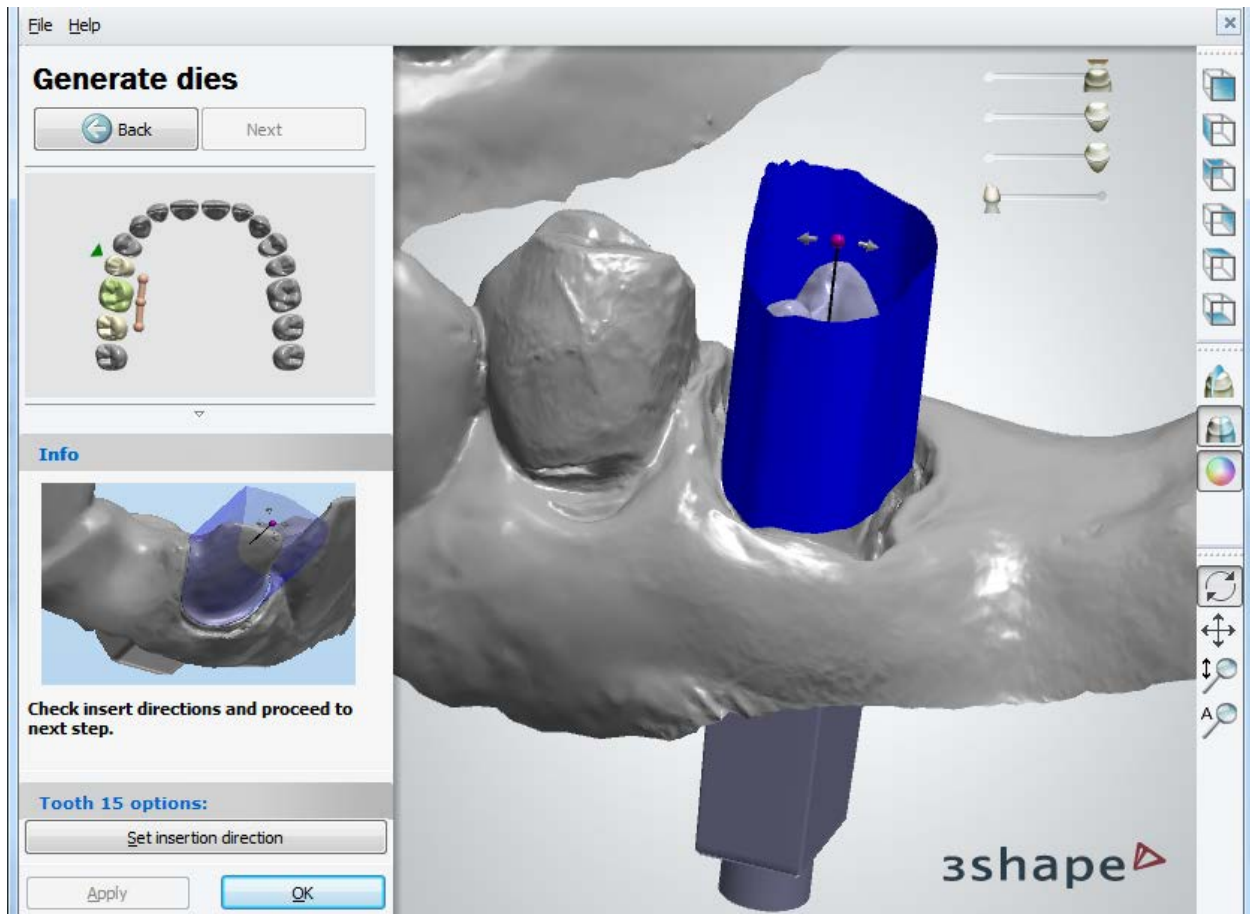


► Step 4: Generate dies

Dies become automatically generated as in the example below.
 You can go to *File->[Virtual Trimming Settings](#)* and change the model manufacturing parameters if necessary.

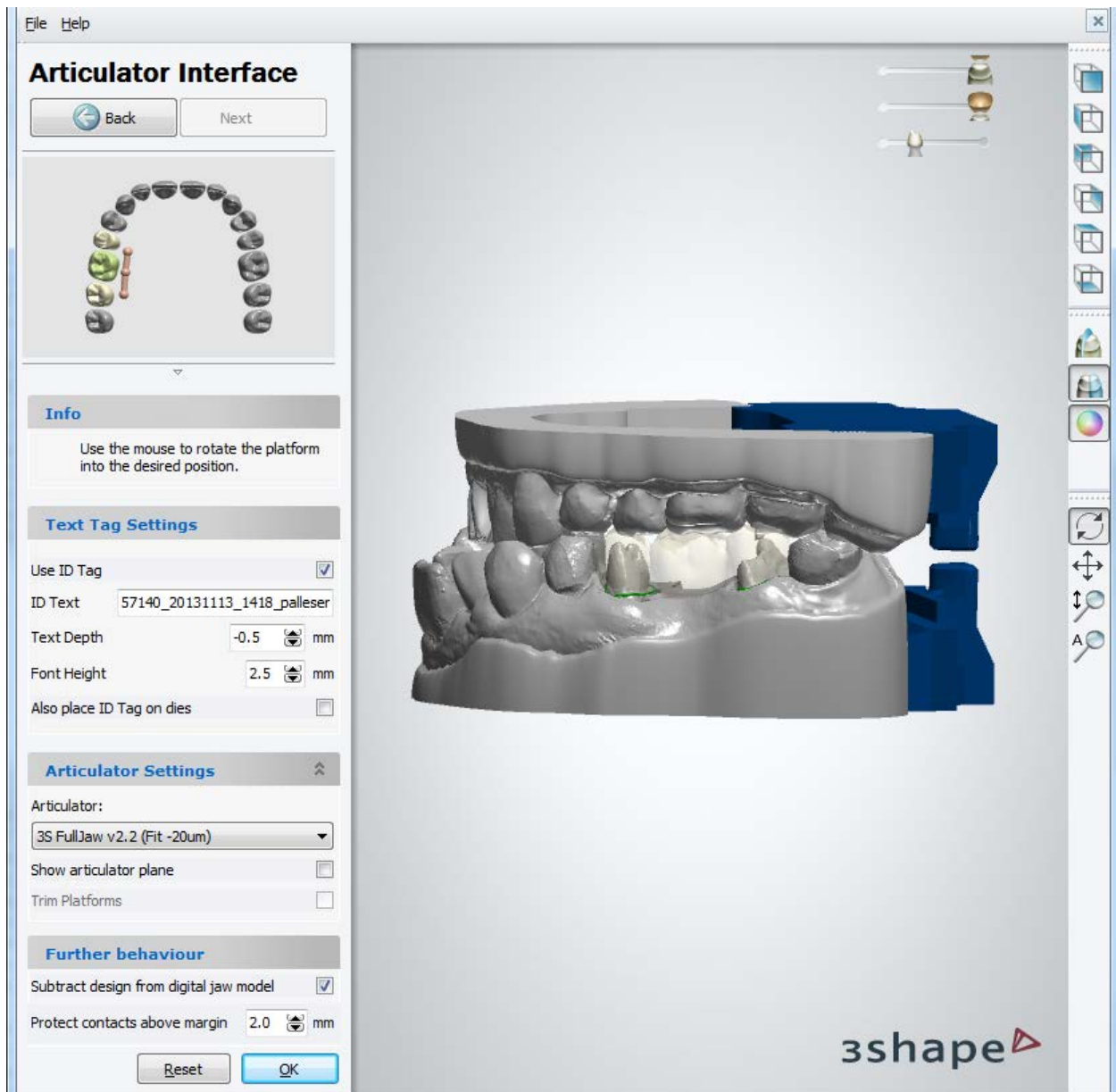


At this step you can also check and adjust the insertion directions of individual dies. Click the required die to make it active and adjust its position with the virtual axis by dragging its point to the desired position. You can also click the **Set Insertion Direction** button to set it from the current view.

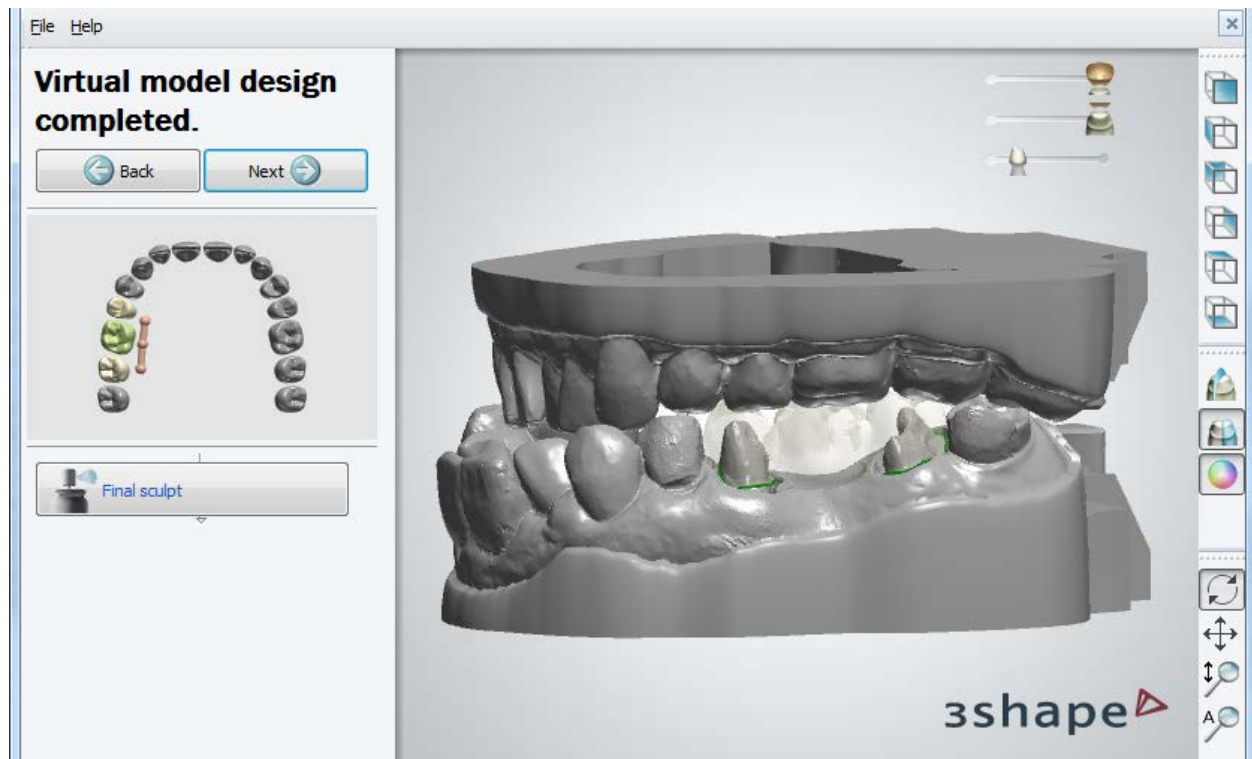


►Step 5: Setup the Articulator Interface

Rotate articulator interface to set it into the desired position. You can select articulator models within defined in the [Dental System Control Panel](#) and choose whether to use an ID tag on the model.

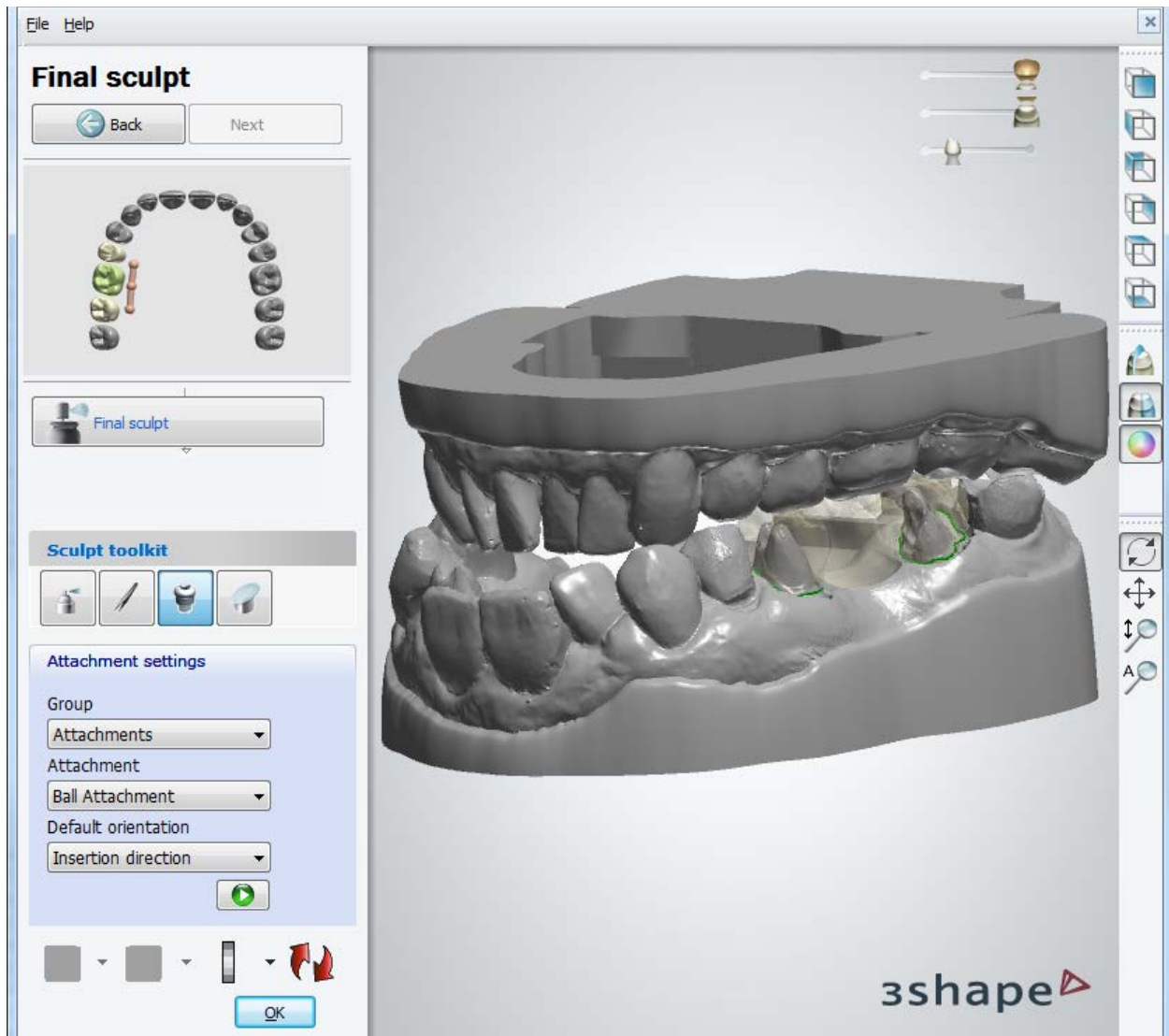


For more details on **Subtract design from digital jaw model** and **Protect contacts above margin** parameters, please see setup of articulator interface in [Analog Interface](#) chapter. Click **OK** when finished. The virtual model design is now complete:



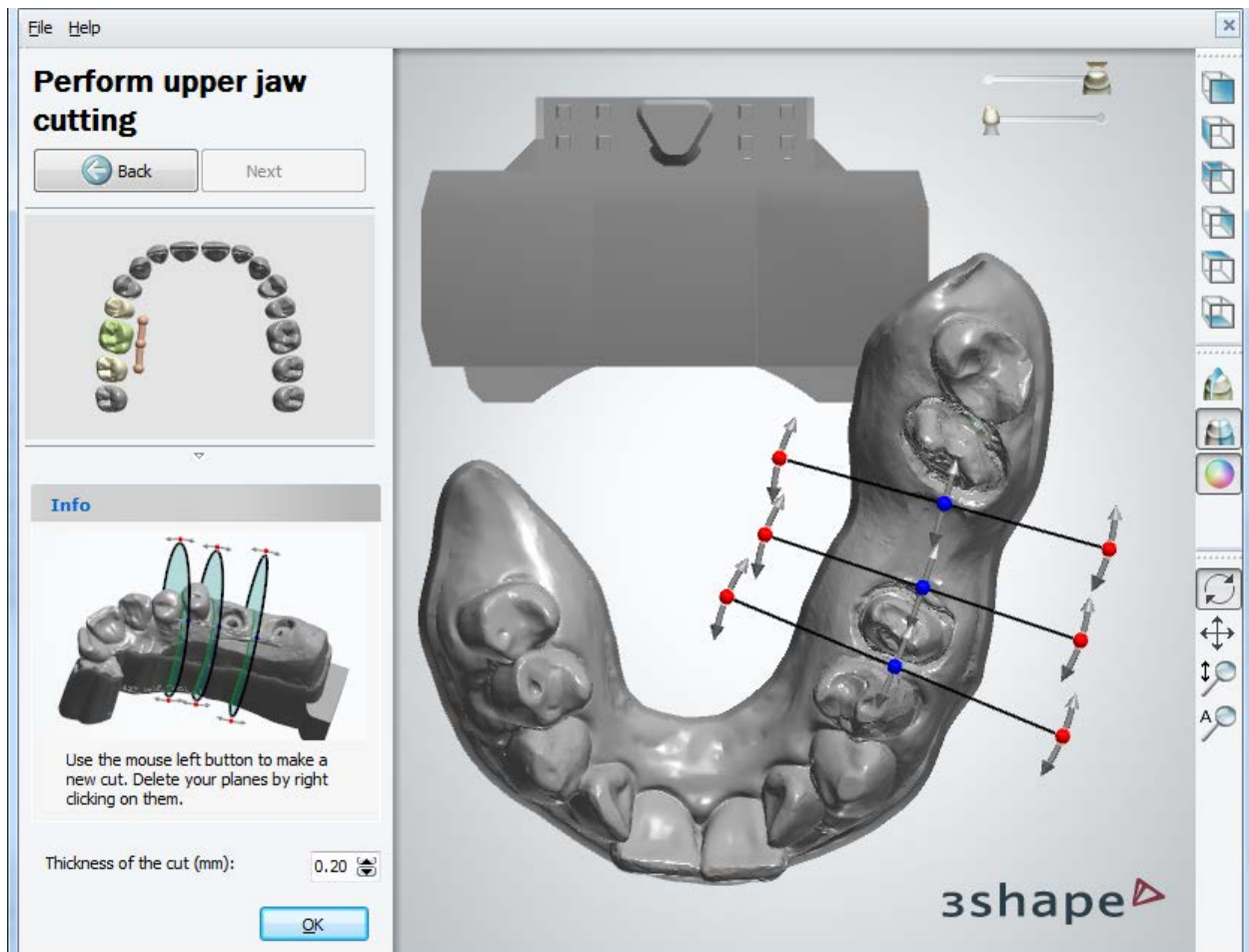
► **Step 6 (optional): Use the Final Sculpt toolkit**

Use the [Sculpt toolkit](#) to make final changes to your model. Click **OK** when finished. Click **Next** to generate models.



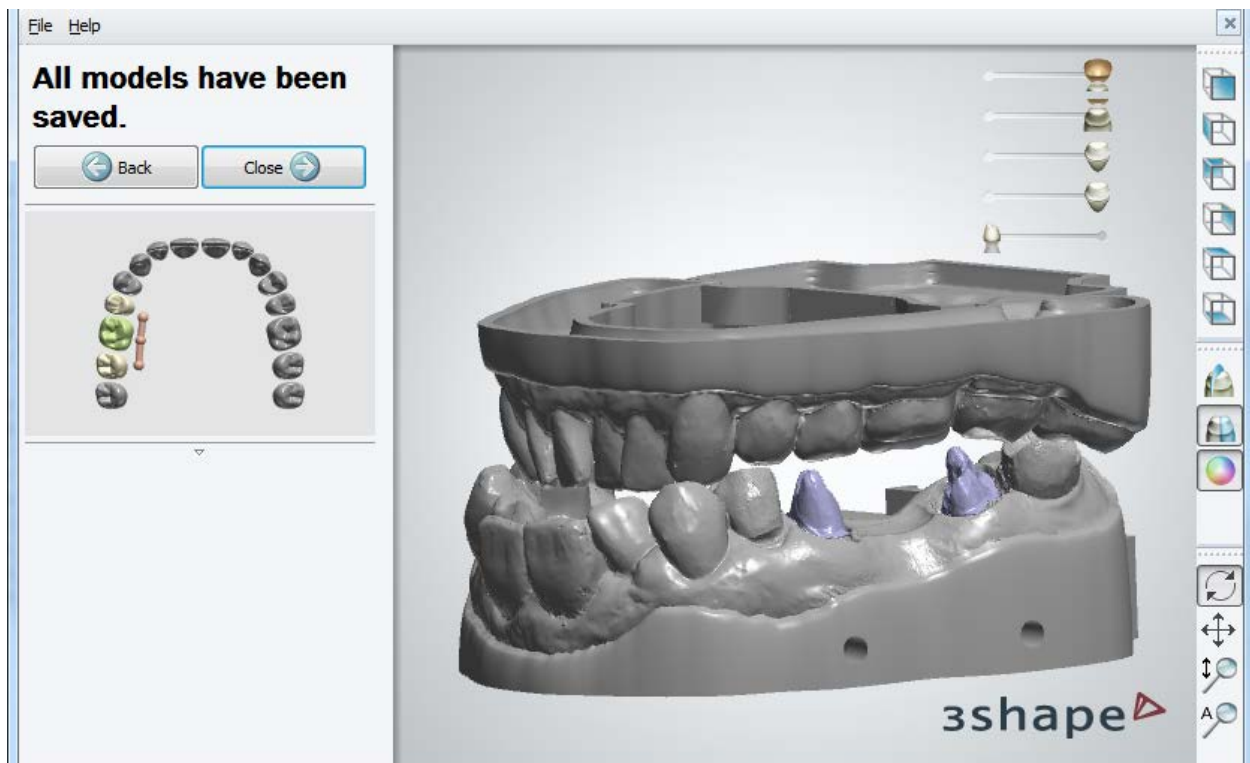
►Step 7 (optional): Jaw cutting

If sectioned model has been specified on the order form, draw lines with the cursor to position cutting planes on the model, click **OK** to cut and save all models.



►Step 8: Close Model Builder

All models are now saved and the Model Builder can be closed.



1.23.3. Implant Models

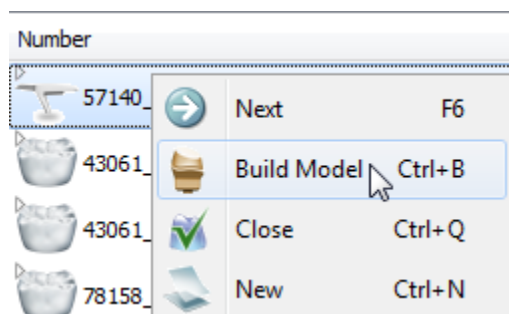
3Shape's Model Builder™ enables model design for implant cases.

With Model Builder™ you can choose between the two different ways of making a model: with analog interfaces or abutments as dies. Depending on the restoration type and your preferences, choose the way to build a model and read the step-by-step description of the two workflows in sections [Analog Interface](#) and [Abutment as a Die](#).

1.23.3.1. Analog Interface

Follow steps below to build a model using the [digital model analog interface](#):

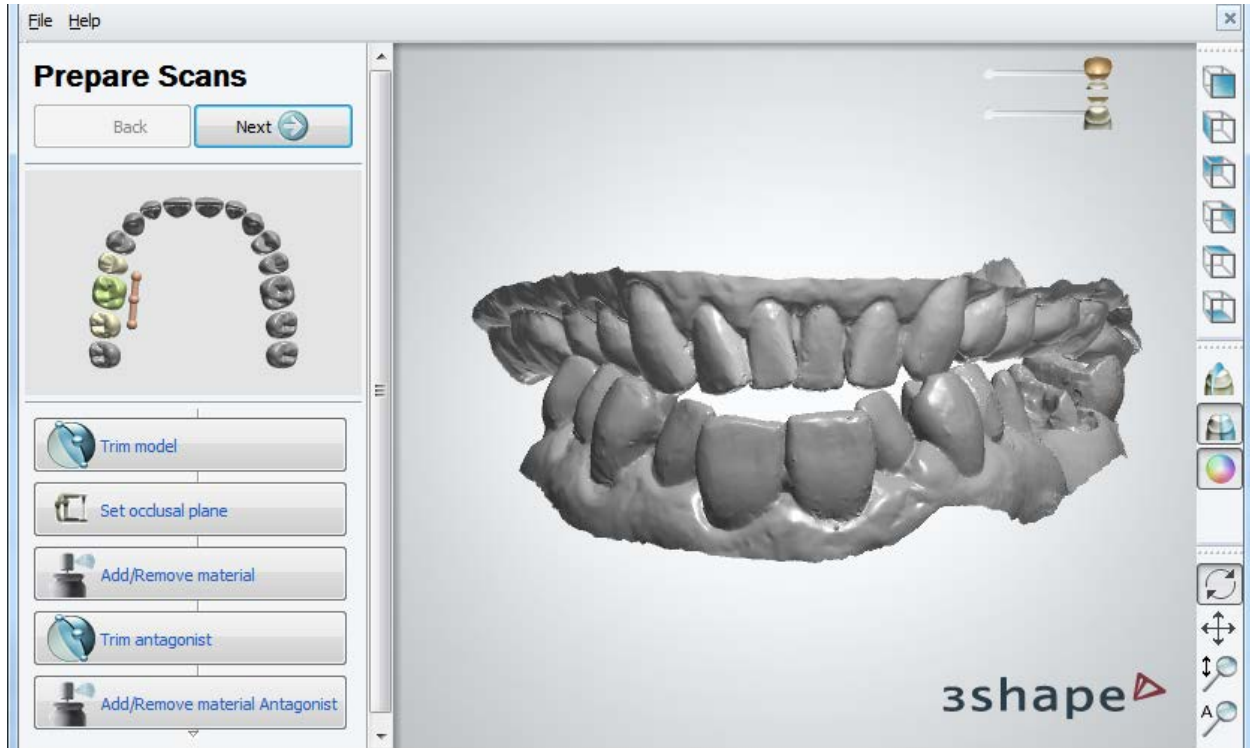
► Step 1: Open prepared order



Select **Build Model** from the right-click menu in the Dental Manager list.

►Step 2 (optional) Prepare scan

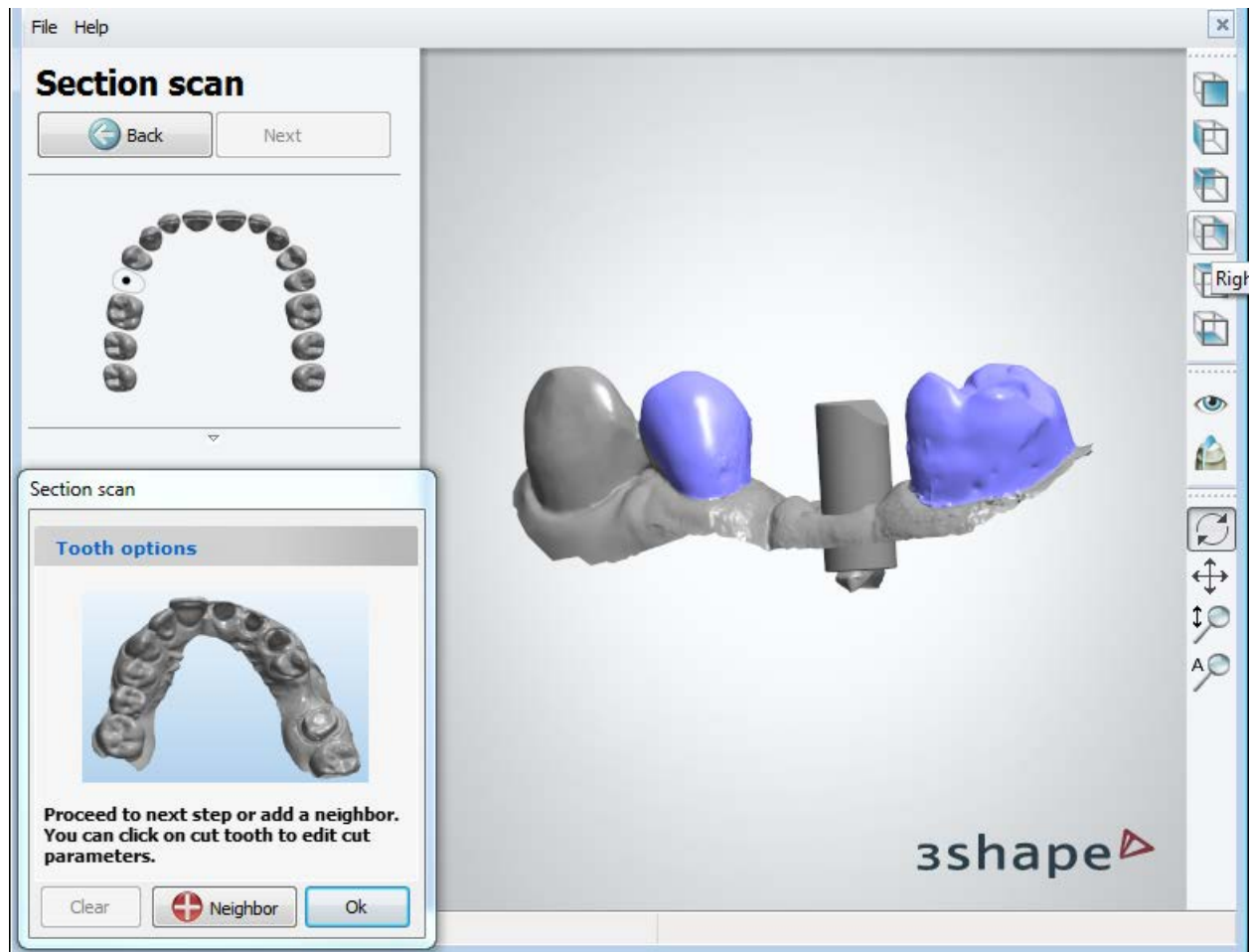
Go through the **Prepare Scan** steps and if corrections are required, repeat preparation steps done in Dental Designer, otherwise skip to section dies step.



Note! Make sure the **Print Abutment As Part Of Model** checkbox in the [Virtual Trimming Settings](#) is not marked.

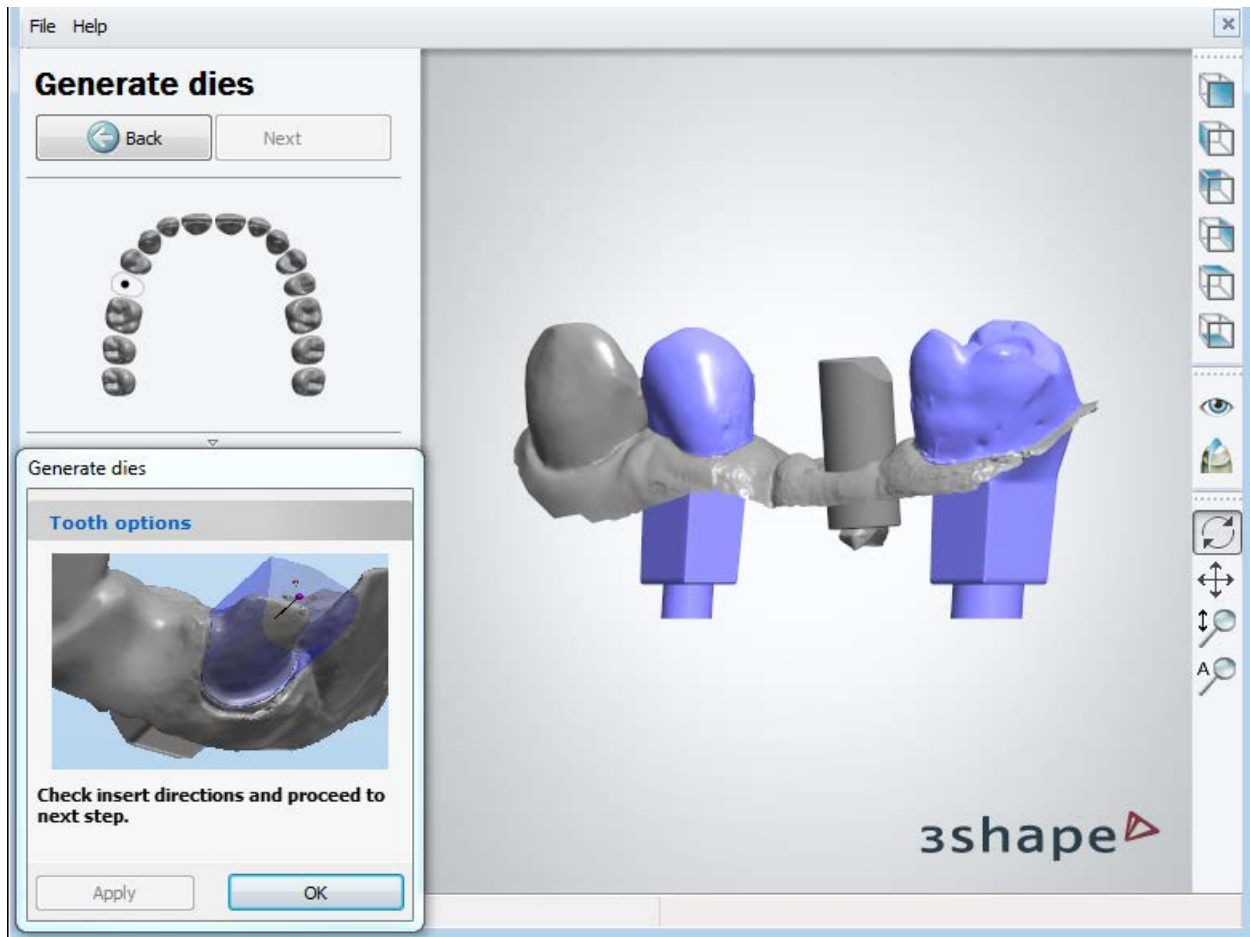
►Step 3: Section scan

At this step you can section neighbors in your scan by clicking the **Neighbor** button. Follow the on-screen instructions to section the neighboring teeth and click **OK** to go to the next step. Image below illustrates two cut neighbor teeth:



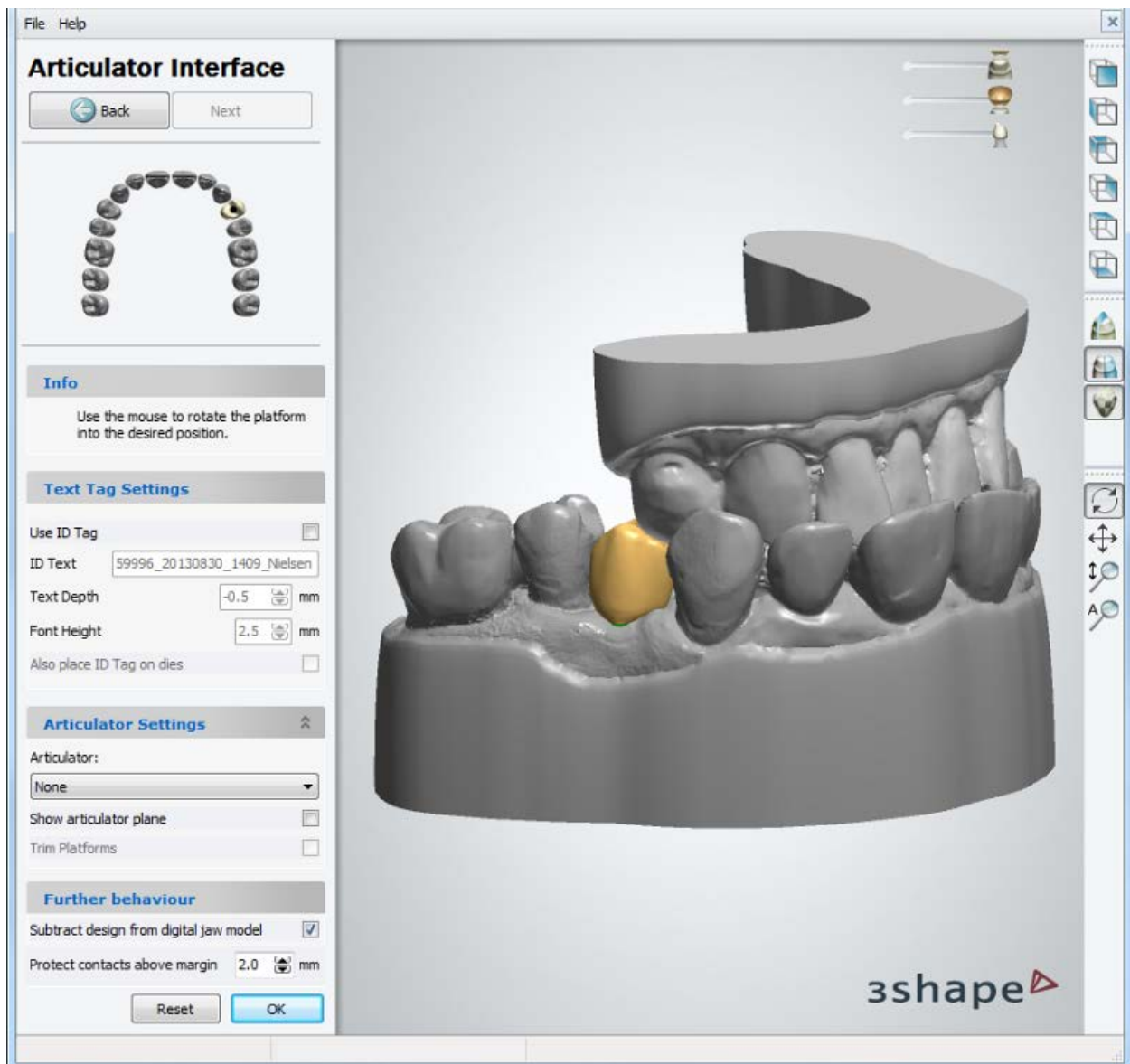
► Step 4: Generate Dies

Check the insertion direction and click **OK** to go to the next step.



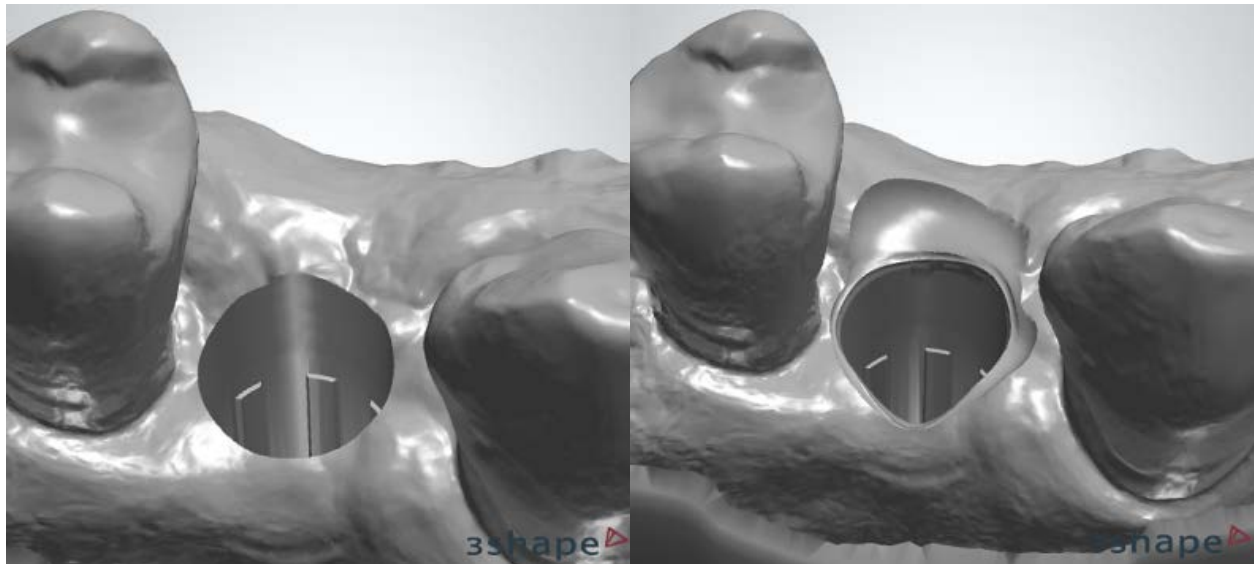
► Step 5: Setup the articulator interface

Rotate the articulator interface to set it into the desired position. You can switch between any articulator models which are defined in [Dental System Control Panel](#), as well as choose whether to use the ID tags on the model.



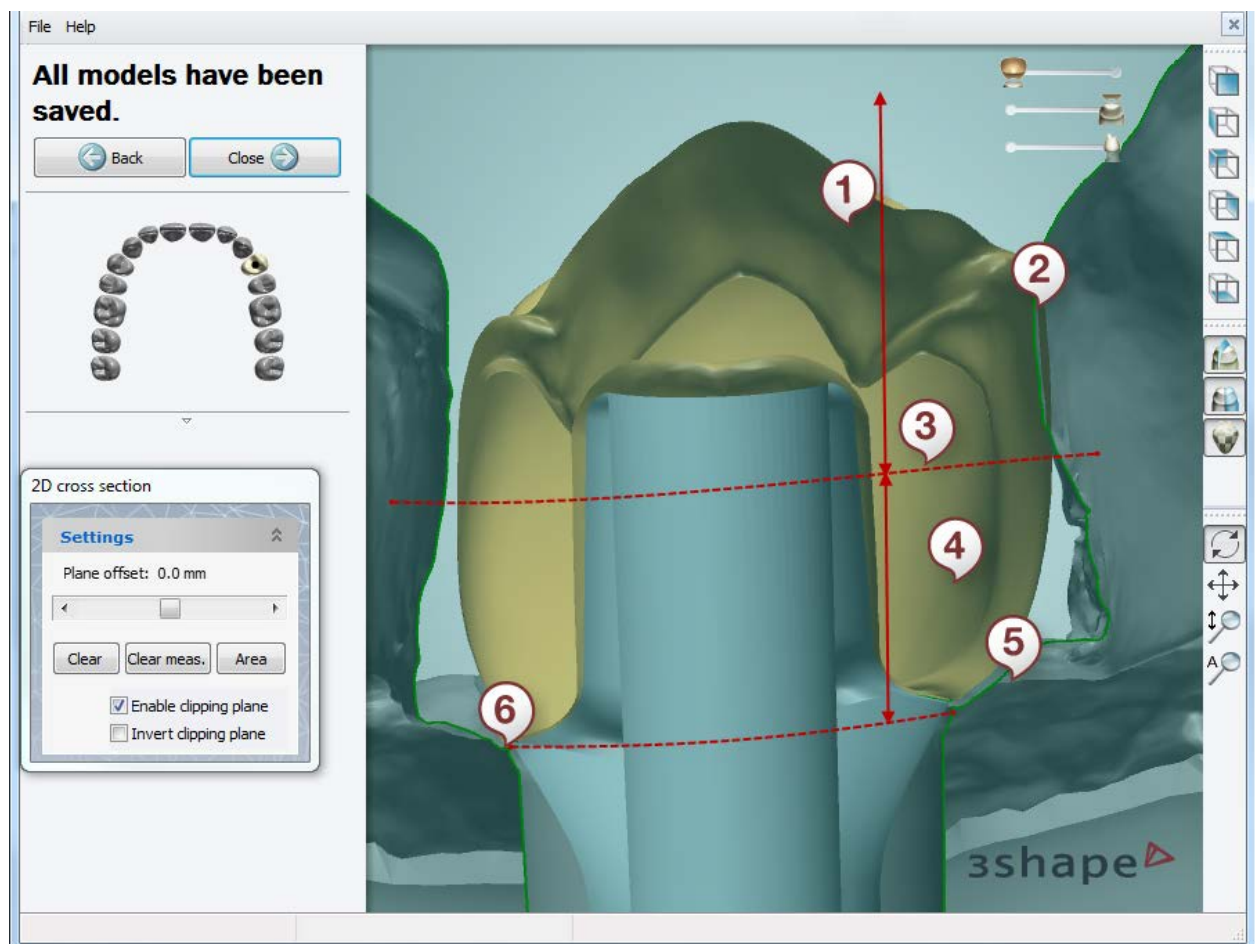
The **Subtract design from digital jaw model** checkbox (selected by default) cuts area around the design (abutment in our case) to make sure it can be extracted from the preparation (view also the [last image](#) on this page for result).

Protect contacts above margin - select this checkbox if you do not want to subtract design, i.e. protect neighboring teeth surface, higher than the indicated value (e.g. 2mm) above the margin line.



Subtract design from sectioned jaw model is OFF **Subtract design from sectioned jaw model is ON**

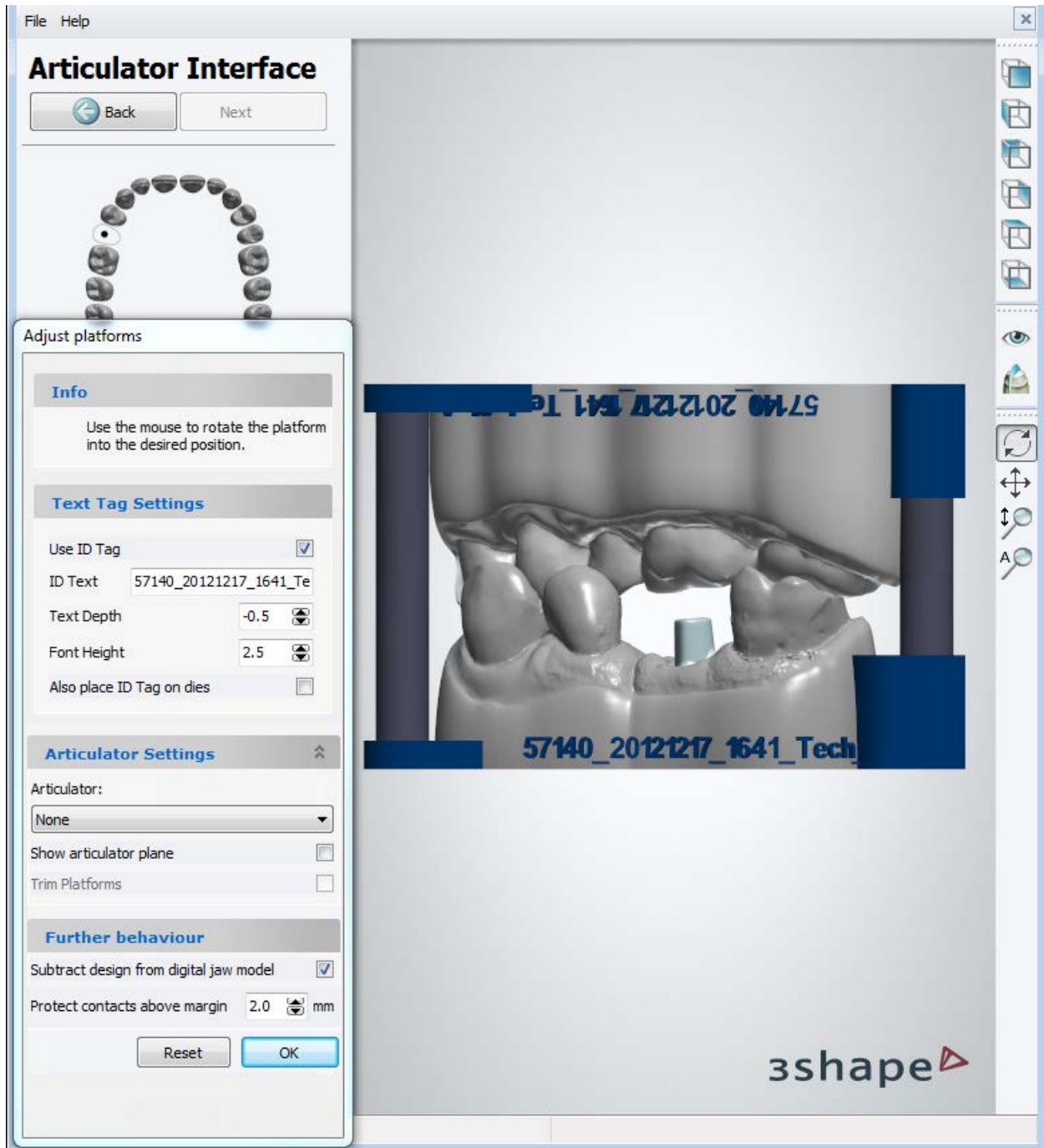
Image below illustrates the protected and unprotected areas on the model:



(1) Protected contact area

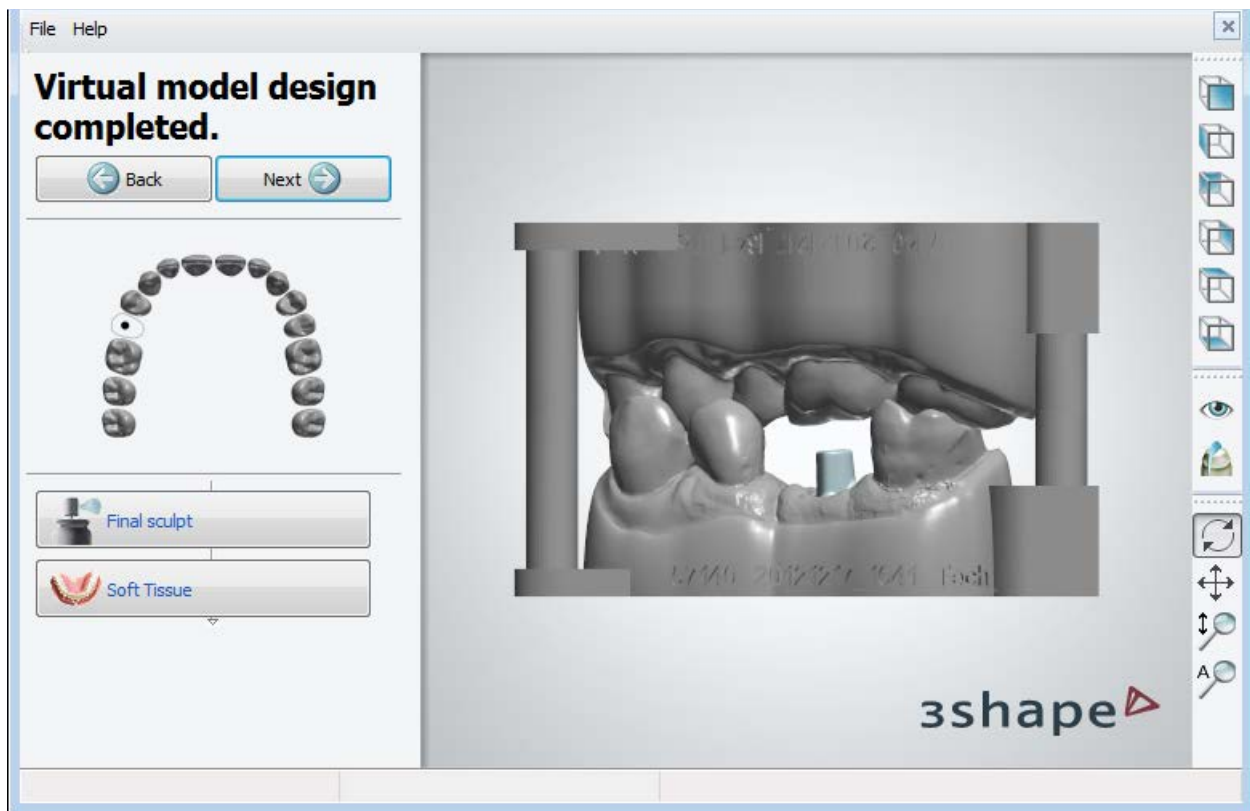
- (2) Protected contact
- (3) 2mm above the margin line
- (4) Area where the design has been subtracted
- (5) Gingiva has been subtracted
- (6) Margin line

Click **OK** when finished.



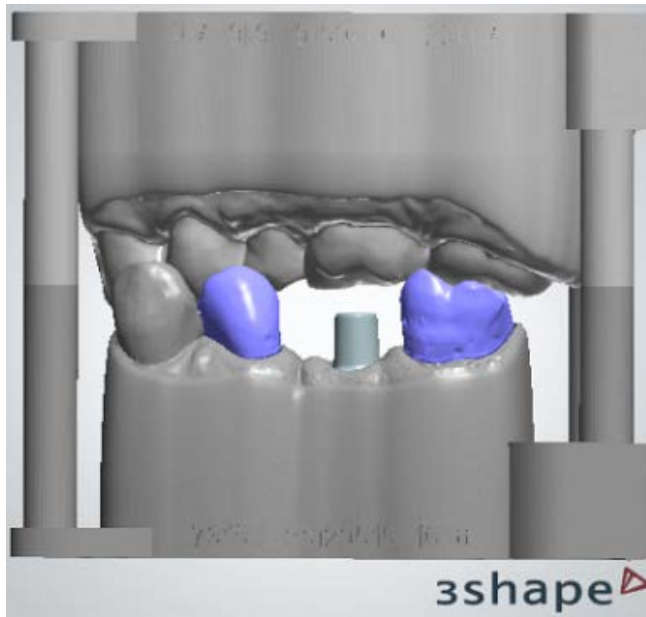
► Step 6: (optional): Soft Tissue and Final Sculpt

You can use the [Soft Tissue](#) and Final [Sculpt toolkit](#) to make final changes to your model. Click **OK** when finished. Click **Next** to generate models.

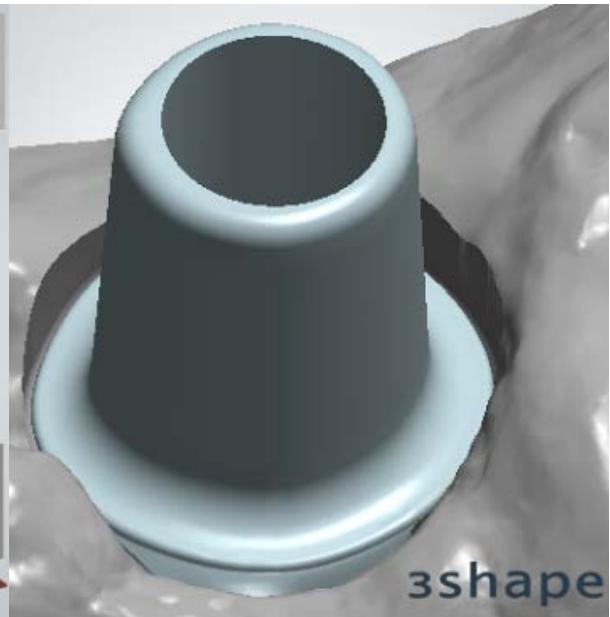


► Step 7: Close Model Builder

All models are now saved and Model Builder can be closed.

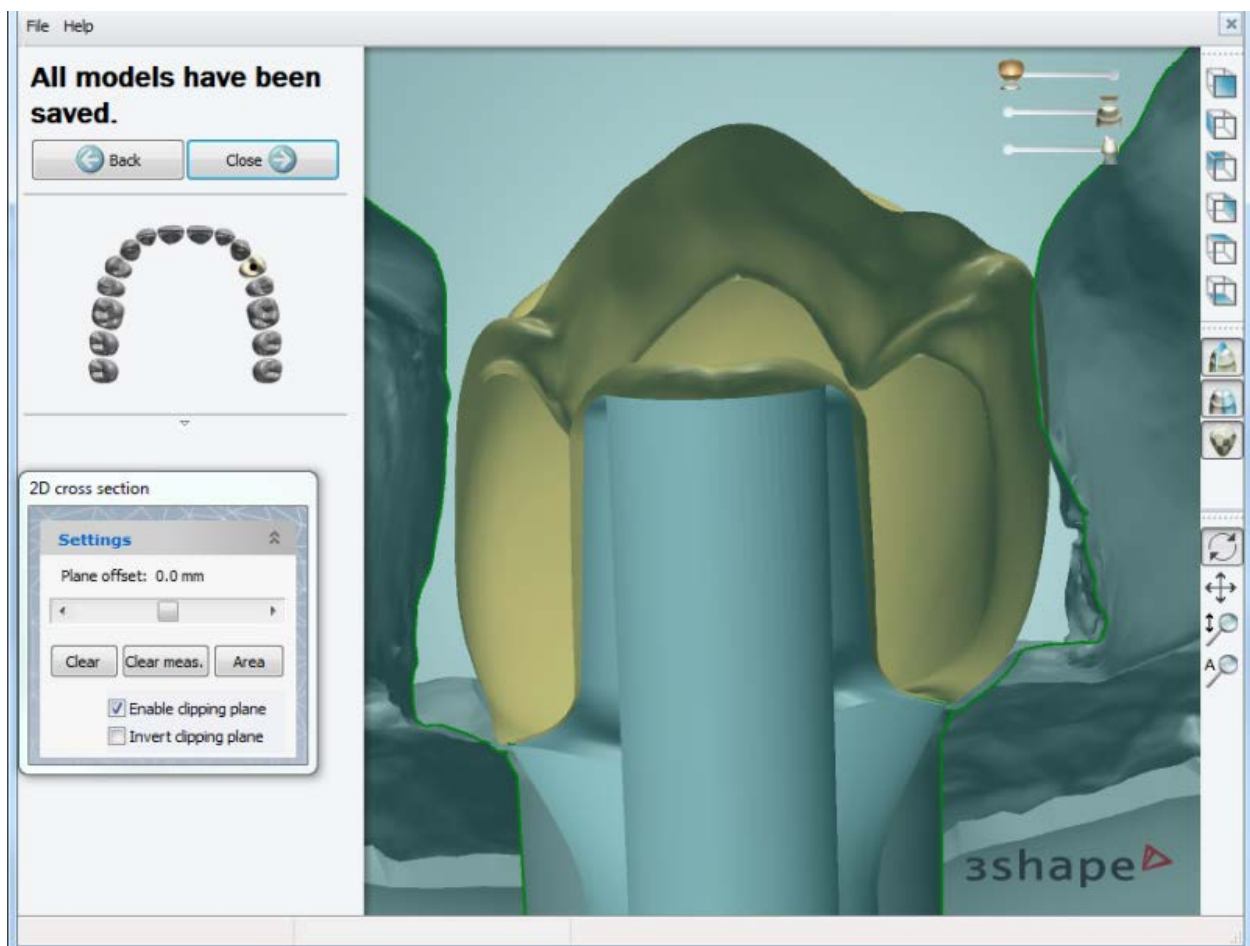


All models saved



Area around the abutment is cleared

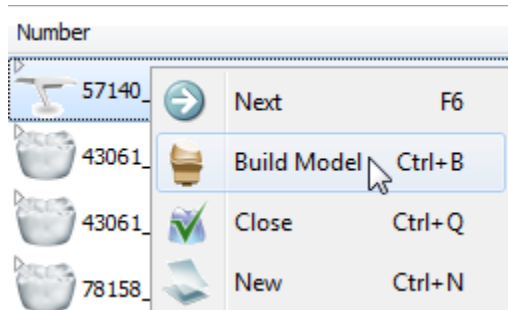
Image below shows the cross section of the final result:



1.23.3.2. Abutment as a Die

Follow steps below to build a model with an abutment as a die. The workflow is similar to that of the [Analog Interface](#) model creation, so please follow links to read details on the steps:

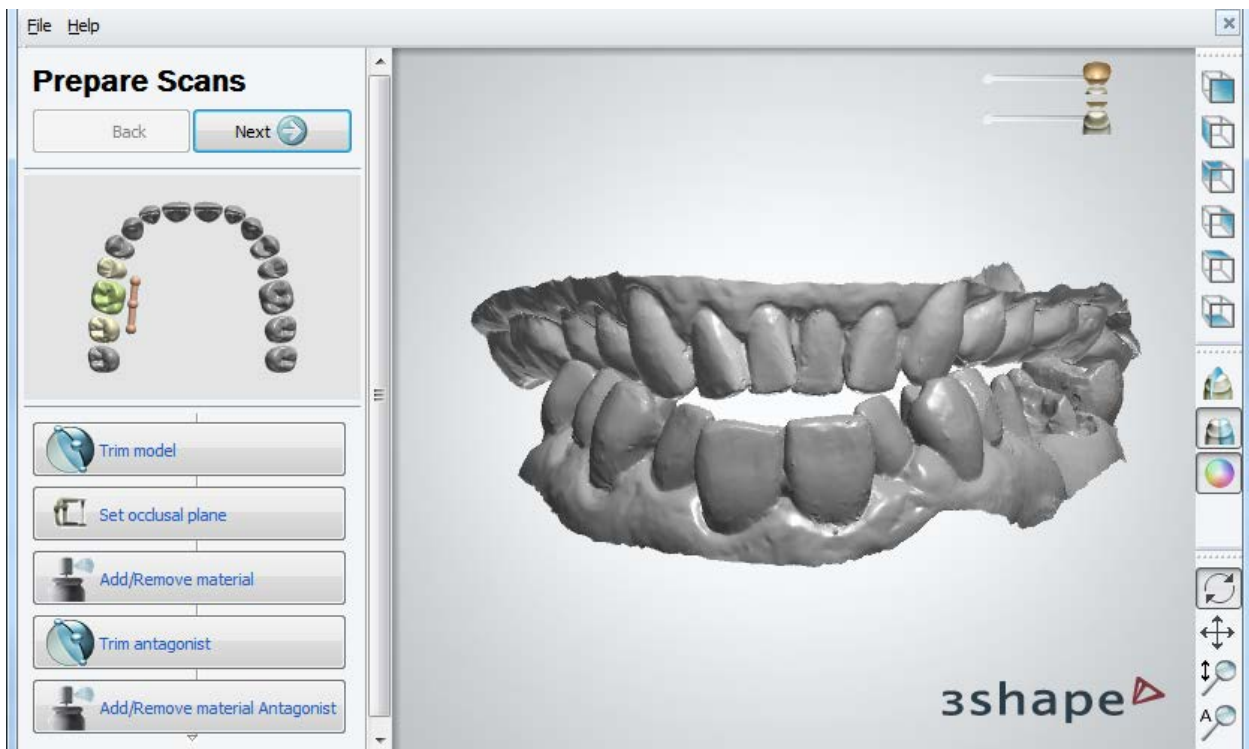
►Step 1: Open prepared order



Select **Build Model** from the right-click menu in the Dental Manager list.

►Step 2 (optional) Prepare scan

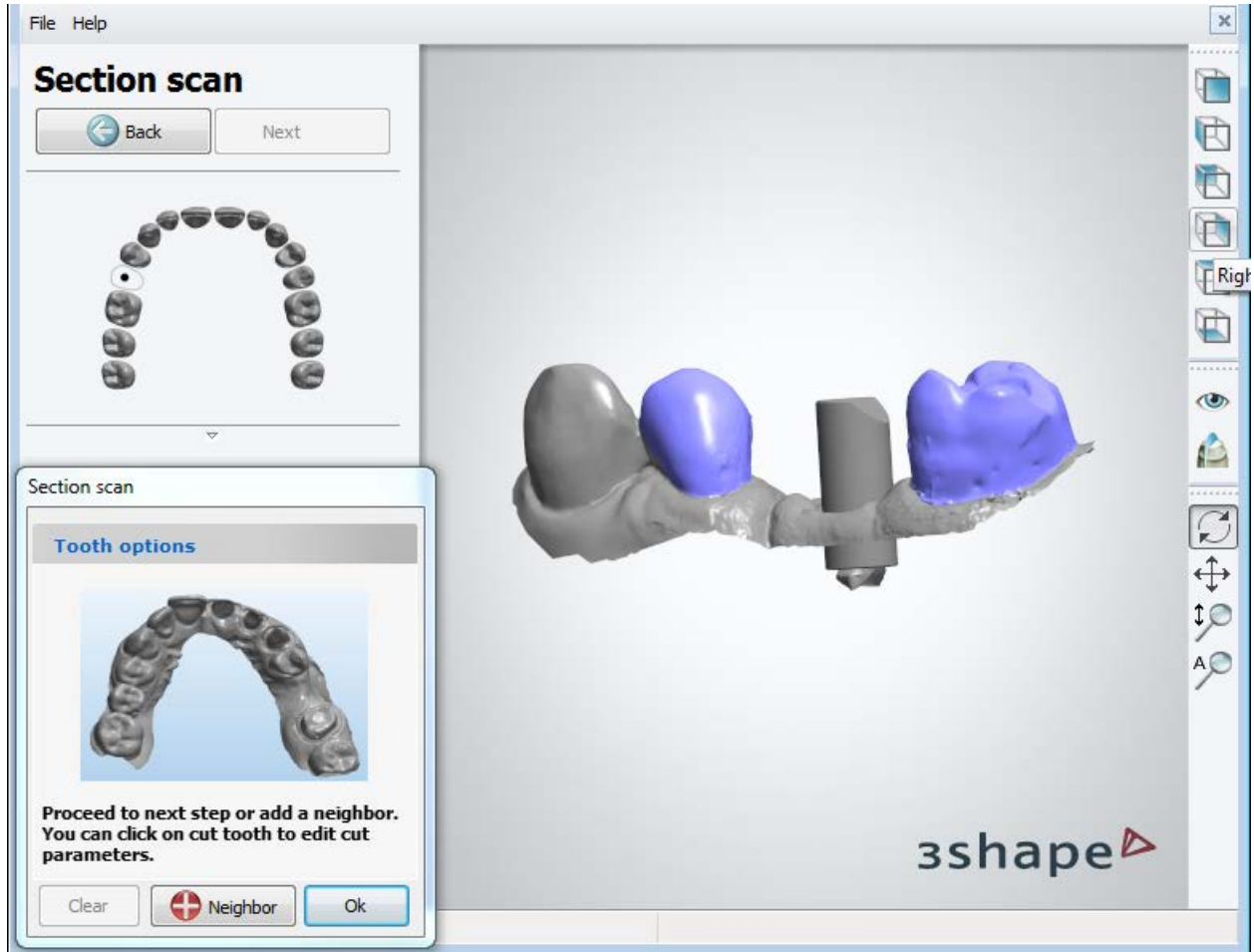
Go through the **Prepare Scan** steps and if corrections are required, repeat preparation steps done in Dental Designer, otherwise skip to section dies step.



Note! Make sure the **Print Abutment As Part Of Model** checkbox in the [Virtual Trimming Settings](#) is marked.

►Step 3: Section scan

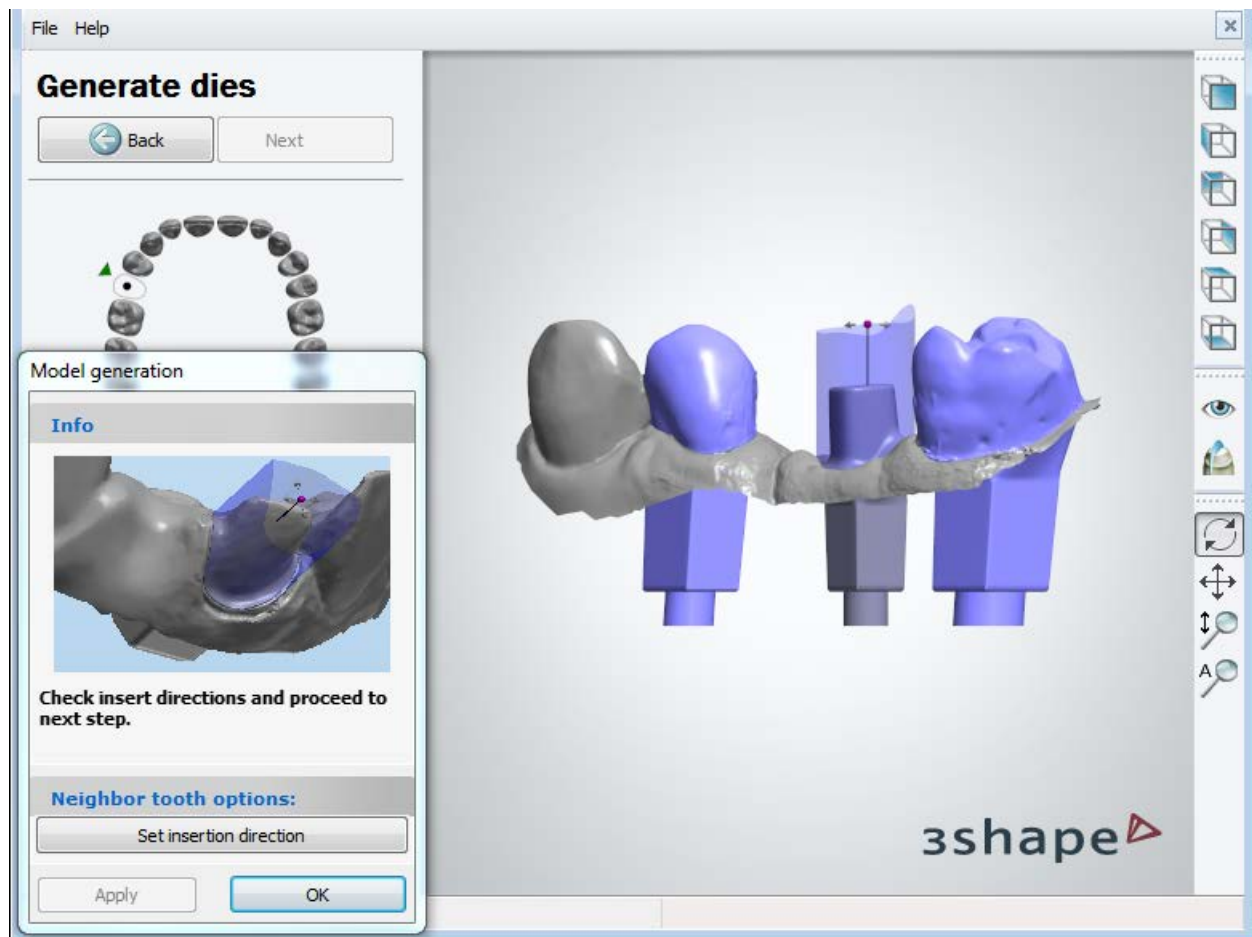
At this step you can section neighbors in your scan by clicking the **Neighbor** button. Follow the on-screen instructions to section the neighboring teeth and click **OK** to go to the next step. Image below illustrates two cut neighbor teeth:



►Step 4: Generate Dies

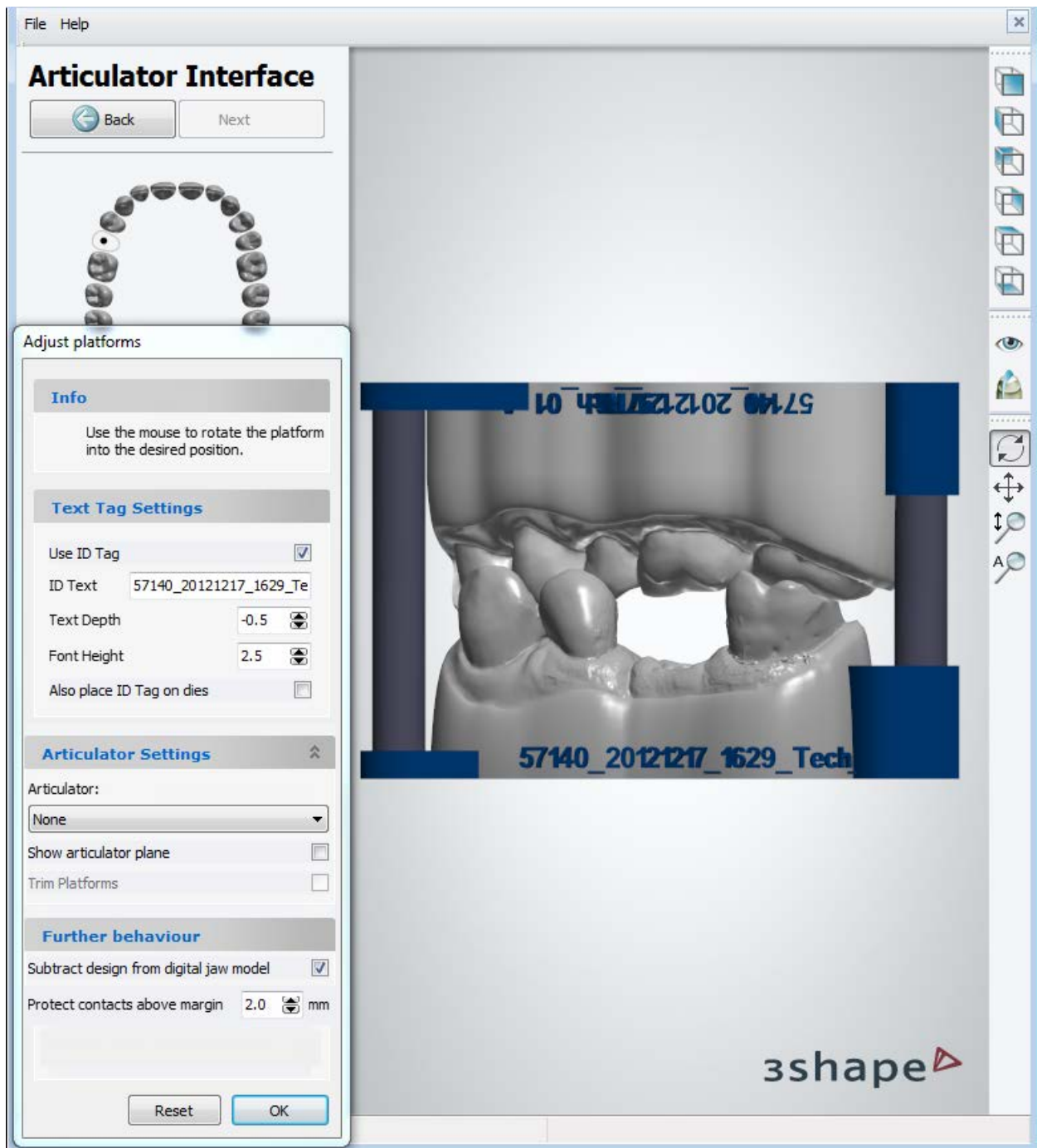
You can modify the insertion direction by selecting a tooth with a mouse click and manipulating the joystick.

Click **OK** to go to the next step.



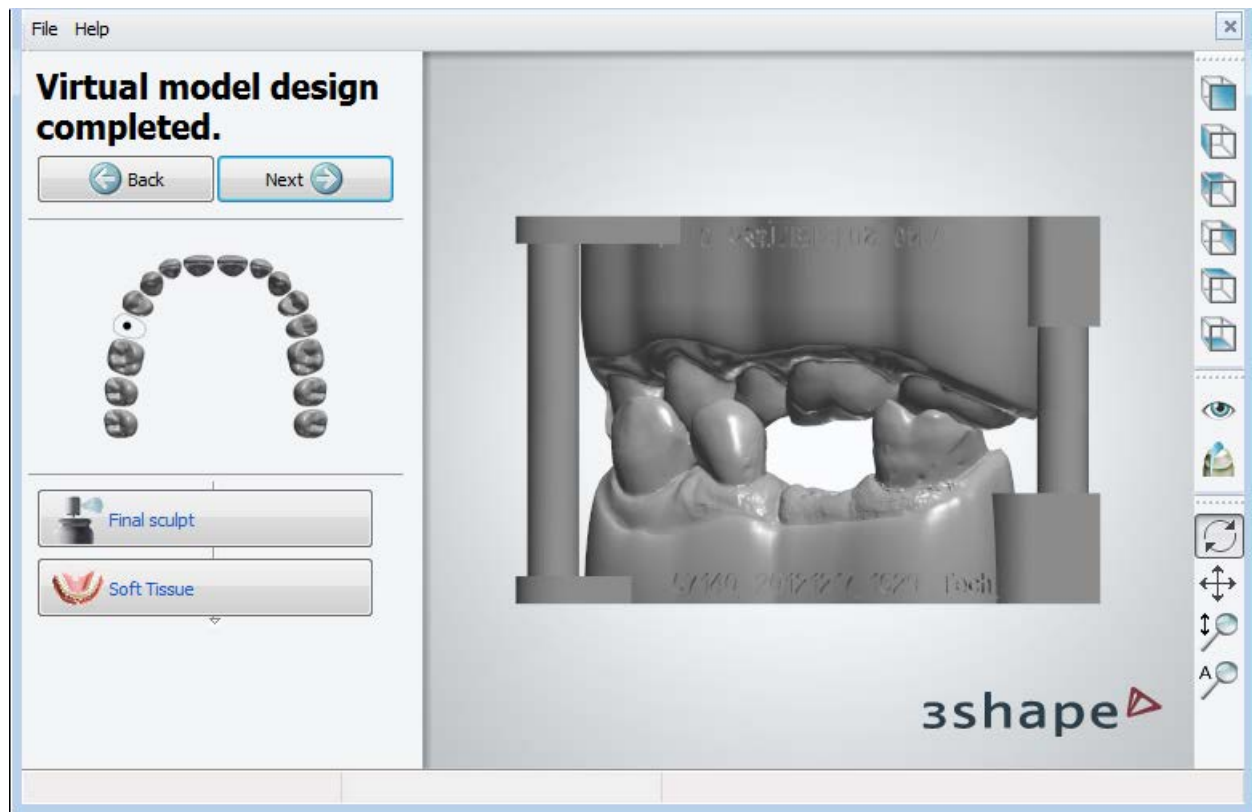
► Step 5: Setup the articulator interface

See details in chapter [Analog Interface](#). Click **OK** when finished.



► Step 6 (optional): Soft Tissue and Final Sculpt

You can use the [Soft Tissue](#) and Final [Sculpt toolkit](#) to make the final changes to your model. Click **OK** when finished. Click **Next** to generate models.



► Step 7: Close Model Builder

All models are now saved and Model Builder can be closed.

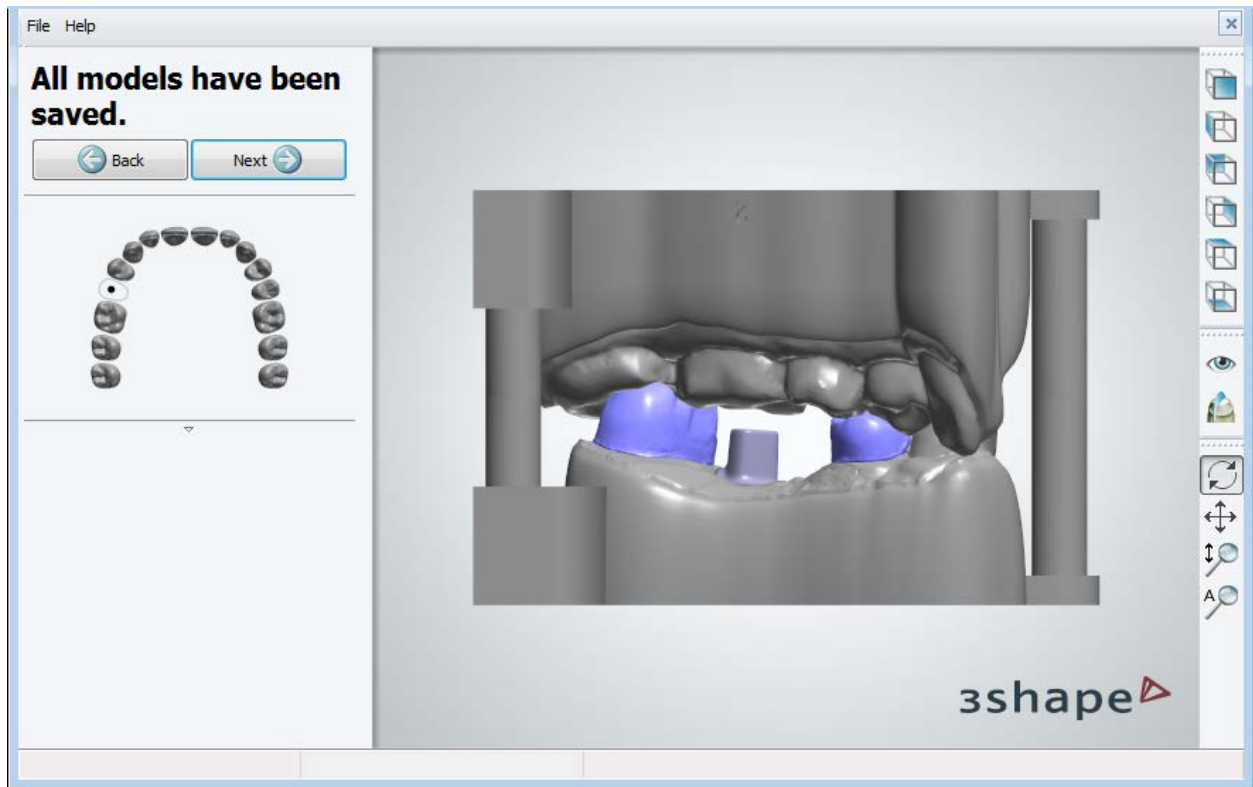
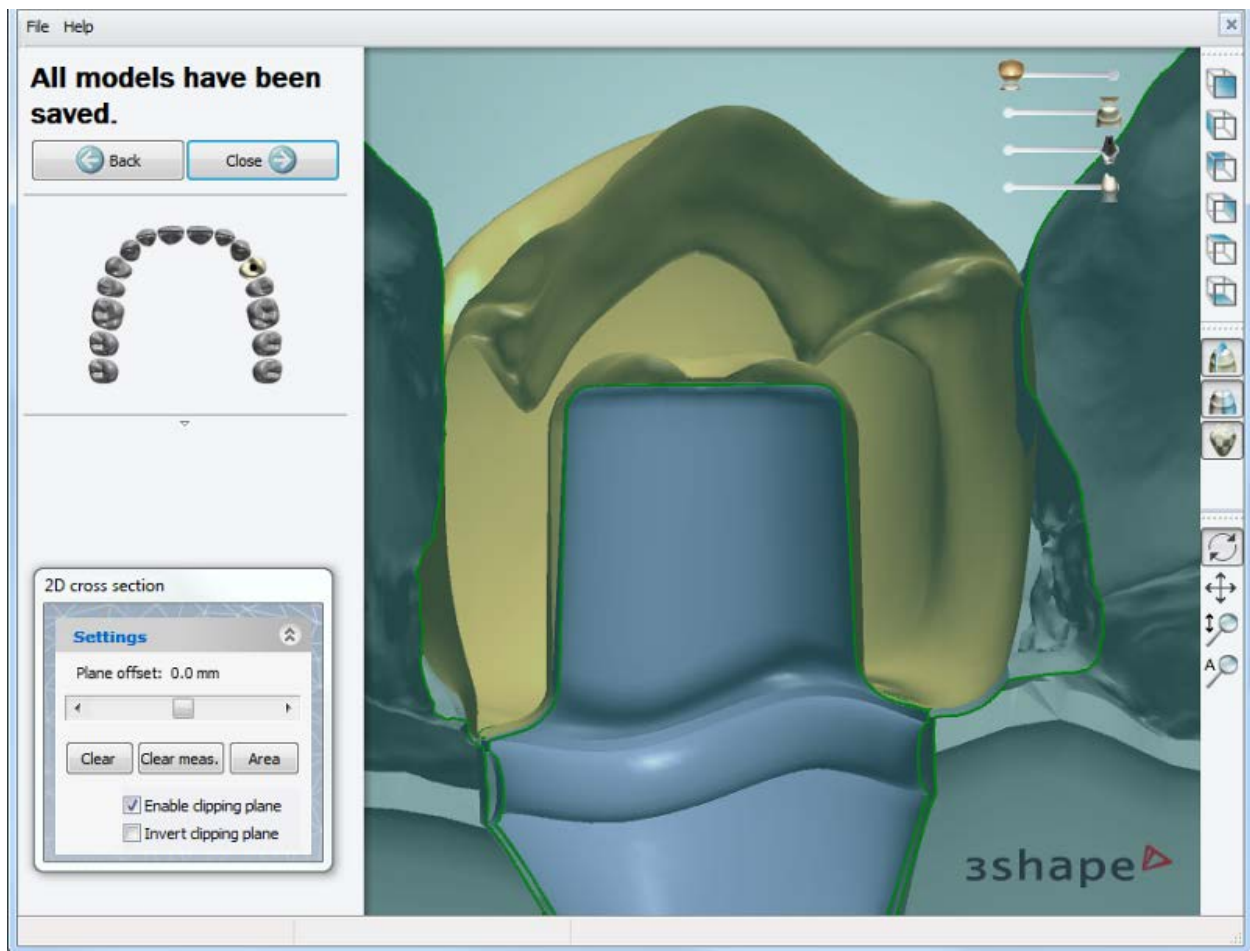


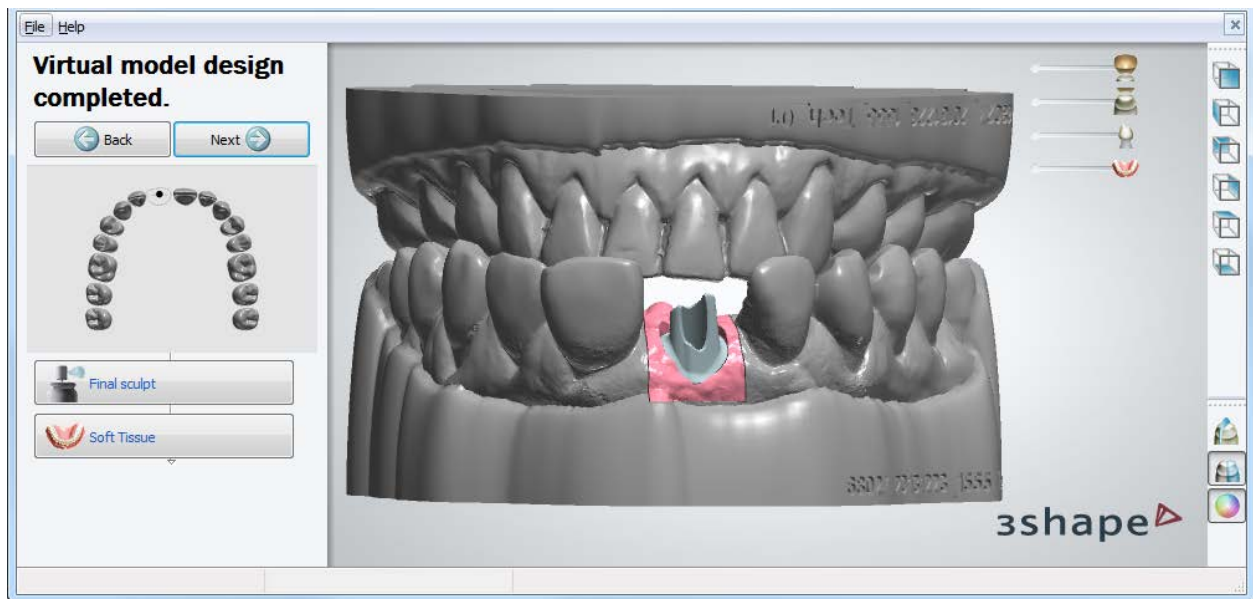
Image below shows the cross section of the final result:



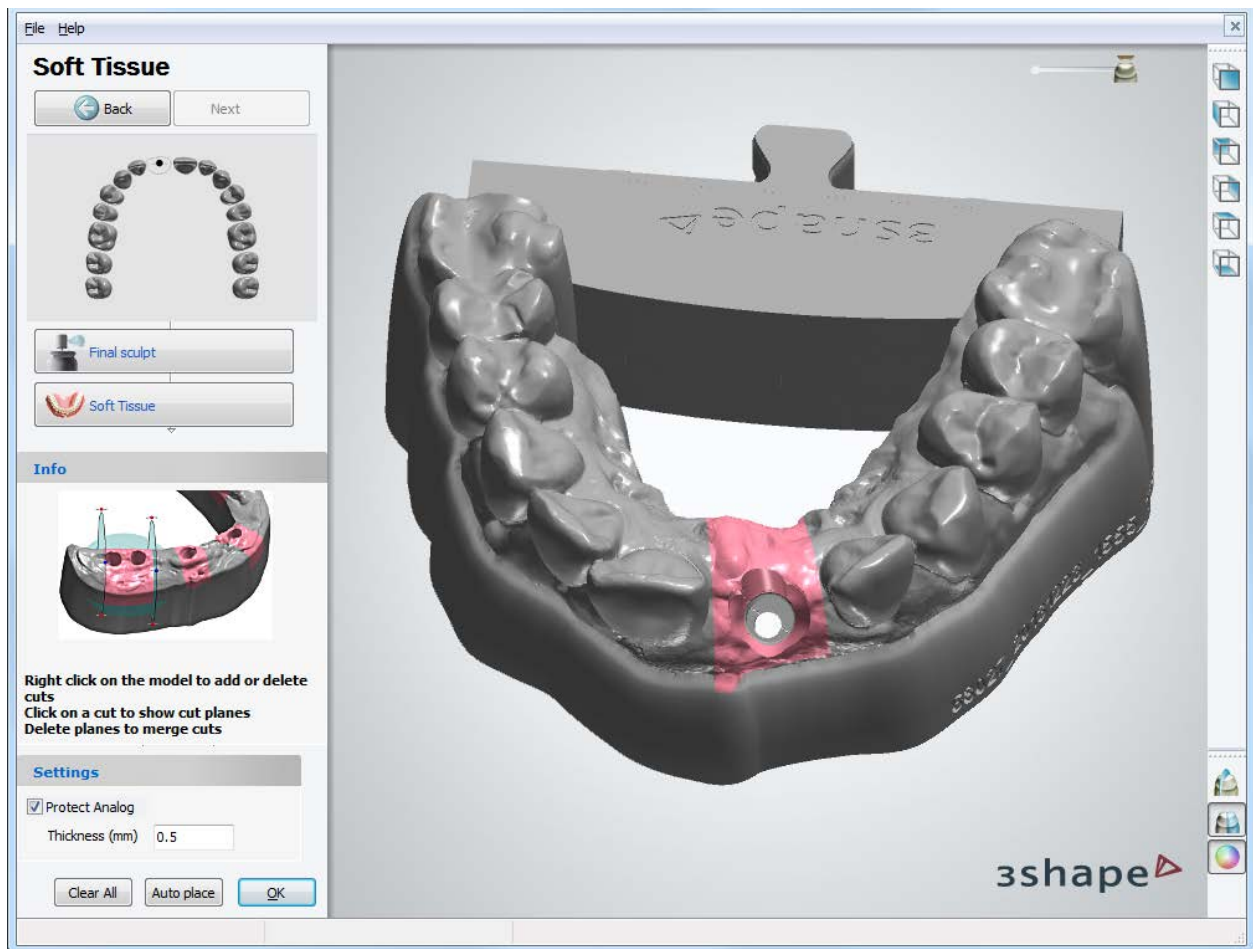
1.23.3.3. Soft Tissue

Model Builder lets you create digital lab models with soft tissue cutout for Implant Models.

Press the **Soft Tissue** button after completing the virtual model design to create soft tissue.



Soft tissue is automatically placed around the analog interface.



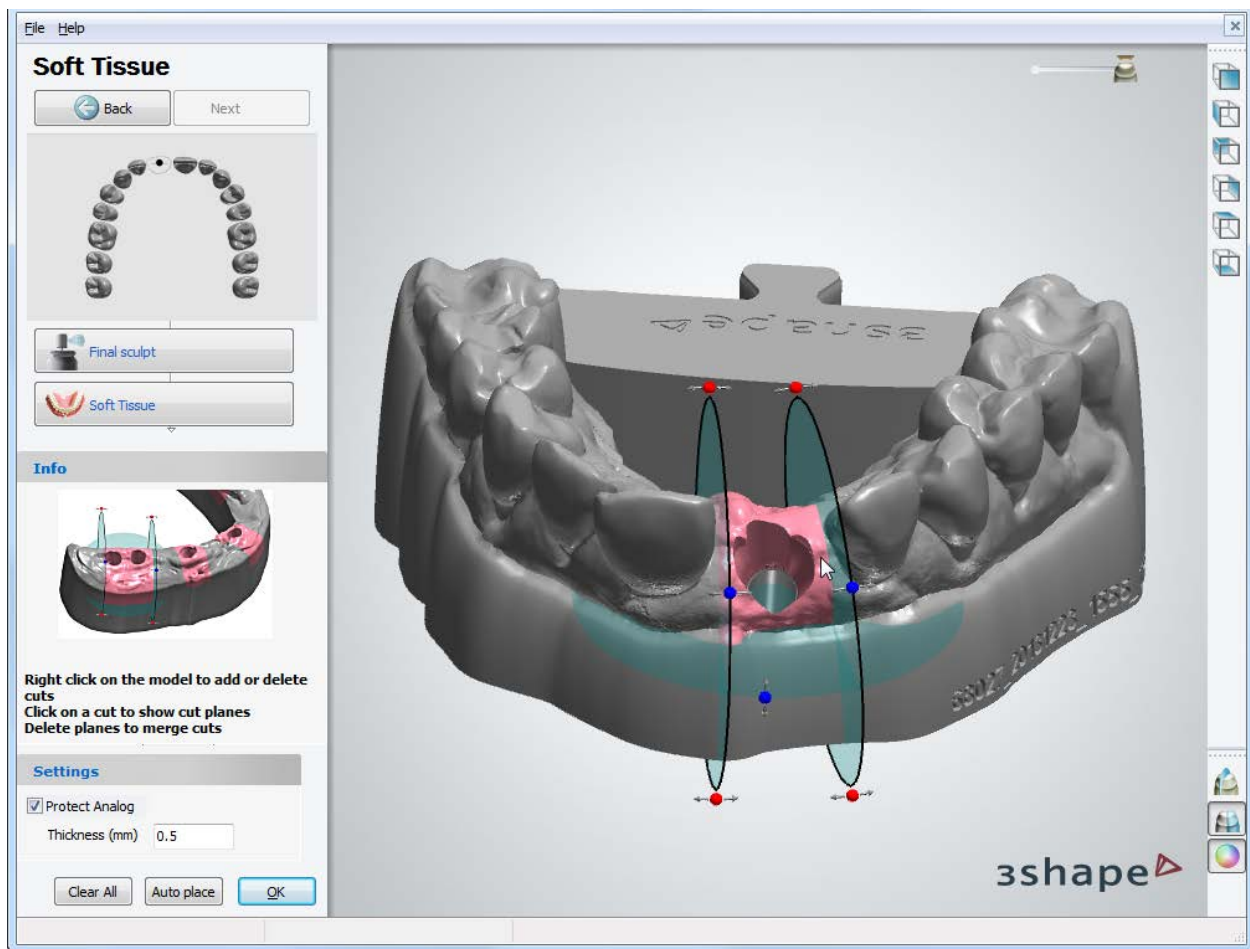
At soft tissue step, you can:

- Click on a cut to show cut planes.
- Right-click the model to add or delete cuts from the appeared menu.
- Delete common plane to merge neighboring cuts.

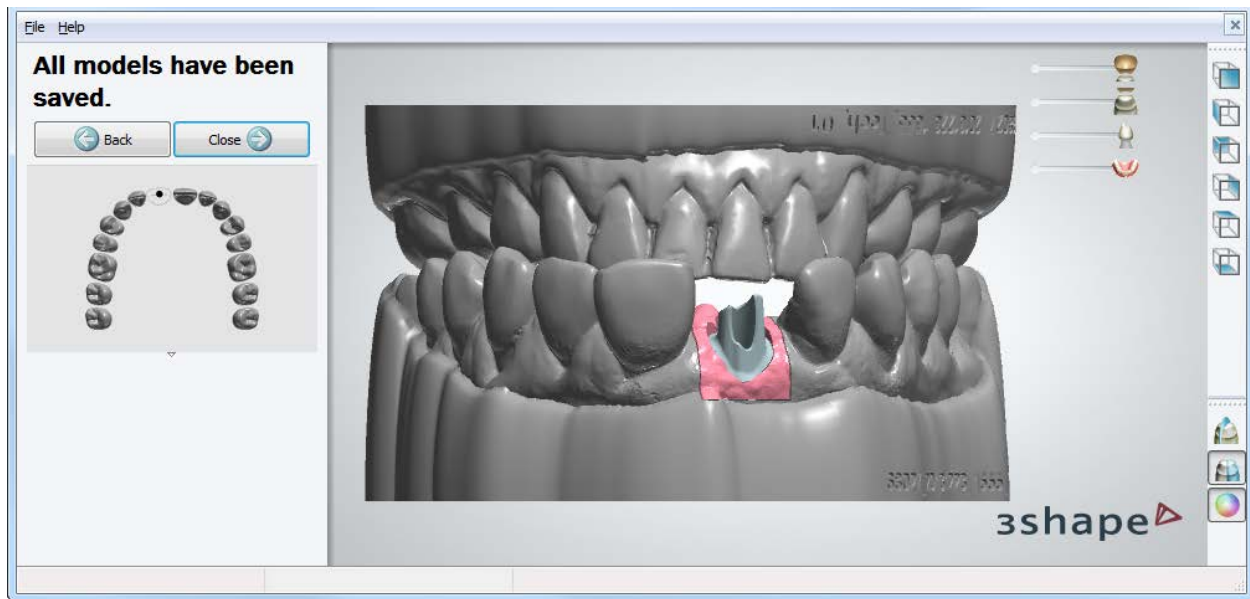


Note! The **OK** button is disabled and the soft tissue color changes from pink to red when the cutout planes are set incorrectly.

When enabled, the **Protect Analog** checkbox allows you to set the thickness value of the surface created around the analog.



Click **Next** to complete soft tissue modeling and then **Close** the Model Builder.



1.23.4. Model Types

With 3Shape Model Builder you can order the following model types for manufacturing:



Sectioned (die ditched)



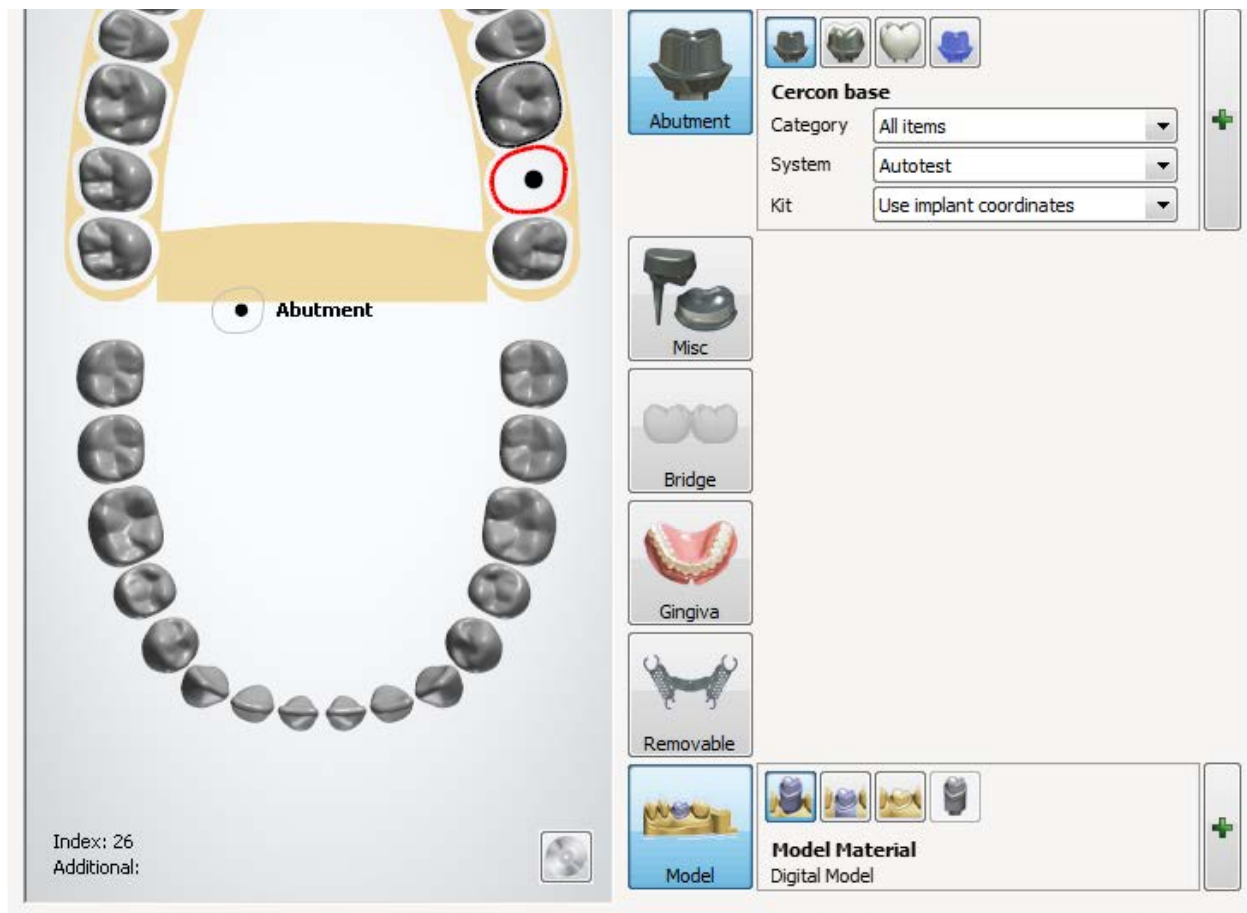
Sectioned (cut)



Unsectioned



Dies

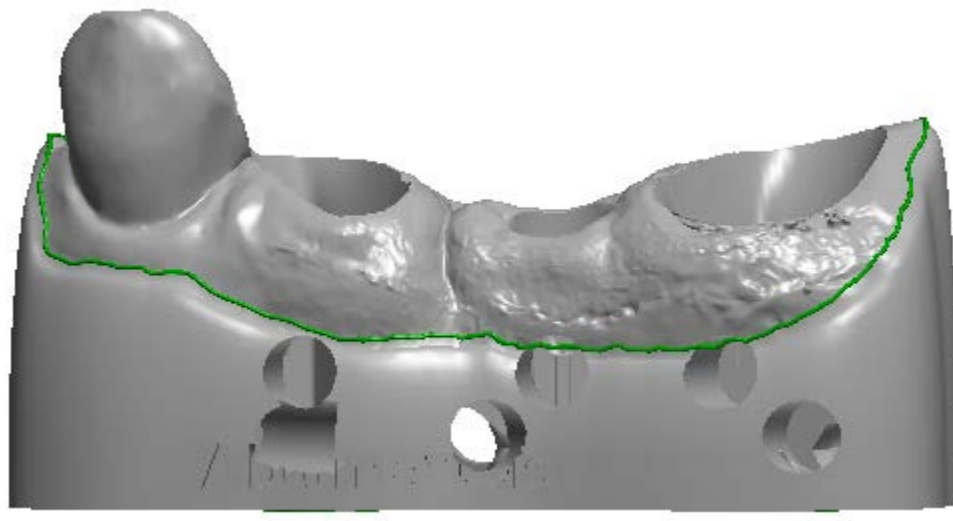


Dental System Order form



Sectioned (die ditched)

If you order this type of sectioned model, the dies in the model will be ditched and the final CAD model will look similar to this one:

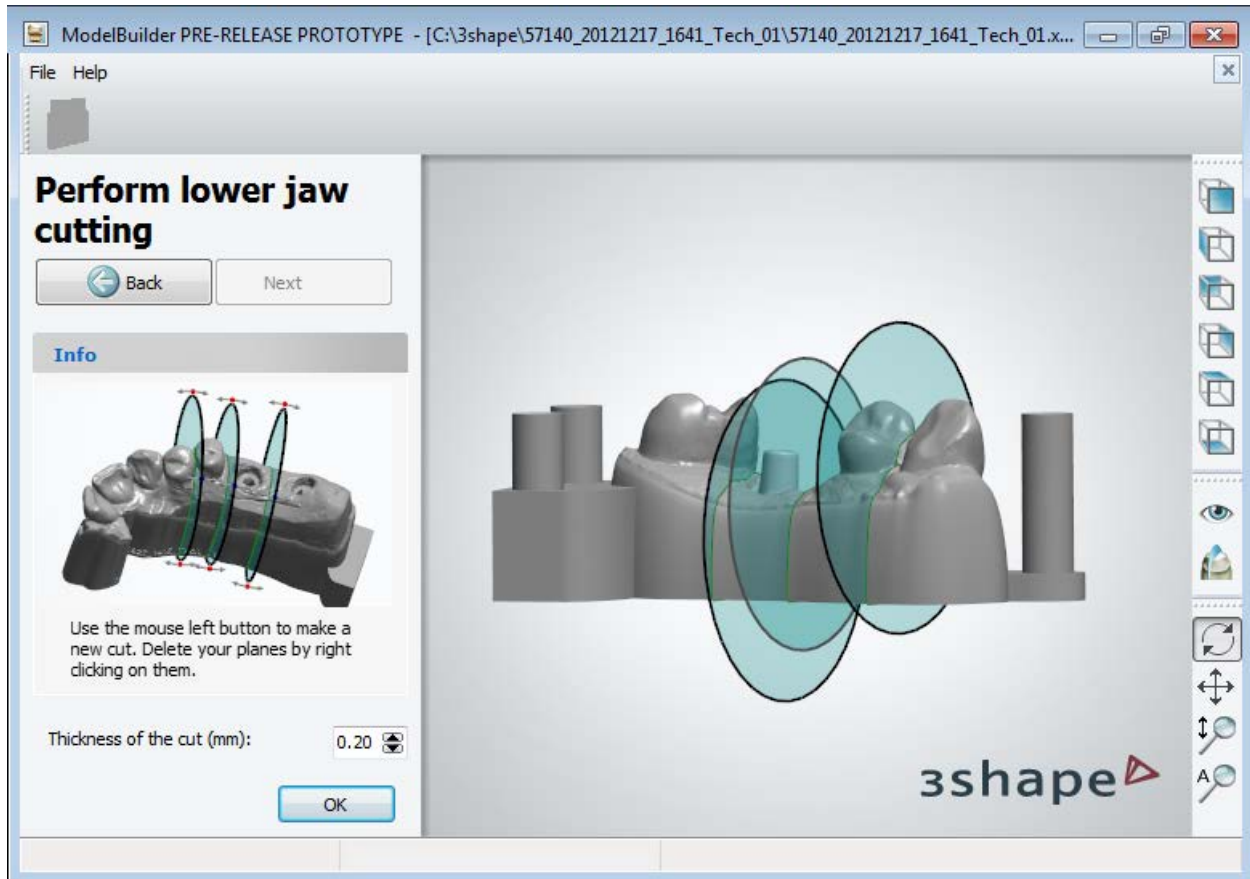


See section [Crown and Bridge Models](#) to read the die ditched model creation workflow.

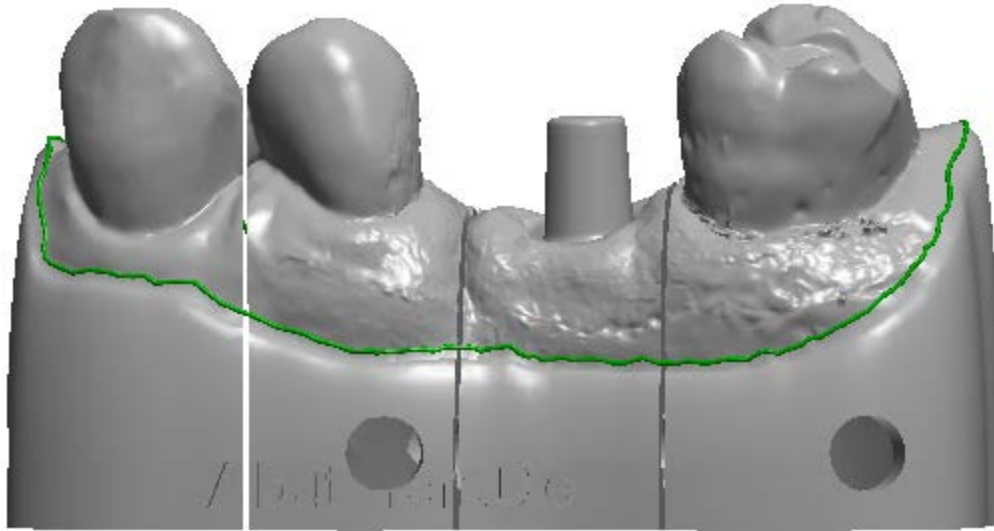


Sectioned (cut)

If you choose to make a cut model, at the end of the model building process the application will cut the jaw into separate sections, the same as the technician would cut the physical gypsum model:



The final CAD model will look similar to this one:

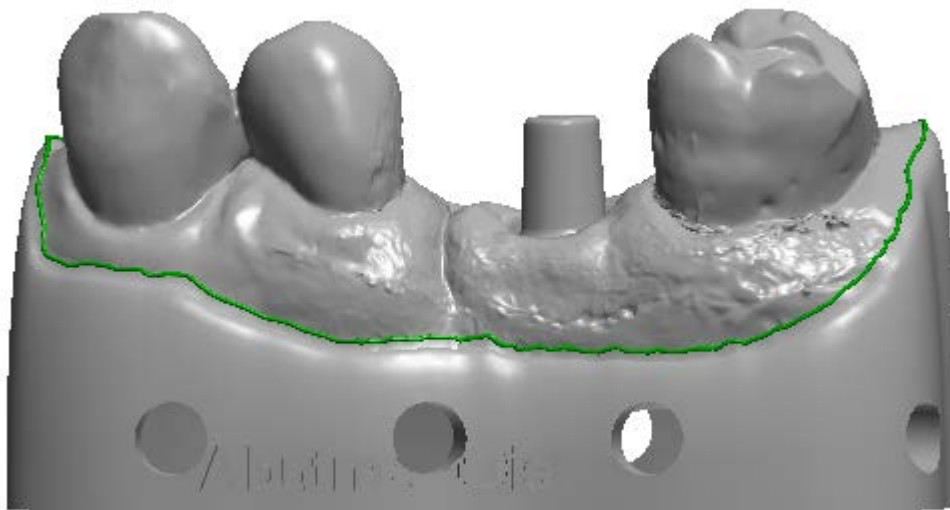


The sectioned cut type of model requires the generation of articulator interface to ensure the relative position of pieces.



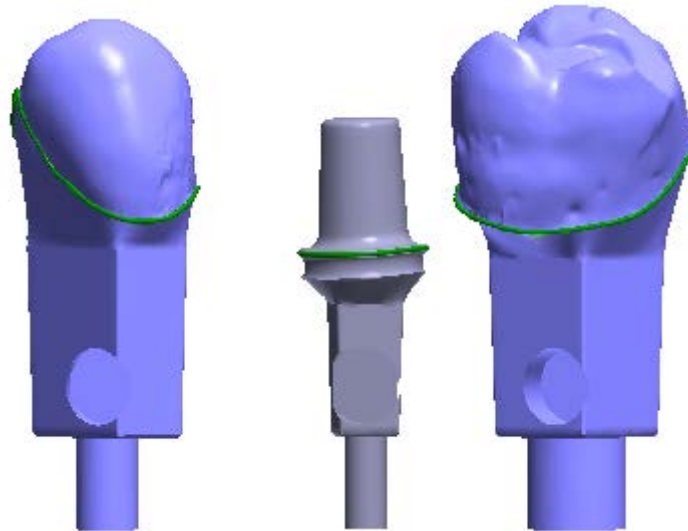
Unsectioned

If you choose to make an unsectioned model, it will be generated as a solid unit:



Dies

Choose this option if together with your cut or unsectioned model you also want to generate dies:

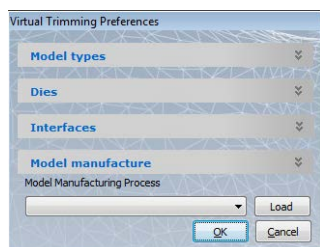


The **Dies** option is selected automatically if you order a die ditched model.

1.23.5. Virtual Trimming Settings

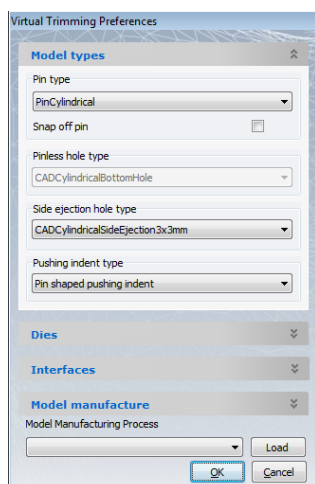
Select *File->Virtual Trimming Settings* from the Workflow bar to modify settings for your particular case if necessary.

The settings are divided into four tabs:



- [Model Types](#)
- [Dies](#)
- [Interfaces](#)
- [Model manufacture](#)

MODEL TYPES



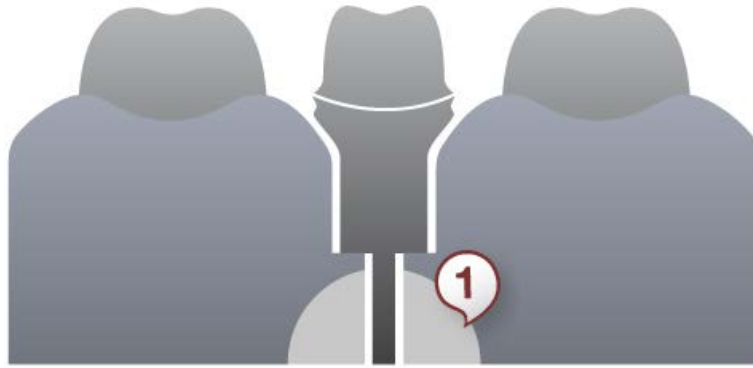
Pin type - Type of pin to attach a die.

Snap off pin - A design where the die is designed with conical supports that can be snapped off.

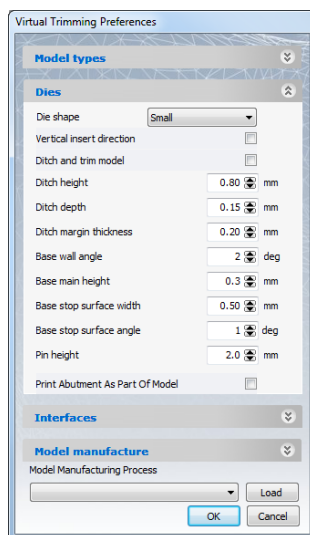
Pinless hole type - If no pin is used, select the type of hole in model under the die.

Side ejection type - Type of hole used for ejecting the die from the side.

Pushing indent type (1) - Selection of a CAD model for a pushing indent.



DIES



Die shape drop-down selection:

- **Standard** - Creates a rectangular die base.
- **Small** - Offers better support for smaller dies by maximizing the stop surface area. The following images show the difference between standard and small dies.
- **Free** - Creates a margin line shaped die base.



Standard die



Small die

Vertical insert direction - Enables common insertion direction for all dies. Direction is equal to the occlusal direction.

Ditch and trim model (8) - When selected, clears area around the margin line to provide a better access to the margin line for sectioned (cut) or unsectioned digital models.

Ditch height (2) - The height of groove below the margin line.

Ditch depth (3) - The depth of groove below the margin line.

Ditch margin thickness - The amount of vertical shift from the margin line during die ditching of sectioned (cut) digital jaw model.

Base wall angle (4) - The slope angle of the die base.

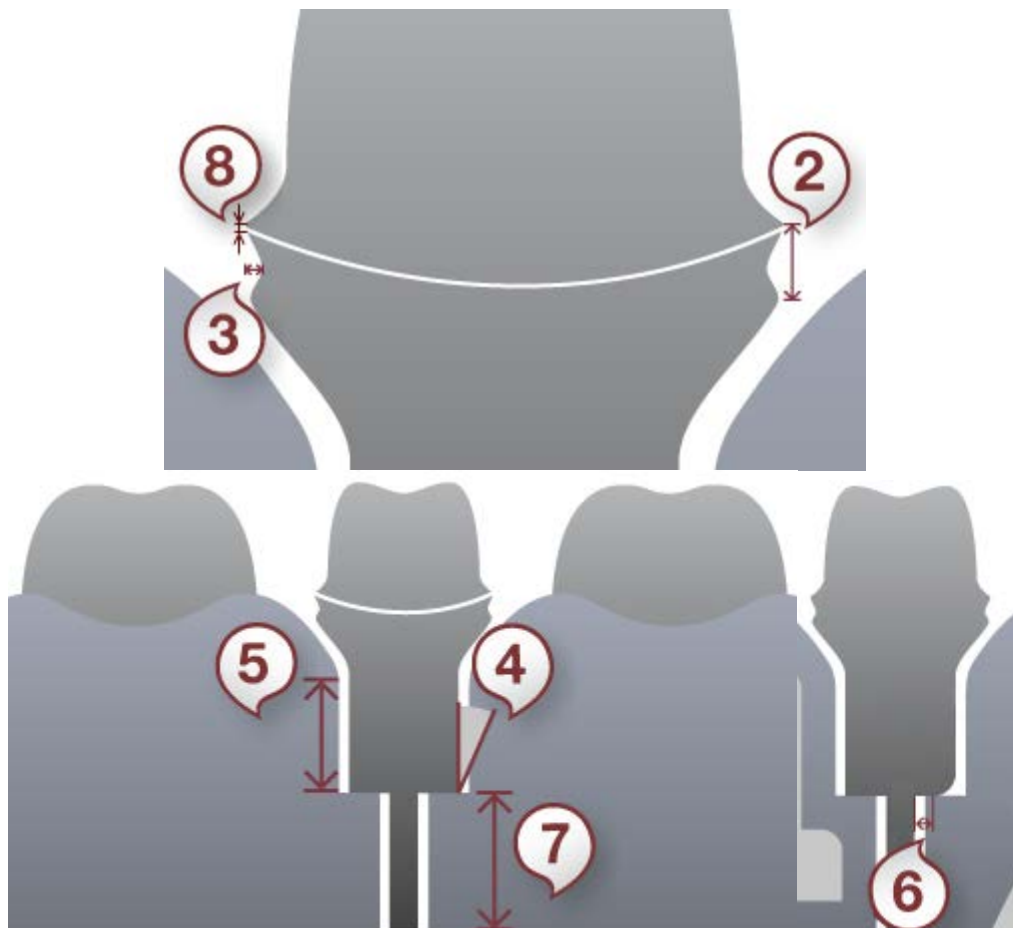
Base height (5) - The height of the die base.

Base stop surface width (6) - The width of the stop surface at the bottom of the die that prevents the die from slipping out of the model.

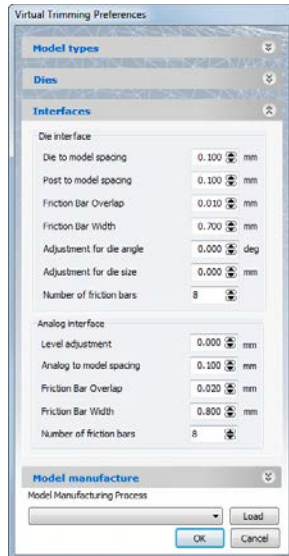
Base stop surface angle - The angle of the die stop surface. The angle = 0 creates horizontal stop surfaces. You can make big dies with self-supporting stop surfaces using the angle larger than zero.

Pin height (7) - The height of the pin below the die.

Print Abutment As Part Of Model - If you are making a sectioned die ditched model, the abutment will be printed as a die. If it is an unsectioned model, the abutment will be printed as a part of the model.



INTERFACES

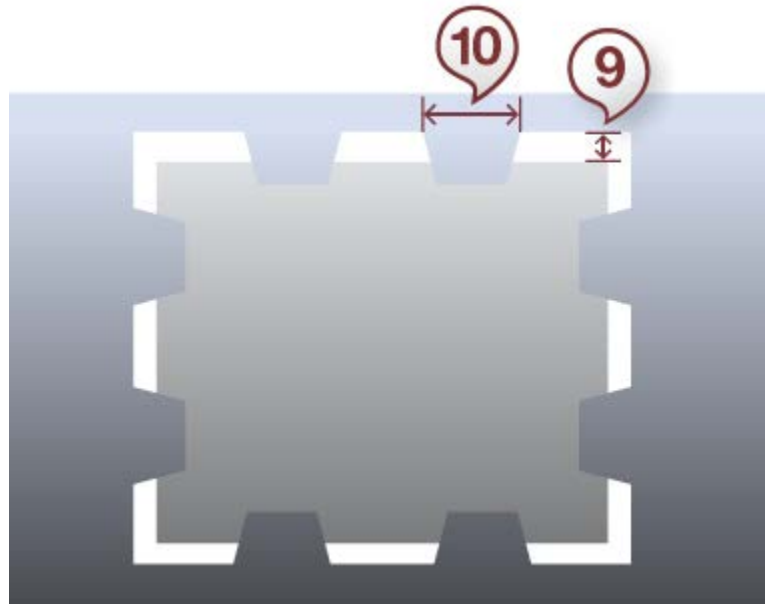
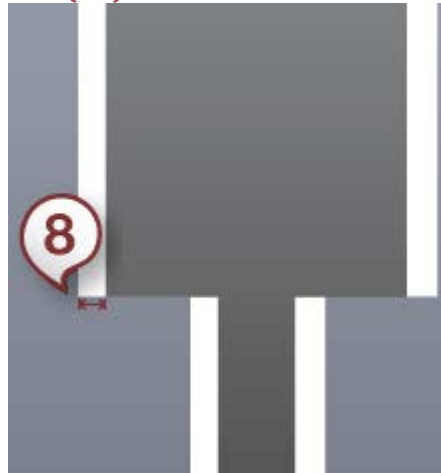


Die to model spacing (8) - A gap between the die and the model.

Post to model spacing - The gap around a [multipost model](#) of the designed post and core.

Friction Bar Overlap (9) - The amount of overlap between the friction bar and the die base that fixates the die in the model.

Friction Bar Width (10) - The width of the friction bars.



Adjustment for die angle - Adjusts the friction bar overlap for angled dies. Value larger than 0 increases, while values smaller than 0 decreases the overlap for angled dies. Set it to 0 to make the overlap constant.

Adjustment for die size - Adjusts the friction bar overlap for large and small dies. Value larger than 0 decreases the overlap for small dies and increases it for large dies. Value smaller than 0 does the opposite. Set it to 0 to make the overlap constant.

Number of friction bars - The desired number of friction bars on a model.

Level adjustment - Adjusts the placement of the implant analog interface along the insertion direction.

Analog to model spacing - A gap between the analog and the model.

Friction bar overlap - A penetration distance of the friction bar into the analog.

Friction bar width - The width of a friction bar that helps to fixate analog in the analog hole.

Number of friction bars - The desired number of friction bars on a model

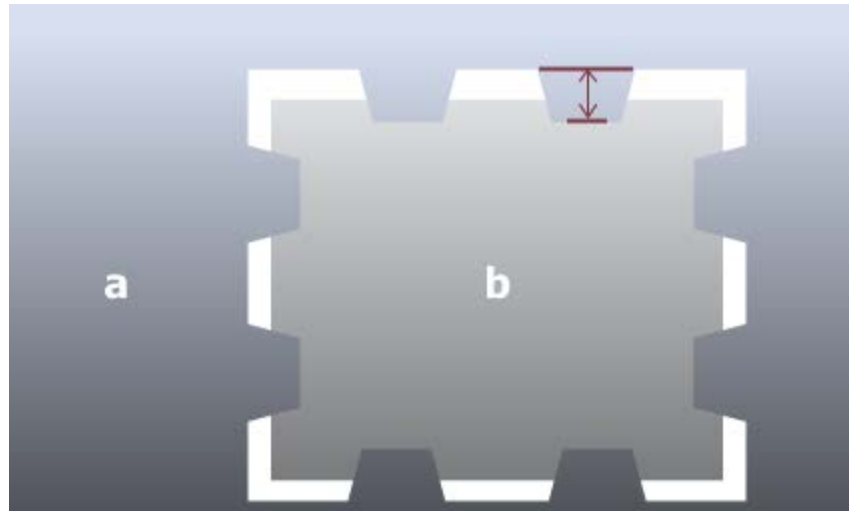
FRICTION BAR HEIGHT CALCULATION

The following settings are used during the Friction bar height calculation:

- **Die to model spacing**
- **Friction bar overlap**
- **Adjustment for die angle**
- **Adjustment for die size**

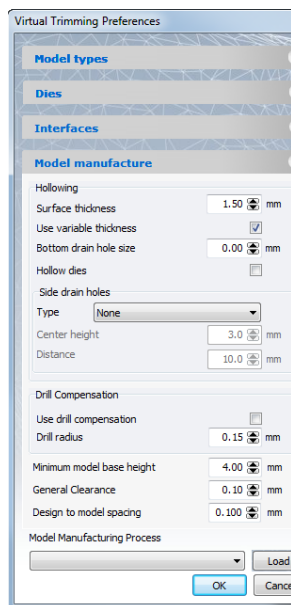
If you wish to provide more space for the thicker dies or the angled dies in their interfaces or if you wish to give standard dies about 25 microns of space between a die and an interface, we suggest the following settings:

- **Die to model spacing** = 0.050 mm
- **Friction bar overlap** = -0.020 mm
- **Adjustment for die angle** = -2
- **Adjustment for die size** = -1



Friction bar height

MODEL MANUFACTURE



Surface thickness (11) - Sets the wall thickness for hollow models. Set to 0 to make solid models.



Use variable thickness (12) - When checked, the wall thickness becomes thicker at the top. When unchecked, the wall thickness is constant, and a bottom with same thickness is added to the model.

Bottom drain hole size (13) - The size of holes at the bottom of the platform used to let the liquid for 3D printing to drain out.

Hollow dies - Enables hollow dies.

Type of the side drain holes - Select a CAD model to determine the shape of the hole.

Center height - The height of the drain hole center from the model's bottom.

Distance - The horizontal distance between the drain hole centers.

Use drill compensation (14) - When selected, rounds the inward corners of the die and the model to facilitate the manufacturing process.

Drill radius (15) - The radius of rounding the inward corners.

Minimum model base height - A minimum height of the model.

General Clearance - Used in subtractive articulator interfaces as a gap/distance to the digital jaw model to make mounting possible.

Design to model spacing - A gap between a designed item (crown, abutment etc.) and a digital model of an arch.

Model manufacturing process - Allows you to select the desired set of parameters for your model manufacturing, predefined in *Dental System Control Panel*->[Digital Model Design](#). Select the desired model manufacturing process from the drop-down menu and click **Load**.

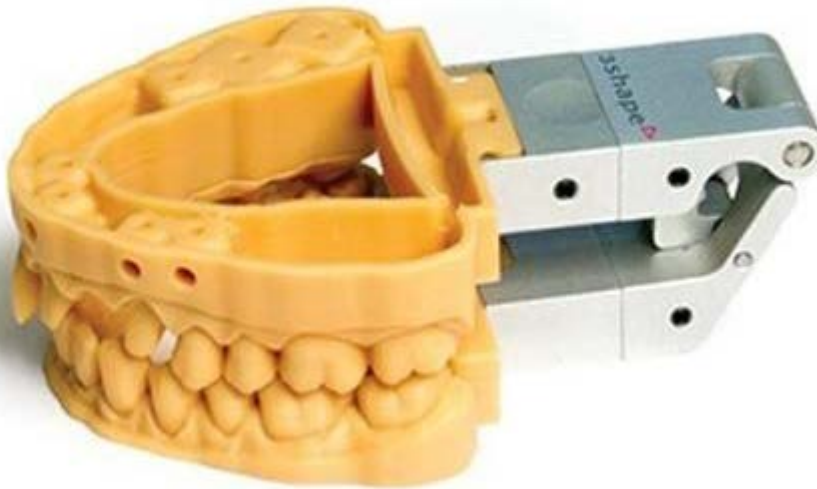
You can update all the parameters in the [Digital Model Design](#) section of the Dental System Control Panel.


1.23.6. Pre-Milled blank Articulator Interface

Pre-Milled blank Articulator Interface plates such as the DGSHAPE CA-MK-1 are cast gypsum forms that are milled from digital models. Before beginning, make sure you have met the following material and system requirements for this operation.

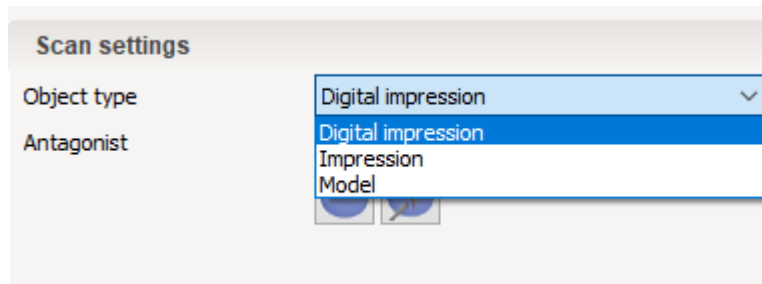
Operation Requirements:




- Compatible CAD: Dental System 2018 version 1 or newer
- Compatible CAM hardware: Roland DWX-52D, DWX-52DC, and DWX-52DCi
- Compatible CAM software: MillBox (CIMsystem) / hyperDENT (FOLLOW-ME! Technology Group)
- DGSHAPE CA-MK1 Time Reduction Kit for Cast Models
- 3shape articulator (Occludator) (See your Re-Seller for product details)

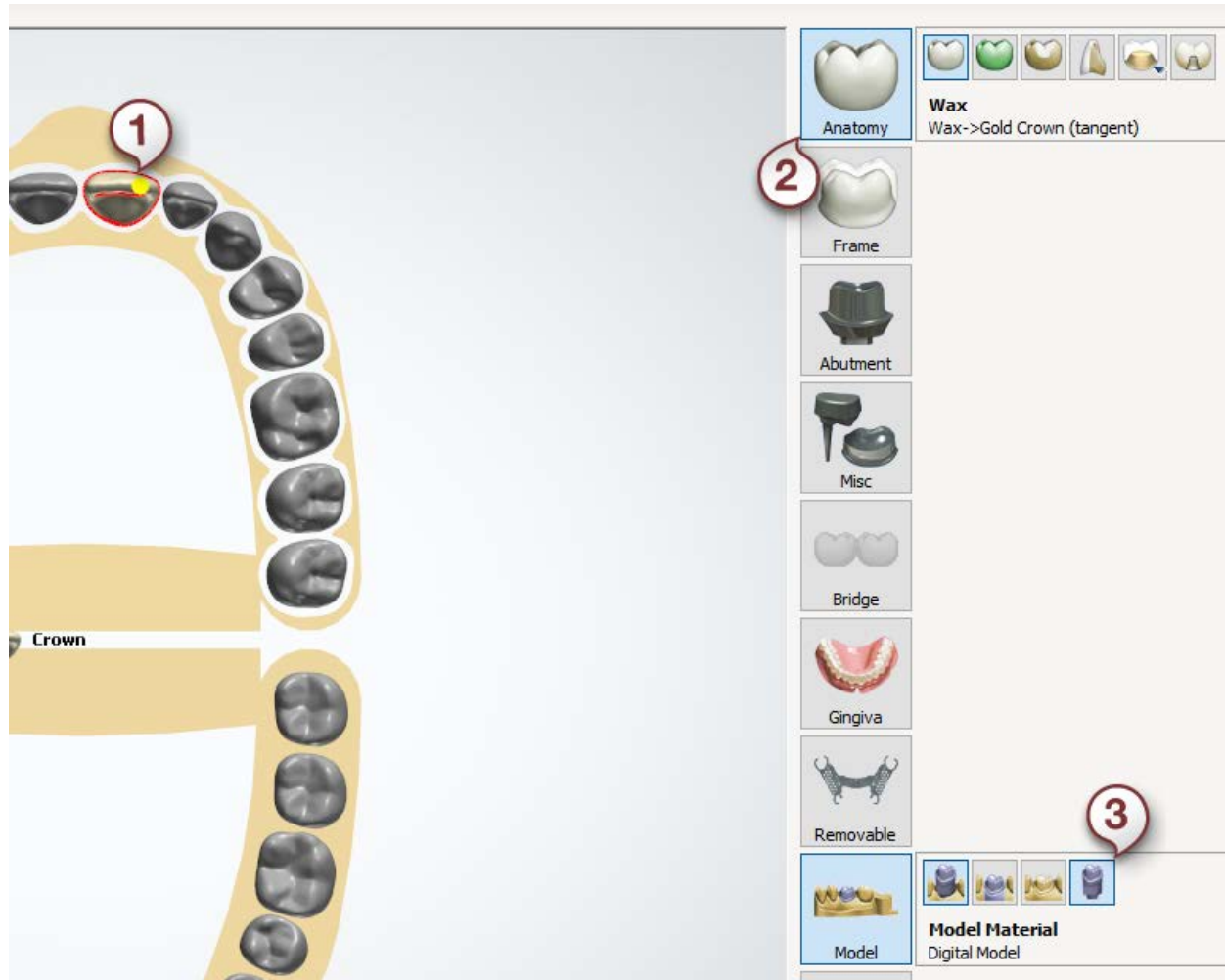




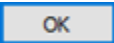
► **Step 1: Create an order.** Using the **New Order**  button on the orders page of Dental Manager will open up a new order form. Follow Standard format when setting up your order as shown in [Create an Order](#) until you get to the Scan Settings, Object Type.

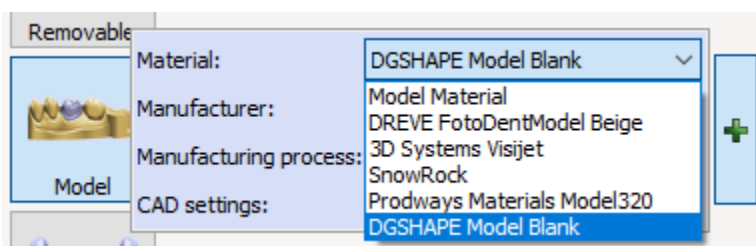
► **Step 2: Select Object Type.** In the Object Type section choose Digital Impression.




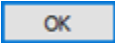
► **Step 3: Set initial Conditions.** Select the tooth or teeth affected (1) by your order, if needed click the **Anatomy**  **Button** (2) to activate the **Dies**  **button** (3) in the Model step. You may also select the material in this step by clicking the green **Add**  **Button**. (A crown was chosen for example only, DGSHAPE Full/Quadrant blank for 3Shape Articulator Interface is not exclusive to any dental feature)

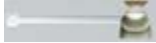



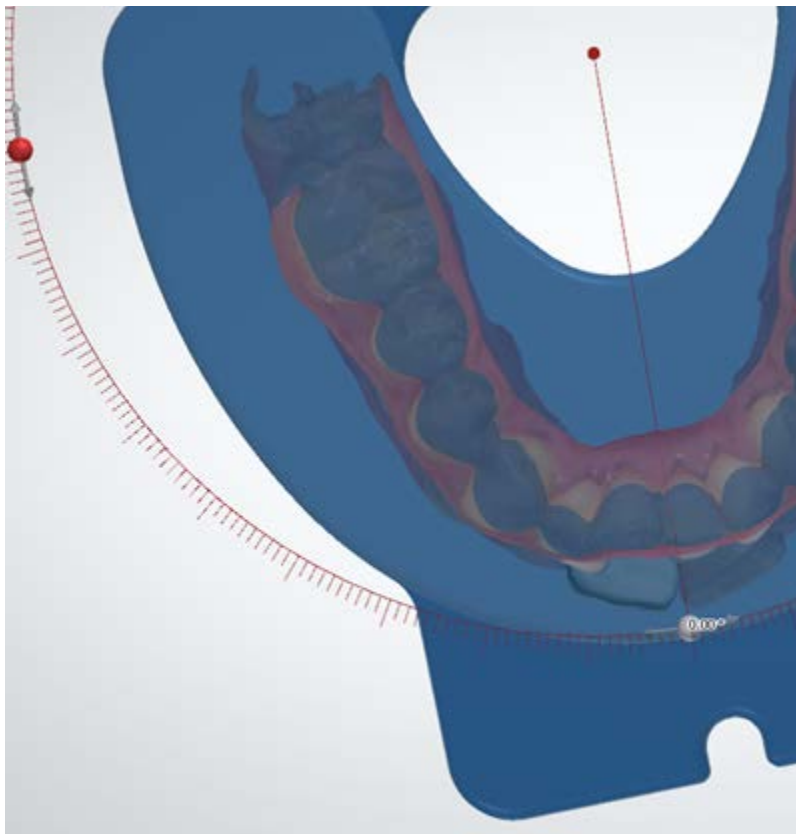
► **Step 4: Choose DGSHAPE Model Blank.** Click the **Model**  button, choose Unsectioned and Dies/Preparations (optional), then click the **Add**  button to reveal the material drop down menu. Select DGSHAPE Model Blank and press the **OK**  button to move on to the Dental Manager screen. Double click your order and proceed to Model Builder.

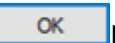


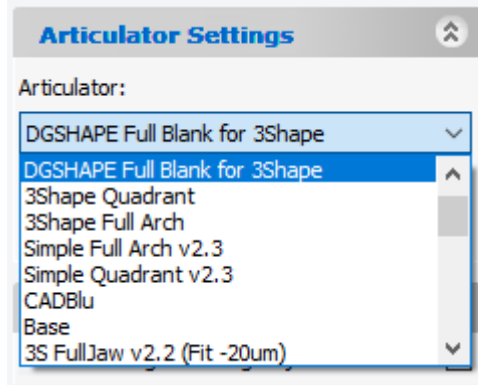
► **Step 5: Complete Prepare Scans.** Proceed with Prepare Scans steps (e.g. Trim preparation, Set Occlusal plane, Add/Remove material, Trim antagonist, Add/Remove material Antagonist etc.). Click the **Next**  button when complete.



► **Step 6: Complete Section Scan.** If necessary perform sectioning operations for Die sectioning. Click **OK**  **button** when finished or to skip this step if no Die sectioning is required.

► **Step 7: Articulator Interface.** At the start of this phase of your workflow the DGSHAPE blanks for both the Preparation and the Antagonist will appear superimposed on each other. Your task will be to place the scan models within their respective blanks. Use the visibility sliders **Preparation**  and **Antagonist**  if your scan models do not initially align with the blanks. Use the holders located radially around the blank to correctly align your work (see below); click and hold your mouse on the slider to see the positioning compass. The blanks may also be moved horizontally by pressing and holding scroll then moving the mouse. No portion of the scan model that extends outside the DGSHAPE blank will be included in the unsectioned model.



Be sure to select DGSHAPE Full or Quadrant Blank for 3Shape in the Articulator drop-down menu. Click the **OK**  **button** to continue.

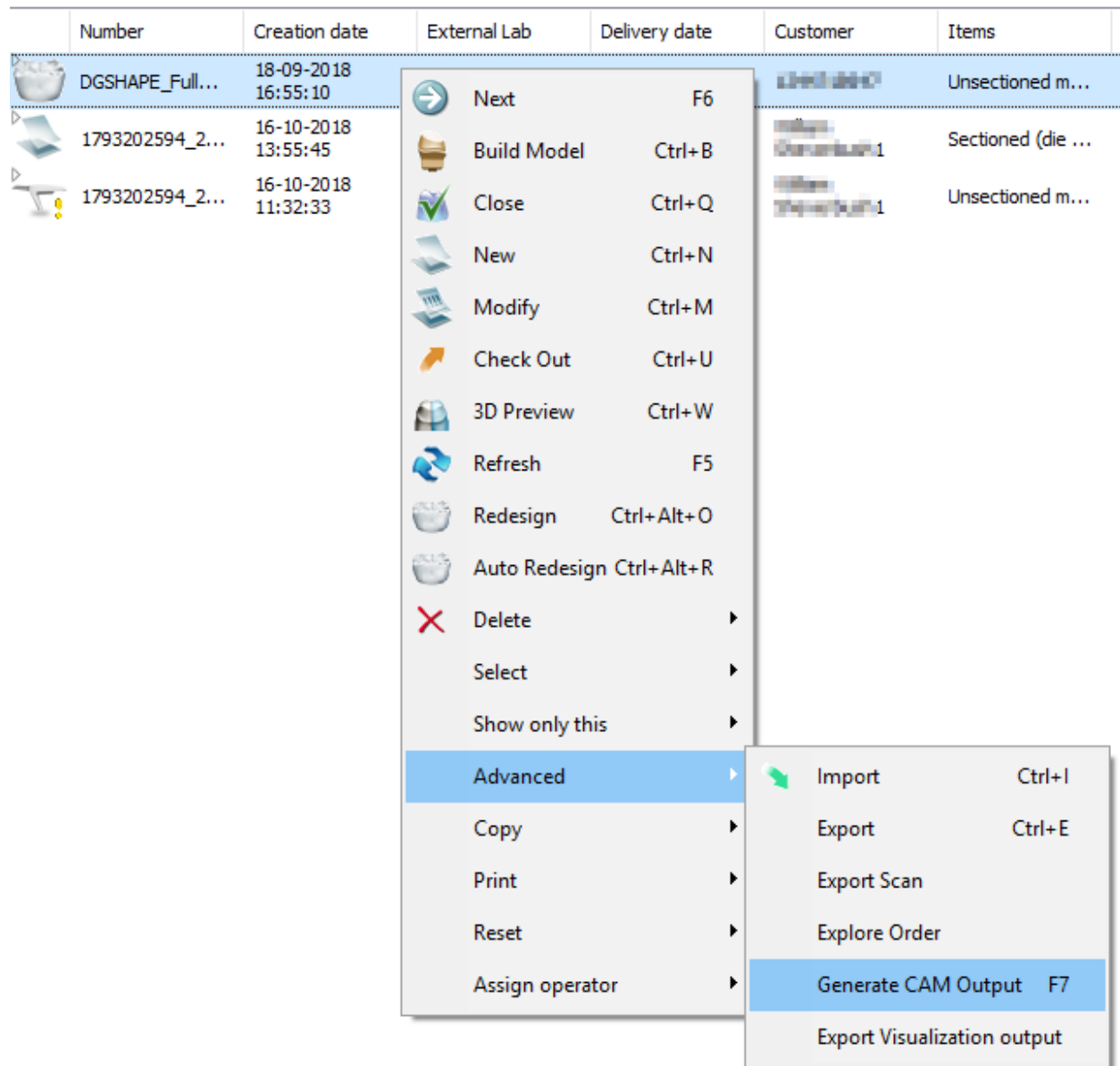


► **Step 8: Virtual Model Design Completed.** You have the opportunity to perform a final sculpt on your upper or lower model. If all your work is done, hit the **Next**  button to move on. All your models will now be saved. Click the **Close**  button to exit Model Builder.

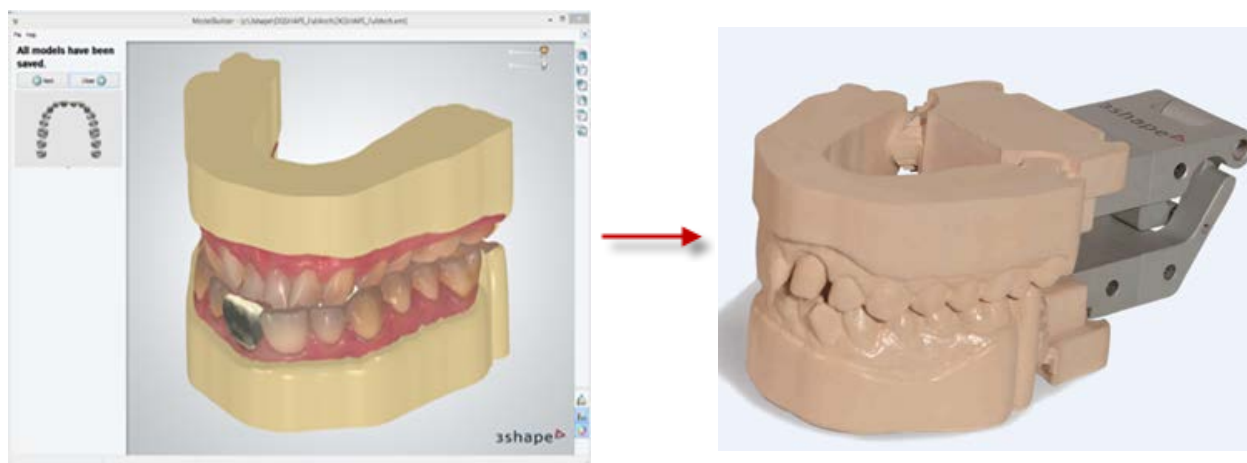


Note! You will see your DGSHAPE Full/Quadrant articulator interface models in the Articulator Interface step of Model Builder and in the milled result only. In the intermediate steps the articulator interface models are hidden.

► **Step 9: Dental Manager tasks.** To send your digital model to be milled, use the Dental Manager option "Advanced->Generate CAM Output", then "Advanced->Explore CAM". Then follow the instructions located in the [Manufacturing Orders](#) chapter.



If desired you can now open your digital model using CIMsystem MillBox software and physically create an unsectioned model using the appropriate milling machine.



1.24. Splints

See the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Splints order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.24.1. Splints Order Creation

INTRODUCTION

In 3Shape Dental System™, you can design orthodontic splints. The following modules are involved in the design process:

- Dental Manager - to [create a Splint order](#)
- 3Shape ScanIt Orthodontics™ (comes with 3Shape Ortho System™) or ScanIt Dental - to [make scans](#)
- Appliance Designer (comes with 3Shape Ortho System™) or Splint Studio - to [create design](#)



Note! Prior to [splint scanning](#) and [design](#), ensure all the required orthodontics modules are installed and correct paths are set to them in *Dental System Control Panel* > [System settings](#).

ORDER CREATION

To create a Splint order, follow the steps below. For more information on order creation, see the [Create an Order](#) chapter.

► **Step 1: Click on any tooth in the teeth overview map to select one of the jaws**

A splint can be ordered for either upper or lower jaw at a time.

Order settings

Order number: 15102019

Importance: Normal

Design Module: **Appliance Designer**

Scan settings

Object type: Model (Orthodontics)

Antagonist: Antagonist model

Neighborhood scan: Sectioned

Order details

Index: Additional:

Appliance

Zirkon
Splints, night guards and protectors

Scan OK Cancel

► **Step 2:** Click the *Appliance* button (the *Splint* button is selected by default)

► **Step 3:** Choose design module

In the **Design Module** list, select either *Appliance Designer* or *Splint Studio*.

►Step 4: Save order

Do one of the following: click **Ok** to save the order or click **Scan** to proceed to [scanning](#).

The splint settings for Appliance Designer are configured in the Orthodontics Control Panel accessed via the [Appliances](#) in the Dental System Control Panel.

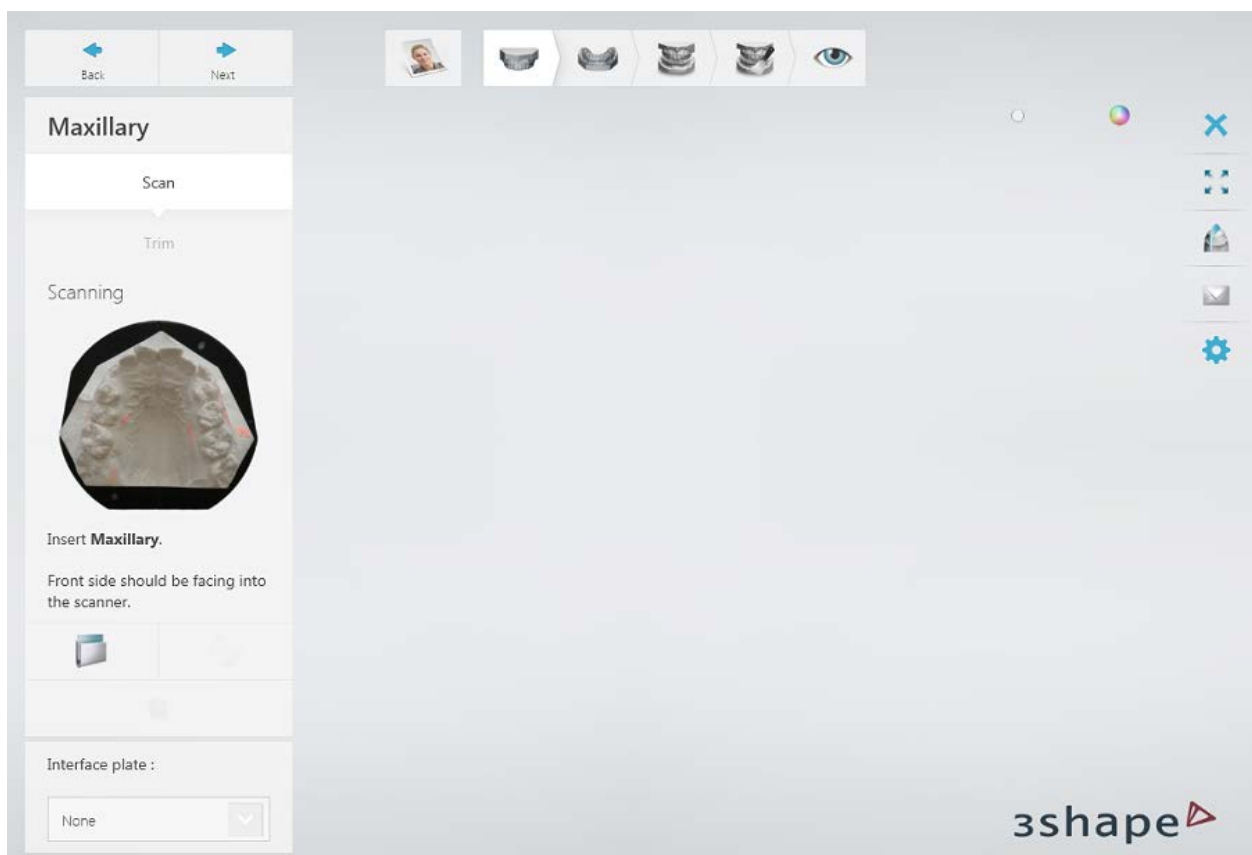
1.24.2. Splints Scanning

The scanning workflow is the same for both 3Shape ScanIt Orthodontics™ and ScanIt Dental.

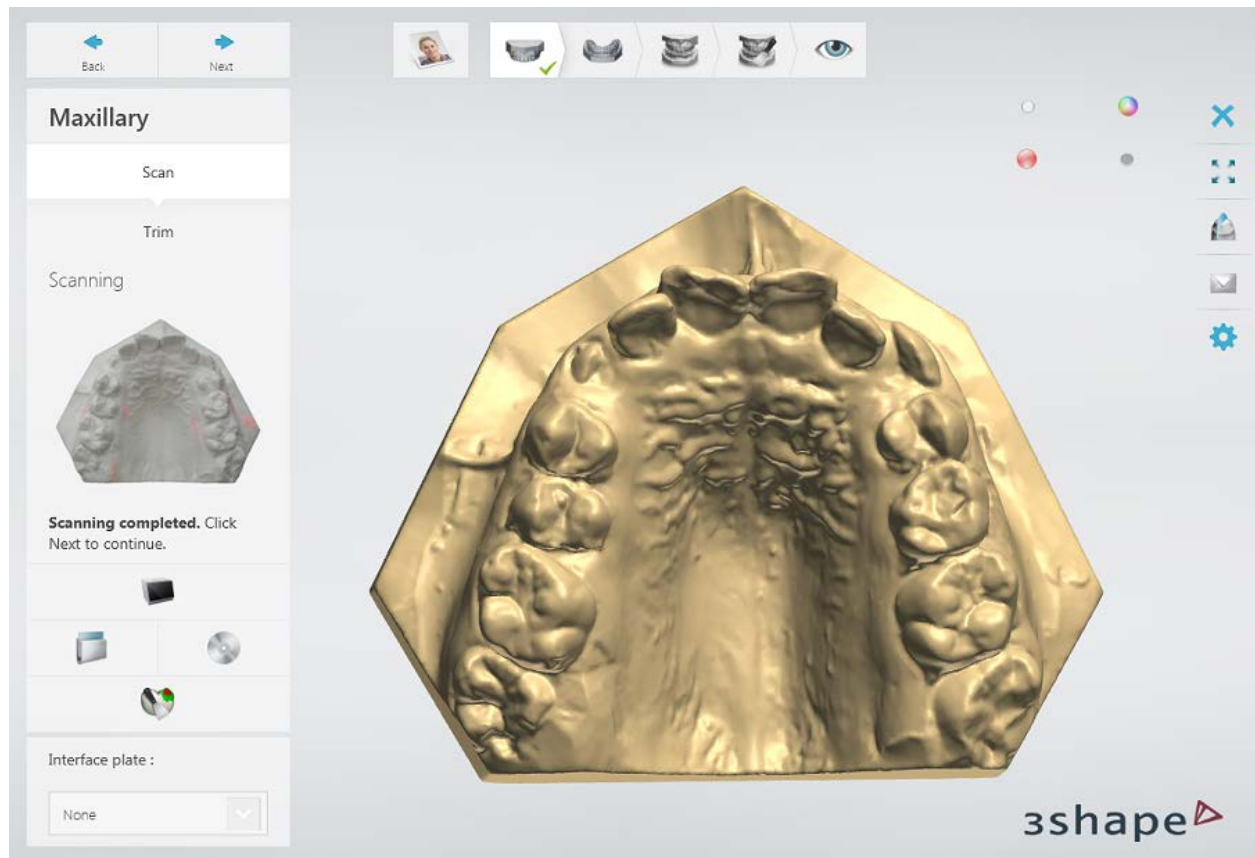
Follow the on-screen instructions and steps below to complete the splint scanning:

►Step 1: Scan the arch

Place the arch model into the scanner as instructed by the software.

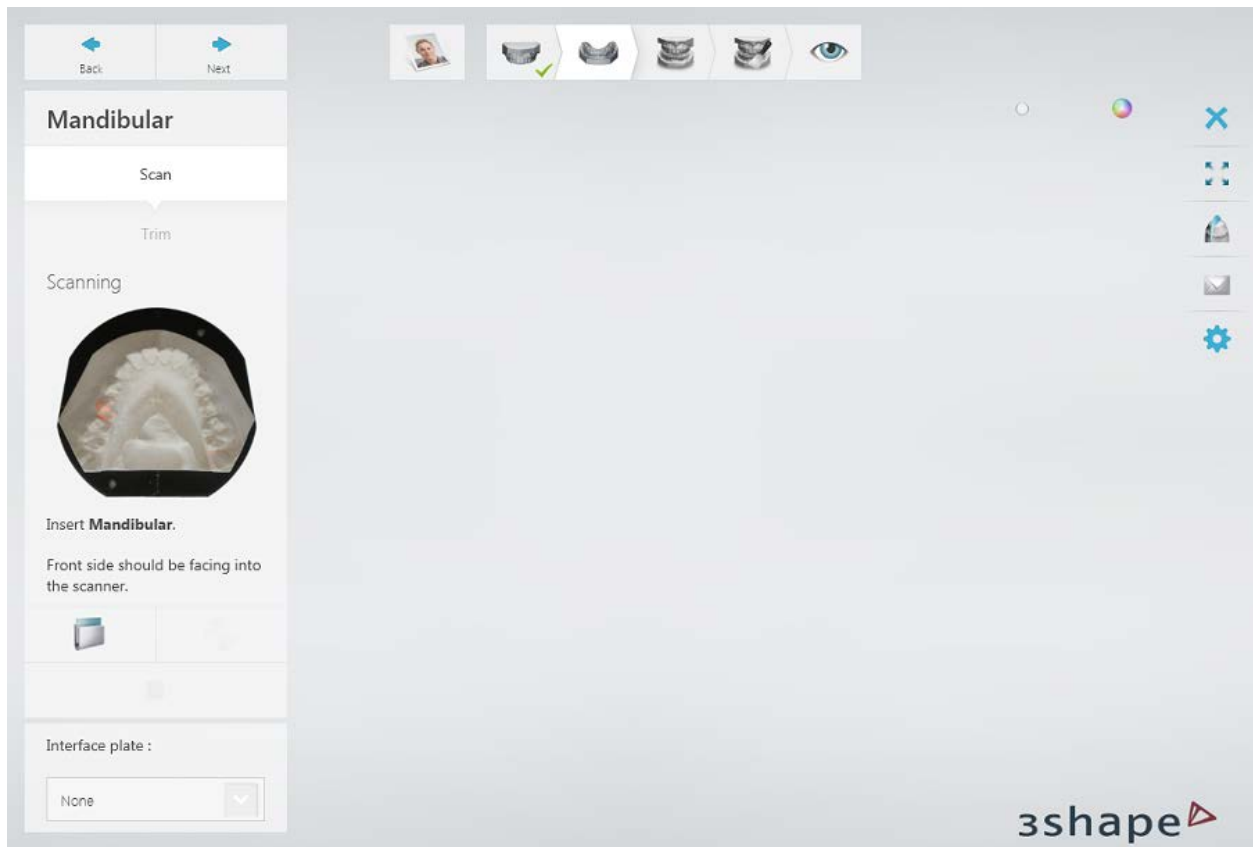


Run the scan by clicking the **Next** button.

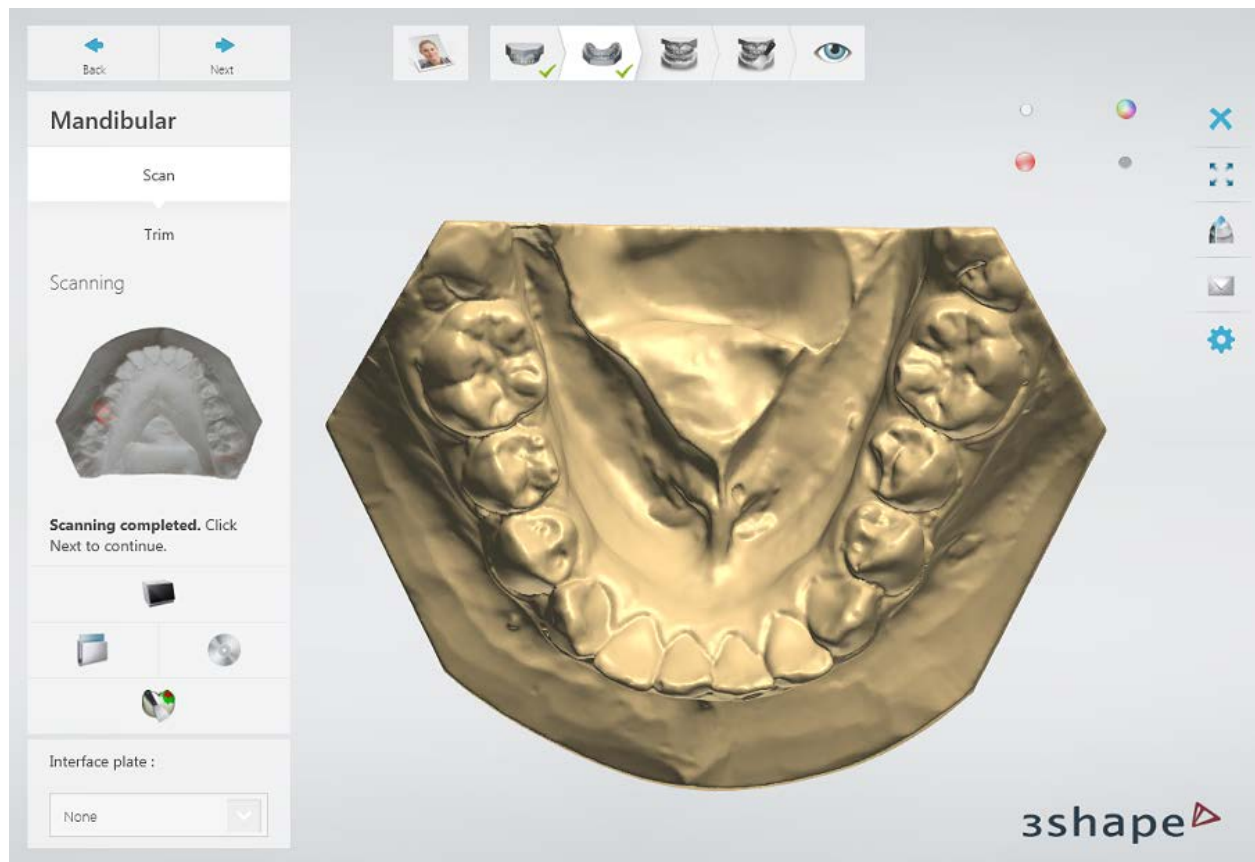


► Step 2: Scan the antagonist arch

Remove the arch from the scanner and insert the antagonist arch.

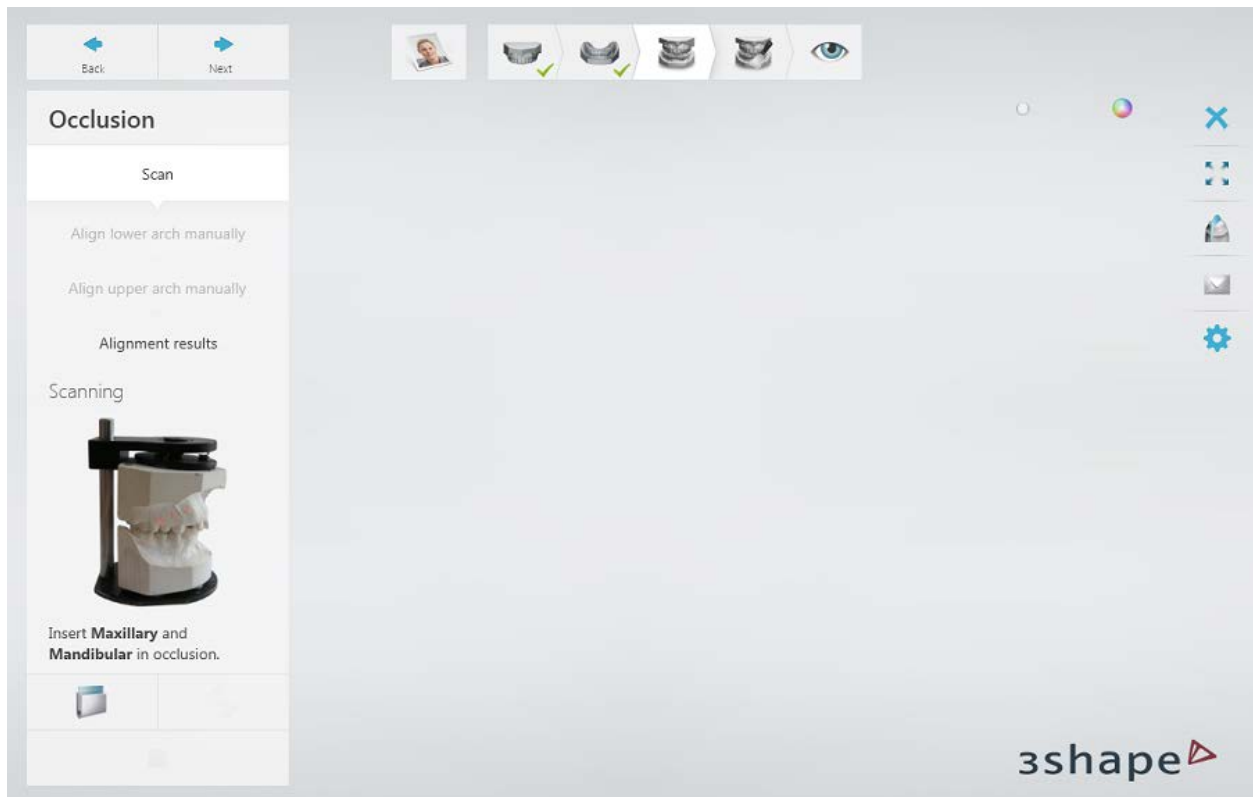


Scan antagonist by clicking the **Next** button.

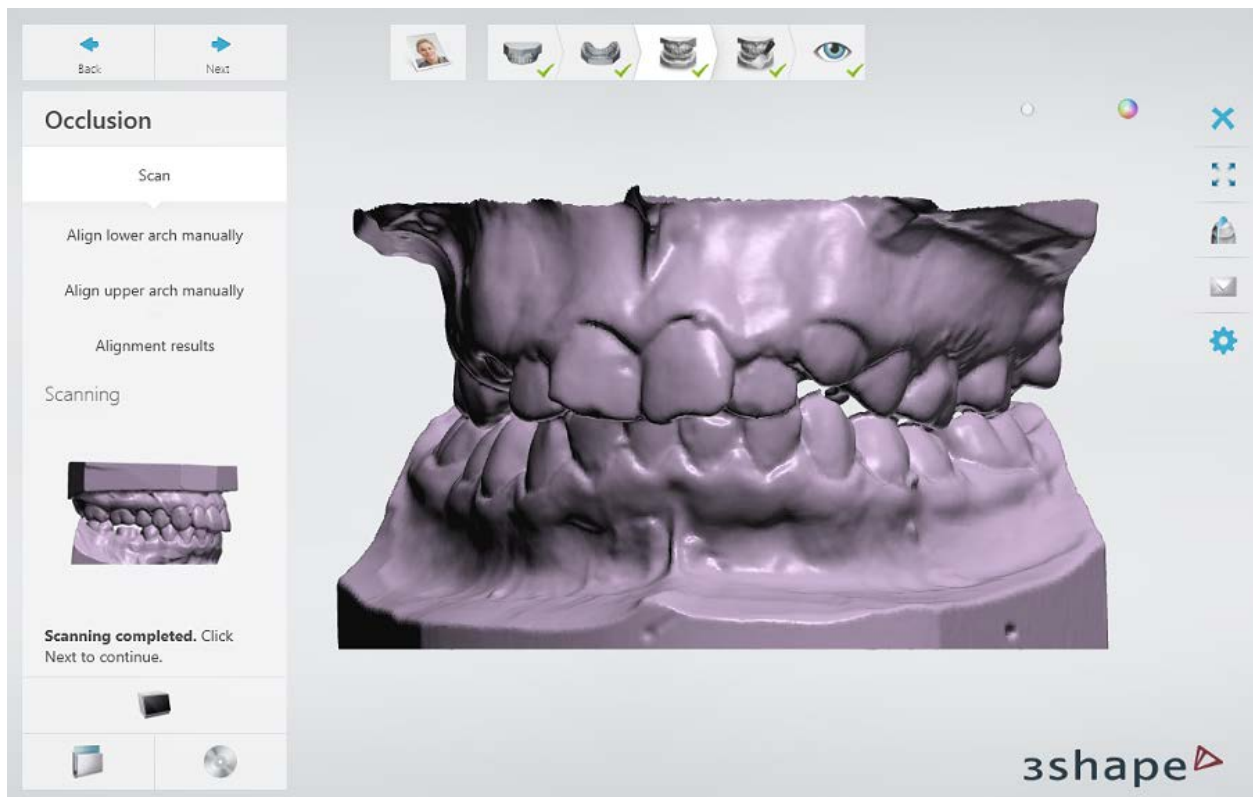


► Step 3: Scan the occlusion

Mount both arches on a fixture in an occlusion and insert it into the scanner.

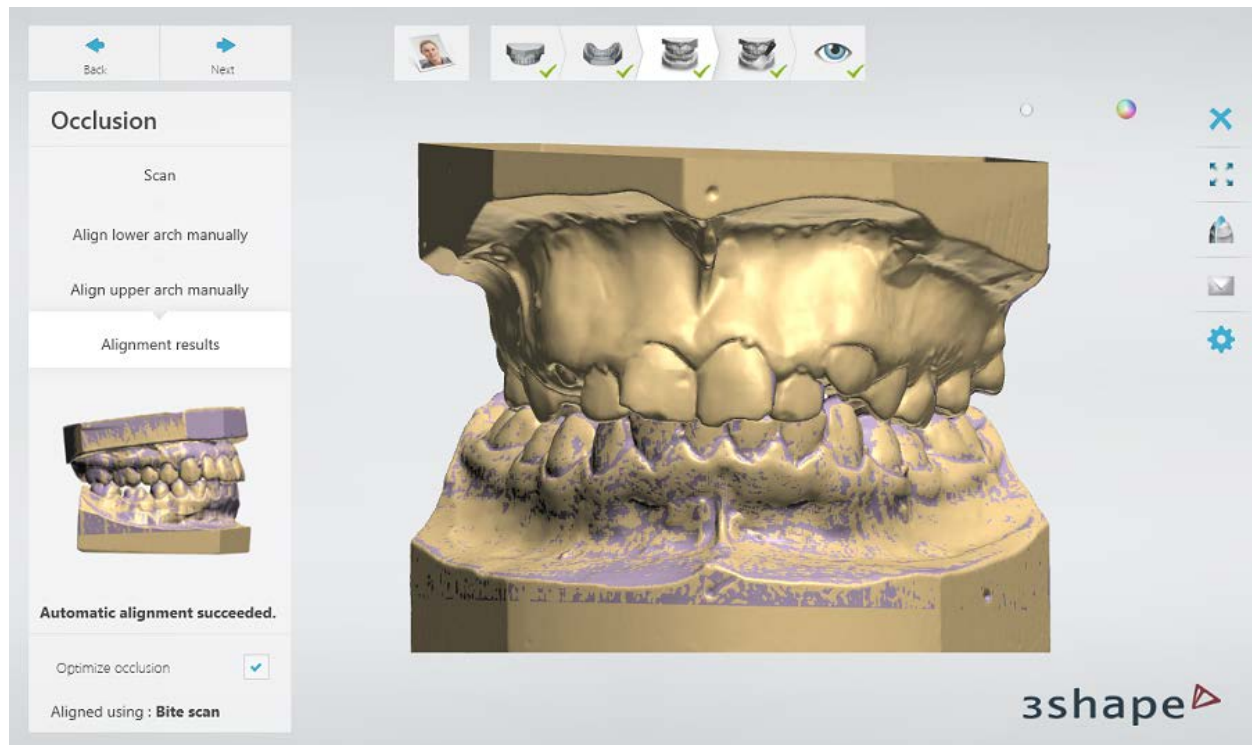


Scan the occlusion by clicking the **Next** button.



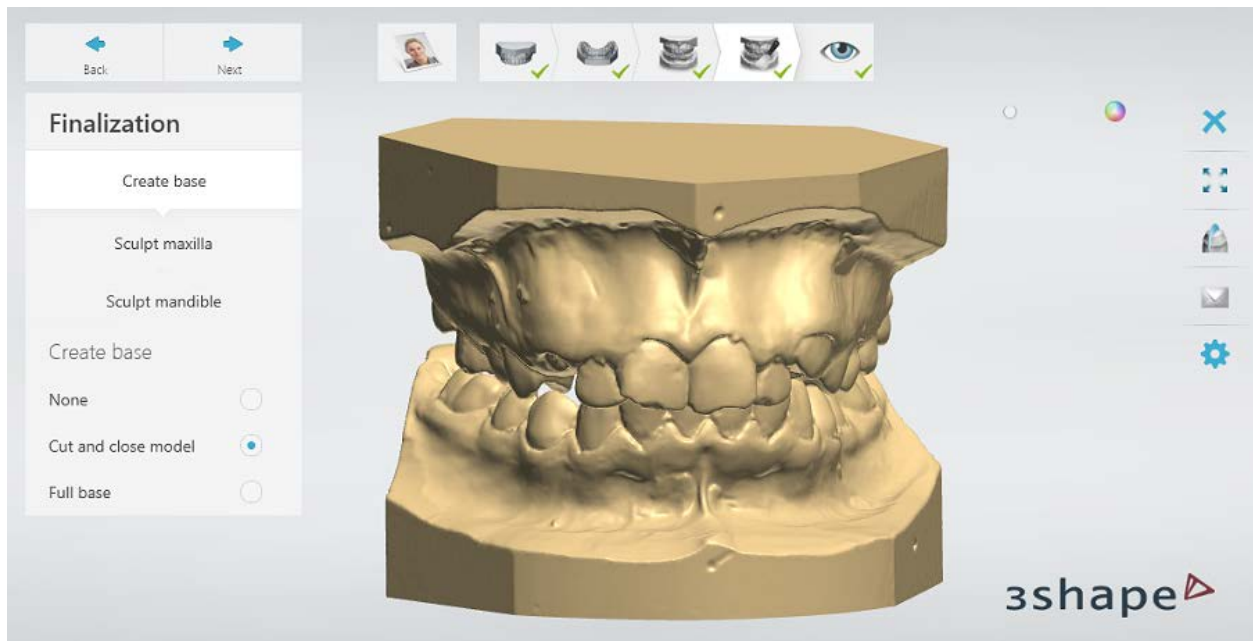
►Step 4: Align the scans

Use one of the methods to [align](#) the arch and occlusion scans.

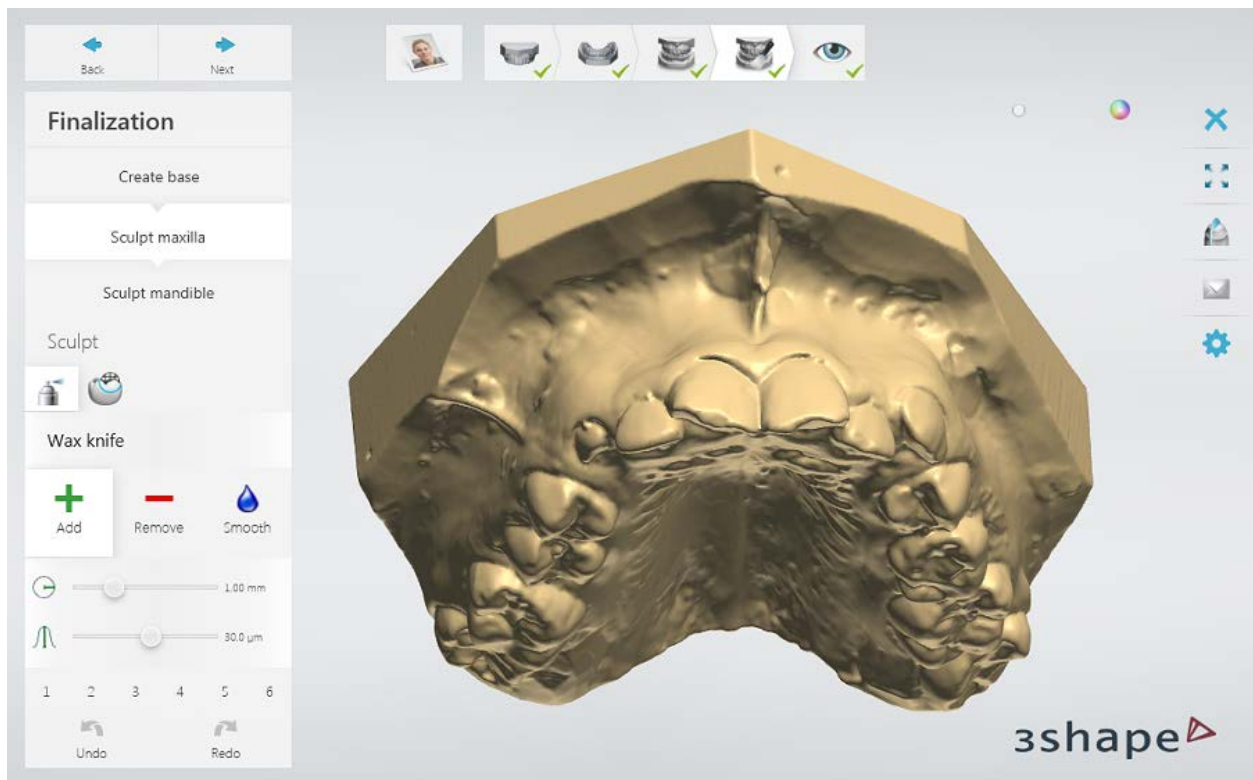


►Step 7: Finalization (optional)

If you want to create a base, you can choose between the **Cut and close model** and **Full base** options.

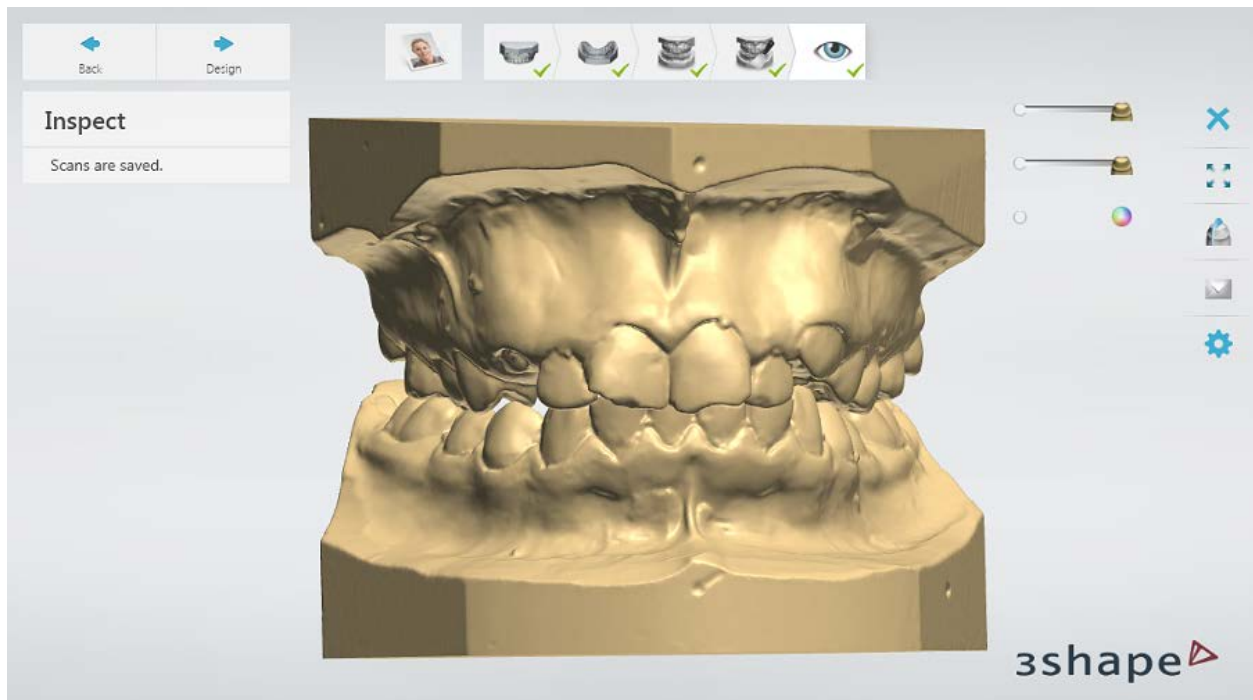


Apply [Sculpt](#) to any of the arch scans if required.



► Step 8: Finish scanning

Click **Next** to save the scans and go to the **Inspect** step. To start modeling, click the **Design** button.



For more details on scanning, refer to the *Ortho System™* and *ScanIt Dental* user manuals.

Continue to the [design](#) section.

1.24.3. Splint Design

For information on how to design splints using Splint Studio, refer to the *Splint Studio* user manual.

Splint design performed with Appliance Designer consists of the following steps:

- ▶ **Step 1: Set up the occlusion**
- ▶ **Step 2: Select/define the occlusion plane**
- ▶ **Step 3: Position the model**
- ▶ **Step 4: Set the insertion direction**
- ▶ **Step 5: Trim wax**
- ▶ **Step 6: Create shell**
- ▶ **Step 7 (optional): Use the Sculpt toolkit**
- ▶ **Step 8: Place a spline for the bar**
- ▶ **Step 9: Create a bar**

- ▶ **Step 10: Finalize your bar**
- ▶ **Step 11 (optional): Use the Sculpt toolkit**
- ▶ **Step 12: Combine a shell with a bar**
- ▶ **Step 13: Adapt designs using the Virtual Articulator**
- ▶ **Step 14 (optional): Attach the ID tag**
- ▶ **Step 15: Apply drill compensation**
- ▶ **Step 16: Use the Sculpt toolkit**
- ▶ **Step 17 (optional): Validate your design**
- ▶ **Step 18: Save your design**

For more details on splint design, refer to the *Ortho System™ user manual*.

1.25. Customized Impression Tray

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Customized Impression Tray order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.25.1 Customized Impression Tray Order Creation

To create a Customized Impression Tray order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

▶ **Step 1: Select preparations in the teeth overview**

A customized impression tray can be ordered for either upper or lower jaw at a time.

▶ **Step 2: Click the *Appliance* button and select the *Customized Impression Tray* button**

▶ **Step 3: Select Impression from the Object type drop-down list**

If your physical impression contains deep narrow cavities that cannot be scanned effectively, select **Model** as an object type and scan the model.

Order settings

Order number: 44000_20180115_1556_Tech_01

Importance: Normal

Design Module: DentalDesigner 2017

Scan settings

Object type: Impression

Tray system: Single tray (no antagonist)

Order details

1

Customized Tray

Anatomy

Frame

Abutment

Misc

Bridge

Gingiva

Removable

Model

Appliance

Implant Studio

2

Zirkon Customized Impression Tray

Index:

Additional:

Scan

OK

Cancel

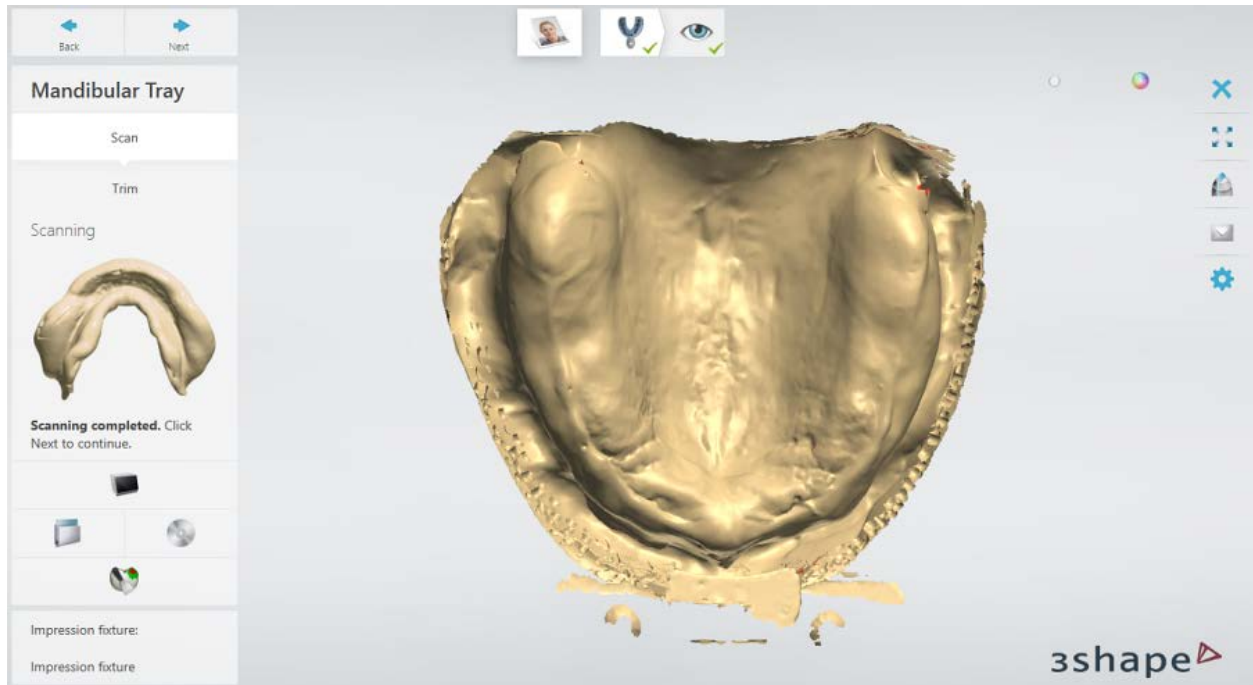
After creating the order, proceed to [scanning](#).

1.25.2. Customized Impression Tray Scanning

Follow the on-screen instructions and steps below to scan an impression for the Customized Impression Tray order:

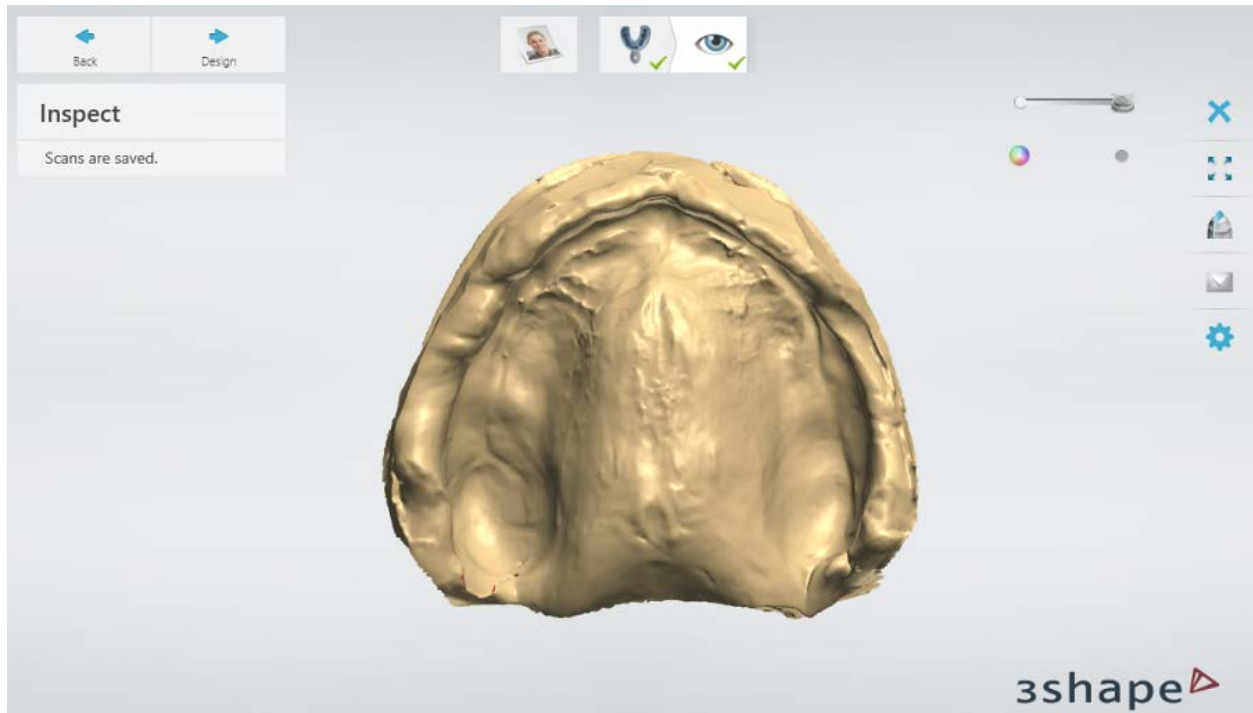
►Step 1: Scan the impression

[Insert](#) the impression into the scanner as guided by the software and run scanning. [Trim](#) the scan if needed at the **Trim** substep or just click **Next** to save the scan and move to the last step.



►Step 2: Finish scanning

Once the scan is saved, you can proceed to [Customized Impression Tray design](#) by clicking the **Design** button or close the scanning application.



1.25.3. Customized Impression Tray Design



Warning! Do not use Dental System to design Crown lengthening Guides.

There are three main phases in designing the Customized Impression Tray:

- I. **Surveying and Blocking out**
- II. **Tray design**
- III. **Finalize**

Follow the steps below to design a Customized Impression Tray:

► **Step 1:** [Orient the occlusal plane](#)

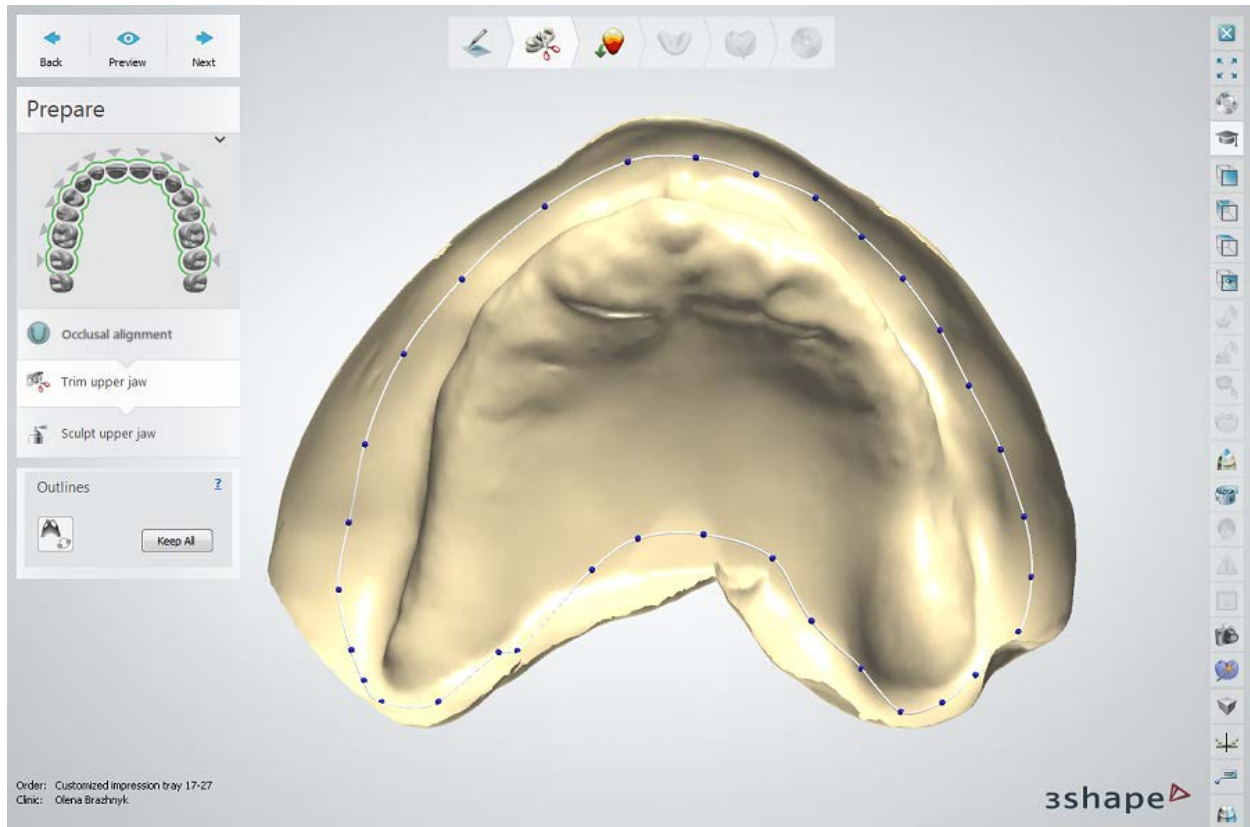
► **Step 2 (optional):** Trim your impression scan




Note! This step is only available if the scan you are using for design was obtained from impression. Otherwise, [Step 3: Use the Sculpt toolkit on your scan](#) comes first.

At this step you can cut off the redundant parts of a scan by placing an outline which marks the areas which should be removed (outside the outline) and those that will be kept (inside the outline).

- To automatically place the outline and keep as much scan surface as possible, click the **Keep all** button. The outline will then be automatically set into the [Fast edit](#) mode:

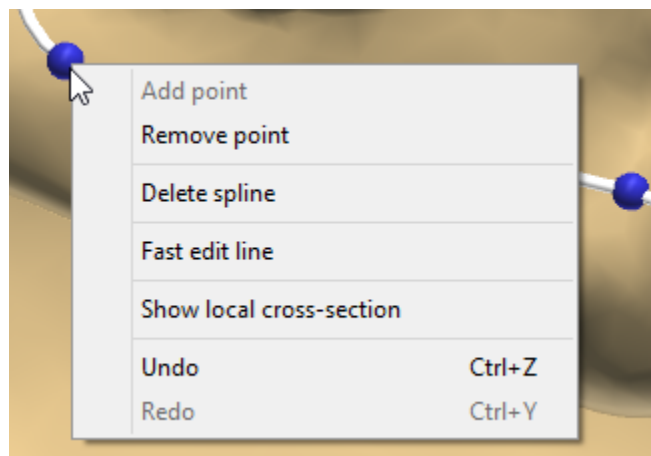
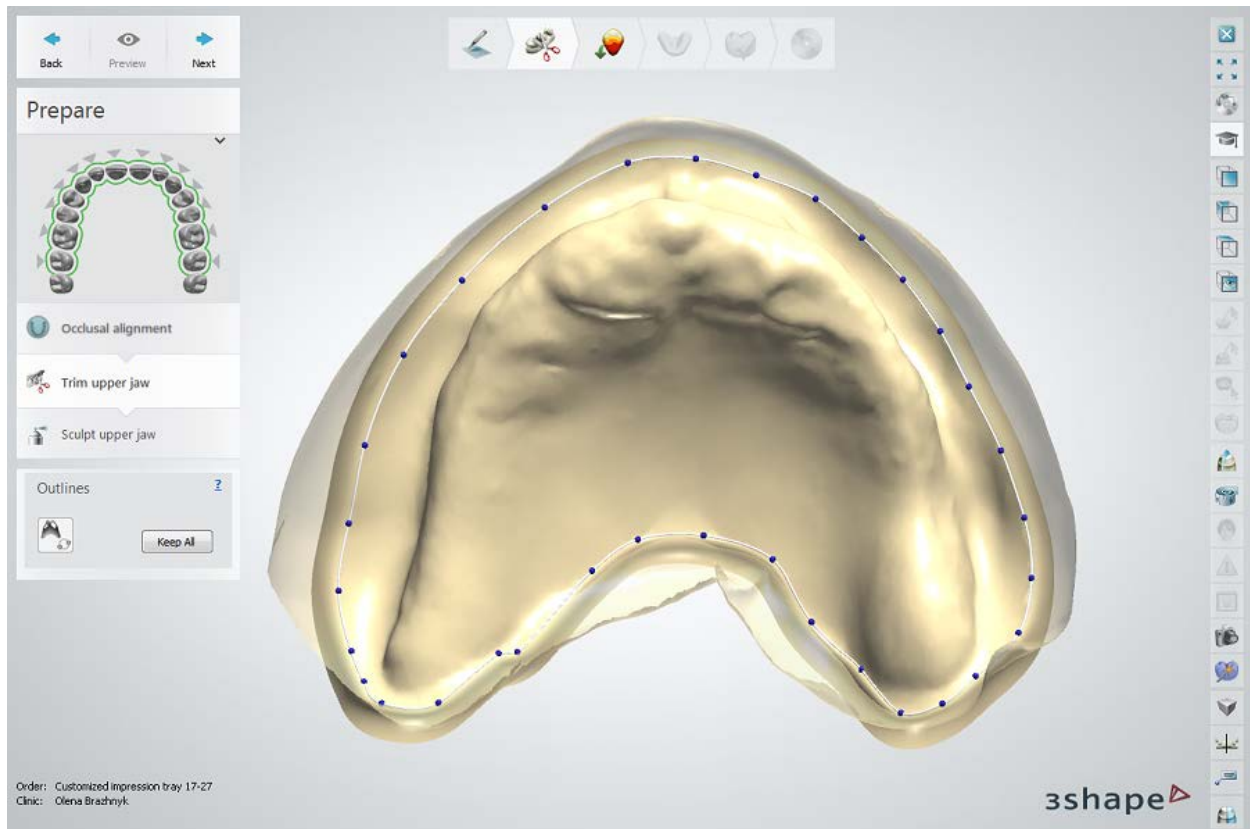


- To place the outline manually, click the  **Draw outline** button and place the spline by clicking the control points or drawing. Click **Preview** to see which areas will be trimmed (these areas are visualized as translucent).



Hint! Please try to keep the trimming outline out of the mucolabial fold area to secure an effective tray design.

After you click **Preview** or **Next**, the software closes your impression to make it look like a gypsum model:



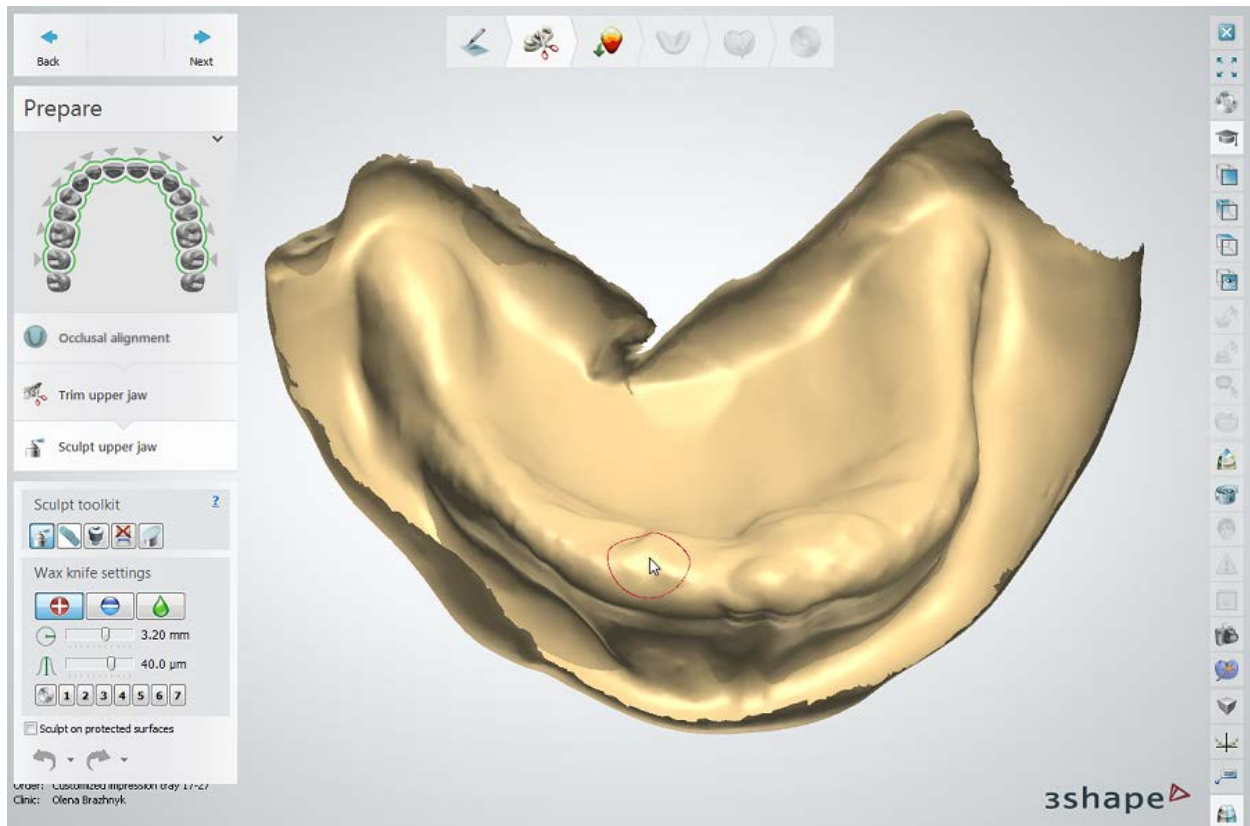
Right-click the control point on the outline and select **Fast edit line** to enable the mode for the fast and easy spline correction where you draw with a cursor and the spline intuitively adjusts its position.

Please see chapter [Line Editing](#) for more details.

Click **Next** if you are satisfied with the trimming to move to the next step.

►Step 3 (optional): Use the Sculpt toolkit on your scan

Improve the quality of your scan by adding material to it or smoothing its surface etc. See chapter [Sculpt Toolkit](#) to learn how to use the sculpting tools.

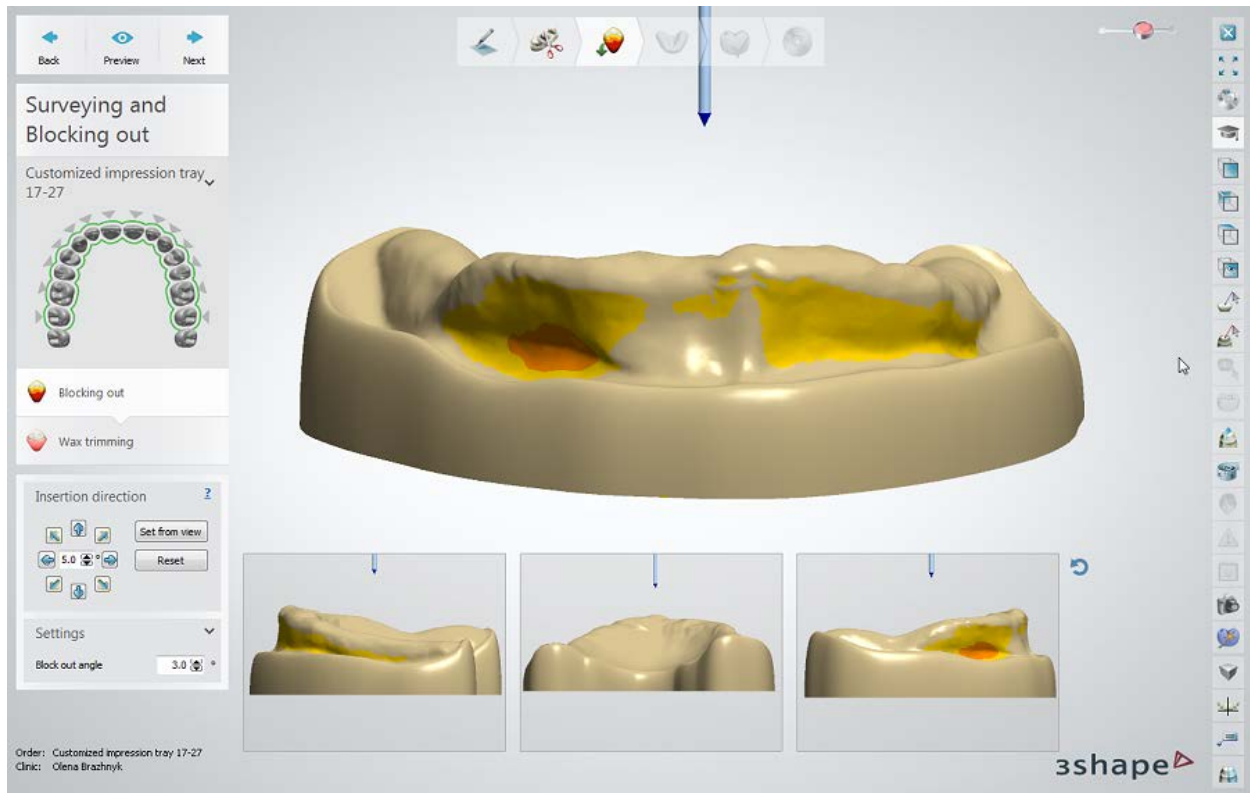


Click **Next** to go to the next step.

► Step 4: Block out the undercuts

At the **Blocking out** step you choose an insertion direction, in which the wax is applied to block the undercuts.

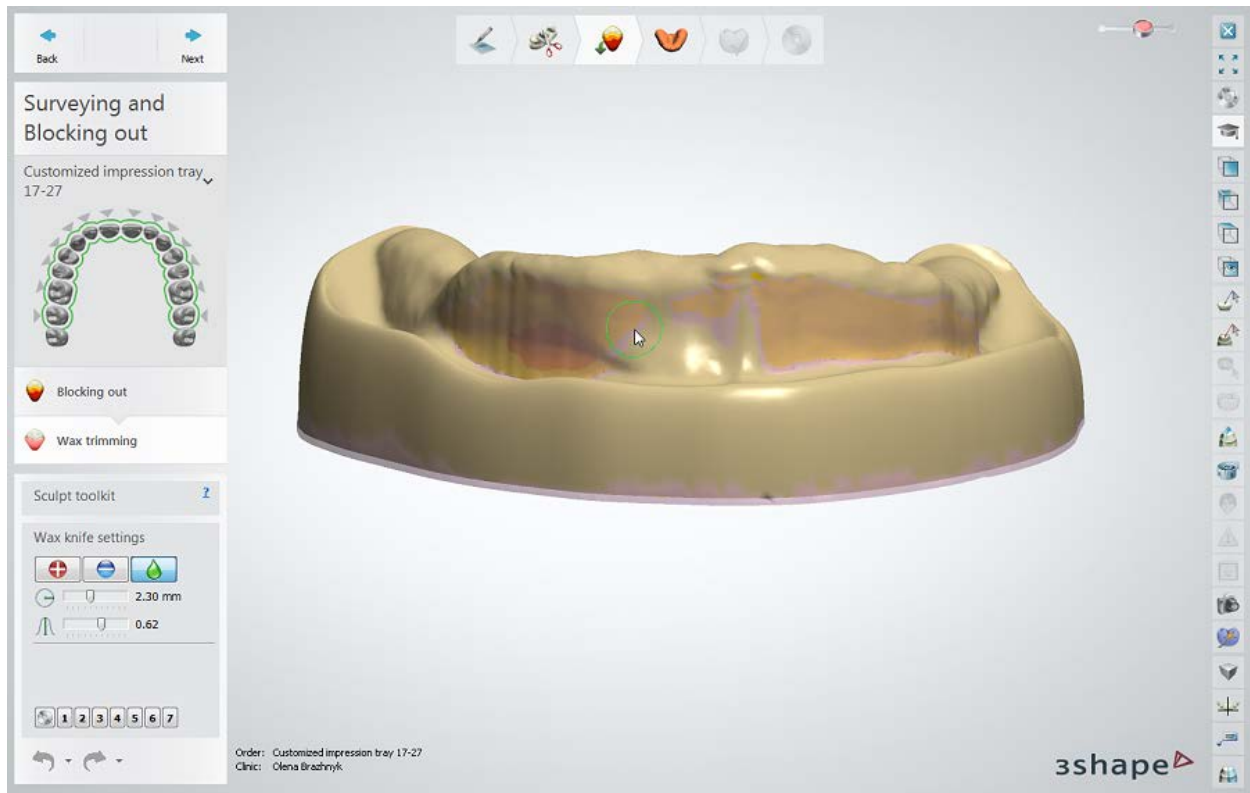
Please see chapter *Removable Partial Dentures* for details on the [Blocking out](#) step.



Click **Next** to go to the next step.

► Step 5: Trim wax

At this step you can trim/add wax where necessary. Please see chapter *Removable Partial Dentures* for details on the [Wax Trimming](#) step.



Click **Next** to go to the next step.

► Step 6: Design your tray

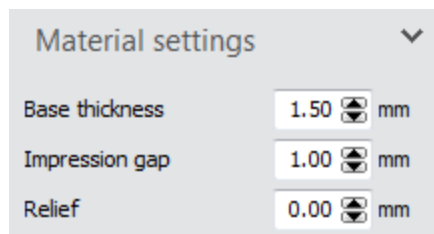
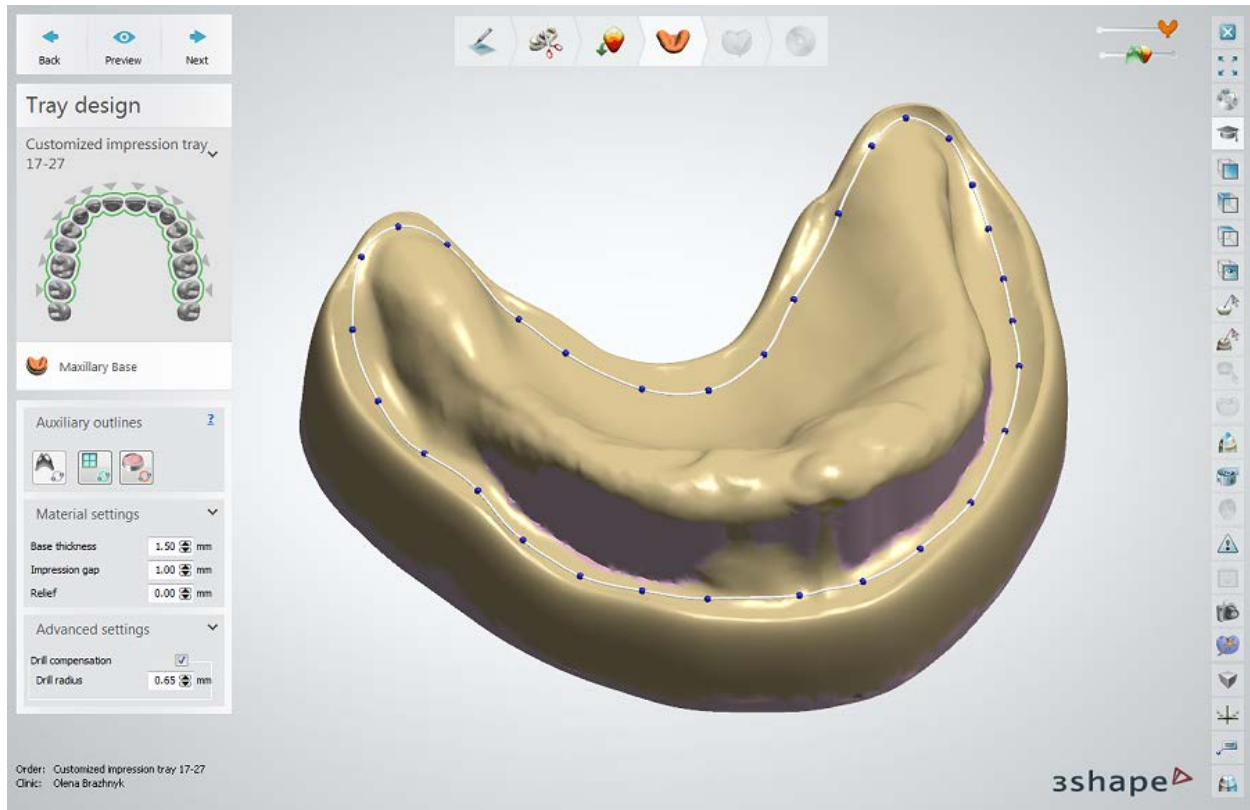
To design an impression tray, you need to place the spline to mark the tray's boundary.



Note! The spline should be placed approximately 2 mm up from the mucolabial fold.



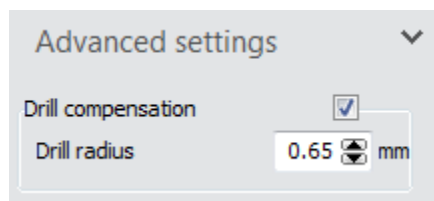
Click the **Draw window in a base** button and place the outline of a tray:



Base thickness - The impression tray wax thickness.

Impression gap - The gap for impression material on spaced trays. Can be set to zero for close-fitting trays.

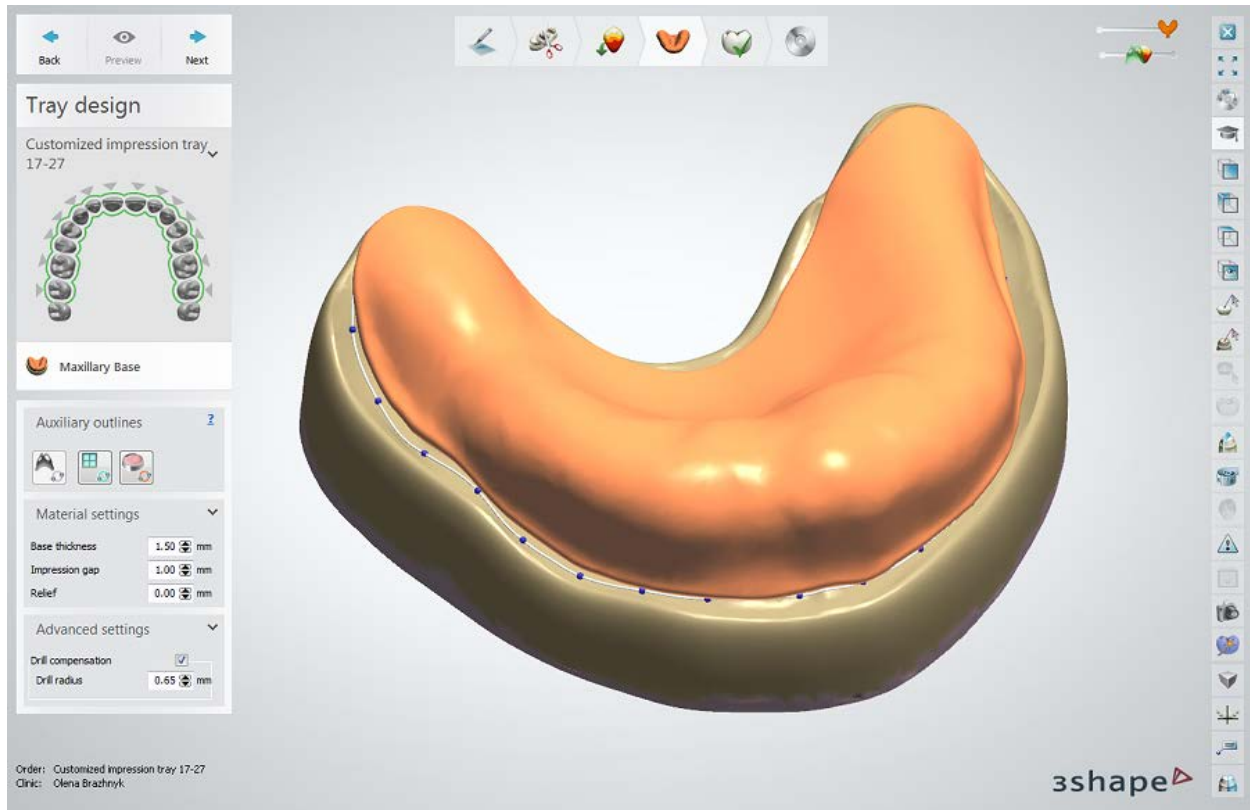
Relief - The thickness value of the wax layer applied to the relief zone.



Advanced settings let you enable **Drill compensation** and specify the **Drill radius**.

The default **Drill compensation** value is pre set in and taken from *DSCP- >Site Settings->Manufacturing processes*.

Click **Preview** to view the result:

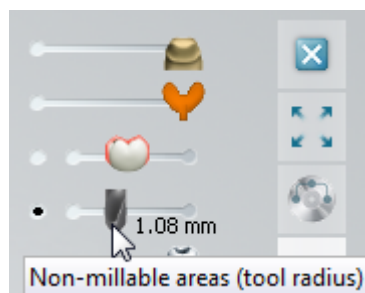


Click **Next** to go to the next step.

► Step 7: Add tray handles

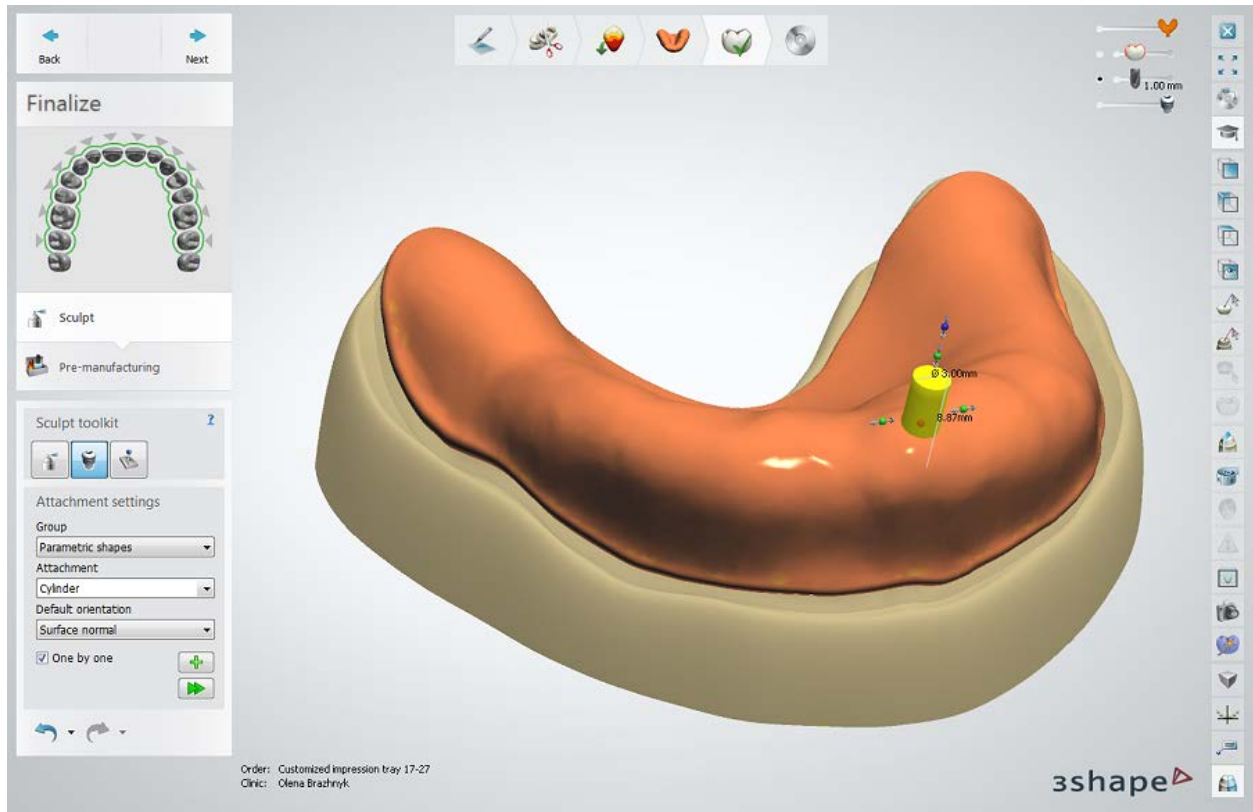
The Sculpt toolkit allows you to add handles which will be used while inserting/removing the impression tray into/from the patient's mouth. Finger stops can also be added at this step.

Please see chapter [Sculpt Toolkit](#) to learn how to place the attachments (to create handles) and use other sculpting tools.



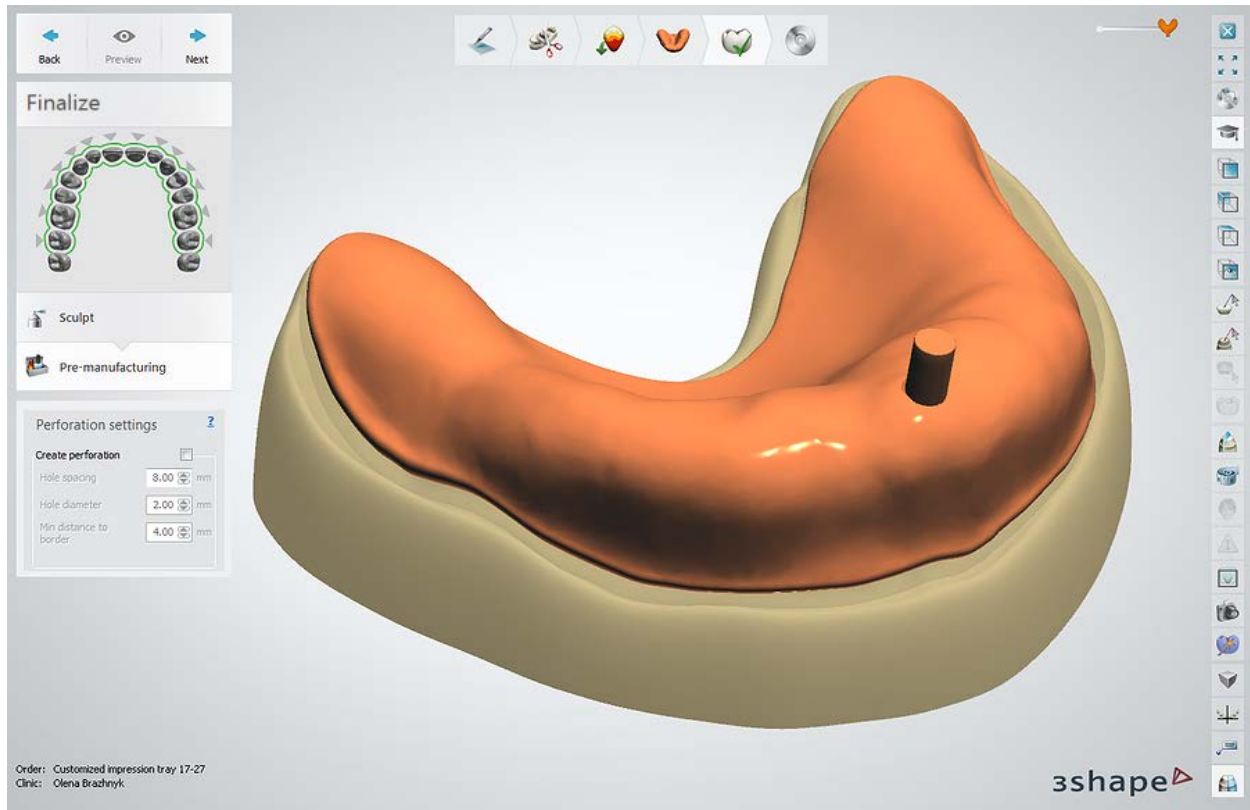
You can use the [Visualization sliders](#) in the upper right corner of the 3D modeling window to show/hide elements on the screen.

For example, the **Non-millable areas** slider marks areas which cannot be milled using the specified drill radius.

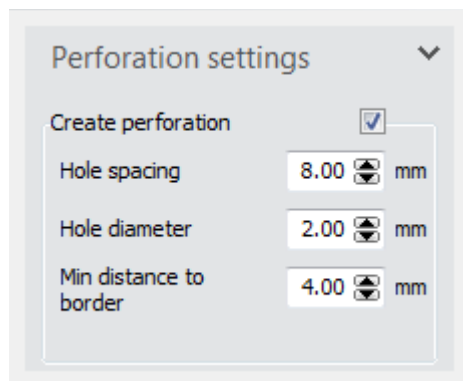


Click **Next** to go to the next step.

► **Step 8 (optional): Set up perforation settings**

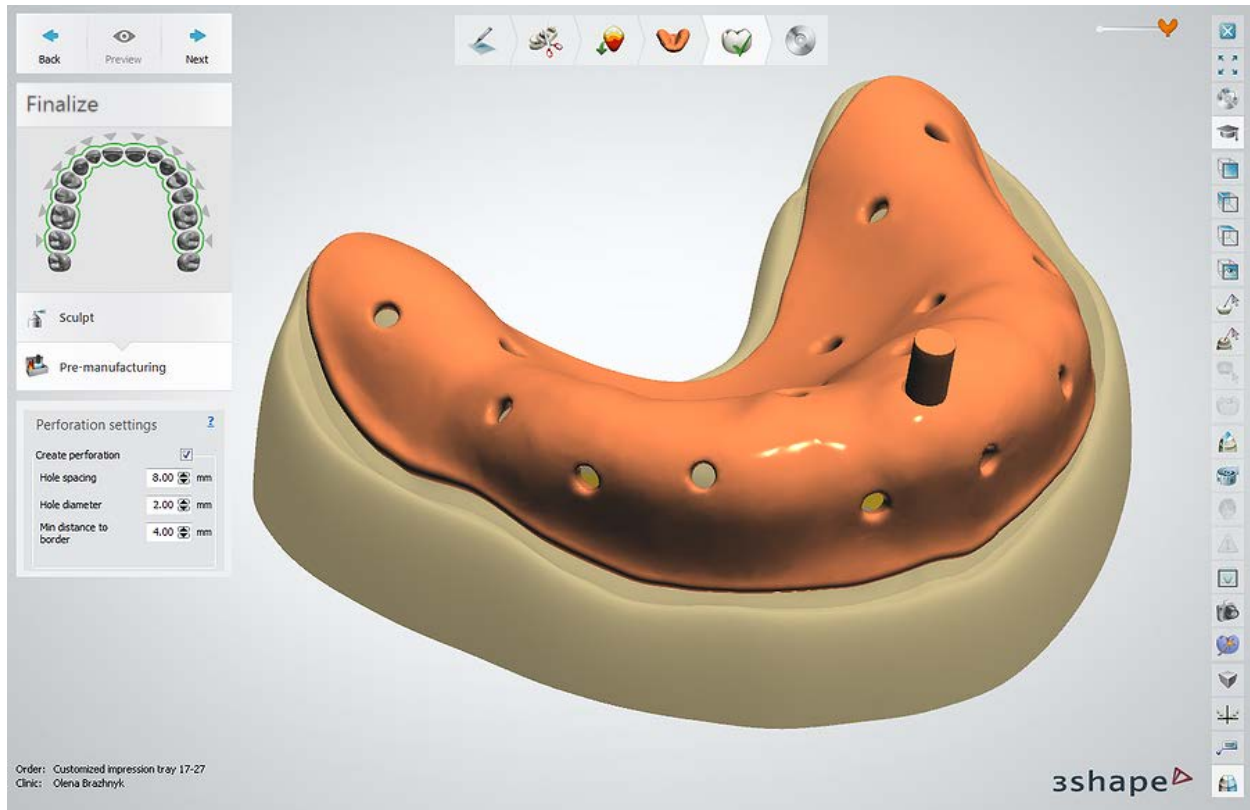


At the **Pre-manufacturing** step, you can enable **Perforation settings** and enter the desired values, where:



Hole spacing - the minimum distance between holes from their borders.

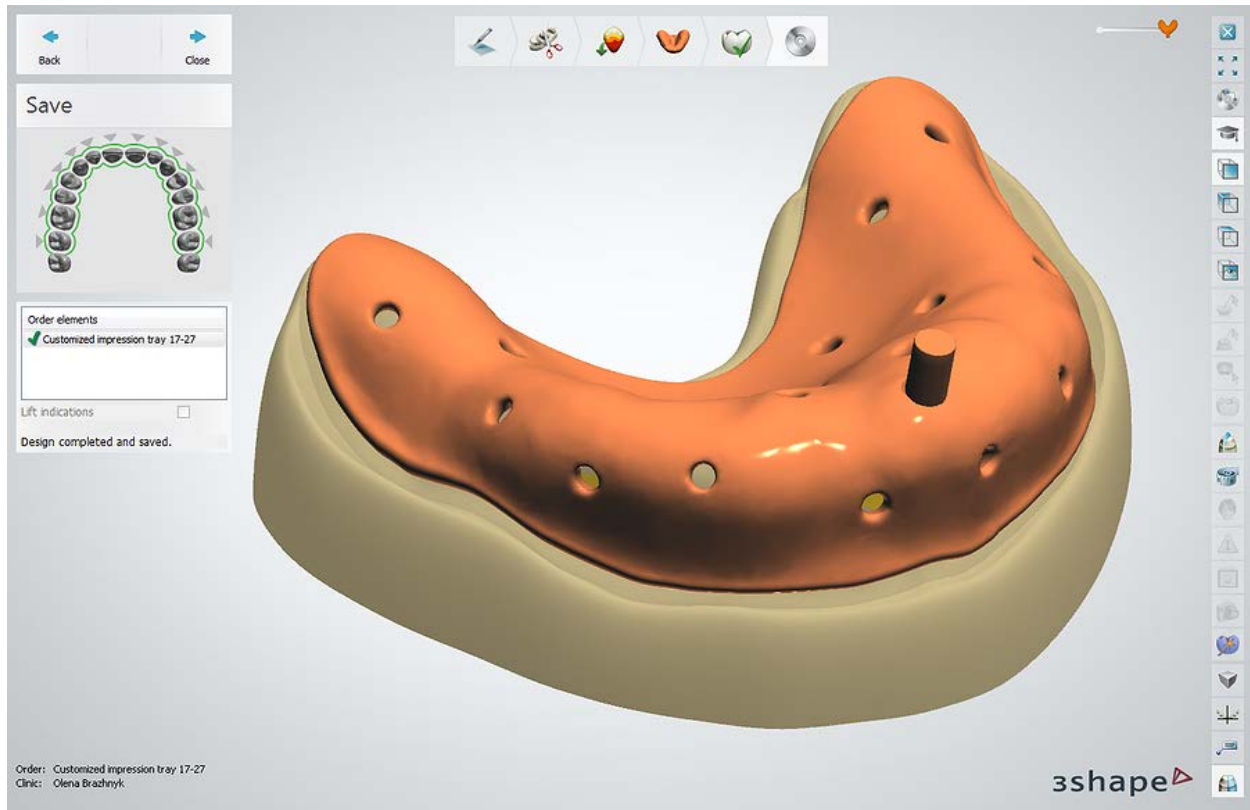
Min distance to border - the minimum distance from the plate's border to the closest hole(s).



Click **Next** to go to the next step.

► Step 9: Close application

Your Customized Impression Tray design is now completed and saved. Then, click either the **Close** button to close Dental Designer, or the **Send** button to sent the design to manufacturer (depending on your configuration).



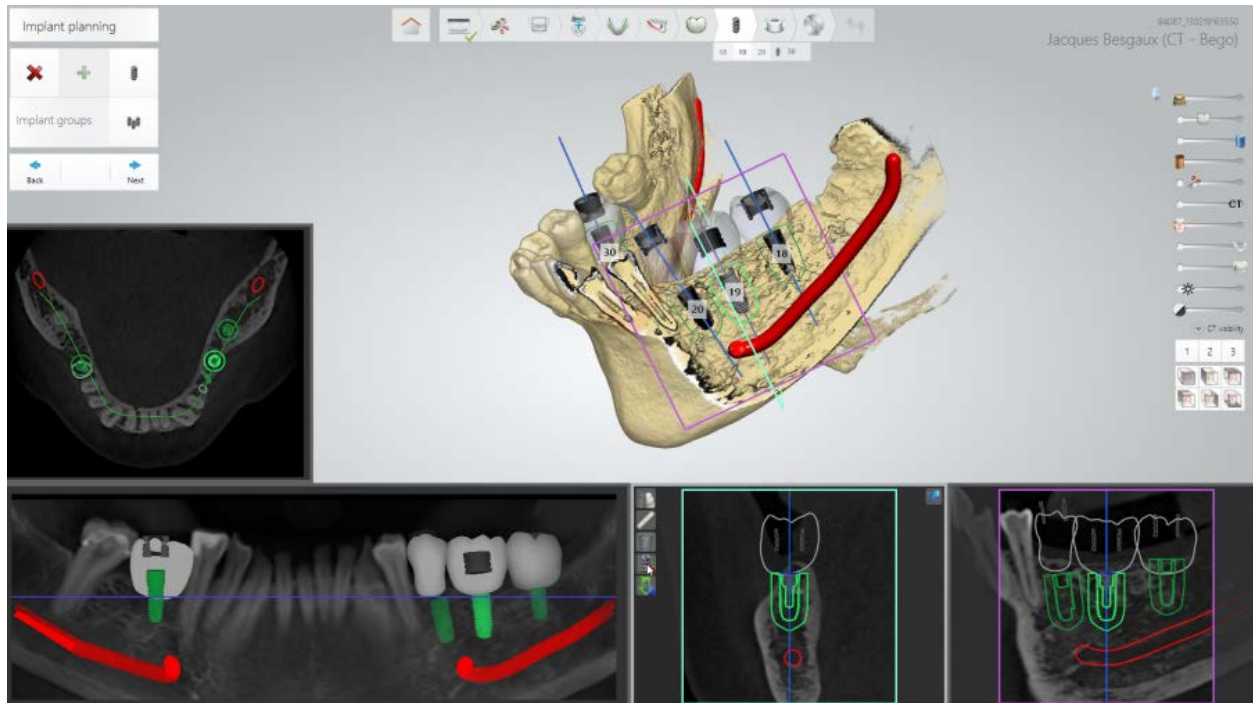
Continue to [manufacturing](#) if required.

1.26. Implant Studio

3Shape Dental System™ allows you to order Implant Planning and Surgical Guide creation via 3Shape Implant Studio®.

3Shape Implant Studio® is a pre-operative planning software used to plan the placement of one or more implants based on an imported and aligned Computer Tomography (CT) and 3D surface scan. In addition, a surgical guide for a guided surgery can be designed and exported for manufacturing. By integrating implant planning with Dental System's design workflows, labs can provide complete treatment packages up front.

Implant Studio is available as a fully integrated add-on module for Dental System™ and in various stand-alone configurations.



3Shape Implant Studio® - Implant planning step

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for an Implant Studio order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.26.1. Implant Studio Order Creation

From the Dental System you can create orders for:

- Implant planning
- Implant planning + surgical guides
- Implant planning + surgical guides + dental indications (see example below)




For more information on order creation, see the chapter [Create an Order](#).

► **Step 1: Select Digital impression for the Object type and choose preparations in the teeth overview**

► **Step 2: Click the *Abutment* button and select the *Screw Retained Crown* button**



► **Step 3: Select pontics in the teeth overview**

- ▶ Step 4: Click the *Anatomy* button and select the *Crown Pontic*  button
- ▶ Step 5: Select all units in bridge in the teeth overview
- ▶ Step 6: Click the *Bridge* button
- ▶ Step 7: Select teeth for implant planning
- ▶ Step 8: Click the *Implant Studio* button, the *Implant planning*  and *Surgical guide*  buttons are selected by default

Order settings

Order number: 97728_20170403_1501_Tech_01
Importance: Normal
Design Module: DentalDesigner 2017

Scan settings

Object type: Digital impression
Antagonist: Antagonist

Order details

Surgical Guide

Implant Plann..

Crown Pontic

Screw Retaine..

Connector bridge

Index:
Additional:

Anatomy

Frame

Abutment

Misc

Bridge

Gingiva

Removable

Model

Applian

Implant Studio

2

Zirkon

Category: All items

System: 3Shape Implant 4.3 mm

Kit: 2 pcs Abutment 4.3 mm

6

Type: None

8

Zirkon

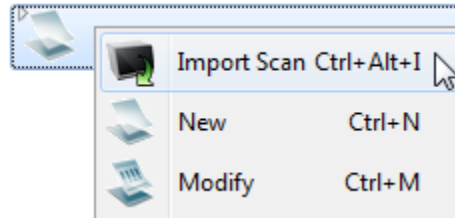
Surgical Guide

After creating the order, proceed to [scan import](#).

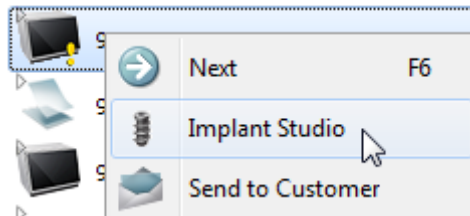
571

1.26.2. Implant Studio Scan Import

Right-click the created Implant Studio order in the Dental Manager order list and select the [Import Scan](#) option to locate and import scans.



The order status will change to "scanned". Right-click the order and select **Next** to open and [design](#) the order in Implant Studio.



1.26.3. Implant Studio Design

Implant Planning and Surgical Guide design are performed in 3Shape Implant Studio®.

A typical Implant Studio® workflow in combination with other dental software packages is illustrated below:

- ▶ **Step 1: Load and align open format CBCT/CT scan and surface scan**
- ▶ **Step 2: Place virtual crowns**
- ▶ **Step 3: Plan implant positions**
- ▶ **Step 4: Design surgical guides**
- ▶ **Step 5: Create dental indication components in Dental System™**
- ▶ **Step 6: Communicate with a dentist and receive his final approval of the planned case**



See the *Implant Studio® user manual* for details.

1.27. Gingiva/Anatomical Gingiva

Please see the How Do I Use section for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Gingiva/Anatomical Gingiva order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.27.1. Gingiva/Anatomical Gingiva Order Creation

To create a Gingiva (e.g. [Implant bridge with gingiva](#)) or Anatomical Gingiva (e.g. [Anatomical bridge with gingiva](#)) order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

You can design gingiva with the following dental indications:

1. Implant supported bridges/single elements

- Screw-retained crowns
- Anatomical abutments

2. Anatomy and Frame bridges/single elements

- Anatomy crowns and pontics
- Frame copings and pontics


Please view below the examples of creating two orders - Implant bridge with gingiva and Anatomical bridge with gingiva:

IMPLANT BRIDGE WITH GINGIVA

►Step 1: Select preparations in the teeth overview

►Step 2: Click the *Abutment* button



►Step 3: Select pontic(s) in the teeth overview

►Step 4: Click the *Frame* button and select the *Library Pontic*  button

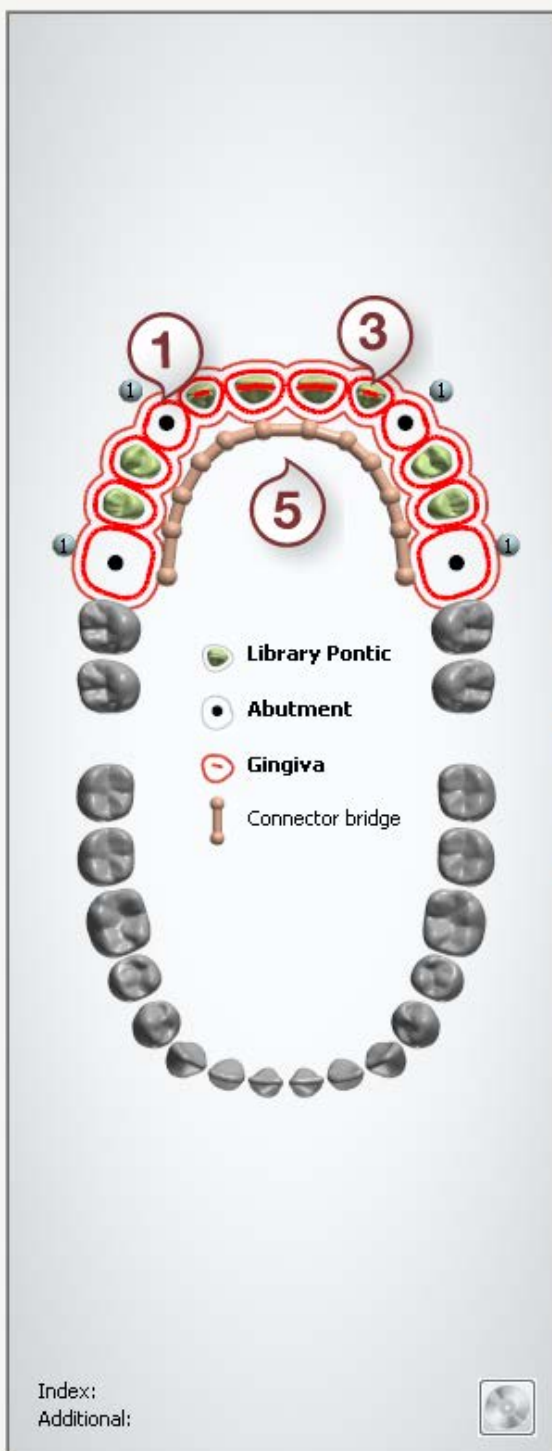
►Step 5: Select all units in bridge in the teeth overview

►Step 6: Click the *Bridge* button

►Step 7: Click the *Gingiva* button

The *Gingiva*  button is selected by default. Click the *Anatomical gingiva*  button to design your dental indication with the anatomical gingiva.

Order details



Anatomy

4

Frame

2

Abutment

Misc

6

Bridge

Type

None

7

Gingiva

Zirkon

Gingiva

+

Removable

Model

Appliance

Implant Studio

ANATOMICAL BRIDGE WITH GINGIVA

►Step 1: Select preparations in the teeth overview

►Step 2: Click the *Anatomy* button, the *Crown*  button is selected by default



►Step 3: Select pontic(s) in the teeth overview

►Step 4: Click the *Anatomy* button and select the *Crown Pontic*  button

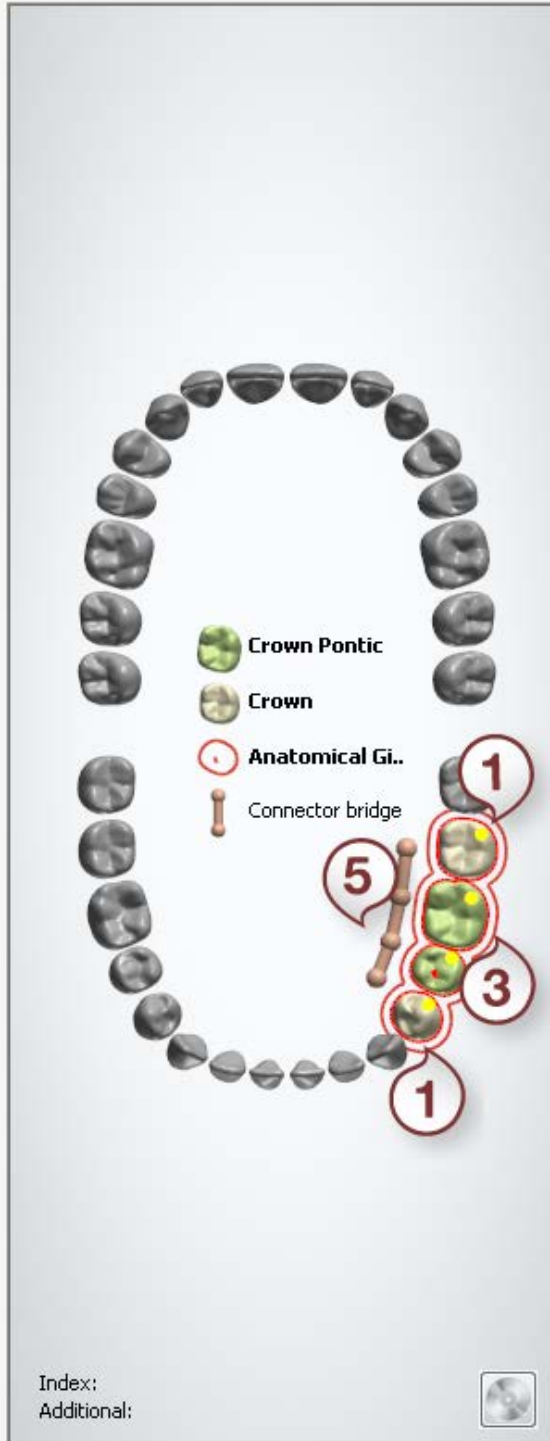
►Step 5: Select all units in bridge in the teeth overview

►Step 6: Click the *Bridge* button

►Step 7: Click the *Gingiva* button

The *Gingiva*  button is selected by default. Click the *Anatomical gingiva*  button to design your dental indication with the anatomical gingiva.

Order details



2

Anatomy

4

Frame

Abutment

Misc

6

Bridge

Type

None

7

Gingiva

Wax

Anatomical Gingiva

Removable

Model

Appliance

Implant Studio



Note! Preparation model for the anatomy and frame elements, which are to be designed with gingiva, cannot be physically sectioned. Therefore, this model must be prepared virtually in Dental Designer.

After creating the order, proceed to [scanning](#).

1.27.2. Gingiva/Anatomical Gingiva Scanning

Gingiva/Anatomical Gingiva scanning can be done with intraoral scanner and is also similar to [Customized Abutments](#) and [Unsectioned](#) scanning cases.

Continue to the [design section](#).

1.27.3. Gingiva/Anatomical Gingiva Design

3Shape Dental System allows to design the following dental indications in combination with gingiva:

- 1. Implant supported bridges/single elements**
 - Screw-retained crowns
 - Anatomical abutments
- 2. Anatomy and Frame bridges/single elements**
 - Anatomy crowns and pontics
 - Frame copings and pontics

The workflows for designing a dental indication with Gingiva vs. Anatomical Gingiva slightly differ. Examples of designing an Implant bridge with Gingiva and an Implant Bridge with the Anatomical gingiva are given below:



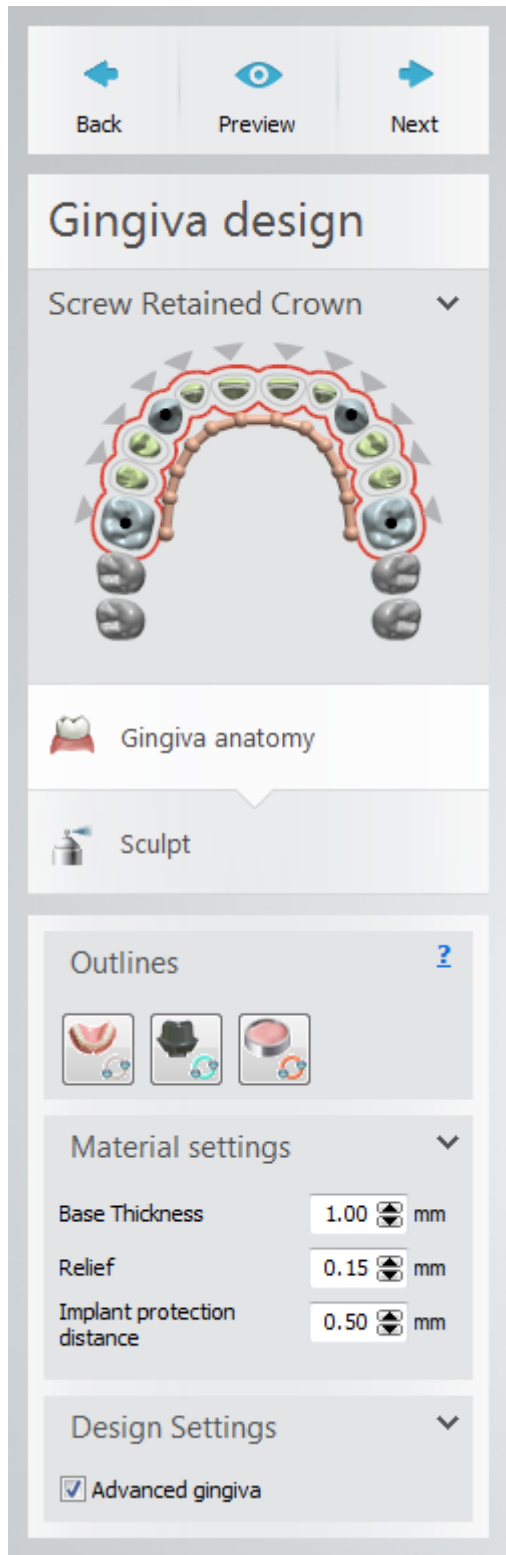
IMPLANT BRIDGE WITH GINGIVA

The workflow of designing an Implant Bridge (using Screw-retained crowns) with gingiva is similar to the one of a regular [Implant Bridge](#). Design your Implant bridge as usual and then






perform the **Gingiva design**:

► Step 1: Design gingiva

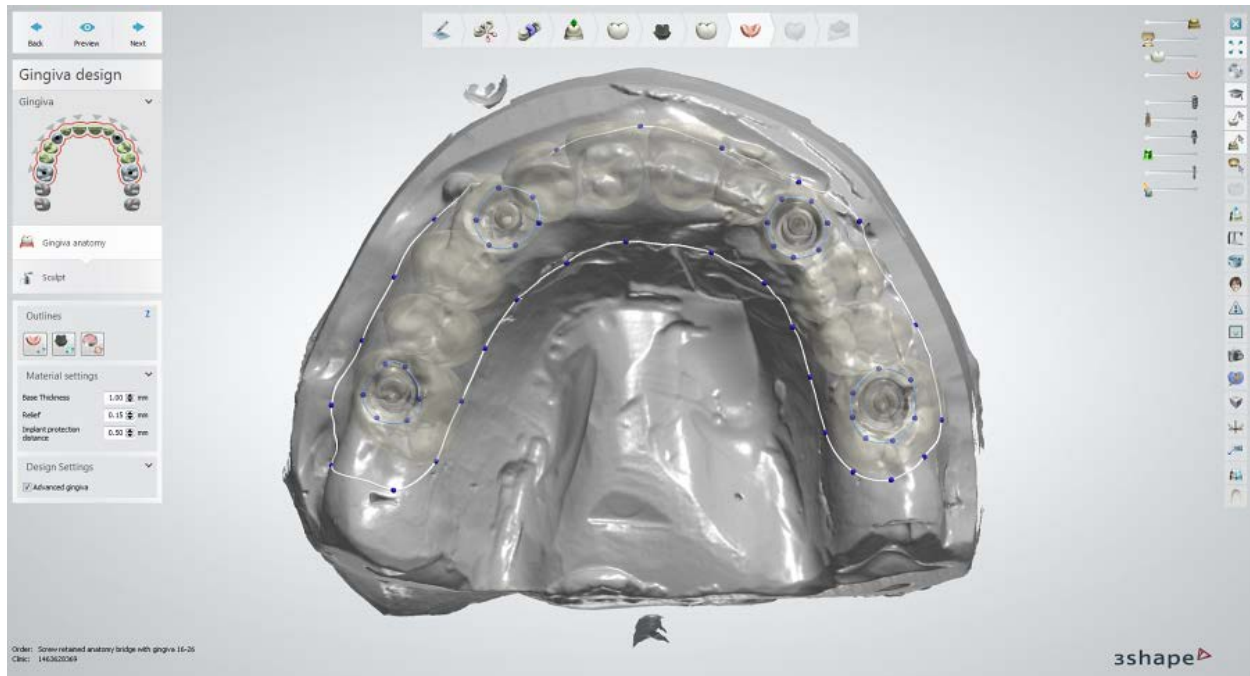


Use the provided tools to place an outline for gingiva and define abutments placeholders and relief zones:

	Draw artificial gingiva outline - Select this tool to draw a gingiva outline on your model.
	Draw implant opening in artificial gingiva - Select this tool to draw outlines around abutments to define special openings (placeholders) in gingiva for your abutments.
	Draw relief zone - Select this tool to outline a relief zone.

Adjust values for gingiva **Base Thickness**, **Relief** and **Implant protection distance** using the corresponding fields.

Enable the **Advanced gingiva** option so that resulted gingiva fits snugly to the teeth.

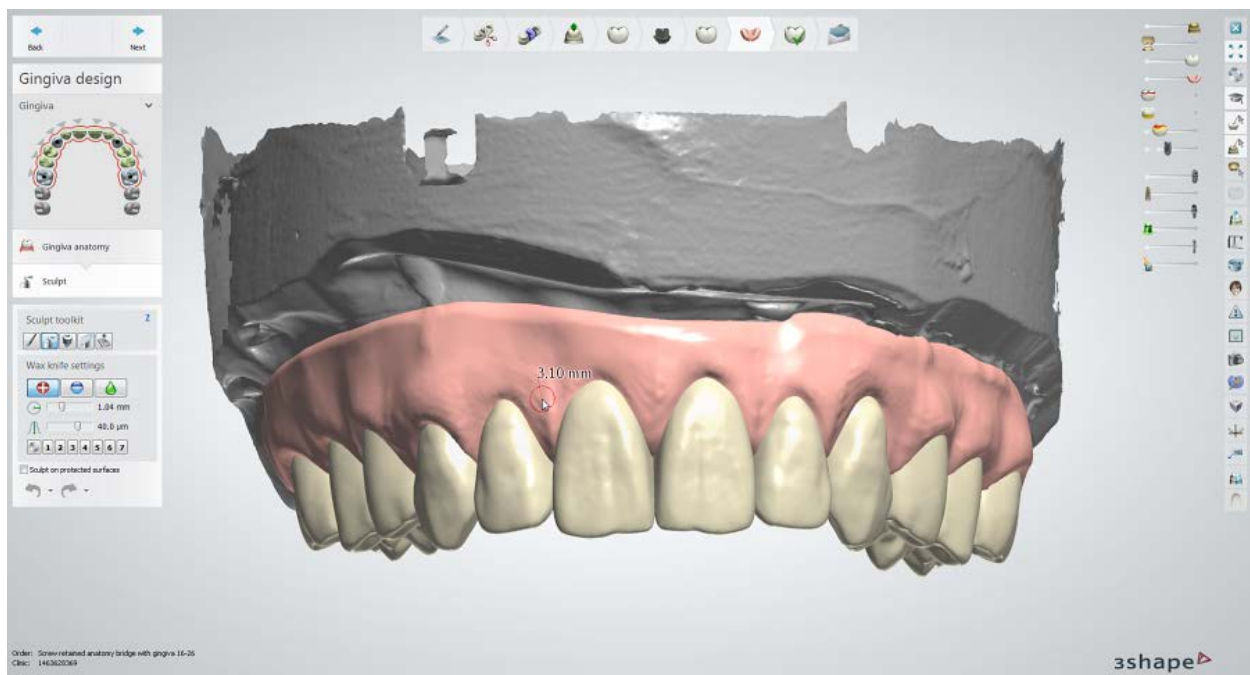


You can place several gingivae on one model if required by the case.

Place outlines for the whole bridge and click **Preview** to view the result or **Next** to move to the next step.

► Step 2: Sculpt your gingiva

Use the standard [Sculpting tools](#) to modify the gingiva:




► **Step 3: Finalize and save your design**

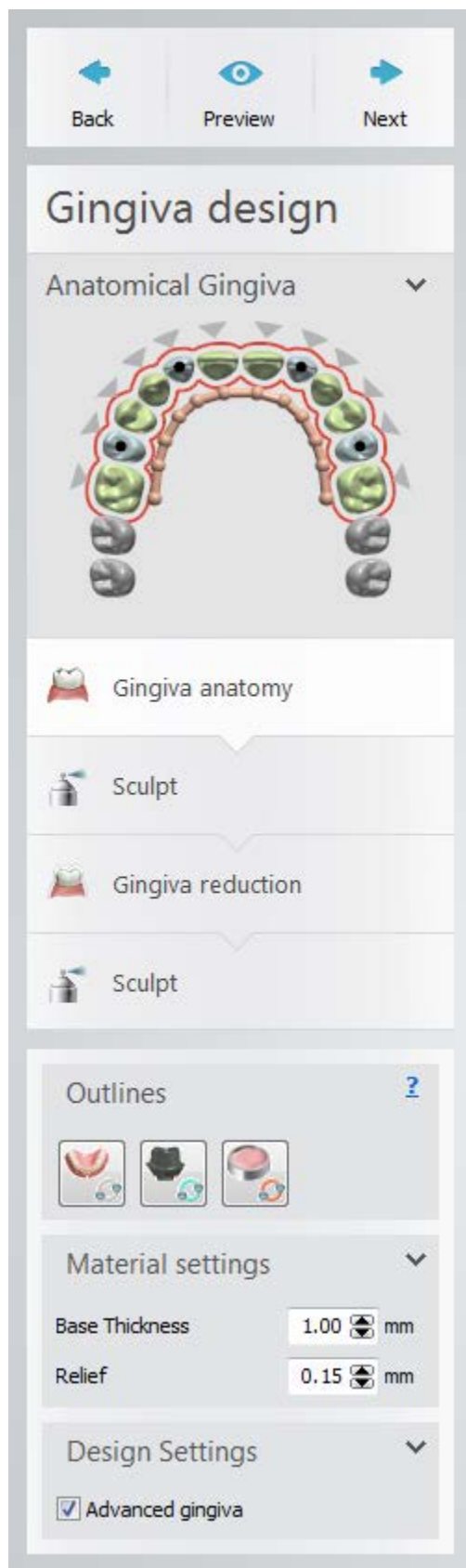


IMPLANT BRIDGE WITH ANATOMICAL GINGIVA

The workflow of designing an Implant Bridge (using Anatomical abutments/Pontics) with Anatomical gingiva is similar to the one of a regular [Implant Bridge](#). Design your Implant

bridge as usual and then perform the  **Gingiva design:**

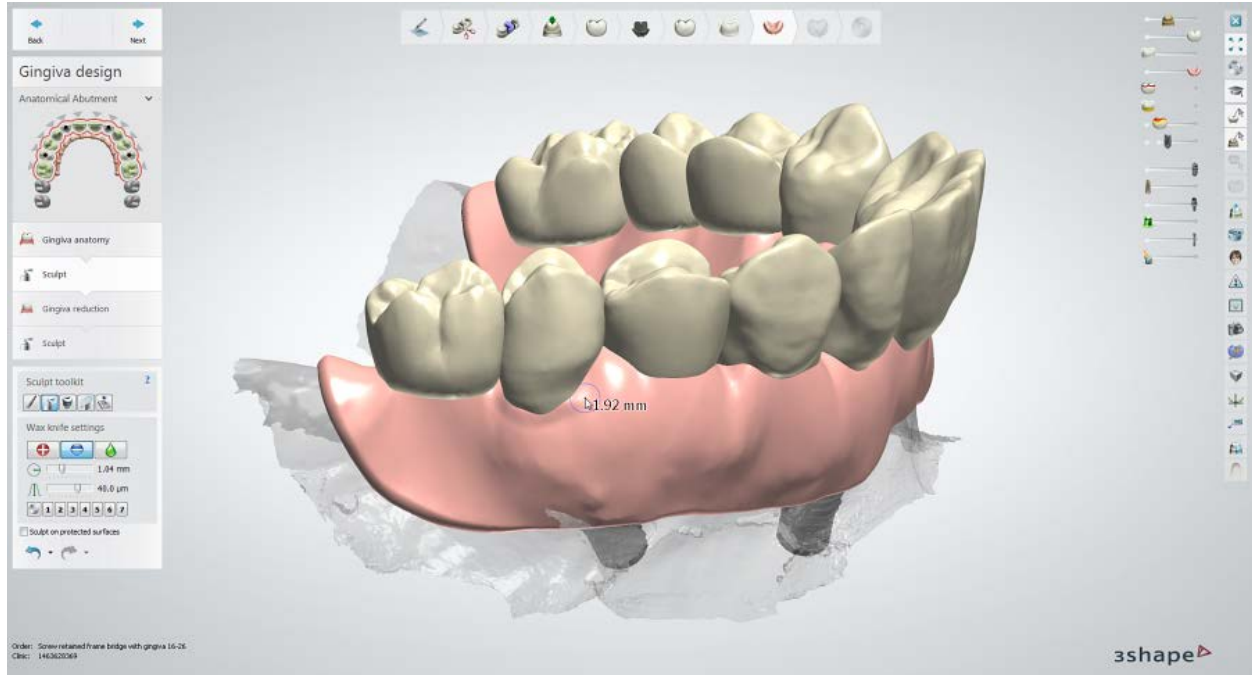
► **Step 1: Design gingiva**



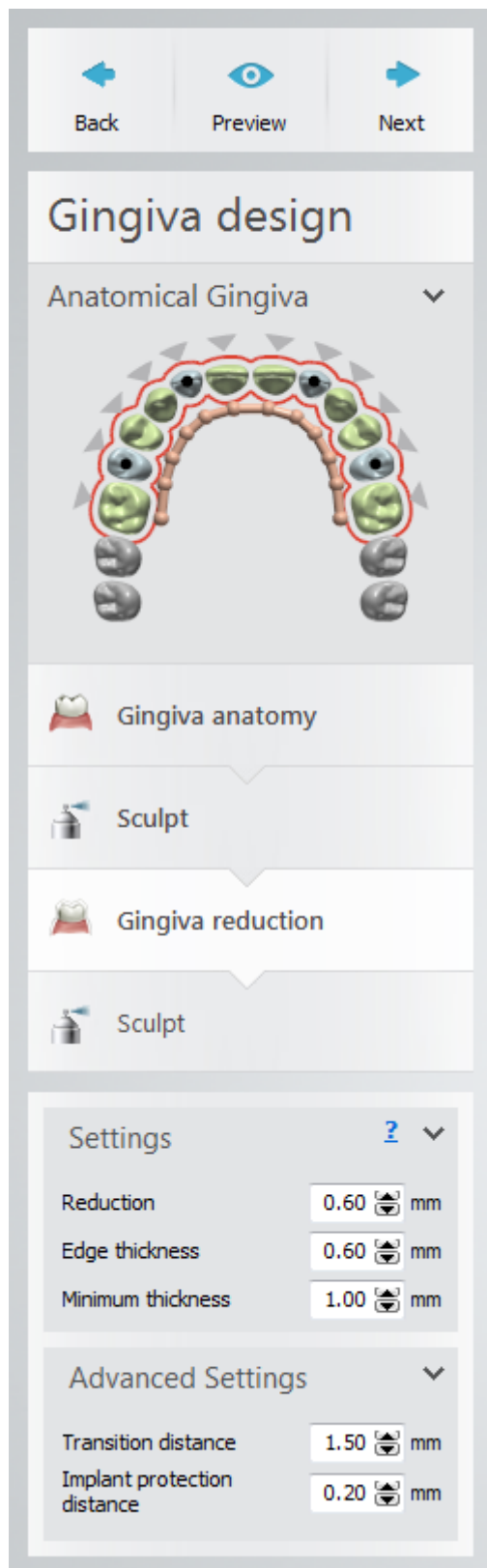
Please see description of the **Gingiva anatomy** options [above](#).

►Step 2: Sculpt your gingiva

Use the standard [Sculpting tools](#) to modify the gingiva, e.g., add, remove or smooth material:



►Step 3: Perform Gingiva reduction



Reduce gingiva to the required size using the provided settings:

Reduction (1) - the thickness of a layer that will be removed (exposing space for ceramics).

Edge thickness (2) - the amount of space between the margin line and gingiva.

Minimum thickness (3) - the least amount of gingiva thickness allowed for the case.

Transition distance (4) - the value which defines the steepness of gingiva transition around the edge.

Implant protection distance (5) - the amount of additional space around the implant.

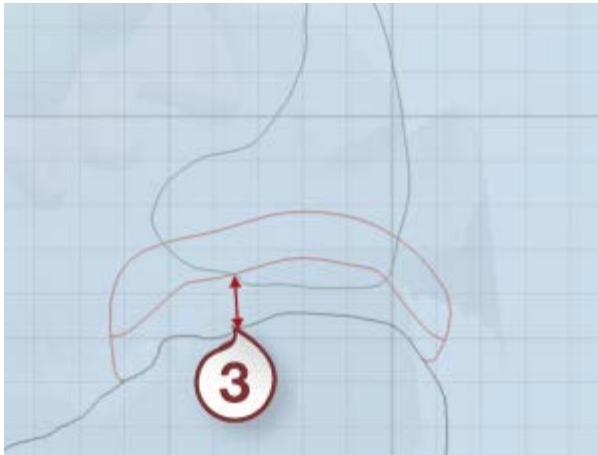
To better comprehend the above-mentioned parameters, see the illustrations below, where gingiva and dental indications are shown in the 2D cross section.



(1) Reduction = 1.00 mm



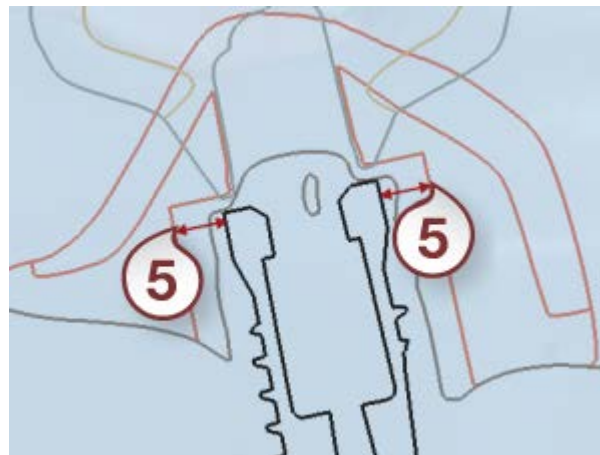
(2) Edge thickness = 0.5 mm



(3) Minimum thickness = 1.00 mm



(4) Transition distance = 3.00 mm



(5) Implant protection distance = 1.00 mm

Click **Preview** to apply changes and view the result or **Next** to move to the next step.

►Step 4: Use the final [Sculpt tool](#)

►Step 5: Finalize and save your design

Continue to [manufacturing](#) if required.

1.28. Positioning Guide

Custom-designed Positioning Guides help dentists easily and accurately place abutments, temporaries and veneers. Positioning Guides rest on the existing teeth and hold the prosthetics during placement ensuring highly accurate positioning in the patient's mouth. They are created in the same workflow straight after completing the design. The designed guides can be milled or printed.

Please see the [How Do I Use section](#) for an in-depth information on Dental System [Order Creation & Management](#) process.

The included sub-chapters describe a workflow for a Positioning Guide order:

- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.28.1. Positioning Guide Order Creation

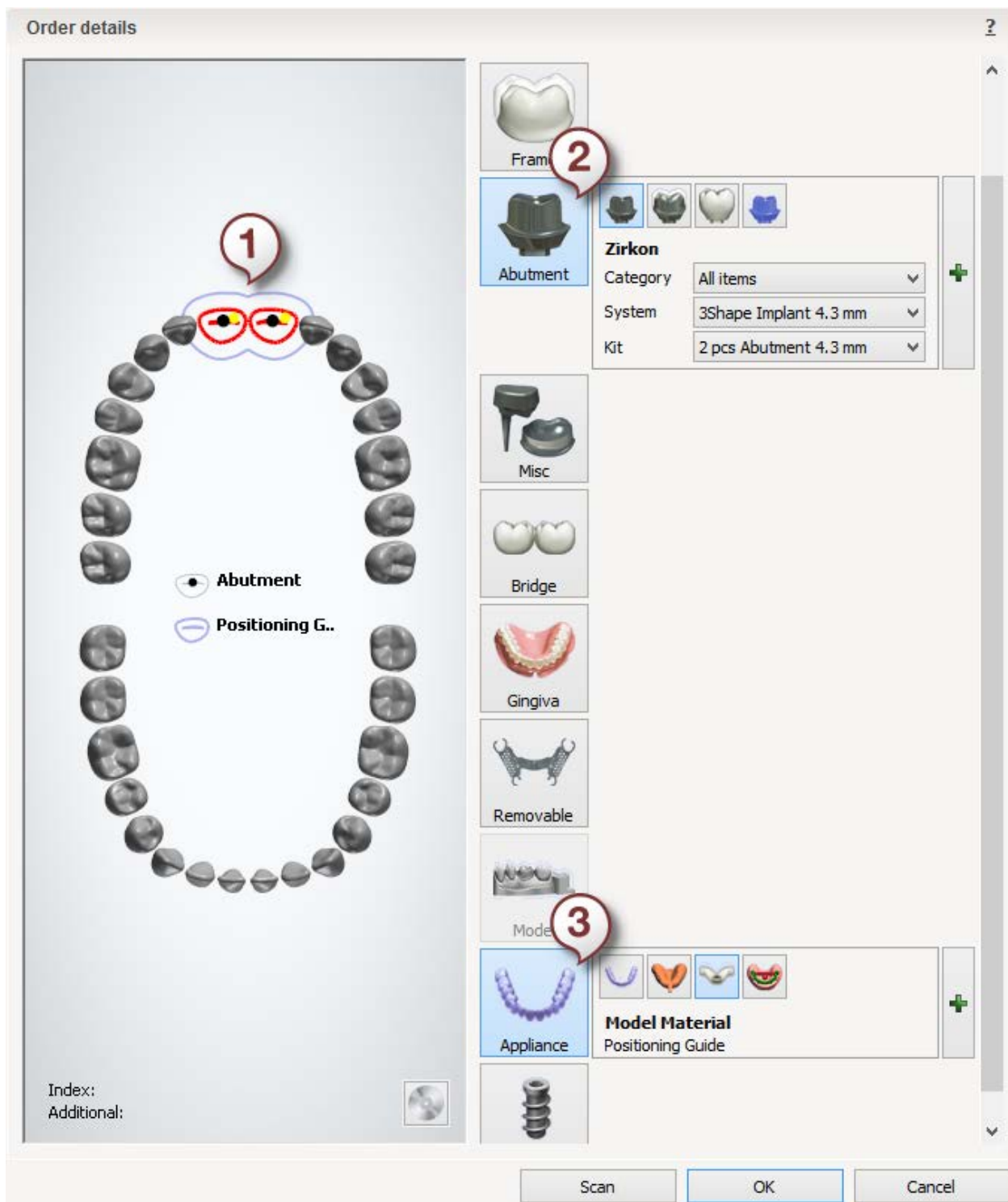
The Positioning Guide can be created for most indications including temporaries, veneers and Customized Abutments. Please find below an example of creating Customized Abutments with a Positioning Guide order. For more information on order creation, see the chapter [Create an Order](#).

►Step 1: Select preparations in the teeth overview

►Step 2: Click the *Abutment* button (*Customized Abutment*  is selected by default)

For more information, see [Customized Abutments Order Creation](#).

►Step 3: Click the *Appliance* button (*Positioning Guide*  is selected by default)



After creating the order, proceed to [scanning](#).

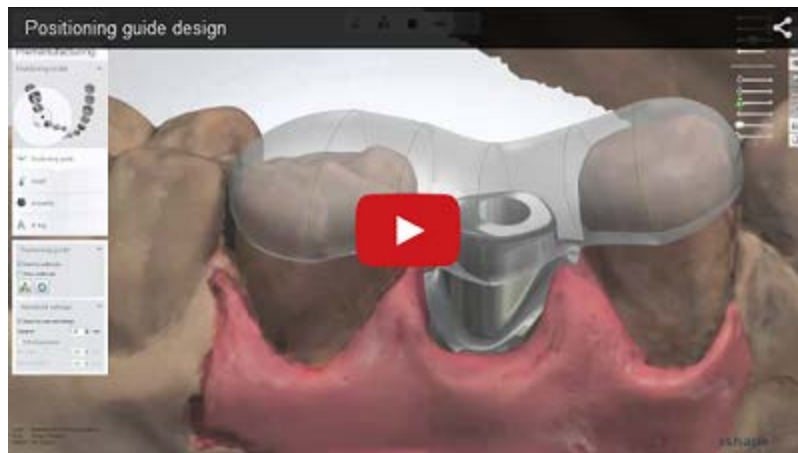
1.28.2. Positioning Guide Scanning

Positioning Guide is an additional step in the design workflow for the supported indications. Please see description of the scanning procedure in the corresponding chapters:

- [Customized Abutments Scanning](#)
- [Veneer Scanning](#)
- [Temporary Scanning](#)

Continue to the [design section](#).

1.28.3. Positioning Guide Design



Positioning Guide is created straight after completing the design of the main indication. Please refer to the corresponding chapters:

- [Customized Abutments Design](#)
- [Veneer Design](#)
- [Temporary Design](#)

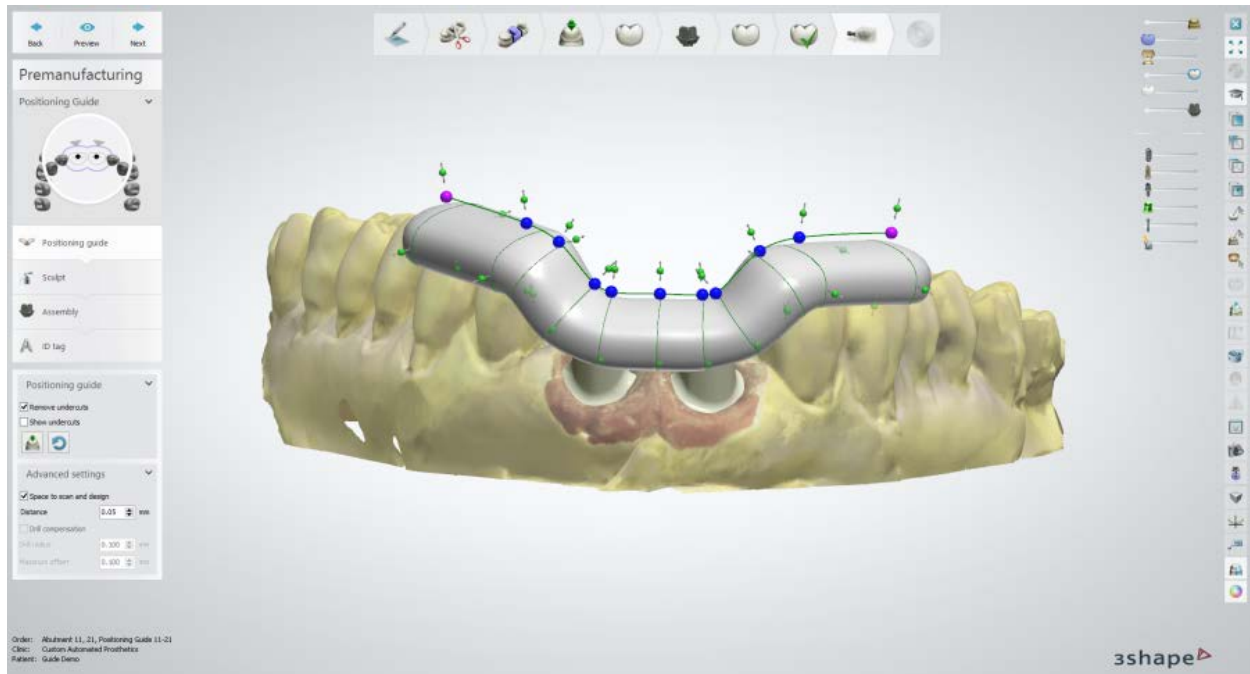
Below is a step-by-step description of the Positioning Guide for Customized Abutments creation:

►Step 1: Design the shape of the Positioning Guide

The Positioning Guide is created automatically when moving to the **Premanufacturing** step.

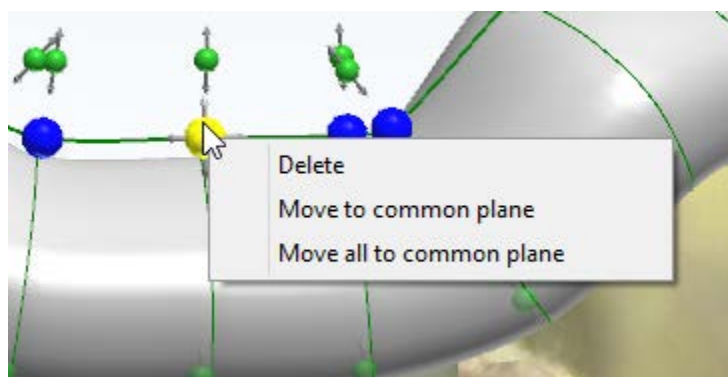
Adjust the shape of the positioning guide by dragging the control points in the required direction. The points appear when you hover the cursor over the Positioning Guide. The active control point becomes yellow. With the corresponding control points you can:

- **Magenta** - lengthen/shorten the general length of the positioning guide.
- **Blue** - move the positioning guide in all directions.
- **Green** - change the width/height of the positioning guide.

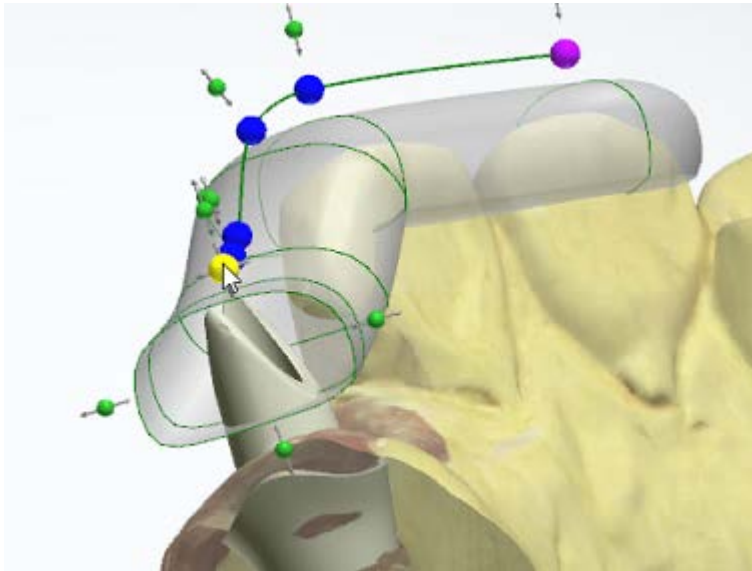


Hold down **Shift** to move all control points in the same direction simultaneously. You can add additional control points by clicking on the green control line to make the design more suitable for the main indication and the neighboring teeth.


Right-click a control point to use the following options (the availability of options depends on the selected control point):



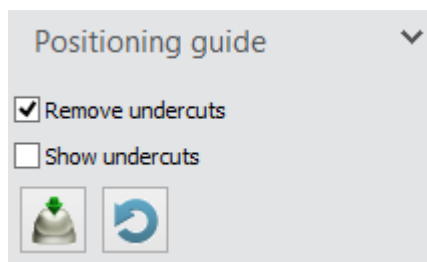
- **Delete** - deletes the selected control point.
- **Move to common plane** - moves the positioning guide so that the selected control point is aligned with the common plane.
- **Move all to common plane** - moves the positioning guide so that all control points are aligned with the common plane.
- **Scale to common plane** - scales the positioning guide so that the selected control point is aligned with the common plane.
- **Scale all to common plane** - scales the positioning guide so that all control points are aligned with the common plane.



Double-click the blue or magenta control point to get a cross-section of the positioning guide for easy inspection. Double-click the control point again to return to the normal view.

You can adjust visibility of the positioning guide using the **Active item**  slider located in the upper right corner of the 3D modeling window.

Remove undercuts - the option is selected by default.



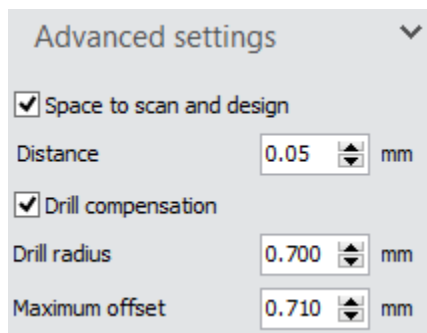
To see undercuts, select the **Show undercuts** checkbox. This helps you make adjustments to the insertion direction of the positioning guide if needed. To change the insertion direction, set your view to the desired direction and click

the **Set insertion direction**  button.

You can reset the design of the positioning guide to the initially proposed by the software by clicking the **Reset**

design  button.

Advanced settings



Space to scan and design - allows you to set the distance from the positioning guide to the scan and design of the main indication.

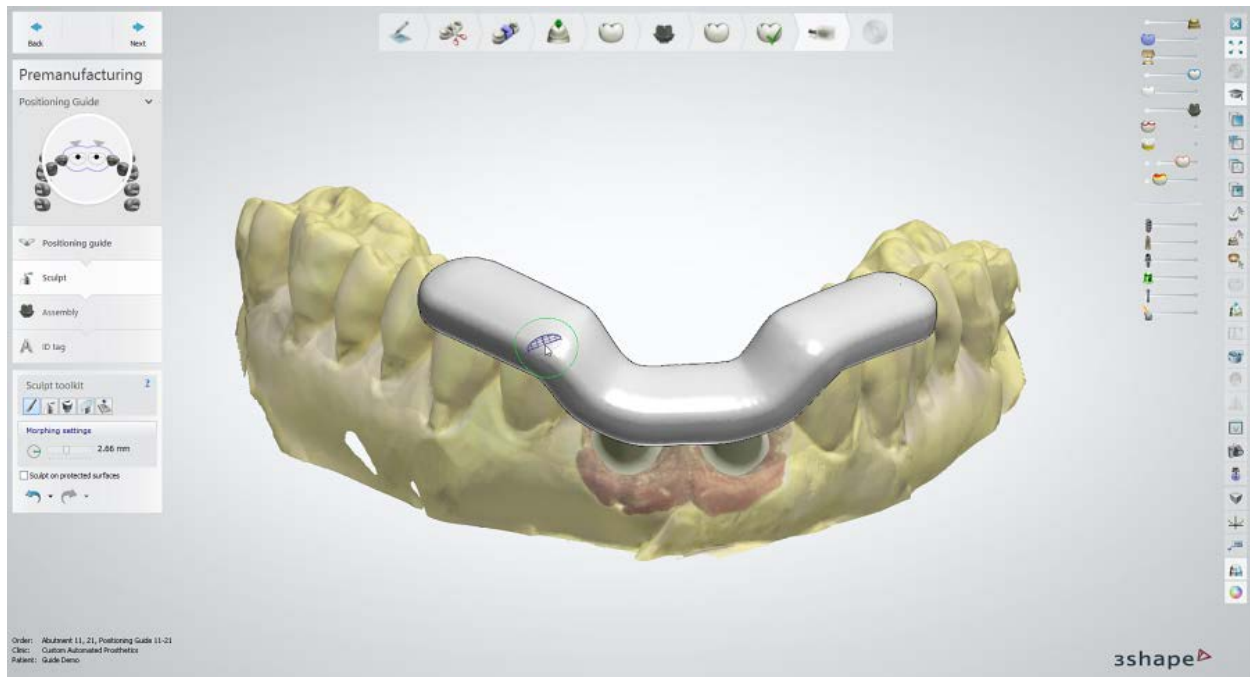
Drill compensation - rounds the inward corners of the positioning guide to facilitate the manufacturing process (only available when applying milling machines on the production step).

- **Drill radius** - radius of the milling drill setting.
- **Maximum offset** - maximum drill compensation offset setting.

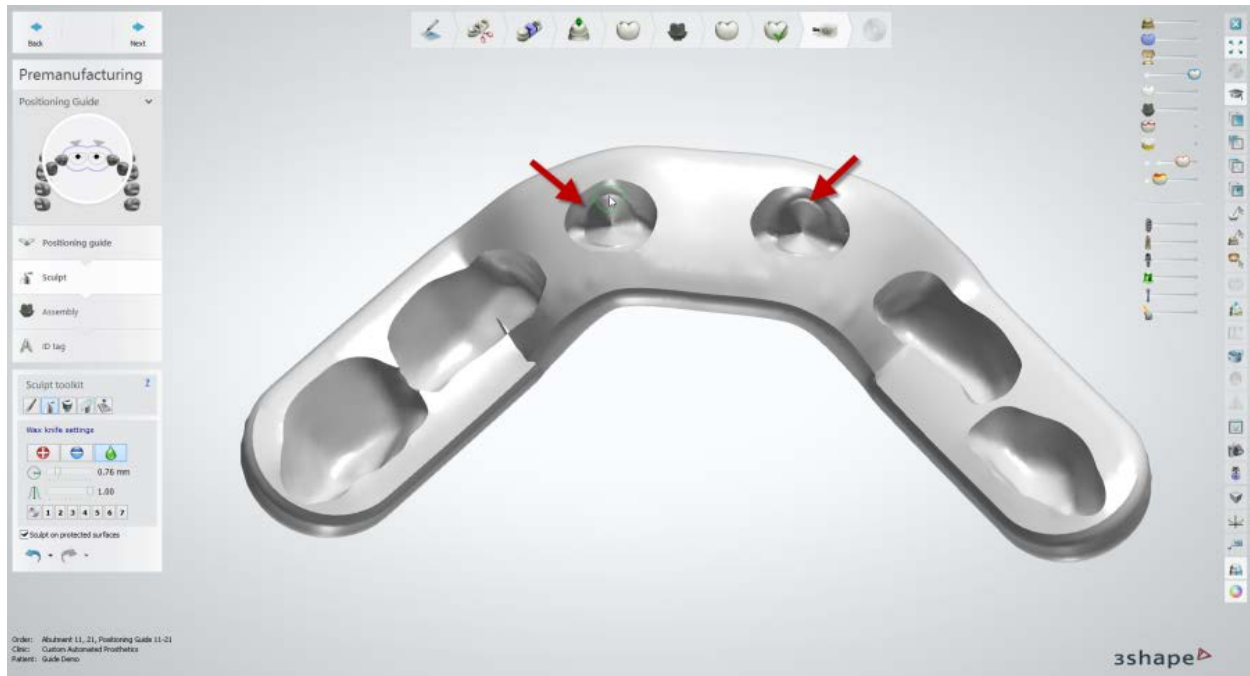
Click **Next** to move to the next step.

►Step 2: Use the Sculpt toolkit

At this step, the anatomy and scan are subtracted from the guide, and drill compensation is applied if selected. Modify the shape of the positioning guide using the sculpt tools. For more information on how to use the sculpt tools, see [Sculpt Toolkit](#) chapter.



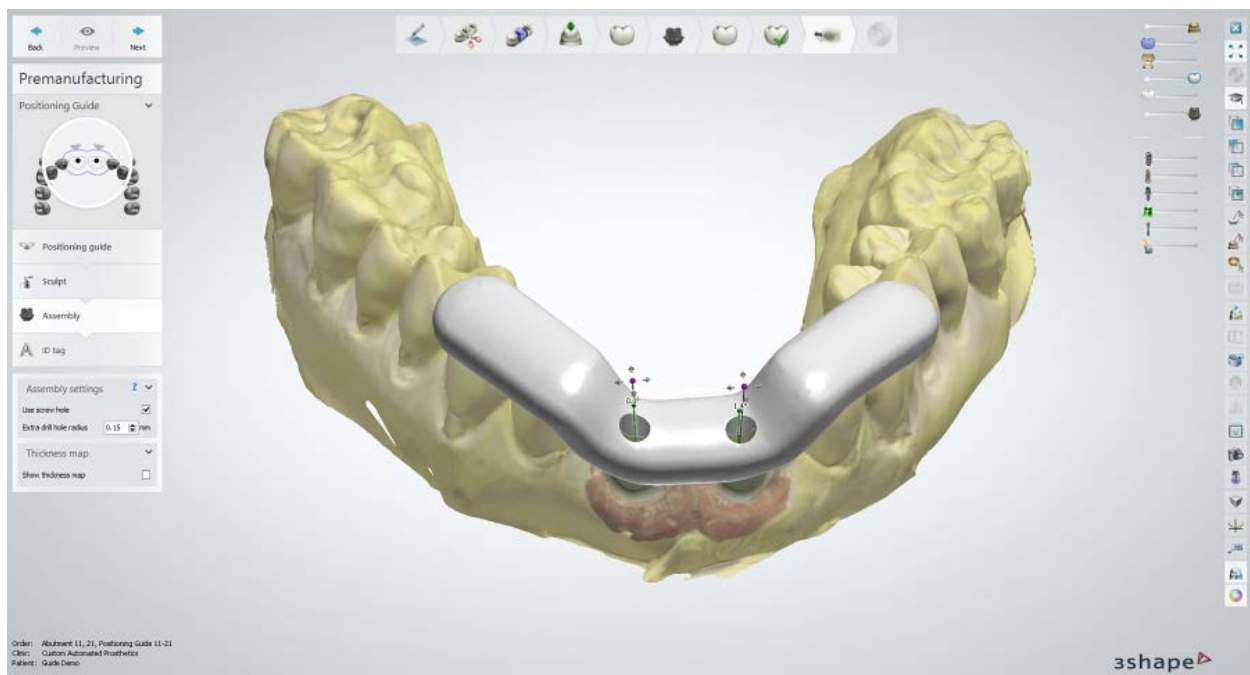
Select the **Sculpt on protected surfaces** checkbox to enable the sculpting of the positioning guide's internal surface that is located above the main indication (in our case above the abutments). This is not applicable to the surface above the neighboring teeth. You can use [Visualization sliders](#) in the upper right corner of the main window to show/hide parts of the 3D model.



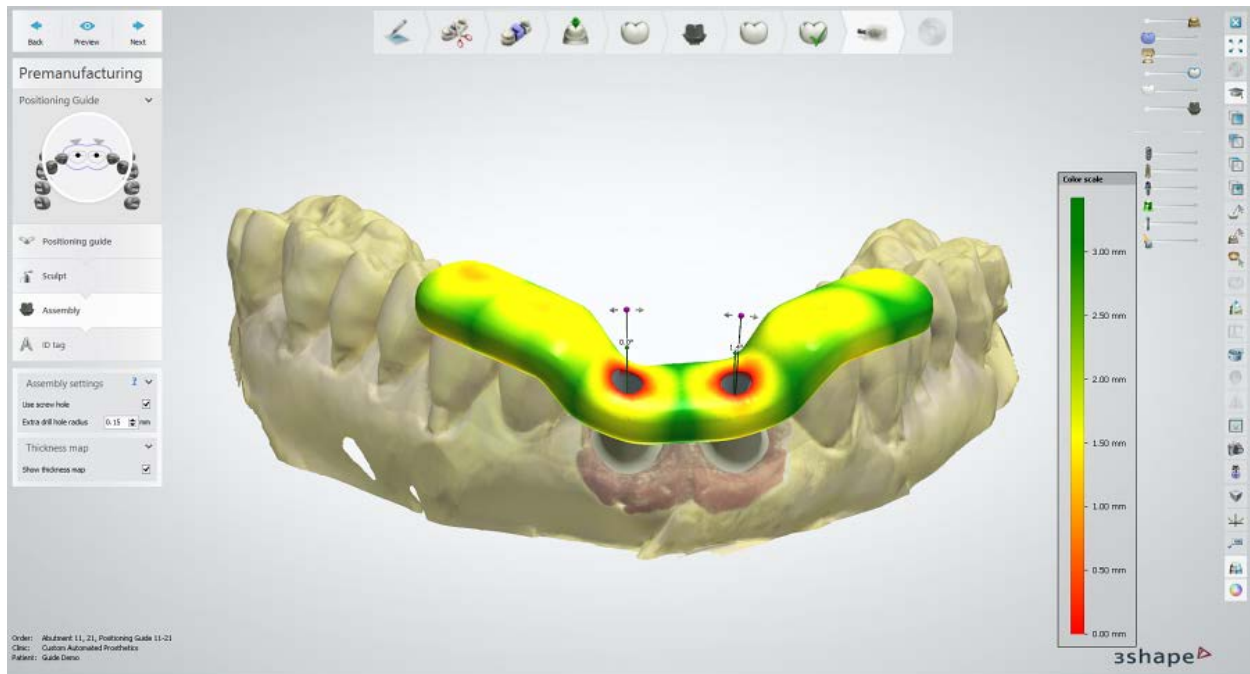
Click **Next** to move to the next step.

►Step 3: Perform the Assembly

Select the **Use screw hole** checkbox to create abutment screw holes in the positioning guide (only for orders with Abutments). You can also set the **Extra drill hole radius** if needed. The screw hole angle can be adjusted by moving the axes with magenta control point.



Marking the **Show thickness map** checkbox lets you visually examine the thickness of the positioning guide through the color map.



Click **Next** to move to the next step.

► Step 4: Add ID tag

An ID tag is added automatically at the **ID tag** substep. Unselect the **Use ID tag** checkbox if it is not required.

You can edit the ID tag **Text**, change the **text depth** and **font height**. If the **text depth** has a negative value, the text will be engraved on the guide. Dragging the ID tag changes its position on the positioning guide.

Click the **Preview** button at the top to see the result.



Click **Next** to save the design and move to the next step.

► Step 5: Close application

Now the positioning guide is designed and saved. Click **Close** to close the application.



Continue to [manufacturing](#) if required.

1.29. Copy Denture

With Dental System you can create Copy Dentures in **Monoblock** or/and a **Base with designed teeth** (teeth in blocks).


It is possible to create Copy Dentures either for both jaws or one jaw only.

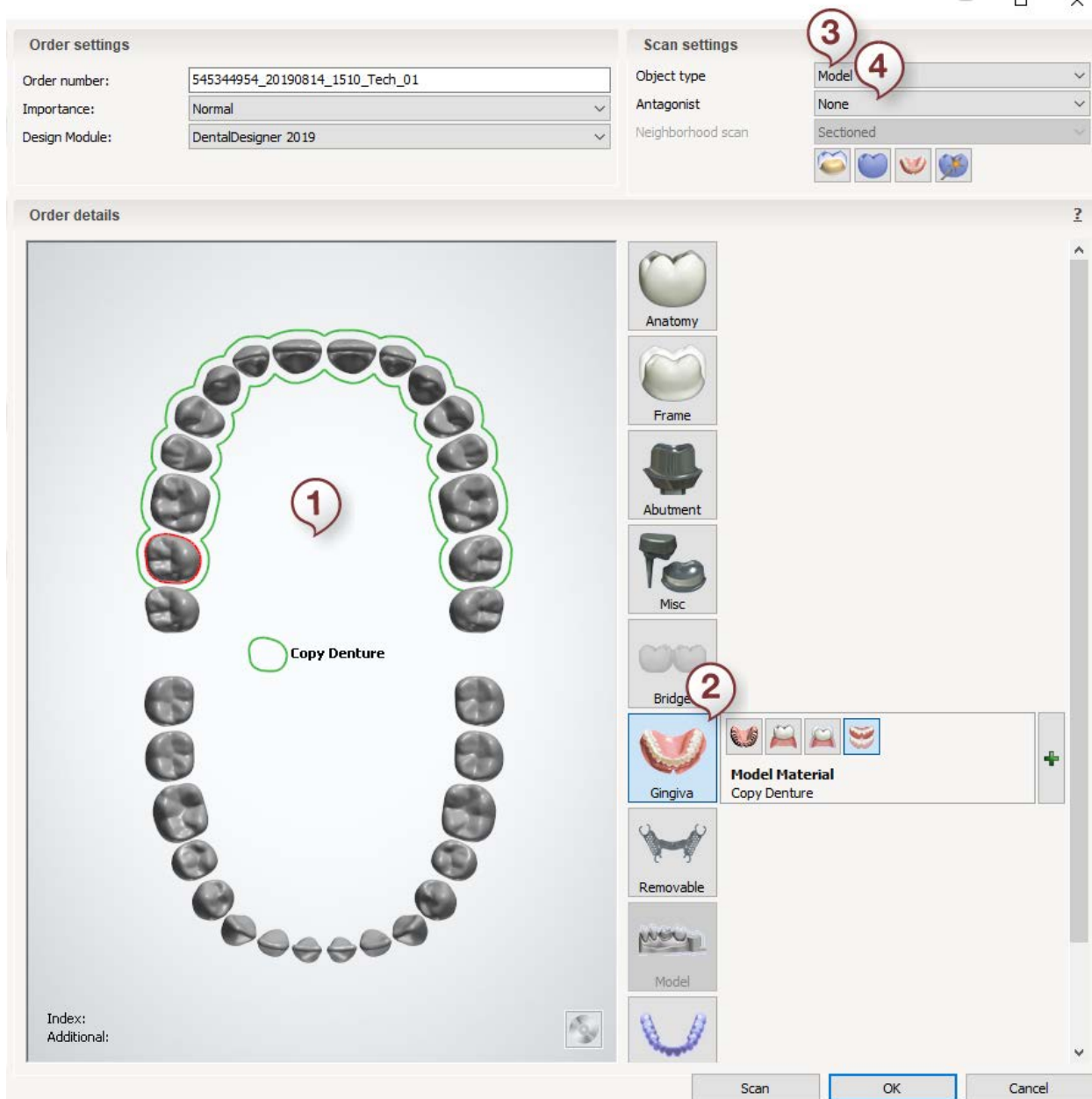
- [Order Creation](#)
- [Scanning](#)
- [Design](#)

1.29.1. Copy Denture Order Creation

To create a **Monoblock** or a **Base with designed teeth** order, follow the specific steps below. For more information on order creation, see the chapter [Create an Order](#).

MONOBLOCK

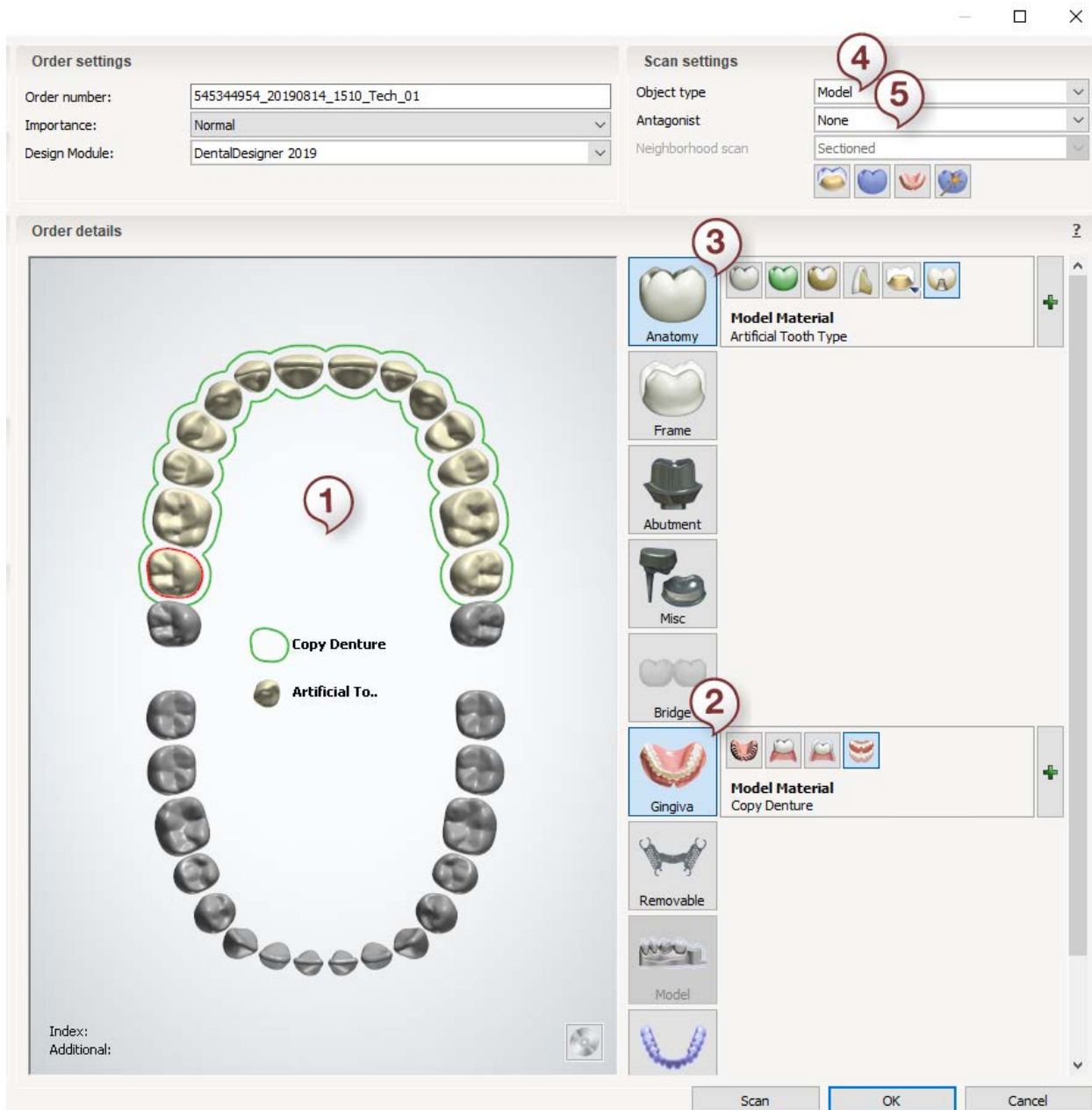
- ▶ **Step 1: Select artificial teeth in the teeth overview.**
- ▶ **Step 2: Click the *Gingiva* button and select the *Copy Denture*  button.**
- ▶ **Step 3: Select the Model Object type in Scan Settings.**
- ▶ **Step 4: Select the Antagonist type in Scan Settings:**
 - **None** - to create the Monoblock copy without antagonist.
 - **Antagonist Model** - to ensure the correct occlusion for the Monoblock copy of one jaw.



BASE WITH DESIGNED TEETH

- ▶ Step 1: Select artificial teeth on both jaws/one jaw in the teeth overview.
- ▶ Step 2: Click the *Gingiva* button and select the *Copy Denture* button.
- ▶ Step 3: Click the *Anatomy* button, the *Artificial tooth* button is selected by default.
- ▶ Step 4: Select the Model Object type in Scan Settings.
- ▶ Step 5: Select the Antagonist type in Scan Settings.

- **None** - to create the Monoblock copy without antagonist.
- **Antagonist Model** - to ensure the correct occlusion for the Monoblock copy of one jaw.



Note! You can also create simultaneous copy dentures using both Monoblock and Base with designed teeth on different jaws.

1.29.2. Copy Denture Scanning

In this chapter you can find the general information on the Copy Denture scanning workflows: how to [scan maxillary full denture](#) and [scan both sides of full denture and occlusion](#).

SCAN MAXILLARY FULL DENTURE

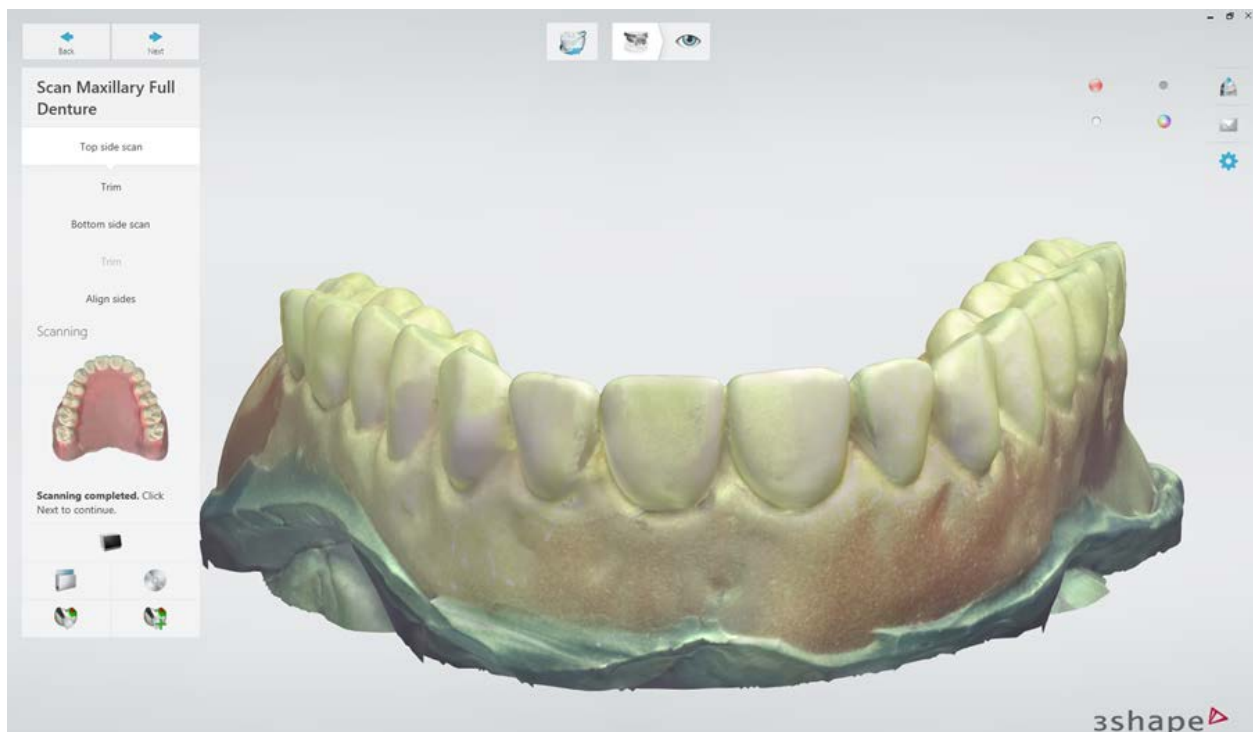
►Step 1: Scan Maxillary Full Denture.

- Scan the top side

Insert the copy denture with the teeth facing upwards in to the scanner and perform scanning.



Hint! It is recommended to place Blu Tack only under the front part of the model as shown in the images below. This will simplify the trimming of Blu Tack from the scan in the [Cutting plane mode](#).



The scanning of the top side of the denture is completed.

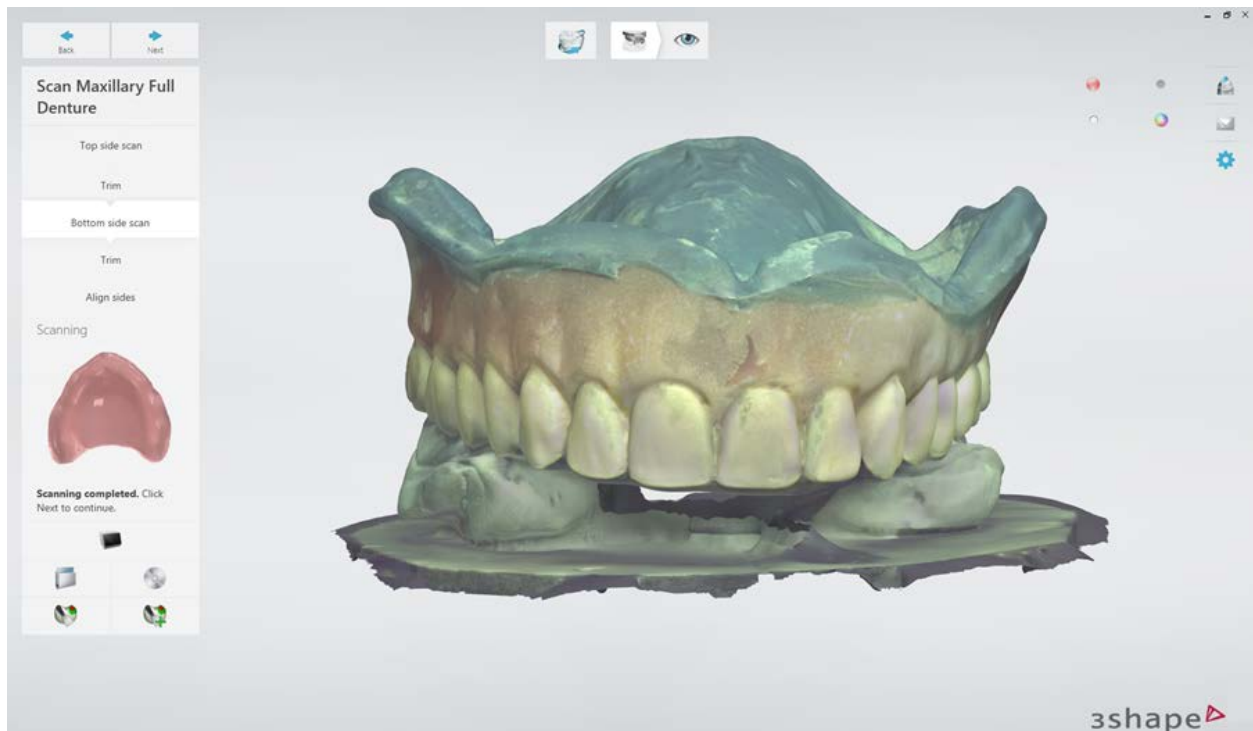
[Trim](#) out the Blu Tack from the scan.



Note! It is important to trim out all the Blu Tack from the top side scan of the dental prothesis. You can cut off parts of the scanned dental prothesis that are adjacent to the Blu Tack provided that the trimmed areas are included in the bottom side scan of the dental prothesis.


- **Scan the bottom side**

Insert the upper side of the denture with teeth facing downwards into the scanner and run scanning.



[Trim](#) out the Blu Tack from the scan.

- **Align the scans of maxillary full denture top and bottom sides**

Alignment is done automatically. You can re-align the scans manually if required by clicking the **Align manually**  button and using the three-point alignment method.



► Step 2: Inspect the result and finish scanning

Once scans are saved, you can proceed to by clicking the **Design** button or closing the scanning application.



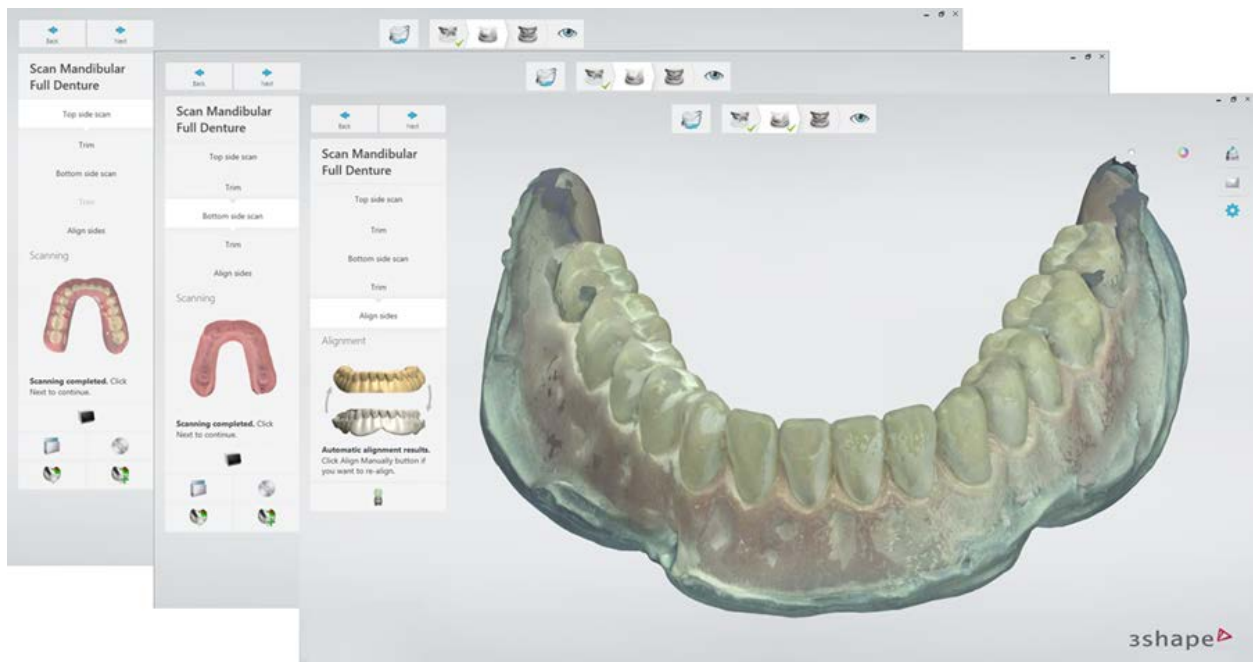
SCAN BOTH SIDES OF FULL DENTURE AND OCCLUSION

►Step 1: Scan Maxillary Full Denture.

The scanning and alignment procedures are identical to the [Scan Maxillary Full Denture](#) workflow.

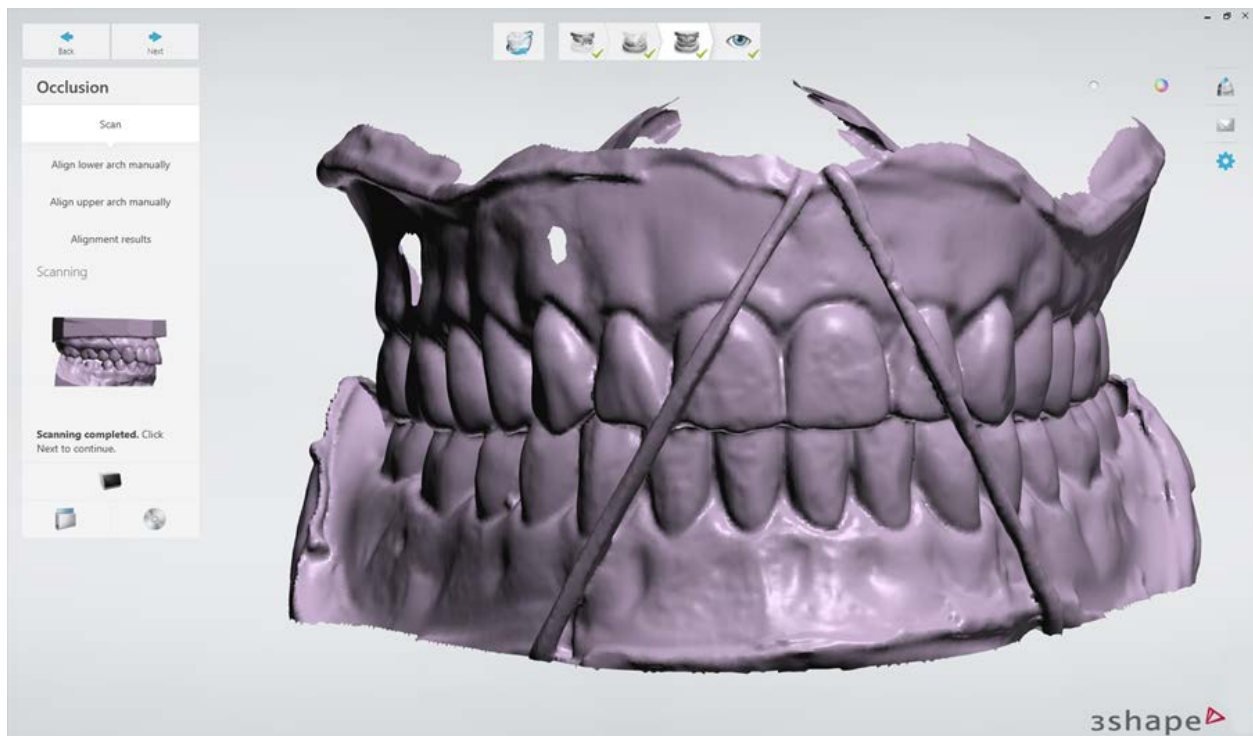
►Step 2: Scan Mandibular Full Denture.

Repeat the scanning and alignment procedures for the mandibular copy denture in the same way as you did for the maxillary copy denture.



►Step 3: Scan Full Denture in occlusion.

Scan the upper and lower arches of full denture positioned in occlusion.



► **Step 4: Inspect the result and finish scanning.**

Once scans are saved, you can proceed by clicking the [Design](#) button or close the scanning application.



1.29.3. Copy Denture Design

This chapter explains how to design copy denture cases. The design workflow is described below.

► Step 1: Prepare

In this step, orient the occlusal plane and adjust the upper/lower jaw scans with the Sculpt toolkit.

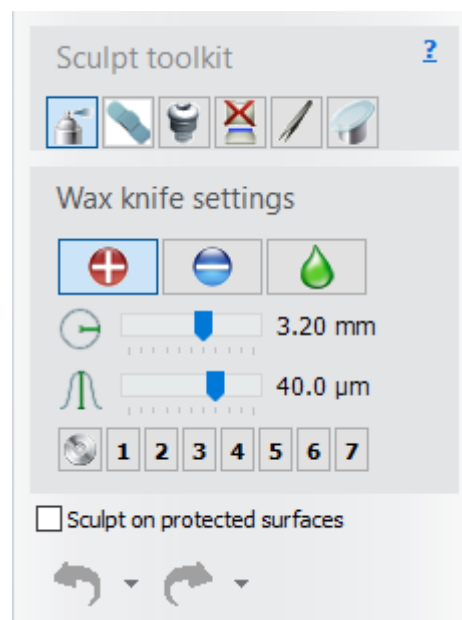
If scan preparation is not necessary, skip this step by clicking **Next**.

- **Orienting the occlusal plane**

This substep is identical to the [Prepare](#) step described in the Full Dentures chapter.

- **Sculpting**

The Sculpt toolkit lets you sculpt the upper and/or lower jaw. See the chapter [Sculpt Toolkit](#) to learn how to use the sculpting tools.



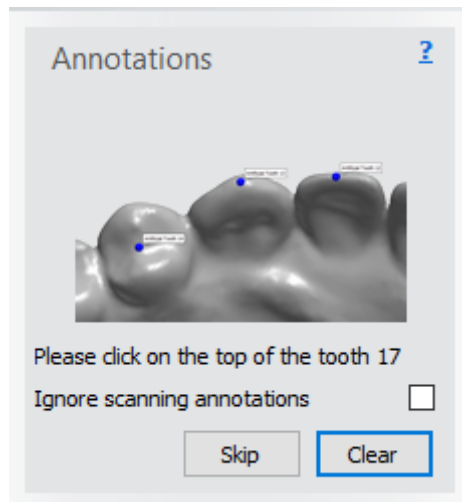
► Step 2: Segmentation (base with designed teeth)

- **Tooth Identification**

Place a blue control point on top of each tooth one by one for the line to be set automatically.

You can also click the **Skip** button in case a tooth is absent on the dental prosthesis scan and move to the next tooth.

The **Clear** button removes all the control points and lets you start the process over.



Click **Next** to move to the **Segmentation** substep.

- **Segmentation**

In this substep, the line is automatically placed on the segmented teeth.

Automatic grouping

You can choose the predefined **Teeth Blocks** combinations for the teeth to be grouped automatically:



3 Blocks: left, right posterior and anterior teeth.



1 Block: full arch.



4 Blocks: right and left posterior teeth; right and left anterior teeth.



2 Blocks: two quadrants.

Manual grouping

It is also possible to group teeth manually. Choose the first and the last tooth of the group in order to create the desired teeth block.

Use the next tools to edit the arrangement of teeth blocks manually:



To group selected teeth in a block.




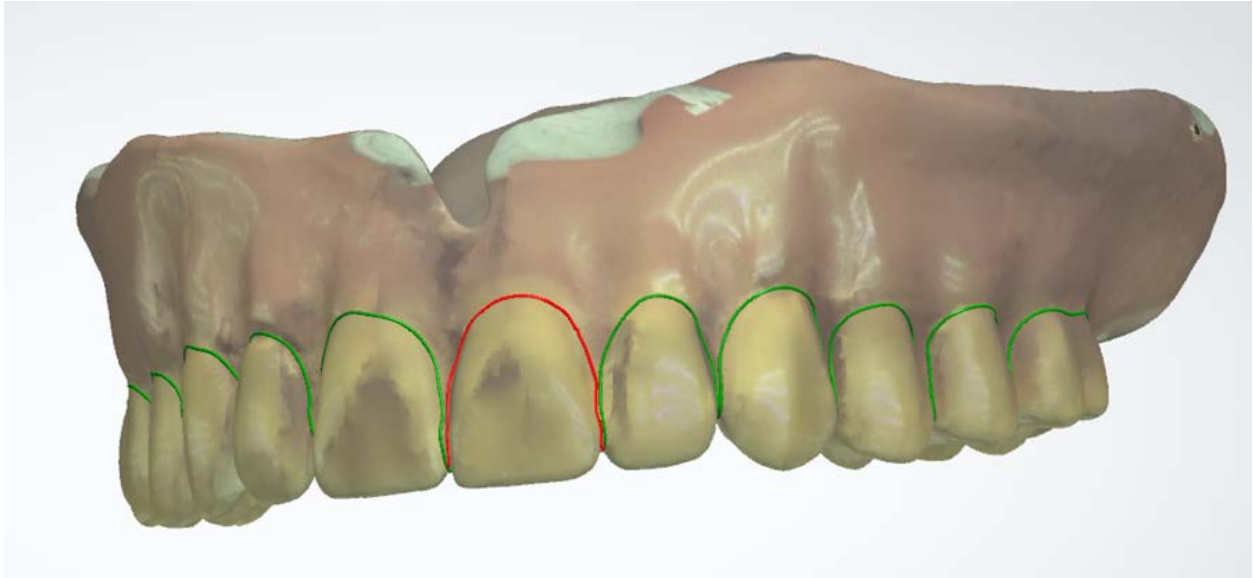
To ungroup selected teeth in a block.






To ungroup all teeth blocks.

Edit lines

To activate the manual line editing mode, click the **Draw manually**  button. The line of the chosen tooth is red and can be modified manually.



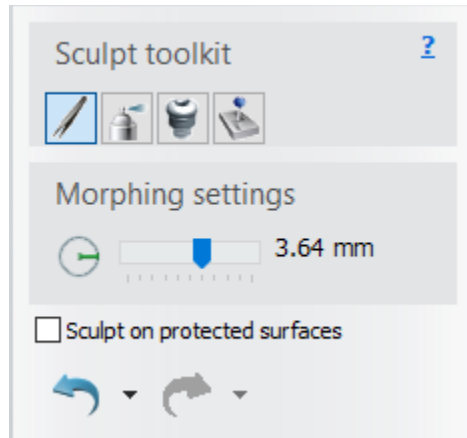
Click **Clear current line and rebuild the line automatically**  to reset the line placement.

To view and edit the points on the line, click the **Show line**  button. To clear all the lines, press the **Reset**  button.

► Step 3: Anatomy Design (base with designed teeth)

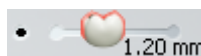
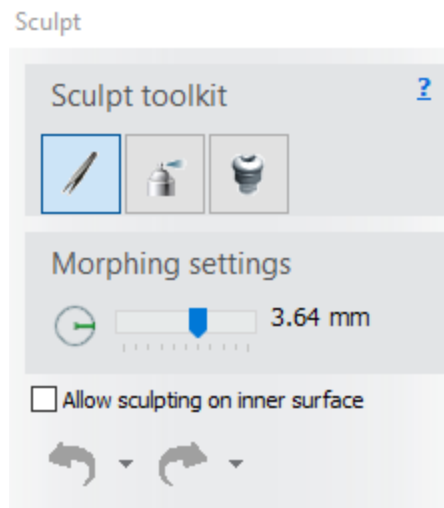
- **Sculpt anatomy**

For detailed information on how to use the Sculpt tools, please see the [Sculpt Toolkit](#) chapter.



- **Sculpt denture base**

Use the provided tools to modify your denture bases. Click on the upper or lower base to apply sculpting to it.



Thickness map - provides visual information on the gingiva thickness, while the desired thickness value can be set with the slider. The problematic, thin areas are highlighted with the varying color intensity.

- **Coupling mechanism**

The **Coupling mechanism** parameters are:

- **Coupling Settings** - **Coupling depth** and **Coupling Angle** are set by adjusting the numerical values.
- **Insertion direction** - **Insertion direction** is set three different ways:
 - Entering a numerical value on the **Arrow wheel**.
 - Use your **view** of the 3D model to **set** the insertion direction. (**Set from view**)

- Grabbing the **Coupling joystick** with your mouse and positioning the block where you want it.
- **Advanced settings - Rounding radius** and **Fillet radius** are set by adjusting the numerical value or using the up/down toggle.

Coupling mechanism

Coupling Settings ?

Coupling depth mm

Coupling angle °

Insertion direction

°

Advanced Settings ▼

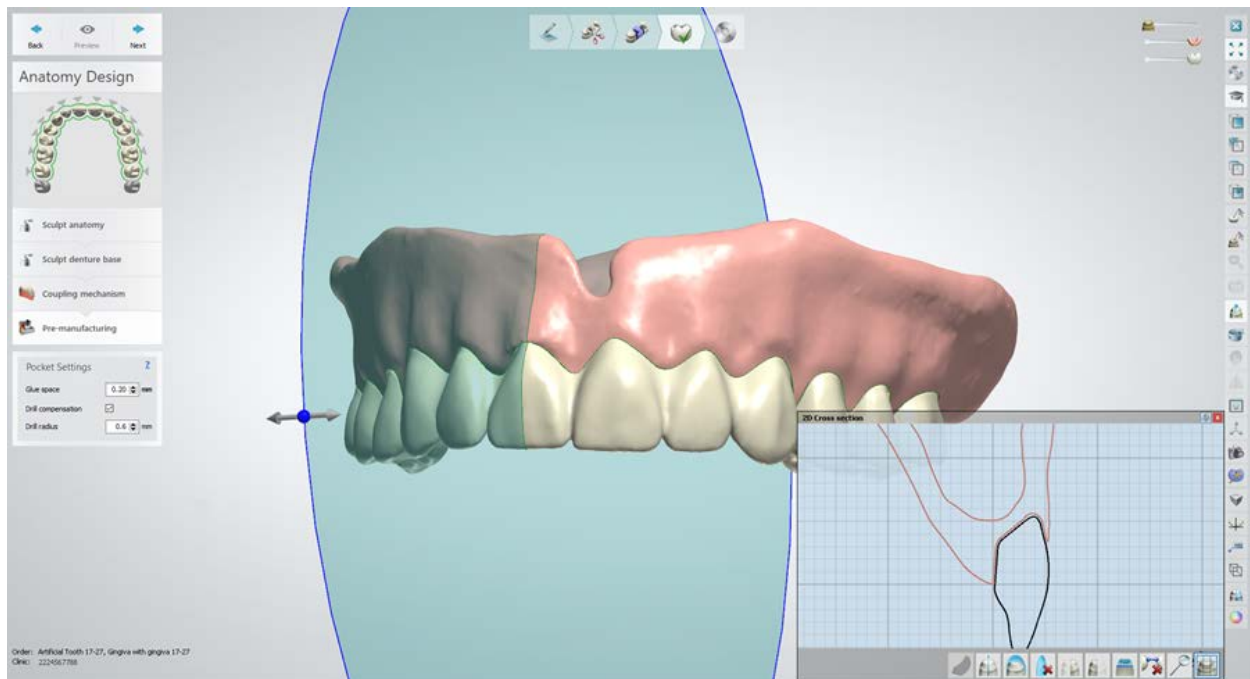
Rounding radius mm

Fillet radius mm

- **Pre-manufacturing**

A placeholder for each exact tooth is generated using the glue parameters:

- **Glue space** - controls the amount of distance between each tooth and its respective placeholder surface in the denture base.
- **Drill compensation** - removes material from the inward corners of the teeth pockets to guarantee the teeth fit.
- **Drill radius** - specifies the radius of the drill used to prepare pockets.



► Step 4: Save the design

Click **Close** to close the order and save the output.

For the base with designed teeth workflow the **Lift indications** check box is available. It allows the user to view the designed teeth separately from the base.



Note! To save a Copy Denture order, the **Full Denture Design Module** must be enabled on your dongle. You can check this information in *Control Panel>Tools>* [Subscription Management \(Dongle\)](#).



Note! Saving the Copy Denture orders is fee-based and costs 10 [CAD points](#) per order with one jaw and 15 CAD points per order with two jaws. Ensure you have enough CAD points before saving your Copy Denture orders.

2. How Do I Use

The How Do I Use section contains an in-depth information on the following topics:

- [Order Creation & Management](#)
- [Scanner and Scanning Software](#)
- [Models Scanning](#)
- [Impressions Scanning](#)
- [Third-party Digital Impressions](#)
- [3Shape Communicate Inbox](#)
- [Modeling](#)
- [Manufacturing Orders](#)
- [Dental System Installer](#)
- [3Shape Communicate](#)

2.1. Order Creation & Management

3Shape Dental Manager, as well as Dental Designer, is part of 3Shape Dental System. Dental Manager is used for handling orders through the production processes and for controlling Dental Designer and the ScanIt Dental application.

3Shape Dental Manager is an easy-to-use data management application, which systematically organizes all production data and acts as a platform for active order data management throughout the production steps:

► **Step 1: Order Creation**

► **Step 2: Scanning**

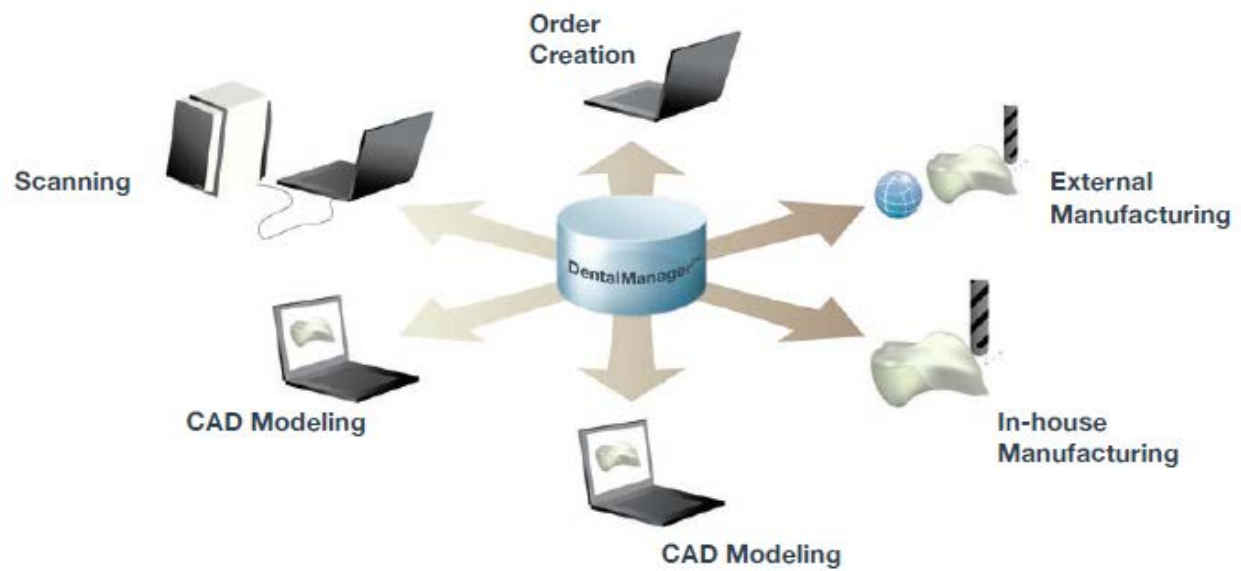
► **Step 3: Designing**

► **Step 4: Sending for Manufacturing**

► **Step 5: Manufacturing**

Dental Manager ensures that new order creation, case scanning and design can take place in parallel to one another (see the image below).

3Shape Dental Manager comes with a standard Order handling part, which can be extended with an Inbox module.

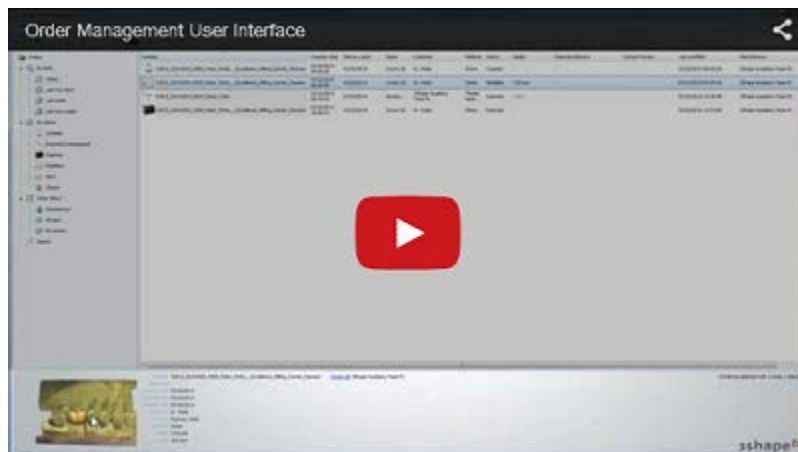


Significant productivity enhancement by order creation, scanning and design taking place in parallel - either with a single or multiple PCs

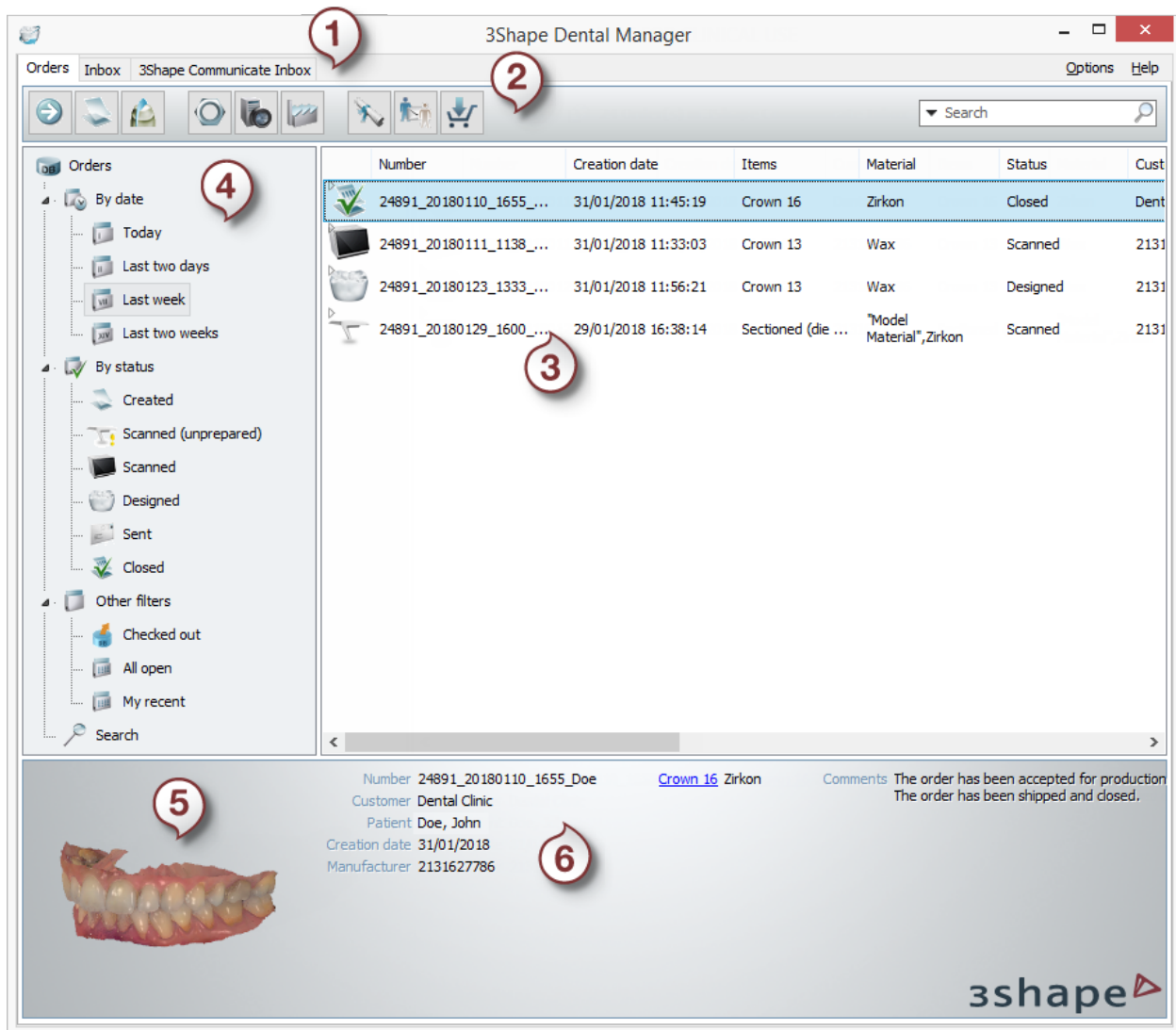
2.1.1. User Interface



Start the application by clicking the 3Shape Dental System shortcut.



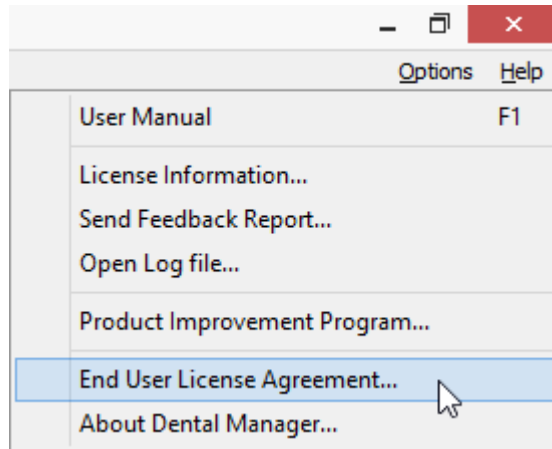
MAIN WINDOW



- | | |
|-----------------|--------------------------|
| 1. Main menu | 4. Order filters |
| 2. Workflow bar | 5. Preview window |
| 3. Orders | 6. Info on selected item |



Hint! You can view the 3Shape software general license terms and conditions by selecting *Help -> End User License Agreement* in the upper right corner of the main window.



MAIN MENU

The Main menu can contain up to three tabs - **Orders**, **Inbox** and **3Shape Communicate Inbox**, depending on the program and dongle settings. To setup the Inbox correctly, please see chapters [Dental Manager Inbox](#) and [Manufacturing Inbox](#). For more information on receiving orders using 3Shape Communicate Inbox, see the chapter [3Shape Communicate Inbox](#).

WORKFLOW BAR

The **Workflow bar** includes:

- Buttons of the workflow process that can change depending on the order and the step of the process:

	New	Opens an Order Form for creating a new order.
	Scan/Design/Close	Brings you to the next relevant step depending on the order status (e.g. Scanned -> Design).
	3D Preview	Opens Order 3D Preview form for the 3D model visualization.

- Buttons to open 3Shape applications:

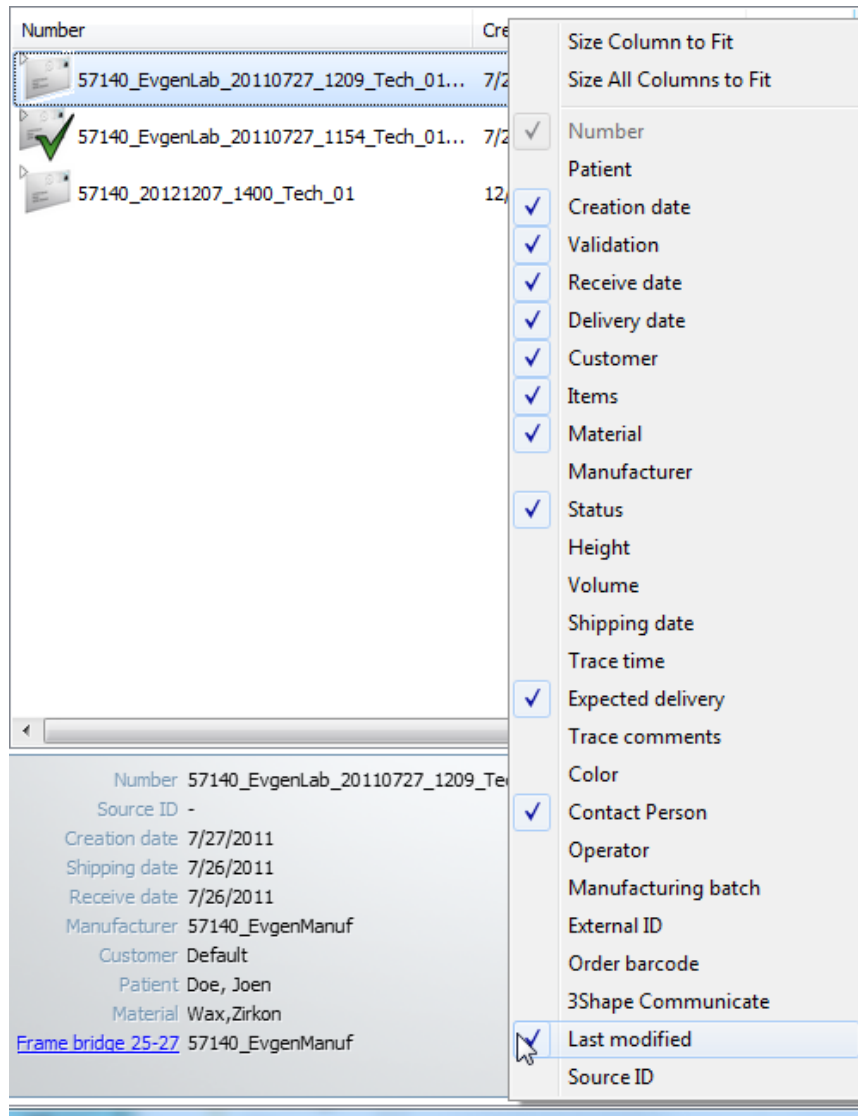
	<u>3Shape Dental System Control Panel</u>
	<u>3Shape Training Center</u>
	<u>3Shape Communicate</u>
	<u>3Shape Shop</u>



Note! If you added a 3rd party application (an executable file or a web link) in Dental System Control Panel, then the corresponding button(s) will also appear in the Workflow bar. See section [3rd Party Applications](#) for details.

ORDERS

3. THE LIST VIEW



- The list view can be sorted for a specific column by clicking on the column headers.\
- The order of the column headers can also be changed. Click on the heading you want to move and drag it to the desired position.
- To customize the columns (show/hide them in the window), right-click on any column header and select/unselect the desired ones (see image).
- To select multiple orders, hold down **Ctrl** or **Shift** and choose the orders you need. Then use the buttons in the Workflow bar or right-click on the selection for further handling.















4. Order Filter - orders in Dental Manager can be sorted, searched and displayed by filters under the categories: **Date**, **Status** and **Other**. For example, if you want to find all orders that have been created last week or that are scanned, click on the corresponding filters.

Click on **My recent** filter to open the list of orders that you have recently created, copied or imported. Using this filter will make searching and working with your orders faster and easier.

The orders you are working with and the ones that are stored under the selected category (**Date**, **Status** and **Other**) are listed in the *Orders* window. When you create a new order it is added to the list of orders automatically, displaying information about its **Creation date**, **Material** etc.

You can also see the single units of an order and get information about each of one separately. This option is very helpful when it comes to production as well as pricing, invoicing, accounting etc.

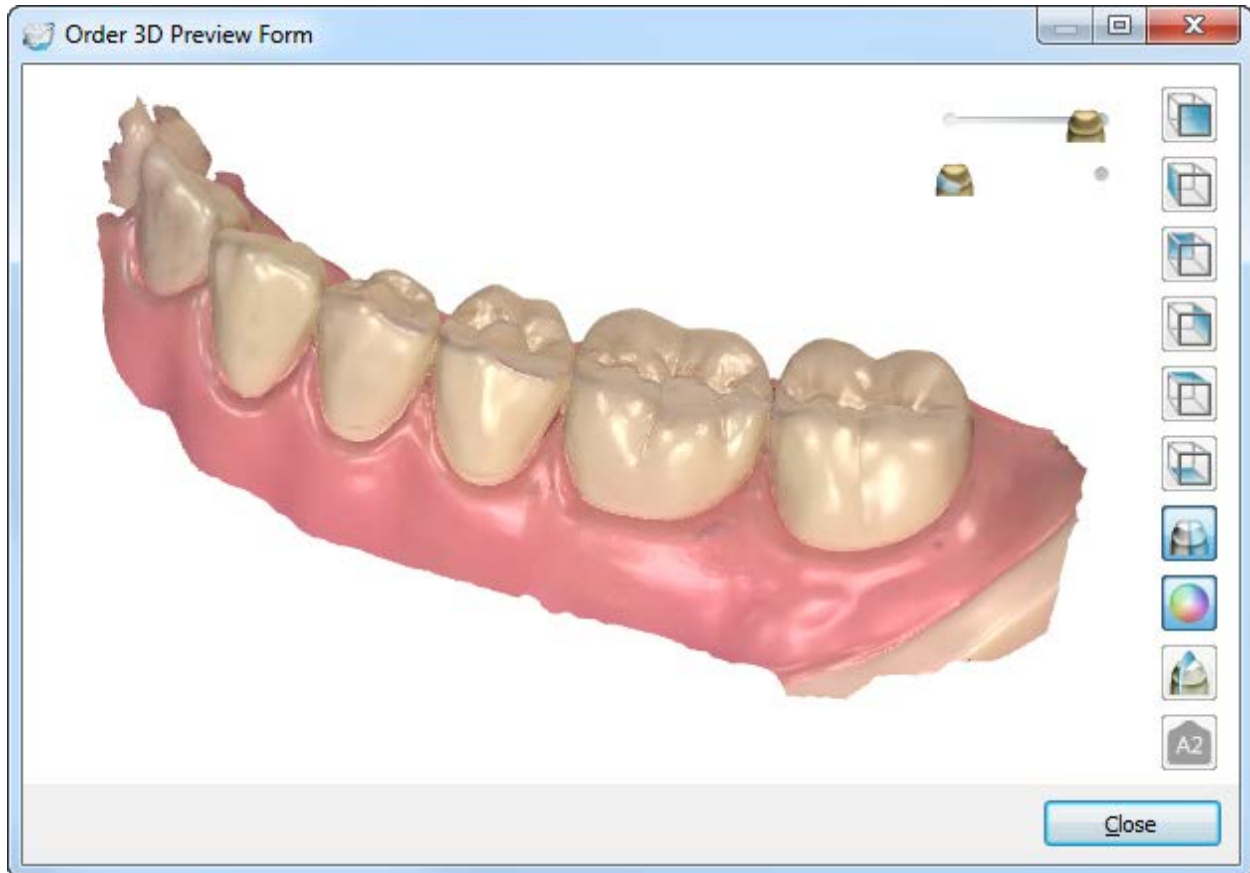
Order Status - order status icons change according to the step of the order processing.

	Created	Order has been created.
	Scanned (unprepared)	Orders with the imported unprepared impression scans.
	Scanned (unprepared)	Orders with the imported TRIOS scans.
	Scanned	Order has been scanned.
	Designed	Order has been modeled.
	Locked*	Order is in use.
	Checked out*	Order has been checked out and saved locally.
	Closed	Order has been closed after modeling.
	Sent	Order has been sent to the manufacturer.
	Accepted	Order has been accepted by the manufacturer.
	Rejected	Order has been rejected by the manufacturer.
	Preparing Production	Order is being prepared for production.
	In production	Order has been sent for production.
	Approved	Order has been produced and approved.
	Failed	Order has been produced, but with errors.

*Icon changes depending on the order status.

ADDITIONAL

5. Preview area - shows a 3D preview of the selected order. You can rotate the model in the preview area while keeping the mouse button pressed, and zoom the model in and out with the mouse scroll wheel. A double-click on the preview area opens an Order 3D Preview Form.



6. Information on the Selected Order - shows information on the order selected from the order list.

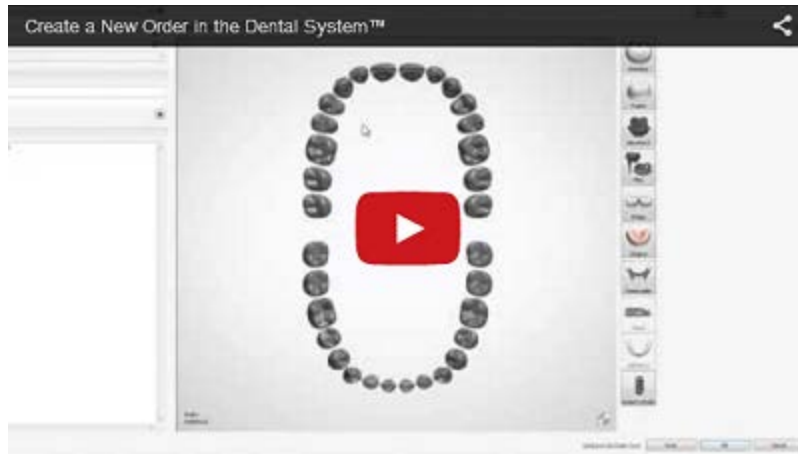
ORDER FORM

Create a new order using the [Order Form](#):

Order Form

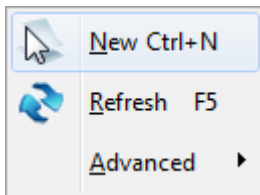
2.1.2. Creating Orders


2.1.2.1. Create an Order



To create a new order in Dental Manager, please follow steps below:

►Step 1: Open an Order Form



- Click on the **New**  button in the Workflow bar OR
- Right-click in the Dental Manager window and select **New** from the menu (see image to the left) OR
- Use the combination of keys **Ctrl + N**

The Order Form window appears on the screen:

Order Form

Lab information

Operator: Tech 01

External Lab Information

External Lab: - none -

Customer information

Customer: 2131627786

Contact person:

Create date: 27/02/2018

Shipping date: 27/02/2018

Send information

Patient information

Last name:

First name:

Clinical photos:

Comments

Order settings

Order number: 24891_20180227_1411_Tech_0

Importance: Normal

Design Module: DentalDesigner 2018

Scan settings

Object type: Model

Antagonist: Antagonist model

Neighborhood scan: Sectioned

Order details

Teeth Overview Map

Order Form Legend

Tooth numbering information

Save default settings

Dental indication buttons and options

Order Information

Print Order Form

Index:

Additional:

Scan OK Cancel

1. Teeth Overview Map
2. Order Form Legend
3. Tooth numbering information
4. Save default settings
5. Dental indication buttons and options
6. Order Information
7. Print Order Form

►Step 2: Select teeth

- Select the desired tooth/teeth from the **Overview map (1)** - an illustration of upper and lower teeth rows that helps you create and view your order. Click on a tooth with the cursor. The selection becomes circled in red.
- When a cursor is moved over a tooth, the **Tooth numbering information (3)** field displays the numbering index of the tooth. The type of index can be selected in Dental System Control Panel (*System Settings* -> *Miscellaneous* -> [Tooth Index System](#)). The default index system is **FDI Notation**.



Note! 3Shape Dental System supports Simultaneous Modeling of Upper and Lower Jaws.

►Step 3: Choose the dental indication type

- Click on one of the **Dental indication buttons (5)** to choose the desired operation. These buttons contain information about the nature of the dental indication to be performed as well as materials, manufacturers etc.
- The Dental System software allows working in layers. For example, you can easily start with a coping and add a crown on top.
- Once the relevant dental indication is selected the tooth will change its color or shape according to the chosen dental indication button.
- After you have selected indications for your case (crown, pontic, bridge etc.), their icons and names appear in the **Order Form Legend (2)** in the order of selection. If the indication has been selected more than once, only one icon is displayed. The names of selected indications are shown in bold.
- It is possible to select more than one tooth at a time. Click on several teeth or use the standard **Shift** + left-click to select a row of teeth. A multiple selection allows bridges to be applied.



Note! Some indications are available only for certain software packages. Please read more in [Dental System Subscriptions](#) chapter.

►Step 4: Specify dental indication details



After you have defined your order, move cursor over the **green plus** button to open the form for choosing the material for your dental indication, its type and color as well as the manufacturer and the manufacturing process.




Hint! You can create your own default indication and material settings for all the Dental indication buttons in the Order Form, including a Bridge, with the



help of the **Save default settings** button.

For example, if you often design Inlay cases in the same material, the same color, and utilize the same manufacturing process, you can save all your standard settings under the **Anatomy** button, so that they are automatically applied whenever this button is pressed.

Simply define your order settings as usual and click the  **Save default settings (4)** button to remember the specified settings for the selected Dental indication button. The next time a new order is created and the Dental indication button (e.g. Anatomy) is selected, the default type of indication (e.g. Inlay) and default material settings (material, color, manufacturing process etc.) are applied automatically.

All the settings in the displayed form are predefined in Dental System Control Panel and can be edited there.

Material:	Zirkon
Color:	B1
Type:	Zirkon Crown
Manufacturer:	Compartis
Manufacturing process:	Milling R0.4mm

Material - choose the material for your dental indication.

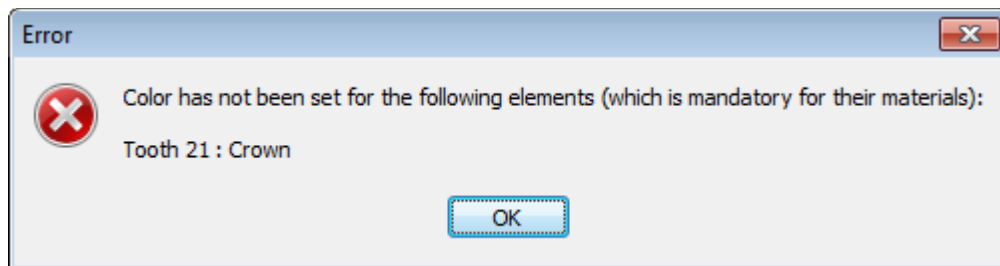
Manufacturing process - select the set of settings for a specific machine.

Manufacturer - you can choose yourself as the manufacturer or another site/manufacturer.

Type - choose the material type.

Color - select the material color. If you predefined a [color category](#) for a specific material in Dental System Control Panel, you will be able to view and select here only colors from that category.

If you want to make color selection mandatory for the specific material, select the **Force color selection** checkbox in [Dental System Control Panel](#). In this case, if the material color has not been set in the order form, the following message will appear:



Group (Abutments only)

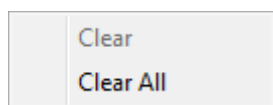
Abutments can be arranged in groups with each group having its common insertion direction. This allows you to model upper structures on top of customized abutments. The resulting customized abutments will be in parallel by default (as long as the Top cap is not rotated during the modeling).

Material:	Cercon base
Color:	Any color
Manufacturer:	Compartis
Manufacturing process:	Compartis Milling
Group:	<div> Group1 Ungroup Create group Group1 Ungroup all </div>

To define a group, choose **Create group** from the drop-down menu. Your abutment group will appear as **Group1** in the list. Should a second group of abutments be created, it would have an incremental number.

Select **Ungroup** or **Ungroup all** to delete one or all groups.

All grouped abutments in a job can have parallel top caps, so when placing the bridge on top of the abutments, it is mounted easily and without undercuts. To achieve this, select the **Lock insert directions** checkbox during [modeling](#) in Dental Designer.




Right-click on the selected teeth in the **Overview map** to clear your selection.

►Step 5: Define other order information (6)


- **Lab information**

This field is reserved for the operator's name. You can choose an operator from a list which is created in Dental System Control Panel (see chapter [Operators](#) for more details).

- **Customer information**

You can add here all the information related to the customer for whom this order is being created. The customer's name can be previously registered in Dental System Control Panel. Although, you can also add a customer directly from the Order form by clicking the **Add customer**  button, which will open the corresponding page in the Dental System Control Panel. Customers (sites) can also be imported to the Dental System Control Panel from an Excel file (for more details, see chapters [Dentists/Labs/Manufacturers](#) — depending on the site's profile).


If the 3Shape Communicate Integration (for more details, see chapters [Dentists/Labs/Manufacturers](#) — depending on the site's profile) has been enabled for your

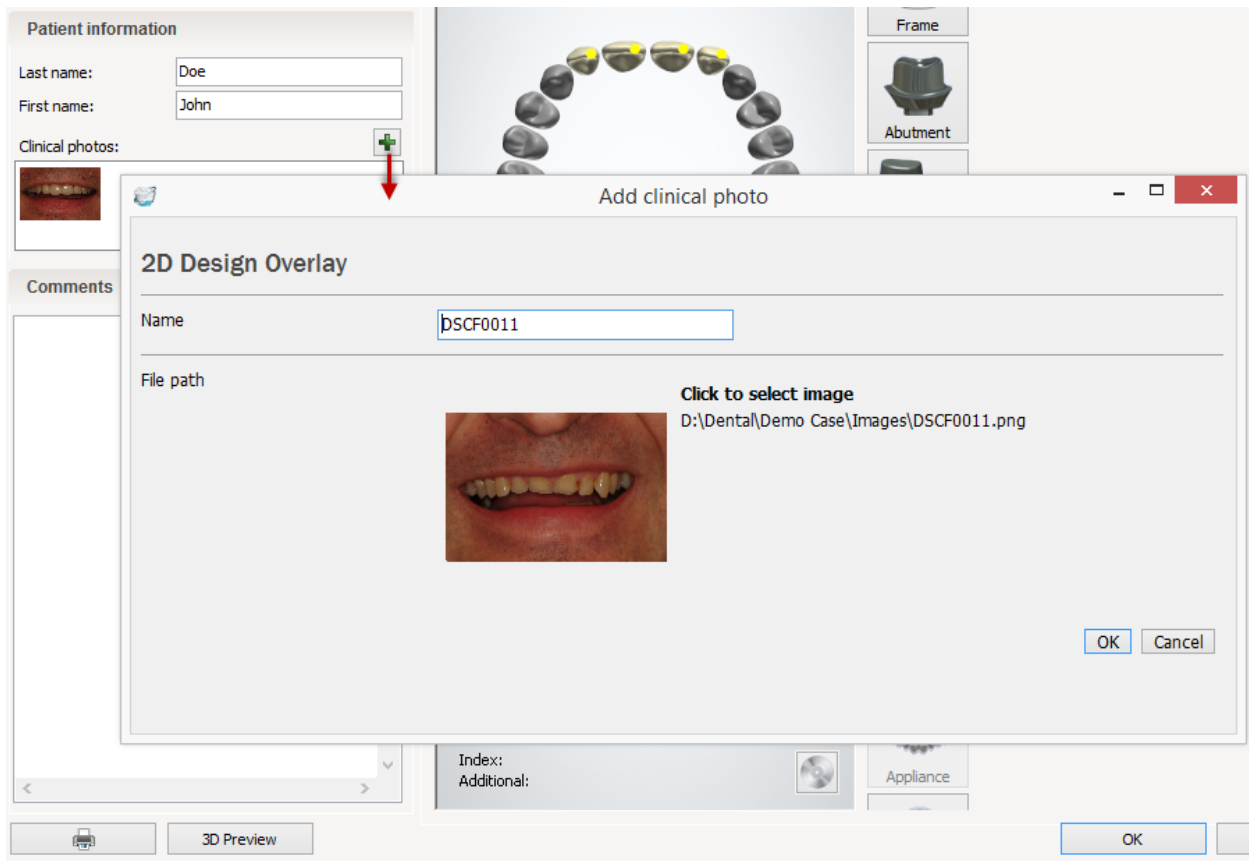
Customer (Site) in Dental System Control Panel, then the  **Automatic order upload** will be available on the form.

Please proceed to [Order Information](#) chapter for the detailed description of this section.

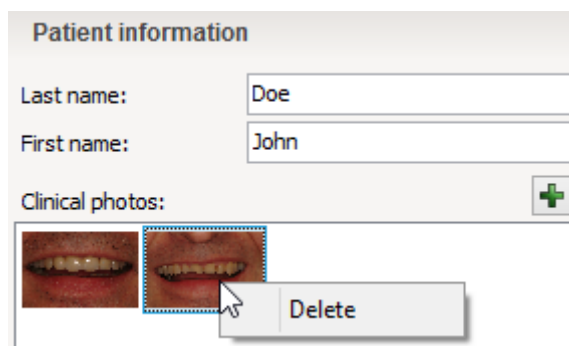
- **Patient Information**

1. Type in the patient's first and last names in the corresponding fields.

2. Click the **Add clinical photo**  button to attach the 2D images of the patient's smile. Thus, you will be able to use these images during modeling (see chapter [RealView™ Engine](#) for details).
3. Name your 2D image (otherwise the original image name will be applied after the upload).
4. Browse for your image and click **Open**.



5. Click **OK** to add the 2D image to **Clinical photos**.
6. Double-click the image to view/edit it or right-click the image to delete it.



- **Comments**

You can add any order related comments here.

- **Order Settings**

This section contains some important information on the order (e.g. **Order number**). The order number is automatically attached to each order and can be defined in Dental System Control Panel. Please proceed to chapter [Order Information](#) for the detailed description of this section.

- **Scan Settings**

This section allows you to choose the settings for your order scanning process (e.g. you can choose to scan an antagonist for a more precise result). Please proceed to chapter [Order Information](#) for the detailed description of this section.



Note! The amount of displayed fields depends on the settings in the Dental System Control Panel: *DSCP*->*System Settings*->[Order Form Settings](#).

► **Step 6: Click OK when the order has been set up**

The order will be stored in the system's database and handled by Dental Manager.

Click **Scan** to start scanning immediately. Click **Cancel** to terminate the order definition.

2.1.2.2. Order Information

The following order information can be entered in the Order Form:

CUSTOMER INFORMATION

Customer information

Customer:

Dental Clinic

+

Contact person:

John Doe


Create date:

09/02/2018

Shipping date:

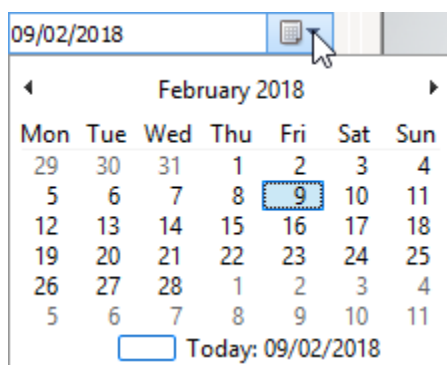
09/02/2018

Request approval

Customer - name of the customer for whom the order is created (if it's a manufacturing center, this will be the lab sending the order). The customer's name (the site) can be previously registered and further modified in Dental System Control Panel (*DSCP* -> *Site Settings* -> [Dentists/Labs/Manufacturers](#) — depending on the site's profile). You also have the option of adding a customer directly from the Order form - click the **Add Customer**  button to open the corresponding page in Dental System Control Panel. Click on **Add** and fill in the necessary fields as described in the corresponding chapters [Dentists/Labs/Manufacturers](#). You can create a list of sites and modify it at any time (add, delete, move up/down etc.).

Contact Person - you can indicate the name of a person from customer's side who can be reached and referred to if needed.

Create/Shipping/Delivery dates - to select the date of creation, shipping or delivery of an order, click on the corresponding combo-box and pick a date from a drop-down calendar:



These dates are automatically updated depending on when the milling center receives the order and what the order consists of.

Client Order no - an internal number, assigned to the order in the lab.

Delivery Type - this option enables you to indicate how the finished design should be sent back to the customer, e.g. "Shipped by UPS" etc.

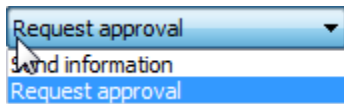
Ship to different address - If you want the order to be shipped to a location other than that entered for the site in Dental System Control Panel, check this box and fill in the blanks with the information for a new address.

3Shape Communicate

If the 3Shape Communicate Integration (for details, see chapters [Dentists/Labs/Manufacturers](#) — depending on the site's profile) has been enabled for your **Customer** (Site) in Dental System Control Panel, then the following options will be available in the Order form:



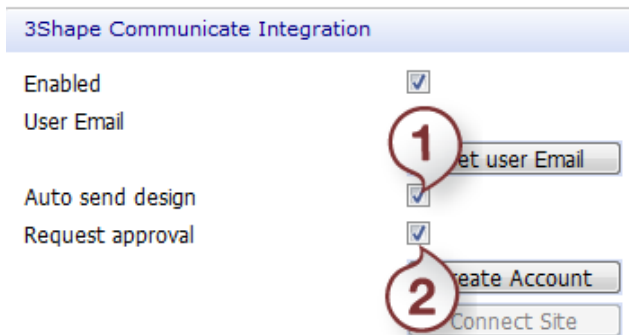
Automatic order upload - when selected, the order is automatically sent to 3Shape Communicate after it has been designed.



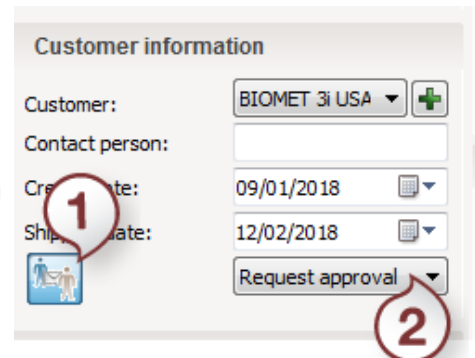
Request approval - forces the approval of the result at the receiving end.

Send information - order does not require an approval.

These 3Shape Communicate options are set by default to the Dental System Control Panel settings, i.e. if **Auto send design (1)** or/and **Request approval (2)** checkboxes have been selected/unselected in the [Control Panel](#), then they are automatically selected/unselected in the Order form every time you open it:



DSCP->Site Settings - options enabled



Order Form - options selected by default

However, you can change these settings in the Order form without opening Dental System Control Panel. These changes will be applied to the current order only and will be reset when you open a new Order form or change a Customer.

ORDER SETTINGS

Order settings

Order number:

Importance:

Design Module:

Order Number - Is a unique combination of parameters, which is automatically attached to each order. The Order Number format can be defined in Dental System Control Panel (**System Settings** -> [Order Form Settings](#)), where you can choose the way your order number is reflected in the Order Form (e.g. **Date**, **Time**, **Operator**, **Consecutive number** etc.). Select **Unspecified** if you don't want a parameter to be seen in the order number.

External Order Number - If you want the external ID to be added to the order number, select **External OrderId** from the drop-down menu in Dental System Control Panel (*DSCP -> System Settings -> Order Form Settings -> Define template for order-ID generation*) and type the number in the Order Form. It will be automatically added to the order number.



Note! Please do not use personal patient identification for the order number.





Importance - Choose between **Low**, **Normal** or **High** options to indicate the level of importance for the order.

Design Module - Choose the desired module to design your order (e.g. Dental Designer 2018, Dental Designer 2017, 3M Lava Interface or other). You can choose to use the familiar to you version of Abutment Designer even after upgrading.

SCAN SETTINGS

Scan settings

Object type	Model ▼
Antagonist	None ▼
Neighborhood scan	None ▼



Object Type - choose the type of object - **Digital Impression**, **Impression** or **Model**.

3Shape scanners deliver high quality **impression scans**. Direct scanning of silicone and alginate impressions can in many cases optimize the work processes.

Antagonist - you can scan antagonist to get a more precise result. Choose between **Antagonist bite** and **Antagonist model** or select **None** if you do not want to scan an antagonist.

Neighborhood Scan - lets you choose between **None/Sectioned/Unsectioned** scan of the neighboring teeth for additional model information (e.g. proximal contact points). The Sectioned or Unsectioned option indicates the type of dental indication you use.

- **Sectioned scanning** - with the sectioned scanning, the dental indication model is prepared manually by cutting it to sections for individual scanning.
- **Unsectioned scanning** - allows for virtual dental indication sectioning within the software, thus saving the manual work and speeding up the whole scanning process.



Double Preparation - allows scanning of additional information (e.g. in order to design and scan the desired framework in wax).





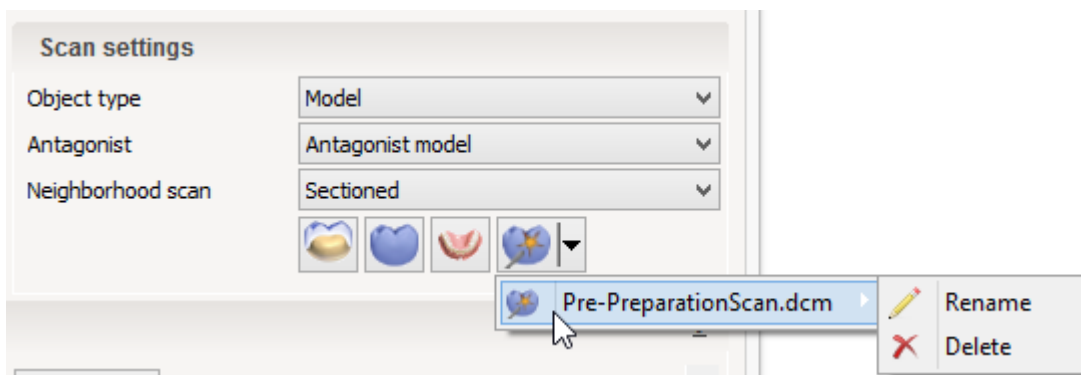
Pre-preparation Scan - the pre-preparation model and diagnostic wax-up contain very valuable information for modeling of full anatomical crowns and general dental

indications. Hence the pre-preparation model and diagnostic wax-up can be scanned and aligned to the normal preparation scan and visualized during the design phase.



Add additional scan - allows you to upload additional scans, including pre-preparation and double preparation scans. The maximum number of scans that can be added to an order is 10. During the design phase, you will be able to align added scans to the preparation or antagonist scan, as well as to add extra scans.

- To add a scan, click the **Add additional scan**  button and select the scan file (in the DCM, STL, HPS or PLY file format) in the appeared window.
- To view the list of added scans, click on the little black arrow next to the **Add additional scan**  button. Selecting a scan in the list reveals the options to **Rename** and **Delete** the scan:



ADDITIONAL ORDER OPTIONS

Additional order options ⬆

New field 1:

New field 2:

New field 3:

The order form can optionally contain additional order fields. The fields are added and configured via the Dental System Control Panel, as described in [System Settings](#) chapter.

The options selected and entered in the additional fields are stored in a dental order file (*.3OX).

The image on the left shows an example of a custom implementation.

2.1.3. Modifying Orders

You can change the order settings after it has been scanned and/or modeled. It can be done either from the Dental Manager or Dental Designer.

However, the critical fields of the order form are disabled and cannot be changed:

Order settings	Scan settings
Order number: <input type="text" value="Bridge Framework Design"/>	Object type: <input type="text" value="Model"/>
Importance: <input type="text" value="Normal"/>	Antagonist: <input type="text" value="None"/>
Design Module: <input type="text" value="DentalDesigner 2017"/>	Neighborhood scan: <input type="text" value="Sectioned"/>
	<input type="text"/> <input type="text"/> <input type="text"/>

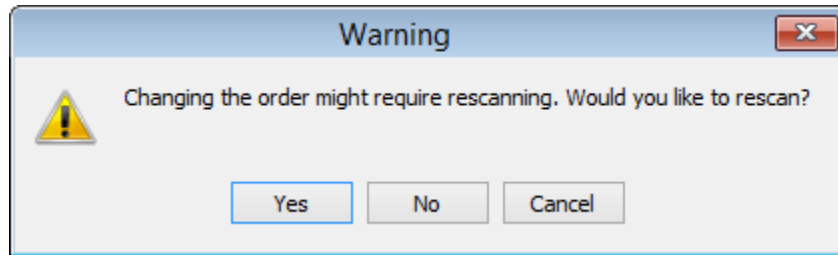
Depending on the changes, the design can completely remain, partially remain or be removed. The following explains the behavior for each option.

FROM DENTAL MANAGER

To change order settings, right-click on the order in the list and select **Modify** to open the order form.

1. If the **changes are not crucial**, the program automatically accepts them (e.g. if you change customer information).
2. However, if **changes have impact** on the scanning or designing process, you are prompted with the following warnings:
 - **Changing indication or Scan settings - status Scanned**

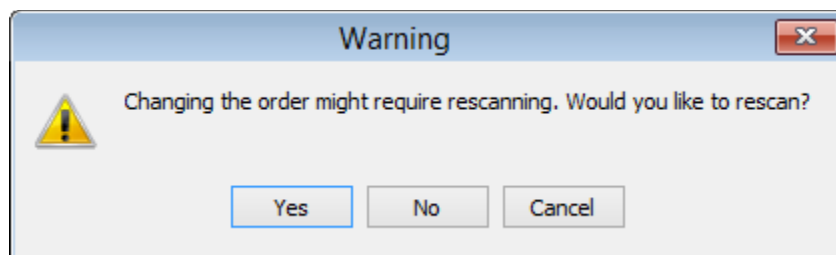
In this case, the order might need to be re-scanned. You can choose to re-scan the order or save changes without re-scanning.



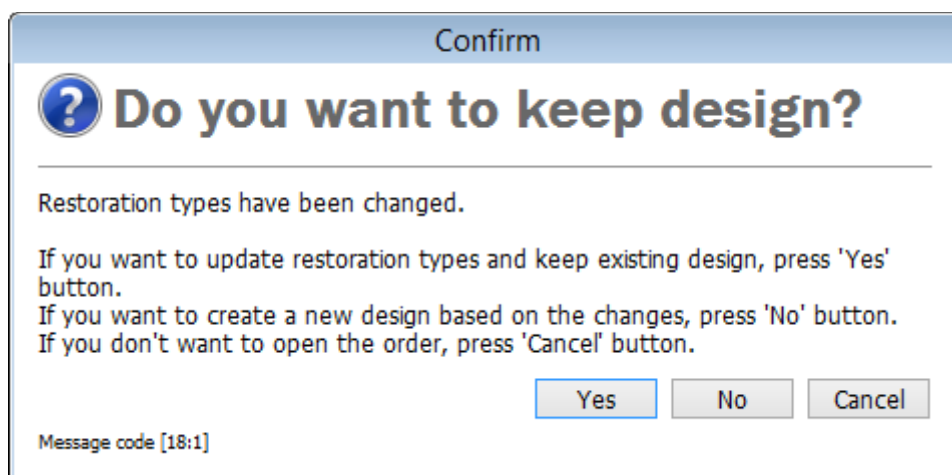
- **Changing indication or Scan settings - status Designed**

If you change an indication of the same tooth (e.g. from crown to coping and vice versa), the software automatically accepts the changes. In this case the margin line and the anatomy design (if any) from the previous designing process are applied while remodeling in Dental Designer.

Otherwise, the previous design is lost and you must remodel your order. The order might also need re-scanning.

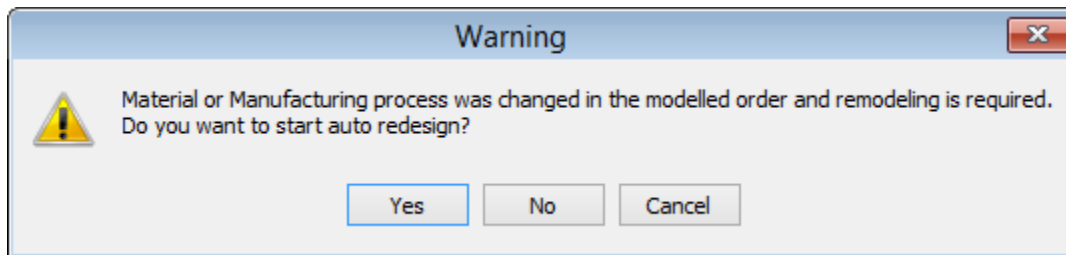


No message is shown when you modify the dental indication type in an order via the Dental Manager. However, the following message comes up giving you the option to either keep the existing design or create a new one when you open the modified order in Dental Designer.



- **Changing Material or Manufacturing process - status Designed only**

In this case you have to remodel the case and manually adjust settings in Dental Designer according to the new material (e.g. Cement gap).

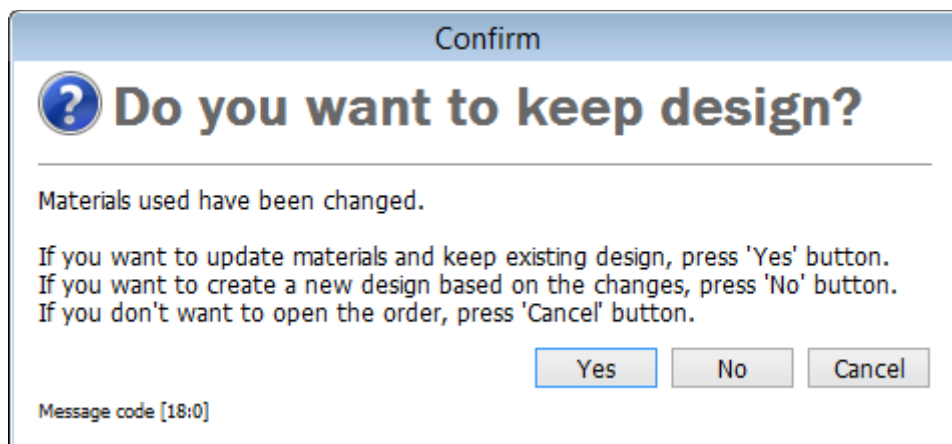


FROM DENTAL DESIGNER

To change order settings, click the **Order**  button in the Workflow bar of Dental Designer to open the order form.

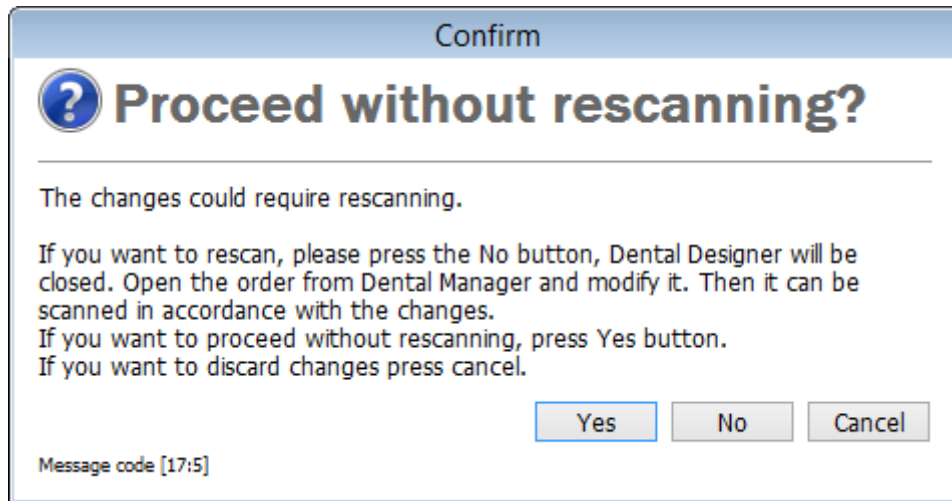
- **Changing materials**

You are given the option to keep the design by pressing the **Yes** button in the appeared window, you are then returned to the same design step. Alternatively, press **No** to create a new design.



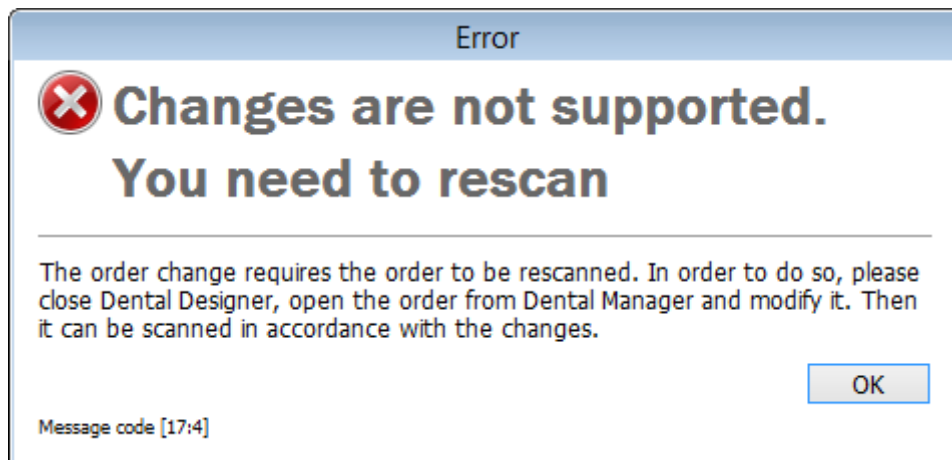
- **Changing indication**

If you change an indication of the same tooth (e.g. from crown to coping and vice versa), you can proceed without re-scanning by pressing the **Yes** button in the appeared window, otherwise press **No** to modify the order from Dental Manager and re-scan it.



- **New indication**

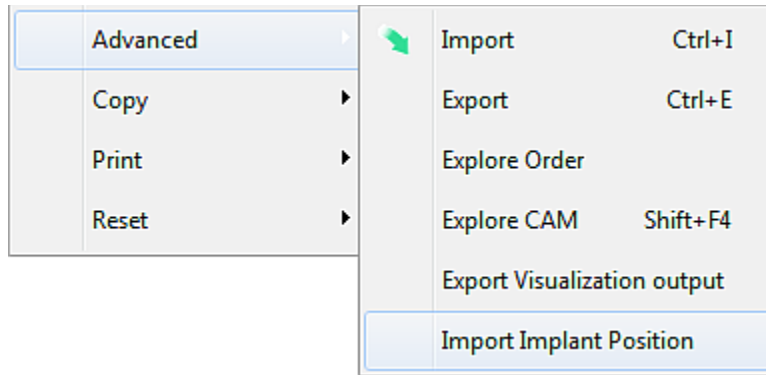
A warning message comes up when you try to make a new indication from the existing one. Close the Dental Designer, open and modify the order from Dental Manager, then scan the new indication.



IMPORTING THE 3rd PARTY IMPLANT POSITIONS

The function is designed for implant orders appearing under the status **Scanned** in the Dental Manager orders list and lets you import new implant positions from the implant planning software or CMM (a 3rd-party high accuracy scanner). The imported file must be in 3Shape implant position XML format. Please consult your 3Shape representative for details.

Right-click on a chosen scanned order from the Dental Manager list and select *Advanced->Import Implant Position* from the appeared menu to browse for the 3rd-party file. The imported file replaces the existing 3Shape implant coordinates with the new 3rd-party coordinates. The design process then continues as usual.



2.1.4. Handling Orders in Dental Manager


2.1.4.1. Scanning an Order

Follow steps below to scan orders with the status **Created** :

► **Step 1: Select an order you need to scan**


► **Step 2: Start the application**

Start the ScanIt Dental application by doing the following:

- select **Next**  from the Workflow bar or,
- right-click on the order and select **Scan** or,
- double-click the order (it will automatically bring you to the next step - Scanning).

► **Step 3: Follow the instructions**

When the application opens, follow the instructions to perform scanning.

After scanning, the order receives the status **Scanned** .

To improve speeds, the application can remain open to be ready for scanning of the next order.

Please see [Models Scanning](#) and [Impressions Scanning](#) chapters for more details on how to scan an order.

2.1.4.2. Multiple Dies

If you work with dental [scanners with multi-die scanning](#) support (supplied with a Passive Multi-Die Fixture), you can create and scan orders with multiple dies.

► **Step 1: Create an order**

The procedure is the same as for a regular order. Please see the [How Do I Create](#) chapter for more information on creating orders for various indications.

►Step 2: Send order for scanning

The procedure is the same as for a regular order. Please see the [Scanning an Order](#) chapter for details.



Note! Prior to scanning, you should enable the **Multi-die scanning** feature. To do that, select the **Multi-die scanning** checkbox on the ScanIt Dental [Settings](#) page.

Please see the chapter [Multi-Die Scanning](#) for details on scanning multiple dies.

2.1.4.3. Importing a Scan

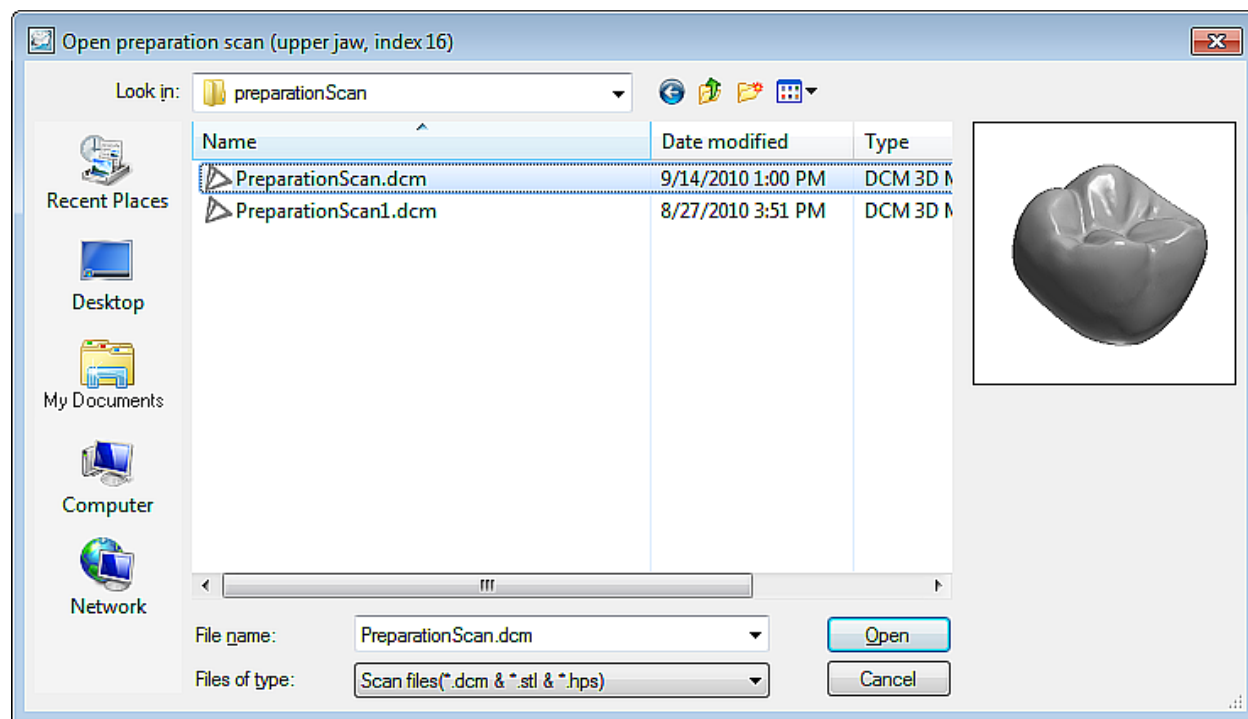
If you already have the right scan, it can be imported into a new order:

►Step 1: Select scan

Right-click on the created order and select **Import Scan** to *Open Scan* dialog window.

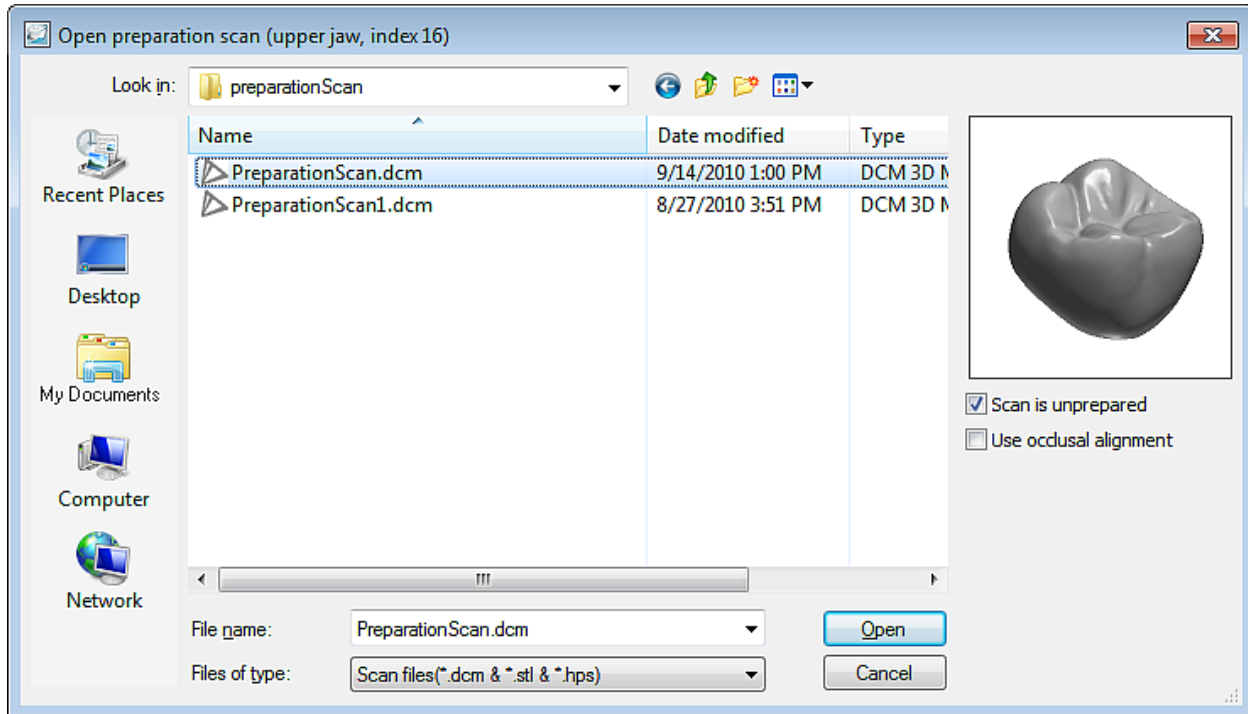
►Step 2: Import scan

Browse and select the required scan, press **Open** to import it.



IMPRESSION SCANS ONLY

When importing impression scans, the **Scan is unprepared** checkbox appears under the scan preview window. This checkbox is selected by default and lets you import unsectioned scans. Unselect this checkbox if you are importing a prepared scan.



A created order with imported scan(s) changes its status to **Scanned** in the Dental Manager order list.

A created order with imported unprepared impression scan(s) receives status **Scanned (unprepared)** and its icon appears with an exclamation mark.

2.1.4.4. Order Import









With 3Shape Dental System, you can import complete 3Shape orders, as well as import and work directly on order scans from **3Shape Communicate**, **DDX** and **UDX**. Scans, order information and margin line are imported making the scan ready for modeling.






HOW TO IMPORT

►Step 1: Select the Import option

Right-click the required order in the Dental Manager order list and select **Advanced->Import** from the appeared menu:

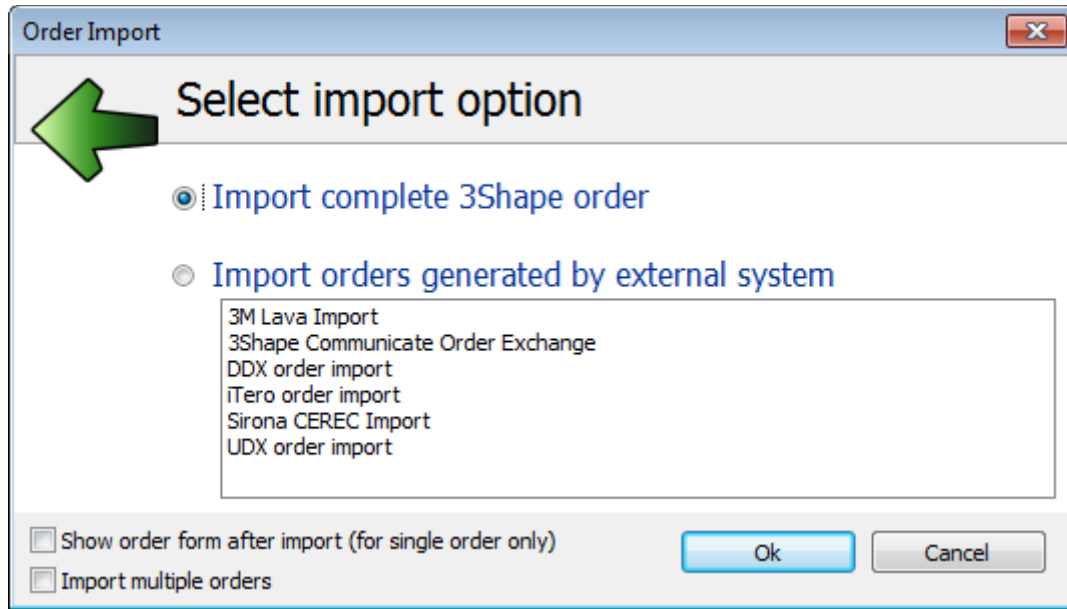
	Number	Creation date
	2015_Abutment_bar_bridge	11/10/2014 11:26:10 AM
	2015_Anatomical_abutment	11/10/2014 12:52:53 PM
	33814_20141106_1141_Tech_01	11/6/2014 11:42:04 AM
	68027_20150122_1527_Tech_01	1/22/2015 3:27:50 PM
	68027_20150128_1737_Tech_01	1/28/2015 5:37:50 PM
	97728_20150108_1731_Tech_01	1/8/2015 5:32:18 PM
	97728_20150109_1339_Tech_01	1/9/2015 1:39:44 PM
	97728_20150112_1549_Tech_01	1/12/2015 3:49:52 PM

	New	Ctrl+N
	Refresh	F5
	Select	▶
	Advanced	▶
	Print	▶
	3Shape Communicate	▶

	Import	Ctrl+I
-------------------------------------------------------------------------------------	--------	--------

►Step 2: Select the relevant import type

The appeared *Order Import* window has the option to import complete 3Shape orders (compressed file or xml), or generated by an external system. Select the required option and click **OK**.



Detailed import procedures for each format are described in the corresponding sub chapters:

- [3Shape Orders](#)
- [3Shape Communicate Order Exchange \(3OX\)](#)
- [DDX Orders](#)
- [UDX Orders](#)

The import of **3M Lava**, **iTero** and **Sirona** orders is described in [Third-party Digital Impressions](#) chapter.

AUTOMATIC MATERIAL CONVERSION

During order import, the incoming order materials and 3Shape materials must be mapped. Depending on the material and system settings, you can encounter one of the following cases while importing an order:

- The order is imported as is, with no interaction required from you (i.e. no Order form shown).
- The order is imported with the default system materials applied.
- The order is imported with the conversion rules applied.

- The order is imported but you must manually define order details.

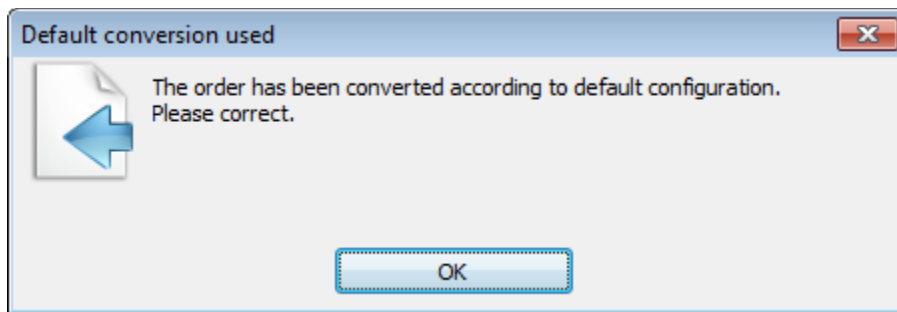
The last three are described below in details.



Note! To import an order without material mapping, select the **Design center** check box in *Dental System Control Panel > System Settings > [Dental System behavior](#)*. When selected, only materials from the original order are used during design, while materials defined in Dental System have no impact.

1. Default system materials

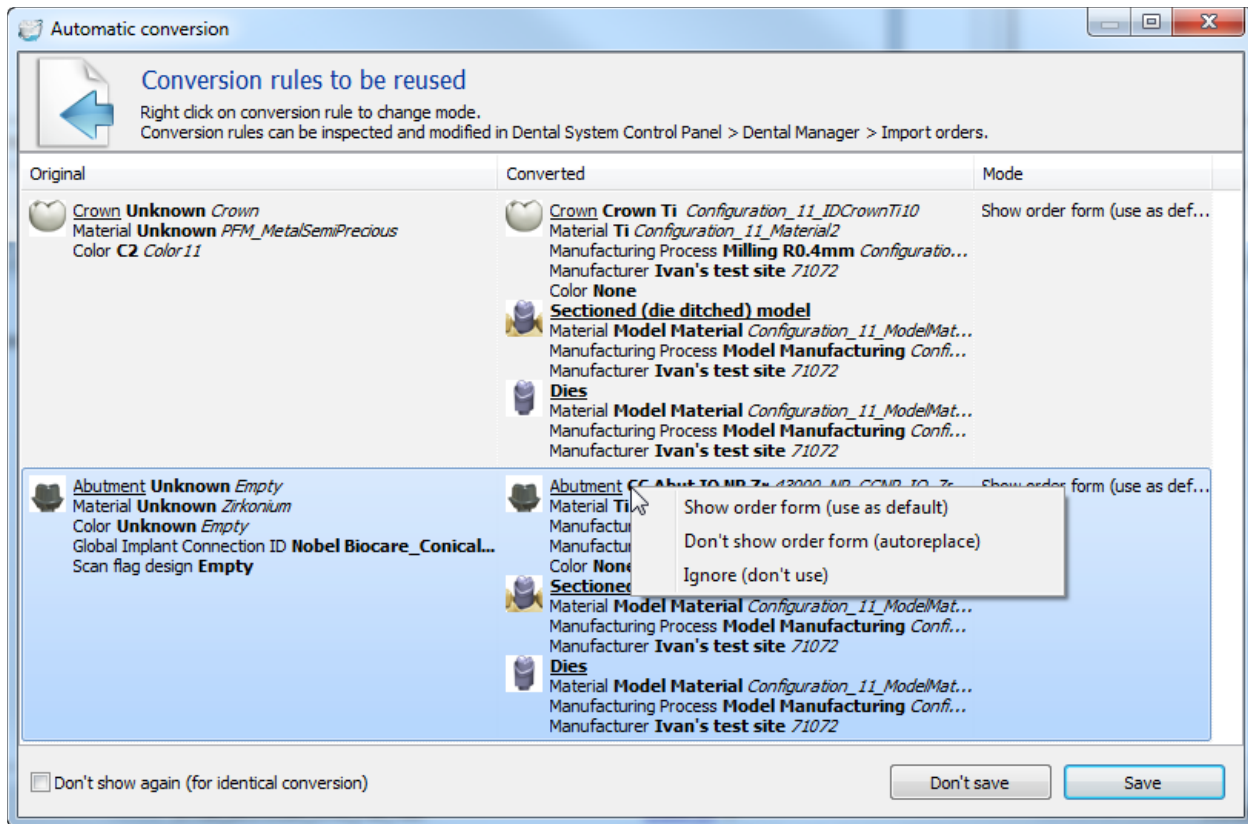
During the external system order import, if an original order contains an unknown configuration (e.g. material, manufacturer, etc.) or a combination of known and unknown elements in the order, which makes it invalid (e.g. pontic is not connected to a bridge), the Order Form is automatically shown with the known and valid configuration selected by default:



Click **OK** on the *Default conversion used* form and view the converted order. Modify order details if necessary.

2. Conversion rules

After you click **OK** on the Order Form, the *Automatic conversion* dialog appears listing the original and converted materials which can be saved as Conversion rules and automatically applied later:



Save - saves the conversion rule to be reused the next time this exact material is mapped. The conversion rules are saved to *Dental System Control Panel->Dental manager->Order Import* and can be edited from there.

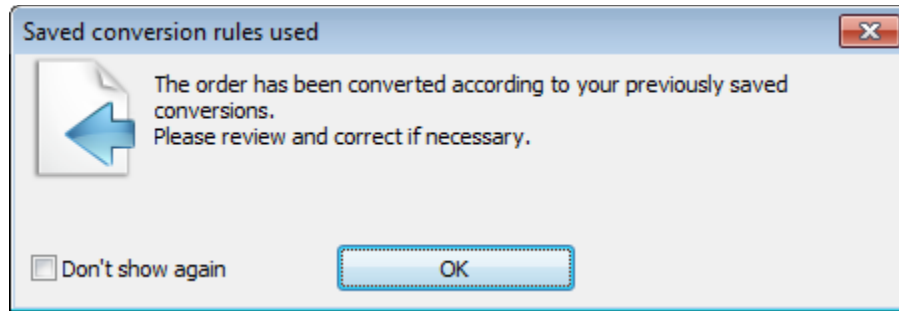
Don't save - Does not save the conversion rule.

Right-click on the conversion rule to change its mode:

1. **Show order form** (use as default) - during import, the Order Form is shown with the conversion rule applied by default.
2. **Don't show order form** (autoreplace) - import is performed automatically without the Order Form or *Automatic conversion* dialog being shown.
3. **Ignore** (don't use) - the rule is disabled, but saved in the Control Panel.

Don't show again (for identical conversion) checkbox - when selected, applies the saved conversion rule for the next identical case and does not show the *Automatic conversion* dialog.

Next time, if the conversion rule is remembered and the original order contains an identical unknown or invalid configuration, the program will automatically apply this rule:



3. Manual order definition

If for some reason the default configuration cannot be applied and there are no conversion rules saved, the Order Form will appear with no order restorations selected, so you could define the order manually.

After the import and material conversion, an imported order becomes available in the Dental Manager order list and can be further modified as desired.

2.1.4.4.1. 3Shape Orders

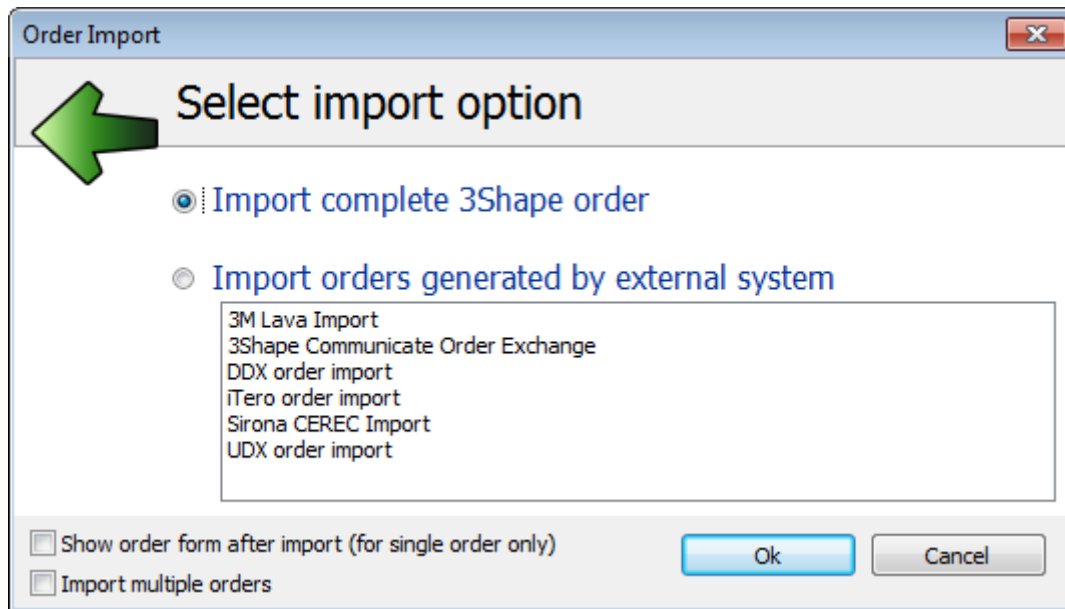
►Step 1: Configure/Verify material mapping

Setup the automatic mapping from external materials to the corresponding materials in 3Shape.

The External Material ID settings for the imported order are configured in *Dental System Control Panel* -> *Basic Elements* -> [Materials](#).

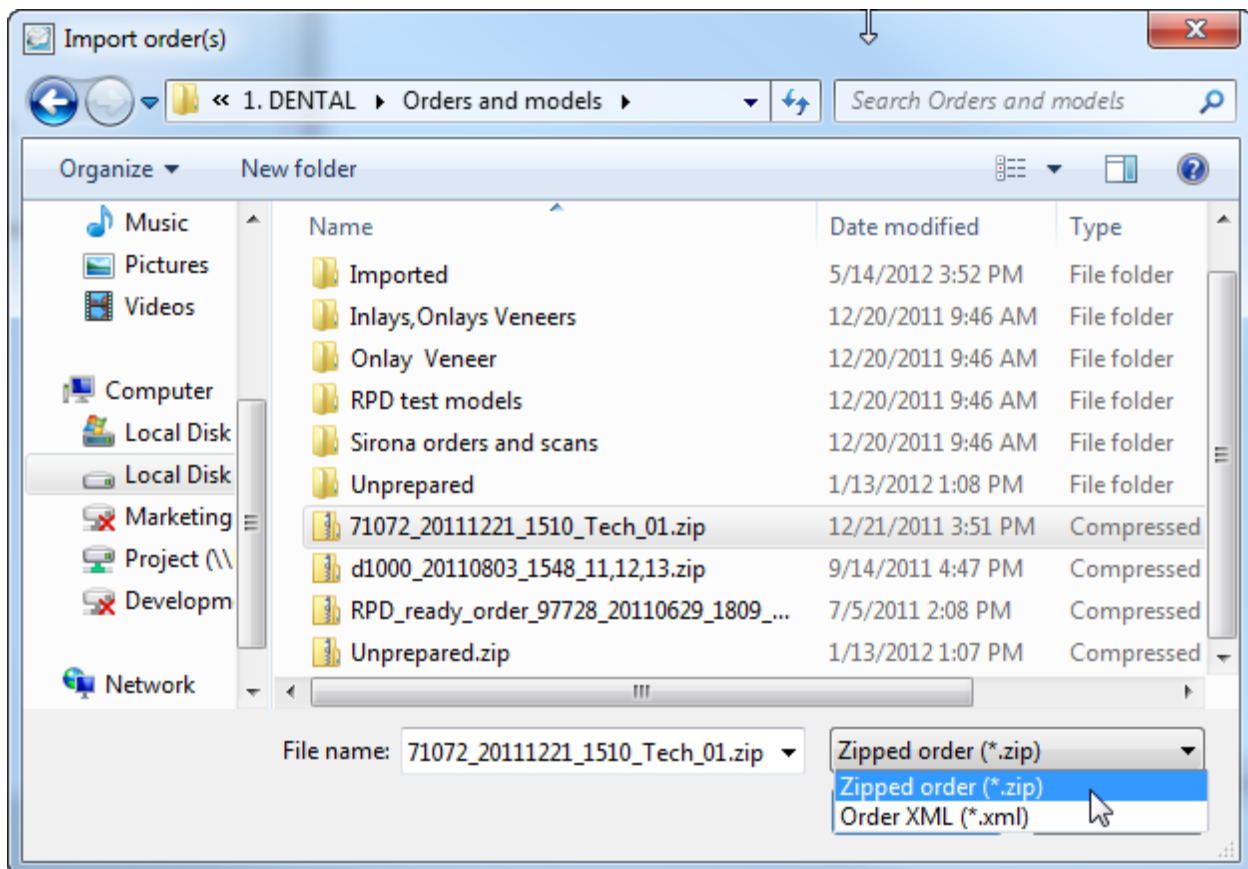
►Step 2: Select to import a complete 3Shape order

The **Import complete 3Shape order** radio button is selected by default. Click **OK** to proceed.



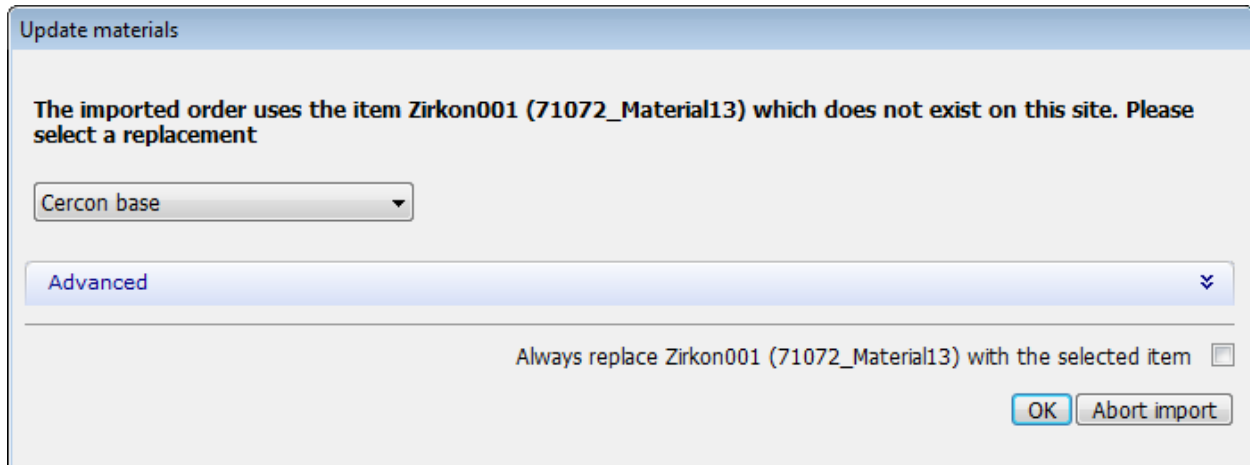
►Step 3: Browse for an order

3Shape order can be imported in .zip or .xml file format. Select the desired file and click **Open**.



►Step 4 (optional): Update materials

If the materials have not been mapped before the import (Step 1) and the imported order contains an unknown configuration (e.g. material, manufacturer, etc.), the following dialog appears offering you a replacement:

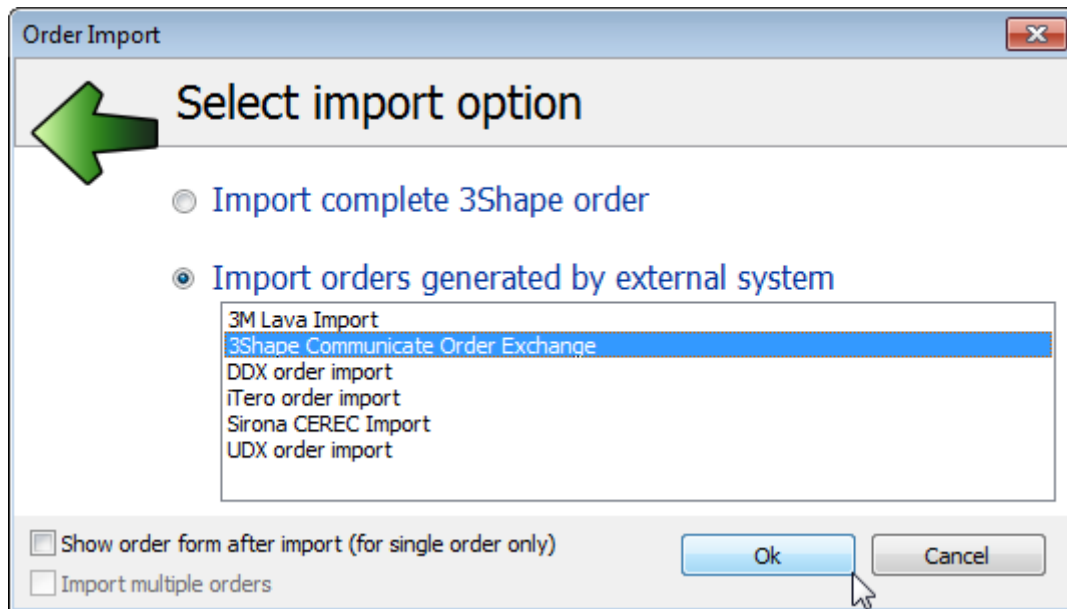


You can either **Abort import** or map to the existing suitable materials with the option to save your choice by marking **Always replace ... with the selected item** checkbox and click **OK** to continue. The saved mapping appears under the [Materials](#) settings in the Dental System Control Panel.

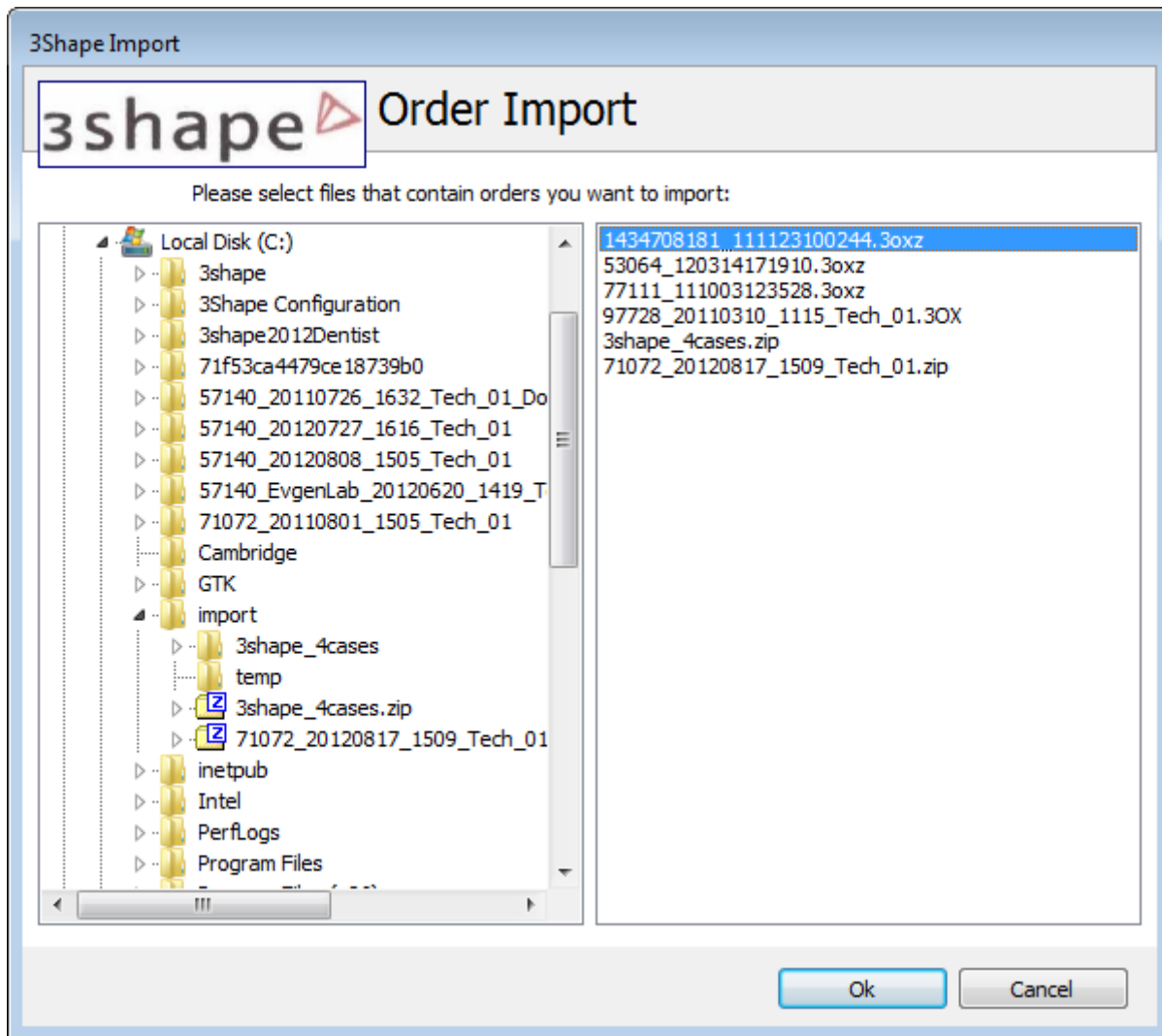
2.1.4.4.2. 3Shape Communicate Order Exchange

3Shape Dental System allows you to import orders from **3Shape Communicate Order Exchange**.

Open the *Order Import* dialog as described in the [Order Import](#) chapter, select **3Shape Communicate Order Exchange** in the appeared window and click **OK**:



You will see the *3Shape Import* window similar to the one below. Select the necessary folder, choose the order and click **OK**:

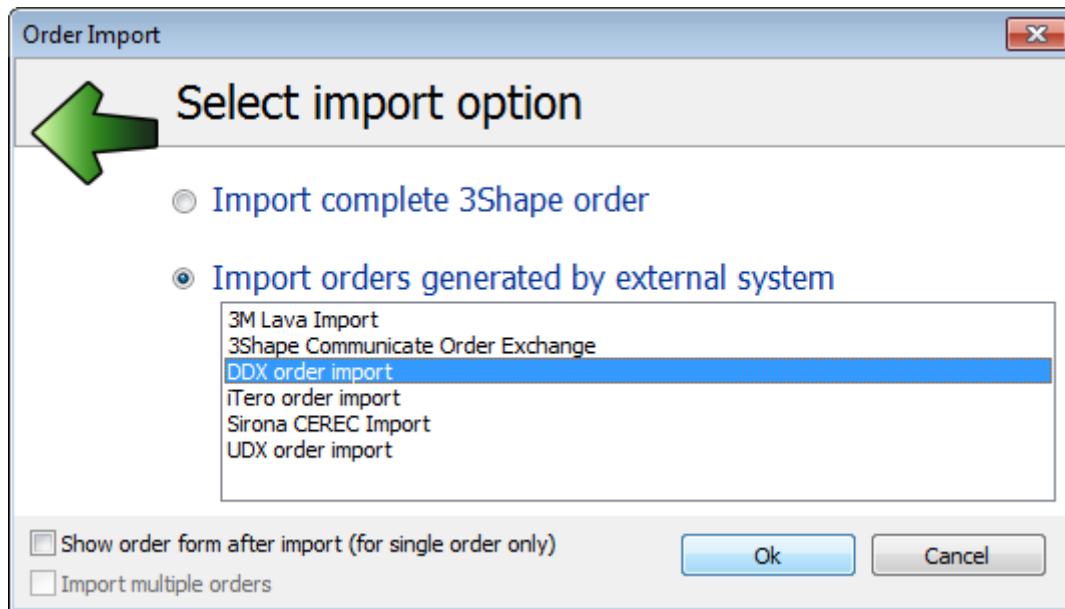


The imported order appears in the Dental Manager orders list. Click the order to open it for modeling.

2.1.4.4.3. DDX Orders

3Shape Dental System allows you to import orders from a web location running the **DDX** service.

Once you have the correct [DDX](#) import settings in the General page of the Dental System Control Panel, open the *Order Import* dialog as described in the [Order Import](#) chapter, select **DDX Order Import** in the appeared window and click **OK**:



You will get *Import from DDX* window similar to the one below. Select the order(s) you want to import from the provided table:

Import from DDX

Import 3Shape's zipped order which was earlier attached to DDX case.

Search

Yuri Vovchenko @ YuriPractice [Logout]

Portal ↓ Hidden Valley Lab Go To Lab Help ↓

Dashboard Cases Finances

Cases Opened June 2010

Month June Year 2010 Change

Case	Invoice	Patient	Back from Lab	Status
66		Iliya Fastov	Jun 15, 2010	Online Case in Progress
70		Iliya Fastov	Jun 16, 2010	Online Case in Progress
31		Ivan Brovary	Jun 14, 2010	Online Case in Progress
33		Ivan Brovary	Jun 15, 2010	Online Case in Progress
34		Ivan Brovary	Jun 15, 2010	Online Case in Progress
35		Ivan Brovary	Jun 15, 2010	Online Case in Progress
36		Ivan Brovary	Jun 15, 2010	Online Case in Progress
37		Ivan Brovary	Jun 15, 2010	Online Case in Progress

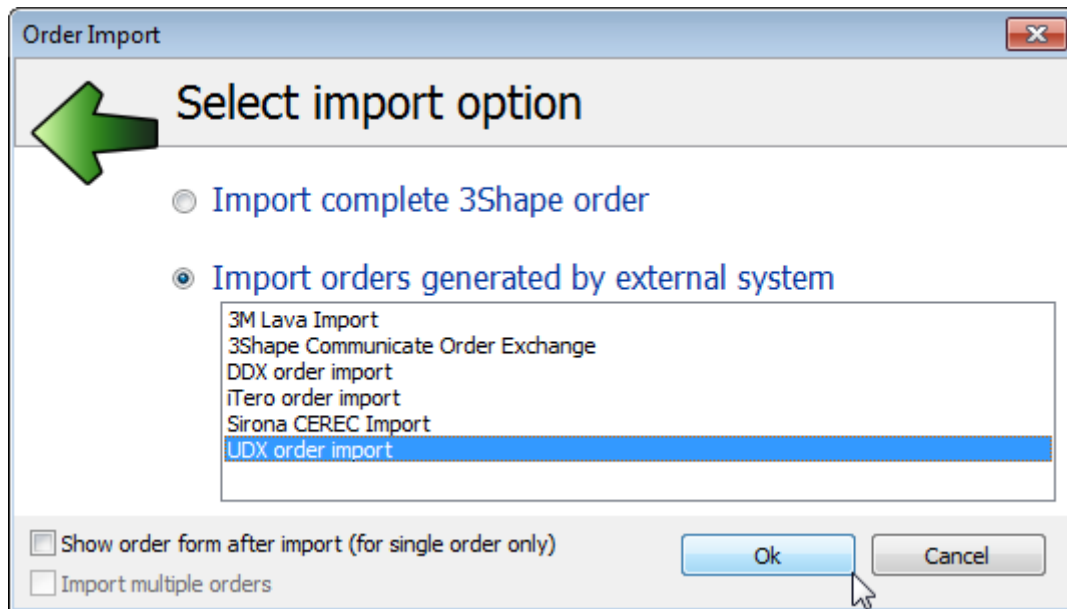
Select the case to import.

The imported order appears in the Dental Manager orders list. Click the order to open it for modeling.

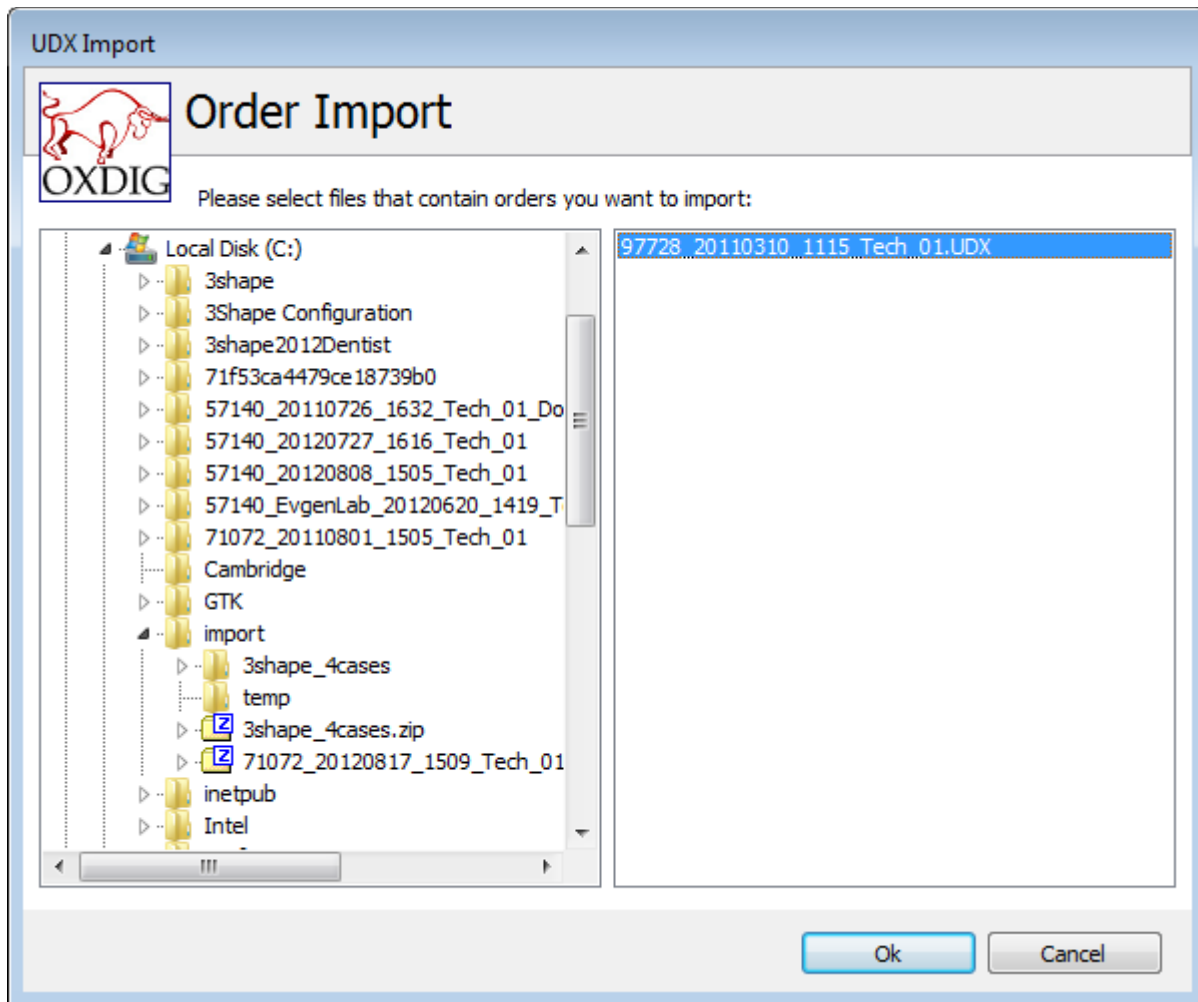
2.1.4.4.4. UDX Orders

UDX orders are imported with full order information. During UDX import it is possible to have multiple orders created in 3shape system, depending on a number of order tags in UDX.

Open the *Order Import* dialog as described in the [Order Import](#) chapter, select **UDX order import** and click **OK**:



The *UDX import* window appears asking you to select the file. Click **OK** to perform the import.



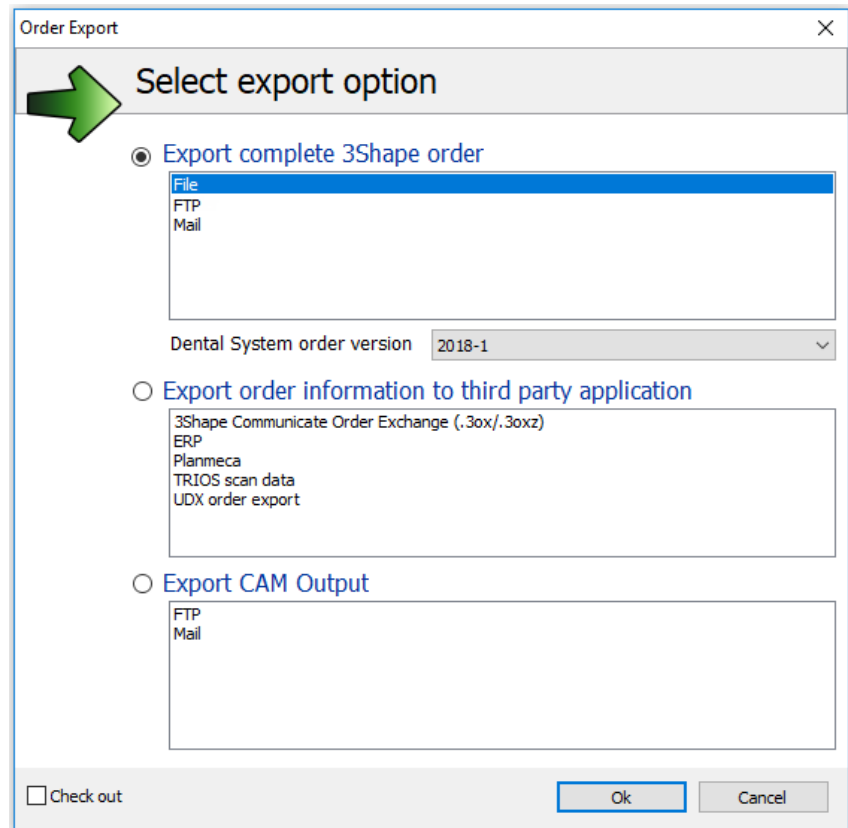
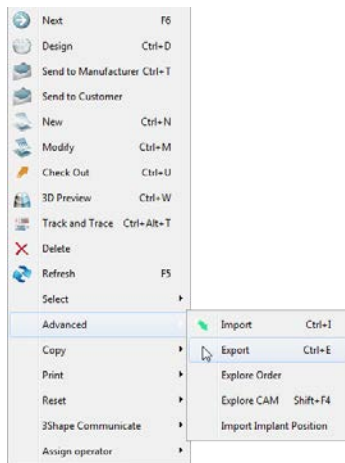
The imported order appears in the Dental Manager orders list where it can be taken from for modeling.

2.1.4.5. Order Export

To export an order, open Dental Manager, right-click the chosen order and select **Advanced->Export**. The **Order Export** window opens giving you various export options.



Note! The exported orders are version specific, and can only be opened and modified in the same version of Dental Designer in which they were created. To export the orders for earlier versions, use the [EXPORT COMPLETE 3SHAPE ORDER](#) option.

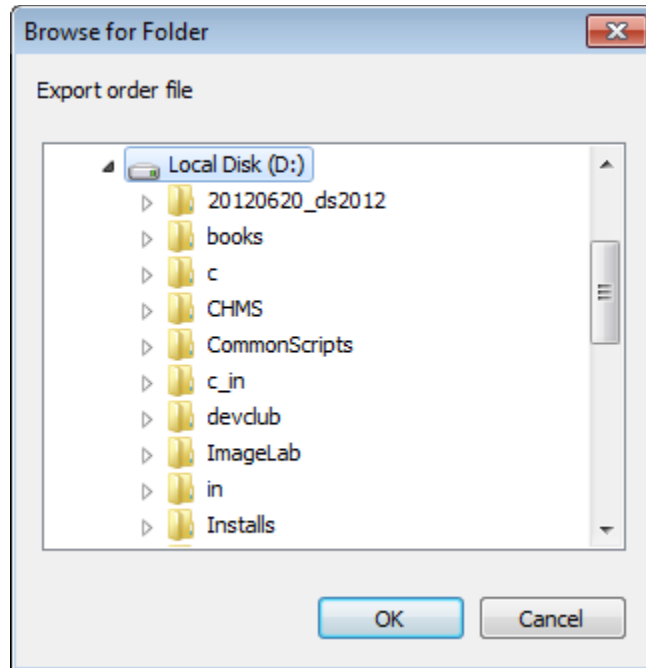


EXPORT COMPLETE 3SHAPE ORDER

You can export a complete 3Shape order to a local file, an FTP server or email. This option allows you to choose for which version of Dental System to export the order. In the **Dental System order version** list, choose a targeted version (any of the two previous or the current one). The exported order can be opened and modified in the chosen version of Dental System.

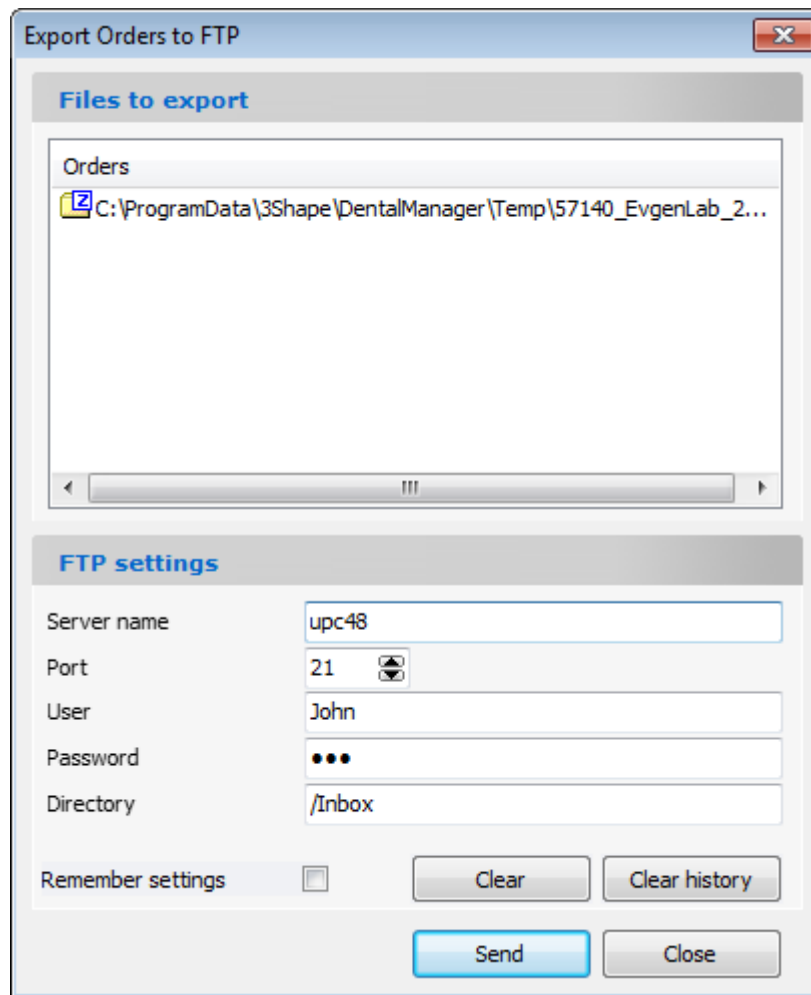
- **Export to File**

When you choose to export an order to **File**, the **Browse for Folder** window opens. Select the destination folder and click **OK**.



- **Export to FTP**

When you choose to export to **FTP**, the **Export Orders to FTP** window opens, suggesting that you fill in the **FTP settings** fields. Enter the server name, the user name and password, and the directory if required. Click **Send** to export your order to FTP.

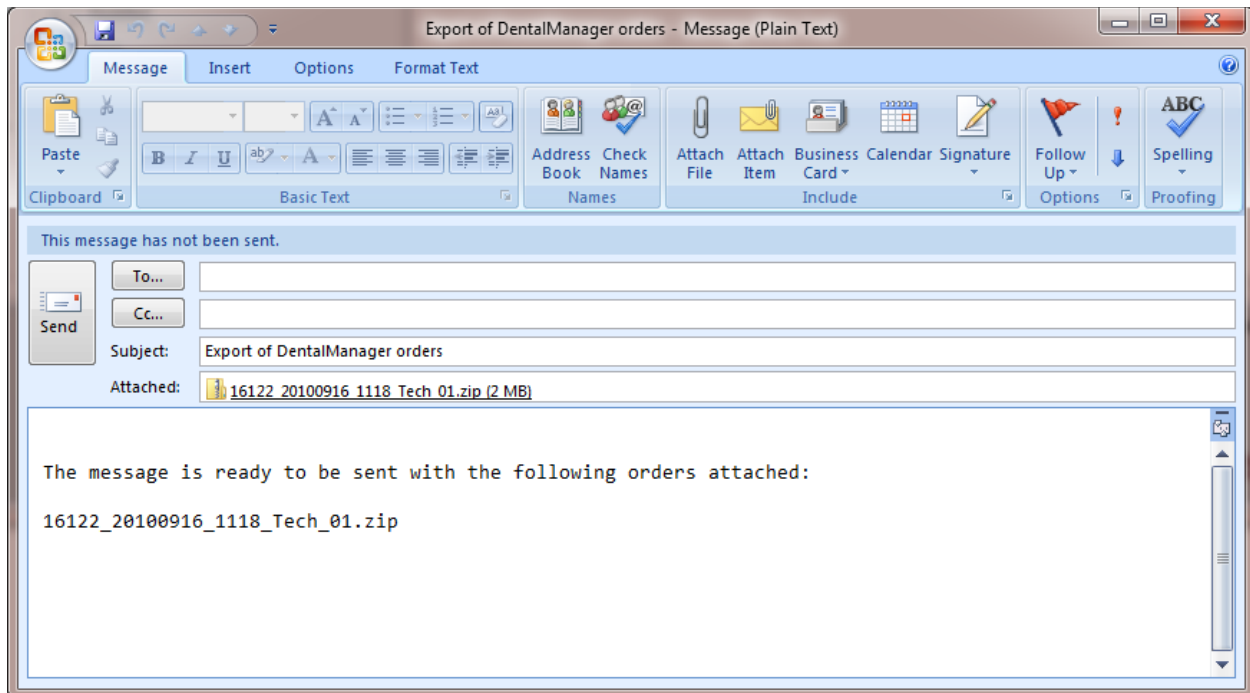


- **Export to Mail**

When you choose to send your order to **Mail**, an e-mail client opens up, asking you to fill in the necessary information for order sending. The letter already contains the attached order(s) you are about to export. Click **Send** to perform the action.



Note! Mails with exported orders can be quite large, hence not all mail systems are able to handle them.



EXPORT ORDER INFORMATION TO 3rd PARTY APPLICATION

Select one of the following options to export your order to a third-party application.




Note! The availability of the order export options depends on the dongle/site settings.

- **3Shape Communicate Order Exchange**

Select **3Shape Communicate Order Exchange** and click **OK**.

Order Export

 **Select export option**

☐ Export complete 3Shape order

File
FTP
Mail

Dental System order version 2018-1

☒ Export order information to third party application

3Shape Communicate Order Exchange (.3ox/.3oxz)
ERP
Planmeca
TRIOS scan data
UDX order export

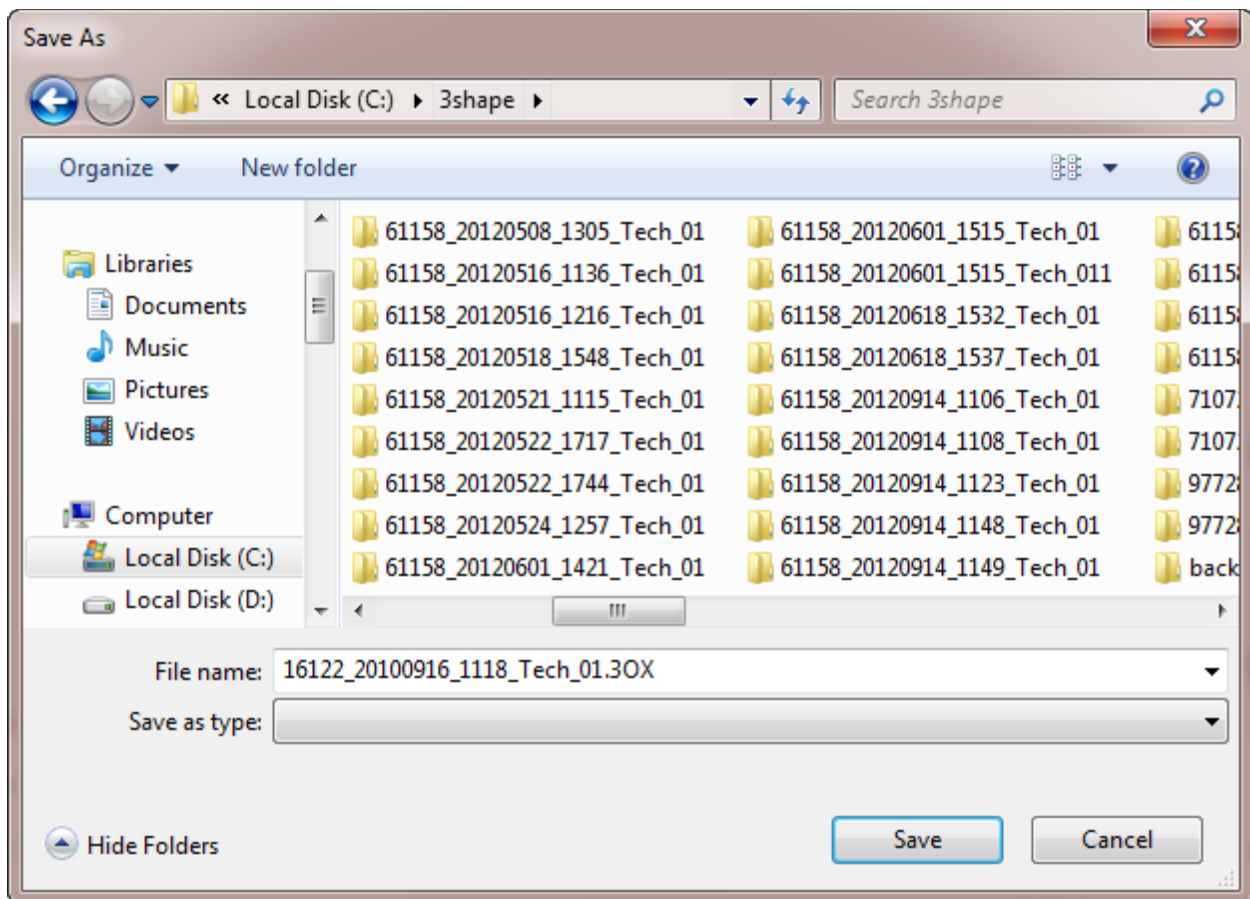
☐ Export CAM Output

FTP
Mail

☐ Check out

Ok Cancel

Your order will be saved to the specified folder in the .3OX format.




- **DDX order export**

If you choose to send your order to **DDX**, select the corresponding option and click **OK**.



Note! Before exporting to DDX, set up the DDX settings in Dental System Control Panel (**DSCP**->**Dental Manager**->**General**->[DDX](#)).

Order Export

 **Select export option**

☐ Export complete 3Shape order

File
FTP
Mail

Dental System order version 2018-1

☒ Export order information to third party application

3Shape Communicate Order Exchange (.3ox/.3oxz)
DDX order export
Planmeca
TRIOS scan data
UDX order export

☐ Export CAM Output


FTP
Mail


☐ Check out

Ok Cancel

The **Export to DDX** window appears, suggesting that you fill out the **Schedule a New Case** form. Enter the required information and click the **Submit** button at the end of the page.

Export to DDX


d1000_20100615_1329_Tech_01_Smith
John Smith



Search

Yuri Vovchenko @ YuriPractice [Logout]

Portal ↓ Hidden Valley Lab
Go To Lab
Help ↓

Dashboard Cases Finances

Schedule a New Case

-Patient Details-

Provider *
Yuri's

First Name
John

Last Name *
Smith

Gender

Patient Chart #

Birth Date

-Work Requested-

Procedures *
Full Cast Crown

Teeth * [?]
14
-

Procedures *
Full Cast Crown

Teeth * [?]
15
+

Send to Lab Date *
Jun 15, 2010

Try-in Required

Emergency Case

Alloys

-Case Design-

Coping

Margin

Connection

-Enclosures-

Enclosures

Approved Provisional Model
Articulator
Bisque Crowns
Bite Blocks
Bite Fork
Bite Registration

Please, edit case before submission.

After the order has been exported, a message appears, notifying you that the new case has been received.

Export to DDX

d1000_20100615_1329_Tech_01_Smith
John Smith

Search

Yuri Vovchenko @ YuriPractice [[Logout](#)]

Portal ↓ **Hidden Valley Lab**

Cases

[New Case](#)
[List Cases](#)
[Pickup](#)

Case #71

New case received. Please print work authorization for this case and include it with your case materials.

Back from Lab Date: Jun 16, 2010

Send to Lab Date: Jun 15, 2010

Provider: Yuri's

Patient: John Smith

Patient Appointment: Not Entered

Status: Online Case in Progress

Patient Appointment

Date *

Time

Reschedule Case

Add Procedure to Case

Case Note

Attach Files

Details

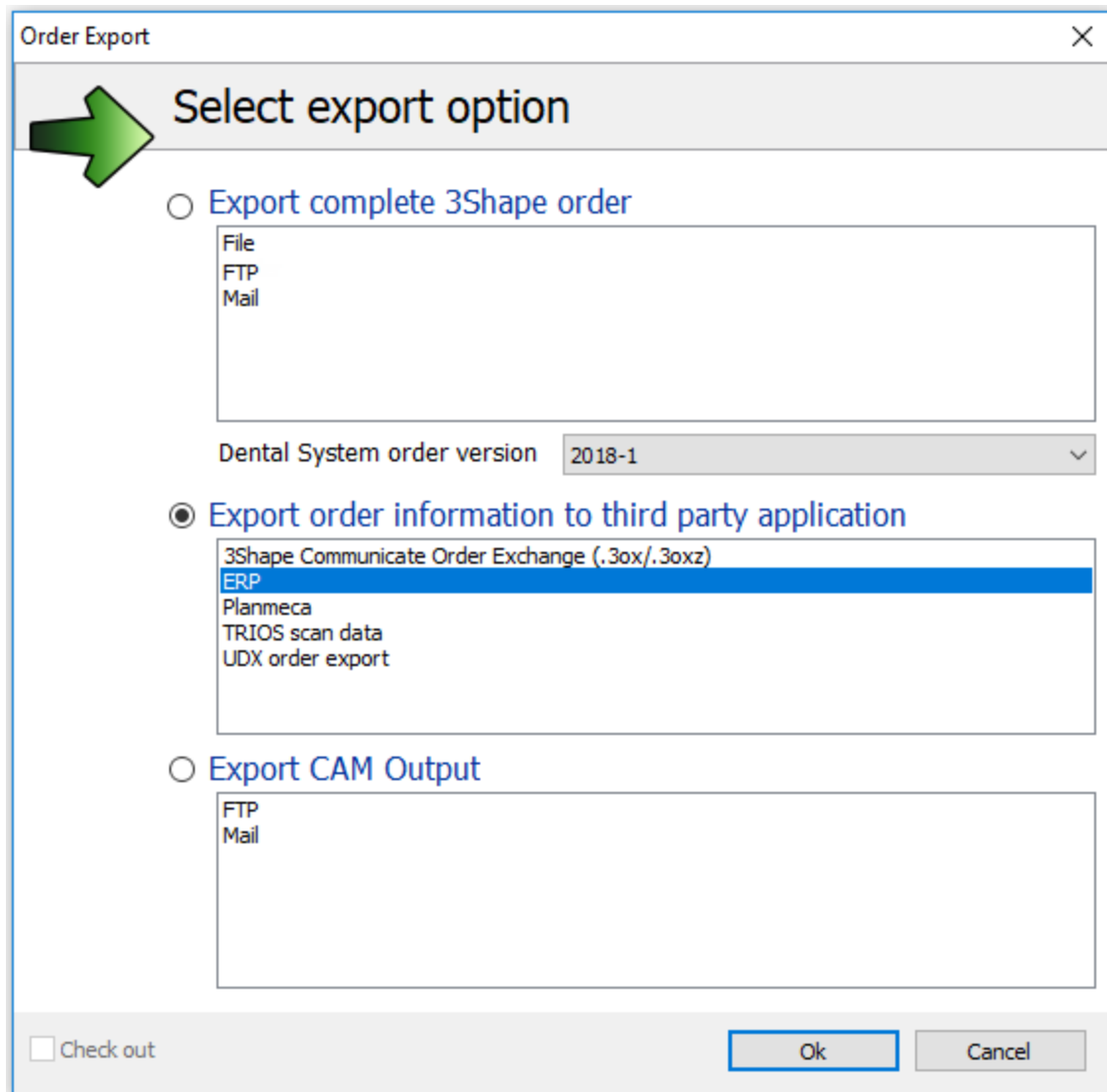
Work Requested

Units	Dental Code	Description
1		Full Cast Crown (14)

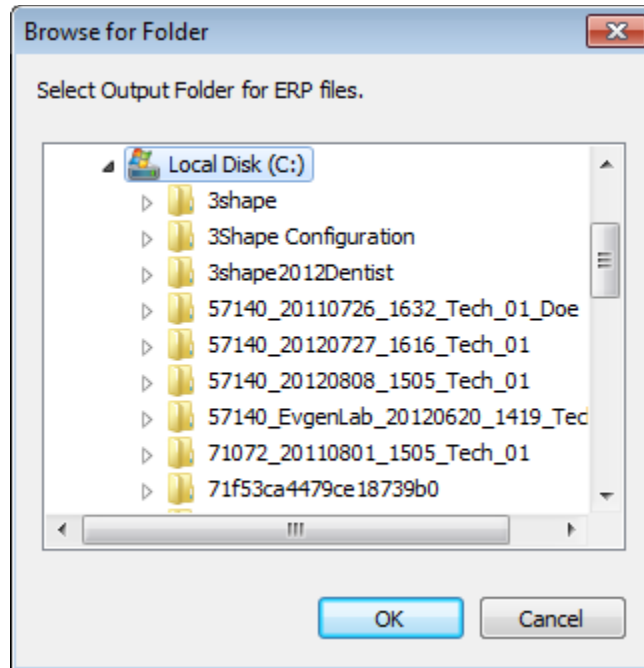
Uploading 3Shape dental order.

- **ERP**

If you want to export your order to **ERP**, select the corresponding option and click **OK**.



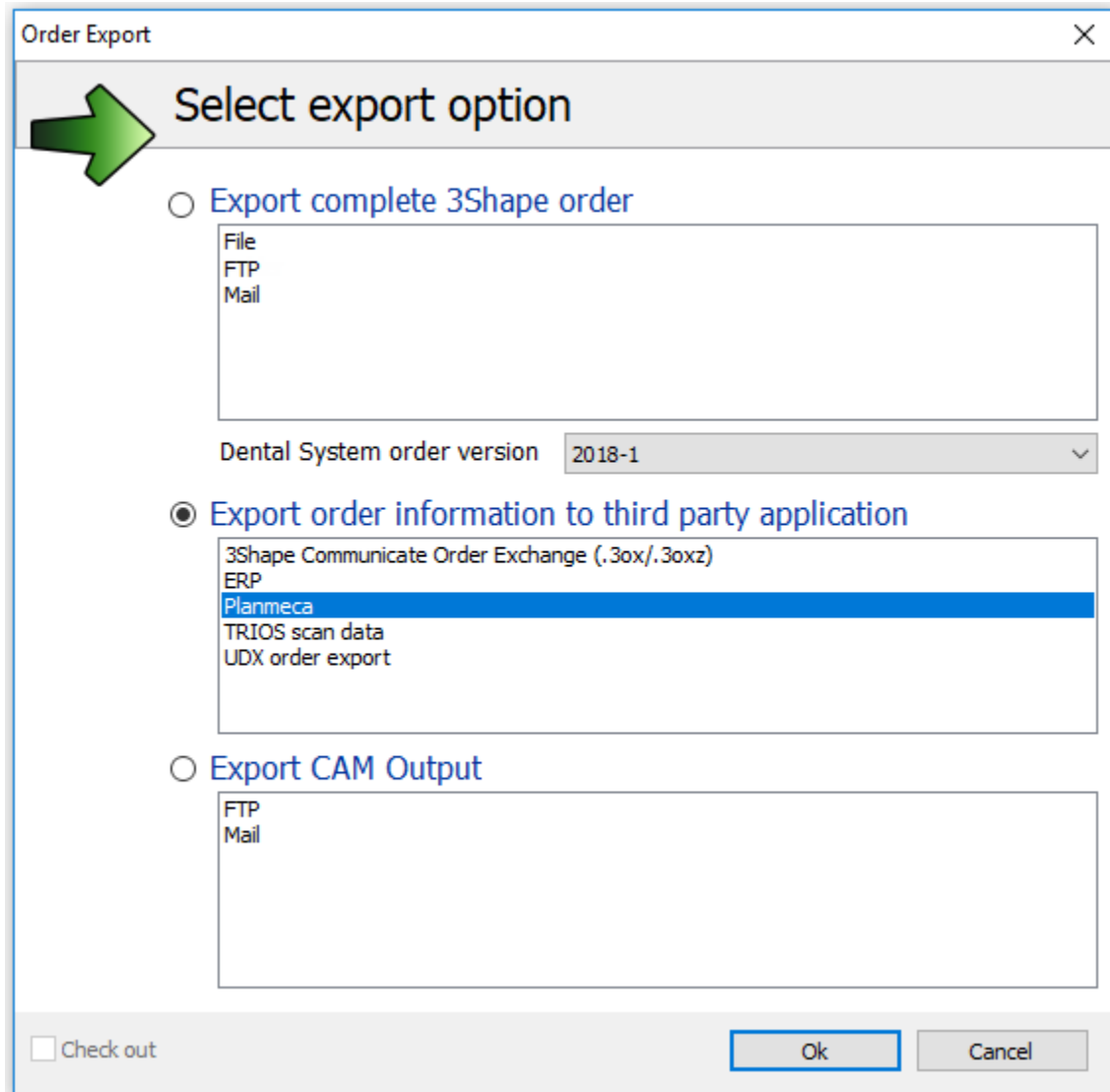
Select a destination folder for the ERP files in the **Browse for Folder** window and click **OK**.



- **Planmeca order export**

You can export your order to Planmeca - an external implant planning software.

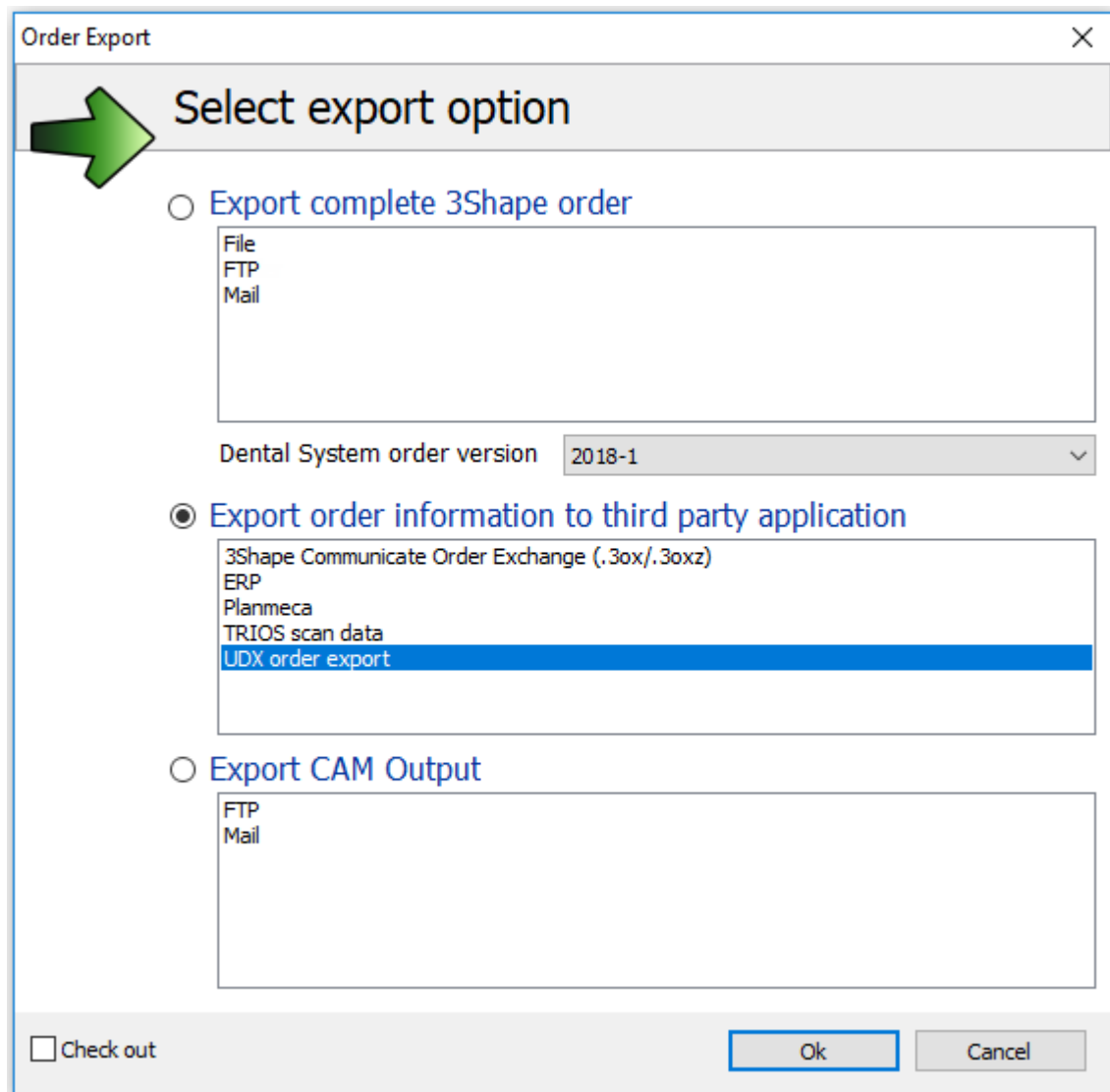
Right-click the order and select ***Planmeca*** from the third-party application list.



Click **OK** and browse for a destination folder in the appeared dialog. Your order will be exported in the 3OX file format.


- **UDX order export**

If you want to export your order to **UDX**, select the corresponding option and click **OK**.




Your order will be saved to the specified folder in the UDX format.

2.1.4.6. Modeling an Order

Follow the steps below to model an order with the status **Scanned** :

►Step 1: Choose an order

Select an order you need to model and perform one of the following actions:

- select **Next**  button from the Workflow bar or,
- right-click on the order and select **Design** from the menu or,

- double-click on the order (it will automatically bring you to the next step, which is design in this case).

►Step 2: Follow the instructions

When Dental Designer application opens, follow the instructions to perform order modeling.

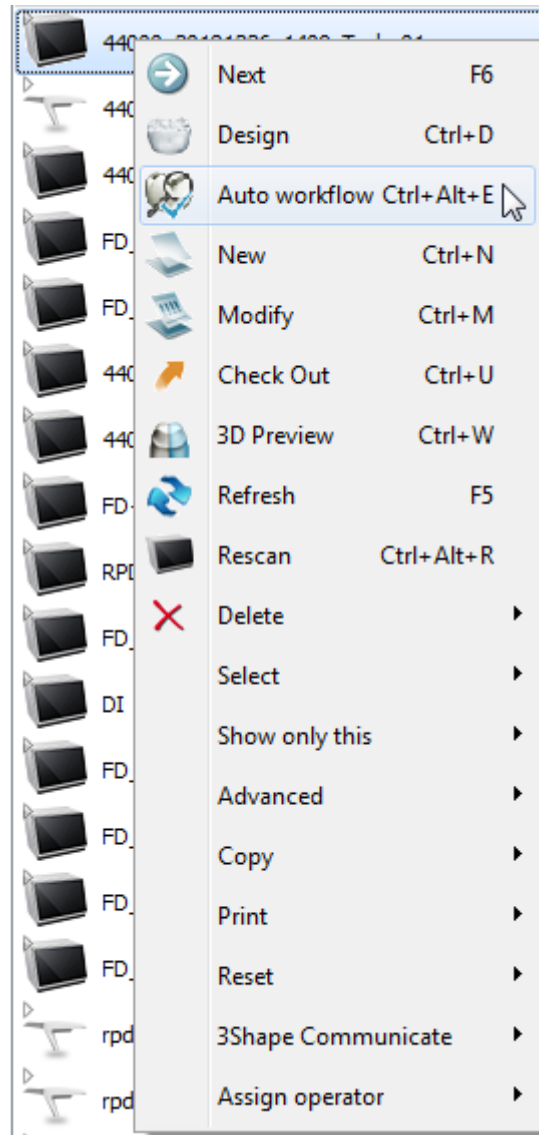
After the modeling process, the order receives the status **Designed** .

To improve speed, the application can remain open to be ready for design of the next order.

Please see the [Modeling](#) chapter for details on order design.

2.1.4.7. Automatic Order Design

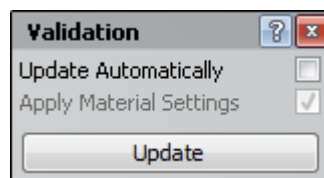
To run an automatic design for an order, right-click the order in the order list, and select ***Auto workflow***.



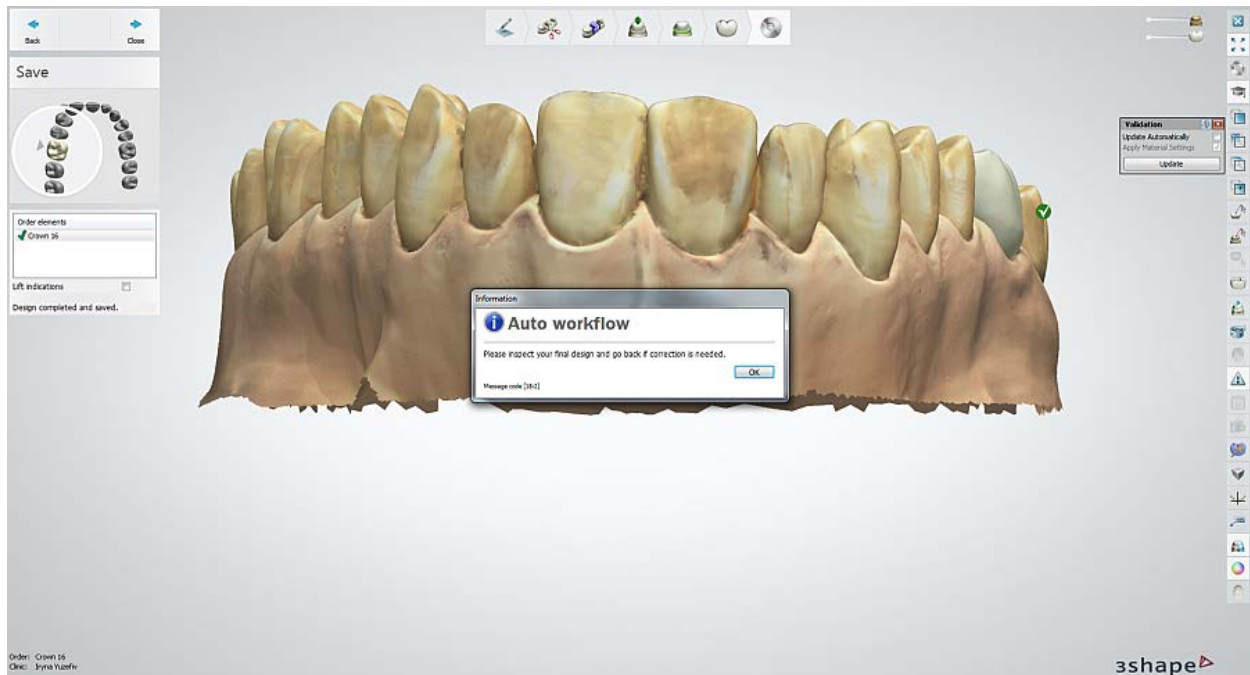
Note! This option is only available for the single crown and single coping orders in Dental Manager (with the **Scanned**  status) and in [ScanIt Dental](#).

The order opens in Dental Designer and the restoration is automatically designed according to the settings defined in *Dental System Control Panel* > *System Settings* > [Auto workflow](#).

When design is completed, the validation tool is automatically opened



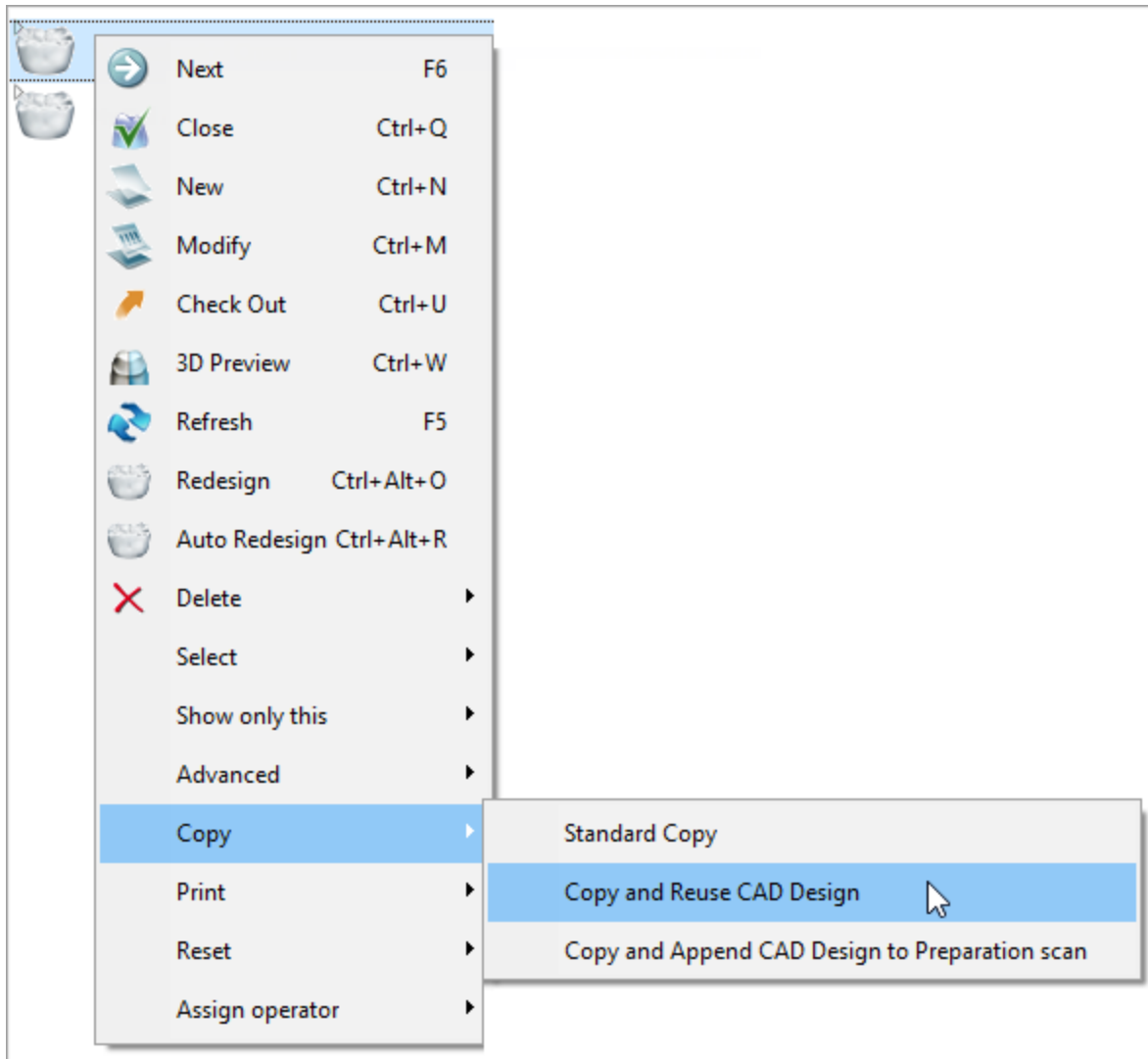
and the [measurement tools](#) become available in the right panel at the **Save** step:



Inspect the restoration and, if satisfied, click **Close**. Otherwise, go back through the design steps and make the required corrections (see the [Modeling](#) chapter for details).

2.1.4.8. Copying an Order

To copy an order in Dental Manager, right-click the order in the order list, select **Copy**, and then select one of the following copy options:



- **Standard Copy** – copies the order and the associated scans. You can open the copied order in Dental Designer and design the restoration.
- **Copy and Reuse CAD Design** – copies the order and adds the original order's CAD design as the pre-preparation scan to the copied order. For the copied order, either import a preparation scan or scan the prepared tooth/teeth and proceed with the restoration design in Dental Designer.



Note! When you use this option to copy a full dentures order, the original order's CAD design is preserved in the copied order allowing to reuse the diagnostic design in the final restoration.

- **Copy and Append CAD Design to Preparation scan** – copies the order and adds the original order's CAD design as the preparation scan to the copied order. Use this option to create a new design on the top of an already created design (e. g., a secondary telescope on a primary telescope).

2.1.4.9. Closing Orders

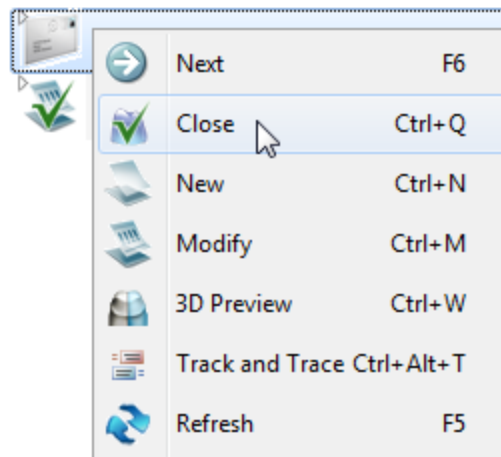
Once orders have been produced by the manufacturer and shipped back to the end-user, the orders are ready to be closed.



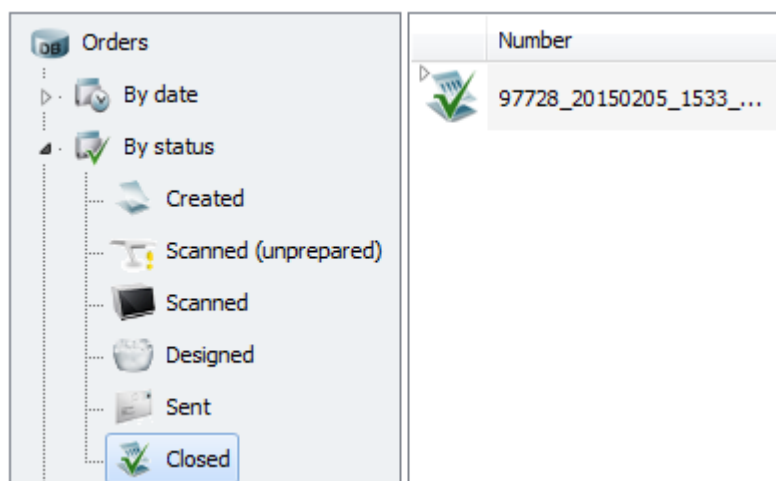
Hint! It is recommended to close orders since too many orders in the **Designed** filter will lead to the slower Dental Manager performance when opening this filter. Also, you can specify the number of orders to be displayed by default in Dental System Control Panel (*DSCP->Dental Manager->General->Database settings->Number of visible orders*).

You can close the orders **manually** in Dental Manager OR set up the required parameters in the Control Panel to have the orders closed **automatically** (see chapter [General](#) for details).

To close the orders manually, right-click on the order and select **Close**:



Closed orders are accessible through the **Closed** filter:



2.1.5. Additional Options

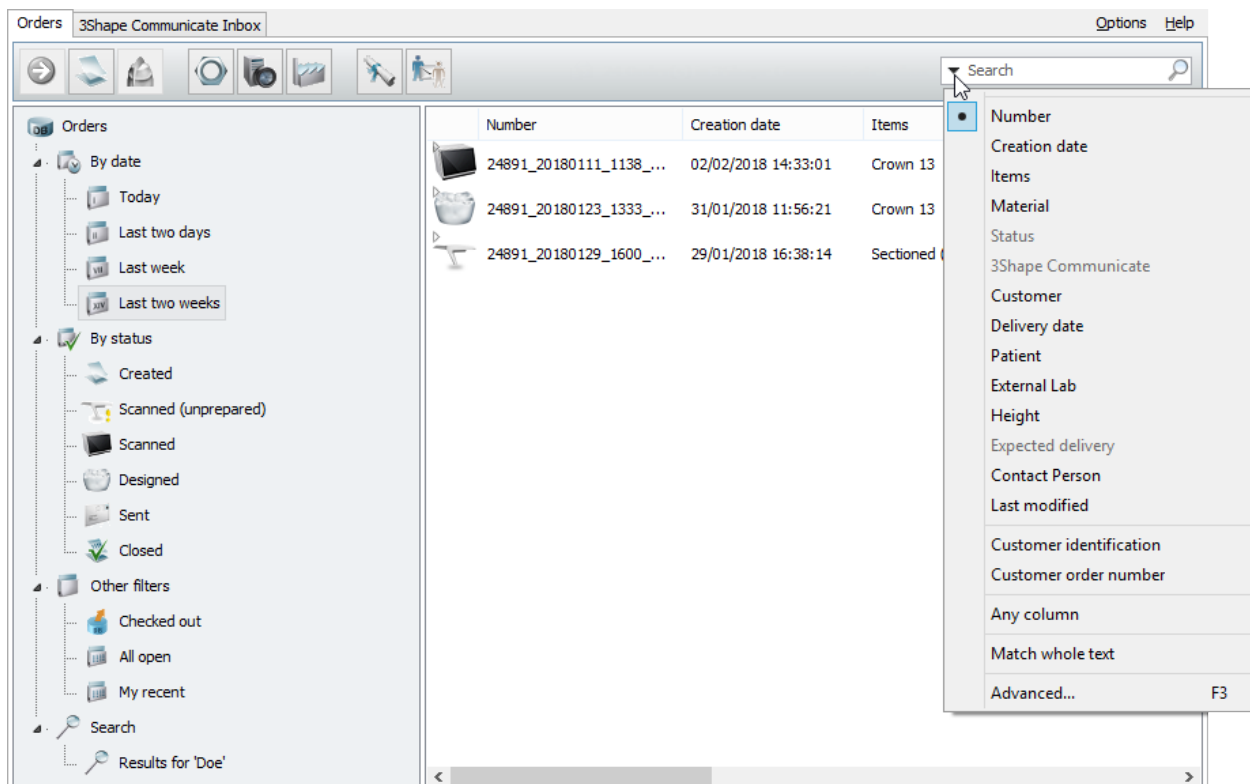
2.1.5.1. Finding Orders

Dental Manager has simple and advanced search options to find orders.

SIMPLE SEARCH


There are several ways of finding existing orders in Dental Manager with the simple search:


- Using the **Search** field located in the upper right corner of the main window. Click on the little black arrow and select your search criteria from the appeared menu, as shown on the image.
- Using the filters located in the left part of the main window (the last search is always stored in the **Search** filter).
- By selecting specific columns (e.g. order Number, Creation date etc.).

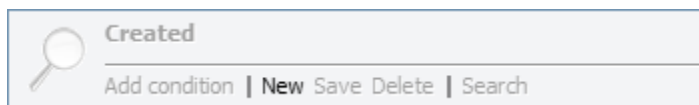


ADVANCED SEARCH

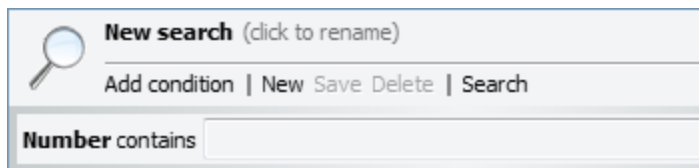
To switch to advanced search: click *Advanced* from the simple search criteria drop-down menu as shown on the previous image or simply press **F3** key. This unfolds the advanced search options. The **F3** key toggles the simple/advanced search options. The advanced search can also be opened with a double-click on the filters located in the left part of the

main window. You can close the advanced search by clicking the **Close**  button.

Advanced search is run by entering the required keyword in the provided field and clicking the  **Search** button or the *Search* menu item.

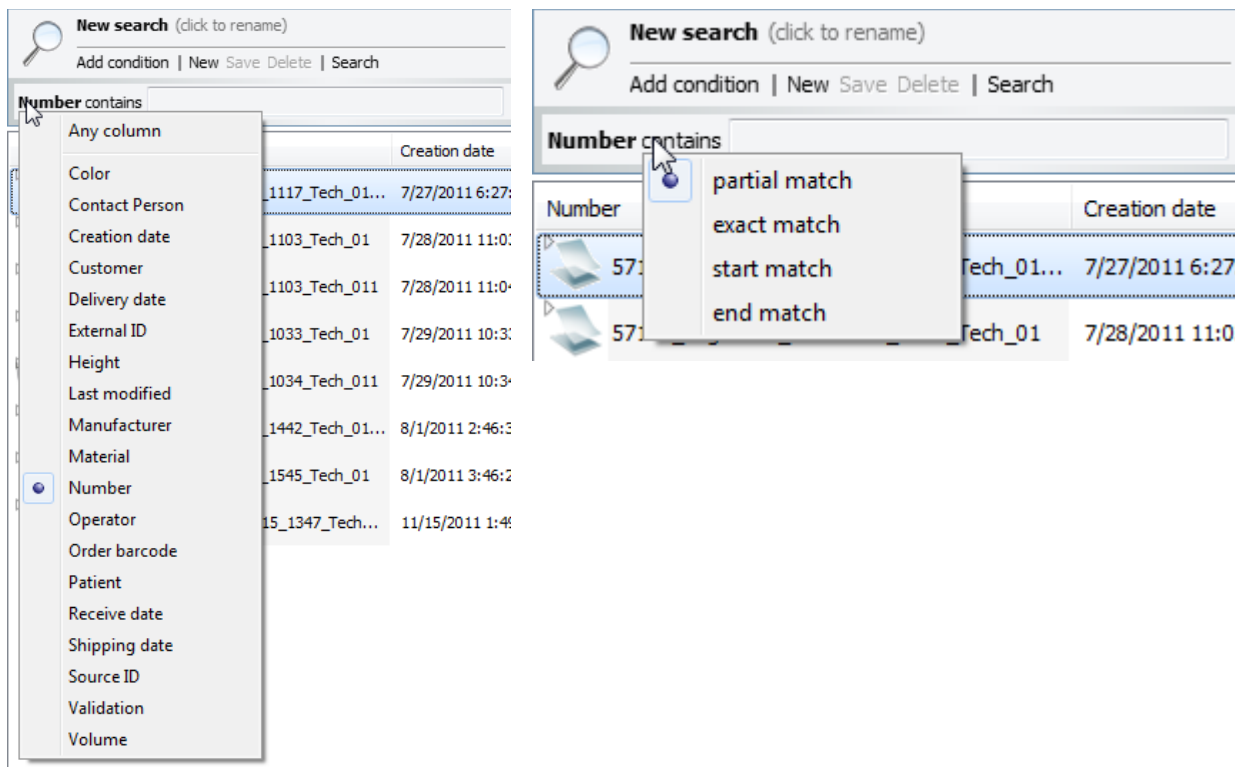


A new advanced search is created with a click on the *New* menu item, this opens a new search field.

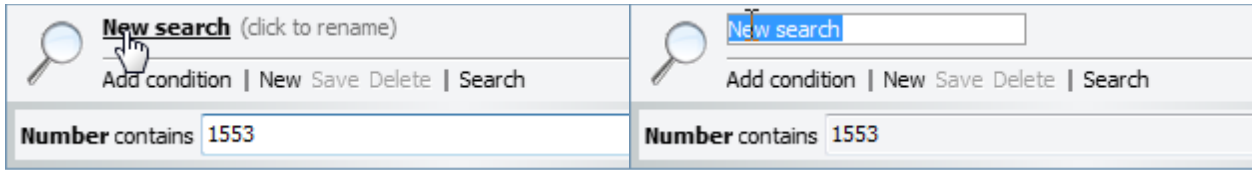


The advanced search condition is indicated on the left, next to its search field. With a click on:


- the first search condition item you select either *Any column* or a particular one of the orders list to search in from the appeared drop-down menu.
- the *contains* item you can specify either *partial/exact/start/end match* for your search from the drop-down menu.

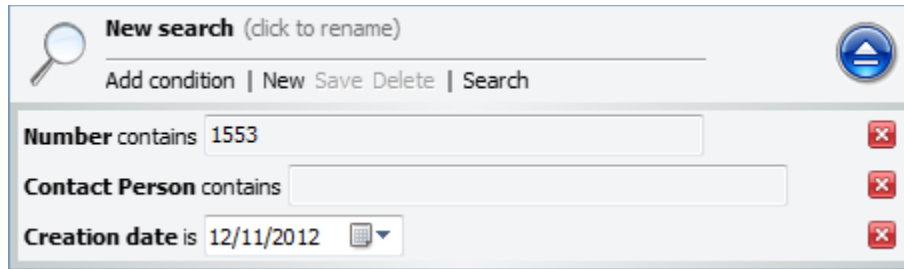


You can give your search a custom name by clicking its default name and overwriting it with the required one, then pressing the **Enter** key.

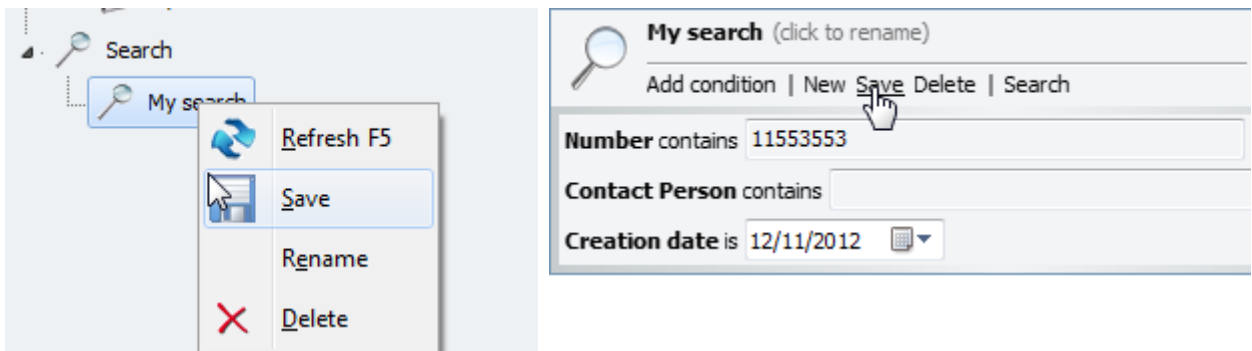


You can add more than one condition to the advanced search by clicking the *Add condition* menu item.

A spare advanced search condition can be removed with the **Delete**  button, located on the right.



Once a new advanced search is performed, it can be saved to appear in the *Orders->Search* subfolder list on the left of the Dental Manager window. Select it from the *Search* list and use either the *Save* option from the right-click menu or the *Save* menu item in the Advanced search. You can then simply select the desired saved search to see the resulting orders list.



When you need to delete a saved search, select it from the *Search* list and use either the *Delete* option from the right-click menu or the *Delete* menu item in the Advanced search. With the right-click menu you can also *Refresh* the advanced search or *Rename* it.

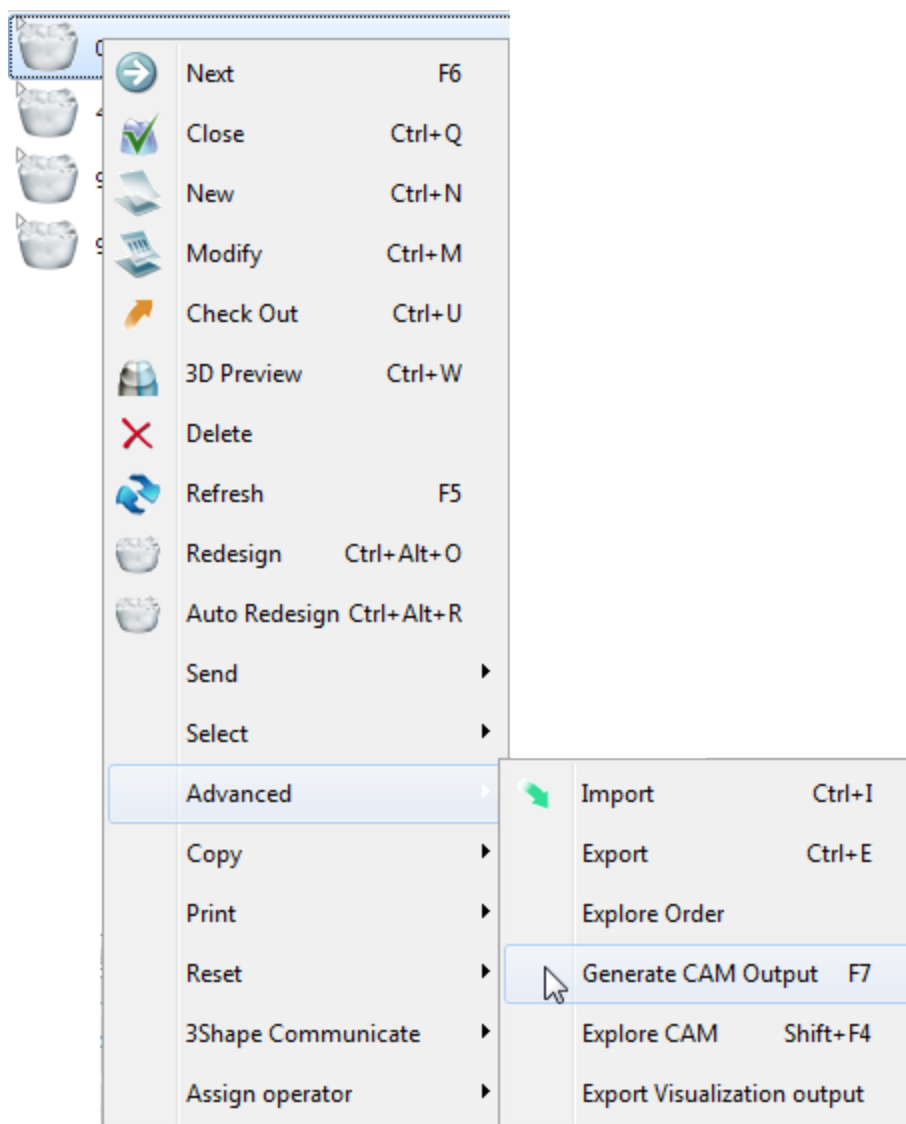
2.1.5.2. Generate CAM Output

Depending on the purchase conditions, 3Shape Dental System's output can be used with any third party rapid prototyping/milling machines which accepts STL files as input (please contact your local 3Shape dealer for more details).

Usually, 3Shape Dental System is bundled as OEM component along with rapid prototyping/milling machines whose specific output is generated according to vendor's specification. Please refer to your local 3Shape dealer/distributor/OEM partner for assistance on production related issue.

The **Generate CAM output** function is used to have the modeling exported in a file format which is suitable for production (typically STL or other proprietary 3D file formats). The term “CAM output” is used as different production machines may require different kinds of output and 3Shape Dental System supports a number of them.

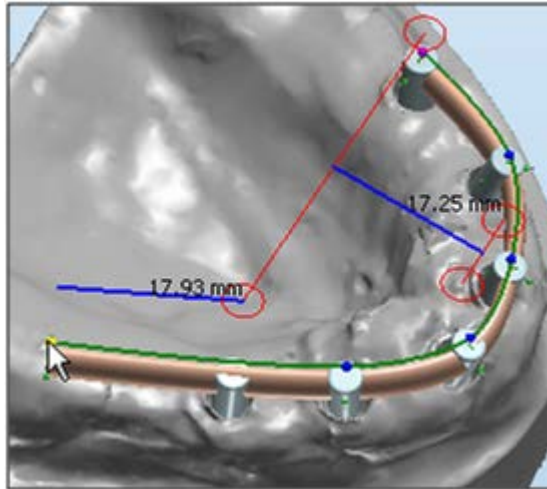
It is possible to generate CAM output from the **Designed** orders if it is supported by the current Dental Manager system. In this case it can be accessed from the **Advanced** tab when you right-click on the order (if the order is for local manufacturing, i.e. the Manufacturer chosen in the Order Form is the site itself, then CAM output is created directly from Dental Designer).



Caution! It is the manufacturer's responsibility to validate that any employed rapid prototyping/milling machine produces usable results. 3Shape does not manufacture or sell rapid prototyping/milling machines and can therefore not be held responsible for the output of a customized manufacturing process in which

3Shape Software is used as a part. Special attention should be paid in two specific circumstances:

- Abutment output should be checked against the abutment kit provider's specifications.
- Implant bars with cantilever parts should be checked to ensure the A-P spread value is lower or equal to 1.5 (see picture).



Example with A-P spread equal to 1.03 (17.93mm / 17.25mm)

2.1.5.3. Print Contents and Labels

Print	List	F8
Reset	Label	F9
	Selected	Shift+F8

The current view of orders can be printed on a standard Printer. Right-click on the order and select *Print* -> *List* from the menu or hit the **F8** function key.

The orders are printed out in the form of a table as shown below:

Number	Creation date	Delivery date	Customer	Items	Material	Status	Height	Expect deliv
57140_20110406_1224_Tech_01	4/12/2011 3:37:24 PM	4/12/2011	Empty	Telescope 23, 26	Zirkon	Scanned	-/-	-
57140_20110406_1352_Tech_01	4/12/2011 4:33:22 PM	4/6/2011	Empty	Removable 12-22	Titan	Scanned	-	-
57140_20110408_1100_Tech_01	4/8/2011 11:00:52 AM	4/8/2011	Empty	Crown 22	Wax	Created	-	-
57140_20110411_1430_Tech_01	4/11/2011 2:30:46 PM	4/11/2011	Empty	Crown 23	Wax	Created	-	-

Print	List	F8
Reset	Label	F9
	Selected	Shift+F8

Labels for the selected orders can be printed by selecting *Print->Label* from the right-click menu or by hitting the **F9** function key. The labels are printed with the printer selected in *Options->Label Printer Settings*. The default layout is designed for 40x40 mm labels as shown below:

Client:
Order ID: 20135_20090819
Type: (Configuration_1
Material: Zirkon
Batch ID: -



2.1.5.4. Automatic Design Validation

At the final step of modeling in Dental Designer, your design can be automatically validated to check if the minimum required parameters have been met. To enable automatic validation, select the **Always validate at the end of modeling** checkbox in *Dental System Control Panel->Basic Elements->Materials*.


The result of this validation is saved with the order and the validation status can be viewed in Dental Manager under the column **Validation**.



	Number	Creation date	Validation
	97728_20150128_1122_...	1/28/2015 11:24:33 AM	
	97728_20150119_1302_...	1/19/2015 1:02:11 PM	
	43061_20141030_1544_...	10/30/2014 3:45:04 PM	
	0041_Delfos_20140627_...	10/7/2014 4:46:05 PM	-

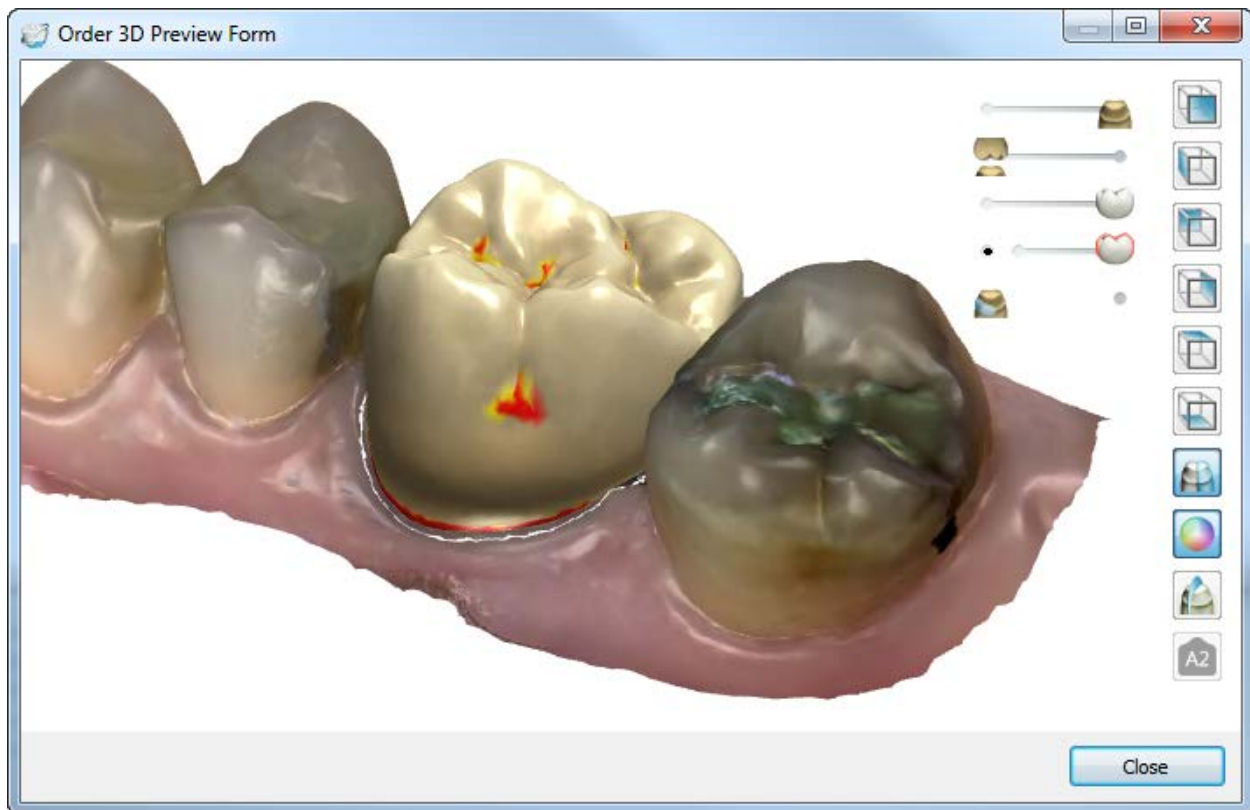
To display the **Validation** column in Dental Manager, right-click on any column header and select **Validation** from the list (see chapter [User Interface](#)).

Depending on the validation result, the order is marked with one of the following signs:


- Design has **passed** the validation.
- Design has **failed** the validation.
- Design has **not been** validated.

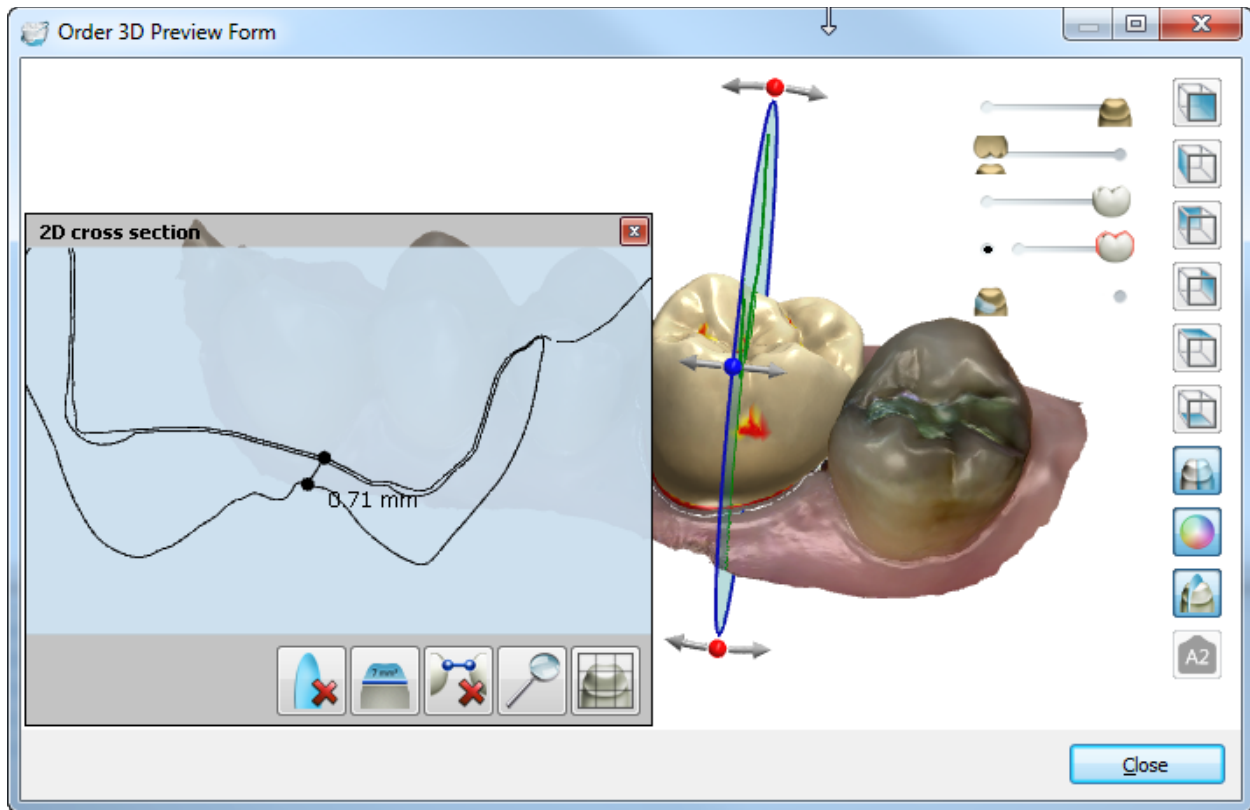
The **Order 3D Preview Form**  allows you to inspect the thickness of your design:

1. Select your order.
2. Click on the **3D Preview**  button to open the **Order 3D Preview Form** (see below).
3. Activate the **Thickness Map** slide bar  by clicking on it.
4. View colors on your restoration and point the cursor on specific areas to see the thickness values.





Order 3D Preview Form: Thickness map

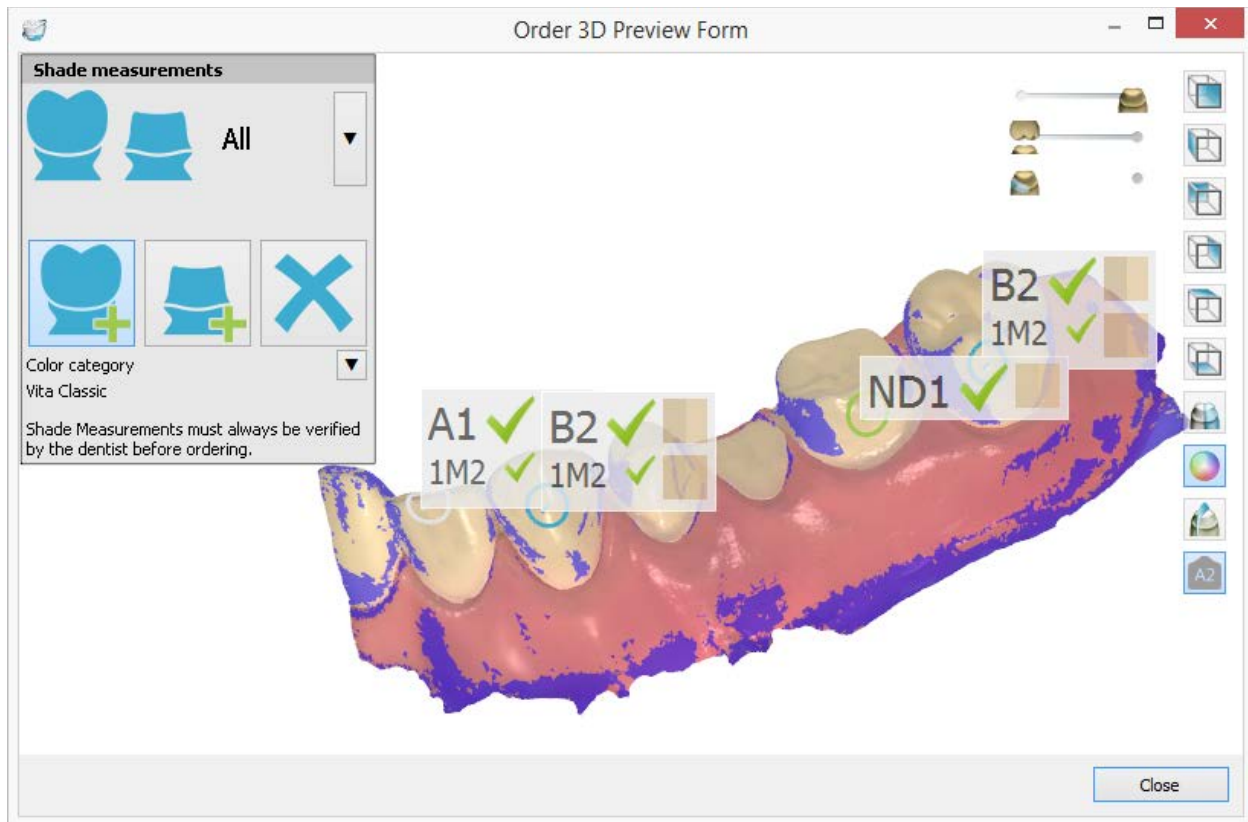
Click the **2D cross section**  button to inspect your design in a 2D cross section (image below). Please see section [2D Cross Section Window](#) to learn how you use this functionality.



Order 3D Preview Form: 2D cross section

You can also use the [Validation](#)  tool from the Viewing tools of Dental Designer, available throughout the whole modeling process.

If you are working with the TRIOS color scan, you can also use the  **Shade Measurement** option to view/add/remove the shade measurements on the scan. Please refer to chapter [Receiving Orders](#) for details.

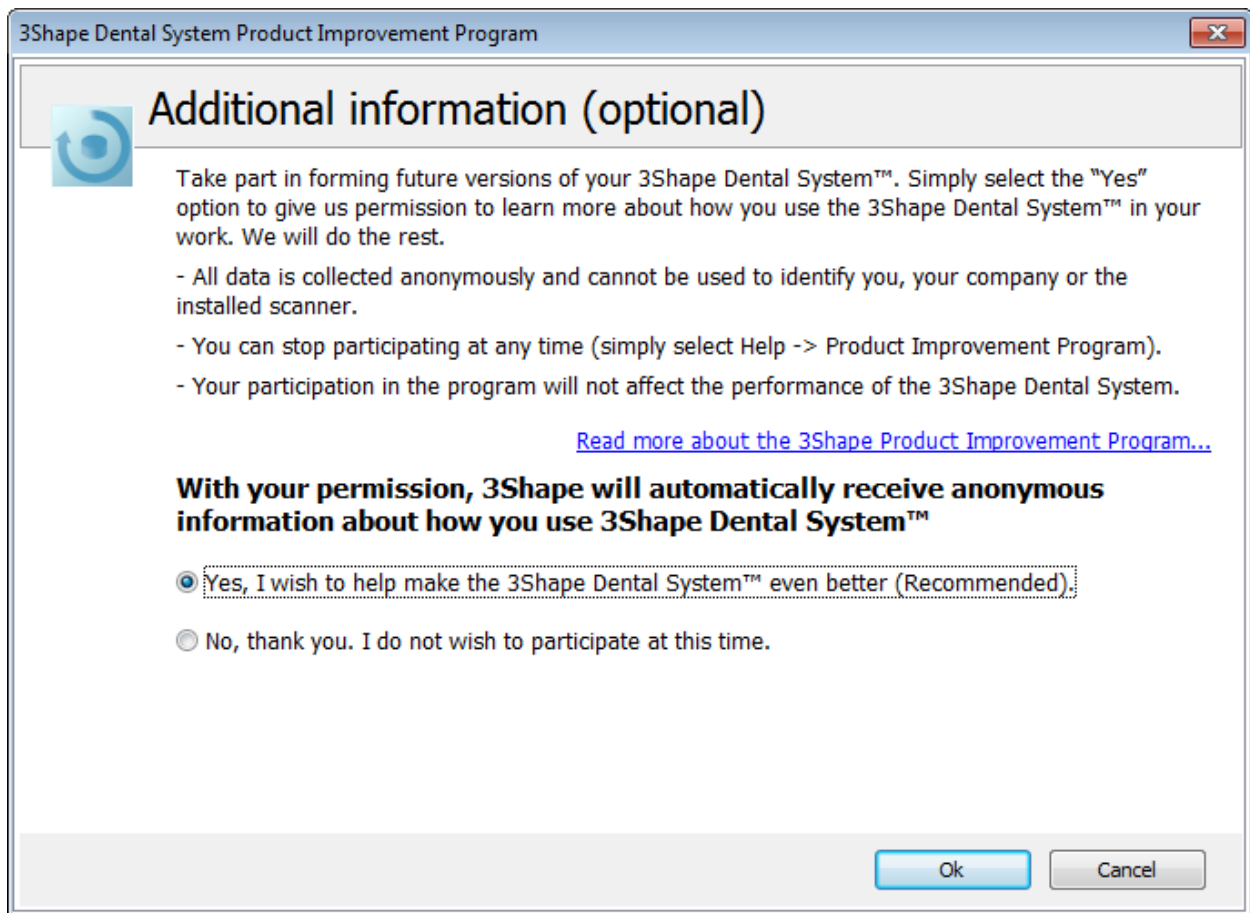


2.1.5.5. Product Improvement Program

The 3Shape Dental System **Product Improvement Program** was created to improve the quality and speed of 3Shape Dental System with the help of our customers.

By agreeing to participate in the program, you allow us to automatically receive the valuable information about how you use 3Shape Dental System.

When you first open Dental Manager, the *Product Improvement Program* window appears offering you to participate in the **Product Improvement Program**. After reading the provided information, choose **Yes** or **No** and click **OK**.



When choosing **Yes**, the next window appears asking you for additional information (country and number of employees).

If you do not want to specify these details, select the **I do not want to share this information** checkbox and click **OK**.

3Shape Dental System Product Improvement Program

Additional information (optional)

In order for us to get the most out of the information sent to us, we kindly ask that you share the following additional user-information with 3Shape.

In which country is the 3Shape Dental System™ located? Select country ▼

How many people are working in your dental laboratory? Select size ▼

☐ I do not want to share this information

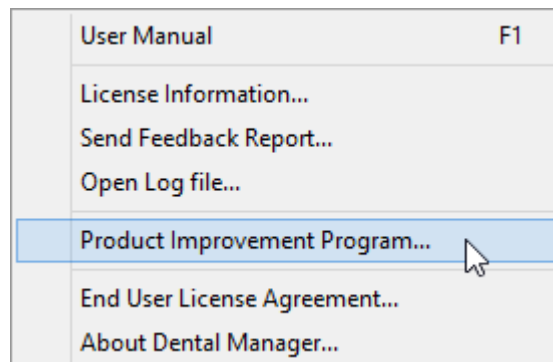
Ok



Note! All the collected data is completely anonymous and confidential.



Hint! You can stop or join the program at any time by going to *Dental Manager* -> *Help* -> *Product Improvement Program* and changing settings in the dialog box.



2.1.5.6. Other

Reset Orders - in some cases it is necessary to reset the status of an order.

For example, your order is **Designed** but you need to have it **Scanned** in order to make some changes.

To reset an order, right-click on it and select **Reset**. Then choose the status you need.

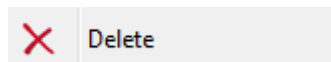
Reset	Created
3Shape Communicate	Scanned
Assign operator	Designed
	Face scanned
	Closed
	Unlock
	Sent
	Checked Out



Check Out - Orders can be modeled on a computer which is not part of the Dental System, e.g. on a laptop which is brought home (this requires an additional dongle; orders need to be properly exported from the Dental System database, and later re-imported).

Select desired orders and choose **Check Out** from the right-click menu. When the orders have been processed, they can be re-imported into the Dental System database. Select the orders ready for check-in and select **Check In**. The orders will be integrated and their status updated.

After clicking both **Check Out** and **Check In** you will be prompted by a window **Browse for Folder** to select a folder for storing order copies.



Delete - you can delete an order at any time (if it is not locked).

Right-click on the order and select Delete. You will be prompted by the confirmation dialog.

Select	Same Patient	Ctrl+Alt+P
Advanced	Same Client	Ctrl+Alt+C
Copy	Same Status	Ctrl+Alt+S
Print	Same Delivery Date	Ctrl+Alt+D
Reset	Same Shipping Date	
	Same Receive Date	
	Height Range	Ctrl+Alt+H
	Volume Range	Ctrl+Alt+V

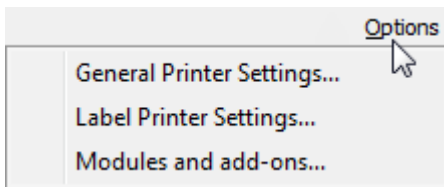
Select Orders with common values - orders that have common values (e.g. they have the same status or client) can be selected as a group to assist order handling.

For example, you can select all the orders that have the same patient.

To select orders with common values, right-click on one of the orders and go to Select. Choose one of the suggested parameters.

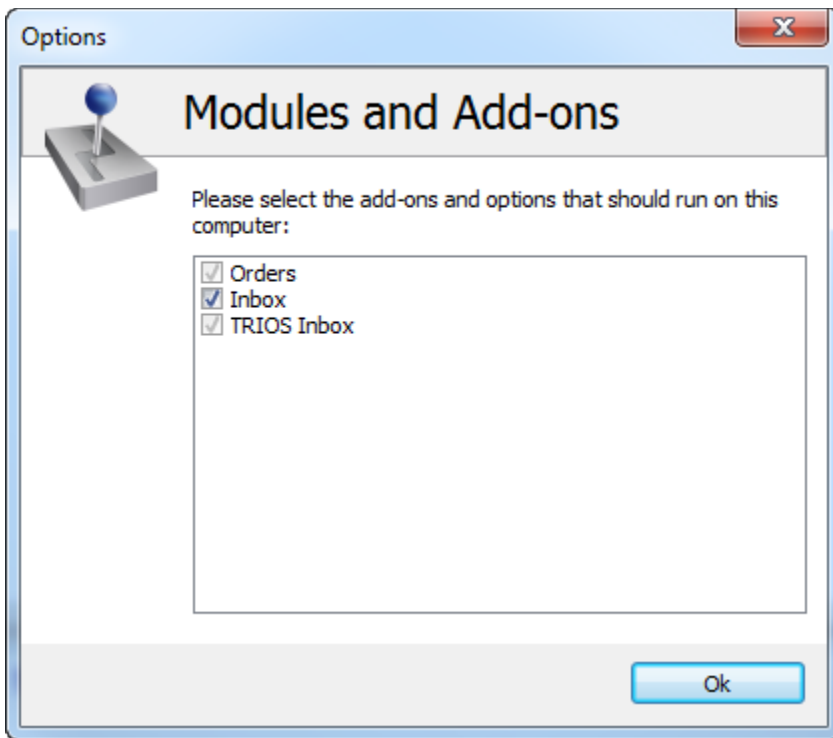
2.1.6. Dental Manager Inbox

Dental Manager allows all users to send orders to a manufacturing center with a single mouse click. The Dental Manager Inbox (add-on module) allows the manufacturing center to easily receive these orders. The Inbox can also be used to exchange order information between partners e.g. two labs.



The availability of the Dental Manager Inbox can be viewed in the Control Panel under dongle information.

With subscription, the Dental Manager Inbox can be enabled via the **Options** menu.



The Dental Manager Inbox supports multiple FTP servers for high-load centralised production. The functionality requires correct FTP settings at the orders sending sites and properly configured FTP server at the orders receiving sites.

There is no need for the FTP server to run on the same PC with the Dental Manager Inbox.

The Dental Manager Inbox fetches orders to the FTP server using the FTP protocol.

At least one account on the FTP server needs to be configured with "full control" permissions to allow the data to be created, read, modified and deleted.

With 3Shape Dental System software you can share the whole process among a few sites. For example, you have the possibility of creating and scanning orders at site 1, designing orders at site 2, and manufacturing them at site 3.

This option is enabled with the Dental Manager Inbox where the orders can be shared between involved parties.

2.1.6.1. Sending Orders from the Lab

The orders created by the labs can be sent to the manufacturer using the Inbox or 3Shape Communicate Inbox if an Inbox or 3Shape Communicate Inbox has been configured for this

particular manufacturer. The setup process is described in [Manufacturers](#) chapter of Dental System Control Panel section of the technical documentation.



Note! If there are several remote manufactures in an order, the order is sent to each manufacturer. The order parts not intended for the recipients are shown as inactive to them.

►Step 1: Run 3Shape Dental Manager


►Step 2: Select Send to Manufacturer option

Select the **Orders** tab, right-click the desired order with the Scanned or Designed status, and select **Send to Manufacturer**.

Only orders with the Scanned and Designed statuses can be sent to Inbox as shown on the image below.


	Number	Creation date	Delivery date	Customer	Items	Material	Status
	50097-20160112-1540-DNT	1/12/2016	1/12/2016	3shape	Abutment 11, ...	"Model Material", Zirkon	Designed
	61158		10/27/2016	Kiev	Anatomy bridg...	Zirkon	Designed
	65042		10/17/2016	ALG	Bar 15-25	Zirkon	Designed
	65042		11/23/2016	ALG	Frame bridge 44-46	Zirkon	Designed

The *Send to Manufacturer* window appears in the next step. It displays the order prepared for sending and gives the opportunity to save all FTP commands to the text file when the check box in the **Advanced** section is selected.

 Send to Manufacturer

Orders

The following orders are ready to be sent to the specified manufacturers. Click send to start the upload or click the cancel button to abort.

	Number	Manufacturer	Creation date	Operator	Items	Material
	33814_1123_Tech_01 -> 65042	ALG (2019-1)	1/1/2019 11:23:48 AM	Tech 01	Crown 11	Wax

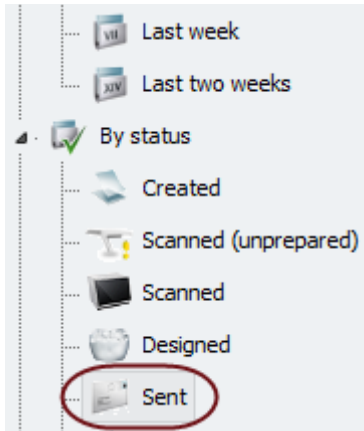
Version of manufacturer's Dental System: 2019-1

Order transfer size: Small (no scan colors, no remodeling)

Version of manufacturer's Dental System - if you are sending your order to the older version of the 3Shape Dental System software for manufacturing, you can choose the desired version here. This option can be also pre-set in Dental System Control Panel (*DSCP* -> *Site Settings* -> [Manufacturers](#)).


Order transfer size - choose **Large**, **Medium** or **Small** size of the order you are sending to the manufacturer to send a complete order or to exclude some information from it (i.e. scan color and remodeling possibility).

► Step 3: Send the order



Click the **Send** button to send the order.

The icon of the sent order changes as shown on the image below.

Number	Creation date
 57140_20121207_1400_Tech_01	12/7/2012 2:00:06 PM

All orders sent to Inbox are shown in the **Sent** folder of the Orders tab.

2.1.6.2. Receiving and Handling Orders at the Manufacturing Center

The orders sent by the labs to the Inbox can be taken from there by manufacturers for production. The setup process is described in [Manufacturing Inbox](#) chapter of Dental System Control Panel section of the technical documentation.

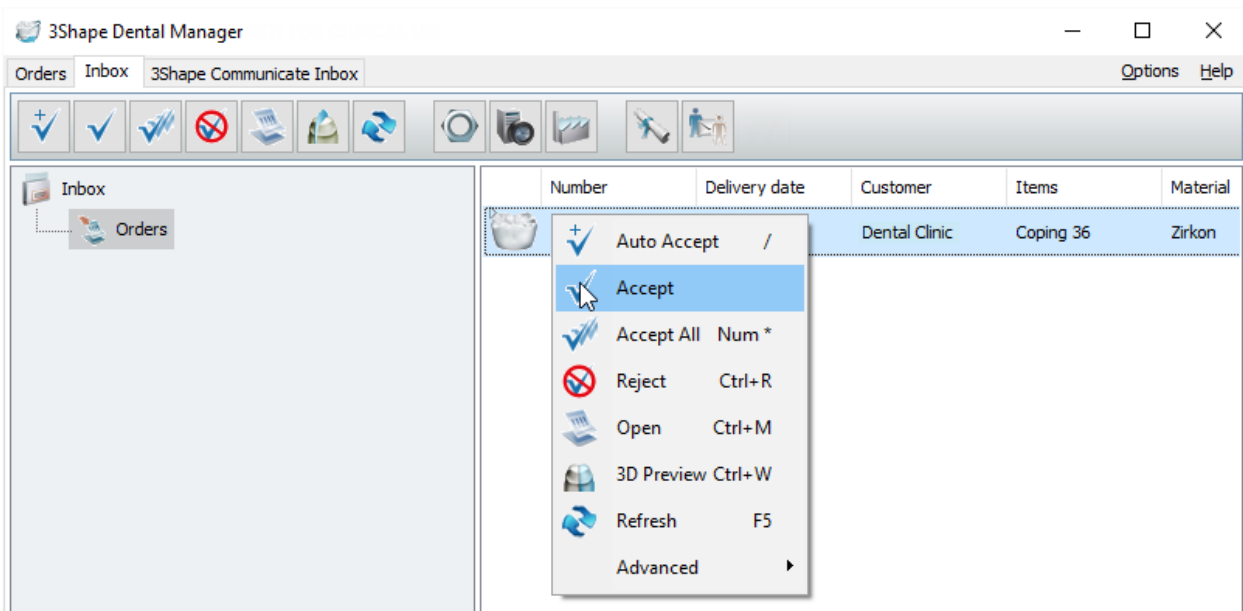
This section describes how to receive and handle orders from the Inbox.

► **Step 1: Run 3Shape Dental Manager**

► **Step 2: Select the Inbox tab**

► **Step 3: Choose an option from the right-click menu**

Right-click the chosen order from available to select the desired action from the appeared menu, you can also use the toolbar buttons.



►Step 4: Accept the order

AUTOMATIC ACCEPTANCE

The system can be set up to accept orders automatically and create CAM files by default. To use this action, the **Inbox Auto Accept** check-box has to be selected in Dental System Control Panel (*DSCP -> Dental Manager -> [Manufacturing Inbox](#) -> Inbox Auto Accept*).

Dental Manager can also automatically accept orders if the relevant ERP settings have been configured in *Dental System Control Panel->Dental Manager->General->[ERP interface \(file\) configuration](#)*.

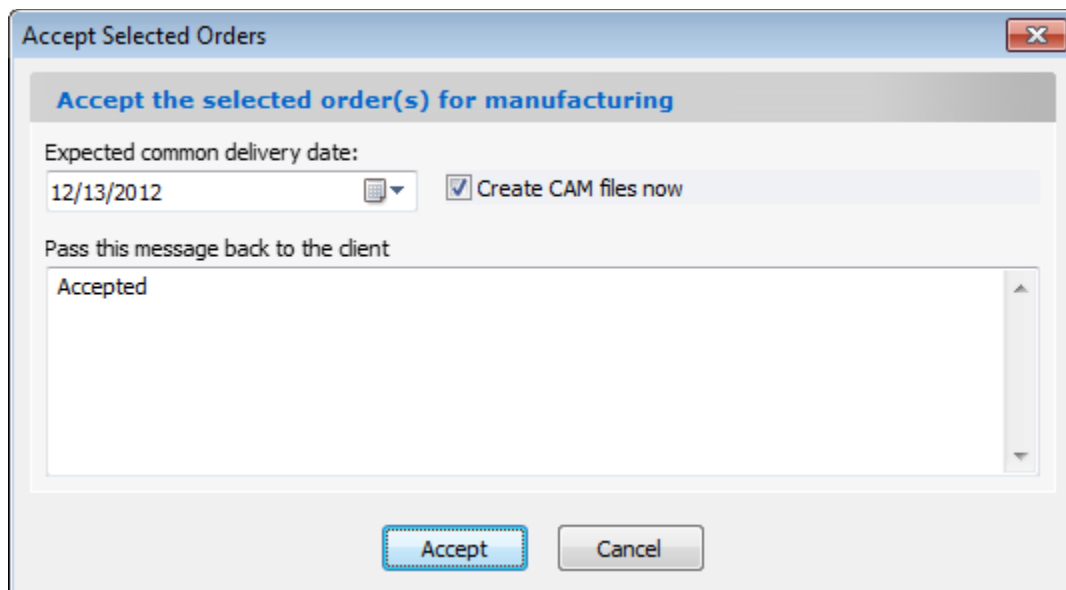
Read more about the Dental Manager - ERP Systems exchange in chapter [ERP and Processing Time](#).

MANUAL ACCEPTANCE

The orders can also be accepted manually using the corresponding buttons **Accept** and **Accept All**. The incoming orders can be inspected with *Open* or *3D Preview* options before being accepted.

The *Accept Selected Orders* window appears when clicking the **Accept** button. There you can choose whether to create a CAM file at this time as well.

When **Create CAM files now** is checked, the CAM files are automatically created when the order is accepted.



Once the order is accepted, it is removed from the Inbox list and appears under the **Orders** tab with the status **Accepted**.

57140_EvgenLab_20110727_1209_Tech_01...	7/27/2011 12:09:16 PM	?	7/26/2011	Default	F..	Scanned	-
57140_EvgenLab_20110727_1154_Tech_01...	7/27/2011 11:54:29 AM	?	7/29/2011	Default	F..	Modeled	-
57140_20121207_1400_Tech_01	12/7/2012 2:00:06 PM	✓	12/8/2012	TestD...	A..	Scanned	-

The order is now received by the manufacturer, and depending on its state, it can be modeled or taken directly to production.

When the manufacturer receives an order, the create / delivery dates are set automatically depending on the Dental System Control Panel settings (*DSCP -> Dental Manager -> [ERP and processing time](#)*). It is also possible to change/set the dates manually.

►Step 5: Close the orders

The orders should be closed when their processing is finished.

Number	Creation date	Validation	Delivery date	Custo...	I...	Status	Expected delivery	Contact Person
57140_20121207_1400_Tech_01		✓	12/8/2012	TestD...	A..	Modeled	-	
57140_EvgenLab_20110727_1154_Tech_01...		?	7/29/2011	Default	F..	Modeled	-	
57140_EvgenLab_20110727_1209_Tech_01...		?	7/26/2011	Default	F..	Scanned	-	



If for some reason the order is rejected, the customer receives a note in the list view.

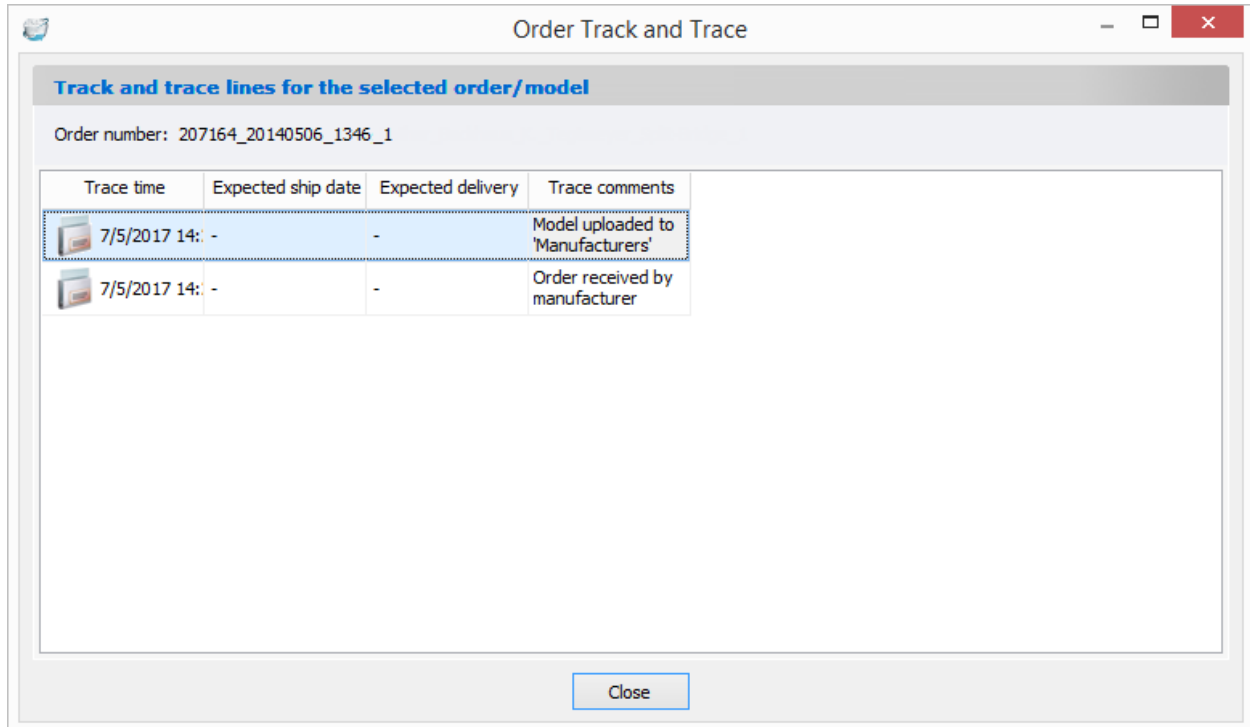
2.1.6.3. Track and Trace Information between Lab and Manufacturing Center

Send	►	Mail to Manufacturer	Ctrl+Alt+K
Select	►	Track and Trace	Ctrl+R
Show only this	►	Mail to Client	Ctrl+K

It is possible to follow the status of the orders by utilizing the Track and Trace function. Right-click the order of interest in the Order list and select *Send*->

Track and Trace from the appeared menu.

Track and Trace for Selected Orders window opens up displaying the status of the selected order. An example of the window is shown below.



For the feature to work, it is necessary to have read and write access to the FTP directory, since the track and trace information is uploaded to and downloaded from the FTP server. Different FTP servers have different requirements for FTP directories e.g., some require "\" at the end of the directory, whereas others do not. In case of doubt, please consult the corresponding manufacturing site for proper settings.

2.2. Scanner and Scanning Software

SCANNER

3Shape offers a flexible range of advanced lab scanners for 3D scanning of both impressions and gypsum models.

3Shape Lab Scanners give labs increased productivity plus customer satisfaction through faster delivery and superior clinical results.

You can find detailed information about features of 3Shape lab scanners in the chapter [Dental System™ Subscriptions](#).

SCANNING SOFTWARE

ScanSuite

The ScanSuite application works as a driver to pair a 3D scanner with the ScanIt Dental scanning application (read more in the chapter [ScanSuite](#)).


ScanIt Dental

ScanIt Dental is the application for scanning both impressions and gypsum models. Despite its advanced features, ScanIt Dental is easy to operate and require a minimum amount of training. The simplicity of the process is achieved with an easy and quick fixation of the object to be scanned, followed by automatic start of the scanning process. You can read about scanning in the chapters [Models Scanning](#) and [Impressions Scanning](#).

The following table contains information about 3Shape lab scanners and scanning software:

Scanner model	Large interior scanner	Texture scanning	Multi-die scanning	Scan dies in arch	ScanSuite	ScanIt Dental
E4	+	Color	+	+	+	+
E3	+	Color	+		+	+
E2	+	Grey-scale	+ Add-on accessory is required		+	+
E1	+		+ Add-on accessory is required		+	+
D2000	+	Color	+	+	+	+
D1000	+	Color	+	+	+	+
D900L	+	Color	+		+	+
D900		Color	+		+	+
D850	+	Grey-scale	+		+	+
D810		Grey-scale	+ Add-on accessory is required		+	+
D800		Grey-scale	+ Add-on accessory is required		+	+
D750	+		+		+	+
D710			+		+	+

			Add-on accessory is required		Upgrade to ScanSuite is required	
D700			+ Add-on accessory is required		+ Upgrade to ScanSuite is required	+
D500					+	+

+	Supported for this scanner model.
Add-on accessory is required	Requires purchase of the Passive Multi-Die fixture add-on accessory.
Upgrade to ScanSuite is required	Requires upgrade of Scan Server 4 to a higher version. Please contact Customer Support for assistance. <div>  Note! The D700 scanners with the serial numbers less than C0915xxxxxxx are not upgradable and therefore not compatible with Dental System 2017 and later versions. </div>



Note! The D250 and D640 scanners are not compatible with Dental System 2017 and later versions.

2.2.1. Unpacking and Installation

3Shape lab scanners are packed together with all the accessories needed to connect them to the scanner PC and to operate. Special packaging materials made from transport security foam are used to protect the scanner and accessories during transportation.

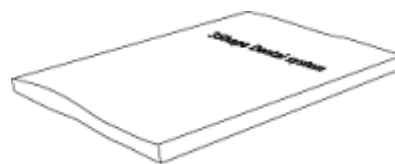


Note! When unpacking, please verify the package contents and contact your 3Shape re-seller's customer support if any part is found missing or defective.

The **contents** of the box:

3D Scanner

Quick Setup Guide



Accessories



The **accessories** supplied with 3Shape lab scanners:

1. Power supply

2. Single calibration object (scanners E4, E3, E2, E1, D2000, D1000, D900/D900L, D800/D810/D850, D750, D700/D710 after July 2011, D500)
3. Calibration "dot plate" (scanners D700/D710 before July 2011)
4. Calibration "square" (scanners D700/D710 before July 2011)
5. USB cable
6. Scanning clay
7. 3 x Interface plates
8. Passive multi-die fixture (scanners E4, E3, D2000, D1000, D900/D900L, D850, D750)
9. Multi-die feeder arm (scanners D710, D810)
10. Multi-die fixture (scanners D710, D810)
11. Power cord
12. Pontic scan pin
13. Pontic scan pin protection foam
14. USB dongle key (red or blue)
15. Scan height adapter (scanners E4, E3, E2, E1, D2000, D1000, D900L, D850, D750)

3Shape lab scanners are tested, sold and delivered together with an approved PC.

3Shape does not guarantee the functionality of the scanners if:

- third party software is installed on the scanner PC
- third party computer peripherals are installed (e.g. USB flash key, WLAN adapters)
- the software is installed on a different PC



Note! The default Windows user name and password for the 3Shape PC is "scan".

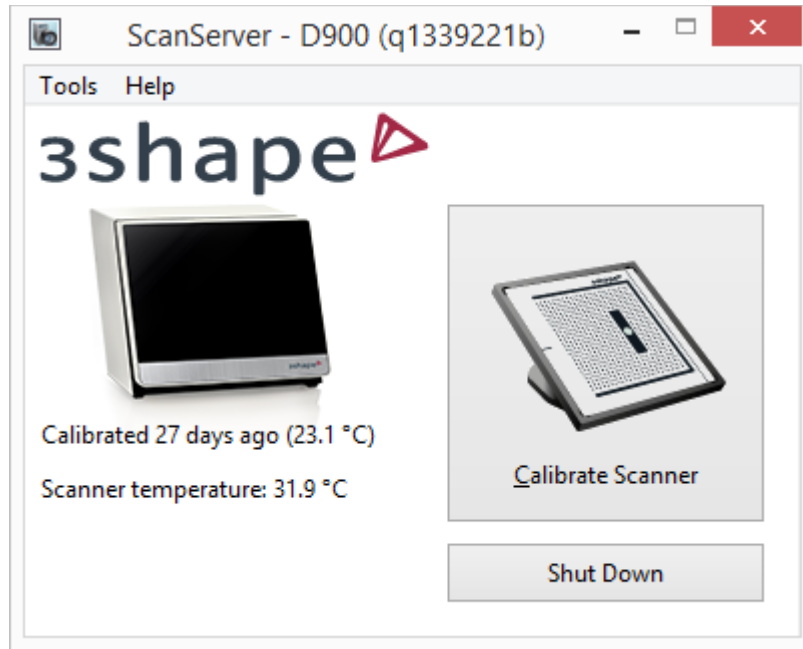


Note! A scanner must be turned off when not in use.

2.2.2. ScanSuite

ScanSuite is a scanner interface application that includes a **ScanServer 10** program and works as a software driver to bridge the gap between the scanner and the ScanIt Dental scanning application. Therefore, its function is to provide a low-level hardware communication with the scanner and to output the 3D point cloud based on the scanner cameras input.

Whenever a scan is to be performed, ScanServer needs to be "ON" and ready for operation.



ScanServer 10 main window

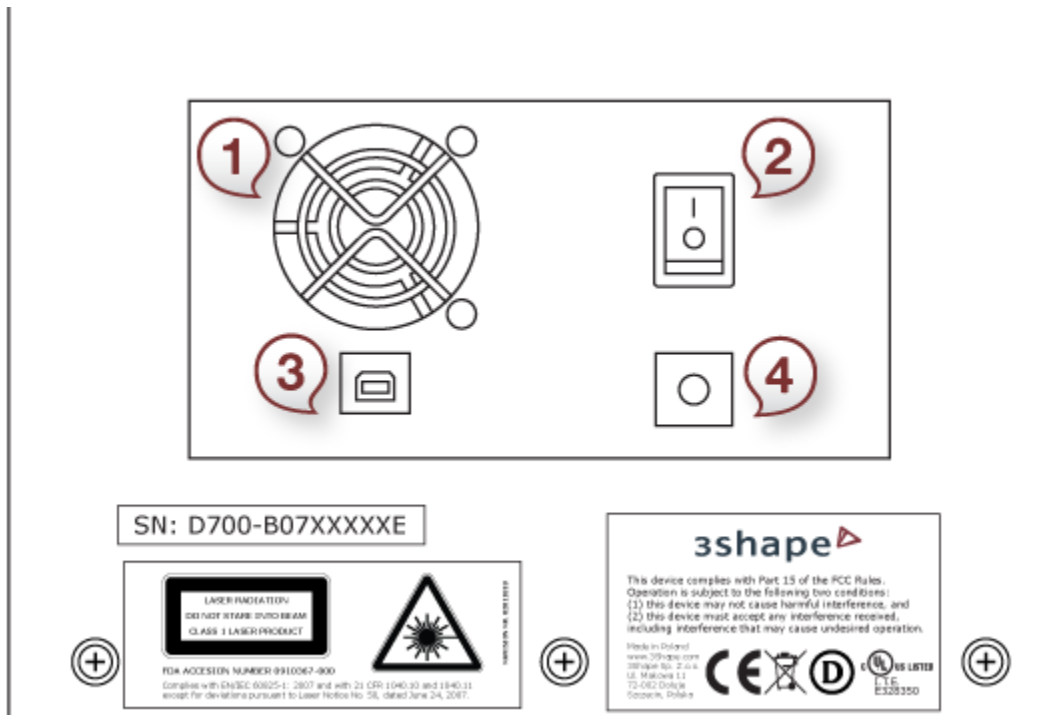
Follow the steps below to start using your scanner and the ScanServer application:

► **Step 1: Connect the scanner to the PC**



Note! If you have a Hewlett-Packard PC with 3Shape Dental System, please see details on connecting the scanner and dongle in the [Appendix](#).

Connect your scanner to the PC using the USB cable. The USB (Universal Serial Bus) cables are standard data transmission cables. The flat end of the cable is plugged into the computer, the square end into the scanner. The USB cable should be plugged into one of the rear ports of the computer.



Back of the scanner:

- 1. Fan
- 2. Power switch
- 3. USB port
- 4. Power supply port



Note! In some scanners, there is a round button beside the power switch. It is only used for technical services. Simply pressing it will not have any effect on the scanner.

► Step 2: Connect the scanner to the power outlet

Connect the power supply to the scanner power supply port and plug the power supply to the power outlet. Use standard precautions when operating the scanner power supply.



Caution! We strongly recommend that both the scanner power supply and scan-server PC power cable are plugged into a UPS unit (rather than directly into the mains outlet) to prevent work losses and damages to the equipment.

► Step 3: Turn on the PC and the scanner



Note! The default Windows user name and password for the 3Shape PC is "scan".






Note! A scanner must be turned off when not in use.


►Step 4: Start ScanServer



Note! Launch the ScanServer application only AFTER having plugged the scanner to the scan-server PC and switching the scanner "ON". Otherwise, an error message will pop up.

To start ScanServer, do the following:

1. Click on the ScanServer  shortcut either on your desktop or in Dental Manager.
2. The ScanServer icon  now appears in the system tray  at the bottom of your window.
3. When the green flashing light on the ScanServer icon becomes steady, ScanServer is ready for operation.

Clicking on the ScanServer icon  opens the ScanServer window, where you can view general information on the scanner and calibrate the scanner.

After installing the scanner and starting ScanServer, proceed to [Scanner Calibration](#).

2.2.3. Scanner Calibration



Scanner calibration is required for calculation of the internal scanner geometry and camera parameters.

No other maintenance besides calibration is required for the scanner.

WHEN TO CALIBRATE

It is recommended to calibrate the scanner each time it is moved or at least twice a week. However, if the scanner is placed on a stable table and at a constant temperature, the calibration intervals can be increased. A calibration is always required when a scanner is first unpacked.

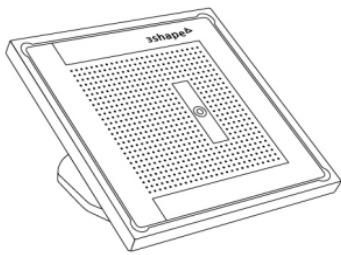
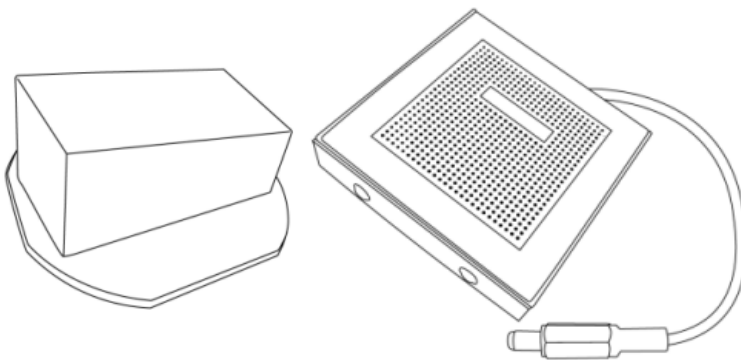
An indication of a poorly calibrated scanner is a scanned model with a rough surface. When this happens, check if it is a recurrent problem, as it might be attributed to the object not properly placed on the fixture, or the fixture is not firmly fixed to the black interface plate. Try scanning different objects, and in particular objects of different materials. If the problem persists, please contact your 3Shape re-seller's customer support.



Caution! Beware that the scanner is a precision mechanical device sensitive to temperature and power variations as well as vibrations.

YOU WILL NEED

1. [ScanSuite](#) application installed on your PC
2. Calibrating object(s) supplied with your scanner:

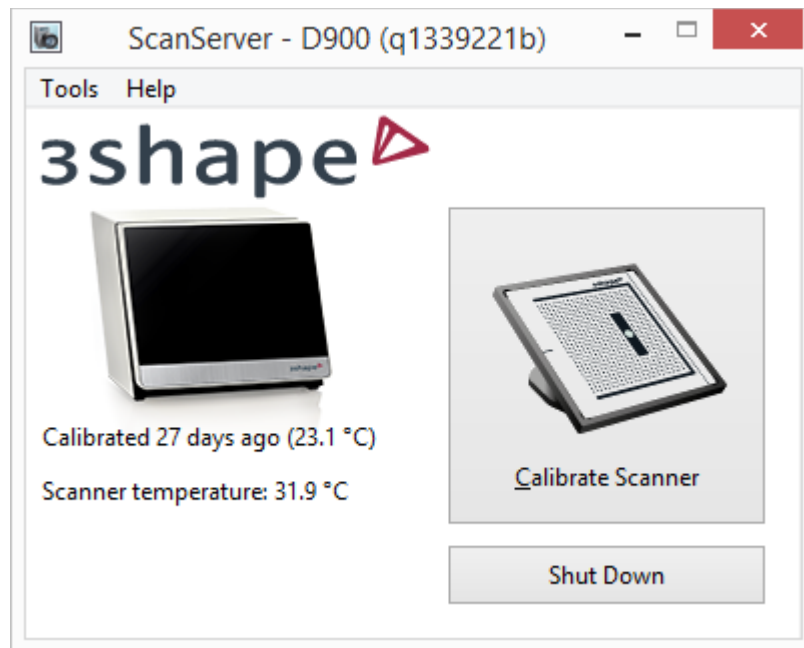
E4, E3, E2, E1, D2000, D1000, D900/D900L, D800/D810/D850, D700 <i>after July 2011</i> /D710 <i>after July 2011</i> /D750, D500	D700 <i>before July 2011</i> /D710 <i>before July 2011</i>
 <p><i>Single calibration object</i></p>	 <p><i>Calibration "square"</i> <i>Calibration "dot plate"</i></p>

HOW TO CALIBRATE

Calibration is a simple process and almost completely automatic:

► **Step 1:** Click on the ScanServer  icon in the system tray

The ScanServer window will appear (see the chapter [ScanSuite](#) for details):



► **Step 2:** Click the *Calibrate Scanner* button

► **Step 3:** Follow the instructions

Follow the detailed instructions that will guide you step-by-step through the calibration process.

2.2.4. Auto-occlusion Calibration



Note! Additional scanner calibration is required if you want to apply the Auto-occlusion option to skip a bite scan through the use of the Articulator Transfer Plate for [large interior scanners](#) or the Occlusion Setup Tool.

Please see the following chapters for details:

- [Occlusion Setup Tool Calibration](#)
- [Articulator Transfer Plate Calibration](#)

2.2.4.1. Occlusion Setup Tool Calibration

YOU WILL NEED

1. [ScanSuite](#) application installed on your scanner PC
2. Calibration Plate supplied with the Occlusion Setup Tool:



Calibration Plate for Occlusion Setup Tool

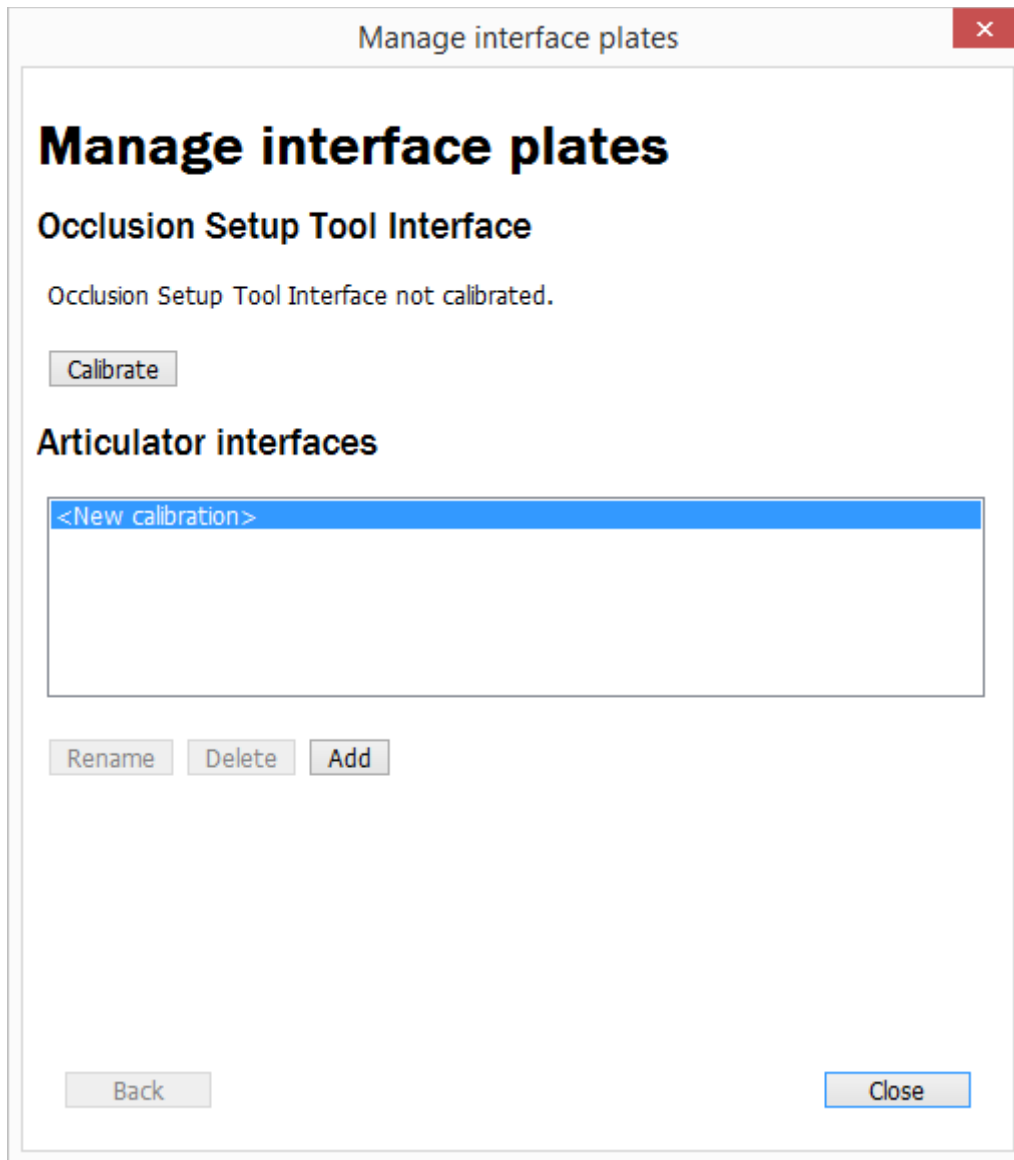
HOW TO CALIBRATE

► **Step 1: Click on the ScanServer  icon in the system tray**

This will open the ScanServer window (see the chapter [ScanSuite](#) for details).

► **Step 2: Open Interface Plates Manager**

Select **Tools > Manage interface plates** to open the following dialog:



► **Step 3: Start calibration**

Click the **Calibrate** button to initiate the calibration procedure.

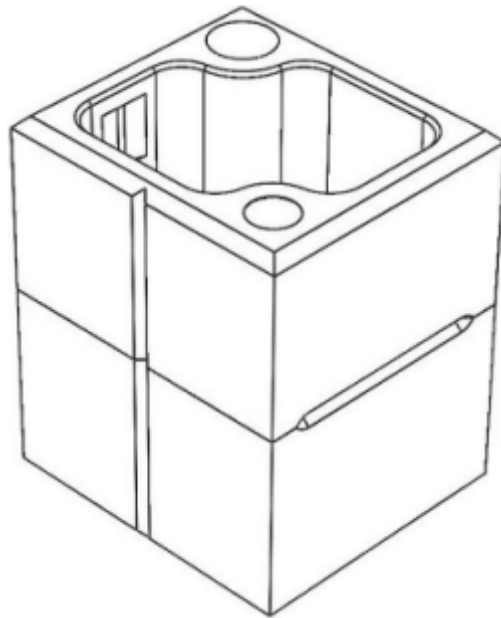
► **Step 4: Follow instructions**

Follow the on-screen instructions to perform the calibration process.

2.2.4.2. Articulator Transfer Plate Calibration

YOU WILL NEED

1. Two matching parts of Articulator Calibration Object (also known as Occlusion Transfer Calibration Object) with the same serial number:



Articulator Calibration Object

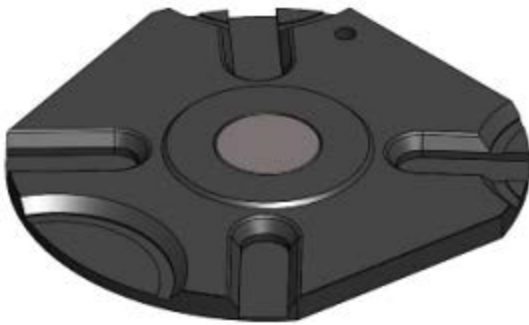
2. A pair of Cast Mounting Plates, designed for a particular articulator model



SAM Cast Mounting Plates

3. [Large interior scanner](#)
4. [ScanSuite](#) application installed on your scanner PC
5. Articulator

6. Articulator Transfer Plate designed for large interior scanners and specific to the used articulator model:



*Adesso Artex® Articulator Transfer Plate
(also compatible with Baumann Adesso Split® System)*



KaVo Protar®evo Articulator Transfer Plate



SAM® Articulator Transfer Plate



Whip Mix Denar® Mark 330 Articulator Transfer Plate



*Shofu MSMP Articulator Transfer Plate**



*Bio-Art A7Plus Articulator Transfer Plate
(please contact your articulator provider to purchase this transfer plate)*

* Shofu MSMP Articulator Transfer Plate requires MSMP plate (Magnetic Split cast Mounting Plate) to be mounted on top. You can purchase the MSMP plate from your articulator provider.



Shofu MSMP Articulator Transfer Plate with MSMP plate mounted on top



Hint! You can use 3Shape Generic Articulator Transfer Plate to make your own transfer plate for articulators that are not yet supported by other 3Shape articulator transfer plates. To do this, a magnetic base plate of an articulator should be glued over the Generic Articulator Transfer Plate (see the images below).



Generic Articulator Transfer Plate



Generic Articulator Transfer Plate with Panadent magnetic base plate glued on top

7. (optional) Articulator Spacer Plate designed for the used articulator model:



Baumann Adesso Split® Spacer Plates

Articulator Spacer Plate is used to make the Articulator Transfer Plate thicker and thus to lift a model to a higher position in the scanner. In this case the bottom part of a model becomes better visible to the scanner. You can purchase the Articulator Spacer Plate from your articulator provider.

HOW TO CALIBRATE

► Step 1: Reset the articulator

Reset the articulator using the zero-based reference system. Please refer to your articulator manufacturer instructions for details.



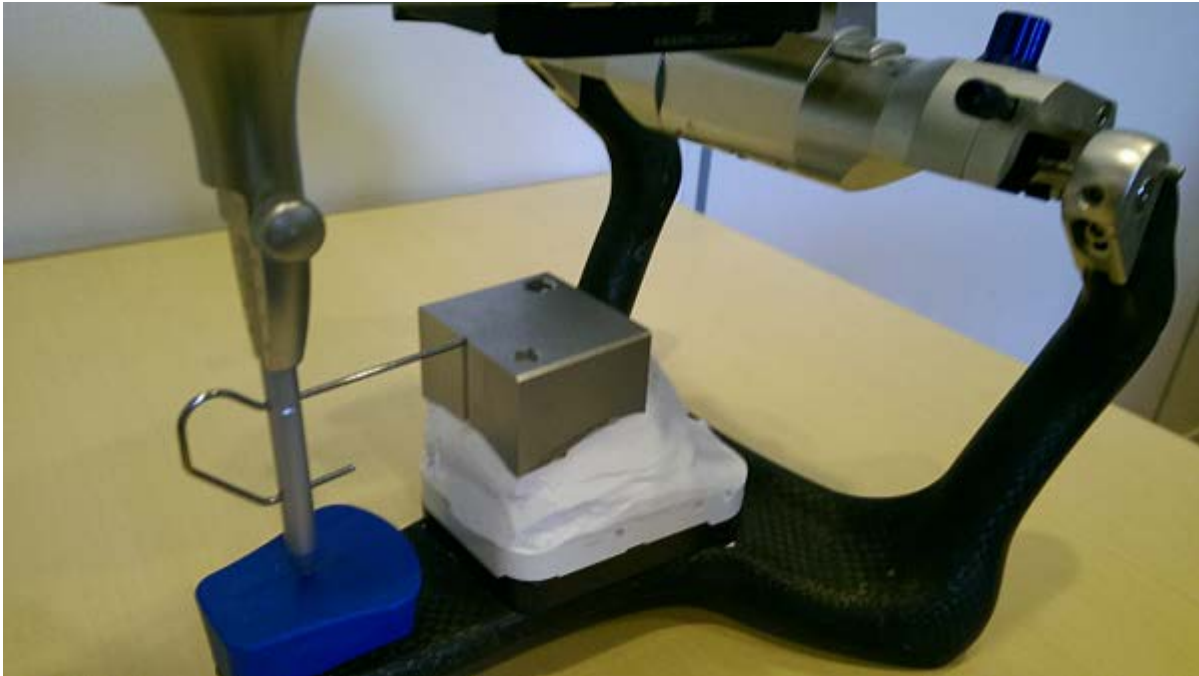
Zero-based reference system

► **Step 2: Attach the Cast Mounting Plates**

Open the articulator and attach the Cast Mounting Plates to the Magnetic Base Plates of the articulator.

► **Step 3: Cast the Articulator Calibration Object**

1. Mount one part of the Articulator Calibration Object on top of gypsum while observing the following:
 - The contact surface of both parts is approximately located in the sagittal plane of the articulator
 - The incisal indicator is aligned with the vertical notch of the Articulator Calibration Object as shown in the image:



Incisal indicator alignment

2. Attach the other part of the Articulator Calibration Object to the one already mounted while aligning the matching notches.
3. Keep both parts together and add some gypsum to mount the other part of the Articulator Calibration Object. As a result, you will have the Articulator Calibration Object mounted in the articulator:



4. Remove the Articulator Calibration Object from the articulator and mark its corresponding parts as lower and upper to differentiate them in future:



Two parts of the Articulator Calibration Object and the Articulator Transfer Plate



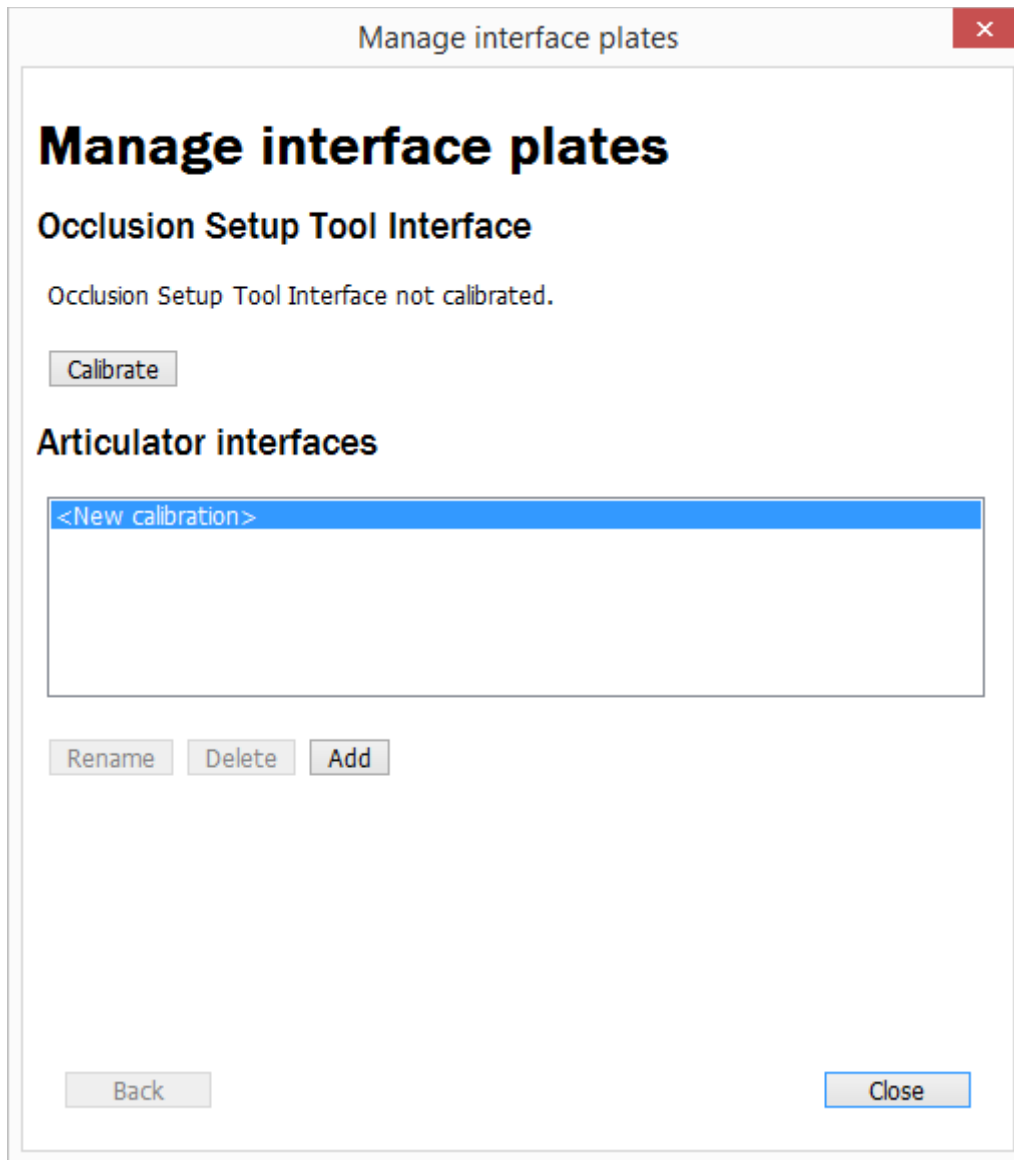
Note! To ensure high accuracy of occlusal auto-alignment, it is recommended to keep Articulator Calibration Objects and gypsum models mounted on their Cast Mounting Plates during the whole period of use of those objects and models.

► **Step 4: Click on the ScanServer**  **icon in the system tray**

This will open the ScanServer window (see the chapter [ScanSuite](#) for details).

► **Step 5: Open Interface Plates Manager**

Select **Tools > Manage interface plates** to open the following dialog:



► **Step 6: Select the articulator type**

Click the **Add** button. Select your articulator type and fill in its identifier in the provided field. Then click **Continue**.

Manage interface plates

×

Calibrate articulator interface

Please select articulator interface and type in an identifier.

Type:

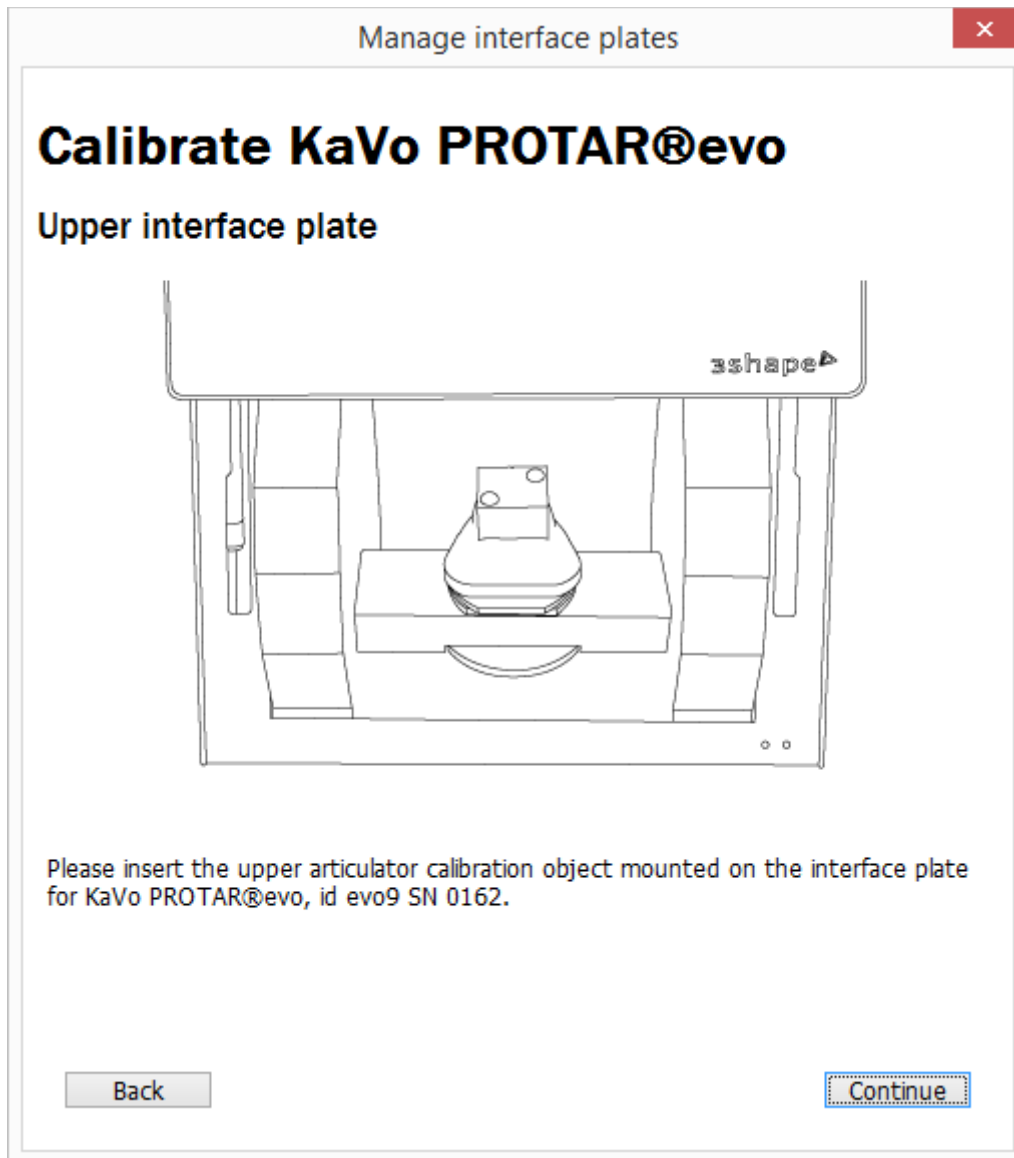
Identifier:

Identifier is ok.

In order to proceed you need to cast the calibration object into a correct articulator setup. Please see the manual for further info.

► **Step 7: Calibrate the upper part of the Articulator Calibration Object**

Remove the scan height adapter from the scanner. Insert the upper part of the Articulator Calibration Object on the Articulator Transfer Plate into the scanner and click **Continue**.



Note! To calibrate the scanner for scanning low models using the Articulator Spacer Plate, place the Articulator Spacer Plate on the Articulator Transfer Plate when calibrating both upper and lower parts of the Articulator Calibration Object. Since ScanSuite allows having multiple calibration profiles, you can create a separate profile for cases requiring the use of the Articulator Spacer Plate.

►Step 8: Calibrate the lower part of the Articulator Calibration Object

Replace the upper part of the Articulator Calibration Object on the Articulator Transfer Plate with the lower one. Insert it into the scanner and click **Continue**.

►Step 9: Follow instructions

Follow the on-screen instructions to complete the calibration process.

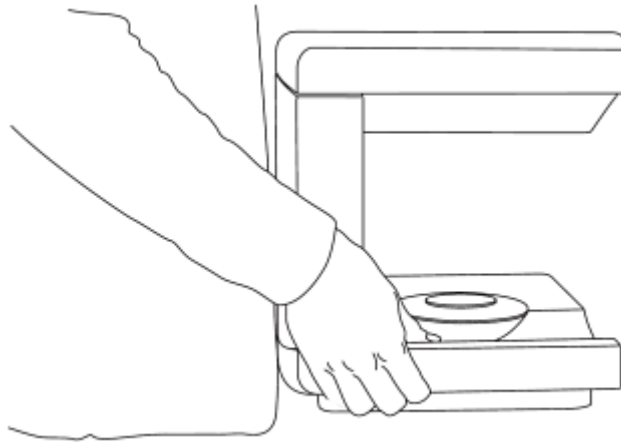
2.2.5. Scanner Transportation

CARRYING THE E SCANNER

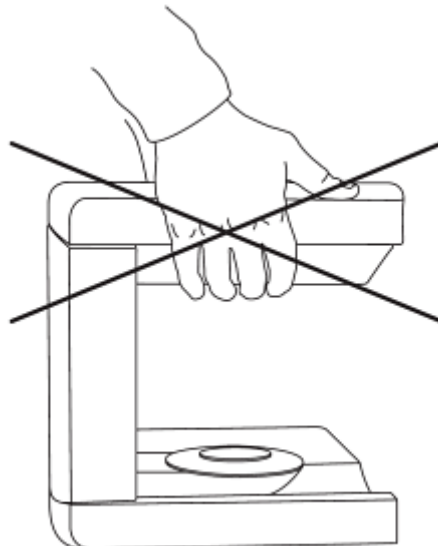


Caution! Always unplug the cables before moving or transporting the scanner.

The E scanner should always be lifted from underneath with the scanner top facing up and the unit back facing the person carrying the scanner as shown in the image below:



Never lift the E scanner in its upper part – there is a risk to damage the scanner and its cameras:



TRANSPORTING THE E SCANNER

In order to protect the scanner against any possible damage during transportation, it is necessary to use the original packaging materials and boxes.

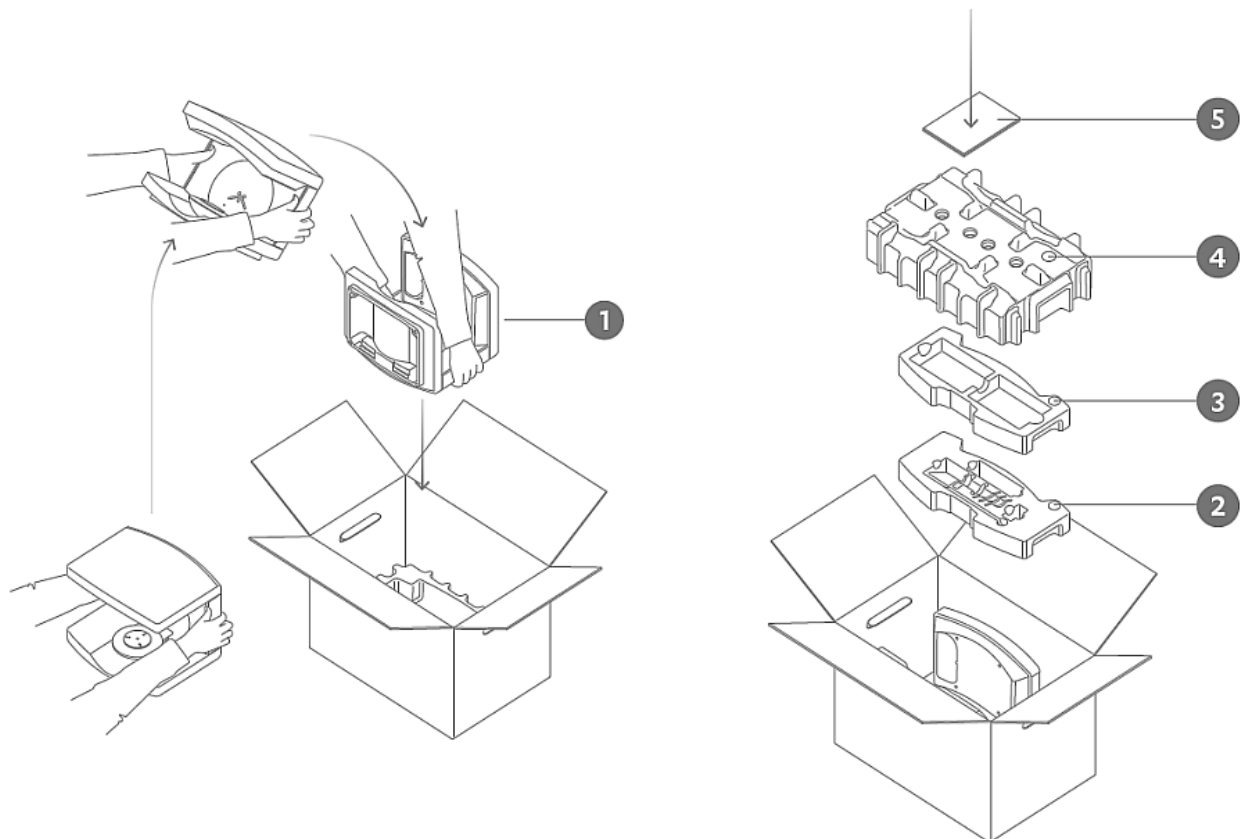


Caution! The E scanner arm should be properly secured each time the scanner is transported using the protection foam. If the original packing materials have been lost or damaged, a new packaging set can be ordered from 3Shape.

Please follow the steps below to package your E scanner correctly before transportation:

► **Step 1:** Turn off the scanner and disconnect all cables from it. Remove any accessory from the scanner, e.g. a Scan height adapter.

► **Step 2:** Put the scanner in the supplied plastic bag and package it inside the original cardboard box together with its dedicated foam inserts. See the image below for detailed instructions:



E scanner packaging instructions

► **Step 3:** Close the box and seal it with tape. Fasten the strap on the box.

TRANSPORTING THE D SCANNER

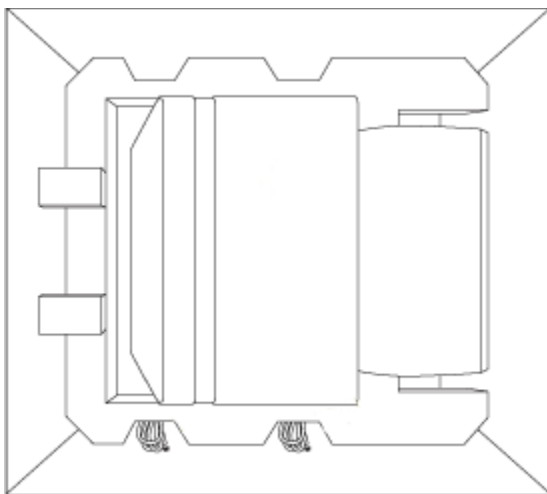
In order to protect the scanner against any possible damage during transportation, it is necessary to use the original packaging materials and boxes.



Caution! The swing axis of the D scanner should be properly secured each time the scanner is transported using the swing protection foam. If the original packing materials have been lost or damaged, a new packaging set can be ordered from 3Shape.

Please follow the steps below to package your D scanner correctly before transportation:

- **Step 1:** Turn off the PC and disconnect the scanner.
- **Step 2:** Fasten the swing axis using the protection foam.
- **Step 3:** Place the scanner into the original box using the original foam:



The D scanner is packed correctly



The swing axis foam is packed correctly

2.2.6. Scanning with ScanIt Dental

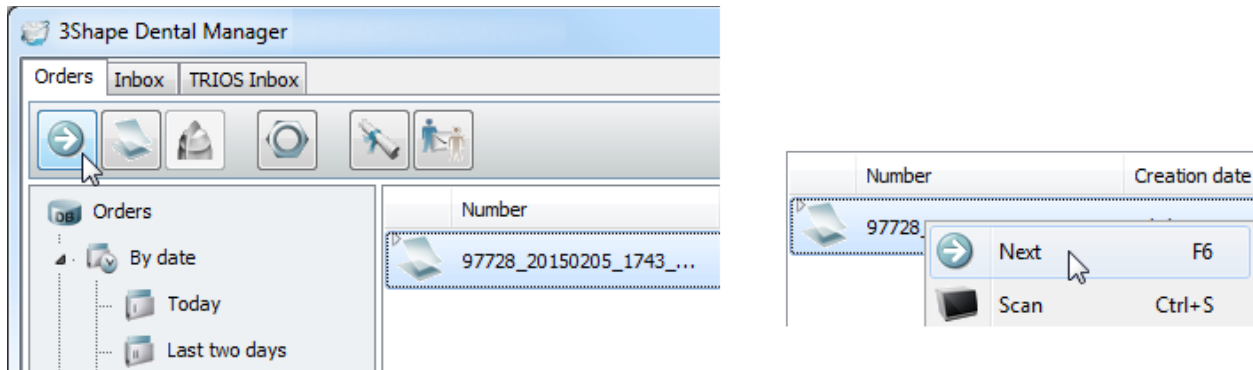
► Step 1: Define your order

To start working with ScanIt Dental, you have to first [define](#) your order in the Order form. See the [How Do I Create](#) chapter for more information on creating orders for various indications.

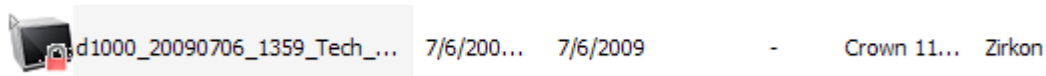
► Step 2: Start scanning

- **To start scanning immediately:** click the **Scan** button in the Order form - this takes you directly to the scanning module.
- **To start scanning saved order:** click the **OK** button in the Order form to save your order. The new order appears in the Dental Manager order list with the status

Created. To initiate scanning, select the created order from the list and start scanning by clicking the **Next** button in the Workflow bar or right-clicking the order and selecting **Next** or **Scan** from the right-click menu.

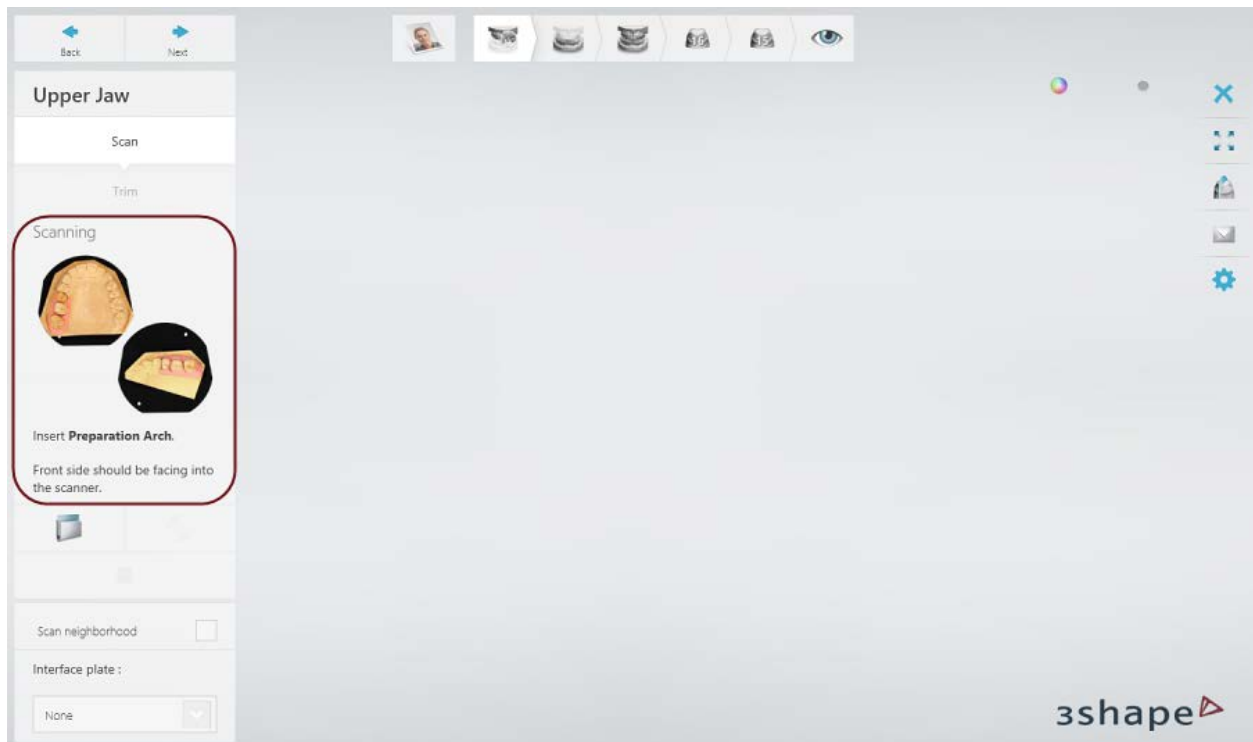


Once you start scanning, the selected order changes its icon in the list to a locked one:



►Step 3: Perform scanning

Once ScanIt Dental is started, perform scanning as guided by the software (see the on-screen instructions on the left):



Please read the chapter [User Interface](#) for introduction to ScanIt Dental.

The following chapters describe main operations performed during scanning:

- [Insert an Object to Scan](#)
- [Start Scanning](#)
- [Set Annotation Points](#)
- [Select Area for Detailed Scan](#)
- [Adaptive Scanning](#)
- [Trim Scan](#)
- [Align Scans](#)
- [Inspect Scans Before Design](#)

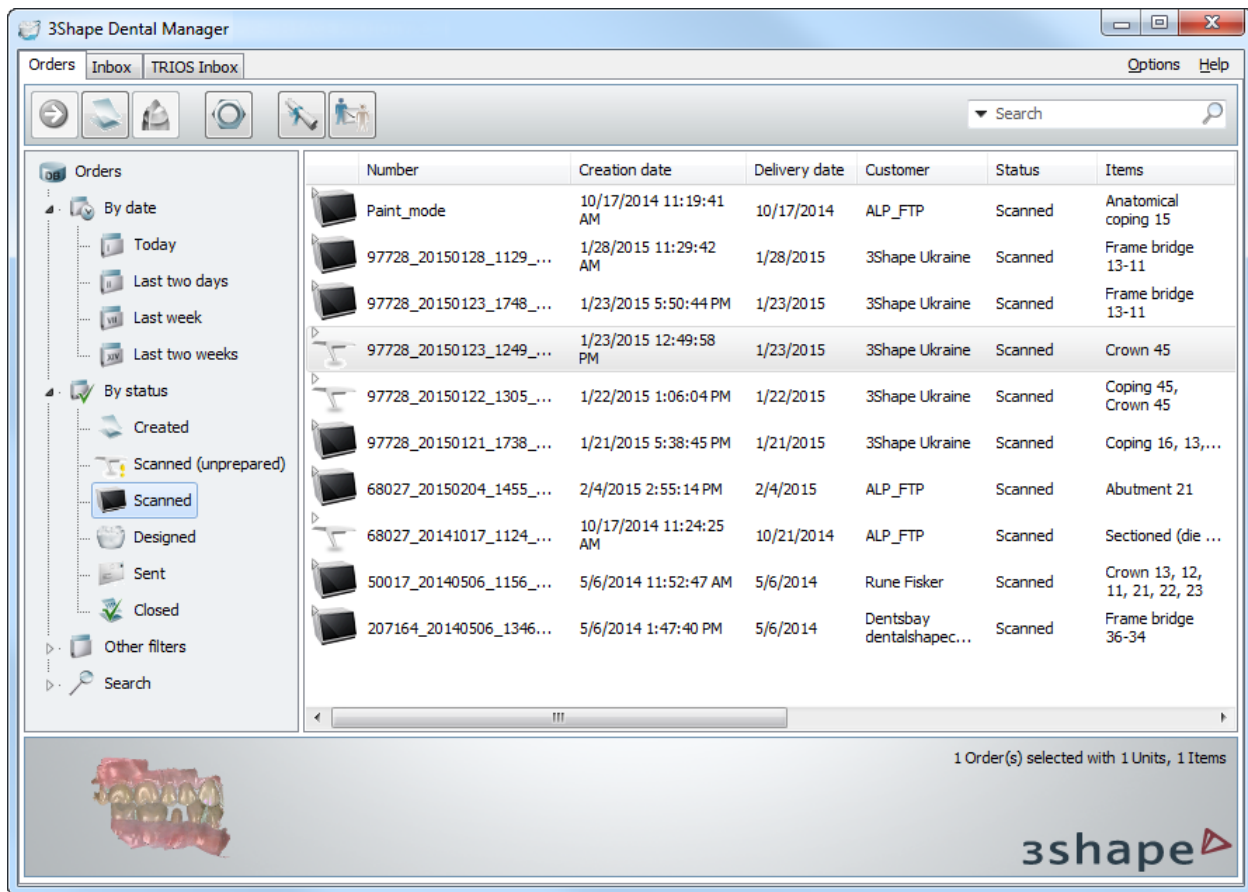
See also the chapters listed below to get acquainted with the basic scanning workflows:

- [Single Coping Scanning](#)
- [Models with Dies Scanning](#)
- [Two Single-Tray Impressions and Bite Scanning](#)

For more information on how to scan orders for various indications, see the chapter [How Do I Create](#).

► **Step 4: Finish scanning**

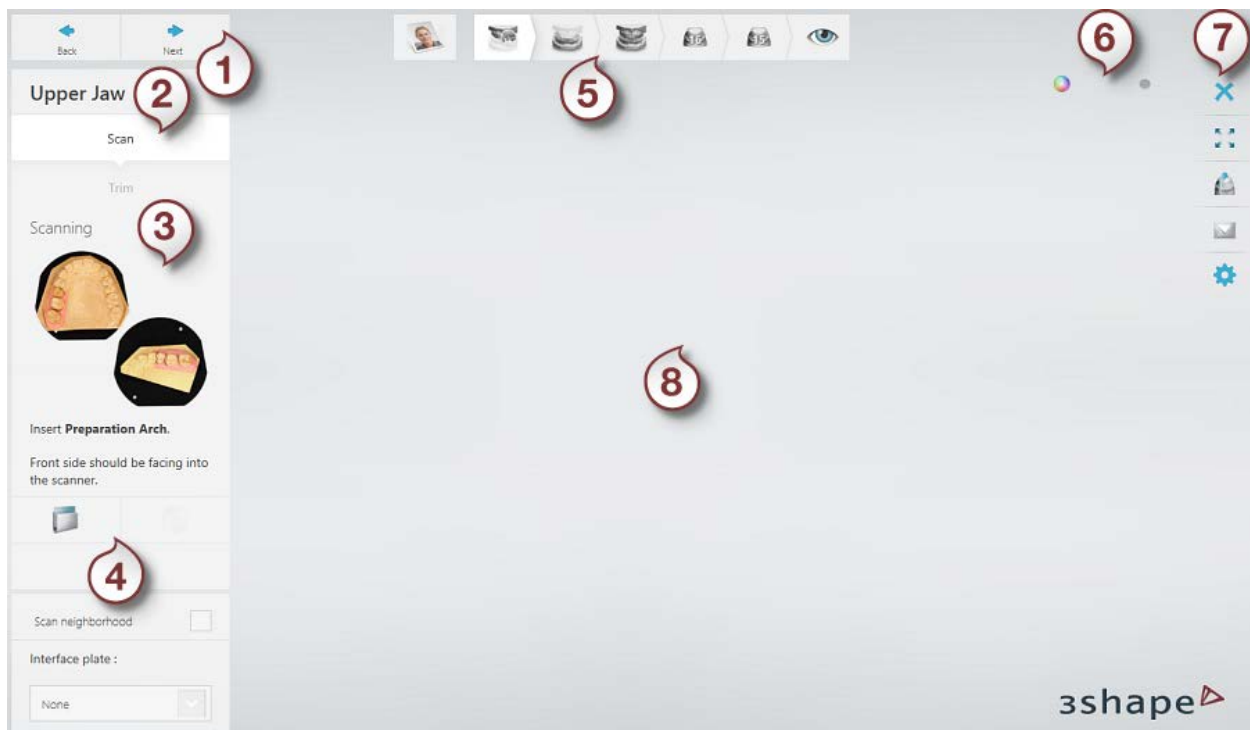
Once scanning has been completed successfully, the order changes its status from **Created** to **Scanned** in the Dental Manager order list:



2.2.6.1. User Interface

MAIN WINDOW

When ScanIt Dental starts, its main window appears on the screen:



1. Back/Next buttons

2. Substeps

3. Help Images

4. Scan tools

5. [Workflow bar](#)

6. Texture visualization slider

7. [Tools](#)

8. Scanning window

WORKFLOW BAR

The workflow bar displays main steps of the scanning process, which differ depending on the order:



Dental Manager - closes ScanIt Dental and returns to Dental Manager.



Scan - one of the scanning steps icon. You can freely switch between the steps.



Inspect - once scanning is finished, this step lets you view the result and go to the designing procedure by clicking the **Design** button.

Completed steps in the workflow bar are marked with a green tick:



TOOLS

The tools on the right of the main window include the following options:



Save and Close - closes ScanIt Dental.



Design mode – turns on or off the full screen mode. Alternatively, you can press **F11**.



Cross section - lets you place a [cross section](#) across a scan.



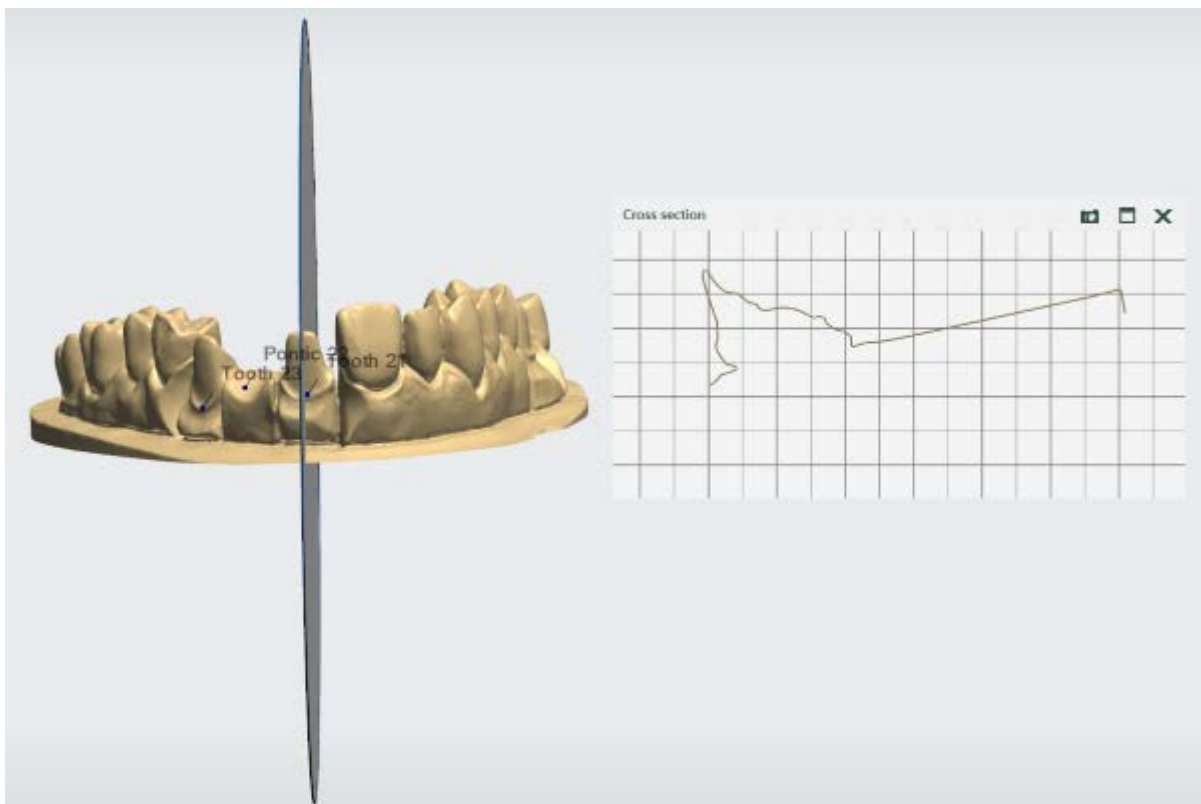
Send feedback report - send a feedback report with the active order, screenshot and information on a form. Alternatively, you can press **Ctrl + F**.



Settings - opens the ScanIt Dental [Settings](#) page.

CROSS SECTION

The **Cross section** option lets you draw a cutting plane and observe the section of the scan in that particular place. You can take a snapshot and save it with a click on the button.



You can move the cutting plane sideways by placing the mouse cursor over the Cross Section window and rotating the mouse wheel while holding down **Ctrl**.

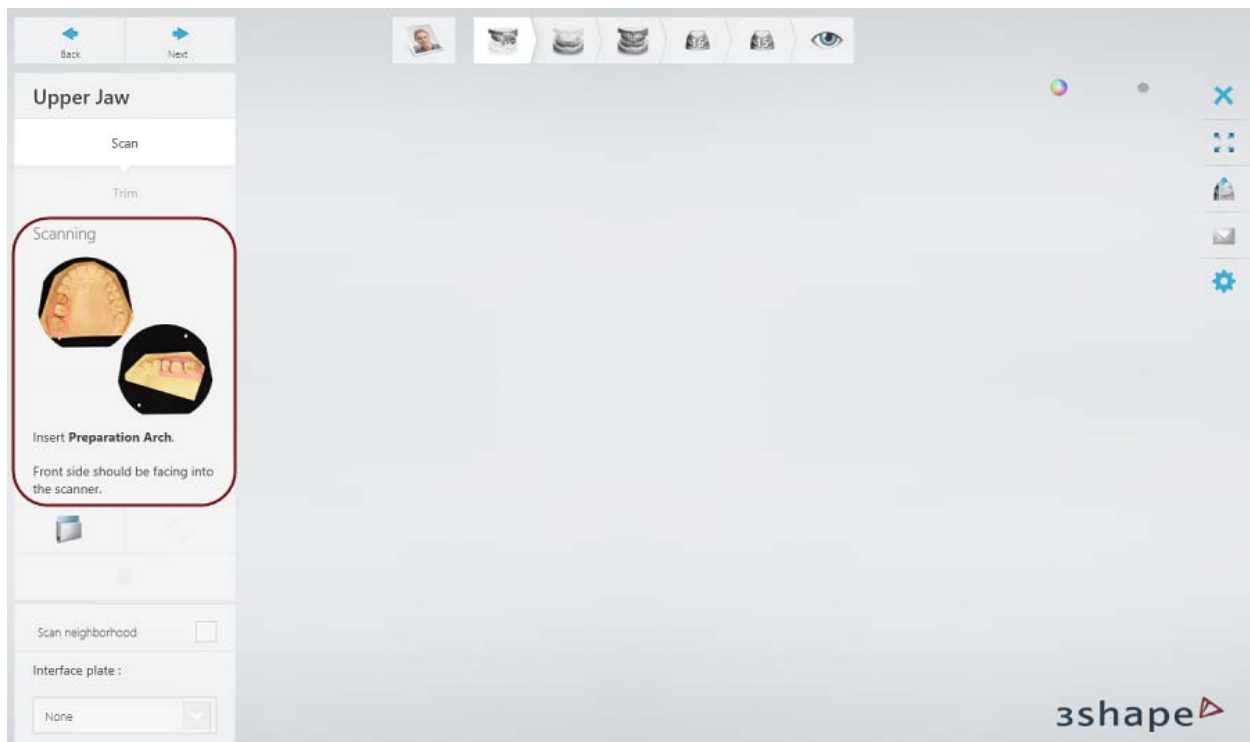
SCANIT DENTAL HOTKEYS

The following hotkeys can be used for ScanIt Dental:

- **Enter** - navigates you to the next step/substep in the workflow.
- **Backspace** - navigates you to the previous step/substep in the workflow.
- **Shift** while rotating the mouse wheel – changes the selection tool radius during area selection.
- **Ctrl** while holding down the left mouse button and moving the mouse – lets you deselect an area using selection tool.

2.2.6.2. Insert an Object to Scan

Once your order is [created](#) and ScanIt Dental is started, you need to insert an object to be scanned into the scanner. On-screen instructions on the left indicate which object to insert ([gypsum model](#), [die](#), [two models in occlusion](#), [impression](#) etc.) and how to place it correctly:



PLACING A MODEL

In most cases models are fixed on a simple **Interface plate** before being inserted into the scanner. The interface plate facilitates connection between the model and the scanner.



Note! In order to skip a bite scan, you can scan upper and lower models on **Occlusion Setup Tool Plates** or **Articulator Transfer Plates**. For more information, see the chapter [Occlusion Handling](#). When you scan models with implant analogs, an [Implant Cast Fixture](#) is used to fasten a model inside the scanner.

►Step 1: Place the model on the interface plate

Fix the model with its flat bottom side on the interface plate using the clay (Blu Tack adhesive). It is very important that the model is secured and cannot move during scanning.

The front side of a full arch model should face the inside of the scanner when inserted:



Insertion direction

When scanning quadrants, the buccal side of teeth should face the inside of the scanner:



When scanning both upper and lower quadrants with occludator holders in a scanner with room for two models, insert models with occludator holders looking outside of the scanner to prevent collisions during scanning:



► **Step 2: Insert the model into the scanner**

Once the model is fastened on the plate, place it into the scanner as shown in the images below. The plate will click into the correct position inside the scanner.



For scanners with room for two models, insert both upper and lower models as guided by the software:



PLACING A DIE

Fix the die at the center of the interface plate with Blu Tack (see the image below) and then insert it into the scanner.



When scanning multiple dies, you can use a [Passive multi-die fixture](#) to scan up to 7 dies at once instead of scanning them one by one attached to the interface plate.

PLACING TWO MODELS IN OCCLUSION

Mount upper and lower models in occlusion on a specially designed 3Shape [Two-cast Fixture](#). If you do not have it, rubber bands or sticky wax can also be used to fix the models together on the interface plate.

PLACING IMPRESSIONS

An [Impression Fixture](#) is used for fixing impressions on single and triple trays with a handle inside the scanner:



Single-tray impression attached to the impression fixture

A single-tray impression can also be fixed on the interface plate with Blu Tack in the same way as a [model](#):



Single-tray impression attached to the interface plate

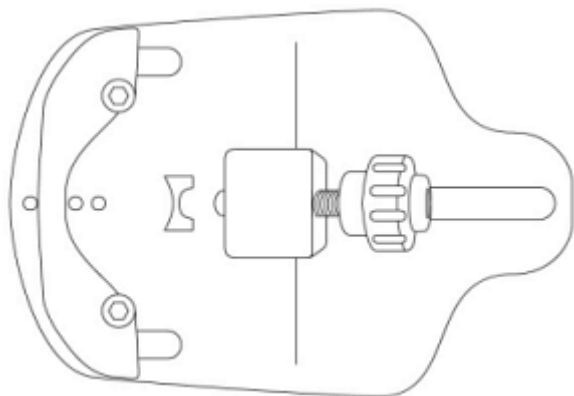
A bite impression is mounted into a Wax-up Fixture with the upper arch side facing the inside of the scanner:



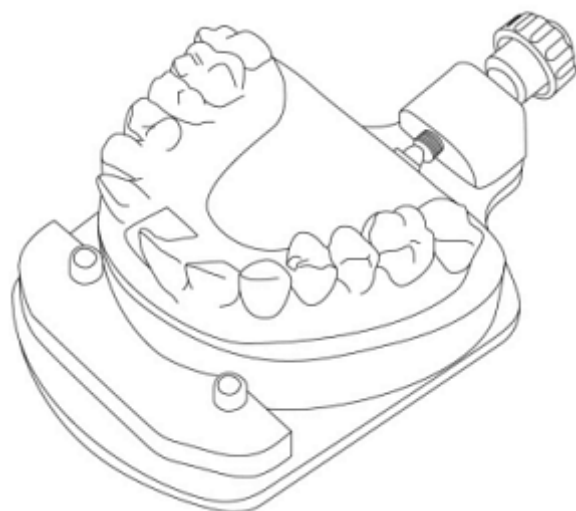
2.2.6.2.1. Implant Cast Fixture

An Implant Cast Fixture is used for [abutment scanning](#) as well as other dental indications when it is necessary to scan a single cast several times exactly in the same position inside the scanner.

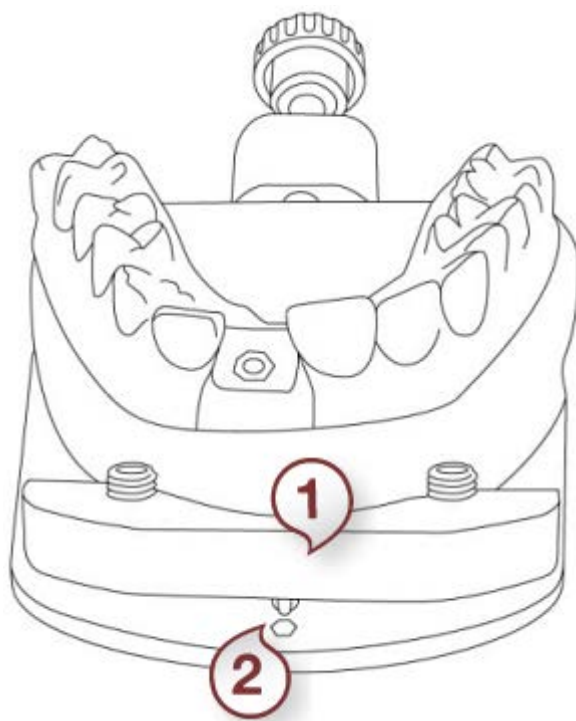
Follow steps below to successfully mount a cast on the fixture:



► **Step 1: Place an Implant Cast Fixture on a flat surface.**

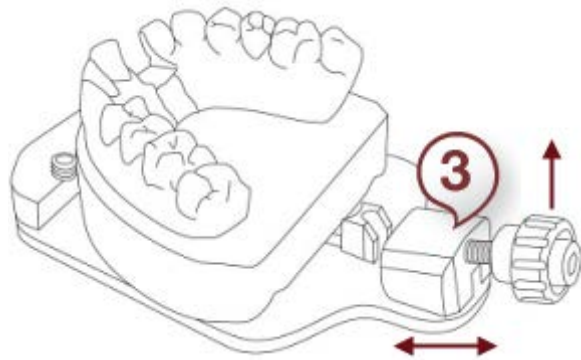


► **Step 2: Place a gypsum model in the center of the fixture.**



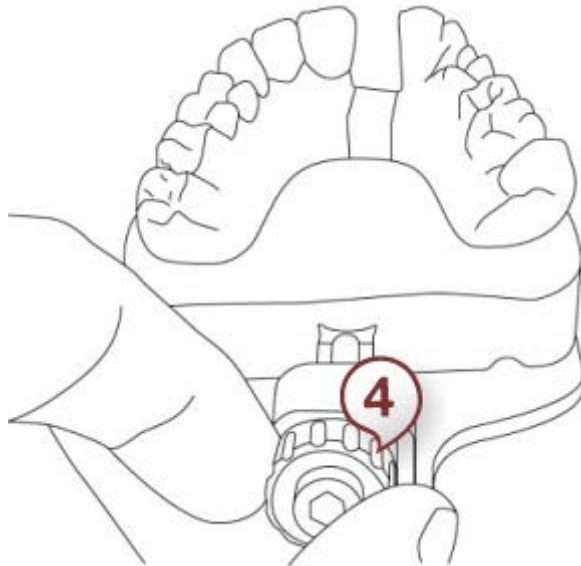
► **Step 3: Lift and move the front piece (1) to fit the approximate length of the gypsum model.**

Insert peg in a hole (2) to lock it in place.



► **Step 4: Slide the adjustment bracket (3) until it touches the gypsum model.**

Lift the bracket and then push or pull it to move forward or backwards respectively.



► **Step 5: Tighten a knob (4) until the gypsum model is firmly fastened in place.**

2.2.6.2.2. Impression Fixture

A specialized Impression fixture can be used for scanning impressions on trays with a handle, including impressions on Triple Trays.



Impression fixture assembly



Impression fixture with the mounting plate detached



Single-tray impression attached to the impression fixture



Triple tray with impression before it is attached to the fixture

The fixture mounting plate allows you to turn over the impression on a triple tray when scanning its antagonist side.




Triple-tray impression with preparation side facing upwards



Triple-tray impression with antagonist side facing upwards

2.2.6.3. Start Scanning

You can let the software start scanning automatically when you close the scanner door or insert the object into an E scanner by selecting the **Auto-start** checkbox on the [Settings](#)  page. If you prefer to start the scan manually, keep the Auto-start option disabled. In this case, you will need to click the **Next** button in the upper left corner of the main window to start scanning.



Note! The Auto-start functionality works only when the scanner is directly connected to the computer used for scanning.

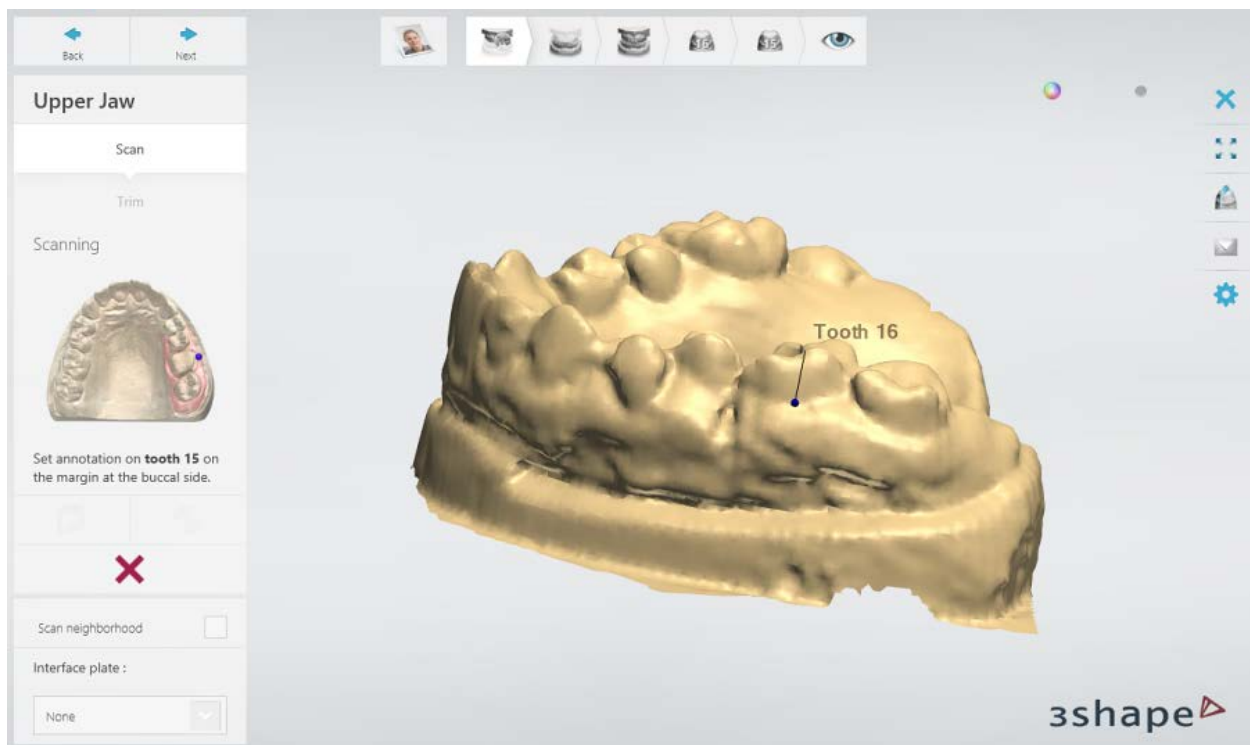


Caution! When using the E scanner, do not block or disturb the scanner arm and object during its operation to ensure good scan results.

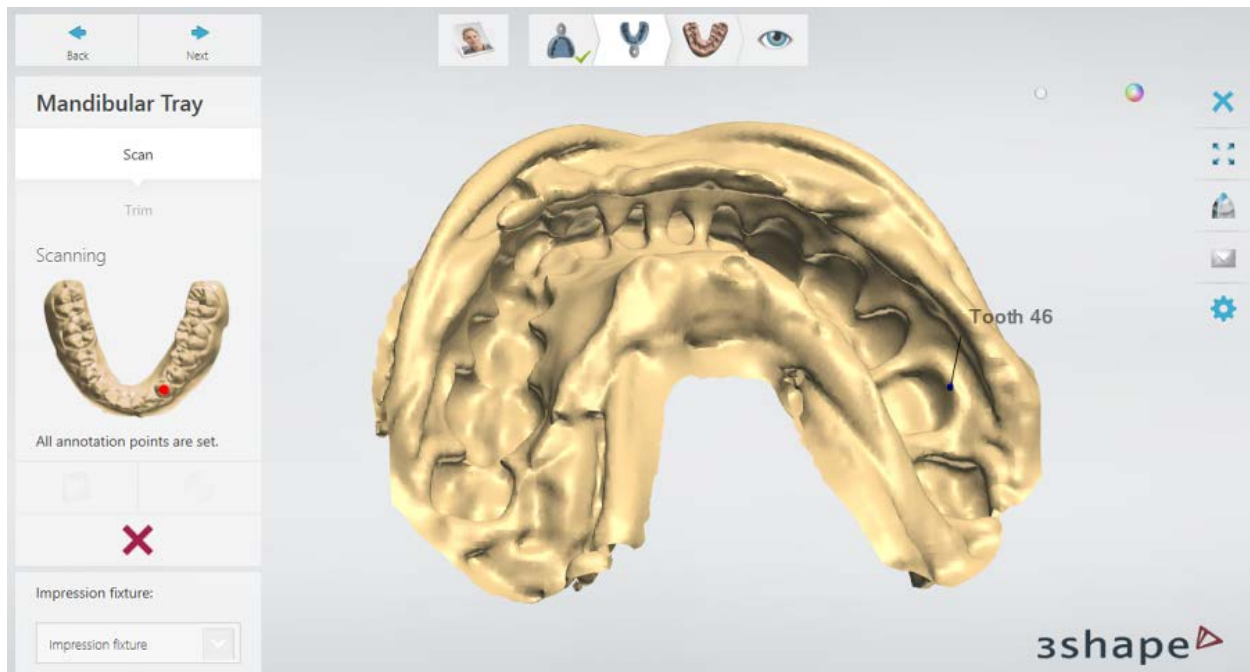
2.2.6.4. Set Annotation Points

Once the initial scan is completed, you are asked to set annotations on the teeth (mark the teeth) according to your order.

Place annotation points one by one on all required teeth as guided by the software (see the on-screen instructions on the left). To place an annotation point, click on the margin at the buccal side of a tooth as shown in the images below.




Placing annotation points on a gypsum model scan



Placing annotation points on an impression scan



Note! It is important to ensure correct placement of annotation points, as this affects the result of automatic alignment of scanned dies, quality of a die scan during dies-in-arch scanning and restoration design. You can adjust the positioning of annotation points by dragging them with the mouse later on completion of the detailed scan.

To remove all annotation points, click the  button.

Once you set all annotations, the software will automatically take you to [selecting the area for detailed scan](#).

2.2.6.5. Select Area for Detailed Scan

The software automatically highlights the area for a detailed scan (area of interest) in green based on set [annotation points](#). You can adjust the selected area with the available tools:



- allows you to mark the area for a detailed scan. Move the mouse while holding down the left mouse button to select the area.



- allows you to correct the marked selection with the eraser.



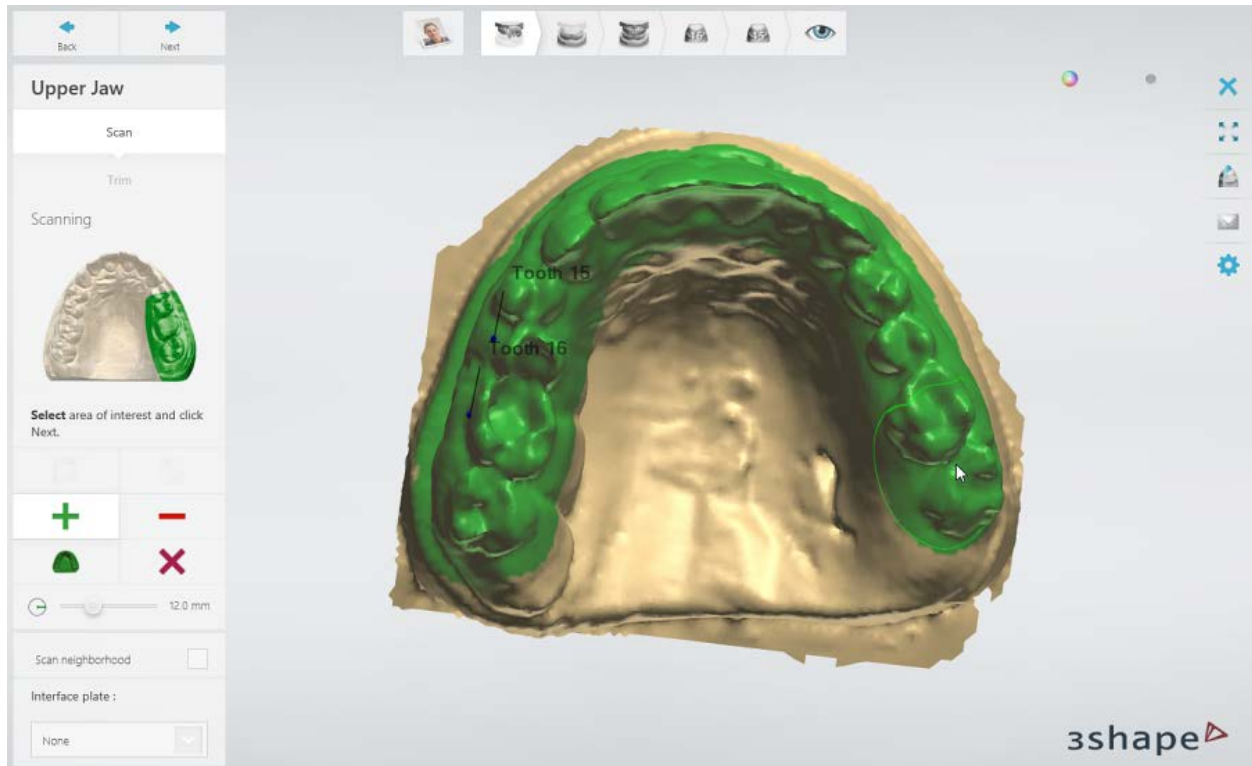
- marks the whole model.



- removes the marked selection.



- to change the radius of the painted/erased area, drag the slider or hold down the **Shift** key while rotating the mouse wheel.

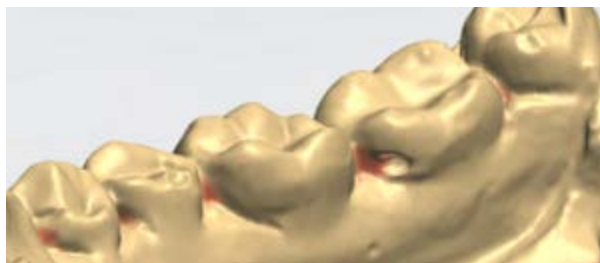


Once the area is selected, click **Next** to start the detailed scanning.

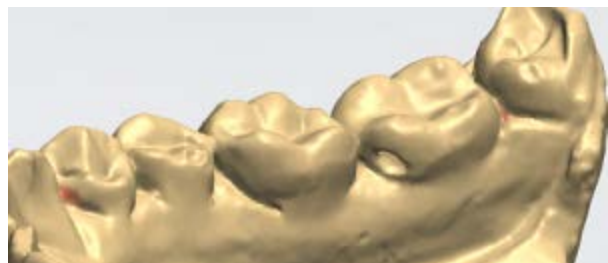
2.2.6.6. Adaptive Scanning

WHAT IS ADAPTIVE SCANNING

Adaptive scanning allows you to scan areas with insufficient scan coverage, which are highlighted in red, and areas that include holes:

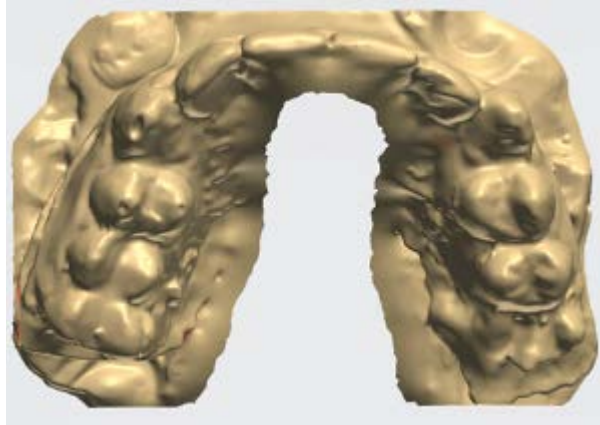


Before adaptive scanning

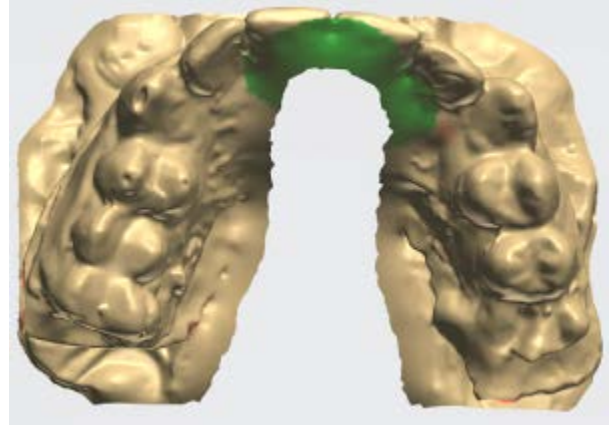


After adaptive scanning

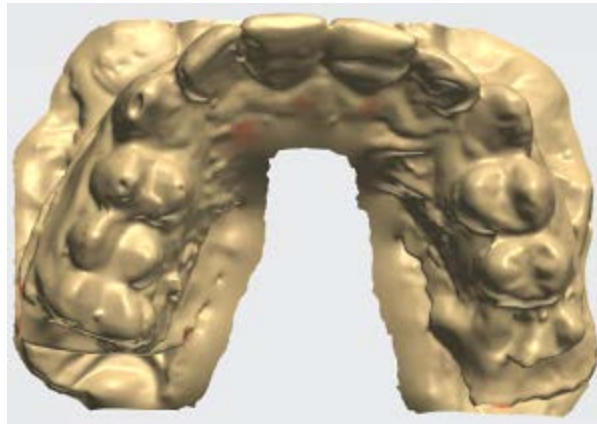
It also lets you capture missing surfaces by selecting an area next to the edge of a scan. In this case, the software will re-scan the selected area expanding the border of the scan:




Before adaptive scanning



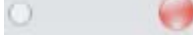
Selecting area for adaptive scanning



After adaptive scanning

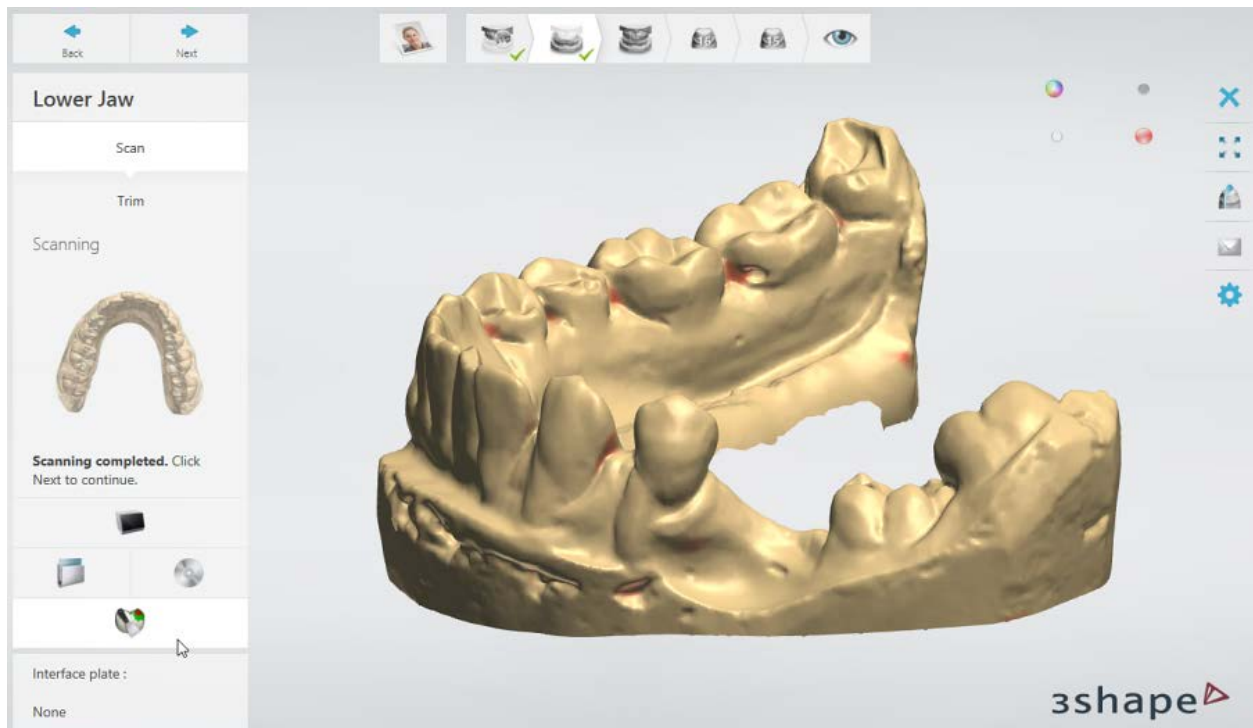
The Adaptive scanning feature is available for most of the scanning steps. You can change the settings related to the adaptive scanning (**Adaptive scan iterations** and **Use Auto-adaptive scanning**) on the [Settings](#)  page.

HOW TO PERFORM THE ADAPTIVE SCAN

When scanning gypsum models, turn on the **Show repaired areas**  slider to see the areas with insufficient scan coverage highlighted in red. For impression scanning, the software highlights such areas automatically after completing the scan.

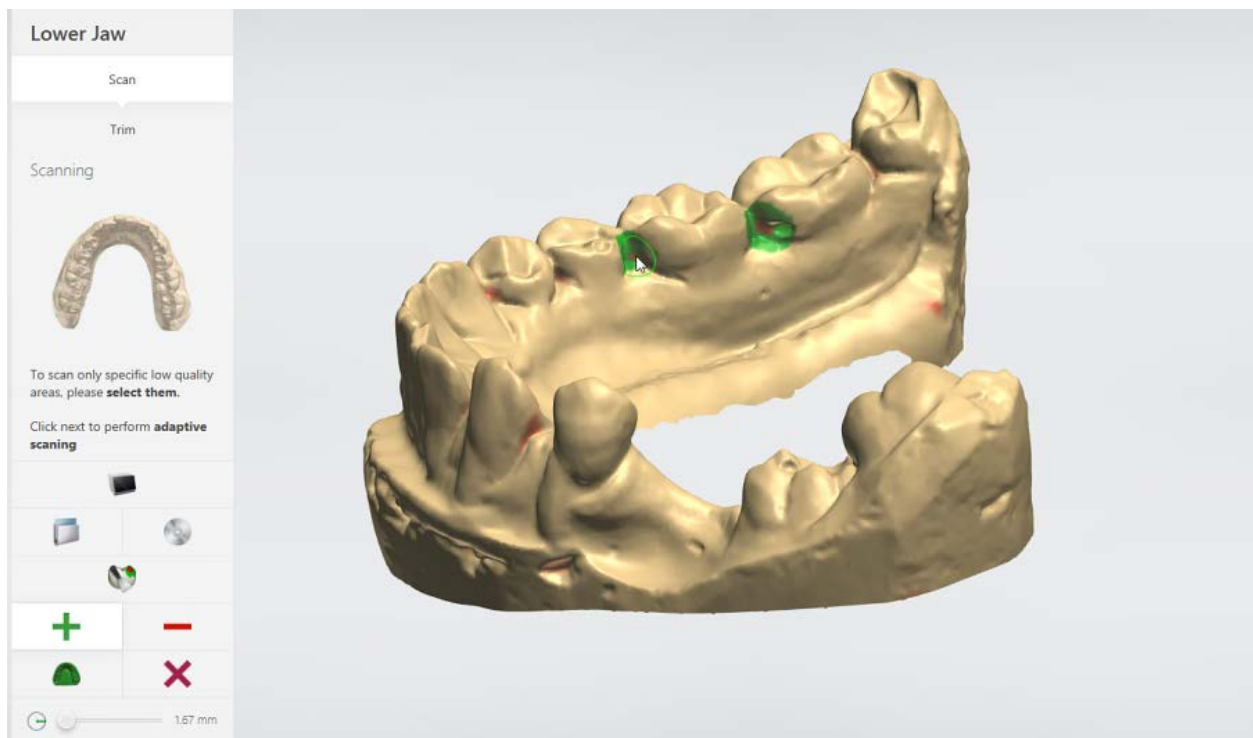
If red areas or holes occur on the crucial part of a scan, re-scan these areas using **Adaptive scanning** as described below:

► **Step 1: Click the *Adaptive scanning***  **button**

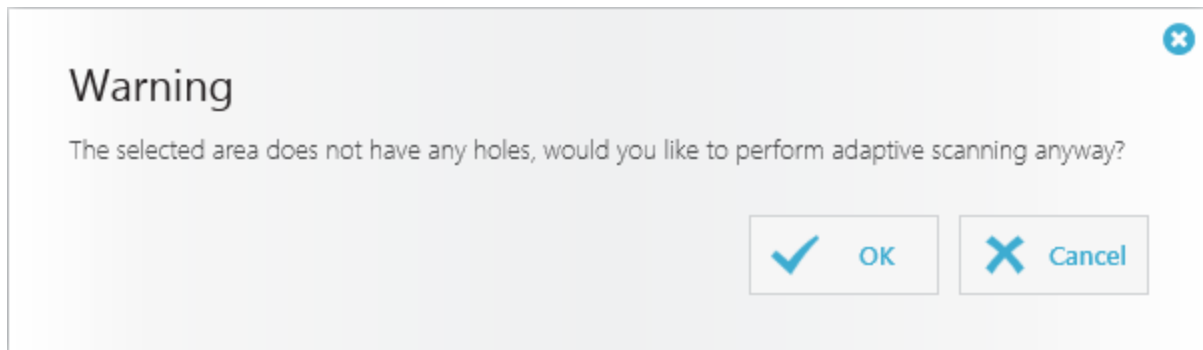


►Step 2: Select an area for scanning

Select the red areas and areas next to the holes using the provided selection tools, which are identical to the ones described in the chapter [Select Area for Detailed Scan](#). Click **Next** to start scanning.



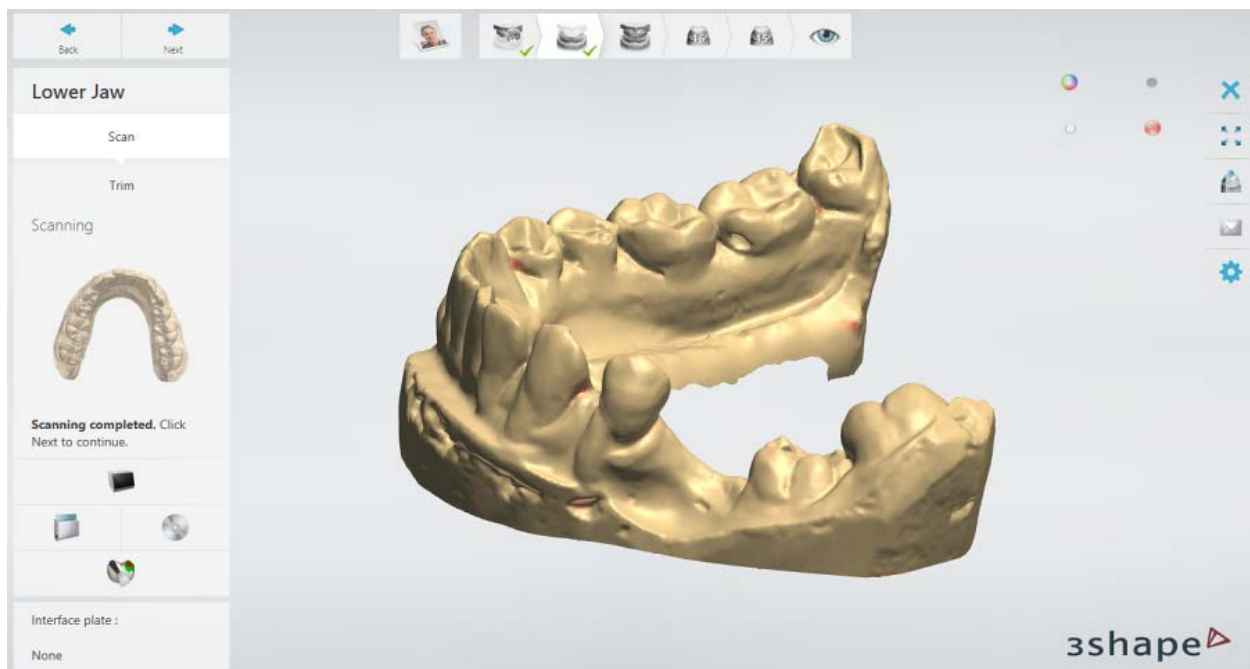
If the selected surface does not contain red areas or holes, a warning will appear when you try to start scanning. You can either proceed with scanning to achieve greater scan coverage of the selected area or cancel it:



If you have not selected any area and start scanning, the software will perform the adaptive scan to increase scan coverage of all red areas.

►Step 3: Finish scanning


When scanning is completed, you can repeat the adaptive scan if needed or click **Next** to proceed to the next step.

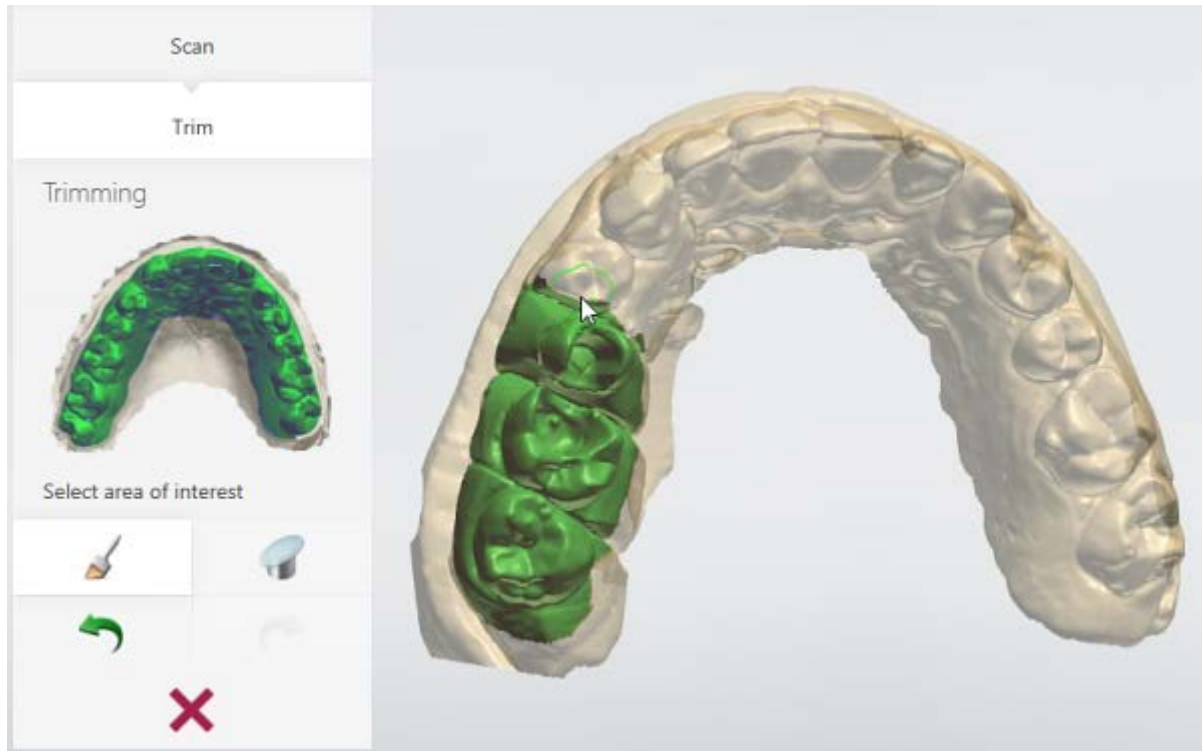


2.2.6.7. Trim Scan

Having scanned a model, an impression or a die, you can trim the scan by going to the **Trim** substep. Trimming can be done either in the [Selection](#) or [Cutting plane](#) mode for model and die scans, and [Selection](#) or [Line](#) mode for impression scans.

SELECTION MODE


Click the **Selection mode**  button and select the area that you want to keep (area of interest). To select an area, move the mouse over the scan while holding down the left mouse button. The selected area is highlighted in green.

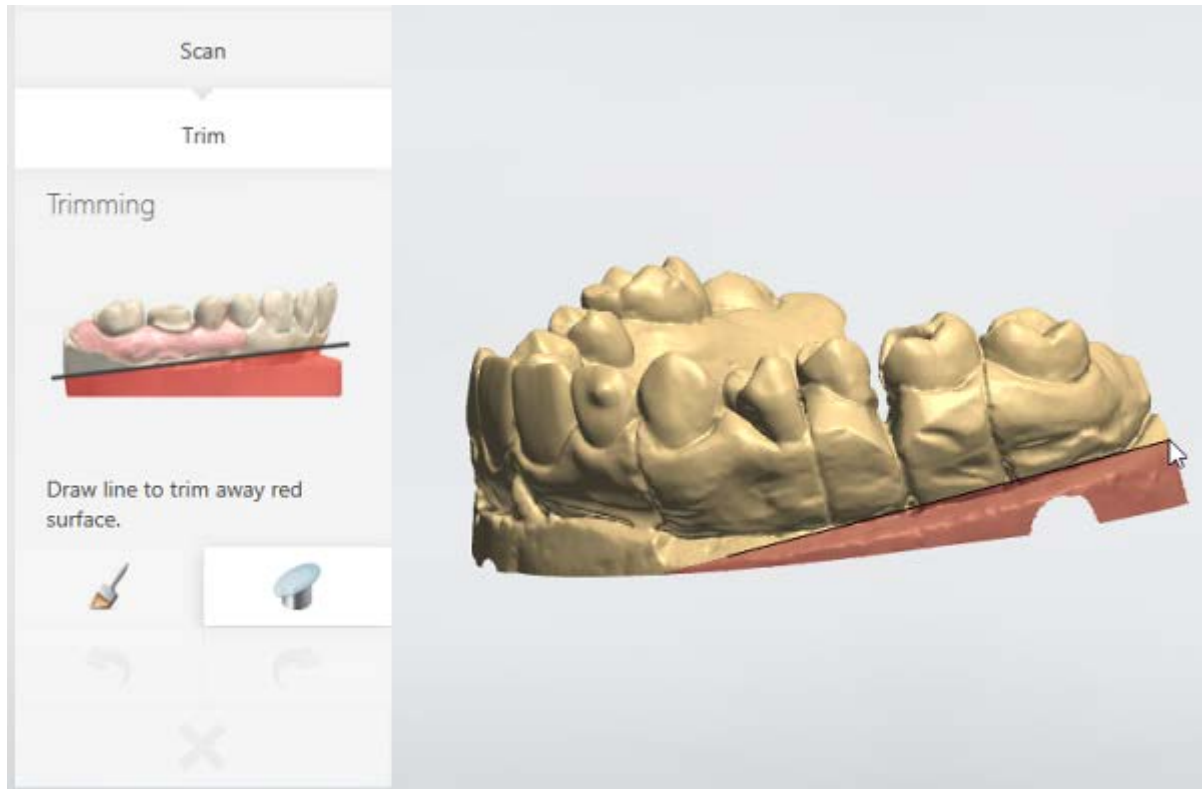


You can correct the marked selection with the eraser by holding down **Ctrl** while selecting the area. To change the radius of the painted/erased area, hold down the **Shift** key while rotating the mouse wheel.


The trimming can be removed with the **Reset**  button. Click the **Undo**  or **Redo**  buttons to undo or redo the most recent actions performed during the trimming.

CUTTING PLANE MODE

Click the **Cutting plane**  button and draw a line across the scan by moving the mouse while holding down the left mouse button. The area which is highlighted in red will be trimmed. You can draw as many lines as you need.



LINE MODE

Click the **Line mode**  button and draw a line around the area that you want to keep (area of interest). You can draw a line either by moving the mouse while holding down the left mouse button or by clicking on the scan to shape a line with a sequence of points. To close the line, click on the initial point or near it.



2.2.6.8. Align Scans

There are two methods for aligning scanned objects - [Automatic alignment](#) and [Manual alignment](#).

AUTOMATIC ALIGNMENT

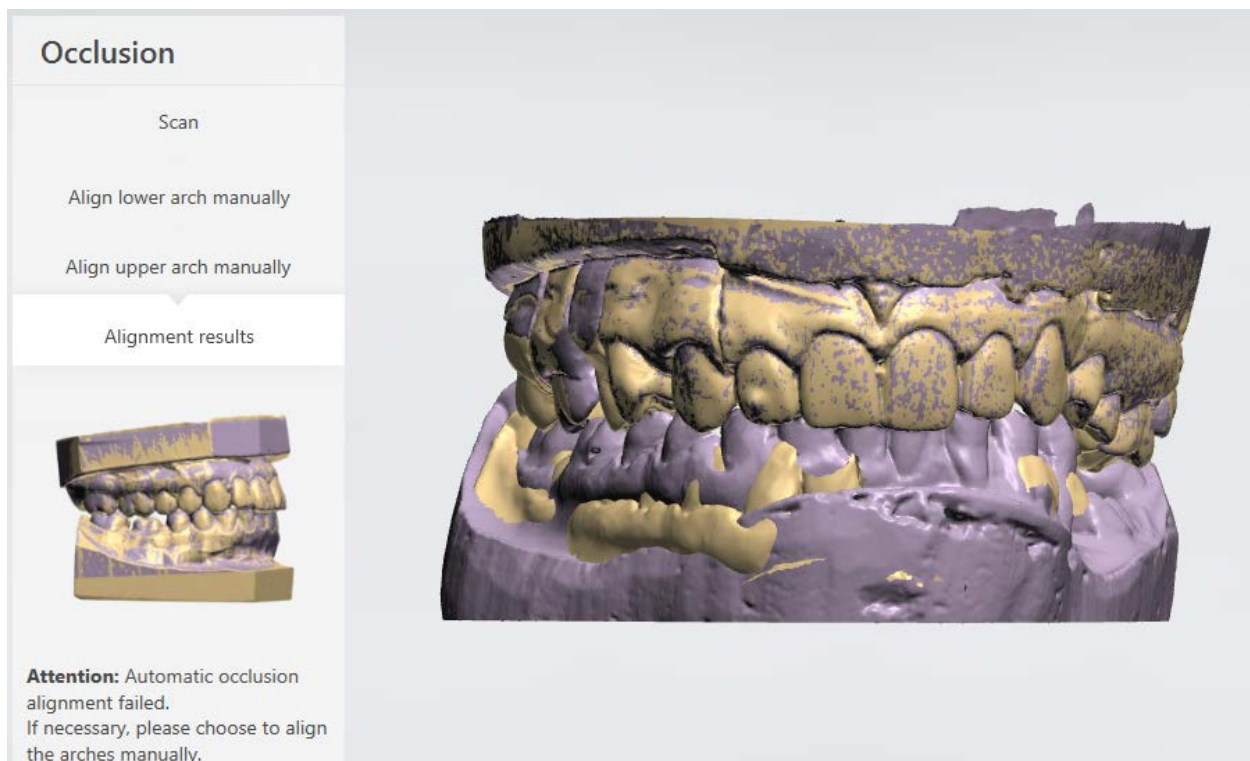
When scanning is completed, the software automatically aligns the corresponding scans.



In this case, preparation and antagonist arches are aligned with the bite scan

MANUAL ALIGNMENT

If Automatic alignment did not succeed (see the image below) or you want to change the alignment, you can align scans manually.



Automatic occlusion alignment failed

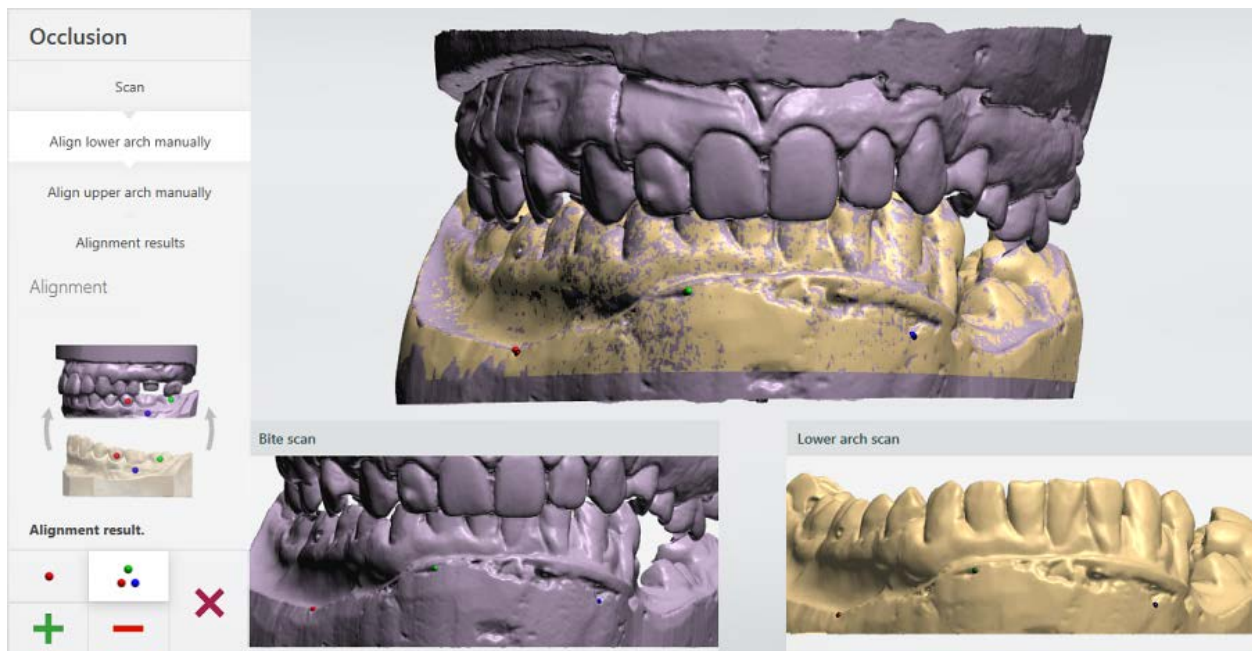
Follow the steps below to perform manual alignment:

►Step 1: Choose the alignment method



Choose either one  or three-point  alignment method by clicking the corresponding button.

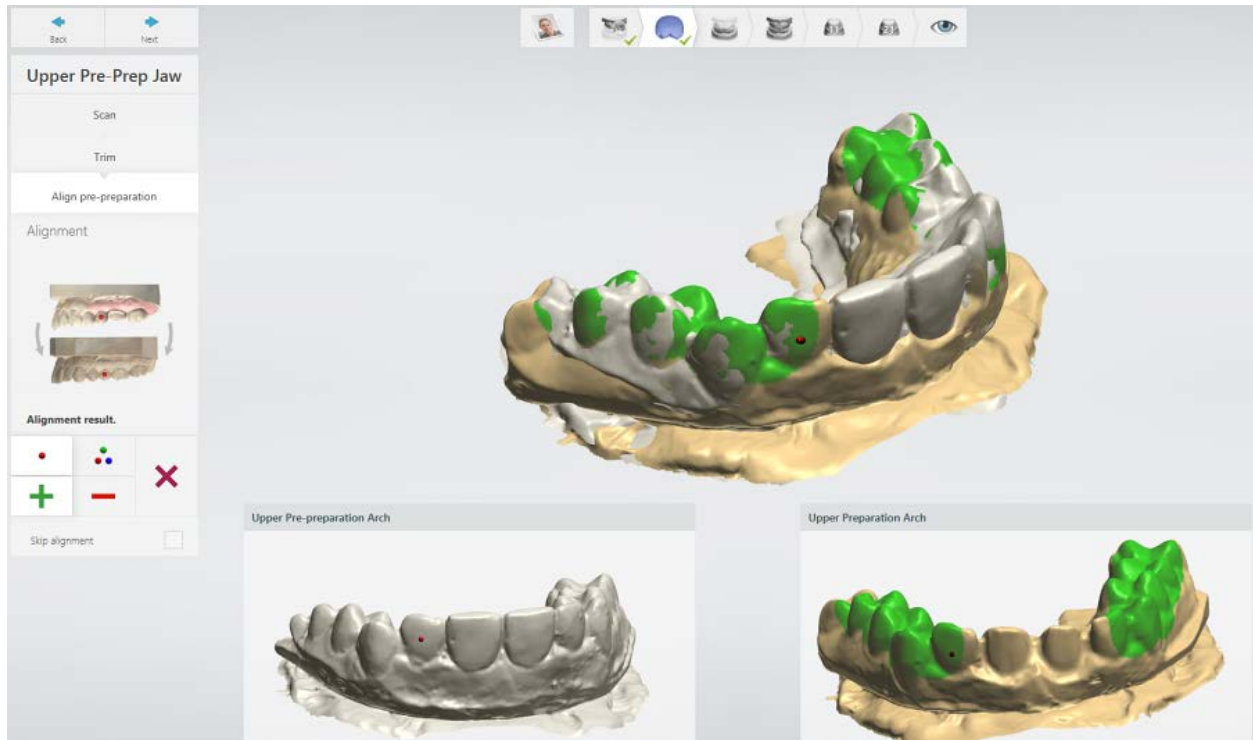
►Step 2: Set points

Depending on the selected alignment method, place one or three points on the first scan by clicking the scan with the left mouse button. Then place the corresponding point(s) on the second scan. The points should be placed in approximately the same area of the scan.



►Step 3: Select area for alignment

When aligning scans of different objects, such as preparation and pre-preparation models, it is required to align only matching surfaces on both scans. To do that, click the  button and select the area for alignment on one of the scans. The  button allows you to correct the marked selection. To change the radius of the painted/erased area, hold down the **Shift** key while rotating the mouse wheel.




To clear all points and marked selection, click the **Reset**  button.

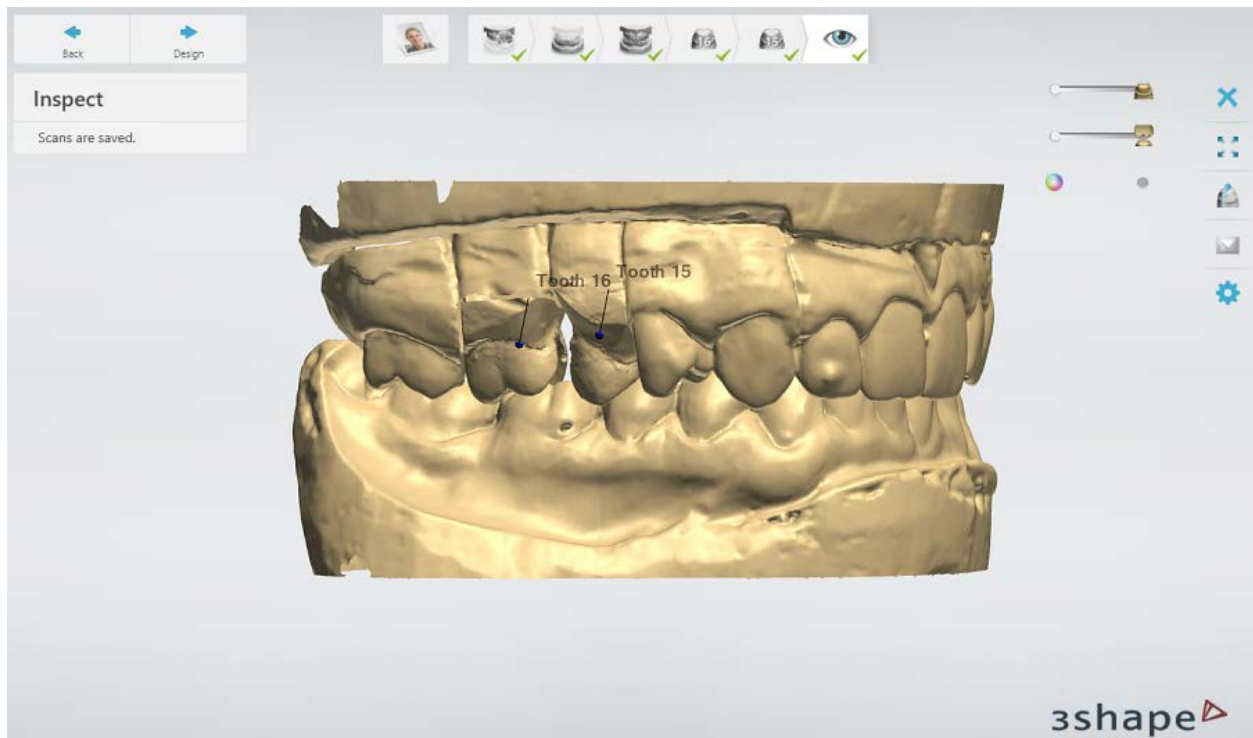
►Step 4: Finish alignment

When scans are aligned, click **Next** to proceed to the next scanning step.

2.2.6.9. Inspect Scans Before Design

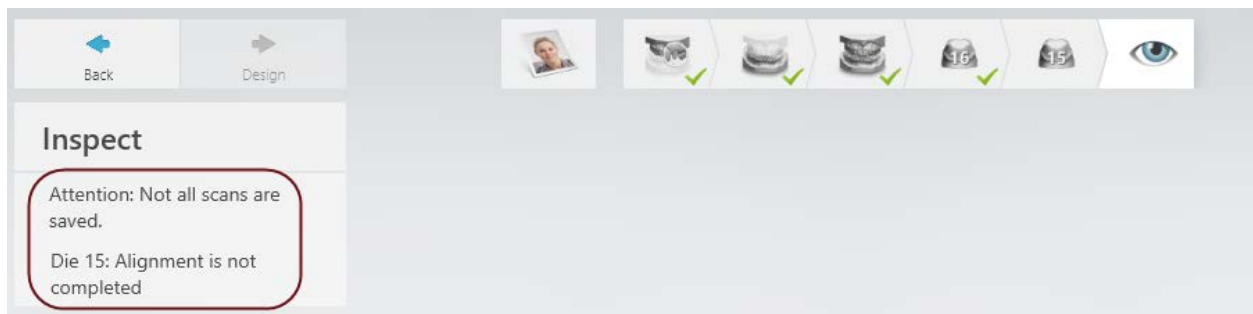
Scans are saved automatically at the last step. When all scans have been saved, the last step in the workflow bar is marked with a green tick as completed. This means that you can inspect the scanned model and start the designing procedure by clicking the **Design** button

or close ScanIt Dental by clicking the **Save and Close**  button:



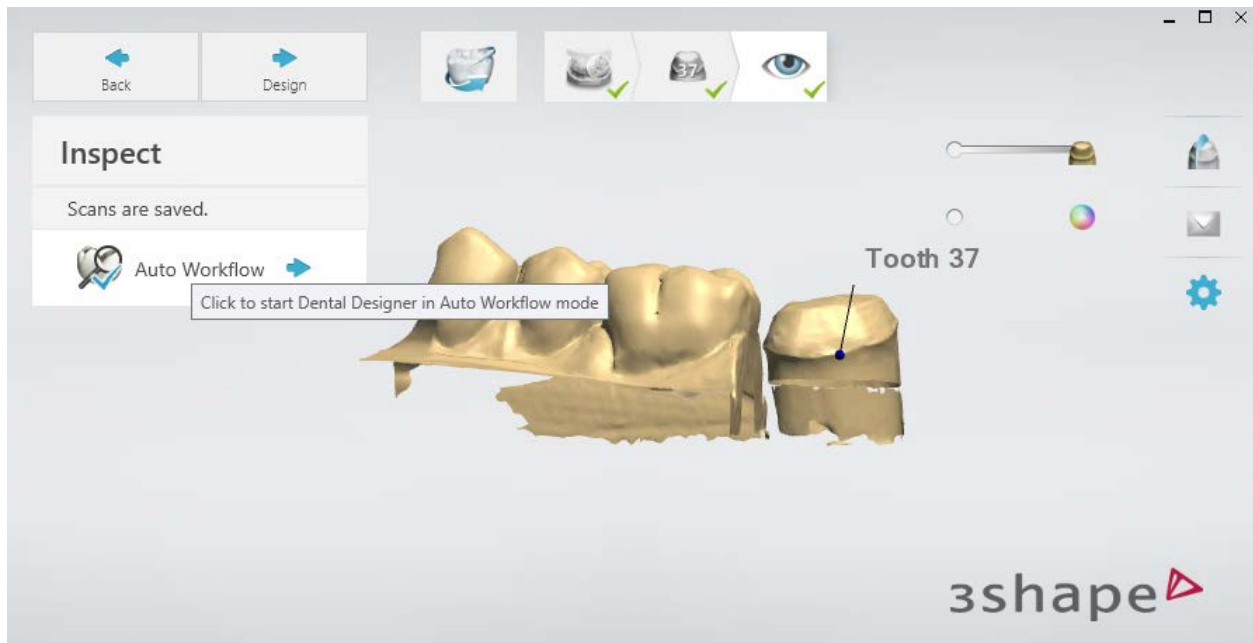
All scans are saved - you can proceed to the design

If some scanning steps were not completed, you will see notes about those steps in the upper left corner of the window (see the image below). Clicking on a note will take you to the corresponding step to complete it.




Some scans are not saved - go back to the uncompleted steps


For the single crown and single coping orders the [Auto Workflow](#) option is available at the **Inspect** step.



Start the Auto Workflow to get the automatically designed restoration.

2.2.6.10. Scan Settings

To adjust the scan settings, which are described below, click the **Settings**  button in the upper right corner of the ScanIt Dental window, make the required changes and click **Save**.


Settings
Save

Scanner

Scanner Host:

localhost

Reset

General

Die in bridge: height below margin line (mm)

4

▼

▲

Single die: scanning height (mm)

13

▼

▲

Arch: scanning height (mm)

40

▼

▲

Adaptive Scanning iterations

1

▼

▲

Use Auto-adaptive Scanning

☐

Detail levels

Die scanning optimized for

Speed ☒

Details ☐

Arch scanning optimized for

Speed ☒

Details ☐

Accessories

Articulator Holder (if supported)

☐

Multi-die scanning (if supported)

☐

Advanced

Scan texture

☐

Auto-start

☒

Skip optional steps

☐

Scan dies in arch (if supported)

☐

SCANNER

Scanner Host – use the default value *localhost* if you run ScanIt Dental on the computer with the connected scanner. Otherwise, specify the name of the computer to which the scanner is connected, for example, *pc-scanner*. The **Reset** button restores the default value.

GENERAL

Die in bridge: height below margin line (mm) - the required scanning distance below an annotation point put on a margin line.

Single die: scanning height (mm) - the required height of a die scan for orders where an arch scan was not ordered, for example, a [Single Coping Order](#).

Arch: scanning height (mm) - the required height of an arch scan.

Adaptive Scanning iterations – the maximum number of additional scans made during the [adaptive scan](#). If all incomplete surfaces on the selected areas have been entirely scanned in the lower number of iterations than specified, the software will stop the scanning process without performing the rest of the iterations.

Use Auto-adaptive Scanning – enables auto-adaptive scanning, which automatically detects incomplete surfaces and makes additional scans to ensure accurate capture of impressions and models.

DETAIL LEVELS

Die/Arch scanning optimized for – allows you to optimize the scanning process either for higher scanning speed (**Speed**) or better scan quality (**Details**).

ACCESSORIES

Articulator Holder - enables occlusion scanning using the Articulator Holder if supported by the scanner. For more information, see the chapter [Articulator Holder](#).

Multi-die scanning – enables scanning of multiple dies for scanners with passive multi-die fixture support. For more information, see the chapter [Multi-Die Scanning](#).

ADVANCED

Scan texture - enables texture scanning if supported by the scanner. For more information, see the chapter [Texture Scanning](#).

Auto-start – when enabled and the software asks to insert an object into the scanner, the scanning process will start automatically when you close the scanner door or insert the object into an E scanner. In E scanners, the white light is on when the Auto-start option is enabled and the scanner is searching for new object inside.

Skip optional steps – when enabled, the ScanIt Dental workflow is optimized for speed (without affecting scan quality) by skipping optional steps and automatically proceeding to the next scanning step once the previous scanning is completed. You can go back to the skipped steps when needed.

Scan dies in arch – enables simultaneous scanning of dies and the preparation arch (no need for a separate die scan) if [supported by the scanner](#).

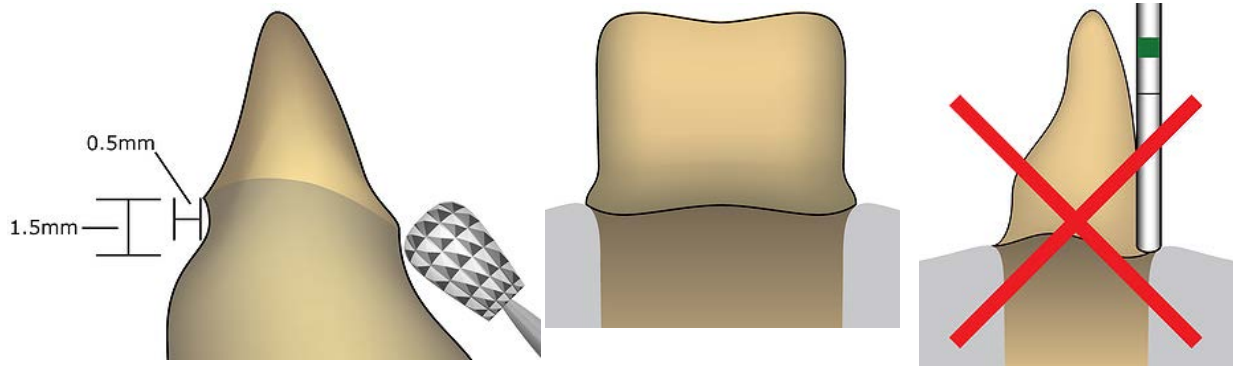
Demo mode - when enabled, the scanner simulates the scanning process, that is, performs a scan without capturing any data. The Demo mode is intended for demonstration purposes and is supported by E scanners only. The scanner should be directly connected to the computer for this mode to work.

2.3. Models Scanning

The [ScanIt Dental](#) module allows you to scan various restorations while saving them in files at the predefined location setup in Dental System Control Panel. The scanning procedure is very intuitive although some technical knowledge is required to get optimal results.

Most objects to be scanned are fixed on a simple interface plate using a clay before being inserted into the scanner (see the chapter [Insert an Object to Scan](#) for details). The interface plate facilitates connection between the scanned object and the scanner.

It is important to prepare gypsum dies optimally. The following images illustrate correct and wrong preparations:



For the dental lab:

The dies have to be prepared like shown in the picture above: using a pear-shaped tool grind an undercut with a height of 1,5 mm and a depth of 0,5 mm directly below the margin line.

For the dentist:

Prepare the tooth without sharp edges. The margin line must be visible in the impression.

2.3.1. All-in-One Scanning

All-in-one scanning allows you to capture upper and lower arches, all dies and occlusion with a single scan. All-in-one scanning is supported by the D2000 scanner, which has room for two models.


Below is a step-by-step description of how to perform the all-in-one scanning of a model with dies and an antagonist model. For more information on the ScanIt Dental user interface, see the chapter [User Interface](#).

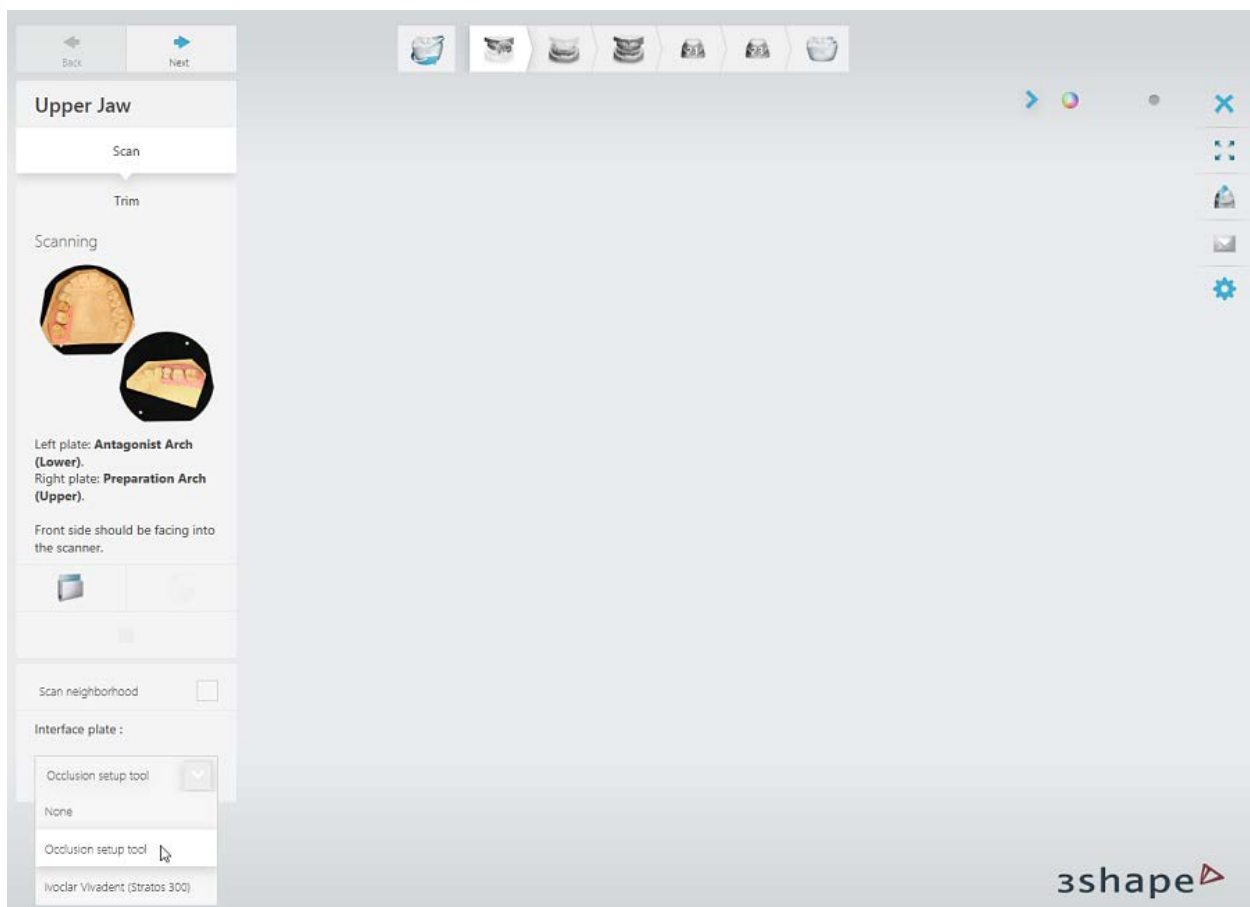
►Step 1: Insert models

Position upper and lower models on the [Occlusion Setup Tool](#) plates or the [Articulator Transfer Plates](#).



Note! The scanner needs to be calibrated accordingly before using the Occlusion Setup Tool and Articulator Transfer Plates. For more information on calibration process, see the chapters [Occlusion Setup Tool Calibration](#) and [Articulator Transfer Plate Calibration](#).

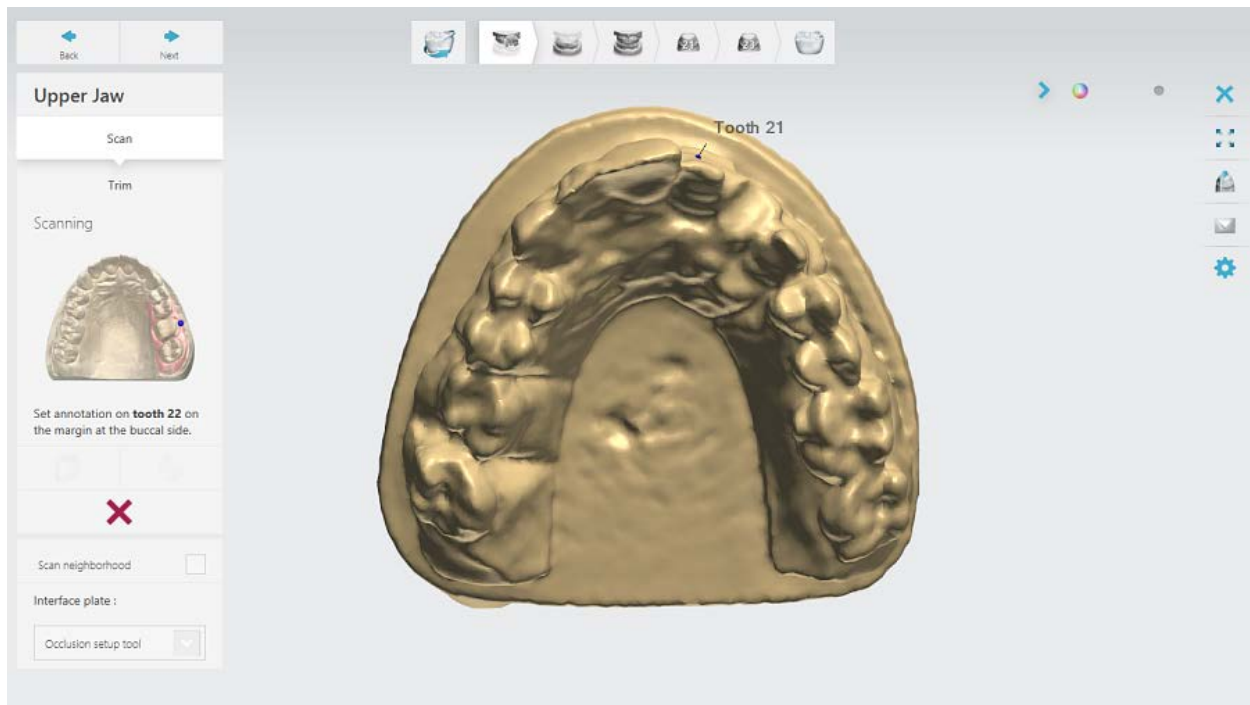
Start ScanIt Dental. Make sure the **Scan dies in arch** checkbox is selected on the [Settings](#)  page to skip a separate die scan. Select **Occlusion setup tool** or the required articulator type from the **Interface plate** drop-down list to skip a separate occlusion scan:



Insert the upper and lower arches into the scanner as guided by the software. The initial scanning starts automatically. If you need to start scanning manually, see the chapter [Start Scanning](#).

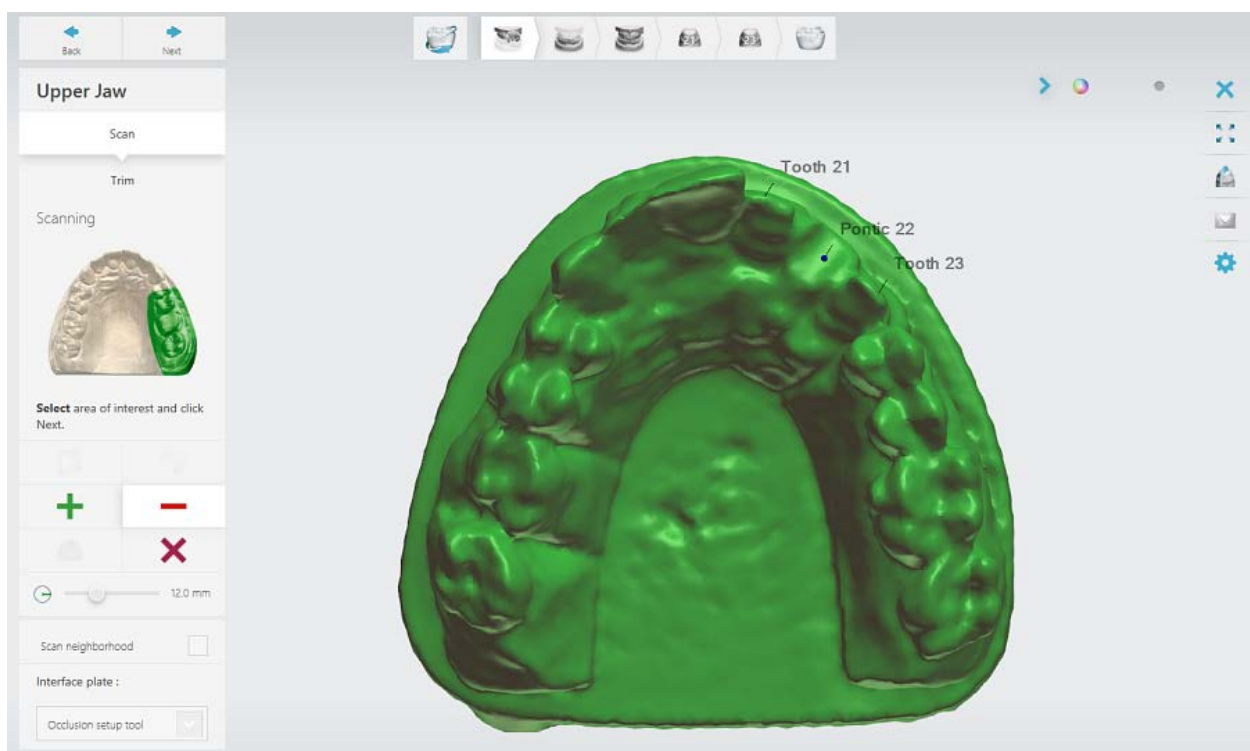
►Step 2: Mark the teeth

Place [annotation points](#) on the margin line at the buccal side of the teeth.



► **Step 3: Select the area on the preparation and antagonist arches**

The software automatically highlights the area for a detailed scan on the preparation arch based on set annotations. You can adjust it with the available selection tools, which are described in the chapter [Select Area for Detailed Scan](#).



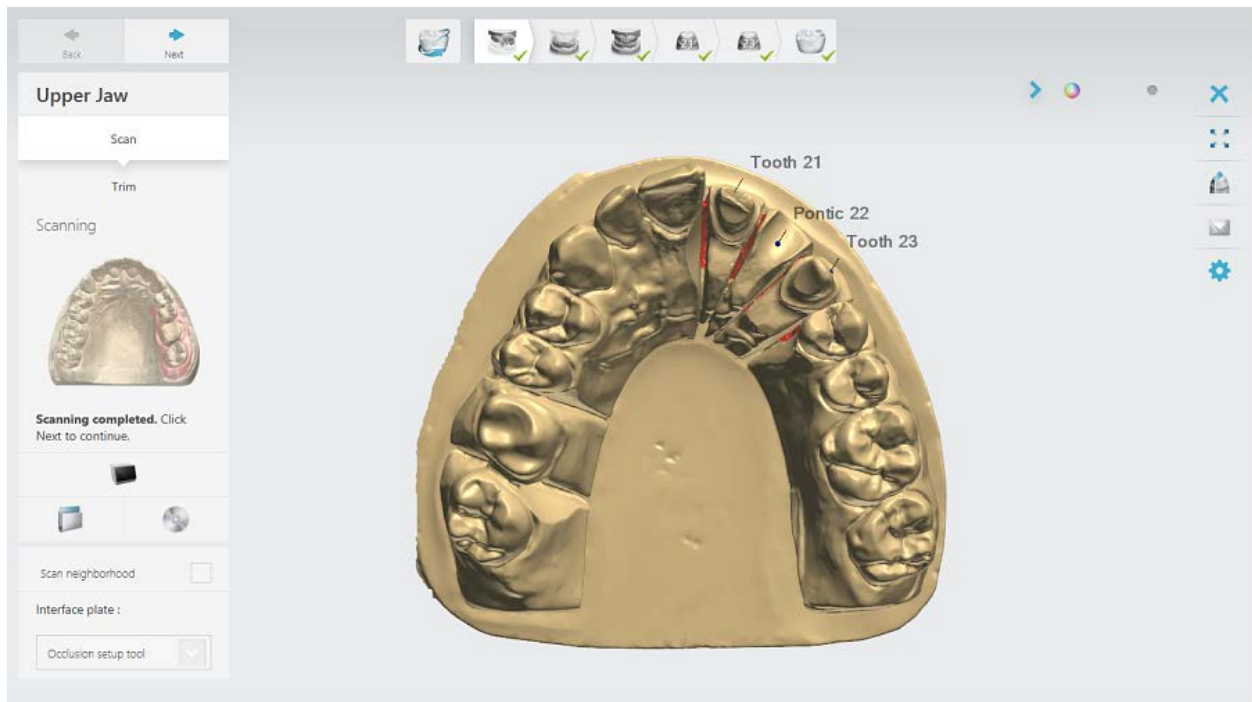
Click **Next** to start the detailed scanning of the preparation arch.

Select an area of interest on the antagonist arch. When finished, click **Next** to start the detailed scanning.

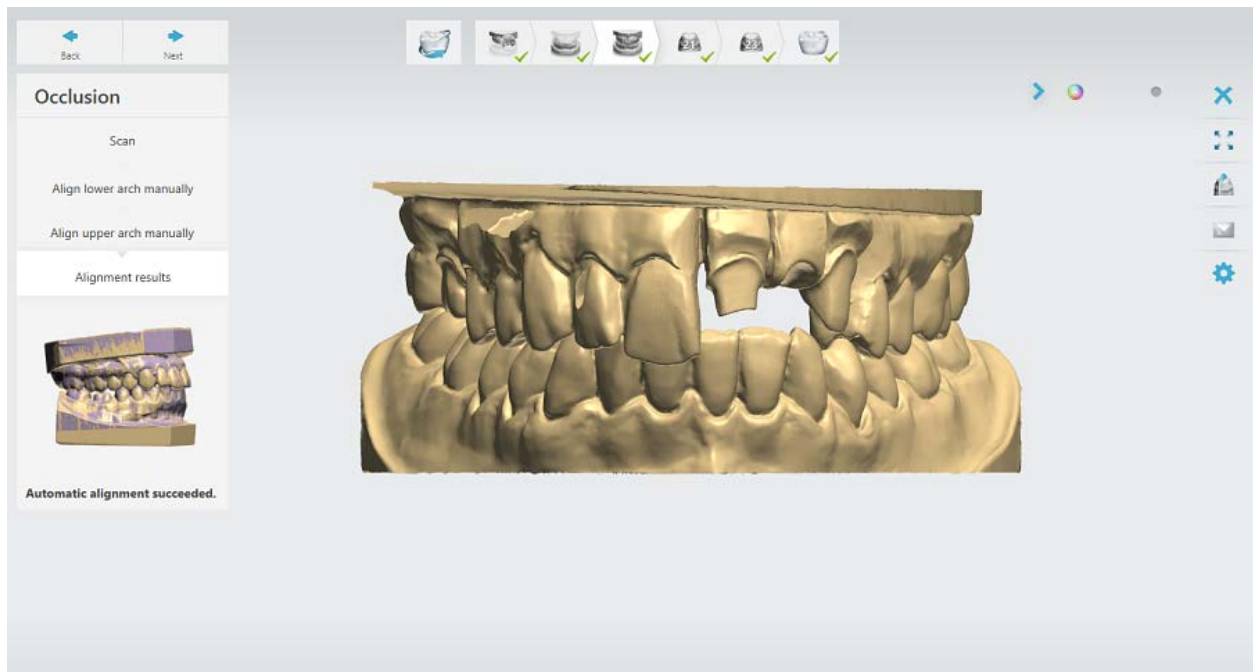
►Step 4: Examine scans

When the detailed scanning is completed, all scanning steps in the workflow toolbar are marked with the green ticks that means the upper and lower arches, all dies and occlusion are captured.

Now you can examine the scan of the preparation arch and [trim the model](#), if needed, at the **Trim** substep. When finished, click **Next**. Perform the same for the antagonist arch.

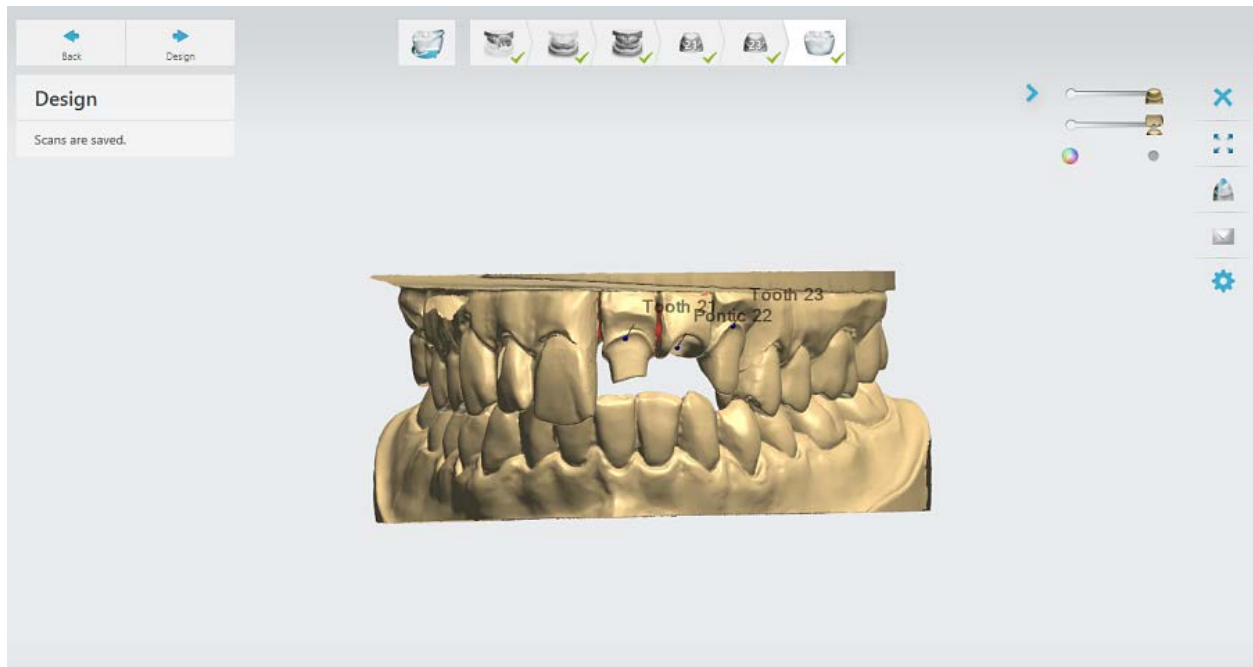


Examine the result of automatic alignment. You can additionally scan the upper and lower models positioned in occlusion at the [Scan substep](#).



► Step 5: Finish scanning

Once scanning is finished and scans are saved, you can start the designing procedure by clicking the **Design** button.



2.3.2. Models with Dies Scanning


This chapter shows how to use ScanIt Dental for dies scanning. Please read the chapter [User Interface](#) for introduction to ScanIt Dental.

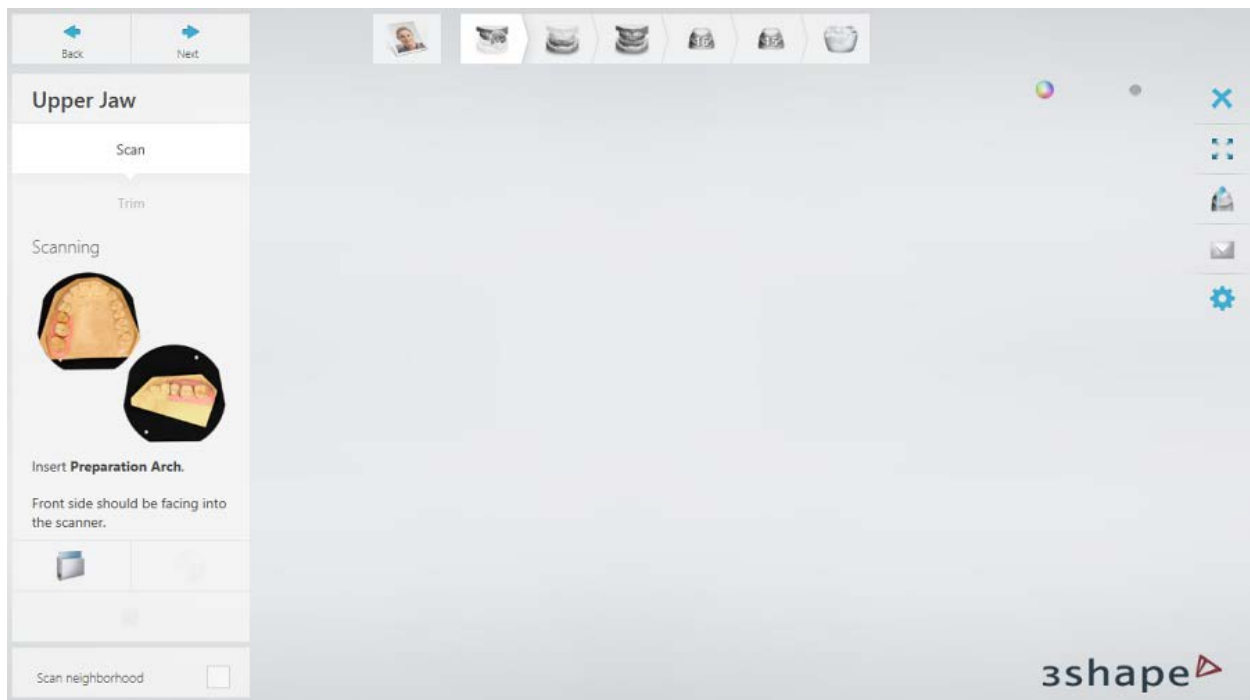
►Step 1: Create an order

Scan settings	
Object type	Model ▼
Antagonist	Antagonist model ▼
Neighborhood scan	Sectioned ▼

Define your order in the [Order form](#). Select **Model**, **Antagonist model** (for orders with the antagonist), and **Sectioned** in the Scan settings. Click **Scan** to start ScanIt Dental.

►Step 2: Insert the preparation arch

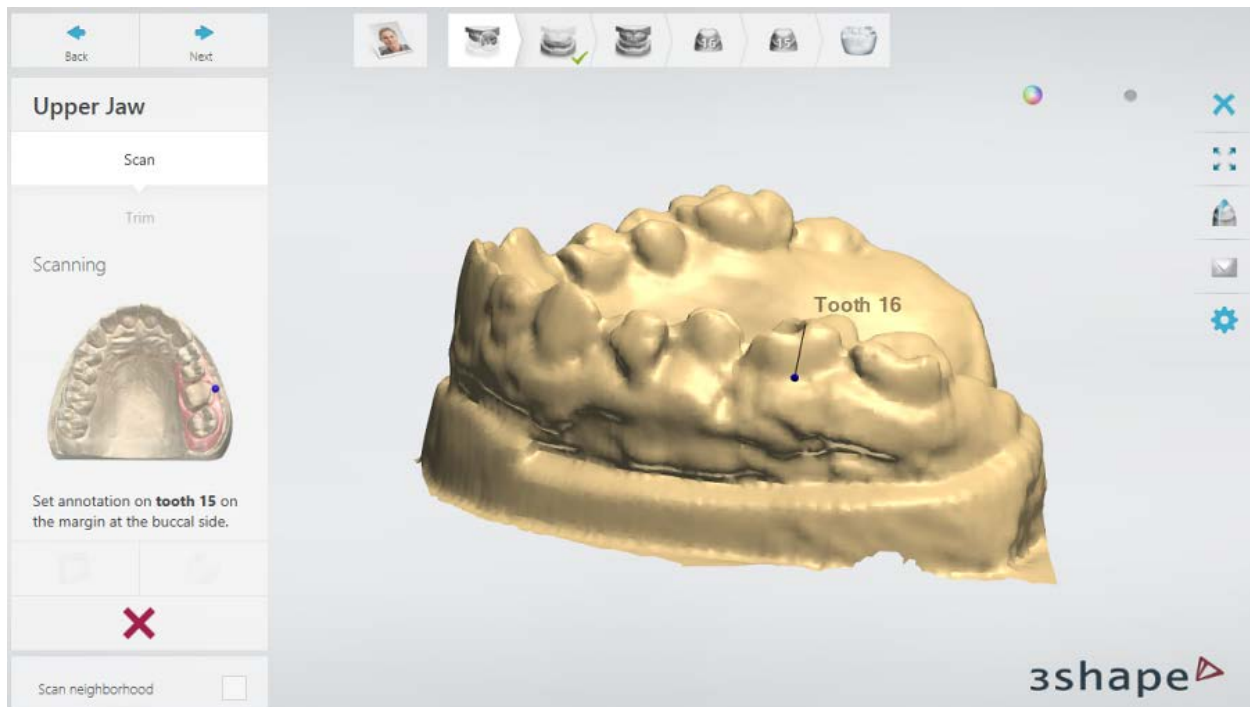
Place the preparation arch on the interface plate and insert it into the scanner as guided by the software. For more information, see the chapter [Insert Object to Scan](#). You can adjust the **Arch scanning height** on the [Settings](#)  page if needed.



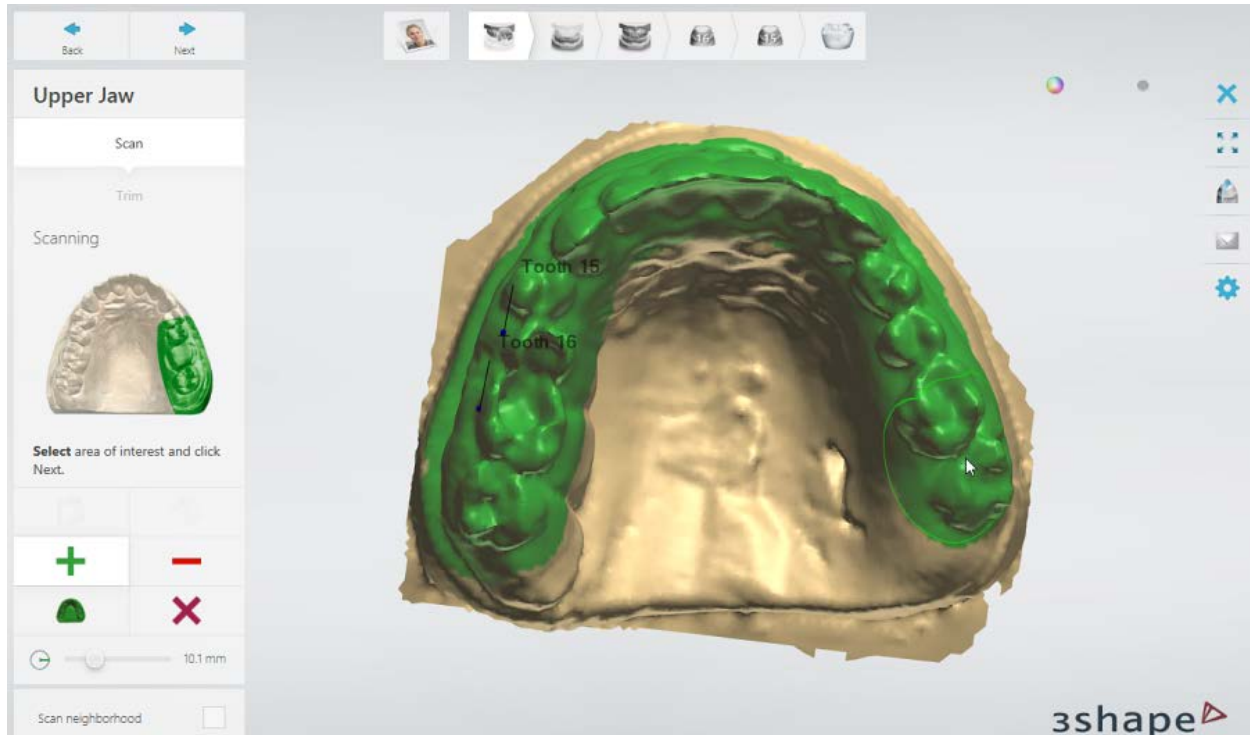
►Step 3: Scan the preparation arch



Scanning starts automatically. If you need to start scanning manually, see the chapter [Start Scanning](#).

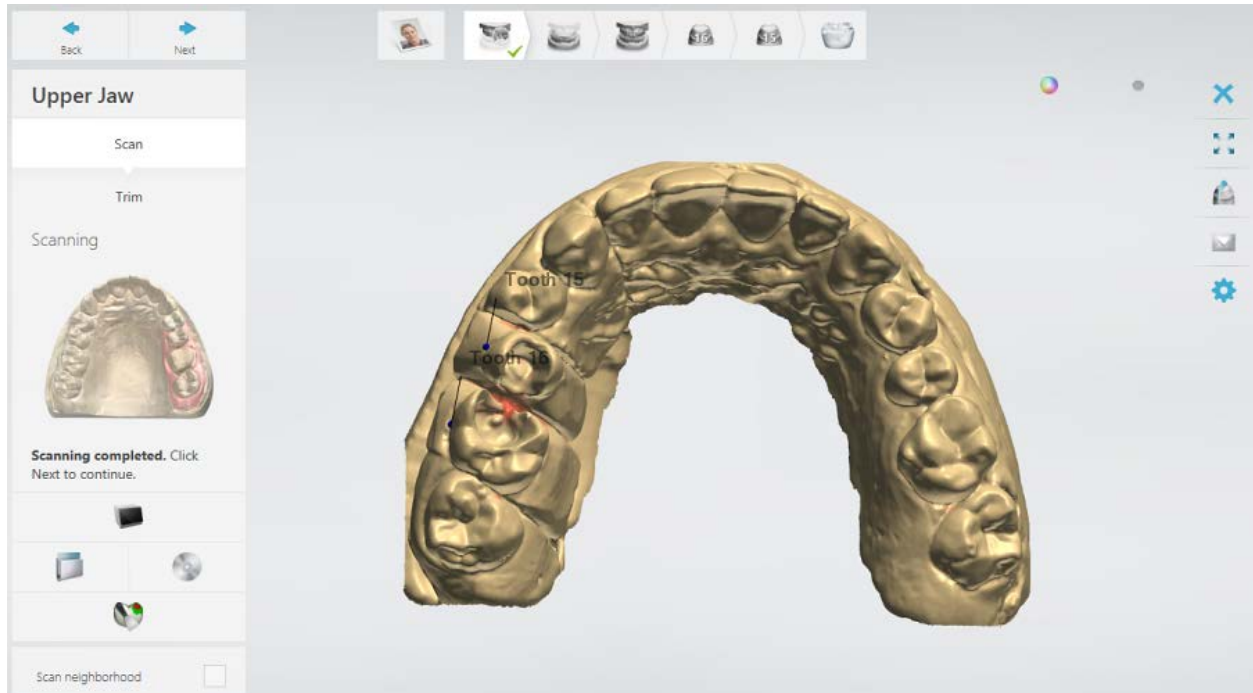
When the initial scanning is finished, [place annotation points](#) (mark the teeth) according to your order:



Now the software automatically highlights the area for a detailed scan (area of interest) based on set annotations. You can adjust it with the available selection tools described in the chapter [Select Area for Detailed Scan](#). Click **Next** to start the detailed scanning.



When scanning of the preparation arch is finished, inspect the scan. To redo the scanning, click the **Rescan**  button. By clicking the **Adaptive scanning**  button, you can perform the [adaptive scanning](#) of areas with insufficient scan coverage, which are highlighted in red, and holes.



Selecting the **Scan neighborhood** checkbox allows you to scan the preparation arch without dies, which will increase scan coverage of proximal contact areas of neighboring teeth. In this case the additional scanning step **Neighborhood scan** is added to the workflow bar:



►Step 4 (optional): Trim the scan

By going to the **Trim** substep, you can [trim](#) the scan using the provided tools:



Click **Next** to proceed to the next step.

►Step 5: Scan the antagonist arch

Replace the preparation arch with the antagonist arch in the scanner. Repeat the [scanning procedure](#) for the antagonist arch. [Trim](#) the scan if needed.



►Step 6: Scan occlusion

Insert upper and lower arches positioned in occlusion into the scanner as guided by the

software. When using the [Two-cast Fixture](#), make sure the models are fixed well on the fixture to get a precise scan.

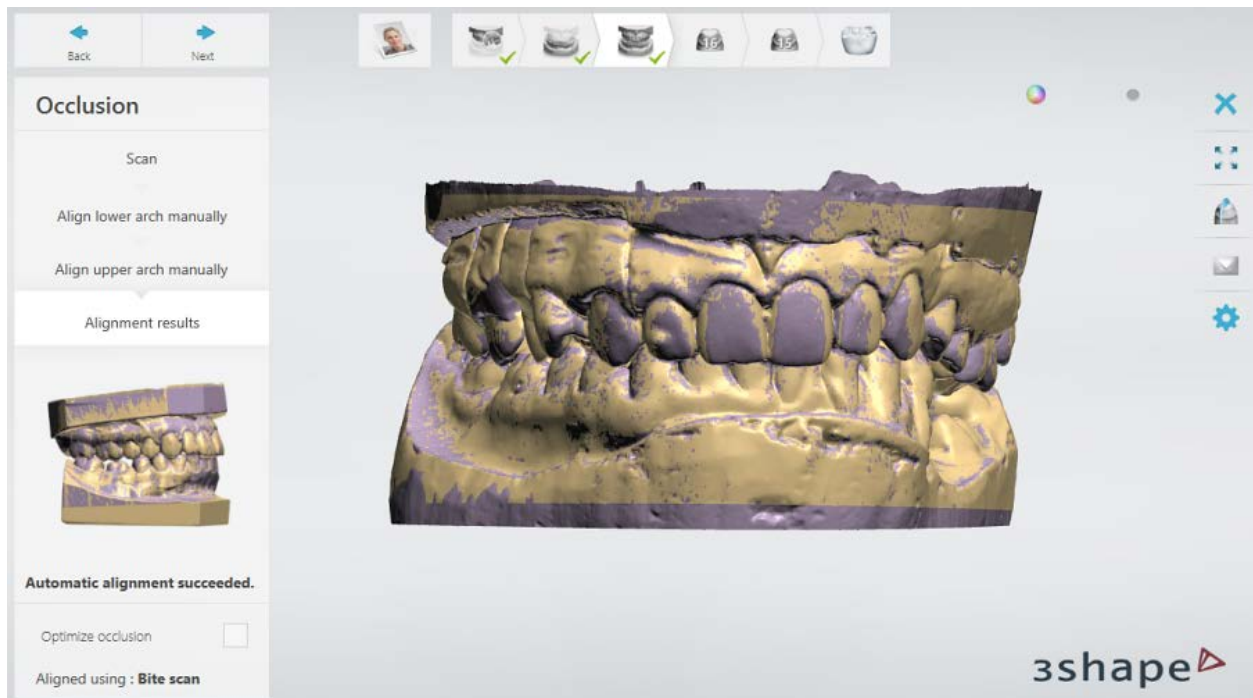




When scanning is completed, click **Next**.

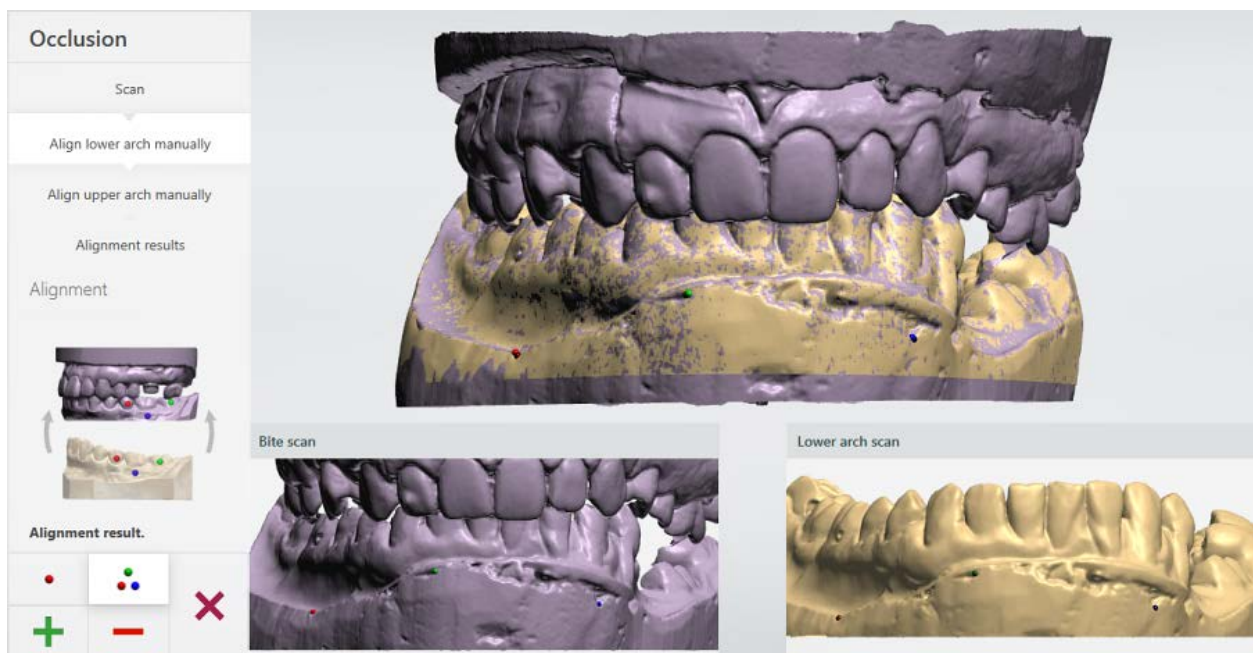


► Step 7: Align upper and lower arches with the occlusion scan

When the occlusion has been scanned, the upper and lower arches are automatically aligned with the occlusion scan. You can let the software optimize the occlusion by selecting the **Optimize occlusion** checkbox.



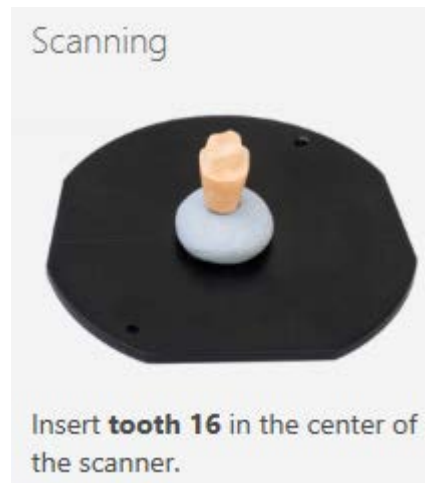
If automatic alignment has not succeeded or you want to change the alignment, you can [align](#) the scans manually by going to the **Align lower arch manually** and **Align upper arch manually** substeps and setting corresponding points on each scan. You can use either one  or tree-point  alignment method.




When finished, click **Next**.

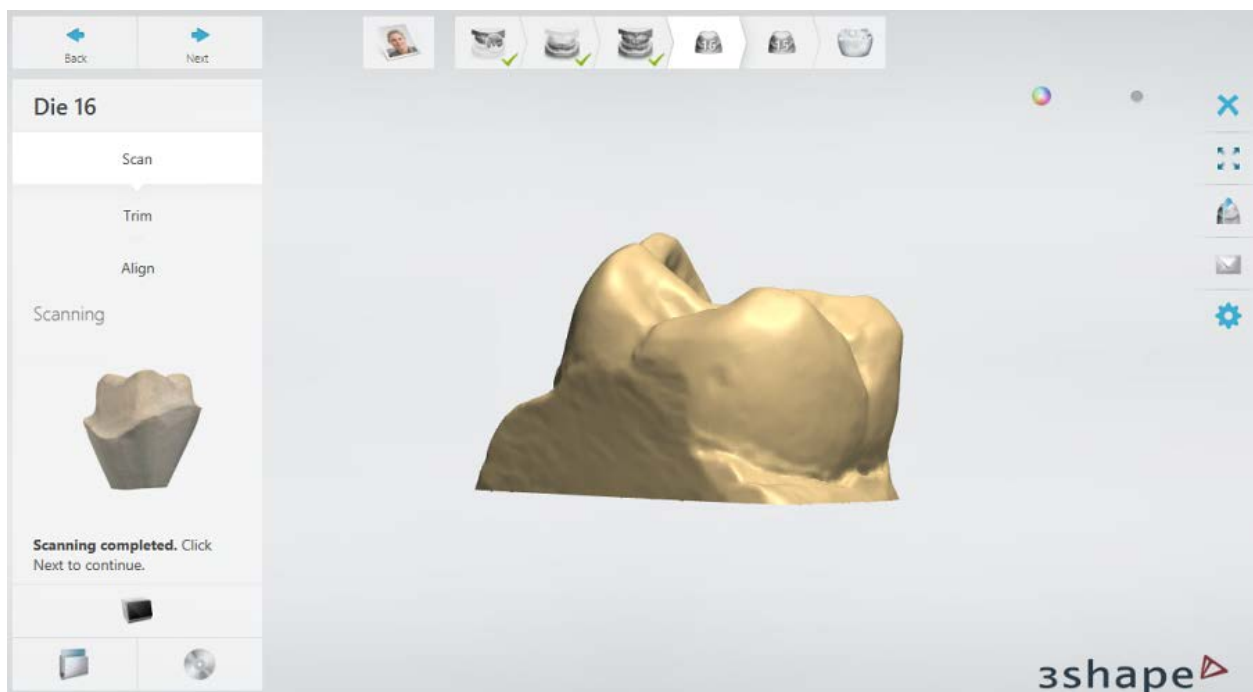
►Step 8: Scan the die

[Place the die](#) at the center of the interface plate and insert it into the scanner as guided by the software.



You can adjust the scan distance below an annotation point put on a margin line by modifying the value of the **Die in bridge: height below margin line** parameter on the [Settings](#)  page.

When scanning is completed, [trim](#) the scan if needed by going to the **Trim** substep. When finished, click **Next**.

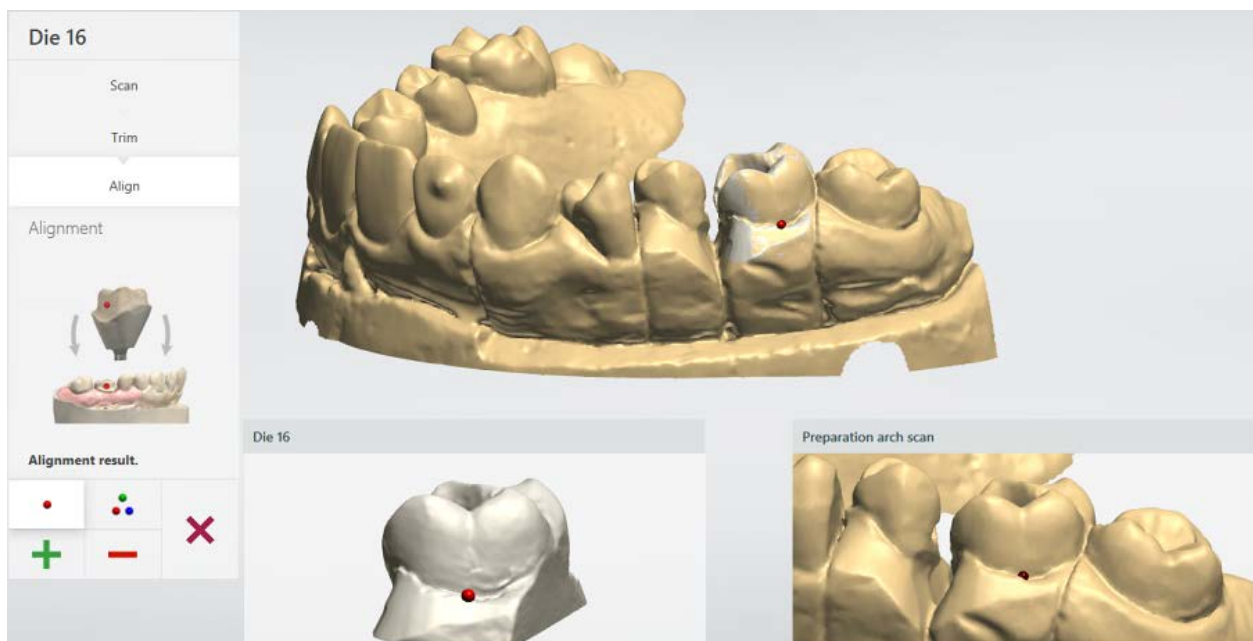


►Step 9: Align the die

When the die has been scanned, the die scan is automatically aligned with the preparation arch scan. You can [align](#) the scans manually by clicking the **Align manually** button and setting corresponding points on each scan. When finished, click **Next**.



Automatic alignment result

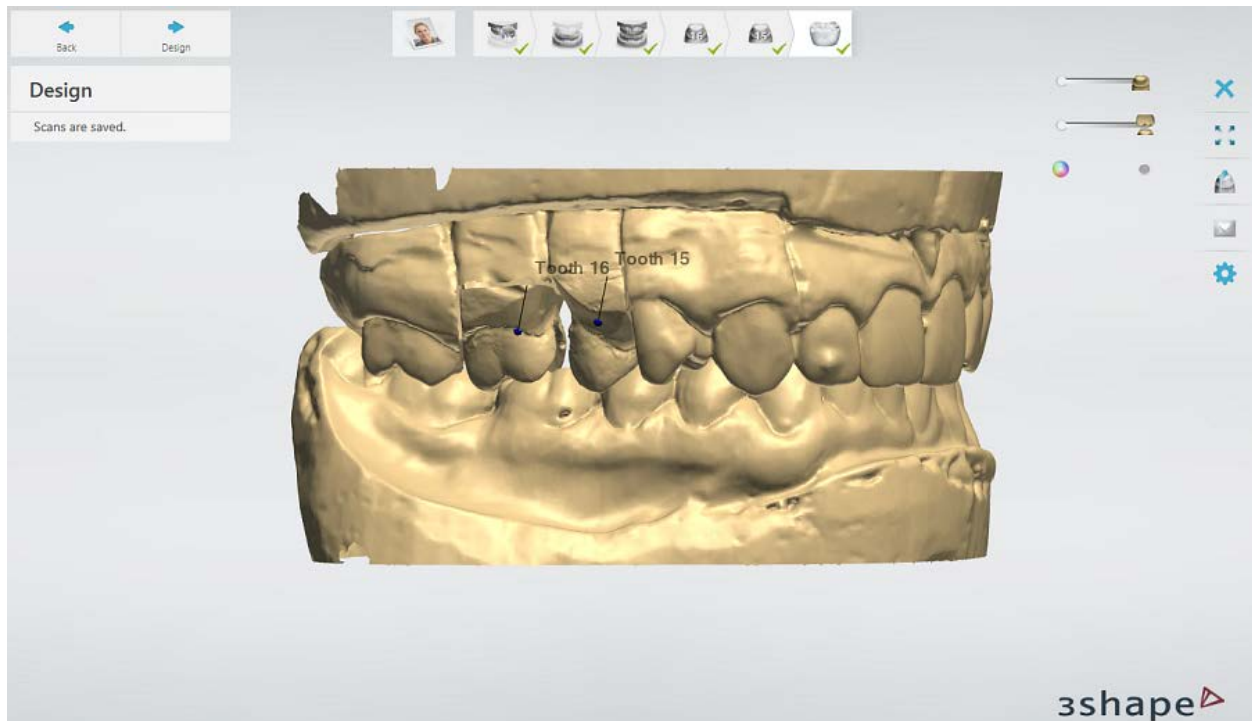


Manual alignment

For orders with multiple dies, repeat the [scanning](#) and [alignment](#) procedure for the other dies. See the chapter [Multi-Die Scanning](#) for details on how to scan dies on a passive multi-die fixture.

►Step 10: Finish scanning

Once scanning is finished and scans are saved, you can start the designing procedure by clicking the **Design** button.



If some steps were skipped or not completed, you will see notes about those steps in the upper left corner of the window. Clicking on a note will take you to the corresponding step to complete it.

2.3.3. Texture Scanning



Texture Scanning accurately captures hand-drawn markings penciled directly on a physical model. **Texture Scanning** simplifies the workflow and improves communication between dental experts. Also, textured models provide information about surface defects (bore marks etc.), which results in a better fit.

3Shape 3D scanners with texture scanning support are listed in the chapter [Scanners and Scanning Software](#).

To enable the **Texture Scanning** feature, select the **Scan Texture** checkbox on the ScanIt Dental [Settings](#) page.

DRAWING RECOMMENDATIONS

1. Do not use a red pen.

Since the color of the overhead light is red itself, the red-pen markings will not be seen.

2. Do not use a pen that is too dark.

If the contrast between the model (gypsum color) and the pen is too high, the geometry might be warped where the pen has drawn. This is because laser line cannot be registered on both gypsum and markings.

3. If using a felt pen, choose the one with a very fine point and preferably grey (not black).

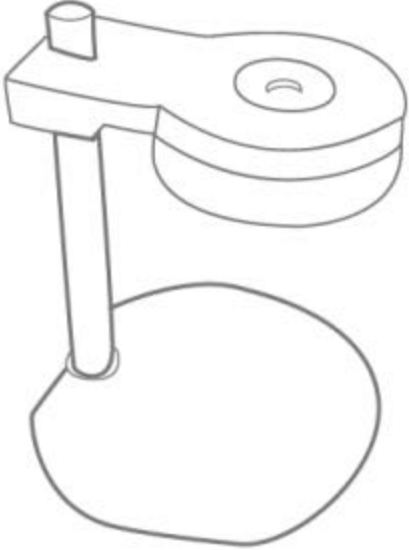
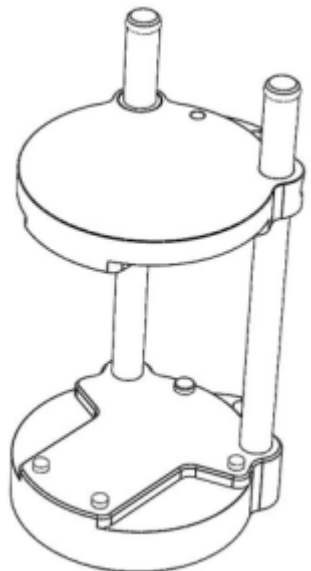
A black felt pen is too dark (and sometimes too broad), which may lead to warped geometry.

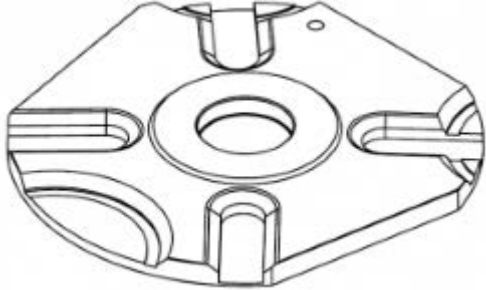
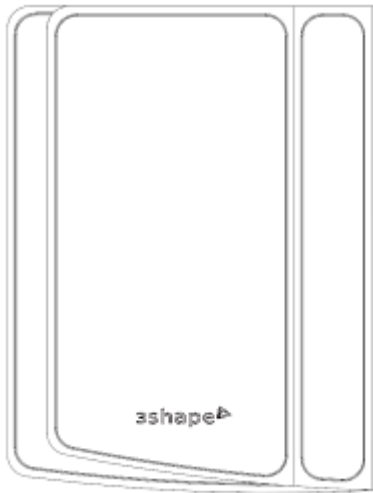
4. Use a basic propelling pen with normal lead of any hardness or a regular lead pencil.

2.3.4. Occlusion Handling

[Two-cast Fixture](#), [Occlusion Setup Tool](#), [Articulator Transfer Plate \(large interior scanners\)](#) and [Articulator Holder](#) are used for orders with occlusions and antagonists.

The following table illustrates available tools, supported scanners and features.

Device	Supported scanners	Used for
 <p><i>Two-cast Fixture</i></p>	All scanners	<ul style="list-style-type: none"> Occlusion alignment
 <p><i>Occlusion Setup Tool</i></p>	All scanners	<ul style="list-style-type: none"> Occlusion alignment Skipping bite scan
	Large interior scanners	<ul style="list-style-type: none"> Occlusion alignment Skipping bite scan Transferring model position in articulator

 <p>Articulator Transfer Plate</p>		
 <p>Articulator Holder</p>	<p>E scanners</p>	<ul style="list-style-type: none"> • Occlusion alignment



Note! Prior scanner calibration is required if you want to use the Articulator Transfer Plate for large interior scanners and the Occlusion Setup Tool. For more details, see the chapter [Occlusion Setup Tool Calibration](#) and [Articulator Transfer Plate Calibration](#).



Note! For more details on transferring model position from physical articulator into the [Virtual Articulator](#) in Dental Designer, see the chapter [Transfer Model Position](#).

2.3.4.1. Two-cast Fixture

In this example you will see how to scan a model with antagonist using the Two-cast Fixture.

►Step 1: Create an order

Create an order with antagonist model in Dental Manager and click **Scan**.

►Step 2: Scan preparation and antagonist arches separately

Scan the arches one after another on the interface plate following the on-screen instructions and applying required tools depending on your order. For more information, see the chapter [Models with Dies Scanning](#).

► **Step 3: Mount both arches on the Two-cast Fixture**

You should now mount both arches on a specially designed 3Shape Two-cast Fixture keeping the front side of the teeth away from the metal bar of the fixture (see the image below). It is allowed to place a sectioned upper preparation arch below a lower antagonist arch if dies are not held firmly enough. It is very important to ensure that the models are aligned in a correct occlusion and are not loose in the fixture.



When scanning quadrants, mount them on the Two-cast Fixture keeping the buccal side of the teeth away from the metal bar of the fixture:



If you do not have the Two-cast Fixture, rubber bands or sticky wax can also be used to fix the models together on the interface plate.

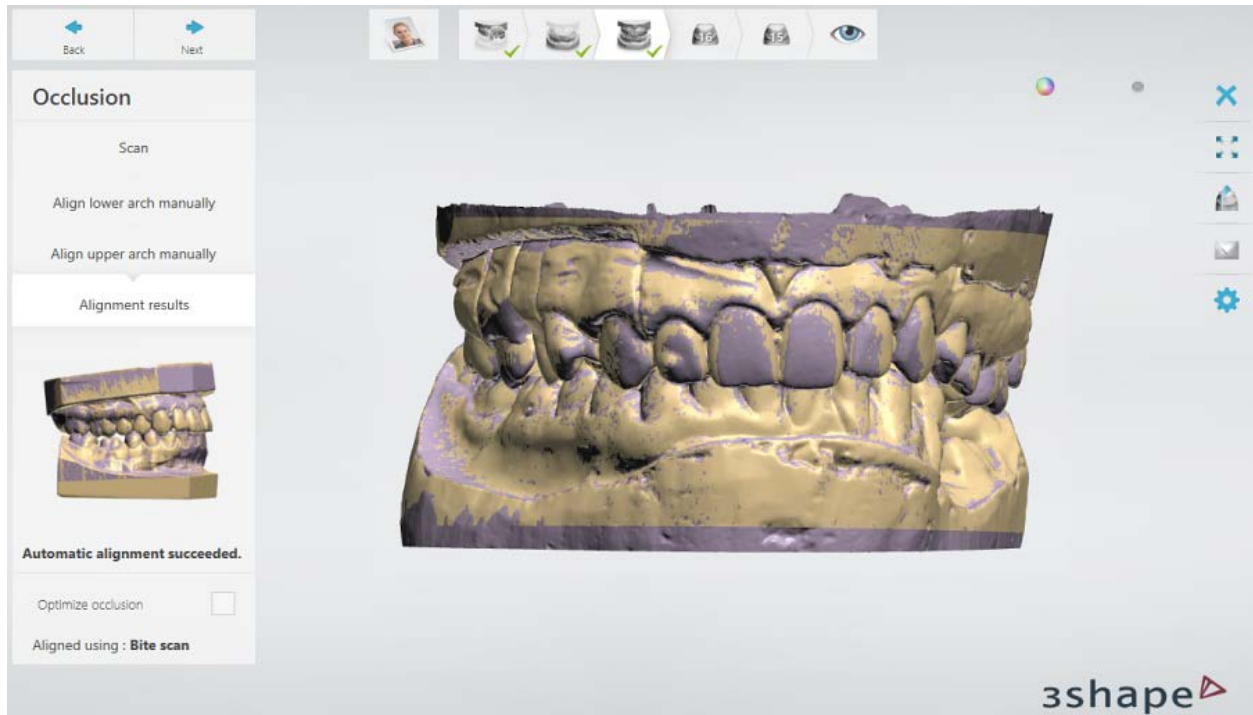
►Step 4: Scan occlusion

Insert the fixture into the scanner with the front side facing the inside of the scanner. Scanning will start automatically. When scanning is completed, click **Next**.



►Step 5: Align upper and lower arches

After scanning, the upper and lower arches are aligned automatically with the bite scan. Please make sure to visually validate that the surfaces are properly aligned, i.e. the two surfaces coincide.



Alternatively, you can [align](#) the scans manually by going to the **Align lower arch manually** and **Align upper arch manually** substeps.

When you have finished with the alignment, click **Next**.

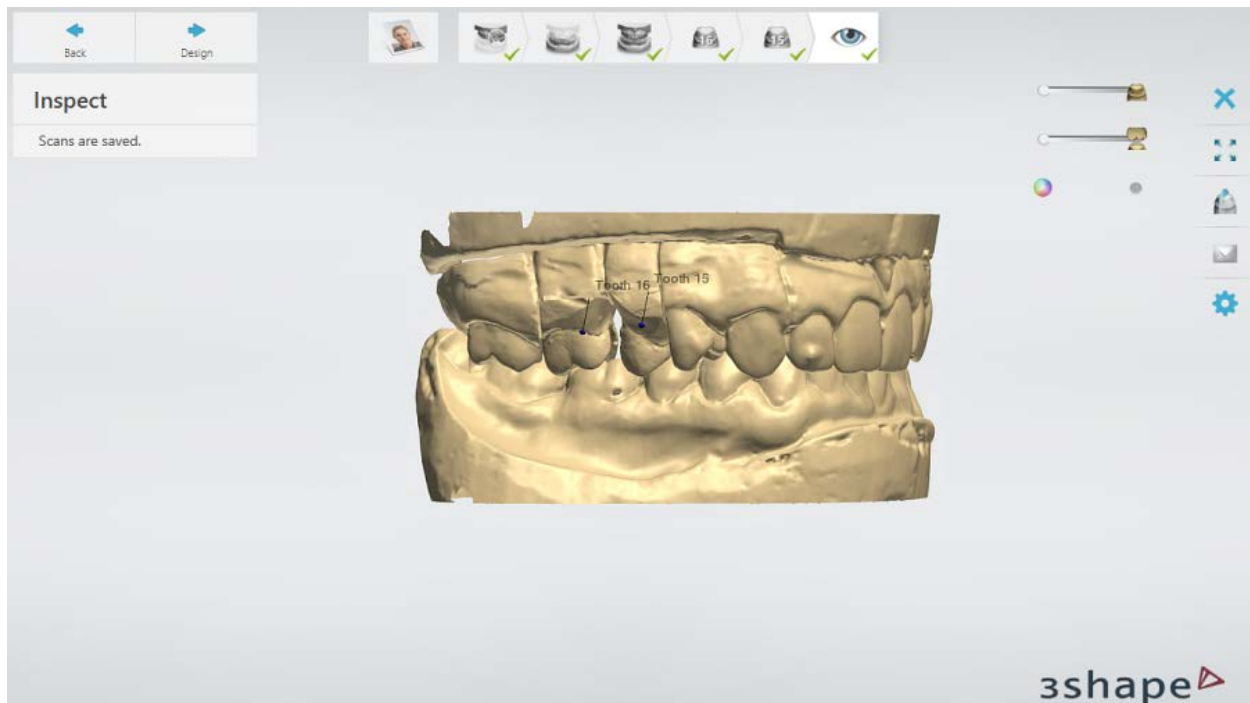
►Step 6: Scan dies

[Scan the dies](#) one by one on the interface plate as prompted by the software dialog.

See the chapter [Multi-Die Scanning](#) for details on how to scan dies on a passive multi-die fixture.

►Step 7: Finish scanning

Once scanning is finished and scans are saved, you can go straight to the designing procedure by clicking the **Design** button.



2.3.4.2. Occlusion Setup Tool

In this example you will see how to scan a model with antagonist using the Occlusion Setup Tool.



Note! Scanner needs to be calibrated accordingly before using the Occlusion Setup Tool. For more details on the calibration process, see the chapter [Occlusion Setup Tool Calibration](#).

► Step 1: Mount both arches in the Occlusion Setup Tool

Mount the upper and lower arches in the Occlusion Setup Tool following the specific procedure:

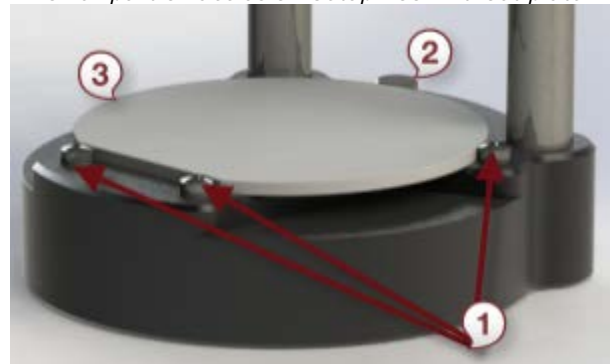
1. Put the two gray Occlusion Setup Tool Plates in the Occlusion Setup Tool, making sure both of them are firmly locked in their positions.



Occlusion Setup Tool



Lower part of Occlusion Setup Tool without plate



Lower part of Occlusion Setup Tool with plate

- (1) - Alignment points
- (2) - Locking mechanism
- (3) - Occlusion Setup Tool Plate

2. Place some Blu Tack on both Occlusion Setup Tool Plates.
3. Affix the lower arch on the lower Occlusion Setup Tool Plate using Blu Tack.
4. Place the upper arch on top of the lower arch in an occlusion position making sure it is correctly aligned.
5. Slowly move down the upper part of the Occlusion Setup Tool until it meets the upper arch and affix the upper arch to the upper Occlusion Setup Tool Plate with Blu Tack by applying a moderate pressure:



6. Unlock and remove both Occlusion Setup Tool Plates while being careful not to move the affixed arches.

► **Step 2: Create an order**

Create an order with antagonist model in Dental Manager and click **Scan**.

► **Step 3: Enable the mode of skipping a bite scan**

When ScanIt Dental opens, select **Occlusion setup tool** in the **Interface plate** drop-down list to skip the bite scan:



Note! The **Occlusion setup tool** option becomes available in the **Interface plate** drop-down list after you calibrate the scanner accordingly. For more details on the calibration process, see the chapter [Occlusion Setup Tool Calibration](#).

►Step 4: Scan arches on the Occlusion Setup Tool Plates

Scan the preparation and the antagonist arches one after another on their Occlusion Setup Tool Plates following the on-screen instructions and applying required tools depending on your order.

►Step 5: Inspect the result of automatic alignment

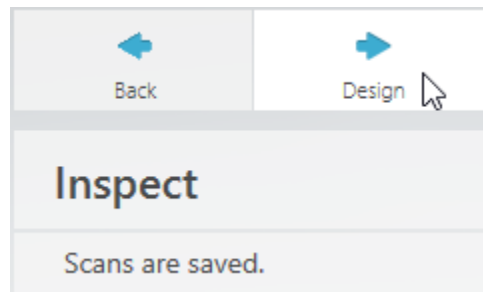
When scanning is completed, the upper and lower arches are automatically aligned in occlusion.



You can let the software optimize the occlusion by selecting the **Optimize occlusion** checkbox. Click **Next** to proceed to the last step.

►Step 6: Finish scanning

Once scans are saved, you can go straight to the designing procedure by clicking the **Design** button.



2.3.4.3. Articulator Transfer Plate (large interior scanners)

This example describes how to scan a model with antagonist using the Articulator Transfer Plate for [large interior scanners](#).



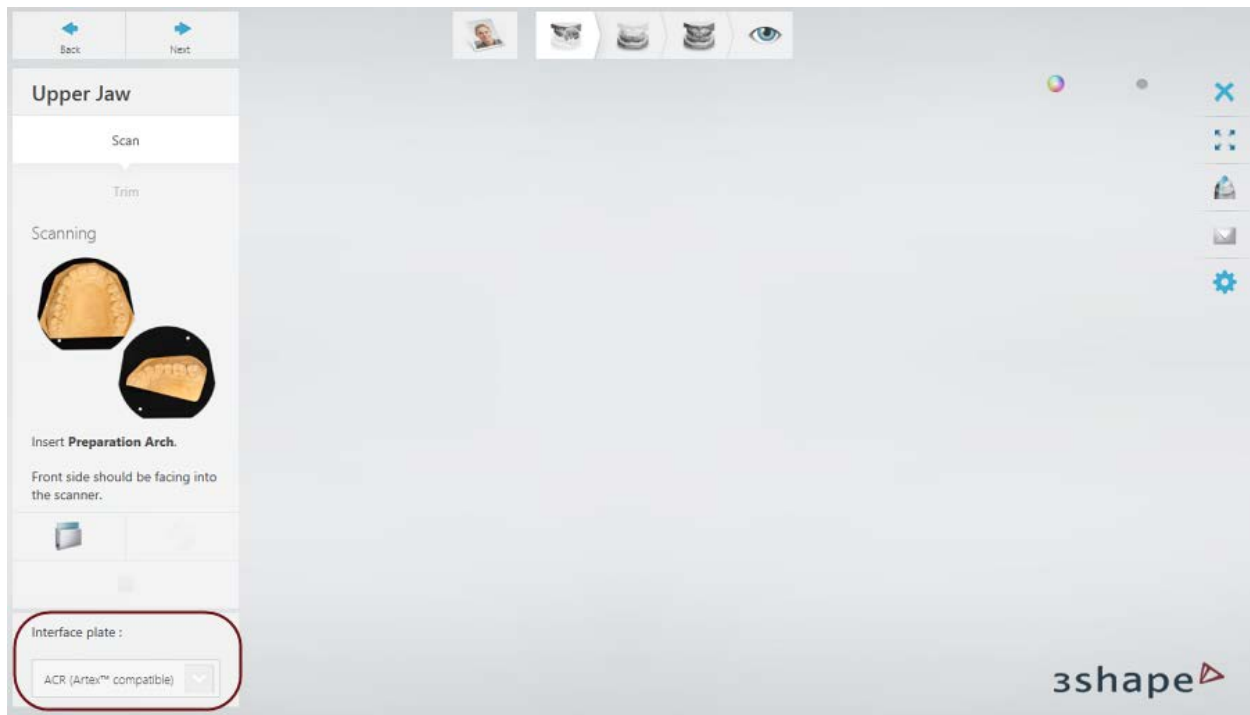
Note! Scanner needs to be calibrated accordingly before using the Articulator Transfer Plate. Please see the chapter [Articulator Transfer Plate Calibration](#) for details.

► **Step 1: Create an order**

Create an order with antagonist model in Dental Manager and click **Scan**.

► **Step 2: Enable the mode of skipping a bite scan**

When ScanIt Dental opens, select the Articulator Transfer Plate designed for your articulator in the **Interface plate** drop-down list to skip the bite scan:

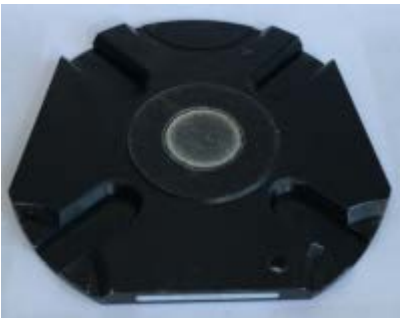

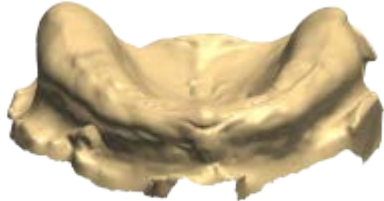


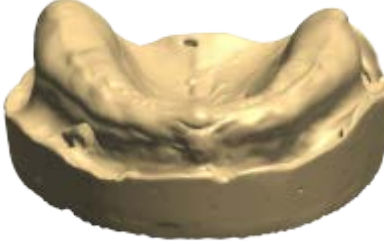


Note! The specific Articulator Transfer Plate becomes available in the **Interface plate** drop-down list after you calibrate the scanner accordingly. For more details on the calibration process, see the chapter [Articulator Transfer Plate Calibration](#).

► Step 3: Scan arches on the Articulator Transfer Plate

Before scanning, make sure to remove the scan height adapter from the scanner. Scan the preparation and the antagonist arches one after another on the Articulator Transfer Plate designed for the chosen articulator model by following the on-screen instructions and employing the necessary tools where needed.

If the arch scanning height is not sufficient (only the top part of the model has been scanned), you can use the Articulator Spacer Plate specific to the used articulator to lift the model up. The following table shows an example of scanning a model with and without the Articulator Spacer Plate:

Plate(s) used	Model set placed to the scanner	Scanned model
 <p><i>Articulator Transfer Plate</i></p>		
 <p><i>Articulator Spacer Plate over Articulator Transfer Plate</i></p>		



Note! Scanner needs to be re-calibrated before using the Articulator Spacer Plate. Please see the chapter [Articulator Transfer Plate Calibration](#) for details.

► Step 4: Inspect the result of automatic alignment

When scanning is completed, the upper and lower arches are automatically aligned in occlusion.



The occlusion position can be completely inferred from the models without bite scanning when the gypsum models and the Articulator Calibration Object have been mounted correctly.

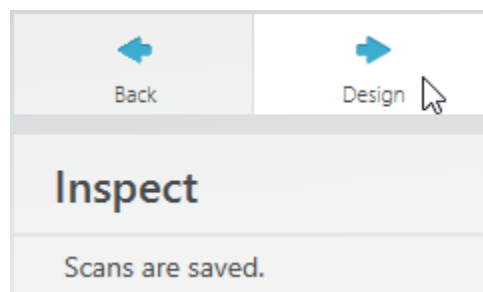
You can let the software adjust the occlusion by using the following options:

- **Optimize occlusion** - adjusts the position of the upper and lower arches in order to achieve stable occlusal contacts (it is recommended only for cases with the Class 1 occlusion).
- **Vertical correction** - adjusts the distance between the arches by moving them in vertical direction in order to bring the upper and lower teeth into contact and remove the detected penetrations.

When you have finished with the alignment, click **Next** to proceed to the last step.

►Step 5: Finish scanning

Once scans are saved, you can go straight to the designing procedure by clicking the **Design** button.



2.3.4.4. Articulator Holder

This chapter shows how to scan occlusion using the Articulator Holder. The Articulator Holder is an accessory that allows you to scan models fixed in an articulator inside an E scanner. You can use any articulator supported by Dental System™ as well as similar-sized articulators from other manufacturers.

Requirements for occlusion scanning using the Articulator Holder:

- E scanner
- Articulator Holder
- Dental System™ 2.17.3.0 or later version

►Step 1: Create an order

Create an order with the antagonist model in Dental Manager and click **Scan**.

►Step 2: Scan preparation and antagonist arches separately

Scan the arches one after another on the interface plate following the on-screen instructions. For more information, see the chapter [Models with Dies Scanning](#).





Note! It is recommended to scan the full arch for better occlusion alignment.

►Step 3: Enable the use of the Articulator Holder in scan settings (if not done already)

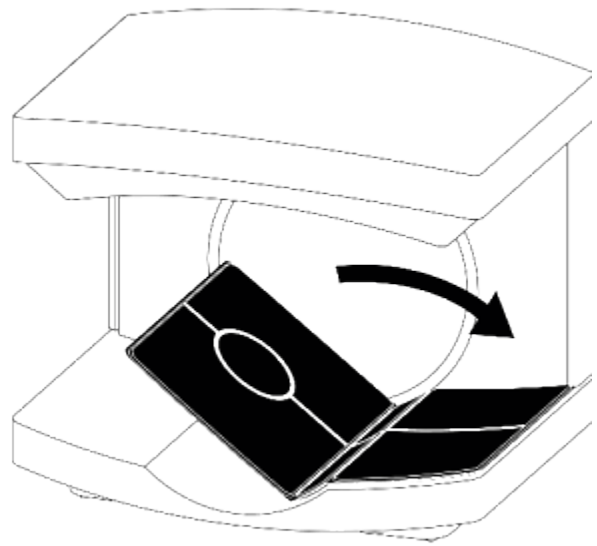
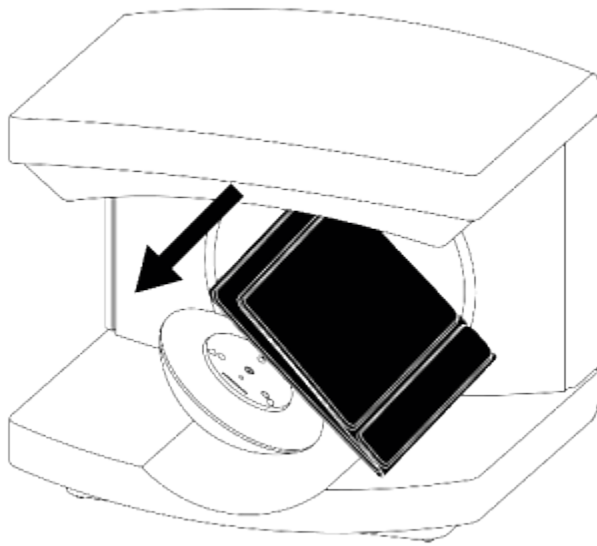
Go to the [Settings](#)  page and select the **Articulator Holder** checkbox.

►Step 4: Initiate the occlusion scanning workflow

In the **Scan Occlusion**  step, click on the articulator  icon in the left part of the window. Make sure to remove all models and accessories from the scanner, including the scan height adapter, and click **OK** in the appeared dialog to confirm that the scanner is empty. After that, the scanner arm will move to a new position to allow the placement of the Articulator Holder.

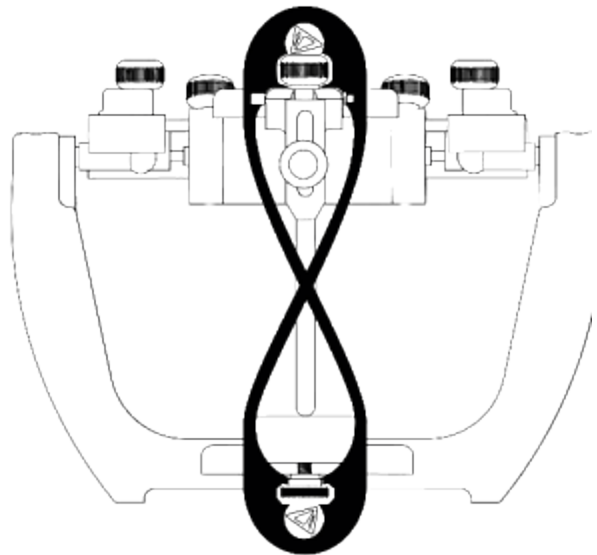
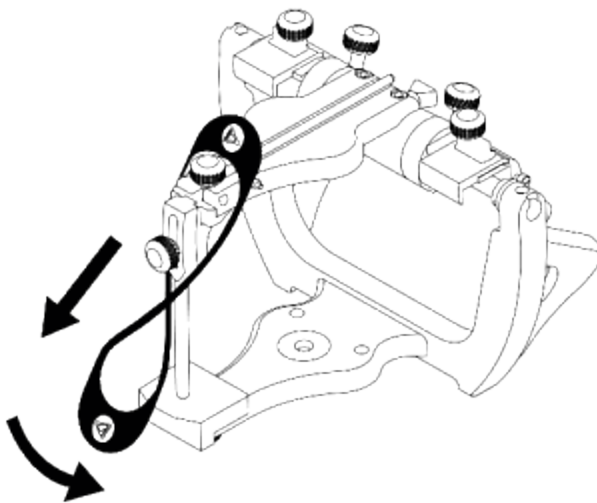
►Step 5: Insert the Articulator Holder into the scanner

Position the Articulator Holder inside the scanner so that the magnetic surface of the Articulator Holder attaches to the scanner arm (see the images below).



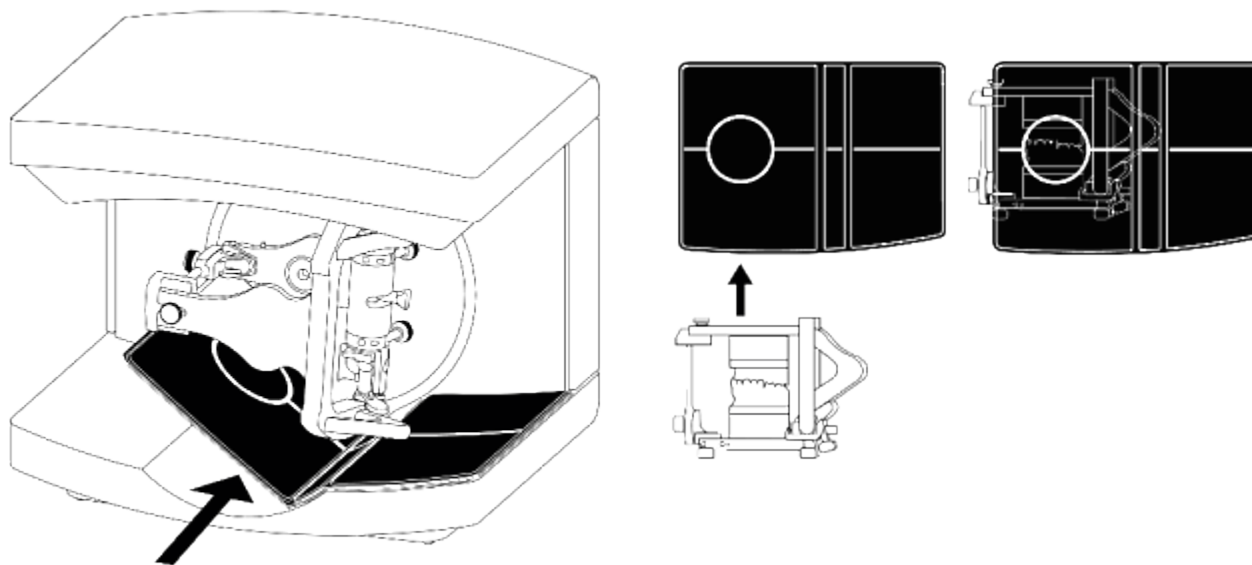
► **Step 6: Place the rubber band on the articulator**

Place the rubber band supplied with the Articulator Holder on the articulator with mounted models as shown in the following images. This will prevent the articulator from opening.



► **Step 7: Insert the articulator into the scanner**

Following the on-screen instructions, place the articulator inside the scanner so that the left side teeth face upwards. Make sure the models mounted in the articulator are positioned over the circle imprint on the Articulator Holder as shown below.



►Step 8: Scan occlusion

Having placed the articulator into the scanner, click **Next** to start scanning. When the left side bite has been scanned, flip the articulator to the other side, place it into the scanner and click **Next**.

Once scanning of the right side bite is completed, remove the articulator and Articulator Holder from the scanner and click **Next**. Then confirm that the scanner is empty in the appeared dialog.

►Step 9: Align the bite scans

Align the bite scans with the preparation and antagonist scans manually as guided by the software. You can use either one or three-point alignment method. For more information, see the chapter [Align Scans](#).

►Step 10 (optional): Scan dies

Scan the dies following the on-screen instructions. For more information, see the chapter [Models with Dies Scanning](#).

►Step 11: Finish scanning

Once scanning is finished and scans are saved, you can start the designing procedure by clicking the **Design** button.

2.3.5. Additional Scans

2.3.5.1. Antagonist Bite

A bite scan can be used for improving the design, e.g. a scan of the bite mounted on the cast can be used in Dental Designer to assist with the sizing of restorations. Once an order has been defined in the order form the scan process can then begin. The bite can either originate directly from the patient or be created inside the articulator.

►Step 1: Cut off the excess material prior to scanning

Once a bite has been created there is usually a need to cut off the excess material for the scanning to run faster. The images below show the bite mounted on the cast. A blade should be used on the sides of the bite model to clean off the excessive bite material pushed over the sides of the cast. Care should be taken not to cut through the area where the teeth have made an impression on the bite.



Untrimmed bite model

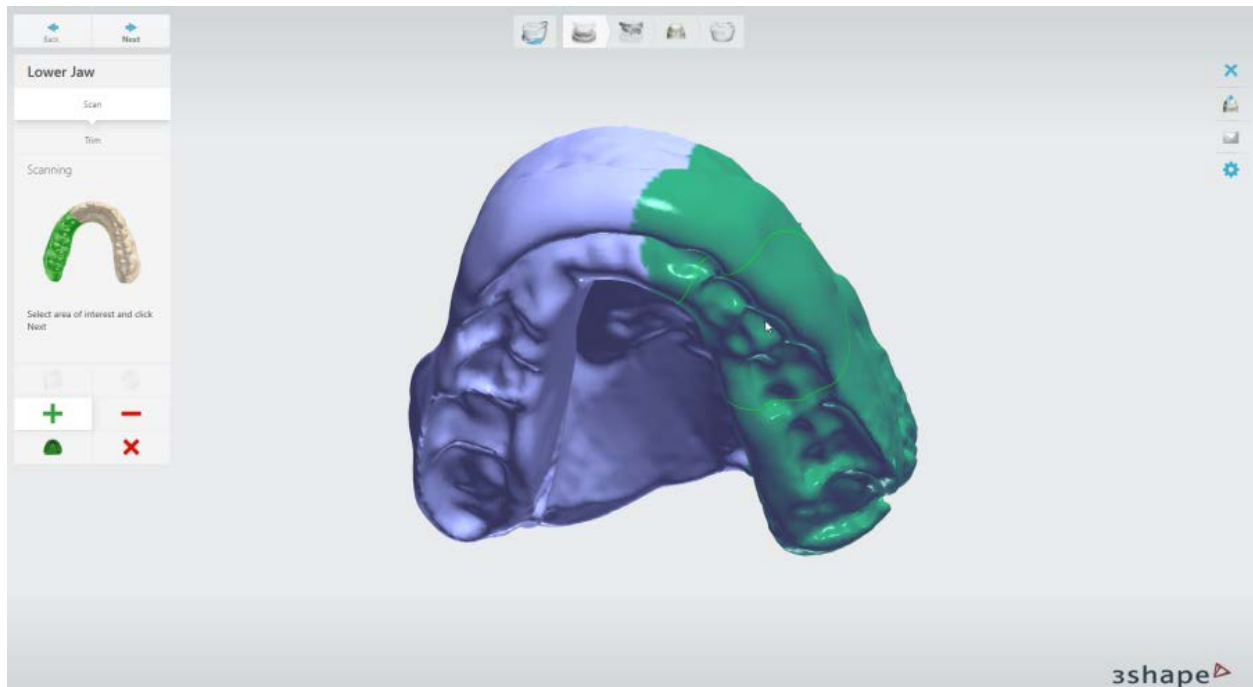


Trimmed bite model

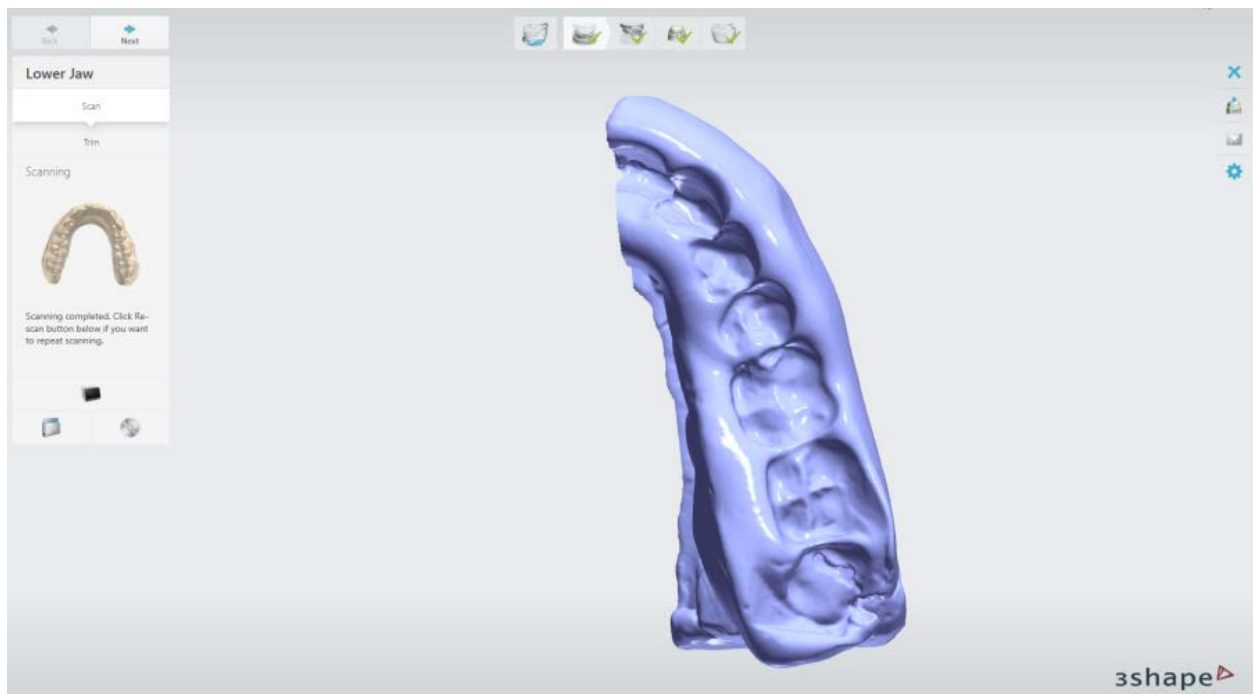
►Step 2: Scan a preparation model with a bite

After the order has been defined in the Order form, click **Scan** to launch the scanning process.

When the program loads, insert the preparation model with the bite mounted and click **Next**. When the initial scanning is performed, select an area of interest on a scan and click **Next** for detailed scanning.



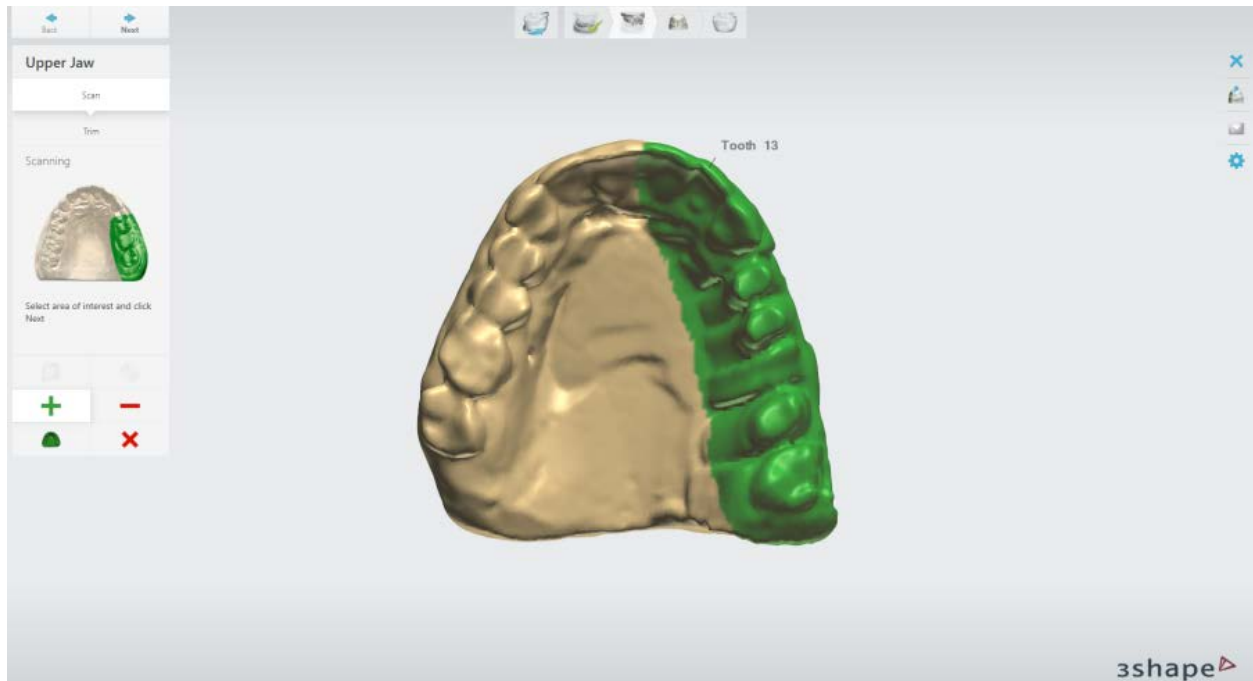
View the result:



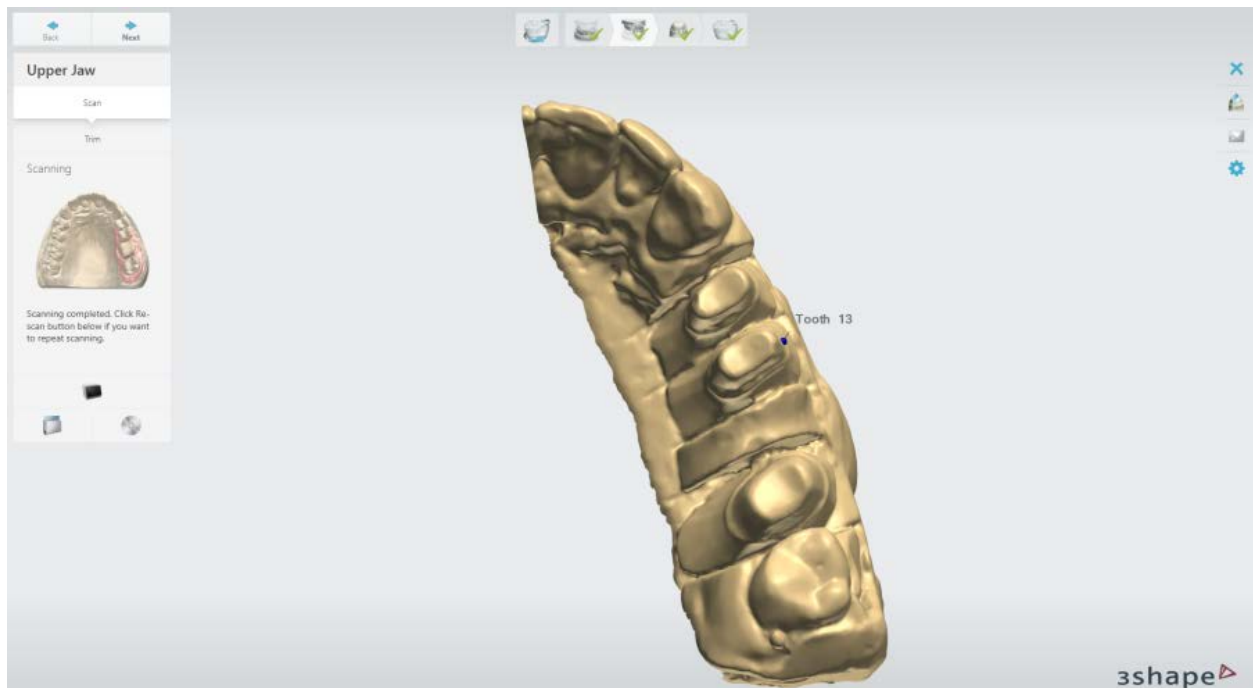
If the scan needs to be trimmed, go to the **Trim** step and use the selection tools to mark the unnecessary areas on the scan.

►Step 3: Scan a preparation model only

Remove the bite once detail scanning is complete and scan the preparation model only. When the initial scanning is performed, select an area of interest on a scan and click **Next** for detailed scanning.

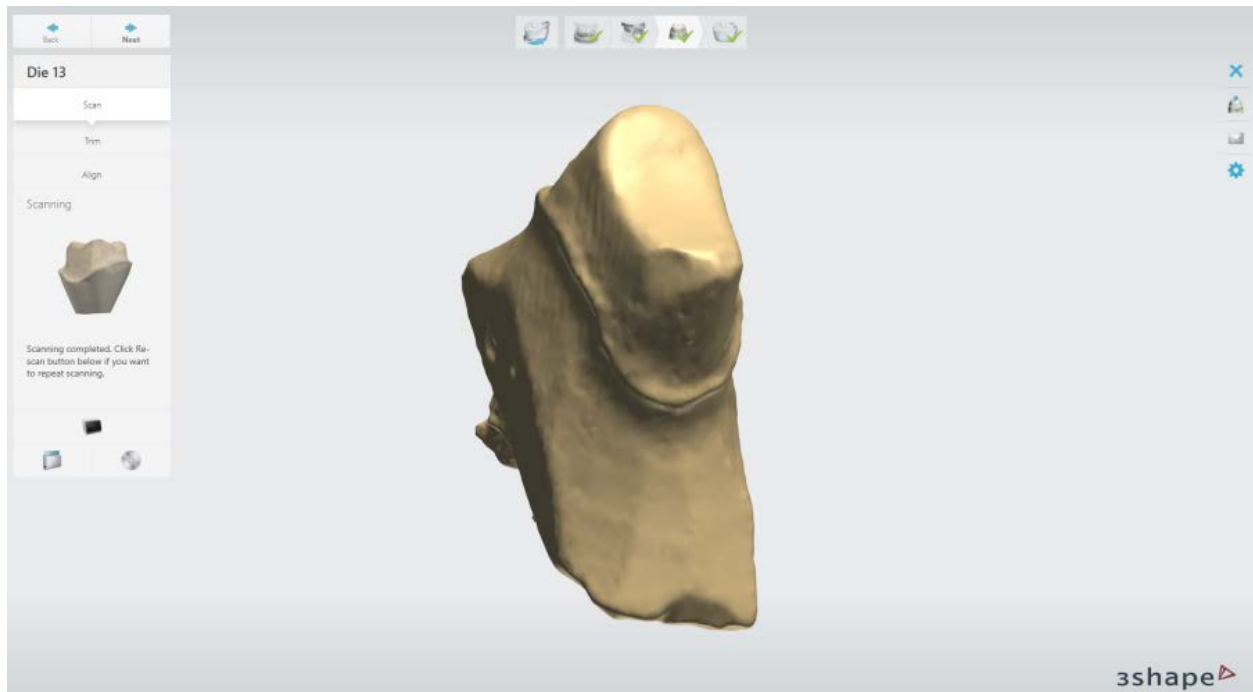


View the result:



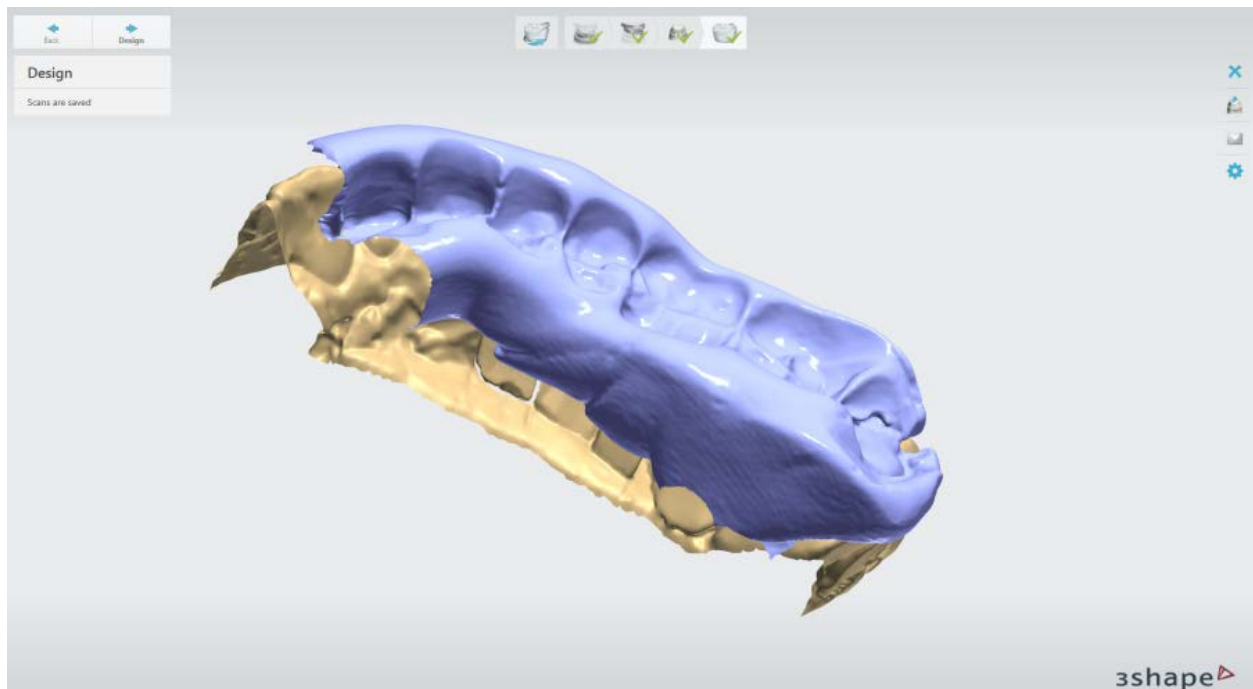
If the scan needs to be trimmed, go to the **Trim** step and use the selection tools to mark the unnecessary areas on the scan.

► **Step 4 (optional): Scan die(s)**



► **Step 5: Finish scanning**

Your antagonist bite scan is now ready.




2.3.5.2. Double Preparation

The Double preparation scan functionality allows you to scan one preparation twice, where the first scan contains some extra features (e.g. waxup bridges, markers to aid later positioning, additional teeth etc.), and the second scan is the preparation itself.

►Step 1: Create an order

Create an order and if a double preparation scan is required, enable it by pressing the


Double preparation/Wax-up  button in the Order form (**Scan settings** tab).

Press **Scan** to launch the scanning software.

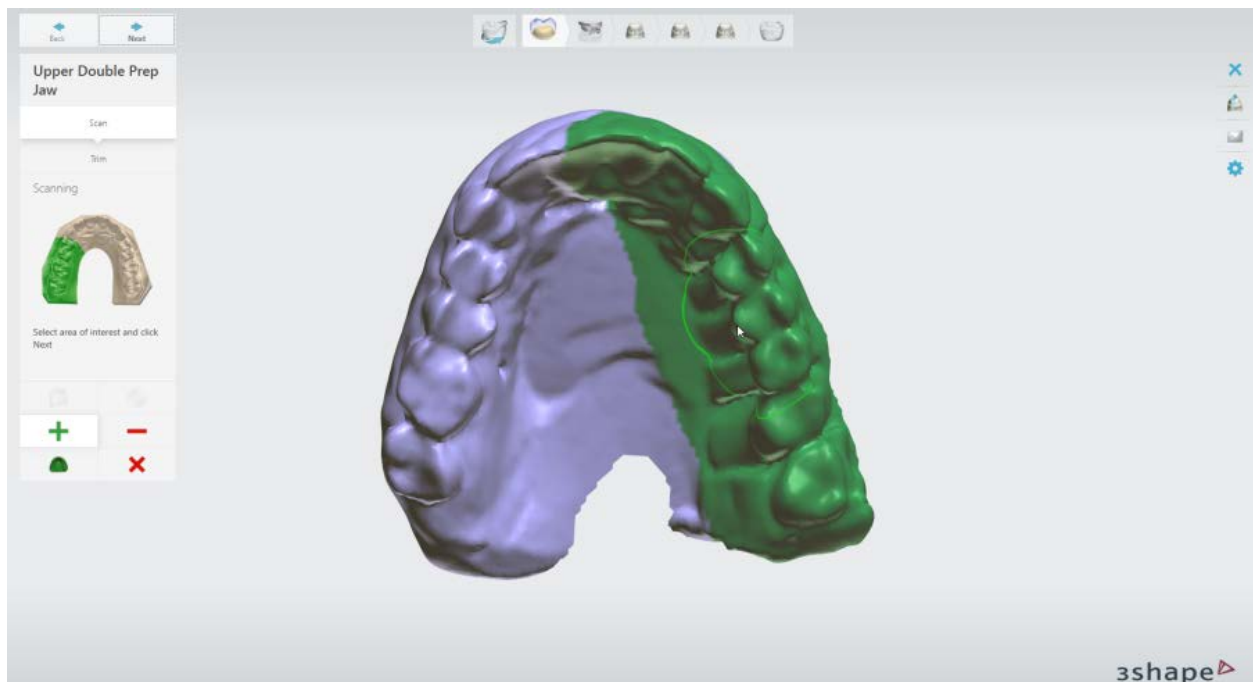
►Step 2: Scan the double preparation arch

Insert your double preparation arch into the scanner as prompted by the software.

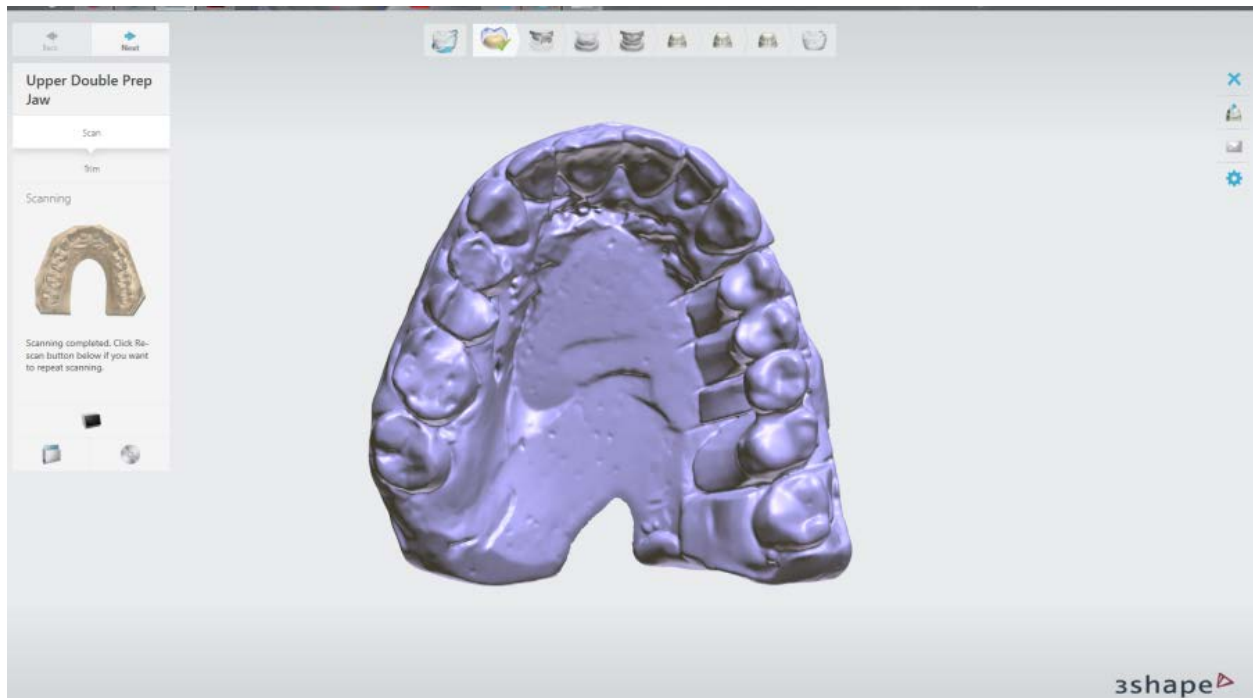
Dental [scanners with texture scanning](#) support can capture hand-drawn markings penciled directly on the physical models. Texture scanning can be enabled by selecting the **Scan**

Texture checkbox on the  [Settings](#) page.

The scanning process starts when you click the **Next** button. When the initial scanning is performed, select an area of interest on a scan and click **Next** for detailed scanning.



View the result:



If the scan needs to be trimmed, go to the **Trim** step and use the selection tools to mark the unnecessary areas on the scan.

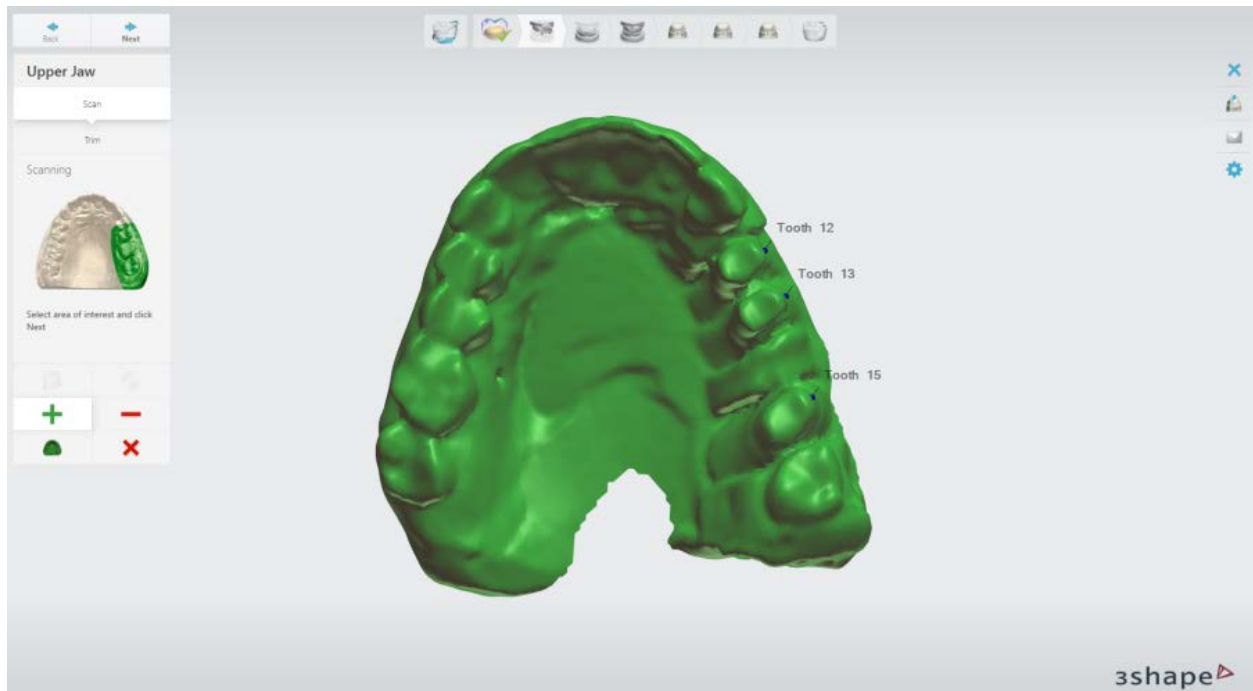
► Step 3: Scan the preparation arch

Carefully remove the additional information from the arch so that the preparation could be scanned separately. Click **Next** to perform scanning of the arch.

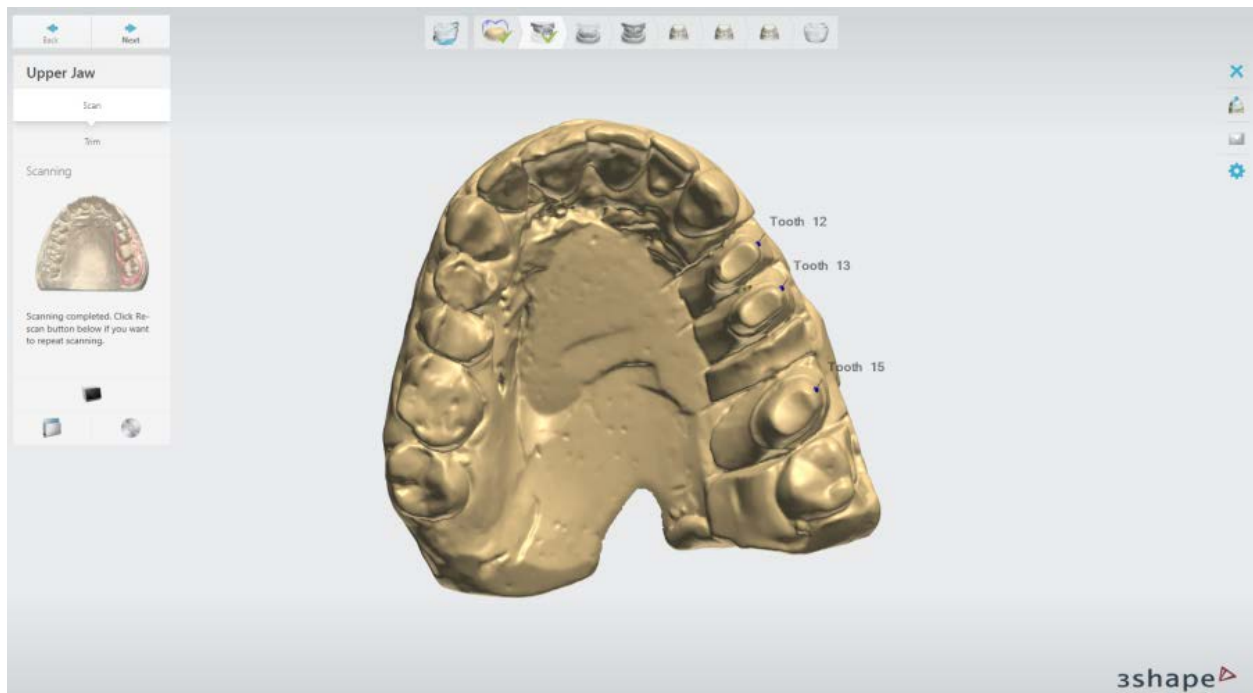


Caution! Do not move the arch. If the position of the arch is changed, the alignment of the scans will not be successful.

When the initial scanning is performed, place annotations on the teeth as requested by the software. The area of interest will be automatically selected around the annotations, however, you can manually modify it. Click **Next** for detailed scanning.

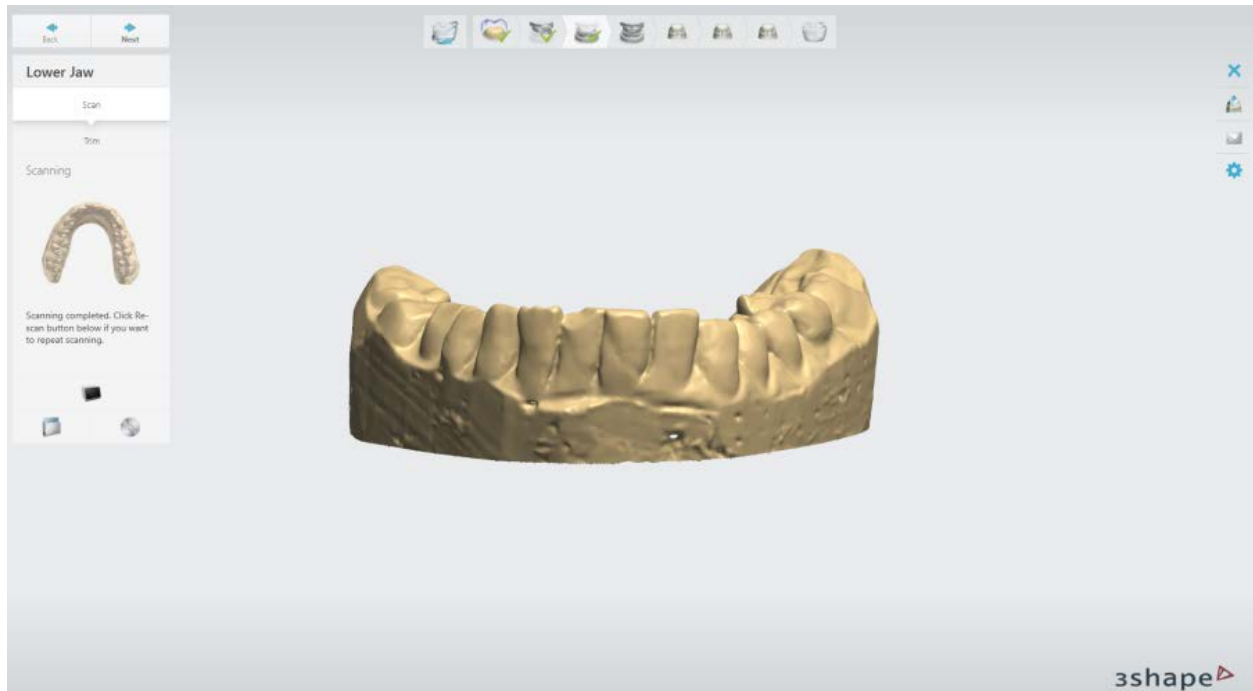


View the result:



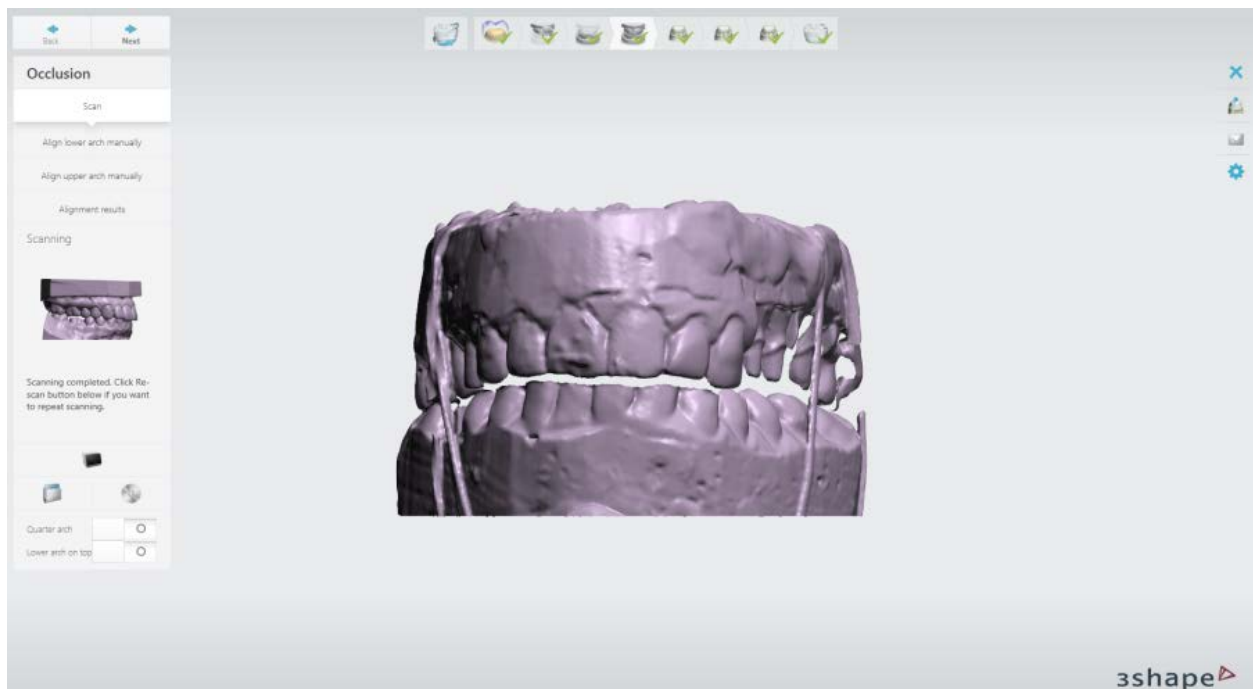
►Step 4: Scan an antagonist

In the same manner, perform the initial and detailed scanning of the antagonist.

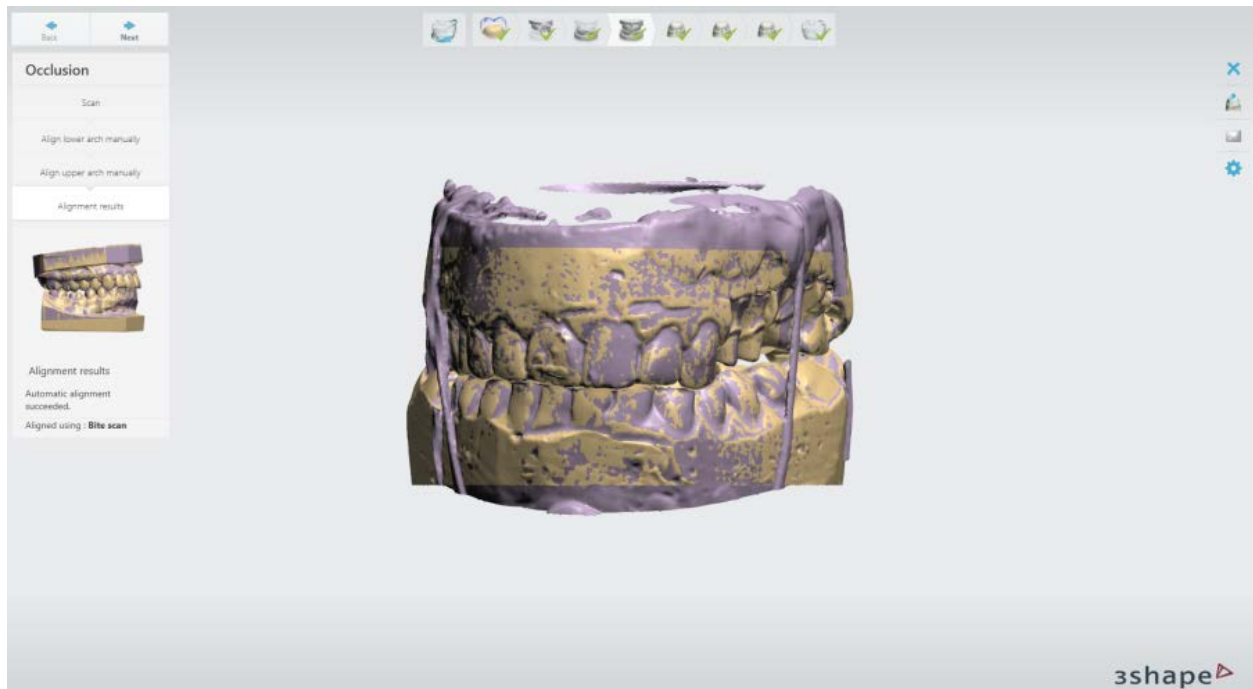


► Step 5: Scan occlusion

Insert both upper and lower jaws into the scanner and press **Next** to scan the occlusion:

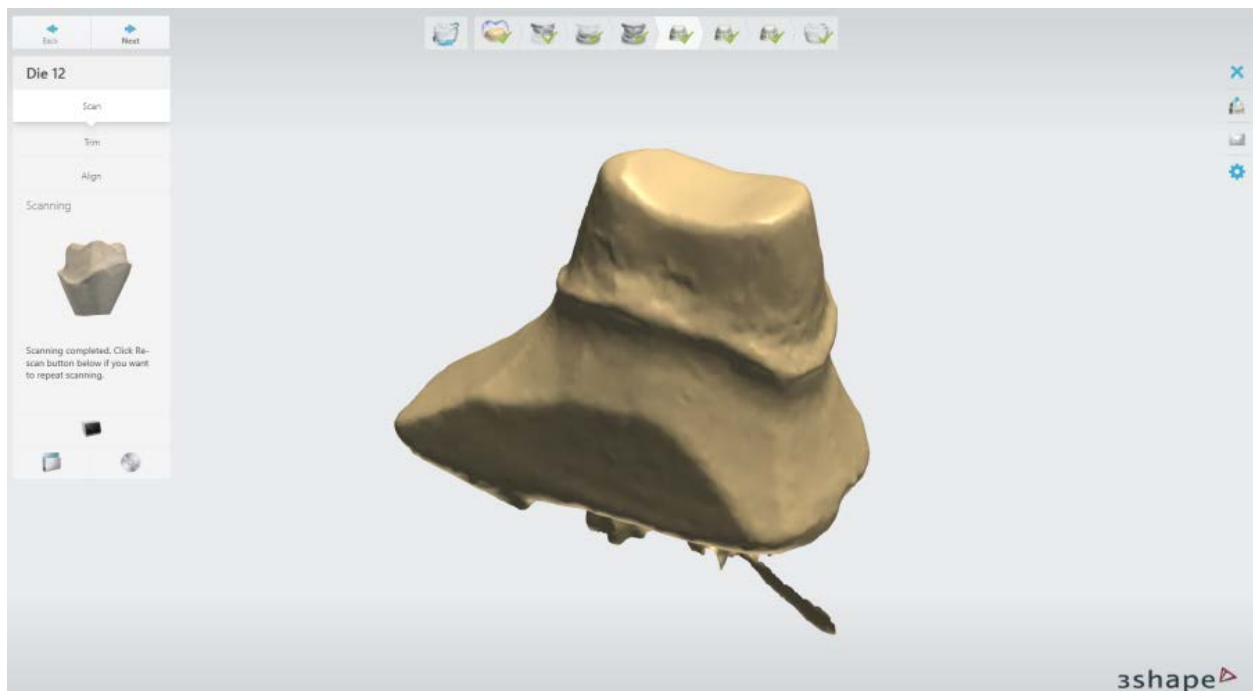


The alignment will be performed automatically, however, you can manually modify it if necessary:



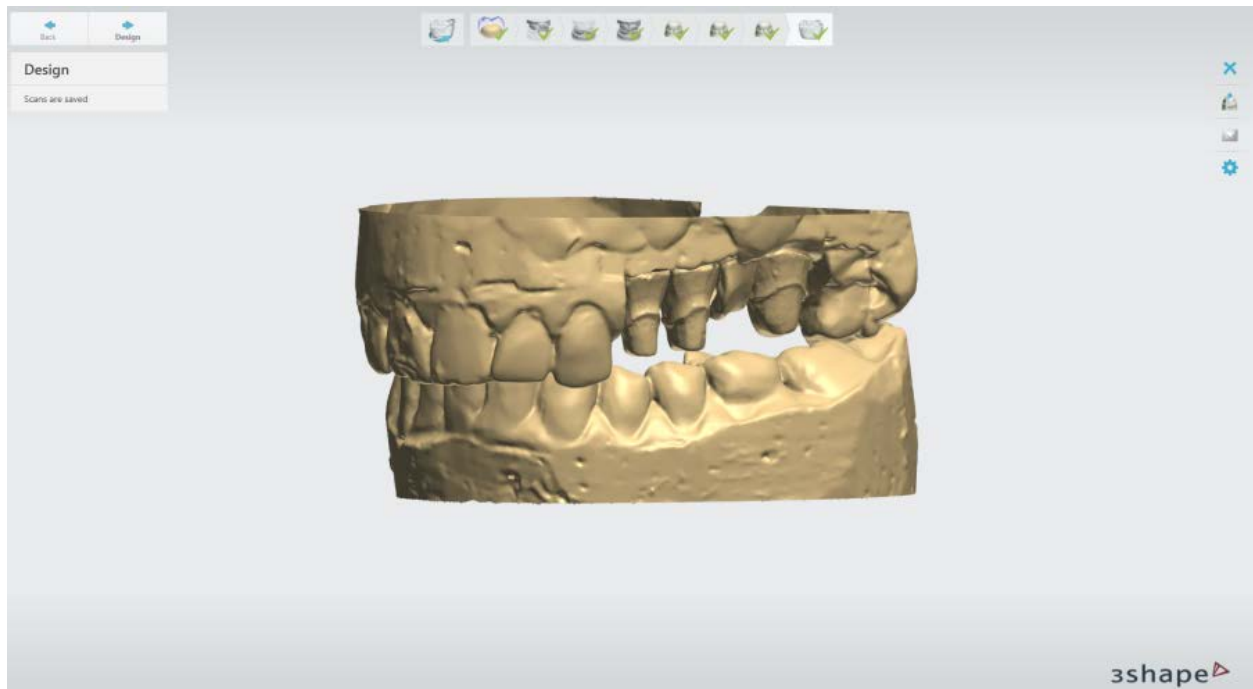
► Step 6: Scan dies

One by one, scan the dies in the order as prompted by the software:



► Step 7: Finish scanning


After all the dies have been scanned and aligned one by one, the scanning process is complete and your model is saved. You can go straight to the modeling procedure by clicking the **Design** button.



2.3.5.3. Pre-preparation

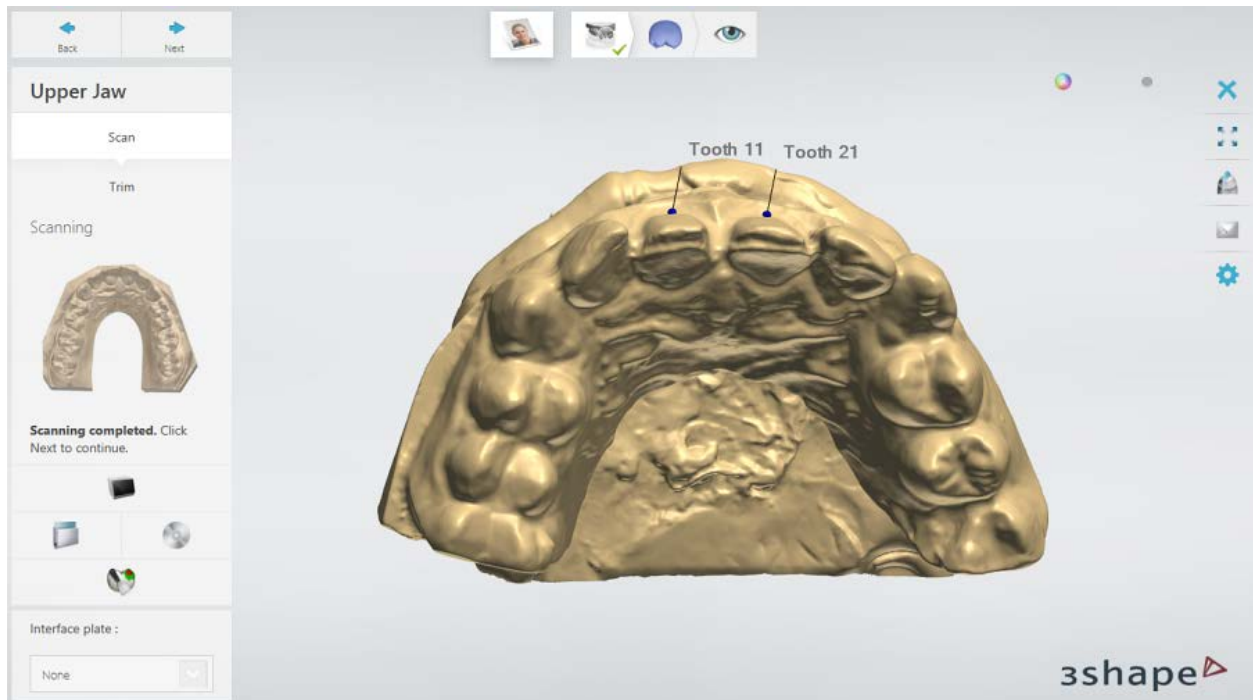
A pre-preparation model and diagnostic wax-up can be scanned and aligned to a preparation scan and visualized during the design phase. In this example, you will see how to scan preparation and pre-preparation models.

►Step 1: Create an order

Create an order in Dental Manager. In the Order form, enable a pre-preparation scan by clicking the **Waxup/Pre-Preparation**  button. Click **Scan** to open ScanIt Dental.

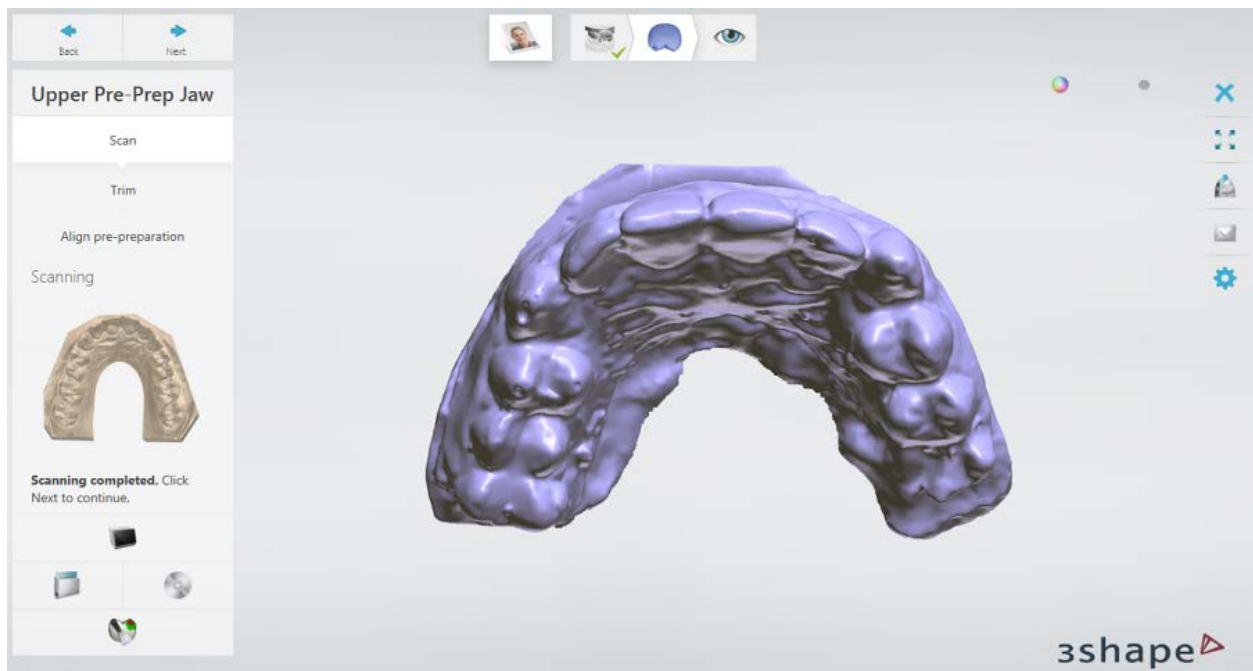
►Step 2: Scan the preparation arch

Scan the preparation arch following the on-screen instructions and applying required tools depending on your order. For more information, see the chapter [Models with Dies Scanning](#).



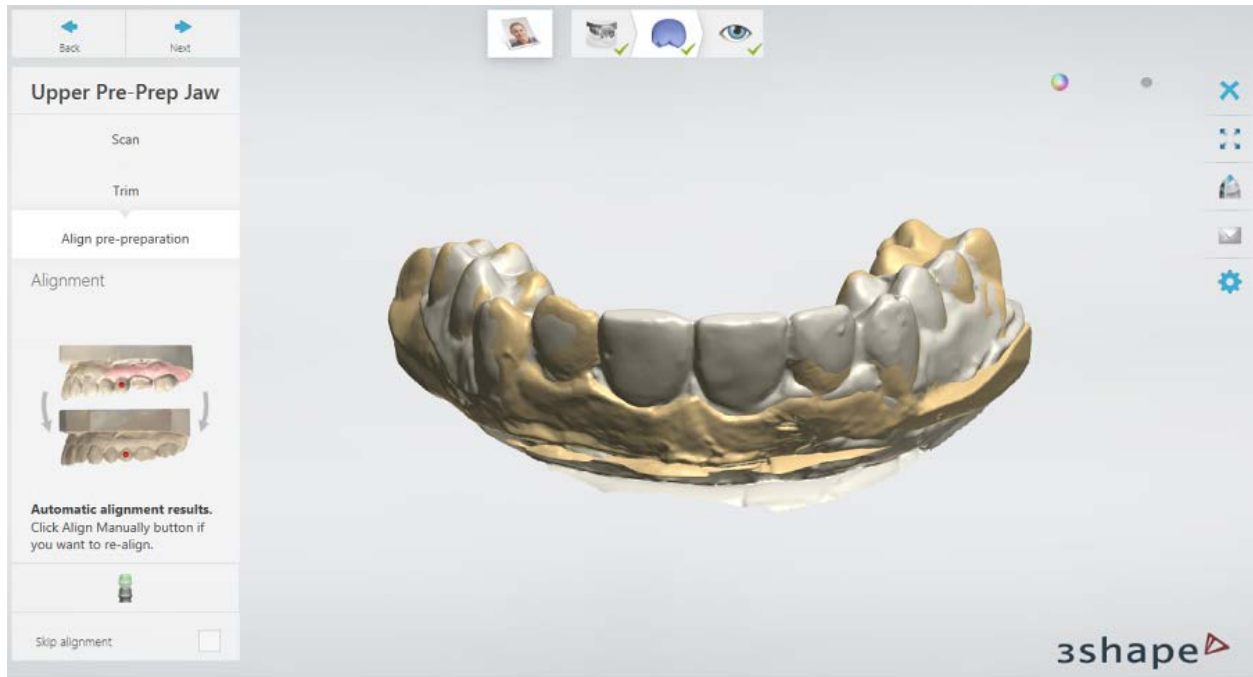
► Step 3: Scan the pre-preparation arch




Replace the preparation arch with the pre-preparation arch in the scanner and perform scanning in the same manner.



► Step 4: Align pre-preparation and preparation arches

When both arches have been scanned, alignment is done automatically. You may skip the alignment when special Articulator Transfer Plates are being used for positioning pre-preparation and preparation arches in the scanner by selecting the **Skip alignment** checkbox.

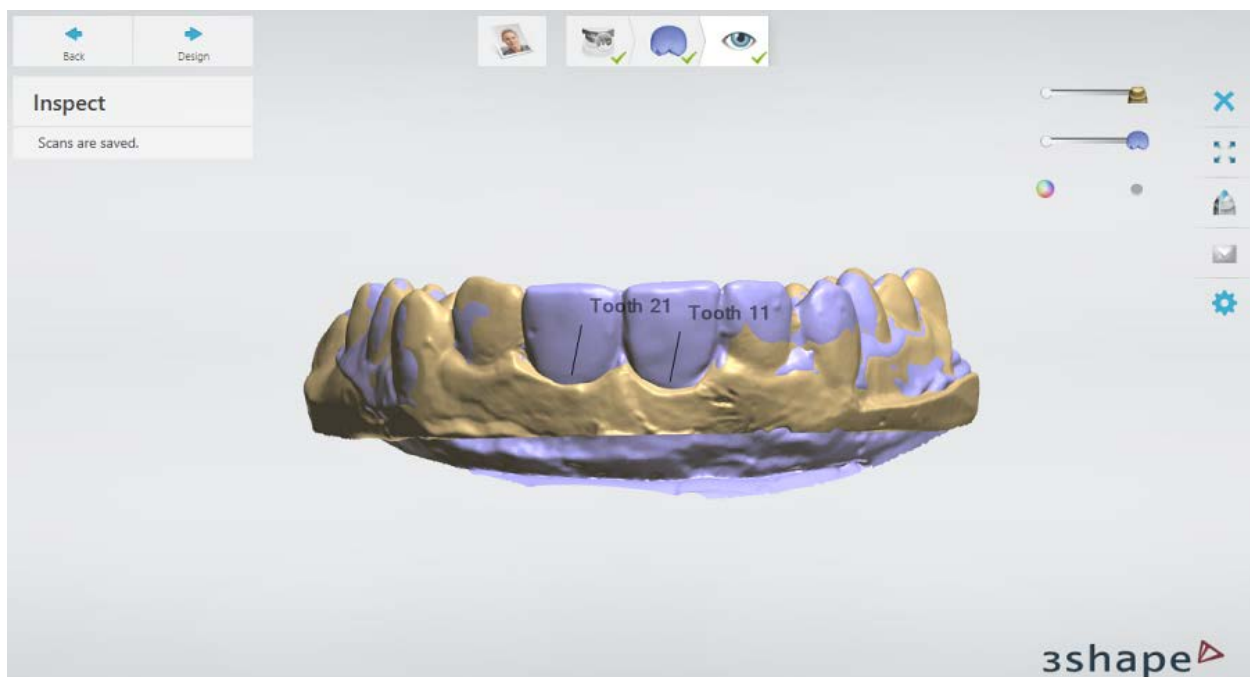


You can also perform the manual alignment if necessary. To do that, click the **Align manually**  button and set corresponding points on each scan. You can use either one  or tree-point  alignment method. Then select the surfaces that match on both scans using the provided selection tools. For more information on the alignment procedure, see the chapter [Align Scans](#).



► Step 5: Finish scanning

Once scans are saved, you can go straight to the designing procedure by clicking the **Design** button.



2.3.5.4. Unsectioned Scanning



Note! Please note, that unsectioned scanning is not possible for Single Wax-ups and Wax-up bridges.



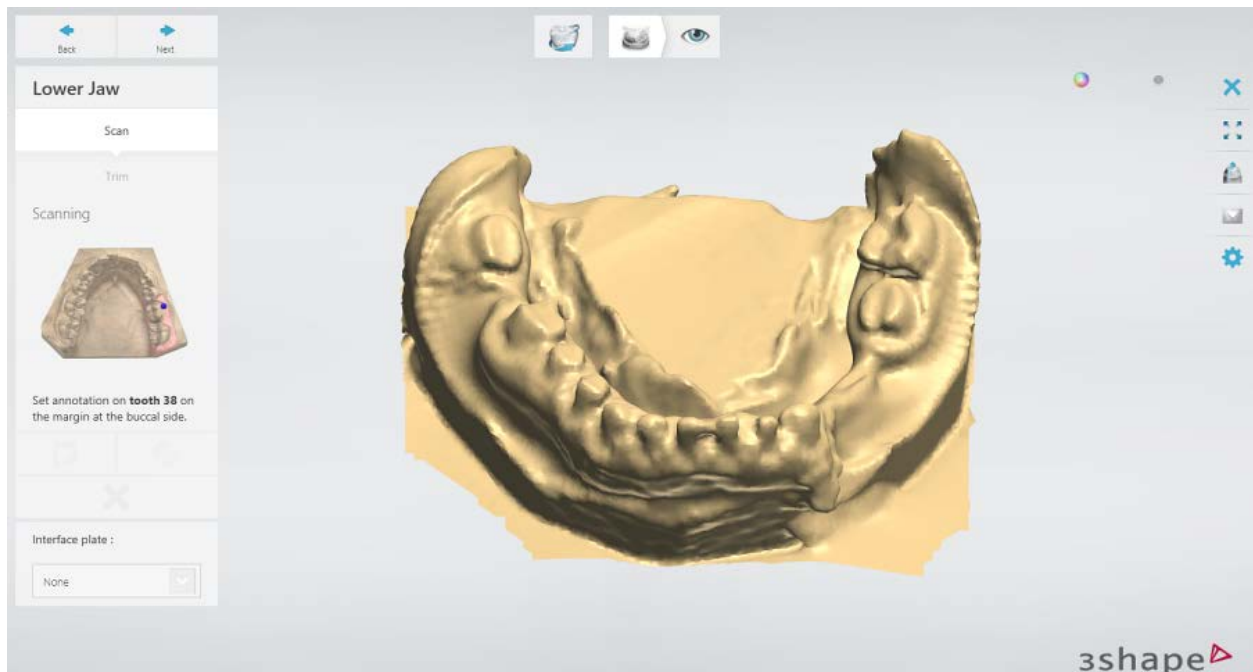
Caution! For scanners that do not support the [dies-in-arch scanning](#), the unsectioned scanning does not provide the same accuracy as the sectioned scanning, hence it is only recommended for temporaries and diagnostic waxups.

►Step 1: Create an order

Create a new order in Dental Manager and make necessary settings for the unsectioned scanning in the Order Form, i.e. **Neighborhood scan** should be set to **Unsectioned**.

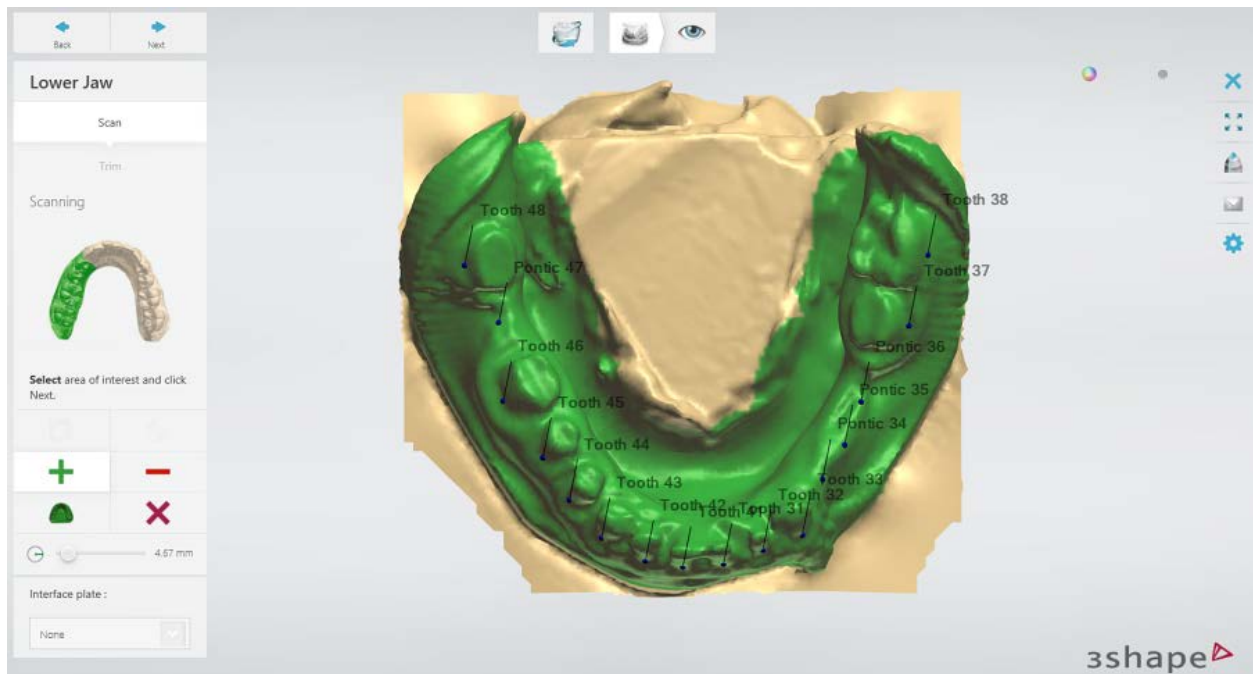
►Step 2: Insert an arch

Insert your unsectioned preparation arch into the scanner. Click **Next** to initiate the scanning process.



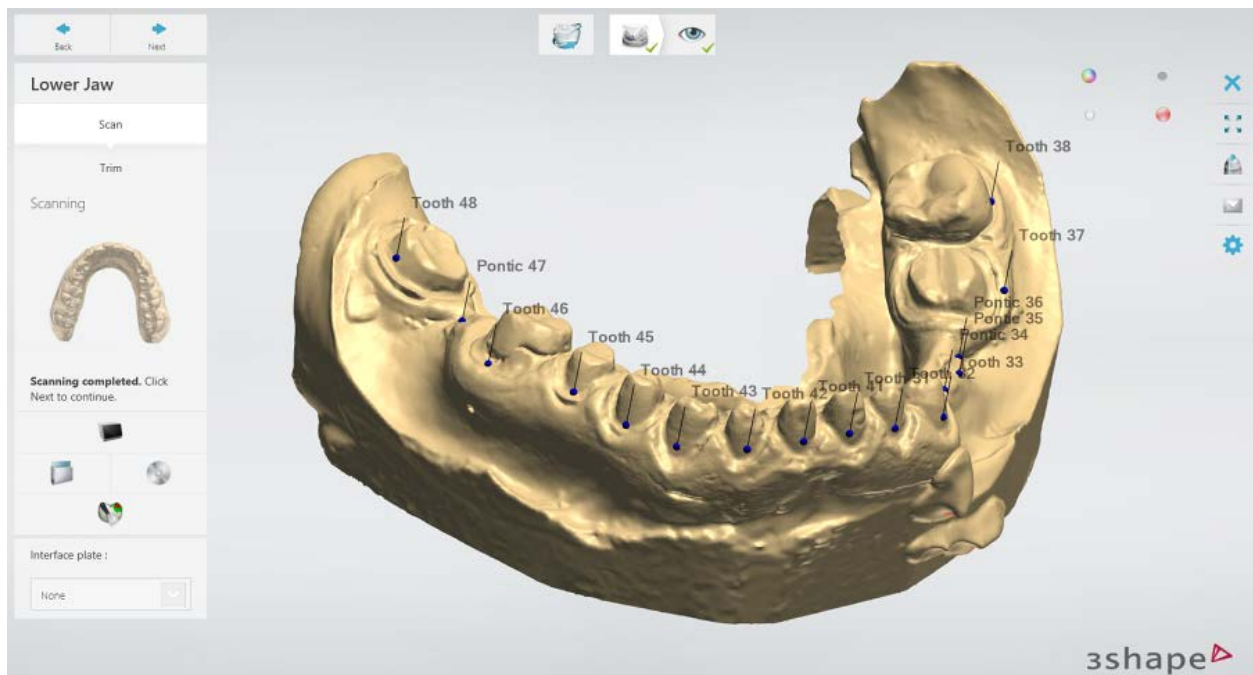
►Step 3: Place the annotation points and select the area of interest

The software will automatically select an area of interest around the points you have placed, however, you can manually correct it.



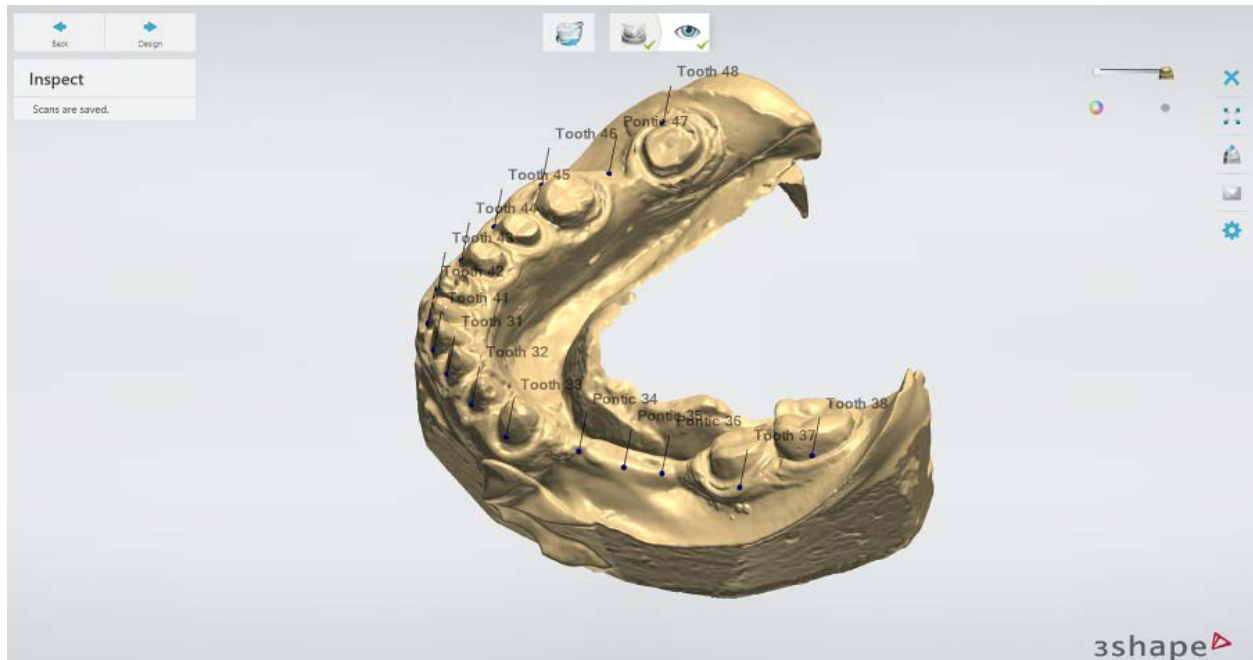
►Step 4: View the result

When scanning is complete, you can choose to trim the scan or proceed to the final step.



►Step 5: Finish scanning

Click **Design** to start the modeling process in Dental Designer where the dies will be sectioned.



2.3.6. Multi-Die Scanning

Multi-Die scanning is used for batch processing where dies are loaded on a multi-die plate and scanned automatically.

Multi-Die scanning requirements:

- [Scanner that supports Multi-Die scanning](#)
- [Passive Multi-Die fixture](#)

► Step 1: Prepare a passive multi-die fixture

Insert Blu Tack adhesive into the holders so that its level is equal to or just above the rim of the fixture (see the image below). Ensure that Blu Tack does not hang over the rim of its die holder as this may hinder the normal operation.



Multi-die fixture filled with Blu Tack

►Step 2: Create an order

The procedure is the same as for a regular order. Please see the [How Do I Create](#) chapter for more information on creating orders for various indications.

►Step 3: Activate the multi-die scanning mode (if not done already)

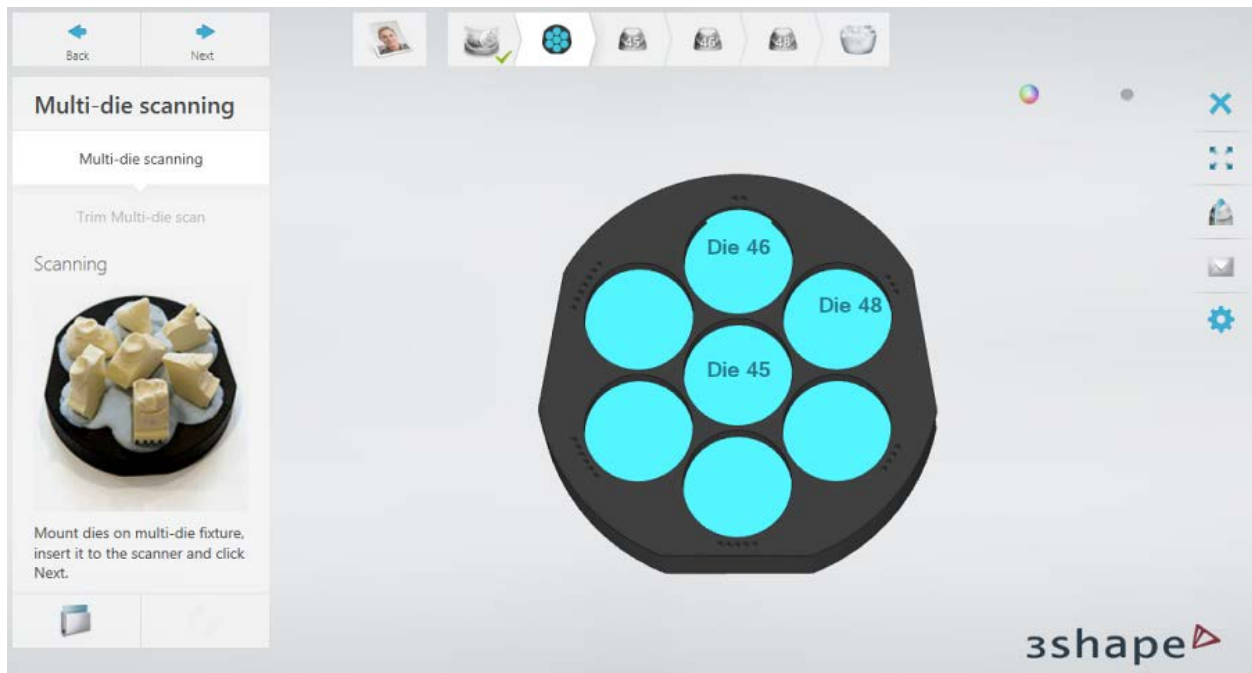
When ScanIt Dental opens, go to the [Settings](#)  page, unselect the **Scan dies in arch** checkbox if selected and then select the **Multi-die scanning** checkbox.

►Step 4: Scan the preparation arch

[Insert the preparation arch](#) into the scanner. [Scan the arch](#) following the on-screen instructions.

►Step 5: Scan dies on the passive multi-die fixture

1. Remove the preparation arch from the scanner and position the dies on the passive multi-die fixture with Blu Tack as shown by the software. The dies must be placed on the indicated die holders of the multi-die plate.



2. Insert the passive multi-die fixture into the scanner making sure it is correctly oriented:

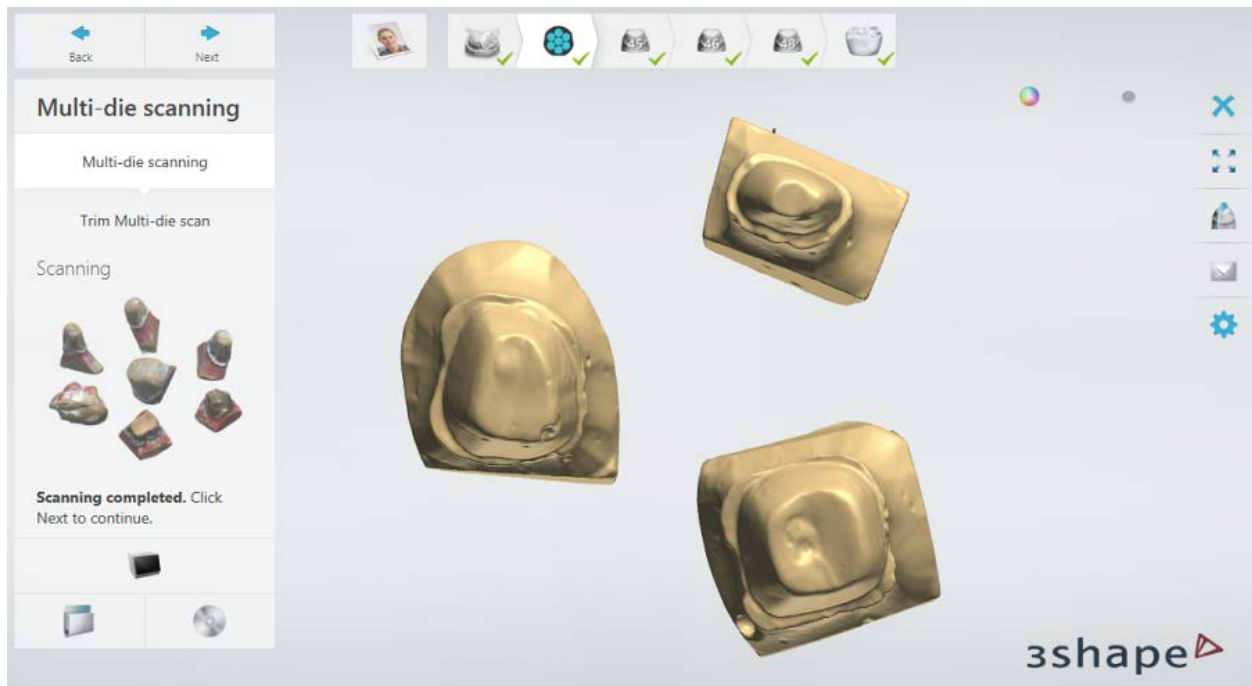


Insertion direction



D900 scanner with dies on the passive multi-die fixture

3. Scan the dies.




4. (optional) [Trim](#) the scan if needed by going to the **Trim Multi-die scan** substep.
5. Click **Next** to continue.

►Step 6: Align dies with the preparation arch

Once scanning is finished, the dies are automatically aligned with the preparation arch. Inspect the result of automatic alignment of the first die:

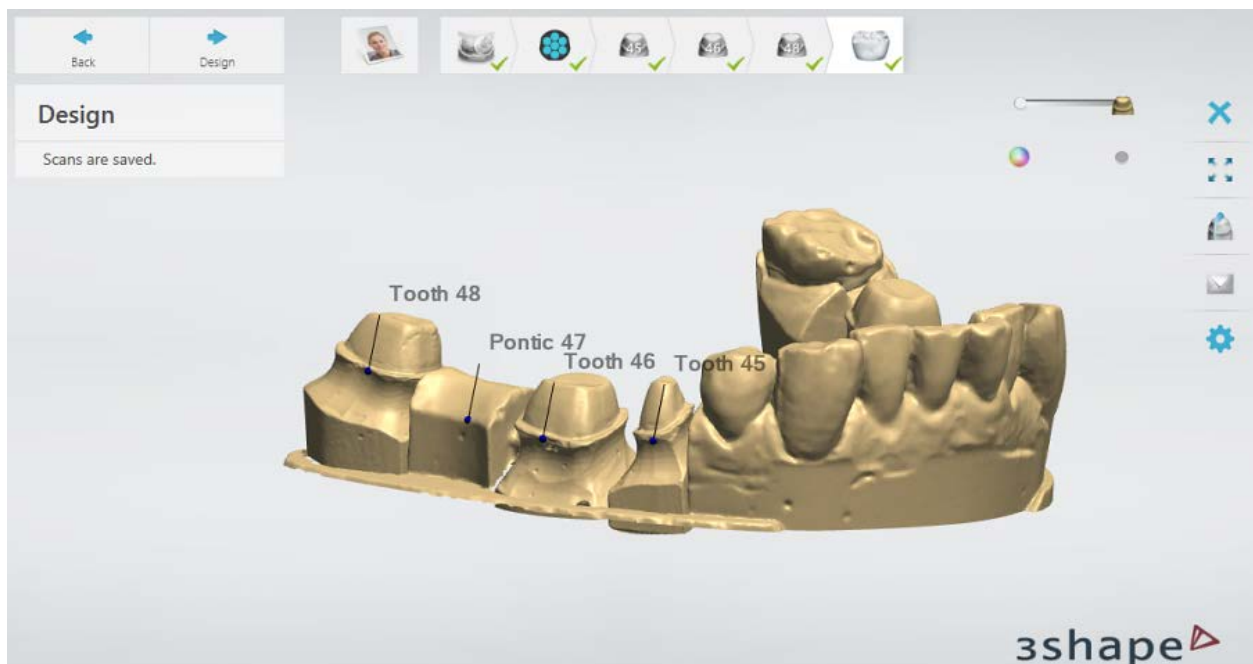


If you want to [align](#) the die and the arch manually, click the **Align manually**  button. To re-scan the die, go to the **Scan** substep.

When you have finished with the alignment, click **Next** to proceed to the next die.

► Step 7: Finish scanning

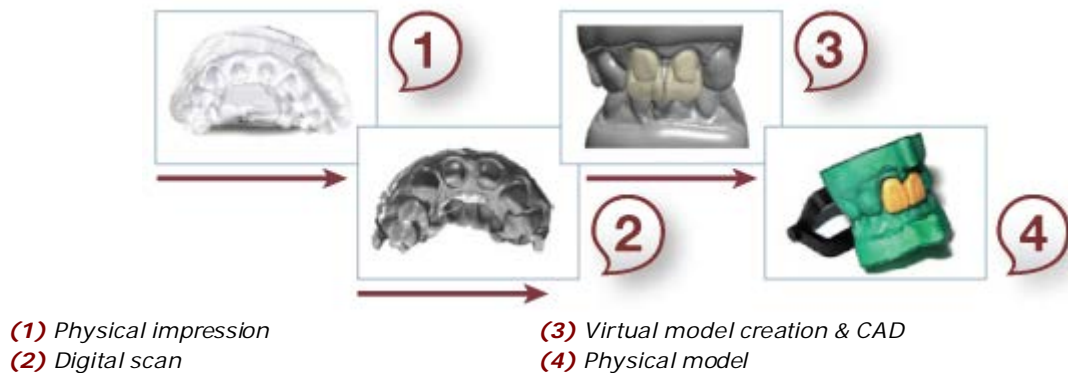
When all dies are aligned properly and scans are saved, you can proceed to the design phase by clicking the **Design** button or close ScanIt Dental.



2.4. Impression Scanning

Dental System supports the design of restorations based on adaptive impression scanning. You can scan impressions with [ScanIt Dental](#) and then design restorations in Dental Designer. For most orders the Impression Scanning add-on module is required to perform impression scanning. However, Full Dentures and 3D Bite Plate orders could be scanned without this add-on.

Impression scanning also enables production of high accuracy digital models directly from impressions:



Model Builder allows you to create/trim a virtual model (replacing the traditional stone/gypsum model), that can then be produced by rapid prototyping in parallel to the manufacturing of the actual restoration.

ScanIt Dental can scan the vast majority of typical restoration impressions. However, if a prepared tooth has a depth-to-width ratio larger than approx. 1.5, the accuracy in the deepest part of the impression may be marginally compromised.

2.4.1. Preparing for Scanning

Here are a couple of suggestions on how to prepare for the adaptive impression scanning in order to achieve optimal results:

►Step 1: Trim the impression

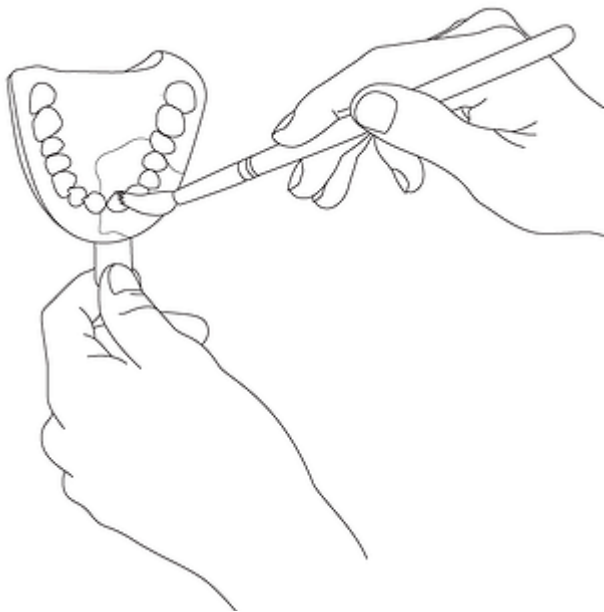


Trim the physical impression with a knife prior to scanning, cutting away as much excessive material as possible. This is very important because the impression material in irrelevant areas can prevent the cameras from seeing into the impression.

Before scanning, apply scan powder to the impression using a brush (or use a scan spray) as shown in the images below. It is important that the spray/powder is carefully applied over the reflective parts of the impression as well as the tray, as uncovered reflective areas may affect the overall result. This procedure is highly recommended – unless scanning a 3Shape-approved impression material.

Appendix D contains a [list of recommended scan sprays](#).

► Step 2: Apply powder or use spray

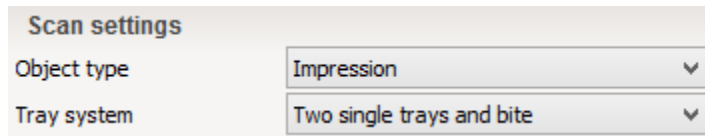


Caution! Do not spray into the scanner or near the scanner to avoid the liquid getting inside.

2.4.2. Two Single Trays and Bite Scanning

This chapter shows how to scan an impression (in our example it is the upper arch), its antagonist on a separate tray and a bite with the D2000 scanner having room for two models.

►Step 1: Create an order



Scan settings

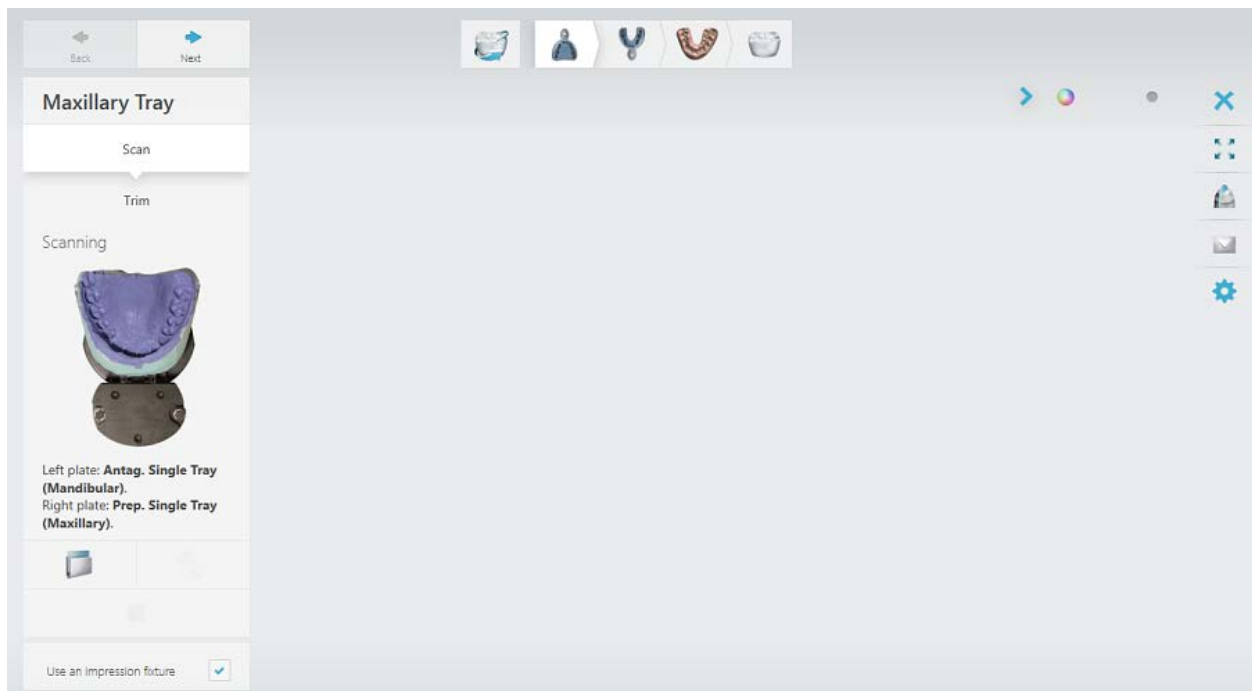
Object type	Impression
Tray system	Two single trays and bite

Before scanning impressions define your order in the [Order form](#). Select **Impression** as an object type and **Two single trays and bite** as a tray system. Click **Scan**.

►Step 2: Insert the impressions

When ScanIt Dental opens, insert two single trays attached to the impression fixtures into the scanner as guided by the software. The initial scanning starts automatically after closing the scanner door.

For more information on the ScanIt Dental user interface, see the chapter [User Interface](#).




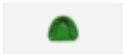


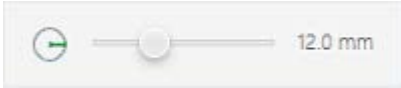
►Step 3: Mark the teeth

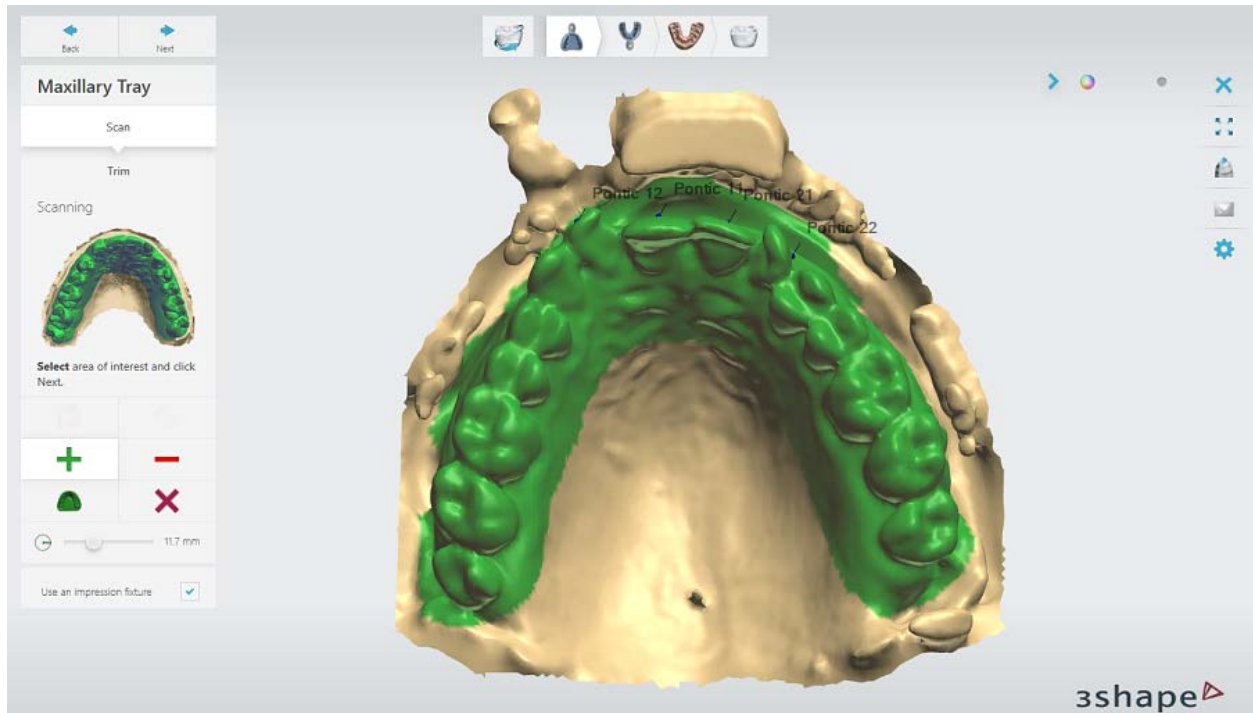
Place annotations on the margin line at the buccal side of the teeth.



► Step 4: Mark the area on the upper and lower arches

Select an area of interest on the upper arch using the provided tools:

-  - allows you to mark the area of interest for a detailed scan.
-  - marks the whole model.
-  - allows to correct the marked selection with the eraser.
-  - removes the marked selection.
-  - to change the radius of the painted/erased area, drag the slider or hold down the **Shift** key while rotating the mouse wheel.



Click **Next** to start the detailed scanning of the upper arch impression.

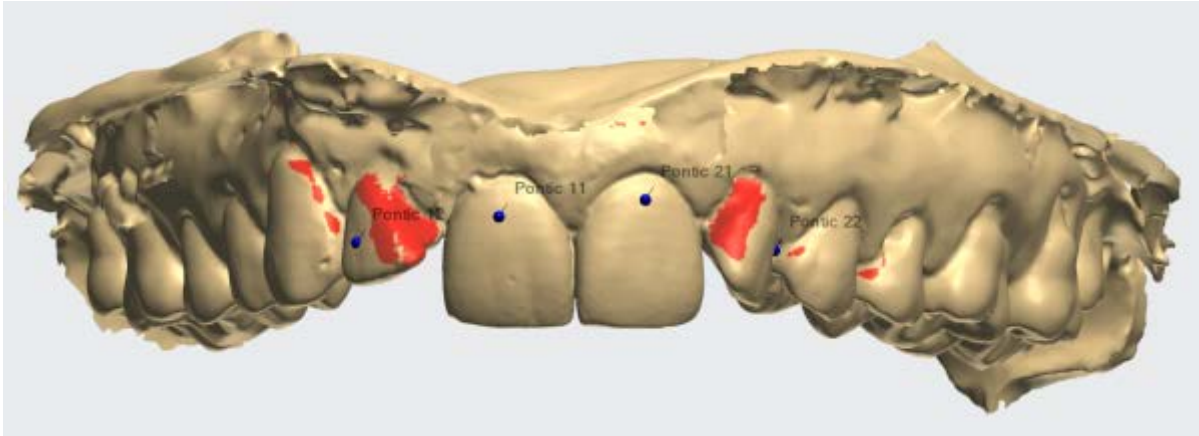
Select an area of interest on the lower arch. When finished, click **Next** to start the detailed scanning.

► Step 5 (optional): Perform the adaptive scan

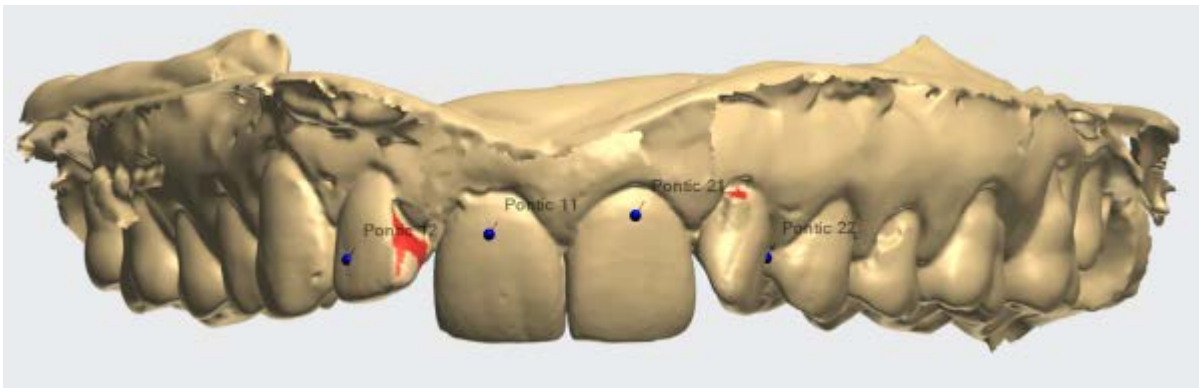


When detailed scanning is completed, you can perform the adaptive scanning which detects incomplete surfaces and automatically applies an optimal combination of the cameras and 3-axis motion, ensuring accurate impression capture.

Click the **Adaptive scanning** button, select an area to be scanned, and click **Next**.



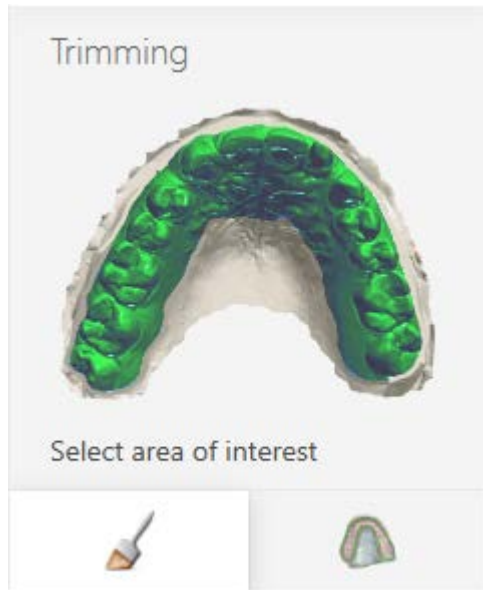
Before adaptive scanning



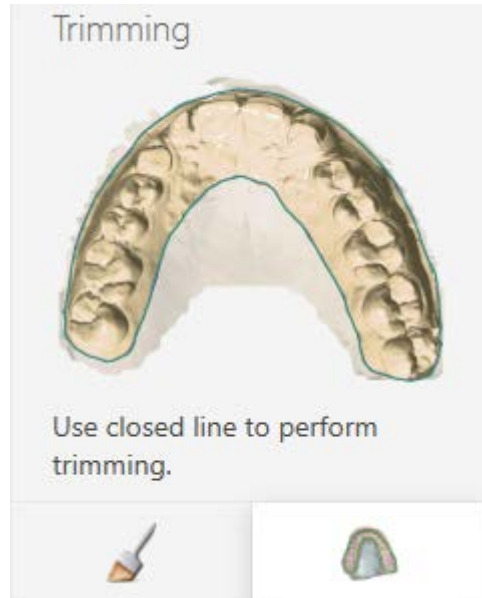
After adaptive scanning

► **Step 6 (optional): Trim the scan**

Trim the upper arch scan, if needed, at the **Trim** substep using the **Selection** or **Line** mode. When done, click **Next**.



Selection mode



Line mode

Trim the lower arch scan, if needed, and click **Next**.


► **Step 7: Scan the bite**



Place the bite into the fixture as shown in the image below. Insert the fixture into the scanner. The scanning starts automatically after closing the scanner door.



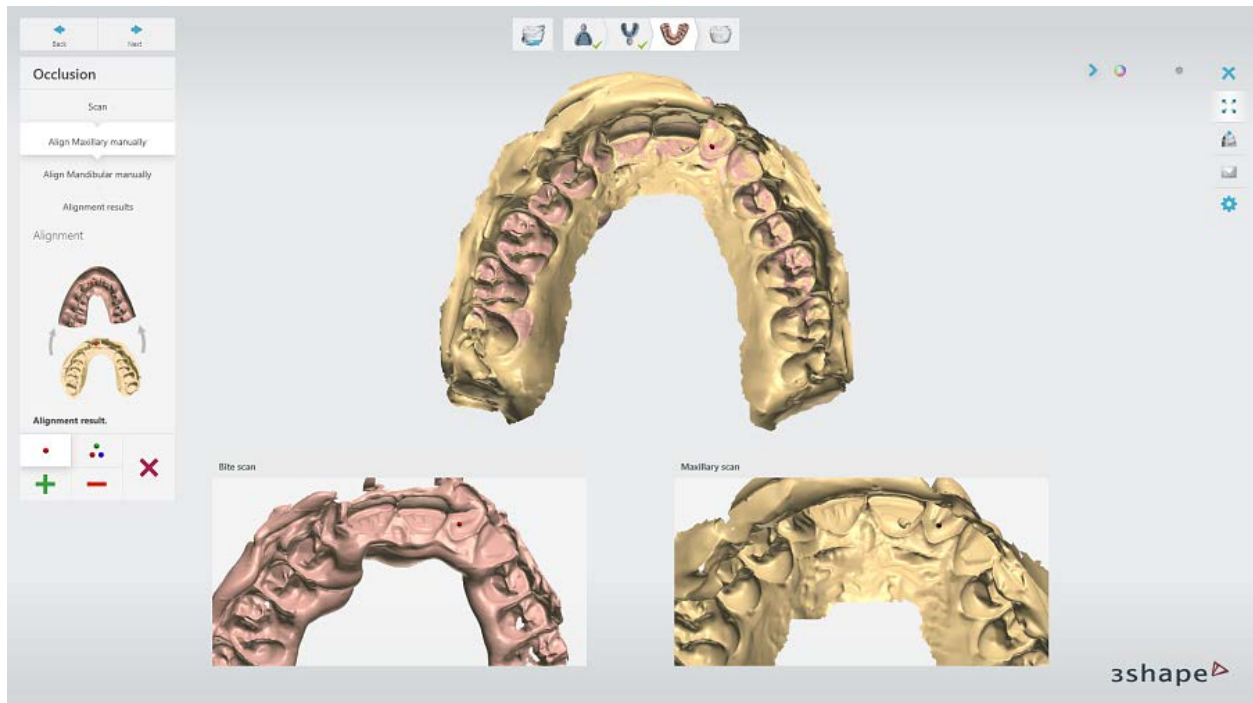
When scanning is completed, click **Next**.

►Step 8: Align the bite with the upper and lower arches

To align the bite with the upper arch, place the corresponding points on the bite and maxillary scans. You can use either one  or three-point  alignment method.

Also you can select an area for alignment on the bite scan using the  button. The  button allows you to correct the marked selection.

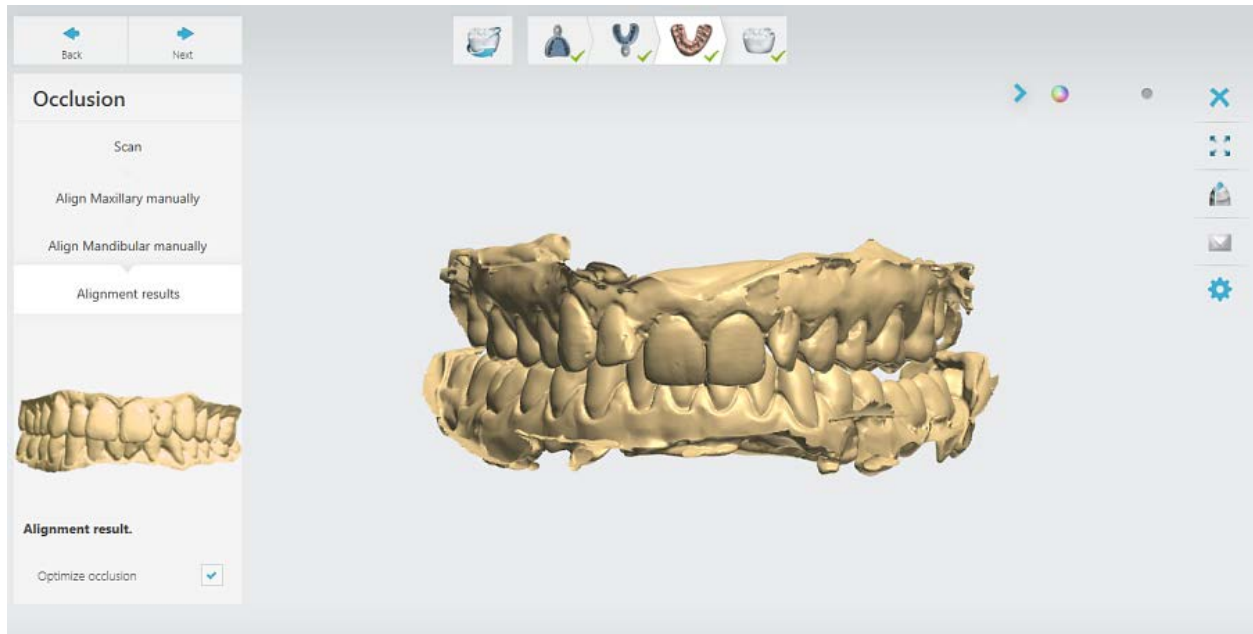
When finished, click **Next**.



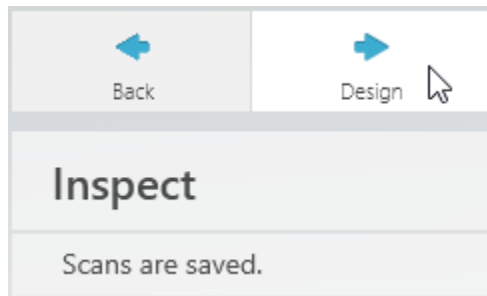
Perform the same alignment procedure for the lower arch.

►Step 9: Examine the alignment result

To optimize the occlusion, select the **Optimize occlusion** checkbox. Click **Next** to continue.



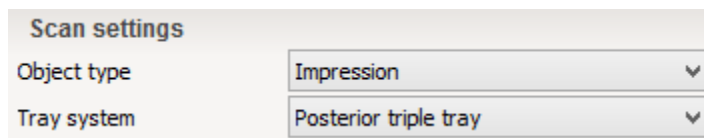
► Step 10: Finish scanning



Once scanning is finished and scans are saved, you can start the designing procedure by clicking the **Design** button.

2.4.3. Posterior/Anterior Triple Trays Scanning

► Step 1: Create an order

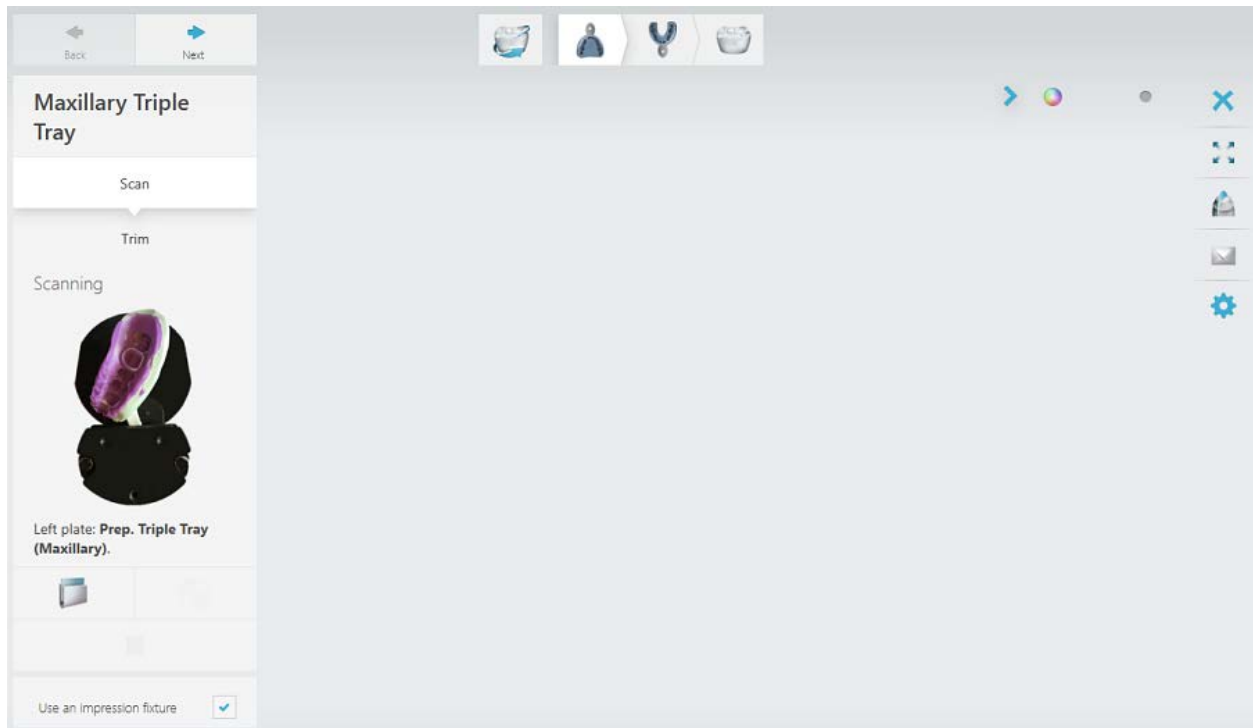


Before scanning an impression define your order in the [Order form](#). Select **Impression** as an object type and **Posterior** or **Anterior triple tray** as a tray system. Click **Scan**.

► Step 2: Insert the impression

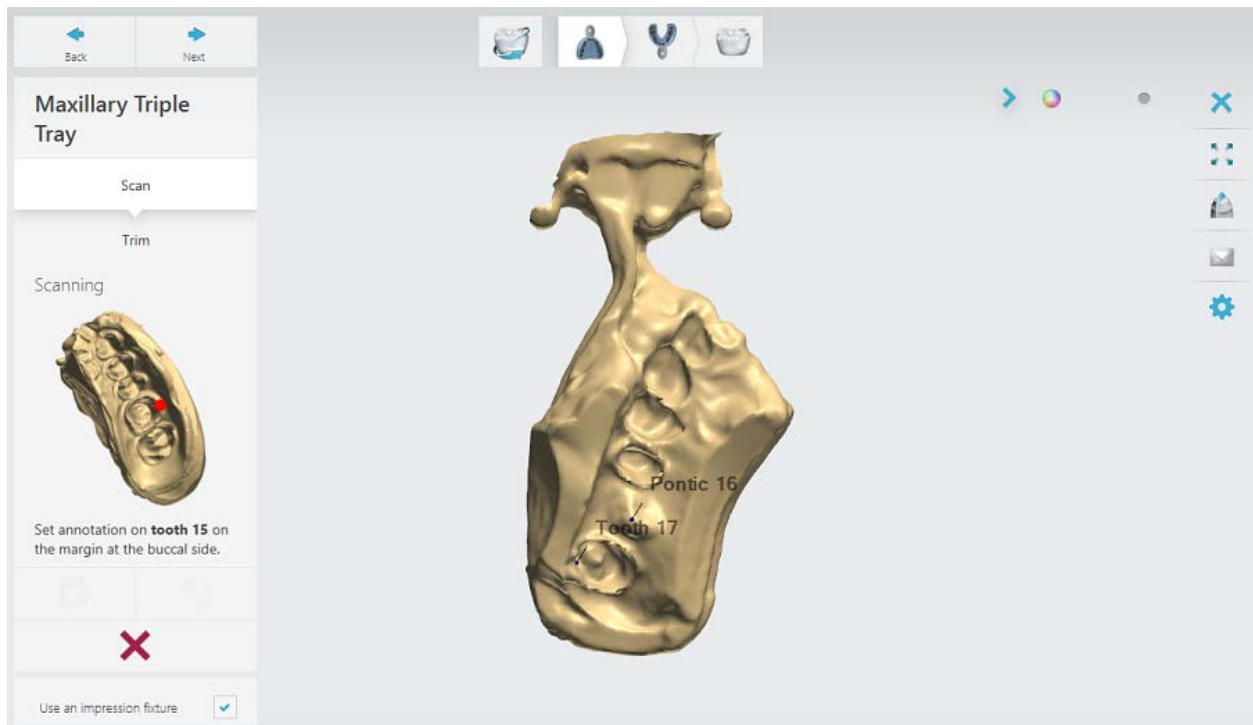
Attach the impression on a triple tray with its preparation side up to the [impression fixture](#). When ScanIt Dental opens, insert the fixture into the scanner as guided by the software. The initial scanning starts automatically after closing the scanner door.

For more information on the ScanIt Dental user interface, see the chapter [User Interface](#).



►Step 3: Mark the teeth

Place annotations on the margin line at the buccal side of the teeth. When finished, the detailed scanning will start automatically.



►Step 4 (optional): Perform the adaptive scan

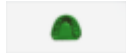


When detailed scanning is completed, you can perform the adaptive scanning which detects incomplete surfaces and automatically applies an optimal combination of the cameras and 3-axis motion, ensuring accurate impression capture.

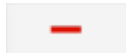
Click the **Adaptive scanning**  button, select an area to be scanned, and click **Next**.



- allows you to mark the area of interest for an adaptive scan.



- marks the whole model.



- allows to correct the marked selection with the eraser.



- removes the marked selection.



- to change the radius of the painted/erased area, drag the slider or hold down the **Shift** key while rotating the mouse wheel.



►Step 5: Trim the scan

Trim the scan at the **Trim** substep using the **Selection** or **Line** mode. When done, click **Next**.



Selection mode



Line mode


► **Step 6: Scan the antagonist side**

Flip the mounting plate of the impression fixture so that the antagonist side of impression faces up. Be careful not to change the position of the impression in relation to the mounting plate. Insert the fixture into the scanner. The scanning starts automatically after closing the scanner door.







Perform the [adaptive scan](#), if needed, and [trim](#) the model. Click **Next**.

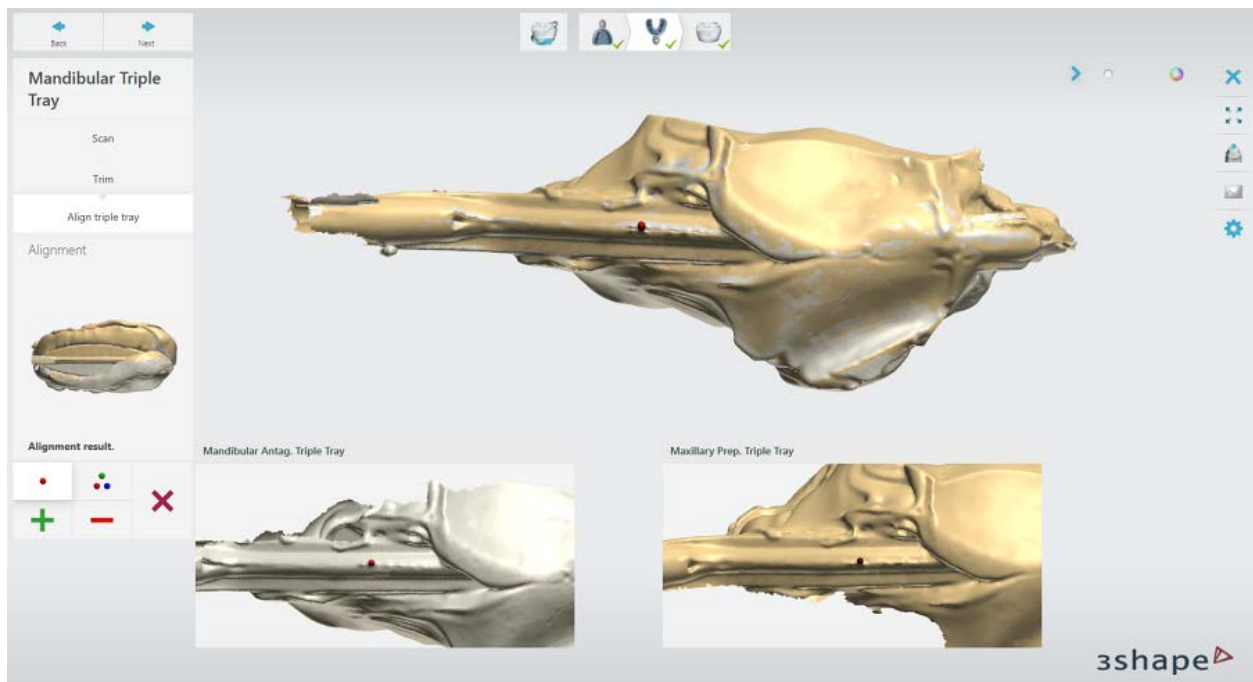
► **Step 7: Align preparation and antagonist scans**

The preparation and antagonist scans are aligned automatically. To realign them manually, click the **Align manually**  button.

Manual alignment

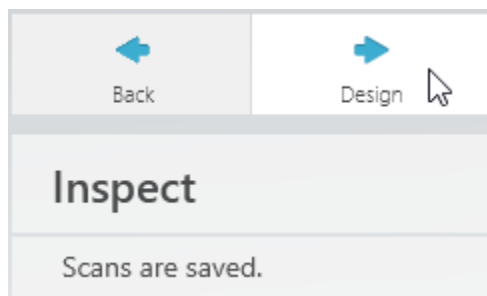
Place the corresponding points on the preparation and antagonist scans. You can use either one  or three-point  alignment method.

Also you can select an area for alignment on a scan using the  button. The  button allows you to correct the marked selection.



When finished, click **Next**.

► Step 8: Finish scanning



Once scanning is finished and scans are saved, you can start the designing procedure by clicking the **Design** button.

2.4.4. Two Single Trays and Centric Tray

►Step 1: Create an order

Scan settings

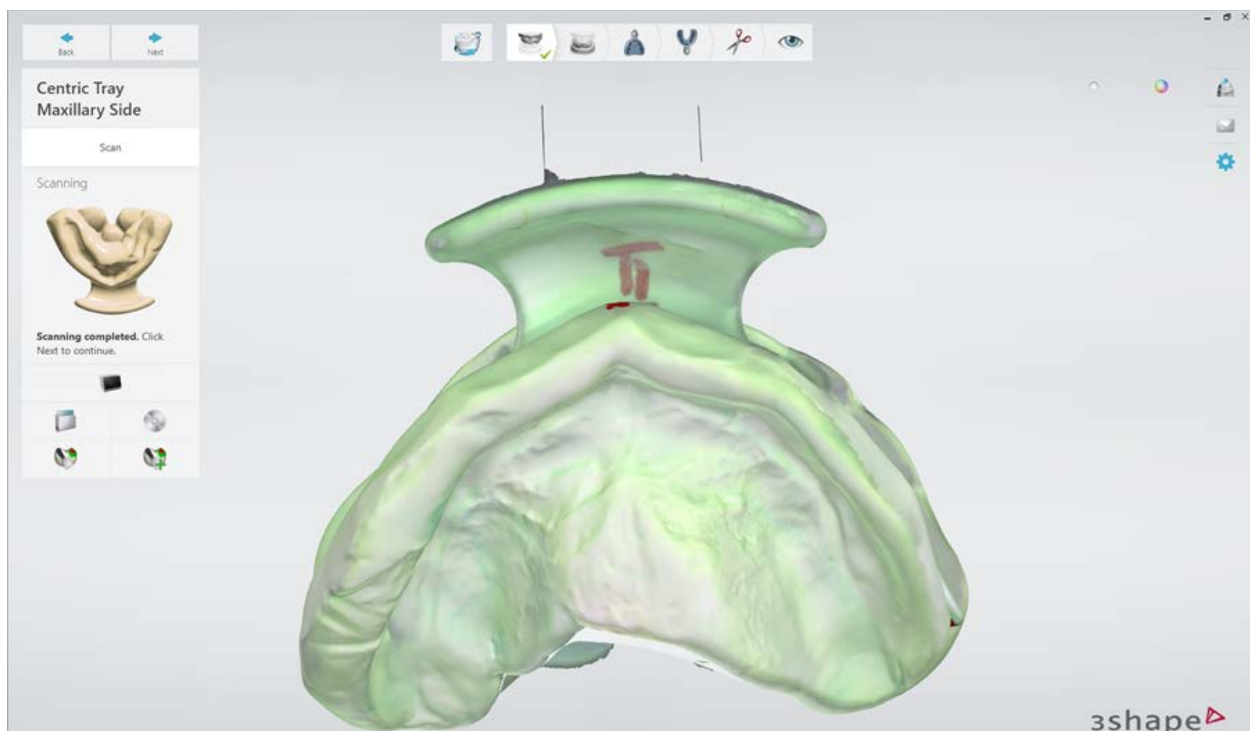
Object type	Impression	▼
Tray system	Two single trays and centric tray	▼

Before scanning impressions define your order in the [Order form](#). Select **Impression** as an object type and **Two single trays and centric tray** as a tray system. Click **Scan**.

►Step 2: Scan the centric tray

When ScanIt Dental opens, insert the centric tray into the scanner as guided by the software to scan the maxillary side. The initial scanning starts automatically after closing the scanner door.

For more information on the ScanIt Dental user interface, see the chapter [User Interface](#).



Click **Next** to proceed. Repeat the same for mandibular side of the centric tray.

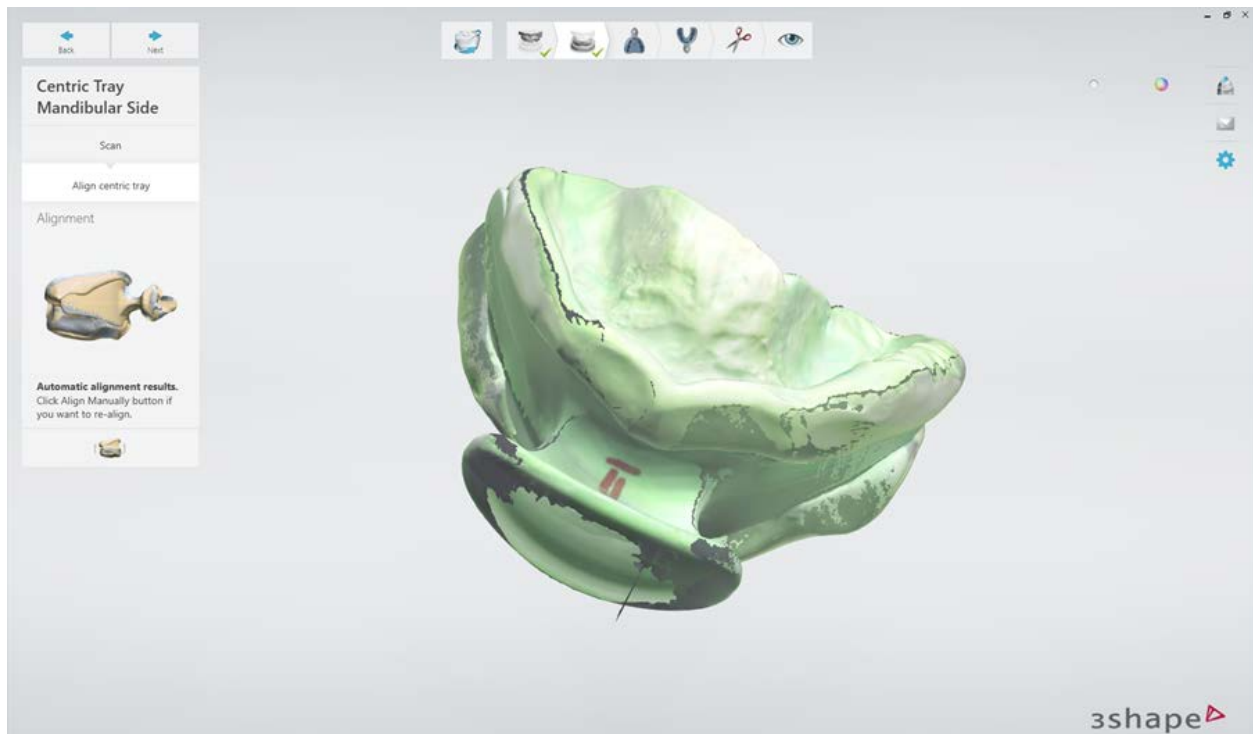
►Step 3: Align maxillary and mandibular sides of the centric tray

The maxillary and mandibular sides of the centric tray are aligned automatically. To realign

them manually, click the **Align manually**  button.

For more information about the manual alignment see [Align the bite](#).

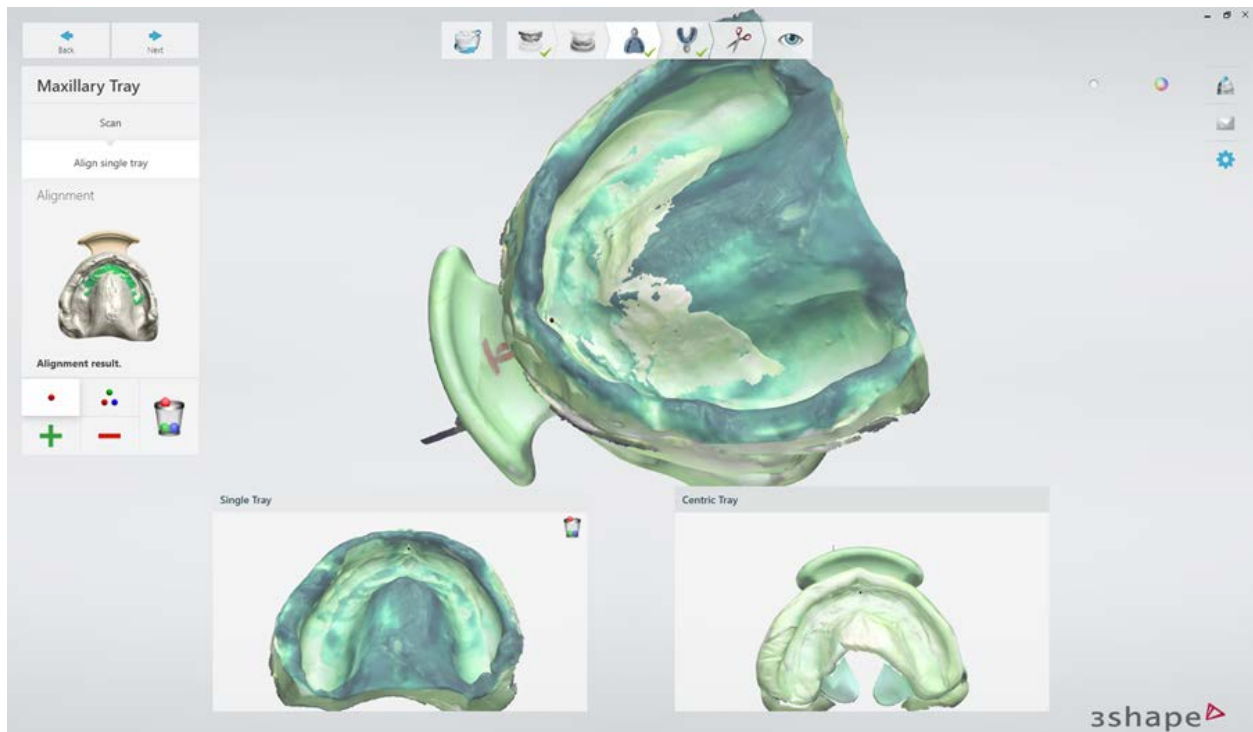
When finished, click **Next**.



► Step 4: Scan maxillary and mandibular trays

Insert and scan a maxillary single tray. When scanning is finished align the single tray to the centric tray (see [Align the bite](#)).

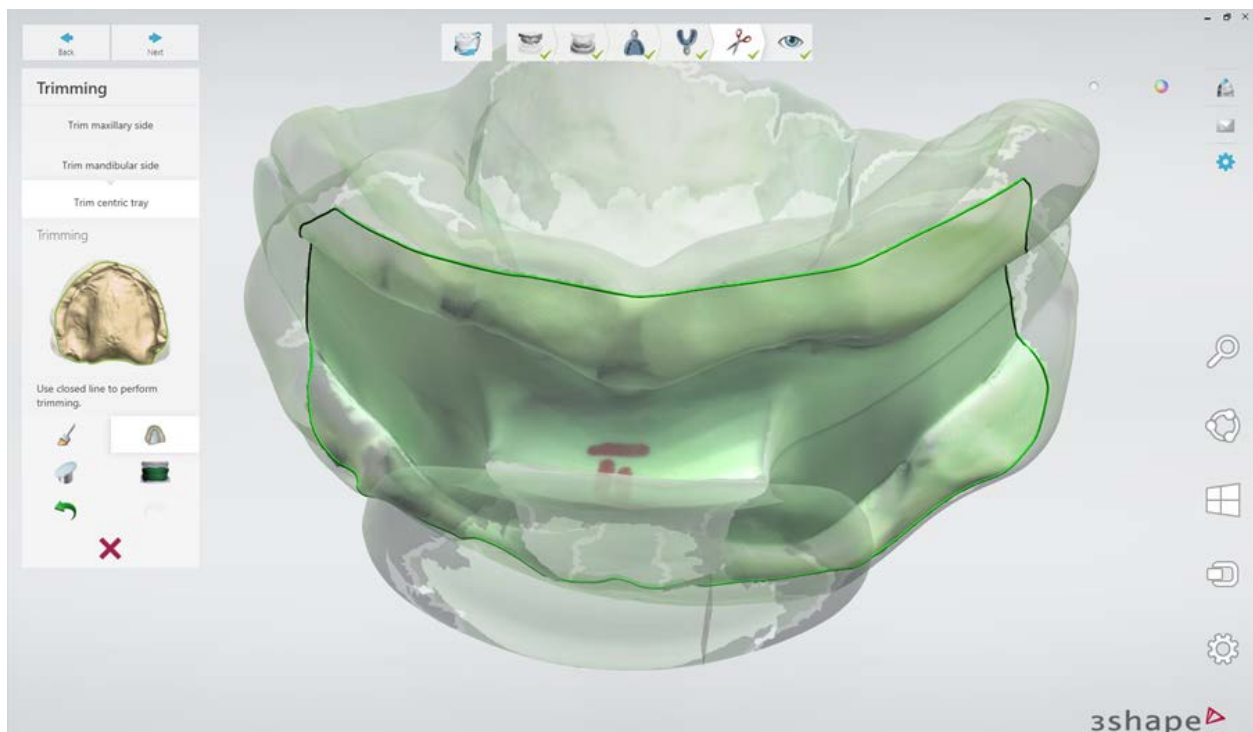
When finished, click **Next**.



Repeat the same for the Mandibular tray.

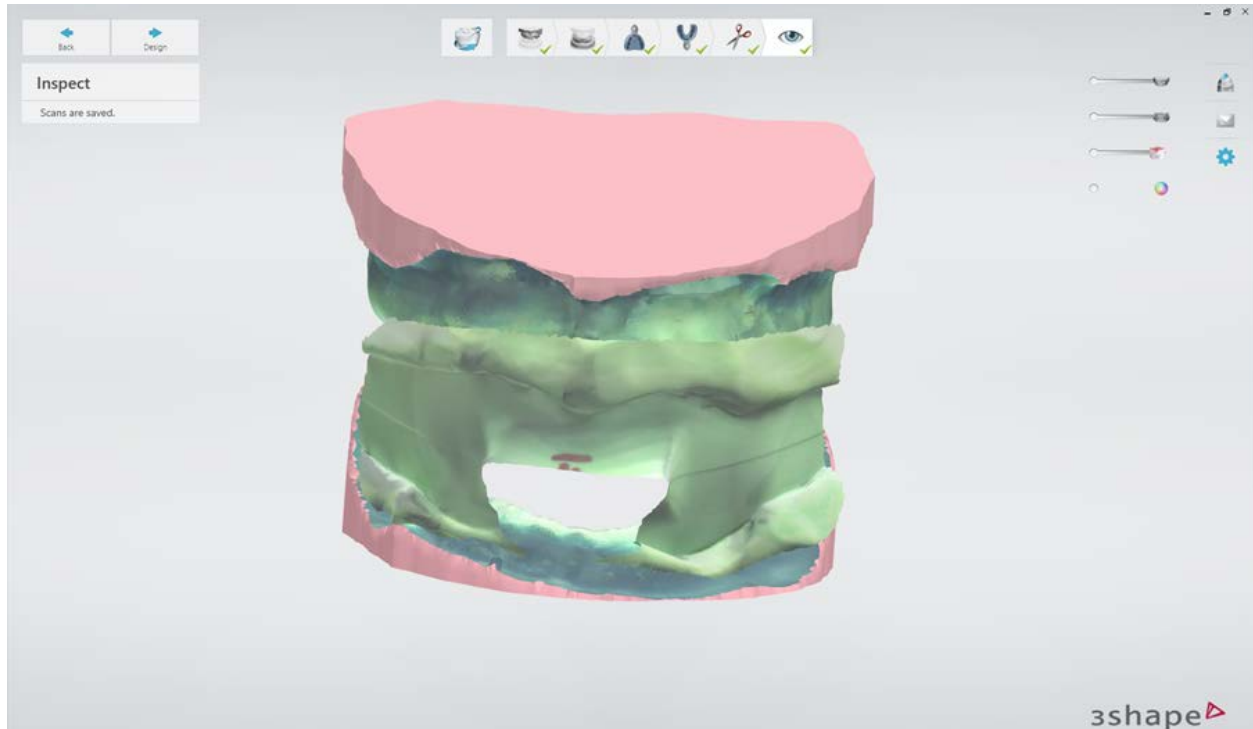
► Step 5: Trim the scans

Using trimming modes trim the maxillary side, mandibular side and centric tray.



►Step 6: Finish the order

Once scanning is finished and scans are saved, you can start the designing procedure by clicking the *Design* button.



2.5. Third-party Digital Impressions

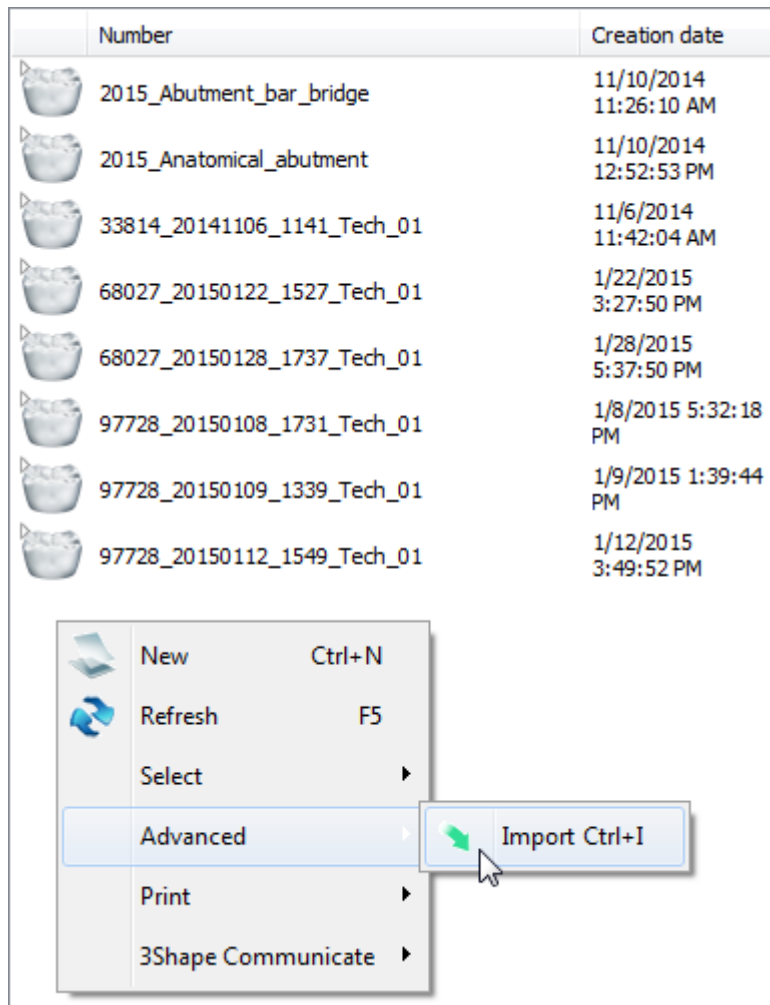
3Shape Dental System supports and allows you to model orders with intraoral scans from **3M Lava**, **iTero** and **Sirona** systems.



HOW TO IMPORT

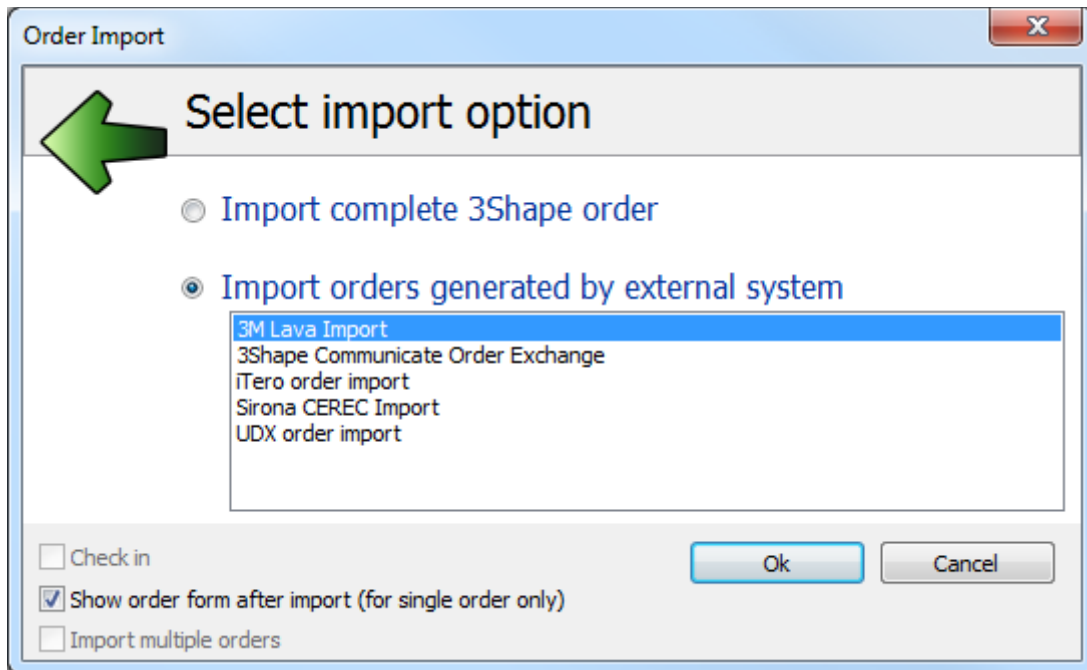
►Step 1: Select the Import option

Right-click the orders listing section of Dental Manager and select **Advanced** -> **Import** from the menu:



►Step 2: Select a relevant import type

Select one of the external systems from the list under **Import orders generated by external system** and click **OK**.



Detailed import procedures for each format are described in the corresponding sub chapters:

- [3M C.O.S. Orders](#)
- [Cadent iTero Orders](#)
- [Sirona Orders](#)

AUTOMATIC MATERIAL CONVERSION

During order import, the incoming order materials and 3Shape materials must be mapped. Please see chapter [Order Import](#) to read in detail about the automatic material conversion.

After the import and material conversion, the imported order becomes available in the Dental Manager order list and can be further modified as desired.

2.5.1. 3M C.O.S.

To use 3M C.O.S. scans, perform the following steps:

- **Step 1:** Log into the 3M ESPE Case Manager with your credentials:
<https://casemanager.3m.com>
- **Step 2:** Click the “Cases” tab at the top of the screen.
- **Step 3:** Type in the C.O.S. case number into the **Search** field.
- **Step 4:** Click on the case number link when you have found it.
- **Step 5:** Click the “Files” link at the top of the case detail page.

► **Step 6:** Locate the file that ends in “ULDC”.

Dashboard Cases

LAVA

Case B3XPM 000721

Info Prescription Files Audit

Lava Projects

Name	Mime Type	Region	Group	Uploaded	Size
B3XPM.000721_LavaDesign4_other-materials.exe	application/octet-stream			04/05/2010 at 11:00 AM EDT by production_console	498.78 KB
B3XPM.000721_LavaDesign4_circonia.exe	application/octet-stream			04/05/2010 at 11:00 AM EDT by production_console	498.76 KB

Uldcs

Name	Mime Type	Region	Group	Uploaded	Size
B3XPM.000721_LavaDesign5_ULDC.exe	application/octet-stream			04/05/2010 at 11:00 AM EDT by production_console	1.1 MB

► **Step 7:** Click on the ULDC file, and save it locally to your 3Shape computer.

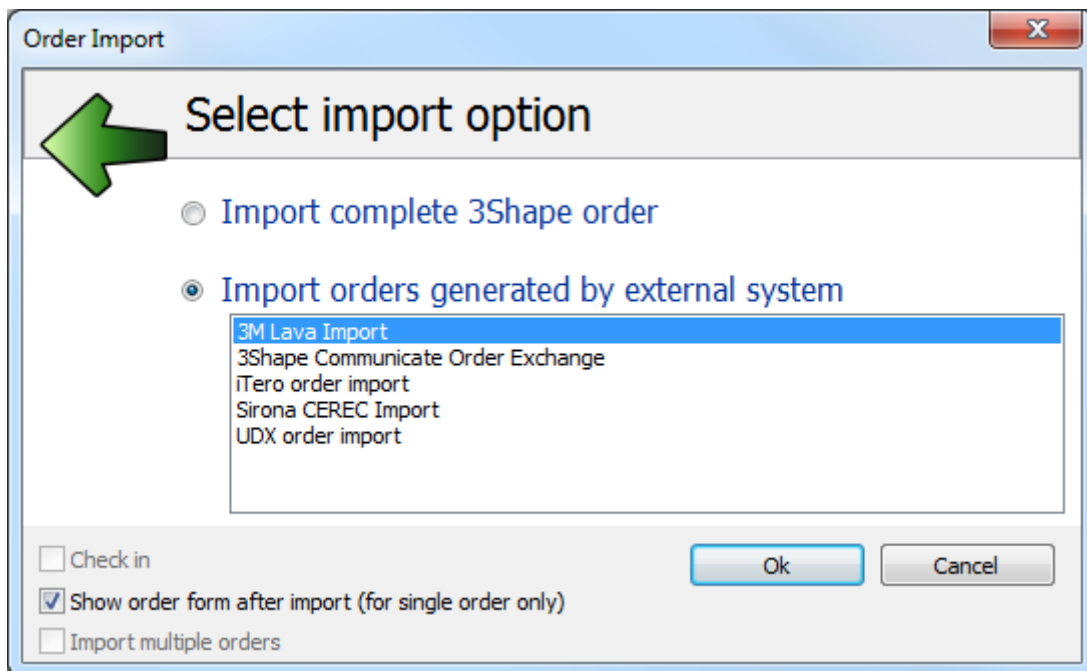
Temporary additional procedure:

► **Step 8:** You will need an extraction utility to unpack the ULDC file from its current archive. We recommend the 7-Zip tool, which is free for download from <http://www.7-zip.org>

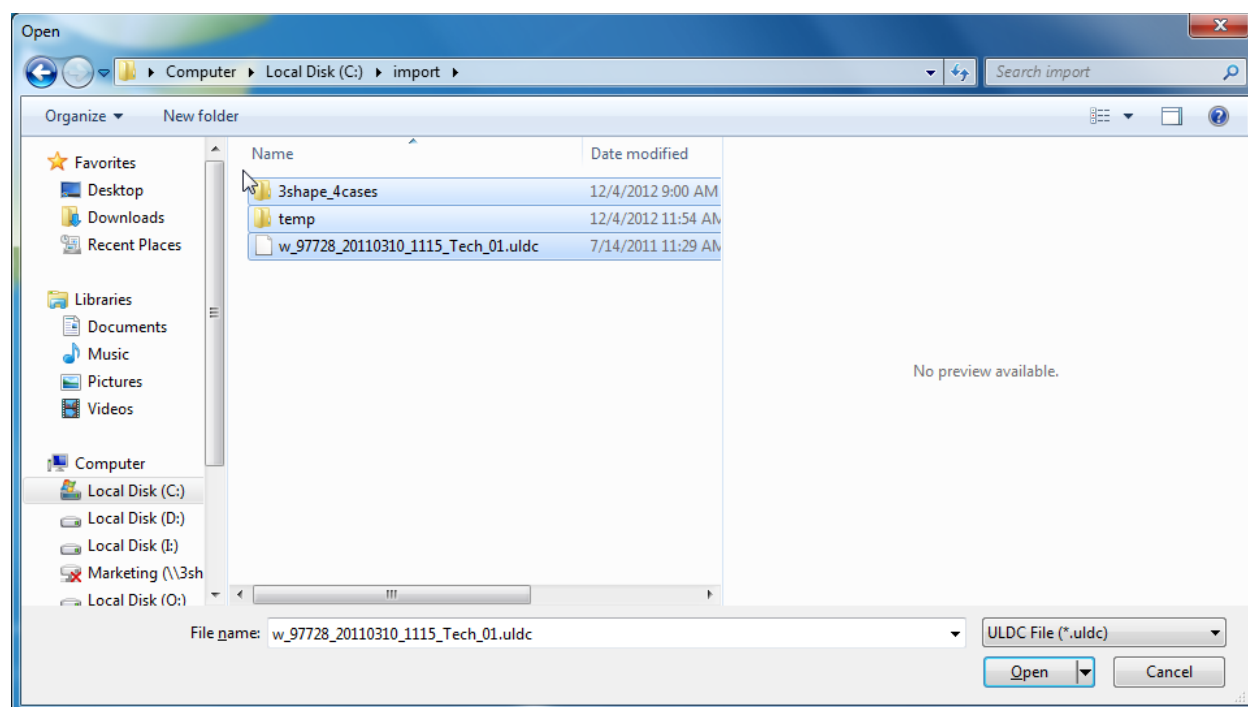
► **Step 9:** Locate the file you downloaded, right-click on it, and choose “Extract Here”.

► **Step 10:** This will extract file(s) with *.uldc extension to the same directory.

► **Step 11:** Import the *.uldc file(s) into 3Shape following the procedure:



In the file dialog, navigate to the location with intra oral scan orders and select one or more (pressing the Ctrl key) order folders or order files (depends on the manufacture). Click **OK** button:



To make the automatic mapping from the 3M C.O.S. materials to the 3Shape materials correctly, please insert the ID's below at the external ID for the corresponding 3Shape material, e.g. enter COS_0 for Zircon material, see also [Materials](#) chapter of Basic Elements.

C.O.S. material selection	3Shape ID
Zircon	COS_0
Other material	COS_1

The imported order appears in the Dental Manager orders list. Click the order to open it for modeling.

2.5.2. iTero

In order to use the iTero scan, it is first necessary to properly export it from the iTero lab software.

Defining target Folder

The default target folder is C:\iTero\Export. To change the default folder in which the export files are saved:

- Select 'Tools->Options...' and go to the **iDE** tab.
- Select '3Shape' as the CAD/CAM system.

- Use 'Browse...' to change the target folder.

iTero 3.4.3

iTero Data can only be exported when case is sent from Lab Review, the export is done based on the settings of **iDE Order** section in the Rx dialog.

- When a case is in Lab Review, open the Rx – image below shows the iDE Order section.
- Set the 'iTero Data Export' checkbox in the iDE Order section.
- Choose the name of your lab as the Production Center.
- Choose '3Shape' as the CAD/CAM System.
- When sending the case, iTero will export the data first and only then send the case.

The screenshot shows the 'Physical Model Order' and 'iDE Order' sections of the Rx dialog. In the 'Physical Model Order' section, 'Physical Model' is selected, 'Number of Models (including Dies)' is set to 1, 'Additional Dies (per tooth)' is set to 0, and 'Die Ditch' is unchecked. In the 'iDE Order' section, the 'iTero Data Export Order' checkbox is checked. Below this, 'Production Center' and 'CAD/CAM System' are both set to '3Shape' via dropdown menus.

iTero 3.5.0

iTero Data can only be exported when case is sent from Lab Review, the export is done based on the settings of **Local iDE** section in the Rx dialog.

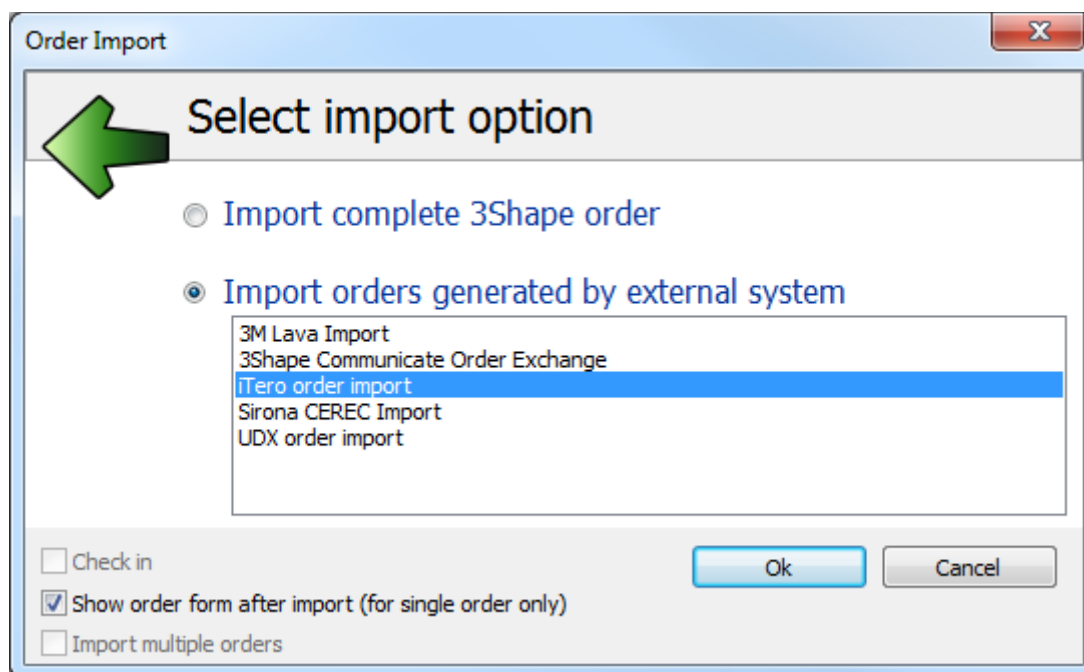
- When a case is in Lab Review, open the Rx – image below shows the Local iDE section.
- Set the 'Local Export of iTero Data' checkbox in the Local iDE section.
- Choose '3Shape' as the CAD/CAM System.
- When sending the case, iTero will export the data first and only then send the case.

The screenshot shows the 'Physical Model Order', 'Local iDE', and 'iDE Order' sections of the Rx dialog. In the 'Physical Model Order' section, 'Physical Model' is selected, 'Number of Models (including Dies)' is set to 1, 'Additional Dies (per tooth)' is set to 0, and 'Die Ditch' is unchecked. In the 'Local iDE' section, the 'Local Export of iTero Data' checkbox is checked, and 'CAD/CAM System' is set to '3Shape'. In the 'iDE Order' section, the 'iTero Data Export Order' checkbox is checked, and both 'Production Center' and 'CAD/CAM System' are set to '3Shape'.

To make the automatic mapping from the iTero materials to the 3Shape materials correctly, please insert the ID's below at the external ID for the corresponding 3Shape material, e.g. enter ITERO_16 for Alumina:Lab Preference, see also [Materials](#) chapter of Basic Elements. The 3shape External ID format is ITERO_<Material ID>.

<i>ToothMaterial</i>	Name	<i>ToothMaterial</i>	Name
1	PFM: High Noble Yellow	22	Zirconia: Everest
5	PFM: Semi-Precious	23	Zirconia: Cercon
7	PFM: High Noble White	24	Zirconia : Straumann Zerion
9	Pressable Ceramics: Lab Preference	25	Straumann IPS e.max CAD
10	PFM: 98% Gold (Captek)	26	Ivoclar IPS e.max
11	Procera	27	Straumann Polycon ae
12	Zirconia: Lab Preference	28	Straumann Polycon cast
13	Wol-Ceram	29	Straumann Polyamide
14	PFM: Base Metal	30	Full Gold White
15	Full Gold Yellow	31	Metal: Semi-Precious
16	Alumina: Lab Preference	32	Metal: Non-Precious
17	Composite: Lab Preference	33	Straumann Ticon
18	Zirconia: Procera	34	Straumann Coron
19	Zirconia: LAVA	35	Ivoclar IPS e.max CAD
20	Zirconia: Prismatic	36	Zirconia: BruxZir
21	Zirconia: Zeno		

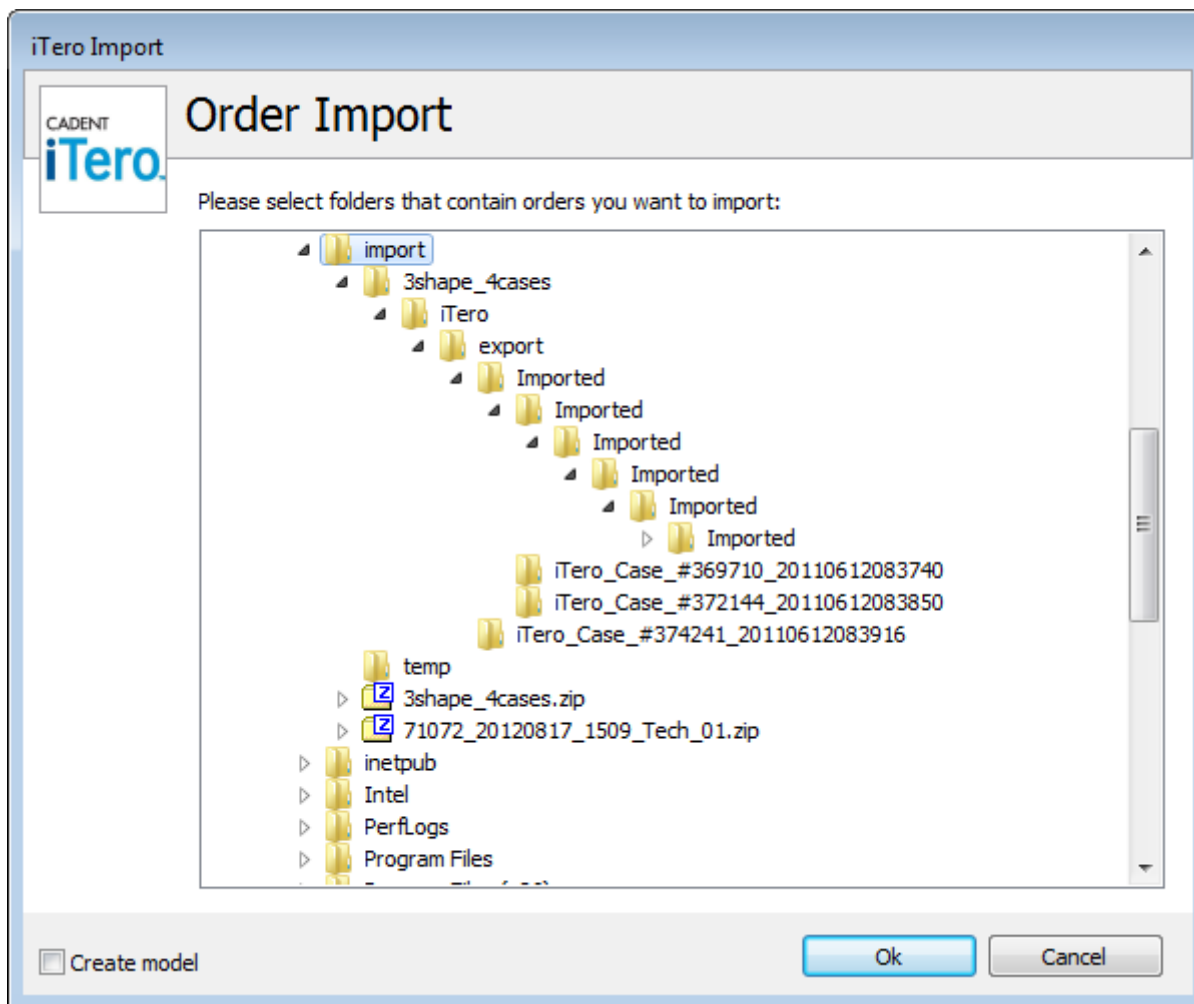
Select **iTero Order Import** and click **OK**:



You will get the *iTero Import* window similar to the one below. Select the necessary folder, choose the order and click **OK**.



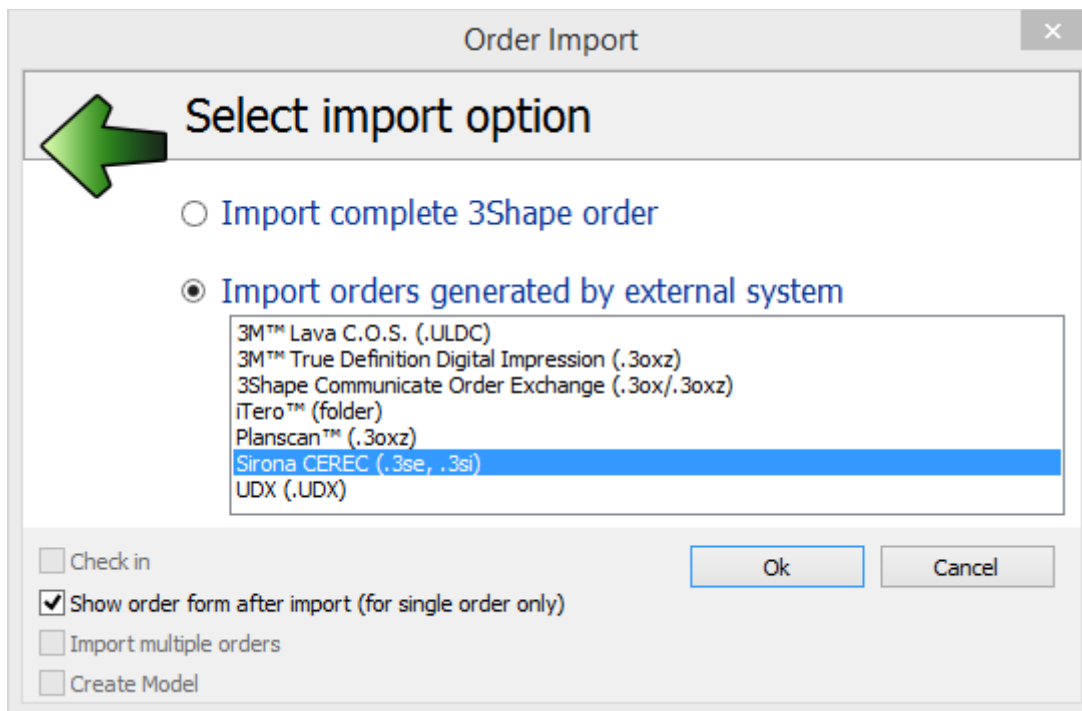
Hint! If you want to create a model in the Model Builder after the iTero order is imported, select the **Create model** checkbox in the bottom left corner of the form.



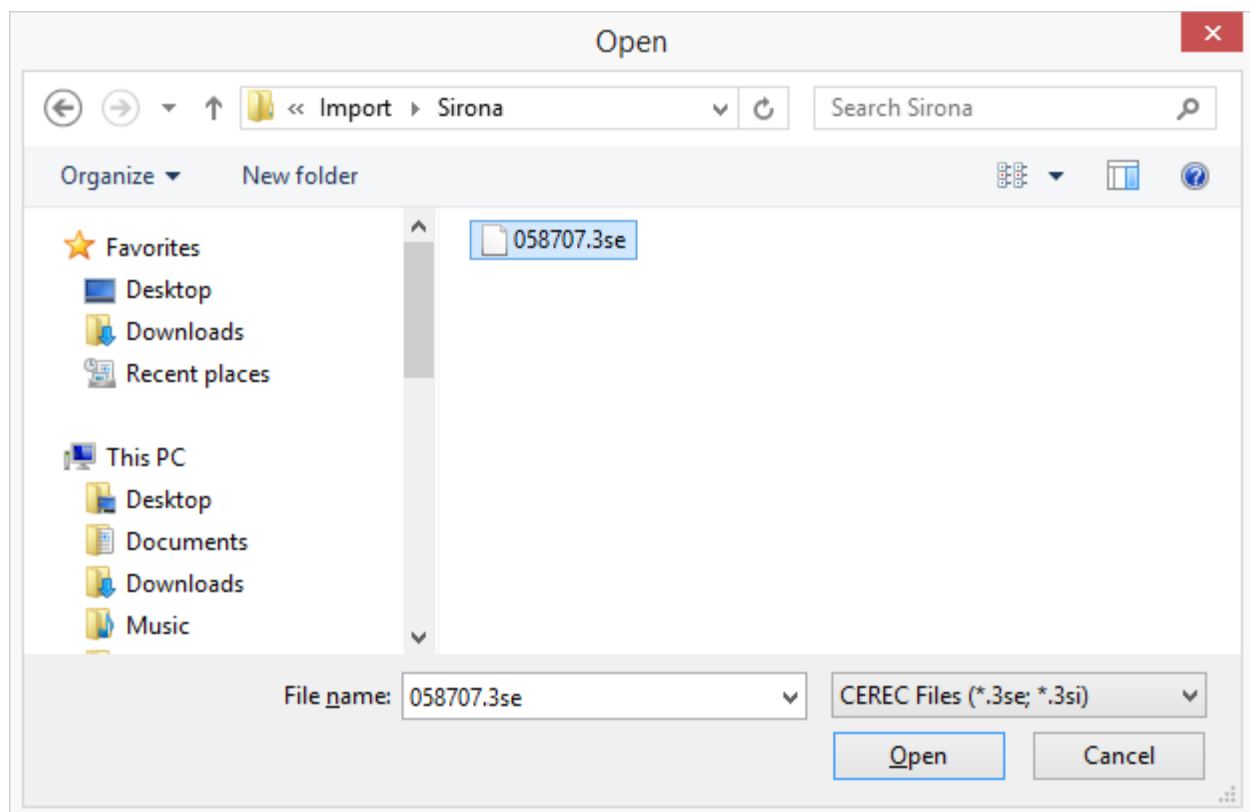
The imported order appears in the Dental Manager orders list. Click the order to open it for modeling.

2.5.3. Sirona

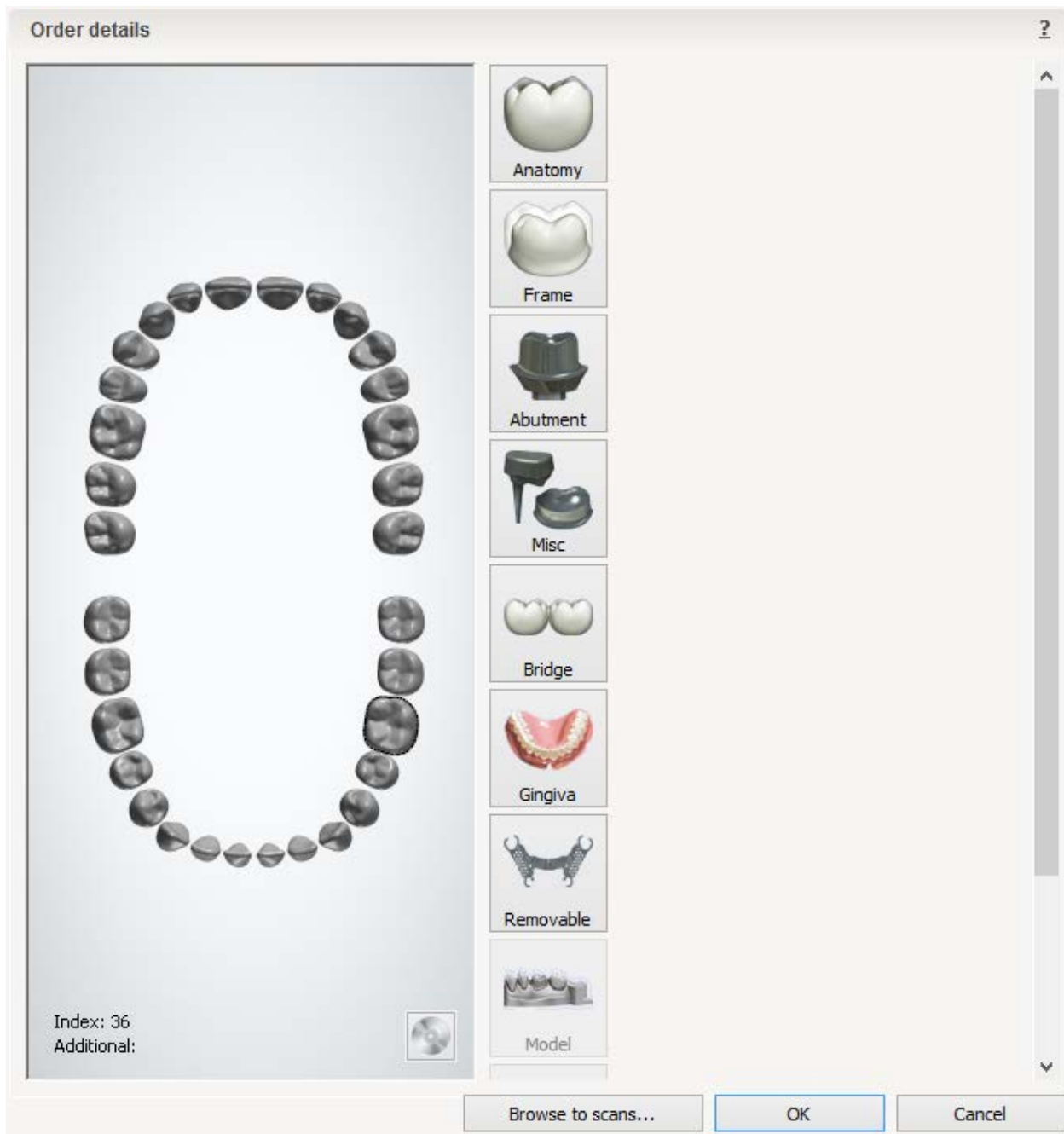
► **Step 1:** Select **Sirona CEREC** from the list and click **OK**:



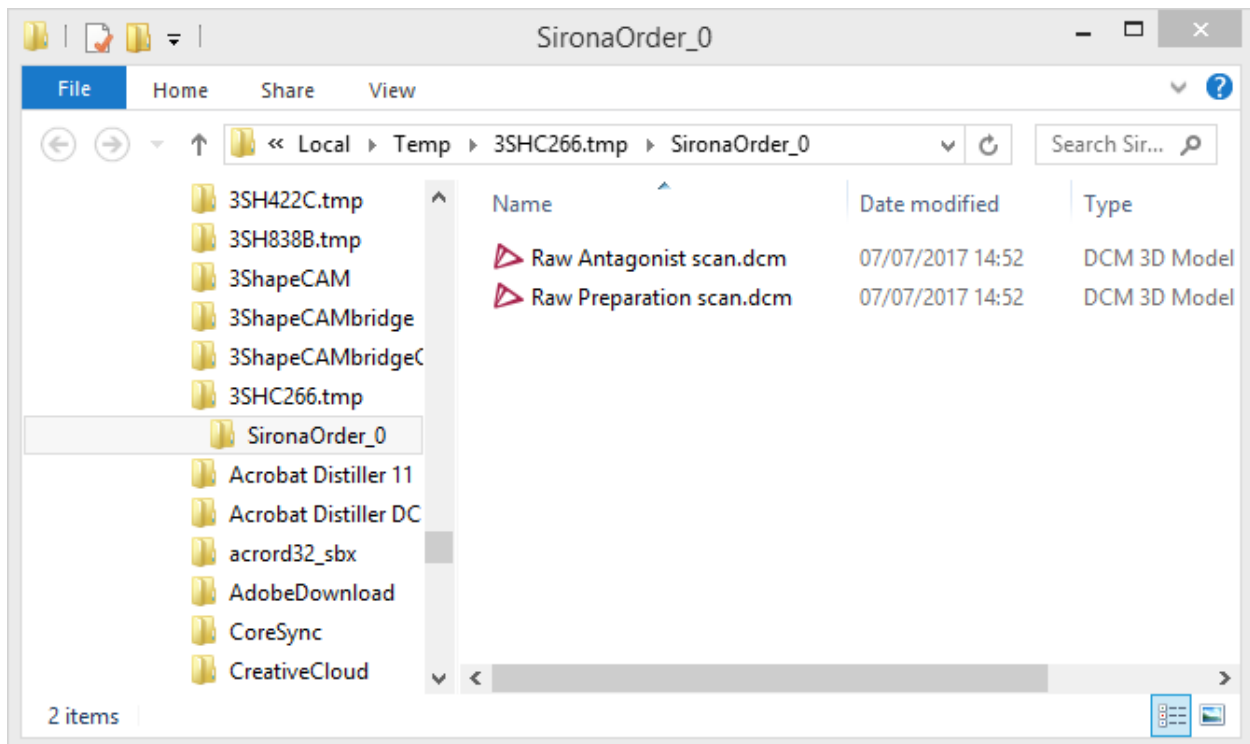
► **Step 2:** Navigate to the folder with the required order in the *Open* dialog, select the *.3se file and click **Open**:



After the import, you should validate correctness of the order information as it is often not created properly by the Dentist. Check the particular indications and materials. Modify the order if needed. If the imported order contains only scan and no order information, the Order form will be opened automatically so you could specify the order details.



► **Step 3:** Use the **Browse to scans** button to find the necessary scan and preview it to determine the tooth numbers:



► **Step 4:** Click **OK** in the order form to finish the importing process. Your order appears under the status **Scanned** in Dental Manager Orders list.

2.6. 3Shape Communicate Inbox

3Shape Communicate Inbox allows labs to receive TRIOS orders for design and manufacturing, and share orders with the external labs or other workplaces/Home PCs. It can be also used by manufacturing centers to receive orders from the labs for further production.



3Shape TRIOS® is a comprehensive digital solution. It enables dentists to capture intraoral situations directly as highly accurate 3D digital models and send them directly to the labs via 3Shape Communicate Inbox for expert design and manufacturing therefore, technicians can start the design process immediately, without creating a physical model.

TRIOS is optimized to support the full range of dental indications, the unique features include: spray-free scanning, high accuracy, clinical scan validation, online communication with the lab, intuitive Smart-Touch user interface and more.



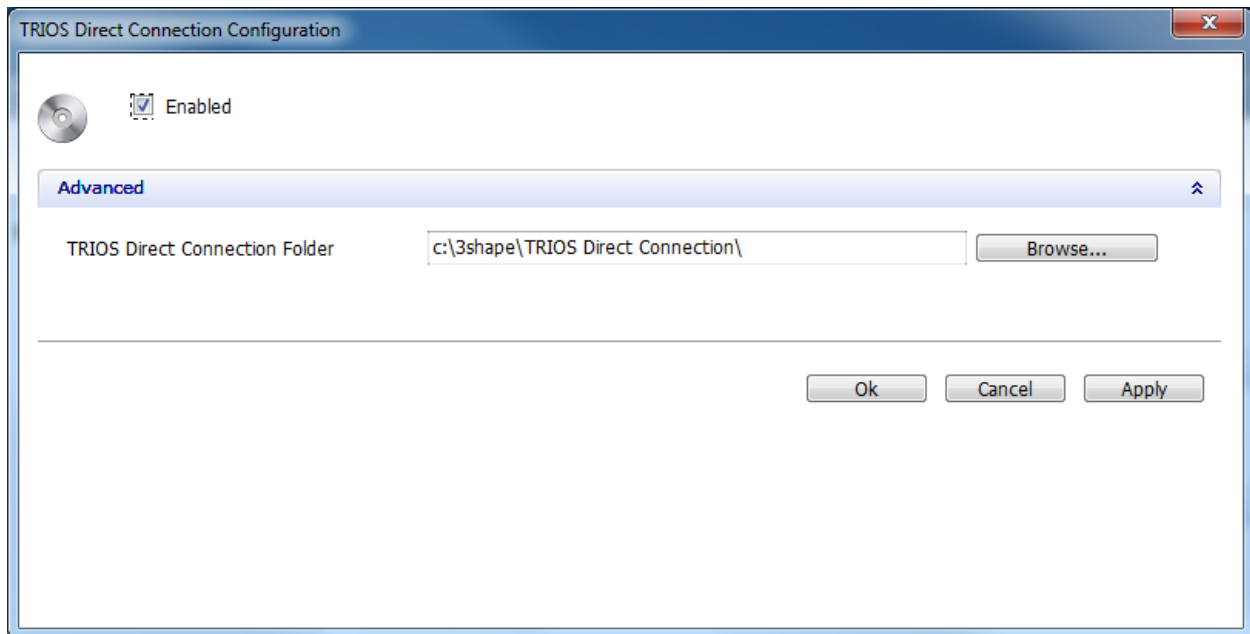
2.6.1. Connection Setup

There are two options of connection setup for 3Shape Communicate Inbox (both options are configured in Dental System Control Panel):

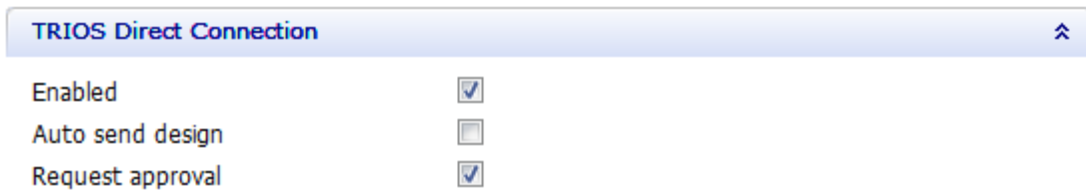
- **3Shape Communicate** (remote connection)
 - To set the option for the lab/manufacturing center, go to *Tools->3Shape Communicate* and configure **3Shape Communicate Integration**.
 - To set the option for a dentist, go to *Site Settings->Dentists* and configure **3Shape Communicate Integration**.
 - To set the option for an external lab, go to *Site Settings->Labs* and configure **3Shape Communicate Integration**.

Please see the chapter [Setup Dental System](#) for details.

- **Trios Direct Connection** (local, network connection)
 - To enable the option for the lab, select *Tools->3Shape Communicate->TRIOS Direct Connection->Configure*. Enable the connection in the appeared window and select the required folder in the *Advanced* tab.



- To set the option for a dentist, choose *Site Settings->Dentists*, select a site (dentist) and enable it under the **TRIOS Direct Connection**.



Please refer to TRIOS online help for configuration settings description.

2.6.2. Receiving Orders



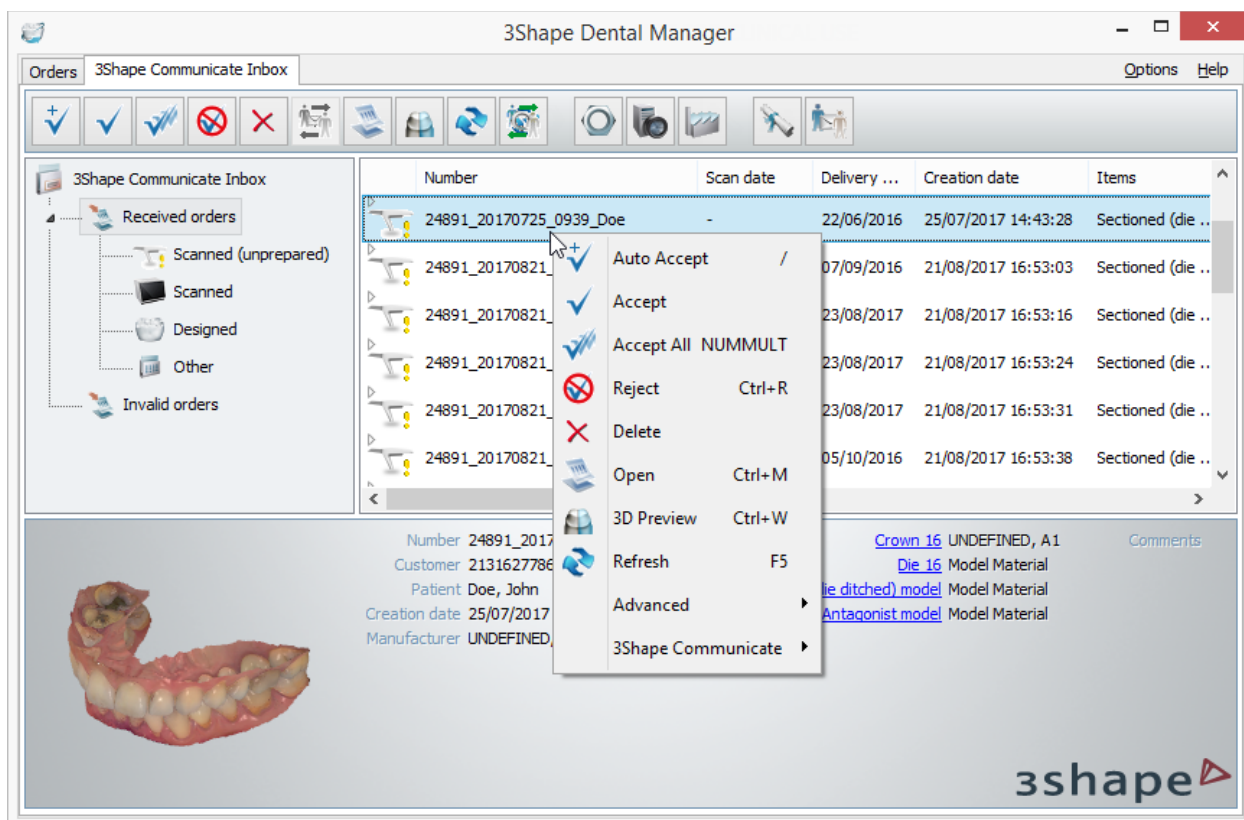
This section describes how to receive orders using 3Shape Communicate Inbox. The setup process is described in the chapter [Connection Setup](#).

► **Step 1: Run 3Shape Dental Manager**

► **Step 2: Open the *3Shape Communicate Inbox* tab and select the *Received orders* folder or one of its subfolders**

► **Step 3: Choose the required option from the right-click menu**

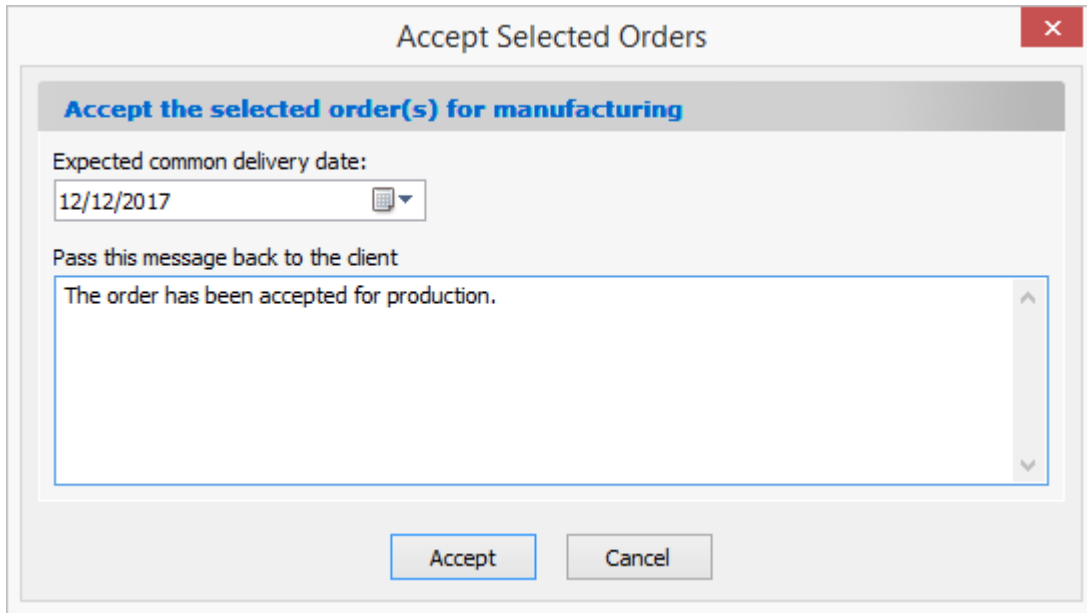
Right-click the chosen order and select the desired action in the appeared menu, you can also use the toolbar buttons.



► **Step 4: Accept the order**

The orders can be accepted by using the **Accept** and **Accept All** buttons or the right-click menu options. You can use the **Open** or **3D Preview** options before accepting an order.

The *Accept Selected Orders* window appears on accepting the order. Define the delivery date, write a comment and click **Accept**.



The image shows a software dialog box titled "Accept Selected Orders" with a red close button in the top right corner. Inside the dialog, there is a section header "Accept the selected order(s) for manufacturing" in blue. Below this, there is a label "Expected common delivery date:" followed by a text input field containing "12/12/2017" and a small calendar icon. Underneath is another label "Pass this message back to the client" followed by a large text area containing the text "The order has been accepted for production." At the bottom of the dialog are two buttons: "Accept" and "Cancel".

Receiving orders by manufacturers in 3Shape Communicate Inbox is similar to that in Dental Manager Inbox, which is described in the chapter [Receiving and Handling Orders at the Manufacturing Center](#).

When the Dental System does not find existing material mapping for the TRIOS order you are trying to accept, the *Default conversion used* order form appears:

The screenshot shows a dental order form titled "Default conversion used" in the background. The form is divided into several sections:


- Lab information:** Operator: <none>
- External Lab Information:** External Lab: - none -
- Customer information:** Customer: Materials Site, Contact person: (empty), Create date: 8/ 1/2017, Shipping date: 9/ 7/2016, Send information: (empty)
- Patient information:** Last name: (empty), First name: (empty), Clinical photos: (empty)
- Comments:** (empty text area)
- Order settings:** Order number: 30206_20170801_1616, Importance: Normal, Design Module: DentalDesigner 2017
- Scan settings:** Object type: Digital impression, Antagonist: Antagonist + Occlusal alignment
- Order details:** A central area showing a 3D dental model of a maxillary arch with a yellow overlay. To the right of the model are icons for Anatomy, Frame, Bridge, Gingiva, Removable, and Model.

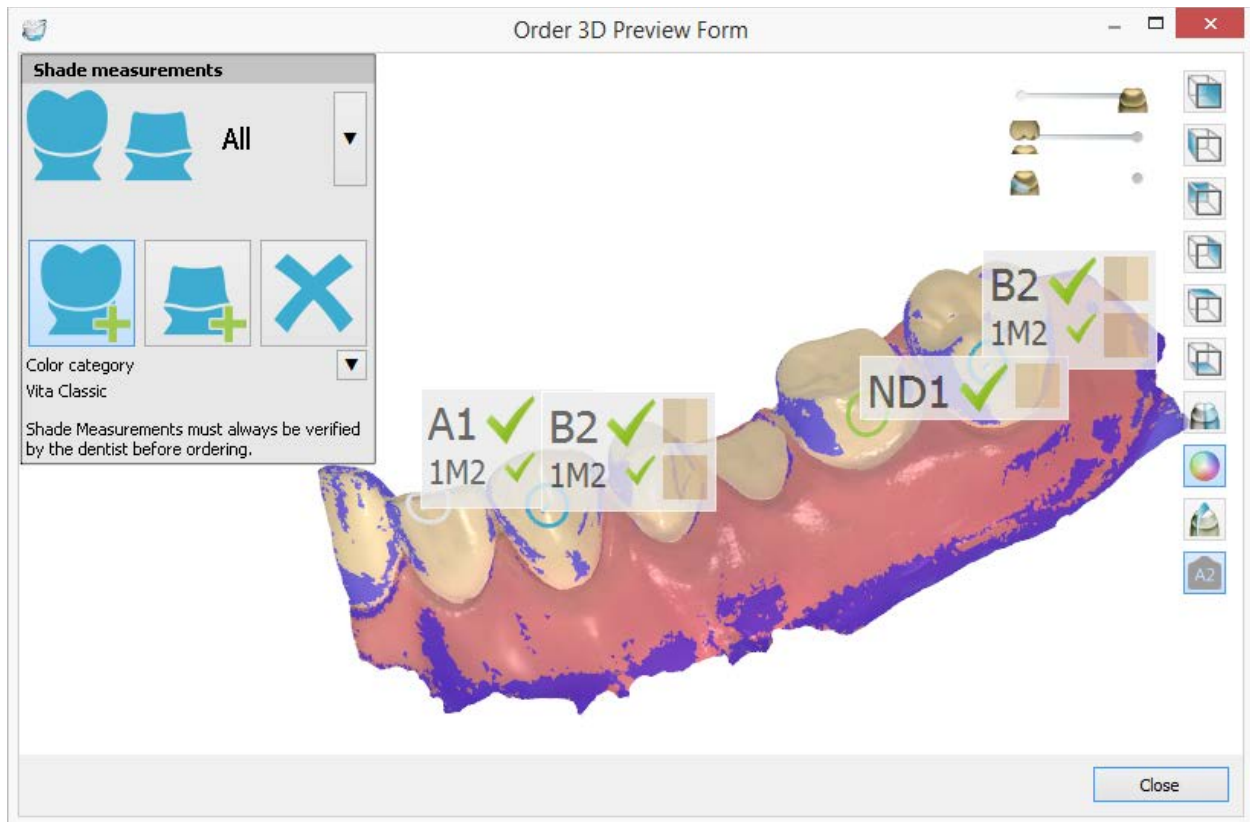
 Overlaid on the center of the form is a smaller dialog box titled "Default conversion used". It contains a blue arrow icon pointing left and the text: "The order has been converted according to default configuration. Please correct." Below the text is an "OK" button.

► Step 5 (optional): Preview the order

3D PREVIEW

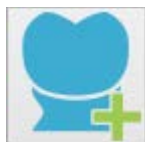
The **3D Preview** button in the bottom left corner of the order form opens up the **Order 3D Preview Form**, which allows you to view the scan.

If you are working with the TRIOS color scan, you can use the  **Shade Measurement** option to view/add/remove the shade measurements on the scan.



The area selected for shade measurement is marked with a circle and the attached label displays its color or stump shade. When the color shade is determined for the specific tooth, the main color shade is marked with a blue circle, whereas the extra shades are marked with a grey circle. When the color shade is determined for the whole scan, all color shade measurements are marked with a grey circle. A green circle is used to mark the stump shade measurements. The areas marked in violet require re-scanning for correct shade representation.

To add or remove the shade measurements, use the following options, which are selected by clicking the corresponding button:



Allows you to place the color shade measurements. Click on the tooth surface to place a new color shade measurement.





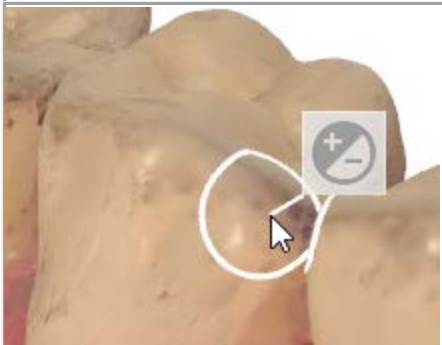
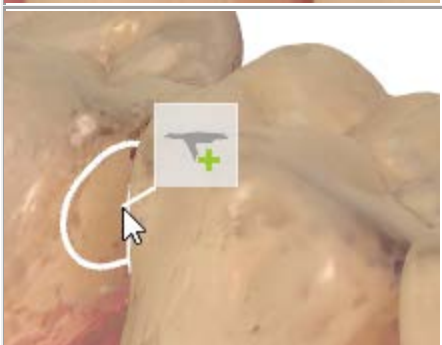
Allows you to place the stump shade measurements. Click on the surface of the preparation to place a new stump shade measurement.



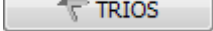
Allows you to remove the shade measurements. Click inside the measurement circle to delete the measurement.

Color category - allows you to select the shade system that will be used for shade measurement, e.g. Vita Classical/Vita 3D-Master.

While adding a Shade measurement, you might come across the following symbols, which notify you of the surface quality inside the circle:

 A close-up photograph of a tooth with a white circular selection tool. An overlay box shows 'B2' and '1M2' with green checkmarks and two color swatches.	1. The Shade measurement is successful.
 A close-up photograph of a tooth with a white circular selection tool. An overlay box shows 'A2' with an orange warning triangle and two color swatches.	2. The tooth color within the circle cannot be matched to any value in the selected shade system and you should move the cursor to a different area.
 A close-up photograph of a tooth with a white circular selection tool. An overlay box shows a circle with a plus and minus sign.	3. The circle covers an area with uneven color and you should move the cursor to a different area.
 A close-up photograph of a tooth with a white circular selection tool. An overlay box shows a green crosshair.	4. The scan quality needs to be improved in the circled area by re-scanning.

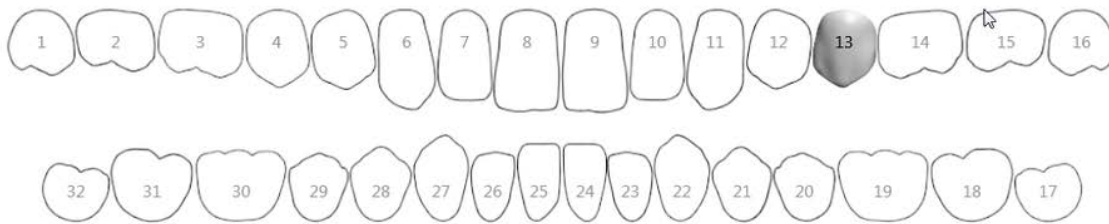
TRIOS ORDER FORM

Press the **TRIOS** button  in the bottom left corner of the order form to preview the TRIOS order form:



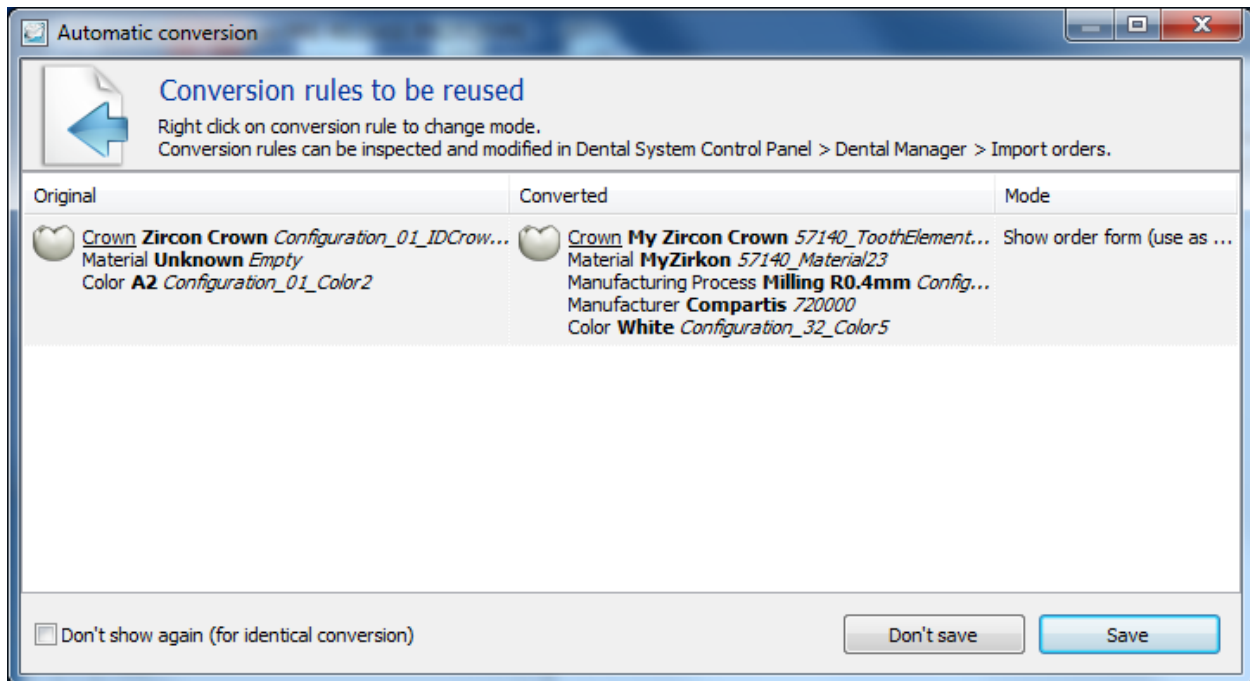
Date sent: 2012-08-29T16:26:41
Scanning date: 8/30/2012 9:51:57 AM

Dentist name:	Operator	Order number:	56047_120830095157
Patient name:	ALG Tar13	OrderHasNotAcceptedMessageID:	



Comments		
Restorations		
Types	Type	UNN
	Temporary Crown	13
Technical information:		
Template ID:	8c4319ee-04a4-4cec-aa6b-a0bc0105ea24	
Template version:	16	
Clinic ID:	56047	
Scan files	Scan type	Path
	upperjawscan	upperjawscan.dcm

Make the necessary selections in the order form and click the **OK** button at the bottom, the *Automatic conversion* window appears informing you about the conversion rule to save.

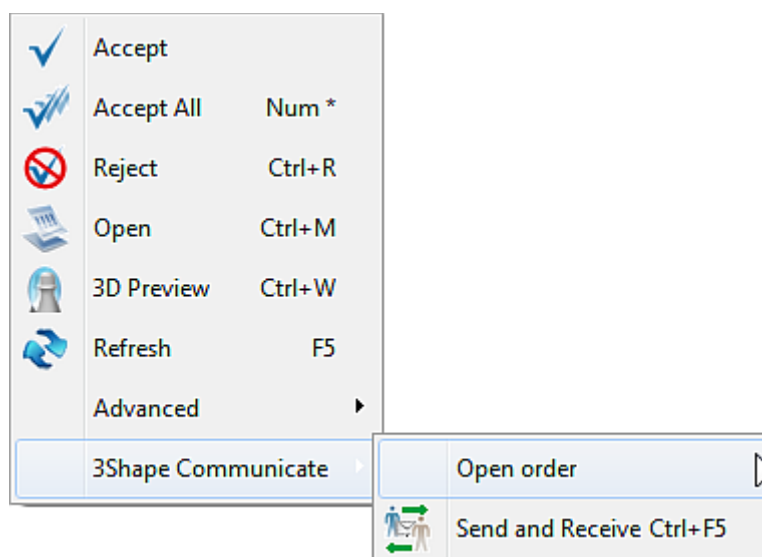


If you press the **Save** button, the selected material mappings will be automatically used for the orders with the same input next time.

Once Accepted, the orders are transferred to the **Orders** tab of the Dental Manager from where they can be modeled and taken into production in the usual manner.

3SHAPE COMMUNICATE

You can also open the selected order in [3Shape Communicate](#) to view and discuss the case if required:



3SHAPE COMMUNICATE ADVANCED DOWNLOAD

You can download a single order by its ID or orders created or updated within the specific time interval from 3Shape Communicate with the 3Shape Communicate advanced download functionality.



Caution! The use of the 3Shape Communicate advanced download functionality may cause changes in the existing orders.



Click the **Advanced download** button on the **3Shape Communicate Inbox** tab to open the *3Shape Communicate advanced download* form:

► **Step 1:** Enter the **Case id** value on the **Get single case** tab to download a single order or select the time interval on the **Get cases in interval** tab for batch download.

► **Step 2:** Adjust the provided settings if needed:

- **Store downloaded cases to** - a path to a folder where the downloaded orders will be saved. The **Reset** button restores the default value.
- **Convert cases to Dental System format after receiving** - when enabled, converts the downloaded orders to the Dental System format. Otherwise, the downloaded orders will not be converted and therefore will not be displayed in 3Shape Communicate Inbox until the automatic or manual synchronization with 3Shape Communicate.
- **Force downloading cases which were downloaded before** - when enabled, re-downloads the orders that have been already downloaded from 3Shape


Communicate. Note that using this option may change the existing orders after accepting the re-downloaded orders.

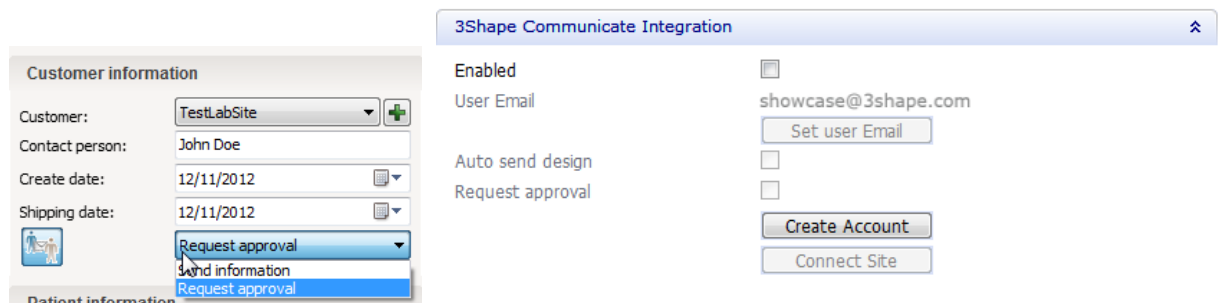
► **Step 3:** Click the **Receive** button to download orders.

2.6.3. Send and Communicate

A lab uploads CAD design of a modeled TRIOS order back to the dentist via [3Shape Communicate](#) site where the details of the design can be discussed.


Depending on the **Site** settings in the Dental System Control Panel, the **3Shape**

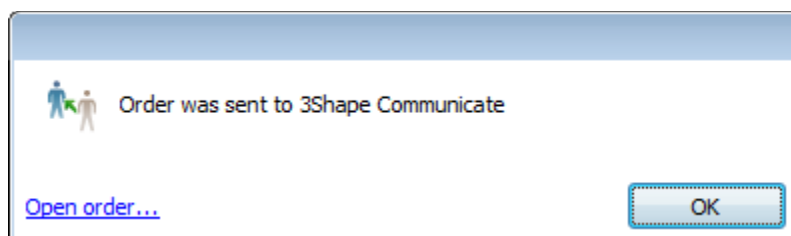
Communicate automatic order upload  button is automatically enabled in **Customer Information** field during order creation for customers with 3Shape Communicate Integration configured and at least one of the **Auto send design** or **Request approval** check boxes marked in *Dental System Control Panel->Site Settings->Dentists->3Shape Communicate Integration*, please see chapter [Dentists](#) for details.



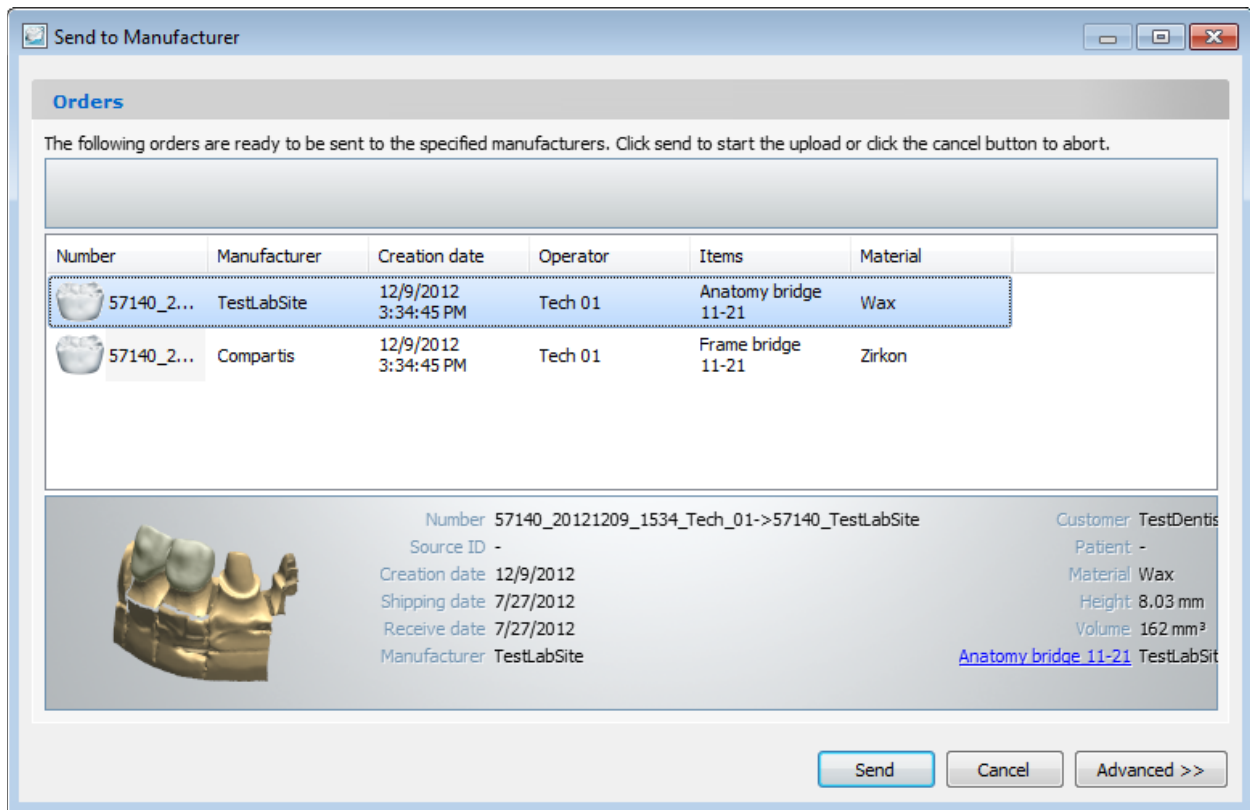
The image shows two parts of the software interface. On the left is the 'Customer information' form with fields for Customer (TestLabSite), Contact person (John Doe), Create date (12/11/2012), and Shipping date (12/11/2012). Below these is a dropdown menu with options: 'Request approval' (selected), 'Send information', and 'Request approval'. On the right is the '3Shape Communicate Integration' settings panel. It has checkboxes for 'Enabled' (checked), 'Auto send design' (unchecked), and 'Request approval' (unchecked). There is a 'User Email' field with the value 'showcase@3shape.com' and a 'Set user Email' button. At the bottom are 'Create Account' and 'Connect Site' buttons.

The option can also be enabled directly in the order form by pressing the **3Shape**

Communicate automatic order upload  button and selecting **Auto send design** or **Request approval** option. A confirmation window informs you of a successful upload:



The dentist is notified of the updated order status in 3Shape Communicate. In case of the **Request approval** option, the dentist needs to approve the design before it is sent to a manufacturer:

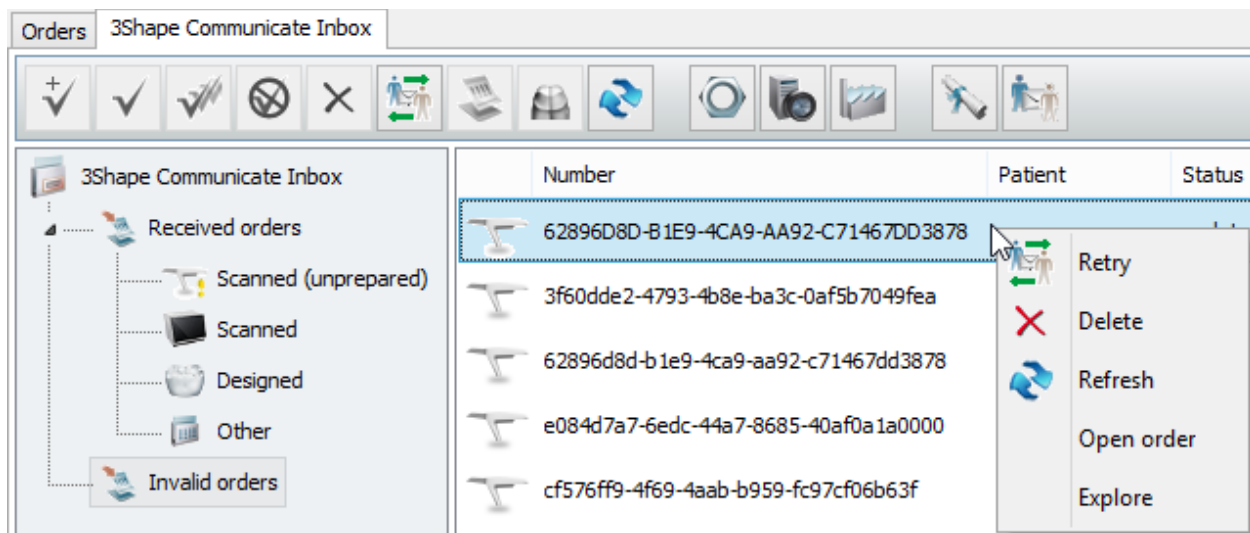


When you are satisfied with the design, click the **Send** button to have the order sent to the Manufacturer.

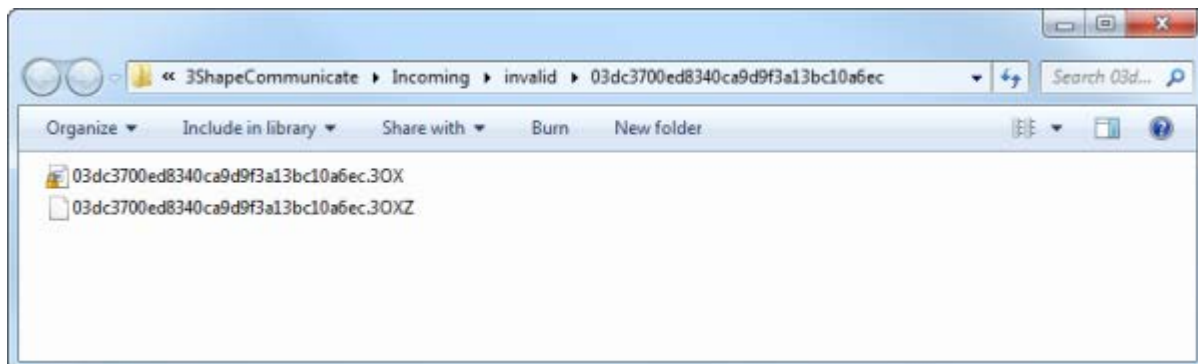
2.6.4. Invalid Orders

Orders that were received damaged or failed during conversion are moved into **Invalid orders** folder under the **3Shape Communicate Inbox** tab.

The following options are available from the toolbar and the right-click menu:



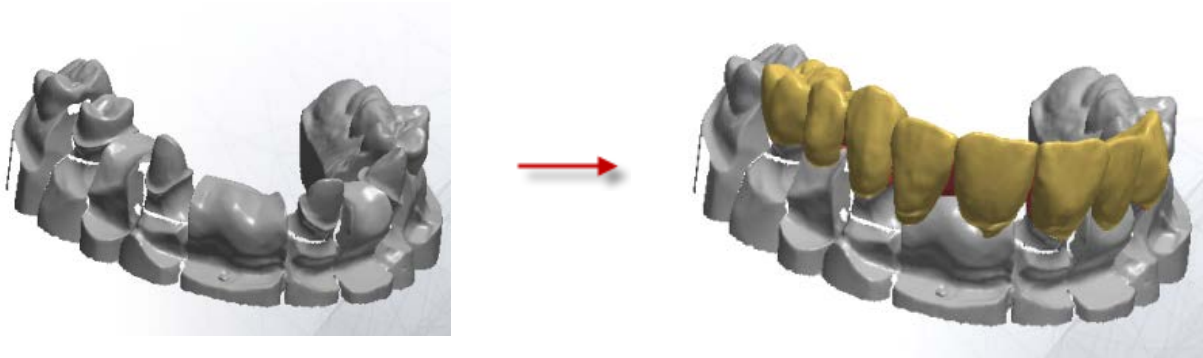
- **Retry** - Tries to reload the selected invalid order. The order will move to the **Received orders** folder of the **3Shape Communicate Inbox** tab on successful operation.
- **Delete** - You may wish to select and delete the invalid orders that cannot be reloaded. It is not possible to restore the deleted orders.
- **Refresh** - Refreshes the list of invalid orders.
- **Open order** - Opens the order in [3Shape Communicate](#).
- **Explore** - Opens the folder with the order:



2.7. Design

Dental Designer™ is an advanced software package for designing high-precision, customized restorations from 3D scans of dental models and impressions. Using the latest technologies, the Dental Designer™ software facilitates fast and easy modeling of complex constructions as well as enabling automatic manufacturing of the final restoration model on computer aided production equipment.

Dental Designer launches after you have placed an order in Dental Manager, scanned it and clicked **Design**. The image on the left illustrates the scan file that goes into Dental Designer for modeling; and the image on the right shows the output model ready for manufacturing.

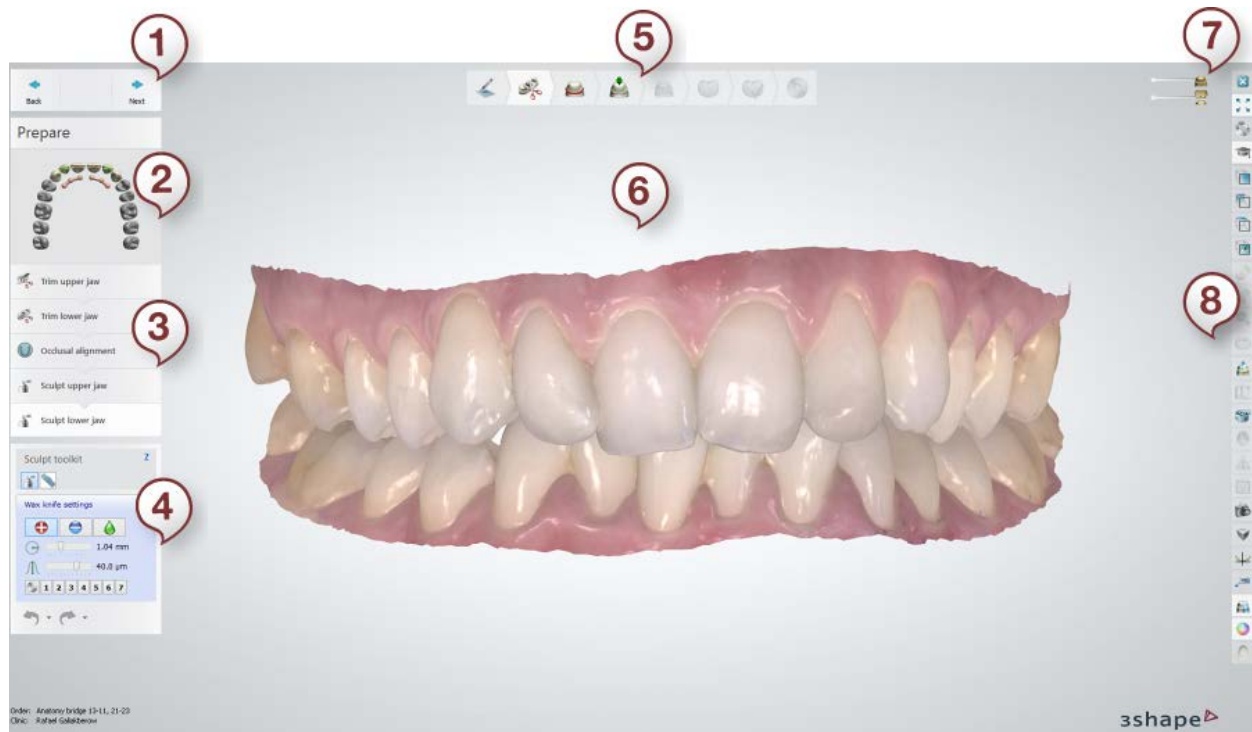


2.7.1. User Interface



After you have sent your order for modeling, Dental Designer starts up and its main window, similar to the image below, appears on the screen.

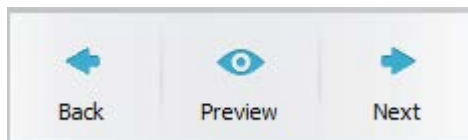
Your order is displayed in the Design window where you are able to view and model your order throughout the whole process.



1. Navigation panel
2. Order overview
3. Design steps
4. Design tools

5. Workflow bar
6. Design window
7. Visualization sliders
8. Viewing tools

2.7.1.1. Navigation Panel



The Navigation panel allows you to go to the next step or return to the previous one as well as preview the resulted design where possible.

To view the result of your design at a particular step, click **Preview**. Click **Next** to proceed to the next step, and click **Back** to return.

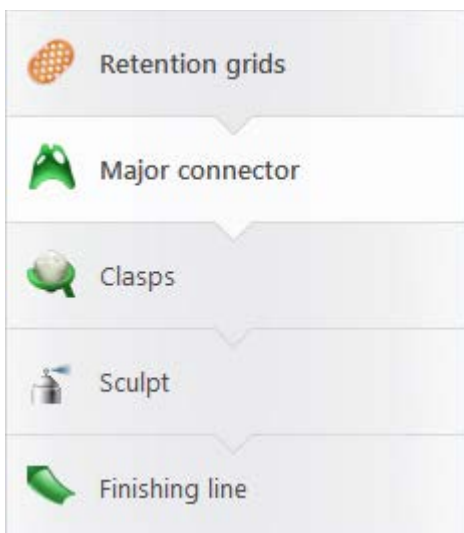
2.7.1.2. Order Overview



The **Order overview** section is designed to quickly provide information about the current job. It enables:

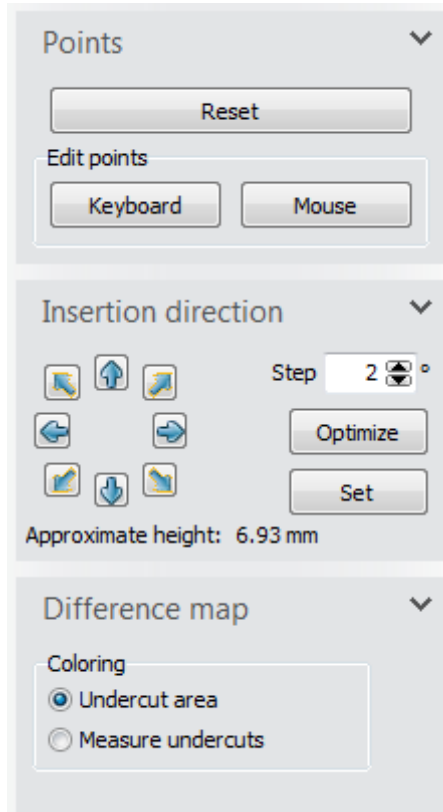
- An overview of the modeling jobs specified in the order form, as well as information on the currently active job highlighted with green arrows.
- Information on job names and tooth numbering when you pause the mouse over the item.
- Activation and switching between jobs by left-clicking on the corresponding item.
- The visibility of scans and restorations by right-clicking on the corresponding item.

2.7.1.3. Design Steps



The workflow steps in Dental Designer differ depending on the order (see section [Workflow bar](#)). Each of the workflow steps includes a number of the design sub-steps, which guide you through the designing process. Image to the left, for instance, illustrates the **RPD design** steps.

2.7.1.4. Design Tools



Each specific step in the **Design steps** section has its set of tools that become available when you click on the step or it gets activated automatically. These tools are displayed in the Design tools in the left part of the window.








For example, if you are at **Directions** step of the modeling process and working on the **Insertion Direction** of your model, a special window is displayed helping you set a correct insertion direction (see image). When you are, for instance, at the **Design frame** step, you can select the [Sculpt toolkit](#) to modify and transform your model as desired.

You will learn more about all these tools from the next chapters during the design process.

2.7.1.5. Workflow Bar

The **Workflow bar** displays the main steps of the modeling process, which differ depending on the order you are currently designing:

	Order - lets you return to the order form for an overview and make adjustments when needed.
	Prepare - brings you to the step for preparing a scan before further 3D modeling.
	Model analysis - allows you to set occlusal plane, characteristic points and jaw boundary for dentures design.
	Surveying and Blocking out - lets you block out undercuts with the help of wax.
	Segmentation - allows you to place and edit a margin line in order to section the scan.
	Directions - brings you to the step for defining insertion direction.
	Pre-design anatomy/Design anatomy placement - brings you to the step for defining the initial design.

	Interfaces - brings you to the step for designing interfaces.
	Frame design - brings you to the step for designing frames.
	Abutments/Post and Cores - brings you to the step for designing abutments.
	RPD Design - brings you to the step for designing removable partial dentures (RPD).
	Telescopes - brings you to the step for designing telescopes.
	Anatomy design - brings you to the step for designing anatomical elements of your dental indication (e.g. crowns).
	FD Initial Setup - brings you to the step for designing full dentures.
	Tray Design - brings you to the step for designing a customized impression tray.
	Build model - brings you to the step where you can go to 3Shape Model Builder™ for designing a model.
	Finalize - verifies the complete restorations and adds final touches. Anatomy design (FD workflow) - allows you to prepare the restoration for manufacturing.
	Place in block - allows you to position a design inside a block for further CAD block milling. Premanufacturing - allows you to attach a sprue to the designed restoration.
	CAD Disc (FD workflow) - allows you to align the design for manufacturing.
	Save - exports the completed restorations to input files for computer aided manufacturing facilities.
	Ready to send - brings you to the step for sending the ready order to the manufacturer.

Depending on the order, you can either access any workflow step at any time during the design or navigate only between those steps that are accomplished. Click on the enabled steps (those that are not highlighted in gray) in the workflow bar to navigate between them.














2.7.1.6. Visualization Sliders

















The **Visualization sliders** appear in the upper right corner of the Design window. These sliders enable you to change the models translucency, view the model and its parts from different angles, as well as see additional information such as collision lines.

Depending on a model, a step within the modeling process and settings in the Order Form, the number and appearance of the **Visualization sliders** can change. Some of the sliders need to be activated by clicking on the dots located next to them (the dots become black when activated). To adjust visibility, left-click on the icon and drag sideways.



The table below describes the Dental Designer **Visualization sliders'** options:

	Preparation - makes the preparation scan more/less translucent.
	Antagonist - makes the antagonist more/less translucent.
	Cut neighbors - when active, cuts the neighbors of the model so you can see it from the sides when rotating.
	Inactive items - makes the restorations that are not modeled at the moment more/less translucent.
	Active item - makes the restoration that is modeled at this point more/less translucent.
	Collision lines - shows the collision points of the model with neighbors and/or antagonist.
	Top cap angle graphics - shows the abutment top cap insertion direction and implant direction. The exception are multi-unit abutments, where the top cap insertion direction and interface direction are shown.
	Undercuts - makes the undercuts more/less translucent.
	Thickness map - displays a color chart of the model thickness.
	Distance map - provides a visual information on the distance between a model and an antagonist and/or neighbors with the help of a color map.
	Minimum thickness - shows surface of the minimum thickness for the chosen material.
	Non-millable areas - shows areas on a model that cannot be milled with the drill of a specified radius. The drill radius is selected by dragging the slider sideways.
	Attachment - used to adjust attachment visibility.

	Articulator - toggles articulator visibility.
	Scan Abutment - makes the scan abutment more/less translucent.
	Implant - makes the implant more/less translucent.
	Interface - makes the abutment interface more/less translucent.
	Base - makes the abutment base more/less translucent.
	Screw - makes the abutment screw more/less translucent.
	Blank - shows/hides the abutment blanks.
	Screw hole - shows the direction of a screw hole in abutments.
	Pre-preparation - makes pre-preparation scans more/less translucent.
	Double preparation - makes double preparation scans more/less translucent.
	Wax-up bridge - makes the scan of a wax-up bridge more/less translucent.
	Wax-up - makes the scan of a wax-up more/less translucent.
	Telescope - makes the telescope more/less translucent.
	Anatomy design - makes the anatomy of the restoration more/less translucent.
	Frame design - makes the framework of the restoration more/less translucent.
	Margin line and insertion direction - on the Save step, shows/hides the margin line and insertion direction for the following indications: <ul style="list-style-type: none"> • single coping • bridge framework • full anatomical crown • full anatomical bridge • customized/anatomical abutment • screw-retain crown • primary and secondary telescopes • post and core • any combination of the listed above
















2.7.1.7. Viewing Tools









Dental Designer comes with a set of Viewing tools and functions aimed to help you find the most advantageous visualization in different situations.

✓	Standard views
✓	Surface measurement
✓	Edit settings
✓	Visual settings

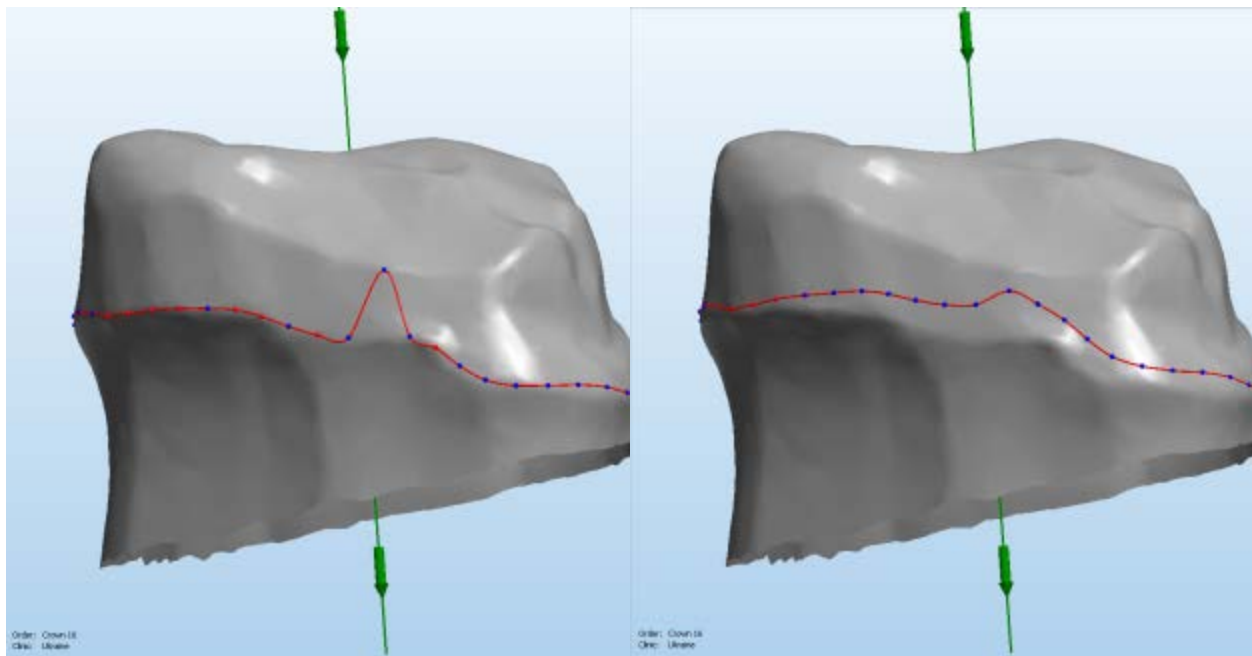
Viewing tools can be configured in the right-click on the viewing tools bar menu.

The Viewing tools:

	Close order - closes the current order.
	Design mode - opens the design window in a full screen mode.
	Save modeling - saves all operations applied to the model..
	Expert mode - when ON, enables the Advanced settings in the Design tools.
	View – the view buttons allow you to switch between the predefined viewpoints: Front , Rear and Top .
	Set front view - allows to set the model's front view. Rotate the model to find an optimal front view and click Set front view .
	Distance Measurement - allows you to measure distances from the model to the adjacent teeth, preparation scan and antagonist as well as the restoration thickness (see chapter Distance Measurements for details).
	Point dragging* – changes the degree of spline point dragging for all features (see images below).
	2D Cross section – provides the 2D cross section for a better model inspection. Please see section 2D Cross Section Window for more information.
	Virtual Articulation - allows for virtual articulation during the Anatomy Design step (see chapter Dynamic Virtual Articulation for details).
	Patient specific motion – allows you to view the patient's articulation recorded with a TRIOS scanner and adjust your design accordingly (see chapter Smile Composer for details).
	Measurement grid - allows to measure the distance from the center of the grid to the desired point.
	RealView - enables the RealView Engine. If no clinical photo(s) have been selected in the Order form, the button will open a browser for selecting clinical photo(s). Please see chapter RealView Engine for details.
	Validation - evaluates the restoration according to the standard minimal values pre-set in Dental System Control Panel (or manually defined) and marks the areas that need correction. See chapter Validation for details.
	Bounding box** – outlines the borders of an active element of the design or the whole dental indication (see image below).

	Create Screenshots - takes a screenshot of the current model position and allows to add comments to the screenshot. See chapter Lab to Dentist Communicate Workflow for details.
	Perspective view - enables the perspective view, allowing for a more natural model viewing.
	Configure 2D overlays - allows you to work with the 2D images of patients' smiles as well as align teeth using predefined guiding templates (see chapter 2D Design Overlays for details).
	Show annotations - displays annotations on the model.
	Material shaders - marks the 3D model parts with the corresponding colors, imitating the surface of the real restoration materials.
	Show scanner acquired texture - enables the mode for viewing hand-drawn markings on the scan. The feature is only available for Removable Partial Dentures and dies (crowns, frames).
	Shade measurement - allows you to view/add/remove shade measurements on the TRIOS color scans.
	Show textures on library models - when the 'RealView' smile library is selected in Smile Composer , the icon appears active and can be used for texture visualization.

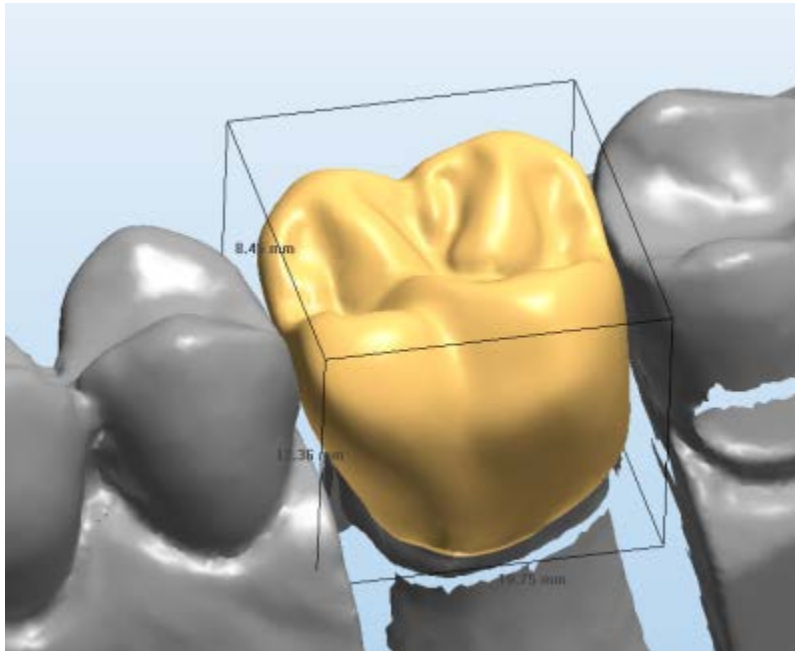
POINT DRAGGING*



Point dragging value set to minimum


Point dragging set to a higher value

BOUNDING BOX**

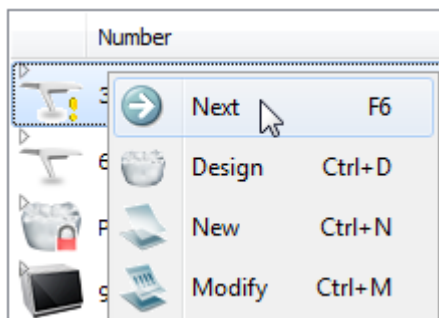


2.7.2. Prepare Digital Impressions

2.7.2.1. Prepare scan

Orders appearing under the status **Unprepared**  (scanner with an exclamation mark) in Dental Manager orders list should be opened in Dental Designer for alignment, trimming and sectioning operations.

►Step 1: Open unprepared scan in Dental Designer



Double-click an order with unprepared scan in Dental Manager listing or select **Next** from the right-click menu. You are redirected to the **Prepare** step.

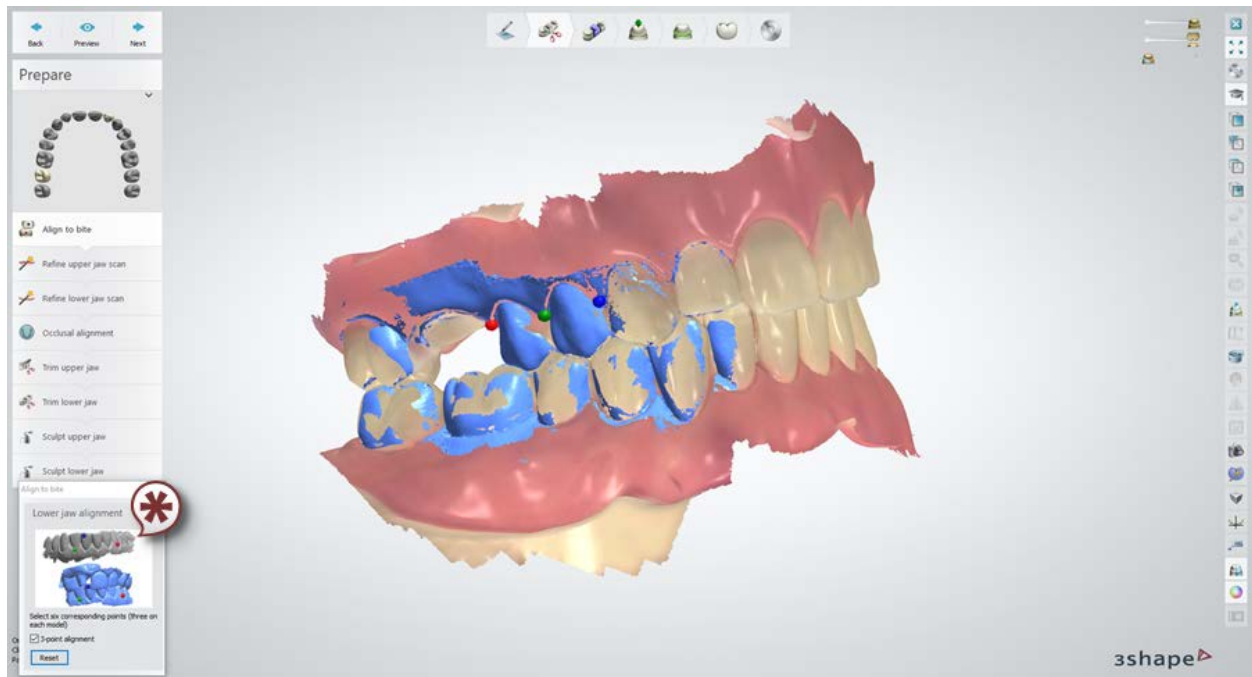


NOTE! The **Prepare** step is automatically skipped if the **Skip prepare step** option is enabled in *Dental System Control Panel* -> *System settings* -> [Design options](#). You can still return to this step by clicking the **Back** button and make adjustments to the scan if needed.

► Step 2 (optional): Align jaws

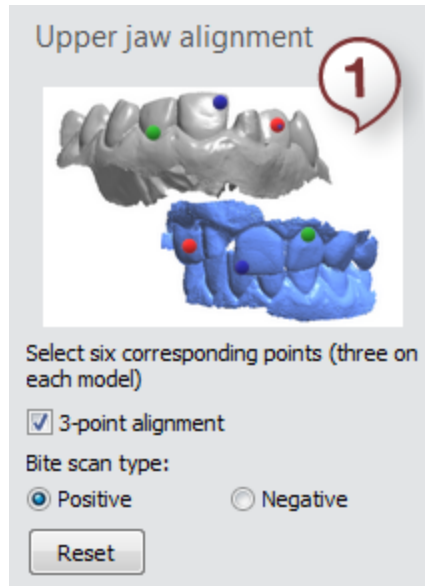
This step is required if the loaded scans have not been properly aligned.

You can use either 1 or 3-point alignment option. Once you have placed the alignment points for one jaw, click **Preview** to see the result of alignment or click **Next** to move to the other jaw. Use **Reset** if you want to realign the scans by placing new alignment points. Click **Next** to apply the alignment and continue.

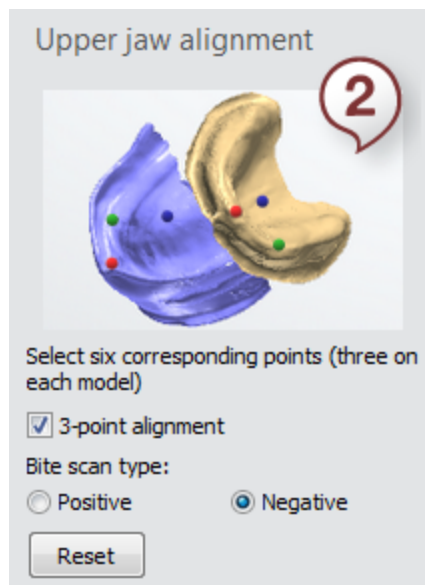


(*) For full denture cases scanned by TRIOS, define the bite scan type for proper jaw alignment by setting:


- **Positive** - for the bite registration of existing teeth (natural or artificial), the alignment points are placed respectively on the bite scan and the jaw scan (1)






- **Negative** - for the bite registration of edentulous jaws with the help of the wax rim, the alignment points are placed on the bite scan and the jaw scan (2), with the bite scan representing the inverse replica of the jaw scan.

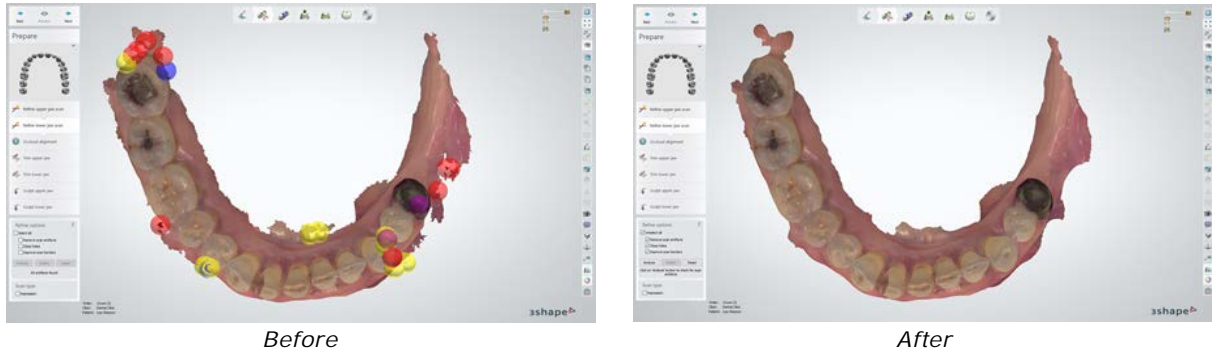


►Step 3: Refine scan

The **Refine scan**  feature allows you to repair and/or remove scan artifacts and check the quality of your scan. You may hover your mouse over any problem areas that are discovered. Problem areas are indicated by different colored flashing balls:

-  - Mesh artifact
-  - Scan artifact
-  - Self intersection

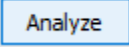
-  - Hole



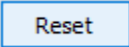
Refine options

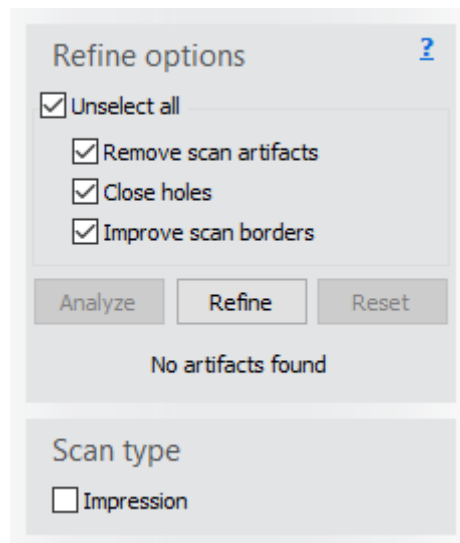
A pop-up information box appears if you hover your mouse over the action tabs or check box text. For further information, click the [?](#) to access the user manual or technical documentation.

Action buttons:


The  button initiates analysis of checked refine options.


The  button performs refinement tasks on checked refine options.


The  button resets refinement work.




Refine options:

☐ **Remove scan artifacts** - Scan artifacts are outlying scan objects not attached to the body of the scan. Check the box to **Remove scan artifacts**  that are less than 5 mm.


☐ **Close holes** - Holes are areas that do not have recorded scan imagery that the analysis function recommends has identified as a problem. Check the **Close holes**  box to enable this function.

☐ **Improve scan borders** - Check the **Improve scan borders**  box to refine your scan quality and avoid probable difficulties in future workflow steps.

Scan Type

☐ **Impression** - Scan models may be refined for both impressions and existing teeth (natural or artificial). Check the box only if you are refining an **Impression** .



Note! Previews of all Refine scan options and functions except reset are available by clicking the **Preview**  button located near the top left corner of your work screen.

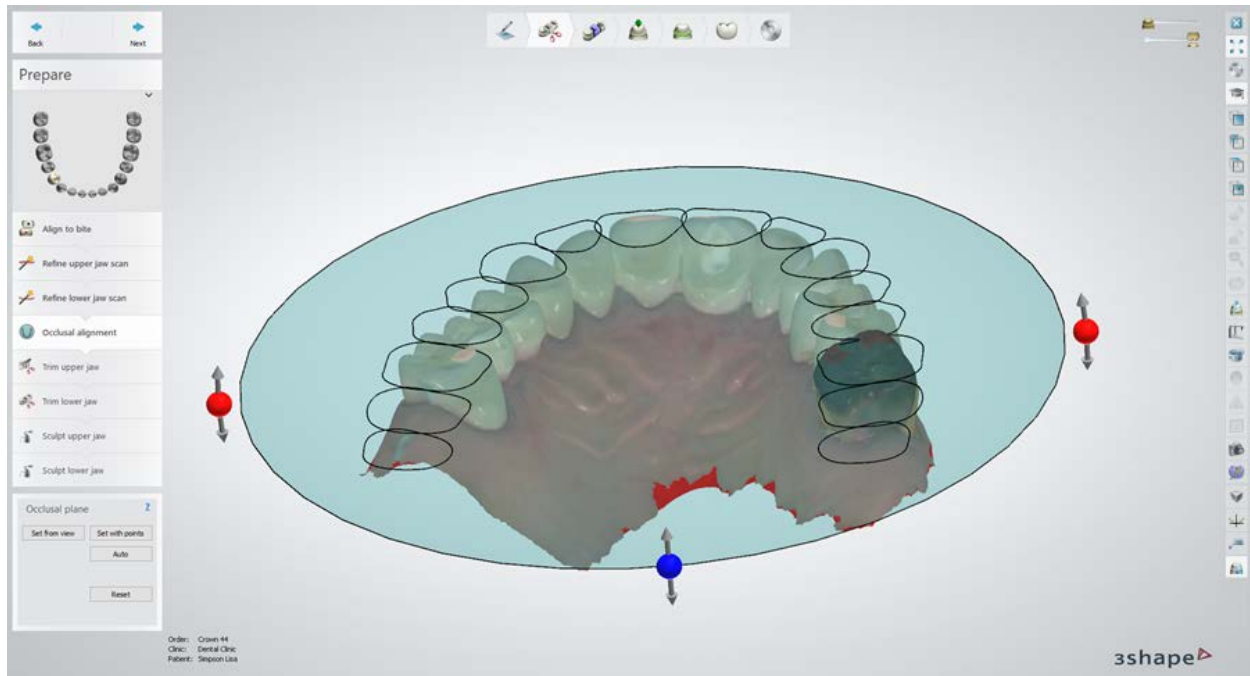
► Step 4: Set the occlusal plane



Note! It is recommended to set the occlusal plane in the **Prepare** step, as the position of the occlusal plane is used for calculating the insertion direction and for initial placement of the restoration later in the design process.

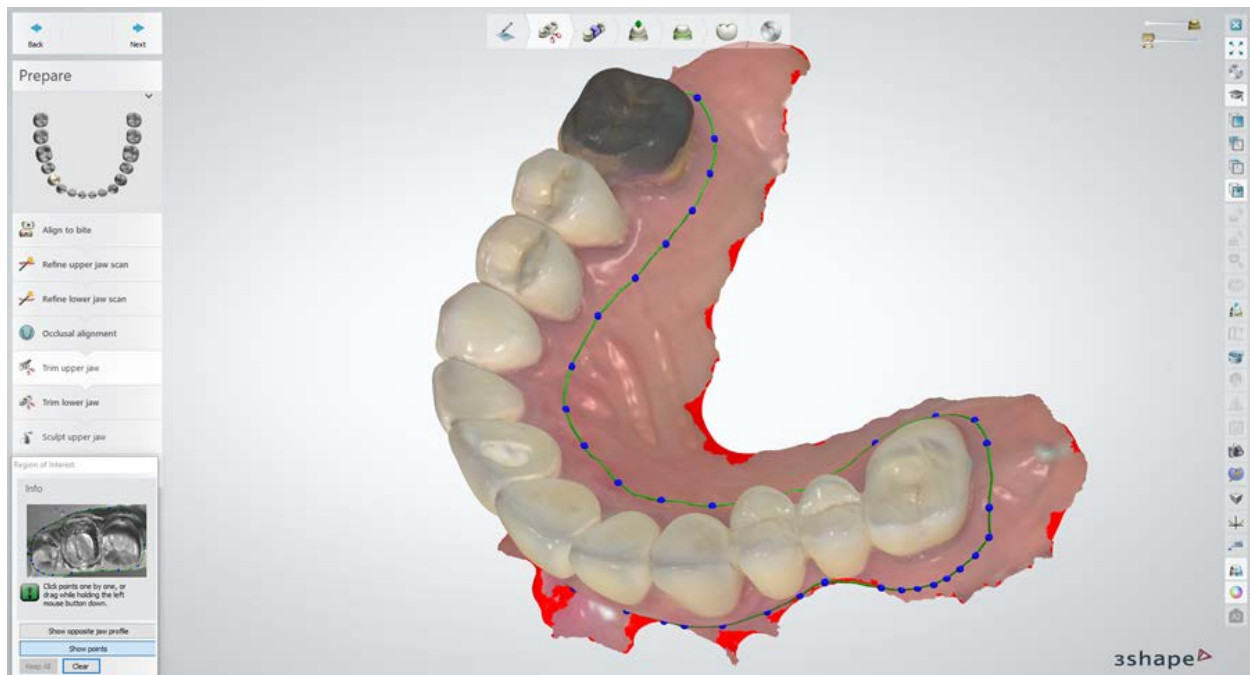
The software automatically sets the occlusal plane. To manually adjust its position, use the control points: **blue** to move the plane up and down, **red** to tilt and rotate the plane, or move the plane by dragging it with the mouse. The optimal plane position can also be obtained by using the **Set from view**, **Set with points** or **Auto** options. To restore the initial placement of the occlusal plane, click the **Reset** button.

For orders with an antagonist scan, you can use the Virtual Articulator tool to adjust the occlusal plane position (refer to the [Dynamic Virtual Articulation](#) section for details).



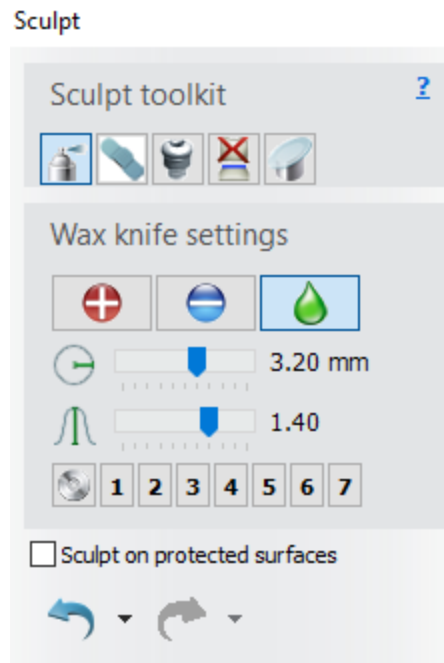
► Step 5: Trim preparation and antagonist

Shape the [spline](#) to trim your preparation by placing the control points or drawing the line with the left mouse button to define the area. Click **Next** to trim the preparation and move to trimming antagonist.



► Step 6 (optional): Sculpt

You can use the [Sculpt toolkit](#) to sculpt upper and/or lower jaw if needed.



Once trimming is finished, click **Next** to proceed to [setting the margin line](#).

2.7.2.2. Set Margin Line

Having [prepared](#) a scan, you need to section the teeth with the margin line in order to cut them out.

►Step 1: Section scan

Click on the top of a tooth to automatically draw a cutout [line](#) that can be adjusted later, or use another margin line drawing option as described below. Repeat the procedure for other teeth if needed.

You have the following margin line drawing options selected on clicking the corresponding buttons:




Click on top – allows you to place the margin line automatically by clicking on the top of a tooth.



Click on margin – allows you to place the margin line automatically by clicking on the margin of a tooth.



Draw manually - lets you draw the margin line manually by clicking on the tooth's margin and placing points around the tooth. If the **Snap to edge**  option is selected, the spline snaps to curvature between points.



Initialize all – lets you place the margin line automatically for all teeth by clicking on the top of them one by one.



Clear - removes the margin line.



Snap to edge – when selected, the spline snaps to curvature between points.



Avoid lines intersections – eliminates the intersections of the margin lines automatically by shifting the margin lines of the teeth neighboring to the selected tooth.



►Step 2 (optional): Anatomy design

Use the [Smile Composer](#) to adjust the restoration.

2.7.2.3. Align Implant Scan Flags

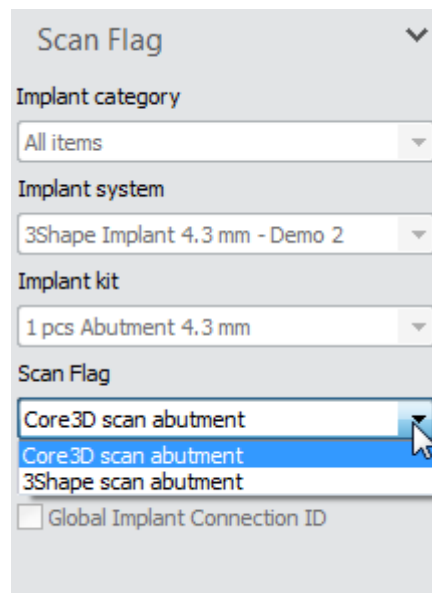
Having [prepared](#) a scan, you need to align scan flags before proceeding to insertion direction and abutment design.

► Step 1: Choose a needed scan flag

Choose the needed scan flag from the **Scan Flag** drop-down list to the left of the window.

This option will be available in two cases:

- For an abutment kit that includes several scan flags:

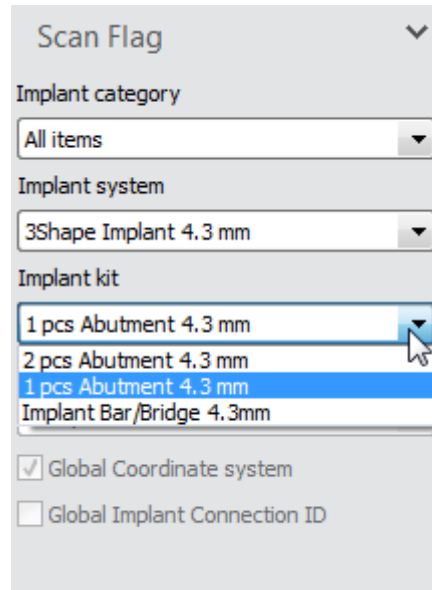


The screenshot shows a software interface with a 'Scan Flag' dropdown menu. The menu is open, displaying three options: 'Core3D scan abutment', 'Core3D scan abutment', and '3Shape scan abutment'. The first two options are highlighted in blue. Below the dropdown menu, there is a checkbox labeled 'Global Implant Connection ID' which is currently unchecked. Above the dropdown menu, there are three other dropdown menus: 'Implant category' (set to 'All items'), 'Implant system' (set to '3Shape Implant 4.3 mm - Demo 2'), and 'Implant kit' (set to '1 pcs Abutment 4.3 mm').

- For abutment kits from other implant systems, which are in the 3Shape **Global Coordinate system** support:



Note! It is critical to ensure that both implant systems have the same implant connection interface.



Scan Flag

Implant category
All items

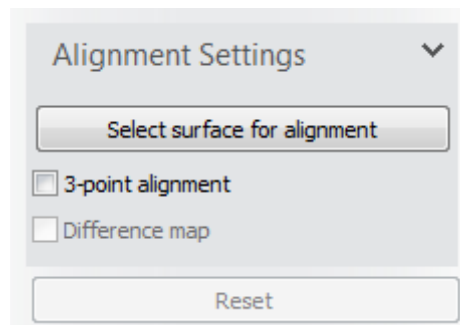
Implant system
3Shape Implant 4.3 mm

Implant kit
1 pcs Abutment 4.3 mm
2 pcs Abutment 4.3 mm
1 pcs Abutment 4.3 mm
Implant Bar/Bridge 4.3mm

☒ Global Coordinate system
☐ Global Implant Connection ID

►Step 2: Set the alignment points

Use the **Select surface for alignment** button under **Alignment Settings** to highlight a specific area that requires more accurate alignment if needed.



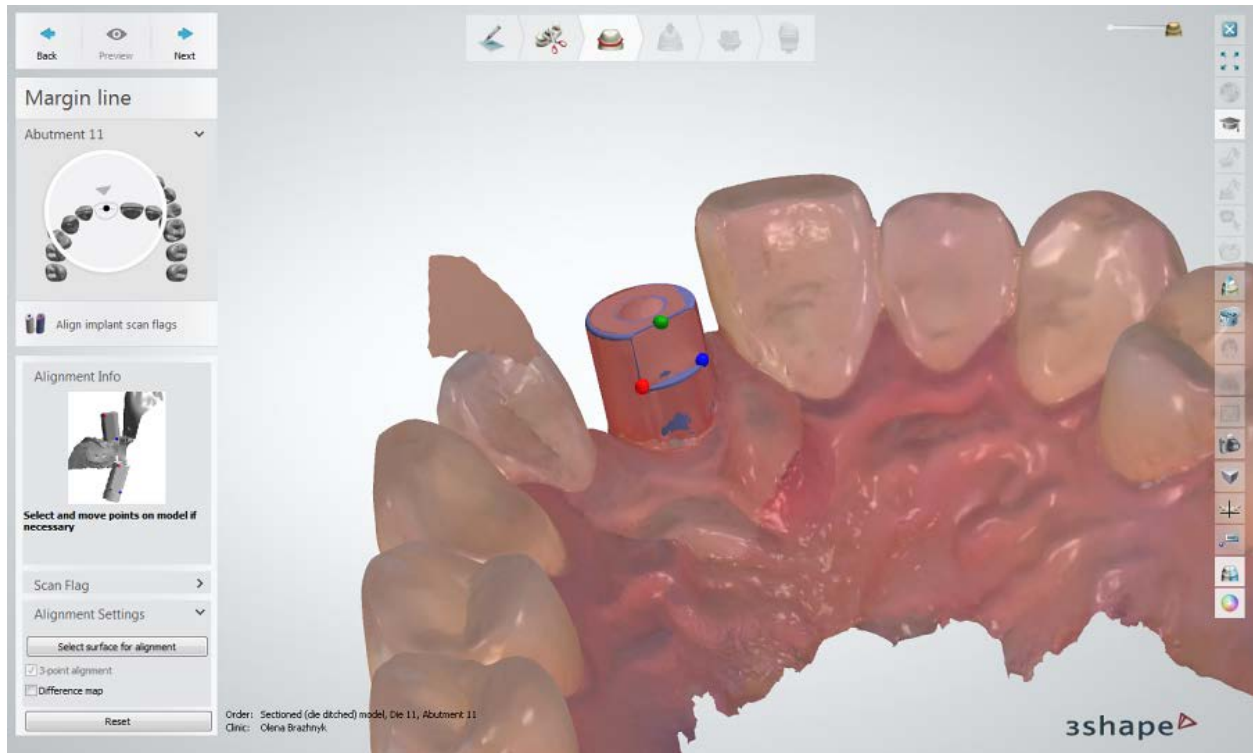
Alignment Settings

Select surface for alignment

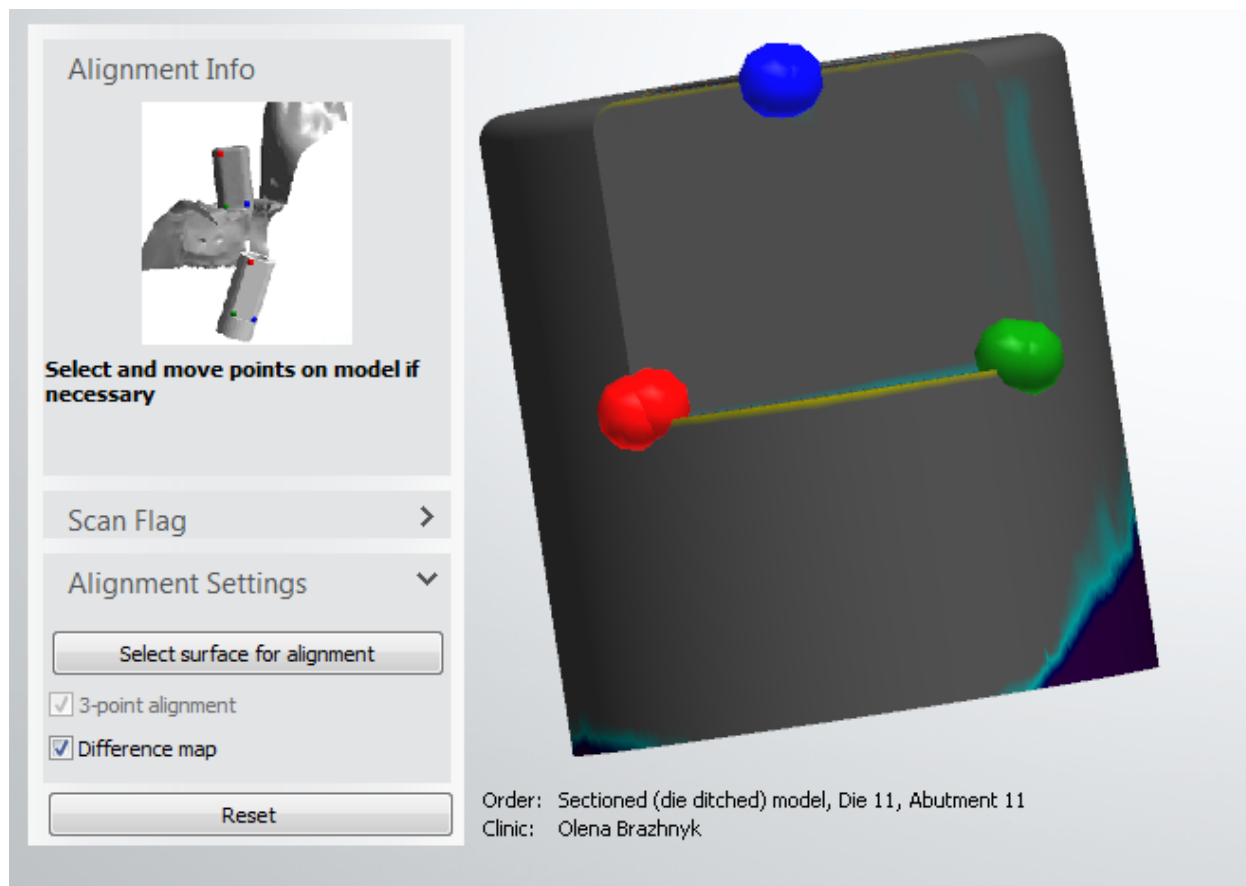
☐ 3-point alignment
☐ Difference map

Reset

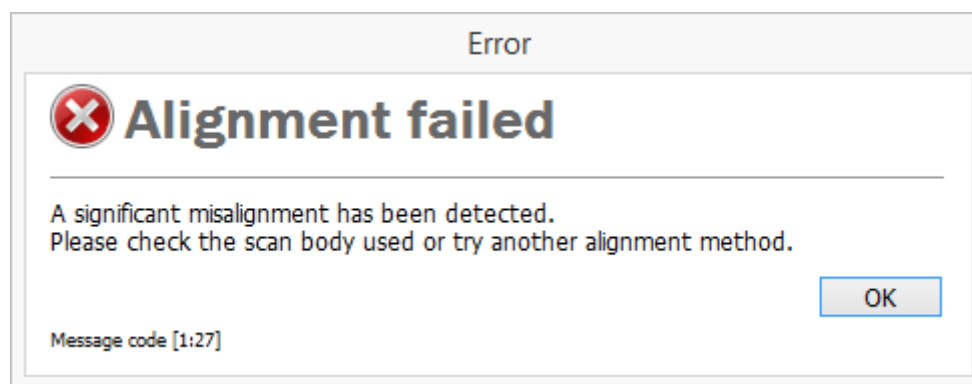
For alignment, you can use either the default 1-point method or select the corresponding checkbox to use **3-point alignment**. Place the alignment points on each of the scan flag models.



After placing the points, you can select the **Distance map** checkbox for better visual representation of alignment discrepancies.



If alignment of scan flags did not succeed, an error message will appear. Click **OK** and check that the appropriate scan flag is chosen or try another alignment method by clicking **Reset**.




Once you aligned the scan flags accurately, click **Next** to go to the next step.

2.7.2.4 Align Scan Posts

In order to align posts, select the post system and type from the Align Post drop-down menu.

Set the corresponding alignment points on post and arch scan using one or three point alignment. Use the **Reset** button to adjust the alignment points if needed, and **Preview** to view the result.



Click the **Add a new post**  **Post** button if you need to create and align a new post to the same tooth. You can select the posts with a click.



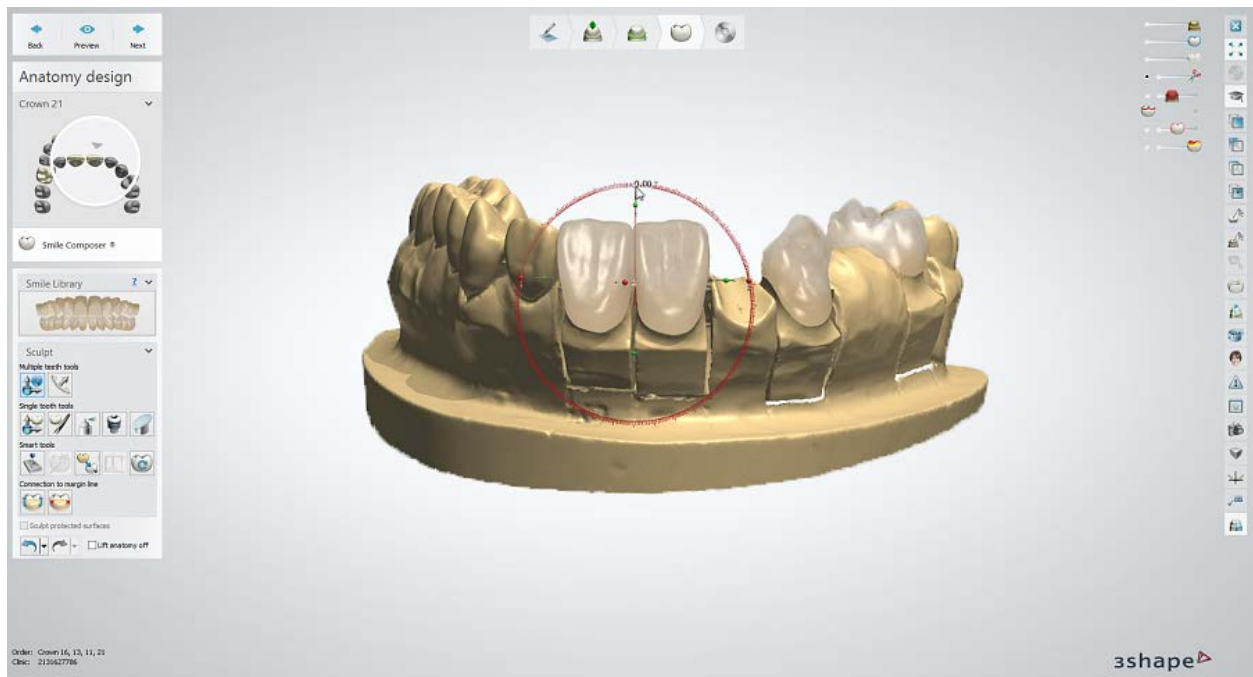
Click **Next** to go to the next tooth and repeat the alignment procedure for the remaining teeth.

2.7.3. Smile Composer



Smile Composer is combined with **Smile Library** and **Sculpt** and is available for crowns, pontics, bridges and full dentures at the Anatomy design step.

When you proceed to the **Anatomy design** step, Dental Designer automatically places crowns and pontics. You then need to specify the smile library to shape your crown with.

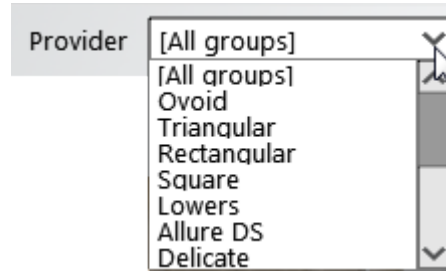


CHOOSING SMILE LIBRARY

► **Step 1:** Select the tooth you want to modify in the 3D modeling window or in the Order overview.

► **Step 2:** Click the **Smile libraries**  button to open the smile library selection window.

► **Step 3:** Select the desired library from available in the **Provider** drop-down list:



► **Step 4:** You are given the option to apply the chosen library to a single tooth or to all teeth in your order using the checkbox as shown on the following images:



Single tooth library



All teeth library

► **Step 5:** Scroll to find and select the desired library. The 3D modeling window will be updated with the selected model(s).

► **Step 6:** Click the **Smile libraries**  button again to close the smile library selection window.

If library models contain textures, they can be enabled by clicking the **Show textures on**

library models  button in the Viewing tools bar to the right of the window.

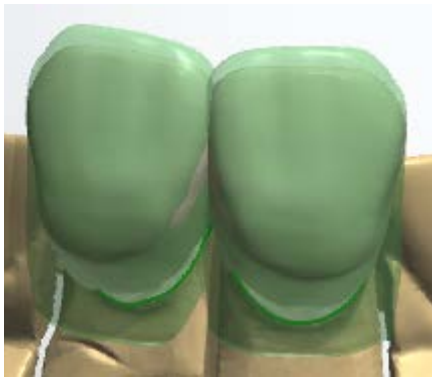


Show textures on library models is "OFF"




Show textures on library models is "ON"

Using Pre-manufactured teeth library



► **Step 1:** Select a smile library [linked](#) to the Pre-manufactured teeth library. Such a library appears with

the icon  in the upper right corner.

► **Step 2:** A green shell around the teeth indicates the chosen blank. Its visibility can be changed with the slider



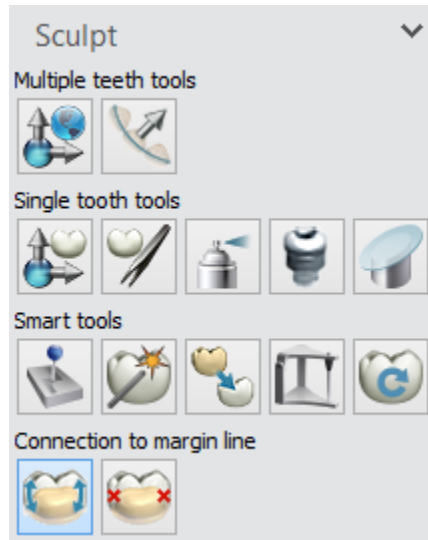
► **Step 3:** Compose the smile as described further in this chapter.



Note! The margin lines of the design must not extrude the blank shell.

SCULPT

Sculpt in **Smile Composer** contains tools designed for operations on single and multiple teeth, as well as smart tools and connection to margin line tools. The functionality is explained below.

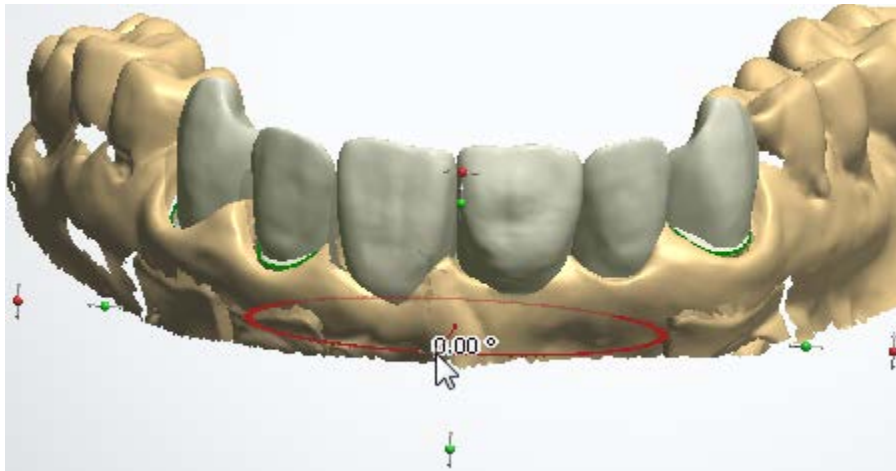


Multiple teeth tools



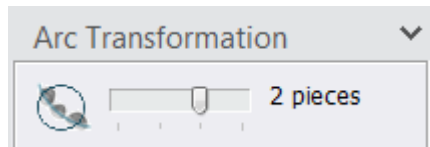
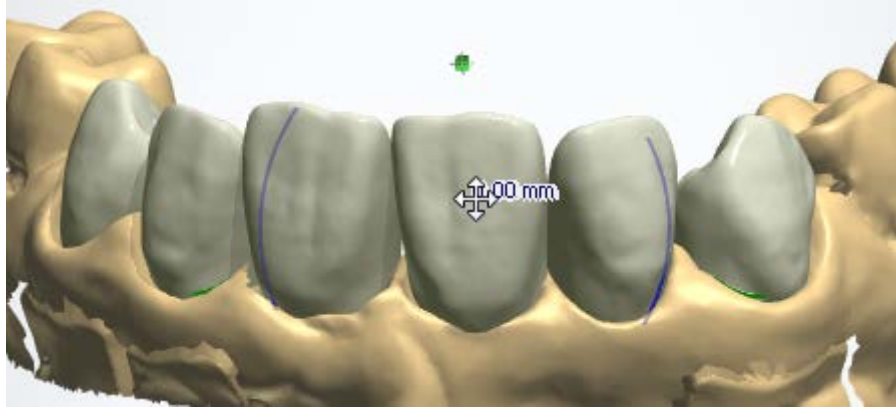
Group transformation

Drag the green points to scale the teeth. Holding down **Ctrl** switches the scaling mode from one-directional to proportional. Bridge rotation is achieved with the red points. Hold down **Shift** to affect all groups of teeth.



Arc transformation

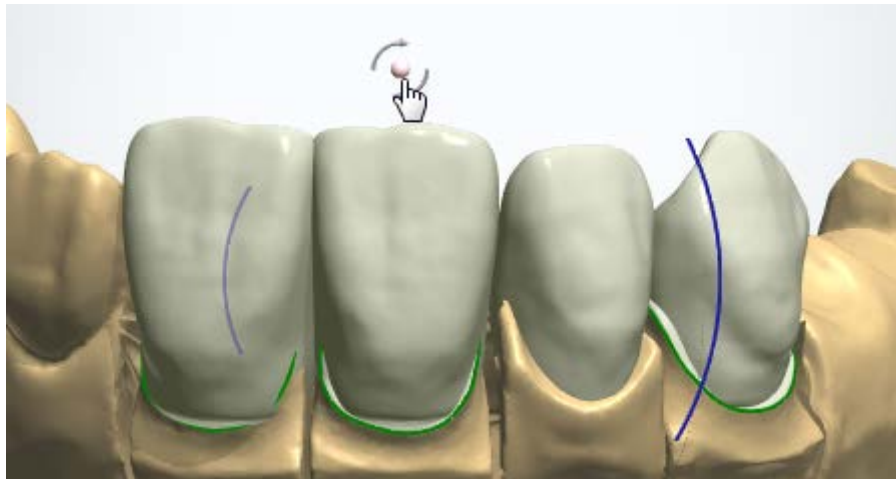
To transform the dental arc into an optimum position, hover the cursor over the arc central tooth and adjust its position while keeping the left mouse button pressed.



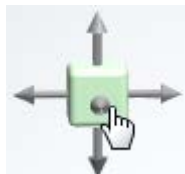
The amount of teeth the transformation affects is indicated with the blue circle. The size of the circle is changed either with the slider or by rotating the mouse wheel while pressing the **Ctrl** key.



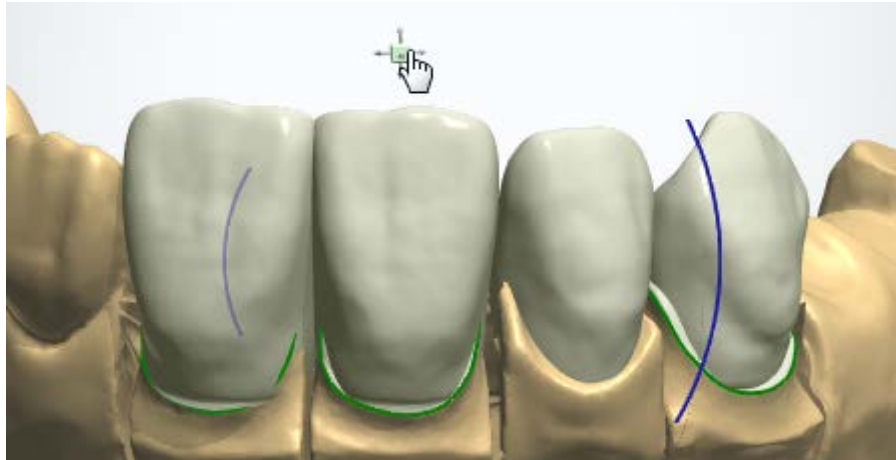
To rotate a single tooth: hover the cursor over the handle of the selected tooth and rotate the mouse wheel to turn the tooth.



Note! The handle toggles between rotation and scaling modes when clicked.



To scale a single tooth: hover the cursor over the handle of the selected tooth and rotate the mouse wheel to scale the tooth proportionally.

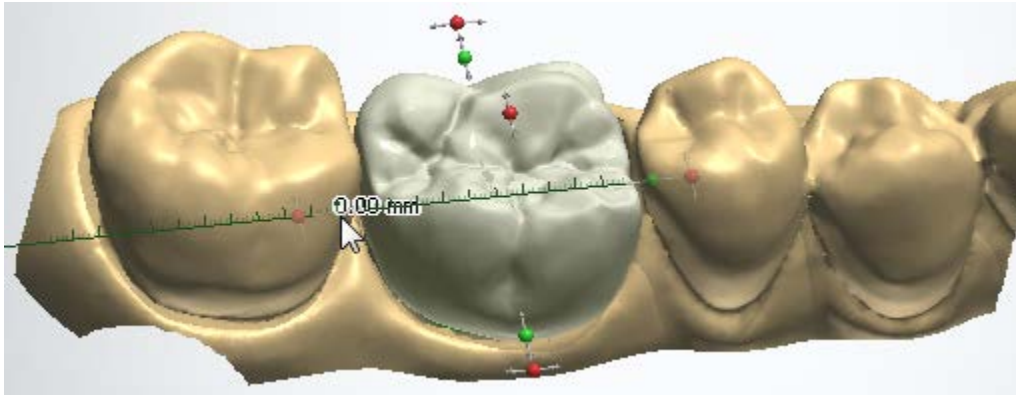


Single tooth tools

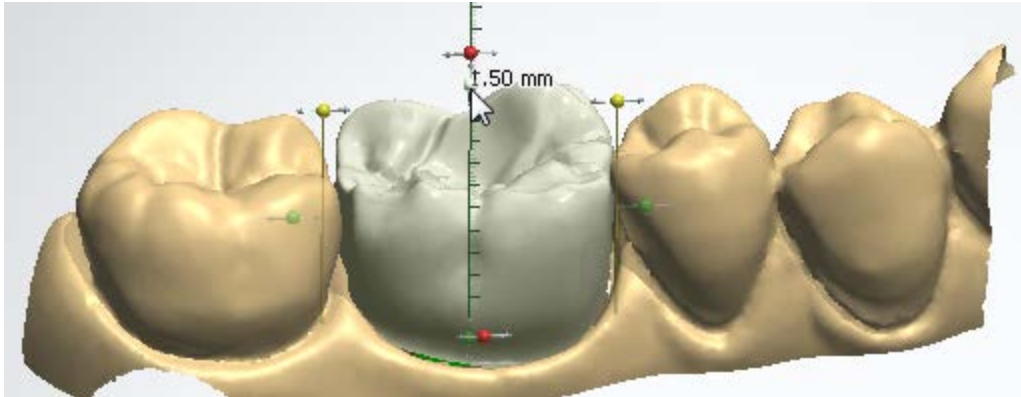


Individual transformation

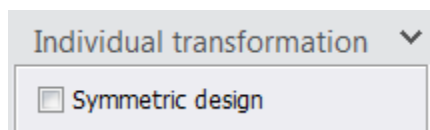
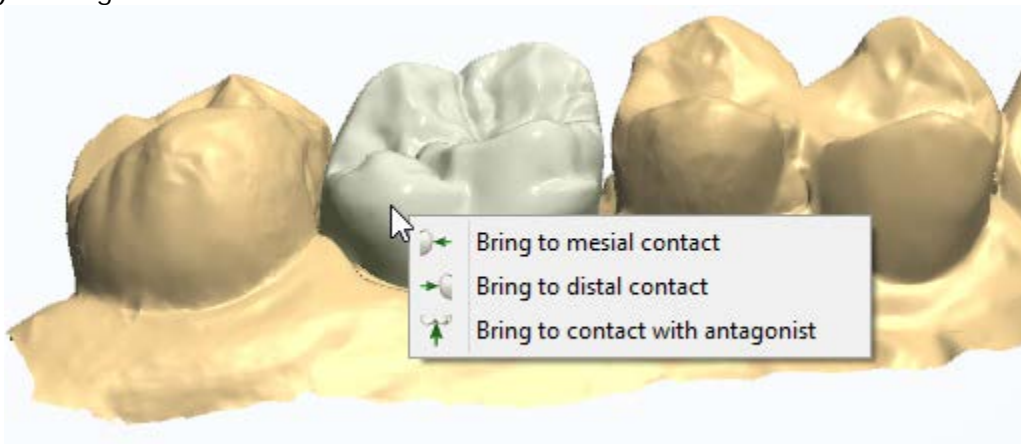
Drag the points that appear when the cursor is positioned over the crown. When dragging the green points, hold down **Ctrl** to switch the scaling mode from one-directional to proportional.



Transforming a crown in a vertical position maintains its occlusal surface shape:



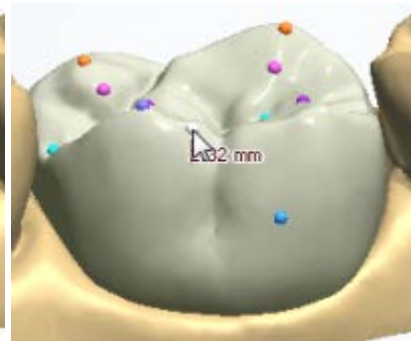
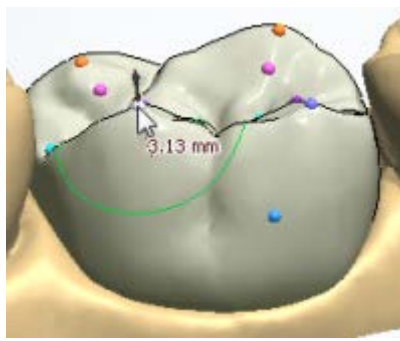
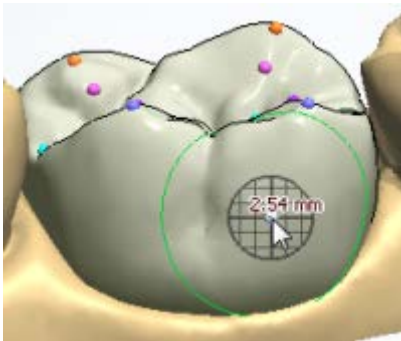
Right-click a tooth to display the **Bring to** options (Bring to mesial contact, Bring to distal contact and Bring to contact with antagonist), which help to position the tooth in space relatively to neighbors:



When **Symmetric design** is marked, the **Individual transformation** of a tooth is performed on the existing symmetrical tooth as well.



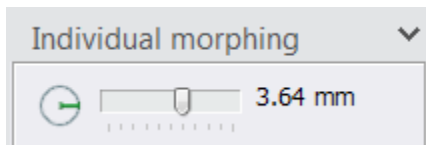
Individual morphing



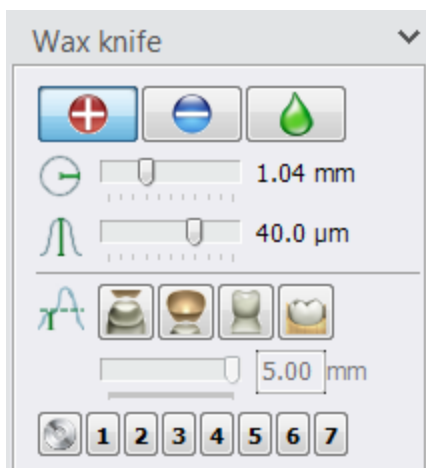
Hold **Shift** down to move the entire control points group.
While pressing the **Shift** key, you can change the Radius of the morphing tool with the mouse wheel.

Hold **Ctrl** to move orthogonally.

Hold **Alt** and left-click to add/remove control points.



Wax knife



Use the **Wax knife** tool to **Add** / **Remove**



material to/from the model or **Smooth** its surface. Choose one of the three options and click (or paint) on the model to apply the operation. Select radius



and level of the influence by using the corresponding slide-bars (or use **Shift** + mouse wheel and **Ctrl** + mouse wheel respectively).



Click the button followed by one of the numbers to store the current tool settings. This allows you to go back to any of them later on by simply clicking the number.



Desired thickness - limits the amount of the applied total **Add** / **Remove** material to a value set with the slider located under the threshold reference buttons.



- **Preparation scan**, the threshold is measured from the preparation scan. Can be used to create interproximal contacts to the neighboring teeth.



- **Antagonist scan**, the threshold is measured from the antagonist scan. Can be used to create occlusal contact points to the antagonist.

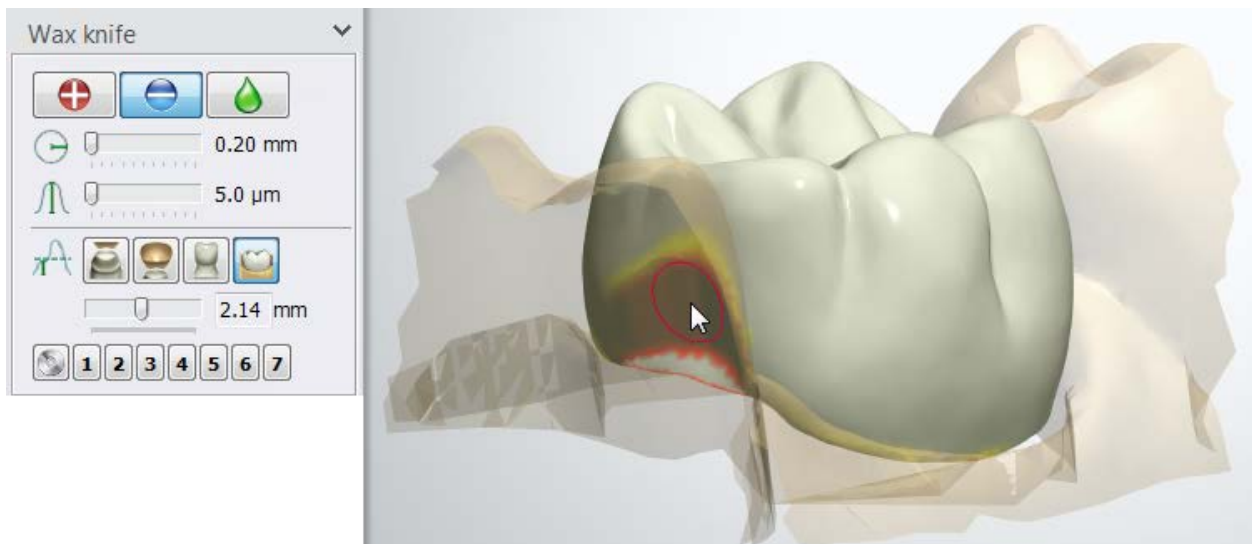



- **Die interface**, the threshold is measured from the die interface. Can be used to define the required wall thickness of a crown, coping.



- **Neighboring Teeth Undercut**, used to adjust a crown to avoid neighboring teeth undercuts.

A color map of the neighboring teeth undercuts is shown for the selected crown by turning ON and adjusting the **Distance map** slider. Once the **Desired thickness** is defined with the slider, you can sculpt the crown to remove undercuts towards neighboring teeth.

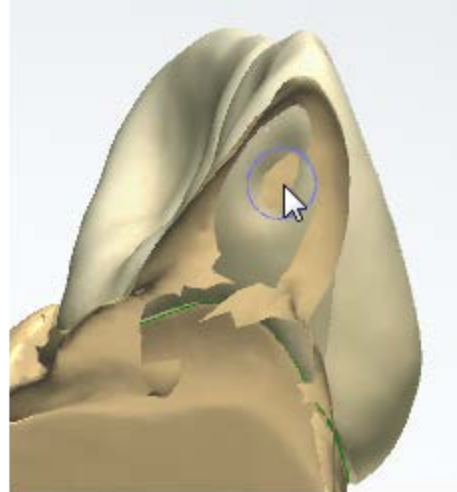
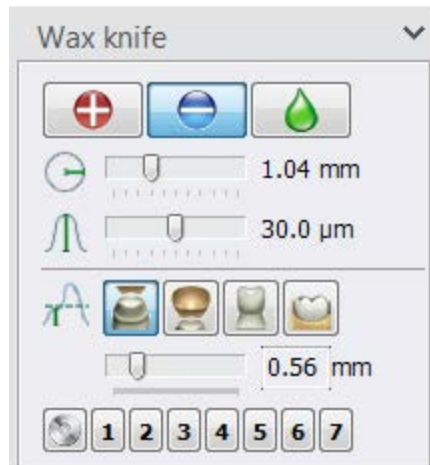


Additionally, you can adjust the color scale distance to the neighboring teeth representation with the **Distance map**  slider in the Visualization tools to the right of the window.



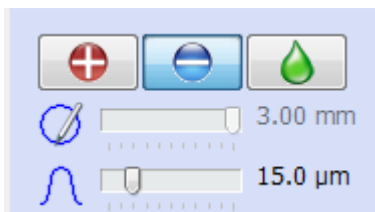
Note! Availability of the **Desired thickness** buttons depends on the type of dental indication.


Below, is an example of the remove material threshold applied to the preparation scan to establish a gap between the crown and the neighboring tooth:



The following explains how to use the **Wax knife** tool with the graphics [tablet pen](#):

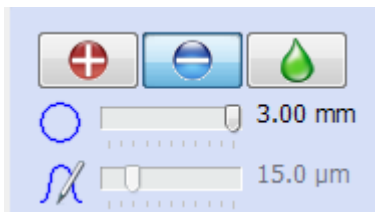
- **Radius** with tablet pen control




Click the button with the **Radius** icon to switch to the pen control . The pressure of the pen becomes mapped to the radius value.

Note: The use of the other end of the pen with the eraser function reverses the **Add/Remove** functionality.

- **Level** with tablet pen control

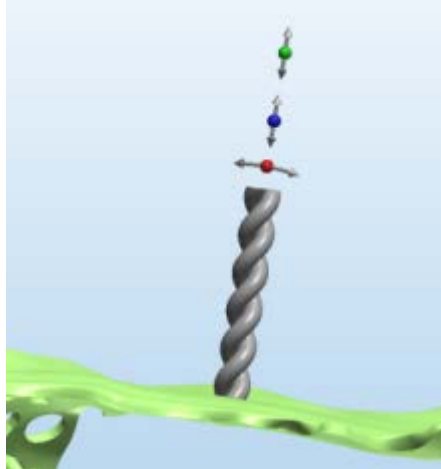


Click the button with the **Level** icon to switch to the pen control . The pressure of the pen becomes mapped to the amplitude.

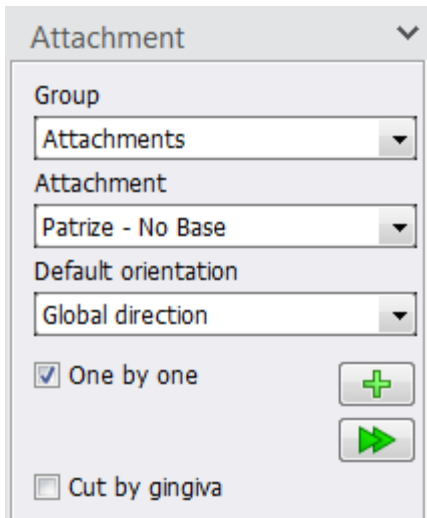


Attachments

The **Attachment** tool allows you to place an attachment on your design item. The attachment functionality covers addition (e.g. slide attachment) and optionally subtraction (e.g. Holes) and visualization (e.g. Clips) of any CAD file.



Attachment on an RPD element





Dental Designer has the following groups of attachments:

- **Parametric shapes** - A general set of attachments which are confined to a certain parameter (e.g. angle).
- **Attachments** - A general set of bar attachments.
- **Cylinder** - A set of cylinders of different sizes.
- **Pins** - A set of pins of different sizes.
- **Holes** - A set of different shapes for creating holes.
- **Partials** - Attachments used with RPD.
- **Cendres+Métaux** - Attachments produced by the company Cendres+Métaux (www.cmsa.ch).
- **Heraeus** - Attachments produced by the company Heraeus (www.heraeus.com).
- **Rhein83®** - Attachments produced by the company Rhein83® (www.rhein83.com).
- **Zest Anchors** - Attachments produced by the company Zest Anchors (www.zestanchors.com).
- **Articulator interfaces** - A general set of articulator interface attachments.
- **Customized tray** - A general set of customized tray attachments.

Depending on the chosen **Group**, you get the list of available attachments in the **Attachment** drop-down list.

The **Default orientation** drop-down list contains the following default directions of the attachment relative to the design item the attachment is placed on:

- **Surface normal** - Attachment is placed perpendicular to the surface of the design item it is being attached to.
- **Insertion direction** - Attachment is placed in parallel with the insertion direction of the design item to which it is being attached.
- **Group direction** - All attachments are placed with a common orientation direction and, when rotated, all move simultaneously.
- **View direction** - Attachment is placed from the viewing direction, i.e. perpendicular to the screen.
- **Telescope direction** - Attachment is placed in parallel with the insertion direction of the telescope to which it is being attached.
- **Global direction** - Attachment is oriented in the same direction as the previous attachments with this property, even when placed on different teeth. As a result, tilting one such attachment will tilt all the others with this property.

When the **One by one** checkbox is selected, in order to place another attachment, you have to click the **Add new attachment**  button. When the **One by one** checkbox is deselected, the **Add new attachment**  button becomes disabled, and you can add a new attachment right after you have placed the previous one.

Cut by gingiva - When selected, the part of the attachment that intersects with gingiva will be cut off when the attachment is applied.



► **Step 1:** In the **Attachment** menu, choose the **Group** and **Attachment** you want to work with, as well as the **Default orientation** for your attachment.



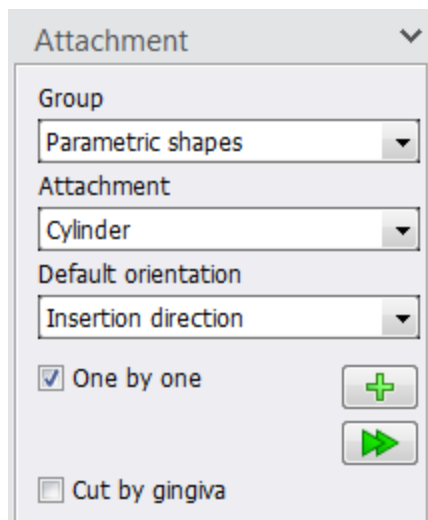
Note! The [attachment](#) settings are configured in Dental System Control Panel, where new attachments can be also added.

► **Step 2:** Point the mouse cursor to the design item (the translucent attachment appears as you do that), and click where you want to place the attachment. You can place multiple attachments.

► **Step 3:** Use the control points to scale and rotate the attachment. The available control points are configured in Control Panel under [Optional degrees of freedom](#). To remove the attached component, right-click it and choose **Delete**.

► **Step 4:** Click **Apply all placed attachments** , if the attachments need to be combined with the design. Use the **Attachment**  slider to toggle the visibility of the attachments that have been placed but not applied.

Using Parametric shapes

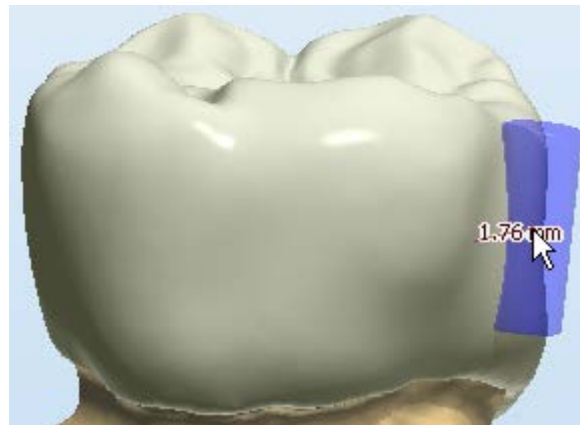


In Dental Designer, you can use parametrically shaped attachments, i.e. those confined to a certain parameter (e.g. angle):

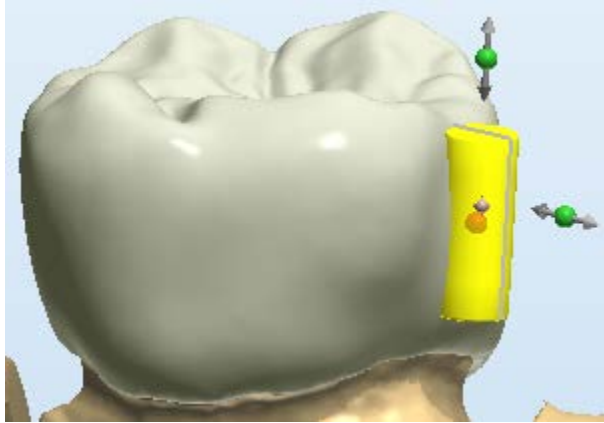
► **Step 1:** Select **Parametric shapes** from the **Group** drop-down list.

► **Step 2:** Select the type of attachment from available: **Cylinder**, **Cylinder Hole** or **Pin 2 degrees**.

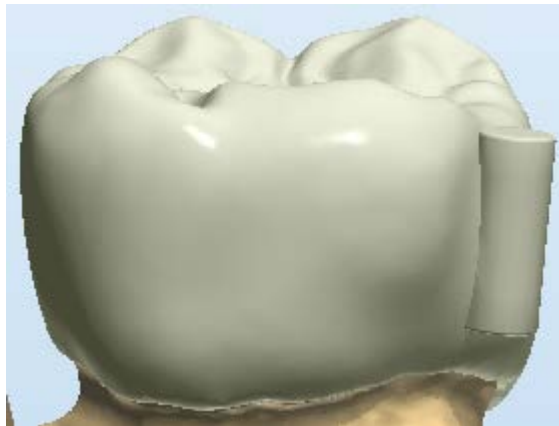
► **Step 3:** Choose the desired **Default orientation** direction and proceed to adding the attachment **(1)**, adjusting its position and size **(2)** and finalizing it **(3)** as with other attachments.



(1) Parametric attachment added



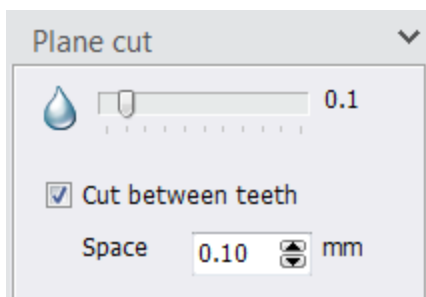
(2) Adjusting the attachment's position and size with the control points



(3) Complete the Sculpt step



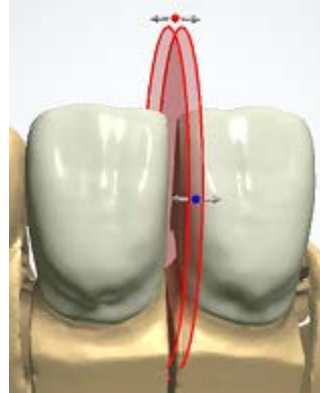
Plane cut



The **Plane cut** tool is used to cut the design item with a plane, similar to the plane handling described in [2D cross-section](#).

The slider lets you adjust the amount of smoothing of the cut edges.

The **Cut between teeth checkbox** appears when at least two neighboring teeth are modeled. The gap between the teeth is made of 2 cutting planes and set in the **Space** field.

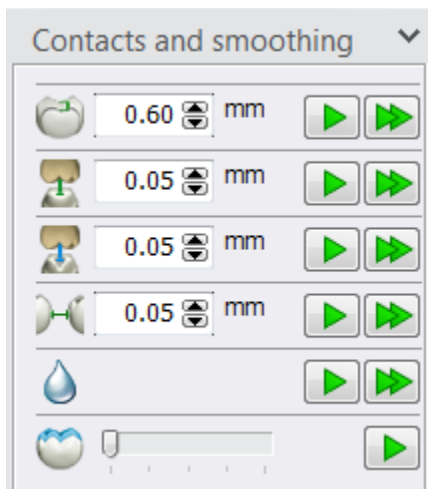


Gap between teeth


Smart tools




Contacts and smoothing




Minimum thickness - enables to you to specify the desired minimum thickness of the material. Click the

Apply  button to automatically enforce the minimum material thickness specified for the material.




Desired distance to antagonist - cuts design item to the antagonist model to ensure the correct bite. Define the required distance and click the **Apply**  button to perform the action.




Precise distance to antagonist - cuts design item to the antagonist while preserving the anatomy of the contact area. Define the required distance and click the **Apply**  button to perform the action.




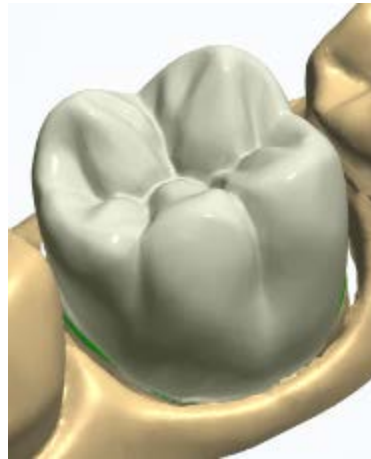
Desired distance to neighbors (Cut to neighbors) - offsets the adjacent sides of the selected tooth by the amount specified in the form. Define the required distance and click the **Apply**  button to perform the operation.



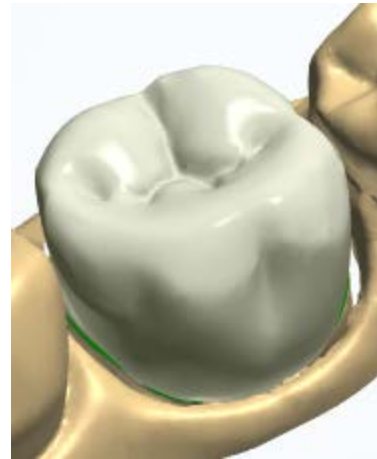
Smoothing - smoothes entire surface of the selected design item. Click the desired dental indication in the 3D modeling window or in the Order Overview and then the **Apply**  button.




- **Occlusal attrition** - the amount of occlusal attrition is adjusted with a slider and can be applied to the selected molar and pre-molar teeth by clicking the **Apply**  button.



Crown before attrition



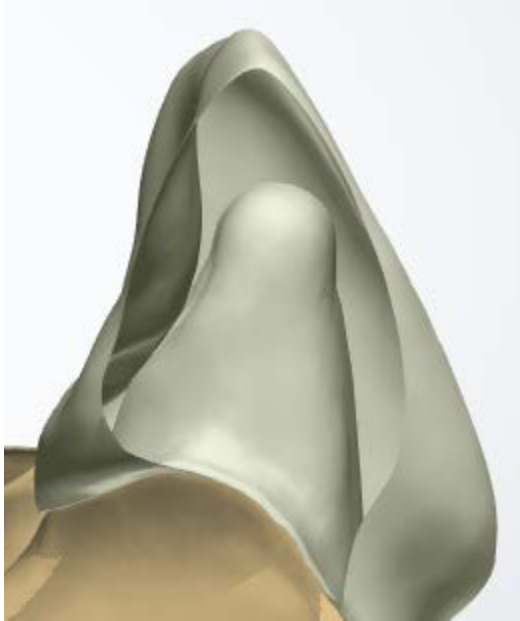
Attrition applied

Any of the operations can be applied to all dental indications in the same layer by clicking the **Apply to all**  button.

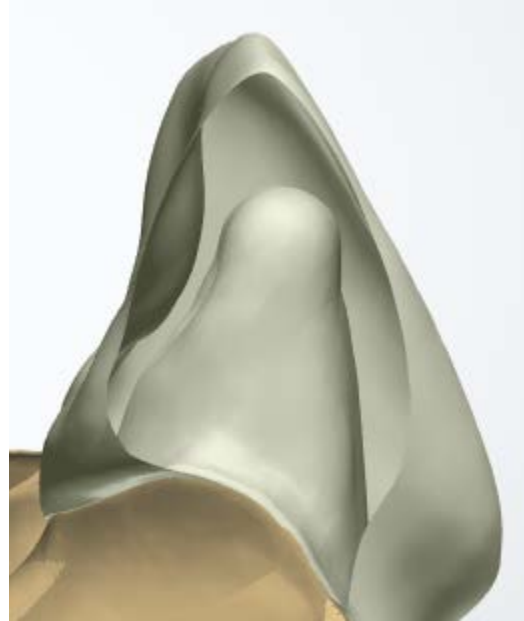


Minimum thickness

The images below illustrate the enforcement of **Minimum thickness** on a coping (2D cross section view):



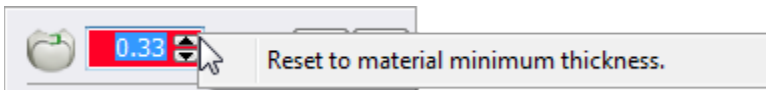
Before enforcing minimum thickness




After enforcing minimum thickness



When updating the enforcement value, you can accidentally violate the minimum thickness - the minimum thickness edit box becomes red.

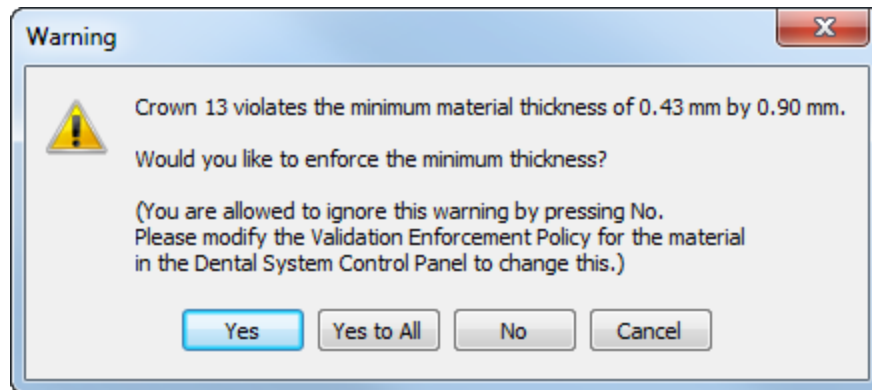


You can right-click the indicated minimum thickness value and select **Reset to material minimum thickness** to automatically reset it to the one predefined in the Dental System Control Panel.

Violations of the minimum material thickness can be easily fixed by clicking the **Apply**  button to automatically set the necessary thickness.

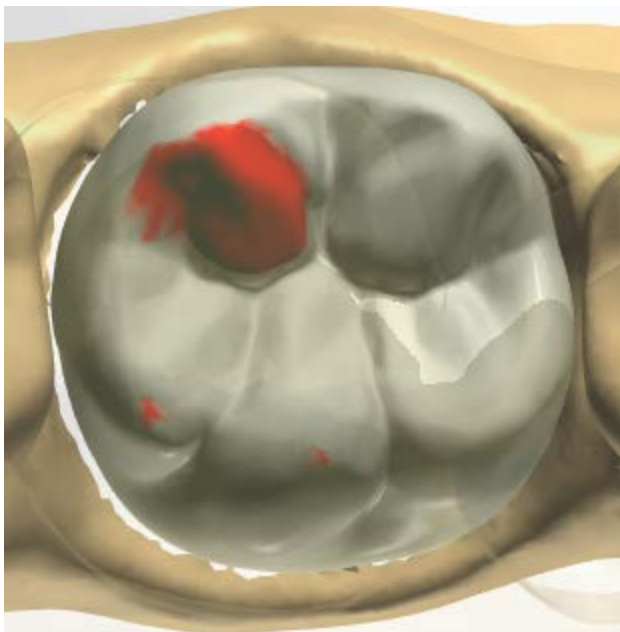
If the minimum thickness is not violated (or has been already fixed), you will see "A minimum thickness of ...mm is already met" message after clicking the button.

You are given a warning with the option to automatically enforce the minimum thickness when you move to the next step while the criteria is not met.

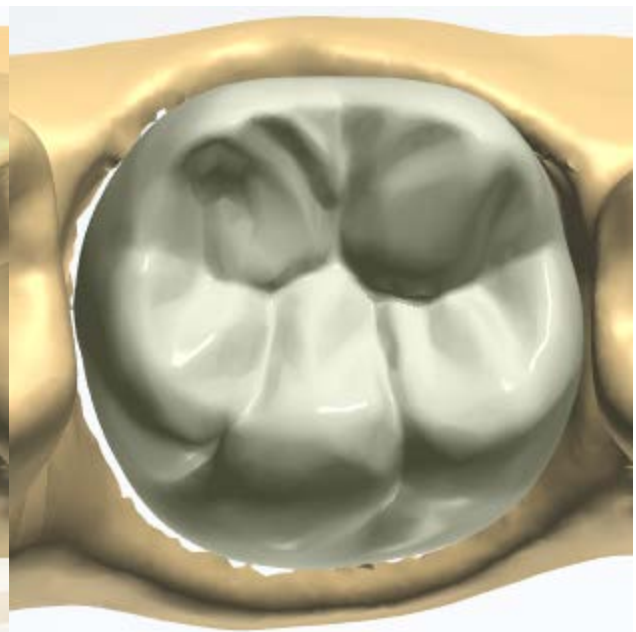


Desired distance to antagonist

The images below illustrate the effect of the **Cut to antagonist** operation:



Before cut to antagonist

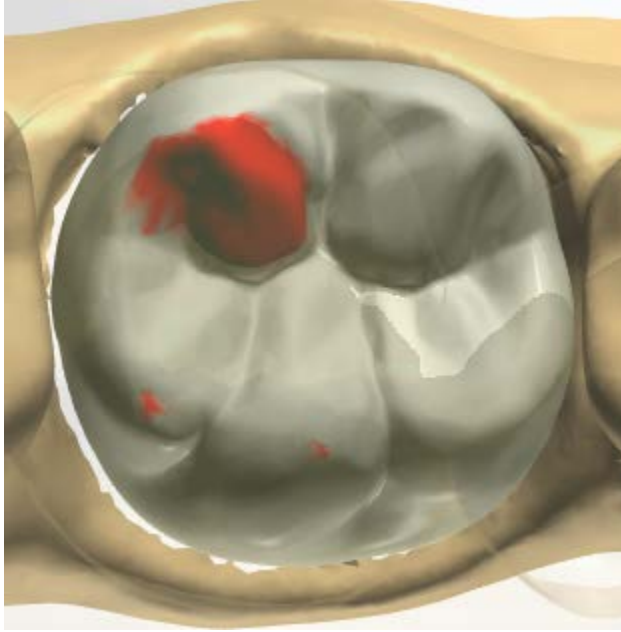


After cut to antagonist

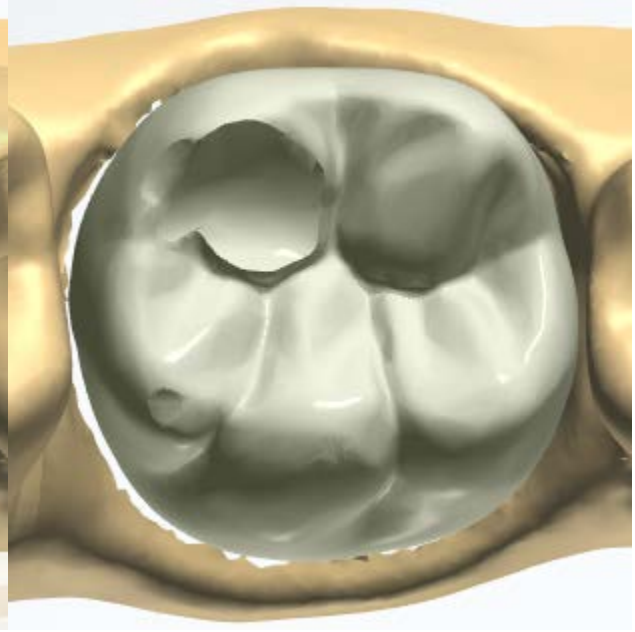


Precise distance to antagonist

The images below illustrate the effect of the **Precise cut to antagonist** operation:




Before precise cut to antagonist

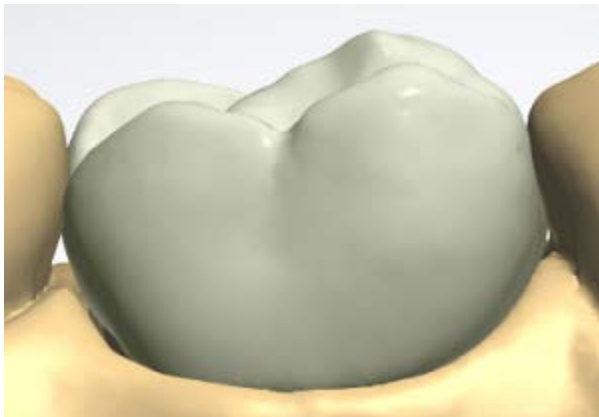


After precise cut to antagonist

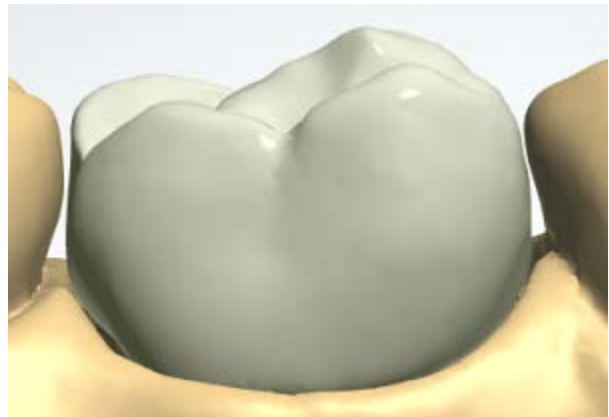


Desired distance to neighbors

The **Distance to neighbors** option offsets the adjacent side of the selected tooth by the amount specified in the form. Define the required distance and click the **Apply**  button to perform the action. Images below illustrate the effect of this operation:



Before cutting to neighbors



After cutting to neighbors



Push to pre-manufactured blank

The **Push** option is available if a smile library linked to the [Pre-manufactured teeth library](#) has been selected. This option pushes the design item surfaces that exceed the limits of the pre-manufactured blank so that the item fits inside the blank. The images below illustrate the effect of the **Push** operation:



Before pushing to the blank

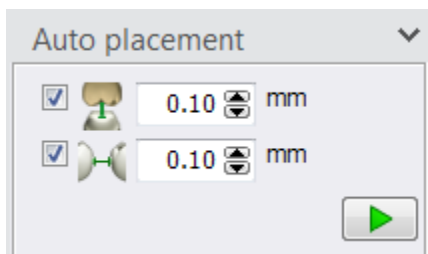


After pushing to the blank



Auto placement

Smile Composer® can automatically place a crown and inlay with a single click on the **Auto placement** button. There is no need to set contact points, and the crown is automatically adjusted to the antagonist.



You can specify **Distance to antagonist** and **Distance to neighbors** settings for the auto placement.



Before Auto placement



Auto placement has been performed



Mirror tool



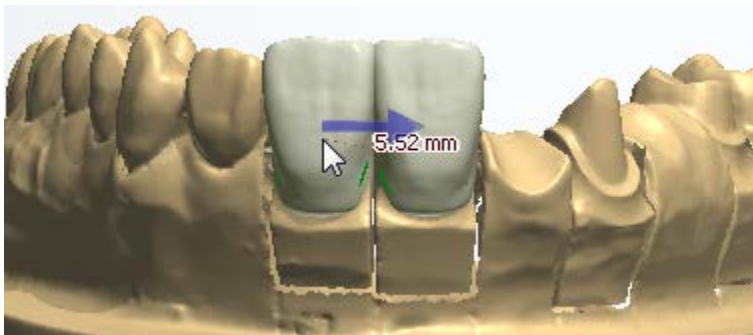
Mirror CAD design

Mirror(Copy) from scan

Morph to pre-preparation or waxup

The Mirror function gives you the following options:

- **Mirror CAD design** - When you have one crown modeled, you can mirror its design to the symmetrical one by positioning the cursor over the mirrored crown and clicking the mouse button when the blue arrow points at the crown to copy the design to.



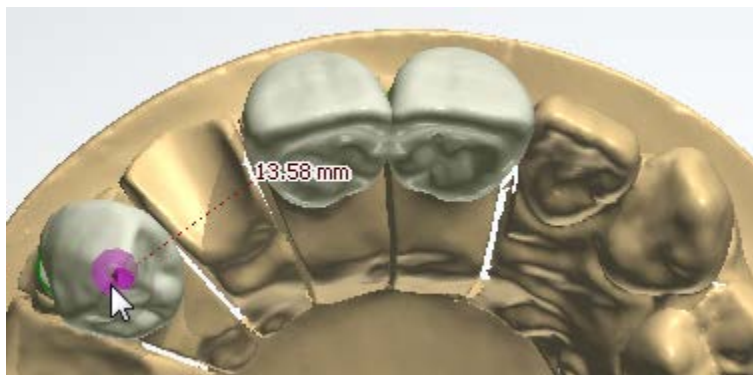
When the **Shape only** checkbox is marked, only the tooth shape is mirrored while the crown position remains unchanged.

Mirror CAD design

☒ Shape only

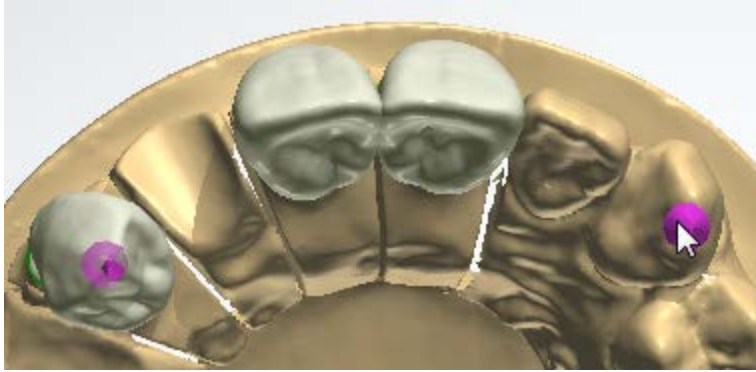
- **Mirror (Copy) from scan** - The desired scanned tooth can be mirrored to the preparation:

► **Step 1:** Click the **Mirror tool** button and select **Mirror (Copy) from scan**, then click the preparation crown you want to copy to.



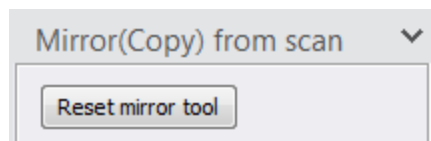
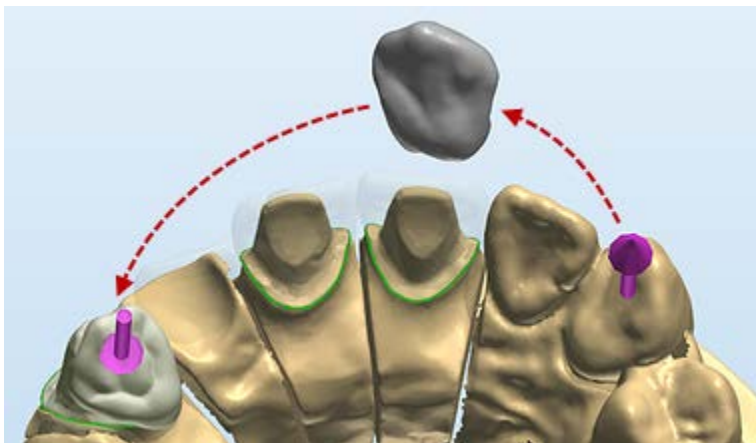
► **Step 2 (optional):** Click the scanned tooth and edit the appeared cutting spline.

► **Step 3:** Double click the scanned tooth to mirror its crown shape from.



Note! You must have the top view when using the mirror function for the automatic spline setting of the mirrored tooth to work correctly.

► **Step 4:** The scanned tooth is copied to the selected crown. The side view is shown for illustration purposes only.

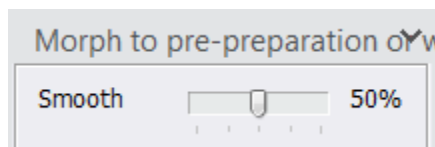
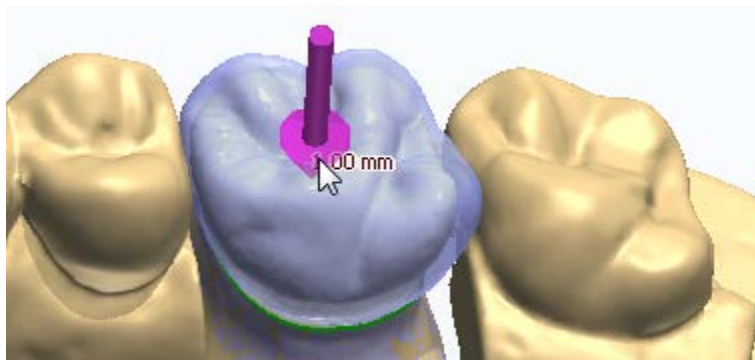


You can always use the **Reset mirror tool** button and then re-do the operation if needed.

- **Morph to pre-preparation or wax-up** - can be used for an individual tooth by mirroring its pre-preparation or wax-up scan. For the feature to work, most of the surface of the modeled crown must be positioned inside the surface of the corresponding pre-preparation or wax-up scan.

► **Step 1:** Click the **Mirror tool** button and select **Morph to pre-preparation or wax-up**, then click the preparation crown you want to copy to.

► **Step 2:** Position the cursor over the modeled crown for the indication arrow to point at the tooth, then click the tooth for the crown to match the shape of the **loaded pre-preparation or wax-up**.



The percentage of smoothness is adjusted with the slider.

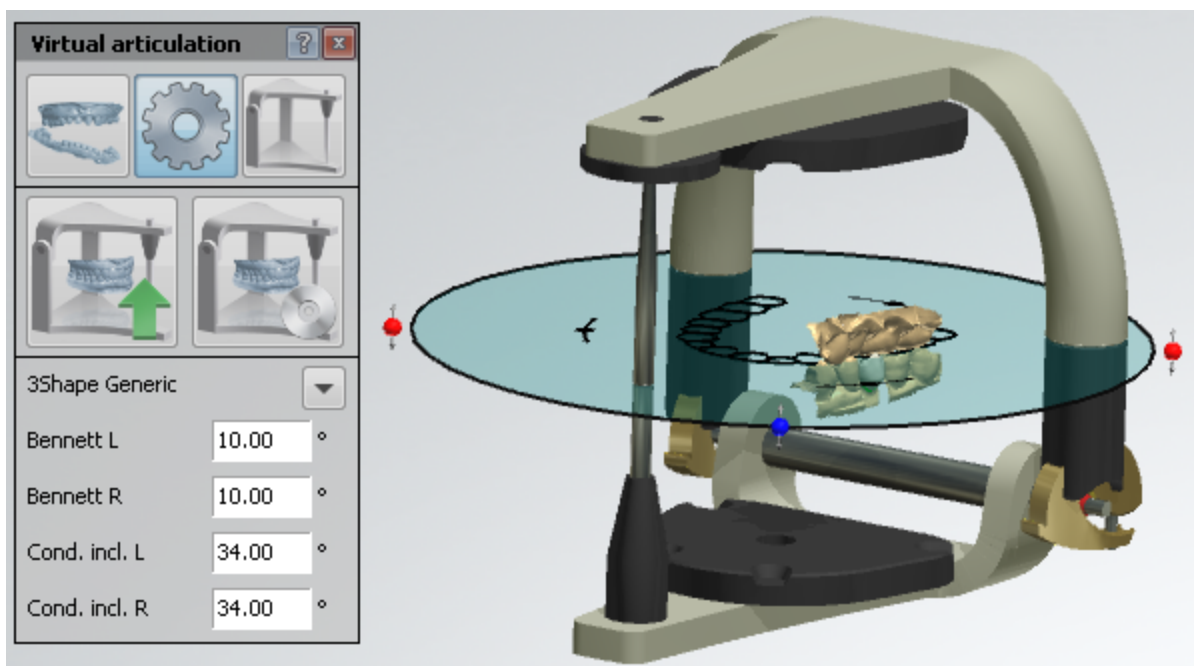


Hint! To learn more about using shortcut keys in Smile Composer, please see [Appendix B: Shortcut Keys](#).



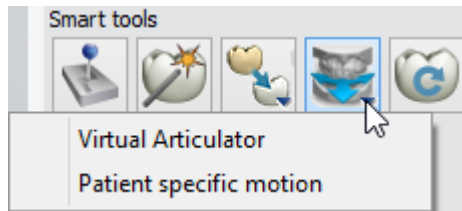
Virtual articulator

The button activates the virtual articulator for orders with antagonist model. Please see the [Dynamic Virtual Articulation](#) chapter for details.



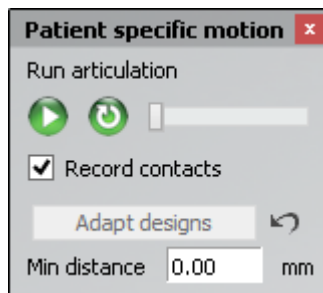


Patient specific motion




The **Patient specific motion** tool is available for TRIOS orders with the recorded patient's jaw motion. It allows you to view the recorded articulation, record teeth contacts and penetrations, and adjust the anatomy design accordingly.

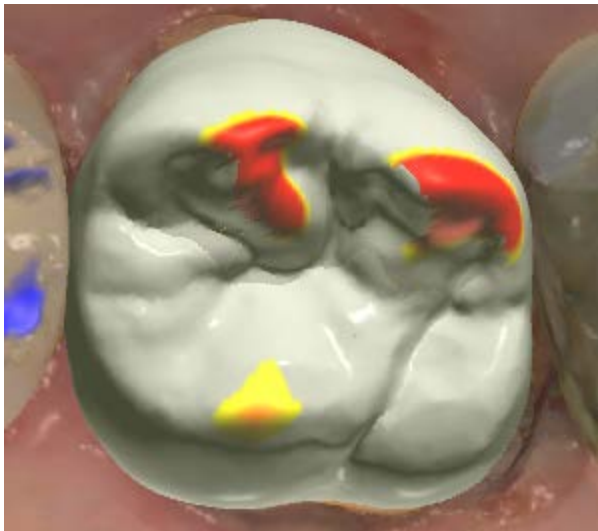
Use the playback bar to run the recorded articulation.



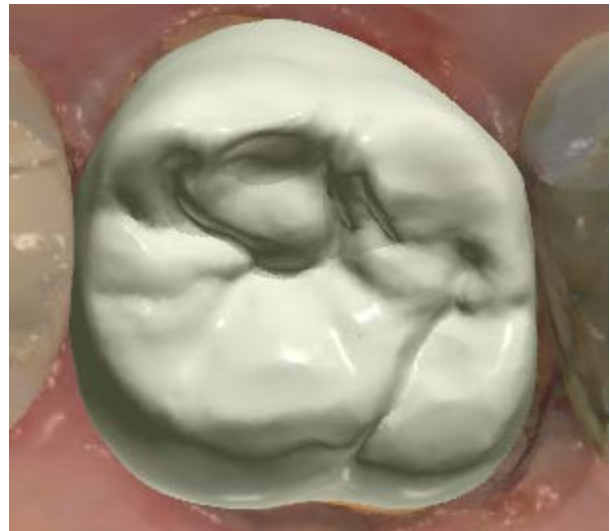
Record contacts - when enabled, records the contacts between teeth (contact areas are colored blue) and penetration of the design items into the antagonist during the articulation. The penetrations are colored yellow-to-red depending on the penetration depth.

Adapt designs – adjusts the designed anatomy based on the recorded penetrations to eliminate collisions with the antagonist. The **Min distance** parameter sets the distance to the antagonist

after the adjustment of the design. The **Undo**  button cancels the latest Adapt designs operation.



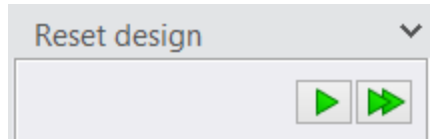
Articulation run with Record contacts enabled



The effect of Adapt design



Reset design



Allows you to reset the design on the selected tooth by clicking the **Apply** button or on all teeth by clicking the **Apply to all** button.

Connection to margin line

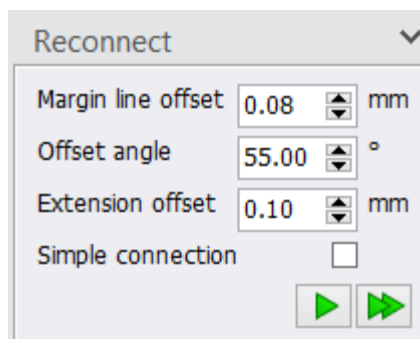
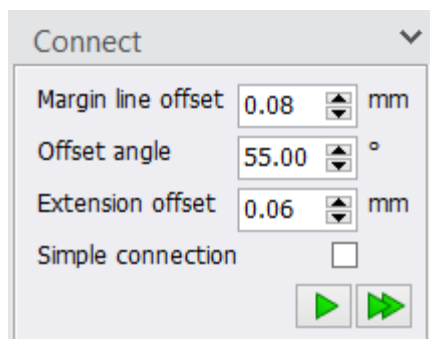


Connection to margin line /



Reconnection to margin line

Allows you to connect the designed anatomy on the selected tooth to the margin line or re-connect it with modified settings by clicking the **Apply** button.

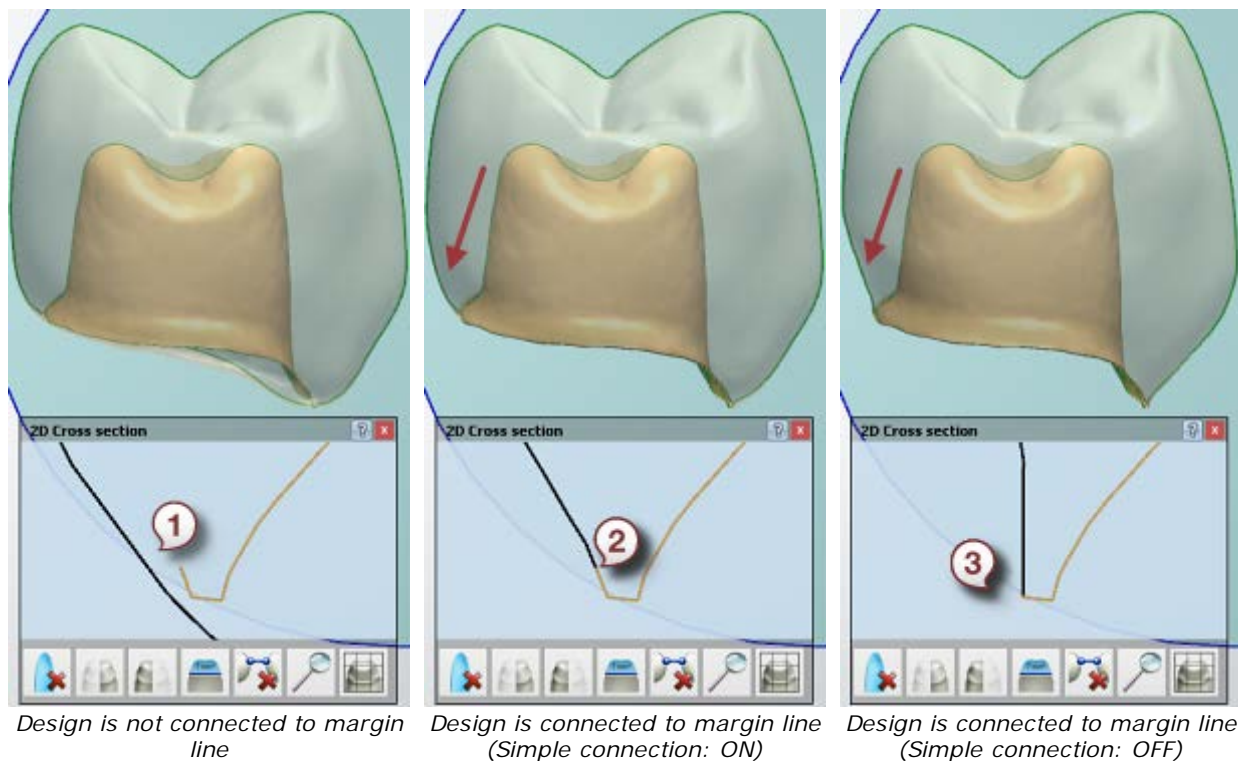


For details on the **Margin line offset**, **Offset angle** and **Extension offset** settings, which are used for defining the overlay shape near the margin line (the collar), please see the [Standard Coping](#) description in the Single Coping chapter. Note that availability of these settings depends on the type of a dental indication.

The **Apply to all** button applies the same settings to all indications of that type in the active jaw.

The **Simple connection** checkbox allows you to connect the design to the margin line without applying extra smoothing to the anatomy near the margin line, keeping the design maximally unchanged. In this case, the design is connected to the external edge of the collar (2) instead of the collar bend (3) as for the usual connection. To get the optimal result, the anatomy should be placed very close to the collar taking into account the **Offset angle** (1). You can toggle the visibility of the die interface and the collar with the **Die interface** slider.



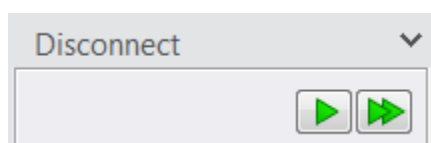


Note! Availability of the **Simple connection** checkbox depends on the type of dental indication.

You can preliminary turn on/off the **Simple connection** option for new orders in *Dental System Control Panel* -> *System Settings* -> [Design Options](#).



Disconnection from margin line



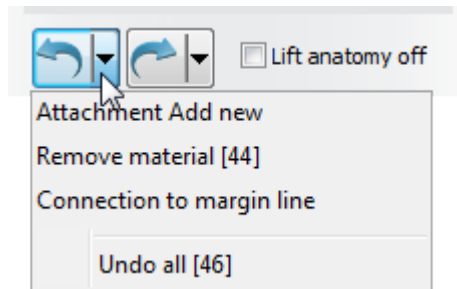
Lets you discard the connection to margin line by clicking the **Apply** button.




Note! The parameters applied to one unit are also applied to all similar items of the same material in the order.




Undo/Redo



You can click the **Undo**  button to cancel the latest operation.

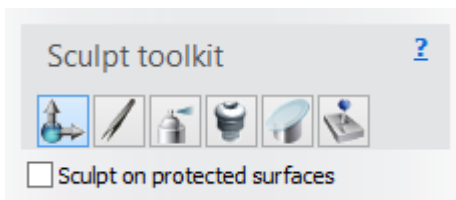
To cancel the previous changes to the model, click on the little black arrow next to the button and select the operations you want to cancel.

The same principle works for the **Redo**  button.



Note! The operations following the canceled one are canceled as well.

2.7.4. Sculpt Toolkit



Sculpt toolkit is a set of tools, which appears as the last step of modeling to enable you to transform and shape your design item. The toolkit is the same for all types of dental indications.



Note! By default, you can't modify the emergency profile of anatomical and customized abutments, screw-retained crowns, implant bars, and implant bridges. To allow sculpting on protected areas, select the **Sculpt on protected surfaces** check box.



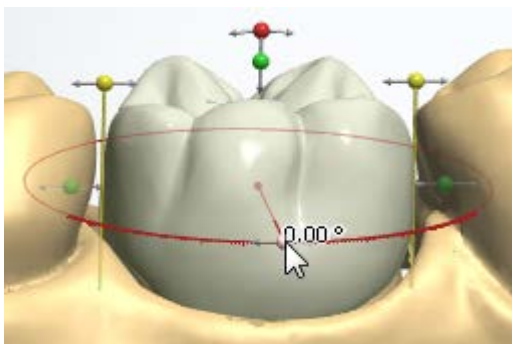
Note! The [vertical offset area](#) is always protected from sculpting, irrespective of whether the **Sculpt on protected surfaces** check box is selected or not.



Global transformation

The **Global transformation** tool allows you to move, scale and rotate the model.

The model is rotated by clicking and dragging one of the central points marked red (see image to the right). The adjacent arrows illustrate the direction of the orientation.



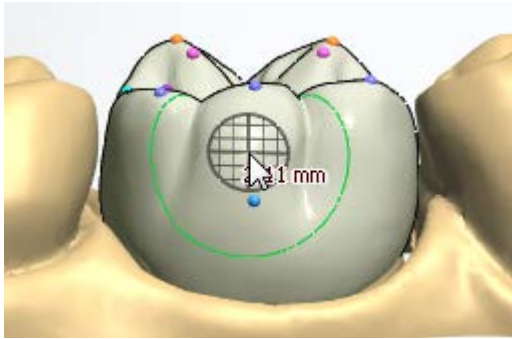
Drag the blue points to change the shape of a top part of a model by moving it sidewise.

Drag the green points to change the shape of a whole model by moving it sidewise, back and forth or up and down. Points become yellow when activated. The view of all points changes depending on the view direction (top, front, etc.).

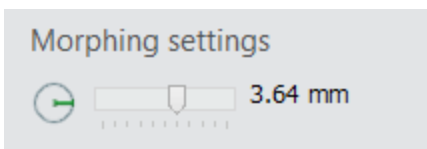
Holding the **Ctrl** key down switches the scaling mode from proportional to one-directional.



Morphing



Morphing helps you shape your dental design by dragging its specific parts. Place the mouse on any part of the design item and move the selected part as desired (see image to the right). The net shows in what direction the morphing is applied. It also shows the amplitude of morphing, i.e. the intensity of pressing and dragging performed on the model. The net can change its color and position depending on the view direction (top, side, etc.).



In the *Morphing settings* window that appears when you select the **Morphing** tool, you can set up the size of the radius/influence area of morphing application by dragging the slider. The radius can also be changed by holding the **Shift** key and moving the mouse wheel.

Use the colored control points for morphing by clicking and dragging them as desired.

- Hold **Shift** key down to move all areas of the same color.
- Hold **Ctrl** key down to move the indicated area perpendicular (orthogonally) to its surface:

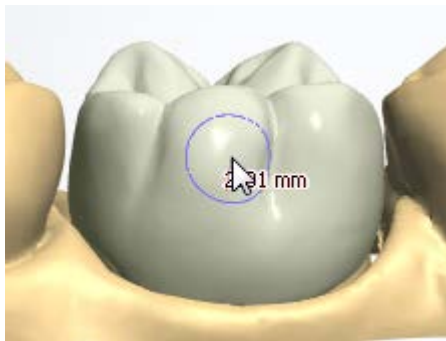
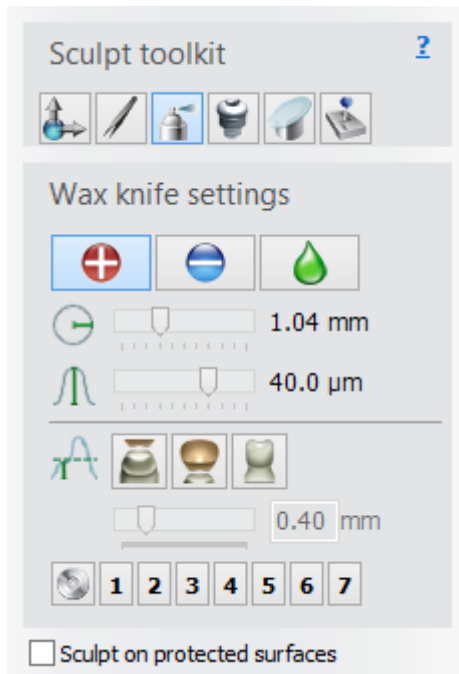
The area is morphed out when the cursor is moved up and morphed in when the cursor is moved down the screen.

- Hold **Alt** key down to add/remove control points.




Wax knife





Adding material



Use the **Wax knife** tool to add  / remove




material to the model and to smooth



its surface. Choose one of the three options and click (or paint) on the model to apply

the operation. Select radius  and level  of the influence by using the corresponding slide-bars (or use **Shift** + mouse wheel and **Ctrl** + mouse wheel respectively).

Press the  button followed by one of the numbers to store the current tool settings. This allows you to go back to any of them later by simply clicking the number.



Desired thickness - limits the amount of the

applied total add  / remove  material to a value set with the slider located under the threshold reference buttons:



- **Preparation scan**, the threshold is measured from the preparation scan. Can be used to create interproximal contacts to the neighboring teeth.



- **Antagonist scan**, the threshold is measured from the antagonist scan. Can be used to create occlusal contact points to the antagonist.



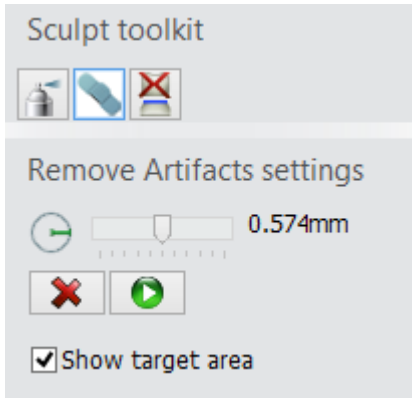
- **Die**, the threshold is measured from the die interface. Can be used to define the required wall thickness of a crown, coping.



Note! Availability of the **Desired thickness** buttons depends on the type of dental indication.





Remove artifacts



The **Remove artifacts** tool is available during the **Sculpt upper jaw** and **Sculpt lower jaw** operations. It is used to remove artifacts from a scan (e.g. bubbles, dents, bumps, etc.).

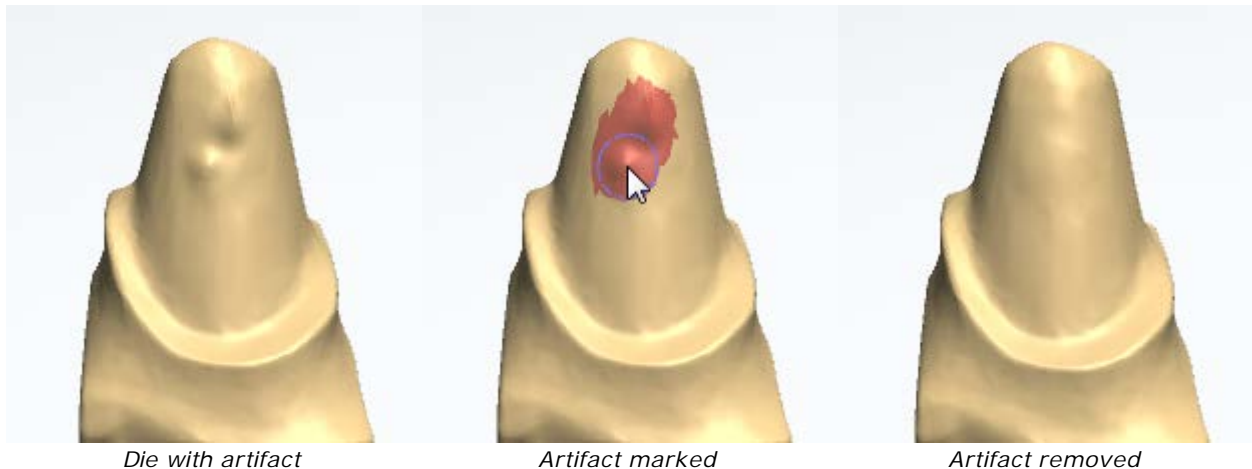
Adjust the radius of the cursor brush with the slider and mark artifacts on the scan.

You can erase your marking by clicking the **Clear selection**  button and then re-do it if needed.

Press the **Apply**  button to remove marked artifacts.

When the **Show target area** checkbox is selected, you can see the circle of the applied cursor brush.

Please see an example of removed artifacts in the following images.



Die with artifact

Artifact marked

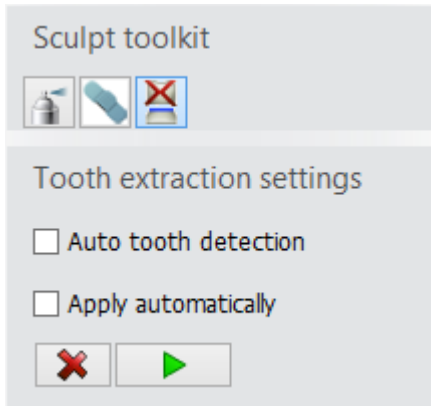
Artifact removed




Tooth extraction

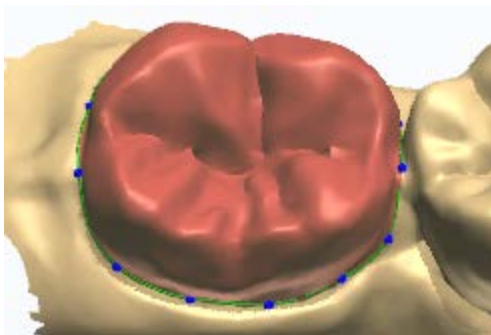
The **Tooth extraction** tool is available during the **Sculpt upper jaw** and **Sculpt lower jaw** operations. It is used to virtually extract teeth.

The procedure of tooth extraction depends on the Tooth extraction settings, which are described below:

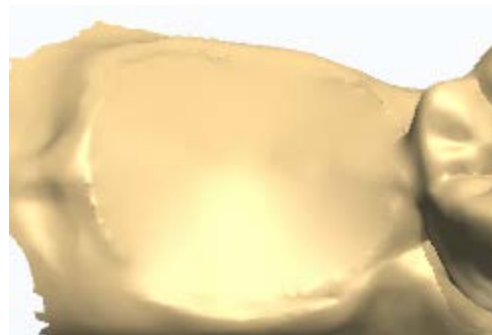


- **Auto tooth detection** - if enabled, automatically draws a spline around the indicated tooth. You can then correct the spline with its points if needed. Otherwise, you can manually circle the tooth if the **Auto tooth detection** option is disabled.
- **Apply automatically** - if enabled, applies tooth extraction automatically. Otherwise, click the **Apply**  button to extract the selected tooth.

The **Clear spline**  button removes the created spline and lets you start the process over.



Before tooth extraction (tooth is marked)



After tooth extraction

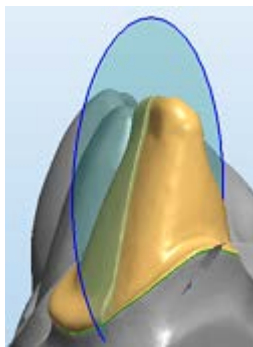
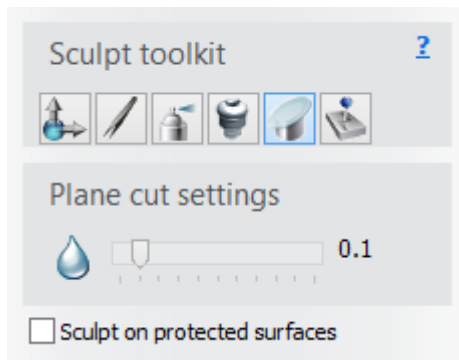


Attachment

The **Attachment** tool allows you to place an attachment for any indication. Please refer to [Sculpt](#) in the Smile Composer chapter for more information.



Plane cut

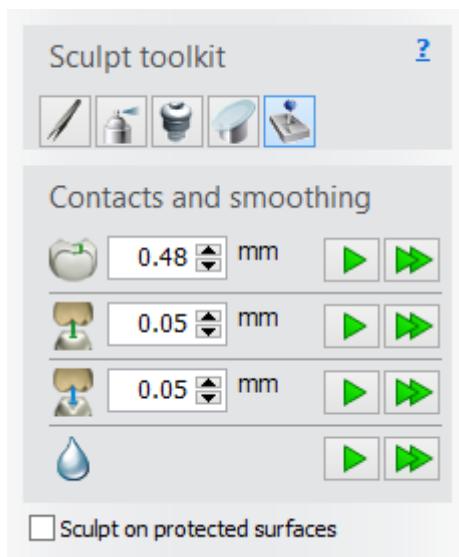


Plane cut on a coping



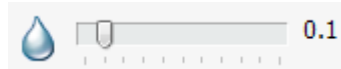
Contacts and smoothing

The **Contacts and smoothing** tools let you:




Anatomical crown tools

The **Plane cut** tool is used to cut the design item with a plane, similar to the plane handling described in the [2D Cross-Section Window](#) chapter.




- The slider lets you adjust the amount of smoothing of the cut edges.



- **Minimum thickness** - enables to you to specify the desired minimum thickness of the material. Click the **Minimum thickness**  button to automatically enforce the minimum material thickness specified for the material. Refer to [Sculpt](#) in the Smile Composer chapter for more information and illustration.






- **Desired distance to antagonist** - cuts the designed item to the antagonist to ensure the correct bite while preserving the anatomy of the contact area. Define the required distance and click

the **Desired distance to antagonist**  button to perform the action. Refer to [Sculpt](#) in the Smile Composer chapter for illustration.




- **Precise distance to antagonist** - precisely cuts the designed item to the antagonist without preserving the anatomy of the contact area. Define the required distance and click the **Precise**

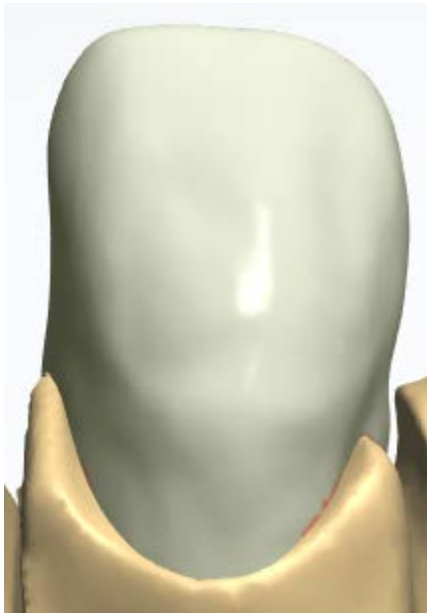
distance to antagonist  button to perform the action. Refer to [Sculpt](#) in the Smile Composer chapter for illustration.

 - **Smoothing** - smooths entire surface of the selected design item. Click the desired dental indication in the main window or in the Order Overview and then the **Smoothing**  button.

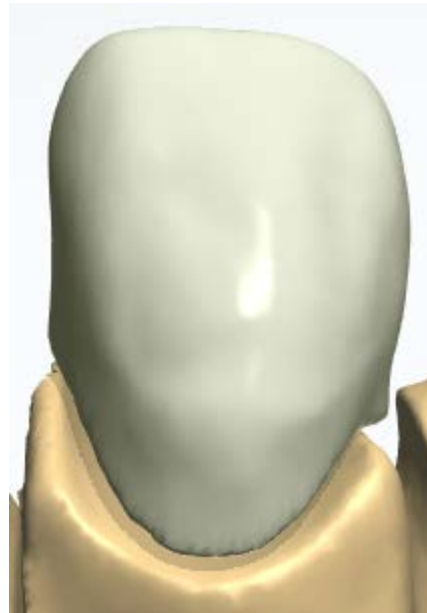


- **Desired distance to gingiva** - is used for pontics and/or bars. Click the **Desired distance to gingiva**  button to achieve the desired distance to gingiva.

Images below illustrate the effect of the **Desired distance to gingiva** operation:



Before cutting to gingiva






After cutting to gingiva



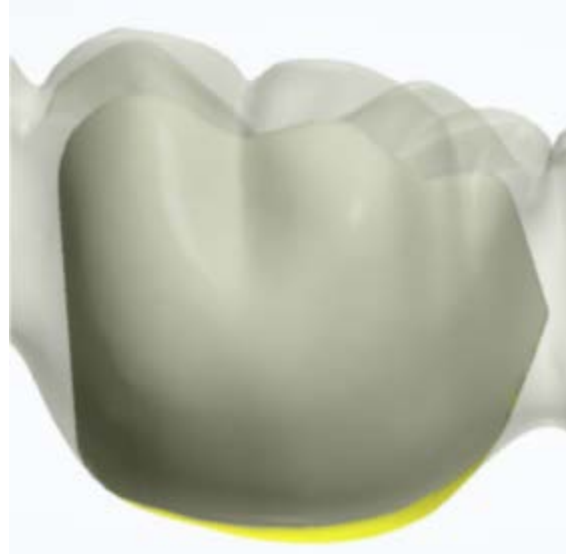
- **Precise distance to gingiva** - is only available for pontic bridges. Acts as [Desired distance to gingiva](#), but provides more accurate results and is less adapted to uneven surfaces.




- **Extend downwards** - is only available for library  and anatomical  pontics. Extends a pontic base downwards inside a crown pontic to remove undercuts. Enter a tapering angle for pontic walls and click the **Extend downwards**  button to perform the action.



Before extending the pontic downwards (the yellow color indicates undercuts)

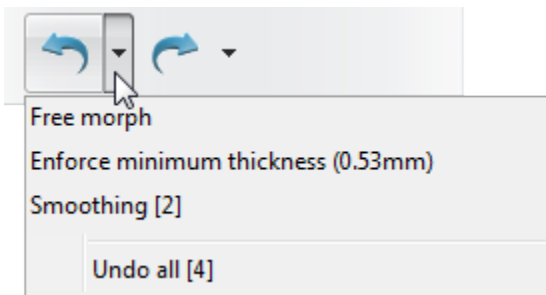



After extending the pontic downwards

Any of the operations can be applied to all design items in the same layer by clicking the  button.



UNDO/REDO OPERATIONS



You can click the **Undo operation**  button to cancel the latest operation.

To cancel the previous changes to the model, click on the little black arrow next to the button and select the operations you want to cancel.

The same principle works for the **Redo operation**



button.





Note! The operations following the canceled one are canceled as well.

2.7.5. Dynamic Virtual Articulation

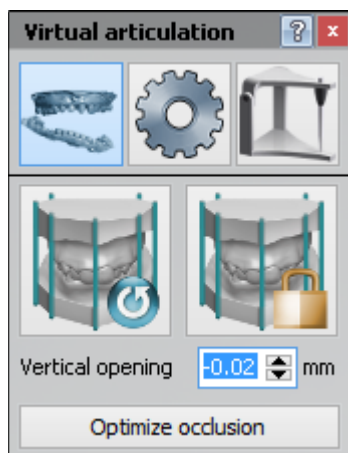
3Shape Dynamic Virtual Articulators provide fast and precise way of carrying out traditionally manual tasks within the digital workflow while saving you time by reducing the amount of manual work.




The Dynamic Virtual Articulation function is activated with the **Virtual articulation**  button located in the Viewing tools during the design phase, and can be used in parallel with the other design steps of the normal workflow. Scans of both jaws must be present in order for the button to be active. You are presented with the *Virtual Articulation* window on clicking the **Virtual articulation**  button.



► Step 1: Align scans

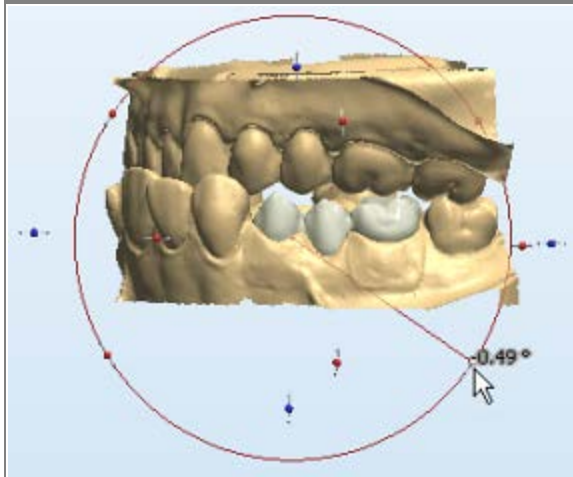


When your jaw scans do not appear aligned, you can adjust their positions by clicking the **Realign**  button in the *Virtual articulation* window and dragging the appeared manipulation points with the cursor for a better fit (see images below).

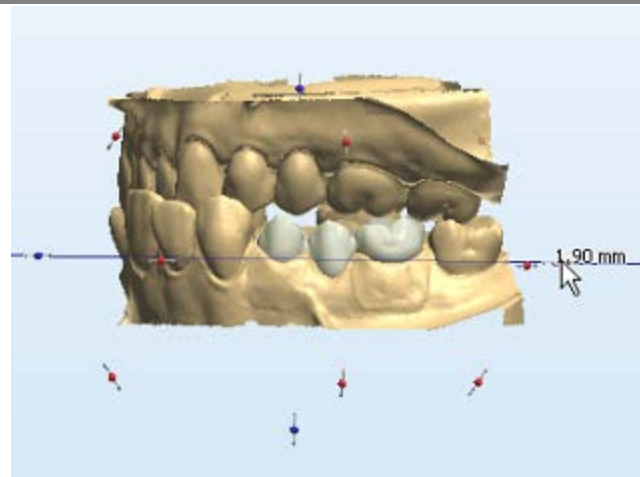
Vertical opening - the indicated value of displacement in the occlusion direction is relative to the original static occlusion and shown in millimeters. It can be set directly by clicking the value and typing in the number directly or selecting it with the buttons next to the value.

Click the **Optimize occlusion** button to let the software automatically align jaws.

Modifying the alignment of the jaws (static occlusion)



Drag the **red** points to rotate a model



Drag the **blue** points to move a model sideways or up & down

The two buttons serve the following functions:



Resets your changes to the current static occlusion.



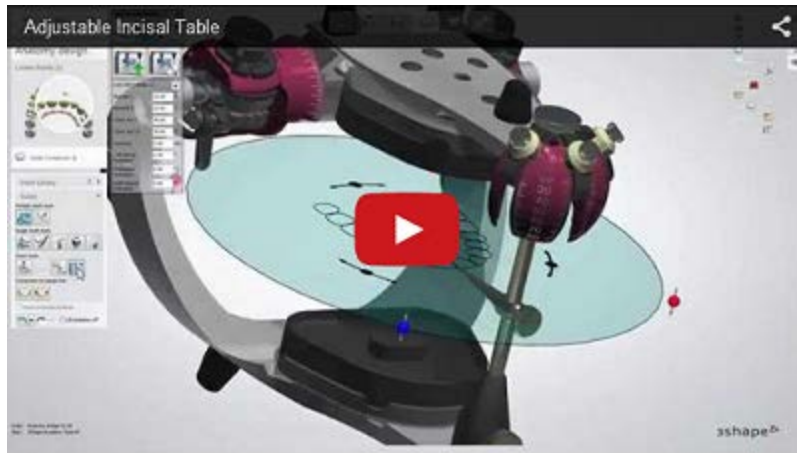
Updates the static occlusion with the current alignment of the jaws when you are satisfied with the results.




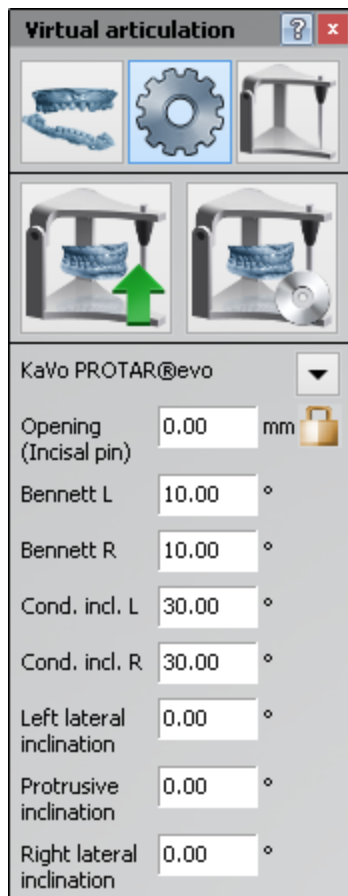
Note! The static occlusion affects functionality of the Dental Designer in a number of places, such as automatic placement of single crowns and inlays. When updating the static occlusion, a special warning appears, confirming your actions.




► **Step 2: Setup articulator model and adjust placement**



Click the **Setup**  button in the *Virtual articulation* window to set the articulator model parameters and occlusal plane.



3Shape Dental System supports some of the widely known articulators, so you could choose to work either with a generic articulator or with a specific articulator model.

Select one of the following supported articulators from the drop-down menu :

- 3Shape Generic
- ACR (Artex® compatible)
- BIO-ART A7Plus
- Denar® Mark 330
- Ivoclar® Vivadent
- KaVo PROTAR® evo
- SAM® 2P
- SHOFU ProArch IV

The **Bennett L**, **Bennett R**, **Cond. incl. L** and **Cond. incl. R** values are articulator adjustment parameters common to all articulator models. They can be set by clicking their values and typing in the numbers directly or selected with the arrow buttons next to the values.

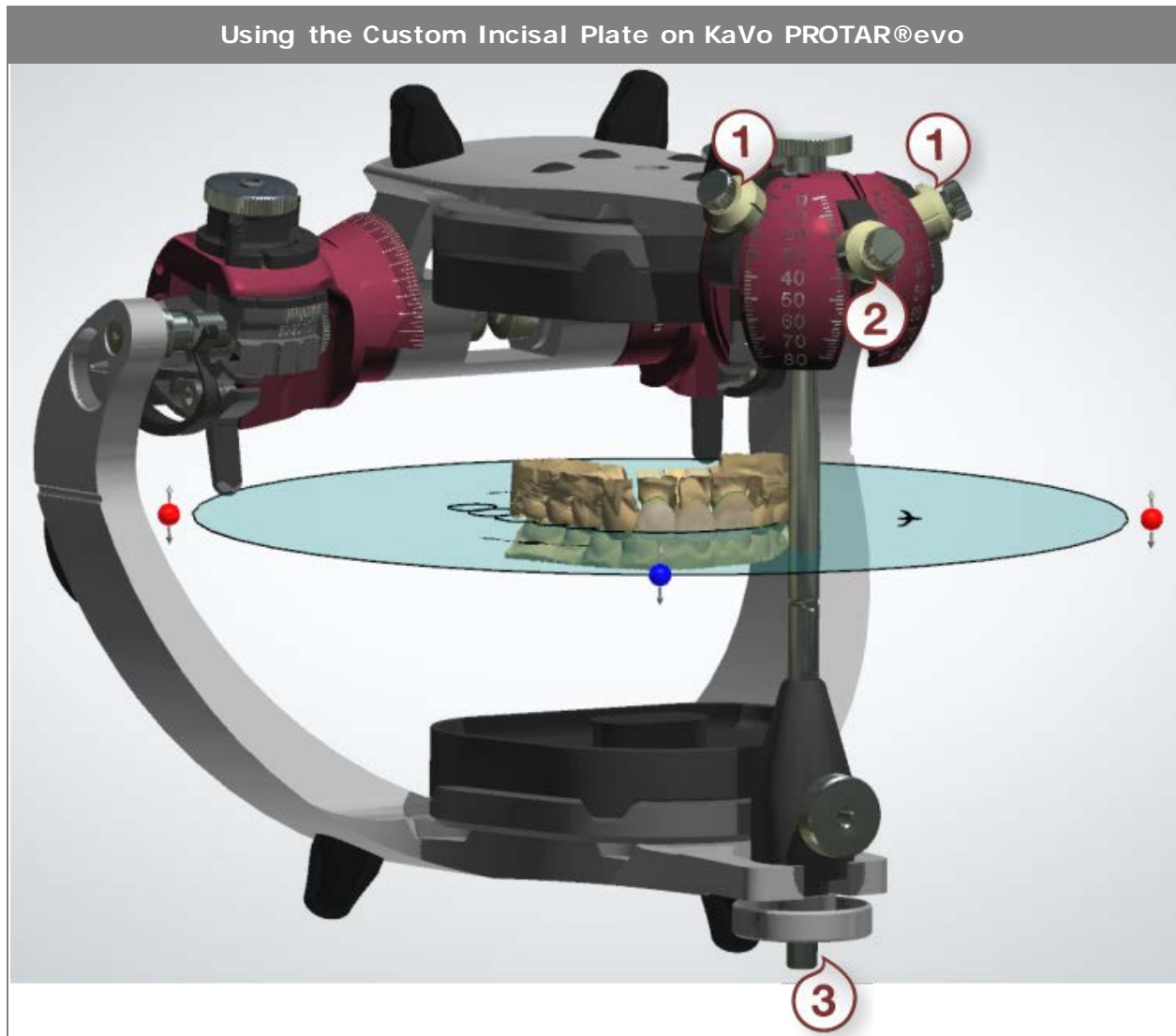
Custom Incisal Plate

If you need to adjust patient's anterior guidance, use the Custom Incisal Plate (also called Custom Incisal Table) by setting up the desired values for the **(1)** lateral wings, the **(2)** antero-posterior wing and the **(3)** Incisal pin length:

(1) Left/Right lateral inclination - an inclination degree of the left/right lateral wing.

(2) Protrusive inclination - a protrusion degree of the antero-posterior wing.

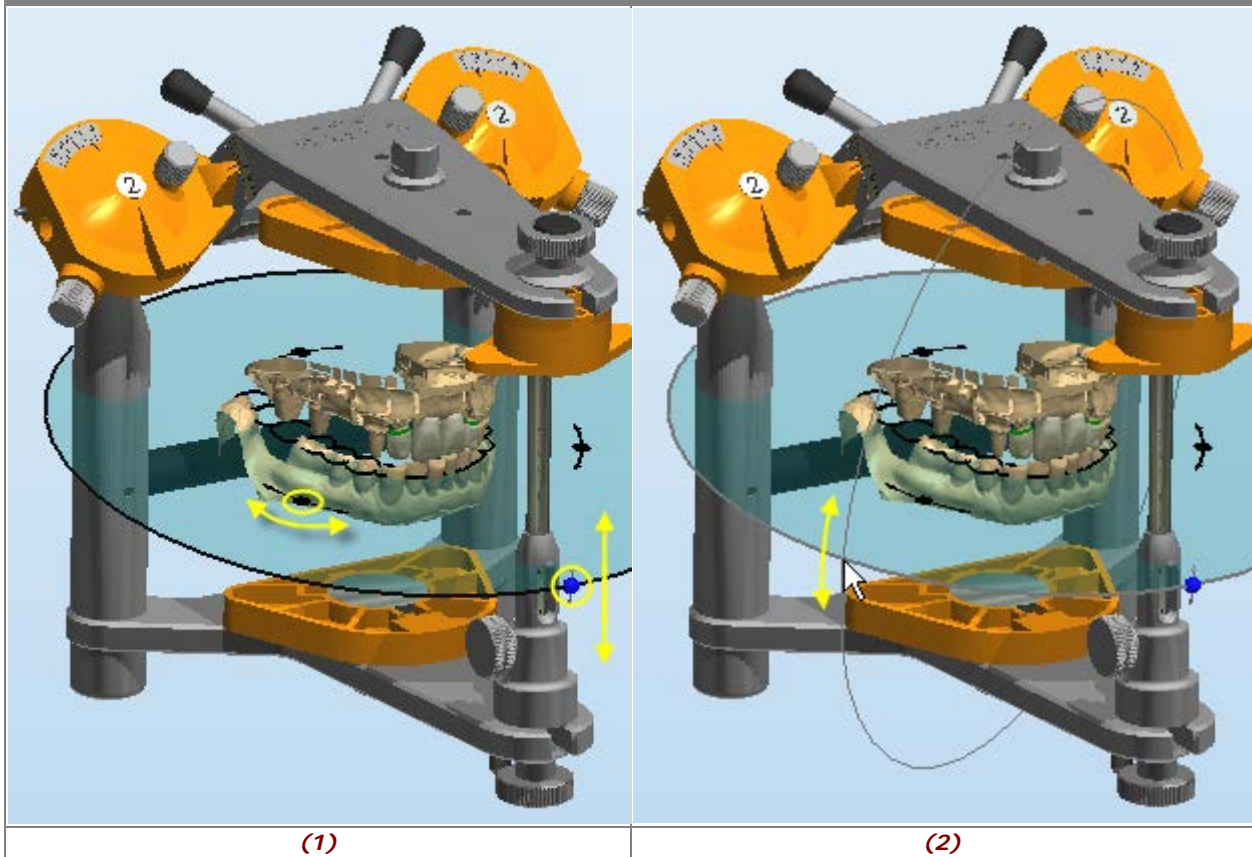
(3) Opening (Incisal pin) - a length of the incisal pin.



The **blue** transparent plane provides a visual guide to help you obtain the correct placement of the jaw models inside the articulator. The **black** silhouette inside the plane shows the reference position of the bite to use when no face-bow information is available.

The placement can be adjusted either automatically or manually by moving the blue plane. The plane can be moved up/down and rotated with the cursor by the indicated points to find the correct position **(1)**. It is also possible to translate the plane by dragging it. You can change the tilt of the plane by dragging its rim **(2)**:

Adjusting model placement on the SAM 2P virtual articulator



With this button you can use the autoplacement feature.

Click the button to open the *Auto placement options* window and select the auto placement method.

Auto placement options

Auto placement method

☒ Analyze scans (for use without transfer plates)

☐ Transfer position from physical (for use with transfer plates) [Setup help](#)

☐ Use custom placement

Placement file [Browse...](#)

[Perform placement](#) [Close](#)

Auto placement methods:

- **Analyze scans** - use for automatic placement without Articulator Transfer Plates in the default articulator plane.
- **Use custom placement** - used for loading your own customized transformation files to transfer position from physical to virtual articulator. Click the **Browse** button and select your placement file.


The **Perform placement** button initiates the auto placements process with the chosen options.



Save current placement to file - allows you to save the current placement to a file, so it may be used as a fixed placement for future orders. This is relevant if you have used a custom Articulator Transfer Plate to transfer the placement from a physical to the virtual articulator.

The **Articulator** visibility control bar  appears in the Model Visibility slide bars



area during the **Setup** and **Articulate**  operations. The articulator visibility can be toggled by moving the icon or clicking the cursor at the opposite end. Other visibility options are described in the [Visualization Sliders](#) chapter.



► Step 3: Articulate



Click the **Articulate** button to start evaluating and adapting your design.

Virtual articulation [?] [x]

[Icon: Jaw] [Icon: Gear] [Icon: Articulator]

[L] [U]

Latero- / Mediotrusion 0.00 mm [Hand icon]

Pro-/retrusion 0.00 mm [Hand icon]

Contact mode [OFF] [ON] [AS]

☒ Guided by designs
☐ Guided by Incisal plate
☒ Record contacts

Adapt designs [Refresh icon]

Cut contacts 0.10 mm

[Play] [Stop] [Reset] [Gear]



Note! The availability of options in the form can differ depending on the articulator model you have chosen at the previous step. For example, the **3Shape Generic Articulator** supports **Latero-/Mediotrusion** and **Pro-/retrusion**, while **KaVo PROTAR® evo** also has the **Side shift** (see below).

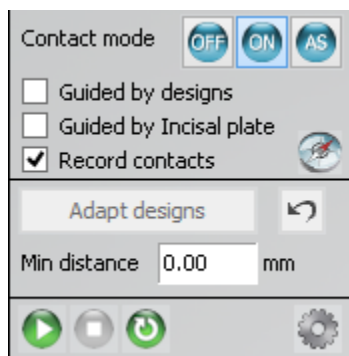
With the **Upper** [U] / **Lower** [L] jaw button you select the jaw to move when you:

- Reset the [Reset icon] articulator to the static occlusion
- Play a motion sequence
- Modify the parameters in the form




The articulator movement (**Latero-/Mediotrusion** and **Pro-/retrusion**) can be performed by:

1. Clicking the movement value and entering the number directly **OR**
2. Clicking the value and selecting the number with the help of arrow buttons **OR**
3. Moving the jaw with the cursor in the 3D modeling window:
 - a. Click the locked [Hand icon with red X] icon of the required plane to unlock [Hand icon] its movement.
 - b. Place the cursor over the articulator or model (see image above).
 - c. Drag articulator/model while keeping the mouse button pressed (the corresponding value is updated as you move).

If you have selected a **KaVo PROTAR® evo** or **Denar® Mark 330** articulator on the previous step, the **Side shift** value will also be available on the form.

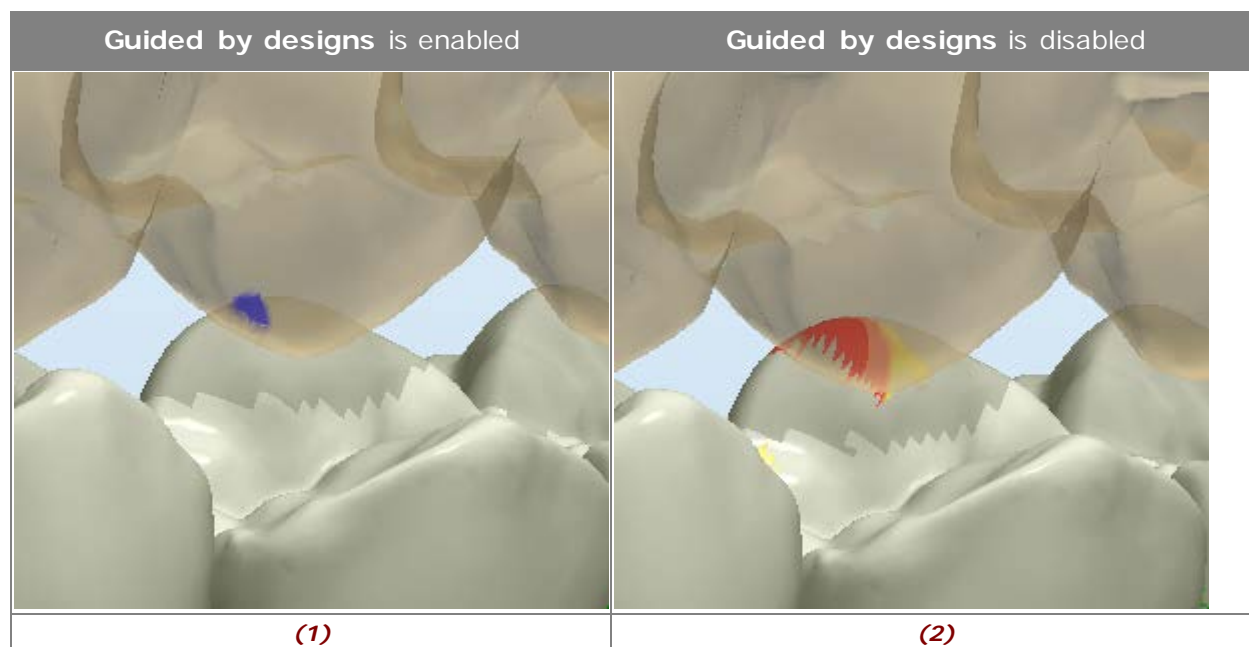


There are three buttons for the **Contact mode** options:


-  **OFF** - Does not prevent jaws from penetrating into each other.
-  **ON** - Prevents jaws from penetrating into each other. Enables **Guided by designs**, **Guided by Incisal plate** and **Record contacts** checkboxes for selection.
-  **AS** - Auto-shut mode. Occlusion is set to the first point of contact.

Guided by designs - when enabled, the designs will guide the articulator movements like the real teeth of the jaws:

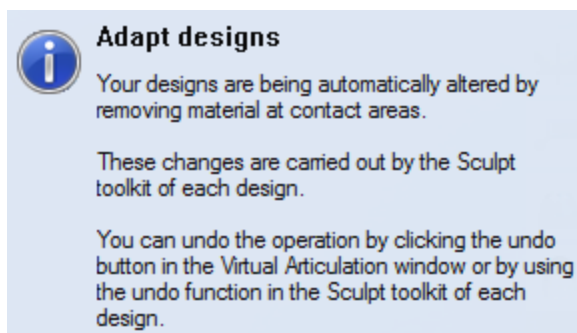
- **(1)** If it is **enabled** (used if there are no sufficient original teeth in the scans to support the movement of the jaws), then designs will collide with the antagonist (and contact areas will be colored blue, if **Record contacts** is selected - see below). In this case you can choose to cut off material at the contact areas by a given amount (the **Cut contacts** parameter).
- **(2)** If it is **disabled** (used if there are original teeth in the jaw scans), then designs will penetrate the antagonist (and penetrations will be colored yellow-to-red depending on the penetration depth). You can choose to cut off any material that has been penetrated from the designs. The **Min distance** parameter controls what the distance to the antagonist should be after the cut, e.g. if it is 0, then it will cut off exactly what was penetrated. If it is positive, then it will cut off more.




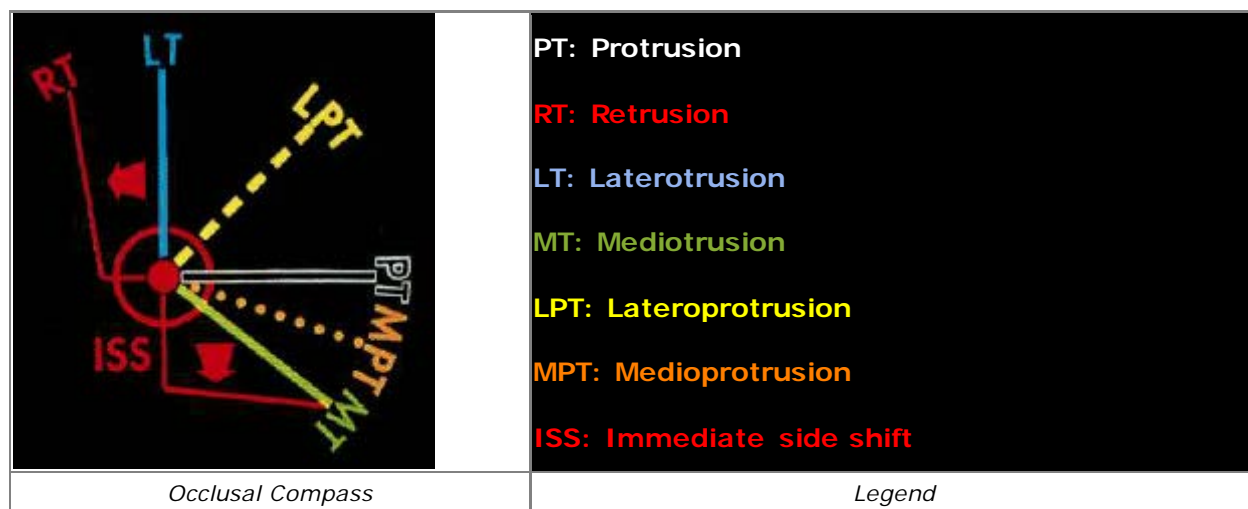
Guided by Incisal plate - when enabled, the [Custom Incisal Plate](#) is used during the articulator movements if this is supported by the selected articulator model.


Record contacts - when enabled, shows **Adapt design** and **Undo**  buttons. The **Adapt design** button becomes enabled when contacts have been recorded. It works only on the anatomy layer with active **Sculpt toolkit** and is used to correct the bite.


The following warning appears on clicking the **Adapt design** button:

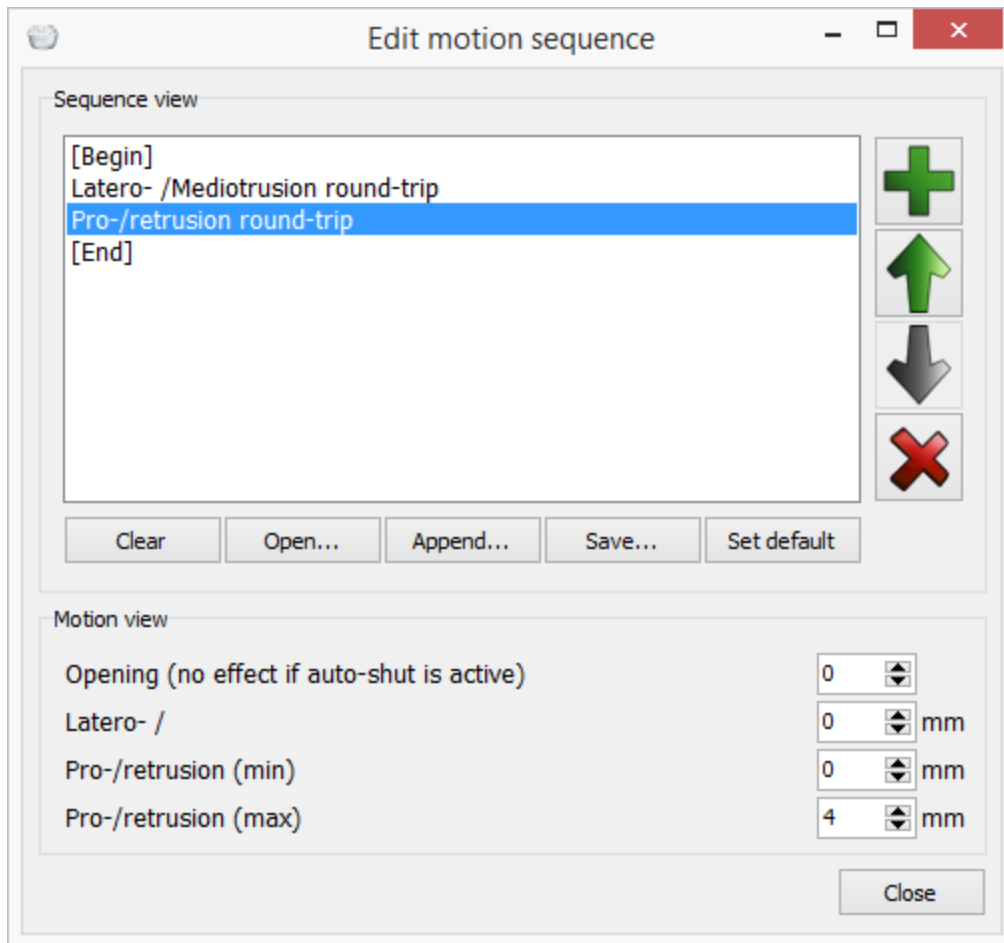


 The **Occlusal compass** button, when enabled, colors the contact areas using different colors for different types of movement:



The playback bar  is used to automatically reproduce recorded articulator movements.

Edit motion sequence  button opens the corresponding window and allows you to configure the desired jaw movements.



- Allows you to add a predefined motion from the appeared *Add a new motion* dialog (see below).



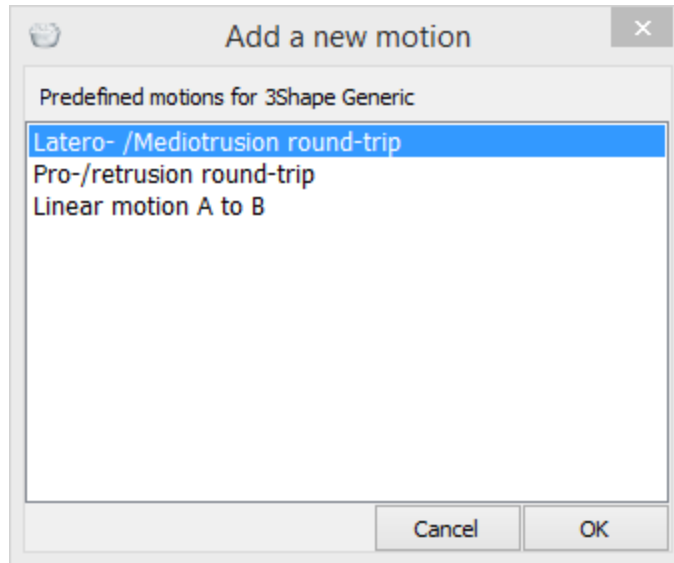
- Moves the selected motion up in the list.



- Moves the selected motion down in the list.



- Deletes the selected motion.



The buttons under the motion list allow you to:

- **Clear** - removes the current list.
- **Open...** - Opens saved motion sequence file and replaces the current sequence.
- **Append...** - Opens saved sequence file and adds it to the end of the current sequence.
- **Save** - Saves current sequence file.
- **Save default** - Saves current sequence as a default one.

The **Motion view** area displays adjustable movement ranges for the selected motion. You can add a motion, select it from the list, modify its movement range and then save it for further use.

2.7.5.1. Transfer Model Position from Physical to Virtual Articulator

You can transfer the exact jaw position from the physical articulator into the [Virtual Articulator](#) with the help of specially designed 3Shape Articulator Transfer Plates and 3Shape scanner.



The procedure of transferring jaw positions from physical to virtual articulators is described below.

► **Step 1: Use Articulator Transfer Plate to scan models**


Refer to the chapter [Articulator Transfer Plate \(large interior scanners\)](#) for information on how to use Articulator Transfer Plates for scanning models.

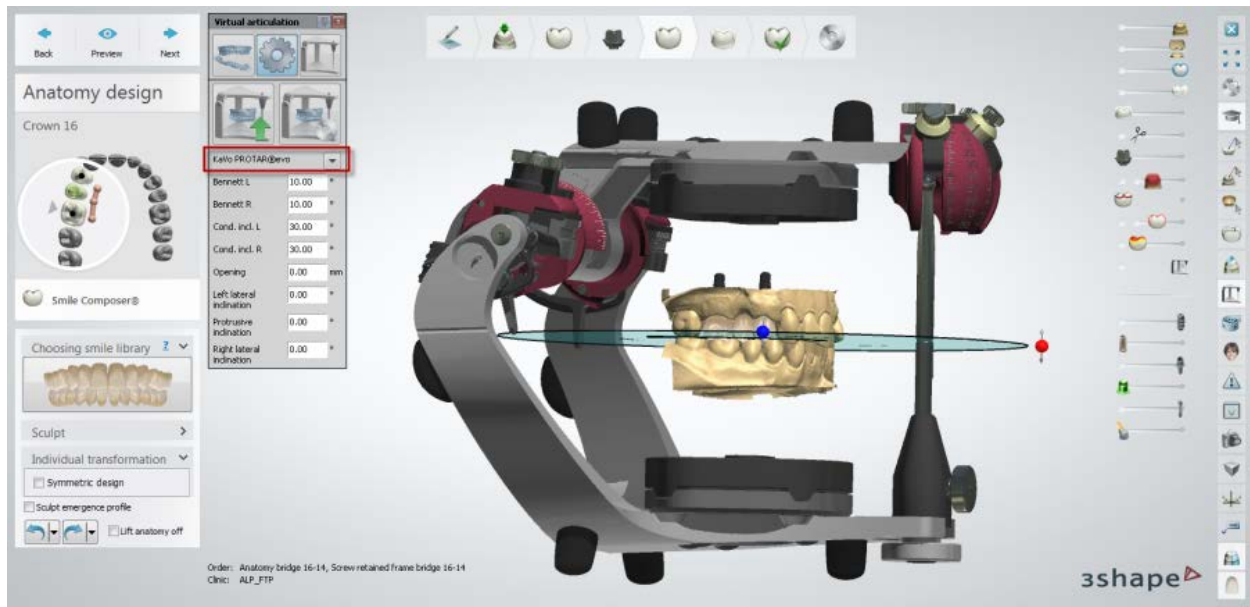
► **Step 2: Open virtual articulation**

Go through the usual CAD modeling steps in Dental Designer until the **Virtual Articulation**



button in the Viewing tools becomes enabled.

Click the **Virtual Articulation**  button to transfer the exact model position from the physical to the virtual articulator. The used articulator model is displayed in the *Virtual Articulation* window.

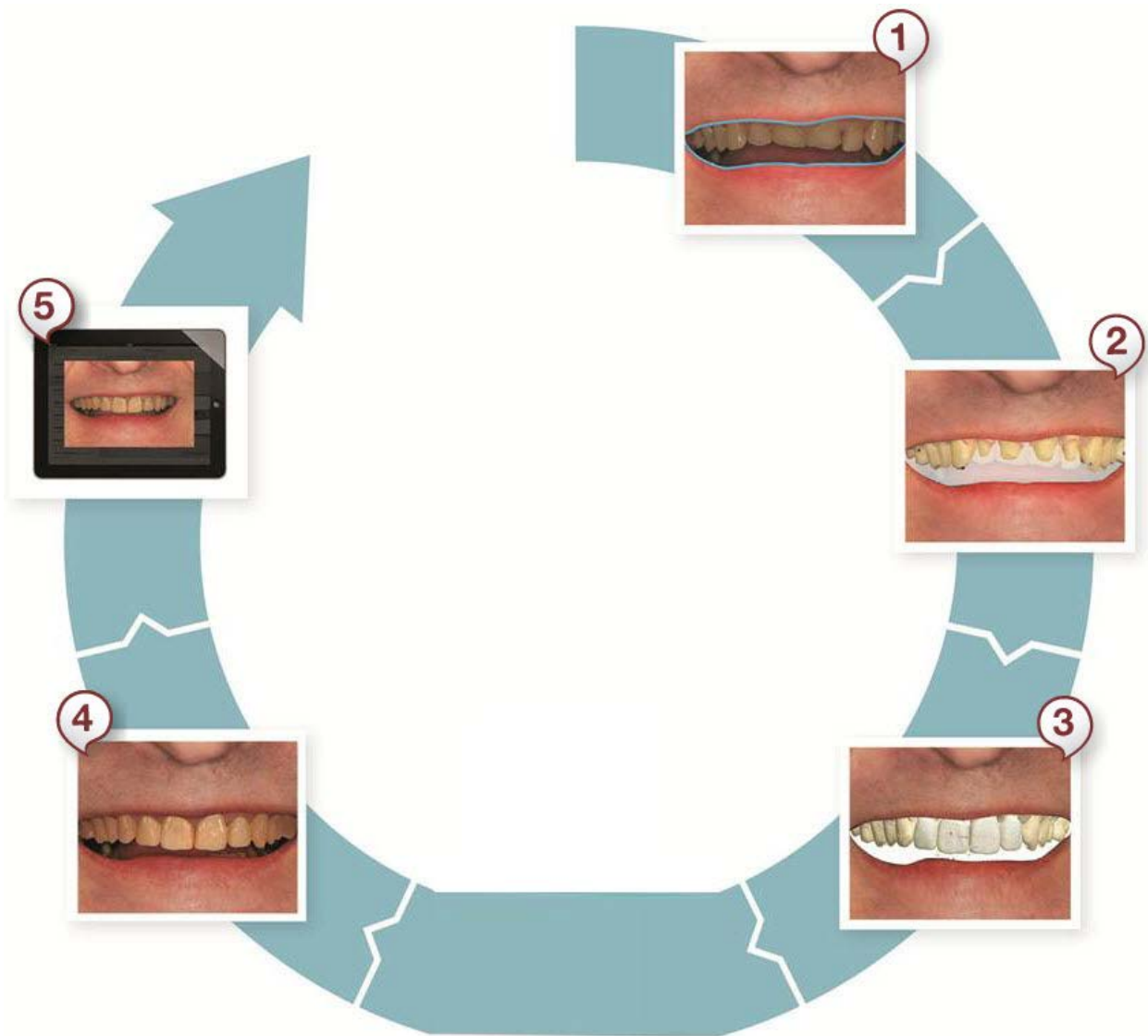


Once the virtual model is positioned correctly, it should have the same position as the cast in the physical articulator.

2.7.6. RealView™ Engine




3Shape's RealView™ Engine provides a near photo-realistic visualization of the patient case that includes existing teeth and gingiva, as well as the newly designed restoration. In Dental Designer, the technician applies realistic shades to the 3D model and merges this with a 2D image of the patient's smile. The result allows the technician to verify the design in relation to the patient's smile and thereby achieve optimal esthetics.

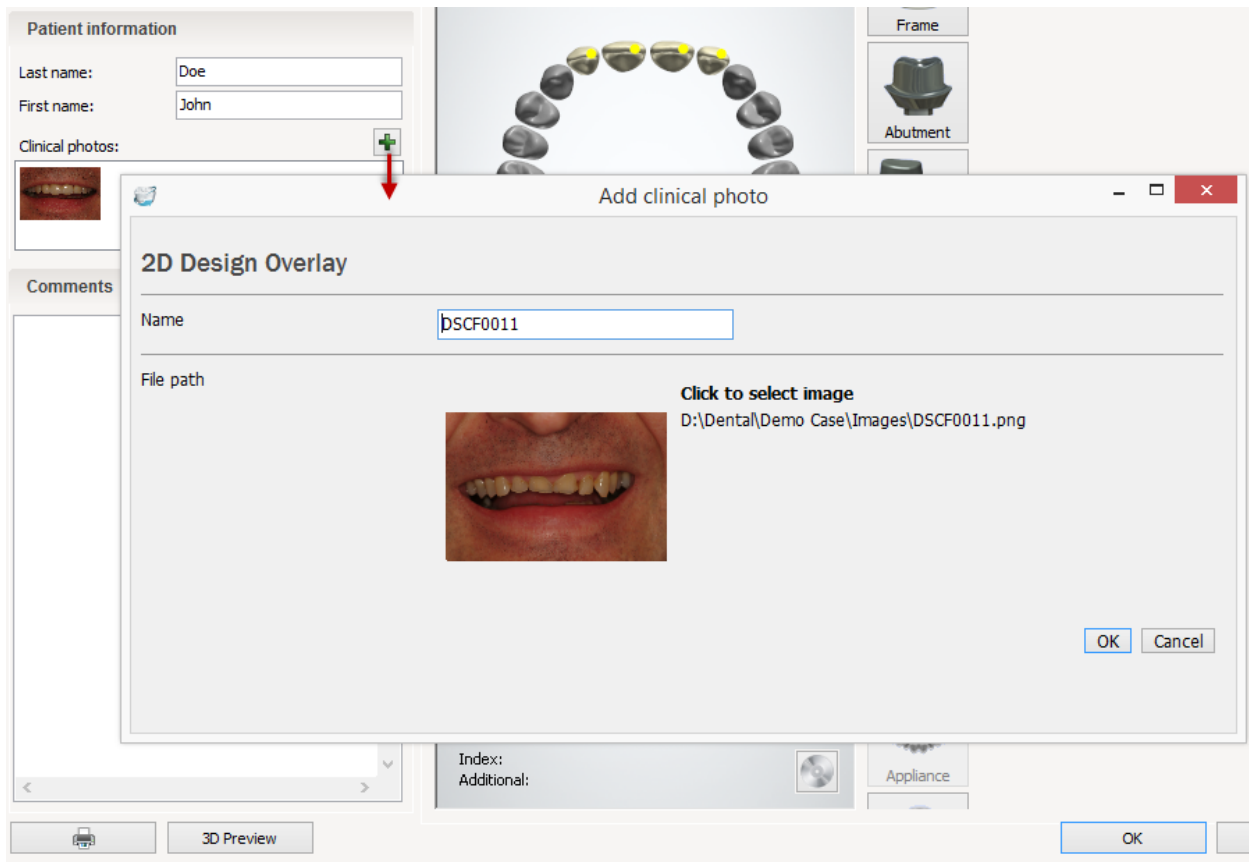


1. Cut out original teeth from 2D image
2. Align 3D model and 2D image
3. Create CAD design
4. View 3D design together with the 2D image
5. Share design with dentist and patient


To use the RealView™ Engine in Dental Designer:

► **Step 1: Add clinical photos to your order**

While creating an order, under the **Patient information** settings in the Order form click **Add clinical photo**  and select the images of your patient that you would like to include in the order (see details in chapter [Create an Order](#)).







► Step 2: Open the RealView Engine tool in Dental Designer

(1) Click the **RealView Engine**  icon in the Viewing tools. The icon becomes available when you get to the **Anatomy design** step.

(2) The **RealView wizard** appears with a 2D image you have added in the Order Form.

The wizard will guide through the main steps:

-  1. Rotation/Guidelines
-  2. Cut-out
-  3. Alignment
-  4. Rendering

(3) If several images were added to the order, you can switch between them using the **Patient image** sliders in the upper-right corner of the modeling window.

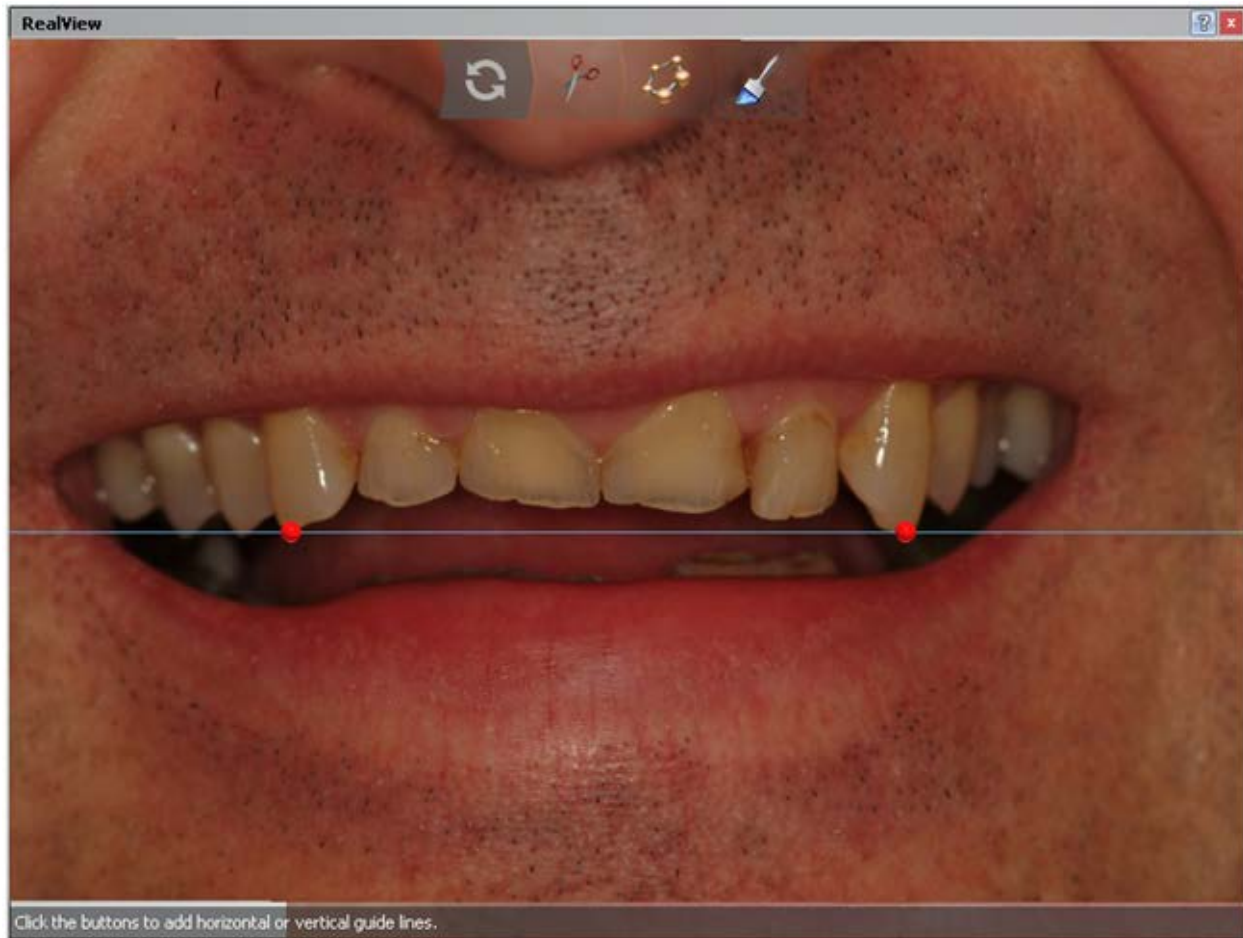


Note! If no 2D images were added in the Order form, clicking the **RealView Engine** icon will open the browse dialog, offering you to upload the 2D images.

►Step 3: Rotate the image or design the guide lines

To rotate the image:

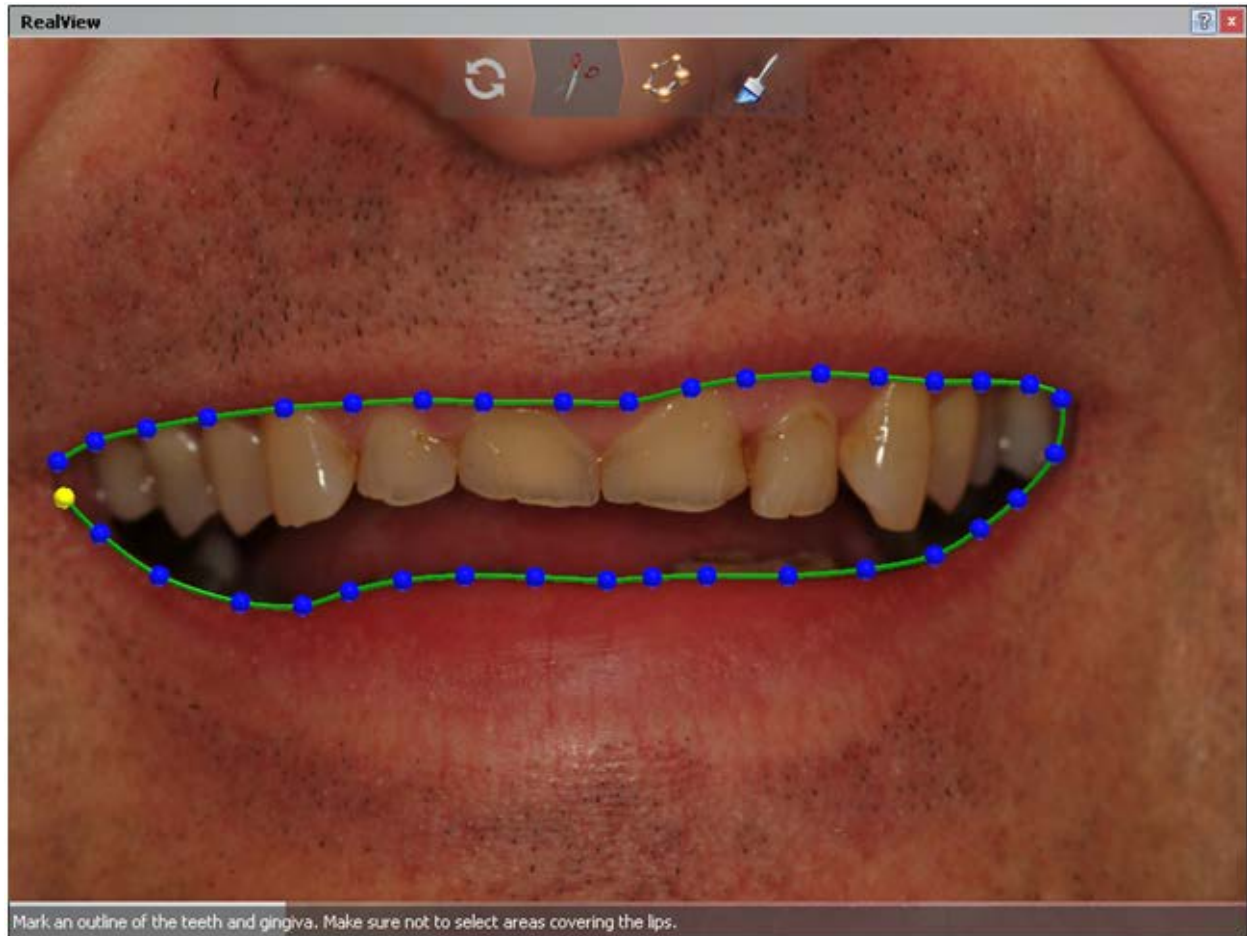
- Using the red handles, rotate the 2D image for a correct horizontal alignment.
- Zoom and pan the image using the mouse wheel.



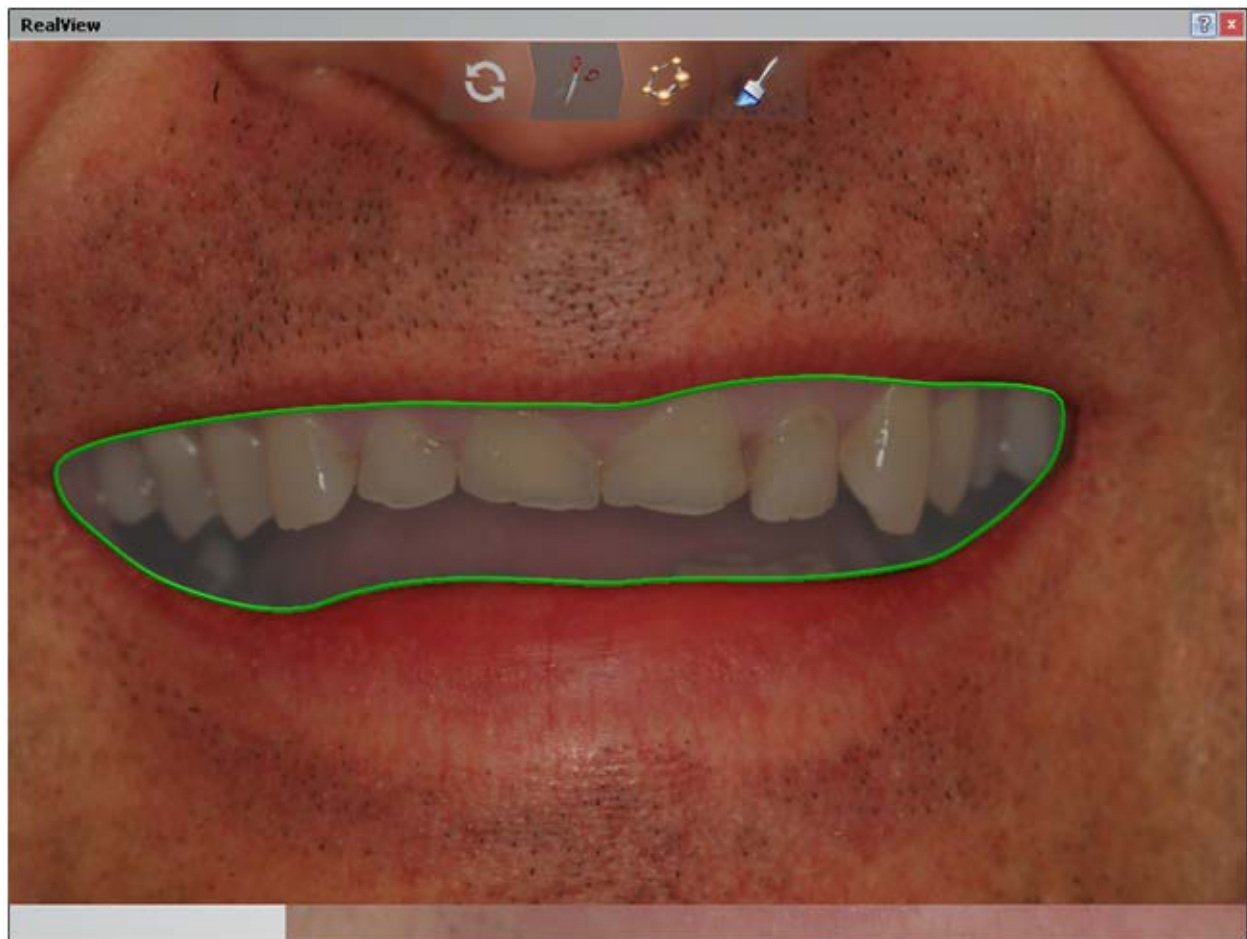
►Step 4: Cut out the teeth from the 2D image

(1) Place the spline around the teeth and gingiva by placing the control points with the cursor (see image below).

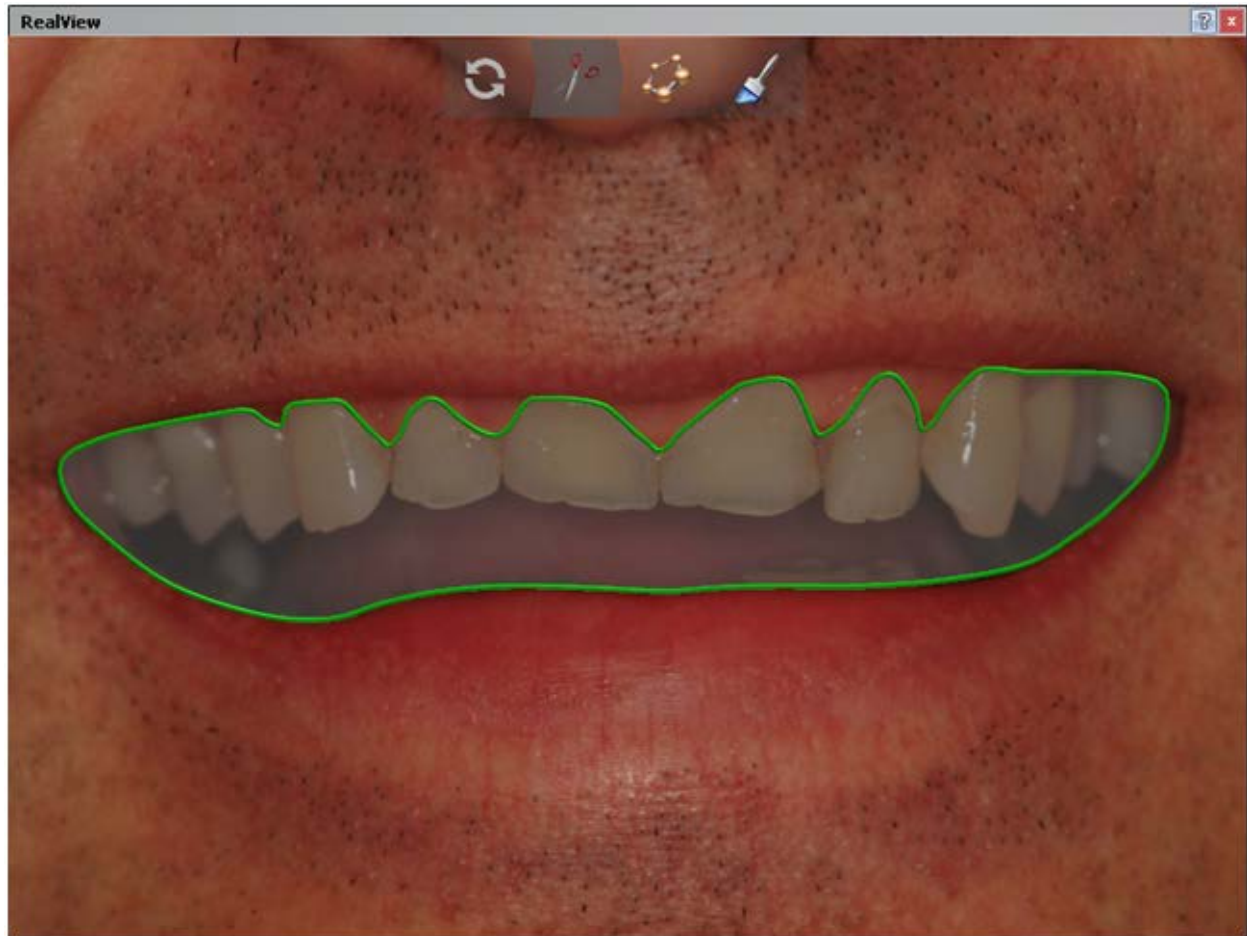
- To close the spline, click on the first point.
- Right click the spline to clear it.
- Press **Ctrl** and scroll the mouse wheel to change the influence radius of the cut-out spline.



(2) The selected area will appear tinted and you can edit the spline using the **Fast edit** option, i.e. draw with a cursor to improve the spline placement:

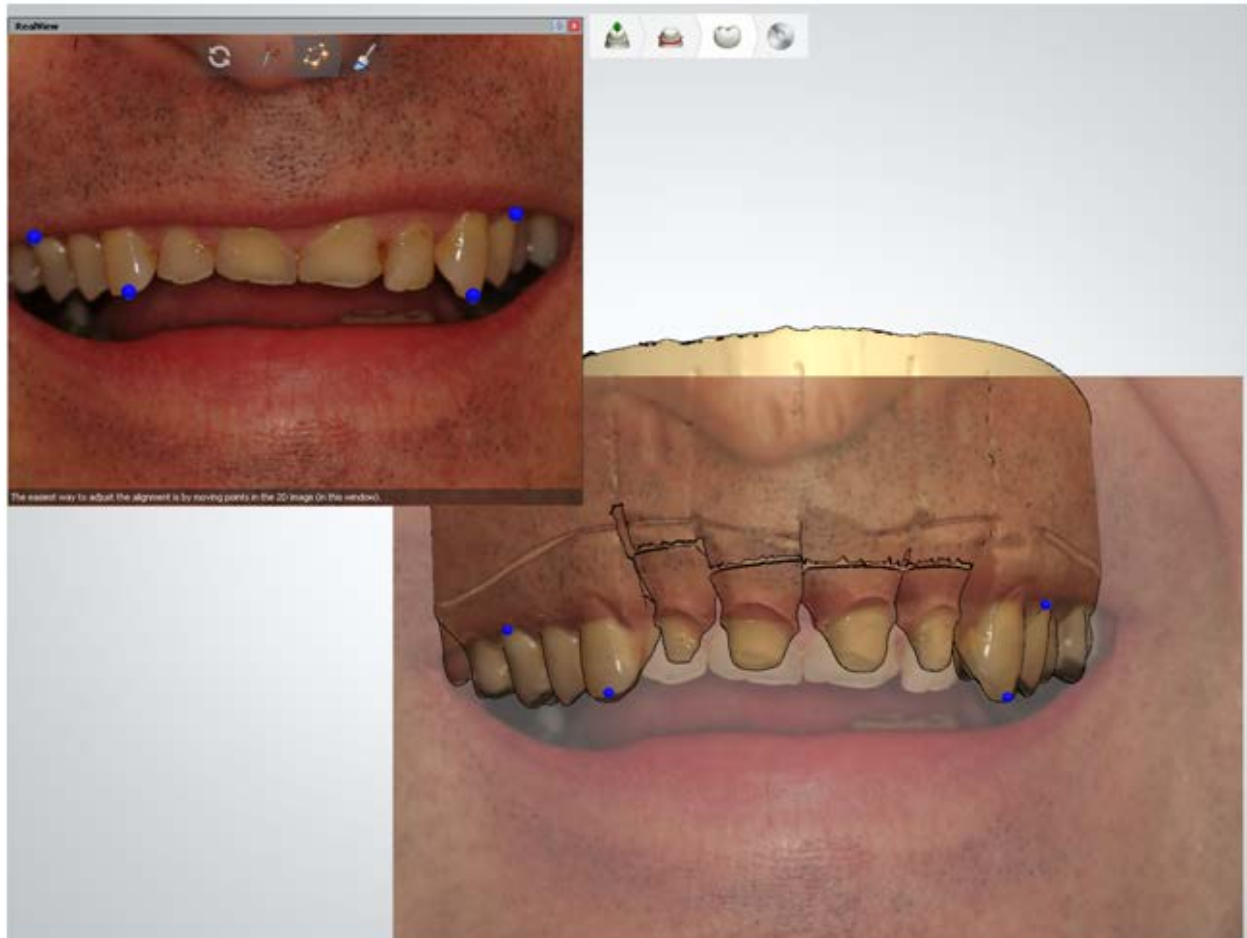


(3) Optionally, you can cut out gingiva from the teeth with the **Fast edit** option:



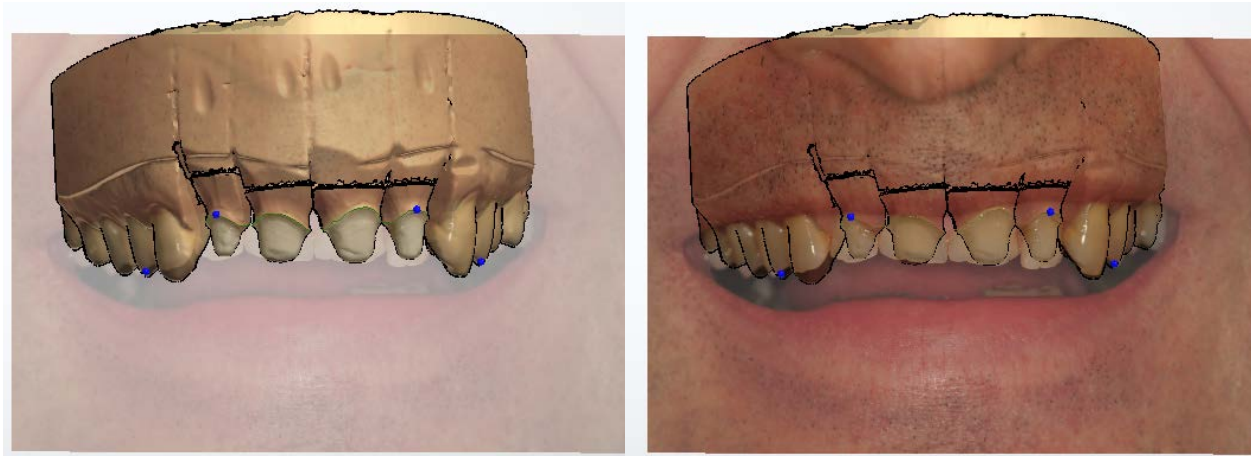
► **Step 5: Align the preparation scan with the teeth in the 2D image**

1. Place four matching pairs of points on the image and on the preparation scan by clicking points in turn - one point on the preparation scan and then the corresponding one on the image.
2. After the last point is placed, the software automatically aligns an image to a scan.



Hint! It is important that you only click points that can be found in the image and the preparation scan. Try to distribute the points evenly across the model. The model will be aligned only in areas where there are corresponding points.

- To see if the teeth have been placed correctly you can try to turn up the visibility of the image, using the Patient image  visualization slider:



Move slider to the **left** to fade out the 2D image overlay

Move slider to the **right** to make the original teeth visible

- The points can be moved and the alignment will be recalculated after releasing the mouse button.
- Right-click the points on the preparation scan to remove a pair of points or all points and start over.

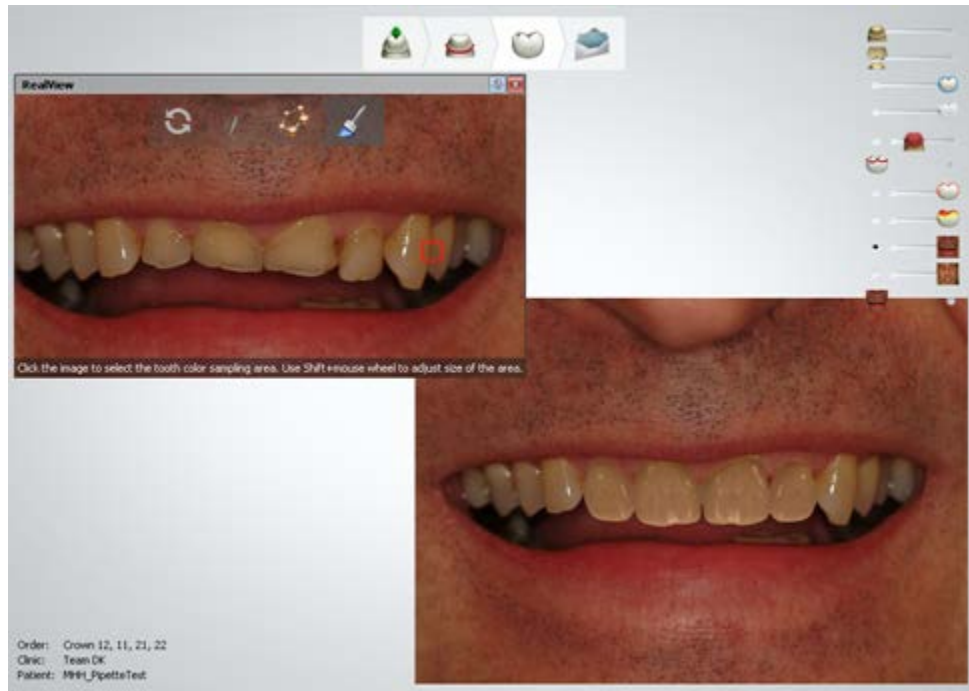


Note! After the alignment, the RealView™ Engine locks the model rotation in the Design window and you are able to rotate the model again after the RealView™ Engine is closed or the image is disabled with the **Patient image** sliders.

►Step 6: View the final result

Go to the **Rendering** step and view the 3D design together with the 2D image where the CAD designed teeth are automatically rendered with the same color as the existing neighboring teeth.

If the color is not matching completely, you can change it to a more suitable color by moving the red square, which defines the area used for color matching.



► **Step 7 (optional):** If you have more images, go through the configuration steps for each of them

You can change between images by switching between the **Patient image** sliders.

► **Step 8: Turn off the RealView Engine mode**

Click the **Patient image** slider to close the 2D image and go back to your design.



Hint! The 2D images of patient's face and smile, or **diagnostic photographs**, are essential during modeling. Below is the list of the most important views for diagnostic purposes:


1. **Full-face smile** — shows the relationship of the smile to the face.
2. **Close-up smile** — captures relationship of upper smile line to lower lip.
3. **Close-up profile** — shows the upper incisal edge position to inner vermilion border of lower lip.
4. **Close-up high smile line** — provides information on embrasures, symmetry of gingival heights, and margin placement.
5. **Close-up "E" position** — shows relationship of upper incisors to upper lip.
6. **Close-up MI occlusion (retracted)** — shows front to back progression.
7. **Close-up rest position** — displays the relationship of incisal plane of lower teeth to lower lip.
8. **Smile with teeth apart (close-up)** — displays the silhouette of upper and lower incisal plane.

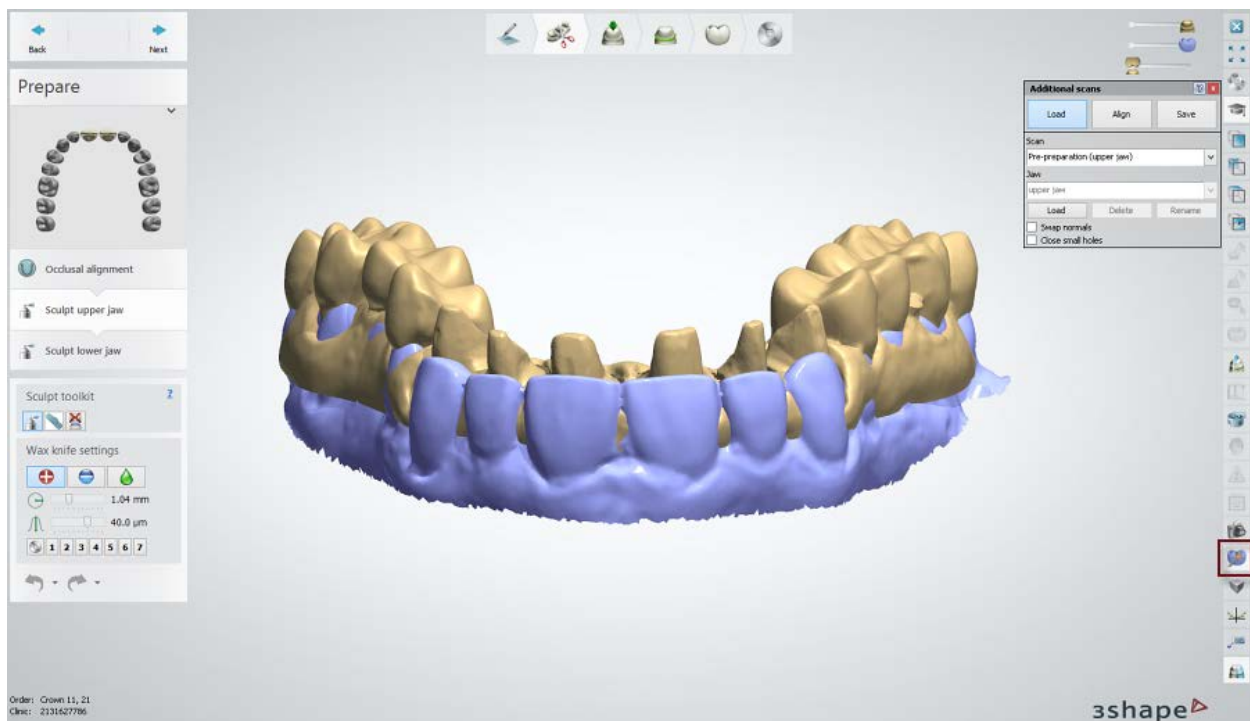
9. **Smile, head tipped down (close-up, shot from the tip of the nose)** — shows the relationship of arch form to lower lip.

2.7.7. Additional Scans

The **Additional scans** tool is used to:

- [Load additional scans](#)
- [Align additional scans](#)
- [Save models](#)

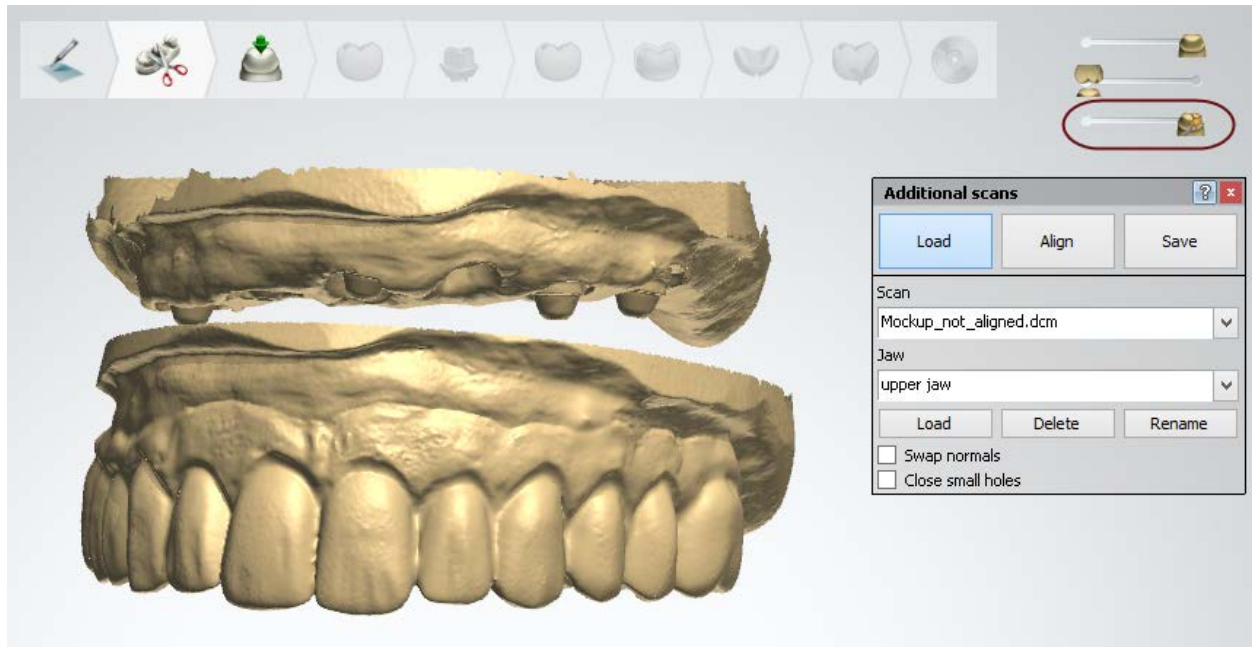
Click the **Additional scans**  button under the Viewing tools (highlighted on the image below) during the design phase to open the *Additional scans* form.



LOAD ADDITIONAL SCANS

On the **Load** tab of the *Additional scans* form, you can load extra scans to your order (in the DCM, STL, HPS and PLY file formats) as well as rename and delete the loaded scans with the corresponding buttons. The maximum number of loaded scans is 10.

To load a scan, click the **Load** button and select the scan file in the appeared window. If you select the **Swap normals** and/or **Close small holes** checkboxes before loading a scan, the software will apply the corresponding operations to the scan. Use sliders to adjust visibility of the loaded scans.



It is important to assign a scan to the proper jaw before the scan alignment. Use the **Jaw** drop-down list to assign a loaded scan to a different jaw if needed.

ALIGN ADDITIONAL SCANS

On the **Align** tab of the *Additional scans* form, you can align a pre-preparation or double-preparation scan to the preparation scan, a post and core scan with scan posts or an implant scan with scan abutments to the preparation scan in TRIOS orders as well as any other loaded scan to the preparation or antagonist scan.

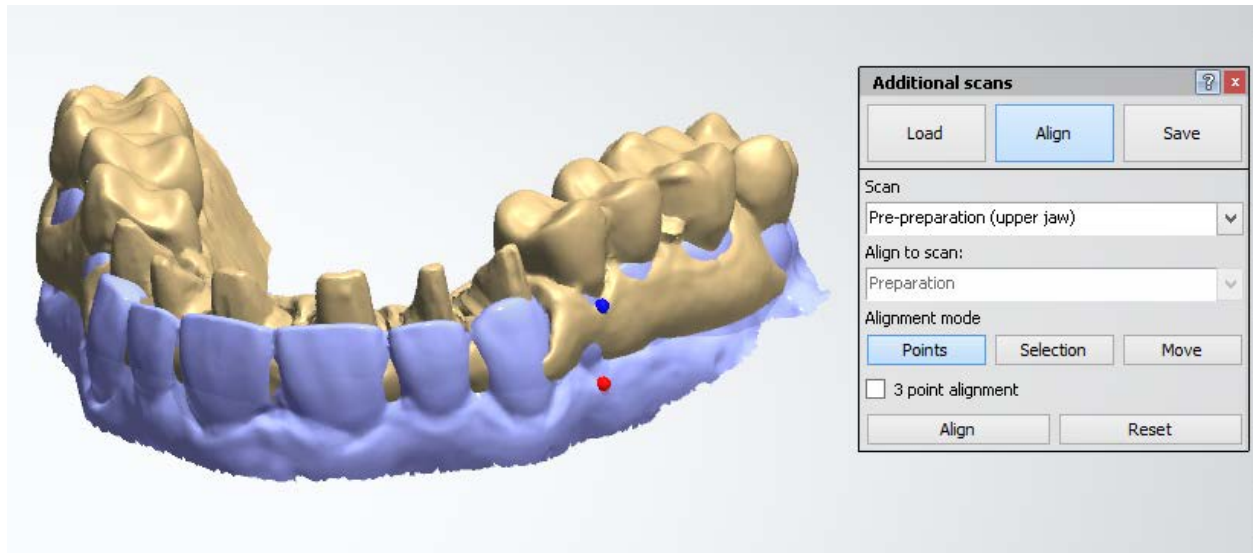
The **Scan** and **Align to scan** drop-down lists let you select the scans to be aligned when you have several additional scans in your order.

You have the option of selecting one of the three alignment modes:

Points

You can use either one or three-point alignment method. To use the three-point alignment method, select the corresponding checkbox. Place points on the scans and click the **Align** button to perform the alignment.

The **Reset** button clears the points and resets the alignment operation.

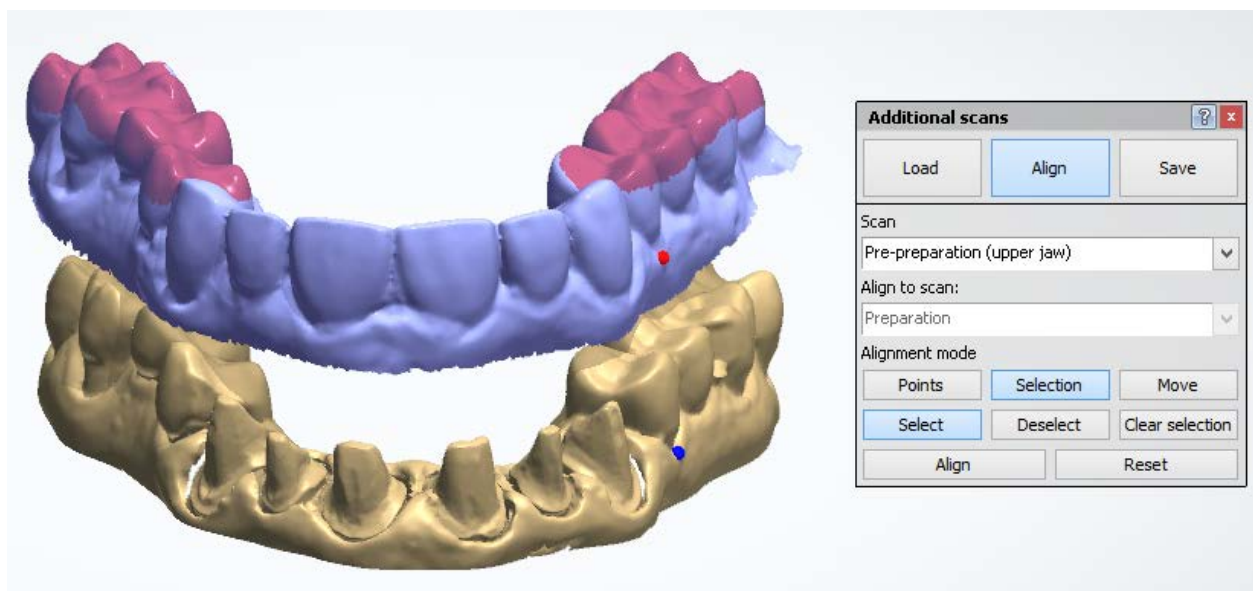


Selection

You can use the **Points** and **Selection** methods simultaneously to improve the alignment.

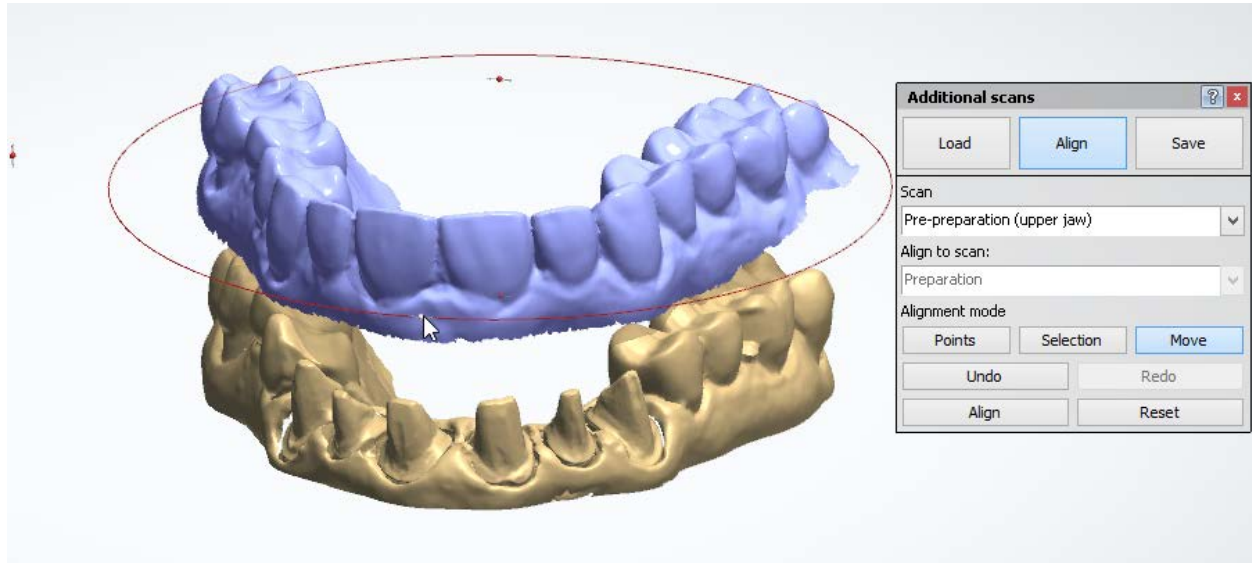
Draw an area to align the scans with while the **Select** button is active and click the **Align** button to perform the alignment. To change the thickness of the brush, hold down the **Ctrl** key while rotating the mouse wheel.

You can correct the selected area with the eraser while the **Deselect** button is active. The **Clear selection** button removes all selection at once. The **Reset** button resets the alignment operation.



Move

When the **Move** button is active, you can manipulate the additional scan by positioning the cursor over the scan and pressing the left mouse button to move it, or over the rotation points to rotate it. You can undo or redo the movement by clicking the corresponding buttons. Use the **Reset** button to cancel the whole alignment operation.



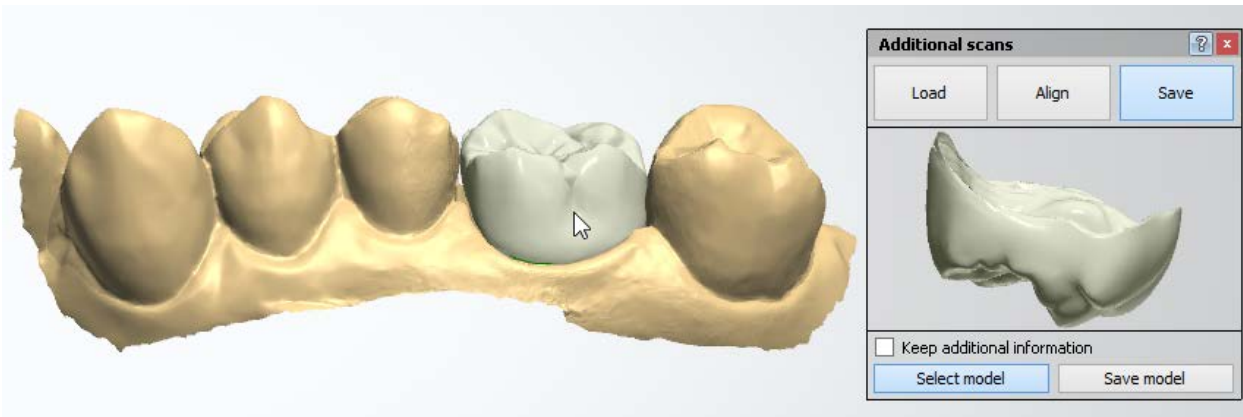
SAVE MODELS

On the **Save** tab of the *Additional scans* form, you can save the designed models and scans in the DCM and HPS file formats.

To save a model or scan:

1. Click the **Select model** button to activate the Model selection mode.
2. Select the model or scan you wish to save by clicking on it in the 3D modeling window. The selected item will appear in the *Additional scans* form.
3. Click the **Save model** button to save the selected item.

The **Keep additional information** option allows you to save a model together with the additional information, such as splines and applied transformation.



2.7.8. Advanced Design Tools

This section describes the powerful modeling tools:


- [2D Cross-Section Window](#) - Used for better inspection of the dental models.
- [Distance Measurements](#) - Performs Distance to Adjacent, Distance to Preparation Scan and Distance to Antagonist Scan measurements.
- [Validation](#) - Verification of the restoration model against the pre-set values.
- [2D Design Overlays](#) - Lets you work with 2D images of patients' smiles as well as align teeth using predefined guiding templates.
- [Screenshot Taking Tool](#) - Used for taking screenshots of the models that can be saved and sent over 3Shape Communicate.
- [Line Editing](#) - Available in Dental System for margin lines and splines.





2.7.8.1. 2D Cross-Section Window

	<i>Parallel View</i>
	<i>Perpendicular View</i>
	<i>Clear View</i>
	<i>Left Clipping Plane</i>
	<i>Right Clipping Plane</i>

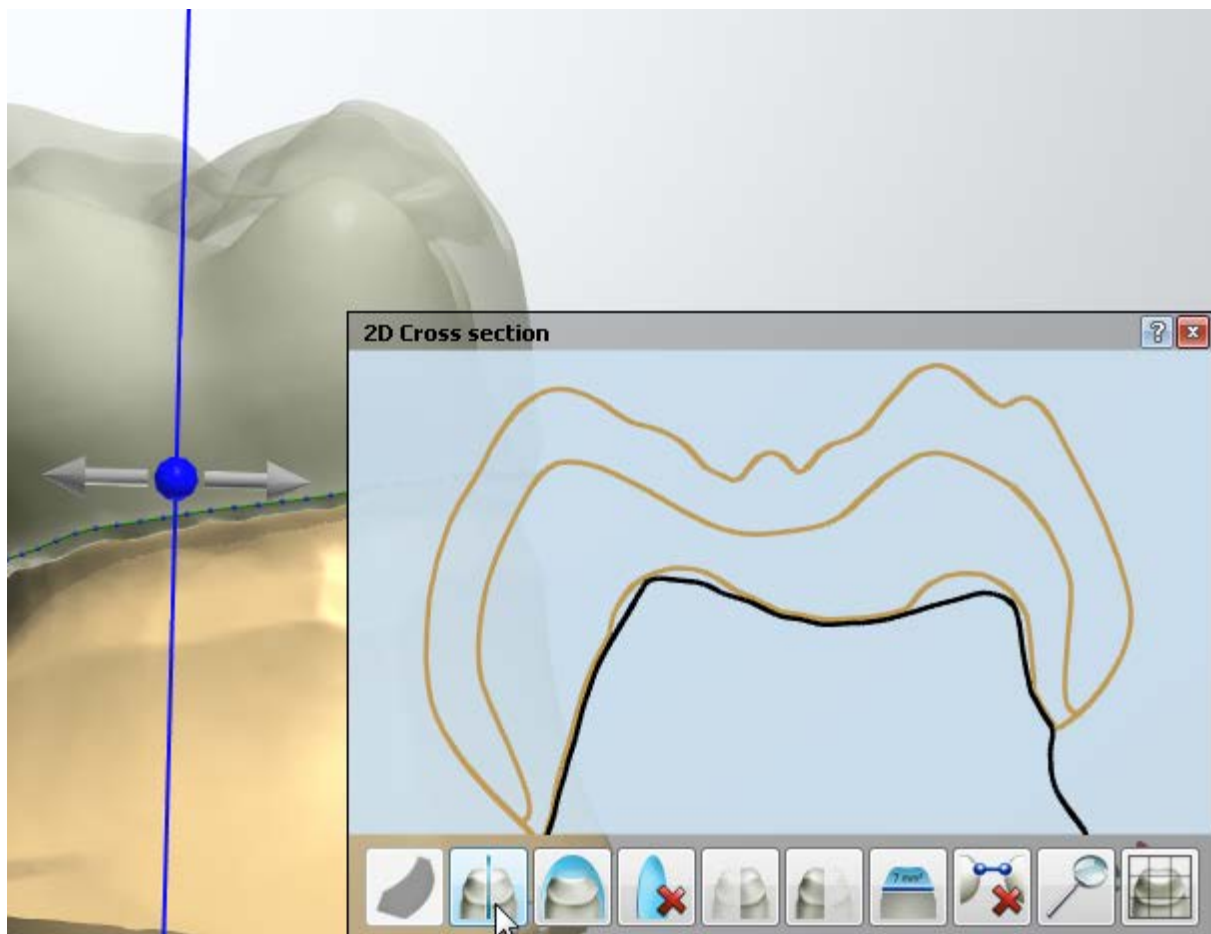
The *2D Cross-section* window allows for better inspection of the dental models. 2D cross-sections can be specified either by placing three points on a 3D model, dragging a section line while holding down the left mouse button and moving the cursor across the model or with the ***Parallel/Perpendicular View*** buttons in the 2D Cross-Section window.

In order to use the cross-section window, click the ***2D***

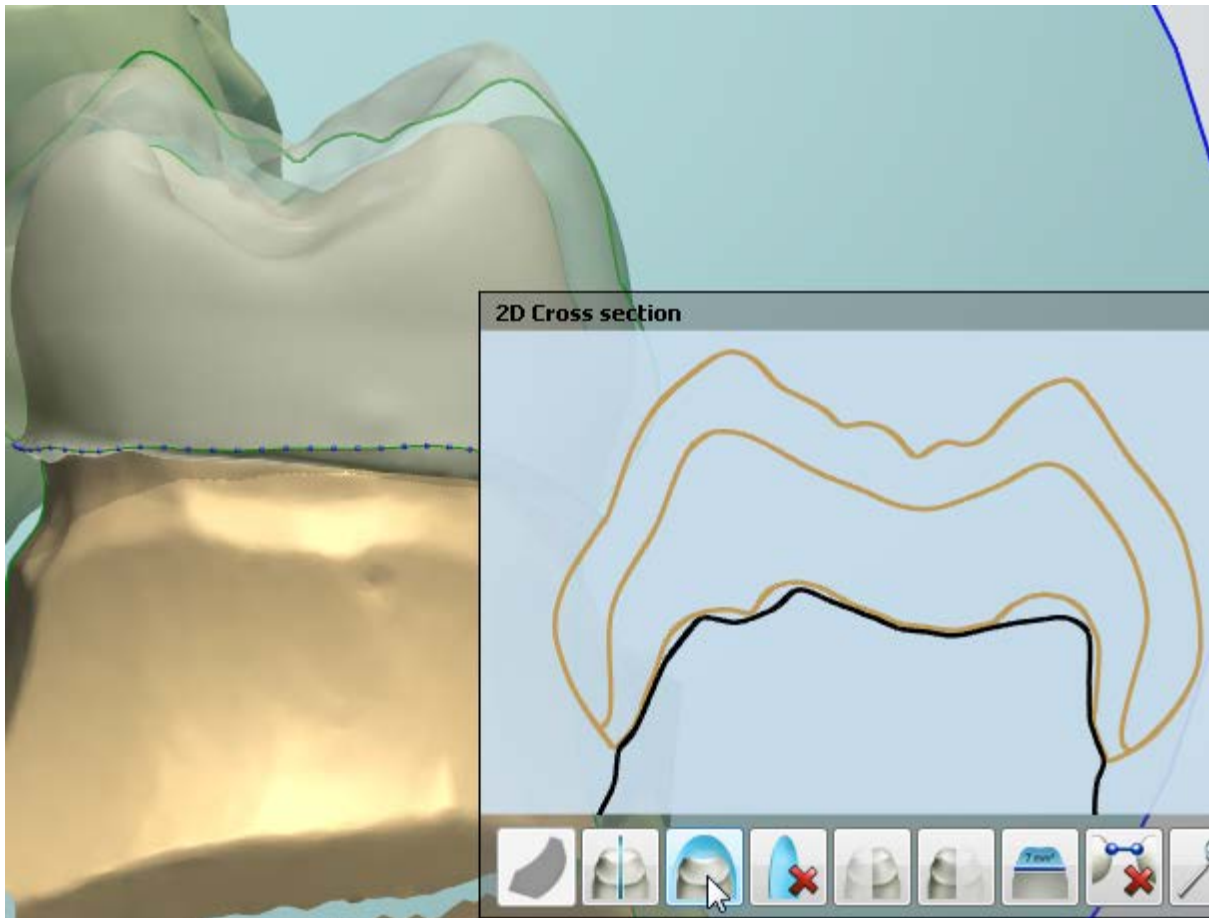
Cross Section  button in the Viewing tools to open the *2D Cross Section* window. The window contains buttons with the functionality shown in the table to the left.

	<i>Measure area</i>
	<i>Clear Measurement</i>
	<i>Zoom All</i>
	<i>Grid</i>

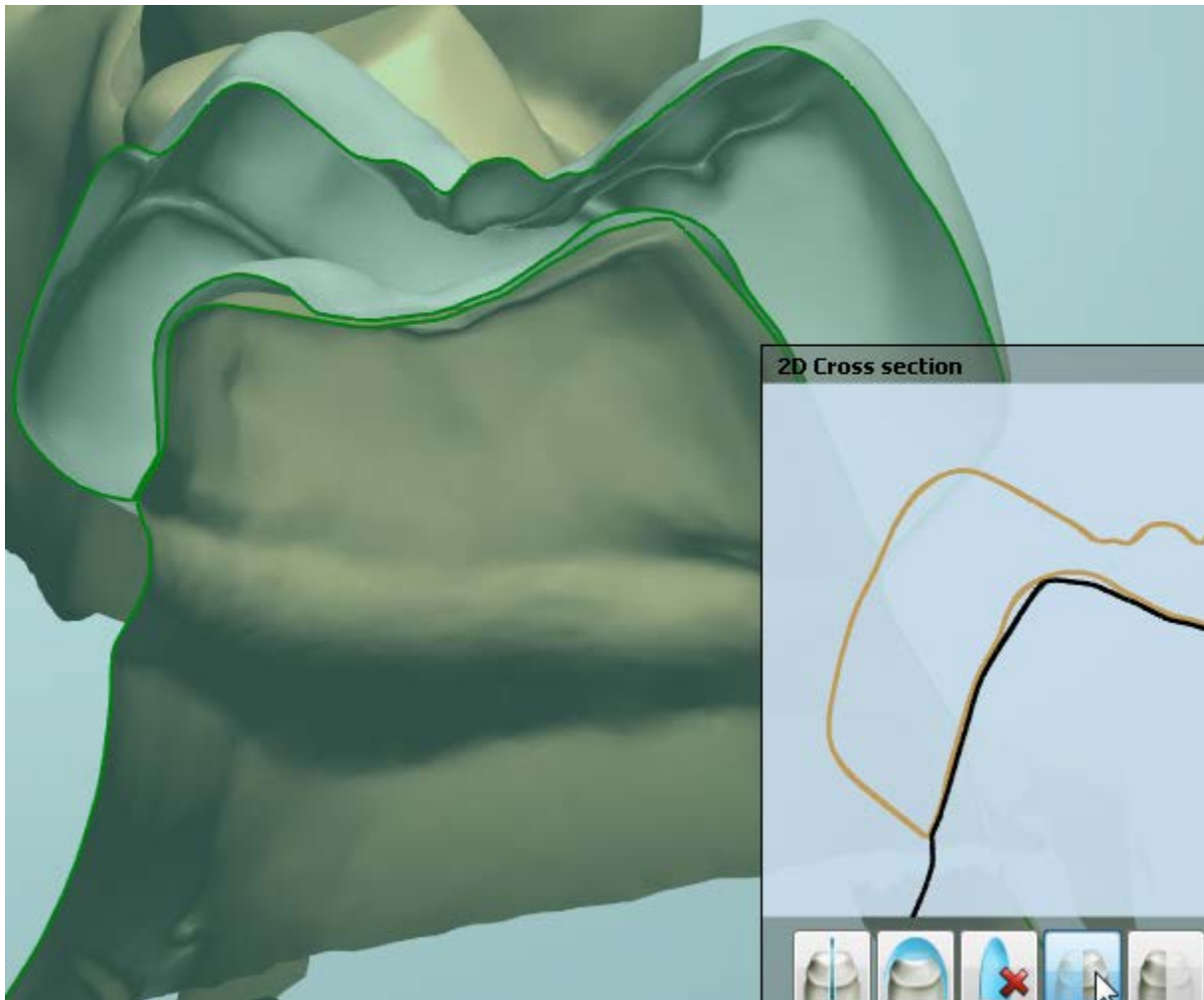
- *Parallel View:*



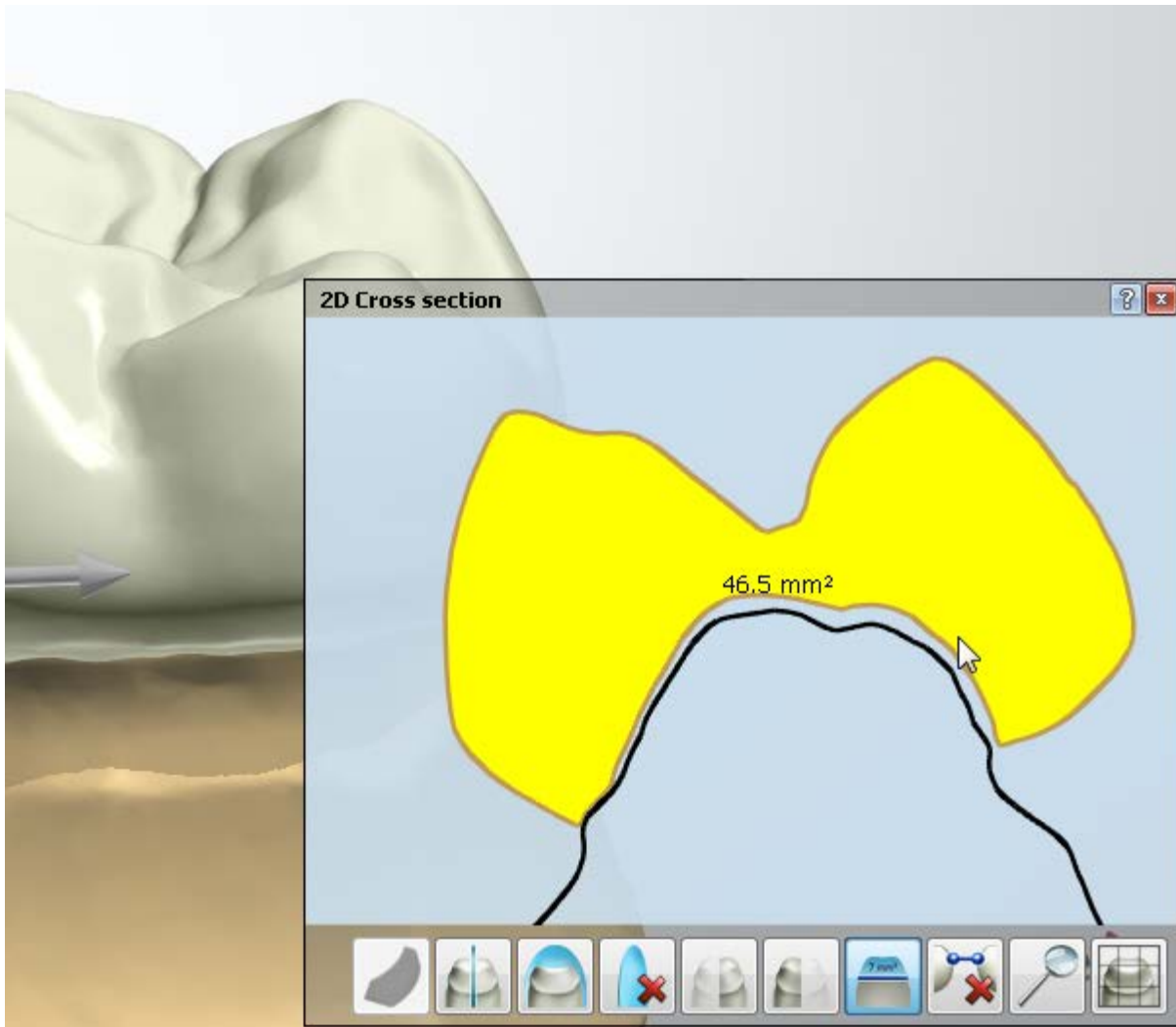
- *Perpendicular View:*



- **Clear View** - the button clears image from the 2D Cross Section window.
- **Left/Right Clipping Planes** buttons allow to hide one of the cut halves:



- **Measure area** - measures the specified area and distance:



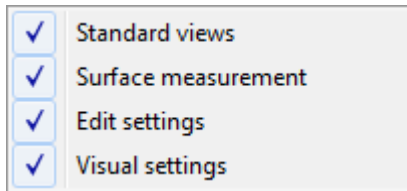
- **Clear Measurement** - removes any measurements from the 2D Cross Section window.
- **Zoom All** - returns zoomed in/out view to its original scale.
- **Grid** - shows/hides the grid in 2D Cross Section window.

2.7.8.2. Distance Measurements

The distance measurement tools on the Viewing tools panel are simple and effective instruments providing you with different distance measurements on the screen.



If distance measurement tools are missing in the Viewing tools on the right of the modeling window, right click the Viewing tools and enable **Surface Measurement**.

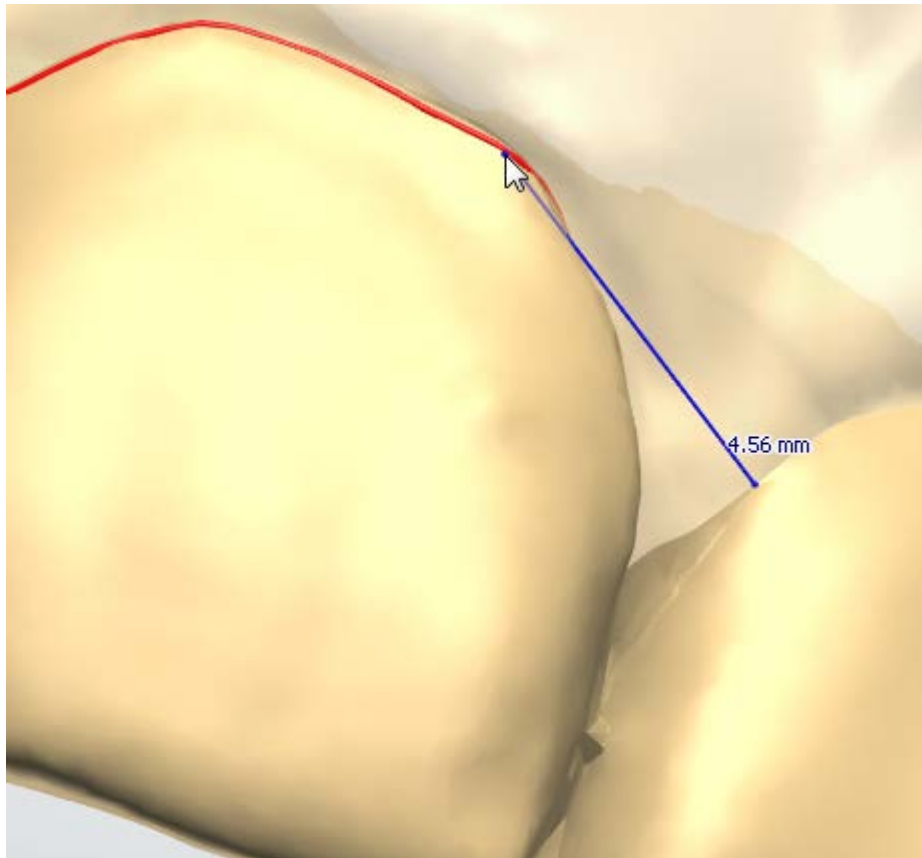


Click the required type of measurement and point the cursor at the area of interest.

All four types of measurements can be enabled at the same time and are distinguished by different measurement colors:

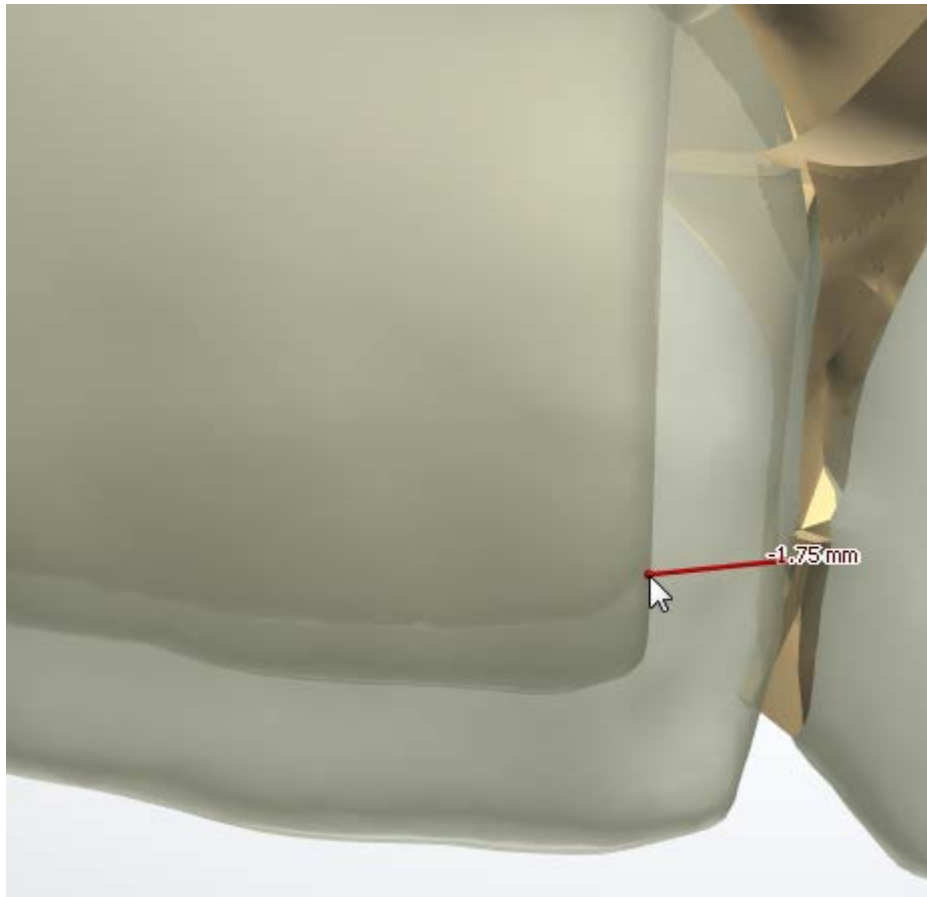


Measure distance to adjacent



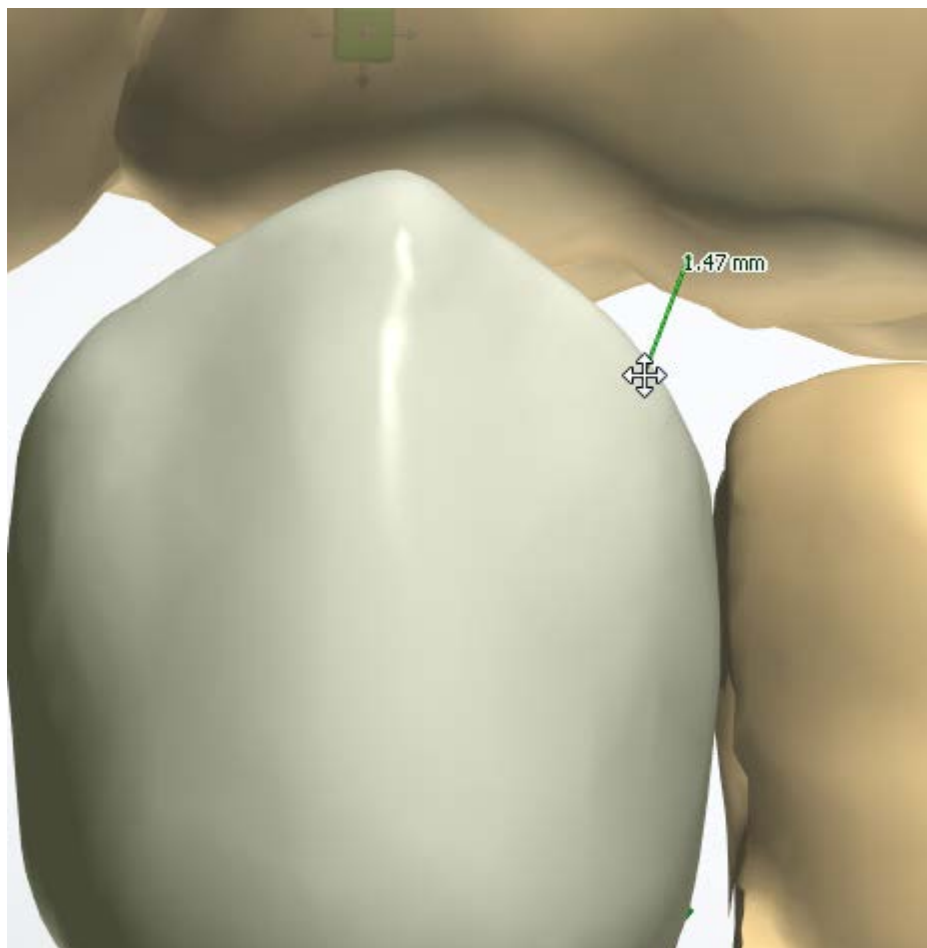


Measure distance to preparation scan



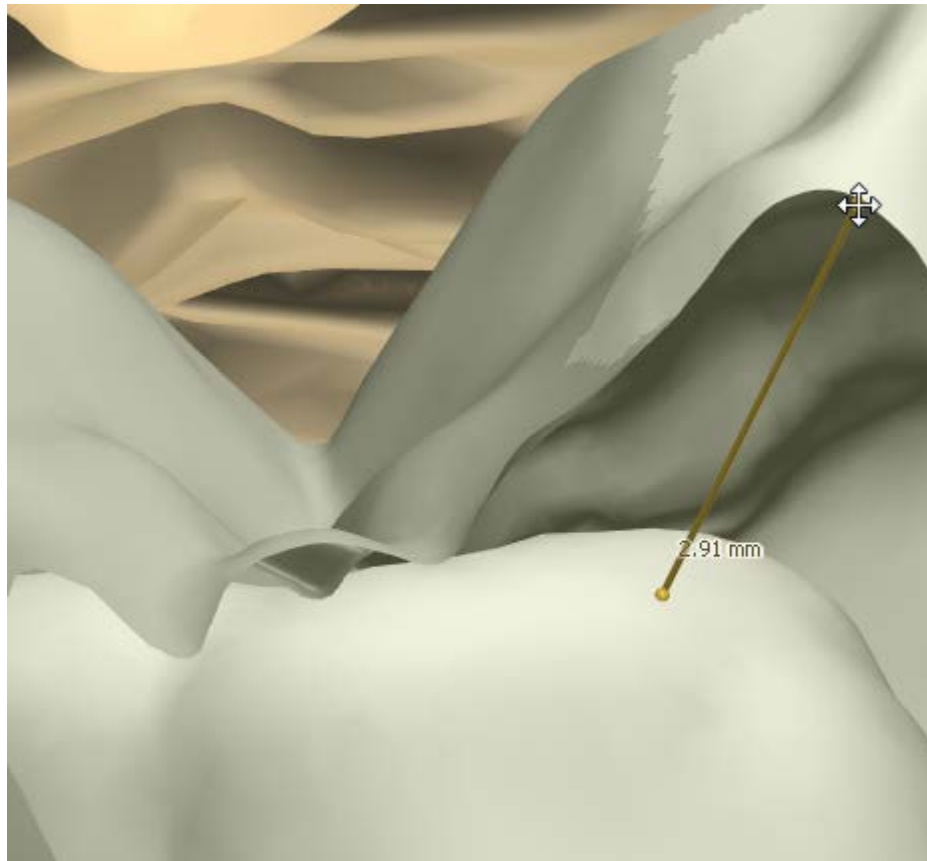


Measure distance to antagonist scan

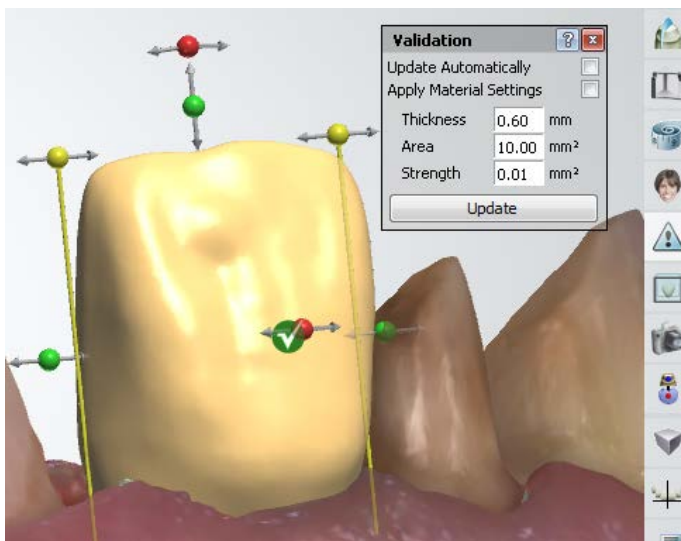




Measure thickness




2.7.8.3. Validation



The **Validation** tool tests the restoration model against the values, pre-set in Dental System Control Panel ([Material Settings](#) section) or defined manually in the *Validation* dialog.

In order to run the validation

process, click **Validation**  button in the Viewing tool of Dental Designer to compare the model values with the predefined ones. The *Validation* dialog box appears in the right upper corner of the modeling window (see image).

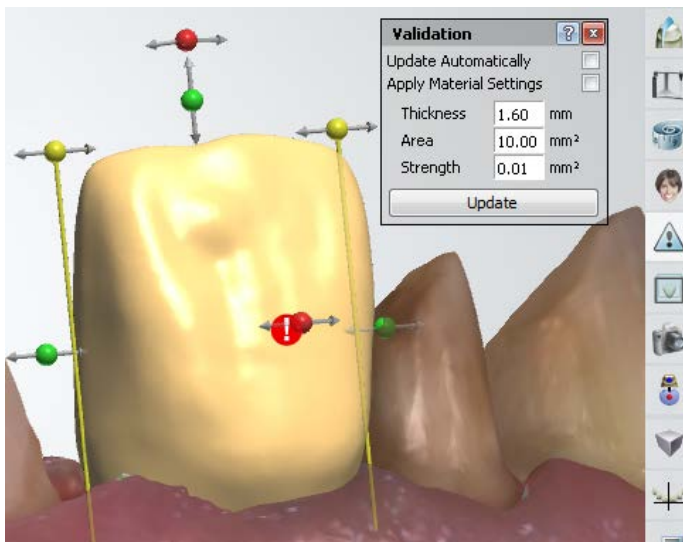
The validation parameters (**Thickness**, **Area** and **Strength**) can be set to match your particular

case. Click **Update** to update each time the parameters are changed unless **Update Automatically** check-box is selected.

Select **Apply Material Settings** check-box to apply the material settings from Dental System Control Panel.

The **Validation** tool marks the areas needing attention with **red** exclamation marks, whereas successfully validated parameters are marked with **green** ticks.

If the validation fails (see image), click on the red exclamation mark to get a description of a problem. The appeared pop-up window displays some information on the current restoration, including the **Thickness** parameter.




Thickness is a measure of how much material is missing at the spot where it violates the most the thickness constraint.

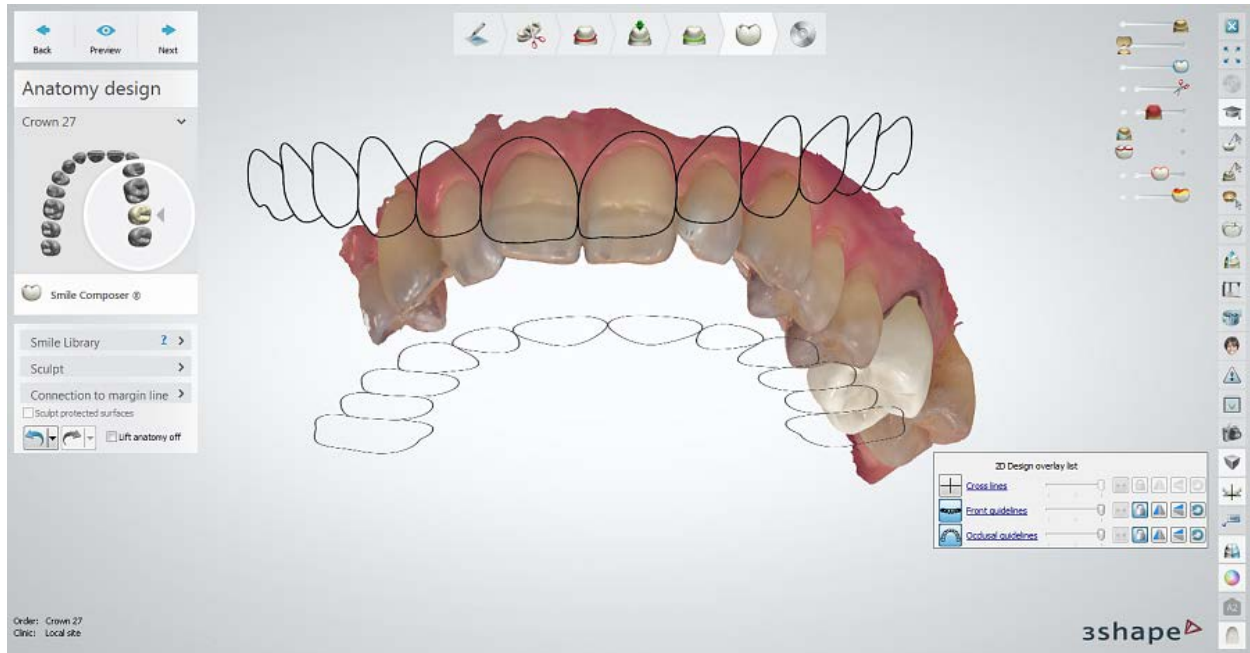
Fix the problem and click **Update** to make sure that the validation was successful.



Hint! You can enable the automatic design validation by selecting the **Always validate at the end of modeling** checkbox in *Dental System Control Panel*->*Basic Elements*->[Materials](#). Read more in section [Automatic Design Validation](#).

2.7.8.4. 2D Design Overlays

The **2D Design overlay**  tool allows you to use the predefined and custom design templates during modeling to help you achieve optimal esthetics.



Note! The guiding templates are also compatible with the [RealView™ Engine](#)

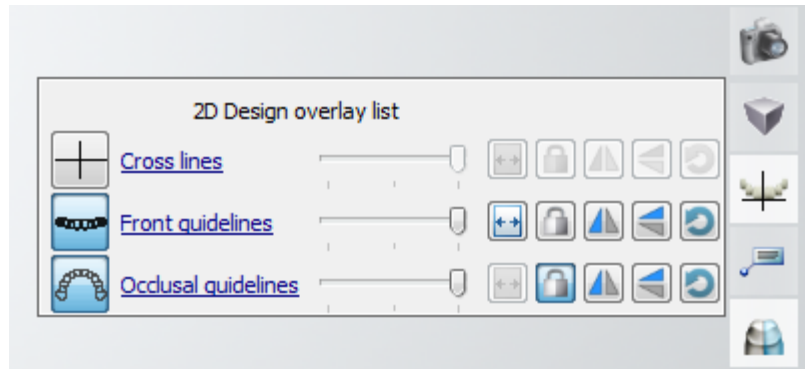


tool, which allows you to compare the guided design with the photo-realistic representation of the patient's face.




TO OPEN THE TOOL

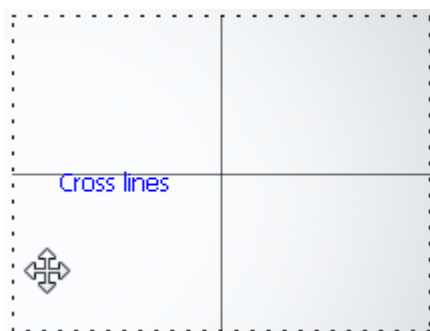
In Dental Designer, click the **Configure 2D overlays**  icon in the Viewing tools to open and use the tool.

The tool displays a list of available guiding templates, which can be added/modified in Control Panel > [2D Design Overlays](#). It also contains a number of options for better visualization.

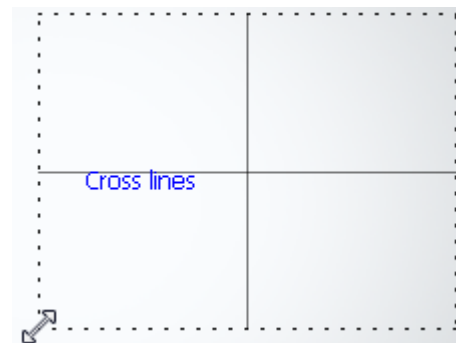


TO USE THE TOOL





- Click the preview icon next to the needed template, e.g. **Cross lines** , to show/hide the guiding template.
- Move the slider sideways  to change the transparency of the template.
- Click the **Fit to screen**  button to adjust the guiding template to the size of the screen. The active item (that is the one selected for panning and scaling) appears in a frame with its name written in blue. To pan the template, click its frame and move it to the desired position. To scale the template, drag the edges of the frame until you reach the desired proportion:

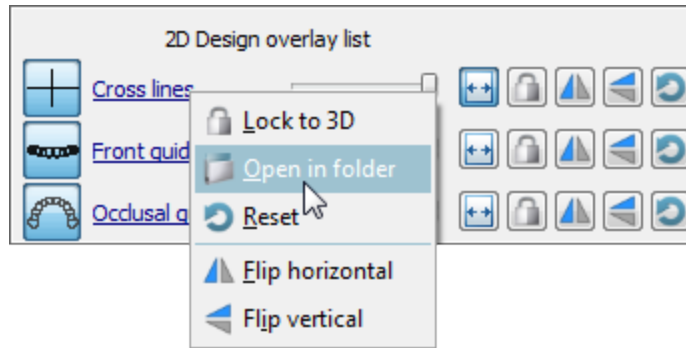


Panning the template



Scaling the template


- Click the **Lock to 3D**  button to lock the template and the scan together. To unlock them, click the button again.
- Click the **Flip horizontal**  button to flip the template horizontally.
- Click the **Flip vertical**  button to flip the template vertically.
- Click the **Reset**  button to return the template to its default size and position.
- Left-click the name of the template and choose **Open in folder** to open the directory where the guiding templates are stored:

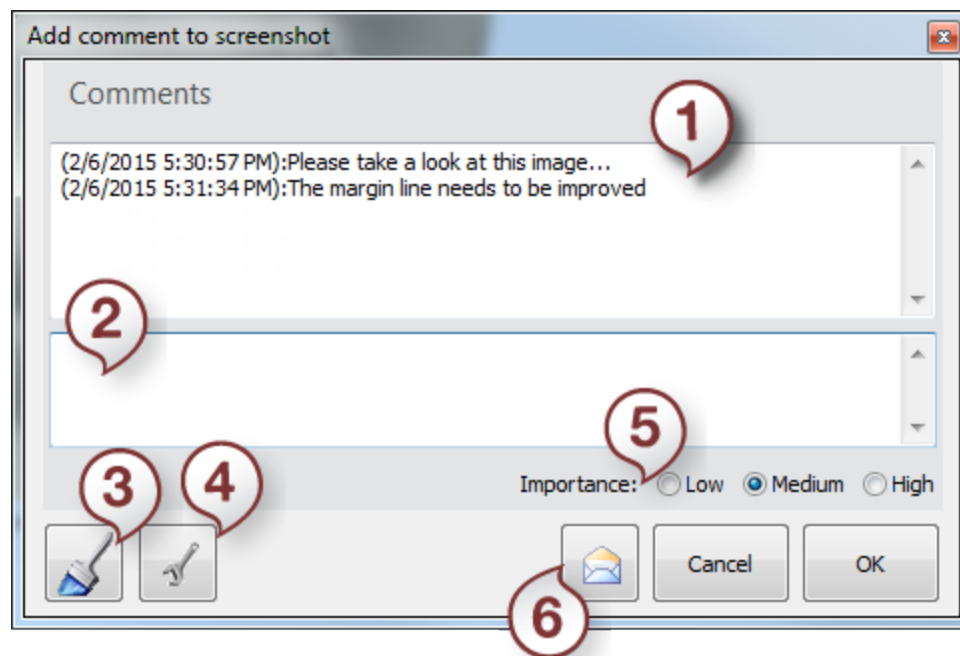


2.7.8.5. Screenshot Taking Tool

The **Screenshot** taking tool is used for making screenshots of the model that are saved to the order folder for future reference or sent to 3Shape Communicate depending on the settings:

- If 3Shape Communicate is **enabled**, then you can take screenshots and add comments to them. In this case, the screenshots will be uploaded to 3Shape Communicate.
- If 3Shape Communicate is **disabled**, then you can take screenshots without comments, and they will be saved to the order folder for future references.


To use the **Screenshot** taking tool, click on the **Create Screenshots**  icon in the Viewing tools. The program automatically creates a screenshot of the current model and opens the form for your comments and screenshot editing.




1. Comments' history
2. Text field
3. Edit last screenshot
4. Select screenshot editor
5. Level of comment importance
6. Send images by e-mail

Type in your comment (if enabled) in the text field (2) and click **OK** or press **Enter** on your keyboard to save the comment in the comments' history field (1) and close the form.

Click **Cancel** to discard a comment (the screenshot will be still saved).

If you want to edit your screenshot, click the **Edit last screenshot**  button (3). This will open your screenshot in the default image editor - MS Paint™.

If you want to choose a different image editor, click the **Select screenshot editor**  button (4) and select the desired program.
Select the level of importance (5) for your comment - **Low/Medium/High** - which will be reflected in 3Shape Communicate.







Note! The screenshots are saved to the order folder on your computer under **3SCom->Screenshots**.



Click the **Send images by e-mail** button (6) to send an e-mail to the customer. After clicking the button, the default e-mail program opens up, including comments and images attached (see left image).



Note! The customer's e-mail address will be automatically inserted into the e-mailing form if you previously enter the address in the *Dental System Control Panel*->*Site Settings*->[*Dentists/Labs/Manufacturers*](#) (depending on the site's profile)->*Edit Site*->*Email*.

 Send	To...	customersemail@mail.com
	Cc...	
	Subject	
	Attached	 Custom000.jpg (184 KB);  Custom001.jpg (184 KB);  Custom002.jpg (186 KB);

Please take a look at this image...

The margin line needs to be improved

2.7.8.6. Line Editing

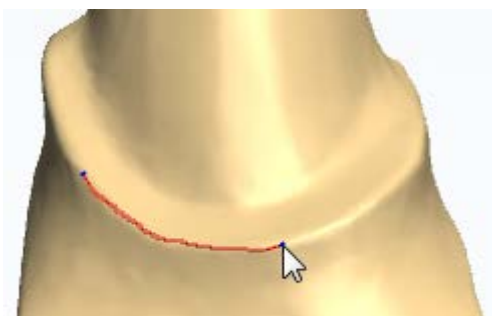
This chapter describes general line editing options available in Dental System for margin lines and splines. For specific details, please refer to the corresponding chapters within the technical documentation.

LINE DRAWING

A line can be drawn either by (A) using the fast edit option or (B) placing sequential points on the surface of a model:

A) Press the left mouse button and move the cursor to draw a line on the model. The fast edit option is the easier and preferred method to work with lines.

B) Left-click on the model to shape a line with a sequence of points.



Fast edit line drawing



Placing points to shape a line

LINE EDITING

The following options are available for line editing:

You can edit a line on the model in fast edit mode by drawing the desired changes while keeping the left mouse button pressed:



Incorrectly placed margin line

Editing in fast edit mode

Adjusted margin line

The radius of applied change during line editing is adjusted by turning the mouse scroll wheel while holding the **Ctrl** key down.



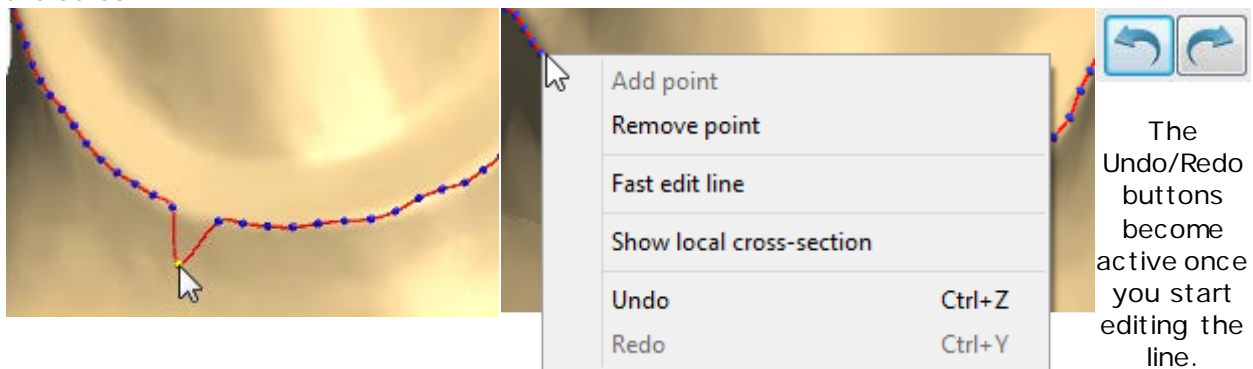
Ctrl key indicates affecting radius

Indicated point

The line adjusted to the point

With points visualization enabled by pressing **F** on your keyboard, you can drag the points to adjust the line or use the right-click menu options as shown on the images.

To undo or redo line operations, you can either use the right-click menu, **Ctrl + Z / Ctrl + Y** keyboard keys or the **Undo / Redo** buttons when available in the form. Choose **Fast edit line** from the right-click menu to edit the margin line in fast edit mode by drawing it with the cursor.



Line point moved with the cursor

Right-click menu line operations

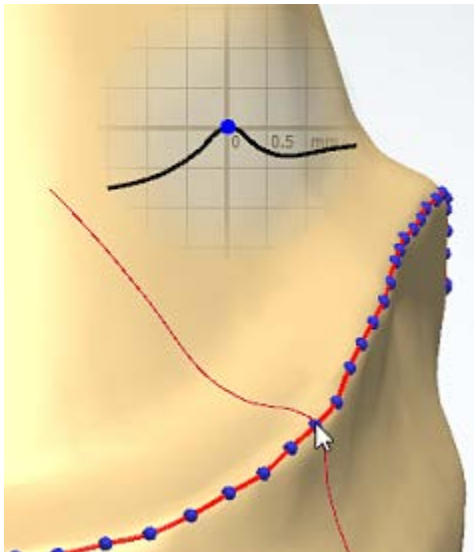
The Undo/Redo buttons become active once you start editing the line.

Undo / Redo buttons



Note! The line Undo/Redo functionality only works during line editing and is disabled on switching to another tools.

When the **Show local cross-section** option is enabled, you can view the local cross-section at one of the spline points. You can also turn on/off the **Show local cross-section** option in *Dental System Control Panel* -> *System Settings* -> [Design Options](#).



Show local cross-section is "ON"

2.8. Manufacturing Orders

After the order has been modeled in Dental Designer, it can be sent to manufacturing - either [local](#) or [remote](#).

The local manufacturing can be performed with the help of [3Shape CAMbridge™](#) software or by [generating CAM output](#) in Dental Manager for a third party machine.

As to the remote production, you send your order to the manufacturer in Dental Manager via 3Shape Communicate™ or using File Transfer Protocol (FTP), and the manufacturer receives and handles this order with [3Shape Communicate Inbox](#) or [Dental Manager Inbox](#) respectively.



CAD Design



Manufactured Restoration

2.8.1. Local Manufacturing

If local manufacturing is configured then the manufacturing files can be accessed in Dental Manager by right-clicking the order and selecting **Advanced**-> **Explore CAM** output or pressing **Shift+F4**.

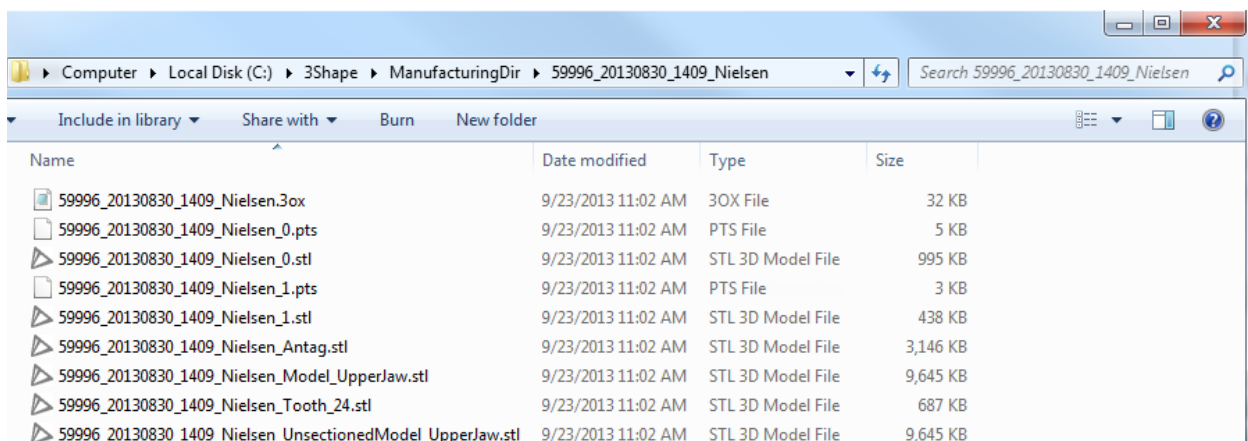
The CAM output files are created automatically if local manufacturing is chosen, but if it is remote manufacturing, then the **F7** key needs to be pressed. You can also right-click the order and select **Advanced**-> [Generate CAM Output](#).

GENERAL CAM OUTPUT

1. To setup the Manufacturing Output directory, go to **Dental System Control Panel**->**System Settings**->[Data output directories](#)-> **Manufacturing Output directory is currently defined as** and browse for necessary folder.
2. The used manufacturing process defines the actual output format. The selected Manufacturing dll for the process is particularly critical. The manufacturing process and settings can be found at **Dental System Control Panel**->[Manufacturing process](#)->**Manufacturing process method**.
3. On the [Manufacturing process](#) page you can also choose to generate optional files for some of the manufacturing process methods (e.g. a **3ox** file).

An output folder will typically contain the following files:

- **stl** - Describes the surface geometry of the 3D model.
- **pts** - Contains a 3D point cloud of a margin line.
- **3ox** - 3Shape Order Exchange file format used to communicate between 3Shape dental applications and third party applications.



CAM output folder - 3ox file

The 3OX format contains the primary section "RestorationOrder" which contains information related to the dental restoration part of a 3OX Order:

- **OrderInfo:** The main information on the order (e.g. Order ID, Patient's name etc).

- **AdditionalOrderInfo:** Extra information on the order (e.g. Order Status, Dentist's address).
- **ModelElements:** The list of ModelElements where each ModelElement is a part of the whole 3D model in the order (e.g. Color, Material etc.).
- **Attachments:** The list of attached files.



Note! Exact manufacturing output depends on the actual re-seller's configuration and might differ from the standard configuration.

Implant and CAD Block output files are two other important optional files which are generated in case you design order with Implants or CAD Blocks respectively.

IMPLANT OUTPUT

To manufacture implant bars and bridges created in 3Shape Dental System, the position and orientation of the individual implants are typically required by the CAM software, e.g. to create the screw holes and optimize milling strategy. The implant position and orientation is defined relative to the position of the implant in the implant library used in the 3Shape software. The output file is an XML file and contains a list of the included implants.

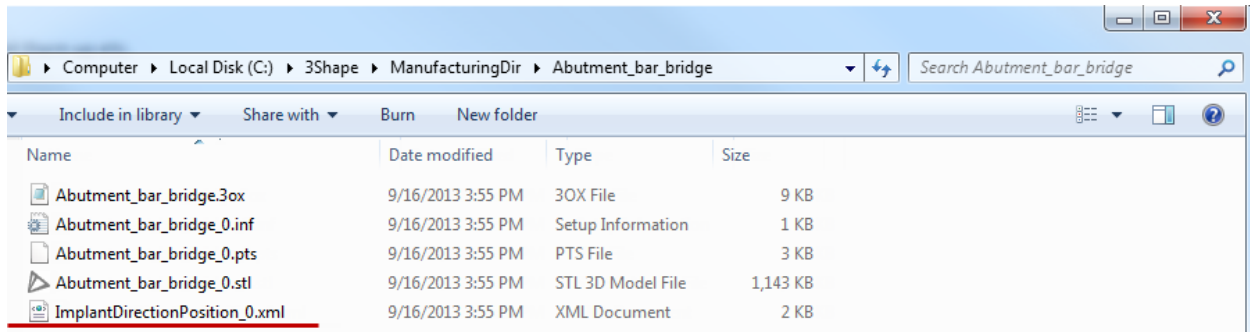
The first part of the file relates to the naming and ID of the actual implant. This section contains the following field:

- **System value:** The name of the implant system (as on the order form).
- **Name value:** The name of the implant kit (as on the order form).
- **ID value:** The ID of the implant kit

The second part of the file is several different representations of the transformation. Note all formats represent the same transformation from the implant library coordinate system to implant coordinate system in the final CAD output. The different representations are:

- **Position:** The 3D positions of the implant
- **Direction:** The implant direction/axis represented by a 3D vector
- **Rotation:** The rotation of the implant (notice the order matters)
- **TransformMatrix:** The transformation matrix mapping from implant library to the actual implant position.
- **XYZAxis:** The coordinate system of the implant.

The file is saved in the associated manufacturing output folder and named **ImplantPosition_<index>.xml**, where the index is consecutive counter. Note that there will be an output file for each independent implant bar/bridge.

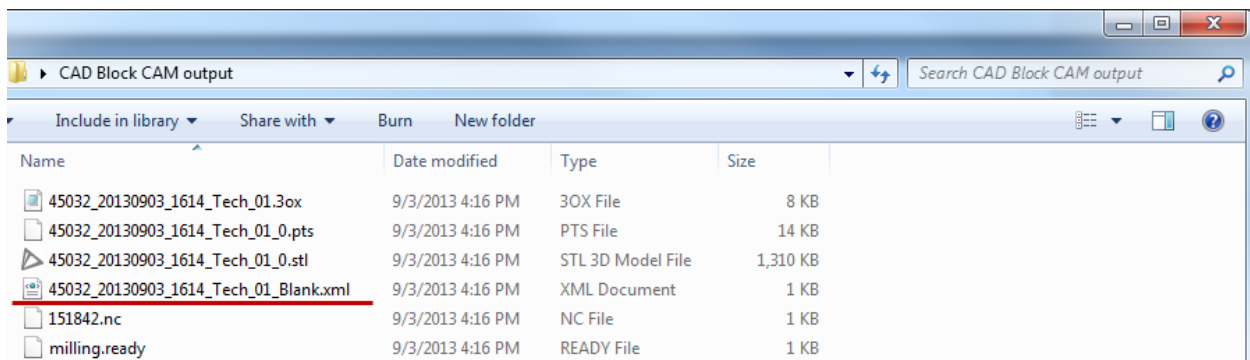


CAM output folder - implant output xml file

CAD BLOCK OUTPUT

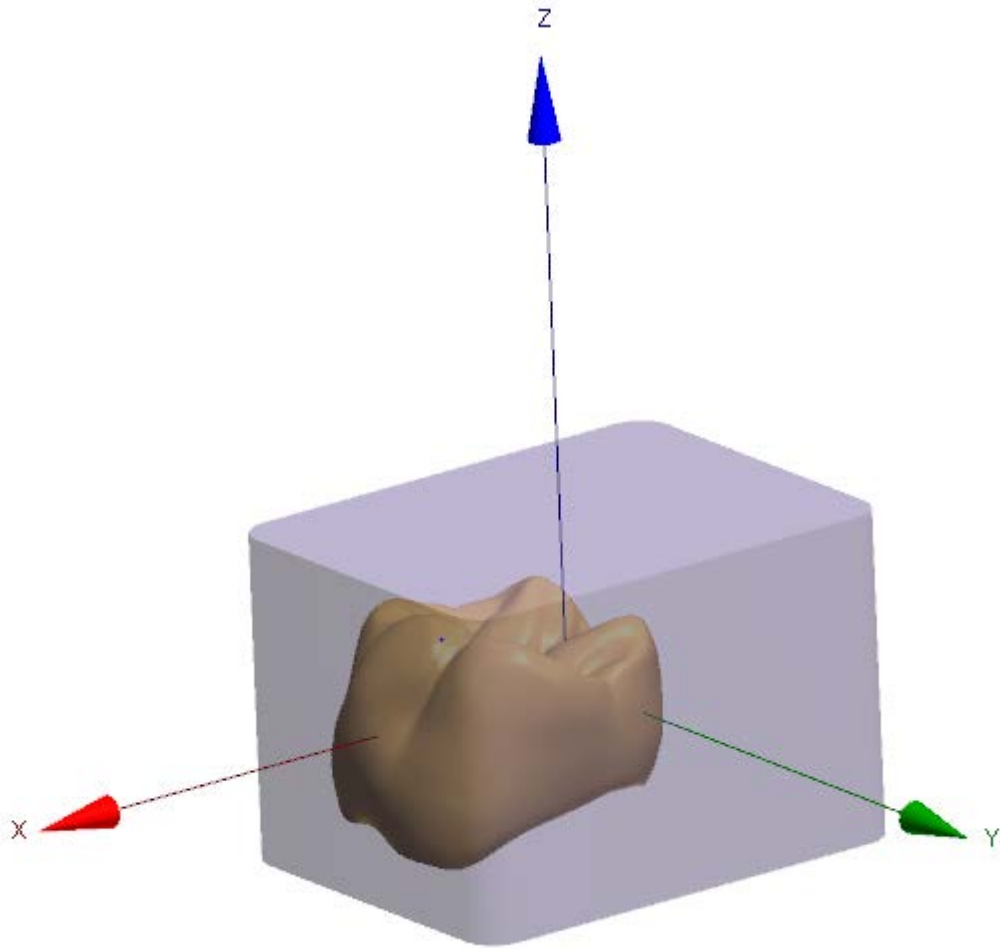
If the order was designed using [CAD blocks](#), the output folder will contain a special **Blank.xml** file with specific block information:

- **CADFileName**: The path to the designed element inside the CAD block.
- **BlankID** and **BlankName**: The ID and name of the CAD block as configured in Dental System Control Panel- >[CAD Blocks](#).
- **BlankFileName**: The path to the CAD block model in the Dental System Control Panel library.
- **BlankSize**: The CAD block's size.
- **BlankSpruePos**: The position of the sprue in the CAD block.
- **BlankSprueOri**: The orientation vector of the sprue in the CAD block.



CAM output folder - CAD block output xml file

When using CAD blocks, the designed model is saved in the coordinate system of the CAD block as it was placed during the design. The center for the CAD block is defined as (0,0,0):



2.8.2. Remote Manufacturing

Orders with the **Scanned** or **Designed** status can be sent to a remote manufacturer (milling center) using Dental Manager, as described below:

►Step 1: Create an order

In Dental Manager, create a new order and specify the **Manufacturer** and **Manufacturing process** in the Order form:

Material:	Zirkon
Color:	B1
Type:	Zircon Crown
Manufacturer:	Compartis
Manufacturing process:	Milling R0.4mm

You can Add/Edit/Delete manufacturers in *Dental System Control Panel* -> *Site Settings* -> [Manufacturers](#). For each manufacturer, configure 3Shape Communicate or FTP Inbox settings to send orders via 3Shape Communicate or FTP respectively.

To Add/Edit/Delete a manufacturing process, go to *Dental System Control Panel* -> *Site Settings* -> [Manufacturing process](#).

The screenshot shows the 'Manufacturing Process Settings' window. It contains a table with the following columns: Name, ID, Material, Date, Time, and various parameters. A red YouTube play button is overlaid on the table.

Manufacturers

- ☒ Compartis
- ☐ UAutotest

It is important, that the manufacturer you created and specified in the Order form (in our case it is **Compartis**) is selected for the manufacturing process you are using (in our case it is **Milling R0.4mm**). Go to **Manufacturing process** in Dental System Control Panel and select the necessary manufacturer (see the image to the left).

Important:


- The easiest way of adding manufacturers is when the connection between the lab and the manufacturer has been defined in the Site Connection Administration application. In this case you only need to click "Import site(s) from Server" in Dental System Control Panel. Please refer to your local 3Shape dealer/distributor/OEM partner if you want to use this functionality to connect to a milling center.
- If manual adding is done, then it is necessary that both the lab and the manufacturer have each other in the site lists in Dental System Control, and that the IDs are correct.
- The lab should preferably synchronize its material settings with those from the milling center; this can now be done by importing the materials settings exported by the manufacturer.
- The lab can choose another manufacturer AFTER scanning/modeling the order. This is very practical if the originally chosen manufacturer is for some reason not able to do the work.

Using the Inbox, the Manufacturers are able to send out the parts of their material file that specifies production parameters, e.g. drill radius and minimum material thicknesses (this functionality is called the **Manufacturing Network**). The Manufacturers are also able to import new materials used in a received order as part of accepting the order for production.

► **Step 2: Scan and/or model your order**

► **Step 3: Send the order to the manufacturer**

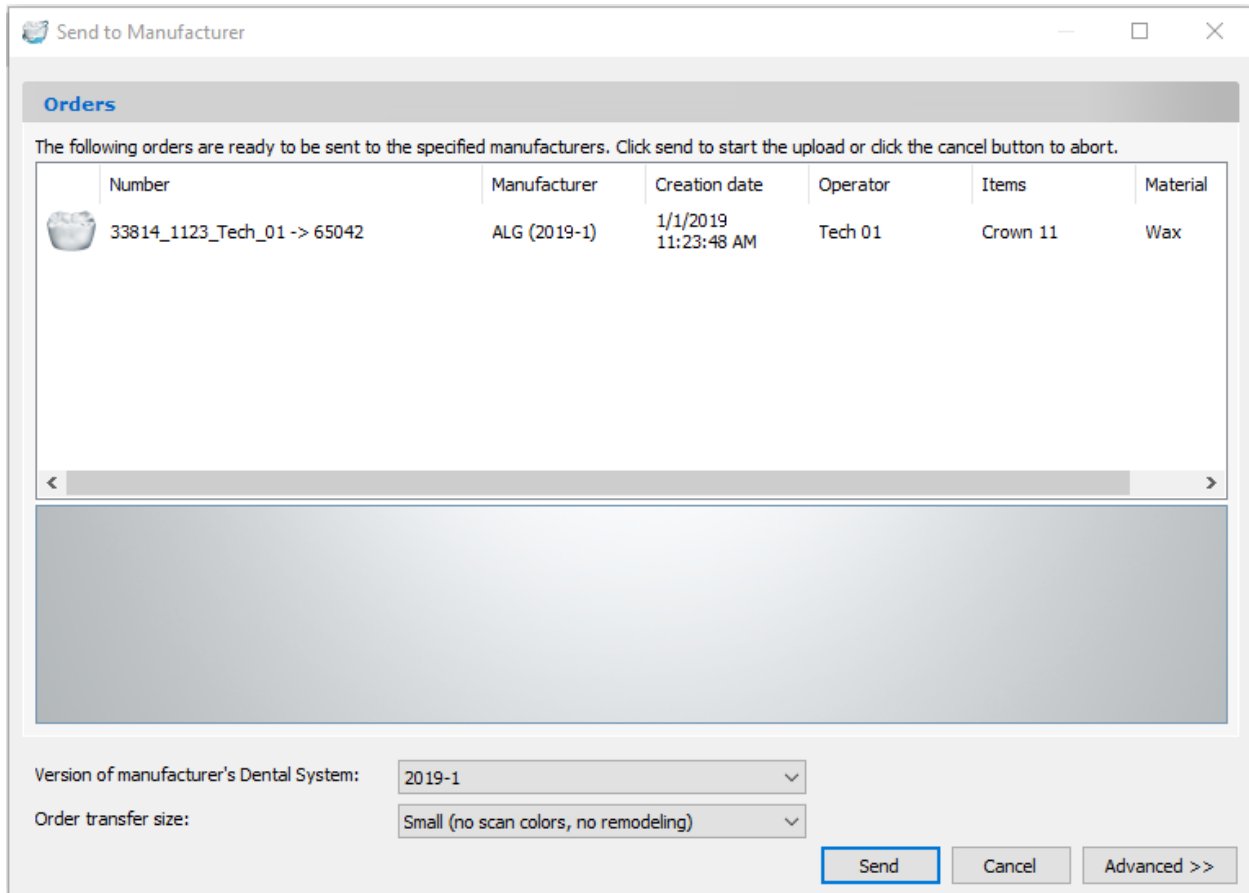
There are two ways to send the order to the manufacturer:

- In Dental Manager, right-click the order and select **Send to Manufacturer**.
- In Dental Designer, click  in the Workflow bar.

You will be prompted by the window similar to the one below. Click **Send** to send the order and then close the window.




Note! More than one order can be selected and sent simultaneously.



Orders

The following orders are ready to be sent to the specified manufacturers. Click send to start the upload or click the cancel button to abort.

	Number	Manufacturer	Creation date	Operator	Items	Material
	33814_1123_Tech_01 -> 65042	ALG (2019-1)	1/1/2019 11:23:48 AM	Tech 01	Crown 11	Wax

Version of manufacturer's Dental System: 2019-1

Order transfer size: Small (no scan colors, no remodeling)

Send **Cancel** **Advanced >>**

Please see the [Sending Orders from the Lab](#) chapter for more details.

2.8.3. Automated Manufacturing with CAMbridge™

3Shape CAM software, CAMbridge™, enables fully automated manufacturing by automatic preparation of the completed design including automatic addition of sprues, drops, and optimal placement in the blank for milling, and generation of supports, bars, and ID-tags on the platform for rapid prototyping.





3Shape CAMbridge is fully integrated with Dental Manager, automatically exchanging complete order information and manufacturing progress (but can also handle non-3Shape generated STL files).



Note! Synchronization between CAMbridge and Dental Manager will ONLY take place when BOTH applications are running on your computer.

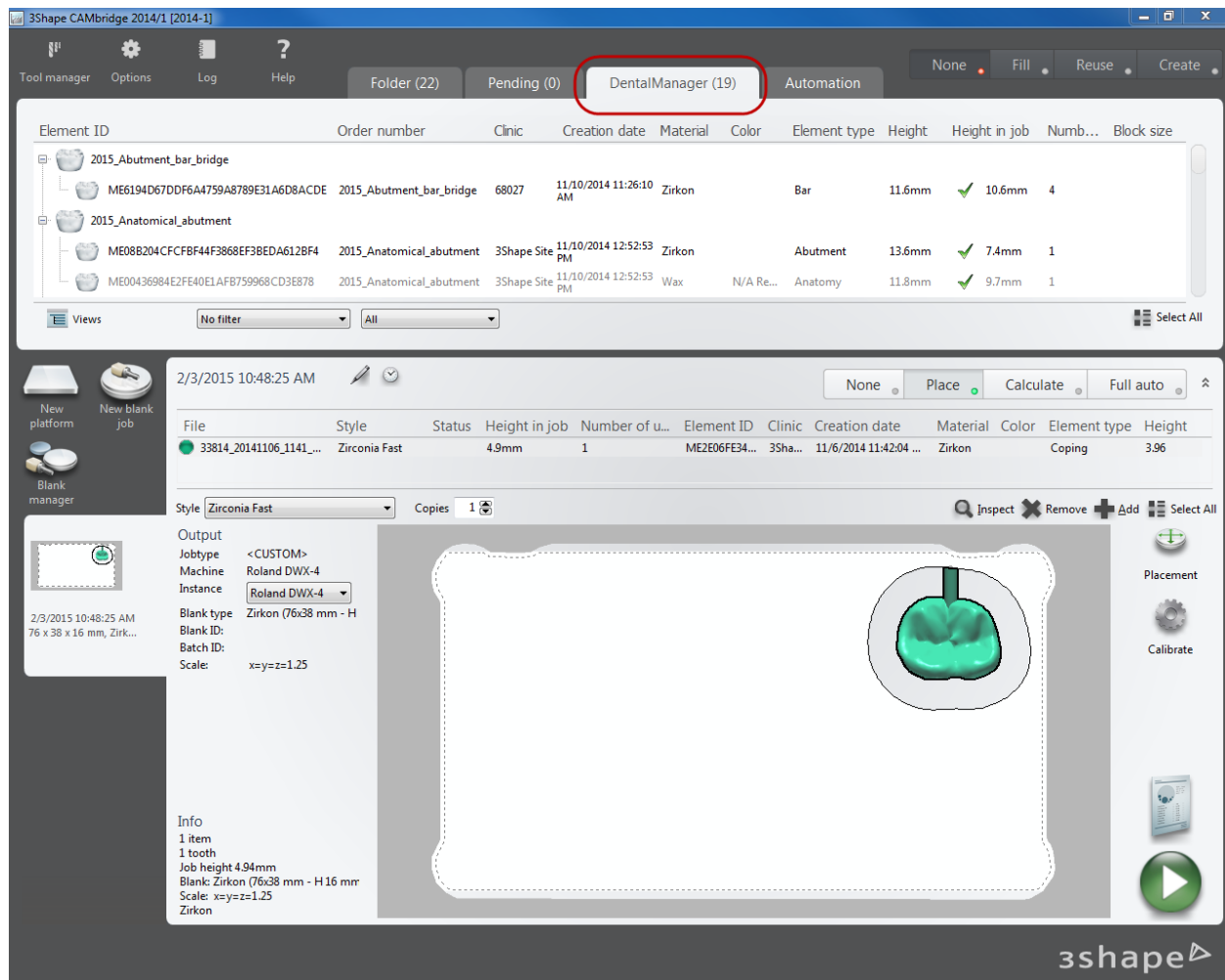
When you open 3Shape CAMbridge while running Dental Manager, and vice versa, you will see the **Dental Manager** tab in the upper part of the CAMbridge window (see image below). Number in the brackets indicates the number of orders reflected in the field below.

Each order contains its specific information, sorted into columns. You can select which columns are visible in order to make the relevant Dental Manager information available in CAMbridge, as well as sort these columns by clicking on their headings.

Click the **Views**  button to choose between the **Items** and **Orders** options to change the appearance of the order list. Select the desired orders or click the **Select all**  button to choose all orders in the list and send them to the job  to prepare for production or to the pending tab  for future references.



Hint! You can drag and drop orders to the job from both the Dental Manager tab in CAMbridge and the Dental Manager application itself.



For more information about CAMbridge, refer to the *CAMbridge user manual* (click *Help* > *Quick Guides* in the CAMbridge software).

2.8.4. Manufacturing Device Compatibility

3Shape offers the widest integration to manufacturing equipment and materials among all CAD/CAM systems, ensuring 3Shape customers access to the latest and most competitive technology.



3Shape Dental System integrates to essentially all machines, including 3-5 axis milling machines, wax printers, laser sintering machines and digital model making machines.

Currently available machines are:

- 3D Systems iPro
- 3D Systems ProJet / InVision
- 3D Systems Viper
- Concept Laser
- Delcam DentMILL
- EnvisionTec Perfactory
- Icoredental coritec 340i
- Icoredental coritec 440i
- Objet Eden
- EOS EOSINT M 270
- Primacon PFM 24 midiMill
- Realizer
- Roland DWX-30 / JWX-10
- Solidscape

For a complete list of the compatible manufacturing devices, please refer to your re-seller or go to www.3shape.com

2.9. 3Shape Communicate

3Shape Communicate™ is a web solution that allows dental orders to be securely exchanged between dental professionals. The system enables you to:

- Set up and manage connections to practices and labs.

- View and manage your cases.
- Discuss patient cases while viewing their 3D models online.
- Manage your 3Shape Communicate™ profile.

The lab-dentist interaction via 3Shape Communicate™ usually follows the pattern below:

►Step 1: Order created and sent

Dentist scans a patient and sends the dental order to the lab via 3Shape Communicate™.

►Step 2: Lab completes and sends the design

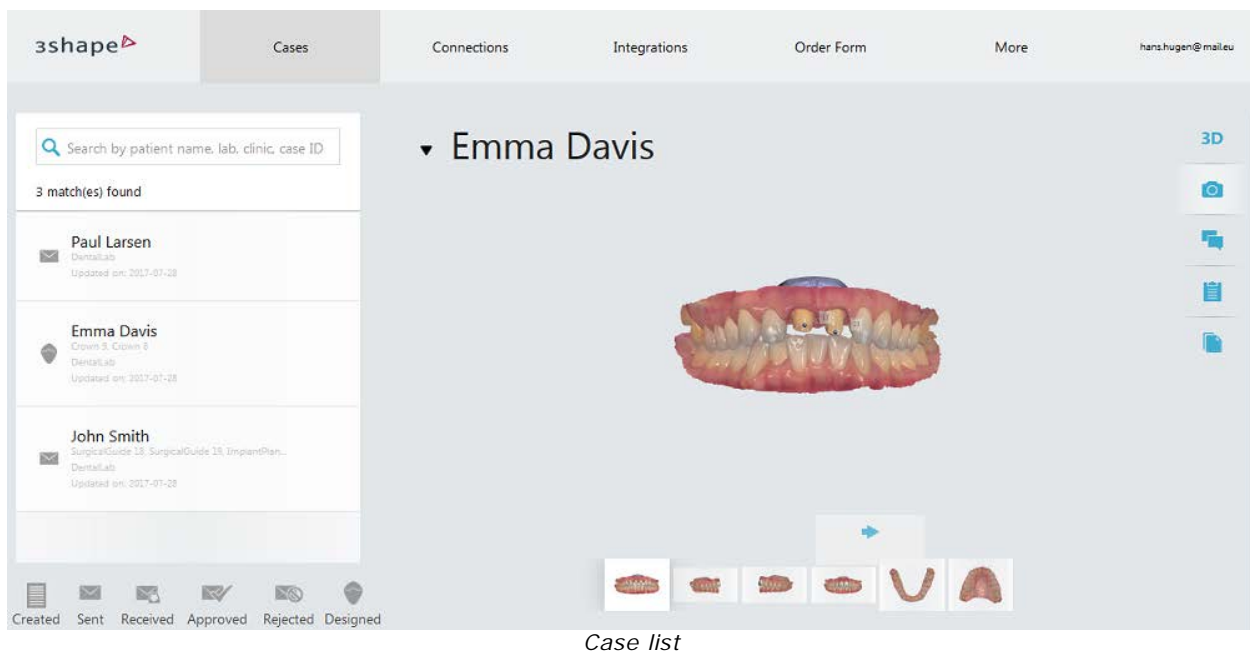
After [creating a user account](#) and [configuring settings](#) in Dental System Control Panel, the technician makes the design and sends it to the dentist together with screen shots and questions for the case (read more in [3Shape Communicate Workflow](#) chapter).

►Step 3: Dentist views the result

At the clinic, a notification pops up signaling the arrival of a message. The dentist can log in to view the design, write comments, add annotations directly on the 3D image or approve the results.

►Step 4: Lab reviews dentist's comments

The dentist's input is returned directly to the lab's order management base in Dental System™. The technician can then view the dentist's comments and act further accordingly.



2.9.1. Getting Started

To start using 3Shape Communicate, you need to:

1. [Create account](#)
2. [Connect](#)
3. [Configure 3Shape Communicate in Dental System](#)

2.9.1.1. Create Account

To start using 3Shape Communicate™, you need to create an account.




Go to the 3Shape Communicate™ portal at <https://portal.3shapecommunicate.com> and follow the steps below to register:

►Step 1: Initiate registration

Once the login page of the 3Shape Communicate™ portal loads, click the [create new account](#) link.

3Shape Communicate

3shape

Log in to your account

Email

Password


Login


[I forgot my password](#)


[Activate my account](#)

Or [create new account](#)

At 3Shape Communicate you can:

 Set up and manage connections to labs or practices

 View and manage your cases

 Manage your 3Shape Communicate™ profile

► **Step 2: Choose account option**

Select the registration option that applies to you:

Or [create new account](#)

☐ I am a 3Shape software user

☐ I am a practice, but do not own a 3Shape product

► **Step 3: Enter login information**

Enter login information details in the provided fields.

Create your account

Step 1

Enter your login information

First name

Last name

Email

Password

Re-enter password

Next

Click **Next** to continue.


► Step 4: Enter login information

Enter account information details in the provided fields.

Create your account

Step 2

Enter your account information

Account name	
Country	
City	
Street address	
Postal code	
Phone number	
Previous	Next

Click **Next** to continue.

►Step 5: Enter 3Shape dongle number

Enter 3Shape dongle number if you have chosen "I am a 3Shape software user" for the account option at Step 2.

Create your account

Step 3

Enter 3Shape dongle number

Dongle number

Previous

Next

Click **Next** to continue.

►Step 6: Choose your practice and register

Select the appropriate option for your type of service from available.

Create your account

Step 4

Are you a dental practice or a lab?

☐

Practice

☐

Lab

Previous

Create account

Click **Create account** to complete registration.

A confirmation window appears to inform you of successful registration.

Thank you for registering a 3Shape Communicate™ account.

IMPORTANT: We've sent an account activation email to your email inbox.
Please activate your account by clicking the link included in the email.

OK

► **Step 7: Confirm your email address and activate account**

Open the confirmation email from 3Shape in your email box.

✉ **hans.hugen@mail.eu**

From: **info@3shapecommunicate.com**

Date: **19/07/2017 16:30:12**

To:

Subject: **Registration at 3Shape Communicate**

Attachments:

Thank you for registering 'Hans Hugen' at 3Shape Communicate

To confirm the registration, please click the following **link**

Click on the provided link to load **Data Confidentiality Agreement**. Read it through, mark the "I agree" checkbox and click the **Activate** button to confirm your registration.

Data Confidentiality Agreement

All personal data pertaining to a patient, exchanged through 3Shape Communicate™, shall be treated as strictly confidential. The data controller, i.e. the person or entity which obtains this data, is responsible for securing its confidentiality, and for ensuring compliance with applicable regulations. It is the data controller's responsibility to ensure that any third party to whom personal data is transmitted respects the confidentiality of this data. The data controller assumes the risk of personal data coming to the attention of unauthorized persons. 3Shape cannot be held liable for this eventuality, but takes all reasonable measures to ensure that personal data is secured throughout the infrastructure in which 3Shape Communicate™ operates.

I agree ☐

Activate

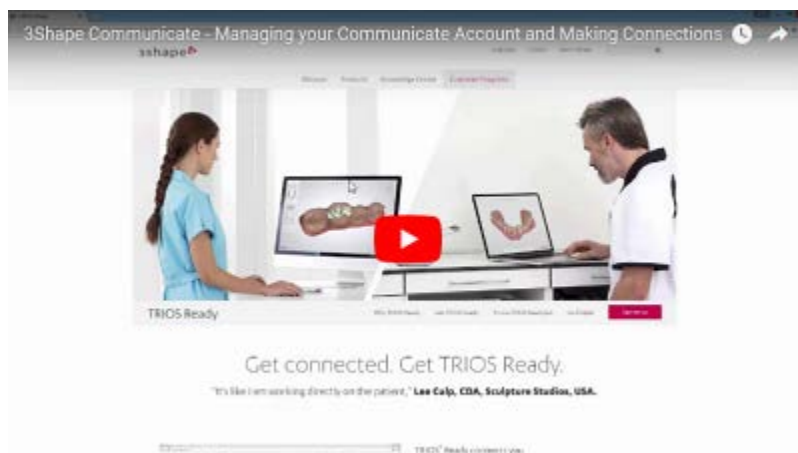



Note! If you forget your password, click the corresponding link in the Login dialog and enter your e-mail address to receive a new password.


Reset your account password

Reset password

2.9.1.2. Connect



The **Connections** page lists all your currently available connections and allows you to set up new connections for sending your cases to the Dental Labs and Dental Clinics. Previously set up connections can be deleted with the **Remove**  button if needed.

3shape 

Cases

Connections


Integrations

Order Form

More

hans.hugen@mail.eu

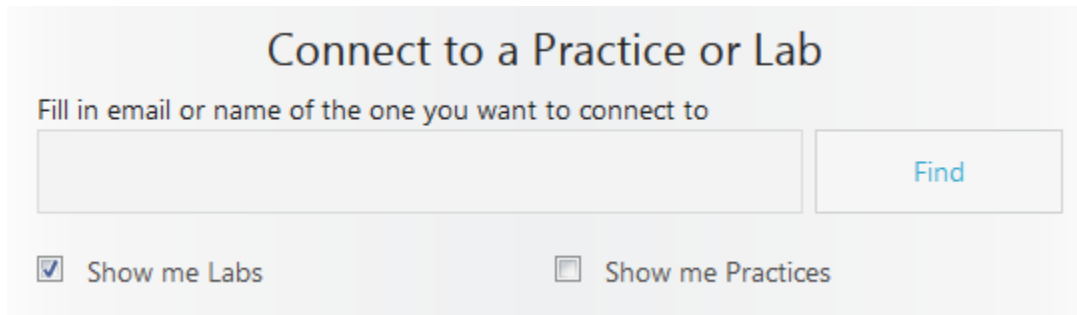
Add Connection

	DentalLab 12 Alexanderplatz Berlin, 70178 Germany	Type Email Phone Number	Lab b110695@trbvnm.com 01805500111	 Active	
-------------------------------------------------------------------------------------	------------------------------------------------------------	-------------------------------	------------------------------------------	----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------

In order to set up a new connection to a known dental practice or lab:

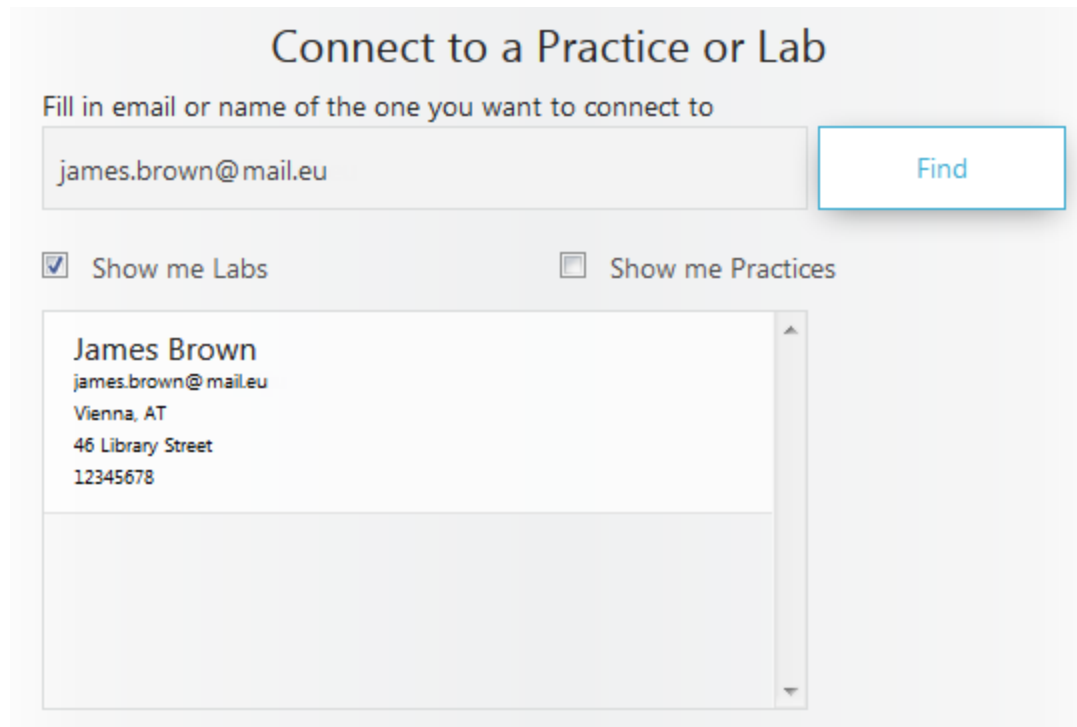
►Step 1: Search for dental practice or lab

Click the **Add Connection** button of the page to open *Connect to a Practice or Lab* dialog.



The dialog box is titled "Connect to a Practice or Lab". Below the title is a text input field with the placeholder text "Fill in email or name of the one you want to connect to". To the right of the input field is a blue button labeled "Find". Below the input field are two checkboxes: "Show me Labs" (checked) and "Show me Practices" (unchecked).

Fill in the exact e-mail address of a practice or lab you wish to connect to in the provided field and apply the **Show me Labs** or **Show me Practices** filters as required. Click the **Find** button to have the outcome listed below.



The dialog box is titled "Connect to a Practice or Lab". Below the title is a text input field with the placeholder text "Fill in email or name of the one you want to connect to". The input field contains the email address "james.brown@mail.eu". To the right of the input field is a blue button labeled "Find". Below the input field are two checkboxes: "Show me Labs" (checked) and "Show me Practices" (unchecked). Below the checkboxes is a scrollable list box containing the following information:

- James Brown
- james.brown@mail.eu
- Vienna, AT
- 46 Library Street
- 12345678



Note! The email address of a dental practice or lab you search for must be entered correctly in order to be found in the database.

►Step 2: Send connection request

Click to select the found practice or lab for the connection message field to appear. You can edit the message if required.

Connect to a Practice or Lab

Fill in email or name of the one you want to connect to

☒ Show me Labs ☐ Show me Practices


James Brown
james.brown@mail.eu
Vienna, AT
46 Library Street
12345678

Message to James Brown (You can customize the message)

We would like to connect with you on 3Shape
Communicate.

Click the **Connect** button to send a connection request.

connection request was sent

3shape

Cases

Connections


Integrations

Order Form

More

hans.hugen@mail.eu

Add Connection



James Brown

46 Library Street

Vienna, 12345

Austria

Type

Email


Phone Number


Lab

james.brown@mail.eu

12345678

Request sent,
waiting for approval





DentalLab

12 Alexanderplatz

Berlin, 70178

Germany

Type

Email

Phone Number


Lab

b110695@trbvn.com

01805500111

●

 Active



Once the other party approves your connection request, its status will change to "Active" on the *Connections* page.
You can start using the newly added connection now.

2.9.1.3. Configure 3Shape Communicate in Dental System

To perform integration of the Dental System with 3Shape Communicate, configure the settings in the Dental System Control Panel for both, the dentist and lab:




Note! It is recommended that each Dental System stand-alone installation or server installation have individual 3Shape Communicate accounts.

LAB SETUP

Go to *Dental System Control Panel* -> *Tools* -> *3Shape Communicate* -> *3Shape Communicate Integration*, click the **Configure** button and fill out the provided fields in the appeared window to enable your lab to work with 3Shape Communicate. See the chapter [3Shape Communicate](#) for details.

3Shape Communicate Integration Configuration

☒ Enabled



User Email
showcase@3shape.com

Password
.....

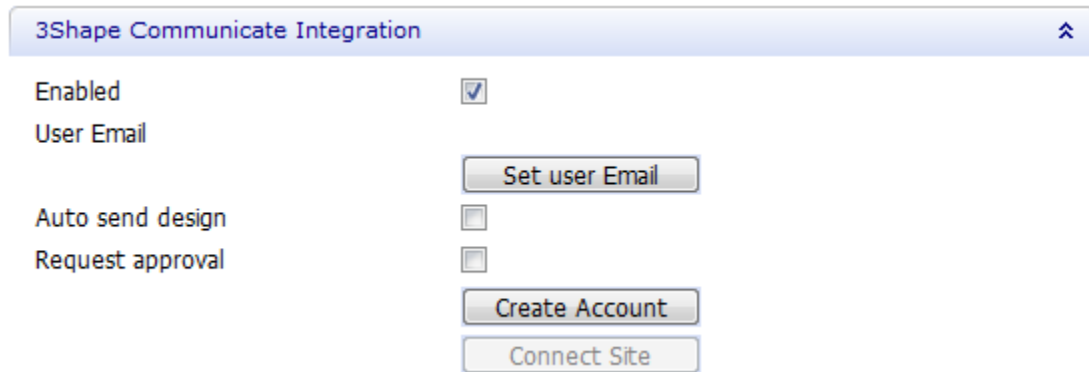
I don't have account
Create 3Shape Communicate account

Advanced

Test connection
Ok
Cancel

DENTIST SETUP

Go to *Dental System Control Panel* -> *Site Settings* -> *Dentists* -> *3Shape Communicate Integration* and setup the required parameters for other sites (dentists). See the chapter [Dentists](#) for details.

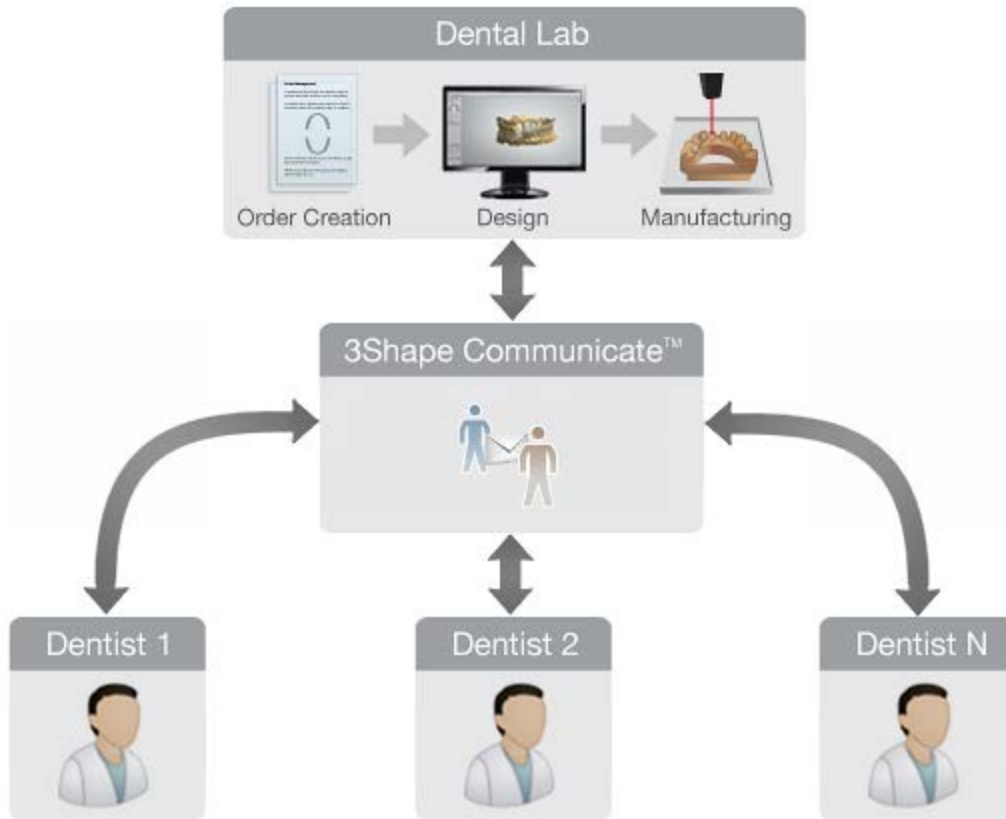


The screenshot shows a web interface for '3Shape Communicate Integration'. At the top is a header bar with the title '3Shape Communicate Integration' and an upward-pointing arrow icon. Below the header, there are four settings: 'Enabled' with a checked checkbox, 'User Email' with a 'Set user Email' button, 'Auto send design' with an unchecked checkbox, and 'Request approval' with an unchecked checkbox. At the bottom of the settings area are two buttons: 'Create Account' and 'Connect Site'.

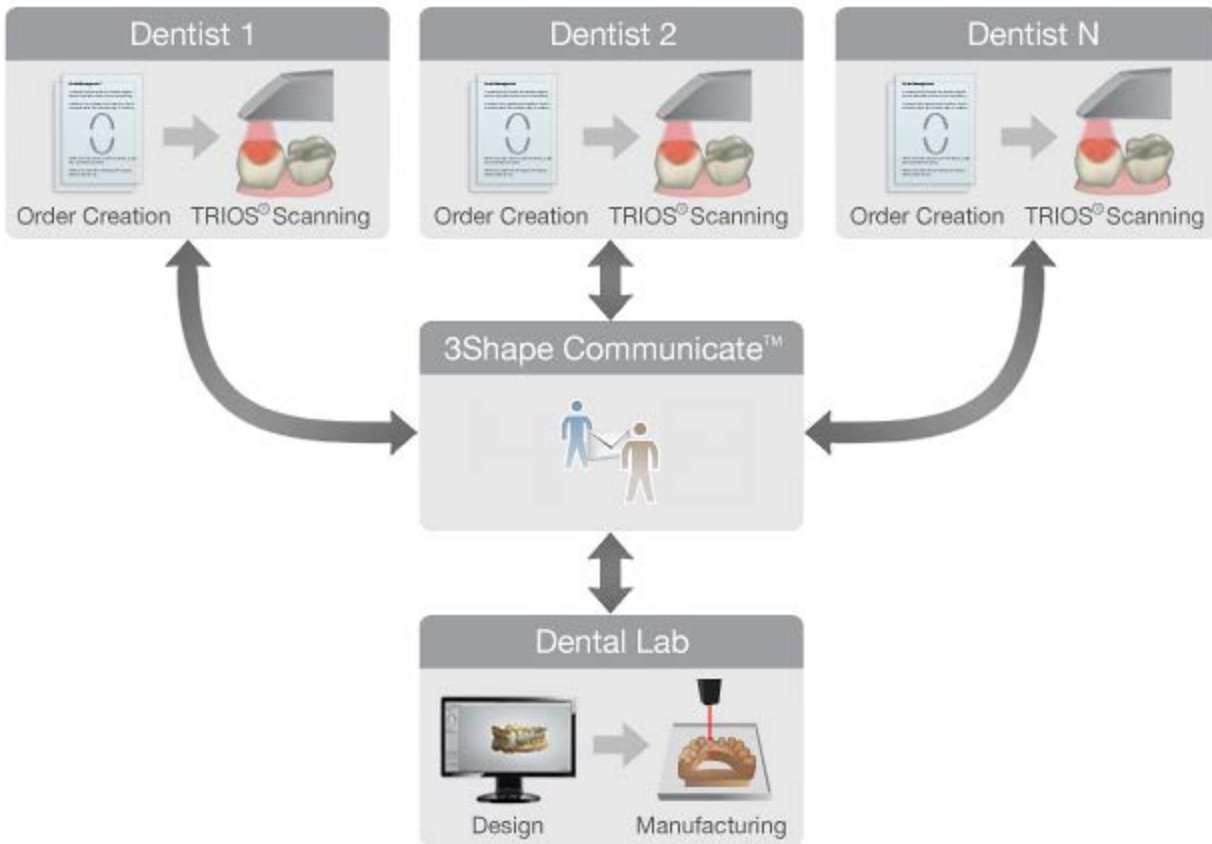
2.9.2. 3Shape Communicate Workflow

The following diagrams explain principal differences between [Lab to Dentist](#) and [TRIOS Communication](#) workflows.

Lab to Dentist Communication Workflow



TRIOS Communication Workflow



2.9.2.1. Lab to Dentist Communication Workflow

The steps below describe Dental System 3Shape Communicate workflow:

► Step 1: Create an order

The screenshot shows the 'Customer information' form. It includes fields for 'Customer' (a dropdown menu with 'Brown' selected), 'Contact person' (a text field with 'John Doe'), 'Create date' (a date field with '05/12/2016'), and 'Shipping date' (a date field with '05/12/2016'). There is also a 'Send information' button and a small icon of two people.

Open Order form to create an order.


Make sure you select the relevant dentist as a **Customer** (the dentist must already have his 3Shape Communicate [user account](#) and [settings configured](#) in the Dental System Control Panel).

See the chapter [Order Information](#) for details on 3Shape Communicate order settings.

► Step 2: Create a design

Design your indication in Dental Designer.

Together with the order information and design, the images of the model can also be uploaded to 3Shape Communicate:

- If 3Shape Communicate is enabled, Dental Designer automatically generates 6 images of a model at the end of the design process.
- You can also use the **Screenshot** taking tool  to create additional images and add comments to them (see the chapter [Screenshot Taking Tool](#) for details).

► Step 3: Upload order to 3Shape Communicate

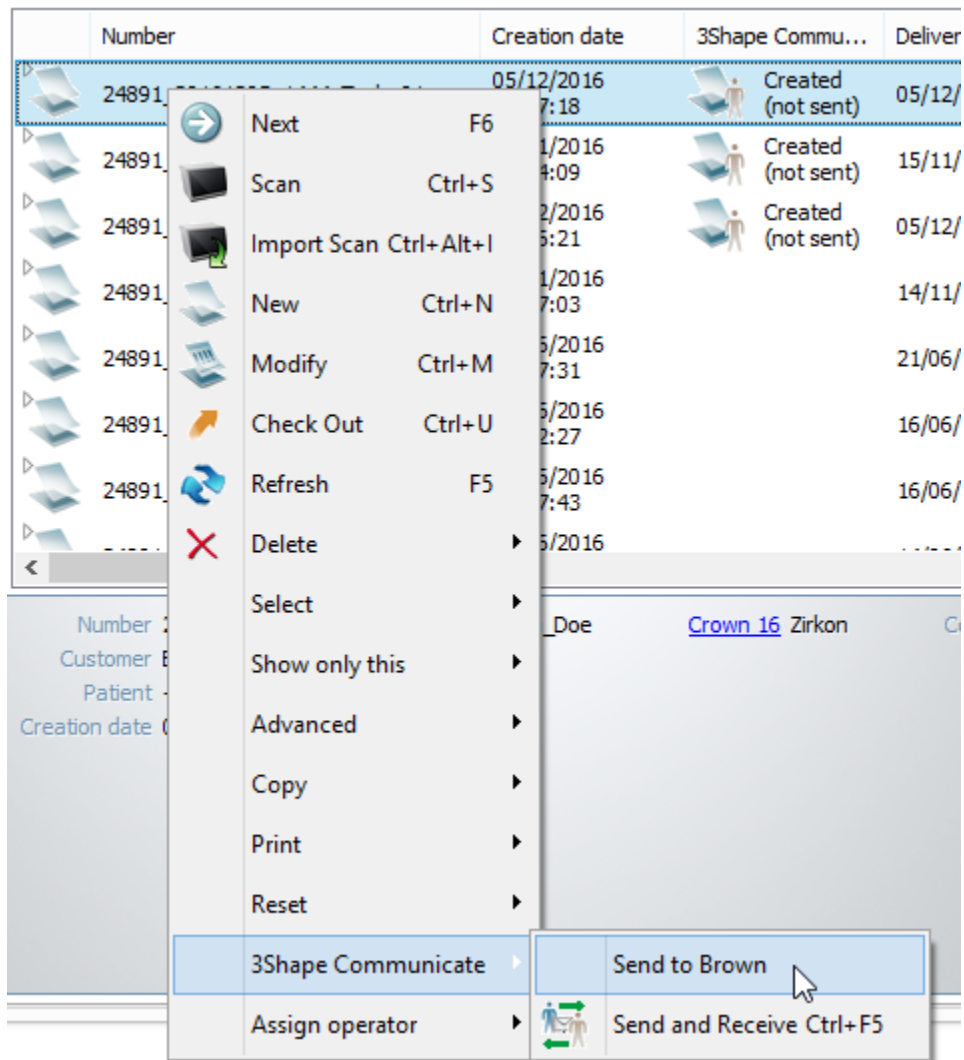
Orders from Dental Manager can be sent to 3Shape Communicate either **manually** (all orders) or **automatically** (orders with the **Designed** status only).



Note! To be able to send orders to 3Shape Communicate, you should have previously created [user accounts](#) and [configure](#) the required settings in Dental System Control Panel.





If you want to **automatically** send your orders to 3Shape Communicate after modeling them, go to *Dental System Control Panel* -> *Site Settings* -> *Dentists/Labs/Manufacturers* (depending on the site's profile) -> *3Shape Communicate Integration* and select the **Auto send design** checkbox.





Otherwise, you can send your order **manually** by right-clicking the order and selecting **3Shape Communicate** -> **Send to [Customer's name]**:



After the order has been sent to 3Shape Communicate, you can view the order exchange status under the **3Shape Communicate** column. This column is hidden by default and can be enabled by right-clicking the column header and selecting 3Shape Communicate from the appeared list.

The following order exchange statuses are available:

Order Status	Icon Description
	Scan received - A new scan received from a dentist.
	Created - Informs the dentist about an active 3Shape Communicate case created by the lab.
	Sent Information - Case information (screen shots, 3D model, comments) has been sent to a dentist via 3Shape Communicate.
	Waiting for approval - if Request approval was enabled, the design of a model needs to be confirmed by the dentist.

	Rejected - The case has been viewed and rejected by the dentist.
	Approved - The case has been approved by the dentist.
	Closed - The order has been closed.
	New Message - A new message arrived.

Right-click on the order and select **3Shape Communicate->Send and Receive** to update the exchange process between Dental Manager and 3Shape Communicate.

►Step 4: Review dentist's comments

3Shape Communicate

 Sent information
(New messages: 2)

After uploading the design to 3Shape Communicate, a dentist can view it online and add comments. When new comments are added to the order, the **3Shape Communicate** column in Dental Manager displays **New messages** and their quantity.

The lab can review dentist's comments after the order is opened in 3Shape Communicate. To open an order on the site:

- Right-click on the order in Dental Manager and select **3Shape Communicate->Open order**.

OR

- Double-click on the **3Shape Communicate** column.

After the order has been opened, the message notification in Dental Manager disappears.

2.9.2.2. TRIOS Communicate Workflow

With TRIOS, it is possible to exchange orders and comments with the lab of your choice, using 3Shape Communicate™, an advanced tool integrated in your TRIOS system.

The steps below describe TRIOS 3Shape Communicate™ workflow:



[Dental Clinic]

►Step1: Order Creation

The dentist can create orders either directly on the TRIOS touch screen or remotely from the secretary's computer. Digital order forms can be configured by the lab and downloaded to the TRIOS system.



[Dental Clinic]

►Step 2: Scanning

The dentist can scan Upper and Lower jaws in TRIOS and align them for a perfect occlusion.



[Dental Clinic]

►Step 3: Clinical Validation

TRIOS delivers an optimal impression by applying preparation validation, occlusal space control and measurement tools. Comments attached to the digital impression are directly visible to the lab.



[Dental Clinic]

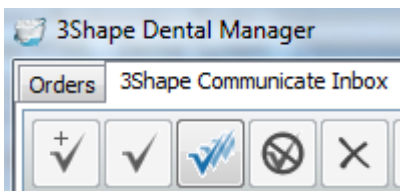
►Step 4: Upload Digital Impressions

The TRIOS scan is sent directly to the labs, providing instant availability of the design.



[Dental Lab]

►Step 5: 3Shape Communicate Inbox



TRIOS orders appear listed under the Dental Manager **3Shape Communicate Inbox** tab and can be further processed as described in the chapter [Receiving Orders](#).

Once Accepted, the TRIOS orders are transferred to the Orders tab of the Dental Manager from where they can be modeled and taken into production in the usual manner.



[Dental Lab]

►Step 6: Model Builder

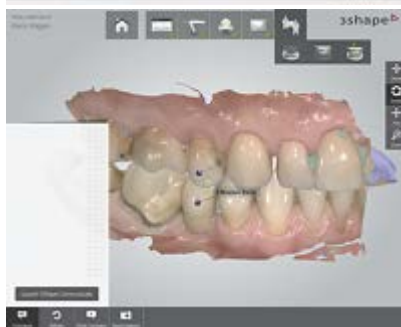
TRIOS orders contain "raw" scans and must be prepared with the Model Builder before the CAD design. With the Model Builder you can also design the digital lab model for local manufacturing.



[Dental Lab]

►Step 7: CAD Design and Manufacturing

Load TRIOS orders in Dental Designer to design restorations. Completed orders are sent to manufacturing.



[Dental Clinic]

►Step 8: Preview Design

Direct on-screen communication with the lab enables dentists to view the restoration in 3D, agree on margin lines, access virtual diagnostic wax-ups and discuss cases with the labs and patients when convenient.



[Dental Clinic]

►Step 9: Seat Restoration

The final restoration is sent to the dentist for seating in the patient's mouth.

Accurate TRIOS impressions save valuable time often spent on grinding and adjustments to improve the restoration fit.

2.9.3. 3Shape Communicate Portal

At 3Shape Communicate portal <https://portal.3shapecommunicate.com>, you can view cases uploaded directly from Dental Manager and TRIOS®.



2.9.3.1. Main Menu

The main menu provides access to the main 3Shape Communicate™ portal settings and options:

Cases	Connections	Integrations	Order Form	More	dentalclinic.dk@gmail.com
-------	-------------	--------------	------------	------	---------------------------

[Cases](#) - allows you to view and manage your cases.

[Connections](#) - lists all available connections and allows you to set up new connections to Dental Labs and Dental Clinics.

[Integrations](#) - contains available integration option that can be enabled on this page.

Order Form - includes the following options:

- [TRIOS Order templates](#) - allows you as a lab to add and manage TRIOS® order templates.

More - includes the following options:

- [Archived cases](#) - allows you to make archived cases available on the **Cases** page.

Hover the pointer over your email address displayed in the top-right part of the webpage to reveal the following options:

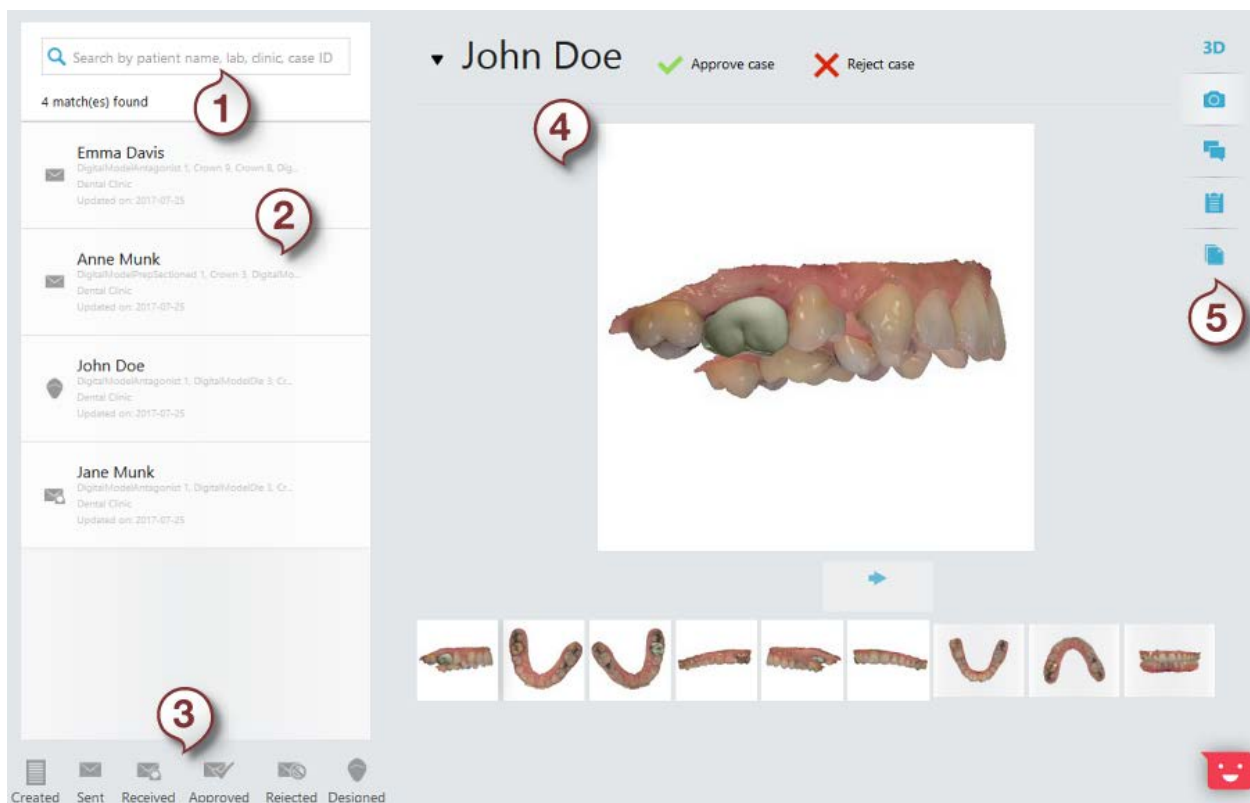
- [Settings](#) - allows you to manage your 3Shape Communicate™ account settings.
- **Log Out** - logs you out of the 3Shape Communicate™ portal and opens the [Login page](#).

2.9.3.2. Cases

The **Cases** page allows you to view and manage your cases by performing the following actions:

- [View cases](#)
- [Search for cases](#)
- [Approve and reject cases](#)
- [Delete cases](#)
- [Add comments and images to the case](#)
- [Add additional files to the case](#)
- [View and print the TRIOS order form](#)

To open the **Cases** page, click **Cases** in the main menu. The **Cases** page interface is shown in the image below:



- (1) Search for a case
- (2) Case list
- (3) Case status legend
- (4) Case details
- (5) Toolbar

VIEW CASES

Case list

You can view the list of cases in the left part of the **Cases** page. For each case in the list, the case status icon is displayed. You can find the legend explaining the meaning of each case status icon below the case list (see the image above).






Case details

To view the details of a specific case, select the case from the list of cases. With a click on the black arrow next to the patient name, you can view additional order information. Use the toolbar on the right for more options.



Toolbar

The Toolbar on the right of the **Cases** page provides you with the following options for the selected case:

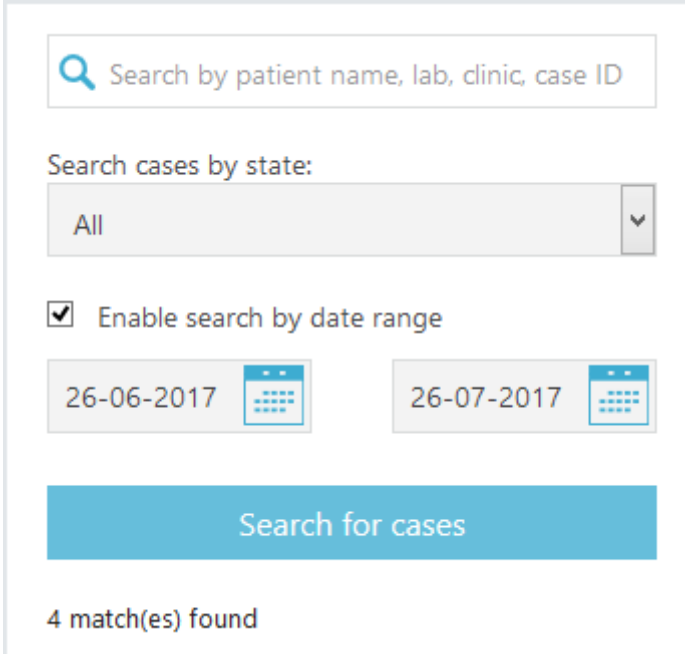
-  [3D model](#) - displays the scans and the design in the 3D format.
-  [Pictures](#) - displays the images available for the case.
-  [Comments](#) - allows you to view and send messages.
-  [Trios printable order form](#) - opens the order form for printing (only for orders sent from TRIOS®).
-  [Additional files](#) - allows you to attach extra files to the case.

SEARCH FOR CASES

Click the search field above the list of cases to display the available search options, which allows you to:

- Search for cases by entering a patient name, case identifier (Case ID), name of a lab or clinic
- Filter cases by their status
- Filter cases by a specific date range



You can apply several search options simultaneously to narrow your search results.



The screenshot shows a search interface with the following elements:


- A search bar with a magnifying glass icon and the placeholder text "Search by patient name, lab, clinic, case ID".
- A section titled "Search cases by state:" with a dropdown menu currently set to "All".
- A checkbox labeled "Enable search by date range" which is checked.
- Two date selection boxes: the first shows "26-06-2017" and the second shows "26-07-2017", each with a calendar icon.
- A large blue button labeled "Search for cases".
- Below the button, it says "4 match(es) found".

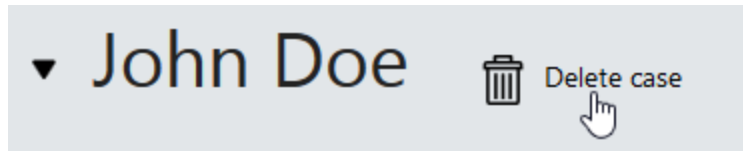
APPROVE OR REJECT A CASE

To approve or reject a case, select it in the list of cases and click  **Approve case** or  **Reject case**. The status of the case will be updated to **Approved** or **Rejected**.

The availability of the **Approve case** and **Reject case** buttons depends on the case status and your role (clinic or lab).

DELETE A CASE


A case can be deleted only by its sender. To delete a case, select it in the list of cases and click  **Delete case**.



3D

3D MODEL

View the 3D model

To view the 3D model available for the case, click the **3D Model**  button in the Toolbar. It might take a few seconds to load the model. You can change model visualization using the available sliders.

Manipulate the 3D model


- Right-click to rotate the model.
- Scroll the mouse wheel to scale the model.
- Press the mouse wheel to move the model.

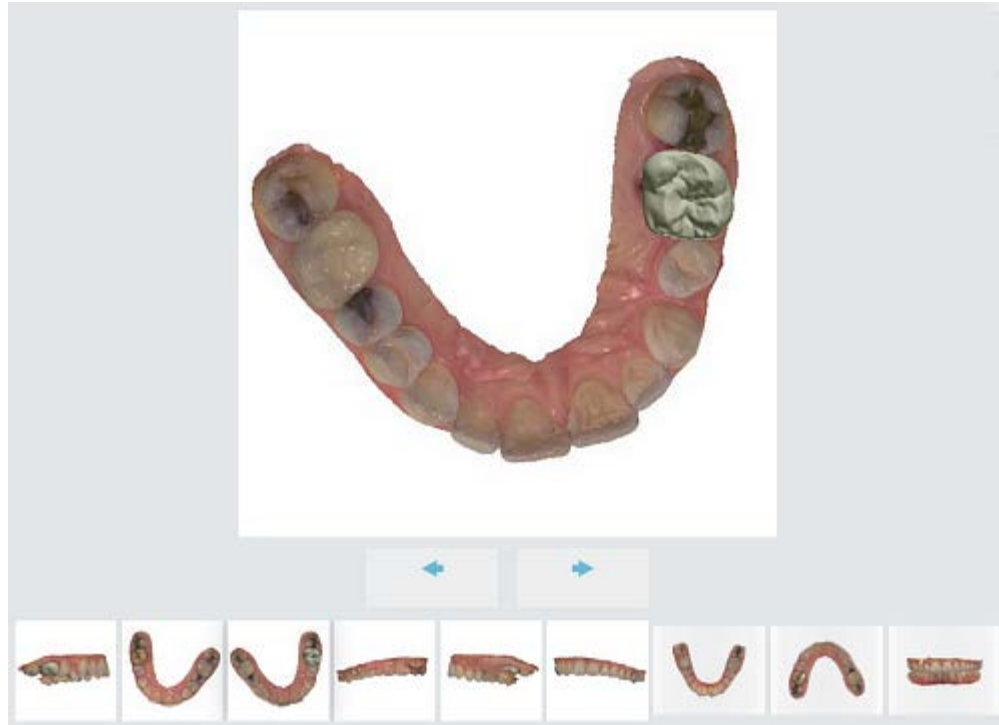


PICTURES

PICTURES

View images

To view the images available for the case, click the **Pictures**  button in the Toolbar. Click the image thumbnails or left/right arrows to switch between the images.



Add a new image

To add an image to the case, [create a new comment](#) and attach the image to it. You will be able to see the added image on the **Pictures** page.



COMMENTS


Once you have sent or received a case, you can comment on it by adding messages and attaching new images.

View comments


To view comments on the case, click the **Comments**  button in the Toolbar. The newest message in the conversation is placed at the top.

Messages

Add image Send

 Dental Clinic Jul 27, 2017 11:26:05 AM

Margin looks fine.




Add a new comment

To add a comment to the case, type your message in the text field under **Messages** and attach an image if needed by clicking **Add image**. Click **Send** to send the message. The sent message will appear at the top of the list of messages.



TRIOS PRINTABLE ORDER FORM

View and print the order form

For orders sent from TRIOS, click the **TRIOS Printable Order Form**  button in the Toolbar to open the order form. The order form contains the order information as specified by the clinic and can be printed from your browser. Use horizontal and vertical scrolling bars to move across the form.

To print the order form, click the **Print Order Form** button.

Creation date:

25.07.2017 8:53:47

Delivery date:

21.02.2016 0:00:00

Dentist name:

John Miller

Case number:

76084_130808142899

Patient name:

Anne Munk

Has additional scan:

False

Restorations



Types	Type	UNN
	Crown	3

Print Order Form



ADDITIONAL FILES

View additional case files

To view additional files available for the case, click the **Additional files**  button in the Toolbar. You can download the file by clicking the  button next to the required file.



Attach a file to the case

To attach a file to the case, click **Choose File**, select the required file, click **Open**, and then click the **Upload** button. The uploaded file will appear in the list of files.

2.9.3.3. Integrations

The **Integrations** page lists available 3Shape Communicate™ integration option that can be enabled on this page.

► Step 1: Open Integrations page

Select **Integrations** from the main menu to open the page.



► Step 2: Enable integration

Click the **Enable integration** button next to the available Integration option and fill in your validation code if required, then click **Proceed**.

On successful validation, you will be able to submit cases of the integration to the 3Shape Communicate™ portal.

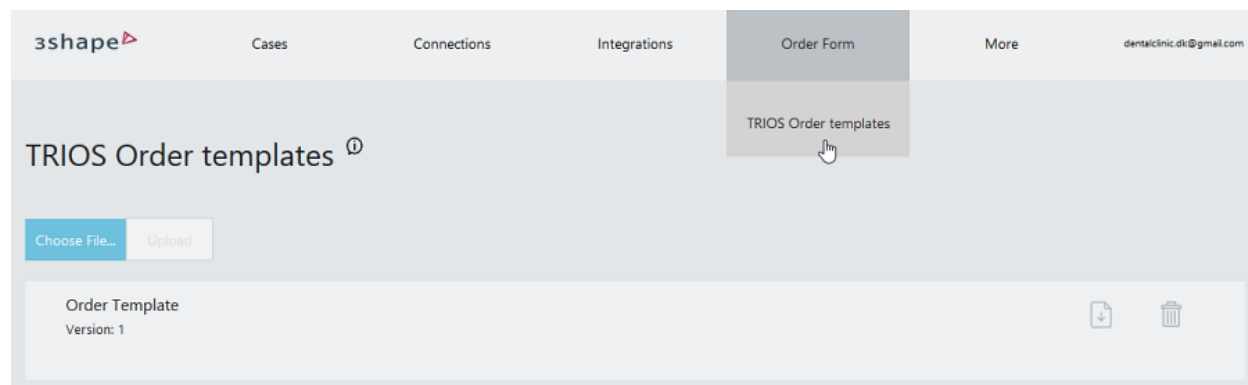
2.9.3.4. TRIOS Order Templates

The **TRIOS Order templates** page allows labs to add, download and delete TRIOS® order templates. A TRIOS order template lets you customize the layout and content of the order form available to the dentists when they place [TRIOS](#) orders. If no template is added, TRIOS automatically employs the standard order template for a lab.



Note! Your TRIOS order template is automatically made available to your TRIOS customers.

To open the **TRIOS Order templates** page, select **Order Form > TRIOS Order templates** from the main menu.



To add a template, click the **Choose File** button, select your TRIOS order template (XML file), click **Open** and then click the **Upload** button.

To download a template, click the  button next to the required template.

To delete a template, click the  button next to the required template.

2.9.3.5. Archived Cases

Your old cases scanned prior to November 1, 2016 are archived and do not appear on the **Cases** page. However, you can still search the archived cases and make them available on the **Cases** page when required.

Please follow these steps to make archived case(s) available on the **Cases** page.

►Step 1: Search for archived cases

1. Select **More > Archived cases** from the main menu to open the **Access archived cases** search form.
2. Specify your search criteria and click the **Search for cases** button to initiate search.

The screenshot shows a web application interface with a top navigation bar containing 'Cases', 'Connections', 'Integrations', 'Order Form', and 'More'. The 'More' menu is open, showing 'Archived cases' with a hand cursor icon. The main content area is titled 'Access archived cases' and contains explanatory text about archived cases. Below the text is a section titled 'STEP 1: Find specific cases you want to make available' which contains a search form. The search form has two input fields: 'Search by email' (with a magnifying glass icon) and 'Search by caseId'. Below these are date range selectors for 'From:' (04-07-2017) and 'To:' (03-08-2017), each with a calendar icon. At the bottom of the form is a blue button labeled 'Search for cases'.

Cases

Connections

Integrations

Order Form

More

Archived cases

Access archived cases

Cases scanned prior to November 1, 2016 have been archived, so by default they do not appear on your Cases page.

Due to our current archiving mechanism, we are unable to provide valuable information such as patient name on archived cases. Therefore, please use date range and/or email of your connection to narrow the results. If you have any questions, please reach out to support@3shape.com, or leave feedback on this page (bottom right corner). To make your cases available on your Cases page, please follow the steps below.

STEP 1: Find specific cases you want to make available

Search by email

Search by caseId

From: 04-07-2017

To: 03-08-2017

Search for cases

► Step 2: Send availability request

1. When your search yields a list of cases, mark the ones you want to make available in the **Cases** page and press the **Make selected cases available** button to proceed.

STEP 2: Review your selection and press 'Make selected cases available'

Select All

Unselect All

☐

e090d59d-382f-4395-8ae9-6462ca18e313
2015-05-07

☐

0b76a778-2299-48a3-a4e8-553309397065
2016-02-01

☐

70d51885-e30d-46e0-9d5a-f4c7a54ec10e
2014-08-08

Make selected cases available

- Confirm your choice in the pop-up window.

Would you like to make 1 case(s) available on your Cases page?

OK

Cancel

A confirmation is given on receiving your request.

Your request to make cases available has been received

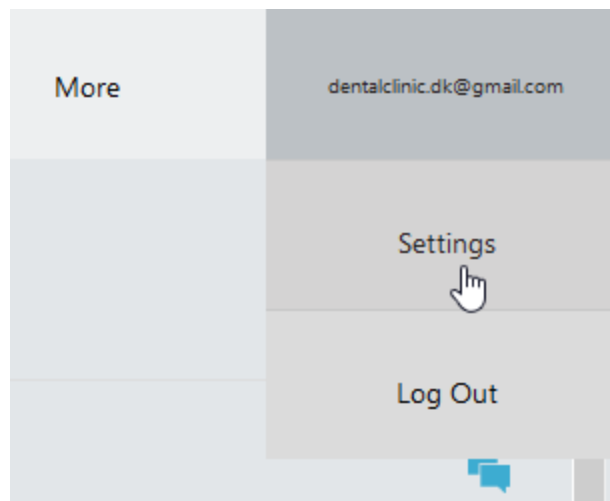
Once processed, the requested case(s) will appear on the **Cases** page.

2.9.3.6. Settings

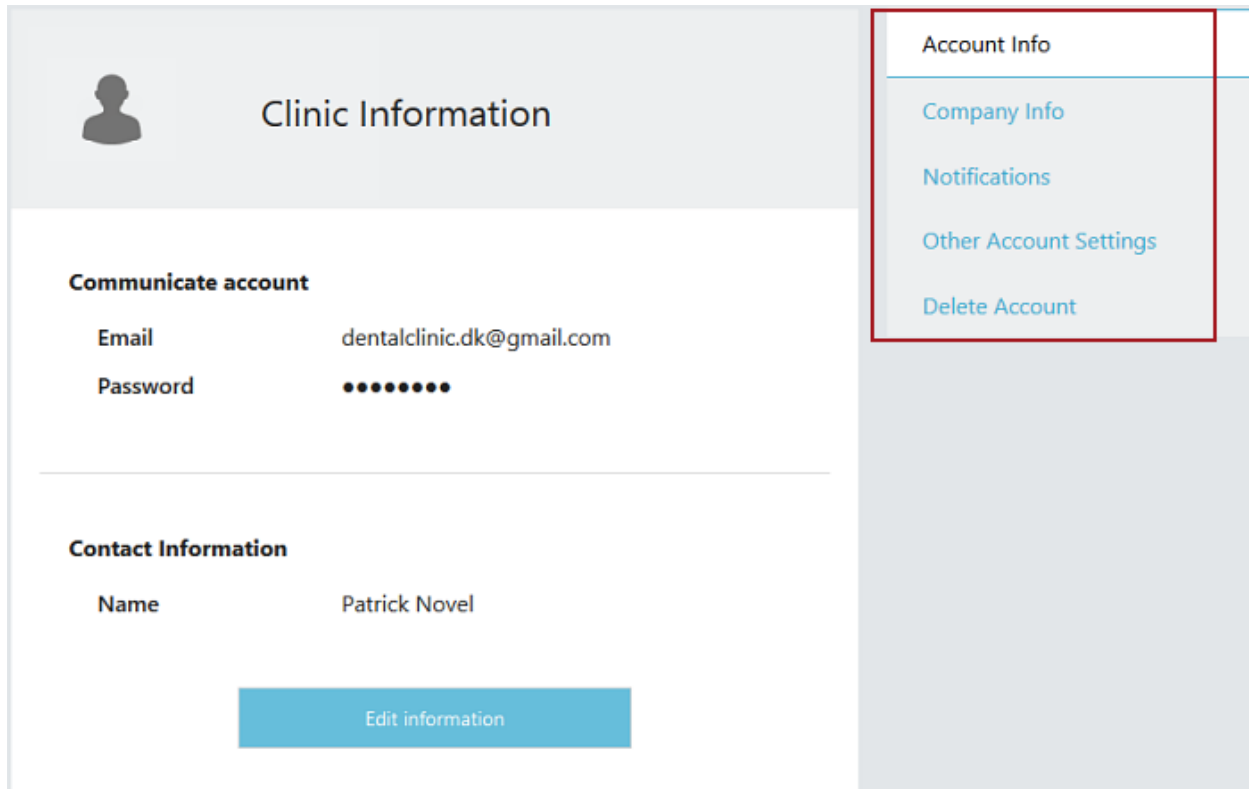
With the options available on the **Settings** page, you can:

- Modify [account information](#), [company information](#) and [other account settings](#)
- [Manage your email notifications](#)
- [Change the account logo](#)
- [Delete your account](#)

To open the **Settings** page, hover the pointer over your email address displayed in the main menu and click **Settings**.



Use the tabs in the right part of the **Settings** page to adjust the corresponding settings.



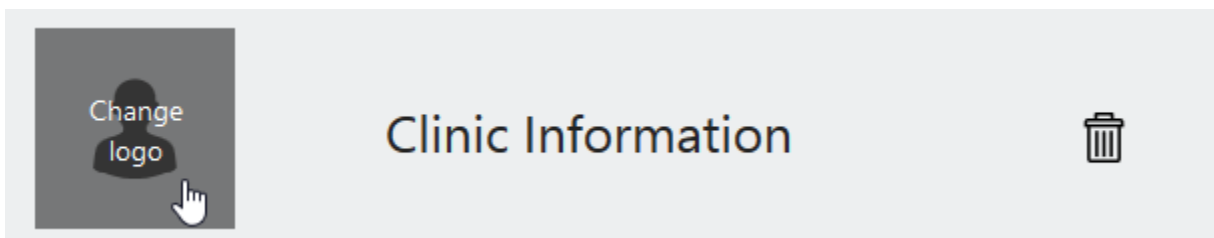
CHANGE THE ACCOUNT LOGO

To upload or change the logo for your account, follow the steps below:

► Step 1: Enable editing

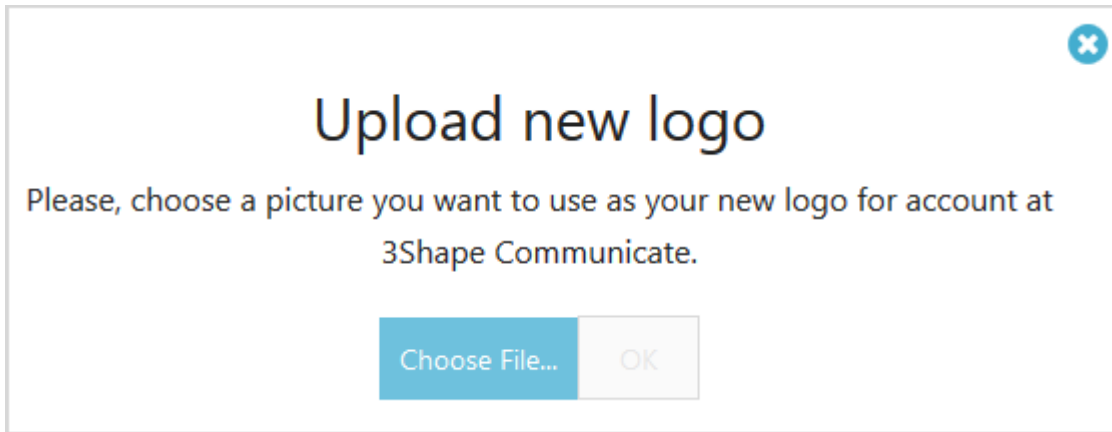
Click the **Edit information** button on the **Account Info**, **Company Info** or **Notifications** tab of the **Settings** page.

► Step 2: Click the logo image to open the Upload new logo window



► Step 3: Choose a new logo image

In the appeared window, click **Choose File**, choose an image to upload and click **OK**.



► **Step 4: Click the *Save changes* button**

2.9.3.6.1. Account Info

The **Account Info** tab of the **Settings** page allows you to view and edit your 3Shape Communicate™ account information. You are able to:

- [Change email address](#)
- [Change password](#)
- [Edit contact information](#)

Communicate account

Email	dentalclinic.dk@gmail.com
Password	●●●●●●●●

Contact Information

Name	Patrick Novel
------	---------------


Edit information

CHANGE EMAIL ADDRESS


► Step 1: Enable editing of account information

On the **Account Info** tab of the **Settings** page, click the **Edit information** button to be able to edit the account information.

► Step 2: Open the Change email window

Click the **Change email**  button next to your email address to open the corresponding window.

Communicate account

Email	dentalclinic.dk@gmail.com 
Password	Change password

► Step 3: Change your email address

In the appeared window, enter the new email address and your current password, and click the **Change Email** button.

✕

Change email

New email

Confirm new email

Password

Change Email

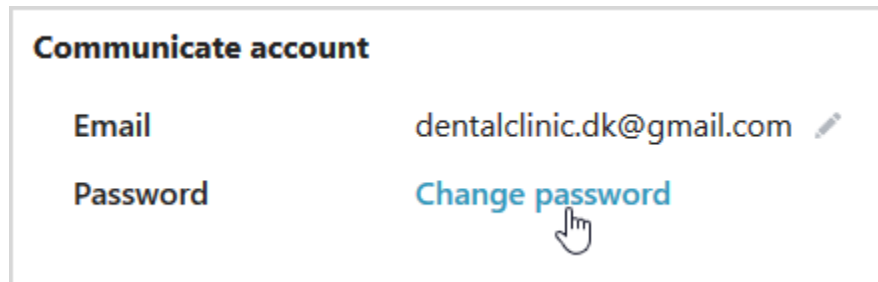
CHANGE PASSWORD

► Step 1: Enable editing of account information



On the **Account Info** tab of the **Settings** page, click the **Edit information** button to be able to edit the account information.

► Step 2: Open the Change password window

Click the **Change password** link next to the **Password** to open the corresponding window.

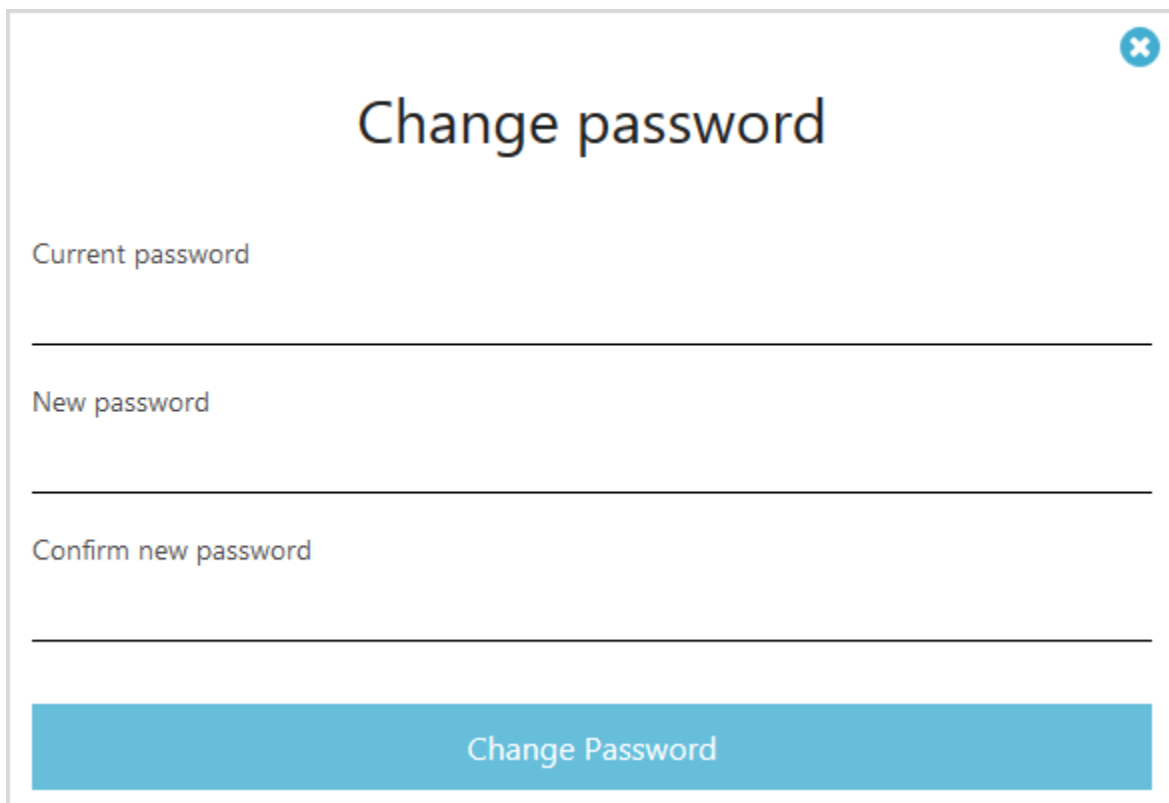



Communicate account

Email	dentalclinic.dk@gmail.com 
Password	Change password 

► Step 3: Change your password

In the appeared window, enter your current password and the new password, and click the **Change Password** button.





Change password

Current password

New password

Confirm new password

Change Password

EDIT CONTACT INFORMATION

To edit the contact information, click the **Edit information** button on the **Account info** tab of the **Settings** page, modify the First Name and Last Name in the corresponding fields and click the **Save changes** button.

Contact information

First Name	Patrick
Last Name	Novel

Save changes

Cancel

2.9.3.6.2. Company Info

The **Company Info** tab of the **Settings** page allows you to view and edit the information about your lab or clinic.

Company Information

Account Name	Dental Clinic
Address	Holmens Kanal 7., Copenhagen, 1060, Denmark
Phone Number	+380970000000
Dongle	1103140462

Edit information

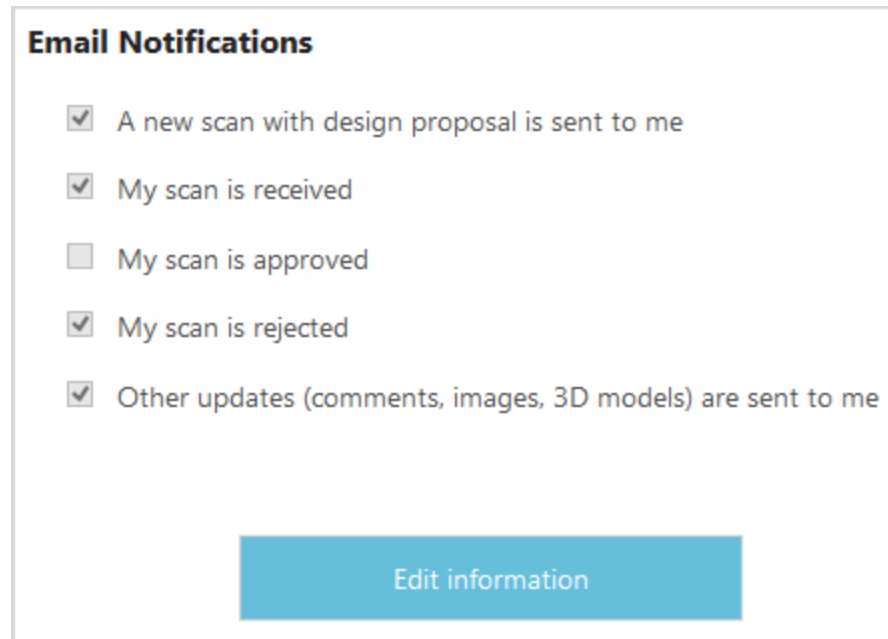
To edit the company information, click the **Edit information** button at the bottom of the page, make your changes and click the **Save changes** button.

2.9.3.6.3. Notifications

3Shape Communicate™ can inform you via email when one of your cases has been updated, or when a new case has been sent to you.

You can customize more precisely in which situations you would like to be notified by going to **Settings > Notifications**. The email notification settings are described below.

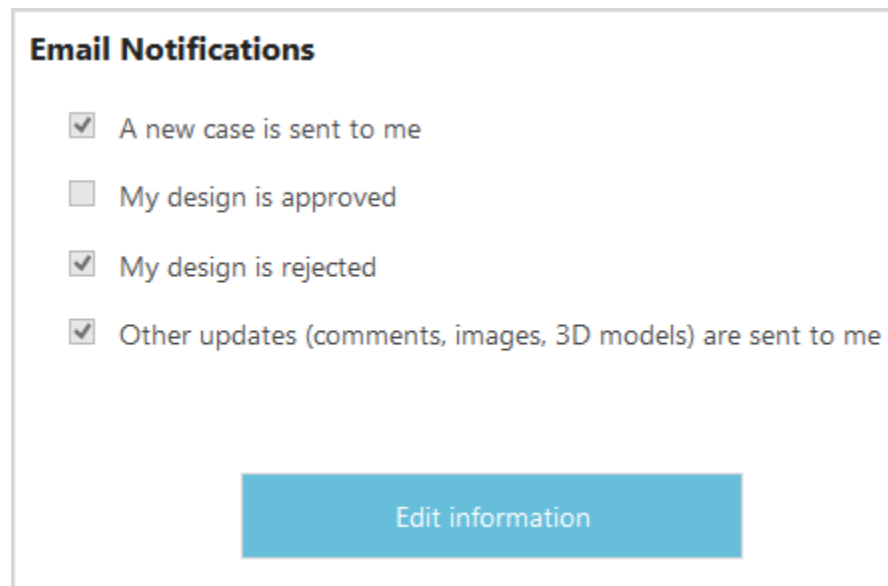
AS A CLINIC:

The screenshot shows a settings window titled "Email Notifications". It contains five toggle switches, each with a checkbox and a label. The first four toggles are checked, and the fifth is unchecked. At the bottom right of the window is a blue button labeled "Edit information".

Notification Type	Status
A new scan with design proposal is sent to me	Checked
My scan is received	Checked
My scan is approved	Unchecked
My scan is rejected	Checked
Other updates (comments, images, 3D models) are sent to me	Checked

- **A new scan with design proposal is sent to me** – receive an email each time your lab sends you a digital case for review. Usually not relevant for TRIOS clinics. However, even if your clinic is not a 3Shape customer, you can receive digital scans and designs from your lab.
- **My scan is received** – receive an email each time your lab receives one of your TRIOS cases in their 3Shape design software.
- **My scan is approved** – receive an email each time your lab approves one of your TRIOS cases.
- **My scan is rejected** – receive an email each time your lab rejects one of your TRIOS cases.
- **Other updates (comments, images, 3D models) are sent to me** – receive an email each time your lab submits a new comment, image or 3D model to one of your cases.

AS A LAB:

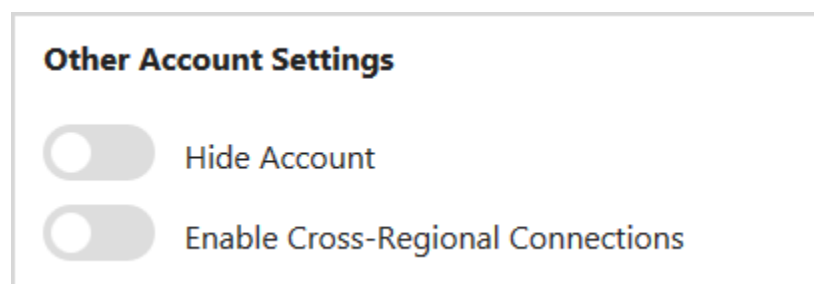


The screenshot shows a settings panel titled "Email Notifications". It contains four checkboxes with corresponding labels: "A new case is sent to me" (checked), "My design is approved" (unchecked), "My design is rejected" (checked), and "Other updates (comments, images, 3D models) are sent to me" (checked). At the bottom of the panel is a blue button labeled "Edit information".

- **A new case is sent to me** – receive an email each time one of your TRIOS customers sends you an order.
- **My design is approved** – receive an email each time one of your customers approves your design or your margin line.
- **My design is rejected** – receive an email each time one of your customers rejects your design or your margin line.
- **Other updates (comments, images, 3D models) are sent to me** – receive an email each time a new comment, image or 3D model is added to one of your cases.

2.9.3.6.4 Other Account Settings

The **Other Account Settings** tab of the **Settings** page allows you to adjust the additional settings related to your 3Shape Communicate™ account.



The screenshot shows a settings panel titled "Other Account Settings". It contains two toggle switches: "Hide Account" (which is currently turned off) and "Enable Cross-Regional Connections" (which is currently turned off).

Hide Account - makes your account private so that it is not visible to other 3Shape Communicate™ users while setting up new connections.

Enable Cross-Regional Connections - enables your account to send and receive cases from other geographical regions. Only available with 3Shape Dental System 2017.

2.9.3.6.5. Delete Account

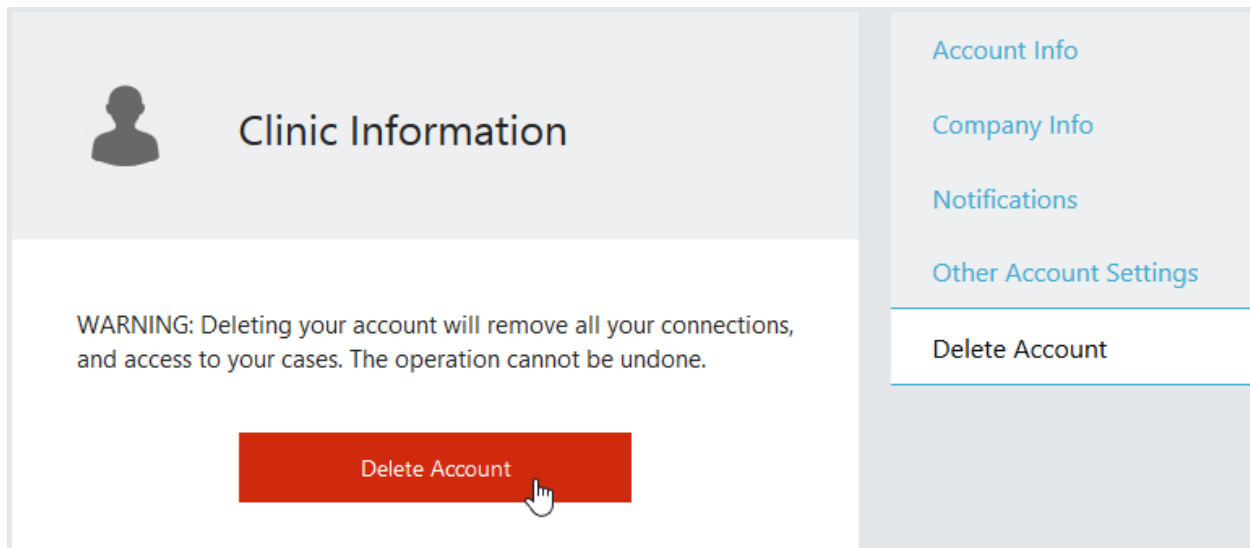


Caution! Deleting your account will remove all your connections and access to your cases. The operation cannot be undone.

To delete your 3Shape Communicate™ account, follow the steps below:

► Step 1: Initiate deletion

Open the **Delete Account** tab of the **Settings** page and click the **Delete Account** button.



► Step 2: Confirm deletion

Confirm the deletion of your user account from 3Shape Communicate™ by clicking **Delete my account**, entering your password then clicking the **Delete my account** button again.

You are about to delete your account. All your Connections will be deleted, and you will lose access to your cases. The operation cannot be undone.
Are you sure you want to proceed?

To confirm account deletion please enter your password

Delete my accountKeep my account

Once your account is deleted, the login page opens and the following confirmation message appears:

Your account has been successfully deleted.

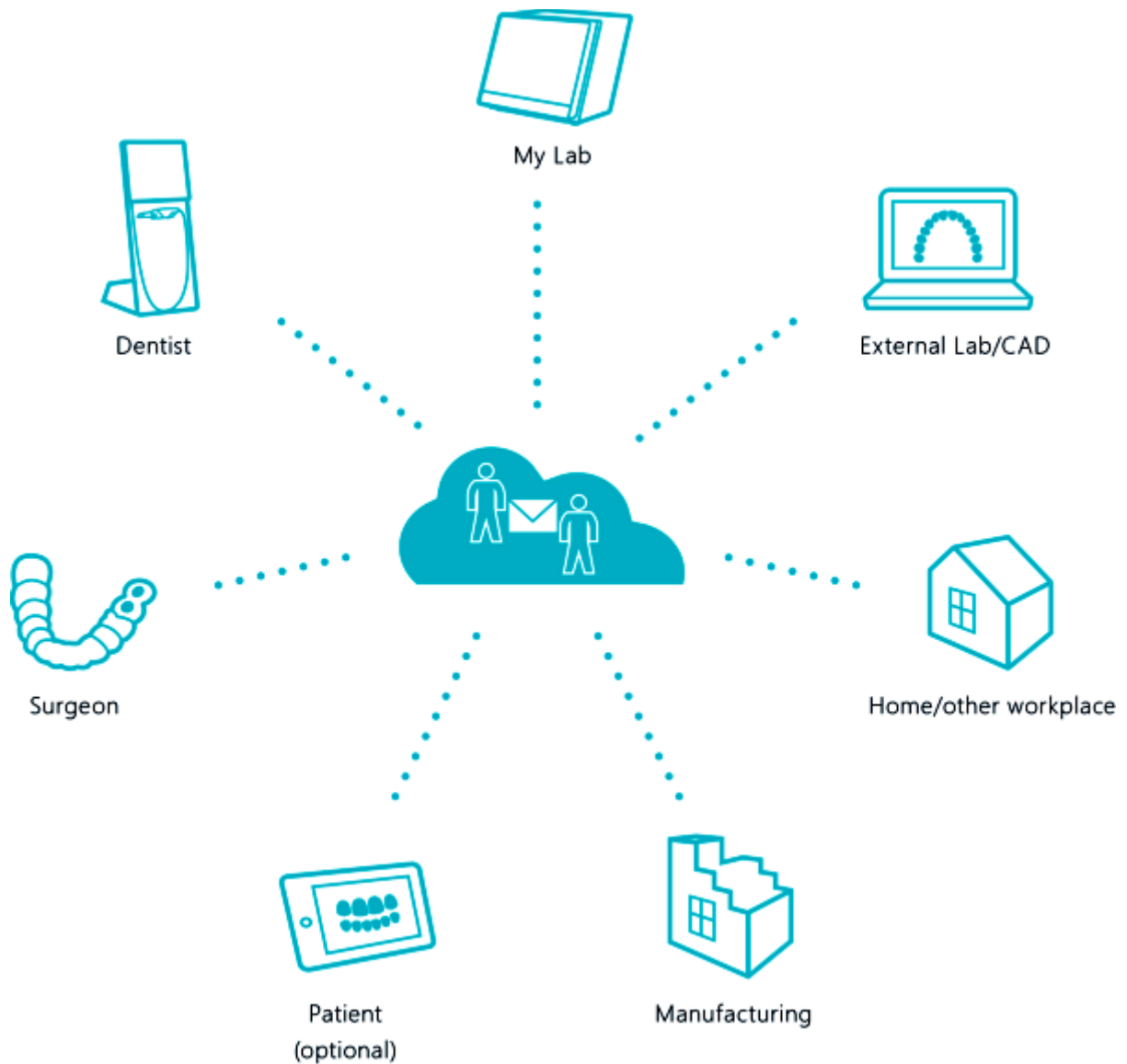
2.9.4. Scan and Design Sharing

Collaboration and joint efforts between lab technicians reach a whole new levels of efficiency when they share scans and designs via 3Shape Communicate™. Convenient tools for uploading and downloading to/from 3Shape Communicate™ make it easy for lab technicians to access their design cases from remote locations, or share them with other colleagues and design services. This option saves time as it omits the need to export and import cases when you want to continue working from another computer or location. Scan and design sharing is supported for all common indications.



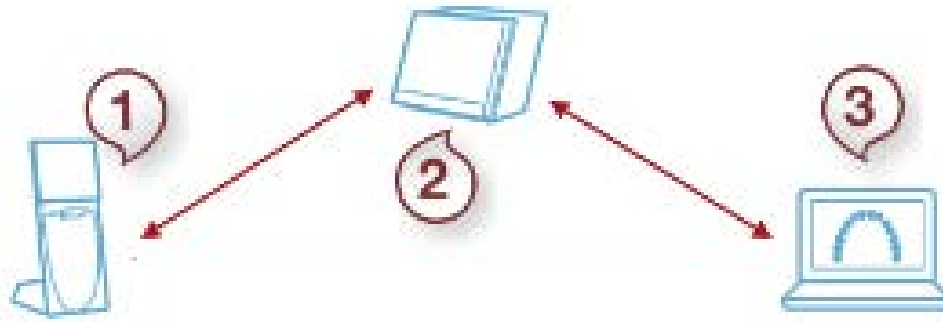
The following subchapters describe three scenarios for how to:

- [Send TRIOS Order to an External Lab](#)
- [Share Gypsum Order with an External Lab](#)
- [Share Design with Home/Other Workplace](#)



2.9.4.1. Send TRIOS Order to an External Lab

This chapter describes how to get an order from your Dentist and forward it to an External Lab.



1. Dentist/Dental Clinic
2. Work Lab
3. External Lab

►Step 1: Register and connect through 3Shape Communicate™

Make sure your Work Lab, Dental Clinic (if you receive TRIOS orders from 3Shape Communicate) and External Lab have 3Shape Communicate™ [accounts](#) and are [connected](#) through [3Shape Communicate](#)™.

►Step 2: Enable 3Shape Communicate integration in Dental System Control Panel

Make sure to enable [3Shape Communicate](#) integration of:
 Your Work Lab in *Dental System Control Panel*->*Tools*->*3Shape Communicate*->*3Shape Communicate Integration*,
 Dental Clinic (if you receive TRIOS orders from 3Shape Communicate) and,
 External Lab in Site Settings of the Dental System Control Panel.

►Step 3: Receive TRIOS order

Accept TRIOS order from dentist and choose an External Lab you want to send the order to from the **External Lab** drop-down list of the order form.

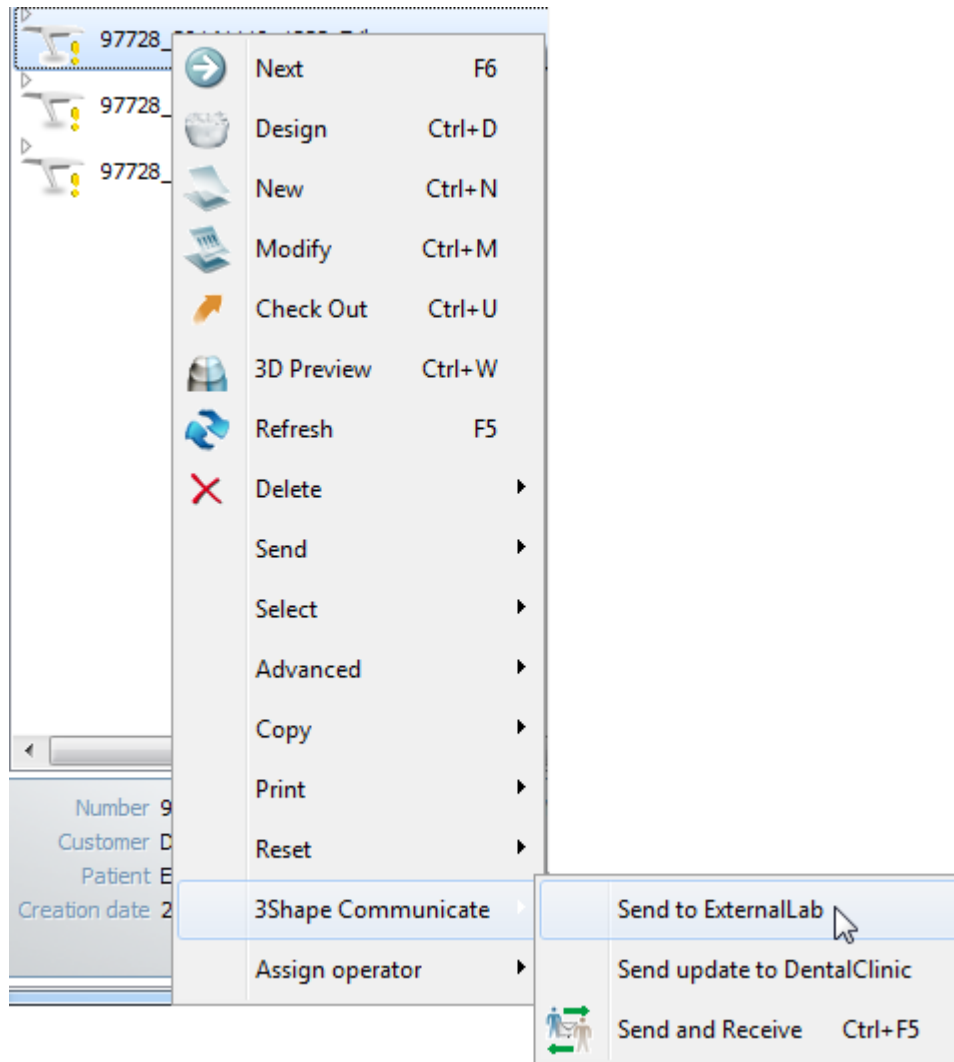
Any information added by the dentist to the order can be viewed in the Comments field and through the **TRIOS** button on the order form.

The screenshot shows the 3shape TRIOS order form. On the left, a 'Comments' window is open, displaying the text 'Please see my comments.' Below it are buttons for '3D Preview' and 'TRIOS'. A red arrow points from the 'TRIOS' button to the 'Comments' field on the main form. The main form includes the 3shape logo, patient information (Dentist name: Dr. Borbely Judit, Patient name: Bekasi Erika, Order number: 44046_121008101724), a dental arch diagram with tooth numbers, and a 'Comments' section with a text input field.

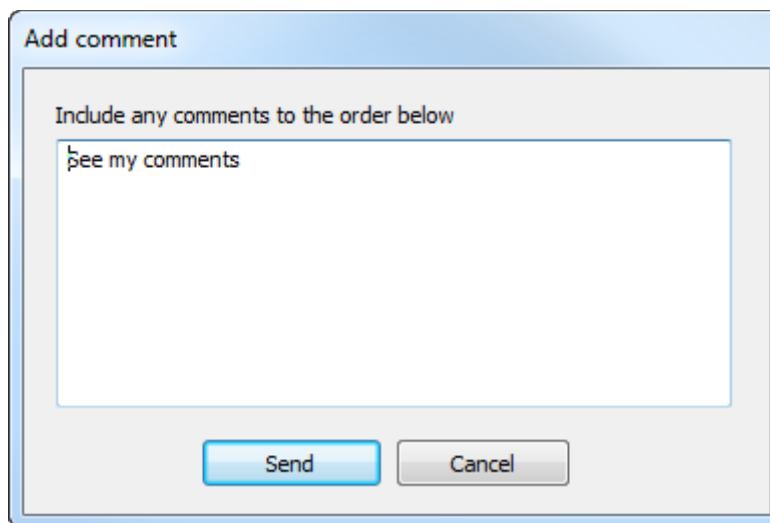
Press **OK** button at the bottom of the order form to accept the order, the order will appear in the Dental Manager order list. You can choose either to design the order first or simply send it to an External Lab and let them do the design and production. In either case, the order has to be forwarded to the External Lab.

► Step 4: Send TRIOS order

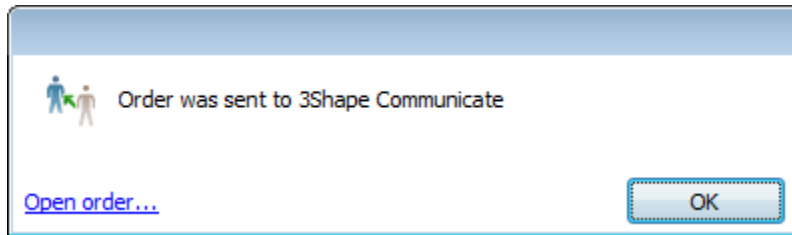
Right-click the order in the Dental Manager order list and select 3Shape Communicate->Send to "External Lab" option, where "External Lab" is the name of the lab you selected in the order form.



Write your message in the appeared *Add comment* window if required and press **Send**.



A pop-up informs you whether the order has been sent successfully.



►Step 5: Receive TRIOS order at External Lab

The order sent from the Work Lab appears in the periodically refreshed 3Shape Communicate Inbox list of the External Lab, you can also manually update the list by

pressing the **Refresh**  button or **F5** key.
Accept the TRIOS order from the Lab.

►Step 6: Design the order

Design the case based on the order indication and save it.

►Step 7: Send back or manufacture the order

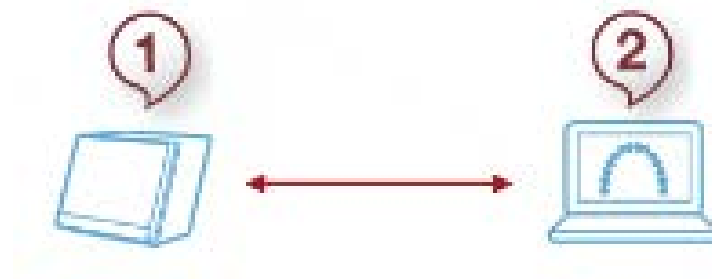
You can either [send](#) the completed design as an update back to the Work Lab, or manufacture the restoration and send it to the Work Lab.

►Step 8: Receive TRIOS order design at the Lab

If an External Lab updates the case, the status of the order is changed in the Dental Manager order list.

2.9.4.2. Share Gypsum Order with an External Lab

This chapter describes how to share in-house scanned and designed gypsum model with an External Lab.



1. Work Lab
2. External Lab

►Step 1: Register and connect through 3Shape Communicate

Make sure your Work Lab and External Lab have 3Shape Communicate [accounts](#) and are [connected](#) through [3Shape Communicate](#).

►Step 2: Enable 3Shape Communicate integration in Dental System Control Panel

Make sure to enable [3Shape Communicate](#) integration of your Work Lab in *Dental System Control Panel*->*Tools*->*3Shape Communicate*->*3Shape Communicate Integration* and External Lab in Site Settings of the Dental System Control Panel.

►Step 3: Create new order

Create new order with gypsum model and choose the External Lab you want to send the order to from the **External Lab** drop-down list of the order form.

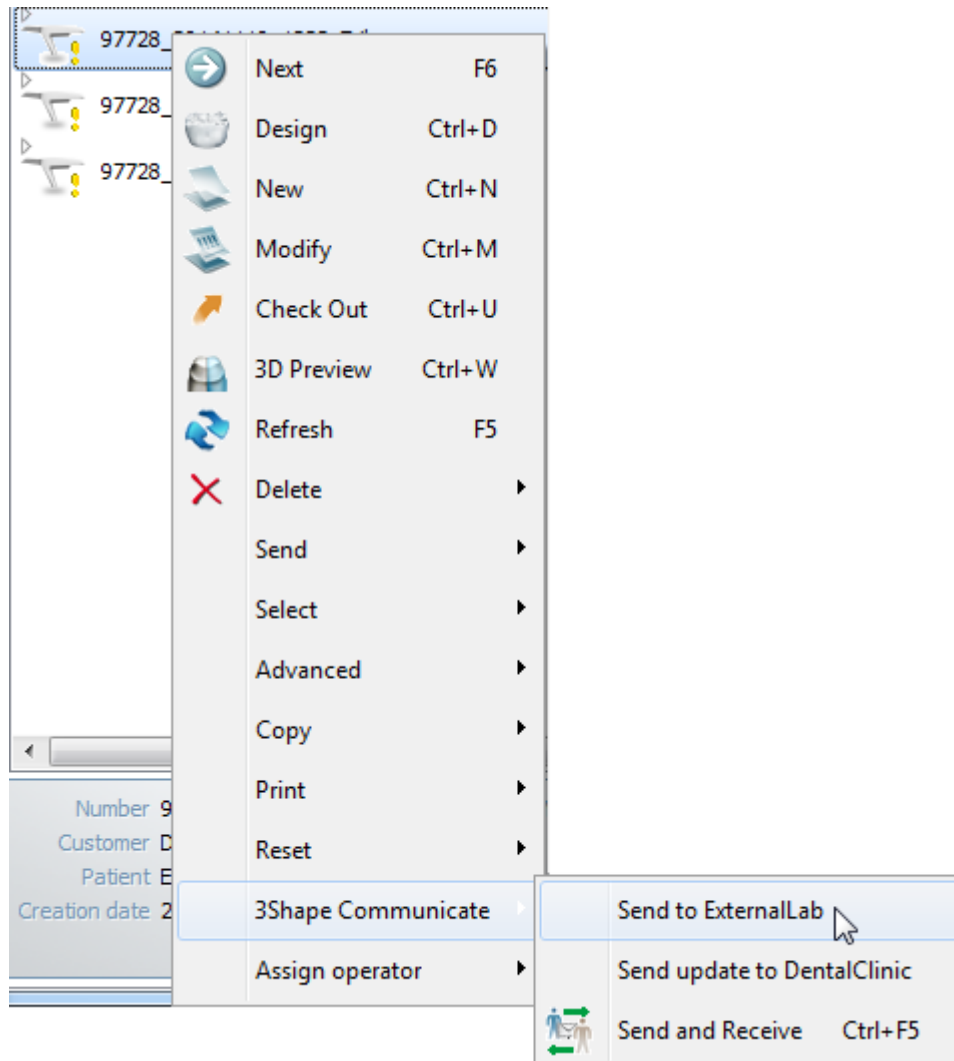
Write comments in the provided field if required.

►Step 4: Scan the model

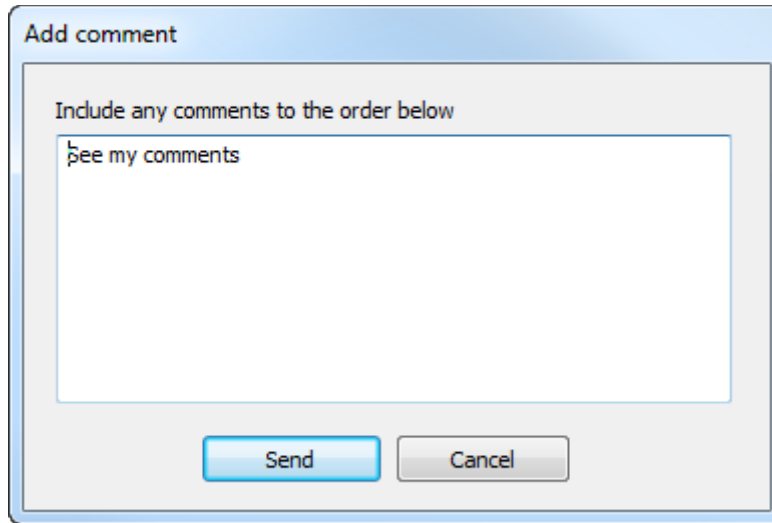
Press the **Scan** button on the order form to run scanning.

► **Step 5: Send the order**

Right-click the order in the Dental Manager order list and select 3Shape Communicate->Send to "External Lab" option, where "External Lab" is the name of the lab you selected in the order form.

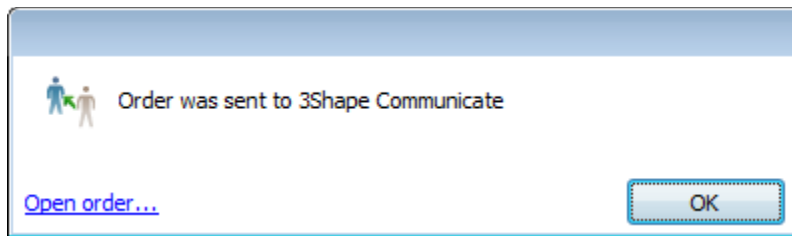


Write your message in the appeared *Add comment* window if needed and press **Send**.



A dialog box titled "Add comment" with a light blue header. Inside, there is a text area with the placeholder text "See my comments". Below the text area are two buttons: "Send" and "Cancel". Above the text area, the text "Include any comments to the order below" is displayed.

A pop-up informs you whether the order has been sent successfully.



A confirmation pop-up window with a light blue header. It contains an icon of two people, one green and one orange, with a checkmark. To the right of the icon, the text "Order was sent to 3Shape Communicate" is displayed. At the bottom left, there is a link "Open order..." and at the bottom right, there is an "OK" button.

►Step 6: Receive the order at External Lab

The order sent from the Work Lab appears in the periodically refreshed 3Shape Communicate Inbox list of the External Lab, you can manually update the list by pressing

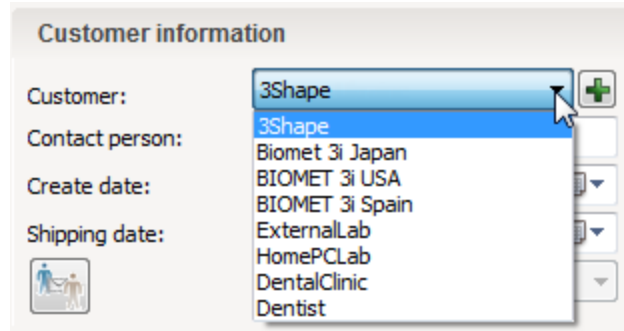
the **Refresh**  button or **F5** key.
Accept the TRIOS order from the Work Lab.

►Step 7: Design order

Design the restoration based on the order indication and save it.

►Step 8: Send the order back

Choose the Lab you want to send the designed restoration to from the **Customer** drop-down list of the order form.



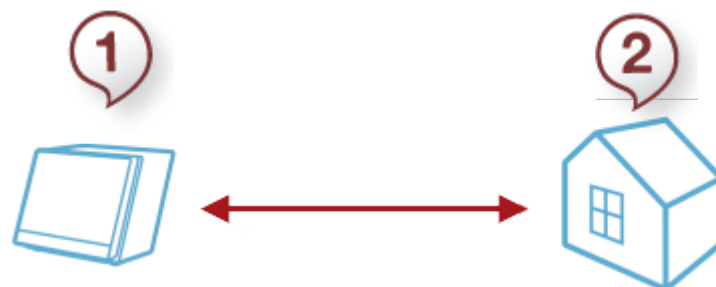
[Send](#) the completed design back to the Work Lab.

►Step 9: Receive TRIOS order design

If an External Lab updates the case, the status of the order is changed in the Dental Manager order list.

2.9.4.3. Share Design with Home PC/Other Workplace

This chapter describes how you can share your design work between your Work Lab, Home PC or other workplace.



1. Work Lab
2. Home PC/Other workplace

►Step 1: Register and connect through 3Shape Communicate

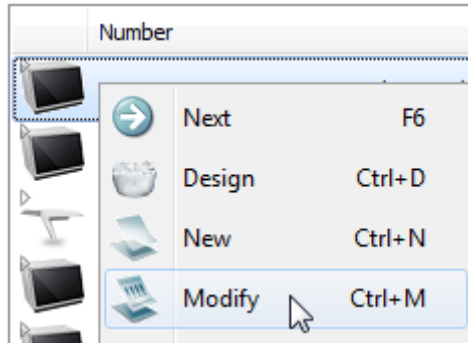
Make sure your Work Lab and Home PC, as other lab, have separate 3Shape Communicate [accounts](#) (you need 2 email accounts) and are [connected](#) through [3Shape Communicate](#). If you have only one dongle, you need to take it with you to be able to work with the Dental System from another location.

►Step 2: Enable 3Shape Communicate integration in Dental System Control Panel

Make sure to enable [3Shape Communicate](#) integration of:
Your Work Lab in *Dental System Control Panel* -> *Tools* -> *3Shape Communicate* -> *3Shape Communicate Integration* and Home PC as another lab in Site Settings of the Dental System Control Panel.

►Step 3: Select Home PC in the order form

In Dental Manager, create a new order or open an existing one through the **Modify** option in the right-click menu

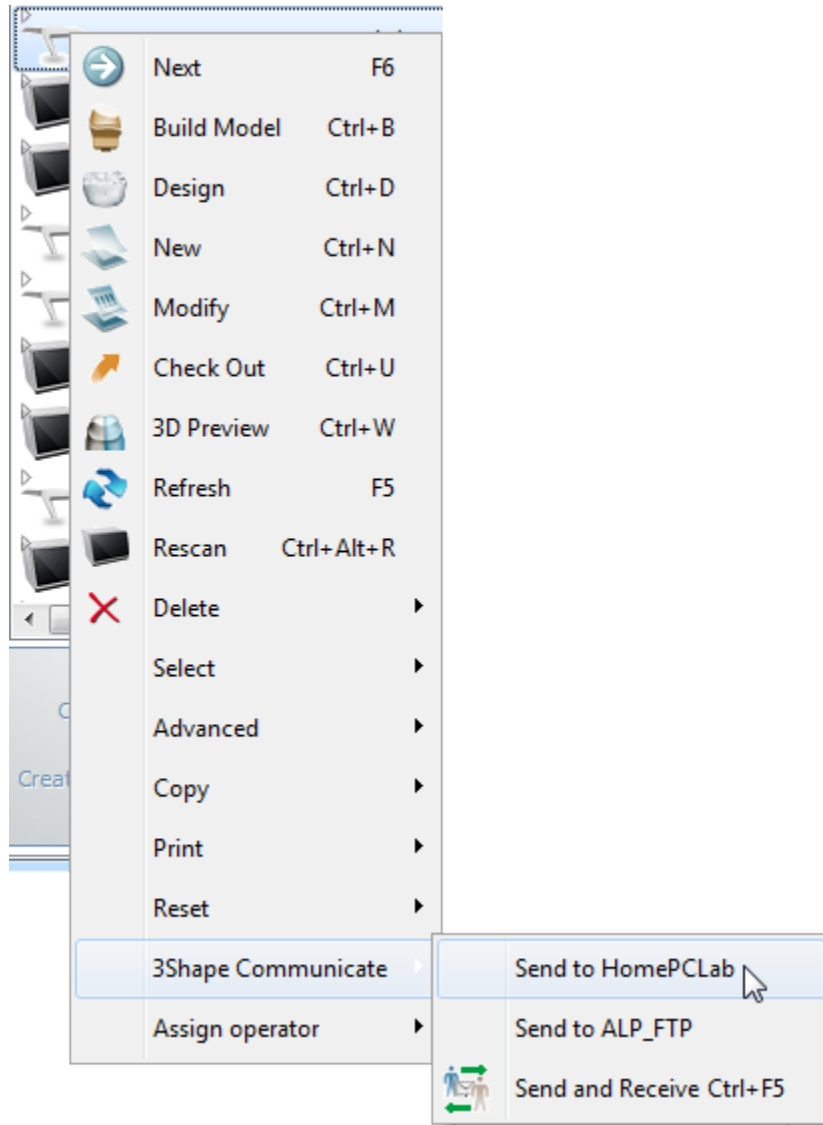


and choose Home PC you want to send the order to from the **External Lab** drop-down list of the order form.

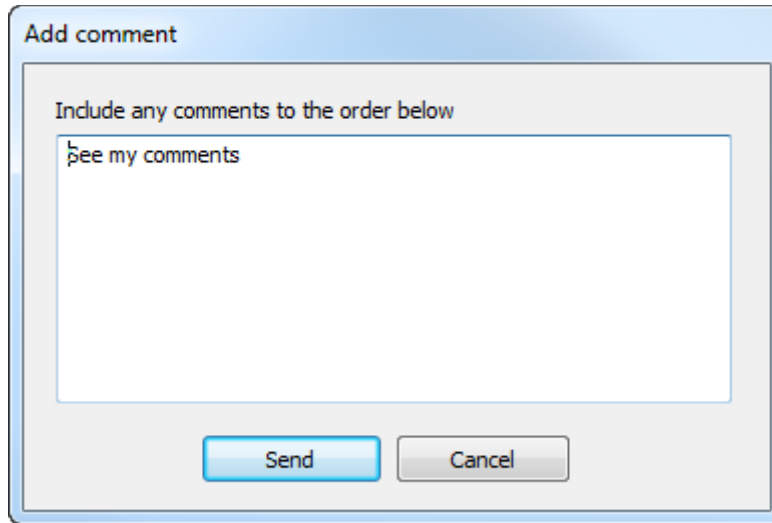
Press the **OK** button at the bottom of the order form to save the order.
Scan models for the new order and start design if needed.

►Step 4: Send order to Home PC

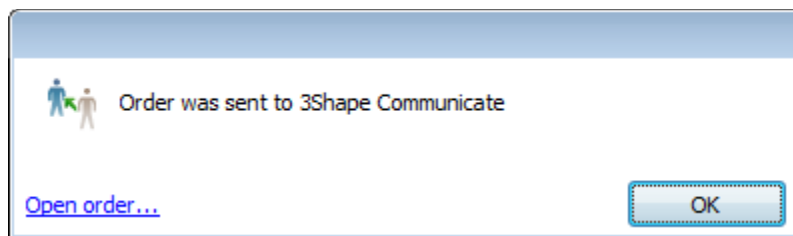
Right-click the order in the Dental Manager order list and select 3Shape Communicate->Send to "Home PC" option, where "Home PC" is the name of the external lab you selected in the order form.



Write your message in the appeared *Add comment* window if needed and press **Send**.




A pop-up informs you whether the order has been sent successfully.



►Step 5: Receive order at Home PC

Make sure to enable [3Shape Communicate](#) integration of:
Your Home PC Lab in *Dental System Control Panel* -> *Tools* -> *3Shape Communicate* -> *3Shape Communicate Integration* and your Work Lab as another lab in Site Settings of the Dental System Control Panel.

The order you sent from the Work Lab appears in the periodically refreshed 3Shape Communicate Inbox list of your Home PC, you can also manually update the list by pressing

the **Refresh**  button or **F5** key. Accept TRIOS order from the Work Lab.

►Step 6: Design order

You can continue working on the design from where you left.

►Step 7: Send order back to Work Lab

Once you have finished designing the case, you can [send](#) the order back to your Work Lab by right-clicking the order in the Dental Manager order list and selecting 3Shape Communicate->Send to "Work Lab" option.


► **Step 8: Receive updated order at Work Lab**

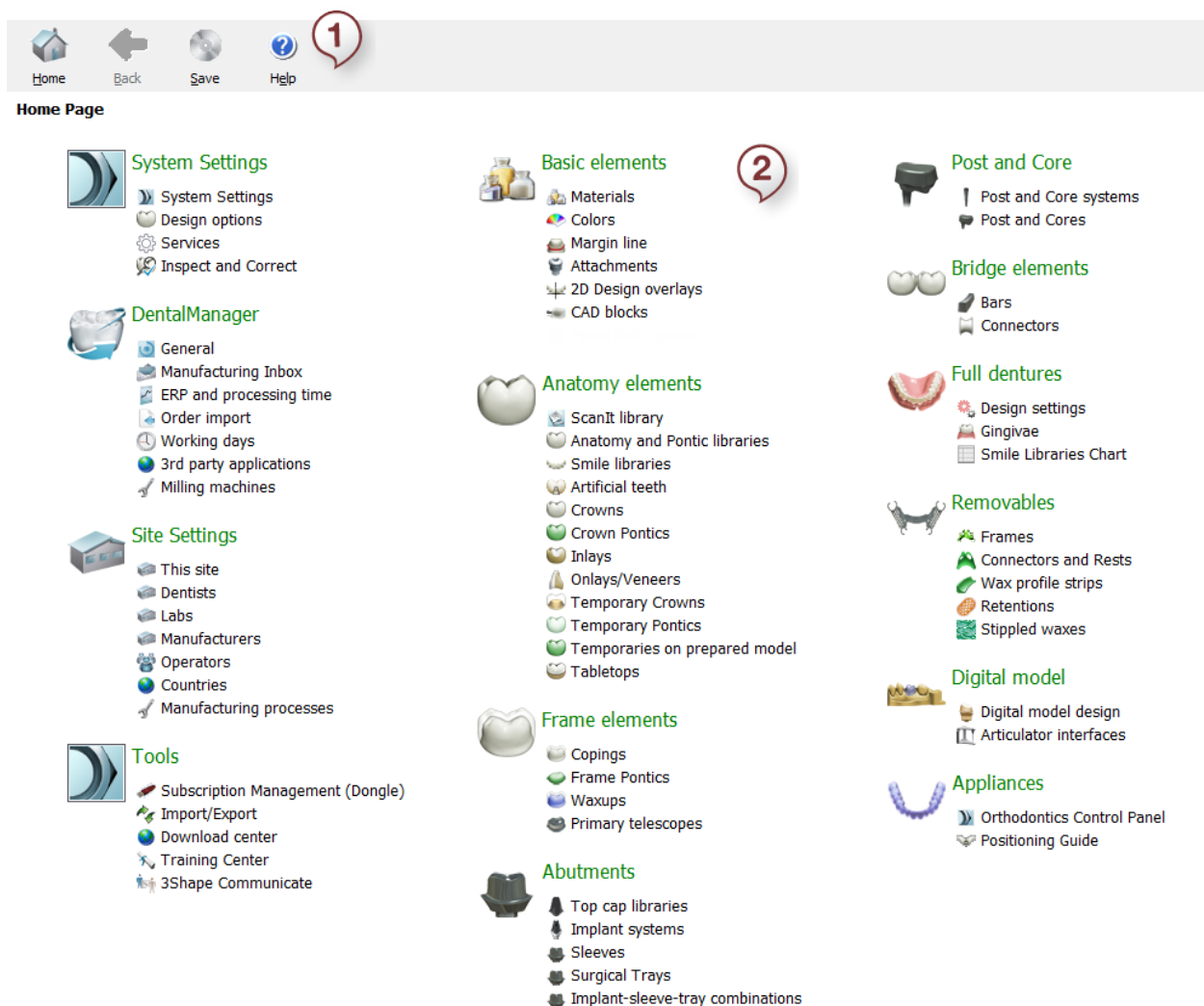
When you update the case, the status of the order is changed in the Dental Manager order list.

3. How Do I Configure

3Shape Dental System Control Panel is an application that enables you to customize the necessary settings to get a fully satisfying performance from the 3Shape Dental System applications.

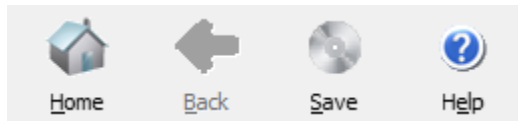
STARTING THE PROGRAM

Dental System Control Panel is started by double-clicking the corresponding icon  either from Dental Manager or from the desktop. Image below illustrates the main window of Dental System Control Panel and its categories:



1. Main menu
2. Main window

MAIN MENU



The four buttons of the main menu perform the following functions:



Home - Brings you back to the home page.



Back - Brings you to the previous page.



Save - Saves current changes.



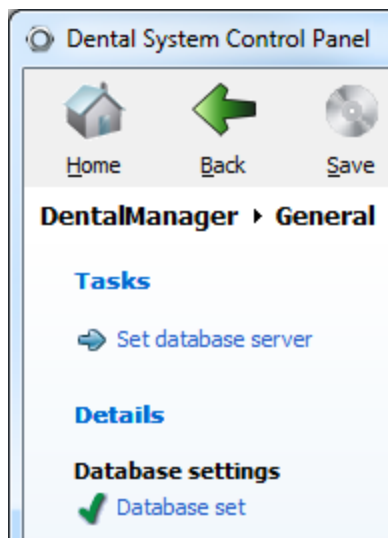
Help - Opens up a user guide.

MAIN WINDOW

The Main window contains five major categories:

- System Settings
- Dental Manager
- Site Settings
- Tools
- Material Settings (consists of 9 categories)

Choose the one you need by left-clicking on it (it will open up and display the necessary settings). The categories are described in details in the following chapters.



Some categories, after you have open them up, display two tabs in the left part of the window: **Tasks** and **Details**:

The **Tasks** tab displays a summary of options and categories located in the Main window.

The **Details** tab shows the installed applications (if there is a red cross instead of a green check-mark next to it, the application was not correctly recognized).

3.1. System Settings



System Settings

- System Settings
- Design options
- Services
- Auto workflow

System Settings must be configured for the Dental System applications to work successfully.

- [System Settings](#)
- [Design Options](#)
- [Services](#)
- [Auto Workflow](#)

3.1.1. System Settings

Before Dental System can be run, it is mandatory to verify locations of Dental Designer, ScanIt Dental, Dental Manager, 3Shape Dongle Service and the location of the orders and output directories. Many of these settings will have meaningful values from the installation/upgrade of Dental System.

If 3Shape Dental System is installed as a shared system at the site, then it is only possible to choose shared network folders for the said applications and output directories.


The *System Settings* window contains the following tabs:

- **Dental Designer**

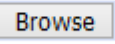
To allow Dental System Control Panel to communicate with Dental Designer, it must know the location where the Dental Designer is installed. The location is usually correctly specified, but if changes are required, click on the **Browse** button to open a file tree and locate the application in its installation directory. The Dental Designer tab should now have the location set correctly.

To enable automatic saving of an open order, select the **Use auto save during modelling** checkbox and specify saving intervals.

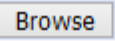
System Settings

DentalDesigner 

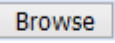
DentalDesigner is currently installed in

C:\Program Files\3Shape\DentalDesigner\ 

DentalDesigner 2016 legacy version is currently installed in

C:\Program Files\3Shape\DentalDesigner2016-1\ 

DentalDesigner 2017 legacy version is currently installed in

C:\Program Files\3Shape\DentalDesigner2017-1\ 

Auto save interval minute(s)

☒ Use auto save during modelling

Help windows` display second(s)
time

The locations of other installed applications are specified the same way as for the Dental Designer.

ScanItLibrary
^

ScanItLibrary is currently installed in

C:\Program Files\3Shape\ScanItLibrary\
Browse

ScanItDental
^

ScanItDental is currently installed in

C:\Program Files\3Shape\ScanItDental\
Browse

ModelBuilder
v

ImplantStudio
v

Splint Studio
v

FaceIt
v

DentalManager
v

CAMbridge
v

Orthodontics Control Panel
v

Appliance Designer
v

3D Viewer
v

- Dental System behavior**

To block [material mapping](#) during order import, select the **Design center** checkbox. When selected, only materials from original orders are used during design, while materials defined in Dental System have no impact.

Dental System behaviour
^

☒ Design center

If checked, Dental System will behave as a design center. Any imported order will be designed having no interaction with Dental System materials. Local order materials, received from Lab will be used.

- **Data Output Directories**

In 3Shape Dental System, the order data and the production data are placed in two separate locations. The order data folder only contains files used internally by 3Shape Dental System applications, whereas the production data folder (manufacturing output) contains modeled files used for further processing by CAM. The content of the production folder can be reproduced based on the content of the order folder.

The applications must know where to save orders and output models. To specify the directories to which orders and output models are saved, click the **Browse** buttons to open up a file-tree and choose directories.

In case you need to handle a big amount of orders every day, saving all orders to one folder might influence on the performance of your computer. That's why you can set up to create daily subfolders inside the main order folder. To do so, select the **Use daily directories under order directory** checkbox. Therefore, if you created orders yesterday and today, for example, two separate subfolders will be created, containing orders from today and the day before.

If for some reason you decide to disable the daily folders creation, the previously created orders saved to the daily subfolders will not be visible in Dental Manager. To be able to view them, select the **Show orders from daily directories** checkbox. This is not recommended, since it might slow down the processing of orders in Dental Manager.

Data output directories

Order directory is currently installed in

c:\3shape\

Browse

Use daily directories under order directory

☐

Show orders from daily directories (not recommended)

☐

Manufacturing output directory is currently defined as

c:\3Shape\ManufacturingDir\

Browse

Save DentalDesigner manufacturing output to separate directory

☒

Save DentalDesigner manufacturing output to material named subdirectories

☐

Automatically generate visualization output for all orders

☐

Visualization output folder

c:\3Shape\ManufacturingDir\Visualization output

Browse

Visualization output file type

Raw STL

Visualization output order format

3Shape Communicate

The order directory must be a shared network folder if a shared installation is made. You must have write access to both the order data directory and the production data directory.

The corresponding checkboxes provide the possibility to organize the location of the manufacturing output files in different ways. The **Save Dental Designer manufacturing output to separate directory** checkbox specifies whether the manufacturing files should be placed in a subfolder named according to the order file or if the manufacturing files for all orders should all be placed in the same output folder.

The **Save Dental Designer manufacturing output to material named subdirectories** checkbox gives the possibility to place all manufacturing files inside a folder named according to the selected material.

- **Order Form Settings**

In the Order Form Settings, you can decide what information should be visible or editable in the Order Form and define order identification (naming) template.

For each information item you click the **Visible** checkbox to make the information visible on the Order Form and the **Enabled** checkbox to make it editable through the Order Form. If a whole group of information (e.g., Lab information) is set to non-visible, the information items in that group (i.e. Lab operator) will all be invisible in the Order Form.



Note! Some check boxes are disabled. These are mandatory and cannot be changed.

You can also define a naming template for the identification of each order. This identification will be the name of both the order data folder and the production data folder.

The template consists of up to 11 fields (see the image below), each specifying a substring in the name in the chosen sequential order, e.g., **Date**, **Time**, **Operator**, **Consecutive number**, etc. Please see the chapter [Order Information](#) for more details.

Order Form settings



Check items to be visible and / or enabled in the order form

	Visible	Enabled
Lab information	<input checked="" type="checkbox"/>	
Lab operator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Client information	<input checked="" type="checkbox"/>	
Client	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Contact person	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Creation date	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Delivery date	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shipping date	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Receive date	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clinic order no	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Delivery type	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ship to different address	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Patient information	<input checked="" type="checkbox"/>	
Last name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
First name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reference	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Clinical photos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clinical videos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Comments	<input checked="" type="checkbox"/>	
Order settings	<input checked="" type="checkbox"/>	
Order number	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
External order number	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Source ID	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Order importance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Additional Order Options](#) allow you to add custom fields to appear in the order form. Each field can contain a choice of options selectable via a drop-down menu in the order form.

Additional Order Options

New field 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
New field 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
New field 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
<input type="button" value="Add"/>				

Press the **Edit** button next to the corresponding additional order option to configure the parameters.

Edit order option

Caption
New option

ID
DS_CustomizableField1

Default value

Allowed values

+ Add
↩ Edit
✖ Delete
➡ Make default

☐ Mandatory Selection

Materials

☐ All

☐ Ti
☐ PMMA
☐ CoCr
☐ Model Material
☐ DREVE FotoDentModel ...
☐ 3D Systems Visijet
☐ Prefab crown
☐ Ti (BIOMET 3i PBG)
☐ TiNi (BIOMET 3i PBG)
☐ Zirkon (BIOMET 3i PBG)
☐ Katana Zirconia ML

Indications

☐ All

☐ 3D Bite Plate
☐ Abutment
☐ Abutment bridge
☐ Abutment Waxup
☐ Anatomical Abutment
☐ Anatomical coping
☐ Anatomical Post and Core
☐ Anatomy bridge
☐ Antagonist model
☐ Artificial Tooth
☐ Bar

OK
Cancel

You can define template for the order ID generation for each field in the provided form.

Define template for order-ID generation

Use local ID for incoming order (TRIOS)

Order-ID template field 1:	External OrderId	using	All	characters	where spacing string is	_
Order-ID template field 2:	Operator	using	All	characters	where spacing string is	_
Order-ID template field 3:	Dentist	using	All	characters	where spacing string is	_
Order-ID template field 4:	Patient last name	using	All	characters	where spacing string is	_
Order-ID template field 5:	Patient first name	using	All	characters	where spacing string is	_
Order-ID template field 6:	Random number	using	All	characters	where spacing string is	_
Order-ID template field 7:	External OrderId	using	All	characters	where spacing string is	_
Order-ID template field 8:	Consecutive Number	using	All	characters	where spacing string is	_
Order-ID template field 9:	Fixed String	using	All	characters	where spacing string is	_
Order-ID template field 10:	Unspecified	using	All	characters	where spacing string is	_
Order-ID template field 11:	Unspecified	using	All	characters	where spacing string is	_

Default settings


Consecutive Number - When selected, adds to the order ID a six-digit number, that goes up successively every time a new order is created, e.g., 000001, 000002, etc. You can set the increment by modifying the field ConsecutiveNumberIncrement in the file *OrderFormCustomization.xml*, that can be found in the Dental System Control Panel folder. Be careful not to modify anything else.

If you need to change what the next consecutive number is, modify the file *ConsecutiveNumber.txt*, that can be found in a subfolder to where the orders are stored, e.g., in *C:\3Shape\3Shape\DentalSystem\Keys*.

Fixed String - You can set the fixed string modifying the field ConstantOrderIDString in the file *OrderFormCustomization.xml*, that can be found in the Dental System Control Panel folder.

- **Internet Connection**

If a proxy server is used at the current site (the **Use proxy** checkbox is selected), then you should specify the proxy settings in the provided fields.

Internet connection 

☒ Use FTP command "HOST"

☒ Use proxy

Proxy type


Proxy host

Proxy port

Proxy username

Proxy password

- **Miscellaneous**

Miscellaneous 

Language

User Manual Language

Technical Documentation Language

Tooth index system

Background type

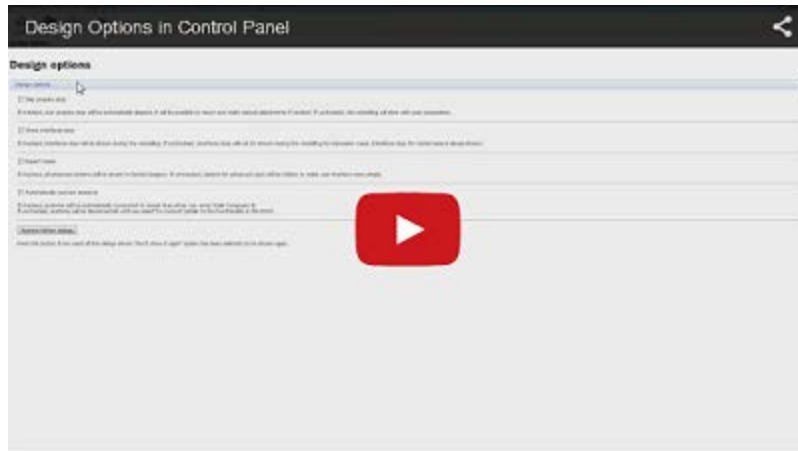
From the **Language** drop-down menu, you can choose between the available languages of the user interface for all applications.

Choose the **User Manual** and **Technical Documentation** language if previously downloaded during installation or from [Download center](#).

From the **Tooth index system** drop-down menu, you can specify the type of notation to be displayed in all Dental System applications.

The **Background type** allows you to define the background scheme.

3.1.2. Design Options



The Design Options page lets you choose the desired application behavior during the modeling process.

Design options

Design options

☐ Skip prepare step

If checked, scan prepare step will be automatically skipped, it will be possible to return and make manual adjustments if needed. If unchecked, the modelling will start with scan preparation.

☒ Show interfaces step

If checked, interfaces step will be shown during the modelling. If unchecked, interfaces step will not be shown during the modelling for impression cases. Interfaces step for model cases is always shown.

☒ Expert mode

If checked, all advanced options will be shown in Dental Designer. If unchecked, options for advanced users will be hidden to make user interface more simple.

☒ Automatically connect anatomy

If checked, anatomy will be automatically connected to margin lines when you enter Smile Composer ®. If unchecked, anatomy will be disconnected until you select to connect (similar to the functionality in DS-2014)

☒ Use new margin line detection algorithm

If checked, new margin line detection algorithm will be used for initial margin line detection for crowns and copings, ignoring the green control points.

☐ Simple connection to margin line

If checked, the crown will be connected in a simple way, without applying the extra smooth.

☒ Use new "Enforce minimum thickness" algorithm

If checked, the improved "Enforce minimum thickness" algorithm will be used.

☐ Simple initial placement of a smile library

If checked, Smile Composer ® will do the positioning with no individual teeth placement, so teeth will appear according to the smile library setup.

☒ Margin line local cross section

If checked, the curvature area around margin line will be displayed while drawing. This option can also be controlled during design in the line popup menu.

Restore hidden dialogs

Press this button if you want all the dialogs where "Don't show it again" option has been selected to be shown again.

By selecting **Skip prepare step**, you will skip the [Prepare](#) step in Dental Designer and will start your design from the next step in the workflow bar. This is only relevant for digital impressions, such as TRIOS scans. You can choose to go into the skipped step while designing anyway by clicking the corresponding icon in the workflow bar.

If you don't want to set the interface parameters and you prefer to skip the [Interfaces](#) step to go straight to the next step in the workflow bar, deselect **Show interfaces step**. Remember that drill compensation and cement gap will be applied automatically.

If you are an advanced user of Dental Designer, you can select **Expert mode** and use all advanced options of the software by clicking the corresponding icon in the [Viewing tools](#) bar. However, if you are a beginner, you can deselect this option and make the user interface simpler for you. You can always change the mode in Dental Designer if you like.

Selecting the **Automatically connect anatomy** option will automatically connect the anatomy to the margin line once you are in the [Anatomy design](#) step. If the option is deselected, the anatomy stays disconnected from the margin line during the design process until you connect it in [Smile Composer](#).

When selected, **Use new margin line detection algorithm** enables a new mechanism of initial margin line detection for crowns and copings at the [Interfaces](#) step, ignoring the green control points of insertion direction and taking into account instead only the annotation point.

The **Simple connection to margin line** option allows you to connect the design to the margin line without applying extra smoothing to the anatomy near the margin line, keeping the design maximally unchanged. You can enable and disable this option any time during the design process in [Smile Composer](#).

When selected, **Use new "Enforce minimum thickness" algorithm** enables an enhanced mechanism of [enforcing minimum thickness](#) on the anatomy, which results in a smarter material built-up.

When you don't need a smile library to adjust to the teeth individual position in [Smile Composer](#), select **Simple initial placement of a smile library** so that a smile library on teeth appears according to its initial setup.

When selected, **Margin line local cross section** visualizes a graph with the curvature area around the margin line while drawing for optimal margin line placement. You can enable and disable this option any time from the right-click menu when [placing the margin line](#).

To show the dialogs and warnings during the design process once disabled by selecting 'Don't show it again', click the **Restore hidden dialogs** button.

3.1.3. Services

The **Services** page contains settings for controlling notifications about software and material updates. It also lets you open the Backup settings application, where you can configure 3Shape Dental Backup Service and do backups manually.

Services

Dental System Update Service

Update policy

Ask before download

If 'Ask before download' option is selected then the software will check the new version of Dental System on the server and offer to download and install it. Otherwise, the new version will be downloaded automatically and the user will be asked to start the installation.

Reminder interval (in hours)

24

Please, choose how often the software should remind the user that a new version is available.

Materials Update Service

Reminder interval (in hours)

2

Please, choose how often the software should remind the user that new materials are available.

Dental System Backup Service

Backup settings application allows to configure 3Shape Dental Backup Service and do additional backups manually. Dental System Control Panel will be automatically closed

Open backup settings

Choose **Ask before download** if you want to be notified before downloading and installing a new version of Dental System. The **Auto download** option allows for automatic download, yet still asking you to start the installation.

In the corresponding edit boxes, specify intervals of reminders about a new software version and materials available.

3.1.4. Auto Workflow

On this page, define the auto placement settings for [automatic order design](#) and enable/disable the Fast order redesign option.

Auto workflow

This functionality allows to design a case from Dental Manager automatically. It works for single crowns and copings. Operations that can be applied during modelling are listed below. Please note, that it works better for cases where the desired restoration has well scanned neighbour teeth. In case autoplacement is chosen, molar teeth will be positioned better than anteriors due to specifics of this tool.

☒ Crown auto placement

If checked, Crown auto placement will be performed during the automatic design.

☐ Precise cut to antagonist 0.05 mm

If checked, Precise cut to antagonist will be performed with a specified value during the automatic design.

☒ Desired cut to antagonist 0.05 mm

If checked, Desired cut to antagonist will be performed with a specified value during the automatic design.

☒ Cut to neighbours 0.05 mm

If checked, Cut to neighbours will be performed with a specified value during the automatic design.

Fast order redesign

☒ Fast order redesign

This option will allow to redesign orders with minimum rebuild, keeping previous design. This will require additional disc space for storing cached files.

☒ Cache Prepare step

- **Inspect and Correct**

With the **Crown auto placement** check box, enable or disable auto placement for automatic order design.

To cut intersections with the antagonist [without preserving the contact area shape](#), select the **Precise cut to antagonist** check box and enter a distance to the antagonist.

To cut intersections with the antagonist and [preserve the contact area shape](#), leave the **Desired cut to antagonist** check box selected and enter a distance to the antagonist.



Note! If you select both the **Precise cut to antagonist** and **Desired cut to antagonist** check boxes, the last option will not be applied.

To cut intersections with the neighbor teeth, leave the **Cut to neighbours** check box selected and enter a distance to the neighbor teeth.

- **Fast order redesign**

To preserve an intermediate stage of your design and resume your work from the step it was saved, select the **Fast order redesign** check box.



Note! Before enabling the **Fast order redesign** option, ensure you have additional disk space for storing cached files.

To save the cache file for the Prepare step, enable the **Cache Prepare step** check box.



Note! The **Cache Prepare step** option can be enabled only if the **Fast order redesign** check box is selected.



Note! When enabling the **Cache Prepare step** option, consider that additional disk space for storing cached files is required.

3.2. Dental Manager



DentalManager

- General
- Manufacturing Inbox
- ERP and processing time
- Order import
- Working days
- 3rd party applications
- Milling machines

Dental Manager category contains settings for customizing 3Shape Dental Manager.

Depending on the dongle configuration **Manufacturing Inbox** (an Add-on to Dental Manager) can be available or unavailable. Image to the left illustrates this category with **Manufacturing Inbox** present.

Six Dental Manager subcategories are described further in details:

- [General](#)
- [Manufacturing Inbox](#)
- [ERP and Processing Time](#)
- [Order Import](#)
- [Working Days](#)
- [3rd party applications](#)
- [Milling Machines](#)

3.2.1. General

The **General** subcategory contains general Dental Manager settings described in details below:

- Database settings

General

Database settings

Current database server

UPC120\threeshapedental

This PC

Browse

Database name

DentalManager

User login

sa

Password

••••••••

Default settings

Test connection

Show limited number of orders

☐

Number of visible orders

200

The database server can be setup manually with the **Browse** button or **Set database server** link located in the upper left corner of the window. Click **This PC** button if the database is installed on the local computer.

Click **Default settings** button to add the default instance name (*threeshapedental*), as well as **Database name**, **User login** and **Password**.

The database connection can be verified by clicking the **Test connection** button. A green check-mark appears next to the button in case of a successful connection.

Selecting the **Show limited number of orders** check-box allows to define the default number of visible orders.

A smaller amount of the displayed orders improves the overall performance of the application. Specify the **Number of visible orders** in the provided field.

- Send options

Send Options

Send Patient Name

☐

FTP backward compatibility

☒

Send customer information

☒

Send Patient Name - when selected, the name of a patient is sent to the manufacturer together with an order. If not then the patient name is removed from the sent order file.

FTP backward compatibility - when selected, Dental Manager immediately sends an unencrypted file to the FTP server; if it is not selected, then Dental Manager first checks with the FTP server whether it supports encrypted files, and if it does - the file is sent as encrypted, if it doesn't - the FTP server gets an unencrypted file.

Send customer information – when selected, the information about a customer (dentist) specified in the Order form is sent to the manufacturer together with the order. Otherwise, the customer information is removed from the sent order file.



Note! Some FTP servers fail receiving encrypted files, therefore it is recommended to select the **FTP backward compatibility** checkbox to avoid such problems.

- **Order import**

Order import

Import material mapping

Item type	Imported material ID	Replacement material ID
-----------	----------------------	-------------------------

Delete

When a dental lab sends an order to the central manufacturing center, the manufacturing center has ideally already exported its material settings to the lab (please see [Labs](#) chapter for more information). In this case the lab can create an order which matches the manufacturer center settings (e.g. with regards to materials, manufacturing processes, coping thickness, etc.).

However, if the order sent from the lab is not based on the materials imported from the manufacturer center, then the manufacturer needs to perform **Import material mapping** when the order arrives at the 3Shape Dental Manager Inbox. This means the manufacturer needs to define, for instance, which of his own materials corresponds to the material defined at the lab. This mapping is stored, so the manufacturer does not need to do the same mapping the next time the lab sends a similar order, and this part of Dental System Control Panel lists these previously stored mappings (showing **Imported material ID** and **Replaced material ID**). The manufacturer can delete selected mappings by pressing **Delete** if necessary.

- **Brand name**

Brand name	Tooth element types
<input type="text"/>	

TRIOS orders give dentists the option to use **Brand names**. When arriving orders contain brand names predefined at the receiving site, in Dental System Control Panel, they indicate materials mapped to those brand names. The lab has the option either to add brand names preliminary or during import as described in [3Shape Communicate Order Exchange](#) chapter.

- ERP interface (file) configuration

These settings control the automatic and manual export to ERP in Dental Manager.

ERP interface (file) configuration

Default ERP format: 3Shape Communicate Order Exchange (3OX ver. 2.0)

Generate CAM with ERP: ☐

Enable automatic ERP: ☒

ERP output directory: c:\3Shape\ERP

Output ERP on received in Inbox: ☒

Default ERP format - an output format of the ERP (see details below):

1. ERP (<2010 format)
2. UDX
3. 3Shape Communicate Order Exchange (3OX ver. 1.0)
4. 3Shape Communicate Order Exchange (3OX ver. 2.0)

Generate CAM with ERP - When selected, the CAM files are generated and the ERP file contains references to the generated CAM files. This option is used for both the Inbox orders and the manual ERP generation (Export->ERP).

Enable automatic ERP - When selected, the ERP output is generated to the ERP output directory for the incoming Inbox orders.

ERP output directory - Available only when the **Enable automatic ERP** checkbox is selected. It is a folder where the ERP is generated for the incoming Inbox orders.

Output ERP on received in Inbox - Available only when the **Enable automatic ERP** checkbox is selected.

- When it is ON, the ERP is generated as a part of communication with the third-party system for all new incoming orders. For the new Inbox orders, the ERP file is

generated to the ERP output directory and this file is processed by the third-party system.

- When it is OFF, then ERP is generated when an order is being accepted.

The ERP formats are described below:

1. ERP (<2010 format)

The screenshot shows the 'ERP interface (file) configuration' dialog box. It has a title bar with the text 'ERP interface (file) configuration'. Inside, there are five settings:

- Default ERP format:** A dropdown menu showing 'ERP (<2010 format)'.
- Generate CAM with ERP:** A checked checkbox.
- Enable automatic ERP:** A checked checkbox.
- ERP output directory:** A text field containing 'c:\3Shape\ERP' and a 'Browse' button to its right.
- Output ERP on received in Inbox:** An unchecked checkbox.

For this format, the **Generate CAM with ERP** checkbox is always selected and cannot be disabled.

- **Output ERP on received in Inbox - ON**

When the checkbox is selected, the **<OrderID>_rec.xml** file is generated to the ERP output directory. The process might take some time to complete. The **rec.xml** file will contain the references to the generated CAM files, which are located in the **<Inbox>\<OrderID>\CAM** folder.

With the **rec.xml** file and the CAM files, the third-party system can analyze the order and send instructions to Dental Manager whether to accept or reject the order. Dental Manager checks the ERP output folder for new files from the third-party system and responds accordingly - accepts or rejects the order automatically by placing another xml file (e.g. **<OrderID>.con** or **<OrderID>.upd**) to the ERP output directory. The corresponding track and trace messages are sent to the lab.

- **Output ERP on received in Inbox - OFF**

If the checkbox is disabled, the ERP file is generated only when a user accepts the order manually or when the order is being accepted automatically in the Inbox (with the **Auto Accept** option enabled in [Dental System Control Panel](#)).

2. UDX/3Shape Communicate Order Exchange (3OX ver. 1.0)

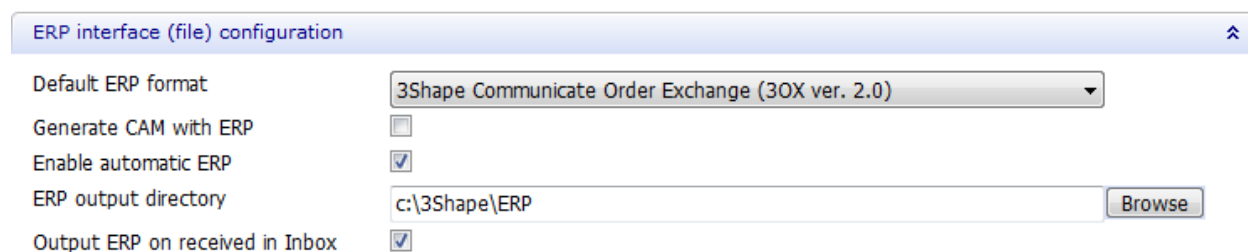
The screenshot shows the 'ERP interface (file) configuration' dialog box. It has a title bar with the text 'ERP interface (file) configuration'. Inside, there are five settings:

- Default ERP format:** A dropdown menu showing 'UDX'.
- Generate CAM with ERP:** An unchecked checkbox.
- Enable automatic ERP:** A checked checkbox.
- ERP output directory:** A text field containing 'c:\3Shape\ERP' and a 'Browse' button to its right.
- Output ERP on received in Inbox:** An unchecked checkbox.

For these formats, the **Generate CAM with ERP** checkbox is always unselected and cannot be enabled.

Even though the **Output ERP on received in Inbox** checkbox is available for these two formats, the files from the third-party system are not processed. Which makes it a one-way communication, where Dental Manager only outputs the ERP file to the ERP output directory.

3. 3Shape Communicate Order Exchange (3OX ver. 2.0)



ERP interface (file) configuration

Default ERP format: 3Shape Communicate Order Exchange (3OX ver. 2.0)

Generate CAM with ERP: ☐

Enable automatic ERP: ☒

ERP output directory: c:\3Shape\ERP

Output ERP on received in Inbox: ☒

For this format it is possible to enable/disable all options.

By default, the **Generate CAM with ERP** is disabled, but you can enable it if you need the CAM output to be generated with the ERP.

- **Output ERP on received in Inbox - ON**

When the checkbox is selected, the **<OrderID>.3ox** file is generated to the ERP output directory.

This option is used when it is necessary to automate the processing of orders in Inbox with the third-party system software. In this case, the ERP is used for communication with the third-party system.

- **Output ERP on received in Inbox - OFF**

If the checkbox is disabled, the ERP file is generated only when a user accepts the order manually or when the order is being accepted automatically in the Inbox (with the **Auto Accept** option enabled in [Dental System Control Panel](#)).



Note! You can also export the ERP files manually - see chapter [Order Export](#) for details.

- **DDX**

DDX	
Address	www.ddxstaging.com
Address secondary	hvl.ddxstaging.com
Public key	3036a4a0294ac6757256b64077e4c9
Private key
Address sublocation	practice_portal
Email	agentSmith@bigworld.net
Password

With 3Shape Dental System software you can [import](#) and [export](#) orders from/to the third party application, and a web location running the DDX service is one of them. Enter the required information into the fields of the **DDX** section for the successful import/export.

- **E-mail settings**

Email settings ⬆	
When these settings are enabled, Dental Manager will send email notification if manufacturing output for some reason fails	
Enabled	<input checked="" type="checkbox"/>
Send to (seperated by ";")	johnntest@test.com
Sender Name	John Doe
Sender Email	johndoe@test.com
<hr/>	
Outgoing mail server (SMTP)	
Host	mail.test.com
Port	25
User login	johndoe
Password
Outgoing server uses authentication	<input checked="" type="checkbox"/>

Enable the E-mail settings if you want Dental Manager to send a notification to the specified e-mail address in case the manufacturing output fails. Enter the required information into the fields as shown on the image above.

A powerful extension to the 3Shape Dental System is the ability to share one common database among several computers which improves capacity and efficiency. A typical example is when one scanning PC and one design PC are working simultaneously. To setup a common database, both computers need to be configured to point to the same database setup.



Note! A shared database normally requires a common 3Shape Dongle Service and a shared (Server) installation.

- **Automatically close orders**

When an order has been modeled and/or sent to manufacturing, it is recommended to close it, so it is more convenient to search and handle orders in the Dental Manager order list. You can close the order manually (see chapter [Closing Orders](#) for details) or enable the **Automatically close orders** parameter in the Control Panel.

Automatically close orders

When these settings are enabled, Dental Manager will close designed orders automatically

Enabled ☐

Days before designed orders are auto closed

Select the **Enabled** checkbox to activate the automatic closing of orders with the status **Designed** or above. Specify the desired amount of days, after which the completed orders will be closed.

- **Automatically delete orders**

Lets you enable and set the amount of days when the designed orders get automatically deleted.

Automatically delete orders

Enable these settings to have Dental Manager delete orders automatically after a certain period

Enabled ☐

Automatically delete orders older than Days

Keep files but delete from database ☐

3.2.2. Manufacturing Inbox

The Dental Manager Inbox Module supports multiple FTP servers for high-load central production. The module allows handling orders created and sent from customers. In order for the Inbox to function, an operational FTP server must be available.

When you go to Manufacturing Inbox, the window as shown in Figure below is displayed:

Tasks

 Set FTP settings

Manufacturing Inbox


The Manufacturing Order Inbox is used for receiving extern orders. The orders are placed on FTP from where they can be downloaded to a temporary folder for validation. The orders are ready to be put into the DentalManager system.

Inbox Auto Accept ☐

Manufacturing Inbox Service Configuration ▼






TrackAndTrace Configuration ▼

The **Inbox Auto Accept** check-box defines whether to accept files to Inbox automatically or not.


Click on **FTP settings** to access the *FTP settings* window. Click on  **Add** to add a new window for FTP settings and complete the form:


Table

<FTPSettings1>

-  Add
-  Copy
-  Delete
-  Move up
-  Move down

FTPSettings1 - FTP settings

ID	FTPSettings1	<input type="button" value="Change ID"/>
Inbox folder	C:\inetpub\ftproot\	<input type="button" value="Browse"/>
FTP IP address/URL name	localhost	
FTP port	21	
FTP user	anonymous	
FTP password	<input type="button" value="Anonymous"/>
FTP directory		
FTP backward compatibility	<input checked="" type="checkbox"/>	



The **Inbox folder** path defines where the orders downloaded from FTP are stored before they are inserted into the Dental Manager system. This folder is common for all FTP servers. Note that you must have read and write access to the Inbox folder.

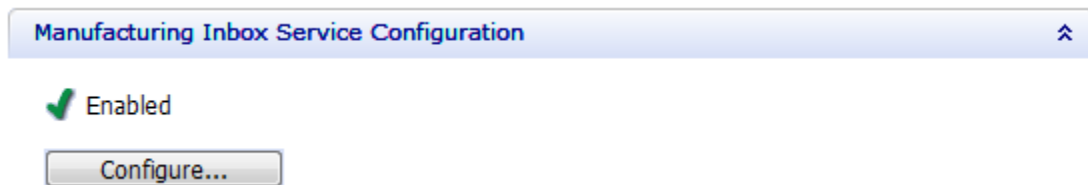
FTP backward compatibility - if this checkbox is selected, then Dental Manager immediately sends an unencrypted file to the FTP server; if it is not selected, then Dental Manager first checks with the FTP server whether it supports encrypted files, and if it does - the file is sent as encrypted, if it doesn't - the FTP server gets an unencrypted file.



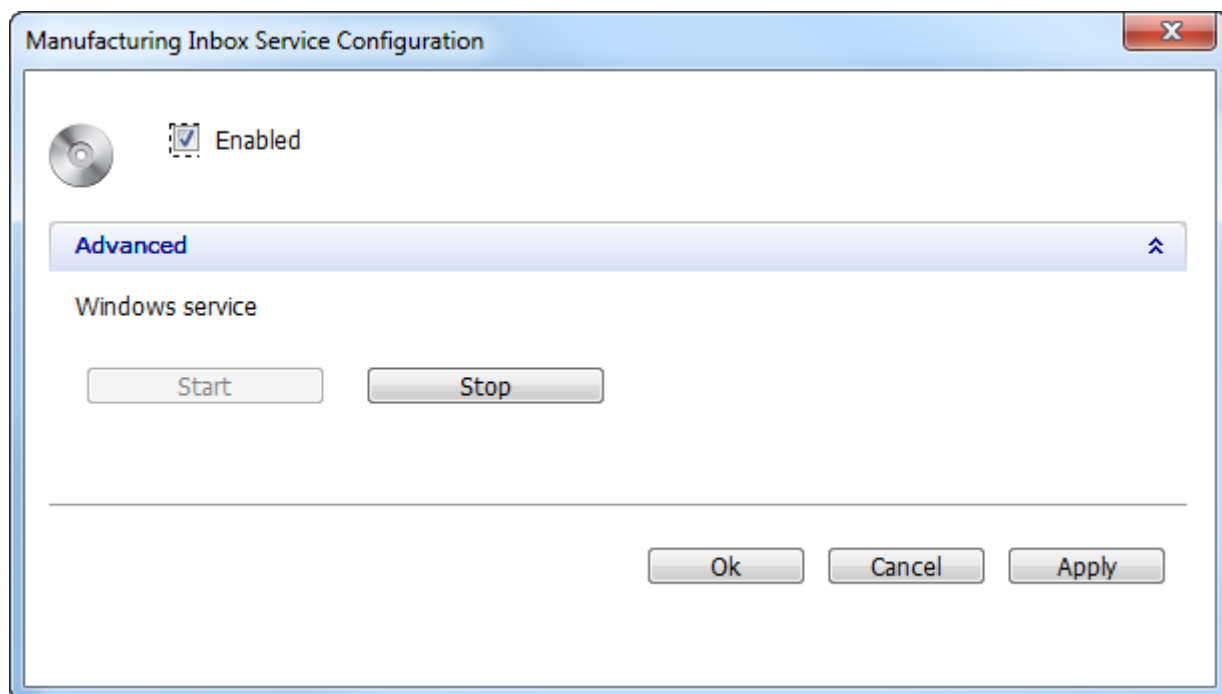
Note! Some FTP servers fail receiving encrypted files, therefore it is recommended to select the **FTP backward compatibility** checkbox to avoid such problems.

Set the FTP settings according to the actual FTP server (the URL can be specified either as shown in the image above or by using the IP address). When this is done, the connection may be verified by clicking **Test connection** button.

- **Manufacturing Inbox Service Configuration**



Press the **Configure** button and enable the service.



- **Track and Trace Configuration**

Lets you customize automatic [Track and Trace](#) comments for various order statuses.

On receivedSend ☒

Order received by manufacturer inbox.

On rejectSend ☒Prompt ☒

The order has been REJECTED and will not be produced.

On acceptSend ☒Prompt ☒

The order has been accepted for production.

On closedSend ☒Prompt ☒

The order has been shipped and closed.

3.2.3. ERP and Processing Time

INTRODUCTION


This chapter describes the ERP export interface for 3Shape Dental Manager. The interface is typically used as a part of the Dental Manager Inbox. The ERP interface is based on a simple

exchange of data through the xml-formatted files in a shared folder using 3shape Communicate Order Exchange (3OX ver. 2.0).

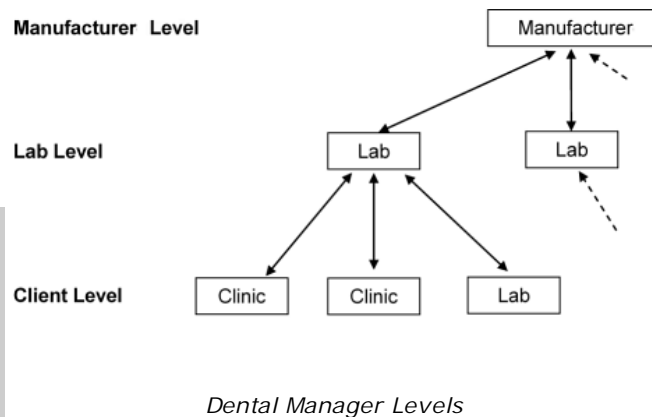
Definitions

Dental Manager operates with the three main levels (see image):

1. The Manufacturer
2. The Lab
3. The Client (of the Lab)



Note! The Client of the Lab can be clinics as well as other labs, which might not have a CAD system. However, the term Lab will only refer to the lab with the CAD system (Lab level).



The following order definitions also apply:

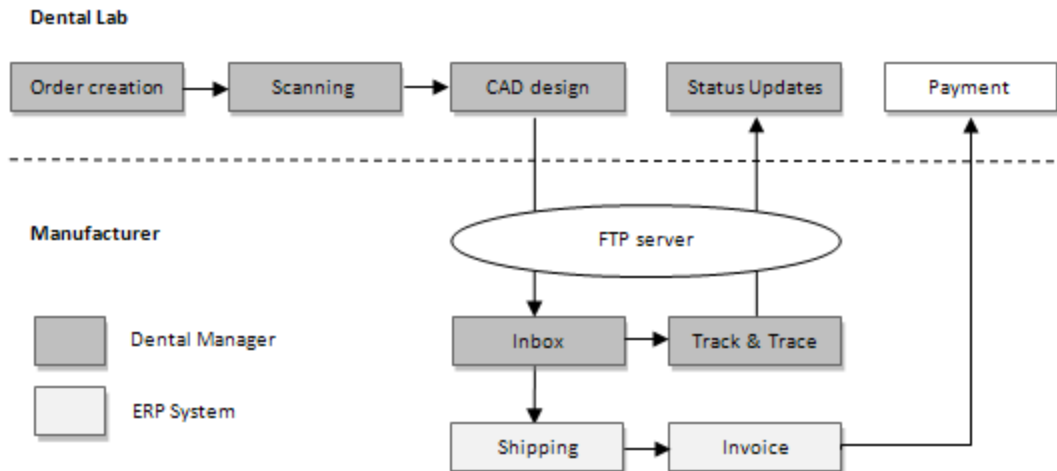
- **Order:** One order for one patient, e.g. 3 Full Crowns (jobs).
- **Job:** One order contains a number of jobs, e.g. 3 Full Crowns.
- **Element:** One job contains one or more elements typically manufactured individually, e.g. a Full Crown contains two elements - the Coping and the over-press layer. A Coping (job) contains only one single element - the Coping.

ERP Interface

The **aim** of the ERP export from Dental Manager interface is to automatically enable the order information **exchange between Dental Manager** and the **manufacturer ERP system** such as Microsoft Business Solutions, SAP™, Oracle™ or JENMAR™. The exported information can be used for accounting, shipping etc.

Diagram below shows an overview of the implementation of this exchange:

1. The order flow starts by creating, scanning and design an order at the lab using Dental Manager.
2. The order is then send encrypted over an FTP to the manufacturer, where it is received and decrypted in the Dental Manager Inbox.
3. Order information is exported to the ERP system, where the order information is handled accordingly
4. Optionally, order updates (e.g. shipment notice) can be feedback to Dental Manager, which is then transferred to Dental Manager in the Lab.



Dental Manager and ERP interface overview


Dental Manager Order Export Workflow

The ERP export interface involves exporting order information from Dental Manager to the ERP.

The main challenge is to synchronize any order made in 3Shape [Dental Manager](#) with the ERP system (accounting system). Basically, there has to be a unique mapping between an order with a number of jobs made in Dental Manager and the corresponding entities in the ERP System.

- **ERP Item number**

This mapping and ERP configuration are performed in *Dental System Control Panel*->*Dental Manager*->*ERP* and processing time.

1. Click **Add**  and fill in the fields with the necessary settings to create a new job:

DentalManager ▶ ERP and processing time

ERP and processing time

Copings

+ Add
+ Copy
X Delete
Move up
Move down

Edit ERP and processing time

ID: 57140_JobTypeERPInformation1 Change ID
Name: Copings
Job type: Coping
Material: Zirkon
Color: - Apply to all colors -
Maximum number of items: 1
ERP Item #: 12
Number of working days: 1
Closing time: 4:00:00 PM

Table below illustrates an example of two job types - a Crown and a Bridge:

3Shape Job Type	3Shape Job ID	Material	#Units ≤	ERP Item #
Coping	COPING1	Zr, Ti	1	
Bridge	BRIDGE1	Zr, Ti	16	

Simple table for copings and bridges in Zr and Ti

2. The manufacturer can then split the different 3Shape job types into different categories and configure associated materials and maximum number of units.



Note! Each **Job ID** is unique and there can be no common properties (e.g. several Copings with Zr would be illegal).

3. Each **Job ID** is then assigned the corresponding **ERP Item #**.

An example of categorization is shown in table below (based on the original example in the previous table). Copings and Bridges have been split into different materials and Bridges have been also separated into two lengths (1-3 units, 4-16). The split is performed to enable different price and invoice information.

3Shape Job Type	3Shape Job ID	Material	#Units ≤	ERP Item #
Coping	COPING1	Zr	1	20100
Coping	COPING2	Ti	1	20101
Bridge	BRIDGE1	Zr	6	20200
Bridge	BRIDGE2	Zr	16	20201

Bridge	BRIDGE 3	Ti	6	20202
Bridge	BRIDGE 4	Ti	16	20203

Extended order relationship table



Note! Only the **bold** fields can be modified by the user.

Dental Manager will also export the number of units for each type, e.g. the 8-unit Zr Bridge will be 8 units x ERP **20201** in the table above. The unique ERP Item # can also be defined for each bridge length.



Note! To enable the automatic ERP export, go to *Dental System Control Panel->Dental Manager->General->[ERP interface \(file\) configuration](#)*.

- **Customer ERP number**

To uniquely identify the lab, a global unique **Lab ID** will be included. The Lab ID (or Site ID) will automatically be derived from the dongle. See chapter [Labs](#) for details.

CONFIGURING ERP

The configuration is performed in Dental System Control Panel.



Note! The configuration is only required at the manufacturer's side.

►Step 1: Setup 3shape Communicate Order Exchange

First, you will need to setup the output folder and output format. This is done in *Dental System Control Panel->Dental Manager->[General](#)*. Please remember to select the **3OX version 2.0** output format.

►Step 2: Configure the ERP item numbers and processing time

Now you will have to add the type of ERP item numbers you want by going to *Dental System Control Panel->Dental Manager->ERP and processing time*.

In the example below, the Zr Coping will get the **ERP Item # 12**. The processing time can also be configured to automatically calculate the shipping date feedback to the lab in Track & Trace. In the example below the shipping day from the manufacturer will be next working day (1 day) if the order arrives before the closing time 4:00 PM.

One ERP setting needs to be added for each ERP Item number.

Edit ERP and processing time





ID	57140_JobTypeERPInformation1	<button>Change ID</button>
Name	<input type="text" value="Copings"/>	
Job type	<input type="text" value="Coping"/>	
Material	<input type="text" value="Zirkon"/>	
Color	<input type="text" value="- Apply to all colors -"/>	
Maximum number of items	<input type="text" value="1"/>	
ERP Item #	<input type="text" value="12"/>	
Number of working days	<input type="text" value="1"/>	
Closing time	<input type="text" value="4:00:00 PM"/>	

►Step 3: Configure the ERP Customer number

This configuration is performed in *Dental System Control Panel*->*Site Settings*->[Dentists/Labs/Manufacturers](#) (see the corresponding chapter for details).

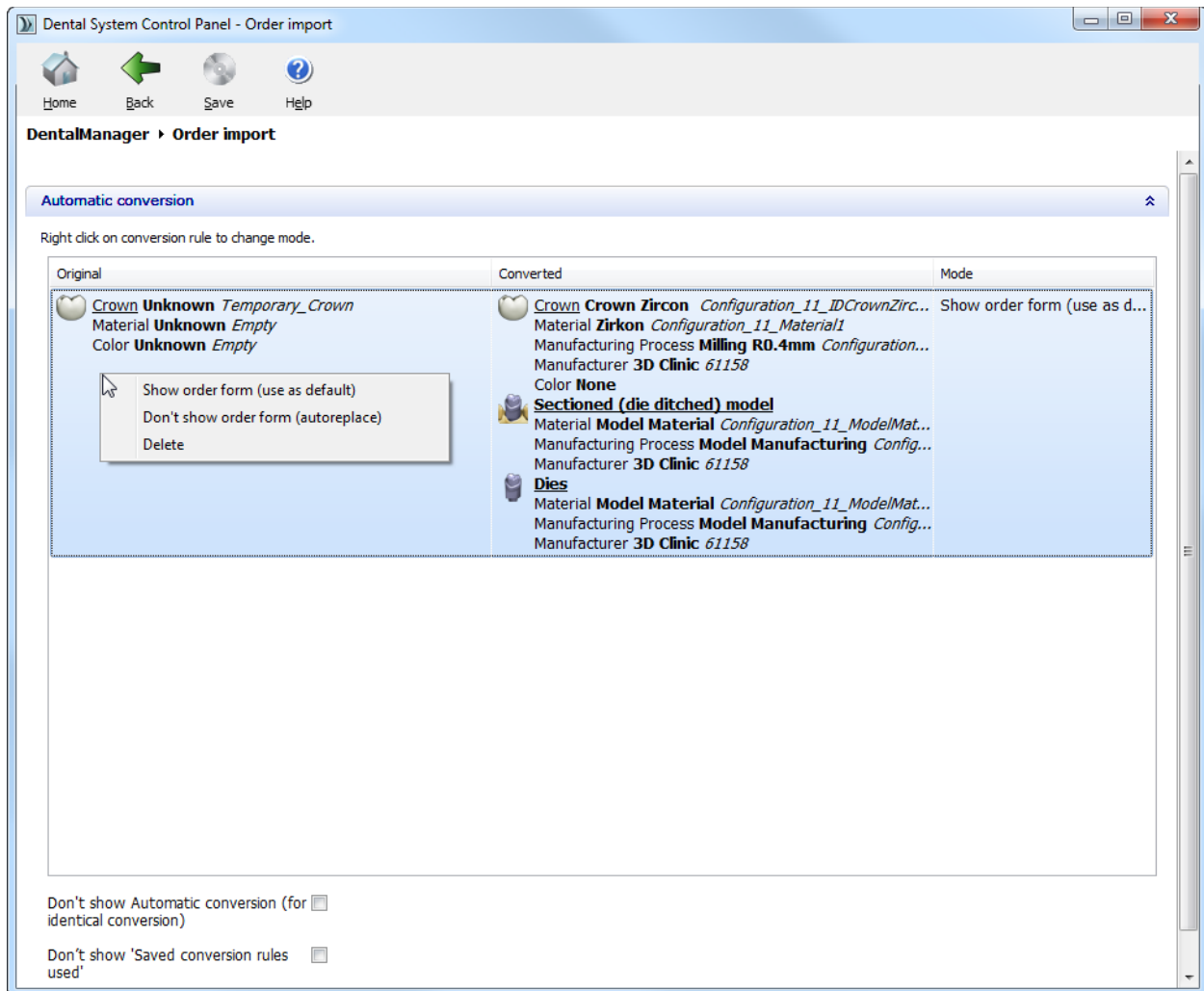
►Step 4: XML file creation

After the case is accepted in Dental Manager from the Inbox, a 3OX xml file is created. The file name is the 3Shape order number. In case of errors or missing fields in the configuration, the file name will have \$\$ signs in front of the file name:

	\$\$57082_20111007_1319_Carl_rec	10/7/2011 1:37 PM	XML Document	1 KB
	\$\$57082_20111007_1334_Carl_rec	10/7/2011 1:38 PM	XML Document	2 KB
	\$\$57082_20111007_1354_Carl_rec	10/7/2011 1:57 PM	XML Document	2 KB
	\$\$69122_20111007_1413_Tech_01_rec	10/7/2011 2:14 PM	XML Document	2 KB

3.2.4. Order Import

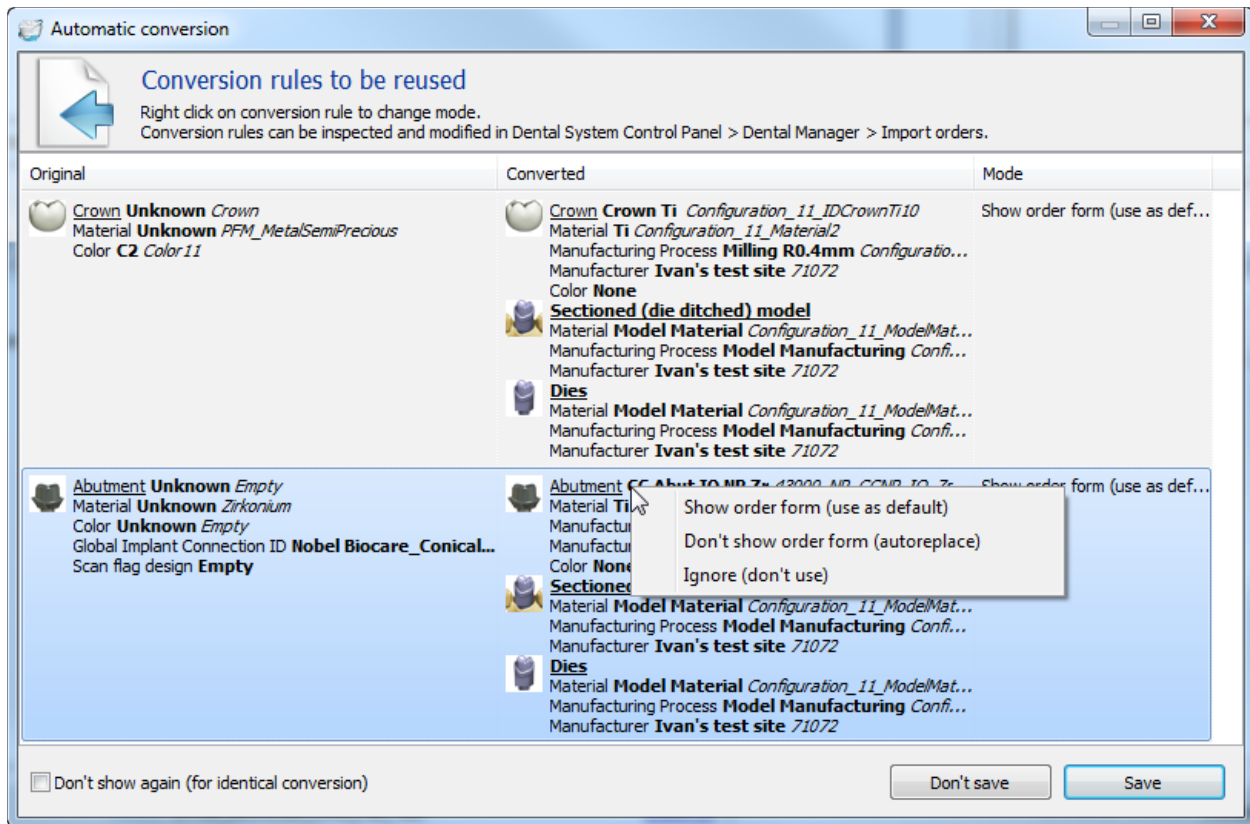
If you have imported an order and saved the conversion rule(s), this page will allow you to change the automatic conversion settings for the selected conversion rule.



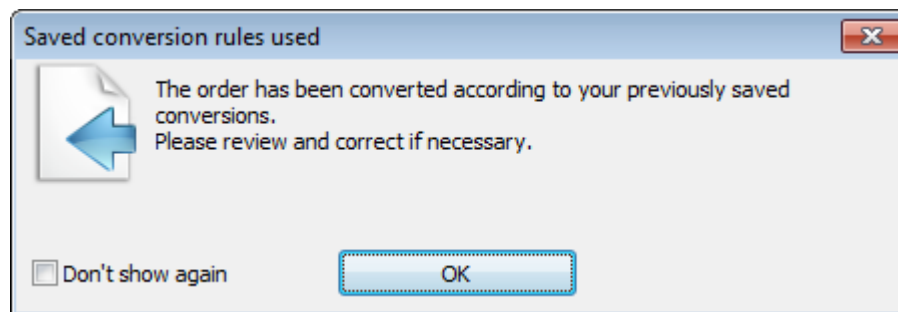
Right-click on the conversion rule to change its mode:

1. **Show order form** (use as default) - during import, the Order Form is shown with the conversion rule applied by default.
2. **Don't show order form** (autoreplace) - import is performed automatically without the Order Form or *Automatic conversion* dialog being shown.
3. **Delete** - remove the conversion rule.

Don't show Automatic conversion (for identical conversion) - if selected, the *Automatic conversion* dialog (see below) does not appear during the identical material conversion:



Don't show 'Saved conversion rules used' - if selected, the dialog (see below) does not appear when the order is imported with the previously saved conversion rule applied:



Save changes in the Control Panel. They will be applied for your next import.

3.2.5. Working Days

Working days

Default shipping time (working days)

Default Manufacturing Processing and Shipping time (working days)

Holidays

Double click day to change its state

January, 2013						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10
Today: 1/9/2013						

- ☒ Working day
- ☐ Weekend
- ☐ Annual holiday

For your convenience the configuration of the processing times and delivery dates is possible.

Specify the number of days for **Default shipping time** and **Manufacturing Processing and Shipping time**.

Click on dates in the calendar to mark them as working days, weekends or annual holidays.

3.2.6. 3rd Party Applications

Dental System supports 3rd party applications. Once configured, 3rd party applications can be started from Dental Manager independently or as a part of the manufacturing process.


Open the **3rd party applications** page under Dental Manager in the Control Panel to configure the settings.

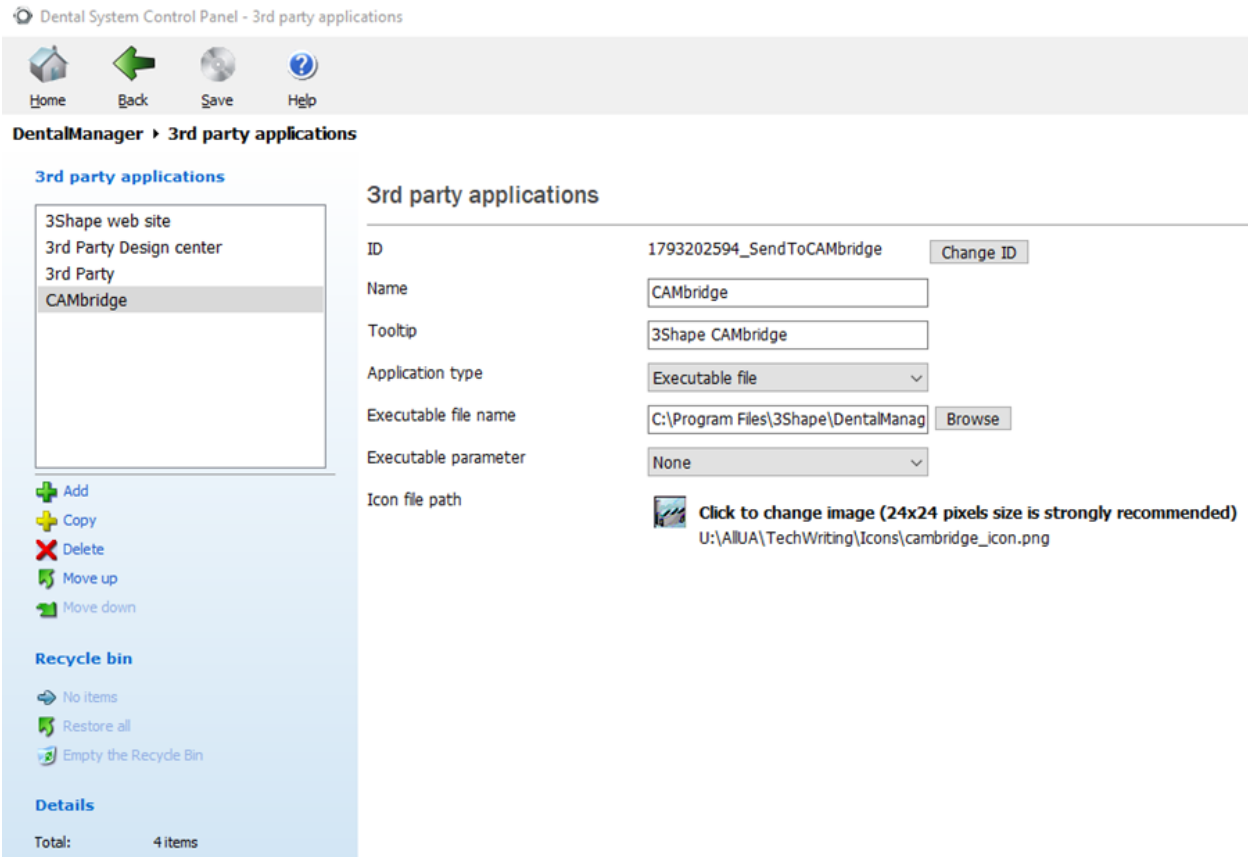
Application type

- Design center
- Executable file
- CAM Application
- Web link
- Design center

For the application type, you can select and configure [Executable file](#), [CAM Application](#), [Web link](#) or [Design center](#).

EXECUTABLE FILE

Press **Add**  and select **Executable file** as an **Application type**. This will be used to launch the specified application without generating CAM output. Fill out the required information to add the application to **3Shape Dental System**.



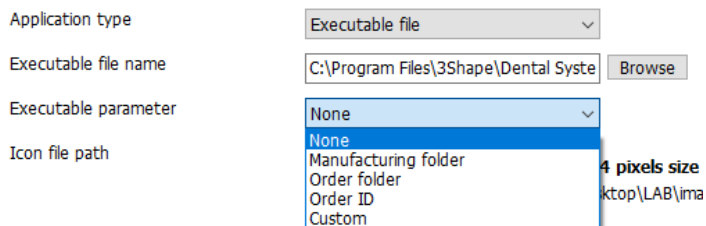
Name - application name that appears in the list of all 3rd party applications.

Tooltip - a hint that appears when you place the cursor over the application icon in Dental Manager (see image below).

Application type - the type of application you would like to add: **Executable file**, **CAM Application** or **Web link**.

Executable file name - a path to the .exe file of the application you would like to add. Click **Browse** to add the file.

Executable parameter - a command-line option which modifies the operation of a command:



- **Manufacturing folder** – common manufacturing directory configured under System Settings as “Manufacturing output directory”.
- **Order folder** – directory of the order.
- **Order ID** – unique order number.

- **Custom** – allows user to configure custom parameters list:
 - %ORDER_CAM_FOLDER% = Order CAM Output folder
 - %MANUF_FOLDER% = Manufacturing folder
 - %ORDER_FOLDER% = Order folder
 - %ORDER_ID% = Order ID

Icon file path - a path to the icon that would appear in Dental Manager (see the image below). Click the link to select the icon.

Save the changes and restart **Dental Manager**. You can now use your 3rd party application by clicking the corresponding icon:



You can also select the 3rd party application for the specific Manufacturing process to use this application for manufacturing of designed orders:


1. Go to **Site Settings** > [Manufacturing process](#).
2. Choose the required **Manufacturing process** to edit (e.g. Milling R0.4mm).
3. Select the desired application in the **Launch 3rd party application** drop-down menu (e.g. CAMbridge).
4. Save your changes and open Dental Manager.

You can now use your application for manufacturing of orders with the status **Designed** that have their Manufacturing process set up for this application. To open your order(s) with the 3rd party application, do one of the following:

- Select an order and click the 3rd party application icon.
- Double click the order.
- Right-click the order and select **Next**.

If your order contains several Manufacturing processes with different applications, double-clicking the order or selecting **Next** will open several corresponding applications.

CAM APPLICATION

Press **Add**  and select **CAM application** as an **Application type** – this will generate CAM output and launch the specified application. Fill out the required information to add the application to 3Shape Dental System.

DentalManager ▶ 3rd party applications

3rd party applications


3Shape web site
3rd Party Design center
3rd Party
CAMbridge

+ Add
+ Copy
X Delete
↕ Move up
↕ Move down

Recycle bin
No items
Restore all
Empty the Recycle Bin

Details
Total: 4 items

3rd party applications

ID	1793202594__3rd_PartyCAM	Change ID
Name	<input type="text" value="3rd Party"/>	
Tooltip	<input type="text" value="3rd Party"/>	
Application type	CAM Application ▼	
Executable file name	<input type="text" value="C:\Program Files\3Shape\DentalManag"/>	Browse
Executable parameter	<input type="text" value="3OX 2.0"/>	
Icon file path	 Click to change image (24x24 pixels size is strongly recommended) U:\AllUA\TechWriting\Icons\3rd_party.png	
Manufacturing output type	To separate folder ▼	
Separate output folder	<input type="text"/>	Browse
Supports handshake	<input type="checkbox"/>	
Loop over model elements	<input type="checkbox"/>	

The settings for the CAM Application are similar to those of the Executable file with only a few additional options:

There are two more Executable parameters when the **CAM Application** is selected:

Executable parameter	<input type="text" value="3OX 2.0"/>
Icon file path	<input type="text"/>
Manufacturing output type	<div> 3OX 2.0 None Order CAM Output folder Manufacturing folder Order folder Order ID 3OX 2.0 Custom To separate folder </div>
Separate output folder	<input type="text"/>
Supports handshake	<input type="checkbox"/>
Loop over model elements	<input type="checkbox"/>

- **Order CAM Output folder** – generates CAM Output to the folder specified under the **Manufacturing output type**. Available for **CAM Application** only.
- **3OX 2.0** - generates the 3Shape Communicate Order Exchange file (3OX ver. 2.0). If **3OX 2.0** is set as an executable parameter, the **Loop over model elements** option becomes available. When selected, it launches the application for every model element passing a path to 3OX file as the first command-line parameter and the

model element index as the second parameter.


- **Manufacturing output type** - a folder, where the manufacturing output will be stored: a **manufacturing folder** or a **separate folder** that you specify below. The **Manufacturing output directory** is configured on the [System Settings](#) page.

Support handshake - enables negotiation of communication parameters with the CAM machines.

Loop over model elements - specifies whether the WorkNC application is launched for order or model elements.

WEB LINK

You can also add a web link, which you will be able to open in Dental Manager.

Press **Add**  and select **Web link** as an **Application type** - this will open a specified web site in your browser. Fill out the required information to add the link to 3Shape Dental System (settings are similar as for the application types described above).

DentalManager ▶ 3rd party applications


3rd party applications


3Shape web site


3rd Party Design center


3rd Party


CAMbridge

 Add


 Copy


 Delete


 Move up

 Move down

Recycle bin

 No items


 Restore all

 Empty the Recycle Bin


Details

Total: 4 items

3rd party applications

ID	1793202594__3shape	Change ID
Name	<input type="text" value="3Shape web site"/>	
Tooltip	<input type="text" value="www.3shape.com"/>	
Application type	<input type="text" value="Web link"/>	
Web link	<input type="text" value="C:\Program Files\3Shape\Dental Syste"/>	
Icon file path	<div> Click to change image (24x24 pixels size is strongly recommended) U:\AllUA\TechWriting\Icons\3shape_prism Icon.png</div>	

DESIGN CENTER

If you want to outsource CAD design to an external design center, click the **Add**  button and select **Design center** as an **Application type**. Fill in information about your design partner under **3rd party applications** and your partner authentication information under **Options**. To view the licensee information, click the **About** button. You can also click the **Sign Out** button in order to clear the credentials. Save the changes.





Note! The design center options can be represented by different parameters depending on the .dll file chosen as a sending module.


DentalManager > 3rd party applications


3rd party applications


Design Center

 Add


 Copy


 Delete


 Move up

 Move down

Recycle bin

 1 item

 Restore all

 Empty the Recycle Bin

Details

Total: 1 item

3rd party applications

ID1568250558_Design Center

Change ID

NameDesign Center

About


TooltipSend to Design Center

Application typeDesign center

Sending moduleC:\3Shape Configuration\DentalSyster

Browse

Icon file path

 Click to change image (24x24 pixels size is strongly recommended)
C:\Projects\DENTAL SYSTEM\24 x 24.png

Options

Remove patient information☒

FullContour usernameAdmin

Password

.....

Sign out

Now you can send orders to the chosen design partner directly from Dental Manager.

3.2.7. Milling Machines

For Milling machines, the following should be configured in the dental system control panel:

- **Milling machine** - for interaction with a milling application.
- **3rd party application** - an application which generates NC files for designed order (WorkNC).

- [Manufacturing process](#) - a link between the manufacturing process and WorkNC application.

This page lets you specify the name and path for your milling machine.

ID - an automatically given ID when you press the **Add** button that can be edited with the **Change ID** button.

Name - milling machine name.

Network Name - the name to appear over the network it is connected to.

Incoming path - NC files folder for the milling machine.

Milling path - milling software purposes folder.

DentalManager ▶ Milling machines

Milling machines

MillingMachineName

+ Add

+ Copy

✗ Delete

↕ Move up

↕ Move down

Recycle bin

➡ No items

↕ Restore all

🗑 Empty the Recycle Bin

Details

Total: 1 item








Milling machines

ID	97728_MillingMachine1	Change ID
Name	MillingMachineName	
Network Name		
Incoming path	D:\IncomingFolder\	Browse
Milling path	D:\MillingFolder\	Browse

3.3. Site Settings



Site Settings

-  This site
-  Dentists
-  Labs
-  Manufacturers
-  Operators
-  Countries
-  Manufacturing processes

The **Site Settings** category contains settings for defining sites, manufacturing processes etc. The settings are described in details in the following sections:

- [This site](#)
- [Dentists](#)
- [Labs](#)
- [Manufacturers](#)
- [Operators](#)
- [Countries](#)
- [Manufacturing Processes](#)

3.3.1. This site

The page contains settings for your site.

CONTACTS SETTINGS

Fill in your contact information in the provided fields.

Site Settings ▸ This site

Table

3Shape Ukraine (This site)

Details

Total sites: 1 item

Tasks

[Import site\(s\) from server](#)

Edit Site

Name

3Shape Ukraine

Contacts settings

Address 1

Address 2

City

State

Zip code

Country

Not specified

Phone

Fax

Email

Web address

Contact person

ID settings

FTP Inbox settings

ID SETTINGS

A globally unique **ID** is defined for each site in 3Shape Dental System. This has a number of advantages when transferring orders between sites using Dental Manager. The unique Lab (site) **ID** is automatically derived from the dongle.

ID settings	
ID	97728
External ID (for interfacing with third party software)	<input type="text"/>
Sub-site ID	<input type="text" value="1"/>
Order number site ID	<input type="text"/> <button>Copy ID</button>

The **External ID** is the **ERP number**, used for interfacing with the third party software.



Note! The configuration is only required on the manufacturer side. However, each Lab (Site) has to be defined with the correct ID number to match with the incoming order.

Below is an example of the relation between the Lab **ID** and the **ERP Customer number**:

3Shape Lab Name	3Shape Lab ID (unique)	ERP Customer #
Lab A	99993	10000
Lab B	12475	10001
Lab C	91060	10002
Lab D	28099	10003
Lab E	56190	10004

The **Sub-site ID** can be used by sites having multiple stand-alone installations of Dental System. These installations all belong to the same sites, i.e. they have the same globally unique ID, and the **Sub-site ID** can be used to distinguish the different installations (available only for this site).

The **Order number site ID** is used in the order ID naming template (available only for this site). It is recommended to use the globally unique **ID** for the site, which can be copied using the **Copy ID** button.

FTP INBOX SETTINGS

FTP Inbox Settings should be specified for the manufacturing sites allowing Dental Manager to easily transfer orders from the current site to the manufacturing site.

FTP Inbox settings

FTP IP address/URL name

FTP port

21

FTP user

FTP password

FTP directory

Test connection

In order to use FTP with SSL support you need to install OpenSSL 0.9.8. or later

Validate material configuration ID when creating order

Enabled ☐

Configuration ID

Automatically send to manufacturer after scanning

Enabled ☐

Automatically add Ship to different address

Enabled ☐

Requires ship to different address ☒

Version of Dental System

2019-1

Allow changing of order size ☐

Small (no scan colors, no remodeling)

Check for updated materials ☒



Note! If the current site also acts as the manufacturing site receiving orders from other sites through Dental Manager, then the [Manufacturing Inbox](#) must be available and the FTP settings for the current site must be specified in the **Inbox** settings.

The FTP must be provided by the manufacturing site and verified with the **Test connection** button. If the connection succeeds, a green tick appears next to the button.

IMPORTING LOCAL SITE

Tasks

[Import site\(s\) from server](#)

Import site(s) from server is available under **Tasks**. Clicking this link automatically imports the local site setup, including ID and FTP settings.



Note! Importing sites will only work if your Software Provider of the Dental System has already supplied these settings to you.

The discussion and figures in this section assume a standard (non-encrypted) 3Shape Dental System. For encrypted systems, several of the settings cannot be edited by the users, as they are already given by the Software Provider of your system and should not be changed.

3.3.2. Dentists

The page contains settings for the dentist sites.


CONTACTS SETTINGS

Fill in dentist contact information in the provided fields.

Site Settings ▸ Dentists

Table


<97728_Site10>

 Alphabetically

 Add


 Copy

 Delete

 Move up

 Move down

Recycle bin

 No items

 Restore all

 Empty the Recycle Bin

Details

Total sites: 10 items

Tasks

Import site(s) from server

Import sites from Excel document

Edit Site

Name

Contacts settings

Address 1

Address 2

City

State

Zip code

Country

Not specified

Phone

Fax

Email

Web address

Contact person

Dentist dependent CAD settings

3Shape Communicate Integration

TRIOS Direct Connection

ID settings

FTP Inbox settings

DENTIST DEPENDANT CAD SETTINGS

Lets you define dentist preferred CAD settings for a particular indication therefore, when that indication is selected in the order form its CAD settings are automatically applied during the design process. Double click the required Indication, Material, Anatomy library to change their options from the drop-down menu. The number values are keyed in directly or changed incrementally with the arrows.

Dentist dependent CAD settings										
Add Copy To Recycle Bin			Recycle bin: Show Recycle (No items) Restore all Empty the Recycle Bin							
Name	General		CAD settings							
	Indication	Material	Interface cement space	Interface extra cement space	Cut to antagonist	Cut distance to antagonist (mm)	Cut to neighbor	Cut distance to neighbor (mm)	Cut distance to gingiva (mm)	Anatomy library
<97728_SitePreferences1>	Crown	Zirkon	0.030	0.070	True	0.050	True	0.050	0.100	Not specified

3SHAPE COMMUNICATE INTEGRATION

You can configure [3Shape Communicate](#) settings for each site in the provided fields:

3Shape Communicate Integration

Enabled

☒

User Email

Set user Email

Auto send design

☐

Request approval

☐

Create Account

Connect Site

Enabled - select this checkbox if you want to work with 3Shape Communicate (unselected by default).

User Email - click **Set user Email** button and fill in the e-mail address of the site (dentist) you will be exchanging your orders with:

3Shape Communicate Integration

User Email:

showcase@3shape.com

OK

Cancel

Auto send design - enables automatic upload of the modeled orders. Otherwise, you will have to send the orders manually from [Dental Manager](#).

Request approval - the orders cannot be modified further until approval of the design is received.

Create Account - allows you to register with 3Shape Communicate.

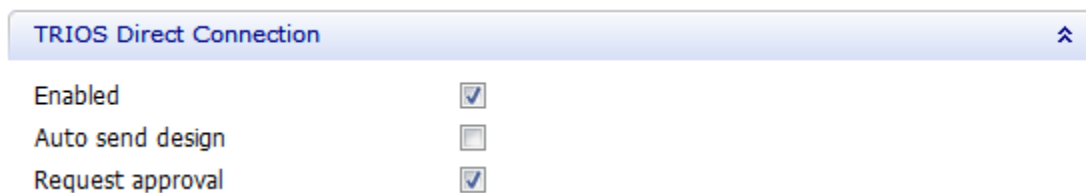
Connect Site - opens the 3Shape Communicate website where you can set up a [connection](#) to the site (dentist). It becomes available after configuring the [3Shape Communicate integration settings](#).

TRIOS DIRECT CONNECTION

You can enable [TRIOS Direct Connection](#) option here.

Auto send design - automatically sends completed designs to TRIOS.

Request approval - the orders are sent to TRIOS on approval of their design.

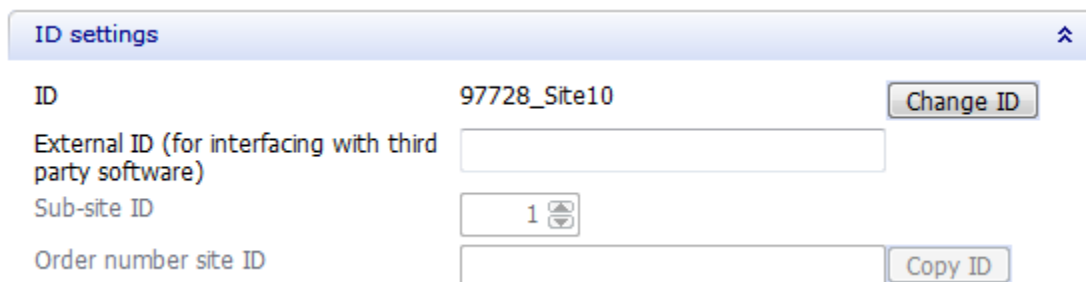


The screenshot shows a settings panel titled "TRIOS Direct Connection" with a collapse icon. It contains three options, each with a checkbox:

Option	Checkbox
Enabled	<input checked="" type="checkbox"/>
Auto send design	<input type="checkbox"/>
Request approval	<input checked="" type="checkbox"/>

ID SETTINGS

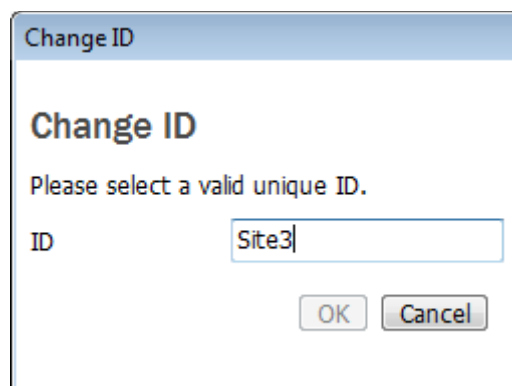
A globally unique **ID** is defined for each site in 3Shape Dental System. This has a number of advantages when transferring orders between sites using Dental Manager. The unique Lab (site) **ID** is automatically derived from the dongle.



The screenshot shows an "ID settings" panel with a collapse icon. It contains the following fields and buttons:

Field	Value	Action
ID	97728_Site10	<button>Change ID</button>
External ID (for interfacing with third party software)	<input type="text"/>	
Sub-site ID	1	
Order number site ID	<input type="text"/>	<button>Copy ID</button>

With the **Change ID** button you can modify the site ID.



The screenshot shows a "Change ID" dialog box with the following content:

Change ID

Please select a valid unique ID.

ID

OK Cancel

The **External ID** is the **ERP number**, used for interfacing with the third party software.



Note! The configuration is only required on the manufacturer side. However, each Lab (Site) has to be defined with the correct ID number to match with the incoming order.

Below is an example of the relation between the Lab **ID** and the **ERP Customer number**:

3Shape Lab Name	3Shape Lab ID (unique)	ERP Customer #
Lab A	99993	10000
Lab B	12475	10001
Lab C	91060	10002
Lab D	28099	10003
Lab E	56190	10004

The **Sub-site ID** can be used by sites having multiple stand-alone installations of Dental System. These installations all belong to the same sites, i.e. they have the same globally unique ID, and the **Sub-site ID** can be used to distinguish the different installations (available only for this site).

The **Order number site ID** is used in the order ID naming template (available only for this site). It is recommended to use the globally unique **ID** for the site, which can be copied using the **Copy ID** button.

FTP INBOX SETTINGS

FTP Inbox Settings should be specified for the manufacturing sites allowing Dental Manager to easily transfer orders from the current site to the manufacturing site.

FTP Inbox settings

FTP IP address/URL name

FTP port

21

FTP user

FTP password

FTP directory

Test connection

In order to use FTP with SSL support you need to install OpenSSL 0.9.8. or later

Validate material configuration ID when creating order

Enabled ☐

Configuration ID

Automatically send to manufacturer after scanning

Enabled ☐

Automatically add Ship to different address

Enabled ☐

Requires ship to different address ☒

Version of Dental System

2019-1

Allow changing of order size ☐

Small (no scan colors, no remodeling)

Check for updated materials ☒



Note! If the current site also acts as the manufacturing site receiving orders from other sites through Dental Manager, then the [Manufacturing Inbox](#) must be available and the FTP settings for the current site must be specified in the **Inbox** settings.

The FTP must be provided by the manufacturing site and verified with the **Test connection** button. If the connection succeeds, a green tick appears next to the button.

IMPORTING SITES

Tasks

[Import site\(s\) from server](#)
[Import sites from Excel document](#)

Import site(s) from server is available under **Tasks** in the *Site Settings* window. Pressing this link automatically imports a number of sites including IDs and FTP settings, thus facilitating the setup for order transferring through Dental Manager.



Note! Importing sites will only work if your Software Provider of the Dental System has already supplied these settings to you.

The discussion and figures in this section assume a standard (non-encrypted) 3Shape Dental System. For encrypted systems, several of the settings cannot be edited by the users, as they are already given by the Software Provider of your system and should not be changed.

The users can also import sites from the **Excel document**, which makes the workflow easier and faster. The format of the Excel file needs to be as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Name	External ID	Invoice name	Address 1	Address 2	City	State	Zip Code	Country	Phone	Fax	Email	WWW	Contact Person
2	John Silver	1234567	John Silver	12 Ocean Road	14 Maple Street	Sydney	NSW	2000	AU	800-502-0958	800-502-0959	jsilver@exmpl.au	www.jsilver.com	John Silver
3														

In the *Table* window, you can edit your site list at any time (add, copy, delete etc., as well as enable/disable some data with the help of corresponding check-boxes). Click on the desired site to view its settings in the right part of the window.

3.3.3. Labs

The page contains settings for the design Labs.

CONTACTS SETTINGS

Fill in Lab contact information in the provided fields.

Site Settings ▶ Labs

Table


BIOMET 3i USA
Lab Germany 1
Lab US 1
Milling center A
Lab X
Lab Spain 3
Lab US 3
Ivan's test site

☐ Alphabetically


-  Add
-  Copy
-  Delete
-  Move up
-  Move down


Edit Site


Name	<input type="text" value="Lab Germany 1"/>
------	--------------------------------------------


Contacts settings 

Address 1	<input type="text"/>
Address 2	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip code	<input type="text"/>
Country	<input type="text" value="Not specified"/>
Phone	<input type="text"/>
Fax	<input type="text"/>
Email	<input type="text"/>
Web address	<input type="text"/>
Contact person	<input type="text"/>

3Shape Communicate Integration 


TRIOS Direct Connection 

ID settings 

FTP Inbox settings 

3SHAPE COMMUNICATE INTEGRATION

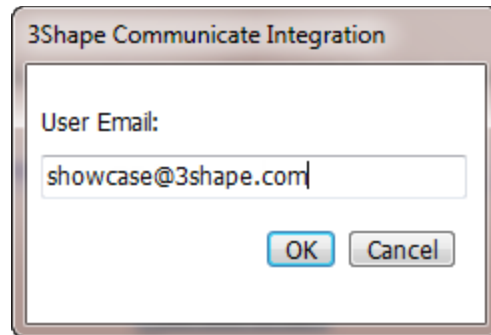
You can configure [3Shape Communicate](#) settings for each site in the provided fields:

3Shape Communicate Integration 

Enabled	<input checked="" type="checkbox"/>
User Email	<input type="text" value="Set user Email"/>
Auto send design	<input type="checkbox"/>
Request approval	<input type="checkbox"/>
	<input type="text" value="Create Account"/>
	<input type="text" value="Connect Site"/>

Enabled - select this checkbox if you want to work with 3Shape Communicate (unselected by default).

User Email - click **Set user Email** button and fill in the e-mail address of the site (lab) you will be exchanging your orders with:

A dialog box titled "3Shape Communicate Integration". It contains a label "User Email:" followed by a text input field containing the email address "showcase@3shape.com". At the bottom right, there are two buttons: "OK" and "Cancel".

Auto send design - enables automatic upload of the modeled orders. Otherwise, you will have to send the orders manually from [Dental Manager](#).

Request approval - the orders cannot be modified further until approval of the design is received.

Create Account - allows you to register with 3Shape Communicate.

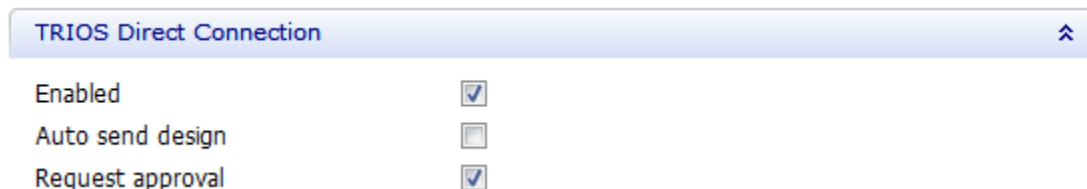
Connect Site - opens the 3Shape Communicate website where you can set up a [connection](#) to the site (lab). It becomes available after configuring the [3Shape Communicate integration settings](#).

TRIOS DIRECT CONNECTION

You can enable [TRIOS Direct Connection](#) option here.

Auto send design - automatically sends completed designs to TRIOS.

Request approval - the orders are sent to TRIOS on approval of their design.

A settings panel titled "TRIOS Direct Connection" with a collapse icon (upward arrow) on the right. It contains three rows, each with a label and a checkbox:

- Enabled: ☒
- Auto send design: ☐
- Request approval: ☒

ID SETTINGS

A globally unique **ID** is defined for each site in 3Shape Dental System. This has a number of advantages when transferring orders between sites using Dental Manager. The unique Lab (site) **ID** is automatically derived from the dongle.

ID settings
⤴

ID
97728

External ID (for interfacing with third party software)

Sub-site ID

1
⬆ ⬇ ⬆

Order number site ID

Copy ID

With the **Change ID** button you can modify the site ID.

Change ID

Change ID

Please select a valid unique ID.

ID

OK
Cancel

The **External ID** is the **ERP number**, used for interfacing with the third party software.



Note! The configuration is only required on the manufacturer side. However, each Lab (Site) has to be defined with the correct ID number to match with the incoming order.

Below is an example of the relation between the Lab **ID** and the **ERP Customer number**:


3Shape Lab Name	3Shape Lab ID (unique)	ERP Customer #
Lab A	99993	10000
Lab B	12475	10001
Lab C	91060	10002
Lab D	28099	10003
Lab E	56190	10004

The **Sub-site ID** can be used by sites having multiple stand-alone installations of Dental System. These installations all belong to the same sites, i.e. they have the same globally unique ID, and the **Sub-site ID** can be used to distinguish the different installations (available only for this site).

The **Order number site ID** is used in the order ID naming template (available only for this site). It is recommended to use the globally unique **ID** for the site, which can be copied using the **Copy ID** button.



FTP INBOX SETTINGS

FTP Inbox Settings should be specified for the manufacturing sites allowing Dental Manager to easily transfer orders from the current site to the manufacturing site.

FTP Inbox settings 

FTP IP address/URL name

FTP port

21  

FTP user

FTP password

FTP directory

Test connection

In order to use FTP with SSL support you need to install OpenSSL 0.9.8. or later

Validate material configuration ID when creating order

Enabled ☐

Configuration ID

Automatically send to manufacturer after scanning


Enabled ☐

Automatically add Ship to different address


Enabled ☐

Requires ship to different address ☒

Version of Dental System

2019-1 

Allow changing of order size

☐ Small (no scan colors, no remodeling) 

Check for updated materials

☒



Note! If the current site also acts as the manufacturing site receiving orders from other sites through Dental Manager, then the [Manufacturing Inbox](#) must be available and the FTP settings for the current site must be specified in the **Inbox** settings.

The FTP must be provided by the manufacturing site and verified with the **Test connection** button. If the connection succeeds, a green tick appears next to the button.

IMPORTING SITES

Tasks

[Import site\(s\) from server](#)

[Import sites from Excel document](#)

Import site(s) from server is available under **Tasks** in the *Site Settings* window. Pressing this link automatically imports a number of sites including IDs and FTP settings, thus facilitating the setup for order transferring through Dental Manager.



Note! Importing sites will only work if your Software Provider of the Dental System has already supplied these settings to you.

The discussion and figures in this section assume a standard (non-encrypted) 3Shape Dental System. For encrypted systems, several of the settings cannot be edited by the users, as they are already given by the Software Provider of your system and should not be changed.

The users can also import sites from the **Excel document**, which makes the workflow easier and faster. The format of the Excel file needs to be as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Name	External ID	Invoice name	Address 1	Address 2	City	State	Zip Code	Country	Phone	Fax	Email	WWW	Contact Person
2	John Silver	1234567	John Silver	12 Ocean Road	14 Maple Street	Sydney	NSW	2000	AU	800-502-0958	800-502-0959	jsilver@exmpl.au	www.jsilver.com	John Silver
3														

In the *Table* window, you can edit your site list at any time (add, copy, delete etc., as well as enable/disable some data with the help of corresponding check-boxes). Click on the desired site to view its settings in the right part of the window.

3.3.4. Manufacturers

The page contains settings for the manufacturing sites.

CONTACTS SETTINGS

Fill in manufacturer contact information in the provided fields.

Site Settings ▶ Manufacturers

Table

BIOMET 3i USA
Milling center A
Lab Spain 3
Lab US 3
Ivan's test site

☐ Alphabetically

+ Add

+ Copy

✖ Delete

↕ Move up

↕ Move down

Edit Site

Name

Contacts settings

Address 1

Address 2

City

State

Zip code

Country

Phone

Fax

Email

Web address

Contact person

3Shape Communicate Integration

TRIOS Direct Connection

ID settings

FTP Inbox settings

3SHAPE COMMUNICATE INTEGRATION

You can configure 3Shape Communicate settings for the manufacturing site allowing Dental Manager to transfer orders from the current site to the manufacturing site via [3Shape Communicate](#).

3Shape Communicate Integration

Enabled ☒

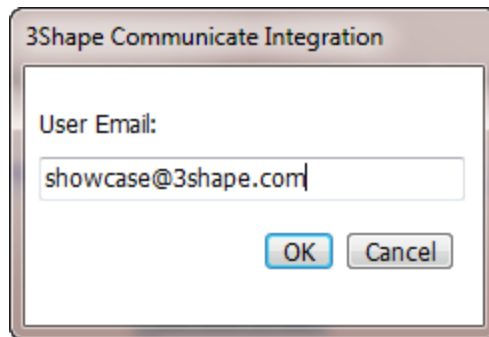
User Email

Auto send design ☐

Request approval ☐

Enabled - select this checkbox if you want to work with 3Shape Communicate (unselected by default).

User Email - click **Set user Email** button and fill in the e-mail address of the site (manufacturer) you will be exchanging your orders with:

A dialog box titled "3Shape Communicate Integration". It contains a label "User Email:" followed by a text input field containing the email address "showcase@3shape.com". At the bottom right, there are two buttons: "OK" and "Cancel".

Auto send design - enables automatic upload of the modeled orders. Otherwise, you will have to send the orders manually from [Dental Manager](#).

Request approval - the orders cannot be modified further until approval of the design is received.

Create Account button allows you to register with 3Shape Communicate.

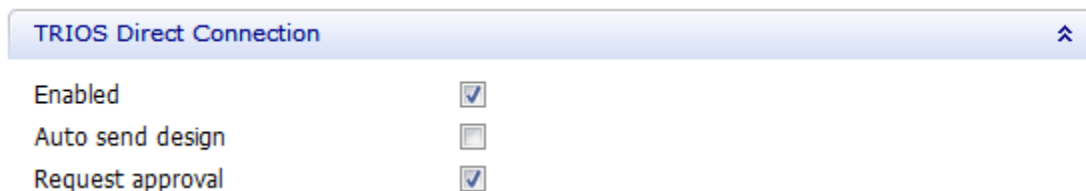
Connect Site - opens the 3Shape Communicate website where you can set up a [connection](#) to the site (manufacturer). It becomes available after configuring the [3Shape Communicate integration settings](#).

TRIOS DIRECT CONNECTION

You can enable [TRIOS Direct Connection](#) option here.

Auto send design - automatically sends completed designs to TRIOS.

Request approval - the orders are sent to TRIOS on approval of their design.

A settings panel titled "TRIOS Direct Connection" with a collapse icon (upward arrow) on the right. It contains three rows, each with a label and a checkbox:

- Enabled: ☒
- Auto send design: ☐
- Request approval: ☒

ID SETTINGS

A globally unique **ID** is defined for each site in 3Shape Dental System. This has a number of advantages when transferring orders between sites using Dental Manager. The unique Lab (site) **ID** is automatically derived from the dongle.

ID settings
⤴

ID
97728

External ID (for interfacing with third party software)

Sub-site ID

1
⬆ ⬇ ⬆

Order number site ID

Copy ID

With the **Change ID** button you can modify the site ID.

Change ID

Change ID

Please select a valid unique ID.

ID

OK

Cancel

The **External ID** is the **ERP number**, used for interfacing with the third party software.



Note! The configuration is only required on the manufacturer side. However, each Lab (Site) has to be defined with the correct ID number to match with the incoming order.

Below is an example of the relation between the Lab **ID** and the **ERP Customer number**:


3Shape Lab Name	3Shape Lab ID (unique)	ERP Customer #
Lab A	99993	10000
Lab B	12475	10001
Lab C	91060	10002
Lab D	28099	10003
Lab E	56190	10004

The **Sub-site ID** can be used by sites having multiple stand-alone installations of Dental System. These installations all belong to the same sites, i.e. they have the same globally unique ID, and the **Sub-site ID** can be used to distinguish the different installations (available only for this site).

The **Order number site ID** is used in the order ID naming template (available only for this site). It is recommended to use the globally unique **ID** for the site, which can be copied using the **Copy ID** button.

FTP INBOX SETTINGS

FTP Inbox Settings can be specified for the manufacturing site allowing Dental Manager to transfer orders from the current site to the manufacturing site via FTP.

FTP Inbox settings 

FTP IP address/URL name	<input type="text"/>
FTP port	<input type="text" value="21"/>
FTP user	<input type="text"/>
FTP password	<input type="password"/>
FTP directory	<input type="text"/>

[Test connection](#)

In order to use FTP with SSL support you need to install OpenSSL 0.9.8. or later

Validate material configuration ID when creating order

Enabled ☐

Configuration ID

Automatically send to manufacturer after scanning

Enabled ☐

Automatically add Ship to different address

Enabled ☐

Requires ship to different address ☒

Version of Dental System

Allow changing of order size ☐

Check for updated materials ☒



Note! Selecting the ***Requires ship to different address*** check box prevents the users from saving an order form without entering an external lab address.



Note! If the current site also acts as the manufacturing site receiving orders from other sites through Dental Manager, then the [Manufacturing Inbox](#) must be available and the FTP settings for the current site must be specified in the **Inbox** settings.

The FTP must be provided by the manufacturing site and verified with the ***Test connection*** button. If the connection succeeds, a green tick appears next to the button.

IMPORTING SITES

Tasks

Import site(s) from server

Import sites from Excel document

Import site(s) from server is available under **Tasks** in the *Site Settings* window. Pressing this link automatically imports a number of sites including IDs and FTP settings, thus facilitating the setup for order transferring through Dental Manager.



Note! Importing sites will only work if your Software Provider of the Dental System has already supplied these settings to you.

The discussion and figures in this section assume a standard (non-encrypted) 3Shape Dental System. For encrypted systems, several of the settings cannot be edited by the users, as they are already given by the Software Provider of your system and should not be changed.

The users can also import sites from the **Excel document**, which makes the workflow easier and faster. The format of the Excel file needs to be as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Name	External ID	Invoice name	Address 1	Address 2	City	State	Zip Code	Country	Phone	Fax	Email	WWW	Contact Person
2	John Silver	1234567	John Silver	12 Ocean Road	14 Maple Street	Sydney	NSW	2000	AU	800-502-0958	800-502-0959	jsilver@exmpl.au	www.jsilver.com	John Silver
3														

In the *Table* window, you can edit your site list at any time (add, copy, delete etc., as well as enable/disable some data with the help of corresponding check-boxes). Click on the desired site to view its settings in the right part of the window.

3.3.5. Operators






Operators settings identify the users of the 3Shape Dental System applications. These operators can be chosen in the Order Form and, optionally, the names of the operators can be part of the order ID. You can modify the Operator list (add/delete etc.) at any time.

Site Settings ▸ Operators




Operator

Tech 01

3Shape operator

-  Add
-  Copy
-  Delete
-  Move up
-  Move down

Recycle bin

-  1 item
-  Restore all
-  Empty the Recycle Bin

Details

Total: 2 items

Edit Operator

ID	97728_Operator3	Change ID
Name	<input type="text" value="3Shape operator"/>	

3.3.6. Countries

Countries settings identify the country to be used in the site data (see the image below). Use the list to the left to select the country you need. You can add/delete countries at any time.

Site Settings ▸ Countries

Country

Australia

Austria

Belgium

Canada

Switzerland


China


Cyprus


Czech Republic


Denmark


Germany

 [Add](#)


 [Copy](#)


 [Delete](#)


 [Move up](#)

 [Move down](#)

Recycle bin

 No items

 [Restore all](#)

 [Empty the Recycle Bin](#)

Details

Total: 33 items

Edit Country

ID	AUS	Change ID
Name	<input type="text" value="Australia"/>	

3.3.7. Manufacturing Processes

The **Manufacturing processes** category specifies how the construction elements are produced. The users of the Dental System applications have one or more manufacturing processes available, e.g. milling machines, 3D printers or sintering systems (please contact your distributor to learn more of the available processes). For each Manufacturing process it is possible to define manufacturing specific settings (e.g. drill radius of a milling machine).



Caution! Changing the provided settings can have a significant effect on the quality of the manufactured construction elements. Please contact your distributor prior to making any changes.

Site Settings ▶ Manufacturing process

Table

Milling R0.4mm
Milling R0.5mm
Model Manufacturing
BIOMET 3i LDA Milling (...)

- Add
- Copy
- Delete
- Move up
- Move down

Recycle bin

- No items
- Restore all
- Empty the Recycle Bin

Details

Total: 4 items

Edit Manufacturing process

ID	Configuration_11_ManufProcess30	Change ID
Name	<input type="text" value="Milling R0.4mm"/>	
Manufacturing process method	CADOutputRawSTL.dll	Select
Start Implant Direction Position filename with OrderID	<input type="checkbox"/>	
Advanced		
Milling	<input checked="" type="checkbox"/>	
Additional milling information:		
Milling machine axis	<input type="text" value="3+1(4) axis"/>	
Limit CAD block rotation	<input type="checkbox"/>	
CAD block rotation angle limit	<input type="text" value="20"/> °	
One Blank.xml file per item	<input type="checkbox"/>	
Allow tilt sprue	<input type="checkbox"/>	
Drill compensation	<input checked="" type="checkbox"/>	
Drill tool shape	<input type="text" value="Sphere"/>	
New drill compensation	<input checked="" type="checkbox"/>	
Drill compensation offset	<input type="text" value="0.660"/> mm	
Drill radius	<input type="text" value="0.650"/> mm	
Corner tool radius	<input type="text" value="0.350"/> mm	
Launch 3rd party application	<input type="text" value="- None -"/>	

Materials

- ☒ Ti
- ☒ PMMA
- ☒ CoCr
- ☐ Model Material
- ☐ DREVE FotoDentModel Beige
- ☐ 3D Systems Visijet
- ☐ Prefab crown
- ☐ Ti (BIOMET 3i PBG)
- ☐ TiNi (BIOMET 3i PBG)
- ☐ Zirkon (BIOMET 3i PBG)

Manufacturers

- ☒ Lab Spain 3
- ☒ Lab US 3
- ☐ Milling center A
- ☒ Ivan's test site
- ☒ 3Shape Ukraine
- ☐ BIOMET 3i USA

ID - a unique identification code of the Manufacturing process.

Name - a text string (not necessary unique) that acts as the “visual” identification of the Manufacturing process.


Manufacturing process method - allows you to select a .dll file to specify a method of manufacturing.



Note! The number of settings available on this page may change depending on the selected **Manufacturing process method**.

Start implant direction position filename with OrderID - when selected, the name of the implant direction position file will start with the Order number which is automatically ascribed to the order in the [Order form](#). The Implant Direction Position file contains 3D positions and directions of the abutments present in the order. The extension of this file is .xml.

- **Advanced**

Advanced 	
Apply enhanced transformation	<input checked="" type="checkbox"/>
Output margin line	<input checked="" type="checkbox"/>
Output outer margin line	<input type="checkbox"/>
Output 3OX file	<input type="checkbox"/>
Output INF file	<input type="checkbox"/>
Output abutment base curve	<input type="checkbox"/>
Output top screw hole curve	<input type="checkbox"/>
Output bottom screw hole curve	<input type="checkbox"/>
Compress files	<input type="checkbox"/>
Output die model	<input type="checkbox"/>
Output contact areas	<input type="checkbox"/>
Add tooth index to CAM file name	<input type="checkbox"/>
Output full denture in separate surfaces	<input type="checkbox"/>

Apply enhanced transformation - when selected, transforms the designed model to the coordinate system that is optimal for manufacturing. When this option is not selected, CAM output is generated in the coordinate system of the scan used for designing the order.

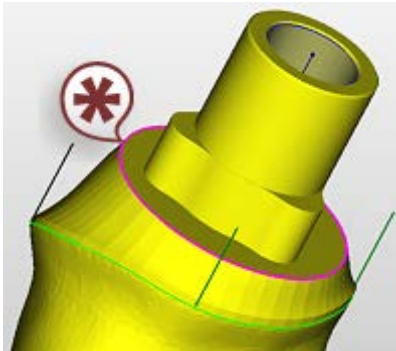
Output margin line - when selected, creates file with a 3D point cloud of the margin line. The file is of the PTS format and the extension is .pts.

Output outer margin line - when selected, creates file with a 3D point cloud of the outer margin line. The file is of the PTS format and the extension is .pts.

Output 3OX file - when selected, creates a 3OX (3Shape Order Exchange) file. This file contains information on the entire order which can be read by 3rd party applications. The format is 3OX and the extension is .3ox.

Output INF file - when selected, creates a text file containing selected order information in a tabular format. The extension is .inf.

Output abutment base curve - is a "free border" curve on the library geometry for implant connections:



Output top screw hole curve – when selected, creates a PTS file (.pts) with a 3D point cloud of the top screw hole curve.

Output bottom screw hole curve – when selected, creates a PTS file (.pts) with a 3D point cloud of the bottom screw hole curve.

Compress files - when selected, zips the output files.

Output die model – when selected, creates an STL file (.stl) with a 3D die model for each die. Available for Crowns and Copings.

Output contact areas - when selected, creates a PTS file (.pts) with a 3D point cloud of the teeth intersection areas.

Add tooth index to CAM file name - when selected, adds the tooth numbering index (range of tooth indexes for Bridges) to the CAM output file name according to the tooth index system defined in *Dental System Control Panel* -> [System Settings](#).

Output full denture in separate surfaces - (applies to the full denture orders) when selected, the system outputs multiple surfaces for both the gingiva and teeth elements (e.g., a separate surface for the teeth fissures) and generates an individual output file for each surface. For the full denture orders with the Monoblock assembling type, the multiple surfaces are only available for the teeth elements. Otherwise, the system generates one watertight output for the gingiva, and one - for teeth. For the full denture orders with the Monoblock assembling type, one watertight output for the gingiva and teeth is generated.

Milling - when selected, enables the **Additional milling information** settings:

Milling machine axis - controls the degrees of freedom of the [CAD block](#) in Dental Designer, i.e. around which axis the CAD block can be rotated.

Limit CAD block rotation - limits the rotation when marked.

CAD block rotation angle limit - lets you specify the angle limit.

One Blank.xml file per item - one XML file is created per item when enabled.

Allow tilt sprue - enables tilt sprue support.

Drill compensation - when selected, rounds the inward corners of a die and a model to facilitate the manufacturing process.

Drill tool shape - select to specify the shape of the tool to be used for milling - **Sphere** or **Bullnose**.

New drill compensation - select this checkbox to use the improved drill compensation feature. The new drill compensation has been optimized for better and smoother results. It also saves space, leaving more room for the final restoration.

Drill compensation offset - is the distance from the margin line that defines where the drill radius is applied.

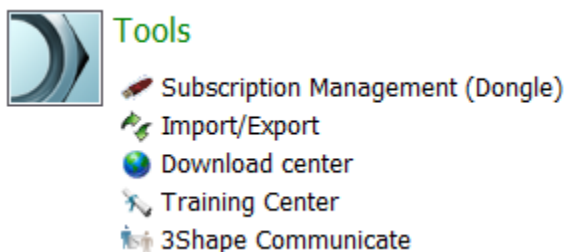
Drill radius - the radius of the drill tool applied.

Corner tool radius - if the **Bullnose** drill tool shape is selected, you can define the corner radius of the tool.

Launch 3rd party application - allows you to select a [3rd party application](#) (if such was previously added in Dental System Control Panel) which will be launched during the CAM output generation.

Materials and **Manufacturers** - the Manufacturing process combines manufacturing with the available manufacturers (as specified in [Manufacturers](#) section) and materials (as specified in [Materials](#) section). As seen from the image, you can specify a manufacturer for a particular manufacturing process and the materials for this process. These settings are then reflected in the order form.

3.4. Tools

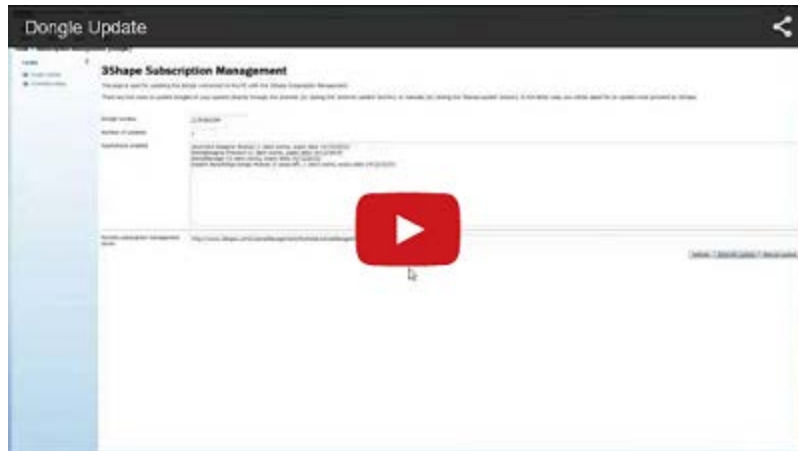


The **Tools** category contains settings for updating your dongle and importing/exporting materials to/from Control Panel as well as settings for the 3Shape Communicate integration. It also has the page for downloading the latest documentation, videos etc.

See the detailed description of these settings in chapters below:

- [Subscription Manager](#)
- [Import/Export](#)
- [Download Center](#)
- [Training Center](#)
- [3Shape Communicate](#)

3.4.1. Subscription Manager



The window indicates the information on your dongle: **Dongle number**, **Applications** (enabled on the dongle, with Internet update and detailed status check options), **Modules and libraries**, location of **Dongle Service** and **Manual update** options.

Tools ▶ Subscription Management (Dongle)

3Shape Subscription Management

This page is used for updating the dongle connected to the PC with the 3Shape Subscription Management.

Applications

Dongle number

2131496721

Applications enabled

3Shape CAD Points (20 points left)
Abutment Designer Module (1 client points, expiry date 12/1/2016)
CAM for imes-core CORiTEC 140i (SUM3D) (expiry date 12/1/2016)
CAM for imes-core CORiTEC 140i, 240i, 240i+, 250i, 340i, 440i, 450i (expiry date 12/1/2016)
CAM for LYRA Mill (expiry date 12/1/2016)
CAM for Roland DWX-4 (SUM3D) (expiry date 12/1/2016)
CAM for Roland DWX-4W (SUM3D) (expiry date 12/1/2016)
CAM for VHF (K4, S1, S2) (expiry date 12/1/2016)
CAM for VHF N4 (expiry date 12/1/2016)
CAM Server
Dental Desktop (1 client points, expiry date 12/1/2016)
Dental System Full Contour (-35 saves left, 1 client points, expiry date 12/1/2016)
DentalDesigner Premium (1 client points, expiry date 12/1/2016)
DentalManager (5 client points, expiry date 12/1/2016)

Internet updateDetails

Modules and libraries

Dongle Service

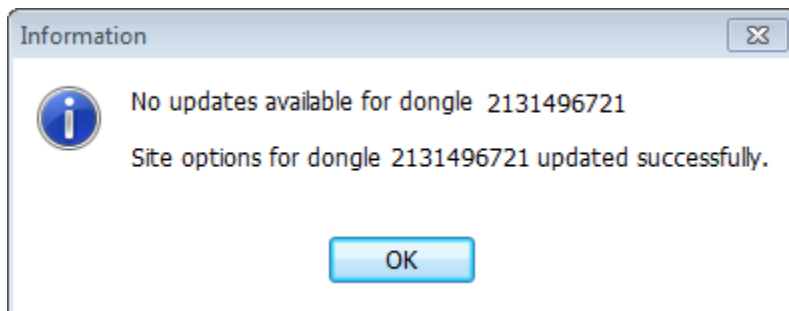
Manual update

1066

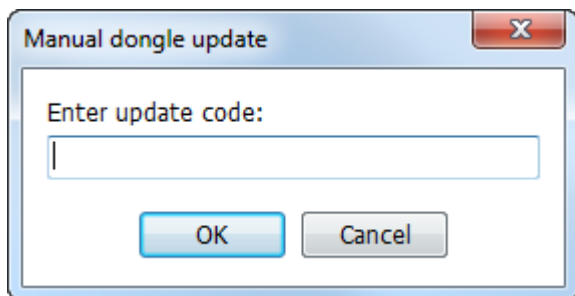
3Shape Subscription Management allocates one client point for Dental System application when it is opened. The client point is freed when the application is closed. The client point information is also available on the status page - click **Details** to open it in your web browser. The status page shows additional information, e.g., how many points are currently in use.

DONGLE UPDATE

The dongle update is used to update a dongle inserted in a host computer. The dongle update can be done either via the Internet or manually.



Click the **Internet update** button to check for updates and apply them. If no updates are available, the corresponding message appears.



For the manual update, you supply your dongle number to a 3Shape representative and receive a dongle update code. Unfold the **Manual update** section and click the **Manual dongle update** button to enter this code, then click **OK**. The dongle is updated if the code is correct.

MODULES AND LIBRARIES

This section lists all modules and libraries (e.g., implant systems) enabled on the dongle.

DONGLE SERVICE

 A window titled "Dongle Service" with a maximize button in the top right corner. It contains the following fields and buttons:

- Service status:** The service is installed and running on this PC
- Computer name or IP:** A text field containing "localhost", with "This PC" and "Browse" buttons to its right.
- Dongle service port:** A text field containing "27027" with a port selection icon to its right.
- Test connection:** A button located at the bottom right of the window.

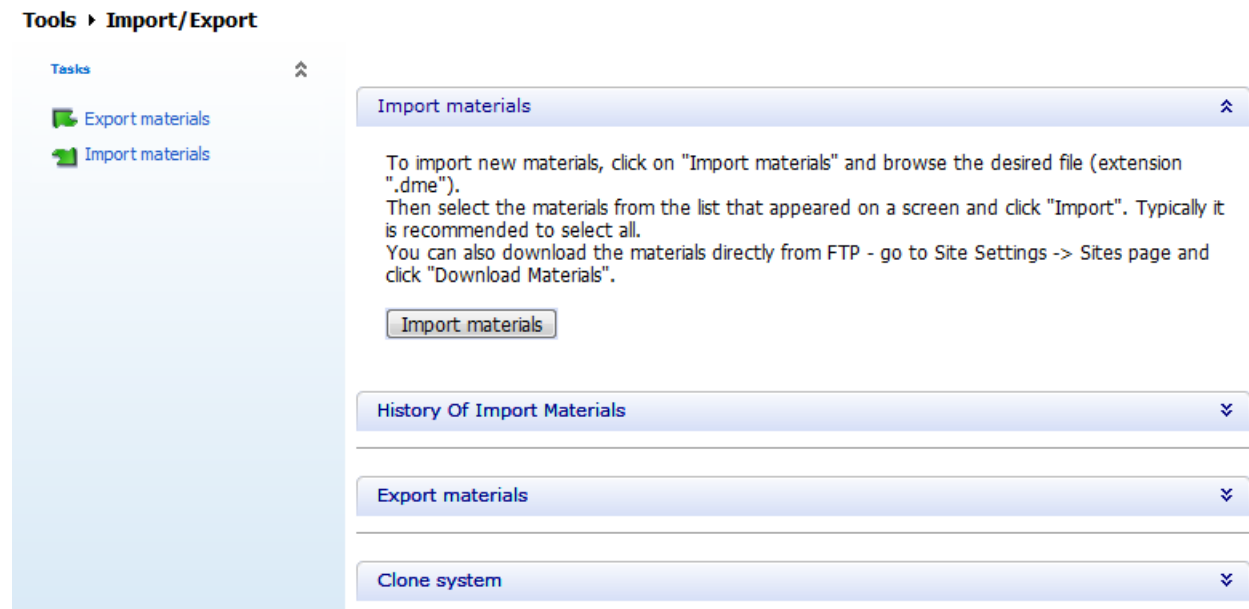
The location of 3Shape Dongle Service can be defined in different ways. It can be typed in manually, defined by clicking the **This PC** button (if Dental System Control Panel is started from the PC where 3Shape Dongle Service is installed) or you can click the **Browse** button to open a network tree and locate the Dongle Service PC.

The **Dongle service port** specifies the network port used by the service. If you need to change this port (e.g., due to a Firewall or if another application is already using this port), it can be changed here, and at the same time it needs to be manually changed in the configuration (xml-) file located within the service.

When 3Shape Dongle Service is located and the port is specified, the connection can be tested by clicking the **Test connection** button. If the connection is successful, a green tick appears, otherwise an error message is shown.


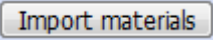
3.4.2. Import/Export

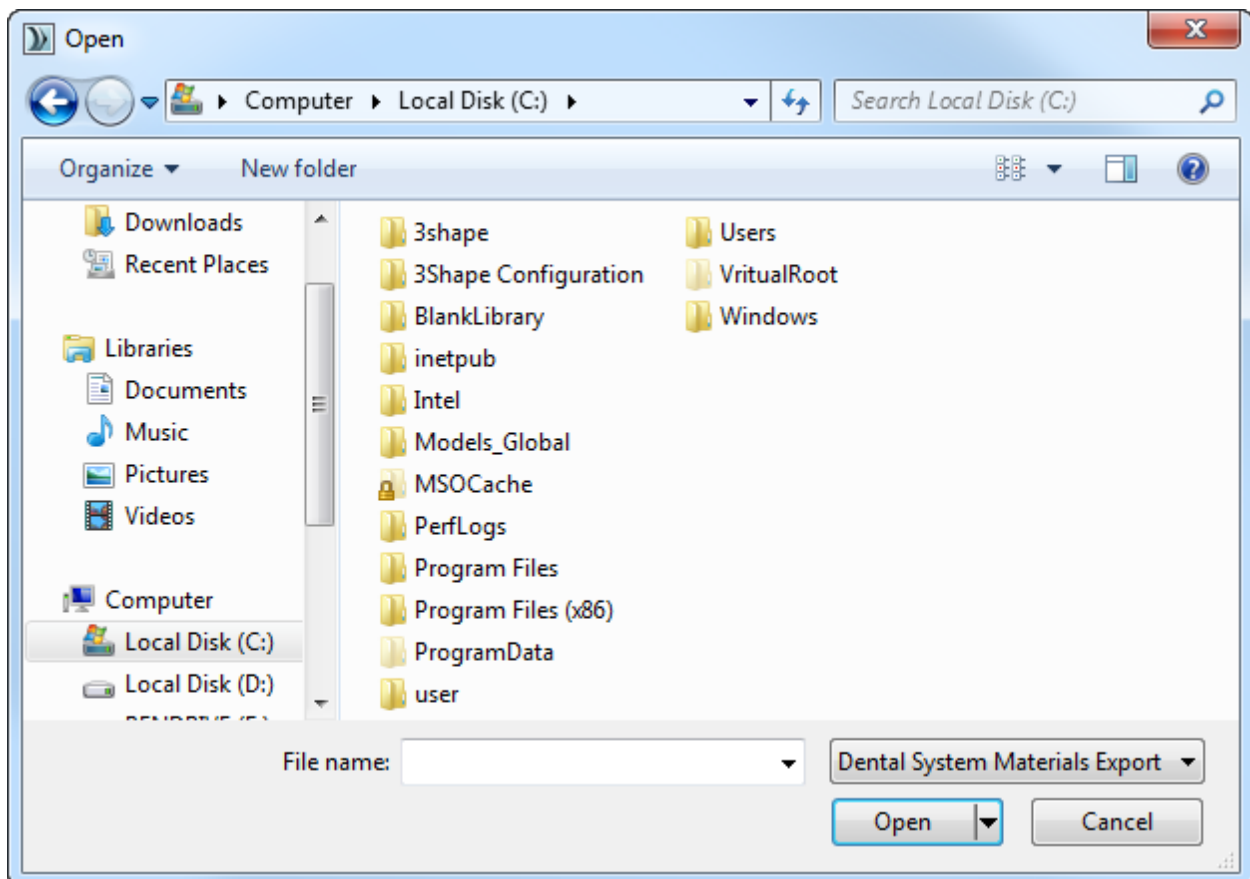
The import and export of the material settings is now possible in Dental System Control Panel. This new functionality provides an easy exchange of materials between the lab and the manufacturer. Click on the **Export/Import Materials** button to open the window below:



- **Import materials**



Click the  [Import materials](#) link or  button to open the browsing window and select the required .DME (Dental System Materials Export) or .ISL (Implant System Library) file for import:



Import and update materials

Please select materials to import

Available materials

- ☒ Anatomy and Pontic libraries
- ☒ Articulator interfaces

Library name
My Library

Provider
Site

Library type
General library

Version

Library creation date
11/6/2014

Description
My Library

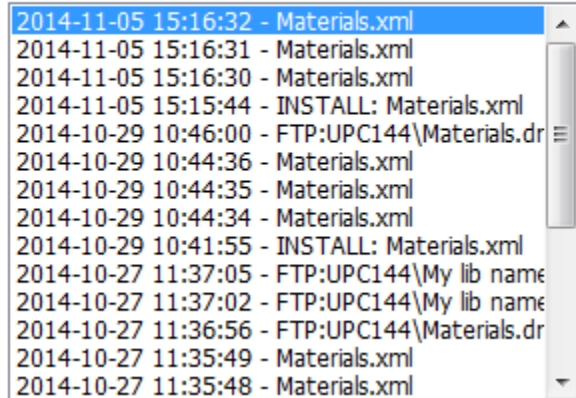
Import Cancel

Select the materials from the list that appeared on a screen and click **Import**.
You can also download the materials directly from FTP - go to *Site Settings* -> [site's profile] and click **Download**.

- **History of imported materials**

Pressing the bar, opens a history list of imported materials.

History Of Import Materials



2014-11-05 15:16:32 - Materials.xml
2014-11-05 15:16:31 - Materials.xml
2014-11-05 15:16:30 - Materials.xml
2014-11-05 15:15:44 - INSTALL: Materials.xml
2014-10-29 10:46:00 - FTP:UPC144\Materials.dr
2014-10-29 10:44:36 - Materials.xml
2014-10-29 10:44:35 - Materials.xml
2014-10-29 10:44:34 - Materials.xml
2014-10-29 10:41:55 - INSTALL: Materials.xml
2014-10-27 11:37:05 - FTP:UPC144\My lib name
2014-10-27 11:37:02 - FTP:UPC144\My lib name
2014-10-27 11:36:56 - FTP:UPC144\Materials.dr
2014-10-27 11:35:49 - Materials.xml
2014-10-27 11:35:48 - Materials.xml

- **Export materials**


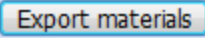
Export materials

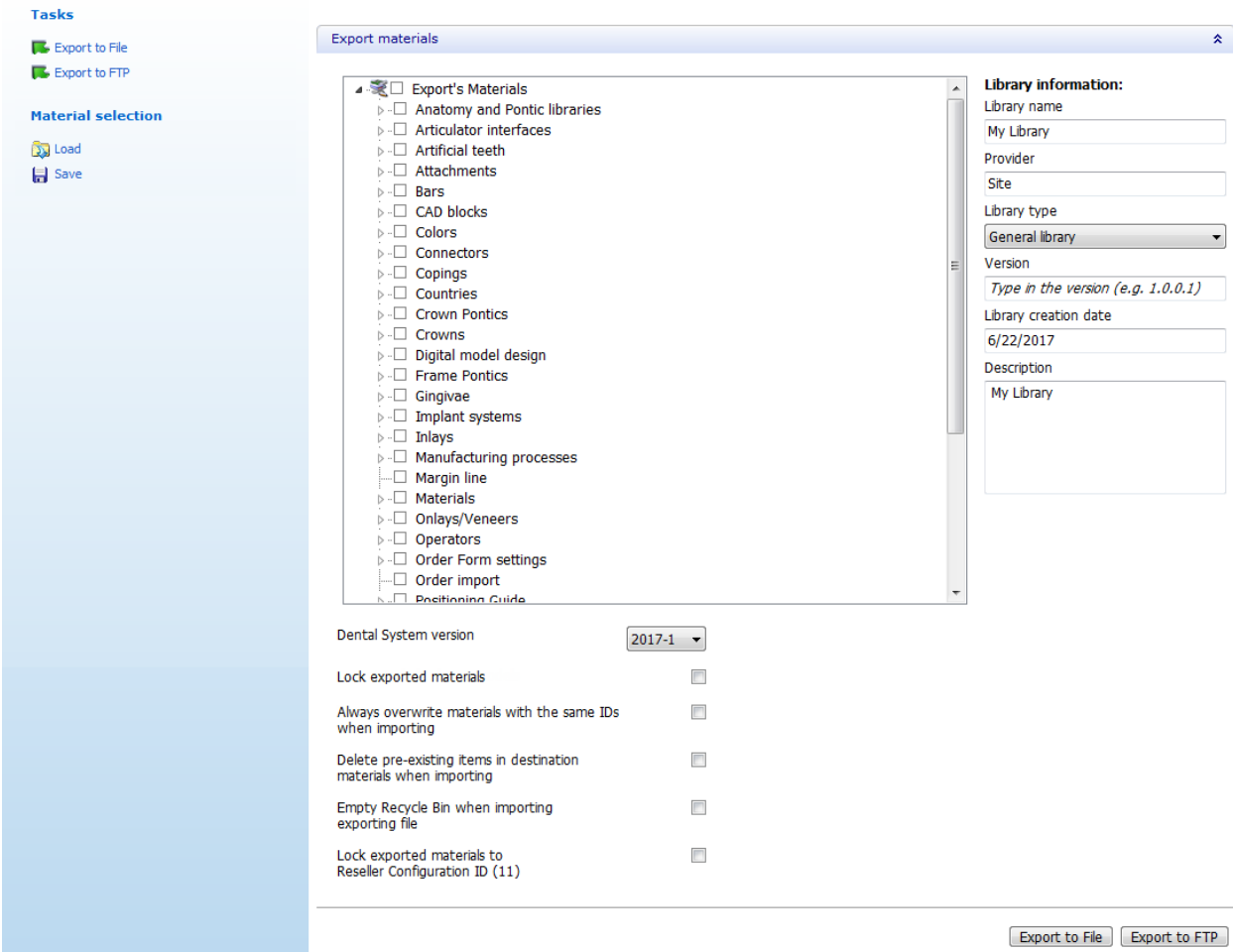
You can export materials to the specified file or to FTP by selecting the desired materials and clicking the "Export to File" or "Export to FTP" buttons.

Select the "Lock exported materials" check-box in case the material settings must not be changed at the receiving end.

If you select "Empty Recycle Bin when importing" check-box then before importing material file Recycle Bin will be cleaned. When you select the "Always overwrite materials with the same IDs" and "Delete pre-existing items in destination materials" check-boxes, the warning dialog windows pop up to make sure that this is what you want to do.

Export materials

Click the  [Export materials](#) link or  button to open the following window:



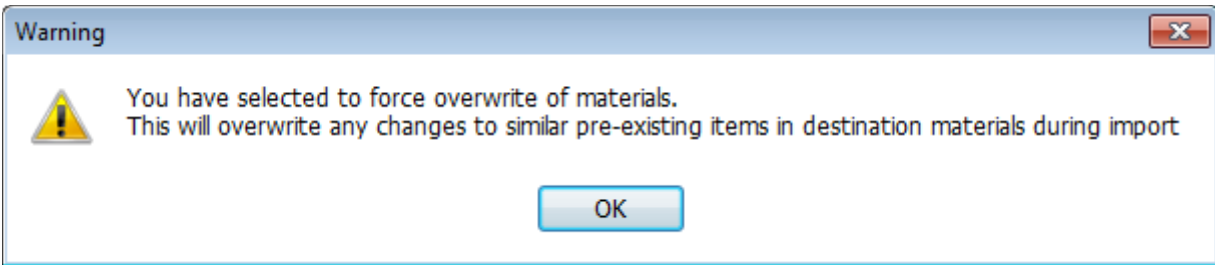
You can export materials to a file or FTP by selecting the desired materials and clicking the **Export to File** or **Export to FTP** buttons.

Click **Save** in the **Material selection** tab to save the currently selected materials, so the next time you open application and click **Load**, the program can automatically select the same materials. Fill in **Library name**, **Provider**, **Version**, **Description**, select **Library type**.

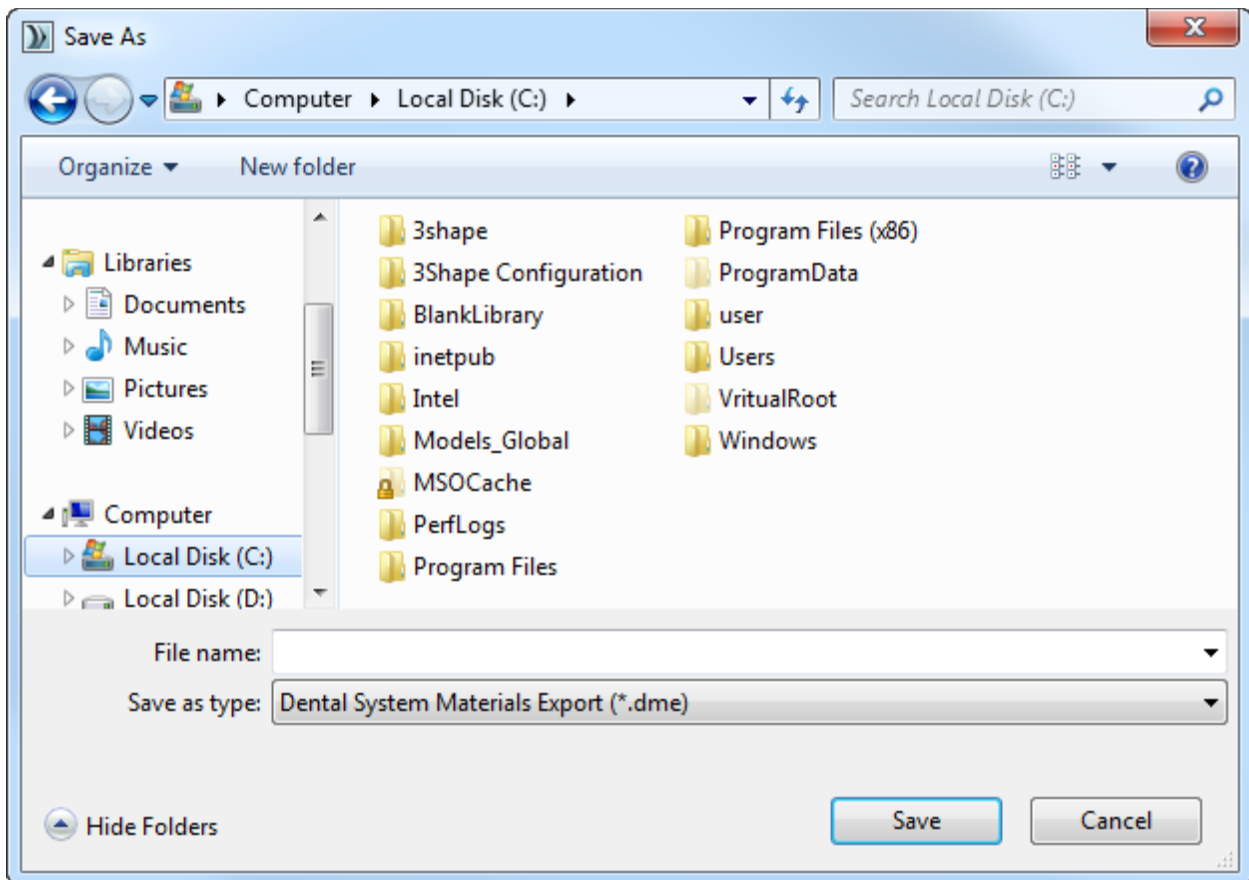
The **Dental System version** drop-down list lets select the version to export the materials for.

Select the **Lock exported materials** check-box in case the material settings must not be changed at the receiving end.

When you select the **Always overwrite materials with the same IDs** and **Delete pre-existing items in destination materials** check-boxes, the warning dialog windows pop up for confirmation:



The export functionality supports encryption of Implant System, Anatomy and Pontic, Smile and Top Cap libraries to DME files:



- **Clone system**

You have the option to save all dental system application settings to a file and then load it, for example, to a Dental System during installation on another PC.

However, the cloning process works only for Dental Systems of the same software version.

Press the **Clone system** button and select a location to save the file with your system settings, then load the file during Custom Installation to have the settings applied (see chapter [System Installation](#) for details on how to load the file with a cloned system).

Clone system



To clone a system with all dental applications and preferences click the "Clone System" button and select the path for export.
As a result of this operation you will get a file for cloning the system on another PC. To use this file select Custom Installation and then "Clone System" installation type in Dental System Installer.
Note: The file with a cloned system is applicable only for identical versions of Dental System and operation system.

Clone system

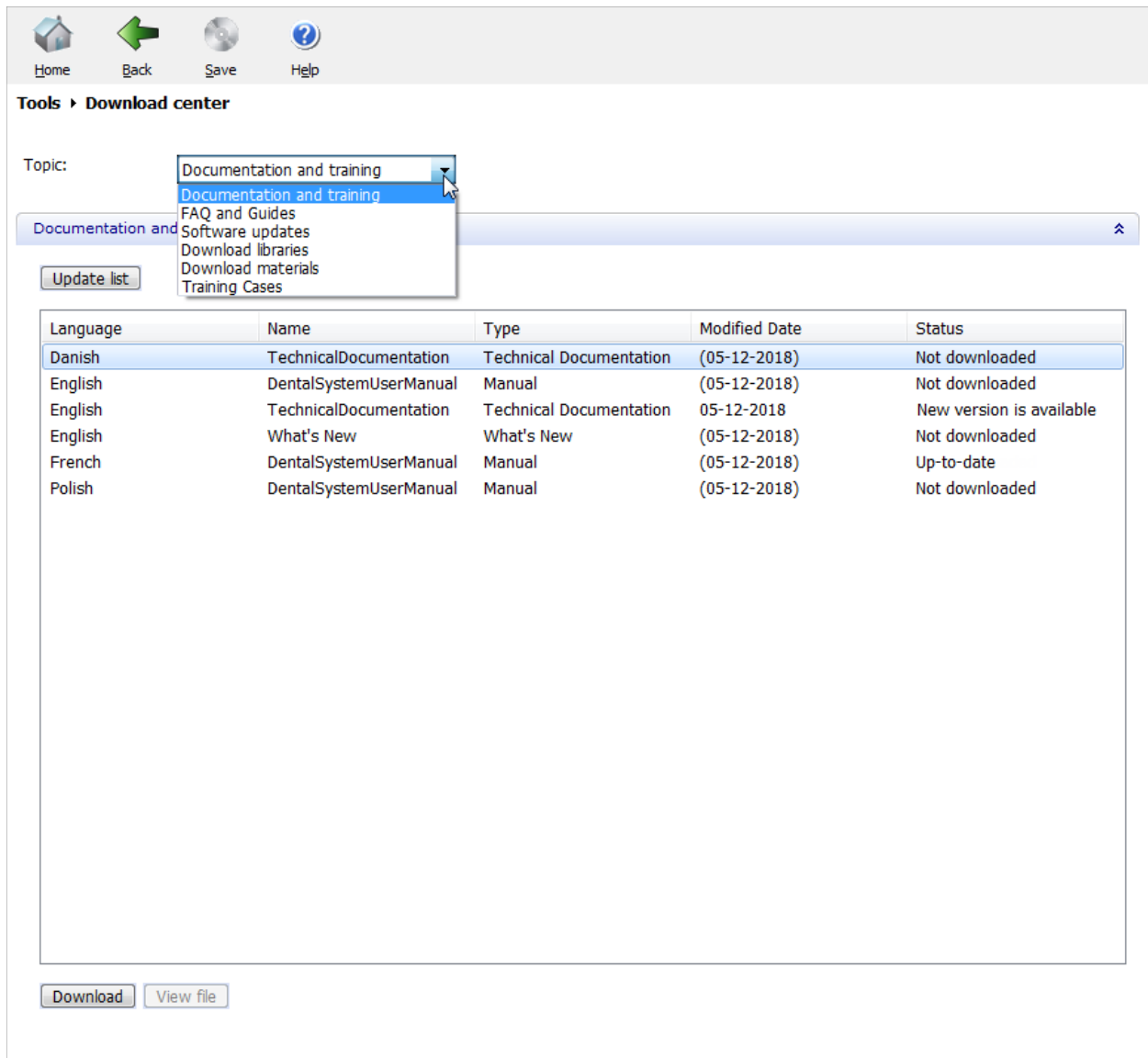
3.4.3. Download Center

At the **Download center** you can get the latest manuals in multiple languages, libraries, materials and more. Select a **Topic** from the drop-down menu:

1. **Documentation and training** - select to download a *Dental System user manual* and other documentation in available languages.
2. **FAQ and Guides** - select to download the most common questions/answers on Dental System™, as well as various guides and instructions.
3. **Software updates** - select to download and install software updates:
 - a. Select a site from the drop-down menu to get a list of available software updates from and click **Get updates**.
 - b. Select a software version you wish to download and click **Download**. It is possible to temporary postpone the already running download with the **Pause** button and resume it later by clicking **Resume**. To cancel the download, click **Cancel**.
 - c. Select a software version you wish to install from the list of downloaded versions and click **Install**.

Your Dental System periodically contacts a designated server for software updates over the internet. You will be offered to download and install a new version of Dental System or it will be downloaded automatically in the background and installed on the next Dental System start-up after your confirmation according to the Update policy set in *Dental System Control Panel*-> *System settings*-> [Services](#).

4. **Download libraries** - select to download libraries from the available providers. Select the relevant checkboxes and click **Import** at the bottom of the page. Please contact your reseller if you wish to download libraries, which appear disabled on the list.
5. **Download materials** - select to download materials to your site from the FTP server. In the drop-down menu, select a site to download the materials from and click **Download**.
6. **Training cases** - select to download the dental demo cases.



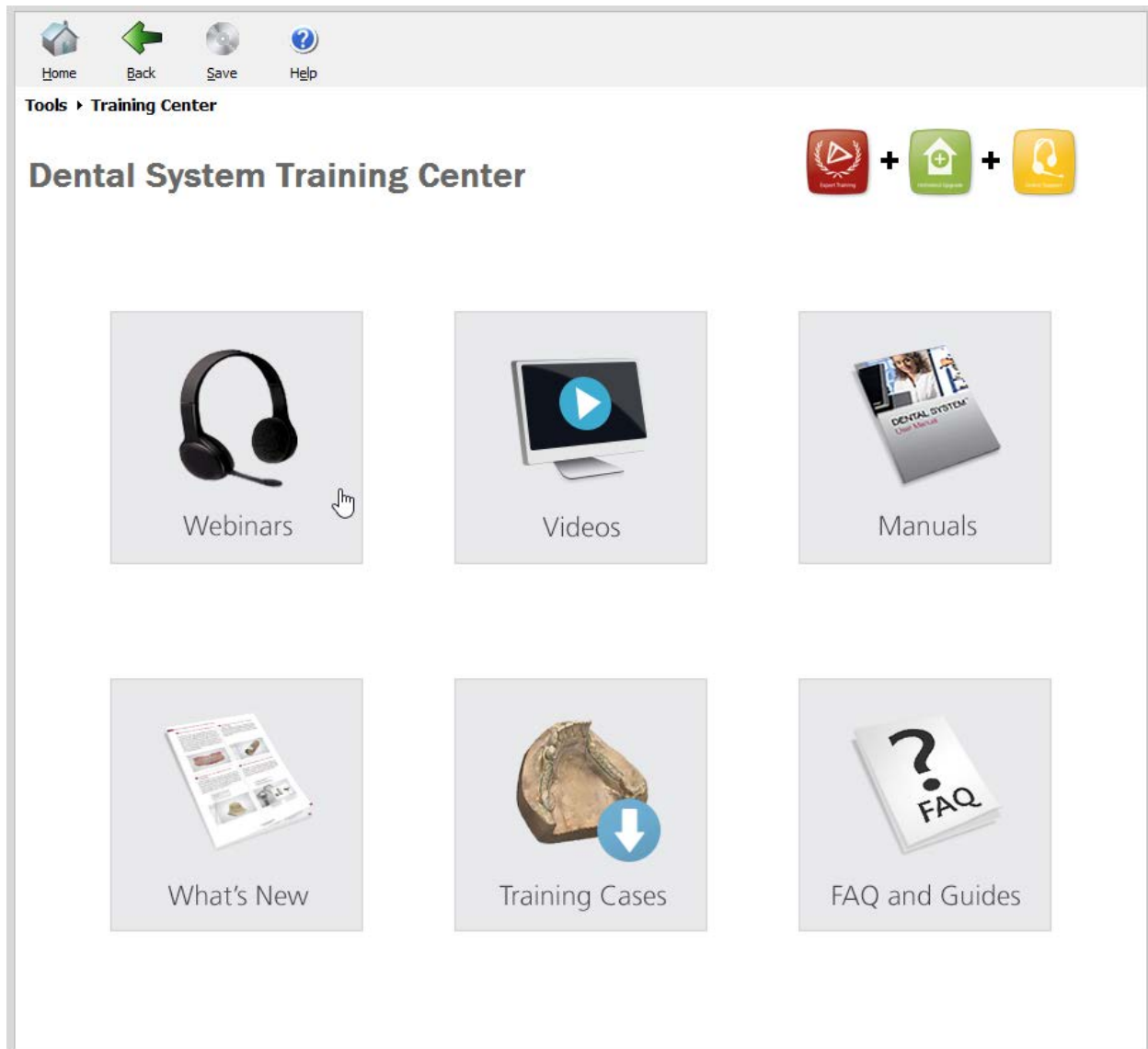
For some topics you will have to click **Update list** to refresh the content and then select the desired file from the list and click **Download** to save the file locally on your computer. The status of the downloaded item changes from "Not downloaded" to "Up-to-date" and you can open it by selecting the **View file** button (becomes active only after the download). The downloaded item receives status "Local file" after you reopen Dental System Control Panel. If there is a newer version of the downloaded file on FTP, the status changes to "New version is available".

3.4.4. Dental System Training Center

To help you get the most out of your Dental System™, 3Shape implemented a Dental System Training Center, which includes the following services:

1. **Webinars** - click to open the 3Shape website and sign up for the next 3Shape webinar or watch the recorded webinars.

2. **Videos** - click to open the 3Shape website and watch educational 3Shape videos, testimonials, interviews and more.
3. **Manuals** - click to open the latest *Dental System user manual*.
4. **What's New** - click to open the *What's New document* to see a list of the latest updates to Dental System™.
5. **Training Cases** - click to download the dental demo cases.
6. **FAQ and Guides** - click to download the most common questions/answers on Dental System™, as well as various guides and instructions.

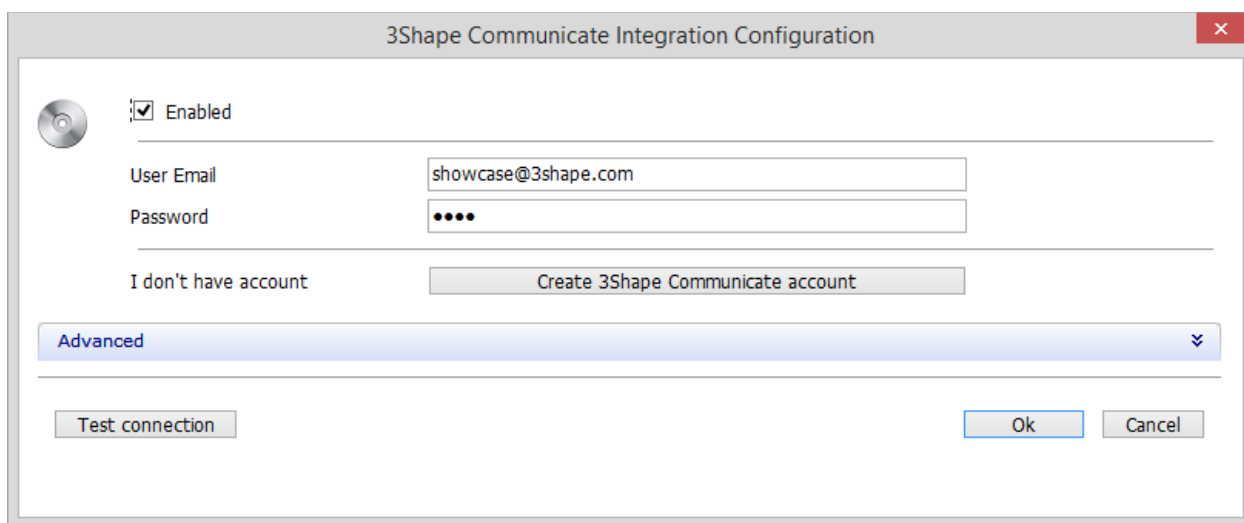
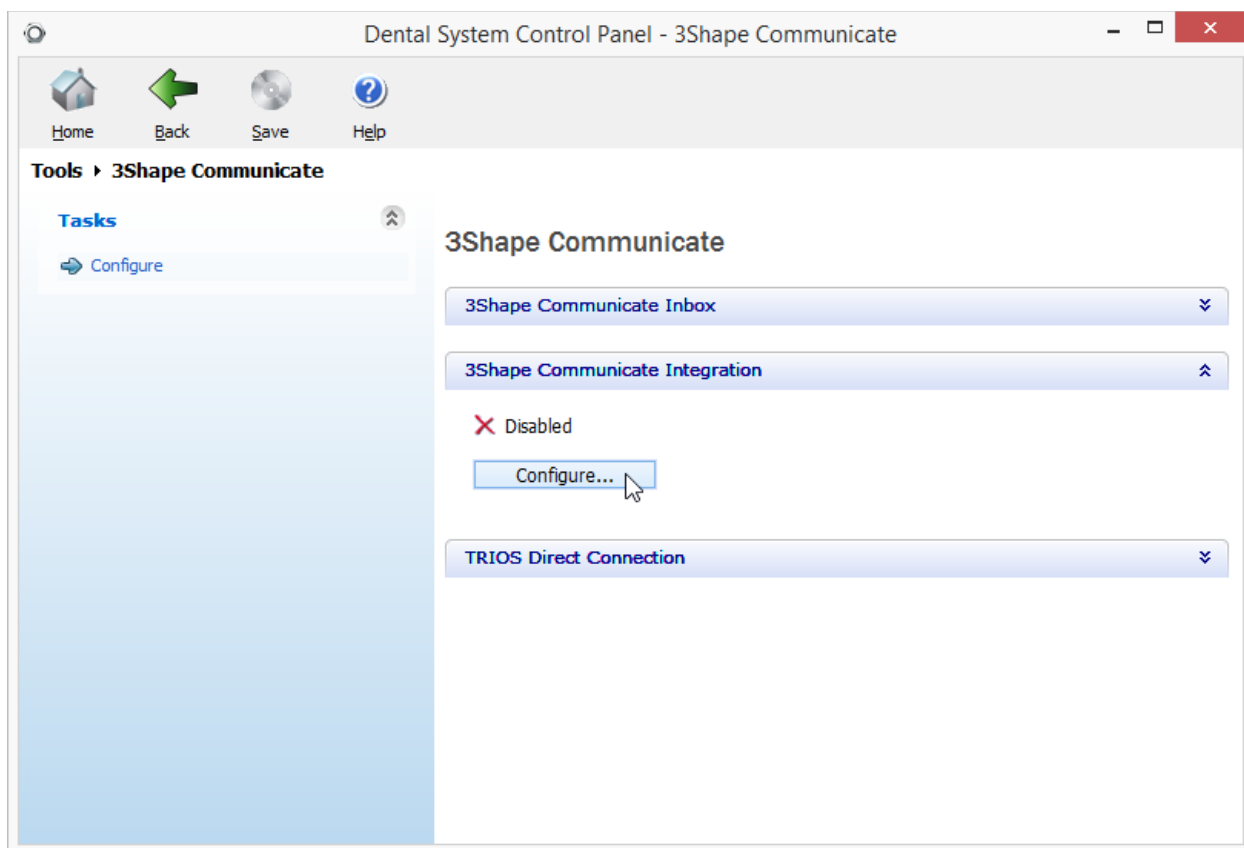


3.4.5. 3Shape Communicate®

After [registration](#) with [3Shape Communicate®](#), you can configure the required 3Shape Communicate integration settings in *Dental System Control Panel*->*Tools*->*3Shape Communicate*->*3Shape Communicate Integration*:

► **Step 1: Open 3Shape Communicate Integration window**

Click the **Configure...** button under 3Shape Communicate Integration to open *3Shape Communicate Integration* window



►Step 2: Enter 3Shape Communicate account details

Mark the **Enabled** checkbox and fill in your 3Shape Communicate account login details. If you don't have an account, click the **Create 3Shape Communicate account** button to [register](#) on the 3Shape Communicate web page.

The **Advanced** settings are all filled out by default, but you can change them if desired.

3Shape Communicate Integration Configuration

☒ Enabled

User Email: showcase@3shape.com

Password:

I don't have account: Create 3Shape Communicate account

Advanced

3Shape Communicate Inbox folder: c:\3shape\3ShapeCommunicate\Inbox Browse...

3Shape Communicate Synchronization

Autocheck updates interval, seconds: 1800

Stop manual synchronization after: 900 seconds passed

Send screenshots of designed orders: ☒

Send confirmations: On TRIOS order received

Last synchronized at: 19/03/2018 14:10:58

Get updates newer than: 19/03/2018 14:10:58

Please select a date from which to download order updates. Only order updates that occurred after the selected time will be downloaded.
CAUTION: Selecting a date far back in time will likely cause the next retrieval of orders (i.e. Refresh of 3Shape Communicate Inbox) to take a long time.

Test connection Ok Cancel

3Shape Communicate Inbox folder - select a path to a folder where the orders will be saved.

Autocheck updates interval - choose how often the software will be checking for new orders on the Communicate site.

Stop manual synchronization after ... seconds passed - select the number of seconds, after which the manual synchronization with 3Shape Communicate will stop. The next manual synchronization will continue right from where it was stopped. If you enter a '0' in this field, the synchronization will not stop until all orders are retrieved.

Send screenshots of designed orders - when enabled, the images of models for recently designed orders are sent to 3Shape Communicate when clicking the **Refresh** button (or pressing **F5**) in Dental Manager. Otherwise, the images will not be sent.

Send confirmations - choose for which orders to send a confirmation of receiving an order.

Get updates newer than - choose a date and time to enable the download of only those orders, which were created or updated after the selected date and time. Please keep in mind that the older the date you select, the more time it will take the software to retrieve orders.

The **Test connection** button allows you to verify connection to the server as well as to validate the e-mail and password.







Click **OK** to save the account information. 3Shape Communicate Integration will be enabled:



3.5. Basic Elements



Basic elements

-  Materials
-  Colors
-  Margin line
-  Attachments
-  2D Design overlays
-  CAD blocks

This category contains settings for the basic elements of the application, such as:

- [Materials](#)
- [Colors](#)
- [Margin Line](#)
- [Attachments](#)
- [2D Design Overlays](#)
- [CAD blocks](#)

3.5.1. Materials

Here you can specify and edit materials, which are to be used for your construction elements:

Basic elements ► Materials

Material

Zirkon
Titan
Wax
Model Material
DREVE FotoDentModel Beige
3D Systems Visijet
Prefab crown
priticrown
SnowRock

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin

11 items
 Restore all
 Empty the Recycle Bin

Details

Total: 9 items

Edit Material

ID Configuration_01_Material1 Change ID

External ID (for interfacing with third party software)

Name

Zirkon

Material family

None ▾

Shader material

Zirconium ▾

Default design module

Use 3Shape Default ▾

Color category

[Any color] ▾

Logo image
(80x20px size recommended)

Change image

Clear image

Not defined

Density

1.00

gr/mm³

☐ Warn if bridge has more than

16

units

Premanufacturing options

Allow to be used with CAD block

☐

Minimum distance to mandrel

2.50

mm

CAD block scaling factor

100

%

Allow to be used with sprue

☐

Locked sprue diameter

☐

Minimum sprue diameter

2.00

mm

Minimum sprue diameter at CAD block

2.00

mm

Minimum manufacturing values (validation)

Write protect validation settings

☐

You can add new materials and edit the existing ones:

- Add** Adds a new material to the *Material* list (as illustrated above: Zirkon, Titan, Wax etc.). When adding a new item, a unique ID is automatically provided, and you must then provide meaningful information such as **Name** etc.
- Copy** Copies the currently selected item (highlighted in the list). As a rule, all data with the exception of the **ID** and **Name** is copied to the new element.
- Delete** Deletes the currently selected item. This does not delete the item immediately – it is deactivated instead and placed in the **Recycle bin**, where it can be finally deleted or restored back to the *Material* list.
- Move up** Moves the currently selected item one place up in the list.
- Move down** Moves the currently selected item one place down in the list.

EDIT MATERIAL

Change ID - Click the button to select a new valid and unique ID for the material, created on this site.

External ID - Each material item may have an **External ID** which is used when interfacing with third parties, e.g. a central manufacturing site. Multiple external IDs are supported. In case no matching material is available, the default material is used.

The following example shows the use of an **External material ID** for interfacing with the third party software.

For instance, you want to use an External ID to map iTero or COS material to 3Shape material. The image shows mapping of iTero Zirconia:Lab Preference (with [iTero ID](#) = 12) and COS Zircon to 3Shape Zirkon material. Thus, whenever iTero order with Zirconia: Lab Preference or a COS Zircon order is imported into Dental Manager it would have Zirkon material.

Edit Material

ID	Configuration_01_Material1	<button>Change ID</button>
External ID (for interfacing with third party software)	<input type="text" value="COS_0,ITERO_12"/>	
Name	<input type="text" value="Zirkon"/>	
Material family	<input type="text" value="None"/>	
Shader material	<input type="text" value="Zirconium"/>	
Default design module	<input type="text" value="Use 3Shape Default"/>	
Color category	<input type="text" value="[Any color]"/>	
Logo image (80x20px size recommended)	<input type="text"/>	<button>Change image</button> <button>Clear image</button>
	Not defined	
Density	<input type="text" value="1.00"/> gr/mm ³	
<input type="checkbox"/> Warn if bridge has more than	<input type="text" value="16"/> units	

Name - It is a regular text string (not necessary unique) that acts as the “visual” identification of an item. Wherever the item appears in Dental System applications, it is identified by its name.

Material family - allows you to select a type of the material.

Shader material - Can be selected to improve visualization of the construction elements in Abutment Designer.

Default design module - Allows you to choose a 3Shape's or third party application to be used for modeling. It is recommended to use the latest version of Dental Designer, since it contains new functionalities and improvements. Choose **Use 3Shape Default** to use any of the modeling applications.

Color category - Allows you to select a color category predefined on the [Colors](#) page.

- If you select a specific color category for the material, only colors included into the category will be available in the [Order form](#).
- Select **Any color** to be able to choose any available color from the list in the Order form.
- Select **Don't use colors** if you don't wish colors to be applied.

Logo image - allows you to upload a logo of specific material manufacturer which will be displayed in the Order Form when you choose this material for your dental indication.

Density - the material density, which is used to calculate the mass of the produced model.

Warn if bridge has more than ... units - when enabled, a warning will be displayed in the Order form when a bridge consists of more units than the specified value. You can use this option to avoid the production of large bridges for specific materials.

PRE-MANUFACTURING OPTIONS

The **Pre-manufacturing options** are used during the [Place in block](#) step in Dental Designer:

Premanufacturing options

Allow to be used with CAD block	<input type="checkbox"/>
Minimum distance to mandrel	<input type="text" value="2.50"/> mm
CAD block scaling factor	<input type="text" value="100"/> %
Allow to be used with sprue	<input type="checkbox"/>
Locked sprue diameter	<input type="checkbox"/>
Minimum sprue diameter	<input type="text" value="2.00"/> mm
Minimum sprue diameter at CAD block	<input type="text" value="2.00"/> mm

Allow to be used with CAD blocks - enables the **Place in block** step, allowing you to place a crown inside a CAD block for further milling.

Minimum distance to mandrel - sets a minimum distance from a crown inside the CAD block to the mandrel.

CAD block scaling factor - shrinkage degree of the CAD block material during a burnout.

Allow to be used with sprue - adds a sprue to a crown inside the CAD block.

Locked sprue diameter - sets sprue diameter to its minimum value (specified in **Minimum sprue diameter**) and locks it so it cannot be changed during modeling.

Minimum sprue diameter - sets the minimum diameter of sprue at the crown inside of the CAD block.

Minimum sprue diameter at CAD block - sets the minimum diameter of sprue at the fixture inside of the CAD block.

MINIMUM MANUFACTURING VALUES (VALIDATION)

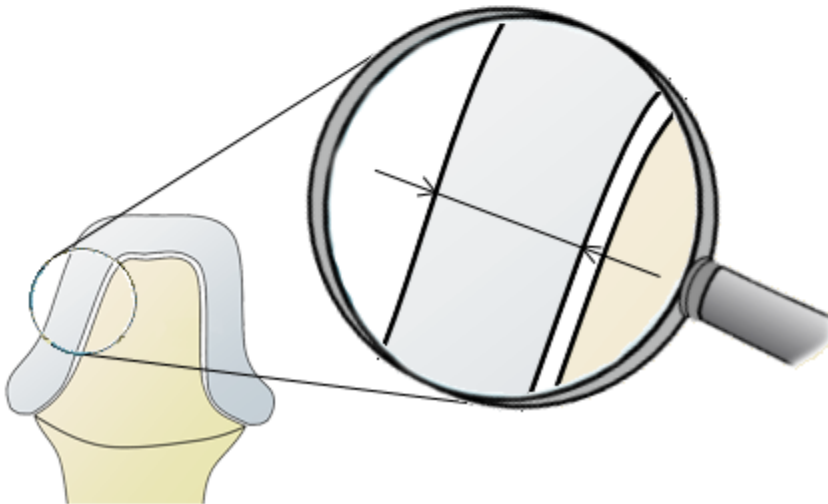
Write protect validation settings - when selected, disables the validation settings (the ones that follow below), thus protecting them from being modified.

Always validate at the end of modeling - When selected, performs an automatic design validation at the final step of modeling in Dental Designer.

Minimum wall thickness - The minimum acceptable distance between the outer overlay and inner (cement space) surface. Click on the value of the **Minimum wall thickness** and its **Margin line offset**, **Offset angle** and **Extension offset** settings to view the explanatory illustrations. The **Margin line offset** parameter ensures adequate thickness of the coping edge at the margin line.

Minimum manufacturing values (validation)

Write protect validation settings	<input type="checkbox"/>
Always validate at the end of modelling	<input type="checkbox"/>
<input checked="" type="checkbox"/> Minimum wall thickness	<input type="text" value="0.60"/> mm
Margin line offset	<input type="text" value="0.05"/> mm
Offset angle	<input type="text" value="85.00"/> °
Extension offset	<input type="text" value="0.05"/> mm
Validation enforcement policy	User can choose to ignore violations ▼
<input checked="" type="checkbox"/> Minimum connector area	<input type="text" value="9.00"/> mm ²
<input type="checkbox"/> Use advanced connector validation	
<input type="checkbox"/> Minimum connector strength	<input type="text" value="0.00"/> mm
<input type="checkbox"/> Force color selection	



Validation enforcement policy - During modeling, the program can indicate and/or improve some of the violations of minimal parameters (e.g. wall thickness). Choose one of the four options for validation:

- **No enforcement** - no validation is performed.
- **User can choose to ignore violations** - validation is performed but you can proceed ignoring the violations.
- **Always enforce, but notify the user first** - validation is performed and violations are automatically fixed. You receive the corresponding notification.
- **Always enforce without notifying the user** - validation is performed and violations are automatically fixed. No notification is displayed.

Minimum connector area - The minimum area value allowed in the thinnest part of a connector.

Use advanced connector validation - Allows you to choose the required connector area, depending on the number of pontics, or the connectors thickness for molars. Click on the chosen value and key in the required one to adjust.

☒ Use advanced connector validation

FDI	Upper jaw								Lower jaw							
	11-21	11-12 21-22	12-13 22-23	13-14 23-24	14-15 24-25	15-16 25-26	16-17 26-27	17-18 27-28	31-41	31-32 41-42	32-33 42-43	33-34 43-44	34-35 44-45	35-36 45-46	36-37 46-47	37-38 47-48
No pontic	5	5	5	9	9	9	9	0	4	4	4	9	9	9	9	0
One pontic	5	5	7	9	9	9	9	0	4	4	9	12	12	12	12	0
Two or more pontics	7	7	9	9	12	14	16	0	6	6	12	12	14	16	18	0

Minimum connector strength - Minimum connector thicknesses for each connector depending on the connector's corresponding tooth position and the number of pontics.

Force color selection - When checked, the mandatory [color selection](#) is applied when defining an order in the Dental Manager Order from.

3.5.2. Colors

The color of restoration material can be defined here.

Click on the **Color** square to open up a color palette and select the desired color. You can add/copy/delete colors and modify them at any time.

Basic elements ► Colors

Color

A1
A2
A3
A3,5
A4
B1
B2
B3
B4
C1

+ Add
+ Copy
X Delete
Move up
Move down

Recycle bin
1 item
Restore all

Edit Color

ID
Name
Color

Color1
A1

Change ID

Color category

Color category

Pritidenta Colors
Vita Classical
Vita 3D-Master
Ivoclar Chromascop
IPS e.max LT/HT
Polycon ae

+ Add
Rename
X Delete



Vita Classical

A1
A2
A3
A3,5
A4
B1

+ Add current color
X Delete

You can create a **Color category** with the list of required colors. This color category can be later selected in the [Order form](#) while defining an order. You can also set this color category for a specific material on the [Materials](#) page.

To create a color category:

1. Click the **Add**  button in the *Color category* window.
2. Enter a name for your category in the appeared form (e.g. ColorCategory1).
3. Click **OK**.
4. Click the **Add current color**  button to include a color, selected from the list, to your category.

3.5.3. Margin Line

Specify here the default settings for detecting the margin line:





Point distance - defines the distance between neighboring points on the margin line.

Angle - defines the angle used for automatic detection of the margin line. Increasing this angle will make the automatically detected margin line “crawl up” on the die and vice versa for decreasing it.

Maintain angle - used for automatic detection of the margin line. Low values will place the automatically detected margin line on surface extreme (i.e. sharp edges) while high values will place the automatically detected margin line where the **Angle** criterion is fulfilled.

Smoothing - a post-processing step in the automatic detection scheme; high values apply significant smoothing to the automatically detected margin line (making it appear very aesthetically pleasing but less accurate) and vice versa for low values.

Edit Margin line

Name	<input type="text" value="Margin line"/>
Point distance	<input type="text" value="0.30"/>   mm
Angle	<input type="text" value="0"/>   °
Maintain angle	<input type="range" value="50"/>
Smoothing	<input type="range" value="50"/>

3.5.4. Attachments

You can specify here the desired settings for the attachments, which are used in Dental Designer ([Sculpt toolkit](#)) for various restorations, especially bars.

Basic elements ▶ Attachments

Attachments

Micro

Micro + Cap

Normal

Micro + Housing

Normal + Cap

Normal + Housing

Equator

Equator + Cap

Equator + Housing

Locator®

+

Add

+

Copy

×

Delete

↑

Move up

↓

Move down

Recycle bin

→

No items

↶

Restore all

↷

Empty the Recycle Bin

Details

Total: 60 items

Attachments

ID


AttachSphereMicro

Change ID

Name

Micro

Attachment visual model path




Attachment visual model path
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Attachments\Rhein83\single threaded sphere micro 1.8mm 2mm thread.dcm

Attachment additive model path

Attachment additive model path

Attachment subtractive model path



Attachment subtractive model path
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Attachments\Rhein83\DrillHole22x25.dcm

Default orientation

Insertion direction

Additional parameters

Drill hole diameter

0.00

Optional degrees of freedom

Tilt

☒

Max tilt

30.00

Translate from surface

☒

Max distance

1.00

Rotation around axis

☐

Scale in x direction

☐

Scale in y direction

☐

Scale in z direction

☐

ATTACHMENTS

The following types of attachment models can be used:

- Visual - The CAD model used for visualization while placing the attachment.
- Additive - The CAD model that will be added to the design item the attachment is placed on when applied.
- Subtractive - The CAD model that will be subtracted from the design item the attachment is placed on when applied.

Only the visual model is required for making an attachment. The additive and subtractive models are optional.

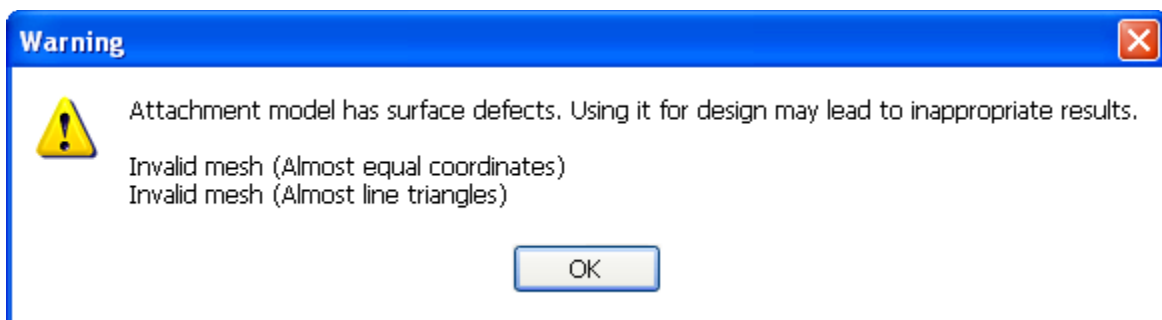
The additive and subtractive models can be used either separately or together as a set. E.g. if you want to add a ball attachment for a bar, you select a ball attachment as a visual model and a thread model as a subtractive model; an additive model is left empty. As a result, you receive a model of a hole with an inner thread.

Browse for the visual, additive and subtractive models by clicking the corresponding **Attachment model paths**.

When adding attachment models, consider the following triangulation requirements for the CAD files:

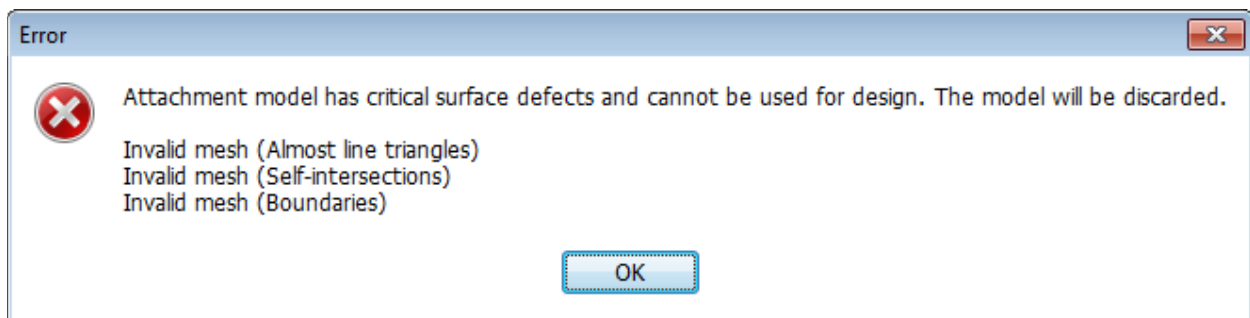
- The visual model is only used for visualization and does not have to meet any strict requirements. For performance reasons, however, the triangle count should be kept as low as possible.
- The additive and subtractive models should meet the following requirements:
 - The model surface should be closed. There should be no boundaries on the model.
 - Slim triangles should be avoided.
 - Very small triangles should be avoided.
 - Vertices may not share the same position or be extremely close.

If the attachment model has surface defects, the following warning appears, informing you about the problem:



After clicking **OK**, the defective model will be loaded anyway, but you can select a different model, if desired.

If, however, the attachment model has critical surface defects, the program displays the following error message and does not load the invalid model after you click **OK**:



A valid CAD file for the attachment must not contain such defects as:

- Self-intersections.
- Too small, long and/or thin triangles.
- Holes in the surface.
- Manifolds and duplicates etc.

Default orientation

The attachment models must be placed in a specific way in their local coordinate system. This placement determines how the attachment is positioned relative to the design the attachment is placed on:

- The Y-axis is the primary direction of the attachment. This determines how the orientation property of the attachment behaves. When placing an attachment, the attachment models will be rotated to have their Y-axis point along the chosen orientation direction.
- Origo of the attachment models will be placed on the surface of the design the attachment is placed on.

Choose the **Default orientation** option for the attachment when positioned on a design in Dental Designer: **Insertion direction** (along the design's insertion direction), **Surface normal** (along the design's surface) or **Telescope direction** (along the telescope's insertion direction), if applicable.

OPTIONAL DEGREES OF FREEDOM


To define the degree of tilt and translation for the attachment, select the **Tilt** and **Translate from surface** checkboxes and enter the **Max tilt** and **Max distance** values.

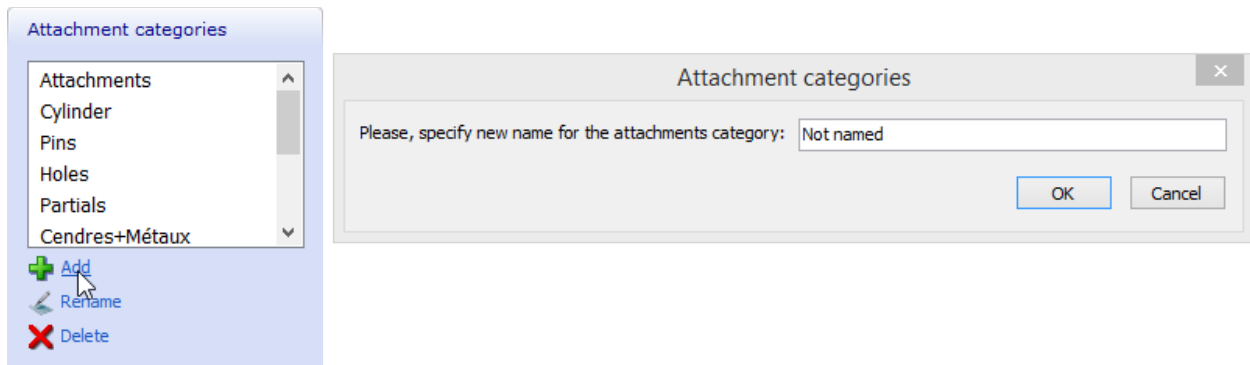
Select the **Rotation around axis** or **Scale in x/y/z direction** checkbox to allow the rotation or scaling of your attachment respectively.

ATTACHMENT CATEGORY

Create categories of attachments to make the working process in Dental Designer more comfortable and organized.

►Step 1: Add a new category

Click the **Add**  button in the *Attachment categories* window, enter a name for your category in the appeared form and click **OK**.

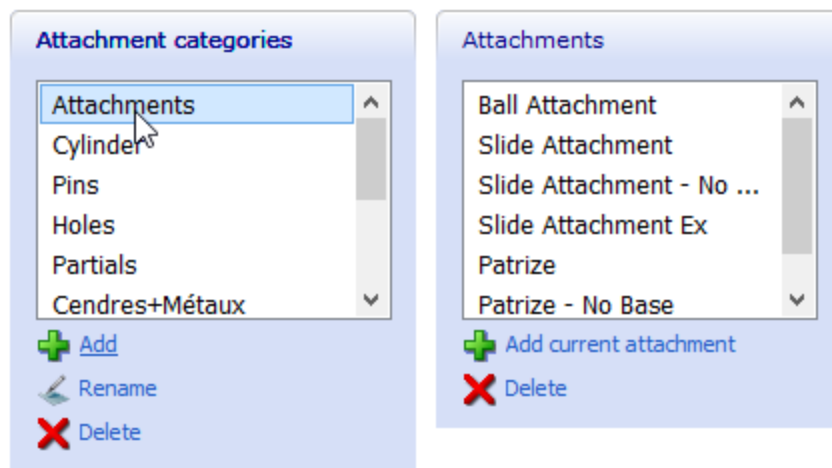


► Step 2: Add a current attachment to your category

Click on your created category in the list to open it and press **Add current attachment** to add the attachment you are currently modifying/viewing (see images below).

When you enter any attachable component in the list located in the upper left corner of the main window, your category appears in every *Attachment categories* window, so you can add a new component to the list.

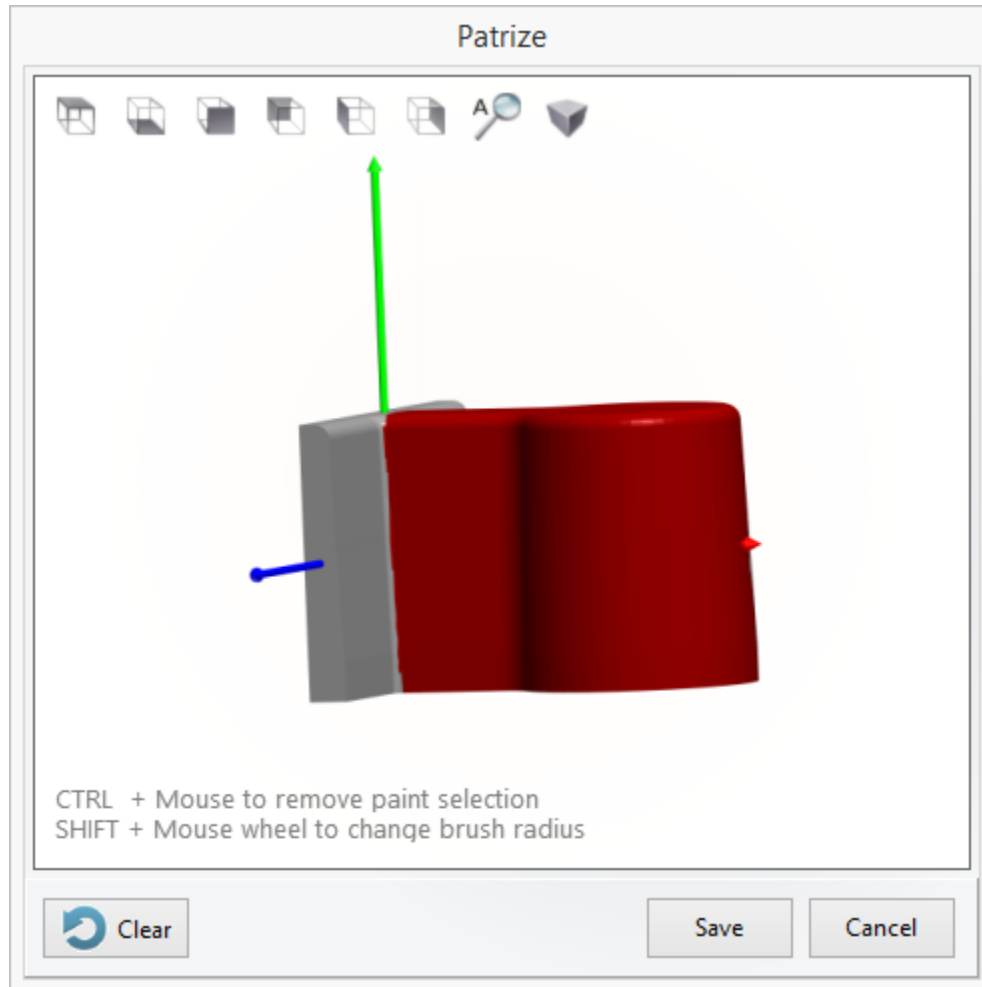
Thus, when working in Dental Designer, you are able to choose the category and attachment you wish to work with.



ADDITIONAL OPTIONS



The **Mark** button allows you to mark areas on the attachment to protect them from modification.



Example of marking the area on the attachment


3.5.5. 2D Design Overlays

This page allows you to modify the default 2D Design overlays (such as Cross lines) or add new ones and use them during the [modeling process](#) as a reference.

To add a 2D Design overlay:



► **Step 1:** Click  **Add**.

► **Step 2:** Enter a new **Name** for your overlay.

► **Step 3:** Click on the  **No File** link.

► **Step 4:** Browse for the necessary image.

Edit 2D Design overlay

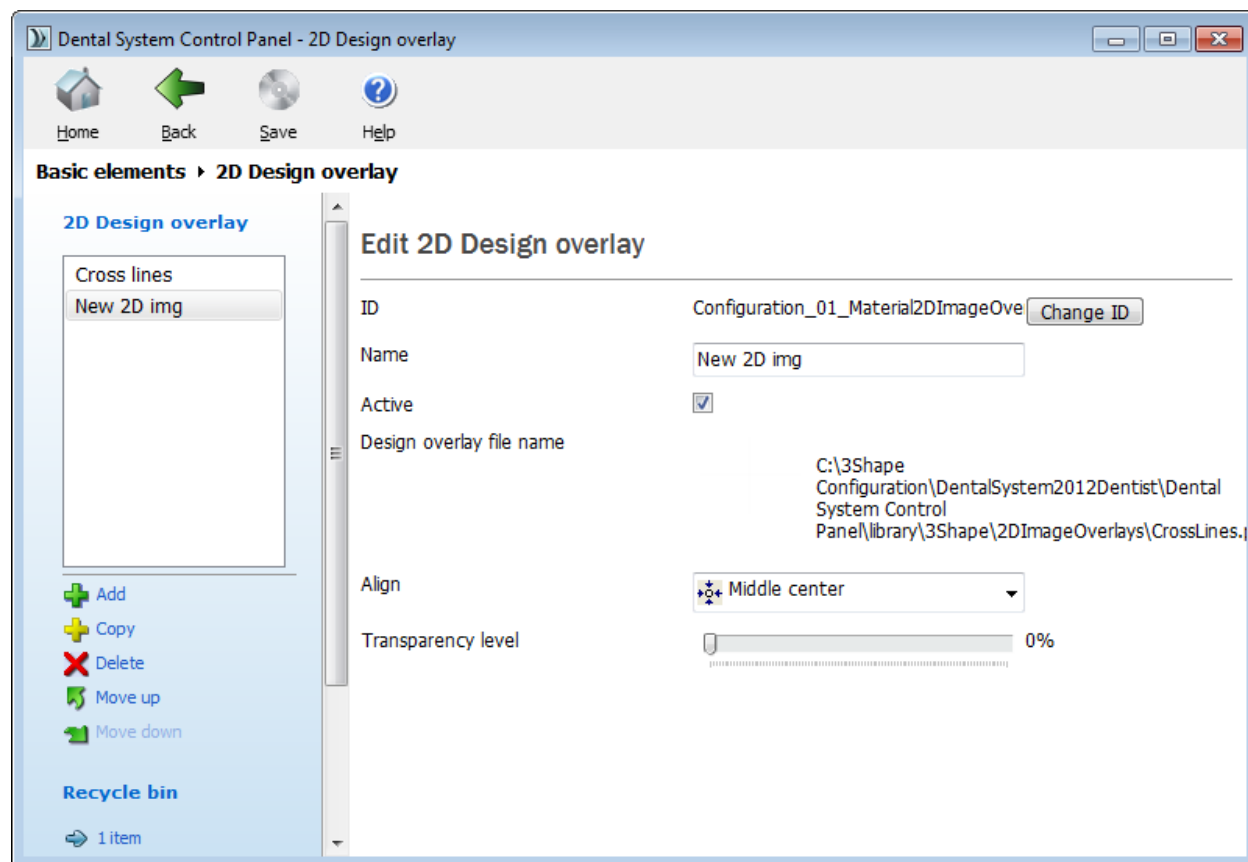
ID	57140_Material2DImageOverlay3	Change ID
Name	<input type="text" value="Not named"/>	
Active	<input checked="" type="checkbox"/>	
Design overlay file name	 No File	
Align	 Middle center	
Transparency level	<input type="range" value="0%"/> 0%	

► **Step 5:** Click *Open*.

Choose the overlay default on-screen position in Dental Designer from the **Align** drop-down menu.

Select its **Transparency level** by dragging the slider sideways.

New 2D Design overlay added:



3.5.6. CAD Blocks

The **CAD blocks** page allows an easy and flexible configuration of CAD blocks and mandrels which are used during the [Place in block](#) step in Dental Designer.

CONNECTING CAD BLOCK TO MATERIAL

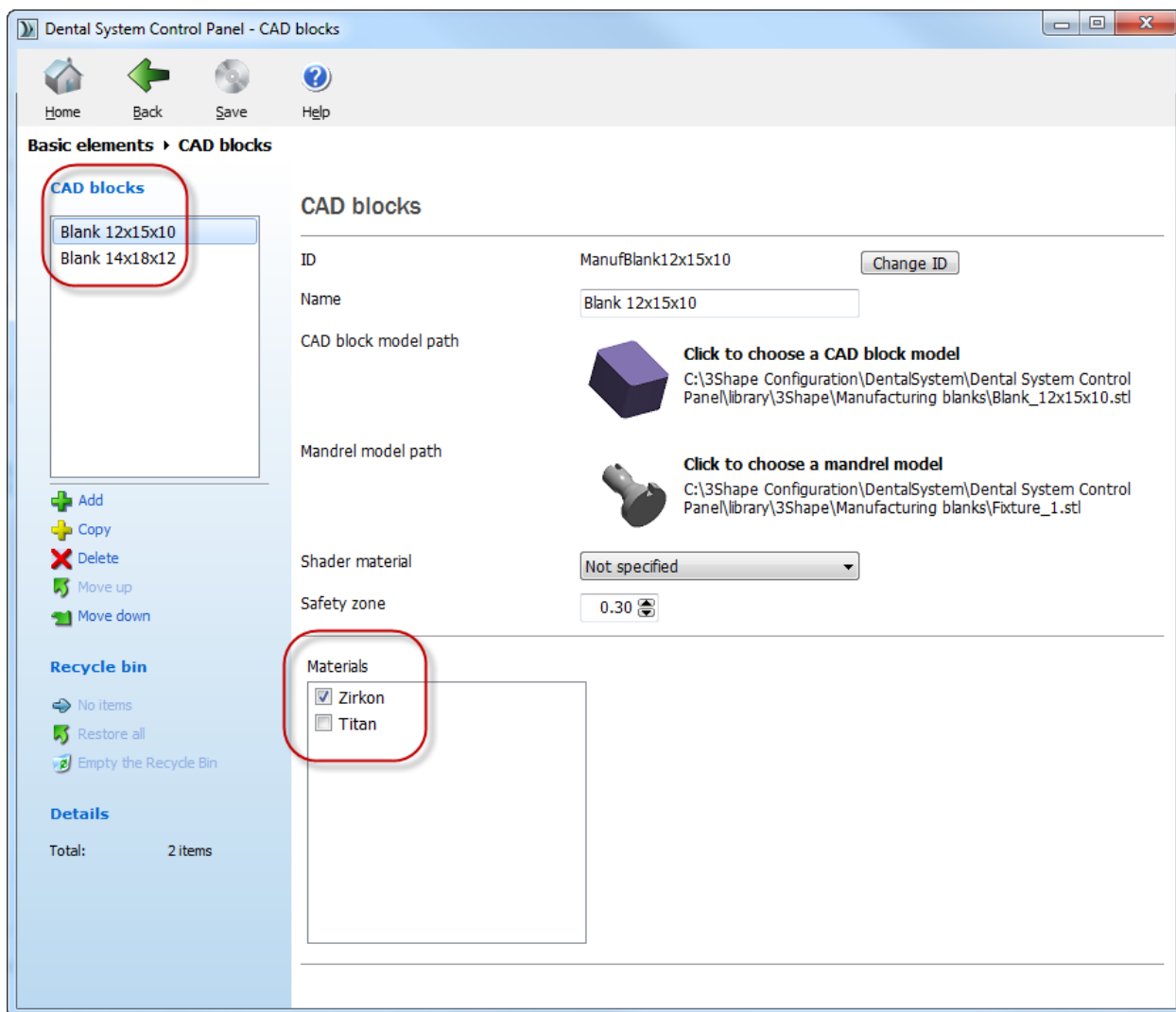
To connect a CAD block to a specific material and then be able to use the CAD block in Dental Designer, please do the following:

► **Step 1:** Enable the CAD block usage for a specific material

Open the [Materials](#) page in Dental System Control Panel, select the desired material (e.g. Zirkon) and place check-marks for **Allow to be used with CAD block** and **Allow to be used with sprue**.

► **Step 2: Select this material for a CAD block you will use during the design**

Open the CAD blocks page, select the desired CAD block (e.g. Blank 12x15x10) and choose the material you set up at the previous step (Zirkon):



Note! The material file with CAD blocks can be added to 3Shape Dental System on request. Please contact your local re-seller for information.

► **Step 3: Select the material you connected to a CAD block in the Order Form**

You should be able now to use CAD blocks in Dental Designer.

SETTINGS

ID - a unique identification code of the CAD block.

Name - a text string (not necessarily unique) that acts as the “visual” identification of the CAD block.

CAD block model path - allows you to choose a CAD block model.

Mandrel model path - allows you to choose a mandrel model.

Shader material - provides a list of shaders for the CAD block.

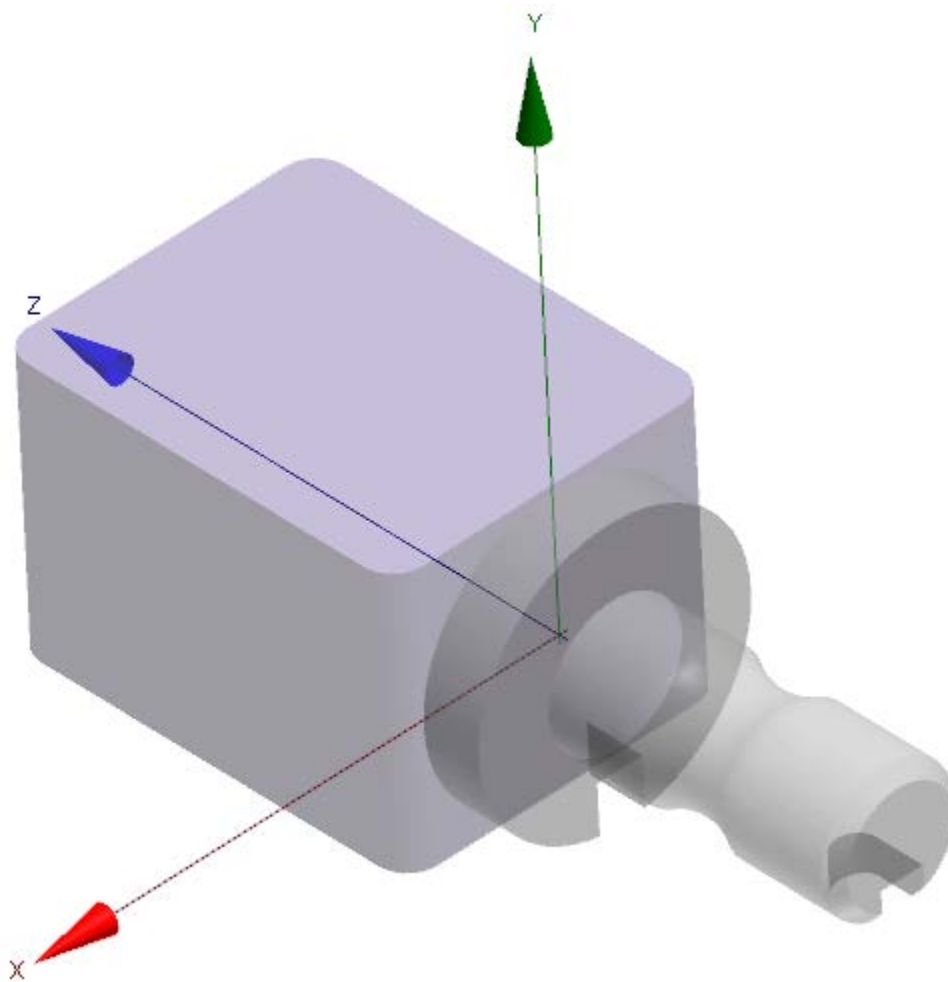
Safety zone - a minimum distance from a crown to the block.

Materials - contains a list of materials which were set up to be used with CAD blocks.

COORDINATE SYSTEM FOR CAD BLOCKS

If you want to configure a custom CAD block, you need to position a block and a mandrel correctly within a coordinate system:

- The origin of the coordinate system needs to be placed in the center of the CAD block's back wall.
- The mandrel needs to be placed with the groove facing down.
- The x axis should be facing sideways.
- The y axis should be facing up.
- The z axis should start in the origin and go through the CAD block.



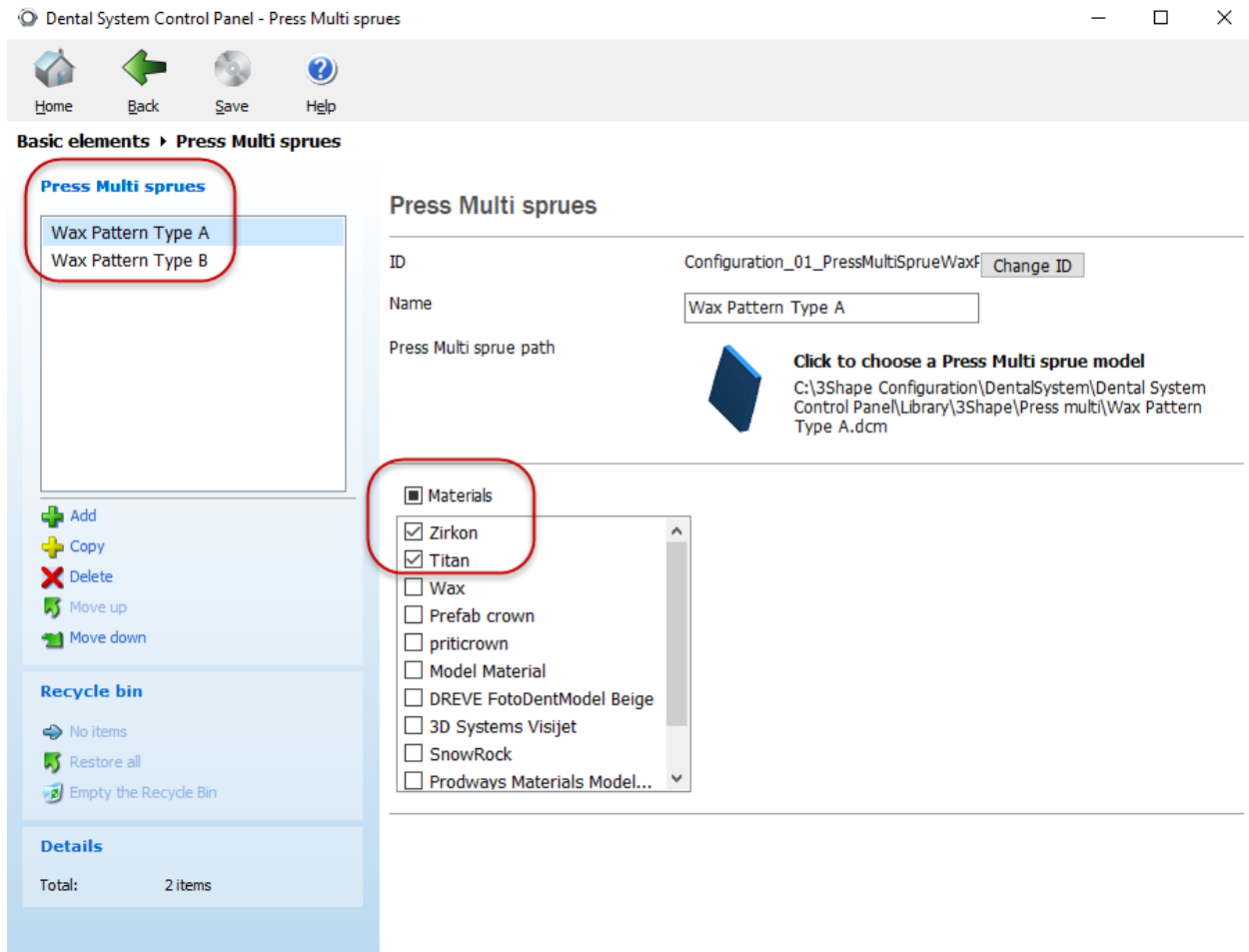
3.5.7. Press Multi sprues

This page allows you to add Press Multi sprues and configure their settings. Press Multi sprues are used during the IPS e.max® Press Multi step in Dental Designer.



Note! To enable IPS e.max® Press Multi functionality contact, please, your re-seller.

To add new Press Multi sprue, click **Add** and choose a Press Multi sprue model file. Then select materials which can be used with this Press Multi sprue.



SETTINGS

ID - a unique identification code of the Press Multi sprue. Click **Change ID** to select a new ID for the Press Multi sprue.













Name – a text string (not necessarily unique) that identifies the type of Press Multi sprue.

Press Multi sprue path – displays a full path to the Press Multi sprue model file and allows to choose another Press Multi sprue model file.

3.6. Anatomy Elements




Anatomy elements

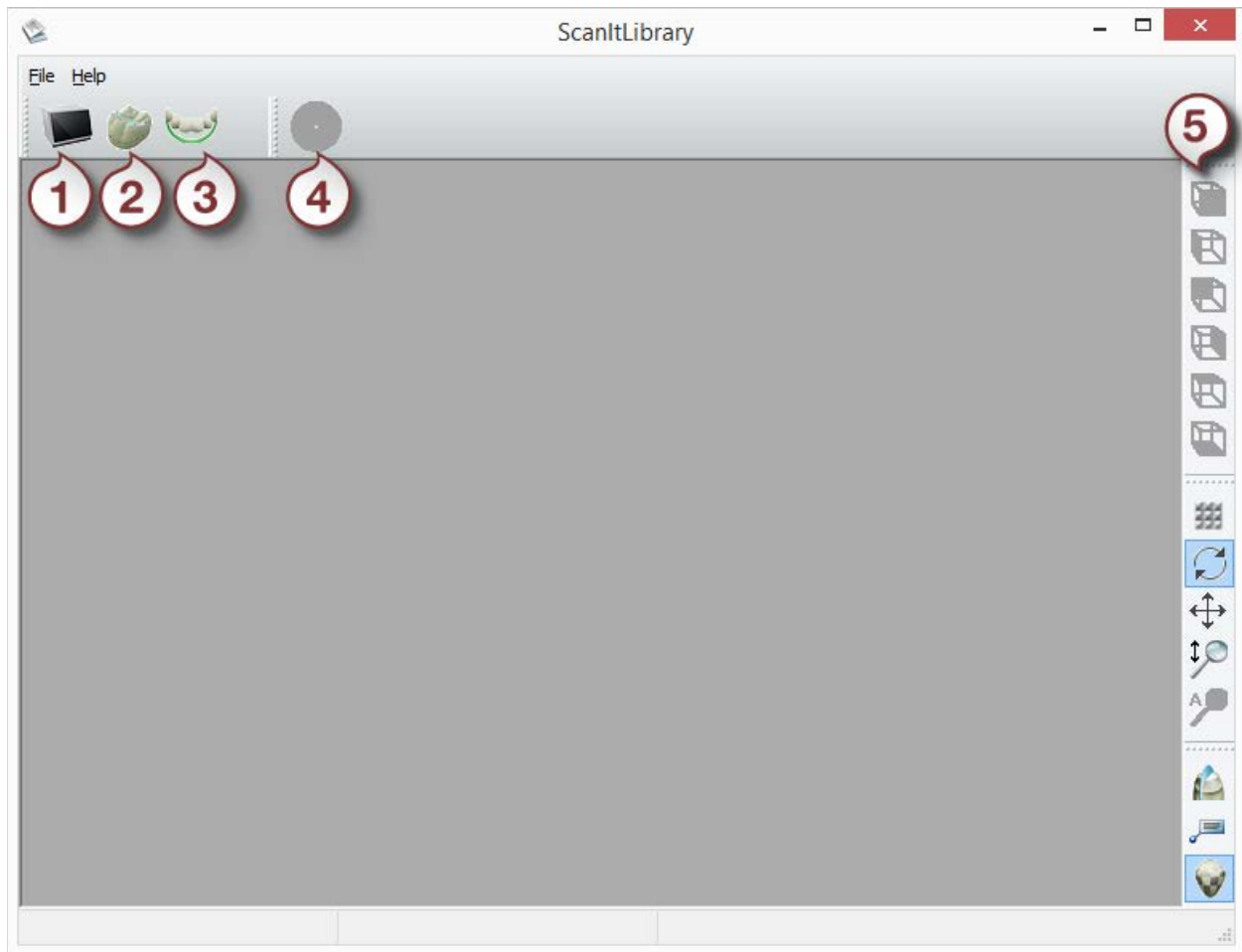
-  ScanIt library
-  Anatomy and Pontic libraries
-  Smile libraries
-  Artificial teeth
-  Crowns
-  Crown Pontics
-  Inlays
-  Onlays/Veneers
-  Temporary Crowns
-  Temporary Pontics
-  Temporaries on prepared model
-  Tabletops

The **Anatomy elements** category contains the settings for defining the anatomical items, which form the outer appearance of a tooth. The following subcategories are presented here:

- [ScanIt Library](#)
- [Anatomy and Pontic libraries](#)
- [Smile libraries](#)
- [Artificial Teeth](#)
- [Crowns](#)
- [Crown Pontics](#)
- [Inlays](#)
- [Onlays/Veneers](#)
- [Temporary Crowns](#)
- [Temporary Pontics](#)
- [Temporaries on prepared model](#)
- [Tabletops](#)

3.6.1. ScanIt Library

Click the  **ScanIt library** in Dental System Control Panel to start the ScanIt Library application:

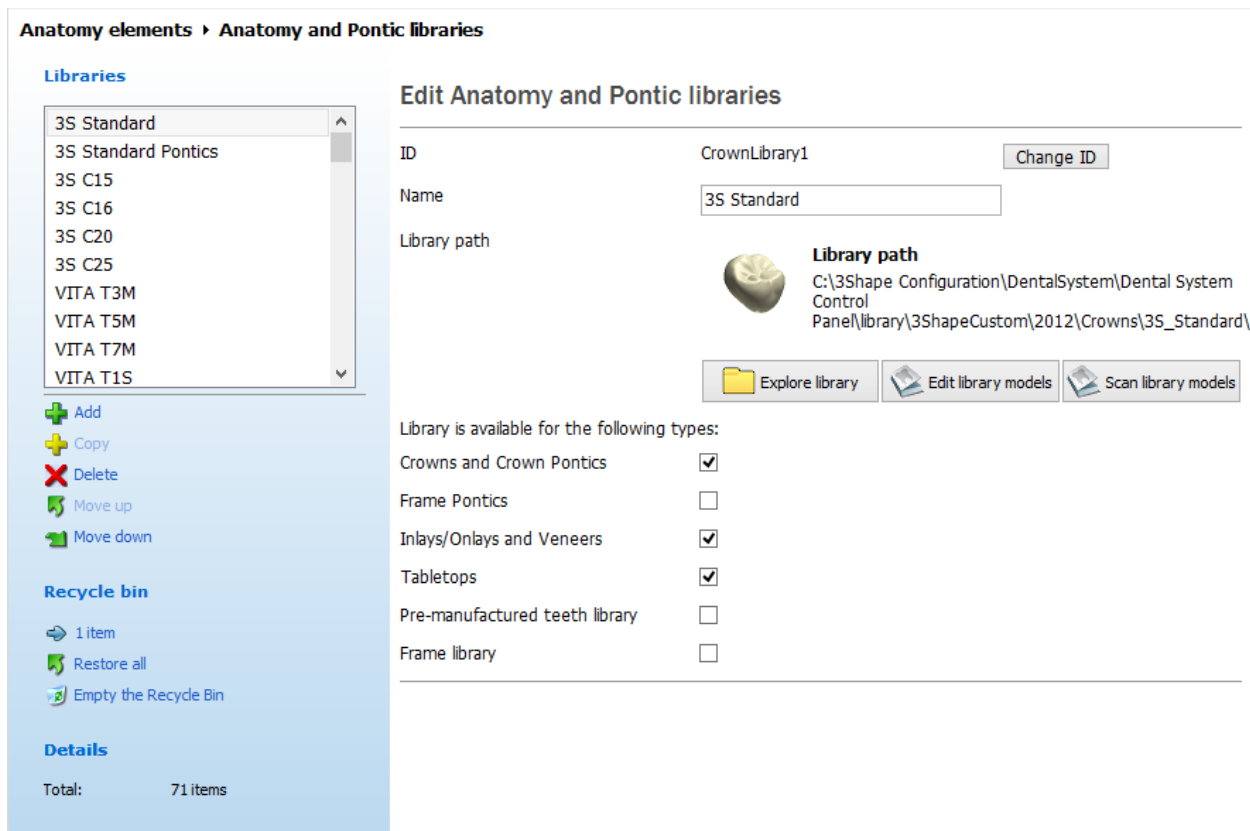


1. Scan crown library
2. Open crown library
3. Compose "smile" library
4. Save "smile" library
5. Viewing tools

The chapter [Custom Libraries](#) describes in details how to add and populate Anatomy and Pontic Libraries as well as Smile libraries.

3.6.2. Anatomy & Pontic Libraries

Here, you can specify a library of regular anatomical construction elements to use.



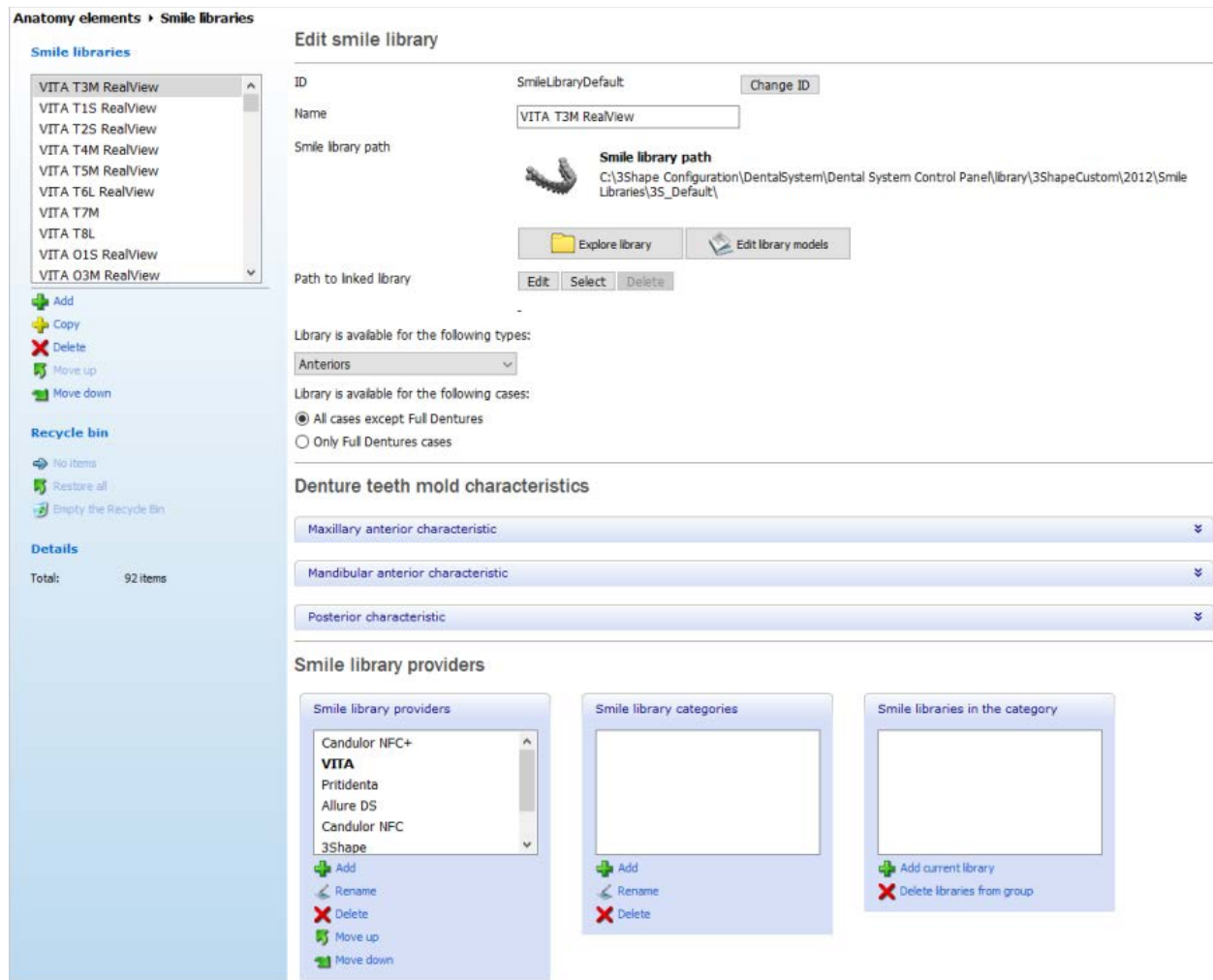
Library path is a link to the folder containing a set of crown and pontic models (in STL or DCM formats). Click on the path name (see the image above) to specify a new path. You can also **Add/Copy/Delete** libraries and make them available/unavailable for some types of dental indications (see the check-boxes in the image above).

Please see [Creating an Anatomy and Pontic Library](#) chapter for details.

3.6.3. Smile Libraries

The **Smile libraries** page lets you specify the libraries to use during the Anatomy Design process.

Please refer to [Adding an empty Smile Library](#) chapter for details.



LINKING SMILE LIBRARY WITH A FRAME OR PRE-MANUFACTURED TEETH LIBRARY

► **Step 1:** Choose your smile library and click the *Select* button.

► **Step 2:** Select the library type to link to from the drop-down menu and choose the library from the list, then click *OK*.

Linked library selection

Linked library selection

Please select a linked library for current smile library.

Library name Frame library ▼

Name

VITA T3M frame

OK Cancel

Linked library selection

Linked library selection

Please select a linked library for current smile library.

Library name Pre-manufactured teeth library ▼

Name

priti_R_S_Blank
priti_R_M_Blank
priti_R_L_Blank
priti_R_XL_Blank
priti_Q_S_Blank
priti_Q_M_Blank
priti_Q_L_Blank
priti_Q_XL_Blank
priti_T_S_Blank
priti_T_M_Blank
priti_T_L_Blank
priti_T_XL_Blank

OK Cancel

► **Step 3:** Click *Edit library model* button to recompose the Smile library together with the linked one.



Hint! You can link libraries by specifying the **Path to linked library** in the *Selection of name* dialog during the Smile library creation.

Selection of name

Selection of name

Please select a path for the library. Either select an existing one, or create new one. Also specify a name for the library.

Library path

Name

Path to linked library



Note! The linked library is transformed after composing, it cannot be used as a regular crown library anymore.

3.6.4. Artificial Teeth

The **Artificial Teeth** page lets you **Edit artificial tooth**, set **Coupling mechanism parameters for teeth in blocks** and **Connection parameters for teeth in block**.

Anatomy elements › Artificial teeth

Artificial teeth

Artificial Tooth Type

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin

No items
 Restore all
 Empty the Recycle Bin

Details

Total: 1 item

Edit Artificial Tooth

ID	ArtificialToothType1	Change ID
Name	Artificial Tooth Type	
Material	Zirkon	
Color	Priti A1	

Coupling mechanism parameters for teeth in block

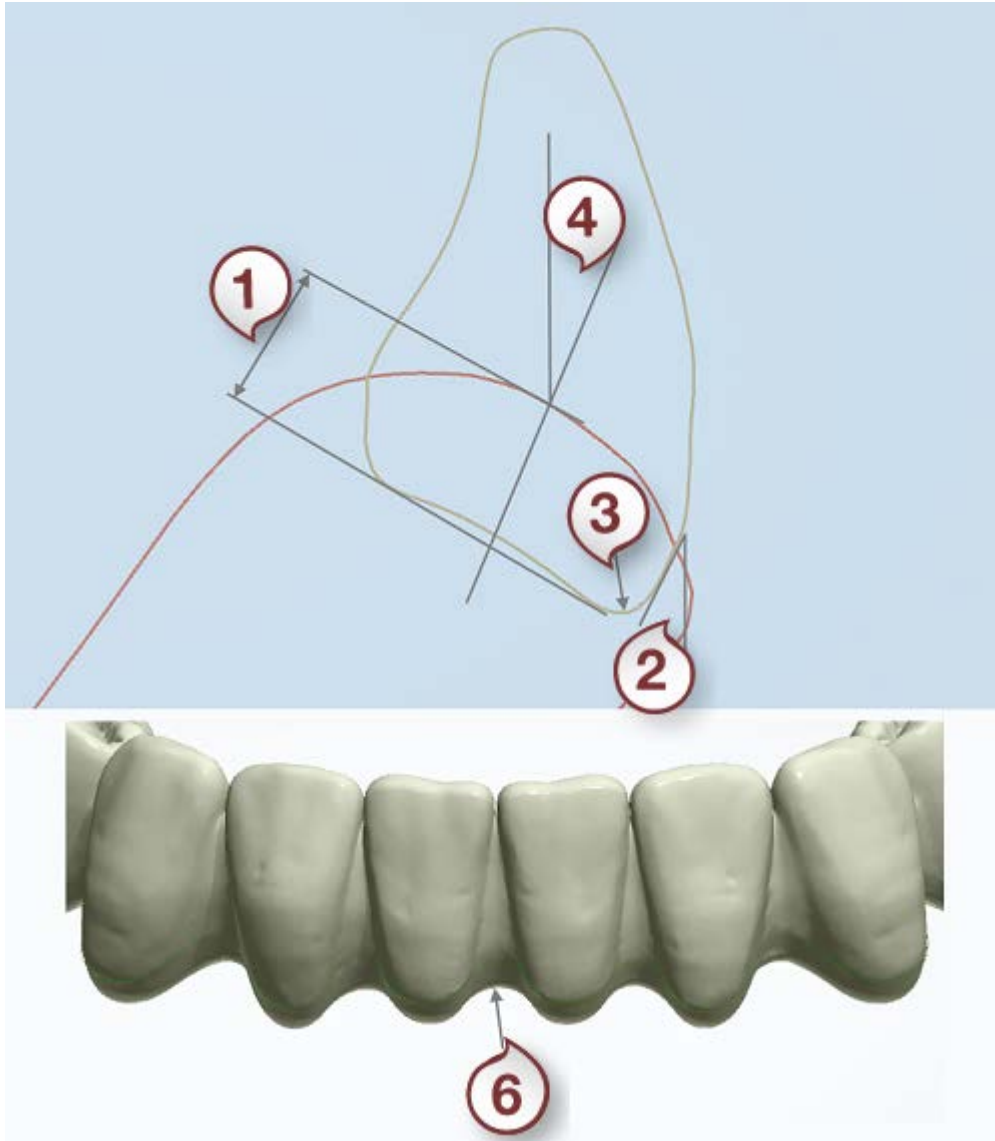
Coupling depth	<input type="text" value="2.0"/> mm
Coupling angle	<input type="text" value="10"/> deg
Rounding radius	<input type="text" value="0.60"/> mm
Fillet radius	<input type="text" value="0.80"/> mm
Insertion direction tilt	<input type="text" value="45"/> deg
Insertion direction along transversal plane	<input type="text" value="90"/> deg

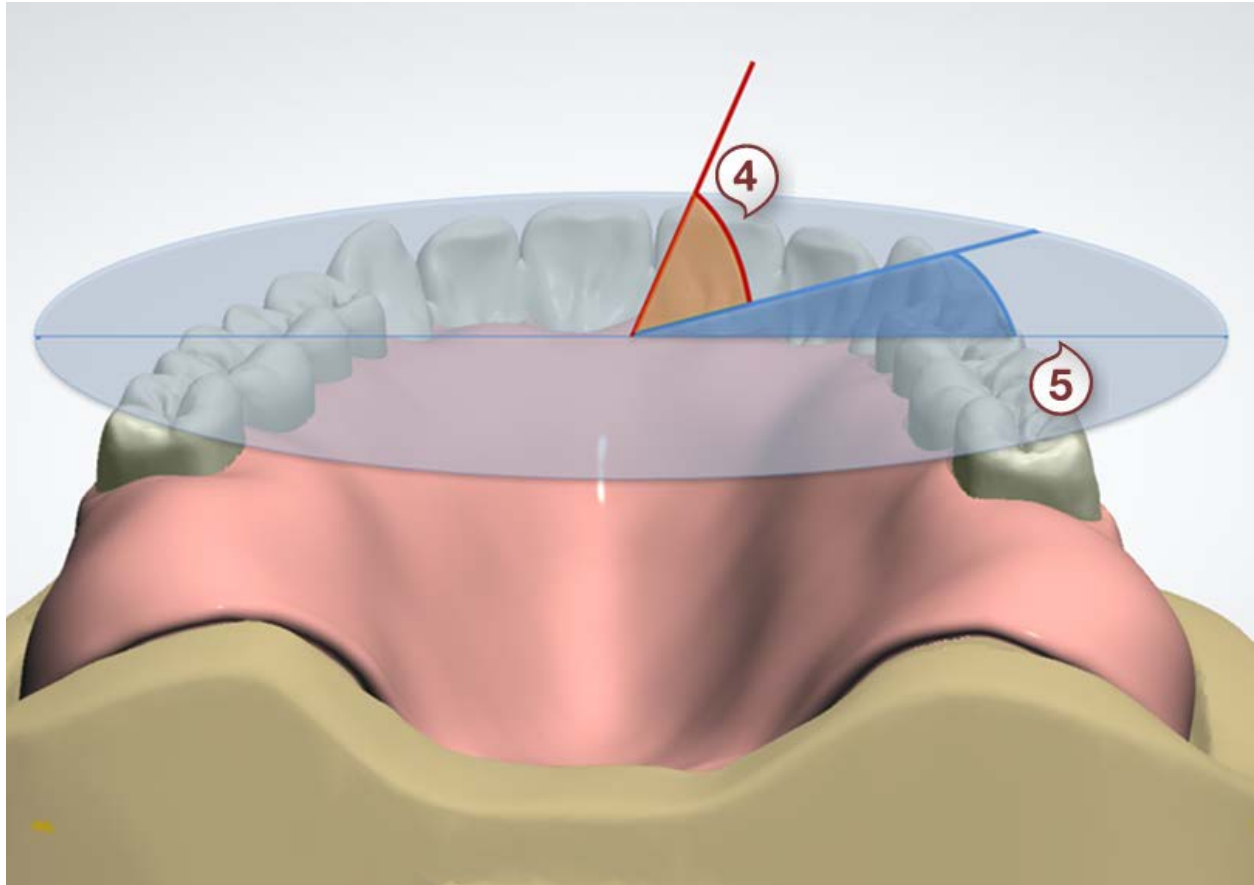
Connector parameters for teeth in block

Facial scale	<input type="text" value="80"/> %
Lingual scale	<input type="text" value="95"/> %
Center scale	<input type="text" value="80"/> %

The following image explains [Coupling mechanism](#) parameters for teeth in block.

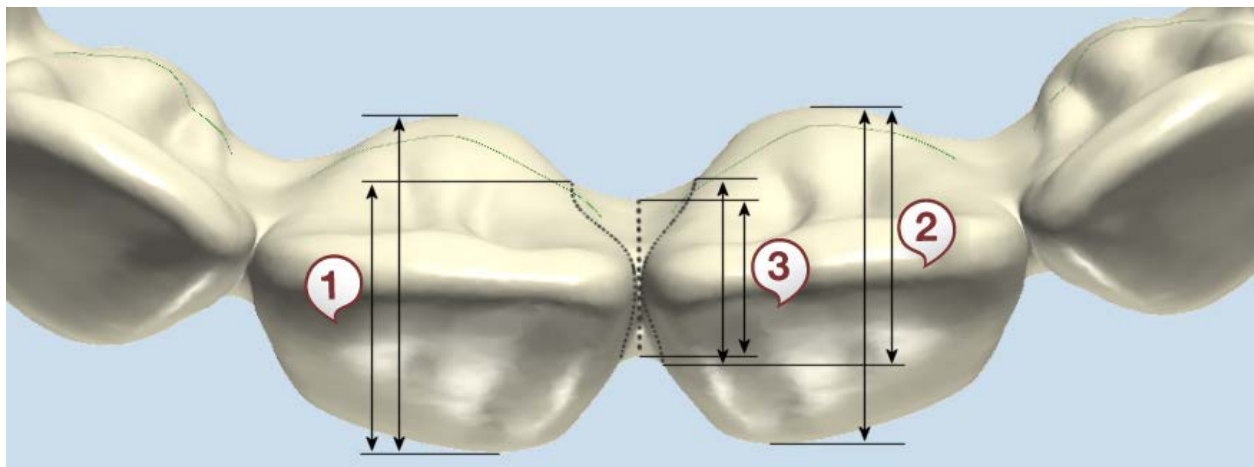
1. **Coupling depth** (mm) - the depth of artificial teeth in gingiva.
2. **Coupling angle** (deg) - the angle facilitating the block insertion into the denture-base.
3. **Rounding radius** (mm) - the radius of artificial teeth at the bottom.
4. **Insertion direction tilt** (deg) - the insertion angle of teeth into the denture base, relative to the normal of the occlusal plane. The tilt provides more room for gingiva vestibular esthetics.
5. **Insertion direction along transversal plane** (deg) - the insertion direction of artificial teeth into the denture base relative to the transversal plane.
6. **Fillet radius** (mm) - the minimum drill radius for the connector fillet.





The following cross-section explains **Connector parameters for teeth in block**

1. **Lingual scale** (%) - the amount of lingual scale from its initial shape taken from the tooth silhouette.
2. **Facial scale** (%) - the amount of facial scale from its initial shape taken from the tooth silhouette.
3. **Center scale** (%) - the amount of the connector scale controlling its concavity.



3.6.5. Crowns

The **Crowns** category contains a table where all the settings for editing a crown are organized into three tabs:

- [General](#)
- [Cement spaces](#)
- [Overlay](#)

Use the sliding bar to view all tabs and settings.

- **General**

This tab contains the general settings for editing crowns.

Anatomy elements ▸ Crowns

Add
 Copy
 To Recycle Bin
 Recycle bin:
 Show Recycle (No items)
 Restore all
 Empty the Recycle Bin

Name	General					
	ID	Material	Only used for anatomic	Color	Cement gap (mm)	Extra cement gap (mm)
Crown Zircon	Configuration_11_IDCrownZircon10	Zirkon (Configurati...	False		0.040	0.070
Crown CrCo	Configuration_11_ToothElementType34	CoCr	False		0.010	0.040
Crown Ti	Configuration_11_IDCrownTi10	Ti	False		0.040	0.070
Crown PMMA	Configuration_11_ToothElementType35	PMMA	False		0.010	0.040
Crown Wax	Configuration_11_IDCrownWax30	Wax (Configuration...	False		0.030	0.060
Katana ML Zr Crown	Katana_ML_Zr_Crown	Katana Zirconia ML	False		0.040	0.070
Wax->Gold Crown (tangent)	Configuration_01_IDCrownWax08	Wax	False	Red Wa...	0.040	0.080
Wax->Gold Crown (chamfer)	Configuration_01_IDCrownWax10	Wax	False	Red Wa...	0.030	0.060
Wax->Gold Crown (shoulder)	Configuration_01_IDCrownWax12	Wax	False	Red Wa...	0.020	0.050
Wax->FullPress Crown (sh...	Configuration_01_IDCrownWax18	Wax	False	Red Wa...	0.030	0.060

ID - An identification code of a crown.

Material - The material which a crown is made of (reflected in the Order form).

Color - The color of a crown (reflected in the Order form).

- **Cement spaces**

This tab contains data for specifying the inner surface of a crown.

Anatomy elements ▶ Crowns

Add
 Copy
 To Recycle Bin
 Recycle bin: Show Recycle (No items)
 Restore all
 Empty the Recycle Bin

Name	Cement spaces						Wall thickness (mm)	Margin line offset (mm)	Offset angle (deg)	Extension offset (mm)	Edge design (mm)
	Cement gap (mm)	Extra cement gap (mm)	Distance to margin line (mm)	Smooth distance (mm)	Remove undercuts	Liner Space (mm)					
Crown Cercon base	0.025	0.060	1.50	0.20	True	0.15	0.50	0.20	55	0.10	0.30
Crown CoCr by Compatis	0.030	0.070	1.50	0.20	True	0.15	0.50	0.10	55	0.10	0.20
Crown Cercon HT	0.025	0.060	1.50	0.20	True	0.15	0.50	0.20	55	0.10	0.30
Crown Cercon base PMMA	0.015	0.040	1.50	0.20	True	0.15	0.50	0.10	55	0.10	0.20
Crown Cercon base cast	0.015	0.040	1.50	0.20	True	0.15	0.50	0.10	55	0.10	0.20
Crown Cercon Wax	0.015	0.040	1.50	0.20	True	0.15	0.50	0.10	55	0.10	0.20
Crown Ti by Compatis	0.015	0.040	1.50	0.20	True	0.15	0.50	0.20	55	0.10	0.30
Wax->Gold Crown (tangent)	0.040	0.080	1.20	0.30	True	0.15	0.45	0.08	55	0.06	0.20
Wax->Gold Crown (chamfer)	0.030	0.060	1.00	0.30	True	0.15	0.45	0.08	65	0.10	0.20
Wax->Gold Crown (shoulder)	0.020	0.050	0.80	0.30	True	0.15	0.45	0.05	75	0.05	0.20

Cement gap

(mm)

Extra cement gap (mm)

Please see chapter [Single coping](#) for the detailed information on these settings.

Distance to margin line (mm)

Smooth distance (mm)

Remove undercuts - When selected, removes undercuts while creating the cement space.

- **Overlay**

This tab contains data for specifying the general outer surface of a crown.

Anatomy elements ▶ Crowns

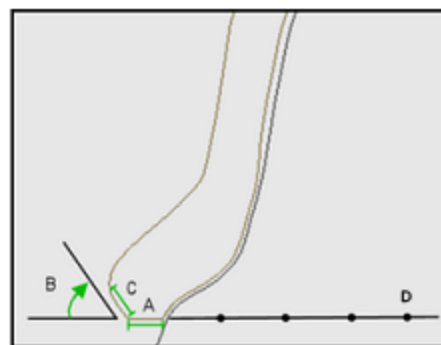
+ Add + Copy ✖ To Recycle Bin

Recycle bin: ➡ Show Recycle (No items) 🔄 Restore all 🗑 Empty the Recycle B

Name	Overlay											
	Wall thickness (mm)	Margin line offset (mm)	Offset angle (deg)	Extension offset (mm)	Edge design lingual offset (mm)	Edge design facial offset (mm)	Edge design interprox1 offset (mm)	Edge design interprox2 offset (mm)	Crown degrading (mm)	Perform cutting to antagonist	Cut distance to antagonist (mm)	Contour spacing (mm)
Crown Cercon base	0.50	0.20	55	0.10	0.30	0.30	0.30	0.30	0	True	0.10	0.0
Crown CoCr by Compatis	0.50	0.10	55	0.10	0.20	0.20	0.20	0.20	0	True	0.10	0.0
Crown Cercon HT	0.50	0.20	55	0.10	0.30	0.30	0.30	0.30	0	True	0.10	0.0
Crown Cercon base PMMA	0.50	0.10	55	0.10	0.20	0.20	0.20	0.20	0	True	0.10	0.0
Crown Cercon base cast	0.50	0.10	55	0.10	0.20	0.20	0.20	0.20	0	True	0.10	0.0
Crown Cercon Wax	0.50	0.10	55	0.10	0.20	0.20	0.20	0.20	0	True	0.10	0.0
Crown Ti by Compatis	0.50	0.20	55	0.10	0.30	0.30	0.30	0.30	0	True	0.10	0.0
Wax->Gold Crown (tangent)	0.45	0.08	55	0.06	0.20	0.20	0.20	0.20	0	True	0.00	0.0
Wax->Gold Crown (chamfer)	0.45	0.08	65	0.10	0.20	0.20	0.20	0.20	0	True	0.00	0.0
Wax->Gold Crown (shoulder)	0.45	0.05	75	0.05	0.20	0.20	0.20	0.20	0	True	0.00	0.0

Wall thickness (mm)- Is the distance between the outer overlay and inner (cement space) surface.

Margin line offset (mm), **Offset angle (deg)** and **Extension offset (mm)** are illustrated below:



- A. Margin line offset
- B. Offset angle
- C. Extension offset
- D. Margin line

Edge design lingual offset (mm)

Edge design facial offset (mm)

Edge design interprox1 offset (mm)

Edge design interprox2 offset (mm)

These are the settings for specifying the distance from the margin line from which you cut back the anatomical crown.

Crown degrading (mm) - Is the default value for degrading of the library crown. Zero signifies no degrading of the library crown.

Perform cutting to antagonist - When selected, cuts the crown to antagonist.

Cut distance to antagonist (mm) - The minimum distance from the crown to the antagonist, which is used while performing cutting.

Contact space distance to neighbor teeth (mm) - The minimum distance from the crown to the neighbor teeth.

3.6.6. Crown Pontics

The settings for crown pontics are similar to the ones of crowns, so please see chapter [Crowns](#) for more details.

3.6.7. Inlays

General settings and Cement space settings are the same as in [Crowns](#).

Anatomy elements ▸ Inlays

Inlay

Inlay Zi
Inlay CoCr
Inlay Ti
Inlay PMMA
Inlay Wax

+ Add
+ Copy
✗ Delete
↕ Move up
↕ Move down

Recycle bin

➡ No items
↶ Restore all
🗑 Empty the Recycle Bin

Details

Total: 5 items

Edit Inlay

ID	Configuration_11_IDInlayZr10	Change ID
Name	Inlay Zi	
Material	Zirkon (Configuration_11)	
Only used for anatomical copings	<input type="checkbox"/>	
Color	Not specified	



Cement space

Name	Zirkon Inlay	
Remove undercuts	<input checked="" type="checkbox"/>	
Cement gap	0.050	mm
Extra cement gap	0.060	mm
Distance to margin line	1.00	mm
Smooth distance	0.20	mm



Overlay

Name	Zirkon Inlay	
Wall thickness	0.70	mm
Margin line offset	0.10	mm
Transition distance	0.5	mm
Adjust to antagonist	<input type="checkbox"/>	
Snap distance	1.0	mm
Locality radius	1.0	mm

Transition distance - Specifies the transition away from the preparation line where the minimum thickness is not fully applied. If a point on the inlay is further than the transition distance from the preparation line, it needs to satisfy the minimum thickness. If it is closer, the minimum thickness becomes smaller, decreasing to 0 at the preparation line, allowing for sharp edges.

3.6.8. Onlays/Veneers

General settings and Cement space settings are the same as for [Crowns](#). The Overlay settings are the same as for [Inlays](#).

Anatomy elements ▶ Onlays/Veneers

Onlay/Veneer

Veneer Zi
Veneer PMMA
Veneer Wax

- + Add
- + Copy
- ✗ Delete
- ↕ Move up
- ↕ Move down

Recycle bin

- ➡ No items
- ↶ Restore all
- 🗑 Empty the Recycle Bin

Details

Total: 3 items

Edit Onlay/Veneer

ID	Configuration_11_IDVeneerZr10	Change ID
Name	Veneer Zi	
Material	Zirkon (Configuration_11)	
Only used for anatomical copings	<input type="checkbox"/>	
Color	Not specified	



Cement space

Name	Zirkon Veneer	
Remove undercuts	<input checked="" type="checkbox"/>	
Cement gap	0.010	mm
Extra cement gap	0.040	mm
Distance to margin line	1.00	mm
Smooth distance	0.20	mm



Overlay

Name	Zirkon Veneer	
Wall thickness	0.70	mm
Margin line offset	0.10	mm
Transition distance	0.5	mm
Adjust to antagonist	<input type="checkbox"/>	
Snap distance	1.0	mm
Locality radius	1.0	mm

3.6.9. Temporaries

TEMPORARY CROWNS

The **Temporary Crowns** category contains a table with the general settings for a temporary crown.

To edit any of the parameters in columns, double-click on them and enter/select the necessary data:

Anatomy elements ▸ Temporary Crowns

Add
 Copy
 To Recycle Bin
 Recycle bin: Show Recycle (No items)
 Restore all
 Empty the Recycle Bin

Name	General							
	ID	Material	Color	Transition Height	Thickness	Shoulder Radius	Remove undercuts	Remove Undercuts Angle
Virtual Preparation Crown	Temporar...			0.40	0.60	0.30	True	2.00

- **Creating and modifying temporary crowns**

Selection of ID

Selection of ID

Please select a valid unique ID and a material for the new entry.

ID:

Material:

To create a temporary crown:

► **Step 1: Click an Add button**

The *Selection of ID* dialog form appears (see image).

► **Step 2: Select crown's ID and Material**

► **Step 3: Click *OK* to add a new crown**

You can copy and delete the existing temporary crowns. The deleted items are placed into the **Recycle Bin**, which can be entered by clicking the **Show Recycle** button. You can restore and delete the items or empty the Recycle bin if desired. Click **Back to List** to return to the list of temporary crowns.

Add
 Copy
 To Recycle Bin
 Sequence up
 Sequence down
 Show Recycle (No items)
 Restore all
 Empty the Recycle Bin

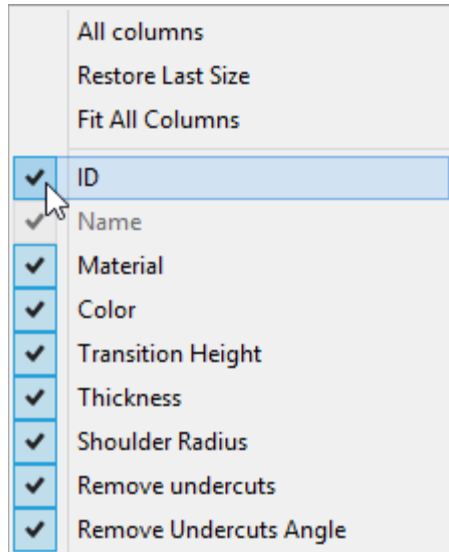
You can also right-click on the temporary crown's name to find these and additional options in the menu:

Sequence up - brings the selected item one line up.

Sequence down - brings the selected item one line down.

- **Temporary crown settings**

By right-clicking on the column headings you get the menu with all the parameters (see image below). Select the parameters you want to activate and be shown in the table and/or unselect the ones you want to be hidden.



ID - An identification code of a temporary crown.

Name - The name of a temporary crown that will be reflected in the Order Form.

Material - The material type which a temporary crown is made of (reflected in the Order Form).

Color - The color of a temporary crown (reflected in the Order Form).

Transition height - The transition curve of the shoulder radius from the margin line.

Thickness - the temporary crown thickness.

Shoulder radius - The radius of the transition curve from the margin line.

Remove Undercuts - Enables the undercuts removal option.

Remove Undercuts Angle - The angle of undercuts removal.

TEMPORARY PONTICS

Name - The name of a temporary pontic that will be reflected in the Order Form.

ID - An identification code of a temporary pontic.

Material - The material type which a temporary pontic is made of (reflected in the Order Form).

Color - The color of a temporary pontic (reflected in the Order Form).

TEMPORARIES ON PREPARED MODEL

The settings are identical to the **Temporary Pontics** described above.

3.6.10. Tabletops

Tabletops page lets you add new and edit the existing tabletop parameters.

Anatomy elements ▶ Tabletops

Tabletop

Zirkon Tabletop

Add

Copy

Delete

Move up

Move down

Recycle bin

No items

Restore all

Empty the Recycle Bin

Details

Total: 1 item

Edit Tabletop

IDConfiguration_01_IDTabletopZr1

Change ID

NameZirkon Tabletop

MaterialDREVE FotoDentModel Beige

ColorNot specified

Cement space

NameZirkon Tabletop

Remove undercuts☒

Cement gap0.015 mm

Extra cement gap0.040 mm

Distance to margin line0.10 mm

Smooth distance0.20 mm

Overlay

NameZirkon Tabletop

Wall thickness0.70 mm

Margin line offset0.10 mm

Extension offset0.10 mm

Transition distance0.5 mm

Adjust to antagonist☐

Snap distance1.0 mm





Locality radius1.0 mm

1114

3.7. Frame Elements



Frame elements

-  Copings
-  Frame Pontics
-  Waxups
-  Primary telescopes

The **Frame elements** category contains settings for defining the framework of a restoration. There are four subcategories:

- [Copings](#)
- [Frame Pontics](#)
- [Waxups](#)
- [Primary Telescopes](#)

3.7.1. Copings

The **Copings** category contains a table where all the settings for editing a coping are organized into four tabs:







- [General](#)
- [Cement spaces](#)
- [Coping overlay](#)
- [Lingual band](#)

Use the sliding bar to view all tabs and settings.

- **General**

This tab contains the general settings for editing copings.

Frame elements ▶ **Copings**

 Add
  Copy
  To Recycle Bin
 Recycle bin:  Show Recycle (No items)
  Restore all
  Empty the Recycle Bin

Name	General			Cement spaces						Wall height (mm)
	ID	Material	Color	Cement gap (mm)	Extra cement gap (mm)	Distance to margin line (mm)	Smooth distance (mm)	Remove undercuts	Drill Compensation	
Coping Cercon base	Configurat...	Cerc...		0.025	0.060	1.500	0.200	True	True	1.000
Coping CoCr by Compartis	Configurat...	CoCr...		0.030	0.070	1.500	0.200	True	False	1.000
Coping Cercon HT	Configurat...	Cerc...		0.025	0.060	1.500	0.200	True	True	1.000
Coping Cercon base PMMA	Configurat...	Cerc...		0.015	0.040	1.500	0.200	True	True	1.000
Coping Cercon base cast	Configurat...	Cerc...		0.015	0.040	1.500	0.200	True	True	1.000
Coping Cercon Wax	Configurat...	Cerc...		0.015	0.040	1.500	0.200	True	True	1.000
Coping Ti by Compartis	Configurat...	Ti by...		0.015	0.040	1.500	0.200	True	True	1.000
Zr Coping (tangent)	Configurat...	Zirkon		0.045	0.085	1.000	0.200	True	True	1.500
Zr Coping (chamfer)	Configurat...	Zirkon		0.030	0.070	1.000	0.300	True	True	1.500
Zr Coping (shoulder)	Configurat...	Zirkon		0.020	0.050	0.800	0.300	True	True	1.500

General settings are the same as for [Crowns](#).

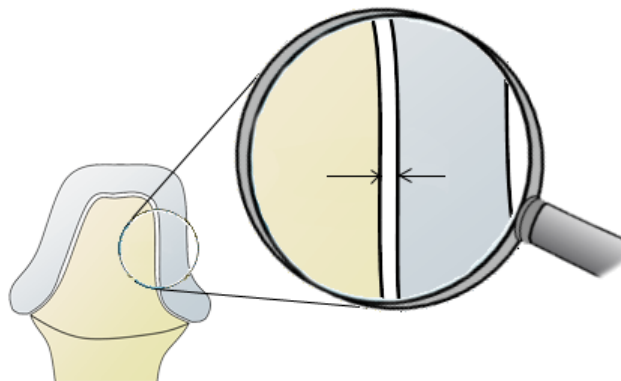
- **Cement spaces**

This tab contains data for specifying the inner surface of a coping. Some parameters contain explanatory images, click on the desired parameter to view the image:

Frame elements > Copings

+ Add + Copy X To Recycle Bin Recycle bin: Show Recycle (No items) Restore all Empty the Recycle B

Name	Cement spaces					Coping				
	Extra cement gap	Distance to margin line (mm)	Smooth distance (mm)	Remove undercuts	Drill Compensation	Wall height	Apply uniform offset	Anatomic offset uniform	Anatomic offset facial	Anatomic offset proximal
Coping Cercon base	0.060	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Coping CoCr by Compatis	0.070	1.500	0.200	True	False	1.000	True	0.800	1.000	0.400
Coping Cercon HT	0.060	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Coping Cercon base PMMA	0.040	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Coping Cercon base cast	0.040	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Coping Cercon Wax	0.040	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Coping Ti by Compatis	0.040	1.500	0.200	True	True	1.000	True	0.800	1.000	0.400
Zr Coping (tangent)	0.085	1.000	0.200	True	True	1.500	True	0.900	1.200	0.400



Extra cement gap (mm)

Drill Compensation - When selected, rounds the inward corners of a die and a model to facilitate the manufacturing process.

The rest of the Cement spaces settings are the same as for [Crowns](#).

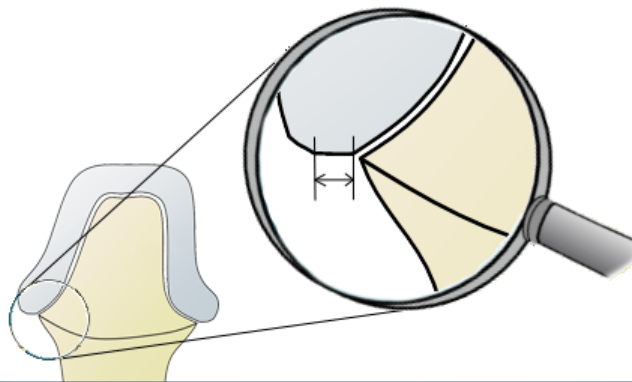
- **Coping overlay**

This tab contains data for specifying the general outer surface of a coping. Some parameters contain explanatory images, click on the desired parameter to view the image:

Frame elements ▶ Copings

+ Add
 + Copy
 ✗ To Recycle Bin
 Recycle bin: → Show Recycle (No items)
 ↺ Restore all
 ↺ Empty the Recycle B

Name	Coping overlay									
	Apply uniform offset	Anatomic al offset uniform	Anatomic al offset facial	Anatomic al offset proximal	Anatomic al offset occlusal	Margin line offset (mm)	Offset angle (deg)	Extensi on offset	Wall thickne ss (mm)	Remove undercuts
Coping Cercon base	True	0.800	1.000	0.400	1.000	0.200	65.000	0.100	0.500	None
Coping CoCr by Compartis	True	0.800	1.000	0.400	1.000	0.100	65.000	0.100	0.500	None
Coping Cercon HT	True	0.800	1.000	0.400	1.000	0.200	65.000	0.100	0.500	None
Coping Cercon base PMMA	True	0.800	1.000	0.400	1.000	0.100	65.000	0.100	1.000	None
Coping Cercon base cast	True	0.800	1.000	0.400	1.000	0.100	65.000	0.100	0.500	None
Coping Cercon Wax	True	0.800	1.000	0.400	1.000	0.100	65.000	0.100	0.500	None
Coping Ti by Compartis	True	0.800	1.000	0.400	1.000	0.200	65.000	0.100	0.500	None
Zr Coping (tangent)	True	0.900	1.200	0.400	1.200	0.080	60.000	0.100	0.500	None



Margin line offset (mm)

Wall height - Is the distance from the margin line to the borderline marking the beginning of an area where the wall thickness is applied.

Anatomical offset - Is an internal offset from the crown "outside-in" that creates the anatomical coping.

The rest of the Coping overlay parameters are the same as for [Crowns](#).

- **Lingual band**

Frame elements ▶ Copings

+ Add
 + Copy
 ✗ To Recycle Bin
 Recycle bin: → Show Recycle (No items)
 ↺ Restore all
 ↺ Empty the Recycle B

Name	Coping overlay							Lingual band			
	ic t al	Anatomic al offset occlusal	Margin line offset (mm)	Offset angle (deg)	Extensi on offset	Wall thickne ss (mm)	Remove undercuts	Appl y lingu	Lingual band start	Lingual band end angle	Lingual band offset
Coping Cercon base		1.000	0.200	65.000	0.100	0.500	None	False	120	240	1.000
Coping CoCr by Compartis		1.000	0.100	65.000	0.100	0.500	None	False	120	240	1.000
Coping Cercon HT		1.000	0.200	65.000	0.100	0.500	None	False	120	240	1.000
Coping Cercon base PMMA		1.000	0.100	65.000	0.100	1.000	None	False	120	240	1.000
Coping Cercon base cast		1.000	0.100	65.000	0.100	0.500	None	False	120	240	1.000
Coping Cercon Wax		1.000	0.100	65.000	0.100	0.500	None	False	120	240	1.000
Coping Ti by Compartis		1.000	0.200	65.000	0.100	0.500	None	False	120	240	1.000
Zr Coping (tangent)		1.200	0.080	60.000	0.100	0.500	None	False	120	240	1.000

You can find the description of the Lingual band settings in chapter [Single Coping](#).

3.7.2. Frame Pontics

Please see chapter [Crowns](#) for details, since settings for Frame pontics are the same.

3.7.3. Waxups

- **Edit Waxup**

Edit Waxup

ID	Configuration_32_WaxupZrExpert	Change ID
Name	<input type="text" value="Wax-up Cercon base"/>	
Material	<input type="text" value="Cercon base"/>	
Color	<input type="text" value="Not specified"/>	



Cement spaces



Waxup overlays

This subcategory contains the settings for editing a waxup. Click on the **Cement spaces** and **Waxup overlays** tabs to view more settings.

- **Cement spaces**

The information on **Cement spaces** settings is located in chapter [Crowns](#).

- **Waxup overlays**

When you click on **Waxup overlays** there appears a window similar to the one below:

Edit Waxup overlay

ID	Configuration_32_WaxupOverlay5	Change ID
Name	<input type="text" value="WaxupOverlay"/>	
Material	<input type="text" value="Cercon base"/>	
Cut offset	<input type="text" value="2.000"/> mm	
Waxup offset	<input type="text" value="0.000"/> mm	



Overlays

Cut offset - Is the offset distance from the margin line where the wax-up scan is cut and a smooth surface from the cut to the margin line automatically generated.

Waxup offset - Is the wax-up surface offset outwards (positive) or inwards (negative).

- **Overlays**

When you click on **Overlays** (see image above), there appears an *Edit Overlay* window displaying the settings similar to the ones described in chapter [Copings](#).

3.7.4. Primary Telescopes

Primary telescopes category identifies the material-bound primary telescope construction element.

The *Edit Primary telescope* window contains three tabs: **Cement spaces**, **Telescope overlays** and **Optional components**.

Primary telescope

- Primary telescope Zr
- Primary telescope CoCr
- Primary telescope Ti
- Primary telescope PMMA
- Primary telescope Wax

+ Add
+ Copy
X Delete
Move up
Move down

Edit Primary telescope

ID: Configuration_11_Telescope1 Change ID

Name: Primary telescope Zr

Material: Zirkon

Color: Not specified

Limit maximum top cap angle: 30.00 °

Output primary and secondary telescope in same coordinate system: ☐

Cement spaces **Telescope overlays** **Optional components**

- **Cement spaces**

The information on **Cement spaces** settings is located in chapter [Crowns](#).

- **Telescope overlays**

Click **Telescope overlays** to open the following settings:

Edit Telescope overlay

ID	Configuration_01_TelescopeOverlay1	Change ID
Name	<input type="text" value="Telescope overlay Zr"/>	
Material	<input type="text" value=""/>	
Wall height	<input type="text" value="1.000"/>	mm
Telescope angle	<input type="text" value="2"/>	°
Telescope smooth	<input type="text" value="1.0"/>	mm
Telescope default height	<input type="text" value="3.00"/>	mm
Telescope border margin line shaped	<input checked="" type="checkbox"/>	

Robotic telescope

Shoulder radius	<input type="text" value="0.60"/>	mm
Minimal thickness	<input type="text" value="0.50"/>	mm
Ensure minimal thickness	<input checked="" type="checkbox"/>	
Show 2D profiles	<input type="checkbox"/>	
Top edge smoothing	<input type="text" value="0.00"/>	mm



Overlays

EDIT TELESCOPE OVERLAY

Wall height is the distance from the margin line to the borderline marking the beginning of the area where the wall thickness is applied.

Telescope angle - is the angle of the telescope cone, measured from the telescope direction.

Telescope smooth - is the factor determining the smoothing of the top surface according to the underlying coping overlay surface.

Telescope default height - is the height of the telescope cone.

Telescope border margin line shaped - when checked, the telescope border (the top / upper control points) is initialized, shaped as the margin line; otherwise in a plane (i.e. flat) orthogonal to the telescope direction.

ROBOTIC TELESCOPE

Shoulder radius - the radius of the telescope shoulder at the part of a band.

Minimal thickness - defines the minimum thickness of a telescope.

Ensure minimal thickness - when enabled, the telescope thickness cannot go lower the set value.

Show 2D profiles - shows telescope cross-section profile dimensions at the point indicated by the cursor.


Top edge smoothing - smoothes the edge of the top band.

Overlays - when you click **Overlays**, the *Edit Overlay* window appears displaying the settings similar to the ones described in chapter [Copings](#).

- **Optional components**

Select **Optional components** to get the following settings:

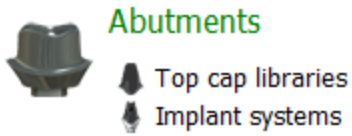
Edit Optional component

ID	Configuration_01_OptionalComponent1	<input type="button" value="Change ID"/>
Name	<input type="text" value="Cube"/>	
File	<div><div>Optional component C:\3Shape Configuration\DentalSystem2012Dentist\Dental System Control Panel\library\3Shape\Optional components\telescopeThickness1.stl</div></div>	

The **Optional Components** tab can only be accessed from **Primary Telescope** category, since only primary telescope construction elements can have components attached on the sides.

The **Optional Component** settings include a path to a closed model in the STL format. The default **Optional Component** item is linked to a 3Shape library component. The path can be changed with a click on the path name (see the image above) to open a file browser. It is possible to create and use customized components, but some guidelines must be followed. Please contact 3Shape for further information.

3.8. Abutments



3Shape Dental System is an open system, where all kinds of implant systems can be added and used to create customized abutments. To be able to create customized abutments, a number of auxiliary CAD models must be prepared and added into the dental system.

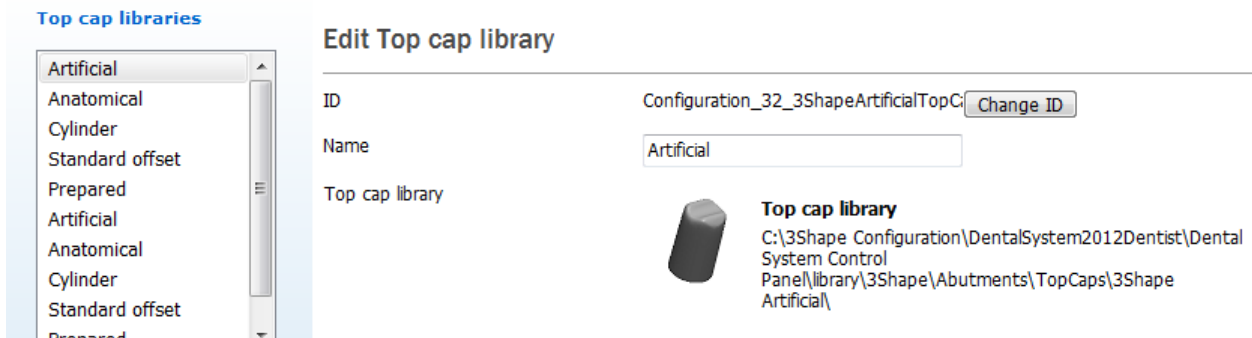
Abutments category contains:

- [Top cap libraries](#)
- [Implant systems](#)






3.8.1. Top Cap Libraries

Click on **Top cap libraries** to get a window as shown on the following image:

Abutments ▶ **Top cap libraries**



The **Top cap libraries** settings allow definition of abutment top caps used during abutment modeling. The functionality is similar to that of defining pontic libraries. Top cap libraries can be:

				
Artificial	Anatomical	Cylinder	Standard offset	Prepared

3.8.2. Implant Systems

To create an implant library for the design of customized abutments, implant bars and bridges in the Dental System™, 3Shape specific requirements must be met.

This chapter provides a brief description of the implant system concept and requirements. For detailed information, see [instructions for the Implant library creation in the Dental System](#).

IMPLANT SYSTEM CONCEPTS




In the Dental System Control Panel, the **Implant Systems** page is organized in three levels:

- The highest level of grouping is an **Implant System (1)** which typically corresponds to a given implant type. In addition, a number of implant systems can be grouped in a category (see [IMPLANT SYSTEM CATEGORIES](#) for details).
- Each **implant system** can contain a number of **parts (3)** – implants, scan abutments, screws, bases, interfaces, analog interfaces, etc. See [IMPLANT SYSTEM PARTS](#) for details.
- An **Abutment kit (2)** typically corresponds to a specific implant connection/diameter of the implant type. An abutment kit is an assembly of parts needed to complete the design of the customized abutment. Abutment kits are created by referencing the models added to a given implant system. Multiple abutment kits can reference the same parts and these kits, hence, allow you to easily combine the various parts belonging to a given implant system.

Abutments > Implant systems

The screenshot shows the 'Edit Implant system' window. On the left is a sidebar with a list of implant systems, a 'Recycle bin' section, and 'Details'. The main area is titled 'Edit Implant system' and contains fields for ID, Name, and Version. Below these is a section for 'Abutment kits' with a list of kits and action buttons. At the bottom is a grid of six model categories: 'Implant models', 'Scan abutment models', 'Screw models', 'Abutment base models', 'Abutment interface models', and 'Analog interface models'. Each category has a list of models and 'Add'/'Delete' buttons. Numbered callouts are present: (1) points to the 'Add' button in the sidebar; (2) points to the 'Add' button in the 'Abutment kits' section; (3) points to the 'Add' button in the 'Screw models' category.

DEFINING AN IMPLANT SYSTEM

1. **To add a new implant system**, press the **Add**  button under Implant System - (1) - and enter a unique ID and name for your new system.
2. **To add parts/CAD files** to the selected implant system, press **Add**  under the implant system parts - (3) - and browse the file. Import all the desired parts before proceeding to the next step.
3. **To create abutment kits** from the parts of the active implant system, click the **Add**  button under Abutment kits - (2). This will bring up a wizard which will guide you through the part selection.



Note! In the wizard, it is mandatory to select one implant, one screw, one scan abutment and one base.

The first page of the wizard contains the abutment export options:

✕
Edit abutment kit

Identification

ID

3S_AbutmentKit_2pc_4_3

Name

2 pcs Abutment 4.3 mm

External ID

50000

3Shape Global Coordinate system

☒ Support 3Shape Global Coordinate system
Check this option if you want 3Shape Global Coordinate system to be supported.

Abutment export options

☐ Use implant coordinates
Check this option if you want the abutment to be saved in the implant coordinate system.

☒ Keep base
Check this option if you want to keep the shape of the abutment base
Uncheck this option if you want to remove the base geometry from the exported abutment.

☐ Append hole patches
Check this option if you want to remove the screw hole from the exported abutment.

Advanced options

☒ Use screw hole

Vertical screw offset

0

↑
↓

mm

Extra drill hole radius

0

↑
↓

mm

Hole fillet

0

↑
↓

mm

Avoid thin and sharp walls around screw hole exit

CAD block options

Z-axis offset

0

↑
↓

mm

Rotate around implant

0

↑
↓

deg

Cancel

Back

Next

- **Support 3Shape Global Coordinate System** - enables the support for other implant systems.
- **Use implant coordinates** - when checked, the final abutment geometry is stored in the common coordinate system of the implant system parts. See [IMPLANT](#)

[COORDINATE SYSTEM](#) below for details. If this option is not checked, the final implant will be stored in the coordinate system of the preparation scan used for designing the abutment.

- **Keep base** - when unchecked, the base geometry is removed from the exported model and replaced with a planar surface. This allows the use of milling blanks with the pre-milled base geometry. The base geometry will typically be removed for one-piece abutments and kept for two-piece abutments.



Base geometry removed

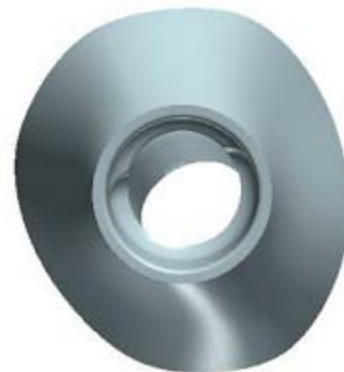


Base geometry included

- **Append hole patches** - when checked, the screw hole of the abutment is closed in the exported geometry. This allows the use of milling blanks with the pre-drilled screw holes.



Screw hole closed



Screw hole appended

- **Use screw hole** - when selected, a screw hole with specified parameters is created in the abutment.

On the **Validations** and **Bar/Bridge validations** pages of the wizard, define the abutment and implant bar/bridge validation parameters.



Note! Computer Aided Manufacturing must comply with the design parameters provided in the abutment kit and the patient-specific abutment directions for use provided by the abutment manufacturer and implant library provider. Failure to follow the design parameters provided in the abutment labeling may constitute manufacturing of a medical device.

Edit abutment kit

✕

Validations

Limit maximum top cap angle

22.5°

☒ Perform validation

Gingival margin diameter*

4.7 - 12.2 mm

Gingival margin height

0.25 - 15 mm

Total height

4.75 - 15 mm

Top cap height

4 - 15 mm

* Kit base diameter 4.30mm

☐ Perform blank validation

☐ Block user from continuing on inner limit violation

☒ Allow angled screw hole

Maximum screw hole angle

15°

☒ Angled screw hole starting point

2 mm

Number of possible base rotation angles

0

☐ Individual thickness around hole

0 mm

Cancel

Back

Next

- **Limit maximum top cap angle** - The abutment top cap is checked to comply with the specified maximum angle value. This check is always performed and cannot be disabled.
- **Perform validation** - The abutment design is validated to comply with the specified design matrix specifications.
- **Perform blank validation** – The design is validated for the given blank constraints.
- **Block user from continuing on inner limit violation** – The design is validated for the given inner limit constraints.
- **Allow angled screw hole** – Allows you to angle the screw hole within the limitations set by the implant kit provider.
- **Angled screw hole starting point** – Defines from where the screw hole angulation will be applied in the abutment design.
- **Number of possible base rotation angles** – Allows you to rotate the abutment connector base within the limitations set by the implant kit provider.
- **Individual thickness around hole** - The thickness of material surrounding the abutment.

Edit abutment kit
✕

Bar/Bridge validations

☒ Implant Bar Validation

Maximum Anterior-Posterior spread

1.5

Minimum connector area

1

mm²

Maximum implant span

100

mm

☒ Implant Bridge Validation

Maximum span length

20

mm

Maximum cantilever length

20

mm

☒ Implant angles validation

Maximum angle between implants

30

°

Cancel

Back

Next

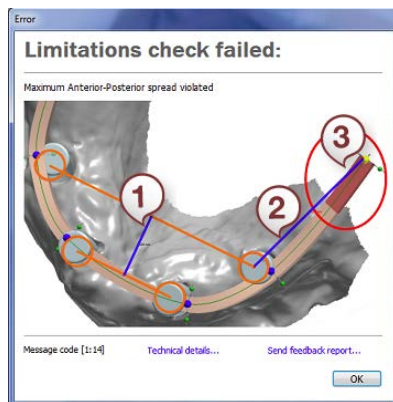
- Implant bar validation** - select this check box to automatically validate the implant bar design.
 - Maximum Anterior-Posterior spread** - enter the maximum allowable length of the cantilever (the overhanging part of the implant bar behind the last supporting implant) to prevent excessive stress on the patient's implants. The maximum allowable cantilever length is calculated as a distance between centers of the most posterior and anterior implant lines multiplied by the set value of the Maximum Anterior-Posterior spread.

- **Minimum connector area** - enter the minimum allowed cross-sectioned area of the connector.
- **Maximum implant span** - enter the maximum allowed distance between implants on a connector.

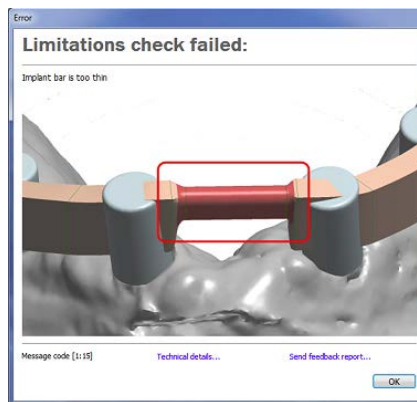


Note! Implant bar validation is mandatory in the United States.

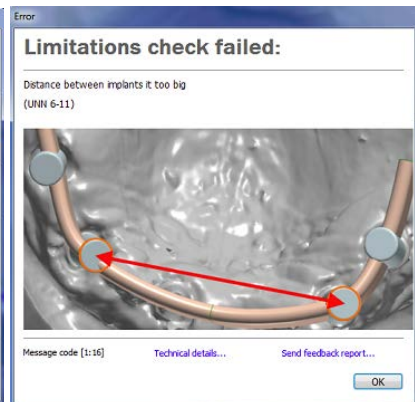
See the following images for illustration.



1. Anterior-Posterior distance.
2. Cantilever.
3. Maximum Anterior-Posterior spread violation.

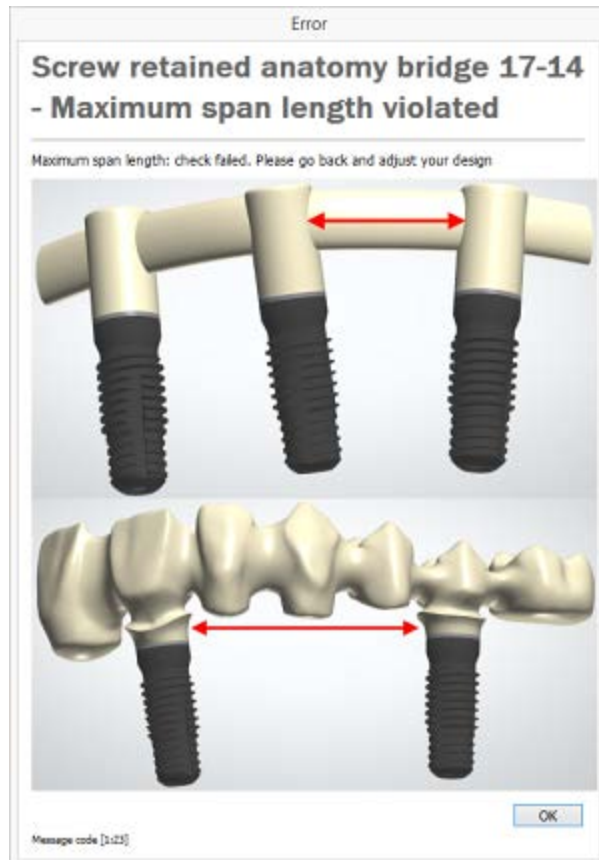


Minimum connector area violation

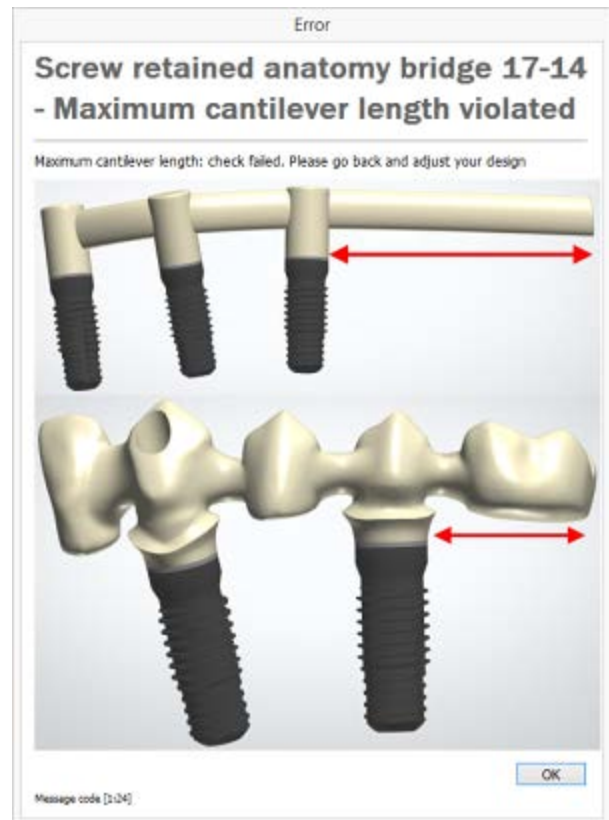


Maximum implant span violation

- **Implant Bridge Validation** - select this check box to automatically validate the implant bridge design.
 - **Maximum span length** - enter the maximum allowed distance between implants.
 - **Maximum cantilever length** - enter the maximum allowed length of the cantilever (the overhanging part of the implant bridge behind the last supporting implant).



Maximum span length violation



Maximum cantilever length violation

- **Implant angles validation** - select this check box to automatically validate the angle between implants.
 - **Maximum angle between implants** - enter the maximum allowed angle between implants.

When creating a Multi-unit abutment kit, the Multi-unit abutment parameters are set at the end of the wizard.

Edit abutment kit

×

Multi-unit abutment

☒ Multi-unit abutment kit

Offset from implant position

1.75

↑
↓

mm

Angle from implant direction

30

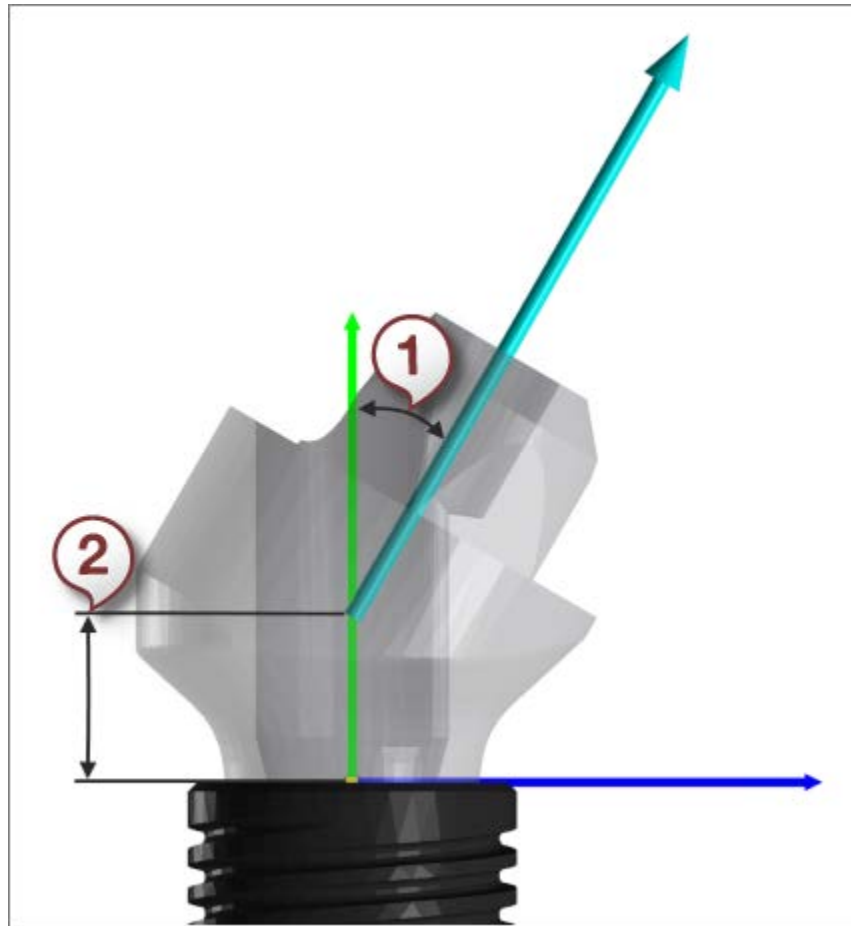
↑
↓

°

Cancel

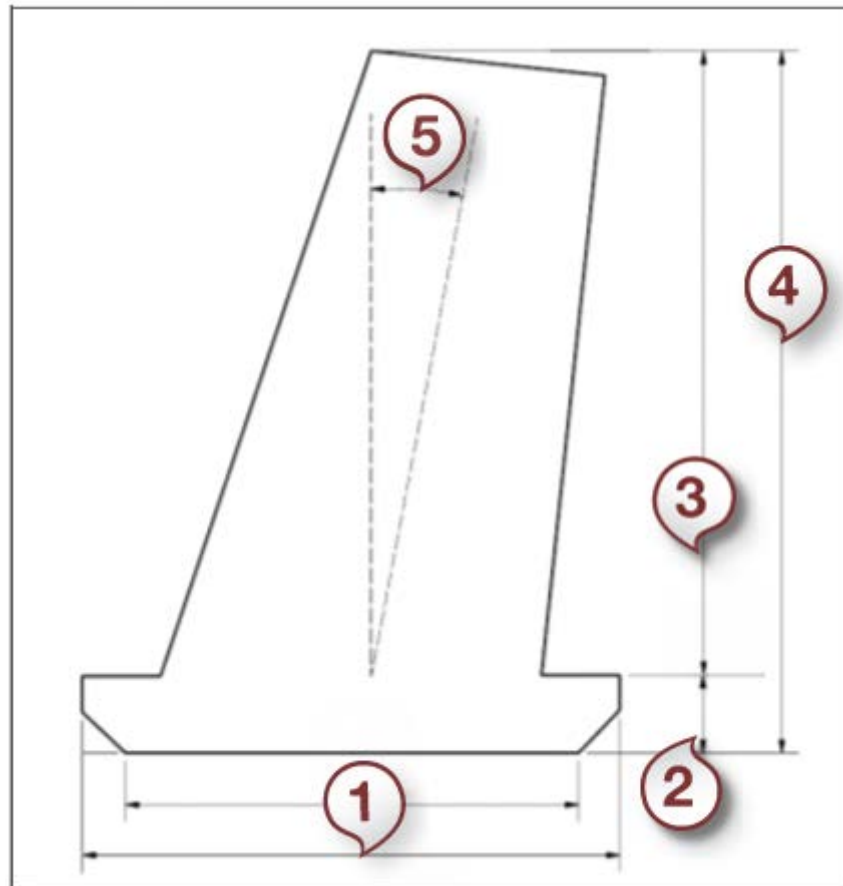
Back

Next



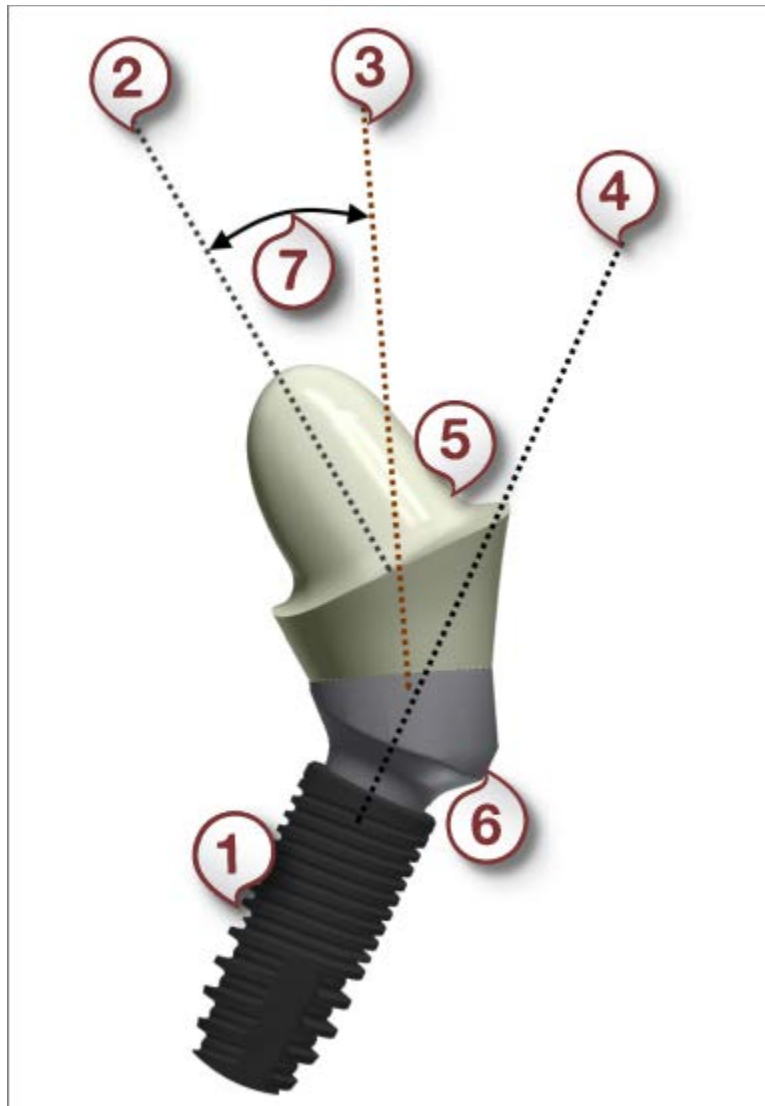
- (1) Angle from implant direction
(2) Offset from implant position

DESIGN MATRIX MEASUREMENTS



#	Parameter	Default Minimum	Default Maximum
(1)	Gingival Margin Diameter	0.4 mm	12.2 mm
(2)	Gingival Margin Height	0.25 mm	15 mm
(3)	Top Cap Height	4 mm	15 mm
(4)	Total Height	4.75 mm	15 mm
(5)	Angulation	-	22.5°




For most abutments, the abutment interface direction is the same as the implant direction. The exception to this are Multi-unit abutments, where an angled interface makes the interface direction differ from the implant direction. In this case, it is important to note that the top cap angle is measured from the interface direction as seen in the image below.




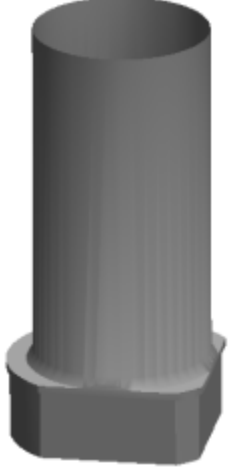


- (1) Implant
- (2) Abutment top cap insertion direction
- (3) Abutment interface direction
- (4) Implant direction
- (5) Abutment top cap
- (6) Abutment interface
- (7) Top cap angle

IMPLANT SYSTEM PARTS

Table below contains the description of implant system parts as well as requirements for the CAD files. All CAD files used for the abutment design should be saved in either .stl or .dcm file format.


	<p>Implant</p> <p>There are no specific requirements for the model of the implant. This model is used for visualization purposes only.</p>	
	<p>Scan abutment</p> <p>The model corresponds to the physical scan abutment. However, the non-visible part of the model -such as the inside of the screw hole - should be deleted to maximize alignment accuracy.</p> <p>The design of the scan abutment is very critical for achieving an accurate fit, which is particular important for implant bridges.</p>	
	<p>Screw</p> <p>There are no specific requirements for the model of the screw.</p> <p>The model of the screw is used to automatically generate a correctly shaped hole through the abutment.</p>	

 <p><i>For 2-piece abutments</i></p>	<p>Abutment connector base</p> <p>The model of the abutment connector base is a very crucial model in the abutment kit. This surface describes the shape of the abutment part, which “connects” either directly to the implant or to the base. The model is also the base or seating surface of the customized abutment.</p> <p>The following requirements exist for the base geometry:</p> <ol style="list-style-type: none"> 1. The model must contain EXACTLY one boundary (*). Hence, this is not a watertight model nor should it contain the hole for the screw. This will be automatically generated. 2. The normals of this surface must point outwards. The image to the left, hence, shows the BACKSIDE of the base surface as the base goes “into” the abutment. 3. If needed, this surface should be DRILL COMPENSATED – i.e. contain no sharp edges which cannot be milled. <div> </div> <p>Note! Creation or modification of the connection platform (abutment-to-implant interface) is considered manufacturing a medical device.</p>	 <p><i>For 1-piece abutments</i></p>
	<p>Abutment interface</p> <p>The abutment interface file is only required for the 2-piece abutment.</p> <p>There are no specific requirements for the model of the interface. This model is used for visualization purposes only. The possibility to rotate the abutment interface is described in Standard Customized Abutment chapter.</p>	

 <p><i>Top</i></p>	<p>Digital model analog interface</p> <p>Digital model analog interface is used for creating a hole, where the digital model analog is inserted.</p> <p>The model should contain either</p> <ul style="list-style-type: none"> • two boundaries (model analog interface with the bottom insertion) <p>OR</p> <ul style="list-style-type: none"> • one boundary at the top of the model (model analog interface with insertion from the top) 	 <p><i>Bottom</i></p>
	<p>Blank (optional)</p> <p>There are no specific requirements for the blank model. This model is used for visualization purposes only to describe the size of a blank.</p>	
	<p>Inner limit (optional)</p> <p>The inner limit model should be a cylinder without a screw hole. This model is used to visualize the limitations for the minimum geometry of the abutment.</p>	

When you select an item from the list of Abutment kits or Implant system parts, you can observe the relevant information in **Details** on the page. The following image shows details for one of the implant models where the **Global Implant Connection ID** is used to identify implant kits in TRIOS and Implant Studio orders when mapped.

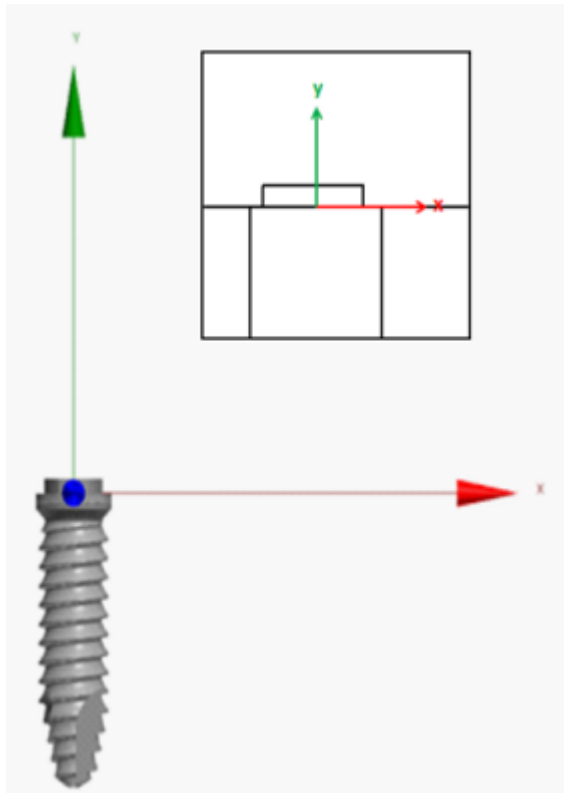
Details

ID	43000_Implant218	Change ID
Name	<input type="text" value="Implant NP"/>	
External ID	<input type="text"/>	
Global Implant ID	<input type="text" value="Nobel Biocare_Replace_NP_3.5_10.0"/>	
Global Implant Connection ID	<input type="text" value="Nobel Biocare_Replace_NP"/>	
Original Manufacturer	<input type="text" value="Nobel Biocare"/>	
System	<input type="text" value="Replace"/>	
Connection	<input type="text" value="NP"/>	
Scan flag design	<input type="text"/>	
Implant Brand	<input type="text" value="Replace"/>	
Diameter	<input type="text" value="3.500"/> mm	
Length	<input type="text" value="10.000"/> mm	
Top to bone level dist.	<input type="text" value="0.000"/> mm	
Color	<input type="text"/>	
Color RGB	<input type="text" value="Black"/>	
Platform Color	<input type="text"/>	
Platform Color RGB	<input type="text" value="Black"/>	
Connection type	<input type="text"/>	
Optional	<input type="text"/>	
Digital signatures	<none>	
CAD file	 C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Abutments\ImplantSystems\NobelBiocare platforms\Implant Replica\116554_00.dcm	

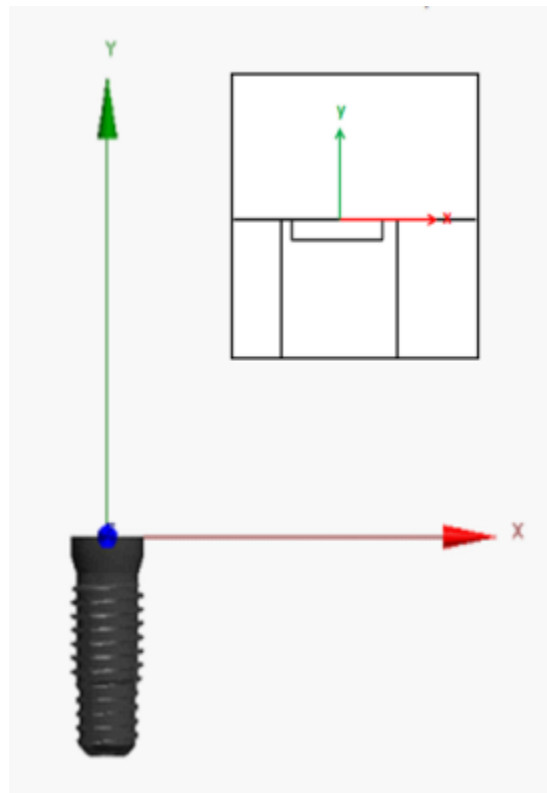
IMPLANT COORDINATE SYSTEM

When creating the implant models, it is important to export them in one common coordinate system. When handled in this coordinate system, the set of models should form a complete assembly – i.e. be positioned relative to each other as when they are assembled into a complete implant.

The y-axis of the coordinate system has to be aligned with this vertical axis and point upwards – i.e., away from the implant. The implant shoulder has to be in the X-Z plane both for internal and external connections.

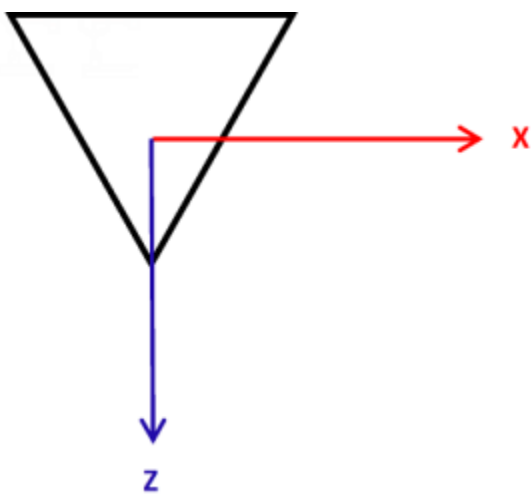


External Connection

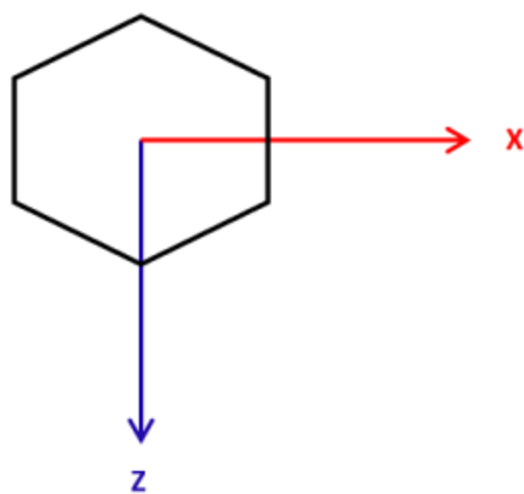


Internal Connection

Furthermore, the corner of the seating geometry has to be aligned with the Z-axis, e.g. the corner of the hexagon or triangle:

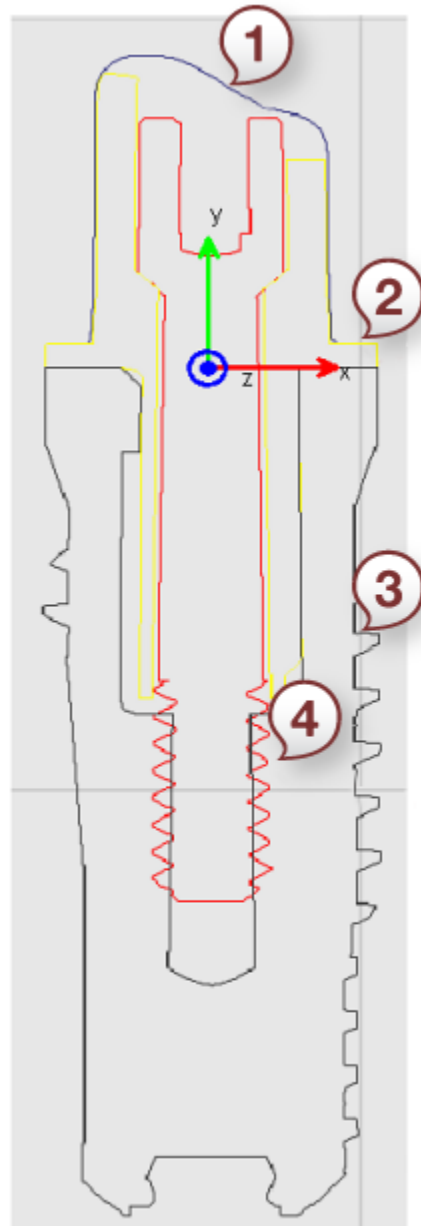


Alignment of triangle to Z-axis



Alignment of hexagon to Z-axis

The image below illustrates an example of an abutment kit CAD models exported in a common coordinate system:






1. Base
2. Interface

3. Implant
4. Screw

IMPLANT ANALOG FRICTION BARS

When importing a model analog for the implant model production, additional parameters can be defined as shown below:

Details

ID	59996_AnalogInterface293	<button>Change ID</button>
Name	<input type="text" value="AnalogCAD"/>	
External ID	<input type="text" value="Not available"/>	
Digital signatures	<none>	
CAD file	 C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Abutments\ImplantSystems\3Shape\AnalogCAD.dcm	
Friction surface top	<input type="text" value="0.0"/>  mm	
Friction surface bottom	<input type="text" value="0.0"/>  mm	


Friction surface top - The distance from Y= 0 mm to the top of the friction bar. If, for instance, you want the friction bar to have its top point in Y= -1 mm, set the parameter to 1.0 mm.

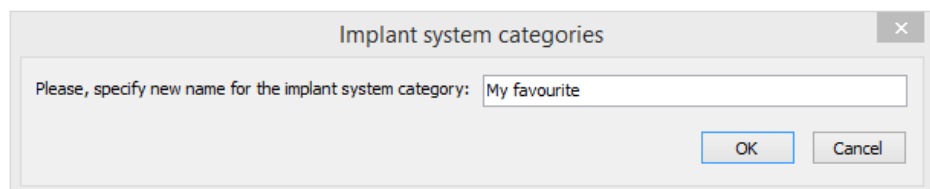
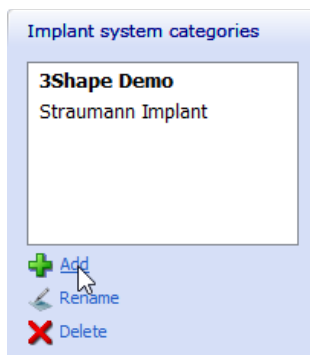
Friction surface bottom - The distance from Y= 0 mm to the bottom of the friction bar. If, for instance, you want the friction bar to have its bottom point in Y= -6 mm, set the parameter to 6.0 mm.

IMPLANT SYSTEM CATEGORIES

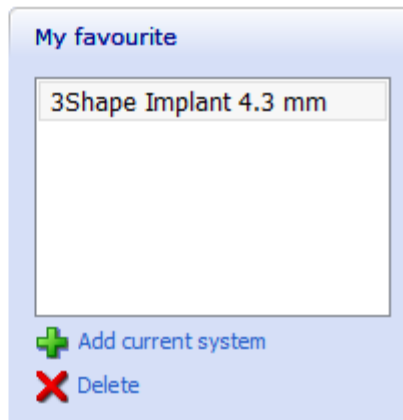
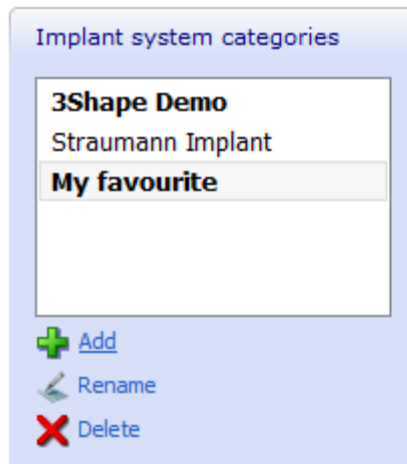
You can organize your implant systems into categories for an easier selection of them in the Dental Manager Order form:


►Step 1: Add a new category

1. Click the **Add**  button in the *Implant system categories* window.
2. Enter a name for your category in the appeared form.
3. Click **OK**.



► **Step 2: Add a current implant system to your category**

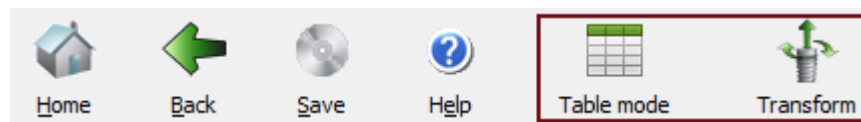


Click the **Add current system**  button to include the implant system you are currently working with into the selected category.

Every implant system page contains **Implant system categories**, so you can click on your category and add that implant system to the list.

ADDITIONAL OPTIONS

The main menu includes the following additional options: **Table mode** and **Transform**.



The **Table mode** button provides a table representation of the implant system parameters. Click the **Details mode** button to return to the previous view.

<div> Home Back Save Help Details mode Transform </div>							
Abutments ▸ Implant systems							
General							
Implant system	Abutment kit	Use implant coordinates	Rotate output around Z-axis (deg)	Keep base	Append hole patches	Use screw hole	Vertical screw offset (mm)
3Shape Implant ...	1 pcs Abutment 4.3 mm (Lo...	True	0	False	True	True	0.00
3Shape Implant ...	2 pcs Abutment 4.3 mm (Lo...	False	0	True	False	True	0.00
3Shape Implant ...	Implant Bar/Bridge 4.3mm (...)	False	0	True	True	True	0.00

Table mode



The **Transform** button allows you to transform all CAD models (DCM and STL files) stored in the specified folder and its subfolders to 3Shape Coordinate System. Specify the **Translation** and **Rotation** values and click **Apply**.

Translate to 3Shape Coordinate System

rol Panel\library\3Shape\Abutments\ImplantSystems\3Shape

...

Translation

X 0 mm

Y 0 mm

Z 0 mm

Rotation

X 0 °

Y 0 °

Z 0 °

1. Please enable "Use implant coordinates" option (wizard, page 1)

2. Check if the manufacturing output needs to be rotated correctly (wizard, page 1)

3. Check friction surface top and bottom on the analog interface.

0%

Apply

3.9. Post and Core



Post and Core

Post and Core systems

Post and Cores

This section describes the settings used during the scanning and design of Post and Cores:

- [Post and Core systems](#)
- [Post and Cores](#)

3.9.1. Post and Core Systems

This page allows you to create a kit with scan flags and pre-milled posts, used during scanning and design of Post and Cores.

Post and Core ▸ Post and Core systems

Post and Core systems

Apl
Piv
Cyl

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin
 No items
 Restore all
 Empty the Recycle Bin

Details
Total: 3 items

Post and Core systems
ID Configuration_01_PnCSystem1
Name Apl
Post and core types
AL1.4 - Apl 1.4 long
AS1.4 - Apl 1.4 short
AL1.6 - Apl 1.6 long
AS1.6 - Apl 1.6 short
AL1.7 - Apl 1.7 long
AS1.7 - Apl 1.7 short
 Add
 Delete

Details
ID Configuration_01_PnCType1
Name AL1.4 - Apl 1.4 long
Scan post model **Scan post model path**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Post and core\Apl\APL 1.4 long scan post.STL
Multipost model **Multipost model path**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\Post and core\Apl\APL 1.4 multipost.STL

To create a kit:

1. Click **Add**

A blank **Post and core types** frame will open.

2. Name your kit (e.g. Kit1).
3. Click **Add** in the **Post and core types** frame to add Scan post **(1)** and Multipost models **(2)**.

The kit can be selected at the [Post design](#) step in Dental Designer in case you want to add additional posts.

3.9.2. Post and Cores

This page allows you to predefine the Post and Core settings used during modeling:

Post and Core ► Post and Cores

<div> Add Copy To Recycle Bin </div> <div> Recycle bin: Show Recycle (No items) Restore all Empty the Recycle Bin </div>								
Name	General				Cement spaces			
	ID	Material	Color	Type	Cement gap	Post cement gap	Remove undercuts	Drill Compensation
Post And Core Standard	PostAndC...	Not s...	Not specified	Standard	0.010	0.005	True	
Post And Core Retained Cr...	PostAndC...	Not s...	Not specified	Retained Cro...	0.010	0.005	True	
Post And Core Anatomical	PostAndC...	Not s...	Not specified	Anatomical	0.010	0.005	True	

ID - An identification code of a Post and Core.

Material - The material which a Post and Core is made of (reflected in the Order form).

Color - The color of a Post and Core (reflected in the Order form).

Type - Allows you to select one of the four available Post and Core types.

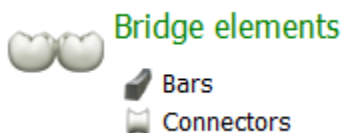
Cement gap - The amount of offset in the area of the margin line.

Post cement gap - The amount of offset around the post.

Remove undercuts - When selected, removes undercuts while creating the cement space.

Drill Compensation - When selected, rounds the inward corners of a die and a model to facilitate the manufacturing process.

3.10. Bridge Elements



The **Bridge elements** category contains two tabs:

- [Bars](#)
- [Connectors](#)

3.10.1. Bars

The **Bars** page contains setting for identifying the bar construction elements.

EDIT BAR

Define the bar shape using settings below.



Hint! You can change the value of the parameter by entering the digits in the edit box, clicking the up/down arrows or clicking on the edit box and scrolling the mouse wheel up and down to increase or decrease the value.

Bridge elements ▶ Bars

Bar

- Rectangle
- Hader Bar 3mm
- C+M Dolder® micro
- C+M Dolder® macro
- C+M Dolder® Eggsh...
- C+M Dolder® Eggsh...
- Primary Bar straight
- Primary Bar 2* tape...
- Primary Bar 4* tape...
- Round 3.0mm

- + Add
- + Copy
- ✗ Delete
- ↶ Move up
- ↷ Move down

Recycle bin

- ➡ No items
- ↶ Restore all
- 🗑 Empty the Recycle Bin

Details

Total: 25 items

Edit Bar

ID

Configuration_01_Bar1

Change ID

Name

Rectangle

Bar shape type

Custom

Shape spline

X-coordinate	Y-coordinate
-1.00	0.00
-0.50	0.00
0.00	0.00
0.50	0.00
1.00	0.00
1.00	-1.00
1.00	-2.00

Add extra points (multiplier)

1

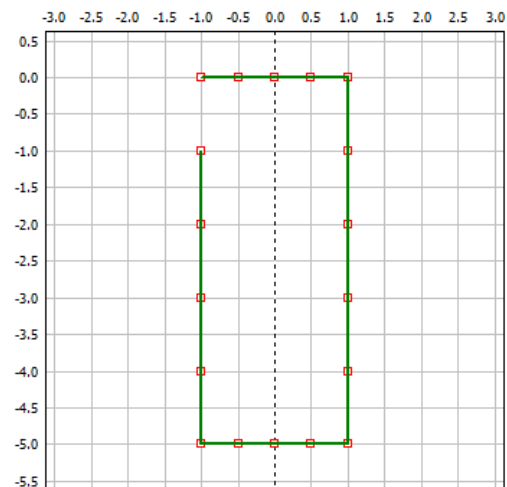
Show original spline



Show additional points spline



Shape spline image



Snap to grid



Symmetric shape



Grid spacing

0.50 mm

Distance to gingiva

0.50 mm

Ending type

Flat

Bar shape type - is a descriptive type of a bar shape.

- Circular / Elliptical / Dolder / Trapezoid

Width - defines the bar width.

Height - defines the bar height.

Angle - defines the bar angle.

Ø - defines the bar width.

Number of points - adds the additional control points to the bar shaping spline.

Add extra points (multiplier) - multiplies the number of points on a spline by the specified number.

Show original spline - shows/hides the original green spline.

Show additional points spline - shows/hides the spline with the additional control points.

Shape spline image - displays the shape of the bar you are editing. Click on a grid and scroll the mouse wheel up and down to zoom the grid.

Grid spacing - defines the size of a single grid square.

Distance to gingiva - defines the distance between the lower part of the bar and the gingiva.

Ending type - shapes the bar ending:

1. **Flat** - creates flat ends on the bar,
2. **Wrap Around** - creates rounded ends with the shape wrapped around the vertical axis.

- **Custom**

For the **Custom** bar shape you can type the coordinates in the **Shape spline** window and change the shape of the spline by dragging its points in the **Shape spline image** grid.

Bar shape type

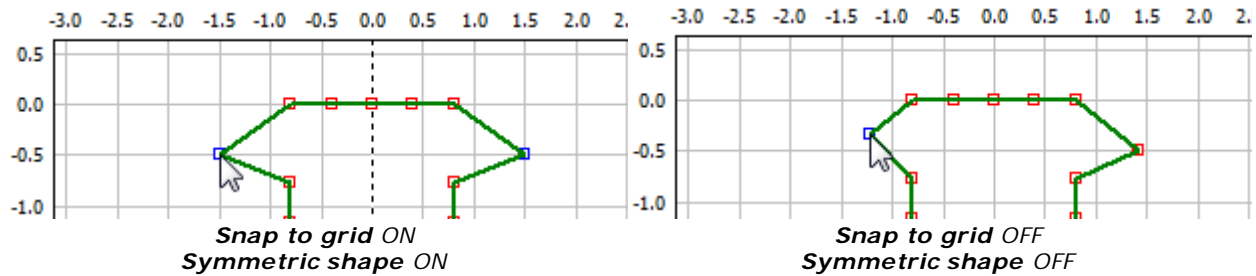
Custom

Shape spline

X-coordinate	Y-coordinate
-1.00	0.00
-0.50	0.00
0.00	0.00
0.50	0.00
1.00	0.00
1.00	-1.00
1.00	-2.00

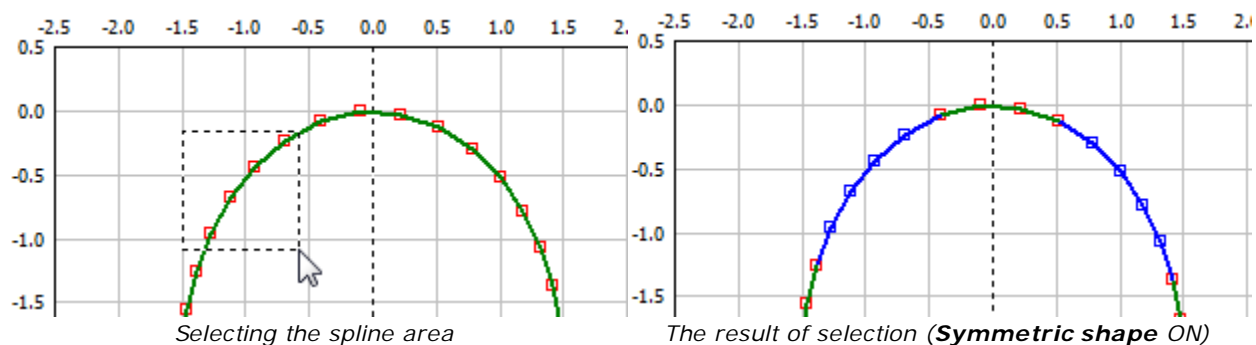
Snap to grid - when selected, allows you to place the control points only on the grid nodes (see images below).

Symmetric shape - when selected, allows you to symmetrically move the control points:

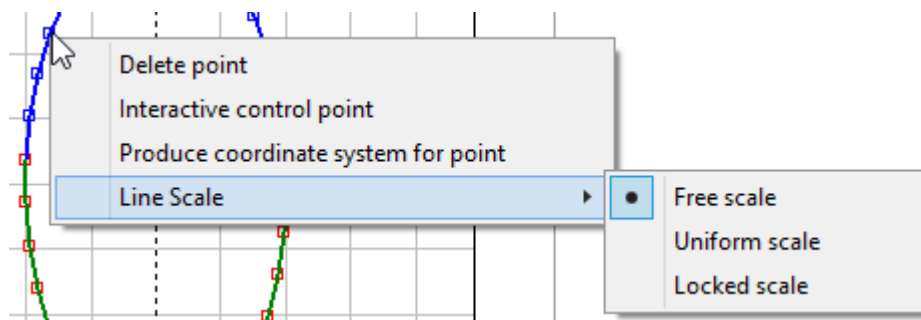


For the **Custom** bar shape you can also do the following:

1. Select specific areas of the spline to edit. Click and drag the mouse for selection. Click and move the selected area to shape your bar.



2. Right-click the grid to open a menu:



DEGREES OF FREEDOM AND MESSAGES

- Select the degrees of freedom to enable the corresponding bar transformations while modeling a bar in Dental Designer.
- Select the **Show info message** checkbox to have the message appear while entering the [Edit bar step](#) in Dental Designer. The language and text of the message can be specified below.

Optional degrees of freedom

Rotation ☐

Vertical scale ☐

Horizontal scale ☐

Info message

Show info message ☒

Select language to edit English ▼

Message

Dolder® System

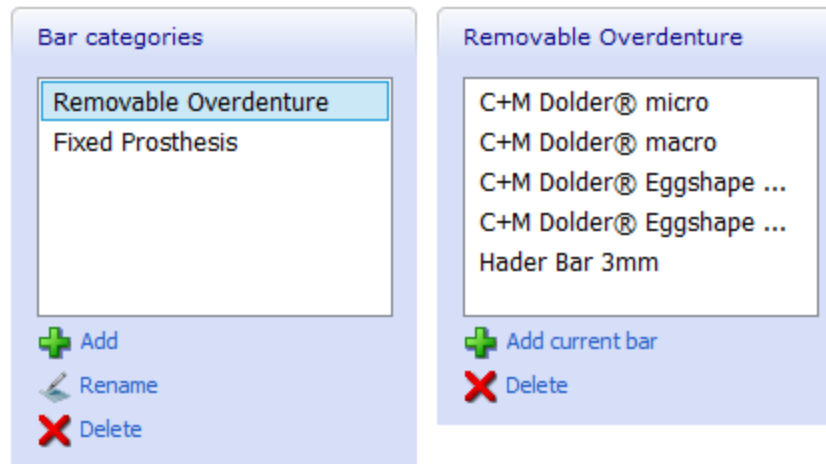
Do only use original parts of the Dolder® System produced by Cendres+Métaux.
For ordering please contact your local dealer or refer to
www.cmsa.ch/dental

Dolder® is a registered Trademark.

Cendres+Métaux does not assume any liability for the quality of the milled bars or any parts which are not of Cendres+Métaux origins.

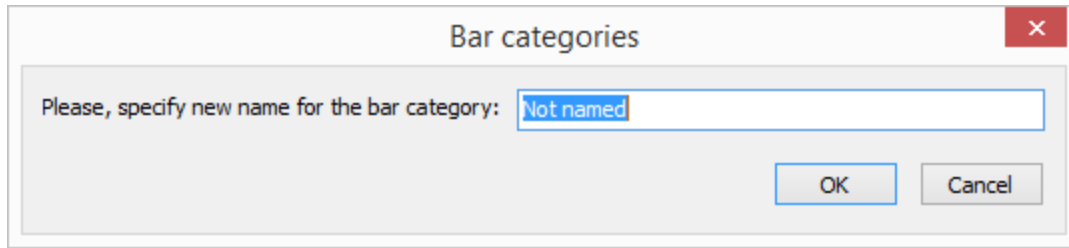
BAR CATEGORIES

Bar categories make the working process in Dental Designer more comfortable and organized.



To add a new bar category:

1. Click the **Add** button.
2. Name your category in the appeared form.
3. Click **OK**.



To add the current bar to your category:

1. Select the desired bar category.
2. Click the **Add current bar** button.

The added bar should now appear in the list and can be selected in the order form and during the design process.

3.10.2. Connectors

The *Connectors* window contains settings for defining a connector:

Bridge elements ▸ Connectors

Connector

- Circular 6mm
- Circular 9mm
- Elliptical 6mm
- Elliptical 9mm
- Silhouette
- None
- Multilayer**
- Silhouette
- Circular 6mm
- Circular 9mm

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin

No items
 Restore all
 Empty the Recycle Bin

Edit Connector

ID	LinkTypeConnector7	Change ID
Name	Multilayer	
Connector shape type	<div> <div>Multilayer</div> <div>None</div> <div>Circular</div> <div>Elliptical</div> <div>Silhouette</div> <div>Multilayer</div> </div>	
Facial distance		
Palatal/lingual dist.		
Occlusal distance	0.0 mm	
Counter occlusal dist.	0.0 mm	
Center stretch	0.20	
Center scale	0.90	
Center shift up	0.00	
Center shift back	0.00	
Number of points	5	
Area	9.00 mm ²	

Settings can differ depending on the connector type:

- **Common settings for all types of connectors are:**

Connector shape type - defines the type of connector: *Silhouette*, *Circular*, *Elliptical* or *None*.

Center stretch - defines the stretching of connector.

Center scale - defines the scaling of connector.

Center shift up - defines the shifting of a central part of connector (occlusal).

Center shift back - defines the shifting of a central part of connector (facial).

Number of points - defines the number of points in the connector control splines. The default number is 6 points.

Area - defines the approximate area of the sliced connector located at the connector control splines.

- **Specific settings for the Silhouette connector type:**

Facial distance - the (approximate) distance from the connector control splines to the facial side.

Palatal / lingual dist. - the (approximate) distance from the connector control splines to the palatal/lingual side.

Occlusal distance - the (approximate) distance from the connector control splines to the occlusal side.

Counter occlusal dist. - the (approximate) distance from the connector control splines to the counter occlusal side.

- **Specific settings for the Circular and Elliptical connector types:**

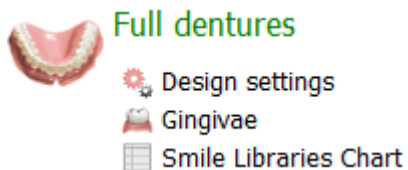
Scale factor - scales the default connector control splines.

Shift back - moves the connector control splines in the lingual direction.

Distance to spline - places the center of the connector control splines a certain distance vertically from the Placement overview spline. The default value of "0" ignores the placement (named **Auto** in Dental Designer).

Height to width ratio - defines how high the initial shape of the connector control splines should be according to the width.

3.11. Full Dentures




The **Full Dentures** category contains the following tabs:

- [Design settings](#)
- [Gingivae](#)
- [Smile Libraries Chart](#)

3.11.1. Design Settings

You can mark the **Free Form Design** box in the *Design settings* page to allow denture teeth form modifications in Dental Designer, such as, **Individual transformation** and **Individual morphing** options found in [Full Dentures Smile Composer®](#). The two options appear hidden during the design otherwise.

Full dentures ► Design settings

Design settings 

Denture Teeth Free Form Design ☐

Enable Free Form Design to allow denture teeth form modification (like scaling, morph etc)

Occlusal plane is defined by:

☒ Maxilla
☐ Mandible

Select jaw defining occlusal plane during initial teeth placement in SmileComposer

Limit of the distal sides of the last molars: °

The value defines the steepness of the mandibular slope appropriate for posterior teeth placement. The higher the angle of the slope, the more the prosthesis is prone to slipping outside.

Use Pound's triangle ☒

If checked, Pound's triangle visual guide becomes available during mandibular posterior teeth placement

3.11.2. Gingivae

The **Gingivae** page contains parameters, which can be pre-configured for [Full Dentures design](#).

Gingivae

Monoblock

Base with artificial teeth (milled r...

Base with artificial teeth (manual ...

Base with designed teeth

Add

Copy

Delete

Move up

Move down

Recycle bin

No items

Restore all

Empty the Recycle Bin

Details

Total: 4 items

Edit Full Dentures Gingiva

ID

FDGingivaDesignedTeeth

Change ID

Name

Base with designed teeth

Material

Not specified

Color

Not specified

Assembling type

Base with designed teeth

This assembling type is only available for DS2019 and newer versions of Dental System.

Monoblock

Base with designed teeth

Glue space

Min thickness under teeth

Remove undercuts from teeth pockets

Drill compensation of teeth pockets

Drill radius

Base with artificial teeth (milled reduction)

Base with artificial teeth (manual reduction)

Assembling type - provides a list of full denture assembling methods. The selected type is illustrated with an image. Please see the [Full Denture Assembling Types](#) description below.

Glue space - controls the amount of distance between each tooth and its respective placeholder surface in the denture base.

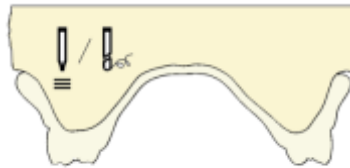
Min thickness under teeth - is the minimum base thickness under each tooth (surface of every tooth, which is closer to the scan than the value provided, is cut away).

Drill compensation of teeth pockets - rounds the inward corners of teeth pockets to facilitate the manufacturing process.

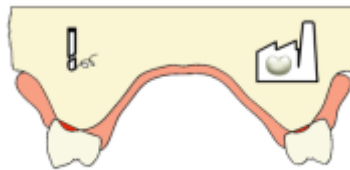
Drill radius - allows you to specify the radius of a drill.

FULL DENTURE ASSEMBLING TYPES

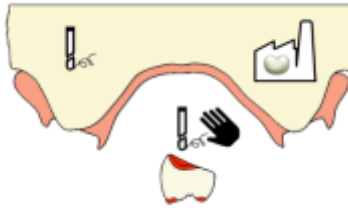
1. **Monoblock.** The Monoblock (injection molding) denture assembling type yields a single model combining teeth and a denture base; the teeth models are cut to the preparation scan during design.



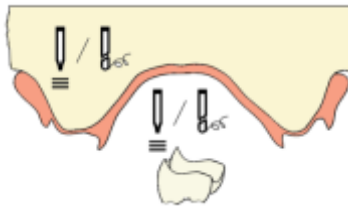
2. **Base with artificial teeth (milled reduction).** The prosthesis made with the artificial teeth (milled reduction) assembling type requires pre-manufactured teeth to be glued into a denture base blank that has been milled from the top side. After the gluing procedure, the teeth basal surfaces are reduced to prospective shape simultaneously with a denture base bottom surface milling operation.



3. **Base with artificial teeth (manual reduction).** The artificial teeth (manual reduction) assembling type requires manual denture teeth reduction effort. The final base model is produced with injection molding thus requires the design to be prepared having undercuts removed from the model. The output of the order consists of the denture base with teeth pockets ready for production in castable wax. The pockets can appear to have holes coming through the base for those teeth that do not fit by their height.



4. **Base with designed teeth.** The designed teeth assembling type uses custom teeth manufacturing approach. The output of the order consists of the denture base with the pockets for teeth blocks and the arches of teeth blocks themselves. The teeth blocks are cut against the preparation scan leaving guaranteed layer of material between the preparation scan and the teeth element. It is also possible to order the arch consisting of multiple blocks. Individual teeth are not intended for custom manufacturing as being cost inefficient. CoM, Arch and Matrix Assembling types are now part of **Base with designed teeth**.



Positioning guide - lets you enable and select **Material** for the positioning guide.

Positioning guide

☒

Material

Not specified

Not specified

Ti

Wax

PMMA

CoCr

Model Material

DREVE FotoDentModel Beige

3D Systems Visijet

[Occlusal bite aligner](#) - lets you enable and select **Material** for the occlusal bite aligner.

Occlusal bite aligner

☒

Material

Not specified

Not specified

Ti

Wax

PMMA

CoCr

Model Material

DREVE FotoDentModel Beige

3D Systems Visijet

3.11.3. Smile Libraries Chart

The **Smile Libraries Chart** page lets you set rules for combining teeth blocks together from different smile libraries by creating a combination chart. So when using this combination chart in [Full Denture Smile Composer®](#), the software would only show those libraries for posterior and lower anterior blocks that match the chosen upper anterior library.

Full dentures ▶ Smile Libraries Chart

Tasks

+ Add item

- Delete

▲ Smile libraries

▲ Candulor NFC+

 ▲ Physiostar NFC Plus_550

 ▲ Lower Anteriors

 Physiostar NFC Plus_990

 Physiostar NFC Plus_996

 ▲ Posteriors

 Bonartic II NFC Plus_02_Small

 Condyliform II NFC Plus_34

 ▶ Physiostar NFC Plus_552

 ▶ Physiostar NFC Plus_554

 ▶ Physiostar NFC Plus_556

 ▶ Physiostar NFC Plus_660

 ▶ Physiostar NFC Plus_662

 ▶ Physiostar NFC Plus_664

 ▶ Physiostar NFC Plus_666

 ▶ Physiostar NFC Plus_770

 ▶ Physiostar NFC Plus_772

 ▶ Physiostar NFC Plus_774

 ▶ Physiostar NFC Plus_776

 ▶ Physiostar NFC Plus_880

 ▶ Physiostar NFC Plus_882

 ▶ Physiostar NFC Plus_884

► **Step 1:** To create a new combination entry, select the **Smile libraries** line and click the **Add item** button. Then click the new item line and choose a smile library provider (e.g. Candulor NFC+) from the drop-down list.

▲ Smile libraries

 Not specified

 Not specified

 3Shape

 Allure DS

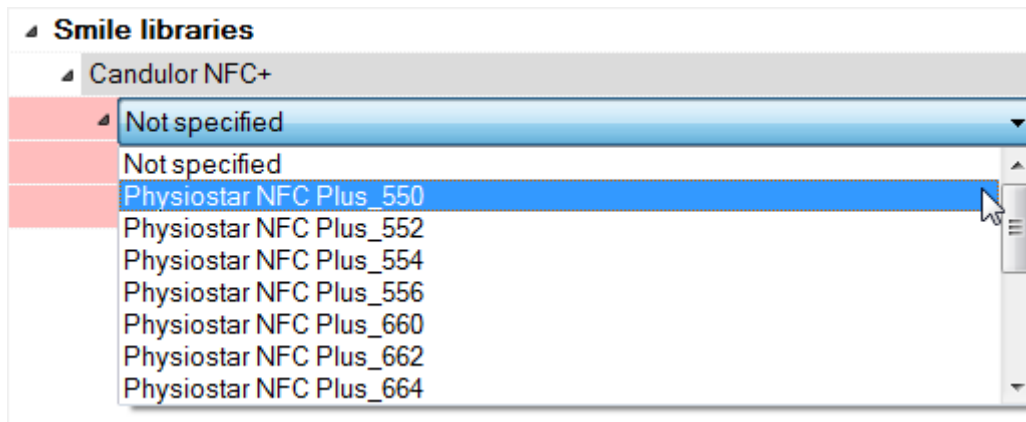
 Candulor NFC

 Candulor NFC+

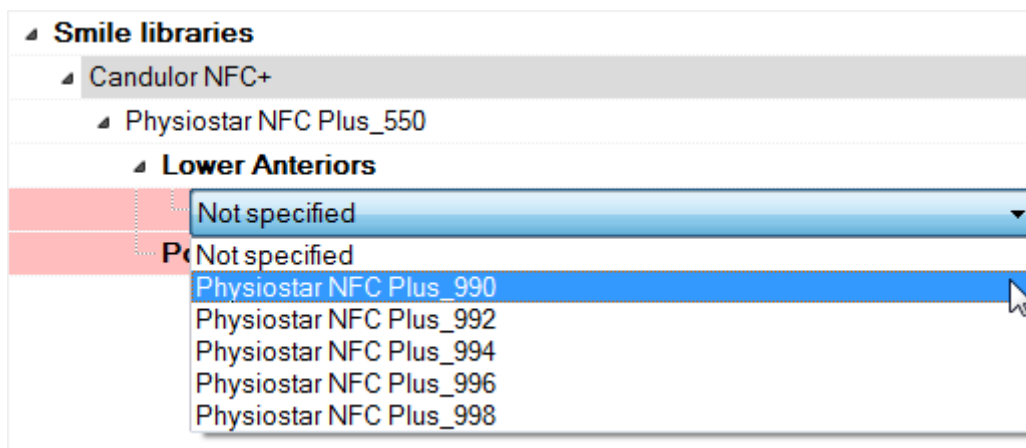
 Pritidenta

 VITA

► **Step 2:** When a smile library provider is specified, select its line and click the **Add item** button to create a tree under it. This tree will contain combination rules for corresponding teeth blocks. Then click the tree node's line and choose an upper anterior library (e.g. Physiostar NFC Plus_550) from the drop-down list.



► **Step 3:** To create a combination rule with lower anterior libraries, select the **Lower Anteriors** line and click the **Add item** button to be able to specify lower the anterior library(ies) to be combined with the chosen upper anterior library. Do the same for **Posteriors**.








You can add as many rules as you need, as well as delete them.

3.12. Removables



Removables

-  Frames
-  Connectors and Rests
-  Wax profile strips
-  Retentions
-  Stippled waxes

The **Removables** category contains the following tabs:

- [Frames](#)
- [Connectors and Rests](#)
- [Wax profile strips](#)
- [Retentions](#)
- [Stippled waxes](#)

3.12.1. Frames

The **Frames** page contains RPD frame parameters which can be pre-configured for [Removable Partial Dentures design](#). They include **ID**, **Name**, specific **Material** and **Color**, which are the basic ones, and RPD frame parameters as described below.

Removables ▶ Frames

Frames

RPD Frame

+ Add
+ Copy
X Delete
Move up
Move down

Recycle bin

No items
Restore all
Empty the Recycle Bin

Edit RPD Frame

ID	RPD1	Change ID
Name	RPD Frame	
Material	Not specified	
Color	Not specified	

Blockout angle	3.00	°
Resin gap thickness	0.60	mm
Relief thickness	0.15	mm
Liner space	0.03	mm
Tissue stop diameter	4.00	mm
Support bar diameter	2.50	mm

Frame consists of several parts ☐

Blockout angle - predefines the angle at which wax is applied for blocking out undercuts.

Resin gap thickness - controls the thickness of the wax relief under retention grids, e.g. for creating Open Lattice mesh.

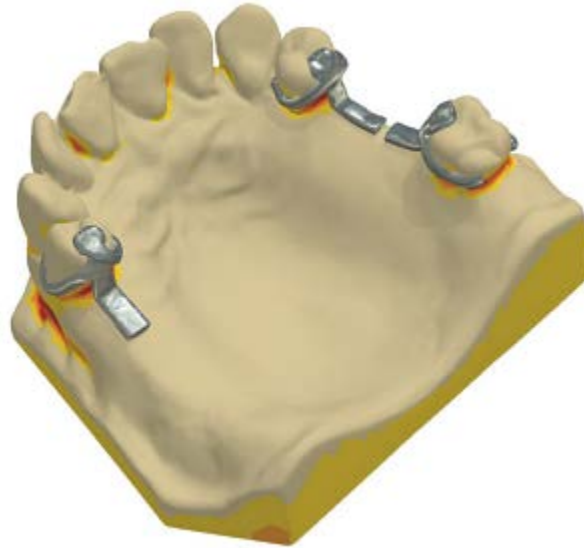
Relief thickness - controls the thickness of the wax layer applied to a relief zone.

Liner space - sets the default value of additional space between a prosthesis and a scan to compensate the frame manufacturing tolerance.

Tissue stop diameter - allows you to set the default diameter of a tissue stop.

Support bar diameter - allows you to set the default diameter of a support bar.

Frame consists of several parts - provides the ability to design a suite of clasps for an acrylic removable partial denture:



3.12.2. Connectors and Rests

On the **Connectors and Rests** page, you can add major connector and occlusal rest parameters and pre-configure them for the [Removable Partial Dentures design](#). They include **ID**, **Name** and **Material**, which are the basic ones, and some specific parameters, as described below.

Item type - allows you to specify the type of the entry by choosing either **Major connector** or **Occlusal rest**. Depending on the chosen item type, you get specific parameters.




Removables ▶ Connectors and Rests

Table

RPD Major connector
RPD Occlusal rest

-  Add
-  Copy
-  Delete
-  Move up
-  Move down




Recycle bin

-  No items
-  Restore all
-  Empty the Recycle Bin

Details

Total: 2 items

Edit Connectors and Rests

ID	44000_RPDConnector2	Change ID
Name	<input type="text" value="RPD Major connector"/>	
Material	<input type="text" value="Not specified"/>	
Item type	<input type="text" value="Major connector"/>	
Substructure thickness	<input type="text" value="0.90"/>  mm	
Wax thickness	<input type="text" value="0.30"/>  mm	
Stippling protection	<input type="text" value="0.00"/>  mm	

Major connector parameters

Substructure thickness - predefines the thickness of the reinforcing casting wax layer. The substructure layer starts at 2 mm from the major connector's edge.






Wax thickness - allows you to preset the thickness of the stippled wax sheet.

Stippling protection - sets the width of the rim along the edge of the major connector, which is not influenced by the stippled wax pattern.




Removables ▶ Connectors and Rests

Table

RPD Major connector
RPD Occlusal rest

-  Add
-  Copy
-  Delete
-  Move up
-  Move down



Recycle bin

-  No items
-  Restore all
-  Empty the Recycle Bin

Details

Total: 2 items

Edit Connectors and Rests

ID	44000_RPDConnector3	Change ID
Name	<input type="text" value="RPD Occlusal rest"/>	
Material	<input type="text" value="Not specified"/>	
Item type	<input type="text" value="Occlusal rest"/>	
Substructure thickness	<input type="text" value="0.80"/>  mm	
Wax thickness	<input type="text" value="0.10"/>  mm	

Occlusal rest parameters

Substructure thickness - predefines the thickness of the reinforcing wax layer.

Wax thickness - allows you to preset the thickness of the thinner wax layer.

3.12.3. Wax Profile Strips

The **Wax profile strips** page contains the settings for editing the wax strip:

Removables ▶ Wax profile strips

Wax profile strip

- G-Clasp
- E-Clasp
- G-Clasp Thin
- E-Clasp Thin
- Uniform Clasp
- Roach Clasp
- Roach Arm
- Occlusal Rest
- Anatomical bar
- Standard bar

- + Add
- + Copy
- ✗ Delete
- ↕ Move up
- ↕ Move down

Recycle bin

- ➡ No items
- ↶ Restore all
- 🗑 Empty the Recycle Bin

Details

Total: 14 items

Edit Wax profile strip

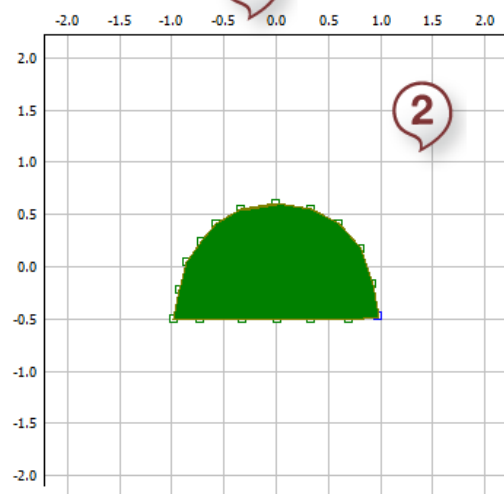
ID WaxProfileStrip1 Change ID

Name G-Clasp

Material Not specified

Shape spline image

X-coordinate	Y-coordinate
-0.33	0.55
-0.57	0.41
-0.72	0.24
-0.85	0.04
-0.93	-0.23
-0.98	-0.50
-0.73	-0.50



Profile is available for usage as:

Clasp



The window contains a 2D editor (2) and a table (1) with the corresponding profile points (which provides the precise way of setting coordinates).

The real time preview window (3) shows the final look of the wax profile strip.

Click on one of the small green rectangles in the 2D editor and move it with the cursor in the desired direction. The profile becomes transparent when active (see image to the left). The changes to the wax profile strip can be observed in the preview window (right-click to rotate the model).

There are five types of **Profiles** available for wax strips:

- **Custom**
- **Clasp**
- **Bar**
- **Sprue**
- **Minor connector**
- **Finish line**

Profile scale factor - set the needed value to adjust the scale of the wax strip profile, if necessary.

Select the **Round ends** checkbox to make the ends of the strip round. Specify the desired rounding radius in the **Rounding radius factor** edit box.






Tip thinning factor - set the needed value to reduce the thickness of the wax strip towards its tip.

Tip start position along strip - indicate the point where the tip starts along the length of the wax strip.

Elevation upon surface - indicate the offset of the wax strip from the surface, if necessary (e.g. as in the [Jumper](#) profile type).

Automatic relief - select this checkbox to apply an automatic relief for those frame items that require it (e.g. lingual bars and roach clasps), with the **Relief thickness** specified in the corresponding edit box.

Profile is available for usage as:	Clasp
Profile scale factor	1.00
Round ends	<input checked="" type="checkbox"/>
Rounding radius factor	1.0
Tip thinning factor	80 %
Tip start position along strip	0 %
Elevation upon surface	0.00 mm
<hr/>	
Automatic relief	<input type="checkbox"/>
Relief thickness	0.60 mm

You can **Add**  / **Copy**  / **Delete**  / **Move up**  and **down**  the wax profile strip with the corresponding buttons in the left part of the window.

When adding a new wax profile strip, you can enter a new name for it, select a material or click the **Change ID** button to enter a different ID.

Use the **Recycle bin** to restore the deleted items if desired.

3.12.4. Retentions

The **Retentions** page contains the settings for editing the retention grid:

Removables ▶ **Retentions**

Retention grids

Hole d2.5
Hole d2.0
Grid 2x2
Grid 4x2.2
Torus Ladder
Plain
Hole d2.5
Hole d2.0
Grid 2x2
Grid 4x2.2

+ Add

+ Copy

✗ Delete

↕ Move up

↕ Move down

Recycle bin

➡ No items

↶ Restore all

🗑 Empty the Recycle Bin

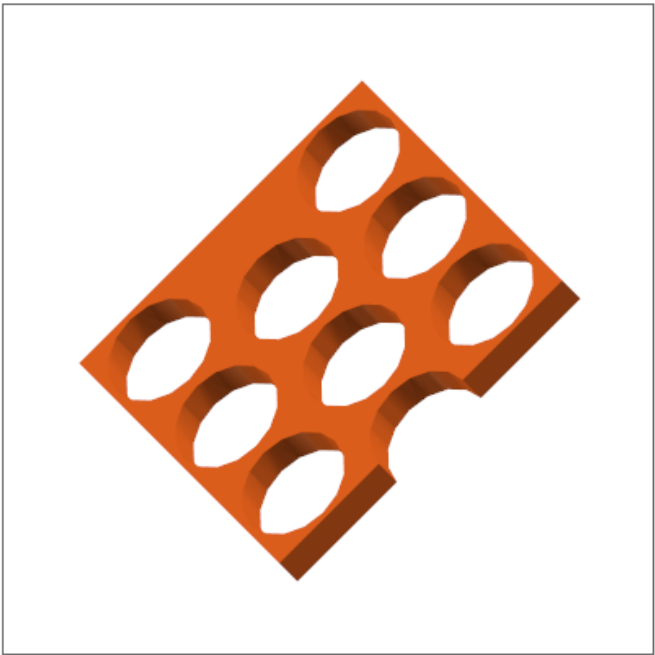
Details
Total: 12 items

Edit Retention grids

IDConfiguration_32_Retentions1Change ID

NameHole d2.0

MaterialNot specified



Retention typeHole

Retention thickness0.60 mm

Distance between holes2.20 mm

Hole diameter2.00 mm

You can choose one of the grid **Retention types**:



Hole



Grid



Grid Diagonal








Torus Ladder



Plain, Resin Gap

Set the corresponding parameters, such as **Retention thickness**, **Distance between holes** and **Hole diameter** as desired (for the **Hole** retention type). If you choose **Grid**, then a **Cell size** parameter will be available. **Diagonal 1** and **Diagonal 2** can be set if **Grid Diagonal** has been chosen. For **Torus Ladder**, the **Diameter** parameter will appear in the list.

You can **Add**  / **Copy**  / **Delete**  / **Move up**  and **down**  the retention grid with the corresponding buttons in the left part of the window.

When adding a new retention grid, you can enter a new name for it, select a material or click the **Change ID** button to enter a different ID.

Use the **Recycle bin** to restore the deleted items if desired.

3.12.5. Stippled Waxes

The **Stippled Waxes** page contains the settings for editing the stippled wax:

Removables ▶ Stippled waxes

Stippled wax

- Medium type 1
- Medium type 2
- Medium type 3
- Fine type 1
- Fine type 2
- Fine type 3
- Coarse type 1
- Coarse type 2
- Coarse type 3

+ Add
+ Copy
X Delete
Move up
Move down

Recycle bin

1 item
Restore all
Empty the Recycle Bin

Details

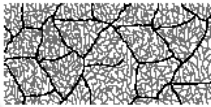
Total: 9 items

Edit Stippled wax

ID: StippledWax1 [Change ID](#)

Name: Medium type 1

Material: Not specified

Stippled wax file path:  **Stippled wax file path**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\library\3Shape\RPD\StippledWaxes\StippledWax_bego.zip

Stippled wax image density: 1500 DPI


Pattern height: 0.10 mm

Open

File name: \RPD\StippledWaxes\StippledWax_bego.zip

File type: png-files; zip-files (*.png;*.zip)

Open Cancel

Click **Add**  to add a new type of a stippled wax. Enter a name for your new type of wax (e.g. **Medium**) and click **Stippled wax file path** to load an image in .png, zip file format (see image above). Set up the desired resolution (which defines stippled pattern density) for the image in the **Stippled wax image density** field.



Caution! The .png images have to be the **8-bit grayscale** files only. Use an appropriate image editor to prepare the correct color depth.

3.13. Digital Model



Digital model

Digital model design

Articulator interfaces

The **Digital model** category contains settings for designing a digital model in [3Shape Model Builder™](#):

- [Digital model design](#)
- [Articulator interfaces](#)

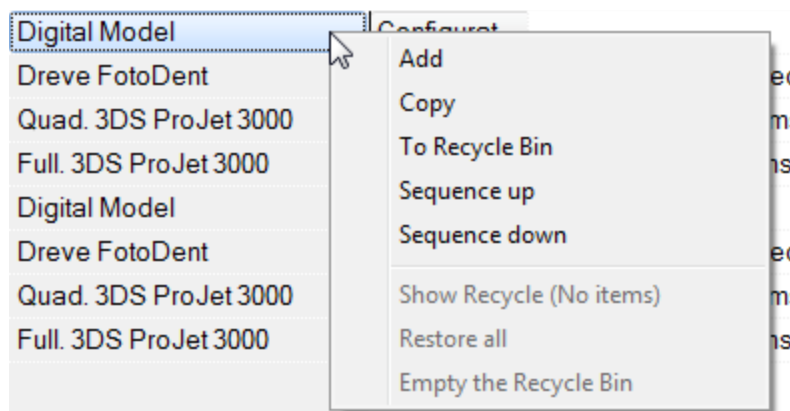
3.13.1. Digital Model Design

The **Digital Model Design** section specifies methods for producing the lab models, created with [Model Builder](#).

You can create as many manufacturing processes as needed with the **Add** button. Their settings can be specified under the five tabs of the table:

- [General](#)
- [Margin Line and Ditching](#)
- [Die](#)
- [Pin and Ejection](#)
- [Model and Manufacturing](#)

You can copy and delete the existing process or move it up and down the list with the menu items accessible via the right-click menu as shown on the image:



The deleted items are placed into the **Recycle Bin**, which can be viewed by clicking the **Show Recycle** button. You can restore and delete the items or empty the Recycle bin if desired. Click **Back to List** to return to the list of manufacturing processes.

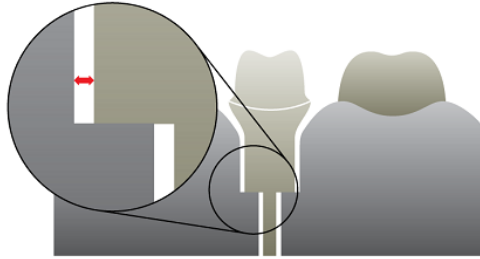
To edit any of the parameters in columns, double-click them and enter/select the necessary data (see image below).

Digital model ▶ Digital model design

Add
 Copy
 To Recycle Bin

Recycle bin:
 Show Recycle (No items)
 Restore all
 Empty the Recycle B

Name	Die				
	Base Wall Angle (deg)	Base Stop Surface Width (mm)	Base Stop Surface Angle (deg)	Die to Model Spacing (mm)	Friction bar Width (mm)
Digital Model	2.000	0.001	0.000	0.100	0.700
Dreve FotoDent	2.000	0.650	0.000	0.100	0.700
Quad. 3DS ProJet 3000	2.000	0.001	0.000	0.040	0.700
Full. 3DS ProJet 3000	2.000	0.001	0.000	0.040	0.700
Digital Model	2.000	0.001	0.000	0.100	0.700
Dreve FotoDent	2.000	0.650	0.000	0.100	0.700
Quad. 3DS ProJet 3000	2.000	0.001	0.000	0.040	0.700



Die to Model Spacing (mm)

For convenient navigation through the parameters, use the sliding bar below by dragging it sidewise to find the necessary settings.

The image under the sliding bar illustrates the selected parameter. When you select the parameter that doesn't have an image, the following message appears in the field: *"No help figure exists for this parameter"*.

With a right-click on the column headings you open a pop-up menu displaying all available parameters (see the image below). The parameters can be shown or hidden by selecting them from the menu. A tick next to a parameter means the column is shown in the table. Click on small black arrows to scroll up and down the list:

General	
ID	- An identification code of the manufacturing process.
Name	- Name of the manufacturing process. It is always displayed in the table and cannot be hidden. The name itself can be changed by double-clicking on it in the table.
Description	- The field for your notes and comments.
Material	- Type of the used material.
Margin Line and Ditching	
Protect Contacts Above Margin (mm)	- The design will not be subtracted higher than the indicated value above the margin line, for example when you want to protect neighboring teeth surfaces.
Base Margin Height (mm)	- The distance from the margin line to the burr.

Ditch and Trim Model - When selected, clears area around the margin line to provide a better access to the margin line for sectioned (cut) or unsectioned digital models.
Ditch Height (mm) - The height of a special groove (burr), located right below the margin line.
Ditch Depth (mm) - The depth of a special groove (burr), located right below the margin line.
Margin Thickness (mm) - The amount of vertical shift from the margin line during die ditching of sectioned (cut) digital jaw model.
Die
Standard Die Shape - When selected, creates a standard die shape otherwise, an anatomical die shape is created.
Base Main Height (mm) - The minimum height of the standard shape base.
Base Wall Angle (deg) - An angle of a slope down to the margin line.
Base Stop Surface Width (mm) - The width of a stop surface at the bottom of a die that prevents a die from slipping out of a model.
Base Stop Surface Angle (deg) - An angle that the stop surface has to horizontal. You can make big dies with self supporting stop surfaces using an angle not zero.
Die to Model Spacing (mm) - A gap between the top part of a tooth and a model.
Post to Model Spacing - The gap around a multipost model of the designed post and core.
Friction Bar Width (mm) - The width of a friction bar that helps to fixate a die in the model.
Friction Bar Overlap (mm) - The penetration distance of a friction bar into the die.
Number of Friction Bars - The desired number of friction bars on a model.
Vertical Insert Direction - True/False.
Print Abutment As Part Of Model - If you are making a sectioned die ditched model, the abutment will be printed as a die. If it is an unsectioned model, the abutment will be printed as a part of model.
Pin and Ejection
Pin Type - A CAD model for a pin.
Snap Off Pin - A design where the die is designed with the conical supports that can be snapped off.

Pin Height (mm) - The height of a pin below the die.
Pin Wall Angle (deg) - The narrowing angle of a pin slope.
Pinless Hole Type - A CAD model for the bottom hole in the case with no pin.
Side Hole Type - A CAD model for a side hole.
Pushing Indent Type - A CAD model for a pushing indent.
Pushing Height (mm) - Height of the pushing indent under each die.
Model and Manufacturing
Use Drill Compensation - When selected, rounds the inward corners of a die and a model to facilitate the manufacturing process.
Drill Radius (mm) - The radius of rounding the inward corners.
Minimum Model Base Height (mm) - A minimum height of the model.
Hollow Model - Removes material inside the model for the 3D printing optimization.
Surface Thickness (mm) - An inward offset of a model used for the 3D printing optimization.
Use Variable Thickness - When selected, applies a variable thickness to the model.
Hollow Dies - Removes material inside the die for the 3D printing optimization.
Drain Hole Size (mm) - The size of holes at the bottom of the platform used to let the liquid for 3D printing to drain out.
Use ID Tag - Whether to use ID tags for the model and die.
Font Height (mm) - The height of the font used on the ID tag.
Text Depth (mm) - The depth of the text written on the ID tag.
Print Layer Thickness (mm) - The minimum thickness of a layer built up by a printer.
Platforms Distance (mm) - The distance between bottoms of the upper and lower jaw models when they are in occlusion.
Articulator Interface - Choose from the list the articulator interface that would be used by default in Model Builder during your digital model design.
Maximum model height (mm) - The height of the milling blank.

	Friction Adjustment for Angle - Adjusts the friction bar overlap for angled dies. Value larger than 0 increases while values smaller than 0 decreases the overlap for angled dies. Set it to 0 to make the overlap constant.
	Friction Adjustment for Size - Adjusts the friction bar overlap for large and small dies. Value larger than 0 decreases the overlap for small dies and increases it for large dies. Value smaller than 0 does the opposite. Set it to 0 to make the overlap constant.
	Design to Model Spacing (mm) - A gap between a designed dental indication (crown, abutment etc.) and a digital model of an arch.
	General Clearance (mm) - Defines a gap/distance between the digital jaw model and subtractive articulator interfaces or soft tissues to make mounting possible.
	Analog Friction bar Width (mm) - The width of a friction bar that helps to fixate an analog in the analog hole.
	Analog Friction bar overlap (mm) - The penetration distance of a friction bar into the analog.
	Number of Analog Friction Bars - The desired number of friction bars on a model.
	Analog to Model Spacing (mm) - A gap between the top part of an analog and a model.
	Analog hole level adjustment (mm) - Adjusting the placement of the implant analog interface along the insertion direction
	Protect Analog (soft tissue) - When selected, creates the surface around the analog.
	Protect Analog Distance (mm) - The thickness of the surface created around the analog.
	Side Drain Hole Types - Select a CAD model to determine the shape of the hole.
	Side Drain Hole Center Height (mm) - The height of the center of the drain hole above the model bottom.

All columns

Restore Last Size

Fit All Columns

☒

ID

☒

Name

☒

Description

☒

Material

☒

Protect Contacts Above Margin (mm)

☒

Base Margin Height (mm)

☒

Ditch and Trim Model

☒

Ditch Height (mm)

☒

Ditch Depth (mm)

☒

Margin Thickness (mm)

☒

Standard Die Shape

☒

Base Main Height (mm)

☒

Base Wall Angle (deg)

☒

Base Stop Surface Width (mm)

☒

Base Stop Surface Angle (deg)

☒

Die to Model Spacing (mm)

☒

Post to Model Spacing (mm)

☒

Friction bar Width (mm)

☒

Friction bar overlap (mm)

☒

Number of Friction Bars

☒

Vertical Insert Direction

☒

Print Abutment as Part of Model

☒

Pin Type

☒

Snap Off Pin

☒

Pin Height (mm)

☒

Pin WallAngle (deg)

☒

Pinless Hole Type

☒

Side Ejection Hole Type

☒

Pushing Indent Type

☒

Pushing Height (mm)

☒

Use Drill Compensation

☒

Drill Radius (mm)

☒

Minimum Model Base Height (mm)

☒

Hollow Model

☒

Surface Thickness (mm)

☒

Use Variable Thickness

☒

Hollow Dies

☒

Drain Hole Size (mm)

☒

Use ID Tag

☒

FontHeight (mm)

☒

TextDepth (mm)

☒

Print Layer Thickness (mm)

☒

Platforms Distance (mm)

Side Drain Hole Distance (mm) - The horizontal distance between the drain hole centers.

3.13.2. Articulator Interfaces

The Articulator interfaces page allows you to configure parameters for different types of articulator interfaces, as well as add new interfaces if required. The list of articulator interfaces defined on this page will be available on the [Digital Model Design](#) page (column Articulator interface), where you can choose the default articulator interface.

The articulator interface can also be changed inside the Model Builder at the [Articulator interface](#) step.

ID - Identification Code

Name - The name of the articulator interface to be used in Model Builder.

Articulator type - Types of articulator interface plate used for modeling. Naming of articulator type is descriptive in terms of the items interaction within the Model Builder workspace.

- **Bottom**, This Type is shown on the bottom of the model with immovable connectors, it may be rotated, but no translational motion is possible. An example using the Base is shown below.

Articulator interfaces

3Shape Quadrant
3Shape Full Arch
Simple Full Arch v2.3
Simple Quadrant v2.3
CADDlu
Base
3S FullJaw v2.2 (Fit -20um)
3S Quad v2.3 (Fit -20um)
3S Quad v2.3 (Fit 0um)
3S Quad v2.3 (Fit -40um)

+ Add
+ Copy
X Delete
Move up
Move down

Recycle bin
No items
Restore all
Empty the Recycle Bin

Details
Total: 27 items

Articulator interfaces

ID: ArticulatorInterface_OrthoBaseArch Change ID

Name: Base

Articulator type: Bottom

Lower CAD model: **Lower CAD model**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADArticulatorInterfaceOrthoArch.STL

Upper CAD model: **Upper CAD model**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADArticulatorInterfaceOrthoArch.STL

Attachment model: Attachment model

Stretch CAD models vertically: ☒

Use connectors: ☒

Connector offset: 1.00

Male connector model: **Male connector model**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADMaleConnector.stl

Female connector model: **Female connector model**
C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADFemaleConnector.stl

- **Side**, The position of this Articulator Type is on the side of the model with immovable connectors, no translational motion is possible, but it may be rotated. An example using the Simple Quadrant v2.3 is shown below.

Digital model > Articulator interfaces

Articulator interfaces

3Shape Quadrant
3Shape Full Arch
Simple Full Arch v2.3
Simple Quadrant v2.3
CADBlu
Base
3S FullJaw v2.2 (Fit -20um)
3S Quad v2.3 (Fit -20um)
3S Quad v2.3 (Fit 0um)
3S Quad v2.3 (Fit -40um)

+

Add

+

Copy

X

Delete

↕

Move up

↕

Move down

Recycle bin

↔

No items

↕

Restore all





🗑️

Empty the Recycle Bin

Details

Total: 21 items

Articulator interfaces

ID	ArticulatorInterface_SimpleQuadrant Change ID	
Name	<input type="text" value="Simple Quadrant v2.3"/>	
Articulator type	Side ▼	
Lower CAD model		Lower CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\Simple\3Shape Articulator Printed Interface Block Quad (TypeB v2.3).dcm
Upper CAD model		Upper CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\Simple\3Shape Articulator Printed Interface Block Quad (TypeB v2.3).dcm
Attachment model	Attachment model	
Stretch CAD models vertically <input checked="" type="checkbox"/>		
Use connectors	<input checked="" type="checkbox"/>	
Connector offset	<input style="width: 50px;" type="text" value="1.00"/>	
Male connector model		Male connector model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADMaleConnector.dcm
Female connector model		Female connector model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADFemaleConnector.dcm

- **Side with attachment**, This Type is the same as the **Side Type** with the addition of an attachment. The attachment may never be scaled. An example using the 3S FullJaw v2.3 (Fit 0um) is shown below.

Articulator interfaces

3S FullJaw v2.2 (Fit -20um)
3S Quad v2.3 (Fit -20um)
3S Quad v2.3 (Fit 0um)
3S Quad v2.3 (Fit -40um)
3S FullJaw v2.3 (Fit 0um)
3S FullJaw v2.3 (Fit -40um)
Baumann Evo MS2000
Dentona dento-base small
Dentona dento-base large
SnowRock Full All Pins

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin

No items
 Restore all
 Empty the Recycle Bin

Details

Total: 27 items

Articulator interfaces

ID	ArticulatorInterface19	Change ID
Name	3S FullJaw v2.3 (Fit 0um)	
Articulator type	Side with attachment	
Lower CAD model	Lower CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\Full Arch Interface\Block FullJaw (TypeB v2.2).dcm	
Upper CAD model	Upper CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\Full Arch Interface\Block FullJaw (TypeB v2.2).dcm	
Attachment model	Attachment model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\Full Arch Interface\Hook FullJaw (TypeB v2.3 Fit 0um).dcm	

- **Bottom translatable**, This Type is shown on the bottom of the model with movable connectors, it may be rotated, trimmed, and it has translational motion. An example using the Heraeus Full is shown below.

Articulator interfaces

SnowRock Half Auto Pins
Invent Twister Quad
Invent Twister Full
Not named
Heraeus Full
Heraeus Left Side
Heraeus Right Side
DGSHAPE Full Blank for 3Shape
DGSHAPE Quadrant Blank for 3...

Add
 Copy
 Delete
 Move up
 Move down

Recycle bin

No items
 Restore all
 Empty the Recycle Bin

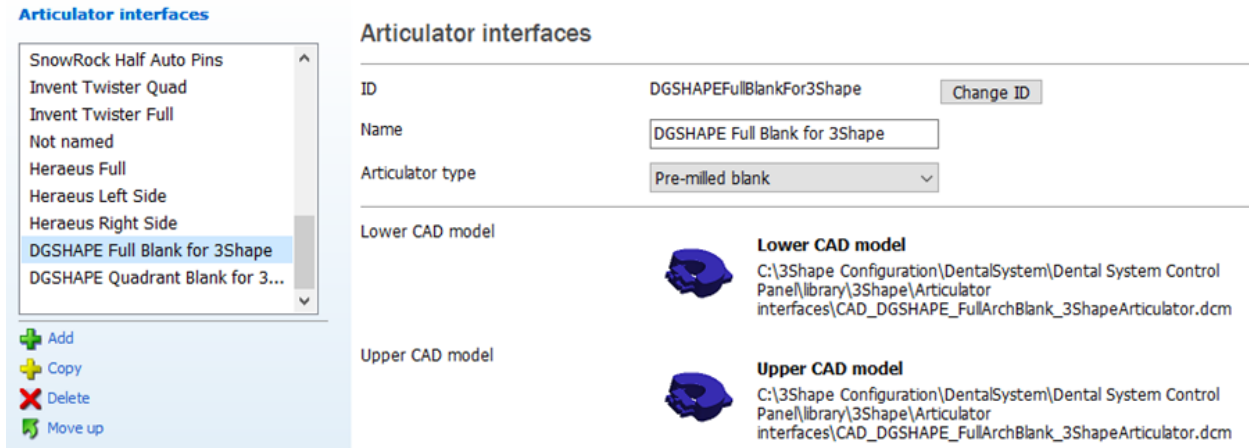
Details

Total: 27 items

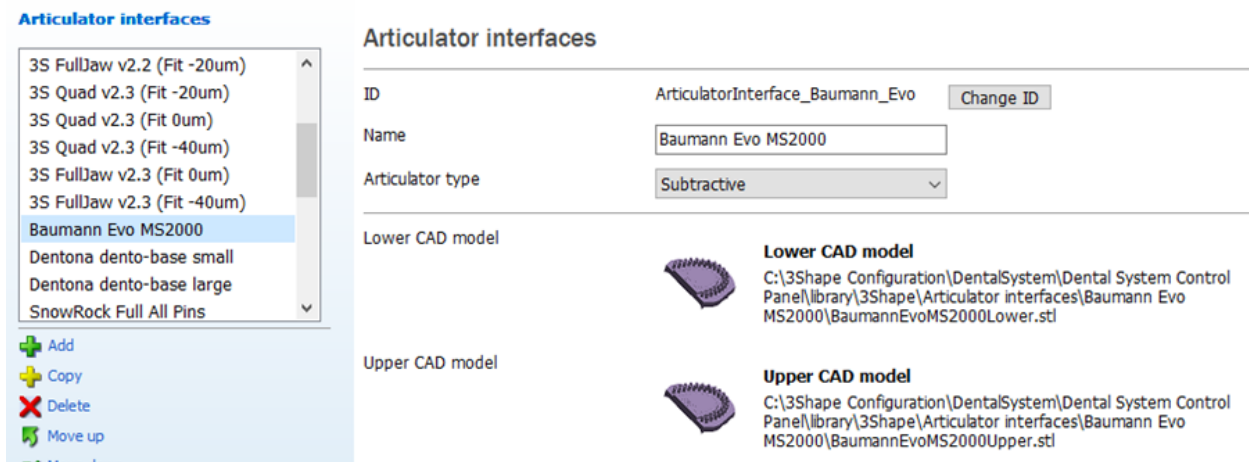
Articulator interfaces

ID	Configuration_01_ArticulatorInterface_	Change ID
Name	Heraeus Full	
Articulator type	Bottom translatable	
Lower CAD model	Lower CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADArticulatorInterfaceHeraeusLower.stl	
Upper CAD model	Upper CAD model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADArticulatorInterfaceHeraeusUpper.stl	
Attachment model	Attachment model	
Stretch CAD models vertically	<input checked="" type="checkbox"/>	
Use connectors	<input checked="" type="checkbox"/>	
Connector offset	5.50	
Male connector model	Male connector model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADMaleConnector.stl	
Female connector model	Female connector model C:\3Shape Configuration\DentalSystem\Dental System Control Panel\Library\3Shape\Articulator interfaces\CADFemaleConnector.stl	

- **Pre-milled blank**, This Type is shown on the bottom of the model with no connectors, it may be translated, rotated, and trimmed. Only those portions of the model located within the blank will be included in the finished product. An example using the DGSHAPE Full Blank for 3shape is shown on the Pre-Milled blank Articulator Interface page;



- **Subtractive**, Initial position of this type of interface is on the bottom of the model with movable connectors, it may be trimmed, rotated, and it has translational motion. The control panel gives you an option to join a jaw model with a stock base plate by stock pins. An example using the Baumann Evo MS2000 is shown below.



Lower / Upper CAD model - the uploaded CAD models used for upper and lower jaws. Click on the model icon or its path to load a different model.

Attachment model - the uploaded CAD model of an attachment (enabled only if the **Side with attachment** type of articulator has been selected). Click on the model icon or its path to load a different model.

Use connectors	<input type="checkbox"/>	
Connector offset	<input type="text" value="1.00"/>	
Male connector model		Male connector model
Female connector model		Female connector model
Model to connector connection		Model to connector connection
<hr/>		
Subtract Pin Holes	<input checked="" type="checkbox"/>	
Pin Hole Model		Pin Hole Model
Lower Pin Positions		Lower Pin Positions
Upper Pin Positions		Upper Pin Positions
<hr/>		
Support trimming	<input type="checkbox"/>	
Articulator height	<input type="text" value="32.00"/>	
Enforce articulator height	<input checked="" type="checkbox"/>	
<hr/>		

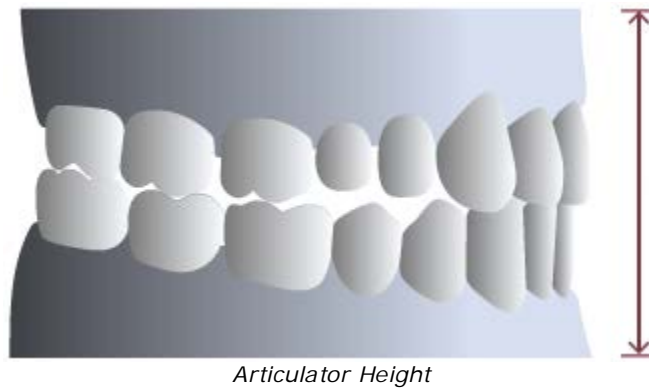
Use connectors - when selected, creates connectors on the articulator interface to fix the jaw models in their relative position.

Connector offset - the distance from the connector to the edge of the articulator interface.

Male / Female connector model - the uploaded CAD models of male and female connectors. Click on the model icon or its path to load a different model.

Support trimming - used with the articulator types **Bottom** and **Bottom translatable**. When the checkbox is selected, the program automatically cuts the articulator interface to make the model as small as possible.

Articulator height - used for articulators with a fixed height. It is the complete distance from bottom of the lower model's articulator interface to top of the upper model's articulator interface.



Enforce articulator height - when selected, makes sure that the articulator interfaces on the back of the model are moved so they match the articulator height instead of the model height (used in those cases, when the model needs to be higher than the height of the articulator, e.g. when you have implant cases).

3.14. Appliances



Appliances



Orthodontics Control Panel



Positioning Guide

The **Appliances** category contains the following tabs:

- [Orthodontics Control Panel](#)
- [Positioning Guide](#)

3.14.1. Orthodontics Control Panel

The **Orthodontics Control Panel** link opens 3Shape Ortho Control Panel™ where you can configure settings for orthodontic appliances:

Home Page



System settings



System settings



Administrative settings



Dongle Service



Construction elements



Template base models



Bar Settings



IDTag Settings

3.14.2. Positioning Guide

The **Positioning Guide** page allows you to specify the settings used during the [Positioning Guide design](#).

Appliances ► Positioning Guide

The screenshot shows the 'Positioning Guides' interface. On the left, there is a list titled 'Positioning guides' with a 'Positioning guide' entry. Below this list are icons for 'Add', 'Copy', 'Delete', 'Move up', and 'Move down'. At the bottom left is a 'Recycle bin' section with 'No items', 'Restore all', and 'Empty the Recycle Bin' options. On the right, the 'Edit Positioning Guide' panel is active, showing fields for 'ID' (PositioningGuide1), 'Name' (Positioning guide), 'Material' (Not specified), and 'Color' (Not specified). Below these are 'Settings' and 'ID Tag' sections. The 'Settings' section includes 'Space to scan and design' (checkbox), 'Distance' (0.10), and 'Remove undercuts' (checkbox). The 'ID Tag' section includes 'Text depth' (0.00) and 'Font height' (0.10).

Space to scan and design - allows you to set the distance from the positioning guide to the scan and design of the main indication.

Remove undercuts - when selected, the undercuts are automatically removed.

Text depth - the depth of the text on the ID tag.

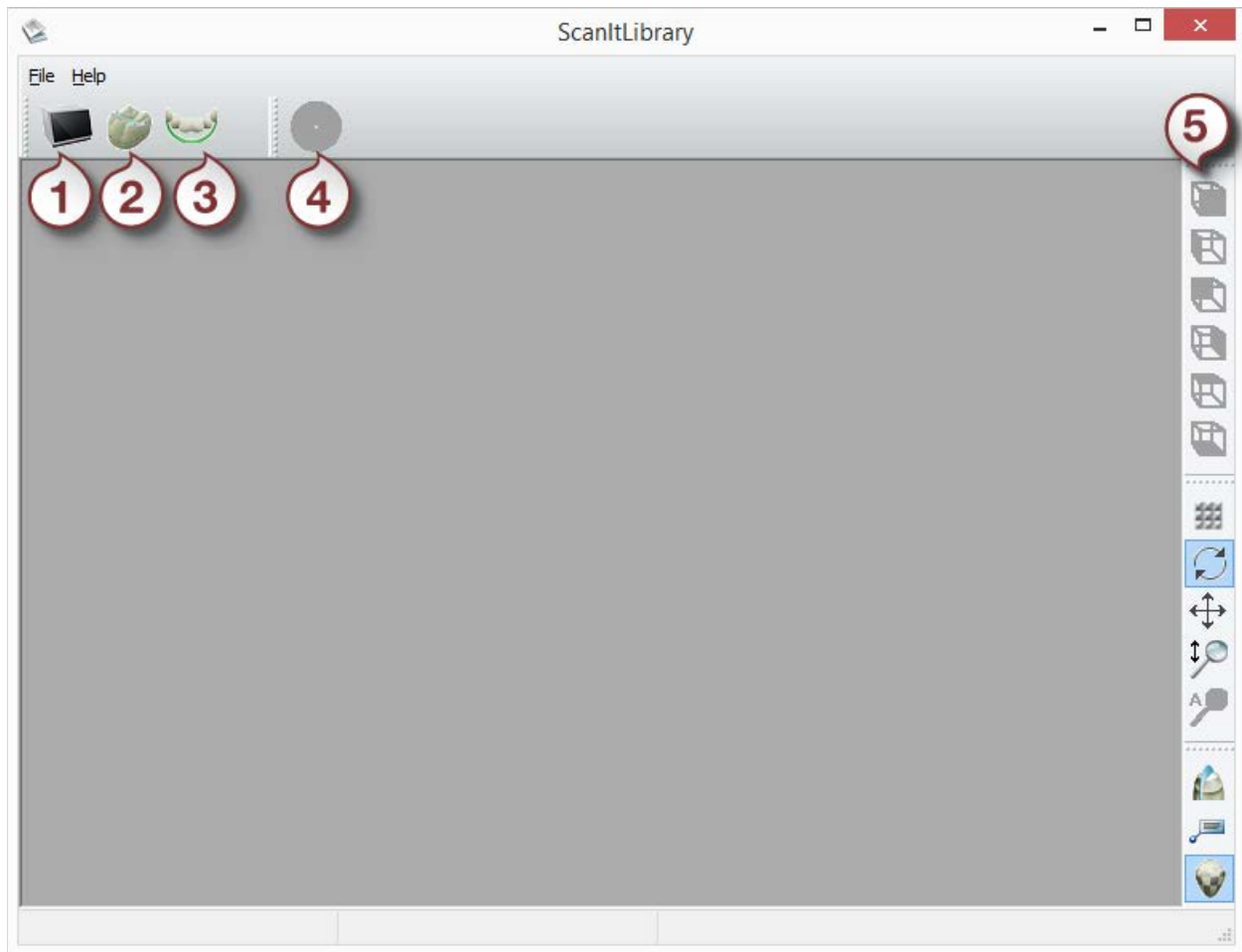
Font height - the height of the font used on the ID tag.

3.15. Custom Libraries

The 3Shape ScanIt Library application allows you to setup two types of libraries:

1. [Anatomy and Pontic Library](#)
2. [Smile Library](#)

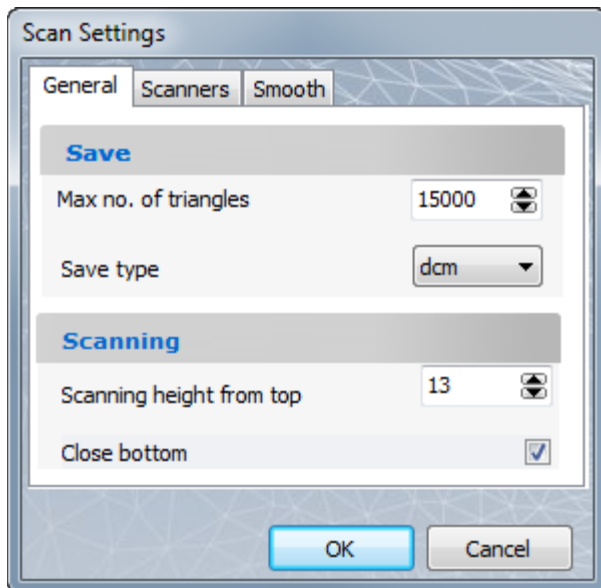
In this chapter you will learn how to define, scan and save your libraries. Select *Anatomy elements*->*ScanIt Library* in Dental System Control Panel to start the application:



1. Scan crown library
2. Open crown library
3. Compose "smile" library
4. Save "smile" library
5. Viewing tools

3.15.1. Configuring Scan Settings

Before performing a scan, make the necessary adjustments to the Scan Settings under *File->Scan Settings* in ScanIt Library:

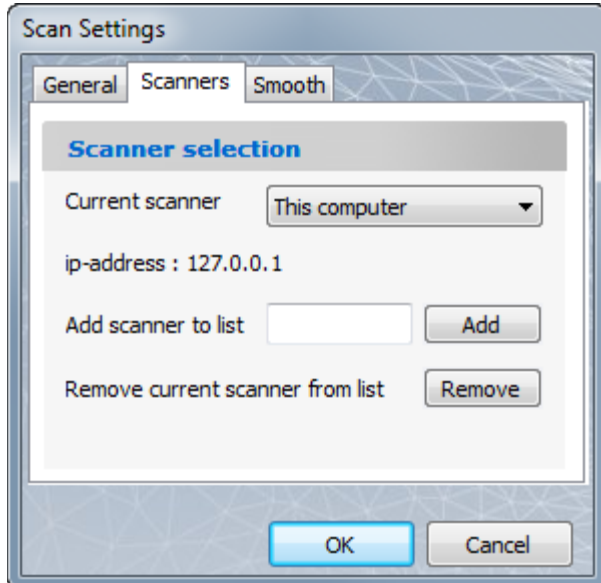


GENERAL

Maximum number of triangles - defines the quality of a scan.

Scanning height from top - the height of a tooth that will be scanned starting from the top.

Close bottom - closes the hole at the bottom of a scanned tooth.

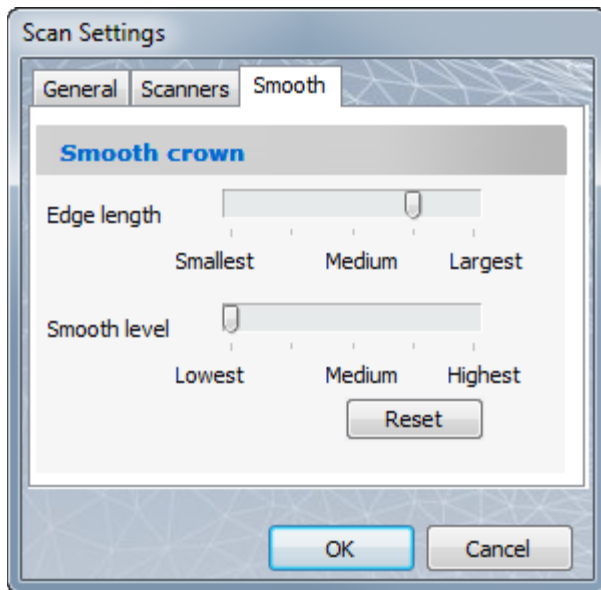


SCANNERS

Fill in your scanner's name corresponding to the name of the connected PC in the **Add scanner to list** field (click **Add** to save) or select the required scanner from the **Current scanner** drop-down menu. Click **Remove** to remove the current scanner from the list.



Note! This option makes it possible to work with scanner connected to a different PC.

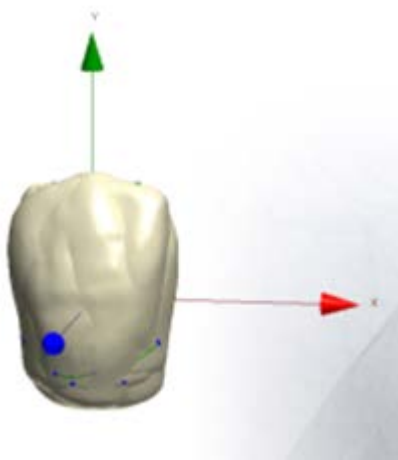


SMOOTH

Edge length - the size of a triangle.

Smooth level - defines how smooth the scanned surface will be.

3.15.2. Creating Anatomy and Pontic Library



Anatomy and Pontic library is a set of several tooth models. Each model in the set is positioned at the origin, with Y axis facing up (occlusion direction) and Z axis pointing to the facial side. Every model has a margin spline and characteristic points defined.

A set can contain the following teeth:

- Posteriors + Anteriors
- Posteriors
- Upper Anteriors
- Lower Anteriors

The way of creating an Anatomy and Pontic Library depends on a scanner which is used to scan models. Use the links below for details:

- [Creating a library using a lab scanner \(except D1000 and D2000\)](#)
- [Creating a library using the D1000/D2000 scanner](#)
- [Creating a library using a TRIOS® scanner](#)

CREATING A LIBRARY USING A LAB SCANNER (EXCEPT D1000 AND D2000)

►Step 1: Create a new library

For more information, see the chapter [Adding Empty Anatomy and Pontic Library](#).

►Step 2: Scan models

Scan a tooth model and then prepare the scan with the help of the ScanIt Library tools. Perform the same for the rest of the models. For more information, see the chapter [Populating Anatomy and Pontic Library](#).

CREATING A LIBRARY USING THE D1000/D2000 SCANNER

►Step 1: Scan models

1. [Create a new order](#) in Dental Manager. In the Order form, select teeth you wish to scan **(1)** and click the **Frame** button **(2)**, the **Anatomical Coping** button is selected by default. In the **Neighborhood scan** list, click **None** **(3)**. When finished, click **Scan** **(4)**.

Order settings

Order number: 24891_20161012_1225_Tech_01
Importance: Normal
Design Module: DentalDesigner 2016

Scan settings

Object type: Model
Antagonist: None
Neighborhood scan: None

Order details

1

2

Anatomical Co..

Frame

Zirkon

Zr Coping (tangent)

Abutment

Misc

Bridge

Gingiva

Removable

Model

Appliance

Implant Studio

4

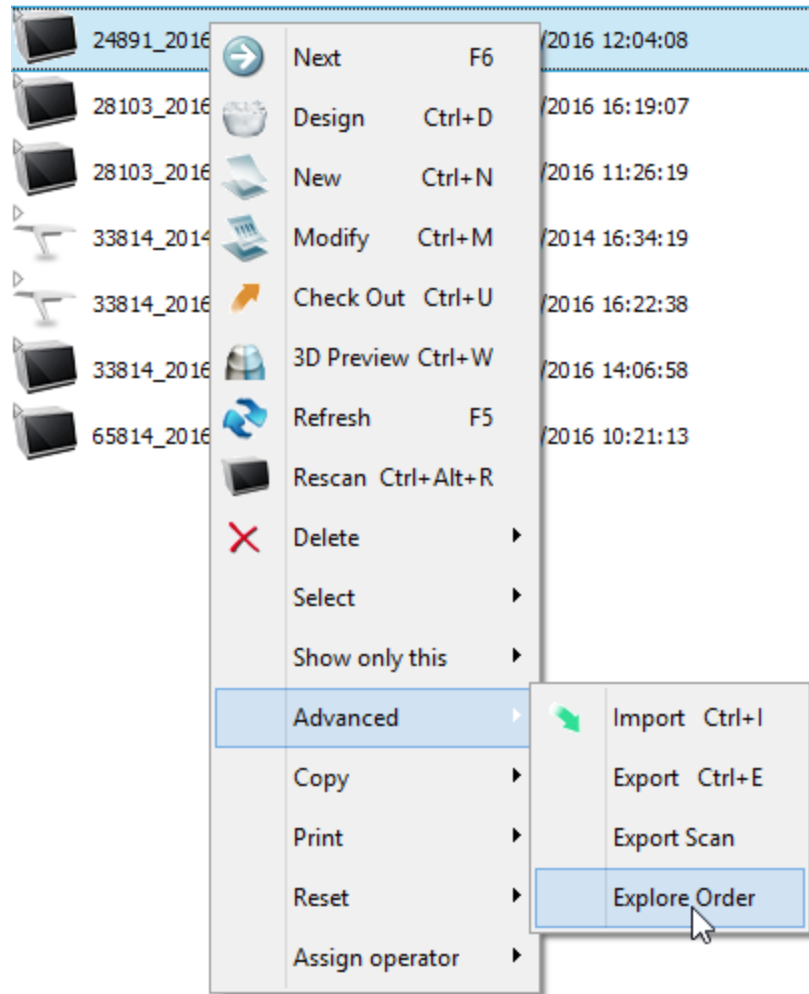
Index:
Additional:

Scan

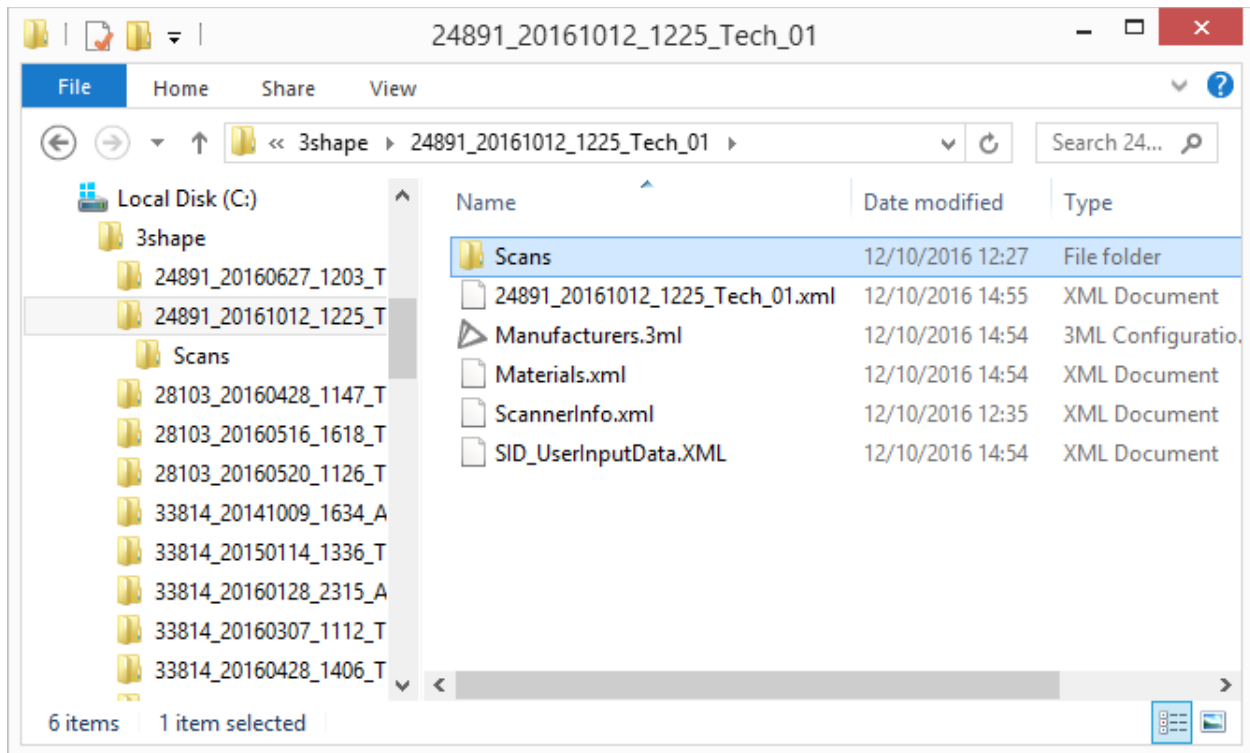
OK

Cancel

2. Scan tooth models one by one or using the [passive multi-die fixture](#). Before scanning, make sure you have adjusted the **Single die scanning height** in [scan settings](#).
3. Because you will import scanned models into a library at the subsequent step, you need to know where scans are stored. In Dental Manager, right-click your order and select *Advanced->Explore Order*:



This will open the order folder in a separate window. Scans are stored in the **Scans** subfolder:



►Step 2: Create a new library

For more information, see the chapter [Adding Empty Anatomy and Pontic Library](#).

►Step 3: Import scans

Import a scan of a tooth model and then prepare it with the help of the ScanIt Library tools. Perform the same for the rest of the scans. For more information, see the chapter [Populating Anatomy and Pontic Library](#).

CREATING A LIBRARY USING A TRIOS® SCANNER

►Step 1: Scan models

A TRIOS scanner can be used to scan enlarged tooth models, such as four times life-size models. A separate Study model order should be created for each tooth model. Scans should be trimmed as shown in the image below and sent to a lab. Refer to the *TRIOS® user manual* for details.



Enlarged tooth model



Enlarged tooth model scanned with TRIOS®

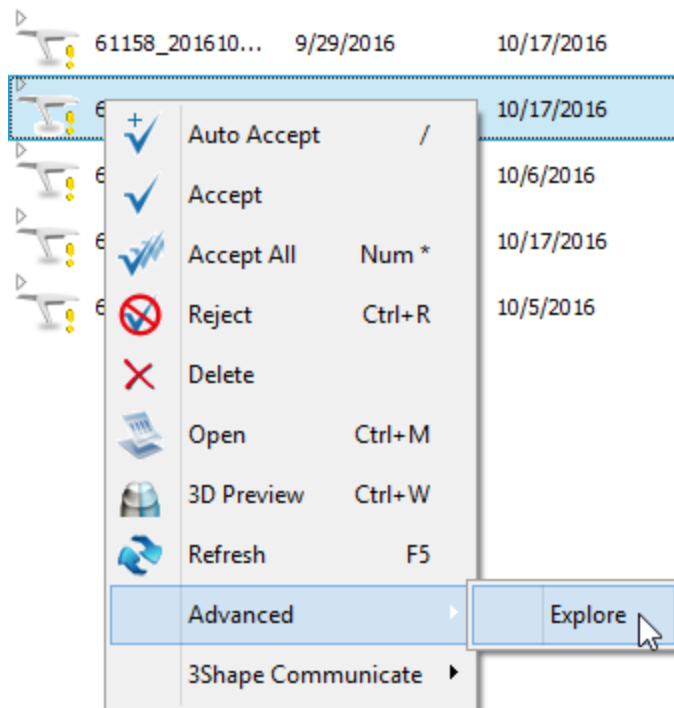
►Step 2: Create a new library

For more information, see the chapter [Adding Empty Anatomy and Pontic Library](#).

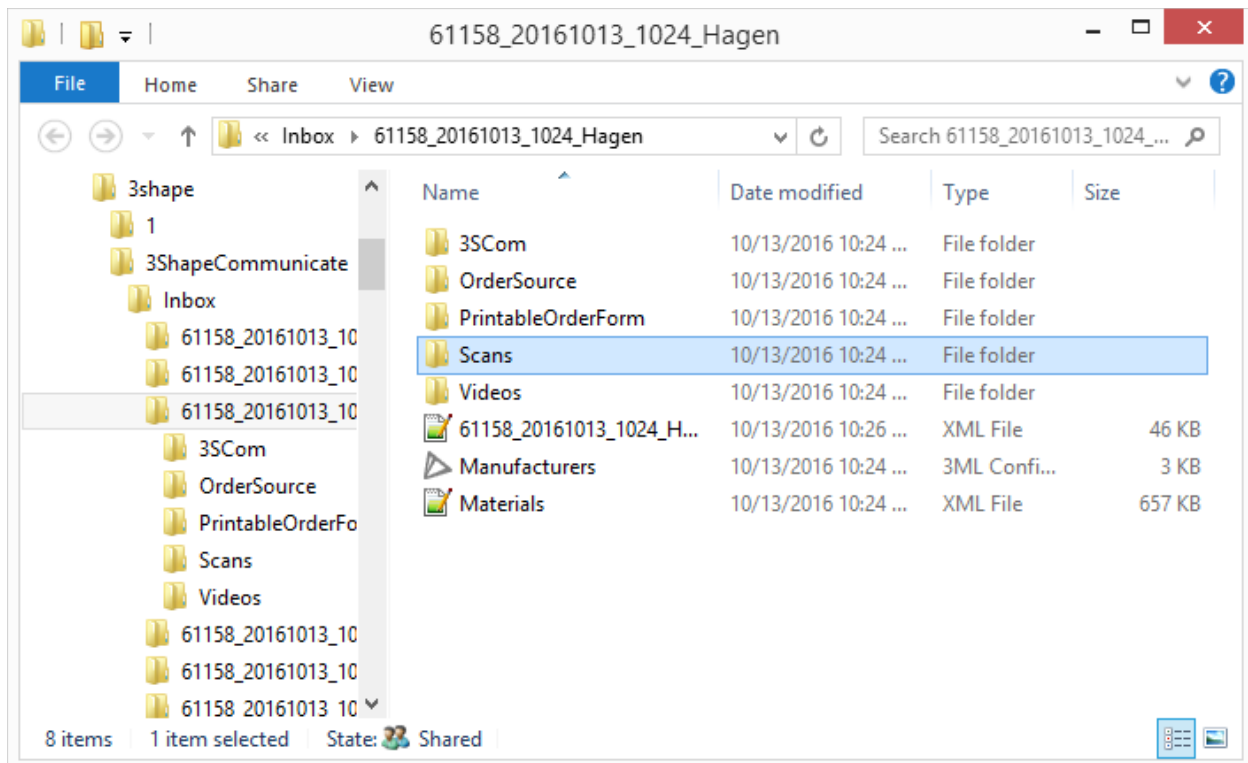
►Step 3: Import scans

Import a TRIOS scan of a tooth model and then prepare it with the help of the ScanIt Library tools. Perform the same for the rest of the scans. For more information, see the chapter [Populating Anatomy and Pontic Library](#).

To find where the received TRIOS scans are stored, right-click the order in [3Shape Communicate Inbox](#) and select *Advanced->Explore*:



This will open the order folder in a separate window. Scans are stored in the **Scans** subfolder:



After creating the Anatomy and Pontic Library, proceed to [Creating a Smile Library](#) if required.

3.15.2.1. Adding Empty Anatomy and Pontic Library

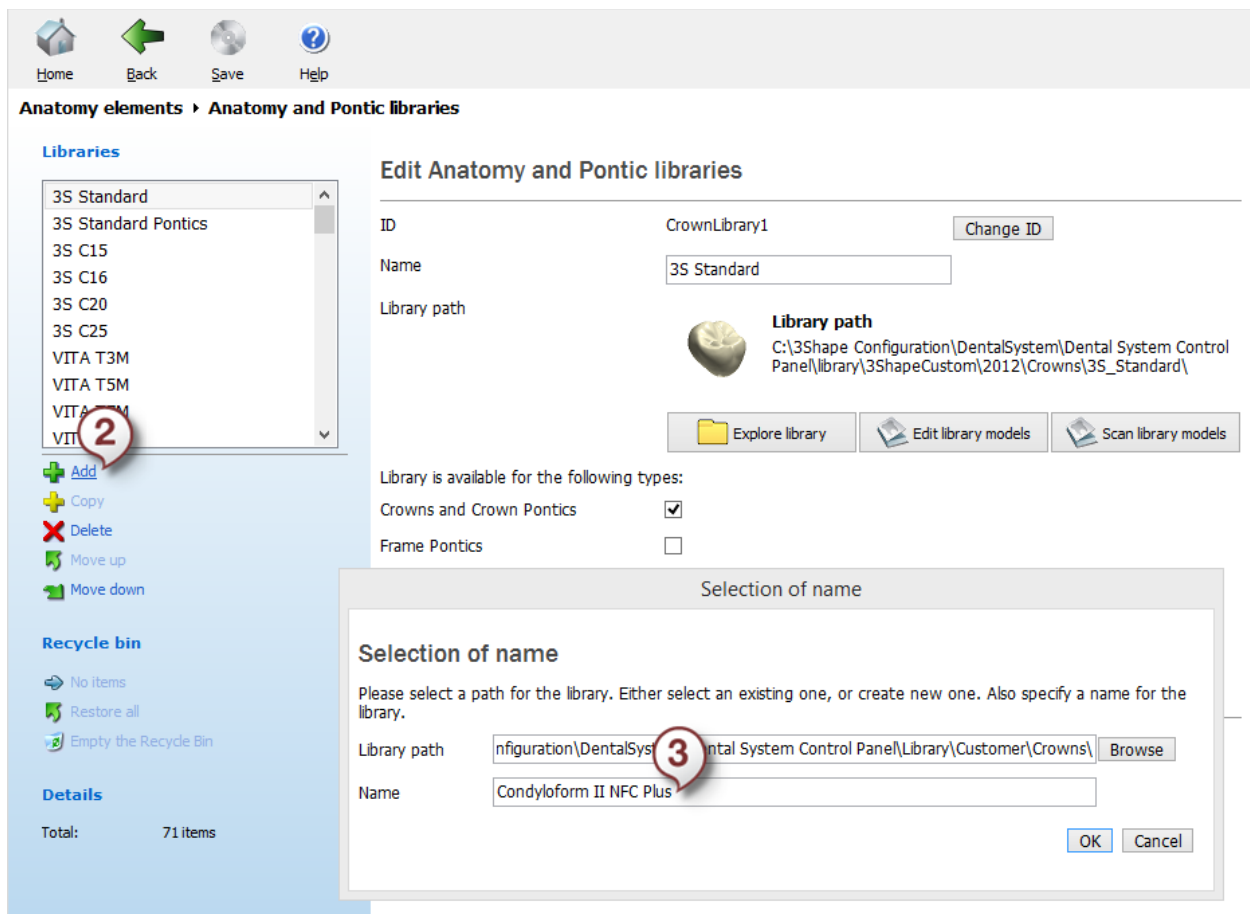
A list of [Anatomy and Pontic libraries](#) is managed in Dental System Control Panel. To add a new library:

► **Step 1:** In Dental System Control Panel, go to *Anatomy elements > Anatomy and Pontic libraries*



► **Step 2:** Click the *Add*  button

► **Step 3:** Define the library's name in the appeared window and click *OK*



► **Step 4:** Specify model types

Library is available for the following types:

- | | |
|--------------------------------|-------------------------------------|
| Crowns and Crown Pontics | <input checked="" type="checkbox"/> |
| Frame Pontics | <input type="checkbox"/> |
| Inlays/Onlays and Veneers | <input type="checkbox"/> |
| Tabletops | <input type="checkbox"/> |
| Pre-manufactured teeth library | <input type="checkbox"/> |
| Frame library | <input type="checkbox"/> |

Specify the required model types in the **Library is available for the following types** area.

► **Step 5: Click the Save**  **button to save changes**

After adding the library, proceed to the [Populating Anatomy and Pontic Library](#) step.

3.15.2.2. Populating Anatomy and Pontic Library

To populate an empty Anatomy and Pontic library or modify a populated one, you can:



- [Scan a model](#)



- [Import a scanned model](#)

After the model has been scanned or imported, you need to [prepare](#) it with the help of the ScanIt Library tools.

MODEL SCANNING

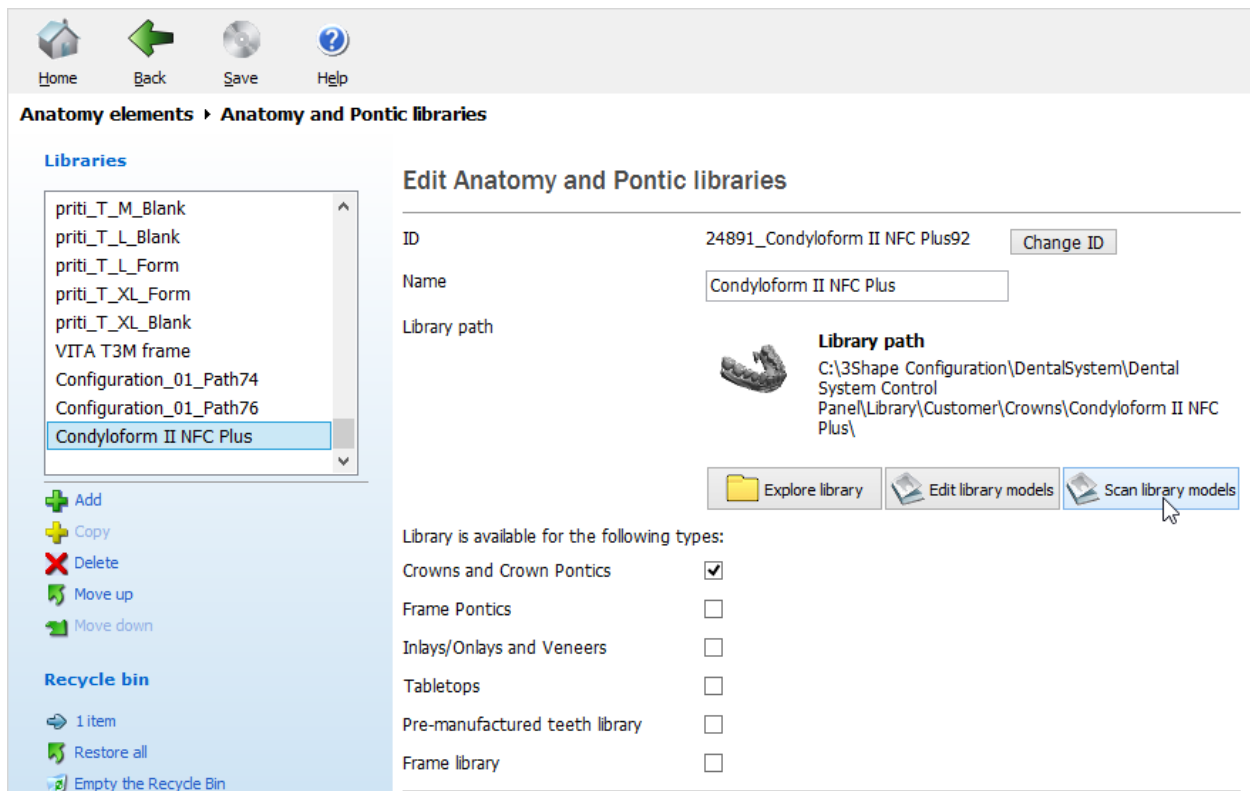
To scan a model:

1. Open ScanIt Library by selecting *Anatomy elements->ScanIt library* in Dental System

Control Panel and click the **Scan crown library**  button.

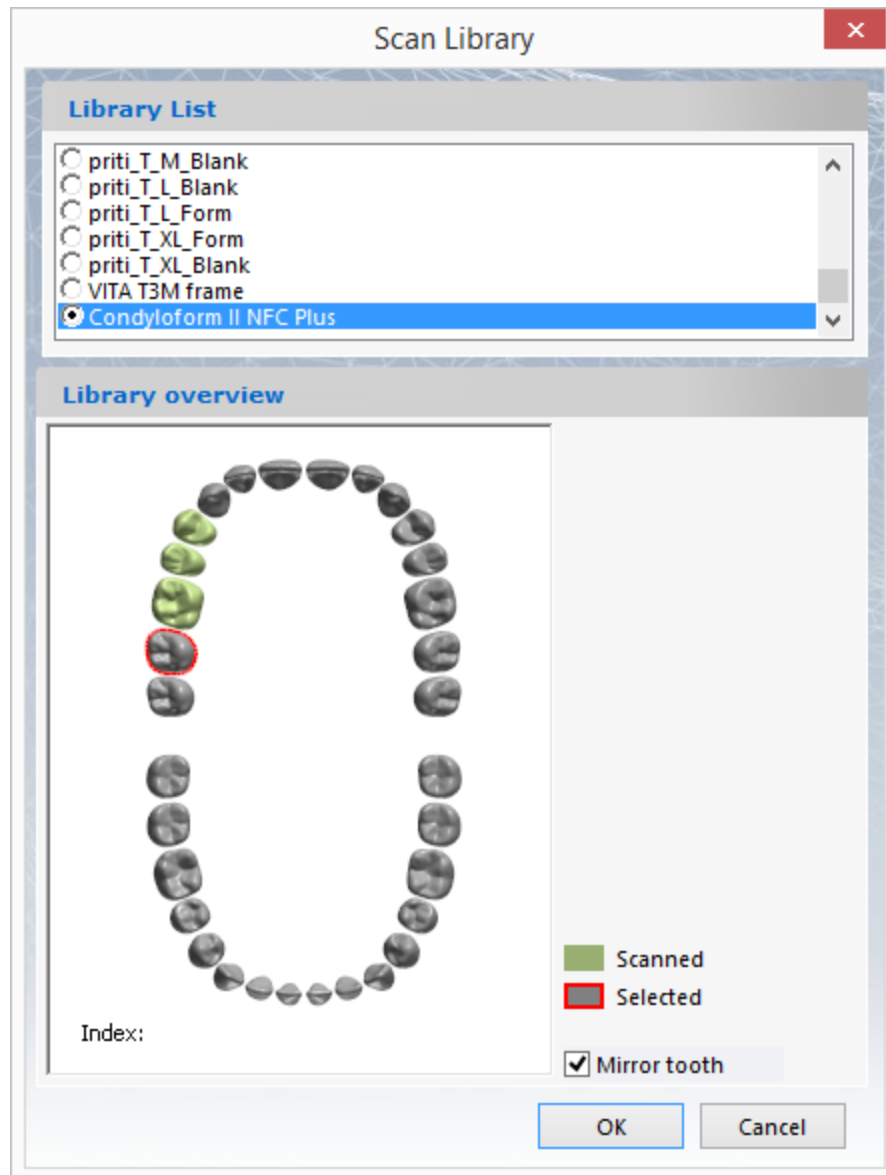
OR

2. In Dental System Control Panel, go to *Anatomy elements->Anatomy and Pontic libraries*, select the created library from the list and click the **Scan library models** button:



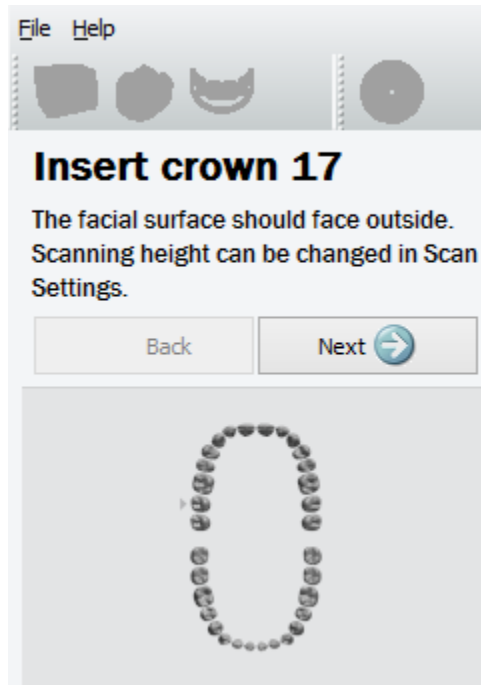
This will launch the ScanIt Library application with the *Scan Library* window opened.

Select the created library from the list, if not already selected, and click the tooth to scan. If the **Mirror tooth** checkbox is selected, the contralateral mirrored tooth will be saved as well. Click **OK**.



Before scanning, make sure you have adjusted the **Scanning height from top** parameter in [Scan Settings](#) under *File->Scan Settings*.

Insert your model into the scanner and start scanning by clicking the **Next** button. On completion of the scanning process, you should [prepare](#) your scan.



MODEL IMPORT

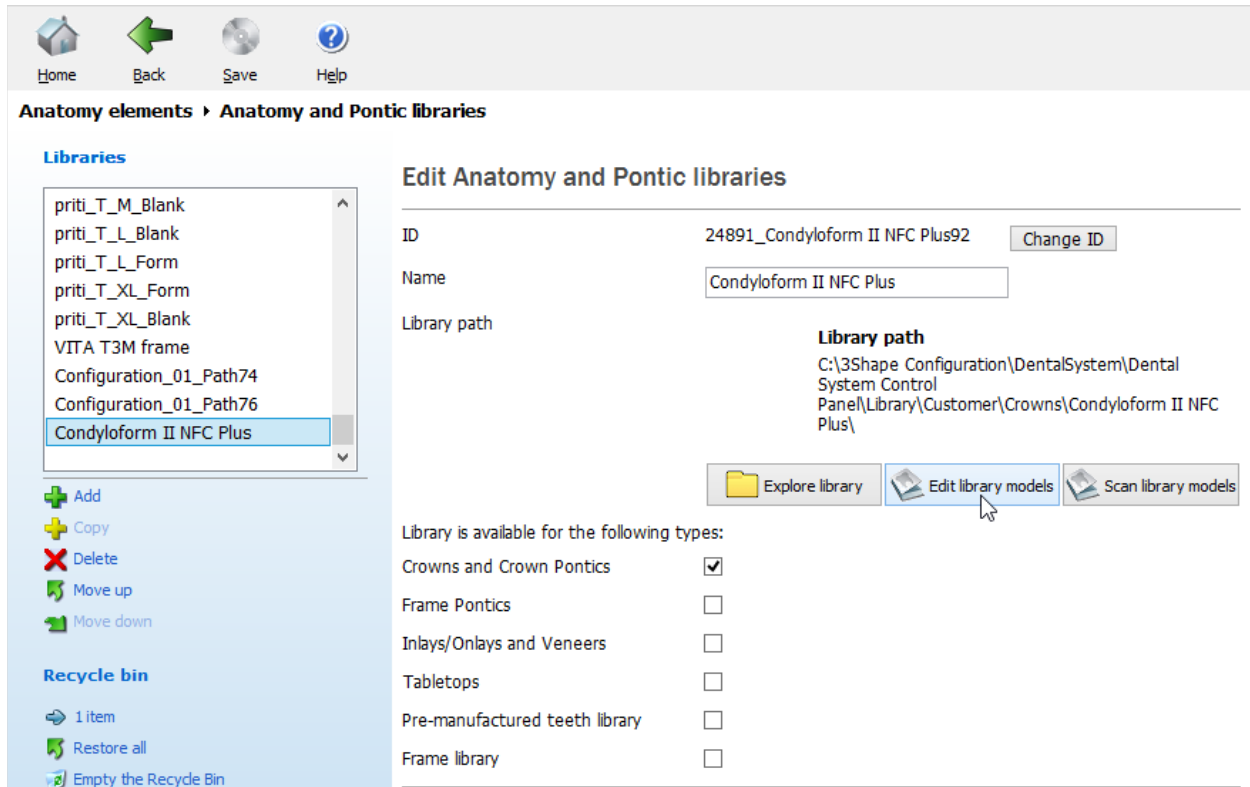
To import a model:

1. Open ScanIt Library by selecting *Anatomy elements->ScanIt library* in Dental System

Control Panel and click the **Open crown library**  button.

OR

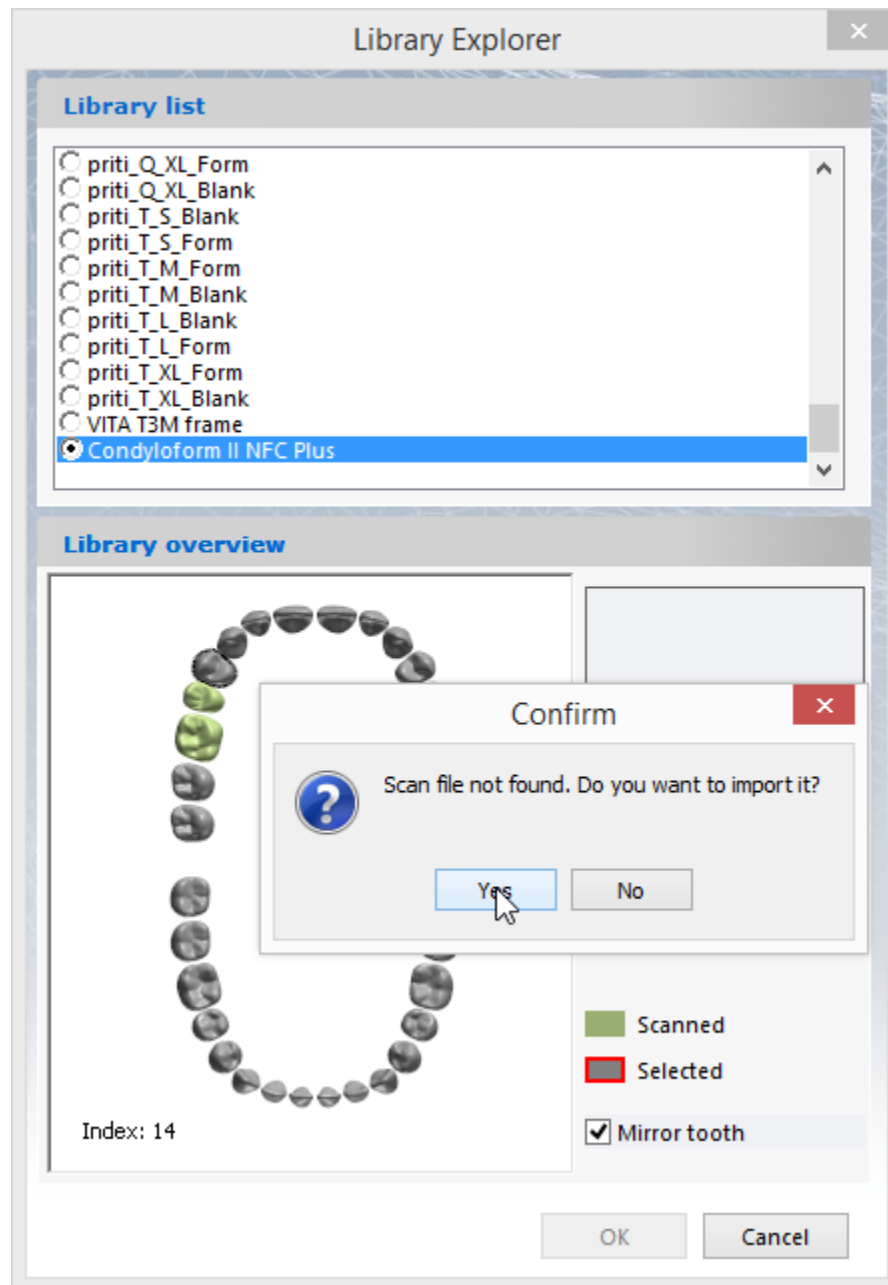
2. In Dental System Control Panel, go to *Anatomy elements->Anatomy and Pontic libraries*, select the created library from the list and click the **Edit library models** button:



This will launch the ScanIt Library application with the *Library Explorer* window opened. If you open ScanIt Library from Dental System Control Panel, the respective library will be automatically selected in the list of libraries. Otherwise, you will have to manually select it.

To populate the library, select teeth one by one in the teeth map. Every time a tooth is selected, the confirmation window appears suggesting to perform import of the corresponding model. Click **Yes** and browse for the necessary file. After you have imported a scan, [prepare](#) it with the help of the ScanIt Library tools.

As soon as the tooth is successfully imported and processed, it appears green on the teeth map.



Note! Standard 3Shape libraries cannot be modified. Every time you try to change it, a warning message will appear on the screen.



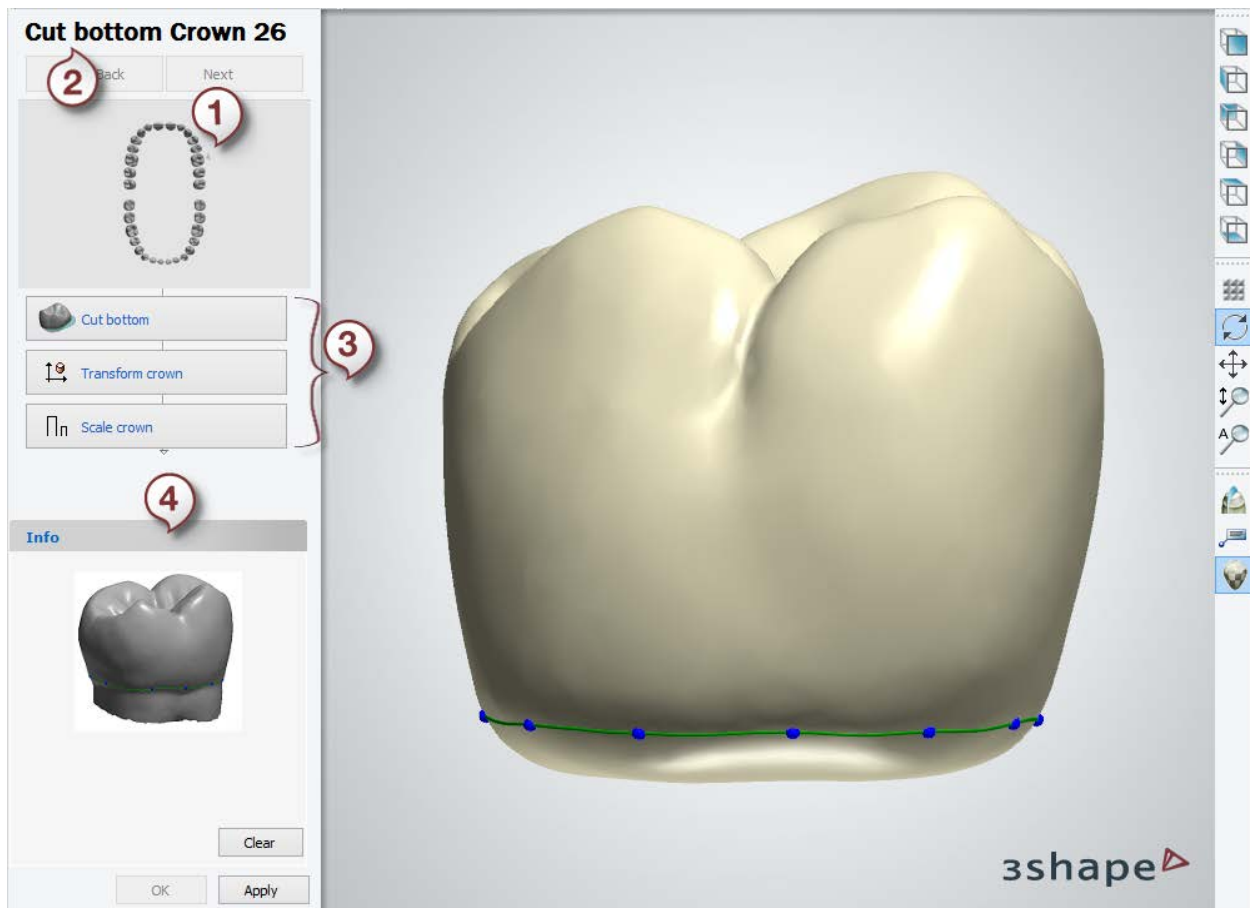
Note! Do not import CAD files from Dental Designer output.

MODEL PREPARATION

After the model has been scanned/imported, you need to prepare it with the help of the ScanIt Library tools.

►Step 1: Cut the model's bottom

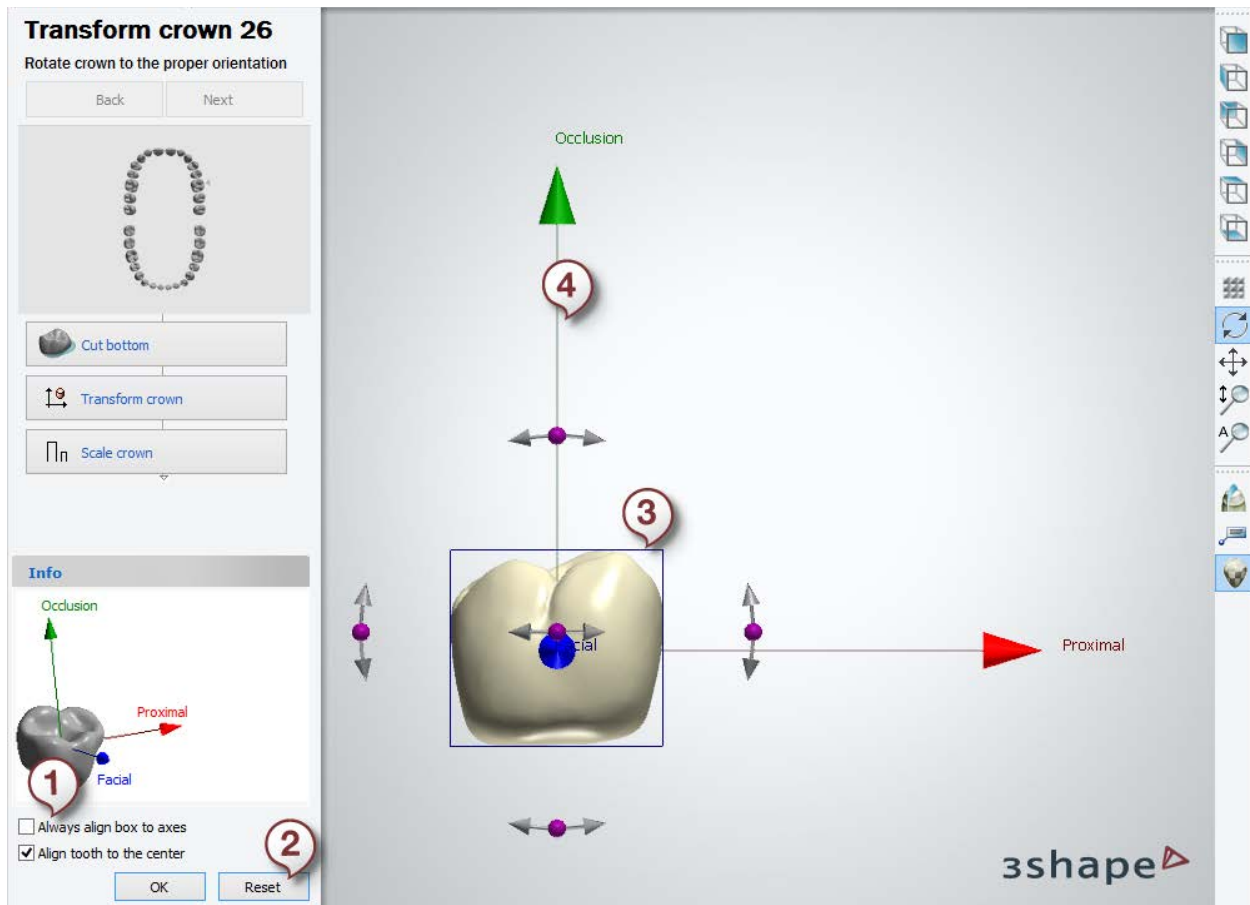
Cut bottom of the model to form a boundary by placing points for the bottom boundary with the cursor and click the **Apply** button. Click **OK** to proceed to the next step.



1. Scanned tooth
2. Currently selected step
3. Editing steps
4. Information window

►Step 2: Transform the scan

Perform transformation of the scan by dragging the orientation points with the cursor to the desired position. Click **OK** to proceed to the next step.



1. Aligns the orientation box to axes when selected
2. Returns model to original position
3. Orientation box
4. Drag points with cursor for desired orientation

Every digital solution expects crown model to appear in appropriate coordinate system. ScanIt Library comes with a transformation box expecting the user to align crown occlusal and vestibular surfaces with preset coordinate axes.

►Step 3: Scale your scan

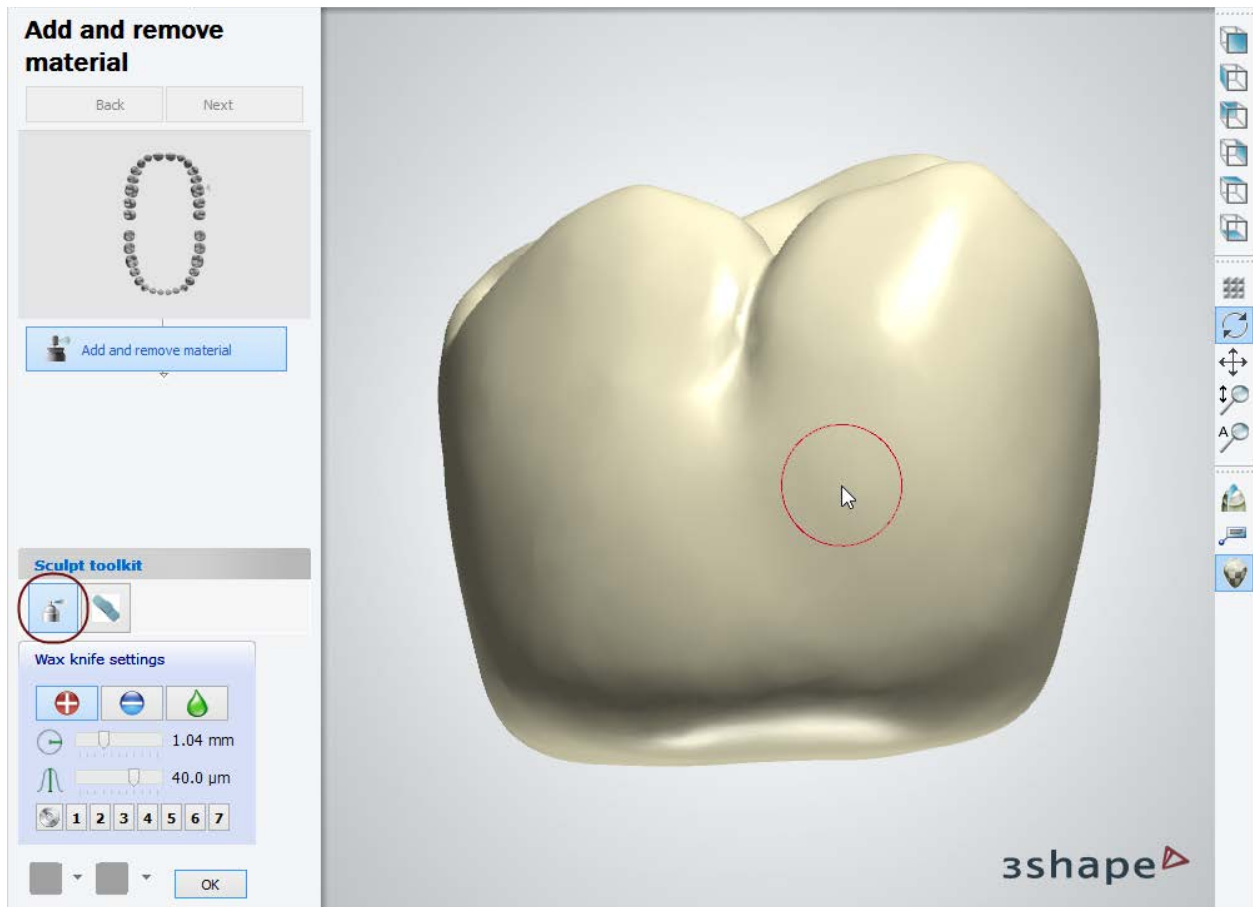
Scale your scan by selecting the **Scale Factor** as shown on the image below. It is vital to scale the model to its real size. Click **OK** and then **Next** to proceed to the next step.



** Box indicating the original size*

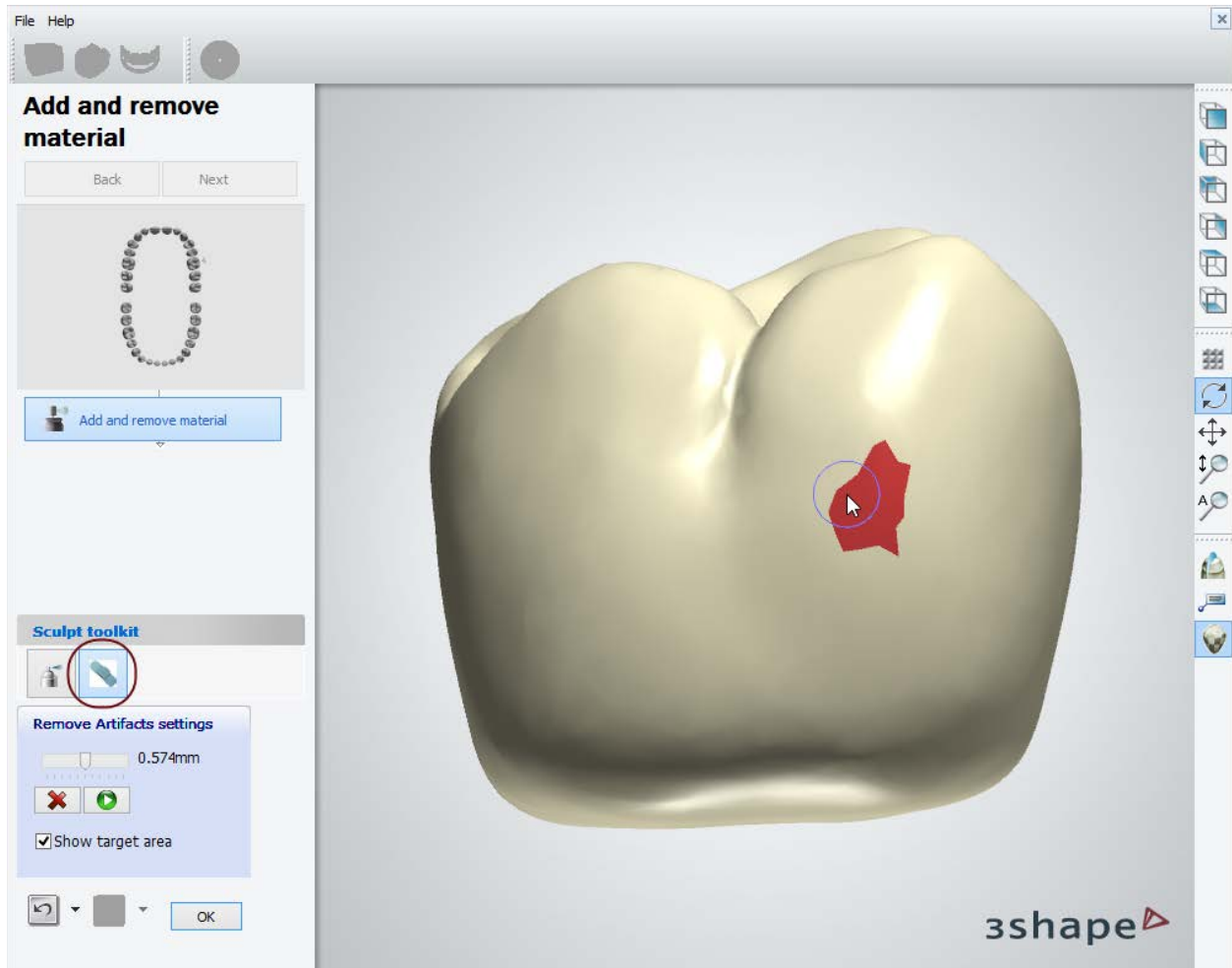
► Step 4: Add or Remove material

Add or remove material if required using the [Wax knife](#) tool.



► Step 5: Remove artifacts

Remove artifacts if needed using the [Remove Artifacts](#) tool. Click **OK** and then **Next** to proceed to the next step.

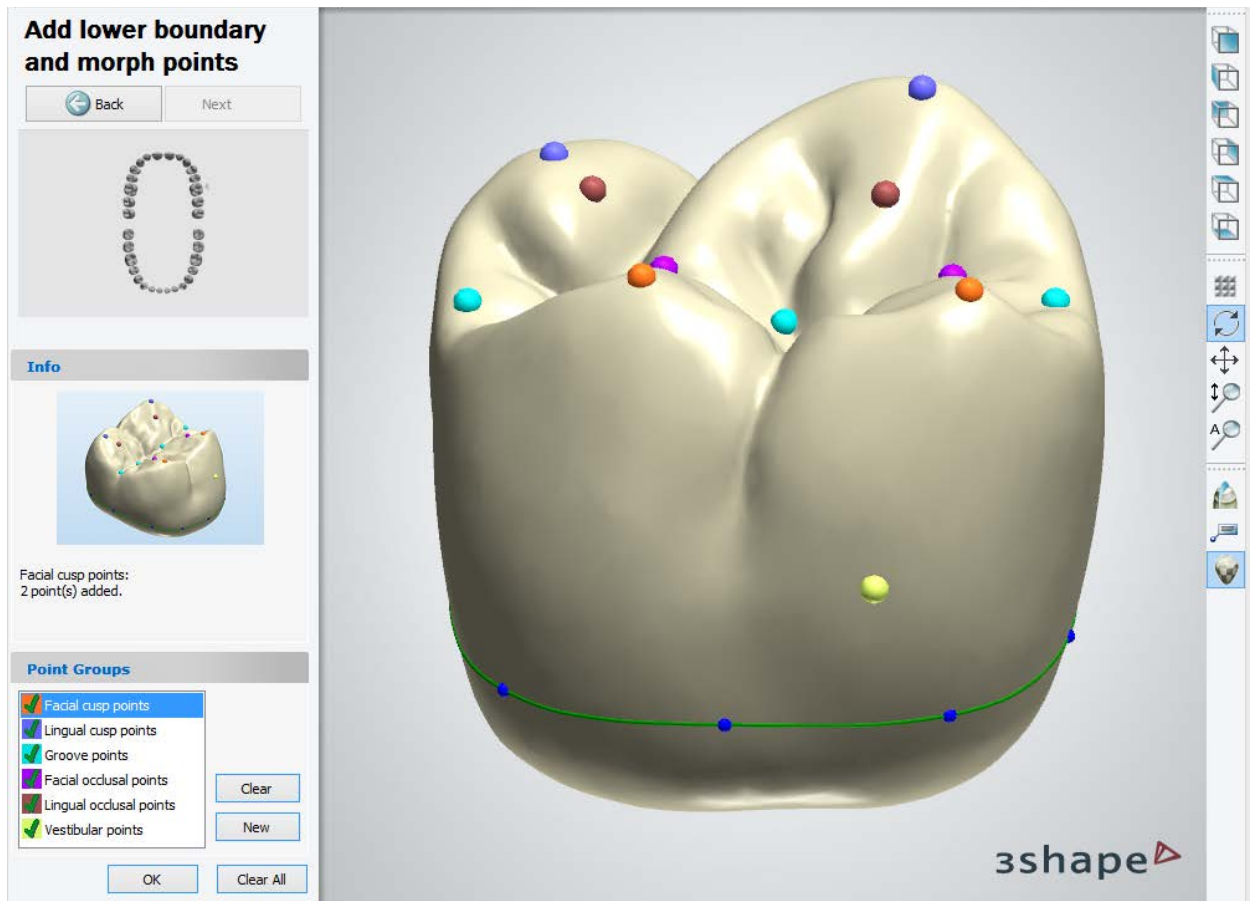


► Step 6: Add lower boundary and characteristic points

In order to use the automatic initializing of the crown design in [Dental Designer](#), it is necessary to add a lower boundary to the scan and a number of morph (characteristic) points. The method for adding the lower boundary is similar to the bottom boundary described above.

When the boundary has been added, you are guided to add specific types of characteristic points. The points indicate the following tooth surface zones: cusp, groove, occlusal contact point and vestibular zone.

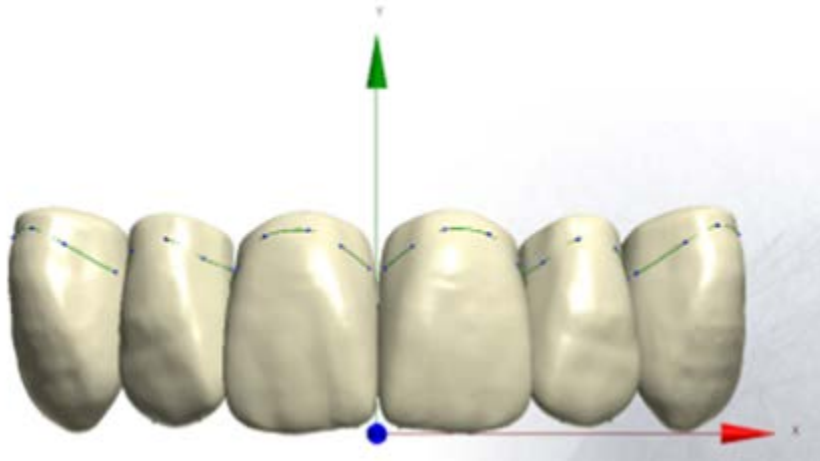
When the required points have been set, they are marked with ticks as shown on the image below. Optionally, you can also create custom Point Groups by clicking **New**. Having finished with the morphing points, click **OK**.



►Step 7: Click *Close* to finish working with the library

3.15.3. Creating a Smile Library

Smile library is a set of teeth positioned in space observing the biological occlusion and a natural form of the teeth arc. Smile library is prepared from tooth models of an [Anatomy and Pontic Library](#), and thus the teeth also have the margin spline, characteristic points, etc.



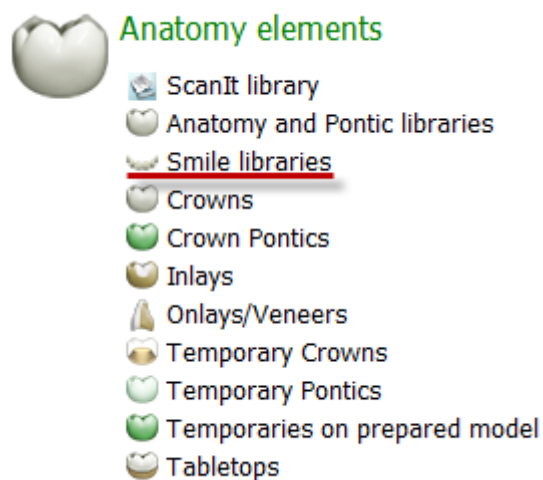
To create a Smile Library, follow the steps below:

- **Step 1:** Create a new Smile Library in Dental System Control Panel. For more information, see the chapter [Adding Empty Smile Library](#).
- **Step 2:** Import tooth models from the Anatomy and Pontic Library folder into the Smile Library and compose a smile. For more information, see the chapter [Populating Smile Library](#).
- **Step 3:** Define [Smile Library preview images](#).

3.15.3.1. Adding an Empty Smile Library

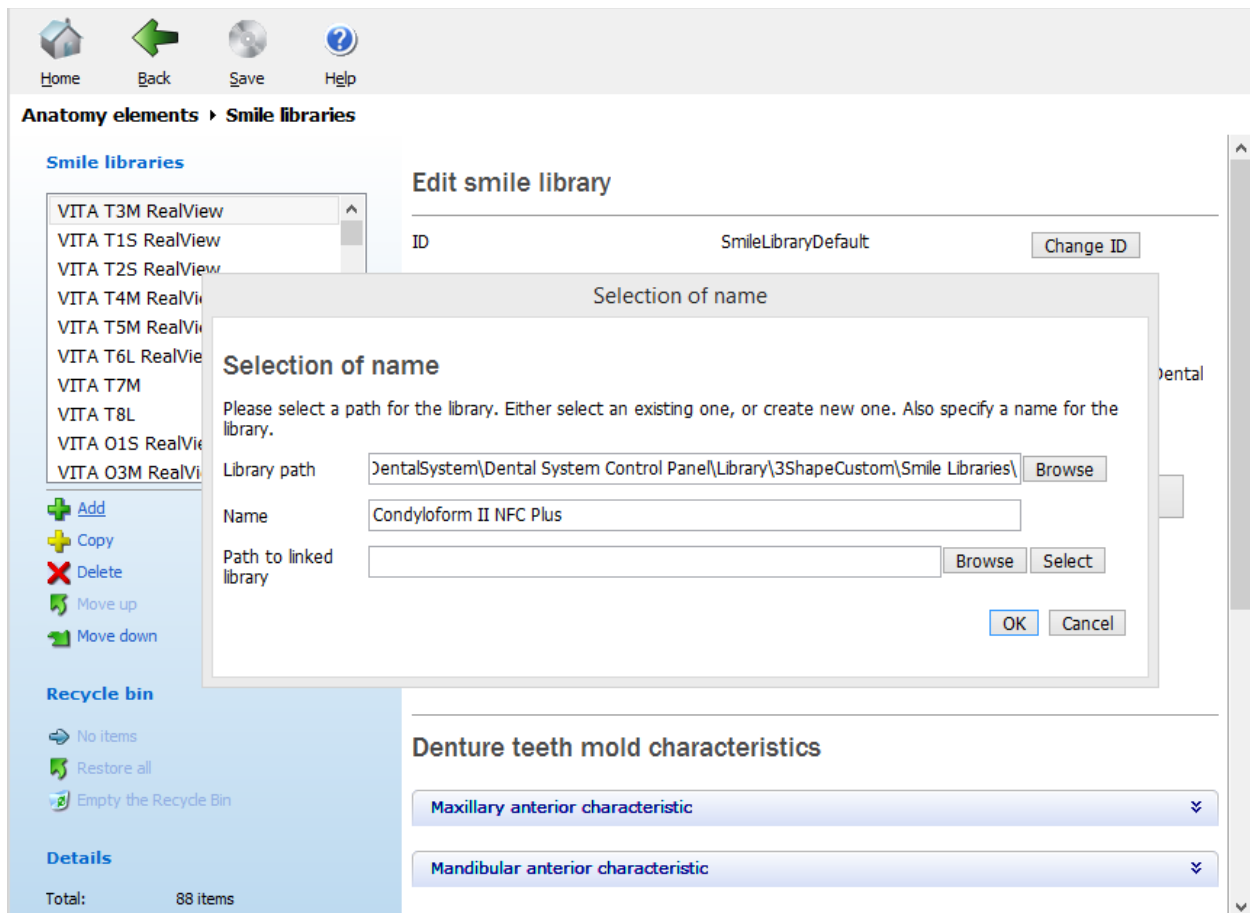
A list of [Smile libraries](#) is managed in Dental System Control Panel. To add a new library:

- **Step 1:** In Dental System Control Panel go to *Anatomy elements->Smile libraries*



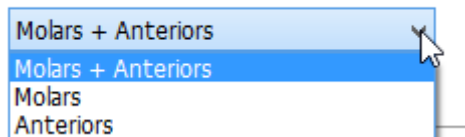
- **Step 2:** Click the *Add*  button

► **Step 3: Define the library's name in the appeared window and click *OK***



► **Step 4: Specify types of teeth for which the library should be available**

Library is available for the following types:



► **Step 5: Choose for which cases to use the library**

Library is available for the following cases:







- ☐ All cases except Full Dentures
- ☒ Only Full Dentures cases

► **Step 6: Specify teeth mold characteristics**







Depending on the teeth included into the library, specify their characteristics in the provided categories: **Maxillary anterior**, **Mandibular anterior** and **Posterior**:

Denture teeth mold characteristics









Maxillary anterior characteristic

- | | |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) Width of 6 Anterior teeth on a straight line | <input type="text" value="41.80"/>   mm |
| (2) Cervico-occlusal length of Central Incisor | <input type="text" value="11.80"/>   mm |
| (3) Mesio-distal width of Central Incisor | <input type="text" value="7.64"/>   mm |

Mandibular anterior characteristic


- | | |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) Width of 6 Anterior teeth on a straight line | <input type="text" value="0.00"/>   mm |
| (2) Cervico-occlusal length of Central Incisor | <input type="text" value="0.00"/>   mm |
| (3) Mesio-distal width of Central Incisor | <input type="text" value="0.00"/>   mm |

Posterior characteristic

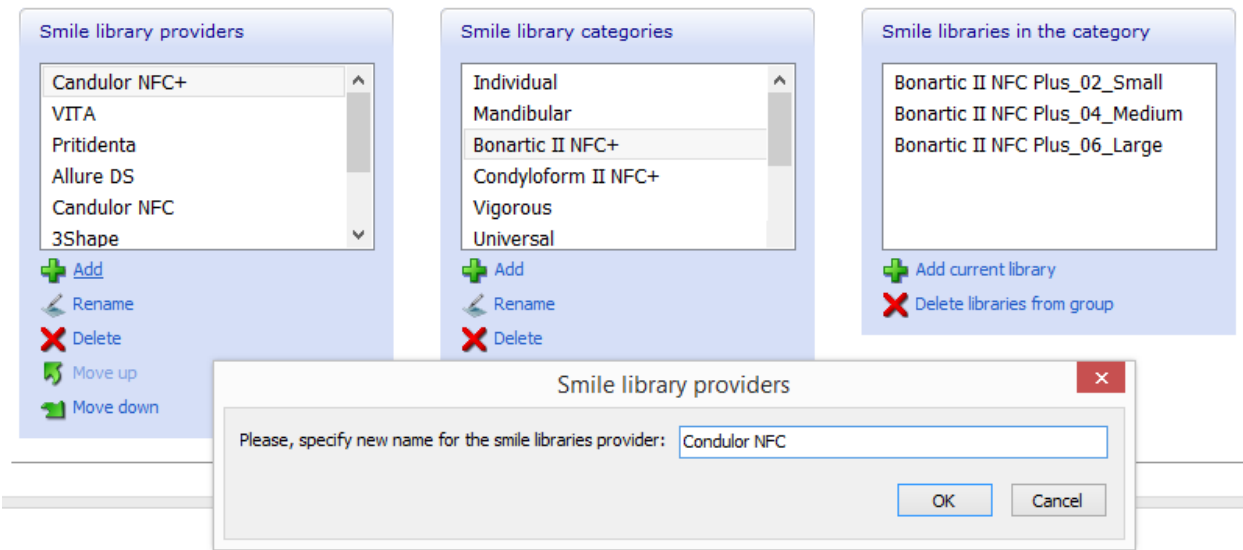
- | | |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) Width of 4 maxillary posterior teeth | <input type="text" value="0.00"/>   mm |
| (2) Width of 4 mandibular posterior teeth | <input type="text" value="0.00"/>   mm |
| (3) Buccolingual breadth of 1st maxillary molar | <input type="text" value="0.00"/>   mm |
| (4) Buccolingual breadth of 1st mandibular molar | <input type="text" value="0.00"/>   mm |


►Step 7: Specify a library provider and add your library to a category

A smile library needs to be assigned to a respective provider and placed into a proper category.

To create a new **Smile library provider**, click the **Add**  button and name your new provider in the appeared *Smile library providers* window. If a provider has more than one brand of teeth, a separate item has to be created for each brand. Add a **Smile library category** in the same manner.

Smile library providers



After having defined/selected both a provider and a category, click the **Add current library**  button to add your library to the list of **Smile libraries in the category**. The added library should now appear in the smile category list when its category is selected.


Whenever a category is selected in the category filter for smile libraries of Dental Designer during the smile library selection step, it will give you the choice of libraries assigned to that category.

► **Step 8: Click the  button to save changes**

3.15.3.2. Populating Smile Library

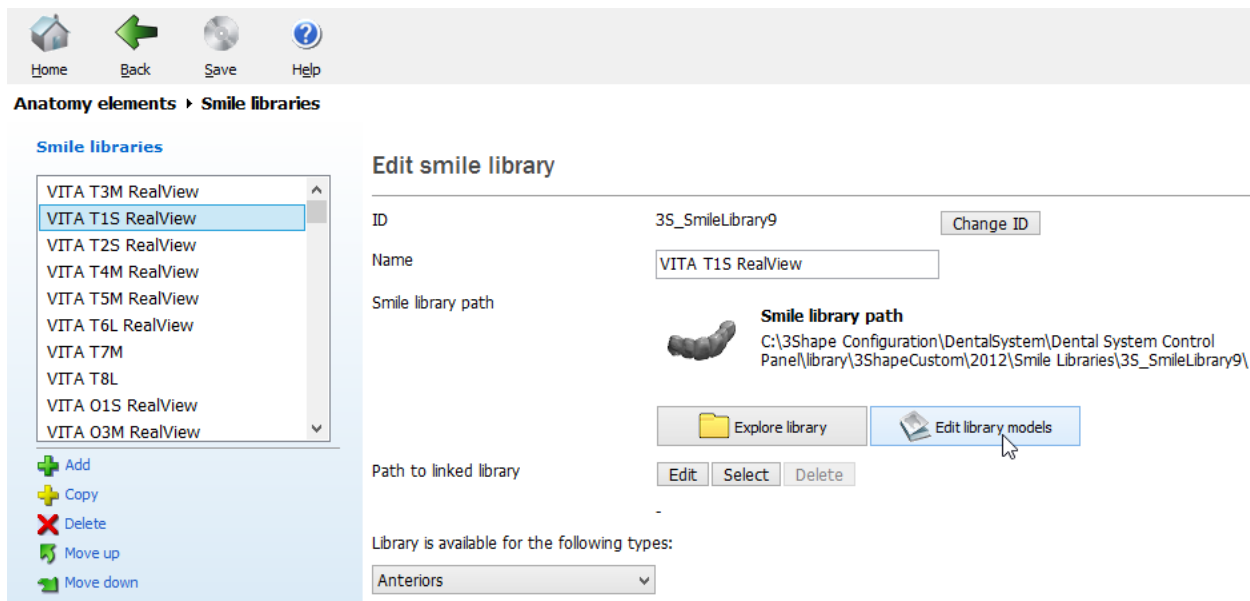
To populate an empty Smile library or modify a populated one, you need to import teeth into the library and compose a smile with the help of ScanIt Library:

► **Step 1: Import the teeth**

1. Open ScanIt Library by selecting *Anatomy elements->ScanIt library* in Dental System Control Panel and click the **Compose 'smile' library**  button.

OR

2. In Dental System Control Panel, go to *Anatomy elements->Smile libraries*, select the created Smile library from the list and click the **Edit library models** button:

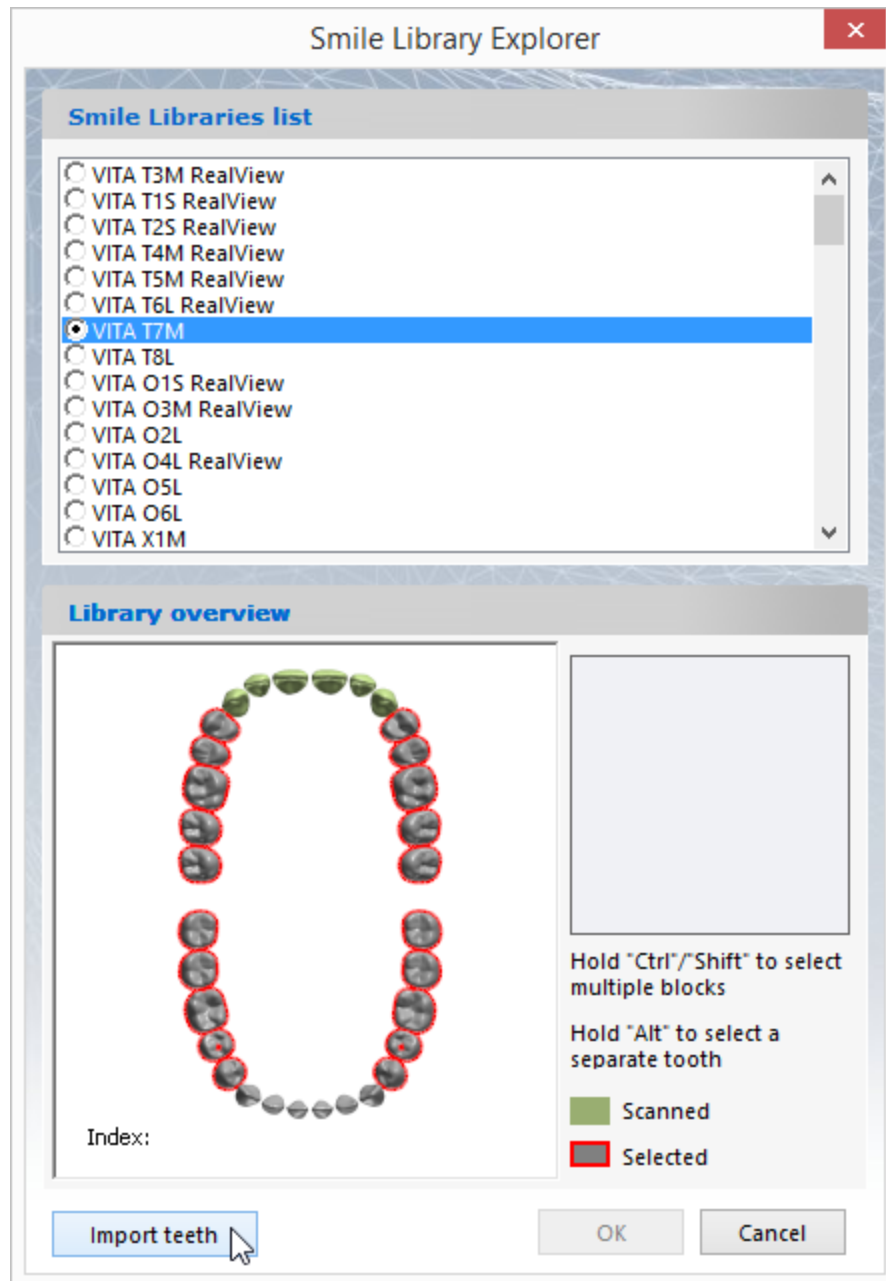


This will launch the ScanIt Library application with the Smile Library Explorer opened. If you open ScanIt Library from Dental System Control Panel, the respective smile library will be automatically selected in the list of libraries. Otherwise, you will have to manually select it.

To populate the library, select a tooth from the respective tooth group (anteriors or posteriors). This will select all teeth in the group (block). To select a separate tooth, hold down **Alt** while selecting a tooth. To select multiple groups, hold down **Ctrl** or **Shift**.

When required teeth are selected, click the **Import teeth** button and browse for the necessary files. It is important to choose teeth models from a folder with the pre-created Anatomy and Pontic library models.

In case of the posterior teeth library, attach both upper and lower jaw blocks to the library.



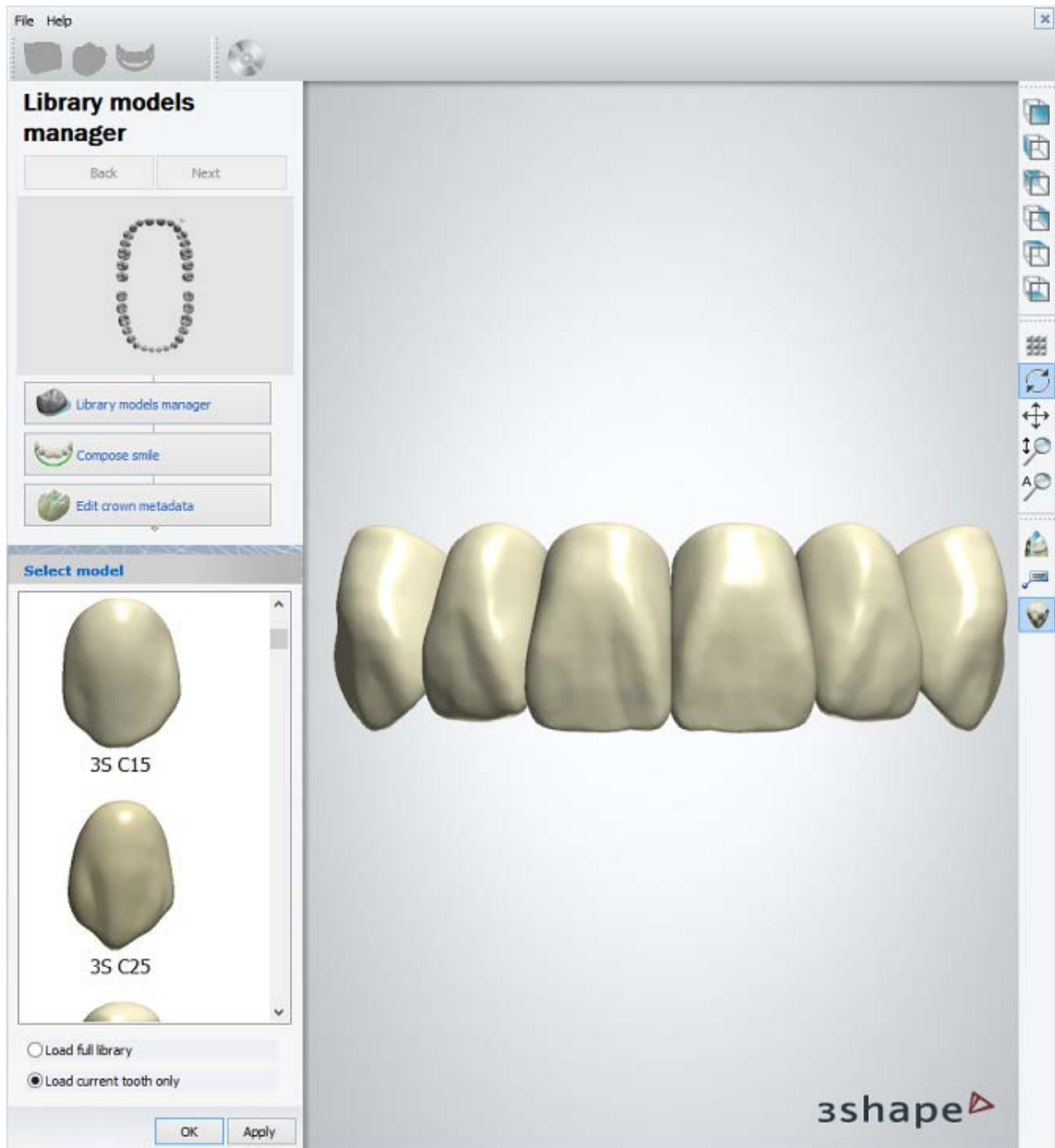
After the importing process is complete, click **OK**. Then you need to compose a smile with the help of the ScanIt Library tools.

►Step 2: Load crowns from libraries

Load crowns from available libraries. Select one tooth and choose a library for it from available on the left.

If you select the **Load full library** option, the library will be applied to all teeth. With the **Load current tooth only** option selection you would need to specify library for every selected tooth.

Having completed assigning the libraries, click the **OK** button to go to the next step.



► Step 3: Compose a smile

Initially, the teeth models are automatically setup along the approximate parabola curve. There are several ways to perform the library setup (observing occlusion, anatomical curves, etc.):

1. First way is to perform a [digital library setup](#) involving each tooth placement in its final position using virtual transformation tools.
2. The other way is to prepare [physical teeth setup](#) by a professional dental technician on a generic clinical case (preferably Class I Angle normal bite). Then the setup has to be scanned as single block and each tooth aligned to this scan with the help of Alignment wizard.

Both ways are described below in details:

DIGITAL LIBRARY SETUP

Go to the **Compose Smile** step to begin. Individual teeth models can be brought into anatomy occlusion using the digital transformation tools:



Group transformation



Arch Setup



Individual transformation



Wax knife



Morphing




Mirroring

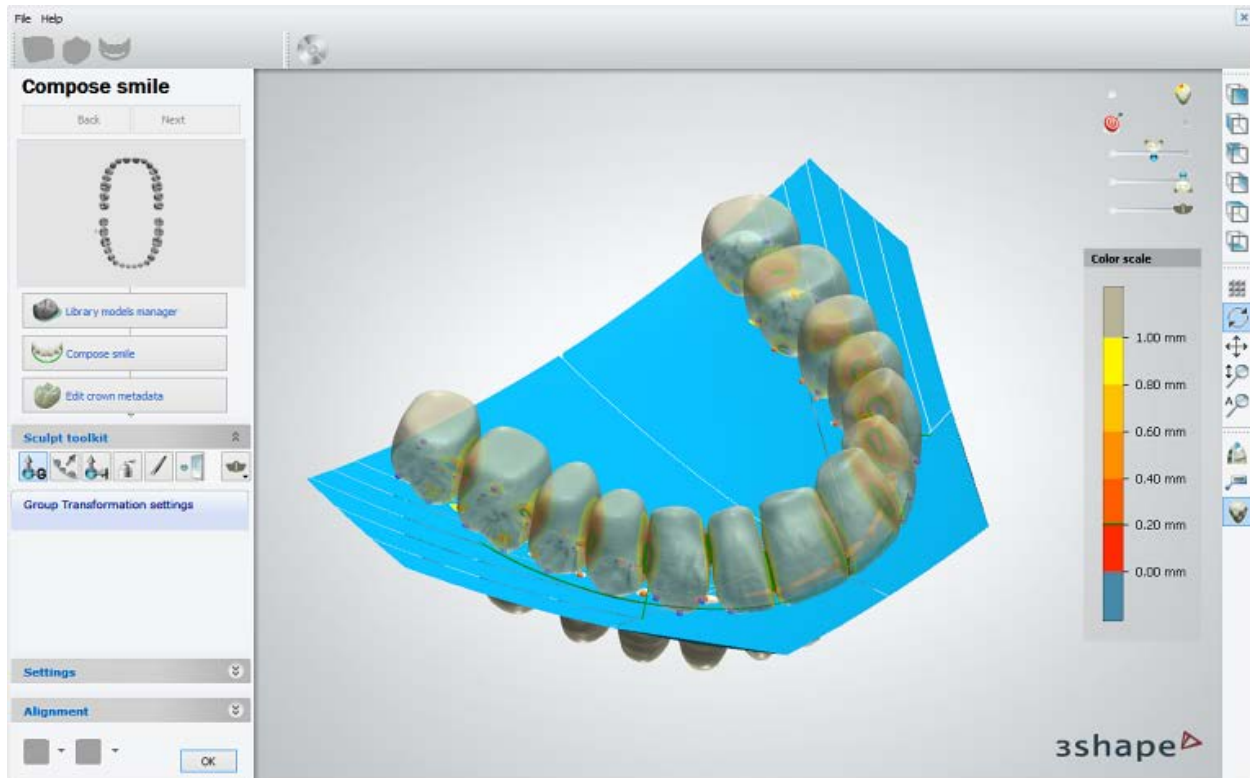


Monson template

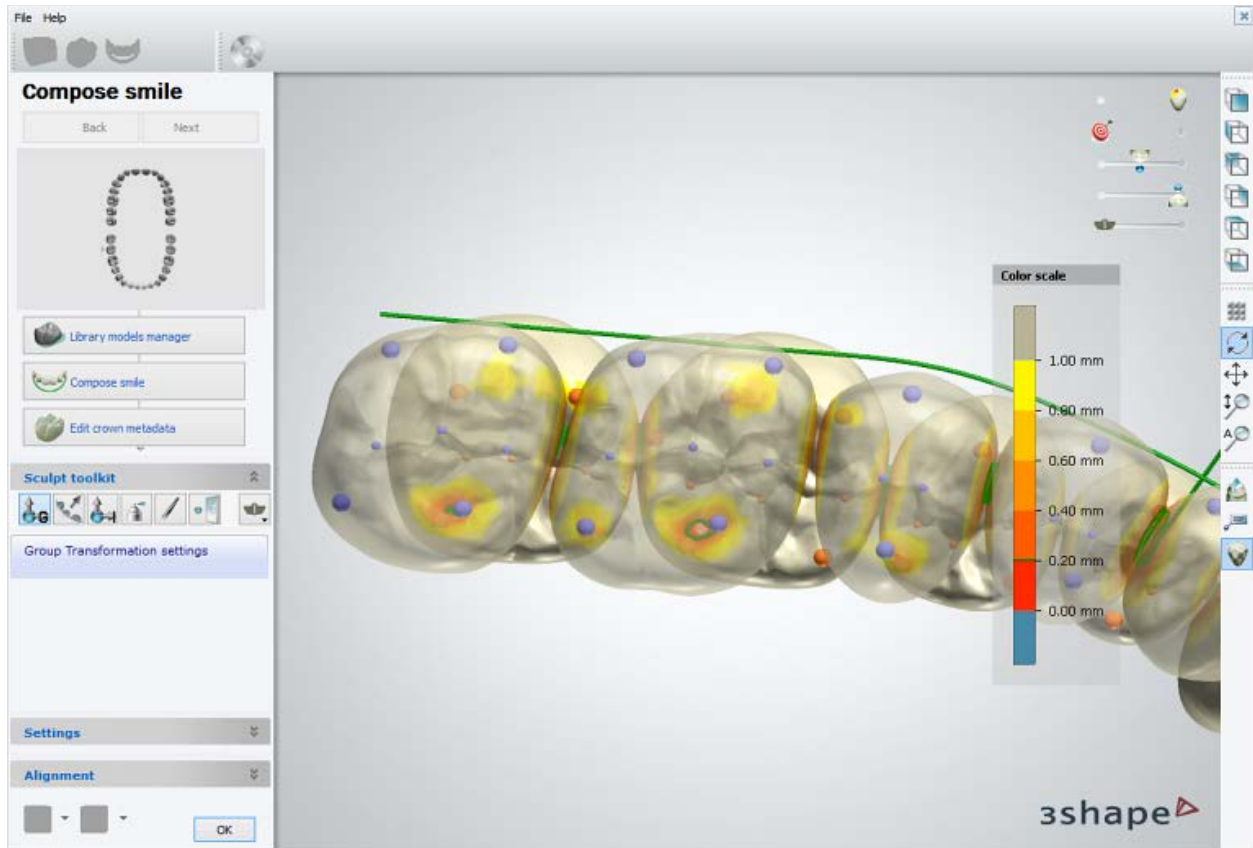
To perform the digital manual setup:



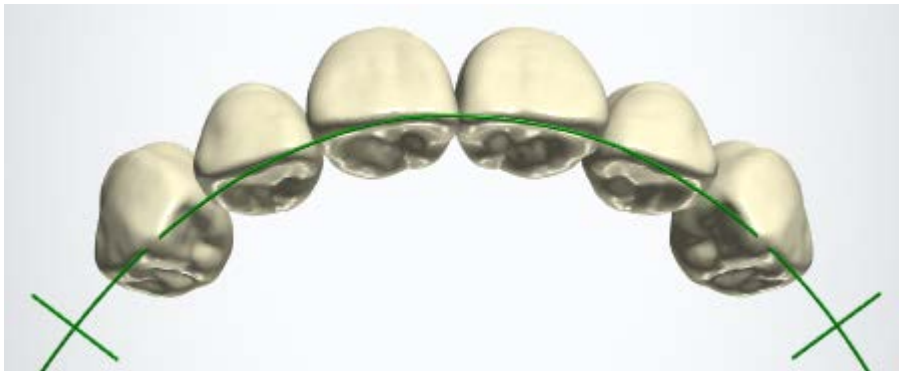
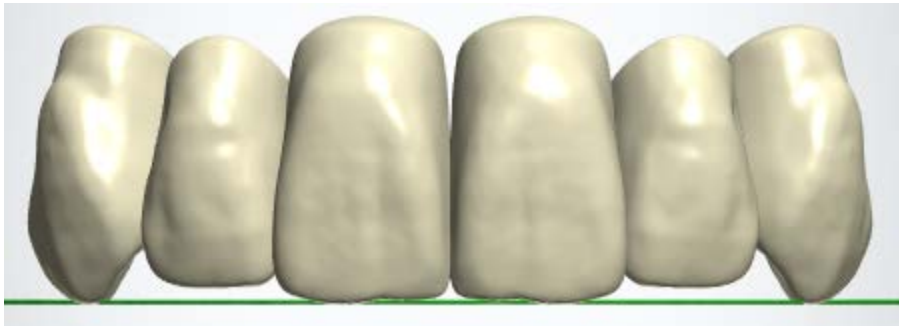
1. Load the Monson template by clicking  **Monson template** and selecting **Load Monson template** from the drop-down window. Use the **Typical** or **Lingual** alignment to the Monson template for your digital setup.
2. Place mandibular teeth according to the template.
3. Place maxillary teeth observing the intercuspation.



To bring upper and lower jaw teeth into occlusion, place the cross section plane parallel to the occlusal plane and activate the clipping mode. Enable the Contact map coloring using the **Show contact map** slider in the upper right corner. Move each tooth to optimal position making the final occlusion. Use **Show upper jaw** and **Show lower jaw** sliders to view only a single jaw.



Compose smile with the help of the **Sculpt toolkit** digital transformation tools. A reference arch is shown to help you position the crowns evenly:

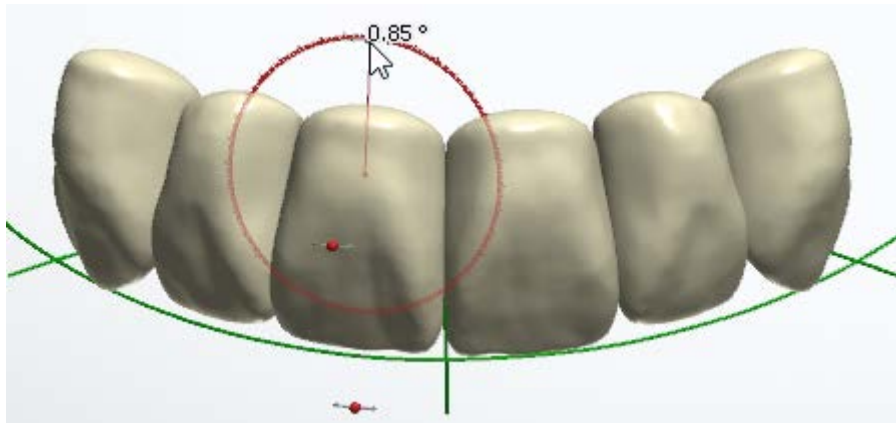


Below you can see the examples of the **Individual transformation** and **Mirroring** tools. To see the rest of the tools in use, please see chapter [Smile Composer](#).

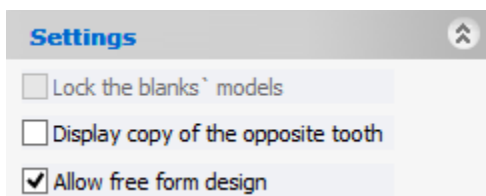
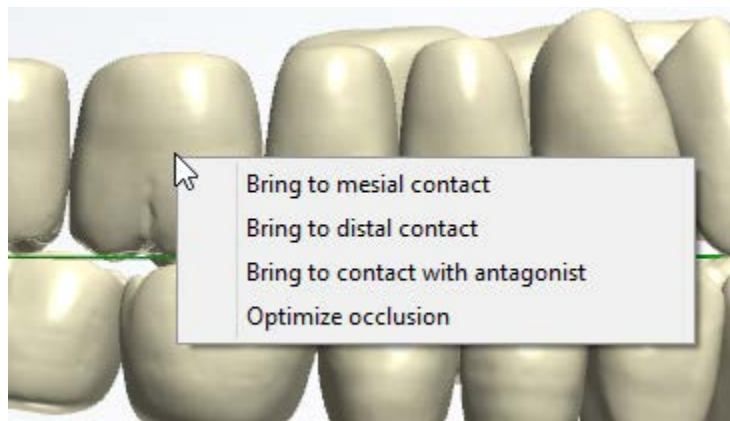


Individual transformation

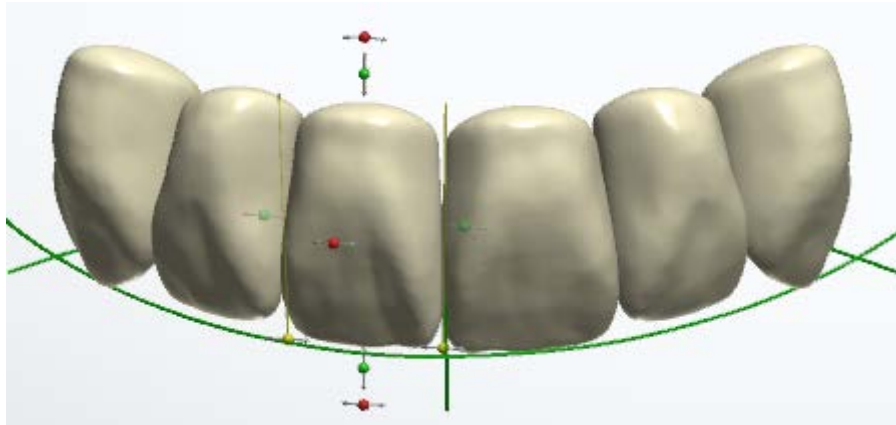
To move a tooth, drag it with the mouse. Click a tooth on the arch and drag the appeared red joysticks to rotate it:



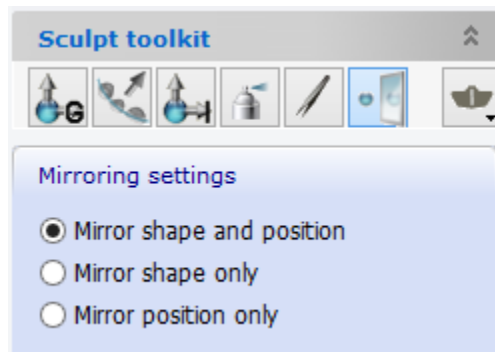
Right-click a tooth to display the options that help to position the tooth in space relatively to neighbors:



Selecting the **Allow free form design** checkbox on the **Settings** tab allows you to use tooth scaling by dragging the green and yellow joysticks:

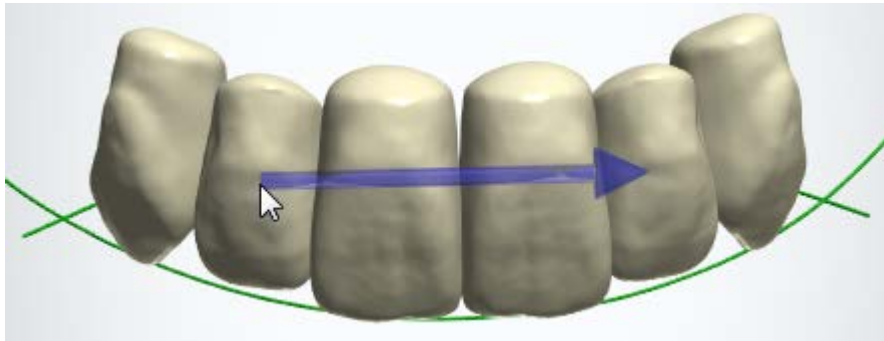


Mirroring



Mirroring tool provides functionality for tooth reflection and can work in the following three modes:

- **Mirror shape and position** - the selected tooth shape is mirrored to the symmetrical (contralateral) one also adjusting its position.
- **Mirror shape only** - the tooth shape is mirrored while the tooth position remains intact.
- **Mirror position only** - the tooth position is adjusted while the tooth shape is not affected.

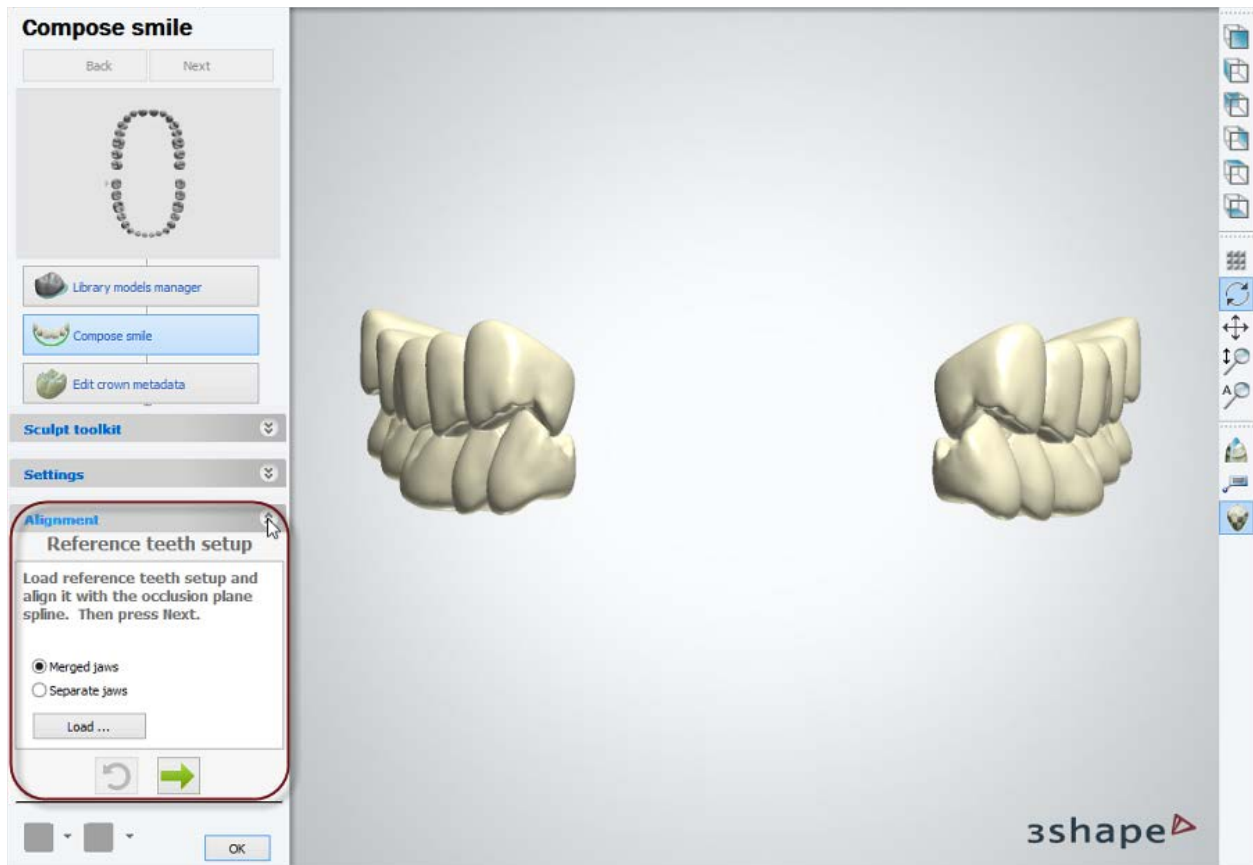


Use the Visualization sliders in the top right corner of the window to help you with the setup. For example, set the **Transparency** of the upper/lower jaw teeth and enable the **Contact map** coloring. The **Contact map** will show you the mutual proximity of teeth with the help of the color scheme. Also, observe the characteristic points which are visualized to ensure a correct intercuspation. Move each tooth to its optimal position creating the final occlusion. Place the cross section plane and activate the clipping mode. This will enable you for a precise visual inspection of occlusion.

It is the provider's responsibility to prepare Smile libraries for each available teeth occlusion scheme, e.g.: standard, lingualized, cross-bite.

PHYSICAL LIBRARY SETUP

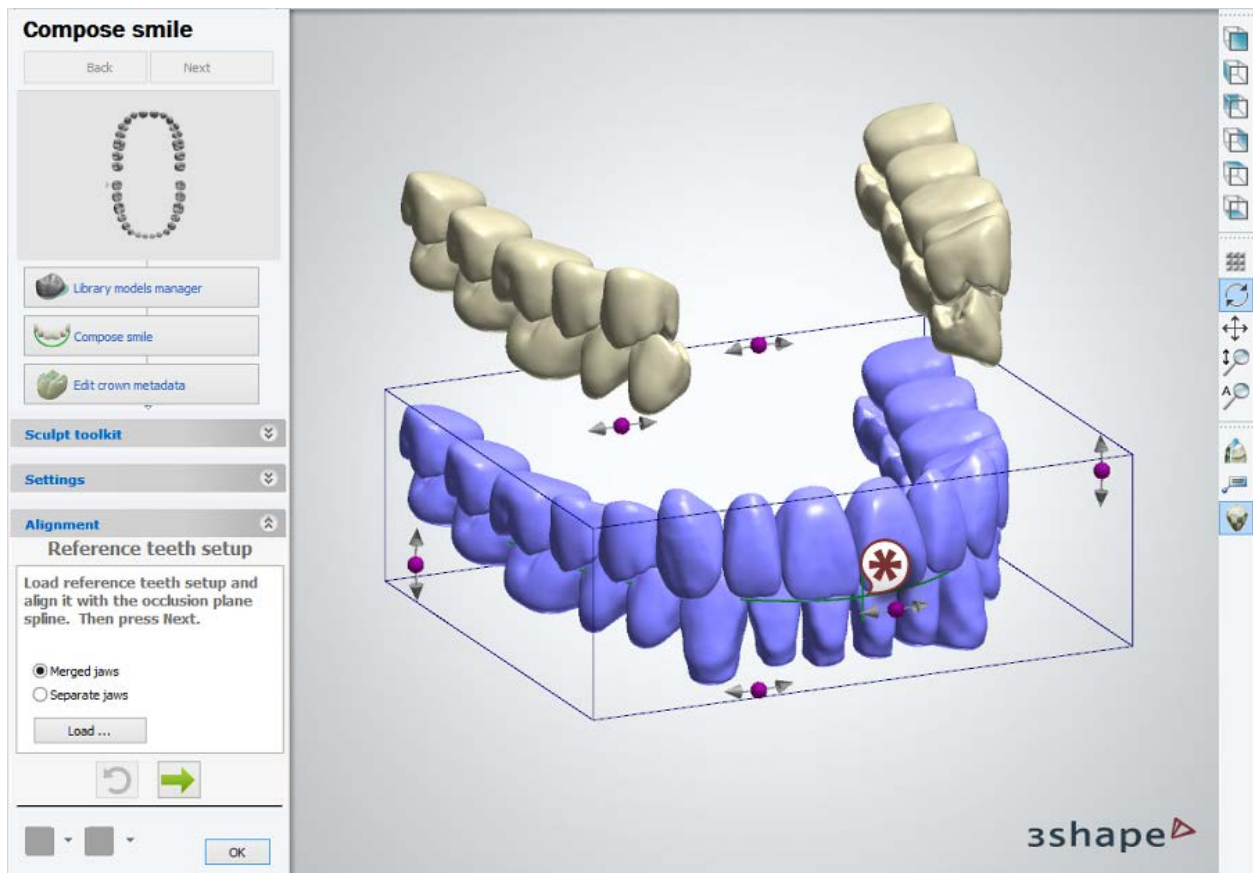
Physical setup prepared by a dental technician can be digitized (scanned) with the [scanning application](#). To start aligning a library to a physical setup, expand the **Alignment** group, which contains a step-by-step wizard:



1. Select a type of the digital model (merged or split jaws) and load the scan. ScanIt Library supports two types of digital models: a single block combining both jaws - **Merged jaws** and a setup split in two parts with upper and lower jaws aligned one to another - **Separate jaws**.
2. Using the transformation joysticks, position the teeth scan so that its occlusal plane passes through the reference spline. Move the model by clicking and dragging it.

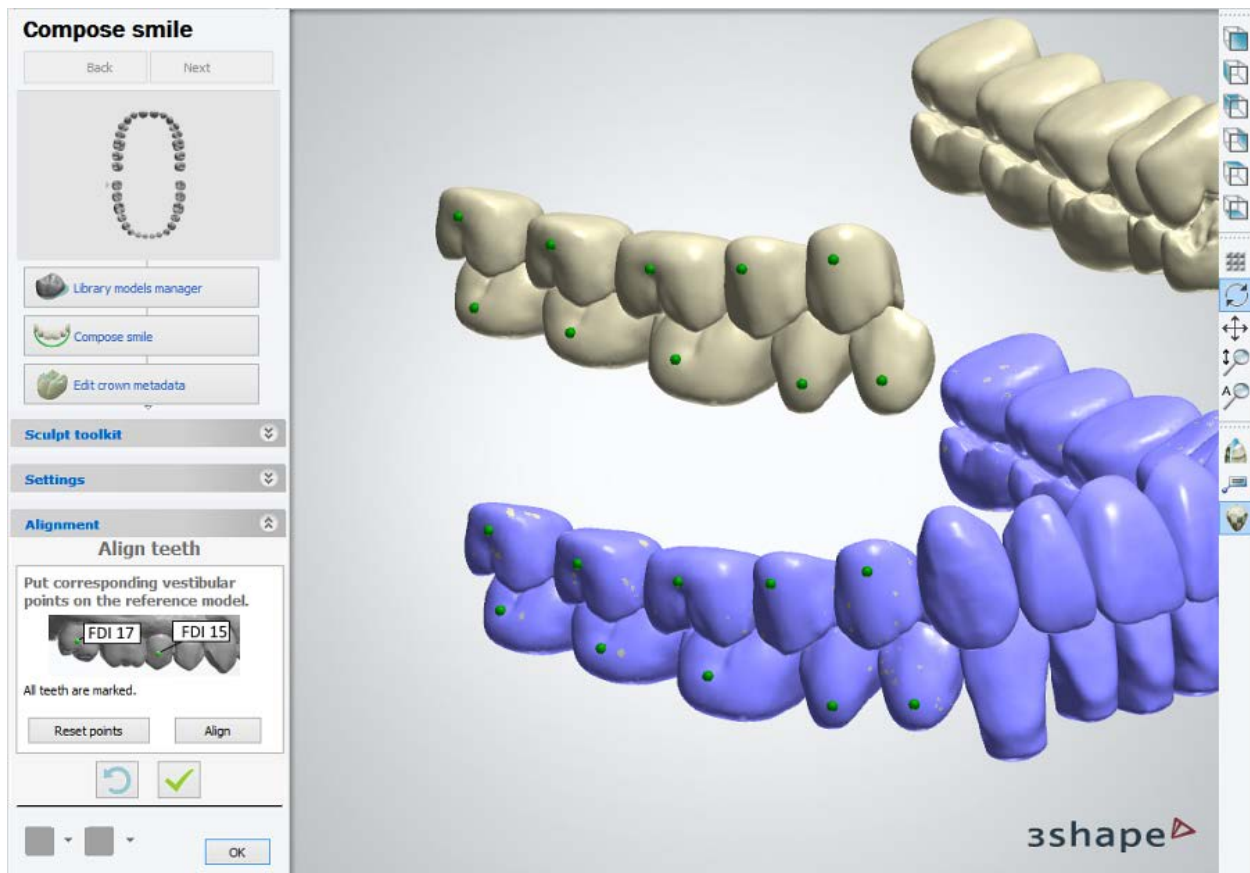
Press **Next**





* A reference spline

3. Follow messages on the form and put vestibular point for each tooth on the reference setup. When done, press the **Align** button to initiate the automatic alignment for every tooth.

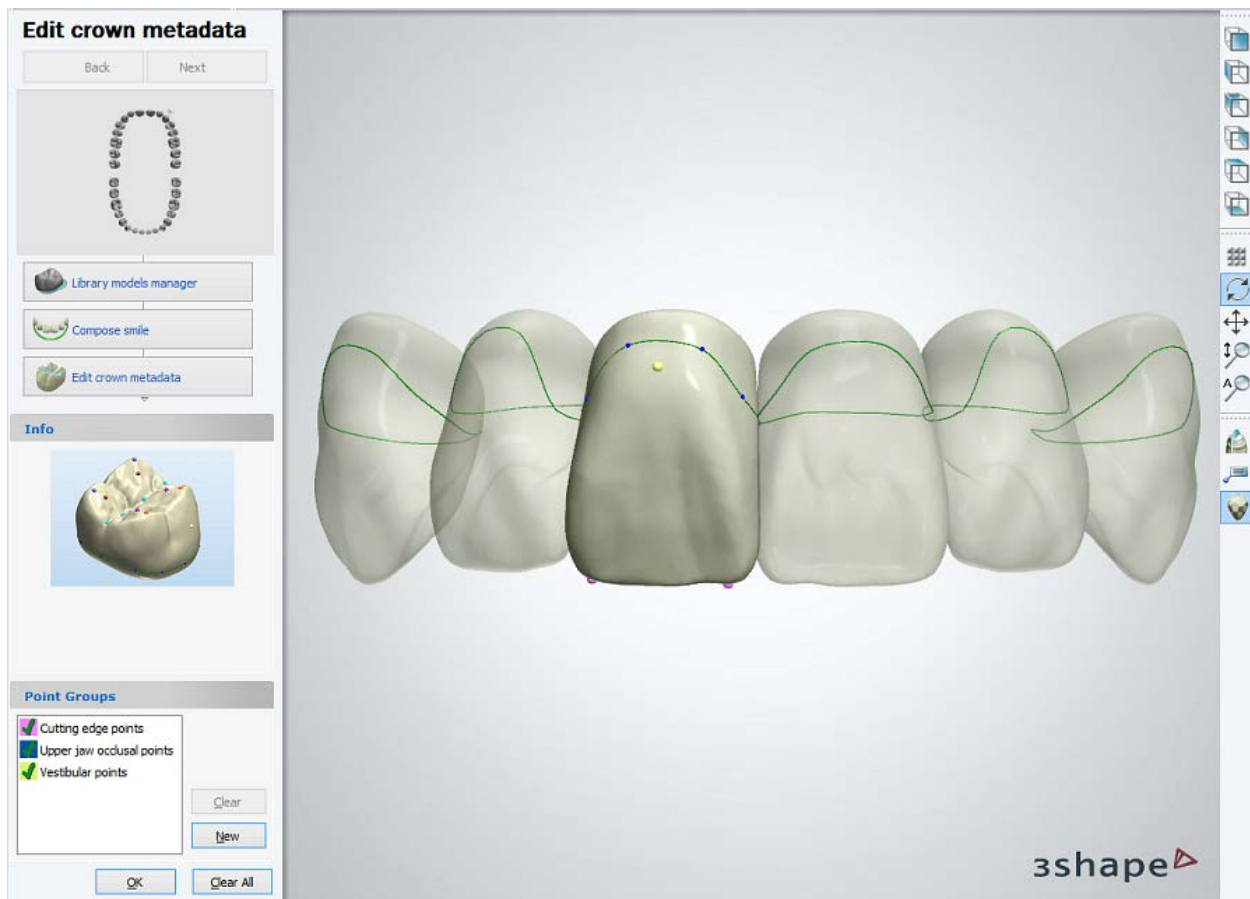


Note! It may happen that the automatic alignment will not place the model in an optimal position (e.g. the corresponding models differ greatly or the alignment point is not correctly placed). In this case, click on the misaligned model to display the manual transformation box. Try to transform the model so it fits the reference scan better. Every manual alignment procedure re-starts the automatic alignment for the tooth.

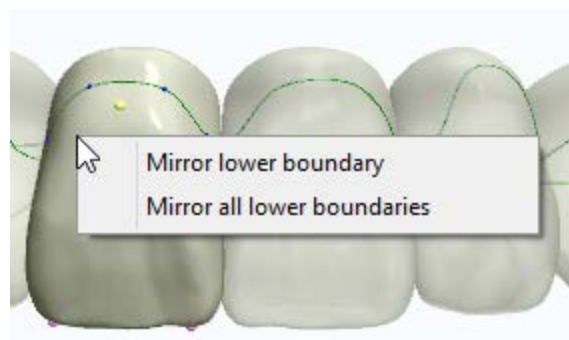
4. Click on a green tick to finalize the alignment. When the automatic alignment is finished, you can perform manual transformations mentioned in [Digital library setup](#) above.

► Step 4: Edit lower boundaries and characteristic points

Examine the lower boundaries and characteristic points added to the teeth models and edit them if required.



Right-click the selected tooth and choose **Mirror lower boundary** to copy its lower boundary to the symmetrical (contralateral) tooth. By choosing **Mirror all lower boundaries**, you copy the lower boundaries to all symmetrical (contralateral) teeth.



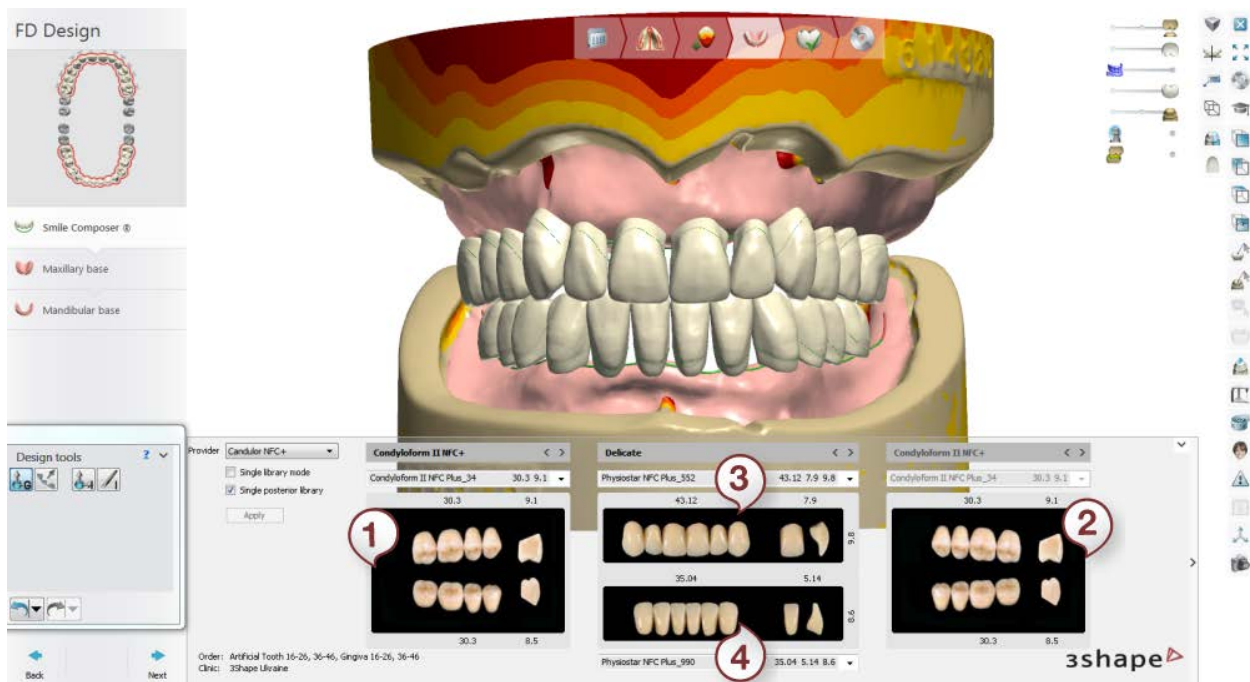
► **Step 5:** Click *OK*->*Next*->*Close* to finish working with the library

3.15.3.3. Defining Smile Library Preview Images

Each smile library has to be accompanied by its respective preview image. The Smile Library provider prepares photorealistic images that demonstrate the library esthetic and functional characteristics.

There are four images that represent the library:

- (1) Image of the right posterior teeth
- (2) Image of the left posterior teeth
- (3) Image of the upper anterior teeth
- (4) Image of the lower anterior teeth



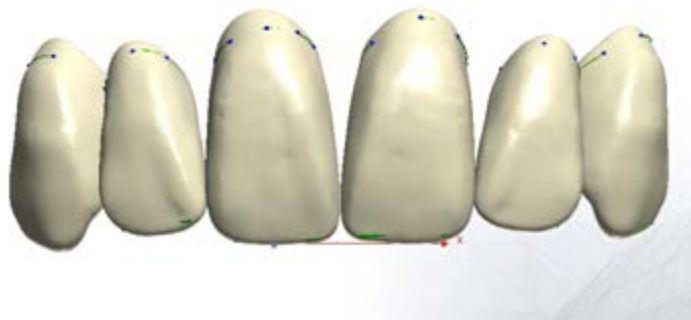
Prepare the images in the .png format using the non-interlaced mode. Using the file manager, place your images in a folder that contains the Smile Library. Note that the smile library has to be assigned only with images of the teeth group it contains, e.g.: Smile library holding posterior teeth needs two preview images of left and right posteriors, while the smile library holding all groups needs all four images.

Table below contains information on the Smile library preview images specification:

Group	Naming	Resolution (px)
Posteriors	LeftPosteriors.png	248x160
Posteriors	RightPosteriors.png	248x160
Anteriors	MaxillaryAnteriors.png	308x70
Anteriors	MandibularAnteriors.png	308x70

3.15.4. Examples of Smile Libraries

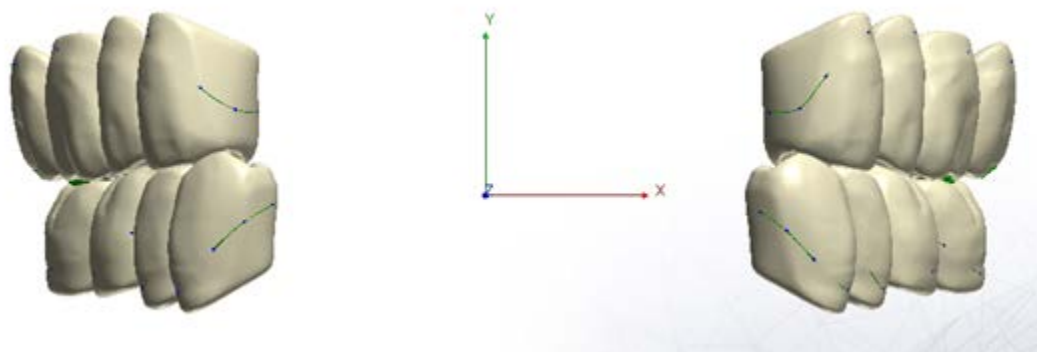
Here are a few examples of Smile Libraries prepared by ScanIt Library:



Maxillary anterior Smile library (Physiostar NFC Plus)



Mandibular anterior Smile library (Physiostar NFC Plus)



Right and Left posteriors Smile library (Condyloform II NFC Plus)

Appendix

Appendix A: System Requirements

Item	Minimum Requirements*	Recommended
Operating System	Windows 8.1 Home (64-bit) Windows 10 Home (64-bit)	Windows 8.1 Pro (64-bit) Windows 10 Pro (64-bit)
Memory (RAM)	8GB	16GB (32GB**)
Video Card	512MB NVIDIA GeForce or NVIDIA Quadro DirectX 10 or later	4GB NVIDIA GeForce or NVIDIA Quadro DirectX 10 or later
HDD	250GB	500GB (1TB***)
Available HDD Space	Minimum of 20GB of free disk space	
Processor	Intel Core i5	Intel Core i7 or equivalent
3D Mouse		3DConnexion SpaceMouse™ Pro
Monitor Resolution	1920 x 1080 1920 x 1200	
Network	Internet connection	
USB Ports	USB 2.0 for 3Shape desktop scanner	
Mouse	Mouse with wheel button support	
* If you are planning to use Implant Studio® integrated with Dental System, please check the system requirements for Implant Studio® in the corresponding user manual. ** For simultaneous scanning and modeling of large cases, we recommend 32GB RAM. *** We recommend 1TB Hard Drive if used as a stand-alone system or a server with the order folder.		

Note!



- The 3Shape desktop scanner has to be connected to a USB 2.0 port and it should be the only device in the USB host controller unless otherwise recommended by 3Shape for specific PCs.
- It is recommended to connect keyboard, mouse and dongle to free USB 3.0 ports, when available.

Appendix B: Shortcut Keys

The use of a mouse and keyboard for common functions in 3Shape Dental System is identical to the standard Windows applications.

The list of specific **shortcut keys** used in 3Shape Dental System is presented in tables below:

- **General**

Shortcut	Description
Alt + Right-click	Move the mouse to pan the view.
Ctrl + M	Displays the memory usage in the lower right corner of a screen.
Enter	Confirms your action or takes you to the next step.
F1	Shows a dialog box to select from available help documentation files to open. In case you choose the Technical Documentation option, it will take you to the relevant place in a chapter. You can download the needed help documentation files in <i>Dental System Control Panel</i> -> <i>Tools</i> -> Download center .
F6	Takes you to the next step.
F11	Opens full screen view.
Shift + Right-click	Move the mouse to zoom the view in and out.
Shift + T	Textures ON/OFF.
T	Show scanner texture.

Mouse	Description
Right-click	Move the mouse to rotate the model.
Wheel down	Move the mouse to pan the view.
Wheel scrolled	Zooms the view in and out.

- **Dental Manager**

Shortcut	Description
F5	Refreshes the page.
F6	Brings you to the next step.
F7	Generates CAM output.
F8	Prints the list of orders.
F9	Prints the label.
Ctrl + Alt + C	Selects orders with the same client.
Ctrl + Alt + D	Selects orders with the same delivery date.
Ctrl + Alt + H	Opens form for selection orders with the same height range.
Ctrl + Alt + I	Imports scan for the Created order.
Ctrl + Alt + P	Selects orders with the same patient.
Ctrl + Alt + S	Selects orders with the same status.
Ctrl + Alt + V	Opens form for selection orders with the same volume range.
Ctrl + D	Brings the Scanned order to the modeling step.

Ctrl + E	Opens the <i>Order Export</i> form.
Ctrl + F4	Opens the order folder in Explorer.
Ctrl + I	Opens the <i>Order Import</i> form.
Ctrl + M	Opens an existing order form to modify its settings.
Ctrl + N	Opens a blank order form to create a new order.
Ctrl + S	Brings the Created order to the scanning step.
Ctrl + U	Checks out the order.
Ctrl + W	Opens 3D order preview.
Shift + 2 Left-clicks	To select items in the order form for bridge/bar design, click first item, hold Shift and click last item (selects all items in-between).
Shift + F4	Opens the CAM output folder in Explorer.
Shift + F8	Prints the selected order(s).

- **ScanIt Dental**

Shortcut	Description
Backspace	Navigates you to the previous step/substep in the workflow.
Enter	Navigates you to the next step/substep in the workflow.
Shift + Mouse wheel scrolled	Changes the selection tool radius during area selection.
Ctrl + Left mouse button down	Move the mouse to deselect an area using selection tool.

- **Model Builder**

Shortcut	Description
Ctrl + Mouse wheel scrolled	Controls the influence radius of clicks when placing a spline (e.g. Margin line).

- **Dental Designer**

Shortcut	Description
A	Toggles visibility of the Antagonist scan.
Ctrl + B	Toggles the background color between white/normal.
Ctrl + F	Opens "Generate Automatic Feedback" window.
Ctrl + Mouse wheel scrolled	Controls the influence radius of clicks when setting the margin line.
F	Toggles visibility of the points on a spline (e.g. Margin line).
P	Waxup and Preparation scans visualization ON/OFF.

S	Toggles visibility of the Preparation scan.
Shift	Hold to move an entire control point group with the mouse while working with a connector.
Shift + V	Virtual Articulator visualization ON/OFF.

o



Sculpt Toolkit

Shortcut	Description
Ctrl + Z	Undo the last sculpt operation.
Ctrl + Y	Redo sculpt operation.
QWERTY	Shifts between active Sculpt tools. Each letter enables one of the active tools in sequential manner: Q enables the 1st active tool (e.g. Global transformation), W - the 2nd one etc.



Global transformations

Shortcut	Description
Ctrl	Hold key while scaling to scale in all directions (green control points only).



Morphing

Shortcut	Description
Alt + Left-click	Adds/removes control points.
Ctrl	Morphs vertical/normal to surface.
Shift + Left-click on point	Moves an entire control point group.
Shift + Mouse wheel scrolled	Changes the morphing diameter.



Wax knife

Shortcut	Description
+ (plus)	Selects ADD.
- (minus)	Selects REMOVE.
* (asterisk)	Selects SMOOTH.
1-7	When pressed, applies the corresponding predefined settings.
Ctrl + 1-7	Memorizes the defined settings: Add/Remove/Smooth/Radius/Amplit.
Ctrl + Mouse wheel scrolled	Changes the wax knife amplitude.
Shift + Mouse wheel scrolled	Changes the wax knife diameter.

o



Smile Composer

Shortcut	Description
` (grave accent)	Opens the <i>Smile library selection</i> window.
B	Reset design.
Backspace	Going back one step.
C	Mirror
Ctrl + y	Redo operation.
Ctrl + z	Undo operation.
D	Individual Transformation.
Enter	Closes the <i>Smile library selection</i> window applying the chosen library.
Esc	Closes the <i>Smile library selection</i> window without applying any change.
F	Individual Morphing.
G	Wax Knife.
H	Attachments.
J	Plane Cut.
M	Disconnection from margin line.
N	Reconnection to margin line.
Q	Group Transformation.
Space bar	Activates the 3D preview of the selected smile library on teeth.
T	Show scanner texture
V	Virtual Articulator.
W	Arc Transformation.
X	Auto Placement.
Z	Contacts and Smoothing.



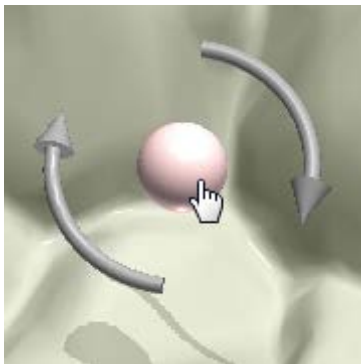
Transformation

Shortcut	Group transformation	Arc Transformation**	Individual transformation	
			Symmetric design OFF	Symmetric design ON
-	Scaling in ONE direction	ONE tooth is scaled in ALL directions	ONE tooth is scaled in ONE direction	TWO* teeth are scaled in ONE direction

Ctrl	Scaling in ALL directions	Scroll mouse wheel to change tool's radius	ONE tooth is scaled in ALL directions	TWO* teeth are scaled in ALL directions
Ctrl + Shift	Scaling in ALL directions for all groups	-	TWO* teeth are scaled in ALL directions	-
Shift	Scaling in ONE direction for all groups	TWO* teeth are scaled in ALL directions	TWO* teeth are scaled in ONE direction	-

* If symmetric tooth is available for design

When the **scaling mode is ON:



Rotating



Scaling



Morphing

Shortcut	Description
Alt + Left click	Adds/removes control points.
Ctrl	Hold to move orthogonally with the mouse.
Mouse scroll over tooth	Scroll the mouse wheel over a tooth to rotate the tooth.
Shift	Hold to move an entire control point group with the mouse.
Shift + Mouse wheel scrolled	Changes radius of the morphing tool.



Wax knife

Shortcut	Description
+ (plus)	Selects ADD.
- (minus)	Selects REMOVE.
* (asterisk)	Selects SMOOTH.

1-7	When pressed, applies the corresponding predefined settings.
Ctrl + 1-7	Memorizes the defined settings: Add/Remove/Smooth/Radius/Amplit.
Ctrl + Mouse wheel scrolled	Changes the wax knife amplitude.
Shift + Mouse wheel scrolled	Changes the wax knife diameter.

- **Removables**

Shortcut	Description
Retention Grids	
Space bar	Press the space bar to generate an active retention grid preview. Press the space bar one more time to generate the final retention.
Shift + Mouse wheel scrolled	Changes the resin gap width.
Clasps	
Alt+Ctrl/Shift	Hold Alt while Ctrl and/or Shift is pressed to change the clasp width and/or height along its whole length.
Ctrl + Mouse wheel scrolled	Changes the clasp's height.
Ctrl + Shift + Mouse wheel scrolled	Changes the clasp's height AND width.
Shift + Mouse wheel scrolled	Changes the clasp's width.
Other	
1-5*	Press digit 1 through 5 to activate the corresponding option on the current step (e.g. "1" – starts placing clasp spline on step Clasp).
Ctrl + Mouse wheel scrolled	Controls the influence radius of clicks when placing a spline.
Esc	Deletes non-finished spline.

*To learn which number represents the particular option, point cursor on the icon to read its hint

- **Telescopes**

Shortcut	Description
Shift	Hold to move an entire control point group with the mouse.


- **Implant Bars and Bridges**

Shortcut	Description
Shift + Left-click	Simultaneously moves all control points.

- **Abutment Designer** (Bar interface and Robotic abutment)

Shortcut	Description
Ctrl + Left-click	Simultaneously moves all control points of the same color.

- **Abutment Designer** (Custom abutment)

Custom abutment	Control points	Description
	Orange	Click the mouse wheel to switch between grid size & shape emergence profile. Scroll the wheel to make changes.
		TOP view: Left-click to switch between transformation & rotation.
	Light Blue	Click the mouse wheel to switch between arrow length & tilting. Scroll the wheel to make changes.
	Blue	Left-click to switch between double side tilt & insertion direction.
		Click the mouse wheel to switch between tilting & rotating top cap. Scroll the wheel to make changes.

Appendix C: Motion Controllers Support

Dental System products support SpaceBall motion controllers, Wacom Graphire and Bamboo graphics tablets or other tablets complying with the WinTab standard.

The indicated controllers use USB interface to connect to a computer and must have appropriate drivers installed to function correctly. Please refer to the manufacturer web site for support on the latest drivers available for your controller.

- **Graphics Tablet Support**



A graphics tablet is an electronic device that allows to hand-draw images the usual way, with the images appearing on a computer screen.

Some tablets can also be used for primary pointing and navigation instead of the mouse.

The Dental System supports graphics tablets complying with the WinTab standard.

While in Dental Designer mode, the graphics tablet stylus supports the following functions:

- **Second Stylus Tip Support**

When working with the **Sculpt** toolkit, you can add material to your model with the main end of the stylus, while the excessive material can be removed with the opposite end of the stylus.

- **Pressure Sensitivity Support**

When working with the **Sculpt** toolkit, you can increase/decrease the amount of added, removed or smoothed material by applying more or less pressure on the stylus.

The Sculpt Toolkit chapter describes how to enable sculpt [Wax knife](#) control for the graphics tablet pen.

- **SpaceBall Support**



SpaceBall is a motion controller that works in conjunction with the mouse and enables you to navigate through 3D images quickly. The device contains the navigation ball and programmable buttons.

Utilization of 3D software implies the use of different keyboards keys, interface buttons and mouse buttons to switch between panning, rotating and view zooming. This awkward way of working is eliminated by employing the SpaceBall as the single controller that can be now used to complete many functions without having to toggle between different navigation modes.

Appendix D: Recommended Scan Sprays

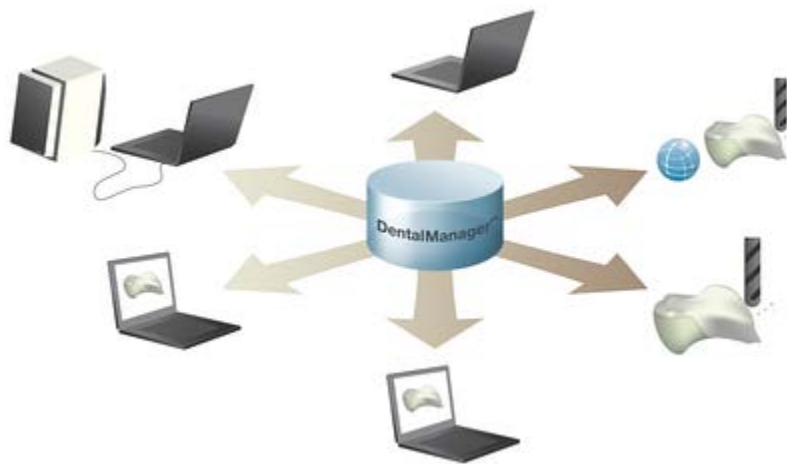
The following scan sprays are tested and recommended by 3Shape:

- Helling Anti glare spray ([Helling](#))

- Pico scan spray ([Picodent](#))
- Vita Cerec Powder ([Vita-Zahnfabrik](#))
- Blue spray ([Dreve](#))
- Scan'spray plus ([Dentaco](#))

Please read [Preparing for Scanning](#) chapter for details on applying the spray.

Appendix E: Multiple PC Installation



Multiple PC (Client-Server) installation gives you the powerful and productive option of running multiple PCs in a network and smoothly sharing orders and files. The multiple PC installation enables one or more operators to create order, scan and design in parallel.

The Multiple PC installation consists of one **Server PC** and one or more **Client PCs** in the same network.

All software and the order database are stored locally on the **Server PC** with the drives mapped as network drives so they can be seen by the client PCs.

The **Client PCs** simply link to the software and order database on the Server computer.



Note! Client installations can only be created after setting up an active Server installation.

Advantages of Multiple PC installation:

- Highly productive option for one or more operators to create orders, scan and design in parallel.
- Simplicity of maintenance and upgrades.

- Easy sharing of orders, states and files across multiple PCs.
- Client PC can be installed and operated from any PC within the network - you are not limited to work on a specific PC. Subscriptions are floating and directly shared between all PCs in the network, i.e. a single CAD subscription can be used on any Client PC, but only one at the time.

Performance Recommendations

Performance-wise hardware recommendations can be addressed for each component of the system separately:

- **Server PC** - Hard Drive speed and network bandwidth are important for the server and database operation performance.
- **Client PCs** - The amount of RAM and Video memory is important for scanning and design performance.
- **Network** - Ethernet-based network.

To avoid slowing down the system with the large amount of orders, please **close** all finished orders to keep the number of open orders in Dental Manager to a minimum.

Client-Server Installation process



Note! Before doing a Client PC installation, you must ensure that the computer has a unique name in the network.

Follow these steps to setup a Dental System Server or a Network Client:

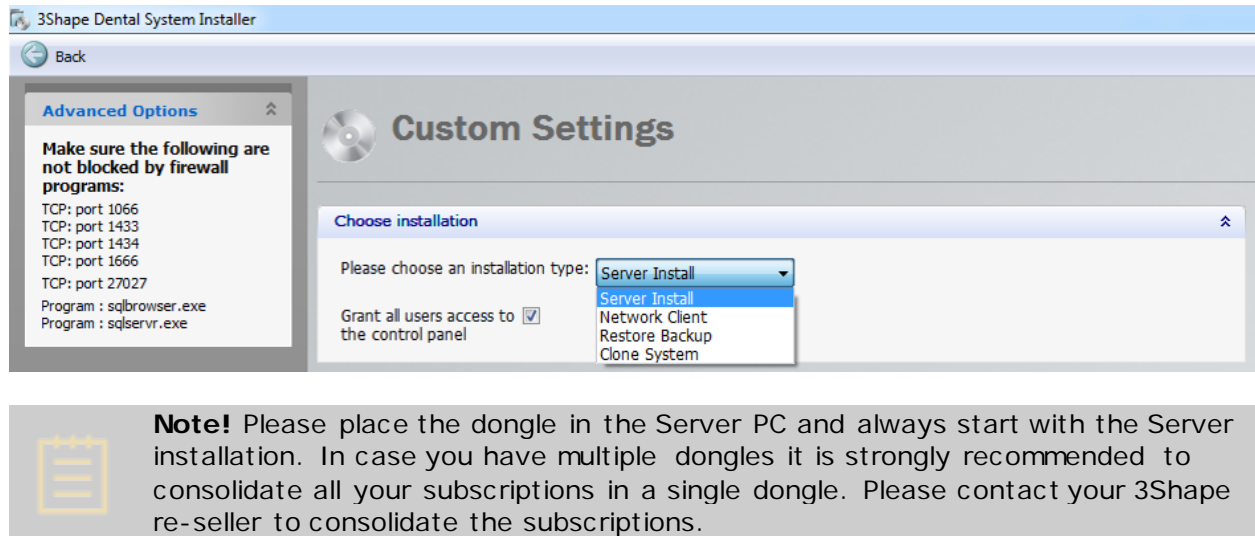
►Step 1: Launch 3Shape Dental System Installer

Read [Dental System Installer](#) chapter to prepare for and initiate the installation process

►Step 2: Select Custom installation

►Step 3: Specify installation settings

Select **Server Install** or **Network Client** from the drop-down menu in the [Custom Settings](#) window and specify necessary settings for the chosen option. Click **Continue** to proceed.



►Step 4: Complete installation

Follow the on-screen instructions and complete the installation process.

Appendix F: Hewlett-Packard PC with Dental System

Hewlett-Packard PCs supplied with 3Shape Dental System™ contain a separate USB controller with improved USB connectivity to scanners and accessories guaranteeing an optimal data flow and improved scanner performance.

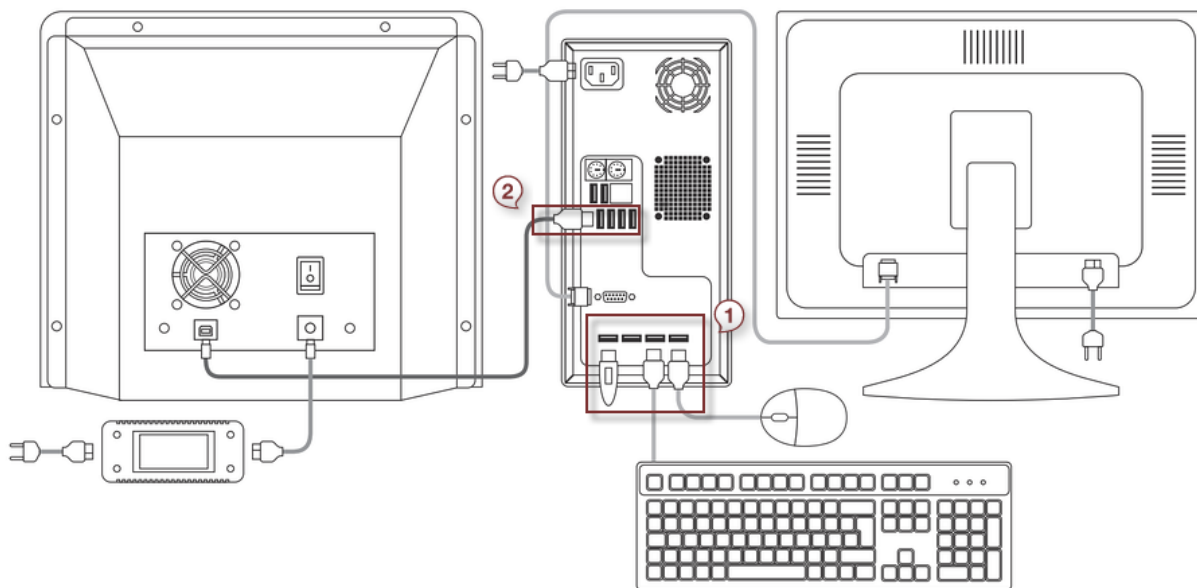
Please follow the instructions below to connect the scanner and dongle to a Hewlett-Packard PC:

►Step 1: Connect dongle and accessories

Connect the subscription dongle and accessories, such as keyboard and the mouse, to USB ports located in one row at the top or bottom backside of the PC **(1)**.

►Step 2: Connect the scanner

Connect USB cable from the scanner to one of the USB 2.0 ports (black) located at the mid backside of the PC **(2)**, this guarantees optimal data-flow from the scanner.



Appendix G: Implant Libraries for 3Shape Dental System™

The latest list of Implant Libraries for 3Shape Dental System™ can be found on this web page: www.3shape.com/Implant-libraries.



Note! All information is given without guarantee and based exclusively on information made available by the implant system providers. Please contact your local 3Shape re-seller to obtain the most current list.



Note! Only Implant Libraries based on Dental Implants with 510(k) clearance can be used in Abutment Designer™ in the United States. Cleared libraries must be activated by 3Shape. Please ask your Implant Library Provider to contact 3Shape if you wish to use a cleared library that has not already been activated. The software will block any attempt to use a non-cleared library.



Warning! In the United States, implant cases may only be manufactured by manufacturers that hold an implant abutment 510(k) or are dental laboratories milling per the specific instructions for a patient-specific implant abutment provided by the holder of a 510(k) specifically cleared for dental laboratory milling. Please check with the implant library provider to ensure an appropriate location for sending the digital file.

Appendix H: Terms and Abbreviations

The following table explains file type abbreviations used in 3Shape Dental System.

File Format	Description
3ML	Zipped, compressed XML file typically used for setup and customization. 3Shape proprietary format.
3SE	3Shape and Sirona proprietary format for exported orders. Orders from Sirona system, can be imported into 3Shape system.
3OX	3Shape Communicate Order Exchange format used by partners and customers to retrieve and send orders. 3Shape proprietary format.
3OXZ	Zipped archive containing 3OX file and references to DCM models. 3Shape proprietary format.
3SI	3Shape and Sirona proprietary format for imported orders. Orders exported from 3Shape system, can be imported into Sirona system.
DCM	Dental Compressed Model file. Contains compressed 3D model data, attached objects (splines, annotations, etc.), marks and additional string properties. 3Shape proprietary format used for scans and CAD designs.
DLL	Dynamic-link library, Microsoft shared library concept.
DME	Dental System Material Export file. Contains materials, references to materials and external files. The file can be imported into another 3Shape Dental System. 3Shape proprietary format.
STL	Describes surface geometry of three-dimensional objects. Used for scans and CAD designs. Industry standard.
ULDC	3M Lava proprietary format. Order files from 3M scanners can be imported into 3Shape System.
XML	Extensible Markup Language, used for configuration files, etc.

App. I: Technical Guidelines

These guidelines describe technical issues on 3Shape Dental System™ related to cyber security and backup-related issues.
Copenhagen, September 2015.

- [Cybersecurity](#)
- [Backup Considerations](#)
- [Windows Security and Network configuration](#)

Appendix I.a: Cybersecurity

USER MANAGEMENT FOR CYBERSECURITY

Recommendations for user management:

- Create individual Windows Users for each user that will need access to Dental System™. The users can be created locally or as domain users (e.g. using Active Directory).

- The user accounts should be required to have a strong password, and the password is required to be changed at regular time intervals.
- Configure each user account to ensure that the user only has access to the parts of Dental System™ needed for that particular user. This can be supported by creating specific user roles with the standard access predefined, e.g. by using security groups in Active Directory.
- Configure each user account to only allow the user to change computer settings for that particular user.
- Only users with administration right are able to change settings of the Dental System™ Control Panel.
- Configure each user account to automatically apply a screen lock after a fixed amount of time with no activity on the PC, and to enforce the use of a password for unlocking the PC.
- Inform each user about the ability to lock the screen manually by the use of **Windows key + L**, and implement procedures for that the screen is manually locked if the PC is left unattended.

DEVICE MANAGEMENT AND DEVICE MAINTENANCE FOR CYBERSECURITY

Recommendations for device management:

- Follow recommendations from Microsoft regarding settings and configuration for the Windows system.
- Keep the Windows system updated with latest patches and upgrades provided by Microsoft. It is recommended to setup Windows to download and install latest patches and updates automatically.
- When necessary, keep track of the security patches that have been installed, and if they have been installed correctly. The Windows system upgrade history is shown in the Windows system log. The Dental System™ upgrade history is shown in the install log file located at "*C:\ProgramData\3Shape\DentalSystemInstaller.log*"
- To get an overview of which versions of software subsystems were installed: "*C:\Program Files\3Shape\Dental System Control Panel\DentalSystemVersion.xml*"
- Import Materials log files can be found to identify which data was Imported, and what was corrupt: "*C:\3Shape Configuration\DentalSystem\Dental System Control Panel\History\imp<Date Time>.html*"
- Keep other parts of the system (drivers etc.) updated with latest patches and upgrades provided by system vendor.
- Ensure to have an updated and efficient virus protection system installed.
- Avoid using the Windows system for anything that is not strictly needed or related to the use of the Dental System™.
- Perform a system backup on regular intervals, Dental System™ data are backed up by performing a full copy of the folder "*C:\ProgramData\3Shape*".
- Make sure the backups are performed to an encrypted zip-file.

Appendix I.b: Backup Considerations

All data being changed during operation of Dental System should be backed up regularly. These data are stored in the file system and SQL Server Database.

FILE SYSTEM BACKUP

The folders in this table should be backed up:

Folder	Location	Comment
<Order Directory>	The location of the Order Directory folder is specified within the Dental System Control Panel.	Contains all orders, designs and session data.
<Dental System Program Data>	Located in "%ALLUSERSPROFILE%\3Shape". The actual "%ALLUSERSPROFILE%\3Shape" folder location depends on your Windows version. Normally it will be like this: Windows 7, and Windows 8: C:\ProgramData\3Shape	Contains logs and installation-specific settings.
<Dental System Configuration>	The location of the Dental System Configuration is predefined as "C:\3Shape Configuration\DentalSystem". It contains all the important material settings, application settings and custom models used during design.	Contains all the materials, attachments, smile libraries, etc.

SQL SERVER DATABASE BACKUP

Patient, and Order information is stored in the MS SQL Server database. You should backup the SQL database as you would normally backup an SQL database.

Either you would use a tool for scheduling and backing up your database (a large number of tools and services are available), or you will run the backup yourself from the command line using the SQL server command line tool "sqlcmd" or "osql". Please refer to the documentation on the MS SQL Server Database for further details on backup up and restoring (e.g. <http://msdn.microsoft.com/en-us/library/ms187510.aspx>).

An example of a backup command from the Windows dos/cmd prompt is:

```
OSQL -S.\threeshapedental -Usa -P3SDMdbmspw -n -Q "BACKUP DATABASE DentalManager TO DISK='c:\Backup\dentalsystem_2015_1_backup_121212.backup'"
```

An example of a restore command from the Windows dos/cmd prompt is:

```
OSQL -S.\threeshapedental -Usa -P3SDMdbmspw -n -Q "RESTORE DATABASE DentalManager FROM DISK='c:\Backup\dentalsystem_2015_1_backup_121212.backup' WITH REPLACE"
```

When accessing the database for backing up or restoring, you will need the following information:

SQL Server instance name:	threeshapedental
Database name (hosted by the instance):	DentalManager
Username:	sa
Password:	3SDMdbmspw



Note! The values might be different if the system was configured using non-default settings, using a pre-existing SQL server instance.

Appendix I.c: Windows Security and Network Configuration

FOLDER SETTINGS

When the Dental System folder is located on a separate server or if a Client/Server installation is used, the Dental System uses a number of shared folders, e.g. "3Shape Dental Documentation", "3Shape Dental System", and "3Shape Dental System Orders", "3Shape Dental System Configuration". Please make sure that those folders are configured with sufficient access rights from Windows.

3Shape Dental System Configuration: Requires read and write access for the relevant network users (from the client PC).

3Shape Dental Documentation: Requires read access for the relevant network users (from the client PC).

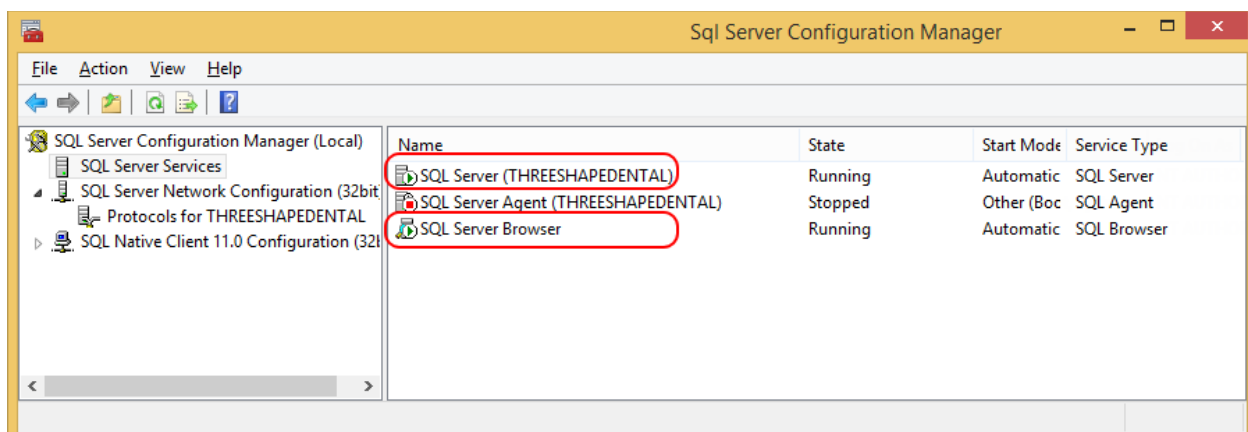
3Shape Dental System: Requires read access for the relevant network users (from the client PC).

3Shape Dental System Orders: Requires read and write access for the relevant network users (from the client PC).

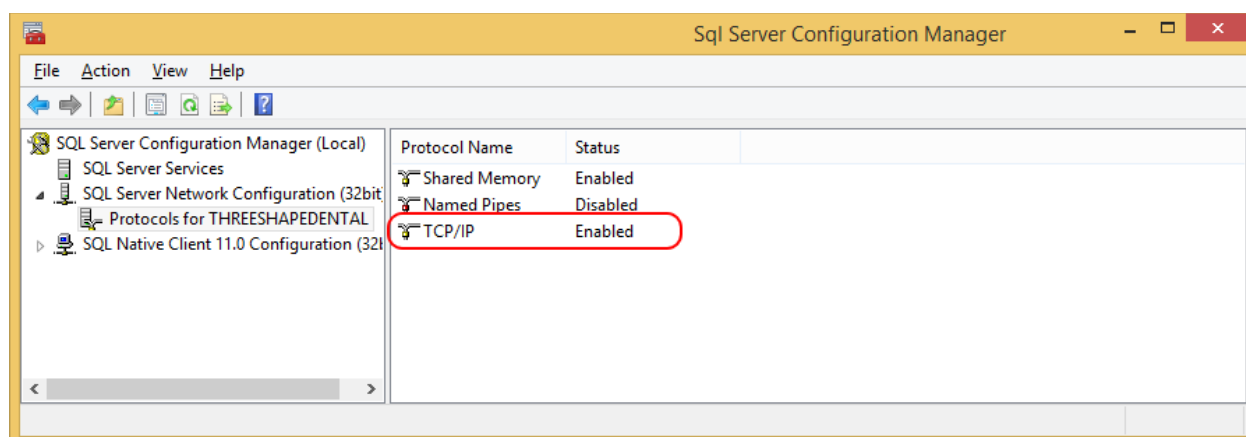
SQL SERVER DATABASE SETTINGS

SQL Server Configuration Manager

On the database server it is important that both the "SQL Server (THREESHAPEDENTAL)" and the "SQL Server Browser" services are running. This can be handled from the "SQL Server Configuration Manager" application installed with the SQL Server.



To communicate over the network, the TCP/IP protocol must be enabled for the SQL Server. This is done in the “SQL Server Configuration Manager” by selecting the “SQL Server network Configuration” option and double clicking the “TCP/IP” option to enable it.



Windows Firewall

The TCP port 1433 and UDP port 1434 must be open in the firewall of both database, client, and server machines. This can be done using the Windows Firewall user interface (when using Windows Firewall – alternatively a 3rd party Firewall application), or by using the following command line functions:

```
netsh firewall set portopening protocol=TCP port=1433 name = SQLPortEngine
mode=ENABLE scope=SUBNET profile=CURRENT
netsh firewall set portopening protocol=UDP port=1434 name = SQLPortBrowser
mode=ENABLE scope=SUBNET profile=CURRENT
```

Additionally you have to make sure to add “sqlbrowser.exe” and “sqlservr.exe” as program exceptions in the firewall.

Appendix J: Contact Information

3Shape Dental System is manufactured by 3Shape A/S.



3Shape A/S
 Holmens Kanal 7
 1060 Copenhagen K
 Denmark
 Ph: +45 70 27 26 20

3shape.com - visit the corporate website to learn more about 3Shape, our products, and global office locations.

support.3shape.com - visit the support website to download a printable version or request a free printed copy of this technical documentation.

Contact your reseller for requests regarding support, customer service, or download or upgrade of the software.

Appendix K: Regulatory Representatives

Representatives below should be kept informed in connection with the vigilance and FSCA procedures:

Country	Representative
Australia	Australian Sponsor Emergo Australia, Level 20, Tower II Darling Park, 201 Sussex Street Sydney, NSW 2000 Australia
Canada	No in-country representative. Please contact 3Shape A/S directly.
EU	3Shape A/S Holmens Kanal 7 1060 Copenhagen K Denmark Tel: +45 70 27 26 20
USA	Medicept 200 Homer Ave # M100-2 Ashland, MA 01721 Tel: (508) 231-8842