



DentiqGuide

Implant surgical guide design software

User Manual **Version 1.2.00**

RxOnly



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1. Introduction

DentiqGuide is a dental implant surgery guide software to perform implant simulation and design surgical guides using CT image and 3D oral scan data.

DentiqGuide provides workflow stages that can be adapted to suit user’s purpose and supports fast and accurate implant simulation and guide designing using high quality 3D image, high accuracy alignment and virtual crown.



Please fully read and understand this manual before using DentiqGuide. It might be inconvenient to use the program without fully understanding the basic functions.

1. Use of this software requires professional experience on dental implant and dental surgery.
2. Federal law restricts this device to sale by or on the order of a physician.
3. Before using the software, the user should receive sufficient training and be familiar with operation of the software.
4. In order to use this software, your computer must comply with the system requirements described in this manual.
5. The following table describes warning and information signs used in this manual.

Sign	Description
	General caution for users
	Instruction that requires specific action from users
	Instruction that provides specific information to users

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2. Product Installation

2.1 PC System Specification

The following specification should be met to use DentiqGuide.

Component	Minimum Requirements	Recommended Specifications
OS	Windows 7, 8, 10 (64bit)	Windows 7, 8, 10 (64bit)
Memory	16GB	16GB or more
Graphics	DirectX 11 graphics card	High performance graphics card that support DirectX 11 or higher with 1GB video RAM
CPU	Intel i3 Dual Core	Intel i5 Quad Core or higher
Storage	2GB available hard drive space	2GB available hard drive space

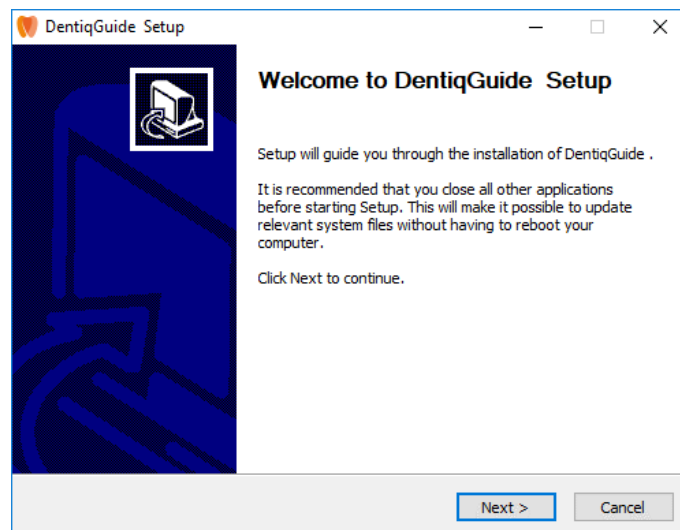


To check your computer's system specification, go to Control Panel > System > Device Manager.

2.2 DentiqGuide Installation

The installation process of DentiqGuide follows the following steps.

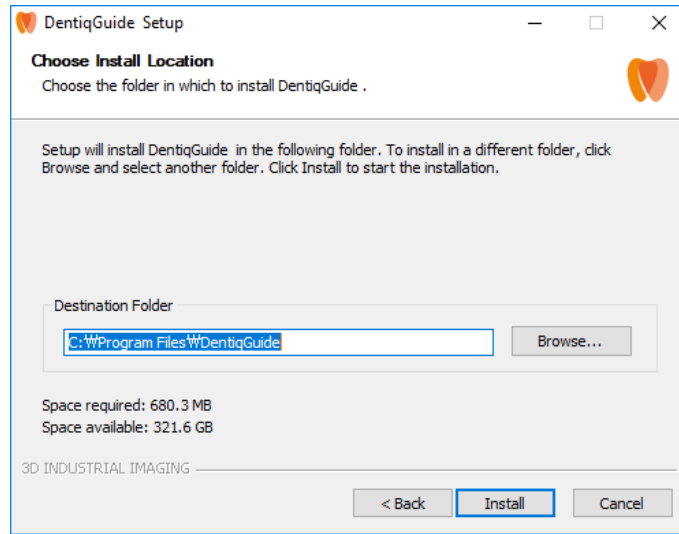
- ① Double click "Setup_DentiqGuide" file to run.
- ② Click [Next>] to continue when Install Shield Wizard window appears.



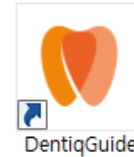
[Install Shield Wizard]



- ③ Select directory to install DentiqGuide and click [Install] button to start installation.



[Install Location Selection]



- ④ When completed, run DentiqGuide with the shortcut icon created.

	<p>USB dongle key is required to run the product. Please email at service@3dii.net for product purchase.</p>
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2.3 Implant Library Installation

The installation process of Implant library follows the following steps.

- ① Double-click "Setup_ImplantLibrary" file to run.
- ② Click the [Install] button to start installation when Install Shield Wizard appears.
- ③ Click [Done] to finish installation when the installation completion message displays.

	<p>DentiqGuide install file is available to download from our website (www.3dii.net → Support → Download). You can download Implant library in the program. Otherwise, please email to service@3dii.net.</p>
--	---

	<p>Installation can take some time depending on PC environments.</p>
--	---

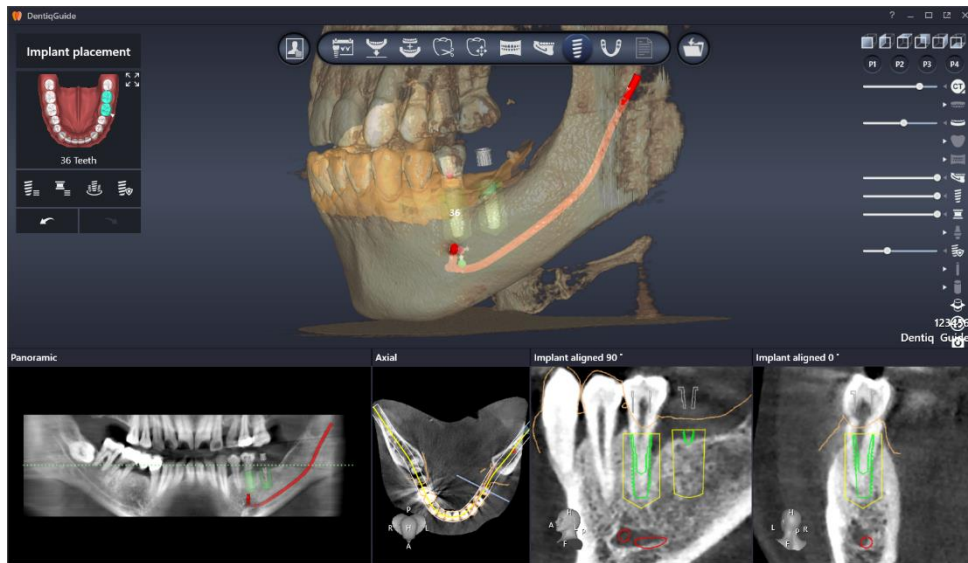


3. Product Overview

3.1 Main Function

1) Simulation

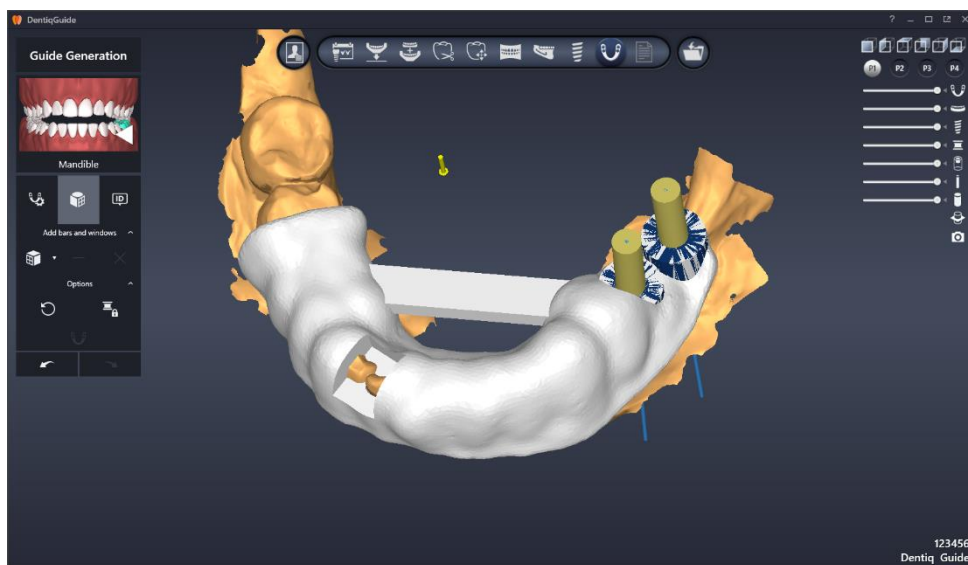
The user can plan the position of implant placement through simulation using fixture and crown model after checking the shape of alveolar bone on CT image.



[Implant Placement]

2) Guide Design

The user can design surgical guides to help actual implant surgery based on implant simulation.

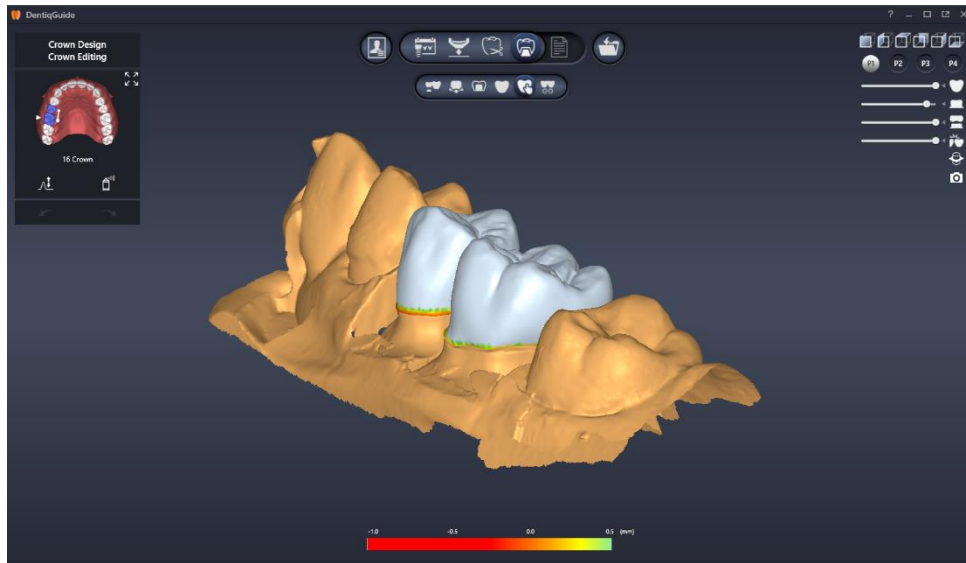


[Surgical Guide Design]



3) Temporary Crown Design

The user can design temporary crown which is used before the permanent crown is placed.

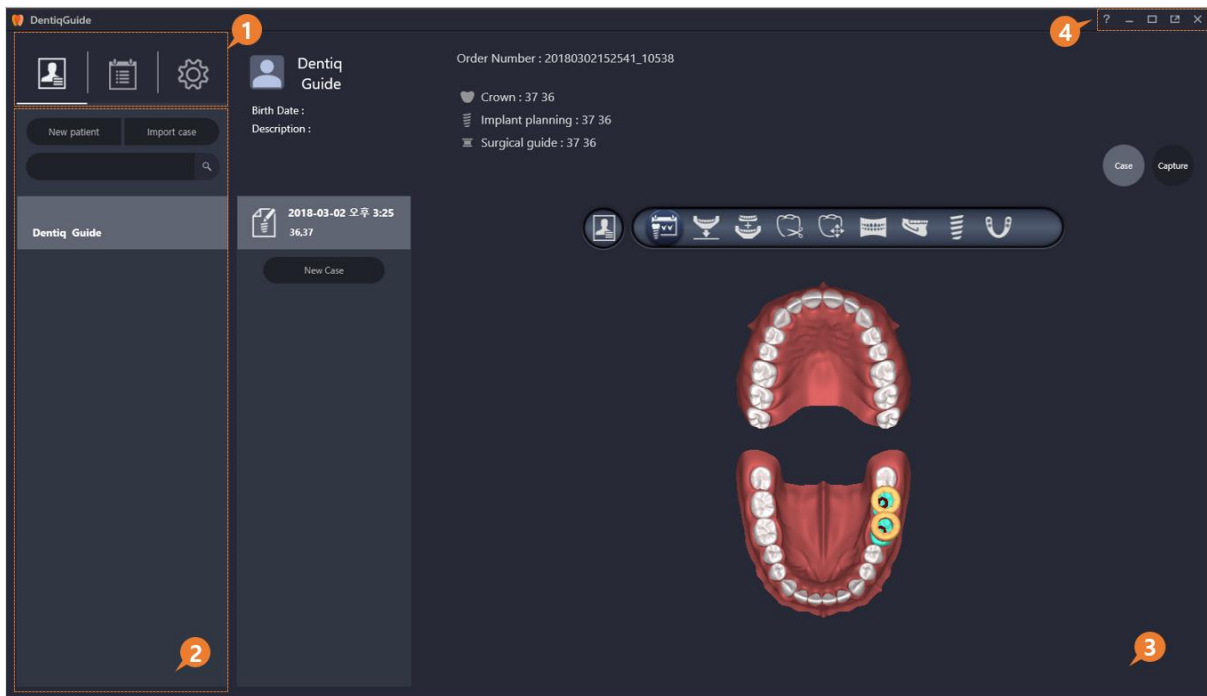


[Temporary Crown Design]

3.2 Screen Layout

1) Dental Manager

The user can manage the list of patients/cases and provide environment settings menu.

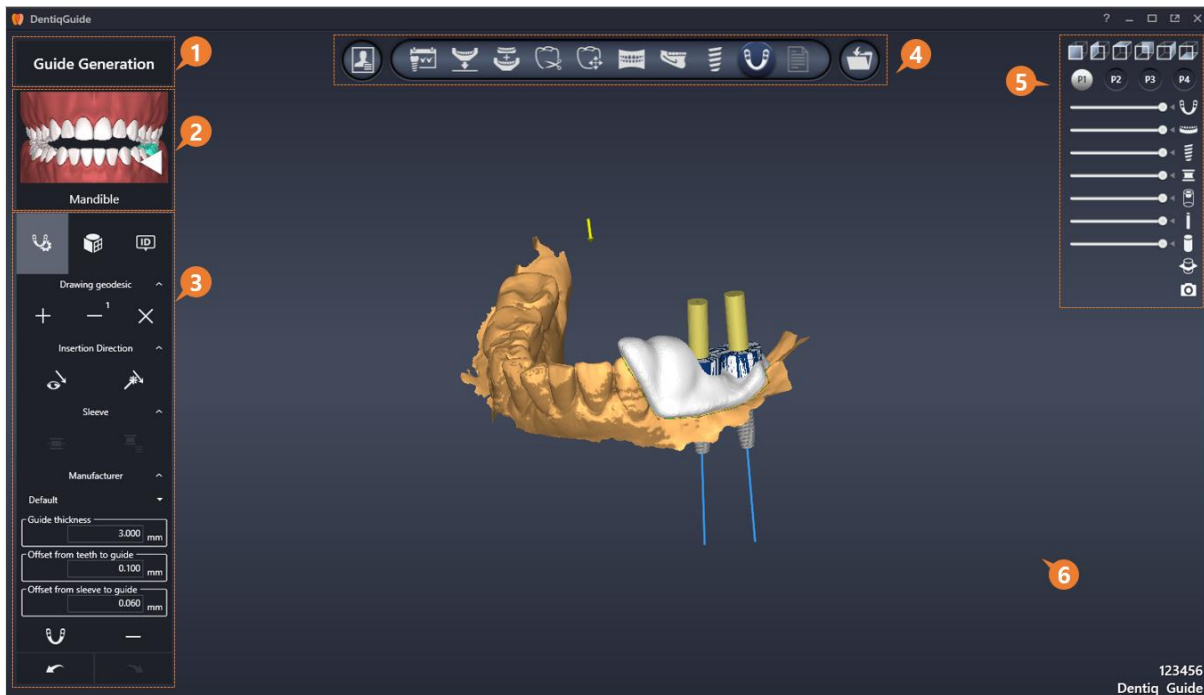




No	Title	Description
1	Menu	Display available menu for Dental Manager
2	Sub-menu/Category	Display sub-menu or categories of selected menu
3	Details	Display detailed information for sub-menu or category
4	Program Control Menu	Display help/minimize, maximize/close icons

2) Case Workflow

The program provides case workflow stages and tools.



No	Title	Description
1	Case Workflow Title	Display title of current workflow stage
2	Select Area	Select and displays the area to work on
3	Tools	Provide toolbar required in the stage
4	Case Workflow Stage	Display possible workflow stage and move to other stage
5	Visualization Options and Additional features	Provide data visualization options and additional features
6	Data Display	Displays currently used data



4. Common

4.1 Window Control Icons

Icon	Description
	Help: provide a program manual
	Minimize
	Maximize (except task bar)
	Restore (except task bar)
	Maximize (including task bar)
	Restore (including task bar)
	Close

4.2 Mouse Operations and Shortcuts

1) Mouse Operations for Image Browsing

	2D	3D
Pan	Drag mouse wheel	Drag mouse wheel
Zoom in/out	Right click and drag	Scroll mouse wheel
Change image slice	Scroll mouse wheel	-
Rotate	-	Right click and drag

2) Shortcuts

Common	
Help(Manual)	F1
Undo/Redo	Ctrl + Z / Ctrl + Y
Save case	Ctrl + S
Save case as	Ctrl + Shift + S
Close pop up window	ESC
Data Configuration	
Initialize image location	P
Alignment	



Sync setting of camera status	C
Delete all points	Place mouse cursor in the image to delete + D
Display grid in 2D image	G
Measure length in 2D image	L
Display 3D object in 2D image	M
Display object fine-tuning tool	R
Move scanned data in 2D image	Place mouse cursor + Arrow keys (↑/↓/→/←)
Rotate scanned data in 2D image	Place mouse cursor + Ctrl + Arrow keys (→/←)
Initialize image location	P
Tooth Removal/Crown Arrangement	
Select/Unselect multiple crowns	Ctrl + Select tooth with mouse
Curve Setting	
Delete curve	R
Initialize image location	P
Nerve Setting	
Delete nerve	R
Initialize image location	P
Implant Placement	
Display library	L (Available only when changing inserted objects)
Display implant grouping	G
Display implant custom safety zone	Z
Use 2D image as clip surface	Place mouse cursor in the image to use + C
Display 2D image based on implant	Select an implant + F
Line/Length on 2D image	Place mouse cursor in the image to measure + L
Angle using two lines in 2D image	Place mouse cursor in the image to measure + A
HU value of 2D image	Place mouse cursor in the image to measure + H
3D implant clipping	1
Dist. of both side implants on 3D	2
Axis angle of both side implants on 3D	3



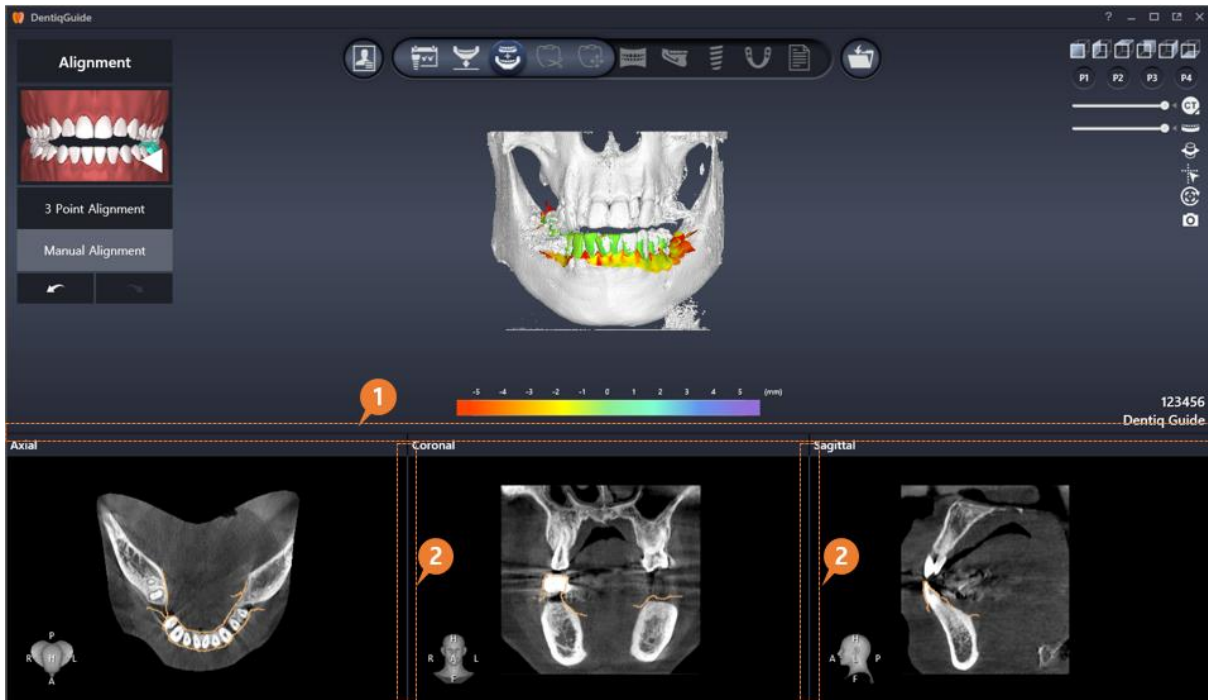
Dist. of implant to nerve on 3D	4
Move implant in 2D image	Select an implant to move + Arrow keys (↑/↓/→/←)
Rotate implant in 2D image	Select an implant to move + Ctrl + Arrow keys (→/←)
Initialize image location	P
Result	
View surgical report	P
View drilling protocol	D
Save and export case	S

4.3 Panel Operation

Screen layouts can be configured by the user for their specific application.

1) Adjust Height/Width

Adjust the width and height of image panel by clicking and dragging boundary lines.

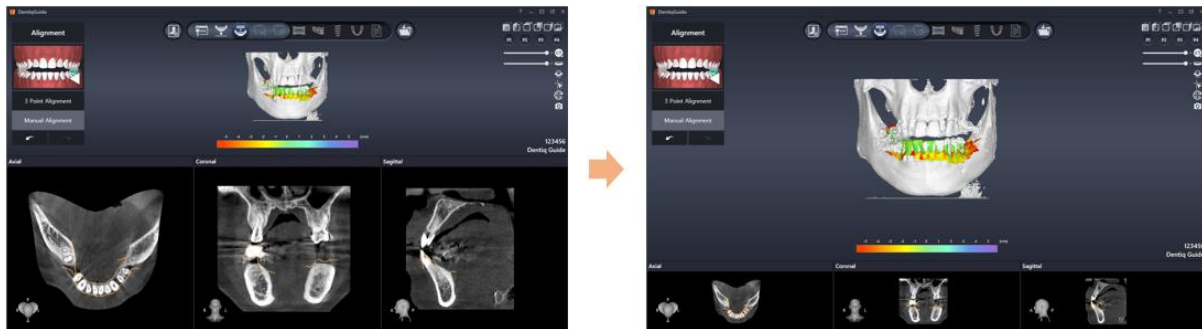


No	Title	Description
1	Horizontal boundary line	Adjust height of image area
2	Vertical boundary line	Adjust width of image area



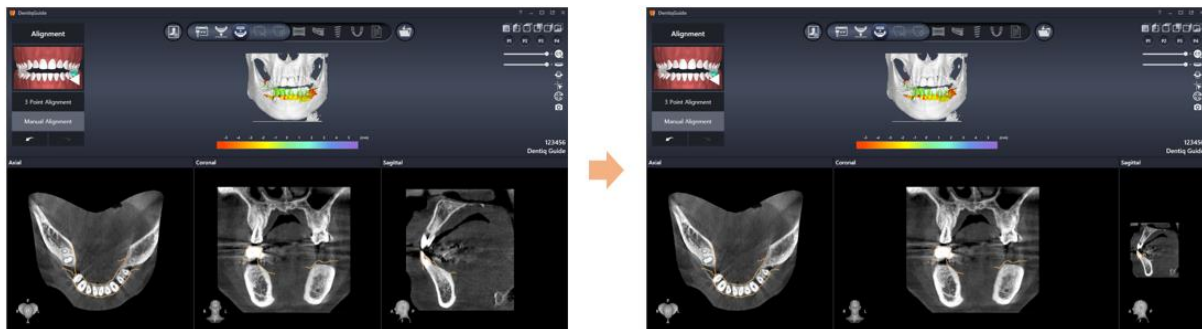
Horizontal Boundary Line

- Adjust height of image panel by clicking and dragging horizontal boundary line



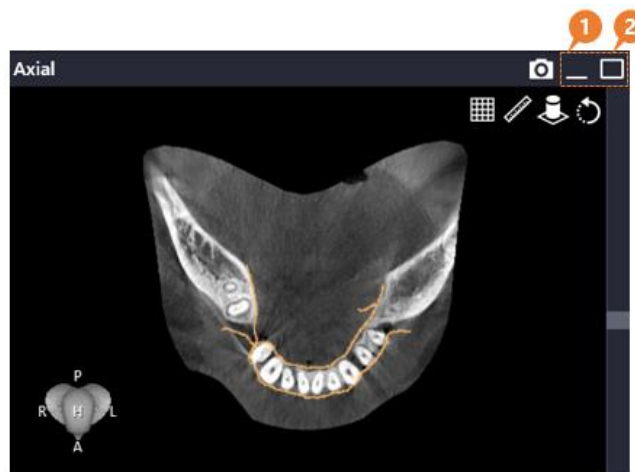
Vertical Boundary Line

- Adjust width of image panel by clicking and dragging vertical boundary line.



2) Maximize/Minimize



Maximize/Minimize the size of image area using the maximize/minimize buttons on the right of title bar.

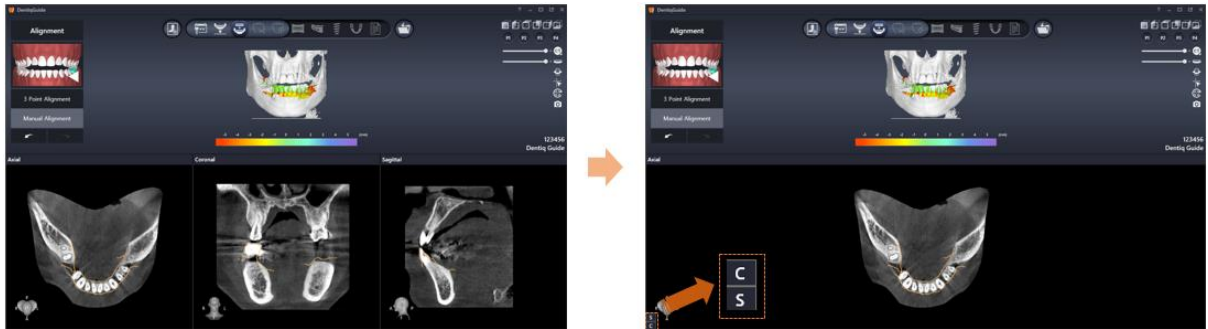


No	Title	Description
1	Minimize	Minimize the image panel
2	Maximize	Maximize the image panel





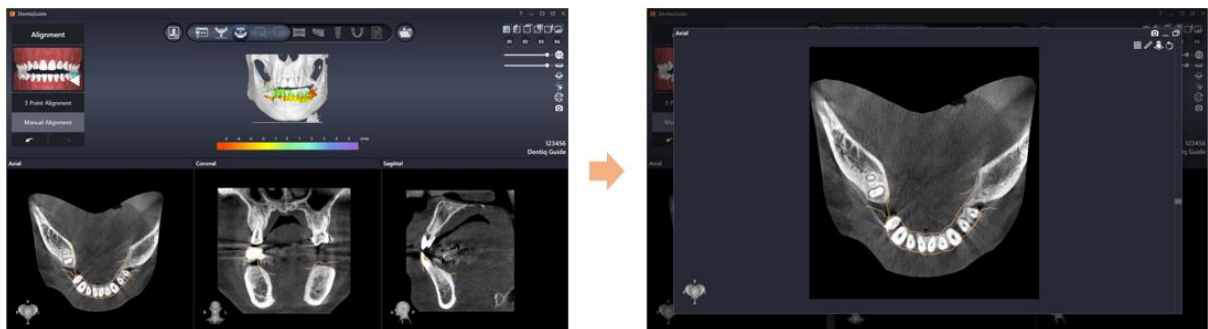
Minimize

- When Minimize button  is clicked, it minimizes image panel and displays restore button in the lower left side of screen. The minimized image panel can be restored by clicking the restore button (ex: Coronal ).



Maximize

- When Maximize button  is clicked, it displays maximized image panel in a new window. The maximized image panel can be restored by clicking the restore button .



Maximized image area can be restored to the original size using ESC key.
Please see [4.2 Mouse operations and shortcuts](#) for more details.



4.4 Workflow Progress Bar

Workflow progress bar displays currently enabled workflow stages as set in the Case Setup stage.



- Clicking icons for each stage leads to the page of corresponding stage.

	Each stage can start only when the completion criteria of the previous stage is satisfied. Please refer to 6. Case Workflow Stages for more details about each stage.
--	---

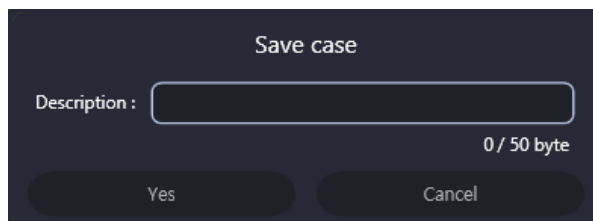
4.5 Save Case

Current case can be saved in every stage of work progress.

- Click Save button on the right side of progress bar to open save menu.

Save case (Ctrl + S) Save case as (Ctrl + Shift + S)	Save	Overwrite existing case
	Save as	Save as a new case and maintain existing case


- The following confirmation message appears when clicking the desired save menu.

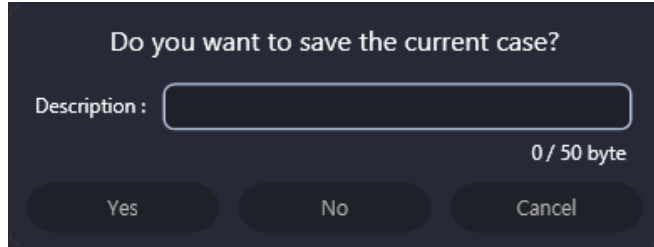


[Save Confirmation Message]


- Click Description field to enter memo for the case if needed.





- The following confirmation message appears when moving to the Dental Manager stage by clicking dental manager button  on the left side of work progress bar.




- **Yes (or Enter key):** save case and move to the Dental Manager stage
- **No:** go back to Dental Manager without saving current case
- **Cancel:** stay in current stage without saving current case


	<p>Cases are automatically saved at the set intervals when the auto save option is enabled on environment settings.</p> <p>Please refer to 5.3 Environment Settings > Case Auto Save for more information about auto save function.</p>
--	--

	<p>'Save case' basically overwrites the previous case. The user can only save a new case by creating an initial case or using 'Save case as' function.</p>
---	--

	<p>If the user terminates program without saving, a dialog asking to save the changes appears. When not saved, the changes cannot be restored. Also, data deleted from database cannot be restored.</p>
---	---

4.6 Redo/Undo

Each stage provides  buttons on the left side of screen to redo or undo previous work.

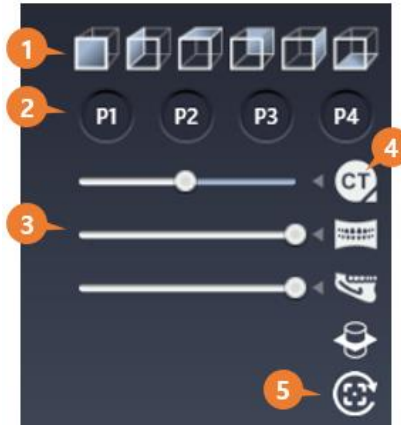
	<p>Saved work history is managed separately on each stage.</p> <p>In the Alignment stage, work history for maxilla and mandible are managed separately as well.</p>
---	---



	When saving a project, it saves only the latest work history for Crown Editing stage of Crown designing.
--	---

4.7 Visualization Options

The user can set show/hide or transparency, and presets for the data displayed in image panel.



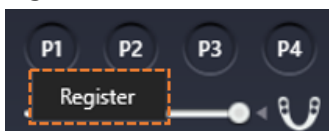
No	Title	Description
1	Camera Orientation Alignment	Set orientation of 3D data
2	User Preset	Manage current visualization option as a preset
3	Visualization Options	Display and adjust visualization options that can be set in each workflow stage
4	CT Image Setting	Set OTF/brightness/contrast of CT image
5	Restore Camera Orientation	Restore camera orientation of 2D/ 3D image

1) Camera Orientation Alignment

- The icons represent front, left, up, back, right, down directions in the order they are placed. Clicking each icon changes the direction of 3D image to the corresponding direction.

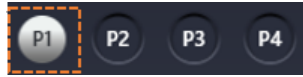
2) User Preset

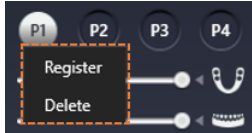
- Right click on a button where preset is not registered to show Register menu



, and click Register to save current visualization.



- Once a preset is registered, the button is enabled in grey , and clicking the button applies the preset to image panel.
- Right click on a button where preset is already registered. Register/Delete menu



enables users to re-register or delete preset.




Visualization option presets are saved and managed separately for each workflow stage.

3) Visualization options


Visualization options provided throughout all work flow stages are listed in the below table.

Icon	Title	Icon	Title
	CT		Maxillary Scan
	Mandibular Scan		Damaged Tooth Scan
	Facing Tooth Scan		Extracted Damaged Tooth Scan
	Extracted Facing Tooth Scan		Crown
	Activated Crown		Inactivated Crown
	Panoramic Plane		Canal
	Implant		Abutment
	Implant Safety Zone		Implant Axis
	Drilling Cylinder		Surgical Guide
	Bar/Window		Sleeve Offset Cylinder
	Abutment tooth		Undercut Removal Mesh
	Cement Gap		Border Mesh
	Distance Map		Connector Mesh



- Opacity can be adjusted by dragging each slider  displayed on the left side of each icon.
- Each item can be set as Show/Hide by clicking the icon.

4) CT Image Setting

- The following screen for CT image setting is shown when right clicking  button.



No	Title	Description
1	OTF Graph	Set HU value to be applied to 3D image areas
2	Brightness/Contrast	Set brightness/contrast to be applied to 2D image areas



OTF Graph

- **HU range adjustment:** drag Bone/Skin/Enamel slider side to side
- **Opacity adjustment:** drag Bone/Skin/Enamel slider up and down



When opacity, color of 3D volume is not properly set, the user can reset the settings by using Reset button on OTF screen.

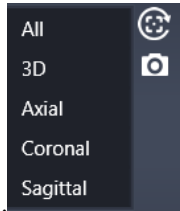
Brightness/Contrast

- **Brightness adjustment:** Drag the slider next to  option side to side. The more to the left, the darker the image is.
- **Contrast adjustment:** Drag the slider next to  option side to side. The more to the left, the higher the contrast of the image is.



5) Restore camera orientation

- When the Restore Camera Orientation button  is clicked, it displays the list of images



that can be restored.


- Clicking the desired image to restore restores the orientation of the image.

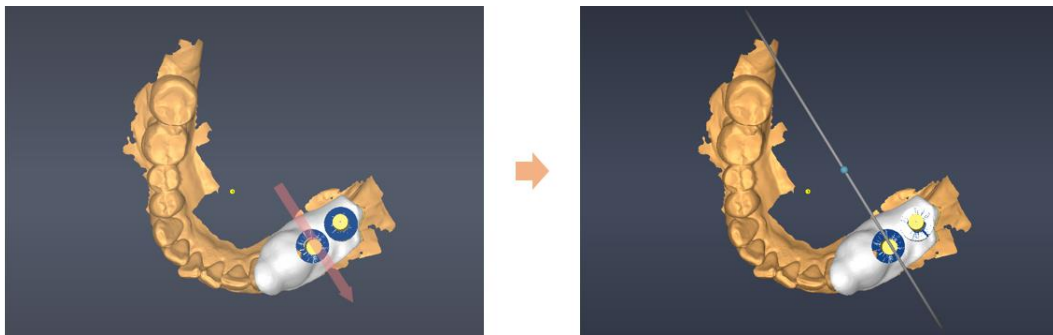


When image data is not properly arranged, it can be corrected by clicking Camera Alignment button.

4.8 Cross-sectional Setting

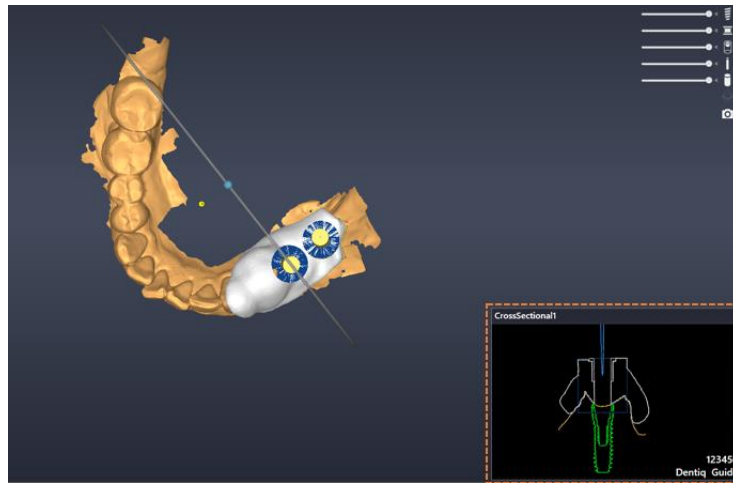
The user can add cross-sections of their choice on each workflow. To add cross-sections, please follow the following steps.

- Click the Add Cross-section Panel button  on the right side of workflow stage screen.
- Click a start point and an end point to view on 3D image panel.




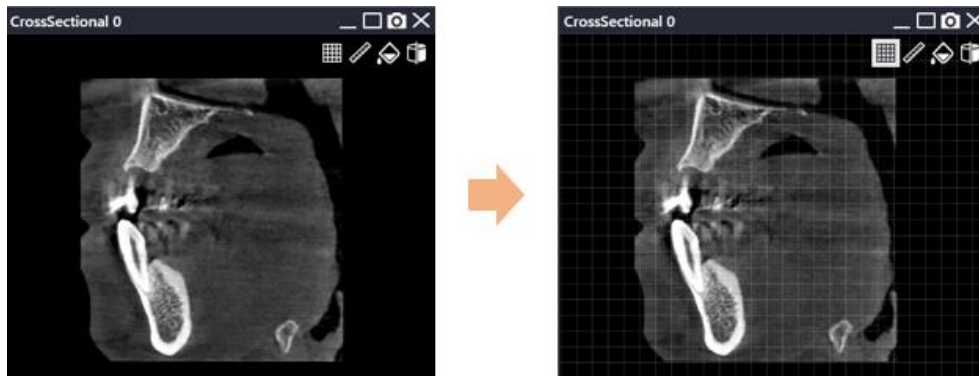


- ③ As soon as the end point is clicked, cross-sectional image panel is shown on the bottom right of the screen.






Displaying Grid Lines

- Click the Grid button  on the top right of image panel to display grid at 5 mm distance.



[Before(left) / After(right) displaying grid]

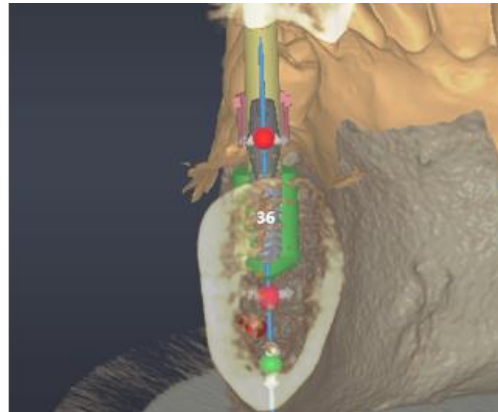
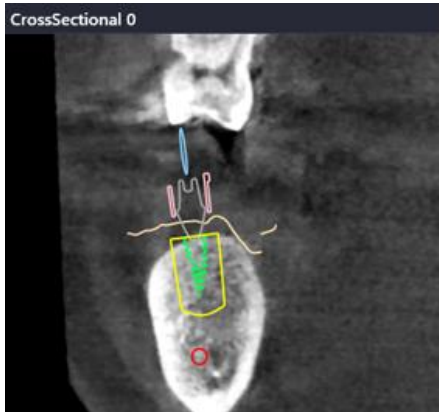
Setting Background Color

- Click the Background Color button  on the top right of image panel to display coloring menu.
 - When  is clicked, background color is set to black.
 - When  is clicked, background color is set to transparent.



Using as Clip Surface

- Click the Use as Clip Surface button  on the top right of image panel to display. 3D image are shown cut based on the cross-section shown in current cross-sectional image.



[Cross-sectional image (left) / Clip surface on 3D image (right)]



Background Color and Use as Clip Surface tools are provided only in cross-section panel that includes CT image.



For stages including alignment, curve, nerve, implant that basically provide 2D image panel, up to 3 cross-sections can be added, while only one is allowed for other stages.

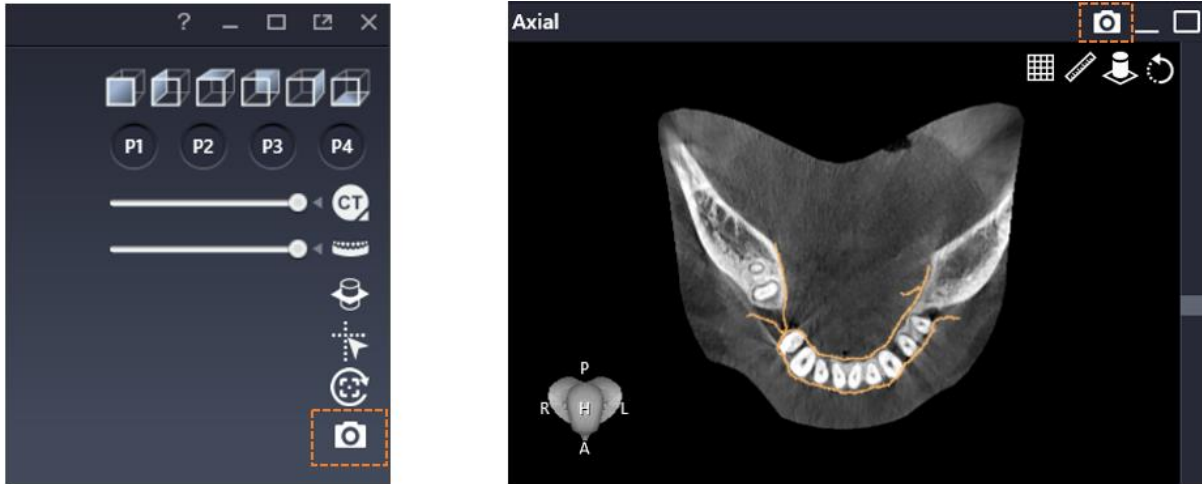


Right click to undo after clicking the Add Cross-sectional Panel button.



4.9 Screen Capture

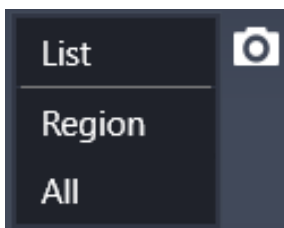
The user can capture the image of their choice by using Capture button on the right of workflow stages or Capture button on the title bar of 2D image panel.



[Capture button on workflow progress stages (left) / 2D image panel (right)]

1) Image Capture

- **Capture in 2D image panel:** When Capture button is clicked, only the image in the panel is captured. Also, list of captured image is displayed as soon as captured.
- **Capture on the right of workflow stages:** When the button is clicked, the following menu is displayed. Also, captured image list displays after Region/All capture.



List	Display list of captured image
Region	Capture user defined region
All	Capture full screen of program



Right click to undo after clicking the Region button.

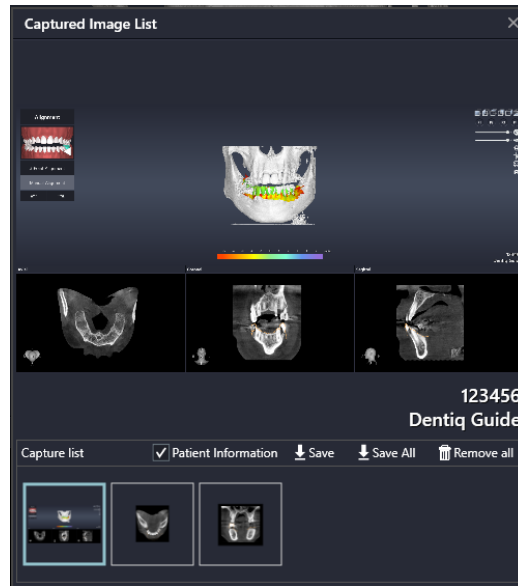
2) Captured Image List

In the Captured image list dialog, the user can view/save/delete the captured image and add memo to the captured image if needed.



Patient information can be displayed in the captured image or not by checking or unchecking

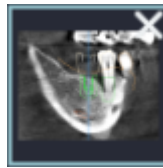


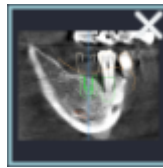

option.



Save/Remove

- **Save:** The user can save only selected images by clicking Save button  on the list of captured image thumbnails or save all captured images by clicking Save All button . Save function only supports JPEG and PNG file formats.

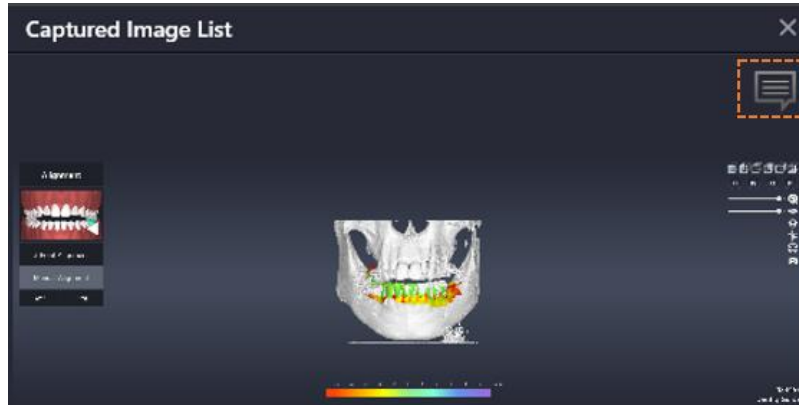


- **Remove:** Click the X button  that appears when the user hovers over a thumbnail of captured image to remove the selected image, or click Remove All button  to remove all captured images.



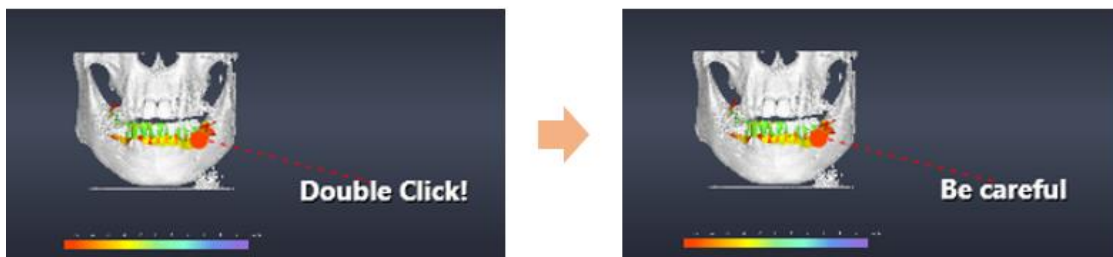
Adding Memo

- ① Click the Memo button displayed on the top right when the user hovers over the area of captured image preview.



[Memo Button]

- ② Click on the location to add memo and double click the **"Double Click!"** position. Then the text input field is enabled to enter memo.




The captured image can be used in the Case Report of Result stage.
Please refer to 6.11 Result > [Change to Captured Image](#) for more information.

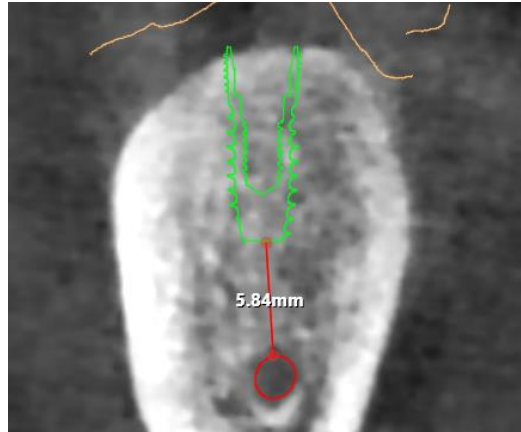
4.10 Use of Measurement Tool

The user can analyze image using tools on 2D image panel. The tools provided on 2D image panel can vary according to workflow stage and type of image.

1) Measurement Tool

Measuring Length

- Click  and measure length by clicking and dragging.



[Length Measurement]



Length measurement can fail without dragging after clicking on the start point. Please drag from start point to end point before releasing mouse.




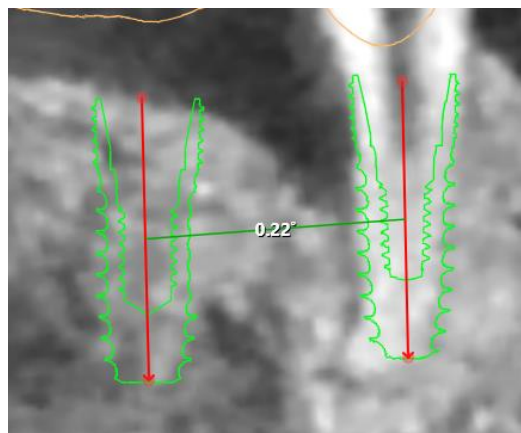
Click and then hold down the Shift key and drag for easy measurement of vertical length.



As measured values in the program can be different form actual values, accurate readings must be made by professionals.

Measuring Angle

- Click  and measure angel between two lines by clicking 4 points in the image.



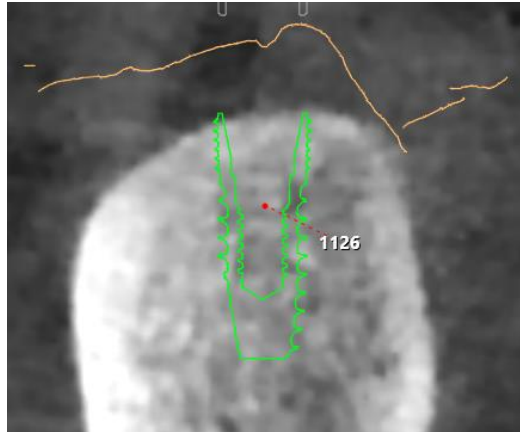
[Angle Measurement]



The angle may change depending on the order of clicking the 4 points. Please click points in the same direction for the two lines.

Measuring HU

- Click **HU** and measure HU value by clicking desired point in the image.



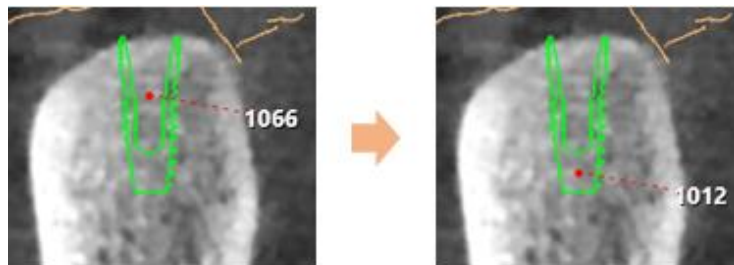
[HU Measurement]



Right click to cancel the selected measurement tool.

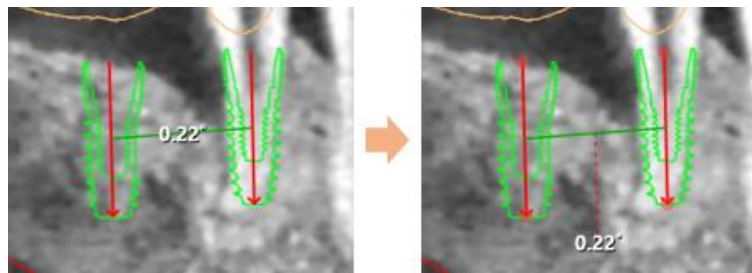
2) Move Measurement Value

- Move measured position (clicked point):** Click and drag the measured position.



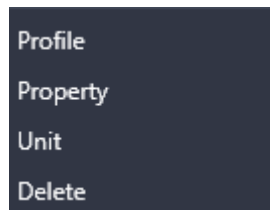


- **Move measured value (number):** Click and drag where the measured value is displayed.



3) Edit Measured Value

The user can delete or edit property through context menu displayed when right clicking on the measured position or value. The menu may vary depending on measurement tools.



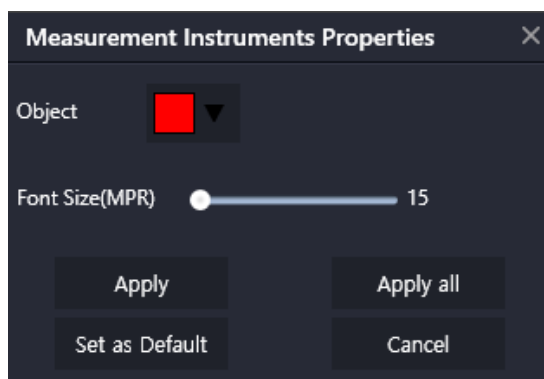
[Context Menu]

Deleting

- Click **Delete** to delete the measured value on the image.

Changing Property


- Click **Property** to change properties for the measured value.



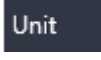
[Properties]

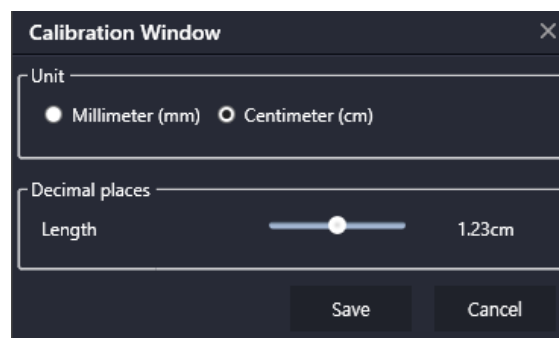
- **Object**  : Change color to display.



-  : Change font size of value to display.
- **Apply**: Apply changes to the selected value.
- **Apply All**: Apply changes to the all measured values added.
- **Set as Default**: Set changes as default values.
- **Cancel**: Cancel all changes.

Changing Length Measurement Unit


- Click  to change the unit for length measurement value.

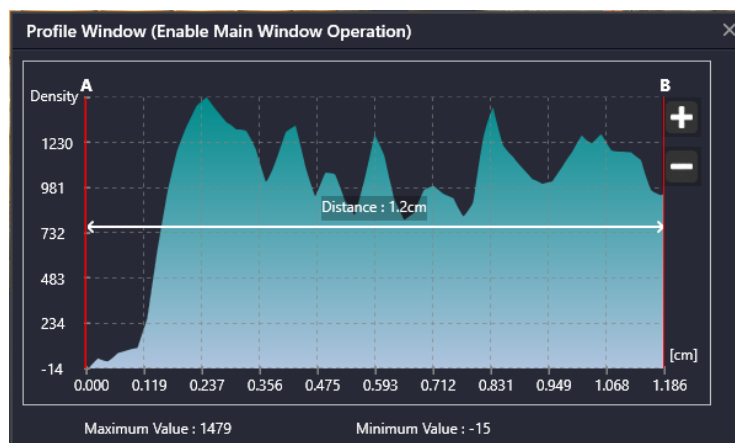


[Length Unit Change]

- **Length Unit**: Selectable between Millimeter(mm) and Centimeter(cm)
- **Decimal places**: Changeable by dragging slider

Profiling Length Measurement

- Click  to view density for the measured position in a graph

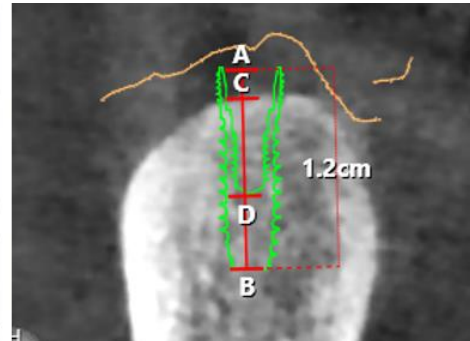
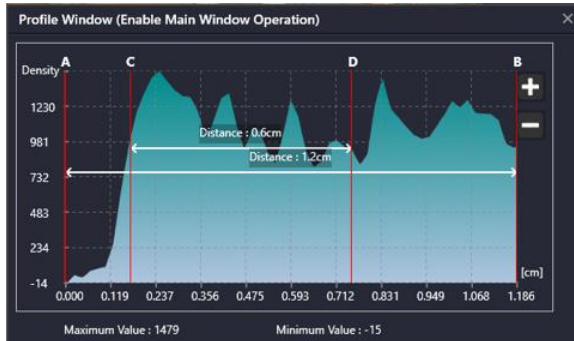


[Profile]

- Y-axis of graph represents density.
- X-axis of graph represents length.



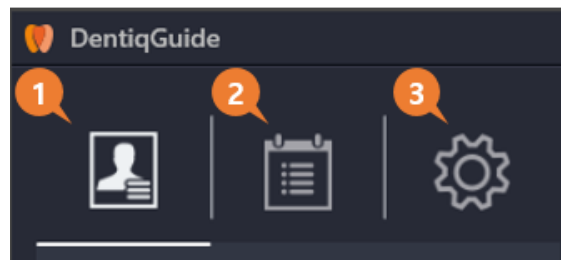
- Detailed length analysis within measured length can be conducted by using +/- button on the right.
- If profile is enabled, location indicator (A, B, C...) appears on the measured length of image.



[Profile (left) / Length Measurement (right)]

5. Dental Manager

Dental Manager enables users to manage patients/cases and change settings.

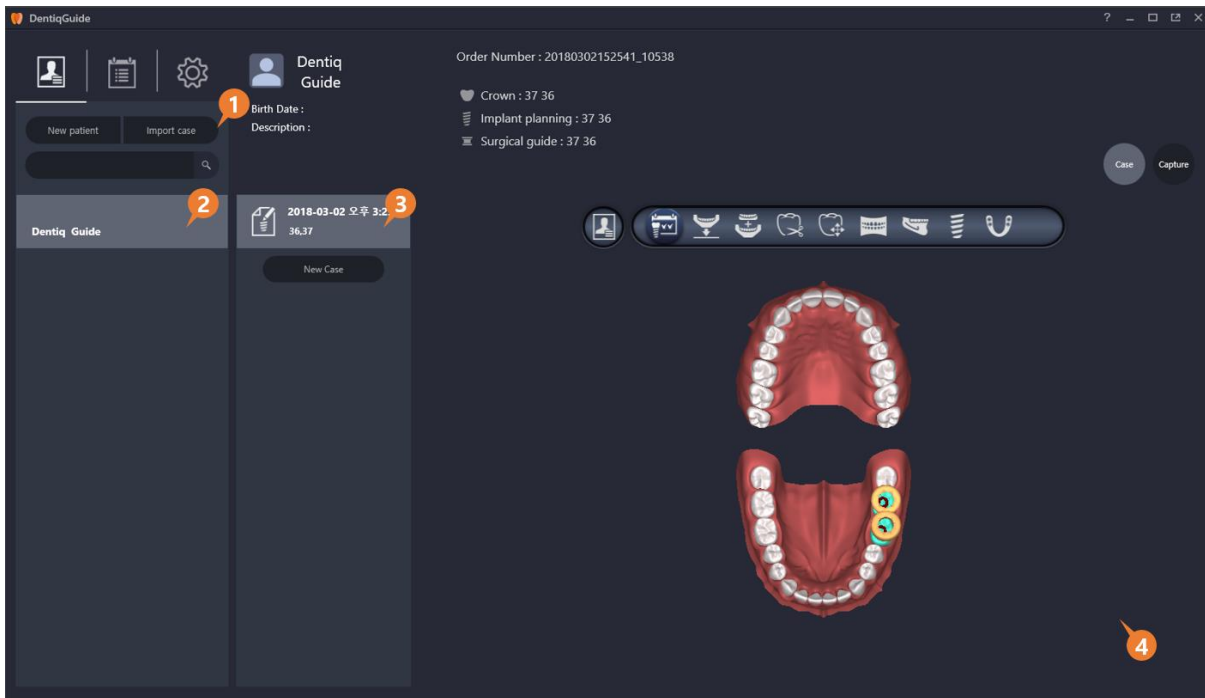


No	Title	Description
1	Patient Management	Create and manage patients/cases
2	Case Management	Import and manage cases
3	Environment Settings	Set program environment



5.1 Manage Patients


The users can add patients/cases and open previously created cases.



No	Title	Description
1	Patient and Case Management	Import and search patients/cases
2	Patient List	Display and edit patient list
3	Case List	Create, display and edit cases
4	Case Info	Display case info

1) Patient and Case Management

Creating a New Patient

- Click New patient button  to display New Patient window.



New patient

Patient ID

First name

Last name

Birth Date yyyy-MM-dd

Description

OK Cancel

[New Patient Window]

- Enter patient info and click OK to add the patient to patient list.


	<u>First/Last name</u> fields are required for patient information.
--	--

	The menu to edit patient information is provided when right-clicking on the patient list. Please refer to 5.1 Manage Patient > Modifying Patient Info for more information.
--	---

Importing Case

- Click Import case button  to import an exported case to the program.

Searching

- Enter patient name in the patient search window  to search patient.

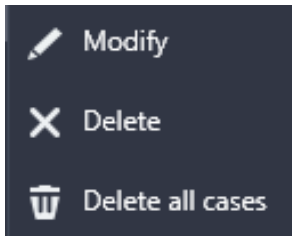


2) Patient List

Patient list displays and manages list of created patients.

Modifying Patient Info

- Right-clicking on the created patient list displays edit menu.



Modify	Modify patient info on New patient dialog
Delete	Delete the patient
Delete all cases	Delete all cases for the patient

3) Case List


Case list displays and manages the list of created cases

Opening Case

- Double click an existing case to load and display previous work of the case.

Creating Case

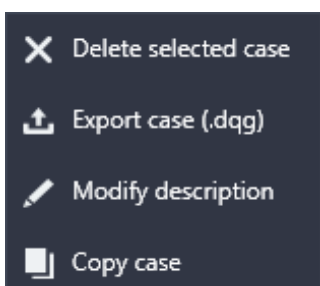
- Click New Case button  to start workflow and display work space of the case.



Please refer to [6. Case Workflow Stages](#) for more information about case workflow stages.

Editing Case

- Context menu is displayed when right clicking on a created case.



Delete selected case	Delete the selected case
Export case	Save the selected case to local drive
Modify description	Modify description of the selected case
Copy case	Copy the selected case to create as a new case



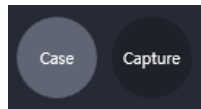
Exported case can be viewed on another DentiqGuide by imported the case. Please refer to [Importing Case](#) for more information.

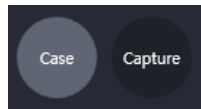
4) Case Info

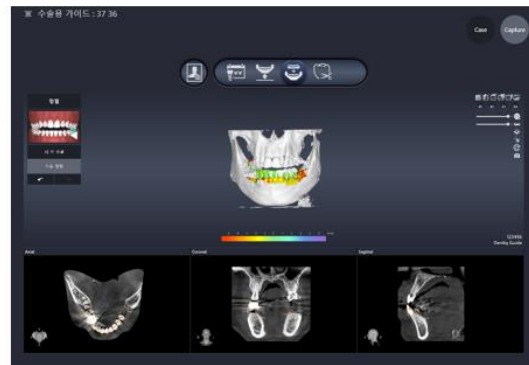
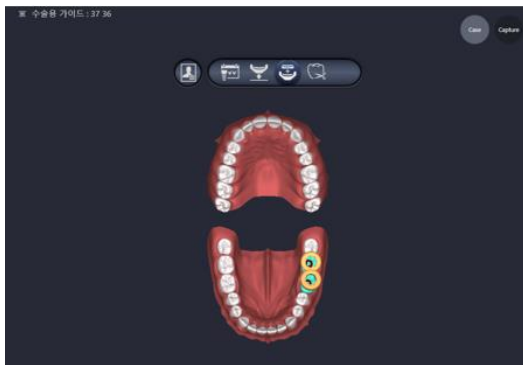
Case Info section displays information such as tooth number, status, order number and date for the selected case.

Changing Case Preview

The user can select case preview between Case screen and Capture screen.



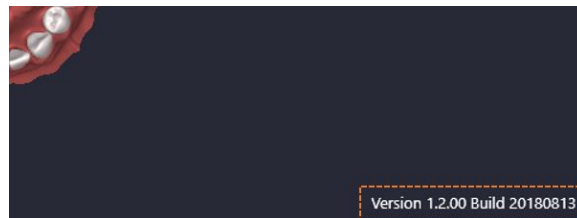
- Click preview menu  on top right. The user can select the desired preview format.



[When clicking Case button(left) / Capture button(right)]

Checking Project Build Version

The user can find the program version of the project when initially created.

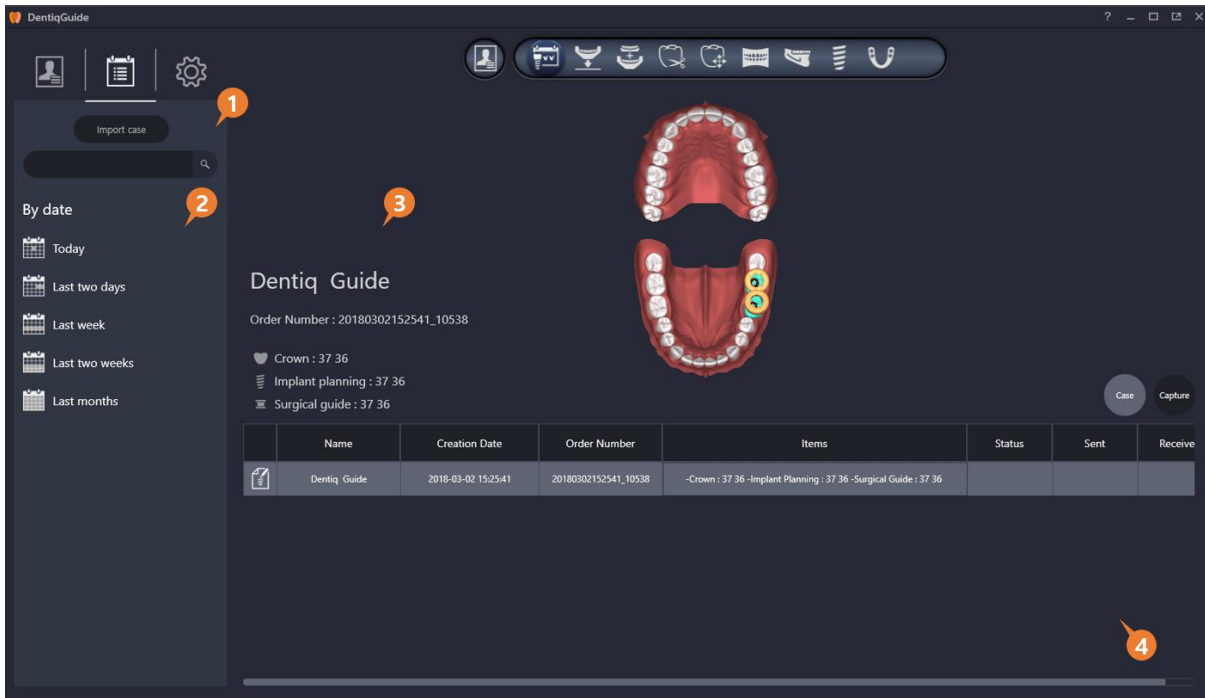


Old projects might not run on the latest version after program update.



5.2 Manage Cases

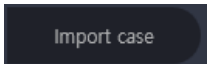
The list of cases searched by period is displayed.



No	Title	Description
1	Manage Cases	Import and search cases
2	Search by date	Search cases by period
3	Case Info	Display the selected case information
4	Case List	Display and edit case

1) Import Case

Importing Case

- Click Import case  button to import a previously exported case in the program.



File extension of cases that can be imported in DentiqGuide is .dgg.
The folder where .dgg file is located should include all files created while exporting.



Searching

- Search patient by entering patient name in the patient search window



2) Sort by Period

- Click the desired period to display cases during the period.

3) Case Information

Case Information displays tooth number, status, order number and date for the selected case.

4) Case List

Case list displays the list of created case as sorted.

Opening Case

- When double clicking on a created case, workspace of the selected case displays.

Editing Case

- When right clicking on a case, the following context menu displays.

	Delete selected case	Delete the selected case
	Export case	Save the selected case to the local drive
	Import case	Import the exported case to the program

5.3 Environment Settings

The user can set basic environment to use DentiqGuide and options to establish surgical plans.

The following table lists configurable items.

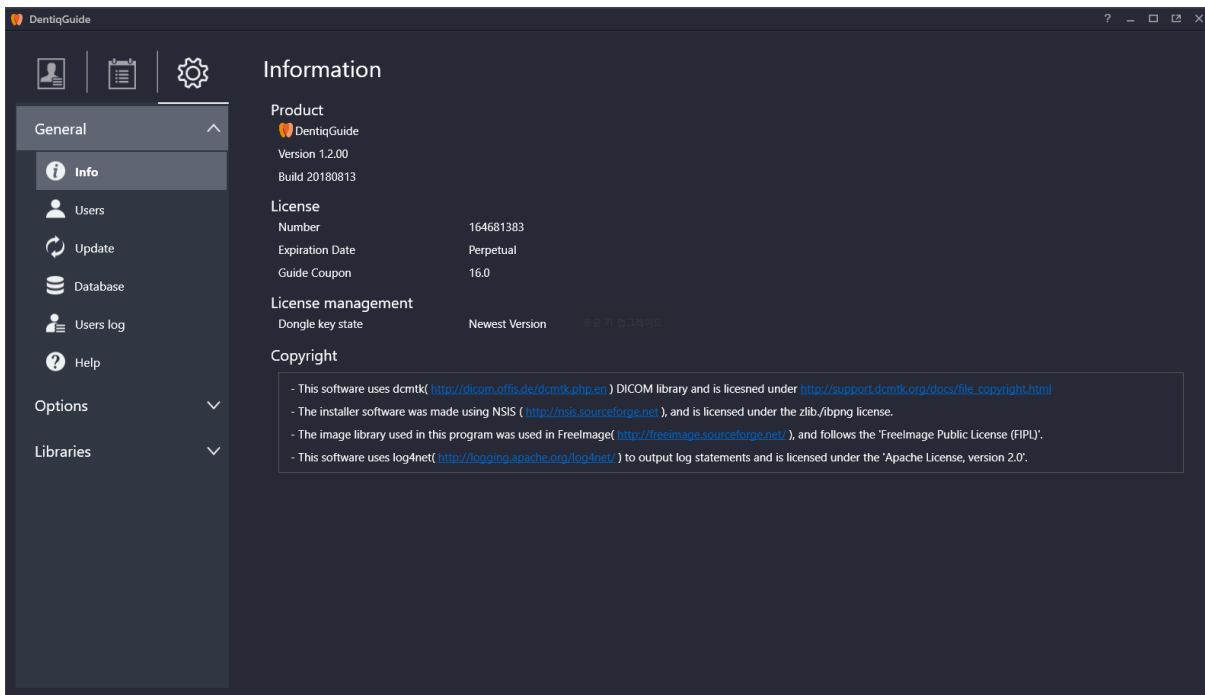
General	
Program Information	Refer to 1) Program Inforamtion
Users	Refer to 2) Users
Updates	Refer to 3) Updates
Database	Refer to 4) Database



Users Log	Refer to 5) Users Log
Help	Refer to 6) Help
Options	
Common	Refer to 7) Common
Implant Planning	Refer to 8) Implant Planning
Surgical Guide	Refer to 9) Surgical Guide
Temporary Crown	Refer to 10) Temporary Crown
Report	Refer to 11) Report
Library	
Update Library	Refer to 12) Update Library

1) Program Information

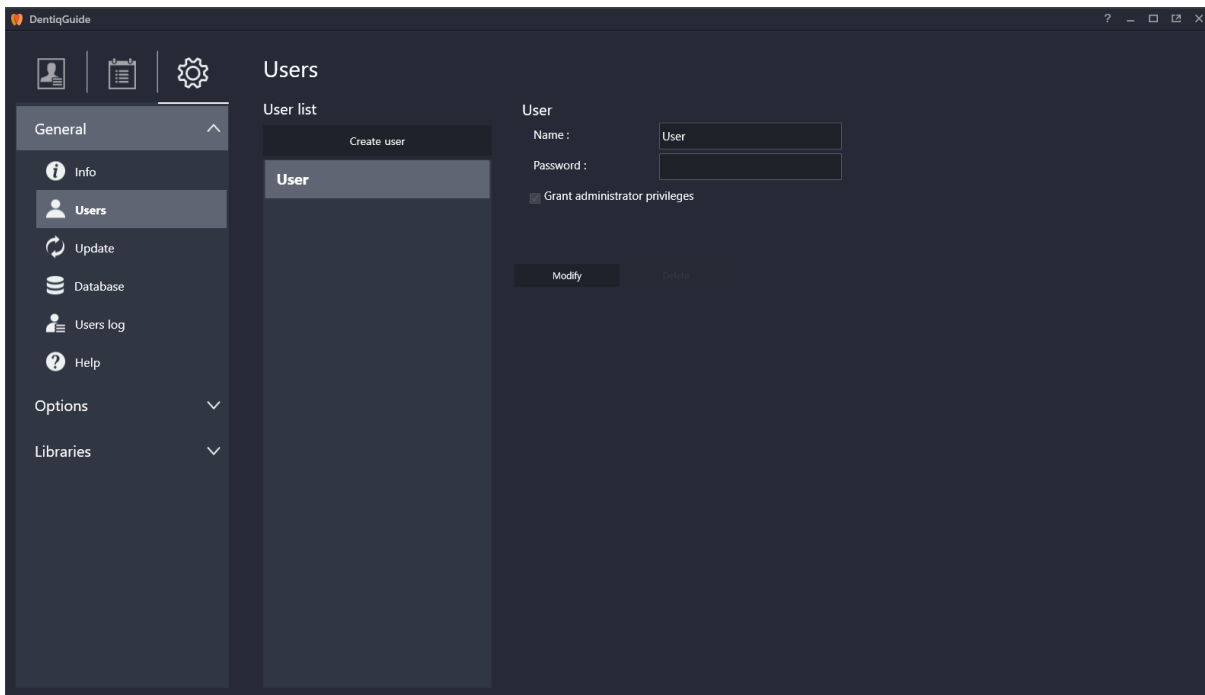
Program Information page provides product version, license information of dongle key and license information of third-party program.



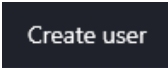


2) Users

User accounts required to use the program can be created and managed on Users page.

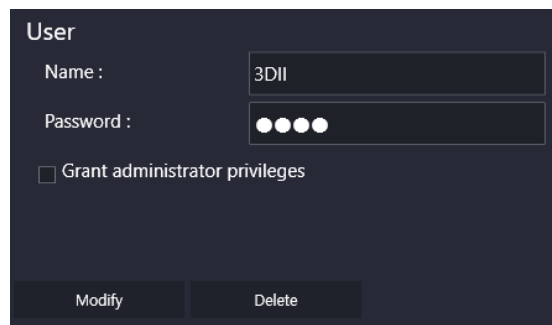


Creating User

- Click the Create user button  to display User creation page.
- After setting user name, password, and admin permission, click Create to add the user.

Editing User

- Select a user to edit from user list.
- Edit user information on the edit page and click Modify button to apply changed.



[User Edit Dialog]

Deleting User

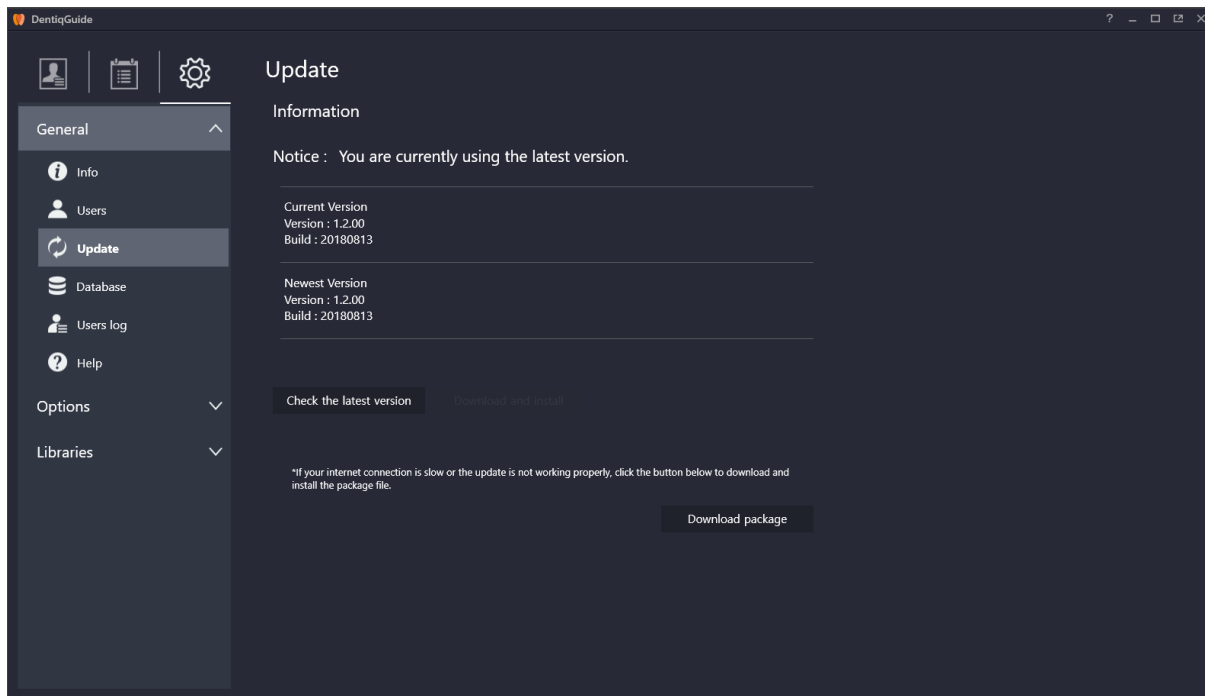
- Click the Delete button  to remove the user.



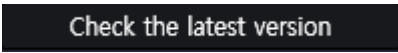
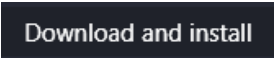
Only accounts with admin permission can delete users.

3) Updates

Updates page provides update information and runs update.




Updating

- ① Click the Check the latest version button  to view the version information of current version and latest version.
- ② Download and install button  is enabled if the user has not yet installed the latest version. Clicking the button updates the program to the latest version.



Please do not run DentiqGuide while updating.
Updates from the program requires proper network connection.
Please update in a stable network environment. If update fails, please try again as stated above.






Update can fail due to unstable server or slow network speed than standard. Installation file can be downloaded by clicking Download package button

Download package

to run manual update.

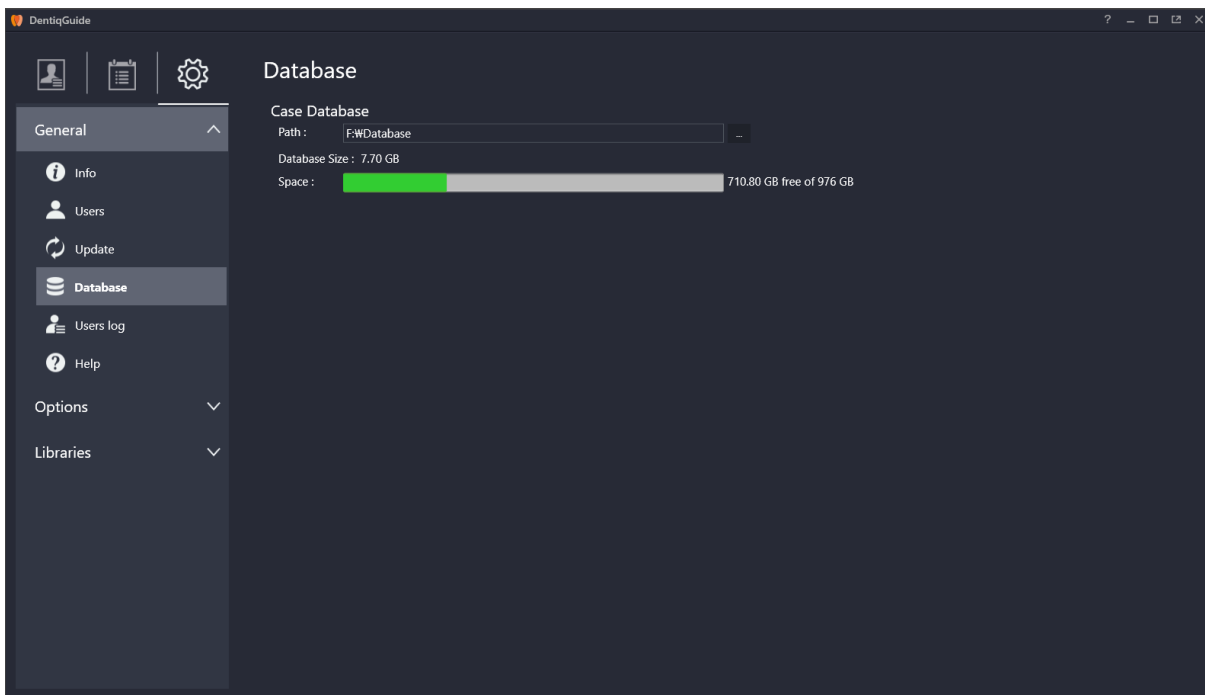


Update information displays on the top of program as well.


A new version has been released. Please update.

4) Database

In the Database page, the user can view and change database path to save cases.




Title	Description
Path	Display currently set database path
Database Size	Display currently used database size
Space	Free space for currently set data path




The color of bar indicating drive size changes to yellow when the size of top-level folder reaches 80%, to red when it reaches 90% of drive size.




Changing database

- Click the  on the right of path option to display context menu to change database folder.

<div style="background-color: #333; color: white; padding: 5px; text-align: center;"> Import Export Move Link </div>	Import	Import database from a different directory to current directory. (* All data being used in current directory will be lost.)
	Export	Copy current database in a different directory.
	Move	Move currently used database to a different directory.
	Link	Use database in a different directory.



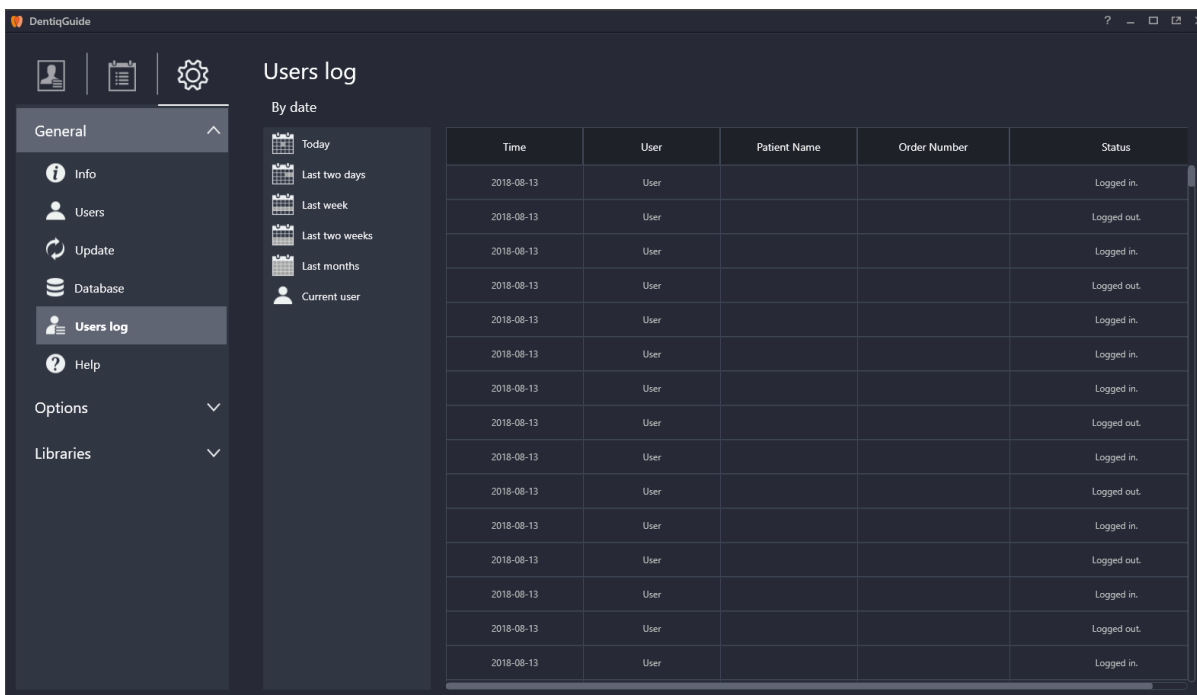
It may takes some time to change depending on database size.

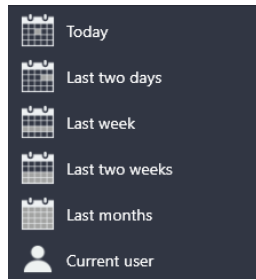


The storage space of path to change should be bigger than currently used database size.

5) Users Log

Users Log pages shows program use logs such as Time, User, Patient Name, Order Number and Status.





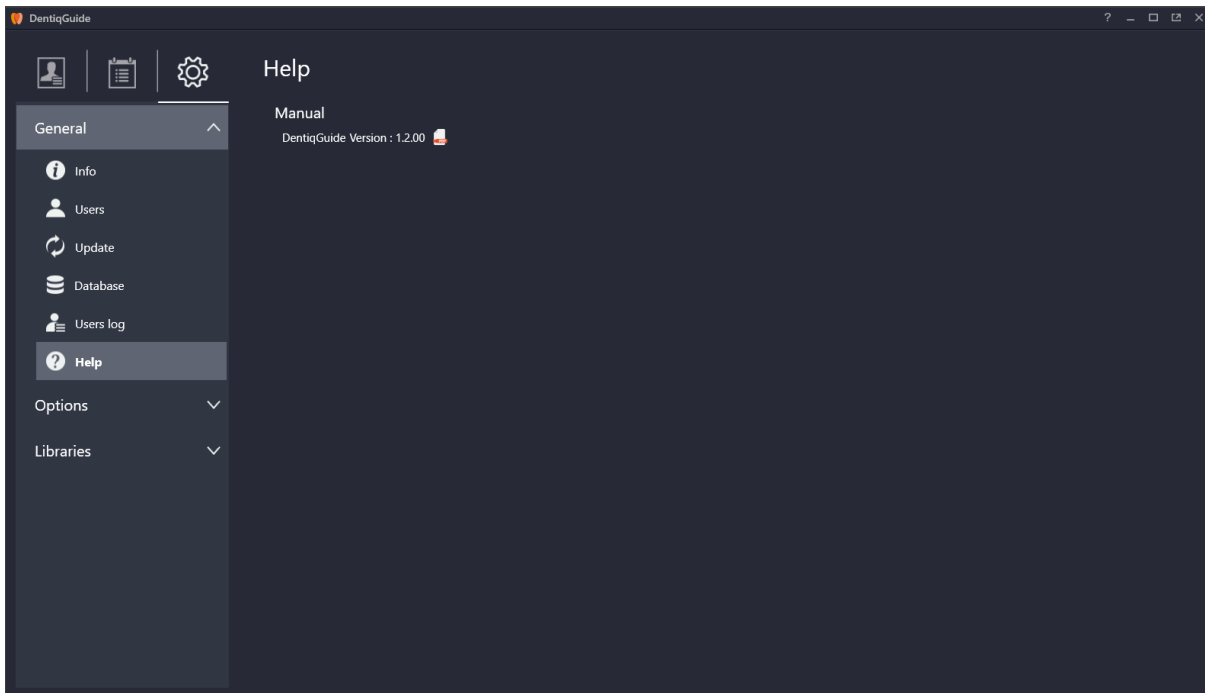
- Filter function helps users to search by duration or user.



Users log page displays log data up to two months.

6) Help

Help page provides a user manual of current version.



- Clicking pdf icon on the right opens user manual in currently displayed language.

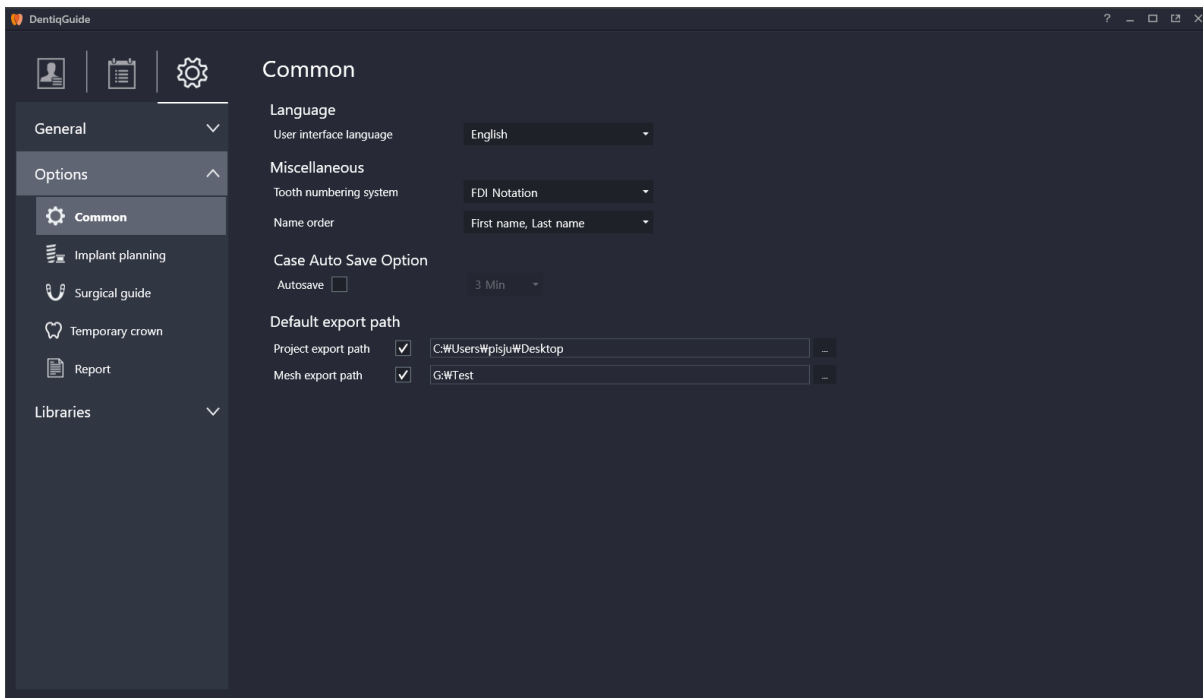


To run user manual, click  button on the window title bar or simply hit a shortcut on keyboard (F1).



7) Common

The user can configure basic options such as language and auto save option.



Language

- Click **English** drop box to select language.
- Select between Korean and English. Then the screen immediately displays in the selected language.

Tooth Numbering System

- Click **FDI Notation** drop box to select system.
- Select a system between FDI Notation and Universal Numeric Notation.

Name Order


- Click **First name, Last name** drop box to select order.
- Select an order between 'Last name/First name' and 'First Name/ Last Name'.

Case Auto Save

- Check **Autosave** checkbox to auto save currently working case at regular intervals.
- Click **3 Min** drop box to select a time interval.
- Select between 30 Sec, 1 Min, 3 Min, 5 Min and 10 Min.



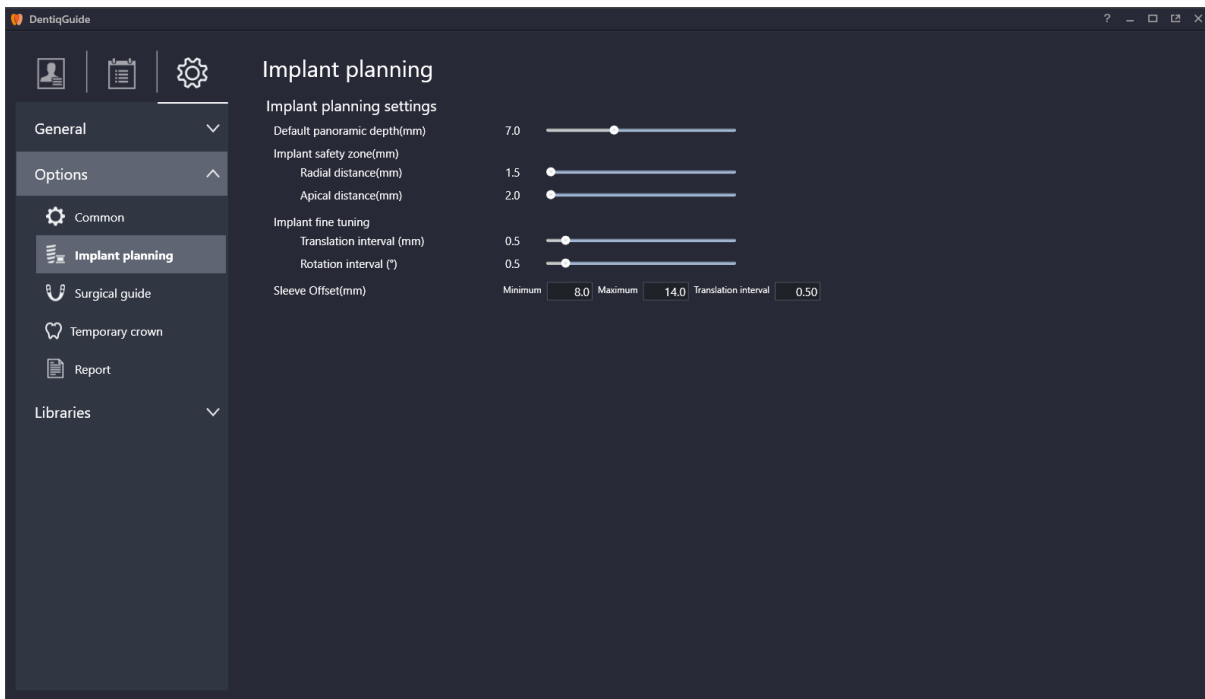
Default Export Path

- Click  button on the right of path option to display context menu to change basic export path.

Project export path	Project export path	Set default path to save project when exporting
Mesh export path	Mesh export path	Set default path to save mesh when exporting

8) Implant Planning

The user can configure various parameters used in implant placement stage.



Default Panoramic Depth

Set default thickness value for panoramic image created in Curve Drawing stage.

- Change value by dragging slider.
- Valid value range is 0~20(mm).

Implant Safety zone

Set default value for implant safety distance.

- Change value by dragging slider.
- Valid value range for Radial distance is 1.5~4(mm) and for Apical distance is 2~5(mm).



Please refer to 6.8 Implant Placement > [4\) Custom Safety Zone](#) function for more information about setting temporary safety zone for a specific implant.

Implant Fine-tuning

Set default interval values for implant fine tuning.

- Change value by dragging slider.
- Valid value range for Translation Interval is 0.1~5.0(mm) and for Rotation Interval is 0.1~5.0(°).

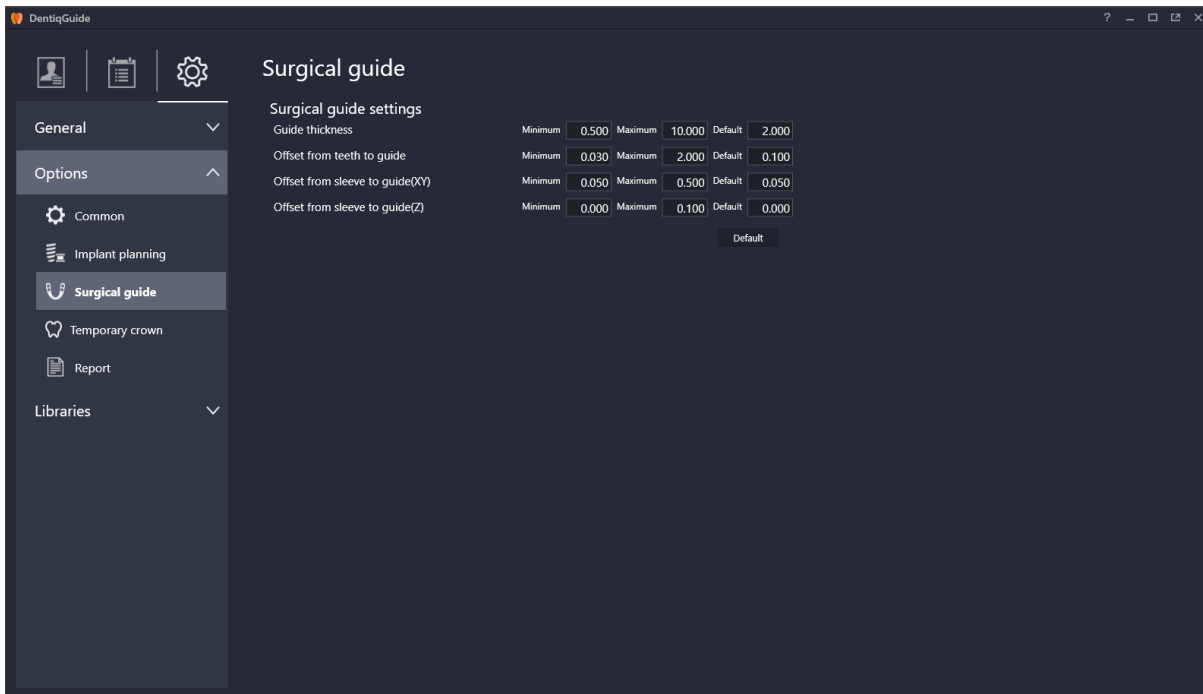
Sleeve Offset

Set default value range to move sleeve.

- Enter Minimum/Maximum and Translation Interval in the text input fields.
- Valid value range for Minimum is 5~14(mm), Maximum is 5~20(mm) and Translation Interval is 0.05~3(mm).

9) Surgical Guide

The user can set various parameters user in Guide Generation stage.





Guide Thickness

Set default thickness for guide while guide generation.

- Enter Minimum/Maximum/Default thickness in the text input fields.
- Valid value range for Minimum is 0.5~10(mm), Maximum is 0.5~10(mm), and Default is 0.5~10 (mm).

Offset from teeth to guide

Set default offset from teeth to guide.

- Enter Minimum/Maximum/Default offset in the text input fields.
- Valid value range for Minimum is 0.03~2(mm), Maximum is 0.05~2(mm), and Default is 0.5~2 (mm).

Offset from sleeve to guide

Set default offset from sleeve to guide.

- Enter Minimum/Maximum/Default offset in the text input fields.
- Valid value range for Minimum is 0.05~0.5(mm), Maximum is 0.05~0.5(mm), and Default is 0.05~0.5 (mm).



To restore default values the program provides, click **Default** on bottom right of items.

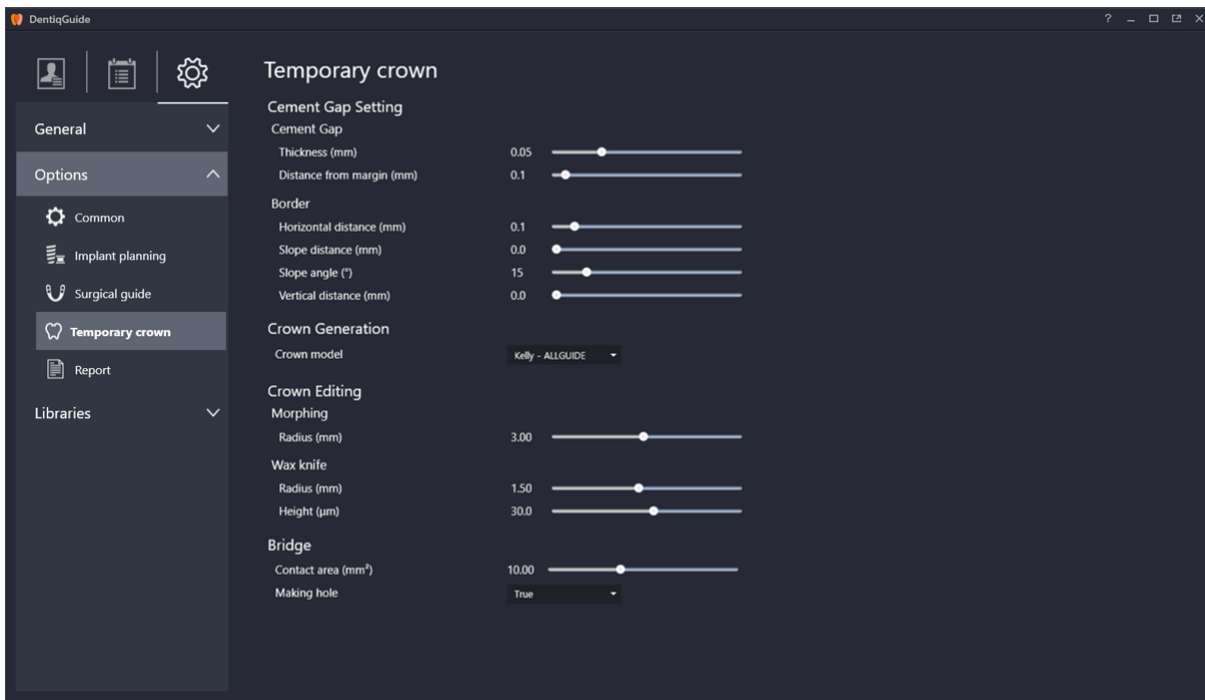


Please refer to 6.9 Result > [4\) Setting Guide Generation Options](#) for more information about temporary guide option settings for a specific case.

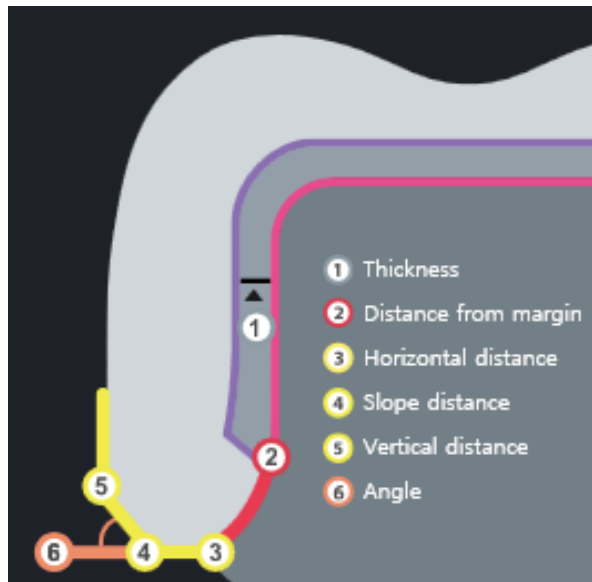


10) Temporary Crown

Set various parameters used in Temporary Crown Design stage.



The meaning of each option for Cement Gap is described in the following image.



[Cement Gap and Border]

1 Thickness

Set default value for cement thickness created in Cement Gap Setting stage.

- Change value by dragging slider.
- Valid value range is 0~0.20(mm).

**2****Distance from margin**

Set default value for range from margin not to create cement gap.

- Change value by dragging slider.
- Valid value range is 0~2.0(mm).

3**Horizontal distance**

Set default value for horizontal distance of temporary crown near margin line.

- Change value by dragging slider.
- Valid value range is 0~1.0(mm).

4**Slope distance/Angle**

Set default value for slope distance and angle of temporary crown near margin line.

- Change value by dragging slider.
- Valid value range for Slope distance is 0~1.0(mm).
- Valid value range for Angle is 0~90(°).


5**Vertical distance**

Set default value for vertical distance of temporary crown near margin line.

- Change value by dragging slider.
- Valid value range is 0~1.0(mm).

Crown Library

Set default crown library to use in Temporary Crown Design stage.

- Click  dropdown menu to select a system.
- Select between 3DII and Kelly – ALLGUIDE library.

Morphing Radius

Set default value for morphing radius in Crown Design stage.

- Change value by dragging slider.
- Valid value range is 0.5~5.7(mm).

Wax Knife Radius/Height

Set default value for wax knife Radius/Height in Crown Design stage.

- Change value by dragging slider.



- Valid value range for Radius is 0.25~3.0(mm).
- Valid value range for Height is 1.0~55.0(mm).


Bridge Contact Area

Set default value for bridge contact area for designing.

- Change value by dragging slider.
- Valid value range is 4.0~20.0(mm).

Making Crown Hole

Set default value for abutment holes creation option for abutment case temporary tooth.

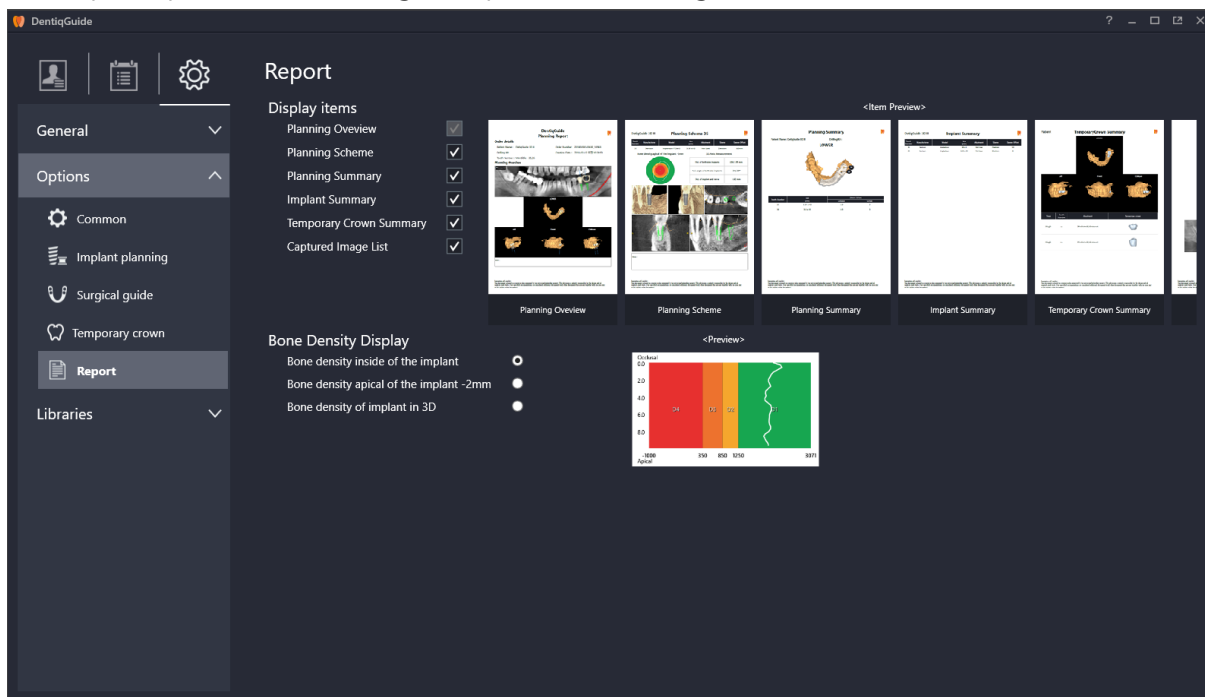
- Click  dropdown menu to select an option.
- Select between True and False. Basically it makes a hole when this option is set to true.



Please refer to [6.10 Crown Design](#) for configuration for specific temporary crown design.

11) Report

Set report options used for surgical report in Result stage.



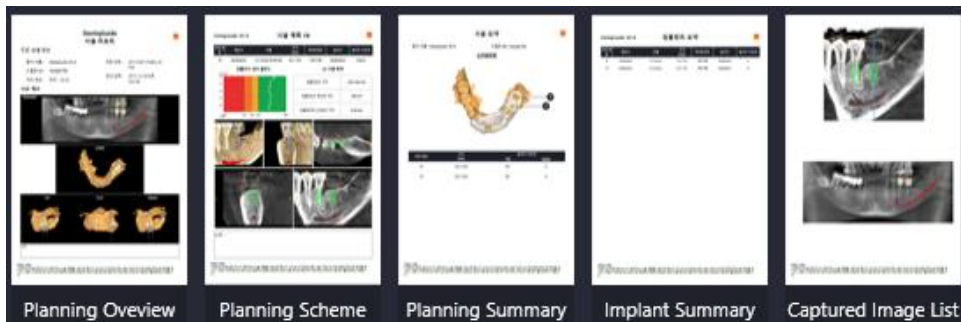


Display Items

Set items displayed in surgical reports. Configurable options are listed in the following table.

Title	Description
Planning Overview	Display general information about patient and case
Planning Scheme	Display detailed case information for each implant
Planning Summary	Display case information based on guide
Implant Summary	Display information of implant used in case
Temporary Crown Summary	Display design information of temporary crown
Captured Image List	Display all captured image

- Check the checkbox on the right to select items to display.
- The checked options are displayed in preview on the right.



[Preview]

- Only checked items are displayed in surgical reports in Result stage.

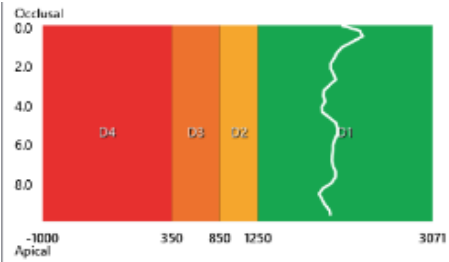
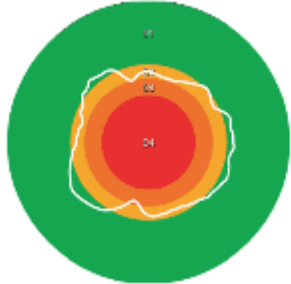
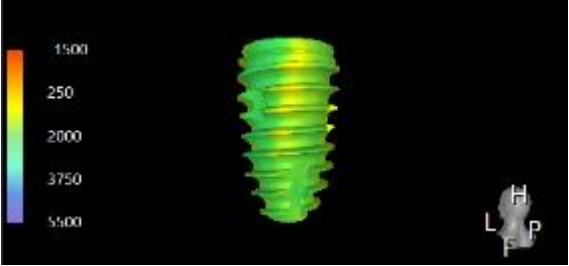


Planning Overview option is a required option for Report, so it is unable to deselect the option.





Bone Density

Set default value for bone density displayed in surgical report. The following table shows configurable options.

Title	Description
<p>Bone density inside of the implant</p>	<p>Display bone density inside of the implant as average value by depth in a graph.</p> 
<p>Bone density apical of the implant -2mm</p>	<p>Display bone density of 2mm position from the top of implant.</p> 
<p>Bone density of implant in 3D</p>	<p>Display bone density near implant in 3D implant model.</p> 

- Select by clicking radio button on the right as an option to display.

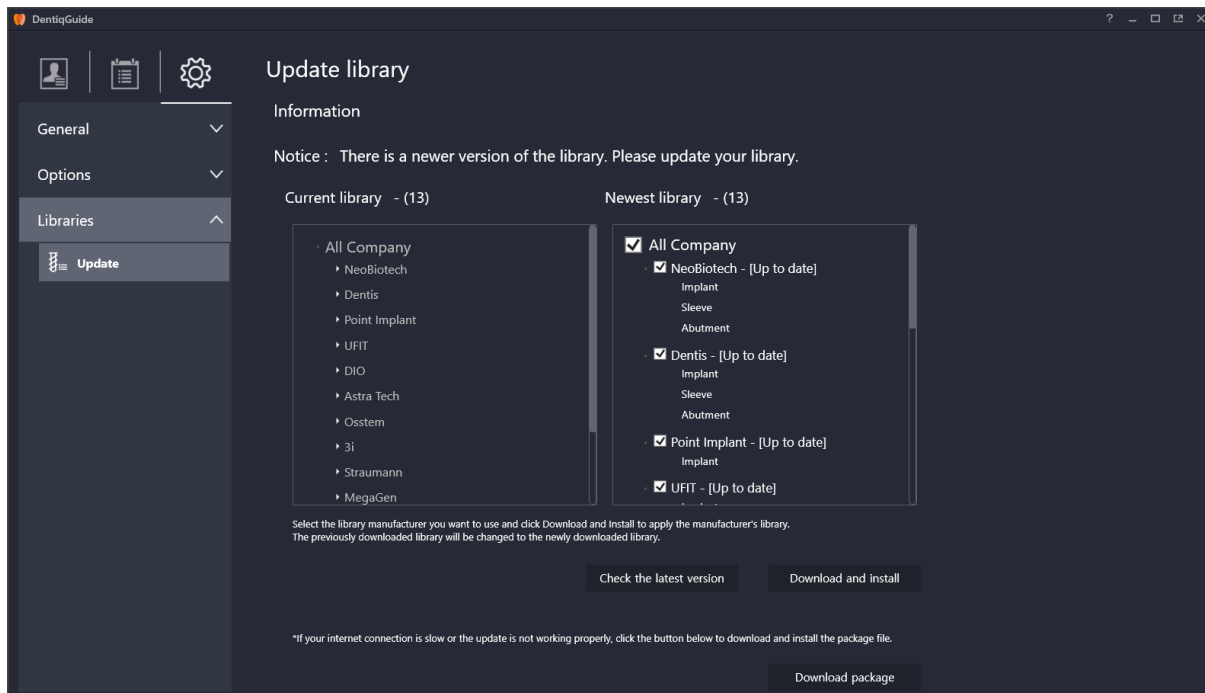
	<p>Please refer to 6.11 Result > Change Bone Density Display Option for more information about temporary bone density setting for a specific report.</p>
---	---

	<p>D1~D4 values displayed in data represents bone density levels depending on HU range of CT image. Value closer to D1 means higher bone density. This data is just for user's reference. Please note that accurate diagnosis should be conducted by professionals.</p>
---	---



12) Update library

Provides implant, sleeve, and abutment update information and conducts updates.



Updating

- ① Click Check the latest version button **Check the latest version** to view updated information of currently used library on the newest library on the right.
- ② Check desired options to update in newest library list and click Download and install button **Download and install** to update the selected libraries.

	At least one library manufacturer should be selected to update.
	Updates from the program requires proper network connection. Please update in a stable network environment.
	Update can fail due to unstable server or slow network speed than standard. Installation file can be downloaded by clicking Download package button to run manual update

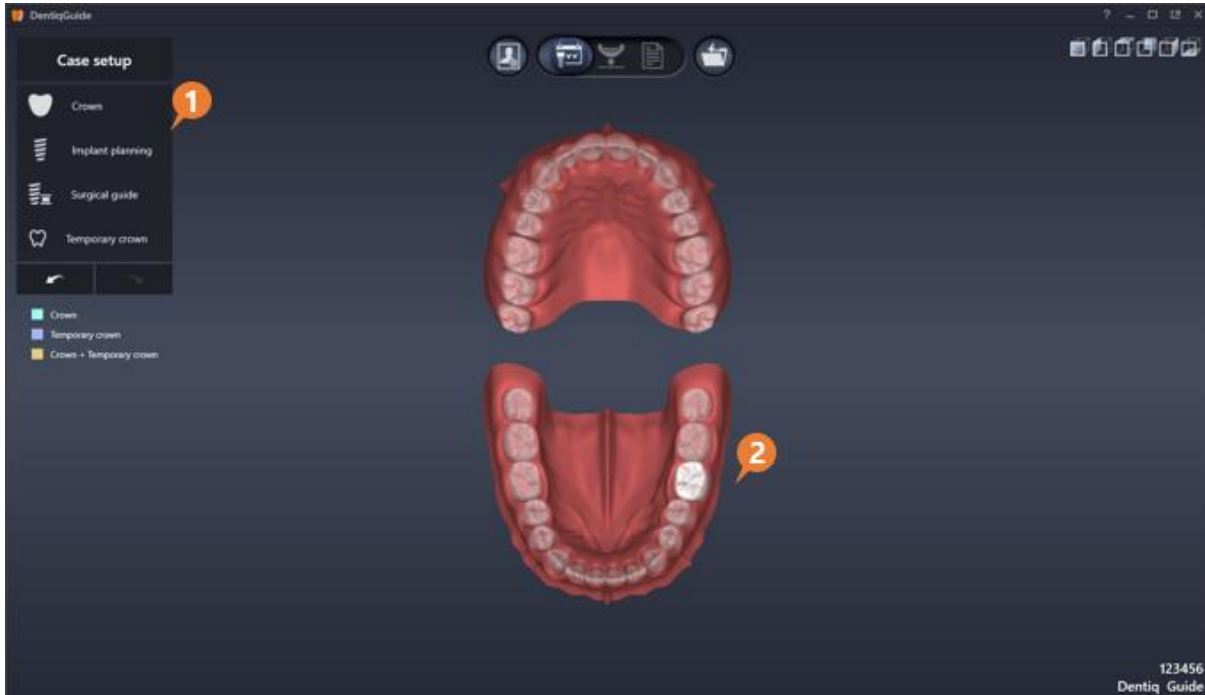


6. Case Workflow Stages

Case workflow stages window shows each required stage as set in the Case Setup stage.

6.1 Case Setup

In this stage, tooth selection and surgical plan setup for the case is carried out.

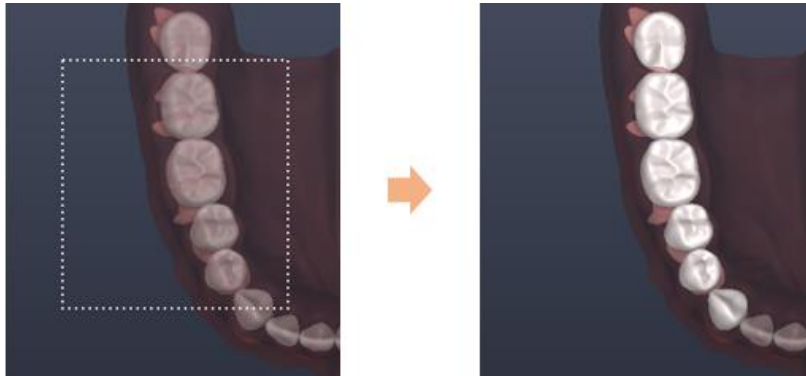


No	Title	Description
1	Surgical Plan Items	Select a surgical plan to proceed
2	Select Teeth	Select teeth to work on



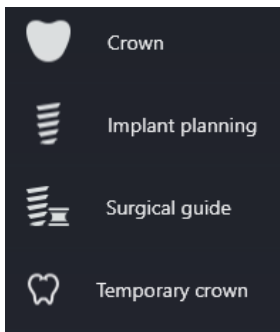
1) Make a Surgical Plan

- ① Select teeth to work on from teeth selection model. Select a single tooth by clicking the desired tooth or select multiple tooth area by clicking and dragging area.



[Example of multiple selection by dragging]

- ② Select surgical plans from the listed surgical plan items.



Crown	Place crown while implant placement
Implant Planning	Plan implant using CT image
Guide Design	Design surgical guides and export STL
Temporary Crown Design	Design temporary crown and export STL

- ③ Select surgical plan items and check if next stage (Data Setup stage) is enabled on the workflow progress bar.

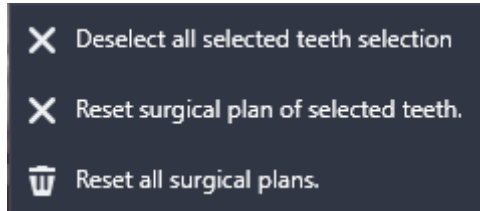
The following dialog appears when only Crown option is selected.

Items displayed on workflow progress bar may vary depending on the selected surgical plan items.




2) Cancel Surgical Plan

① Right click on the selected tooth. The following context menu appears.



Deselect all selected teeth selection	Deselect selected teeth
Reset surgical plan of selected teeth	Reset surgical plan for the selected teeth
Reset all surgical plans	Reset all surgical plans

② Click the desired menu to apply.



Only 'Reset all surgical plans' option is displayed when right clicking without selecting any tooth.

6.2 Data Setup

In this stage, patient CT data and maxillary/mandibular scan data can be imported. CT data supports DICOM format and scan data supports STL format.



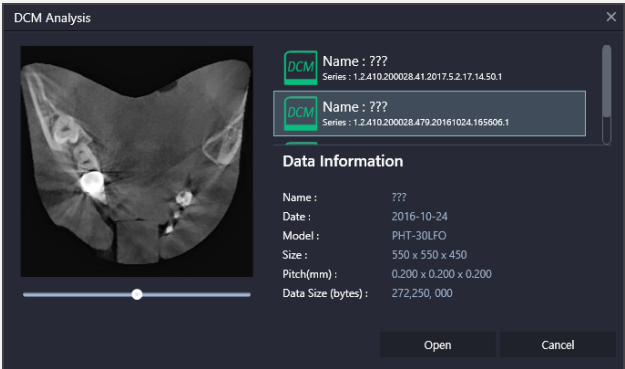


No	Title	Description
1	Import Data	Import data to the program
2	CT Information	Display imported CT data information
3	Operation Data	Displays data and operation conducted
4	Visualization options and other features	Provides visualization options and additional features

1) Import/Remove Data

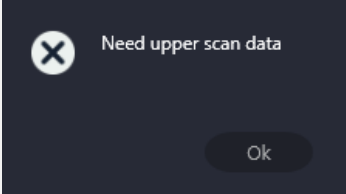
- **Import:** Select designed patient data by clicking from data import option and click open button to import data.

The following DICOM analysis window appears when a folder contains more than 2 series of DICOM. Click the desired DICOM series and click Open button to proceed.



[DICOM Analysis Dialog]

When crown or implant guide is selected in the Surgery Planning stage, the corresponding upper/lower scan data must be imported. If scan data for the surgical guide is not loaded, the following message appears and the user cannot move to the next stage.



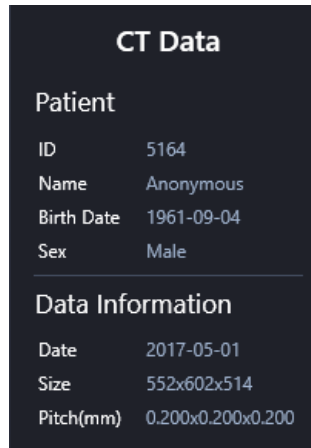
- **Remove:** Click X button  on the right of each item with imported data.



2) View Data

View CT information

Detailed CT data information can be viewed through CT Information option on the bottom left.



[CT Information]

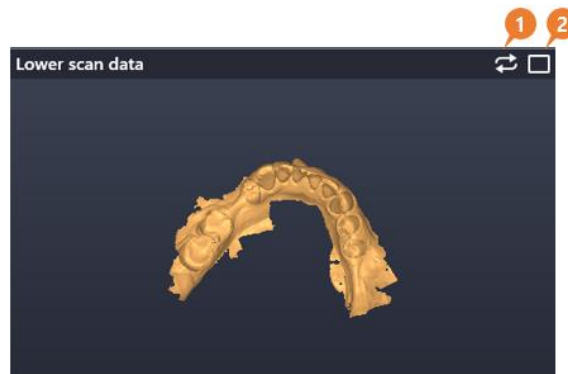


Displayed CT information is based on information included in DICOM. Please make sure that the patient information is correct to move on to the next stage.

View Data Image

The first imported image displays in the main data panel and other imported images display on the bottom right.

- For images on the bottom right, image panels can be minimize/maximize by using exchange image/ maximize button on the right of image title bar.



No	Title	Description
1	Image exchange	Exchange the image with main image
2	Maximize	Maximize image panel

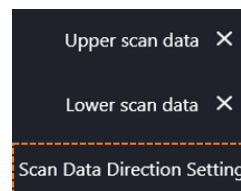


	<p>Poor quality of CT image not suitable for surgery planning increases the risk of error in planning. Please check CT image quality and volume are before moving on to the next stage.</p>
--	---

	<p>Please refer to 4. Common for information about visualization option and other functions.</p>
--	--

3) Scan Data Direction Setting

Scan data direction setting menu appears when only temporary crown planning is checked. After importing scan data, the user can align the direction of data if the direction is not correct.



- ① Click Scan Data Direction Setting option under the data import options to display setting dialog.
- ② Right click and drag scan data on the screen to set direction.



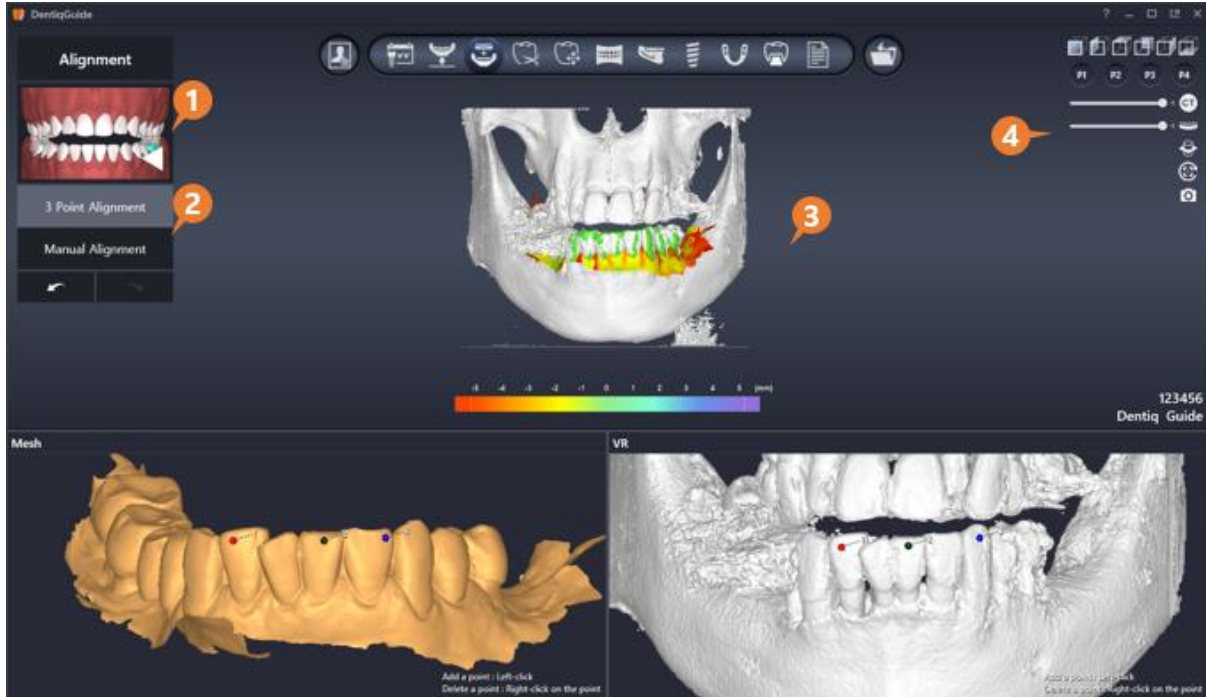
[Before(left) / After(right) Scan Data Direction Setting]

- **Apply:** Save changed scan data direction and close direction setting dialog.
- **Cancel:** Cancel changes and close direction setting dialog.



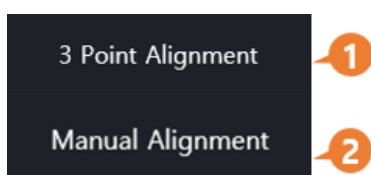
6.3 Alignment

In this stage, the user can align CT data and upper/lower scan data using coordinates. This stage provides 3 Point Alignment which automatically align coordinates of the two data using 3 points and Manual Alignment which enables users to manually align coordinates. Usually the user can use manual alignment after conducting 3 point alignment.



No	Title	Description
1	Select Area	Select area (upper or lower scan data)
2	Alignment Type	Select 3 point alignment/manual alignment
3	Operation Data	Displays data and operation conducted
4	Visualization Option and Additional Features	Provides visualization options and additional feature tools.

1) Alignment Type



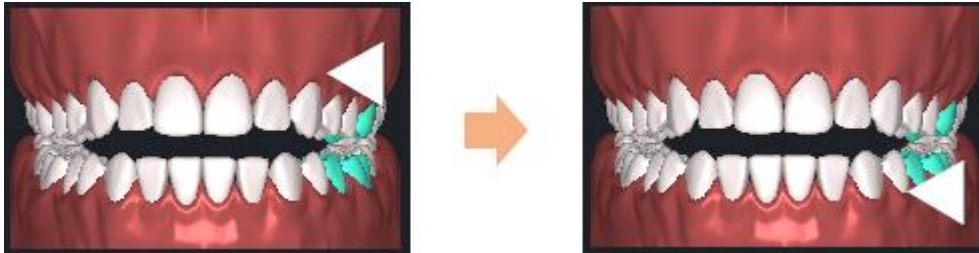
No	Title	Description
1	3 Point Alignment	Align images by clicking 3 points.
2	Manual Alignment	Align manually by using MPR image.



2) 3 Point Alignment

Aligning

- ① Click area to align from Select Area menu. Arrow is displayed to indicate the selected area.




- ② Set 3 points for scan data on the bottom and CT data respectively. (Same colored points should locate in the same position of the two data.)
- ③ Coordinates of the two data match automatically based on the matching points when the last point is set.
- ④ View the aligned data in 3D image displayed on upper screen.

Editing Points

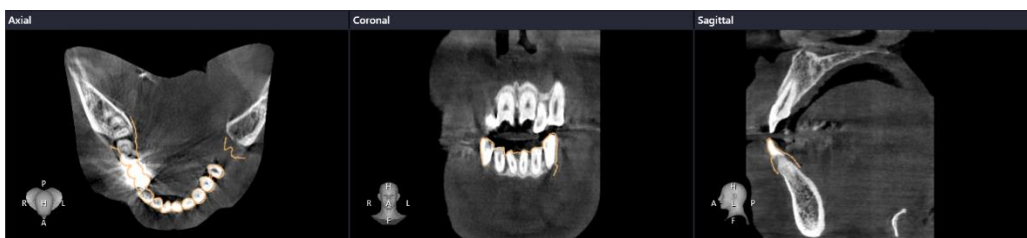
- **Move:** Click and drag input point.
- **Delete:** Right click on input point.
- **Delete All:** Click Delete All button  which is displayed when hovering over scan data and CT image to delete all input points in the image.

Synchronize Image Position

- Click Synchronize button  which is displayed when hovering over scan data and CT image to rotate and move the two image at the same time.

3) Manual Alignment

After 3 Point Alignment, click the Manual Alignment button to display the following MPR (Axial/Coronal/ Sagittal) panel.



[MPR (Axial/Coronal/Sagittal)]



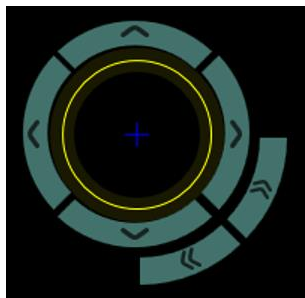
Aligning on MPR




- **Move MPR image:** Scroll mouse wheel or slider on the right on 2D image panel for parallel translation of image location.
- **Move scan data:**
 - Click and drag to move the location of scan data.
 - Locate mouse cursor on the image to move and move location using Arrow Keys (↑/↓/→/←).
 - Locate mouse cursor on the image to move and rotate scan data using Ctrl + Arrow Keys.




2D Image Tools

Tools located on top of 2D image panel will increase the accuracy.

-  **Fine-tuning object:** The following fine-tuning tools are provided.



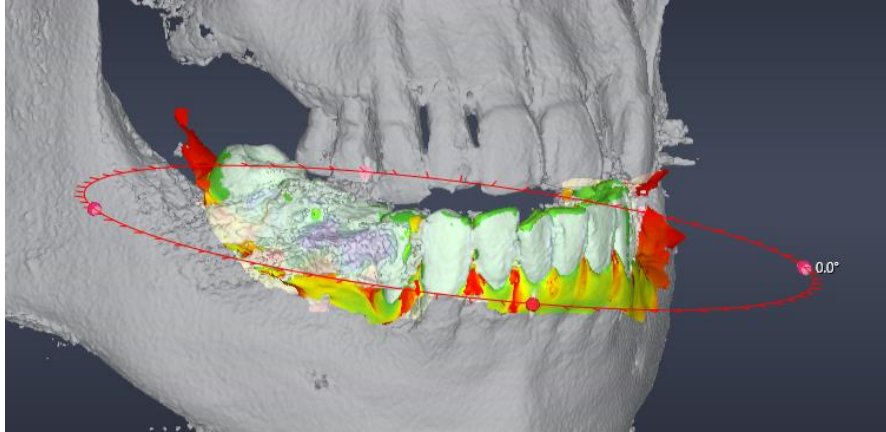
	Move at regular distance to left/right/up/down direction
	Rotate when clicking and dragging (* Double click a location on MPR to move center point of rotation axis)
	Rotate at certain intervals

-  **Display 3d object on MPR image:** Display scan data on MPR as 3D image.
-  **Line/Length:** Measure length by clicking and dragging a desired point on MPR.
-  **Grid Line:** Display grid lines (offset 5mm) on MPR.



Aligning on 3D Image



- Click and drag scan data to move the location of scan data.
- The following object adjustment tool appears when clicking scan data on 3D image.



[Scan Data Object Adjustment Tool]

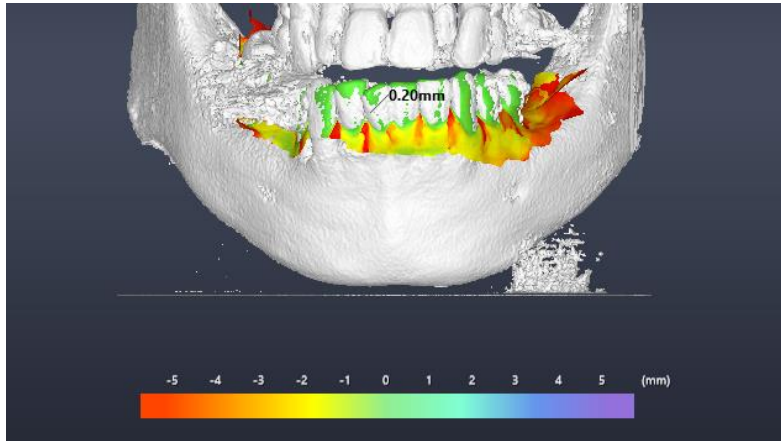
- Click and drag pink ball to rotate scan data.

Set the Cross Point on 3D Image

- When Manual Alignment function is activated, it activates Set the Cross Point on 3D image  button on the right of workflow screen.
- Then click the desired position on 3D image data (CT volume or scan data)
- The location of MPR image changes based on the clicked point.
- Also, Set the cross point menu  Set the cross point is available when right clicking on desired position of 3D image data (CT volume or scan data).

View Alignment Error Value

Color mapping on scan data shows error value for alignment of scan data and CT. To view the difference value, place mouse cursor on 3D image data (CT volume or scan data). If the color is closer to green, it indicates lower error rate while the color is closer to red it means the error rate is higher.



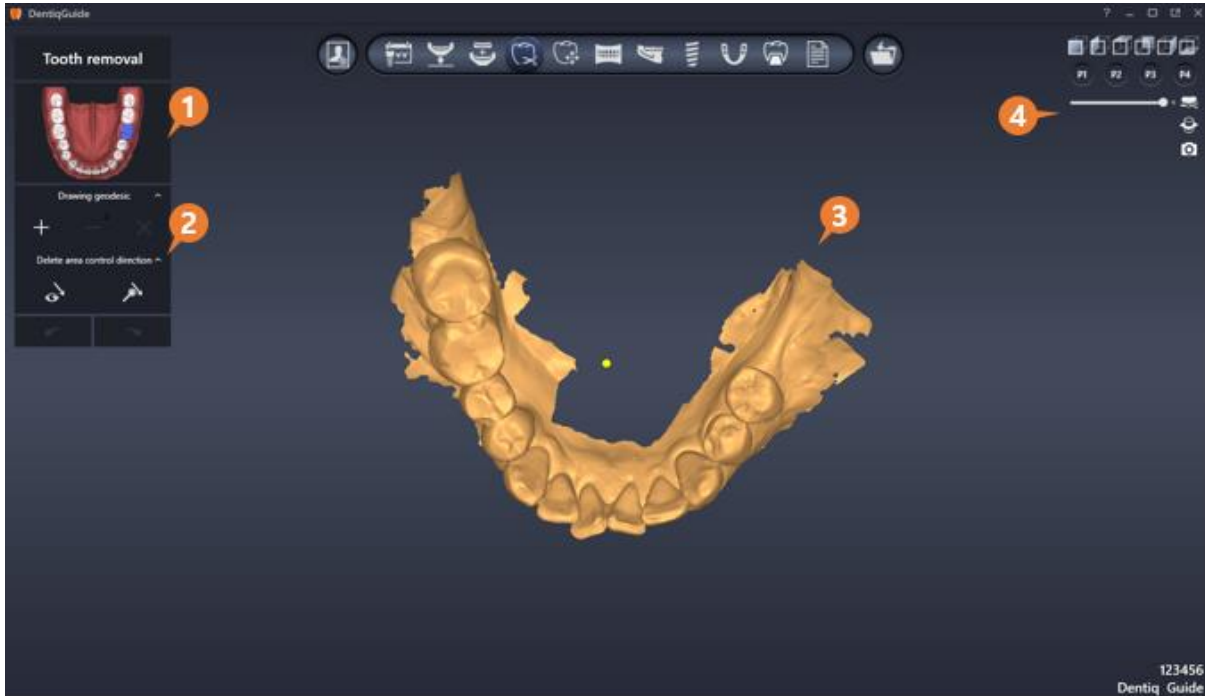
[View Error Value]



Please refer to [4. Common](#) for more information about visualization option and additional features.

6.4 Tooth Removal

In this stage, the user can remove unnecessary teeth from teeth scan data. This function is useful to remove teeth from scan data when tooth removal is expected before implant.



No	Title	Description
1	Select Area	Select area to remove (upper or lower scan data)
2	Tools	Tools for tooth removal



3	Operation Data	Displays data and operation conducted
4	Visualization Option and Additional Features	Provides visualization options and additional feature tools.

1) Tools




No	Title	Description
1	Drawing Geodesic	Create/Delete geodesic for tooth removal
2	Delete Area Control Direction	Adjust height of tooth removal surface

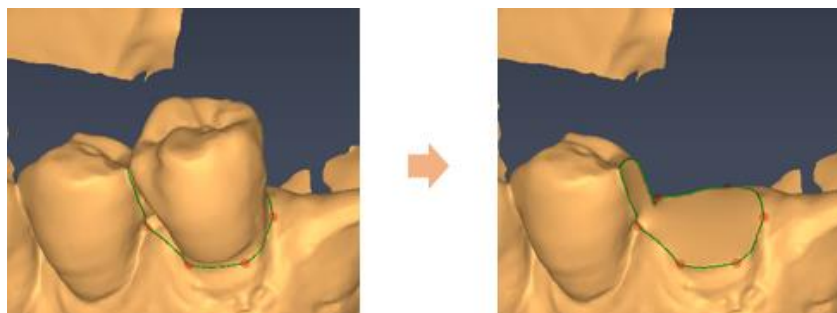
2) Remove Teeth

Teeth Removal

- ① Click area to remove teeth from Select Area menu. If both upper and lower scan data is included, icon to change area displays when hovering over Select Area menu.



- ② Click Add Geodetic Line  button from tools.
- ③ Set area to delete by clicking scan data surface.
- ④ Add Geodetic Line completes when start point (yellow) is clicked and inside of the selected area is automatically removed.



[Before(left) / After(right) tooth removal]



Editing

- **Move Point:** Click and drag control point of geodetic line.
- **Delete Point:** Right click on control point of geodetic line.
- **Add Point:** Click on geodetic line where there is no control point.

	<p>Teeth may not properly removed when the scan data area includes holes.</p> <p>Avoiding holes while setting area could help to remove teeth.</p>
--	--

3) Restore teeth

Single Tooth Restore

- When Delete Geodetic Line button is clicked, it deletes currently selected geodetic line and restore the corresponding tooth.

All Teeth Restore

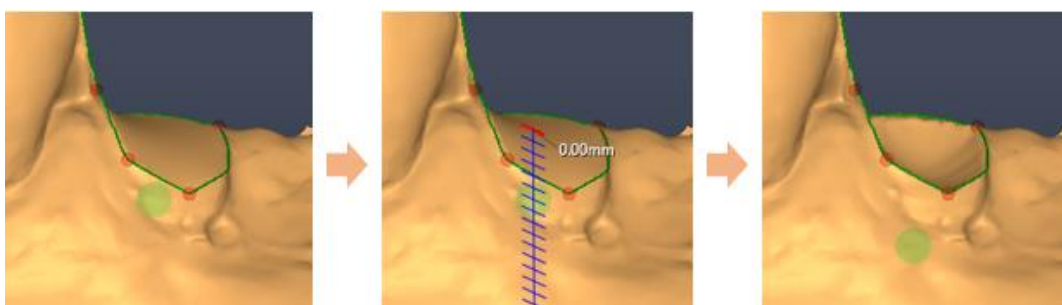
- When Delete All button is clicked, it deletes all inserted geodetic lines and restores all teeth.

4) Adjust height of tooth removal surface

Tooth removal surface is created as a plane connecting the geodetic lines. The user can adjust height of scan data removal surface with this function if needed.

- ① Set direction to adjust height using Delete area control direction tools.
 - : Set direction where the user is looking.
 - : Set as default direction of scan data

- ② Click and drag the green ball located on the deleted teeth to adjust the height of removal surface.

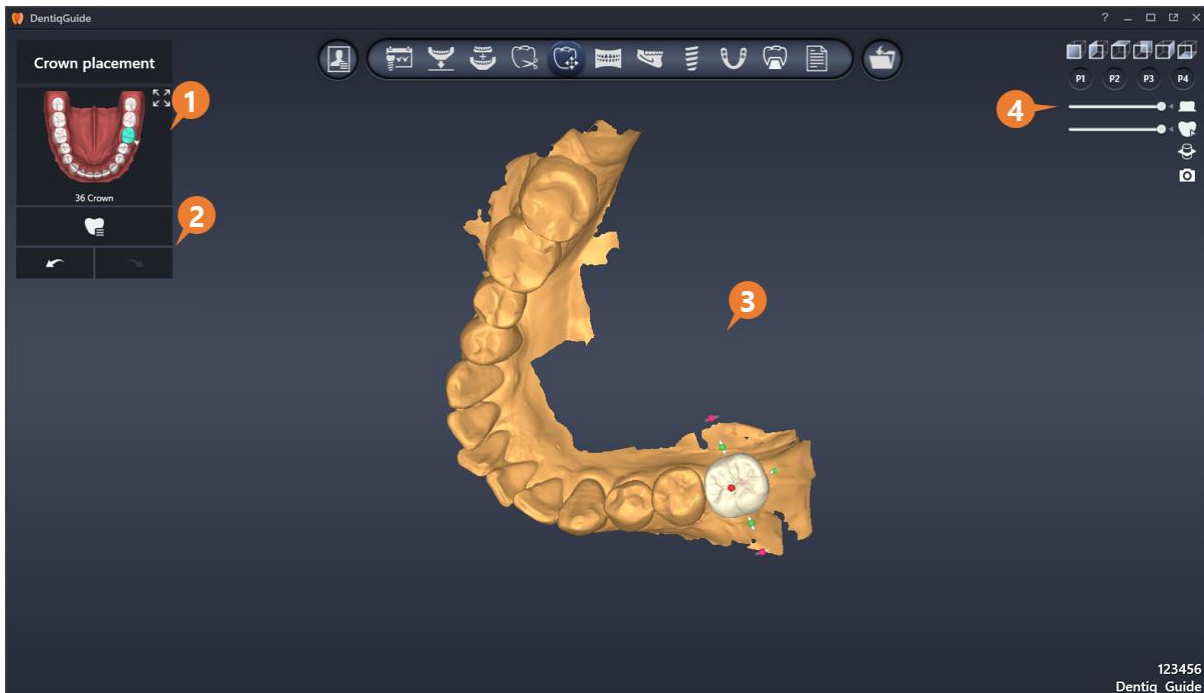




Please refer to [4. Common](#) for more information about visualization option and additional feature.

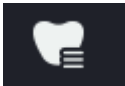
6.5 Crown Placement

When crown option is selected during surgical planning, the user can set size, position and direction of crown in this stage. Based on position information or crown in this stage, the initial position of implant for Implant Placement stage is determined. Accurate positioning considering antagonist tooth and occlusal plane will be helpful for fast implant planning.



No	Title	Description
1	Select Tooth	Select a tooth to place
2	Crown Library	Crown Library that provides basic tooth model
3	Operation Data	Displays data and operation conducted
4	Visualization Option and Additional Features	Provides tools for visualization option and additional features

1) Crown Library

- Click Crown Library  menu to select desired library.



When crown library is changed, it initializes all changes made and changes models for all teeth.

2) Edit Crown (Move/Rotate/Adjust Size)

Single Tooth Selection

- Select a tooth from Select Tooth tool, or manually click a crown model on scan data.

Multiple Tooth Selection

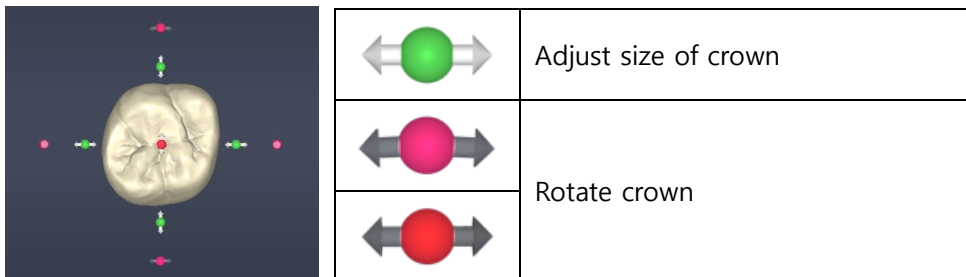
- Click while pressing Ctrl key to select multiple teeth, or set area including multiple teeth by clicking and dragging.

Move Crown

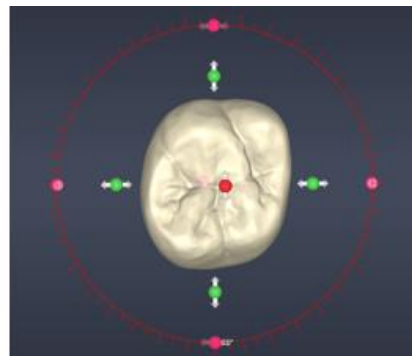
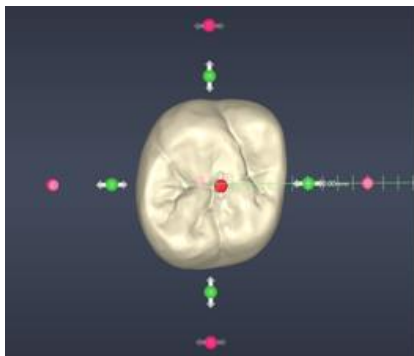
- Click and drag a crown model on scan data.

Rotate/Adjust Size

- Hover over the selected crown model to display tools to control crown objects.



- Scale marks and adjustment values are provided to help detailed editing.



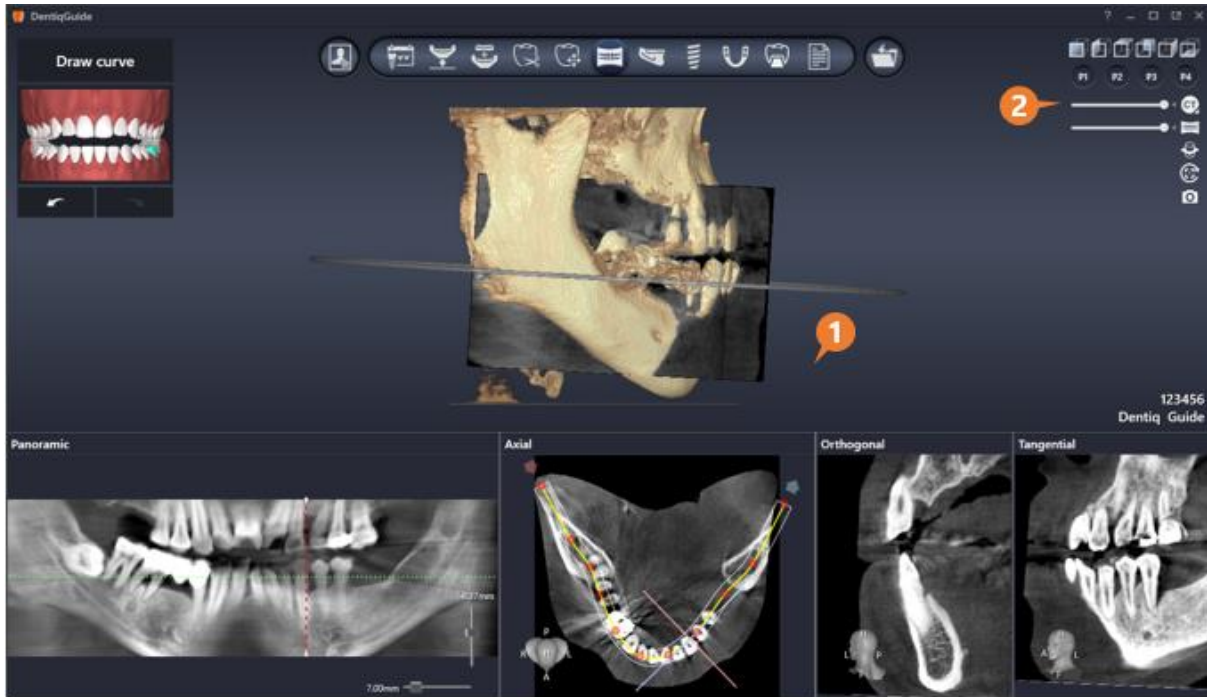
[Scale marks and Adjustment values]



Please refer to [4. Common](#) for more information about visualization options and additional features.

6.6 Curve Drawing

In this stage, the user can create panoramic image by drawing curve along the arch to easily view the surrounding tissues (tooth, tooth root, etc.).



No	Title	Description
1	Operation Data	Displays data and operation conducted
2	Visualization Option and Additional Features	Provides tools for visualization options and additional features





Only 3D and Axial images are displayed when initially entering in Curve Drawing stage, but Panoramic/Orthogonal/Tangential image displays in Axial image after curve drawing.




If the panoramic curve is not drawn well, the panoramic plane will not be visible normally.
The Volume Rendering panel shows the orientation direction of the axis and the panoramic curve, so check the location of the panoramic curves.



1) Draw panoramic curve

- ① Scroll mouse wheel on Axial image, or click and drag blue ball  from Plane Adjustment tool provided on 3D image.
- ② When the angle of plane needs to be adjusted, mouse over Plane Adjustment tool and click and drag the green ball  to adjust angle.
- ③ Create control points by clicking along the arch on axial panel, and double click to complete drawing at the final point.

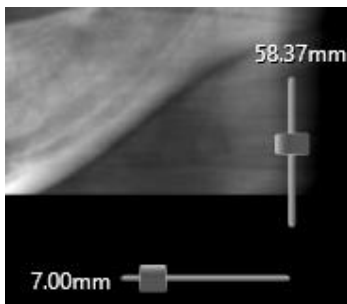
2) Edit panoramic curve

- **Move Point:** Click and drag a control point of curve.
- **Delete Point:** Right click a control point of curve.
- **Delete All Point:** Click Delete All button  which is displayed when hovering over Axial panel to delete all previously set point on the image.

3) View panoramic image

Adjusting Image Height/Thickness

- To adjust height and width, drag the slider which is displayed when hovering over panoramic panel.



Vertical Slider	Adjust height of panoramic panel
Horizontal Slider	Adjust thickness of panoramic panel


Viewing with Orthogonal/Tangential image


- Click a point on panoramic image to move Orthogonal/Tangential image to the clicked position.
- When red dotted line on panoramic image is clicked and dragged, Orthogonal/Tangential image moves according to the cursor location in real time.



- Scrolling on Orthogonal panel moves Tangential image and red dotted line to the corresponding location in real time.
- Scrolling on Tangential panel moves Tangential image to the vertical direction from Orthogonal.

View on 3D image

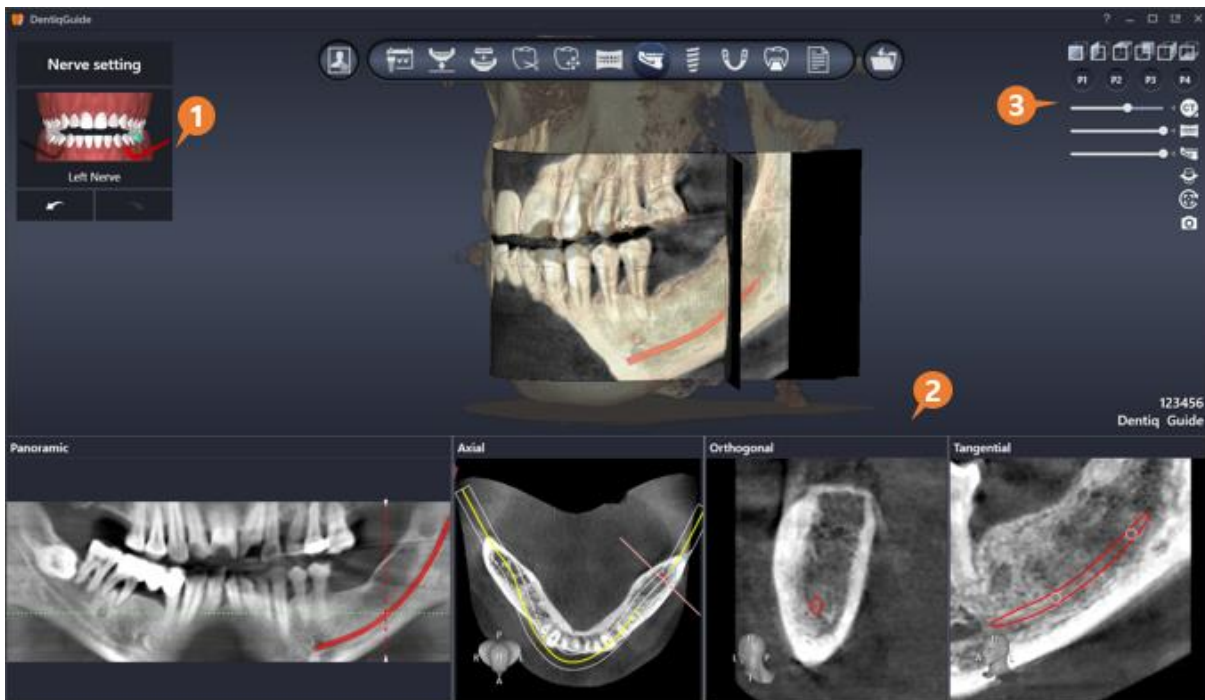
- 3D Panoramic Plane Show/Hide button  displays on top left side of 2D panel. Show or hide the image on 3D image by clicking the button.



Please refer to [4. Common](#) for more information about visualization options and additional features.

6.7 Nerve Setting

In this stage, the user can set nerve when surgery on lower is planned. Implant placement considering the drawn nerve will help safe implant planning.



No	Title	Description
1	Select Area	Select nerve (left or right)
2	Operation Data	Displays data and operation conducted
3	Visualization Option and Additional Features	Provides tools for visualization option and additional features




1) Draw Nerve



- ① Click a desired nerve from Set Area menu.
- ② Scroll on Orthogonal/Tangential and click along the nerve location.
- ③ No additional action is required to complete drawing. Run ① to draw nerve on the opposite side.

Drawing Nerve on Panoramic image



- ① Click Overlay button  on the upper right of panoramic image to disable overlays. (Drawing is not supported when overlays are enabled.)
- ② Scrolling mouse wheel and click along the nerve.
- ③ No additional action is required to complete drawing. Click a desired nerve from Set Area menu draw nerve on the opposite side.




Recommended thickness for panoramic image is 5~10(mm).



Please note that nerve drawing on Panoramic image has high error rate while Orthogonal/Tangential image shows high accuracy on nerve drawing.




2) Edit Nerve

- **Adjust Thickness:** Drag vertical slider displayed the right of panoramic panel when hovering over.
- **Add Point:** Ctrl + Click on the image.
- **Move Point:** Click and drag nerve control point.
- **Delete Point:** Right click on nerve control point.
- **Delete Nerve:** Click Delete All button  on the top right of 2D panel to delete all selected nerve.



Move/Delete nerve control points function is available only for Orthogonal/Tangential image.

3) Additional Features for Panoramic Image

-  **Display on 3D Object MPR:** Click Display on 3D object button on the upper right side of panoramic panel to display nerve as 3D object with the same thickness of panoramic image.
-  **Enable MPR Overlay Widget:** Click MPR overly widget button on the upper right side of panoramic panel to enable/disable MPR Overlay Widget.
-  **Hide 3D Panoramic Plane:** Click Hide 3D Panoramic button on the upper right side of panoramic panel to display the image on 3D image or not.



Visualization options are available for adjusting detailed visualization settings on nerve and 2D image displayed on 3D image.

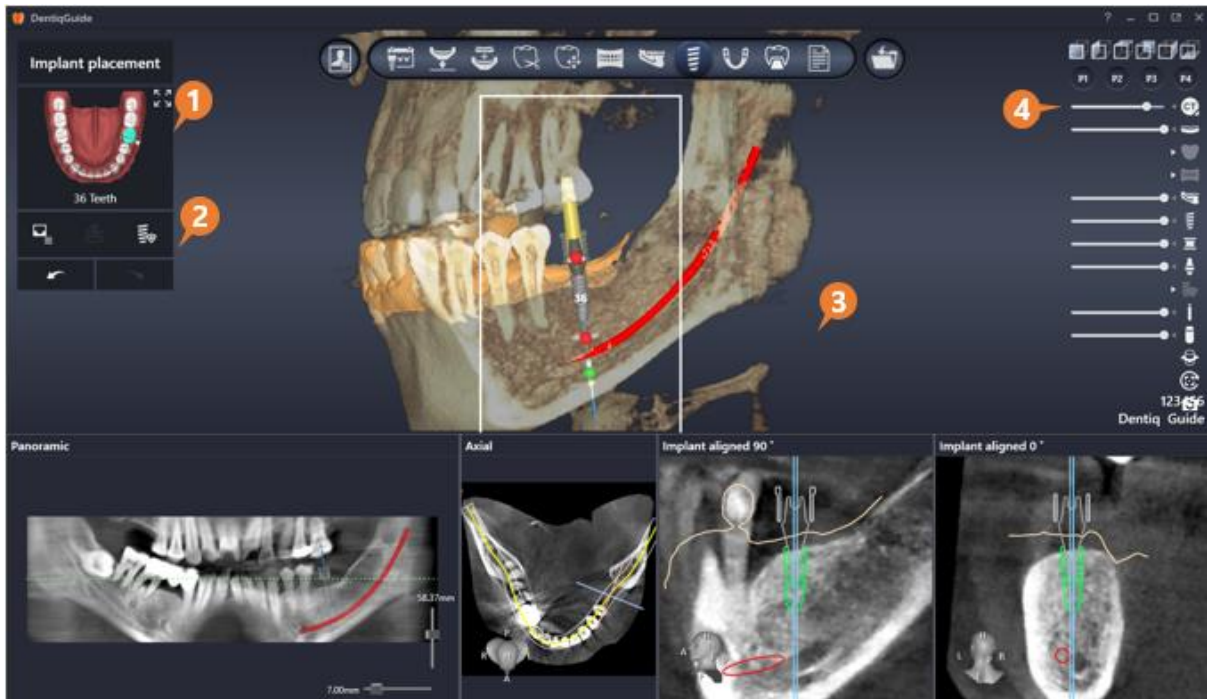


Please refer to [4. Common](#) for more information about visualization options and additional features.



6.8 Implant Placement

In this stage, the user can set the position and direction of implant.



No	Title	Description
1	Select Teeth	Select teeth for placement or other operations
2	Tools	Library/Implant grouping/Custom Safety Area Setting
3	Operation Data	Displays data and operation conducted
4	Visualization Option and Additional Features	Provides tools for visualization options and additional features

1) Tools



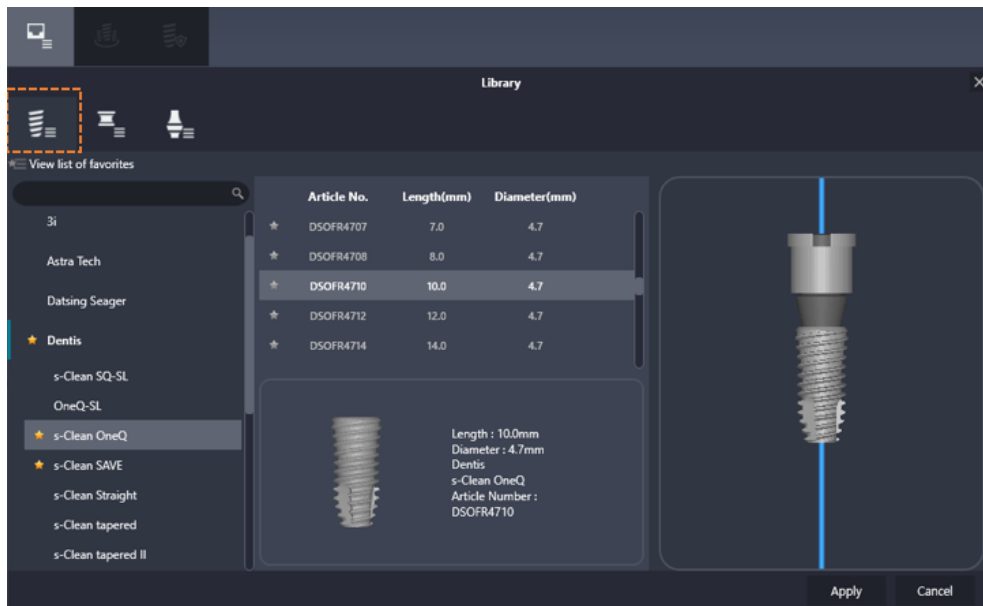
No	Title	Description
1	Library	Implant/Sleeve/Abutment Library
2	Implant Grouping	Synchronize angles between implants
2	Implant Custom Safety Area	Set safety area for individual implants



2) Implant, Sleeve, Abutment Placement

Placement

- ① Select a tooth for placement from Select Teeth tool.
- ② When the Library is displayed on the tool bar, select an implant manufacturer and model.



[Library]



- ③ Sleeve or Abutment option from library sub-menu is to change model to the desired sleeve or abutment model.
- ④ After completing selection, click Apply button to place an implant on the image.

	<p>When an implant is selected, sleeve and abutment are automatically set as custom items.</p> <p>(If there exists a sleeve with the same diameter of implant, the sleeve is selected.)</p> <p>Also, if the selected abutment does not fit to the implant, the abutment is initialized to default value.</p>
--	---

	<p>When anchor pin model is provided by manufacturer, the user can select it in the same way as implant. However, sleeve height is not adjustable and abutment is not provided.</p>
--	--



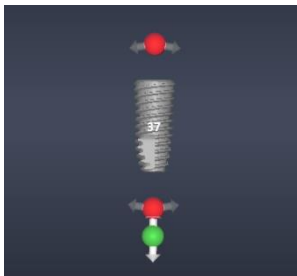
Please make sure if implant type is correct. Platform type, length and diameter are selected according to the patient's clinical condition.

Please consider it particularly when planning implant cases located near main anatomical features such as artery or alveolar nerve.

3) Edit Implant, Sleeve, Abutment

Editing Implant

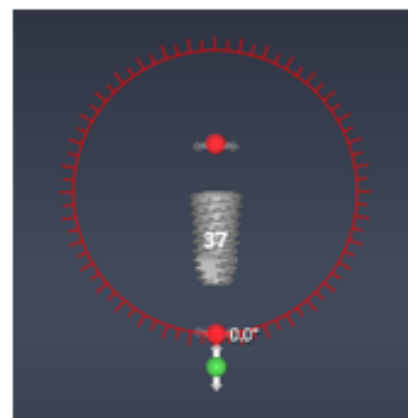
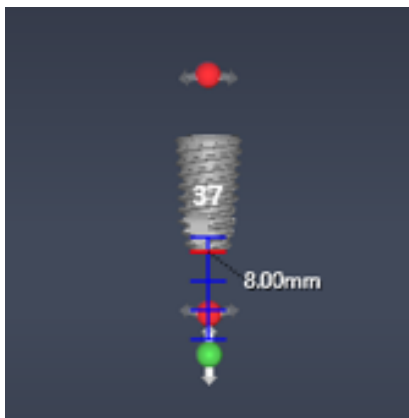
- **Select Implant:** Select a teeth from Select Teeth tool, or manually click an implant model on 2D/3D image.
- **Move:** Click and drag to move implant model on 2D/3D.
- **Rotate/Length:** Hover over selected crown model to display crown object adjustment tool.



* same operation for 2D/3D


	Rotate Implant
	Adjust implant length

- While Rotate/Length adjustment, scale marks and adjustment values are displayed to enable detailed editing.



[Scale Marks and Adjustment Values]

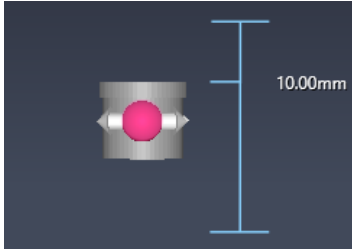


In case of 2D panel,  button on the top right of image panel should be enabled to display implant length adjustment button.

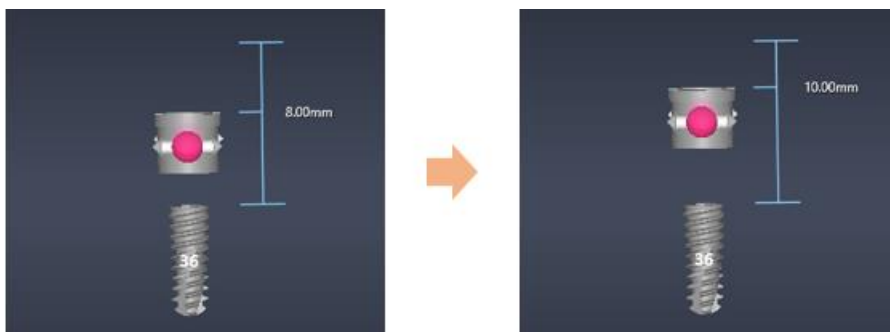


Editing Sleeve

- **Select Sleeve:** Click sleeve model on 3D image.
- **Rotate:** Crown Object Adjustment tool is displayed when hovering over sleeve model.



- **Height:** Click and drag sleeve model on 3D image.



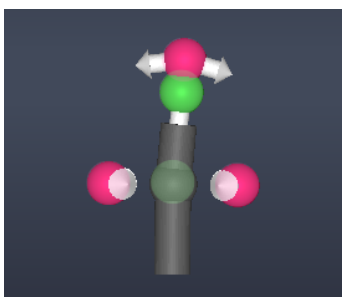
[Before(left) / After(right) adjusting sleeve height]



Default value for sleeve offset varies depending on surgical guide kit. Please check the default offset of surgical guide to use.
 Default value set in this program is 8.00(mm) and is changeable. Please refer to [5.3 Environment Setting > Sleeve Offset](#)

Editing Abutment

- **Select Abutment:** Click abutment model on 3D image.
- **Rotate/Lenth/Angle:** Click sleeve model to display Crown Object Adjustment tool.



*** Length and Angle function is provided only for custom abutment**

	Top: Upper Abutment Angle Side: Rotate Abutment
	Abutment Length



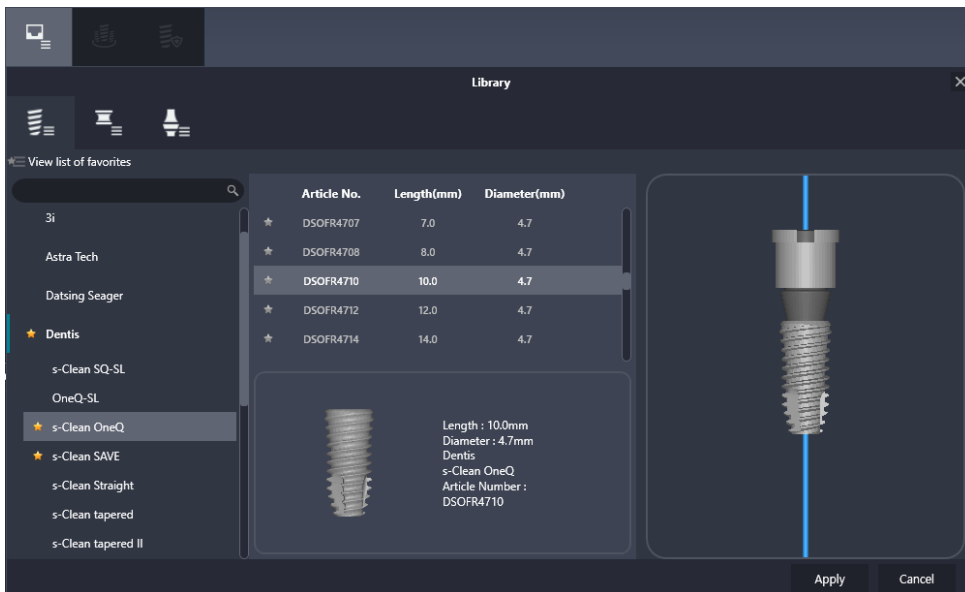
When implant, sleeve and abutment rotates, all objects rotate in sync.

4) Library


Implant, Sleeve, Abutment library can be managed in Library page.

Viewing Library

- Click Library button  from tools to display library menu.



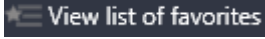
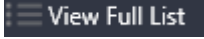
[Library]

- Click the desired sub menu  (Implant/Sleeve/Abutment) of library to view the selected library information.
- Click detailed item to display preview on the bottom, then check preview for combined result of implant, sleeve and abutment on the right side of screen.



[Item Preview(left)/ Combination Preview(right)]

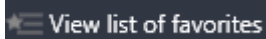


- View list of favorites  or View Full List  option is available on the top left.

Adding/Removing Library to/from favorites


- To add to favorites, click a grey star icon prior to manufacturer, product line, or product item.
- The star icon turns to yellow when added to favorites.

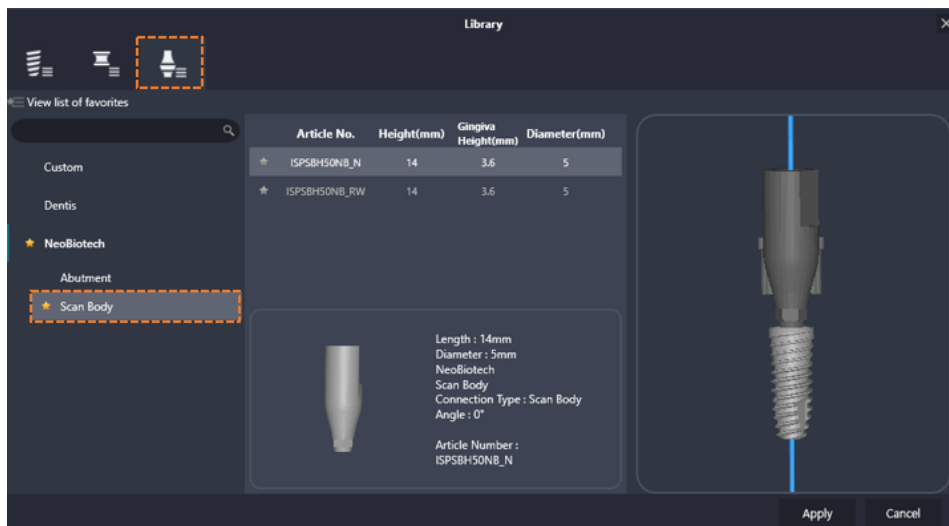


- If click the yellow star again, the item is removed from favorites.
- If click the View list of favorites  on the upper left, only items added to favorites display.

Using Scan Body

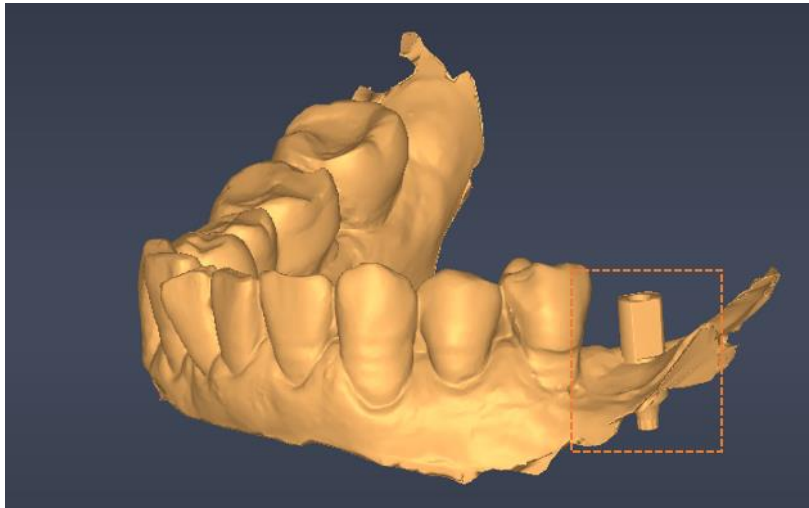
When exporting mesh, a file of scan data and scan data is separately exported. This can be used when designing crowns on a different dental prosthetic design program.

- ① Click Library button  from tools, and select Abutment → Manufacturer → Scan Body option.



[Scan Body]

- ② When the item is selected, click Apply on the bottom to start implant planning.
- ③ When exporting mesh file in Result stage, "UNION_OF_SCAN_BODY.stl" is exported together.



[Scan Data with Scan Body]



Scan body is not available for temporary tooth design.

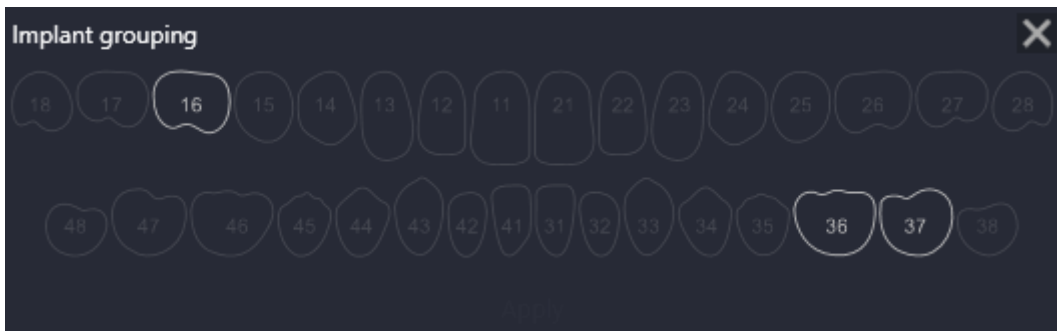
5) Implant Grouping

When placing more than 2 implants, angle of all implants can be adjusted as the same.

Grouping



- ① Click Grouping button from tools (or 'G' key) to display grouping menu.



[Implant Grouping]

- ② Click a tooth as a standard, and then select other teeth to adjust angle based on the standard tooth.



It displays standard tooth in orange when selected, other teeth to align angle in



sky blue.

- ③ When selection is completed, click Apply button on the bottom.



④ The created group is shown in the Group List  on the left.

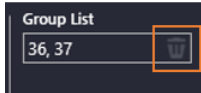
⑤ When hovering over grouped teeth, all teeth in the same group appear transparent.



To add an already grouped tooth in a new group, the tooth needs to be excluded from the previous group before adding to a new group.

Ungrouping


- Right click on grouped tooth from grouping menu to cancel grouping of the tooth. (If the tooth affects grouping condition, it ungroups all teeth in the group. Otherwise, only the selected teeth is ungrouped.)

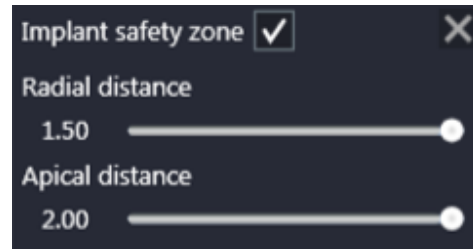
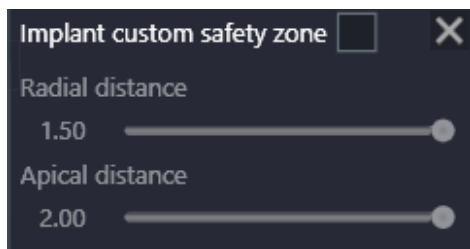
- To ungroup the whole teeth in the group, click trash bin button  on the right of group list.

6) Setting Implant custom safety zone

The user can change safety zone setting value for each implant.

Changing Safety Zone

- Click Custom Safety Zone button  from tools (or 'Z' key) to display setting menu for custom safety zone.
- Click the check box on the top to activate setting menu.



[Disable(left) / Enable(right) Implant custom safety zone]

- Drag the desired slider to change values.



- While dragging slider, the changing value is shown on 3D image in real time.



- When the check box is unchecked, the safety zone setting value is restored to default value.



Default value for implant safety zone can be set in environment settings. Please refer to 5.3 Environment Settings > [8\) Implant Planning](#) for more information.

Checking Safety Zone

Warning message appears when collision occurs in the safety zone previously set. Objects detected appears in pink.

Collision detection is provided for Implant-Implant / Implant-Nerve / Sleeve-Scan data.



[Collision Warning: Implant-Implant(left) / Implant-Nerve(middle) / Sleeve-Scan data(right)]



There is no separate zone for Sleeve-scan data, but warning message appears when the two data overlaps.



Unable to move on to next step when Implant-Implant/ Implant-Nerve collision occurs.



Please make sure to secure minimum safety zone for implants and mandibular nerves. Collision of implants, implant and nerve, and implant and other main anatomical structures such as nerve or artery can cause severe damage, paresthesia or other complications.




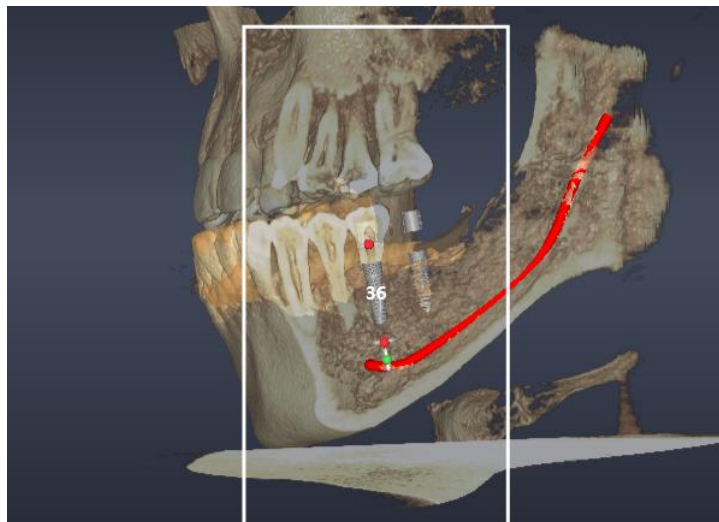
Please make sure that an implant does not collide with an existing implant or tooth root channel. Also assure that the implant does not penetrate the jawbone border.



Please make that the chosen implant position corresponds to the intended position and the fixation/mounting method for the prosthesis on the implant.

7) 3D Implant Clipping


- Right click on 3D panel and click Clipping implant button  Clipping implant (1) from the context menu. 3D data except the selected implant is cut by implant center plane.
- The selected implant center plane is changing to the direction where user is looking when rotating 3D data.

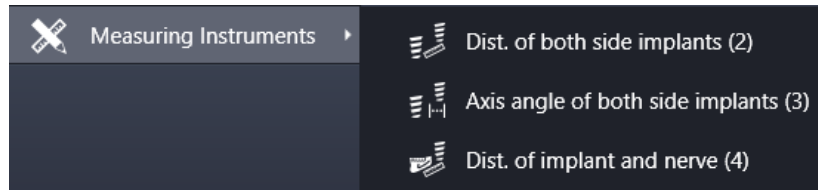


[Enable clipping of #36 implant]

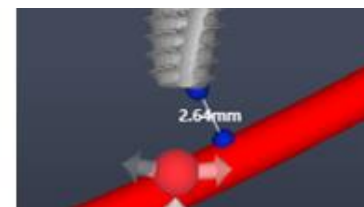
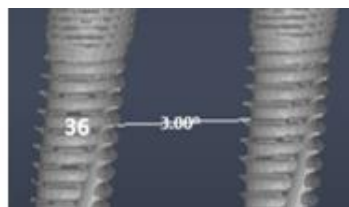
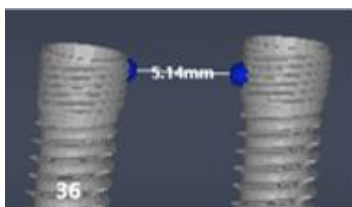
8) 3D Measurement Instruments

Various measurement information is automatically provided based on 3D data information.

- Right click on 3D image panel, select  Measuring Instruments option from the context menu, and select the information to measure.



Dist. Of both side implants	Display distance from the selected implant to the implant on the left or right
Axis angle of both side implants	Display angle between the selected implant and the implant on the left/right
Dist. of implant and nerve	Display the shortest distance between the selected implant and nerve



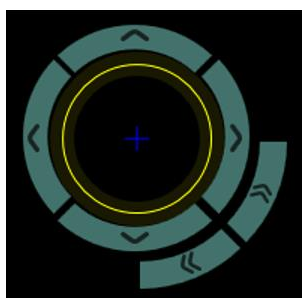
[Measurement Instruments: Distance between implants(left) / Angle between implant(middle) / Distance between implant and nerve(right)]

	Distance between implants function is supported when two implants has consecutive numbers.
--	--

9) 2D Image Tools

Implant Fine-tuning

- : When clicked, the following fine-tuning tools are displayed.




	Move at regular distance to left/right/up/down direction
	Rotate when clicking and dragging (* Double click a location on MPR to move center point of rotation axis)
	Rotate at certain intervals



Default value for implant fine-tuning can be set in Environment Setting. Please refer to 5.3 Environment Setting [8\) Implant Planning](#) for more information.

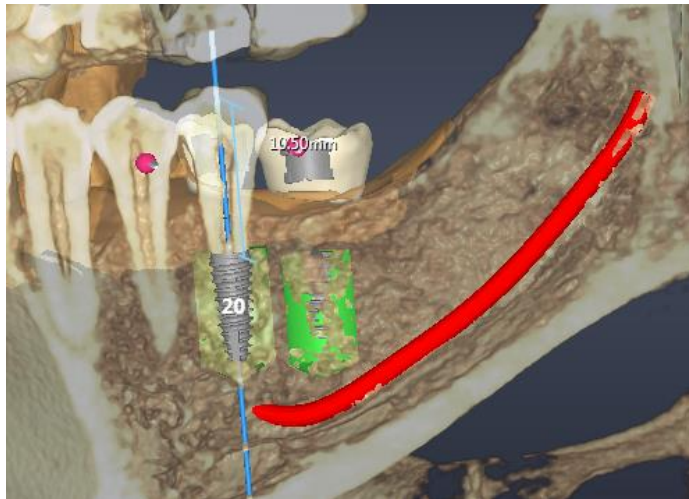
Use as Clip Surface

-  : Click the icon to cut all 3D data based on currently displaying image.




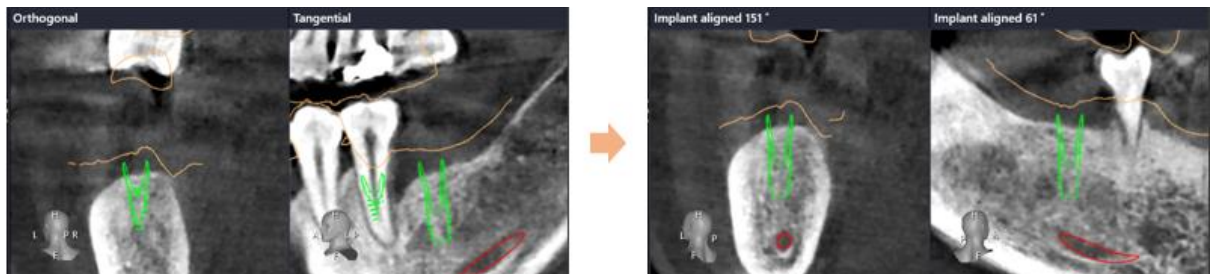
Implant Clipping is conducted based on implant center axis while Use as Clip Surface is based on the plane image cut by clicking the button.

Moving Camera Orientation based on Implant







[Use as Clip Surface]


-  : When clicked, axis of 2D image changes based on implant.
- Image rotates based on implant axis when scrolling mouse wheel on 2D image panel.








2D Image Measurement Tools


- Click  to display available measurement tools.
 - Click  icon, then click and drag to measure length.
 - Click  icon, then click 4 point on the image to measure distance between two lines.
 - Click  icon, then click the desired position on the image to measure HU values.


	Please refer to 4. Common > 4.10) Use of Measurement Tool for more information about editing measurement tools.
---	---


Implant Placement

Implants can be aligned manually or moved to crown center axis.

- Click  icon to display alignment options.
 - Click  option, click the location of implant center on image, adjust angle, and click again to place implant.
 - Click  to align the selected implant based on crown center axis.

	Please refer to 6.6 Curve Drawing and 6.7 Nerve Setting for more information about tools provided on Panoramic image.
---	---

	Please refer to 4.2 Mouse Operation and Shourtcuts for more information about shortcut for each function.
---	---

	Please refer to 4. Common for more information about visualization options and additional feature.
---	--



6.9 Guide Generation

In this stage, the user can design surgical guide based on implant planning information.



No	Title	Description
1	Select Area	Select area(upper/lower scan data) to design
2	Tools	Tools to use for guide designing
3	Operation Data	Displays data and operation conducted
4	Visualization Option and Additional features	Provides tools for visualization options and additional features

1) Tools



No	Title	Description
1	Guide Generation Tools	Design and create guide design
2	Bar/Window Generation Tools	Design and create bars and windows
3	Engraving Tools	Engrave and create text

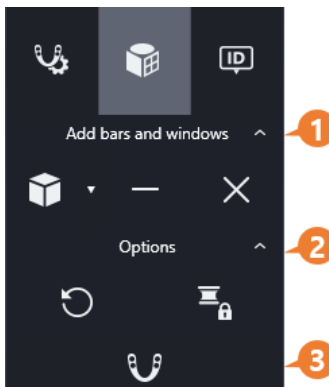


Guide Generation Tools



No	Title	Description
1	Drawing Geodesic	Create/Delete geodesic to set guide area
2	Insertion Direction	Set guide insertion direction in the mouth
3	Sleeve	Sleeve library and glue channel
4	Manufacturer	Set guide thickness and offset
5	Guide Generation	Create/delete guide

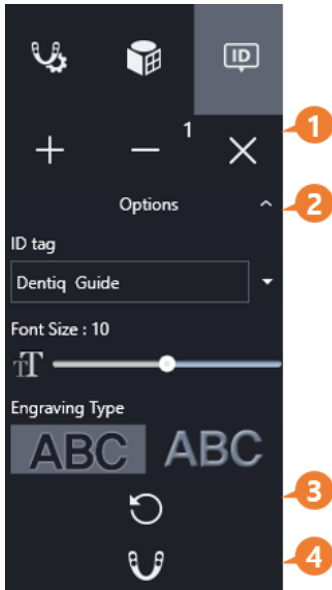
Bar/Window Generation Tools



No	Title	Description
1	Add Bars and Windows	Add and delete bars and windows to/from guide
2	Options	Initialize and lock sleeve area
3	Guide Generation	Re-create guide applying bars and windows



Engraving Tools

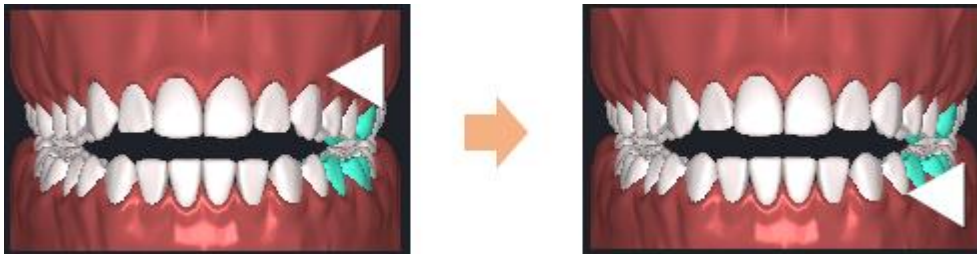



No	Title	Description
1	Add Text	Add/delete text to guide
2	Options	Set text/font size/engraving type
3	Initialize	Initialize changes
4	Guide Generation	Re-generate guide applying engraving

2) Setting Guide Area

Drawing Geodesic Line

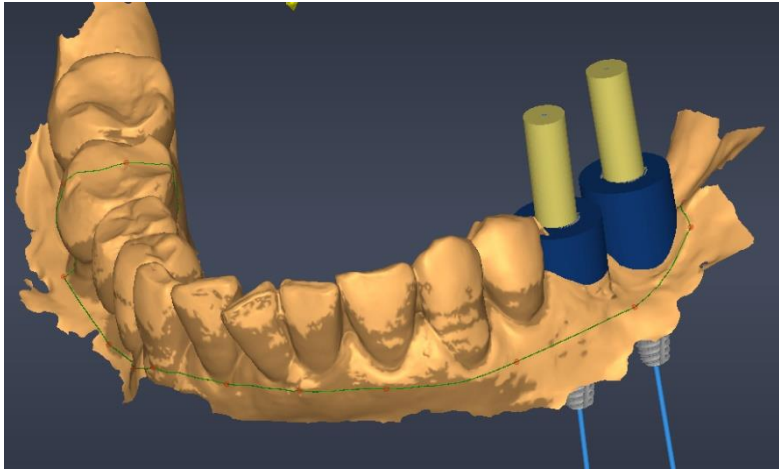
- ① Select area to work on guide design from Select Area menu. The arrow indicates the selected area.



- ② Click Add Geodesic Line button  from Guide Generation Tools.
- ③ Set area to create guide by clicking scan data surface.



- ④ Click start point (yellow) to complete drawing geodesic line.

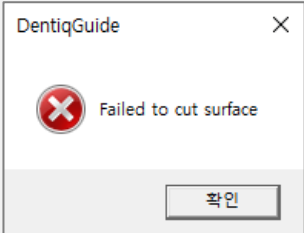



[Drawn Geodesic Line]

Editing Geodesic Line

- **Move Point:** Click and drag control point of geodesic line.
- **Delete Point:** Right click on control point of geodesic line.
- **Add Point:** Click on geodesic line where there is no control point.

The following message dialog appears when guide geodesic line has steep slope or when there exists a hole inside scan data area where guide is created.



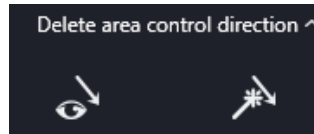
Adjusting geodesic line into gentle slope or avoiding holes while setting are could help to create a guide.

Deleting Geodesic Line



- Click Deleting Geodesic Line button  to delete the selected geodesic line.
- Click Deleting All button  to delete all geodesic line.



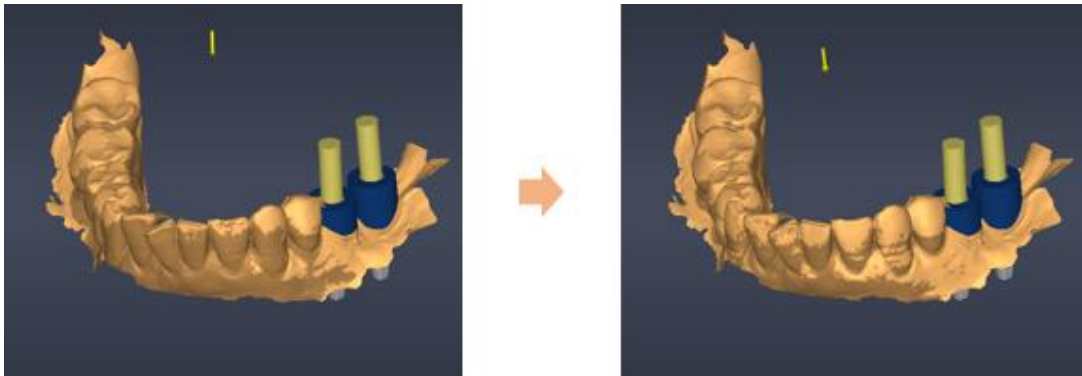
3) Set Guide Insertion Direction



① With Guide Insertion Direction button from Guide Generation tools, guide insertion direction in patient mouth can be set.


-  : Set direction to where the user is looking.
-  : Set as default direction of scan data.

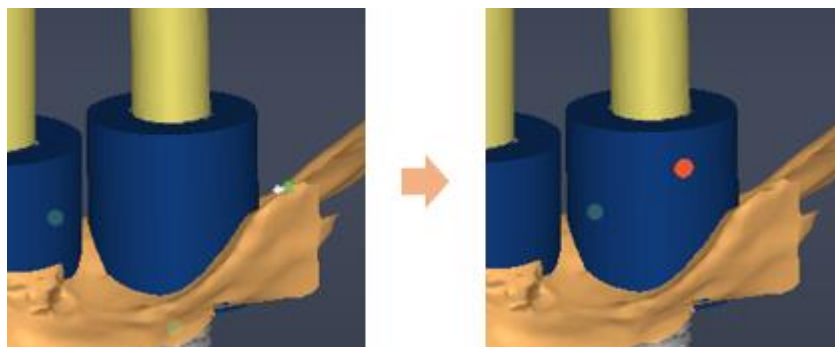
② Check if the undercut area displayed on scan data changes according to the direction as set.




Undercut indicates area where no guide is allowed to properly connect the exported guide in the mouth. Please take extra caution as the area set as undercut affects shape of guide.


4) Sleeve Options

- Click Glue Channel button  from Guide Generation tools to add glue channel used to bond a guide to a sleeve.



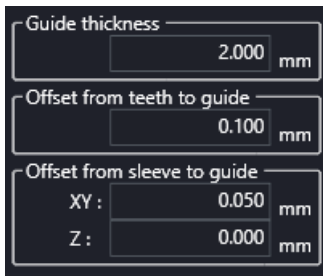


- Click Sleeve Library button  to display sleeve library and change sleeve model.


	Sleeve option is activated only when a sleeve model is selected from data display area. Click a sleeve model to use the function.
---	--


5) Setting Guide Generation Options

The result of exporting surgical guide can vary depending on 3D printer properties. To correct this difference, the user can set values of guide generation options.




Guide Thickness	Set thickness of guide to be created
Offset from teeth to guide	Distance between guide and teeth surface
Offset from sleeve to guide	Distance between guide (adjacent position to sleeve) and sleeve.

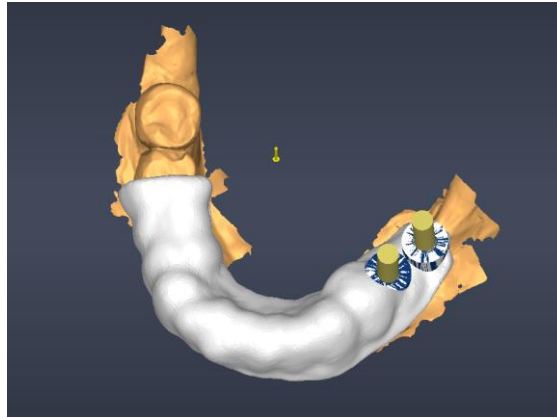
	Please refer to 5.3 Environment Settings > 9) Surgical Guide for more information about default value setting for guide generation options.
---	---

	If there is no specific standard on option values, export result can vary depending on installation condition(amount of light, levelness, life cycle, etc.) even when using the same type of printer.
---	--



6) Generate/delete guide

- Click Guide Generation button  from Guide Generation tools to generate guide based on previously set geodesic line, insertion direction and option values.



[Generated Guide]

- Click Delete Guide button  to delete the generated guide.



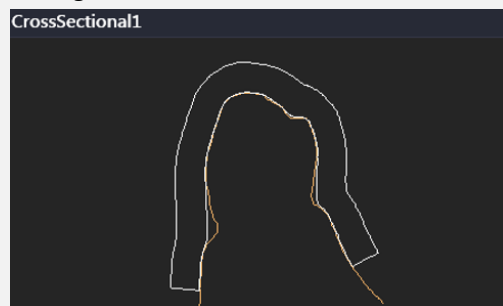
When settings such as geodesic line, insertion direction, option value changes, the guide should be regenerated.



When default guide setting is changed after adding bars/windows or engraving text, all the work data will be lost.







Please refer to [4.8 Cross-section Setting](#) function to learn more about the relationship between guide and scan data.





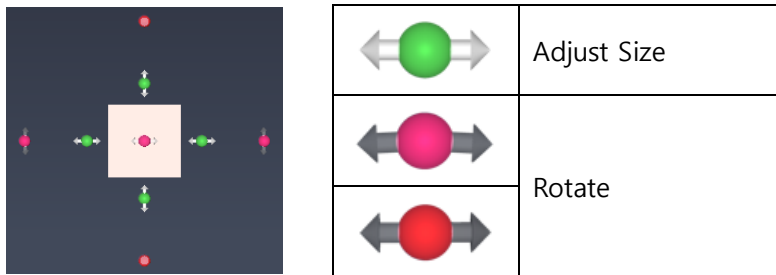
7) Add bars/windows




Adding bars and windows

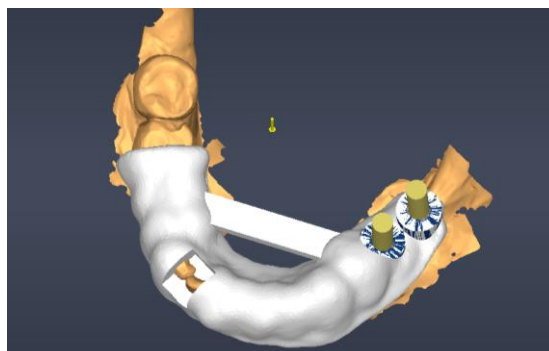
- ① Click the arrow on Add Bar button  from tools to select a desired option to add.
 -  **Add Cuboid Bar:** Click to add a bar in a cuboid form.
 -  **Add Cylinder Bar:** Click to add a bar in a cylinder form.
 -  **Add window:** Click to create window on the guide.
- ② When selecting cuboid/cylinder bar, click two points on the guide to add a bar.
- ③ When selecting window bar, click the desired point on guide.

Editing bars and widows

- ① When a bar or window block is added to the guide, click the block and use the adjustment tools to adjust size and position of the block.




- ② When Delete button  is clicked, currently selected block is deleted.
- ③ When Delete All button  is clicked, all added blocks are deleted.
- ④ After adding or editing bars or windows is completed, click Guide Generation button  to finally apply bars and windows to the guide.




[Guide after bars and windows are added]



Deleting bars and windows


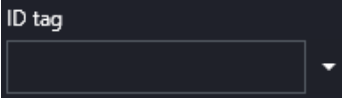




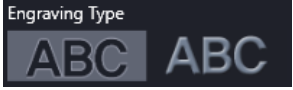

- Click Initialize button  from tools to delete all bars and windows finally applied to the guide.

Locking sleeve area

- When Lock Sleeve Area button  is clicked from tools, no widow is created in sleeve area.

8) Engrave Text


Adding/Editing Text

- ① Click Add button  from Engraving tools.
- ② Enter text manually in text input field  or select a predefined text by clicking the arrow on the right.
- ③ Adjust Font Size slider  between 8 and 12 as desired.
- ④ Input or selected text is displayed at the mouse cursor and is temporarily engraved when clicking on a desired position of created guide.
- ⑤ When Delete button  is clicked, currently selected temporary engraved text is deleted.
- ⑥ When Delete All button  is clicked, all temporary engraved texts are deleted.
- ⑦ When Add button  is clicked again after a temporary engraved text is added, a new text can be added.
- ⑧ Select type between embossed and debossed from  option.
- ⑨ When the text is located, click  button on the bottom of tools to finally add it to the guide.



[Guide after engraving text]

Deleting Text

- Click Initialize button  from tools to delete all texts finally engraved in the guide.



Please refer to [4. Common](#) for more information about visualization options and additional features.

6.10 Crown Design

In this stage, the user can design temporary tooth to be used before final prosthesis placement in patient mouth.

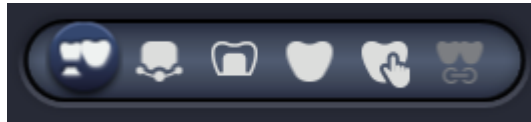




NO	Title	Description
1	Detailed Work Process Bar	Detailed work process for crown design
2	Select Tooth	Select a tooth to work on
3	Tools	Tools for guide designing
4	Operation Data	Display data and operation conducted
5	Visualization Option and Additional Features	Provide tools for visualization options and additional features

1) Detailed Work Process

Work process for temporary tooth design is displayed. Clicking an icon for process brings the user to the corresponding process page.



Icon	Description
	Set bridge/pontic connection (not displayed for a single tooth)
	Set margin line
	Set cement gap
	Create Crown
	Trim Crown
	Design bridge connection (not displayed for a single tooth)

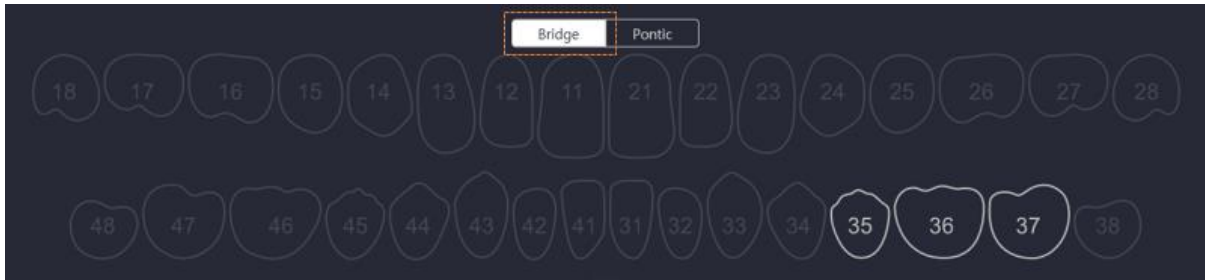
2) Set Bridge/Pontic

This step is only provided when two or more consecutive teeth are selected in the Surgery Planning stage.


When creating temporary teeth, the teeth set as bridge is created as one connected mesh and the teeth set as pontic are created with closed bottom.



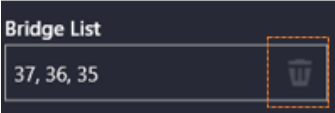
Enabling/Disabling Bridge



① Select a tooth among teeth enabled in light grey from Bridge option to enable as Bridge.

② The selected tooth is displayed in orange . Click Apply button on the bottom when tooth selection is completed.


③ The created group can be seen on Bridge List  on the left.

④ To disable bridge setting, right click on the bridge tooth from the teeth image or click trash button  on the right of Bridge.

Enable/ Disable Pontic



① Select a tooth among teeth enabled in light grey from Pontic option to enable as pontic. (If more than 3 teeth are connected as bridge, the teeth in the middle are enabled while the teeth with abutment are not enabled.)

② The tooth turns to purple  as soon as clicked to enable as pontic.

③ If click the tooth enabled as pontic again, the tooth is disabled.

3) Set Margin Line

Set contacting location between temporary tooth and abutment or between abutment teeth. Margin line for temporary tooth is created along the set location.



Margin Line Setting Tools



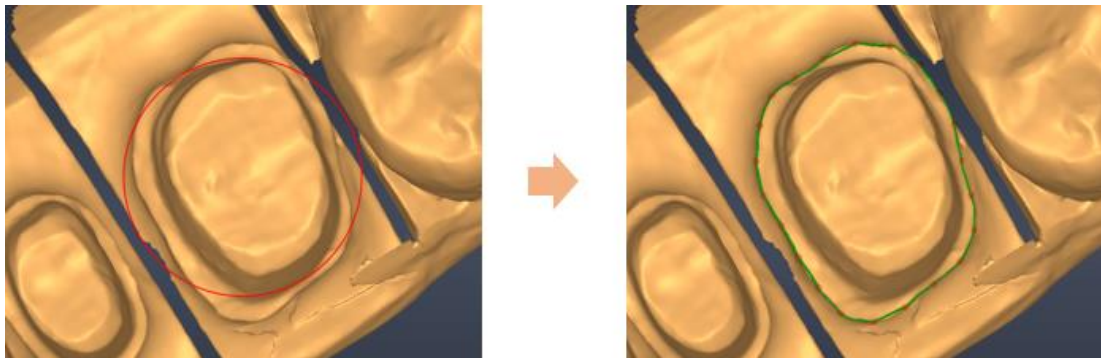
Set Margin Line	Semi-auto/Auto creation/deletion of margin line
------------------------	---

Semi-auto Margin Line Setting

Margin line can be set semi-automatically by setting margin area.



- ① Click Semi-auto Margin button from Margin Line Setting Tools.
- ② Click where the red circle created at mouse cursor aligns with margin area.
(Size of red circle created at mouse cursor is adjustable thorough scrolling mouse wheel.)



Accuracy increases when the red circle is closer to the margin line.

Abutment Case Margin Line Setting

If there is an existing abutment, margin line is automatically created for the abutment. Check the margin line created on the abutment to move on to next step.



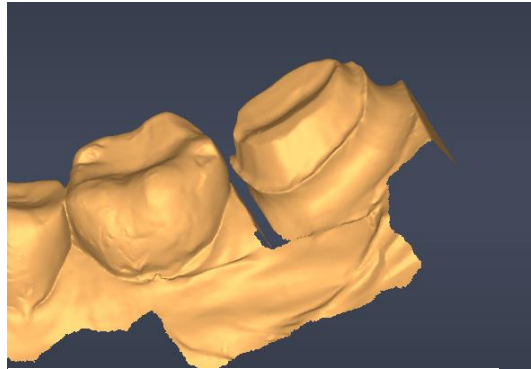
[Automatically Created Margin Line on Abutment]



- If multiple teeth exists, change the tooth from Select Tooth tool on the left.

Manual Setting of Abutment Tooth Case Margin Line

When using abutment tooth information of scan data, margin line can be drawn manually.




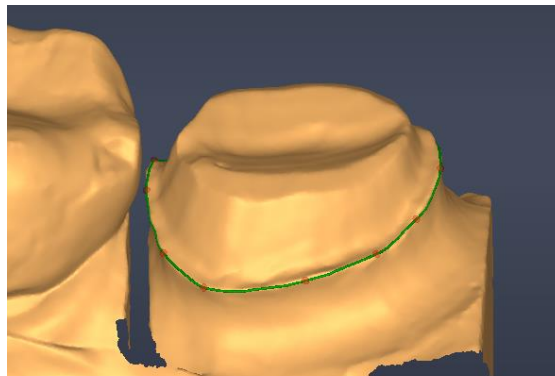
[Abutment Tooth Scan Data]

- ① Select teeth to draw margin line from Select Tooth tools.



[Select Tooth Tool]

- ② Click Add Margin Line button  from tools.
- ③ Click on the scan data surface to draw margin line.
- ④ When the start point (yellow) is clicked, drawing margin line is completed.




[Drawn Margin line]



Editing Margin Line

- **Move Point:** Click and drag control point of margin line.
- **Delete Point:** Right click on control point of margin line.
- **Add Point:** Click on margin line where there is no control point.

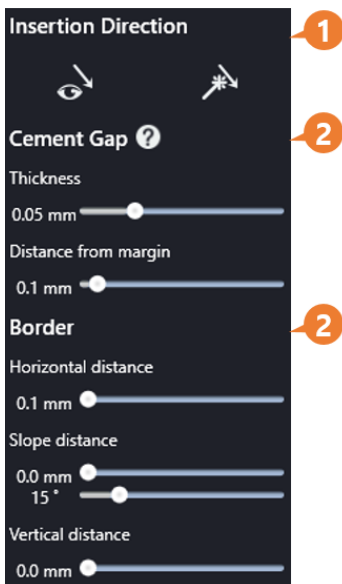
Deleting Margin Line

- When delete button  is clicked, margin line for currently selected tooth is deleted.

4) Set Cement Gap

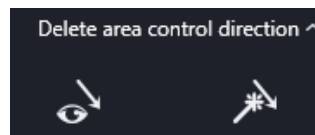
Cement gap to bond temporary tooth can be set.

Cement Gap Setting Tools





No	Title	Description
1	Crown Insertion Direction	Set direction to insert temporary tooth in the mouth
2	Cement Gap	Set cement gap inside temporary tooth
3	Border	Set shape of temporary tooth near margin line

Setting Temporary Tooth Insertion Direction

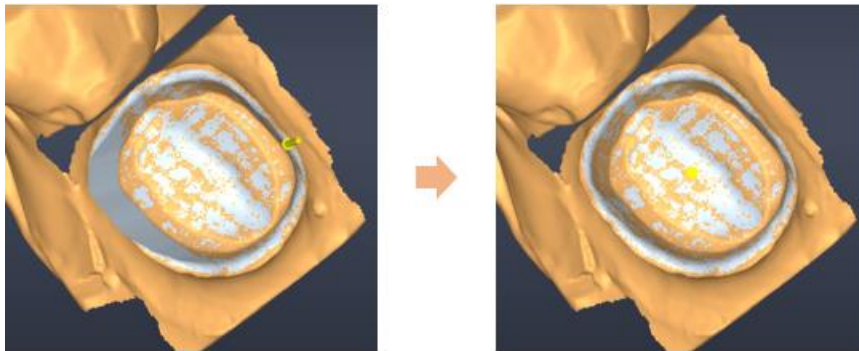


- ① With Insertion Direction Setting button  from tools, set direction to insert temporary tooth.

-  : Set the direction to where user is looking.
-  : Set direction as default direction of scan data.



- ② Check if undercut area displayed on scan data is changed according to the set direction.

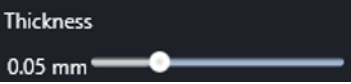


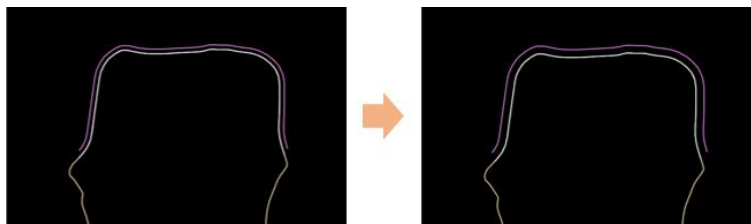
Teeth enabled as bridge has the same insertion direction while teeth disabled as bridge have different insertion direction for each tooth.

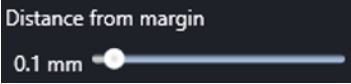


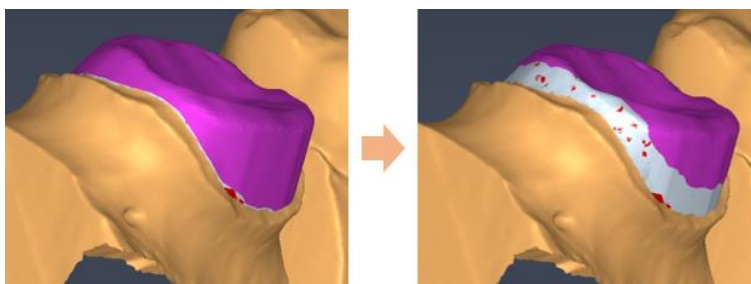
Temporary tooth insertion direction tools are displayed only for abutment tooth case. For abutment case, the insertion direction is automatically set according to abutment direction.

Setting Cement Gap

- **Cement Gap:** Drag Thickness slider  to adjust thickness of cement gap.



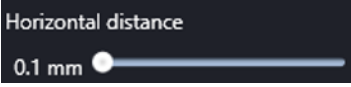
- **Distance from margin:** Drag Distance from margin slider  to set area not to create cement gap based on margin.

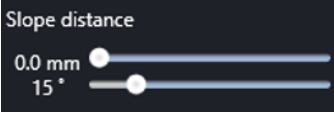





Setting Boarder


Shape of temporary tooth near margin line can be edited.

- **Horizontal distance:** Drag Horizontal distance slider  to set outside width from margin line.

- **Slope distance:** Drag Slope distance slider  to set distance from the end point of margin horizontal width to connecting point between temporary teeth and external surface of tooth. Also, angle of connection area can be set by dragging angle slider.

- **Vertical Distance:** Drag Vertical distance slider  to set distance from the connecting point of external surface of temporary tooth to the end point of boarder area.

Click Help icon on **Cement Gap ?** button on the right of Cement Gap title to view image to show descriptions for each item. When dragging the slider, title and area of the corresponding item is highlighted.

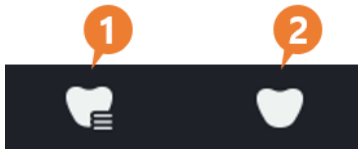


Default values for cement gap can be set in environment settings. Please refer to 5.3 Environment Settings > [10\) Temporary Tooth](#) for more information.



5) Create Crown


Crown Generation Tools




No	Title	Description
1	Crown Library	Provides crown library
2	Generate Crown	Generate the placed crown as temporary crown for editing

Crown Placement

Sized and position of tooth is set to create temporary tooth. The operation to change crown library and place crown is the same as Crown Placement stage.

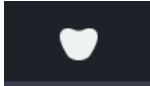


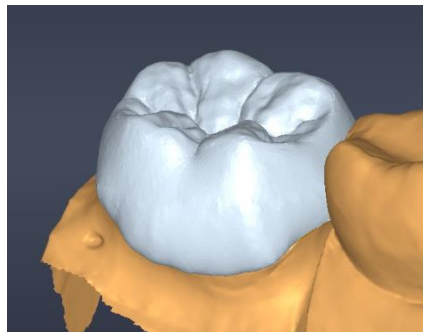
Please refer to [6.5 Crown Placement](#) for more information about changing crown library and crown placement.



Default value for crown library can be set in environment setting. Please refer to 5.3 Environment Settings > [10\) Temporary Tooth](#) for more information.

Crown Generation

- After crown placement, click Crown Generation button  from tools on the left.
- Check temporary tooth for editing which is created on 3D image.



[Created tooth for editing]



When margin line is set, the teeth are created with empty space inside and downside of it, while teeth are created with closed bottom when pontic is enabled.

6) Edit Crown



Crown Edit Tools

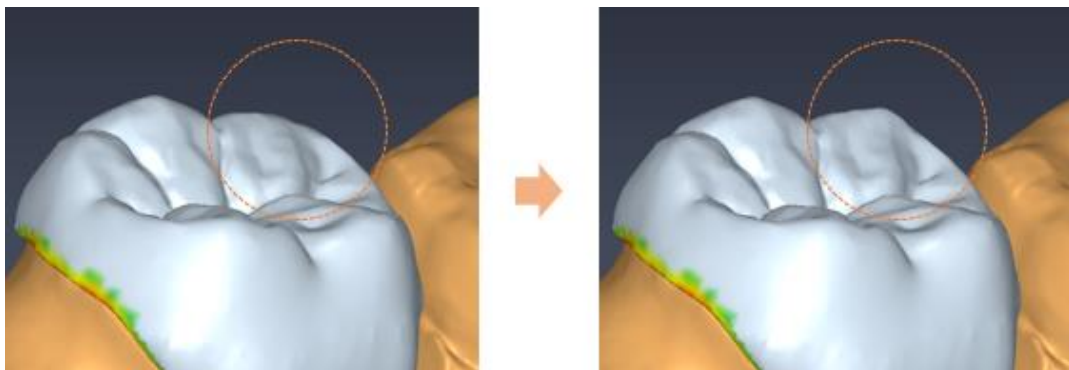


No	Title	Description
1	Morphing	Display mopping tools
2	Wax Knife	Displays wax knife tools
3	Adjust Contacting surface	Automatically adjust crown contacting surface

Using Morphing Tools

Certain area of crown can be edited by dragging.

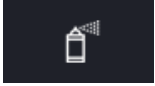
- 1 Click Morphing tool  from tools.
- 2 Drag slider  on the bottom to adjust radius of area to edit.
- 3 Drage crown on 3D panel to edit crwon.

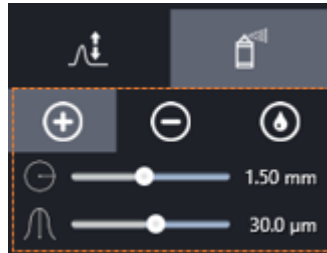






Using Wax Knife Tools

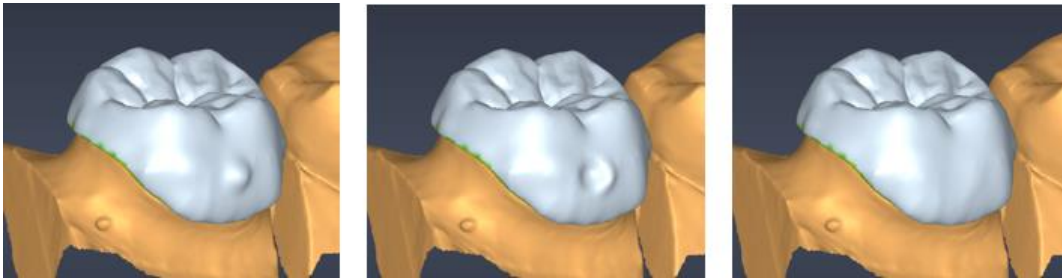
Shape of crown can be edited by adding/delete wax or smoothing.

- ① Click Wax Knife  icon from tools
- ② Select a detailed tool among Add, Delete and Smooth. Also adjust editing area radius and editing degree by dragging sliders.



	Adjust Editing Area Radius
	Adjust Editing Degree

- ③ Edit crown by dragging a crown on 3D image panel.



[Add Wax(left)/ Delete Wax(middle)/ Smooth(right)]



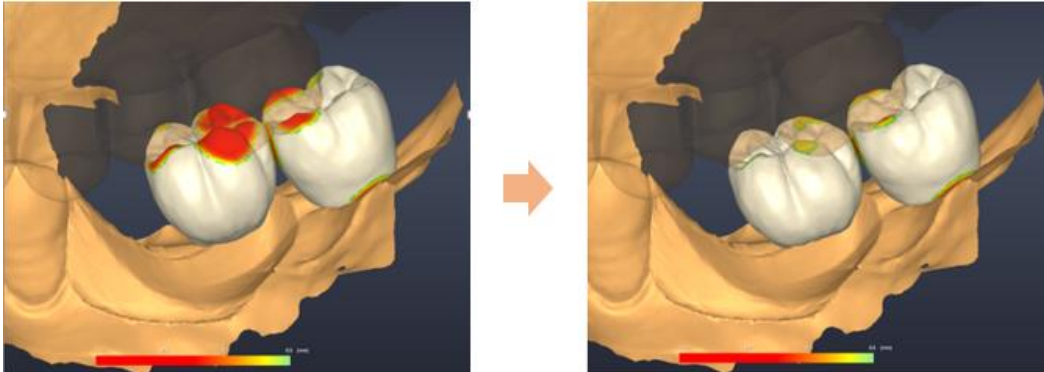
Default values for morphing/ wax knife adjustment can be set in environment settings. Please refer to 5.3 Environment Settings > [10\) Temporary Tooth](#) for more information.



Auto adjustment of contacting area



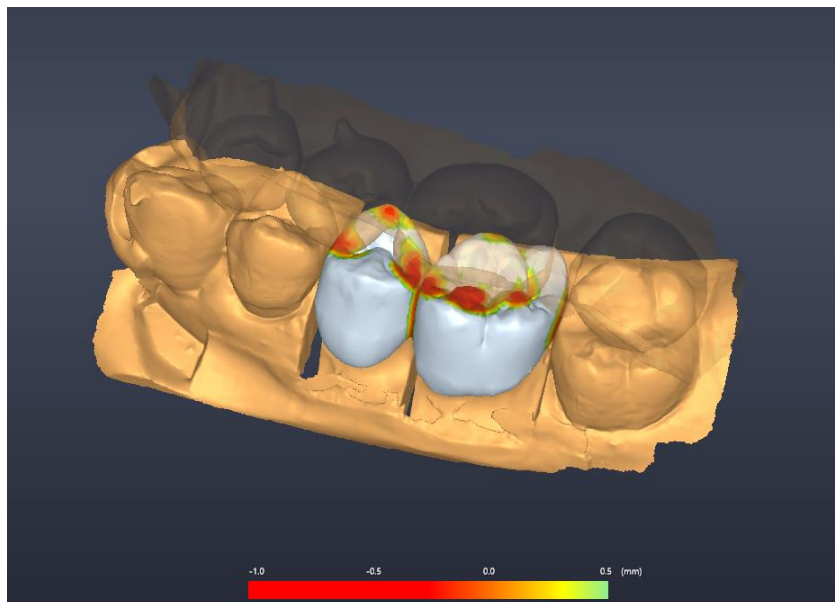
- Click Auto Adjustment of Contacting Area button to adjust contacting area automatically considering collision of crown and adjacent structures.



[Before(left)/ After(right) adjusting contacting area(left)]

Viewing Collision Distance Map

Enable Distance Map Visualization option to view the distance map from abutment teeth, antagonist teeth and surrounding teeth with colors. If the color is closer to green, the shallower the collision depth is, while if the color is closer to red, the deeper the collision depth is.

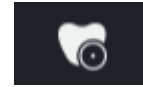


[Collision Distance Map]

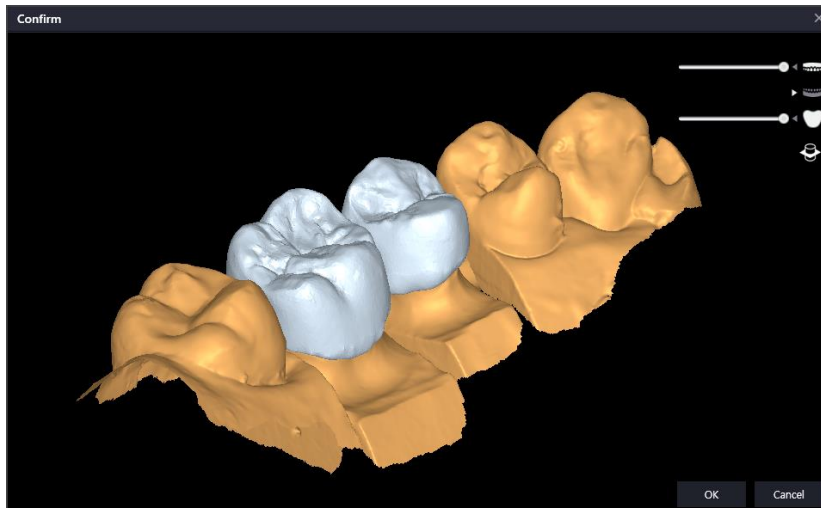


Final Generation/Confirmation of Temporary Tooth

Regenerate temporary teeth reflecting crown editing information and finally confirm it.

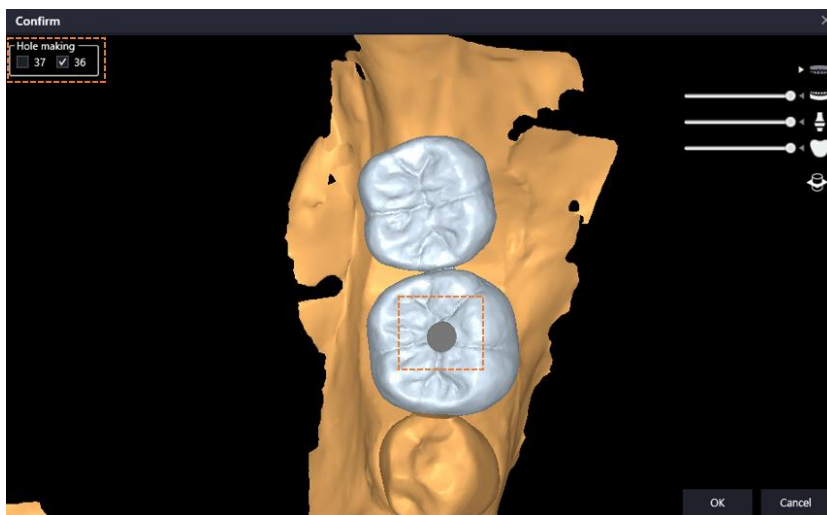


- When crown design is completed, click crown generation button from tool on the left.
- Temporary teeth is regenerated as soon as clicking the button. Finally confirm temporary teeth displayed on popup window.



[Final Confirmation Window]

- In case of abutment case, whether abutment hole is created or not can be set in the final confirmation window.



[Created a Hole in Crown]

- **OK:** Finally confirm temporary tooth, close confirmation window, and enable Result stage button.
- **Cancel:** Close confirmation window and continues to design.



When bride is set, final temporary tooth generation should be conducted in bridge setting stage.

7) Set Bridge

Bridge Setting Tools




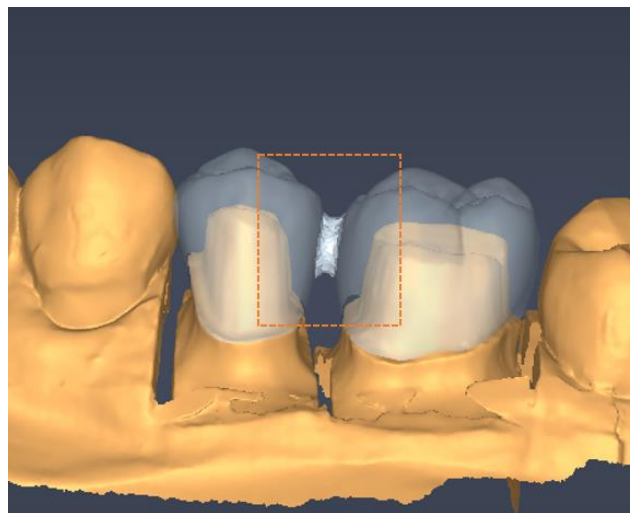
Contact Area	Set area of bridge connection
---------------------	-------------------------------

Edit Bridge Contact Area

Contact area between temporary teeth with bridge can be edited.

- Click and drag the position of bridge contact area on 3D panel.

- Drag Contact Area slider  from tools to adjust contact area.
-



[Bridge Contact Area]



Default value for contact area can be set in Environment Settings. Please refer to 5.3 Environment Settings > [10\) Temporary Tooth](#) for more information.



6.11 Result



In this stage, the user can view surgical report with case summary and export report, drilling protocol, guide file (STL). After final approval of surgical plan and guide design, confirm and export menu can be activated.



No	Title	Description
1	Approval	Finally approve planning and guide design
2	Preview	Preview for planning report and drilling protocol
3	Export	Export case, report, and guide (STL)

1) Approval

Final approval for implant planning and surgical guide planning is required to created report and export mesh.

- Click  button on the right of each option to complete  approval.

2) Show/Modify/Export Planning Report

Planning report provides information such as planning overview, bone density around implant, and implant model. Memo can be added to the report if needed.

- Click  button to create planning report page.



- Review the content by scrolling.
- Kit information can be entered directly into Drilling Kit : field.
- The user can add memo directly in the [Note] at the bottom of report page.
- Click **Export report** button on top right to save current report to the local folder as pdf file format.



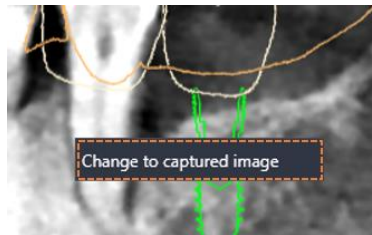
Please refer to 5.3 Environment Settings < [11\) Report](#) for more information about setting report types to display in the report.

Image Editing

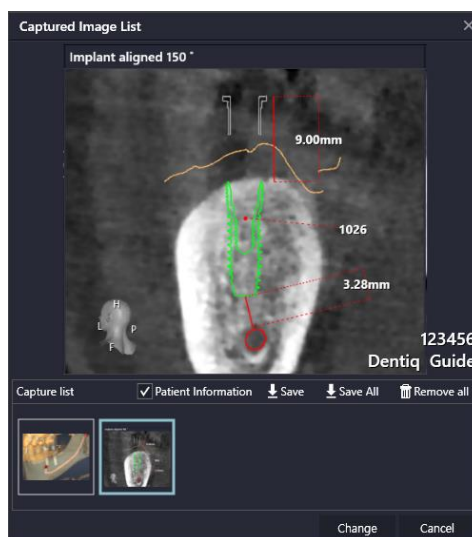
- **Zoom In/Out:** Right click and drag
- **Move:** Drag mouse wheel

Change to Captured Image

Images displayed in planning scheme page in report can be changed to a captured image by user.



- ① Right click the image and click button.
- ② When the button is clicked, list of captured image appears.



[Captured Image List]



- ③ Select the image to change and click **Change** button at the bottom to change the image displayed in Report.
- ④ Right click on the changed image and click **Change to original image** button to restore back to default image.

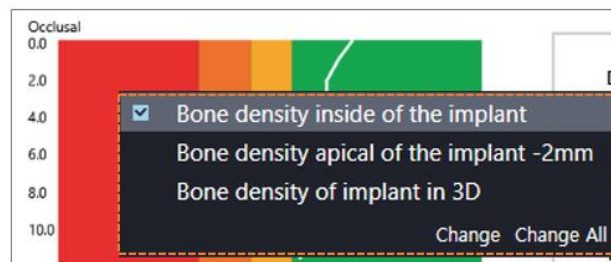


Please refer to 4.9 Screen Capture > [2\) Captured Image List](#) for more information about other feature of captured image list.

Change Bone Density Display Option

Bone density display option for each implant on planning scheme page in report can be selected between Bone density inside of the implant, Bone density apical of the implant - 2mm, and Bone density of implant in 3D.

- ① Right click on bone density to display menu to change.



- ② Click the desired option and click **Change** or **Change All** button to apply the change.
 - **Change**: Change bone density display option for current planning only.
 - **Change All**: Change all bone density display options in the current report.



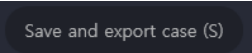
Changes made to Report is temporary. Please refer to 5.3 Environment settings > [11\) Report](#) about changing default bone density display.

3) Show/Export drilling protocol


- Click **Show drilling protocol (D)** button to create surgical drilling protocol page.
- Review the content by scrolling.
- Click **Export report** button on top right to save to a local folder as pdf file format.

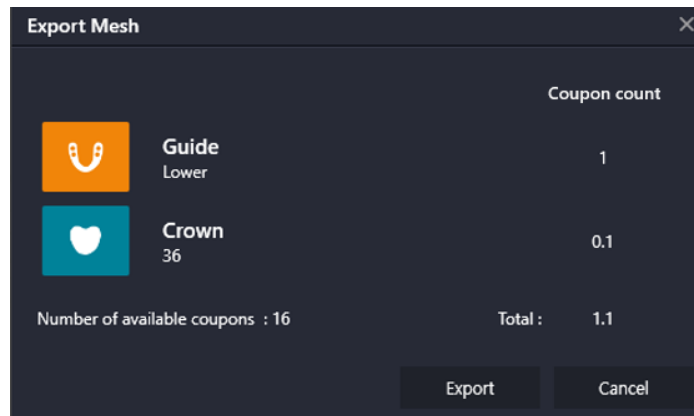


4) Save and export case

- : Project file and report for the current case can be saved to local folder by clicking the button.

5) Export mesh

- : Export Mesh dialog appears when clicking the button.




[Export Mesh Dialog]


- Click the image to select options to export.



[Select / Unselect to Export]

- **Export:** Surgical guide or temporary crown designed by the user can be saved to local folder as mesh (STL file) format. Oral scan data used together is saved as well.
- **Cancel:** Cancel export.

 Exporting guide mesh can be limited depending on distribution method of distributor or whether the user owns coupons or not.

 Exporting a guide takes one coupon per each upper/lower guide. And each temporary tooth take 0.1 coupon to export.
To purchase coupons, please contact us on service@3dii.net.



7. Appendix

7.1 Terminology

The following table describes terminologies use in **DentiqGuide**.

Abbr.	Term	Description
CT	Computerized Tomography	Technique to CT scan human body using X-rays
MPR	Multi Planar Reformation	Reformatted images that are reconstructed into multiple planes from volume data acquired by CT
VR	Volume Rendering	Visualization work of 3demetional Data
HU	Hounsfield Unit	Quantitative scale for describing radiodensity in CT image
OTF	Opacity Transfer Function	Function to set opacity of 3D image
DICOM	Digital Image Communication in Medicine	International standard for efficient management of medical images and related information
STL	Stereo Lithography	3D modeling data format used as standard for 3D printer.



7.2 FAQ

? "This program requires VX dongle key" message appears when running the product.

- A.** An authorized license (USB Type) is required to use DentiqGuide.
- If you already have a license, please check if the license USB is properly connect to and recognized in your PC. (Please check trial period for Demo license)
 - Please contact software provider for license purchase.
 - Please contact DentiqGuide customer service for other questions.
(Kakao Customer Service ID: Add DentiqService and ask questions)

? I want to view my work in DentiqGuide installed in a different PC.

- B.** You can share your work through Export Case function.
- Go to <**Dental Manager** → **Right click on Case List** → **Export Case**> to export case.
- Also, you can copy all exported files into another PC, run DentiqGuide in the new PC, and open .dgg by importing case to view your work.
- (※ .dgg is a file format only for DentiqGuide)

? "Failed to cut surface" error message appears when generating guide.

- A.** The error message may appear when guide geodesic line has steep slope or when there exists a hole inside scan data area where guide is created.
- Adjusting geodesic line into gentle slope or avoiding holes while setting are could help to create a guide.

? I want to know if there is any specification for 3D printers to meet.

- A.** Please check the following items for your 3D printer.
- **OS** : Windows 7,8,10/
 - **Input File format** : Standard STL file/
 - **Layer Thickness** : 50µm, 100µm/ **XY Resolution** : 100µm



7.3 Cybersecurity

Before installing **DentiqGuide**, you must follow the instructions below for cyber security. The instructions help to protect the program against cyber security threats such as viruses and malware.

- Prior to installing and using DentiqGuide, scan your computer system with anti-virus and anti-spyware program from a trusted source.
- Install, set up and enable adequate anti-virus software.
- Maintain up-to-date anti-virus software.
- Make sure that your OS has the latest security updates applied.
- Turn on your computer's firewall.
- Windows 7, 8 or higher has a built-in firewall which is turned on by default.
- Online patch and updates are available and online update menu is provided on General setting.
- Release notes will be sent via email when updates are released.
- When an update is available, the program notifies "A new version is released. Please update" when signed in.
- If you have any cyber security-related concern and problem, please contact our customer support on the phone or via e-mail.
-



7.4 Revision History

Version	Date	Description	Writer
V.1.0.0(Rev.0)	2017.10	Initial	J.S Kim
V1.1.0(Rev.1)	2018.01	Updated changes related to V1.1.0	B.R Kang
V1.2.0(Rev.2)	2018.06	- Updated changed related to V1.2.0 - Changed format of document	B.R Kang



7.5 About 3DII

3DII is an application software development service provider. Business field of 3DII ranges from software development/supply/consulting to wholesale/retail destitution of imaging devices/scientific machineries.

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