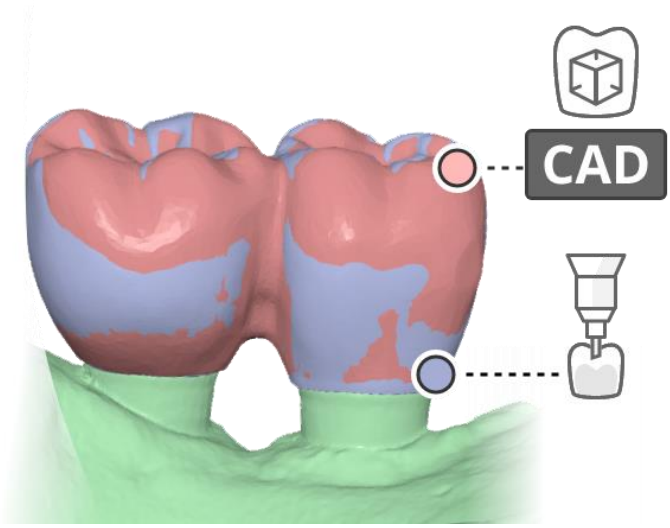
Medit Crown Fit



Revision: November 2020
Revision No.: 1

Contents

Greetings

Thank you for using Medit Crown Fit! You have made a great choice.

Medit offers high quality hardware and software solutions, including table top and intraoral scanners.

With Medit you can work efficiently with 3D data and use the software with minimal training.
We work relentlessly to create user-friendly products that supplement digital dentistry workflow for clinic and lab users.

Introduction and Overview

Medit Crown Fit Overview

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Introduction and Overview

1.1 Medit Crown Fit Overview

Medit Crown Fit is a software that helps to perform a digital crown fitting test by checking the alignment between prepared teeth and milled prosthesis data in a couple of steps. Another great feature is the ability to compare milled and CAD data to inspect your milling machine or 3D printer. It also has some advanced data measurement and transformation features.

Medit Crown Fit can be run from both Clinic and Lab Accounts in Medit Link.
Note, that in order to run the app you have to have CAD data designed in exocad, data of milled prosthesis and scan data.

1.2 Intended Use and Disclaimer

⚠ The user is entirely responsible for the Crown Fit process and informing the patients that the Crown Fit results generated by the application may not be precise or reliable and should only be used for consultation or communication purposes. Medit does not take any responsibility or liability for any misunderstandings or miscommunications that might happen. The application is to be used solely for communication purposes.

⚠ Medit Crown Fit is not developed for using in medical or clinical purposes.

⚠ The software may not be used for the following purposes:

1. For the purposes of diagnosing, treating, mitigating, or preventing diseases.
2. For the purposes of diagnosing, treating, mitigating, or preventing injuries or disorders.
3. For the purposes of inspecting, replacing, or transforming a structure or function.

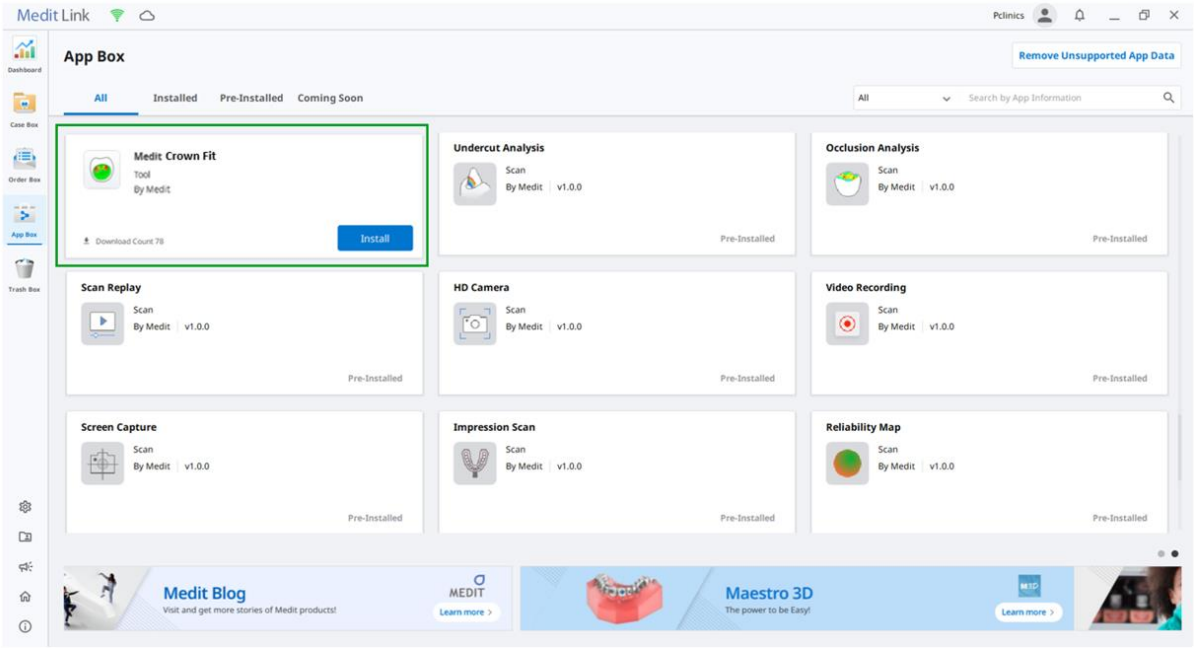
1.3 System Requirements

CPU	Intel Core i5 2.6GHz or higher
RAM	16 GB or higher
Graphic	NVIDIA GeForce GT 760 (2GB) or higher / or equivalent AMD video card
OS	Windows 8 64 Bit (unavailable in 32 Bit) or higher

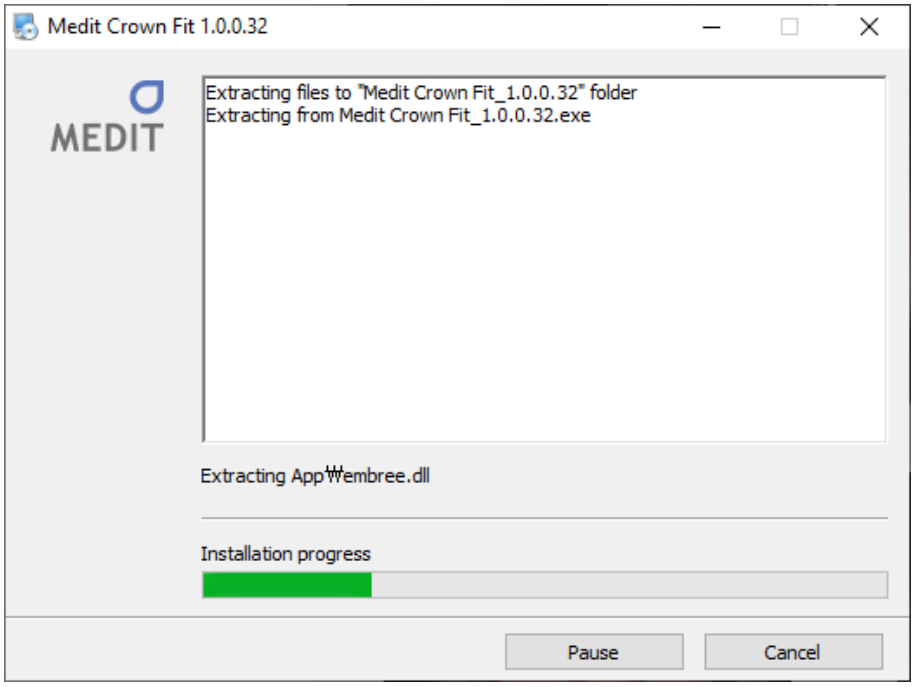
1.4 Installation Guide

- Log in into your Medit Link Account and go to the **App Box**.
- Find **“Medit Crown Fit”** and click on the **“Install”** 

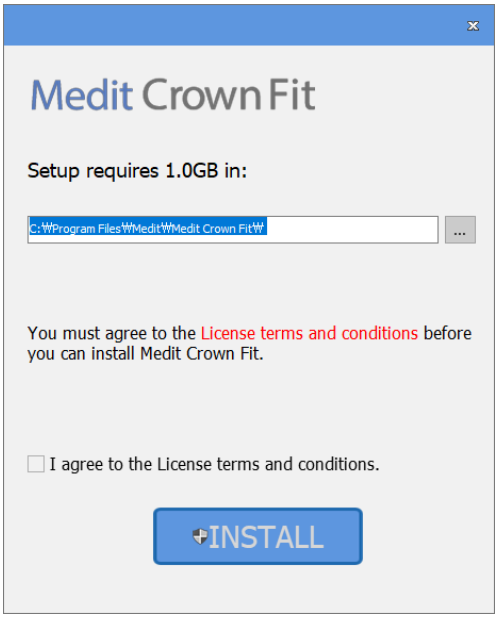
button.

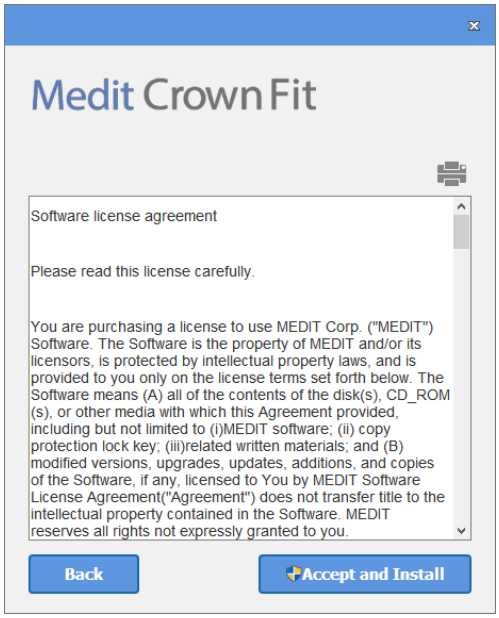


➢ After the download is complete, Medit Crown Fit _1.0.X.X.exe will be run automatically from your PC.

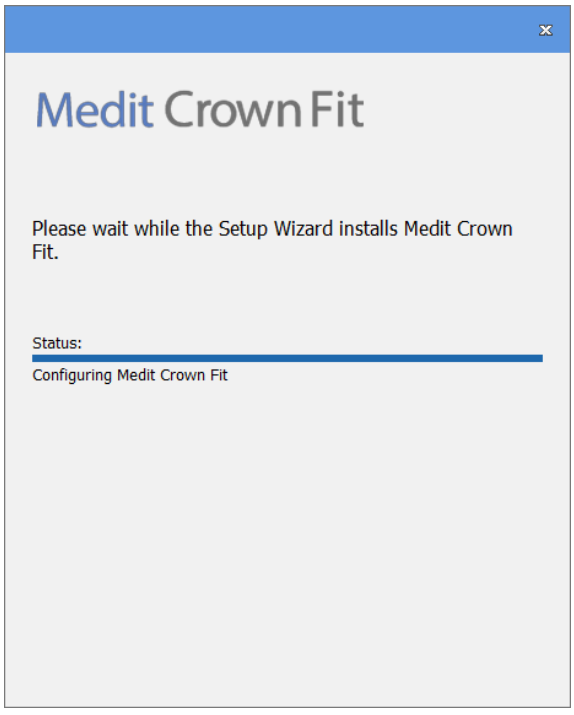


➢ Read and agree to the License Terms and Conditions.

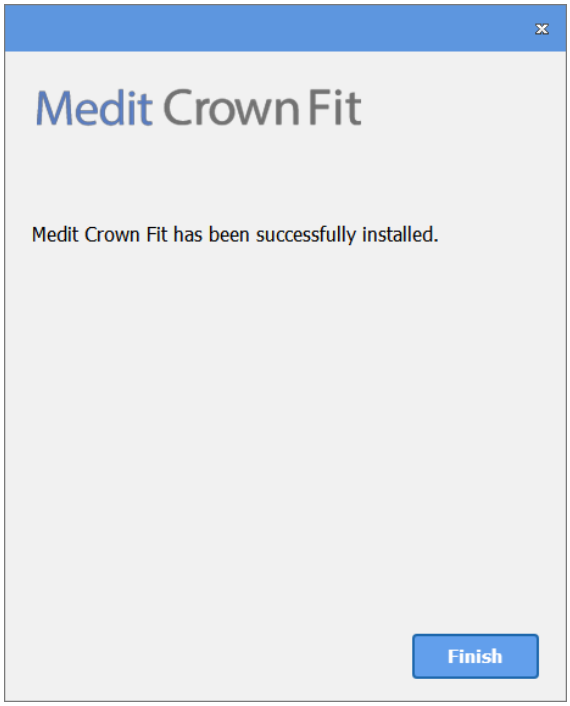




- It may take up to several minutes to finish the installation process. Please do not turn off the PC until the installation is complete.



- Press **"Finish"** to complete the installation.



- Restart Medit Link.

Data Management

Acquiring Data

Running Medit Crown Fit from Medit Link

3D Data Control

Data Management

2.1 Acquiring 3D data

To run Medit Crown Fit, you must have a set of

- CAD data designed in exocad,
- scan data of a prosthesis, and
- corresponding intraoral scan data.

3D data to be used in Medit Crown Fit can be acquired in two ways.

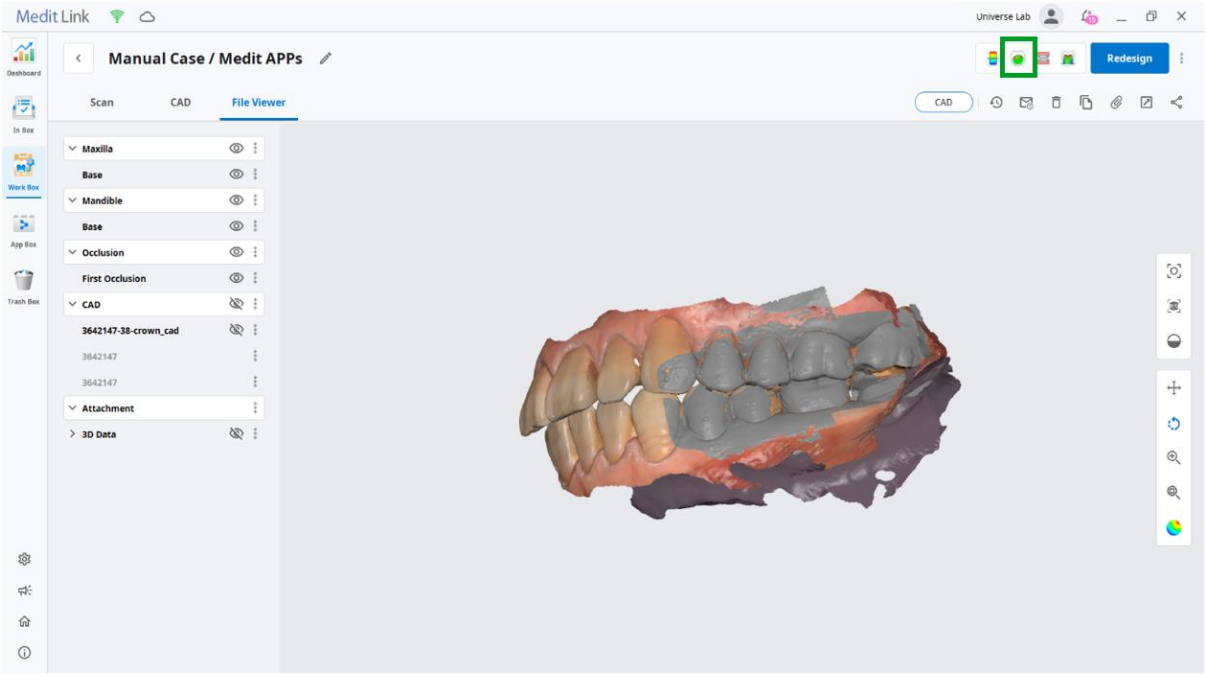
By performing scan in Medit Scan for Clinics or Labs and designing crowns/bridges with exocad through Medit Link
After performing the necessary scans in the Medit Scan for Clinics or Labs application and designing data in exocad, all data will be automatically saved in the corresponding Medit Link case. Then it can be imported using the **"Import from Medit Link"** dialogue window.

By adding data to a Medit Link Case
To import 3D data acquired in other ways, it should be first attached to a case in Medit Link.

Note that in this case, too, exocad CAD data should be included.

2.2 Running Medit Crown Fit from Medit Link

- Go to **Case Box** (Clinic Account) or **Work Box** (Lab Account) and choose the case would like to use for Medit Crown Fit.
- Press the icon in the right upper side of the Case Detail window in Medit Link, which will automatically appear once you install the App and relaunch Medit Link.

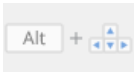
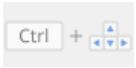


2.3 3D Data Control

3D data control using mouse:

Button	Action	Use	Image
Left	Click	Selects or deletes the entities in view screen when using the polyline selection or polyline trimming tool.	
	Drag	Selects or deletes entities in view screen when using Brush selection or Brush trimming tool.	
Wheel	Drag	Moves the data in view screen.	
	Scroll	Zooms in/out the data in view screen.	
Right	Click	Completes the selection or deletion of entities in view screen when using the polyline selection or polyline trimming tool.	
	Drag	Rotates data in view screen.	

3D data control using mouse and keyboard buttons:

Button	Action	Use	Image
Shift	Left Click and Drag	Zoom in / zoom out	
	Up and Down Keys	Zoom in / zoom out	
Alt	Left Click and Drag	Rotate	
	Up, Down, Left and Right Keys	Rotate	
Ctrl	Left Click and Drag	Move	
	Up, Down, Left and Right Keys	Move	

User Interface

Title Bar

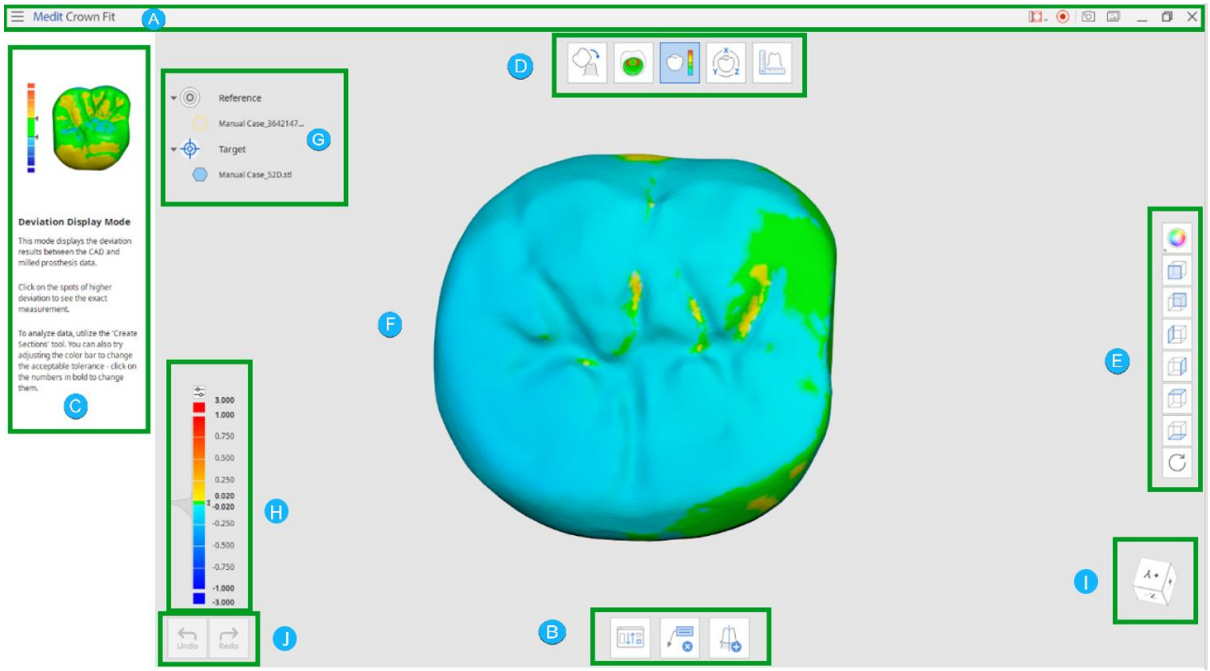
Data Tree View

Toolbox

View Cube

Undo/Redo

User Interface



A.	Title Bar	B.	Toolbox	C.	Guide Message
D.	Modes	E.	Side Toolbar	F.	3D Data View
G.	Data Tree View	H.	Colorbar	I.	View Cube
J.	Undo/Redo				

3.1 Title Bar

The Title Bar consists of the following options:

Menu	The menu includes tools to manage projects and shows the details of application.
Select Video Capture Area	Specifies the area to be recorded for the video capture.
Start Video Recording	Starts the video capture.
Screenshot	Captures the screen. You can select the area automatically or manually. The automatic selections are: 1) Program area; 2) Main 3D area.
Screen Capture Image Manager	Manages the captured screen images.

Minimize	Minimizes the application.
Maximize or Restore	Maximizes or restores the application.
Exit	Terminates the application.

3.2 Side Toolbar

The Side Toolbar provides the tools to change the way data is displayed and set view options.

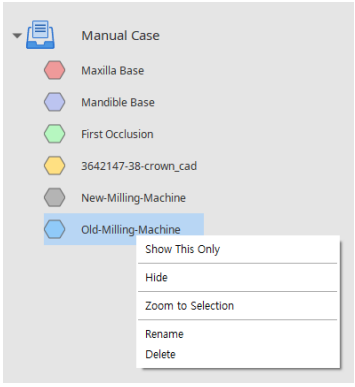
Data Display Modes		
	Textured	Displays data with color information.
	Textured with Edges	Displays the data with color information and edges.
	Monochrome	Displays the data in single color.
	Monochrome with Edges	Displays the data in single color with the edges.
	Wire-frame	Displays the data only as edges.
3D Data View Options		
	+Z Axis View	Changes the viewing perspective to the front of the data.
	-Z Axis View	Changes the viewing perspective to the back of the data.
	-X Axis View	Changes the viewing perspective to the left of the data.
	+X Axis View	Changes the viewing perspective to the right of the data.

	+Y Axis View	Changes the viewing perspective to the top of the data.
	-Y Axis View	Changes the viewing perspective to the bottom of the data.
	Rotate	Allows to rotate data in any direction.

3.3 Data Tree View

The data tree view appears on the left side of the window.

- The tree shows the list of data you are using in groups (the grouping is different according to the mode) and section lines once they are created in the **Measurement Mode**.
  - You can easily control data by hiding, showing, or changing its transparency one by one or as a group.



- Use right mouse button to see the options for each of group of data, or specific data.
  - **Show This Only**: shows only the chosen data.
  - **Show/Hide**: hides the chosen data.
  - **Zoom to Selection** zooms the view to show the selected data fitted to the view.
  - **Rename:** allows to rename the data.
  - **Delete:** deletes the data from Medit Compare.
  - **Export:** exports the data to the Medit Link case the program was run from.

3.4 View Cube

The view cube displays the 3D view orientation, which is updated in real time as the view is being rotated.

You can align the view to specific directions by clicking on a specific face of the cube.

3.5 Undo/Redo

The undo/redo buttons are located at the bottom left corner of the window.

Undo	Undo	Undoes previous action.
Redo	Redo	Redoes previous action.

Modes

Crown Alignment Mode

Crown Fitting Test Mode

Deviation Display Mode

Transformation Mode

Measurement Mode

Modes

You can work in following modes in Medit Crown Fit:

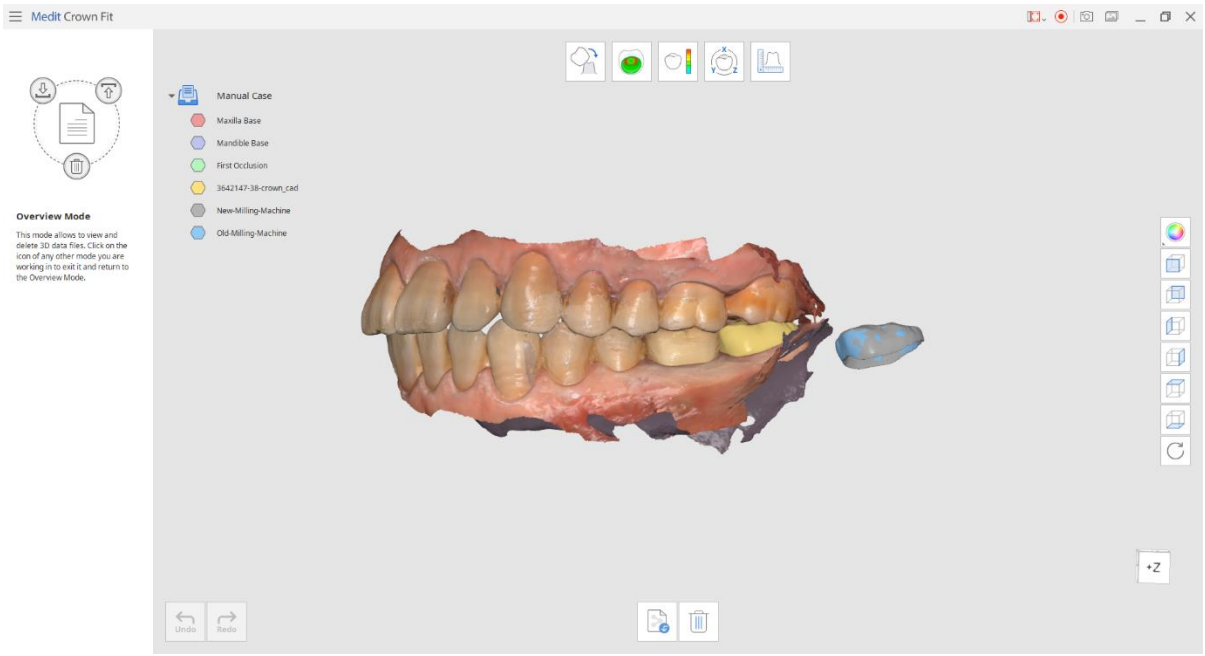
	Overview Mode	Allows to view and delete imported data. This stage allows to import and delete data. Click on the icon of any other mode you are working in to exit it and return to the **Overview Mode**.
	Crown Alignment Mode	Allows to align milled prosthesis with CAD and scan data of prepared teeth.
	Crown Fitting Test Mode	Calculates the deviation between the prepared teeth data and prosthesis data to check the crown fitting.
	Deviation Display Mode	Displays the deviation result between the CAD and milled prosthesis data.
	Transformation Mode	Allows to translate and transform the data along the axes.
	Measurement Mode	Measures the distance, angle, length, and area on the 3D data or on its section lines.

Sections and all measurement results created in Medit Crown Fit will not be saved after you terminate the program. If you want to keep the measurement results, capture the screen using the **"Screenshot"** tool which is located on the Title Toolbar.

4.1 Overview Mode

This mode allows to view and delete 3D data.

➢ Click on the icon of any other mode you are working in to exit it and return to the **Overview Mode**.

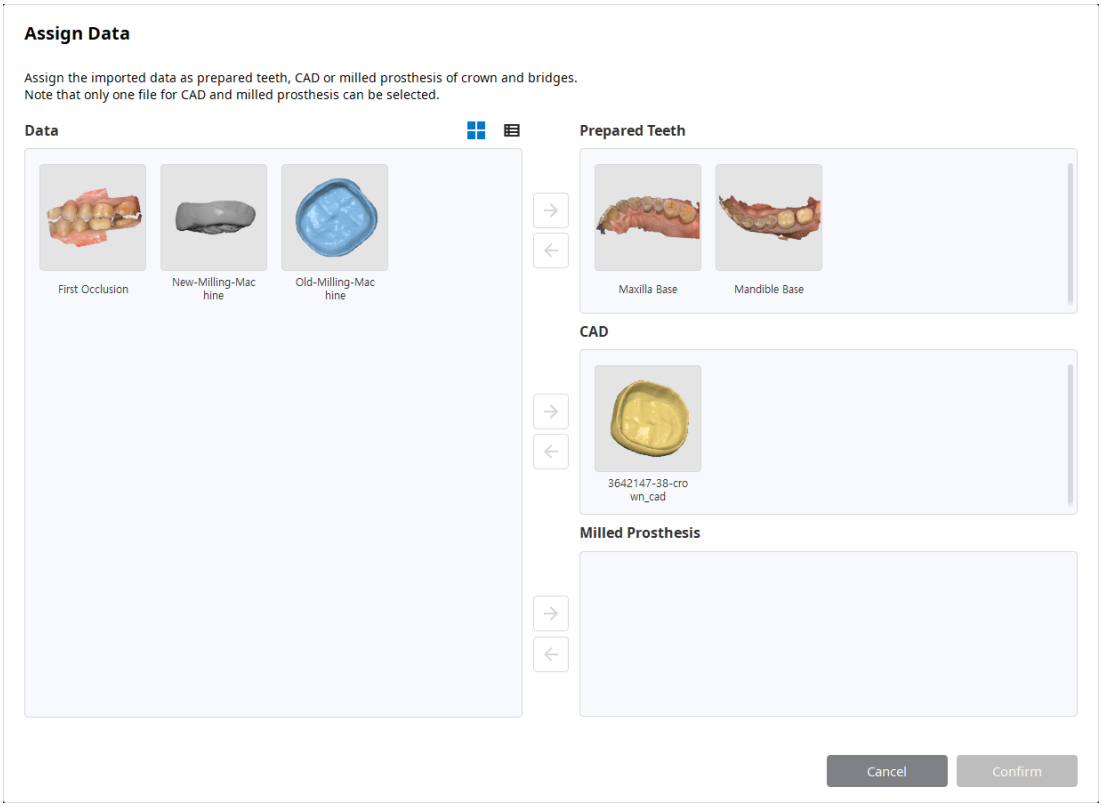


Toolbox

	Import Files	Imports 3D files from Medit Link.
	Delete Data	Allows to select the data to delete.

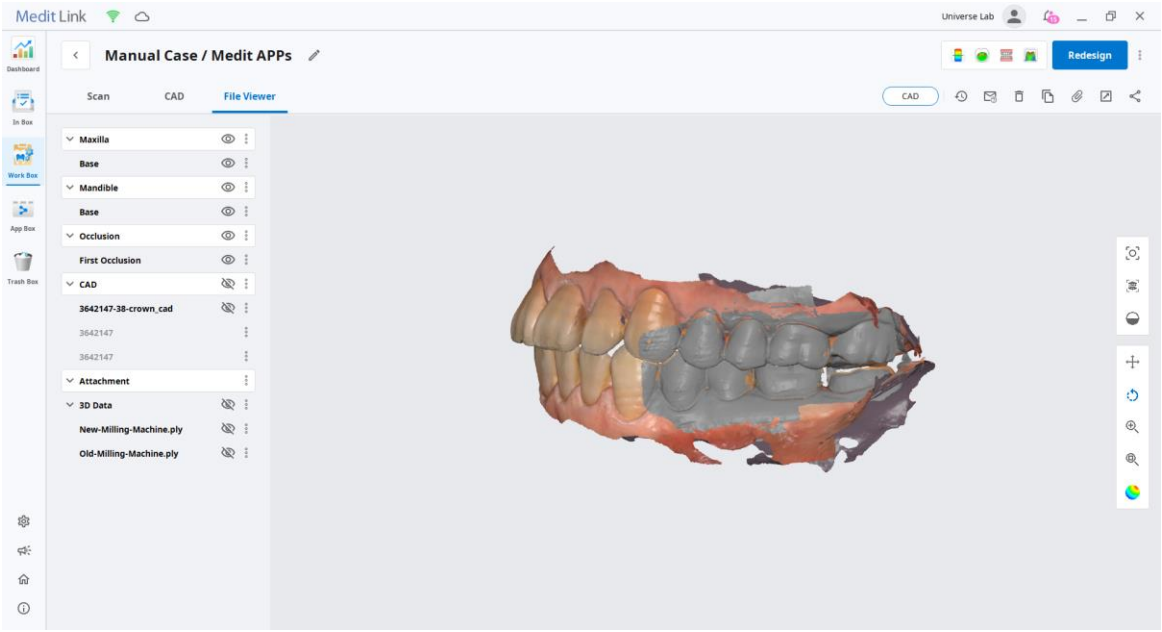
▷ How to import 3D data

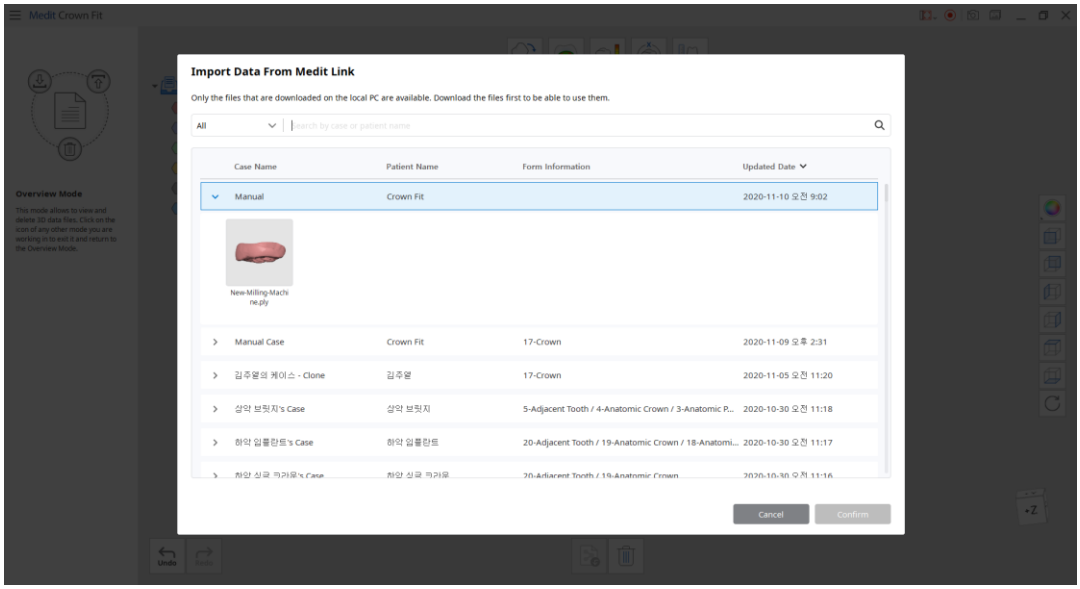
- Upon launching the program automatically loads the data of the case.
- You will be asked to confirm the data and then to assign the corresponding data as **"Milled Prosthesis"**, as shown on the image below.



▷ How to import prosthesis scan data

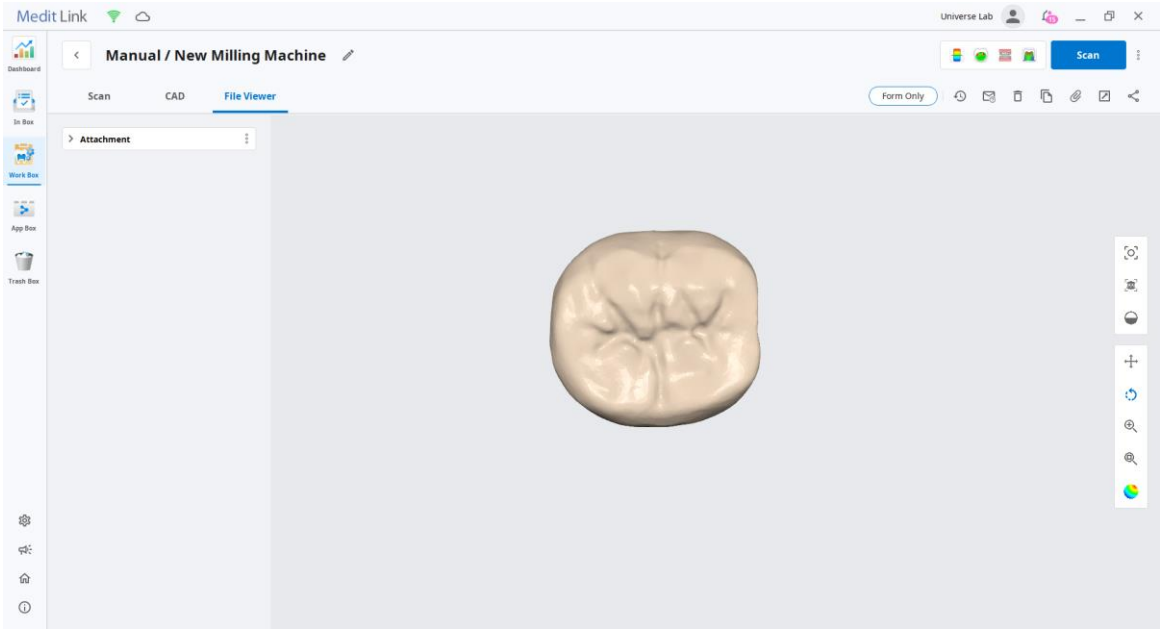
➢ After creating a new case in Medit Link and performing the scanning, use the **"Import Files"** button at the bottom of the screen during the **Overview Mode** to import the prosthesis scan data.





Control view options of different data sets using the data tree. You can choose multiple files to use in Medit Crown Fit.

- Attach the scan of the milled prosthesis to the case.



4.2 Crown Alignment Mode

This mode allows to align prosthesis data with CAD and scan data of prepared teeth.

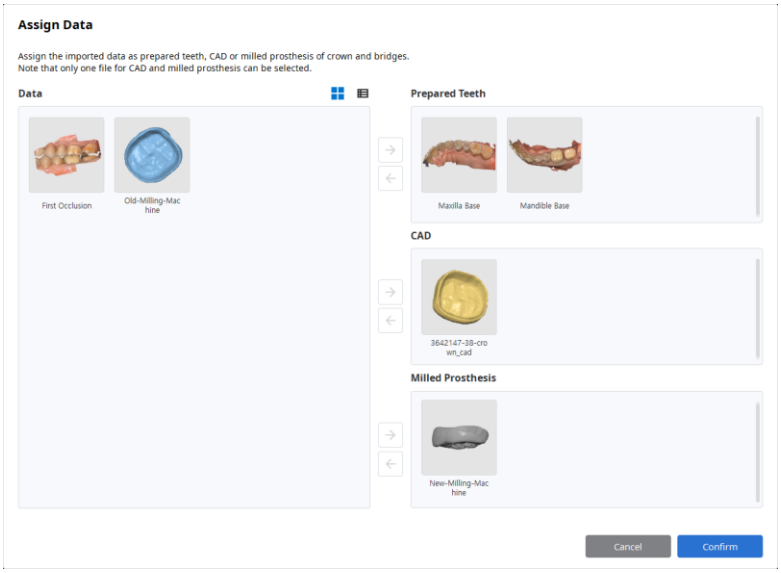
- Align data using the “Align Milled Prosthesis and CAD Data” tool.
    - If needed, try using other alignment options, such as **“Align with Selected Area”**.

Toolbox

	Re-assign Data	Re-selects target and reference data for alignment.
	Align Milled Prosthesis and CAD Data	Aligns milled prosthesis and CAD data. Note that you have to have CAD data for the data to be aligned.
Alignment with selected area (the functions below appear when you work with the **"Align with Selected Area"** function)		
	Align with Selected Area	Performs alignment of reference and target data only within a selected area.
	Smart Teeth Selection	Automatically selects all teeth of the arch leaving out gingiva parts. This function is only available for the scan data that has been acquired by Medit Scan for Clinics with the **"Use GPU"** option on.
	Smart Single Tooth Selection	Automatically selects the area of a single tooth leaving out gingiva parts. Press and drag the mouse on the tooth.
	Polyline Selection	Selects all entities within a polyline shape drawn on the screen.
	Brush Selection	Selects all entities on a freehand-drawn path on the screen. Only the front face will be selected. The brush comes in three different sizes.
	Selection / Deselection	When on, deselects the area using various tools.
	Clear All Selection	Clears all selected areas.
Data detachment		
	Detach Data	Detaches the aligned data and takes it to the original position. Note that detaching the data after performing actions on it (such as creating measurement results or section lines) will delete all of them.

▷ **About data assignment**

- Assign intraoral data (maxilla, mandible, prepared teeth) as **“Prepared Teeth”**.
- Assign CAD data as **“CAD”**.
- After scanning it, assign the data of crown/bridges as **“Milled Prosthesis”**.
- Press the **“Confirm”** button.



▷ About data alignment

- The **“Align with Selected Area”** tool allows to select the specific part of the data you would like to align. Use the selection tools to mark the area on both target and reference data.
  - If you would like to select one or several teeth easily, try using **“Smart Single Tooth Selection”** tool.
  - If the data you are working on was acquired via scanning in Medit Scan for Clinics, **“Smart Teeth Selection”** is a great tool to select all teeth of the arch leaving out the soft tissue data.

4.3 Crown Fitting Test Mode

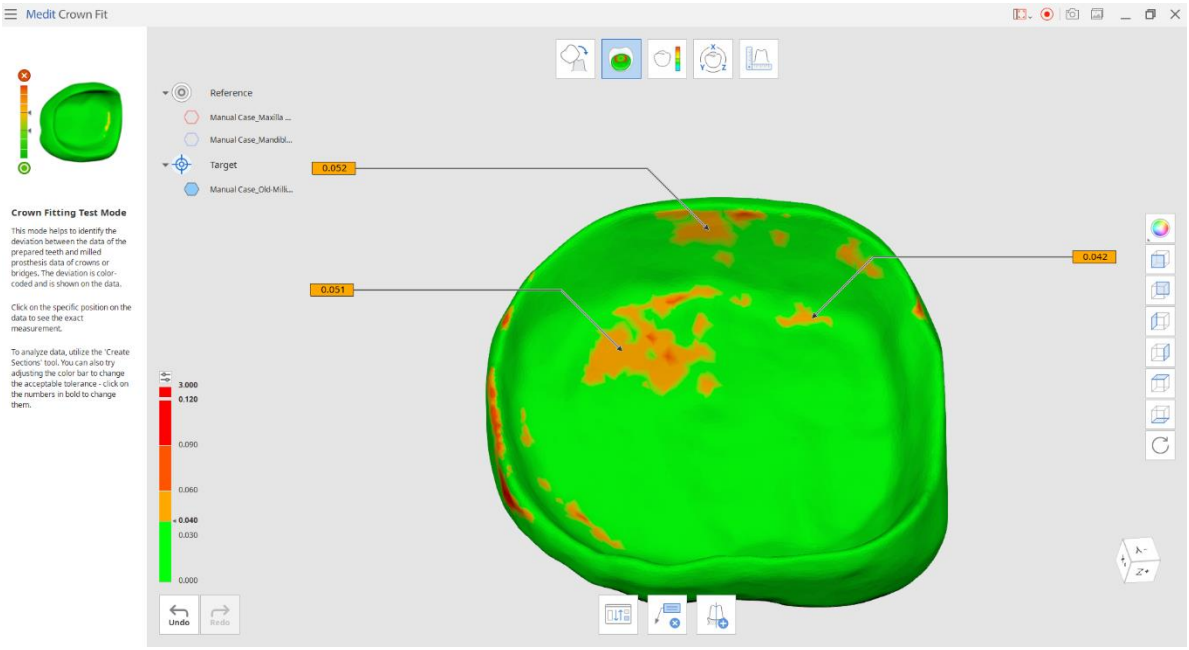
This mode helps to identify the deviation between the data of the prepared teeth and milled prosthesis data of crowns or bridges. The deviation is color-coded and is shown on the data.

Toolbox

	Re-assign Data	Allows to change the assignment for prepared teeth, CAD and milled prosthesis data.
	Delete Measurement Results	Deletes deviation results on the 3D data by clicking on each of them.

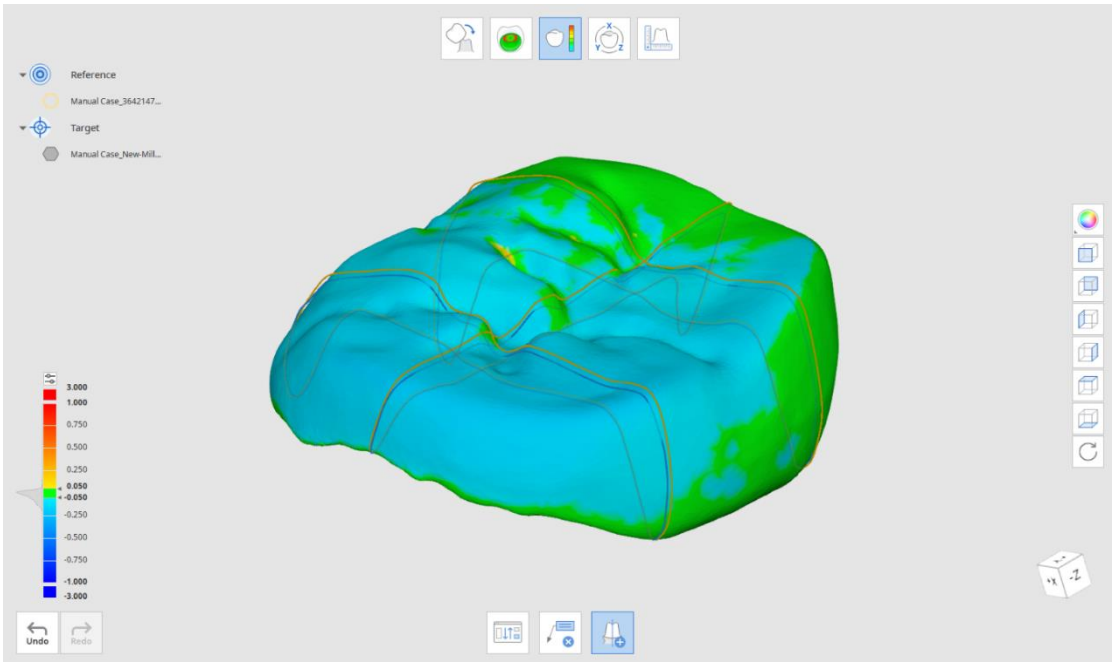
	Create Sections	Creates section lines.

- Click on the spots of higher deviation to see the exact measurement.
- Utilize "**Create Sections**" tool to analyze the data, as well as the color bar for adjusting the tolerance – click on the numbers in bold to change them.
- You can also adjust the resolution by clicking on the icon located right above the colorbar. The higher it becomes, the more class the color range is divided into.
- Click on the spots of higher deviation to see the exact measurement.



4.4 Deviation Display Mode

This mode displays the deviation results between the CAD and milled prosthesis data.



Toolbox

	Re-assign Data	Allows to change the assignment for prepared teeth, CAD and milled prosthesis data.
	Delete Measurement Results	Deletes deviation results on the 3D data by clicking on each of them.
	Create Sections	Creates section lines.

The color map shows the deviation between the CAD data of crown and milled prosthesis, so you can see the parts where some alterations might be needed.

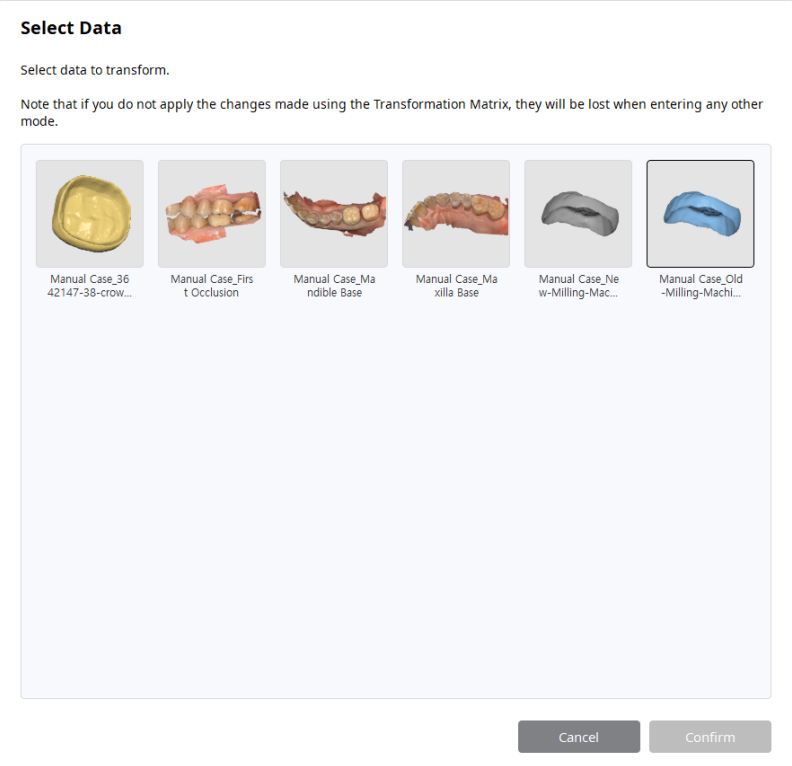
As shown on the image above, high levels of deviation in the distal part of the prosthesis compared to the CAD data indicate that this specific area has to be checked again.

- Utilize **"Create Section"** tool to analyze the data, as well as the color bar for adjusting the tolerance – click on the numbers in bold to change them.
- You can customize the maximum deviation value and the acceptable tolerance by clicking on the numbers in bold on the index.

4.5 Transformation Mode

Transformation Mode allows to scale data based on the values of the X, Y, Z axes.

You will be asked to select the data you would like to work on upon entering the **Transformation Mode**.



Toolbox

	Scale	Allows to set values for X, Y, Z axes to scale data.

▷ **How to scale data**

➢ Enter the values to scale the selected data and click the **"Apply"** button.

 Once you do so, the new ratio will be applied to the data at all modes of the program.

➢ If you want to restore the data to its original scale, click the **"Reset"** button.

 As milled zirconia crown's scale is enlarged before sintering, proceed with testing crown fitting after reducing the size by using the contraction rate written on the block.

4.6 Measurement Mode

Measurement Mode allows to measure distance, angle, length, and area on the 3D data or on the section lines of the data. It is useful to check prep teeth, take measurements of teeth and occlusion.

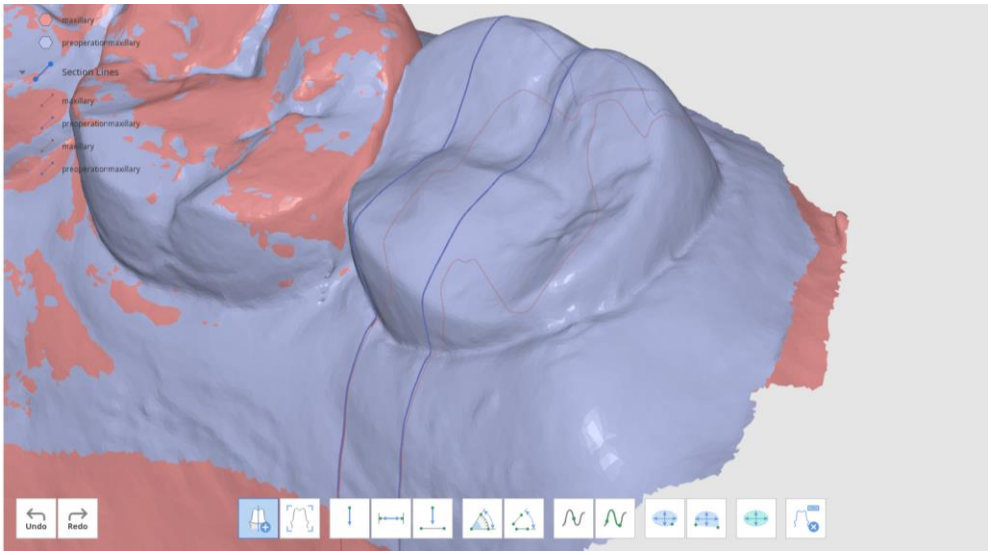
Toolbox: Measurement Tools

	Create Sections	Creates section lines.
	View Perpendicularly to Section Line	Orients the view perpendicularly to the section line.
	Measure Distance by One Point	Measures the shortest distance to the adjacent 3D data or line.
	Measure Distance by Two Points	Measures the distance between two points.
	Measure Distance by Three Points	Measures the distance between a point and a line defined by another two points.
	Measure Angle by Three Points	Measures the angle between the lines made with three points.
	Measure Angle by Four Points	Measures the angle between the lines made with four points.
	Measure Length by One Point	Measures the length of the section line by one point.
	Measure Length by Two Points	Measures the length of the section line by two points.
	Calculate Area by One Point	Calculates the area of the section line by one point.
	Calculate Area by Two Points	Calculates the area of the section line by two points.
	Calculate Area by Selection	Calculates the selected area.

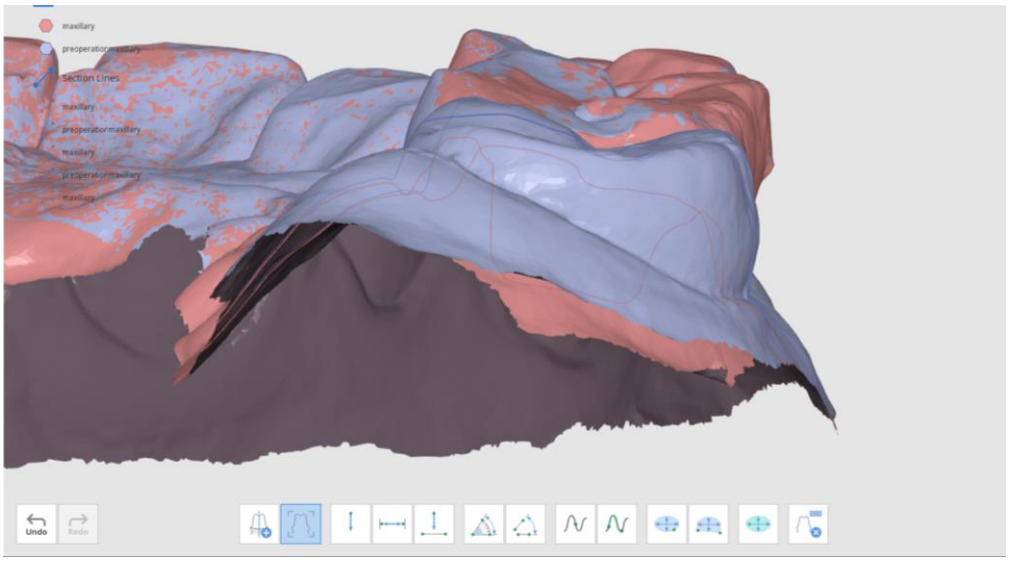
	Delete Measurement Results	Deletes measurement results and selections by clicking on each of them.

▷ **How to utilize Measurement Mode**

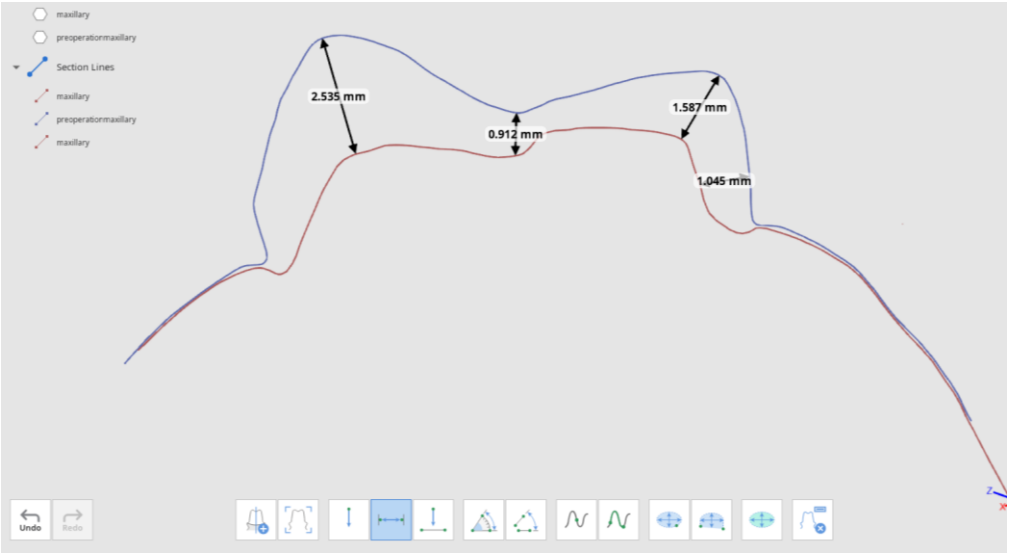
- Press **"Create Sections"** to draw a line at the desired area to create a section. (You can add multiple lines.)
  - Section Lines view can be controlled in the data tree.



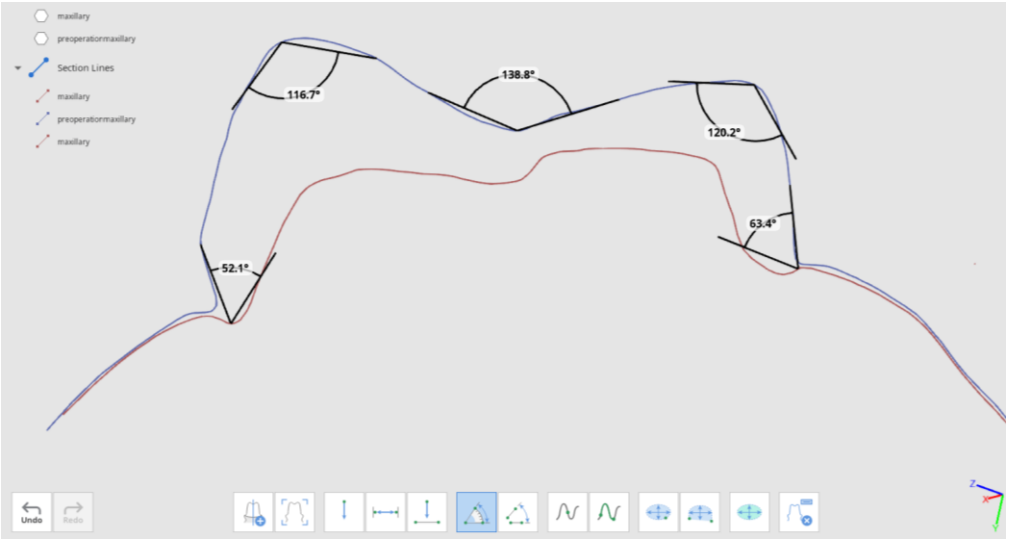
- Use the tools located at the bottom of the window to measure the distance, angle, length, and area of data or section lines.
- To change view, click on the **"View Perpendicularly to Section Line**" button. Click on any of the section lines to change the data view perpendicularly to them.



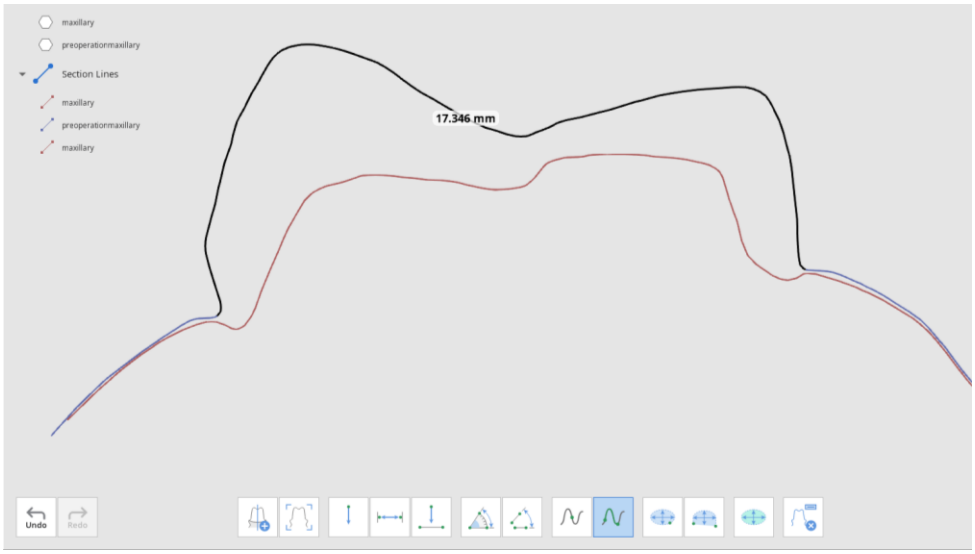
- **Measure Distance**: You can measure the distance by using one, two or three points.



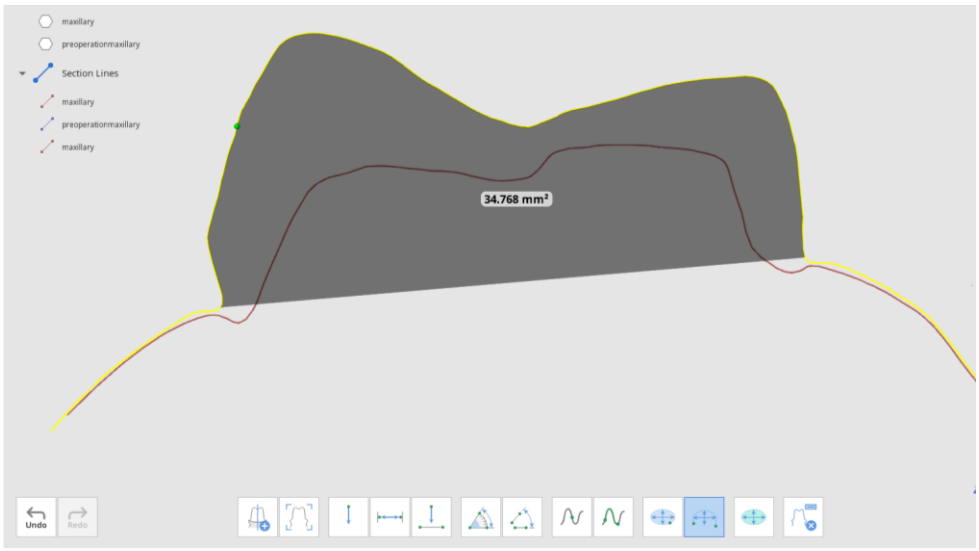
- **Measure Angle**: You can measure the angle by using three or four points.



- **Measure Length**: You can measure the length by using one or two points.

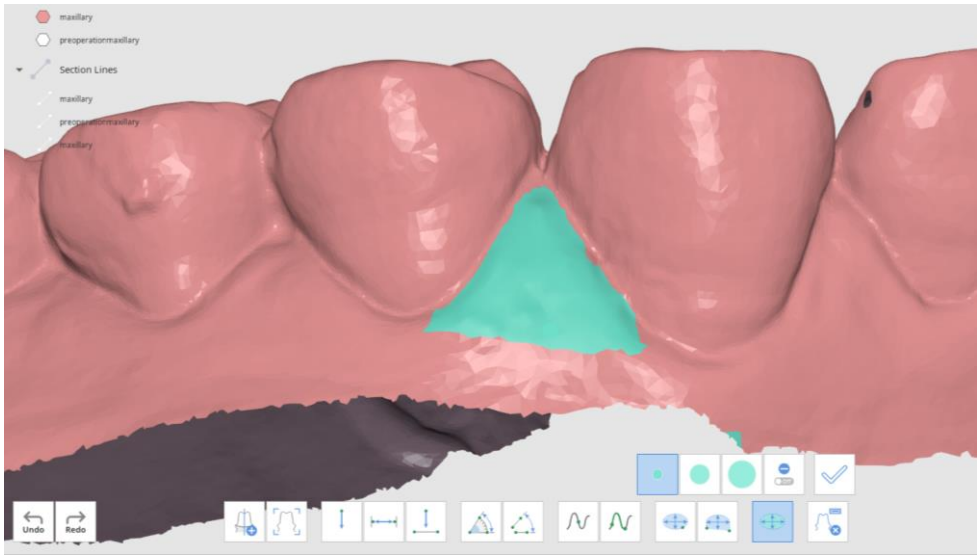


- **Measure Section Area:** You can measure the section area by using one or two points.

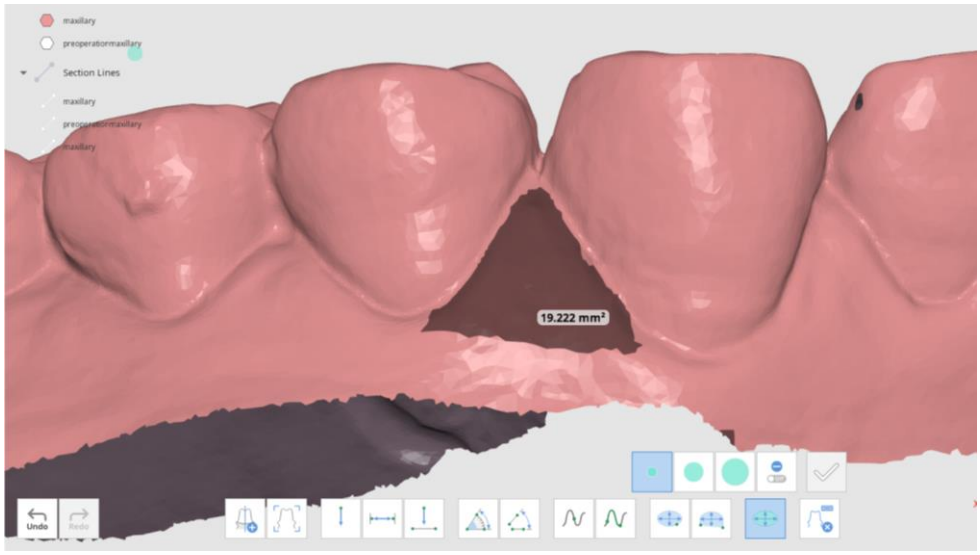


The **Measure Distance** and **Measure Length** tools can also be used without creating sections.

- The **"Measure Area"**  tool allows you to measure the area by selecting the desired portion of the data.
- Select the area of the 3D data to calculate.



- Click on the ✓ button to measure the selected area.



To remove measurements, click on the **“Delete Measurement Results”** button and then select any result on the data. You can also click and drag the mouse across all the measurement results to delete them.