How to Take Digital Foot Scans for Orthotic Manufacture

Clinical Resource | MM Podiatry & Orthotics

Overview

We accept 3D scans from a variety of scanners and phone apps, provided they export STL or OBJ files and follow the quality and positioning standards below.

The key is not which scanner you use, but that the scan is complete, accurate, and taken in a clearly documented position.

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1. File Formats and Minimum Requirements

Accepted File Types

We accept standard 3D geometry formats: **STL or OBJ**

- One file per foot is preferred

Scan Quality

Resolution must be sufficient to clearly capture:

- Heel shape and cup region
- Medial and lateral arch contours
- Forefoot width and toe shapes

Avoid scans that appear heavily faceted, blurred, or "blocky" when zoomed in.

Coverage

The scan must include:

- The full plantar surface from heel to toes
- Medial and lateral borders
- Dorsal toe contour (so we can judge length and shoe fit)

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2. Prepare the Environment and Patient

Set Up the Space

- Ensure good lighting and enough room to move around the foot or for the patient to stand on the scanning plate
- Power on and, if needed, calibrate your scanner/app according to its own instructions
- Have wipes, a small step/plinth, and any positioning aids ready

Prepare the Patient

- Ask the patient to remove shoes and socks, and roll trousers above the ankles
- Check the skin is clean and dry; wipe off excess creams/lotions if present
- Explain the process: it is painless, takes a few seconds per foot, and they should keep as still as possible during capture

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3. Choose and Document the Scanning Position

You can scan non-weight-bearing, semi-weight-bearing, or full weight-bearing. **The most important points are consistency and that the position is clearly recorded on your prescription.**

Non-Weight-Bearing

- Patient lying or sitting with the lower leg supported and the foot free
- Useful when you want maximal control of foot posture (e.g., marked deformity, post-surgical feet)

Semi-Weight-Bearing

- Patient seated with foot resting on the plate/block, light load through the foot
- Good compromise between controlled posture and functional shape

Full Weight-Bearing

- Patient standing on the plate in their usual stance (unless you deliberately alter it)
- Used when you specifically want the fully loaded shape

Record on your form which you have used (e.g., "R: semi-weight-bearing scan").

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4. Position and Align the Foot

Regardless of scanner type, aim for a repeatable reference posture:

- Ensure the patient is stable (handrail/bench if standing) and pelvis level
- Align the foot approximately straight relative to the scanner, unless you deliberately want some rotation
- Use your hands to gently guide the rearfoot and forefoot towards your chosen reference (e.g., a subtalar-neutral-inspired position) without forcing extremes
- Check toes are relaxed and, if weight-bearing, that heel and metatarsal heads are in good contact with the support
- If scanning both feet, position them symmetrically where possible and use the same load condition

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5. Capture the Scan

The movement pattern will differ slightly between plate-based, handheld, and phone systems, but the principles are similar.

Plate / Tunnel / Fixed Scanners

- Confirm the entire foot (heel and all toes) is inside the scan area
- Ask the patient to stay still and look forward
- Start the scan from the control screen; most systems capture the foot in a single pass
- Repeat for the other foot, mirroring position and load

Handheld or Phone-Based Scanners

- Position yourself so you can move smoothly around the foot
- Start at a consistent landmark (commonly the heel) and move at a steady speed, keeping the scanner at the recommended distance from the foot
- Ensure you capture:
  - Plantar surface
  - Medial arch
  - Lateral border
  - Dorsum and toes
- Watch the live preview: if tracking is lost or gaps appear, pause and re-establish the view rather than continuing with an incomplete capture

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6. Check Scan Quality Before the Patient Leaves

Always inspect each scan in 3D.

Rotate the model and check:

- Heel contour and cup region
- Medial and lateral arches
- Full toe coverage
- Absence of obvious "holes," missing regions, or severe distortion
- Confirm that arch height and overall shape look realistic for the position used (e.g., non-weight-bearing vs weight-bearing)

If the scan looks flattened, stretched, heavily noisy, or incomplete, repeat it immediately.

Re-scanning takes less time than trying to compensate for poor data in design.

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7. Label, Document, and Export

Labelling

Use a consistent naming convention, for example:

- ClinicID_PatientCode_R_semiWB_2026-02-27.stl
- ClinicID_PatientCode_L_NWB_2026-02-27.obj

Avoid full patient names in filenames; use your usual coded identifiers.

Clinical Notes

On your prescription/referral form record:

- Side and load condition (e.g., "Left, semi-weight-bearing")
- Any deliberate positioning choices (e.g., "mild correction of hindfoot varus to tolerance")
- Footwear the device must fit (e.g., safety boots, running shoes, dress shoes)
- Any casting/scanning issues (e.g., difficulty tolerating full correction)

Export

- Export in STL or OBJ as requested, at default or recommended resolution settings
- Check that the export includes the full foot and is not cropped or truncated
- Upload via our secure portal or transfer method, paired with the matching prescription form

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8. Link the Scan to Your Orthotic Prescription

A good scan is only useful when linked to a clear clinical context. When you send the files, always include:

- Diagnosis and main pain area(s)
- Key structural and functional findings (hindfoot/forefoot position, ROM limits, hypermobility, etc.)
- Activity level and footwear constraints
- Primary treatment goals (e.g., reduce morning heel pain, improve work shift tolerance, return to 5-a-side)

This is what allows us to design a device that reflects your clinical reasoning rather than simply reproducing foot shape.

Scanner Types We Work With

We accept scans from:

- Dedicated 3D foot scanners (e.g., Volumental, Aetrex, Herbitas NewFeet, INESCOP systems)
- Handheld 3D scanners (e.g., Artec, Structure Sensor, EinScan)
- Phone-based scanning apps (iOS LiDAR, Android photogrammetry apps)

If you're unsure whether your scanner is compatible, contact us before your first case. We can review a test scan to confirm format and quality.

Need Help?

If you have questions about scanner setup, file export, or scan quality, contact us before sending. We're happy to review test scans or discuss your specific scanning workflow.

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