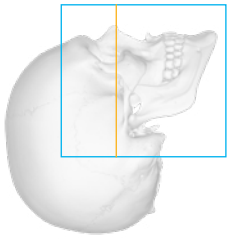
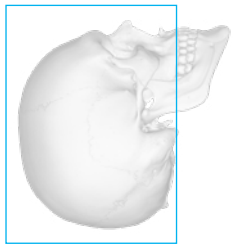
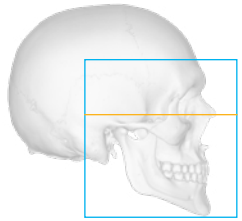
acumed®
Digital Surgery

CT Scan Protocol

Orthognathic, Reconstruction, and Cranial Protocols

This protocol describes the guidelines for Computerized Tomography (CT) scans and Cone Beam Computerized Tomography (CBCT) scans for Acumed Digital Surgery™. Use the following scan parameters or the closest approximation possible.

CT Scanners		
Specifications	**Parameters**	
Voxel Size	0.39–0.65 mm	
Slice Thickness	1.00 mm is recommended maximum, but 1.5 mm is accepted with approval	
Slice Increment	Less than or equal to slice thickness	
Slice Orientation	Axial slice orientation (original/primary/axial)	
Algorithm	Bone or high-resolution	
Matrix	512 x 512	
Pitch	Less than or equal to 1	
Patient Position	Supine, head first into the gantry Ensure the Frankfurt Plane is vertical, straight, and centered to the scanner lasers	
Case Type	**Orthognathic / Reconstruction**	**Cranial**
Field of View (FOV)	Chin to glabella	Entire skull
		
	*Blue is recommended FOV; orange shows Frankfurt Plane Image is oriented for patient position in scanner	
Scan Date	Scan date must be within 3 months of scheduled surgery date	Scan date must be within 2.5 months of scheduled surgery date

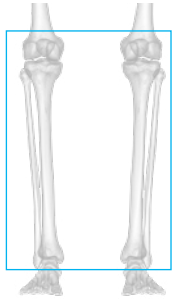
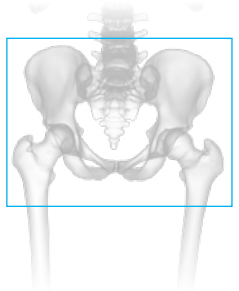
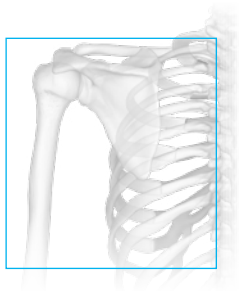
CBCT Scanners	
Specifications	**Parameters**
Voxel Size	0.2–0.4 mm
Slice Orientation	Axial slice orientation
Algorithm	Bone or high-resolution
Field of View (FOV)	Chin to glabella
	
	*Blue is recommended FOV; orange shows Frankfurt Plane Image is oriented for patient position in scanner
Matrix	Even: (512 x 512) (768 x 768)
Voltage/Amperage	90–120 kVp and 6–15 mA, depending on the machine and patient size
Patient Position	Natural head position with Frankfurt Plane aligned parallel to the floor
Gantry Tilt	0°
Scan Date	Scan date must be within 2.5 months of scheduled surgery

Data Collection / Upload

- Do not erase patient name and ID
- Save the images as multiple slices in an uncompressed standard DICOM format
- Data cannot be modified or formatted; do not alter orientation or slice thickness
- Once data has been exported, zip and upload to Acumed Digital Surgery **digitalsurgery.acumed.net**
- Physical data can be mailed to
  Acumed LLC
  Attention: Acumed Digital Surgery
  3885 Arapaho Road
  Addison, TX 75001

For questions or concerns, please contact **CMF-digitialsurgery@acumed.net** or **945-341-2012**

Graft Protocols

Specifications	Parameters	CT Scanners	CBCT Scanners
Voxel Size	0.39–0.65 mm		0.2–0.4 mm
Algorithm	High-resolution, IV contrast is required for arterial mapping		High-resolution, use specialized metal artifact re-duction algorithms if hardware is present
Voltage/Amperage	80 to 140 kVp (kilovolt peak) and 10 to 1000 mA		120 kVp and 1–15 mA, depending on the machine and patient size
Scan Date	Scan date must be within 3 months of scheduled surgery		Scan date must be within 2.5 months of scheduled surgery
Pitch	Less than or equal to 1		N/A
Slice Increment	Less than or equal to slice thickness		N/A
Slice Thickness	1.0 mm is recommended maximum, but 2.0 mm is accepted with approval		
Slice Orientation	Axial slice orientation (original/primary/axial)		
Patient Position	Supine and legs/arms straight		
Gantry Tilt	0°		
Matrix	Even: (512 x 512) (768 x 768)		
Case Type	**Fibula Graft**	**Iliac Crest Graft**	**Glenoid Bone Grafting**
Field of View (FOV)	Knee to ankle 	Iliac crest to ischium 	Clavicle to mid humerus 

*Blue is recommended FOV

Scanning Tips

- Instruct the patient to remain still and avoid movement, such as tilting or turning the head
- Remove any non-fixed metal prosthesis, jewelry, or any other object that might interfere with the region to be scanned
- Ensure the patient's head is in a neutral, centered, CR position, with the condyles positioned optimally within the glenoid fossa
- Avoid using a bite block if possible
- To ensure accurate soft tissue data, avoid having the patient in a chin cup