

## Update-Description

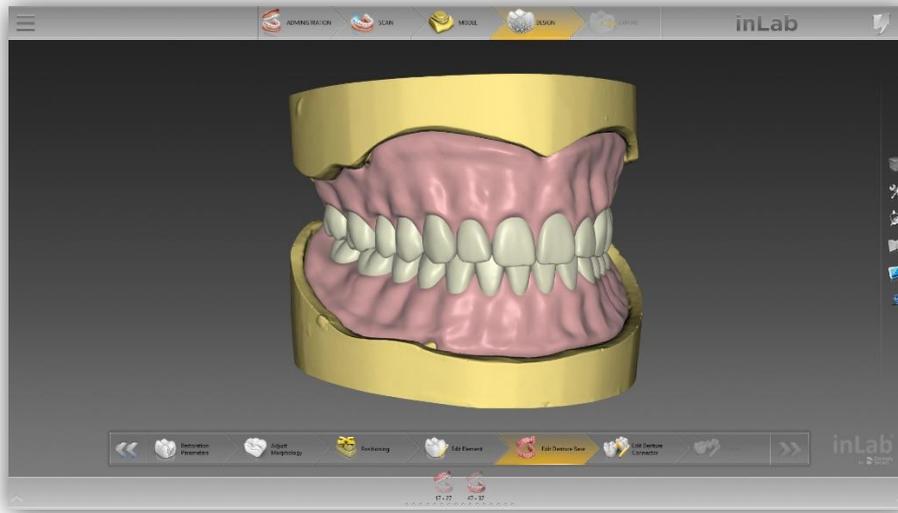
# inLab CAD & CAM SW 20.0

This document describes changes and improvements compared to previous version inLab 19.2

Date: March 2020

## General

The current inLab Software 20.0 has now for the first time extended its range of indications to the field of dentures and provides the dental laboratory with optimum digital support for all relevant process steps - from accurate capturing of the bite registration with the inEos X5 extraoral scanner, through automated and careful model analysis, to the initial proposal of a possible tooth set-up and the design of the denture base.



The inLab SW 20.0 offers two options for tooth placement: the use of digitized denture teeth that are stored in a tooth library, or individual tooth set-up. Both are based on the unique biogeneric algorithm through which the software already adapts the preoccluded denture teeth to the given jaw situation.

For the subsequent manufacturing, the inLab system continues to follow the principle of seamless, validated and open connection to suitable manufacturing processes: The denture base can be milled from a disk, such as the Lucitone® Denture Base Disc from Dentsply Sirona, or made with 3D printing. Depending on the selected tooth set-up, the tooth arch or tooth segments are milled from a disc, or the prefabricated IPN 3D™ Digital Denture Teeth from Dentsply Sirona are used.

## Installation requirements

- Recommended: inLab PC V6.0.1.

Minimum Requirement: inLab PC V5.0.1.

| Part               | Recommended requirements       |
|--------------------|--------------------------------|
| Operating system   | Windows 10 (64-Bit)            |
| RAM                | 32 GB                          |
| Graphics card      | AMD Pulse Radeon RX 570 (8GB)  |
| Hard disk-SSHD     | 2 TB                           |
| Processor          | Intel Core i5-9600KF or better |
| Monitor resolution | 1920x1080                      |
| 3D mouse           | 3Dconnexion SpaceMouse Compact |

## Administration phase



### New materials

The following additional materials can be selected for restorations in this version. Not all materials are available, depending on the machine type and country:

| Dentsply Sirona      | VITA             | Ivoclar Vivadent      | Shofu              |
|----------------------|------------------|-----------------------|--------------------|
| CEREC Tessera        | YZ ST Multicolor | IvoBase CAD           | BLOCK HC SUPERHARD |
| Lucitone 199         |                  | ProArt CAD Try-In     | BLOCK ZR LUCENT    |
| Lucitone Digital Fit |                  | SR Vivodent CAD       |                    |
|                      |                  | SR Vivodent CAD Multi |                    |

## Full dentures in the administration phase



### Manufacturing options

A choice is made between the "Denture teeth" and "Individual teeth" design options for the indication.

### Try-in option

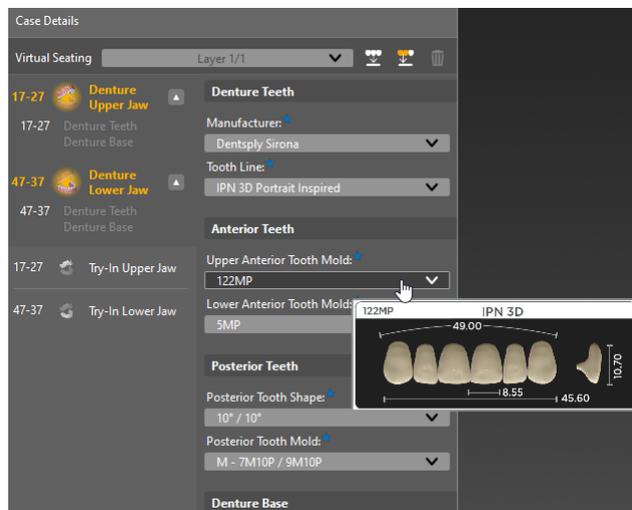
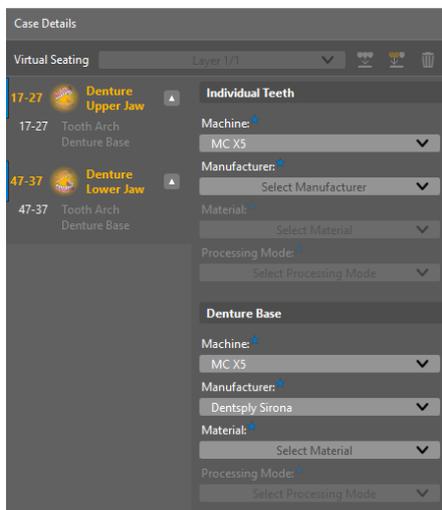
Optionally, a monolithic try-in can be added and defined with appropriate manufacturing options.

### Segmenting teeth using the dental chart

For a denture with individual teeth, the connectors between the teeth are automatically placed. As soon as the tooth arch is separated by the removal of tooth connectors, the resulting arch segments are listed as individual elements in the case details. Thus, the tooth segments can be flexibly designed and manufactured according to aesthetic and manufacturing requirements.

### Specification of the denture using the case details

All relevant case details are defined with a few clicks and selection menus. Each object consists of the "Denture teeth" and "Denture base" sub-objects. For denture teeth detailed preview images aid in the selection of the right size and mold for anterior and posterior teeth.



## Scan phase



### New scan phase with inEos X5

#### Better user guidance thanks to a step menu, information texts and images

The basic procedure in the scan phase has changed with the new inLab version. A step menu, information texts and images guide the user quickly and reliably to the optimal scan result. The new progress bar visualizes the scan progress.

#### Clearer interaction thanks to a new object list

The new object list automatically manages all objects which are relevant for the respective scan process and adapts the scan workflow depending on the specific scan task. The method (scan or import), scan mode (model or impression) and capture mode (manual or automatic, complete or reduced) can be selected. Data from the administration phase is used to pre-fill the object list in order to guide the user through the best scan workflow.

#### Clearer structure thanks to fixed panels

A fixed arrangement of the live view, object list, step menu and information texts and images ensure a clear structure. Functions are now integrated in the object list and permanently positioned there.

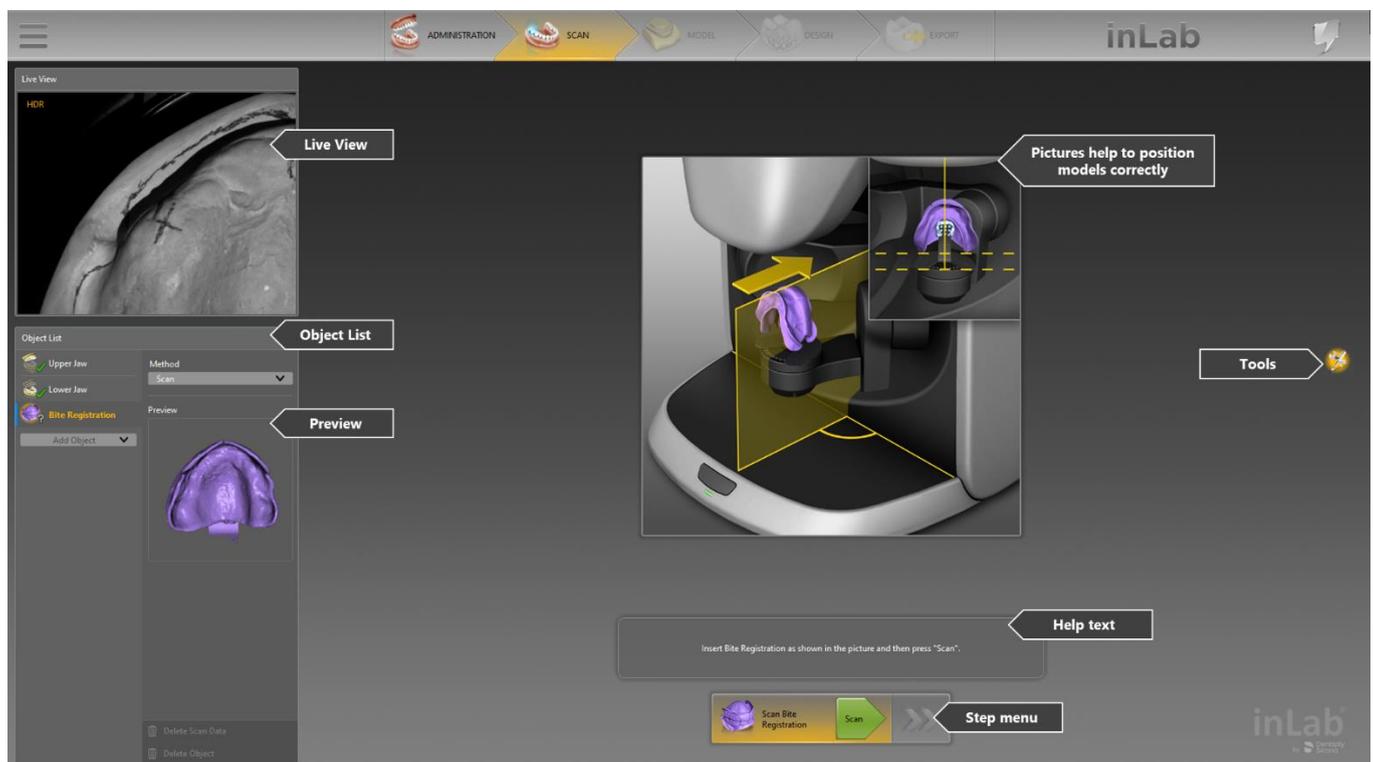
#### Expansion of the range of functions (Digital denture)

A new holder developed especially for digital dentures positions the bite registration in the inEos X5 scanner for reliable, shake-free scanning in just one step. A new scan algorithm allows all the relevant information to be captured precisely. The new scan object "Bite registration" precisely aligns the upper and lower jaws.

#### Standardization of scan workflows

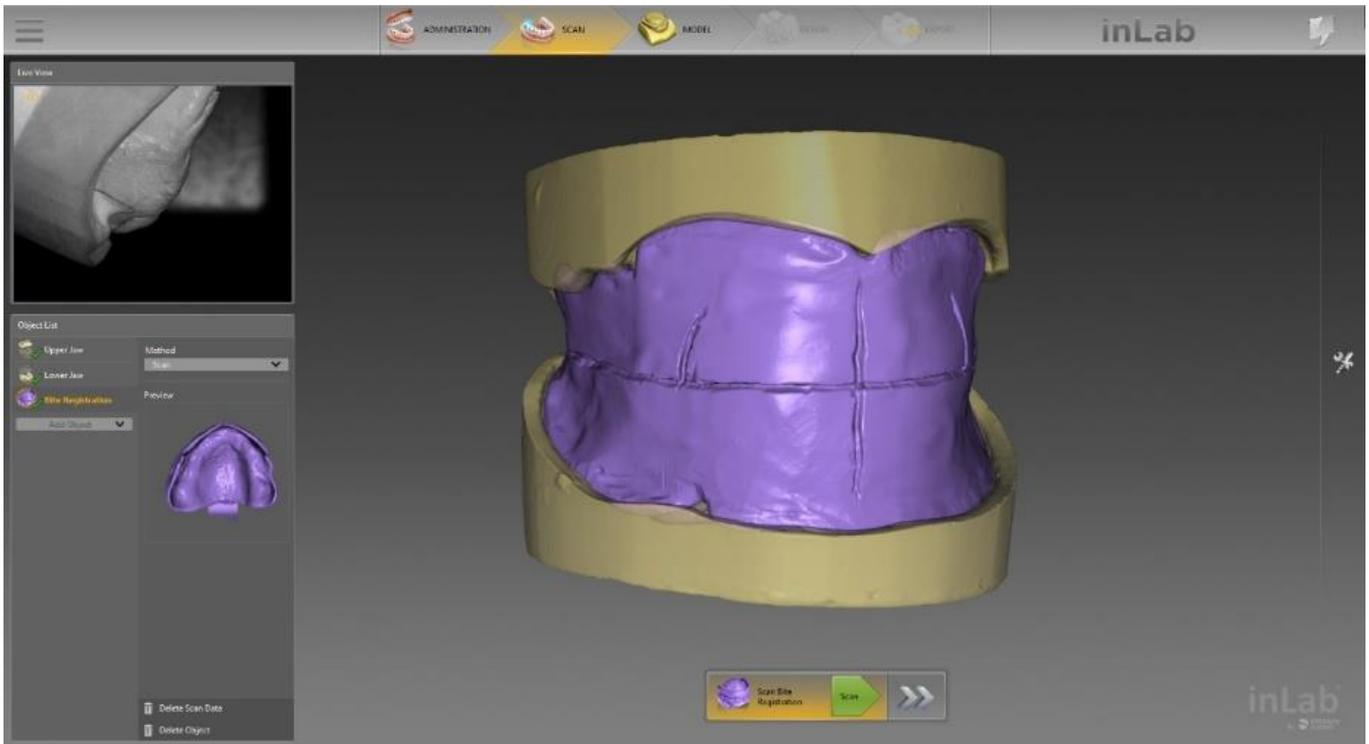
Scan workflows have been standardized to provide an intuitive user experience.

#### Fast scanning thanks to a new architecture and improved algorithms



## Full dentures in the scan phase

The software, which is optimized for dentures, enables a new and unique scanning workflow for precise correlation of the upper jaw and lower jaw – the optimal basis for the required model analysis and subsequent design. The complete scan of the upper jaw, lower jaw and bite registration is seamlessly transferred to the subsequent model calculation in the inLab software. Alternatively, the scan data can be used as open STL format data for further processing.



A new holder developed especially for digital dentures positions the bite registration in the inEos X5 scanner for reliable, shake-free scanning in just one step. A new scan algorithm allows all the relevant information to be captured precisely. The new scan object "Bite registration" precisely aligns the upper and lower jaws.



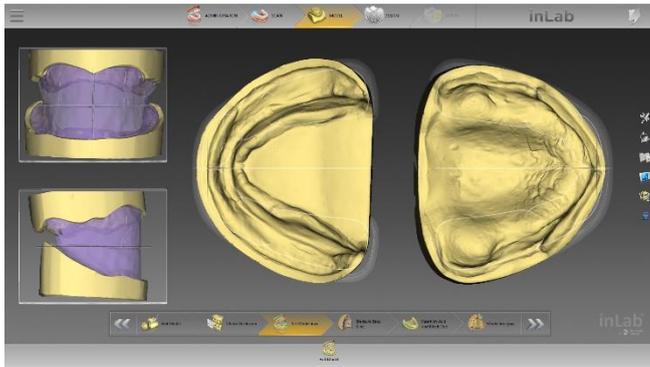
## Model phase



### Full dentures in the model phase

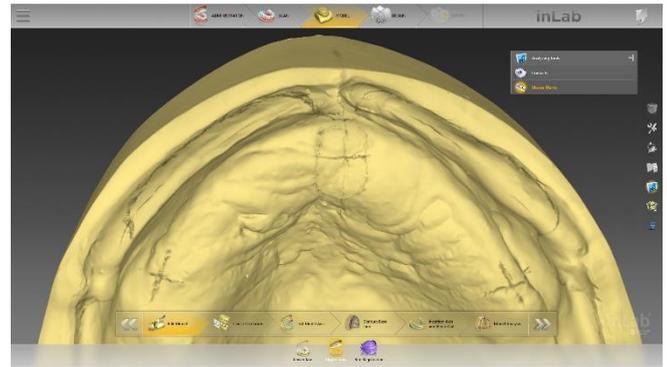
The model phase of the inLab Software enables optimal preparation and provides important information for automated model analysis, with which relevant anatomical landmarks are detected and suggested.

#### Setting the model axis



When aligning the model axis, the optional bite registration display provides orientation for determining the correct median and occlusal plane.

#### Activating the intensity image

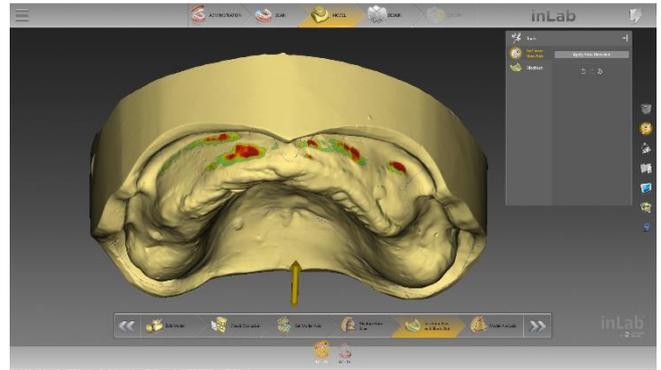


Markings that were used on the model for planning can be displayed for orientation if required.

#### Drawing the denture base line

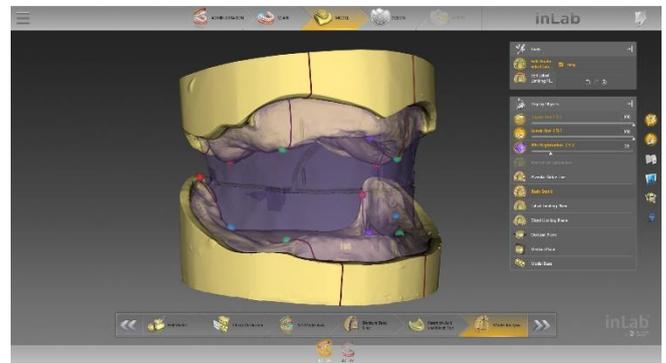


#### Setting the insertion axis and blocking out



blocked out as needed.

#### Model analysis



In the "Model analysis" step, the software displays anatomical landmarks automatically based on the digitalized jaw situation. The anatomical landmarks, such as the position of premolars, papilla incisiva, tubers and retromolar pad can be corrected manually. The initial proposal of the tooth set-up is based on alignment of the models and the model analysis. If the help option is activated in the inLab software, additional graphics and help texts for the model analysis will be displayed.

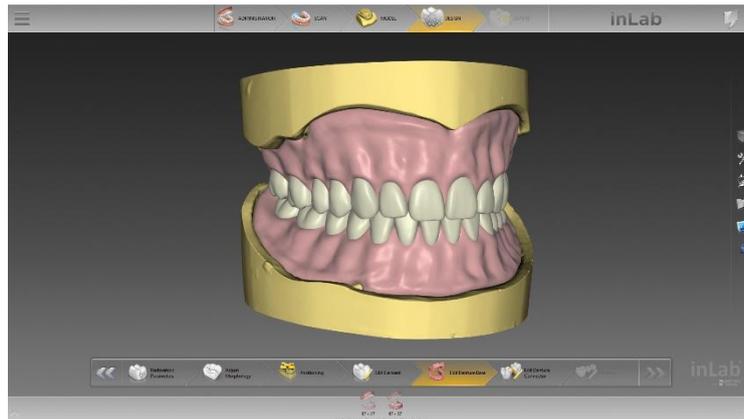
## Design phase



### Full dentures in the design phase

inLab SW 20.0 offers the lab two options for the digital tooth set-up: use of digitalized denture teeth that are stored in a tooth database, or individual tooth set-up. Both options are based on the unique biogeneric technique in which the software adapts the teeth in occlusion to the jaw situation.

The individual tooth set-up is determined by two essential and unique procedures: bio-jaw and biogeneric. These were both developed by Prof. Dr. Dr. Albert Mehl (University of Zurich) and are based on machine learning and artificial intelligence. The bio-jaw tool calculates a plausible and natural set-up from more than 160 real jaw situations and almost 10,000 individual teeth, which is optimally adapted to the existing structural or model analysis.



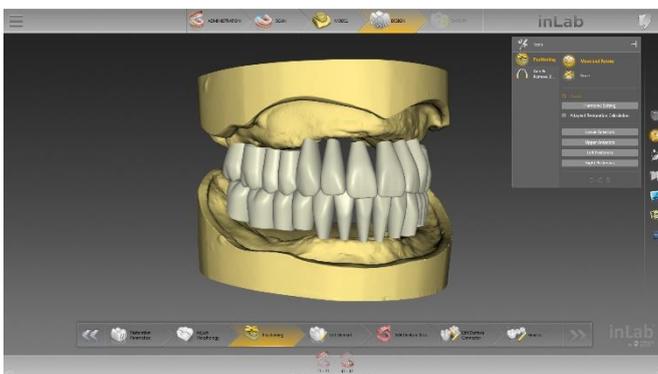
This technique has been used to design fixed restorations with great success for years. Specifically, it involves an algorithm that the software uses to propose an accurate restoration design to the dental technician based on the existing jaw situation. This central element of the inLab software is now also being used for full dentures.

### Individual teeth

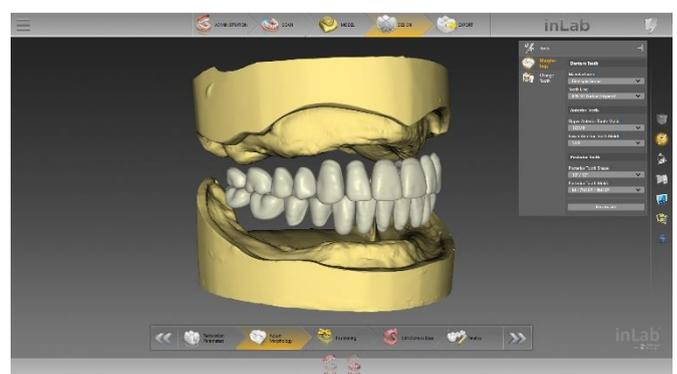
Nearly every jaw situation can be treated with the individual tooth set-up, even cases with difficult space situations. Based on the available data, the inLab software provides automated step-by-step support up to the initial proposal, which the dental technician can check and flexibly adapt as needed. The tooth arch can be created entirely or divided into several segments down to a single tooth, e.g., when creating complex cases or for different aesthetic requirements, especially in the anterior region.

### Denture teeth

When using digitized denture teeth from the tooth database, with inLab SW 20.0 and higher, the new IPN 3D™ Digital Denture Teeth Portrait Inspired from Dentsply Sirona developed specially for the digital process are used. They are reduced basally to prevent penetration of the denture base as much as possible. After set-up of the teeth in the inLab software, the denture base with the respective tooth pockets is designed. For this, a unique position locator system enables plug-n-play assembly, thus making it faster to position and bond the teeth.



Individual teeth



Denture teeth

## Setting the restoration parameters

The digital process offers numerous advantages including the definition of various parameter settings for constant safeguarding of parameters such as minimum wall thicknesses, pocket sizes and insertion depth.

## Positioning of teeth

The position of teeth can be changed individually, in groups or as a whole tooth arch. A linear mode and a dynamic mode are available for this.

## Biogeneric variation

For individual tooth set-up, the biogeneric tool of the inLab software is used for the initial proposal. By doing so, the biogeneric variation is set and/or an anterior tooth shape is selected. In addition, the individual tooth shapes can be changed.

## Editing teeth individually

The individual teeth can be edited with complete flexibility using the familiar tools "Form", "Move", "Shape", "Adjust Contacts", and "Incisal Variation".

## Editing the denture base

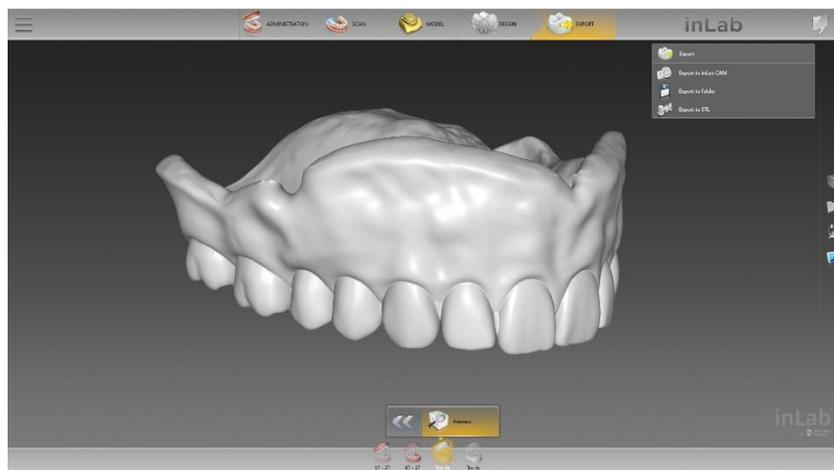
Irrespective of the selected tooth set-up, the denture base is then calculated according to the tooth set-up and the jaw line. The gingiva can be edited individually using the software tools.

## Export phase



### Full dentures in the export phase

For the production of the denture base and the tooth set-up, the inLab system continues to follow the principle of seamless, validated and open connection to suitable manufacturing processes: The inLab Software gives dental labs freedom and flexibility in manufacturing digital dentures.



In the export phase, the denture base and tooth arch for the upper and lower jaws as well as the optional try-in is displayed in the Restoration Selector at the bottom. As usual, these can be transferred seamlessly to inLab CAM 20 or exported as STL data via side menu.

## inLab Apps

### Model app

New model analogs from nt-trading are available. Labs have greater flexibility in the use of model analogs.

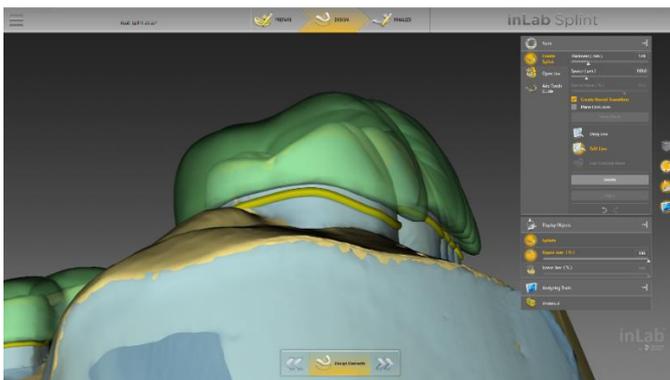
|        |     |         |            |                |
|--------|-----|---------|------------|----------------|
| Camlog | iSy | iSy 4.5 | nt-trading | ISY 5.DIM3.500 |
| Camlog | iSy | iSy 5.2 | nt-trading | ISY 5.DIM3.500 |

### Splint app

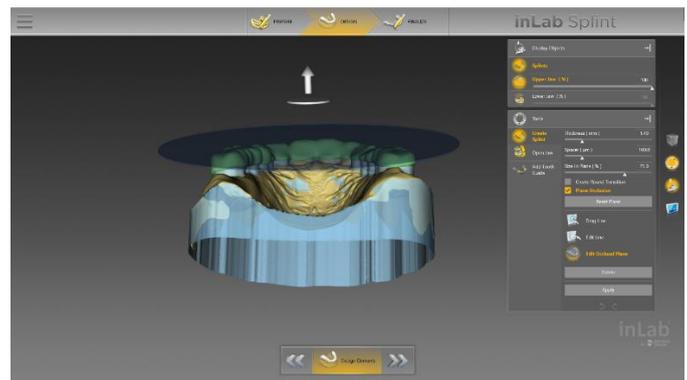
Thickness and spacer parameters can be set for splints. The spacer parameter adds a small space between the splint and jaw.



The new "Create Round Transition" function allows rounded edges to be created near the outer line of the splint. The plane occlusion can be edited with "Edit Occlusal Plane". In this mode, the user can also set the parameter "Size in Plane" to modify the appearance of the splint. When this parameter is used, the size and angle of the second plane can also be changed.

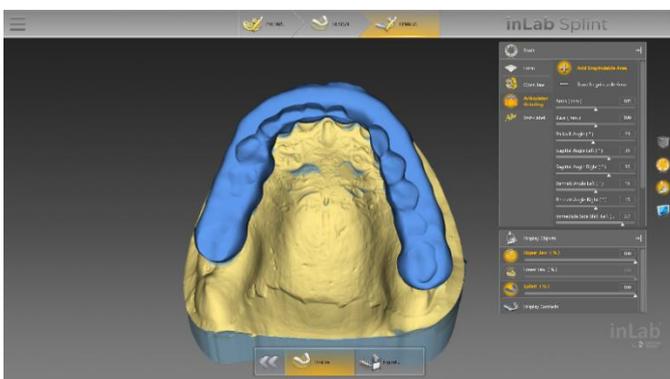


"Generate round transition"

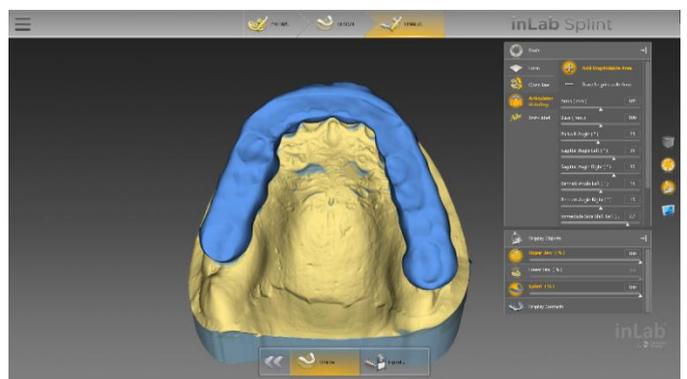


"Size in plane" at 63.7%

Articulation parameters are transferred from inLab CAD to inLab Splint; they are used and can be changed in the "Articulator Grinding" tool. The transfer of parameters works only with the inLab 20 software version.



"Articulator parameter"

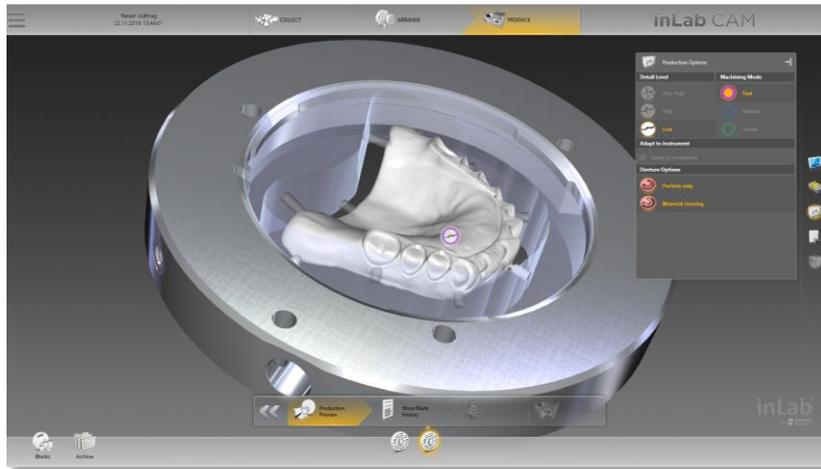


Using "Grind articulator"

# inLab CAM 20

## Full dentures with inLab CAM

InLab CAM supports the manufacturing of digital dentures. Various milling options are offered for an optimal result.

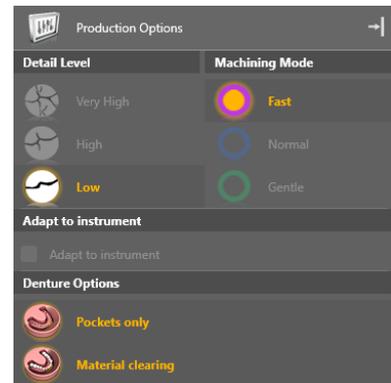


### "Pockets only"

If the "Pockets only" option is selected, a two-step milling process is executed (Smart Denture Finishing Process). In the first step, the denture base is prepared for bonding the denture teeth with the fastest possible process. In the second step, the denture is completed with final quality.

### "Material clearing"

If the "Material clearing" option is selected, a large amount of material is removed in near the jaw arch in order to facilitate the bonding of denture teeth.



### "Occlusal milling"

The "Occlusal milling" option is offered in the second step of two-step production processes. When the option is activated, the inserted denture teeth are milled occlusally. Possible deviations of the real tooth position to the design (due to bonding) are thereby corrected.

