CS Solutions for Orthodontics

Announcing CS Model+ v5.2 with Enhanced Aligner Treatment Capability

One of the key factors to our success is our ability to offer customers intuitive and innovative products that rethink conventional procedures to make their life easier.

In support of this commitment, we are pleased to announce the launch of CS Model+ v5.2, which allows practitioners to create chairside aligners within a few minutes, saving time and money.

This evolution of our CS Model+ software automatically analyzes patients' digital models, proposes setups, computes the intermediate steps that correspond to the aligners, prepares files for printing and produces fully customizable reports within minutes.

Note: please read Product News #487 (if not already done) before going through this PN update.

Table of Contents

Always benefit from the latest artificial intelligence improvements when using our automatic segmentation
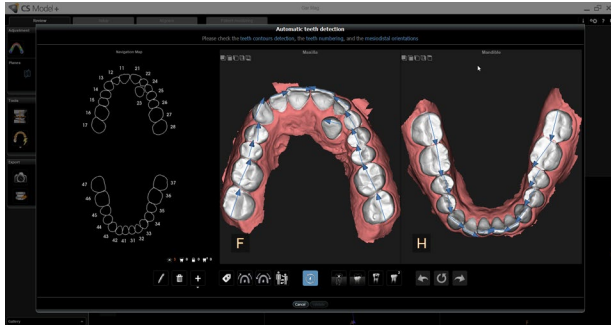

CS Model+ is highly regarded in the industry thanks to its ability to propose an analysis of the patient's anatomy in approximately one minute. The automated proposal includes:

- Detection and segmentation of teeth
- Labeling of the patient's dentition
- Computation of mesio-distal orientations and long-axis

As you have noticed over the last years, our segmentation improves every time we release a new version thanks to how we utilize our Artificial Intelligence (AI). To ensure you're getting the most out of the AI capabilities, we've added an indicator that allows you to check if a newer version of this feature is available.

Note: The icon will be greyed out if you are already using the latest version
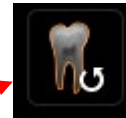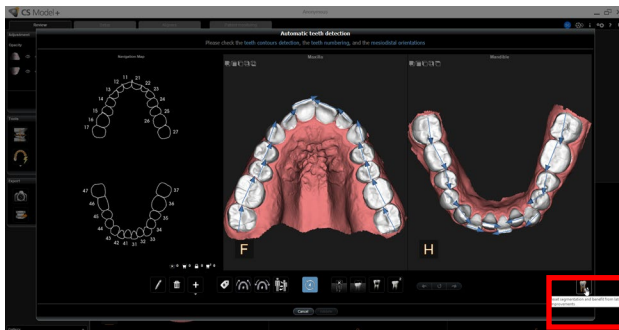

Warning: If you choose to recalculate the segmentation, a message will be displayed reminding you that everything will be deleted (setup, intermediate steps, patient monitoring, etc.)

Access even more tools in the segmentation to correct long axis of the tooth

In some rare cases, the main orientation (long-axis) is not well positioned vertically, which generates some additional work on the setup to adjust the tip or the torque. Even though this was rare, we felt this could be improved. Now, a new manipulator allows users to adjust the vertical axis of the tooth to identify teeth that are tipped. By correcting the issue straight from the segmentation, the accuracy of the automatic setup computation is increased while the amount of time spent to validate the setup by the practitioner is reduced.

Also, providing a more optimal baseline segmentation is exceptionally helpful for practitioners providing multiple setups, as the correction previously had to be made for each setup.
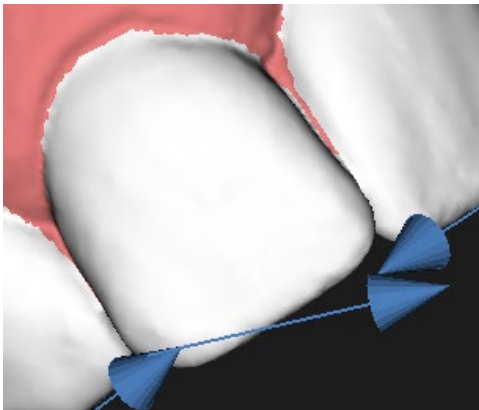
Incorrect long axis of the tooth
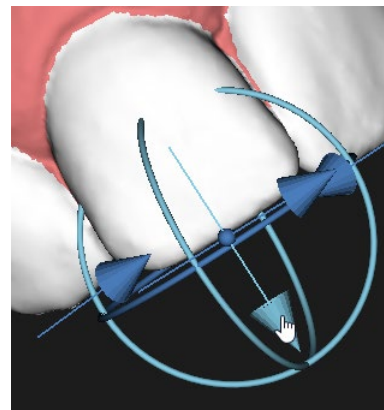
Perfect position using new manipulator

Aligner setup made easy

CS Model+ is not only an aid to diagnostic software but also an ideal communication tool to help patients visualize and understand treatment goals, thanks to the ability to display a setup proposal based on the practitioner's preferences—in **approximately one minute**.
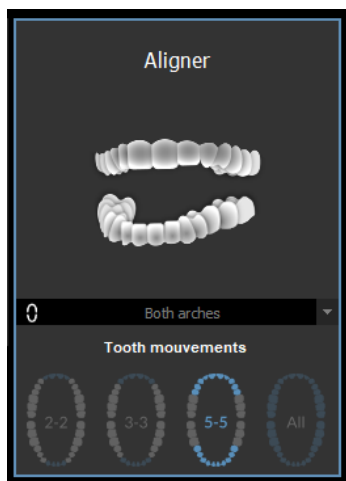
In this latest version, the user can now select which teeth should be included when calculating the treatment plan and which ones should remain fixed.

There are four 4 possible options:

- 2-2 (Laterals – Laterals)
- 3-3 (Canine – Canine)
- 5-5 (Bicuspid – Bicuspid)
- All

This new feature not only improves the accuracy of the automatic setup by factoring anchored teeth into the treatment plan based on the selected option, it also saves the clinician time by eliminating the need to edit the setup after completion by manually modify the teeth to be anchored.

Enhancing manual movements to make it even more straight forward

Sometimes, after an automatic setup has been calculated, clinicians are willing to tightly adjust the space between the teeth to limit the amount of Interproximal reduction (IPR) needed. Doing so is quite straight forward in CS Model+: Start by clicking on the pencil of the simulation you want to modify: , then click on the pencil again . Finally, click on the display collision on the bottom of the screen . The collision window is displayed.
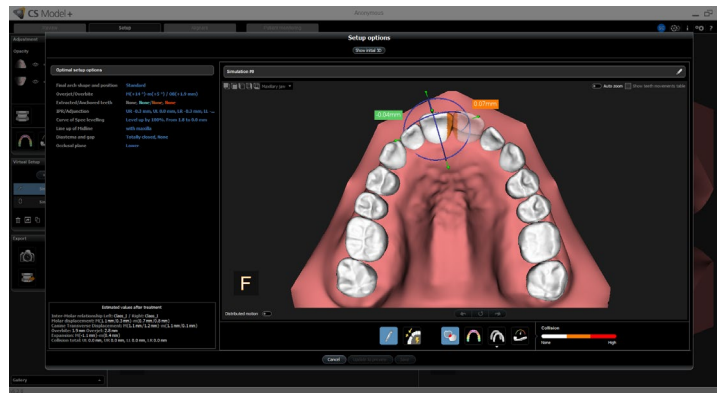
Setup Options window in CS Model+

The software provides additional information during these modifications when verifying and adjusting the collision in the manual setup. Users can now move the tooth using the following methods:
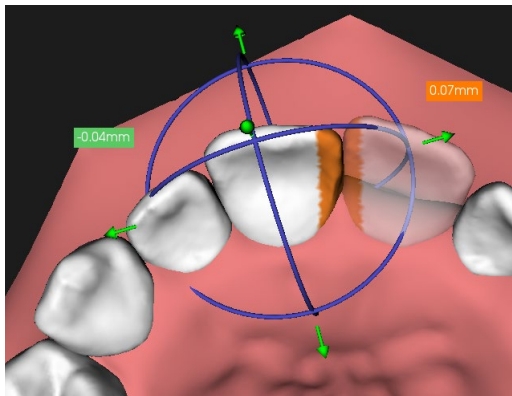
Click and drag the arrow of the manipulator tool to move the tooth. The amount of collision is displayed:

- **Green** indicates that the spacing is optimal
- **Orange** alerts the practitioner that there might be a need for IPR
- **Red** indicates that collision is likely and should be adjusted

Double-click on the arrow of the manipulator tool and the software will move the tooth 0.05mm in the direction of the arrow, making a very minor correction to the collision

Note: The increment of the movement will depend on the orientation of the tooth and the amount of the collision, so moving the tooth 0.05 mm may not change the collision by the same increment

Another aspect that's been enhanced when making manual movements is the ability to move a group of teeth. The practitioner will now be able to do so in the same interface thanks to the distributed motion option:
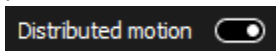
Here are two examples: on this case, the user wants to create some more protrusion so they will **enable** the distributed motion.
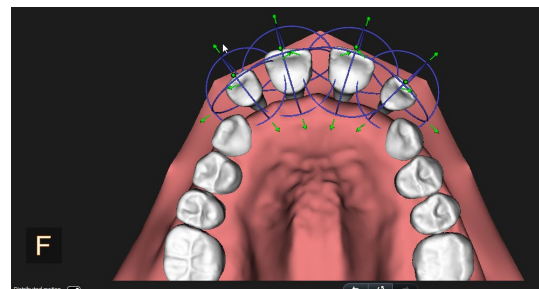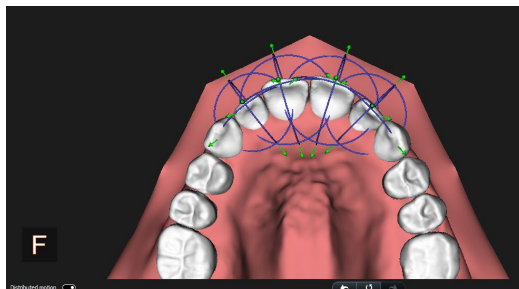
On this case, the user wants to modify the occlusion and close the space so they willl **disable** the distributed motion.
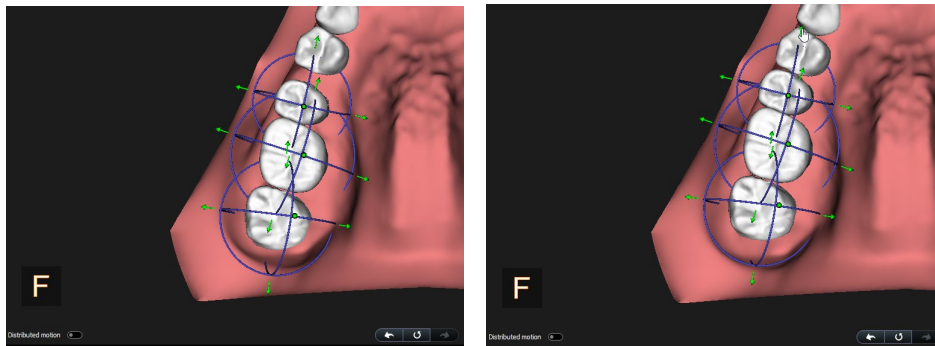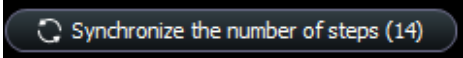

Synchronize the number of intermediate steps in a single click

In some circumstances, a practitioner might be willing to synchronize the number of steps between the upper and the lower jaw. The main two reasons are:

- It saves time in the lab by allowing technicians to always apply the same process—no matter the treatment plan.
- It might also help improve patient compliance until the end of treatment since they will keep the same process until the end.

By default, CS Model+ computes the number of steps based on the constraint parameters defined by the user. When selecting [↻ Synchronize the number of steps (14)], CS Model+ will automatically adjust the constraints to adjust to the higher number of steps.
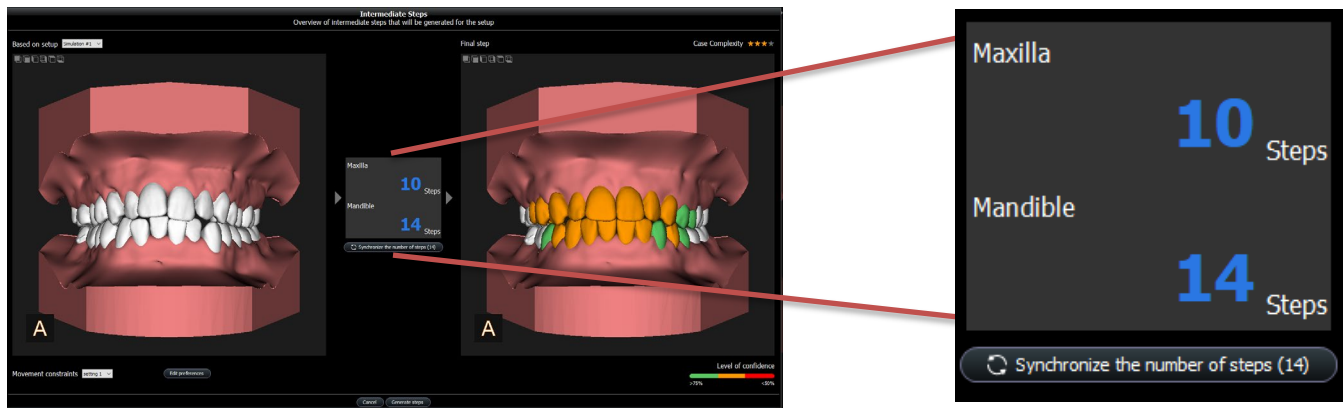
Simplifying attachment placement

Because aligners are made of flexible material, the practitioner may need to rely on attachments to fully seat the aligner onto the teeth or to apply additional force to a tooth to obtain the desired position.


CS Model+ includes a library of attachments with different options for rotation, extrusion-intrusion, torque or even combined movements.

In this latest version, adding an attachment has been made significantly easier. Simply click the attachment icon and click on a tooth. The selected attachment is automatically placed where you drag it (instead of on the center of the tooth as in previous versions). Also, you can now place multiple attachments on the same tooth (with no overlap) in both lingual/palatal or vestibular.

Finally, we have added an option to duplicate an attachment on the other teeth.

NOTE: Attachments can be placed at any stage of the treatment process and they can be removed if they are no longer required for the patient's treatment.
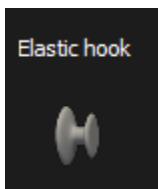
A new attachment is now available when preparing the cut of the model to place an elastic hook.

NOTE: This is a placeholder for the cut of the model, but contrary to the others it cannot be used to create an attachment made of composite.

## New capability: Managing teeth movement staging
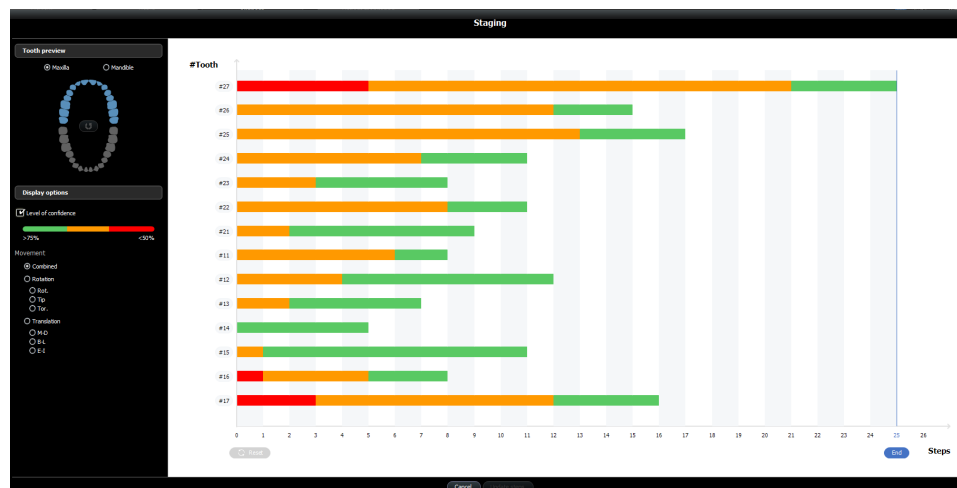
Thanks to our staging feature, the clinician can now exercise more control over the planned movement of each individual tooth. Depending on the case complexity, the practitioner might be willing to apply different phases in their treatment. For example, they might make the decision to start the distalization of the molars before starting the rotation of the canine.

To access staging in CS Model+, go to the Aligners tab and click Edit Staging , the staging window is displayed with the current treatment pattern.
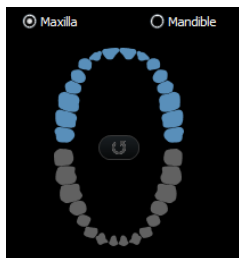
Select this icon if you want to view / modify, the maxilla or the mandible
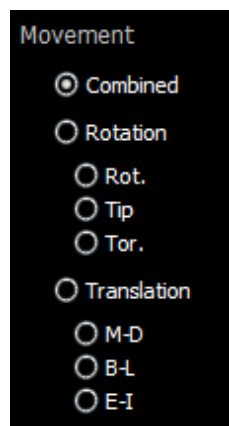
By default, the movements calculated by CS Model+ are set on "combined," meaning all movements are applied on the tooth at the same time.

In this panel, the practitioner will choose which movement to apply and on which tooth for both rotations and translations.

The steps can be visualized in either the "classic" (blue) mode or by leveraging the use of the level of confidence per tooth movement (traffic light colors).
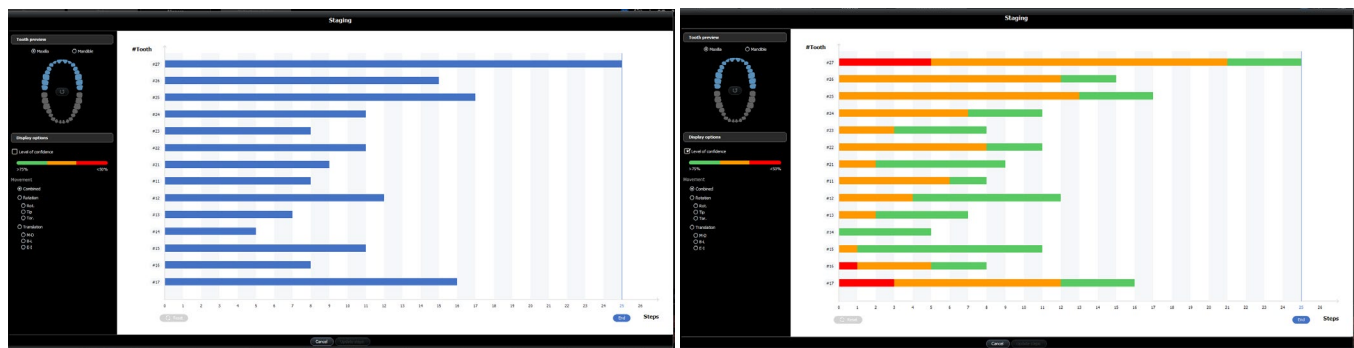
Linear summary showing the level of difficulty of each individual tooth cross-referenced with each step in the treatment process
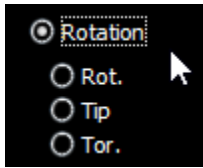
To change the sequencing of the teeth movements, select which movements you want to delay:
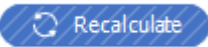
- All movements
- All rotations or only rotation, tip or torque
- All translations or only Mesio-Distal (MD), Bucco-Lingual (BL) or Extrusion-Intrusion (EI)

Then, simply grab the bar on the teeth where you want to delay the movement
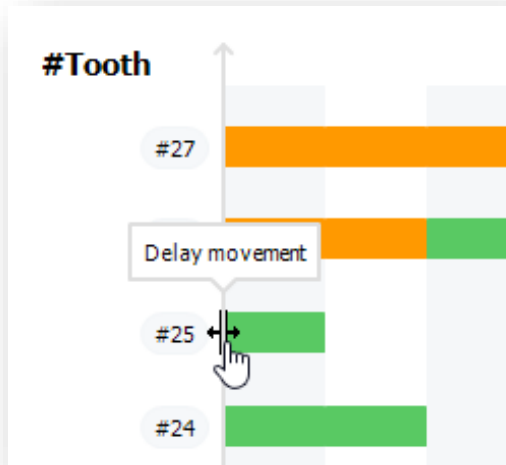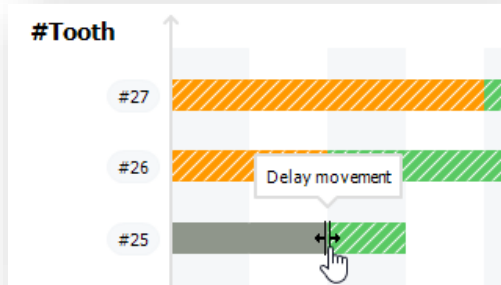

When the delay is applied, the bar will turn grey for the selected period, while the other steps will be indicated by stripes.

Click on so that all the steps are recalculated automatically according to your modifications of the treatment plan.

This staging functionality:

- Provides practitioners with greater control of the movement of individual teeth by allowing them to delay the movement of a single tooth or group of teeth when desired
- Streamlines the staging process by enabling the practitioner to select which teeth to view in the staging window
- Harnesses the power of movement constraints so practitioners can focus on all the movements of the tooth: Rotations or translation

Automated export process: From CS Model+ directly into your 3D printing software

When clicking on , practitioners will discover that we have enhanced their experience and streamlined the printing process, saving the user time and automating the steps to prepare the models for printing. Export options now include the ability to export directly to SprintRay (RayWare) software and Formlabs (PreForm) software.
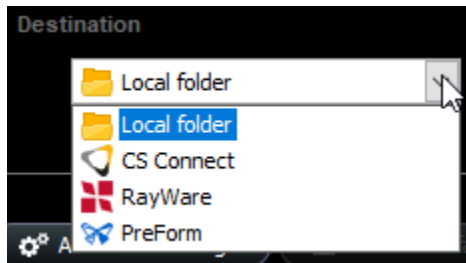
This new option enables the user to send large volumes of models directly to the printer software and automatically generates each step and apply the selected back support (if any).
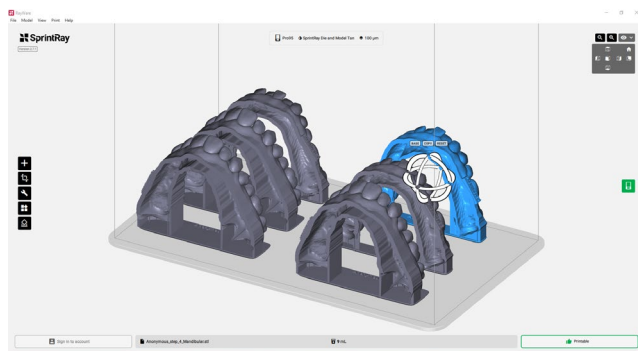
NOTE: To be visible on the panel option, the software (either RayWare and/or Preform) needs to installed on the PC where you are exporting. Otherwise, the option will not be displayed

Display in RayWare (SprintRay 3D printing software)   **Display in Preform (FormLab 3D printing software)**
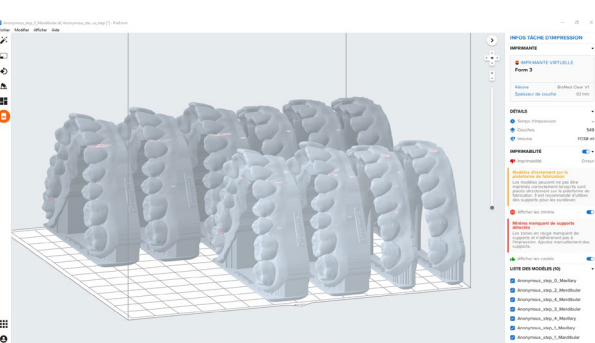
Want to delegate a part to a third party? Just use CS Connect from CS Model+

In CS Model+ v5.2, the practitioner can now choose to delegate either part or all of the aligner process thanks to a new function directly accessible from the interface.

In the review tab, clinicians can click on , the

original acquisition model is directly sent through CS Connect to your favorite lab.

Note: No token will be consumed

In the setup tab, clinicians can click on [icon] and the

original acquisition and the segmentation/setup are directly made available for the lab of your choice or to a referring doctor using CS Connect

No token will be consumed

Note*: For the lab to be able to benefit from the segmentation and the setup, they will have to use CS Model+ as well.*

In the Aligners tab, the practitioners will be able to choose CS Connect in the different options that are
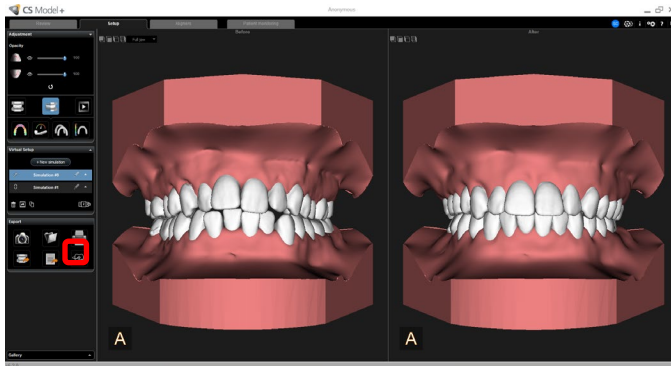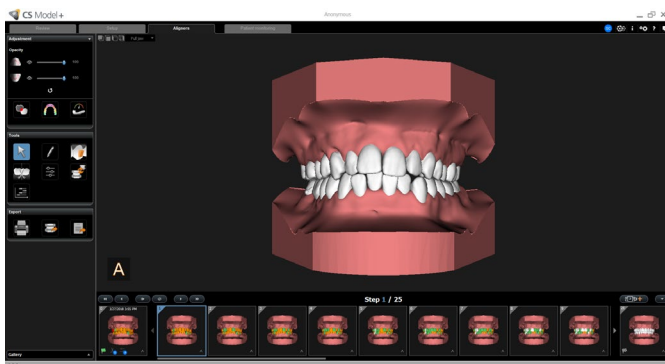
made available when clicking on [icon] to export the

steps to a third party of their choice for printing purpose.

A token will have to be used to generate the STLs necessary for printing

Customers' requested enhancements

Listening to our customers and adapting to their needs is essential, so we have integrated revolutionary requests from doctors, dealers and sales representative into this version.

Single Arch Acquisition In this new version, a user will be able to segment and set up a single arch acquisition. Whereas—in previous versions-- they needed to acquire both arches to run a setup.	
	Eliminates the need to acquire both arches and saves practitioners time both at the acquisition level and also in CS Model+
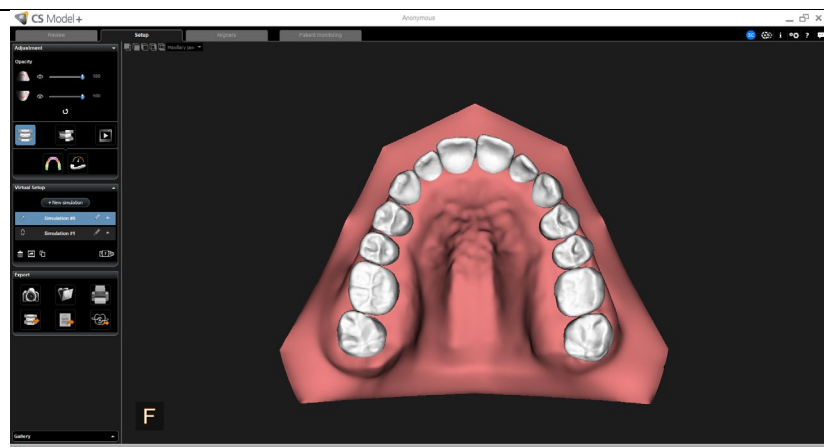
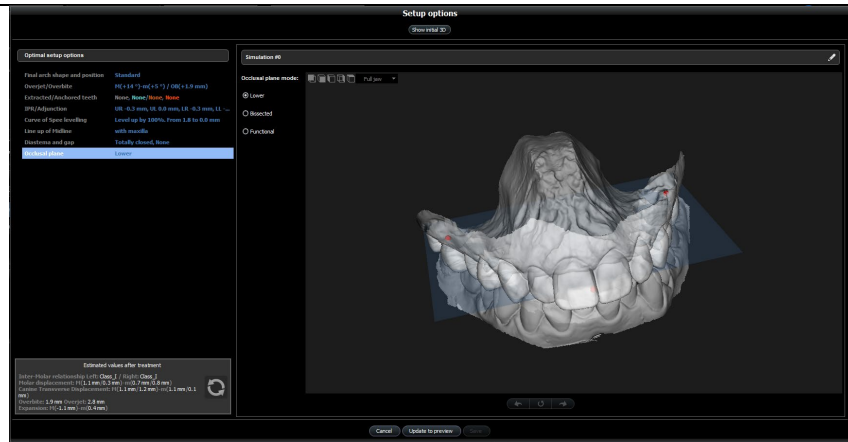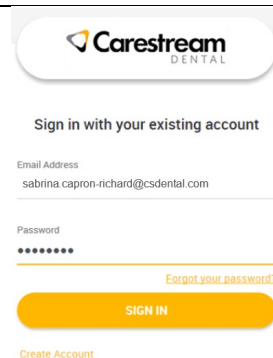|	
New occlusal plane option for optimal setups In some cases, the occlusal plane needs to be adjusted to better fit the desired treatment outcome.	
	A new "occlusal plane" option is available where the user can choose between three options: • *Lower: Based on lower arch; a horizontal line from the most prominent cusps of the last fully erupted mandibular molars extending anteriorly to the anterior average border of the fully erupted mandibular incisors* • *Bisected: Between both the lower and upper arch* • *Functional occlusal plane: A best plane fitting the premolars and first molars cusps of the mandible*
Single sign on across Carestream Dental applications To offer a unified experience to our users, we are transitioning our account management system (known as CSD SSO) to a new mechanism provided by Microsoft (Azure ADB2C).	
	When connected on one of the Carestream Dental products, you have access to all Carestream Dental applications on the same station. *The logged-in user is shown as a blue bubble with name initials.*
Patient monitoring now offers a dynamic color range for distance map It is impossible to remember a patient's dentition over time, as some movements might be so small that they are not visible with the naked eye	
	When using the distance map in our Patient Monitoring tab, the range can be adapted based on what you are willing to highlight so that clinicians can detect miniscule changes which would have been invisible otherwise.
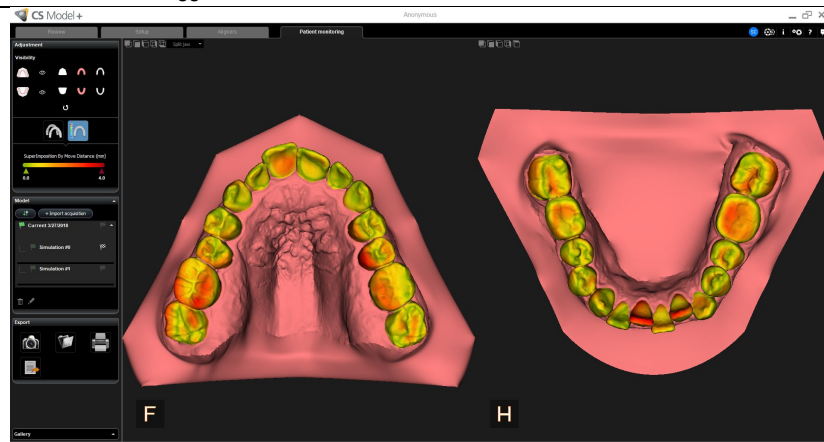
Set up your constraints once and benefit from it on every workstation

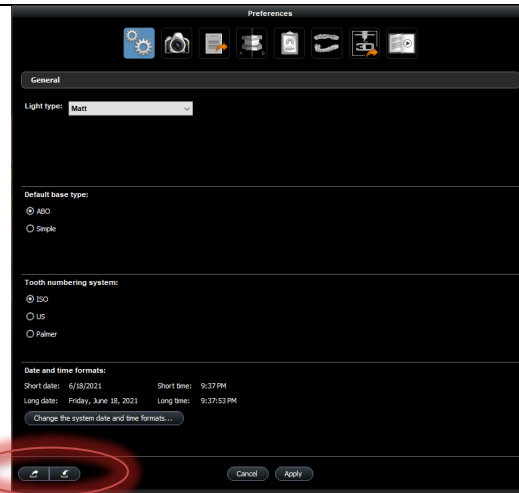In order to offer the easiest installation to our customers, we have added the ability to share preferences between all the workstations of the practice.

Under preferences ![gear] >General, there are two icons that allow you to either EXPORT ![export] or IMPORT ![import] all the preferences at once.

CS Model+ recommended computer system requirement

Item	Requirement
CPU	2.4 GHz Intel Duo Core
RAM	32 GB
Graphics Board	NVidia / ATI based board supporting OpenGL 4.2 or higher with a minimum of 1024Mb of video RAM and plugged on a recent video bus such a PCI-E. With up-to-date video card driver (ex: NVidia GeForce GT710)
Hard Disk	1 Gb free space on a local disk to install the product
Display	17" or larger; 1024 x 768 minimum screen resolution—32-bit color mode
Operating System	Windows 10 - 64-bits

CS Model+ and CS Advantage CAT numbers

CS Model+ is under license and requires the activation of a license key under the CS Licensing SSO account.

Cat#	Description	Converter included*	Validity Period
5500483	LICENSE FOR CS MODEL+ V5 5 ACTIVATIONS	Yes	None
5500491	LICENSE FOR CS MODEL+ V5 2 ACTIVATIONS	Yes	None
5500509	UPG LICENSE - CS MODEL+ V5 5 ACTIVATIONS	Yes	None
5500517	UPG LICENSE - CS MODEL+ V5 2 ACTIVATIONS	Yes	None
5500525	CS MODEL+ TECHNICAL (1 activation)	No	7 days
5500533	CS MODEL+ TRY & BUY	No	30 days
5500541	LICENSE TROPHY MODEL+ V5 5 ACTIVATIONS	Yes	None
5500558	LICENSE TROPHY MODEL+ V5 2 ACTIVATIONS	Yes	None
5500574	TROPHY MODEL+ TRY & BUY	No	30 days

(*) Converter included refers to a STL converter Suite license, which allows exporting of either the initial model, the setup or the intermediate steps. When delivered, the STL converter Suite is only for 1 activation.

CS Advantage is also under license:

Cat#	Description
5329917	CS Advantage - Model Suite 2Y from POS
5329925	CS Advantage - Model Suite 1Y Extension

NOTES: Customers who are enrolled in a CS Advantage contract will automatically be entitled to a new version as they become available.

Product launch

In preparation for the product launch (in selected countries), the following digital marketing materials have been prepared. For more information, please contact your regional marketing manager.

- eBook
- Internal/External FAQs
- Press Releases
- Sales/Dealer Presentation
- Competitive Analysis
- Web Content
- Product Demo Videos
- Teaser Emails
- Infographics
- SoMe Content

The collection of product testimonials is ongoing. If you become aware of a customer who has CS Model+ and is pleased with the software, please notify your regional marketing manager so a testimonial can be collected.

For more information, please refer to the CS Model+ FAQ and/or User Guide (SMA24_CSModel), or contact the Product Line Manager, Sabrina Capron-Richard (sabrina.capron-richard@csdental.com).

You can also visit us on the web at www.carestreamdental.com

* Requires the use of a third-party FDA approved printer, production machine, and aligner materials.