



# DTX Studio™ Lab 1.12

Instructions for Use

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**GTIN Information:**

The following table lists the GTIN information for the devices described in this IFU.

Device	GTIN
DTX Studio™ Lab 1.12	07332747180756



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Consult instructions  
for use



Cautions

**For Prescription Use Only. Caution:** Federal (United States) law restricts this device to sale by or on the order of a clinician, medical professional or physician.

**Canada license exemption:** Please note that not all products may have been licensed in accordance with Canadian law.

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# Welcome to DTX Studio™ Lab

## DEVICE DESCRIPTION

DTX Studio™ Lab is an information management stand-alone software platform that integrates CAD Software to render a complete design of a dental restoration.

The software receives surface scan data containing topographical characteristics of real teeth, and uses a CAD software integrated within the proposed information management software platform to perform the actual CAD design of the dental restoration.

Additional functions of the software platform include creating and tracking cases.

The resulting computer file contains the dental restoration design in a digital form.

The dental restoration can be manufactured centralized or locally using the output file.

The digital output does not include the abutment to implant connection interface.

DTX Studio™ Lab includes the following features:

1. Basic Application: includes information on basic functionality (Help framework).
2. Case Management: enter and edit the general information of the cases and patients.
3. Scan Center: assists in acquiring all required scans for the design setup.
4. CAD Design: allows for virtual design of different types of restorations.
5. Order Manager: allows for ordering designed components and order tracking.
6. Integration with DTX Studio™ Implant (formerly NobelClinician®) and DTX Studio™ Clinic.

## INTENDED PURPOSE

Intended purpose of the software is to support the design of patient-specific dental restorations.

## INTENDED USE

DTX Studio™ Lab is intended as an aid to the restoration of chewing function in partially or fully edentulous mandibles and maxillae.

DTX Studio™ Lab is intended to be used by dental laboratory staff or a dental practitioner for designing patient specific component of a two-piece, one-piece or hybrid dental implant abutment. The single or multiple patient specific abutment design is intended to be used by the manufacturer of an endosseous dental implant abutment to create the final device.

## INTENDED USER AND INTENDED PATIENT TARGET GROUP

DTX Studio™ Lab is intended to be used by dental laboratory staff or a dental practitioner.

Intended for patients needing to undergo dental treatment.

## DEVICES WITH MEASURING FUNCTION

Measurement accuracy depends on the quality of the input objects, the used surface scanner hardware, its calibration and acquisition settings. The measurement cannot be more precise than the resolution of the 3D objects. DTX Studio™ Lab software reports the value, rounded to three digits after the decimal point.

## CONTRAINDICATIONS

None identified for DTX Studio™ Lab.

## CAUTIONS/PRECAUTIONS

Close collaboration between surgeon, restorative dentist and dental laboratory technician is essential for a successful treatment.

## Cautions during scanning

During the scanning procedure, the alignment of position locator should be verified before commencing with the design of the restoration.

Please ensure objects in the scanner do not change position during the scan procedure. Deviation will lead to misalignment of scan data.

## Design cautions

Indications for correctly designing a product are shown in the software in order to avoid non-conforming products that might delay treatment or injure the patient. Users are additionally advised to follow the design guidelines specified for the particular prosthesis as provided by the manufacturer.

### Caution:

Users are advised to check patient/case name and restoration requested before placing the order of the restoration.

## WARNINGS

### Warnings scanner calibration

In order to get accurate scans and thus avoid misfits and bad designs, it is important to calibrate the scanner regularly.

When starting the NobelProcera 2G scan wizard, a warning message is displayed should the calibration of the scanner need attention:

- **Calibration outdated:** The current calibration is outdated. It is advised to run a full calibration scan before starting to scan.
- **Calibration invalid:** The current calibration is invalid. Please run a full calibration scan before starting to scan.

If the KaVo LS 3 scanner needs calibration, a notification is shown in the notification area. When you start the KaVo LS 3 scan wizard, the following warning is displayed: “The current calibration is invalid. Please run a full calibration before starting to scan.”

## CYBERSECURITY

It is recommended that active and up-to-date antivirus and anti-malware software, together with a correctly configured firewall, are installed on the computer where DTX Studio™ Lab is to be used.

Furthermore, always lock the computer when it is left unattended.

## COMPATIBILITY

DTX Studio™ Lab is not connected with other medical devices. The software is compatible with previous versions of DTX Studio™ Lab.

## INTEROPERABILITY

DTX Studio™ Lab is interoperable with DTX Studio™ Clinic and DTX Studio™ Implant.

## INTENDED LIFETIME

For software the intended lifetime is three years.

## PERFORMANCE REQUIREMENTS AND LIMITATIONS

DTX Studio™ Lab has dependencies on the operating systems it is used with. It is therefore important to make sure DTX Studio™ Lab is used only with approved operating systems. More information about which operating systems are approved can be found in the 'Computer Guidelines for DTX Studio™ Lab'.

## **PERFORMANCE CHARACTERISTICS**

Open design workflows for maximum business impact.

The software is open for main intraoral and desktop scanners input. It enables the user to produce in-house to industrial production. It promotes workflows that bring the user and clinicians together from treatment planning to final restoration.

## **CLINICAL BENEFITS AND UNDESIRABLE SIDE EFFECTS**

DTX Studio™ Lab is a component of treatment with a dental implant system and/or dental crowns and bridges. As a clinical benefit of treatment, patients can expect to have their missing teeth replaced and/or crowns restored.

Undesirable side effects: None known.

## **NOTICE REGARDING SERIOUS INCIDENTS**

If, during the use of this device or as a result of its use, a serious incident has occurred, please report it to the manufacturer and to your national authority. The contact information for the manufacturer of this device to report a serious incident is as follows:

**Nobel Biocare AB**

<https://www.nobelbiocare.com/complaint-form>

## **FACILITIES AND TRAINING**

It is strongly recommended that clinicians, new as well as experienced users of our software read the IFU before using it the first time. A wide range of courses for various levels of knowledge and experience can be provided upon request. For more information please contact your sales representative or customer support.

## **HANDLING PROCEDURES**

### **Professional use**

DTX Studio™ Lab shall be for professional use only.

## **SYSTEM REQUIREMENTS**

We advise to check the system requirements before starting the installation of the software. To obtain information on minimum and/or recommended requirements, please contact customer support. New versions of the software may require higher requirements for hardware or operating system.


## **INSTALLATION OF THE SOFTWARE**

To obtain information on how to install the software, please contact the authorized technician or customer support.



# Start

## HOW TO START DTX STUDIO™ LAB



1. To open DTX Studio™ Lab, double-click the shortcut icon  on the desktop.
2. Select the user.
3. Enter the corresponding password.
4. Click **Log in**.

If you have forgotten your password, click **Forgot password** to go to DTX Studio™ Go. Click **Forgot password** on this login page. Enter your username, select **I'm not a robot** and click **Reset password**. A link to reset your password will be sent to your e-mail address.

**Note:** If you did not receive your DTX Studio™ Go username and password by mail, please contact customer support.

## SETTINGS



To adjust the settings in DTX Studio™ Lab:

1. Click **Menu** .
2. Click **Settings** .
3. Adjust the settings.  
To set the scanner to be used with DTX Studio™ Lab, click **Scanners** and select the lab scanner (KaVo LS 3 or NobelProcera 2G).
4. Click **OK**.

## SCAN CENTER CONFIGURATION

The **DTX Studio™ Lab** icon in the notification area at the bottom of the screen handles scanner errors, and allows you to calibrate the scanner.

The scan center depends on the type of scanner that is set to be used with DTX Studio™ Lab:

-  KaVo LS 3
-  NobelProcera 2G



Make sure to calibrate the scanner before using it for the first time.

### Scanner calibration

Click the **DTX Studio™ Lab** icon ( or ) in the notification area.

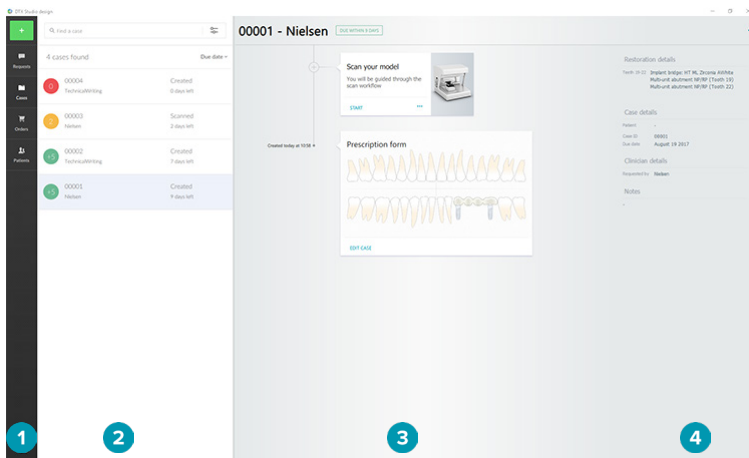
#### KaVo LS 3 scanner calibration

1. On the **Devices** tab, next to the name of the scanner, click **Calibrate**.
2. Enter the numbers that can be found on the calibration object.
3. Place the calibration object on a holder in the scanner and click **Calibrate**.
4. Click **Close**.

#### Optimet 2G scanner calibration



1. Click **Calibrate scanner**.
2. Select **Check calibration** or **Full calibration**.
3. Place the calibration ball in the scanner and click **Start**.
4. Click **Finish**.

## EXPLORING THE WORK AREA




- 1 Sidebar
- 2 Overview list
- 3 Request, case, order or patient details
- 4 Patient and clinician details

## HOW TO CLOSE DTX STUDIO™ LAB

Make sure to close the scan, design and bar modules. In the Windows taskbar, click the scan module icon  or the design or bar module icon  to go to the respective module and click x in the upper-right corner.

To close DTX Studio™ Lab:

1. Click **Menu** .
2. Click **Quit**.

# From scan to design to order


Follow the steps below to create a design.

- 1** Create a case (see page 12).
- 2** Perform or import the necessary scans (see page 16).
- 3** Design the restorations (see page 18), create the model (see page 22) or design the bar (see page 24).
- 4** Order the product (see page 27).

# Cases

Click **Cases**  in the sidebar to get an overview of the cases in DTX Studio™ Lab.

## CREATING A RESTORATION CASE

1. Click  in the upper-left corner and select **Design restoration**.
2. Fill in the case information. Click **Next**.
3. Select a single tooth by clicking it, or select multiple teeth by dragging a box over them on the tooth chart.
4. Select a restoration type.

**Note:** The restoration types available depend on the products released in your country and the software version you are running. For in-lab restorations to be visible, a production device needs to be registered. This can be done on DTX Studio™ Go.

5. If applicable, select the production method. Select either **Nobel Biocare production** or one of your registered production devices.


**Note:** For products meant for In-lab production, it's the responsibility of the user to follow the instructions for use provided by the equipment and material manufacturer, complying with their product parameters and procedures.

Nobel Biocare strongly recommends that you validate the accuracy and performance of the device produced locally.

6. Select other parameters and click **Finish**.
7. For a multiple-tooth restoration, click the tooth or the tooth number where you want to place an interface. Select the interface type and its parameters. Click **Finish**. In the same way, place the other interfaces.
8. Click **Finish**.

**Note:** A case can also originate from a request in DTX Studio™ Implant.

## CREATING A MODEL CASE


1. Click  in the upper-left corner and select **Produce model from scan**.
2. Fill in the case information. Click **Finish**.
3. Add files:
  - Drag and drop the .stl or .ply files on the drop zone. Alternatively, click **Browse**, go to the files and click **Open**.
  - To reuse an existing patient's previous scans or designs, click **Reuse patient data**. Select a scan or design. Click **Add**.
4. Click **Next**.
5. Select the scanned tooth range, the type of scan and scanner. Click **Finish**.
6. Correct the orientation of the scan by using the interaction icons in the upper right of the screen.
7. Click **Finish**.


## REQUESTS

- Through the cloud service, a DTX Studio™ Implant user may send you a request to scan a case, to produce a template, to create a LabDesign or to design and calculate a TempShell provisional.
- A DTX Studio™ Clinic user may send a restoration order, including intraoral scans or other images.
- Alternatively via DTX Studio™ Go a user may request you to design a restoration. These requests can be sent to you, provided that a connection was established in DTX Studio™ Implant, DTX Studio™ Clinic or DTX Studio™ Go and DTX Studio™ Lab.

### Connections




To establish the connection:

1. Click **Menu** .
2. Click **Connections**.
3. Click **Add Connection**.
4. Enter the DTX ID of the person or practice you want to connect with.
5. Click **Add Connection** to confirm. An e-mail with an invitation is sent to this connection.
6. Click **Close**.

As soon as this connection accepts the invitation, the status of the connection changes from **Invitation sent** to **Accepted**. Then the received requests are shown in the **Requests**  list.


New connection requests sent from DTX Studio™ Implant to DTX Studio™ Lab have the status **Requested**. Click **Accept** to confirm the connection.

### Creating a case from a request

On the left sidebar, click **Requests**  to open the request list. If there are new requests, a red dot appears on the **Requests** tab  for easy notification. To refresh the list manually, click the refresh button . A request that has not yet been accepted appears in bold.

To create a case from a request:

1. Select a request in the **Requests** list.
2. Click **Start request**.
3. The case is created. If the patient record exists, select either **Create new patient** to store the case in a new record, or click **Link patient** to add the case to an existing record.

**Note:** If the request is not sent through DTX Studio™ Go or via DTX Studio™ Clinic, create a patient by clicking  and select **Create Restoration** followed by **Import** of scan data from selected folder.

### Sharing the result of a request

To share the requested scan or (the design of) the calculated TempShell:

1. Click **Share scan** on the **Scan result** card or click **Share** on the **Design** or **Calculated TempShell** card.
2. In the **Send to** field, the connection who requested the case is shown.
3. Click **Share**. The case is sent to the connection.

## MANAGING CASES

- To edit a case, click **Edit case** on the **Prescription form** card.
- To delete a case, right-click the case in the **Cases** list, and select **Delete**.

## SORTING, SEARCHING AND FILTERING CASES

To find a case, sort or filter the case list or use the search function.

To sort the cases:


1. On the **Cases** list, click the down arrow .

2. Select one of the following:
  - **Due date**
  - **Patient name**
  - **Clinician name**
  - **Status**
  - **Creation date**
  - **Last modified date**
3. Select **Ascending** or **Descending**.

To filter the cases:

1. On the **Cases** list, click .
2. Select **All cases**, **Cases in progress** or **Finished cases**.

To search for a case:

- In the  **Find a case** search box, enter (a part of) the patient name, patient ID, or clinician name to be searched for.
- To clear the search results, click **X**.

## FOLLOWING UP ON A CASE

In the treatment line, on the right-hand side of the case overview list, follow up on the selected case. Follow the sequential steps on the treatment line. The most recent step is always at the top.

### Restoration cases

For a restoration case, the sequential steps or cards are as follows:

1. **Prescription form:** The first card will show the tooth chart.
2. **Scan or import your model:** Click **Start** or **Scan** to enter the scan module.

#### Notes:

- If the restoration case is based on a restoration request and scans were sent together with the request, click **Define scans** to link the uploaded scans to a type of scan object.
  - For LS3 scanners only: If the prescription contains restorations on both jaws, select the jaw with which you want to start. Click **Add case for opposing jaw** on the **Model Scan** card. Scan the second jaw.
3. **Model scan:** The card will show the scan result.
  4. **Design your case:** Click **Start** or **Scan** to open the design module. To create a model, click **Create model**.
  5. **Case design:** The card will show the case design.
  6. **Place your order:** Click **Start** to open the order wizard.
  7. **Order receipt:** The card will show the order receipt.


### Model cases

For a model case, the sequential steps or cards are as follows.

1. **Import setup:** The first card will show the scan setup of the imported scan.
2. **Import result:** Click **Create model** to start designing the model.
3. **Place your order:** Click **Start** to open the order wizard.
4. **Order receipt:** The card will show the order receipt.

### Scan cases



For a scan case, the sequential steps or cards are as follows:

1. **Scan request:** To create a new case based on a request, select the request in the **Requests** list  and click **Start request**.

2. **Scan setup:** For an existing scan case, a card with the scan setup is displayed.
3. **Scan or import your model:** Click **Start** to open the scan module.
4. **Scan result:** The last card will show the scan result. Click **Create model** to create a model. Click **Share scan** to share the scan with the clinician who sent the request.

### Template cases

For a template case, the sequential steps or cards are as follows:



1. **Template request** (Requests list): To create a new case based on a request, select the request in the **Requests** list  and click **Start request**.
2. **Template request** (Cases list): For an existing template case, a card with the template request is displayed in the **Cases** list .
3. **Design:** Click **Produce** to export the .stl file for production and select the destination folder.

### Notes

- It is the responsibility of the template manufacturer to ensure that the equipment used is capable of producing surgical templates suitable for guided surgery. Nobel Biocare strongly recommends that you validate the accuracy and performance of the surgical templates prior to use.
- In the US and other countries, the physical surgical template for endosseous dental implant placement is a medical device. Please contact the local regulatory agency for more information regarding the regulatory status and requirements related to manufacture of these surgical templates.


### TempShell cases

TempShells or immediate provisionals enable a patient to leave an implant placement appointment with a temporary crown or bridge. For a TempShell case, the sequential steps or cards are as follows:

1. **TempShell request:** To create a new case based on a request, select the request in the **Requests** list  and click **Start request**.  
**Note:** A TempShell case can also be imported via clicking  and selecting **Import case**.
2. **Prescription form:** For an existing TempShell case, a card will show the tooth chart.
3. **Design your case:** Click **Start** to open the design module.
4. **Case design:** For a case that has already been designed, a card will show the case design.
5. **Finalize your design:** Click **Start** to finalize the design.
6. **Calculating TempShell:** The high-resolution TempShell is being calculated.
7. **Calculated TempShell:** The last card will show the calculated TempShell. Click **Produce** to export the high-resolution TempShell production file. Click **Share** to share the calculated TempShell with the clinician who sent the request.

### LabDesign cases

For a **LabDesign** case, the sequential steps or cards are as follows.

1. **LabDesign request:** To create a new case based on a request, select the request in the **Requests** list  and click **Start request**.
2. **Prescription form:** For an existing LabDesign case, a card will show the tooth chart.
3. **Design your case:** Click **Start** to open the design module.
4. **Case design:** For a case that has already been designed, a card will show the case design.
5. **Share LabDesign:** Click **Share** to share the LabDesign with the requester.
6. **Place your order** (optional): Click **Start** to open the order wizard.

# The scan module

Acquire the scans for the selected design setup.

To ensure accurate scan results, the scanner needs regular maintenance. A calibration scan must be executed every 60 days on the KaVo LS 3 scanner and every month on the NobelProcera 2G scanner (see page 9). Before starting to use the KaVo LS 3 scanner for the first time with a new computer, make sure to calibrate it.

## OPEN THE SCAN MODULE

1. In the treatment line for the selected patient, click **Start** on the **Scan or import your model** card.
2. If restorations on both jaws are required, select which jaw will be scanned first.
3. Depending on the type of scanner to be used with DTX Studio™ Lab (see page 9), the KaVo LS 3 scan module or the NobelProcera 2G scan wizard is opened.

## SCAN SETUP

To open the scan setup:




- In the KaVo LS 3 scan module, click **Edit setup** on the scan panel. Select the height for all scan objects by choosing a value from the **Model height** drop-down list.
  - In the NobelProcera 2G scan wizard, the scan setup appears on the first page.
1. On the scan setup tooth chart, the required scans are listed. This information is retrieved from the case setup. If needed, add an item to scan:
    - Select the tooth positions of interest by clicking, or clicking and dragging, the teeth, the tooth numbers or the region.
    - Select the scan items.
    - Select the **Material**.
    - Click **Finish**.
  2. Click **Finish** to close the scan setup.

## PERFORM THE SCAN



**Caution:** Please ensure objects in the scanner do not change position during the scan procedure. Deviation will lead to misalignment of scan data.

### KaVo LS 3 scans

1. Carefully place the items to be scanned in the scanner.
2. Select an item on the scan panel and click **Scan**.  
Alternatively, use the touch panel of the KaVo LS 3 scanner: Touch the scan object type and then touch **Scan**.
3. Check the scanned models in the 3D scene. If needed, rescan an item by reselecting the item and clicking **Scan**.
  - To fill holes, click **Rescan zone**.
  - If you scanned a jaw with locators, click **Indicate locators**  to identify each locator and its implant. After finishing locator positioning, check the alignment matching of the locators in the model.
  - Click **Check alignment**  to check the alignment of a scan with the dental model.
  - To remove scan data, click **Trim surface**  in the tools bar.

**Note:** When the case requires that tooth positions or locator positions are determined, these tasks will be shown on the scan panel. These tasks are always available in the tools menu.



4. When all the scan tasks have been performed, click **Save and close**.

### NobelProcera 2G scans

1. Carefully place the dental cast — with the locators (if any) securely mounted — or the dies in the scanner. To scan locators sequentially:
  - Select the locators you want to scan in this phase in the **Locator list**.
  - Fine-tune the position of the locator regions in the camera view. Click **Next**.
  - Check the position of the scanned locators.
  - Unscrew the locators very carefully, ensuring not to dislodge the model in the model holder.
  - When all the locators have been scanned, click **Next** to proceed.
2. An automatic suggestion of the dental cast and dies scan region (if any) is shown in the camera view. Fine-tune the scan position and adjust the scan region. Click **Next** to proceed.
3. Check the quality of the scanned dental cast and the locators or dies. If inadequate, use the **Rescan zone** option. If acceptable, click **Next**.
4. After scanning the locators and the dental cast (if initially indicated) the diagnostic scans, the bite index scan, die spread scan and antagonist scan are performed. Scan items from previous steps are shown transparent in the 3D viewer for the next step.
5. When all the scans have been performed, click **Finish**.
6. Click **Save and close** to return to the treatment line.

### Adjusting the scan region

On every scan region indication page of the NobelProcera 2G scan wizard, control points are shown on the scan region.


To move the whole region to another position:

1. Click and hold the region — click inside the shape of the region but not on a control point.
2. Drag it to the correct position.

To fine-tune the shape of the region, adjust the position of a control point:

1. Click and hold the control point.
2. Drag it to the correct position.

### IMPORTING A SCAN

1. On the **Scan or import your model card** in the treatment line:
  - Click **Start** or **Import**. If the scan module is already open, click  **Import**. Continue with step 3.
2. Add files:
  - Drag and drop the .stl or .ply files on the drop zone (the square with dashed border).
  - To reuse an existing patient's previous scans or designs, click Reuse patient data. Select a scan or design. Click **Add**.
3. On the tooth chart, select the tooth range that was scanned, the type of scan item and scanner.
  - On the implant position, select **Locator** and select the locator brand and type. Click **Next**.
  - Select the scanner that was used to create the scan. Click **Finish**.

**Note:** When importing DTX Studio™ Clinic scans (either as .nxa file or as attachment to a request), diagnostics on the antagonist are merged with the jaw. Diagnostics on the restoration jaw are shown as separate tiles at the bottom of the window.

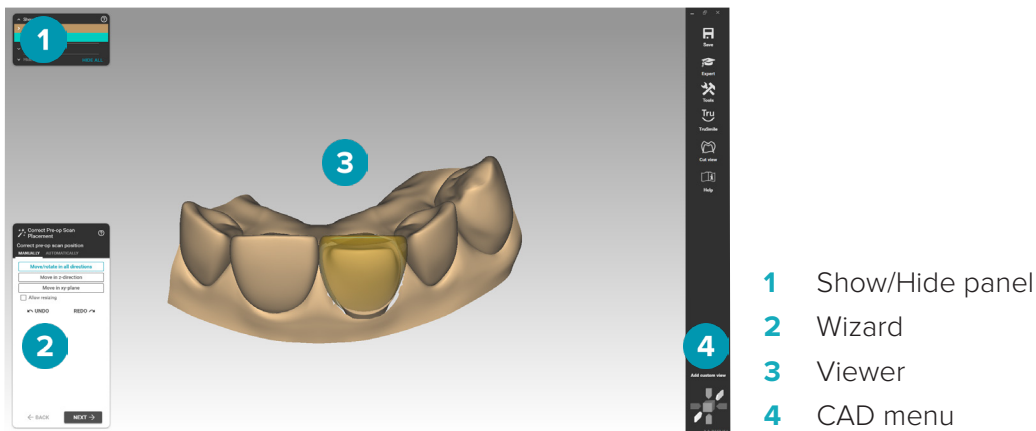
4. The scans are shown in the 3D scene of the scan module, where you can check the scanned models.
5. Click **Save and Close** to close the scan module.

# The design module

To open the design module, click **Start** or **Create model** on the **Design your case** card.

**Note:** Make sure the dongle is plugged into the computer before opening the design module.

## EXPLORING THE WORK AREA



## Navigating



Right-click and drag.

Rotate the view.



Scroll the wheel button.

Zoom in or out.



Click and drag both mouse buttons. Pan the view. Alternatively, use the keyboard arrow keys.



Press the wheel button.

Center the clicked point, and define this point as the new rotation center.

Refer to the shortcut key overview on page 29 for more navigation options.

## Showing / Hiding objects

All acquired scan data is available in the design module.

- To show or hide scan data or parts of the designed restoration, use the check boxes on the **Show/Hide** panel.
- Objects are grouped by type. Click the arrow left of the check box to expand a group.
- To set the transparency of an item, point to the item in the list, and use the slider that will appear.

On the **Teeth** panel, set the visibility on a tooth-by-tooth basis.



## Context menu

The context menu will adapt itself to the current state of the construction, so the menu options vary during the course of the design. While the wizard is running, only a stripped-down version of the context menu is available.

- To open the root context menu, right-click the background of the viewer. Functions you select here will be applied to all suitable parts of the construction.
- To open the tooth-specific context menu, right-click an individual tooth in the viewer. Items you select here will be applied only to the tooth clicked.
- To apply a context menu function to a group of teeth (but not to all):
  1. Click **Expert** in the CAD menu.
  2. Hold [Ctrl] and click the teeth to mark.
  3. Right-click to see the context menu specific to the marked teeth.

## Expert / Wizard

By default, the design module is opened in wizard mode to guide you through each step of designing a restoration.

- Click **Expert**  to temporarily suspend the wizard at some stages in the construction and to use the context menu instead. This gives you the option to apply specific functions or parameters to specific teeth or objects on the screen.
- Click **Wizard**  to re-enable the wizard, which will resume at the same step as when it was suspended.

## DESIGNING RESTORATIONS

### Exploring the design wizard

The wizard will guide you step by step through the design workflow.

- Click **Next** to proceed to the next step, or click **Back** to return.
- Explore the options presented to you in each wizard dialog. The wizard will present you with default values (depending on the type of restoration and the material selected) for all restoration parameters.
- Any parameters you change in the wizard will be applied to all teeth in the construction.
- Which pages will be shown and the exact sequence of the wizard pages, depends on the type of restoration. Below you will find a list of the possible pages:

Wizard page	Description
<b>Correct pre-op scan placement</b>	A diagnostic scan is loaded into the design module as a pre-op scan. Correct the placement of the pre-op scan relative to the regular model scan.
<b>Margin line detection</b>	Click on the margin line for a specific tooth.
<b>Define emergence profile</b>	<ol style="list-style-type: none"><li>1. Click the <b>Correct/Draw</b> tab.</li><li>2. Click in the scene to add control points.</li><li>3. Double-click to finish.</li></ol> To adjust the emergence profile line: <ul style="list-style-type: none"><li>– Drag and drop individual control points.</li><li>– To add a control point, click a point on the green line.</li><li>– To remove a control point, click the point and, while holding it, click the right mouse button.</li></ul>
<b>Insertion direction</b>	<ol style="list-style-type: none"><li>1. Rotate the view until you look onto the preparation(s) from the desired insertion direction. Undercut areas will be marked with a color scale.</li><li>2. Click <b>Set current view as insertion axis</b>.</li></ol>

Wizard page	Description
<b>Crown bottoms</b>	Design the inside of the crown – the part that will be in contact with the preparation. The yellow area represents the area with cement gap. To define its thickness, use the slider corresponding to the yellow box in the <b>Cement gap</b> group on the <b>Gap</b> tab.
<b>Provisional crown bottoms</b>	Design the inside of a provisional. <ol style="list-style-type: none"> <li>1. Drag and drop the ball above to the insertion axis indicator (yellow arrow).</li> <li>2. Click <b>Update Crown Bottoms</b> to apply the changes.</li> <li>3. Choose the next step <ul style="list-style-type: none"> <li>– Choose <b>Design without tooth library</b> (default) to automatically copy the existing tooth.</li> <li>– Choose <b>Design crown using tooth library</b> and use the generic tooth library for crowns.</li> </ul> </li> <li>4. Click <b>Next</b>.</li> </ol>
<b>Copy tooth</b>	Click the tooth that you want to ‘copy’ or to ‘mirror’. Click in the scene to place the situation model.
<b>Place model tooth</b>	Select the adjacent teeth in the jaw to define the mesial and distal direction. The software will detect mesial and distal contact areas on adjacent teeth and correctly place the model tooth within the jaw.
<b>Tooth placement</b>	Optimize the placement of the loaded library teeth by moving, rotating and scaling. Drag and drop the teeth to make your adjustments.
<b>Generate abutment bottoms</b>	Design the emergence profile of the abutment, the part which is below the gingiva: <ul style="list-style-type: none"> <li>– To choose a different shape, use the <b>Shape</b> buttons.</li> <li>– A pink toggle disk below the control point means that the point is attached to the gingiva. Click the disk to detach it from the gingiva. The disk will change to green. Hold down [Ctrl] and click one of the disks to change the color of all the control points.</li> <li>– To move a green control point, drag it by clicking and holding the mouse button on the arrows to move it in the direction of the arrow. By clicking at the control point itself, the movement is free in all directions.</li> <li>– To add a control point, click on the margin of the emergence profile while holding down [Ctrl].</li> <li>– To remove a control point, click on it, hold the left mouse button and press the right mouse button at the same time.</li> </ul>
<b>Abutment design</b>	<ul style="list-style-type: none"> <li>– To change the abutment’s shape, move the control points in, out, up and down.</li> <li>– To adjust the overall abutment height, use the green control point between the arrows in the center of the abutment.</li> <li>– To add a control point, click the dotted control line while holding down [Ctrl].</li> </ul>
<b>Free-forming</b>	Visualize distances to antagonists or adjacents (see page 22). <ul style="list-style-type: none"> <li>– <b>Anatomic</b> tab: Click and drag on the tooth to change its shape.</li> <li>– <b>Free</b> tab: Click the tooth and hold <b>Add/Remove</b> to add material. The longer you hold it, the more material will be added. Hold down [Shift] to remove material. Activate <b>Smooth/Flatten</b>, click and hold the mouse button on parts you would like to smoothen.</li> <li>– <b>Adapt</b> tab: Adapt the restoration to the antagonist (if scanned), the pontics (if any), and to the adjacent teeth.</li> </ul>



Wizard page	Description
<b>Adapt to pre-op scan</b>	<p>If a diagnostic scan was performed in the scan module, this scan is loaded into the design module as a pre-op scan. If the case has been imported from DTX Studio™ Implant and the imported case does not contain a diagnostic wax-up, the SmartSetup™ will be used as pre-op scan.</p> <p>Click <b>Adapt tooth models</b> to start the adaptation. Once the adaptation is suitable, click <b>Stop</b>.</p>
<b>Reducing</b>	<p>Reduce the anatomic shapes to create the framework of the anatomic copings.</p> <p>The <b>Depth</b> slider controls the amount of cutback, that is, the thickness of the ceramic layer to be applied on the framework. The minimal thickness will always be enforced.</p>
<b>Connectors</b>	<p>Change the position of a connector on the <b>Shape</b> tab:</p> <ul style="list-style-type: none"> <li>– Drag the connector and drop it. The connector will re-adapt itself to the teeth at its new position.</li> <li>– To change the docking place of the connector only on one side, hold down [Ctrl] and click the tooth to change the position of the docking point.</li> </ul> <p>Edit the connector on the <b>Free</b> tab:</p> <ul style="list-style-type: none"> <li>– To move a control point, click and drag it. To move several control points at once, hold down [Shift] while dragging one of the control points.</li> <li>– To add a control point, hold down [Ctrl] and click on the line in the center of the connector.</li> </ul> <p>If the connector is designed thinner than specified, the approximate area which is too thin will be marked in magenta. If the connector area is violating the minimum size restrictions, proceeding to the next design step is impossible.</p> <p>To apply different parameters or shapes to specific connectors in the construction, go to <b>Expert</b> mode, right-click on the connector, and select <b>Connectors</b>. Any changes you make will be applied to all connectors.</p>
<b>Merge and save restorations</b>	<p>This step will combine (merge) all the individual designed elements into one or more mesh(es). For each physical element one mesh will be created.</p> <p>On the <b>Next</b> tab, select the action to perform when clicking <b>Next</b>:</p> <ul style="list-style-type: none"> <li>– <b>I'm done</b>: Close the design module.</li> <li>– <b>Design suprastructure now</b>: Design the suprastructure right after designing the abutment(s) for an Abutment + Restoration, Abutment on Base + Restoration, Bridge on Abutment, Full-Contour Bridge on Abutment.</li> <li>– <b>Free-form restorations</b>: Open a free-forming tool which can be used on the .stl output.</li> <li>– <b>Expert mode</b>: Enter <b>Expert</b> mode to make adjustments on the completed design, and unmerge the designed part.</li> <li>– <b>Design model</b>: Open the model creator wizard.</li> </ul> <p>Once the restorations have been merged, you cannot go back to any wizard step directly. To reverse the process, click <b>Remove Existing Merged Parts</b> on the <b>Saved files</b> tab.</p>

## Visualizing contacts and occlusion

To visualize the distance to (or the intersection with) antagonists, click **Show distances** in the CAD menu.


## Virtual articulator

The virtual articulator allows the use of a semi-adjustable articulator and the setting up of a dynamic occlusal function of a prosthesis or restoration. For this function to be available, an antagonist model or a bite index must have been scanned.

1. Click **Expert** .
2. Click **Tools** in the CAD menu.
3. Select **Start Articulator** .
4. Adjust the articulator movement simulation parameters.

## Virtual gingiva

For implant bridges or restorations on bases, the soft tissue can be designed digitally.

1. On the **Virtual Wax-up Bottom** page, click **Design virtual gingiva**.
2. Draw the gingiva margin line and click **Apply**. Click **Next**.
3. Free-form the gingiva and click **Next**.
4. Proceed with the reducing step. Click **Next**.
5. Proceed with another free-form step. Click **Next**.
6. For multi-unit restorations, select a shape for the connectors or select  to create a restoration without connectors (the teeth are connected by the gingiva). Click **Apply cross-section / shape change** and click **Next**.
7. The restoration is merged.

## Production blanks

For single-unit implant-based restorations, the 'Max File' is visible throughout the entirety of the design workflow. Violating this file will prohibit the manufacturing of the design. If the design exceeds the constraints, red arrows indicate the areas of the design which need to be altered.

For all other restorations, the production blank shows whether or not the design fits within the specified limits, but will not stop you from proceeding to order the design.

1. In the **Merge and save restorations** wizard page, on the **Show/Hide** panel, select **Production blank**.
2. Reposition the blank to nest it around the restoration, ensuring it encompasses the entire design.

## CREATING A MODEL

### Exploring the model creator wizard

The model creator wizard allows you to design physical models from intraoral scan data or impression scans. To start the model creator wizard, click **Create model** on the **Design your case** card. Should you start from a scan case or request, click **Create model** on the **Scan results** card.

**Note:** Make sure you have a dongle that supports the model creator wizard.

There are two types of models:

- Models “with plate” are similar to sectioned stone models, with detachable segments, using a premanufactured (pin) base plate.
- Models “without plate” are monolithic models with removable dies embedded in a base with adjacent/ healthy and gingival scan data.

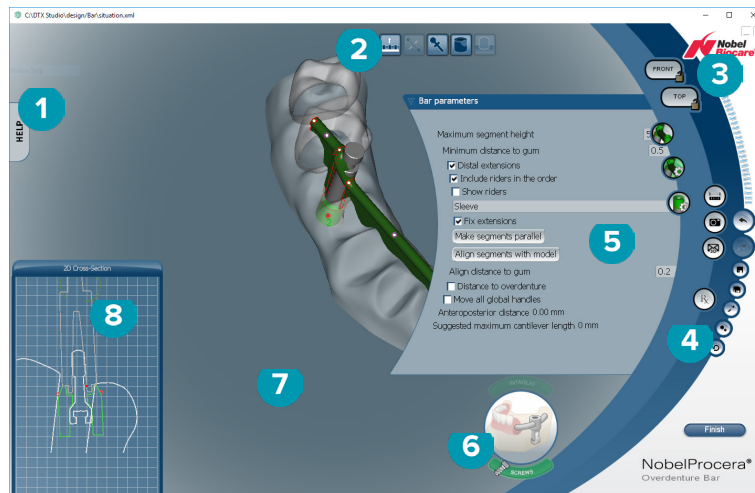
Which pages will be shown and the exact sequence of the wizard pages depends on the type of restoration and the type of model. Below you will find a list of the possible pages.

Wizard page	Description
<b>Model alignment</b>	Select the model type. For a model without plate, position the scans within the two parallel planes. For a model with plate, position the scans on the visualized pin base. The scan data marked in red will be clipped.
<b>3D data editor</b>	Edit the model area by deleting and cropping scan data.
<b>Define emergence profile</b>	If you are designing both a model and a restoration, the margin profile has to be detected and adjusted only once. See design wizard on page 19.
<b>Margin line detection</b>	Click on the margin line for a specific tooth.
<b>For a model without plate</b>	
<b>Toggle teeth dies</b>	Select the teeth that should be detachable in the model.
<b>Plateless model design</b>	Set the parameters for the physical model.
<b>Model attachments</b>	On the <b>Attachments</b> tab, select an attachment and click in the scene to add the attachment. Click and drag the attachment to place it correctly. Hold the [Ctrl] key and drag to rotate the attachment. On the <b>Text</b> tab, enter the text and click <b>Add text</b> . Click and drag the text to move it. Place it on a smooth surface so it can be printed. If printing is not possible, the text appears in red.
<b>For a model with plate</b>	
<b>Model segmentation</b>	On the <b>Planes</b> tab, click on the grey or green dots to toggle the segmentation or cutting planes on or off. In the 3D scene, adjust the planes: <ul style="list-style-type: none"> <li>– To move the plane horizontally, click the yellow control point and drag to the correct position.</li> <li>– To rotate the plane, click and drag the green control point on the labial/ buccal or the lingual side.</li> <li>– To adjust the angle of the plane, hold down [Ctrl+Shift] and click and drag the colored plane surface.</li> </ul>
<b>Model creator finished</b>	Select the action to perform when clicking <b>Next</b> : <ul style="list-style-type: none"> <li>– <b>I'm done</b>: Close the design module.</li> <li>– <b>Expert mode</b>: Enter <b>Expert</b> mode to adjust the completed model design.</li> <li>– <b>Design restorations now</b>: Continue the design of the restorations.</li> </ul>

# The bar module

The bar module becomes available for cases for which a bar restoration has been planned. To open the bar module, click **Start** on the **Design your case** card.

## EXPLORING THE WORK AREA



- 1 Help file
- 2 Bar tools
- 3 View selectors
- 4 Menu options
- 5 Parameters
- 6 Visibility
- 7 3D view
- 8 2D cross-section view

### Navigating

Click a restoration in the 3D view to display handles, axes, circles, etc.

Right-click the restoration and move the mouse in the 3D view to rotate the restoration.

### Showing / Hiding objects

The visibility tool allows you to display, hide or apply transparency to elements of the design in the 3D view.

- Click an object to display an element or to enable a button.
- Double-click an object to display an element in transparency.
- Right-click an object to hide an element.


















- 1 Prosthesis/Diagnostic
- 2 Bar
- 3 Cylinder
- 4 Model
- 5 Implant/Replica

Click **Intaglio** to show or hide the intaglio scan — if available. Click **Screws** to see how the screws fit.








## DESIGNING A BAR

How to design a bar depends on the type of bar. Although it is possible to revert to a previous step, it is recommended to follow the order of the steps to avoid undoing work previously completed.

Step	Description
Select a bar type	Click <b>Change bar type</b>  and select a bar type.
Align the model	Click <b>Activate alignment tool</b>  . Click <b>Front</b> . Rotate the model slightly to reveal a second circular plane. Hover over one of the circular planes till it turns orange. Rotate the model into position.
Adjust the segments	Click <b>Activate bar deformations tool</b>  . Click <b>Segments</b>  and select or clear the desired options. Double-click the prosthesis in the visibility tool to make it transparent. Click <b>Lock</b>  on the <b>Front</b> button. Use the segment handles to move the segments into position. Use the 2D cross-section view to validate the distance between gingival surface and segment and overdenture.
Modify the bar shape	Click <b>Activate bar deformations tool</b>  . The height and the thickness of the bar can be reshaped as a whole or one section at a time. Use the colored handles to customize the bar design. The options available in <b>Segments</b>  will change depending on the type of bar being modified.
Adjust the cylinder height (optional)	Double-click the prosthesis in the visibility tool to make it transparent. Click <b>Unlock</b>  on the <b>Front</b> button. Use the cylinder handles to change the height of the cylinder. Use the 2D cross-section view to validate the distance between gingival surface and extension.
Add attachments	Click <b>Top</b> and then click <b>Attachment positioning</b>  . From the second drop-down list, select <b>Placement mode</b> . From the third drop-down list, select an attachment type. Click in the 3D view to place the attachment. If necessary, slightly move the cursor. Click a second time to finalize the position of the attachment.
Bevel a cylinder (optional)	Click <b>Activate cylinder beveling tool</b>  and click a cylinder. Click the blue handle and rotate it to set the beveling position. Click and move the yellow handle to the cutting point. Click and move the green handle until the proper cutting angle is achieved.
Display riders on the bar (optional)	Click <b>Bar parameters</b>  and select <b>Show riders</b> . From the drop-down list, select a rider type.
Adjust the link to the offset cylinder	Click the link of the offset cylinder. Click <b>Cylinders parameters</b>  and select <b>Show links</b> . Click the link to edit and move the handles.
Verify the gingival surface of the bar	Click <b>Fit to gum</b>  . Click the bar in the 3D view and use the 2D cross-section view to verify the position and shape of the gingival surface of the bar.
Define the anterior region of the Hybrid bar	Click <b>Bar parameters</b>  and select <b>Anterior region definition</b> . Select the reference object and set the options.
Place retentions on a Hybrid bar	Click <b>Activate retentions positioning</b>  . If not available in your market, a message will appear. Click <b>Retentions</b>  and select <b>Show retentions</b> . Place the cursor over the bar. It becomes a circled red dot. Click at the position where to place the retention. Adjust the <b>Height</b> and the <b>Radius</b> of the retention.
Finish the bar design	Click <b>Finish</b> . A summary will be shown. Click <b>Proceed</b> .

## TOOLS

On the top of the window you will find the following tools:

Tool	Description
 Insertion alignment	Readjust the angle between the model and the bar.
 Bar deformations	Modify the shape of removable bars.
 Attachment positioning	Place attachments on a bar.
 Cylinder beveling	Bevel any cylinders.
 Retentions positioning	Dedicated to the Hybrid bar to place small ‘bumps’ on the bar to increase its retentive properties.

## PARAMETERS

For an overview of all the available parameters, see “Appendix 2: Parameters bar module” on page 31.

# Orders

Once a restoration case is designed, order the product(s).


## CREATE AN ORDER

1. Click **Start** in the **Place your order** top action card in the treatment line.
2. Select the **Ship to** address, type in who the order is issued by and, if necessary, add a production remark or a so-called study.
3. Check the **Order** list. If needed, remove order articles from the list, change the quantity or add a voucher.
4. Click **Order now** to continue ordering.
5. Click **View** on the **Order receipt** card to see the order in the order overview.


## SORTING, SEARCHING AND FILTERING ORDERS

Click **Orders**  on the left sidebar to go to the overview of available orders.



To sort the orders:

1. On the **Orders** list, click the down arrow .
2. Select **Sent date**, **Patient name (A-Z)**, **Clinician name (A-Z)**, **Order ID** or **Creation date**.
3. Select **Ascending** or **Descending**.

To filter the orders:



1. On the **Orders** list, click .
2. Select **All orders**, **Finished orders**, **Orders in production**, **Delivered orders** or **Failed orders**.

To search for an order:


- In the  **Find an order** search box, enter (a part of) the order number, patient name, patient ID or clinician name to be searched for.
- To clear the search results, click .

## EXPORTING FILES FOR LOCAL PRODUCTION


To export the files that are needed for creating local production restorations or TempShells:

1. On the **Orders**  list, select the finished in-lab restoration. For a TempShell, select the calculated TempShell in the **Cases**  list.
2. On the **Order receipt** or on the **Calculated TempShell** card, click **Produce**.
3. Select the production device and click **Select**.
4. Select the folder to export the files and click **Select folder**.  
**Note:** The default path to the folder can be set in the settings.
5. The local production files (.stl files) are exported.

# Patients

To get an overview of the patient records that are saved in DTX Studio™ Lab, click **Patients**  on the left sidebar.



The pane to the right of the patients list shows the cases for the selected patient.

To search for a patient, enter enter (a part of) the patient name or patient ID in the  **Find a patient** search box.

# Appendix 1: Shortcut keys

Below you will find an overview of the available keyboard shortcuts in DTX Studio™ Lab.

For keyboard shortcuts where you press two or more keys simultaneously, the keys to press are separated by a plus sign (+). When alternative keyboard shortcuts are available, the alternatives are separated by 'or'.

Key	Action
<b>General shortcuts</b>	
Alt+F4	Exit the application
<b>Scan module</b>	
Right mouse button	Switch temporarily to rotation mode.
Ctrl	Switch temporarily to pan mode.
Shift, or scroll wheel button	Switch temporarily to zoom mode.
Press the space bar	Reset the zoom.
Arrow keys	Rotate the model around the X- and Y-axis. Every key press rotates the model by 1 degree. If one of the keys is pressed longer than one second, the model is rotated continuously with a constant speed.
	 Rotate around the Y-axis.
	 Rotate around the X-axis
1, 3, 5, 7, 9	Switch between the standard clinical views:
	1 Left lateral view
	3 Right lateral view
	5 Frontal view
	7 Cranial view
	9 Caudal view
+	Zoom in. Hold down the button to keep zooming in.
-	Zoom out. Hold down the button to keep zooming out.
<b>Design module</b>	
Right mouse button or Page Up/Down	Rotate the view.
Right + left mouse button or arrow keys	Move the view.
Press wheel button	Center the view and set a new rotation point.
Scroll wheel button	Zoom in and out.
Shift	Switch to scaling.
Ctrl + press wheel button	Hide the clicked object.
Shift + Ctrl + wheel button	Show the latest hidden object.

Key	Action
Shift + wheel button	Make the clicked object transparent.
Tab	Switch tab.
Ctrl + Z	Undo.
Ctrl + Y	Redo.
Ctrl + S	Save.
Ctrl + X	Cut.
F11	Use the full-screen mode.
Ctrl + Shift + F3	Optimize for remote view by Teamviewer, Netviewer, Remote desktop, VNC, etc.
Ctrl + D	Show distance tool
Ctrl + R	Show measurement tool
Ctrl + P	Show the clip plane tool
F1	Show the help file.
Ctrl + spacebar	Go to next page in the wizard.
Ctrl + back key	Go to the previous page in the wizard.

#### Show/Hide groups

A Antagonist	S Jaw scans	G Gingiva scans	E Anatomic parts
C Connectors	W Wax-up scans	F Full countour parts	R Reduced parts
P Pre-op (situ)	V Virtual gingiva design	I 2D images	D DICOM
T Telescopes	O Other	B Crown bottoms	M Merged parts
X Upper jax*	N Lower jaw*		

Use the Shift key and one of the above shortcut keys to change the transparency of a group.

\* Only available for cases with restorations in both upper and lower jaw.

# Appendix 2: Parameters bar module

On the right-hand side of the bar module the following parameters can be set. Which parameters are available depends on the bar type and the selected tool.

Icon	Parameters
	Bar type
	Bar parameters
	Cylinder parameters
	Fit to gum
	Acrylic finish line
	Cylinder beveling
	Segments
	Attachment positioning
	Retentions

## BAR TYPE

The following bar types are supported:

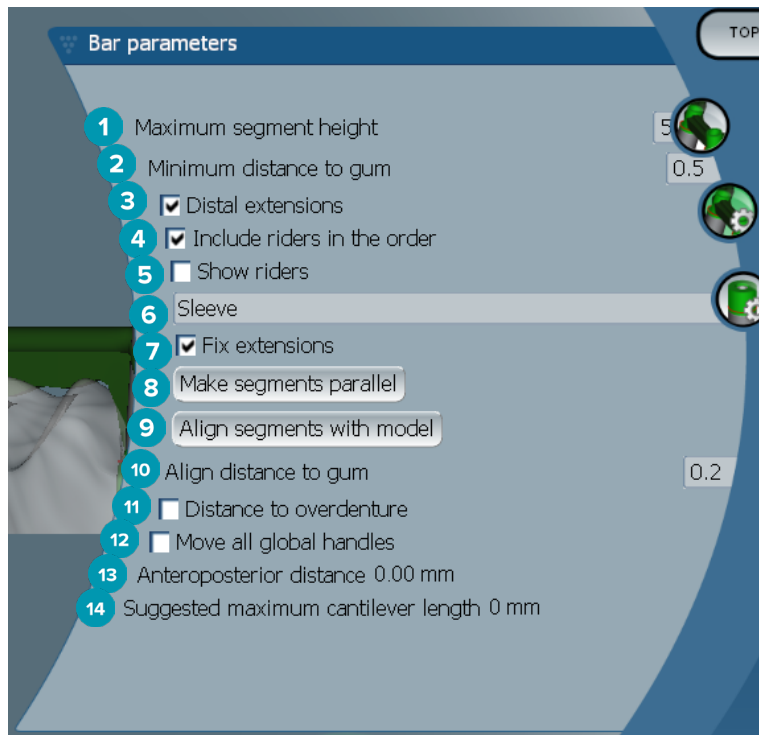


- |          |   |           |                                    |
|----------|---|-----------|------------------------------------|
| <b>1</b> | <b>Removable prosthesis bar types</b>                                   | <b>7</b>  | <b>Fixed prosthesis bar types</b>  |
| <b>2</b> | Round bar   | <b>8</b>  | Montreal bar                       |
| <b>3</b> | Dolder bar (rigid micro, rigid macro, resilient micro, resilient macro) | <b>9</b>  | Montreal bar with metallic lingual |
| <b>4</b> | Hader bar   | <b>10</b> | Wrap-around bar                    |
| <b>5</b> | Free-form milled bar  | <b>11</b> | Hybrid bar                         |
| <b>6</b> | Paris bar   |           |                                    |

## BAR PARAMETERS

Each bar type has its own set of parameters.

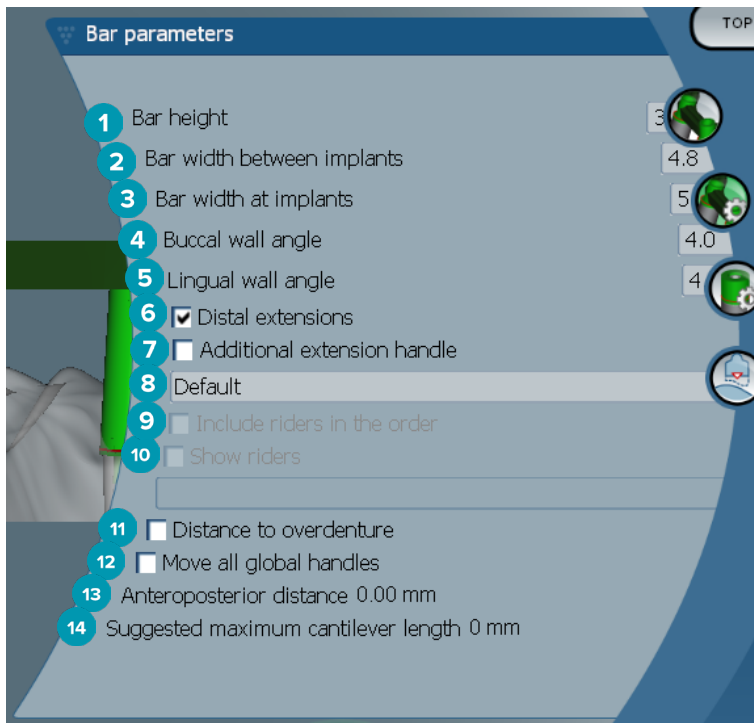
### Bars with riders



- 1 Maximum segment height (only available for Hader bars)
- 2 Maximum distance to gingival surface (only available for Hader bars)
- 3 Distal extensions: Adds or removes the extensions distal to the most posterior cylinders.
- 4 Include riders in the order
- 5 Show riders
- 6 A drop-down menu allows you to choose the rider type.
- 7 Fix extensions: Reinforces the part attaching the extensions distal to the most posterior cylinders.
- 8 Make segments parallel
- 9 Align segments with model
- 10 Align distance to gingival surface
- 11 Distance to overdenture: Display the color coding used to visualize the distance to the overdenture in millimeters.
- 12 Move all global handles together at one time.
- 13 The anteroposterior distance is displayed.
- 14 The suggested maximum cantilever length is displayed.

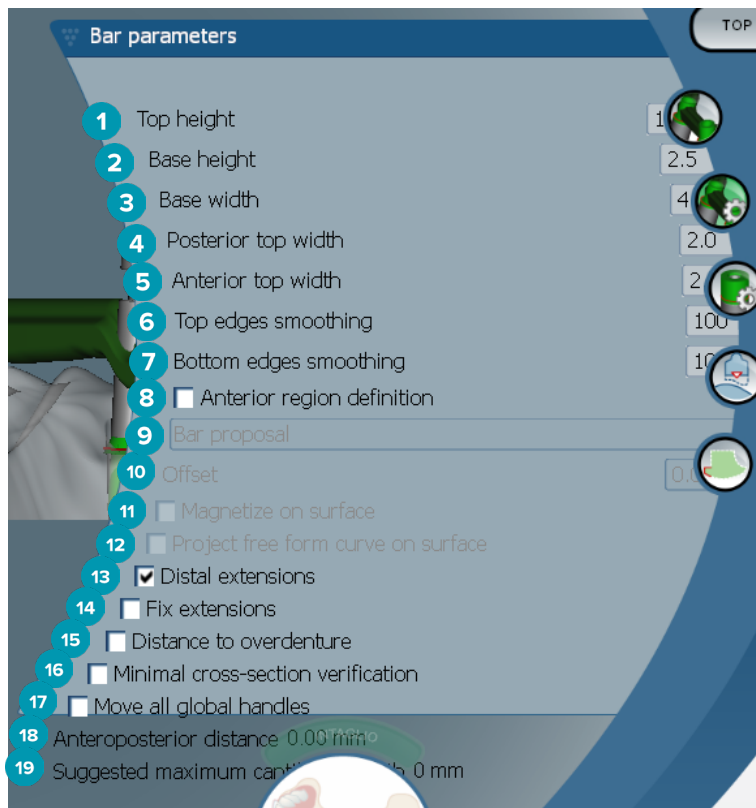


## Free-form milled bars



- 1 Bar height
- 2 Bar width between implants
- 3 Bar width at implants
- 4 Buccal wall angle
- 5 Lingual wall angle
- 6 Distal extensions: Add or remove the extensions distal to the most posterior cylinders.
- 7 Additional extension handle
- 8 Select the type of handle
- 9 Include riders in the order
- 10 Show riders
- 11 Distance to overdenture: Display color coding to visualize the distance to the overdenture.
- 12 Move all global handles together at one time.
- 13 The anteroposterior distance is displayed.
- 14 The suggested maximum cantilever length is displayed.

## Hybrid bars



- 1 Top height
- 2 Base height
- 3 Base width
- 4 Posterior top width
- 5 Anterior top width
- 6 Top edges smoothing
- 7 Bottom edges smoothing
- 8 The anterior region definition is a free-form zone on the bar. It is defined in conjunction with one of the next options:
- 9
  - **Overdenture**: The free-form line follows the overdenture limit. Can be magnetized to surface or offset.
  - **Intaglio**: The free-form line follows the intaglio limit. Can be magnetized to surface or offset.
  - **Bar proposal**: A free-form line proposal is displayed at once on the bar.
- 10 Offset: Distance value between the bar and the free-form line.
- 11 Magnetize on surface: Used with the **Overdenture** or the **Intaglio** options. This option allows the free-form curve to be created from the interpolation of at least three points and to be magnetized to the scan surface of the object.
- 12 Project free-form curve on surface: Used with the **Overdenture** or the **Intaglio** options. The points on the bar, on the reference object and on the free-form curve are vertically aligned with the free-form handles. Adding handles softens the curve.
- 13 Distal extensions: Add or remove the extensions distal to the most posterior cylinders.
- 14 Fix extensions: Reinforce the part attaching the extensions distal to the last two cylinders.
- 15 Distance to overdenture: Display color coding to visualize the distance to the overdenture.

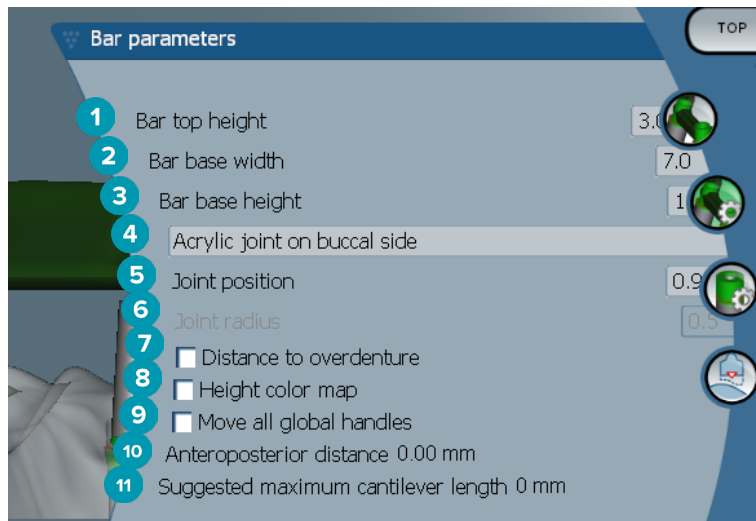
- 16 Minimal cross-section verification: Toggle the validation shape, i.e. a yellow contour of the minimal cross section appearing where the constraints are exceeded.
- 17 Move all global handles together at one time.
- 18 The anteroposterior distance is displayed.
- 19 The suggested maximum cantilever length is displayed.

### Montreal bars



- 1 Bar top height
- 2 Bar top width
- 3 Bar base width
- 4 Bar base height
- 5 Select whether the acrylic joint has to be on the gingival or the buccal side.
- 6 Joint position
- 7 Joint radius
- 8 Distance to overdenture: Display color coding to visualize the distance to the overdenture.
- 9 Height color map: Display the color on the lower surface of the bar facing the gingival surface indicating whether the bar is too thin for production.
- 10 Move all global handles together at one time.
- 11 The anteroposterior distance is displayed.
- 12 The suggested maximum cantilever length is displayed.

## Montreal bars with metallic lingual



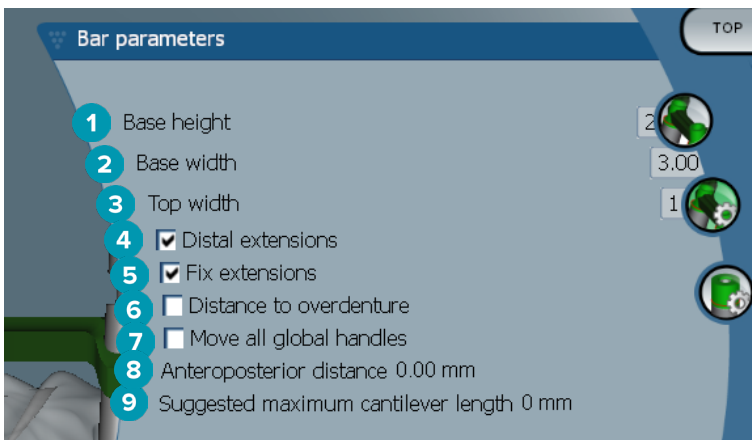
- 1 Bar top height
- 2 Bar base width
- 3 Bar base height
- 4 Select whether the acrylic joint has to be on the gingival or the buccal side.
- 5 Joint position
- 6 Joint radius
- 7 Distance to overdenture: Display color coding to visualize the distance to the overdenture.
- 8 Height color map: Display the color on the lower surface of the bar facing the gingival surface indicating whether the bar is too thin for production.
- 9 Move all global handles together at one time.
- 10 The anteroposterior distance is displayed.
- 11 The suggested maximum cantilever length is displayed.

## Paris bars



- 1 Bar top height
- 2 Bar top width
- 3 Bar base width
- 4 Bar base height
- 5 Buccal wall angle
- 6 Lingual wall angle
- 7 Select whether the acrylic joint has to be on the gingival or the buccal side.
- 8 Joint position
- 9 Distance to overdenture: Display color coding to visualize the distance to the overdenture.
- 10 Height color map: Display the color on the lower surface of the bar facing the gingival surface indicating whether the bar is too thin for production.
- 11 Move all global handles together at one time.
- 12 The anteroposterior distance is displayed.
- 13 The suggested maximum cantilever length is displayed.

### Wrap-around bars

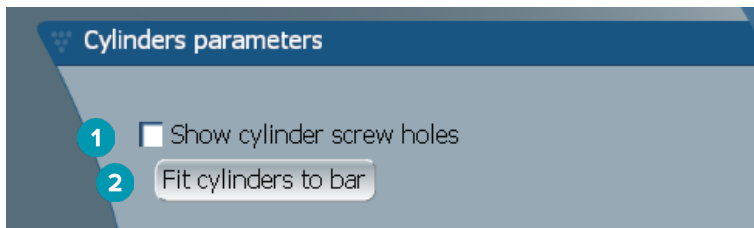


- 1 Base height
- 2 Base width
- 3 Top width
- 4 Distal extensions: Add or remove the extensions distal to the most posterior cylinders.
- 5 Fix extensions: Reinforce the part attaching the extensions distal to the last two cylinders.
- 6 Distance to overdenture: Display the color coding used to visualize the distance to the overdenture in millimeters.
- 7 Move all global handles together at one time.
- 8 The anteroposterior distance is displayed.
- 9 The suggested maximum cantilever length is displayed.

## CYLINDER PARAMETERS

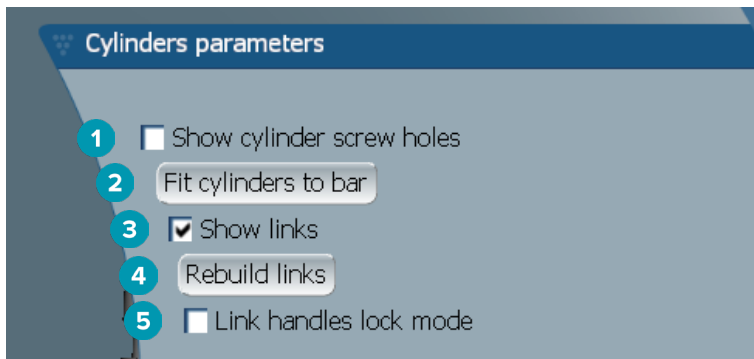
Which cylinder parameters are available depends on the chosen bar type.

### Round, Hader and Paris bars



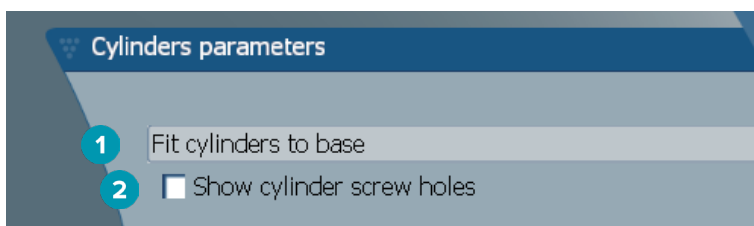
- 1 Show cylinder screw holes
- 2 Fit cylinders to bar

### Dolder and free-form milled bars



- 1 Show cylinder screw holes
- 2 Fit cylinders to bar
- 3 Show links
- 4 Rebuild links
- 5 Link handles lock mode

### Montreal bars




- 1 Fit cylinders to base
- 2 Show cylinder screw holes

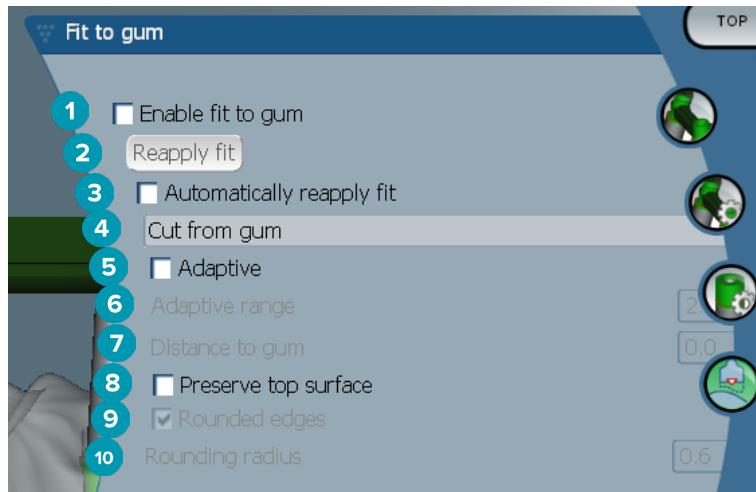
## Wrap-around and Hybrid bars



- 1 Cylinder(s) to modify:
- 2 Select one or all cylinders. If **All cylinders** is selected, the values for the following parameters will be blank if they differ.
- 3 Emergence profile type
- 4 Select **Wide** or **Narrow**.
- 5 Cylinder thickness
- 6 Collar diameter
- 7 Upper collar height
- 8 Lower collar height
- 9 Change wrap plane
- 10 Show cylinder screw holes
- 11 Fit cylinders to bar
- 12 Fit cylinders to wax-up
- 13 Show links
- 14 Rebuild links
- 15 Link handles lock mode


## FIT TO GUM

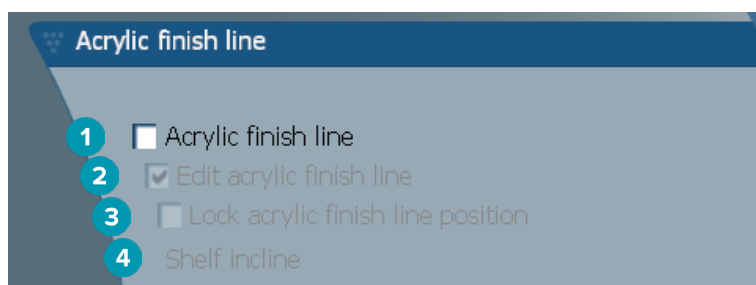
The **Fit to gum**  features automatically adjust the gingival surface of the bar to follow the shape of the soft tissues, thus preventing gaps and food traps. Fit to gum can be used with Montreal, Montreal with metallic lingual, Paris, Hybrid and Free-form milled bars.



- 1 Enable the fit to gum options and apply the current fit to gum settings to the design.
- 2 Reapply fit: Rebuild the bar.
- 3 Automatically reapply fit
- 4 Select how the fit will be applied:
  - **Expand to gum** basically stretches the bar towards the gingival tissue.
  - **Cut from gum** removes the bar material colliding with the gingival tissue.
- 5 Adaptive: Reshape the gingival surface of the bar to adapt to the gingival surface topography, otherwise, the section shape of the gingival surface of the bar is preserved. This setting is only available for **Expand to gum**.
- 6 The **Adaptive range** is the maximum expanding distance allowed (in mm) for the **Adaptive behavior**.
- 7 Distance to gum: Change the minimal distance between the bar and the gingival tissue.
- 8 Preserve top surface: Ensure that the top surfaces of the bar will not be affected by the fit to gum calculation.
- 9 Rounded edges: Softens the edges along the bar, according to the **Rounding radius** value.
- 10 Rounding radius

## ACRYLIC FINISH LINE

The Acrylic finish line (AFL) defines the limit of the acrylic finish on the Hybrid bar. A shelf is created on the bar, from which the acrylic material is applied. The **Acrylic finish line**  parameters appear with the Hybrid bar type.





- 1 Acrylic finish line: Adds a default 1 mm notch to the bar side. This notch marks the limit for the acrylic finish.



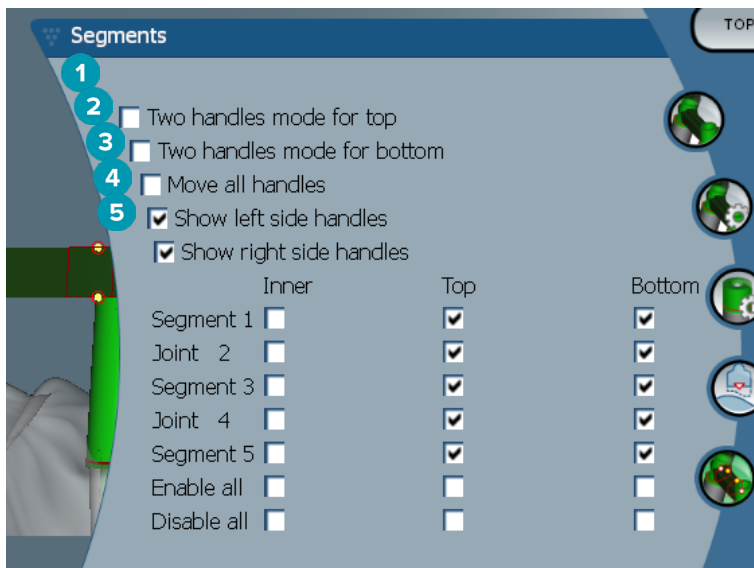
- 2 Edit acrylic finish line: Displays the handles along the acrylic finish line and enables its design.
- 3 Lock acrylic finish line position: Prevents the displacement of the acrylic finish line by other deformation tools.
- 4 Shelf incline: Can be expressed as an angle from the perpendicular to the bar wall (0°) or in tenth of millimeter (0.1 mm) representing the drop from the horizontal on the bar wall. Both sides (buccal and lingual) of the acrylic finish line are modified.

## SEGMENTS

The **Bar deformation** tool  activates the **Segments**  parameters. Which segments are available depends on the chosen bar type.

Below the options you will find a table of segments and joints. A segment is a section between two implants as well as the distal extensions. A joint is an implant section. Add or remove handles to/from one or several segments and/or joints by selecting or clearing the corresponding check boxes.

### Free-form milled bars



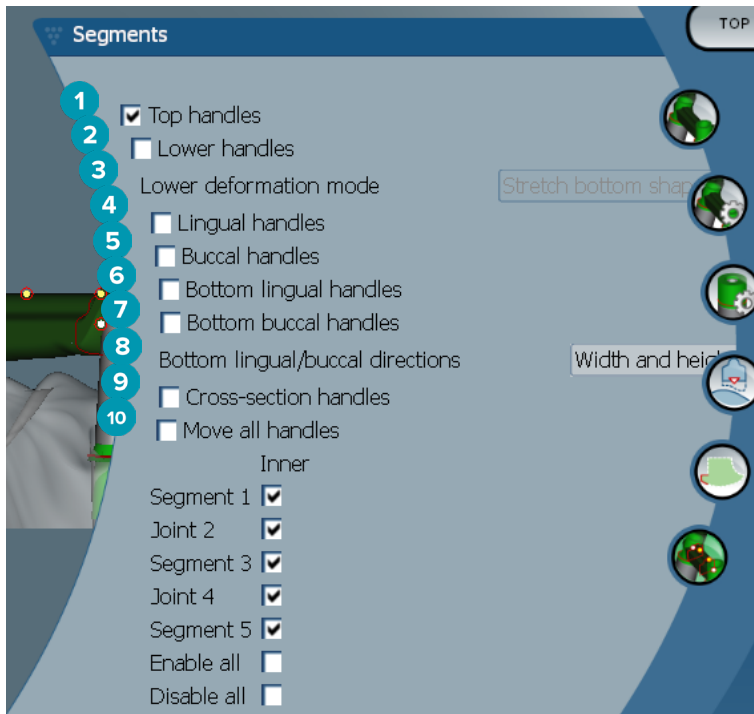
- 1 Two handles mode for top: Change the top handle in the center of the segment/joint to two handles: one lingual (green) and one buccal (blue). This is visible in the front view. The height of the bar top can be adjusted from the lingual and buccal sides of the bar, not only from the center of the bar.
- 2 Two handles mode for bottom: Change the bottom handle in the center of the segment/joint to two handles: one lingual (green) and one buccal (blue). The height of the bar bottom can be adjusted from the lingual and buccal sides of the bar, not only from the center of the bar.
- 3 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.
- 4 Show left side handles
- 5 Show right side handles

## Wrap-around bars



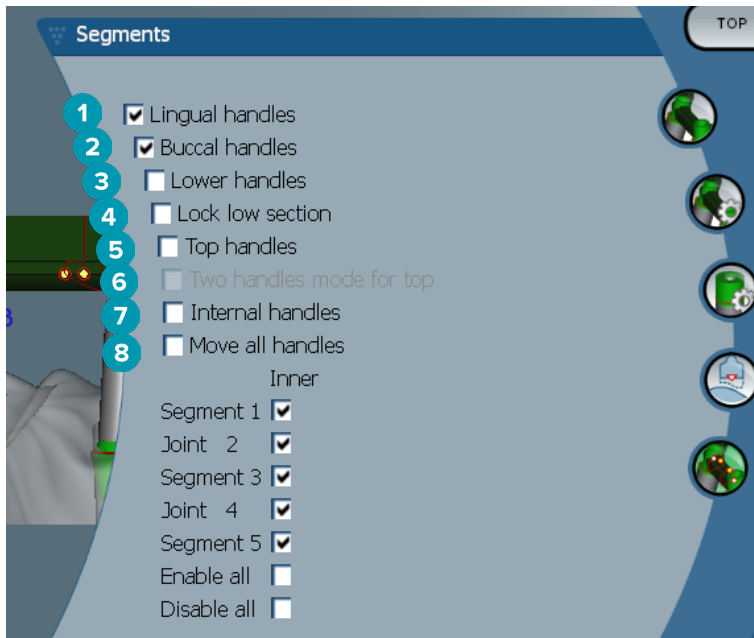
- 1 Top handles
- 2 Lower handles
- 3 Lingual handles
- 4 Buccal handles
- 5 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.

## Hybrid bars



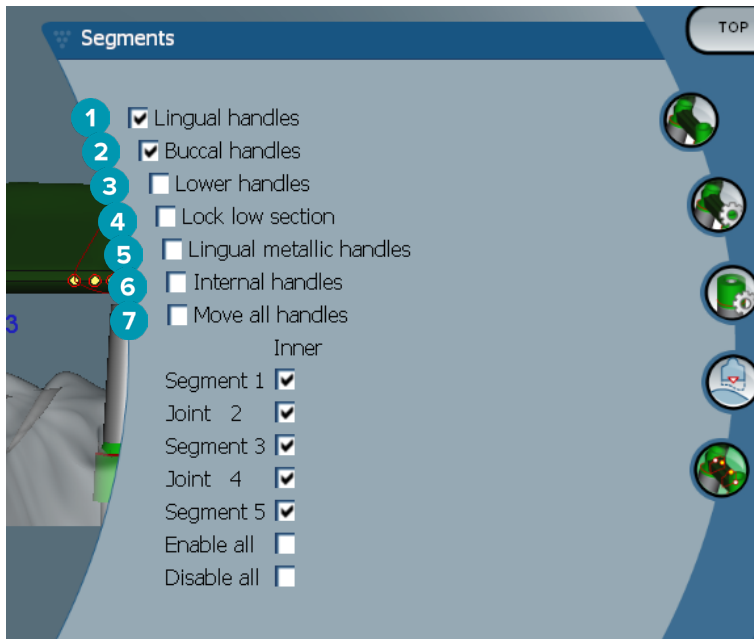
- 1 Top handles
- 2 Lower handles
- 3 Lower deformation mode: If **Lower handles** is activated, the following options are available:
  - **Stretch bottom shape**: deforms by stretching the surface, not preserving the section's bottom shape.
  - **Preserve bottom shape**: deforms by stretching the surface, but preserving the section's bottom shape.
- 4 Lingual handles
- 5 Buccal handles
- 6 The bottom lingual handles can be moved within the plane of the section at the handle position.
- 7 The bottom buccal handles can be moved within the plane of the section at the handle position.
- 8 This setting enables the display of the width (between peers at the same height), height (distance to model) or both for the bottom lingual and bottom buccal handles.
- 9 Select this option to drag the whole cross section along the section plane.
- 10 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.

### Montreal bars



- 1 Lingual handles
- 2 Buccal handles
- 3 Lower handles
- 4 Lock low section
- 5 Top handles
- 6 Two handles mode for top: Change the top handle in the center of the segment or joint to two handles: one lingual (green) and one buccal (blue). This is visible in the front view. The height of the bar top can be adjusted from the lingual and buccal sides of the bar, not only from the center of the bar.
- 7 Internal handles
- 8 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.

## Montreal with metallic lingual bars



- 1 Lingual handles
- 2 Buccal handles
- 3 Lower handles
- 4 Lock low section
- 5 Lingual metallic handles
- 6 Internal handles
- 7 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.



## Paris bars



- 1 Lingual handles
- 2 Buccal handles
- 3 Lower handles

- 4 Lock low section
- 5 Top handles
- 6 Two handles mode for top: Change the top handle in the center of the segment/joint to two handles: one lingual (green) and one buccal (blue). This is visible from the front view. The height of the bar top can be adjusted from the lingual and buccal sides of the bar, not only from the center of the bar.
- 7 When this setting is selected, moving one handle will move all the displayed handles of the same level simultaneously.

## ATTACHMENT POSITIONING

The options for the **Activate attachment positioning**  tool are available for Round, Dolder (all types), Hader, Free-form milled and Paris bars. Depending on the type of bar being designed, displayed options will vary. Click **Attachment positioning**  in the right-hand menu bar.



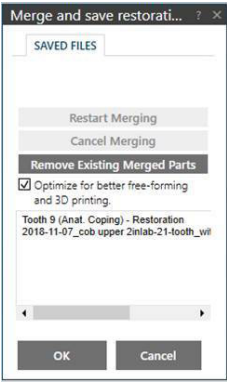




- 1 The first drop-down list allows you to choose the type of attachment to be placed on the distal extensions (only Boule-Bredent at this time).
- 2 Thickness around attachments: Specify the minimum thickness required around all positioned attachments. The software will add material around the attachment if this criterion is not met (default is 0.5 mm).
- 3 Select selection mode, placement mode, or removal mode.
- 4 Show seatings
- 5 Show attachments
- 6 Show attachments' secondary parts
- 7 Fit bar to attachments
- 8 Remove all: Removes all attachments from the bar except the ones on extensions.
- 9 Select which type of attachment will be placed in placement mode.

# Known issues

## GENERAL

Should the software crash and/or be unresponsive, please restart the software and — if necessary — the connected devices.

Known issues	Workaround
A dialog is shown with “pending design changes” after closing the design module	<ol style="list-style-type: none"><li>1. Open the design module again.</li><li>2. Go to expert mode .</li><li>3. Click <b>Merge and save restorations</b> .</li><li>4. Click <b>OK</b>.</li></ol>  <ol style="list-style-type: none"><li>5. Click <b>Save</b> .</li><li>6. Click <b>Save anyway</b>.</li></ol>  <ol style="list-style-type: none"><li>7. Close the design module.</li></ol>