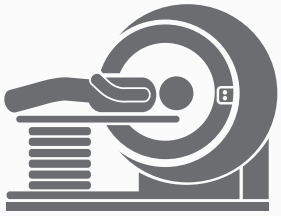
TORNIER TECHNOLOGY

TORNIER BLUEPRINT

3D Planning + PSI



SCAN PROTOCOL

WRIGHT™
FOCUSED EXCELLENCE

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Introduction to the BLUEPRINT CT Protocol

This document describes the guidelines for a Shoulder CT-Scan to be processed by the BLUEPRINT 3D Planning Software, using **no contrast.**

BLUEPRINT **utilizes only the thin axial DICOM images** from the CT scan.

The software automatically creates a 3D model (using the thin axial images) that the surgeon uses to virtually plan shoulder replacement surgery using the Wright Medical shoulder implant portfolio:



The thin axial images can to be uploaded directly into the ordering physician's BLUEPRINT account via our secure cloud.

If the physician has requested the images be uploaded through the cloud, refer to page 9 for instructions.

If you are unable to upload to the physician's BLUEPRINT account, the thin axial images may need to be burned to a CD or a USB drive and given to the physician if their PACS software will not allow them to download the DICOM file.

If you have any questions or require any assistance, please contact us at:

Email: blueprint_us@wright.com
Phone: 855.378.1459
Managed 8:00am–5:00pm CST

If you would like to see what else we are accomplishing at Wright Medical utilizing BLUEPRINT, please visit us at www.shoulderblueprint.com.

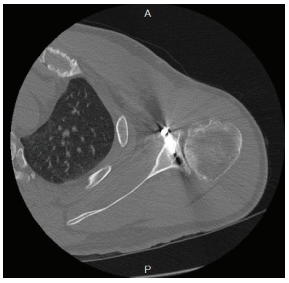
Patient Preparation & Scan Instructions

Patient Prep
Verify that metal and contrast are not present within the shoulder you are scanning.

If metal is present in the opposing shoulder, place the opposing arm above the patient's head, resting on a pillow.

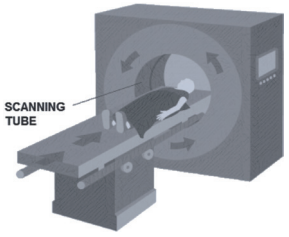
Place patient supine on the table with humerus along the trunk of the patient. Arm/ Humerus is in the neutral position with the patient's thumb up.

Iso-Center the patient to avoid any out of field artifact. You may place a small pillow between the humerus and the trunk of the patient.



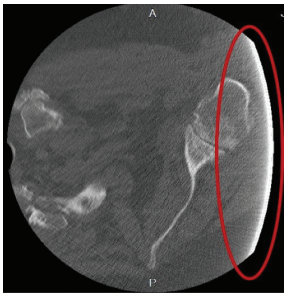
Artifacts generated by metallic implants

Breathing instructions
Patient is to hold their breath. If a breath hold is not possible, shallow breathing is necessary to prevent motion.



Position of the patient in the machine

Scan Range
Start the scan a few slices above the AC joint, include the entire scapula and a few slices below the inferior angle of the scapula. The medial border of the scapula must be shown in the scan.



Example of incomplete projections

No Gantry Tilt

NOTE: Axial slice thickness must not be greater than 1.25 mm. The entire glenohumeral joint and scapula must be scanned. See parameters for scan range and DFOV.



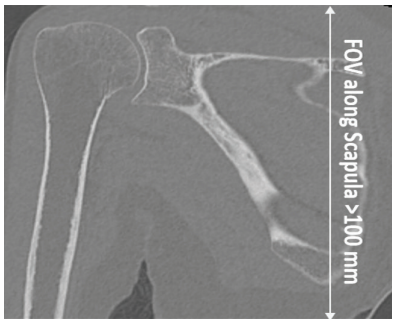
Full scan of the scapula

BLUEPRINT Scan Protocol for GE Scanners

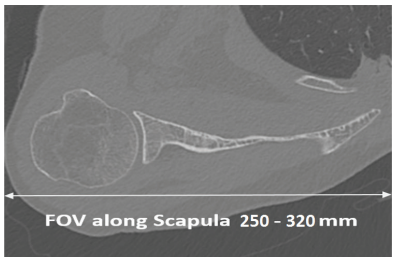
Start the scan a few slices above the AC joint, include the entire scapula and a few slices below the inferior angle of the scapula. The medial border of the scapula must be shown in the scan.

IMPORTANT:
- No Gantry Tilt
- No Contrast
- All Slices must have the same Field of View and same Slice Spacing
- BLUEPRINT requires the .625 mm or 1.25 mm axial images (do not exceed 1.25 mm)
- Matrix must be 512 x 512

Parameter	Setting
Modality	CT Shoulder without contrast
Kernel /Algorithm	Bone
KVP	120 or 140
mA	Auto
Slice Thickness	.625 mm x .625 mm or 1.25 mm x 1.25 mm
Detector Coverage	Maximum
Pitch	0.9 or less
Rotation Time	1 second or less
Exposure Time	1000 ms
Matrix	512 x 512
DFOV	25 cm to 32 cm



DFOV (frontal plane)



DFOV (axial plane)

Set DICOM tag "Study Description" to "BLUEPRINT thin axials."

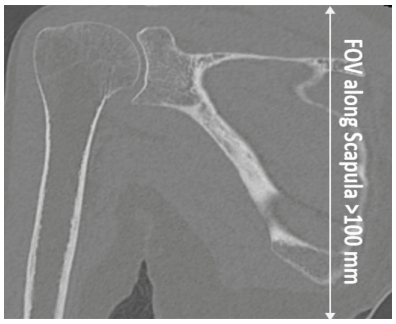
NOTE: If the scan is ordered as Bilateral Shoulders, each shoulder must be scanned separately.

BLUEPRINT Scan Protocol for Siemens Scanners

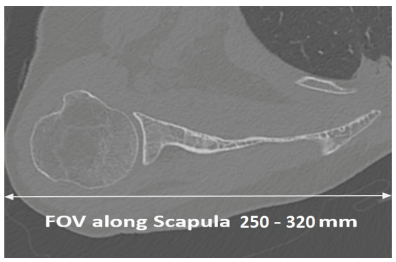
Start the scan a few slices above the AC joint, include the entire scapula and a few slices below the inferior angle of the scapula. The medial border of the scapula must be shown in the scan.

IMPORTANT:
- No Gantry Tilt
- No Contrast
- All Slices must have the same Field of View and same Slice Spacing
- BLUEPRINT requires the 1 mm or thinner axial images
- Matrix must be 512 x 512
  - Siemens Somatom GO scanners must be manually set to a squared matrix.

Parameter	Setting
Modality	CT Shoulder without contrast
Kernel /Algorithm	Bone 70's - Set window to Bone
KVP	120 or 140
mA	Auto
Slice thickness	1mm x 1mm or thinner
Detector Coverage	Maximum
Pitch	0.9 or less
Rotation Time	1 second or less
Exposure Time	1000 ms
Matrix	512 x 512 - Somatom GO scanner must be manually set to a squared matrix
DFOV	250 mm to 320 mm



DFOV (frontal plane)



DFOV (axial plane)

Set DICOM tag "Study Description" to "BLUEPRINT thin axials."

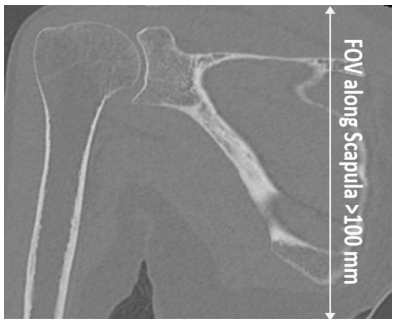
NOTE: If the scan is ordered as Bilateral Shoulders, each shoulder must be scanned separately.

BLUEPRINT Scan Protocol for Toshiba/Canon Scanners

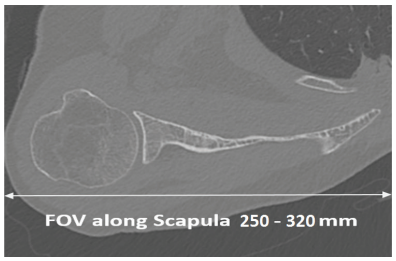
Start the scan a few slices above the AC joint, include the entire scapula and a few slices below the inferior angle of the scapula. The medial border of the scapula must be shown in the scan.

IMPORTANT:
- No Gantry Tilt
- No Contrast
- All Slices must have the same Field of View and same Slice Spacing
- BLUEPRINT requires the .5x.5 mm or 1x1 mm axial images (do not exceed 1x1 mm)
- Matrix must be 512 x 512
- Standard bone volumes are required

Parameter	Setting
Modality	CT Shoulder without contrast
Kernel /Algorithm	Bone Standard
KVP	120/130 - 135/140 (depending on your scanner)
mA	Auto
Slice thickness	.5 mm x .5 mm or 1 mm x 1 mm (do not exceed)
Detector Size/Coverage	Maximum
Pitch	0.9 or less
Rotation Time	1 second or less
Exposure Time	1000 ms
Matrix	512 x 512
DFOV	250 mm to 320 mm



DFOV (frontal plane)



DFOV (axial plane)

Set DICOM tag "Study Description" to "BLUEPRINT thin axials."

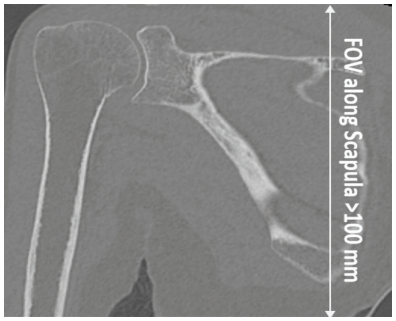
NOTE: If the scan is ordered as Bilateral Shoulders, each shoulder must be scanned separately.

BLUEPRINT Scan Protocol for Philips Scanners

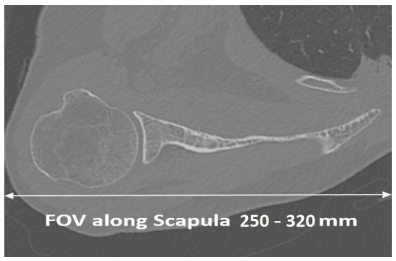
Start the scan a few slices above the AC joint, include the entire scapula and a few slices below the inferior angle of the scapula. The medial border of the scapula must be shown in the scan.

IMPORTANT:
- No Gantry Tilt
- No Contrast
- All Slices must have the same Field of View and same Slice Spacing
- BLUEPRINT requires the 1.25 mm or thinner axial images
- Matrix must be 512 x 512

Parameter	Setting
Modality	Body
Collimation	64 x .625
Kernel /Algorithm	Bone
KVP	120 or 140
mA	Auto
Thickness/Increment	1.25/1.25
Detector Coverage	Maximum
Pitch	0.8
Rotation Time	1
Exposure Time	1000 ms
Matrix	512 x 512
DFOV	250 mm to 320 mm
Resolution	High
Filter	Sharp
Bone Window	Set a preferred window



DFOV (frontal plane)



DFOV (axial plane)

Set DICOM tag "Study Description" to "BLUEPRINT thin axials."

NOTE: If the scan is ordered as Bilateral Shoulders, each shoulder must be scanned separately.

Uploading DICOM Images Via the BLUEPRINT Cloud

The thin axial images can to be uploaded directly into the ordering physician's BLUEPRINT account via our secure cloud system. If the ordering physician has requested this, follow these instructions:

How to Register for a BLUEPRINT CT Scan Technologist Account

STEP 1: Go to: **https://oms.tornierblueprint.com/register** and complete the registration form or **www.shoulderblueprint.com** and click **REGISTER** in the top right hand corner.

STEP 2: Once you receive the account activation email, verify your email address and create your password.

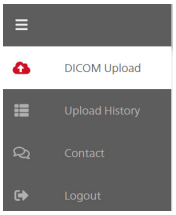
Accessing your Online Account (the place where you upload DICOM images)

STEP 1: Go to: **https://oms.tornierblueprint.com/auth/login** and enter your credentials or **www.shoulderblueprint.com** and click **SIGN IN** in the top right hand corner.

Adding an Ordering Physician to your Upload List

STEP 1: Navigate to the **"DICOM Upload"** tab from the left-hand menu, and search for the ordering physician by clicking **"ADD NEW SURGEON."**

NOTE: Search ordering physician by last name & verify their "Center"





STEP 2: Select the ordering physician's name and click **Confirm**

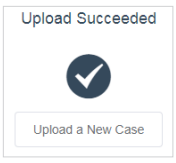
Uploading a DICOM to the Ordering Physicians BLUEPRINT Account

STEP 1: Drag & Drop on the screen or upload the patient's DICOM file from your computer.

IMPORTANT: Files must be unzipped, extracted or uncompressed to be uploaded. Drag & Drop functionality is NOT compatible with using Internet Explorer. Use Google Chrome or Mozilla Firefox.

STEP 2: After the DICOM files are selected, click **De-Identify and Upload Files**

STEP 3: Once the upload is complete, the files are automatically pre-processed for 3D reconstruction errors and sent to the surgeon's BLUEPRINT account.



NOTE:
- ONLY the thin 1.25mm (or thinner) DICOM axial images can be uploaded through the cloud.
- No JPEG images will be accepted.
- No reformatted images will be accepted.

BLUEPRINT 3D PLANNING SOFTWARE HELPLINE

Email: blueprint_us@wright.com

Phone: 855.378.1459

Managed 8:00am–5:00pm CST

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AP-013380B 26-May-2020