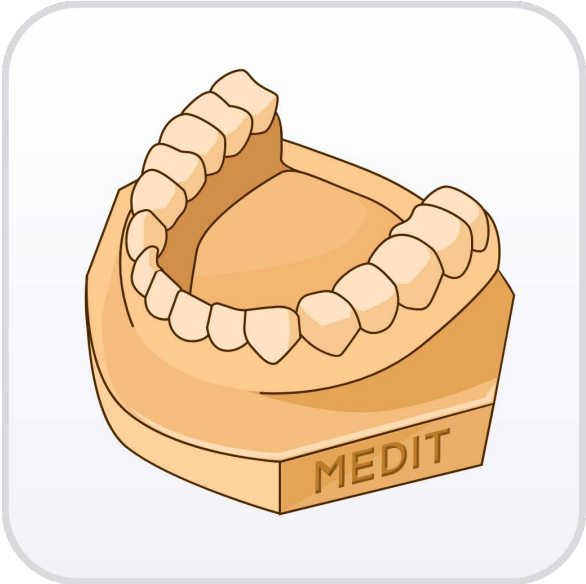
Model Builder



Revision 1 (2025.03.31)
SW version 1.4.0

Medit Model Builder

Table of Contents

Symbols

No.	Symbol	Description
1		Read the user guide
2		Consult the user guide
3		Caution
4		Warning
5		Prescription use (USA)
6		Software release date
7		Manufacturer
8		Tips

Overview and General Information

Overview

Medit Model Builder is an app for creating 3D printable dental models from intraoral scan data. The app supports both orthodontic and prosthetic workflows, offering a wide range of customizable tools to meet specific needs. Users can create and customize model bases, select from three base types (ABO, Plate, Plateless), and adjust various parameters such as occlusion, articulators, drain holes, and dies. A streamlined and clear workflow guides users through each step of the process, from data preparation and base creation to adding support elements, attachments, and labeling. The models generated in Medit Model Builder are optimized for 3D printing, ensuring efficient and precise results.

Intended Use

Medit Model Builder is a software designed solely for the purpose of creating dental models using scan data.

The program must not be used for purposes other than those described in its intended use.

Intended User Profile

The software is designed for dental professionals who have a basic understanding of dental procedures and terminology to operate it effectively and interpret its outputs. This includes but is not limited to dentists, dental hygienists, and dental technicians.

System Requirements

Windows

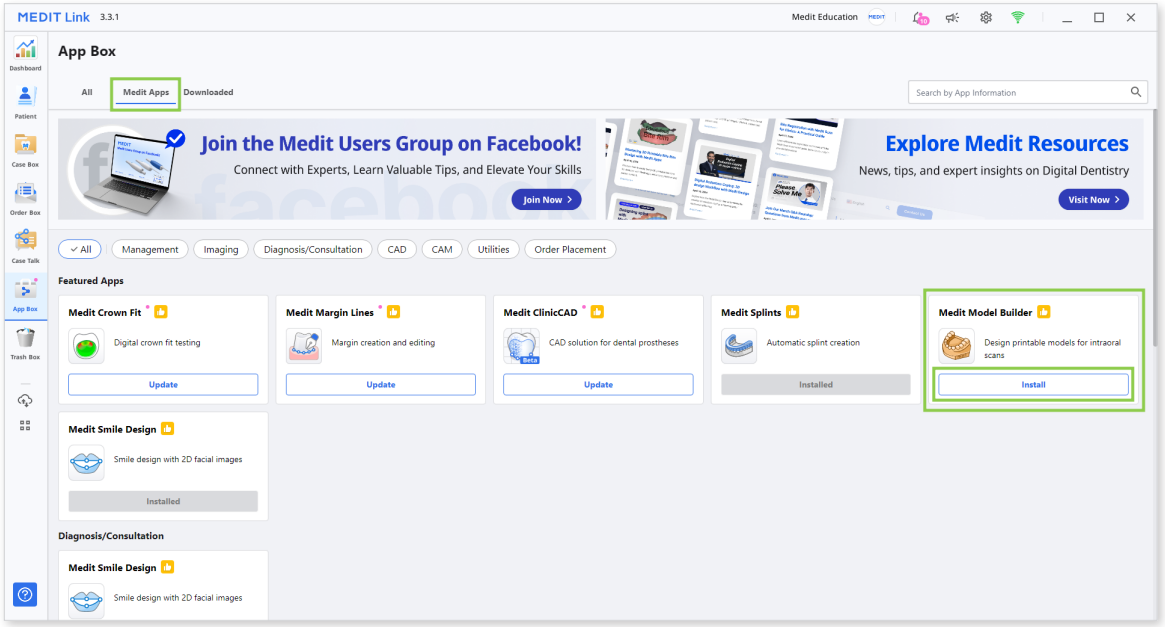
CPU	Intel Core i5 2.6 GHz or higher
RAM	16 GB or higher
Graphics Card	NVIDIA GeForce GTX 1060 (2GB) or higher
OS	Windows 10 64-bit, Window 11 64-bit

macOS

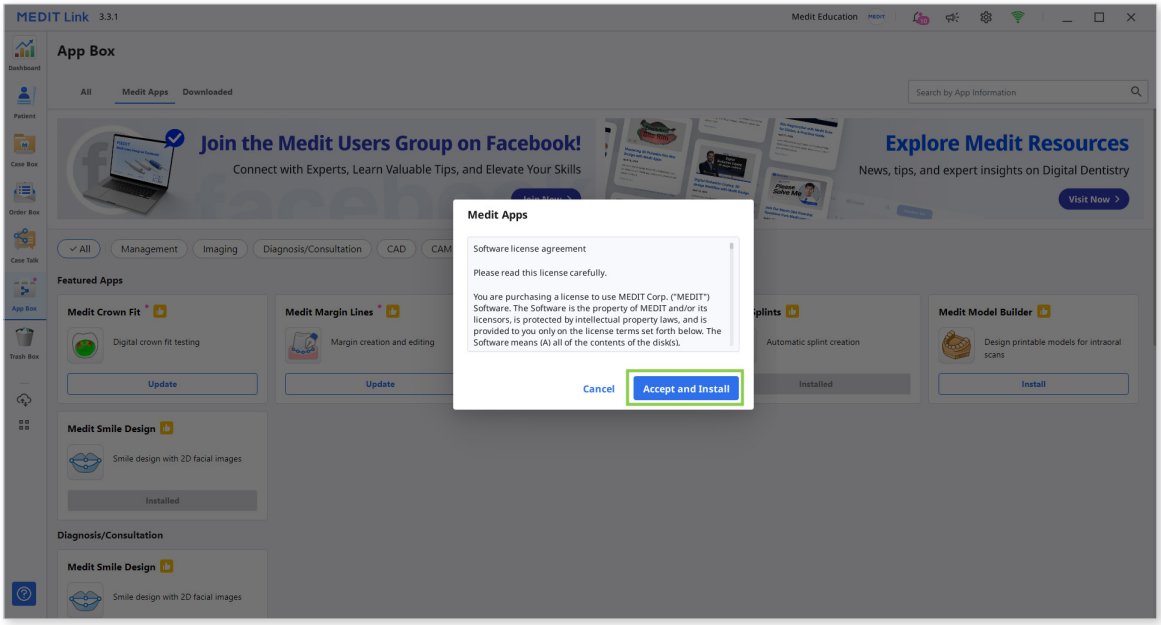
Chip	M1/M2 or higher
CPU	8-core or higher
RAM	16GB or higher
OS	Monterey 12

Installation Guide

1. Log in to your Medit Link account and go to the App Box on the left-hand menu.
2. In the Medit Apps tab, find the Medit Model Builder app and click "Install."



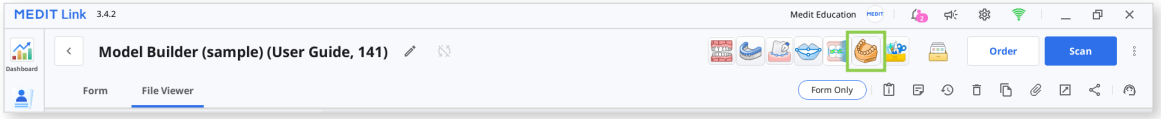
3. Read the Software License Agreement and confirm app installation by clicking "Accept and Install."



4. The app will be downloaded and installed automatically. It may take several minutes to finish the installation process.

> ⚠ Do not turn off the PC or close Medit Link during the installation process.

5. Once the app is installed, you can run it from any case in Medit Link by clicking the app icon in the right corner of the Case Detail window.



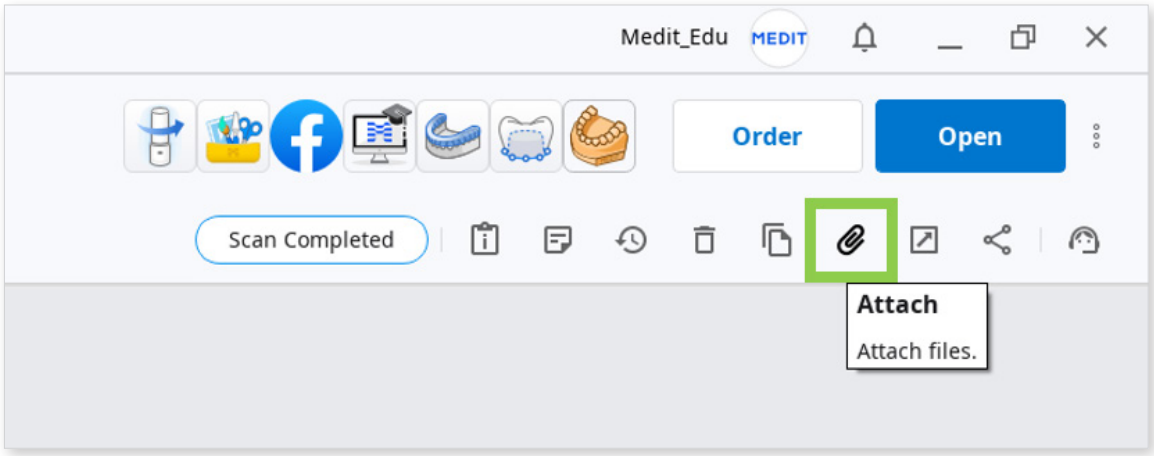
Data Management

Preparing Data

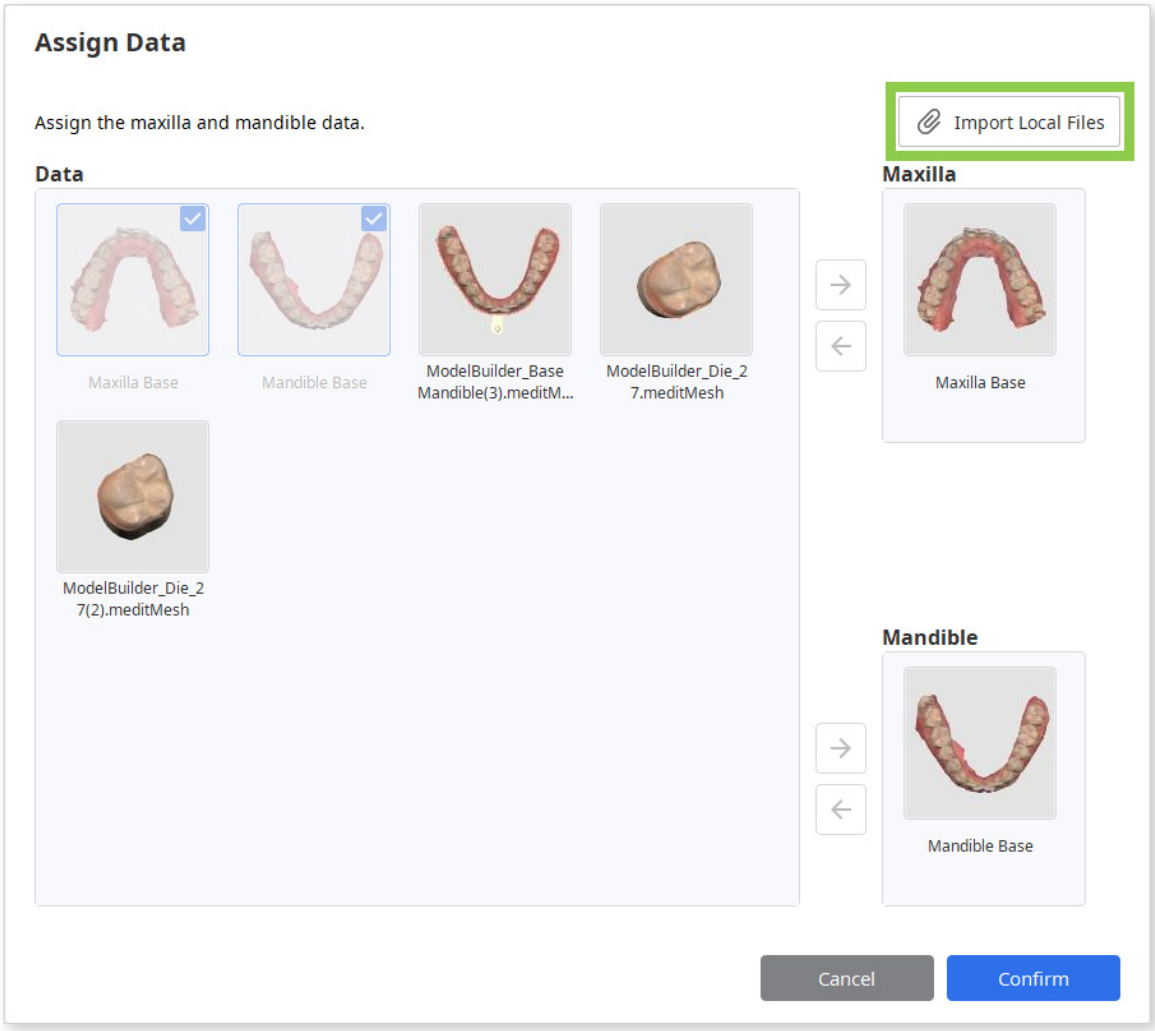
The app lets users create models using either a single arch scan or data from both arches. Before running the program, users should ensure that the scan includes gingiva data and is not trimmed too closely to the teeth. There are several ways to prepare 3D data that will be used in the app.

1. **Complete scanning in the Medit scanning programs**
   Upon scanning, all acquired data is saved to the corresponding Medit Link case. The app will automatically import data that is available in the case.

2. **Attach files to the Medit Link case**
   Users can add locally stored scan data to the Medit Link case via the "Attach" feature in the Case Details window.



3. **Importing files after running the app**
   Users can import locally stored scan data after running the app in the Assign Data window.



3D Data Control

3D data control using a mouse:

Use	Description	Image
Zoom	Scroll the mouse wheel.	
Zoom Focus	Double-click on the data.	
Zoom Fit	Double-click on the background.	
Rotate	Right-click and drag.	
Pan	Hold both buttons (or wheel) and drag.	

3D data control using a mouse and keyboard:

Use	Windows	macOS
Zoom		
		
Rotate		
		
Pan		
		

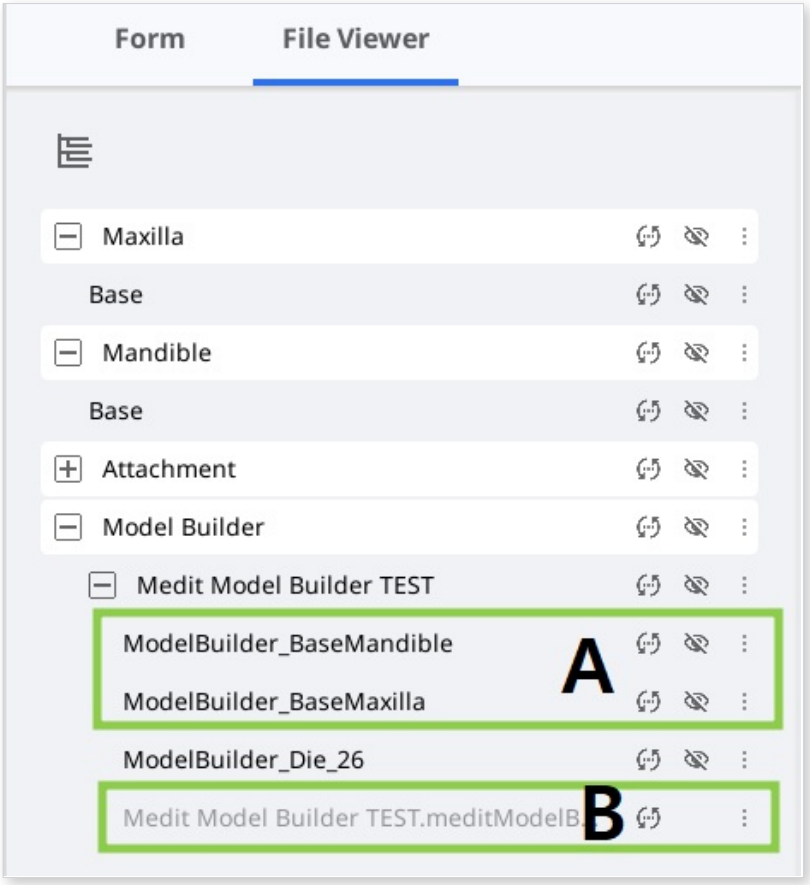
Saving Data

There are several ways to save the project data.

1. **“Complete “ icon at the top or “Next“ button in the bottom right corner**

> ⚠ **Paid Feature**
>
> Saving and exporting the completed design as an STL file is a paid feature. Pricing may vary based on your scanner ownership status and location.
>
> For more details about payment, please visit the Medit Help Center or click here.

The “Complete“ feature can be used after the model base have been created. It generates two type of files in the Medit Link case: the project file(B) and the model design file(A). The latter can be further used for printing.



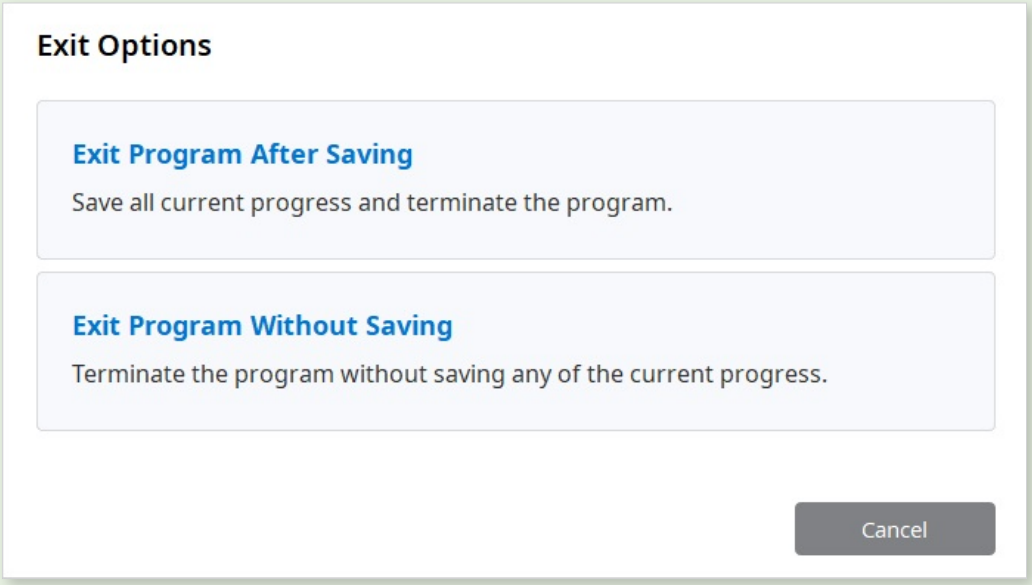
2. **“Save “ or “Save As“ options in Menu**

   These two options in the program menu help users manage the project file by creating a new one or updating an existing one. The project file is generated every time you run the app and can be used across all Medit software. It records work progress, allowing users to temporarily stop and save an unfinished project to resume later.

   The "Save As" option is used to save an unfinished project or save the current project under a new name, while the "Save" option allows the overwriting of the project file for the currently opened project.

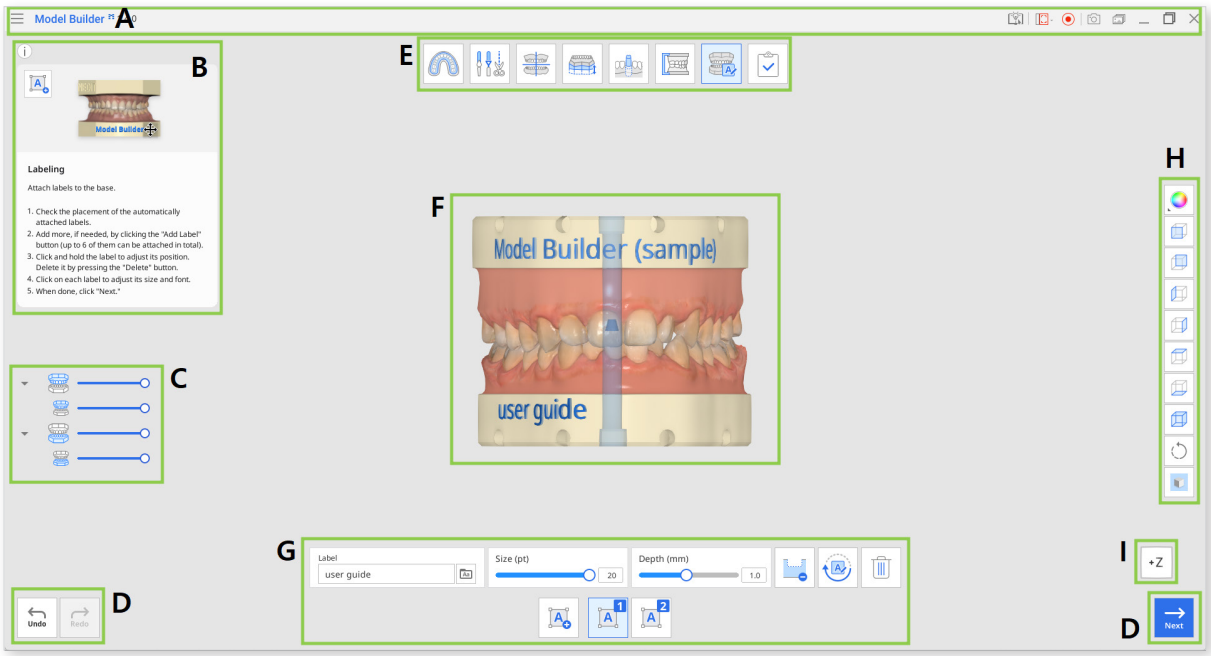
Note

Users are also prompted to save changes in the projext file when they terminate the program.



User Interface

User Interface at a Glance



A	Title Bar
B	Info Box
C	Data Tree
D	Action Control Buttons
E	Workflow
F	3D Data
G	Toolbox
H	Side Toolbar
I	View Cube

Title Bar

The Title Bar is the ribbon at the top of the application window that contains basic controls on the right and the menu on the left.

	Menu	Manage the opened project, access available assistance resources, and check app details.
	Help Center	Go to the Medit Help Center page dedicated to this app.
	Select Video Record Area	Specify which area shall be captured for video recording.
	Start/Stop Video Recording	Start and stop the video recording of the screen.
	Screenshot	Take a screenshot. Capture the app with or without the title bar using automatic selection, or click and drag to capture only the desired area.
	Screenshot Manager	View, export, or delete the screenshots. Upon completion, all captured images will be saved to the case automatically.
	Minimize	Minimize the application window.
	Restore	Maximize or restore the application window.
	Exit	Maximize or restore the application window.

Data Tree

The Data Tree is located on the left side of the screen and shows a list of the project data organized into groups. Users can control each data visibility by clicking its icon in the tree or changing its transparency by moving its slider.

Maxilla Group

- Pre-Op for Maxilla
- Maxillary Base
- Die #7

Mandible Group

- Pre-Op for Mandible
- Mandibular Base

Action Control Buttons

There are three buttons that control the overall work process. They are located in the bottom corners of the application window.

Undo	Undo the previous action.
Redo	Redo the previous action.
Next	Apply changes and move to the next step.

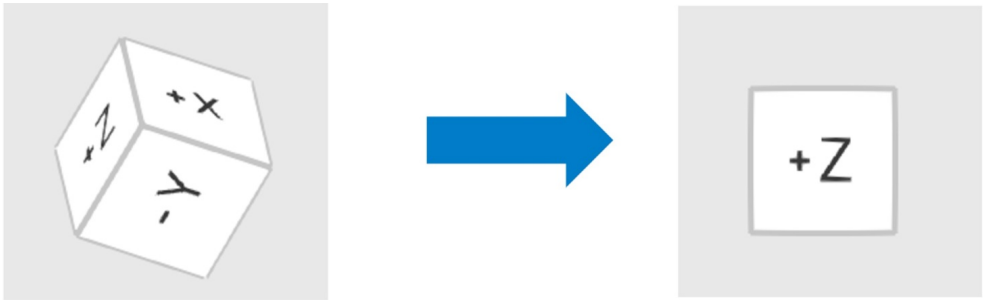
Side Toolbar

The Side Toolbar is located on the right side of the screen; it offers a number of tools for data visualization and control.

	Data Display Mode	Change between different data display options. (Glossy/Matte/Matte with Edges/Monochrome/ Monochrome with Edges/Wire-Frame)
	+Z Axis View	See the front view.
	-Z Axis View	See the back view.
	-X Axis View	See the left view.
	+X Axis View	See the right view.
	+Y Axis View	See the top view.
	-Y Axis View	See the bottom view.
	Isometric View	See the isometric view.
	Rotate	Left-click and drag to rotate the data.
	Grid Settings	Show or hide the grid (overlay on/off). Click multiple times to control overlay options.

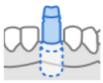
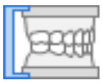
View Cube

The View Cube shows the 3D view orientation; it rotates simultaneously with the 3D data to help understand data positioning within a three-dimensional space. You can click on the visible faces of the cube to rotate data and see it from a specific viewpoint.



Workflow

The Medit Model Builder workflow consists of 7 steps, which must be followed in a specific sequence. After assigning the data, the user proceeds to the Overview step to review the imported scan data. Working in the final 3 steps is optional, and the user can proceed to “Complete“ right upon creating the model base.

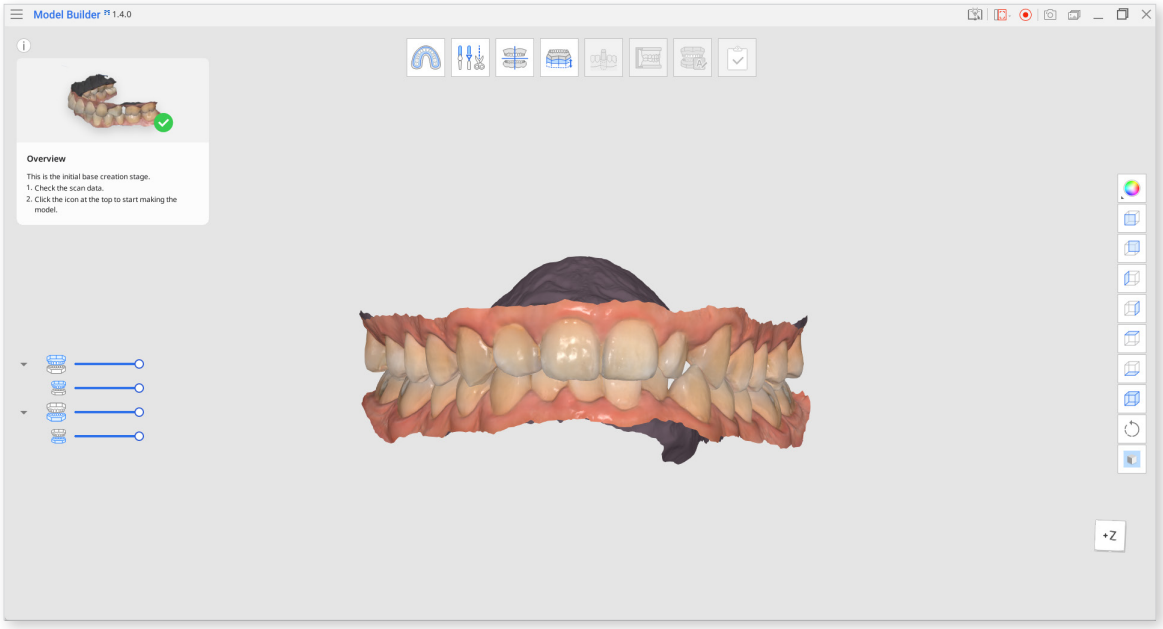
Icon	Tool	Description
	Overview	Check the imported scan data.
	Area Designation	Designate the area for base creation.
	Data Editing	Edit and trim data using the wide array of functions provided.
	Data Alignment	Move data to the occlusal plane of a virtual articulator.
	Base Creation	Create the base for the model.
	Die Creation	Create dies that will be used in the base model.
	Attachments	Add support elements or other attachments to the model.
	Labeling	Label the model, either engraving or embossing the text.
	Complete	Finish the model creation process and save the results to Medit Link. **⚠ Paid Feature** Saving and exporting the completed design as an STL file is a paid feature. Pricing may vary based on your scanner ownership status and location. For more details about payment, please visit the Medit Help Center or click here.

Overview

Overview is the landing page of Medit Model Builder, where the imported data is shown.

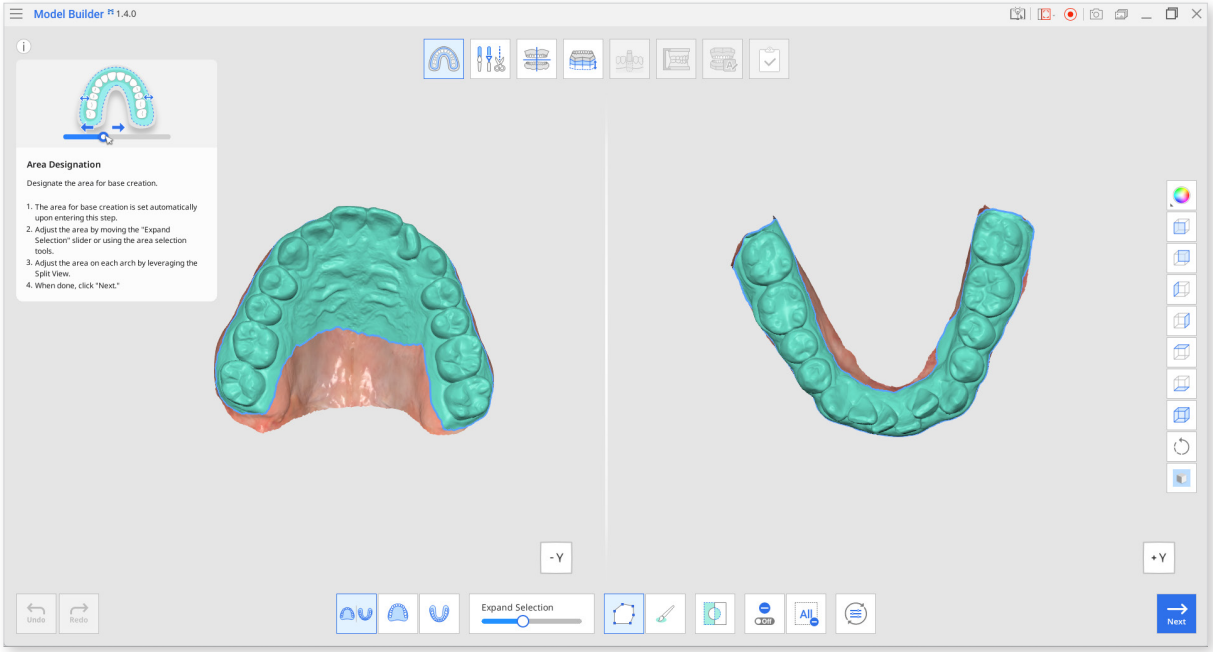
1. Check your scan data for any holes or issues that may require editing. Ensure the data is not trimmed too close to the teeth and includes some gingiva data.

2. Once you're finished, click the "Area Designation" icon at the top to start creating the model.

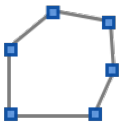


Area Designation

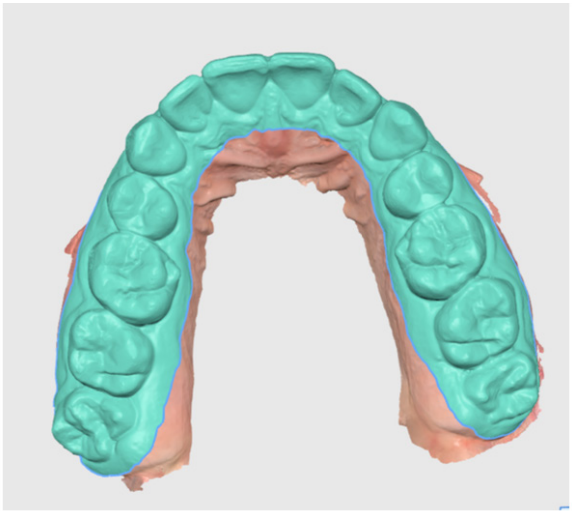
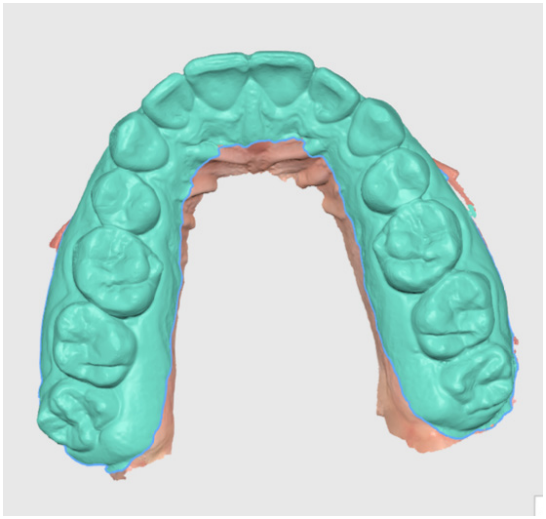
In the first step, the teeth portion of the scan data is automatically detected, and a section of the data is selected to designate the area that will be used to create the model base. Although this step is automated, it is recommended that the user review the selection to ensure accuracy.



Toolbox

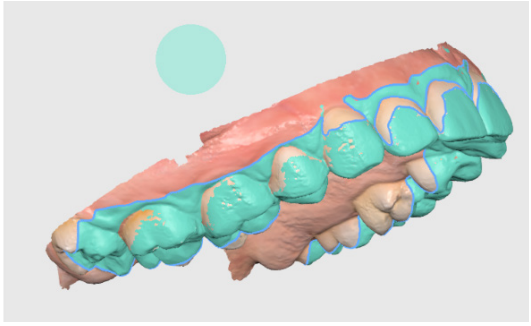
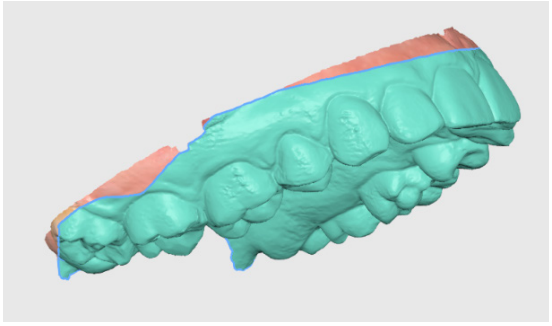
Icon	Tool	Description
	Split View	Show maxilla and mandible in Split View.
	Show Maxilla	Show only maxilla on the screen.
	Show Mandible	Show only mandible on the screen.
	Expand Selection	Expand the automatically selected area on the scan data.
	Polyline Selection	Select all entities within a polyline shape drawn on the screen.
	Brush Selection	Select all entities on a freehand drawn path on the screen. Only the front face will be selected. The brush comes in 3 different sizes.
	Invert Selected Area	Invert the selection.
	Deselection Mode	When on, this function deselects the area using various tools.
	Clear All Selection	Clear all selected areas.
	Reset	Undo all the actions done in this mode and restore all elements to their original position.

If needed, adjust the area by moving the “Expand Selection” slider at the bottom of the screen.

Before “Expand Selection”	After “Expand Selection”
	

If the data is not automatically selected, you can use other data selection tools to select.

"Polyline Selection" is useful for selecting both the front and inside of the data.

Selecting with the brush	Selecting with the polyline tool
	

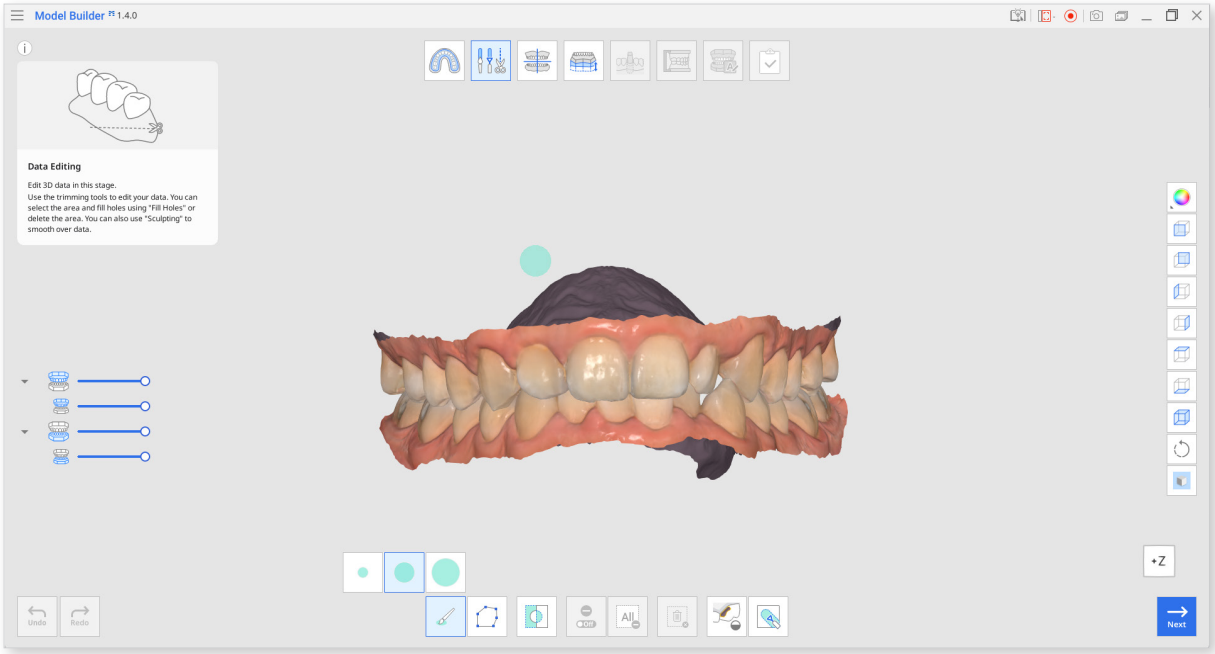
Use the Split View to view and adjust the maxilla and mandible if you are creating a model for both arches.

Click **“Next”** when finished.

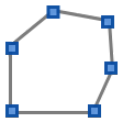
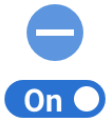
Data Editing

The goal of this step is to edit and prepare the scan data for further work. The Data Editing step provides tools for refining the imported scan data, removing the need for preparation in other programs. Clean scan data ensures a faster workflow and more accurate design results.

Using the available tools, users can trim excess or unnecessary data, modify the data surface, and fill any holes that may be present.

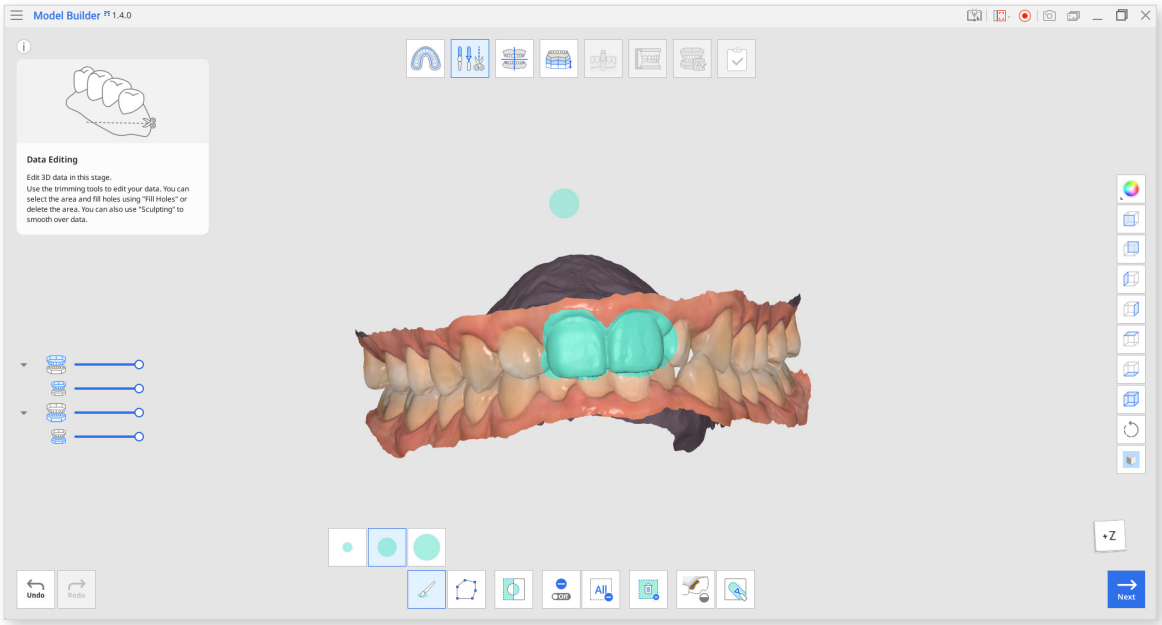


Toolbox

Icon	Tool	Description
	Polyline Selection	Selects all entities within a polyline shape drawn on the screen.
	Brush Selection	Select all entities on a freehand-drawn path on the screen. Only the front face will be selected. The brush comes in three different sizes.
	Invert Selected Area	Invert the Selection.
	Deselection Mode	When on, this function deselects the area using various tools.
	Clear All Selection	Clear all selected areas.
	Delete Selected Area	Delete the data from the selected area.
	Fill Holes	Fill empty spaces in the 3D mesh data.
	Sculpting	Sculpt data by adding, removing, smoothing or morphing.

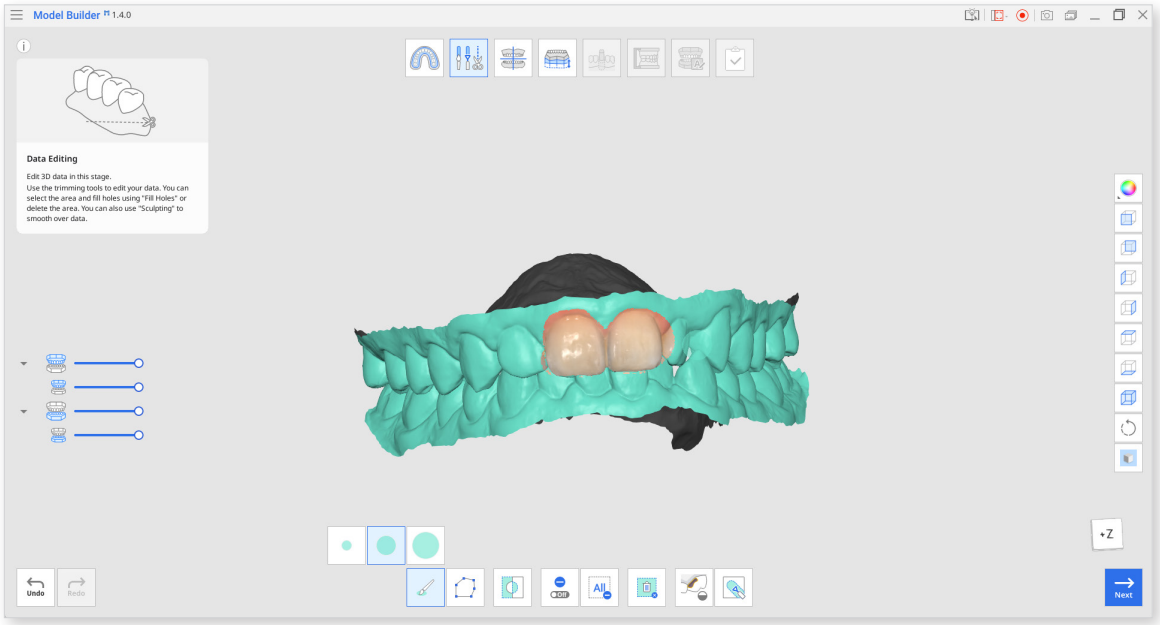
How to Edit Data

1. Use various tools to select the area you would like to edit.



> The **"Polyline"** tool removes all the data within the polyline shape drawn on the screen while the **"Brush"** tool removes only the front-facing data.

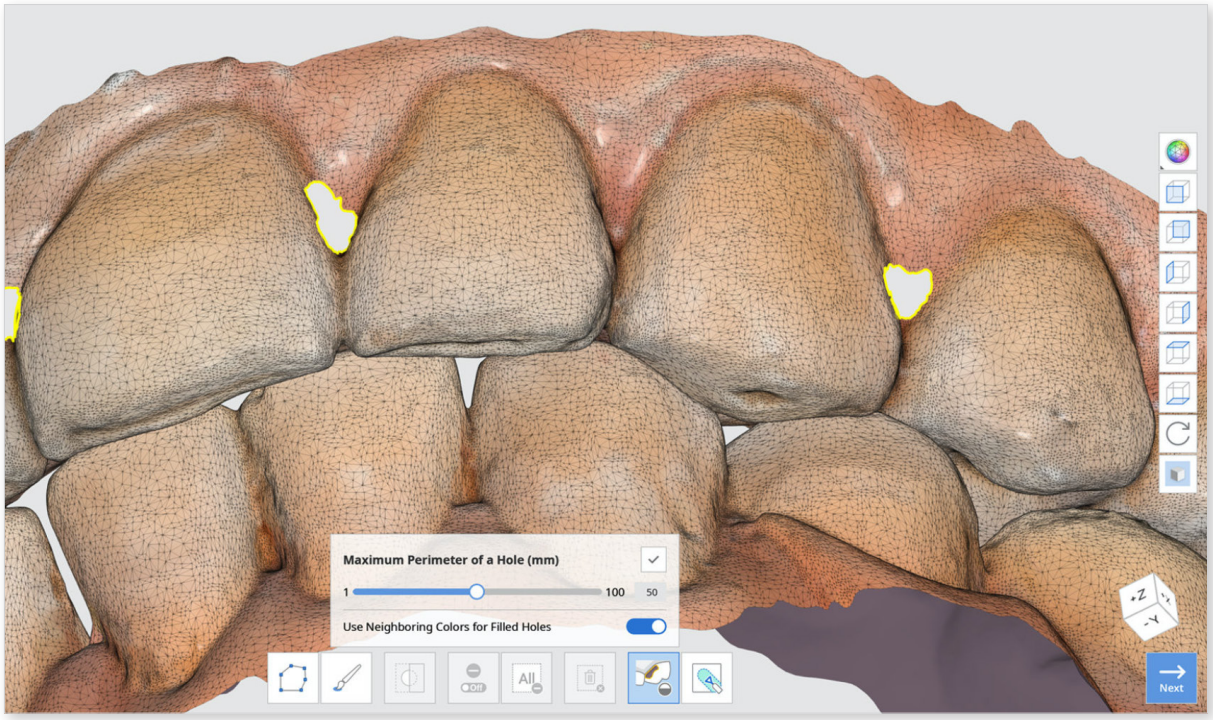
2. You can revert the selection by clicking **“Invert Selected Area”**.



3. To delete the selected area, click the **“Delete Selected Area”**.

How to Fill Holes in Data

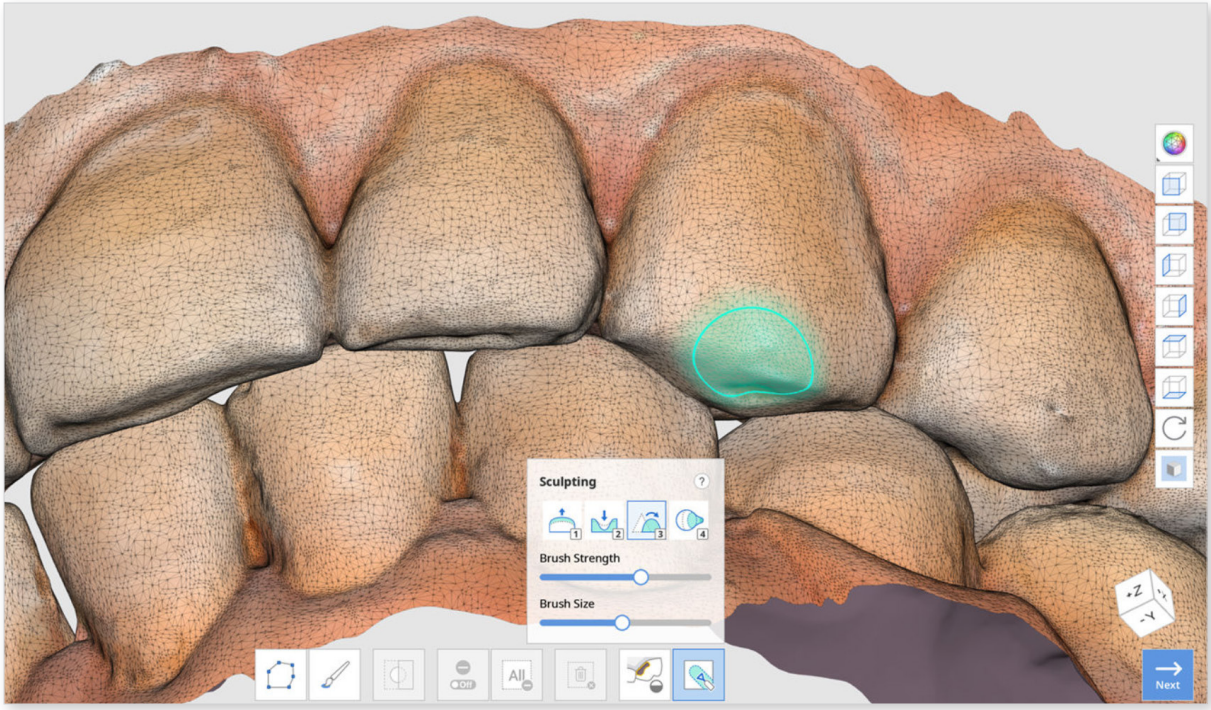
Using the “Fill Holes” function, you can fill in the holes left from scanning or fill in the areas deleted in the program.



1. Maximum Perimeter of a Hole (mm): Set the maximum size of holes (mm) to be filled up. Note that any holes exceeding the size you set will not be filled.
2. Use Neighboring Colors for Filled Holes: When the **“Use Neighboring Colors for Filled Holes”** box is checked, the program will use the colors around the holes for filling. Otherwise, the filled areas will be grey.
3. Press the **“Apply”** button to apply the results.

How to Sculpt Data

You can make changes to data by sculpting it using such tools as **“Add,” “Remove,” “Smooth,” “Morph.”**

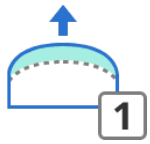
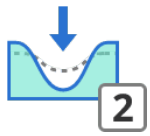
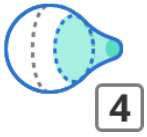


Toolbox: Sculpting

Add	1
Remove	2
Smooth	3
Morph	4
Extra Strength	1 / 2 + Alt
Flatten	3 + Alt
Morph in View Direction	4 + Alt
Brush Strength	Alt +
Brush Size	Ctrl +

Add	1
Remove	2
Smooth	3
Morph	4
Extra Strength	1 / 2 + ⌥
Flatten	3 + ⌥
Morph in View Direction	4 + ⌥
Brush Strength	⌥ +
Brush Size	⌘ +

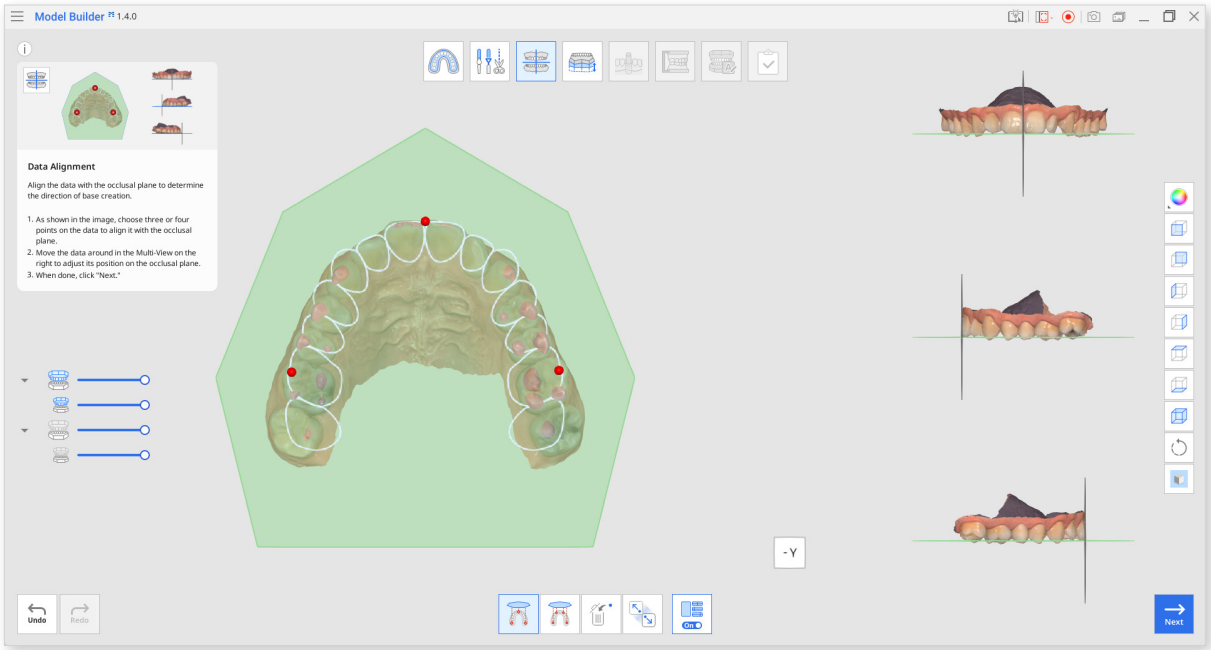
<Sculpting shortcuts for Windows and macOS.>

Icon	Tool	Description
	Add	Use the mouse to add on parts of the data. Hotkey: 1
	Remove	Use the mouse to remove parts of the data. Hotkey: 2
	Smooth	Use the mouse to smooth parts of the data Hotkey: 3
	Morph	Use the mouse to morph parts of the data. Hotkey: 4

Data Alignment

Align the data with the virtual occlusal plane to properly place the data on the base.

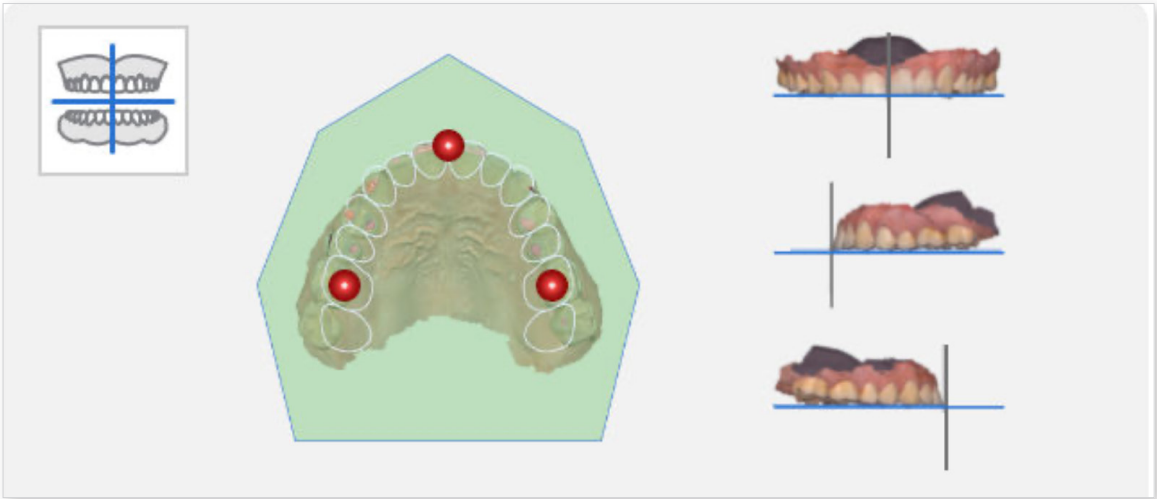
If the alignment has already been done in Medit Scan for Clinics or Medit Scan for Labs, you can skip this step. However, we recommend checking the alignment to ensure proper positioning of the data on the base.



Toolbox

Icon	Tool	Description
	Align with Occlusal Plane by Three Points	Select three points on the maxilla or mandible to align with the occlusal plane.
	Align with Occlusal Plane by Four Points	Select four points on the maxilla or mandible to align with the occlusal plane. It is beneficial when there are no anterior teeth.
	Delete Marker Point	Remove the points selected for alignment.
	Detach Data	Seperate the aligned data and move it to the original position.
	Multi-View	When on, this function shows data from four different angles.

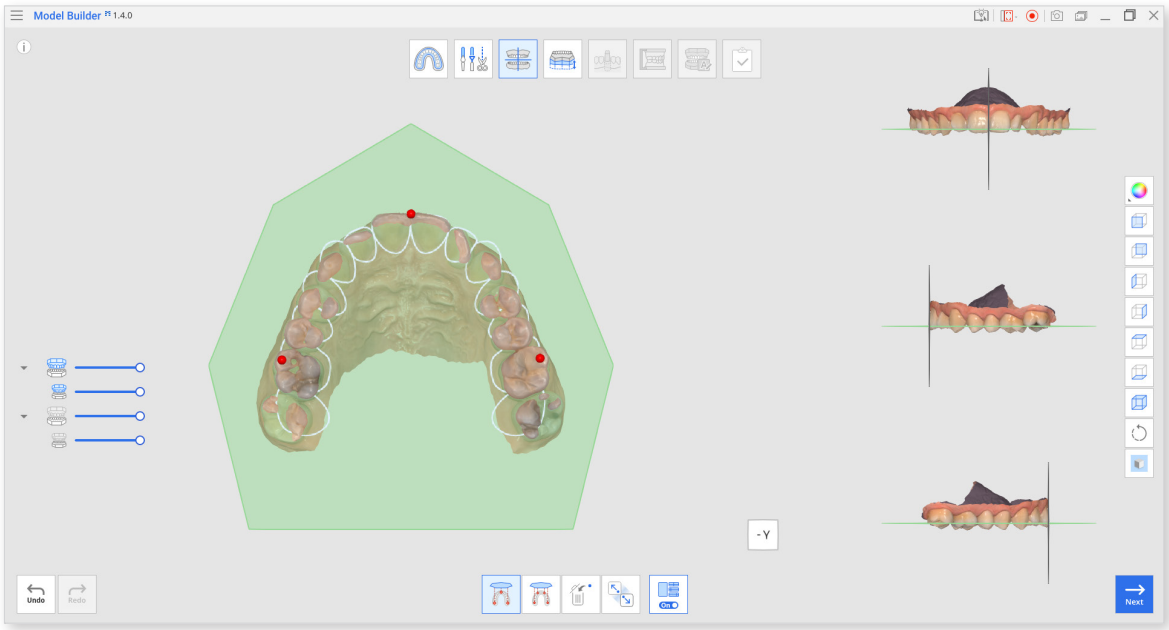
1. As shown in the image below, select three or four points on the data. Then it will be automatically aligned to the occlusal plane.



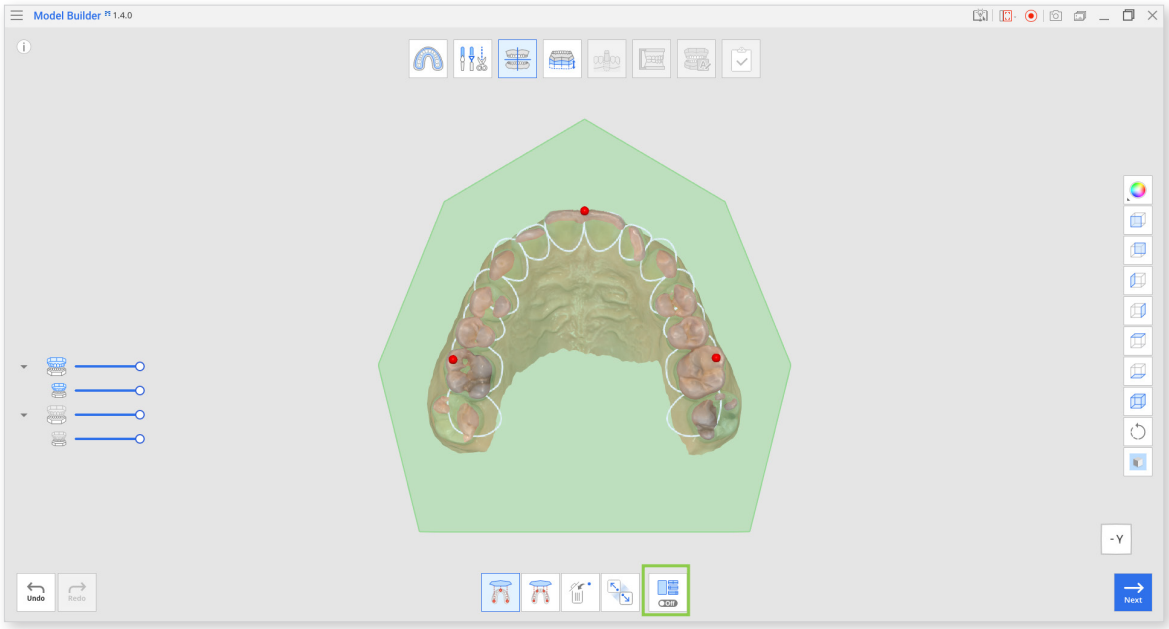
If there are no anterior teeth, click **"Align with Occlusal Plane by Four Points"** at the bottom of the screen and select four points on the corresponding teeth on both sides.

2. Adjust the data around in the Multi-View on the right to adjust its position on the occlusal plane.

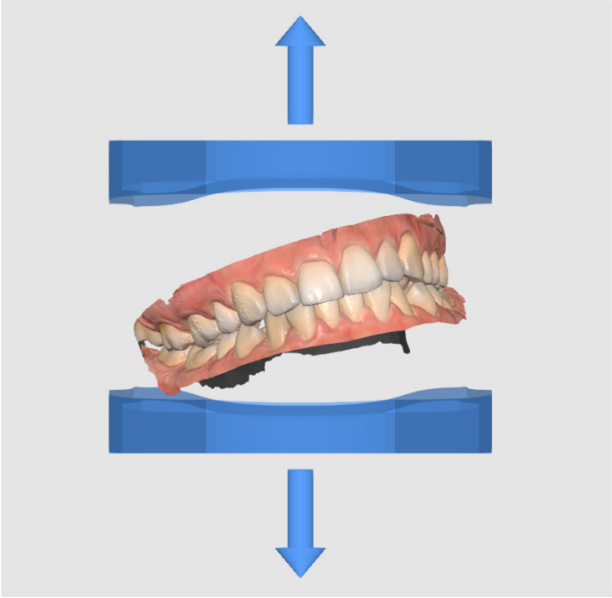
3. Turn off the Multi-View to only show the occlusal plane part on the screen.



Use the View Cube at the bottom of each view for flexible 3D environment orientation.



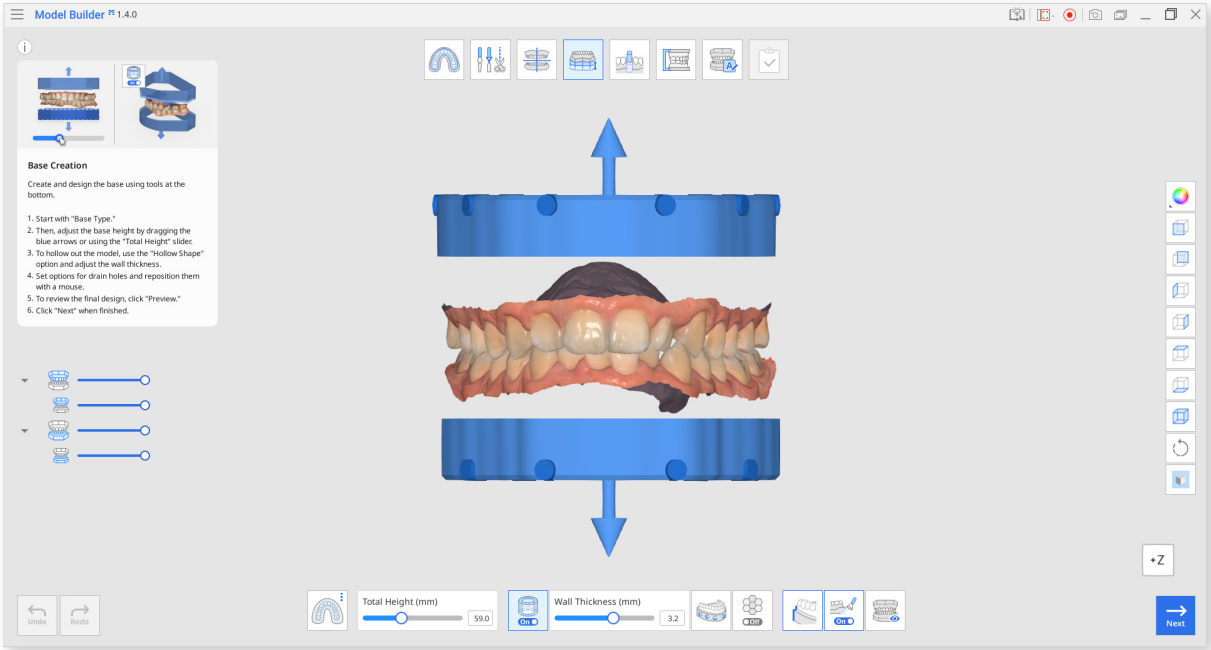
As shown below, the base may not be created correctly if the model is misaligned. Make sure that the model is properly aligned for best results.



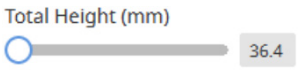
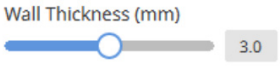
4. Click **“Next”** when finished.

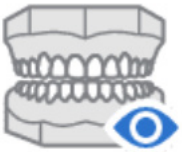
Base Creation

The Base Creation step is the key to model creation. You can select the base type and adjust it across various parameters such as base height, wall thickness, number of drain holes, and more.

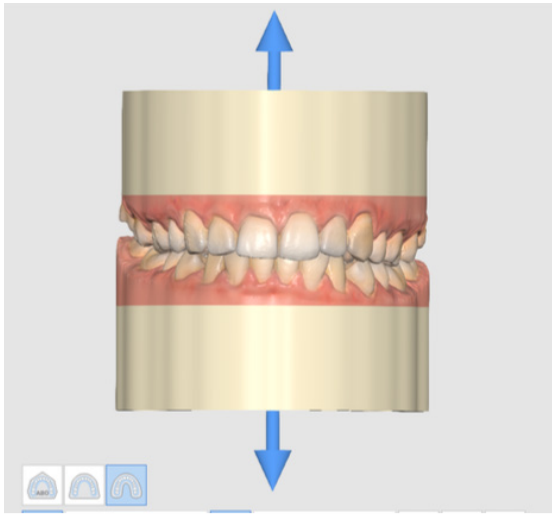
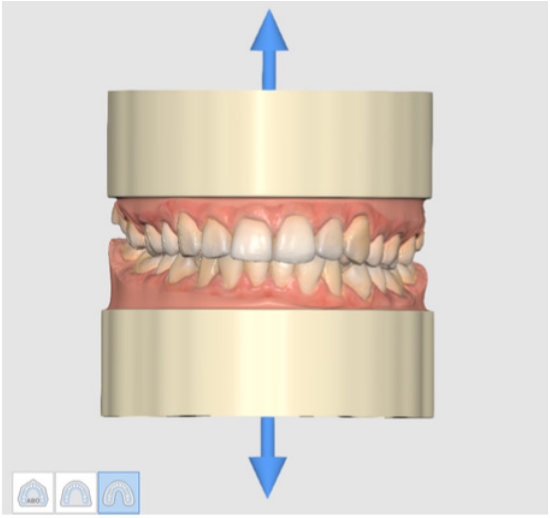


Toolbox

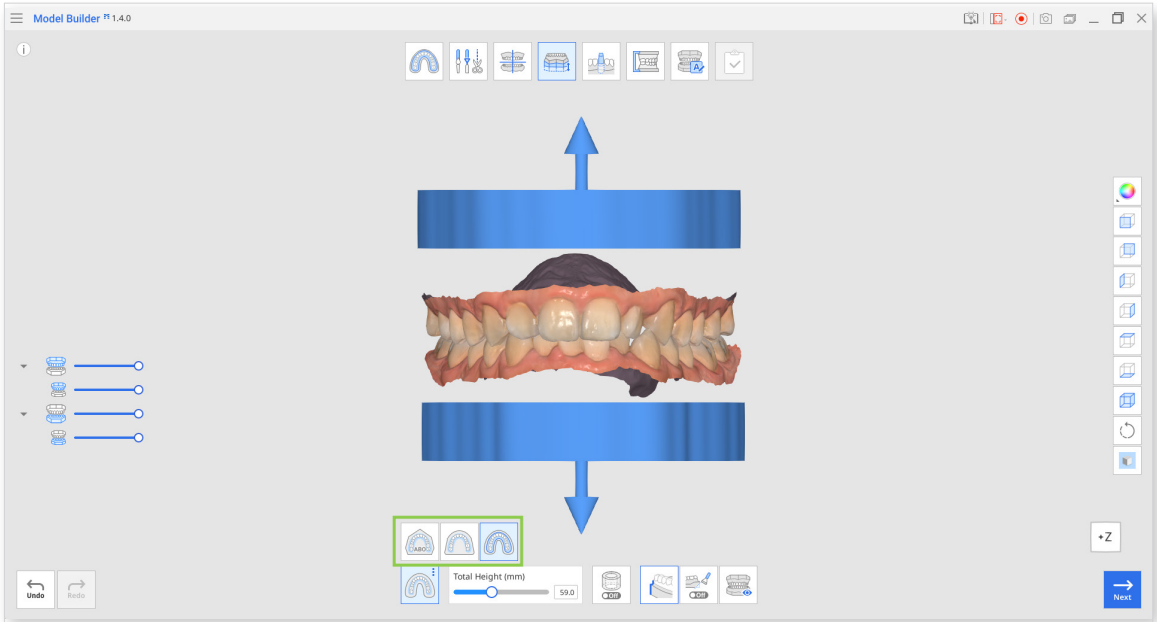
Icon	Tool	Description
	Base Type	Select one of the available base types: ABO, Plate or Plateless Model.
	Total Height (mm)	Use this slider to adjust the total height of the model, including the base and scan data. The total height of the model can be up to 99mm. It might be useful to check the maximum height of the model available to print with your 3D printer to set a height limitation.
	Hollow Shape	Hollow out the base and adjust the wall thickness. Hollowing out the shape is useful when printing the model using less material. Each type of base can be hollowed out.
	Wall Thickness (mm)	Use this slider to adjust the thickness of the walls once you choose to hollow out the model. The range of wall thickness is 2 - 4 mm. It might be useful to check your 3D printer recommended settings to make a correct decision on the wall thickness.
	Straight / Curved (Straight)	Make the base at the edge of the scan data straight. Only available for the Plateless Models.

	Straight / Curved (Curved)	Make the base at the edge of the scan data curved. Only available on the Plateless Models.
	Create Drain Holes	Create drain holes to drain out uncured resin and set their quantity, diameter and distance from the base. You can click on the circle to freely move and place the drain hole wherever you ... Using drain holes is useful for resin printing since they help remove the excess resin and ensure that no material gets stuck inside the model. Only available on the Plateless Models.
	Infill	Create a honeycomb structure inside the hollow base.
	Bevel	Turn on to create a bevel.
	Preview	Preview the model before moving to the next step.

Check out the difference between straight and curved bases below.

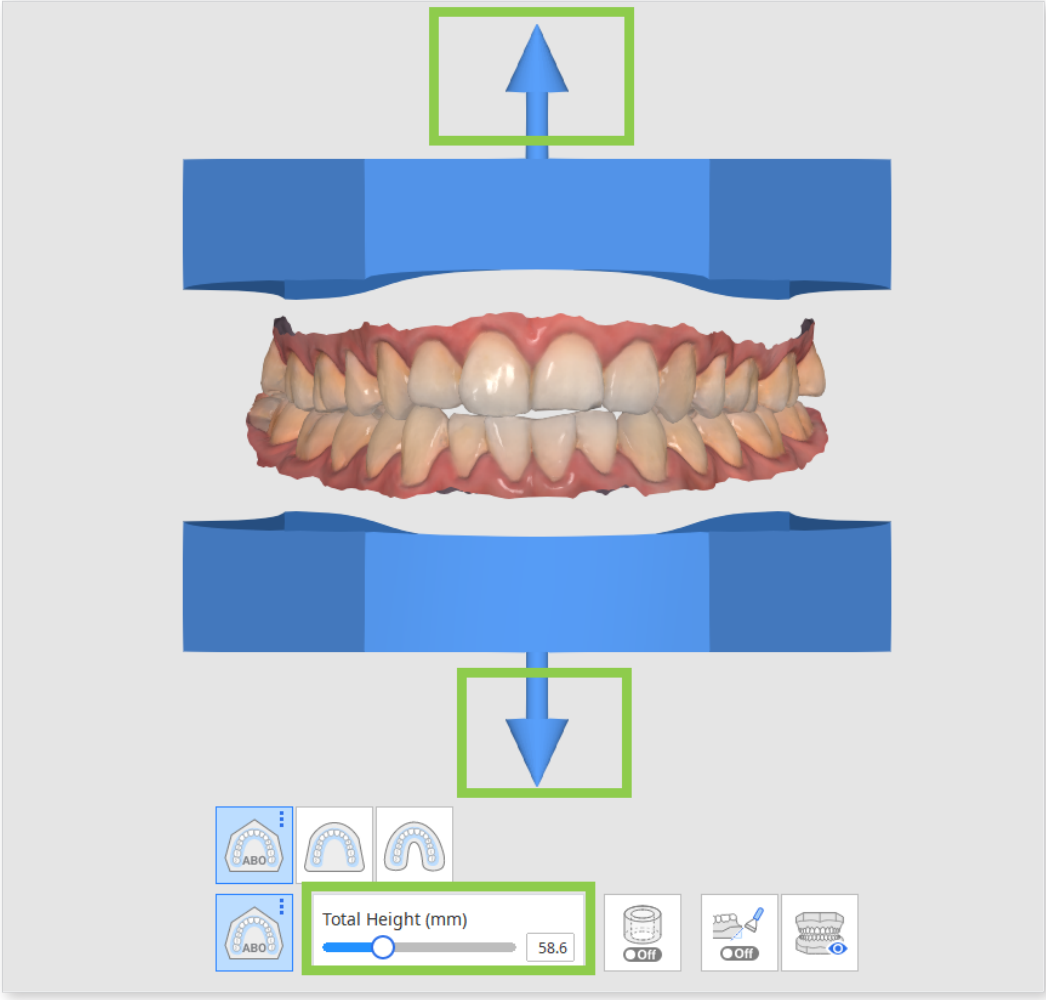
Straight	Curved
	

1. First, select a base type among the three available options: ABO, plate, and plateless.

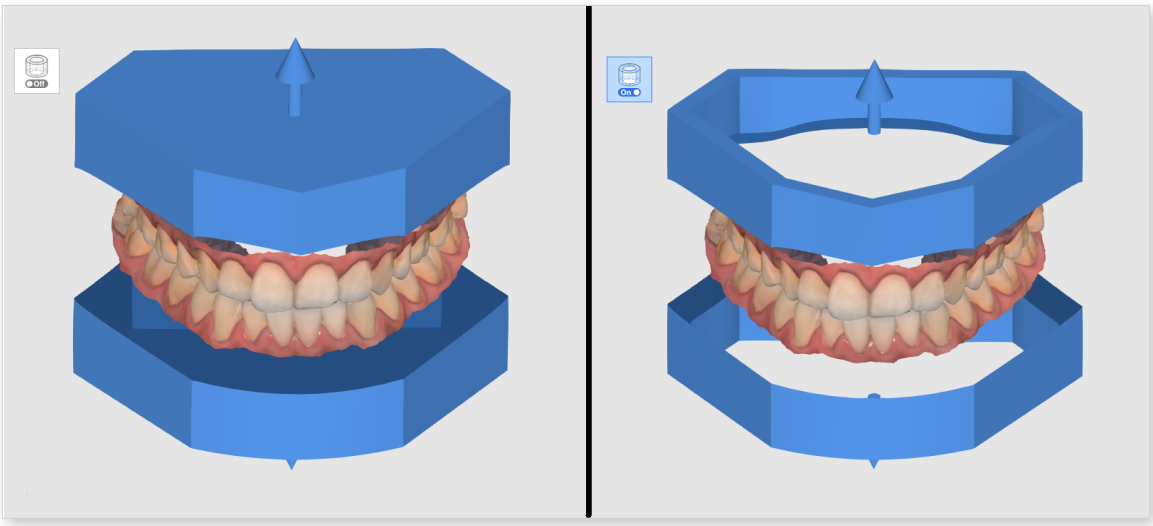


Icon	Base Type	Description
	ABO	Create an ABO model. This orthodontic option creates a maxillary base with seven angles, while the mandibular base takes an elliptical form.
	Plate	Create a plate model. The plate will follow the shape of the scan data.
	Plateless	Create a plateless model. Usually made in a horseshoe shape, the base will recreate the shape of scan data.

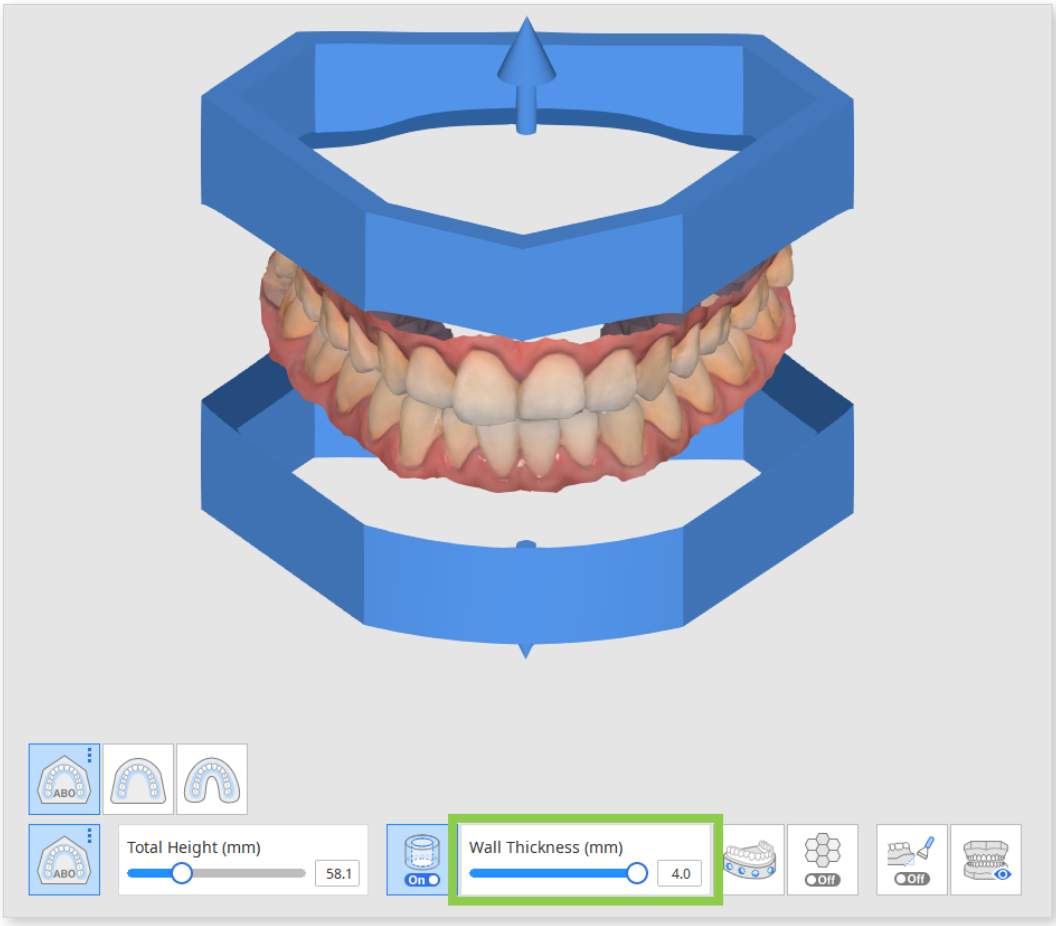
- You can adjust the height of the base using the up/down arrows located by the scan data. Or use the slider at the bottom to get precise measurements.



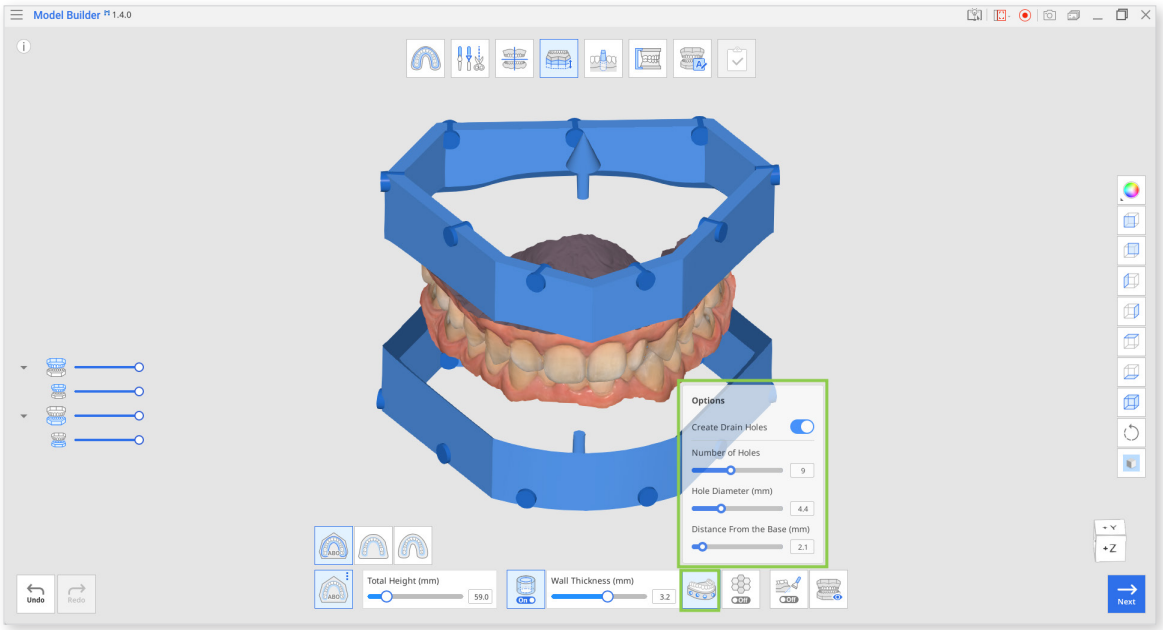
2. If you want the base to be empty inside as shown on the image below, turn on “Hollow Shape.”



- The hollowed-out base can be further customized by adjusting the wall thickness.

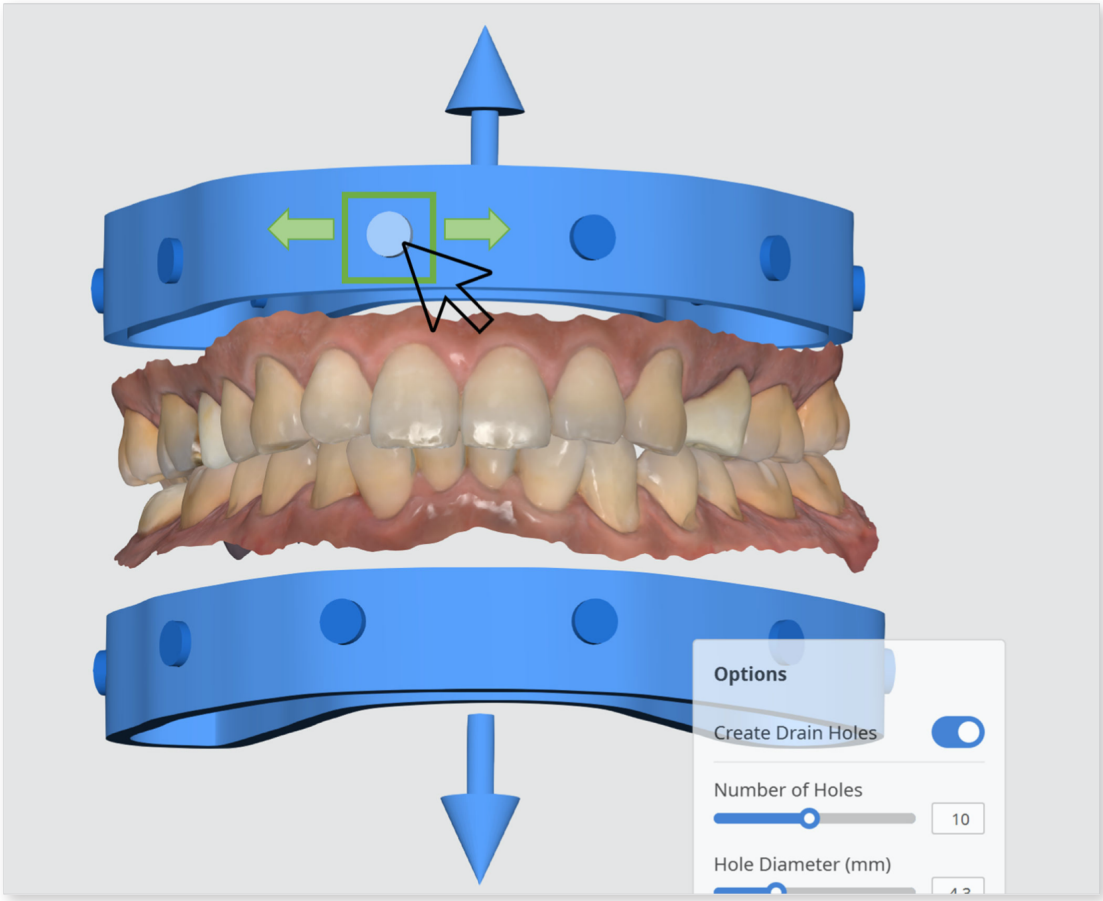


3. Create drain holes for hollow models by clicking the “Create Drain Holes” icon at the bottom and turning on the toggle. Check parameter options available for drain holes in the box and adjust them as needed.

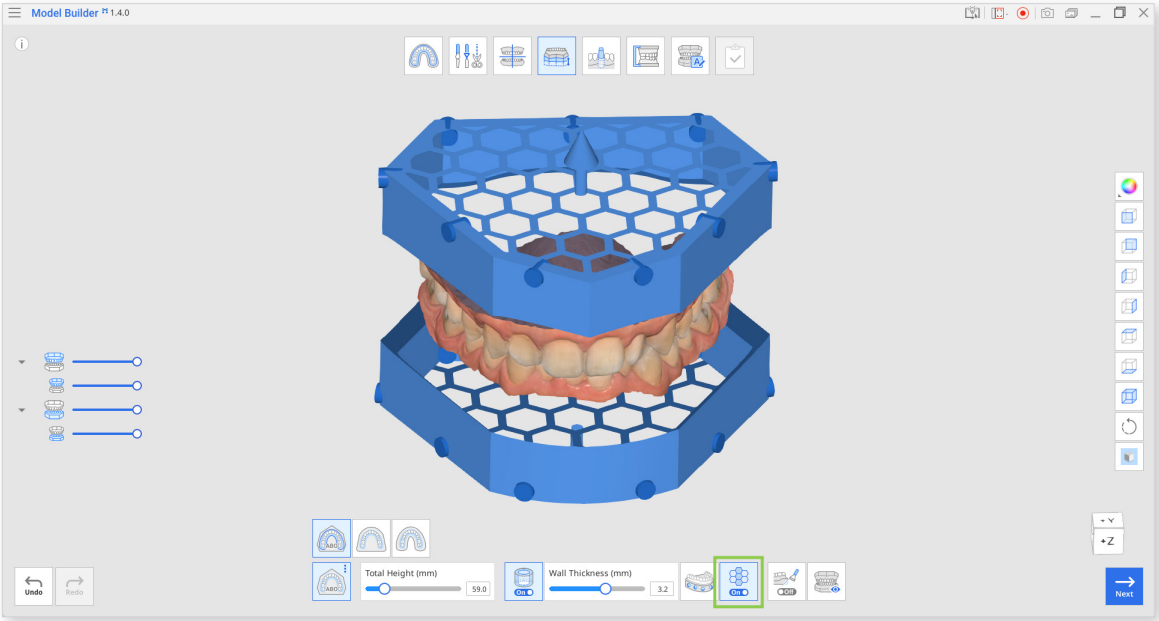


Parameter	Explanation
Number of Holes	Specify the desired number (from 1 to 15) of drain holes for each arch.
Hole Diameter (mm)	Specify the diameter of drain holes (applied to all of them)
Distance from the Base	Specify the desired position of drain holes as counted from the base of the model.

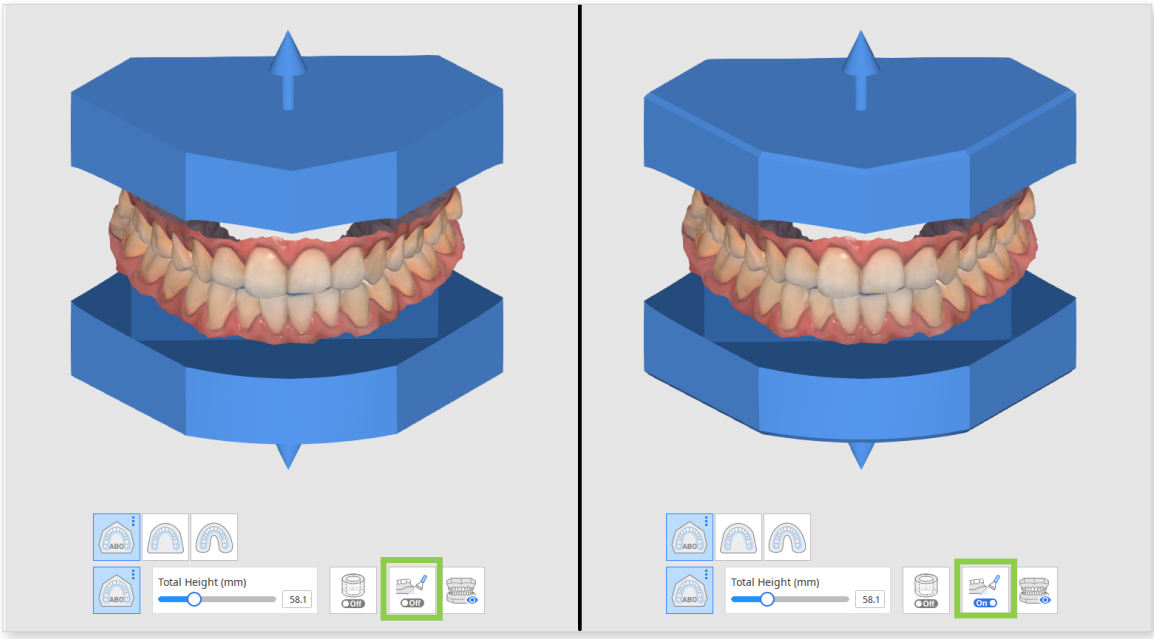
- You can move the drain holes freely from left to right by clicking on the circle and dragging it horizontally.



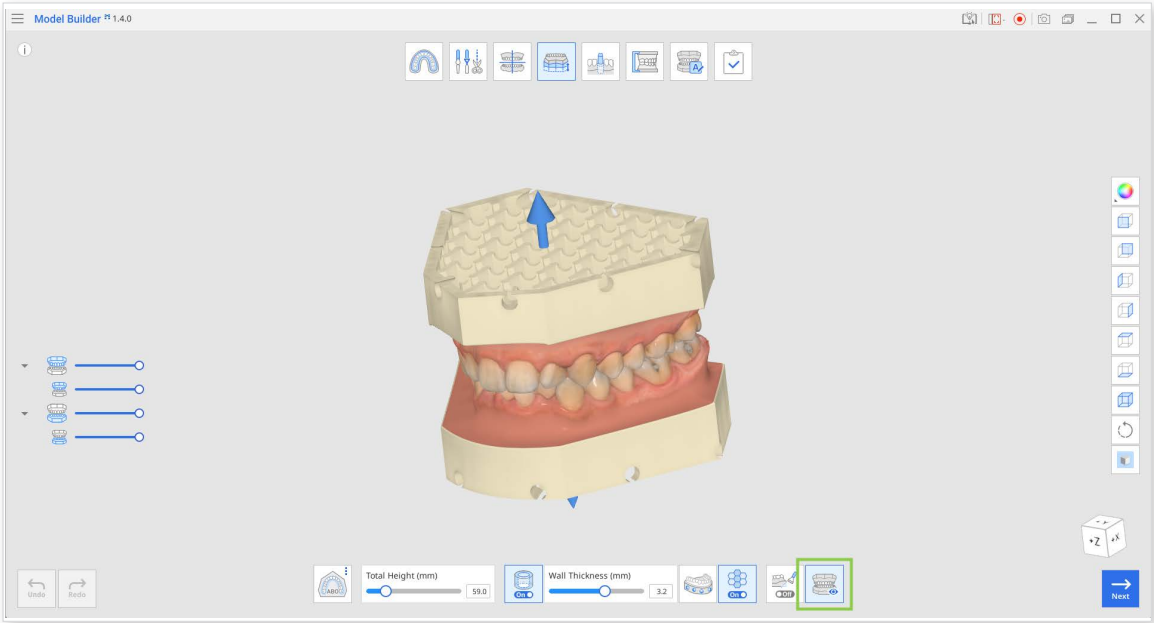
4. Turning on the “Infill” feature will create a honeycomb inside the hollowed-out base. This is a helpful feature for 3D printing as it will improve the strength of the printed model.



5. Click on "Bevel" to turn the toggle on and off. Turning the "Bevel" option on is helpful for 3D printing because it makes it easier to separate the printed model from the build plate.



6. Before moving to the next step, click “Preview” to visualize and examine all adjustments you have made in this step.



7. Click “Next” when finished.

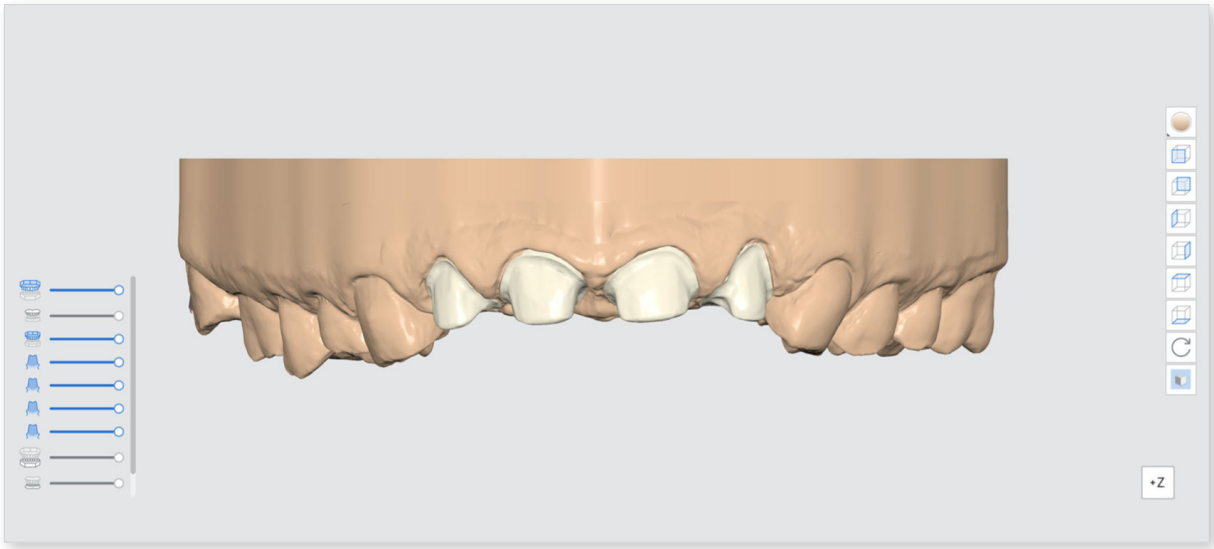
Die Creation

In Die Creation, you can create individual dies that are detachable from the base model. Customize your dies easily using the numerous options provided, such as die gap, pin height, extra gap from margin, etc.

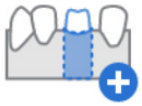
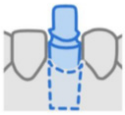
There are also additional ways to create dies, such as “Cutout Dies” and “Extra Dies.”

Note that working in this step is optional.

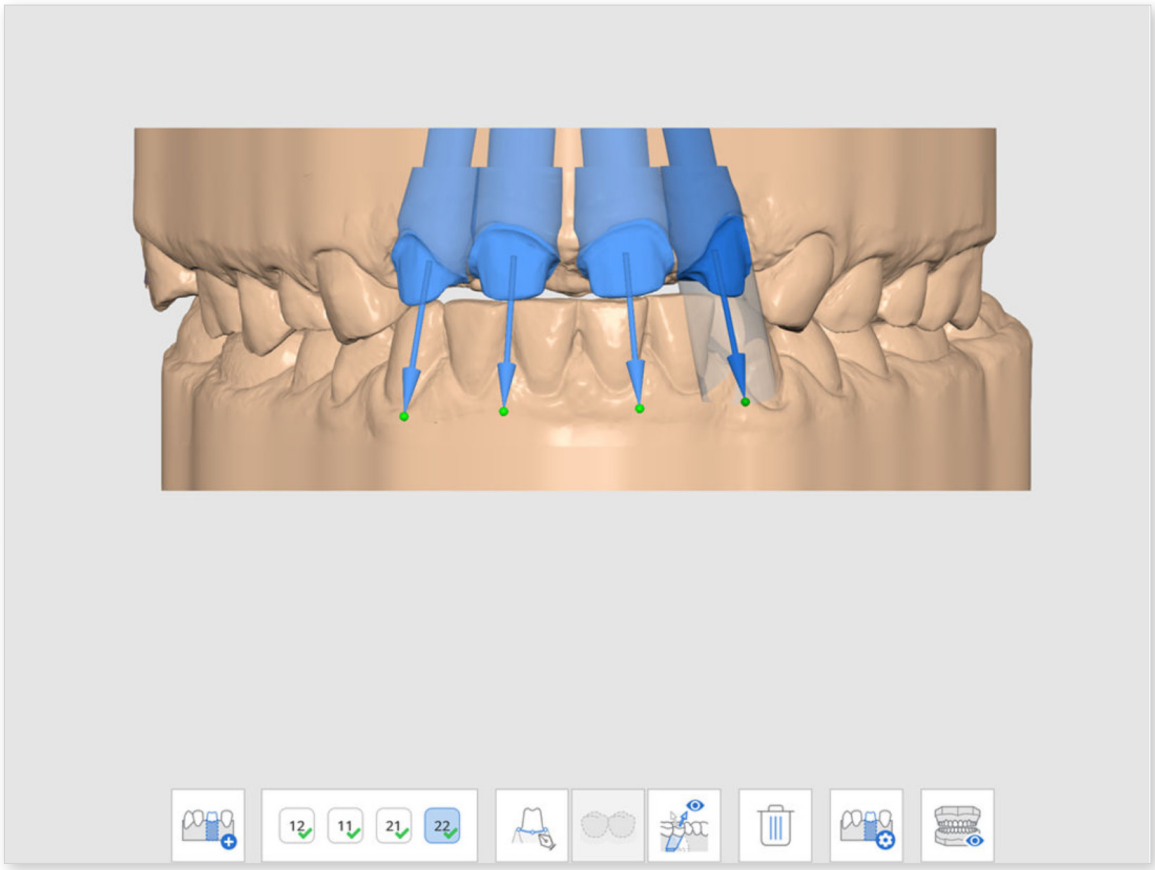
If you turn on the “Bevel” and “Create Drain Holes” options in Base Creation, they will be automatically applied to dies in this step. Your created dies will be beveled and have drain holes near the bottom of the slots.

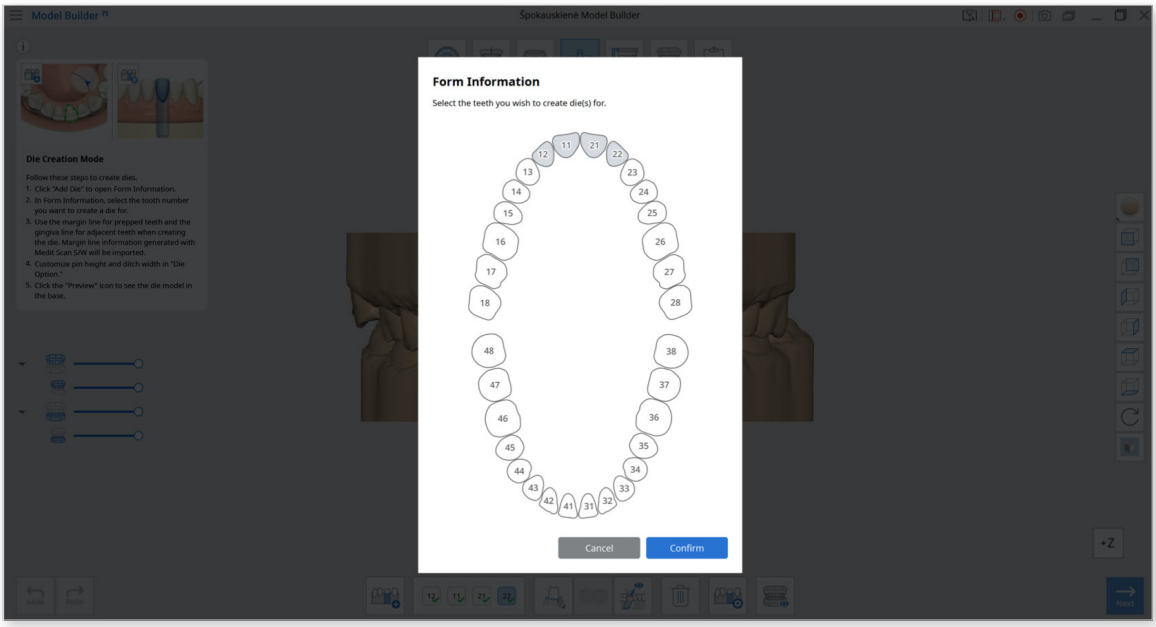


Toolbox

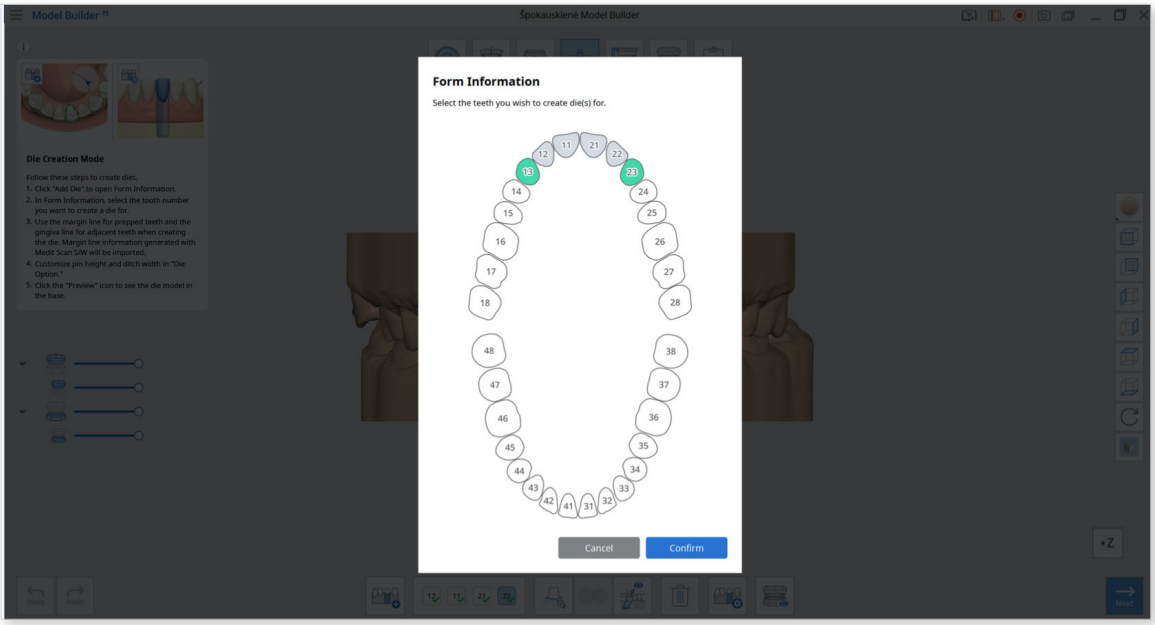
Icon	Tool	Description
	Add Die	Add die to the base.
	Margin Line	Draw the margin line on a prepped tooth.
	Adjacent Teeth Selection	Select the adjacent teeth instead of using margin lines to create the die.
	Set Die Insertion Path from View Point	Adjust and set the die insertion path from your view direction.
	Delete	Delete current die.
	Die Numbering	Add teeth numbers on the dies.
	Cutout Dies	Create dies that are detachable from the base.
	Extra Dies	Create additional dies along with a base with trimmed margin line.
	Die Option	Customize the die. Save your adjustable options as custom presets for quick access.
	Preview	Preview the die before moving to the next step.

1. Form information will be available immediately if you have imported the case from Medit Link. If you want to create individual dies for adjacent teeth, click "Add Die" to open Form Information.

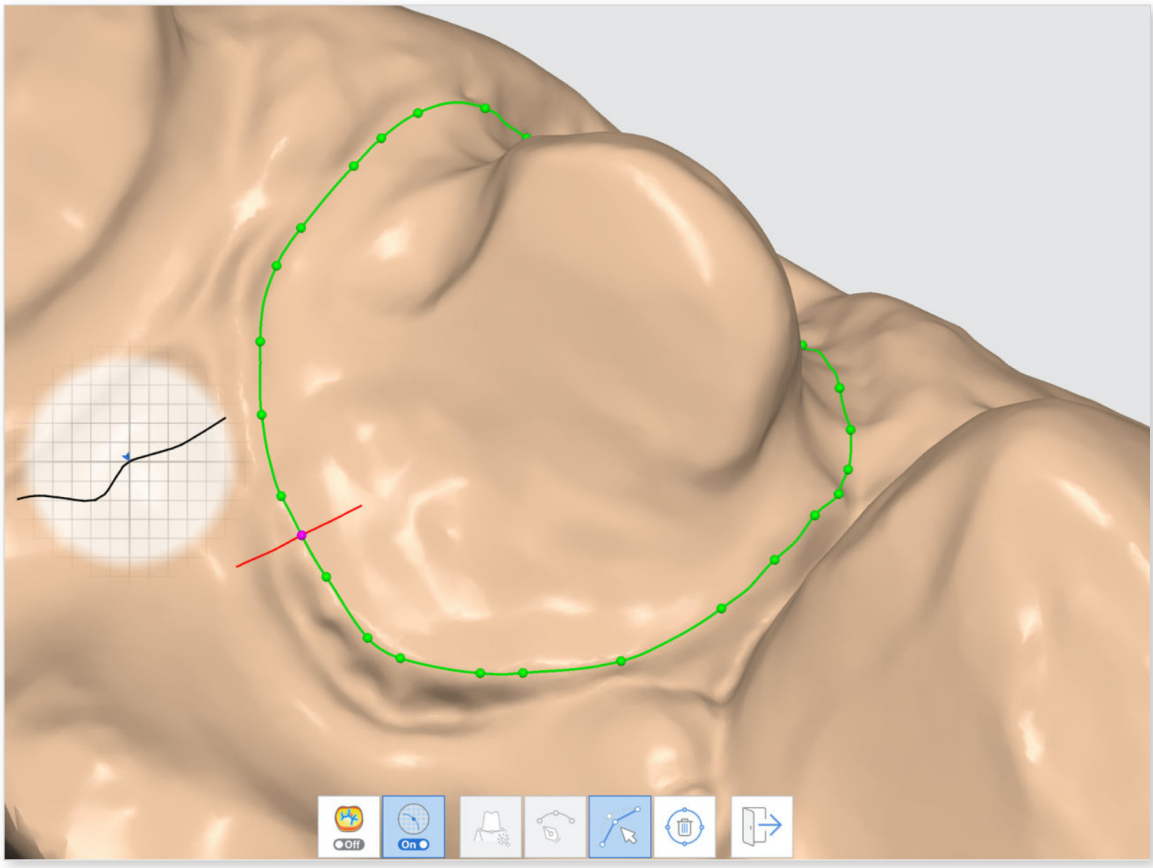




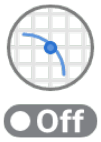
2. In Form Information, select the tooth number you want to create a die for.



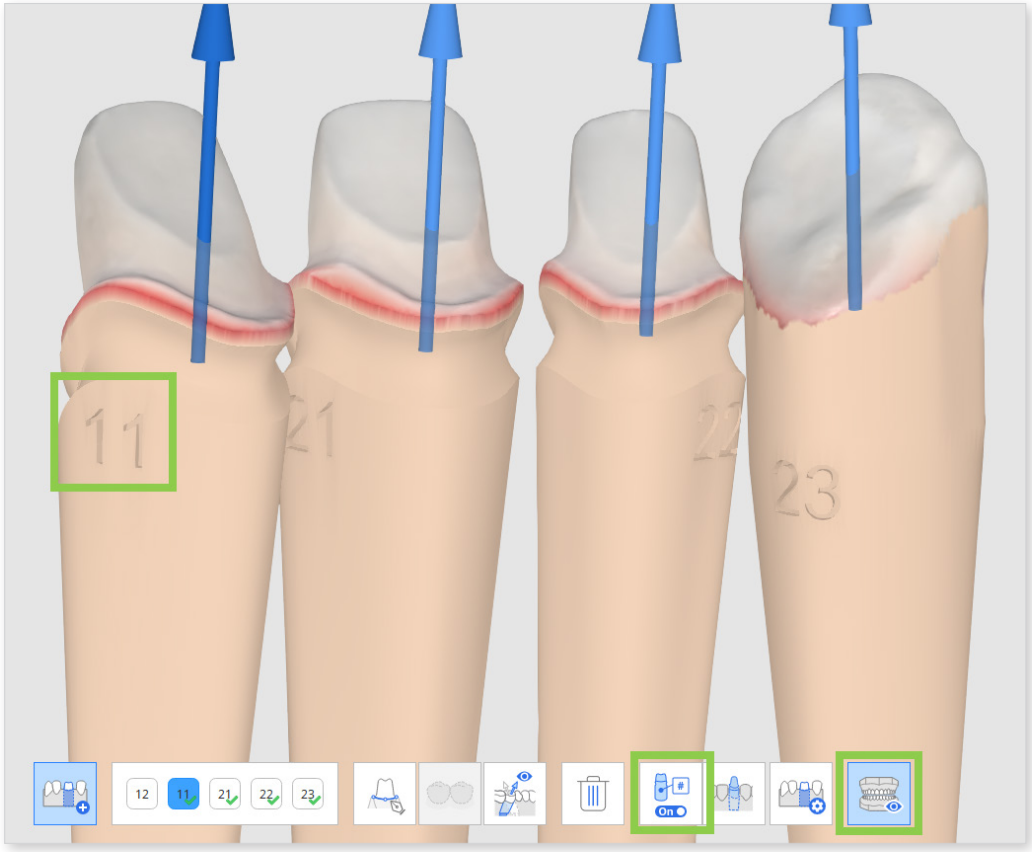
3. Use the margin line for prepped teeth and the gingiva line for adjacent teeth when creating the die. Margin line information generated with Medit Scan for Clinics/ Labs will be imported.



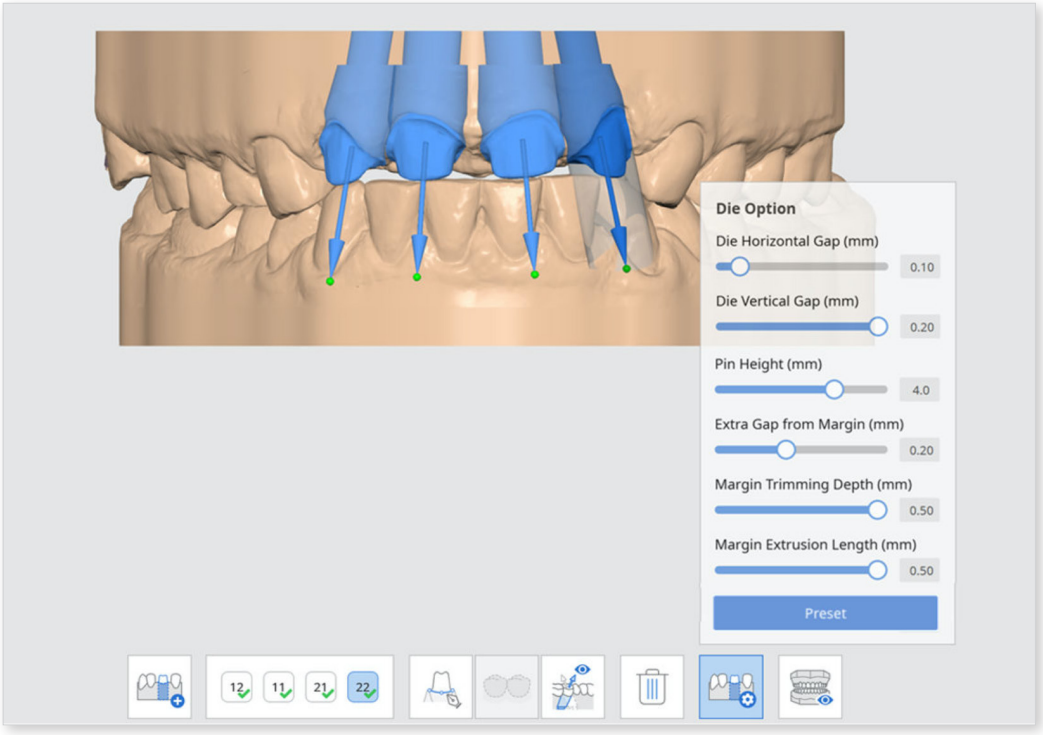
Toolbox

Icon	Tool	Description
	Curvature Display Mode	You can use the toggle to turn the Curvature Display Mode on and off based on your preferences.
	Selection View	You can use the toggle to turn the Selection View on and off based on your preferences.
	Auto Creation	Create a margin line automatically based on the multiple points selected.
	Manual Creation	Draw your own line using the left mouse button to drag and sel ect the points.
	Edit	Edit the points on the margin line using your mouse. Left click to add points, right click to delete points.
	Delete	Delete the margin line.
	Exit	Exit and return to Die Creation.

4. Engrave teeth numbers on your dies when creating multiple ones. Click “Die Numbering” to automatically itemize the dies with their corresponding tooth number and check results through the preview option.

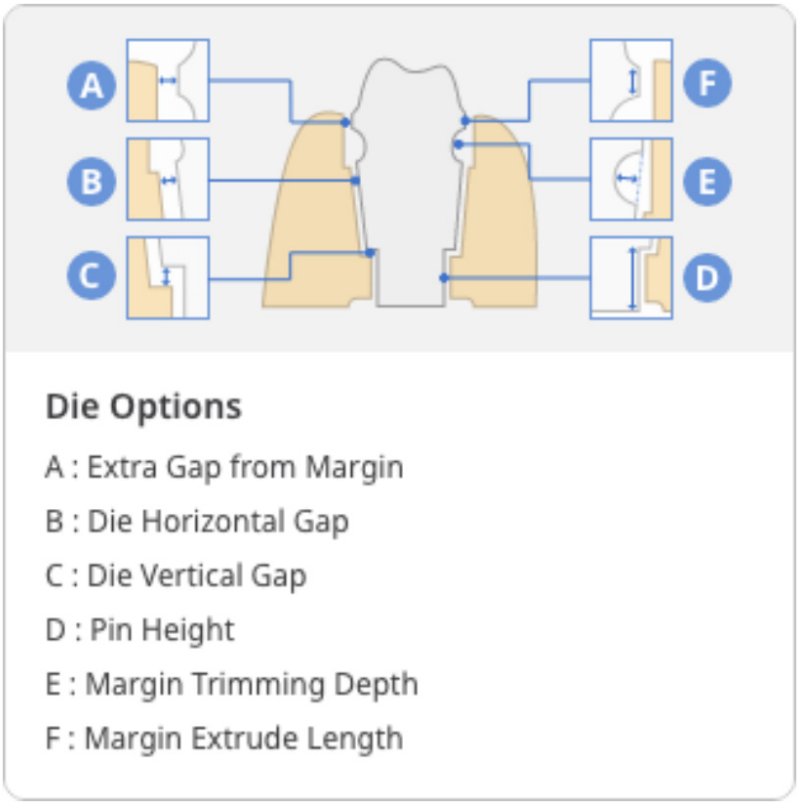


5. Customize the die in “Die Option” using the various parameters provided.



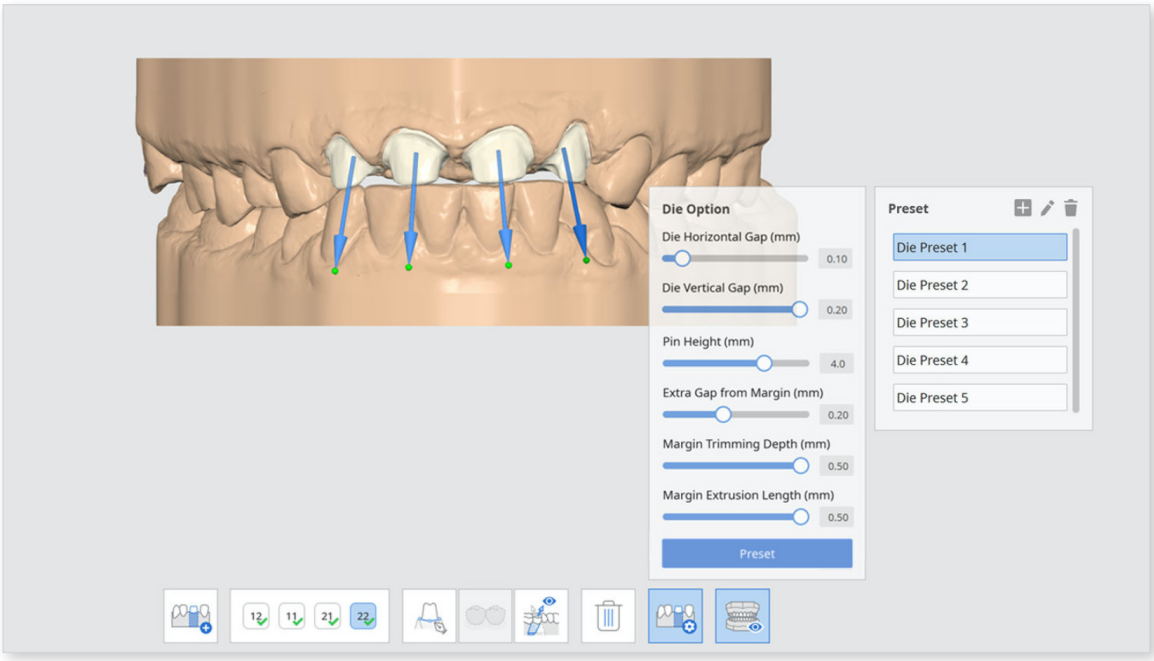
Die Option

Parameter	Explanation
Extra Gap from Margin	Adjust the extra gap space between margin line and the base.
Die Horizontal Gap	Adjust the horizontal gap between the die and the base.
Die Vertical Gap	Adjust the vertical gap between the die and the base.
Pin Height	Adjust the height of the pin.
Margin Trimming Depth	Specify the additional depth that needs trimming from the margin line.
Margin Extrusion Length	Specify the length of the margin that is extruding.



Each of the dies will be saved separately when saving the output files to Medit Link.

6. Click the “Preview” icon to see the die model in the base.



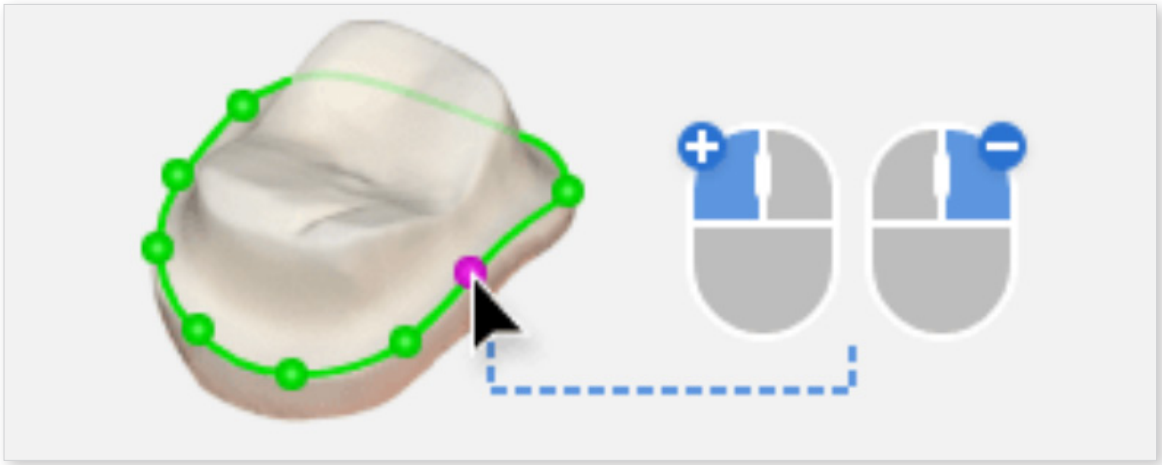
Die Creation Mode: Margin Line

Use the Margin Line Imported from Medit Scan for Clinics

1. Once you are in “Die Creation,” dies will be created automatically if you already have a margin line for the prepared teeth in Medit Scan for Clinics. The margin line will be displayed on the scan data straightaway.

2. Examine the margin line.

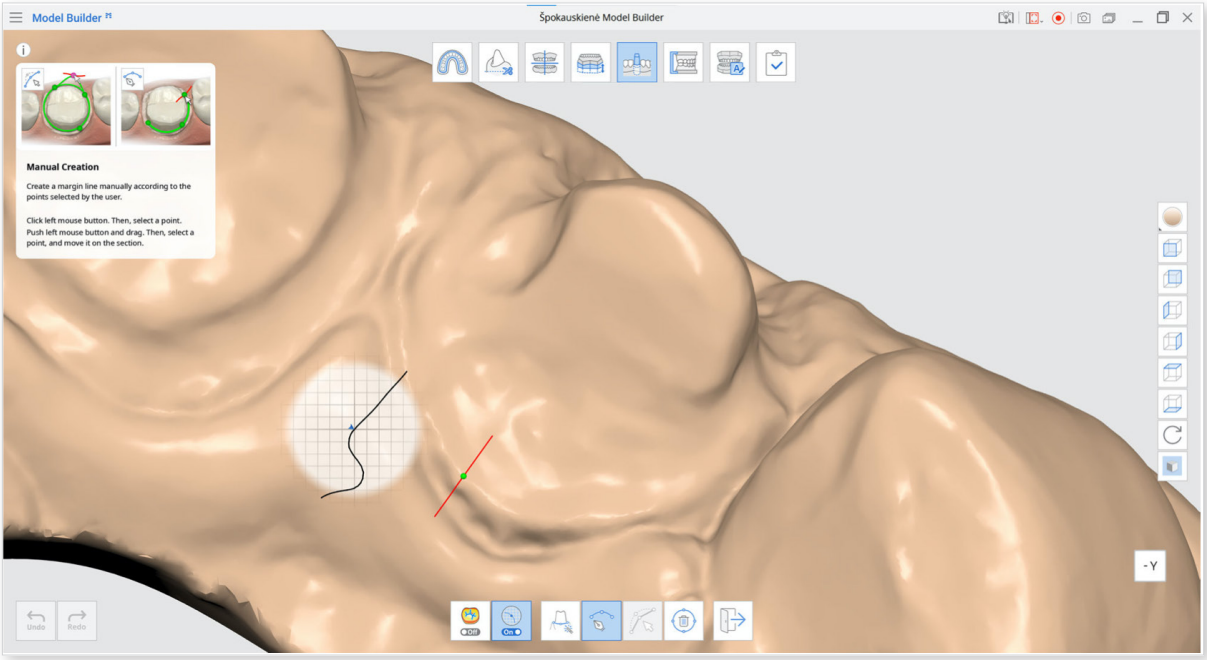
3. Add or delete points using your mouse. Left-click to add points, right-click to delete points.



4. When completed, click "Next." You will see the restoration ready.

Create a Margin Line in Medit Model Builder

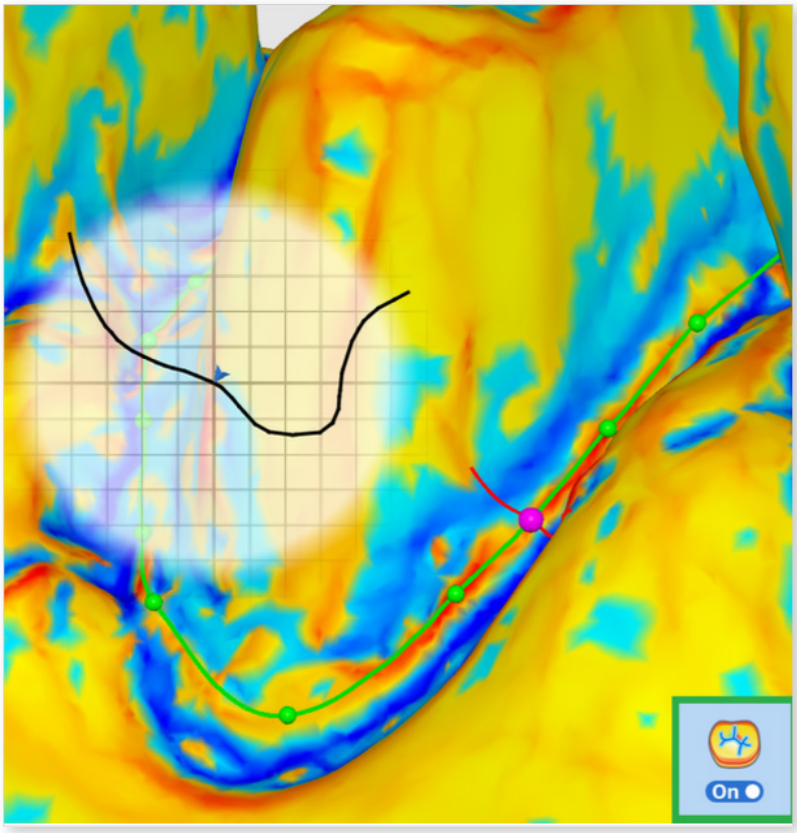
If you have not created a margin line for the prepared tooth in Medit Scan for Clinics, you can draw it manually in Medit Model Builder.



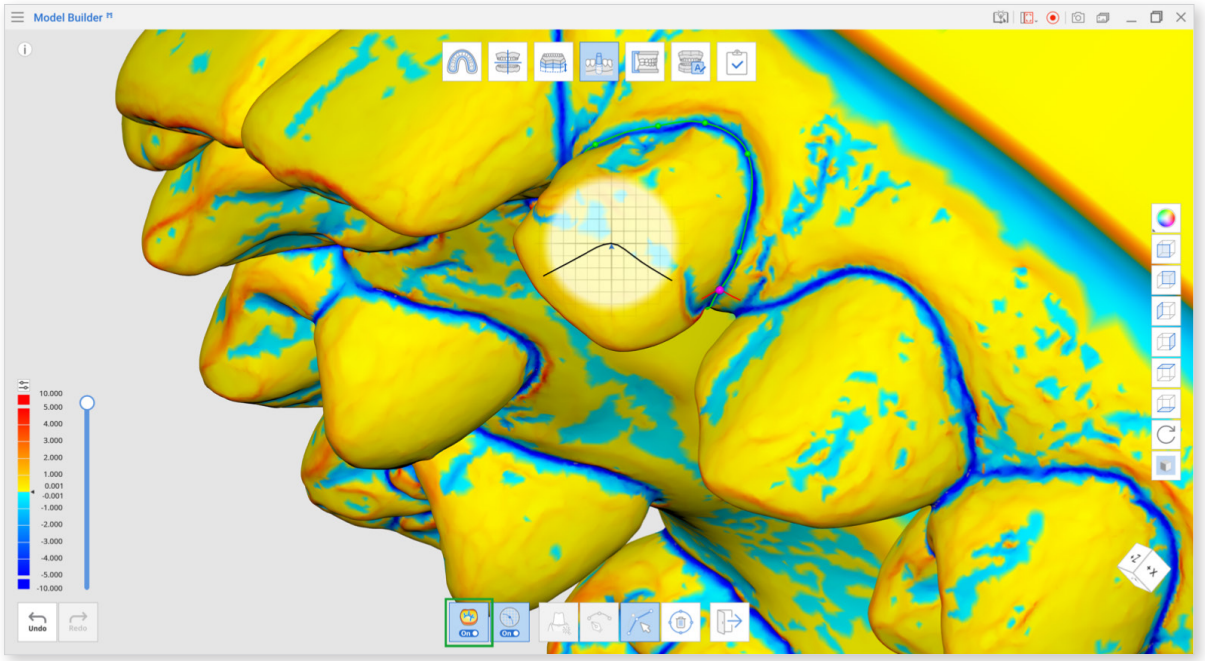
1. In Die Creation, click “Margin Line” at the bottom of the screen.
2. You can then choose between “Auto Creation” or “Manual Creation.”
3. You can edit or delete the margin line.

View Curvature

Select the area to specify the margin line. Then check the curvature by turning on the function at the bottom of the screen. The surface curvature of the scan data is displayed in various colors.

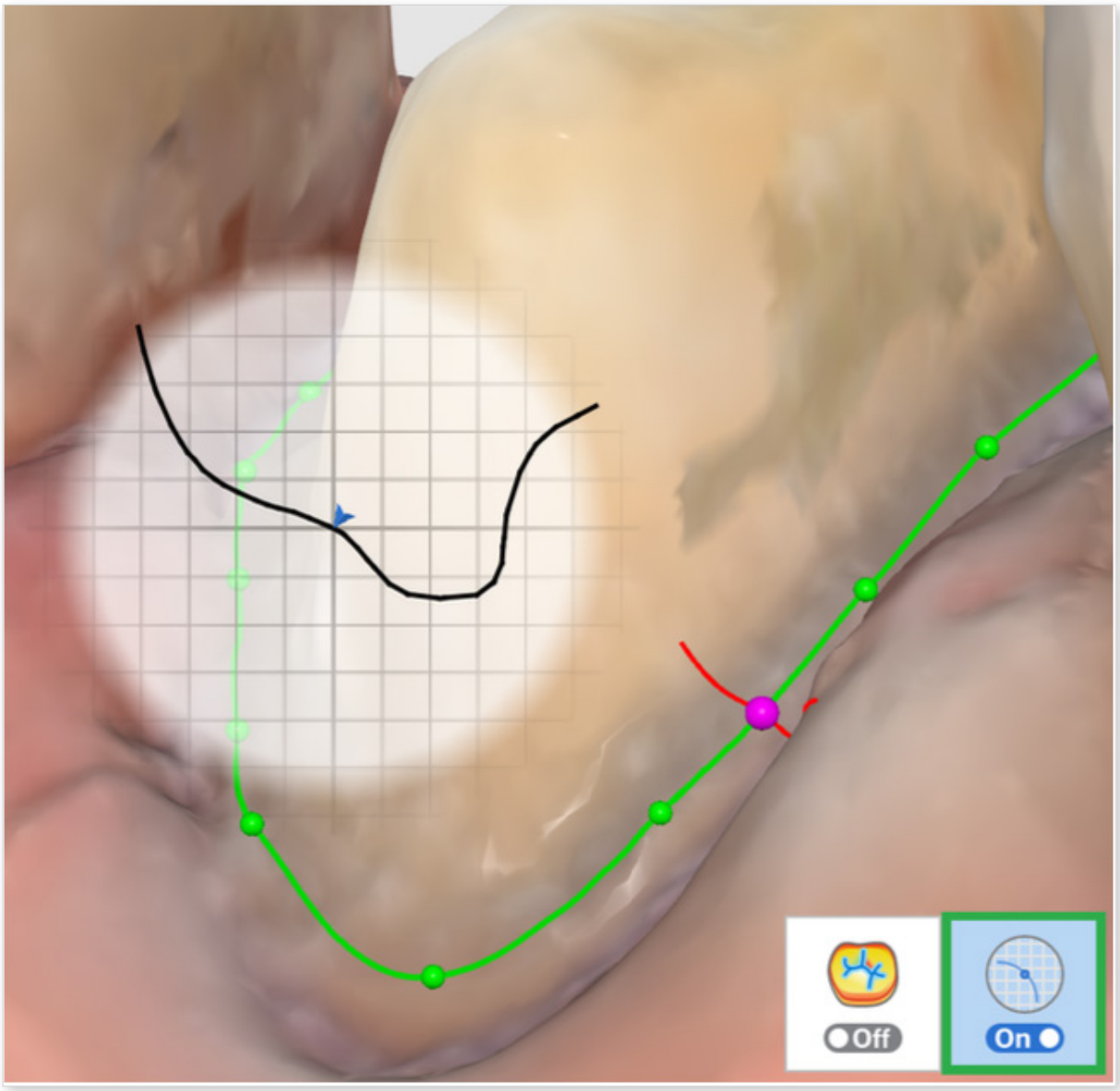


If the color is redder, it is more embossed and if the color is bluer, it is more engraved. You can use the color expression interval slider to adjust the color radius.



View Cross Section

When creating or editing the margin line, this feature shows you the cross-sectional display based on your mouse location; this feature can be turned on and off. It prevents any areas from being hidden when zoomed in closely and allows you to check the magnified margin more carefully.

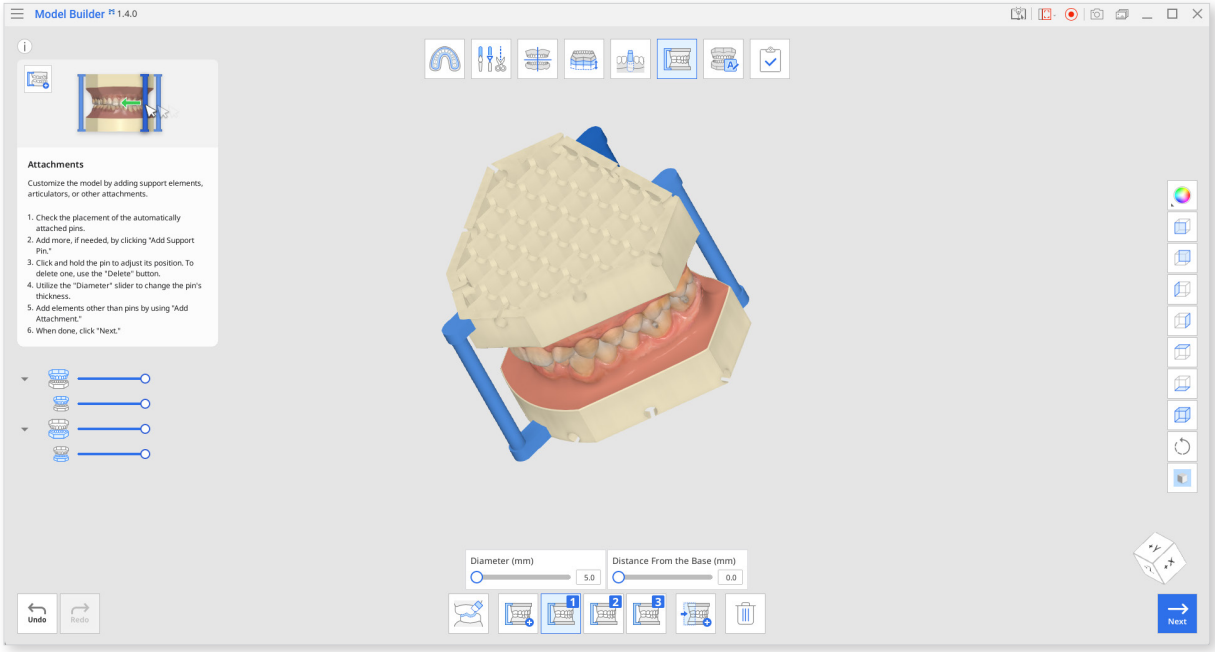


Attachments

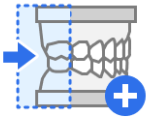
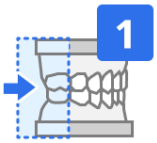
In this step, users can add support elements or other attachments to the model base to customize the design and functionality of the dental model.

Note that working in this step is optional.

This step is available only when using data from both arches.



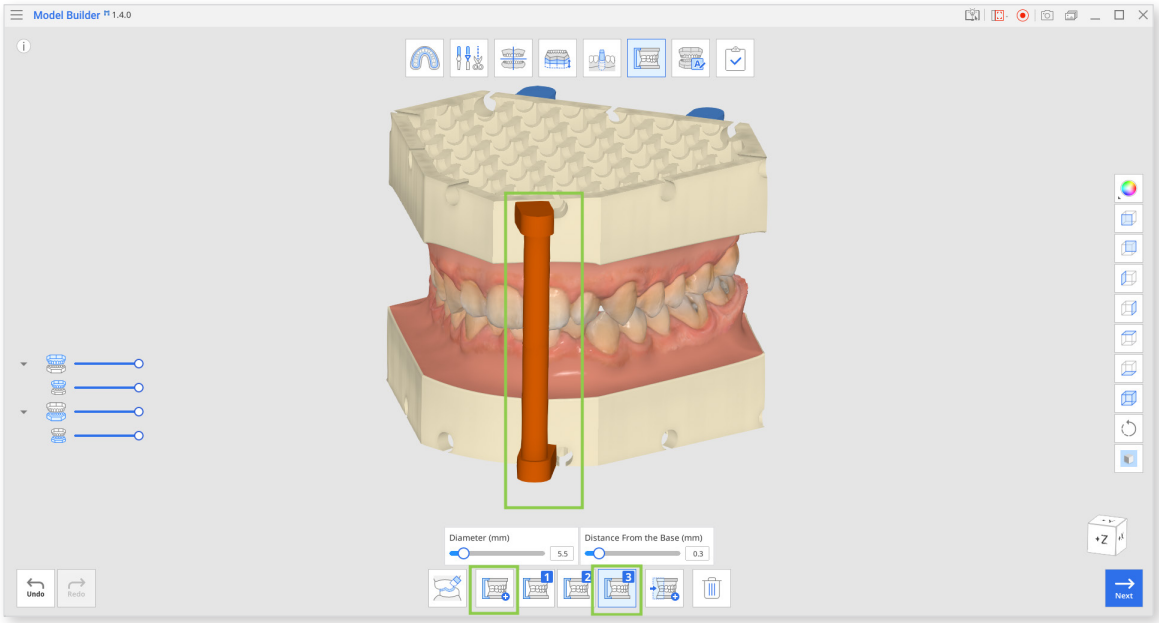
Toolbox

Icon	Tool	Description
	Removing Overlapping Areas	Select the overlapping data you wish to remove.
	Add Support Pin	Attach pins to the model base for support. (max. 5)
	Manage Pin #1	Manage the support pin #1.
	Add Attachment	Add hinges, support elements, or articulators to the model base. (max. 5)
	Manage Attachment #1	Manage attachment #1.
	Diameter (mm)	Adjust the diameter of the support pin. The range of diameter is 5 - 10 mm.
	Distance from the Base (mm)	Adjust the pin’s distance from the base.
	Delete	Delete the selected element.

1. Check the placement of the automatically attached elements.

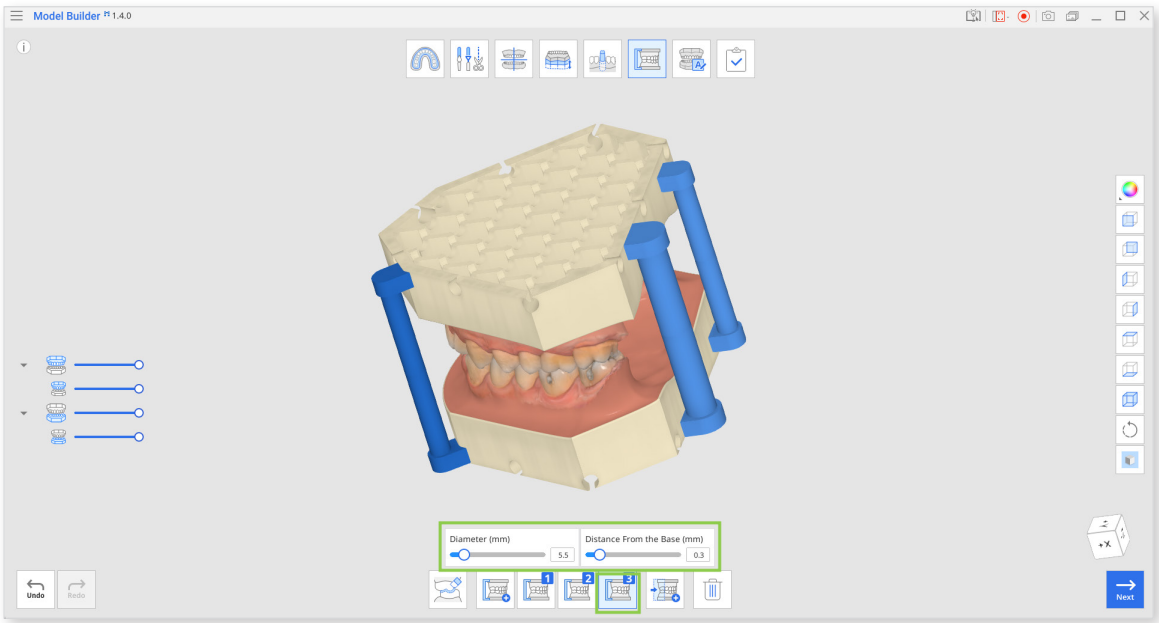
2. Use “Add Support Pin” to add more pins if needed. A maximum of 5 can be added.

   If any of the pins are displayed in orange, their placement is not optimal, or it may be coinciding with the drain holes. Adjust the pin’s placement by dragging it until it is blue.



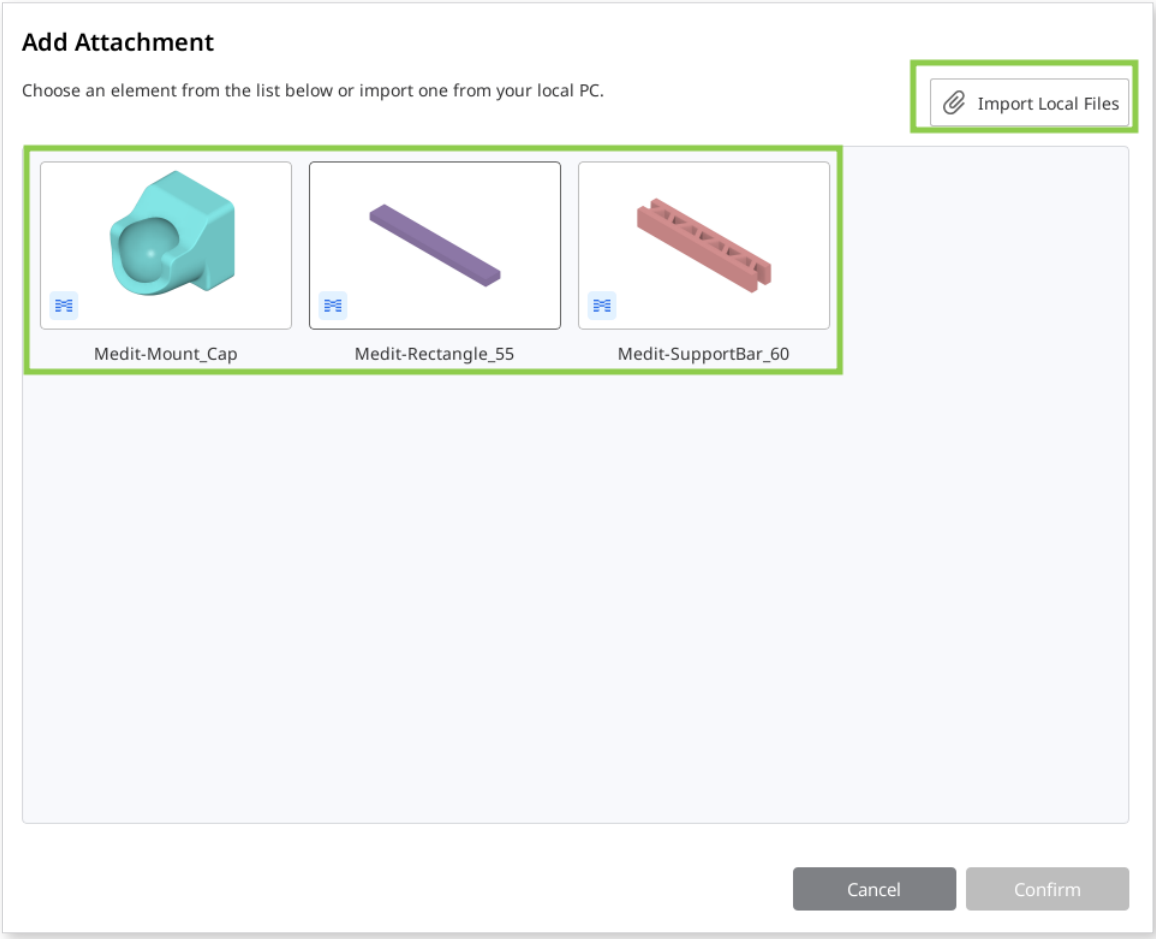
3. You can also make individual changes to each pin’s thickness and position. Click the pin’s management button to adjust the “Diameter” and “Distance From the Base” sliders.

> Adjusting “Distance From the Base” can help shorten the pin if you can’t avoid placing it near the drain holes.



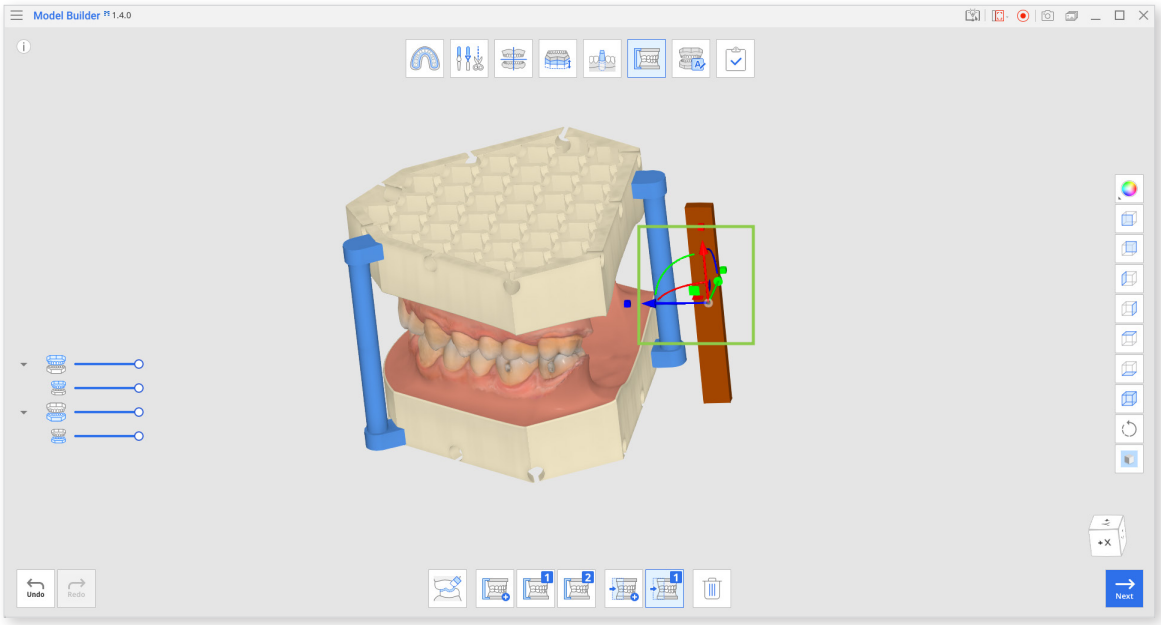
4. To delete any pin, make sure the corresponding management button is selected and click “Delete.”

5. Use "Add Attachment" to attach elements other than support pins to the model. You can choose from the provided elements or import custom-designed elements from your local storage. A maximum of 5 attachments is allowed.



6. Attachments will have a 3D manipulator for you to scale, translate or rotate the element.

> Similarly to pins, if the attached element is displayed in orange, you must adjust its placement.



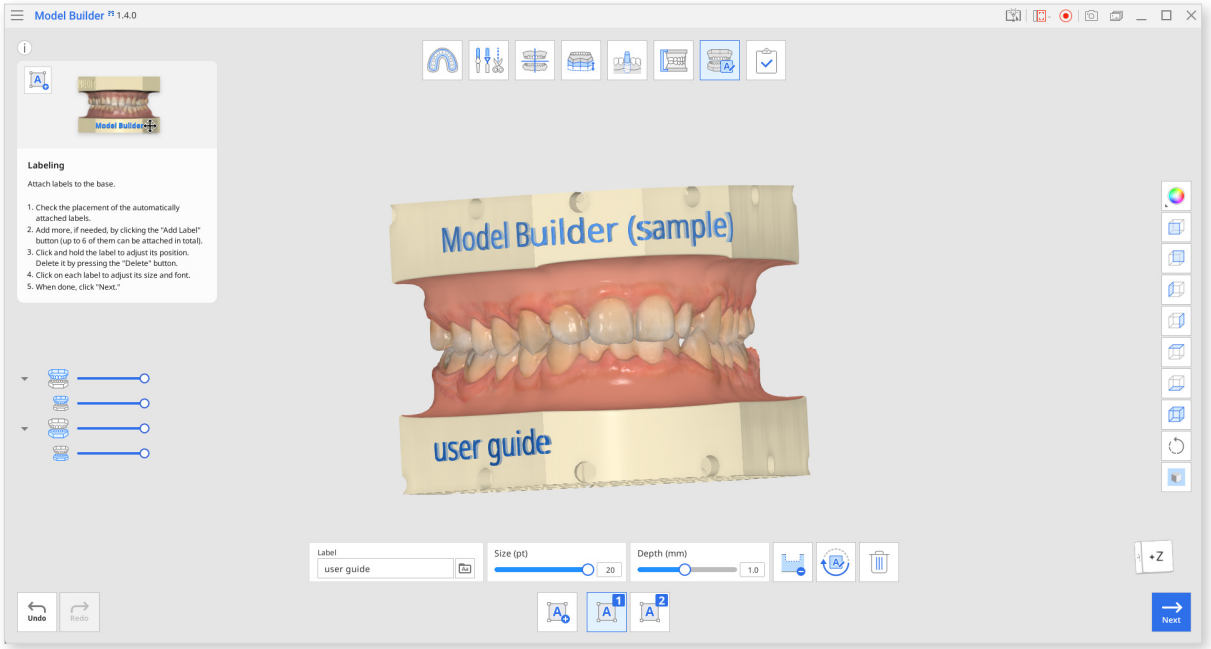
7. To delete an attachment, make sure the corresponding management button is selected and click “Delete.”

8. Click “Next” when finished.

Labeling

The Labeling step allows you to add and manage labels on the model base. The first two labels will be automatically created upon entering the mode.

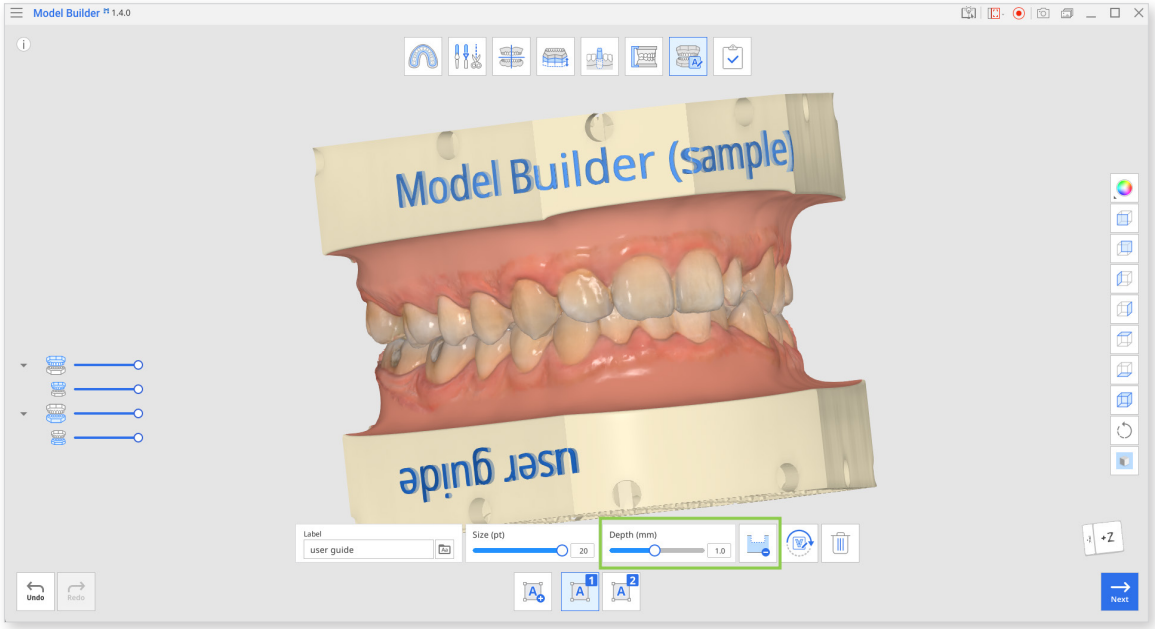
Note that working in this step is optional.



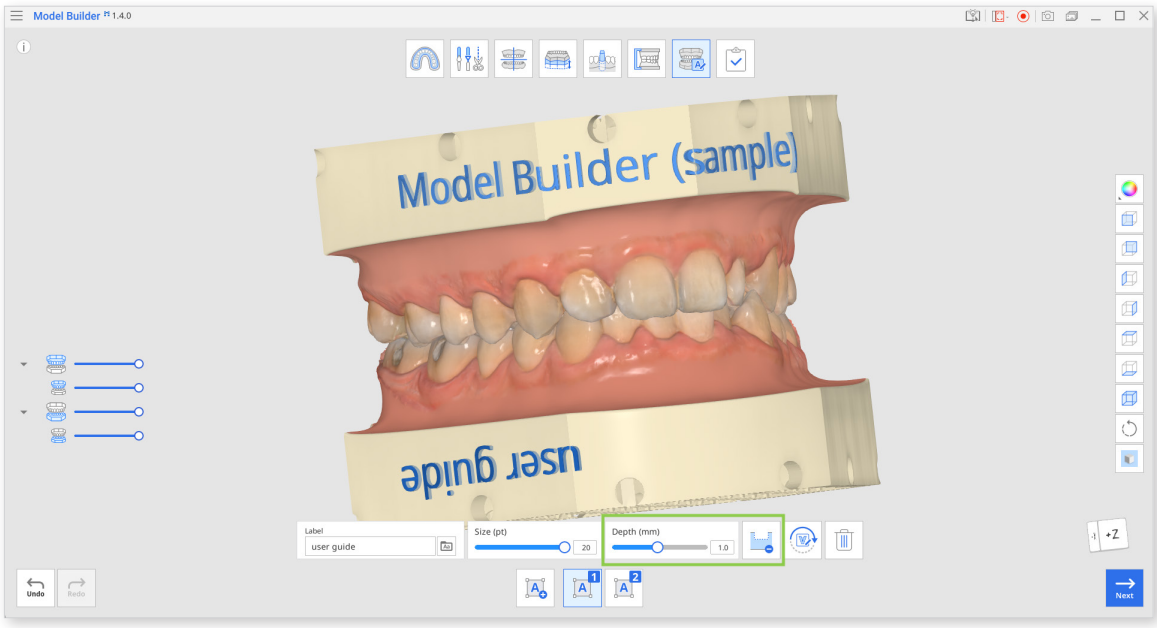
Toolbox

Icon	Tool	Description
	Add label	Add a label to the base.
	Manage Label #1	Manage Label #1.
	Manage Label #2	Manage Label #2.
	Label	Enter the text to appear on the label. You can change the default label text in the program settings.
	Font	Choose a font for the label from the list.
	Size	Set the size for the labels.
	Embossing/ Engraving (Engraving)	Label the model by engraving.
	Embossing/ Engraving (Embossing)	Label the model by embossing.
	Rotate 180°	Turn the selected label by 180°.
	Delete	Delete current label.

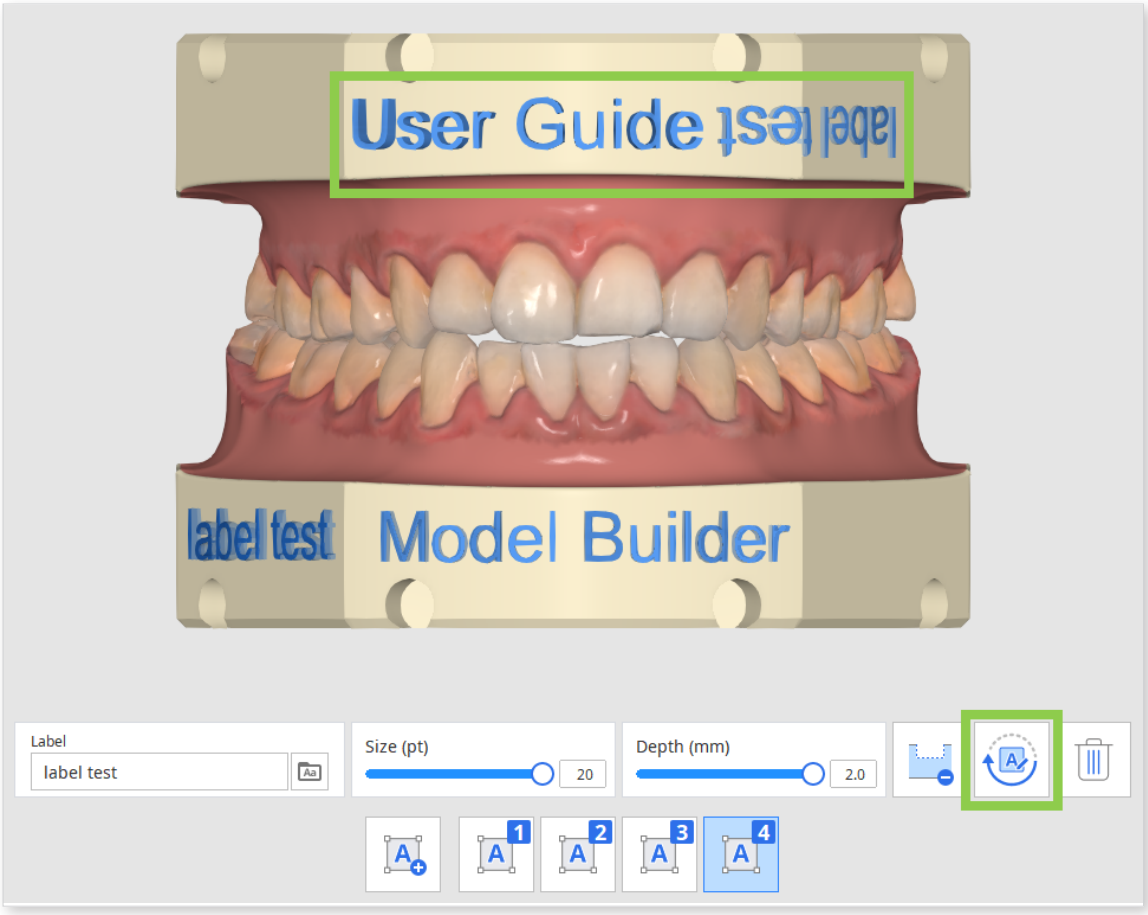
1. Check the placement of the automatically attached labels. If the label and the articulator are overlapping, they will be displayed in orange. Move the text or go back to the Attachment step to adjust the articulators' position.



- Add labels to the model by embossing or engraving. You can adjust the “Depth” slider or enter a specific value for each label.

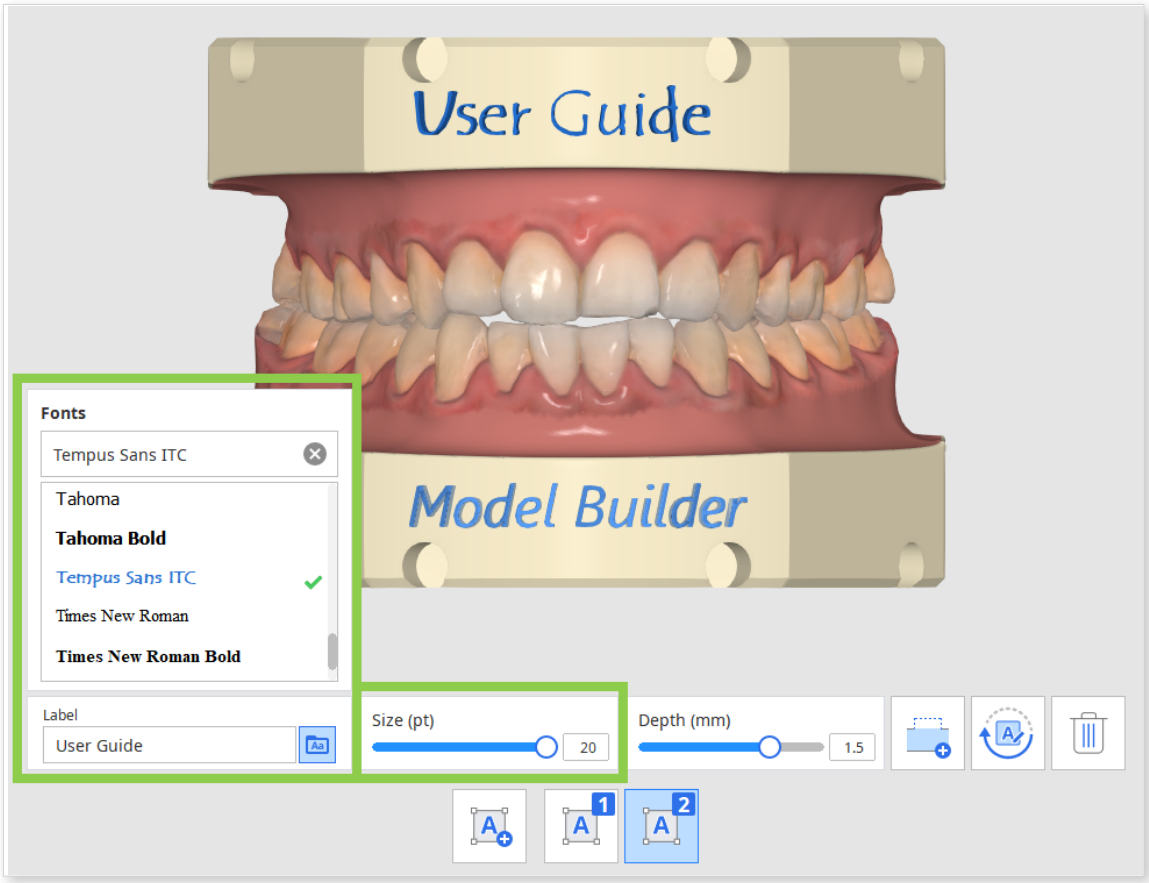


2. Add more labels if needed by clicking the “Add Label” button. A maximum of 6 can be created.
    - You can rotate any of the created labels by clicking it and then using Rotate 180°.



3. Click, hold, and drag each label to adjust its position. To delete any, click the label and then the “Delete” icon.

4. The size and font for each label text can be changed individually.



5. Click “Next” in the right bottom corner when finished.

Medit Corp.

9F, 10F, 13F, 14F, 16F, 8, Yangpyeong-ro 25-gil, Yeongdeungpo-gu, Seoul, 07207, Republic of Korea

Tel: +82-02-2193-9600

Contact for Product Support

Email: support@medit.com

Tel: +82-02-2193-9600