Dentsply Sirona

CEREC Ortho SW
Software Version 2.0

Operator's Manual

English

Table of contents

1 Introduction

1.1 Dear Customer,

Thank you for purchasing the CEREC Ortho SW software from Dentsply Sirona.

With CEREC Ortho SW and in combination with the CEREC AC/AF/AI acquisition unit with a scanner (CEREC Primescan / Primescan / CEREC Omnicam / Omnicam) you can create scans and send them to your partner laboratory via the Connect Case Center portal or export them as STL data. From these data, orthodontic equipment can then be manufactured.

Improper use and handling can create hazards and cause damage. Therefore, please read and follow this document carefully. You should always keep it within reach.

Also pay attention to the safety instructions to prevent personal injury and material damage.

Your
CEREC Ortho SW team

1.1.1 Contact information

Customer Service Center

In the event of technical queries, please use our online contact form at the following address:
http://srvcontact.sirona.com

Manufacturer's address

Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany

Tel.: +49 (0) 6251/16-0
Fax: +49 (0) 6251/16-2591
e-Mail: contact@dentsplysirona.com
www.dentsplysirona.com

1.2 Copyright and trademark

Copyright

© Sirona Dental Systems GmbH. All rights reserved.

The information contained in this manual may be changed without notice.

The software and all related documentation are protected by copyright. You must therefore handle it in the same way as any other protected material.

Anyone who copies this software to any medium for any purpose other than his own personal use without the written permission of Sirona Dental Systems will be liable to prosecution.

Trademarks

Microsoft$^®$, Windows 7$^®$, and Windows 10$^®$ are registered trademarks.

Windows^{TM} is a trademark of Microsoft Corporation.

All other trademarks are the property of their respective holders.

1.3 Open source software

This product contains open source software. For more information, please refer to the Licence.pdf in the installation directory.

2 General data

Please read this document completely and follow the instructions exactly. You should always keep it within reach.

Original language of the present document: German

2.1 Certification

CE mark

This product bears the CE mark in accordance with the provisions of the Council Directive 93/42/EEC of June 14, 1993 concerning medical devices (MDD).

2.2 General safety information

Only use original software

Only use original software or software which has been released by Dentsply Sirona. Software components that have been tampered with or have not been released must not be used for diagnosis or treatment.

Software and software components must not be installed using incorrect data.

Please check that each installed component has been granted approval in its country. Contact your dealer for more information.

Checking the installed software version

You can check which version is installed during operation.

1. Tap or click on the lettering on the right edge of the phase bar.
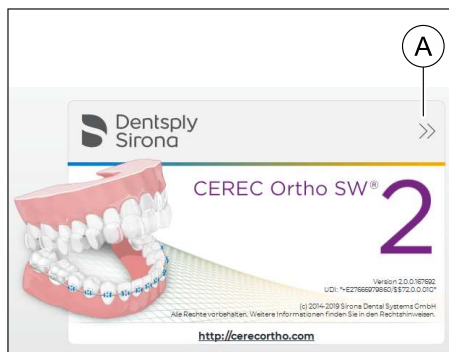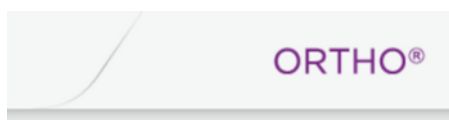
   ↳ The info dialog opens with information on the software.

2. You can see further information by tapping or clicking on the double arrow (A) on the top right in the info dialog.
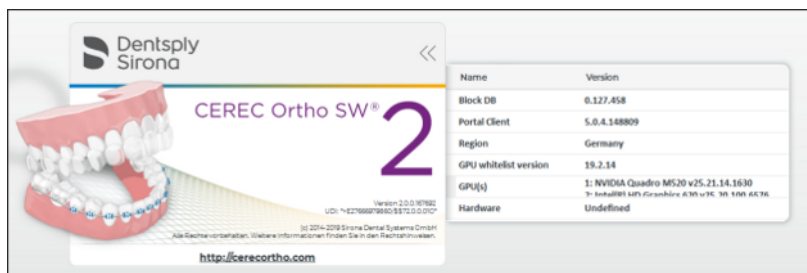
Safety instructions for using the software

⚠ CAUTION
Clinical specialists only may use the product.

⚠ CAUTION
Models to be checked by trained personnel
Every model created with this software must be checked for suitability by a trained person (e.g. orthodontist or dentist) before it is digitally saved or exported for further use.
The orthodontic apparatus created for the user must be checked by the clinician for suitability.

⚠ WARNING
Analysis of the scanned model alone is not sufficient to justify a surgical procedure.

⚠ WARNING
Analysis of the scanned model alone is not sufficient to justify an extraction.

⚠ CAUTION
After the export, no responsibility can be assumed for processes in external systems.

For the USA only

CAUTION: According to US Federal Law, this product may be sold only to or by instruction of physicians, dentists, orthodontists or licensed professionals.

2.3 System requirements (minimum requirements)

Hardware requirements

Processor:	Intel® QuadCore or equivalent processor
RAM:	16GB RAM at least
Free hard disk storage:	250 GB
Graphics card:	AMD graphics card with min. 1 GB memory, DirectX 10 compatible

Supported operating systems

- Windows 10 Professional 64-bit
- Windows 10 Enterprise 64-bit

2.4 Intended use

CEREC Ortho SW Software is intended for use with image data acquired from handheld intra oral 3D cameras and desktop laboratory scanners to create 3D virtual models to be used for data acquisition and modeling analysis for orthodontic patients and conditions.

CEREC Ortho SW model data can be exported to orthodontic design software to aid in the design of orthodontic appliances.

2.5 Accuracy

Requirements in terms of accuracy

The requirement placed on accuracy results from the well-established, analog measurement procedure used in orthodontics. In doing so, the width of a tooth is measured with a caliper.

The accuracy required in orthodontics, which is a result of practical medical experience, is at 0.1 mm. Values lower than 0.1 mm can no longer be measured with conventional calipers.

Maximum tolerance range

The standard tolerance range in orthodontics is +/- 0.03 mm.

System accuracy

The technically possible accuracy of the measurement function of CEREC Ortho SW is below 0.01 mm.

In the software, however the dimensions are depicted with one decimal place, i.e. the dimensions are accurately displayed to 0.1 mm.

2.6 Structure of the manual

2.6.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these operating instructions. Such information is highlighted as follows:

⚠ DANGER
An imminent danger that could result in serious bodily injury or death.

⚠ WARNING
A possibly dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION
A possibly dangerous situation that could result in slight bodily injury.

NOTE
A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT
Application instructions and other important information.

Tip: Information for simplifying work.

2.6.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✔ Prerequisite 1. First action step 2. Second action step or ➢ Alternative action ✍ Result ➢ Individual action step	Requests you to do something.
See "Formats and symbols used [→ 13]"	Identifies a reference to another text passage and specifies its page number.
● List	Designates a list.
"Command / menu item"	Indicates commands / menu items or quotations.

2.6.3 Conventions

Example	Meaning
Clicking	Pressing once and releasing the left mouse button or the left trackball button on the acquisition unit (or foot switch).
Double-clicking	Pressing twice quickly in succession and releasing the left mouse button or the left trackball button on the acquisition unit (or foot switch).
Moving the mouse in one direction	On the acquisition unit: Moving the trackball in the corresponding direction.
Seizing a point	Pressing the left mouse button (left trackball button on the acquisition unit) and keeping it pressed.
"Ctrl+N"	On the keyboard: Press the **Ctrl** and **N** keys simultaneously.
Drag & drop	(Drag & drop) Press and hold an element (e.g. pictograph), and drop onto new potential destination.

2.6.4 Formats of the manual

You can access the manual via the Help button or by pressing "F1".

You will find the Operator's Manual on the Internet in PDF format.

- *"http://cerecortho.com"*
  You can download the current manual in the *"DOWNLOADS"* area.
- http://www.sirona.com/manuals

This format is page-oriented and is well suited for printing out the desired pages.

2.7 User interface
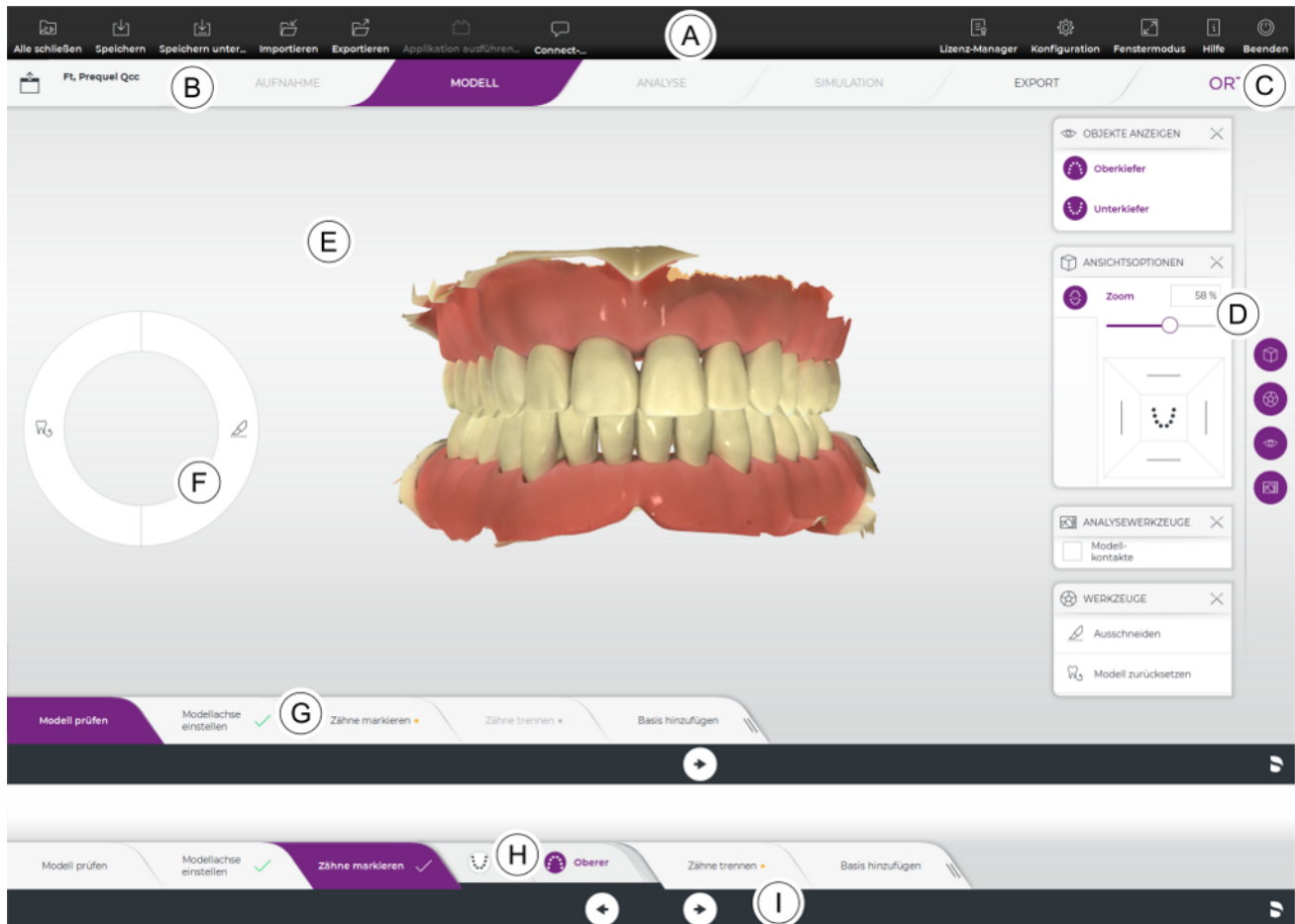
A	System menu	F	Tool wheel
B	Phase bar	G	Step menu
C	Information dialog	H	Object bar
D	Page pallet with magnetic strip	I	Context bar
E	Main window		

2.7.1 Phase bar

The digital scanning process is depicted in the software in 5 phases:

- ACQUISITION
- MODEL
- ANALYSIS
- SIMULATION
- EXPORT

2.7.1.1 ACQUISITION

In this phase, you can perform the following:

- Create optical impressions with the scanner
  - Lower jaw
  - Upper jaw
  - Buccal bite registration
- View a 3D preview of the acquisitions

The *"ACQUISITION"* phase is only available if CEREC Ortho SW is installed on an acquisition unit with a scanner (CEREC Primescan / Primescan / CEREC Omnicam / Omnicam.) When installed on any other PC, the phase is deactivated.

2.7.1.2 MODEL

In this phase, you can perform the following:

- Adjust the virtual models for the lower jaw and upper jaw as required
- Set the model axis
- Marking and segmenting teeth
- Add a base to the model

2.7.1.3 ANALYSIS

In this phase you can perform model analyses and export them as a PDF document.

2.7.1.4 SIMULATION

In this phase, you can perform the following:

- Select fixed teeth and simulate tooth extractions
- Simulate treatment of tooth displacements

2.7.1.5 EXPORT

In this phase, you can perform the following:

- Log on to the Connect Case Center portal and transfer models to the laboratory of your choice
- Send model to SureSmile
- Send model to ClearCorrect
- Send model to Invisalign
- Send model to Ideal Smile Aligner
- Save model (STL or formats for 3M Incognito, CA Digital, ABO, OnyxCeph, Stratasys, SICAT, and Dolphin 3D)

2.7.2 Page palette

You can open several page palettes at the same time. All page palettes are initially closed. Mandatory palettes are automatically shown as open upon entry in the respective step. Opened page palettes share the available height.

Should this display be inadequate for you, you can remove any page palette of your choosing from the fixed state of the magnet bar. To do this, press and hold the left mouse button on the header of the page palette and then drag the palette to the desired position within the main window.

Tip: If you are using CEREC Ortho SW in window mode or on multiple screens, then you can also pull the page palettes out of the application window and position them in any point on your screen.

All changes to a page palette (size and position) are saved separately for each step. You can therefore configure each work step as you want.

IMPORTANT
If a page palette is closed, the size and position are retained when next opened. If a page palette is stuck back on the magnet bar, however, the saved size and position are lost.

In order to affix a page palette back onto the magnet bar on the right side, drag any page palette over the magnet bar on the right side. The magnet bar lights up, suggesting various positions for the window. The window then snaps into place as soon as you release the left mouse button. The page palette will now automatically put itself back in order with the other page palettes.

To close a page palette, click on the right button in the page palette header or once more on the respective right button in the magnet bar.

2.7.3 Tool wheel

In the *"ACQUISITION"*, *"MODEL"*, *"ANALYSIS"*, and *"SIMULATION"* phases, the tool wheel provides the most common tools for simplifying access. The tools available vary depending on the current step.

1. Right-click in the workspace.
    - ↳ The tool wheel opens.
2. Click with the right mouse button anywhere in the workspace.
    - ↳ The tool wheel moves to the position of the mouse pointer.
3. Select a tool.
    - ↳ The selected tool is available. The tool wheel closes automatically.

You also can close the tool by clicking in the workspace with the left mouse button.

2.7.4 Step menu

The phases *"ACQUISITION"*, *"MODEL"*, *"ANALYSIS"*, and *"SIMULATION"* are split into steps. They are shown in the step menu at the bottom edge of the screen. The step menu changes depending on which phase the current scan is in.

This menu guides you through the process step-by-step.

The arrows in the context bar can be used to switch between individual steps and phases.

Mandatory steps

Mandatory steps are given a small star.
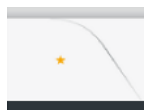
	Small orange-colored star:	The step is obligatory, but has not yet been completed successfully.
	Flashing green tick:	The step has been completed successfully.

Optional steps

Optional steps can be shown or hidden using the button on the right of the step menu. To do so, click in the right area near to the edge of the last step.

Optional steps are not given a small star.

If you switch between the steps using the arrow keys in the context bar, the optional steps are skipped.

2.7.5 System menu

In the system menu, you can:

- Switch to the start window to start a new scan
- Save scan
- Save the scan under a different name
- Import scan
- Export scan
- Run applications
- Start Connect Chat
- Open help
- Open license manager
- Configure hardware and software
- Change window mode
- Exit program

2.7.6 Start view

In the start view you can perform the following:

- Search in the database
- Display patients
- Add patients

3 Getting started

3.1 Installing the software

✓ The PC is powered up and all programs are terminated.

✓ You have downloaded the installation file from the Internet and saved it to the device.

✓ The USB license stick is plugged into the PC (see section Copy protection [→ 21]).

1. Navigate to the location of the installation file.
2. Double-click the installation file.
3. The installation requirements are installed.

> **NOTE**
>
> **Installing DirectX**
>
> If DirectX is not yet installed on your computer, it will be installed now. Accept the license agreement and decide whether the computer is to be restarted now or later.

4. Select the language for the following installation wizards and then click the *"Next"* button.
5. Click on the *"Next"* button.
6. In the next step you have the option of defining another folder for the installation of the application and, if necessary, an alternative folder for the patient data folder.
Then click on the *"Next"* button. The path to the patient data folder can still be changed after the installation via the configuration menu.
7. In the next step, your license is checked on the USB license stick. Make sure the USB license stick is inserted properly for this purpose before clicking on the *"Next"* button.
Tip: You may skip this step. To do this check the *"Skip License Check and continue with application installation"* option and then click on the *"Next"* button. If the license check is skipped, the software will run in demo mode.
If the USB license stick is detected with a valid license, then another information window appears. Acknowledge this by clicking on the *"Next"* button.
   ✥ The application is now installed. This may take several minutes.
8. In the next step, tick the box next to "Yes, I want to transmit the setup analysis data" to agree to data recording. Click on *"Next"* to continue the installation.
9. Following successful installation, click on the "START" button to complete the installation and to start the application immediately after this.
Tip: If you do not want to start the application immediately, remove the tick from the "Open application" check box and then click on the *"Exit"* button. The installation program closes.

3.2 Uninstalling the software

✓ The program is closed.

1. Click on "Start / All Programs / Sirona Dental Systems / CEREC Ortho / Tools / Deinstallation" to uninstall the software.
   ↳ During the uninstall procedure, you will be asked whether you want to delete the patient data or the entries in the registration database (e.g. the calibration data).

2. Depending on your decision, click either the *"Yes"* or *"No"* button.
   ↳ The software is uninstalled.

3.3 Copy protection

The software can be started only when the USB license stick is plugged in. The USB license stick is included in the scope of supply of the acquisition unit. If you require additional licenses, please contact your dealer.

Always keep the USB license stick near the acquisition unit/PC.

All authorizations (interface and software licenses) can be installed as electronic licenses on the USB license stick. You must enter a 25-digit license key for this purpose.
You will receive the license key along with the acquisition unit. Alternatively, you can order it separately from your dealer.

Following an update, you may require a new license that is not available on your USB license stick. For more information, refer to the section License manager.

3.4 Downloading software

Service packs

To keep your software updated, regularly check whether new service packs are available.

You can find information on current product versions and a description of the improvements and enhancements made in the service pack under *"http://cerecortho.com"*.

Auto update

During the installation of CEREC Ortho SW, the auto-update function is also installed. You can conveniently download and install future software updates of CEREC Ortho SW through the Internet.

Once an update is ready for download, you are notified of this automatically through a dialog box.

3.5 Starting the software

✓   The CEREC Ortho SW software is installed. You will find the start icon on the desktop.

✓   The USB license stick is connected with a valid, current license.

1.   Double-click the CEREC Ortho SW start icon.

or

➢   Click on "Start / All Programs / Sirona Dental Systems / CEREC Ortho / CEREC Ortho SW".

   ⮑   The software is started.

Initial software launch

The *"First Time Setup"* dialog window appears first of all when the software is first launched.

1.   Select the user language and user region and then click the *"Next"* button.

2.   In the next step, the license agreement appears. Read through the license agreement carefully.
     If you accept the license agreement, then check the *"I accept the terms of the license agreement"* option and subsequently click the *"Next"* button.

3.   In the next step, the *"Quality Improvement Agreement"* dialog window appears. Here you can specify whether or not you wish to participate in the improvement program. By participating in the improvement program, the software automatically sends anonymous information to Dentsply Sirona for the purpose of quality improvement.
     If you wish to participate in the quality improvement program, set a checkmark next to *"I agree to participate in this program."*.
     If you do not want to participate in the program, do not set a checkmark.

4.   Click on %"Start CEREC Ortho".

4 Configuration

The *"Configuration"* button is located in the system menu.

The *"Configuration"* menu contains the following submenus:

- *"Devices"*
- *"Settings"*

Close the *"Configuration"* menu by clicking on the *"Exit Configuration"* button

4.1 Devices

All connected devices can be displayed and configured under the menu item *"Devices"*.

If the device is inaccessible, a warning symbol is displayed instead of a miniature image.

Virtual camera animation when scanning

Here you can determine whether a video animation is displayed to help during the guided scanning process.

4.1.1 Scanner

4.1.1.1 Configuring the scanner

Audio feedback

Using the *"Sound:"* selection box, you can switch the audio feedback for acquisitions on or off. You can set the volume using the slide bar. You are able to choose from five different sounds.

Switch on the color analysis

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Press the *"Devices"* button.
3. Press the *"Omnicam"* / *"Primescan"* button.
4. Select the *"Shade Detection"* option.
   - You can choose between various color systems (*"Shade Guide Selection"*).
   - You can decide whether you would like to be notified in 14 days when the color calibration is needed again.
   - If color analysis is not possible with your scanner, a corresponding notice will appear. A color calibration is also not available in this case.
5. Confirm the changes below with *"Ok"*.
6. Click the *"Color Calibration"* button and carry out the color calibration.

4.1.1.2 Resetting scanner settings

➢ Press the *"Reset Camera Settings"* button.
   ↳ The settings are reset to factory settings.

4.1.1.3 Calibrating the scanner

Using a calibrated scanner

The measurement procedure used by the system requires the use of a calibrated scanner. The scanner is calibrated ex works. Calibrate the scanner after every reinstallation and after each time that it is transported. The calibration set supplied is available for the calibration process.

CEREC Omnicam / Omnicam: In order to achieve optimum results, the scanner must be allowed to warm up for **15-20 minutes** before calibration.

CEREC Primescan / Primescan: In order to achieve optimum results, the scanner must be allowed to warm up for **2 minutes** before calibration.

Recalibrate the scanner in the following cases:
- following transport (shaking stress) or during first commissioning,
- after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C / 85°F),
- with temperature differences of over 15°C / 60°F between the last calibration and operation.
- In general, carrying out a calibration is the correct process in the event of errors in the acquisition process (such as poor image quality or the lack of a 3D preview). In many cases, the errors can be corrected in doing so.
- As the system may be exposed to vibration loads without knowledge of this, it should be calibrated once a month.

Starting calibration

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Press the *"Devices"* button.
3. Press the *"Omnicam"* / *"Primescan"* button.
4. Press the *"Calibrate"* button.
   ↳ The camera view is displayed in one window.
5. Enter the 8-digit Sirona ID. You can find this ID on the sticker on the calibration set (not required for CEREC Primescan / Primescan).
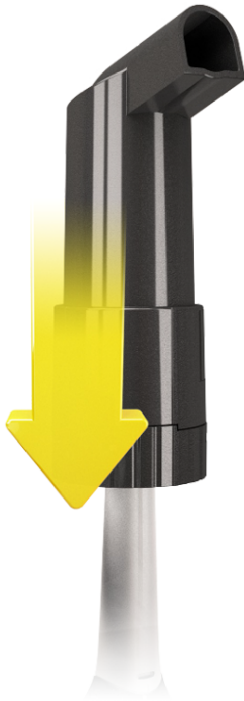
Calibrating the scanner

1. Remove the protective cap from the calibration set.
2. Mount the calibration set on the tip of the scanner until it locks into place.
3. Secure the scanner in the calibration set using one hand. Ensure that the external calibration set screw is fully screwed in a clockwise motion until it gently locks into place.
4. Click on the *"OK"* button.
   - ↳ The measuring process starts.
   - ↳ The software prompts you to proceed to the next latching.

5. Turn the screw counter-clockwise until you reach the next latching point.
6. Click on the *"OK"* button. Hold the scanner still.
   - ↳ The software confirms the calibration process.
   - ↳ The software prompts you to proceed to the next latching.
7. CEREC Omnicam / Omnicam: Execute steps 5 and 6 a total of 11 times.
   CEREC Primescan / Primescan: Execute steps 5 and 6 a total of 17 times.
   - ↳ The software provides status updates on the calibration and informs you once the procedure is complete.
   - ↳ You will be prompted to measure the position of the exit window.

Measuring the position of the exit window

1. Mount the bottom side of the calibration set to the tip of the scanner.
2. Click on the *"OK"* button.
   - ↳ The calibration process is continued.
   - ↳ Once the calibration is complete, a message is displayed indicating this.
3. Confirm the message by clicking the *"OK"* button.
- ↳ The scanner is calibrated.

Error message during calibration

The software indicates if an error occurs during calibration. If the calibration process resulted in errors, restart the process.

End calibration

- ✓ The software indicates that the calibration was completed successfully.
- ➢ Press the *"OK"* button.
  - ↳ The scanner is calibrated.

4.1.1.4 Settings scanner heating

You can access the dialog for the temperature settings of the scanner via the *"Camera Heater Settings"* button. Using the slider, you can set the temperature at which the scanner's mirror sleeve is preheated in five stages to prevent the optics from potentially fogging up. Confirm your settings with *"Ok"* or discard them with *"Cancel"*.

> **⚠ CAUTION**
>
> **Hot surface!**
>
> The coated sapphire glass of the scanner, is preheated in the scanner cradle. When removing the scanner from its holder, the surface temperature of the mirror sleeve can be up to 51°C. This may cause an unpleasant heat sensation on contact with a person's skin or mucous membrane. These temperatures will not damage the skin or mucosal membrane.
>
> After removing the scanner from the scanner cradle, the temperature of the mirror sleeve drops within a few minutes (< 5 minutes) to less than 43°C. The scanner is therefore suitable for use in the patient's mouth for an unlimited period of time.
>
> At an ambient temperature from 30°C, only select the three lower heater settings.
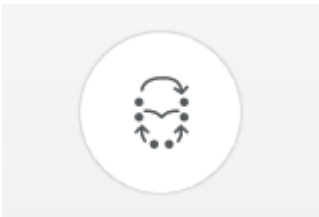
4.2 Settings

The menu item *"Settings"* has the following subitems:

- ADA/FDI Notation
- Warning messages
- Seat Position
- Tool-Menu
- Language
- Hub Settings
- Scan Database
- Quality Improvement Agreement

4.2.1 ADA/FDI odontogram

You can set the odontogram using *"ADA/FDI Notation"*:

- International (*"FDI Notation"*)
- USA (*"ADA Notation"*)

4.2.2 Warning messages
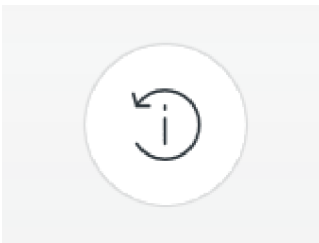
Warnings may appear in pop-up windows when using the software. Many of these messages can be deactivated by clicking on the *"Don't show this message again"* check box. If this check box is already selected or if a new user uses the software, all warnings can be reset here. All warning messages are displayed once again by clicking the *"Reset"* button.

Setting	Description
YES	Displays all the deactivated warnings in the workflow again.
NO	Warnings which were previously hidden, remain hidden.

4.2.3 Seat position
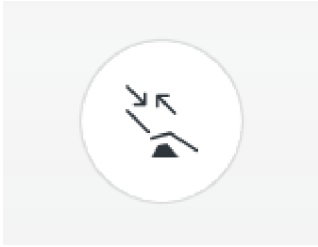
Here you can adjust the position of the user to the seating position of the patient.

For this, the alignment of the upper jaw and lower jaw on the screen and the direction of movement for the camera view are defined. These must comply with the user's view of the patient's upper and lower jaw.

You have the following options:

- *"Always next to or facing"*
  The user is next to or opposite the patient while the upper jaw and lower jaw are being scanned.
- *"Facing for lower, behind for upper"*
  The user is opposite the patient while the lower jaw is being scanned. The user is behind the patient while the upper jaw is being scanned.
- *"Always behind"*
  The user is behind the patient while the upper jaw and lower jaw are being scanned.

4.2.4 Tool menu

Here you can define whether the tool menu is automatically minimized or remains open when using a tool.

4.2.5 Language
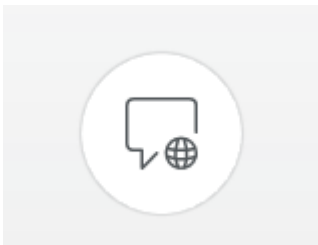
Here, you can set the language of the software.

4.2.6 Hub settings

You can change the IP settings for Hub here. You can determine the IP address automatically or enter it manually. You can also search the network for Hub.

For more information see Hub user manual, REF 66 37 727.

4.2.7 Scan database
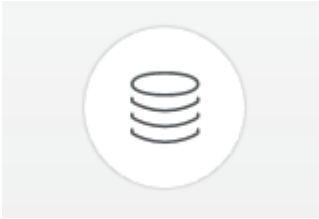
In the menu item *"Scan Database"*, you can determine where patient data and scans are saved.
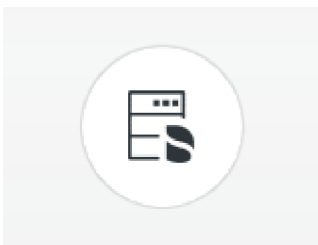
You also have the option to rename patients and scans in the table.

You can specify a folder for this data. This allows you, for example, to save all data on a secure server on the practice network.

4.2.8 Quality improvement agreement
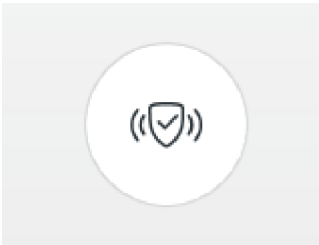
Here you can select whether or not you wish to participate in the quality improvement program.

By participating in the program for quality improvement, you agree to anonymous usage data being sent to Dentsply Sirona. The data transmitted are used to improve the quality of the software.

To participate in the program for quality improvement, set a checkmark next to *"Yes, I would like to participate in the quality improvement program."*

5 System menu

In the system menu, you can:
- Close the opened scan and switch to the start window
- Save scan
- Save scan as
- Import scan
- Export scan
- Run application
- Log on to the Connect Case Center portal
- Open license manager
- Configure hardware and software
- Change window mode
- Open help
- Close the software

Open system menu

➢ Press the button in the top left corner of the screen.
  ↳ The system menu is displayed.

Close system menu

1. Press the button in the top left corner of the screen.

or

➢ Tap or click in the main window.
  ↳ The system menu is closed.

5.1 Save scan

In this dialog, you can save the current scan.
➢ Select *"Save"* in the system menu.
  ↳ The scan is saved.

5.2 Save the scan under a different name

This dialog allows you to save the current scan under a new name or assign it to a different patient.
1. Select *"Save As..."* in the system menu.
   ↳ The *"Save as…"* dialog box opens.
2. Enter a name for the scan.
3. Select the appropriate patient.
4. Click on the *"OK"* button.

5.3 Import scan

✓ A CEREC Ortho SW scan is located on your acquisition unit (or removable media).

1. Click the *"Import"* button in the system menu.
   ↳ A standard Windows dialog box opens.
2. Select the folder where the scan is located.
3. Select the relevant file.

NOTE
File types
If the selected file ("*.ortho", "*.orthoimg", or "*.dxd") is an optical impression with the CEREC Ortho SW software, it will be opened. If not, it will not open, and an error message will be displayed.
Scans which were not created with the CEREC Ortho SW Guided Scanningprocess can not be imported for orthodontic use.

4. Click the *"Open"* button.
5. Assign a name to the scan.
6. Click on the *"OK"* button.
↳ The scan is now imported and opened.

5.4 Export scan

You can save an optical impression in a compressed format in any location.

✓ You have opened a scan.
1. Select *"Export"*.
   ↳ A standard Windows file dialog box opens.
2. Select the target folder to which you want to export the scan.
3. Assign any name to the scan.
4. Click on the *"Save"* button.
↳ The scan is exported.

If you want to transfer the scan from your acquisition unit to another PC (e.g. in order to upload it to the Web portal), you can use a USB stick for this purpose.

5.5 License manager
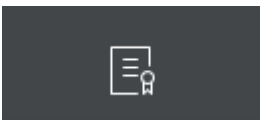
The license manager is used for the installation of new software licenses on the USB license stick. To do this, start the license manager via the system menu and follow the instructions on the screen. Keep the license certificate with 25-digit license key ready, which you either obtained with the unit or ordered separately from your dealer.

Tip: You can also start the license manager via "Start / All Programs / Sirona Dental Systems / CADCAM / CEREC Ortho / Tools / License Manager".

To activate the license you must have an Internet connection and the USB license stick must be connected.

5.6 Configuration

The configuration is described in the "Configuration [→ 23]" section.

5.7 Window mode

The *"Window Mode"* function can be used to exit full-screen mode or enter it again. You can also activate or deactivate the window mode by pressing `F11`.

5.8 Open help function
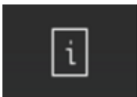
The *"Help"* function can be used to open help.

5.9 Current program version
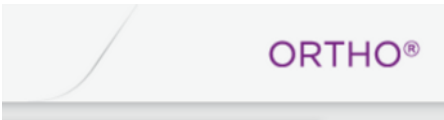
If you click on the lettering on the right edge of the phase tab, you obtain information on the current program version.

5.10 Exit program

The *"Exit"* function can be used to close the software.

6 Start view

In the start view you can perform the following:

● Search in the database
● Display patients
● Add patients

Switching to the start view

If you have a scan open you can switch to the start view by closing the scan.

1. Open the system menu.

2. Click on the *"Close All"* button.
   ↳ If the current scan has not been saved, a prompt appears asking if the scan should be saved.
3. Confirm the prompt to save the scan.
   ↳ The start view opens.

6.1 Creating a new patient

In the data structure, a patient is uniquely identified by one of the following two entries:

● Surname, first name and date of birth
  or
● Patient ID

Add patients

1. Click on the *"Create Patient"* button.
   ↳ An empty patient card is opened.
2. Enter a surname, first name, and date of birth. A real-time search function is active during the input which should prevent duplicate entries.

or

➢ Enter the patient ID.
3. Click on the *"Add new scan"* button.
   ↳ The program switches over to the *"ACQUISITION"* phase.

6.2 Patient search
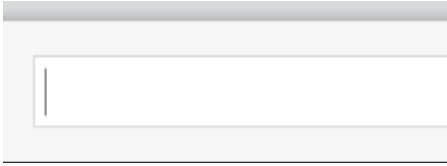
Displaying all patients

The *"Show Patients"* function can be used to display all patients.

Searching for individual patients

You can view individual patients by searching for them.

1. Tap or click on the search text box.
2. Enter the surname or the patient ID and press the enter button on the keyboard to start.
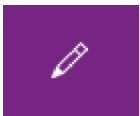   ↳ The program now shows all the search results.

6.3 Editing patient data

6.3.1 Editing a patient card

Changing patient data using the patient row.

✓ You have found the patient with the search function.
1. Select the patient card.
2. Click on the pen icon on the patient row.
   ↳ The patient data in the row can be edited.
3. Carry out the changes.
4. Confirm your changes by clicking the check mark.
   ↳ The changes are saved in the memory.

Changing patient data using the patient name in the phase bar

✓ You have opened a scan.
1. Tap or click in the opened case at the top in the phase bar on the patient name.
2. Carry out the changes.
3. Confirm in the context bar with *"OK"* or discard them with *"Cancel"*.

6.3.2 Deleting patients

✓ You have found the patient with the search function.
1. Select the patient card.
2. Click on the trash can icon on the patient row.
3. Confirm the deletion with *"Yes"*.
   ↳ The patient is deleted.

6.3.3 Opening a scan

✓ You have found the associated patient with the search function.
1. Select the patient card.
2. Select the scan.
3. Press the button *"Open Scan"* in the scan row.
   Alternatively, you can also double-click on the scan row or on the preview image.
   ↳ The scan is opened.

6.3.4 Adding a new scan

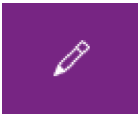✓ You have found the associated patient with the search function.
1. Select the patient.

2. Press the "Add new scan" button above the scan list.
   ꕽ The program switches over to the *"ACQUISITION"* phase.

6.3.5 Removing a scan

✓ You have found the associated patient with the search function.
1. Select the patient.
2. Select the scan.
3. Click on the trash can icon in the scan row.
4. Confirm the deletion with *"Yes"*.
   ꕽ The scan is deleted.

6.3.6 Renaming a scan

✓ You have found the patient with the search function.
1. Select the patient card.
2. Select the scan.
3. Actuate the pen icon in the scan row.
   ꕽ The name of the scan can be edited.
4. Carry out the changes.
5. Confirm your changes by clicking the check mark.
   ꕽ The changes are saved in the memory.

6.3.7 Export scan

✓ You have found the patient with the search function.
1. Select the patient card.
2. Select the scan.
3. Actuate the export icon in the scan row.
   ꕽ A standard Windows file dialog box opens.
4. Select the target folder to which you want to export the scan.
5. Assign any name to the scan.
6. Click on the *"Save"* button.
ꕽ The scan is exported.

If you want to transfer the scan from your acquisition unit to another PC (e.g. in order to upload it to the Web portal), you can use a USB stick for this purpose.

7 Tools and functions of the page palette

The page palette offers you various different functions, depending on the current step.

7.1 View options

Different global views are available to you in the *"View Options"* page palette. These views are based on the model axis of the upper and lower jaw.
Tip: You can adjust the global model axis in the *"Set Model Axis"* step.
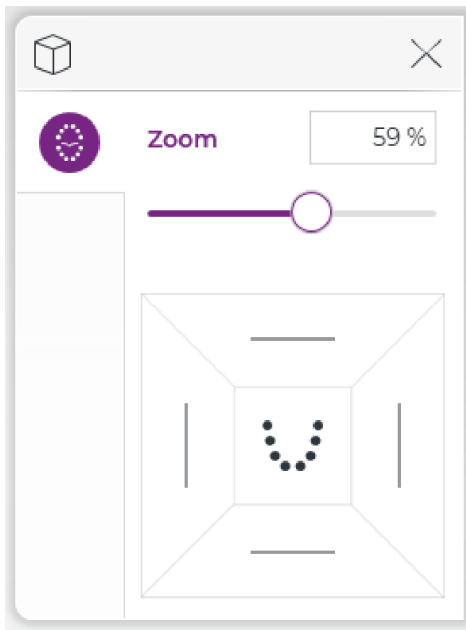
Global views

- Okklusal / Inzisal
- Right
- Left
- Anterior
- Posterior

Enlarge or reduce the view

1. Click the *"View Options"* button.
2. Click and hold the left mouse button on the slide controller and pull it to the right or left.
   - ⮑ The virtual model is then enlarged or reduced.
3. Release the mouse button when the desired enlargement or reduction is obtained.

Tip: You can also enter the enlargement factor directly into the number field on the right above the slide controller.

Tip: You can also use the center mouse button and the trackball directly on the virtual model to enlarge or reduce a view.

7.2 Tools

You will find all tools as a sub-menu under *"Tools"*. The available tools are displayed for each step.

To change a tool, click on the button of another tool in the left column of the page palette.

To close a tool, click on the button of the active tool once more in the left column.

"Undo" and *"Reset"*

With the *"Undo"* button in the tools you can undo all changes made on the selected restorations since the tool was started.

With the *"Reset"* button in the tools you can undo all changes made on all restorations since the tool was started.

7.3 Displaying objects

Upper jaw

With the *"Upper Jaw"* button, you can display and hide the upper jaw.
1. Click on the *"View Options"* button.
2. Click on the *"Upper Jaw"* button.
   ↳ The upper jaw is displayed or hidden.

Lower jaw

With the *"Lower Jaw"* button, you can display and hide the lower jaw.
1. Click on the *"View Options"* button.
2. Click on the *"Lower Jaw"* button.
   ↳ The lower jaw is displayed or hidden.

Display upper/lower jaw transparently

In a few steps you can adjust the transparency of the upper/lower jaw continuously.
1. Click on the *"Upper Jaw"* or *"Lower Jaw"* button.
   ↳ A slide controller is shown underneath the button.
2. Now drag the slide controller to the right or left to increase or reduce the transparency.
   ↳ The transparency of the jaw concerned is changed.

Tip: You can also enter the transparency value factor directly into the number field on the right above the slide controller.
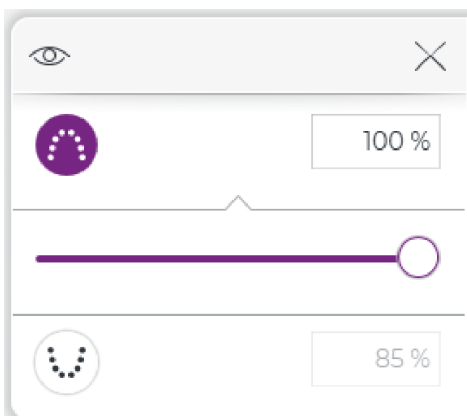
8 ACQUISITION phase

In the *"ACQUISITION"* phase the scanning process is performed with Omnicam or Primescan. In this process, the complete lower jaw, complete upper jaw, and the bite situation are recorded.

The *"ACQUISITION"* phase comprises 2 steps. The steps are depicted in the step menu.

The *"Video / Picture"* step is optional. Here, videos and photos can be created with the scanner or videos and photos that have already been created can be viewed.

The step *"Scan"* is required. It is split into the 3 scan objects *"Lower Jaw"*, *"Upper Jaw"*, and *"Buccal"*. These are shown in the object bar.

The *"ACQUISITION"* phase is not available in the following cases:

- A saved model has been opened.
- A calculated model has been saved.
  The scan objects are deleted when saving a model.

In the *"ACQUISITION"* phase, 3 image catalogs are available as standard:

- Lower Jaw
- Upper Jaw
- Buccal

Opening the image catalog

1. Select the icon of the desired image catalog.
2. Move the mouse cursor to the bottom edge of the screen.
   ⮩ The active image catalog is opened, the 3D exposure is visible.

The necessary image catalog is initially selected provided the restoration(s) is (are) only in the upper or lower jaw.

If you exit the ACQUISITION phase and subsequently return to it, all acquisitions are initially blocked.

Deleting acquisitions

If an acquisition is not suitable, you can delete it. You can then execute a new acquisition for the corresponding image catalog.

1. Select the image in the image catalog.
2. Drag the image with your finger/mouse to the trash can and let go (Drag & drop).

⮩ The image is deleted.

8.1 3D Preview

In the default setting, the data are displayed from the occlusal direction in the 3D preview.

You can freely select the viewing direction of the virtual model in the 3D preview window by using your fingers or the mouse.
Tip: You can switch between the image catalogs by selecting them by mouse/touchpad or double-clicking with the foot control.

Rotating a 3D preview

1. Press with one finger or click on the 3D preview with the left mouse button and hold it down.
2. Move your finger or the mouse.
   ↳ The 3D preview is rotated.

Moving the 3D preview

1. Press with two fingers or click on the 3D preview with the right mouse button and hold it down.
2. Move the finger or the mouse.
   ↳ The 3D preview moves.

Zooming into/out of the 3D preview

1. Press with two fingers or click on the 3D preview with the middle mouse button and hold it down.
2. Move your fingers apart and together or move the mouse up or down as desired.
   ↳ The 3D preview is enlarged or reduced.

8.2 Camera view

You can adjust the size of the camera view proportionally.

1. Click the arrow at the right edge with the mouse and hold down the mouse button.
2. Drag the camera view to enlarge or reduce it.
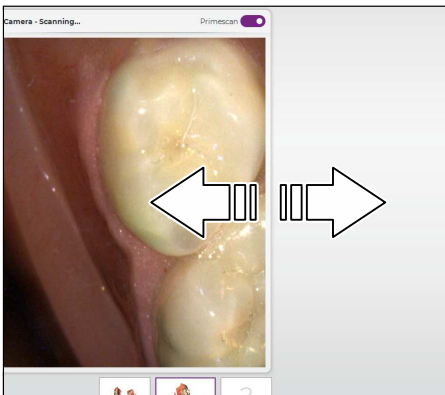
8.3 Creating videos and photos

Step Video / Picture

In the *"Video / Picture"* step, you can make intraoral videos and individual intraoral photos with the scanner.

Taking photos

1. In the step menu, go to *"Video / Picture"*.
2. Select the *"Photo"* option.
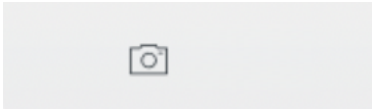3. To actuate the scanner, press the *"Take picture"* button or use the foot switch.

Recording videos

1. In the step menu, go to *"Video / Picture"*.
2. Select the *"Video"* option.
3. Press the *"Start recording"* button to start the video recording or use the foot switch.
4. Press the *"Stop recording"* button or actuate the foot switch once more to stop the recording.

View photos and videos

1. Select the button with the *"View"* folder symbol.
2. Use the left or right arrows to see all exposures taken. Videos can be started by pressing the play icon.
   Tip: In the acquisition modes activate the right button with the folder symbol in order to switch directly from the acquisition mode to the media view.
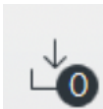
8.4 Take a scan

8.4.1 CEREC Primescan, Primescan

8.4.1.1 Full jaw scan mode

Scan objects and step menu

The full jaw scan mode contains 3 scan objects:

- Lower jaw scan (A)
- Upper jaw scan (B)
- Buccal registration (C)

The selected scan object is highlighted (B).

Deleting and repeating scans
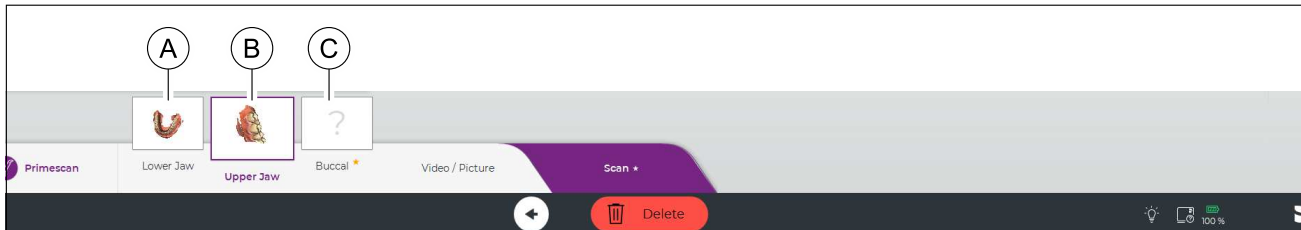

Use the *"Delete"* button to delete and repeat the scan of the entire lower jaw or upper jaw.

Switching Primescan on/off

You can switch the scanner on/off by clicking on the button in the top right corner of the camera view.

8.4.1.2 Optical impressions with the scanner

NOTE
Image brightness
The image brightness during the acquisition is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the scanner and the tooth.
The surroundings of the tooth to be scanned should be as weakly illuminated as possible. Avoid any type of external light. Switch off the operating light.

IMPORTANT
Do not use cotton rolls in the scan area
Do not use any cotton rolls in the vicinity of the scan area, as they can reduce the precision of the scan and create image interference.

> ⚠ **CAUTION**
>
> **Prevent cross-contamination**
>
> Germs can be transmitted to uncontaminated persons via the hands, materials or objects.
>
> ➢ For hygiene reasons, wear a new set of disposable gloves for each patient while using the scanner.

> ⚠ **WARNING**
>
> **Risk of injury for those diagnosed with epilepsy**
>
> For persons who have been diagnosed with epilepsy, there is a risk of epileptic shock through the flashing light of the scanner.
>
> ➢ Patients who have been diagnosed with epilepsy cannot be treated with the scanner.
> ➢ Dentists and dental assistants who have been diagnosed with epilepsy cannot work with the scanner.

> ⚠ **CAUTION**
>
> **Potentially hazardous optical radiation**
>
> The scanner transmits potentially hazardous optical radiation which may cause harm to the eyes.
>
> ➢ During operation, do not look directly at the scanner for long periods.

> **IMPORTANT**
>
> **Potential switch-off procedure**
>
> In the case of several repeated scans of the image fields without model calculation, the scanner can deviate from the calibrated temperature range. In this case, a warning message appears and you need to take a scanning break prior to completing the exposures. Please wait roughly long enough for the remaining exposures to be performed. The potential switch-off procedure is innocuous for your scanner and is not a malfunction.

> **IMPORTANT**
>
> **Heating up the scanner**
>
> The internal scanner heating ensures that condensation does not form during scanning. The heating starts immediately after starting up the exposure unit and after around five minutes the scanner is free of condensation. This is usually the case through to navigation into the exposure phase.

✓ The teeth are blow-dried.

1. Change to the *"ACQUISITION"* phase.
   - ↳ The scanner is ready for exposure.
   - ↳ As soon as you move the scanner, a live image appears which can be used to look around the patient's mouth.

2. Remove the scanner from the holder.
   - ↳ As soon as the scanner is pointed over a tooth or the gums, data acquisition begins. During the continuous data acquisition, a color 3D model is generated automatically on the screen. A white field indicates in which area data will be acquired. If the automatic data flow breaks off, the white field is lost and the audio signal changes. In this case, move the scanner to any area which has already been scanned. The scanning procedure continues.

3. Place the scanner in the holder, it then switches off after a few seconds.
   - ↳ Prior to taking the exposure, you can activate the foot control in order to switch off the automatic exposure function. Then hold the scanner above the surface, which you wish to acquire and then press the foot control a second time. The camera function switches on and the scanner starts. By activating the foot control again, the camera and scan function can be switched off.

4. Activate the foot control or point the scanner cursor to the camera icon in the top right corner to end the acquisition procedure.

### Proceeding with scanning procedure

1. Activate the foot control or click on the switch with the cursor.
   - ↳ The scanning procedure begins.
2. Proceed with the scanning procedure as described above.

8.4.1.3 Scan strategy

You can use different scanning procedures for scanning a full jaw. Find one procedure as follows to facilitate entry for you, should such help be necessary.

2 and 5-step scan strategy
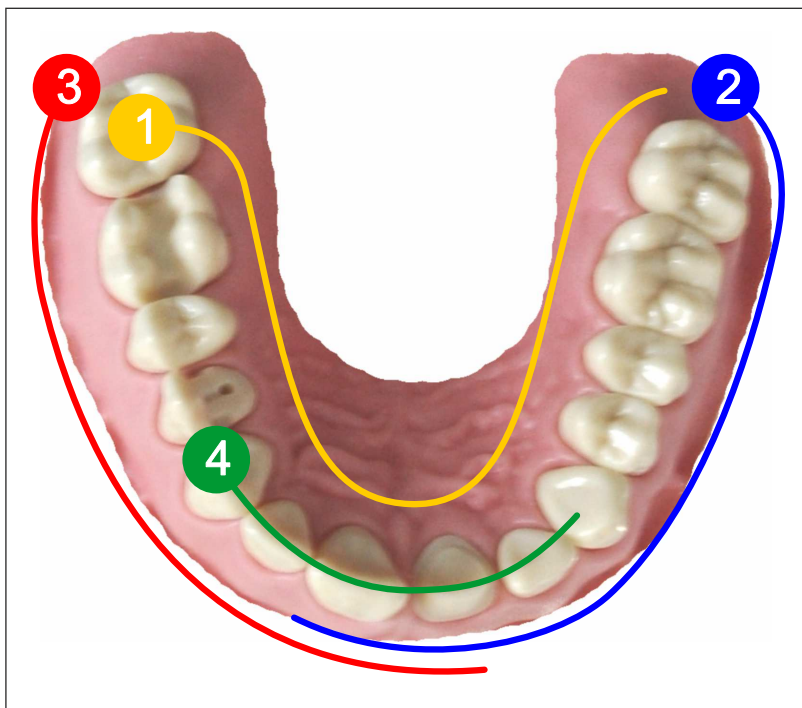
1. Start occlusally on the distal tooth, tilt the scanner approx. 45° in an oral direction and move it orally along the dental arch up to the opposite distal tooth.
2. Tilt the scanner approx. 45° in a buccal direction and move it buccally along the dental arch up to the anterior teeth.
3. Move the scanner as shown below (2) for the second quadrant.
4. Then scan the anterior teeth from cuspid to cuspid from an incisal direction. Ensure that both the labial surface and the oral surfaces are visible.
    Extend this final scan to locations where you can view scan holes.

8.4.1.4 Buccal registration

The buccal registration establishes the allocation of jaw exposures.

✓ The lower jaw and upper jaw have been scanned.

✓ The *"Buccal"* scan object is activated.

➢ Perform the buccal registration by having the patient bite as required and scanning with the camera bucally from the upper jaw to the lower jaw.

8.4.1.5 Cut out model areas

With the *"Cut"* tool you should cut out the model areas which are not required for the orthodontic planning. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

1. Align the model in such a way that you can view the area to be edited orthogonally.
2. Open *"Tools"* in the side pallet or actuate the tool wheel.
3. Press the *"Cut"* button.
   ↳ The cursor changes to a cross.
4. Begin the cut line by double-clicking.
5. Click to set additional points.
6. Finish the cut by double-clicking.
   ↳ The model area is cut out.
7. Press the *"Apply"* button to implement the change.

You can execute another exposure of the area which you have cut out using the crop function. To do this, activate the scanner and start the acquisition. You can refill the area with another acquisition.

8.4.2 CEREC Omnicam, Omnicam

8.4.2.1 Scanner warm-up time

When switching on the system, the scanner needs to warm up for 15 - 20 minutes. If the coated sapphire glass of the scanner is not sufficiently warm, it may steam up during the acquisition. This complicates the scan acquisition.

Following use, always position the scanner on the heater plate or in the scanner cradle.

You can set the end temperature to which the scanner heater warms the mirror sleeve of the scanner.

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Click on the *"Devices"* button.
3. Click on the *"Omnicam"* button.
4. Click on the *"Camera Heater Settings"* button.
5. Use the slider to adjust the temperature.

8.4.2.2 Taking optical impressions with the scanner

NOTE
Image brightness
The image brightness during the acquisition is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the scanner and the tooth.
The surroundings of the tooth to be scanned should be as weakly illuminated as possible. Avoid any type of external light. Switch off the operating light.

IMPORTANT
Do not use cotton rolls in the scan area
Do not use any cotton rolls in the vicinity of the scan area, as they can reduce the precision of the scan and create image interference.

⚠ CAUTION
Prevent cross-contamination
Germs can be transmitted to uncontaminated persons via the hands, materials or objects.
➢ For hygiene reasons, wear a new set of disposable gloves for each patient while using the scanner.

| ⚠ CAUTION |
| --- |
| **In the case of patients with allergies to nickel** |
| Should the scanner mirror sleeve make contact with the skin of patients allergic to nickel, allergic reactions may occur. |
| ➢ Ensure that in the case of patients with nickel allergies, the parts of the mirror sleeve which may make contact are protected from areas of skin. |

8.4.2.3 Performing a scan

8.4.2.3.1 Full jaw scan mode
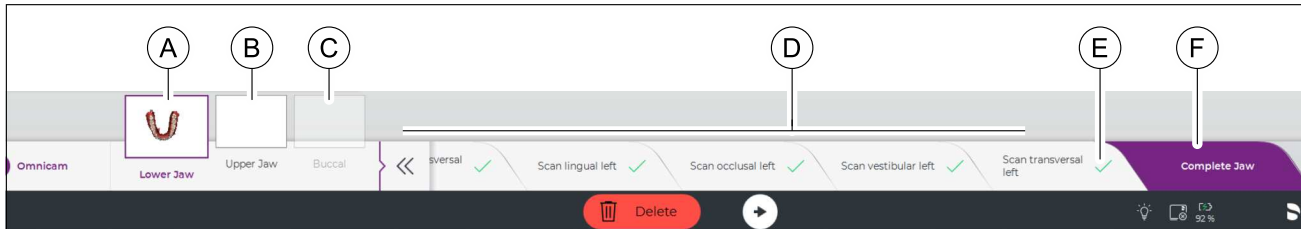
Scan objects and step menu

The full jaw scan mode contains 3 scan objects:

- Lower jaw scan (A)
- Upper jaw scan (B)
- Buccal registration (C)

The selected scan object is highlighted (A).

Every scan object contains several steps which are displayed in a step menu (D).

The selected step is highlighted in color (F).

When a step is finished, a confirmation symbol is displayed. The finished step is marked with a green check mark in the step menu (E) and the software switches to the next step.

Deleting and repeating scan steps

Use the *"Delete"* button to delete and repeat individual scan steps or the scan of the entire lower jaw or upper jaw.

The following options are available for the dialog box which opens:

- *"Selected Step"* deletes the selected scan step and the scan steps subsequently performed.
- *"Entire Jaw"* deletes the entire scan of the lower jaw or upper jaw.
- *"Cancel"*

If an individual scan step has been deleted, the software switches again to acquisition mode for the deleted scan step. The scan step and subsequent scan steps can be repeated.

If the entire scan of the lower jaw or upper jaw has been deleted, the software switches to the first scan step. The entire scan of the jaw can be repeated.

User guidance

You are guided through the acquisition steps with tone signals and graphic displays.
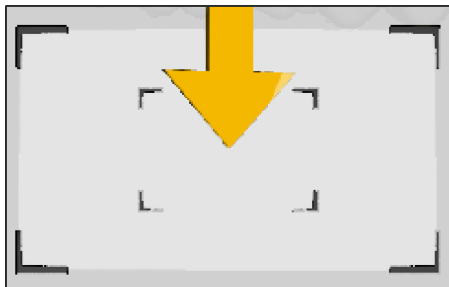
- Starting point for a scan step: Hold the camera over this marker for 3 seconds to start scanning the scan step.

- Resume the scan. If the scan has been interrupted, hold the camera over this marker to continue the scan.

- Target area: Guide the camera along the arrow into this area. The partial scan does not end at an exact point.

- End point of a quadrant: Hold the camera over this marker for 3 seconds to mark the end point of the quadrant.

- End point of a scan step: When this marker is reached, the scan step is complete.
- If the camera has identified the start point of a partial scan, the tone signal changes and the start marker is hidden. The acquisition begins.

- When a partial scan is finished, a green check mark is displayed.
- The guide direction for the camera is displayed with arrows.
- If the automatic data flow is interrupted, the tone signal changes and a start marker is displayed. In this case, guide the camera to the start marker. As soon as the correct position has been found, the tone signal changes and the start marker disappears. The acquisition procedure starts.

Video animation

There is an optional video animation which describes the scanning procedure. You can activate or deactivate the video animation in the configuration dialog for the scanner.

Switching Omnicam on/off

You can switch the scanner on/off by clicking on the button in the top right corner of the camera view.

#### 8.4.2.3.2 Start the scan process

✓   The patient has assumed the correct exposure position.

✓   The teeth are cleaned and blow-dried.

➥   Change to the *"ACQUISITION"* phase.

8.4.2.3.3 Lower jaw scan

Scan the right-hand quadrants

1. Remove the CEREC Omnicam from its holder.
   - ↳ The step list for scanning the lower jaw is displayed.
   - ↳ The first step, *"Scan lingual right"*, is selected in the step list.
2. Position the camera above the last molar on the right of the lower jaw and hold the camera in this position to mark the start of the scan.
   - ↳ The start marker (A), which marks the starting point for the partial scan, slowly disappears and the scan begins.
   - ↳ The guide direction for the camera is shown with an arrow.
3. Turn the camera lingually and guide it in the direction of the arrow over the lingual surface of the teeth as far as the target marker (B) on the centerline.
   - ↳ When the center line has been reached, hold the camera in position once more for 3 seconds to mark the end point of the partial scan. While doing so, the target marker slowly disappears.
   - ↳ The software automatically changes to the next *"Scan occlusal right"* step.
4. Position the camera above the last molar on the right. The starting point is marked with a start marker (A) and is automatically recognized. Guide the camera occlusally in the direction of the arrow as far as the target marker (B) on the centerline.
   - ↳ If the centerline has been scanned, a signal tone will be heard.
   - ↳ The software changes to the next *"Scan vestibular right"* step.
5. Position the camera above the last molar on the right. The starting point is marked with a start marker (A) and is automatically recognized.
6. Turn the camera towards the buccal and guide it in the direction of the arrow over the arch as far as the target marker (B) on the centerline.
   - ↳ If the centerline has been scanned, a signal tone will be heard.
   - ↳ The software changes to the next *"Scan transversal right"* step.
7. Guide the camera in the direction of the arrow over the marked area from the start marker (A) to the target area (B).
   - ↳ If the connection is scanned, a signal tone will be heard.
   - ↳ The software changes to the next left-hand quadrant step.
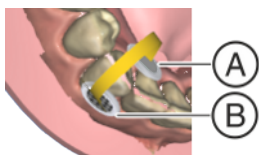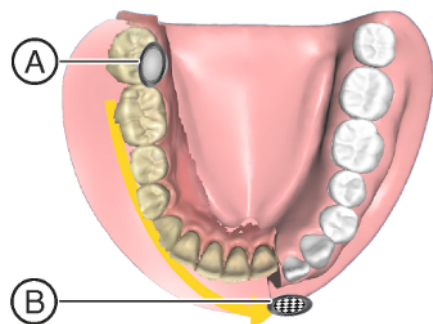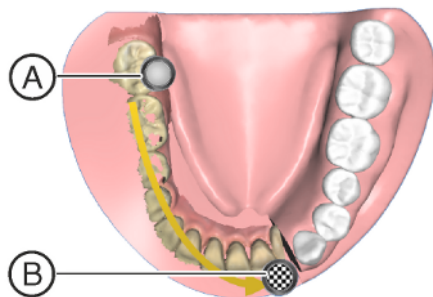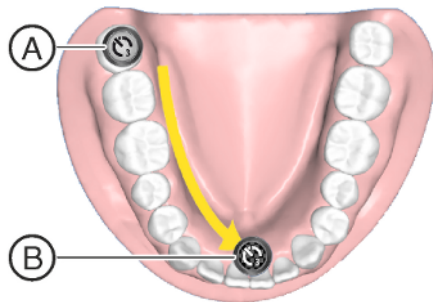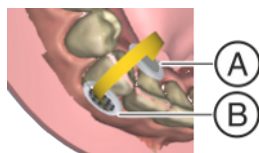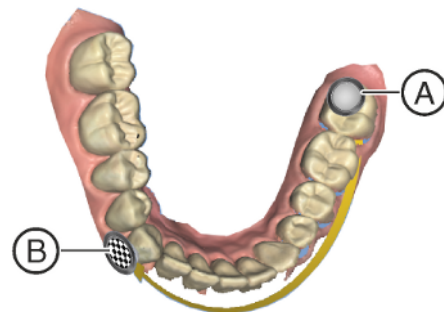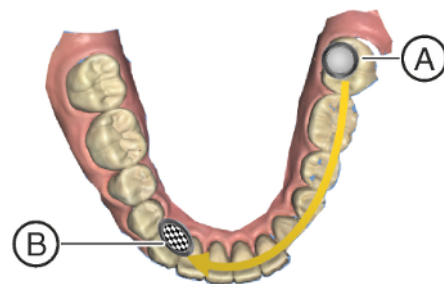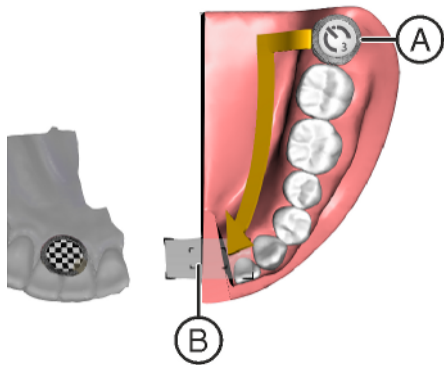
Scan the left-hand quadrants

1. Position the camera above the last molar on the left of the lower jaw and hold the camera in this position to mark the start of the scan.
   - ⮑ The position marker (A), which marks the start of the scan, slowly disappears and the scan begins.
   - ⮑ The guide direction for the camera is shown with an arrow.
2. Turn the camera lingually and guide it in the direction of the arrow over the lingual surface of the teeth as far as the target area (B) on the centerline.
   - ⮑ When the center line has been reached, hold the camera in position once more for 3 seconds to mark the end point of the partial scan. While doing so, the target marker slowly disappears.
   - ⮑ The software automatically changes to the next *"Scan occlusal left"* step.

3. Position the camera above the last molar on the left. The starting point is marked with a start marker (A) and is automatically recognized. Guide the camera occlusally as far as the target marker (B) on the centerline.
   - ⮑ If the centerline has been scanned, a signal tone will be heard.
   - ⮑ The software changes to the next *"Scan vestibular left"* step.

4. Position the camera above the last molar on the left. The starting point is marked with a start marker (A) and is automatically recognized.
5. Turn the camera towards the buccal and guide it in the direction of the arrow over the arch as far as the target marker (B) on the centerline.
   - ⮑ If the centerline has been scanned, a signal tone will be heard.
   - ⮑ The software changes to the next *"Scan transversal left"* step.

6. Guide the camera in the direction of the arrow over the marked area from the start marker (A) to the target marker (B).
   - ⮑ If the connection is scanned, a signal tone will be heard.
   - ⮑ The software changes to the *"Complete Jaw"* step.

Completing the jaw

In step *"Complete Jaw"* you can process the model is such a way that it is suitable for orthodontic planning.

You can re-scan further required areas (vestibule, gums and base of tongue) as well as not yet scanned areas of the model.

Areas of the mouth outside the jaw and other objects can have a negative impact on the accuracy and the speed when creating the model. To avoid this, you can cut the model to the area required for orthodontic planning.

Re-scan vestibule, gums and base of tongue.

➢ Use the camera and rescan the missing areas.
   ↳ The re-scanned areas are added to the model and the blue boundary line is automatically extended.

Re-scan not yet scanned areas

All nonscanned areas appear as gaps in the model. In order to improve the quality of the model, these areas can be re-scanned.

➢ Use the camera and rescan the incomplete areas.
   ↳ The gaps are replaced by scan data.

Cut model

With the *"Cut"* tool you should cut out the model areas which are not required for the orthodontic planning. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

1. Align the model in such a way that you can view the area to be edited orthogonally.
2. Open *"Tools"* in the side pallet or actuate the tool wheel.
3. Press the *"Cut"* button.
   ↳ The cursor changes to a cross.
4. Begin the cut line by double-clicking.
5. Click to set additional points.
6. Finish the cut by double-clicking.
   ↳ The model area is cut out.
7. Press the *"Apply"* button to implement the change.

You can execute another exposure of the area which you have cut out using the crop function. To do this, activate the scanner and start the acquisition. You can refill the area with another acquisition.
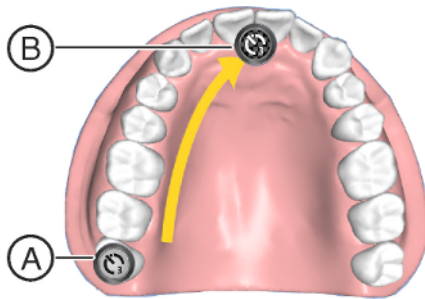
Finishing the lower jaw scan

➢ Click on the arrow in the context bar to switch to the next scan object *"Upper Jaw"*.

8.4.2.3.4 Upper jaw scan

Scan the right-hand quadrants

✓ The lower jaw has been scanned.

✓ The *"Upper Jaw"* scan object is activated.

✓ The step list for scanning the upper jaw is displayed.

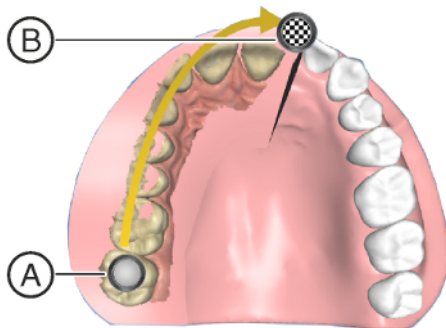✓ The first step, *"Scan palatal right"*, is selected in the step list.

1. Position the camera above the last molar on the right of the upper jaw and hold the camera in this position to mark the start of the scan.
   - ↳ The start marker (A), which marks the starting point for the partial scan, slowly disappears and the scan begins.
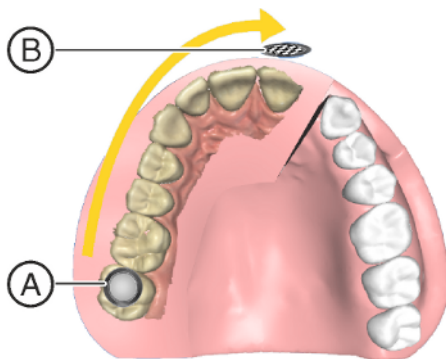   - ↳ The guide direction for the camera is shown with an arrow.

2. Turn the camera lingually and guide it in the direction of the arrow over the lingual surface of the teeth as far as the target marker (B) on the centerline.
   - ↳ When the center line has been reached, hold the camera in position once more for 3 seconds to mark the end point of the partial scan. While doing so, the target marker slowly disappears.
   - ↳ The software automatically changes to the next *"Scan occlusal right"* step.

3. Position the camera above the last molar on the right. The starting point is marked with a start marker (A) and is automatically recognized. Guide the camera occlusally as far as the target marker (B) on the centerline.
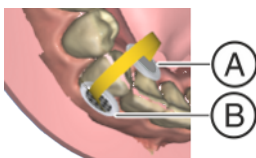   - ↳ If the centerline has been scanned, a signal tone will be heard.
   - ↳ The software changes to the next *"Scan vestibular right"* step.

4. Position the camera above the last molar on the right. The starting point is marked with a start marker (A) and is automatically recognized.

5. Turn the camera towards the buccal and guide it in the direction of the arrow over the arch as far as the target marker (B) on the centerline.
   - ↳ If the centerline has been scanned, a signal tone will be heard.
   - ↳ The software changes to the next *"Scan transversal right"* step.

| IMPORTANT |
|---|
| As the jaw models are displayed with a distance from one another before the first bite is scanned, the target symbol appears lower in relation to the lower jaw during scanning than it is in reality.
➢ Before scanning, observe the position of the target marker in the upper jaw (between the premolars and the molars in the figure) and scan this region in the mouth. |

6. Guide the camera in the direction of the arrow over the marked area from the start marker (A) as far as the target marker (B).
    ↳ If the connection is scanned, a signal tone will be heard.
    ↳ The software changes to the next *"Scan palatal left"* step.

Scan the left-hand quadrants
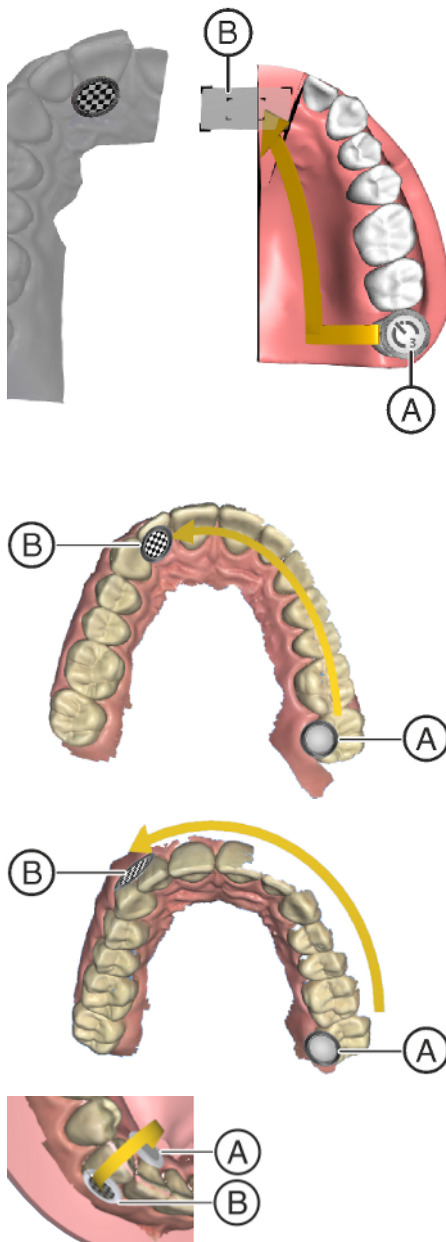
1. Position the camera above the last molar on the left of the upper jaw and hold the camera in this position to mark the start of the scan.
    ↳ The start marker (A), which marks the start of the scan, slowly disappears and the scan begins.
    ↳ The guide direction for the camera is shown with an arrow.
2. Turn the camera lingually and guide it in the direction of the arrow over the lingual surface of the teeth as far as the target area (B) on the centerline.
    ↳ When the center line has been reached, hold the camera in position once more for 3 seconds to mark the end point of the partial scan. While doing so, the target marker slowly disappears.
    ↳ The software automatically changes to the next *"Scan occlusal left"* step.
3. Position the camera above the last molar on the left. The starting point is marked with a start marker (A) and is automatically recognized. Guide the camera occlusally as far as the target marker (B) on the centerline.
    ↳ If the centerline has been scanned, a signal tone will be heard.
    ↳ The software changes to the next *"Scan vestibular left"* step.

4. Position the camera above the last molar on the left and hold the camera in this position to mark the start of the partial scan.
5. Turn the camera towards the buccal and guide it in the direction of the arrow over the arch as far as the centerline.
    ↳ If the centerline has been scanned, a signal tone will be heard.
    ↳ The software changes to the next *"Scan transversal left"* step.

6. Guide the camera in the direction of the arrow over the marked area.
    ↳ If the connection is scanned, a signal tone will be heard.
    ↳ The software changes to the *"Complete Jaw"* step.

Completing the jaw

In step *"Complete Jaw"* you can process the model is such a way that it is suitable for orthodontic planning.

You can re-scan further required areas (vestibule, gums and base of tongue) as well as not yet scanned areas of the model.

Areas of the mouth outside the jaw and other objects can have a negative impact on the accuracy and the speed when creating the model. To avoid this, you can cut the model to the area required for orthodontic planning.

Re-scan vestibule, gums and base of tongue.

➢ Use the camera and rescan the missing areas.
  ↳ The re-scanned areas are added to the model and the blue boundary line is automatically extended.

Re-scan not yet scanned areas

All nonscanned areas appear as gaps in the model. In order to improve the quality of the model, these areas can be re-scanned.

➢ Use the camera and rescan the incomplete areas.
  ↳ The gaps are replaced by scan data.

Cut model

With the *"Cut"* tool you should cut out the model areas which are not required for the orthodontic planning. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

1. Align the model in such a way that you can view the area to be edited orthogonally.
2. Open *"Tools"* in the side pallet or actuate the tool wheel.
3. Press the *"Cut"* button.
  ↳ The cursor changes to a cross.
4. Begin the cut line by double-clicking.
5. Click to set additional points.
6. Finish the cut by double-clicking.
  ↳ The model area is cut out.
7. Press the *"Apply"* button to implement the change.

You can execute another exposure of the area which you have cut out using the crop function. To do this, activate the scanner and start the acquisition. You can refill the area with another acquisition.

➢ Click on the arrow in the context bar to switch to the next scan object *"Buccal"*.

8.4.2.3.5 Buccal registration

✓ The lower jaw and upper jaw have been scanned.
✓ The *"Buccal"* scan object is activated.
✓ The step menu for the buccal registration is displayed.
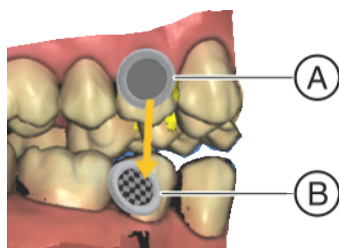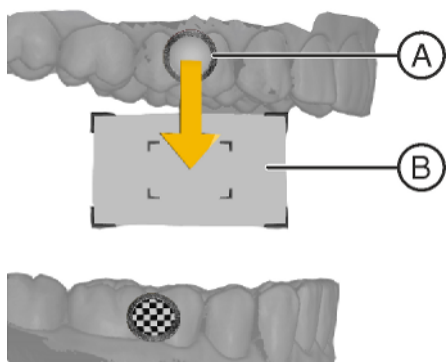
1. Perform the buccal registration on the right side by having the patient bite as required and guiding the camera from the start marker (A) to the target area (B).

> **IMPORTANT**
>
> As the jaw models are displayed with a distance from one another before the first bite is scanned, the target symbol appears lower in relation to the upper jaw during scanning than it is in reality.
>
> ➢ Before scanning, observe the position of the target marker in the lower jaw (between the premolars and the molars in the figure) and scan this region in the mouth.

  ↳ As soon as the buccal registration is finished a signal tone will be heard.

  ↳ The software changes to the next *"Scan buccal left"* step.

2. Perform the buccal registration on the left side by guiding the camera from the start marker (A) to the target marker (B).

  ↳ As soon as the buccal registration is finished a signal tone will be heard.

8.4.2.4 Finishing the phase

  ✓ All required scans have been performed (lower jaw, upper jaw, buccal registration).

  ✓ The *"MODEL"* phase can be selected.

1. Click on the *"MODEL"* phase.

or

➢ Click on the arrow in the context bar.

  ↳ The model is calculated.

  ↳ The program switches over to the *"MODEL"* phase.

8.4.3 Additional acquisitions

You can switch from the later phases back to the ACQUISITION phase and add additional exposures or take new ones.
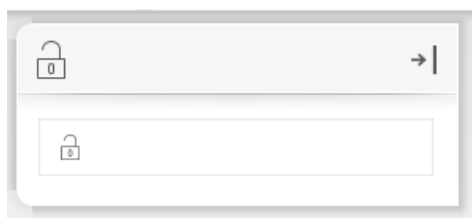
  ✓ You are now in the later phase.

1. Proceed to the ACQUISITION phase.

  ↳ The ACQUISITION phase opens. The image catalogs are locked.

2. Click the button *"Unlock"* in the page palette.

  ↳ The image catalogs are unlocked.

  ↳ You can take additional exposures.

9 MODEL phase

In the *"MODEL"* phase, the virtual models are reconstructed based on the acquired image catalogs.

The *"MODEL"* phase comprises 5 steps. The steps are depicted in the step menu.

The *"Check Model"* step is required.
The *"Set Model Axis"*, *"Mark Teeth"*, and *"Separate Teeth"* are required for the phases *"ANALYSIS"* and *"SIMULATION"*.
The step *"Add Base"* is optional.

The arrows in the context bar can be used to switch between individual steps.

9.1 Checking the model

If you switch to the *"MODEL"* phase, the *"Check Model"* step is automatically selected.

➢   In the *"Check Model"* step, check whether the model of the lower jaw and upper jaw is complete and contains all required information for the orthodontic planning.

Furthermore, you can work with the following tool:
*   *"Cut"*
*   *"Reset Model"*

9.1.1 Cut out model areas

Regions of the model can be cut off using the *"Cut"* function. The cut plane lies orthogonal to the screen plane.

Removing the model area

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are outside of the screen area.

1. Click the *"Cut"* button.
2. Align the model in such a way that you can view the area to be edited orthogonally.
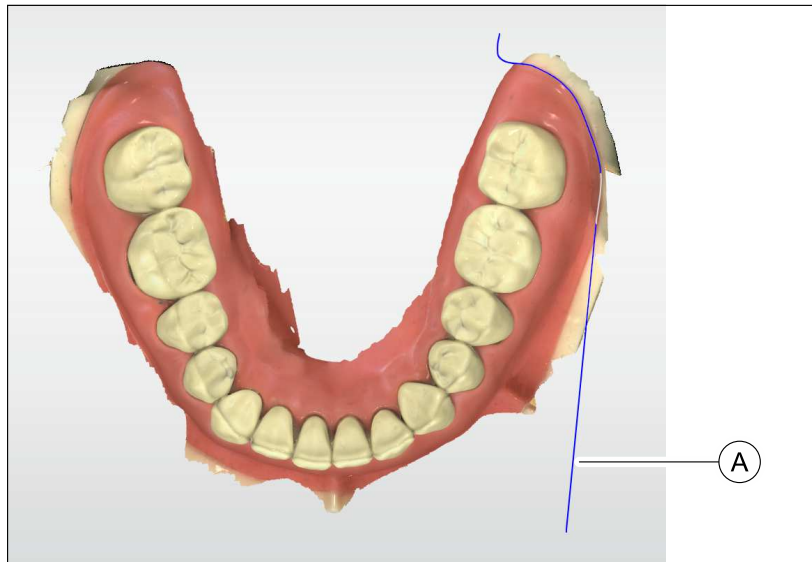
3. Begin the cut line (A) with a double-click.
4. Click to set additional points.
5. Finish the cut by double clicking.
   ↳ The model area is cut off.

Tip: Clicking on the right mouse button deletes the last set points one by one.

Inverting the model area

With the *"Invert Selected"* function, the model area that is cut out can be inverted.

✓ The *"Cut"* tool is selected.

✓ You have created a cut.

➢ Click on the *"Invert Selected"* button.
   ↳ The model area which was cut out is displayed.
   The rest of the model area is hidden.

Tip: You can invert the model area that is cut out by double-clicking on the semitransparent cut-out area.

Resetting the model

➢ Click on the *"Reset"* button.
   ↳ All cuts made are deleted and the model is returned to its original state.

9.1.2 Model contacts

Via the *"Analyzing Tools"* > *"Model Contacts"* buttons, you can switch between the closed layout and checking the contacts.
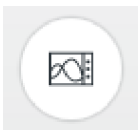
Presentation of the closed jaws

Checking contacts

Here the contact points of both jaws are displayed in order to allow a check against the natural situation.

The colored displays of the contact points have the following meanings:

Penetration/pressure:

🟥	> 100 µm
🟨	100 - 50 µm
🟩	50 - 0 µm

Distance:

🟦	0 - 50 µm
🟦	50 - 100 µm
🟦	> 100 µm

9.2 Setting the model axis

Set the axes for model alignment. Please ensure a consistent representation here.

This alignment is required to create optimal view options and and align the model base. The position of the Raphe Median Plane is also determined using the center line.
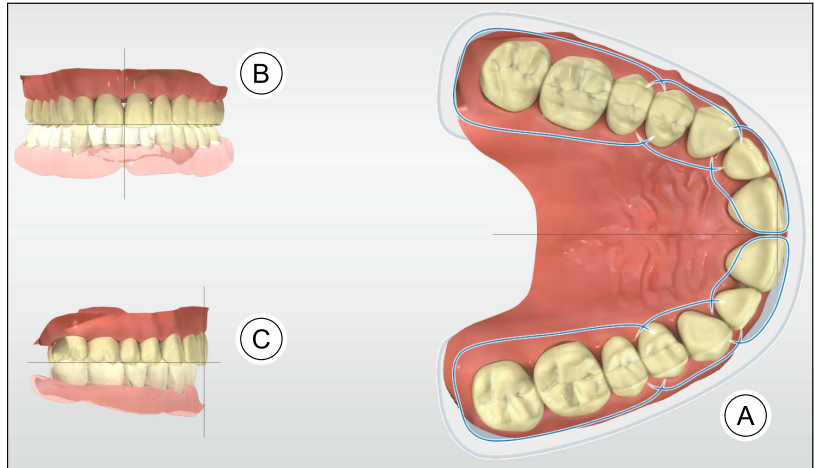
1. Align the model to the orientation of the jaw (**A**). If necessary, rotate the model by clicking on the display with the left mouse button and moving it with the button held down. If necessary, move the model by clicking on the display with the right mouse button and moving it with the mouse held down.
   Each tooth must be in its respective quadrant. Align the incisors based on the displayed center line. For the upper jaw, also align the palatine arch based on the displayed center line.

2. Align the incisal edges along the displayed line (**B**). If necessary, tilt the model by clicking on the display with the left mouse button and moving it with the button held down. If necessary, move the model by clicking on the display with the right mouse button and moving it with the mouse button held down.

3. Align the model for the occlusion plane (**C**). If necessary, tilt the model by clicking on the display with the left mouse button and moving it with the button held down. If necessary, move the model by clicking on the display with the right mouse button and moving it with the mouse button held down.

4. To confirm the model axis, click on *"Ok"* in the context bar. To reset changes made to the model axis, click in the context bar on *"Cancel"*.
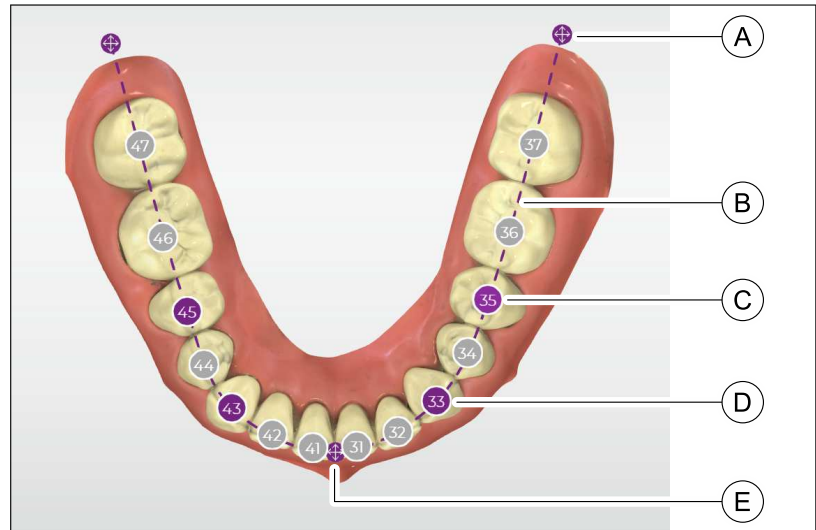

Information: If you choose to create a planning model with base (optional) (see Adding a base to the model [→ 69]), the occlusion level configured here is set parallel to the base level. With a standard base with an overall height of 60 mm, the occlusion level is 30 mm away from the upper and lower foundation of the base.

9.3 Marking teeth (lower jaw)

The step *"ANALYSIS"* is required for the phase.

The following options are available in this step:

- In the scanned model of the lower jaw, the teeth are automatically marked according to an odontogram.
- The odontogram used is defined under ADA/FDI odontogram.
- The individual markings can be manually aligned in the middle of the teeth, whereby a jawline is shown.

Procedure

1. Move the positioning icons (A) by clicking and dragging, so that the depicted jawline (B) approximates to the main jawline.
    The center positioning icon (E) should be on the incisal point.
2. Move the "3" tooth numbers (D) by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram.
    When moving the "3" tooth numbers, the jawline is shown and moves with them.
3. Move the "5" tooth numbers (C) by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram.
    When moving the "5" tooth numbers, the jawline is shown and moves with them.
    ⮡ The jawline (B) should now approximate the main jawline.
4. Align the remaining tooth numbers by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram. For the anterior teeth, the tooth numbers should be slightly oral from the incisal edge.
    The jawline is not shown when aligning the remaining tooth numbers and also does move with them.
5. If a third molar is present, an "8" tooth number must be added in its position (for more on this see below). The "8" tooth number forms the new end of the jawline and replaces the respective positioning icons. Then move the "8" tooth number by clicking and dragging so
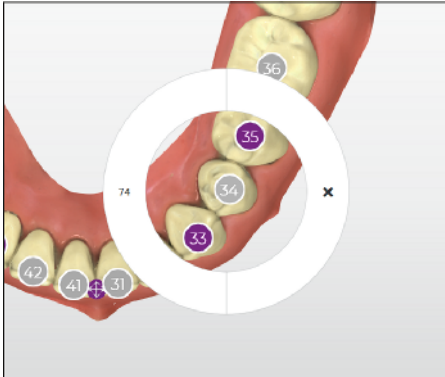
that it is centered over the third molar.
Otherwise the line must go beyond it. Move the positioning symbol at the end of the line by clicking and dragging so that it is at the point at which the third molar would be (see figure above).

Removing tooth numbers or changing to deciduous teeth

If a tooth number is present that is not assigned to a tooth, you can delete this using the tool wheel. You can change an existing tooth to deciduous teeth in exactly the same way.
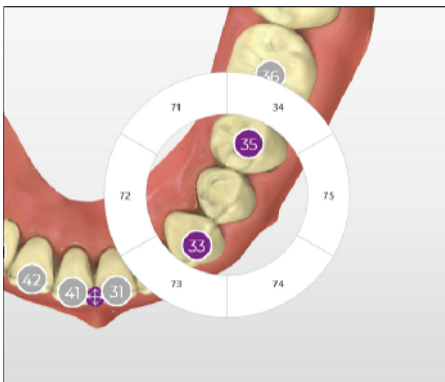
1. Position the cursor over the tooth number to be removed.
2. Open the tool wheel by right-clicking.
3. Click on the X in the tool wheel to remove the tooth number.
    You can use this function to replace existing teeth with deciduous teeth. To do this, instead click on the corresponding tooth number in the tool wheel.

Inserting tooth numbers

If a tooth number is missing, you can insert this using the tool wheel.

1. Position the cursor over the point at which a tooth number is to be inserted.
2. Open the tool wheel by right-clicking.
3. Click in the tool wheel on the tooth number to be inserted.
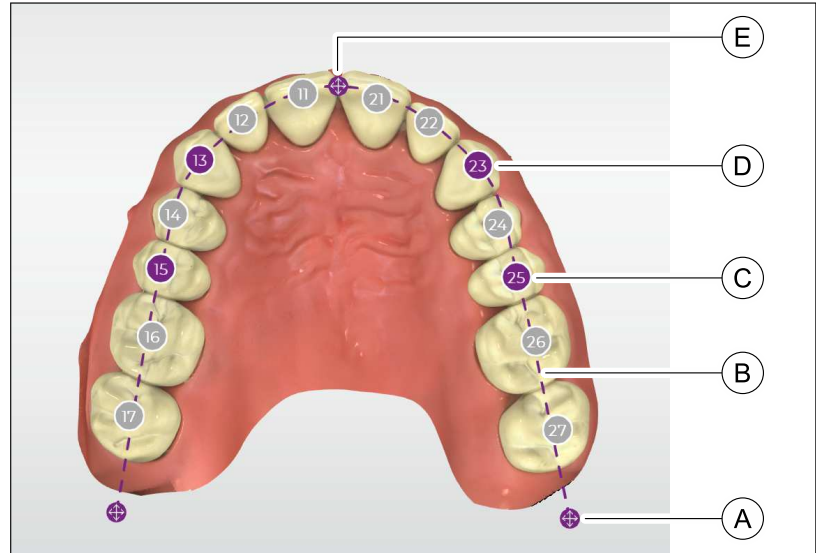   Deciduous teeth can also be inserted using this function.

9.4 Marking teeth (upper jaw)

The step *"ANALYSIS"* is required for the phase.

The following options are available in this step:

- In the scanned model of the upper jaw, the teeth are automatically marked according to an odontogram.
- The odontogram used is defined under ADA/FDI odontogram.
- The individual markings can be manually aligned in the middle of the teeth, whereby a jawline is shown.

Procedure

1. Move the positioning icons (A) by clicking and dragging, so that the depicted jawline (B) approximates to the main jawline.
   The center positioning icon (E) should be on the incisal point.
2. Move the "3" tooth numbers (D) by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram.
   When moving the "3" tooth numbers, the jawline is shown and moves with them.
3. Move the "5" tooth numbers (C) by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram.
   When moving the "5" tooth numbers, the jawline is shown and moves with them.
   ↳ The jawline (B) should now approximate the main jawline.
4. Align the remaining tooth numbers by clicking and dragging so that they are centered over the associated teeth in each case as per the odontogram. For the anterior teeth, the tooth numbers should be slightly oral from the incisal edge.
   The jawline is not shown when aligning the remaining tooth numbers and also does move with them.
5. If a third molar is present, an "8" tooth number must be added in its position (for more on this see below). The "8" tooth number forms the new end of the jawline and replaces the respective positioning icons. Then move the "8" tooth number by clicking and dragging so
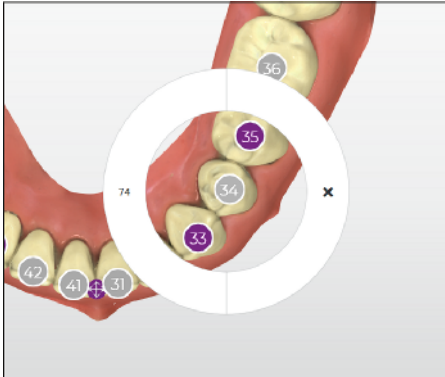
that it is centered over the third molar.
Otherwise the line must go beyond it. Move the positioning symbol at the end of the line by clicking and dragging so that it is at the point at which the third molar would be (see figure above).

Removing tooth numbers or changing to deciduous teeth

If a tooth number is present that is not assigned to a tooth, you can delete this using the tool wheel. You can change an existing tooth to deciduous teeth in exactly the same way.
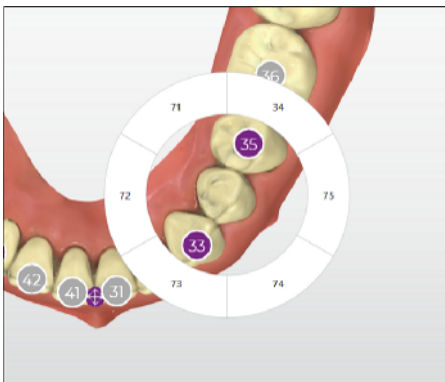
1. Position the cursor over the tooth number to be removed.
2. Open the tool wheel by right-clicking.
3. Click on the X in the tool wheel to remove the tooth number.
   You can use this function to replace existing teeth with deciduous teeth. To do this, instead click on the corresponding tooth number in the tool wheel.

Inserting tooth numbers

If a tooth number is missing, you can insert this using the tool wheel.

1. Position the cursor over the point at which a tooth number is to be inserted.
2. Open the tool wheel by right-clicking.
3. Click in the tool wheel on the tooth number to be inserted.
   Deciduous teeth can also be inserted using this function.

9.5 Separating teeth (lower jaw)

The step *"ANALYSIS"* is required for the phase.

The following options are available in this step:

- The individual teeth and the gums of the lower jaw are separated. The separation is shown using different colors.
- Inaccurate delimitations of adjacent teeth or of a tooth to the gum can be corrected.
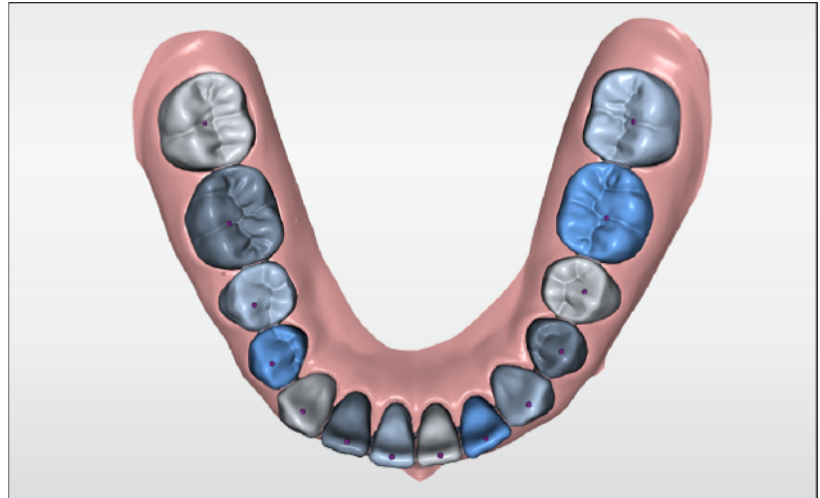
Teeth and gums are separated automatically.

Manual corrections are only required in the event of inaccurate determination of the delineation between teeth and gum.
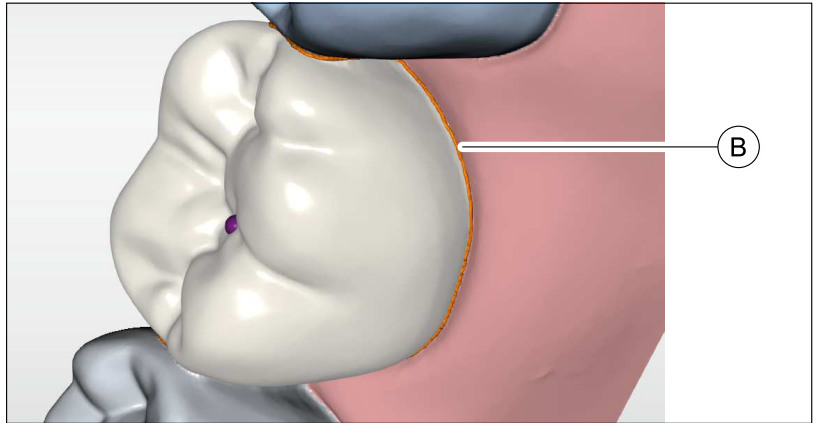
Moving the tooth marker
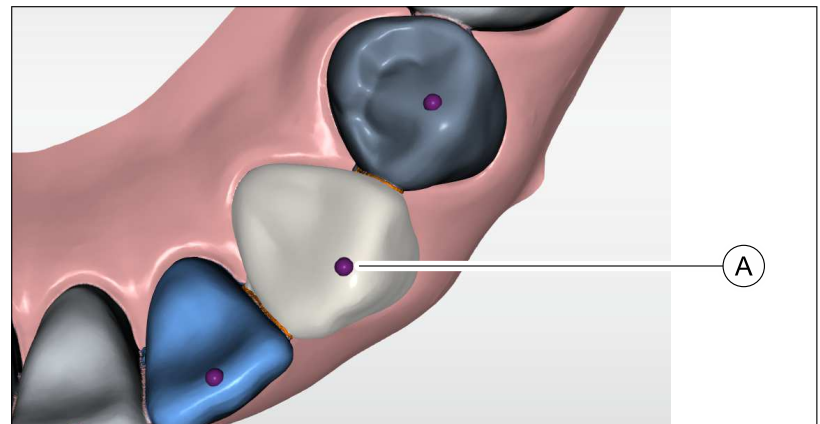
Each tooth is provided with a marker (A). If a tooth is not detected, or only partially so, the automatic delineation between tooth and gum can be corrected by moving the marker.

➢ Move the marker (A) by clicking and dragging so that it is in the center of the tooth.
  ↻ The separation process is automatically re-performed after every movement.

Correcting the boundary line

If moving the marker does not bring the desired result, the boundary line (B) between tooth and gum can also be corrected manually.

1. Double-click on the tooth whose boundary line you want to correct.
   ↳ The tooth is marked and the boundary line (B) is displayed.
2. Correct the boundary line (B) by clicking and dragging so that the entire tooth is enclosed by the line.
3. Click on a point outside the tooth to complete the correction of the boundary line.

9.6 Separating teeth (upper jaw)

The step *"ANALYSIS"* is required for the phase.

The following options are available in this step:

- The teeth and the gums of the lower jaw are separated.
- The separation and possible corrections take place as per step *"Separate Teeth (Lower)"*.

9.7 Adding a base to the model
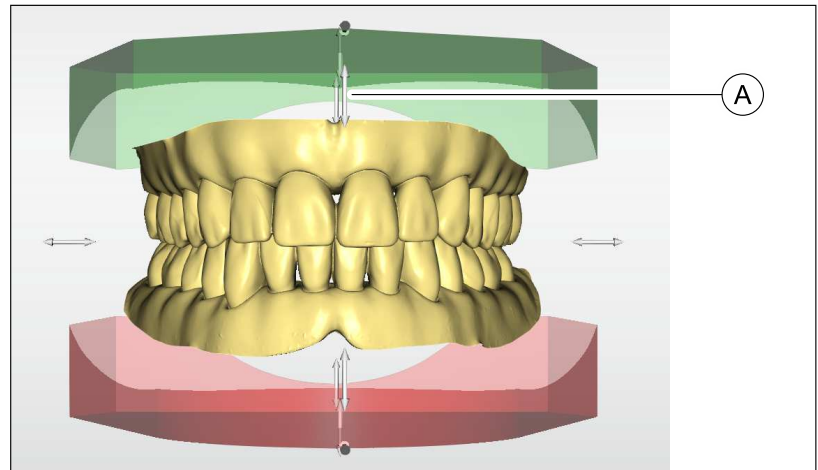
You can add a base to the model in this step.

Tip: Only add a base to the model if you yourself wish to produce a physical model by means of a 3D print.

The following base types are possible:

- Tweed
- Ricketts
- Parallel
- ABO

To add a base, proceed as follows:

1. Switch to the *"Add Base"* step.
2. Select a base type.

3. Adjust the base to the upper and lower jaw using the arrows (A). You can adjust the height, width, and depth of the base.
   - ↳ The following base dimensions are displayed:
     Maxilla base height
     Maxilla total height
     Mandible base height
     Mandible total height
     Total height model

IMPORTANT
Observe the minimum heights of the base required for 3D printing.

4. When the base has been created, confirm with the *"Apply"* button.
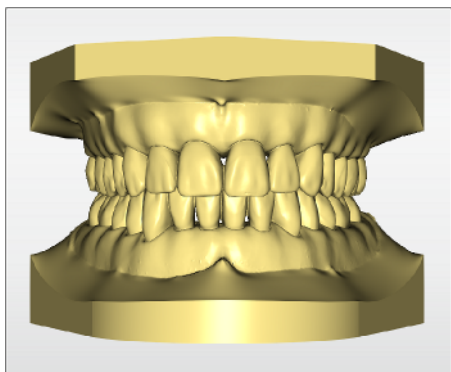
✎ The color of the model with base changes.

9.8 Finishing the phase

✓ The *"ANALYSIS"* phase can be selected.

1. Click on the *"ANALYSIS"* phase.

or

➣ Click on the arrow in the context bar.

    ↳ The program switches over to the *"ANALYSIS"* phase.

10 ANALYSIS phase

In the *"ANALYSIS"* phase, the virtual models are analyzed.

> ⚠ **WARNING**
>
> Analysis of the scanned model alone is not sufficient to justify a surgical procedure.

> ⚠ **WARNING**
>
> Analysis of the scanned model alone is not sufficient to justify an extraction.

The *"ANALYSIS"* phase comprises 6 steps. The steps are depicted in the step menu.

The arrows in the context bar can be used to switch between individual steps.

Length measurements

In the *"Length Measurement"* step, your choice of measurements can be performed on the lower or upper jaw.

Overview of model analyses

In the individual steps *"Occlusion"*, *"Tooth Widths"*, *"Arch Length"*, *"Transversal Measurement"*, and *"Symmetry Measurement"*, measurement points are placed in the model from which the following model analyses are automatically performed:

- Bolton Analysis
- Moyers Analysis
- Nance Analysis
- Class of Occlusion
- Overbite / Overjet
- Sagittal Symmetry
- Center line symmetry

Analyses are only ever performed automatically one after another for which the necessary measurement points are already available. You can inspect the current status of the analyses in the analysis area (A), which is displayed on the left in the main window in every step.

Analysis	Necessary measurements of or requirements for the model
Bolton Analysis	Anterior Bolton analysis: • Tooth widths (central incisors, lateral incisors and canines for both jaws) Complete Bolton analysis: • Tooth widths (central incisors, lateral incisors, canines, both premolars, and the first molar for both jaws)
Moyers Analysis	• Tooth widths (central and lateral incisors for the upper jaw) • Missing tooth widths in the support zones
Nance Analysis	• Tooth widths (central incisors, lateral incisors, canines, both premolars, and the first molar)
Class of Occlusion	• Required teeth must be present (e.g. canines top and bottom, first molars top and bottom)
Overbite / Overjet	• Of central or lateral incisor for both jaws
Sagittal Symmetry	• The top first molars must be present
Center line symmetry	• The central incisors must be present

For example, if you have set the tooth widths, all the required measuring points for the Bolton analysis are then available. The Bolton analysis is performed automatically and displayed in the analysis area.

Prerequisites

In order to be able to change the *"ANALYSIS"* phase, the following steps must first be performed in the *"MODEL"* phase:
• *"Mark Teeth"*
• *"Separate Teeth"*

PDF Export

The results of the analyses can be exported in a PDF document using the *"PDF Export"* button in the tool menu.

Only analysis types are presented in the document for which the necessary measurement points are already available. In order to obtain the totality of the analyses in the document, you must first perform all measurements.
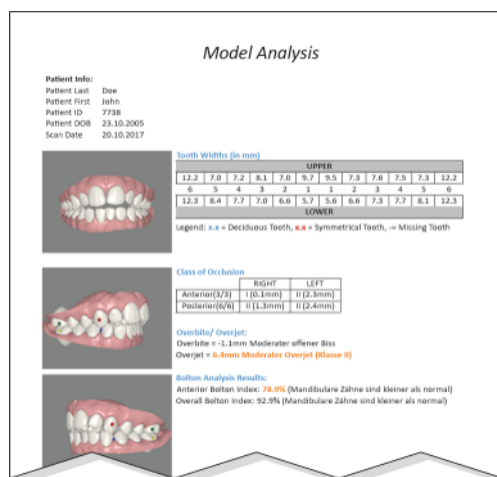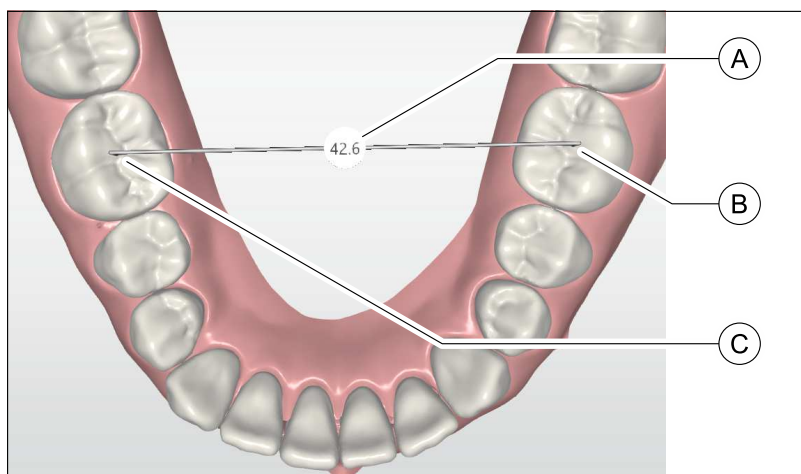
10.1 Length measurement

If you switch to the *"ANALYSIS"* phase, the *"Length Measurement"* step is automatically selected.

In this step, your choice of measurements can be performed on the lower and upper jaw.

1. Click on the starting point of the measurement on the model.
2. Click on the end point of the measurement on the model.
   ↳ A measurement indicator (A) is created.

3. If the measurement indicator is not accurate enough, adjust it by clicking and dragging the drag points (B and C). This works like manual measurements using a caliper.

Follow the described procedure for all desired measurements on the lower and upper jaw. You can switch between the lower and upper jaw in the *"Display Objects"* area.

10.2 Occlusion

In this step you set the required measurement points for the occlusion class analysis.

The step *"Occlusion"* is required in 4 classes. The classes are depicted in the step menu.

- *"Class Right"*
- *"Class Left"*
- *"Overbite"*
- *"Overjet"*

The selected class is highlighted in color.

The arrows in the context bar can be used to switch between individual classes.

The automatically calculated measurement points are presented on the virtual model for every class. If the suggested positions of the measuring points are not precise enough, you can correct them using the following procedure:
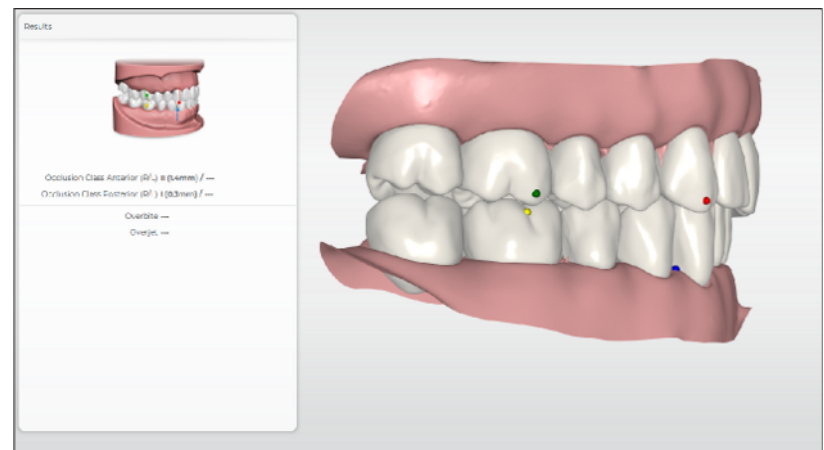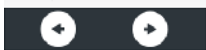

➢ Click on the point you want to correct and drag this to the correct position.
Use the preview image in the analysis area on the left of the main window to get your bearings. This shows the correct position of the individual points.

Perform a check and the any corrections that may be necessary to all occlusion points on the left and right; then follows Overbite and Overjet.

10.3 Tooth widths

In this step you set the required measurement points for the tooth widths.

The tooth widths are calculated automatically for the selected jaw and displayed on the virtual model. If the suggested positions of the measuring points are not precise enough, you can correct them manually.
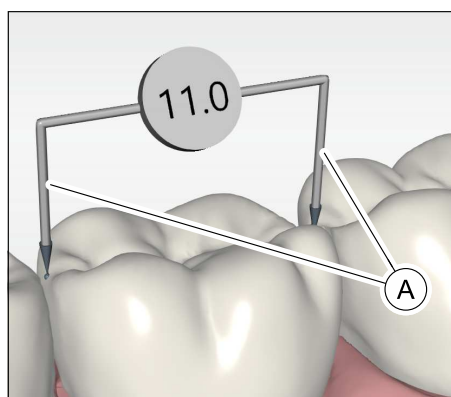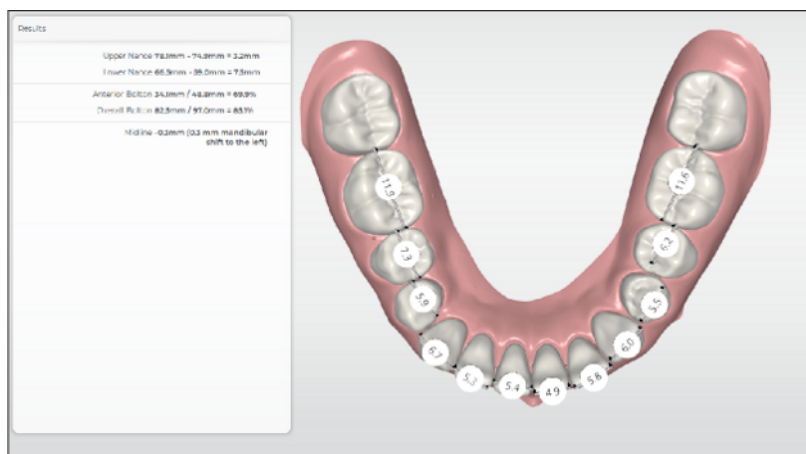

1. Check the positions of all measurement indicators on the selected jaw.
2. If a measurement indicator is not positioned accurately enough, adjust it by clicking and dragging the drag point (A). This works like manual measurements using a caliper.

3. Perform the preceding steps for the lower and upper jaw. You can switch between the lower and upper jaw in the *"Display Objects"* area via the step menu or with arrows in the context bar.

10.4 Arch length

In this step you define the course and length of the dental arch.

The dental arch is calculated automatically for the selected jaw and displayed on the virtual model. If the dental arch is not positioned accurately enough, you can correct them manually.
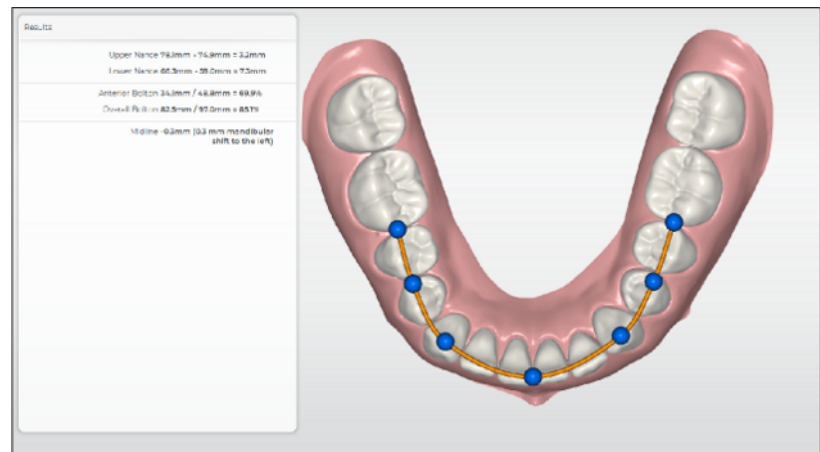
1. A line (A) is then displayed above the model of the selected jaw. This line defines the actual length of the dental arch. Check the position and the course of the line.
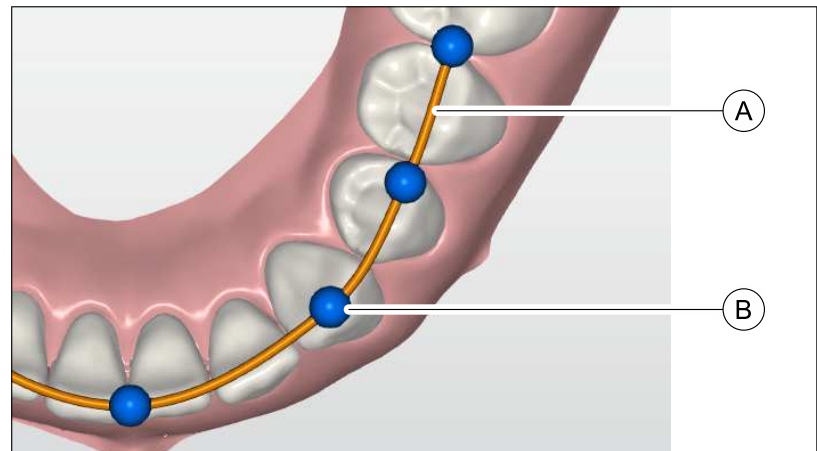
2. If necessary, adjust the line (A) by clicking on the blue circles (A) and dragging.

3. Perform the preceding steps for the lower and upper jaw. You can switch between the lower and upper jaw in the *"Display Objects"* area via the step menu or with arrows in the context bar.

10.5 Transversal measurement

In this step you set the required measurement points for the transversal spatial analysis.

The measurement indicators are calculated automatically for the selected jaw and displayed on the virtual model. If the suggested positions of the measuring points are not precise enough, you can correct them manually.
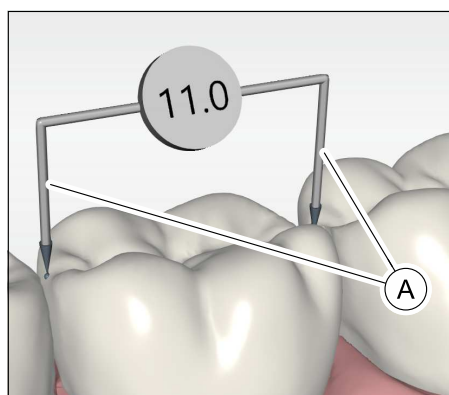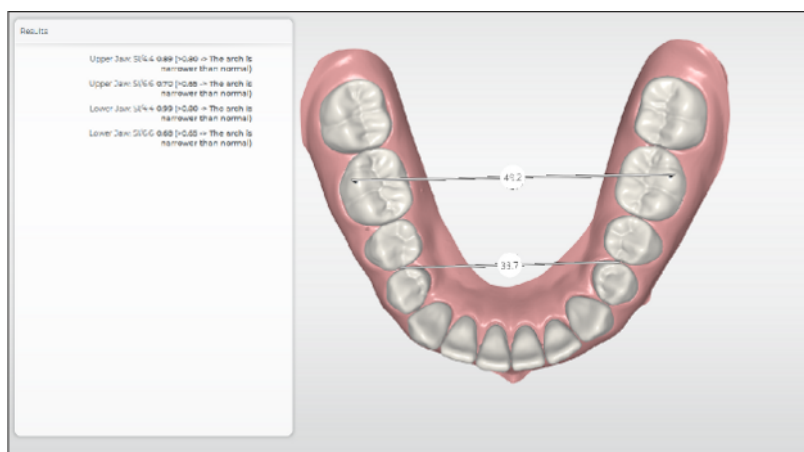
1. Check the positions of both measurement indicators on the selected jaw.

2. If a measurement indicator is not positioned accurately, adjust it by clicking and dragging the drag point (A). This works like manual measurements using a caliper.

3. Perform the preceding steps for the lower and upper jaw. You can switch between the lower and upper jaw in the *"Display Objects"* area via the step menu or with arrows in the context bar.

10.6 Symmetry measurement

In this step you set the required measurement points for the symmetry analysis.

The measurement indicators are calculated automatically and displayed on the virtual model. If the suggested positions of the measuring points are not precise enough, you can correct them manually.
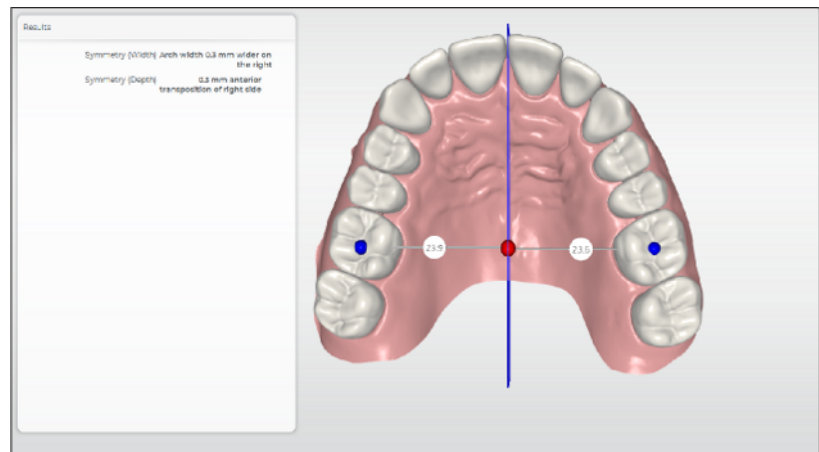
1. Check the positions of both measurement indicators.
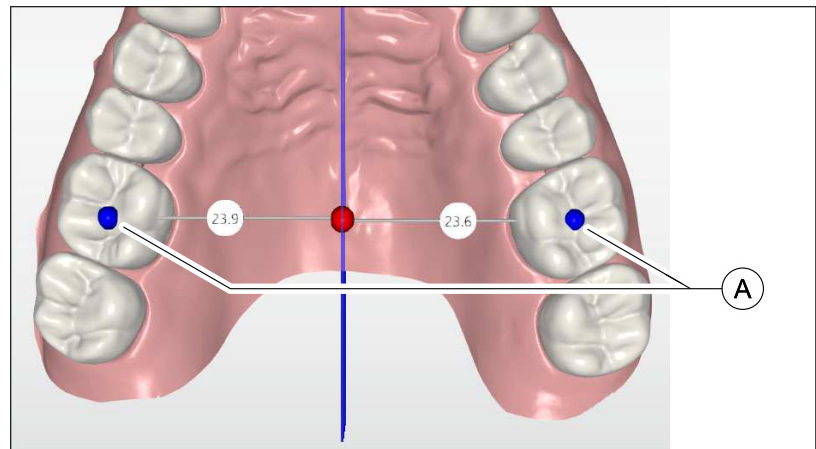
2. If the positions of the end points are not precise enough, adjust them by clicking on and dragging the blue circles (A). The end points should be central over the "6" teeth.
   This step is only required for the upper jaw.

10.7 Finishing the phase

✓ The *"SIMULATION"* phase can be selected.

1. Click on the *"SIMULATION"* phase.

or

➢ Click on the arrow in the context bar.
   ↳ The program switches over to the *"SIMULATION"* phase.

11 SIMULATION phase

IMPORTANT
The treatment simulation involves a purely clarificatory tool with the purpose of motivating the patient for a new smile.
Results from the treatment simulation are not used for therapeutic planning and do not allow for any conclusions to be drawn as to the actual treatment process or the treatment results.

In the *"SIMULATION"* phase an orthodontic treatment of the upper and lower jaw can be simulated using the recorded model data.

The *"SIMULATION"* phase consists of the steps *"Simulate Extraction"* and *"Simulate Treatment"*.

The arrows in the context bar can be used to switch to the preceding or following steps/phases.

Prerequisites

In order to be able to change to the *"SIMULATION"* phase, the following steps must first be performed in the *"MODEL"* phase:

- *"Mark Teeth"*
- *"Separate Teeth"*

11.1 Select fixed teeth and simulate tooth extractions

In the *"Simulate Extraction"* step, mark the teeth not to be moved in the simulation (applicable, for example, with implants) or which are to be extracted during the course of treatment.

The following tool is available:

- *"Simulate Extraction"*

In the *"Display Objects"* menu field, you can show and hide the lower jaw, the upper jaw, and the gingiva.

In the *"Analyzing Tools"* menu field, you can show and hide the occlusal contacts and show and hide the palatine raphe plane.

Procedure

1. Select *"Simulate Extraction"* in the tool.
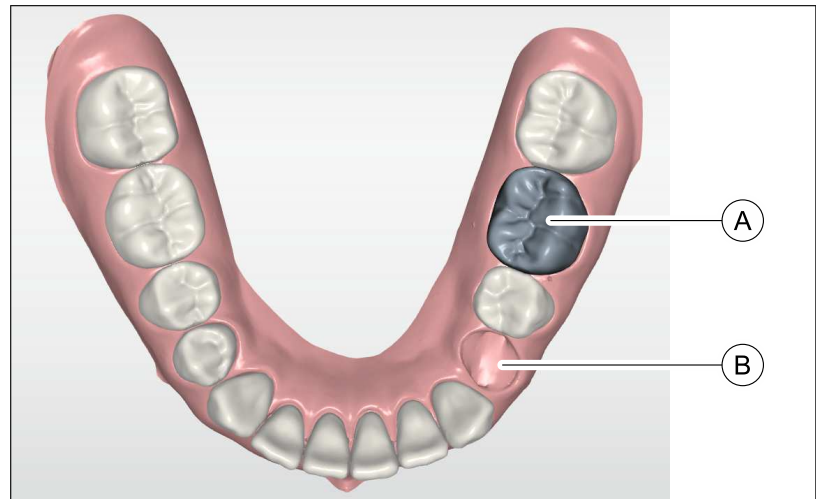
2. Click on a tooth which is not to be moved during the treatment simulation or which is to be extracted during the course of the treatment.

   ↳ The tooth is marked as immovable gray (A).

   ↳ The tooth is not moved during the treatment simulation.

3. To extract the tooth: Click on a tooth that was previously marked as immovable once more.

   ↳ The tooth is hidden (B).

   ↳ The tooth is not taken into account during the treatment simulation.

4. Perform the preceding steps for additional teeth of the lower or upper jaw, if necessary. You can switch between the lower and upper jaw in the *"Display Objects"* area.

Tip: Clicking on a hidden tooth (B) makes it appear again as a movable tooth.

11.2 Treatment simulation

When accessing the step, the treatment simulation is automatically performed, and the result is displayed in the main window.

In the *"Display Objects"* menu field, you can show and hide the lower jaw, the upper jaw, and the gingiva.

In the *"Analyzing Tools"* menu field, you can switch between the views of the original position and the simulated position. You can show and hide the occlusal contacts and show and hide the palatine raphe plane.
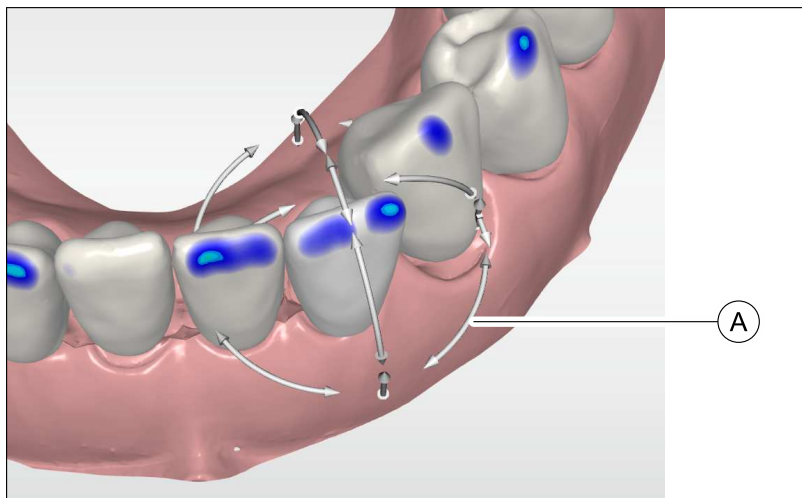
11.2.1 Manually editing the simulation result

If you want to edit the simulation result manually, the following tools are available:

- *"Move"*
- *"Jaw Line"*
- *"Recalculate"*

Positioning teeth

1. Select the *"Move"* tool.

2. Click on the tooth you want to reposition.
   - ↳ The tooth is marked
   - ↳ Position change arrows (A) are shown on the tooth.
3. Click on a position change arrow (A) and drag it to move the tooth in the arrow direction or to rotate it.
4. Perform all the position changes on the tooth.
5. Perform the preceding steps for all teeth whose position you want to change.
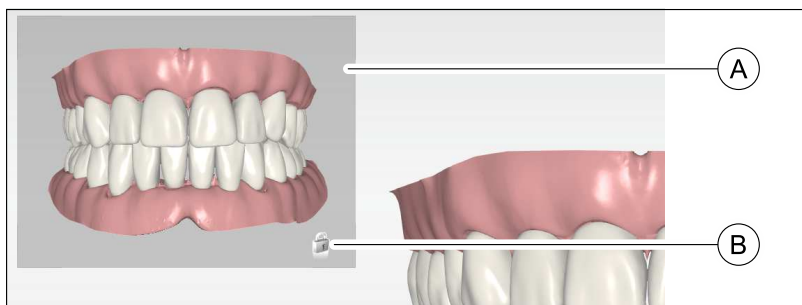
Tip: Also use the preview window (A) on the left of the main window for assessing the tooth position. Depending on the tooth selected in the main window, the view in the preview window is updated. You can fix the view to a particular tooth by clicking on the lock icon (B). An additional click on the lock icon undoes the fixing.

Positioning the teeth in free mode

The position of the adjacent teeth is not influenced dynamically in free mode when positioning the teeth.

- ✓ The *"Move"* tool is selected.
1. Click on *"Free Mode"*.
   - ↳ The box is ticked.
2. Proceed as described above to position the teeth.

Editing the jaw ridge line

1. Select the *"Jaw Line"* tool.
   Many templates are available. Select the template from the drop-down menu. "Auto" is preselected by default.
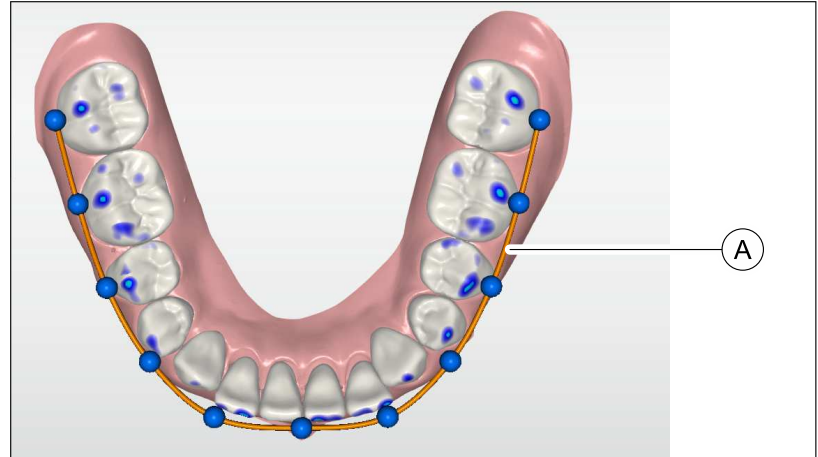
Ä The simulated jaw ridge line (A) is displayed in the model.
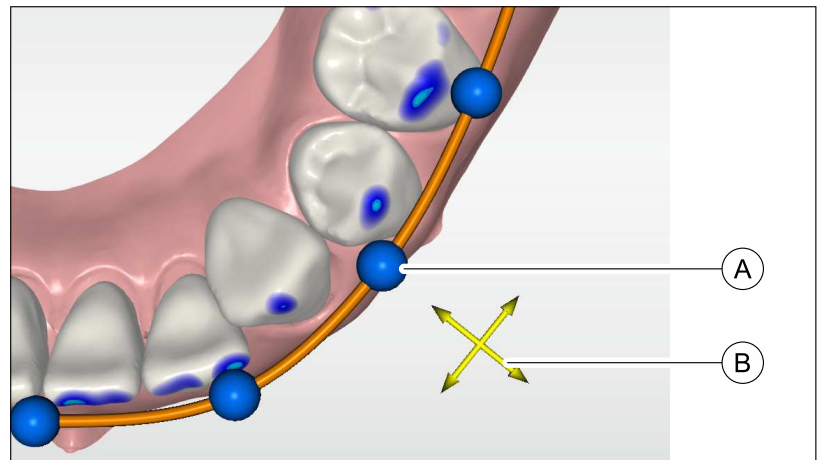
2. Adjust the line by moving the blue circles (B).
   Click on the blue circle you want to move.
   - Ä A coordinate system (B) is shown on the circle.
3. Click and drag the circle.
   - Ä The circle can only be moved in the space which is stretched by the yellow-colored arrows in the coordinate system (B).
   - Ä The new position of the teeth is calculated in real time.
4. If you want to move the circle in another direction, you must change the view to the virtual model accordingly.
5. Perform the preceding step for the lower and upper jaw. You can switch between the lower and upper jaw in the *"Display Objects"* area.

Recalculate

The positioning of the teeth can be reset to the condition originally calculated by the application with the *"Recalculate"* tool.

1. Select *"Recalculate"* in the tool.
2. Click on *"Apply"* to reset the positioning of the teeth.

11.3 Finishing the phase

✓ The *"EXPORT"* phase can be selected.

1. Click on the *"EXPORT"* phase.

or

➢ Click on the arrow in the context bar.

↳ The program switches over to the *"EXPORT"* phase.

12 EXPORT phase

In this phase, you can perform the following:

- Send model to the Connect Case Center portal
- Sending a model to Aligner
  - SureSmile
  - ClearCorrect
  - Invisalign
  - Ideal Smile Aligner
- Exporting a model for manufacturers
  - 3M Incognito
  - CA Digital
- Exporting a model in the following other formats
  - STL file with closed geometry
  - STL file
  - ABO Export
  - OnyxCeph
  - Stratasys
  - SICAT
  - Dolphin 3D (interface with Dolphin 3D software required)

The most recently selected exports are shown under *"Recent Choices:"*.

12.1 Send model to the Connect Case Center portal

Model data in the Connect Case Center portal

The user contact data is saved within the Connect Case Center portal and is used by Dentsply Sirona to make contact if necessary. Wherever possible users should send patient data via the Connect Case Center portal in anonymized form only. This data is deleted at regular intervals in the portal.

✓ You are registered on *"https://customer.connectcasecenter.com/"* as a dentist.

✓ In your account settings at least one favored laboratory is selected.

➢ Click on the *"Connect Case Center"* button.

12.1.1 Log in to the portal from the Connect software

1. Enter user name and password.
2. Activate the relevant option if you want to save the user name and password.
3. In the step menu, click on *"Ok"*.
   - ✎ The data are uploaded in parallel to the information being entered in the portal.

12.1.2 Enter order data

In this step you can select the lab to which the case is to be sent and enter the desired delivery date.

IMPORTANT
Maximum 5 labs
You can save a maximum of 5 labs in the list of your favorite labs.

Via *"Edit your favourite laboratories"* you can add labs to or delete labs from the list.

Under *"Return Date"* you can select the delivery date by clicking on the desired day in the calendar. Under *"Time"* you can also state a delivery time.

Then click on *"Add Additional Information"* to go on to the next step. Your preferred laboratory has saved individual order information, which must be entered for the return date.

12.1.3 Add additional information

In this step you must add the patient's gender and insurance type (Germany only).

Under *"Additional Instructions"*, either a wide text field is provided or individual fields for further information are shown, which were created by their laboratory.

Using the *"Additional Files"* function you can send additional files (photos).

Then click on the *"Add To Cart"* button to move to the shopping cart or click on *"Submit"* to send the order immediately.

12.1.4 Shopping cart

In the shopping cart you can check the order details, modify them or delete the order from the shopping cart.

As soon as the file has been fully uploaded and all the information is correct, you can send the order to your lab via *"Submit cart"*. To do so under *"Verification"* you must enter your password and confirm it with *"Ok"*. The order list is then inserted automatically.

12.1.5 Order list

All sent orders are displayed in the order list. The most recently sent order is always at the top.

You can filter the orders by the various statuses via the filter next to the list.

In order to view the order details you must click the relevant order in the list so that it is highlighted in orange. Then you can view the details by clicking on *"View Order"* in the step menu.

Via the step menu you can call up individual items of information on the highlighted order.

12.2 Sending models to an aligner manufacturer

12.2.1 Sending models to SureSmile

A model is exported to SureSmile via the Connect Case Center portal.

Model data in the Connect Case Center portal

The user contact data is saved within the Connect Case Center portal and is used by Dentsply Sirona to make contact if necessary. Wherever possible users should send patient data via the Connect Case Center portal in anonymized form only. This data is deleted at regular intervals in the portal.

✓ You are registered on *"https://customer.connectcasecenter.com/"* as a dentist.

✓ In your account settings *"SureSmile"* is selected as a favored laboratory.

1. Click the *"SureSmile"* button in the *"Aligners"* menu.
2. Click on *"Add To Cart"* in the context bar.
3. Log on to the Connect Case Center portal.
4. Select the patient's gender.
   Optionally, you can enter additional comments in the text field.
5. Submit the data.
   ✎ After a brief delay, a chat window appears with a link to the case on the SureSmile website.

12.2.2 Send model to ClearCorrect

A model is exported to ClearCorrect via the Connect Case Center portal.

Model data in the Connect Case Center portal

The user contact data is saved within the Connect Case Center portal and is used by Dentsply Sirona to make contact if necessary. Wherever possible users should send patient data via the Connect Case Center portal in anonymized form only. This data is deleted at regular intervals in the portal.

✓ You are registered on *"https://customer.connectcasecenter.com/"* as a dentist.

✓ In your account settings *"ClearCorrect"* is selected as a favored laboratory.

1. Click the *"ClearCorrect"* button in the *"Aligners"* menu.
2. Click on *"Add To Cart"* in the context bar.
3. Log on to the Connect Case Center portal.
4. Select the patient's gender.
   Optionally, you can enter additional comments in the text field.
5. Submit the data.

12.2.2.1 Log in to the portal from the Connect software

1. Enter user name and password.
2. Activate the relevant option if you want to save the user name and password.
3. In the step menu, click on *"Ok"*.
   ↳ The data are uploaded in parallel to the information being entered in the portal.

12.2.2.2 Enter order data

You can enter the desired delivery date in this step.

Under *"Return Date"* you can select the delivery date by clicking on the desired day in the calendar. Under *"Time"* you can also state a delivery time.

Then click on *"Add Additional Information"* to go on to the next step.

12.2.2.3 Add additional information

In this step you must add the patient's gender and insurance type (Germany only).

Under *"Additional Instructions"*, either a wide text field is provided or individual fields for further information are shown, which were created by their laboratory.

Using the *"Additional Files"* function you can send additional files (photos).

Then click on the *"Add To Cart"* button to move to the shopping cart or click on *"Submit"* to send the order immediately.

12.2.2.4 Shopping cart

In the shopping cart you can check the order details, modify them or delete the order from the shopping cart.

As soon as the file has been fully uploaded and all the information is correct, you can send the order to your lab via *"Submit cart"*. To do so under *"Verification"* you must enter your password and confirm it with *"Ok"*. The order list is then inserted automatically.

12.2.2.5 Order list

All sent orders are displayed in the order list. The most recently sent order is always at the top.

You can filter the orders by the various statuses via the filter next to the list.

In order to view the order details you must click the relevant order in the list so that it is highlighted in orange. Then you can view the details by clicking on *"View Order"* in the step menu.

Via the step menu you can call up individual items of information on the highlighted order.

12.2.3 Sending the model to Invisalign

A model is exported to Invisalign via the Connect Case Center portal directly into your customer account at InvisalignDoctor Site (http://vip.invisalign.com.)

IMPORTANT
Exports to Invisalign are only possible with models that have been acquired with CEREC Omnicam / Omnicam.

Model data in the Connect Case Center portal

The user contact data is saved within the Connect Case Center portal and is used by Dentsply Sirona to make contact if necessary. Wherever possible users should send patient data via the Connect Case Center portal in anonymized form only. This data is deleted at regular intervals in the portal.

✓ You are registered on *"https://customer.connectcasecenter.com/"* as a dentist.
1. Log in at *"https://customer.connectcasecenter.com/"*.
2. Under My account, select the option Your Laboratories.
3. Select Invisalign.
4. Follow the instructions to carry out the authentication process.
   ↳ Your account on the Connect Case Center portal is linked to your Invisalign customer account.
5. Click the button in the *"Invisalign"*Aligners menu.
6. Click on *"Add To Cart"* in the context bar.
7. Log on to the Connect Case Center portal.
8. Select the patient's gender.
   Optionally, you can enter additional comments in the text field.
9. Submit the data.

12.2.4 Sending a model to Ideal Smile Aligner

A model is exported to Ideal Smile Aligner via the Connect Case Center portal.

Model data in the Connect Case Center portal

The user contact data is saved within the Connect Case Center portal and is used by Dentsply Sirona to make contact if necessary. Wherever possible users should send patient data via the Connect Case Center portal in anonymized form only. This data is deleted at regular intervals in the portal.

✓ You are registered on *"https://customer.connectcasecenter.com/"* as a dentist.

✓ In your account settings *"Ideal Smile Aligner"* is selected as a favored laboratory.

1. Click the button in the *"Ideal Smile Aligner"*Aligners menu.
2. Click on *"Add To Cart"* in the context bar.
3. Log on to the Connect Case Center portal.
4. Select the patient's gender.
   Optionally, you can enter additional comments in the text field.
5. Submit the data.

12.2.4.1 Enter order data

You can enter the desired delivery date in this step.

Under *"Return Date"* you can select the delivery date by clicking on the desired day in the calendar. Under *"Time"* you can also state a delivery time.

Then click on *"Add Additional Information"* to go on to the next step.

12.2.4.2 Add additional information

In this step you must add the patient's gender and insurance type (Germany only).

Under *"Additional Instructions"*, either a wide text field is provided or individual fields for further information are shown, which were created by their laboratory.

Using the *"Additional Files"* function you can send additional files (photos).

Then click on the *"Add To Cart"* button to move to the shopping cart or click on *"Submit"* to send the order immediately.

12.2.4.3 Shopping cart

In the shopping cart you can check the order details, modify them or delete the order from the shopping cart.

As soon as the file has been fully uploaded and all the information is correct, you can send the order to your lab via *"Submit cart"*. To do so under *"Verification"* you must enter your password and confirm it with *"Ok"*. The order list is then inserted automatically.

12.2.4.4 Order list

All sent orders are displayed in the order list. The most recently sent order is always at the top.

You can filter the orders by the various statuses via the filter next to the list.

In order to view the order details you must click the relevant order in the list so that it is highlighted in orange. Then you can view the details by clicking on *"View Order"* in the step menu.

Via the step menu you can call up individual items of information on the highlighted order.

12.3 Exporting a model for manufacturers

1. Select either the *"3M Incognito"* or *"CA Digital"* button in the *"Manufacturers"* menu.
2. Click on *"Export"* in the context bar.
3. Select the storage location and change the file name if necessary.

12.4 Other export formats

12.4.1 Export model as STL file

You can export the model as an STL file with closed geometry or as an STL file.

1. In the *"File Export"* menu, select the *"Closed Geometry STL File"* or the *"STL File"* button.
2. Click on *"Export"* in the context bar.
3. Select the storage location and change the file name if necessary.

12.4.2 Exporting models for the ABO upload

1. In the *"File Export"* menu, select the *"ABO Export"* button.
2. Click on *"Export"* in the context bar.
3. Select the storage location and change the file name if necessary.
   - ⮡ When saving, the data is inspected for defects in the triangle mesh of the model which could lead to the model being declined when transmitted to the ABO. If no defects are found, the file is saved to the selected storage location with the selected file name. Otherwise, the model will be displayed with indicated defects/problems and tools will be provided to resolve them.

12.4.3 Exporting models for OnyxCeph, Stratasys, SICAT or Dolphin 3D

1. Click on one of the *"OnyxCeph"*, *"Stratasys"*, *"SICAT"*, or *"Dolphin 3D"* buttons in the *"File Export"* menu.
2. Click on *"Export"* in the context bar.
3. Select the storage location and change the file name if necessary.

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We reserve the right to make any alterations which may be required due to technical improvements.

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