

# USER'S GUIDE



# Auburn Sounds Panagement 2

Version 2.8.0

Transdimensional Binaural Reverb Processor



# FOREWORD

Thank you for using AUBURN SOUNDS® PANAGEMENT.

PANAGEMENT 2 is a logical evolution of the PANAGEMENT 1 Binaural Panner but twists the original concept to make it prettier, better-sounding and ultimately **more useful**.

The first enhancement is of course increased realism through the use of a very integrated reverb. The design goal for this reverb is to bring you **algorithmic realism**: you can choose between 5 room presets and hear the wall material change. Early and Late reverb are distance-panned, binaurally-panned, like the dry signal.

That reverb maintain an **as-low-as-possible diffusion at all times**, in order to give a more realistic spatial effect without wasting too much headroom. This **rather tame reverb easily fits in the mix**, and is adequate for slight sound "shadows".

Noone likes tuning early reflections, or late reverb levels. So most of it is automatically set up to give you **realistic fades by default**. Instantiate + one click gives the most realistic settings.

PANAGEMENT 1's LFO was imprecise so we increased the modulation precision by 4x. The number of available shapes has doubled, giving more possibilities like polyrhythmic delays.

Because positioning is not solely at the heart of the product anymore. PANAGEMENT 2 FULL now gives you cleanly separated binaural echoes that blends into the abyss. It is among the few products that can give you a binaural, ping-pong delay that includes reverb in its feedback loop. What we didn't expect was that the **Diffuse knob** would become essentially a new way to reverberate.

Our objective at AUBURN SOUNDS® is to give you immediate power over sound, quickly. PANAGEMENT is our flagship product, and will hopefully allow you to control your mix with unprecedented ease. Welcome to the third dimension.

# INSTALLATION

*First, unzip the content of the AUBURN SOUNDS PANAGEMENT 2 FREE (or FULL) archive.*

## For macOS users

**Double-click on the `.pkg` installer in the `Mac/` directory.**

- *You may need to reboot your Mac computer to see the new Audio Unit in hosts.*
- *Logic may need a manual scan in its Plug-in Manager.*

## For Windows users

**Double-click on the `.exe` installer in the `Windows/` directory.**

- *When using the VST 2.4 format, you may have to enter the right VST 2.4 directory in order for your DAW to find the plug-in.*

## For Linux users

**Open the `Linux/` directory.**

- **LV2:** Copy the LV2 plug-in ( `.lv2` directory) in your LV2 directory.
- **CLAP:** Copy the CLAP plug-in ( `.clap` file) in your CLAP directory.
- **VST3:** Copy the VST3 plug-in ( `.vst3` directory) in your VST3 directory.

# UPDATES

## Upgrade to FULL

Purchasing a FULL upgrade on the Auburn Sounds website, or its resellers, always leads to the <https://itch.io> website.

After purchasing or registering an external purchase here, you need to download a new ZIP and **install it on top of the existing FREE plug-in.**

*Your existing FREE sessions will keep working with the FULL product.*

## Getting newer versions

If you can't find links to your purchase, there are two possibilities:

- **Either you linked your purchase to an [itch.io](https://itch.io) account.**  
Go to this page and login: <https://itch.io/my-purchases>
- **Or you did *not* link your purchase to an [itch.io](https://itch.io) account.**  
Go to this page which can send you download links again:  
<https://itch.io/docs/buying/already-bought>

## Should I fear broken sessions?

Session compatibility is broken with each **major** version change.

*eg: Graillon 1.2 to Graillon 2.0*

Session compatibility is preserved with each **minor** version change.

*eg: Graillon 2.3 to 2.4*

*Because your host will see each major version as different plug-ins, you can't loose sessions by upgrading.*

# COMPATIBILITY

AUBURN SOUNDS PANAGEMENT 2 is available in various plug-in formats:

- CLAP
- VST3
- VST2
- Audio Unit v2
- AAX
- LV2
- FLP

For the following Operating Systems (OS):

- Windows 7 or newer,
- macOS 10.15 or newer,
- Ubuntu 22.04 or newer

Our plug-ins have been tested with a wide variety of Digital Audio Workstations hosts (DAW). However if you find out your DAW isn't well supported, please report a bug at [contact@auburnsounds.com](mailto:contact@auburnsounds.com) .

Supported sampling rates range from 22050 Hz to 192 kHz.

# CHANGELOG

## Version 2.8

- **NEW** Knobs and sliders react to mouse wheel.
- Fix nag screen shadowing preset console.
- Larger maximum UI size.
- Fix missing UI in CLAP when using Bitwig on Linux.
- Fix lack of keyboard input in REAPER on Windows.
- Faster Auburn OS, new color scheme and animation.

## Version 2.7.1

- Fix crash during load and DAW scan in macOS Sequoia 15.4.

## Version 2.7

- **NEW CLAP format** support.
- **NEW** Preset browser (top-left button).
- Faster UI resize and opening performance.
- Fix bad UI size in Cubase, OBS, Digital Performer.
- Fix bad UI size in FLStudio Mac VST2.
- Fix AU latency reporting in REAPER.
- Fix Studio One Mac crash on resize (CoreGraphics).
- Fix installation path for FL2024.
- **Removed:** No more VST2 support on Linux.
- **Removed:** No more 32-bit support on Windows.
- **Removed:** Minimum macOS version is now 10.15.

## Version 2.6

- **NEW** Support FLStudio plug-in format on Windows.
- **NEW** Archive contains a plug-in datasheet.
- Fix latency reporting (was off by one sample).
- Fix CoreGraphics crash in macOS, triggered on resize or opening.
- Slightly nicer UI, some lights computed in linear RGB.
- Faster UI resize.
- Windows installer now asks to close DAW if plugin is open.

## Version 2.5.1

- Fix Panagement crash when dragging in the center of panorama.

## Version 2.5

- **Support for macOS Ventura and Sonoma.**
- **Support for AAX arm64 for native M1.**
- **NEW** User manual design.
- **NEW** Can preview parameter values by hovering mouse.
- **NEW** Clicking disabled parameters enable the section.
- The macOS installer should not need Rosetta anymore.
- Linux: fix animation going too fast in some distributions.
- Fix sluggish controls in Ableton + VST3.
- UI is sharper and using less RAM.
- Fix Big Sur UI performance.
- Fix macOS mousewheel being extreme with some mouses.
- Fix Ardour + Monterey crash.
- Many resizing fixes.
- First UI opening is a bit faster.

## Version 2.4

- **Resizable UI.** Drag the bottom-right corner to resize the plug-in.
- Fix crash when closing OBS Studio.
- Now comes with a Windows desinstaller.
- Fix latency reporting with LV2 .

## Version 2.3

- **Experimental support for Apple Silicon and macOS 11.0 arm64.**  
The minimum macOS supported version is now 10.12.
- **Fixed Linux X11 crash with multiple instances.**  
Closing the second window while the first is opened would crash. This greatly enhances Linux stability.
- Fixed installer when the "Program Files" directory is localized

## Version 2.2

- Reduced CPU usage of the UI, especially on macOS and Linux.
- Fix Linux crashes and bugs (when opening or closing the UI).
- Fix detection of VST3 by Bitwig on Linux.
- Fix systematic Panagement crash on Linux.
- UI rendering is a bit more detailed.

## Version 2.1

- **New:** Linux x86\_64 support.

- Compatible with macOS 10.15 Catalina.
- Notarization.
- Added AUv2 Audio Component API, brings back GarageBand compatibility.
- Remove high CPU load on stop in AU, VST3, and AAX.
- Fix improper signing of macOS AAX binaries.

## Version 2.0

- **New:** Binaural Reverb module.
- **New:** Binaural Delay module.
- **New:** Chip-bending module.
- Added Windows installer.

## Version 1.4

- **New:** Volume pan control. Allows to tune inter-aural level difference.
- **New:** Zoom in and out of the panorama view with the mouse wheel.
- Added VST3 format.
- Added Mac installer.
- Added Pro Tools bypass support.
- More visual feedback for the goniometer (disabled, 2x).
- Fix compatibility with hosts: Open Broadcaster, Audio Hijack.
- 2x less CPU usage from an open UI.
- **Removed:** 32-bit support on macOS.

## Version 1.2

- Fix crash in macOS Sierra upon instantiation, all hosts.
- Panagement now uses 2x less memory.

## Version 1.1

- Panagement now uses 40% less memory.
- Fix Cubase crashes in Windows and OS X.
- Fix Audition crash when processing a mono sample.
- Fix Apple Logic crash: threads would stay attached.
- Fix Audacity for Mac crash: was a multi-threading bug.
- Fix Digital Performer bug: no processing in Audio Unit.
- Fix pass-through of key presses to the host
- Fix Ableton Live crash when scanning plugin.
- Fix slowness and partial update when UI is reopened.
- Changed the JPEG loader, 25% faster first UI load.
- Fix LFO not moving in Audio Unit.
- Fix LFO not moving when the host sequencer isn't playing.



## Version 1.0

- Initial release.

# PARAMETERS

## Width

The **Width** parameter affects input stereo width (scales the Side signal from 0 to 200%), but also late reverb stereo width, and early reflections stereo width.

On 0% the input signal is reduced to mono which helps with precise binaural positioning.

By default, **Width** is also reduced by increasing **Far** (distance), in order to enhance realism.

## Panorama view

This view allows to set distance ( **Far** ) and **Pan** . Such parameters have an effect that default to realistic settings. The meaning of **Far** and **Pan** can be modified by **blue knobs** below them.

## Room panel (middle-left)

**Reverb On/Off** enable/disable reverb. Disabling the reverb saves a lot of CPU after 30 seconds. **Material** select one of the five room presets. They not only modify the wall material, but also the simulated temperature, altitude, diffusion, and reverb modulation.

- **Concrete** simulates a concrete tunnel by night.
- **Heaven** simulates a room made of glass, 2000m above sea level.
- **Wood** simulates a french wooden chalet 900m above sea level.
- **Cave** simulates an underground complex.
- **Dark** simulates a classic plate, and filters highs more to give a more classical result.

**Tail** Favor bass or treble inside the reverb.

**Bass** Modify reverb input highpass, and internal resonance.

**Size** Room size (20% to 150%).

## Reverb panel (bottom-left)

**Decay** scale decay time (20% to 500%). 100% is the most realistic decay, according to your room type. Changing the decay will be as if the room walls become more solid.

**Wet (Late Reverb Mix)** Control mix between [dry + early reflection] signal and late

reverb. *Leaving it to 0% leave a bit of reverb, according to Far to Late settings.*

**Predelay Mode** Choose between auto predelay times, manual time, or tempo-synced.

**Predelay Time** Delay late reverb. Only available when Predelay Mode is FREE.

**Far to Wide** This control how much Width is affected by distance. **This control stays enabled when the Reverb is disabled.**

**Far to Late** This control how much the Late Reverb Mix is affected by distance. At the head boundary, this effect is always null.

**Far to Early** In Panagement, Early Reflections are mixed with Dry based on distance. This controls how much that mix is affected by distance. Inside the head boundary, this effect is always null: there are no early reflections there.

## LFO

**Shape:** select LFO shape.

**Tempo:** select LFO tempo, or whether the LFO is free-running.

**Frequency:** when the LFO is free-running, select LFO frequency

**LFO to Pan:** the LFO modulates Pan.

**LFO to Distance:** the LFO modulates Far (distance effect).

**LFO to Gain:** the LFO modulates Output Gain (post-reverb, but before the delay).

**LFO to Tilt:** the LFO modulates Tilt.

**Phase:** rotate LFO phase for all targets **except Pan** .

## Top-right panel

When turned to the left, **Tilt** decreases lows by 6 dB and increases highs by 6 dB. When turned to the right, **Tilt** increases lows by 6 dB and decreases highs by 6 dB. That tilt filter has a fixed cutoff frequency of 650 Hz.

**Output fader:** Output gain control.

**Check Mono:** Convert output to mono. For checking mono compatibility

## Delay Panel (*FULL version only*)

**Delay On/Off** enable/disable delay.

**Feedback dual panel** set the Dry/Wet of the delay, along with its Feedback amount at the same time.

**Delay Tempo** Choose delay tempo, or free-running.

**Delay Time** Choose delay time. Only available when Delay tempo is set to FREE.

**Delay LP** and **Delay HP** Feedback loop filters. This helps making echoes more and more distant.

**Diffusion** How much of the Reverb goes into the feedback loop. This helps making echoes more and more distant and diffuse. If the reverb is disabled, no Diffusion is available.

**Warning:** *the input of the Delay is the (Early + Dry) mix from the reverberation unit. If the Reverb is completely Wet, then the delay won't work as the source is already fully diffused in late reverberation.*

## Bottom-right panel

**Amount** scale all parameters effectiveness from 0 to 100%.

**Pan-to-Delay** scale Interaural Time Difference (ITD) from 0% to 200%. Default is around 0.7 ms.

**Pan-to-Level** scale Interaural Level Difference (ILD) effect from 0% to 200%. This is the effect of a regular pan pot.

**Pan-to-Spectral** scale spectral effect from 0% to 200% frequency. This is a shelf filter centered on 4000 Hz, roughly simulating head masking.

**Chip Bending 1 to 6** (*FULL version only*) *This mod added 6 different algorithm changes to the original PGMT-400 chip. However, as this ancient unit isn't well understood, we're not able to tell precisely what happens there.*

# CREDITS

## Development, UI, DSP

- Guillaume PIOLAT

## UX Design

- Sephora SCHMIDT

## Beta Testers

- Robert RANDOLPH
- Vas FULLER
- Denis MORIN

## Thanks

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## QOI (Quite OK Image format)

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