

GAMMA Dental Software

Update Information

Version 8.6

GAMMA
Medizinisch-wissenschaftliche
Fortbildungs-GmbH



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Version 8.6

Revision:
2023-02-21

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GAMMA Medizinisch-wissenschaftliche Fortbildungs-GmbH

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2 Introduction

2.1 About this booklet

On the following pages, we would like to present to you the feature highlights of version 8.6 of GAMMA Dental Software (GDSW). This update includes many improvements and new features for the CADIAX, CADIAS, and CADIAS 3D analysis modules as well as for the patient management in GAMMA Document Browser and GDSW classic.

Several of the changes implemented in this software version have been suggested by our user basis worldwide. If you also have ideas or suggestions for possible improvements, please do not hesitate to contact us.

2.2 Downloading the software

The most recent versions of GAMMA Dental Software are available for download via the *Downloads* section of our website at www.gammadental.com. There, you can also find the current operating instructions for all our products and additional information material for free and without registration.



You can also request a paper copy of the operating instructions by contacting us directly. Shipping within the European Union is free of charge.

After having downloaded the installation package as a setup file, simply execute that file to start the installation.

2.3 Installing from the flash drive

GAMMA Dental Software is also available on a USB flash drive that contains not just the software installation package, but also the operating instructions in PDF format. This flash drive is write-protected and will appear as an additional drive named “**GDSW**” in your file explorer when plugged in.



Figure 1: The **GDSW** flash drive.

To start the installation, simply insert the USB flash drive into a free USB port of your computer. The logo printed on the flash drive should typically be located on the top side. If the installation routine does not start automatically, you can launch it by executing the file *setup.exe* that you can find in the folder *Setup* on the *GDSW* drive. The operating instructions are located in the sub-folder *Manuals*. A suitable PDF viewer application is included with every Windows installation.

2.4 Installation procedure

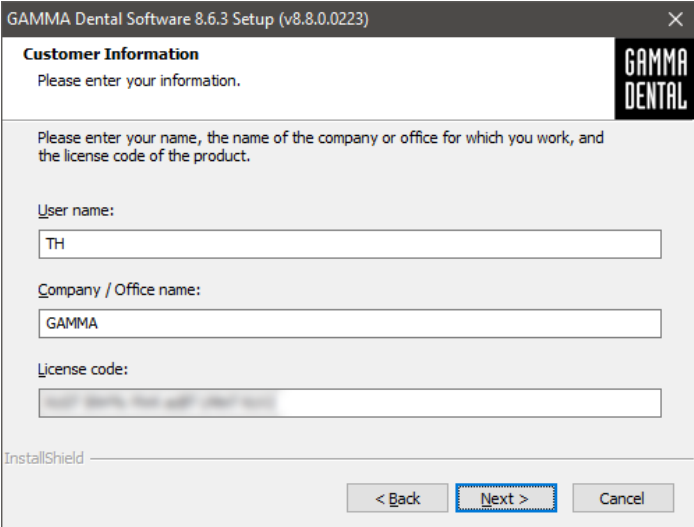
If an older version of GAMMA Dental Software already exists on your computer, the installation routine will perform an update, which will preserve your personal configuration settings. The update procedure will in no way touch your pre-existing patient files. Nevertheless, **we recommend backing up your patient data before installing the update**. You can easily identify the patient files to back up by their **.fgw* (GDSW classic) and **.gdb* (GAMMA Document Browser) file extensions. The database directory where these files are located is indicated in the respective application.

Do not switch off your computer during the installation. If you are installing the software on a laptop computer, please ensure that it will not run out of power during the installation procedure.

Furthermore, please ensure that you have your license code at hand when launching the installation routine. You can find this code on your license letter that you received as part of the installation package. Contact us if you need a copy of the license letter at a later time.

In the very first steps of the installation procedure, you are asked to choose the language to be used for the software and to accept the license agreement.

Afterwards, please enter your license code and optionally your user information (Figure 2). The latter is used for identifying the workstation and your practice or company on the printouts created by the software. Click *Next* to continue.



The screenshot shows a Windows-style dialog box titled "GAMMA Dental Software 8.6.3 Setup (v8.8.0.0223)". The dialog has a dark header bar with the title and a close button (X). Below the header, the text "Customer Information" is displayed in bold, followed by the instruction "Please enter your information." In the top right corner of the dialog, there is a logo for "GAMMA DENTAL". The main area of the dialog contains the instruction "Please enter your name, the name of the company or office for which you work, and the license code of the product." Below this instruction are three text input fields: "User name:" with the text "TH", "Company / Office name:" with the text "GAMMA", and "License code:" which is currently empty. At the bottom left of the dialog, the "InstallShield" logo is visible. At the bottom right, there are three buttons: "< Back", "Next >" (which is highlighted with a blue dashed border), and "Cancel".

Figure 2: Enter your user information and the license code.

In the subsequent steps, you are able to choose the version to install (32-bit or 64-bit) and to change the directory to which the software will be installed. We recommend continuing with the predefined settings.

Afterwards, you will be asked to specify the directory in which you want to store your patient data (Figure 3). If you need to access the data from multiple PCs, you can specify a network drive that is accessible to all of them.

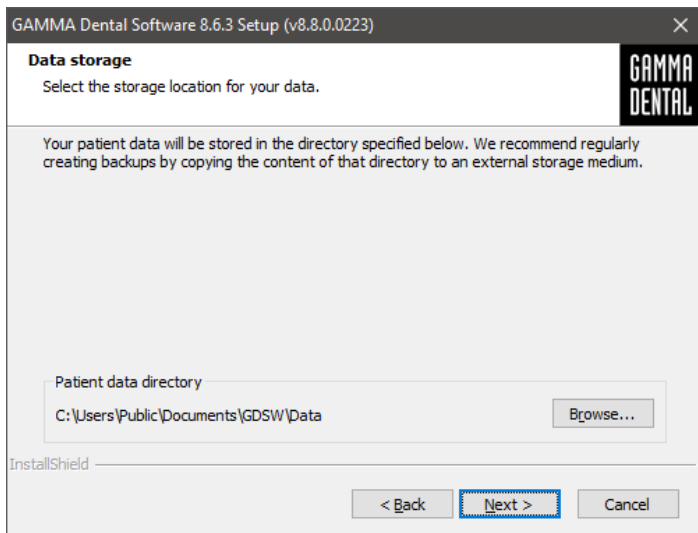


Figure 3: Select the directory in which your patient data should be stored.

The next window summarizes the installation settings. To change any of them, skip back to the respective step by clicking on *Back*.

2.5 Software activation

After the successful installation of GAMMA Dental Software, you can choose to start either GDSW classic or GAMMA Document Browser. In either case, you will be asked to activate the software (Figure 4).

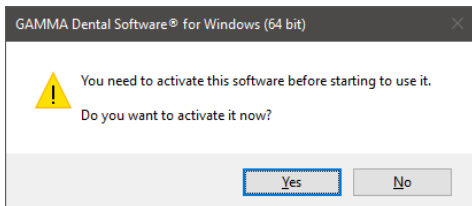


Figure 4: Activation is always performed for the complete GDSW package, regardless of which application invoked it.

The activation procedure has to be carried out only once. In other words, you don't have to activate each program separately.

Warning:

Using GAMMA Dental Software in a virtual environment (e.g., Parallels® Desktop) may cause poor performance or even loss of certain functionalities.

If you plan to use the software in a virtual environment anyway, we strongly recommend updating both your operating system and your virtualization software to the latest version before activating. Subsequent updates of these components can cause a change of the system information that is registered by GAMMA Dental Software, which will render your activation invalid. GAMMA does not take any responsibility for validity of license codes being lost this way. For these reasons, please use a native environment instead (e.g., Boot Camp on Apple macOS computers).

For activating GAMMA Dental Software on a computer with internet connection, simply select *Online activation* in the following dialog (Figure 5) and click on *Activate*. No further steps are required in this case and you can immediately start using the software.

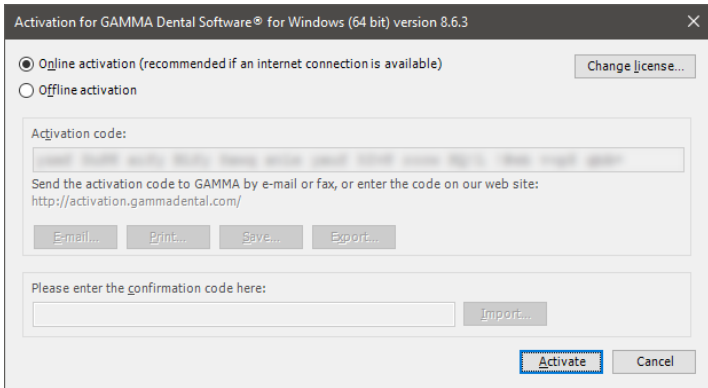


Figure 5: An active internet connection is convenient, but however not necessary when activating GAMMA Dental Software.

If you are installing GAMMA Dental Software on a computer without an active internet connection, please select *Offline activation*. Send the displayed activation code to GAMMA either via e-mail or by fax or visit the GAMMA activation website (Figure 7) on another device to activate your software:

<http://activation.gammadental.com/>

Enter your customer number and the activation code shown in the software and click on *Activate*. The system provides *Export* and *Import* functionalities on both ends to minimize the risk of typographic mistakes.

The website will return a confirmation code, which you will have to enter in the corresponding input box of the activation dialog (Figure 5). By clicking on *Activate*, the activation is now also completed on a system without internet connection.

GAMMA Dental Software is now ready for use. In case of any questions regarding the installation or usage of the software, please do not hesitate to contact us via:

E-Mail: support@gammadental.com

Phone: **+43 2243 34140**

Fax: **+43 2243 34140 90**

Our hotline is at your disposal from Monday to Friday between 9 AM and 4 PM (local time Vienna).

The screenshot shows a web-based 'Software Activation' dialog box. At the top left is the 'GAMMA DENTAL' logo and the title 'Software Activation'. A language dropdown menu is set to 'English'. Below the title is a 'Show help' button. The main content area contains three numbered steps: 1. Instructions to enter customer number and activation code, with input fields for 'Customer number:' (containing '045010') and 'Activation code:' (containing a long alphanumeric string). A 'Choose File' button is below with the text 'No file chosen'. 2. An 'Activate' button. Below it, a blue box displays the 'Result:' 'Activation completed successfully. Please enter the confirmation code in the software you want to activate.' 3. Instructions to print or save the confirmation code, with a blue box showing the code '10010 045010 045010 045010 045010 045010 045010 045010'. At the bottom are 'Save...', 'Print...', and 'Export...' buttons.

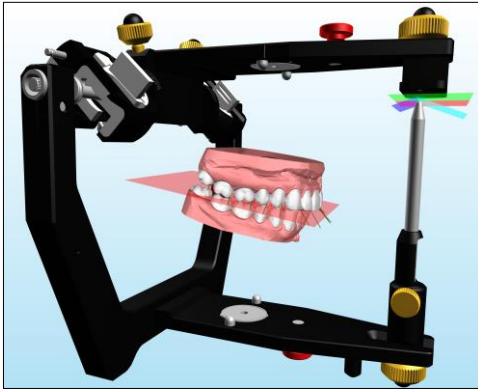
Figure 6: Offline activation enables you to activate the software on computers without an internet connection.

3 Updates in version 8.6

3.1 CADIAS 3D

Undoubtedly, computerized digital methods are an ongoing important factor in modern dentistry. Typical dental developments in the industry aim directly at the design and manufacturing of prosthetic appliances in the dental laboratory, wherefore digital dentistry nowadays is more a topic for the dental lab than it is for the practitioner's office. The aspects of functional analysis are widely ignored or neglected by those developments.

The field of instrumental functional analysis is one of the key points of the Vienna School of Interdisciplinary Dentistry (VieSID) in the systematic approach to establish valid and patient-specific evaluations. In particular, occlusal analysis of articulated models is of prime importance. With CADIAS 3D, GAMMA has developed a sophisticated 3D software system that aims to fill the gap in digital dentistry to allow occlusal model analysis as part of the computerized workflow.



For a complete overview of the features provided by CADIAS 3D, please refer to the operating instructions of GAMMA Dental Software, which you can also access via the *Help* menu in the software. The software comes with a fully documented patient case, named "Test Patient 3", which you can use to get acquainted and experiment with CADIAS 3D. Go ahead and give it a try!

3.1.1 Occlusion design

CADIAS 3D now includes the entirely new feature *Occlusion Design*, which simulates the movement patterns necessary for performing a sequential wax-up in the virtual articulator. These movements can subsequently be transferred to the exocad® CAD/CAM application for the design and manufacturing of dental prostheses that follow a desired occlusion concept.

The generated movements replicate the natural sequence of increasing length and steepness in the buccal guidances from first molar to canine, as established by R. Slavicek. On this basis, concepts such as balanced occlusion, group function, or canine guidance can be realized digitally in the CAD/CAM application.

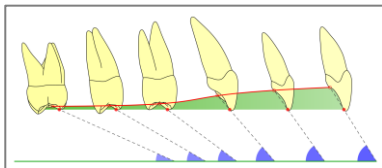


Figure 7: Increasing steepness of occlusal guidance from posterior to anterior as the basis of the sequential occlusion concept.

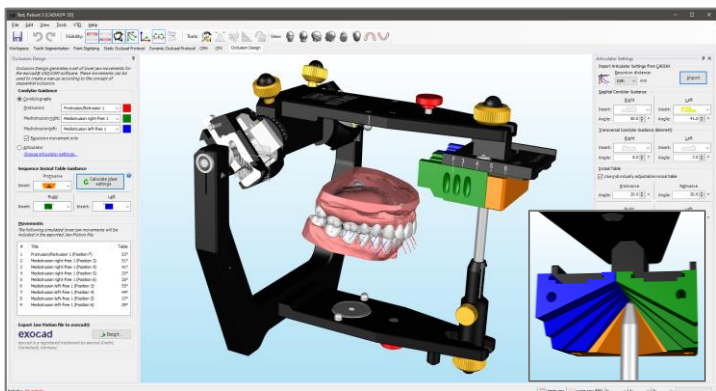


Figure 8: The user interface of the *Occlusion Design* pane extends the virtual articulator with a fully functional 3D model of the Sequence incisal table.

In the articulator, implementation of the sequential occlusion concept is simplified using GAMMA's Sequence incisal table. Its exchangeable inserts provide guidance angles in predefined increments and can be moved forward or backward to select between positions *F* (front teeth), 3, 4, 5, and 6.

The Sequence incisal table in the *Occlusion Design* feature provides the full range of inserts for protrusive, lateral right, and lateral left guidance (blue, green, orange, yellow). These can either be selected manually or the ideal selection can be calculated based on the posterior, condylar guidance.

For the condylar guidance used when simulating the movements guided by the Sequence incisal table, you can choose to use either the settings of the virtual articulator or CADIAX condylography recordings of the patient's actual jaw movements. In the latter case, you can select specific curves for the protrusion ■, mediotrusion right ■, and the mediotrusion left ■ movement. By default, condylography recordings will be limited to the excursive part of the movement.

	<i>Protrusion</i>
	<i>Mediotrusion right</i>
	<i>Mediotrusion left</i>

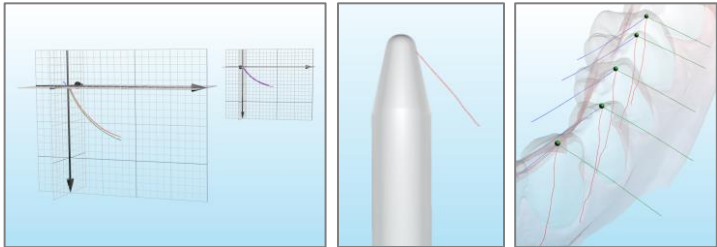



Figure 9: Condylar guidance from CADIAX, guided incisal pin movement, and the resulting movements on the lower centric cusp tips (left to right).

Based on the specified condylar and incisal table guidance settings, the software simulates the articulator movements for the cusps of the lower active centric. The 3D environment shows the corresponding movement tracks. Finally, you can export the generated movements to the Jaw Motion Import module of the exocad® CAD/CAM software (version 2.4 or higher), which allows creating a wax-up of the desired occlusion concept with sequential guidances.



Figure 10: Exported sequential wax-up movement in exocad® Jaw Motion.

3.1.2 3D image overlay

The new tool window  **Image Overlay** allows you to superimpose pictures onto the surface of the 3D jaw models. For instance, this is especially useful for integrating analog occlusal contacts, e.g., determined using occlusogram wax or Brux Checker, in the 3D analysis.

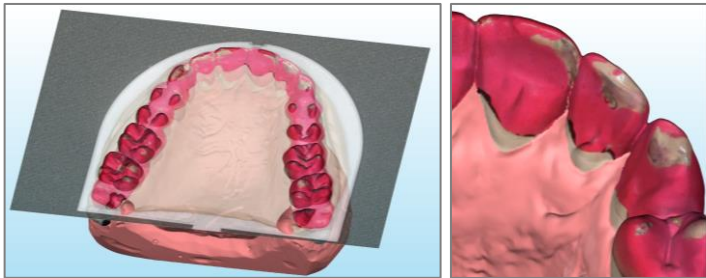





Figure 11: Using the Image Overlay feature to superimpose the picture of a Brux Checker record onto the surface of the upper jaw model in 3D.

3.1.3 Extended adjustment settings in CPV

The virtual condylar position variator (CPV) now allows adjusting the angle of sagittal condylar inclination (SCI) in combination with the offsets along the X and Z axes (ΔX , ΔZ). When adjusting SCI, ΔX is equivalent to the excursion distance S. The following adjustment modes are supported:

	ΔX and ΔZ
	S and SCI
	S, SCI, and ΔZ

Combining all three parameters allows for additional possibilities when creating a therapeutic position, such as applying a TMJ decompression (ΔZ) as part of the mandibular repositioning.

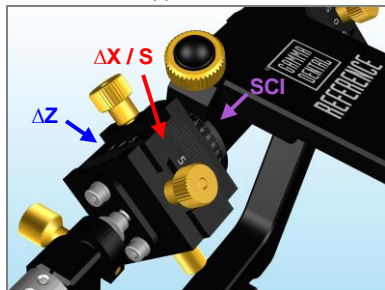


Figure 12: Condylar settings in the virtual CPV are now fully adjustable.

3.1.4 Static occlusal protocol with unsegmented models

The static occlusal protocol allows determining the order of tooth contacts between upper and lower jaw model during a closing rotation. Previously, this functionality was only provided after tooth segmentation. To speed up the procedure in cases where just the first contact is of interest, it is now also possible to perform the protocol with unsegmented models.

3.1.5 Incisal table variants and visualization of incisal pin movement

The virtual articulator can now optionally use either the flat or the individually adjustable incisal table. The latter allows free adjustment of protrusive, retrusive, right, and left guidance angles. In addition, replaying an articulator movement or a CADIAX condylography recording now also visualizes the movement path of the incisal pin as an anterior reference point.

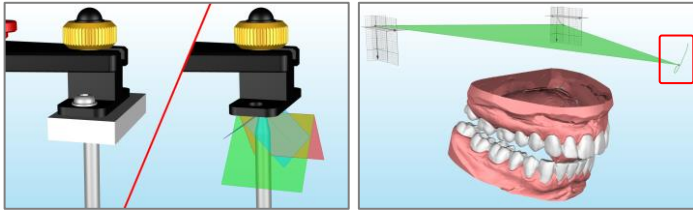


Figure 13: Switching between flat and individually adjustable incisal table (left). Visualization of incisal pin path for a “Mediotrusion left” movement (right).

3.1.6 Undo/Redo for VTO and tooth segmentation

When repositioning models or individual teeth to as part of a visualized treatment objective (VTO), these modifications can now easily be undone or restored using the menu items **Edit** → **Undo** and **Redo**, respectively.

It is now also possible to undo and edit a previously performed tooth segmentation to correct an invalid segmentation contour or tooth assignment. Individual segmentation contour points can be deleted using the context menu.

3.1.7 Improved file import/export

Support for the PLY file format when importing colored 3D models in the 3D Data Assistant has been improved to support a wider range of third-party products. The PLY format can now also be used when exporting data.

3.1.8 Other improvements

- To conform with other 3D applications, the X/Y/Z axes of the coordinate system are now represented with colors red/green/blue. The 3D view can now also be moved using the middle mouse button.
- Graphical analysis now includes an item for the frontal plane (Y/Z).

3.1.9 Fixed issues

- When copying the numerical analysis while a VTO was active, only the original values were copied to the clipboard.
- When transferring a selected lower jaw position from a condylography curve to the CPV, collision settings were not considered.


3.2 General

3.2.1 Minor improvements

- The appearance of the user interface when using display scaling on high-resolution screens has been improved in several locations.
- The software will now ask to enter a new license code if the previous activation became invalid rather than requiring a reinstallation.

3.3 GAMMA Document Browser

3.3.1 Extended data item properties

The *Raw Data* view allows managing the data items imported for the patient file. This view now provides additional data item properties, accessible via the context menu  **Properties**. For images, this includes the original file name and the image dimensions, for 3D models, the original file name as well as the import transformation and incisal pin height, and for text documents, the date and time of creation.

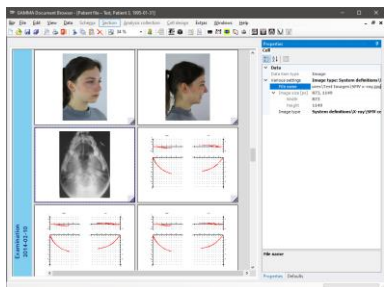


Figure 14: Additional properties for data items such as images and 3D models

3.3.2 Extended CADIAX analysis properties

CADIAX analyses in GAMMA Document Browser can be configured to show the calculated settings for various types of articulators. The properties of these analyses now also allow adjusting the immediate side shift (ISS) value for supporting articulators. In addition, the articulator types provided have been correctly sorted in alphabetical order. Switching between graphical and tabular view is now only available for the Reference SL articulator.

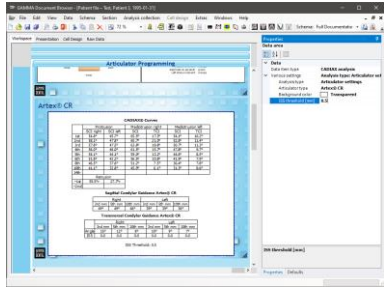


Figure 15: CADIAX analyses now provide additional articulator settings properties.

3.3.3 Other improvements

- In the 3D Data Assistant, it is now possible to import files directly via copy/paste from the file explorer.
- When importing multiple images in the Image Assistant, it is now possible to advance the preview to the next image using the arrow keys. Images can be excluded from the import via double-click.
- The handling of corrupted data during the conversion of GDSW classic patient files has been improved.
- Activating the option to automatically hide empty cells in the on-screen presentation now also applies to the printout and the PowerPoint export.

3.3.4 Fixed issues

- When importing images of type *Unknown*, they would automatically be linked to data areas bound to show user-defined image types.
- Photo order templates with names that include special characters would not appear with the correct name in the Image Assistant.
- Creating an unnamed user-defined image type and using it as the default type for a CADIAX digitizing could cause the application to end up in an unrecoverable error state.

3.4 CADIAX

3.4.1 Switching degrees/percent for translation/rotation plots

The *Translations-Rotations* view now provides two radio buttons in the side panel to simplify the switch between showing the absolute opening rotation angle in degrees and the relative opening angle in percent (of maximum) on the plot's vertical axis. The latter option allows better superimposition of curves that have different maximum rotation angles.

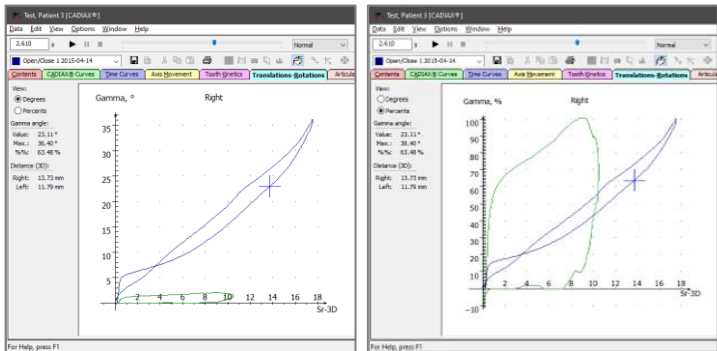


Figure 16: Switching between degrees and percent for the vertical axis of translation/rotation plots is now easily possible via the side panel.

3.4.2 Improvements to ASCII export and import

Besides exporting recorded CADIAX movements in an XML-based format for the Jaw Motion Import module of exocad®, the CADIAX Analyzer application also allows exporting and importing movements in ASCII, i.e., CSV (comma-separated values) format for processing in external applications. These functionalities can be useful for custom evaluations in scientific studies and are now also provided when the application has been started from GAMMA Document Browser.

A related issue where the coordinates of the reference position in the exported CSV file were incorrect has been fixed as well.

3.4.3 *Fixed issues*

- When customizing the axis labels of the X/Y/Z coordinate system, for instance to conform to a different axis notation format, the changes were not correctly reflected in the printouts of condylar position measurements (CPM).
- In some scenarios, printing the tooth kinetics curves of the 3D Animation could cause a software crash.

3.5 **CADIAS**

3.5.1 *Minor improvements*

- When copying the displayed tracing or superimposition as an image to the clipboard using the *Edit* menu, it will now take the current zoom level into account. This can be useful to copy higher-quality graphics to external applications for presentation purposes.
- When saving a digitized x-ray image in CADIAS Digitizer, the application will now immediately recalculate and update the calculated points, shown as green crosses.
- Displaying an x-ray image or a patient photo behind a tracing is now also possible with the “Advanced fit of tracing” option active, which intelligently resizes the displayed tracing to fit the view.
- The quality of the images used in the Slavicek diagnostic sheet for assessment of chronic pain and tooth status has been improved.

3.5.2 *Fixed issues*

- When creating a copy of a CADIAS analysis in GDSW classic, the application would overwrite the comment text, potentially losing entered information.



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