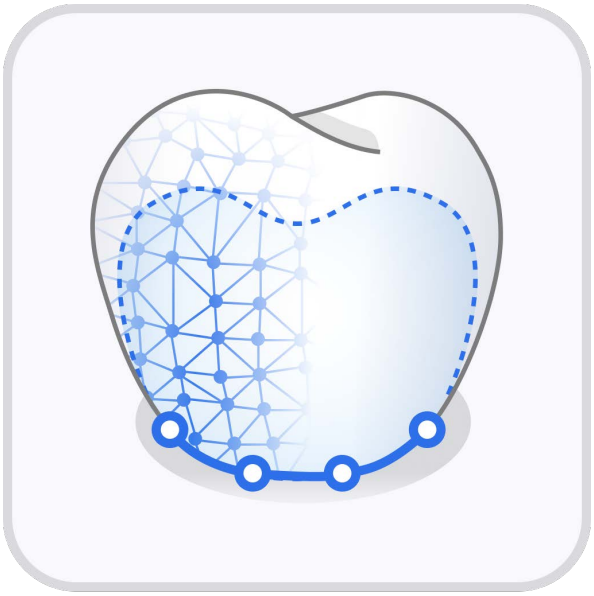
ClinicCAD



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Medit ClinicCAD

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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

> ⚠ **Caution**
>
> This guide is for the official release version available in the US only. If you're outside the US, please refer to the PDF user guide included with your beta version.

Overview

Medit ClinicCAD is an inclusive dental CAD application designed for both CAD experts and novices. It provides an intuitive workflow for creating restorations while offering advanced customization options. The app simplifies processes with automated one-click design for premolar and molar single crowns, utilizing pre-operative scans and prepared tooth data to ensure precise, patient-specific results. With Medit ClinicCAD, users can design the following restorations:

- crown (with screw holes and handles)
- bridge (with pontics)
- eggshell crown or bridge
- veneer
- coping
- inlay/onlay
- cervical inlay

> ⚠ **Caution**
>
> Medit ClinicCAD is a CAD software intended to support the digital modeling of dental restorations using the provided tools; it uses the patient's anthropometric data to generate the output. It does not perform any interpretation or modification of the patient's scanned data; therefore, it does not substitute medical review, advice, or treatment from a trained professional.

Intended Use

Medit ClinicCAD is a software developed to allow users to design crowns, inlays, copings, veneers, and eggshell-type restorations based on available intraoral data. It enables users to align the scan data to the occlusal plane, draw margin lines, align tooth library data on the scan, duplicate scan data, design prostheses, and create eggshell-type crowns.

Medit ClinicCAD provides tools for digitally designing prostheses for missing teeth. Be advised that prostheses designed by individuals who are not trained dental professionals may have detrimental effects on the patient's oral health.

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

> ⚠ **Caution**
>
> The Medit ClinicCAD software application does not modify the patient's anthropometric scan data, which remains accessible to healthcare professionals, as depicted through the Medit Scan software's 3D graphical representation tools.

> **Note**
>
> Medit ClinicCAD has direct integration with a third-party cloud-based printing software (SprintRay's RayWare Cloud). Medit does not assume responsibility for issues related to the functionality, compatibility, or performance of third-party software. For any problems or inquiries related to the third-party software, including but not limited to technical issues, updates, or licensing, please contact the relevant manufacturer.

Indications for Use

Medit ClinicCAD is intended to be used as a device that provides tools for creating digital designs of restorations for prepared teeth.

Contraindications

The soft ware cannot be used for purposes other than to create the following:

- crown
- coping
- veneer
- inlay/onlay
- cervical inlay

Intended User Profile

The software is designed for use by 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.

Intended Patient Profile

The software can be used to design dental appliances for patients who are being considered for treatment with the following:

- crown
- coping
- veneer
- inlay/onlay
- cervical inlay

Patient Safety Advisory

Improperly designed restorations (crown, inlay, etc.) can potentially detrimentally impact a patient’s dental health and teeth, causing discomfort or other oral issues.

Consequently, though the software can facilitate diagnostic and treatment planning processes, all decisions must be made by a skilled dental professional with a comprehensive understanding of the software’s functionality and data interpretation. There are ample opportunities at each stage of the restoration design process to identify and rectify any inaccuracies or errors that may lead to serious injuries. The dental professional must closely monitor the processes of designing and decision-making.

Security Risk Management and Error Handling

After the issue has been improved, if it is necessary to update the program, such as releasing a new installation file or applying some patch files, it is officially distributed through the head office sales/SE personnel along with the application guide to the person in charge of the corporation or the issue site.

Responses to security issues may be further announced on the website if necessary.

1. Reporting security issues
2. Share initial analysis results and progress
3. Issue delivery
4. Issue response plan / delivery
5. Issue response plan / share results

System Requirements

Windows

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

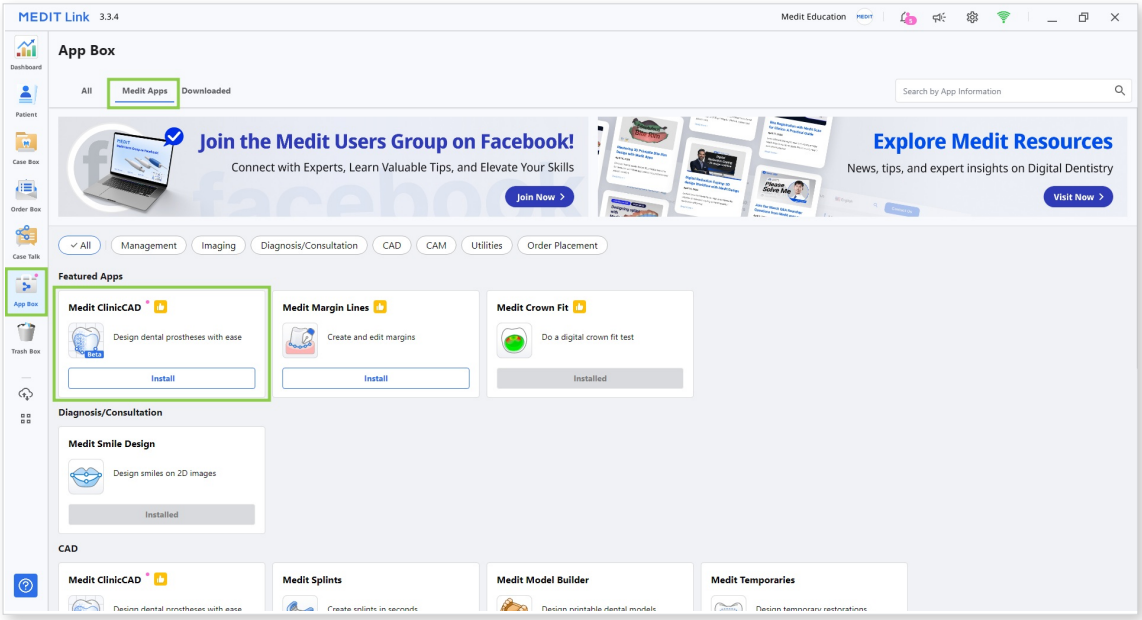
macOS

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

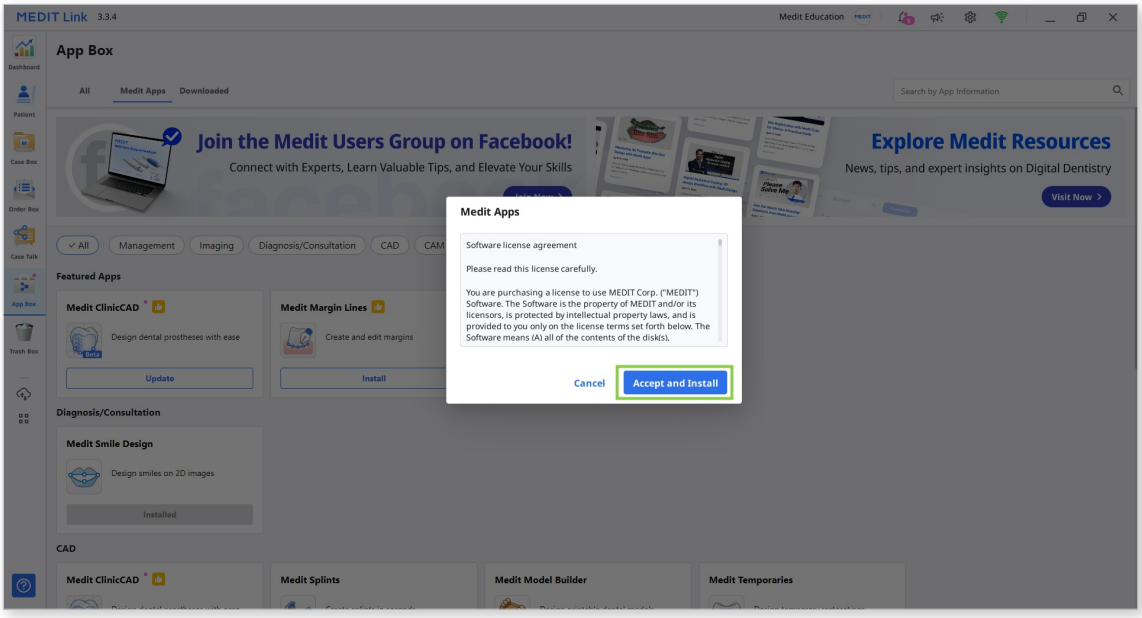
Installation Guide

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 ClinicCAD app and click "Install."



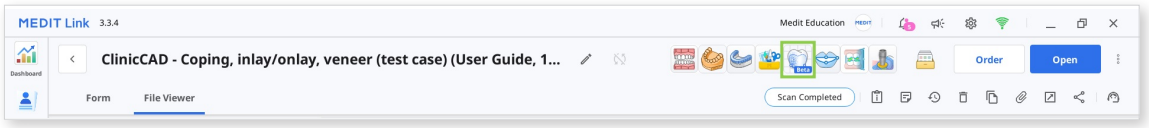
③ Read the Software License Agreement and confirm app installation by clicking "Accept and Install."



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

> **⚠ Caution**
>
> 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 top right corner of the Case Detail window.



Data Management

Preparing Data

Medit ClinicCAD lets users design restorations using both prepared and pre-op scan data. To use the app, data for at least one arch must be available.

Prepared data can be used to design any restoration, while pre-op data alone allows the design of only eggshell-type crowns and bridges.

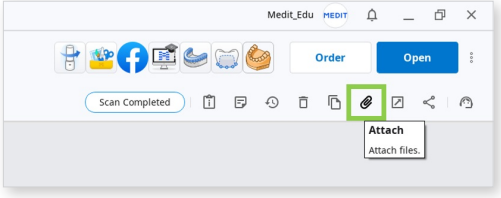
- If needed, the pre-op data can be imported together with the prepared one and used for reference when editing the restoration.
- If the case has separate scan data for the maxilla/mandible and the abutment, the two will be automatically combined. After running the app, the combined data will be available in the Assign Data window. The new file will have either of these titles: Maxilla with Abutment or Mandible with Abutment.
- If the case has dynamic occlusion data captured in Medit Scan for Clinics, it will be automatically imported into the app. It can be used for reference when adapting and adjusting the restoration.
- Additional scan data needed for reference during the design process can be imported into the program at anytime using the 'Import Additional Data' option in the Side Toolbar.

The user must gather all the data for the project under the same case before running the app. There are two ways to add data to a Medit Link case.

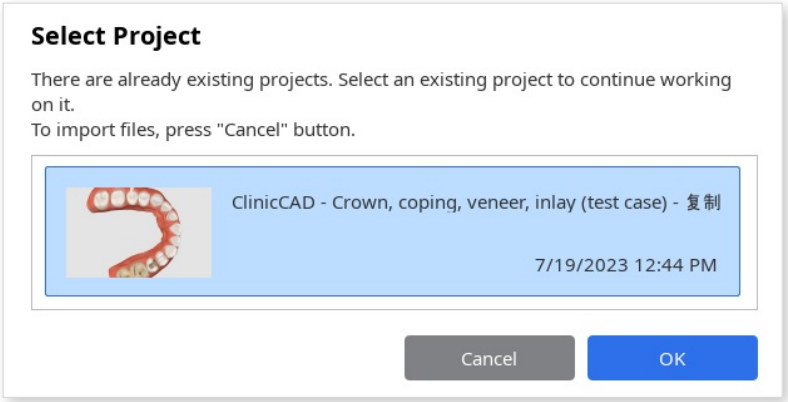
① Complete all necessary scans in Medit Scan for Clinics or Labs, and all acquired data will be automatically saved to the case.

> **Tip**
>
> Use the "Solid" option when scanning data in Medit Scan for Labs.

② Load data from a local folder using the "Attach" feature in the Case Detail window.



Users can also continue working on previously saved projects if the program is opened from the same case again.



Note

Projects that were created in Medit Temporaries are not supported by Medit ClinicCAD.

⚠ Caution

Medit ClinicCAD doesn’t modify or interpret the original 3D data for medical use; the software only provides the anatomical geometries to create virtual models of the restorations.

3D Data Control

Users can control the 3D data using a mouse alone or both mouse and keyboard.

3D data control using a mouse

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

	Windows	macOS
Zoom		
Rotate		
Pan		

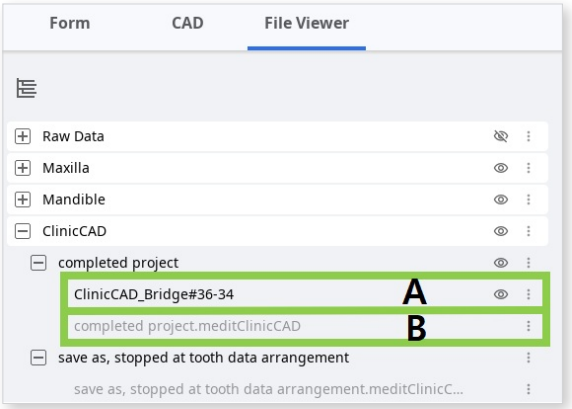
Saving Data

There are several ways to save the project data.

① "Complete" button in the final step

> **⚠ Paid Feature**
>
> Saving and exporting the completed restoration 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" button can be used after the restoration design is finished. It creates two files in the Medit Link case: the project file(B) and the restoration design file(A). The latter can be further used for printing or milling the restoration.



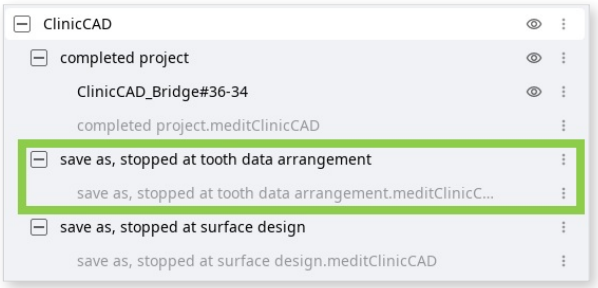
> **💡 Tip: Complete Button Options**
>
> This feature is available only in the final step. The gear icon next to the "Complete" button provides additional options for how the project can be saved:
>
> - Choose "Include Construction File" if a construction info file is needed for milling or CAM software.
> - Choose "Export to PC" to automatically export created data to a designated folder on a computer.

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.

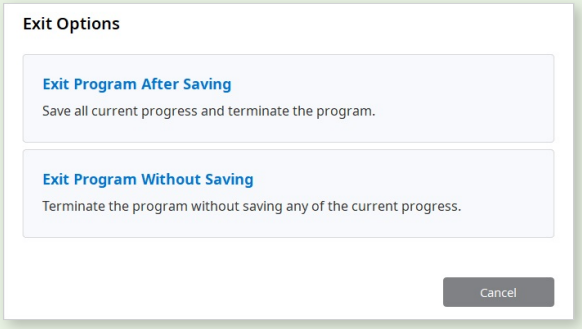
The project file is generated every time you run the app and can be used across all Medit software. It records work progress, allowing users to temporarily stop and save an unfinished project to resume later.

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.



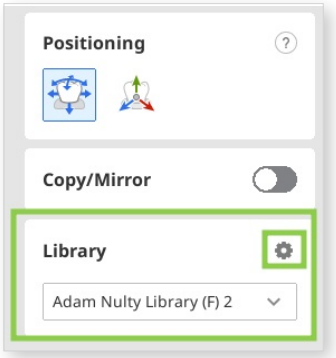
Note

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



Library Management

Teeth libraries are provided when designing restorations based on the scan data of already prepared teeth (Prepared Data Module). There are 6 default libraries, but users can expand the list of available libraries via Library Management.



The Libraries Management feature provides tools for managing the list of available libraries and editing library data. To use this feature, click the gear icon in the Library toolbox.

Note

The library list can be expanded to a maximum of 50 libraries. The complete list of libraries is stored locally, so if logged in on a different computer, only the default libraries will be available.

Tip

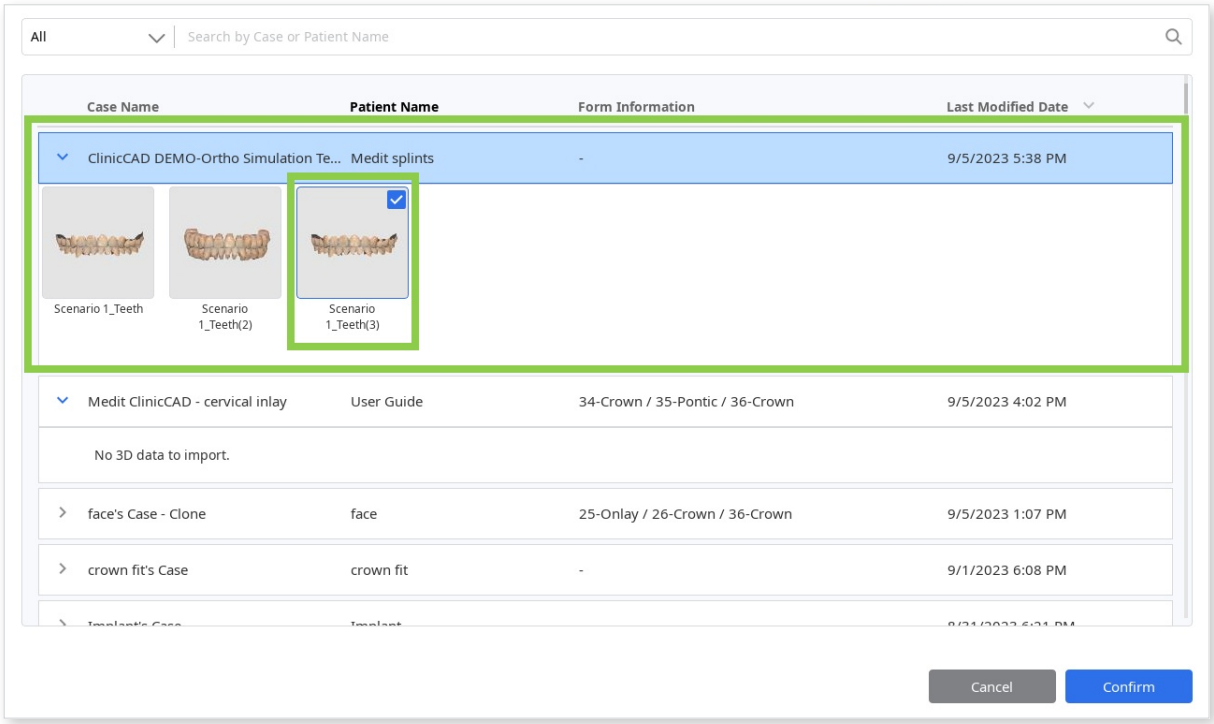
If teeth data was exported as a library from Medit Ortho Simulation, it will be automatically added to the list of libraries upon launching Medit ClinicCAD.

How to manage libraries list

Users can add, delete, export, and modify libraries in the list using the tools provided in the management widget on the right. The default libraries can be modified only after cloning.

	Import from PC	Import the teeth library stored on your computer. **Note** This feature supports only Medit ClinicCAD libraries saved in .meditLib format.
	Export	Export the teeth library to the local PC or Medit Link.
	Clone	Create a copy of the library.
	Delete	Delete the library.
	Rename	Change the name of the library.
	Reset	Restore the library data by undoing all sculpting.

There is one more option for adding a library to the list - “Import from Medit Link.” This feature allows users to browse Medit Link cases for segmented teeth data and import it as a library into the app.



How to edit library data

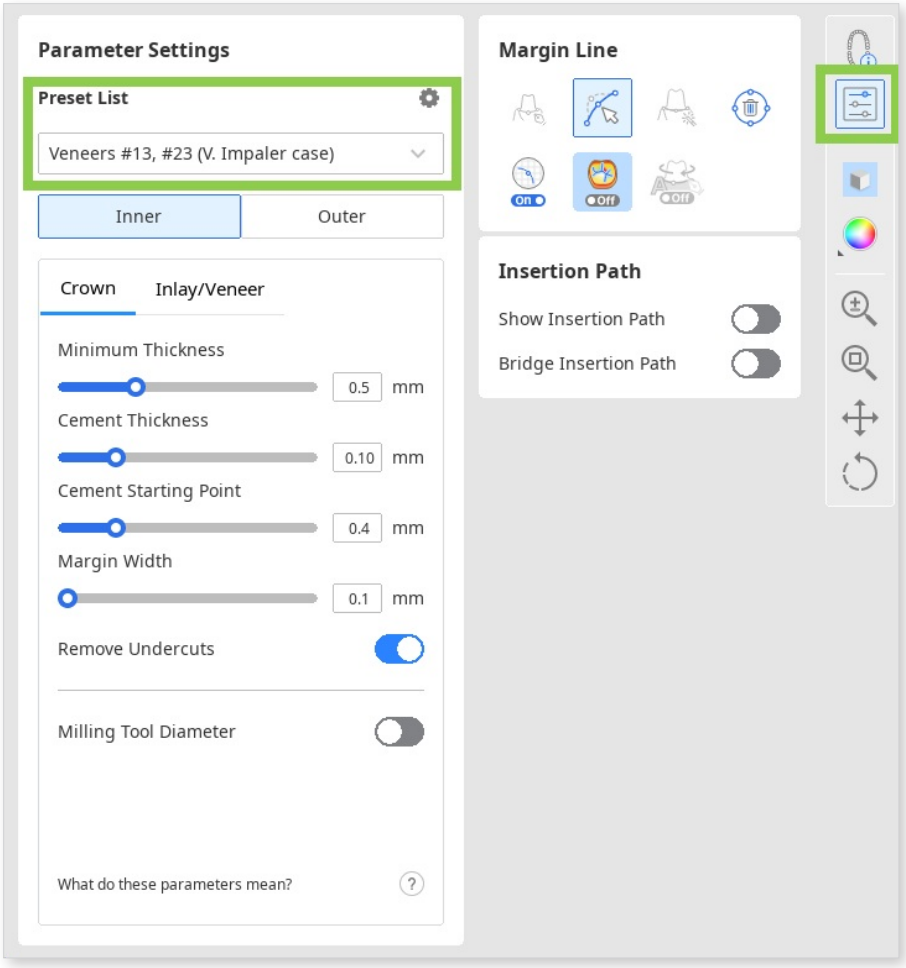
Teeth data of a library can be edited using “Sculpting.” With the provided tools, users can add, remove, smooth, or morph the data of the selected tooth.

The visibility of the tooth in the Data Tree can be adjusted for a more comfortable editing process. To edit the default library, it must first be cloned.

Preset Management

In Medit ClinicCAD, users can manually configure printing parameters or use presets. The list of available presets is provided in the Parameter Settngs widget.

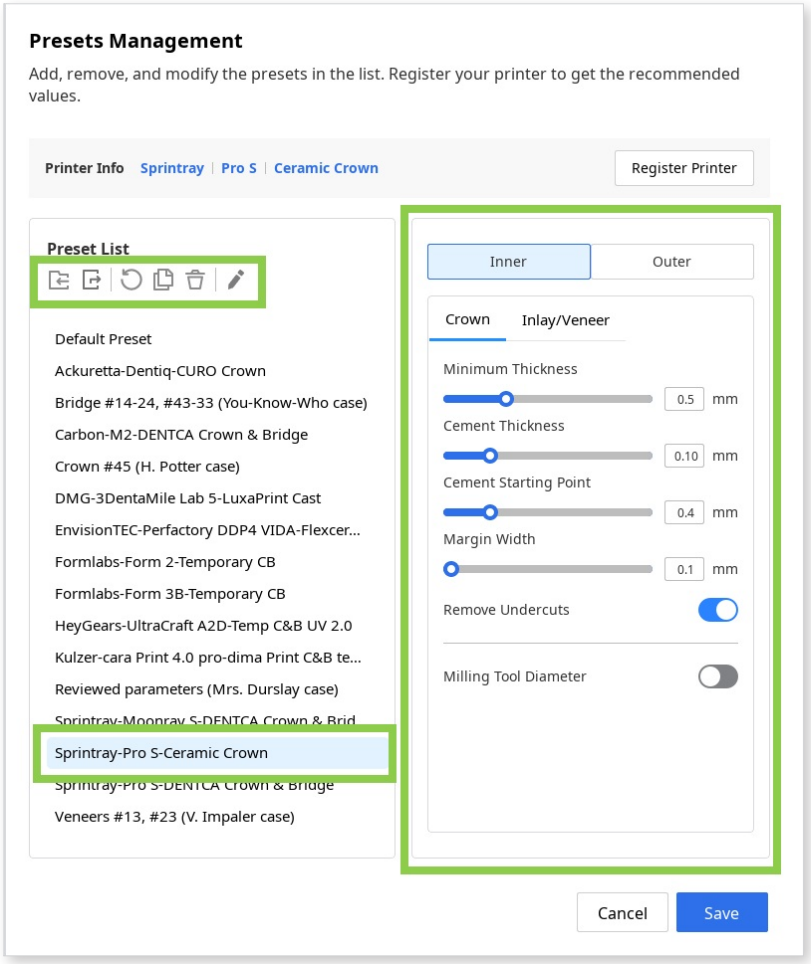
If the user doesn’t register their 3D printer upon the initial launch of the app, only the the default preset will be available. To expand and control the preset list, use the Presets Management feature (the gear icon next to Preset List).



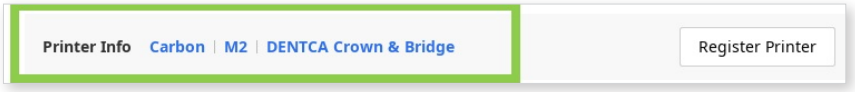
The Preset Management feature allows to control the preset list, edit the available presets, import preset files received from another user, or get the recommended preset by registering 3D printers.

How to manage the preset list

Users can export, delete, rename, and edit the values of the preset selected in the list on the left.

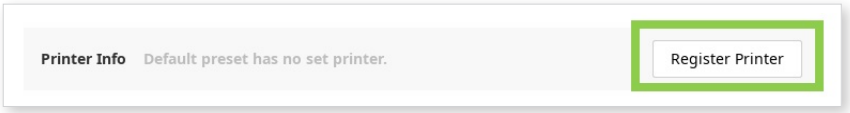


- After changes were made, the preset values can be restored to the recommended ones via “Reset.”
- If a preset file is received from another Medit user, it can be added to the list by importing it from the local storage.
- Even if the original name of the recommended preset is changed, it will always be shown at the top in “Printer Info.”

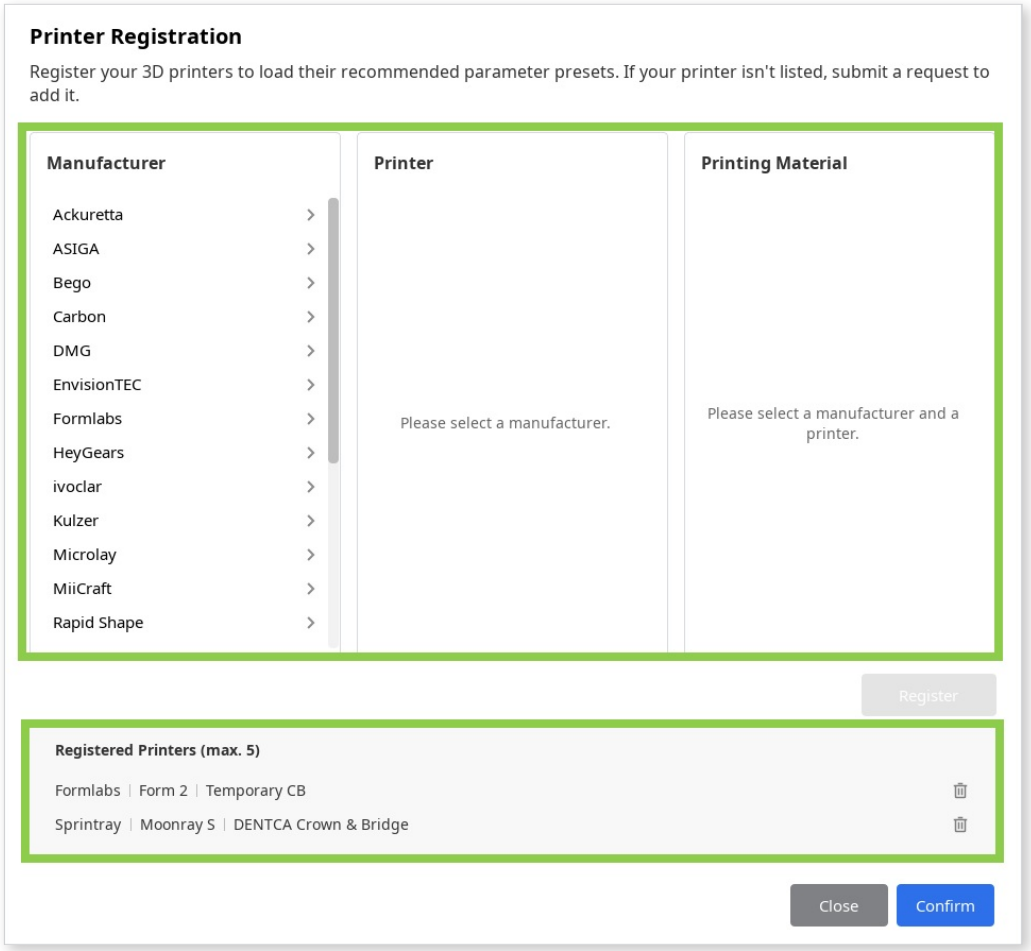


How to get recommended preset

If printer registration was skipped upon the initial app launch, it can be done later using the “Register Printer” button.



To register a printer, user must select the manufacturer, printer, and printing material in the window shown below. Up to 5 printers can be registered. Printer registration will be completed after clicking “Confirm,“ and a preset with recommended values will be added to the list.

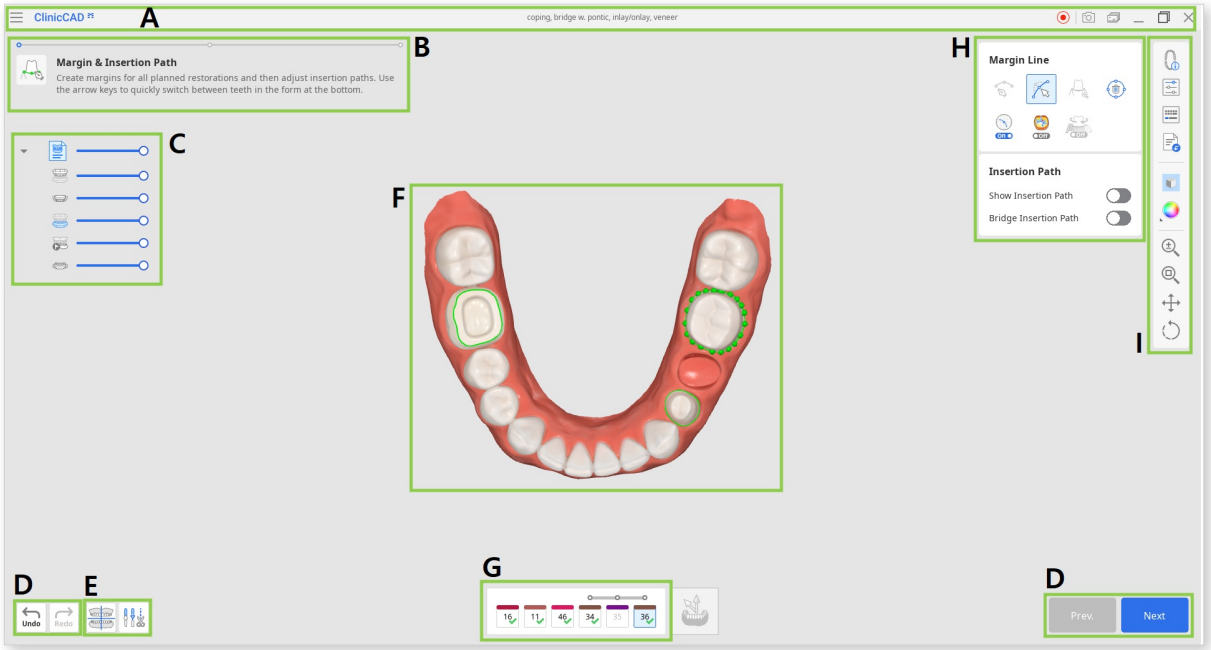


Tip

If your printer isn’t listed, scroll down in the manufacturer section and click “Printer Request.“

User Interface

User Interface at a Glance



A	Title Bar
B	Guide Message
C	Data Tree
D	Action Control Buttons
E	Data Alignment & Editing Tools
F	3D Data
G	Teeth Form
H	Toolboxes
I	Side Toolbar

Title Bar

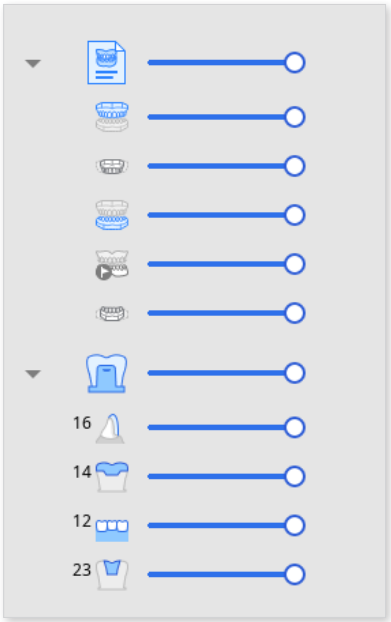
The Title Bar is the ribbon at the top of the application window that contains basic controls on the right and the menu on the left. It also displays the app name and the opened case name.

	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.
	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	Close the application.

Data Tree

Users can control each data visibility by clicking its icon in the tree or changing its transparency by moving its slider.

The Data Tree is located on the left side of the screen and displays a list of data organized into groups. Data can be shown or hidden by clicking the corresponding icon in the tree, or its transparency can be adjusted using the associated slider. All data within the Data Tree is organized under two main groups: Scan Data Group and Restorations. The structure may vary slightly depending on the objectives of a specific step or tool. The image below provides an example from the final step.



Scan Data Group

- Maxilla
- Dynamic Maxilla
- Mandible
- Pre-op for Mandible
- Dynamic Mandible

Restorations

- Veneer #16
- Onlay #14
- Bridge #12-21
- Inlay #23

Action Control Buttons

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

The “Complete” button will appear at the final step only.

Undo	Undo the previous action.
Redo	Redo the previous action.
Prev.	Go back to the previous step.
Next	Apply changes and move to the next step.
Complete	Complete the design process and save the restoration to Medit Link.

Side Toolbar

The Side Toolbar is located on the right side of the screen; it offers a number of tools that may be required at any step of the design workflow.

Management Tools

	Form Info	Show or hide the form information registered in Medit Link. In the first step, you can also edit it.
	Parameter Settings	Adjust the parameters for creating the inner and outer surfaces of the restoration.
	Shortcut Keys	View and manage keyboard shortcuts.
	Import Additional Data	Bring in additional 3D data to serve as a reference or aid in the designing process.

Display Tools

	Grid Settngs (mm)	Show or hide the grid (overlay on/off). Click multiple times to control overlay options.
	Data Display Mode	Change between different data display options. (Glossy/Matte/Matte with Edges/Monochrome/ Monochrome with Edges)

Analysis Tools

	Contact Areas with Adjacents	Turn on to show the areas of contact between restoration and adjacents. Use while sculpting the outer surface of the restoration to add or remove material to ensure optimal fittng.
	Contact Areas with Antagonists	When on, this function shows the areas of contact between the restoration and the antagonists. Turn on when sculpting the outer surface of the restoration to check the occlusion.
	Minimum Thickness	Turn on to see thin areas on the restoration. Use while sculpting to make sure that the restoration is not too thin to print or mill.

Data Control Tools (for touch screen/mouse)

	Zoom	Zoom in and out by click-and-drag.
	Zoom Fit	Zoom to fit data to the screen.
	Pan	Move data by click-and-drag.
	Rotate	Rotate data by click-and-drag.

Toolboxes

Toolboxes beside the Side Toolbar are different at every step. Each toolbox represents a task that can be performed in this step and provides all the necessary features for completing it.

Below are the explanations for the features provided in Toolboxes across the entire app.

Margin Line

	Manual Creation	Manually create a margin line based on the selected points.
	Edit	Add, move, or delete the control points to edit the margin line. Hold down the Ctrl key for freehand editing of the line.
	Auto Creation	Automatically create a closed margin line based on the selected point.
	Delete	Delete the margin line.
	Section View	Display the section of the area where the mouse is located.
	Curvature Display Mode	See the curvature of the data through Color Map.
	Dynamic View Change	Turn on Dynamic View Change to automatically rotate data according to the view direction. **Note** Available only when using Manual Creation.

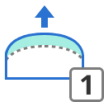
Positioning

	Free Move/ Scale	Move the tooth freely without any constraints. Use shortcut keys to rotate and scale it.
	3D Manipulator	Scale, move, or rotate the tooth along axes.

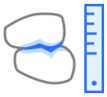
Selection

	Smart Single Tooth Selection	Automatically select the area of a single tooth, leaving out gingiva parts. Click and drag the mouse on the tooth.
	Brush Selection	Select all entities on a freehand-drawn path on the screen. Only the front face is selected.
	Brush Deselection	Deselect all entities on a freehand-drawn path on the screen. Only the front face is deselected.
	Clear All Selection	Clear all selected areas.

Sculpting

	Add	Add material to the restoration. Hotkey: 1
	Remove	Remove material from the restoration. Hotkey: 2
	Smooth	Smooth parts of the restoration. Hotkey: 3
	Morph	Morph the material on the restoration by dragging it with your mouse. Hotkey: 4
	Groove	Remove material from the restoration with a sharp blade to create grooves. Hotkey: 5

Adaptation

	Adapt to Adjacents	Adapt the restoration to adjacents.
	Adapt to Antagonists	Adapt the restoration to antagonists.
	Adapt to Gingiva	Adapt pontic to gingiva.

Connectors

	Move	Drag the center point to adjust the connector’s position and cross-section area.
	Edit	Add, move, or delete the control points to reshape the connector.

Screw/Handle (tools for element control)

	Auto Set	Automatically place the chosen element at an optimal spot.
	Set Toward You	Turn all elements to face toward you.
	Delete All	Delete all elements. To delete one, right-click it.
	Move	Change the element position by dragging it.

Design Review

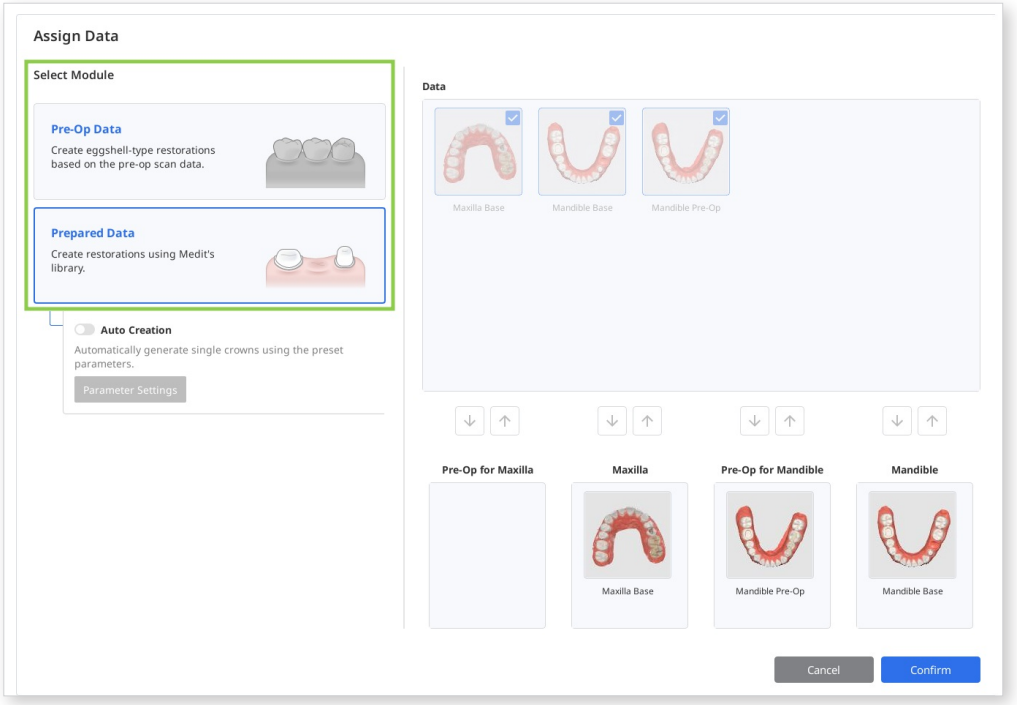
	Margin & Insertion Path	Adjust the margin and insertion path as needed. Changes will affect only the inner surface, leaving the outer one unchanged.
	Tooth Data Arrangement	Adjust tooth data positioning as needed. Changes will affect only the outer surface, leaving the inner one unchanged. Available only when creating single crowns automatically.

Workflow

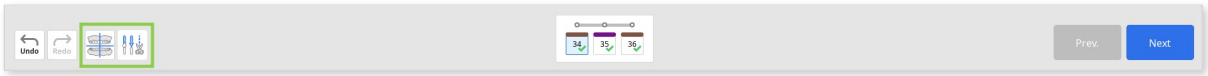
Data Assignment

Medit ClinicCAD offers two workflows for designing restorations based on the available data: the Prepared Data module and the Pre-Op Data module. Each workflow consists of consecutive steps that guide the user from margin line creation or data selection to the final customization of the restoration design. After running the app, the user must select one of the modules and assign at least one piece of data to the target arch.

Pre-Op Data	Prepared Data
• Design eggshell-type crowns and bridges • Supports design based on preoperative data **⚠ Caution** This module will be disabled if a veneer, coping, inlay, or onlay is registered in the Medit Link form.	• Design single crowns, bridges with pontics, veneers, inlays, onlays, and copings • Supports design based on prepared data with the use of teeth libraries • Supports "Auto Creation" mode for single crowns (premolars and molars only) • Supports workflow for designing cervical inlay* • Users can import preoperative data for reference via the Assign Data window **Note** *For more information on how to design cervical inlays, refer to the Appendix of this guide.



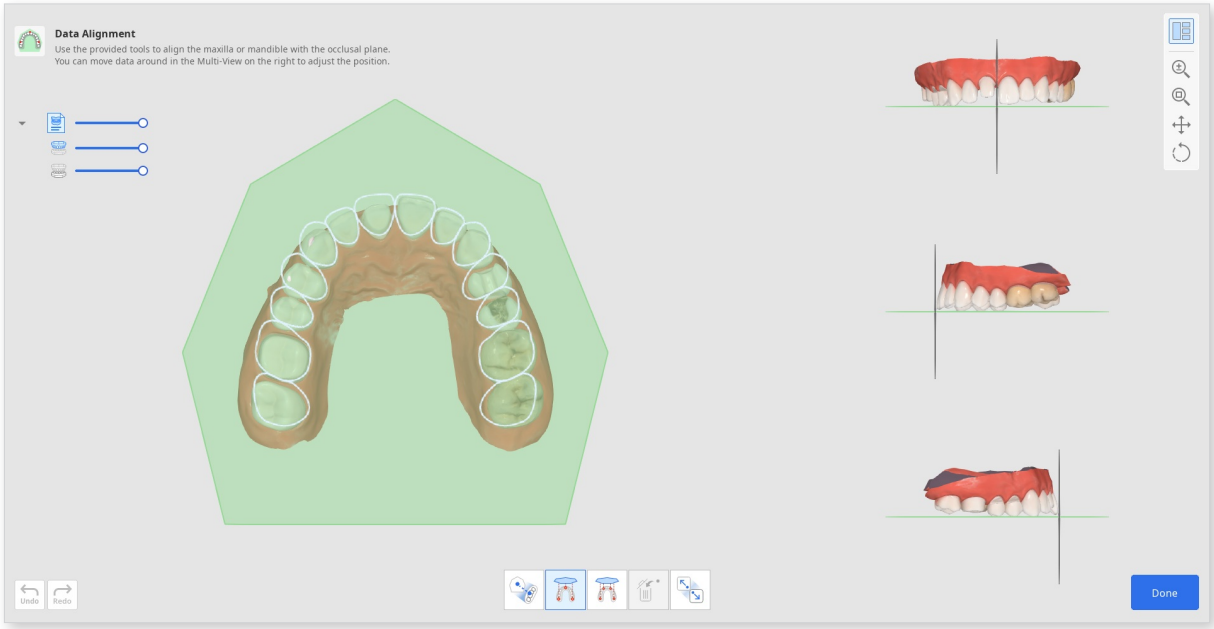
After assigning the scan data, the user enters the first step of the workflow. Regardless of the selected module, this step includes two data management tools in the bottom left corner: Data Alignment and Data Editing. Although optional, these tools allow users to review and refine the imported scan data, ensuring greater accuracy and better results when designing the restoration in the subsequent steps.



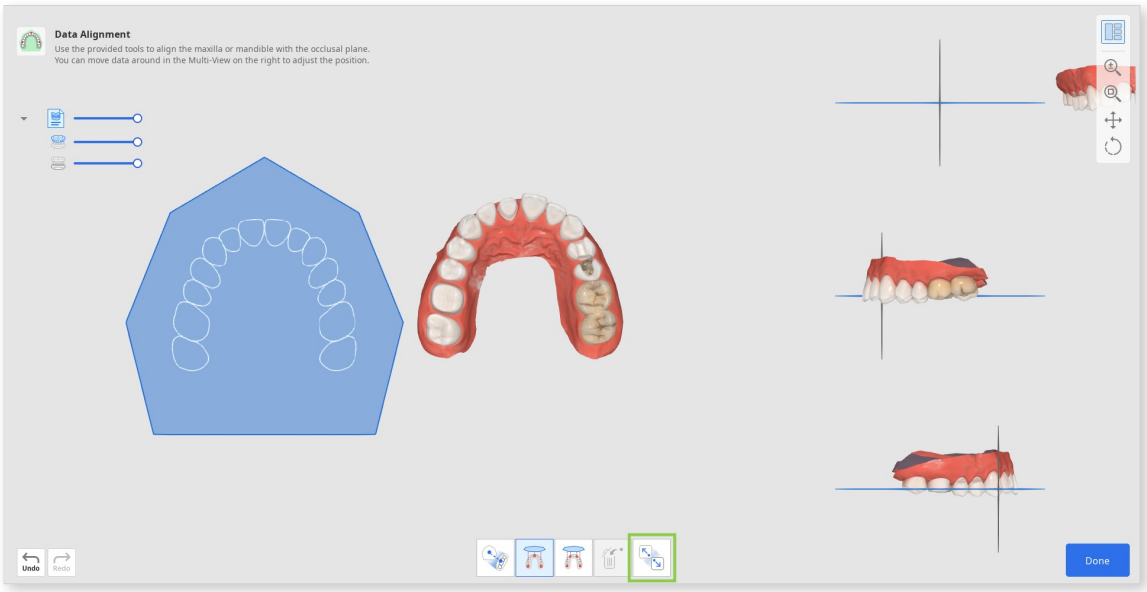
> ⚠ **Caution**
>
> Returning to the first step to use either of these two tools will result in the loss of any progress made in designing the restoration.

Data Alignment

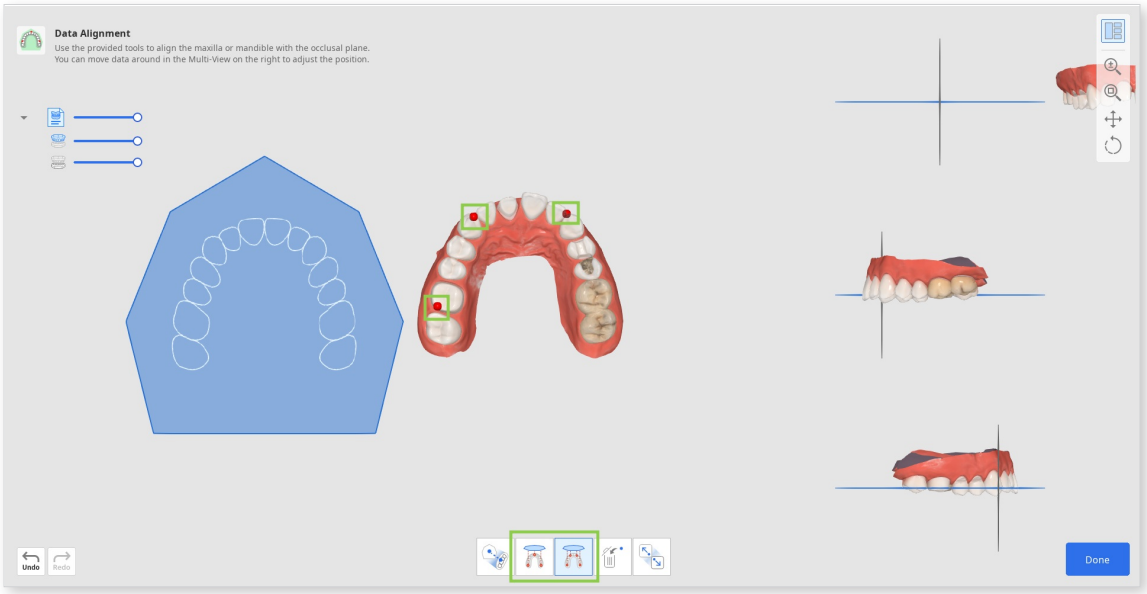
Proper data alignment with the occlusal plane is crucial to ensure the accuracy of subsequent automated processes. In most cases, the scan data is automatically aligned upon import. However, if the alignment fails for any reason, the user will be prompted to complete the alignment manually.



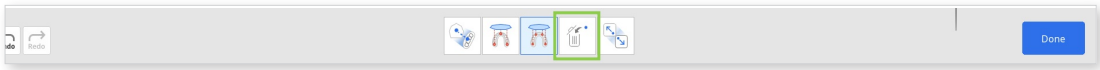
① To realign data manually, start by clicking "Detach Data" in the toolbox at the bottom.



② Then, using either "Align by 3 Points" or "Align by 4 Points," set the corresponding number of points on the data.

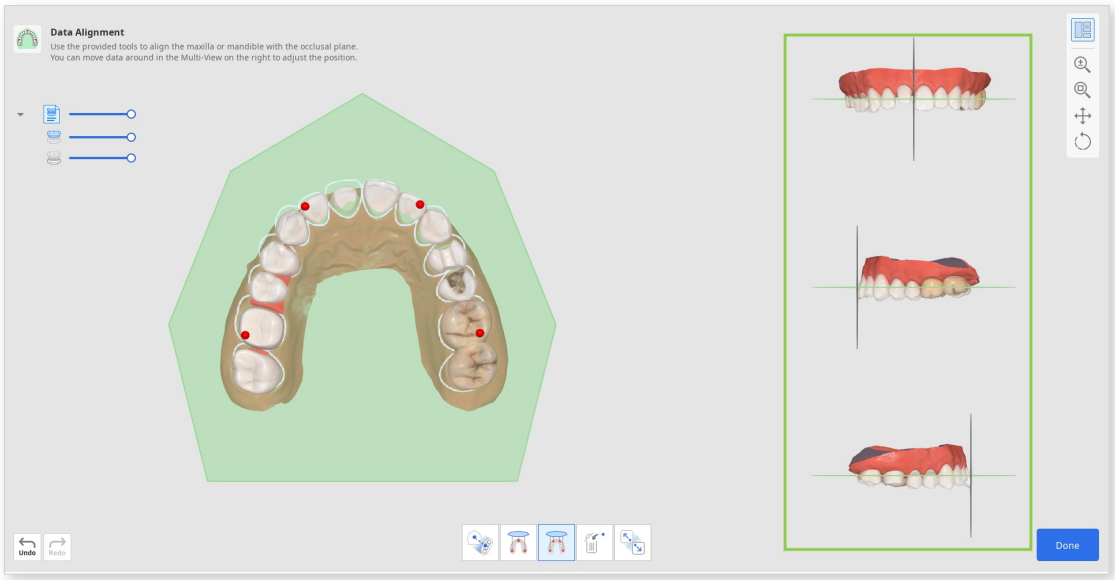


- If you set the point incorrectly, use "Delete Point" to remove the last added point.



- If working with half arch data, use the "Half Arch Alignment" feature to ensure a more accurate alignment process.

③ Check the data alignment in the Multi-View on the right. If needed, adjust it by right-clicking to rotate and using both mouse buttons to move.



④ When finished, click "Done" in the bottom right corner to go to return to the first workflow step.

Data Editing

The Data Editing feature offers tools for refining imported scan data, removing the need for preparation in other programs. Clean scan data will ensure a faster work process and more accurate design results.

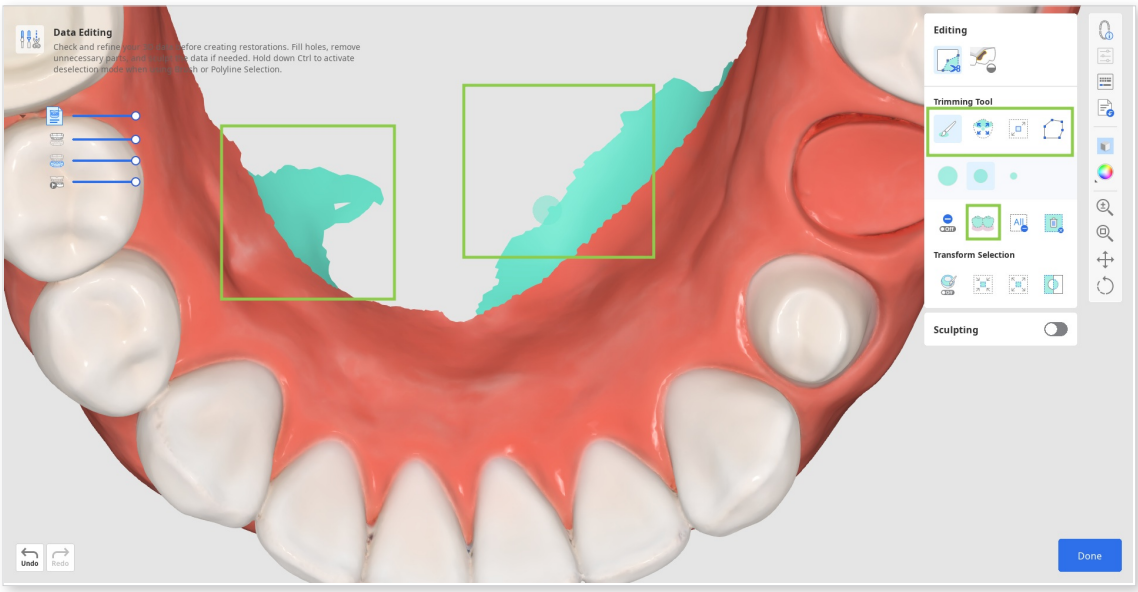
Using the provided tools users can trim the excessive or unneeded data parts, modify the data surface, and fill holes if any are present.

How to Trim Data

Trimming tools are automatically activated once the user enters.

① Start by choosing a selection tool to help you designate parts of the data that need to be removed.

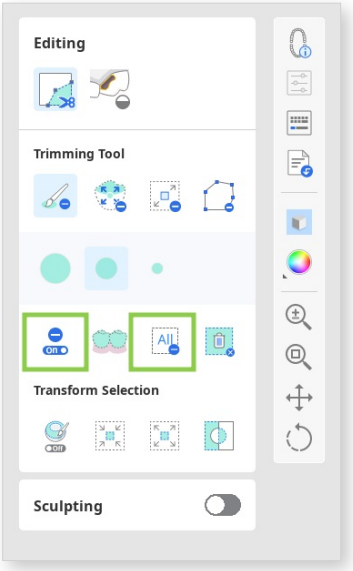
	Smart Teeth Selection	Automatically select all teeth of the arch, leaving out gingiva parts.
	Brush Selection	Select all entities on a freehand-drawn path on the screen. Only the front face is selected. The brush comes in three sizes.
	Smart Single Tooth Selection	Automatically select the area of a single tooth, leaving out gingiva parts. Click and drag the mouse on the tooth.
	Polyline Selection	Select all entities within a polyline shape drawn on the screen.
	Flood Fill Selection	Select the connected area based on the mouse movements.



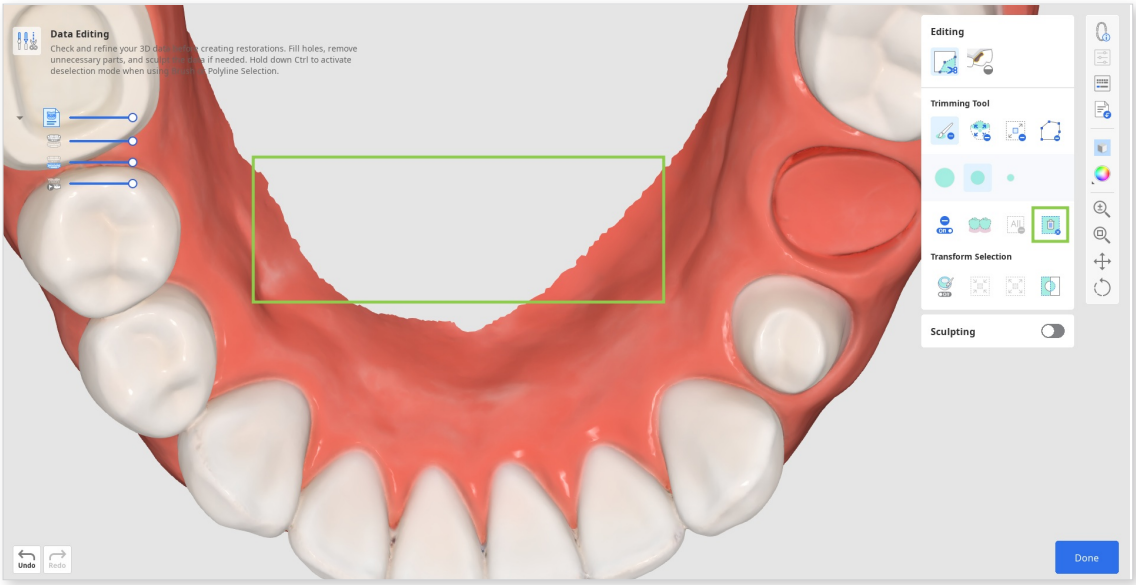
② If needed, modify the selected area using the following tool options.

	Autofill Selected Area	Automatically fill in entities of the selected area.
	Shrink Selected Area	Reduce the selected area each time you press the button.
	Expand Selected Area	Expand the selected area each time you press the button.
	Invert Selected Area	Invert the selection.

- You can also turn on "Deselection Mode" to modify selection manually or use "Clear All Selection" to automatically deselect everything.

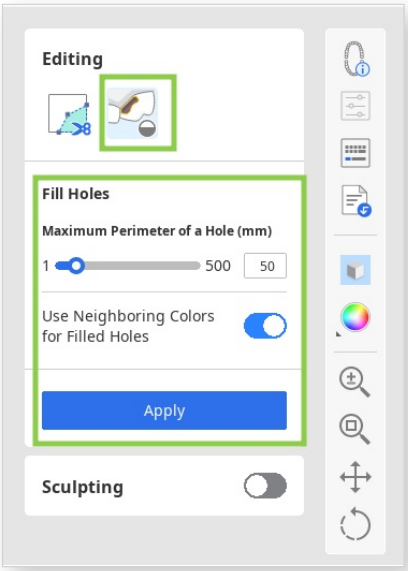


③ To complete the trim, click "Delete Selected Area."



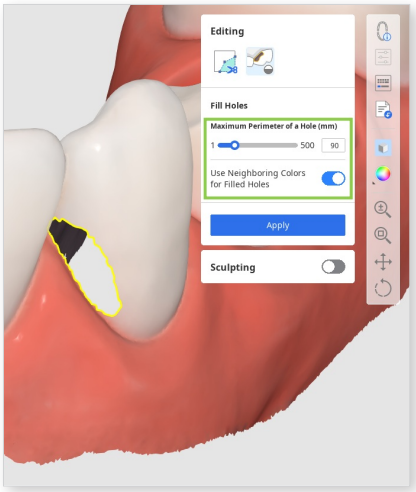
How to fill holes

① Change to the "Fill Holes" tool.



② Find an area where data is missing and adjust the "Maximum Perimeter of a Hole" slider.

If the "Use Neighboring Colors for Filled Holes" option is on, the program will use the matching color palette to fill the area; otherwise, it is filled in grey.

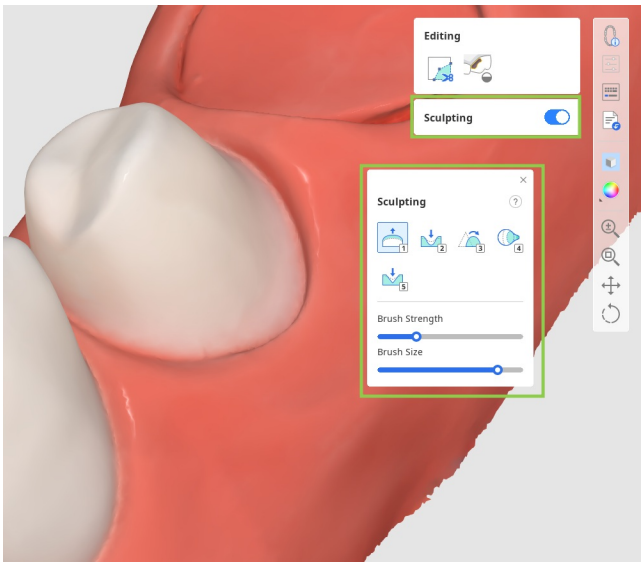


③ Click "Apply" to fill the holes with the new mesh.

How to sculpt data

Find the area of data you want to modify, then use the provided tools to add or remove data or to smooth and morph parts of it. You can also sculpt a more anatomical occlusal surface by using the "Groove" option.

Note that the strength and size of the sculpting brush is adjustable.



When finished, click "Done" in the bottom right corner to go to ret urn to the first workflow step.

Pre-Op Data Module

The general workflow for creating ‘eggshell’ crowns and bridges consists of three steps: **Tooth Selection > Margin & Insertion Path > Final Design**. If the user chooses to use library data for crown creation instead of preoperative data for a specific tooth, an additional step—Tooth Data Arrangement*—is included in the workflow.

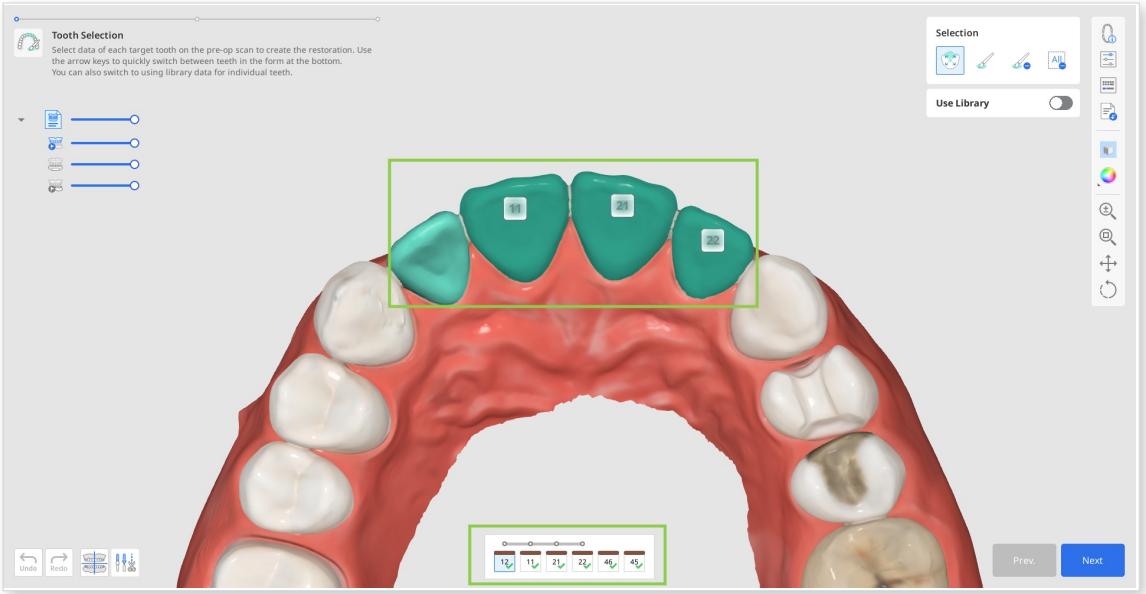
> **Note**
>
> Read how to use the Tooth Data Arrangement step in the **Workflow > Prepared Data Module >** Tooth Data Arrangement.

Tooth Selection

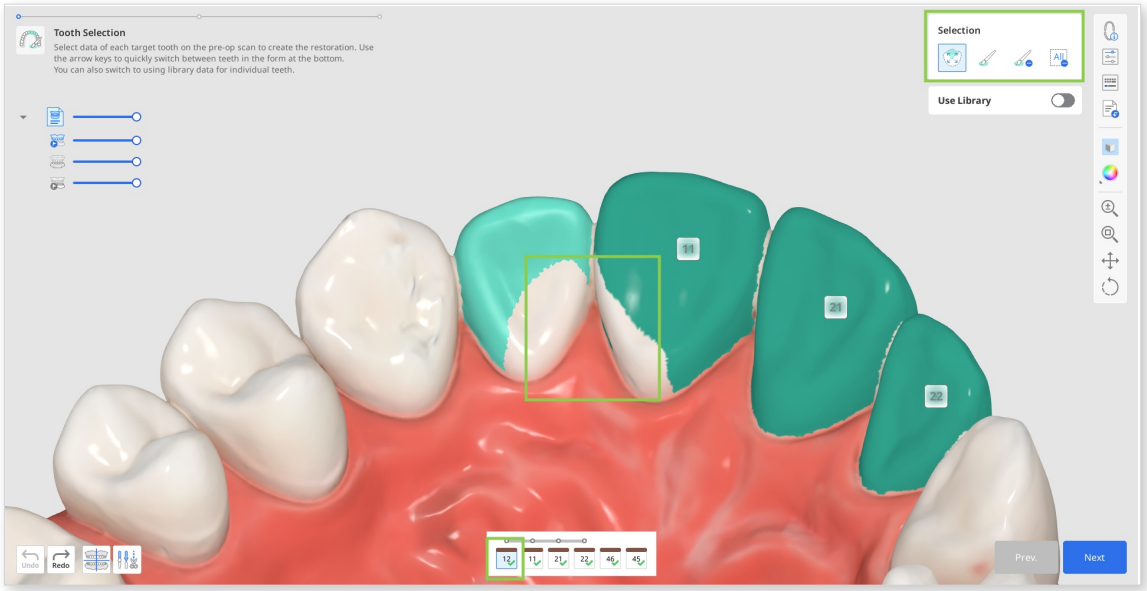
This is the first step in designing eggshell-type crowns and restorations. The goal of this step is to select preoperative data corresponding to each tooth registered in the Medit Link form and reuse it later to generate the restoration.

① Upon entering this step, the data for the tooth numbers listed in the form at the bottom is automatically selected.

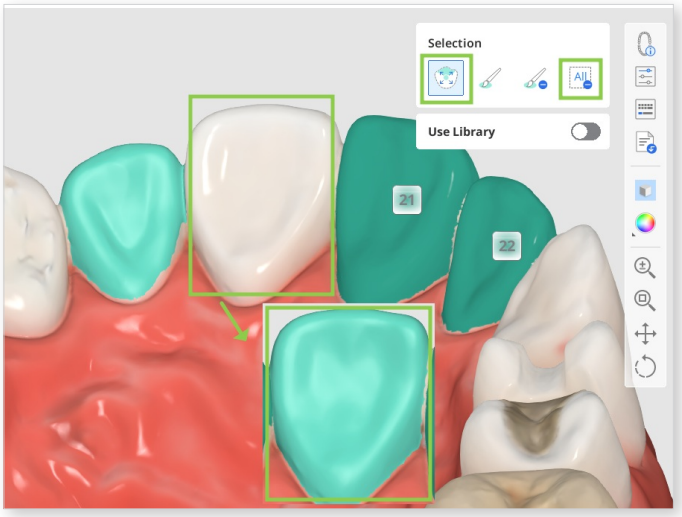
> **Note**
>
> Automatic selection is not supported for scan data of the stone model.



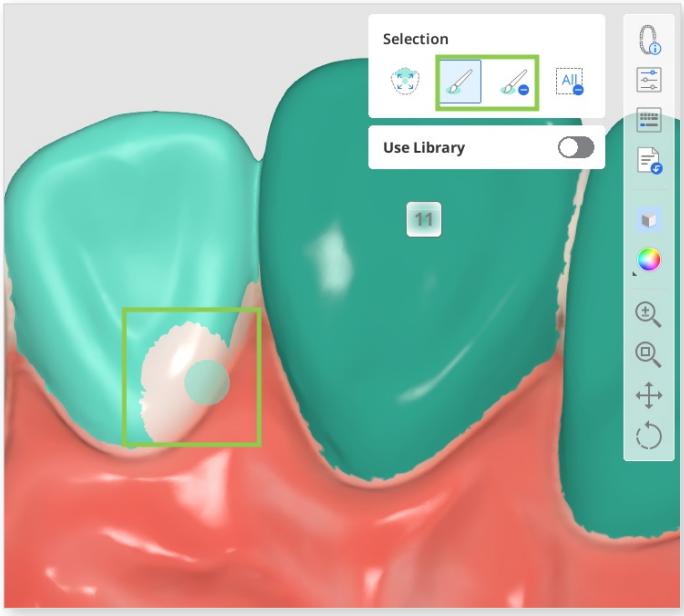
② Review the accuracy of the automatic data selection to ensure the correct generation of the restorations' outer surfaces in the following steps. If editing is needed, select the target tooth number in the form and make adjustments using the selection tools.



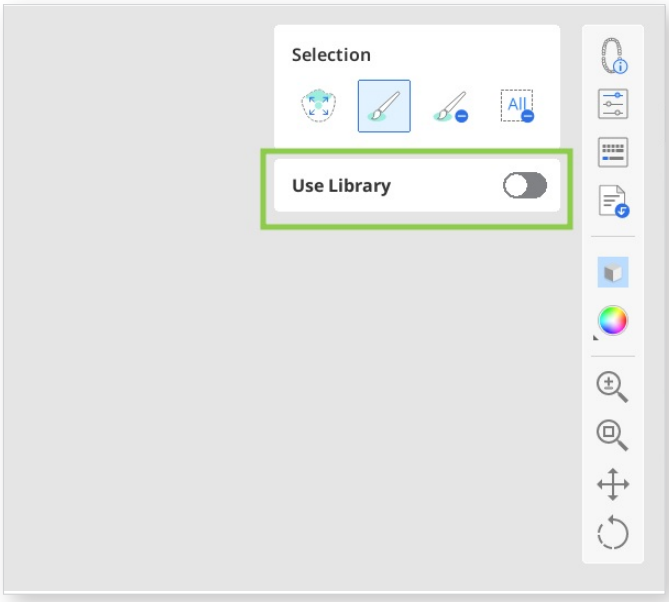
- You can reset the data selection for a specific tooth using "Clear All Selection" and then accurately reselect that tooth with "Smart Single Tooth Selection." For this, click and drag the mouse over the tooth data.



- Or you can make minor corrections to the selection with “Brush Selection” or “Brush Deselection.”



③ If you intend to use the teeth library instead of the preoperative data for any of the target restorations, select the corresponding tooth number from the list at the bottom and enable the 'Use Library' toggle. This will add an additional step to your workflow later: Tooth Data Arrangement.

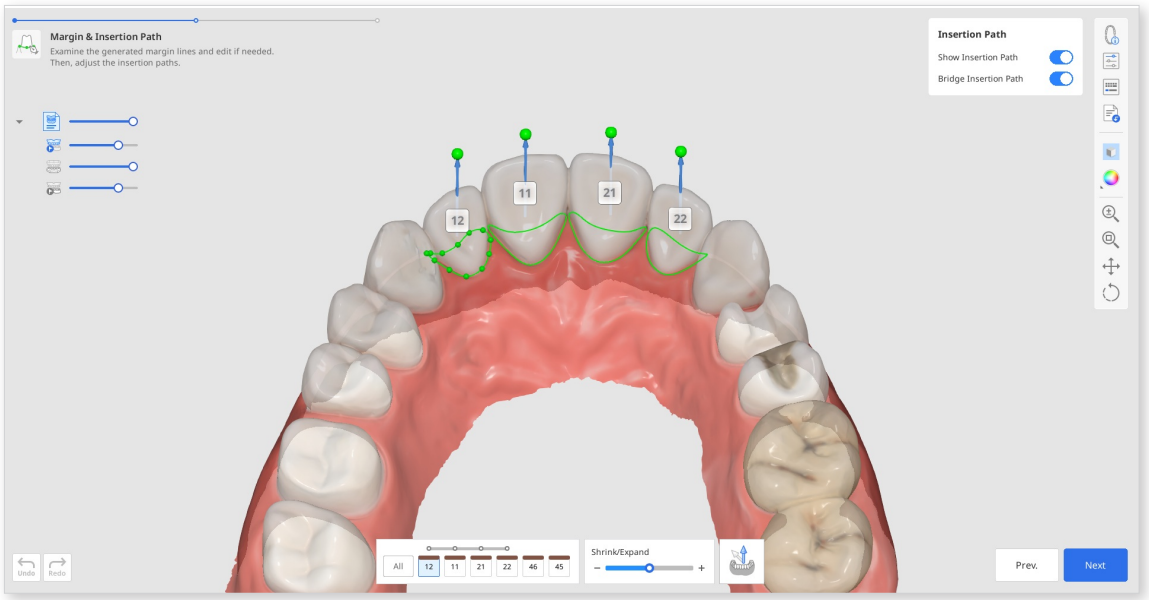


④ When done, click “Next” or press the space bar to move to the next step.

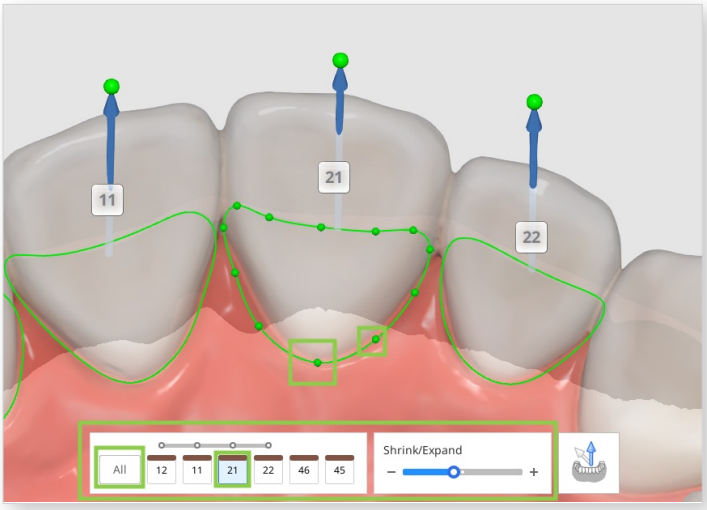
Margin & Insertion Path

The purpose of the second step is to establish the margin lines and set the insertion path for future restorations.

① The margin lines will be created automatically upon entering this step. You must review the generated margin lines and edit them if needed.

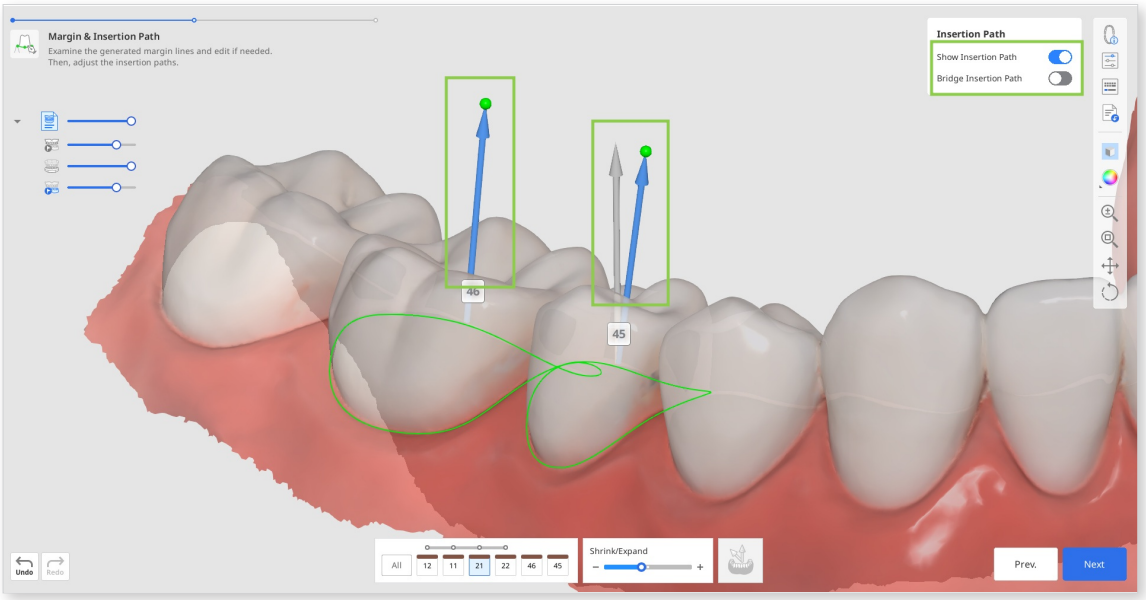


- To edit the margin lines, use the “Shrink/Expand” slider at the bottom. You can shrink or expand the margin for all teeth at once or for a specific tooth number by specifying it in the form at the bottom.
- You can also edit the margin line by adding, moving, or deleting the control points. Click to add a point, right-click it to delete, and drag it to move.



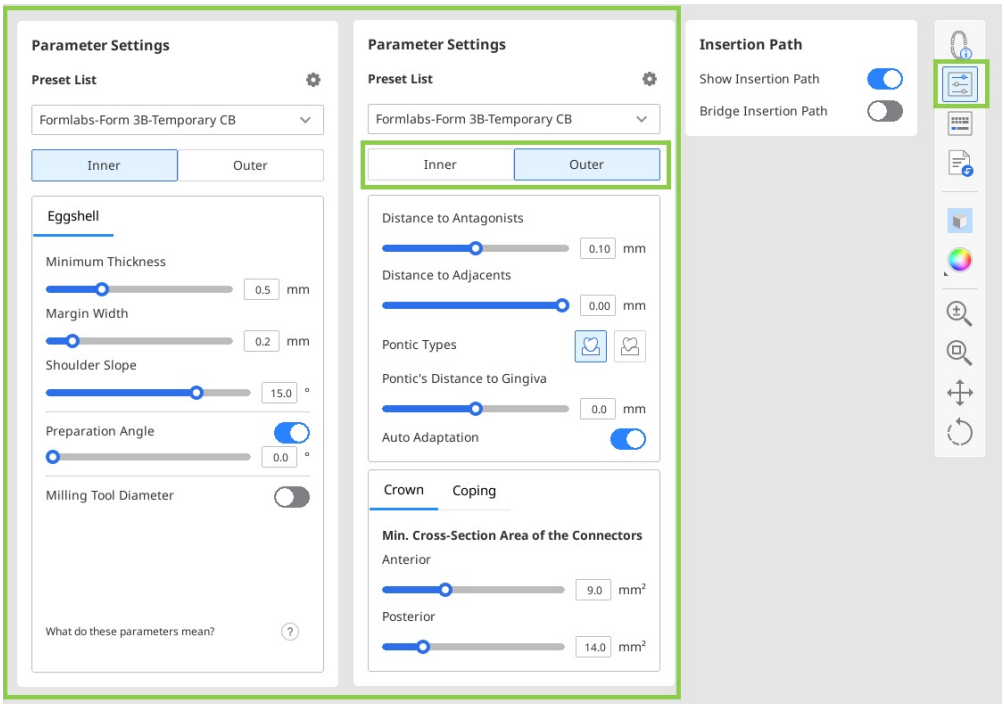
② The insertion path will be automatically detected. Review the detected insertion path, and if adjustments are needed, drag the insertion path arrow to modify its direction. The gray arrow will show the originally detected direction.

> **Tip**
>
> You can turn off "Bridge Insertion Path" individually and set the path for each crown in a bridge.



- Alternatively, you can rotate the 3D data and click “Set Arrow to Your Viewpoint” at the bottom.

③ In this step, you can also review the parameters for the restoration’s inner and outer surfaces before they are applied in the next step. By default, your most recently used parameters will be applied. Click “Parameter Settngs” in the Side Toolbar to see the details.



- You can manually configure the parameter values or use the recommended preset for your particular printer.

> **Note**
>
> Read more on receiving recommended presets and managing the preset list in the **Data Management > Presets Management** chapter of this guide.

④ When done, click "Next."

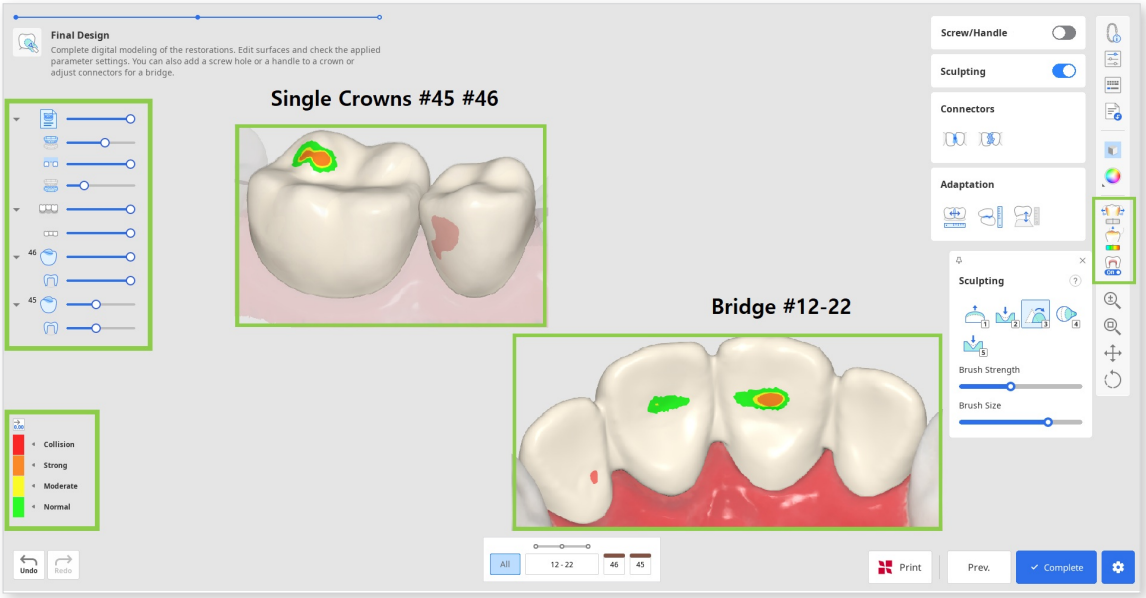
> **Note**
>
> If you choose to use the library instead of preoperative data in the first step, you will then proceed to the additional Tooth Data Arrangement step. Please refer to the **Workflow > Prepared Data Module > Tooth Data Arrangement** section of this guide for detailed instructions on how to use that step.

Final Design

This is the final step in designing the restorations. In this step, the user should review the design of the created restorations, make any necessary edits, and check the applied parameters before proceeding with printing. There are also two additional tasks that can be performed in this step: editing the bridge connectors and adding optional design elements to a crown.

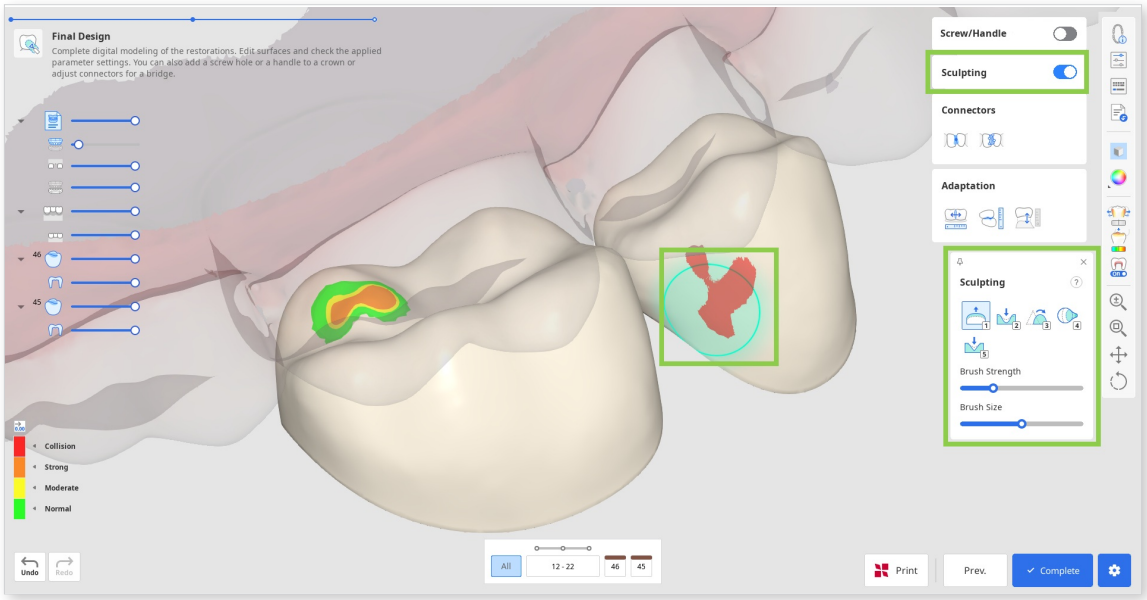
① Start by reviewing the created restorations. Turn on the analysis tools in the Side Toolbar to see where sculpting of the outer surfaces might be needed. ”Contact Areas with Adjacents” and “Contact Areas with Antagonists” will show the contact points with neighboring teeth through colors. ”Minimum Thickness” will point out areas of the crowns that are too thin in red. Add more material in these areas using sculpting tools.

> **Tip**
>
> Control data visibility in Data Tree for easy review of contact points and restoration fit.

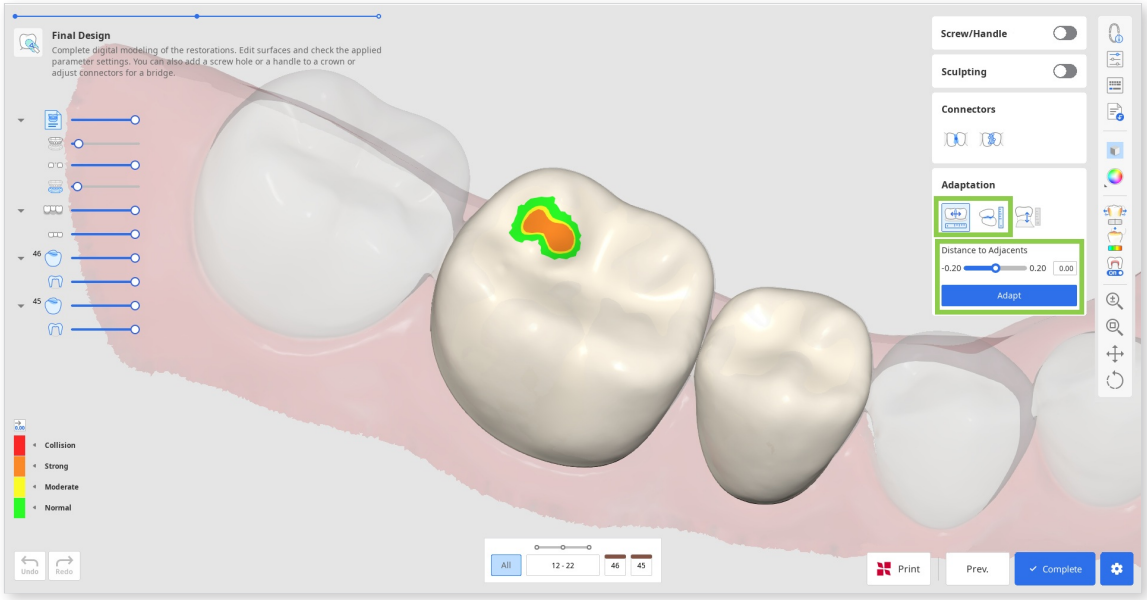


② Correct any design flaws using “Sculpting.” You can add, remove, smoothen, morph, and carve out material on the restoration’s outer surface. Choose a sculpting tool, adjust the brush strength and size, and then modify the required areas. Use the “Groove” option to create grooves easily.

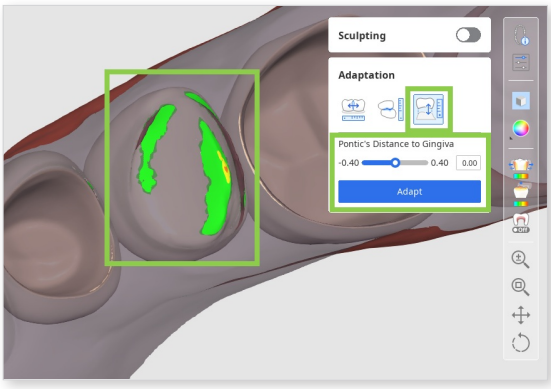
> **Tip**
>
> Click the question mark in the "Sculpting" widget to see the shortcuts.



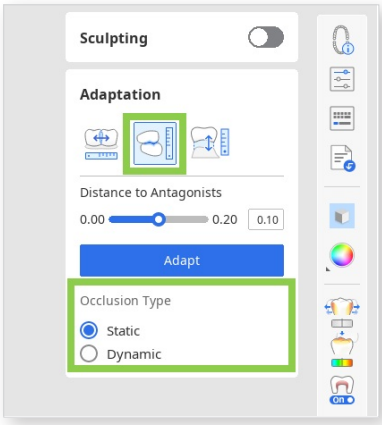
③ Any substantial sculpting might require additional review of the restoration fit and previously set parameters. Use “Adaptation” to make quick adjustments; you can adapt the restoration to adjacents and antagonists by a set distance.



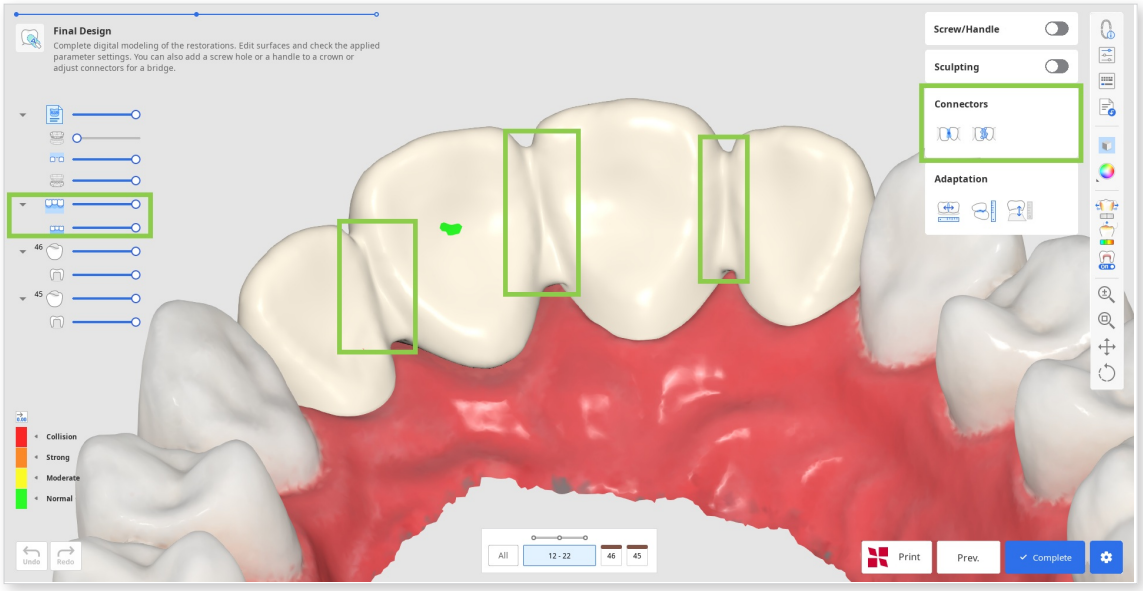
- If your bridge has a pontic, you can adjust its distance to gingiva using the Adaptation Tools in this step. Choose the “Adapt to Gingiva” feature, set the desired distance, and click “Adapt.”



- If dynamic occlusion data was imported, you can choose whether to adapt to antagonists based on ‘static’ or ‘dynamic’ occlusion.

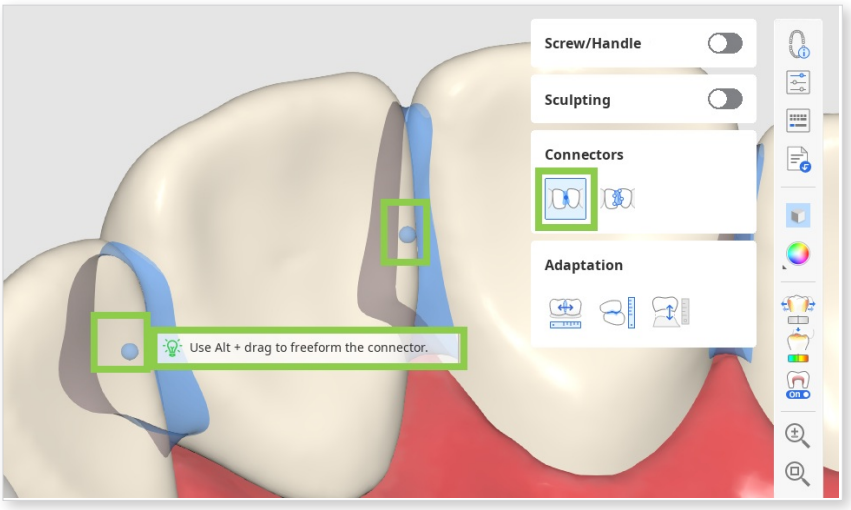


④ If you are working on a bridge, the data of each individual element will be combined into one by adding connectors. Edit the connectors using the “Move” or “Edit” tools.



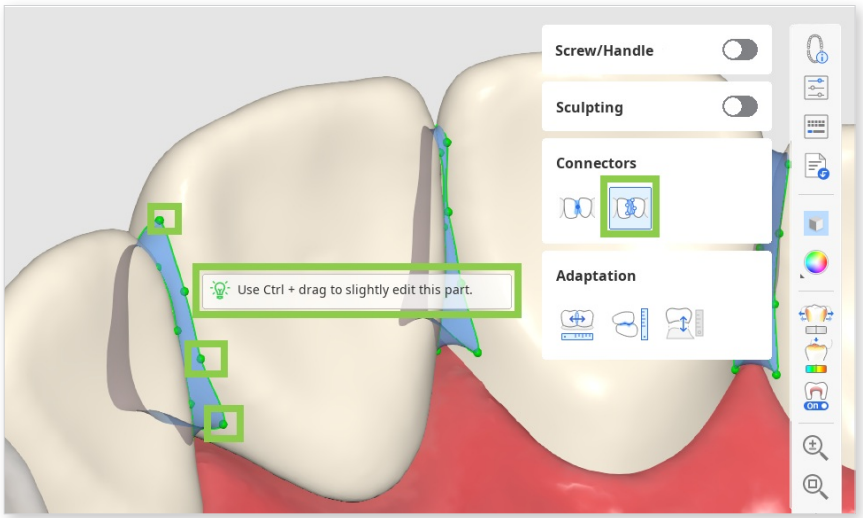
- When using ”Move,” drag the center point of a connector to readjust the connector’s position and cross-section area automatically.

> **Tip**
>
> Hold down Alt/Option to quickly freeform the connector with a mouse.

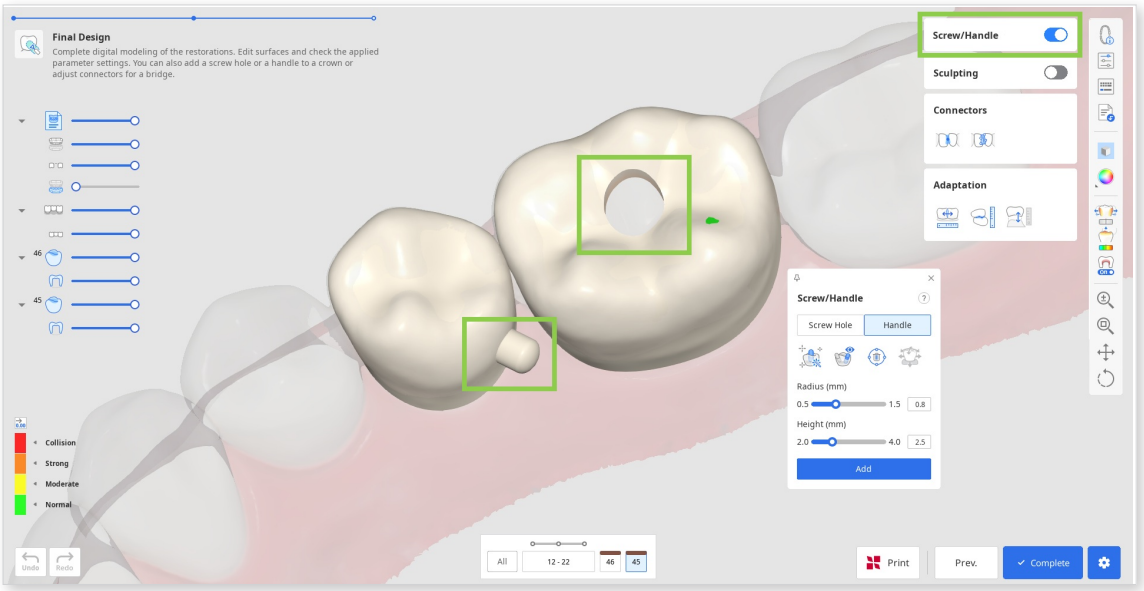


- When using ”Edit,” margins of the connector on both teeth will appear. You can reshape the connectors by editing those margins. Similar to editing the tooth’s margin line, click to add a point, right-click it to delete, and drag the points to move.

> **Tip**
>
> Hold down Ctrl/Command to quickly make minor changes in the margins.

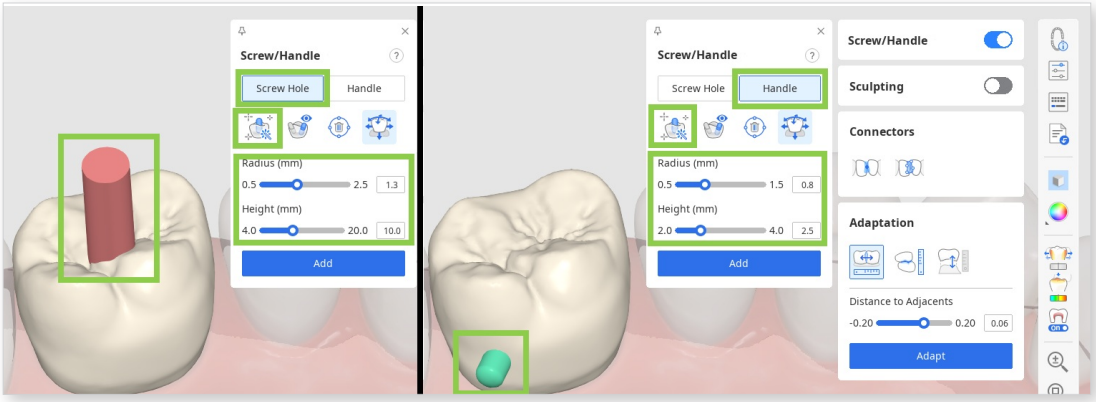


⑤ If you are working on a crown design, you can add screw access holes or handles with “Screw/Handle.”



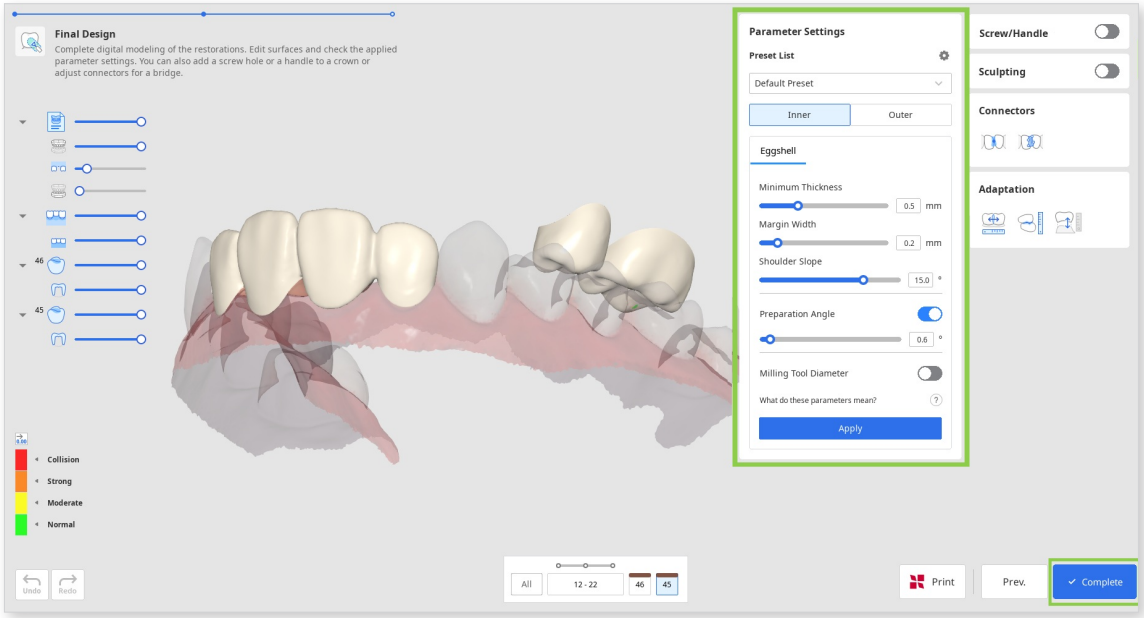
- Start by choosing what element you want to add and click “Auto Set.” This will automatically place the cylinder to create an element in the most optimal place—a handle on the lingual side and a hole in the center. Then, adjust the radius and height of the cylinder below and click “Add.”

> **Tip**
>
> The cylinder for creating an element can also be placed manually in your chosen spot with a double-click.



- You can also quickly move the cylinder around with a “Move” tool and change its direction by rotating the data and then settng it to your view with “Set Toward You.”

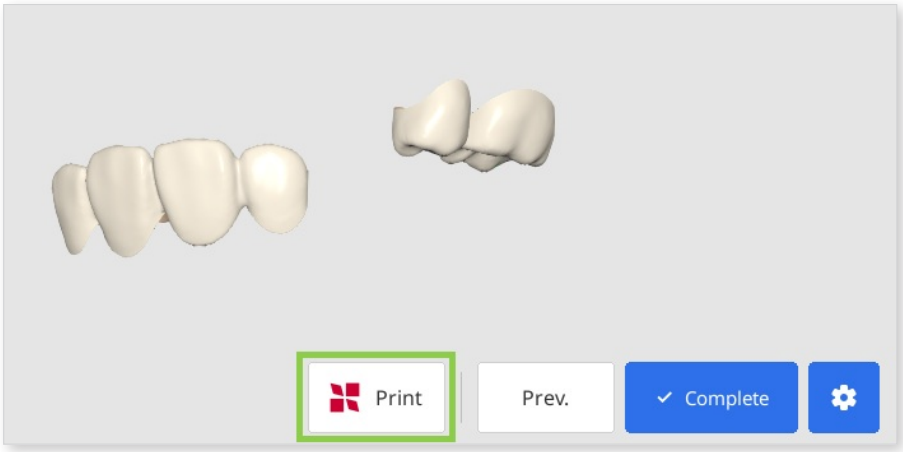
⑥ Lastly, review the inner and outer parameters in “Parameter Settngs” before saving your design and sending it to printing.



⑦ To save your restoration designs, click “Complete” at the bottom right corner.

> **⚠ Paid Feature**
>
> Saving and exporting the completed restoration 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.

⑧ If you have a SprintRay 3D printer, you can transfer your restoration design from this step right into the RayWare Cloud. For this, use the “Print with SprintRay” at the bottom and follow the guidance on the screen. You must already have a RayWare Cloud account to use this feature.



> **⚠ Caution**
>
> If you encounter difficulties connecting to RayWare Cloud, please refer to the following troubleshooting guidelines:
>
> - check your internet connection
> - verify your login credentials (username and password)
> - review your restoration design
>
> If the issues persist, please reach out to SprintRay support.

Prepared Data Module

The workflow in this module depends on the target restoration. The table below shows which steps are included in the workflow for each restoration type.

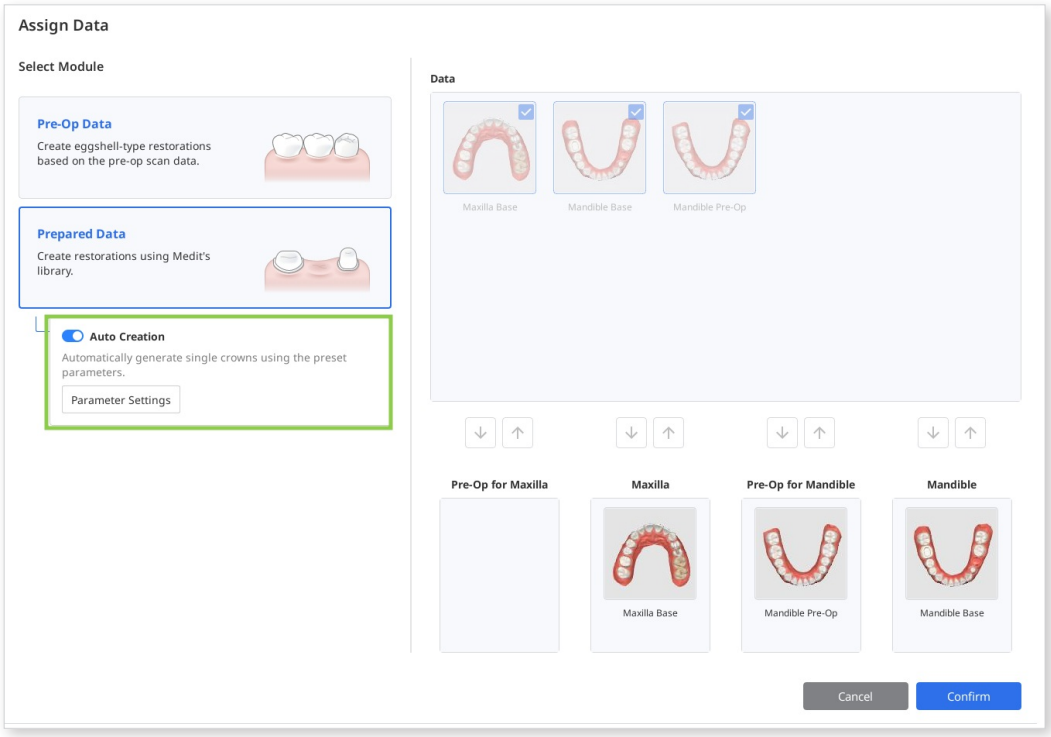
	Margin & Insertion Path	Tooth Data Arrangement	Final Design
Bridge	O	O	O
Crown	O	O	O
Veneer	O	O	O
Inlay/Onlay	O	O	O
Coping	O	X	O
Cervical Inlay*	O	X	O

**The workflow for the cervical inlay is explained separately in the Appendix.*

Auto Creation for Single Crowns

This module also supports the automatic creation of single crowns for premolars and molars based on preset parameters. To use this feature, the form in Medit Link must contain only single crowns. In the Assign Data window, activate the “Auto Creation” toggle and review the preset parameters in the settngs.

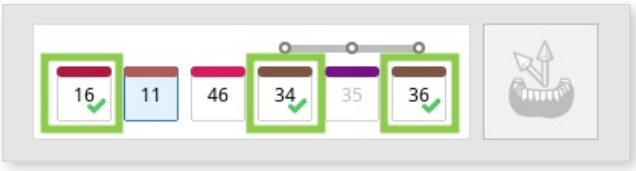
After the data assignment, users will enter the Final Design step, where they can review and customize the generated crowns.



Margin & Insertion Path

In the first step, users must draw margin lines for all teeth numbers entered in the form and then set the insertion path for each restoration.

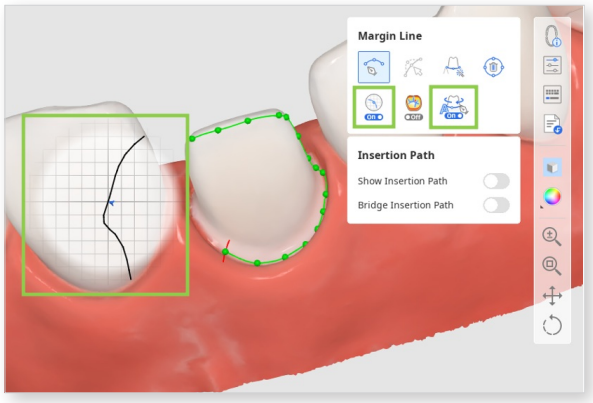
① Start by checking the teeth form at the bottom. If a tooth number has a green check mark, the margin line for this tooth has already been created or was imported from the case. Margin lines for copings, crowns, inlays, and onlays are created automatically.



② Then, select a tooth number that doesn't have a margin yet and draw it using the "Auto Creation" or "Manual Creation" tool.

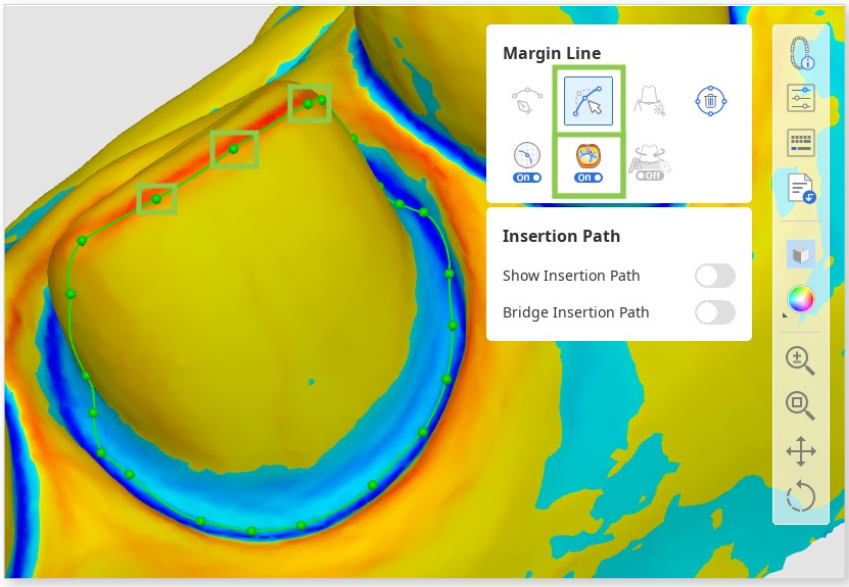
"Auto Creation" draws a margin based on a single user-defined point; "Manual Creation" draws a margin based on multiple points.

- Turn on "Section View" or "Dynamic View Change" to assist you when drawing the margin manually.



③ All margins can be edited by adding, moving, or deleting the control points. Click to add a point, right-click it to delete, and drag it to move. While editing, you can turn on "Curvature Display Mode" to better understand the depth.

> **Tip**
>
> Hold down the Ctrl/Command key and drag the mouse to make minor freehand corrections quickly.

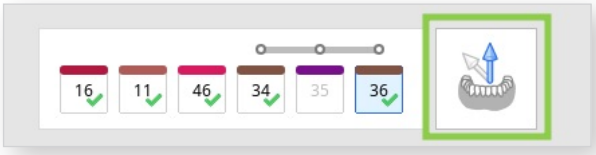


④ You can work on the insertion path only after margins for all target teeth have been created.

Turn on "Show Insertion Path" and adjust the automatically set path by dragging the insertion path arrow. The grey arrow will indicate the original direction.

> **Tip**
>
> Turn off "Bridge Insertion Path" to individually set the path for each crown in a bridge.

- Alternatively, you can rotate the 3D data and click “Set Arrow to Your Viewpoint” at the bottom.



⑤ When done, click "Next" or press the space bar to move to the next step.

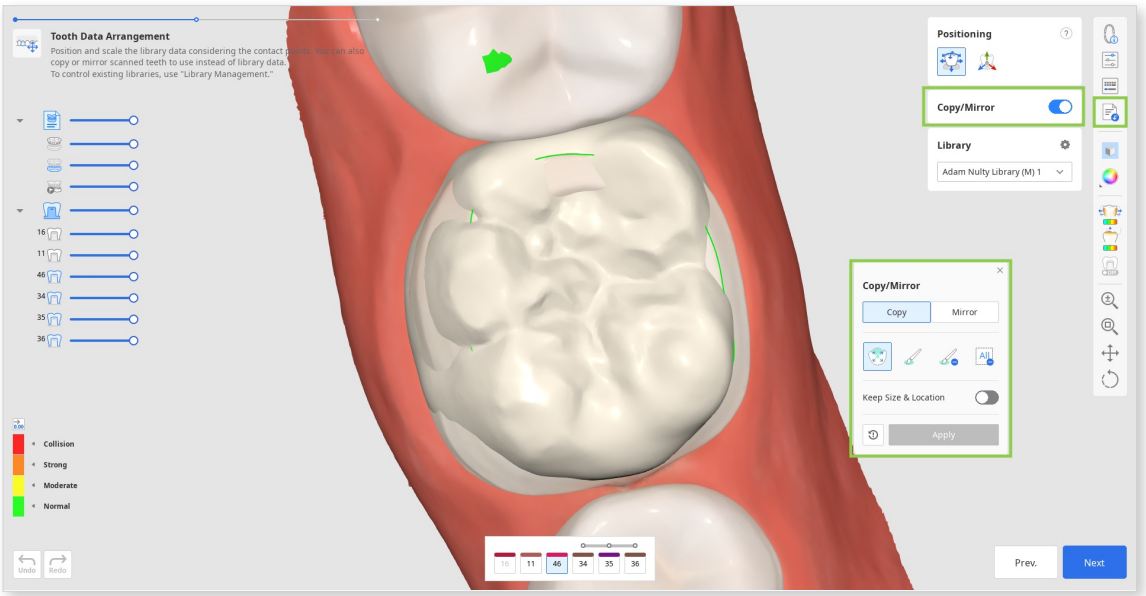
Tooth Data Arrangement

In this step, the user must arrange the tooth data to create restorations. They can use either tooth library data or any available preoperative or reference scan data.

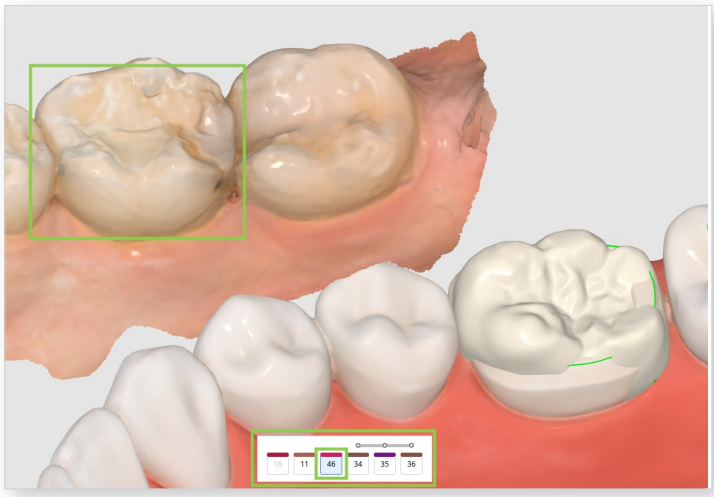
① When you enter this step, tooth data from the selected library will be automatically assigned to all the target teeth specified in the form. There are 6 default tooth libraries, and you can choose which one to use in the Library toolbox on the right.

> **Note**
>
> You can also expand the list of available libraries to 50 or modify the library data in "Library Management." For more details on this feature, go to **Data Management > Library Management**.

② Alternatively, you can duplicate other available data to use it instead of the library one. For duplication, you can use either the pre-op data imported via the Assign Data dialog in the beginning or any other reference scans you load via "Import Additional Data" in the Side Toolbar. The latter lets you import additional data from other Medit Link cases or any locally stored data. To duplicate the data, use the "Copy/Mirror" tool. ”Copy” creates an exact replica of a scanned tooth, while “Mirror” creates a symmetrical one. Note that the copied or mirrored data will be applied only to the single tooth currently selected in the form at the bottom, allowing you to retain the library data for other teeth.

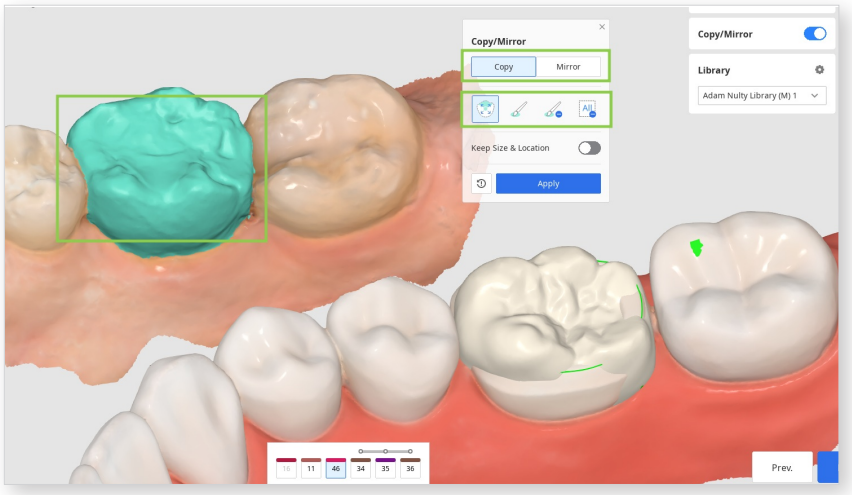


- Start by selecting a tooth number for which you want to use the duplicated data in the form at the bottom and finding the data you will be duplicating (use the Data Tree to make it visible).

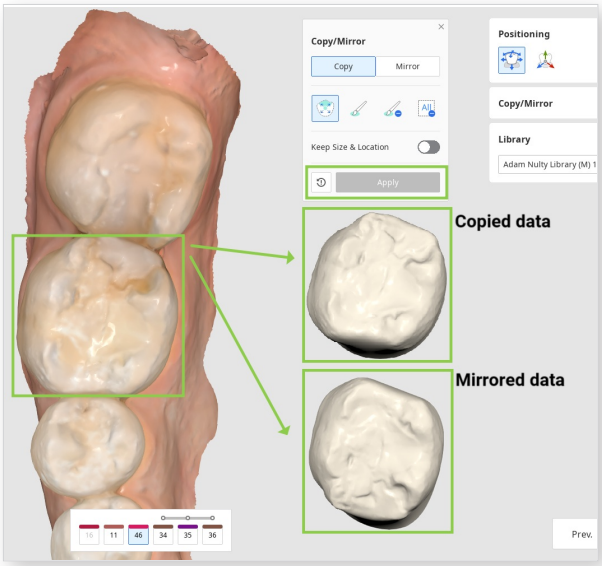


- Then, choose "Copy" or "Mirror" in the floating widget and select the desired tooth data using the provided tools.

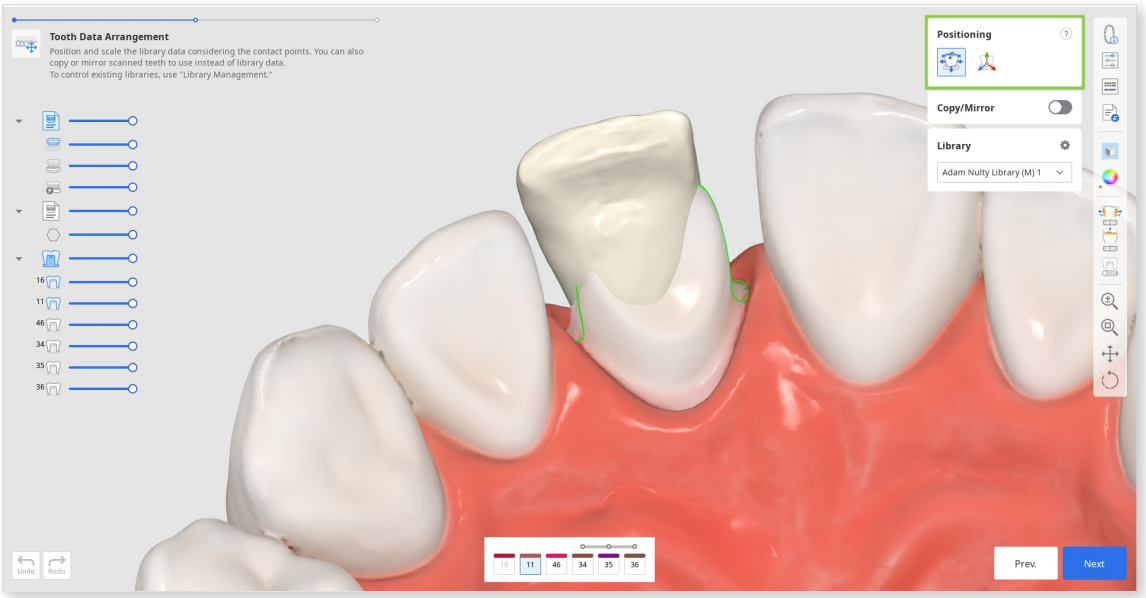
> **Tip**
>
> When copying data, note that the "Keep Size & Location" toggle allows you to create a duplicate of the same size and location as the original. If not turned on, the copied data will be placed onto the designated target tooth.



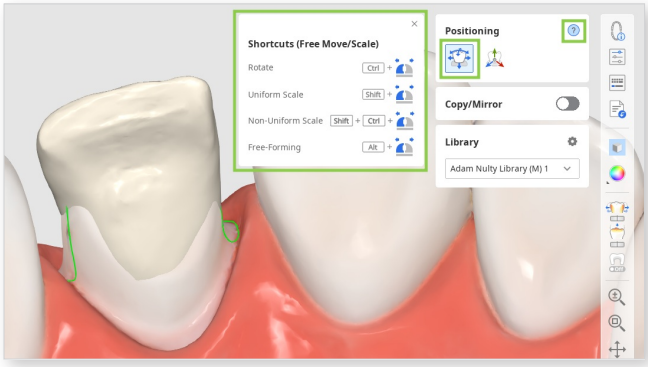
- Click "Apply" to substitute the library data with designated data. If you want, you can return to using the library data by clicking "Reset."



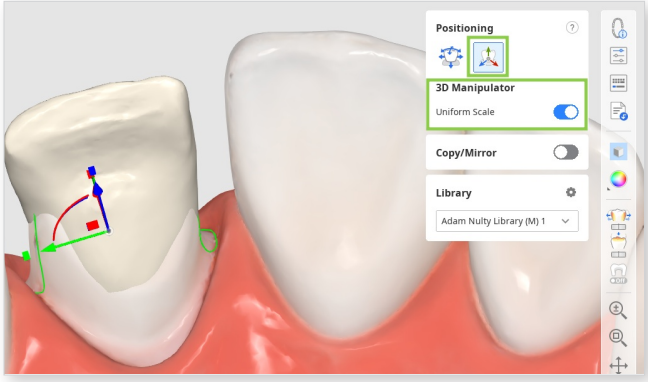
③ When you have arranged the tooth data for all your target teeth, adjust the data's placement using the "Positioning" tools. You can move, scale, or rotate the tooth data to ensure it is positioned properly.



- Use "Free Move/Scale" if you want to control data movements with no restrictions. To move data, use the mouse. For other actions like rotating and scaling, check the keyboard shortcuts under the question mark in the toolbox.

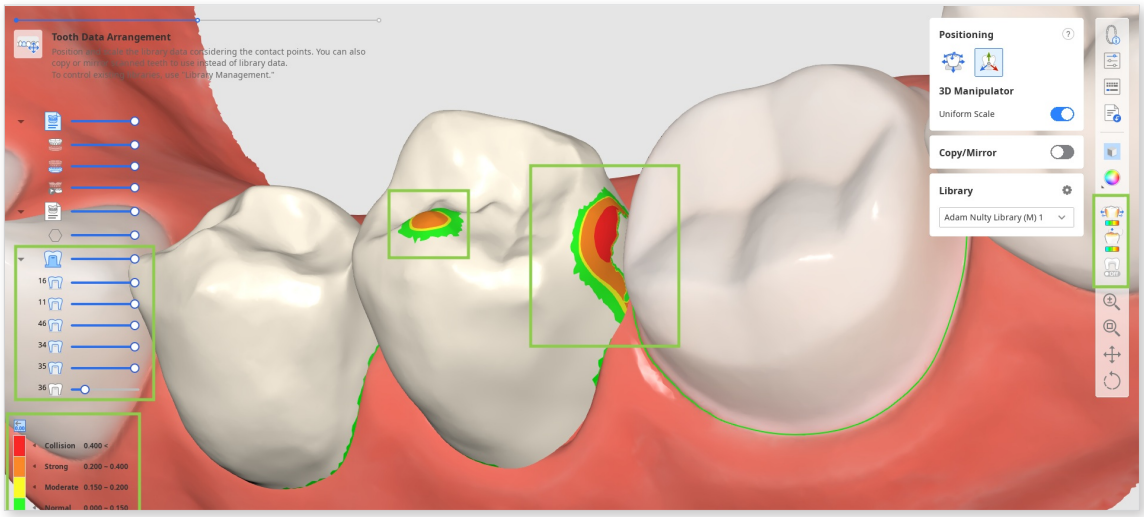


- Use "3D Manipulator" if you want to make precise or small adjustments to the data positioning. This feature lets you control data along the axis.



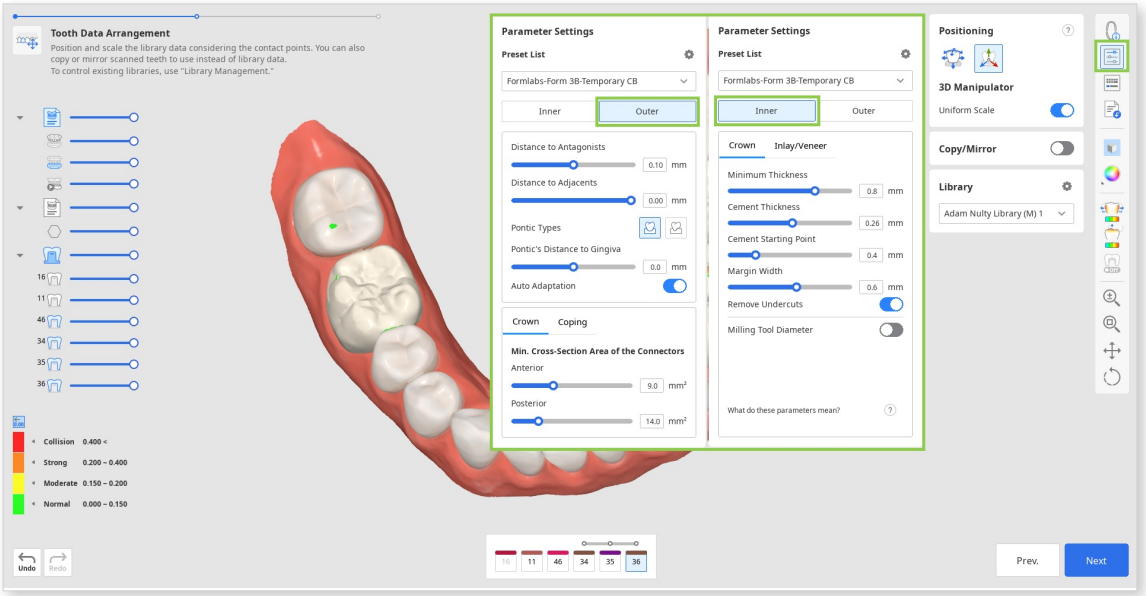
④ You should consider the contact points with other teeth when positioning the tooth data. To evaluate the contact between the restoration and its opposing or adjacent teeth, refer to the color bar in the bottom left corner.

> **Tip**
>
> Try adjusting data visibility in Data Tree for more comfort when reviewing the contact points.



⑤ In this step, you can also review the parameters for the restoration's inner and outer surfaces before they are applied. To do this, click the "Parameter Settngs" feature in the Side Toolbar on the right. You can use the recommended presets for your specific printer or manually adjust each parameter. By default, the most recently used parameters will be set up for you.

> **Tip**
>
> For more details on receiving and managing recommended presets, go to **Appendi x > Preset Management**.



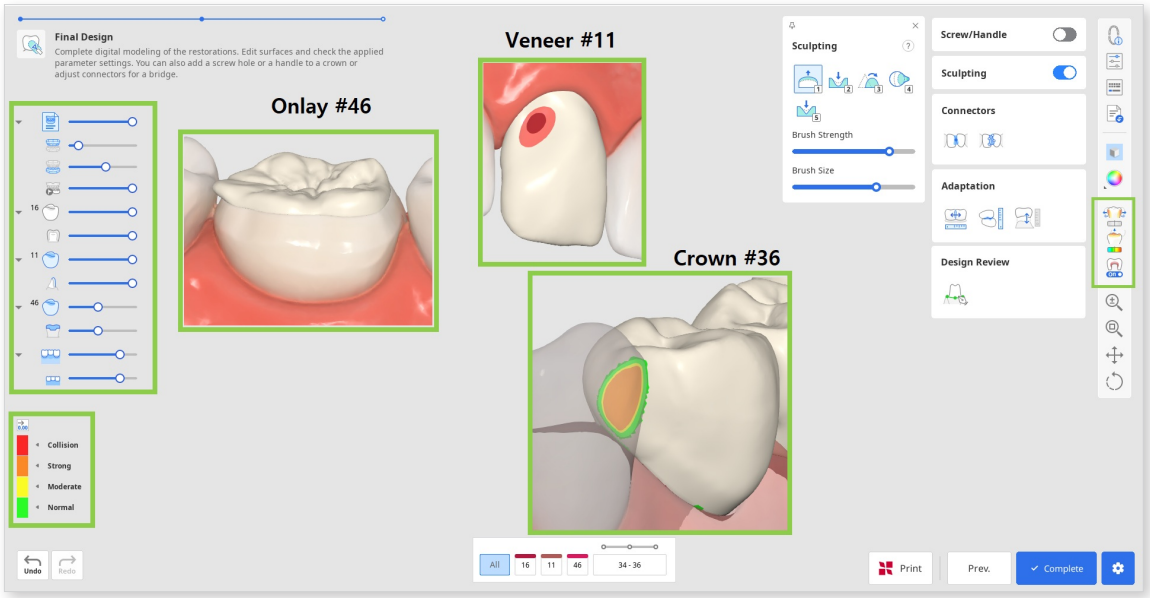
⑥ When done, click "Next."

Final Design

This is the final step in designing the restorations. In this step, the user should review the design of the created restorations, make any necessary edits, and check the applied parameters before proceeding with printing. There are also two additional tasks that can be performed in this step: editing the bridge connectors and adding optional design elements to a crown.

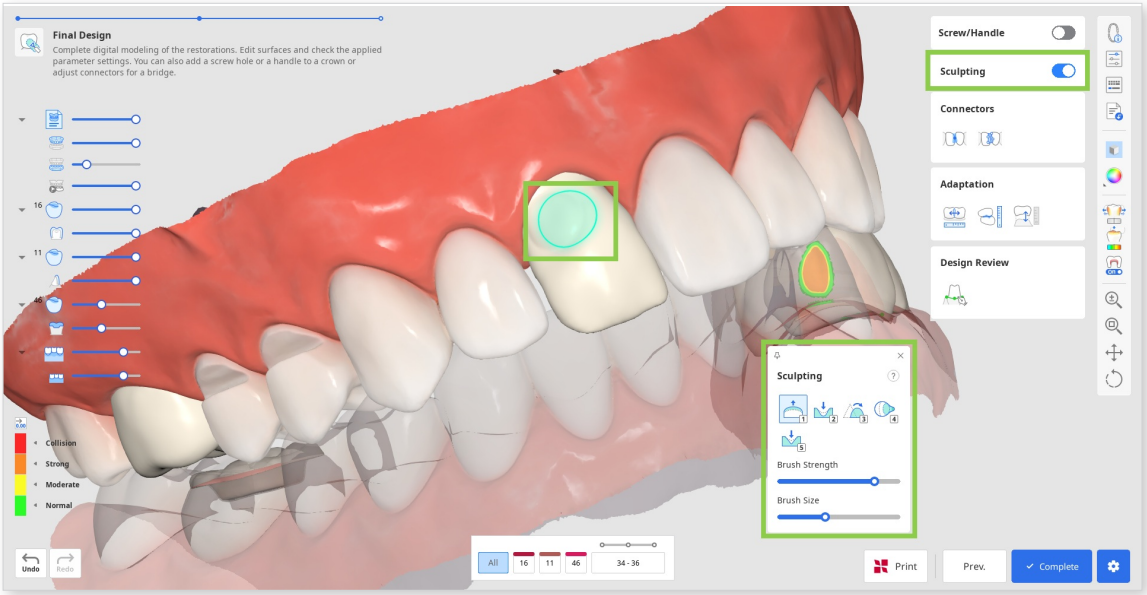
① Start by reviewing the created restorations. Turn on the analysis tools in the Side Toolbar to see where sculpting of the outer surfaces might be needed. ”Contact Areas with Adjacents” and “Contact Areas with Antagonists” will show the contact points with neighboring teeth through colors. ”Minimum Thickness” will point out areas of the crowns that are too thin in red. Add more material in these areas using sculpting tools.

> **Tip**
>
> Control data visibility in Data Tree for easy review of contact points and restoration fit.



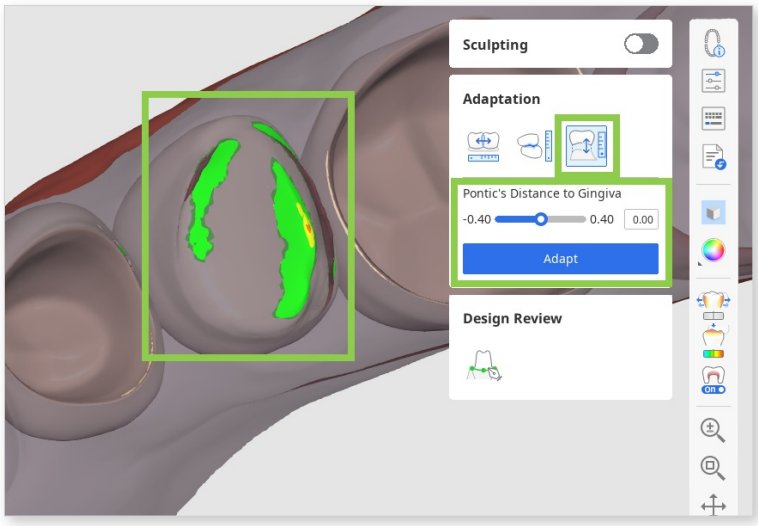
② Correct any design flaws using “Sculpting.” You can add, remove, smoothen, morph, and carve out material on the restoration’s outer surface. Choose a sculpting tool, adjust the brush strength and size, and then modify the required areas. Use the “Groove” option to create grooves easily.

> **Tip**
>
> Click the question mark in the "Sculpting" widget to see the shortcuts.

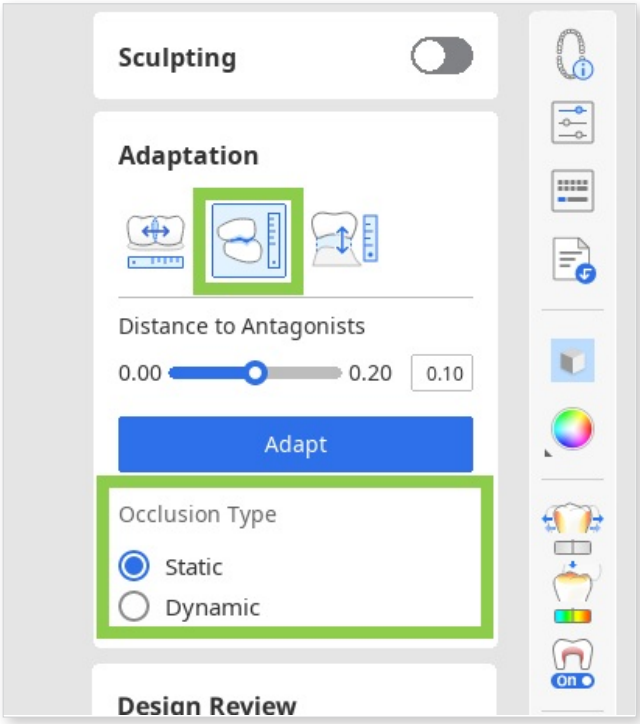


③ Any substantial sculpting might require additional review of the restoration fit and previously set parameters. Use “Adaptation” to make quick adjustments; you can adapt the restoration to adjacents and antagonists by a set distance.

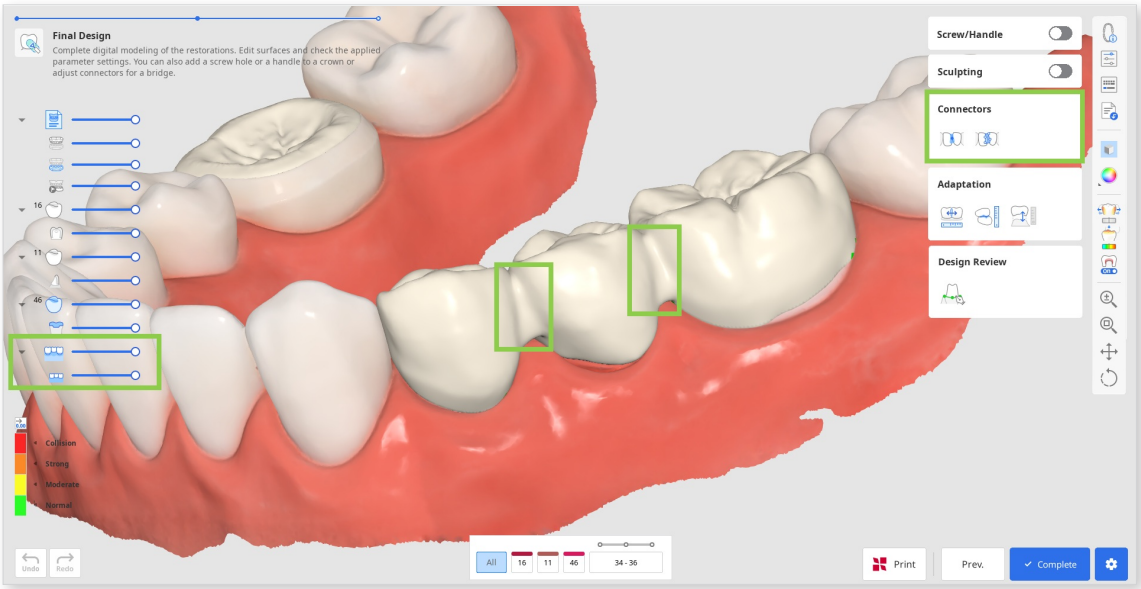
- If your bridge has a pontic, you can adjust its distance to gingiva using the Adaptation Tools in this step. Choose the “Adapt to Gingiva” feature, set the desired distance, and click “Adapt.”



- If dynamic occlusion data was imported, you can choose whether to adapt to antagonists based on ’static’ or ‘dynamic’ occlusion.

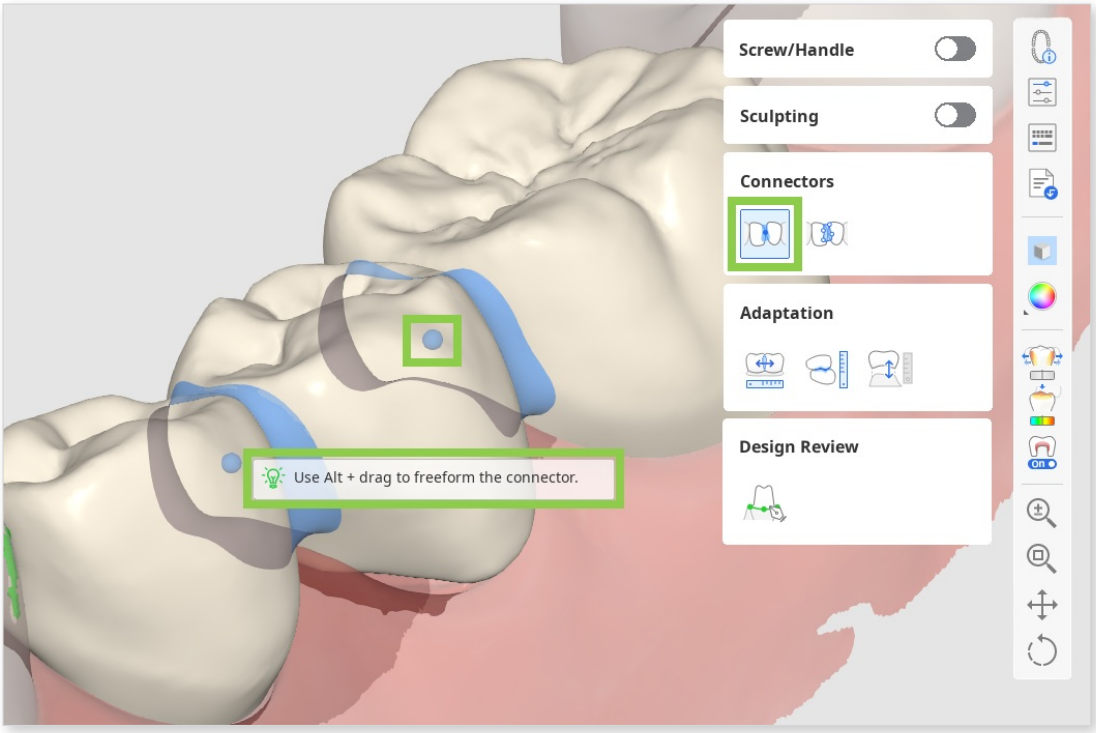


④ If you are working on a bridge, the data of each individual element will be combined into one by adding connectors. Edit the connectors using the “Move” or “Edit” tools.



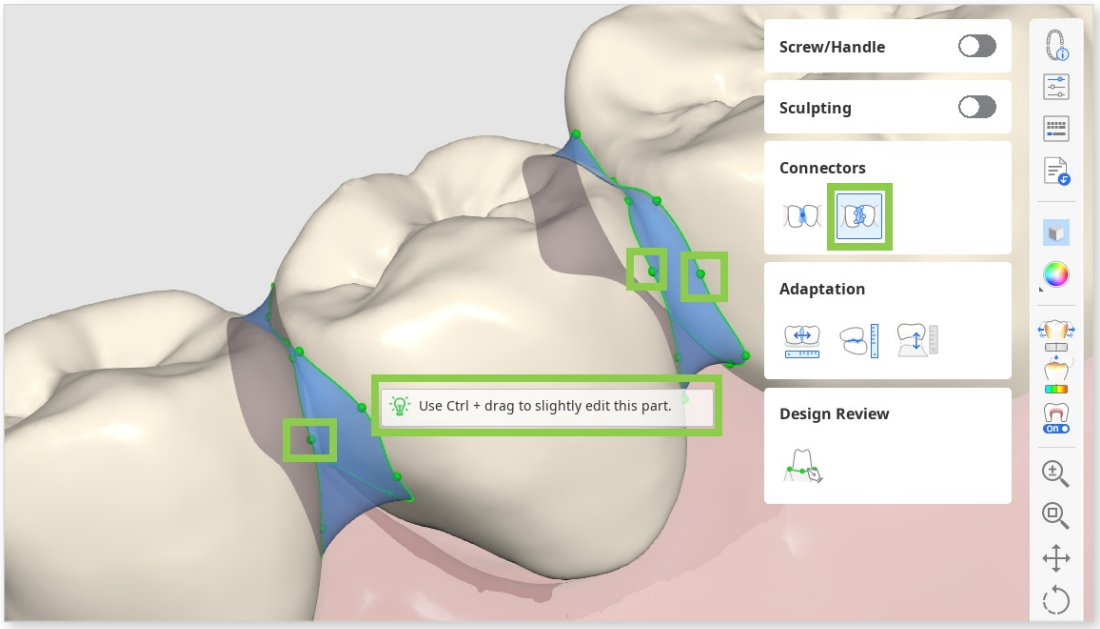
- When using ”Move,” drag the center point of a connector to readjust the connector’s position and cross-section area automatically.

> **Tip**
>
> Hold down Alt/Option to quickly freeform the connector with a mouse.

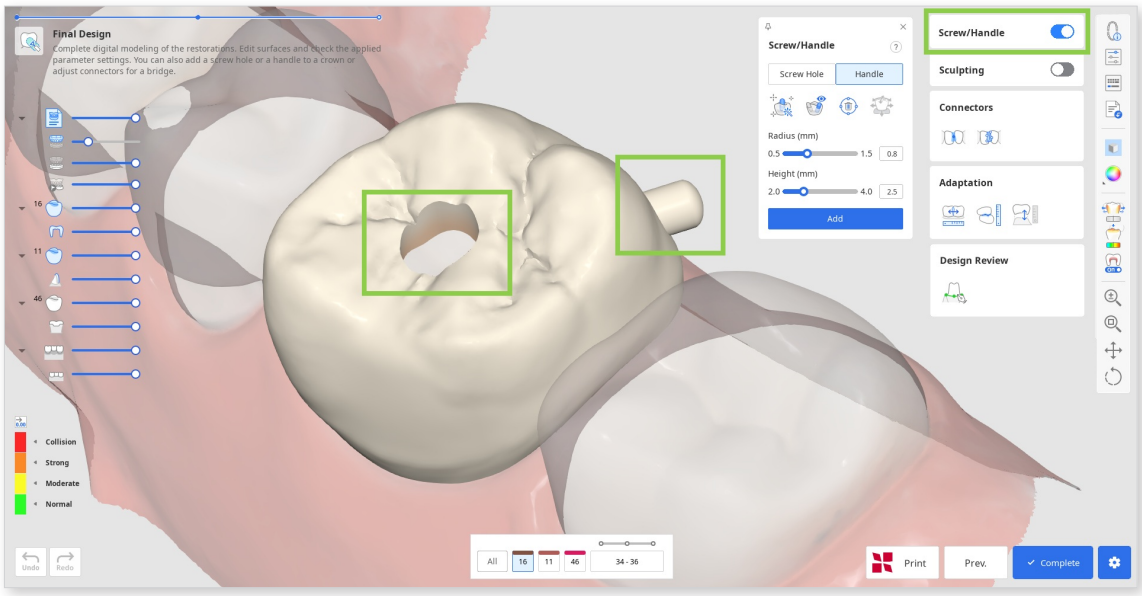


- When using ”Edit,” margins of the connector on both teeth will appear. You can reshape the connectors by editing those margins. Similar to editing the tooth’s margin line, click to add a point, right-click it to delete, and drag the points to move.

> **Tip**
>
> Hold down Ctrl/Command to quickly make minor changes in the margins.

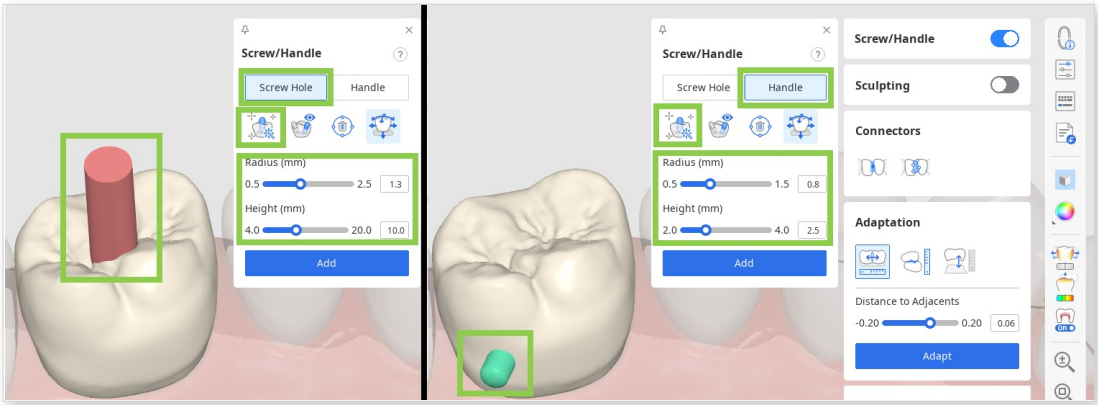


⑤ If you are working on a crown design, you can add screw access holes or handles with “Screw/Handle.”

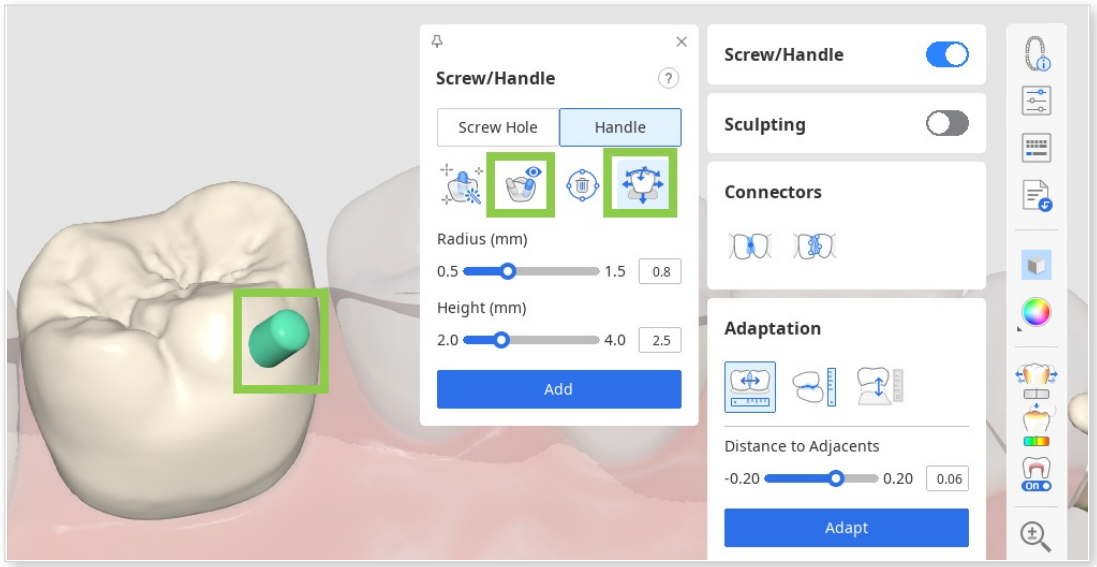


- Start by choosing what element you want to add and click “Auto Set.” This will automatically place the cylinder to create an element in the most optimal place—a handle on the lingual side and a hole in the center. Then, adjust the radius and height of the cylinder below and click “Add.”

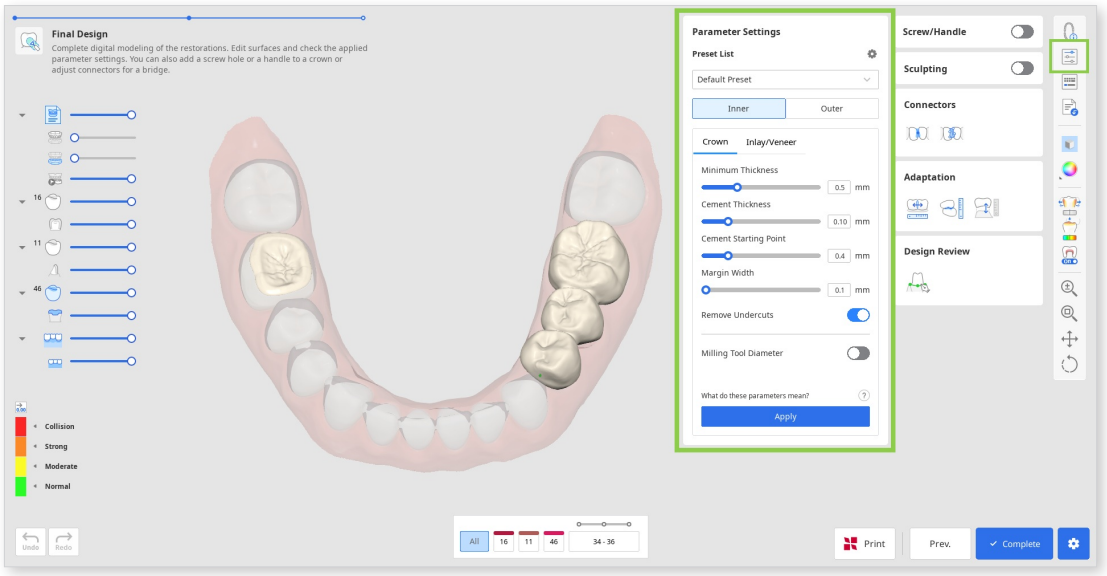
> **Tip**
>
> The cylinder for creating an element can also be placed manually in your chosen spot with a double-click.



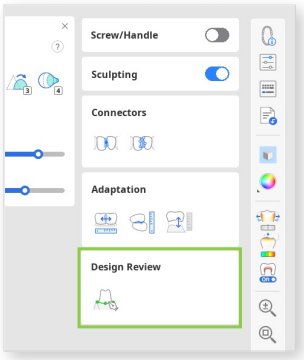
- You can also quickly move the cylinder around with a “Move” tool and change its direction by rotating the data and then settng it to your view with “Set Toward You.”



⑥ Next, review the inner and outer parameters in “Parameter Settngs” before saving your design. Both inner and outer parameters can be adjusted in the corresponding tabs.



⑦ Before saving or printing, make sure to review your created restorations. If you need to correct the inner surface but want to preserve the work on the outer surface, use the 'Margin & Insertion Path' in the Design Review toolbox instead of going back. This feature will take you back to the margin line creation step while keeping the outer surface design intact even after making changes.



Note

When creating single crowns using “Auto Creation,“ two features will be provided in the Design Review toolbox:

- Margin & Insertion Path: Allows you to correct the margin line and insertion path to adjust the inner surface while preserving the outer surface design.
- Tooth Data Arrangement: Enables you to adjust the positioning of library data to modify the outer surface while maintaining the inner surface.

⑧ When all design work is finished, you can either save your designs to the Medit Link case via “Complete“ or proceed to printing using SprintRay printer via “Print with SprintRay.“

⚠ Paid Feature

Saving and exporting the completed restoration 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.

⚠ Caution

If you encounter difficulties connecting to RayWare Cloud, please refer to the following troubleshooting guidelines:

- check your internet connection
- verify your login credentials (username and password)
- review your restoration design

If the issues persist, please reach out to SprintRay support.

Appendix

Designing Cervical Inlay

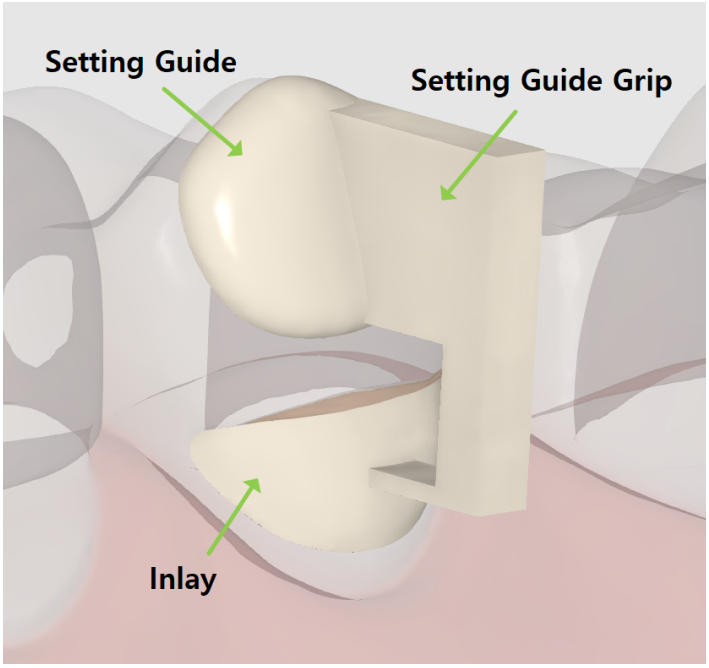
In Medit ClinicCAD, users can create inlays for treating cervical abrasions; we refer to them as 'cervical inlays.'

Tip

There are several reasons why inlays may be more advantageous than resin fillings:

- more secure bond in areas of extensive cervical loss
- less discoloration overtime
- more durable than traditional fillings
- eases and shortens the treatment process

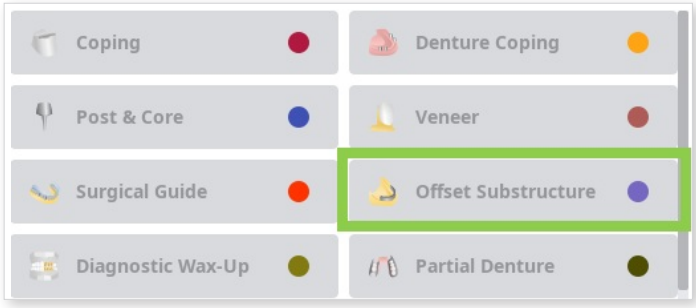
The final design of a cervical inlay includes three components: an inlay, a settng guide, and a settng guide grip.



The settng guide and the grip are designed to assist restoration placement and can be easily removed afterward. The settng guide is an obligatory element that is created automatically about 1 or 2 mm from the abrasion area. If needed, users can modify it by editing its margin. The settng guide grip is optional and can be added at the final step.

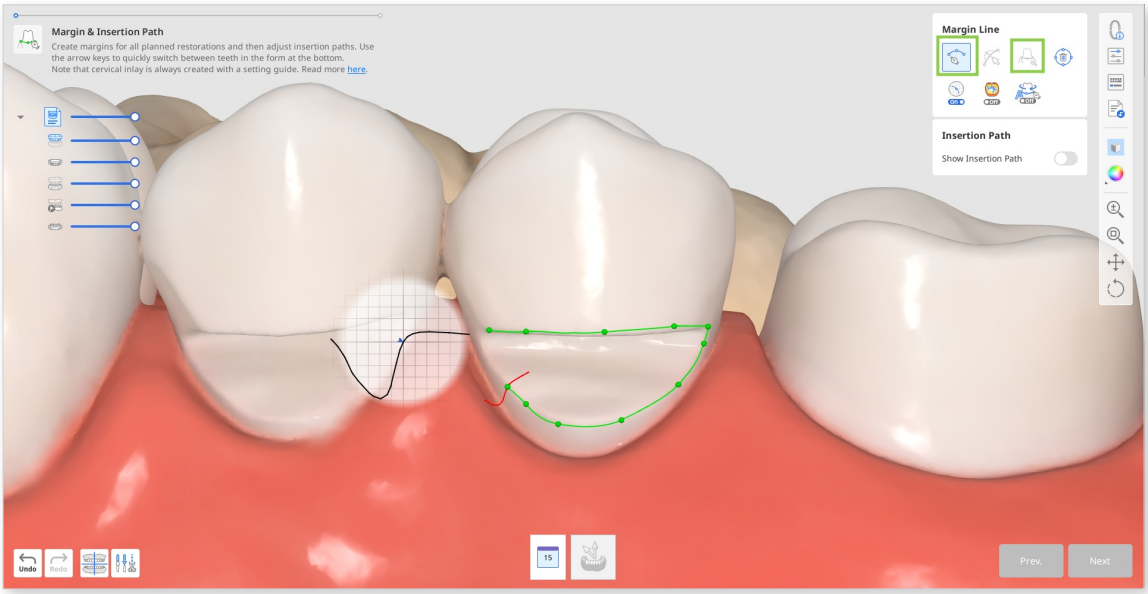
The cervical inlay workflow includes only 2 steps: **Margin & Insertion Path** → **Final Design**.

① To begin, register your inlay as "Offset Substructure" in the Medit Link form. Then, run the app and select the Prepared Data module.



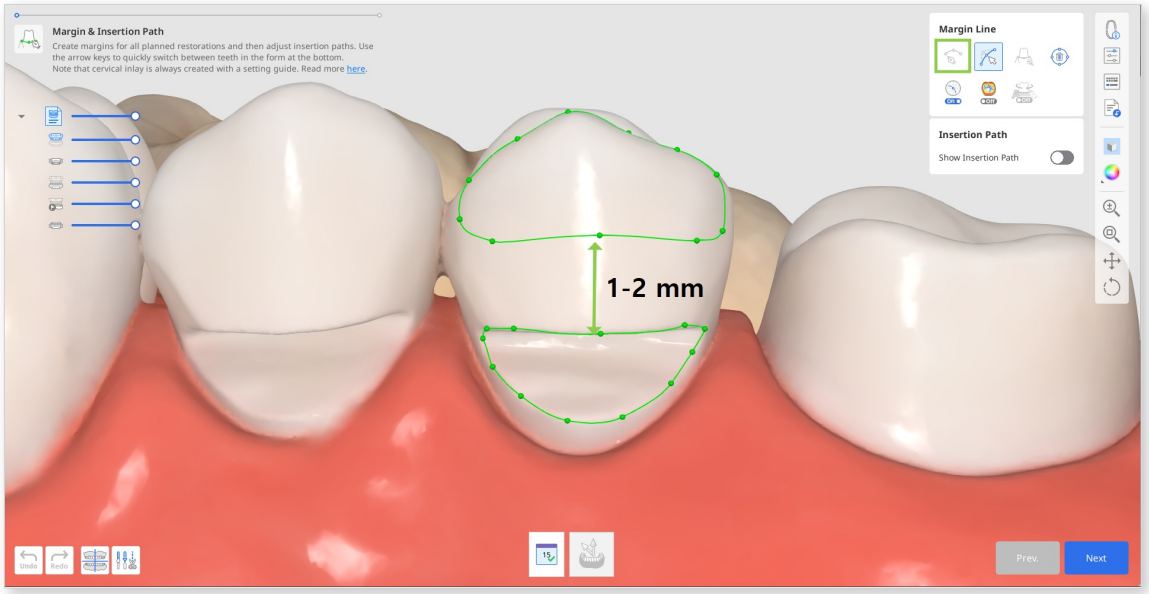
② In the first step, draw a margin for the inlay using the “Auto Creation” or “Manual Creation” tool.

”Auto Creation” draws a margin based on one clicked point; “Manual Creation” draws a margin based on multiple points.

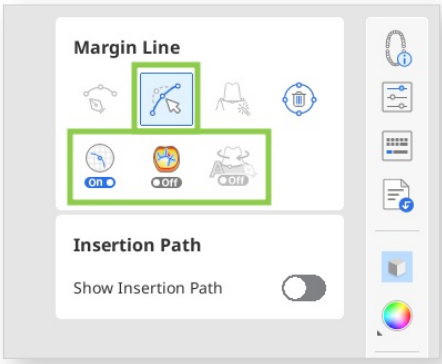


③ The settng guide margin will be created automatically.

If automatic creation fails, manually draw the settng guide margin, leaving about 1 or 2 mm between the two.



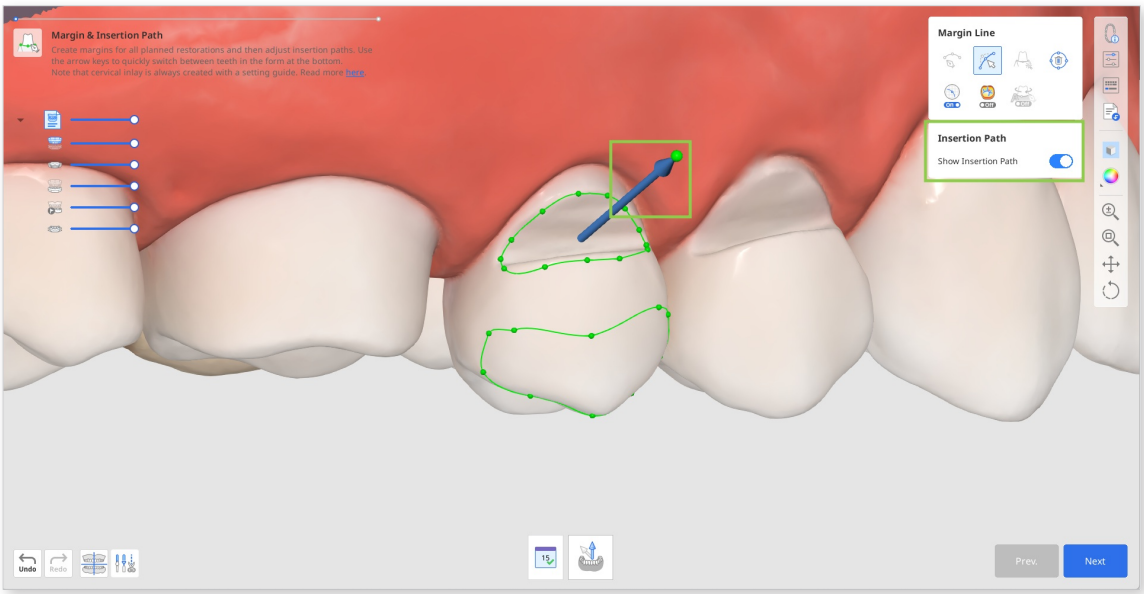
- If needed, edit the created margins with the “Edit” tool. Utilize the other provided margin line tools to assist you in creating a more precise margin.



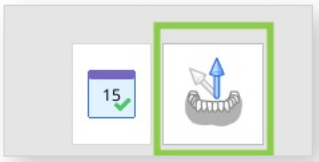
Tip

When editing, hold down the Ctrl/Command key and drag the mouse to make minor freehand corrections quickly.

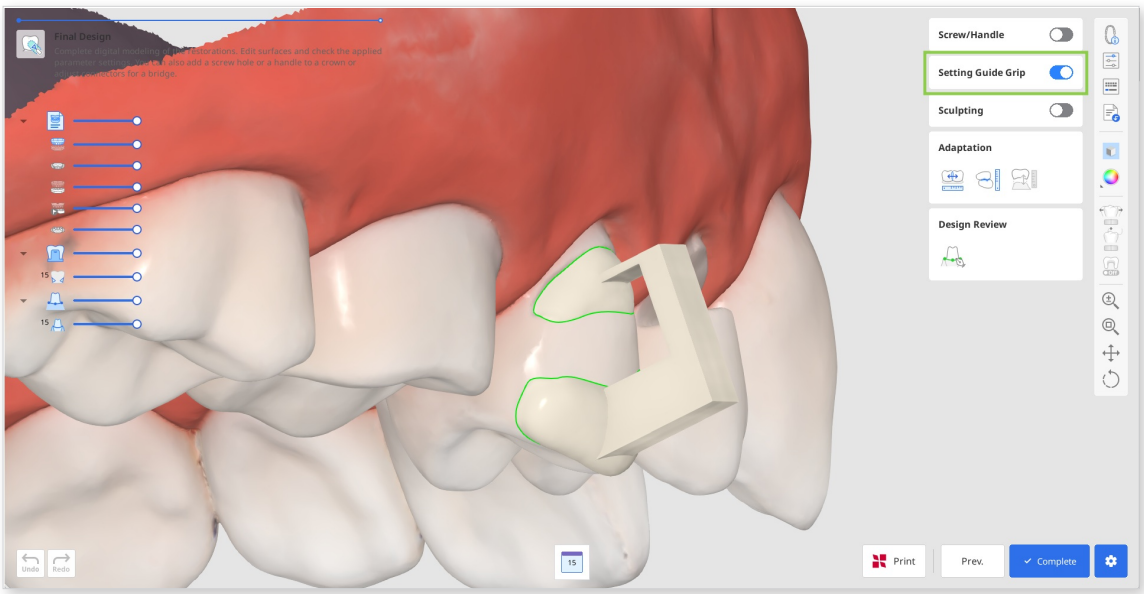
④ After the margins are created, the insertion path arrow will appear. Adjust it to face toward you by dragging it with a mouse and click "Next."



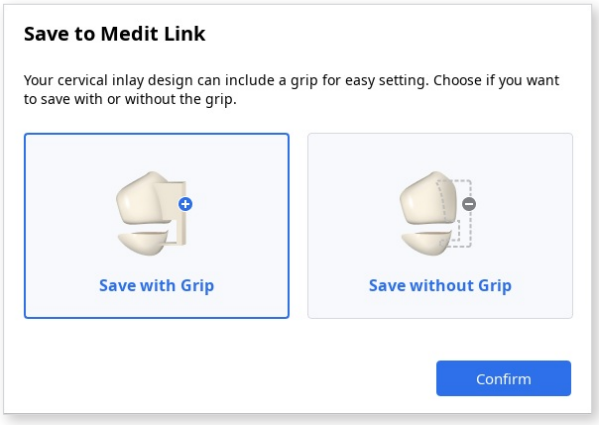
- Alternatively, you can rotate the 3D data and click “Set Arrow to Your Viewpoint” at the bottom.



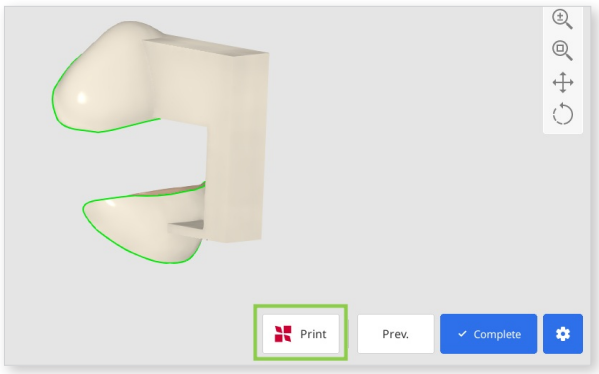
⑤ In the next step, you can add the grip that will assist holding the inlay design when settng. For this, turn on "Settng Guide Grip" on the right. Or you can substitute the grip for supports later in your printer software.



⑥ Click "Complete" to pay for the export of your design and save it to Medit Link. The app will double-check with you on creation of the grip.



⑦ If you have a SprintRay 3D printer, you can transfer your restoration design from this step right into the RayWare Cloud. For this, use the “Print with SprintRay” at the bottom and follow the guidance on the screen. You must already have a RayWare Cloud account to use this feature and pay for the design before proceeding with printing.



⚠ Caution

If you encounter difficulties connecting to RayWare Cloud, please refer to the following troubleshooting guidelines:

- check your internet connection
- verify your login credentials (username and password)
- review your restoration design

If the issues persist, please reach out to SprintRay support.

Medit Corp.

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