GRAILLON USER MANUAL

Version 2.5
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 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](https://soundcloud.com/youpidoumusic)
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• Marie Charmoillaux [https://soundcloud.com/didou-mariecharmoillaux](https://soundcloud.com/didou-mariecharmoillaux)
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• Naoki Ohmori [https://soundcloud.com/naoki-ohmori](https://soundcloud.com/naoki-ohmori)

Thanks

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

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.