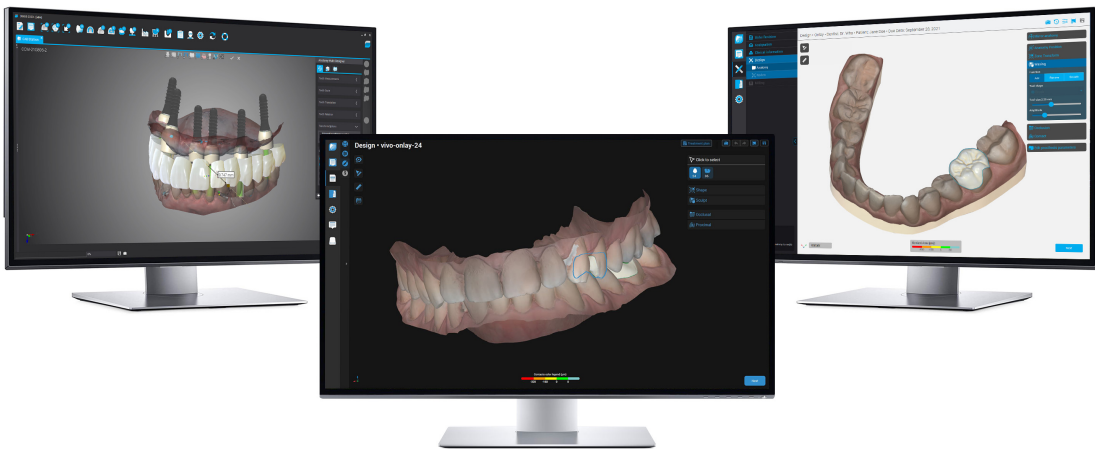


DWOS Software

Dental CAD/CAM Software

Instructions for Use

Original Instructions for Use



DWOS

DWOS Easy

DWOS Chairside

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1. About this guide

The name DWOS Software in this guide is used to refer to DWOS, DWOS Easy, and DWOS Chairside - all being dental CAD/CAM software.

The present **Instructions for Use** are valid for the *Product life cycle (p.4)* of your DWOS software, unless a new manual is published within this period.

The present **Instructions for Use** contain important information for the safe and appropriate use of DWOS software. Make sure you have read and understood this document prior to working with the software. If you have questions, contact your local distributor. Please keep this document for future reference.

Instructions for Use in digital format

Instructions for Use for DWOS Software are provided in electronic form. If a paper version is required, you may print these instructions or request a paper version from the manufacturer. For further information, delivery time and contact details see: <https://ifu.dentalwings.com/>.

1.1 Disclaimer

DWOS Software is designed for use by people who have appropriate knowledge in dentistry and dental laboratory technology.

The user of DWOS Software is solely responsible for determining whether or not this product is suitable for a particular patient case and circumstances. The user of DWOS Software is solely responsible for the correctness, completeness and adequacy of all data entered into this software. The user has to check the correctness, accuracy and completeness of the designs made in DWOS Software and to assess each individual case.

Dental Wings products must be used in accordance with their accompanying instructions for use. Improper use or handling of Dental Wings products will void the warranty, if any, given for Dental Wings products. If you require additional information on the proper use of Dental Wings products, contact your local distributor. The user is not allowed to modify Dental Wings products.

DENTAL WINGS, ITS AFFILIATES OR DISTRIBUTORS DISCLAIM REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESSED OR IMPLIED, WRITTEN OR ORAL, WITH RESPECT TO THE PRODUCTS, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ERROR-FREE OPERATION OR NON-INFRINGEMENT, AND THE PRODUCTS ARE SOLD AS IS.

Our maximum liability arising out of the products or their use, whether based upon warranty, contract, tort or otherwise, shall not exceed the actual payments received by us in respect of the purchase price thereof. In no event shall we be liable for special, incidental or consequential damages, including, but not limited to, loss of profits, loss of data or loss of use damages, arising hereunder or from the sale of the products.

Updates to software components are made regularly. Therefore some of the instructions, specifications and pictures contained in the **Instructions for Use** may differ slightly from your particular situation. Dental Wings reserves the right to revise or make changes or improvements to this product or documentation at any time without obligation to notify any person of such revisions or improvements. The user is obliged to study the latest developments of DWOS Software regularly.

Product life cycle

The product life cycle of DWOS Software is 3 years. After this period, the software may continue to function properly as long as configuration or hardware are not modified and a valid license is maintained. However, as legal and regulatory requirements change at regular intervals, the legal manufacturer does not ensure compliance with the regulatory framework beyond the product life cycle period of 3 years. To maintain regulatory compliance, update your software regularly. Please note that the actual use of DWOS Software is subject to your compliance with our license framework.

Third-party products and product data

When scanning and designing cases the user may work with third-party products and/or product data. Dental Wings, its subsidiaries, or distribution partners disclaim any liability for damages in connection with or arising from such third-party product data or products being used within this scope.

1.2 License, trademarks and other rights

DWOS Software license

DWOS Software is protected by a license agreement and may be used or copied only in accordance with the terms of this agreement. It is illegal to copy or use the software on any medium except those permitted in the license agreement. Some of the software applications may require an additional license key. Contact your local distributor for more information.

Availability

Some of the products and accessories mentioned in these **Instructions for Use** may not be available in all countries.

Third-party software

DWOS Software contains third-party code provided under specific licenses. The list of third parties and their license conditions are available under *About* within DWOS Software (see *Label*, p. 50).

Trade names and trademarks

Dental Wings Inc., DWOS, and coDiagnostiX are registered trademarks of Dental Wings Inc.

Straumann and CARES are registered trademarks of Straumann Holding AG, Switzerland.

Microsoft and Windows are either registered trademarks or trademarks of the Microsoft Corporation in the United States and/or other countries.

All other trademarks and logos mentioned in this document are trademarks, registered trademarks or logos of their respective owners.

Copyright

Dental Wings Inc. documents may not be reprinted or published, in whole or in part, without the written authorization of Dental Wings Inc.

Patent

DWOS Software may be used to design and/or manufacture certain products that are covered by one or more patents or patent applications (see www.straumann.com/uspatents).

2. Introduction and overview

2.1 Intended use

DWOS Software is intended to be used by dental professionals to design dental restorative prosthetics.

2.1 Indications

DWOS Software is used to design dental restorative prosthetics. It is intended to be used by dental professionals who have appropriate knowledge in the respective field of application. The software imports and visualizes dental 3D geometry data. It provides design results in a 3D geometry for automated manufacturing. It is also used to control Dental Wings laboratory scanners.

2.2 Device description and features

DWOS Software contains a suite of dental planning and restoration design software applications such as abutments and screw retained bars and bridges (SRBB), crowns and bridges, partial frameworks, full dentures, bite splints and models.

It imports and displays visual data from 3D scan systems for planning and design of the respective restorative prosthetic device. The software allows the export of the design results to 3D manufacturing systems. Encrypted data transfer is done using a proprietary standard through DWOS Connect.

Device variants and configuration

DWOS provides a full range of functionality and is intended for use in dental laboratories. It is configurable to customer needs (e.g. with only a subset of the available applications).

DWOS Easy (AKA Nova) is limited in terms of types of restorations that can be designed. The overall process is simplified and optimized for use in dental laboratories. It is sold under the marketing name Nova.

DWOS Chairside is limited in terms of types of restorations that can be designed so that the overall process is simplified and optimized for use in dental clinics.

Principles of operation

DWOS Software provides solutions for computer-aided design (CAD) and computer-aided manufacturing (CAM) in digital dentistry. It is an open software system, supporting all dental 3D scan and manufacturing systems that output or input 3D geometry data in open file format (e.g. STL). It also offers validated workflows using specific dental 3D scan and manufacturing devices, as well as materials from certain manufacturers.

Novel features

DWOS Software does not contain novel features in relation to conventional dentistry. The software supports digital realization of conventional dental services (previously done without software support) in the area of dental restoration design.

2.3 Accessories and products used in combination

The following products may be used in combination with DWOS Software. For further information, see *Compatibility information* (p.10). Since Dental Wings Inc. continuously validates other suitable accessories and products, you may also contact your local distributor for more information.

Input

DWOS Software has been validated with the following dental 3D scanners:

- Intraoral Scanner (DW-IO-100, DW-IO-001, DW-IO-010) for providing 3D data of the clinical situation
- Desktop scanners (DW-7-140, DW-3-90, Medit T500, Medit T310, Medit T510, and Medit T710) for providing 3D data of the transfer media

Any other 3D scanner that exports 3D data in open file format and is certified for dental scanning may, in principle, be suitable as well. The user needs to ensure that the files meet the *Data input requirements* below. The suitability of such products must be validated by the user.

Manufacturing

DWOS has been validated for use with the following 3D manufacturing systems:

- Amann Girrbach: Straumann C/M/D Series

Any other 3D manufacturing system that uses 3D data in open file format and is certified for dental restoration fabrication may, in principle, be suitable as well. The user needs to ensure that the results meet the requirements for the dental restoration.

Software

DWOS has been validated with the following dental surgery treatment planning software:

- coDiagnostix™

Access to treatment planning cases occurs within the regular workflow, through the DWOS Synergy3 application.

Data input requirements

Caution

The software performance depends on the quality and accuracy of the imported 3D scans. The user is solely responsible to ensure that the quality of the imported data is sufficient for proper performance.

The software supports STL files from different sources. The production of STL scans lies within the full responsibility of the user.

To reach sufficient quality and accuracy in scanning, a clean stump with its prepared margin is required for all restorations. In certain cases, additional mouth preparation may be needed, as well as additional scans.

The software expects all 3D data to be defined in millimeters, even if the underlying exchange structures have no explicit dimension information.

2.4 Indications

DWOS Software is used to design dental restorative prosthetics. It is intended to be used by dental professionals who have appropriate knowledge in the respective field of application. The software imports and visualizes dental 3D geometry data. It provides design results in a 3D geometry for automated manufacturing.

2.5 Contraindications

DWOS Software is not intended to be used in direct contact with the patient nor is it intended to be used with life-sustaining devices.

2.6 Precautions

Use a strong password to reduce the risk of intrusion.

Back up your data at regular intervals. It is the responsibility of the user to perform and maintain data backups in order to prevent loss due to system crash or hardware failure.

Make sure to comply with all applicable standards and technical regulations for any scanner or computer hardware used together with DWOS software.

The hardware on which the software is installed should be a dedicated device where usage is limited to scan and design. Users may install additional software on the device, but it is their responsibility to ensure that it does not impact the performance of DWOS software.

DWOS software on its hardware is not intended to be used in close proximity (within a distance of 1.5 meters) to the patient.

The DWOS software user is solely responsible for the correctness, accuracy and completeness of all data entered into the DWOS software.

The software performance depends on the quality and accuracy of the imported 3D scans. The user is solely responsible to ensure that the quality of the imported data is sufficient for proper performance.

The software supports STL files from different sources. The production of STL scans lies within the full responsibility of the user.

Do not design restorations which can be created in spite of warning messages unless you fully understand the consequences of those warnings and are sure that there is no unacceptable risk to the correctness and accuracy of your design. However, if you need to design outside of material and/or implant kit constraints, please contact the respective manufacturer for approval.

Always ensure a biunique relationship between patient, scan and treatment case.

DWOS software calculates based on the unit size as given in the input data. Always validate the correctness of the calculations using the dimensions and tools in DWOS software. It is assumed that our software displays correct calculation information, and it is the user's responsibility to validate the finished product to ascertain that the dimensions are correct.

Implant and material manufacturers have defined constraints on their products in order to fulfill their product's intended use. DWOS software supports you in applying those constraints by displaying respective explanations in warning messages.

Materials, implants and abutments require registration in certain countries. It is the responsibility of the user to ensure that they are only including and using data approved in their country.

Any hardware used with the software should not be disposed of as unsorted municipal waste. Dispose of separately.

2.7 Compatibility information

For compatibility information between DWOS Software and other products, you may consult the product's instructions for use. If those do not contain the compatibility information, contact your local distributor.

Order files

Order or case files created with DWOS Software are retro-compatible to a certain extent. Make sure to update your software regularly to reduce the risk of compatibility issues.

Incompatibility issues may arise when exporting orders or files to another system. These issues may stem from license restrictions or material availability.

DWOS Connect

DWOS Connect allows for encrypted data transfer. It has its own release cycle. Any version of DWOS Connect is compatible with any version of DWOS. If an older version of either product does not support a particular feature, some information could be missing.

coDiagnostiX / DWOS Synergy

DWOS Synergy allows for online case sharing between coDiagnostiX and DWOS (not available for DWOS Chairside or DWOS Easy). DWOS is compatible with the latest version of DWOS Synergy. Make sure that the connection partner works with the latest software version of coDiagnostiX.

Dental Wings Intraoral Scanner

DWOS Software is compatible with Dental Wings Intraoral Scanner software version 1.8 and higher.

2.8 Data protection

Access to DWOS Software is restricted by the licensing system.

To protect data against loss or unauthorized use, several security mechanisms have been implemented in DWOS Software:

- Data encryption during storage and transfer through the internet
- An archiving system to backup patient and design data
- An on-demand anonymization function for privacy protection.

Data managed by the user may require a moderate or high level of protection to ensure privacy and avoid misuse:

- High level: data with additional statutory requirements in many countries (e.g. patient personal data and medical information)
- Moderate level: data protected or restricted by contract or other agreement (e.g. license information)

Remember that the user is responsible for data protection on the user side. Be sure to adequately protect such data.

Caution

To protect your data against loss, unauthorized access and unauthorized use:

- Secure your computer system by installing a malware scanner or firewall.
- Use a strong password to reduce the risk of intrusion. Secure your computer system, storage media and presentation devices likewise.
- Use data encryption to secure data on your computer system and storage media.
- Regularly back up data to prevent loss.
- Use anonymization features compatible with your system to protect patient personal data (if required).

2.9 Data backup

Caution

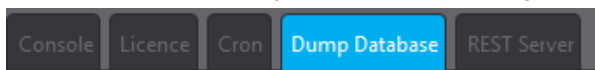
Back up your data at regular intervals. It is the responsibility of the user to perform and maintain data backups in order to prevent loss due to system crash or hardware failure.

The database contains important information including the order/case files. The order/case files contain the scans and designs of current and archived cases. To perform a backup of the database:

1. Open the DWOS Server Console: double-click the **DWServer** icon in the computer task bar.



2. The Console window opens. Select the **Dump Database** tab.



2.10 Further information

Dental Wings and its products are registered in the main markets. If you have any questions, please contact your local distributor.

For more information on the products used in combination with DWOS Software, see the following:

coDiagnostiX:

- coDiagnostiX [Instructions for Use](#)

Dental Wings desktop scanners

- [3Series](#) or [7Series](#) Instructions for Use

Third-party scanners

- Medit T310/T510/T710 [User Guide](#)
- Medit T500 [User Guide](#)

Dental Wings Intraoral Scanner:

- Intraoral Scanner [Instructions for Use](#)

2.11 Disposal



⚠ Caution

Any hardware used with the software should not be disposed of as unsorted municipal waste. Dispose of separately.

Electrical and electronic devices must be disposed of separately from normal household waste in order to promote reuse, recycling and other forms of recovery, and to avoid adverse effects on the environment and human health from hazardous substances in some of their components. This also reduces the quantity of waste to be discarded, with a view to reducing landfill. This includes accessories such as remote controls, power cords, etc.

For details on how to dispose of your device and its packaging, please contact your local distributor.

3. DWOS Software installation

Caution

DWOS software on its hardware is not intended to be used in close proximity (within a distance of 1.5 meters) to the patient.

The hardware on which the software is installed should be a dedicated device where usage is limited to scan and design. Users may install additional software on the device, but it is their responsibility to ensure that it does not impact the performance of DWOS software.

Verify that DWOS software is still working after installing new 3rd party software or hardware, or after system or software updates by launching the DWOS software.

Make sure to comply with all applicable standards and technical regulations for any scanner or computer hardware used together with DWOS software.

How to install DWOS Software on your computer

1. Check that your hardware meets the specifications (*see Recommended hardware and software specifications, p. 42*).
2. Double-click the installer and follow the on-screen instructions.

License

1. If your license was provided on a dongle, plug it into a USB port on your device. DWOS Software is ready to use.
2. If your license was not provided on a dongle, you must send a license request form. Instructions appear on the screen the first time you start the software.
3. Complete and email the REQ file to: **license-request@dental-wings.com**.

When you receive your license key by email, select **Import** in the *License Generator* window and browse to the file you have received. DWOS Software is ready to use.

See *Basic principles and user interface (p.16)* and *Step-by-step instructions (p.22)* for using the software.

Optional software installation

DWOS Synergy

DWOS Synergy is a tool for communication between coDiagnostiX and DWOS. By sharing case information in real time, it allows collaboration on implant planning that is driven by the prosthetic outcome. Unless you collaborate via internet, it might be useful, for performance purposes, to install at least one Synergy server on your network.

Download the latest local Synergy server release on the Dental Wings web site:

<https://dentalwings.com/downloads/>.

In order to reach the Synergy server from other clients, specific ports need to be activated (see *DWOS Synergy*, p. 44) In most cases, this is done automatically by the installation program.

Team Viewer

Team Viewer is part of the installation. While not mandatory, it is required for remote technical support from your distributor or from Dental Wings. To operate, Team Viewer accesses specific ports (see *Team Viewer*, p. 46).

DWOS Chairside users can find an installer in the [Downloads](#) section of the Dental Wings website.

PDF reader

A PDF reader is required only for DWOS Software installed on devices with Microsoft Windows. If you don't already have a PDF reader available, please install one compatible with your operating system.

Internet Browser

An up-to-date browser compatible with your system is required for access to online help.

Languages

DWOS Software is available in several languages. The language is preset. If this is not the case, or if it is set incorrectly, contact your local distributor.

Uninstallation

If you need to uninstall your DWOS Software for any reason, use the tools and procedures provided by your operating system (see *Technical data and label*, p. 42).

4. Basic principles and user interface

4.1 Getting acquainted

To learn how to work with DWOS software and get acquainted with its functions and related workflows, the following instructions, training material and media are offered:

- DWOS Software **Instructions for Use** (this document) (see *Step-by-step instructions*, p. 22)
- Online training videos: www.dentalwings.com/training/
- DWOS Software embedded help. You may need an internet connection to view some contents.



View help content by clicking the **Help** icon in the toolbar in DWOS.



View help and learning content by clicking the **Knowledge Base** icon in Easy (Nova).



You can see context-sensitive help by clicking the small ? icons in the designer stations throughout DWOS Software.

- Each new release of DWOS software comes with information describing new features, improvements, and bug fixes. See the Release Notes, available online: www.dentalwings.com/release-notes/

Please contact your local distributor with unanswered questions.

4.2 Starting the software

DWOS Software has a client/server architecture. The server starts in the background when you launch the software. You then see a progress bar. Once the server is running, the client starts automatically. The log in screen appears once the client is ready.

Double-click the icon on your device desktop to start the app.

DWOS Software



Double-click the **DW Client** icon to launch the server and the software.

DWOS Easy



Double-click the **Nova** icon to launch the server and DWOS Easy.

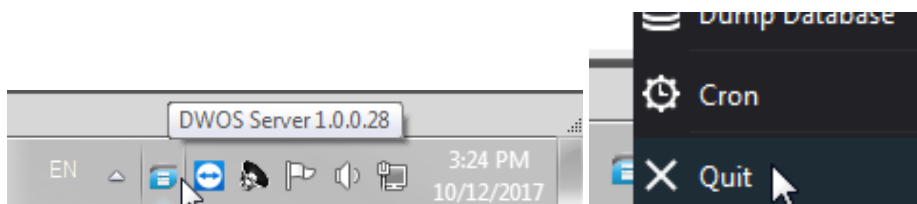
DWOS Chairside



Double-click the **Chairside** icon to launch the server and DWOS Chairside.

Exiting the software

1. Click the **X** in the upper right corner of the application window to exit the DW Client.
2. Right-click the **DWOS Server** icon in the lower right corner of the Windows system tray and select **Quit**.



See your Windows instructions for shutting down the computer.

4.3 User interface

The DWOS Software workflow is mainly icon-driven. The suggested prosthesis design workflow follows the order in which the icons appear in the menu bar.

DWOS

Use the main horizontal toolbar to run the suite DWOS stations, such as **Order Creation**, **Arch Scan**, **Crown & bridge design**, etc. The left-to-right order is the suggested workflow.



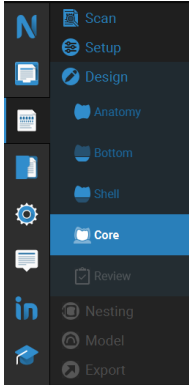
Note: The icons displayed on your toolbar vary according to your particular configuration. The numbers displayed on the station icons indicate the number of cases waiting in each station.



	Order creation	At this station, you create order files with the details of the prosthesis and the corresponding scans and design files.
	Inbox	Inbox is an interface to DWOS Connect, the cloud-based case sharing platform.
	Arch scan	
	Multidie scan	Data acquisition icons. They launch a scan station, when DWOS Software is installed on a compatible scanner, or launch the scan import procedure. The scanning procedure is described in detail in the Instructions for Use of the scanner.
	Scan Import	
	CAD Design	
	Bitesplint Design	
	Orthodontic Design	The third group of icons provide access to the various design stations, destined for different restoration types.
	Partial Design	
	Production Management	Access this station to send designs to production and consult orders that have been routed out of a design station.

The User Preferences and Settings icons are located to the right of the menu bar. The context-sensitive webhelp can be accessed from the buoy icon.

DWOS Easy



DWOS Easy follows an anatomy-first approach, which means that the anatomy is placed first and adjustments come after.

After the **Scan** and initial **Setup**, define the rough **Anatomy** that you want.

Work the finer details of the restoration using the toolkits available for **Bottom**, **Shell** and **Core**.

Finally, Review your restoration before moving on to **Nesting** and **Model** building.

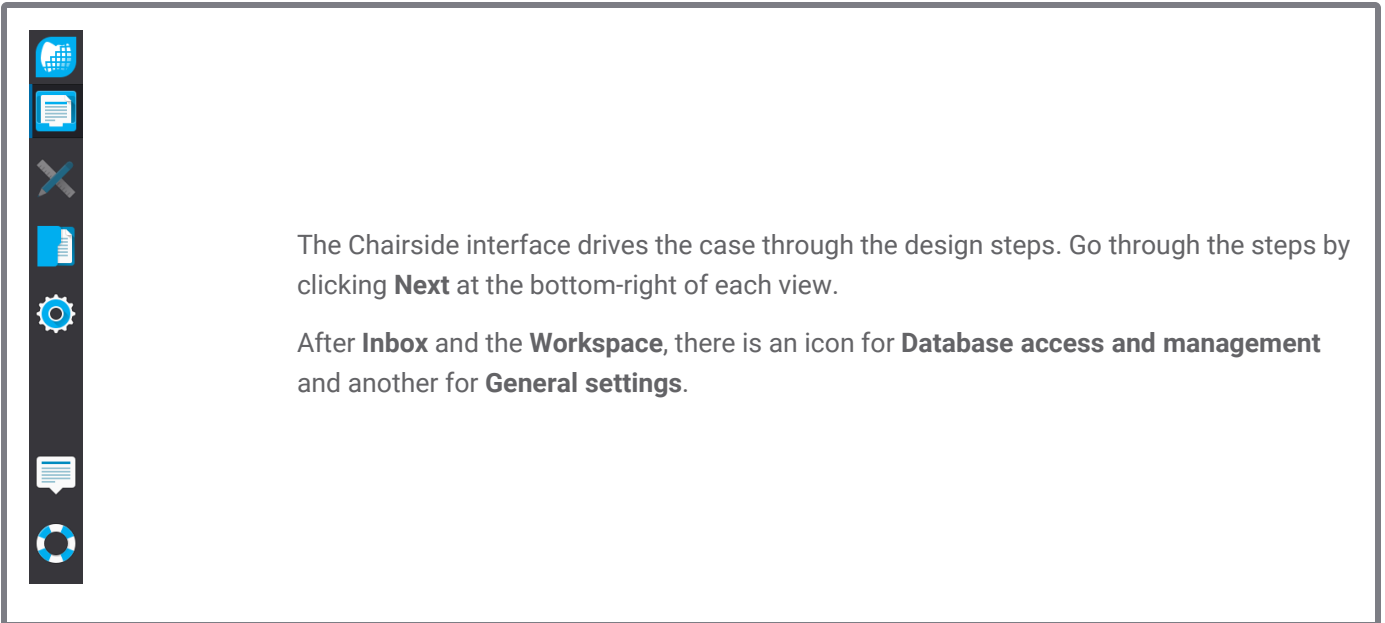


Use Inbox to receive cases from CARES Connect, DWOS Connect and partners like 3Shape Communicate.



Click the the **Knowledge Base** icon to access help.

DWOS Chairside



The Chairside interface drives the case through the design steps. Go through the steps by clicking **Next** at the bottom-right of each view.

After **Inbox** and the **Workspace**, there is an icon for **Database access and management** and another for **General settings**.

Mouse control

DWOS software requires a mouse with two buttons and a wheel. Mouse interaction follows the principles below:

- **Left click:** selection, point definition
- **Right click:** validation, access to contextual menu
- **Rotate the wheel:** zoom in/out
- **Press and hold the wheel while dragging the mouse:** translate view
- **Press and hold the right button while dragging the mouse:** rotate view
- **Press and hold the CTRL button while rotating the wheel:** generates a cross-section of the view
- **Double-click the left button:** center and resize the view
- **Double-click the right button:** switch between perspective and parallel projection

4.4 Restoration design

The CAD engine of DWOS generates restoration proposals based on:

- The type of restoration defined in the order;
- The emergence (margin line) drawn by the user on the scan data;
- The provided insertion axis (automatic or user-defined);
- The material constraints;
- The milling process constraints;
- The pre-selected anatomy kit.

When the Tooth-Chain technology is activated, the calculation also takes into account some context analysis and available statistics.

The CAD station provides a set of shaping tools to customize this initial proposition. Additional scan data (such as wax-up, CBCT, face scan) can also be imported to verify the design.

The manufacturing files of the prosthesis are extracted in an open STL format, and can be sent to a manufacturer via DWOS Connect or by other means.

Complementary data

Anatomy libraries

Dental Wings provides some default anatomy kits with the software. Tooth anatomies are used to automatically calculate and propose restorations. To download more anatomy kits, click [here](#). Users can duplicate existing kits and modify or replace the anatomies with imported STL files to create their customized anatomies.

Attachment kits

Dental Wings provides some default attachment kits with the software. Attachments can be added in designs to bind restoration components (e.g bind a denture to a bar, create a split bridge). To download more attachment kits, click [here](#).

Material files

Material files ensure the designs respect structural and manufacturing constraints of a certain material. These files must be created by the material manufacturer. If regulations allow, you may also work with the default material files provided by Dental Wings. You can duplicate the material files and modify parameters to adapt them to your particular process.

Implant libraries

Virtual implant kits are specifically created so that, when an abutment is scanned, the software analyzes the files to precisely position the implant and its interface. These files must be created by the implant manufacturer. Contact your local distributor to obtain these files.

5. Step-by-step instructions

A wide variety of prosthetics can be designed with the DWOS software. Here we describe one example case . More procedures and instructions can be found online and in the **Help** (see *Getting acquainted*, p. 16).

Caution

The DWOS software user is solely responsible for the correctness, accuracy and completeness of all data entered into the DWOS software.

Always ensure a biunique relationship between patient, scan and treatment case.

Implant and material manufacturers have defined constraints on their products in order to fulfill their product's intended use. DWOS software supports you in applying those constraints by displaying respective explanations in warning messages.

Do not design restorations which can be created in spite of warning messages unless you fully understand the consequences of those warnings and are sure that there is no unacceptable risk to the correctness and accuracy of your design. However, if you need to design outside of material and/or implant kit constraints, please contact the respective manufacturer for approval.

DWOS software calculates based on the unit size as given in the input data. Always validate the correctness of the calculations using the dimensions and tools in DWOS software. It is assumed that our software displays correct calculation information, and it is the user's responsibility to validate the finished product to ascertain that the dimensions are correct.

Materials, implants and abutments require registration in certain countries. It is the responsibility of the user to ensure that they are only including and using data approved in their country.

5.1 Example case for DWOS

Design of a 3-unit bridge

This procedure will cover the steps for designing a tooth-borne 3-unit full contour restoration.



Figure 1: Fabricated restoration



Order creation

1. Go to the **Order Creation** station and select the **Cnb & Implant** order type.
2. An **Order ID** is automatically generated.
3. Enter the **Dentist** and **Patient** names.
4. In the **Prosthesis Family** drop-down, select **Crowns**.
5. **Material:** Select the material for the bridge. DWOS provides a set of generic material files. Your material manufacturer can provide you with custom material files in .XLM format to import in the **Material Management** station.
6. **Color:** If the material you have selected comes in blanks of different shades, select the patient's shade as measured by the clinician.
7. **Prosthesis Subtype: Full crown.**
8. **Anatomy Family:** Select a reference anatomy for computing the initial proposition.
9. On the illustration, click the tooth numbers of the bridge pillars (prepared teeth). These are numbers **14 and 16** in our example. The two crowns appear in the base layer definition.
10. Return to the **Prosthesis Family** menu and select **Pontics**.
11. **Prosthesis Subtype: Full Pontic**
12. On the illustration, click the position of the missing tooth (**number 15** in our example case). The pontic appears in the base layer definition.
13. Select tooth numbers **14, 15** and **16** and click **Create Bridge**. The base layer definition shows a bridge instead of three single units.
14. Click **Route Order**.

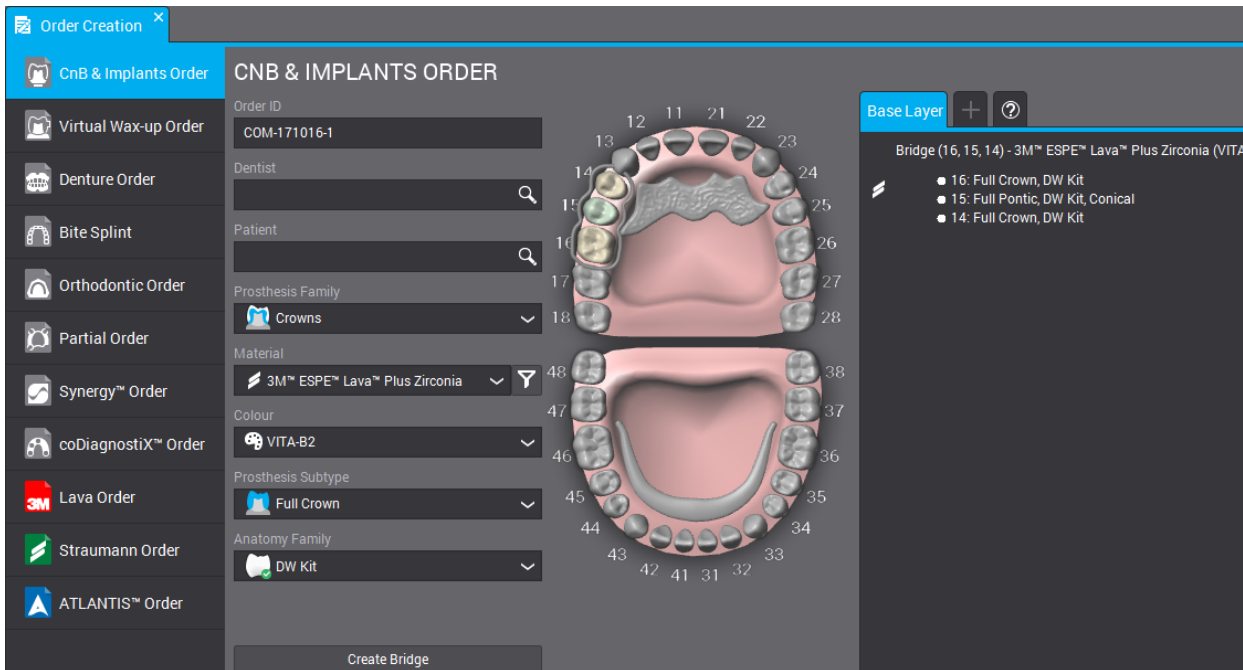


Figure 2: Completed order

Scan Import

The prosthesis design is done on a surface scan of the clinical context. See *Accessories and products used in combination* (p.7) for more information on scan requirements.

Acquiring surface data can be done through DWOS (when installed on a compatible scanner) in the *Arch Scan* station or *Multi-Die* station. Refer to the user manual provided by the scanner's manufacturer for instructions.

Otherwise, import scans through the *Scan Import* station.

1. Open the **Scan Import** station.
2. The order that you have created should appear in the left pane. Drag and drop the order to the *Main View*.
3. Select at least an **Arch Scan File** by clicking the folder next to it and browsing to the .STL file .
4. In this example we are designing a full contour restoration and must load an antagonist arch file.
5. Also load an **occlusion key scan file**, to reposition the upper and lower arches together.
6. Click **OK** in the *Load 3D file for clinical definition* window.

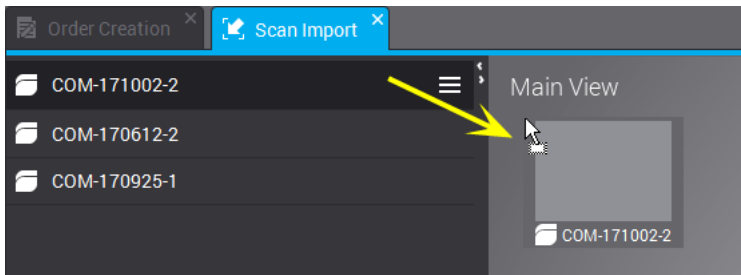


Figure 3: Drag and drop the order in the main view

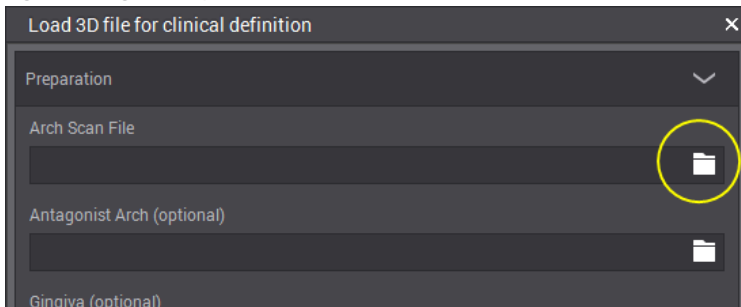


Figure 4: Click the folder icon to load an .STL file

7. Click **Yes** in the pop up window to adjust the *main vertical axis*.
8. Right click to position the arch in an occlusal view.
9. Position the green line to match the scan by dragging the central and end dots and the **BUCCAL** handles.
10. The **Model assignment designer** pops up to identify the teeth on the scan (for which the prosthesis design was requested). The numbers are attached to the cursor. Click the corresponding tooth of the arch scan. Adjacents are automatically tagged as Tooth or Gingiva.
11. Design the margin by placing the green dots on the preparation line. This becomes the emergence line.
12. Set the insertion axis for the prosthesis and validate the design parameters.
13. Route the order by clicking **Exit current design** .

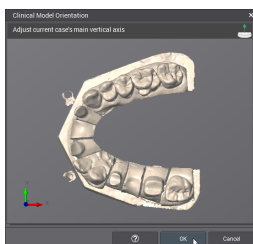


Figure 5: Position the arch in an occlusal view

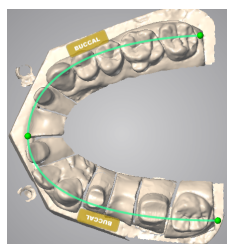


Figure 6: Place the green line to match the scan

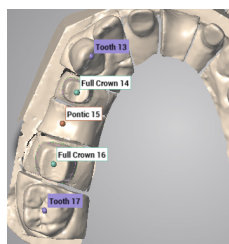


Figure 7: Identify the teeth on the scan

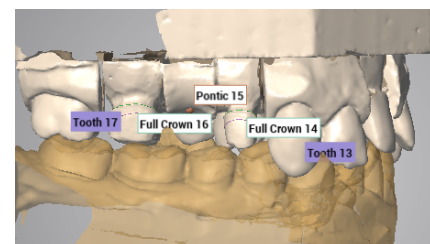
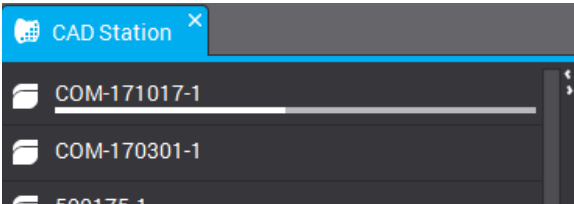


Figure 8: Completed scan import

Design

1. Open the Crown & Bridge **CAD station**.
2. A progress bar is displayed under the order ID during its automatic proposition calculation. Once the process is done, drag and drop the order into the main view.



3. The automatic proposition is displayed. It may be used as is, or modified with the help of a wide selection of shaping tools, which are in the menu when you right click.
4. Click **Exit current design** to route the order.

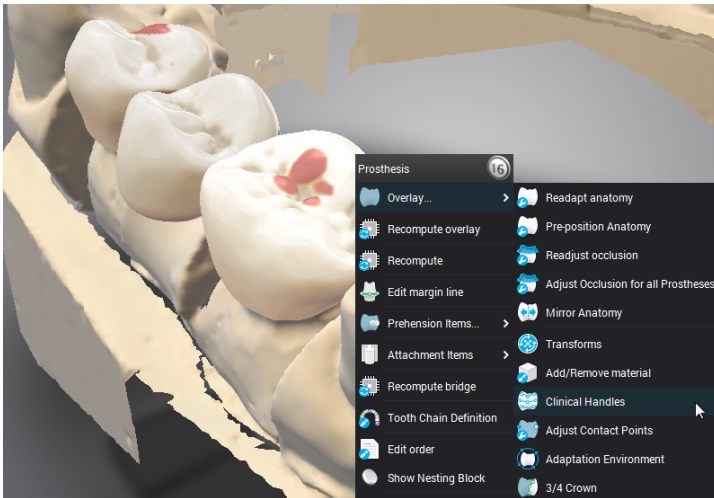


Figure 9: Shaping tools are available in the contextual menu

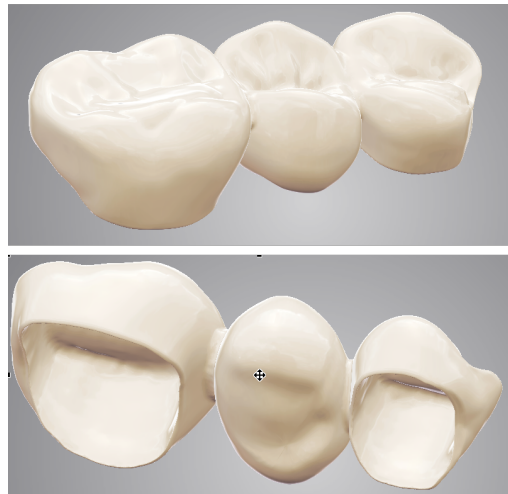


Figure 10: Completed design

Shaping the prosthesis can be done in different ways. (1) Changing the computing parameters with the **Recompute** functions. (2) Morphing the actual surface with shaping tools such as **Add/Remove Material**, **Clinical Handles**, **Transforms**, etc. (3) Using automatic adjustments on interproximal and occlusal contacts. Use them in this sequential order to avoid overriding your work.

Send to production

1. Open the **Production Management** station.
2. Right-click the order and **Subcontract** (requires a DWOS Connect account) or **Extract** the manufacturing files to send them yourself.

5.2 Example case for DWOS Chairside

Design of a single-unit full crown

Active cases

When cases are dropped in the import directory, they are automatically displayed in the **Active cases** list. Select a case to review the prescription, modify or complete manufacturing information and open.

IO-170111-1

Date
Oct 19, 2017

Dentist
Dr Doctor

Patient
Jane Patient

18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28

48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38

#46 Full Crown

- Material: Kulzer-DEV
- Milling machine: Laser Mill
- Blank: Kulzer-DEV
- #46: Full Crown
- Anatomy: DW Kit

Click to modify

Edit Open Case

Figure 11: Case information review

Order review

Mesh optimization (optional)

Given that the prostheses intrados are computed in part from an offset of the scanned surface, this step is for modifying the surfaces scans before computing a crown on it. Removing unwanted surfaces, repairing holes, modifying geometry is useful in particular situations.

Positioning

Position the arch scan in the DWOS Chairside referential of x, y and z axes.

Assignment

Identify the preparation and its adjacents by clicking the requested tooth number.

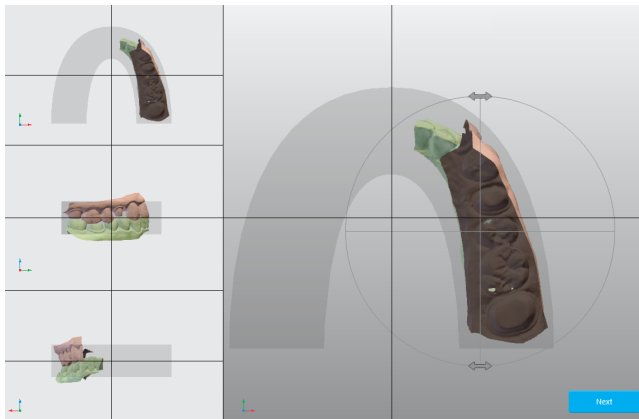


Figure 12: Positioning

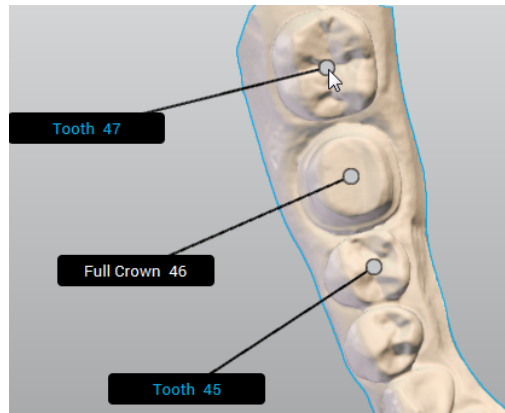


Figure 13: Tooth chain definition

Design Parameters

Margin line

Design the margin by placing the green dots on the preparation line. This becomes the emergence line.

Insertion axis

The best insertion path for the crown is calculated and displayed. Manual adjustments are also possible.

Anatomy design

At this step, the software computes an automatic proposition for the crown. It may be used as is, or modified using a selection of shaping tools available in the design editor window. Select the crown to make the tools available. The display can be customized to show or hide different elements. An alternate view can be added to support the design step.

Nesting

The next step is to position the crown in the selected milling blank.

Milling

The last step aims at configuring the sent data to the CAM software that drives the milling device.

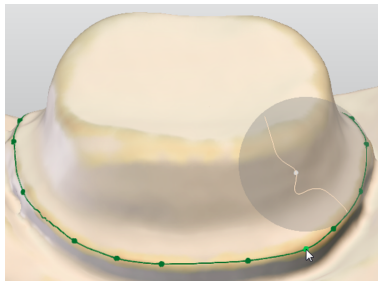


Figure 14: Margin definition

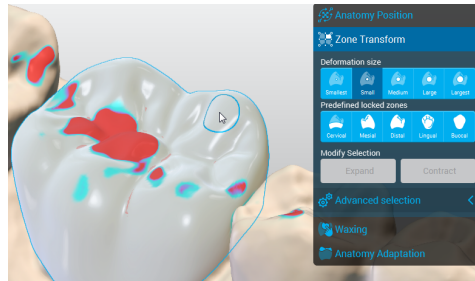


Figure 15: Select the crown to make the tools available

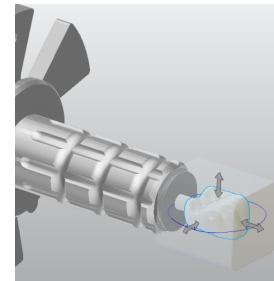


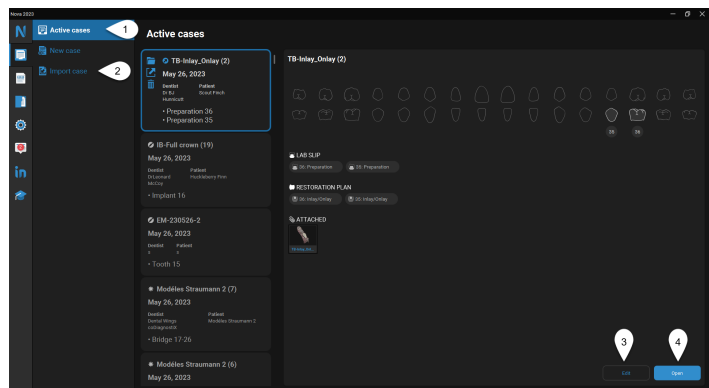
Figure 16: Position the crown in the blank

5.3 Example case for DWOS Easy

Design of a crown and onlay

Create a new case

1. Go to **Active Cases**.
2. You can create new cases by importing .xorder files or the model scans.
3. Edit the case if you need to change the dentist's prescription or view imported scan files or attachments.
4. Open the case to start processing.
5. Click **Next**.



Next

Editing

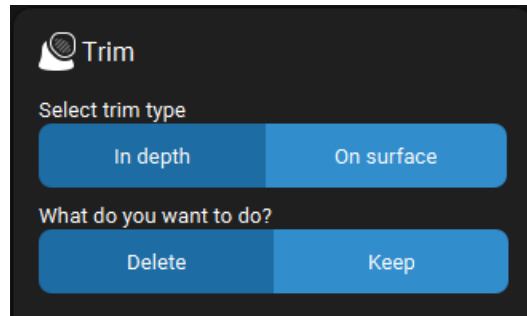
Now position the model and remove remaining artifacts.

- Select the model. You should see a blue outline.

Trim

Select the cropping options appropriate for your case.

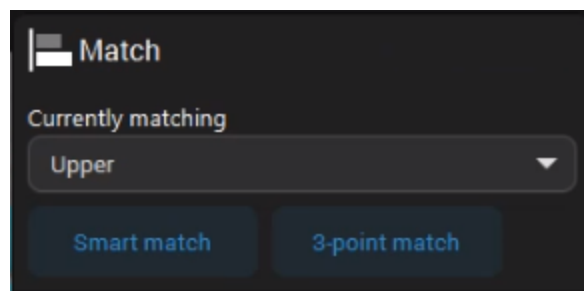
- **In depth** - the selection cuts through the planes of the 3D view.
- **On surface** - the selection applies only to the visible plane.



Match

Use to align the upper and lower models to the occlusion key or the gingiva/waxup scans to the model.

- **Smart match** - automatically aligns surfaces.
- **3-point match** - prompts you to precise match by placing three points on the surfaces to align.



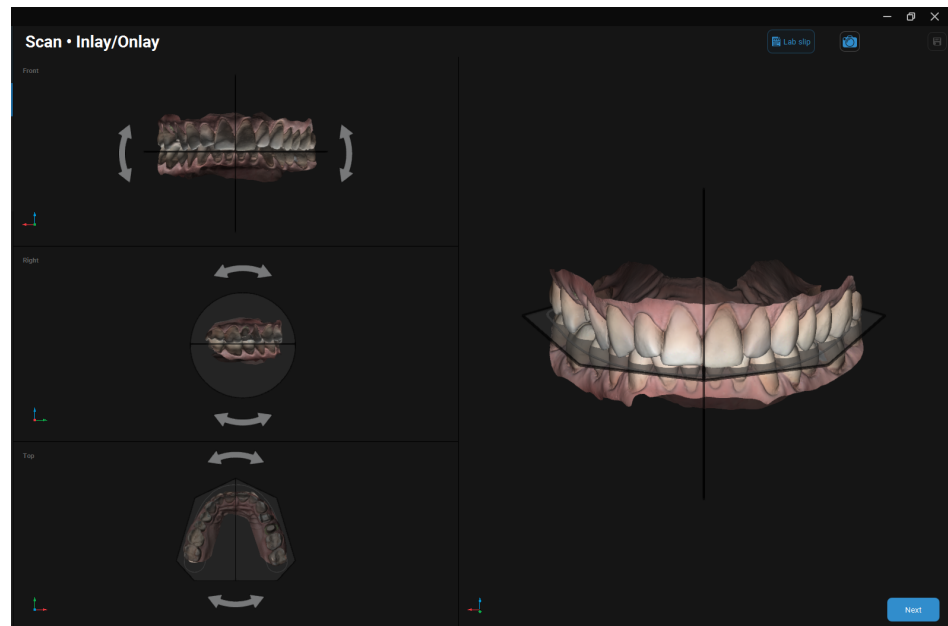
Click **Next**.



SCAN - Orientation

Here you can align the model on the reference axis of the software.

Front - position the biting surfaces on the occlusion grid.
Right - position the biting surfaces on the horizontal plane
Top - check the occlusal plane



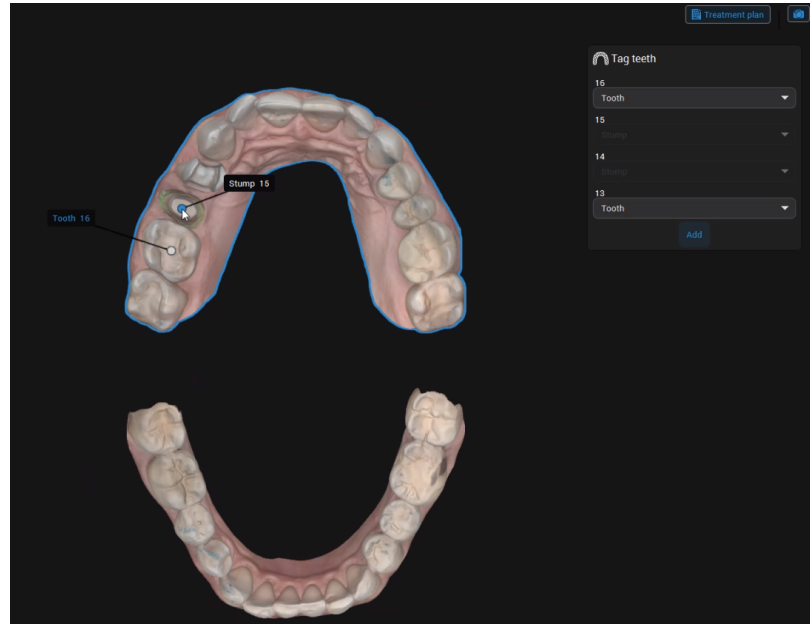
Click **Next**.



SETUP - Tagging

Assign numbers to prepped or missing teeth and implants, as well as their adjacents. Tagging begins with the leftmost adjacent and continues clockwise.

1. Tag the leftmost adjacent of the teeth defined.
2. The 2nd tag is the first tooth defined in the case.
3. Click **Add** to tag teeth other than those defined by default.
4. Click **Next**.



Next

SETUP - Anatomy library

Select the preliminary anatomy that best fits the case.

1. Click the down arrow and select an anatomy in the available libraries.
2. Click **Next**.

Next

The anatomy position is calculated based on the position of the adjacents.

DESIGN - Anatomy

You can change the proposed anatomy with the clone of an existing tooth. You can also use 3D tools to position, sculpt, fill, or smooth out surfaces on the anatomy.

Duplicate

Replace the existing anatomy with the clone of an existing tooth.

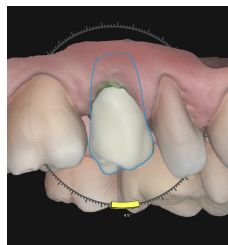
1. Select a tooth under **Select tooth to duplicate**.
2. Click **Apply**.



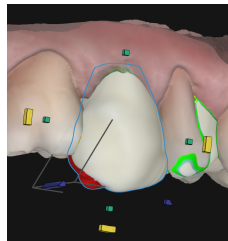
Fit

Roughly position the anatomy in the 3D view. You can use **Shift** and **Ctrl** with the yellow and purple handles for symmetrical transformations.

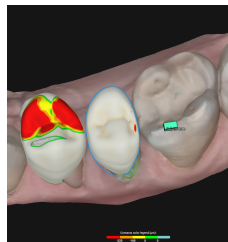
Use the **yellow handles** to rotate the anatomy vertically or horizontally.



Use the **purple handles** to adjust interdental spacing by modifying the anatomy wall.



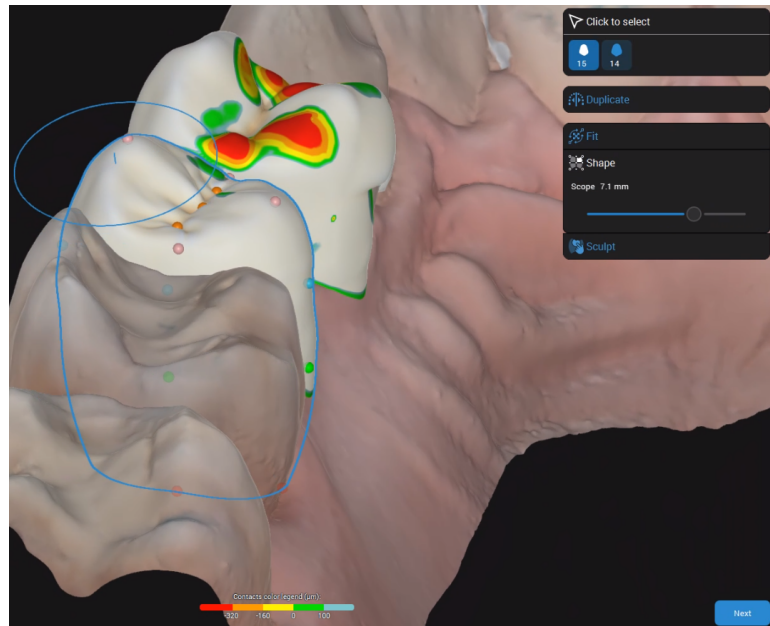
Use the **green handles** to adjust the size of the anatomy horizontally or vertically.



Shape

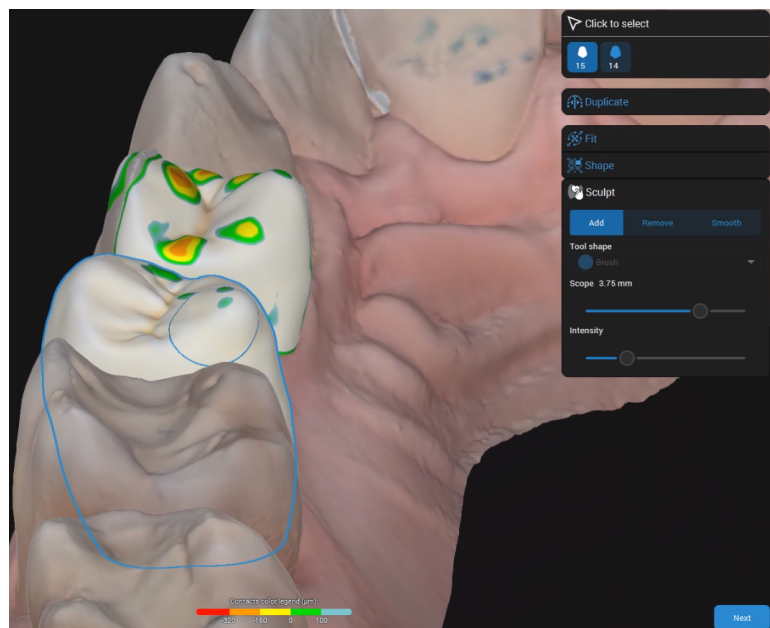
Use 3D tools to morph, fill, or smooth out surfaces on the anatomy. You can use handles to model the surfaces they cover or the circle to adjust freely.

- The **blue circle** shows the coverage of the free tool. The blue line represents the axis of the deformation.
- Click any handle to sculpt the surface underneath.
- Press **ALT** to move the selected handle to a different place on the surface.
- Press **SHIFT** to sculpt the surface located under same-color handles color located on the same side.
- Press **CTRL** to sculpt the occlusal cervical surface located under handles of different colors.



Sculpt

Add or remove material as needed on the restoration surfaces.



Click **Next**.

Next

DESIGN - Bottom

When you access this step for the first time, the **Treatment Plan** opens and prompts you to define the restoration types.

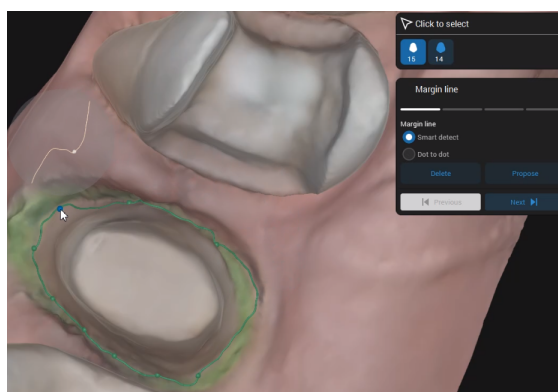
Here you can define the bottom parts of the restoration.

Margin line

Smart detect - Place dots. The line that connects them takes into account irregularities.

Dot to dot - Place dots connected by a straight line.

Propose – get a margin proposal that you can adjust according to your needs.



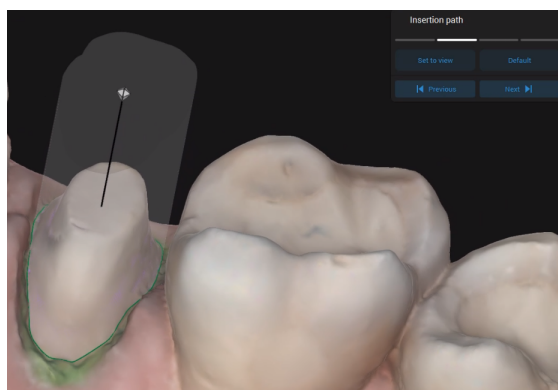
Insertion path

The insertion path is displayed by default, but you can modify it.

Set to view – click after having positioned the 3D view to obtain an ideal path.

3D view - click the diamond-shaped handle and move it around until you get the ideal path.

Default – click to restore the default proposal.

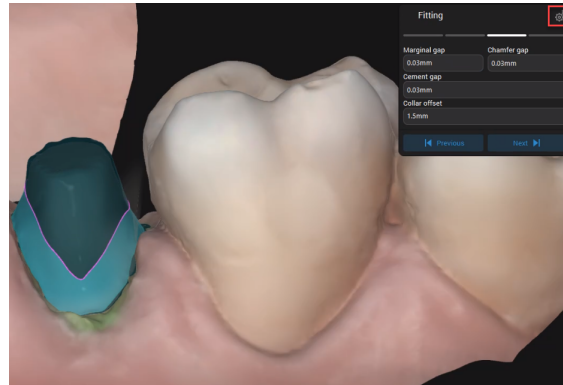


Any irregularity created by the positioning of the insertion path is flagged in the 3D view.

Fitting

When you adjust fitting options, the selected value is highlighted and updated accordingly in the 3D view.

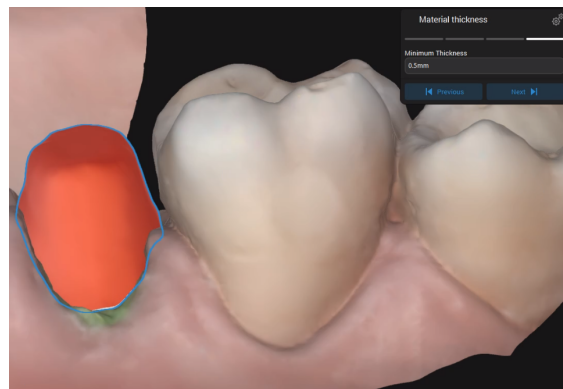
You can access more fitting options when you click



Material thickness

Define the minimum thickness that secures the integrity of the restoration during manufacturing.

It also ensures that the minimum thickness recommended by the material manufacturer is respected.



Click **Next**.

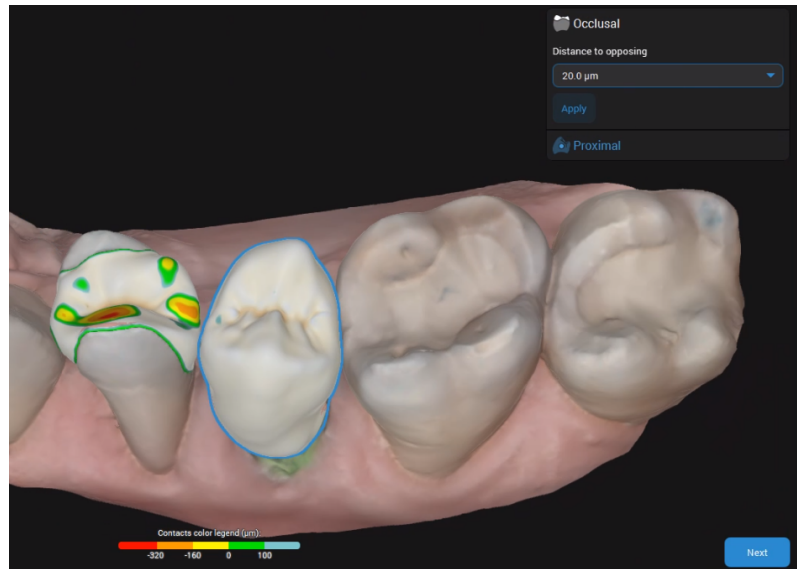


DESIGN - Shell

At this step, you can see the consolidated anatomy joined to the bottom. You can now adjust the occlusal and proximal contact points.

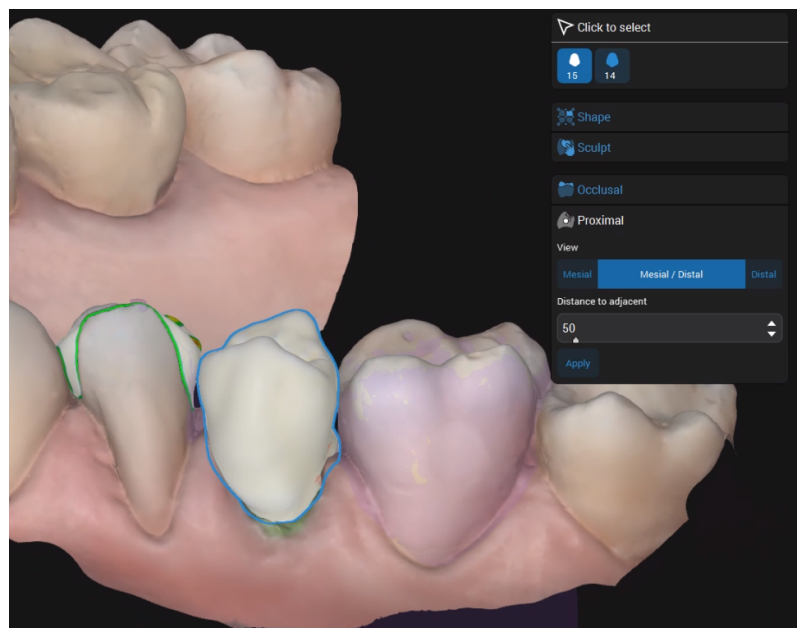
Occlusal

1. Adjust the gap/contacts between the restoration and the opposing model.
2. Enter the value of the distance between the restoration and the opposing.
3. Click **Apply**.



Proximal

Adjust the proximal contacts. You can add mesial, distal, or mesial/distal contact points.



Click **Next**.



DESIGN - Review

Validate the final restoration design once it is ready for production. You can still fine-tune the restoration by smoothing out surfaces for a better appearance.

NESTING

Here you can adjust the position of the restoration within the block and the position/type of the sprue used.

Nesting is available only if the material chosen for the restoration is Straumann certified.

MODEL

In Model you can edit your scans and adjust details to transform your intraoral scans into printable models.

1. After you've finished your restoration design, fill out the *Model Lab slip* or click **Skip** to go to *EXPORT*.
2. Go through the Editing steps using the various toolkits to define the **Dies & Analogs**, **Model Base**, **Gingiva mask** and **Add-ons**.
3. (Optional) To customize your system for your in-house printer:
 - a. Click **Materials** in **Settings**, then **Model**
 - b. Adjust measurement parameters for **Gingiva mask**, **Dies**, **Model** and **Analogs**.



Click ? (**Help**) in the software for more detailed information.



EXPORT

Several options are available depending on the type of restoration chosen.

- You can export case data in STL format for restorations from generic materials.
- Several options are available for restorations produced by Straumann.
 1. Fill out the appropriate information.
 2. Click **SEND**.
 3. The *Notification Hub* shows case status updates (i.e. whether it has been sent).

The case is removed from **Active cases** and placed in the **Cases** directory.

6. Maintenance

DWOS Software does not require any maintenance by the manufacturer during its life cycle.

However, the user is responsible for :

- Ensuring that data is regularly backed up to prevent loss (see *Data backup*, p. 11).
- Updating the software as indicated under *Product life cycle* (p.4) to maintain regulatory compliance beyond the original product life cycle. With an active internet connection, the user is automatically notified about pending updates.

Updates

DWOS

The DWOS Updater can be launched from the DWOS Dental Desktop, the [Downloads](#) section of the website, or the *Login* window.

DWOS Updater is also available online: <https://updates.dwos.com/updater/index.html>.

DWOS Easy / DWOS Chairside

The news section of the log-in screen shows the status of your software version and provides a link for updates (if you don't have the latest available version).

Alternatively, once logged in click **Settings** then **Update now?**.

7. Distributors and service

Refer servicing to authorized service personnel. Contact your local distributor if you need technical support for DWOS software.

Alternatively, contact support@dental-wings.com (in English, French, or German).

8. Technical data and label

8.1 Recommended hardware and software specifications

Minimum PC specifications		
	DWOS/DWOS Easy	DWOS Chairside
Operating System	Microsoft Windows 10 (64-bit edition)	Microsoft Windows 10 (64-bit edition)
Hard drive	HDD/SDD 500 GB	HDD/SDD 500 GB
Processor	Quad Core 3.30 GHz (Intel Core i5 3.30 GHz)	Intel Core i7 -6770 or higher
Memory	RAM 16 GB	RAM 16 GB
Graphic card	Nvidia GeForce GTX 1050 2 GB	Latest generation graphic card, must support Open GL3: Intel Iris 540/580, AMD or Nvidia discrete video card of less than 3 years
Screen	22-inch wide, 1080p display	22-inch, 1080p display
Mouse	USB mouse (with two buttons and a wheel)	USB mouse (with two buttons and a wheel) Optional if using touch-screen display
Keyboard	USB keyboard	USB keyboard Optional if using touch screen display

Recommendations are provided to allow for smooth operation of DWOS Software. The software might also run on configurations with higher performance. The suitability of such configurations must be validated by the user.

Recommended PC specifications		
	DWOS/DWOS Easy	DWOS Chairside
Hard drive	HDD/SDD 1 TB or higher	HDD/SDD 1 TB or higher
Processor	Intel Core i7 -8700 or higher	Intel Core i7 -8700 or higher
Memory	RAM 32 GB	RAM 32 GB
Mouse	3D Mouse (Optional)	3D Mouse (Optional)

Recommended PC specifications

Graphic card	Nvidia GeForce GTX 1660 TI	Latest generation graphic card, must support Open GL3: Intel Iris 540/580, AMD or Nvidia discrete video card of less than 3 years
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Network

Connections

Internet connection	Broadband internet connection Required for user help, online updates, remote support, DWOS Connect and DWOS Synergy
Network connection	Required for DWOS Synergy local connection

8.2 Optional hardware and software

Optional software

Remote access (for technical support)	Team Viewer
Collaboration with coDiagnostiX	DWOS Synergy

See *Optional software installation (p.15)* for more information about the above-mentioned software applications.

Optional hardware

	DWOS/DWOS Chairside
Peripheral devices	3D navigation device by 3DConnexion

8.3 Ports used by software installation

DWOS Server

After DWOS Software installation on a device, the following ports are used by DWOS Server:

DWOS Server			
	DWOS	DWOS Chairside / DWOS Easy	
RMI	Port 1099 and 9000	1098 and 9001	Incoming
mysql	Port 61324	Port 37132	Incoming
ParameterServer	Port 49408	none	Incoming
rest	Port 9696	Port 9696	Incoming

DWOS Updater

After DWOS Updater installation on a device, the following ports are used:

DWOS Updater		
http	Port 80	Outgoing
https	Port 443	Outgoing
ssh	Port 22	Outgoing
rest	Port 9997	Outgoing

DWOS Synergy

To be able to reach the DWOS Synergy server from other clients, the following ports need to be activated (in most cases, this is done automatically by the installation program):

DWOS Synergy server		
Port 15672	RabbitMQ server administration interface	Incoming
Port 61613	STOMP protocol – communication with coDiagnostiX	Incoming

DWOS Synergy server

Port 5672	AMQP protocol – communication with Dental Wings DWOS or Straumann CARES	Incoming
Port 61615	STOMP message queue dispatcher	Incoming
Port 55555 (UDP)	Broadcast query	Outgoing
Port 55556 (UDP)	Broadcast listener	Incoming

Team Viewer

After Team Viewer installation on a device, the following ports are used:






Team Viewer	
Port 5938, 443, and 80	TCP/UDP




8.4 Configuration and accessories


DWOS is available in three configurations. See the table below for a detailed view of the available modules and configurations.

DWOS modules	Gold	Productivity	Platinum	Optional
Crown & Bridge	●	●	●	
Implants and screw-retained bars and bridges	●	●	●	
Model Builder	●	●	●	
Partial Frameworks		●	●	
Full Dentures			●	●
Bite Splints			●	●
Orthodontic Archiving			●	●
Rapid Prototyping				●
CAM Module				●
Guided Surgery				●

DWOS Chairside applications	Available as an option
CAM Module	●

Accessory parts	DWOS /DWOS Easy	DWOS Chairside	Part No.	Image	Intended use
3Series Scanner	●		Accessory (1001-10)		The 3Series is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).
7Series Scanner	●		Accessory (1003-10)		The 7Series is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).
Medit T500 Scanner	●		Accessory (SET00000044)		The Medit T500 Scanner is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).
MEDIT T310 Scanner			Accessory (SET00000085)		The MEDIT T310 Scanner is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).
MEDIT T510 Scanner			Accessory (SET00000086)		The MEDIT T510 Scanner is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).

Accessory parts	DWOS /DWOS Easy	DWOS Chairside	Part No.	Image	Intended use
MEDIT T710 Scanner			Accessory (SET00000087)		The MEDIT T710 Scanner is intended to be used by dental laboratory professionals as dental 3D scanner for positive and negative models (impressions).
Computer (DWOS Chairside)	●		Accessory (4000-1)		PC for DWOS Chairside installation including: <ul style="list-style-type: none"> ▪ High-performance compact computer ▪ Region-specific power cord
Computer (DWOS)			Accessory (019-2014)		PC for DWOS installation including: - High-performance computer - Region-specific power cord

Accessory parts	DWOS /DWOS Easy	DWOS Chairside	Part No.	Image	Intended use
Accessory kit (DWOS Chairside)	●	Accessory (2201-2)			<p>PC accessories for DWOS Chairside computer including:</p> <ul style="list-style-type: none"> ○ Multi-touch 23" full HD screen ○ Region-specific keyboard with mouse ○ LAN & HDMI cables ○ Region-specific power cord

8.5 Label

The product label is found in the software *About* window. Here is where to find it:

DWOS

On the DWOS home screen (after login), in the lower-right corner > **About DWOS**.

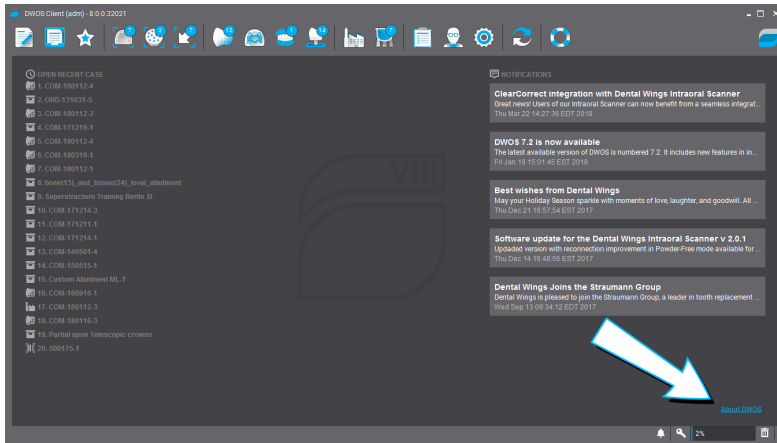


Figure 17: Label in DWOS

DWOS Easy

Settings > About Nova.

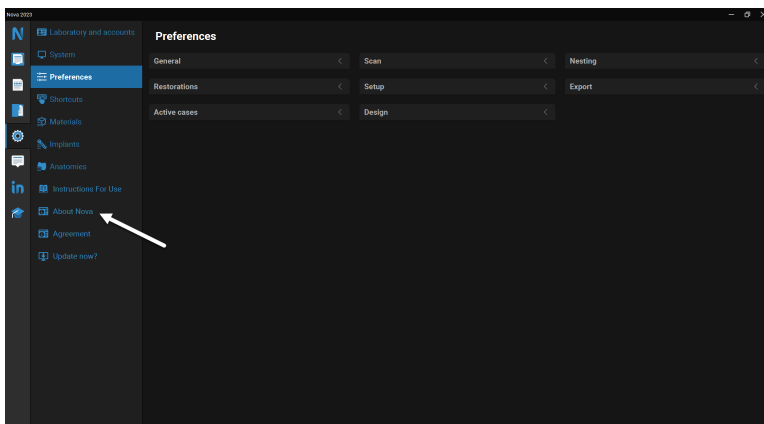


Figure 18: Label in DWOS Easy

DWOS Chairside

On the login screen, in the lower-left corner > **About DWOS Chairside.**

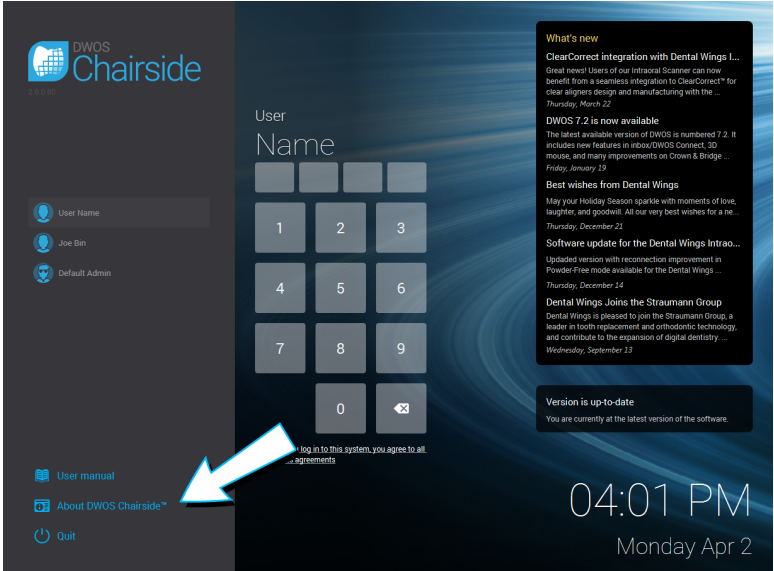











Figure 19: Label in DWOS Chairside

9. Explanation of symbols

	Indicates the legal manufacturer
	Indicates the date of manufacturing
	Indicates the article number of the device
	Caution, consult the Instructions for Use for important cautionary information
	Consult Instructions for Use
	Refer to Instructions for Use (On medical devices: <i>Follow Instructions for Use</i>)
	Device fulfills the requirements of the European directives given on the EU Declaration of Conformity
	Caution: US Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner
	Do not dispose of this device as unsorted municipal waste. Collect separately.

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DWOS Software **Instructions for Use**
v.4.0-EN

Distributor stamp