LogScanner

User Manual

iPhone iOS · LiDAR-based log measurement

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BUNYAN SOFTWARE

www.bunyansoftware.com

About this Manual

This manual covers **LogScanner 1.5** for iPhone — Bunyan Software's LiDAR-based log measurement app. It is written for the field operator: foresters, sawyers, scalers, log buyers, and woodworkers who measure logs as part of their day.

The manual is organized around the work you do with the app: capturing a scan, reading the results, organizing your library, using the yield estimator, and exporting reports.

Where the app shows a specific button or label, this manual quotes it in `monospace` so you can match what you read here to what you see on screen.

Throughout the book you will see four kinds of callouts:

> NOTE
> Background or context worth knowing, but not required for the task.

> TIP
> A faster or cleaner way to do something.

> CAUTION
> Something that can cost you data or measurement accuracy.

> PRO FEATURE
> A feature that is part of the Pro subscription.

LogScanner is available exclusively on the App Store and runs on iPhones with a LiDAR sensor (iPhone 12 Pro and later Pro / Pro Max models). For sales, support, and the latest release notes, visit bunyansoftware.com.

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CHAPTER 1

Getting Started

This chapter covers what LogScanner does, what device you need, and how to get from a blank Home Screen to a working scan in about fifteen minutes.

What LogScanner Does

LogScanner measures logs using the LiDAR scanner and camera built into recent iPhones. You walk around the log, capture each end face, and the app produces:

- Length, big-end diameter (`Lg End`), small-end diameter (`Sm End`), average diameter, sweep, and taper.
- A board-foot or cubic-volume estimate using your chosen log scale (Doyle, Scribner, International `¼"`, JAS, Smalian, and several others).
- A 3D mesh model of the log, a top-down isometric view, and 2D cross-sections at thirty stations along the length.
- A PDF + CSV project report covering every log you scanned in the current project folder.

No internet connection is required during a scan. All measurement runs on the device.

What You Need

> CAUTION
>
> **A LiDAR sensor is required.** LogScanner will refuse to launch on a phone without one and show the alert `LiDAR Not Available`. LiDAR is present on the *Pro* and *Pro Max* iPhones from the 12 series onward — iPhone 12 Pro, 13 Pro, 14 Pro, 15 Pro, 16 Pro, and their Max variants. iPad Pro models from 2020 also have LiDAR, but the current build of LogScanner is iPhone-only.

> TIP
>
> If you are not sure whether your phone has LiDAR, look for the third dark circle next to the camera lenses on the back of the phone. That is the LiDAR sensor.

You will also need:

- **iOS 17 or later** (the current build targets iOS 17 and 18).
- **Daylight or strong indoor lighting.** LiDAR works in the dark, but the colour camera does not — and the end-face boundary detection relies on the colour image.

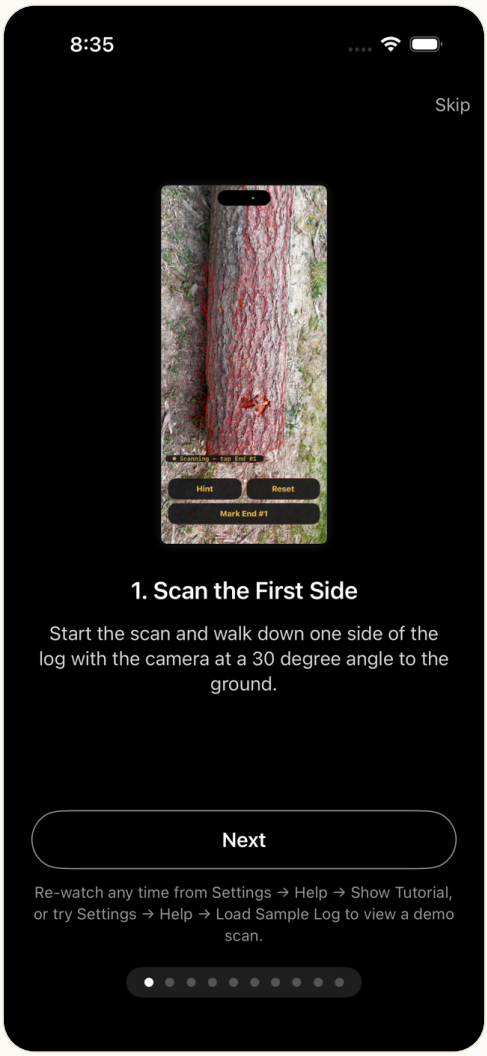
- **A short walk around the log.** You need to be able to see both ends of the log and walk to each end with the phone in hand. Logs piled tight against other logs or against a wall can still be scanned but require extra care framing the ends.

Installing and First Launch

LogScanner is available exclusively from the App Store. Search for `LogScanner` (Bunyan Software) and install in the usual way.

The first time you open the app you will see two things in sequence:

1. **Permission prompts.** iOS will ask permission to use the camera once you start a scan, and permission to add photos to your photo library if you ever choose `Save Image` from the share sheet. LogScanner does not request location, microphone, motion, contacts, tracking, or notifications.
2. **A ten-step onboarding walkthrough.** This walkthrough shows the recommended scanning sequence with diagrams. You can skip it from the top-right `Skip` button, but it is worth reading. You can replay it at any time from `Settings` → `Help` → `Show Tutorial`.

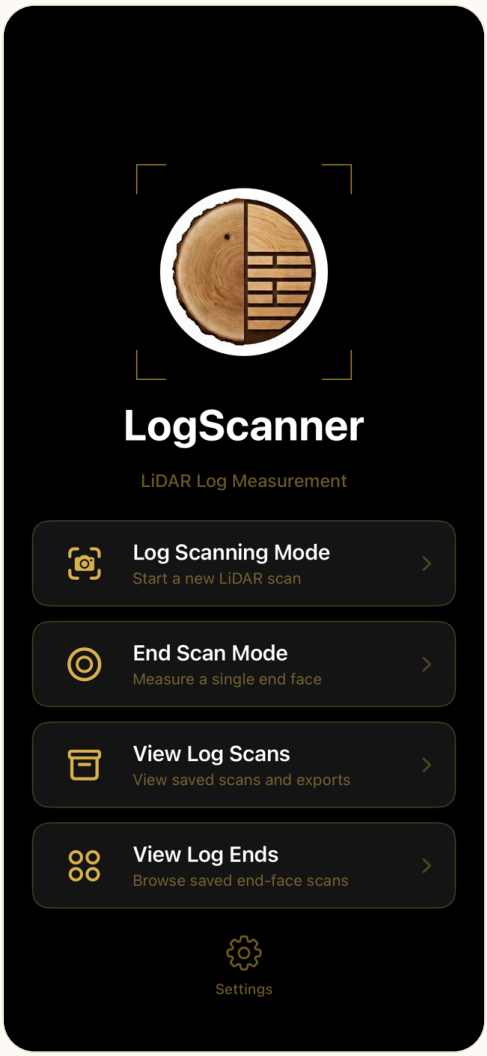


Onboarding step 1 of 10. Each step includes a short animation and a `Next` button. `Skip` (top-right) jumps straight to the Home screen.

After dismissing the onboarding you land on the Home screen.

Home Screen Tour

The Home screen shows the app title, a stylised reticle, and four large buttons.

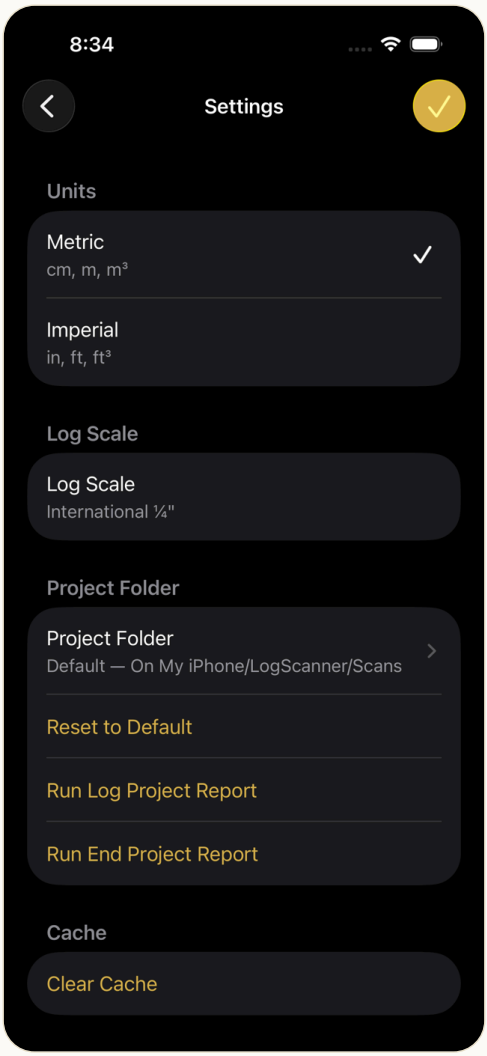


The Home screen. Top-to-bottom: the brand reticle and title, four primary buttons, and a `Settings` gear at the bottom.

The four buttons are:

`Log Scanning Mode`	Capture a full log — both end faces plus the barrel. This is the main flow.
`End Scan Mode`	Capture a single end face. Faster than a full log scan and used for yield estimation and end-grade work.
`View Log Scans`	Open the library of saved log scans.
`View Log Ends`	Open the library of single-end scans.

A small `Settings` gear sits at the bottom of the screen. Tap it to change units, log scale, project folder, manage your subscription, or replay the tutorial. (A gold checkmark in the top-right of the Settings screen returns you to the Home screen.)



The Settings screen, top sections. The active Units choice has a check mark; the Log Scale row shows the active scale as its subtitle.

If you have not yet subscribed to Pro, a gold banner sits across the top of the Home screen:

> ON-SCREEN TEXT
>
> `Free preview — confirms your device works and shows the scanning flow. Tap to unlock measurements, saving & exports.`

Tapping that banner opens the paywall. The free preview lets you run a complete scan from start to finish so you can confirm LogScanner works on your device and you understand the flow. Measurements, saving, and exports activate when you subscribe.

A Tour of Settings

The `Settings` screen is organized into seven sections. Briefly:

- **`Units`** — choose `Metric` (cm, m, m³) or `Imperial` (in, ft, ft³). Affects every displayed measurement and every exported value.

- **Log Scale** — choose how board-foot or cubic volume is calculated. Nine methods are available: Doyle, Scribner, International ¼", Ontario Scaler's, Smalian, JAS, Cylindrical, Topp-rotmätning, and Toppmätning. The default is International ¼". Chapter 8 covers each method in detail.
- **Project Folder** — sets the folder on your phone where scans are saved. Defaults to `On My iPhone/LogScanner/<folder name>`. You can pick a custom folder (for example one synced to iCloud Drive). Pro subscribers see two extra rows here that generate consolidated project reports (covered in Chapter 6).
- **Cache** — shows a `Clear Cache` button. This drops reconstruction caches and queued background work but never deletes your raw scan data. Useful if you have edited several scan boundaries and want to free a few hundred megabytes.
- **Subscription** — current tier and a way to subscribe, restore, or manage. See Chapter 11 for what the Pro tier includes.
- **Help** — replay the tutorial, load a bundled sample scan (a Douglas Fir log captured in the field — useful for previewing Pro features), or open the public help desk at bunyansoftware.com/helpdesk.
- **About** — version, build number, and a link to the privacy policy.

> TIP
>
> If this is your first time with the app and you do not have a log handy, go to `Settings` → `Help` → `Load Sample Log`. This drops a real Douglas Fir scan into your library so you can explore every viewer screen, every export, and the project report — without scanning anything.

What's Next

Chapter 2 walks you through your first scan, step by step. Chapter 3 explains the result screen. If you'd prefer to read about what LogScanner is doing under the surface before scanning, skip ahead to Chapter 9 (Scan Quality) for the field technique that produces the most accurate results.

CHAPTER 2

Your First Scan

This chapter walks you through a full log scan from start to finish. Read it once before you go out to scan; once you understand the rhythm, the actual work takes under a minute per log.

Before You Start

Have your phone ready, and the log accessible — meaning you can walk to both ends and stand far enough back to see each end clearly. If the log is in a stack, the ends should be reasonably free of obstructing logs (a hand's width of clearance is enough).

> TIP
> When you reach an end face, move the phone in small arcs around the log end — as if you were *spray-painting* the end with the camera. Every angle adds a new viewpoint for the LiDAR, which produces a measurably better diameter and rim profile. Chapter 9 covers this technique in detail.

Tap `Log Scanning Mode` on the Home screen to enter the scanner. The view switches to the LiDAR camera with a state pill in the top-right corner reading `● Idle` and a `Start Scan` button at the bottom.

Step 1: Walk the First Side

Tap `Start Scan`. The pill changes to `● Scanning — tap End #1`. A coloured triangle mesh begins to grow over surfaces as the LiDAR maps the scene.

Walk along one side of the log, holding the phone at roughly waist-to-chest height with the camera tilted *about 30 degrees* down toward the ground. Keep moving — the LiDAR builds a continuous mesh as you go.

What you see on screen during the first walk. The coaching banner reads `Scanning mesh. Tap End #1 of the log.` buttons are `Hint`, `Reset`, and `Mark End #1`.

When you reach an end of the log, turn so the phone is facing the end face.

Step 2: Capture End 1

You should now be standing in front of one end of the log, with the phone aimed at the end face. Look at the screen — there is a *green dashed circle* (the reticle) centered on the camera view, and the coaching text says something like `Slowly move reticle around End #1. Watch points appear. Tap Done when ready.`.

Tap the screen on the centre of the log end. The state pill changes to `● Scanning End #1` and the primary button becomes `Done — End #1`. The phone is now collecting depth data for the end face.

A small two-line readout appears in the top-right of the screen:

- `Pitch +N°` — how much the phone is tilted forward or back.
- `Roll +N°` — how much the phone is tilted left or right.

The roll number is colour-coded: green when the phone is roughly level (within five degrees), yellow up to fifteen degrees, and red beyond that. You don't need a perfectly level phone, but keeping the roll in the green range produces a more accurate end-face outline.

CAUTION

Keep the log inside the reticle. The reticle defines the search area for the end-face boundary. If the log extends well outside the green circle, the detected boundary will clip on whichever side falls off the screen. Move closer to or further from the end until the whole end face fits comfortably inside the green dashes.

Small gold points (or dots) begin to appear on the end face as the LiDAR sees it. When the coaching message switches to `Log inside reticle ✓ — Tap Done to capture End #1.`, the scanner has enough geometry to capture cleanly.

Tap `Done — End #1`. The screen flashes briefly (the camera-shutter cue), the phone vibrates once, and the coaching text reads `End #1 captured. Walk to End #2 and tap it.`.

NOTE

Auto-capture is currently disabled in this version. Even if the coaching says "captures automatically when coverage is sufficient," you do need to tap `Done — End #1` yourself.

Step 3: Walk to End 2

Walk along the side of the log toward the other end, again with the phone angled about 30 degrees down and the side of the log in view. The state pill reads `● Walk to End #2 — tap to scan it` during this walk. The primary button is replaced by `Hint` the secondary button reads `Mark End #2`.

When you reach the other end, turn to face it.

TIP

If the log is short and you reach the second end almost immediately, the app may briefly show `Walk to the other end first. Wait Ns before scanning End #2.` This protects against accidentally capturing the same end twice. Wait the few seconds it counts down, then proceed.

Step 4: Capture End 2

Identical to End 1: tap the end face on screen, frame it inside the green reticle, wait for the framing check, tap `Done — End #2`. The pill briefly reads `⏳ Processing...` then `End #2 captured. Isolating log...`.

Step 5: Isolate the Log

You now see a coaching message `Tap on the log to isolate it from the background.` The mesh shows the log *and* the ground or bunks under it. Tap anywhere on the log body in the viewfinder. The app trims away the surrounding scene and keeps only the log mesh.

If the message reads `No surface detected. Tap directly on the log.`, aim more carefully and tap again. `Selection too small. Tap closer to the center of the log.` means you tapped a sliver — try tapping the thickest part of the log body.

Step 6: Set the Background Plane

After isolation you see `Log isolated! Aim at the bunk or ground surface.`. Point the camera at the ground (or the bunks the log is resting on) and wait. The button reads `Confirm Background` and is disabled until a flat surface is detected.

When a plane has been detected, the button activates. Tap `Confirm Background`. If the app cannot find a plane after a couple of seconds, the button changes to `Skip` — tap that to continue without background calibration. (Background detection helps the app understand where the bottom of the log sits; skipping it is usually fine but can reduce volume accuracy on logs lying on uneven ground.)

Step 7: Refining

The coaching message reads:

> ON-SCREEN TEXT
> `Background set! Slowly re-scan the log body to fill gaps, then tap 'Done Refining'.`

The screen now shows a live wireframe of the surfaces the LiDAR can see.

Walk slowly from one end of the log to the other with the phone pointing *straight down* at the top of the log. Keep moving at a steady pace. The on-screen coverage indicator (a 3D cylinder graphic) fills in as more of the log surface is captured.

Refining: the live LiDAR wireframe (red triangles) overlays the log surface so you can see exactly what the scanner has captured. Buttons are `Done Refining`, `Re-detect Bkgd`, and `Reset`.

When the cylinder looks fully covered around the top, tap `Done Refining`. If something went wrong with the background plane, you can tap `Re-detect Bkgd` to redo Step 6. `Reset` clears everything and starts over.

Step 8: Building the Model

A full-screen overlay reads `Building Model…` with a gold spinner. This takes a few seconds — the app is fusing the depth data, mesh, and end-face boundaries into a single measurable model.

Step 9: Verify Each End Boundary

The boundary editor opens with title `Verify End 1 Boundary`. You see the end-face photo with a detected boundary outline drawn over it.

If the outline matches the visible edge of the log end, tap `Next`.

If it doesn't — for example the outline cuts inside the bark or includes a chunk of background — drag the handles on the outline to fix it. There are sixteen handles around the circle, and a pair of `In` / `Out` buttons at the bottom nudges the selected handle one millimetre inward or outward.

Tap `Next` when End 1 looks right. The view switches to `Verify End 2 Boundary`. Repeat. Tap `Save + Continue` on the second end.

> TIP
> The auto-detected boundary is usually correct on clean, well-lit ends. Don't feel obliged to adjust it just because you can. Adjust only when it visibly misses the bark line.

Step 10: Scan Complete

The state pill changes to `✓ Complete` and the screen shows the result — the Log Profile Viewer. The next chapter explains what every part of that screen means.

To save and exit, just close the viewer. The scan is written to your project folder automatically; you don't need to tap "save."

> TIP
> Your first scan will probably feel slow because you are thinking about each step. After three or four scans the whole sequence takes about a minute per log — including walking around the log twice.

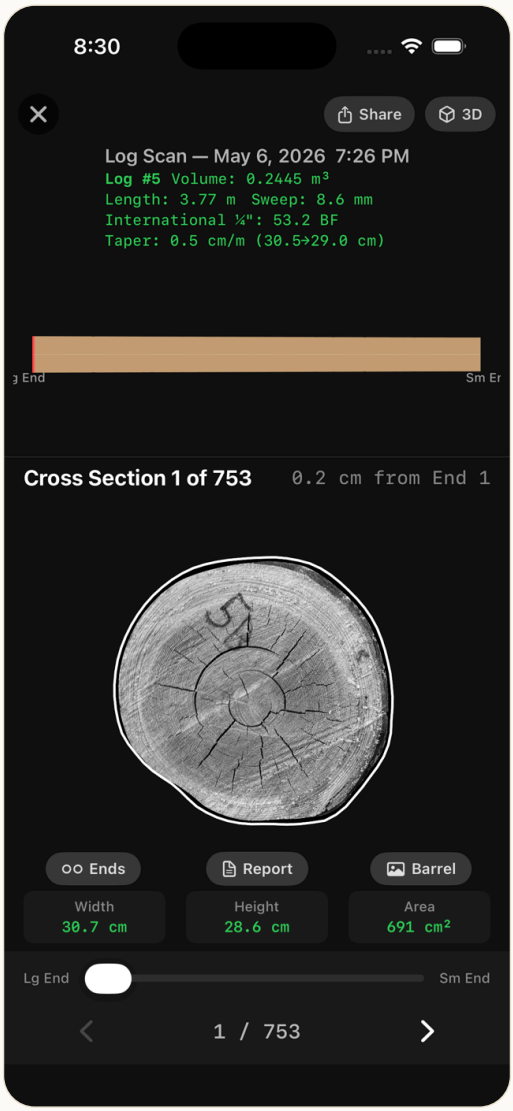
CHAPTER 3

Understanding Your Results

When a scan finishes, or when you open a saved log scan from the Library, the Log Profile Viewer takes over the screen. This chapter is a tour of every part of that viewer.

Top Header

At the top of the viewer you see the scan name and a stack of measurement rows in monospaced green.



The Log Profile Viewer. Top header shows volume, length, sweep, scale value, and taper. The mid panel is the top-down isometric view; the bottom panel cycles through cross-sections.

- **Scan name.** Default is `Log Scan — May 24, 2026 3:42 PM` (the date and time it was captured). If the scan belongs to a project that has more than one log, a `Log #5` badge appears in green to the right of the name.
- `Volume` — total log volume. Displayed in cubic metres or cubic feet depending on the units setting.
- `Length` — distance between the centroids of the two end faces. Displayed in metres or in feet-and-inches.
- `Sweep` — maximum deviation of the log axis from a straight line between the two ends. Displayed in millimetres or inches. A perfectly straight log has zero sweep.
- **Scale row** (label depends on the active log scale). For example `International ¼": 142 BF` or `Smalian: 0.42 m³`. This is the headline number for your scale of choice. Chapter 8 explains each scale.
- `Taper` — how much the log narrows from one end to the other, expressed as centimetres per metre (metric) or inches per foot (imperial). Useful for spotting butt-swept or heavily tapered logs.

Top Toolbar

Top-right of the viewer:

- **Close** (X icon) — returns to the previous screen (Library or the scanner).
- `Share` — exports the scan as a `.lscan` bundle and opens the iOS share sheet. While the scan is still being written to disk after a fresh capture, a `Saving…` capsule replaces this button.
- `3D` — opens a full-screen SceneKit viewer where you can rotate, pan, and zoom the 3D mesh.

Mid Panel: Top-Down Isometric View

The middle of the screen shows the log from above (the "top-down isometric" view). End labels are drawn next to each end:

- `Lg End` — the larger end (greater of the two cross-section widths).
- `Sm End` — the smaller end.

These labels are calculated from the actual cross-section sizes — they don't depend on which end you scanned first.

Bottom Panel: Cross-Section View

Below the isometric view sits a 2D view of a single cross-section at one station along the log. The title reads `Cross Section N of M` (1-indexed). At the right of the row you see the distance from End 1. The total number of cross-sections (`M`) depends on how long the log is — short logs have a few hundred sections; long logs have a thousand or more. LogScanner takes as many slices as it needs to capture the shape faithfully.

Three measurement pills are shown below the cross-section graphic:

- `Width` — horizontal extent of the cross-section.
- `Height` — vertical extent.
- `Area` — total area of the cross-section.

Arrow buttons at the bottom navigate to the previous or next cross-section. A horizontal `Lg End` / `Sm End` slider above the navigation lets you jump quickly to any position along the log without scrubbing one section at a time.

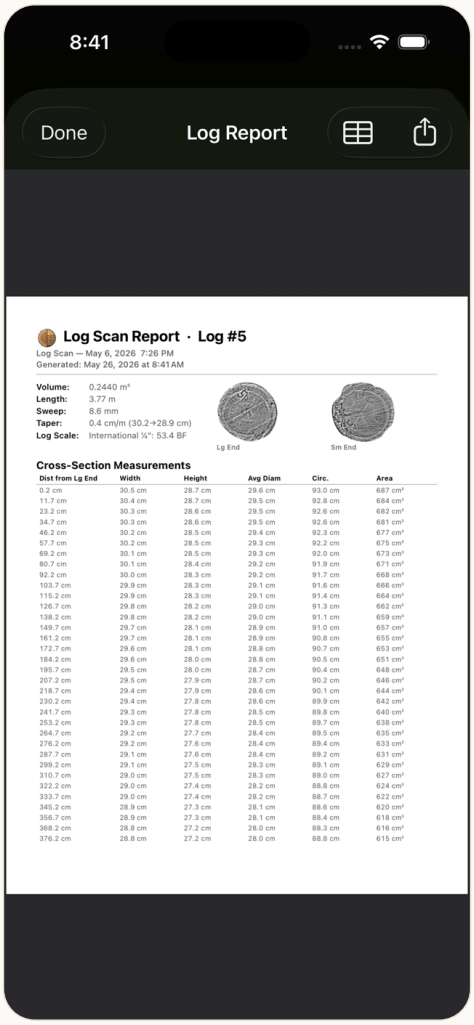
> NOTE
> On the free preview tier, the three measurement pills show `–` instead of numbers. The shape of the cross-section is still drawn — only the numeric values are gated.

Action Pills

At the bottom of the cross-section panel, three pill buttons give you deeper access to the scan:

- `Ends` — opens the End Scan Result Viewer (see Chapter 5) for whichever end you are nearest in the cross-section panel. This is where you can re-edit a boundary, change render parameters, or look at the end-face photo at full resolution.

- `Report` — generates a PDF + CSV pair for this single log. A `Building Report…` overlay appears for a few seconds; the PDF then opens in a preview sheet from which you can share again.



The per-log report sheet. The PDF lists every cross-section along the length with width, height, average diameter, circularity, and area. Tap the table or share icon in the toolbar to view full-screen or share the file.

- `Barrel` — opens a viewer for the photo of the log barrel captured during the scan. Pinch to zoom; pan with one finger.

The 3D Viewer

Tap `3D` in the top-right toolbar to open the full-screen 3D viewer. Drag with one finger to orbit, pinch to zoom, pan with two fingers. A vertical orientation gizmo in the top-right shows the current view direction relative to the log axis.

The 3D viewer showing the reconstructed log mesh. Tap `Rings` *in the top-left to switch to the scan-quality diagnostic view (see Chapter 9). Drag bottom-right slider scales the model up and down.*

A `Rings` toggle near the top of the viewer switches to a *scan-quality diagnostic view* — useful for inspecting how well the log surface was captured. That view is covered in Chapter 9 (Scan Quality Tips), since it's what you'd use to identify a bad scan.

> TIP
> The 3D viewer is the easiest way to see if a scan has any obvious data gaps — patches of mesh that don't fill in. If you see large holes, it's worth re-scanning. Small holes are normal and don't affect measurements.

Re-Editing a Boundary After the Fact

If you scan a log and later think the end-face boundary was wrong, you can re-open the boundary editor from the Library:

1. Open the log scan from the Library.
2. Tap the cross-section panel to navigate to either end (Cross Section 1 of 30 or 30 of 30).
3. Tap `Ends`.
4. The End Scan Result Viewer opens. Tap the `Bound` tab and edit the boundary as in Chapter 2 Step 9.
5. Tap `Save Boundary` (gold). The viewer reprocesses the scan in the background and updates every measurement.

The status label on the Bound tab shows `Boundary: Auto` (untouched), `Boundary: edited (unsaved)` (you have made changes but not saved), or `Boundary: reprocessing…` (a save is in progress).

If the Scan Failed

A few error states can appear in the viewer:

- **No measurements shown** — most often happens on the free tier (subscribe to unlock) or when the scan was too short. On the free tier the cross-section shape is drawn but `–` replaces every number.
- **Scan tilted, log appears tilted in the 3D viewer** — the phone was rotated heavily during the scan. The measurement is usually still correct, but the 3D model looks slanted. This is cosmetic.
- `Not Enough Data` alert when generating a report — the scan didn't capture enough geometry to fit a proper model. Re-scan with a slower, more thorough refining walk.

The next chapter covers the Library — where saved scans live and how to organize them across multiple projects.

CHAPTER 4

Library and Projects

LogScanner keeps every scan you capture in a *project folder* on your phone. The Library tab is the way you browse, open, and delete those scans. This chapter covers how the Library works and how to organize scans across multiple projects.

Two Libraries

LogScanner has two separate libraries, accessible from the Home screen:

- `View Log Scans` — full log scans (both ends and the barrel).
- `View Log Ends` — single-end scans, plus log scans listed by their individual ends.

Each library is a flat, newest-first list of scans. There is no filtering, sorting, or search — projects are the way to keep different sets of scans separate.

Anatomy of a Library Row

A row in the Scan Library looks like this:

> EXAMPLE ROW
> `May 24, 2026  3:42 PM   Log #5`
> `3.66 m long · End1: 28.5 cm · End2: 24.1 cm · Vol: 0.42 m³`

The first line is the timestamp the scan was captured plus the per-project log number (if the project contains more than one log). The second line is a quick summary of length, both end diameters, and total volume.

The End Scan Library uses the same format but shows the per-end point counts in the subtitle: `E1: 12,450 pts · E2: 11,830 pts` for a log scan, or just `11,830 pts` for an end-only scan.

Opening a Scan

Tap any row to open the scan in the Log Profile Viewer (Chapter 3) or End Scan Result Viewer (Chapter 5). Closing the viewer returns you to the library.

Deleting a Scan

Swipe left on any row, then tap the red `Delete` action. A confirmation alert reads:

DELETE SCAN?

Log library: `This will permanently remove the saved scan data.`

End library: `This cannot be undone.`

Tap `Cancel` or `Delete`. Deletion is permanent — the raw scan files are removed from disk. There is no undo.

TIP

If you might want a scan back, share it (Chapter 7) and save the `.lscan` file to Files or iCloud Drive *before* deleting it from the library.

Projects

A **project folder** is the directory on your phone where LogScanner saves scans. By default this is `On My iPhone/LogScanner/Scans`. You can change it from `Settings` → `Project Folder`.

Changing the project folder gives you a fresh, empty library. The scans in the old folder are not deleted — they're just no longer visible until you switch back. Use this when you want to keep different jobs separate (one folder per logging site, per customer, per species).

TIP

A common workflow: before driving to a new site, open Settings → Project Folder, tap the disclosure row, and create a new folder (for example "Smith_Ranch_2026-05-24"). Scan the day's logs into that folder. When you get back to the office, share the project report PDF and CSV by email — the consolidated report (Pro feature, Chapter 6) covers every log in the active folder.

To get back to the default folder, tap `Reset to Default` in the Project Folder section.

If the active folder becomes unavailable (you moved files around or the iCloud Drive folder is offline), LogScanner shows an alert at launch:

SCAN DIRECTORY UNAVAILABLE

```
The custom scan folder is no longer accessible. Scans will be saved to the default
location. Previously saved scans in the custom folder won't appear in the library
until access is restored.
```

Per-Project Log Numbering

When you scan a log, LogScanner assigns it the next available log number for the active project: `Log #1`, `Log #2`, and so on. This number is shown in three places:

- The Library row (`Log #5` suffix).
- The header of the Log Profile Viewer.
- The PDF project report.

End-only scans are numbered separately (`End #3`) in the End Scan Library.

NOTE

> Log numbers do not “compact” when you delete a scan. If you scan three logs and then delete Log 2, the remaining logs stay as Log 1 and Log 3 This keeps numbers stable for reports you’ve already exported.

Bundled Sample Scans

LogScanner ships with two sample scans you can load at any time to explore the app:

- `Load Sample Log` (`Settings` → `Help`) — a full-log demo scan of a Douglas Fir log. Loads as `Log #5` (a number chosen so it stays out of the way of your own numbering).
- `Load Sample End Scan` — an end-only demo with the yield-estimation table populated.

Both samples bypass the paywall — every Pro feature is unlocked on them, including the yield table and report generation. Use the samples to preview what the Pro tier looks like before subscribing.

After tapping Load Sample, an alert confirms:

> SAMPLE LOADED
> `Open the Library to view the sample log scan.` (or end scan)

To remove a sample, swipe it from the library like any other scan.

CHAPTER 5

End-Only Scans

A full log scan captures both ends plus the barrel. An **end-only scan** captures just one end face — no walking around, no barrel, no second-end capture. This chapter covers when to use it and how the flow differs.

Why Use an End-Only Scan?

Four common reasons:

- **Yield estimation in the field.** You want a quick board-foot estimate for a log before deciding what to do with it. End-only is the fastest path: capture the small end, read the estimated yield table, done.
- **End-face grading.** You want a high-resolution photo of an end face for grade assessment (heart rot, ring count, end checks). The end-only flow captures a larger, higher-quality colour image of the end than a full log scan does.
- **Tally work.** You are counting and measuring a pile of logs for inventory and don't need volume or sweep — just diameters.

Starting an End-Only Scan

From the Home screen, tap `End Scan Mode` (the orange button). The scanner opens in end-only mode — visually identical to a full log scan but with different state pill text and a different button label.

The state pill reads `● Scanning — tap end face` (instead of `● Scanning — tap End #1`). The secondary button reads `Mark End` (instead of `Mark End #1`).

The Flow

End-only is a short, three-step sequence:

1. Frame Hold the phone in front of the log end at about an arm's length distance. The green reticle should comfortably surround the end face. The coaching reads `Point at a log end and tap Start Scan.`, then `Scan around the end face, then tap its center.` once scanning starts.

2. Capture Tap the centre of the end face on screen. The pill changes to `● Scanning End #1` and the button to `Done — End #1`. Move the phone slightly around the end so the LiDAR sees the rim from a couple of angles, then tap `Done — End #1`.

3. Build The pill briefly reads `⏳ Processing...`, then `✓ End Scan Complete`. A `Building Model…` overlay appears, then the End Scan Result Viewer opens.

The whole thing takes ten to twenty seconds per log.

The End Scan Result Viewer

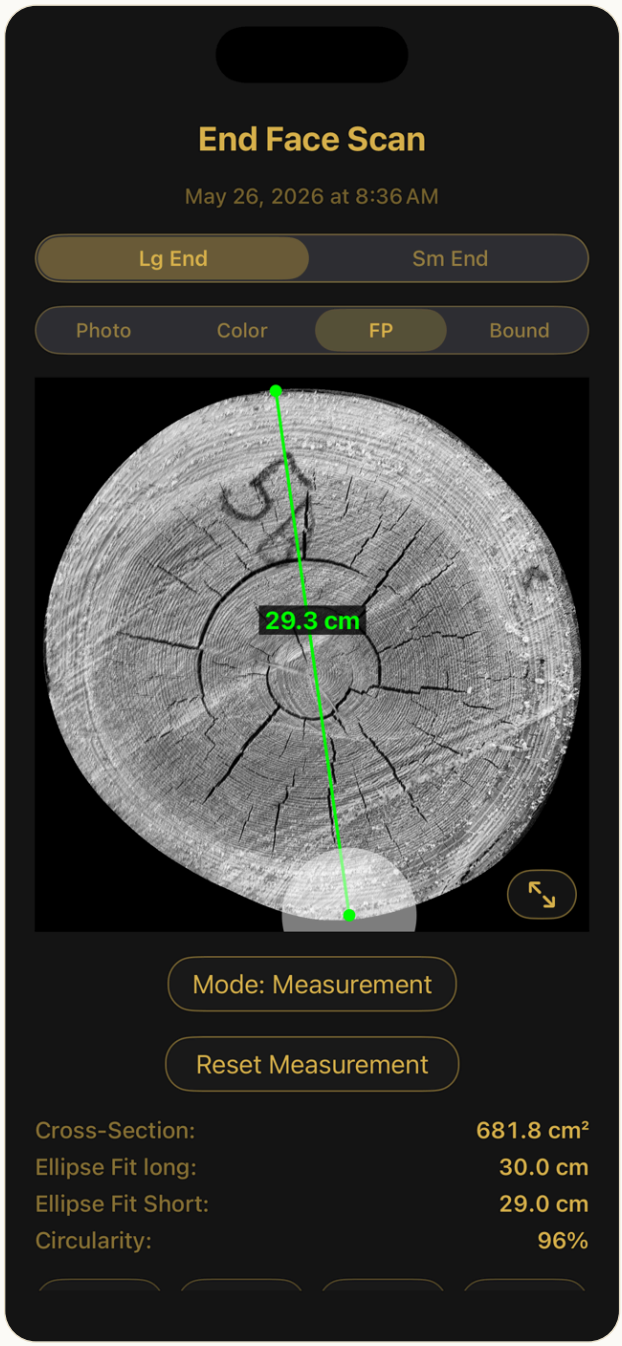
The End Scan Result Viewer is the same screen you reach from `Ends` in the Log Profile Viewer, but with end-only-specific layout. The title bar reads `End Face Scan`.

The End Scan Result Viewer on the `Photo` tab. Tab segments switch between four views of the captured end; action buttons sit at the bottom; the Estimated Yield table (Chapter 6) is just off-screen below.

Four Tabs

A segmented control near the top of the screen offers four views of the captured end. Two of them — `Photo` and `Bound` — are the everyday views. The other two — `Color` and `FP` — are diagnostic views you use when you want to check the quality of a scan.

- **`Photo`** — the colour photo of the end face with the detected boundary drawn over it. The measurement values (cross-section area, long and short ellipse axes, circularity) sit below the image. On end-only scans, the Estimated Yield table appears further down (Chapter 6).
- **`Color`** — a colour-discrepancy view. The end face is rendered in a thermal-style colour map that emphasises where the surface departs from the expected wood tone. Pitch, mud, snow, sun-bleached patches, or other contaminants stand out. Use this tab to confirm a measurement-suspect scan is being thrown off by something on the face — rather than a problem with the algorithm.
- **`FP`** — the colour "fingerprint", a normalised greyscale image of the end face. The fingerprint is used internally to match the same log across multiple scans, and surfaces a *Measurement* mode you can use to take a manual diameter on the end face (see below).
- **`Bound`** — the boundary editor. Sixteen draggable handles around the detected edge; tap `In` / `Out` to nudge the selected handle in or out by 1 mm. Tap `Save Boundary` (gold) to commit.



The two diagnostic tabs. Left (`Color`): colour-discrepancy map of the end face — uniform colour means clean wood, hotspots mean contamination or shadowing that may have biased the boundary. Right (`FP`) with `Mode: Measurement`: a manual diameter line draws across the fingerprint.

Manual Measurement (FP tab)

If you want to override the automatic ellipse fit and measure a specific diameter on the end face by hand, switch the FP tab to `Mode: Measurement`. Two ways to draw a measurement:

- **Tap-and-drag on the full image.** Tap one rim point and drag your finger across the face to the opposite rim point. A green line follows your finger and the measurement value appears beside

it. After releasing, each endpoint becomes individually draggable — fine-tune one or both ends until the line precisely spans the diameter you want.
- **Zoom in for precision.** Pinch to zoom into the FP image. In the zoomed view, the measurement becomes a two-point selection: tap the first rim point, then tap the second, and the line + value lock in.

Tap `Reset Measurement` to clear the current line and start over. Toggle back to `Mode: Ellipse` to return to the automatic ellipse-fit display.

The manual measurement is displayed on the FP tab only — it does not overwrite the automatic measurements in the readout below or in any exports. Treat it as a verification or sanity-check tool, not a replacement for the boundary editor.

Action Row

Across the bottom of the viewer (in normal — that is, non-guided — mode):

- `Auto` (purple) — re-run automatic boundary detection from scratch.
- `Export` (blue) — share or save the end-face scan.
- `Done` (green) — close the viewer.
- `Rerun` (orange) — appears only *after* you have manually edited and saved a boundary. Tap it to restore the saved manual boundary (in case a subsequent edit went wrong, or you tapped `Auto` and want your edits back).

The `Bound` tab after manual boundary editing. Sixteen yellow handles ring the detected edge; the status reads `Boundary: reprocessing…`. All four action buttons (`Rerun` / `Auto` / `Export` / `Done`) are visible — `Rerun` has activated now that a manual edit exists on file.

Measurement Readouts on the Photo Tab

The Photo tab shows four measurements, each in current units:

`Cross-Section:`	Total area of the end face (square cm or square inches).
`Ellipse Fit long:`	Long axis of the best-fit ellipse — the larger diameter.
`Ellipse Fit Short:`	Short axis of the best-fit ellipse — the smaller diameter.
`Circularity:`	How close the cross-section is to a perfect circle, as a percentage. 100% is a perfect circle; lower values indicate ovality or irregularity.

On the free preview tier these all show `–`.

Where End Scans Go

End-only scans are saved into a separate library from full-log scans. Open them from the Home screen via `View Log Ends`. Library row format:

> EXAMPLE ROW
> `End #3 — May 24, 2026  3:42 PM`
> `11,830 pts`

(The point count is informational — how many depth points the LiDAR captured for that end.)

Estimated Yield Table

The yield table that appears on the Photo tab is the centrepiece of the end-only flow for sawyers. It's covered in detail in the next chapter (Yield and Sawing) because it's a Pro feature.

CHAPTER 6

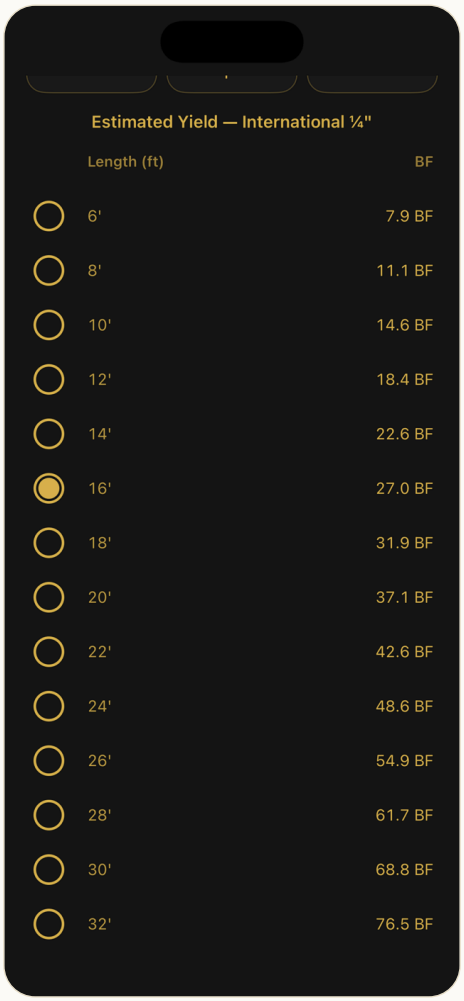
Yield and Sawing *(Pro)*

LogScanner's yield estimation tells you, before you cut anything, how many board-feet (or cubic metres) a log will produce at a given length and scaling method. This chapter covers the Estimated Yield table and the consolidated project reports.

> PRO FEATURE
> Everything in this chapter is part of the Pro subscription. The free preview tier shows the controls but the numeric output is gated. The two bundled samples (`Load Sample Log`, `Load Sample End Scan`) bypass the paywall so you can preview the feature before subscribing.

The Estimated Yield Table

The Estimated Yield table appears on the `Photo` tab of the End Scan Result Viewer — that is, after capturing an end-only scan (Chapter 5) and the viewer opens.



The Estimated Yield table on a `Sm End` scan. Length rows step in 2 ft increments; the gold-filled radio (16′ here) is the selected length. The scale and unit are shown in the header (`International ¼"` · `BF`).

The table title reads `Estimated Yield — International ¼"` (or whichever scale you have selected in Settings). Two columns:

- **Length** — assumed log length. The rows step through standard log lengths. For board-foot scales, the rows go from 6 ft to 40 ft in 2-ft increments. For metric scales, 2.0 m to 12.0 m in 0.5 m increments.
- **Scale value** — the yield at that length, in the unit of the active scale (BF for board-foot scales, m³ for cubic scales).

The default selection is **16′** for board-foot scales or **5 m** for metric scales — the typical sawlog length. Tap any row to select a different length; the selection is saved with the scan.

When Is the Table Shown?

The yield table is only shown when:

1. The active scale is a "small-end-only" formula: Doyle, Scribner, International `¼"`, or Ontario Scaler's. (Volumetric scales like Smalian need both ends, so a single end-face scan cannot produce a yield estimate for them.)
2. The scan is end-only (not a full log).
3. You are on the Photo tab.

4. You are on the Pro tier (or viewing a bundled sample).

If you don't see the table, check the Log Scale setting (`Settings` → `Log Scale`) and pick a small-end-only scale.

Interpreting the Table

The table assumes the log is straight, of uniform taper, and has the small-end diameter equal to the end face you just scanned. Real logs have sweep and irregular taper, so treat the number as an upper-bound estimate suitable for purchase decisions — not as a guaranteed recovery.

For more accurate yield (using actual measured length and the actual log scale formula applied to both ends), do a full log scan and read the headline number from the Log Profile Viewer.

Project Reports

Pro subscribers get two consolidated PDF + CSV reports that cover every scan in the active project folder. They're accessible from Settings:

- `Run Log Project Report` — consolidated report for full log scans.
- `Run End Project Report` — consolidated report for end-only scans.

The Log Project Report

Tap `Run Log Project Report` in Settings. A progress label shows `Refreshing N / M…` as the app refreshes every log scan in the folder, then `Generating report…`.

The PDF opens in a preview sheet with a table containing one row per log:

`Log #`	Per-project log number.
`Lg End`	Big-end diameter.
`Sm End`	Small-end diameter.
`Avg Dia`	Average diameter.
`Volume`	Total log volume.
`Length`	End-to-end length.
`Sweep`	Maximum deviation from straight.
`Taper`	Diameter loss per unit length.
`Scale`	Yield in the active scale's unit (BF or m³).

A totals row appears at the bottom summing volume and scale value across every log.

Two files are written into the project folder:

- `project_report.pdf` — the printable table.
- `project_report.csv` — the same data, machine-readable.

A real Log Project Report looks like this (10 logs from one project, International ¼″ scale):

```
Project Report — Log 5 — May 26, 2026 — 10 logs — International ¼"

Log#  Lg End   Sm End   Avg Dia  Volume    Length  Sweep  Taper      Scale
1     12.13"   11.36"   11.72"   8.8 ft³   12'4"   0.4"   0.06"/ft   61.2 BF
2     11.95"   11.09"   11.50"   8.7 ft³   12'9"   0.6"   0.07"/ft   58.0 BF
3     11.93"   11.33"   11.62"   8.9 ft³   12'7"   0.8"   0.05"/ft   60.9 BF
…     …        …        …        …         …       …      …          …
10    12.10"   11.31"   11.66"   8.9 ft³   12'8"   1.0"   0.06"/ft   60.6 BF

10    12.02"   11.28"   11.62"   87.8 ft³  12'6"   0.5"   0.06"/ft   602.6 BF
```

The bottom row is the totals/averages: 10 logs totaling 87.8 ft³ of volume and 602.6 BF of estimated yield.

If you don't have any log scans yet, the alert reads:

> NO LOG SCANS
> `Scan some logs first to generate a project report.`

The End Project Report

`Run End Project Report` generates the analogous report for end-only scans:

`End #`	Per-project end number.
`Date`	Scan capture timestamp.
`Min Dia`	Smallest diameter across the end face (short ellipse axis).
`Max Dia`	Largest diameter (long ellipse axis).
`Avg Dia`	Average of the two.
`Length`	Selected yield length (the row you tapped in the table).
`BF`	Yield in board-feet (column heading varies by scale — `m³` for cubic scales).

If the active scale needs both ends (e.g., Smalian), the BF/volume column shows the note `<scale> (needs both ends — yield omitted)` and that column stays blank.

Files written:

- `end_project_report.pdf`
- `end_project_report.csv`

Excerpt from a real End Project Report (19 ends scanned at an eBay-purchased log pile, International ¼″ scale):

```
End Project Report — May 24 EBay — 19 ends — International ¼"
```

End#	Date	Min Dia	Max Dia	Avg Dia	Length	BF
1	May 25 10:09	6.08"	6.41"	6.25"	16'0"	19.9 BF
2	May 25 10:09	10.08"	11.17"	10.62"	16'0"	65.9 BF
3	May 25 10:10	6.46"	9.78"	8.12"	16'0"	23.1 BF
…	…	…	…	…	…	…
19	May 25 10:17	11.59"	11.66"	11.63"	22'0"	132.7 BF
19	Total/Avg	8.25"	10.31"	9.28"	322'0"	887.7 BF

Sharing Reports

After the report opens in the preview sheet, tap the share icon in the top-right to send the PDF or CSV by email, AirDrop, Files, or any other share destination. The same files remain in the project folder afterward.

> TIP
>
> A common end-of-day workflow: scan the day's logs into a per-job project folder, then run Settings → Run Log Project Report. The PDF + CSV land in the folder; email or AirDrop them to the office. The CSV imports directly into Excel and most lumber-pricing spreadsheets.

CHAPTER 7

Exporting and Sharing

LogScanner exports scan data in a single sealed file format: the `.lscan` bundle. This chapter covers what's in a bundle, how to share one, and how to re-import one onto a different phone.

Three Places You Can Share

There are three entry points to the share sheet:

- **Log Profile Viewer toolbar** — the `Share` capsule in the top-right. Available on any saved log scan (the button is hidden during the background save that follows a fresh capture; you see `Saving…` instead).
- **End Scan Result Viewer** — the blue `Export` button on the action row.
- **Settings → Project Reports** — after generating a project report, the preview sheet has a share icon that shares the PDF and CSV.

In all three cases iOS's standard share sheet opens, listing AirDrop, Messages, Mail, Files, and any other apps you have installed that can handle the file type.

The `.lscan` Format

A `.lscan` file is a single sealed archive that contains everything LogScanner needs to re-open a scan on any device — including a different iPhone. Specifically:

- The end-face photos (both ends, for a full log scan).
- The raw LiDAR depth data and point cloud.
- The reconstructed 3D mesh.
- The captured barrel photo.
- All measurements (length, diameters, sweep, taper, volume, scale value).
- Any boundary edits you saved.
- The colour fingerprints used for end matching.
- The manifest with the original capture timestamp, log number, and end labels.

The file extension is `.lscan`. LogScanner registers a private uniform type identifier with iOS that conforms to standard archive types — meaning iOS treats `.lscan` files as normal documents that can be moved through Files, iCloud Drive, Mail, AirDrop, and so on.

> NOTE

> **Why a sealed bundle?** End-face photos and raw depth data are sensitive — they carry sub-millimetre detail about your scan. The sealed format keeps everything in one file (easy to move, hard to lose pieces of), and ensures nothing is silently dropped during sharing or re-import.

Sharing by AirDrop

The fastest way to move a scan between devices. With both iPhones unlocked and in range:

1. Open the scan and tap `Share`.
2. Pick the receiving phone from the AirDrop section.
3. On the receiving phone, accept the AirDrop. The file opens in LogScanner automatically and lands in the active project folder.

Sharing by Email

In the share sheet, tap **Mail**. iOS attaches the `.lscan` file to a new email. Bundles are typically a few megabytes (mostly the end-face photos) — small enough for any mail server.

The recipient, if they have LogScanner installed, can tap the attachment to open it in LogScanner. If they don't, the file is opaque (it's a sealed bundle) — they'll need to install the app first.

Sharing to the Files App / iCloud Drive

In the share sheet, tap **Save to Files**. Pick a destination — On My iPhone, iCloud Drive, or any third-party storage provider (Dropbox, Google Drive, etc.) — and the bundle is saved there.

> TIP
>
> **Backup tip:** if you scan into the default On My iPhone folder, your scans are not automatically backed up to iCloud (Apple excludes the LogScanner folder from iCloud Backup to save space). To keep a cloud copy: every few days, tap `Share` on each new scan and Save to Files → iCloud Drive. Or, change your project folder (`Settings` → `Project Folder`) to a folder *inside* iCloud Drive — every scan written into that folder is then synced.

Re-Importing a Bundle

To open a `.lscan` file received by AirDrop, Mail, Messages, or downloaded from the web:

1. Tap the file.
2. iOS asks which app to open it in. Choose **LogScanner**.
3. LogScanner imports the bundle into the active project folder and opens it in the appropriate viewer.

You can also drag a `.lscan` file into the **On My iPhone → Log Scanner** folder using the Files app. It appears in the library the next time you open the app.

Files Visible in the Files App

LogScanner exposes its data folder under **On My iPhone → Log Scanner** in the Files app. Inside that folder you'll see:

- One `.lscan` file per saved scan, named with the scan's timestamp.
- Project report PDFs and CSVs (`project_report.pdf` and friends, if you've generated them).

You can copy, rename, move, or delete files directly from the Files app. LogScanner picks up the changes the next time you open it.

> CAUTION
> **Do not modify the contents of a `.lscan` bundle** by opening it externally. It's a sealed archive — any tampering will cause the next import to fail. Treat each bundle as a single opaque file.

The Project Report PDFs

The two project reports (covered in Chapter 6) are written to the active project folder as plain PDFs and CSVs. They're regular files (not sealed bundles), so you can attach them to any email or send them to a printer like any other PDF.

The PDF is laid out for printing on US Letter or A4 — landscape orientation for the Log Project Report (the table has many columns), portrait for the End Project Report.

Photos to Camera Roll

If you tap `Save Image` in the share sheet on an end-face photo, LogScanner saves a JPEG of the end face to your iOS Photos library. This is the only path where the app writes to your Photo Library, and it triggers the `NSPhotoLibraryAddUsageDescription` permission the first time:

> PHOTO PERMISSION PROMPT
> `Log Scanner saves end-face photos to your Photos library when you choose 'Save Image' from the share sheet.`

CHAPTER 8

Log Scaling Rules

A “log scale” is a formula that estimates how much usable lumber a log will produce. LogScanner ships nine such formulas. This chapter explains what each one assumes, where it is used, and how to pick the right one for your work.

Why Different Scales Exist

Logs are not perfect cylinders. They taper, they’re not perfectly round, they have bark of variable thickness, and the sawmill that processes them has its own characteristic kerf and trim allowances. Every scaling rule is a compromise — a single formula that approximates lumber recovery from a few simple measurements.

The compromises differ. Doyle assumes a fairly heavy kerf and overestimates large logs while underestimating small ones. Scribner is more accurate on the small end but assumes a specific lumber pattern. The cubic scales (Smalian, JAS, Cylindrical, etc.) estimate the wood volume of the log, not lumber recovery — what you do with that volume is a separate decision.

LogScanner does not pick a scale for you. You pick one in `Settings` → `Log Scale` and that scale is used for the headline figure in every viewer and every report.

The Nine Scales

All nine are shown in the order they appear in Settings.

Scale	Unit	Use it when…
`Doyle`	BF	You are buying or selling hardwood logs in the eastern and southern United States. Doyle is the most common board-foot scale in the American hardwood trade despite being known to underestimate small logs.
`Scribner`	BF	You are working with softwood logs in the western United States or Canadian softwood. The “Scribner Decimal C” tables are the de-facto standard for federal timber sales.
`International ¼"`	BF	You want the most theoretically defensible board-foot estimate. The International ¼-inch rule assumes a quarter-inch saw kerf and is the closest to actual lumber recovery on a modern bandmill. This is LogScanner’s default scale.

`Ontario Scaler's`	BF	You are scaling logs in Ontario, Canada under provincial Crown timber rules.
`Smalian`	m³	You want a straightforward cubic volume. Smalian averages the cross-section area at each end and multiplies by length — simple, well-understood, and used internationally for cubic measurement.
`JAS`	m³	You are selling logs into the Japanese market. The Japanese Agricultural Standard for logs has specific squared-end conventions and is required for Japanese log auctions.
`Cylindrical`	m³	You are working in continental Europe with the simple "small-end cylindrical" convention — small-end diameter squared, times length, times π/4. Common in furniture and joinery contexts.
`Topp-rotmätning`	m³	You are scaling in Sweden using the top-and-butt cubic method (averages both end areas — similar in spirit to Smalian).
`Toppmätning`	m³	You are scaling in Sweden using the small-end-only (top-end) cubic method. This is the dominant industrial scale in Swedish softwood sawmilling.

> NOTE
> Three "small-end-only" scales — Doyle, Scribner, International ¼", and the European Cylindrical and Swedish Toppmätning — only need the small-end diameter to produce an estimate. The yield table on the End Scan Result Viewer (Chapter 6) is only shown when one of these scales is active, because a single end face is enough information.
>
> The other scales (Smalian, JAS, Topp-rotmätning, Ontario Scaler's) need both ends and won't produce a yield estimate from a single end-only scan. They will work fine on full log scans, where both ends are captured.

Picking a Scale

If you are unsure which scale to use, the rule of thumb is:

- **Buying or selling in North America?** Use the scale your buyer uses. Ask. The answer is almost always Doyle (eastern hardwood), Scribner (western softwood), or International `¼"` (sawmill recovery work).
- **Buying or selling internationally?** Use a cubic scale. JAS for Japan, Smalian or Topp-rotmätning for Europe, Toppmätning for Sweden.
- **Sawmill yield planning, not commerce?** International `¼"` is the most realistic board-foot scale for predicting actual recovery on a modern bandmill.
- **Quoting volume without picking sides?** Smalian. It's the most widely understood cubic scale internationally.

Where the Scale Shows Up

The active scale's name and value appear in five places:

1. The header of the Log Profile Viewer — e.g., `International ¼": 142 BF`.

2. The yield table on the End Scan Result Viewer (if the scale is a small-end-only board-foot rule).
3. The `Scale` column of the Log Project Report PDF and CSV.
4. The BF/m³ column of the End Project Report PDF and CSV.
5. The Log Scale row of the Settings screen.

You can switch scales at any time — the next time you open a saved scan, every measurement re-displays in the new scale. Stored measurements (diameters, lengths, volumes) are unit-independent; only the headline scale value is recomputed.

Units Are Separate from Scale

The `Units` setting (`Metric` or `Imperial`) controls the units in which *dimensions* are shown — inches and feet versus centimetres and metres. The `Log Scale` setting controls the *yield formula*. They are independent: you can use International `¼"` (a board-foot scale) with metric units on diameter and length, or Smalian (a cubic scale) with imperial units.

In practice, most users pair imperial units with the board-foot scales (Doyle, Scribner, International `¼"`, Ontario Scaler's) and metric units with the cubic scales (Smalian, JAS, Cylindrical, Toppmätning, Toppmätning).

Regional Defaults

LogScanner doesn't automatically choose a scale based on your phone's region. The default is *International ¼"* for new installs everywhere. If you operate in a country with a strong dominant scale (Japan, Sweden, Ontario), change the scale in `Settings` once and it stays set.

A Note on Accuracy

No log scale is perfectly accurate. Doyle, in particular, is known to underestimate logs under about 16″ small-end diameter by a meaningful margin (sometimes 30% or more on small logs) and slightly overestimate very large logs. International `¼"` is more uniform across diameters. The cubic scales accurately measure wood volume but do not predict lumber recovery — that depends on the sawmill, the saw kerf, the lumber thickness pattern, and the operator's skill.

LogScanner reports the scale's own answer, faithfully calculated from accurate diameter and length measurements. The choice of scale is the choice of *which answer you want* — not a question of accuracy in the underlying measurement.

CHAPTER 9

Scan Quality Tips

LogScanner produces measurably better results when you follow a few simple field practices. This chapter is the field technique guide.

The One Thing That Matters Most: The Spray-Paint Motion

If you do nothing else from this chapter, do this: when you're capturing an end face, move the phone around the log end as if you were *spray-painting it with the camera*.

> THE SPRAY-PAINT MOTION
>
> After you tap the end face on screen and the reticle locks on, don't hold the phone perfectly still. Move it in slow, sweeping arcs across and around the end — small left-right passes, then up-down, as if you were painting every bit of the end face with the camera lens. Aim for a couple of seconds of motion before tapping `Done — End #1` / `Done — End #2`.
>
> This single change improves diameter and rim-profile measurements by a noticeable margin (often a 30–50% reduction in measurement scatter on identical re-scans). The reason: each new camera angle adds a fresh LiDAR view of the rim, which fills in the depth points the algorithm uses to fit the boundary.

The motion does not need to be elaborate — think of how you'd cover an end face with a can of spray paint: short, overlapping passes, no rush, no skipped patches. If you've kept the log inside the green reticle the whole time, you've done it right.

Lighting

LiDAR works in the dark, but the colour camera does not. The end-face boundary detector reads the photo, so colour-image quality matters.

Best lighting:

- **Open daylight.** Direct sun is fine; soft overcast is ideal.
- **Even shadow.** If you're scanning in shade, scan logs that are *fully* shaded — partial sun-and-shadow on the same end face creates a hard contrast line the boundary detector can confuse with the bark edge.
- **Indoor: stronger than you think.** The phone's screen brightness is a useful proxy. If the screen looks bright and the image looks sharp on your phone, the scan will be fine. If the image looks muddy or grainy, add light.

Worst lighting:

- **Mixed sun and deep shadow on the same end face.**
- **Direct sun behind the log** — backlights the end face and washes it out.
- **Low-angle sun grazing the end face** — creates artificial shadows along the bark texture.

Phone Hold

How you hold the phone affects how the LiDAR fills the mesh.

- **Two hands.** Even with the phone strapped to one wrist, two-handed holds are steadier than one. Phone hold steadiness has more impact on result quality than any other single field variable.
- **Smooth motion.** Walk at a steady pace, no sudden stops or jerky pans. The LiDAR builds up the mesh as you move; abrupt motion creates duplicate or shifted geometry.
- **Phone angled about 30 degrees down** while walking the sides of the log. This puts the side of the log roughly in the centre of the camera's field of view.
- **Phone roughly level when capturing end faces.** Watch the `Roll` readout in the top-right corner — green is under five degrees, yellow under fifteen, red over fifteen.

Two-Pass Walk

LogScanner's flow is built around walking from one end of the log to the other, capturing each end, and then walking back along the top during refining. This is the **two-pass walk**. The reason it works:

- First pass (sides): builds the mesh of the log surface visible from the side. This gives length and big-end / small-end position.
- Second pass (top, during refining): fills in the top of the log surface that wasn't visible from the side angle. Greatly improves volume and taper.

If you skip the second pass (refining), the underside and top of the log barrel are under-sampled and volume can be off by 10-20%.

> CAUTION
> **Do the refining walk slowly.** Walking too fast during refining is the most common cause of bad volume measurements. Aim for one or two seconds per metre of log length. Watch the coverage indicator — it should fill in steadily as you walk.

Distance from the Log

For end-face capture:

- **Comfortable arm's length** — about 60-100 cm from the end face. The whole end should sit comfortably inside the green reticle with a small margin of background visible around it.
- **Too close** — the end fills the screen edge-to-edge, the reticle clips the bark, the boundary detector can't see the full edge.
- **Too far** — the end is small, the depth points are sparse, the boundary detector struggles to find the edge against background mesh.

The reticle is 90% of the smaller screen dimension. If the log end fills 70-80% of the reticle, you're at the right distance.

For walking the barrel:

- **About one to two metres from the log** — close enough that the LiDAR returns depth for the surface (LiDAR's working range is about five metres but falls off in accuracy past three), far enough that you can keep the whole log section in the camera frame.

Logs in a Pile

A log in the middle of a tight stack is harder to scan than a free log on the ground. Tactics:

- **Frame so only the log you're scanning is inside the green reticle.** Neighbouring logs that creep into the reticle can pull the auto-detected boundary toward them.
- **Get the camera close to the end face** so the reticle frames just the log of interest, not its neighbours.
- **Skip the background detection step** when you can't get a clean view of the ground or bunks beneath the log — tap `Skip` when it appears.

Bunked Logs

A log on a sawmill bunk system (cradle of supports) scans cleanly if you can see most of the underside of the log. The background-detection step expects to see the bunks themselves as a flat plane:

- **Aim at the bunks below the log** when prompted `Aim at the bunk or ground surface, then tap 'Confirm Background'.`
- **Walk around to expose the underside** during refining, if possible. If the underside is not visible (the log is too low or the bunks too tall), volume will be a little optimistic but the diameter and length will be unaffected.

> SHINY OR REFLECTIVE BUNKS
>
> LiDAR returns are unreliable from polished metal, painted steel, glass, or other shiny surfaces — the depth sensor reads through or scatters off them and the background-detection step can fail to find a plane. If you're scanning over a reflective bunk, lay a strip of matte tape (gaffer's tape, painter's tape, or any non-glossy adhesive) along the section you'll aim the camera at. The matte finish gives the LiDAR a diffuse surface to lock onto.

Cold Weather

LiDAR works fine in cold weather but the iPhone battery does not. In sub-freezing temperatures the phone may shut down mid-scan even if the battery indicator shows charge remaining. Keep the phone in an inside pocket between scans, and consider a phone case with thermal lining for sustained outdoor work.

The phone may also flag a thermal warning if you do many scans in close succession in warm weather. If you see the iOS "thermal warning" overlay or feel the phone getting hot, pause for a couple of minutes between scans.

After the Scan

The single most valuable habit:

OPEN THE 3D VIEWER

After every scan, before you walk away, tap 3D in the Log Profile Viewer and rotate the model. Look for:

- Large holes in the mesh (especially on the underside) → re-scan with a slower refining walk.
- End-face boundaries that look obviously wrong → re-open the boundary editor and fix them.
- The whole model tilted or twisted → the phone was held heavily off-level; volume and sweep are usable but the model orientation is cosmetic only.

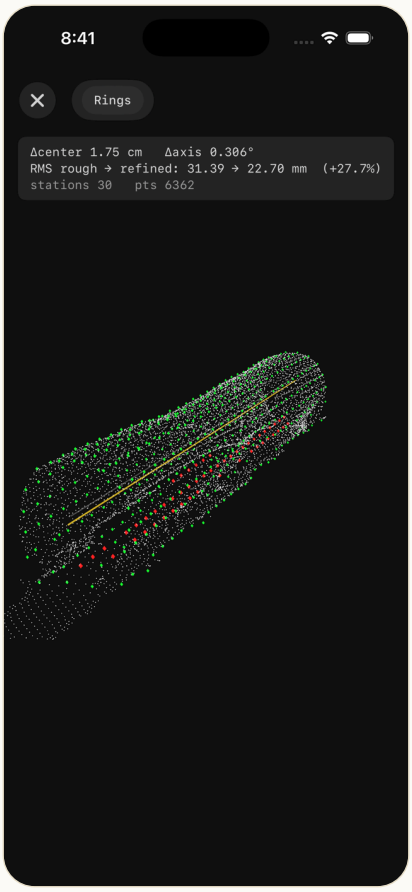
Catching these problems *at the log* takes seconds. Catching them back at the office requires another trip out to the woods.

Scan Quality Diagnostic Views

LogScanner ships two diagnostic views that surface scan-quality problems the casual eye misses. Use them when a measurement looks suspect, or when you want to confirm a borderline scan before driving away from the site.

The Rings View (3D Viewer)

In the 3D viewer (Chapter 3), tap the Rings toggle in the top-left. The smooth mesh is replaced by a point cloud of coloured dots that mark where the LiDAR actually saw the log surface at each cross-section station.



The Rings diagnostic view. The diagnostic strip at the top reports the difference between the rough and refined axis (Δcenter, Δaxis), the mean radial error before and after refinement (RMS rough→refined), and the total number of ring stations and depth points.

How to read it:

- **Even coverage on a clean scan** — dots are dense and uniformly distributed all the way around the cylinder, in every ring from end to end. The colours are mostly white or green.
- **Sparse rings or red dots** — areas where LiDAR coverage was thin during the scan. Red dots indicate points the algorithm had to extrapolate rather than measure directly. A scan dominated by red dots is unreliable — re-scan with a slower refining walk.
- **Missing entire rings** — sections of the log where the LiDAR saw nothing. Usually the underside of a log resting close to the ground. Volume in that region is estimated from neighbouring rings; if more than 20% of the rings are missing, treat the volume number as approximate.

The diagnostic strip at the top of the screen reports a few numbers. They are written for forestry-engineering use, but the rule of thumb is:

`Δcenter`	How much the log axis shifted after refinement. Small values (under 2 cm) are normal; large values mean the rough and refined axis disagreed — usually a sign of patchy coverage.
`Δaxis`	Angular shift of the axis between rough and refined estimates. Under 0.5° is good.
`RMS rough → refined`	How tightly the rings hug the cylinder before and after refinement, in millimetres. A bigger improvement (larger positive %) is generally a sign

	of good geometry being recovered. Values stuck above 20 mm even after refinement suggest a low-quality scan.
`stations / pts`	How many ring stations and total depth points the scan accumulated. More is better, but the threshold depends on log length.

> TIP
> If the Rings view shows good coverage but the headline measurement still looks wrong, the problem is the *end face* boundary — not the barrel. Switch to the End Scan Result Viewer (`Ends`) and check both ends on the `Bound` tab.

The Color View (End Scan Result Viewer)

For end-face problems, the `Color` tab in the End Scan Result Viewer plays the same role as Rings plays for the barrel. It renders the end face in a thermal-style colour map that exaggerates wherever the surface departs from the expected clean-wood colour.

How to read it:

- **Uniform colour across the face** — the boundary detector saw clean wood and a clean bark edge. Trust the automatic boundary.
- **Bright hotspots inside the face** — patches of pitch, mud, snow, sap stain, or burr that have a different colour signature than the rest of the wood. These can pull the auto-detected boundary inward or outward in that region. Open the `Bound` tab and verify the boundary visually; nudge handles if needed.
- **Big colour break at the rim** — a shadow, a glare from low sun, or contrasting bark colour can be mistaken for the bark line. Check the boundary at that rim location especially carefully.

The Color view doesn't fix anything by itself; it tells you *where to look*.

> WHEN TO SUSPECT A SCAN
> The fastest scan-quality check after a fresh capture: open the 3D viewer, tap `Rings`, and watch for red dots. Then tap `Ends`, switch to the `Color` tab, and look for hotspots. If both views are clean, the measurements are trustworthy. If either flags something, fix it now before you move on.

CHAPTER 10

Troubleshooting

This chapter is a reference for the messages, alerts, and unexpected states you may encounter, organized by where in the app you see them.

At App Launch

`LiDAR Not Available`

>

`This app requires a device with a LiDAR scanner (iPhone 12 Pro or later, iPad Pro 2020 or later).`

Your phone does not have a LiDAR sensor. LogScanner cannot run on this device. See Chapter 1 for the list of supported devices. The app will quit after you dismiss the alert.

`Scan Directory Unavailable`

>

`The custom scan folder is no longer accessible. Scans will be saved to the default location. Previously saved scans in the custom folder won't appear in the library until access is restored.`

The project folder you previously selected is no longer reachable — most commonly because you moved or renamed a folder in iCloud Drive, or signed out of iCloud, or the folder was synced to a now-disconnected external storage provider.

LogScanner falls back to the default folder. To restore the old folder, fix the underlying issue (re-sign-in to iCloud, restore the folder, etc.), then in `Settings` → `Project Folder`, pick the old folder again.

During a Scan

`Tracking not available` / `Limited tracking` / `Relocalizing...`

The AR session has lost or is rebuilding its understanding of the scene. Causes:

- Sudden bright flash or quick lighting change.
- The phone was covered or pointed at a featureless wall.
- The phone moved too fast.

Stand still, point the camera at a textured surface, and wait three to five seconds. Tracking usually recovers on its own.

`Slow down — too much motion`

You are panning or moving too fast for the LiDAR to keep up. Slow down. Aim for the speed of a casual walk.

`Not enough visual features. Try a better-lit area.`

The camera image is too dark, too blurred, or too uniform (e.g., aimed at a blank wall). Move to better light or aim at the log directly.

`Tracking not ready. Move phone slowly to initialize AR, then try again.`

The AR session has not finished initializing. Pan slowly across the scene for a couple of seconds, then try the action again.

Stuck on `Building Model…`

The overlay should clear in a few seconds (typically 5-15 seconds depending on phone and scan complexity). If it stays up for more than 60 seconds, force-quit LogScanner (swipe up from the app switcher) and re-open. The partial scan is normally recoverable from the library.

End not detected after `Done — End #1`

If you see `End #1 not detected. Point directly at the end face from close range and tap again.` — the framing during capture wasn't good enough. Try:

1. Get closer to the end face — about an arm's length.
2. Frame the whole end inside the green reticle.
3. Slow down — give the LiDAR a couple of extra seconds.
4. Keep the phone roll under fifteen degrees (the colour-coded `Roll` readout in the top-right corner).
5. Tap directly on the centre of the end face on screen.

If the end is hard to see, use the spray-paint *camera motion* (Chapter 9): keep moving the phone in small sweeping arcs around the end before tapping `Done`. The extra viewing angles usually give the algorithm enough rim detail to lock on.

Boundary Editing

Auto boundary looks wrong

Open the boundary editor (Chapter 3) and drag the handles to match the visible bark edge. Use `In` and `Out` for one-millimetre nudges of a selected handle. Tap `Save Boundary` (gold) to commit.

After saving, the viewer reprocesses the scan in the background. The Bound tab status reads `Boundary: reprocessing…` briefly. When it clears, every measurement reflects the corrected boundary.

Wanting to start over from automatic detection

Tap `Auto` (purple, in the action row). The current edits are discarded and the boundary is re-detected from scratch.

Wanting to restore a previously saved manual edit

Tap `Rerun` (orange). The last saved manual boundary is restored.

Library and Saved Scans

A scan disappeared from the library

Possible causes:

- **Wrong project folder.** The scan was captured into a different project folder than the one currently active. Go to `Settings` → `Project Folder` and switch to the right folder.
- **File deleted externally.** If you deleted the `.lscan` file from Files or iCloud, LogScanner can no longer see it.
- **iCloud sync delay.** If your project folder is in iCloud Drive, recently captured scans may not appear on a second device until iCloud finishes syncing.

Failed to open a scan

Re-importing a damaged or partially downloaded `.lscan` file can fail. The library row stays visible but tapping it produces no result. Delete the row and re-import a fresh copy of the bundle.

Reports

`No Log Scans` / `No End Scans`

> `Scan some logs first to generate a project report.`

> `Capture some end-only scans first to generate an end project report.`

The active project folder doesn't contain any scans of the relevant type. Either you haven't captured any yet, or the project folder is wrong.

`Report Failed`

> `Could not generate the project report.`

Most often caused by a corrupt scan in the folder. Try generating a report on a freshly created project folder containing one known-good scan. If that succeeds, the original folder has a corrupt scan — delete scans one at a time until reports work again, then re-import the deleted ones.

Cache and Storage

`Clear Cache?`

```
Clearing will drop:
• Reconstruction + end-face render caches
• N idle scan extract(s) (sizeMB)

> M scan(s) currently in use will not be affected. Raw scan data is not deleted.
```

This is safe. It drops temporary processing caches and any expanded copies of `.lscan` bundles that aren't currently open. Raw scan data is untouched. The cache rebuilds as you open scans.

Use this when:

- The app feels slow on large libraries.
- You've edited many boundaries and want to clean up the intermediate work.
- You need free space (the cache can grow to a few hundred megabytes on heavy use).

Subscription

`No active subscription`

> `We couldn't find a current subscription on this Apple ID.`

The `Restore Purchases` flow could not find a subscription. Verify:

- You are signed in to the same Apple ID you originally subscribed with.
- The subscription has not been cancelled or expired.
- If you used a promo code, that the promo period has not ended.

You can manage or check your subscription in `Settings` → `Subscription` (Apple's Settings app, not LogScanner's) → **Subscriptions**.

`Purchase failed`

The most common causes are payment-method issues (expired card, region restriction) or network problems. Check your payment method in Apple Settings → your Apple ID → **Payment & Shipping**. Then try the purchase again from LogScanner's paywall.

When in Doubt

If a scan is producing measurements that feel wrong:

1. Open the 3D viewer (`3D` in the Log Profile Viewer). The model should look like the log you scanned.
2. Check the end-face boundaries (`Ends` → `Bound` tab). They should match the bark edge.
3. Compare big-end and small-end diameters against a tape measurement of the actual log. They should be within a few millimetres.
4. If something is far off, see Chapter 9 for field technique that improves accuracy.
5. If you've ruled out field technique and the numbers still don't match, contact support — see Chapter 11.

CHAPTER 11

Privacy and Support

Privacy at a Glance

LogScanner is designed to keep your scan data on your phone.

- **No analytics, no tracking.** The app does not include any analytics SDKs and does not send usage telemetry anywhere.
- **No accounts.** There is no LogScanner account to create, no sign-in, no cloud login.
- **No internet connection required during a scan.** All measurement and reconstruction runs on the device.
- **No location, microphone, motion, contacts, tracking, or notification permissions are requested.** The app only asks for the camera (when you start a scan) and, optionally, the photo library (only if you choose to save an end-face photo to your Camera Roll).

What does leave your device:

- **App Store StoreKit communication** for subscription purchases and restores. This is between Apple's StoreKit and Apple's servers — Bunyan Software does not see your Apple ID or payment information.
- **Helpdesk links** that you tap intentionally — for example `Settings` → `Help` → `Help & Tutorials` opens the public help desk in Safari.

Scan data does **not** leave the device unless you share it intentionally — via AirDrop, Mail, the Files app, iCloud Drive, or another share-sheet destination.

The full privacy policy is available at bunyansoftware.com/privacy. It is also reachable directly from `Settings` → `About` → `Privacy Policy` inside the app.

Where Scans Live

By default, scans live in `On My iPhone/LogScanner/Scans`. This folder is **not** automatically backed up to iCloud (Apple excludes the app's documents folder from iCloud Backup unless you explicitly turn it on). To back up your scans:

- Move your project folder to iCloud Drive (Settings → Project Folder → pick an iCloud Drive subfolder).
- Or, periodically share individual scans to Files → iCloud Drive (see Chapter 7).

When you delete a scan from the library, the corresponding `.lscan` file is removed from the project folder immediately. There is no app-side trash bin or undo.

When you uninstall LogScanner, iOS deletes the entire On My iPhone folder along with the app. Custom project folders inside iCloud Drive or other locations are **not** deleted by app removal.

Bunyan Software

LogScanner is built and operated by Bunyan Software. Contact:

- **Website:** www.bunyansoftware.com
- **Helpdesk:** bunyansoftware.com/helpdesk
- **Email:** support@bunyansoftware.com

Filing a Bug or Feature Request

If something doesn't work as the manual describes, or if you have a feature request:

1. Note the app version (`Settings` → `About`), your iPhone model, and what you were trying to do.
2. If the issue is repeatable, note exactly what you did to trigger it.
3. If applicable, share the affected `.lscan` scan via email — see Chapter 7 — and include it in your report.
4. Email the helpdesk address above, or use the contact form at bunyansoftware.com/contactus.

We read every report. Most bug fixes ship in the next update.

Update Cadence

LogScanner updates come through the App Store. Critical fixes ship within days; feature updates are typically every two to four weeks. The current version and build number are always visible in `Settings` → `About`. If you want to know what changed in the latest update, the release notes are visible in the App Store on the LogScanner product page, and a longer-form changelog lives at bunyansoftware.com/log-scanner.

CHAPTER 12

Appendix A · Glossary

ARKit	Apple's framework for augmented reality on iOS. LogScanner uses ARKit's LiDAR scene-understanding to build the surface mesh.
Bandmill	A sawmill that cuts lumber with a continuous loop saw blade ("band saw"). The thin kerf of a bandmill is the reason International `¼"` is the most realistic board-foot scale for modern recovery.
Barrel	The cylindrical body of a log between the two end faces. LogScanner uses this term in the UI (`Barrel` button to view the captured barrel photo).
Bark line	The visible boundary between the bark and the inner wood at the end face. The auto-detected end-face boundary in LogScanner aims to follow the bark line.
Board foot (BF)	A unit of lumber volume equal to a board 1 ft × 1 ft × 1 in (= 144 in³). The customary lumber measurement unit in North America.
Bunk	A cradle or stand that supports a log off the ground. Used at sawmills and on log trucks. LogScanner's background-detection step looks for the bunk or ground plane below the log.
Cant	A squared timber — a log that has been sawed on at least two faces. LogScanner's end-face pipeline assumes a rounded profile (polar filtering, ellipse-fit measurements), so cants and other non-circular cross-sections will scan but the reported diameters and circularity will not faithfully represent the squared shape.
Cubic metre (m³)	SI unit of volume. The headline unit for cubic log scales (Smalian, JAS, Cylindrical, Topp-rotmätning, Toppmätning).
Doyle	A board-foot scaling rule common in the American hardwood trade. Underestimates small logs.
End face	The flat (or nearly flat) cross-section at either end of a log where it was bucked. LogScanner captures one or two end faces per scan.

Fingerprint (colour finger-print)	An internal normalized image of the end face used to match the same log across multiple scans. Visible on the `FP` tab of the End Scan Result Viewer.
Headless walk	The refining-phase walk along the top of the log (Chapter 2 Step 7). Called "headless" because the phone points straight down and you don't need to look at the screen to do it.
International `¼"`	A board-foot scaling rule that assumes a 1/4-inch saw kerf. LogScanner's default scale. The most realistic BF scale for modern bandmills.
Isometric view	The top-down view in the middle of the Log Profile Viewer. Shows the whole log from above.
JAS	Japanese Agricultural Standard — the cubic scale used for Japanese log auctions.
Kerf	The width of material removed by a saw blade per cut. Determines how much of a log becomes sawdust and how much becomes lumber. Saw scales encode an assumed kerf.
LiDAR	Light Detection and Ranging. The depth-measuring sensor on Pro and Pro Max iPhones from the 12 series onward. LogScanner needs LiDAR to run.
`.lscan`	LogScanner's sealed scan-bundle file format. See Appendix B.
Manifest	The metadata file inside a `.lscan` bundle that holds the scan timestamp, log number, end labels, and pointers to the photo and depth-data files.
Mesh	A 3D surface made of triangles. LogScanner builds a mesh of the log from LiDAR data; the mesh is what gets measured.
Ontario Scaler's	A board-foot scale used in Ontario, Canada under provincial Crown timber rules.
Project folder	The folder on disk where LogScanner saves scans. Settable per-project from `Settings` → `Project Folder`.
Pro tier	The paid subscription tier. Unlocks measurements, saving, exports, yield estimation, and project reports.
Refining	The second pass of a log scan (Chapter 2 Step 7) where you walk along the top of the log with the phone pointing down. Fills in mesh gaps and greatly improves volume accuracy.
Reticle	The green dashed circle on screen during end-face capture. Defines the search area for the end-face boundary detector.

Roll	How much the phone is tilted left-right around the axis pointing forward through the lens. LogScanner shows this in the top-right during capture; green is under five degrees.
Scribner	A board-foot scale common in western US softwood and federal timber sales.
Small-end-only scale	A scaling rule that needs only the small-end diameter to estimate yield. Doyle, Scribner, International `¼"`, Ontario Scaler's, Cylindrical, Toppmätning all qualify. Yield tables in LogScanner only appear when one of these is active.
Smalian	A cubic volume rule that averages the cross-section area at each end and multiplies by length. The most widely used cubic scale internationally.
Sweep	The deviation of a log's axis from a straight line drawn end-to-end, expressed as a maximum offset. Heavy sweep reduces lumber recovery.
Taper	The rate at which a log narrows from butt end to top end. Expressed as cm/m or in/ft.
Top end	The smaller end of a log — the end nearer the top of the tree it came from. LogScanner labels this `Sm End`.
Topp-rotmätning	Swedish cubic scale using both ends. ("Topp" = top end, "rot" = butt end.)
Toppmätning	Swedish cubic scale using the small (top) end only. The dominant industrial scale in Swedish softwood sawmilling.
Two-pass walk	LogScanner's standard scanning sequence: first pass along the sides (captures length, end positions), second pass along the top during refining (fills in the top mesh, improves volume). See Chapter 9.
UTI	Uniform Type Identifier — iOS's way of recognizing file types. LogScanner registers a private UTI for the `.lscan` bundle so iOS can route the file back to the app when you tap one.
Wireframe	The live LiDAR mesh overlay shown during the refining phase. Each visible triangle represents one piece of surface the LiDAR has seen.

CHAPTER 13

Appendix B · File Formats

LogScanner reads and writes several file types. This appendix catalogs them.

The `.lscan` Bundle

The primary export format. A single sealed file that contains the complete state of a scan.

Extension	`.lscan`
Conforms to	`public.data`, `public.archive`
Description	LogScanner Bundle
Typical size	1–10 MB for a full log scan; 200 KB–2 MB for an end-only scan.
Opens in	LogScanner only. The bundle is sealed — its internal structure is proprietary and not user-editable. Tampering with the file will cause re-import to fail.

To share, open the scan and tap `Share` (Log Profile Viewer) or `Export` (End Scan Result Viewer). iOS handles the rest.

To re-import, tap a received `.lscan` file in Mail, Messages, AirDrop, Files, or any other iOS app — pick LogScanner when iOS asks. The bundle is copied into the active project folder.

Project Report Files

Generated by the two report buttons in `Settings` → `Project Folder`:

`project_report.pdf`	Log Project Report (Pro). One row per full log scan in the active folder. Landscape US Letter / A4.
`project_report.csv`	Same data as the PDF, machine-readable.
`end_project_report.pdf`	End Project Report (Pro). One row per end-only scan. Portrait US Letter / A4.
`end_project_report.csv`	Same data as the End PDF, machine-readable.

These are written into the active project folder alongside the `.lscan` bundles. They are regular files (not sealed) — open in any PDF reader or spreadsheet program.

Photo Library (Camera Roll) Output

If you tap `Save Image` from the share sheet on an end-face photo, LogScanner saves a JPEG to your iOS Photos library. The image is a standard 8-bit JPEG at the camera's native resolution; no LogScanner metadata is embedded.