



# Auburn Sounds Inner Pitch 2

Version 2.0.0

Natural Pitch Shifter



# FOREWORD

Thank you for using an **AUBURN SOUNDS®** product.

The aim of **INNER PITCH** is to be the most natural pitch-shifting engine possible and explore the possibilities that can offer.

Key features include:

- **State-of-the-art sound quality.** The Inner Pitch algorithm is complex and we are still refining it. This version is much better at sound quality. However the former sound engine is still available!
- **Stereo-preservation.** 100% linked by default.
- **Lower latency** than GRAILLON. (Down to 17.8 ms).
- **Complex program material support.** Whole mixes and noise are supported.

AUBURN SOUNDS® has pushed DSP efforts beyond what was covered in published research.

**INNER PITCH** allows you to play with two octaves of pitch in a fun and natural way.

What you get additionally:

- **Formant shifting**
- A **Delay Unit** which includes Ping-Pong, Diffusion, and infinite feedback.
- A simple in-loop **3-band EQ**.
- **Stereoization** based on a simple L/R pitch offset.
- **3 types of in-loop distortion.**

And most of that is for free. Inner Pitch exists in two versions:

- **AUBURN SOUNDS® INNER PITCH FREE** can do **everything that was described above.**
- **AUBURN SOUNDS® INNER PITCH FULL** includes more features that trade quality for CPU. Unlocks best pitch-shifting quality, and also the lowest CPU usage. In version 2, it can also do **Pitch Correction.**

# INSTALLATION

*First, unzip the content of the AUBURN SOUNDS INNER PITCH 2 FREE (or FULL) archive.*

## For macOS users

**Double-click on the `.pkg` installer in the `Mac/` directory.**

- *You may need to reboot your Mac computer to see the new Audio Unit in hosts.*
- *If GateKeeper complains about the Developer being unidentified, try again with Right Click / "Open".*
- *If you can't open the ZIP, try moving it to your Desktop first.*

## For Windows users

**Double-click on the `.exe` installer in the `Windows/` directory.**

- *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.*

## For Linux users

**Open the `Linux/` directory.**

- **LV2:** Copy the LV2 plug-in ( `.lv2` directory) in your LV2 directory.
- **CLAP:** Copy the CLAP plug-in ( `.clap` file) in your CLAP directory.
- **VST3:** Copy the VST3 plug-in ( `.vst3` directory) in your VST3 directory.

# UPDATES

## Upgrade to FULL

Purchasing a FULL upgrade on the Auburn Sounds website, or its resellers, always leads to the <https://itch.io> website.

After purchasing or registering an external purchase here, you need to download a new ZIP and **install it on top of the existing FREE plug-in.**

*Your existing FREE sessions will keep working with the FULL product.*

## Getting newer versions

If you can't find links to your purchase, there are two possibilities:

- **Either you linked your purchase to an [itch.io](https://itch.io) account.**  
Go to this page and login: <https://itch.io/my-purchases>
- **Or you did *not* link your purchase to an [itch.io](https://itch.io) account.**  
Go to this page which can send you download links again:  
<https://itch.io/docs/buying/already-bought>

## Should I fear broken sessions?

Session compatibility is broken with each **major** version change.

*eg: Graillon 1.2 to Graillon 2.0*

Session compatibility is preserved with each **minor** version change.

*eg: Graillon 2.3 to 2.4*

*Because your host will see each major version as different plug-ins, you can't loose sessions by upgrading.*

# COMPATIBILITY

AUBURN SOUNDS INNER PITCH 2 is available in various plug-in formats:

- CLAP
- VST3
- VST2
- Audio Unit v2
- AAX
- LV2
- FLP

For the following Operating Systems (OS):

- Windows 7 or newer,
- macOS 10.15 or newer,
- Ubuntu 18.04 or newer

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 well supported, please report a bug at [contact@auburnsounds.com](mailto:contact@auburnsounds.com) .

Supported sampling rates range from 11025 Hz to 192 kHz.

# CHANGELOG

## Version 2.0

- **NEW** Improved pitch-shifting algorithm.
- **NEW** Added pitch correction "Robot" button.
- **NEW** Plugin size can go up to 350%.
- Former algorithm still available by clicking on plugin version.

## Version 1.2

- **NEW CLAP format** support.
- **NEW** Preset browser (top-left button).
- Fix crash when inserted in mono track.
- Faster UI resize and opening performance.
- Fix bad UI size in Cubase, OBS, Digital Performer.
- Fix bad UI size in FLStudio Mac VST2.
- Fix AU latency reporting in REAPER.
- Fix Studio One Mac crash on resize (CoreGraphics).
- Fix installation path for FL2024.
- **Removed:** No more VST2 support on Linux.
- **Removed:** No more 32-bit support on Windows.
- **Removed:** Minimum macOS version is now 10.15.
- **Warning:** This version has a pitch-shifting sound regression, fixed in next version.

## Version 1.1

- **NEW** Support FLStudio plug-in format on Windows.
- **NEW** Support mono tracks. In this mode, L/R Shift and Stereo Link do nothing, and CPU usage is much reduced.
- **NEW** Dragging the Pitch knob with right mouse button snaps to integer semitones.
- **Audio processing 70% faster.**
- Fix CoreGraphics crash in macOS, triggered on resize or opening.
- Fix error when buffer size is increased from 64 samples to more samples.
- Slightly nicer UI, some lights computed in linear RGB.
- Faster UI resize.
- Windows installer now asks to close DAW if plugin is open.

## Version 1.0.2

- Fix compatibility with some Linux such as Debian 11 (libc6 2.31)

## Version 1.0.1

- Fix compatibility with macOS Mojave 10.14, and earlier.  
*Note: Same 1.0.0 binaries for Windows and Linux.*

## Version 1.0

- Initial release.

# PARAMETERS

## Engine selector

Clicking on the version number under the "Inner Pitch" label selects a pitch engine, allowing to sounds like Inner Pitch version 1 or have best quality with current version 2.

- Inner Pitch I1 has a more muffled sound and artifacts when shifting down. More "box tone".
- Inner Pitch I2 has a clearer sound and support single instruments better. It has much less artifacts when shifting down. It should be your default choice.

Both engine have identical latencies and CPU costs.

## Pitch panel

**Pitch** sets the pitch-shifting from -2 to +2 octaves.

**L/R Shift** shifts left and right channels with an offset difference to enlarge the stereo image. *This creates antiphase and width.*

## Pitch settings panel

**Robot (Full Edition only)** enables pitch correction. This corrects vocals in a fast way (hard-tuning) to 12 Equal Temperament.

**Tonal Boost** favors either transients or non-transients. Helpful to adapt to source materials a bit more precisely.

**Stereo Link** keeps phase aligned in left and right channels while pitch-shifting.

- 100% link preserves the existing stereo image
- 0% link gives you a cleaner but ghostly sound (without a "center")

**Formant** lets you shift formants from -2 to +2 octaves.

## Distortions

**Color** add 3 distortion effects, that can all be used at once:

- **RATE** simulates a lower sampling-rate.
- **GAME** goes through an **ADPCM game codec** known as **QOA** (Quite OK Audio) to have a subtle video-game sound.
- **TUBE** is a simple parallel waveshaper that sounds good on about anything.



*Tip: All those distortions happen in-loop when the delay is active, along with the EQ, the pitch/formant shifting, and the delay diffusion.*

## Premium features

**Quality (Full Edition only)** Gives you additional quality mode for pitch shifting.

- **MAX** preserves transients more, costs more CPU.
- **STD** is the balanced default.
- **SOFT** is an economical mode with a more noisy sound. It is sometimes the best sounding mode, while also being the cheapest in CPU.

**Time Div (Full Edition only)** sets the STFT **overlap** , as another quality mode for pitch shifting.

- **2x overlap** can be used to save CPU. It sounds the less reverberant, and can be useful for transients at the cost of the tonal parts. Surprisingly, it sometimes ends up being the best-sounding.
- **3x overlap** is the default and most balanced mode.
- **4x overlap** sounds more precise with transients and high end, at the cost of more reverberation and CPU usage.
- **5x overlap** is even more precise for high end, at the cost of even more reverberant sound and CPU usage.
- **6x overlap** doesn't seems that useful.

## Delay panel

**Time** is the delay length in milliseconds. This can be set with the 2D panel or with the **TAP** button.

*Tip: You can set up **Time** individually in the panel by using CTRL + right-click.*

**Feedback** is the delay extinction in dB. This can be set with the 2D panel.

*Tip: You can set up **Feedback** individually in the panel by using right-click.*

**Pan** affects panorama of delayed sound.

**Ping-pong** alternates left and right in the delay sound.

**Diffusion** adds reflection to the delayed sound, turning it into a slight reverb.

## Spectrum Panel

Change the 3 **Band Gain** and the 2 **Band Crossovers** to modify the EQ shape of the

**Wet** signal. *Tip: This also affects the delay feedback dramatically, by adjusting its internal limiter threshold.*

## Output Panel

**Wet** mixes the delayed, distorted, and pitch-shifted Wet signal with the unaffected and compensated Dry input.

**Gain** is a final output volume gain slider that applies to both.

# CREDITS

## Development, UI/UX, DSP

- Guillaume PIOLAT

## Additional UI/UX

- Sephora Schmidt

## QA

- Benjamin RENARD

## Thanks

Thanks goes to our fellow musicians, friends and family that provides invaluable support for the creation of state of the art audio tools.

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## QOI (Quite OK Image format)

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## QOA (Quite OK Audio format)

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