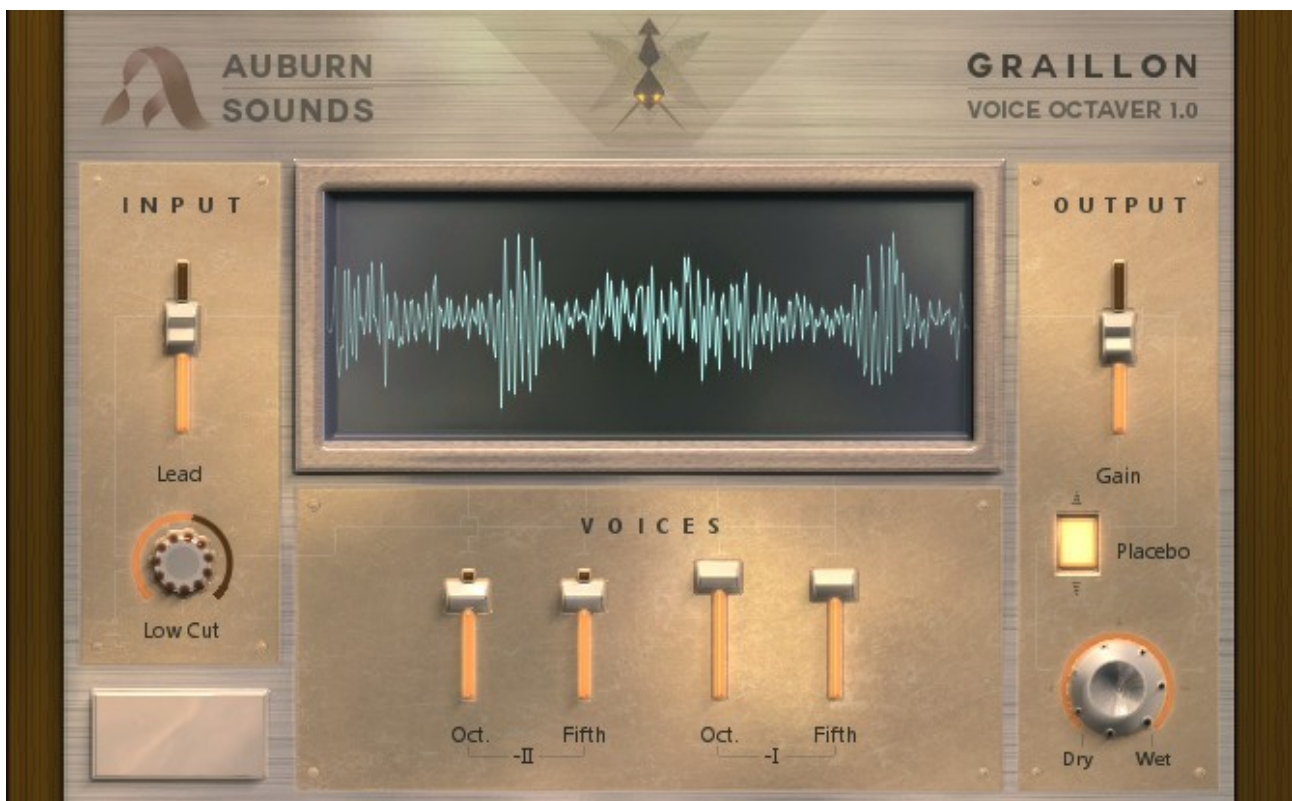AUBURN
SOUNDS
Audio plugins with care

GRAILLON USER MANUAL

Version 1.0

Foreword

Thank you for purchasing AUBURN SOUNDS® GRAILLON.

GRAILLON is a new kind of voice octaver that tracks pitch frequency and **mixes shifted copies of the input voice with itself**.

Only the voiced part of the signal is changed (ie. vowels and voiced consonants). The unvoiced part of the signal (ie. voiceless consonants) is left untouched, to preserve the original speech's intent.

For latency reasons, **GRAILLON uses frequency-shifting** as opposed to pitch-shifting. So the result will sound disharmonic, especially for the high notes.

GRAILLON is nonetheless useful for:

- Producing **distorted vocals from clean vocals** without crosstalk between harmonics,
- Reinforcing vocals low-end,
- Getting a more masculine or robotic-sounding voice,
- Displaying strong fifth and quart harmonic relationships in vocals,
- Having fun with a microphone and a DAW.

Compatibility

GRAILLON is available as a **32–bit and 64–bit VST 2.x plugin** for Microsoft Windows and Apple Mac OS X.

More specifically:

- Windows minimum supported version is **Windows XP+**
- Mac OS X minimum supported version for 32-bit is **OS X 10.6+**
- Mac OS X minimum supported version for 64-bit is **OS X 10.7+**

GRAILLON has been tested with a wide variety of Digital Audio Workstations (DAW). However if you find out your DAW of choice isn't supported, **please report a bug** at **contact@auburnsounds.com**.

Supported sampling rates range from 22050 kHz to 384 kHz.
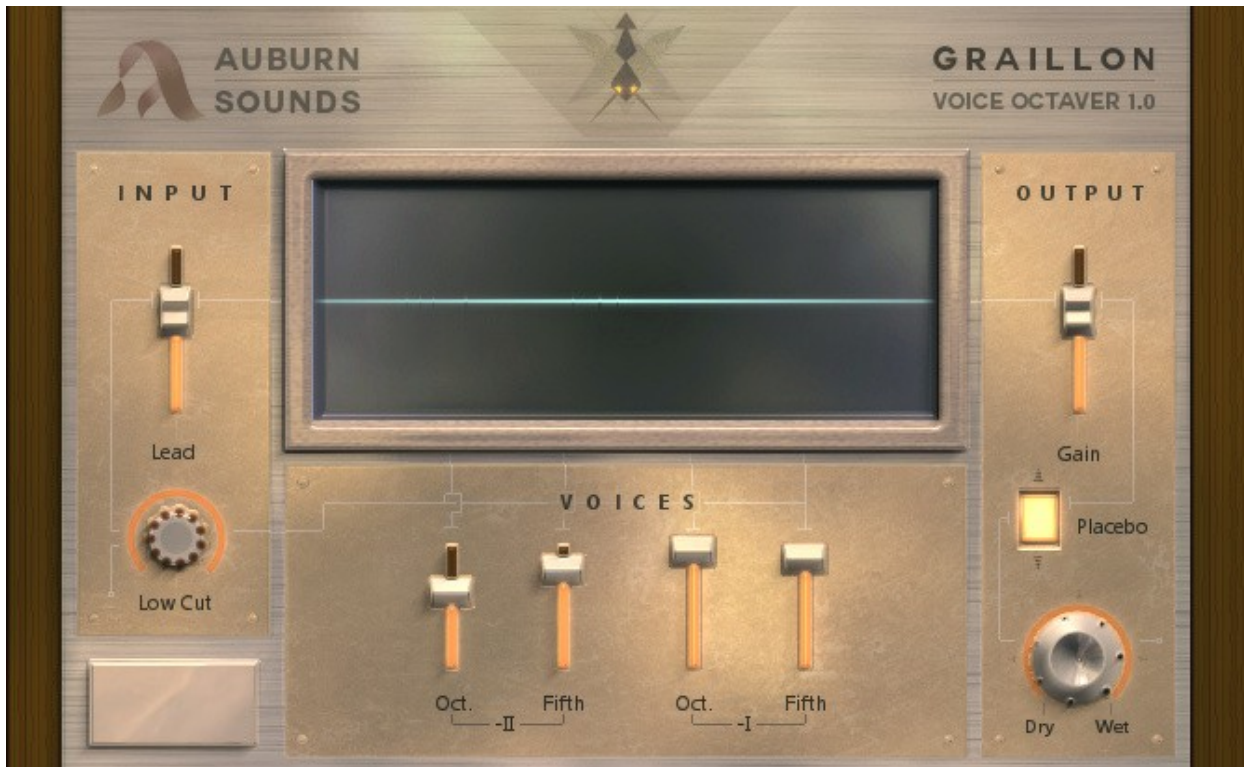
Installation

For Windows users:

- Copy the 32-bit VST or 64-bit VST DLL to your VST 2.x directory.

For Mac OS X users:

- Copy **graillon.vst** to your VST 2.x directory, usually:
  - /Library/Audio/Plug-Ins/VST
  - /Users/Username/Library/Audio/Plug-Ins/VST
- Do not rename **graillon.vst**
- Do not keep previous versions of **graillon.vst**

What does GRAILLON do exactly?

If you squint enough, the signal path is actually drawn in the UI (here exaggerated).

Parameters

Low Cut: 12 dB/oct HP filter for the input signal. Affects Lead and Voices signals, but not Pitch Detection, which isn't represented here.

Lead: controls original voice volume (HP filtered).

Oct –II, Fifth –II, Oct –I, Fifth –I: control shifted voices volume.

Gain: this controls the processed output volume.

Placebo: as a final touch, this parameter makes it sound 30% better.

Dry/Wet: mixes processed and unprocessed signal. The Dry signal isn't affected by Lead, Gain or Low Cut parameters.
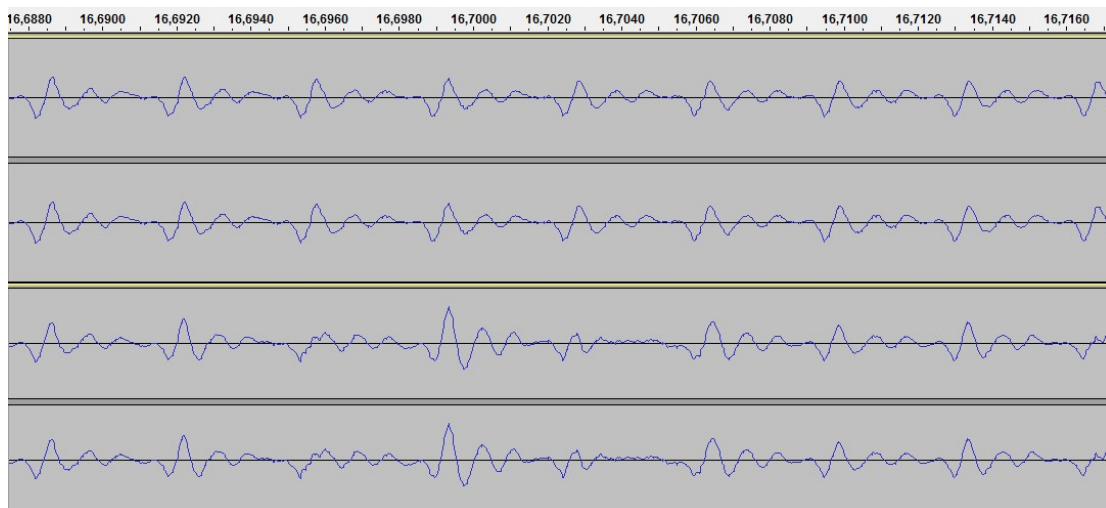
Latency

One of the most distinctive feature about GRAILLON is its **low latency.**

Many advanced methods have been tried during the long development of this plugin, since about 2012. Many of them were discarded in favor of the lowest latency algorithm.

GRAILLON doesn't report any sample delay to plugin compensation because in the vast majority of cases there isn't any latency to report.

However, note onsets are the one place when **pitch detection lags could occur**.

Two pitch periods are necessary before pitch detection gets accurate. **This pitch lag is normally hidden with the typical lower energy levels at note onsets.**

Dry signal on top, processed signal on bottom (both are stereo). On steady state, latency is virtually zero.

Notice how the voice waveform is transformed while still closely matching the important glottal events.

Caveats

Already saturated vocals

The rougher and more saturated the input vocals, the worse pitch and voicedness detection will work. This is inherent to speech processing since some sounds are on the edge between voiced and unvoiced. In these cases, a voiced sound could be mistaken for an unvoiced one, and would pass unchanged.

Non-speech input

At the time being it is unknown if GRAILLON is interesting to use on sources that aren't vocals. If you make any interesting discovery, please report it at **contact@auburnsounds.com** .

Stereo

GRAILLON does not process stereo channels separately. **Only the Mid channel is processed**, while the Side channel is left untouched. This is for efficiency reasons, and because voice signals at this point in the processing chain are likely to be mono.

Bottom-left area

You might find that there is a hidden mini-game in the bottom-left area. It has no bearing on sound whatsoever.

Credits

GRAILLON is a work of love and its gestation was done in a continuous state of joy and struggle. This wouldn't have been possible truly alone.

The most striking thing was how much people were eager to help. Hereby, I'd want to thank people which contributed to the effort.

Development, UI, DSP

- Guillaume Piolat

Alpha Testers

- Marie Charmoillaux
- Ryan Clough
- Vincent Travaglini
- Naoki Ohmori

Special Thanks

- Bruno Berthier
- Maël Bosson
- Stéphanie Cherruet
- Mickael istria
- Martin Kirchgessner

I'd also like to thank helpful members of the D community: bitwise, Jacob Carlborg, ketmar, Sönke Ludwig, Martin Nowak, Vladimir Panteleev and Adam D. Ruppe.

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

Legal Information

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Technical Information

- GRAILLON uses **dplug** (**http://github.com/p0nce/dplug**), a wild alteration of WDL (http://www.cockos.com/wdl/).