3Shape TRIOS A/S

TRIOS® Module

[User Manual](…)

www.3shape.com

Rx only

CE

MD

Table of Contents

1 Getting Started

1.1 Introduction

Dear Customer,

Congratulations on your purchase of the 3Shape TRIOS® module - the next generation in intraoral digital impression solutions.

This user manual will assist you in setting up your TRIOS® intraoral scanning (IOS) system, as well as guide you through the steps for scanning and handling digital impressions.

Please see the section How To for specific help topics.

> ⚠️ **CAUTION** Before connecting or operating 3Shape TRIOS® module, please make sure to familiarize with *TRIOS® Safety and Setup Guide* for assembly and safety instructions, and observe all its safety information and warnings to prevent personal injury, material damage or damage to your TRIOS® IOS system.

Thank you,

3Shape TRIOS A/S

1.2 Indications

TRIOS® IOS digital images are indicated for use in:

- **Restorations**

- **Orthodontics**

- **Implantology**

- **Assessment of dental status**

1.3 Legend of Labels and Symbols

The symbols used in this document imply the following:

⚠️ **CAUTION**
Caution indicates that the current situation needs operator awareness or operator action in order to avoid undesirable consequences.

NOTE
Important information that is not a warning/caution but must be strictly observed.

HINT
Hints, tips and additional information to support optimal operation of the system.
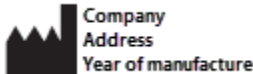
Company, **Address** and **Year of manufacture**.

Medical Device.

CE Marking.

Prescription only
(Applicable for the United States of America).

1.4 System Description

Please refer to the TRIOS® Safety and Setup Guide for instructions regarding assembly of TRIOS® IOS system and getting it started for the first time.

Please refer to the TRIOS® Safety and Setup Guide for a description of TRIOS® models.

3Shape TRIOS® module software is supported by Windows 7 or later with Microsoft .Net 4.6.

3Shape TRIOS® module installer is either factory installed on TRIOS® Cart or custom installed on a supported PC with attached Pod and scanner.

When you start TRIOS® module for the first time, the system runs automatic configuration of the graphics card to ensure optimum performance of automatically enabled, fast Insane scanning mode. During the optimization process, you may receive notification messages when particular settings need adjustment. The **Insane scanning mode** requires DirectX 11

or later and a Video card with at least 2GB of memory. An example of a notification message is shown on the image:
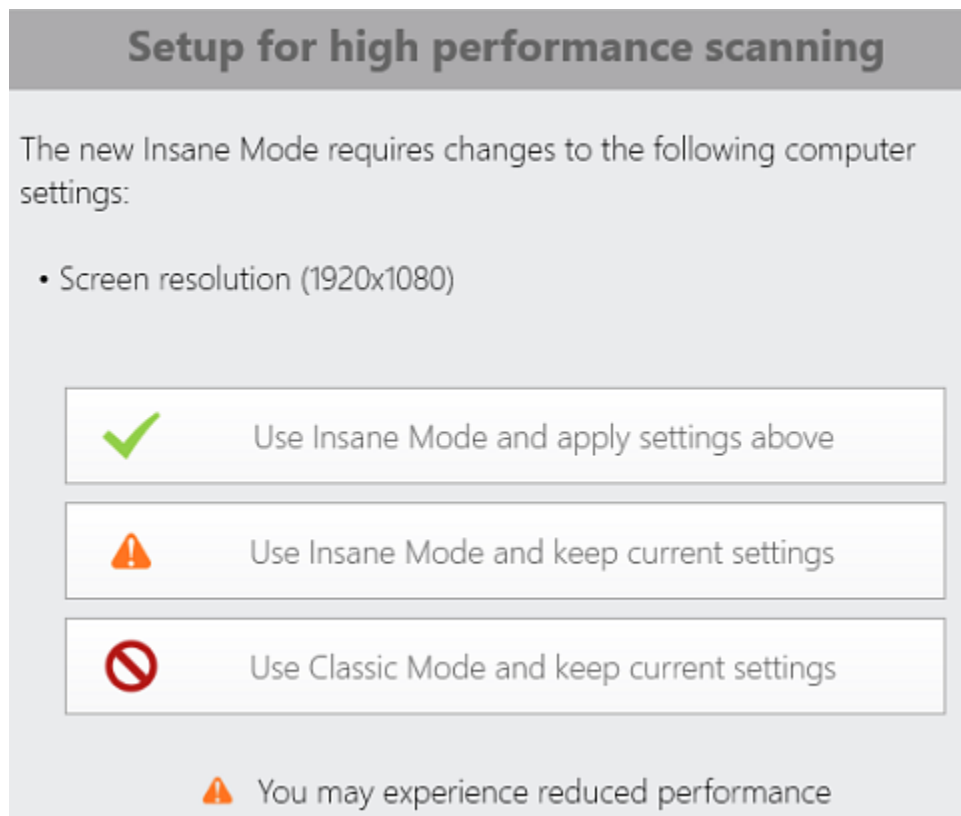
Depending on the selected option, you can be prompted to restart your TRIOS® system or log off from Windows.

The Insane scanning mode is enabled in Scan Settings by going to **More** > **Settings** > **TRIOS**® > **Scan settings**. **Classic mode** is used when the **Insane mode** is turned OFF.
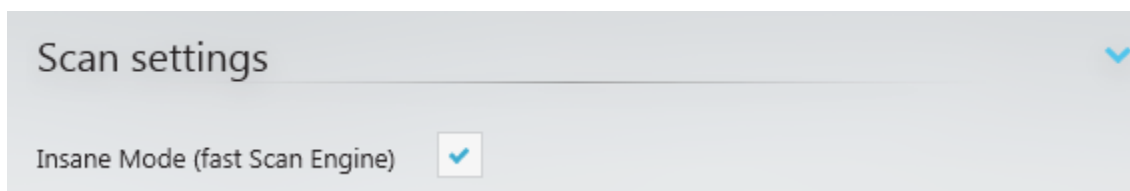
Not all PC settings for fast and accurate scanning can be optimized automatically, so the software will warn you if you try to turn ON the Insane scanning mode on unsupported PCs.
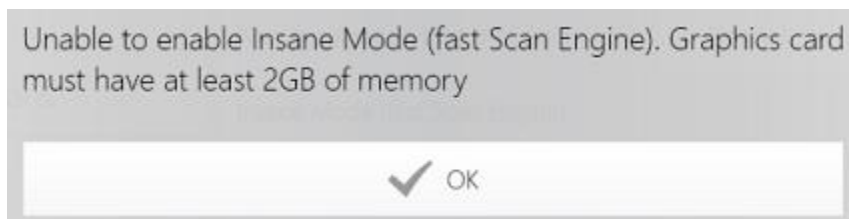
1.5 User Interface

The TRIOS® user interface consists of the following important parts:

(1) *Workflow bar*
(2) *3D view*
(3) *Navigation buttons*
(4) *Visualization tools*

WORKFLOW BAR

The **Workflow bar** appears at the top of the main 3D window and guides you through the main TRIOS® workflow steps:

1. **Scan lower jaw**   2. **Scan upper jaw**   3. **Scan bite**   4. **Analyze scan**

- A step is marked with a green tick when completed successfully ✓.
- A step appears disabled if the previous step has not been completed.
- The current step in the workflow is highlighted.

> **NOTE** Additional workflow steps become available for **Implant** and **Post and Core** selections in the Order Form.

VISUALIZATION TOOLS

A toolbar in the upper right corner of the 3D window offers the following options:

Information - Opens a help page for the particular operation.

Center - Centers the model and places it in a middle of the screen.

Surface - The button is used to toggle scan images ON and OFF. A color scanner will show colored images on the surface and the TRIOS 3 Mono will show black and white images on the surface. This button is not available for TRIOS® Standard scanner.

Margins - Toggles the visibility of the margin line. The button is available on the Analyze page when placing a margin line.

Shade - Used with shade enabled scanners. The quality of shade is marked during scanning to indicate particular areas requiring additional scanning for correct shade representation.

Shade disabled	*Shade enabled and areas requiring additional scanning are marked*

Annotations - Switches annotation ON/OFF.

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NOTIFICATIONS

Notifications may appear on the screen throughout the TRIOS® workflow. A few examples of notifications are license and order form updates, incomplete steps, connection status, insufficient scan data, and other.

Please read notification information carefully and follow the instructions.

ON-SCREEN KEYBOARD

For touch-screen monitors (e.g. for TRIOS® cart), you can use the on-screen keyboard for entering text. Press on the text field to call up the keyboard. Please note, that the **Auto show On-screen Keyboard** checkbox must be selected in **General** settings to allow the keyboard to appear when pressing on the text field. Please refer to the 3Shape Case Management user manual for the **General** settings description.
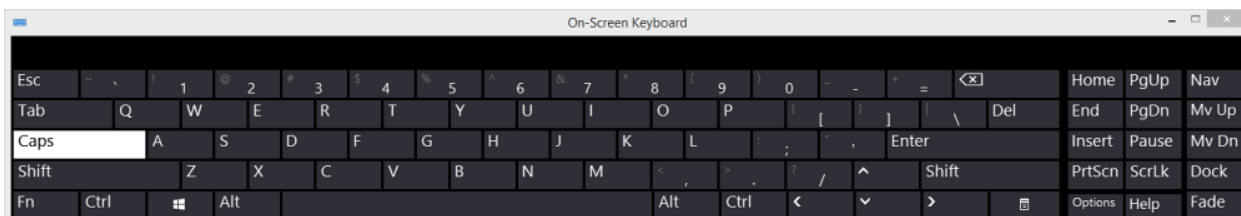
NAVIGATION PANEL

The **Navigation Panel** is accessed with a long press on the scanner button after completing scanning.

The **Navigation Panel** allows you to use the scanner as an input device to perform the following actions:

- **Back**: Moves to the previous step in the workflow bar.
- **Next**: Moves to the next step in the workflow bar.
- **Mark tooth**: Enables the scanner cursor to point at the place for marking.
- **Inspection mode**: Lets you rotate scans with the scanner for visual inspection.
- **HD Photo**: Lets you take and add high quality photos of the area of interest to your order.
- **Cancel**: Exits the Navigation Panel.
- **Caries Aid**: If the scanner you are using supports Caries Aid, you can perform additional Caries Aid scanning with this button.
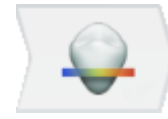
1.6 TRIOS® Workflow

TRIOS® workflow consists of the following steps, which are described in this help in details:

1. Create a case   **2. Scan a patient**   **3. Analyze a scan**
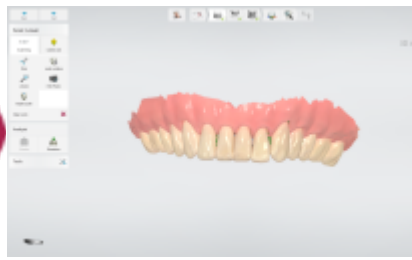
1.7 TRIOS® Battery Cart

TRIOS® Battery Cart comes with a rechargeable battery. The battery status is shown with an icon in the upper right corner of the application window as shown in the image below.

The remaining amount of the battery charge is displayed in percentage next to the battery icon, for example:

Normal - the battery icon stays **green** when the battery level is above 20%.
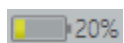
Low - the battery icon becomes **yellow** when the battery level drops to 20%. You are warned to charge the cart battery by connecting the cart to a power plug.

Very low - the battery icon becomes **red** when the battery level falls to 15%. You need to charge the cart battery as the cart is going to shut down soon. The corresponding warning appears on the screen and stays visible until you connect the cart to a power plug.
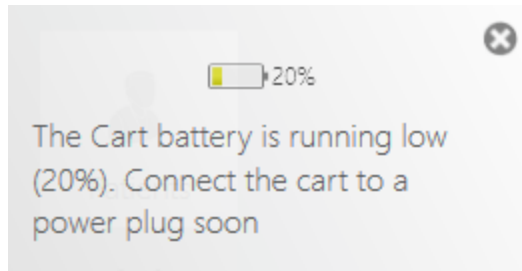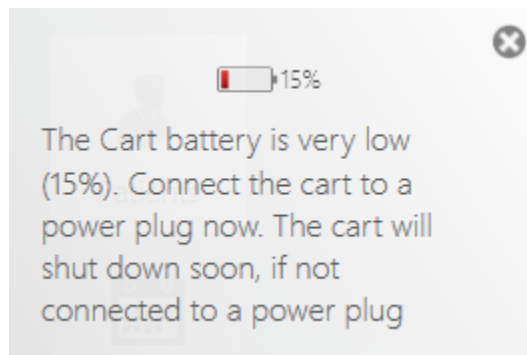

Critically low - when the battery level sinks to 10%, system warns you about shutting down shortly. You have 30 seconds to start charging the battery by connecting the cart to a power plug.
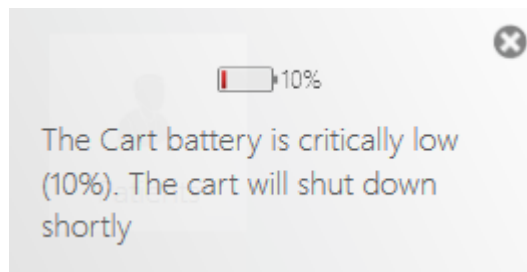
Charging - the cart battery is at normal charging state.

1.8 TRIOS® Wireless Scanner

Follow these steps to start working with a wireless scanner:

▶ **Step 1: Plug the provided USB wireless adapter into the TRIOS® computer** (for POD systems)

▶ **Step 2: Start the TRIOS® software**

▶ Step 3: Pair the wireless scanner with TRIOS®

Navigate to *More > Settings > TRIOS > Scanner Management* page to pair your wireless scanner with the TRIOS® computer.

Please see the [Scanner Management](#) section for detailed instructions on configuring and managing wireless scanner connections.

2 How To

This section helps you quickly find specific information on the following operating tasks:

Case setup

Preparation

Scanning

Analysis

Settings

Maintenance

3 Create a Case

You must create a case to be able to take a digital impression using TRIOS®.

▶ **Step 1: Open a new case form**

Please refer to the 3Shape Dental Desktop user manual for general description of the interface and case creation process.

▶ **Step 2: Fill in case details**

The number of steps in the Workflow bar depends on the case type selection for your TRIOS® order.

* Workflow bar

▶ **Step 3: Select case details for the restoration**

For In-house cases, choose the necessary teeth in the map and specify the job Type (Crown, Implant etc.).

You can **Delete all indications on a tooth** by selecting this tooth with a mouse and clicking the *Delete* button. To **Delete all indications on all teeth**, click the *Delete all* button.

Click **Next** to proceed to [scanning](#).

4 Heat and Mount Scanner Tip

For some cart systems, the scanner tip can be heated by the external heater, while for other systems the scanner tip is heated by the scanner itself using the heater inside the scanner tube.

▶ **Step 1: Warm up the scanner**

> **NOTE** Make sure the calibration tip is not attached to the scanner as the tip may become very warm.

The warming of the scanner depends on the TRIOS® model:

- **POD System**: Turn on the PC, start-up TRIOS® application software and attach a clean and sterile scanner tip. Allow about 5 minutes for the scanner-tube to fully warm up to prevent condensation on the scanner window during scanning.

- **Cart System**: Turn on the cart and attach a clean and sterile scanner tip. Allow about 5 minutes for the scanner-tube to fully warm up to prevent condensation on the scanner window during scanning.

> **NOTE** For systems having an internal heater, a progress bar on the screen shows you the process of heating. It is still possible but not recommended to start scanning before the heating ends.

▶ **Step 2: Prepare the patient for scanning**

Preparations for scanning in the mouth are no different from the preparations applied before taking a physical impression:

1. Dry the teeth lightly using compressed air. Be sure to reach the narrow regions between the teeth. Consider using a saliva ejector and/or cotton rolls.
2. Prepare the tooth as usual by using at least 1 gingival retraction cord to retract the gingiva (3Shape recommends using 2 cords).
3. Start by scanning the antagonist while the cord is retracting the gingiva around the preparation.
4. Extract the cord(s) just before scanning the preparation.
5. Scan the preparation(s).

▶ **Step 3: Create an order or open an existing order**

See Create a Case chapter for instructions on creating/opening orders.

▶ **Step 4: Select the scanning option**

1. Press *Next* or *Scan* in the Workflow bar to go to the scanning screen.
2. Select the button for the scan you require: upper jaw, lower jaw or occlusion.
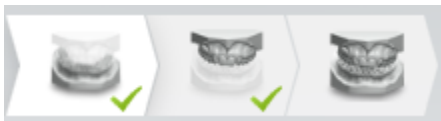
NOTE The scanning option can also contain buttons for scanning implants, post and core on upper and/or lower jaw(s) if a corresponding job type has been selected in the Order Form (see the images below):

Indication
Screw Retained Crown
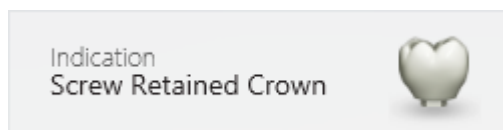
Screw Retained Crown selected in the Order Form

Scan lower/upper scanbody

Indication
Post And Core Standard
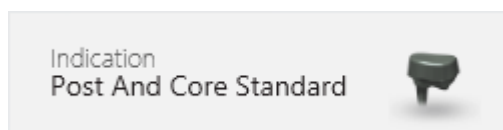
Post and Core selected in the Order Form

Scan lower/upper scanbody

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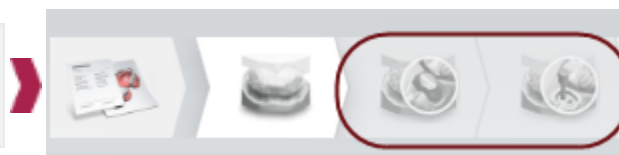
Step 5: Prepare your scanner

1. Warm up the scanner tip to avoid condensation.

2. Once the scanner tip is warmed up, you may need to change its position depending on the jaw you are about to scan:
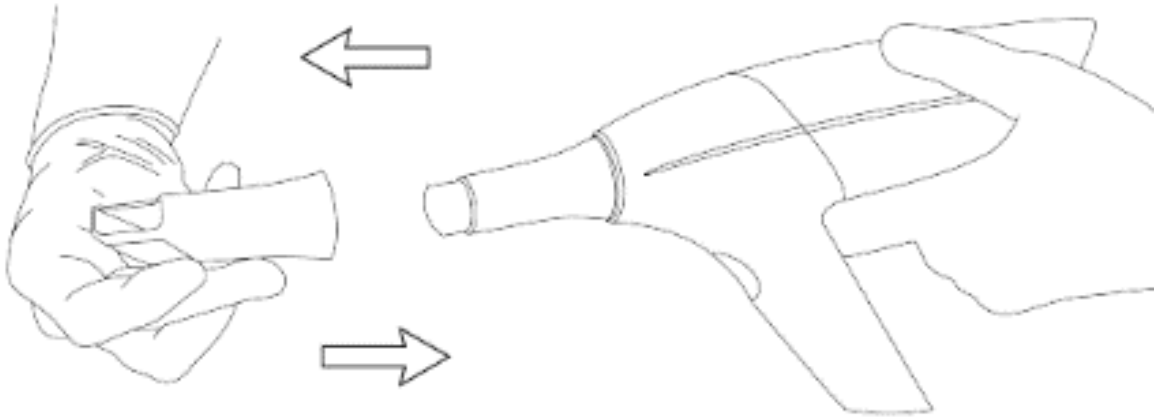
Scanning the upper jaw - Tip Mirror is facing up
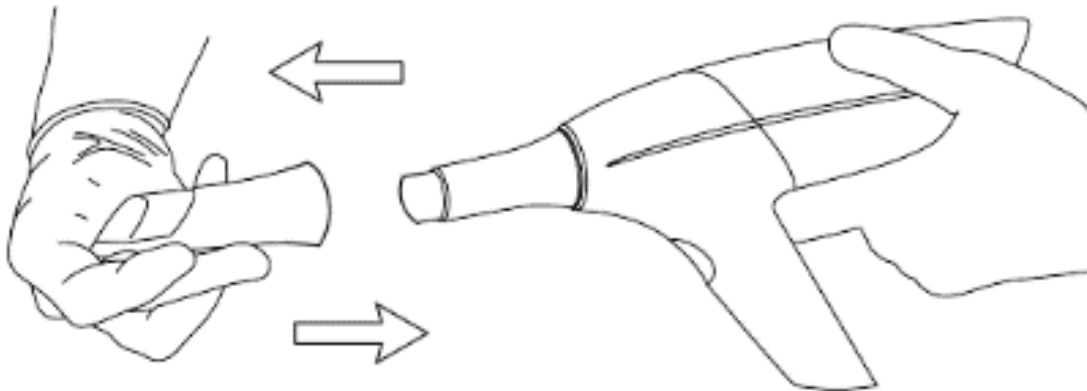
Scanning the lower jaw - Tip Mirror is facing down

Continue to the Scanning chapter.

5 Scanning and Tools

5.1 Scanning

5.1.1 Scan a Patient

Once the preparation steps have been completed, you can start scanning.
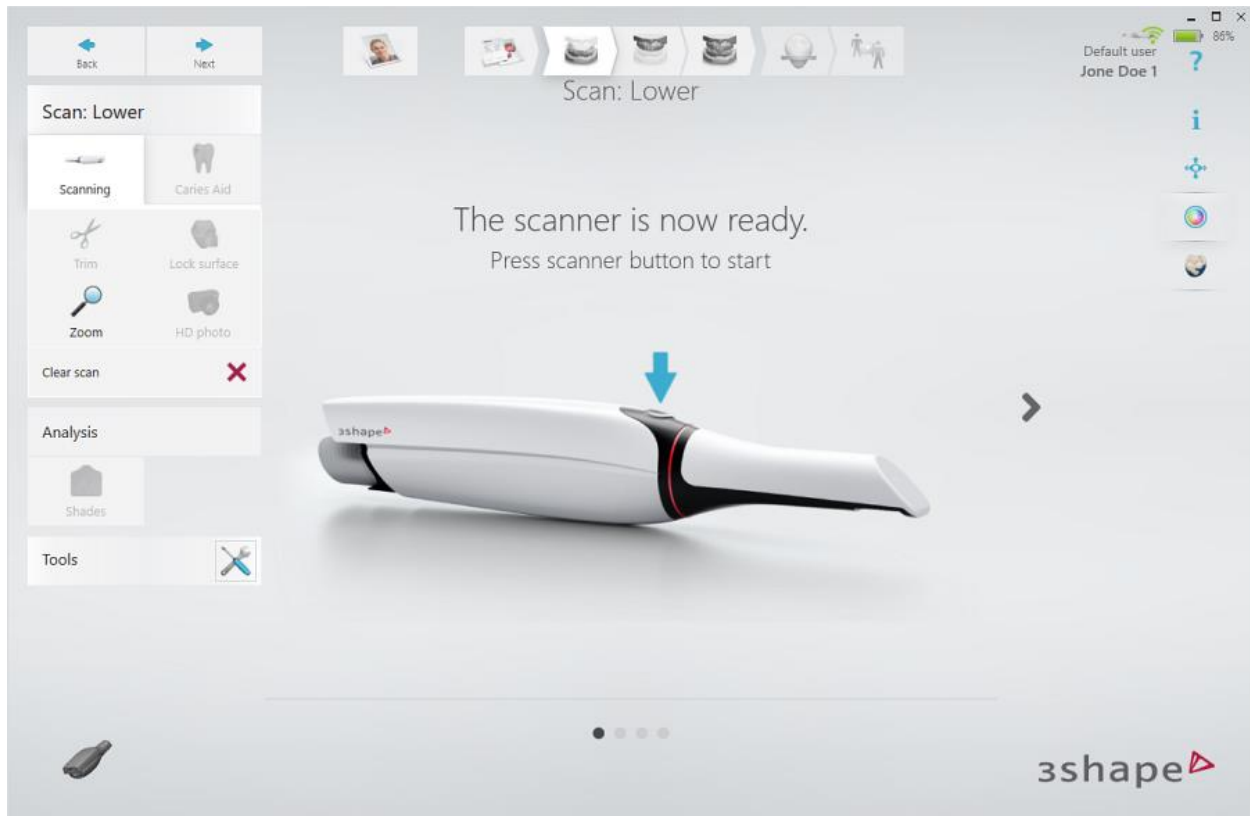
> **HINT** The scanning order may depend on the method you use to optimize capture of the margin line. For the cord retraction method, we recommend to start scanning the antagonist first while allowing time for gingival displacement of the prepared teeth.

▶ **Step 1: Start scanning**

Insert the scanner tip into the patient's mouth and point at the area to scan. Press the **Scan Activation** button on the scanner to initiate the scanning process.

A 3D model appears in the center of the window when the scanning process starts.

The colored frame outlines the scanner's field of view with the color indicating the current capture quality. When the frame is:

- **Green** - the capture is optimal.
- **Yellow** - the capture is less than optimal e.g., due to the scanner being moved too fast.
- **Red** - there is no capture at all.

The images below illustrate possible colors of the rectangle during scanning:

Black rectangle
Touch the screen to get a new starting view

Yellow rectangle
Warns you when the scanner is moved too fast.

Green rectangle
Scanning has resumed alignment

Red rectangle
The alignment is lost

HINT If you miss the alignment, roll back to the previous spot or move to the occlusal surface (molar). You can also press on the model during scanning. The view of the model will go to the best suited spot and indicate the direction you should continue from (the starting view).

NOTE Please see the View Scanning Strategies and Learn Tips to Obtaining a Good Scan for instructions.

▶ **Step 2: Complete scanning**

Gradually slide the scanner over the teeth you wish to scan following the scan paths shown in the View Scanning Strategies section. The tip can rest on the teeth to help with getting a more steady scanning. The scanning toolbar is described in the help chapter Use Scanning Tools.

The scanner in the 3D view indicates scanner's orientation.

HINT It is possible to stop scanning and then resume from where you have left. Simply press the **Scan Activation** button to continue the scanning process.

Ensure that the digital impression does not have critical holes.

NOTE When making color scans please avoid the light from the dentist chair lamp pointing directly into the patient's mouth, as this will affect the color quality.

▶ Step 3 (optional): Take an HD photo

You can add several high definition photos (HD Photos) of the scan model, for example, to supply the lab with visual appearance of the neighboring teeth or assist them with placing the margin line, etc.

To take HD photos, press the **HD Photo** button once the model is scanned. Start scanning and when the frame of the scanbox becomes green, press the **Scan Activation** button once to take a photo.

A scrolling thumbnail menu of the added HD Photos appears on the scan page, it shows a corresponding scan in the main window when a thumbnail is pressed.

The **Center** button in the selected thumbnail positions the direction of view to the one when the photo was taken, while the **Clear scan** button removes the photo.

> **NOTE** HD Photo feature only works for color and monochrome scanners that have a firmware version equal to or higher than revision 1.03.02, otherwise this option is disabled. Dental laboratory requires Dental System 2014 or later to be able see the HD photos in scans.

▶ Step 4: Mark teeth
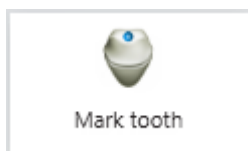
The **Mark tooth** button becomes available when scanning is complete. Click the **Mark tooth** button to open the menu, which shows the teeth that require marking. When one tooth is marked, the green tick appears on the corresponding button in the menu. Click **Done** to finish marking teeth.

Mark teeth using the scanner

You can set a tooth mark by performing a long-press and release of the scanner button during scanning. The mark is set at the center of the scan box area when you release the button. Additionally, it is also possible to mark the tooth via the Navigation Panel, which will enable a scanner cursor to point at the place to mark. The Navigation panel is accessed with a long-press after scanning.

▶ **Step 5: Scan antagonist**
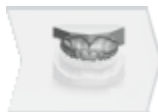
Continue by scanning the antagonist if required. The workflow is similar to the steps described above apart from making preparations.

► Step 6: Scan occlusion
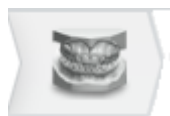
Scan the occlusion until the jaws automatically align themselves to the bite scan. Should the alignment not succeed then options are available to align automatically or manually. Please see the Align Occlusion chapter for details.
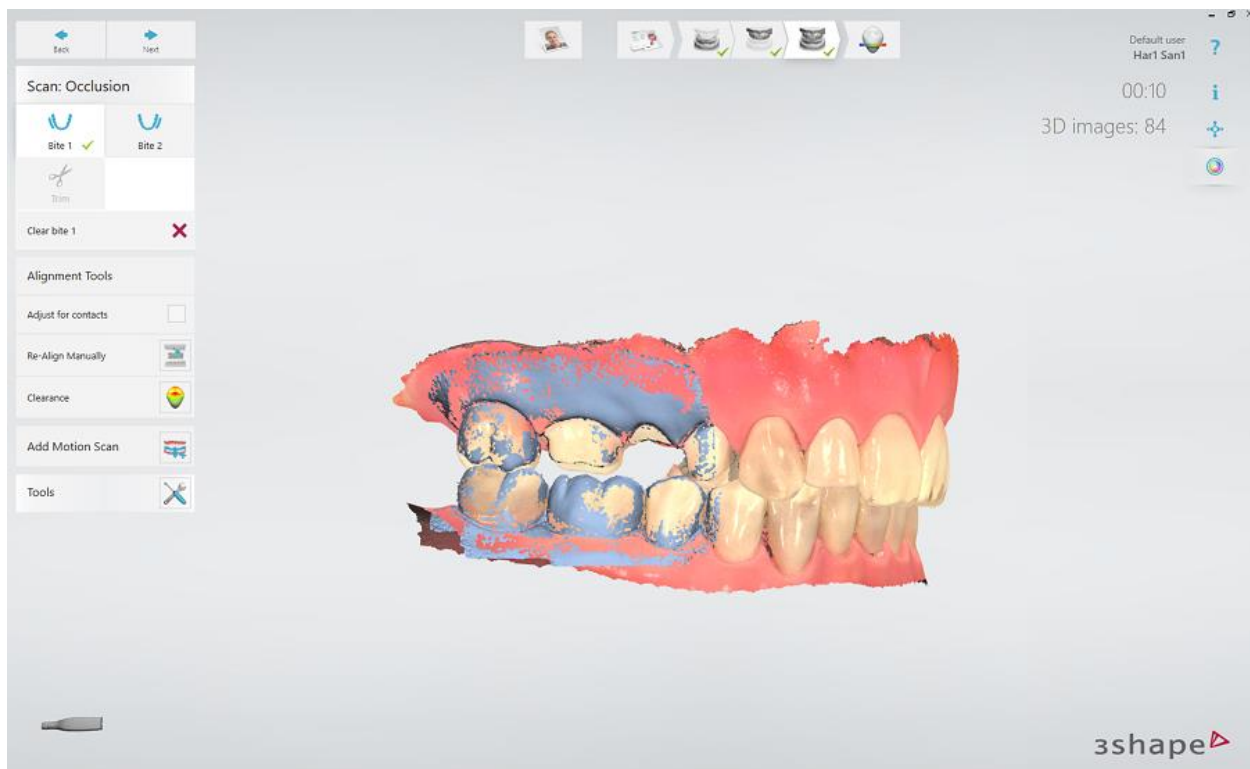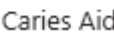
Please see information on Caries Aid Scanning in the next chapter if required.

Otherwise, click **Next** to proceed to the Analyze Scan step.

5.1.2 Caries Aid Scanning

If the scanner you are using supports caries aid, caries aid scan data is captured at the time when you perform the normal scan (described in the Scan a Patient section). If needed, you can perform additional scanning for caries aid as explained below.

You are shown **Caries Aid** Caries Aid button for caries aid scan on the left side of the screen.
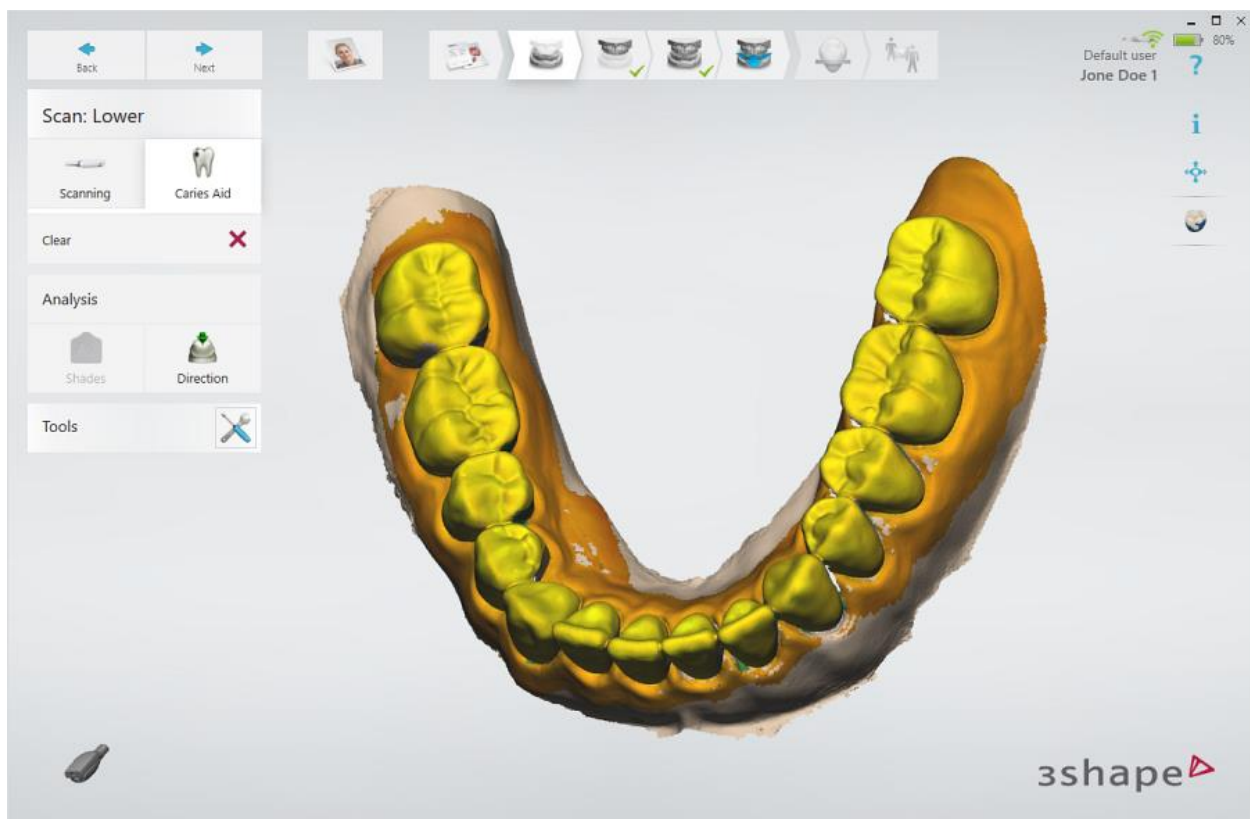
Turn ON caries aid scanning

Press the **Caries Aid** button, then the scanner button to start scanning. A caries aid overlay is build up while scanning the 3D model. Press the scanner button again to finish scanning.

> **NOTE** Caries aid is an extra texture overlay, it requires a regular scan to be performed first. When scanning with caries aid, the original texture on the 3D model is hidden under the new texture.

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Toggle caries aid overlay ON/OFF

Press the *Caries Aid* button to hide the secondary caries aid texture and show the original texture of the 3D model.
Press the *Caries Aid* button once again to show the secondary caries aid texture and hide the original texture of the 3D model.

Click *Next* to proceed to the Analyze Scan step.

5.2 Use Scanning Tools

General scanning tools are located on the left side of the screen.

A description of the toolbar buttons is given below:

Mark tooth - is used to mark prepared teeth for further post-processing once scanning is completed.
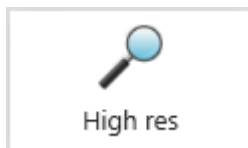
High resolution* - captures areas that are difficult to scan, with higher amount of details.

Follow these instructions to use the *High res* feature:

1. Scan with normal resolution.
2. Inspect the scan and determine where high resolution is required.
3. Set to *High res*. Note, that high resolution can only be applied to a region around a preparation mark
4. Re-scan the desired area.
5. Turn off *High res* if continued scanning is needed.

* High resolution scanning is not available when Insane scanning mode is enabled.
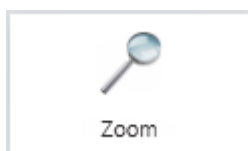
Zoom – available only for the Insane scanning mode, enables full scanning depth to look as deep as possible. In order to reduce the soft tissue capturing, the scanner is zoomed in while scanning.
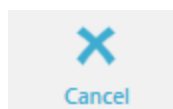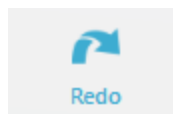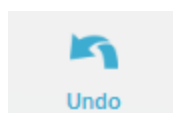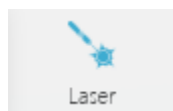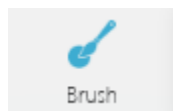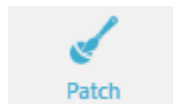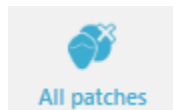
Lock surface - locks the selected area so that it is not updated by further scanning. Apply by painting the area you wish to lock. Use this feature to fix retracted gingiva after immediate scanning as it might collapse and possibly degrade the scan area otherwise. Locking does not affect trimming, you can still trim the locked surface. Deleted locked surface can be re-scanned.

HD Photo - lets you take and add high quality photos of the area of interest to your order.

Trim - provides the tools for cleaning and trimming the scan:

All patches - automatically removes all "islands" and "peninsulas" having slim attachment to the main surface, e.g. accidentally scanned fingers and the tongue.

Patch - manual removal of "island" surfaces. Remove a small area disconnected from the largest surface by tapping it once.

Brush 4, 2, 1 mm - selection of the trimming tool thickness. Removes the drawn, colored part of the scan.

Laser 4, 2, 1 mm - a laser like trimming tool, cuts all the way through the model. It is good for trimming off the soft tissue with overlapping surfaces, or cutting off a section that needs rescanning.

Undo - cancels the last action.

Redo - reverses the Undo action.

Cancel - closes the trimming tool without applying changes.
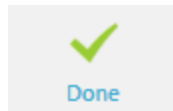
Done - accepts changes and closes the trimming tool.
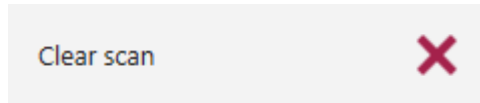
Clear scan - removes the whole scan.
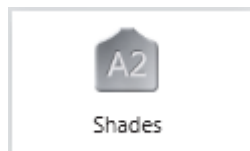
Shades - allows you to determine the color shade of teeth near the preparation as well as determine the stump color shade of the preparation, and send this information to the lab. Not available for TRIOS® 3 Mono and TRIOS® Standard scanners.
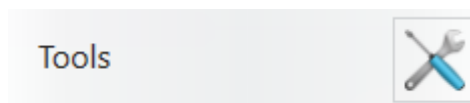
Tools - opens a menu with the following tools:
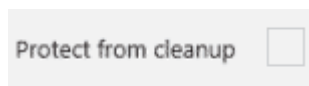
Protect from cleanup - locks the case so that the temporary recovery files are not deleted during the automatic cleaning. Please refer to section Automatic cleanup of the temporary recovery files for more details.
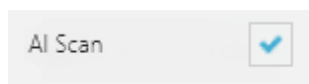
AI Scan - when enabled, intelligently distinguishes the teeth and surrounding gingiva from unwanted surfaces like tongue, cheek, fingers, dental mirror etc., and automatically removes them from the scan. The option can be turned ON and OFF during scanning by clicking the **AI Scan** button.
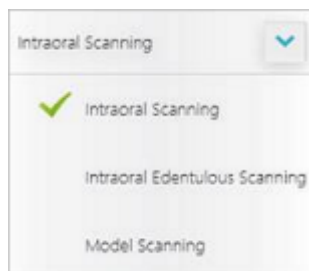
Scanning modes - a drop-down list available in all but Denture workflows that allows you to switch among the following scanning modes:

- **Intraoral Scanning** - is the default scanning mode used for normal scanning.
- **Intraoral Edentulous Scanning** - enhances the scanning of the intraoral edentulous cases.
- **Model Scanning** - enhances the scanning of the models.
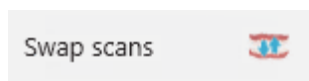
Swap scans - swaps upper and lower jaw scans. Requires user confirmation. This is useful if the operator accidentally scanned the wrong jaw.
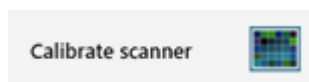
Calibrate scanner - adjusts the color recognition for a particular scanning tip for the scanner. Not

available for TRIOS® 3 Mono and TRIOS® Standard scanners.
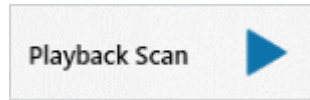
Playback Scan - plays back the scanning process with the options to Pause and Rewind for reviewing purposes.

5.3 Align Occlusion

There are two alignment methods - Live and Manual.

LIVE ALIGNMENT

TRIOS® shows the process of alignment in real time during scanning of the occlusion by snapping the jaw scans onto the bite scan when they are detected. When both scans have snapped, you can stop scanning.
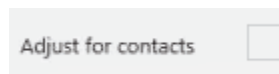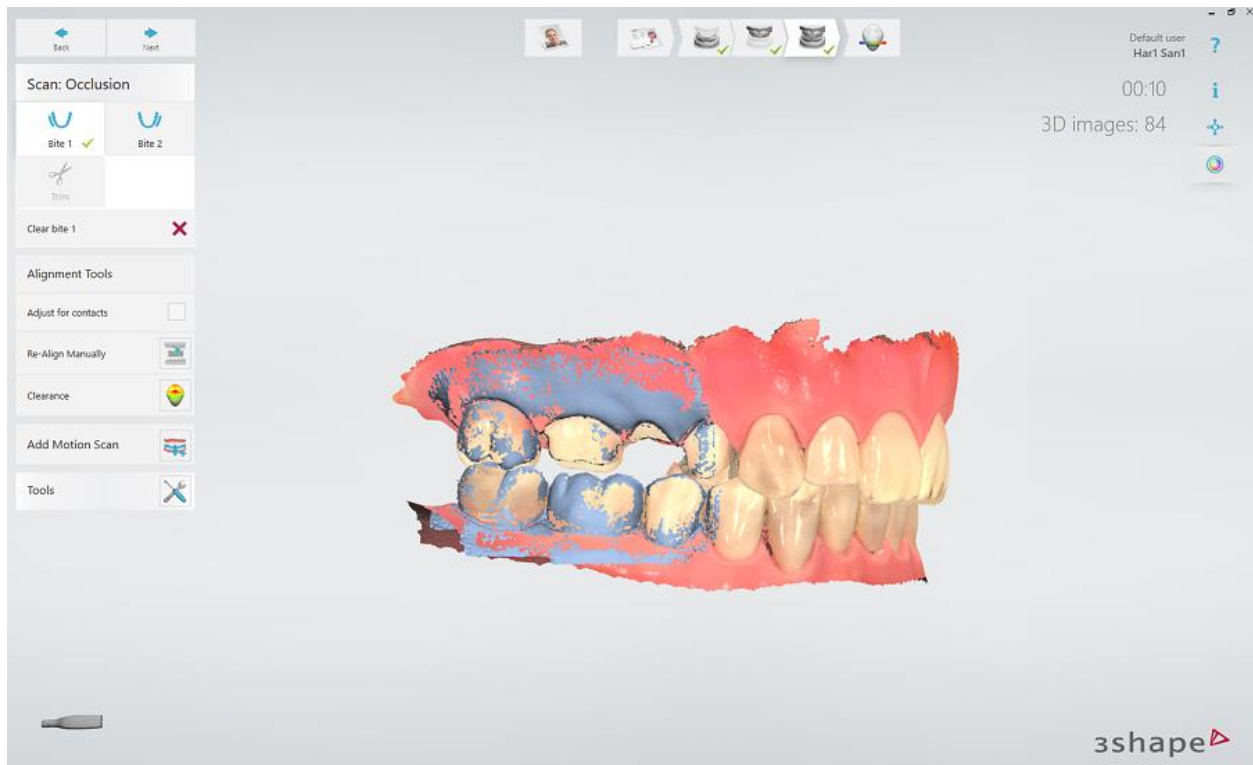
Adjust for contacts - minimizes bite intersections/penetrations. The option is run automatically each time at the occlusion alignment step if enabled in TRIOS® settings. You still have the option to toggle the

state of the **Adjust for contacts** button in the alignment step to run the operation manually.
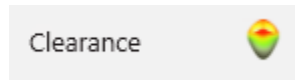
Clearance - analyzes the distance between preparation and antagonist. You can also find the Clearance option on the Analyze Scan page.
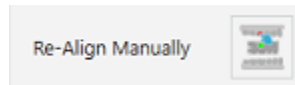
Re-Align Manually - cancels the aligned bite and opens the alignment wizard to guide you to manually re-align the scans.

Bite 1 - Always required: For quadrants, Bite 1 is the only bite scan required. For full arches, it is one of the two bite scans required.

Bite 2 - Only required if scanning full arches. Must be the opposite side to Bite 1.

MANUAL ALIGNMENT

After the bite is scanned, if Live alignment did not succeed or if the alignment is reset or if you want to re-align the bite, then the software guides you, using an alignment wizard, with a few steps to manually align the lower/upper jaws and occlusion scans:

▶ Step 1: Align lower jaw

Follow the instructions on the screen to place marker points on the lower jaw and occlusion scan. Alignment is processed on placing the last marker point.
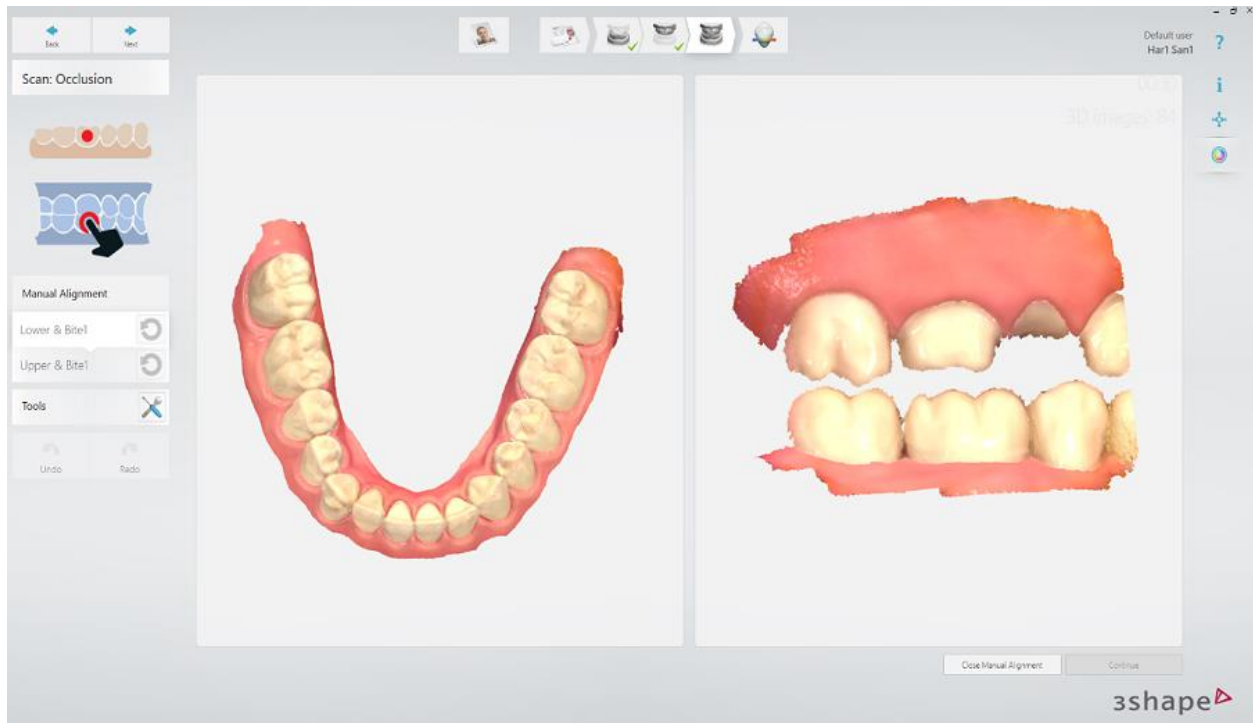
You can press the **Re-alignment** button if you want to re-align, otherwise, press **Continue** to proceed to the upper jaw.

▶ **Step 2: Align upper jaw**

Place marker points on the upper jaw and occlusion scan. Alignment is processed on placing the last marker point.

▶ **Step 3: Complete alignment**

Press **Accept Manual Alignment** to close the manual alignment wizard.

Click **Next** to proceed to the Analyze page.

5.4 Patient Specific Motion

After a static bite registration, you can record patient's jaw movements with the Patient Specific Motion tool.

To go to the Patient Specific Motion screen, press the Patient Specific Motion button in the Workflow bar.

The jaw and teeth area recorded with Patient Specific Motion must be the same as the area captured in the bite scan. Upon entering the Patient Specific Motion screen, this area is highlighted in blue.

SCAN PATIENT SPECIFIC MOTION

▶ **Step 1: Instruct the patient**

Instruct the patient how to grind the teeth in order to record the motion. It is recommended to show the sequence of jaw movements on yourself and to do the motion slowly.

A suggested sequence to tell the patient can be:

1. Bite down normally, not too hard.

2. Move your jaw to the right and back, and then to the left. Make sure the teeth touch each other all the time.

3. Go back to the normal bite, and move the jaw forwards so that the lower teeth just go beyond the upper teeth.

4. Return to the normal bite and move the jaw backwards.

5. During scanning, listen to the sound. If the sound stops, we will need to go back to the previous jaw position before continue.

▶ **Step 2: Perform scanning**

1. Insert the scanner tip into the patient's mouth at the buccal side of the teeth and ask the patient to bite down. To capture the motion, make sure the scanner points at the occlusal area and covers the lower and upper teeth equally.

2. Start scanning. The scanner captures the motion as long as the scan area is highlighted in **green**. If the scan area is highlighted in **red**, the motion is no longer captured. Ask the patient to slowly return to the previous position, which is shown on the screen, to resume scanning from where is was stopped.

The motion is being captured   *The motion capture is stopped*

NOTE Look at the live preview to better place the scanner into the direction of the occlusal area. Try to keep the scanner as stationary as possible.

CONTACT AREAS

After the motion has been captured, you can see two types of contact areas on the scan:

- The **blue** contact areas – detected during the regular bite registration.
- The **red** contact areas – detected during the motion capture and shown as they progress, meaning that the size and number of contact areas increase from the beginning to the end of the articulation.
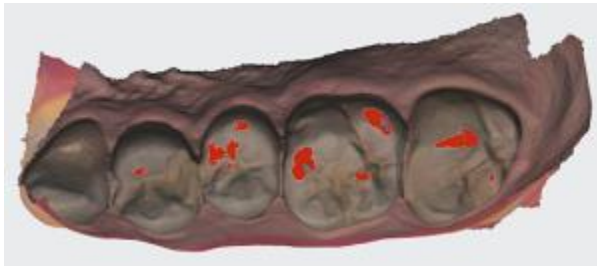
Contact areas at the beginning of articulation   *Contact areas at the end of articulation*
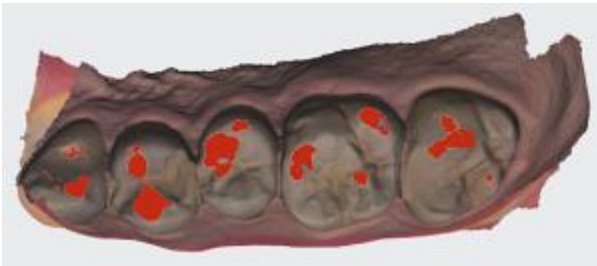
The following image shows the contact areas in the opened view:
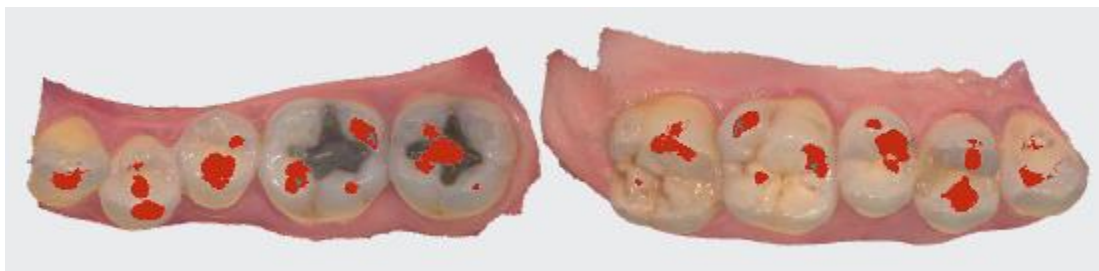
You can change the contact distance for Patient Specific Motion in the Scan Settings.

5.5 Learn Tips on Obtaining a Good Scan

PREPARATION

1. **Turn on the cart or PC in advance to allow the system to heat up**. See section Heat and Mount Scanner Tip, Step 1. Allow the system to warm up for about 5 minutes prior to use. If the cart has a heater, the final temperature is reached when the light goes out.
2. **Retract the gingiva around the preparation** by using retraction cord(s) for the margin line to stand out clearly.
3. **Make sure the scanner tip is warm to avoid condensation on the mirror**. See section Heat and Mount Scanner Tip, Step 5.

SCANNING

1. **Dry the teeth lightly** using compressed air. Be sure to reach the narrow regions between teeth. Consider using a saliva ejector and/or cotton rolls.
2. **Get a good start**:

   - Start at preparation (or 1st molar if antagonist).
   - Wait for about 5 scanner "clicks" before proceeding (helps build up a good starting point).
   - Complete preparation including the margin line.

- Scan neighboring teeth: Occlusion, lingual/palatinal side, buccal/labial side, mesial and distal sides for contact points.

3. **Keep scanner head at 0-5mm from the teeth**. Preferably, touch the teeth with the scanner for a better result.
4. **Move the scanner slowly and smoothly**, you should hear a more rapid clicking sound.
5. **Keep lips, cheeks, and tongue out of the scanner's view**:

   - Use your finger or a dental mirror to create space between the teeth, lips and cheeks.
   - Use a lip-and-cheek-retractor to keep lips and cheeks away.
   - Be careful not to scan your own or assistant's fingers.
   - If you get lips, cheeks or tongue in the scan, make sure to trim it all, especially where they have contact with the teeth (no surfaces should stick out from the teeth).

6. **Focus on**:

   - Option 1 - Look at the teeth while scanning and listen to the "clicks". If it stops clicking/capturing, carefully move back to the last scanned area.
   - Option 2 - Look at the 2D image at the lower right corner. What you see here is what you scan. Avoid lips, cheeks and the tongue to get an easy scan.

7. **When scanning is complete, inspect the result by rotating the scan.** The important areas are:

   - Margin line (avoid interference from gingiva, saliva, blood).
   - Contact points.
   - Occlusal surfaces.
   - If an important area is missing, simply start scanning the area until the scanner detects the location and the clicking/capturing begins. You can optionally touch the area on the model to get a new starting position if the scanner doesn't automatically detect the area.

8. **Bite Scan**:

   - Place the scanner tip pressed against the cheek and ask the patient to bite down.
   - Start scanning from the second molar or canine if you make an anterior scan.
   - Scan 4 teeth in mesial direction for optimal alignment.
   - Scan e.g., mainly lower jaw first by covering gingiva and teeth. When the scan automatically aligns into place, move the scanner up to upper jaw teeth and gingiva until it also aligns.

9. **Important for good colors**:

   - Avoid the light from the dentist chair lamp pointing directly into the patient's mouth.
   - Scan at several angles to even out any discoloration or shadows.

5.6 View Scanning Strategies

BASIC PREPARATIONS FOR EASY SCANNING

Follow the steps from section [Learn Tips on Obtaining a Good Scan, PREPARATION](#) to prepare for easy scanning.

SCANNING APPROACH

The best scanning method is to start with a molar, since it has greater details for easier identification. Change the scanning angle to 35-55 degrees during scanning to allow the surfaces to overlap, if the overlap is small, the alignment may be lost.
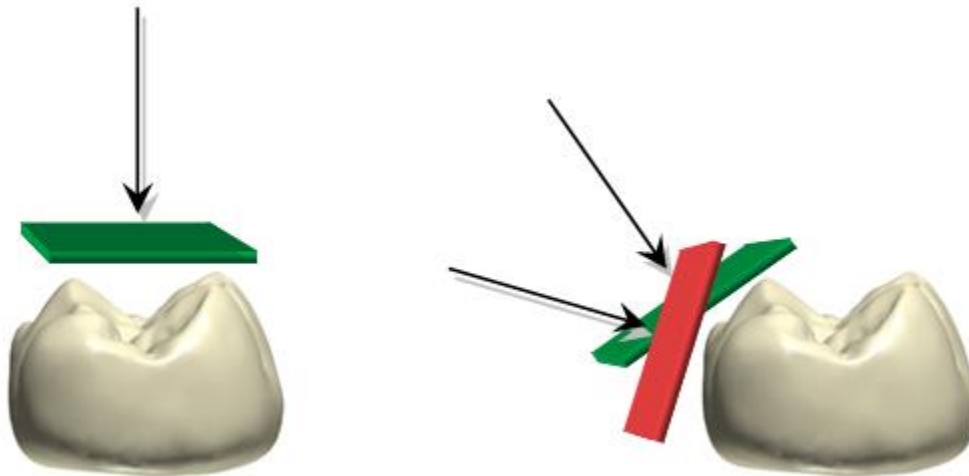
SCANNING PATH

The recommended scanning path consisting of 3 sweeps: occlusal, lingual and buccal to ensure good data coverage of all surfaces.

The occlusal sweep always comes first as it has most of the 3D structure, which makes scanning easier. The first sweep should be started at the first molar (if antagonist) or the preparation (to scan gingiva before it collapses from the retraction). Allow the scanner to get a good 'starting point' by waiting for 3-5 clicks before moving the scanner steadily and slowly 0-5mm above the teeth.

While scanning, the biggest challenge is to control the soft tissue, such as the tongue, lips and cheeks as they may confuse the scanner if getting into its view and potentially slow down or even stop the scanning process. Therefore, the easiest second sweep depends on the jaw:

- The upper jaw has only the soft tissue on one side (buccal) therefore, the second sweep should be buccal as this pushes the soft tissue away and creates a clear view for the scanner.

- The lower jaw is more challenging because of the tongue. The cheek can easily be retracted using a finger or a mirror. Therefore, the second sweep is lingual, pushing the tongue away.

- The third sweep covers the opposite side of the second sweep. Again, try to avoid soft tissue. Because the scanner has already been on the other side of the teeth during the

sweep two, the system uses the obtained data to avoid adding soft tissue to the scanned teeth.

The recommended scan paths are summarized.

General Principles:

Upper jaw	Lower jaw
1. Occlusion	1. Occlusion
2. Buccal - There is no soft tissue in the way.	2. Lingual - the tongue is the most moving soft tissue (compared to the cheek). The cheek is easily retracted.
3. Palatal - As the scanner has already been on the other side of the teeth during the step two, the system uses the obtained data to avoid adding soft tissue to the scanned teeth.	3. Buccal - As the scanner has already been on the other side of the teeth during the step two, the system uses the obtained data to avoid adding soft tissue to the scanned teeth.

If a scanned jaw has a preparation - start with the preparation, then follow the steps described above.

Centrals

When scanning the first sweep of centrals, it is important to cover both, lingual and labial sides of the teeth. The easiest method is to slowly wiggle the scanner tip between the labial and lingual sides.

The centrals require more attention than molars. Therefore, the scanner tip should move a little slower in that region.

Posterior quadrant

The general principles are applied in the following 2 examples:

Example I: Lower quad, antagonist
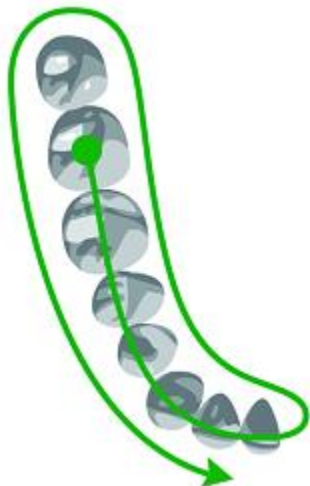
▶ **Step 1:** Antagonist: Start directly on the occlusion (the first molar), then sweep along the occlusion.

▶ **Step 2:** Lower jaw: Roll 45-90 degrees to the lingual side and sweep to the second molar. Use the tip to keep the tongue away.

▶ **Step 3:** Roll to the buccal side and complete the buccal sweep.

Example II: Upper quad, with preparation
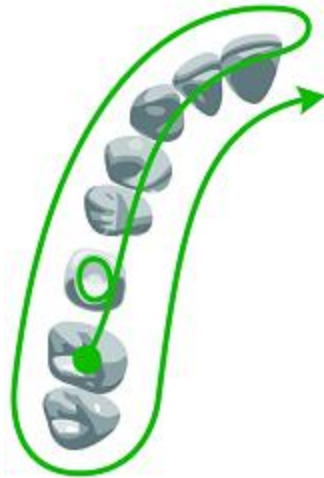
Step 1: Start with the preparation:

- Go to the occlusal side of the preparation.
- Roll to the palatal side.
- Roll to the buccal side.
- Rotate almost 90 degrees to get the best angle for the distal and mesial contact points.
- Rotate back to the occlusal.

Step 2: Swipe along the occlusion.

Step 3: Upper jaw: Roll 45-90 degrees to the buccal side and complete the buccal sweep.

Step 4: Roll to the palatal side and complete the sweep.

Full arch

The general principles are applied in the following 2 examples:

Example I: Lower full arch, antagonist

Step 1: Antagonist: Start directly on the occlusion (first molar), then sweep along the occlusion. Slowly wiggle the scanner when passing the centrals.

Step 2: Lower jaw: Roll 45-90 degrees to the lingual side and sweep to the second molar. Use the tip to keep the tongue away.

Step 3: Roll to the buccal side and complete the buccal sweep.

Example II: Upper full arch, with preparation

Start with the preparation:

▶ **Step 1:** Go to the occlusal side of the preparation.

- Roll to the palatal side.
- Roll to the buccal side.
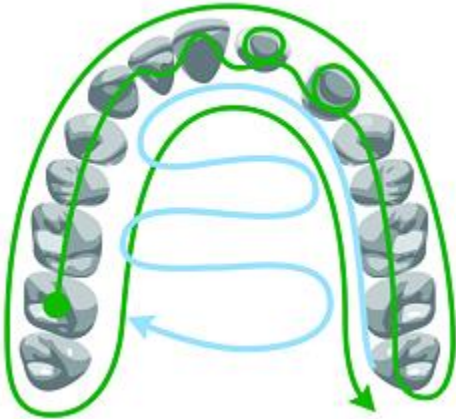- Rotate almost 90 degrees to get the best angle for the distal and mesial contact points.
- Rotate back to the occlusal.

▶ **Step 2:** Swipe along the occlusion.

▶ **Step 3:** Upper jaw: Roll 45-90 degrees to the buccal side and complete the buccal sweep on one side of the preparation.

▶ **Step 4:** Roll to the palatal side and complete sweep.

▶ **Step 5:** Complete scanning on the other side of the preparation by performing the occlusal sweep first.

▶ **Step 6:** Perform the buccal sweep.

▶ **Step 7:** Perform the palatal sweep.

Especially important regions

In order for the lab to be able to make a good restoration, it is especially important to have a good scanning quality of the functional surfaces:

- The margin line must stand out clearly. Observe that the gingiva is retracted and saliva and blood are removed using compressed air.
  Adjust the margin line at the Analyze scan page if required.

- Contact points. If there are non-scanned areas near the contact points, a warning will appear in the upper left corner of the screen. Press the message for the model to display the areas in question. Contact points on a molar may be difficult to reach, try going across the mouth/over the tongue and tilt the scanner tip.

- Occlusal surfaces.

Bite Scan

▶ **Step 1:** Insert the scanner tip into the patient's mouth at the buccal side of the teeth and rotate it to scan the side of the teeth. Start from the second molar or canine if you make an anterior scan, then close patient's mouth.

▶ **Step 2:** While centering 2D image on occlusion plane, slowly move the scanner tip in mesial direction with equal coverage of upper and lower teeth.

▶ **Step 3:** Scan 4 teeth for optimal alignment (no more/no less).

Situations with more preparations

In cases of multiple preparations focus must be put on scanning the preparations before the gingiva collapses. If preparations are closely positioned, they may be scanned in one go. If preparations are further apart, the retraction agent can be removed from 2-3 teeth at a time, having these areas scanned before moving to the next region and repeating the procedure.

5.7 Intraoral Camera

You can use 3Shape handheld scanners as an intraoral camera in order to take HD Photos and/or HD Videos of the patient's mouth.
The feature is accessible from the workflow bar of the TRIOS® module and must be explicitly enabled during creation of a new case.
If the intraoral camera is set ON, additional step appears in workflow bar between the Analyze and Communicate steps.
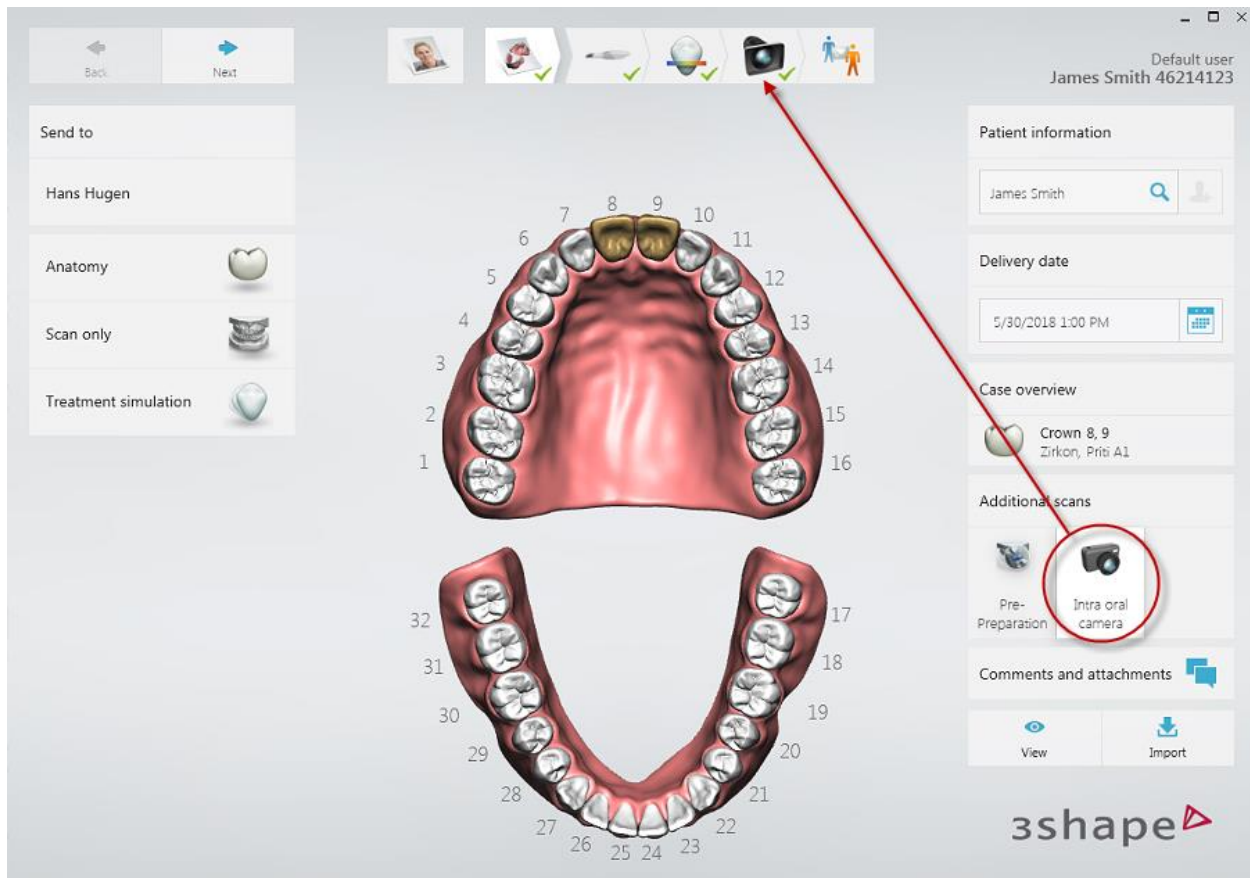
A guide on how to use the feature appears on the screen when entering the intraoral camera step.
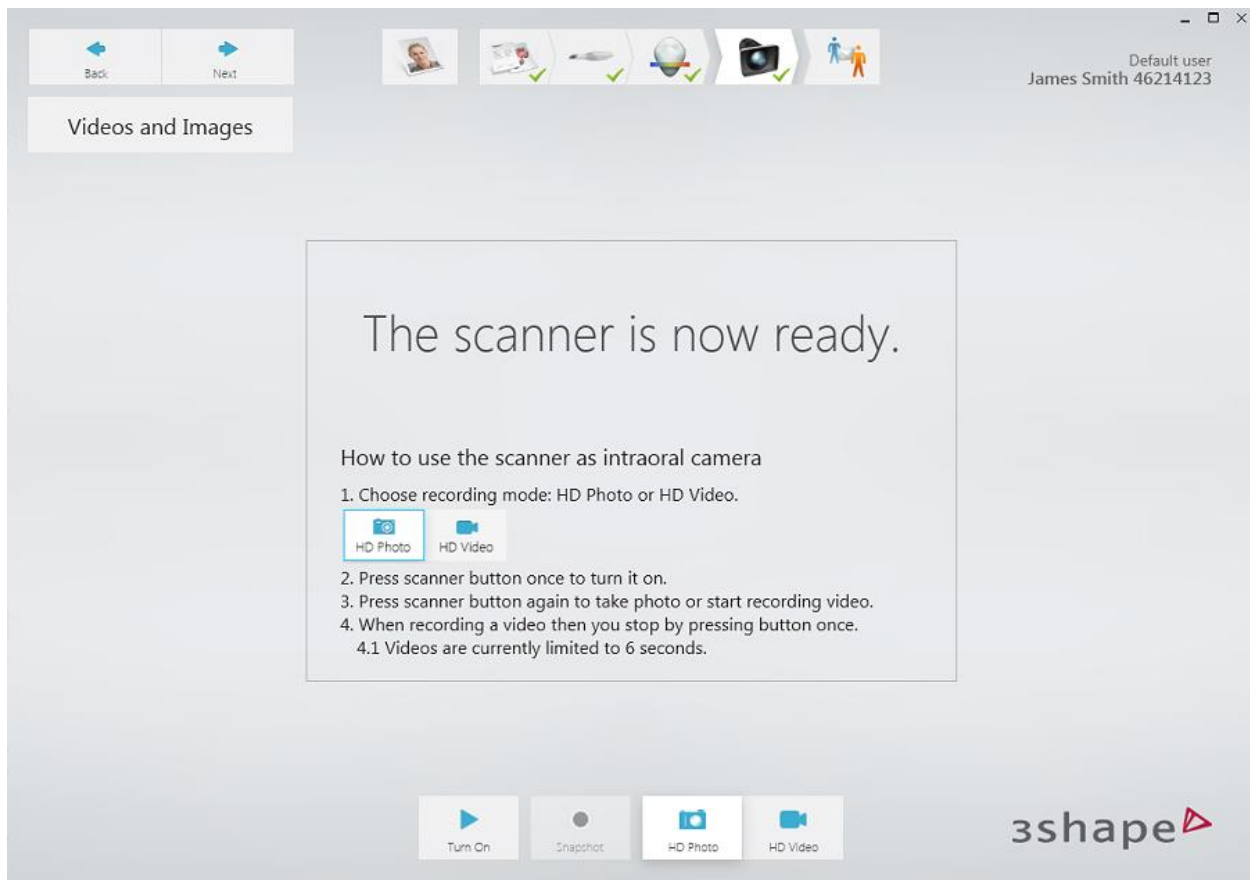
You can switch between **HD Photo** and **HD Video** recording modes using the control buttons.

HD Photos

The mode lets you create HD photos of an area. When the scanner is turned ON or the turn ON button is pressed, a pop-up window with the area preview appears on the screen. On pressing the scanner button, or clicking the **Snapshot** button a picture is taken in HD format and saved in the corresponding case folder.

HD Videos

The mode lets you record HD videos. The maximum length of a video is specified in <u>TRIOS®</u> <u>scan settings</u>, with the default being 10 seconds. Recording is initiated and saved the same way as for HD Photos.

Recorded photos and videos are attached to the case, they appear in a list of thumbnails and can be viewed from there.
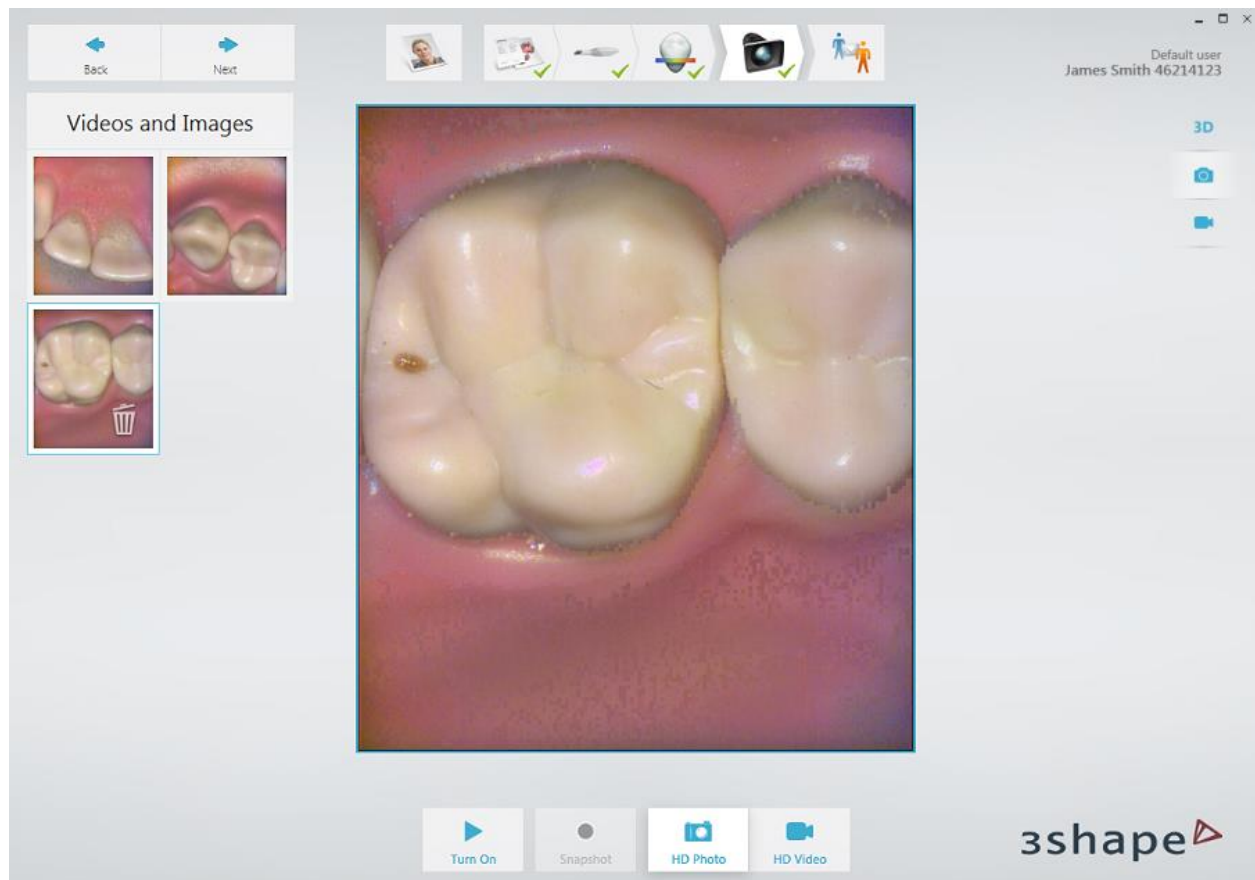
Previews of your Photos and Videos can be seen in a number of places of the software, including the Case and Send pages:
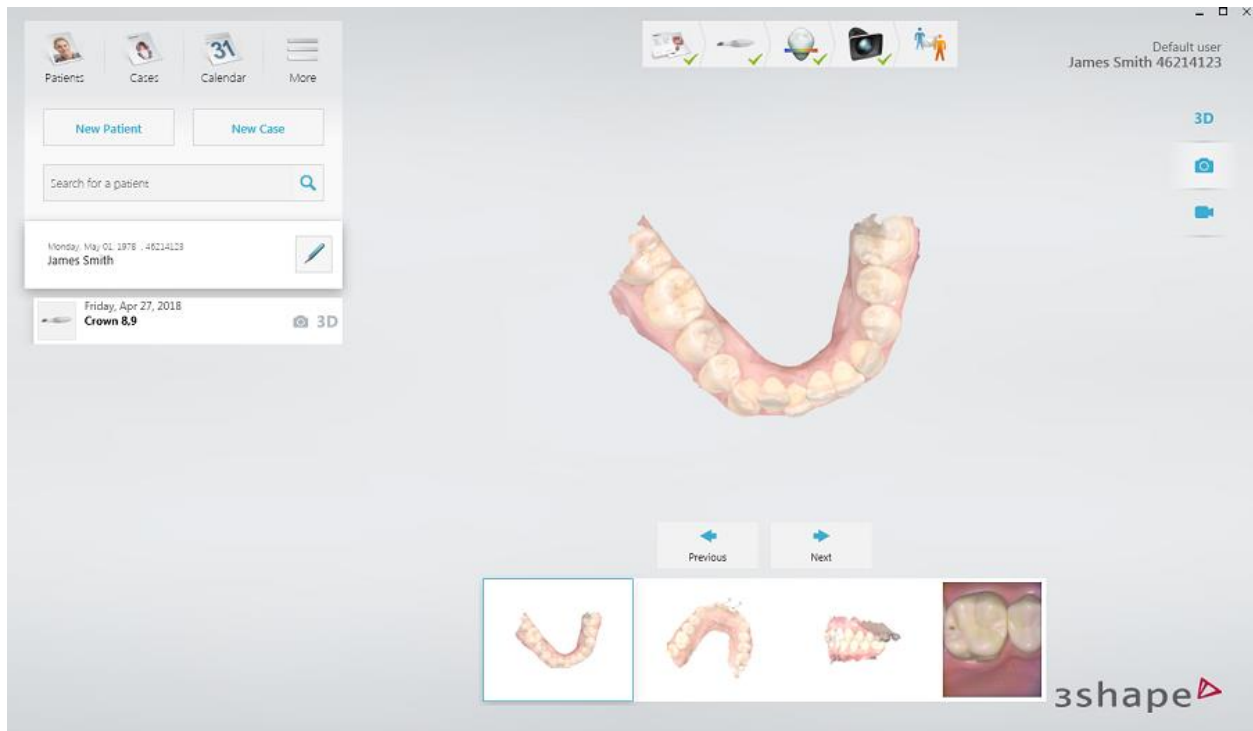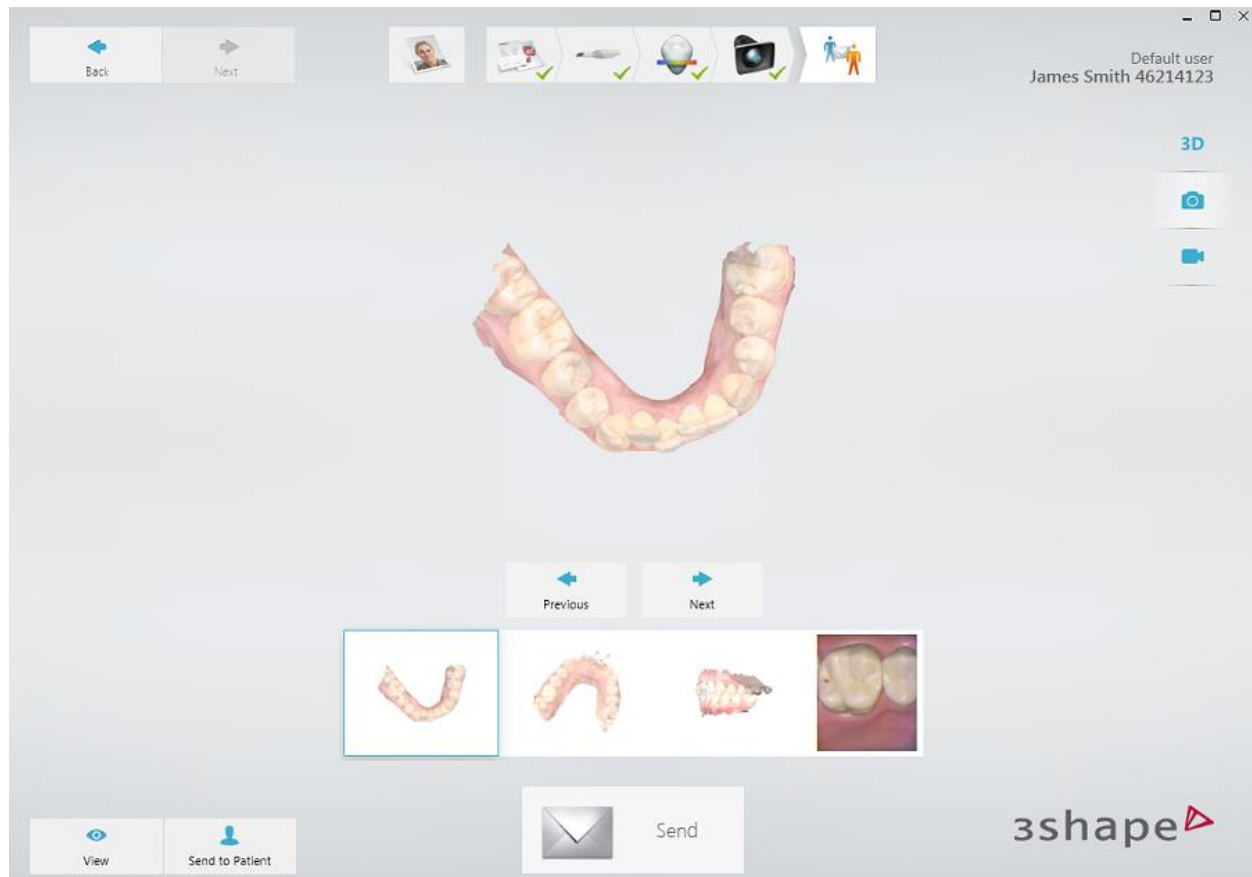
5.8 Scan Specific Cases

5.8.1 Scan One or More Preparations

Dentist should perform the following operations when scanning preparations:

▶ **Step 1:** Prepare patient's teeth.

▶ **Step 2:** Retract the gingiva around the preparation for the preparation lines to stand out clearly by using at least 1 gingival retraction cord to retract the gingiva (3Shape recommends using 2 cords).

▶ **Step 3:** Dry the teeth lightly using compressed air. Be sure to reach the narrow regions between teeth. Consider using saliva ejector and/or cotton rolls.

▶ **Step 4:** Scan preparation and the rest of preparation jaw. Scan antagonist and bite (two bites for full arch cases).

▶ **Step 5:** Send your preparation order to the lab.

5.8.2 Make a Pre-Preparation Scan

An order can include a pre-preparation scan as a reference when designing the new restoration, so that the new and the old tooth look alike. Pre-preparation scans are allowed for all restorations except Post and Core, and Abutments.

Follow the steps below when performing a pre-preparation scan:

▶ **Step 1:** In the order form, press the ***Pre-Preparation*** button in the lower right corner of the window. You can do this before or after marking the tooth to be restored and selecting the indication type.

▶ **Step 2:** Proceed to the Scan page.

▶ **Step 3:** Select the pre-preparation scan page (already selected if restoration is in lower jaw).

▶ **Step 4:** Scan the required area.

▶ **Step 5:** Mark the center/top of the tooth using the Mark tooth tool.

▶ **Step 6:** Go to the preparation scan page.

▶ **Step 7:** The marked area is now auto deleted, and the rest is locked to avoid unwanted changes to the scan.

▶ **Step 8:** Finish your preparation and begin scanning until the deleted area is filled out again.

5.8.3 Make an Implant Scan

There are different scenarios for scanning implants:

- Implant Case with Emergence Profile scan

- Standard Implant Case without Emergence Profile

- Implant Case with Pre-Preparation scan

- Implant Case with Pre-Preparation and Emergence Profile scans

5.8.3.1 Implant Case with Emergence Profile scan

Use this scenario when the emergence profile is required for optimized fit and esthetic qualities of the customized abutment and final restoration.

▶ **Step 1: Create a new case**

Create a new case and select **Abutment** or **Screwretained Crown** as the restoration type:
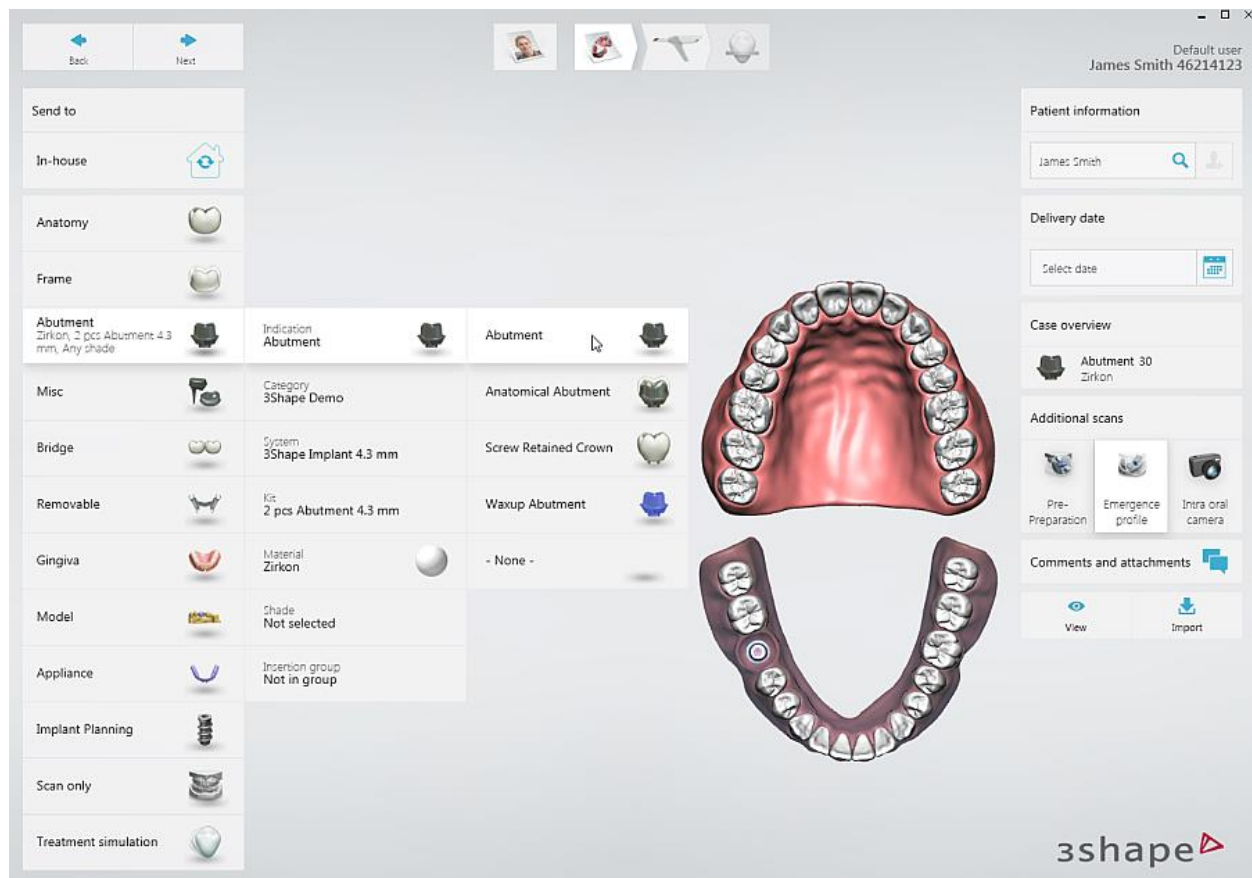
▶ **Step 2: Go to the Scan page**

Since the *Emergence profile* button **(1)** is enabled automatically, go directly to the Scan page by pressing *Next* **(2)** or *Scan Page* **(3)** in the Workflow bar.

Emergence profile scan enabled

▶ **Step 3: Go to the implant scan page**

Press the *Lower*

or **Upper** arch button depending on whether an implant is on the upper or lower jaw.

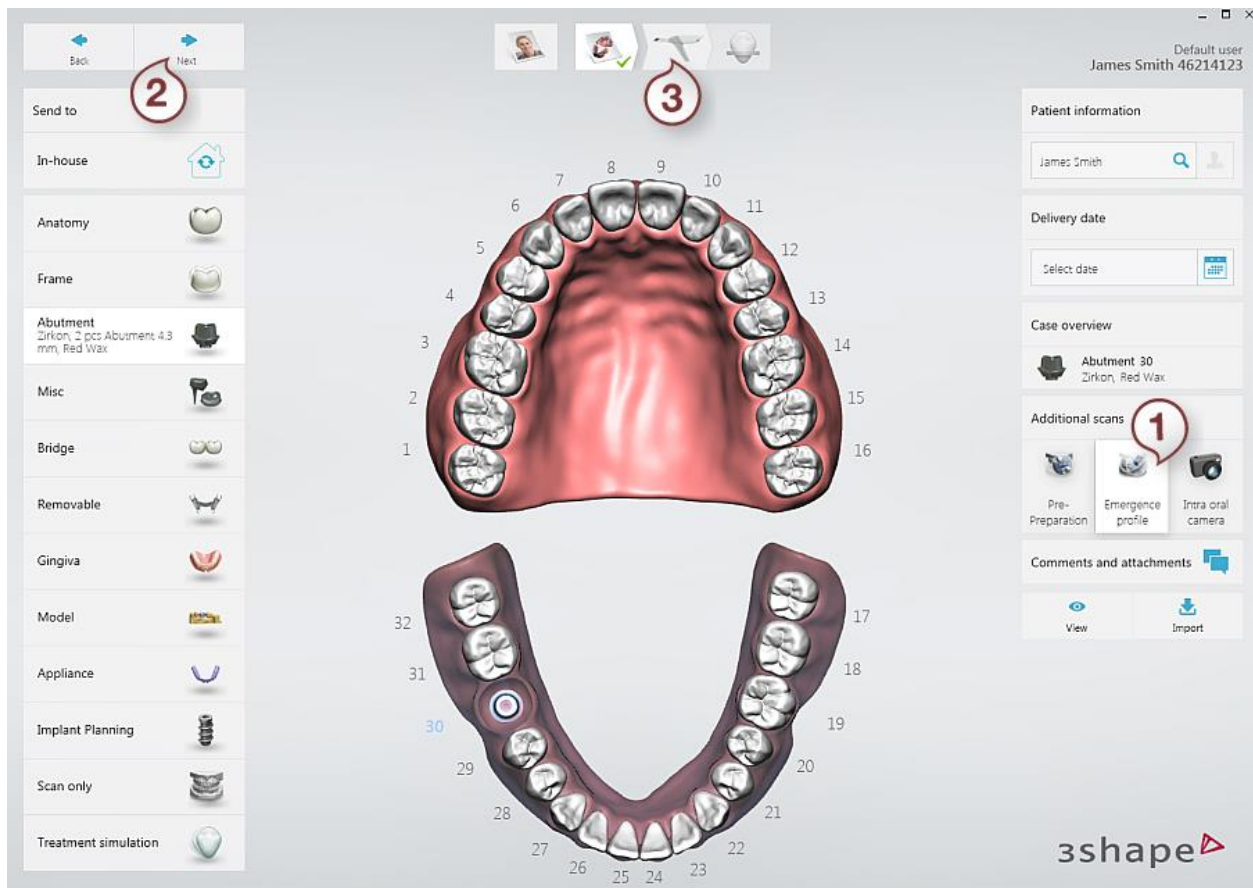## ▶ Step 4: Scan the emergence profile

Remove the healing abutment and scan the emergence profile immediately before the gingiva collapses.

▶ Step 5: Mark the tooth

Mark the implant location using the Mark tooth tool. Marking a tooth displays a circular blue color to indicate the area which is auto trimmed when going to the scanbody page. The default diameter is 6 mm, the value can be changed in the Scan settings by adjusting the **Implant cut out diameter**.
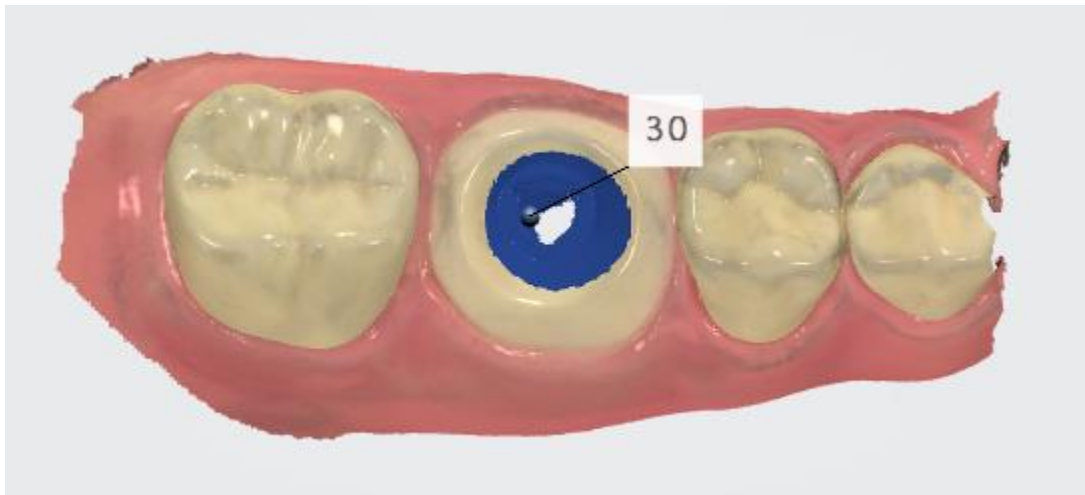
▶ Step 6: Lock the emergence profile

Lock the surface near the emergence profile by pressing **Tools** > **Lock Surface** and selecting an area you wish to lock. By doing this, the locked surface area is protected against collapsing soft tissue when performing further scanning.
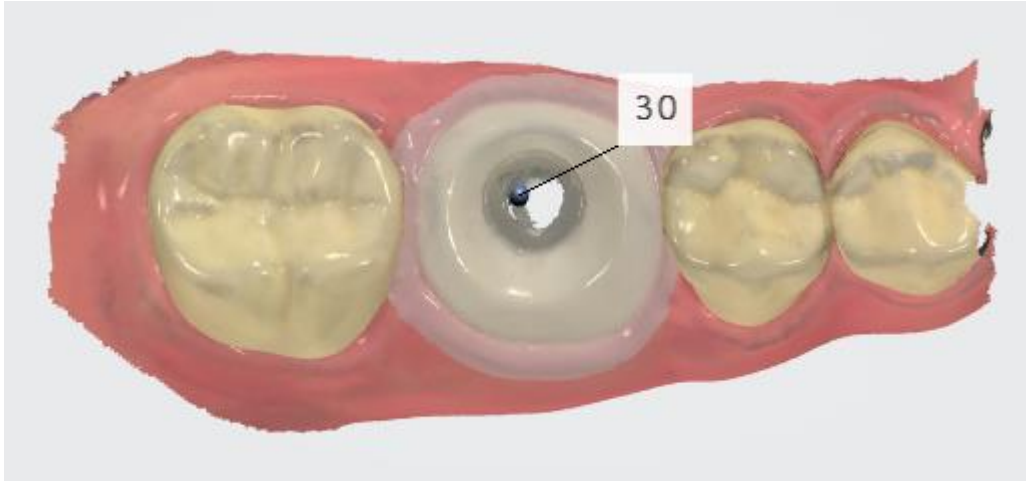
▶ Step 7: Complete scanning

Scan the rest of the jaw with the implant.

▶ Step 8: Go to the scanbody page

Press the **Scanbody** button in the Workflow bar. The area where the tooth was marked has been automatically trimmed to make space for the scanbody.

▶ Step 9 (optional): Trim the area

Trim the area if the automatic removal was insufficient.

▶ Step 10: Scan the scanbody

Attach the scanbody to the implant and scan it starting from the surface 1-2 teeth away from the scanbody for the system to recognize 3D structures (the scanbody does not need to be perfectly scanned but must contain enough information to be used by the laboratory

to detect the placement of the implant). If the contact points were auto deleted, there is no need to re-scan them again.
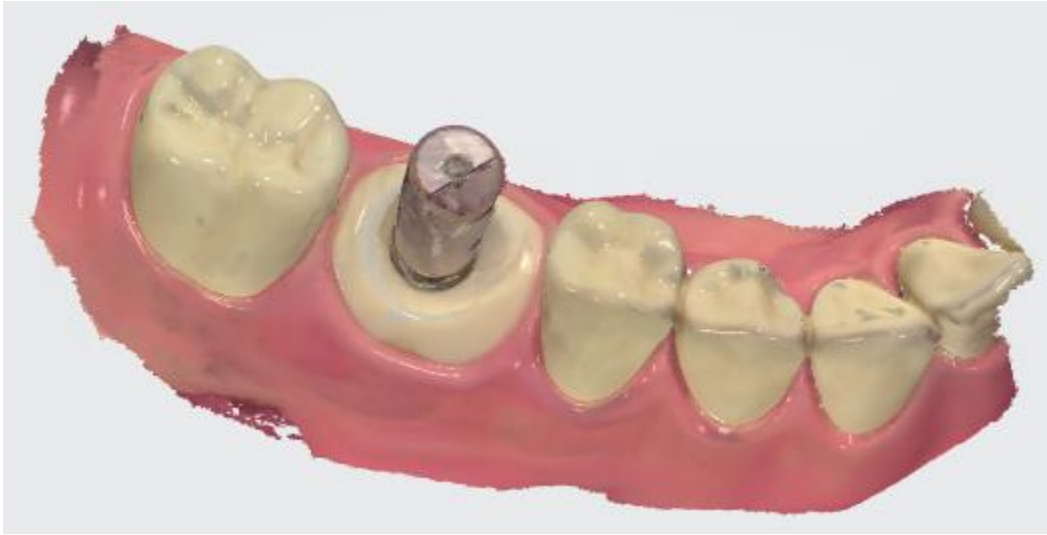
▶ Step 11: Scan antagonist and occlusion

Remove the scanbody and scan the antagonist and occlusion.

> 📋 **NOTE** The scanning process can also be completed in the opposite order if desired, starting with the scanbody.

5.8.3.2 Standard Implant Case without Emergence Profile

Use this scenario when the emergence profile is not required for esthetics and design.

▶ Step 1: Create a new case

Create a new case and select **Abutment** or **Screwretained Crown** as the restoration type:
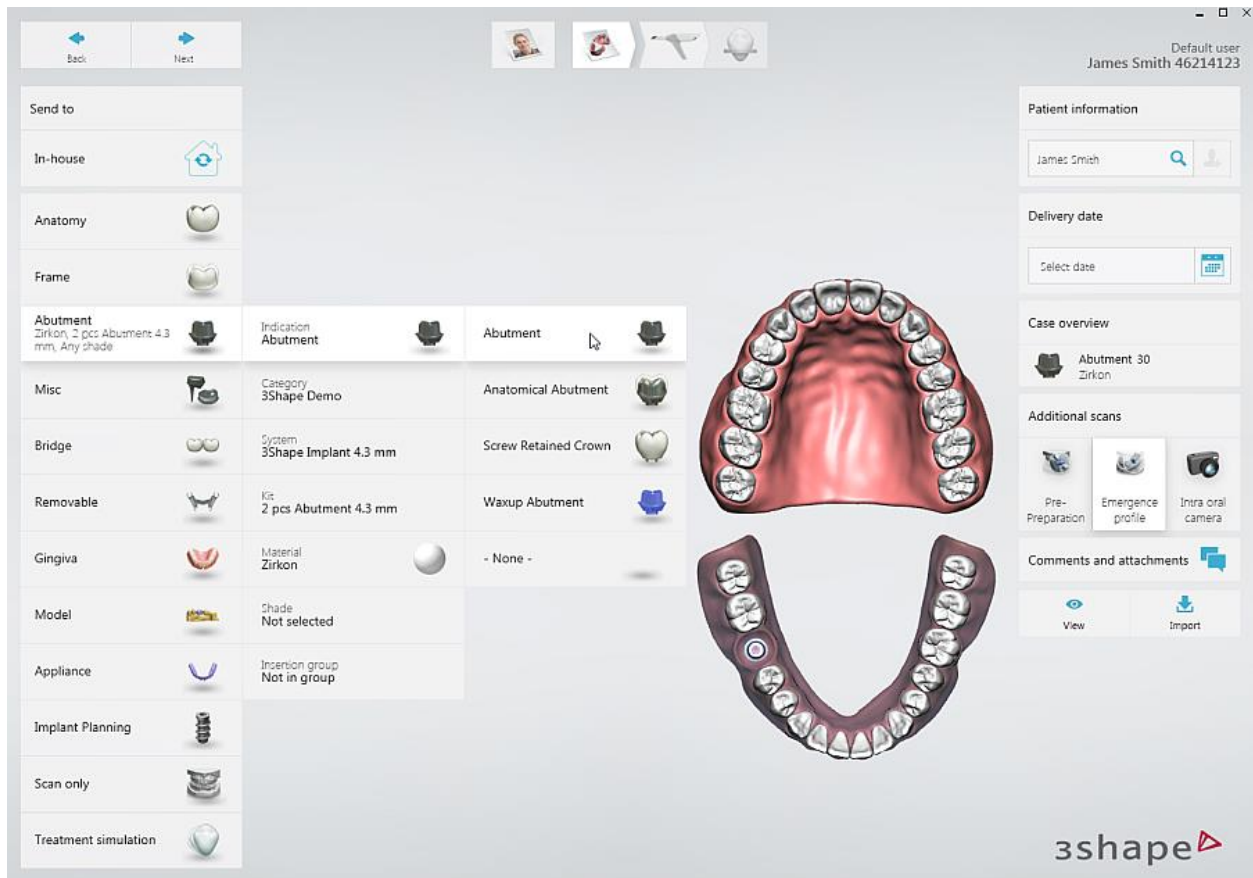
▶ **Step 2: Disable emergence profile scan**

Press the **Emergence profile** button to disable the extra scan:
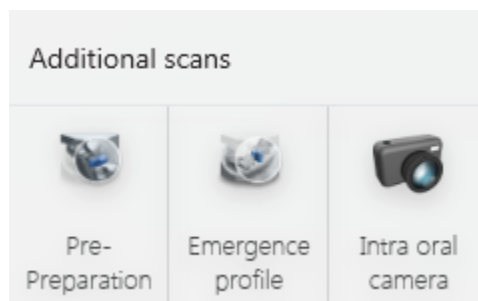
Extra scans disabled

▶ **Step 3: Go to the Scan page**

Press **Next** or the **Scan Page** button in the Workflow bar.

▶ **Step 4: Go to the scanbody page**

Press the **Scanbody** button (the scanbody page is already selected if the implant is on the lower jaw).

▶ **Step 5: Scan the scanbody**

Attach the scanbody to the implant and make a scan.

▶ **Step 6: Mark the tooth**

Mark the tooth by selecting the center on the top of the scanbody using the Mark tooth tool.

▶ **Step 7: Scan antagonist and occlusion**

Remove the scanbody and scan the antagonist and occlusion.

5.8.3.3 Implant Case with Pre-Preparation scan

Use this scenario when the morphology of the damaged tooth (prior to extraction), or the temporary, can be used for designing the final restoration.

▶ **Step 1: Create a new case**

Create a new case and select **Abutment** or **Screwretained Crown** as the restoration type:
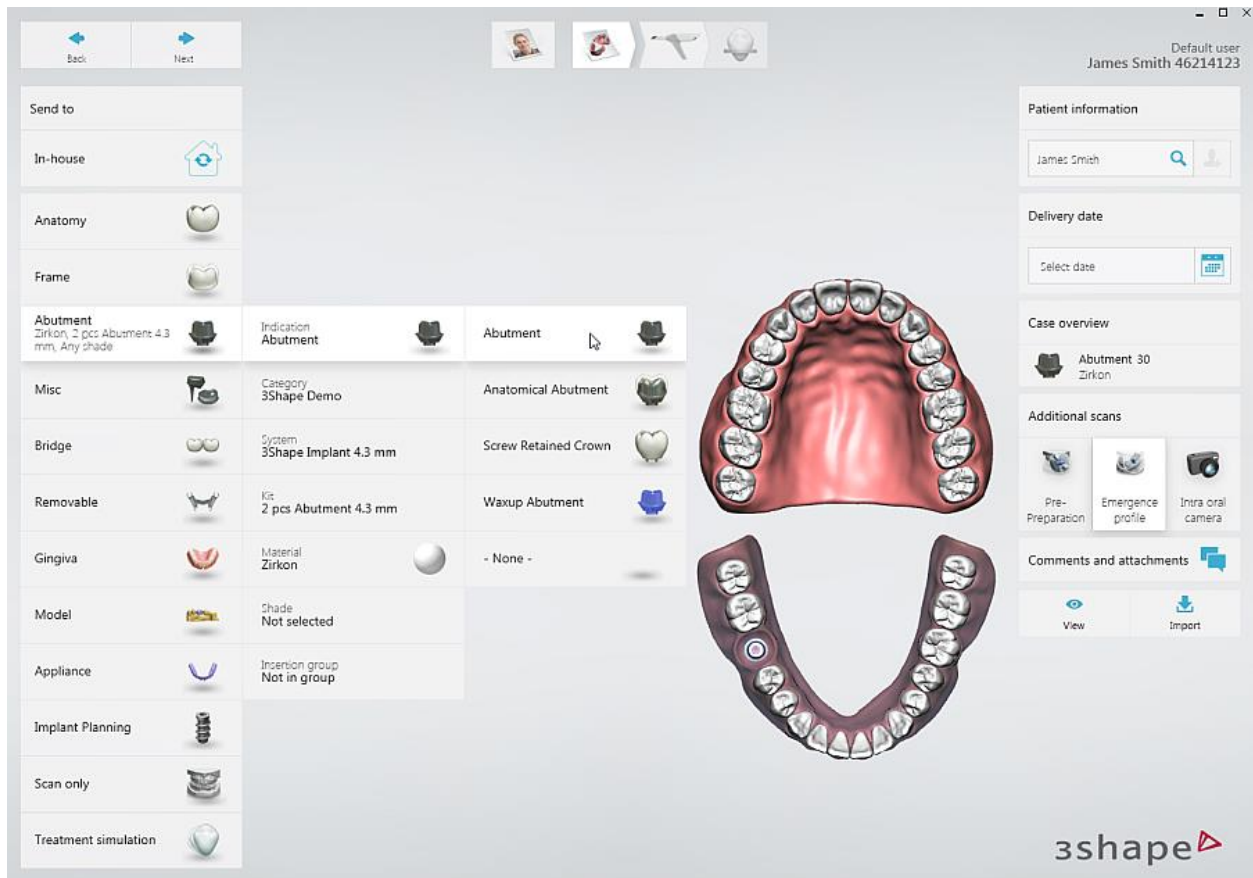
▶ **Step 2: Enable pre-preparation scan**

Enable the **Pre-Preparation** button and disable the **Emergence profile** button:
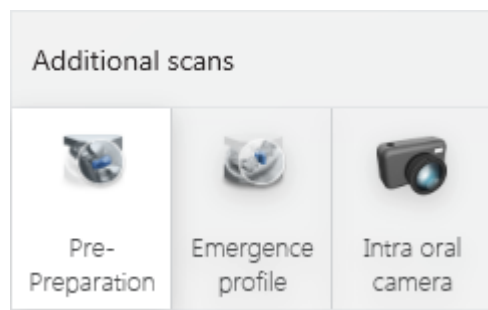
Pre-Preparation scan enabled

▶ **Step 3: Go to the Scan page**

Press **Next** or the **Scan Page** button in the Workflow bar.

▶ **Step 4: Scan the pre-preparation**

Select the pre-preparation scan page (already selected if the implant is on the lower jaw) and scan the jaw.

▶ Step 5: Mark the tooth

Mark the center of the tooth from occlusal view using the Mark tooth tool. Marking a tooth displays a circular blue color to indicate the area which is auto trimmed when going to the scanbody page. The default diameter is 12 mm, the value can be changed in the Scan settings by adjusting the **Pre-prep cut out diameter**.
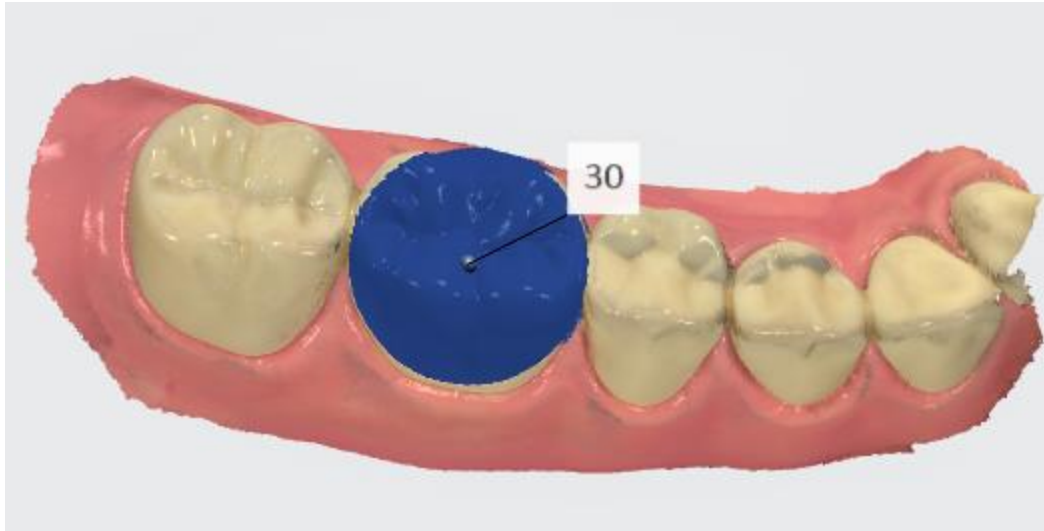
▶ Step 6: Go to the scanbody page

Press the **Scanbody** button in the Workflow bar. The area where the tooth was marked has been automatically trimmed to make space for the scanbody.

Trim the area if the automatic removal was insufficient.

▶ Step 7: Scan the scanbody

Attach the scanbody to the implant and scan it until the removed area is captured again.

▶ Step 8: Mark the tooth

Mark the tooth by selecting the center on the top of the scanbody using the [Mark tooth](#) tool.


▶ Step 9: Scan antagonist and occlusion

Remove the scanbody and scan the antagonist and occlusion.

5.8.3.4 Implant Case with Pre-Preparation and Emergence Profile scans

Use this scenario when the emergence profile is required for optimized fit and esthetic qualities of the customized abutment and final restoration, and the morphology of the damaged tooth (prior to extraction), or the temporary, can be used for designing the final restoration.

▶ Step 1: Create a new case

Create a new case and select **Abutment** or **Screwretained Crown** as the restoration type:
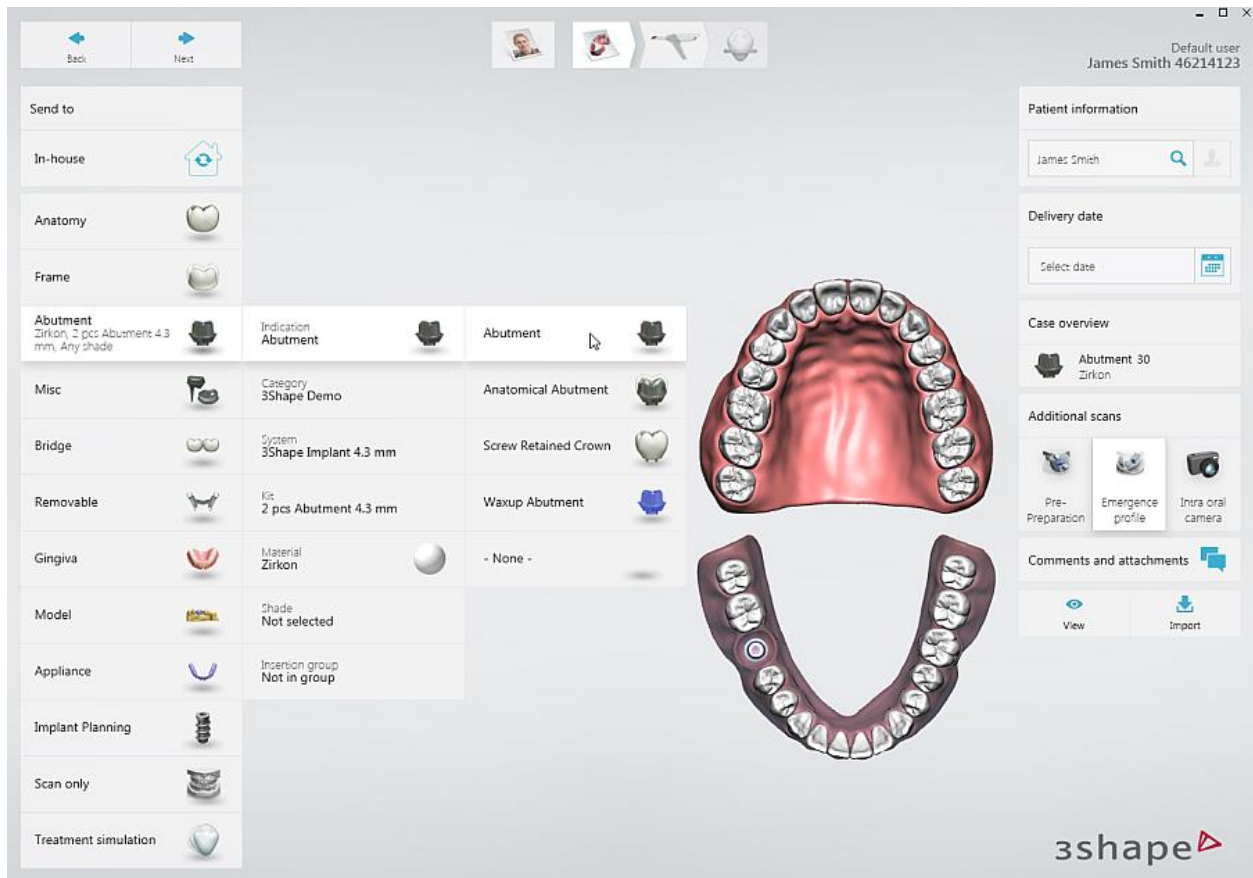
▶ **Step 2: Enable pre-preparation scan**

Enable the **Pre-Preparation** button, the **Emergence profile** button is enabled
automatically:
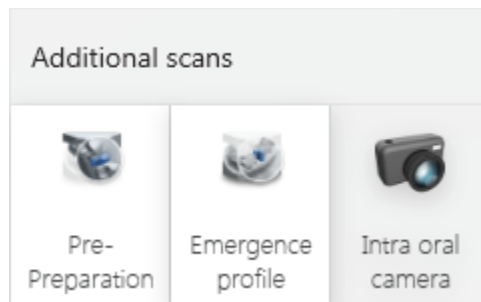
Pre-Preparation and Emergence profile scans enabled

▶ **Step 3: Go to the Scan page**

Press **Next** or the **Scan Page** button in the Workflow bar.

▶ **Step 4: Scan the pre-preparation**

Select the pre-preparation scan page (already selected if the implant is on the lower jaw) and scan the jaw with the pre-prepared tooth.

► **Step 5: Mark the tooth**

Mark the center of the tooth from occlusal view using the Mark tooth tool. Marking a tooth displays a circular blue color to indicate the area which is auto trimmed when going to the scanbody page. The default diameter is 12 mm, the value can be changed in the Scan settings by adjusting the **Pre-prep cut out diameter**.
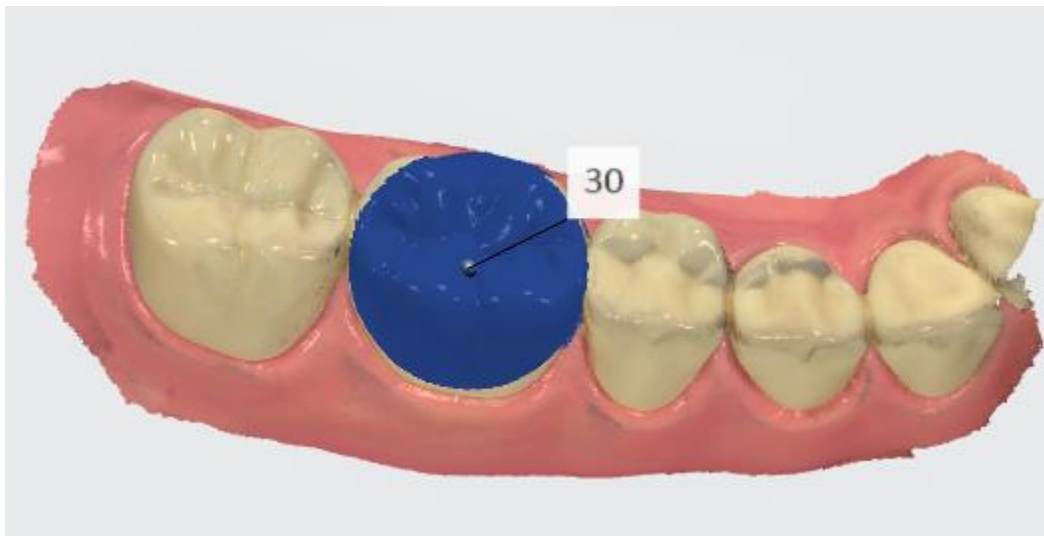
► **Step 6: Go to the implant scan page**

Press the ***Implant Scan*** button in the Workflow bar. The area where the tooth was marked has been automatically trimmed to make space for the emergence profile.

Trim the area if the automatic removal was insufficient.

▶ Step 7: Scan the emergence profile

Remove the healing abutment and scan the emergence profile immediately before the gingiva collapses.

▶ Step 8: Mark the tooth

Mark the implant location using the Mark tooth tool.
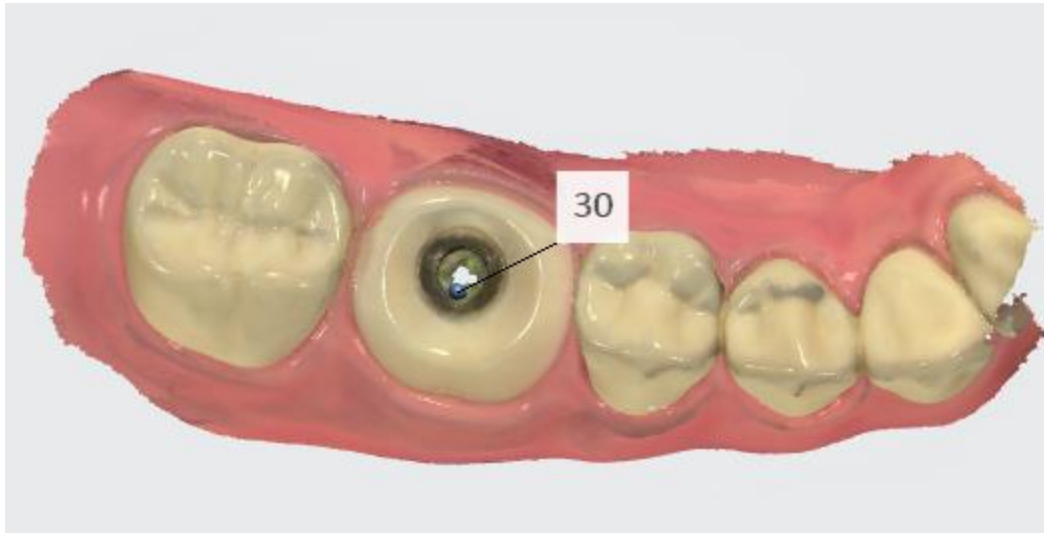
▶ Step 9: Go to the scanbody page

Press the **Scanbody** button in the Workflow bar. The area where the tooth was marked has been automatically trimmed to make space for the scanbody.

Trim the area if the automatic removal was insufficient.

▶ Step 10: Scan the scanbody

Attach the scanbody to the implant and scan it until the removed area is captured again.

▶ **Step 11: Scan antagonist and occlusion**

Remove the scanbody and scan the antagonist and occlusion.

5.8.4 Make Post and Core Scan

Dentist should perform the following operations when scanning Post and Core:

▶ **Step 1:** Create an order and select **Post & Core** as the restoration type.

▶ **Step 2:** Click **Next** or click the Scan Page icon in the Workflow bar to proceed to the scanning process.

Step 3: Go to the post and core scan page -

or depending on whether a post and core is on upper or lower jaw.

Step 4: Make first scan.

Step 5: Mark post and core locations using the Mark tooth tool.

Step 6: Attach the scan post to post and core.
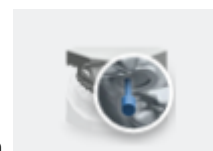
Step 7: Go to the scan post page, the one with the scan post icon .

▶ Step 8: The area around the scan post is automatically removed.

▶ Step 9: <u>Trim</u> the areas if the automatic removal was insufficient.

▶ Step 10: Scan the scan post starting from the surface 1-2 teeth away from the scan post for the system to recognize 3D structures (the scan post does not need to be perfectly scanned but must contain enough information to be used by the laboratory to detect the direction of the post). If the contact points were auto deleted, there is no need to re-scan them again. Only the scan post is important for later alignment.

▶ Step 11: Continue to antagonist and bite scans (without scan post).

> **NOTE** The scanning process is fixed – you have to scan without posts first and then go to the scan post page.

5.8.5 Make a Denture Scan

Use this scenario when the scanning of edentulous cases is required.

▶ Step 1: Create a new case

Create a new case and select **Full Denture** as an indication type. Mark one tooth in the upper/lower or both jaws depending on your case as required.
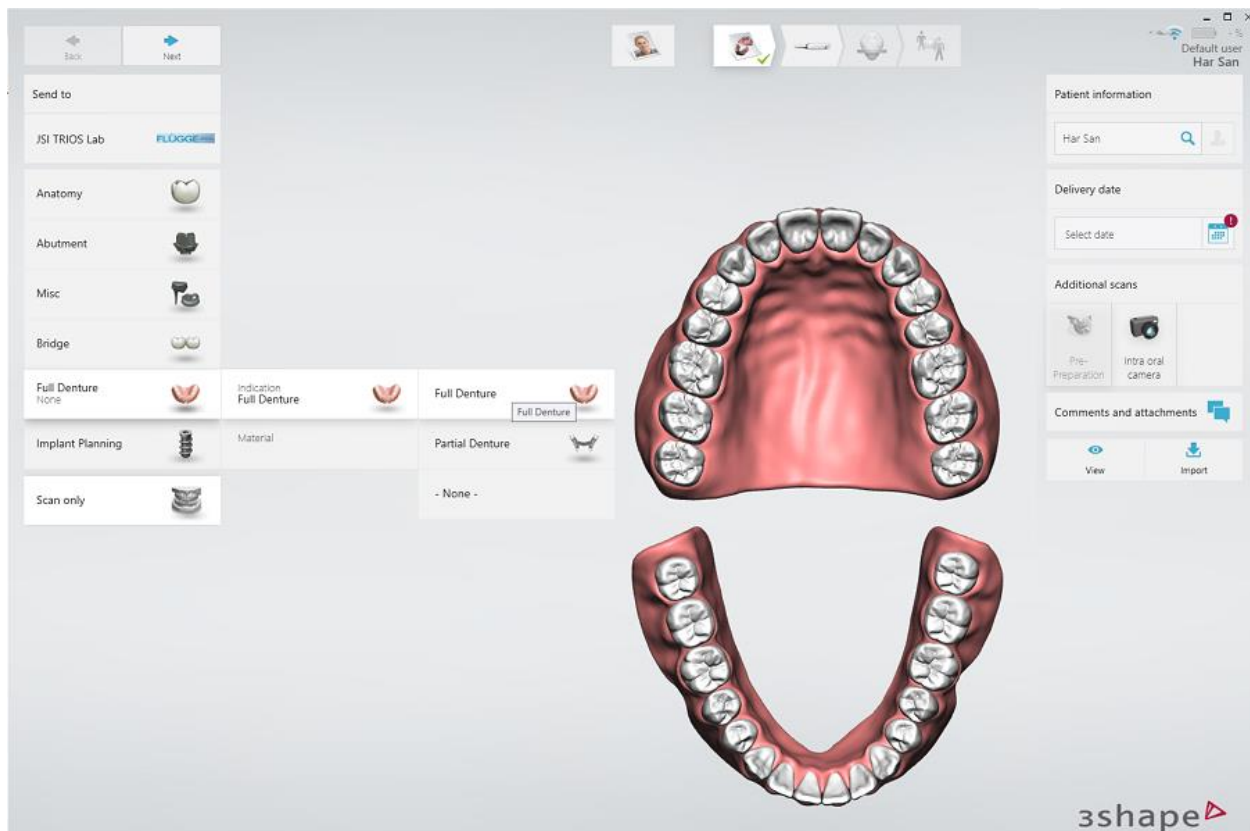
▶ **Step 2: Go to the Scan page**

Go directly to the **Scan** page by pressing *Next* or *Scan Page* in the workflow bar. Choose a scan type from the given options: **Intraoral**, **Impression** and **Denture** for the lower or upper jaw (depending on whether you are at the lower or upper scan page).
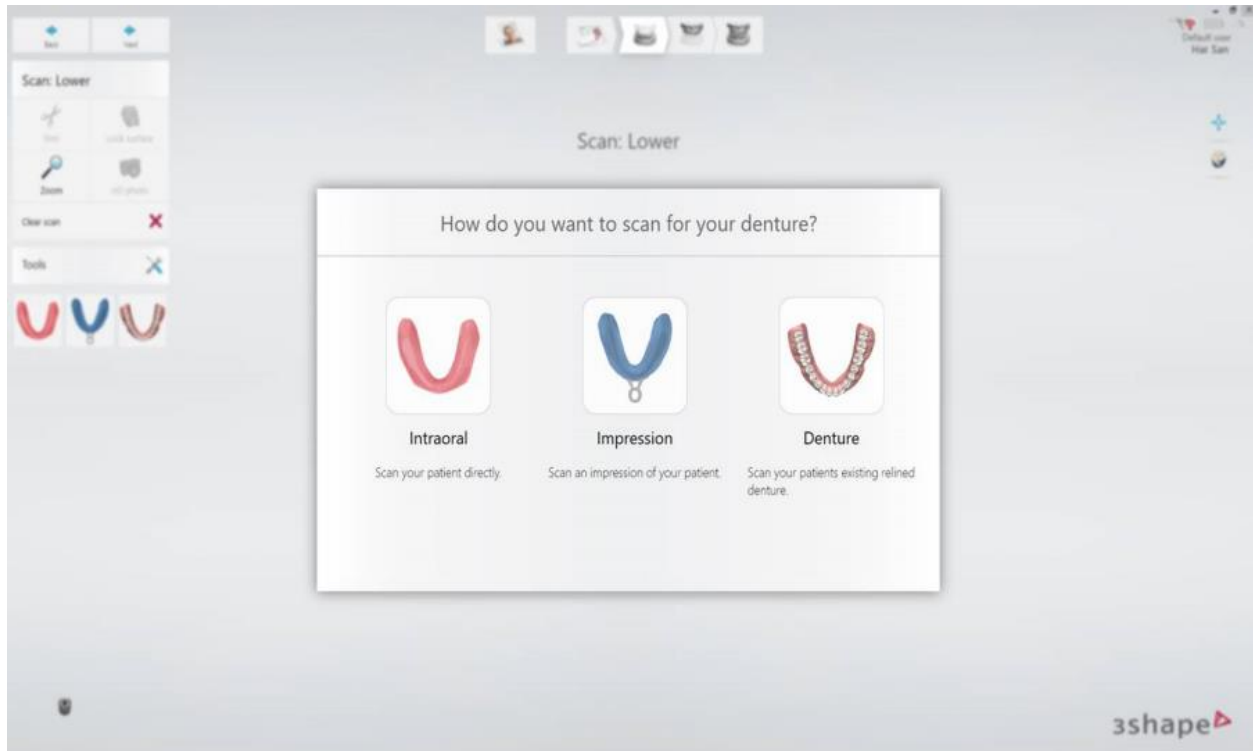
▶ **Step 3: Perform the scanning**

Depending on the chosen scan type, scan the lower jaw and then the upper jaw:

- *Intraoral* - scan your patient directly.
- *Impression* - scan a dental impression.
- *Denture* - scan an existing denture.

After scanning the lower and upper jaws, scan the bite.

6 Analyze a Scan

The **Analyze** page provides instruments for inspecting and validating the impression scans.
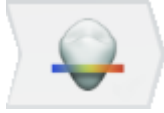
The **Analyze** page is hidden by default for the In-house lab cases. You can still enable it in TRIOS® System settings with the **Show analyze page for inhouse workflow** checkbox, however the Margin Line tool will remain disabled.
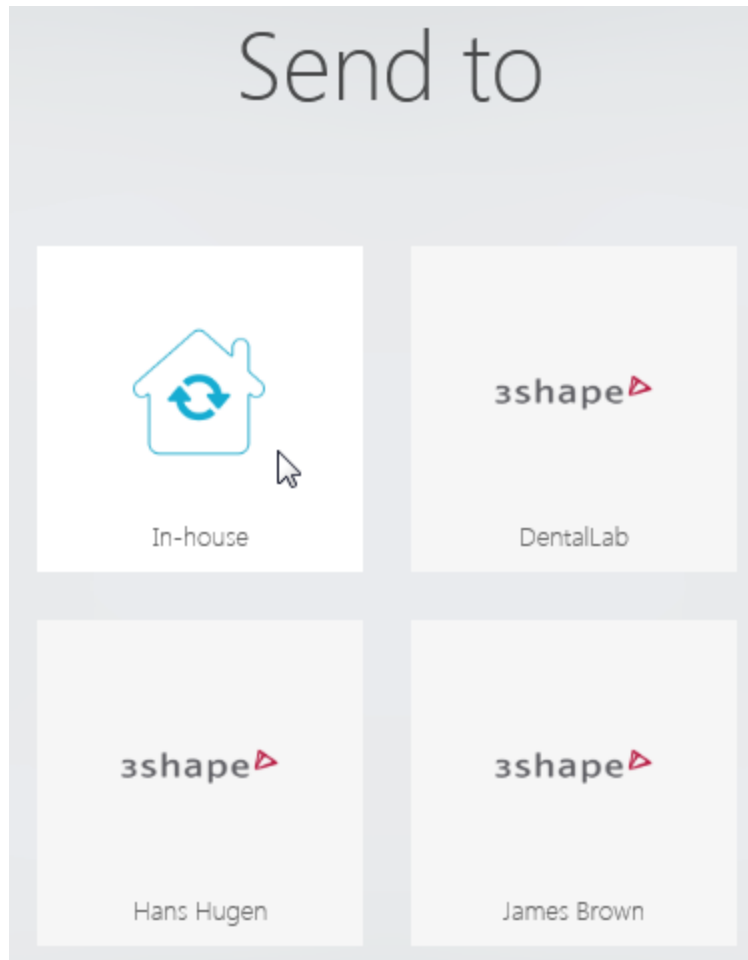
Direction - allows to set the insertion direction.

By optimizing the insertion direction, you minimize undercuts. The undercuts are graphically represented by the color scale.
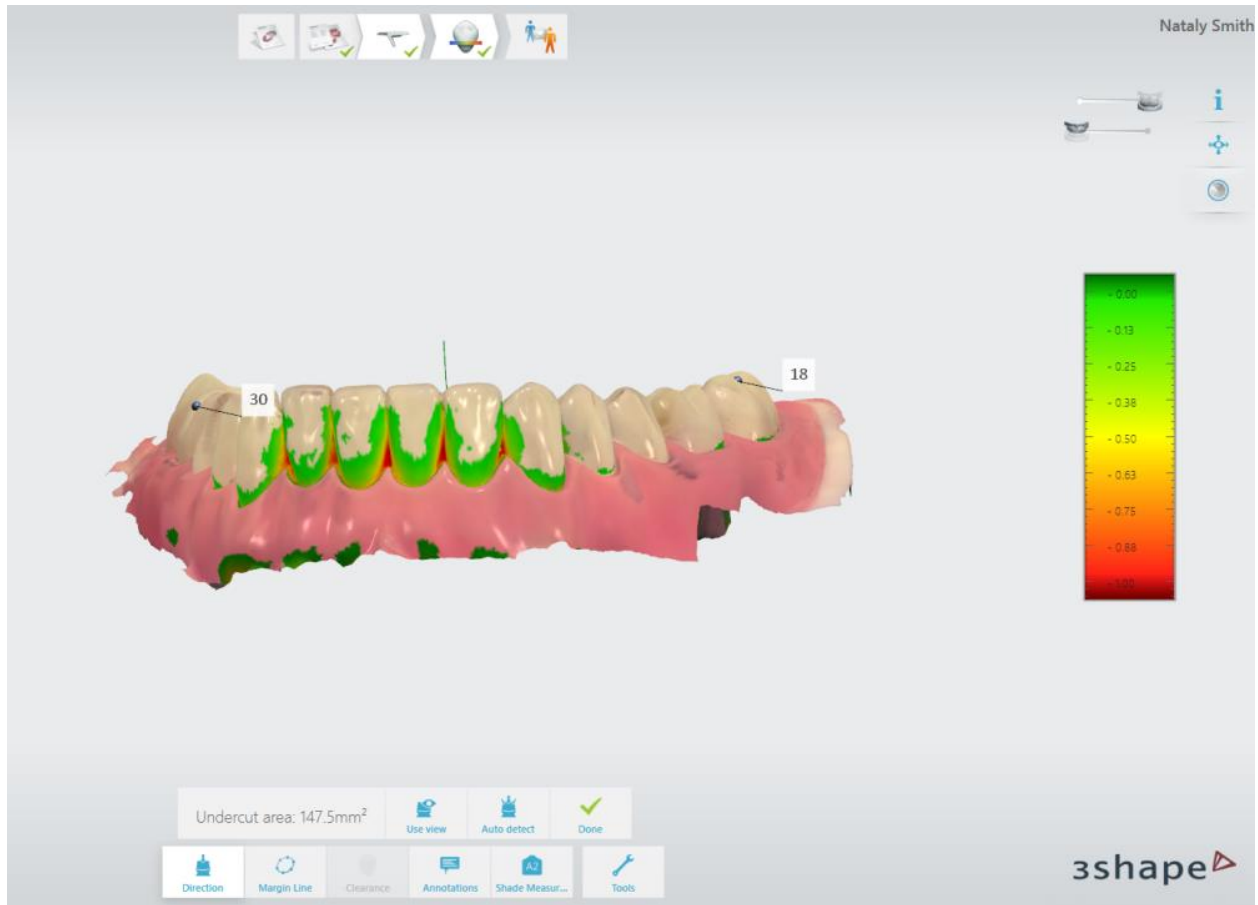
You can set the insertion direction in two ways:

1. Use the *Auto detect* button. The system automatically calculates and sets the insertion direction.

OR

2. Press the *Use view* button. The program sets the insertion direction based on your view of the scan. The undercut area is automatically measured and its value displayed on the screen.

Press *Done* when finished.

Margin line - allows to place the margin line.

TRIOS® automatically detects the margin line after you have clicked one point on the margin line. You can manually edit the margin line by pointing or drawing its new position.

You can switch between margin lines when you have a few by pressing the **_Next/Previous_** buttons. Press **_Done_** when finished.

Margin line visibility is toggled with the **_Margins_** button. The button appears at **Analyze Scan** step when a margin line is saved and the **Margin Line** tool is not active.
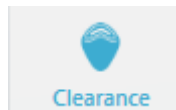
 Clearance - shows distance between preparation and antagonist.

To determine whether additional preparation of a tooth is required, open the **Clearance** tab by pressing the button and viewing the color scale indicating a range of distances between the preparation and antagonist. The distance values are shown in millimeters.

The clearance display is changed by dragging inside of the color scale. The **_Switch view_** button lets you toggle between opened and closed jaws views. Press **_Done_** when finished.

Annotations - allows you to place annotations on the model.

You can add comments to the digital impression:

▶ **Step 1: Place annotation**

Mark the target point for a new annotation by pressing the point on the 3D model.

▶ **Step 2: Type in annotation text**

Enter your comment into the blank field and press **_Done_**. Use the **_Delete_** button to remove your annotation if needed.
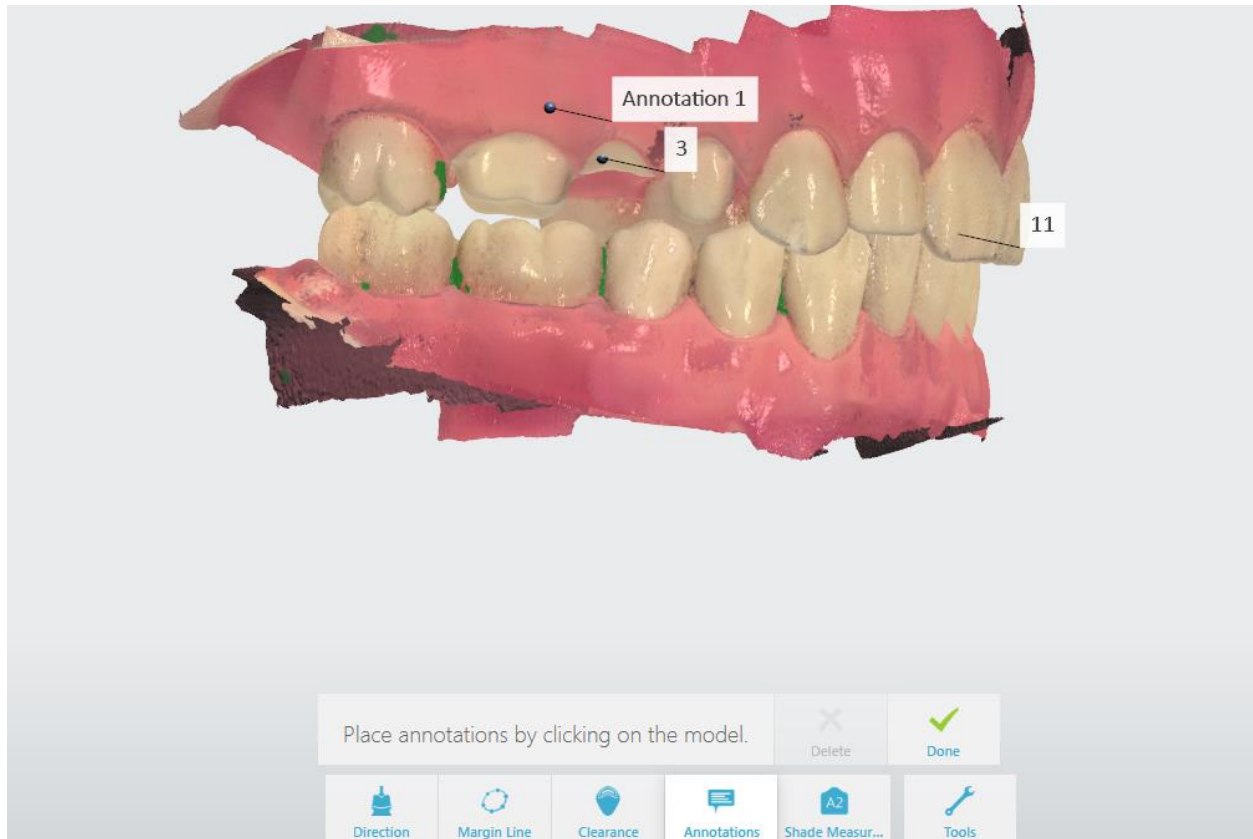
Annotations are sent together with the digital impression to the lab. Lab technicians can see the annotations in 3Shape Dental System design software.

Shade Measurement - allows you to determine the color shade of teeth near the preparation as well as determine the stump color shade of the preparation. (Shade measurement is not available for TRIOS 3 Mono and TRIOS® Standard scanners)

This tool is also available at the scanning step. Each tooth or preparation can have one main shade and as many extra supporting shades as needed. Preparations can also have one stump shade. All of the shade measurements are determined per tooth, which makes it possible to set a main shade on the pre-preparation scan and then set the stump shade on the preparation scan. Please note that STL file format is unable to include this type of data.

▶ **Step 1: Place color shade measurement**

If there are multiple preparations, select the tooth for which you want to determine the color shade by pressing the corresponding button in the menu. Press the area that best represents the tooth color. A shade measurement is best placed in the center of a tooth, since the lack of dentine near the translucent edge affects the tooth shade:
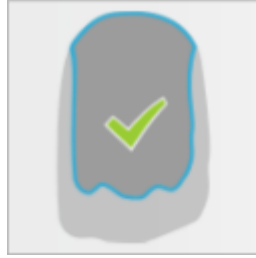
The indicated area is marked with a blue circular outline and the attached label displays its color shade. After that the **Add shade** button is renamed to **Add extra** and any new set shade will have a white outline.

Shade measurements can be deleted by pressing the **Remove** button and pressing the shade measurement you want to remove.

▶ Step 2: Explore and adjust the color shade value

Press and move the shade measurement circle to get a real-time shade measurement value, and place it in a suitable spot with even color and no stains.
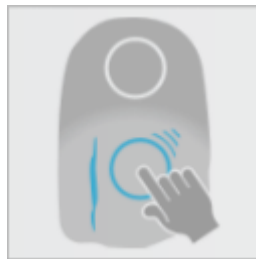
Moving a shade measurement

▶ Step 3: Place stump shade measurement

Press the **Add stump** button and indicate the area that best represents the stump color of the preparation. The area is marked with a green circular outline and the attached label displays its stump shade, which in combination with the main shade measurement can help determine the correct overall shade of the final restoration.

The following legends can be shown on the label when the Shade Measurement is active:

Color comparison: shows the difference between the shade tab and the tooth.

Quality: Improve the shade quality of the selected area by scanning it more and from different angles.

Uneven color: The circle covers the area with uneven color. Move the circle to a more color even area.

No matching shade: The tooth color cannot be described by any values in the selected shade system. Move the circle to another area.

Shade Measurements must always be verified by the dentist before ordering.

NOTE Shade measurement requires a shade enabled color scanner.

Tools menu **-** offers a list of additional tools:

Snapshot - adds a snapshot to the order.

Model Post-processing - press to have the system automatically:
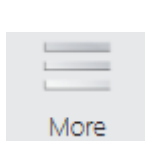
- Optimize a 3D model for better details around the preparation(s).
- Reduce noise of the 3D model.
- Close holes within the model.

Post-processing might take a couple of minutes to complete.

> **HINT** Post-processing will be done automatically during order sending (refer to the 3Shape Case Management user manual for details) if the post-process button was not activated by the operator. However, it is recommended to do post-processing at the Analyzing step and inspect the result in order to avoid the risk of overlooking changes introduced by post-processing.

7 Configure TRIOS Settings

Click **More** in the Manager bar and select ⚙️**Settings** -> **TRIOS**® to configure the following settings:

- [System Settings](#)

- [Scan Settings](#)

- [Scanner Management](#)
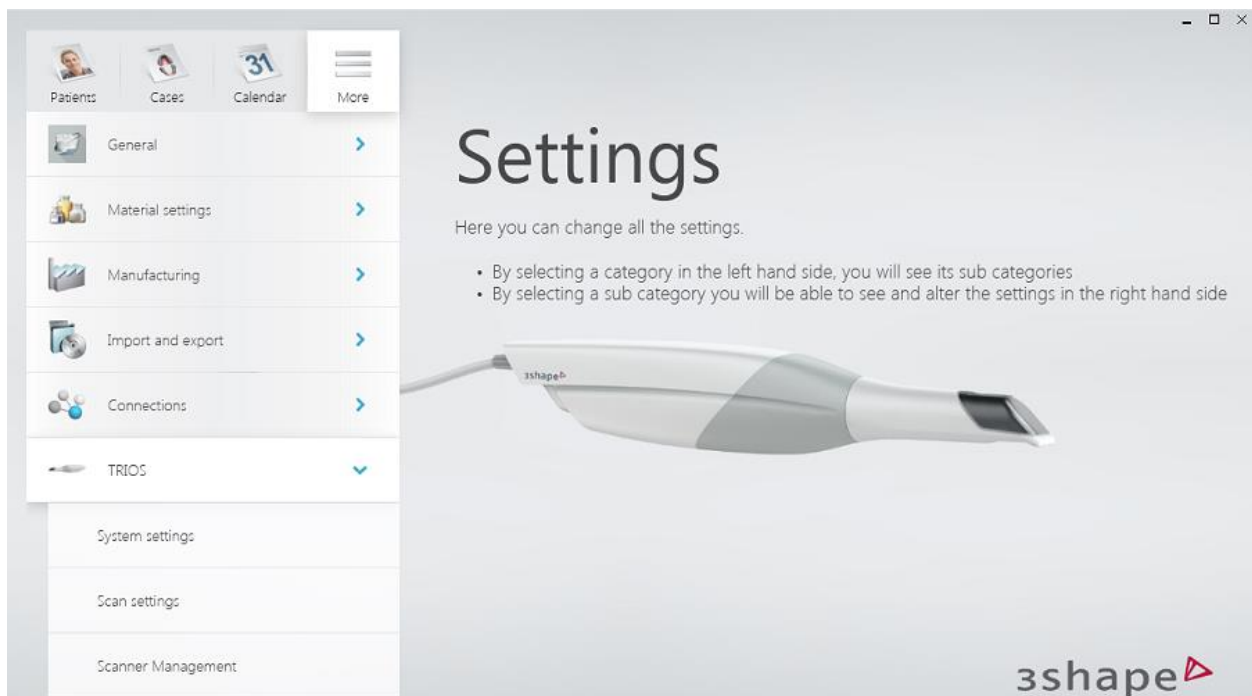
> **NOTE** The settings might differ depending on the TRIOS® model you are working with.

7.1 System Settings

SYSTEM SETTINGS

Show analyze page for inhouse workflow - when enabled, shows the *Analyze* button in the workflow bar for the in-house lab.

Transfer data - initiates the TRIOS® [data migration](#) process when upgrading from TRIOS® classic to TRIOS® on Dental Desktop. This button is only shown when TRIOS® Classic installation has been detected and the data migration hasn't been run before.

Free hard disk space - displays the available space on your hard disk.

Open Network Options - opens a list of network connections when clicking the corresponding button.

Run performance test - used to evaluate computer performance.

TABLET INTEGRATION

Contains software link and setup guide for tablet integration.
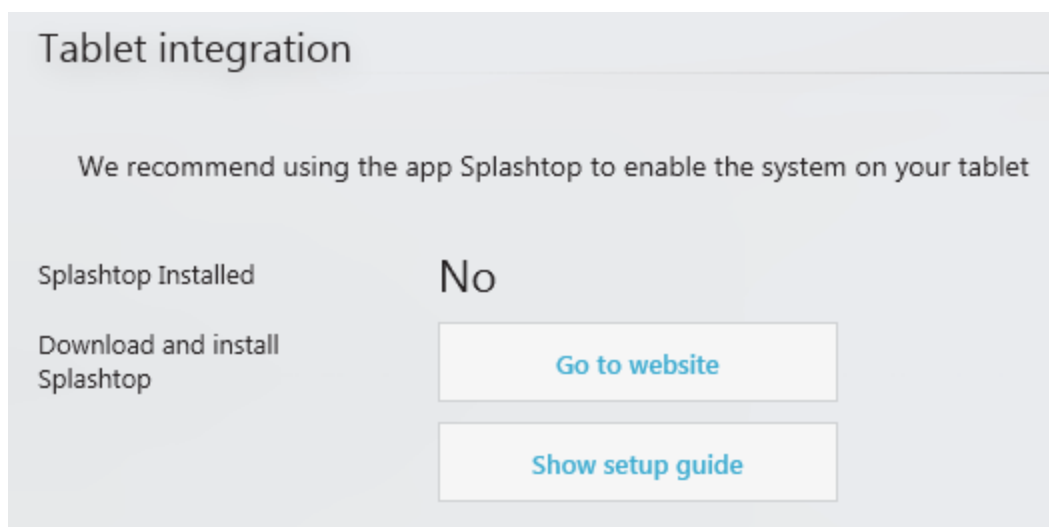
Additional system settings for TRIOS® Cart:

Open Power Options - opens the power options window in Control Panel that allows you to choose a desired power plan for your cart.

Open Screen Calibration - allows you to calibrate your cart's screen.

Open Date/Time - opens the window for changing the Date and Time settings.

Open Explorer - opens a file explorer.

Open Control Panel - opens the Control Panel.

Open System Panel - opens a window that shows basic information about your PC.

Wi-Fi - allows you to set a wireless connection.

Bluetooth Devices - allows you to set a Bluetooth connection.

7.2 Scan Settings

Scan settings

Insane Mode (fast Scan Engine)	✔
AI Scan	✔
Shade system	VitaClassical
Bite adjustment	Adjust for intersections
Intra-oral camera video time limit	10 s
Hole close color	🟢 Green
Default scan zoom level	small ———————◄□►——— large
Show scan timer	✔
Show 3D image count	✔

Sound

Use sound effects	✔
Scanning Sound Volume	——————————————◄□►
Sound Effect	Lock
Play Selected Sound	**Play Selected Sound**

Cutout diameters

	Anteriors	Posteriors
Implant cut out diameter	6 mm	6 mm
P&C cut out diameter	4 mm	4 mm
Pre-prep cut out diameter	6 mm	6 mm

Reset settings

Reset to defaults	**Reset to defaults**

SCAN SETTINGS

Insane Mode (fast scan engine) - allows you to select a faster scanning mode.

AI Scan - allows you to set the default value as enabled/disabled for the AI Scan option.

Shade System - allows you to select your preferred default shade system from the drop-down list. The selected shade system is used for shade measurement for shade enabled color scanner.

Bite adjustment - the option allows to minimize bite intersections/penetrations during occlusion alignment.

Intra-oral camera video time limit - allows you to choose the maximum length of a video, shot with the intraoral TRIOS® camera.

Hole close color - allows you to choose a color shade that will indicate closed holes on the model.

Default scan zoom level - allows you to set the default zoom level for displaying a model after scanning.

Show scan timer - when selected, the scan timer will be displayed during the scanning process.

Show 3D image count - when selected, the number of taken images will be shown during scanning.

Include Patient Specific Motion in default workflow - when selected, Patient Specific Motion is available in the scanning workflow.

Patient Specific Motion Contact Distance - allows you to change the contact distance for Patient Specific Motion.

SOUND

Use sound effects - when selected, a sound will be played during scanning. After selecting the checkbox, the sound options will become available.

Scanning Sound Volume - allows you to choose the scanning sound volume.

Sound Effect - allows you to choose the scanning sound type.

Play Selected Sound - plays the scanning sound you have chosen.
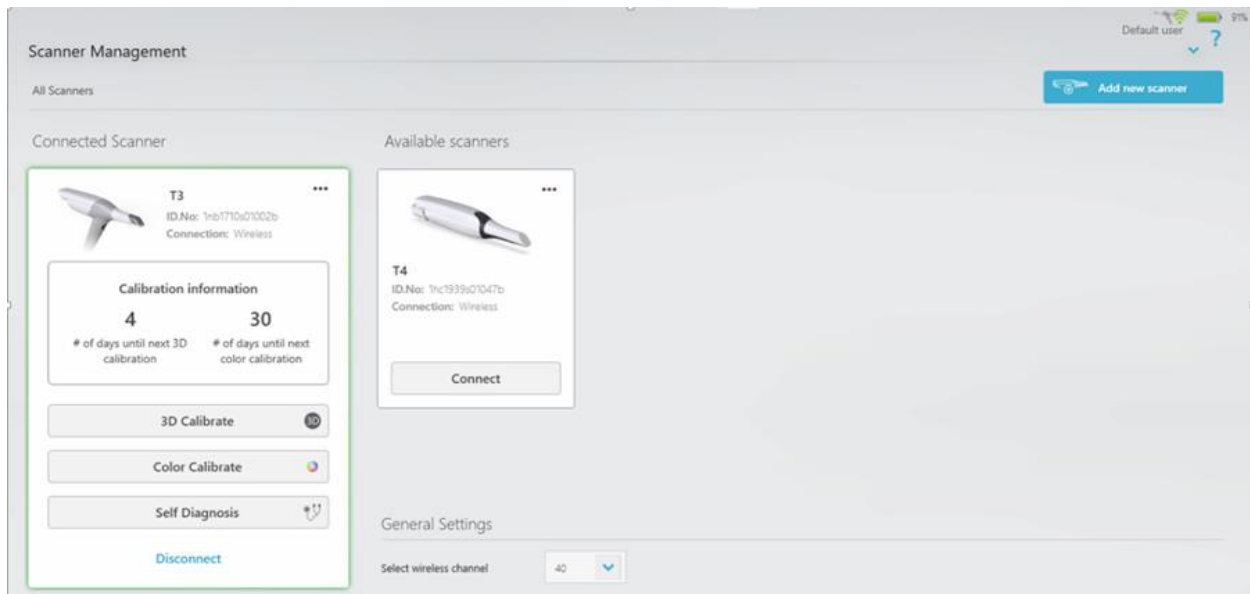
CUTOUT DIAMETER

Implant / Post & Core / Pre-preparation cut out diameter - allows you to choose the default restoration cut out diameter.

RESET SETTINGS

Reset to defaults - sets default values for the parameters.

7.3 Scanner Management

Scanner Management section contains options to configure and manage the scanner.

Connected Scanner - Displays the connected scanner's name, serial number and connection type e.g. Wireless or Wired.

Scanning Tip Information - Displays the info e.g. the serial number of the tip, the total number of times the tip has been used and the remaining usages until the next calibration is required. This tip info is shown only for the scanners having smart tip e.g. for TRIOS 4 scanner.

Calibration Information – Displays number of days remaining until the next 3D and color calibration.

Disconnect - Closes the current wireless connection to the scanner. Disconnecting the scanner from one computer allows another computer to connect with the scanner.

More options (three dots menu) – give the option to *Turn Off* the connected scanner, to *Rename scanner* and to *Forget* (remove/delete) the scanner from the computer.

Select wireless channel – Lets you change the communication channel if the current channel experiences interference from other transmitting wireless devices located nearby.

Available scanners - Displays the scanner name, serial number and connection type of the previously added scanners which are available to be connected. Pressing the **Connect** button will connect the chosen available scanner.

3D Calibrate - Allows you to calibrate a monochrome or color TRIOS® scanner. See Scanner Calibration chapter for details.

Color Calibrate - Opens color calibration guide. See [Scanner Calibration](#) chapter for details; not available for TRIOS 3 Mono and TRIOS® Standard scanners.

HOW TO ADD AND CONNECT A NEW WIRELESS SCANNER

Open the Scanner Management page and click on **Add new Scanner** button. A wizard will be initiated which will guide you through various steps to add a new scanner.

HOW TO REMOVE A SCANNER

Press on More options (three dots) for the scanner to be removed and choose Forget Scanner. Scanner could be removed only when it is disconnected.

WIRELESS STATUS BUTTONS

The status of a wireless scanner is shown with a button in the right upper corner.

Depending on the status, the button opens a corresponding dialog. There are 3 wireless statuses.

 - **Status Red**
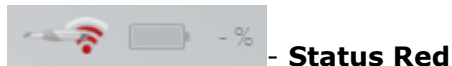
Wireless connection is enabled but no scanner is selected. Clicking the button opens the Select wireless scanner dialog to select the scanner.

Please note, the wireless scanner must be turned ON before it can be connected to TRIOS® computer.
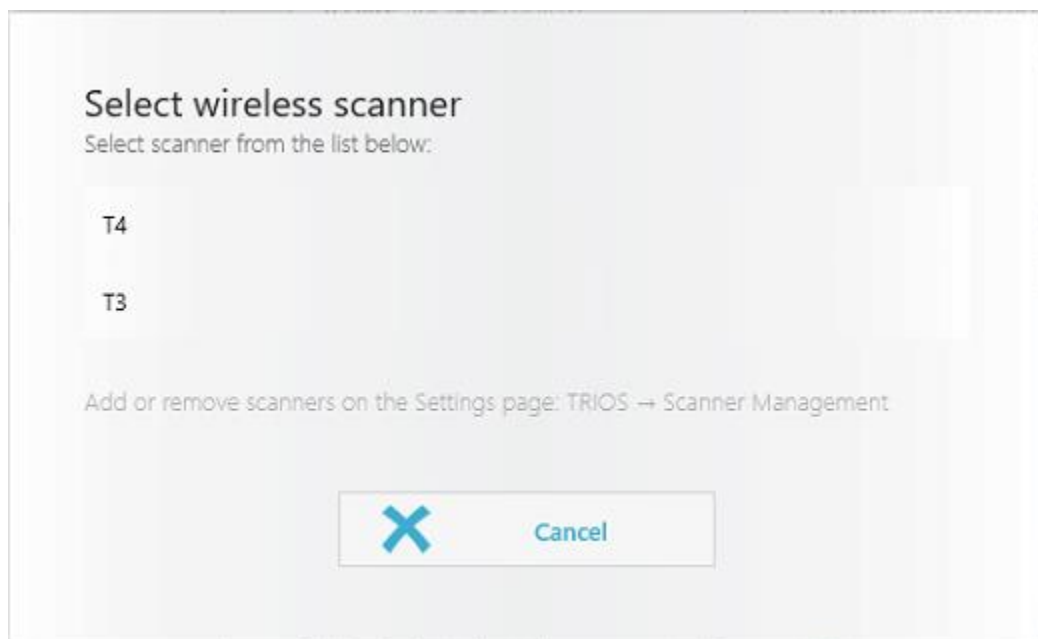
 - **Status Blue**

Scanner is selected but it will not connect until the scanner is turned ON. Clicking the button opens the dialog prompting you to turn ON the scanner.
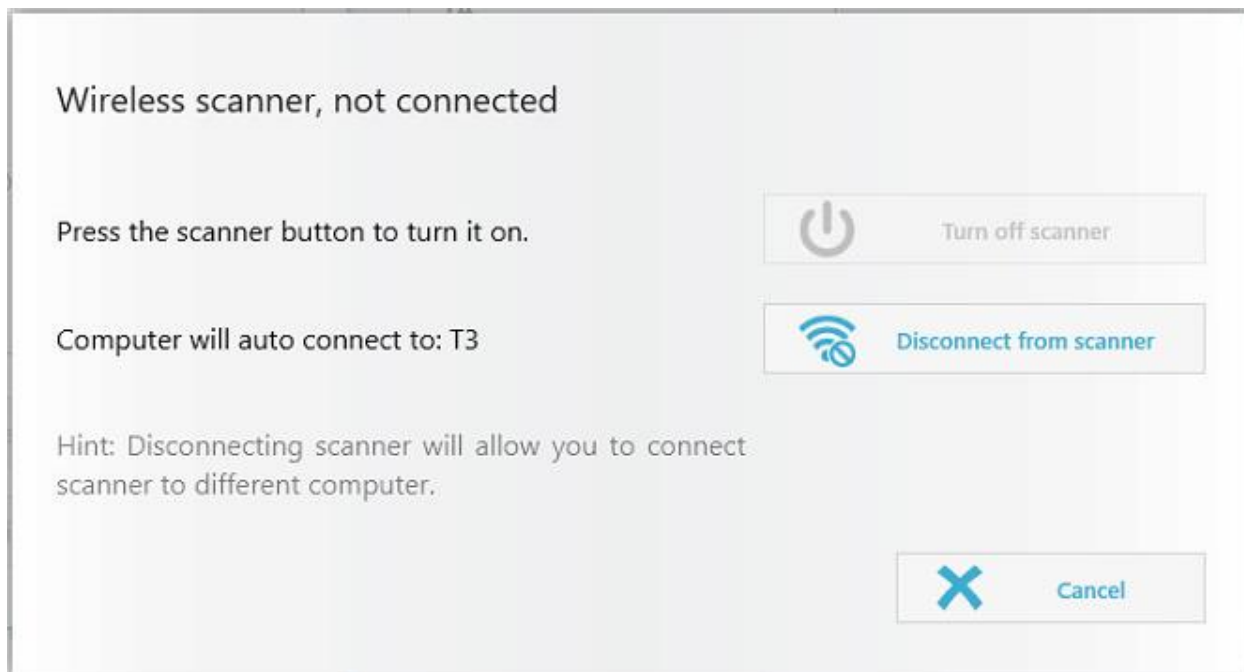
 - **Status Green**

Scanner is connected, normal operation. The remaining battery power is shown in percent. Clicking the button opens the dialog with options to turn OFF and disconnect the scanner.

WARNING MESSAGES

The following warning message is displayed when the wireless scanner in not turned ON and the TRIOS® application cannot find it.
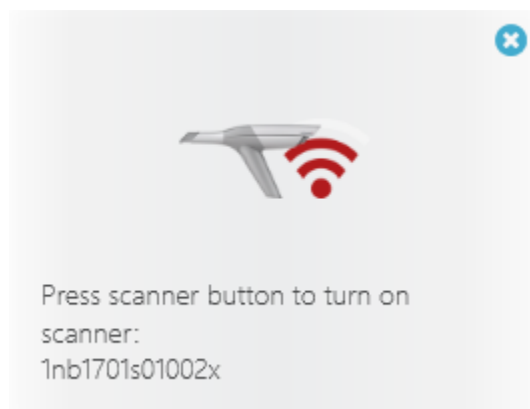
The following warning message is displayed when the Wi-Fi adapter is not plugged into the USB port of the TRIOS® computer.
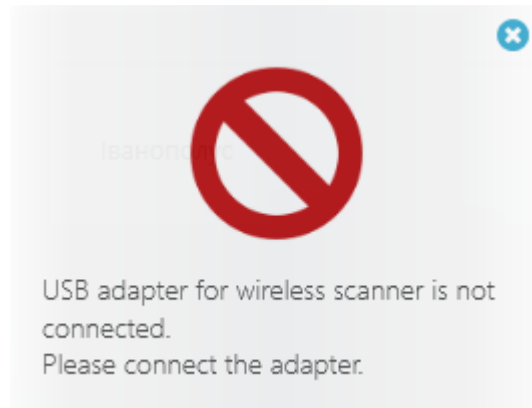
RFID

The TRIOS 4 scanner contains a passive RFID chip with the Unique Device Identifier (UDI) of the scanner. The location of the RFID tag is shown on the illustration.

8 Perform Maintenance

8.1 Scanner Calibration

8.1.1 3D and Color Calibration

The following types of calibrations can be done on the scanner:

- **3D calibration** – Adjusts the optics of the scanner for generating 3D images.
- **Color calibration** – Adjusts the color recognition for a particular scanning tip, not available for TRIOS 3 Mono and TRIOS Standard scanners.

WHEN TO CALIBRATE

> **NOTE** If you are using TRIOS 4 scanner, please see the Combined Calibration chapter for details.

- 3D calibrate the scanner before using it for the first time and every eight days during regular use.
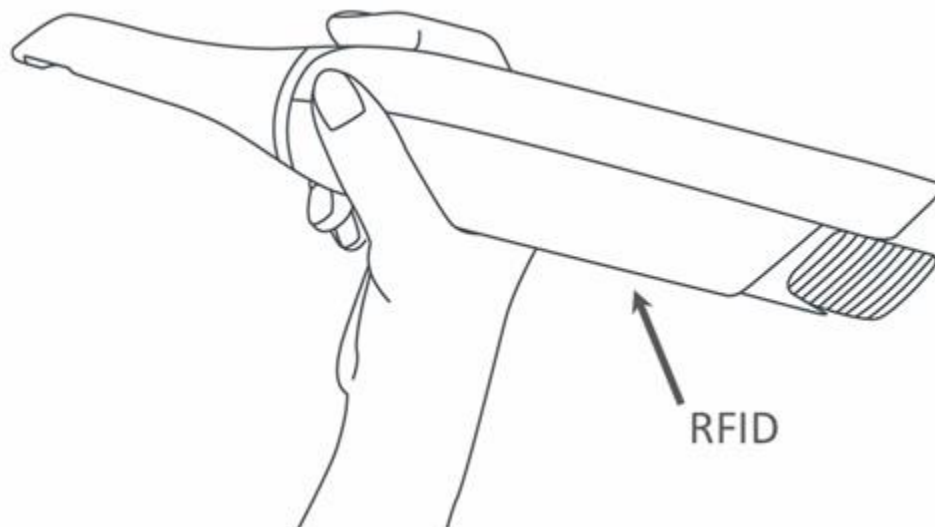- 3D calibrate the scanner when it has been moved, sustained hits or wide-range temperature changes.
- 3D calibrate the scanner when the scan quality degrades. Calibration adjusts the scan quality to the initial factory level and ensures optimum results.
- Color calibrate the scanner before each scan for optimal color quality if you intend to use Shade Measurement.
- The mirror in the tip is almost never 100% clean, small variances could have an impact on the Shade Measurement.
- Color calibration has a weekly reminder. Shade Measurement will be disabled if the scanner has not been color calibrated for 30 days.

HOW TO CALIBRATE 3D

▶ **Step 1: Locate the supplied calibration tip**

Supplied calibration tips differ depending on the scanner models:

TRIOS 3 calibration tip and TRIOS Color/Standard calibration tip

▶ Step 2: Prepare for calibration

Remove the scanner tip from the scanner and put on the calibration tip.

TRIOS 3 calibration tip and TRIOS Color/Standard calibration tip attached for calibration.

▶ Step 3: Start calibration wizard

1. Go to the Scanner Management page of your TRIOS® system.
2. Select **3D calibrate scanner** for monochrome or **Color calibrate scanner** for color scanner.
3. Follow the on-screen instructions.

▶ Step 4: Wait for system to calibrate the device
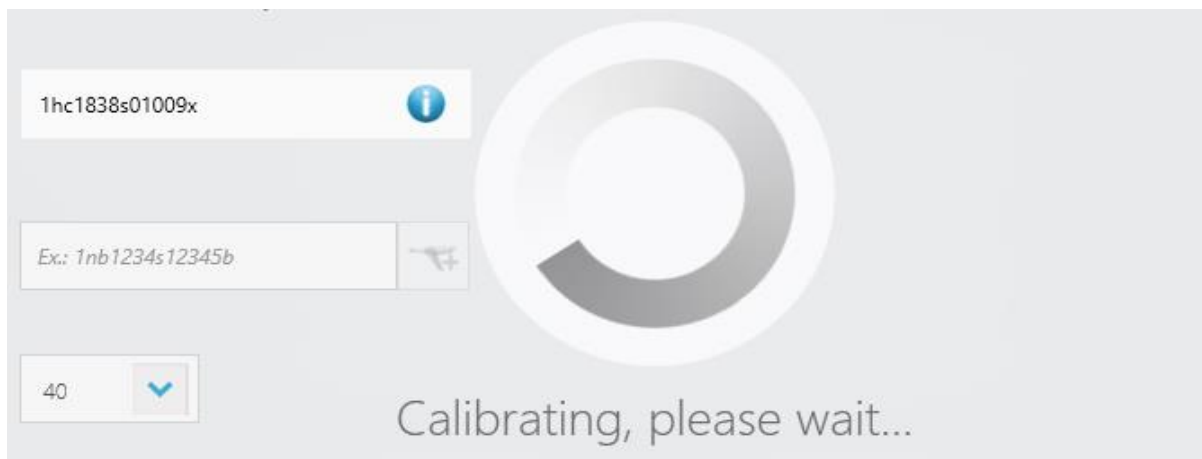
▶ Step 5: Complete the process

A message will tell you once the calibration is completed.

3D calibrate scanner

3D calibration completed.

Next
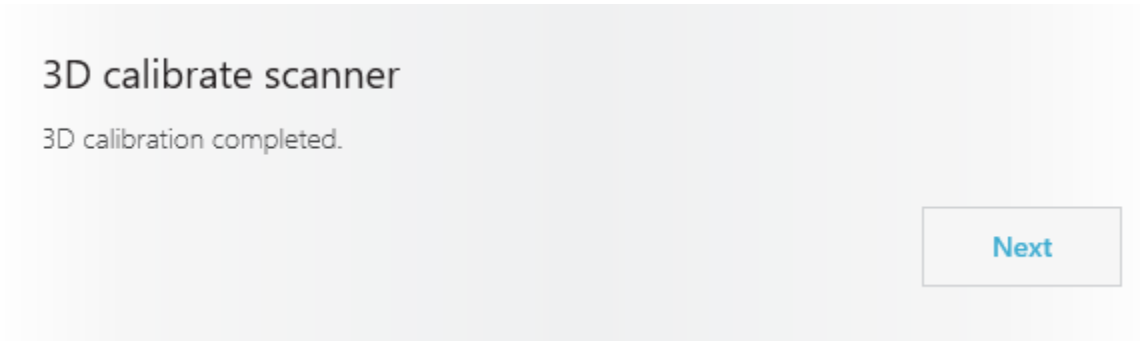
▶ Step 6: Remove the calibration tip

While being guided by the wizard, remove the calibration tip and put on the protection tip when finished.

3D calibrate scanner

Ensure that the calibration tip is removed before proceeding.

Close
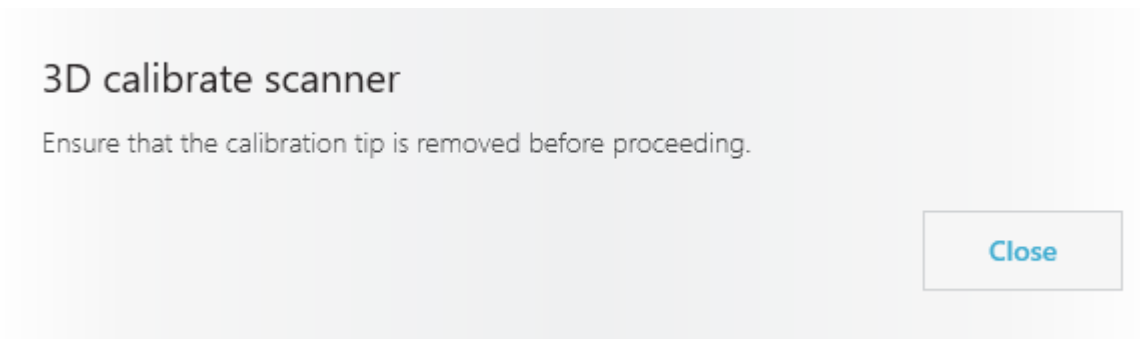
NOTE Make sure the calibration tip is removed from the scanner after calibration as the tip otherwise may become very warm.

HOW TO CALIBRATE COLOR

(Not available for TRIOS 3 Mono and TRIOS Standard scanners)

▶ Step 1: Locate the supplied color calibration kit

Supplied calibration kits differ depending on the scanner models, where: **(1)** Protective sleeve, **(2)** Calibration target, **(3)** Calibration adaptor.

TRIOS 3 color calibration kit

TRIOS color calibration kit

▶ Step 2: Prepare for color calibration

1. Attach cleaned and sterilized scanner tip facing downwards to the scanner tube.
2. Mount the color calibration adapter onto the scanner tip.
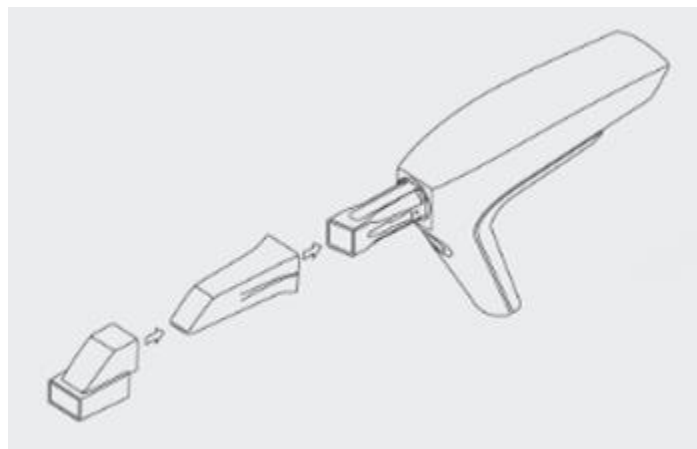
3. Remove the sleeve from the color calibration target.

4. Insert the color calibration target into the color calibration adapter with the color side facing up.

1. Open TRIOS® Scanner Management page.
2. Press **Color calibrate scanner** button to open the color calibration guide.
3. Press **Calibrate** and wait for the system to calibrate the device.

1hc1838s01009x

Ex.: 1nb1234s12345b

40

Calibrating, please wait...
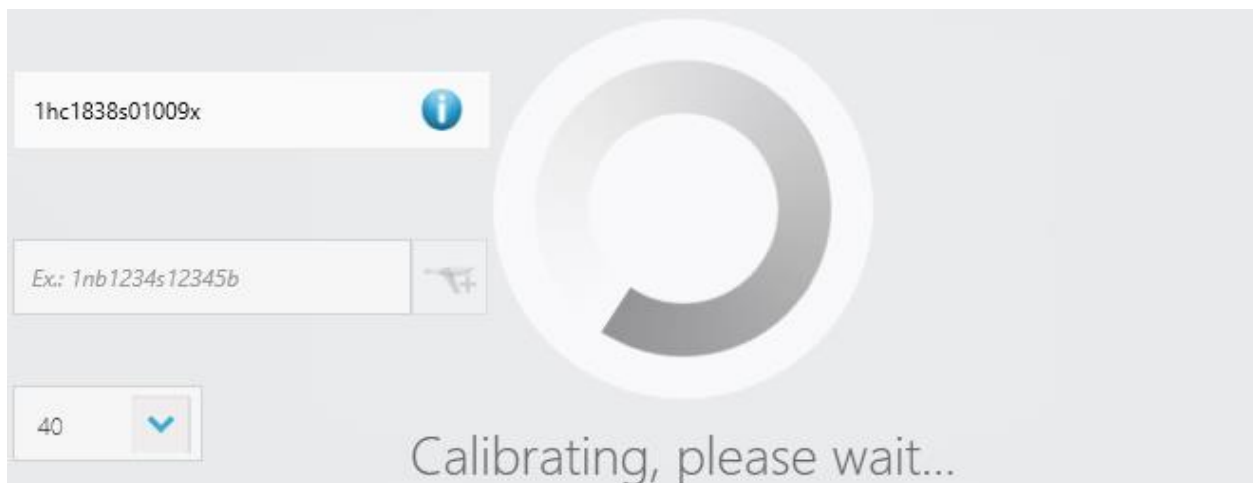
1. Detach the color calibration target, turn it over for the gray side to face upwards, then reattach it to the color calibration adapter.
2. Press **Next** to perform validation.

Color calibrate scanner

Please turn the Color Calibration Target so that the gray side is up and press Calibrate.
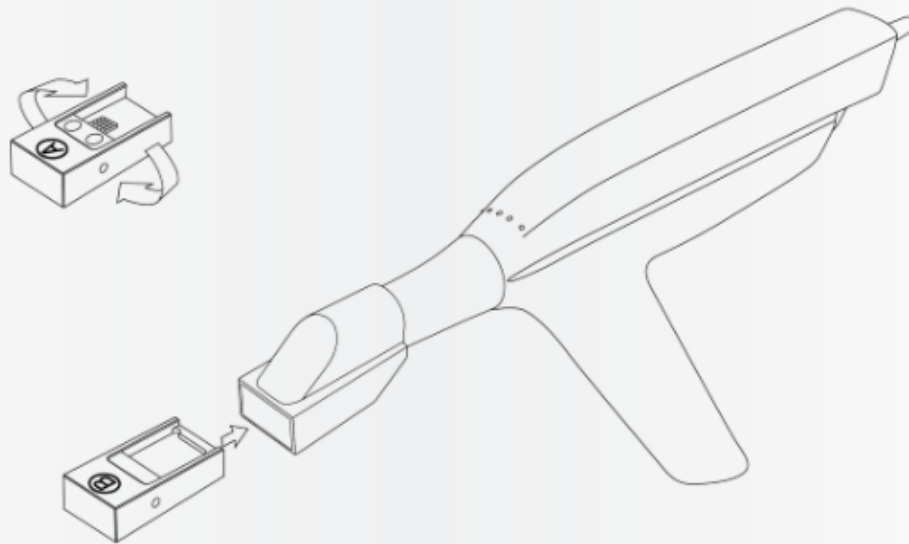
Next   Cancel

▶ **Step 5: Complete the process**

A message will tell you once the calibration is completed.

Color calibrate scanner

Color calibration completed.

Next

▶ **Step 6: Remove the calibration kit**

Remove the calibration target and adapter from the scanner tip and put the calibration target into its sleeve.

Color calibrate scanner

Ensure that the Color Calibration Target and Adapter is removed and that the Color Calibration Target has the protective sleeve on before proceeding.
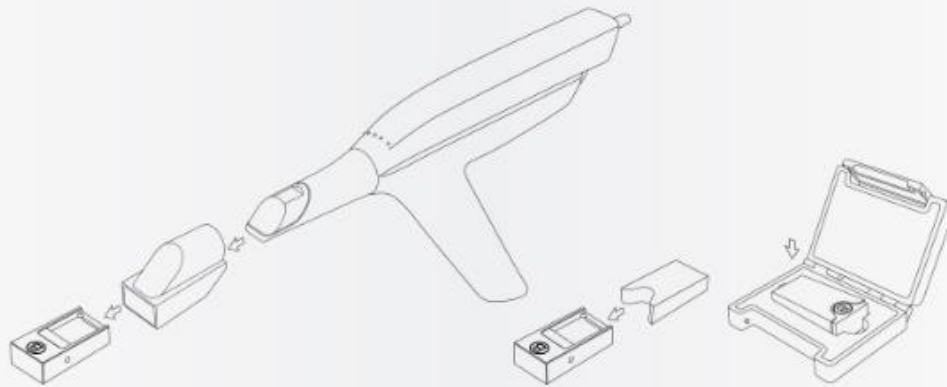
Close

8.1.2 Combined Calibration

If you are using TRIOS 4 scanner, the Scanner Management page shows only one button for both, 3D and Color calibration.

Use the calibration tip supplied with your scanner and press the ***Calibrate scanner*** button on the Scanner Management page to start a Calibration Wizard and guide you through the calibration process.

8.2 Cleaning, Disinfection and Sterilization

Please refer to the TRIOS® Safety and Setup Guide for cleaning, disinfection and sterilization instructions.

8.3 Disposal of Consumable Accessories

Please refer to the section in TRIOS® Safety and Setup Guide for instructions on how to dispose consumable accessories.

8.4 System Upgrades

You can check for software upgrades by going to **More >** ⚙ **Settings > Software Versions & Subscriptions > Installed Software & Upgrades** and pressing the *Check for upgrades* button.

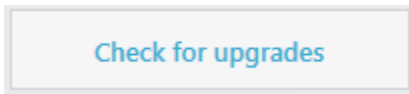⚠ **CAUTION** It is very important to follow on-screen instructions during the installation process. Do NOT unplug the scanner while firmware is being updated.

8.5 Automatic cleanup of the temporary recovery files

In order to secure proper scanning without a slowdown, the TRIOS® module software performs a cleanup of temporary recovery files e.g., of all post-processed orders older than 45 days.

Additionally, a check is made for available disk space on application startup. Depending on several cases, the temporary files can be deleted when there is less than 15 GB available. For example, the temporary recovery files in all orders older than 90 days are deleted, etc.

NOTE The orders included for automatic cleanup remain but their additional scanning or re-scanning will not be possible.
Use the protect from cleanup tool to prevent automatic cleaning of temporary files for a selected case if needed.

9 Data Migration

When you upgrade from TRIOS® classic system to TRIOS® on Dental Desktop, you have the option to migrate the existing cases, patients, users and settings to your new installation. TRIOS® on Dental Desktop detects the existing TRIOS® Classic installation on the same computer and prompts you to move the data over to the newly installed TRIOS® on Dental Desktop.

DATA MIGRATION PROCESS

> **NOTE** We highly recommend you to backup all TRIOS® data prior to running the migration process.

▶ **Step 1: Open the Transfer data dialog**

Start TRIOS® on Dental Desktop. When you launch TRIOS® on Dental Desktop for the first time on a computer where TRIOS® classic system is installed, it automatically imports the TRIOS® users and settings. After that, you are given the following options:

▶ **Step 2: Initiate transfer**

Press the ***Begin transfer*** button to start data migration to TRIOS® on Dental Desktop.

▶ **Step 3: Restart TRIOS® on Dental Desktop**

Once the migration has been completed, press the ***Restart*** button in the appeared dialog.

Transfer complete

73 patient(s) added.
5 case(s) added.
Press 'Restart' to make changes take effect.

Restart

This ends the data migration process. The existing cases, patients, users and settings should now be stored in your TRIOS® on Dental Desktop.

> **NOTE** You can also start the data migration process from *More* > *System settings* by pressing the **Transfer Patients and Users** button. This button is only shown when TRIOS® Classic installation has been detected and the data migration hasn't been run before.

10 System Requirements

The following table contains the minimum and recommended system requirements for running TRIOS® software:

Item	Minimum Requirements	Recommended requirements
OS	Windows 7, 8 or 10 64-bit	Windows 7, 8 or 10 64-bit
RAM	16 GB	16 GB
Monitor resolution	1280x800 or similar	1920x1200 or similar
Video card memory	2 GB	4 GB NVidia with DirectX 11
Available SSD/HDD Space	80 GB	500 GB
CPU	IntelCore i5 or equivalent, 4 logical cores	IntelCore i7 or equivalent, 4 logical cores
Network	2/2 Mbps	10/10 Mbps

11 Manufacturer Information

3Shape is a global company with offices in Europe, Asia and the Americas. TRIOS® Module is manufactured by 3Shape TRIOS A/S.

3Shape TRIOS A/S

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1060 Copenhagen

Denmark

2021

www.3shape.com - visit the corporate website to learn more about 3Shape, our products and global office locations.

www.3shape.com/en/support-docs - visit the support website to download a printable version or request a free printed copy of this user manual.

Contact your reseller for requests regarding support, customer service, software download and upgrade. In case of a malfunctioning 3Shape TRIOS® scanner, please report to 3Shape at support@3shape.com

12 Vigilance

In case of any serious incident that has occurred in relation to the use of the device, please report the incident to 3Shape at support@3shape.com and you can also report it to the competent authority of the state in which the user and/or patient is established.

Appendix: Compliance

TRIOS® Module user manual contains information applicable to devices bearing CE marking in accordance with provisions of Council Directive 93/42/EEC of June 14, 1993 concerning medical devices amended in Directive 2007/47/EC (MDD), and Medical Device Regulation (EU) 2017/745 (MDR). To check the exact compliance information of your TRIOS® IOS system, please refer to the TRIOS® Safety and Setup Guide originally supplied with the system.

For a quick overview of CE marking compliance of TRIOS® IOS systems, please see the information below.

Product	Model name(s)	CE mark is based on
TRIOS (1st generation of TRIOS® IOS system)	T12A family T12P family	MDD
TRIOS 3 IOS system containing a handle grip scanner with pod.	S1P-1, S1P-3	MDD
TRIOS 3 IOS system containing a handle-grip or pen-grip scanner with cart C3.0.	S1A-1, S1A-2 S1A-3, S1A-4	MDD
TRIOS 3 Wireless IOS system containing a handle-grip scanner with pod.	S2P-1	MDD
TRIOS 3 Wireless IOS system containing a handle-grip scanner with cart C3.0	S2A-1, S2A-2	MDD
TRIOS 3 IOS system containing a pen-grip scanner with pod.	S1P-2, S1P-4	MDR (from 26th of May 2021)
TRIOS 3 MOVE IOS system containing a pen-grip scanner with MOVE cart.	S1A-10, S1A-12	MDR (from 26th of May 2021)

TRIOS 3 MOVE+ IOS system containing a pen-grip scanner with MOVE+ cart.	S1A-22	MDR (from 26th of May 2021)
TRIOS 3 Wireless IOS system containing a pen-grip scanner with pod.	S2P-2	MDR (from 26th of May 2021)
TRIOS 3 Wireless MOVE IOS system containing a pen-grip scanner with MOVE cart.	S2A-10	MDR (from 26th of May 2021)
TRIOS 3 Wireless MOVE+ IOS system containing a pen-grip scanner with MOVE+ cart.	S2A-18	MDR (from 26th of May 2021)
TRIOS 4 IOS system containing a pen-grip scanner with pod.	S3P-2, S3P-8	MDR (from 26th of May 2021)
TRIOS 4 MOVE IOS system containing a pen-grip scanner with pod.	S3A-10, S3A-14	MDR (from 26th of May 2021)
TRIOS 4 MOVE+ IOS system containing a pen-grip scanner with MOVE+ cart.	S3A-18, S3A-22	MDR (from 26th of May 2021)