APEX ROOM CORRECTION

Room Correction + Bass Management

User Guide · Windows 2.8.5 · Mac 2.8.6

For Denon and Marantz AV receivers

apexroomcorrection.onrender.com

1. What Apex Room Correction does

Apex Room Correction measures your room through your Denon or Marantz receiver's own setup microphone (or opens measurements you already have), analyzes every speaker and subwoofer, and optimizes EQ, crossovers, levels, distances and sub alignment. The result is saved as an Apex calibration file (**.apex**) and can be transferred back to the receiver. No extra hardware is needed, and licensing works offline.

This guide covers Apex Room Correction for **Windows 10/11 (version 2.8.5)** and **Mac (version 2.8.6, Apple Silicon)**. Both work the same way. Apex Room Correction for Android is a separate app and purchase and is not covered here.

Supported receivers

Apex sends corrections to Denon and Marantz receivers that have the **XT32** room-correction version. Apex reads your receiver's model and version when it connects (the Connect step shows them), and sets the available speaker layouts, number of subwoofers and crossover choices from the model.

Family	Models
Denon XT32 receivers	AVR-A1H, AVR/AVC-A10H, AVR/AVC-A110, AVR-X8500H/HA, X6800H, X6700H, X6500H, X6400H, X6300H, X4800H, X4700H, X4500H, X4400H, X4300H, X3900H, X3800H, X3700H, X3600H, X3500H, X3400H, X3300W
Marantz XT32 receivers and pre-amps	AV10, AV20, AV30, CINEMA 30, CINEMA 40, CINEMA 50, AV8805 and AV8805A, AV7706, AV7705, AV7704, AV7703, SR8015, SR8012, SR7015 to SR7012, SR7011, SR6015 to SR6012, SR6011
Receivers with the XT or basic version	Denon X2900H, X2850H, X2800H, X2700H, X2600H, X2500H, X2400H, X2300W, X1800H, X1700H, X1600H, X1500H, X1400H, X1300W, S980H to S950H, S940H, S930H, S920W, S770H to S750H, S740H, S730H, S720W; Marantz CINEMA 60, CINEMA 70s, SR5015 to SR5011, NR1711, NR1710, NR1609, NR1608, NR1607. Apex can measure, analyze and optimize with these, but **Transfer and the Filters-as-WAV export are not available**, and Directional sub mode needs XT32.
Not supported	Marantz AV8802 and AV8802A, Denon AVR-S650H to S670H, and the older AVR-X550BT to X580BT / S540BT to S570BT.

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Editions and views

Edition	What you can do
Demo (free, no time limit)	The whole guided Simple view works on your own system: connect, measure, import, analyze, optimize and review. **Saving the .apex file, exports and Transfer need a license.** Pro features are shown greyed out with a note. A DEMO strip under the step bar shows your Machine Code and a Buy button.
Basic	Everything in the Demo plus saving the .apex file, reports and exports, and Transfer to the receiver. Works in the Simple view: 7 numbered steps.

Pro	Everything in Basic plus the **Full view** (10 numbered steps with every advanced control), USB measurement microphone support, and the option to send only one of the two receiver curves.

The Simple view is for everyone. Pro starts in the Full view; switch with the **Simple view** and **Full view (Pro)** buttons. Buy at **/buy/basic** or **/buy/pro** on apexroomcorrection.onrender.com. A Basic license can be upgraded to Pro from the website.

2. Installing and activating

Install on Windows

1. The installer comes with your purchase. Download it from your confirmation page or the link in your order email (the **/download** page can also send you a link). Run **ApexRoomCorrection-Setup-2.8.5.exe**. It needs Windows 10 or 11 (64-bit) and installs to **C:\Program Files\Apex Room Correction** (administrator rights needed) with a Start Menu group and an optional desktop shortcut.
2. Tick **Launch Apex Room Correction** on the last page to start it.
3. Installing a newer version over an older one upgrades it in place. One installer serves every edition; your license decides what is unlocked.

> **Note.** If Windows SmartScreen shows “Windows protected your PC”, choose **More info → Run anyway**.

Install on Mac

1. Download **ApexRoomCorrection-2.8.6-mac-arm64.dmg** from your confirmation page or order link. It needs a Mac with Apple Silicon (M1 or newer) and macOS 12.3 Monterey or later. Intel Macs are not supported.
2. Open the .dmg and drag **Apex Room Correction** to Applications.
3. The Mac app is not notarized by Apple yet, so macOS asks for approval the first time. Try to open the app once, then go to **System Settings → Privacy & Security** and click **Open Anyway**. (On macOS 12 to 14 you can instead right-click the app, choose **Open**, then **Open**.) You only do this once.

Uninstall

Windows: uninstalling keeps your license, settings and history in **%APPDATA%\ApexRoomCorrection** unless you answer Yes to the optional delete prompt. That folder also holds the **measurements** and **snapshots** folders Apex saves into, so copy out anything you want to keep before answering Yes. Files you saved in **Documents\Apex Room Correction** (such as .apex files) are never touched. **Mac:** drag the app to the Trash. Settings stay in **~/Library/Application Support/ApexRoomCorrection** and saved files in **Documents/Apex Room Correction**.

Activate your license

1. Open Apex on the Windows PC or Mac you will use. Click **License…** (Simple view) or the **LICENSE** tab (Full view). **Your Machine Code** (20 characters, for example 7K3QX-9M2PD-WT4HZ-B8N6R) is shown even before you have a license, and without an internet connection. Click **Copy**.

2. After purchase, go to **apexroomcorrection.onrender.com/activate** (or use your confirmation page). Enter your order ID (it starts with pi_ and is in your order email), the email you used at checkout and the Machine Code. You get your license file on screen and by email.
3. In the app's License screen, either **Load license file…** (any file name works) or paste the license block, or the whole email, and click **Activate pasted license**. It unlocks right away: no restart, and any results already on screen stay.

The license is found by its BEGIN/END APEX ROOM CORRECTION LICENSE markers, so surrounding email text is fine. A license is tied to one computer, and a Windows license does not carry over to a Mac (each has its own Machine Code). To move to a new computer, contact support with your order ID and the new Machine Code (up to 2 transfers per year). If both Basic and Pro licenses are present, Pro wins.

3. Before you start

You need a measurement of your room. Pick one:

- **Measure from Apex** (receiver connected): Apex runs the sweeps through the receiver using its own setup microphone, plugged into the receiver's SETUP MIC jack at the main listening position (MLP).
- **Use measurements you already have** (Connect step): open the receiver's measurement file (**.ady**), or import REW exports (impulse responses .wav/.txt or frequency responses .txt/.frd, named by speaker and position, for example “FL P1.wav”). Files without timing leave delays and distances unmeasured.
- **USB measurement microphone** (Pro): see section 6.

> **How many positions?** 8 positions spread across the seating area is recommended (receivers take up to 8; the basic-version receivers up to 6). Measure the **MLP first**. Apex uses all positions as a weighted average according to the listening profile, so a correction that helps one seat but hurts the others scores worse.

Listening profile	Seat weighting and character
Balanced (default)	Row 1 70%, row 2 30%, split evenly across the seats measured in each row. All-round settings for music, movies and gaming.
Music	MLP (position 1) 55%; the other positions share the rest. Bass target 2 dB lower, minimal sub boost (up to +1 dB), tighter bass decay.
Movies / Home Theater	Row 1 60%, row 2 40%, to keep every seat even. Bass target 1 dB higher, more sub headroom (up to +4 dB) and sub delay up to 8 ms.
Gaming	MLP 40%; the others share the rest. Short sub delays (up to 4 ms) for consistent timing.

Starting a new measurement clears all settings from the previous one, so nothing stale carries over.

4. Simple view: 7 steps

The steps run along the top of the window: **1 Connect · 2 Sub Levels · 3 Measure · 4 Acoustic Assistant · 5 Target · 6 Review · 7 Transfer**. Use **Next** and **Back**, or click a step.

1 Connect

1. Press **Search network** to find the receiver, or type its IP address and press **Connect**.
2. Apex shows the model, its room-correction version (XT32, XT or Basic), the number of subs, the current subwoofer mode and whether the setup microphone is detected.
3. Check the **Layout** (detected from the receiver, or a preset from 2.0 up to what your model can drive) and the **Subs** placement.
4. Or use **Use measurements you already have** to open an .ady file or import REW files.

2 Sub Levels

Set each subwoofer's own volume knob first, so the receiver's sub trims stay near 0 dB. Put the receiver's microphone at the MLP, pick a sub (SW1 to SW4): the receiver plays a steady tone through it and a live meter follows. Turn that sub's knob until the needle sits in the shaded band (within 0.5 dB), then go to the next sub. You can match to the first sub measured or to the average of the subs. This step writes no receiver settings, and **Stop** ends the tone. If a sub is asleep or the mic is not heard, the level reading stops after about 5 seconds with a message. Re-measuring replaces earlier Sub Levels readings.

3 Measure

1. Choose the number of **Positions (repeats)**. **Pause after each repeat to move the mic** is on by default.
2. Set the auto-standby / auto-on of every external amplifier and subwoofer to **ON** (always on), so none sleeps through a quiet sweep, then tick **Amps and subwoofers are set to stay on**. Start Calibration needs this box ticked.
3. Optional: **Wake-up sweep per channel first (discarded)** plays one extra sweep on every channel before position 1 and throws it away, so amps and subs are awake. It is off by default.
4. Press **Start Calibration**. The channel chips show progress and graphs fill in after each sweep, one colour per position. Use **Pause**/**Resume** and **Cancel**; **Continue with N positions** stops early and uses the positions already finished (a half-measured position is left out).

The receiver plays each speaker's sweep and records with its setup microphone; each sub is swept twice. A speaker that stays silent turns red.

4 Acoustic Assistant

Plain-English **Issues and fixes** for every speaker and subwoofer, each with a confidence level, next to the measurement summary: per-speaker average response and seat spread, quick checks (weak or missing response, deep nulls, high or low levels, roll-off, inconsistent seats) and a bass-integration graph of the front speakers, the subs and the two combined at the MLP.

5 Target

1. **Listening profile**: Balanced (default), Music, Movies or Gaming. **Room size** (width, depth, height) is optional; with it Apex avoids boosting at the room's predicted bass nulls.
2. **Target curve**: Reference Shelf +6 dB (default), Flat, Gentle Tilt, Bass Shelf +3 dB, Bass Shelf +9 dB, Warm or Bright, or **Upload target file…** (.txt/.frd). Apex shows a suggestion for your room. Tick **Adjust** for sliders (bass rise, midrange tilt, treble fall) with a library to save and load your own. The graph always shows the curve the next Optimize will use.
3. **Crossovers**: one dropdown per speaker. **Auto** (default) lets Apex choose from the real speaker-plus-sub sum at your seats. Its lowest allowed value is the lowest standard crossover at or above the speaker's in-room −3 dB point (marked with ★); within that it leans to 80 Hz,

and fronts and center are never set above 150 Hz. Pick a value or **Large** to lock a speaker. Speakers are Small by default.

4. **Sub mode**: **Auto** follows the receiver's current subwoofer mode. **Standard**: one shared EQ for all subs. **Directional**: independent EQ per sub (switch the receiver to Directional and measure again; needs XT32). **Independent + Combined**: joint alignment, then per-sub EQ for the smoothest combined bass, then one shared correction. **Filter phase**: Minimum-phase (default) or Mixed-phase, which adds a partial phase correction with pre-ringing limited to 5 ms and changes each channel's timing.
5. Press the big **Optimize** button.

Subs. Delay, level and polarity are aligned per sub automatically from the measurements. Apex only flips a sub's polarity when the measured sum is better that way, and it never forces a polarity. Sub levels come from the measurements.

6 Review

The **Score** (share of the response within ±3 dB of the target and how many speakers moved closer), the **Levels and distances** table (level, distance and crossover per speaker, in feet or meters) and **Before and after** graphs. Levels and distances here are what Transfer will send. Trims are limited to −12 to +12 dB. Changing the target means pressing Optimize again.

7 Transfer

1. **Save .apex file…** saves the calibration (default folder **Documents\Apex Room Correction**; you choose the name and folder). Apex re-reads and verifies it before saying “Saved”. **Generate report…** makes a report; more exports are a settings table (.csv with level, distance and crossover per channel) and filters as WAV (.zip, XT32 receivers). **Open calibration (.apex)…** loads a saved calibration to transfer without measuring or optimizing again.
2. **Choose the receiver preset** (Preset 1 or Preset 2). Apex writes both receiver curves, Reference and Flat, to that preset and switches the receiver to it itself. Receivers with a single speaker setup are written directly.
3. **LPF for LFE** and **Subwoofer mode** stay on **Keep current** unless you pick a value.
4. **Take backup snapshot** (optional, see section 7), then **Run checks**. Most failed checks are shown as warnings and still allow Transfer. A few checks **block** Transfer (marked ✗): the receiver connection, a supported model, matching speaker channels, and the receiver's live subwoofer mode matching the one the calibration was made for. Fix those and run the checks again.
5. Tick **I understand this overwrites the room-EQ curves in the selected preset on the receiver**, press **Transfer to receiver**, confirm, and watch the progress.

> **After a transfer, on the receiver** (Setup > Audio, with that preset selected): select the **Flat** curve, set **Dynamic EQ Off** and **Dynamic Volume Off**.

5. Speaker layout and sub modes

- **Layout**: detected from the receiver's own speaker setup, or choose a preset (2.0 up to 9.1.6). Heights, wides, surround backs and up to four subwoofers (SW1 to SW4) are supported when your model has them. Apex re-reads the receiver's layout before measuring and before transferring.

- **Per speaker** (Pro, Speaker Setup): Present, Measured, Large/Small (Small by default) and optional speaker details. Speakers marked present but not measured are left uncorrected; speakers measured but marked absent are ignored.
- **Sub placement**: choose the arrangement that matches your room for the number of subs you set (for example Front left/right, Mid-walls, Four corners).

Subwoofer mode	Behaviour
Standard	One shared EQ for all subs. Delay, level and polarity are still optimized per sub.
Directional	Independent EQ per sub. Set the receiver to Directional and measure again.

A calibration made for one sub mode must be sent to a receiver in that mode; Transfer checks this live.

6. Full view (Pro)

Ten numbered steps: **1 Connect · 2 Sub Levels · 3 Measure · 4 Advanced Assistant · 5 Room · 6 Target · 7 Bass · 8 Levels & Distances · 9 Verify · 10 Transfer**, plus the LICENSE tab. Connect, Sub Levels, Measure and Transfer work as in the Simple view.

- **Advanced Assistant**: the Acoustic Assistant with a supporting graph for each finding, findings and the optimizer's decisions, distortion maps (USB microphone measurements), bass integration, measurement setup, and session history.
- **Room**: room size, speaker and sub positions, and a heatmap of the bass at a chosen frequency, before or after.
- **Target**: **Optimize**, a profile choice, the target-curve editor, the Results and the **EQ settings** (upper correction limit per speaker group, boost and cut limits, smoothing, crossovers, null and boost policy). Change settings, then press **Apply Settings** to update the result. **Strong bass, gentle treble** (off by default) corrects the bass fully and only lightly above about 250 Hz.
- **Bass**: per-sub delay, gain and polarity with a lock on each value, delay window and gain range for the search, bass shelf and low roll-off, a crossover preference (Auto leans to 80 Hz; Lower or Higher), a slider weighting the MLP versus the whole row, sub EQ limits, and a live preview with multi-sub and decay views. Two optional settings are off by default: **Align each speaker to the subs** (a timing change of up to 1 ms per speaker, only when the blend improves by at least 0.3 dB) and **Tune subs and speakers together** (speaker EQ near the crossover does not boost dips the subs already fill).
- **Levels & Distances**: edit a level (−12 to +12 dB) or pick another crossover step; Optimize again recalculates.
- **Verify**: the scorecard with each speaker's error before and after, and the transfer checks.

Auto Adjust (header) analyzes, picks the suggested target with the Balanced profile, resets the Bass options to the recommended values, optimizes and shows the transfer checks. **Undo** restores your previous settings and result. **Optimize** runs the optimizer with your current settings. Neither writes to the receiver.

Save settings (Transfer step) stores your advanced controls under a name. The **Curves** choice on Transfer lets Pro send both curves, Reference only or Flat only. The ⚙ **Receiver & Settings** button holds the receiver address and the same optimizer defaults.

USB measurement microphone (Pro)

On the Connect step, **Microphone & measurement source** can be switched from the receiver's setup microphone to a USB measurement microphone (for example UMIK-1 or UMIK-2). Apex plays the sweeps from the computer over HDMI and records with the USB mic.

- **Set up the computer**: output 7.1 over HDMI (Windows: Sound settings; Mac: set the HDMI output to 8 channels, 48 kHz in Audio MIDI Setup and allow microphone access when asked). Turn the receiver's room correction off or to Direct while measuring. Pick the **Output (HDMI 7.1)** device, the **USB mic** and the **Timing** reference.
- **Calibration file**: load the microphone's calibration file with **Mic calibration file…**. Apex reads the “Sens Factor” from it and the angle from the file name. Use the **90°** file when the mic points up at the ceiling and the **0°** file when it points at the speakers. If you load both, heights use an interpolated 45° curve and the other channels use 90°.
- **Limits**: HDMI carries at most 8 channels (FL, FR, C, LFE, BL, BR, SL, SR), so heights, wides and individual subwoofers **cannot be played this way**; Apex lists any it skips before the sweeps start. To calibrate a layout with heights or wides, measure with the receiver's setup microphone. Positions can be 1 to 99 and are not limited to the receiver's 8. Filters are still sent through the receiver.

7. Safety rules for the receiver

- **Every write needs your confirmation.** Measuring and Sub Levels write no settings. Transfer needs a license, passing blocking checks, the “I understand” box and one confirmation.
- **Snapshots are manual.** Apex does not take a snapshot by itself before sweeps, Sub Levels or Transfer. Use **Take backup snapshot** on the Transfer step (or **Snapshot settings** in ⚙ Receiver & Settings) when you want a read-only record of the receiver's current settings; it is saved in the **snapshots** folder next to your settings.
- **Filters cannot be read back** from the receiver, so a snapshot holds settings, not your existing room-correction filters. Keep your original measurement file as your way back.
- **Transfer overwrites** the receiver's room-correction curves in the selected preset. Use a preset you are happy to replace.
- If a transfer stops part-way, Apex tries to leave calibration mode. The receiver may hold a partly written calibration in that preset, so check it on the receiver before trying again. If it failed before any filters were sent, the preset or bass settings may still have been changed; check them.
- Apex re-reads the receiver's live speaker layout before sending. If it no longer matches the calibration, Transfer is blocked instead of dropping speakers: measure again.

8. Troubleshooting

Problem	What to do
Receiver not found	Check the computer and receiver are on the same network, then type the IP address.

Start Calibration does nothing	Tick **Amps and subwoofers are set to stay on** after setting their auto-standby to ON.
Save .apex, exports or Transfer ask for a license	You are in the Demo. Load your license on the License screen; your results stay.
License not accepted	It is tied to this computer's Machine Code. Request a new license if you changed computer, and remember a Windows license does not work on a Mac.
A speaker shows a flat or empty graph	It did not play during the sweep. Check its wiring, the receiver's amp assignment and speaker configuration, then measure again.
A speaker is missing from results	Check the Layout on the Connect step (Pro: Speaker Setup) and that it is marked Present and Measured.
Sub Levels shows no reading	Make sure the sub is on and awake and the receiver's mic is plugged in at the MLP, then pick the sub again.
A ✗ check blocks Transfer	Read its explanation. For “Receiver sub mode matches the calibration”, set the receiver to the stated mode or optimize again for its current mode.
A ⚠ warning before Transfer	Review it; you can still transfer.
No Transfer on my receiver	Transfer needs an XT32 receiver (section 1).
App behaves oddly	Check the logs in %APPDATA%\ApexRoomCorrection (Mac: ~/Library/Application Support/ApexRoomCorrection), or contact support at apexroomcorrection.onrender.com/support.

Glossary

Term	Meaning
.ady	The receiver's measurement file. Apex opens it.
.apex	Apex's calibration file: setup, filters and settings.
MLP	Main listening position: the seat you care about most.
Machine Code	The code that identifies this computer for your license.
Null	A deep dip in response, often from a room mode or reflection.
Crossover	The frequency below which bass is sent to the subwoofer(s).
Trim	A channel's level adjustment, −12 to +12 dB.
Snapshot	A read-only record of the receiver's current settings that you take yourself.