TANTRUM · OMNISSIAH

Omnissiah

User Manual

Really Mean Sub

App version 0.1.2 · August 2026

Contents

About this manual & safety

Legal & safety

Disclaimer. This manual describes the app as it behaves at the version above. Features marked *beta* or *coming soon* may change. We've done our best to keep every number and menu path accurate, but if the app and this manual disagree, the app is right. Please tell us.

> ⚠ **Protect your hearing.** Room correction and level-setting play test noise (pink noise) and can drive your speakers **loud**. Before you start: - Turn your amplifier/interface volume **down** first, then raise it gradually. - Never stand close to a speaker while a sweep or test tone is playing. - Sudden loud sounds can damage hearing and equipment. If something sounds wrong, stop the measurement (there is always a **Stop** button on screen).

About this manual

This manual is for **owners of a Tantrum Audio Really Mean Sub** using the **Omnissiah** desktop app to set up, measure and correct their system. You don't need to be an audio engineer. Every task is written as plain, numbered steps with a picture. Sections that go deeper are clearly marked **Advanced (optional)**. You can skip them and still get a great result.

The app's name

The app is called **Omnissiah**. That's the name you'll see on its icon in your Applications folder and in the dock. Some in-app text and older documents call it "DSP Control", but it's the same app. This manual uses **Omnissiah** throughout.

How this manual is organised

- **Part I – Overview** covers what the app does and how to install it.
- **Part II – Getting started** is the fastest path from unboxing to good sound, plus a tour of the screen.
- **Part III – Task reference** has one chapter per job: managing devices, shaping sound, measuring, room correction, results, backup, settings.
- **Part IV – Advanced** covers fine-tuning room correction, custom target curves, diagnostics.
- **Part V – Help** has troubleshooting, a glossary, and reference appendices.

New users should read Parts I–II in order. If you already know your way around, jump straight to the Part III chapter for the task you want.

Conventions used here

Style	Meaning
Bold	A button, menu, or label you see on screen, written exactly as it appears, for example **Start Noise**, **Take Snapshot**.
Italic	A term being introduced, or a value you type.
`code`	A file name, path, or exact value.
1. 2. 3.	A procedure: do the steps in order.

> **Tip:** Helpful shortcuts and good-to-know extras.
> **Note:** Background detail or a clarification.
> ⚠ **Warning:** Something that could damage hearing, equipment, or lose your work.

Screenshots show the app in its dark theme (the only theme). Yellow is the app's accent colour. The highlighted control in a picture is usually the one the step refers to.

1. Introduction

After this chapter you'll understand what Omnissiah is for, the parts of your system it controls, and the simple loop you'll follow to get great sound: **measure → correct → apply.**

What Omnissiah is

Omnissiah is the desktop app for your **Really Mean Sub**. Your Really Mean Sub is an active subwoofer with a built-in signal processor (DSP) and three outputs:

- one **low-passed output** that drives the subwoofer, and
- two **high-passed outputs** that feed your left and right main speakers.

Omnissiah connects to the Really Mean Sub over USB-C and lets you:

- set levels, delay, polarity, a crossover and a parametric EQ for each output;
- **measure** how your speakers actually sound in your room with a microphone;
- automatically calculate **room correction** filters that fix what the room is doing to the sound, and load them onto the device;
- back up and restore all of it.

The correction lives **on the device**, so once you've applied it, your system sounds corrected whether or not the app is running or your computer is connected.

The key idea: your room changes the sound

A speaker that measures perfectly flat in a lab will not sound flat in your room. Walls, floor, furniture and the speaker's position create peaks (boomy notes), dips (missing notes) and timing errors. Your ears hear the **room + speaker** together, not the speaker alone.

Omnissiah's job is to measure that combined result and calculate the opposite (gentle EQ cuts and boosts, small delays, and level matching) so that what reaches your listening position is closer to how the music was meant to sound.

How your system is laid out

Three concepts, from biggest to smallest:

1. **Device** is your Really Mean Sub. Omnissiah discovers it automatically when you plug it in.
2. **Outputs** are the three channels on the device (the subwoofer output and the two speaker outputs). You select an output to work on it.
3. **DSP blocks** are the processing on each output, in signal order: **Gain · Polarity · Mute · Delay · Crossover · Parametric EQ.** Chapter 7 covers each one.

```
Really Mean Sub (device)
├── Sub output      →  Gain · Delay · Crossover (low-pass) · EQ
├── Left output     →  Gain · Delay · Crossover (high-pass) · EQ
└── Right output    →  Gain · Delay · Crossover (high-pass) · EQ
```

The measure → correct → apply loop

Almost everything in Omnissiah follows the same loop:

1. **Measure**: play test noise through your speakers and capture the room's response with a microphone. (Chapters 8–9.)
2. **Correct**: the app calculates correction filters aimed at a *target curve* (the tonal balance you want). (Chapter 9.)
3. **Review & apply**: compare before/after, then load the correction onto the device. (Chapter 10.)

You can also skip measurement entirely and adjust the DSP blocks by hand (Chapter 7), which is useful for quick tweaks once you're set up.

> **Tip:** If you want sound as fast as possible, go straight to Chapter 3 — Quick start. Come back here when you want to understand what you did.

2. System requirements & installation

After this chapter you'll have Omnissiah installed, launched, and permitted to use a microphone. You'll be ready to connect your device.

What you need

Computer

- A **Mac** (macOS). Apple silicon and Intel Macs both work. *A Windows version is in development.*
- A free **USB-C** port (or an adapter) to connect the device.

Hardware

- Your **Really Mean Sub**, powered on, with a **USB-C cable** to your computer.
- **For measurement and room correction:** a **measurement microphone** connected to your Mac (typically a USB measurement mic, or a measurement mic on an audio interface). You don't need a mic to adjust levels and EQ by hand, only to measure and run room correction.

> **Note:** Omnissiah measures your room by playing test noise through your speakers and recording it. For the numbers to mean anything, use a proper *measurement* microphone (one with a known, flat response), not a laptop or vocal mic.

Installing the app

1. Get the **Omnissiah** app from Tantrum Audio (download link or supplied file).
2. If it arrives as a disk image or zip, open it and drag **Omnissiah** into your **Applications** folder.
3. Double-click **Omnissiah** to launch it.

> **Note:** The first time you open an app downloaded from outside the Mac App Store, macOS may ask you to confirm you want to open it. If it's blocked, open **System Settings** → **Privacy & Security**, scroll down, and click **Open Anyway**.

First launch

When Omnissiah starts, it spends a moment getting ready. You'll see the logo and a spinner with **"Getting things ready…"** while it sets up its audio engine and looks for devices.

This is normal and usually quick. When it finishes, the main window appears.

> **Note:** If it stays on this screen or shows an **INITIALIZATION ERROR** banner at the bottom, see Troubleshooting.

Allowing microphone access

Room correction needs to record from your microphone, so macOS will ask for permission the first time the app tries to use it.

1. When macOS shows the microphone prompt, click **Allow** (**OK**).
2. If you clicked *Don't Allow* by mistake, turn it back on in **System Settings** → **Privacy & Security** → **Microphone** and switch **Omnissiah** on.

If microphone access is blocked, Omnissiah won't start a measurement that can't record anything. It stops with a message telling you to allow the app in **System Settings** → **Privacy & Security** → **Microphone** and try again.

> **Note:** After updating Omnissiah, macOS may ask for microphone permission once more. Click **Allow** again. Your settings and calibrations are unaffected.
> **Tip:** You can install the app and explore the interface without a mic. You only need microphone access when you get to measurement (Chapter 8) or room correction (Chapter 9).

Next step

With the app installed and running, connect your device. See Chapter 3 — Quick start or Chapter 5 — Managing devices.

3. Quick start

This is the shortest path to corrected sound, whether you own Tantrum hardware or not. Each step links to a fuller chapter if you want detail. Set aside about 15 minutes for the room correction part, and have your **measurement microphone** ready.

The whole flow at a glance

```
Set up playback (device or loopback) → Set input & output devices
  → Measure the room (Quick Measurement) → Review results → Apply correction
```

The measuring, reviewing and applying are identical either way. Only the first step differs, and the next section explains which version of it you need.

Where the correction ends up: your device, or loopback

Omnissiah measures your room the same way whichever speakers you own. The only real choice is **where the finished correction gets applied**.

On your Tantrum device

If you have a Really Mean Sub (or another Tantrum DSP product), the correction is written **into the device itself**. Its own DSP chip does the work from then on. That's Path A in step 1 below.

Through loopback

If your speakers aren't Tantrum ones, Omnissiah can correct your computer's audio *on its way out* instead. You send your Mac's sound into Omnissiah through a **virtual audio device** (a small free utility such as **BlackHole 2ch** that acts like a cable between apps), and Omnissiah applies the correction live before passing the audio on to your speakers. That's Path B in step 1 below.

> **What "loopback" means:** your computer plays audio into a virtual device, Omnissiah captures it, corrects it, and plays it out to your real speakers. The sound loops back through the app on its way past, which is where the name comes from. Nothing is recorded or saved. It's processed as it passes.

Which one you get, and how they differ

	On your device	Through loopback
You need	A Tantrum DSP product	A virtual audio device (e.g. BlackHole 2ch)
What gets corrected	Everything the device plays, whatever the source	Only sound coming from your computer
Where the correction lives	Stored on the device	Stored by the app and applied live
Works with Omnissiah closed	Yes	No, the app has to be running
Set-up	Plug in the USB-C cable	Install the virtual device and select it in Settings

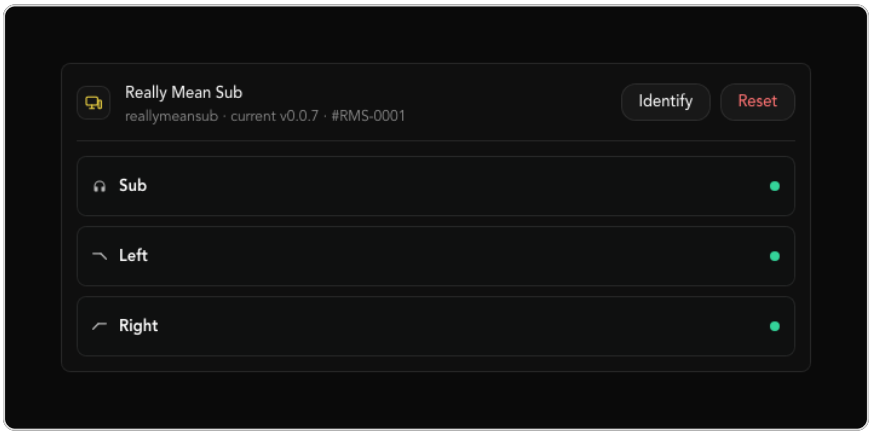
Both are produced by exactly the same measurement and correction process, and both give you the same **Before / After** comparison and diagnostics at the end. A device correction is the more permanent of the two: once applied it keeps working with the app closed, after a reboot, and for anything else plugged into that device. Loopback corrects only what your computer sends, and only while Omnissiah is open.

1. Set up playback

Follow **either** path below, whichever matches your system. Everything from step 2 onwards is the same for both.

Path A — a Tantrum device

1. Power on your Really Mean Sub.
2. Connect it to your Mac with a **USB-C cable**.
3. In Omnissiah's sidebar, under **Devices**, your device appears within a second or two. Until it does, the app shows **"No devices found…"** with "*Please connect your device via USB-C cable to your computer.*"



The device appears in the sidebar

If the app asks you to update the device's firmware first, follow the prompt and wait for it to finish. More detail: Chapter 5 — Managing devices.

Path B — loopback, with any speakers

1. Install a virtual audio device if you don't have one. The calibration setup's loopback screen has a **Get BlackHole** link.
2. In **Settings** → **Audio** → **System Audio**, set **Loopback Input** to that virtual device (**BlackHole 2ch**, for example).
3. Set your Mac's own sound output to the **same** virtual device (System Settings → Sound → Output), so everything your computer plays goes into Omnissiah.
4. Under **Speaker Output** in the same Audio tab, choose the real output that feeds your speakers. That's where Omnissiah sends the corrected audio.

There's no device to connect or firmware to update on this path. When you reach step 3, pick the **Loopback** template instead of a hardware speaker layout.

More detail: Chapter 9 — Loopback (system-wide) correction and Chapter 12 — Settings.

2. Choose your microphone and speaker output

Omnissiah needs to know which mic to record from and which output plays the test signals.

1. Go to **Settings** (gear, bottom of the sidebar) → **Audio** tab.
2. Under **Measurement Mic**, pick your microphone, then its channel.
3. Under **Speaker Output**, pick the output device that feeds your speakers (if you set this up on Path B, it's already done).
4. Raise the mic input until the **Mic Level** meter shows healthy level (green), without clipping (red).

More detail: Chapter 12 — Settings.

3. Measure your room

1. Click **Calibrate** in the sidebar.
2. On **Configure Your Measurement**, keep **Quick Measurement** selected.
3. Under **System**, confirm your speaker layout and that each speaker is assigned to an output. On a Tantrum device that's a hardware layout such as **Left + Right + Subwoofer**; on a loopback setup, start from the **Loopback** template.
4. Click **Start Measurement**.
5. In the **Speaker Playback About to Begin** dialog, follow the level-setting instructions, then click **I'm Ready** 🤘.
6. Keep the mic at head height at your **main listening position** and stay quiet while it plays test noise through each speaker. A quick measurement takes one measurement per speaker by default, so you won't need to move the mic. If you've set more positions, the app pauses and tells you when to move it a few centimetres.

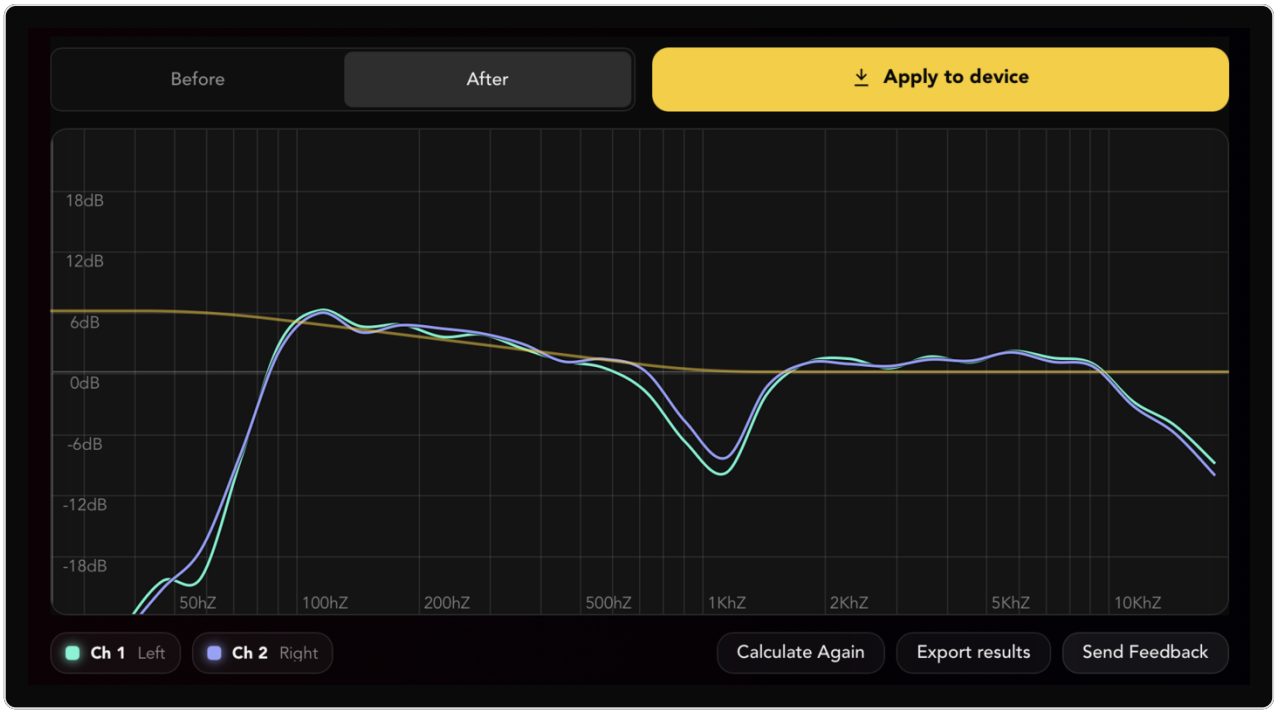
More detail: Chapter 9 — Room correction & calibration.

> ⚠ **Warning:** Test noise can be loud. Set your volume low first and raise it only until the on-screen meter turns green.

4. Review and apply

When measurement finishes, the app calculates correction and shows the **Calibration results** page.

1. Use the **Before / After** toggle to hear and see the difference.
2. Read any **Diagnostics** cards. They explain anything the correction couldn't fix and what to do about it.
3. When you're happy, click **Apply to device**, then confirm. (On loopback the same button applies the correction to your system audio.)



Results — before/after

On a device, the correction is now stored on the device and active. On loopback it starts working immediately on anything your computer plays. You can check or bypass it later under **Settings → Audio → Loopback Correction**. More detail: Chapter 10 — Understanding & applying results.

5. Back up your work

Once you like the result, save it. A backup holds every connected device's settings *and* your loopback correction, so it's worth doing on either path:

- Click **Back up…** at the bottom of the **Settings** screen and choose where to save the file. (With a device connected, the **camera** button next to **Devices** in the sidebar does the same thing.)

More detail: Chapter 11 — Backup & restore.

That's it

Your system is measured, corrected and applied. From here you can:

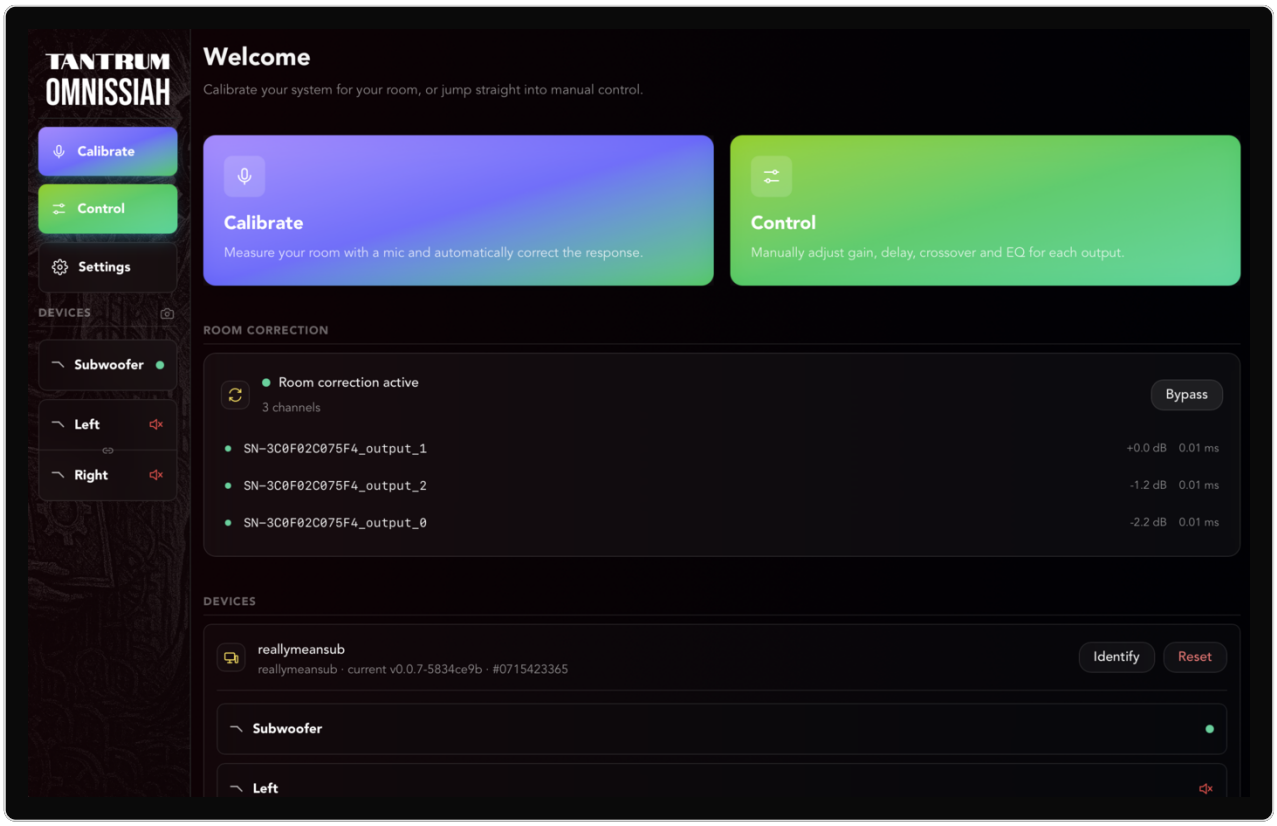
- fine-tune levels and EQ by hand (Chapter 7);
- try a different tonal balance (Chapter 14, Custom target curves);
- learn what every screen does (Chapter 4, Interface tour).

4. Interface tour

After this chapter you'll recognise every region of the window and know where to go for each task.

The window at a glance

Omnissiah has a **sidebar** on the left and a **content area** on the right. What appears on the right depends on what you clicked in the sidebar.



The main window: sidebar and content area

The sidebar

From top to bottom:

- **Logo**: click it to return to the Home screen.
- **Calibrate**: start or review a room measurement and correction (Chapter 9–10).
- **Control**: open the per-output DSP controls (Gain, Delay, Crossover, EQ) for the currently selected output (Chapter 7).
- **Settings**: audio devices, calibration options, connected devices, logs (Chapter 12). The active section gets a yellow bar on its left.
- **Devices**: a heading with a **camera** button beside it. The camera opens **Backup & restore** (Chapter 11). Below the heading is the list of **outputs** on your connected device(s).

> **Note:** The **Control** button and the **Devices** section only appear while a device is connected. With nothing plugged in, the sidebar shows only **Calibrate** and **Settings**.

The output list

Each output shows an icon, its name, and a status dot:

- a **green dot** means the output is live;
- a **red mute icon** means the output is muted.

Click an output to select it (it gets a yellow left border). The **Control** screen then acts on that output. Click it again to deselect. Linked outputs are stacked together in one card with a small link icon (Chapter 6).

> **Tip:** The sidebar section is labelled **Devices**, but the rows under it are the individual **outputs** on those devices: the sub output and your two speaker outputs.

The Home screen

Clicking the logo (or launching the app) shows the **Welcome** screen: two big shortcut cards (**Calibrate** and **Control**), plus a **Room Correction** section showing the status of any applied correction, and a **Devices** section listing connected hardware.

Closing and quitting

Closing the window (the red traffic-light button) **hides** Omnissiah instead of quitting it, so your device stays connected in the background. To bring it back, click its icon in the Dock or launch it again. Opening Omnissiah while it's already running reopens the existing window rather than starting a second copy. To quit properly, press **Cmd-Q** or choose **Quit** from the menu bar.

Where each task lives

I want to…	Go to
Update firmware, identify or reset a device	**Home** or **Settings** → **Devices** (Chapter 5)
Adjust gain, delay, crossover, EQ by hand	Select an output, then **Control** (Chapter 7)
Link two outputs so they move together	**Control** → **Link** (Chapter 6)
Measure my speakers in detail	**Calibrate** → **Manual Measurement** (Chapter 8)
Run automatic room correction	**Calibrate** (Chapter 9)
See / apply correction results	**Calibrate** → results (Chapter 10)
Back up or restore	Sidebar **camera** button, or the **Back up…** / **Restore…** buttons in the Settings footer (Chapter 11)
Pick audio devices, tuning options, view logs	**Settings** (Chapter 12)

Notifications and errors

Omnissiah tells you when something goes wrong with a banner across the bottom of the window:

- **ERROR:** a red banner with the message and a ⓧ button to dismiss it.
- **INITIALIZATION ERROR:** shown if the app couldn't start up properly. This one has no dismiss button (restart the app; see Troubleshooting).

Loading and empty states

- **"Getting things ready…"**: the app is starting (Chapter 2).
- **"No devices found…"**: no device is connected, so plug one in over USB-C.
- **"No Output Selected"** on the Control screen: pick an output from the sidebar first.

Now that you know your way around, the Part III chapters cover each task in detail.

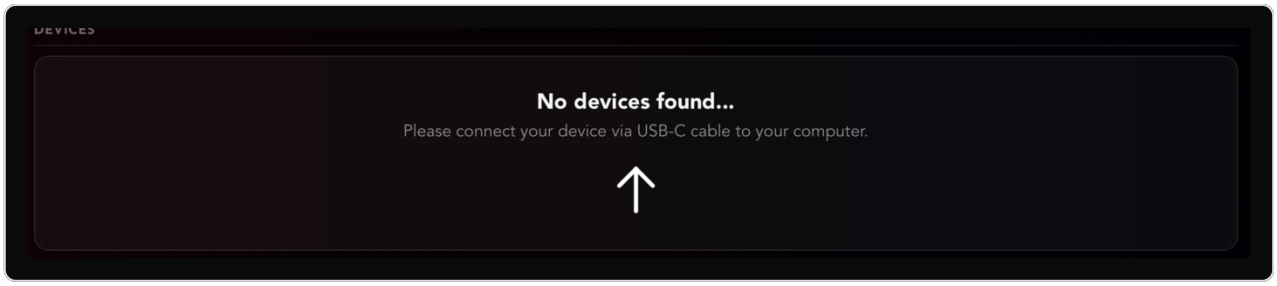
5. Managing devices

After this chapter you'll be able to connect and identify your device, keep its firmware up to date, and reset it if you ever need to.

Connecting a device

Omnissiah looks for Tantrum Audio DSP hardware continuously. Plug your Really Mean Sub into a USB-C port and it appears on its own. There's no "connect" button.

- **While nothing is connected**, you'll see **"No devices found…"** and "*Please connect your device via USB-C cable to your computer.*"
- **Once connected**, the device shows up under **Devices** on the Home screen and in **Settings → Devices**; its outputs appear under **Devices** in the sidebar.



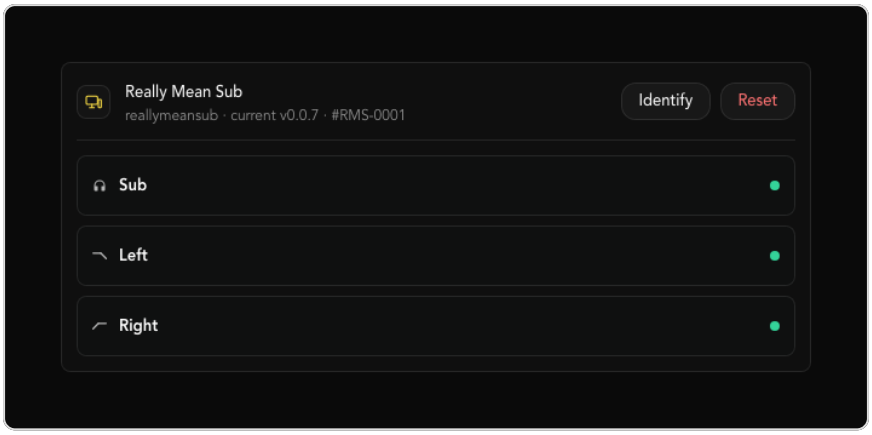
Searching for a device

> **Note:** The app looks specifically for Tantrum Audio DSP hardware, not your computer's speakers or a plain audio interface. Choosing your audio input/output devices for measurement is a separate step (Chapter 12).

What a device row shows

Each connected device shows its **name**, and a line like `DSP · current v1.2.0 · #ABC123`: the device type, its current firmware version, and its ID. On the row you'll find:

- **Identify**: flashes/identifies the physical device so you can tell which one you're looking at (handy if more than one is connected).
- **Reset**: factory-resets that device (see below).
- **Update to v…**: appears only when newer firmware is available (see below).



A connected device in the list

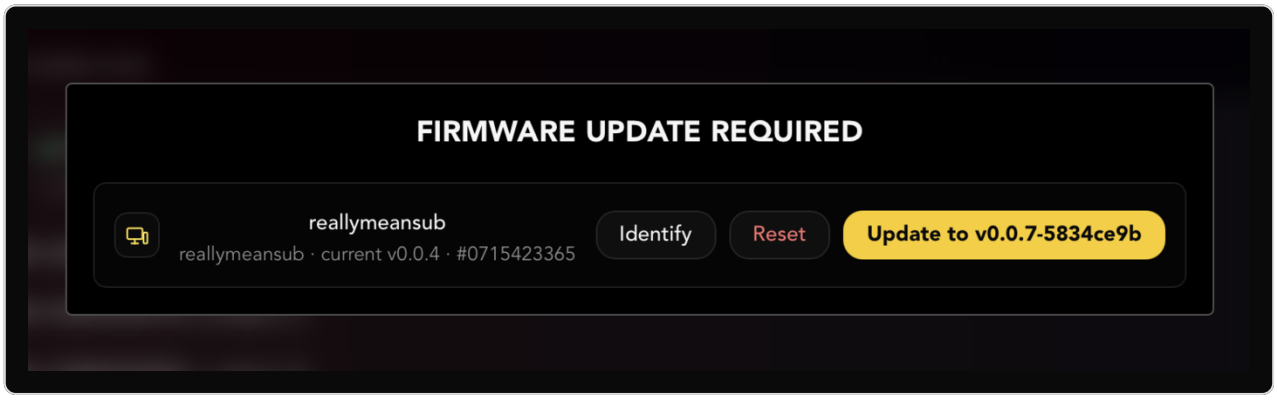
> **Note:** The device's **outputs** (subwoofer, left, right) are what you rename and adjust day to day. Click an output's name at the top of the **Control** page to rename it (Chapter 7).

Firmware & OTA updates

Firmware is the software that runs on the device itself. Omnissiah bundles the latest firmware and updates the device *over the air* (OTA) via USB.

When an update is required

If a connected device's firmware is older than the app expects, the whole app is covered by a **FIRMWARE UPDATE REQUIRED** overlay. You must update before you can do anything else. This keeps the app and device in step.

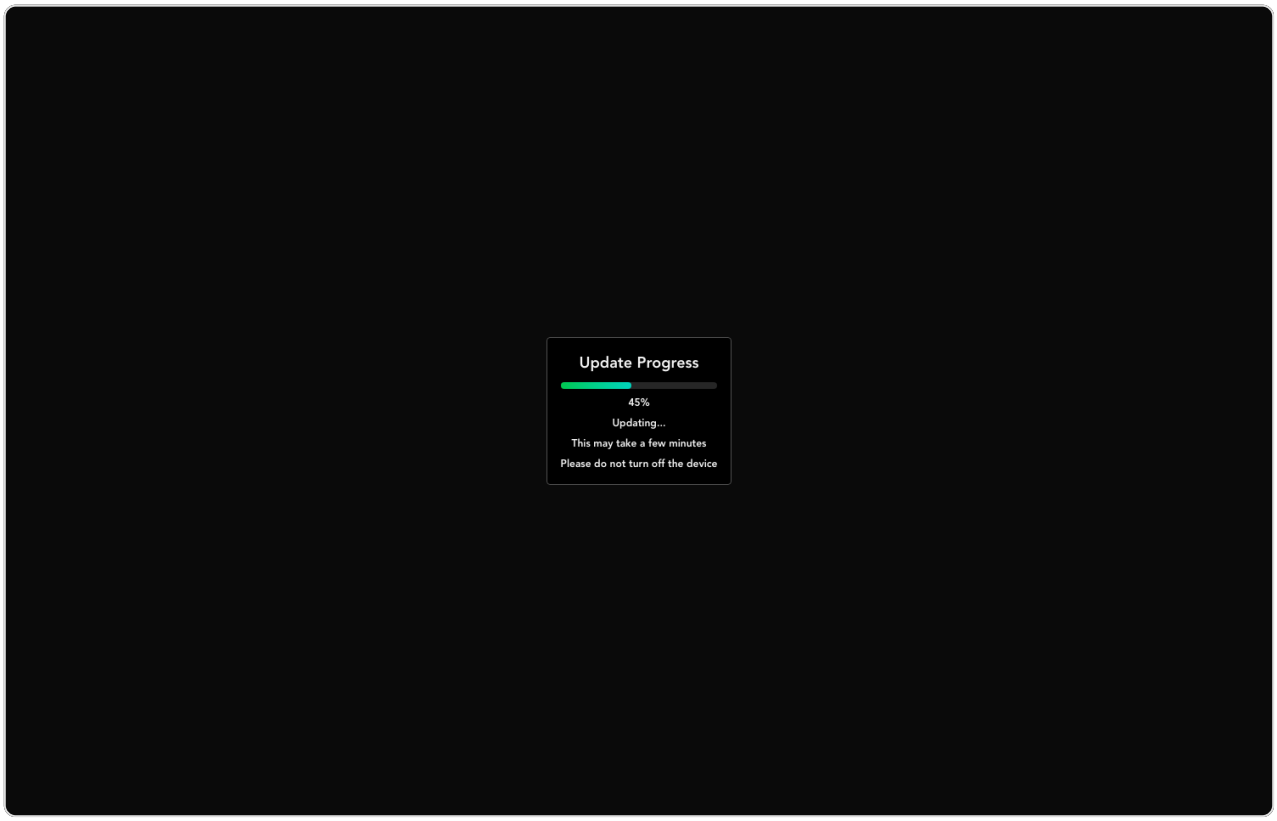


Firmware update required

Running the update

1. Click **Update to v…** on the device row.
2. A confirmation asks "*Are you sure you want to update … to …?*" Click **Confirm**.
3. The **Update Progress** screen shows a bar. You'll see **"Getting things ready for the update."** and then a percentage while it works.
4. Leave everything alone until it's done. The app reminds you: **"This may take a few minutes"** and **"Please do not turn off the device."**

5. At **Update Complete**, the device restarts shortly on its own.



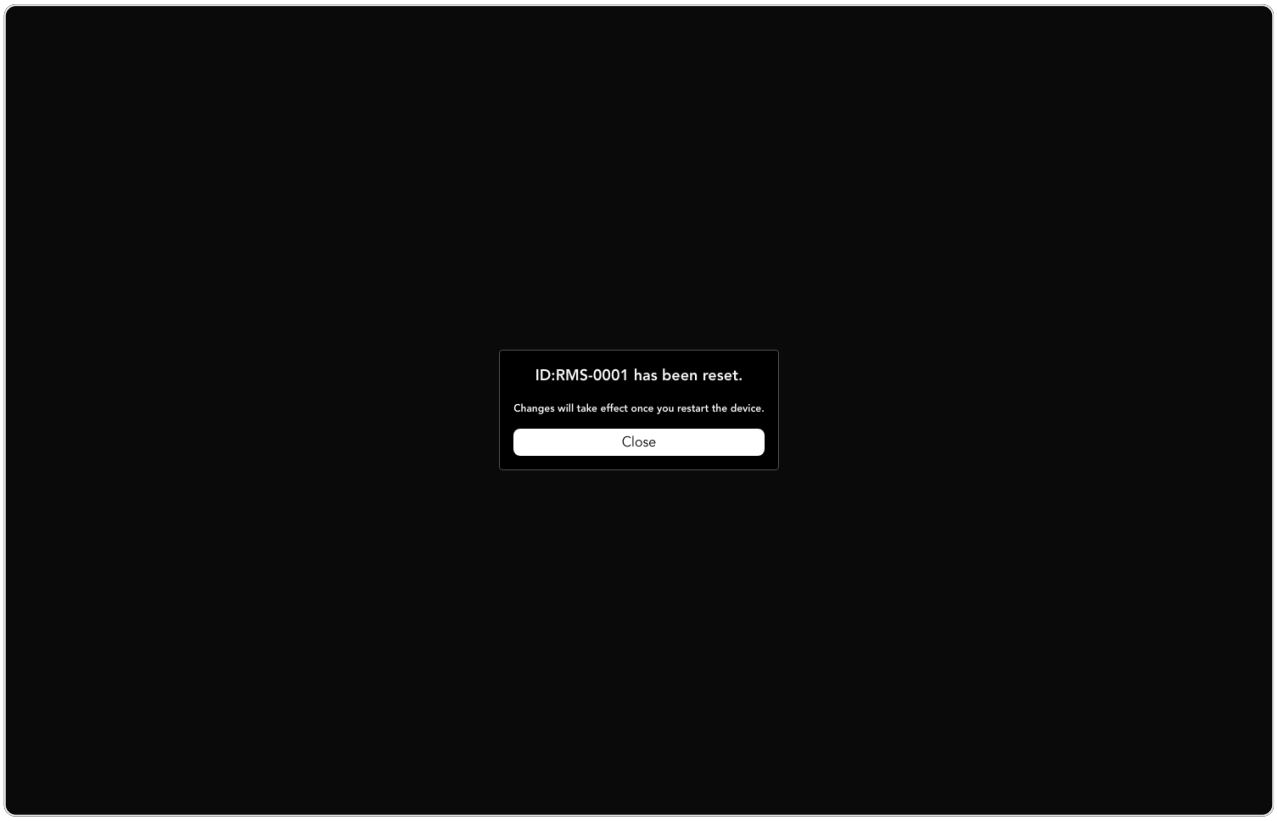
Update in progress

> ⚠ **Warning:** Do not unplug the device or quit the app during a firmware update. Interrupting it can leave the device unable to start.
> **Note:** If the update can't start, the modal shows an **Error** with a **Close** button. Reconnect the device and try again. If it keeps failing, see Troubleshooting.

Factory reset

A factory reset returns the **device** to its default settings.

1. Click **Reset** on the device row.
2. The reset is sent to the device, and a confirmation appears: **"ID:… has been reset."** with **"Changes will take effect once you restart the device."**
3. Click **Close**, then restart (power-cycle) the device.



Factory reset confirmation

> ⚠ **Warning: Reset** acts immediately. There is no "are you sure?" step before it runs. It clears the device's stored settings, including any applied room correction. Back up first (Chapter 11) if you might want your settings back.
> **Note:** This is different from **Reset to factory defaults…** in **Settings**, which clears the *app's* saved settings (audio choices, calibration, snapshots) and leaves your connected devices and their firmware untouched. See Chapter 12 — Settings.

Bundled firmware list

Settings → **Devices** → **Latest firmware** lists the firmware versions bundled with this version of the app, for reference. If none is bundled you'll see **"No firmware bundled with this version."**

6. Outputs & channel setup

After this chapter you'll know how to select an output to work on, and how to **link** two outputs so a control changes both at once.

Your outputs

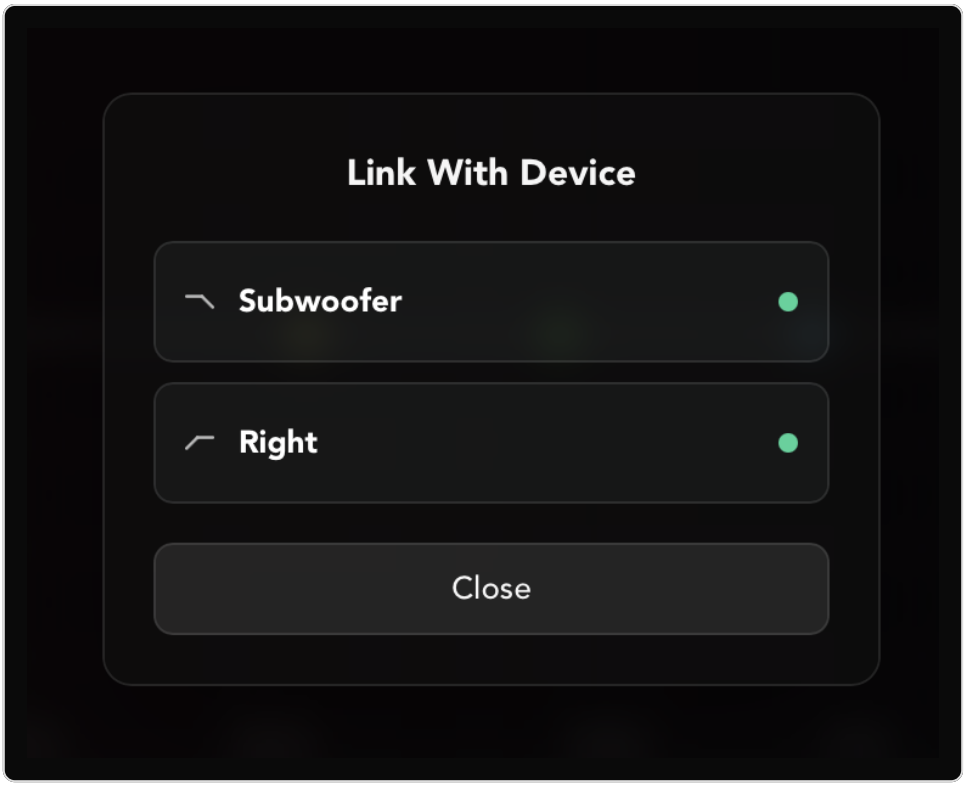
The Really Mean Sub has **three outputs**:

- the **subwoofer output** (low-passed: it only plays bass), and
- **two speaker outputs** (high-passed: they feed your left and right main speakers, playing everything above the crossover).

Each output has its own full set of DSP controls (Chapter 7). Output **names** are read from the device, and you can rename an output by clicking its name at the top of the **Control** page (Chapter 7). The app doesn't force fixed labels like "Ch1".

Selecting an output

1. In the sidebar, under **Devices**, find the output you want.
2. Click it. It gets a **yellow left border** to show it's selected.
3. Click **Control** to open its DSP controls, or click the output again to deselect.



Choosing an output in the sidebar

If you open **Control** with nothing selected, you'll see **"No Output Selected"**. Pick one from the sidebar first.

> **Note:** Choosing which *computer* audio input and output to use for **measurement** is a different setting (Settings → Audio, Chapter 12). That screen does offer channel choices and even channel **pairs** (e.g. **Ch1+Ch2**) for the measurement signal, but the per-output DSP controls in this chapter are about the device's own outputs.

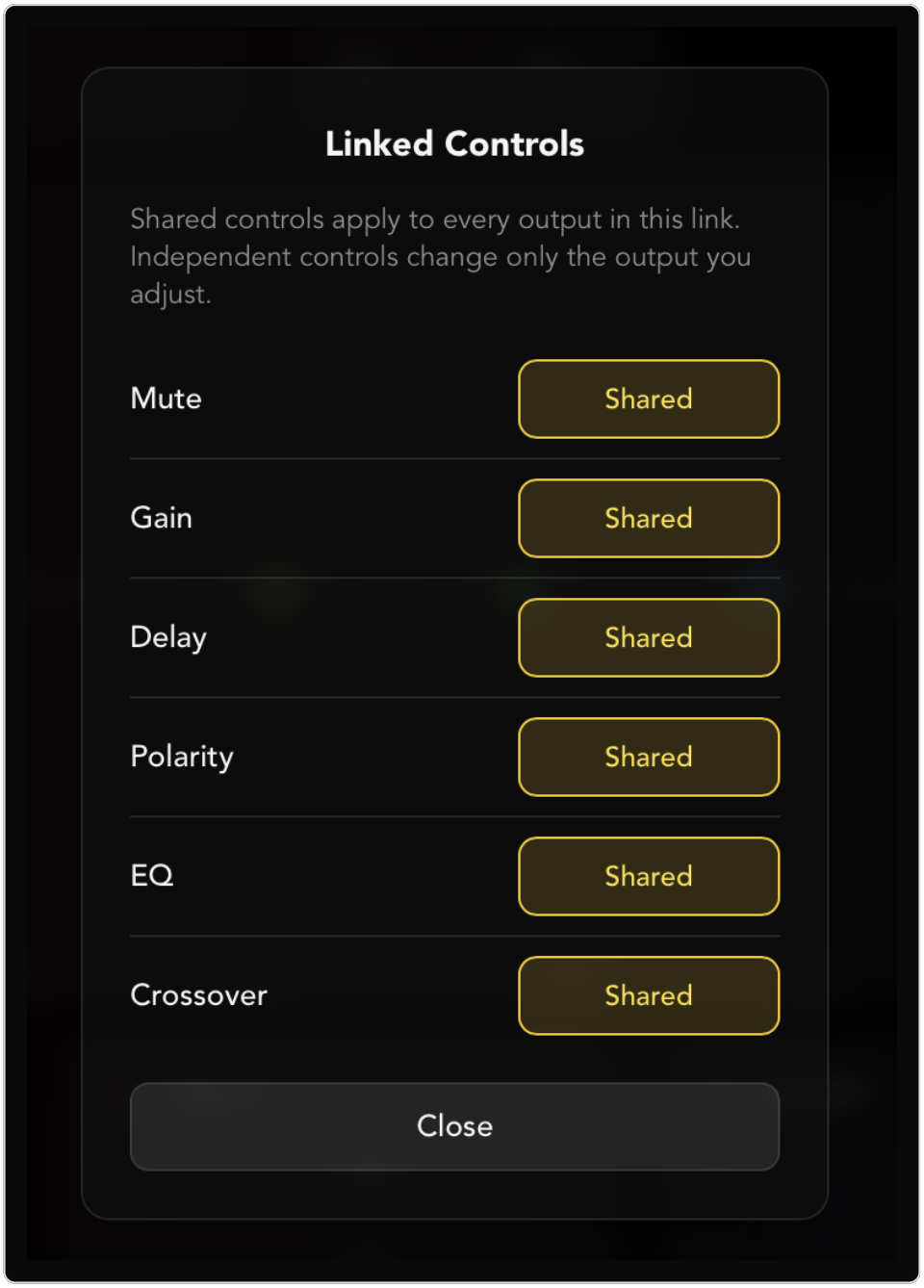
Linking outputs

Your two speaker outputs usually want the *same* EQ, crossover and level. Rather than set each one twice, **link** them: adjust one and the other follows.

> **Note:** On the Really Mean Sub the left and right speaker outputs come **already linked** from the factory, and you'll see them stacked in one card in the sidebar. You only need the steps below if you've unlinked them, or want to change what the link shares.

Create a link

1. Select an output and open **Control**.
2. Click **Link** in the header. The **Link With Device** window lists the other outputs.
3. Click the output you want to link with. The two are now grouped (they appear stacked in one card in the sidebar, with a small link icon).



Linked outputs and per-control link toggles

Choose what the link shares

By default a new link shares **everything**. You can make individual controls independent. For example, share EQ and crossover but keep **Delay** separate so you can time-align each speaker.

1. On a linked output, click **Linked** to open **Linked Controls**.
2. For each control (**Mute**, **Gain**, **Delay**, **Polarity**, **EQ**, **Crossover**), click to toggle between: - **Shared**: the control changes on *every* output in the link at once. - **Independent**: the control changes only the output you're adjusting.
3. Click **Close**.

> The window explains it directly: "*Shared controls apply to every output in this link. Independent controls change only the output you adjust.*"

Remove a link

On a linked output, click **Unlink**.

> **Tip:** Linking your left and right speaker outputs (sharing Gain, EQ and Crossover, keeping Delay independent) is a good default for a stereo pair. Room correction handles linked outputs individually when it measures, so linking them won't stop each one being corrected on its own.

Mono setups

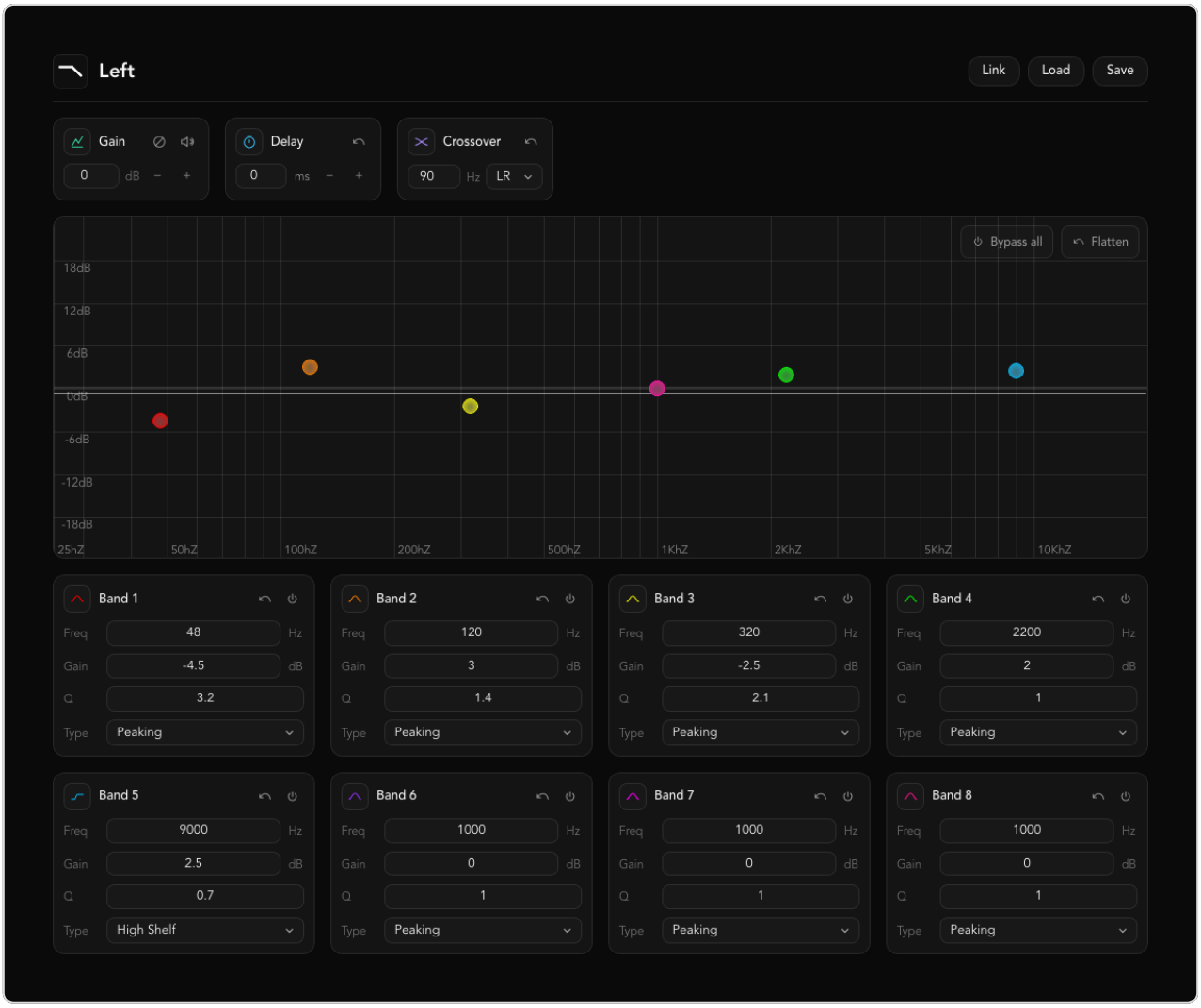
If you use a single main speaker, you can still measure and correct it. The mono option lives in the **calibration setup** rather than the per-output controls here: choose the **Mono Speaker** layout (Chapter 9).

7. Shaping sound — the DSP blocks

After this chapter you'll be able to set the level, timing, crossover and EQ on any output by hand. This is the manual counterpart to automatic room correction, useful for quick tweaks or for adjusting a result the app produced.

Select an output in the sidebar (Chapter 6), then click **Control**. You'll see the control surface for that output:

- a header with the output name, a **Link** button, and **Load** / **Save**;
- three cards side by side: **Gain**, **Delay**, **Crossover**;
- a full-width **EQ** section below.



The control surface for an output

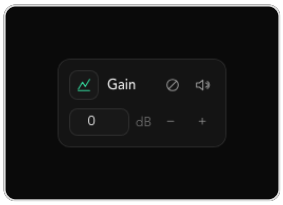
Every control is a number you type or step. There are no sliders, so you can dial in an exact value. The **Gain** and **Delay** cards also have **–** / **+** buttons: click one to step once, or **hold** it to glide the value in fine steps. A card that isn't doing anything (for example, Gain while the output is muted) dims to show it's inactive.

Changes take effect on the device **immediately**. There's no separate "apply" step.

> **Tip: Save** writes this output's current settings to a **.params file** on your computer (named after the output), so you can keep a snapshot of a setup you like. **Load** opens a .params file and applies it to the output. If a file doesn't fit this output (say it holds more EQ bands than the output has, or a value out of range), nothing is changed and a message explains why.

Gain, Mute & Polarity

The **Gain** card holds three things: the level itself, plus **Polarity** and **Mute** buttons in its header.



The Gain card with Polarity and Mute

Gain

- Type a level in **dB**, or use the **–** / **+** buttons: one click is **0.1 dB**. Hold a button to glide the level smoothly by ear.
- 0 dB is unity (no change), and negative values make the output quieter.
- The available range is set by the device.

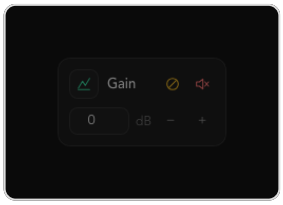
> **Tip:** Use Gain to balance your speakers with the subwoofer, though the level-setting pass in room correction (Chapter 9) does this for you automatically.

Mute

Click the **Mute** button (speaker icon) to silence the output. It turns red and the header shows a **MUTED** pill. Click again (**Unmute**) to restore it.

Polarity

Click the **Polarity** button to flip the output's polarity (also called *phase invert*). It turns amber and reads **Polarity: inverted**. Click again for **Polarity: normal**.

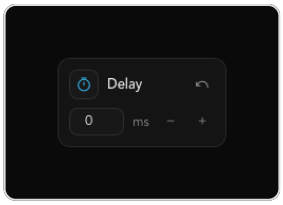


Mute and Polarity

Note: Inverting polarity flips the waveform. It can fix a subwoofer that's fighting the mains at the crossover (bass sounds thin when they're out of polarity). Room correction sets polarity for you when it aligns your speakers.

Delay

Delay holds an output back in time so all your speakers reach your ears together. It's essential when the sub and mains are different distances away.



The Delay card

- Type a delay value. The **unit button** cycles through units each time you click it: **ms** → **m** → **samples** → **cm** → **in** → **ft**.
- The **–** / **+** buttons step by one step of the unit currently shown (see the table below). Hold one to glide the delay in fine steps.
- The maximum delay is about **8.5 ms** (≈ 410 samples, ≈ 2.8 m).
- **Reset** sets the delay back to 0.

Unit	Max	Step
ms (milliseconds)	8.5	0.1
m (metres)	2.8	0.01
samples	410	1
cm	280	0.1
in (inches)	110	0.1
ft (feet)	9	0.01

Tip: The distance units (m, cm, in, ft) let you dial in delay as the extra distance to a speaker. For example, if the sub is 1 m closer than the mains, add about 1 m of delay to the sub. Room correction (Chapter 9) measures and sets this for you.

Crossover

The crossover decides which frequencies each output plays. On the Really Mean Sub, the **subwoofer output** is **low-passed** (only bass) and the **speaker outputs** are **high-passed** (everything above the crossover). The two meet at the crossover frequency.

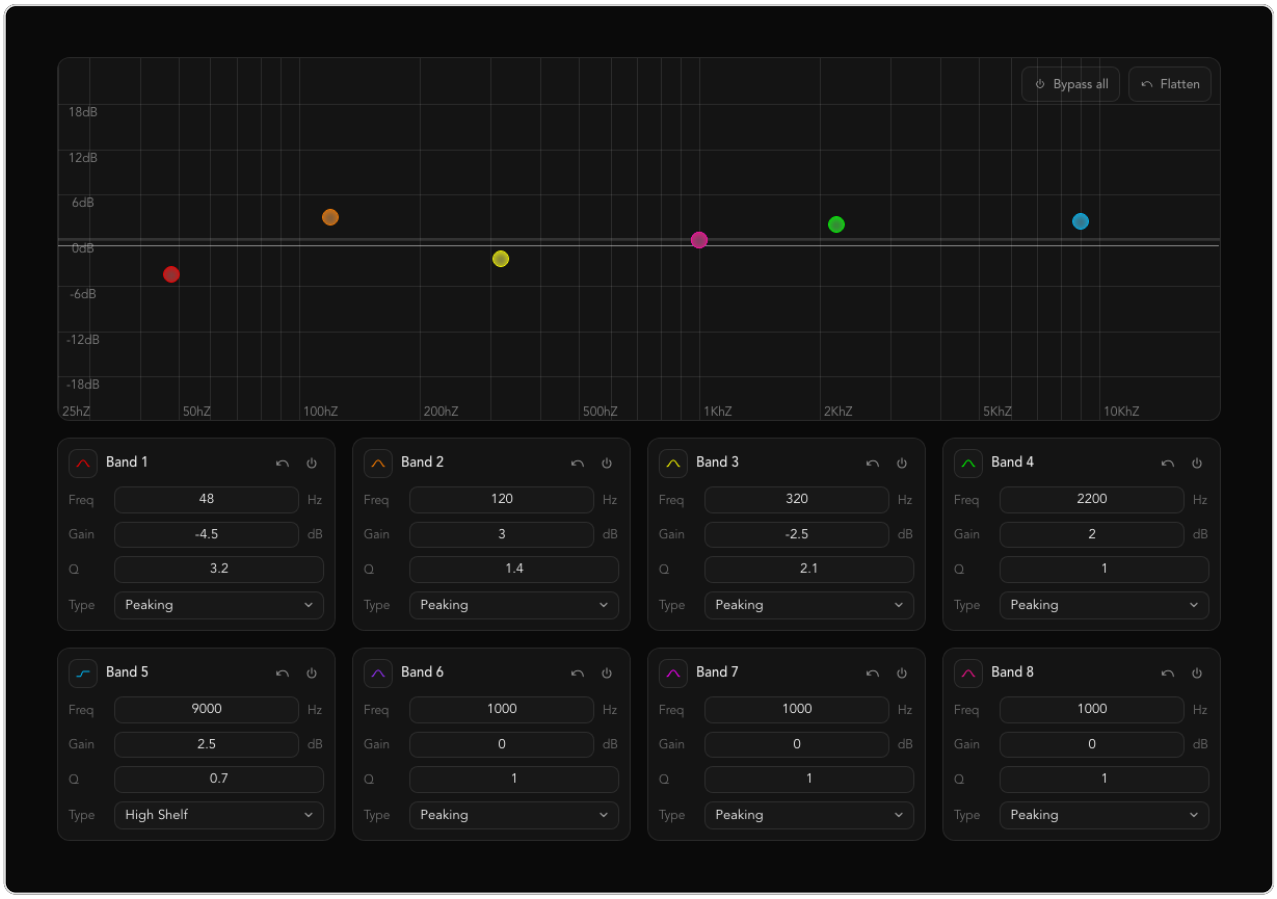
The Crossover card

- Type a **crossover frequency** in **Hz**. The range is **20–200 Hz**, and the **Reset** button returns it to **90 Hz**.
- Choose an **alignment** from the dropdown:
- **BW**: *Butterworth*
- **LR**: *Linkwitz-Riley*

> **Note:** The crossover slope is fixed (a steep 4th-order-class filter) and set for you. There's no slope control. Whether an output is high- or low-passed is a property of the output, not something you switch here.
> **Tip: Linkwitz-Riley (LR)** is the usual choice for sub-to-speaker crossovers because the two sides sum flat through the crossover region. Set the **same** crossover frequency on the sub and the speakers so they hand over cleanly.

Parametric EQ

Parametric EQ (PEQ) lets you cut peaks and lift dips at specific frequencies. Each output has several **bands**. On the Really Mean Sub the speaker outputs have up to **8 bands** and the sub output has **4**.



The EQ graph and band controls

There are two ways to edit: a **graph** at the top and **control cards** below. They stay in sync.

The control cards

Each band card has four fields:

Field	Unit	Range
Freq	Hz	20 – 20,000
Gain	dB	–18 – +18
Q	—	0.1 – 10
Type	—	dropdown (below)

Q is the width of the filter: low Q is wide and gentle, high Q is narrow and surgical.

Type offers seven filter shapes:

1. **Low Pass**: passes lows, rolls off highs.
2. **High Pass**: passes highs, rolls off lows.
3. **Peaking**: a boost or cut around a centre frequency (the everyday EQ shape).
4. **Notch**: a deep, narrow cut (to kill a resonance).
5. **Low Shelf**: lifts or lowers everything below a frequency.
6. **High Shelf**: lifts or lowers everything above a frequency.

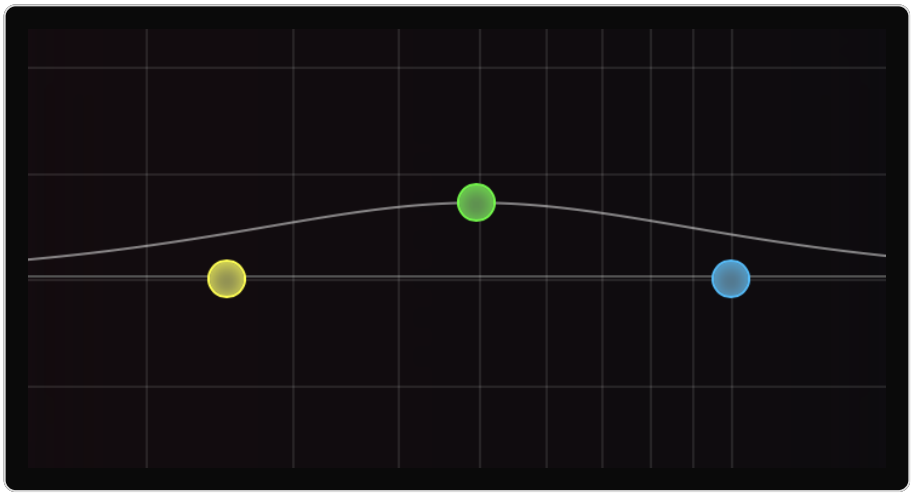
7. **All Pass**: changes phase without changing level (advanced).

Each band also has:

- a **Bypass** (power) button that switches the band off (it dims and turns grey);
- a **Reset** button that returns that band to its defaults (asks "*Are you sure you want to reset this band?*").

The graph — dragging nodes

The graph shows a numbered node per band and the combined response curve.



Dragging an EQ node

- **Drag** a node **left/right** to change its **frequency**, **up/down** to change its **gain**.
- **Double-click** a node (or **Shift-click** it) to reset it.
- Hover a node to see its **Band number, Q, Freq and Gain**.
- To change a band's **Q**, use the **Q** field on its control card.

> **Note:** The graph is hidden when the window is too narrow. Widen the window to bring it back, or use the number fields.

Bypass all & Flatten

Two buttons sit at the top-right of the graph:

- **Bypass all**: switches every band off in one click, keeping all your settings. The button becomes **Enable all**. Click it to switch the bands back on, restoring exactly which bands were on before. Useful for a quick with/without comparison of your EQ.
- **Flatten**: resets **all** bands to their defaults after a confirmation ("*Are you sure you want to flatten the EQ?*"). Use it to start clean.

> **Tip:** Use **Bypass all** to *listen without* your EQ (settings kept). Use **Flatten** to *throw it away* and start over.
>
> ⚠ **Warning:** Big EQ boosts eat headroom and can push the output into distortion. Prefer cutting peaks over boosting dips, and keep an eye on level. Deep room dips usually can't be EQ'd away at all. See the diagnostics in Chapter 15.

8. Measuring your system

After this chapter you'll be able to see, in real time, how your speakers actually measure in your room. You'll also be able to capture those measurements as **snapshots**, compare them, and export them. This is the **Manual Measurement** screen: a free-form tool for looking closely at your system. (For the guided, automatic version that also calculates correction, see Chapter 9.)

Opening the measurement screen

1. Click **Calibrate** in the sidebar.
2. On the setup page, choose **Manual Measurement** (**Open** →).

You'll see **Real-Time Measurement**, with the note "*Play pink noise and capture the room response.*" If the app isn't set up yet, it shows **Device Setup Required** first. Pick your mic and output, then **Apply** (Chapter 12).

The measurement screen

Running a measurement

1. Click **Start Noise**. The app plays **pink noise** through your selected output and shows the live response. The status pill reads **OK — Measuring — playing pink noise**.

2. Watch the **frequency-response** chart fill in.
3. Click **Stop Noise** when you're done.

> ⚠ **Warning:** Pink noise is loud and constant. Set your volume low, then raise it. Don't stand next to a speaker while it plays.

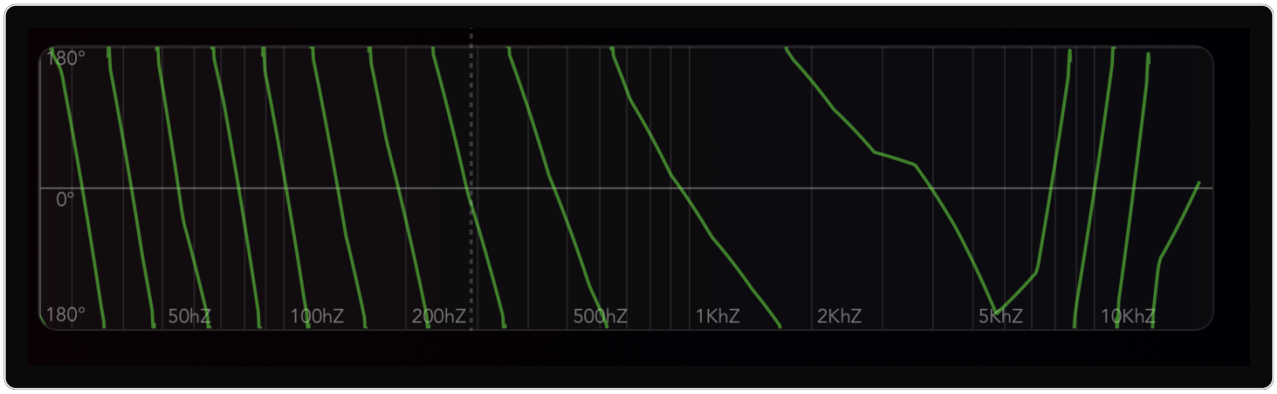
Auto Capture — one-click measurement

If you want a clean capture without watching the chart, click **Auto Capture** (wand). It does the whole run for you: starts the noise, waits until the measurement is stable, takes a snapshot, then stops the noise. While it waits, the status pill reads **Auto Capture — Waiting for a stable measurement** with a progress percentage. To cancel, click **Stop Noise**. No snapshot is taken.

Reading the charts

- **Frequency response (top)**: level (dB) against frequency (about 25 Hz to 20 kHz, on a log scale). This is the shape of your sound: peaks are too-loud regions, dips are too-quiet ones.
- **Coherence overlay**: a coloured trace (red → yellow → green) showing how *trustworthy* the measurement is at each frequency. Green means reliable. Red means noise, reflections or timing problems are making that part of the measurement unreliable.
- **Phase response (bottom)**: the timing/phase of the signal, wrapped between **+180°** and **−180°**. Where the measurement is too unreliable to give a meaningful phase reading, the line is left blank rather than drawn as noise.

Hover the chart for a readout of **Freq**, **Gain**, **Phase** and **Confidence** (the coherence at that point, as a percentage).



The phase-response chart

> **Tip:** Aim for a measurement that's mostly green in the coherence overlay across the range you care about. If it's red everywhere, raise the playback level, quieten the room, and check your mic. A low-confidence measurement will mislead both you and the correction engine.

Live diagnostics below the charts

While you measure, a collapsible **Diagnostics** panel appears below the charts. It runs the same room analysis as the results page, but live: plain-language cards pointing out reflections, room nulls, resonances

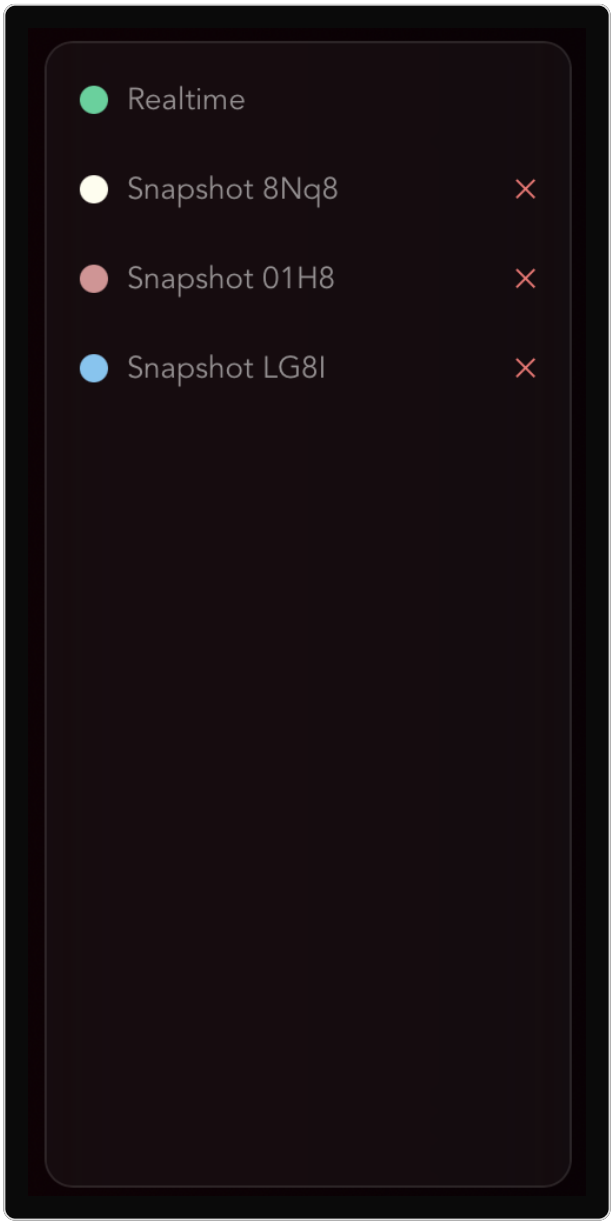
and measurement-quality problems as the microphone hears them. Move a speaker or quieten the room and watch the cards update.

- **Hover a card** to shade its frequency band on the chart, so you can see exactly where the finding lives.
- **Select a snapshot** and the panel describes that capture instead of the live signal (the panel's title shows the snapshot's name).
- The charts and snapshot list stay pinned at the top while the diagnostics scroll beneath them.

For what each card means and what to do about it, see Chapter 15.

Snapshots

A **snapshot** freezes the current measurement so you can keep it, name it, and compare it against others (for example, left vs. right, or before vs. after moving a speaker).



The snapshot list

Capture a snapshot

1. While measuring, click **Take Snapshot** (camera). *(It's greyed out until you start measuring.)*
2. The **Edit Snapshot Details** window opens straight away. Give it a **Name**, pick a **colour**, and optionally set the **Speaker ID** (which output it belongs to). Click **Update**.

Or let the app do it: **Auto Capture** (see above) starts the noise, waits for a stable measurement, and takes the snapshot for you.

The **Realtime** row at the top of the snapshot list is always the live signal. Each captured snapshot below it has:

- a **colour dot**: click to show/hide it on the chart;
- a **name**: click to select it (click again to deselect);
- a red ×: click to delete it.

Work with the selected snapshot

The **Selected Snapshot** bar shows the current one, with:

- **Edit**: rename / recolour / reassign it.
- Manual **offset** controls (see below).
- **Reference**: set a snapshot as the reference (**Set as Reference**) to compare others against it. **Remove** clears it.

Manual offsets (Delay / Gain / Polarity)

You can nudge a snapshot's timing, level and polarity to see how it would line up, without touching the device:

- **Delay**: **+ / –** step by **0.5 ms** (hold **Shift** for a fine 0.025× step), and the ↩ button resets to 0.
- **Gain**: **+ / –** step by **0.5 dB** (Shift for fine), and ↩ resets.
- **Polarity**: a single button that flips polarity (amber when inverted).

These update the chart instantly. They're a measurement aid, not a device change.

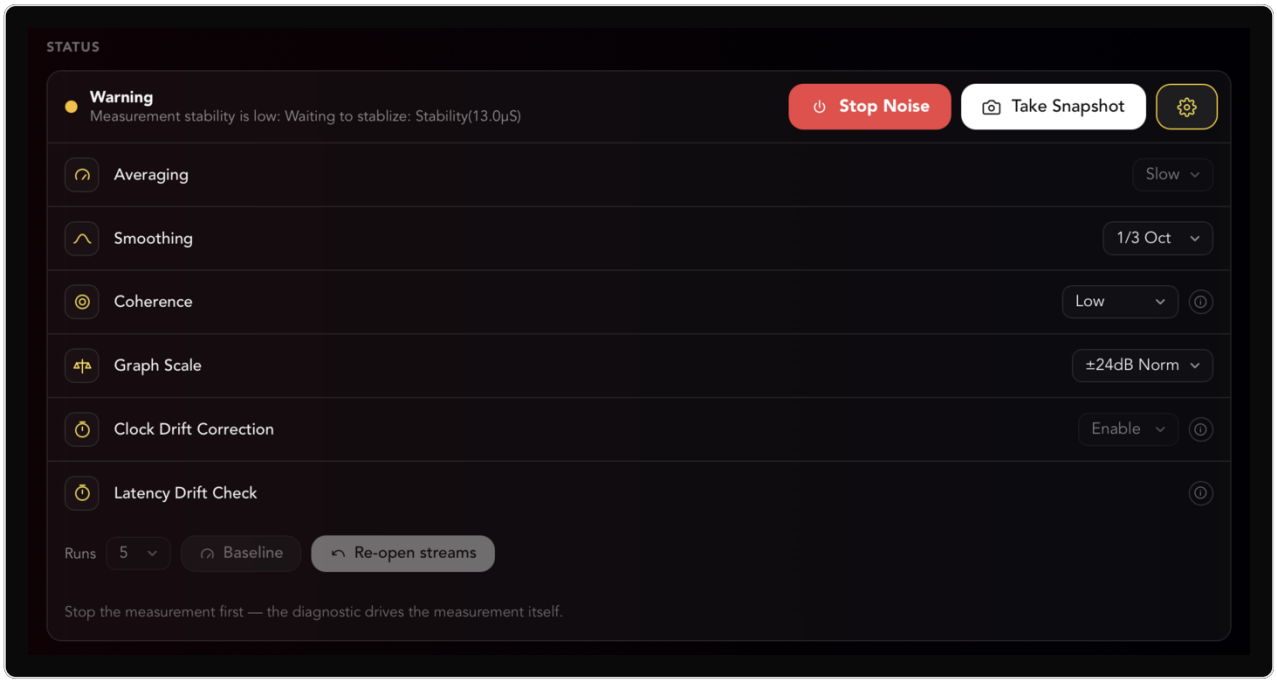
Combine, export and load

The row of buttons under the snapshots:

- **Combine**: sum two or more snapshots into one response (**Combine Snapshots**, pick at least two).
- **Create Calibration**: start room correction (or **Align Only**) from your snapshots. See Chapter 9.
- **Export CSV / Export All**: with a snapshot selected the button is **Export CSV** (that one snapshot). With nothing selected it's **Export All** (one CSV per snapshot into a folder you choose). The CSV carries the snapshot's name, colour, sample rate, latency and offsets. See Appendix B.
- **Load**: import one or more snapshot CSVs back in (multi-select).

Measurement settings

Click the **gear** (**Measurement settings**) in the toolbar to open the settings panel.



Measurement settings

Setting	Options	Default	What it does
Averaging	Slow / Fast / Ultra-Fast / FIFO4 – FIFO32	Slow	How the live curve settles — see below.
Smoothing	None … 1/1 Oct	1/6 Oct	Smooths the displayed curve. View only — doesn't change data.
Coherence	Low / Medium / High / Very High	Low	Hides frequencies below this confidence level.
Graph Scale	Full Scale / ±24dB Norm / Custom…	Full Scale	The zoom of the chart — see below.
Clock Drift Correction	Enable / Disable	Disable	See below.

The panel also holds the **Latency Drift Check** diagnostic. See Chapter 15.

Averaging modes

Averaging controls how the live curve settles. (Stop the noise first: the dropdown is locked while a measurement runs.)

- **Slow / Fast / Ultra-Fast** behave like a level meter: the curve continuously eases towards the latest sound, settling over roughly **1.5 s / 500 ms / 250 ms**. Slow is the steadiest and the most trustworthy.
- **FIFO4 – FIFO32** average **exactly the last 4–32 frames** of data. The trace settles in a fixed, predictable time and then stops changing if the room does, which is good for careful before/after comparisons.

> **Note (Advanced):** Fast and Ultra-Fast average so little data that the coherence overlay reads optimistically high. When confidence accuracy matters, use **Slow** or a **FIFO** mode.

Custom graph view

Pick **Custom…** under **Graph Scale** to set your own window: the **Custom Graph View** dialog asks for a **Scale** (the ±dB window), and a **From** / **To** frequency range in Hz. Click **Save** to apply. While Custom is active, an **Edit** button appears next to the dropdown to reopen the dialog.

> **Note (Advanced): Clock Drift Correction** matters only when your microphone input and speaker output run on **different** audio interfaces (and therefore slightly different clocks). It keeps the measured latency stable over time so two speakers can be matched in time. If your input and output share one interface/clock, leave it **Disabled**.
> **Tip: Smoothing** and **Graph Scale** only change how the chart *looks*. They never change the captured measurement or any correction calculated from it.

9. Room correction & calibration

This is the heart of Omnissiah. After this chapter you'll have measured your speakers in the room and let the app calculate correction filters aimed at a target sound. Applying and reviewing those results is Chapter 10. This chapter gets you from setup to a finished calculation.

Have your **measurement microphone** connected and **5–20 minutes**, depending on the measurement you choose.

The stages

```
Configure → Set levels → Measure (one or more positions) → Calculate → Results
```

Omnissiah walks you through each stage with on-screen instructions. You can press **Stop** at any point.

1. Configure your measurement

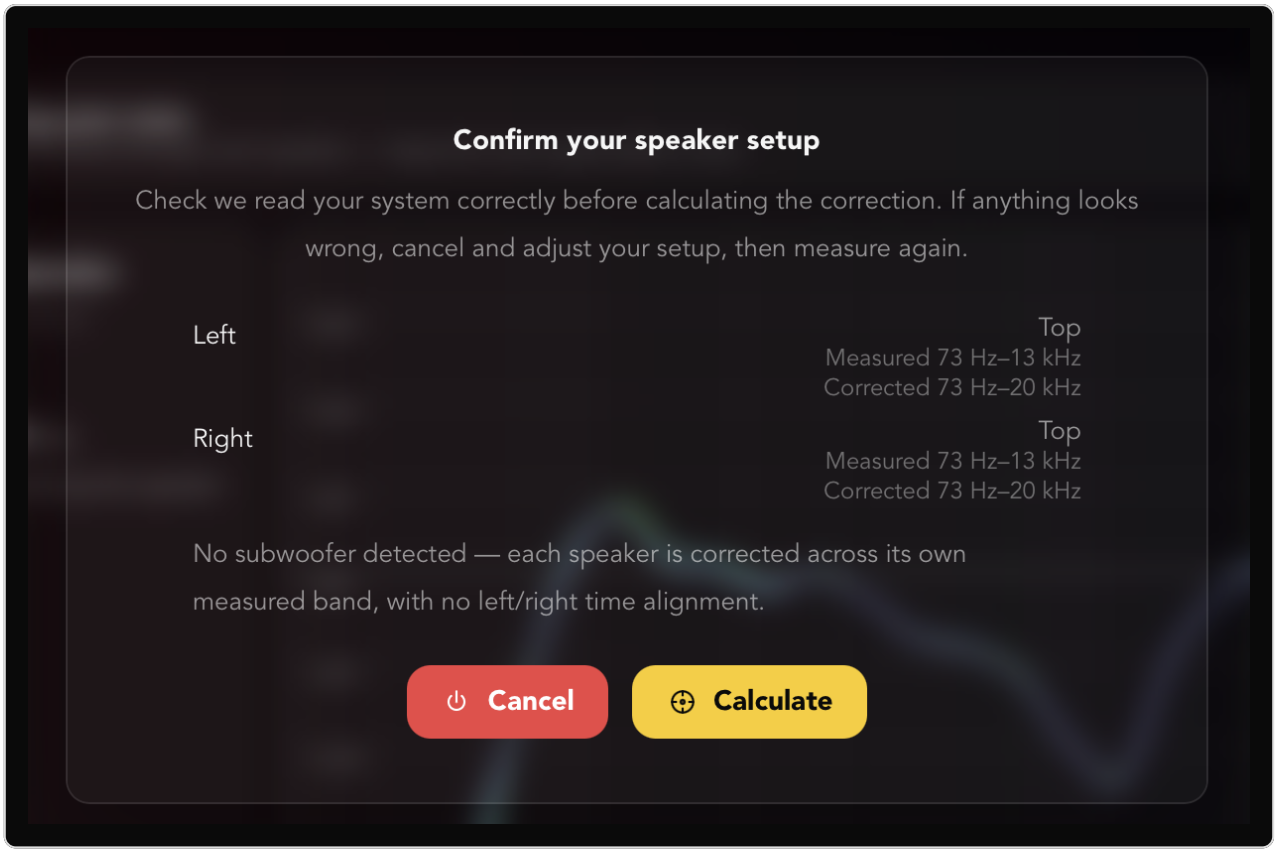
Click **Calibrate**. On **Configure Your Measurement**:

- **Choose your measurement**. Pick one of the cards:
- **Quick Measurement** (**~5 min**): a handful of measurements at your listening position. The right choice for most rooms, and the one this chapter follows.
- **Complete Measurement** (**~20 min**) adds many more measurements that also take the rest of the room into account: a main listening area at several positions, plus optional extra areas anywhere people might be. See Complete Measurement below.
- **Manual Measurement** opens the free-form tool from Chapter 8. **Previous Results** reopens your last result.
- **System**: build your speaker layout and assign each speaker to an output.

Build your speaker layout

Under **System**, pick a **Start from** template, then adjust:

- **Left + Right**: two full-range speakers.
- **Left + Right + Subwoofer**: two speakers crossed over to a subwoofer. *(The usual choice for a Really Mean Sub system.)*
- **Mono Speaker**: a single speaker.
- **Loopback**: a stereo pair on a virtual audio device, for system-wide correction (see Loopback correction below).



Configure speakers and the assumptions summary

For each speaker row:

1. Optionally rename it.
2. Choose the **output** it's connected to (each output can be used once). A speaker with no output shows "*Won't be measured.*"

Use **Add speaker** / **Add subwoofer** to add more, and the reset button to remove one. The counter on the right shows "*{n} of {n} will be measured.*"

> **Note:** Here you only tell the app *what* each speaker is (full-range, high-passed, or a subwoofer). The app works out the sub/tops roles, the exact crossover and the time-alignment **from your measurements** and shows them in the **Setup assumptions** summary later. You don't have to set them by hand.

Mic positions (optional)

With **Quick Measurement** selected, expand **Quick Measurement Settings** to choose how many microphone positions to measure **per speaker**:

- **1**: a single fixed point (fastest).
- **3**: basic coverage.
- **5**: thorough, a wider average.
- **7**: extensive coverage.

More positions average out the room and give a more representative correction, but take longer. See Chapter 13 for guidance.

(For a **Complete Measurement**, positions and listening areas are set in the **Configure Your Space** dialog when you start. See below.)

2. Start — set your levels

When at least one speaker is assigned, click **Start Measurement**. The **Speaker Playback About to Begin** dialog appears. (If you chose **Complete Measurement**, the **Configure Your Space** dialog comes first, described below, and ends on this same step.)

Screenshot pending

`screenshots/09-g4a-pre-calibration.png`

Before playback — devices & target

- It tells you what's about to happen and how many speakers will be measured.
- Expand **Devices & Target** to confirm your **Measurement Mic**, **Speaker Output**, and **Target Curve** in one place (target curves are covered in Chapter 14).
- Click **I'm Ready** 🤘 .

Now the **Set levels** stage runs ("*First, let's set your speaker volume*"):

1. The app briefly shows **Getting your speakers ready** while it mutes the outputs and clears any existing EQ, so the measurement starts from a clean slate.
2. It then listens to your room's **noise floor**. Keep the room quiet.
3. Then, for each speaker, **raise your interface/amplifier volume** until the on-screen meter turns **green**: clearly above the noise floor but **not clipping** (red).
4. When prompted **"Happy with the levels in the room?"**, click **Yes, continue** (or **No, readjust** to try again).

> ⚠️ **Warning:** This stage deliberately plays test noise at your chosen level. Raise the volume gradually and keep clear of the speakers.

3. Measure the room

Next the app measures each speaker ("*Now we'll measure your room*").

A guided measurement step

1. Place the mic **at head height at your main listening position** and keep still and quiet.
2. The app plays test tones through **each speaker back-to-back** and shows the live response and its **Confidence** (coherence). It only pauses when the mic needs to move.
3. If you chose more than one position, you'll be prompted to **move the mic a small distance (about 5–10 cm)** to the next spot. The on-screen ∞ (figure- eight) diagram shows where. Move it, then **Continue**. (A Complete Measurement uses a different diagram for larger areas, described below.)
4. As it measures, a **Diagnostics** panel below the chart lists what the app is hearing: untreated dips, peaks, measurement-quality issues. Hover a card to shade its frequency band on the chart. These are the same findings you'll see on the results page, and no action is needed here.

> **Tip:** Small mic moves of 5–10 cm around the listening position let the app average out the room without smearing the result. Keep the mic at roughly ear height where you actually sit.

4. Confirm and calculate

Before it calculates, the app shows a **Setup assumptions** summary: the sub and top roles it detected, the crossover frequency, the measured and corrected frequency range per speaker, and how it will time-align things. Review it and click **Calculate**.

5. Watch the correction run

The **Calculating room correction** screen optimises EQ filters to match your target curve, one channel at a time.

Correction in progress

- The status card highlights the channel being corrected and its **Generation** count. The chart shows that channel's corrected curve against the target.
- A progress bar fills as it converges. This usually takes a moment.
- You can expand **Best individual details** to watch the filters being found.
- If you enabled **Phase Correction** (Chapter 13), a **Fine-tuning phase alignment** pass runs after the EQ filters are found.
- If you're impatient, **Skip to results** stops early and uses the best result so far (letting it finish usually gives a better result).

When it's done, you're taken to the **Calibration results** page, covered in Chapter 10.

Complete Measurement — cover a larger space

Choose **Complete Measurement** when more than one spot matters: a client sofa behind the desk, a whole live room. It measures a **main listening area** at several positions, plus optional **secondary areas**, and weights them together. The stages are the same as above. Only the start and the number of mic moves differ.

Clicking **Start Measurement** opens the **Configure Your Space** dialog:

1. **Configure Your Space**. Say how large your main listening area is: - **Single seat**: one chair or desk, with a tight ∞ pattern around your head. - **Large area**: a console, several seats or a wide sweet spot,

with positions spread across it. - **Venue**: a live room or audience area, with a rough grid over the whole space.

The diagram previews the movement pattern, and **Positions** sets how many mic placements the main area gets (a suggested count follows the size you picked). Click **Next**. 2. **Other Listening Areas** *(optional)*: add anywhere else people might be (e.g. *Client Sofa*). Each extra area gets a **single** quick measurement and counts into the result at its **weight**: **Light — 0.25**, **Balanced — 0.5**, **Strong — 0.75**, or **Equal to main — 1.0**. Your main area stays the priority. Remove the suggested area if you don't need one, then **Continue**. 3. **Speaker Playback About to Begin**: the same final check as the quick flow (speaker count, **Devices & Target**). Click **I'm Ready** 🤘.

During the measurement, each prompt is prefixed with the area it belongs to, and the placement diagram matches the area's size (∞ pattern, spread positions, or grid). Your space plan and area weights are remembered for next time.

Align Only (no full correction)

If you only want your speakers **time-, level- and polarity-aligned** without EQ correction, you can. From the Manual Measurement screen, select your snapshots, click **Create Calibration**, and choose **Align Only** (the button reads **Align**). This lines the speakers up in time and level without changing their tonal balance.

Loopback (system-wide) correction

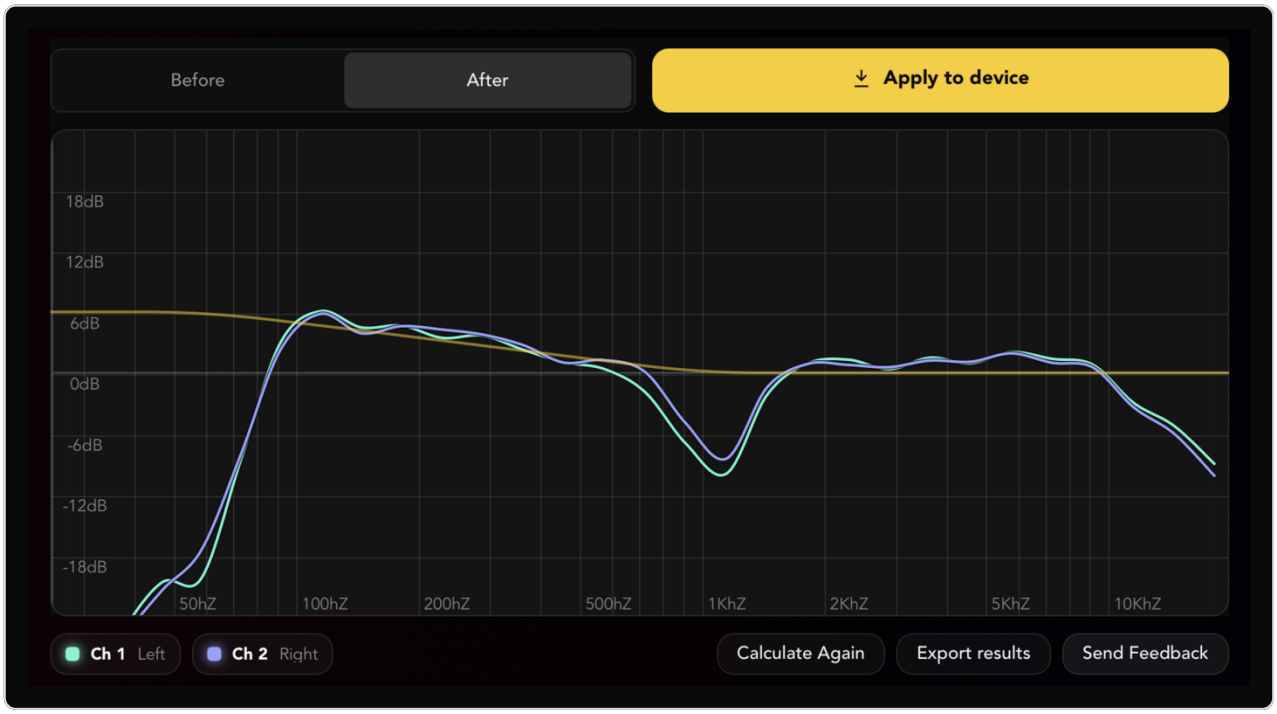
Advanced setups can route your computer's *system audio* through the correction in real time using a **loopback** device. This is set up in **Settings** → **Audio** → **System Audio** (Chapter 12). Once a loopback is active, the calibration flow can target it like any other speaker. The **Loopback** template starts from a stereo pair, but you can **Add speaker** / **Add subwoofer** to correct more channels (e.g. left/right/sub) on a multi-channel loopback device.

10. Understanding & applying results

After a correction runs you land on the **Calibration results** page. This chapter explains how to read it, apply the correction to your device, and export or share it.

"*Compare your room's response before and after correction, then apply it to your device.*"

Reading the results chart



Results — before/after with target reference

- The **Before / After** toggle at the top switches between your room's *measured* response and the *corrected* prediction. It opens on **After**.
- The faint yellow line is your chosen **target curve**, the response the correction is aiming for.
- The **channel chips** below the chart (one per speaker, colour-coded) let you focus a single channel. Click one to see only that channel and its correction filters (a dashed overlay), and to show only that channel's diagnostics. Click again to show all.
- Hover the chart for **Freq / Gain / Phase / Confidence** at any point.
- The toggle, chart and **Apply to device** button stay pinned at the top while the rest of the page scrolls beneath them, so the chart is always in view.

> **Tip:** A good result is an **After** curve that follows the target line more closely than **Before** did: smoother, without the big peaks. It will rarely be a perfectly flat line, and that's fine: the aim is natural, even sound, not a ruler-straight graph.

Diagnostics — what couldn't be fixed, and why

Below the chart, the **Diagnostics** section lists per-channel findings. These are the app being honest about what EQ can and can't do. Deep dips from room nulls, reflections, and low-confidence measurements can't be EQ'd away.

Diagnostic cards

Each card names the channel and frequency, explains the issue in plain language, and often suggests a fix (usually **moving a speaker, the sub, or your seat**, not more EQ). **Hover a card** to shade its frequency band on the chart above, so you can see exactly which part of the curve it's talking about. Clicking a channel chip filters the list to that channel. If everything's clean you'll see "*No issues flagged — this measurement looks clean.*" The full catalogue of findings is in Chapter 15 — Diagnostics.

> **Note:** The same diagnostic cards also appear live under the charts on the **Measurements** page as you measure (Chapter 8), and beneath the pinned chart during the guided calibration's measuring step. You don't have to wait for results to see them.

More detail (optional)

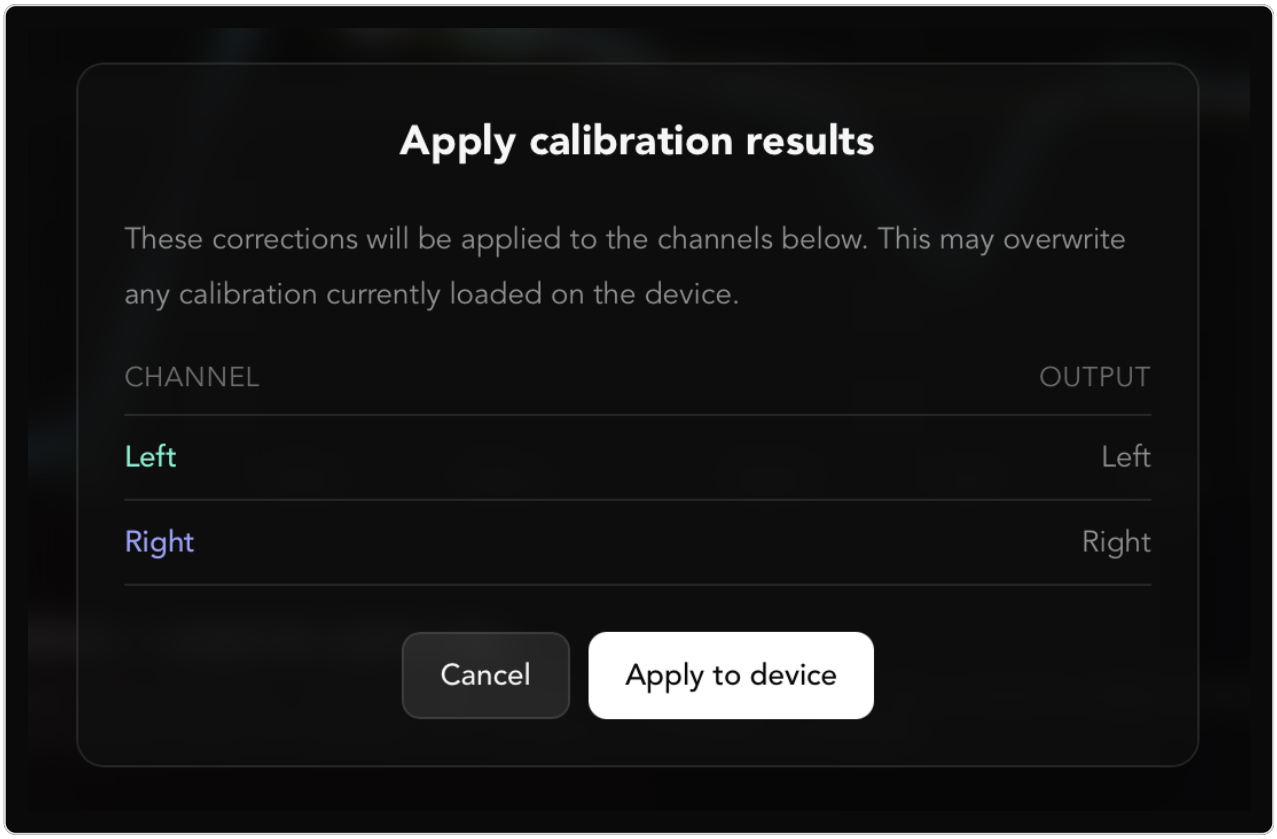
- **Room correction details**: expand to see the phase response chart, each channel's applied **Gain**, **Delay**, **Polarity** and **Phase align** info, and the individual EQ filters found. (Phase-alignment entries

only appear if you've enabled the optional **Phase Correction** setting in **Settings** → **Calibration**, covered in Chapter 13.)

- **Setup assumptions**: what the app assumed about your speakers (sub/tops, crossover, measured and corrected ranges) when it calculated the correction.

Applying to your device

When you're happy:



Apply calibration results

1. Click **Apply to device**.
2. In **Apply calibration results**, check the channel-to-output list, then click **Apply to device** again to confirm. *(This may overwrite any correction already on the device.)*
3. A **Correction applied** message confirms it ("*Your room correction is now active*") and returns you home.

The correction now lives on the device and works with or without the app running.

Comparing corrected vs. uncorrected (bypass A/B)

The applied-correction panel (headed **Room Correction** on Home and the calibration setup page, **Applied Correction** in **Settings** → **Calibration**) shows whether correction is active and lets you A/B it:

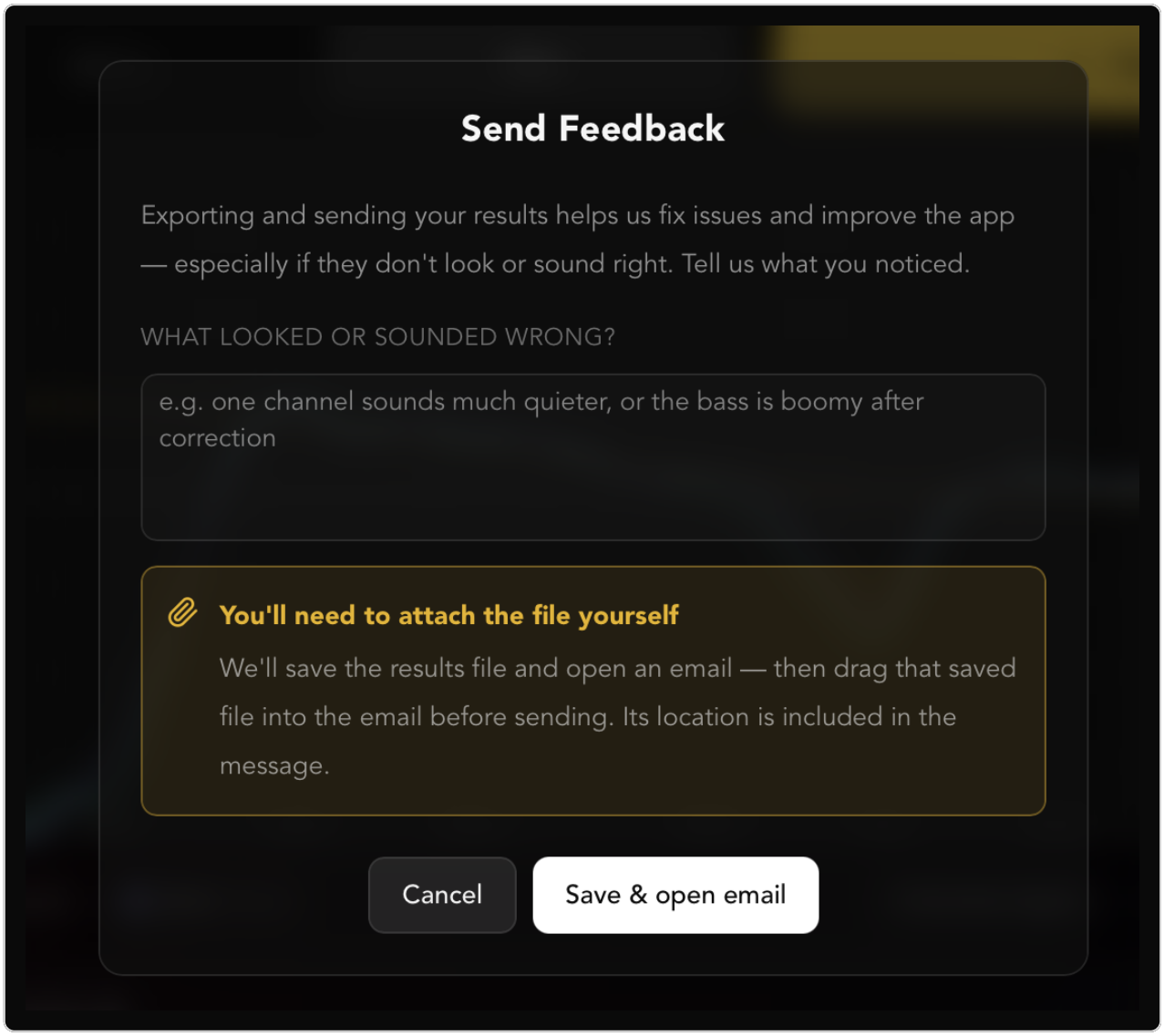
- A status dot reads **Room correction active** (green), **Correction bypassed** (amber), or **No correction applied** (grey).

- The button toggles **Bypass** (turn correction off) / **Enable** (turn it back on) so you can hear the difference on real music.

> **Tip:** The bypass is level-matched, so you're comparing *tonal balance* rather than "louder sounds better." Flip it a few times on familiar music.

Re-running, exporting and sharing

The actions on the row below the chart, to the right of the channel chips:



Export and feedback

- **Calculate Again**: re-run the correction (it re-confirms the setup assumptions first). Useful after you change the target curve or tuning options.
- **Export results**: opens a chooser with three formats. Pick one, then click **Export**:
- **Omnissiah file**: everything (filters and responses together) in one file you can re-open in this app later, or send to us.

- **REW filter file**: the correction EQ bands as Room EQ Wizard "Filter Settings" files, one per channel, for the popular (free) REW analysis app. Import them in REW via **Filter Tasks** → **Import**.
- **Corrected response CSVs**: each channel's corrected frequency and phase response, one CSV per channel. These load back into the **Measurements** page (Chapter 8) so you can compare them against new measurements.

(Other destinations are coming.) - **Send Feedback**: if a result doesn't look or sound right, this saves the results file and opens a pre-filled email to Tantrum Audio. Add a short note about what you noticed, then **attach the saved file yourself** before sending (the app tells you where it saved it). This genuinely helps us improve the correction. See Appendix D.

> **Note:** Room correction is in **beta**. If something looks or sounds off, exporting and sending feedback is the most useful thing you can do.

Starting over

Start from the top discards the current results and restarts calibration from the beginning (it confirms first).

11. Backup & restore

After this chapter you'll be able to save all your device settings and calibration to a single file, and load them back later: before a factory reset, when moving to a new computer, or to keep a known-good copy.

What a backup contains

One backup file holds:

- **every connected device's stored settings** (levels, delay, polarity, crossover, EQ);
- the app's **calibration results** and the **target curve**;
- your **loopback correction**, if you use one.

It does **not** include your measurement **snapshots** (export those separately, see Chapter 8).

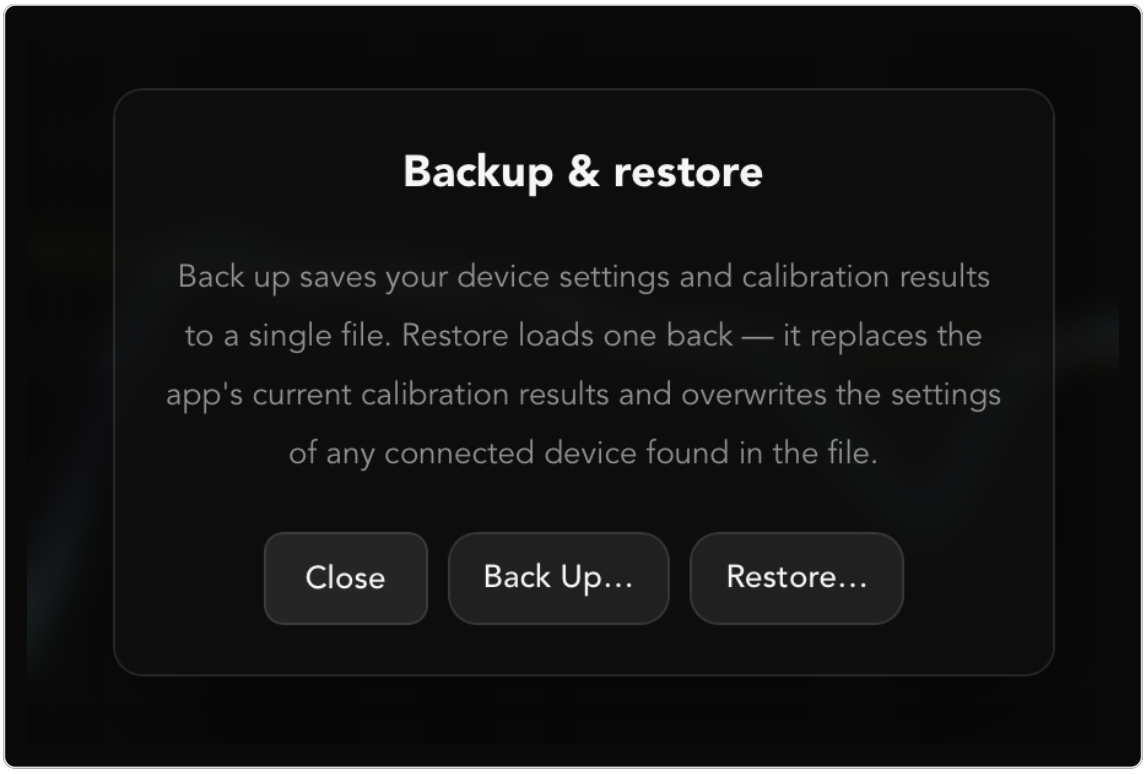
The file is a `.json` file named like `dsp-control-backup_2026-07-02_15-30-00.json`.

Backing up

There are three ways in. All do the same thing.

From the sidebar (quickest):

1. Click the **camera** button next to the **Devices** heading in the sidebar.
2. In **Backup & restore**, click **Back Up…**.
3. Choose where to save. You'll see "*Backup saved to …*".



Backup & restore

From the Settings footer: open **Settings**. The **Back up…** and **Restore…** buttons sit at the bottom of the window, beside **Reset to factory defaults…**, whichever tab you're on.

From Settings → Devices: Backup & restore → Back up → Back Up….

> **Tip:** Make a backup right after you apply a room correction you're happy with, and again before any firmware update or factory reset.

Restoring

1. Open **Backup & restore** (sidebar camera), the **Settings** footer, or **Settings → Devices**.
2. Click **Restore…** (in **Settings → Devices** it's **Restore → Choose File…**) and pick your backup file.
3. The app applies it and shows a **Backup restored** report listing what happened to each device and to the calibration.

What restore does:

- For each device in the file that is **currently connected** (matched by serial number), its settings are pushed to the device.
- Devices in the file that **aren't plugged in** are skipped (you'll see them listed as *skipped (not connected)*). A device mid-firmware-update is skipped too.
- The app's **calibration results and target curve** are loaded back in.
- Loopback correction is restored.

> ⚠ **Warning:** Restoring **overwrites** the current settings of any matching connected device, and replaces the app's current calibration results. Make sure you're restoring the file you intend to.
> **Note:** Restored calibration results are **loaded but not automatically applied** to the device. Open the results and click **Apply to device** (Chapter 10) if you want them active again.

When restore won't run

- You can't restore **while a calibration is running**. Stop it first.
- The app only accepts its own backup files, and can't read a backup made by a **newer** version of the app than you're running (update the app first).

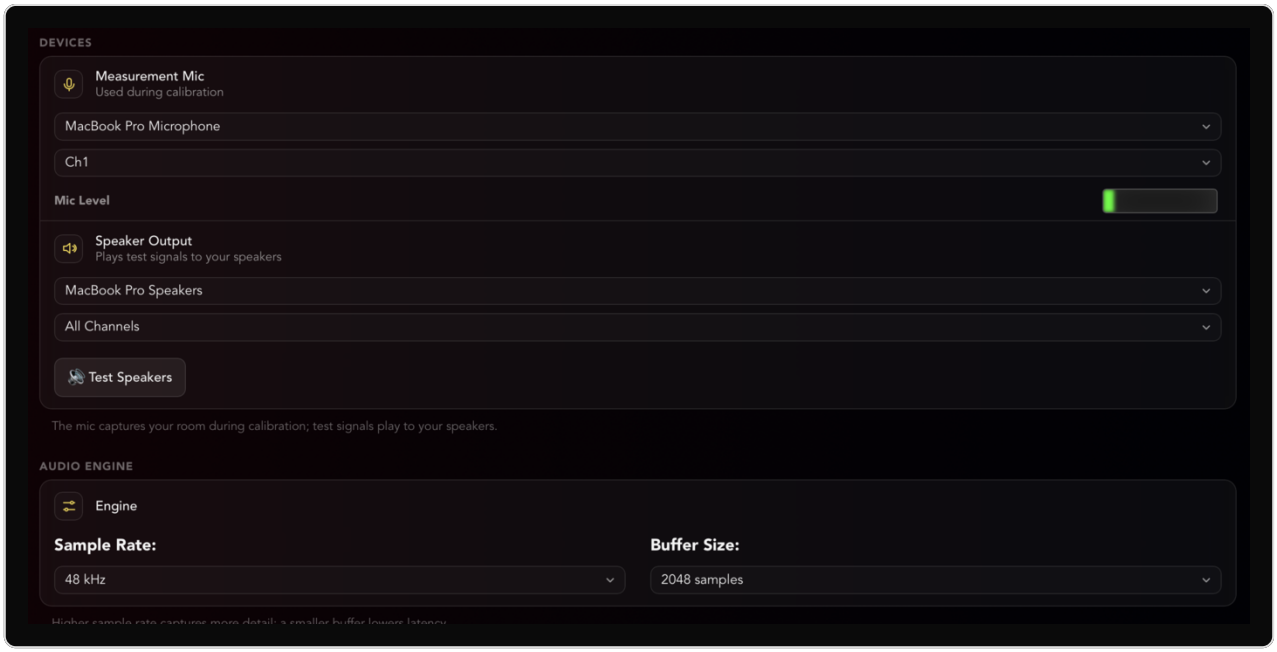
12. Settings

After this chapter you'll be able to choose your audio devices, tune the audio engine, route system audio through correction, manage devices, view logs, and reset the app if you ever need to.

Click **Settings** (gear) in the sidebar. There are four tabs (**Audio**, **Calibration**, **Devices**, **Logs**) and a footer showing the app version plus **Back up…**, **Restore…** (Chapter 11) and **Reset to factory defaults…** buttons.

Audio

This is where you tell the app which microphone and speakers to use, and how the audio engine runs.



Audio settings

Devices

- **Measurement Mic**: "*Used during calibration.*" Pick your microphone, then its **channel**. The **Mic Level** meter beside it shows the incoming level: green is healthy, red is clipping.
- **Speaker Output**: "*Plays test signals to your speakers.*" Pick the audio output that feeds your speakers, then a channel option: **All Channels**, a **pair** (e.g. **Ch1+Ch2**), or a single channel. The 🔈 **Test Speakers** button plays test noise while you hold it, so you can confirm sound is coming out.

> **Tip:** Set the mic level here *before* you calibrate. Aim for a strong green level without touching red. The calibration flow will also help you set levels, but starting in the right ballpark makes it quicker.

Audio Engine

- **Sample Rate**: 44.1 kHz up to 192 kHz. Higher captures more detail.

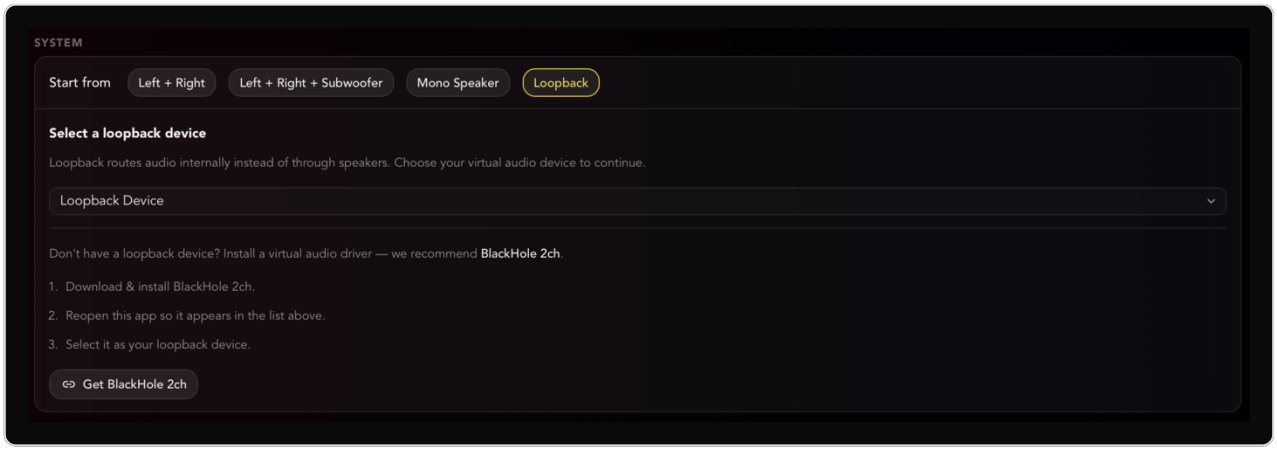
- **Buffer Size**: **Auto (diagnostic)**, or a fixed size from 64 up to 2048 samples. Smaller means lower latency, and larger is more forgiving on slower machines. The default is **512 samples**.

> **Note:** 48 kHz with the default 512-sample buffer is a safe choice. Only change these if you have a reason to. **Auto (diagnostic)** lets each audio device pick its own buffer size, which helps when troubleshooting audio problems with support. It can cause clicking if you use the loopback monitor, so switch back to a fixed size afterwards.

System Audio (loopback) — advanced

Route your computer's own audio (music, films) through room correction in real time:

- **Loopback Input**: the input carrying your system audio (choose **-- Disable Loopback --** to turn it off). This needs a virtual audio device such as **BlackHole 2ch**. The calibration setup's loopback screen has a download link if you don't have one (Chapter 9).
- **Loopback Correction**: shows whether a correction is applied to that system audio, lists the active EQ bands, and gives you **Bypass / Enable** and **Reset Correction** buttons.



Loopback correction

> **Note:** The loopback *correction* itself is produced by the calibration flow targeting the loopback output (Chapter 9). This panel only inspects, bypasses or resets it.

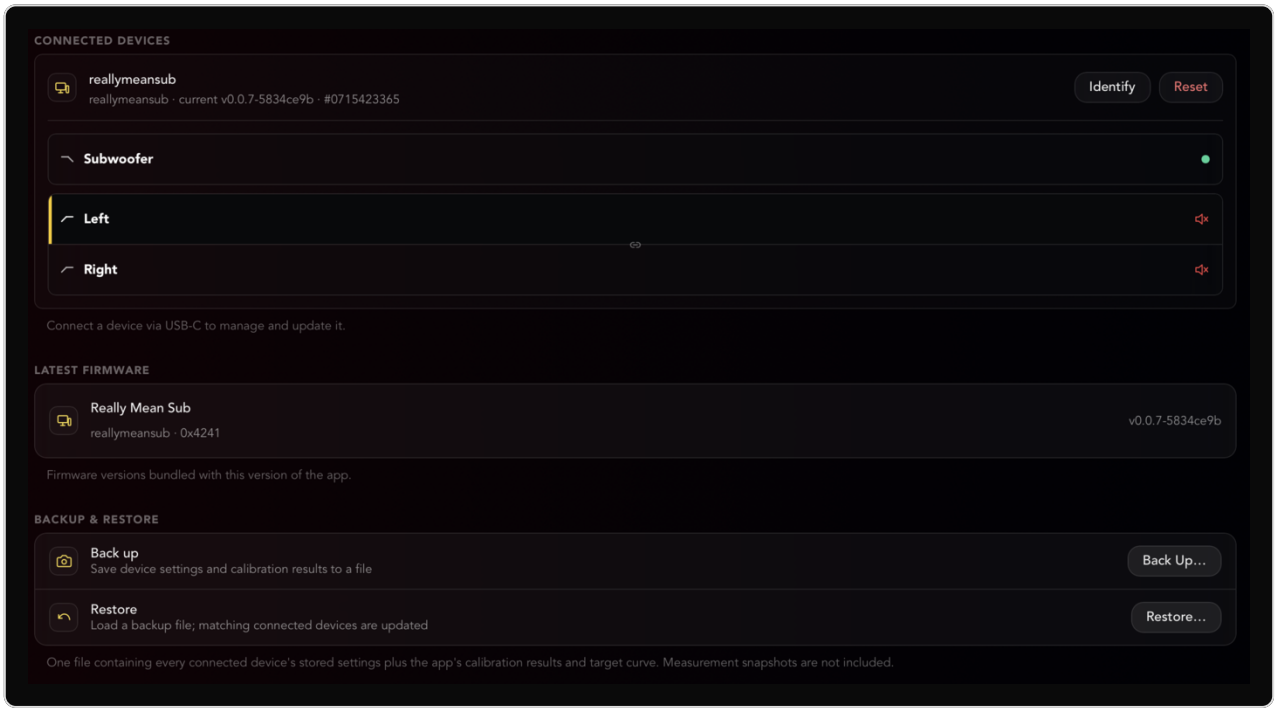
Diagnostics

Holds the **Latency Drift Check**, covered in Chapter 15.

Calibration

The **Calibration** tab holds the room-correction tuning options (Boost/Cut Trust, measurement confidence, alignment, and more) and the **Target Curve** picker. These are covered in Chapter 13 — Tuning room correction and Chapter 14 — Custom target curves.

Devices



Devices settings

- **Connected devices**: the same device list as Home, where you identify, reset, and update firmware (Chapter 5).
- **Latest firmware**: the firmware bundled with this app version.
- **Backup & restore**: save/load your settings and calibration (Chapter 11).

Logs

The **Logs** tab shows **Activity**: the 100 most recent messages reported by connected devices, newest first, each with a status dot (green, or red for an error). If there's nothing yet you'll see "*No activity yet.*" This is mainly useful when troubleshooting with Tantrum Audio support.

Reset to factory defaults (the app)

The footer's **Reset to factory defaults…** clears the **app's** saved settings (audio choices, calibration and snapshots) and restarts with defaults.

1. Click **Reset to factory defaults…**.
2. Confirm in **Reset to factory defaults?**.
3. At **Reset complete**, click **Close app**, then reopen it to start fresh.

> **Note:** This resets the **app**, not your hardware. "*Connected devices and their firmware are not affected.*" To reset a **device**, use its **Reset** button (Chapter 5).
> ⚠ **Warning:** This erases your snapshots and calibration from the app. **Back up first** (Chapter 11) if you might want them back.

13. Tuning room correction *(Advanced — optional)*

> **You don't need this chapter to get a great result.** The defaults are chosen to work well in most rooms. Come here only if you want to understand or nudge how the correction behaves.

These options live in **Settings** → **Calibration**. An **Applied Correction** summary sits at the top, and below it the options are grouped into **Measurement**, **Alignment**, **Room Correction** and **Display**.

Screenshot pending

`screenshots/13-g4g-calibration-settings.png`

Calibration settings

Measurement

- **Quick Positions** / **Full Positions**: how many microphone positions to measure per speaker. More positions average out the room better but take longer. The **How many positions should I use?** panel explains the trade-off, and **5** is the recommended balance for most rooms.
- **Clock Drift Correction**: **Enable** only when your mic input and speaker output are on **different** audio interfaces. Default **Disable**. (Same setting as on the measurement screen: see Chapter 8.)

Alignment

How the app matches level and timing between your speakers.

- **Gain Estimation** sets how playback level is matched: **Target Level Match** (default-style, matches to the target), **Minimum Summed Error (Least Squares)**, or **Matched Amplitude (RMS)**.
- **Delay Estimation** sets how the alignment delay is found: **Minimum Phase Error (Least Squares)** or **Cross Correlation Peak (GCC-PHAT)**.
- **Time-Align Tops**: whether your left and right speakers are time-aligned to *each other*, or only the **subwoofer** is aligned to the tops. Default **Subwoofer only**. Choose **All speakers** if your left and right are at noticeably different distances.
- **Phase Correction**: after alignment, an extra pass fine-tunes the phase still left between each speaker and the reference, which can tighten the stereo image. Default **Off**. It makes calibration take noticeably longer, and it only helps where the remaining phase error is large enough to hear.

> **Note:** Leave Gain and Delay Estimation on their defaults unless you're comparing methods deliberately. They change *how* alignment is computed, not whether it happens.

Room Correction

How hard and how accurately the optimiser works.

- **Max Generations**: **Overkill (80)** / **Best (50)** / **Balanced (30)** / **Fastest (15)**. More generations = more accurate, slower.
- **Fitness Threshold**: **Best (10%)** / **Balanced (20%)** / **Fastest (30%)**. Lower = more accurate, slower.
- **Confidence Weighting** decides which frequencies set the bar for a "trustworthy" measurement: **95% Strict** (clearest bins only), **70% Balanced** (the default), **50% Relaxed**, **10% Permissive**. Tighten to Strict if correction seems to chase measurement noise. Only relax below Balanced if correction is leaving obvious problems untreated.
- **Correction Filters**: the maximum number of EQ filters the correction may use **per channel** (a number from **1** to **48**; default **24**). The device itself always caps it too: a channel never gets more filters than its hardware has slots for, so the default means "use every slot the device offers". Fewer filters give a simpler, easier-to-review correction and leave slots free for manual EQ, at the cost of finer detail.
- **Boost Trust** sets how noisy a frequency's measurement can be before a *boost* stops counting fully: **Off** (clearest frequencies only), **Slight (80%, default)**, **Moderate (65%)**, **Maximum (50%)**. Higher settings let the app boost into less-certain regions, so use them with care.
- **Cut Trust** applies the same idea to *cuts*: **Slight (80%)**, **Moderate (65%)**, **Standard (50%, default)**, **Widest (30%)**. Cutting is safer than boosting, so this can be more relaxed.
- **Boost Restraint** sets how strongly the optimiser is discouraged from boosting into deep, unfixable dips: **Off**, **Gentle (recommended)**, **Strong**.
- **Target Curve**: the tonal balance to aim for (Chapter 14).

> **Tip: the two knobs worth knowing** - If correction sounds **over-processed or "boosty"**, set **Boost Restraint** → **Strong** and/or **Boost Trust** → **Off**, then **Calculate Again**. - If it's leaving obvious problems **uncorrected**, try **Confidence Weighting** → **70% Balanced**. Re-measure first if the diagnostics blamed a weak measurement.
> **Note:** After changing any of these, go to the results and click **Calculate Again** to re-run with the new settings. Your saved tuning is preserved across app updates.

Display

These affect only the **chart view**, never the captured data or the correction:

- **Smoothing**: fractional-octave smoothing of the displayed curve (default **1/6 Oct**).
- **Coherence**: hide low-confidence frequencies (default **Low** = show all).
- **Graph Scale**: vertical zoom, either **Full Scale**, **±24dB Norm**, or **Custom…**. Custom lets you set your own ±dB window (**Scale**) and frequency range (**From** / **To**), and an **Edit** button reopens the custom view while it's active.

See the full range/default tables in Appendix A.

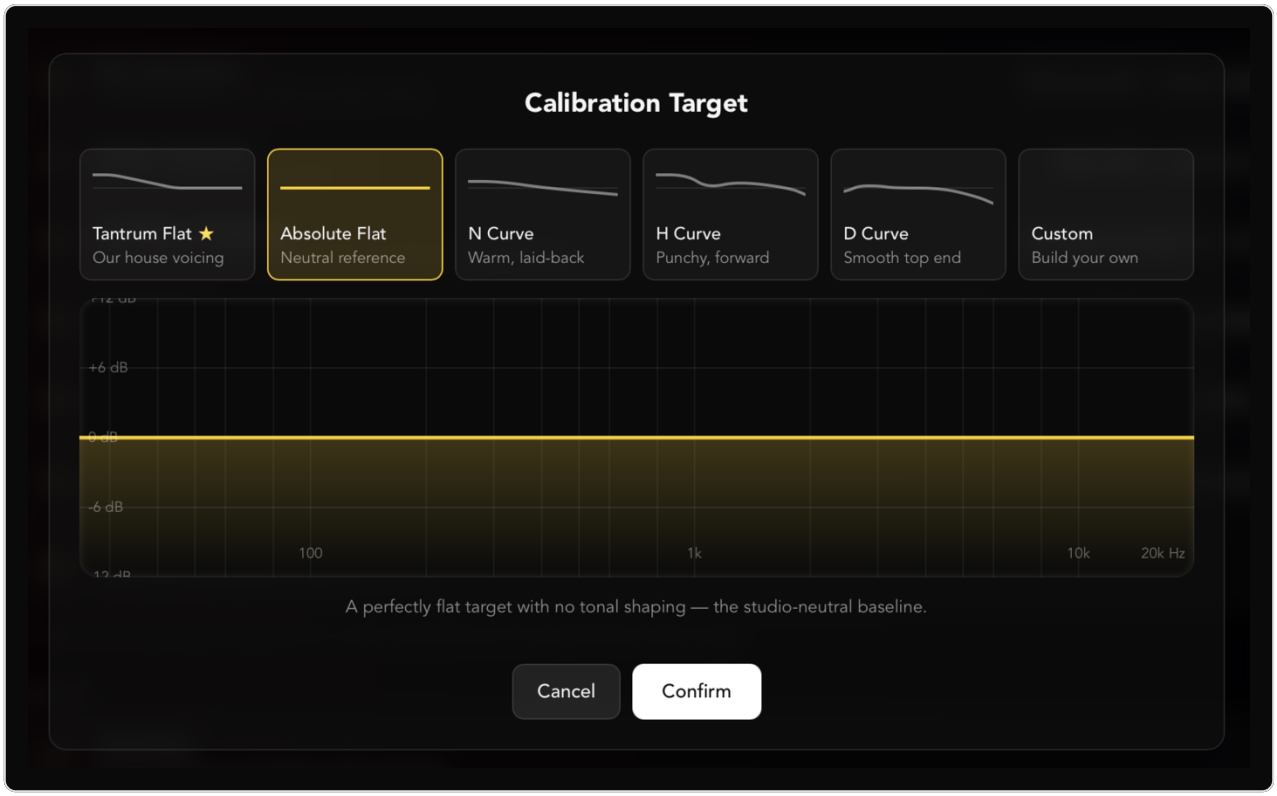
14. Custom target curves

The **target curve** is the tonal balance the correction aims for. A dead-flat target is *accurate* but can sound clinical. A gentle bass lift usually sounds fuller and more natural. This chapter covers the presets and how to build your own.

Opening the target curve picker

The **Calibration Target** picker appears wherever you set a target:

- **Settings** → **Calibration** → **Target Curve** → **Edit…**, or
- inside the **Speaker Playback About to Begin** dialog (**Devices & Target** → **Target Curve** → **Edit…**) when you start a measurement.



The target curve picker

Pick a preset card (or **Custom**), see it drawn on the chart, then confirm to make it the target. The chart's vertical scale is **±12 dB**.

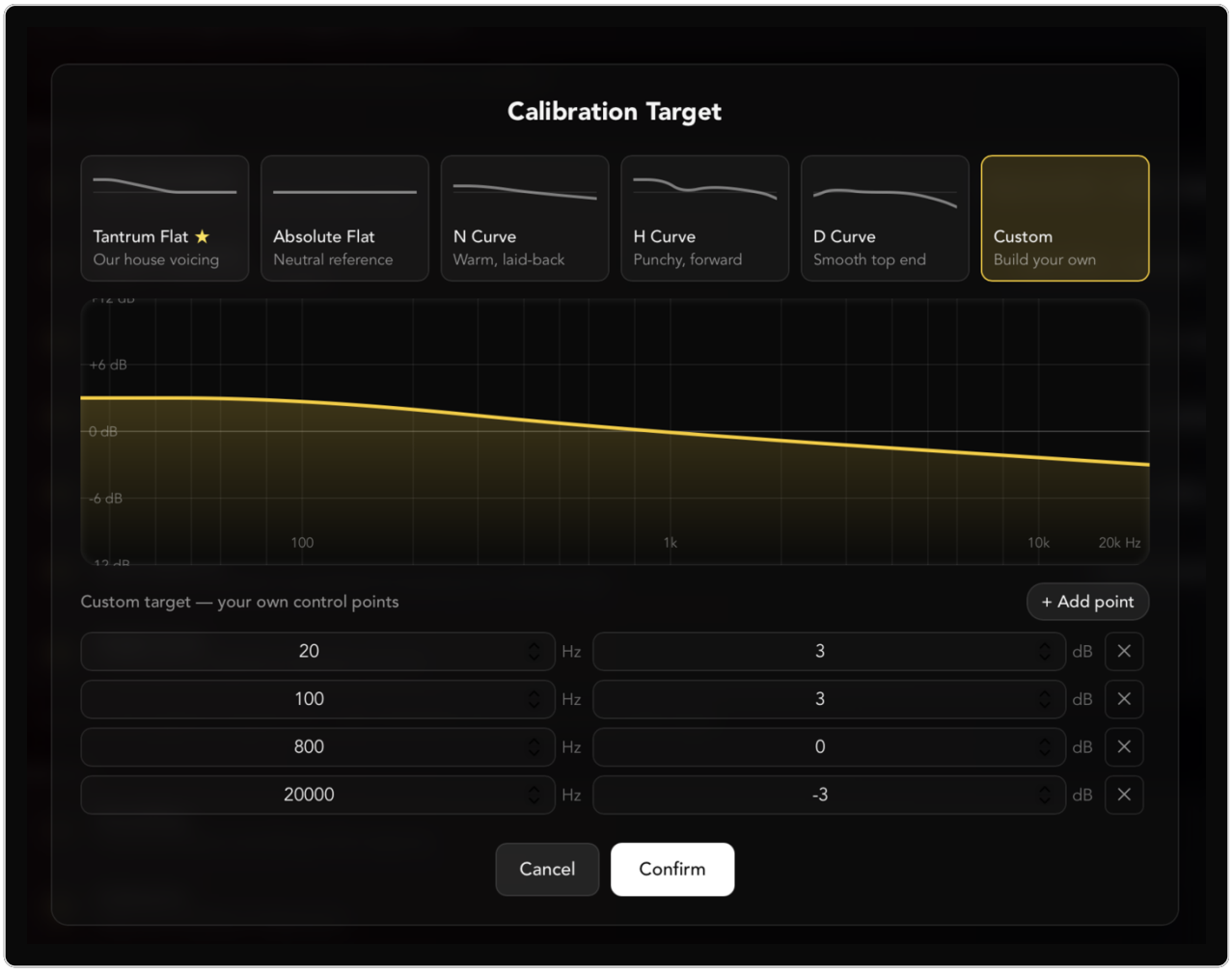
The presets

Preset	Character
Tantrum Flat ★	*Our house voicing* — a gentle low-end lift easing to flat by 1 kHz. Fuller and more natural; the **recommended** starting point.
Absolute Flat	A neutral, ruler-flat reference.
N Curve	Warm and laid-back — lifted bass, softened top.
H Curve	Punchy and forward.
D Curve	Smooth top end — rolled-off highs.
Custom	Build your own (below).

> **Tip:** Start with **Tantrum Flat**. If you want more warmth, try **N Curve**. If you want a brighter, more forward sound, try **H Curve**. Changing the target and clicking **Calculate Again** (Chapter 10) re-runs the correction toward the new balance.

Building a custom curve

Choose the **Custom** card to open the point editor (**"Custom target — your own control points"**). It starts from whichever curve was selected, so you can use a preset as your starting point and tweak it. (A saved custom target reopens straight into the editor.)



The custom curve builder

A curve is a list of **control points**, each a frequency and a gain. The app draws a smooth line through them.

1. Click **+ Add point** to add a point (it starts at 1000 Hz / 0 dB).
2. For each point, set: - **Hz**: the frequency (20 – 20,000). - **dB**: the gain there (–12 – +12, in 0.5 dB steps).
3. Remove a point with its ✕ (you must keep at least **two** points).
4. Enter points in any order. The rows stay where they are while you edit, and the app sorts the curve by frequency behind the scenes.
5. Confirm to make it your target.

> **Note:** The target curve describes the **shape** you want, not absolute loudness. The correction matches your speakers' *relative* balance to this shape, and overall volume stays under your control.

Example — a subtle "house curve"

A mild, natural balance similar to Tantrum Flat:

Hz	dB
30	+5
80	+4
200	+2
1000	0
20000	0

A little lift under ~200 Hz, flat through the mids and top. Keep boosts gentle: the correction still has to fit them within its headroom limits.

15. Diagnostics

Omnissiah has two diagnostic aids: the **diagnostic cards** that explain what the app found in your room, and the **Latency Drift Check** for tracking down timing problems between audio interfaces. After this chapter you'll know how to read both.

Diagnostic cards

Diagnostic cards are plain-language notes about your room and your measurement: reflections, room nulls, resonances, and measurement-quality problems. They're the app being straight with you. Some room problems can't be fixed with EQ, and it's better to know than to be misled by a "flat" graph. You'll meet them in three places:

- **On the results page**, after a correction: per-channel notes about anything the correction left untreated, and why. Selecting a channel on the chart filters the list to that channel.
- **On the measurement screen** (Chapter 8): the same findings appear live below the charts as you measure (or for whichever snapshot you select), phrased as what the microphone is hearing right now. Move a speaker and watch them update.
- **During a guided calibration's measuring step**, beneath its chart.

Diagnostic cards

Each card shows the channel, an approximate frequency, a short title, an explanation, and often a suggested action. **Hover a card** to shade its frequency band on the chart above. Their colour shows severity:

- **amber**: a **warning** about measurement quality
- **yellow (accent)**: an **advisory** about the room
- **hairline**: **information** (usually "left alone on purpose")

What the findings mean

Finding	Type	What it's telling you	What to do
Outside the usable range (below/above ~X)	info	The frequency is past your speaker's usable edge (or below/above the crossover), so it's handed to another speaker or left alone.	Nothing — this is expected.
Modal / boundary issue	advisory	Room modes or boundary interference (low confidence, no clear dip).	Not an EQ fix — experiment with speaker, sub and listening positions.
Peak left uncorrected	advisory	A real resonance the correction chose not to cut.	Add a manual EQ cut there, or re-run correction.
Deep null left alone on purpose	advisory	An acoustic cancellation too deep to fill without excessive boost.	Move the speaker, sub or seat; treat the room — EQ won't fix it.
Reflection — acoustic, not EQ	advisory	Coherence collapse from a strong reflection.	Angle or move the speaker; add treatment. EQ can't fix a reflection.
Possible measurement noise	warning	A narrow spike with a coherence drop — likely a one-off sound during the measurement.	Re-measure that speaker during a quieter moment.
Weak measurement on this channel	warning	Low confidence across the band (shows the signal-to-noise ratio).	Re-measure with higher playback level and less background noise.
High-frequency limit	info	Air absorption / single-point limit at the very top.	Left uncorrected on purpose.

The table shows the results-page wording. The live cards on the measurement screen describe the same findings as observations: "Peak at ~250 Hz" rather than "Peak at ~250 Hz — left uncorrected", since no correction has run yet.

> **Tip:** The single most useful pattern to recognise: **warnings (amber) are about your measurement**, so fix them by re-measuring. **Advisories (yellow) are about your room**, so fix them by moving things or treating the room, not with more EQ.

Coherence and SNR

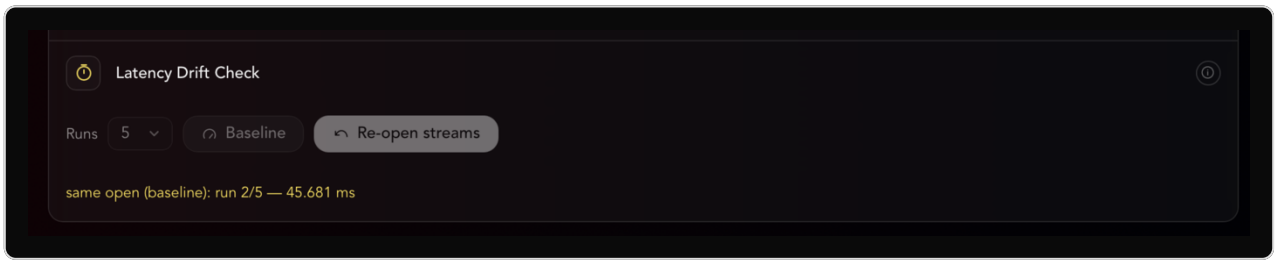
Two quality numbers underpin the cards and charts:

- **Coherence** (shown as **Confidence**): how much of what the mic heard is genuinely the test signal versus noise/reflections, per frequency. High is good.
- **SNR (signal-to-noise ratio)**: how far your measurement rose above the room's noise floor overall. A low SNR is why you'll be asked to raise the level and quieten the room.

Latency Drift Check

This diagnostic checks whether the **round-trip measurement latency** stays stable between runs. It matters when your microphone and speakers are on **separate** audio interfaces: their clocks can drift, which stops two separately-taken measurements lining up to a common time reference. That in turn breaks time-alignment between speakers.

You'll find it in the **Measurement settings** gear (Chapter 8) and in **Settings** → **Audio** → **Diagnostics**.



Latency Drift Check

Running it

1. Stop any measurement first (the diagnostic drives the measurement itself).
2. Keep the mic and speaker **fixed** and the room quiet.
3. Choose the number of **Runs** (3 / 5 / 10 / 20; default 5).
4. Click: - **Baseline**, which runs with the audio streams kept open (your measurement noise floor), then - **Re-open streams**, which forces a full stream re-open before each run, exposing the timing shift that separate interfaces introduce.

Reading the result

Each block reports the **Latency range** (and its spread) and the **Datum range** across runs, plus the path to a **CSV** written to the app's diagnostics folder.

- If **Re-open streams** shows a range **much larger** than **Baseline**, drift is confirmed: your input and output are on different clocks.
- The fix is to use **one interface** for both mic and speakers if you can, or to enable **Clock Drift Correction** (Chapter 8).

> **Note:** If your mic and speakers already share one interface, you shouldn't see meaningful drift, and you can leave Clock Drift Correction off.

16. Troubleshooting & FAQ

Common problems and how to fix them. If nothing here helps, use **Send Feedback** on the results page or email us (see Appendix D).

Startup

The app is stuck on "Getting things ready…". It's still initialising. Give it a few seconds. If it never finishes, quit and reopen. If it still hangs, unplug the device, reopen, then reconnect.

There's an "INITIALIZATION ERROR" banner at the bottom. The app couldn't start its audio engine. Quit and reopen it. Check no other app is holding your audio interface exclusively, and that your interface is connected and powered before launch.

Devices

"No devices found…" — my device isn't showing up. 1. Check the **USB-C cable** is connected and the device is powered on. 2. Try a different cable/port (some cables are charge-only, so use a data cable). 3. Remember the app looks for **Tantrum Audio hardware**, not your audio interface. An interface won't appear here. 4. Reconnect. The list refreshes automatically within a second or two.

"FIRMWARE UPDATE REQUIRED" is blocking everything. Your device's firmware is older than this app expects. Click **Update to v…**, confirm, and let it finish. **Don't unplug or quit** during the update. See Chapter 5.

The firmware update showed an error. Click **Close**, reconnect the device, and try again. If it keeps failing, try a different USB port/cable and make sure the device stays powered throughout.

I clicked Reset by accident. Device **Reset** acts immediately (there's no confirmation before it runs) and takes effect when you restart the device. If you had a backup, restore it (Chapter 11). Otherwise, re-run room correction.

Sound & measurement

No sound during a test or measurement. 1. **Settings** → **Audio** → **Speaker Output**: check the right output is selected. Use 🔈 **Test Speakers** to confirm. 2. Check the device/amp is on and turned up (start low). 3. Check the output isn't **Muted** on the Control screen (red **MUTED** pill).

The mic level meter shows nothing / stays grey. 1. **Settings** → **Audio** → **Measurement Mic**: pick your mic and the correct **channel**. 2. Grant microphone permission: **System Settings** → **Privacy & Security** → **Microphone** → **Omnissiah** on. 3. Raise the mic's input/preamp gain.

"Microphone access is denied" when starting a measurement or calibration. macOS is blocking the app's microphone access, so nothing can be recorded. Turn Omnissiah on under **System Settings** → **Privacy & Security** → **Microphone**, then try again. Note that after updating the app, macOS may ask for microphone permission once more. That's expected, and your settings and calibrations are unaffected.

The sound stutters, crackles or clicks. 1. Quit and reopen the app. 2. Try a different **Buffer Size** (**Settings** → **Audio**). The default is **512 samples**. Leave **Auto (diagnostic)** alone unless we ask you to use it. 3. If it's the loopback monitor clicking, make sure you're on the latest app version.

My measurement is red (low coherence / "Weak measurement"). Low coherence means noise or reflections are drowning the test signal: 1. **Raise the playback level** (safely) so the signal is well above the room noise. 2. **Quieten the room**: close windows, turn off fans/AC, don't talk. 3. Use a proper **measurement microphone** at ear height at your seat. 4. Re-measure. See Chapter 15.

Correction sounds over-processed / too boosty. Set **Boost Restraint** → **Strong** and/or **Boost Trust** → **Off** (**Settings** → **Calibration**), then **Calculate Again** (Chapter 13). Lowering **Correction Filters** there also gives a simpler, gentler correction.

The results graph still shows big dips after correction. Deep dips are usually room **nulls** or **reflections**, and EQ can't fix them. Check the **Diagnostics** cards for the specific advice (usually move the speaker, sub or your seat). See Chapter 15.

Two speakers won't line up in time / the latency seems to wander. If your mic and speakers are on **different** audio interfaces, their clocks drift. Use one interface for both if you can, or enable **Clock Drift Correction**. Confirm with the **Latency Drift Check** (Chapter 15).

Applying, backup & restore

I applied a correction but it doesn't sound different. Check the **Applied Correction** panel says **Room correction active** (not **bypassed**). Use the **Bypass / Enable** toggle to A/B it (Chapter 10).

I restored a backup but nothing changed on the device. Restore **loads** calibration results into the app but doesn't auto-apply them. Open the results and click **Apply to device**. Also: devices that weren't plugged in when you restored are skipped ("not connected"). Reconnect and restore again, or apply manually.

Restore won't run. - You can't restore while a **calibration is running**. Stop it first. - A backup made by a **newer** app version can't be read. Update the app.

Frequently asked

I closed the window but the app is still running. That's by design: closing the window **hides** Omnissiah instead of quitting it, so a connected device keeps working. Reopen it from the **Dock** or by launching it again (that reopens the existing window rather than starting a second copy). To quit properly, use **Cmd-Q** or **File** → **Quit**.

Does the app run on Intel Macs? Yes. Omnissiah ships as a universal binary and runs on both Apple silicon and Intel Macs.

Does the correction keep working when the app is closed? Yes. Applied correction is stored **on the device** and works without the app or computer connected.

Do I need the microphone for everyday use? No, only for **measuring** and **room correction**. Manual level/EQ tweaks (Chapter 7) don't need a mic.

Will updating the app reset my tuning? No. Your saved calibration tuning is preserved and migrated across app updates.

Where's the app called "DSP Control"? That's the same app: **Omnissiah**. Some in-app text still uses the older name.

17. Glossary

Plain-language definitions of the audio terms used in this manual.

Alignment — Adjusting level, timing (delay) and polarity so your speakers and subwoofer work together as one system rather than fighting each other.

All-pass filter — A filter that changes timing (phase) at certain frequencies without changing loudness. Used by the optional **Phase Correction** step.

Averaging — Smoothing the live measurement over time so the curve is steadier and easier to read. **Slow / Fast / Ultra-Fast** are smooth rolling averages. **FIFO** modes average exactly the last few measurement frames (see Appendix A).

Bypass — Turning a filter, band, or the whole correction off temporarily without deleting it, so you can compare with and without.

Coherence — A per-frequency measure (0–100%, shown as **Confidence**) of how much of what the mic heard was actually the test signal, versus noise and reflections. High coherence = trustworthy data.

Crossover — The frequency where sound is split between speakers: below it goes to the subwoofer (low-pass), above it goes to the main speakers (high-pass).

Delay — A small, deliberate time offset added to an output so all speakers' sound arrives at your ears together. Also expressible as distance.

dB (decibel) — The unit of loudness/level. 0 dB means "no change". Negative is quieter, positive is louder.

DSP (Digital Signal Processing) — The processing inside your device that changes the sound: gain, delay, crossover, EQ.

Firmware — The software that runs on the device itself (separate from the Omnissiah app on your computer). Kept up to date via OTA updates.

GCC-PHAT — A method for finding the time delay between two signals by looking for the peak of their cross-correlation. One of the delay-estimation options.

High-pass / Low-pass — A high-pass filter lets high frequencies through and rolls off the lows. A low-pass does the opposite. The two halves of a crossover.

Loopback — Routing your computer's own audio (music, films) back into the app through a virtual audio device, so it can be corrected in real time.

OTA (Over-The-Air) update — Updating the device's firmware through the app over USB, without special tools.

Parametric EQ (PEQ) — An equaliser where each **band** has an adjustable frequency, gain and **Q** (width), letting you shape the response precisely.

Phase correction — An optional calibration step (off by default) that fine-tunes the remaining timing differences between speakers with all-pass filters, after delay alignment.

Pink noise — A test signal with equal energy per octave, used to measure a system's frequency response. It sounds like a steady "shhh".

Polarity (phase invert) — Flipping the waveform of an output. Wrong relative polarity between the sub and mains makes bass sound thin at the crossover.

Q — The width of an EQ band. Low Q is wide and gentle. High Q is narrow and surgical.

Room mode — A resonance caused by your room's dimensions, making certain bass notes much louder (a peak) or, where waves cancel, much quieter (a **null**).

Null — A deep dip caused by sound waves cancelling out at your listening position. Nulls can't be fixed by boosting EQ, only by moving speakers, sub or seat.

Sample rate — How many times per second the audio is measured (e.g. 48,000 = 48 kHz). Higher captures more detail.

Snapshot — A saved measurement you can name, colour, compare and export.

SNR (Signal-to-Noise Ratio) — How far your measurement rose above the room's background noise. Higher is a cleaner, more reliable measurement.

Target curve — The tonal balance the correction aims for. Flat is neutral. A gentle bass lift (like **Tantrum Flat**) usually sounds fuller and more natural.

Time-align — See **Alignment**. Time-aligning is the delay part of it, making sound from each speaker arrive together.

Appendix A — Reference tables

Quick-reference limits and options. Values are for the **Really Mean Sub** at app version 0.1.3. Some ranges are set by the device and may differ on other hardware.

DSP block limits (per output)

Block	Control	Range / options	Step	Default
Gain	Level (dB)	device-set (–90 … +24 dB)	0.1 dB	0 dB
Mute	On / off	—	—	unmuted
Polarity	Normal / inverted	—	—	normal
Delay	Time / distance	0 – 8.5 ms (≈ 410 samples / 2.8 m)	see below	0
Crossover	Frequency	20 – 200 Hz	1 Hz	90 Hz
Crossover	Alignment	Butterworth (BW), Linkwitz-Riley (LR)	—	—

Delay units

Unit	Max	Step
ms	8.5	0.1
m	2.8	0.01
samples	410	1
cm	280	0.1
in	110	0.1
ft	9	0.01

Unit cycle order: **ms** → **m** → **samples** → **cm** → **in** → **ft**. Engine sample rate for conversions: 48,000 Hz. Speed of sound: 343 m/s.

The Gain and Delay cards also have **– / +** stepper buttons: a click moves one step, holding glides the value in steps (see Appendix C).

Parametric EQ

Item	Value
Bands per speaker output	up to 8
Bands on the sub output	4
Frequency	20 – 20,000 Hz
Gain	–18 … +18 dB
Q	0.1 – 10
Filter types	Low Pass · High Pass · Peaking · Notch · Low Shelf · High Shelf · All Pass

Target curve

Item	Value
Chart scale	±12 dB
Control-point frequency	20 – 20,000 Hz (step 1)
Control-point gain	–12 … +12 dB (step 0.5)
Minimum points	2
Presets	Tantrum Flat (recommended), Absolute Flat, N Curve, H Curve, D Curve, Custom

Audio engine (Settings → Audio)

Setting	Options	Default
Sample Rate	44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz	matches your output device
Buffer Size	Auto (diagnostic) / 64 / 128 / 256 / 512 / 1024 / 2048 samples	512 samples

> **Auto (diagnostic)** lets the audio device pick its own buffer size. It's there for troubleshooting only. Leave the fixed default unless we ask you to change it.

Measurement settings

Setting	Options	Default
Averaging	Slow / Fast / Ultra-Fast / FIFO4 / FIFO8 / FIFO16 / FIFO32	Slow
Smoothing	None, 1/48, 1/24, 1/12, 1/6, 1/3, 1/1 Oct	1/6 Oct
Coherence (hide below)	Low / Medium / High / Very High	Low
Graph Scale	Full Scale / ±24dB Norm / Custom…	Full Scale
Clock Drift Correction	Enable / Disable	Disable

> **Averaging speeds** — Slow, Fast and Ultra-Fast are smooth "meter-style" averages settling in roughly 1.5 s / 0.5 s / 0.25 s. The **FIFO** modes average exactly the last 4, 8, 16 or 32 measurement frames, so the trace settles in a fixed, predictable time.
> **Custom…** graph scale lets you set your own ±dB window (1 – 60 dB) and visible frequency range (10 – 24,000 Hz).

Calibration / room-correction options (Settings → Calibration)

Setting	Options	Default
Quick Positions	1 / 3 / 5 / 7	1
Full Positions	3 / 5 / 7 / 9	3
Clock Drift Correction	Enable / Disable	Disable
Gain Estimation	Target Level Match · Minimum Summed Error (Least Squares) · Matched Amplitude (RMS)	Target Level Match
Delay Estimation	Minimum Phase Error (Least Squares) · Cross Correlation Peak (GCC-PHAT)	Minimum Phase Error (Least Squares)
Time-Align Tops	Subwoofer only / All speakers	Subwoofer only
Phase Correction	Off / On	Off
Max Generations	Overkill (80) · Best (50) · Balanced (30) · Fastest (15)	Balanced (30)
Fitness Threshold	Best (10%) · Balanced (20%) · Fastest (30%)	Best (10%)
Confidence Weighting	95% Strict · 70% Balanced · 50% Relaxed · 10% Permissive	70% Balanced
Correction Filters	1 – 48 filters per channel	24
Boost Trust	Off · Slight (80%) · Moderate (65%) · Maximum (50%)	Slight (80%)
Cut Trust	Slight (80%) · Moderate (65%) · Standard (50%) · Widest (30%)	Standard (50%)
Boost Restraint	Off · Gentle · Strong	Gentle

Note: These defaults are read from the app's saved configuration and may be refreshed by app updates. Your saved choices are kept across updates.
Correction Filters caps how many EQ filters room correction may use per channel. The device's own slot count always applies too. On the Really Mean Sub that's 8 per speaker output (4 on the sub), so higher settings mean "use every slot the device offers".

Appendix B — File formats

Omnissiah reads and writes a few kinds of file. You never *have* to look inside them, but here's what they hold.

Backup file (`.json`)

Saved by **Back Up…** (Chapter 11).

- **Default name:** `dsp-control-backup_YYYY-MM-DD_HH-MM-SS.json`
- **Contents:**
- app version and the time it was created;
- **each connected device:** its serial number (used to match on restore), name, type, firmware version, and stored settings (levels, delay, polarity, crossover, EQ);
- the app's **calibration results** and **target curve**;
- **loopback correction** and its bypass state (if any).
- **Not included:** measurement snapshots.

> **Note:** On restore, devices are matched by **serial number**. A device in the file that isn't connected is skipped. EQ/crossover filter coefficients are recomputed from the descriptive settings, so a restore still works across firmware revisions.

Snapshot CSV (`.csv`)

Exported by **Export CSV** (one snapshot) or **Export All** (one CSV per snapshot into a folder), and imported with **Load** (Chapter 8).

- A header comment carries the snapshot's **name, colour, sample rate, latency and offsets**, so a re-imported CSV keeps its identity.
- The body is the measured response data: one row per frequency point, with the level (dB), phase and coherence.
- Because it's plain CSV, you can also open it in a spreadsheet or another measurement tool.

Output settings file (`.params`)

Saved by **Save** and loaded by **Load** on an output's page (the device page has the same pair for a whole device). See Chapter 6.

- Holds that output's settings (gain, mute, polarity, delay, crossover and EQ) so you can move a setup between outputs or keep favourite configurations.
- Loading is checked first: a file with **more EQ bands than the output has slots**, or with out-of-range or corrupt values, is refused with an explanation and nothing is changed.

Results exports

Export results on the results page (Chapter 10) offers three destinations:

- **Omnissiah file** — the **full calibration results**, filters and responses together. Re-open it in Omnissiah later, or send it to Tantrum Audio with **Send Feedback**. This is the file to attach when you email feedback.
- **REW filter file** — the correction EQ bands as Room EQ Wizard "Filter Settings" files (Generic), one per channel. In REW, import via **Filter Tasks** → **Import**.
- **Corrected response CSVs** — each channel's corrected frequency and phase response, one CSV per channel in the snapshot CSV format above, so they load back into the Measurements page to compare.

> **Note:** More export destinations are planned.

Appendix C — Mouse & keyboard interactions

A quick reference to the gestures that aren't obvious from the buttons.

EQ graph (Chapter 7)

Gesture	Effect
Drag a node left/right	Change the band's **frequency**
Drag a node up/down	Change the band's **gain**
Double-click a node	Reset that band to default
Shift-click a node	Reset that band to default
Hover a node	Show its Band number, Q, Freq and Gain

To change a band's **Q** (width), use the band's control block below the graph.

Gain card (Chapter 7)

Gesture	Effect
Click **– / +**	Step the gain by 0.1 dB
Press and hold – / +	Glide the gain in 0.1 dB steps

Delay card (Chapter 7)

Gesture	Effect
Click the **unit button**	Cycle units: ms → m → samples → cm → in → ft
Click **– / +**	Step the delay by one step of the shown unit (see Appendix A)
Press and hold – / +	Glide the delay in those same steps
Click **Reset**	Set delay to 0

Measurement offsets (Chapter 8)

Gesture	Effect
+ / – on Delay	Step by 0.5 ms
Shift + **+ / –** on Delay/Gain	Fine step (0.025×)
+ / – on Gain	Step by 0.5 dB
↩ reset	Zero that offset

General

Gesture	Effect
Click an **output** in the sidebar	Select it; click again to deselect
Click a snapshot's **colour dot**	Show/hide it on the chart
Click a snapshot's **name**	Select it; click again to deselect
Click a **channel chip** on results	Focus that channel; click again for all
Hover any chart	Read Freq / Gain / Phase / Confidence at the cursor
Hover a diagnostics card	Shade that card's frequency band on the chart

> **Note:** All value fields accept a typed number as well as the +/– steppers, and values are clamped to the limits in Appendix A.

Appendix D — Getting help & sending feedback

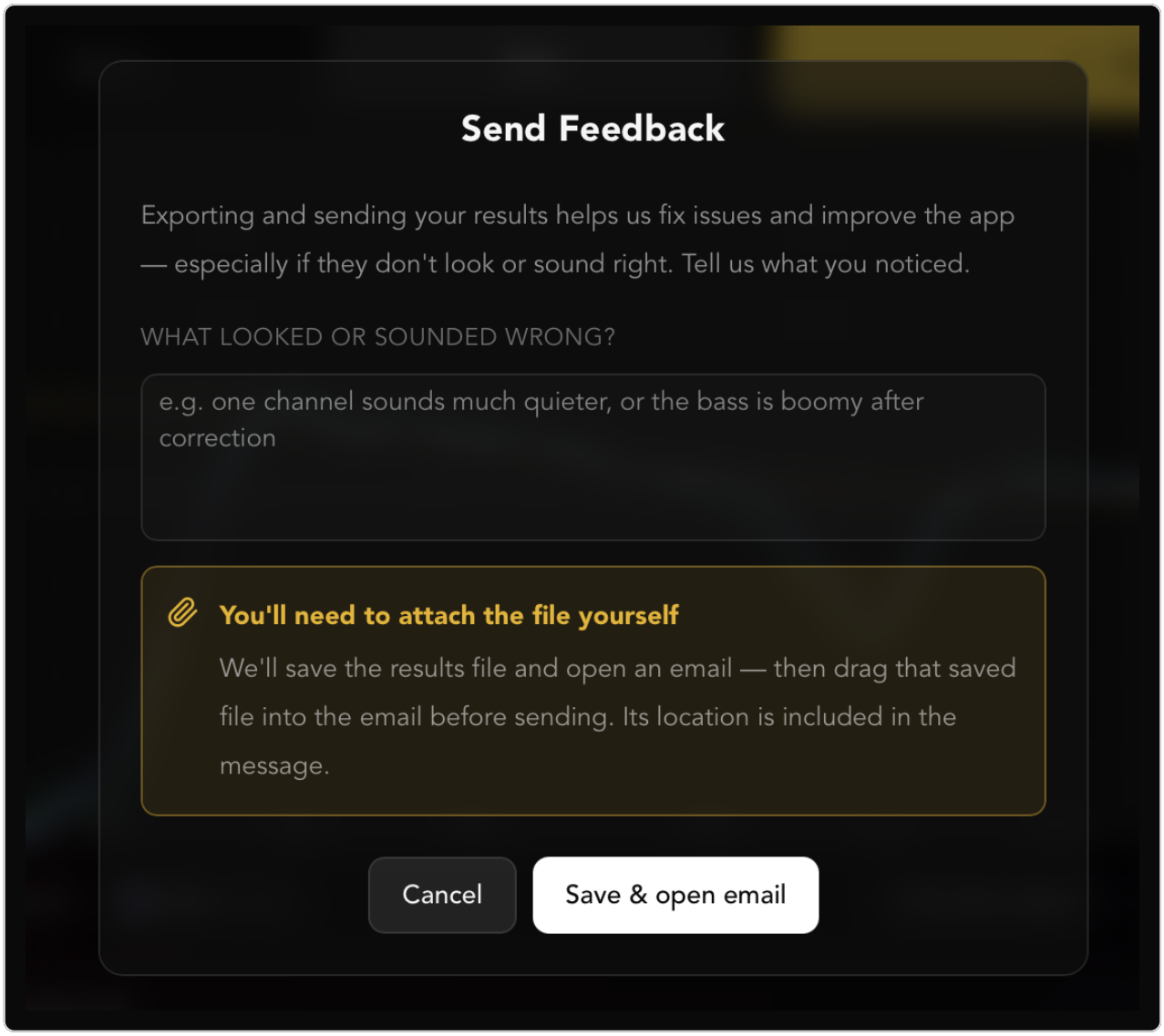
Contact

Email **tom@tantrumaudio.co.uk**. Room correction is in **beta**, and real-world results help us improve it, so please do get in touch, especially if something doesn't look or sound right.

Sending feedback from the app (best)

The results page can package everything we need for you:

1. On the **Calibration results** page, click **Send Feedback**.
2. Write a short note in **"What looked or sounded wrong?"** This is the most useful part. For example: "*the left channel is much quieter after correction*" or "*bass sounds boomy.*"
3. Click **Save & open email**. The app **saves your results file** and opens a pre-filled email.
4. **Attach the saved results file yourself** before sending. The email tells you where it was saved (drag that file into the email).



Export and feedback

The email automatically includes your app version, operating system, and connected device/firmware info, so we can reproduce what you saw.

What to include when reporting a problem

If you email us directly rather than via the app, please include:

- **What happened** and what you expected instead.
- Your **app version** (shown in **Settings**, bottom of the page) and **macOS version**.
- Your **device** and its **firmware version** (from the device row).
- If it's about a measurement or correction, the **exported results file** (Chapter 10) and, if relevant, your **snapshot CSVs** (Chapter 8).
- Anything from **Settings** → **Logs** (Activity) that looks relevant.

Before you contact us

Many issues are covered in Chapter 16 — Troubleshooting & FAQ. It's worth a look first: device-not-found, no-audio, low-coherence and restore-didn't-apply are the usual suspects and all have quick fixes.