PANAGEMENT

USER MANUAL

Version 2.3

Foreword

Thank you for using AUBURN SOUNDS® PANAGEMENT.

PANAGEMENT 2 is a logical evolution of PANAGEMENT 1 but brutalize the original concept to make it prettier, better-sounding and **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 "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**.

PANAGEMENT 1's LFO was imprecise so we increased the modulation precision by 4x. The number of available shapes has doubled.

But positioning is not solely at the heart of the product anymore. **PANAGEMENT 2 FULL** is among the few products that can give you a binaural, ping-pong delay that includes reverb in its feedback loop. PANAGEMENT gives you cleanly separated binaural echoes that blends into the abyss.

Our objective at AUBURN SOUNDS® is to give you immediate power, quickly. PANAGEMENT is our flagship product, and will hopefully allow you to **control** your mix most easily – it's like getting 3D glasses.

Credits

I'd like to thank Ethan Reker, Mickael Istria, Malika Ung, Emilie Wadelle and Thomas Langouet for their help and support in the long quest towards destroying, then rebuilding a product. Special thanks to the D language and the PoorAudioDev community for being a fun bunch to speak with!

Development, UI, DSP

- Guillaume Piolat

UX Design

- Sephora Schmidt   https://www.sephoras.net

Beta Testers

- Robert Randolph

- Vas Fuller

- Denis Morin

Versions

PANAGEMENT is available in different versions:

- **Panagement FULL (formerly "Enterprise Edition")** has all the features.

- **Panagement FREE** lacks the delay and chip bending.

Compatibility

PANAGEMENT is available as a **VST2 / VST3 / Audio Unit / AAX / LV2** plug-in for **Windows 7 or later**, **macOS 10.9 or later, and Ubuntu 16.04 or later.**

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 supported, please report a bug at **contact@auburnsounds.com**.

We do not provide 32-bit builds for macOS anymore.

Supported sampling rates range from 44100 kHz to 384 kHz.

Installation

For Windows users:

Double-click on the `.exe` installer and follow the instructions.

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. This is usually explained in your DAW support page.

For macOS users:

Double-click on the `.pkg` installer. If GateKeeper complains about the Developer being unidentified, try again with Right Click / "Open".

You will need to reboot your Mac computer to see the new Audio Unit (Logic, Live, GarageBand...).

For Linux users:

- Copy the LV2 plug-in in your LV2 directory

- Copy the VST2 plug-in in your VST2 directory

- Copy the VST3 plug-in (a `.vst3` directory) in your VST3 directory.

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, but **can be modified by blue knobs.**

Room panel (middle-left)

Reverb On/Off enable/disable reverb.

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 see level.

- **Wood** simulates a french wooden chalet 900m above see 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%).

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

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 phase of LFO 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.

The **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

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. 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: scales 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

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.

Legal Information

- Auburn Sounds ® is a registered trademark of Guillaume Piolat. (2015).

- VST ® is a registered trademark of Steinberg Media Technologies AG.

- Mac OS ® and the Mac OS logo are registered trademarks of Apple Inc.

- Windows ® and the Windows Logo are registered trademarks of Microsoft.

- AAX® is a registered trademark of Avid Technology.

Technical Information

- Our products are made with the D language, and the open-source framework Dplug.

External Licences

This software contains copyrighted material from Apple Inc.

```
Disclaimer: IMPORTANT:  This Apple software is supplied to you by Apple
 Inc. ("Apple") in consideration of your agreement to the following
 terms, and your use, installation, modification or redistribution of
 this Apple software constitutes acceptance of these terms.  If you do
 not agree with these terms, please do not use, install, modify or
 redistribute this Apple software.

 In consideration of your agreement to abide by the following terms, and
 subject to these terms, Apple grants you a personal, non-exclusive
 license, under Apple's copyrights in this original Apple software (the
 "Apple Software"), to use, reproduce, modify and redistribute the Apple
 Software, with or without modifications, in source and/or binary forms;
 provided that if you redistribute the Apple Software in its entirety and
 without modifications, you must retain this notice and the following
 text and disclaimers in all such redistributions of the Apple Software.
 Neither the name, trademarks, service marks or logos of Apple Inc. may
 be used to endorse or promote products derived from the Apple Software
 without specific prior written permission from Apple.  Except as
 expressly stated in this notice, no other rights or licenses, express or
 implied, are granted by Apple herein, including but not limited to any
 patent rights that may be infringed by your derivative works or by other
 works in which the Apple Software may be incorporated.

 The Apple Software is provided by Apple on an "AS IS" basis.  APPLE
 MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION
 THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS
 FOR A PARTICULAR PURPOSE, REGARDING THE APPLE SOFTWARE OR ITS USE AND
 OPERATION ALONE OR IN COMBINATION WITH YOUR PRODUCTS.

 IN NO EVENT SHALL APPLE BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL
 OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
 SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
 INTERRUPTION) ARISING IN ANY WAY OUT OF THE USE, REPRODUCTION,
 MODIFICATION AND/OR DISTRIBUTION OF THE APPLE SOFTWARE, HOWEVER CAUSED
 AND WHETHER UNDER THEORY OF CONTRACT, TORT (INCLUDING NEGLIGENCE),
 STRICT LIABILITY OR OTHERWISE, EVEN IF APPLE HAS BEEN ADVISED OF THE
 POSSIBILITY OF SUCH DAMAGE.

 Copyright (C) 2014 Apple Inc. All Rights Reserved.
```

This software contains copyrighted material from Sophia Poirier

```
Destroy FX AU Utilities is a collection of helpful utility functions
    for creating and hosting Audio Unit plugins.
    Copyright (C) 2003-2008  Sophia Poirier
    All rights reserved.

    Redistribution and use in source and binary forms, with or without
    modification, are permitted provided that the following conditions
    are met:

    *   Redistributions of source code must retain the above
        copyright notice, this list of conditions and the
```

```
        following disclaimer.
*    Redistributions in binary form must reproduce the above
     copyright notice, this list of conditions and the
     following disclaimer in the documentation and/or other
     materials provided with the distribution.
*    Neither the name of Destroy FX nor the names of its
     contributors may be used to endorse or promote products
     derived from this software without specific prior
     written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
FOR A PARTICULAR PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE
COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

To contact the author, please visit http://destroyfx.org/
and use the contact form.
```

Changelog

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 VST3 latency reporting, which was only correct for 44100 Hz.

- 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 1.3

- Add AAX Native and AAX AudioSuite support.

- Faster text drawing.

- Fix automation not recorded with panorama and LFO shape.

- Fix first transient attenuated.

- Fix crash in Vienna Ensemble Pro.

- Dropped support for Mac OS X 10.7.

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.