

PCO-IO Protocol

Truemergence LLC

Protocol PCO-IO: Partially Dentate / CBCT+Optical / Intraoral Scanner



The growing presence of digital intra oral scanners create a perfect match to the CT-based surgical guide workflow. Also, thanks to the magic of point cloud merging, there is no need for any CBCT scanning appliance whatsoever. This is the new norm for most surgical guides. Essentially, no scanning appliance is needed because the existing teeth are tasked as markers. Because there needs to be a good dispersement of markers, this technique requires that the patient have at least 3 teeth (and/or healing abutments) with an AP (Anterior-Posterior) and left-right spread of at least 20mm (i.e. almost all partially dentate cases).

Facilities / equipment needed:

- -CBCT Scanner
- -Intraoral Scanner (Your Office)

Items required:

For CBCT:

- 1) Cotton rolls
- 2) NO SCANNING APPLIANCE NEEDED

Clinically:

- 2) Optional: Scan of opposing arch if articulator setup is to be used for the waxup.

Procedure:

- -CBCT Scan:
 - -If the patient's opposing arch has a removable prosthesis, he/she should be wearing it.
 - -Place cotton rolls in the vestibule(s) adjacent to edentulous areas (this is optional, but it helps if the scan is "noisy"; helping us to merge the model based on soft tissue).
 - -Patient should bite on additional cotton rolls in the posterior quadrants. It is important that the patient NOT be in occlusion during the scan.
 - -Field of View (FOV) should be limited to the dental arch in question and extend apical to just beyond the inferior border of the orbits (maxillary scan) or inferior border (mandibular scan).
 - -Prepare CBCT scan for Export to Us:
 - -Ask the CBCT technician to give/send you files in one of these two formats:
 - -Standard DICOM SET (A folder with hundreds of .DCM files, one for each slice), or
 - -Anatomage Invivo (.INV file)
- -Optical Scan:
 - -Scan the full arch.
 - - ⚠ Caution: most intraoral scanners, while accurate to 7 microns at the single tooth level, suffer from "progressive scan error" when scanning a full arch. 2nd molar to 2nd molar error can easily be 100 microns. Because of this, we recommend that you have your patient in for a separate surgical guide try-in appointment to confirm fit prior to the surgery appointment.
 - -Scan quadrant or full opposing arch (whichever is appropriate for your virtual waxup), along with interocclusal record scan .
 - -Perform a virtual waxup (or send to your Dental Lab for that)
 - -Export both the unmodified scan and the virtual waxup scan as .STL files
- - Upload:
 - -Go to our [upload page and upload the 3 files](#).

Photo Credit: 3M