DWOS® 9 Release Information

May 2019

Overview

Dental Wings is pleased to introduce the newest features and improvements for DWOS CAD/CAM and DWOS Easy Mode software solutions for dental laboratories. The updates included in this release are compatible with the Dental Wings 7Series, 3Series, and iSeries lab scanners, as well as standalone software licenses.

DWOS Easy Mode offers highly-intuitive tools to easily create, scan, design, validate, and produce dental restorations. This update delivers more scan functionalities, which now include options for multi-die scanning of preparations, check bites, and single arch cases. The simple coping is added as a new indication. The user interface has been streamlined to allow a smoother workflow with less distracting interactions by hiding expert tools in the advanced options. The precision of the design process has been increased, and new live measurement tools, a dynamic grid display, and a much improved connector and abutment design are provided.

The implementation of a new and specific hardware modification of the graphics card in the 7Series scanner results in **a significant increase in scan speed, up to 25%**, based on the employment of ultra-fast computations on the GPU of NVIDIA graphics cards, which greatly reduces the meshing time.

Central to the improvements in DWOS 9 involves the **virtual articulator**. A necessary overhaul including several bug fixes, updates to the physics engine, and optimizations on behavior make the virtual articulator a major asset in the overall design toolkit. In addition, and in response to popular demand, **a new model has been added**: the **Amann Girrbach Artex® CR**.

Dental Wings values all the feedback received on DWOS CAD/CAM software. Current users are encouraged to share articulator preferences with their distributor for integration consideration in upcoming software updates.

Dental Wings is particularly pleased to offer an official **3Dconnexion mouse integration** within DWOS CAD/CAM and DWOS Easy Mode permitting the use of their devices within the software and its customizable actions.

This latest update also includes minor new features and enhancements designed to further ease your workflows and assist you in your daily activities. Continue reading to learn more.

Release Notes

The following section provides a complete list of new features, improvements, and bug fixes at a glance.

NEW FEATURES

General

- Faster scan time: up to 25% quicker due to meshing optimization using the powerful NVIDIA GPU. This feature requires specific hardware configurations. See next section.
- Official 3Dconnexion mouse integration within DWOS and DWOS Easy Mode.
- Home screen newsfeed featuring information from your distributor on DWOS laboratory products and features.

DWOS Easy Mode (7Series and 3Series scanners only)

- New supported scan workflows inside DWOS Easy Mode:
    - Positive model with check bite scan
    - Single arch case
    - Precise multi-die scan for dies
- New prosthesis type available:
    - Simple coping with anatomy
- New design tools for easier design:
    - Live measuring tool provides instant information on the adjacent teeth, minimum thickness
    - Precise measuring tool takes multiple measurements from different elements (e.g. model, prosthesis, minimum thickness, gingiva)
    - Contact area scale for easier design and adjustment of interference with antagonist and contact points
    - Grid display for proportion indication facilitates design, especially for anterior teeth
- Improved connector design for bridge:
    - Possibility to switch between natural and physical connectors on demand
    - Special widget drags and draws the mesial and distal contours of a connector

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DWOS

Scan Import

- Import multiple files for each type of scan:
    - Multiple files get merged into one mesh per type
    - Allows easy output management from third-party intraoral scanners e.g. generating more than a single file for a bite scan

Inbox

- Seamless workflow with the latest Dental Wings Intraoral Scanner software version 2.3 and Virtuo Vivo™ software update 3.0, including automatic mapping of materials and implant kits for the Straumann® portfolio. Choose from a recommended list of compatible materials and implant kits based on the dentist's prescription, or select outside the recommended items.

Virtual Articulator

- Integration of Artex® CR, normal and average guidance
- Calibration of Artex® CR within the 7Series scanner
- Both new articulators are directly available within the software

Crown & Bridge, Implant

- Angulated screw channel available within virtual wax-up (i.e. on merged wax-up)
- Slider reduces the visible height of the scanbody helping with repositioning when implant is deep in the gingiva

Partial Framework

- Similar to improvements made to the virtual model builder in the previous software update, all components available within the partial module are now customizable per material. This simplifies settings and configurations of the production in the laboratory.

IMPROVEMENTS & BUG FIXES

Virtual Articulator Enhancements

- Updated and improved physics engine

- Optimized exploration and detection of contact points

- Numerous improvements made to the articulator:

    - Incisal pin behavior

    - Guidance mesh for condylar boxes

    - Distinction between articulator and occlusor

Crown & Bridge & Implant

- Possibility to choose on which surface to reposition gingiva, wax-up, bone, and face scan

- Face scan improvements:

    - Can be exported once positioned

    - Is now part of the retrieved scan files

    - Is now embedded in .order file when exporting a case

- Fixed an issue which prevented edits to the position of the lower wax-up when designing upper and lower wax-up information

- Possibility to show/hide the synergy abutment to focus on the anatomy design

Virtual Model Builder

- Possibility now to set the insertion axis of flat bottom gingiva

Orthodontic Archiving Module

- 3 types of base models available: plain, offset, and hollow. This makes it possible to consume less material with 3D printing

Others

- Possibility to export scan surfaces in PLY format to maintain colors and textures from the original scan

- Possibility to import multiple materials at once from a zip archive

- Updated translations for the following languages: French, German, Italian, Spanish, Portuguese, Japanese, Chinese, Korean, and Polish

DWOS 9 - In Pictures

FASTER SCANNING - GPU OPTIMIZATION

Scan time of Dental Wings 7Series lab scanner is up to 25% faster. New algorithms are now employed for meshing the scan clouds, which allow massive parallel data processing on the graphics card (GPU) instead of the main processor (CPU). This breakthrough achievement is only a glimpse into what's coming in terms of computation time reduction, which is planned for various Dental Wings products.

This new computation technology is available in DWOS 9, however, it requires specific hardware configurations using an NVIDIA graphics card with CUDA support. The 7Series scanner, which embeds the new graphics card, will support this out-of-the-box.
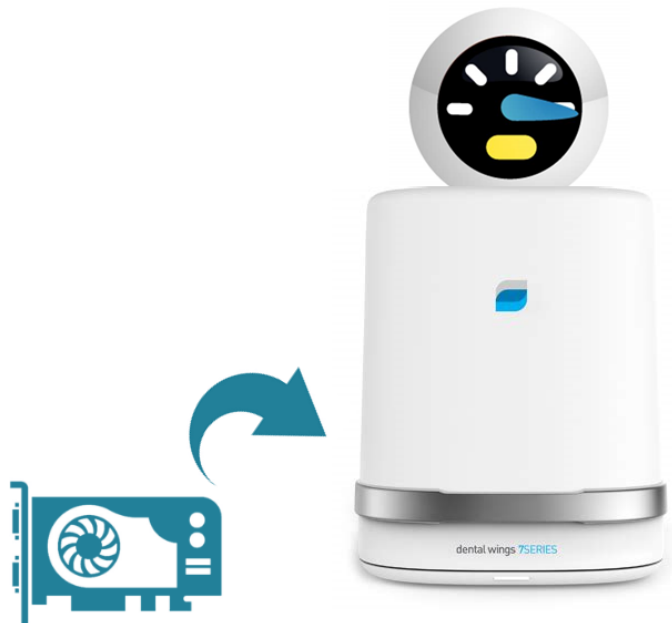
SUPPORT OF THIRD-PARTY SCANNERS

In scan import, it is now possible to load multiple files. After assigning the first file, simply click on the browse button to add another file. All files are then merged into one mesh. This allows an easy import/output originating from third-party intraoral scanners e.g. generating more than a single file for a bite scan.
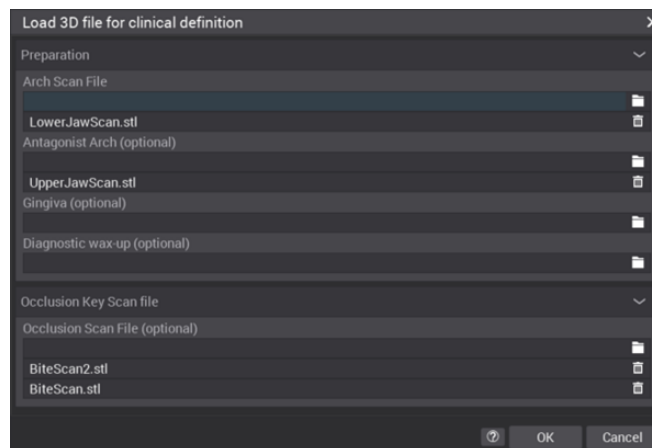
VIRTUAL ARTICULATOR

The articulator helps the dental laboratory deliver high-quality restorations by adjusting designs to the static and dynamic occlusion of the patient. Using a digital workflow, the same holds true.

Below are instances where users should see significant improvements when using the virtual articulator feature in DWOS 9:

- Integration of Artex® CR, normal and average guidance with calibrations for the 7Series scanner
- Optimized exploration and detection of contact points
- Updated and improved physics engine
- Correction of prominent bugs in the articulator

The Amann Girrbach Artex® articulator has been integrated into DWOS. Both the standard anterior guidance and average anterior guidance are available.
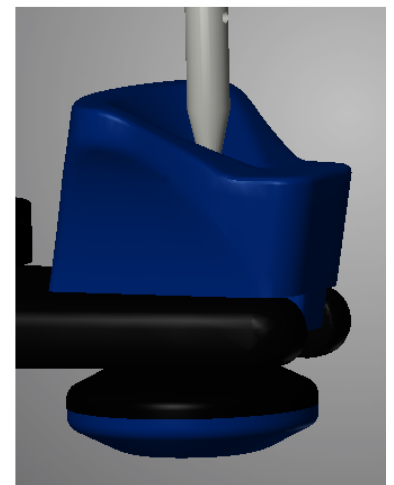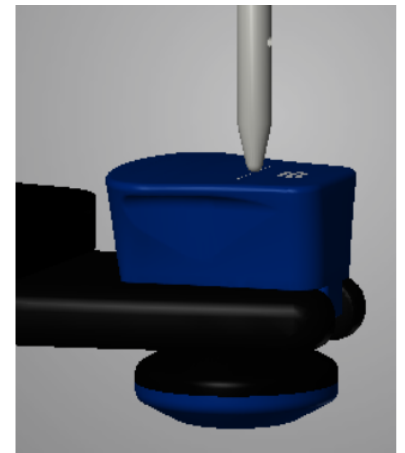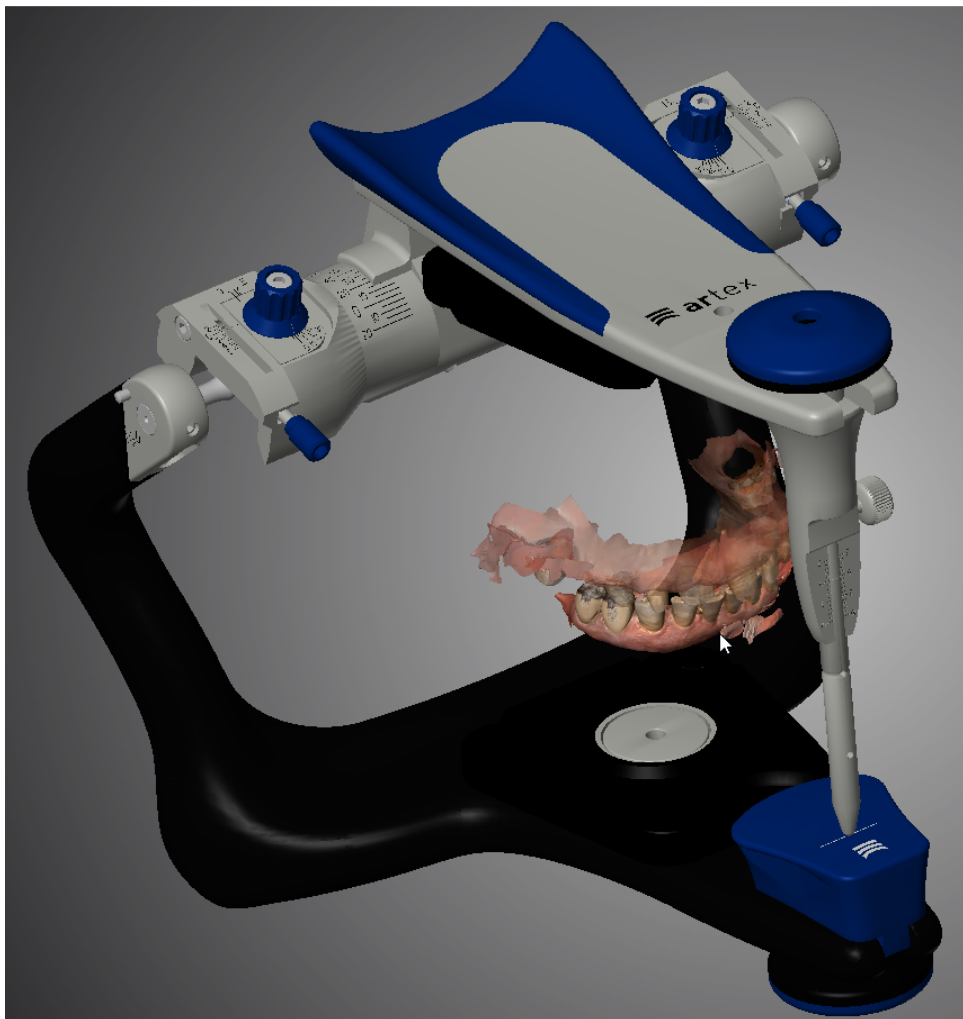
Blocking bugs on the virtual articulator previously reported have been fixed, greatly improving usability.

Another noticeable bug fix regards the use of the incisal pin, which in prior releases would show a side drift. This issue has been resolved.

All articulators are available in the articulator and occlusor management. For each of the most relevant articulator types (SAM® SE, Artex® CR standard/average anterior guidance), one virtual instance is pre-installed per default. To add a new virtual articulator instance, a search for xml files is no longer necessary. Simply click "Add articulator" and choose the preferred type of articulator from the list provided.
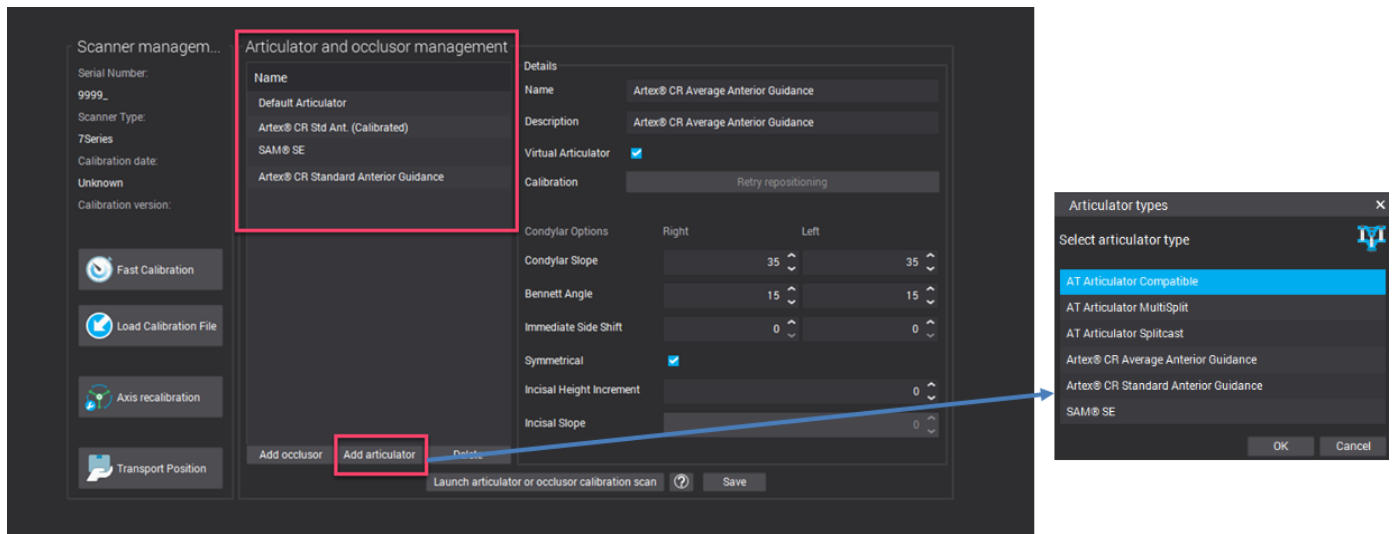
For personalization, it is possible to rename an articulator instance and/or change values in settings.
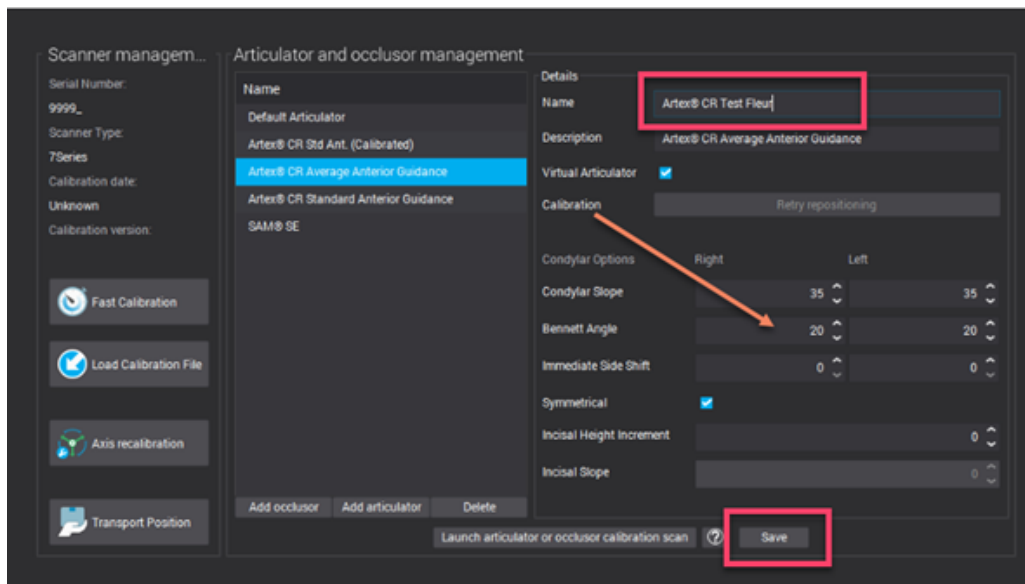
Giving the articulator an adequate name makes it easily identifiable in the management list.

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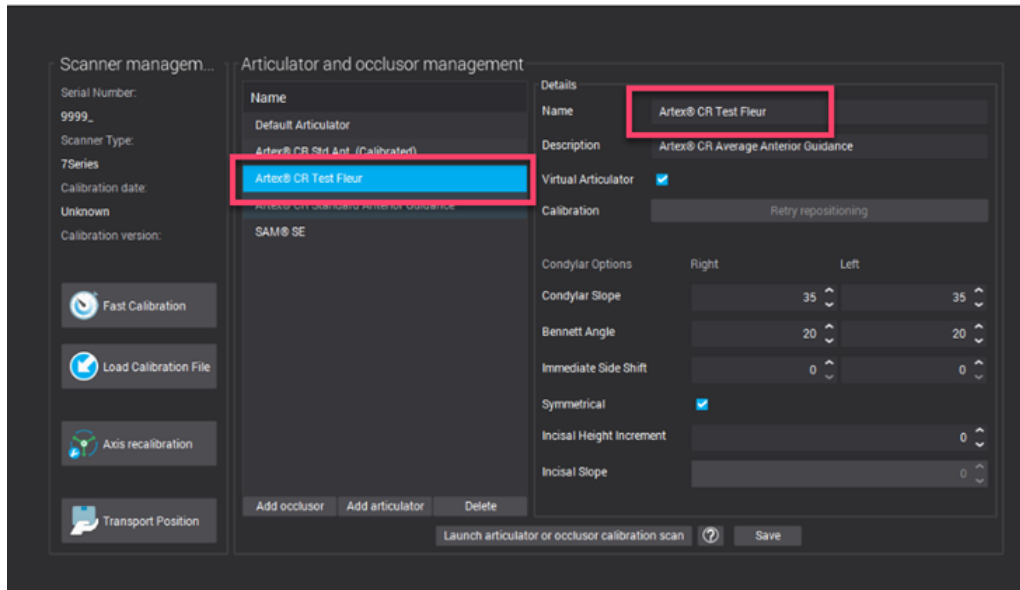
The main advantage of using an articulator is to see the contact points of the dynamic occlusion. The contact points are found by running an "exploration" of the virtual model. The display of the contact points has been improved. Instead of single points, what is seen now is the surface of contact. The new color code follows that of the well-known colors of protrusion, laterotrusion, and mediotrusion.

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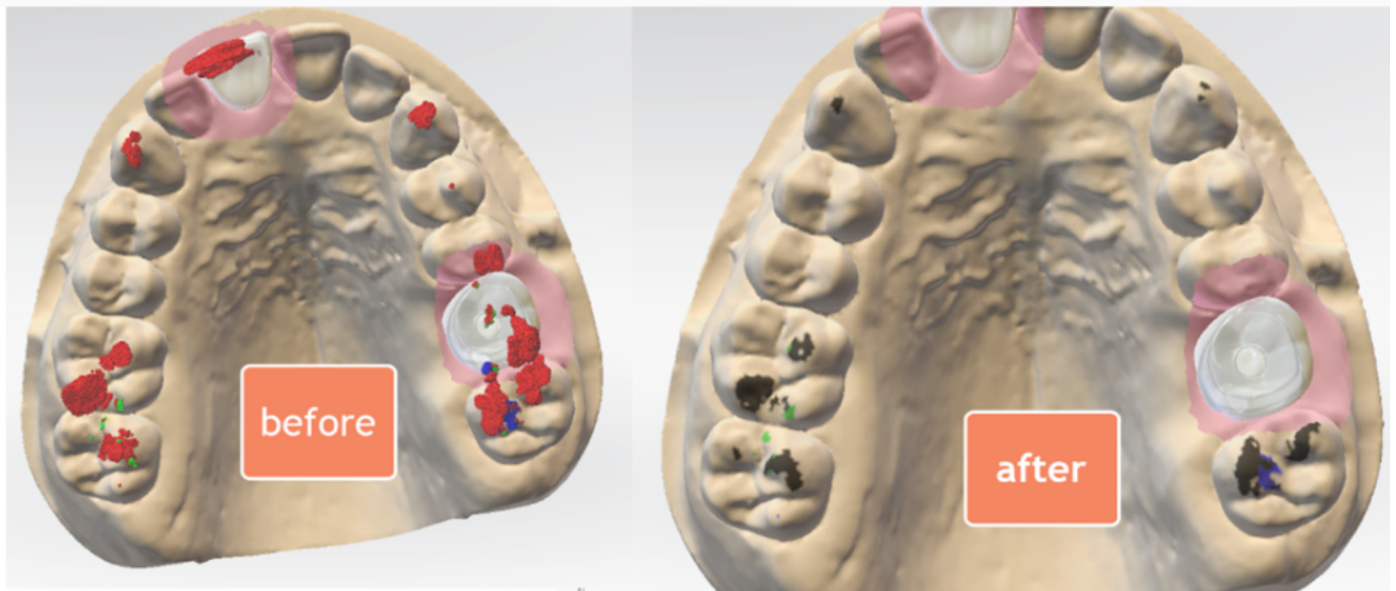
PARTIAL DESIGN PARAMETER

In the past, changes to partial design parameters were applied globally to all materials, which presented some limitations. With DWOS 9, these parameters can now be set per material and, as such, have different settings for each material for added flexibility.

Labs should share and back up the parameter settings, which is very easy to do. Similar to material export, these settings are saved in the resulting material XML file.

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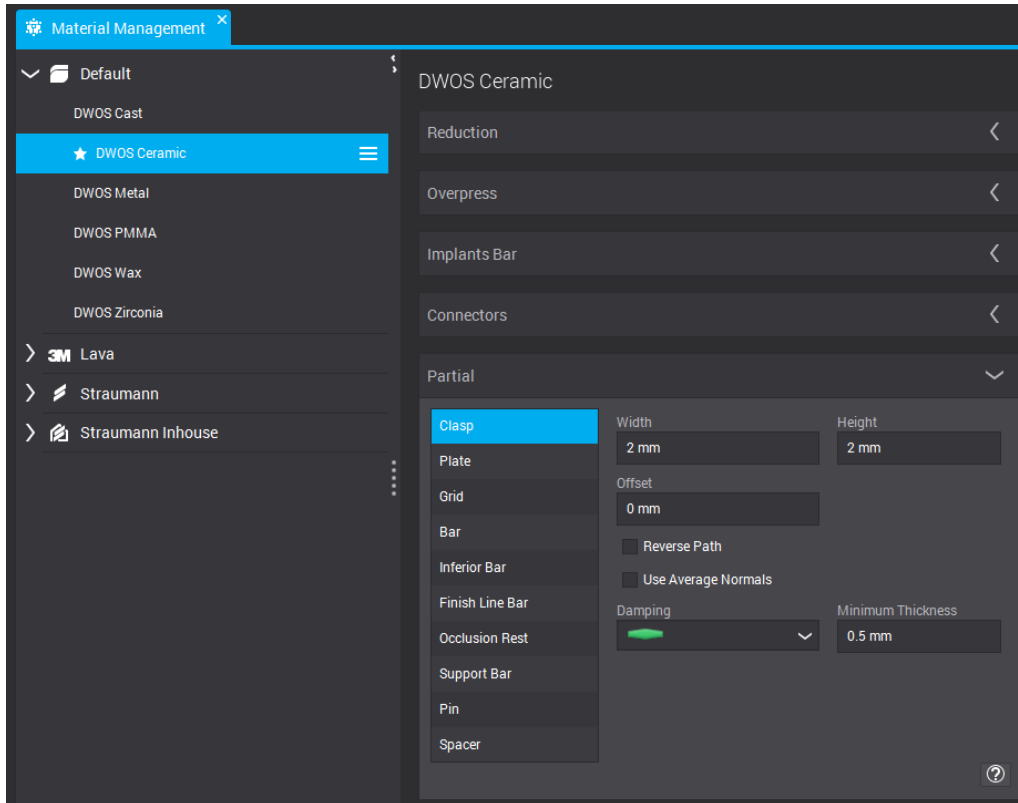
ANGLED SCREW CHANNEL FOR VIRTUAL-WAX-UP

The angled screw channel feature is now available for virtual wax-ups. Use "Adjust Axis", same as for standard angled screw channel cases.
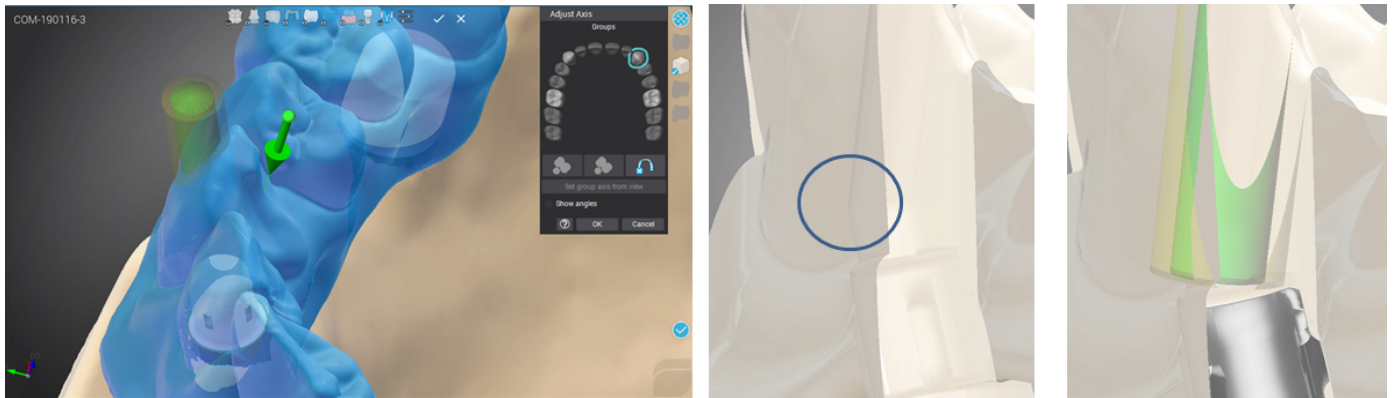
SCAN BODY DETECTION

Previously, automatic scan body detection could show subpar results in cases where the visible part of a scan body is very short. This leads to an incorrect re-positioning, which is possible with scan files from intraoral scanners.

With DWOS 9, the user has the option to reduce the visible height of the scan body during the repositioning step to match it to the scan file. Automatic detection is a great deal more reliable, making offsets a thing of the past.

NO OFFSET

PLY SURFACE EXPORT

It is now also possible to save surfaces in PLY format. in addition to the already existing OBJ export file, the PLY export file also maintains color and texture information if the initial file had texture mapping.
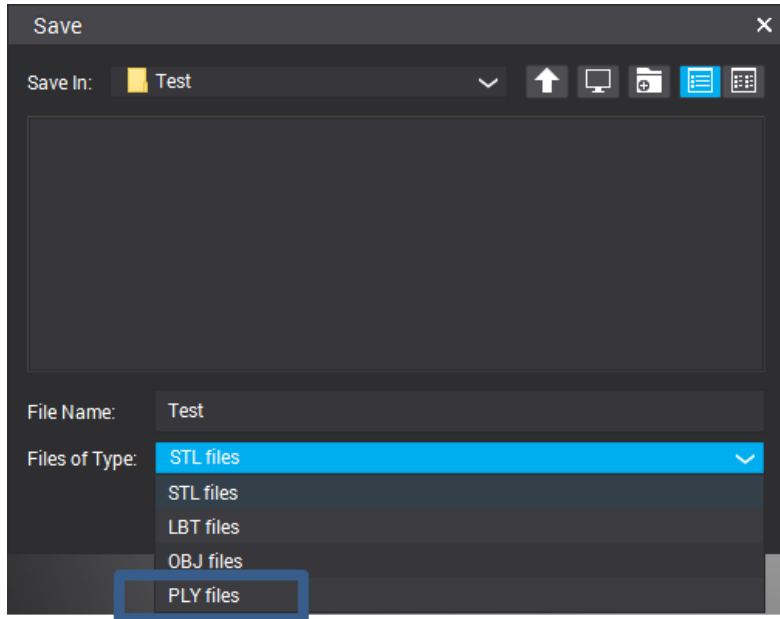
FACE SCAN

In the previous update, major face scan improvements were introduced. DWOS 9 adds even more export functionalities. Face scans:

- can now be exported once positioned
- are now part of the retrieved scan files option
- are now embedded in .order file when exporting a case
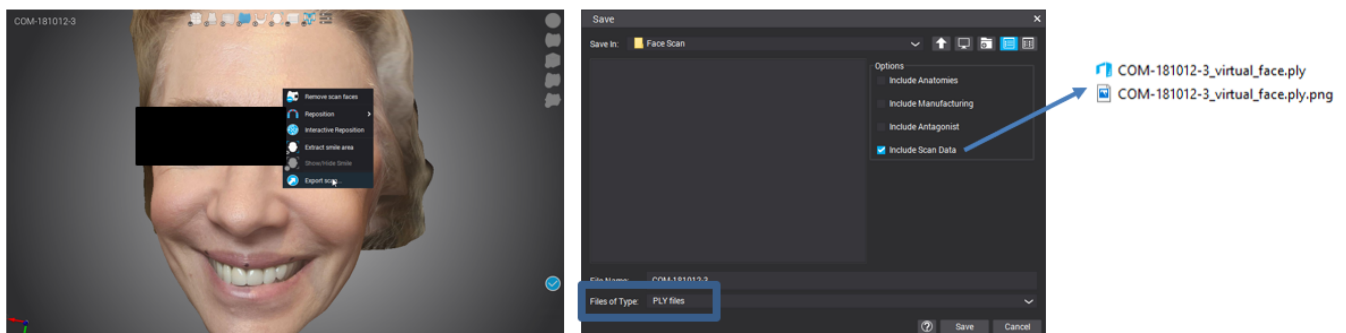
ORTHODONTIC ARCHIVAL

To decrease printing costs, three new base model types are introduced: offset, hollow, and plain.

The plain type is a standard closed and completely filled model. The offset type creates a model with a border line that has an open base. The hollow type has a closed base however, as the name suggests, is hollow inside.

The offset parameter for hollow and offset types defines the thickness of the border line.
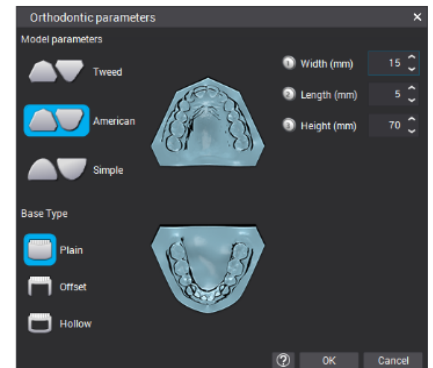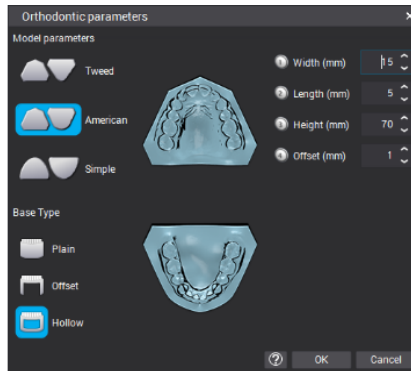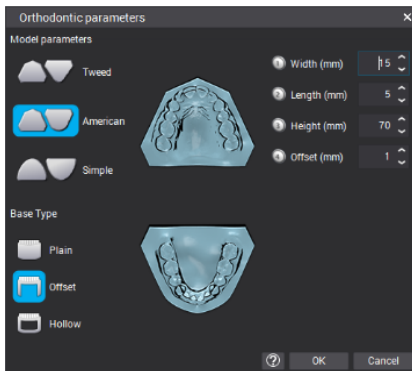
Offset parameter applied here.
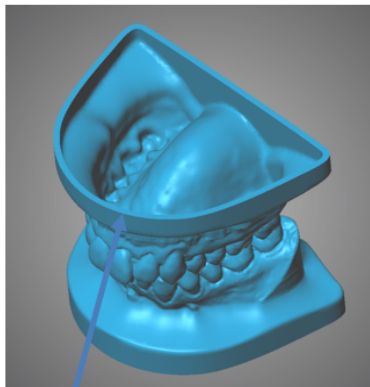
Offset

Hollow
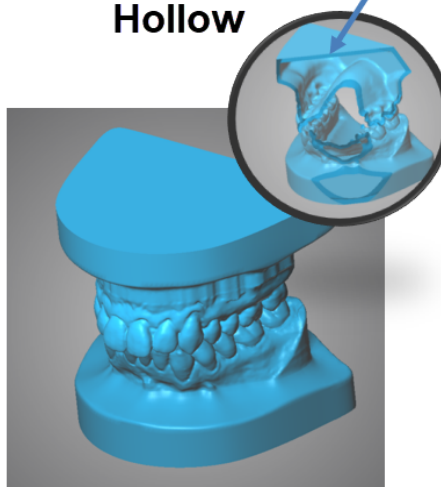
Plain

Offset parameter applied here.
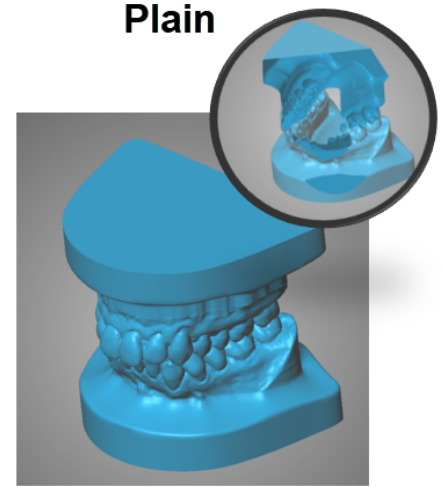
DIGITAL WORKFLOW FROM VIRTUO VIVO™ OR DENTAL WINGS INTRAORAL SCANNER TO DWOS

DWOS 9 delivers significant improvements when interacting with Straumann® cases originating from Virtuo Vivo™ or the Dental Wings Intraoral Scanner. It is now very easy to select the right material and implant kits.
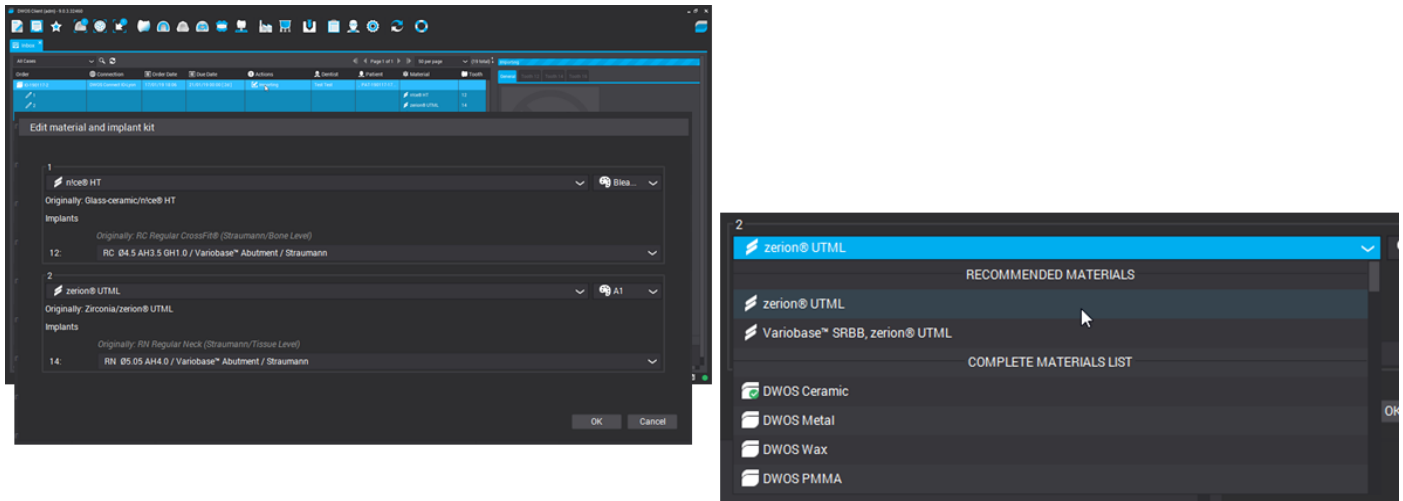
IMPORT MATERIAL FILES

it is no longer necessary to import each material file individually. With DWOS 9, simply compress all the relevant xml files received from the manufacturer into a zip archive and import all at once in one click.

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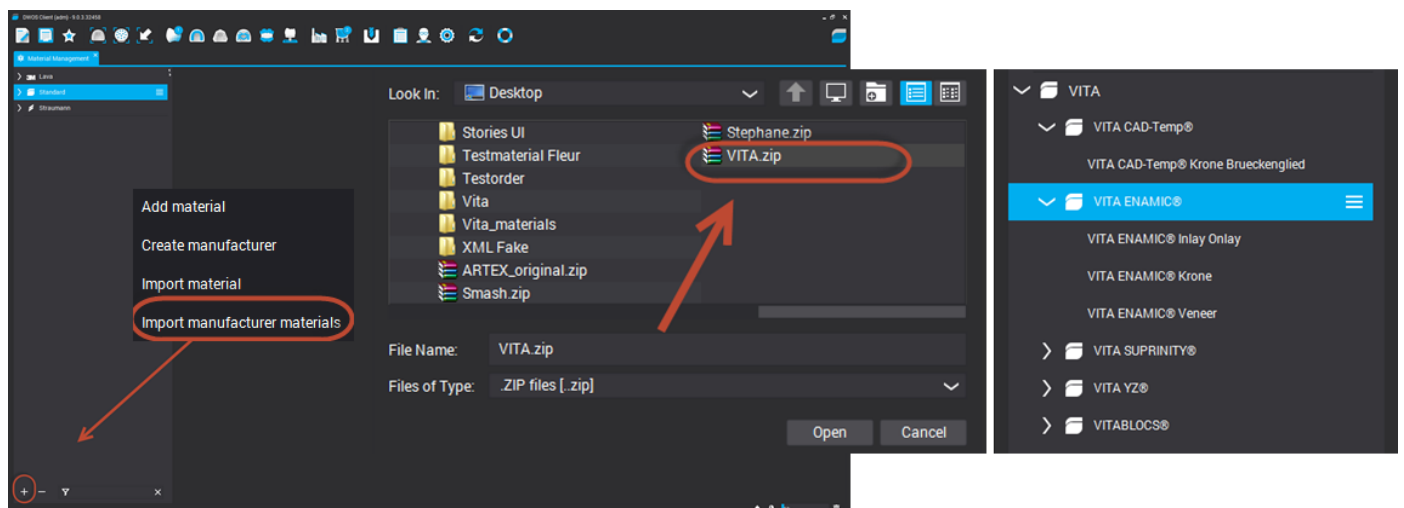
INSERTION AXIS FOR FLAT BOTTOM GINGIVA

Previously, in the gingiva designer of the model builder, the flat bottom gingiva was always parallel with respect to the bottom of the model. This was limiting to the design as sometimes teeth are orientated on the occlusal plane, or teeth are diverging and/or crooked in the jaw.

With DWOS 9, the bottom of the gingiva in the mesio-distal direction can now be oriented/tilted

independently from the bottom orientation of the model.
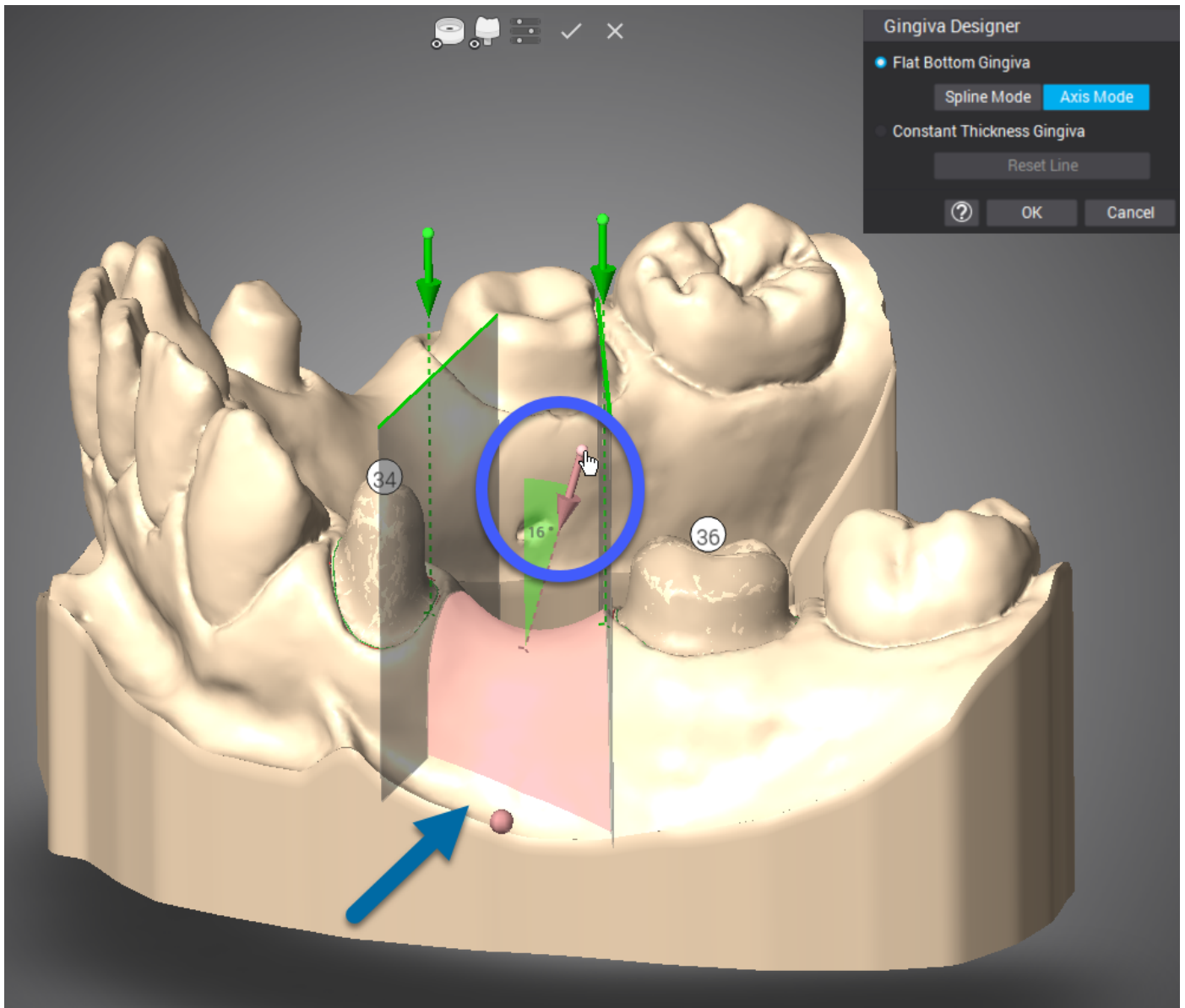
REPOSITIONING OF WAX-UP, GINGIVA AND BONE

It is now possible to choose on which surface to reposition the bone, gingiva, and wax-up. Available repositioning surfaces include arches, occlusion, face scan, bone, wax-up, and gingiva.

Repositioning of a Gingiva
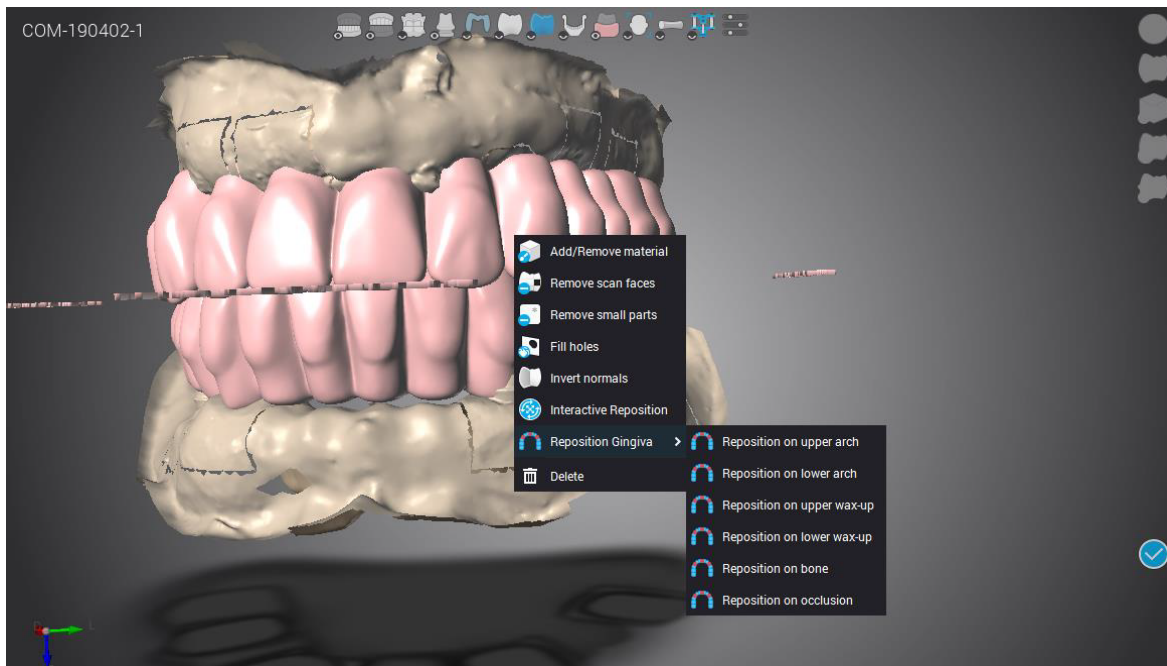
Repositioning of a Wax-up

DWOS 9.0 Release Info / v.1.0
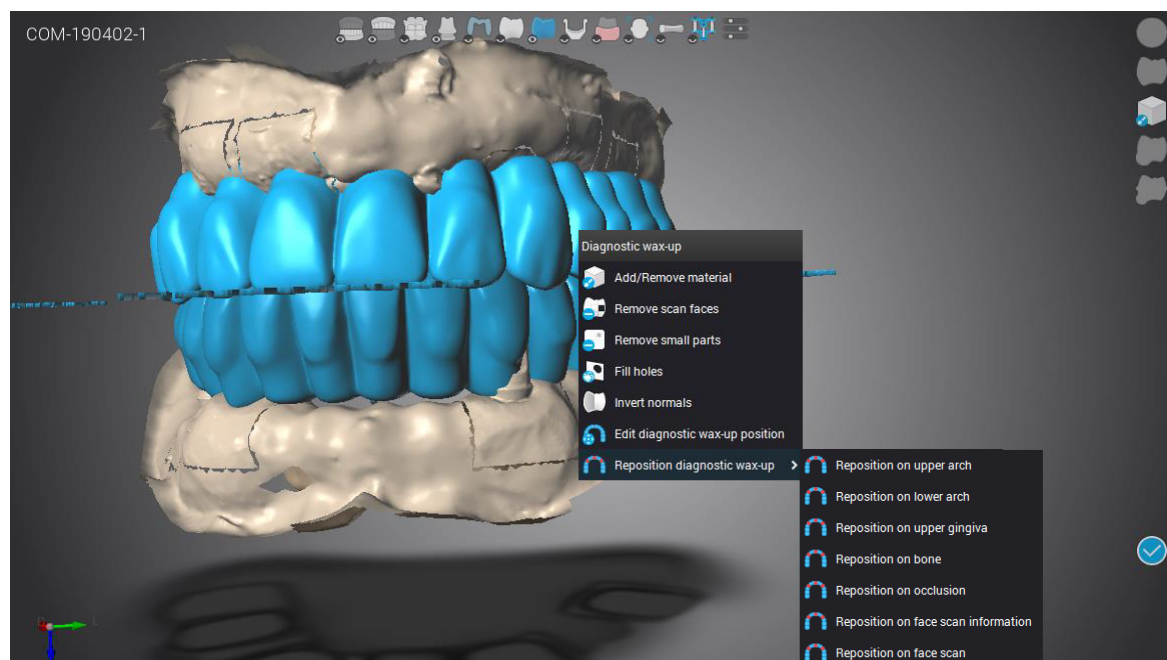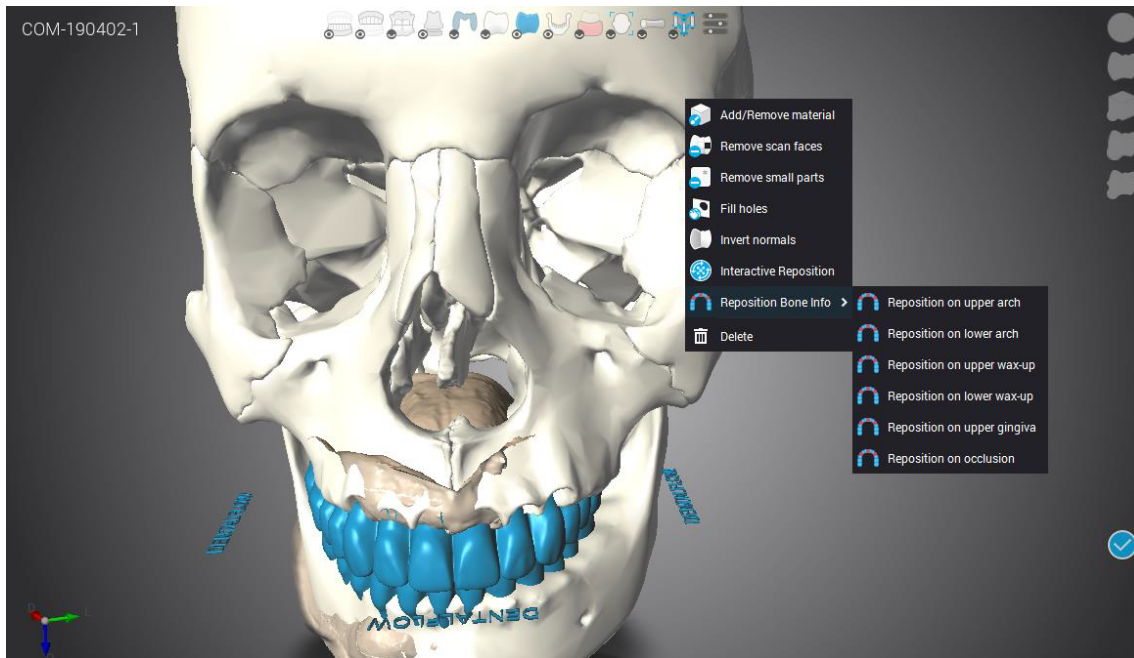
HIDE SYNERGY ABUTMENT

With DWOS 9, hide the synergy abutment in a synergy case, to better focus on the design of the anatomy.

DWOS 9.0 Release Info / v.1.0
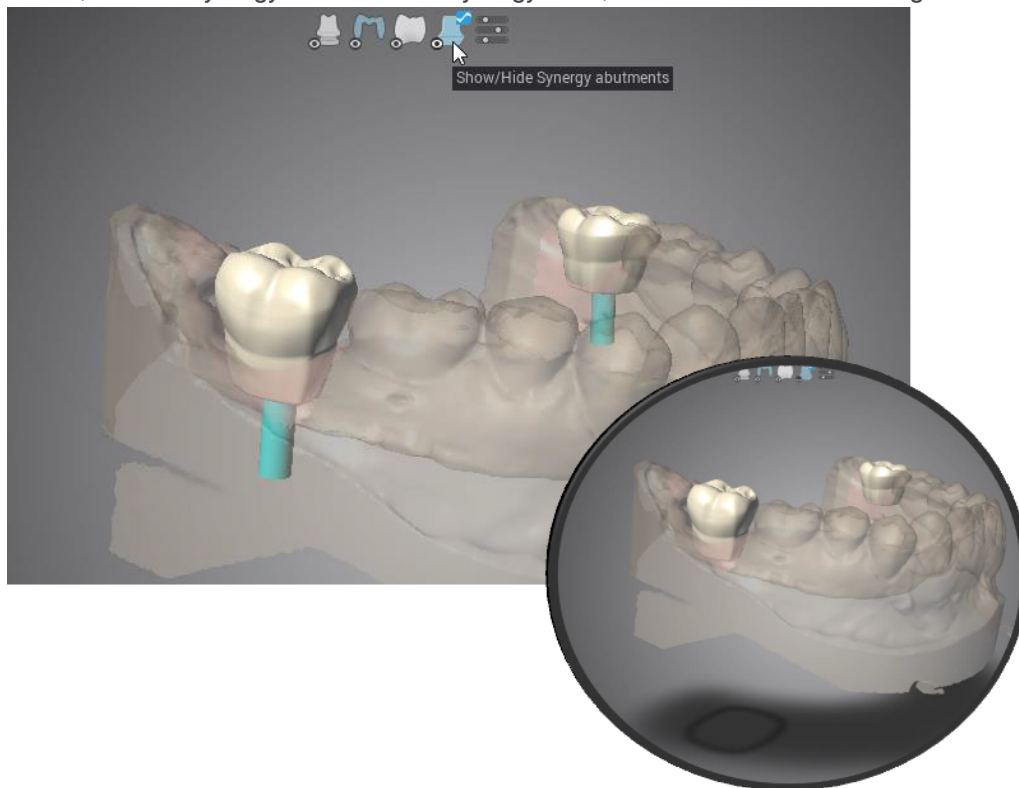
DWOS Easy Mode Enhancements

NEW SCANNING WORKFLOWS

Two new scanning workflows are now offered in DWOS Easy Mode for the 3Series and 7Series lab scanners.

1. The multi die plate may now be used to scan model dies individually. This newest option appears before the *Precise area scan* in design choices. Once a die has been scanned, it is repositioned on the arch automatically.
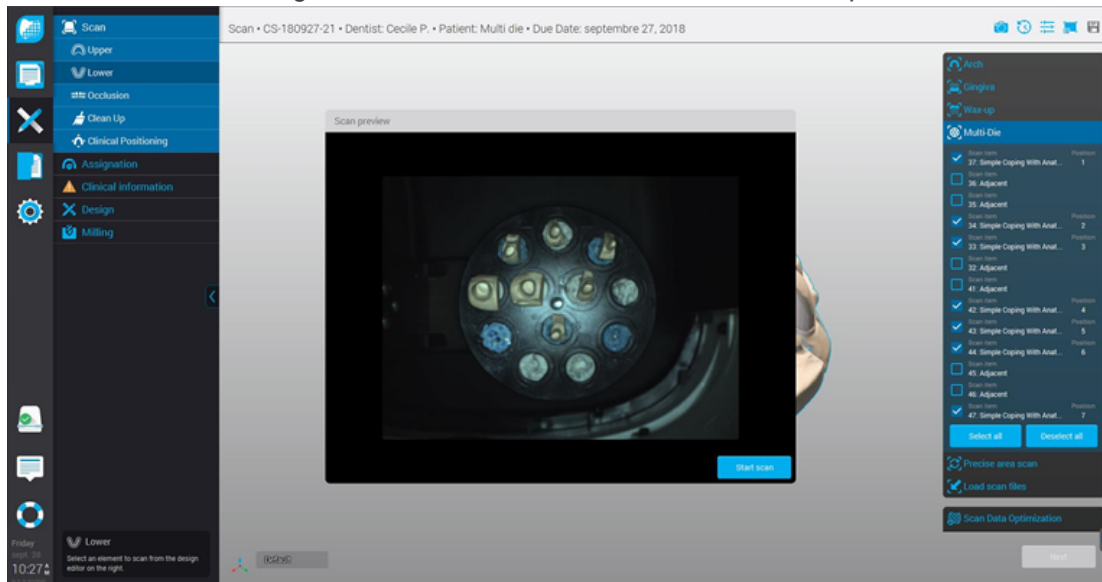
2. Check bite scans are now possible. It is no longer necessary to use the extra occlusion step since the bite provides it already. This option is available only for the arch that has no preparation.
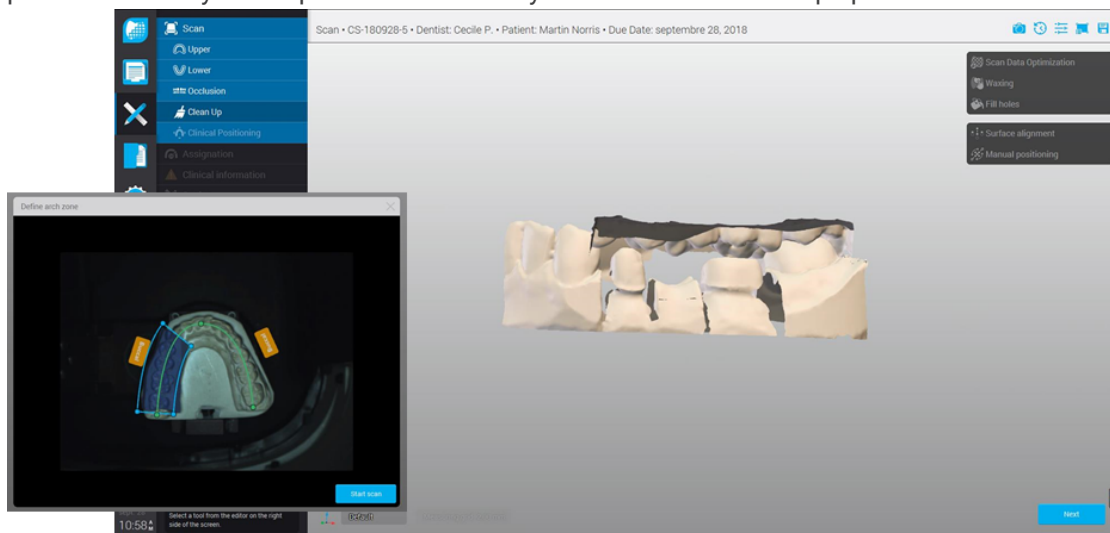
NEW INDICATION: SIMPLE COPING

DWOS 9 allows the design of a simple coping.
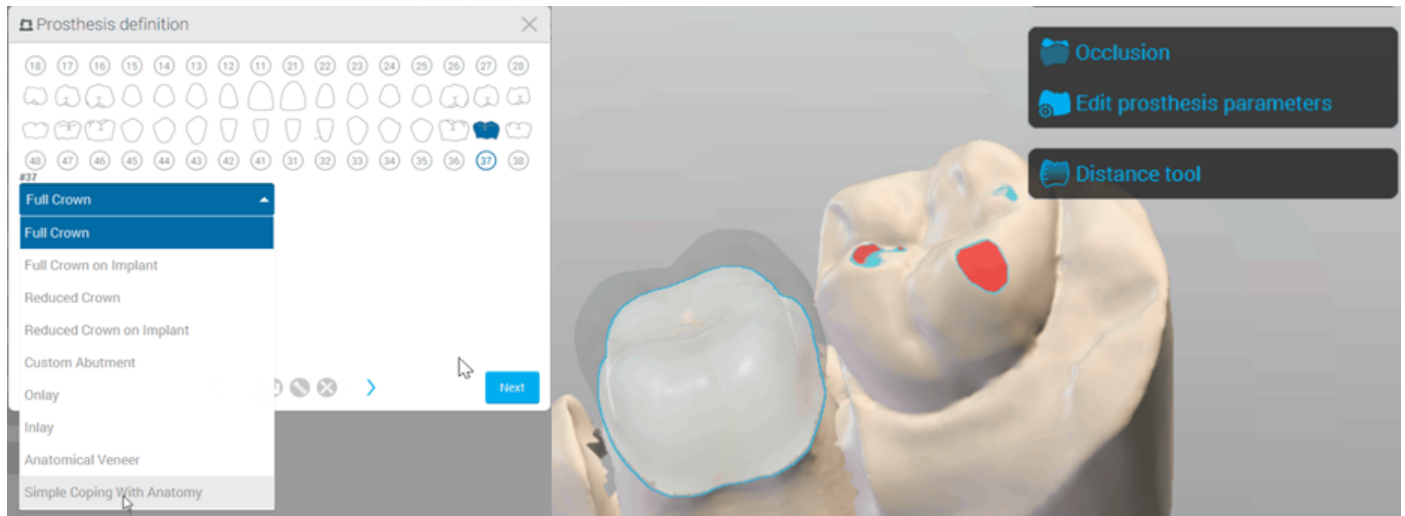
DESIGN ENHANCEMENTS

Contact Area Visibility and Scale

Simplify the design of a dual arch case with the help of the contact area scale. The scale is available via visibility options. The intuitive color's range represents the distances of the contact areas. The tool displays occlusal, mesial, and distal contact points.
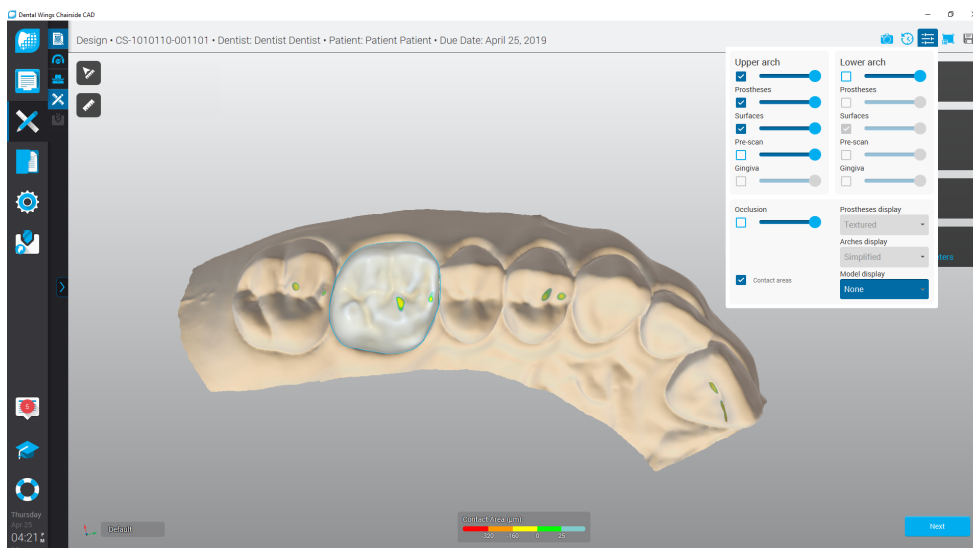
Live Measurement

When activating the live measurement, what is instantly shown is the shortest distance from the mouse pointer position to the closest point of a specified surface.

- **Minimum thickness**: When the mouse is on a restoration, the thickness of the material at this point is displayed
- **Upper arch**: Distance between the mouse pointer and the upper arch
- **Lower arch**: Distance between the mouse pointer and the lower arch

If the restoration is on the same arch as the mouse pointer, these live distances will aid the design of the interproximal contacts. If, on the other hand, the restoration is on the opposite arch of the mouse pointer, the live distances help to design the occlusal contacts.
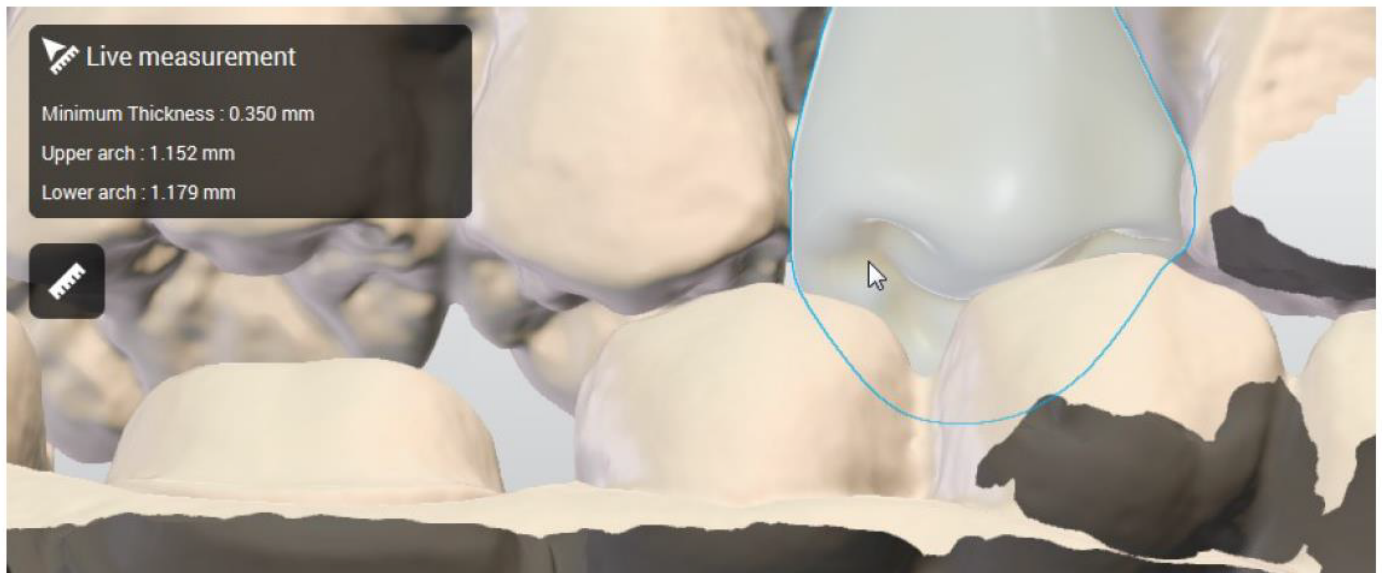
Measurement Tool

Beside live measurements, which provide information about the distances from the mouse pointer to other surfaces, an additional expert tool to inspect various distances of the design in greater detail is available. The **measurement tool** will open a cut plane view to add multiple pair of points on any surface. For each given pair, the distances are displayed. Using ctrl+mouse wheel, move the cut plane along the case to update measurements simultaneously
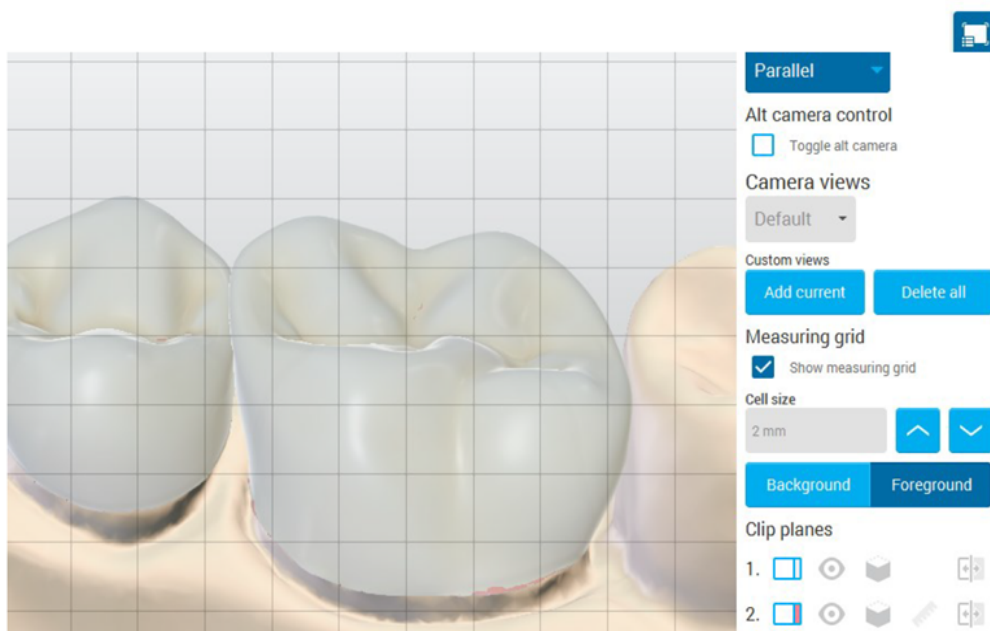
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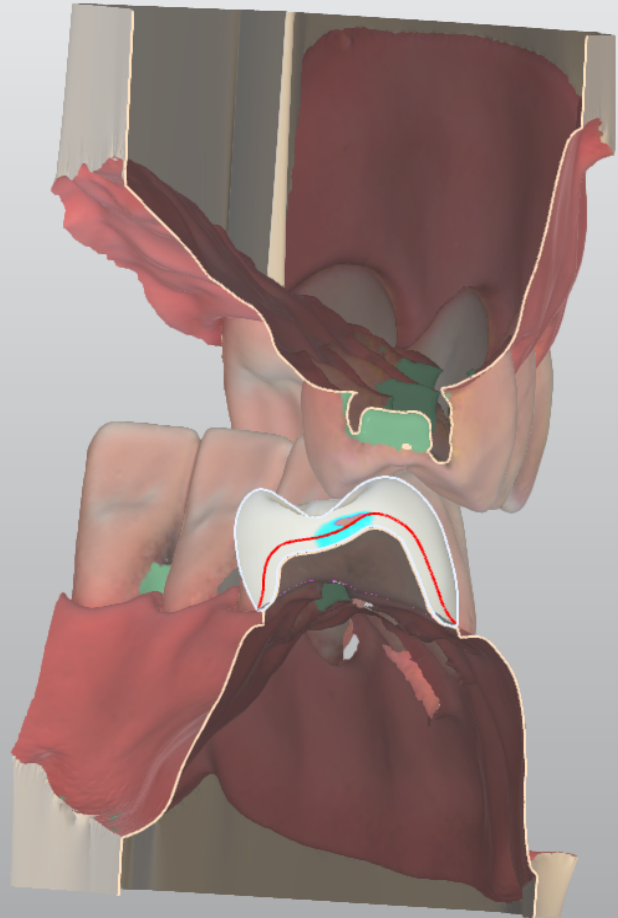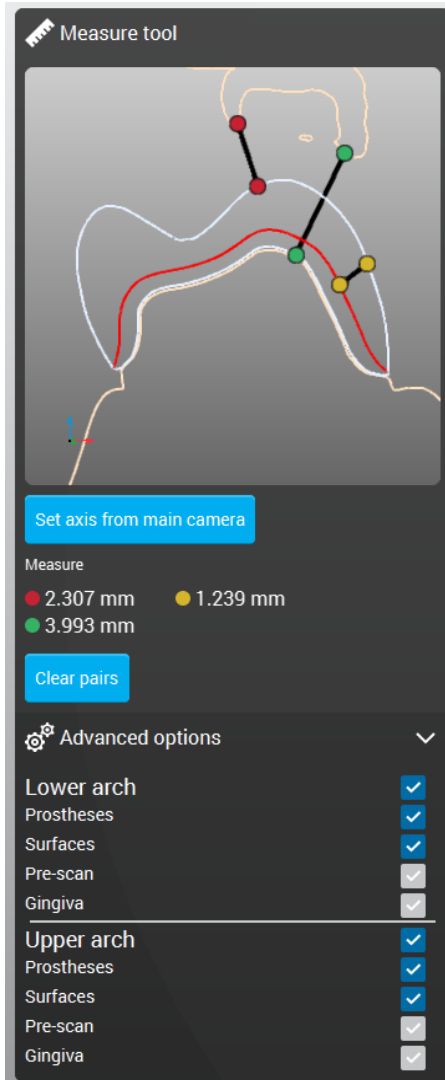
Grid Display

It is now easier to create symmetrical designs by activating an option that dynamically display a grid.
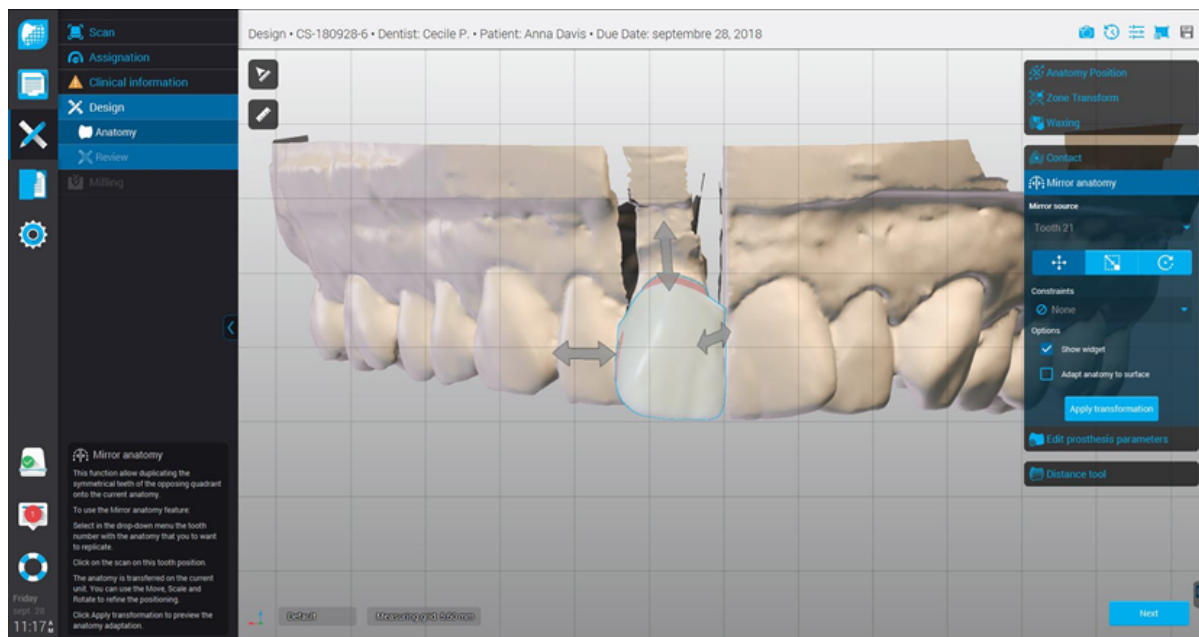
This newest feature is activated by:

1. Opening View options
2. Selecting the checkbox, Show measuring grid
3. Customizing the distance between the lines in the field below

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The cell size can be configured to display the grid in either Background or Foreground.
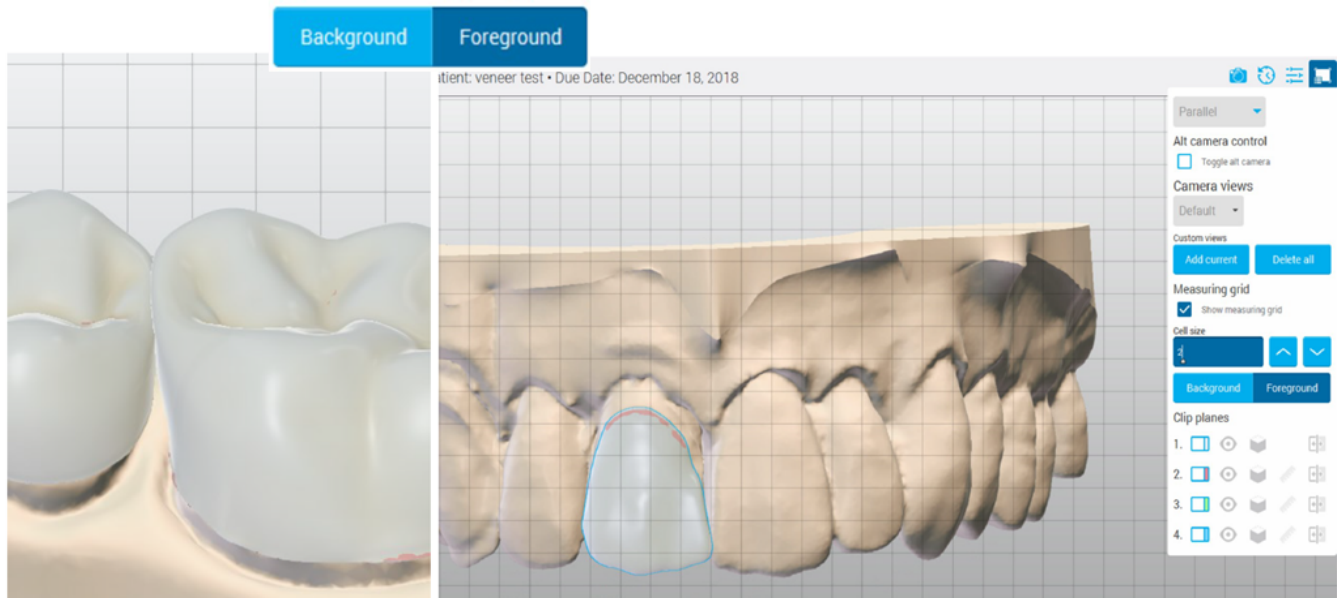
Connector Design

The first release featuring the connector design worked well for natural connectors. However, with reductions, any detailed design was not possible. DWOS 9 delivers much more needed flexibility to design connectors. Connectors can now be shaped freely by moving their contour line on the distal and mesial sides.

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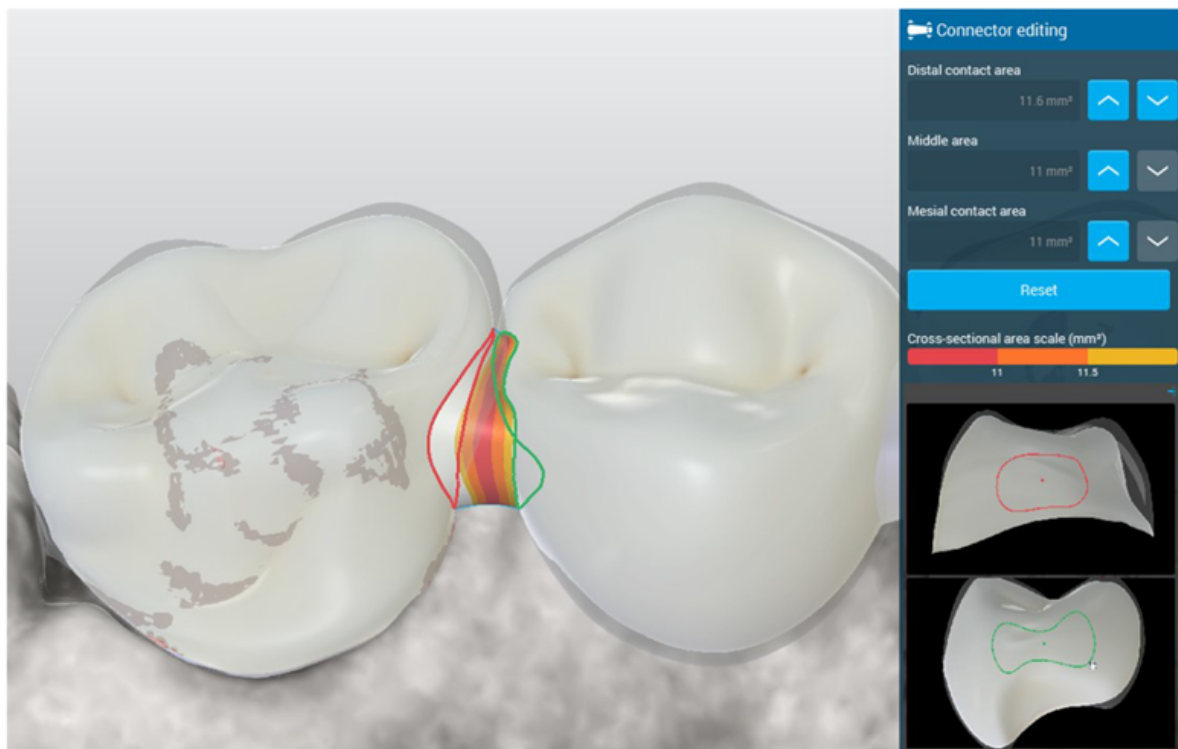
If necessary, the connector area view may be enlarged by clicking on the "*Expand view*" icon.

In this view, use the mouse pointer to easily design the green and red contour lines.
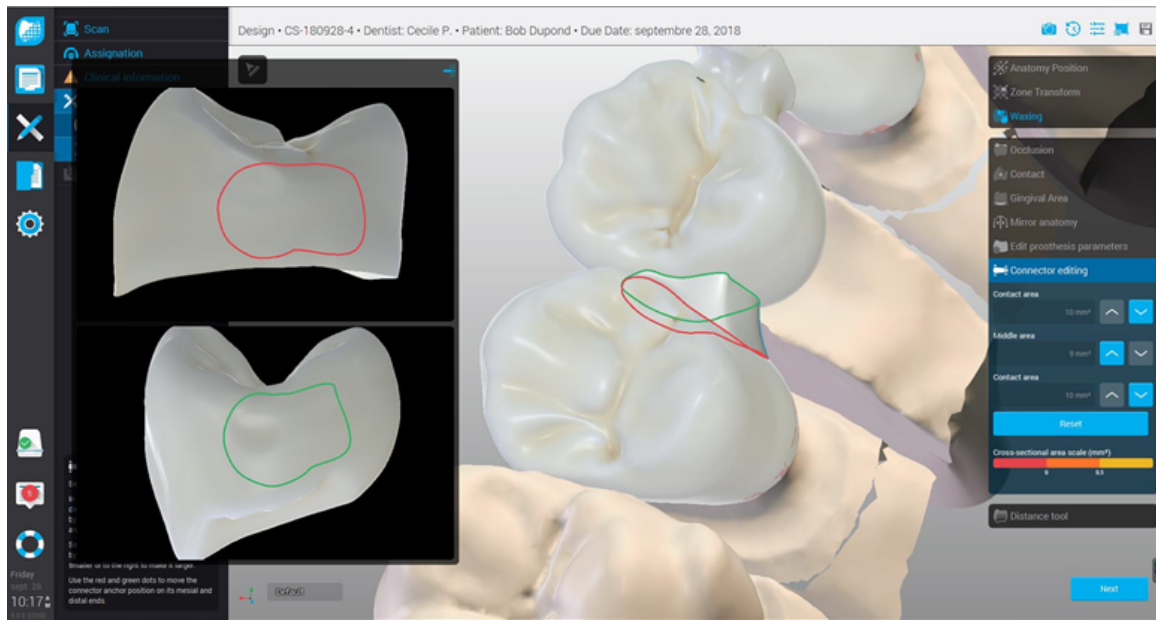
Natural connectors are enabled when anatomies make contact. However, if desired, connectors can be forced by checking the box, *Force connector* in *Edit prosthesis parameters ⇨ Connectors Parameters*.
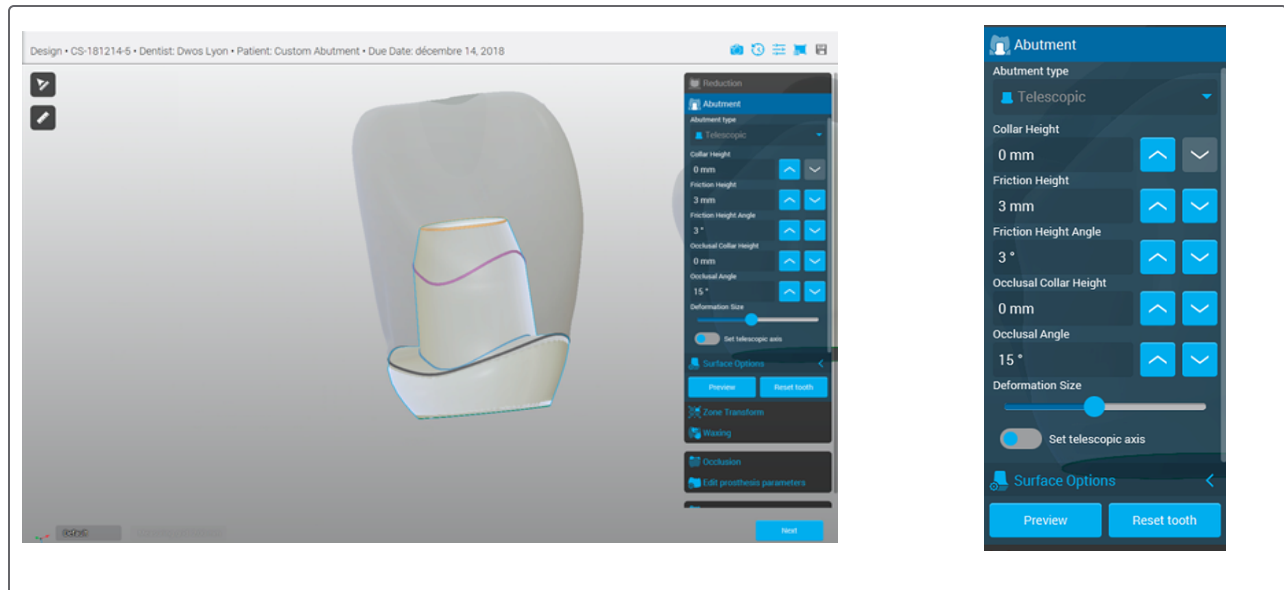
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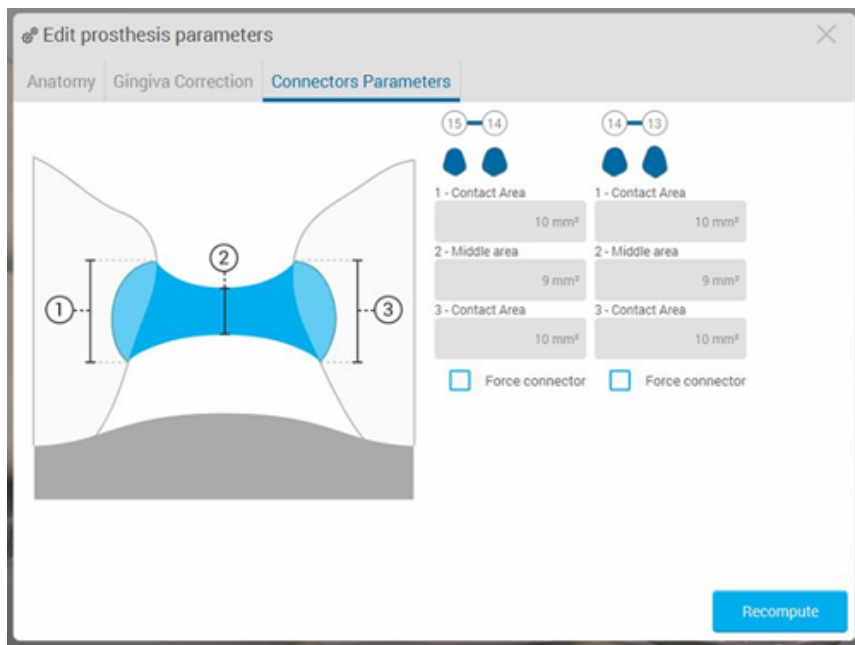
Using the waxing tools to refine connector parts that are too thin or too big gives the user more control over the final shape of the connector.

Custom Abutment Design

Different improvements have been added in the abutment design when compared with the previous update

- Emergence profile can be locked
- Better gingival adaptation

USER INTERFACE IMPROVEMENTS
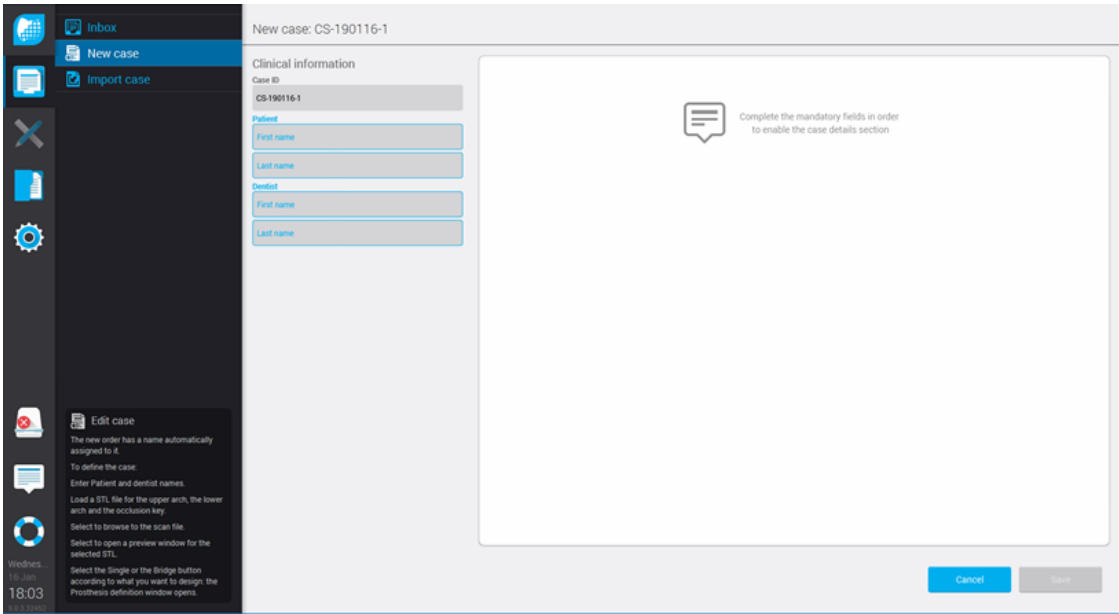
Lean Interface

The user interface has been streamlined, more automation and workflow guidance is possible, and expert tools have been moved to the Advanced User Options section. When powering up the software, the user is presented with less initial options to minimize the number of clicks for a more simplified experience, producing faster results.

Case Creation

Follow a step-by-step workflow to create a case with utmost ease.

1. Enter Patient Name and Dentist Name

2. Enter type of case: single elements or bridge
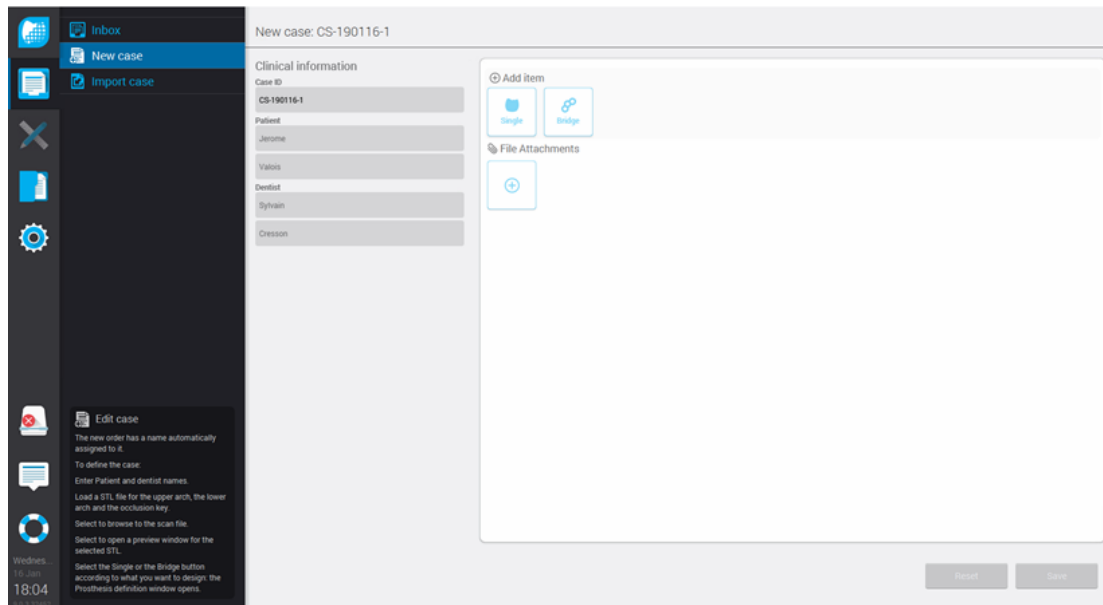
3. Multiple single elements can be created at once. Each item has common parameters unless they are unlocked by clicking the lock symbol. Each item will then have unique parameters.
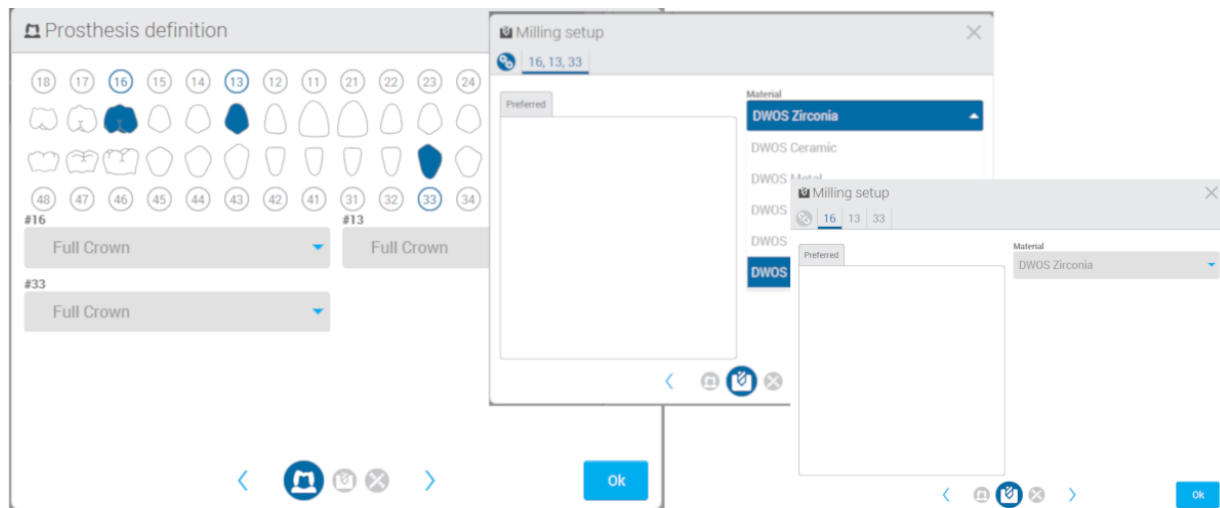
When an item has been created on a case, additional items could be added in the *Add Item* section. Items can be deleted as well.

DWOS 9.0 Release Info / v.1.0
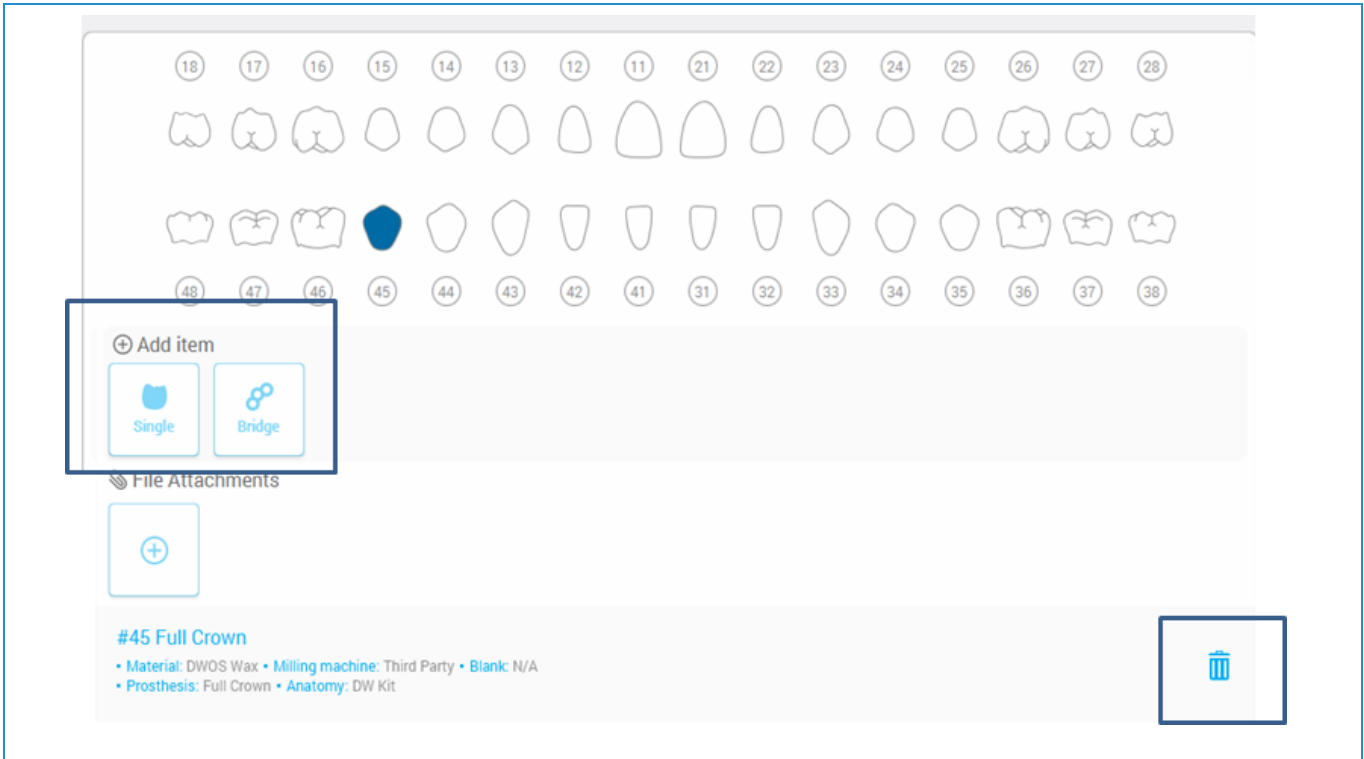
Order Management

Finding orders has been made much easier through the addition of a set of intuitive filters. Orders can be filtered by range dates, material, patient or dentist. Multiple selections and multiple actions are possible as well.

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