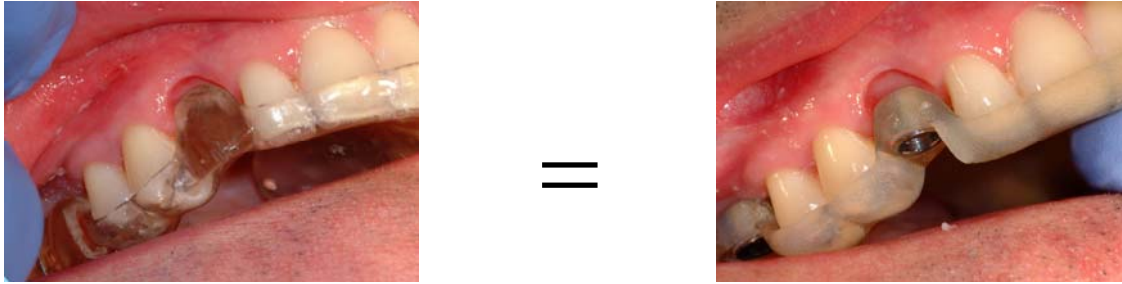


# Radiographic Guide Protocol

Proper fabrication of the radiographic guide is the critical first step in the iDent Scan2Guide process. The surgical guide that is fabricated is essentially a digital duplicate of the radiographic guide. So a secure fit and an adequate amount of material are crucial. The gutta-percha markers are what enable us fuse the scan of the patient wearing the guide with the scan of the guide alone. They should be placed exactly as this protocol describes. Prosthetic correctness of the guide is critical to utilize the full prosthetic planning aspects of the software. Please call us if you have any questions, we are glad to walk you or your dental lab through the specifics.



## Impression Material & Models

Even if you will use a prosthetic lab to fabricate the radiographic guide, the impression is the critical first step in the Scan2Guide process. This will ultimately affect the overall accuracy of the surgical guide that is created. We recommend VPS or similar material to be used to take the impression. You must take an impression of the full palate on the maxilla and retro-molar pads on the mandible. The model must accurately reproduce the buccal and lingual margins. The vestibule must be clear and undistorted. The entire impression should be free of pulls and bubbles. If the model is not accurate the fit of the radiographic guide will be improper.

## Guide Material

The radiographic guide should be fabricated from clear orthodontic acrylic. Do not use vacuform or any other non-rigid material.



## Make of the Guide

A diagnostic wax-up is used to fabricate the radiographic guide. The crowns should be a distinctively represented on the facial/buccal and occlusal aspects of the guide. Facially, the crowns of the guide adjacent to existing teeth should adjoin the guide via a diagonal span of acrylic.

The guide should cover the occlusal surface of the full arch. Do not fabricate the guide in such a way that it covers only a small section of the arch. The guide should extend over gums on the lingual/palatal side.

The flange should be 2 to 3 mm thick. The crowns on the guide should touch gums in edentulous areas. The guide should not have any gaps in between the gingiva and the guide.

It is important to be aware that the surgical guide will be an exact duplicate of the radiographic guide. The only changes in shape will be the tunnels made by the software for the implant sites.

*See images next page*



Proper make and fit of upper crowns



Proper make and fit of lower crowns



Proper coverage of occlusal surface



Proper thickness of guide

### Gutta-Percha Markers

Insert exactly 6 gutta-percha markers 1mm x 1mm. The markers should not be tubular in shape, they should appear as a round pellet no bigger than the recommended size. These markers should be placed on the lingual flange of the radiographic guide at a point that would be equal to the apical of each tooth. You may also use a radio-opaque composite for markers.



Gutta-percha markers are not in same horizontal plane as crowns of teeth. Ideal spacing is shown.

### Proper Fit

Because the surgical guide will be an exact duplicate of the radiographic guide, the guide should fit securely on the patient's teeth. If the guide does not fit securely, the guide must be remade. The guide should be stable on the study cast and in the patient's mouth. The guide should fit snugly enough that it cannot be easily displaced when the patient occludes. The patient will need to stabilize their bite while wearing the guide so as not to move during the scan (but natural occlusion is not necessary).



Improper fit - gap between guide and gingiva

### Using the Existing Prosthesis

You may also use the patient's existing denture or duplicate of the denture. The gutta-percha markers should be placed on the lingual/palatal side of the prosthesis.

It is recommended you realign the denture before the scan, if necessary, to insure ideal fit. If you do so, you must do a hard realign.



Denture marked with gutta-percha Acrylic duplicate of denture

## Avoiding Problems

**Pins** - Please do not use pins to mark the trajectories, a guide made properly from a wax-up that represents the crowns is completely adequate for planning trajectories. Pins often create too much scatter on the CT image obscuring important information.



## Immediate Extraction Cases

The guide should resemble a night guard as shown. Once the patient has been scanned, the radiographic guide and model will be sent back to you or your prosthetic lab. A crownectomy should be performed on the model. Then the guide should be modified by adding acrylic to the newly edentulous areas. The material added to the guide should represent exact facial, occlusal and lingual aspects of the final prosthesis. The guide is then sent back to the imaging center to be scanned alone. No additional scan of the patient is required.



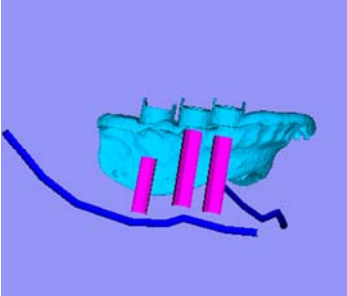
Radiographic guide before Modification



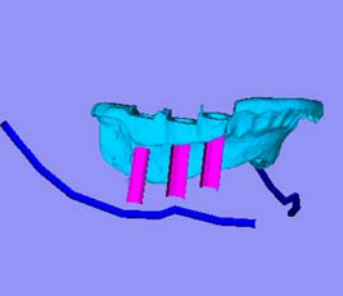
Radiographic guide after modification



Proceeding with the two scans without proper modification of the radiographic guide will result in a problematic surgical guide. The software will be unable to calculate correct drill depths and there will not be enough material to support the titanium drill sleeves in each implant site.



Incorrect surgical guide produced from unmodified radiographic guide



Correct surgical guide fabricated from modified radiographic guide