

Function Manual
Intraoral Scanner i500



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1 Introduction and overview

1.1 Intended Use

The i500 system is a dental 3D scanner intended to be used to digitally record topographical characteristics of teeth and surrounding tissues. The i500 system produces 3D scans for use in computer-aided design and manufacturing of dental restorations.

1.2 Indication for use

The i500 system should be used on patients who require 3D scanning for dental treatments such as:

- Single custom abutment
- Inlays & Onlays
- Single Crown
- Veneer
- 3 Unit Implant Bridge
- Up to 5 Unit Bridge
- Orthodontics
- Implant Guide
- Diagnosis Model

1.3 Contraindications

The device is not intended to be used to create images of the internal structure of teeth or the supporting skeletal structure.

It is not intended to be used for cases with more than four (4) subsequent edentulous tooth positions.

1.4 Qualifications of the operating user

This device is designed for use by persons with professional knowledge in dentistry and dental laboratory technology. The user of this device is solely responsible for determining whether or not this device is suitable for a particular patient case and circumstances. The user is solely responsible for the accuracy, completeness and adequacy of all data entered into this device and the provided software. The user has to check the correctness and accuracy of the results and to assess each individual case. The i500 system must be used in accordance with its accompanying user guide. The user is not allowed to modify the i500 system. Improper use or handling of the i500 system will void its warranty, if any. If you require additional information on the proper use of the i500 system, please contact your local distributor.

2 Image Acquisition Software Overview

2.1 Introduction

The image acquisition software provides a user-friendly working interface to digitally record topographical characteristics of teeth and surrounding tissues using the i500 scanner.

2.2 Installation

2.2.1 System Requirement

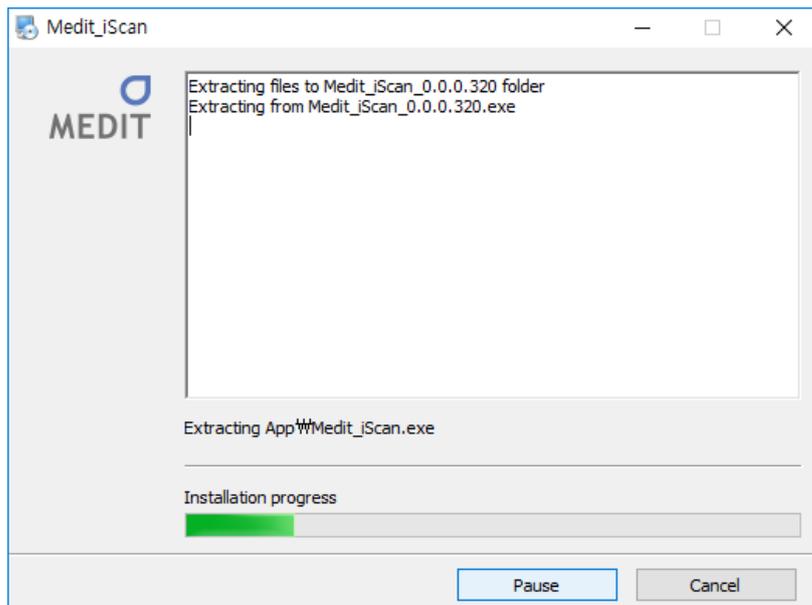
	Laptop	Desktop
CPU	Above Intel Core i7-8750H	Above Intel Core i7-8700K
RAM	Above 16 GB	Above 16 GB
Graphic	Above Nvidia Geforce GTX 1060	Above Nvidia Geforce GTX 1060
OS	Window 10 64 bit	



Use PC and monitor certified by IEC 60950, IEC 55032, IEC 55024

2.2.2 Installation Guide

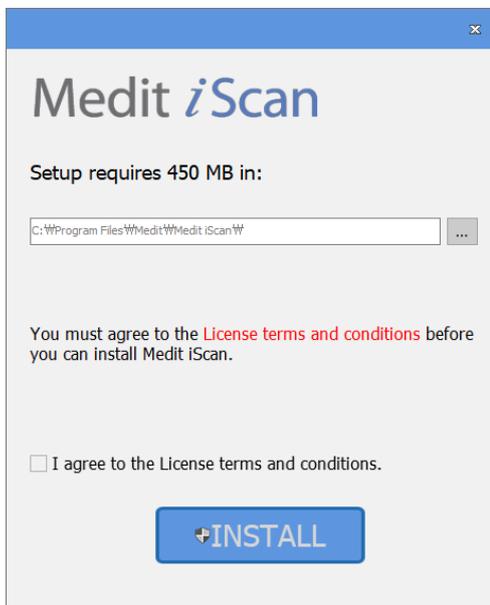
- Run Medit_iScan_X.X.X.X.exe



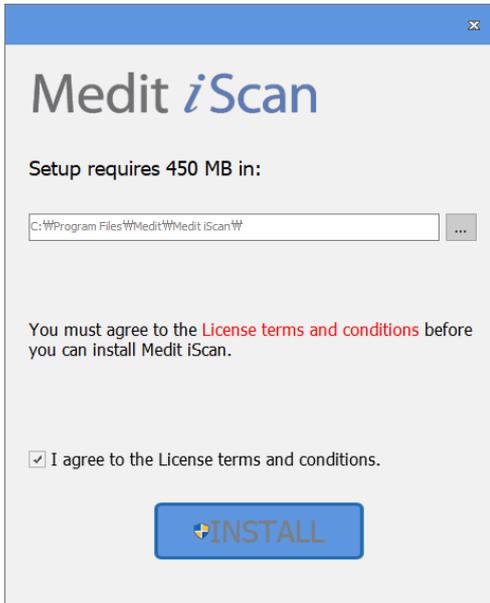
- Select the setup language then click "Next"



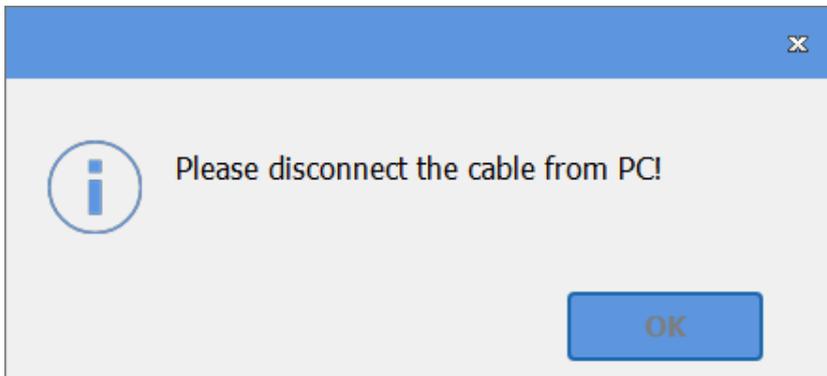
- Select the installation path



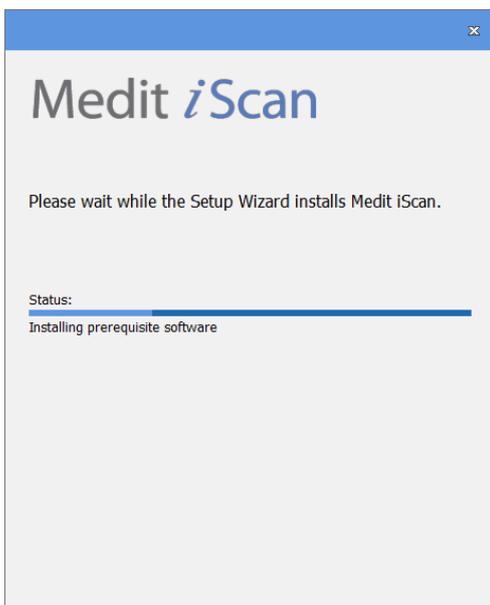
- Read the "License terms and conditions" carefully before checking "I agree to the License ~" then click **Install**



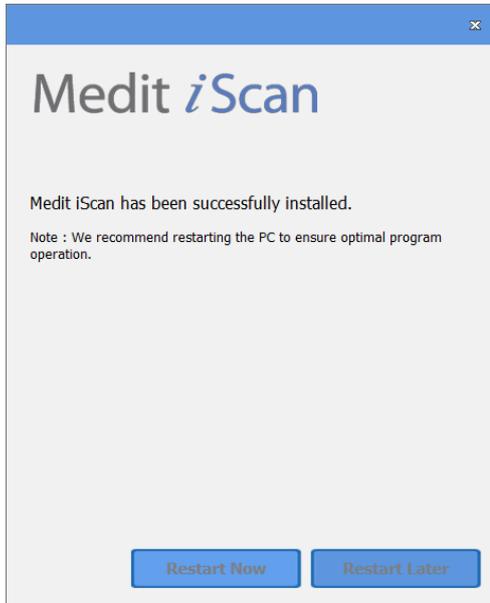
- If the scanner is connected, please disconnect the scanner from the PC by removing the USB cable.



- It may take up to several minutes to finish the recommended installation process. Please do not shut down the PC until installation is completed.



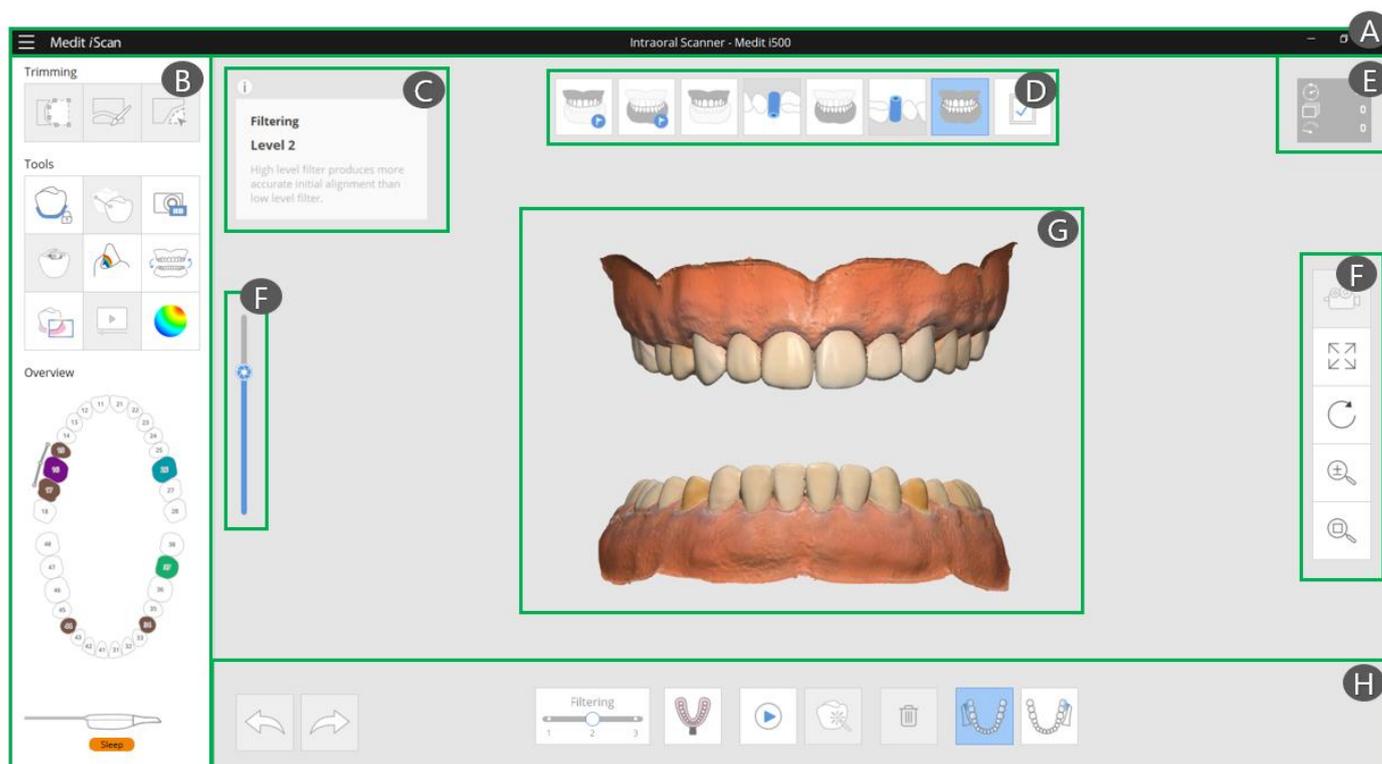
- After installation is completed, we recommend restarting the PC to ensure optimal program operation.



2.3 Model Control in View Screen Using Mouse

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

3 User Interface



- A. Title Bar
- B. Main Toolbar
- C. Guide Message
- D. Scan Stage
- E. Scan Information
- F. Side Toolbar
- G. Model View Screen
- H. Command Option

3.1 Title Bar

The Title Bar consists of the Menu, Minimize/Maximize/Restore Window, Exit for the image acquisition software. It also shows patient information.

Menu	The Menu includes the tools to manage the project, such as New, Open, Save, as well as the tools to change settings and to exit the application. It also shows the information for the application.
Patient information	Shows information of the current patient.
Minimize	Minimizes the application.
Maximize or Restore	Maximizes or restores the application to its normal size.
Exit	Saves the current model and terminates the application.

Menu

Click the  button to show all commands in the Menu.

	Save	Saves all changes in current case.
	Exit	Saves the current model and terminates the scanning application.
	Setting	Provides options for setting environment such as scanning options.
	Help	Loads the help contents.
	About	Shows program information, version number and copyright.

Setting

Show Scan Time	<input checked="" type="checkbox"/>	
Show Scan Number	<input checked="" type="checkbox"/>	
Show Scan Speed	<input checked="" type="checkbox"/>	
Use Automatic Scanning Start		
- Maxilla And Mandible	<input type="checkbox"/>	
- Occlusion	<input type="checkbox"/>	
Use Audio Feedback	<input checked="" type="checkbox"/>	
Change Sound		
Use Auto Backup	<input checked="" type="checkbox"/>	
Send Anonymous Usage Statistics	<input checked="" type="checkbox"/>	
Advanced Rendering	<input checked="" type="checkbox"/>	
Adjust Color Texture		
Dark	<input type="range" value="50"/>	Bright
Calibration Period(Days)	<input type="text" value="14"/>	▼
Use GPU (Beta)	<input checked="" type="checkbox"/>	
Global Soft Tissue Filtering (Beta)	<input type="checkbox"/>	
Scan Light (Beta)	<input type="text" value="Blue"/>	▼
Scanner Button Double-Click (Beta)		
	<input type="text" value="Disable"/>	▼
Calibration Default		

Show Scan Time

Shows scan time during scanning process in the upper right corner of the View Screen.

Show Scan Number	Shows the number of images taken during scanning process in the upper right corner of the View Screen.
Show Scan Speed	Shows the current scan speed in the upper right corner of the View Screen.
Use Automatic Scanning Start	<p>The system starts scanning automatically:</p> <ul style="list-style-type: none"> • When the tip is close to the teeth, the system starts capturing images. • When the tip is away from the teeth, the system stops capturing images. <p>If this option is set to "Off", the scanning start process is performed by the button on the device.</p>
Maxilla And Mandible	Applies automatic scanning start to maxilla and mandible.
Occlusion	Applies automatic scanning start to occlusion.
Use Audio Feedback	Indicates the status of the scanner through various sounds.
Connect	Sound when i500 and image acquisition software are connected.
Scanning	Sound during optimal scanning.
HD Camera	Sound when taking 2D images using HD Camera.
Occlusion Alignment	Sound when occlusion alignment succeeded.
Use Auto Backup	Saves current work temporarily. The backup data will be used for the recovery when the program is stopped unexpectedly without saving.
Send Anonymous Usage Statistics	Sets whether to start/stop sending anonymous usage statistics to Medit.
<p> About collection of anonymous statistics</p> <p>Medit is striving to constantly improve the product and user experience by collecting certain information such as :</p> <ul style="list-style-type: none"> ➤ Hardware and software configurations such as OS, graphic card, etc. ➤ Patterns and trends in how our software is used, such as frequency and performance ➤ Diagnostic information <p>The usage statistics will help the development team to better understand user requirements and prioritize improvements in future releases. We will never collect personal information such as your name, company name, MAC address, or any other personally identifiable information. We cannot and will not reverse-engineer any collected data to find specific details concerning your projects.</p>	
Advanced Rendering	Displays the 3D model more realistically with shadow effect.

Adjust Color Texture	Adjusts the brightness of the 3D model. The color of the 3D model is optimized in the i500 image acquisition software. When viewing data using other software, the resulting colors may be slightly different from the i500 image acquisition software.
Calibration Period(Days)	Sets the calibration period of i500.
Calibration	Performs the calibration process to use device in optimal condition.
Default	Restores all settings to system default.
Use GPU (Beta)	Improves overall computing performance using the GPU of a graphics card.
Global Soft Tissue Filtering (Beta)	Deletes the soft tissue globally. Deleting process is performed during scanning and when exiting or changing the scan stage.
Scan Light (Beta)	The blue light is generally applied to most cases. If the case has a lot of red series color such as blood, white light can help to acquire the data.
Scanner Button Double-Click (Beta)	Defines the command to be used by double click of function button of scanner.

Calibration procedure of i500

The calibration process is essential in producing precise 3D models. You should perform the calibration process periodically.

Calibration is required when:

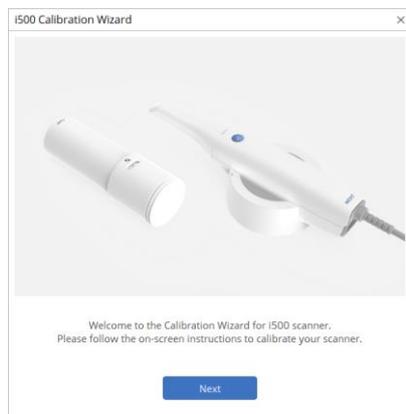
- The quality of the 3D model is not reliable or accurate as compared to previous results.
- Environmental conditions such as temperature has changed.
- Calibration period has expired.
You can set the calibration period as detailed in Menu > Setting > Calibration Period(Days)

 The calibration panel is delicate component. Do not touch the panel directly. When the calibration process does not perform properly, check the panel. If the calibration panel is contaminated, please contact your service provider.

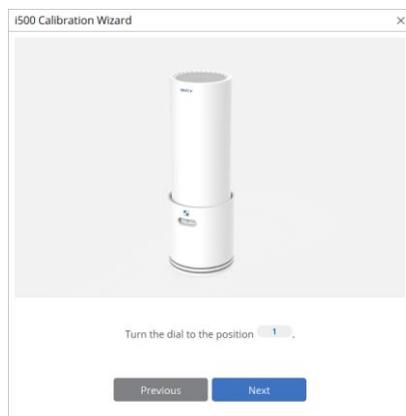
 We recommend performing the calibration process periodically. You can set the calibration period via Menu > Setting > Calibration Period(Days). The default calibration period is set to 14 days.

How to calibrate the i500

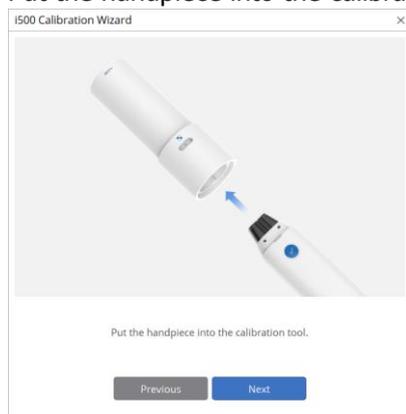
- Turn on the i500 and connect the device to the software.
- Run Calibration Wizard from Menu > Setting > Calibration
- Prepare the Calibration Tool and i500.



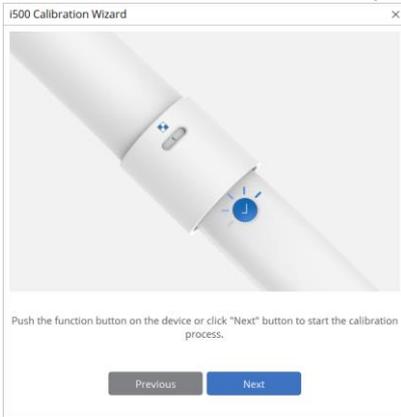
- Turn the dial of the calibration tool to the position .



- Put the handpiece into the calibration tool.



- Click "Next" to start calibration process.



- When the handpiece is mounted in the correct position, the system will automatically acquire the data at the position **1**.

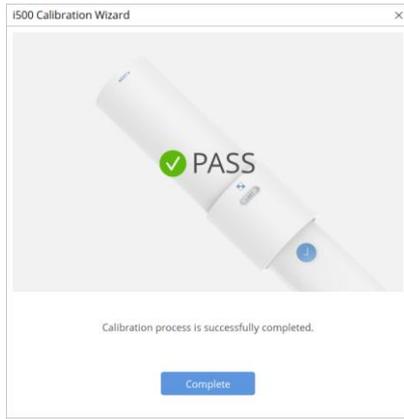


- When data acquisition is completed at the position **1**, turn the dial to the next position.



- Repeat the steps for positions **2** ~ **8** and **LAST** position.

- When data acquisition is completed at the **LAST** position, the system will automatically calculate and show the calibration result.



3.2 Scan Stage

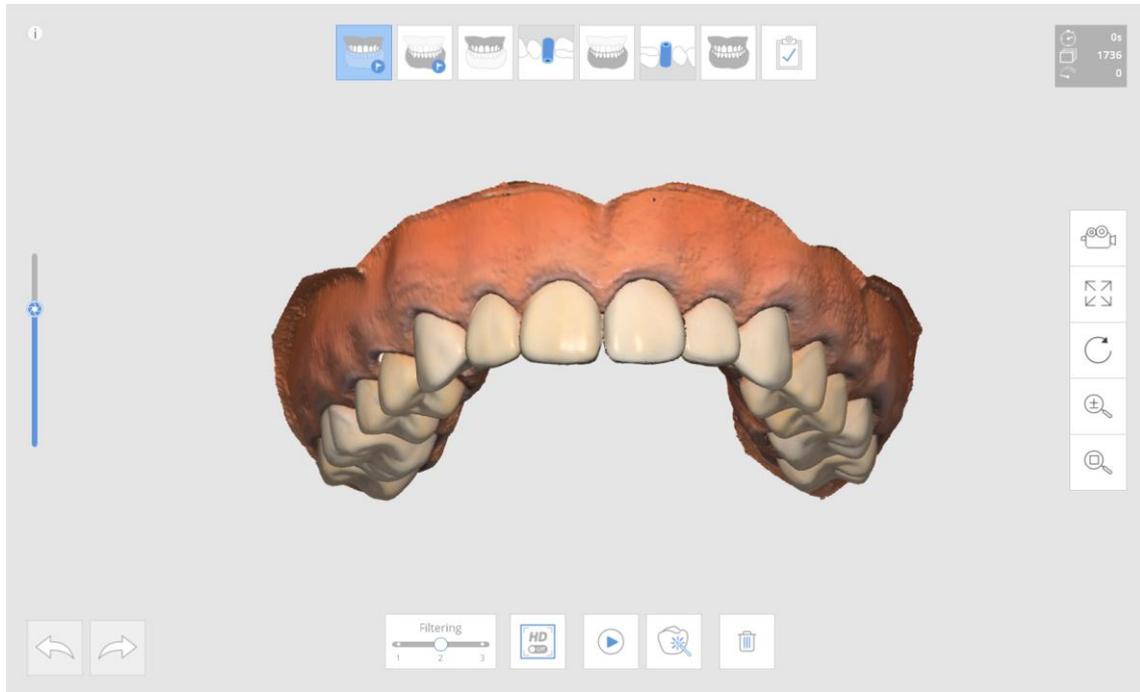
The Scan Stage indicates the current working stage.

	Pre-Operation For Maxilla	Acquires the 3D image of the Pre-Operation For Maxilla The data in this stage is usually acquired for pre-operation condition of maxilla. If the Pre-Operation For Maxilla is acquired, this data will be used for the reference of the "Maxilla".
	Pre-Operation For Mandible	Acquires the 3D image of the Pre-Operation For Mandible. The data in this stage is usually acquired for pre-operation condition of mandible. If the Pre-Operation For Mandible is acquired, this data will be used for the reference of the "Mandible".
	Maxilla	Acquires the 3D image of the maxilla.
	Maxilla Scanbody	Acquires the 3D image of the scanbody for maxilla.
	Mandible	Acquires the 3D image of the mandible.
	Mandible Scanbody	Acquires the 3D image of the scanbody for mandible.
	Occlusion	Acquires the 3D image of the occlusion alignment.
	Complete	Completes the scanning process then generates the result data.

3.2.1 Scan Pre-Operation For Maxilla



Acquires the 3D image of the Pre-Operation For Maxilla.
The data in this stage is usually acquired for pre-operation condition of maxilla.
If the Pre-Operation For Maxilla is acquired, this data will be used for the reference of the "Maxilla".



Command Option Detail



Start Scan Starts the scanning process.
You can also start the scanning process using the function button on the device.



Stop Scan Stops the scanning process.
You can also stop the scanning process using the function button on the device.



Optimize Aligns 3D images for more accurate scanning.
All noise will be deleted after optimization process.



High Resolution Scan Acquires the data with high resolution for entire or partial area.
When the high resolution and standard resolution area are mixed, result will be merged smoothly during post-processing.



Delete Deletes the whole 3D images to start over.
If the related data with current stage exists, these data will be deleted also.



Undo Undo previous scanning.



Redo Redo previous scanning.



Filtering

Controls the level of filtering during scanning.

Scanning with low level filtering acquires more amount of data than high level filtering.

On the other hand, noisy data such as tongue/cheek/small cluster is acquired also.

Scanning with high level filtering acquires less amount of data than low level filtering. You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

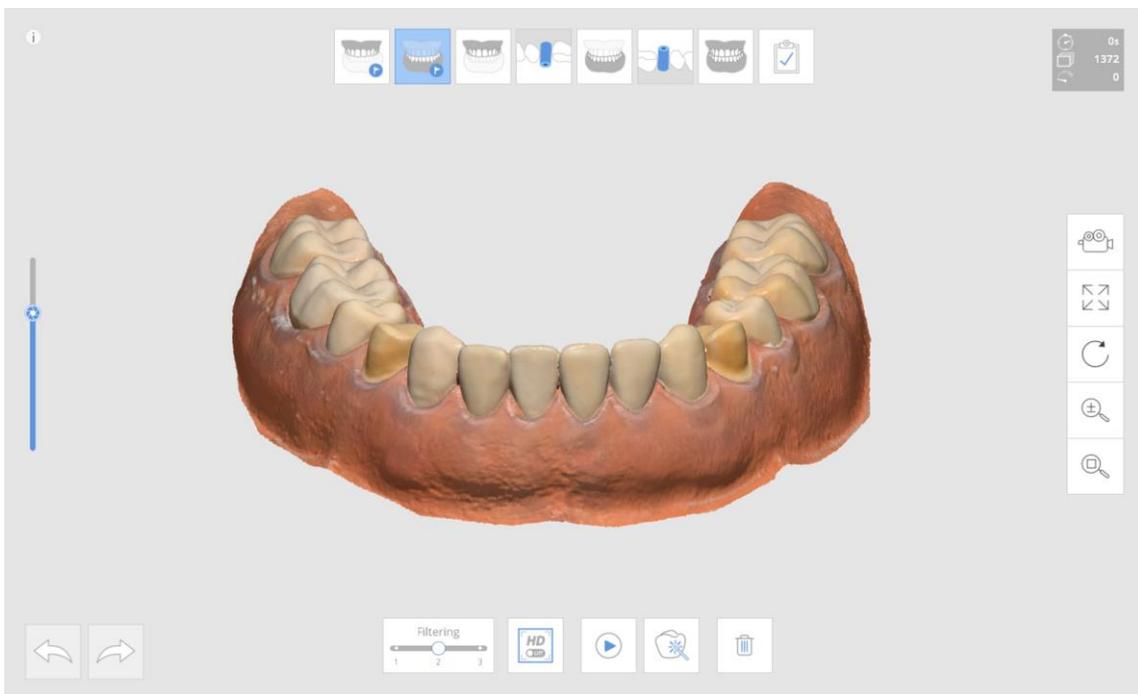
3.2.2 Scan Pre-Operation For Mandible



Acquires the 3D image of the Pre-Operation For Mandible.

The data in this stage is usually acquired for pre-operation condition of mandible.

If the Pre-Operation For Mandible is acquired, this data will be used for the reference of the "Mandible".



Command Option Detail



Start Scan

Starts the scanning process.

You can also start the scanning process using the function button on the device.



Stop Scan

Stops the scanning process.

You can also stop the scanning process using the function button on the device.



Optimize

Aligns 3D images for more accurate scanning.

All noise will be deleted after optimization process.



High Resolution Scan

Acquires the data with high resolution for entire or partial area.

When the high resolution and standard resolution area are mixed, result will be merged smoothly during post-processing.



Delete

Deletes the whole 3D images to start over.
If the related data with current stage exists, these data will be deleted also.



Undo

Undo previous scanning.



Redo

Redo previous scanning.



Filtering

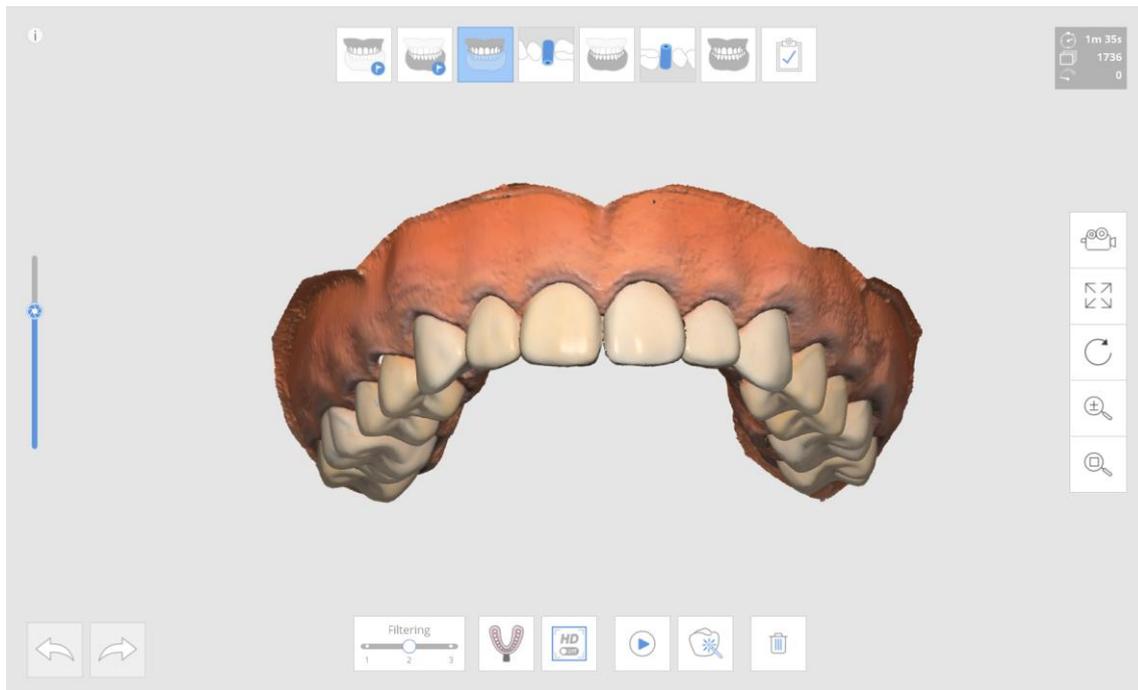
Controls the level of filtering during scanning.
Scanning with low level filtering acquires more amount of data than high level filtering.
On the other hand, noisy data such as tongue/cheek/small cluster is acquired also.

Scanning with high level filtering acquires less amount of data than low level filtering.
You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

3.2.3 Scan Maxilla



Acquires the 3D image of the maxilla.



Command Option Detail



Start Scan

Starts the scanning process.
You can also start the scanning process using the function button on the device.

	Stop Scan	Stops the scanning process. You can also stop the scanning process using the function button on the device.
	Optimize	Aligns 3D images for more accurate scanning. All noise will be deleted after optimization process.
	Impression Scan	Acquires the data of impression model. Impression data is aligned to intra-oral data in real-time.
	High Resolution Scan	Acquires the data with high resolution for entire or partial area. When the high resolution and standard resolution area are mixed, result will be merged smoothly during post-processing.
	Delete	Deletes the whole 3D images to start over. If the related data with current stage exists, these data will be deleted also.
	Undo	Undo previous scanning.
	Redo	Redo previous scanning.
	Filtering	Controls the level of filtering during scanning. Scanning with low level filtering acquires more amount of data than high level filtering. On the other hand, noisy data such as tongue/cheek/small cluster is acquired also. Scanning with high level filtering acquires less amount of data than low level filtering. You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

3.2.4 Scan Mandible



Acquires the 3D image of the mandible.



Command Option Detail



Start Scan

Starts the scanning process.
You can also start the scanning process using the function button on the device.



Stop Scan

Stops the scanning process.
You can also stop the scanning process using the function button on the device.



Optimize

Aligns 3D images for more accurate scanning.
All noise will be deleted after optimization process.



Impression Scan

Acquires the data of impression model.
Impression data is aligned to intra-oral data in real-time.



High Resolution Scanning

Acquires the data with high resolution for entire or partial area.
When the high resolution and standard resolution area are mixed, result will be merged smoothly during post-processing.



Delete

Deletes the whole 3D images to start over.
If the related data with current stage exists, these data will be deleted also.



Undo

Undo previous scanning.



Redo

Redo previous scanning.



Filtering

Controls the level of filtering during scanning.

Scanning with low level filtering acquires more amount of data than high level filtering.

On the other hand, noisy data such as tongue/cheek/small cluster is acquired also.

Scanning with high level filtering acquires less amount of data than low level filtering. You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

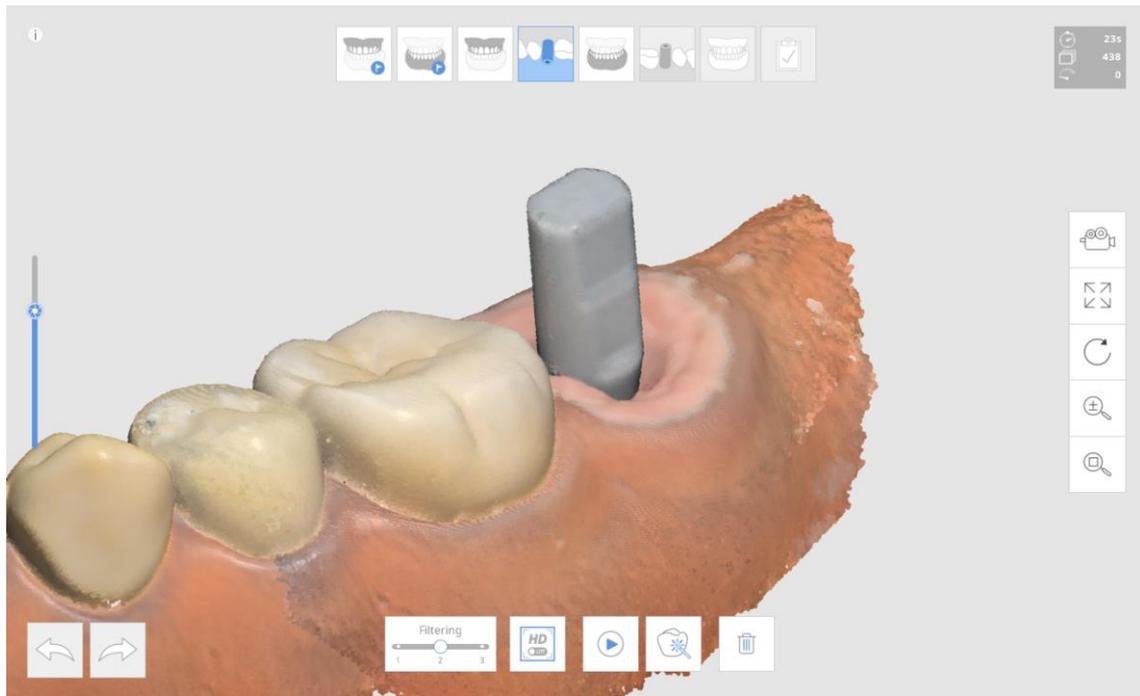
3.2.5 Scan Scanbody



Acquires the 3D image of the scanbody for maxilla.



Acquires the 3D image of the scanbody for mandible.



Command Option Detail



Start Scan

Starts the scanning process.

You can also start the scanning process using the function button on the device.



Stop Scan

Stops the scanning process.

You can also stop the scanning process using the function button on the device.



Optimize

Aligns 3D images for more accurate scanning.
All noise will be deleted after optimization process.



High Resolution Scanning

Acquires the data with high resolution for entire or partial area.
When the high resolution and standard resolution area are mixed, result will be merged smoothly during post-processing.



Delete

Deletes the whole 3D images to start over.
If the related data with current stage exists, these data will be deleted also.



Undo

Undo previous scanning.



Redo

Redo previous scanning.



Filtering

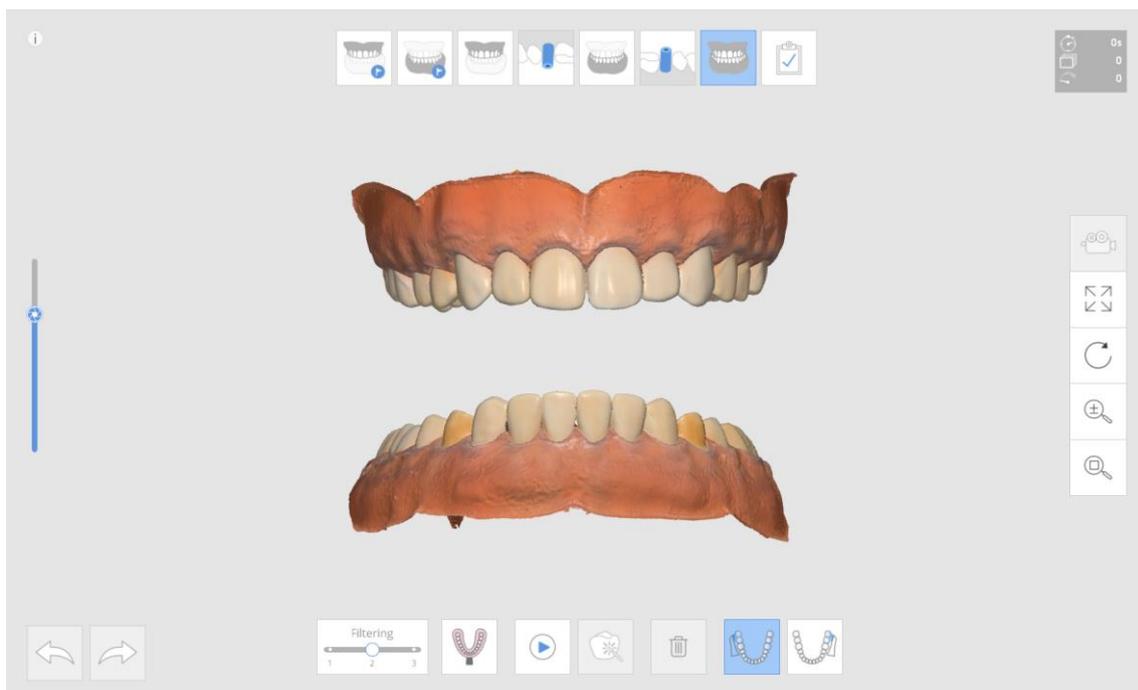
Controls the level of filtering during scanning.
Scanning with low level filtering acquires more amount of data than high level filtering.
On the other hand, noisy data such as tongue/cheek/small cluster is acquired also.

Scanning with high level filtering acquires less amount of data than low level filtering.
You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

3.2.6 Scan Occlusion



Acquires the 3D image of the occlusion alignment.



Command Option Detail

	Start Scan	Starts the scanning process. You can also start the scanning process using the function button on the device.
	Stop Scan	Stops the scanning process. You can also stop the scanning process using the function button on the device.
	Optimize	Optimize the align between maxilla and mandible.
	Impression Scan	Acquires the data of impression model. Impression data is aligned to intra-oral data in real-time.
	Delete	Deletes the whole 3D images to start over. If the related data with current stage exists, these data will be deleted also.
	First Occlusion	Acquires the 3D model for occlusion alignment.
	Second Occlusion	Acquires the 3D model for occlusion alignment of the opposite side of First Occlusion.
	Undo	Undo previous scanning.
	Redo	Redo previous scanning.
	Filtering	Controls the level of filtering during scanning. Scanning with low level filtering acquires more amount of data than high level filtering. On the other hand, noisy data such as tongue/cheek/small cluster is acquired also. Scanning with high level filtering acquires less amount of data than low level filtering. You need more time to complete the scanning of whole model, but the final scan data will be noise-free than the scan data with low level filtering.

3.2.7 Complete



Completes the scanning process then generates the result data.

Provides three method to fill the hole for the result data.

Do Not Fill Holes and Exclude Unreliable Data

Holes may appear where there is not enough scan data or if data is noisy.

Fill Major Holes

Inner boundaries will be extended to naturally fill major holes.

Fill All Holes and Create Watertight Model

All the boundaries will be extended to create model with no holes.

Close

3.3 Main Toolbar

The Main Toolbar contains useful commands for editing and analyzing the 3D model, as well as the device status.

3.3.1 Trimming

Removes unnecessary data, such as soft tissues and noise.

✓ Polyline Trimming



Removes all entities within a polyline shape drawn on the screen.



✓ **Brush Trimming**



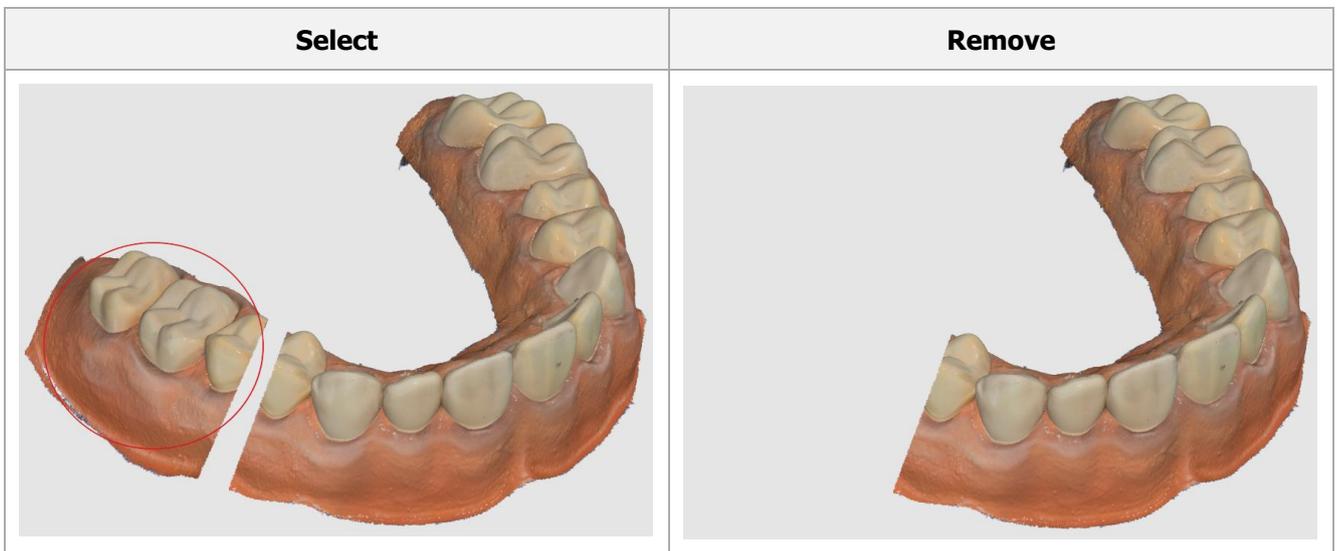
Removes all entities on a freehand-drawn path on the screen. The brush comes in 3 different sizes.



✓ **Quick Trimming**



Removes island data such as soft tissues by picking.



3.3.2 Tools

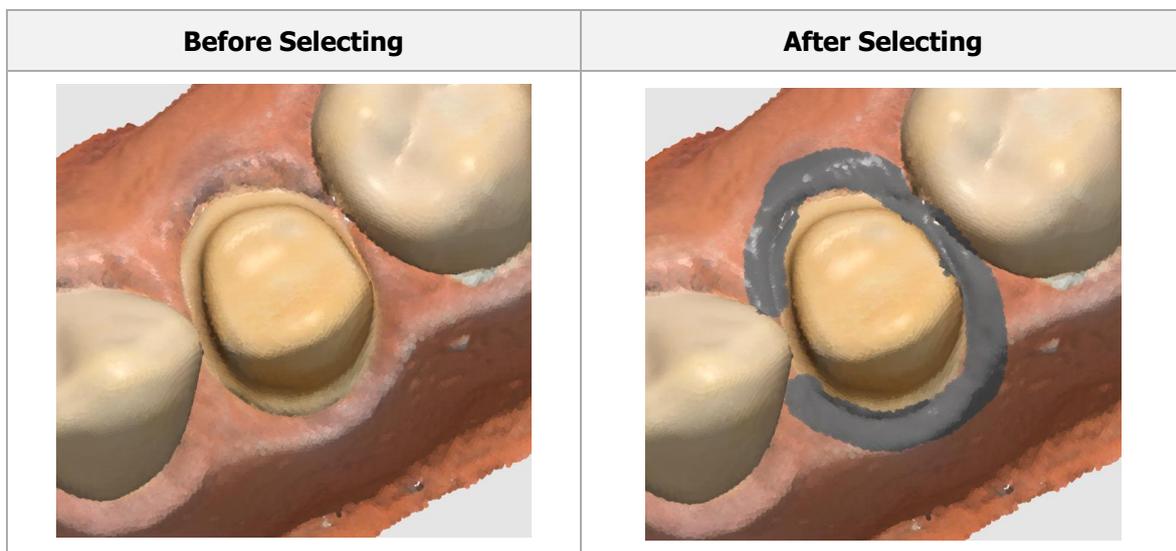
✓ Lock Area



Use the 'Selection' tool to specify the area which you wish to apply the data lock option to. Locked areas will not have its shape distorted even with additional scanning. This function is used to acquire the data for the margin line immediately after the cord has been removed. Data in locked areas can be deleted, and you can add additional scans to the deleted areas.

How to lock the area

- Press the "Lock Area".
- Choose a selection tool.
- Select the area you want locked. The selected area is indicated by a different color.



How to unlock the area

- Click "Clear Selected Area"
- Select the area to unlock
- If you want to unlock all area, click "Clear All"

Command Option Detail

Selection Tools

Various selection methods are available in the Lock Surface command.



Brush Selection

Selects all entities on a freehand-drawn path on the screen. The brush comes in 3 different sizes.



Polyline Selection

Selects all entities within a polyline shape drawn on the screen.



Circle Selection

Selects all entities within circular area.



Clear Selected Area

Clears selection of selected area on a freehand-drawn path on the screen. The brush comes in 3 different sizes.



Clear All Area

Clears all selected area.

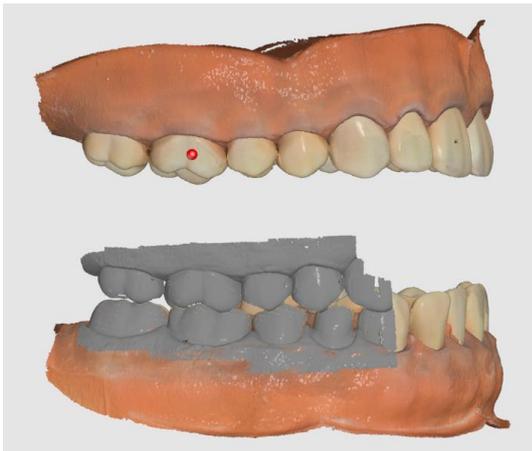
✓ Manual Alignment



Performs the alignment between maxilla and mandible manually.

How to use Manual Alignment

- Click "Manual Alignment".
- Place the marker points on the maxilla or mandible.



- Place the marker points on the occlusion.



- The system will calculate the occlusion alignment based on marked points pairing.

Command Option Detail

Undo selected marker points

You can undo the selected marker points using "Remove Marker Point".



Removes marker point.

Move Maxilla and Mandible

Reset the position of Maxilla and Mandible.



Moves maxilla to non-overlapping position from the 3D model for occlusion alignment.



Moves mandible to non-overlapping position from the 3D model for occlusion alignment.

Undo and Redo the transformation



Undo previous transformation.

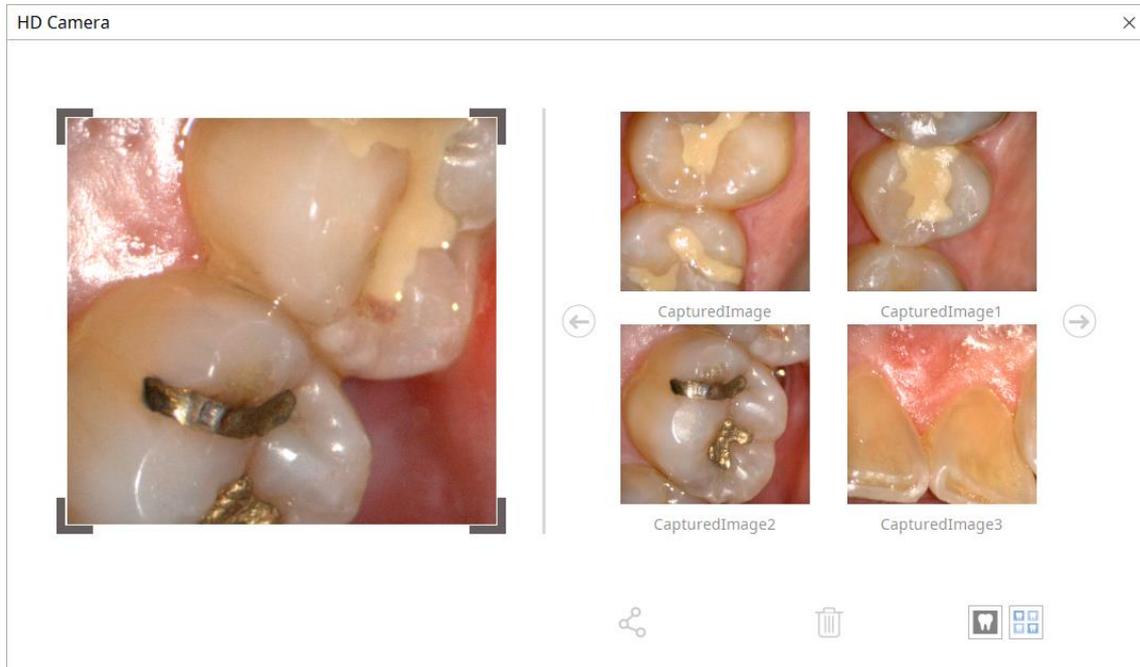


Redo previous transformation.

✓ HD Camera



Takes 2D images with 3D model data and shares the images with a laboratory.



Command Option Detail



Changes the sharing state.



Deletes selected image.



Moves to previous/next page.



Changes the view style of thumbnail.

How to use HD Camera

- Click "HD Camera".
- Move the tip into the patient's mouth.
- Place the tip on the region of interest and press function button on the device.
- 2D image is saved in the gallery.

How to change status of sharing

- Click and select the image to share (or to stop sharing).
- Click the  button

How to change the name of image

- Click and select the image.
- Click on the same image.
- Type the new name.

✓ Occlusion Analysis



Analyzes the interference between the maxilla and mandible and shows the result with color map.



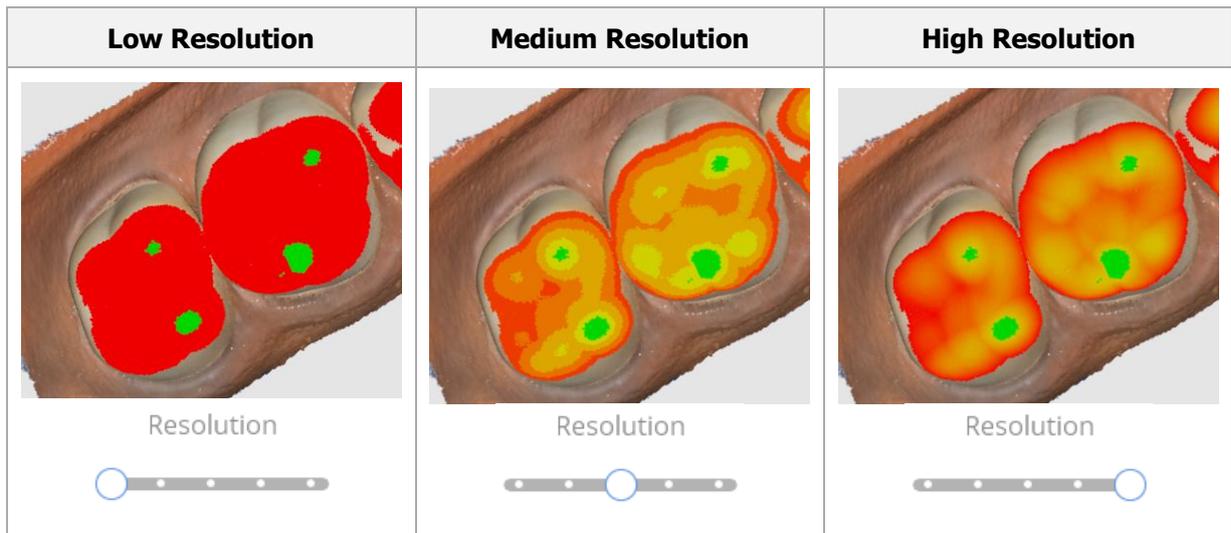
How to use

- Click "Occlusion Analysis"
- Change the view style between "Show All" and "Contact Area" by clicking on the  button.
- Change the segmentation of color range using the "Resolution" slider bar.

Command Option Detail

Resolution

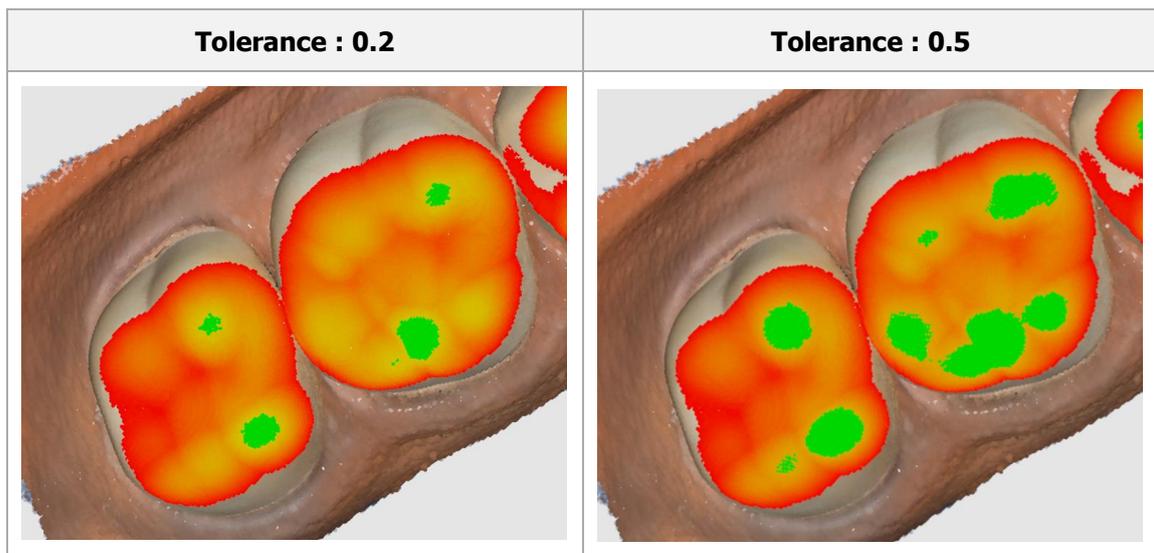
You can change the resolution of the color range by using the slider bar.



Acceptable Tolerance

You can set the acceptable tolerance range.

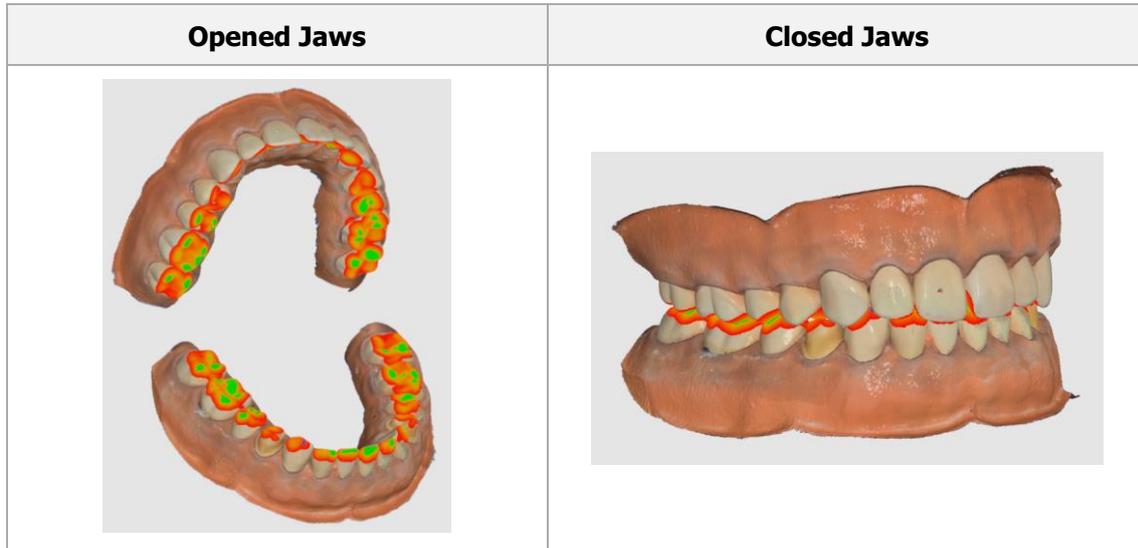
If the deviation of data is within the tolerance range, it will be displayed in green.



Switch View Style



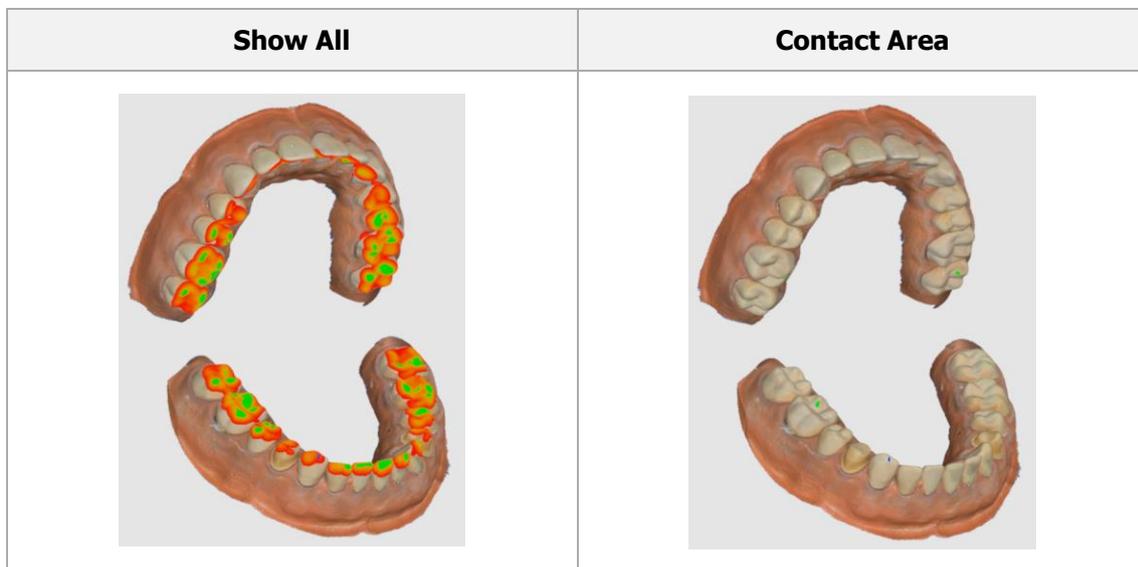
Changes the viewing style between opened jaw and closed jaw.



Switch Deviation Style



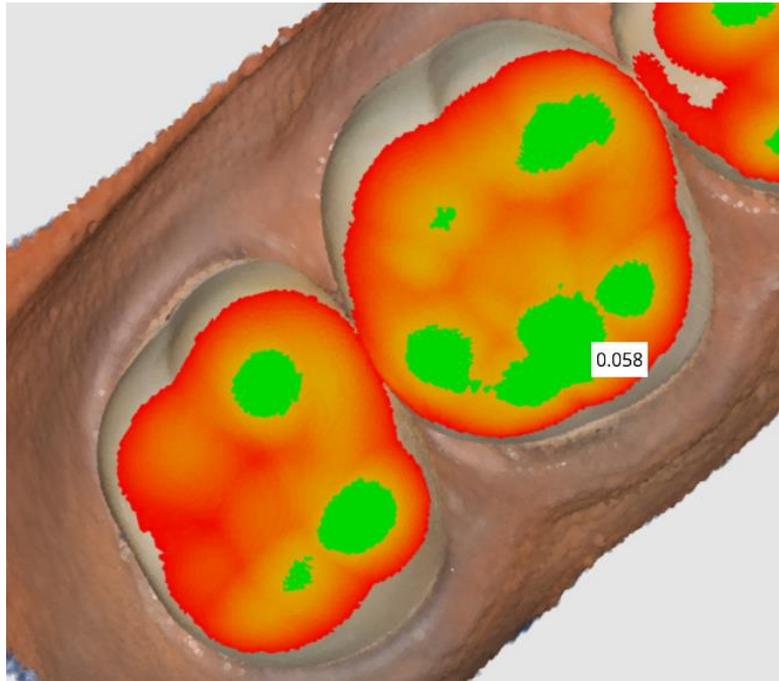
Changes the color deviation style between show all and contact area.





Check the value of deviation

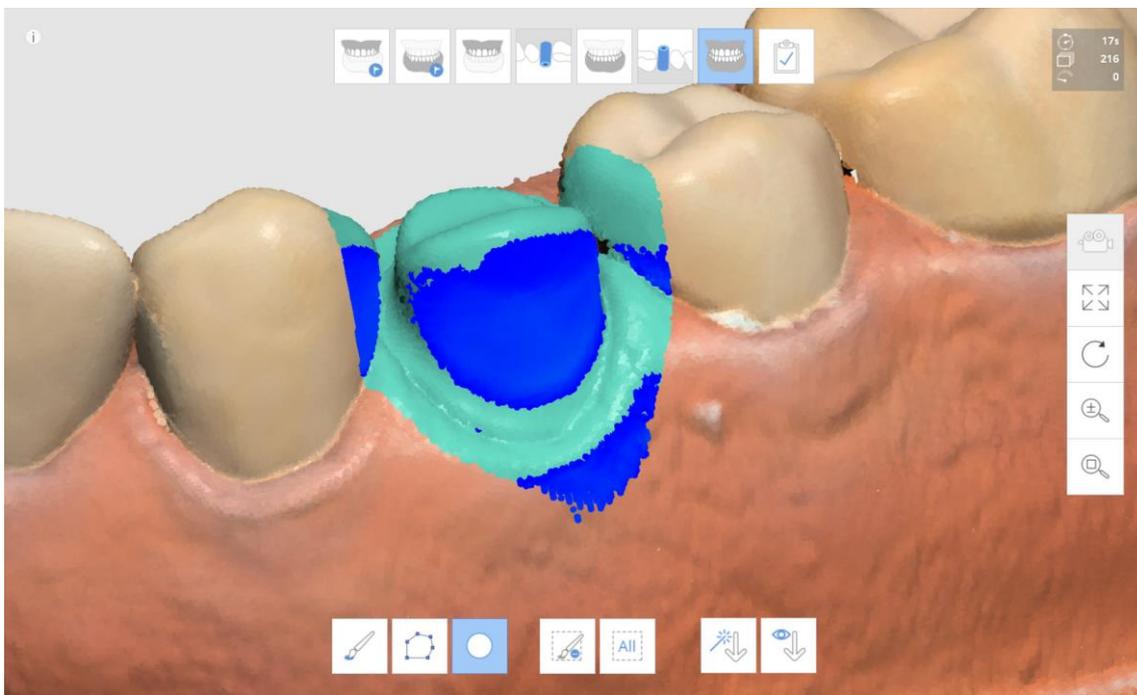
When you move the mouse on the colored area of the 3D model, the system will show the value of the deviation.



✓ Undercut Area Analysis



Analyzes the undercut area based on insertion direction. You can set the insertion direction via two methods.

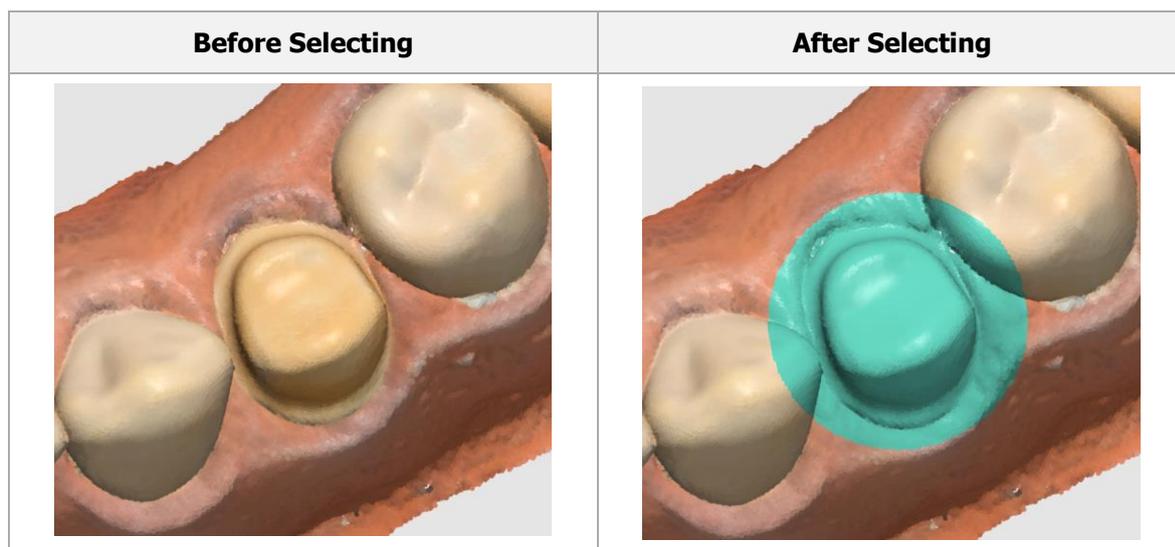


Command Option Detail

Selection Tools

Various selection tools are available in the Undercut Analysis command

	Brush Selection	Selects all entities on a freehand-drawn path on the screen. The brush comes in 3 different sizes.
	Polyline Selection	Selects all entities within a polyline shape drawn on the screen.
	Circle Selection	Selects all entities within circular area.
	Clear Selected Area	Clears selection of selected area on a freehand-drawn path on the screen. The brush comes in 3 different sizes.
	Clear All	Clears all selected area.



Set Insertion Direction

	Auto Direction	System automatically calculates the direction in which the undercut area is minimized then displays the undercut area on the View Screen.
	Manual Direction	System calculates the undercut area based on the direction specified by user then displays the undercut area on the View Screen.

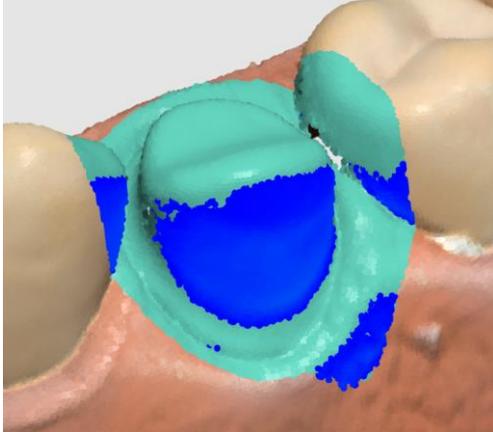
How to calculate the undercut region by the auto direction

- Click "Undercut Analysis".
- Set the region of interest to calculate the undercut area.



If you do not set the region of interest, the system will calculate the undercut region using all the 3D models in the View Screen.

- Click "Auto Direction"



How to set the insertion direction manually

- Click "Undercut Analysis"
- Adjust the direction of the model by using the Move, Rotate, Zoom In/Out tools
- Click "Manual Direction"

✓ Swap Maxilla & Mandible



Swaps maxilla and mandible scans. This is useful if the operator accidentally scanned the wrong jaw.

✓ Result Preview



Shows the preview result of selected area to check the quality of data before actual processing.

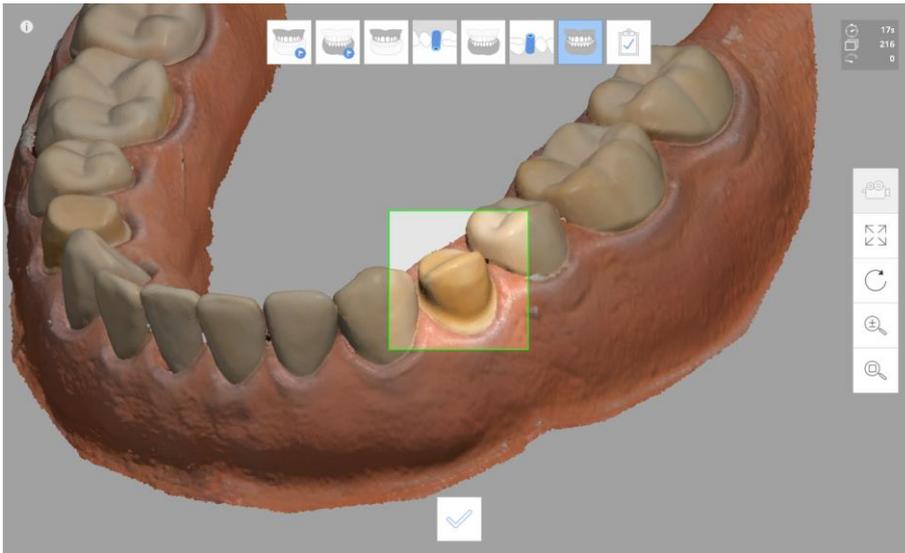
Command Option Detail



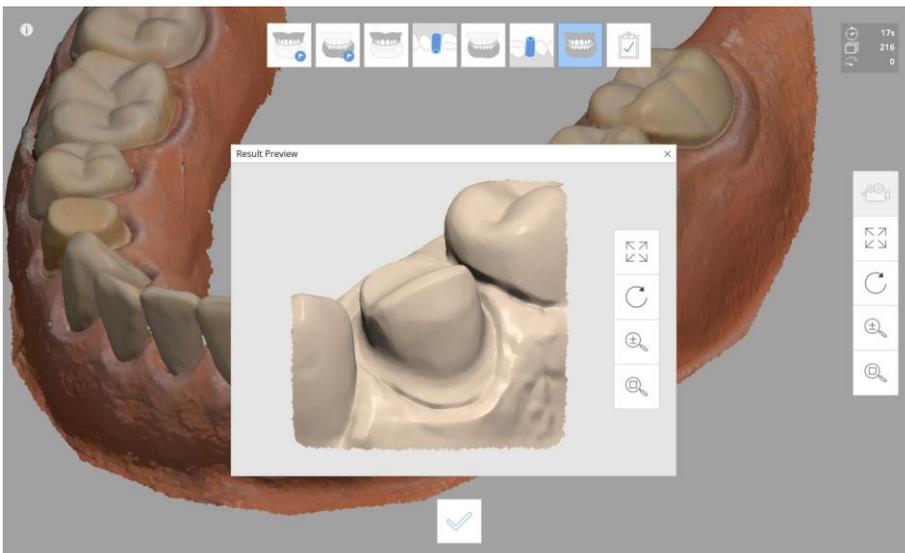
Performs the calculation for previewing result.

How to use

- Click "Result Preview".
- Moves the model into the green rectangle.



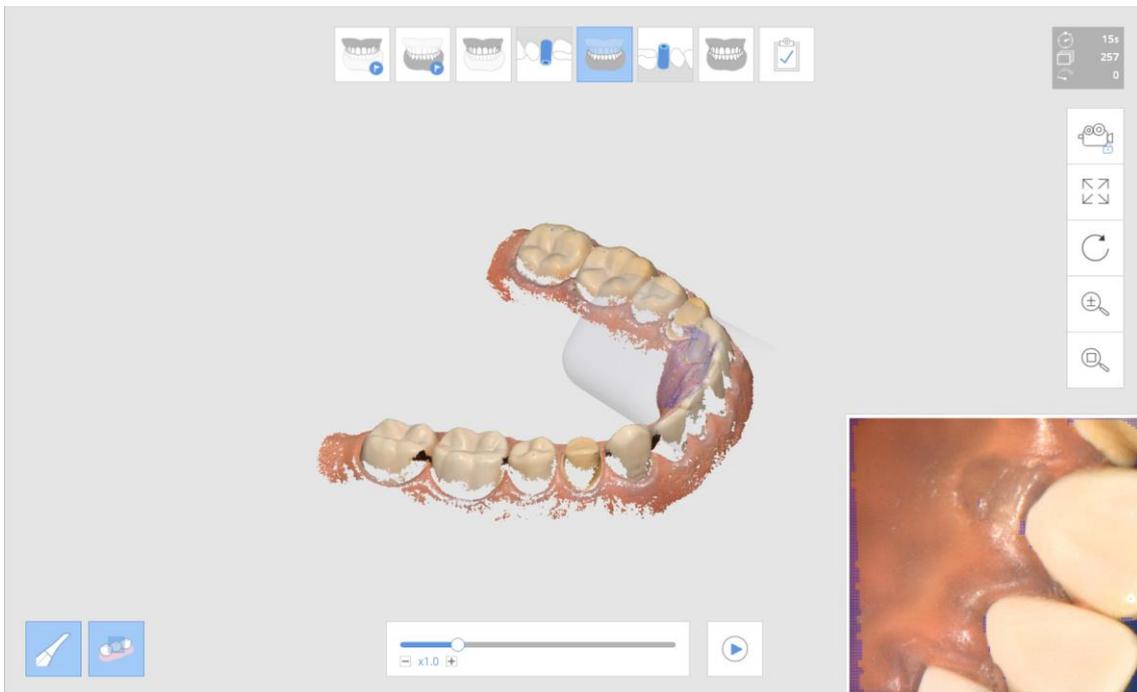
- Click ✓
- System shows the preview result on the pop-up window.



✓ Scan Replay



Plays the scanning process of exist model.
The scanner tip and scanning area are shown virtually during scanning. User can check the scanning condition such as scanning environment, habit etc.



Command Option Detail



Show/Hide
Scanner Tip

Shows/Hides scanner tip during play.



Show/Hide
Scanning Area

Shows/Hides scanning area during play.



Play

Starts the replay of the scanning.



Stop

Stops the replay of the scanning.

Slider Bar

Moves the interesting point of play immediately by slider bar.

Changes the play speed x0.5, x1.0, x2.0, x3.0 by + or – button.



✓ **Model Display Mode**

Changes the model display mode. Next three methods are available.



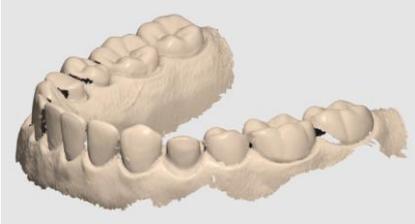
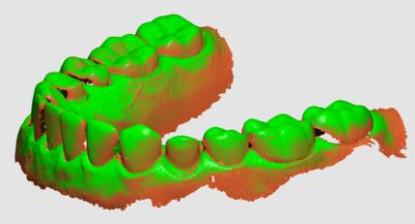
Texture On Displays the model with color texture.



Texture Off Displays the model without color texture.

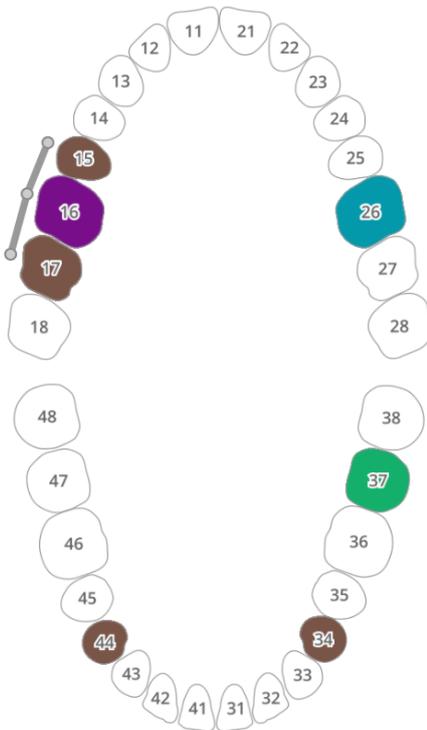


Reliability Map Allows to see the trend of reliability of scan data.
The model shows as green and orange color.
The data with green color means "Reliable Area", the data with orange color means "Unreliable Area".
You can reduce the unreliable area by additional scanning.

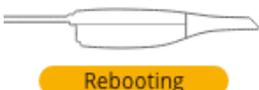
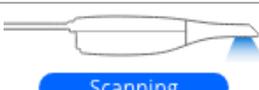
Texture On	Texture Off	Reliability Map
		

3.3.3 Overview

Shows the information of the teeth for treatment.



3.3.4 Device Status

	Not Connected	Indicates the i500 is not connected.
	No Tip	Indicates the tip is not mounted.
	Connecting	Indicates the i500 is trying to connect.
	Rebooting	Indicates the i500 is rebooting.
	Need Calibration	Indicates that the i500 needs to be calibrated.
	Ready	Indicates the i500 is ready for use.
	Scanning	Indicates the i500 is currently in the process of scanning.
	Sleep	Indicates the i500 is in sleep mode.
	Overheating	Indicates the i500 is overheated.

3.4 Side Toolbar

The Side Toolbar provides the tools to control the 3D Model in the Model View Screen and to change scan depth.

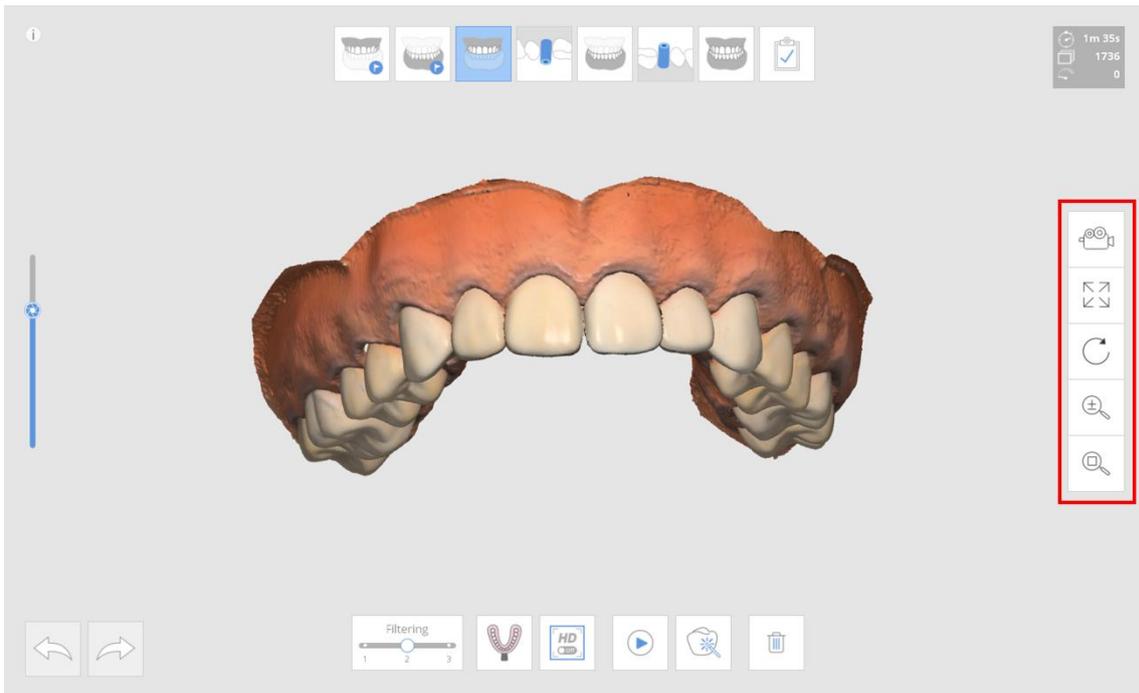
Tools to control the 3D Model

	Dynamic View	Changes the movement of model dynamically by system.
	Fixed View	Fixes the movement of scan data. User can change the viewing direction, position manually.
	Pan	Moves the model.
	Rotate	Rotates the model.
	Zoom In/Out	Zooms in/out the model.



Zoom
Fit

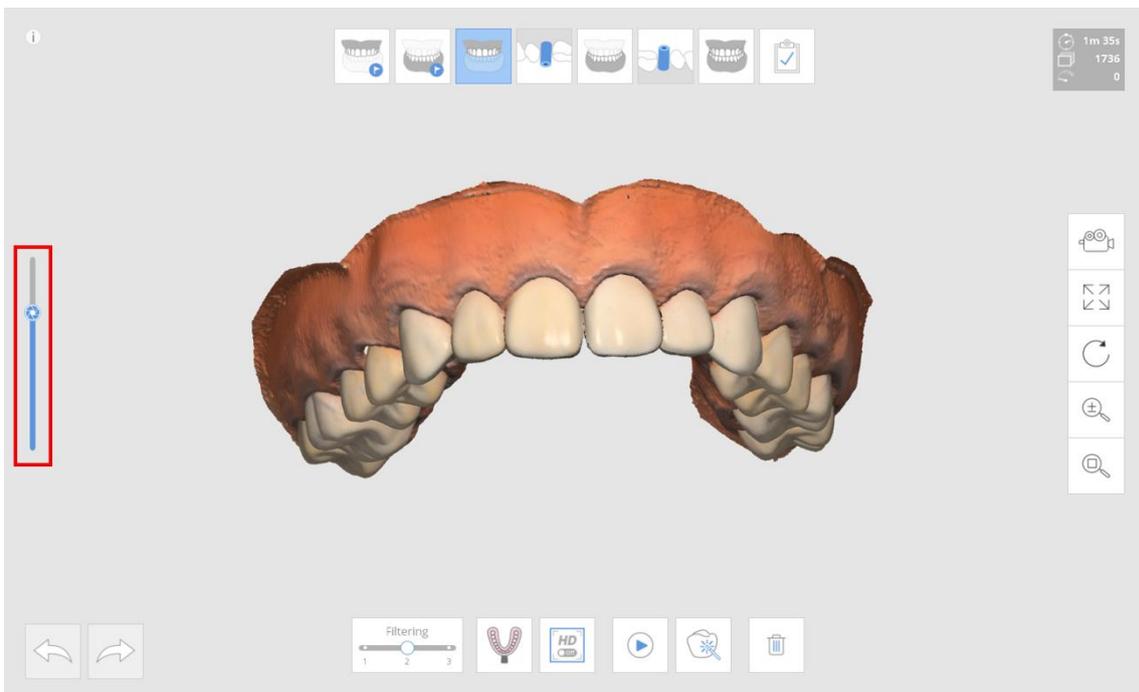
Places the model in the middle of the screen.



Tool to change the Scan depth

Allows to control the scan depth from 12~21mm.

The deeper scan depth is useful in general. The shallower scan depth is useful to filter the data which is far away from the tip end.



3.5 Scan Information



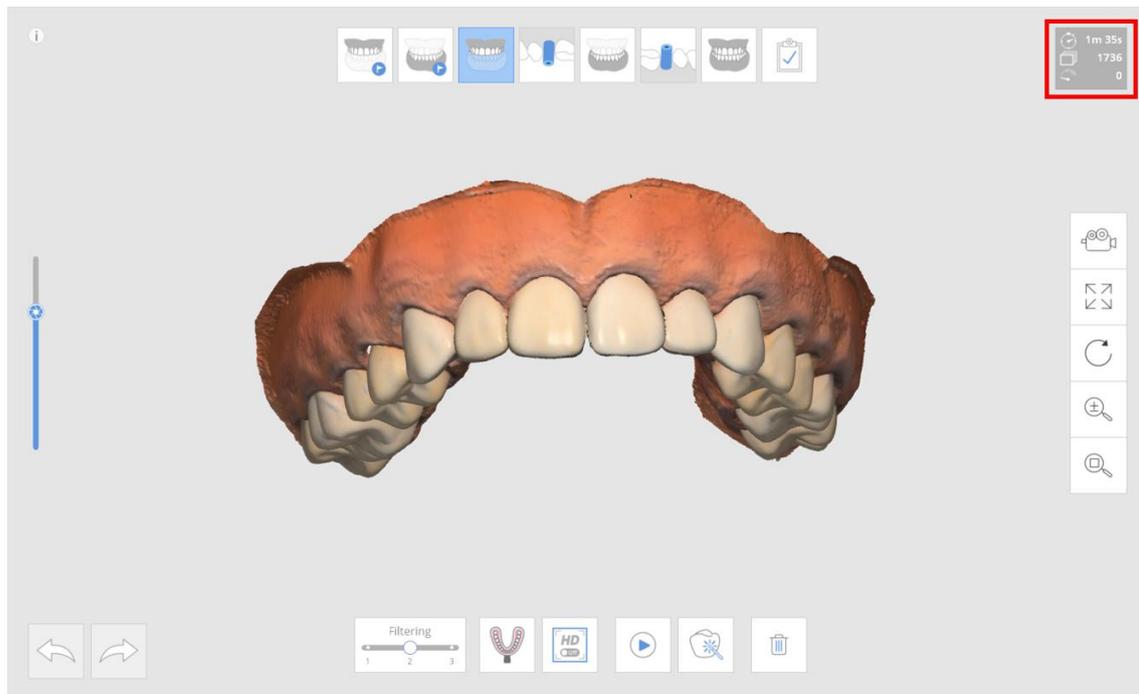
Scan Time Shows scan time during scanning process.



Scan Images Shows the number of images taken during scanning process.



Scan Speed Shows the current scan speed.



3.6 Guide Message

Shows information to guide you through the scanning process such as command functions and useful information on the current situation.

1	Removes all entities within a polyline shape drawn on the screen.
2	Removes all entities on a freehand-drawn path on the screen. The brush comes in 3 different sizes.
3	Removes island data such as soft tissues by picking.
4	Use the 'Selection' tool to specify the area which you wish to apply the data lock option to. Locked areas will not have its shape distorted even with additional scanning. This function is used to acquire the data for the margin line immediately after the cord has been removed. Data in locked areas can be deleted, and you can add additional scans to the deleted areas.
5	Performs the alignment between maxilla and mandible manually.
6	Takes 2D images with 3D model data and shares the images with a laboratory.

7	Analyzes the interference between the maxilla and mandible and shows the result with color map.
8	Analyzes the undercut area based on insertion direction.
9	High level filter produces more accurate initial alignment than low level filter.

3.7 Command Option

Shows the available options for the currently running command.

For detailed information of the options, please refer to the option description for each command.

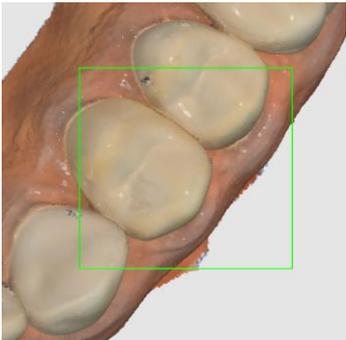
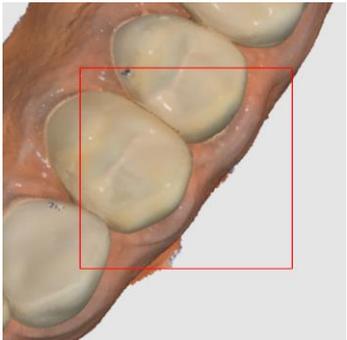
3.8 Model View Screen

Displays live video and captured images.

4 Useful Tips

4.1 Indication during scanning

The color of the rectangle box that appears during scanning indicates the status of the scanning process:

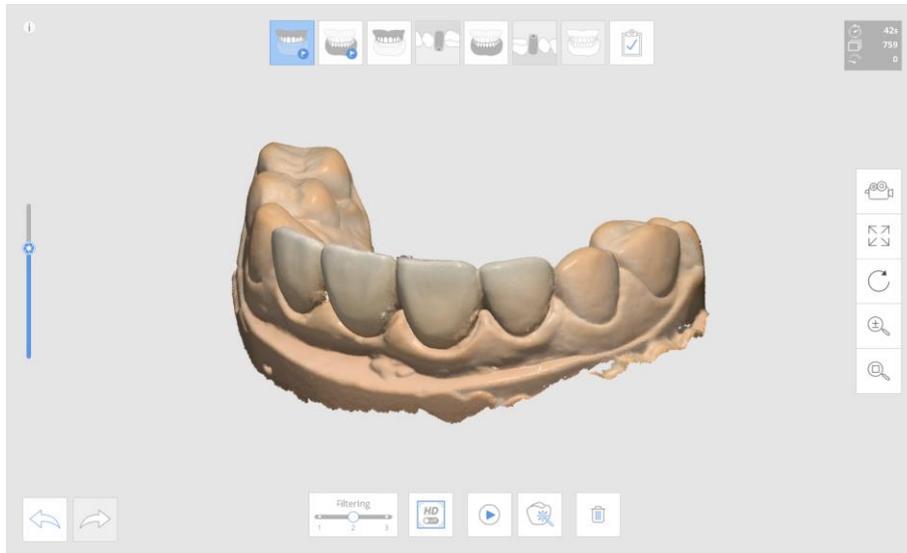
Green rectangle	Red rectangle
	
<p>Scanning and alignment is optimal.</p>	<p>Alignment is lost. You should re-position the scanner tip at the area which is scanned already to continue scanning.</p>

4.2 Pre-Operation Scan Stage

The data in this stage is usually acquired for the pre-operation condition of maxilla or mandible and will be used for the reference data of the maxilla or mandible.

How to use

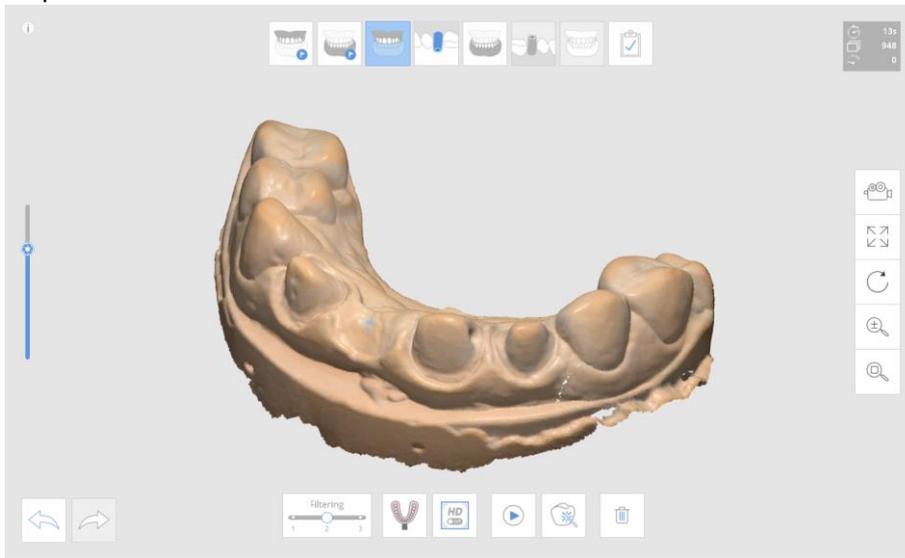
- Acquire the data for pre-operation condition.



- Move to Maxilla Scan Stage. Pre-Operation For Maxilla is copied to Maxilla.
- Delete the area which will be treated.



- Acquire the additional scan data for deleted area.



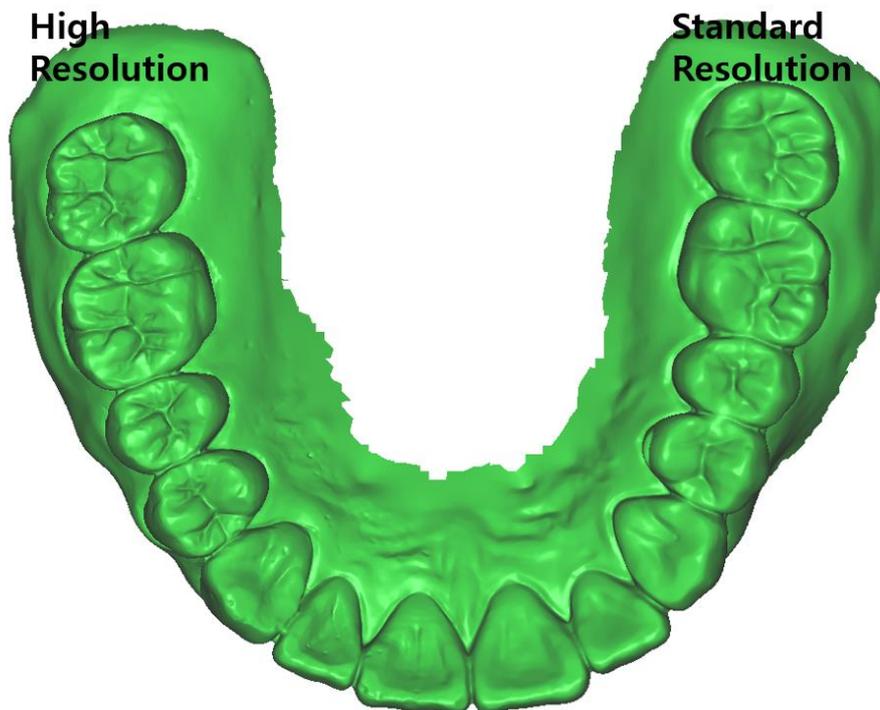
- 💡 The location between "Pre-Operation Model" and "Maxilla(or Mandible)" will be same through whole process.
- 💡 "Pre-Operation Model" is not used for the occlusion alignment.
The occlusion alignment uses maxilla and mandible only. If you move to "Occlusion Stage" after scanning only "Pre-Operation Model", the "Pre-Operation Model" is copied to "Maxilla(or Mandible)" then use Maxilla(or Mandible) for the occlusion alignment.

4.3 High Resolution Scan

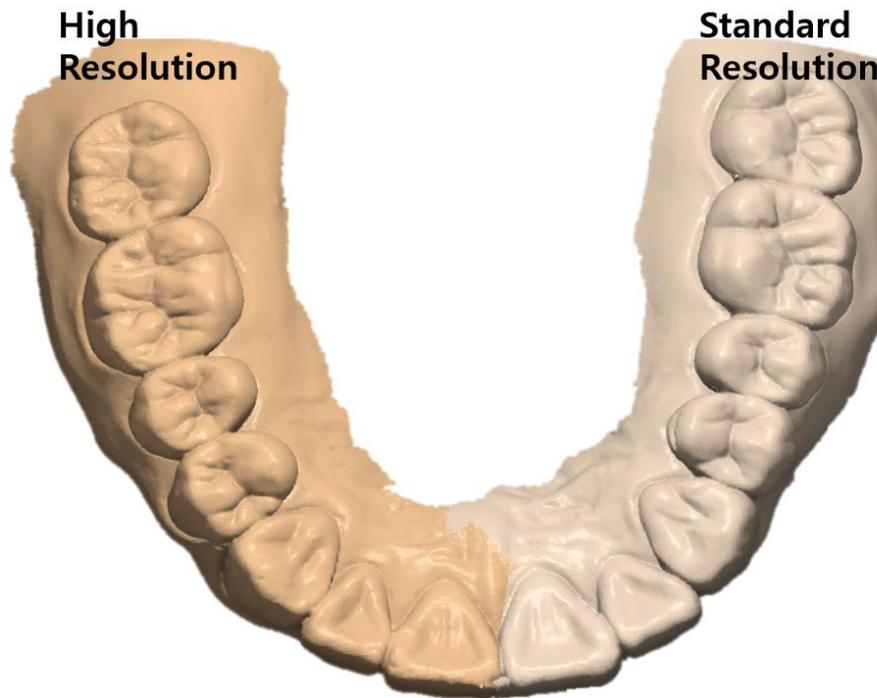
"High Resolution Scan" function provides acquiring the data with high resolution for entire or partial area.

The high resolution and standard resolution area are mixed, result will be merged smoothly during post processing.

If the high resolution scan is used, whole processing time will be longer than using standard resolution only, however you can get more detailed data on high resolution area.



When the color texture is turned off, high resolution and standard resolution area are shown with different material color.



4.4 Impression Scan

“Impression Scan” provides the seamless scanning process to combine the intra-oral and impression scan data. You can easily merge the intra-oral and impression scan data with integrated scanning process.

Command option detail

Various selection tools are provided to limit the scanning area.

The impression scan data is acquired in the marked area only.



Brush Selection

Selects all entities on a freehand-drawn path on the screen. The brush comes in 3 different sizes.



Polyline Selection

Selects all entities within a polyline shape drawn on the screen.



Circle Selection

Selects all entities within circular area.



Clear Selected Area

Clears selection of selected area on a freehand-drawn path on the screen. The brush comes in 3 different sizes.



Clear Area All

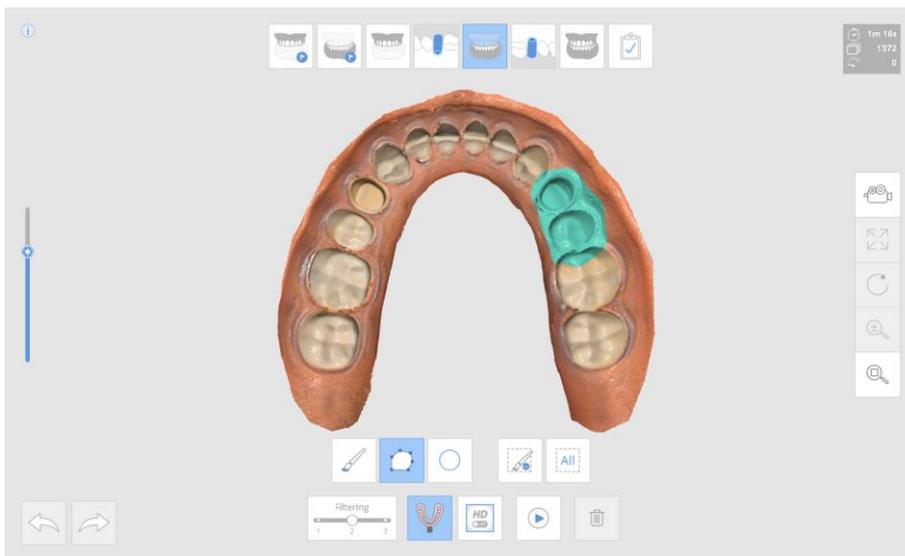
Clears all selected area.

How to use impression scan

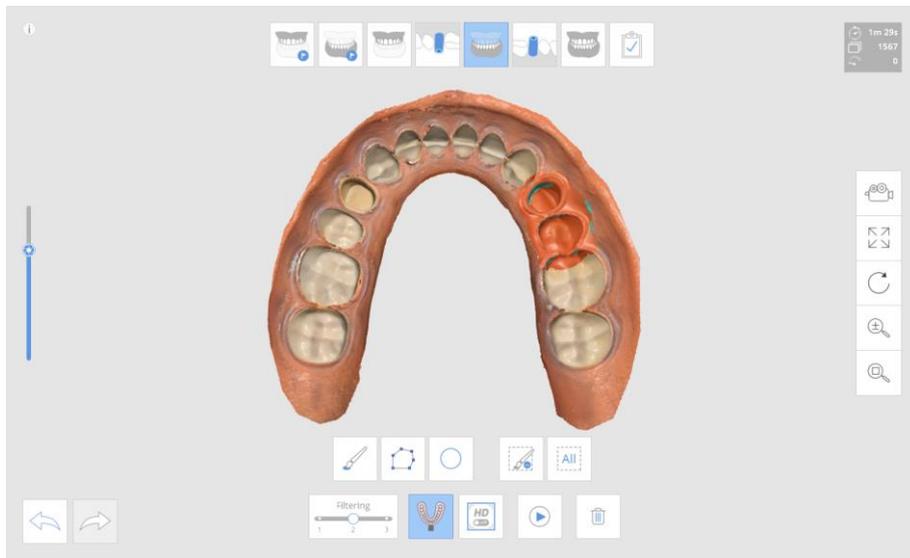
- Acquire the intra-oral scan data



- Turn on "Impression Scan"
- Mark the area to replace the intra-oral data with the impression data. Marking function is useful to limit the area which should be replaced. You can skip "Marking" process. If you are not using marking area, the intra-oral data will be replaced by all impression data.



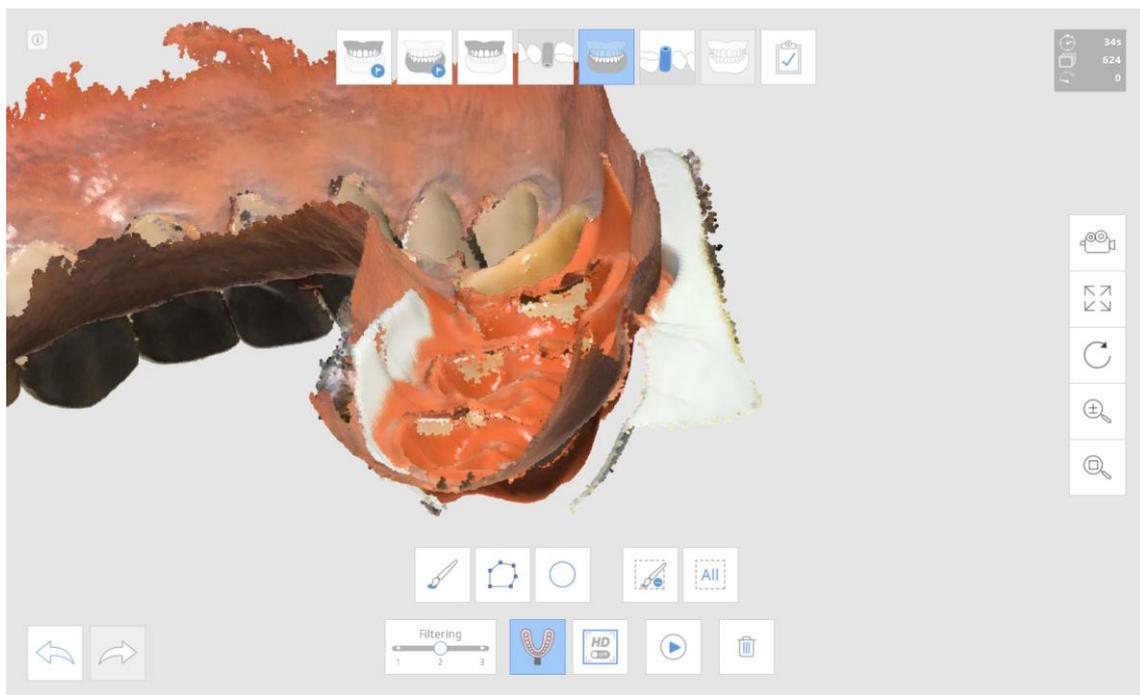
- Scan the impression model for marked area. The impression data is aligned to intra-oral data automatically.



How to edit impression data

When the impression data is taken, unnecessary area needs to be removed before completing the case.

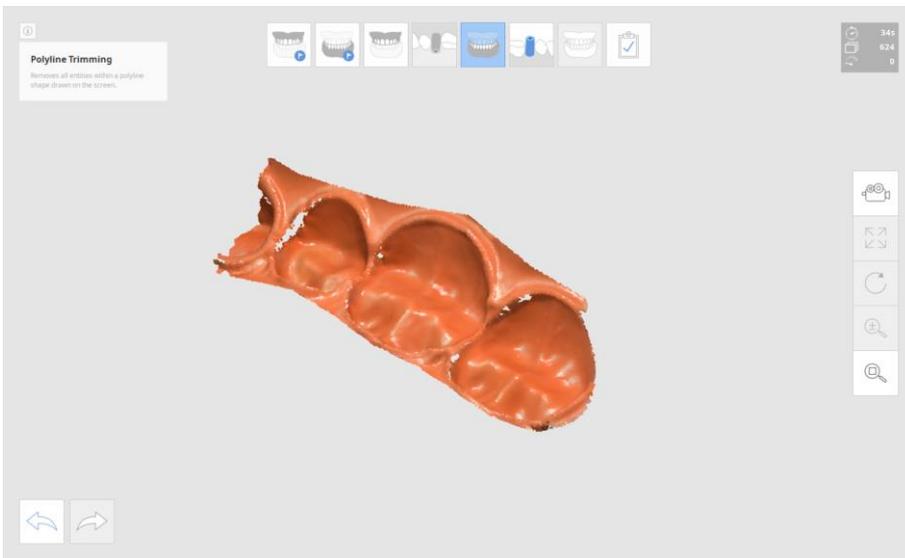
For example, if the impression data is acquired like the image below, unnecessary data from the impression scanning should be removed.



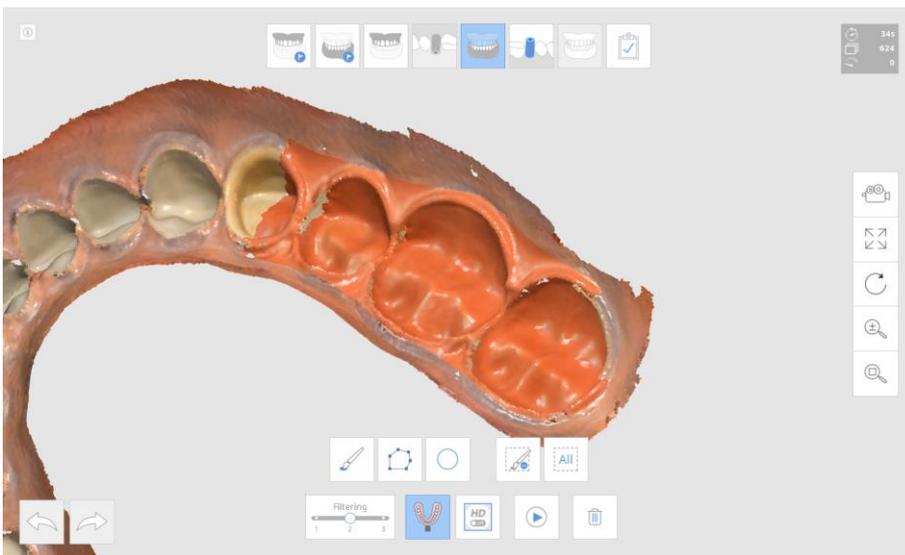
- Run the trimming function in impression scan mode. The impression data is shown in the Model View Screen.



- Delete unnecessary area in the impression data.



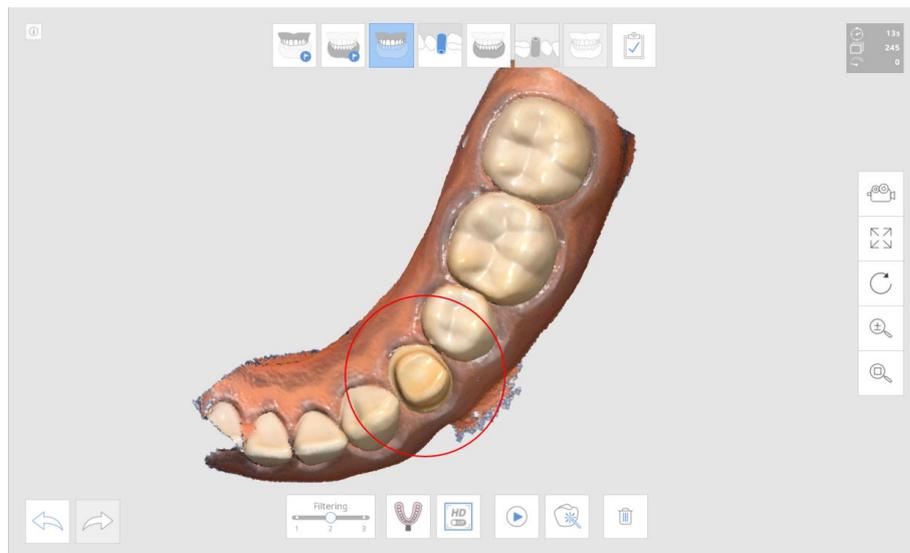
- Result will be appeared like below.



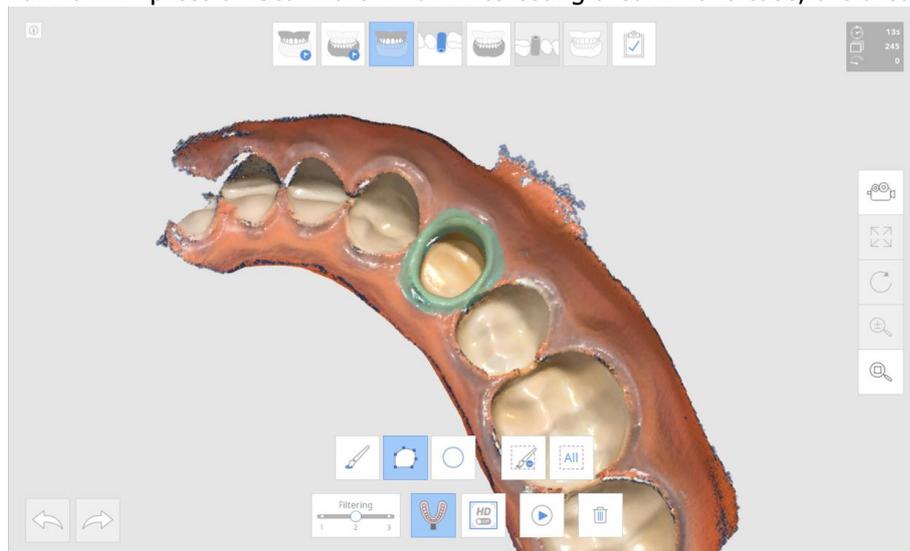
When "Impression Scan" is useful

✓ Replace the margin of intra-oral data with impression data

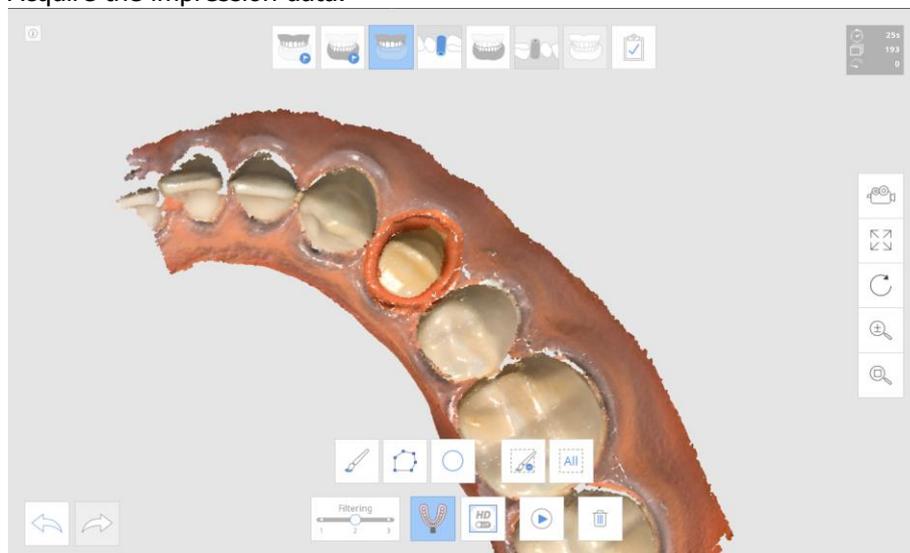
- Scan base model.



- Turn on "Impression Scan" then mark interesting area. In this case, the area for margin is marked.



- Acquire the impression data.



➤ Result will be generated like below.



✓ **Post & Core case**

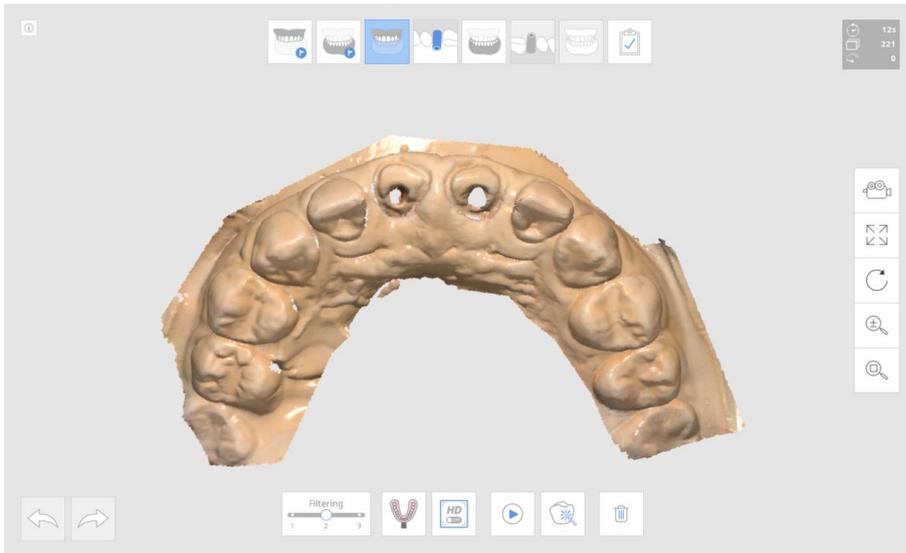
In some case of Post & Core, it is very difficult to take the data for post area due to the area is very deep and hard to scan.

Impression scan is useful for this case also.

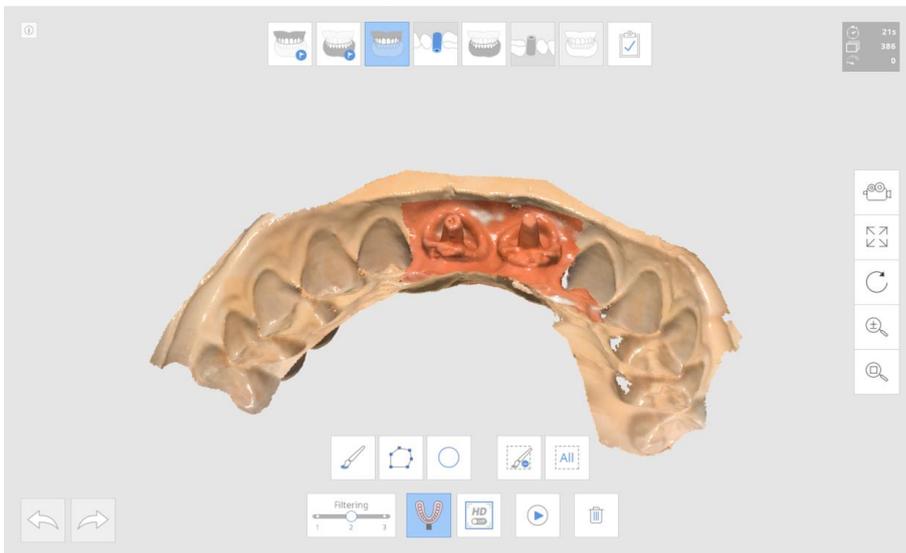
Base model	Impression for post
	

How to use

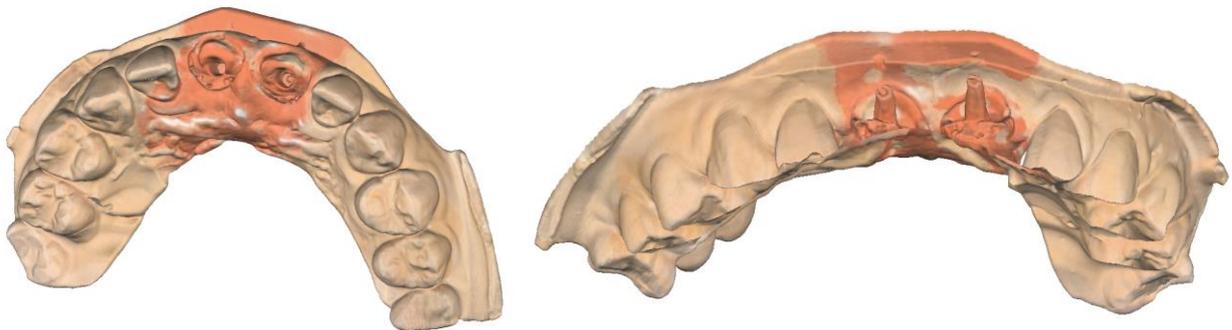
- Scan base model.



- Turn on "Impression Scan" then scan impression model.



- Result will be generated like below.



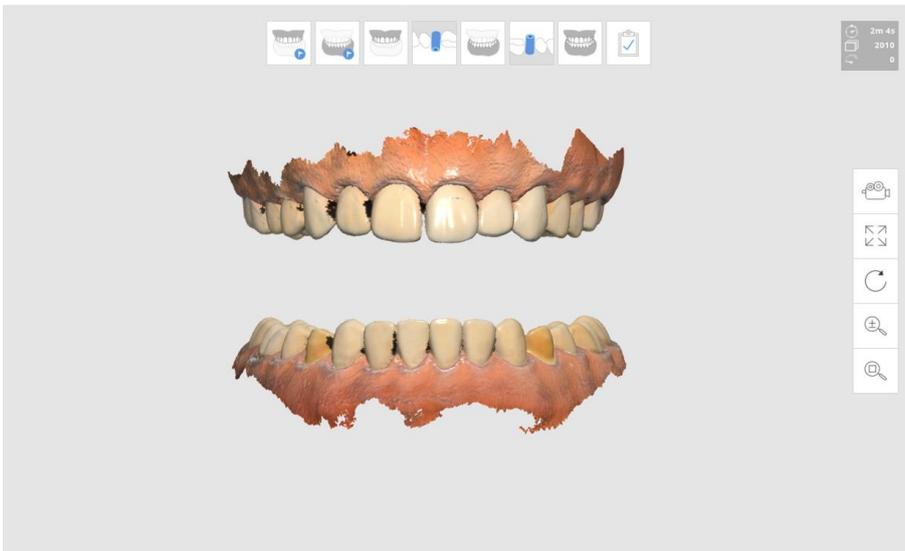
✓ **Occlusion case**

The case to use impression scan to occlusion alignment.



How to use

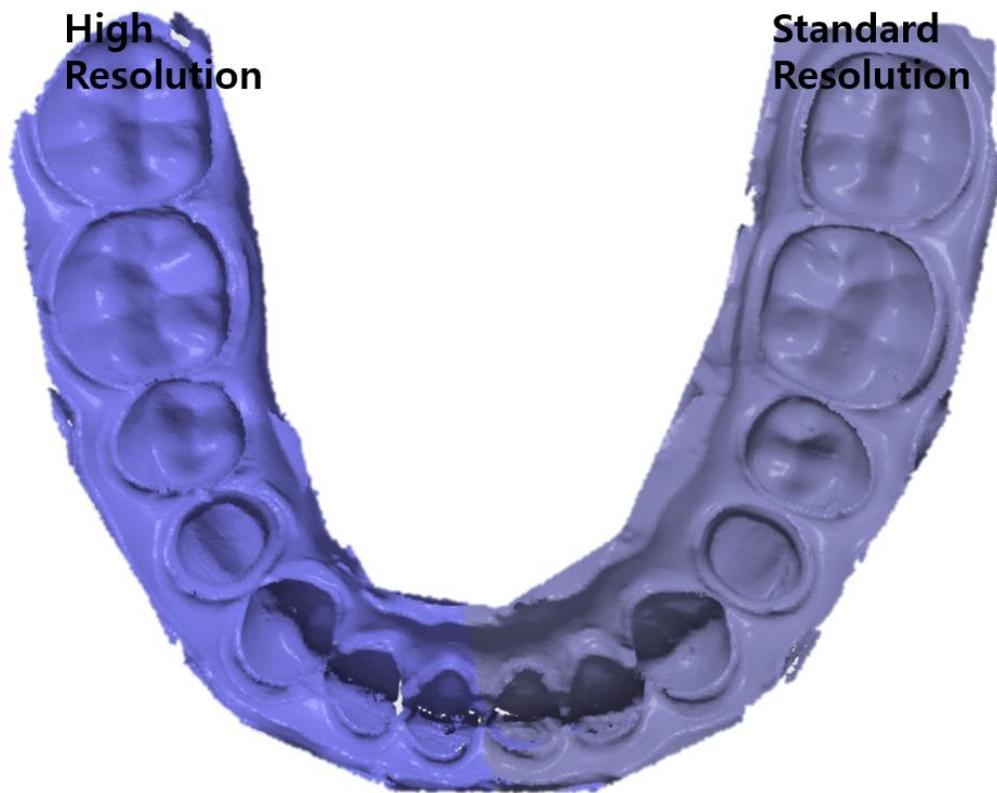
- Scan Maxilla and Mandible.



- Turn on "Impression Scan" in the occlusion stage and acquires occlusion data using impression model. In this case, you need to take the impression model 360 degrees for each bite.



💡 "High Resolution Scan" is available during impression scan.
When the impression data is acquired with high resolution, data will be shown with different color if the model rendering is "Texture off".



5 Updates to Image Acquisition Software

The Image acquisition software automatically checks for updates when the software is running.

When a new version of the software is available, the system will automatically download the new version.