



GRAILLON USER MANUAL



Version 2.6

Foreword

Thank you for using AUBURN SOUNDS® GRAILLON.

GRAILLON's goal is to lead your voice into uncharted territory.

Version 1 was mostly about the novel use of pitch tracking frequency shifting applied to speech. GRAILLON 2 is a more expressive solution for live voice changing.

You can now correct the tuning of a voice thanks to a few parameters. Clean, low latency pitch shifting was added. This algorithm has been carefully tuned for vocals.

The commercial version of GRAILLON now features the pitch-tracking modulation of version 1. This part is now more versatile with a new ring mode.

A bitcrusher has been added for drums and robots alike. It acts on the mantissa of a floating-point representation so that it doesn't depend on gain. As such, it sounds a bit different than the usual.

We strongly recommend you to purchase the full version in order to get the real experience of using GRAILLON 2.

You will use GRAILLON to:

- Correct the tuning of vocals
- Make a voice growl
- Shift the pitch of vocals neatly
- Reinforce the bass of monophonic pitched sounds
- Create robotic voices
- Make a more masculine voice
- and many other uses...



Compatibility

GRAILLON is available as a **VST2 / VST3 / Audio Unit / AAX / LV2** plug-in for **Windows 7 or later**, and **macOS 10.10 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.

Supported sampling rates range from 22050 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

Detect

Left / Right

Pitch detection is performed on a mono-signal, which is an user-defined sum of the left and right channel (default: left).

Bit Crusher

Quantize Rate of time quantization, expressed in number of samples.

Bit Reduction

Reduces the number of bits in floating-point mantissa. Therefore, adapts to signal gain.

Pitch-Shift

Static Pitch Shift Changes the pitch of input signal. The input doesn't have to be a voice, but the algorithm is specialized for this kind of input.

Preserve Formants Applies original spectral envelope to pitched signal.

Pitch-Correction

Enable Correction Amount. Most useful values are 0 and 100%.

Smooth Makes Pitch Transitions faster or more natural. Set to minimum for a robotic effect.



Snap Range How far the Pitch is willing to be corrected to stick on an enabled note (default: jump up to 8 semitones).

Reference Tunes reference pitch for note A6 (default: 440 Hz).

Inertia Reduces Pitch Correction jumps by making chosen notes "stick". This may change actual melody. Quite a critical setting.

Pitch-Tracking Modulation (PTM)

Modulation Selector Chooses between Ring Modulation and Frequency-Shifting.

Shifted Voices Mixes modulated copies of the Pitch-Corrected input voice. Modulation ratios are fixed fractions of the detected pitch: 1/4, 1/3, 1/2, 2/3.

Octave Shifts the fixed modulation ratios by an octave up or down.

Lead Voice How much the Pitch-Corrected, non-modulated input gets mixed.

Low Cut Filter Removes some bass energy before Pitch-Tracking Modulation. 12 dB/oct high-pass filter.

Output

Dry Mix Mix input signal, delayed to match the Wet signal temporally.

Output Level Gain of the output section, after Dry Mix.

Amount This makes every other parameter go back to normal continuously.



Details

Non-speech input

Some customers use GRAILLON on non-speech input, like tiger roars. If you make any discovery of a new use case, please tell us about it at contact@auburnsounds.com.

No Stereo Support

In order to lower CPU requirements and support low buffer sizes, GRAILLON reduces your input signal to mono.

Latency

At 44100 Hz, GRAILLON has a latency of 1074 samples (24.3 ms).

At 48000 Hz, GRAILLON has a latency of 1074 samples (22.4 ms).

At 88200 Hz, GRAILLON has a latency of 2148 samples (24.3 ms).

At 96000 Hz, GRAILLON has a latency of 2148 samples (22.4 ms).

At 192000 Hz, GRAILLON has a latency of 4296 samples (22.4 ms).



Credits

GRAILLON is a work of love and many people provided valuable input. Hereby, I'd like to thank people who contributed to the effort.

Programming, UI, DSP

- Guillaume Piolat

Testers

- Denis Morin <https://soundcloud.com/youpidoumusic>
- Geoffrey Fernandez <https://graindolum.bandcamp.com/>
- Marie Charmoillaux <https://soundcloud.com/didou-mariecharmoillaux>
- Ryan Clough <https://soundcloud.com/escherbeat>
- Naoki Ohmori <https://soundcloud.com/naoki-ohmori>

Thanks

Céline Alary, Bruno Berthier, Céline Blanc, Maël Bosson, Stéphanie Cherruet, Charles Guillemet, Mickael Istria, Martin Kirchgessner, Quentin Sabah, and everyone who hosted me!

I'd also like to thank the D community for their continuous help and for being a friendly bunch.

Also thanks to all friends, family members, and supporters who didn't make it to the list. I'll never forget your support.



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 2.6

- **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 .
- Fix lingering MIDI notes in some hosts.

Version 2.5

- **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 MIDI Input.
It would not work, or crash, in earlier versions.
- Fixed VST3 latency reporting,
which was only correct for 44100 Hz.
- Fixed installer when the "Program Files" directory is localized.

Version 2.4

- Repair MIDI input that was accidentally disabled since two versions.
- Reduced CPU usage of the UI, especially macOS and Linux.



- **Fix Linux crashes and bugs** (eg: when opening or closing the UI).
- Fix detection of VST3 by Bitwig on Linux.
- UI rendering is a bit more detailed.

Version 2.3

- **New:** Linux x86_64 support.
- **New:** Windows installer.
- 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 2.2

- **New:** Stereo support across the whole signal chain.
- Added VST3 format.
- Added Mac installer.
- Added Pro Tools bypass support.
- Visual feedback for MIDI input and pitch correction status.
- Add snap points for Pitch Shift.
- Fix wrong audio at startup.
- Fix compatibility with hosts: Open Broadcaster, Audio Hijack.
- Fix pitch-correction turning ugly in FLStudio after tweaking buffer size.



- 2x less CPU usage from an open UI.
- **Removed:** 32-bit support on macOS.

Version 2.1

- **New:** Right click on sliders in Frequency-shifting mode to invert the direction of the frequency shifting for this shifter.
- Add AAX Native and AAX AudioSuite support.
- Faster text drawing.
- Fixed MIDI input in Bitwig Studio.
- Fix crash in Vienna Ensemble Pro.
- Dropped support for Mac OS X 10.7.

Version 2.0

- Add automatic voice tuner.
- Add pitch-shifter.
- Add bit-crusher.
- Add new pitch-tracking ring modulation.
- Add the ability to shift the base octave of the shifters.
- Because of pitch-shifting latency is not 0 anymore.
- Reworked complete UI.

Version 1.2

- Fix crash in macOS Sierra upon instantiation, all hosts.



- Graillon now uses 2x less memory.

Version 1.1

- Graillon is now freemium.
- Now available in Audio Unit format.
- Faster and sharper UI.
- Graillon now uses 30% less memory.
- Fix Cubase crashes in Windows and OS X.
- Fix Audition crash when processing a mono sample.
- Fix Ableton Live crash when scanning plugin.
- 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 restoring state in Ableton Live.
- Fix random crash at opening, waveform was badly initialized.
- Fix slowness and partial update when UI is reopened.
- Changed the JPEG loader, 25% faster first UI load.

Version 1.0

Initial release.

