

## GRAILLON USER MANUAL



## 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 used...





## Compatibility



GRAILLON is available as a **32-bit and 64-bit VST2 and Audio Unit plugin** for Mac and Windows computers.

More specifically:

- **Windows** minimum supported version is **Windows Vista+**
- **macOS** minimum supported version is **OS X 10.7+**

GRAILLON has been tested on the most popular Digital Audio Workstations (DAW). If you find out any bugs, please report them at [contact@auburnsounds.com](mailto:contact@auburnsounds.com).

Supported sampling rates range from 44100 kHz to 192 kHz.



## Installation

### For Windows users:

- Copy the 32-bit VST or 64-bit VST DLL to your VST2 directory.

### For Mac OS X users (VST2):

- Copy **Auburn Sounds Graillon 2.vst** to your VST2 directory, usually:
  - **/Library/Audio/Plug-Ins/VST**
  - /Users/Username/Library/Audio/Plug-Ins/VST
- Do not rename Auburn Sounds Graillon 2.vst
- Do not keep different versions of Auburn Sounds Graillon 2.vst

### For Mac OS X users (Audio Unit):

- Copy **Auburn Sounds Graillon 2.component** to your Audio Unit, usually:
  - **/Library/Audio/Plug-Ins/Components**
  - /Users/Username/Library/Audio/Plug-Ins/Components
- Do not rename Auburn Sounds Graillon 2.component
- Do not keep different versions of Auburn Sounds Graillon 2.component



## Parameters

### GRAILLON 2 Cheat sheet

**Mono Reduction**  
Grailon reduces the input signal to Mono. Selects the mix of Left / Right.

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

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

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

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

**Preserve Formants**  
Applies original spectral envelope to the pitched signal.

**Smooth**  
Makes Pitch Transition faster or more natural. Set to minimum for robot effect.

**Modulation Selector**  
Chooses between Ring Modulation and Frequency Shifting as Pitch-Tracking Modulation.

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

**Octave**  
Can Shift the fixed Modulation ratios by an octave up or down.

**Lead Voice**  
How much the Pitch-Corrected, non modulated lead voice gets mixed.

**Waveform View**  
Displays both the output waveform and status of the Pitch Correction. Left click + drag up/down to Zoom.

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

**Dry Mix**  
Mixes a copy of the dry mono signal. Allows to make simple intervals in combination with the Pitch Shifter. Latency is fully compensated.

**Output Level**  
Gain of the output signal, after Dry Mix.

**Dry / Wet**  
This makes every other parameter go back to normal continuously.

**Correction Amount**  
How much the Correction will change the Pitch. Most useful values: 0% and 100%

**Voice only?**  
Grailon is designed for vocal input. Its pitch-shifting is tuned for voice. However, only Pitch-Tracking Modulation and Correction parts strictly requires a pitch.



**Reference**  
Tunes the pitch of reference for note A6 (usually 440 Hz). Best left at default value.

**Snap Range**  
How far the Pitch will be willing to be Corrected to stick on an enabled note. Default: jump up to 8 semitones.

**Virtual Keyboard**  
Sets enabled notes for Pitch Correction. This doesn't distinguish between octaves. You can force precise notes by sending MIDI input to Grailon. Secret: use SHIFT + click to rotate.



## 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](mailto: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).

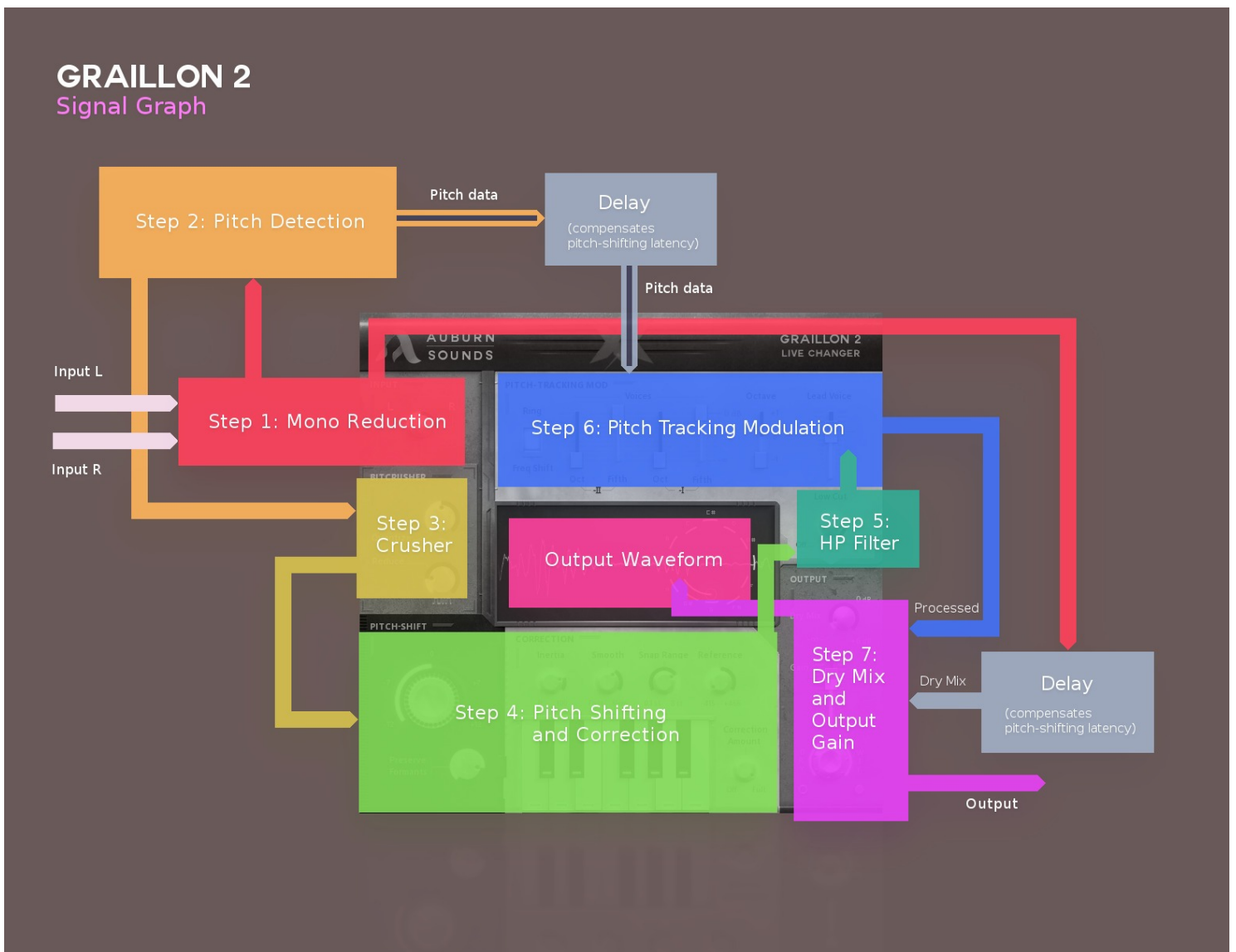
At 88200 Hz, GRAILLON has a latency of 2148 samples (24.3 ms).

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).



## Processing graph





## 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.
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## Technical Information

- GRAILLON uses **Dplug**, the handiest framework to make native audio plug-ins.



See <http://github.com/AuburnSounds/dplug> for more details.

## Changelog

### 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.

