



# Edentulous Scan Strategy

by Prof. Dr. Lo Russo

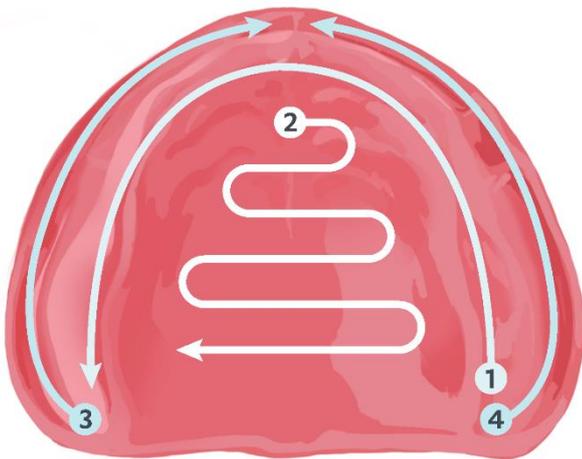
Designed for optimal scan experience of edentulous patients with 3Shape TRIOS





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# Description

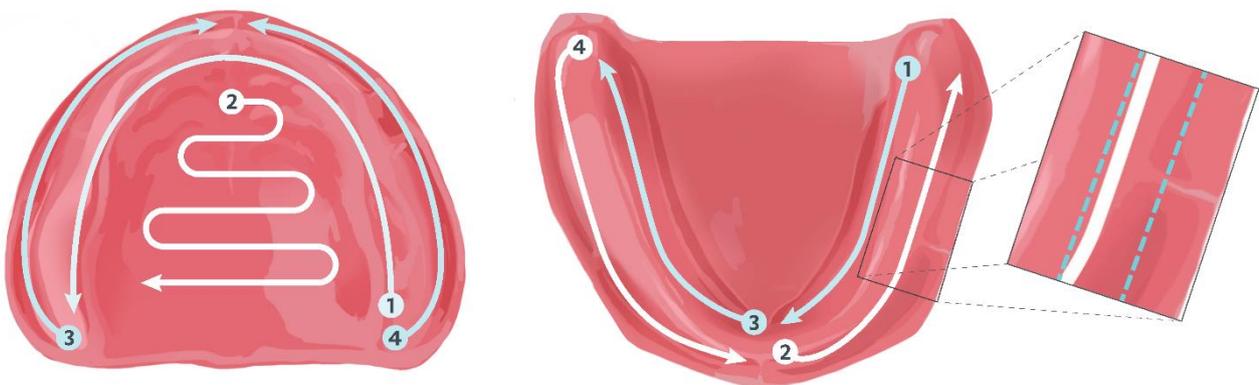
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## Introduction

Using 3Shape TRIOS scanners, edentulous arches can be scanned reliably and fast; take your own time and focus your attention on what you are going to do, having a clear scan strategy in mind. The assistance of a trained dental nurse is of great benefit. Use dental mirrors (one for you and one for the nurse) for tissues' retraction and stabilization: this is of paramount importance. Inspect the oral cavity of the patient before scanning and be prepared for what you are going to capture (i.e. undercuts, ridges' height and width). The patient should be in a reclined position with the head slightly extended. The clinical operator should be on one side of the patient's head; the dental nurse on the opposite side.

To understand how to obtain the best possible scan, we must distinguish between the maxilla and mandible, which will be described in details on the following pages.

Tip:  
During scanning, keep the 2D live image, so that at least 2/3 of the window is positioned over firm tissue and no more than 1/3 on soft moving tissue.



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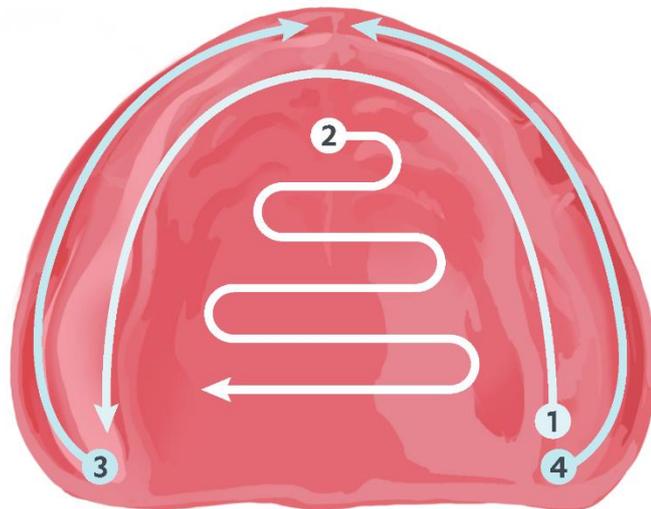
# Maxilla

The basic goal in scanning the **edentulous maxilla** is to achieve the global accuracy which might be impaired without a proper strategy, due to its wide surface and anatomical features (palate shape, undercuts).

This can be easily handled starting the scanning process from the tuberosity area of one side and proceeding along the center of the residual ridge towards the tuberosity area of the opposing side (path #1). At least in this step, let the TRIOS sound guide you: try not to look at the screen, you can hear that the scanning process is going on nicely. Then come back to the midline and complete the scan of the palate (path #2). Note that you are scanning a wide area, so the scanner should be moved in such a way that new images are easily and accurately stitched to the already captured surface; imagine like you are painting a white wall with a red small brush: you have to use the brush so that no white color could be seen between the brush strokes. Once path #2 is completed, proceed with the buccal aspect of the ridge. This step could be accomplished in a single pass, from one side to the other, but it can be tricky and requires a bit more expertise. Thus, it would be easier to make it in two phases (path #3 and #4); which side is scanned first is of no relevance: you can invert #3 and #4 and develop your favorite sequence. Start at the tuberosity area (path #3) and move smoothly towards the midline. Once at the midline, it would be possible to move to the tuberosity area of the opposing side and proceed with path #4 keeping the scanner activated; nonetheless, this requires attention, thus, to keep things as easy as possible it would be sensible to stop the scanner and restart the scanning process from the tuberosity area of the opposing side (path #4). While scanning path #3 and #4, keep the 2D live view with about two thirds of hard tissue; the tip of the scanner should be a bit rotated in order to face the vestibular slope of the ridge. The intraoral scan of the edentulous maxilla can be accurately performed from start to finish without stopping the scanner; nonetheless, take your time: the scan capturing can be stopped at any time and easily restarted, if needed.

Summing up:

1. Start the scanning process from the tuberosity area of one side and proceeding **along the center of the residual ridge** towards the tuberosity area of the opposing side.
2. Come back to the midline and complete the **scan of the palate with smooth movements** from side to side.
3. Proceed with the buccal aspect of the ridge.
4. Easiest way is to make it in two phases, which side is scanned first is of no relevance.





# Mandible

The basic goal in scanning the **edentulous mandible** should be going from one side to the other, scanning smoothly and capturing, if possible, all tissue in just one pass.

To this end, choose a side and start to scan from the retromolar area staying a bit on the lingual aspect of the ridge; proceed towards the midline (as showed by path #1 in the picture): the tip of the scanner should be a bit rotated in order to face the lingual slope of the ridge. It is likely that in moderately or severely resorbed residual ridges this is sufficient to capture the whole width of the ridge (or a sufficient width of tissues you need in your working model), then proceed directly from the midline to the opposite side, as shown by path #3. If this is not the case, or if you want to scan a wider area on the buccal aspect of the ridge, once you are in the middle, continue scanning moving backwards to the retromolar area and staying on the buccal aspect of the ridge, as shown by path #2. Keep the 2D live view with about half of firm tissue; the tip of the scanner should be a bit rotated in order to face the vestibular slope of the ridge: note that its angulation is opposite to that used for path #1. Path #2 is likely to be an optional step for moderately or severely resorbed ridges, whereas it is required for a complete scan of high and/or wide ridges. Once path #2 is completed, it would be possible to move to the midline and proceed with path #3 keeping the scanner activated; nonetheless, this requires high attention because patients' movements or inadequate speed in moving the scanner may cause mismatch in stitching of new images to the already captured surface, thus, a nice first pass scan could be easily worsened. For this reason, I strongly advise, once path #2 is completed, to stop the scanner. Then, let the patient relax for a while, remove saliva, and scan the other side. Restart scanning from the midline (path #3) and proceed toward the retromolar area staying a bit on the lingual aspect of the ridge: the tip of the scanner should be a bit rotated in order to face the lingual slope of the ridge. Again, in moderately or severely resorbed residual ridges this is likely to be sufficient to capture the whole width of the ridge, if this is not the case, complete the buccal aspect of the ridge following path #4, without stopping the scanner. Along path #4, keep the 2D live view with about half of firm tissue; the tip of the scanner should be a bit rotated in order to face the vestibular slope of the ridge: note that its angulation is opposite to that used for path #3.

Summing up:

1. Start to scan from the retromolar area staying a bit **on the lingual aspect of the ridge** and proceed towards the midline.

2. Continue scanning, moving backwards to the retromolar area and staying on the **buccal aspect of the ridge**.

**Stop the scanner.** Let the patient relax for a while, remove saliva and then continue

3. Restart the scanning from the midline and proceed toward the retromolar area **staying a bit on the lingual aspect of the ridge**.

4. Complete the **buccal aspect of the ridge**, without stopping the scanner.

