GRAILLON USER MANUAL

Version 2.4

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 10.9 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**.

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 choosen 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 rations 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://graindolium.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.

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Changelog

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.