Full-Arch / All-on-X Clinical Protocol

Records collection and lab communication guide for referring dentists and oral surgeons, for FP1/FP2/FP3 restorations.

SECTION 1

How to Use This Guide

This protocol defines the clinical records required at each phase of a full-arch implant case, specifies what must be communicated to DTS at each submission point, and describes what the referring clinician can expect in return. It applies to all full-arch screw-retained rehabilitations regardless of prosthetic classification.

The protocol is organized chronologically across the treatment arc: pre-surgical records, surgery-day documentation, provisional-phase follow-up, and final prosthesis submission. Each section identifies the required records, the format for submission, and the DTS deliverable that follows.

In DTS philosophy, Full-arch implant rehabilitation is not a surgical case with a restoration attached. It is a restorative case that surgery is designed to support. Every decision - implant position, multi-unit angulation, flap design, provisional design - is driven by the final prosthesis.

Note: Full-arch cases require a prosthetically driven planning sequence. The final restoration design must be established before surgical planning begins. DTS requires complete pre-surgical records before guide design or provisional fabrication can proceed.

SECTION 2

Pre-Surgical Records

The following records are required before DTS can begin smile design, wax-up, surgical guide fabrication, or provisional design. All records must be submitted together as a complete case package.

Intraoral Scan

- Full arch scan of both the upper and lower arches.
- Occlusal bite registration in maximum intercuspation.
- Capture a minimum of 5 mm above the gingival margin to provide adequate ridge detail for provisional and surgical stent design.

Submit in STL, PLY, or OBJ format - or directly via scanner portal with the IOS order number included.

Anterior cases: If a vertical dimension of occlusion change is planned, document the current VDO and the target VDO in the case submission notes. DTS will design to the target VDO.

CBCT Scan

- Full arch volume, DICOM format.
- Taken at the patient's current VDO, or at the adjusted VDO if a restorative change is planned.
- For VDO-adjusted cases: place composite stops on posterior teeth and anterior guidance to establish a stable and repeatable bite position, then capture the CBCT with the patient holding that position.
- DTS will merge the CBCT with the pre-surgical intraoral scan for guide design and implant planning.

Clinical Photography

Photography is the primary communication tool between the referring clinician and DTS. All photos are submitted unedited. Do not filter, crop, or color-adjust images before uploading.

Required views:

- Frontal - lips at rest, full smile, and retracted.
- Emma pose (patient says the word Emma) - captures natural incisal display at rest. This establishes the position of teeth 8 and 9, which anchor the entire smile design.
- 45-degree angle - lips at rest and full smile.
- 90-degree profile - lips at rest and full smile.
- Close-up of the smile, cropped to the lip area with sharp focus.
- Close-up at 45 and 90 degrees.

Required video:

- Dynamic smile video - patient speaking naturally and smiling. Minimum 30 seconds.
- This allows DTS to assess how the incisal edges move during function and to evaluate the full range of lip movement, which static photos cannot capture.

Note: Capture all photos before intraoral scanning. Retraction and intraoral instruments alter lip position and facial muscle tone, affecting the accuracy of photographic references for design.

Facial Analysis Notes

Include the following clinical observations in the case submission notes. These guide the DTS designer in establishing proportions before the 2D overlay is applied:

- Dental midline position relative to facial midline - note any deviation and direction.
- Incisal edge position relative to the upper lip at rest (“Emma” pose) - how many millimeters of tooth display.
- Smile curve - do existing or desired incisal edges follow the lower lip curvature?
- Gingival zenith - note any asymmetry or level discrepancy between anterior teeth.
- Overjet and lip support requirements - particularly relevant for patients transitioning from complete dentures or with a Class III skeletal relationship.

Intraoral scan	STL, PLY, OBJ, or scanner portal. Upper, lower, and bite.
CBCT	Full arch DICOM. Taken at current or target VDO.
Photography	Full protocol, unedited. All views required before scanning.
Dynamic video	Minimum 30 seconds. Patient speaking and smiling.
Facial analysis	Midline, incisal display, smile curve, overjet - in case notes.

SECTION 3

Smile Design and Prosthetic Planning

DTS performs digital smile design using the submitted photography, intraoral scan, CBCT, and facial analysis notes. The design establishes the final prosthetic blueprint before any surgical planning begins.

DTS Smile Design Output

Upon receipt of a complete pre-surgical record package, DTS will deliver the following:

- 2D smile design overlay - ideal tooth proportions projected onto the frontal photograph, aligning the smile curve to the lower lip and establishing golden proportion.
- 3D design file - the approved 2D design merged onto the patient's intraoral scan in CAD. This becomes the foundation for the wax-up, surgical guide, and provisional.
- Soft tissue and bone assessment - areas of deficiency identified in the CBCT that may require grafting, sinus augmentation, or connective tissue management prior to or concurrent with implant placement.

Note: The clinician must review and approve the smile design before DTS proceeds to wax-up and guide fabrication. Approval can be submitted via the case portal or by email. Design revisions are included at this stage.

Prosthetic Classification

The referring clinician must confirm the prosthetic classification before DTS begins guide design. This decision determines implant positioning, multi-unit angulation, provisional thickness, and final framework design.

Classification	Description	Lab Implications
FP1	All tooth structure visible. No gingival acrylic. Natural crown emergence from tissue.	Requires precise emergence profile on provisional. Longer tissue maturation phase. DTS will design tighter cervical contours and CEJ simulation on the provisional.
FP2	Hybrid design. Pink gingival acrylic in posterior, natural tooth emergence in anterior.	DTS designs the transition zone between tooth and gingival acrylic. Clinician must specify which zones are FP1 and which are FP3 in the case notes.
FP3	Full gingival replacement with pink acrylic or monolithic zirconia framework.	Simpler emergence profile. Required for cases with significant vertical bone loss or zygomatic/pterygoid implant placement. DTS will design the gingival contour to match existing facial soft tissue levels.

Important: Prosthetic classification must be confirmed in writing before guide fabrication begins. A classification change after guide design requires a new planning cycle and may affect the surgical appointment timeline.

What to Submit for Surgical Guide Fabrication

- Approved smile design and 3D wax-up file.
- Confirmed prosthetic classification (FP1, FP2, or FP3).
- Implant system selection: manufacturer, system name, connection type, and desired platform diameter.
- Number of implants per arch and preferred positions - or authorization for DTS to plan positions based on the CBCT and wax-up.
- Surgical workflow: stackable guide, conventional guide, or no guide.
- Planned multi-unit abutment angulations if pre-selected, or authorization for DTS to specify based on the prosthetic design.

DTS will return:

- Surgical guides if requested in treatment plan.
- Immediate esthetic provisional fabricated pre-surgery, enlarged holes for easier cylinders relining.
- Second set of the same provisional design for relining and communicated to the lab for any changes done chairside post surgery, and needed adjustments before the next provisional if part of the treatment plan, or for the final restoration.
- Full Implant planning report showing planned positions relative to the prosthetic design.
- Full detail drilling sequence protocol to follow during surgery, for supported brands in RealGUIDE.

SECTION 4

Surgery Day Records

The surgery day record set captures the actual implant positions as placed and initiates provisional fabrication. These records must be captured and submitted to DTS the same day as surgery.

Intraoral Scan - Post-Placement

- Retain strategic natural teeth, when possible, during scanning to aid stitching accuracy. Remove only after the arch scan is complete.
- Place scan bodies on all multi-unit abutments. Optimal scan body height above tissue: 4 to 6 mm.
- Capture a full arch scan. The scan must register all scan bodies in a single continuous scan session.
- Capture the opposing arch scan at the same appointment. Both arches must be submitted together.

Note: If using photogrammetry: Submit the photogrammetry file alongside the intraoral scan of the tissue. For cases with 4 or more implants, photogrammetry is strongly recommended for passive fit accuracy.

Scan Body Documentation

- Confirm scan body type: manufacturer-original or third-party compatible.
- For third-party scan bodies: include the model name and manufacturer in the submission notes.
- Verify scan body seating before scanning - no rocking or rotation. Anti-rotation feature must be fully engaged and on facial/buccal side.
- If seating is uncertain, take a periapical radiograph to confirm full seating before capturing the arch scan.

Provisional Pickup - Gallucci Concept

If using an intraoral pickup rather than a pre-fabricated provisional:

1. With scan bodies in place and the arch scan confirmed, place the DTS-designed PMA provisional into the mouth over the multi-units.
2. Verify seating using the palatal stops integrated into the design.
3. Isolate using rubber dam squares around each cylinder to prevent undercuts.
4. Lute with composite or dual-cure core buildup material.
5. Once set, remove the assembly, send to DTS for trimming, polishing, and finishing.

Surgery Day Submission to DTS

- Full arch intraoral scan with all scan bodies captured.
- Opposing arch scan from the same session.
- Photogrammetry file, if applicable.
- Scan body identification: type and model name.
- Clinical notes: flap design, any deviation from the surgical plan, soft tissue status, grafting performed.

DTS will return:

- Provisional prosthesis - fabricated, screw-retained, ready for seating. Turnaround time confirmed at case submission.
- Design report documenting multi-unit positions as captured, cylinder placement, and any design adjustments made relative to the pre-surgical plan.

Provisional Delivery Documentation

- Photograph the delivered provisional in place: frontal, 45-degree, and close-up views.
- Document torque values for each screw at delivery.
- Record any chairside occlusal adjustments made at delivery in the case notes.
- Submit delivery photos to DTS with a brief note on occlusal contacts and any fit adjustments made. DTS uses this feedback to refine the second provisional design.

SECTION 5

FP1/FP2 Provisional Phase - Follow-Up Records

The FP1 provisional phase spans 90 to 120 days. Records collected at each follow-up appointment inform the second provisional design and, ultimately, the final prosthesis. Submit updated records to DTS at each milestone.

Timepoint	Records to Capture	Submit to DTS
Day 3	Occlusal adjustment notes. Photograph if provisional was modified.	Not required unless significant changes were made to the provisional.
Day 7	Tissue assessment photographs: frontal, 45, and close-up.	Submit photos if tissue response is atypical or if design adjustments are anticipated.
Day 30	Tissue adaptation photographs: frontal, 45, close-up. Note any open embrasures, contact pressure, or pontic blanching.	Submit photos. DTS will confirm whether second provisional is needed and what timing is appropriate.
Day 60 to 90	Full photography protocol. Updated intraoral scan with provisional in place. CBCT if implant-to-bone relationships need reassessment.	Submit complete record package. DTS begins second provisional design or prepare to final if not needed.

Note: The Day 60 to 90 record package is the most critical submission in the provisional phase. The intraoral scan with the provisional in place allows DTS to segment the CBCT, visualize pontic contacts against remodeled bone, and refine the cervical and embrasure design for the second provisional.

What DTS Evaluates at the 60 to 90 Day Submission

- Tissue adaptation around the provisional - papilla fill, embrasure health, and cervical margin response.
- Pontic position relative to the remodeled ridge - adjustments are made to avoid tissue compression or excess clearance.
- Screw access alignment - confirms multi-unit positions remain consistent with the prosthetic design.
- Any design modifications requested by the clinician based on clinical findings or the patient's occlusal feedback.

DTS will return:

- Second provisional design and fabricated second provisional incorporating all approved design corrections.
- Updated design report documenting changes made relative to the first provisional.

Second Provisional Delivery Documentation

- Photograph the second provisional in place using the full photography protocol.
- Document torque values at delivery.
- Record any chairside adjustments in the case notes.
- Submit delivery photos and a clinical note summarizing tissue response and any remaining design concerns. This package initiates the final prosthesis planning cycle.

SECTION 6

Final Prosthesis Records

FP3 final prosthesis begins at the end of the implants integration period and FP1/FP2 final prosthesis fabrication begins after the second provisional has been in place for a minimum of 4 weeks and tissue is confirmed stable. Submit the following complete record package to DTS.

Required Records for Final Submission

- Final intraoral scan with the second provisional in place (FP1) - captures the refined tissue architecture and emergence profiles.
- Photogrammetry/Grammetry scan (recommended for cases with 4 or more implants).
- Full photography protocol: frontal at rest, Emma pose, full smile, 45-degree and 90-degree views, and close-ups.
- Dynamic smile video - minimum 30 seconds.
- Final CBCT (Recommended) - confirms peri-implant bone levels and rules out pathology before final fabrication begins.

Final Design Brief

Include the following specifications in the case submission notes:

- Final prosthetic classification confirmed (FP1, FP2, or FP3).
- Restoration material: monolithic / layered zirconia or composite (specify grade or strength class).
- Shade designation using Vita Classical or 3D-Master notation.
- Occlusal contact preference: light contacts in centric occlusion, or out of occlusion with excursive clearance.
- Screw access hole location preference: palatal, lingual, or occlusal.

Important: Do not submit the final design brief without confirming tissue stability. If tissue continues to change at the time of the Day 90 scan, extend the provisional phase by 4 weeks before initiating final fabrication.

Final Delivery Documentation

- Photograph the final prosthesis in place: frontal at rest, full smile, 45-degree, 90-degree, and close-up views.
- Document final torque values for each screw per the implant system protocol.
- Submit final delivery photos to DTS. These are retained in the case file and used as a reference baseline for any future revision or repair.

Final intraoral scan	With second provisional in place. STL via portal or file transfer.
Photogrammetry	Required for 4 or more implants.
Final photography	Full protocol including dynamic smile video.
Final CBCT	Peri-implant assessment before fabrication begins.
Design brief	Material, shade, contacts, screw access, surface - in case notes.
Framework try-in	Zirconia cases only. Passive seating confirmed radiographically.
Delivery photos	Full protocol. Submitted to DTS for case file.
Torque documentation	Per implant system protocol. Retained in clinical record.

SECTION 7

Master Submission Checklist

Use this checklist to confirm all records are complete before each submission to DTS.

PRE-SURGICAL RECORD PACKAGE	
Record	**Required**
Intraoral scan - upper arch, lower arch, and bite (STL or scanner portal)	✓
CBCT - full arch DICOM at current or target VDO	✓
FMX or panoramic - current within 12 months	✓
Frontal photos - rest, Emma pose, full smile	✓
45-degree photos - rest and full smile	✓
90-degree profile photos - rest and full smile	✓
Close-up smile photos - frontal, 45, and 90 degrees	✓
Dynamic smile video - minimum 30 seconds	✓
Facial analysis notes - midline, incisal display, smile curve, overjet	✓
VDO documentation - current and target, if change is planned	✓

SURGICAL GUIDE AND PROVISIONAL AUTHORIZATION	
Record	**Required**
Smile design approved by referring clinician	✓
Prosthetic classification confirmed in writing (FP1, FP2, or FP3)	✓
Implant system: manufacturer, system name, connection type, platform diameter	✓
Implant count and planned positions per arch - or DTS planning authorized	✓
Surgical workflow confirmed: stackable guide, conventional guide, or Yomi	✓
Multi-unit angulations specified - or DTS specification authorized	✓

SURGERY DAY SUBMISSION	
Record	**Required**
Post-placement intraoral scan - all scan bodies captured in one session	✓
Opposing arch scan - same session as operative arch	✓
Photogrammetry file - required for 4 or more implants	✓
Scan body identification - type and model name	✓

Clinical notes - flap design, deviations from plan, grafting performed	✓
Provisional delivery photos - frontal, 45, close-up	✓
Delivery torque values documented	✓

DAY 60 TO 90 - SECOND PROVISIONAL PACKAGE	
Record	**Required**
Updated intraoral scan with provisional in place	✓
Updated photography - full protocol	✓
Updated CBCT if bone reassessment is indicated	✓
Clinical notes - tissue response, embrasure status, design correction requests	✓
Second provisional delivery photos submitted to DTS after seating	✓
Second provisional delivery torque values documented	✓

FINAL PROSTHESIS SUBMISSION	
Record	**Required**
Final intraoral scan with second provisional in place	✓
Photogrammetry - required for 4 or more implants	✓
Final photography - full protocol including dynamic video	✓
Final CBCT - peri-implant assessment confirmed	✓
Design brief - material, shade, contacts, screw access, surface texture	✓
Framework try-in approval submitted - zirconia cases only	✓
Final delivery photos submitted to DTS for case file	✓
Final torque values documented per implant system protocol	✓

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Questions before submitting? Schedule a case discussion (click here).