# FOLD

## VERSION 1.1

# USER MANUAL

**FOLD** is a distortion synthesis audio effects (FX) plugin. It uses an **in-series** FX chain to produce uniquely distorted sounds. The combination of oversampling, distortion and wavefolding affords the production of timbrally rich results when using simple periodic sounds.

The plugin also comes with an analog high and low-pass filter emulation that allows the user to have more control over any unwieldy results. Each parameter is syncable to an LFO. Each LFO has an amount slider and may be synced to a host tempo within a digital audio workstation (DAW). Users also have access to a handful of professionally designed presets and the usual loading and saving features.

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This manual was written by Ricky Graham, Emily Jacobson and Angélica Londoño Borja in 2021.

Thanks to our partners, ILIO.

A huge thank you to our beta testers: Omar Costa Hamido, Stephan Bobinger, Jake Fader, Roger Mawer, Mike Babbitt, Susie Luna Green, Chris Rueger, Austin Haynes, Mark Hiskey, Matthew West, Franklin Munoz, Roberto Burgos, Jorge Porras, Joseph Dickey, Simon Bader, Mark Burnett, Leonardo Foletto, Anatolyj Bugaichuk.

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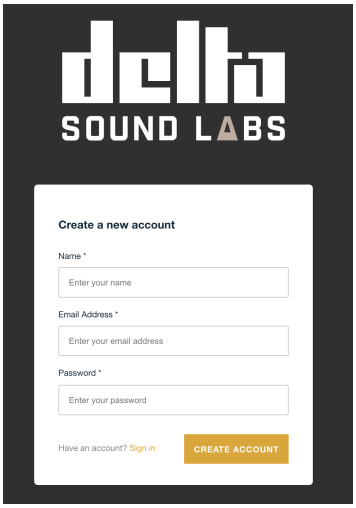
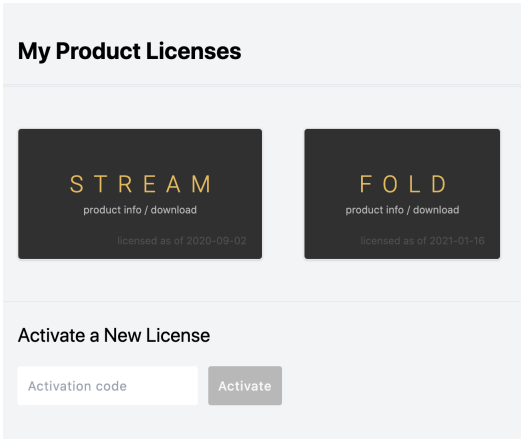
# Installation and Plugin Authorization

You can use our macOS and Windows installers available from our website**.** Once you have installed the plugin on your system, you can add Fold to any audio track. For Audio Unit (AU) users, you may need to empty your component cache in order for your digital audio workstation to find and validate the plugin binary. Please see our troubleshooting section for more information on how to do that.

The first thing you will need to do is make an account at account.deltasoundlabs.com.



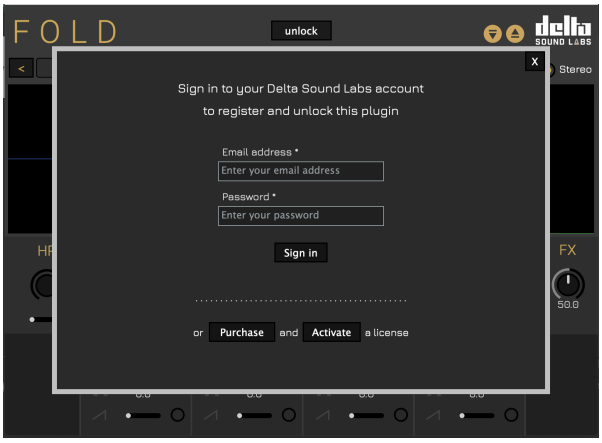

Click create an account and enter your name, email address and a password.




Once you are signed in you will be shown all of your licenses with Delta Sound Labs. If this is your first product from Delta Sound Labs there will be nothing under My Product Licenses.

In order to authorize Fold, you will require an activation code from our partners, ILIO**.** Enter your code where it says "Activate a New License" and Fold will be displayed under "My Product Licenses".

If you already have an account with Delta Sound Labs, you can activate your plugin locally when you first run the plug-in. Simply log in with your email and password. If you cannot remember your password, you can reset the password by visiting account.deltasoundlabs.com.




You can also click on the "Unlock" button at the top of the plugin UI and then the "Activate" button on the subsequent dialog box to be brought to account.deltasoundlabs.com. Once there, you can add the activation code to your account using the same process as described above.

Once you have added your license to your Delta Sound Labs web account you may return to your DAW, click "Unlock" on the plugin UI and enter your web account email and password to unlock Fold. You will now have access to the high-pass filter, soft/hard clip morph, LP resonance control, volume control, user preset save and loading functions and all the LFO envelope types.

If you're installing Fold on a new machine, you can simply login using your email and password that you set-up on the first activation.

Can't remember your username or password? We can help you with that. Please consult our troubleshooting guide.

# Basic Operation

## CONTROL PANEL

The control panel consists of six modules. To the right of each module there is a local mix slider which controls how much effect is added (except for FX, see below). Four of the modules (DRIVE, FOLD, CRUSH and LP) allow users to toggle ON/OFF by clicking on its titled button. Note: if the corresponding local mix slider is at 0% no effect will be added even if the titled button is toggled ON.

There is a button between the DRIVE and FOLD modules, that when clicked, "links" the values so that any future adjustment of either knob will be applied to the other.

## HIGH PASS FILTER (HP)

This is a TPT styled high-pass filter with resonance control underneath the frequency knob. Great for creating filter sweeps on the front end using automation lanes in a DAW.

## DRIVE

Drive is an amplitude dependent distortion module. You can increase the drive amount by increasing the drive knob towards a value of 100. A value of 0 will not apply any additional gain or soft/hard clip distortion to your signal. You can crossfade between soft and hard clip distortion using the horizontal slider underneath the drive knob.

## FOLD

Wavefolding is a type of distortion synthesis that occurs when the amplitude of an audio input exceeds a defined threshold. The peaks that exceed the defined threshold are inverted into a series of amplitude folds producing rich timbres and textures. This kind of distortion synthesis really shines when used on simple sounds like sinusoids or standing waves, even single guitar notes. Use the oversampling menu in the toolbar view to choose x1, 2, 4, 8, 16 oversampling. Higher oversampling values incur a greater CPU overhead but mitigate any unwanted aliasing caused by the Fold module.

## CRUSH

Crush allows you to quantize your incoming signal to emulate a classic bit crushing effect. Both depth and rate are tied to one single knob and scaled in such a way to leverage this kind of distortion synthesis as best as possible. Try combining this module by changing your oversampling factor using your automation lanes.

**Musical Suggestions:**

- Setting Crush to a value of 0.0 will maintain the incoming signal.
- Setting Crush to a value of 100.0 will produce an intensely degraded signal.
- Oversampling Factor set to a value of x1 will cause Crush to sound more lo-fi and or like a square-wave.
- Oversampling Factor set to x4 or above will cause Crush to sound fizzier and more hi-fi.

## LOW-PASS FILTER (LP)

This low-pass filter is modeled after an analog low-pass resonating filter. There is a resonance control slider underneath the filter frequency cutoff knob in a similar fashion to the high-pass filter on the front end of the signal chain. This filter is ideally placed in the in-series signal chain to tame and sculpt your unwieldy distorted textures.

## FX / ENVELOPE FOLLOWER

This is a Dry/Wet control, which regulates the proportion of processed to unprocessed sound. Adjustments to the FX knob do not affect signal processing, as this is done exclusively by the other modules.

The envelope-shaped button underneath the knob will override the FX knob and the amount of effect applied will be relative to the peak amplitude of the incoming audio input.

## LFO

Each module has its own dedicated Low Frequency Oscillator (LFO). Each LFO can be turned on by clicking the small button located in the top-left corner and has its own dedicated amount slider located next to the LFO Speed slider. You can choose from sine, square and saw waveform types.

- Sine is great for smooth transitions.
- Square is great for creating rhythms.
- Saw is great for building suspense.

By clicking the quarter note button users can switch on Sync mode, locking the phase to the tick reported by the DAW or host.

The button tick on the bottom-right hand corner provides visual feedback for the LFO rate, indicated by a pulsing white LED flash. This ring also acts as a button.When pressed, a gold LED will indicate a phase reset.

## TOOLBAR VIEW

Use the preset combo box to select any of our factory presets or make and recall your own presets. You can use the nudge buttons (left and right) to quickly audition presets. The Oversampling drop down menu contains options for x1, x2, x4, x8, and x16 oversampling factors.

- Oversampling Factor set to a value of x1 will cause Crush to sound more lo-fi and or like a square-wave.
- Oversampling Factor set to a value of x4 or above will reduce aliasing. Note: high CPU consumption.

## SAVING AND LOADING PRESETS

Presets can be loaded and saved as a ".fold" file. By default, Fold will save parameter states between sessions. i.e., your last configuration should be recalled on start-up of the DAW session.

We regularly make artist presets available via the blog section of our website.

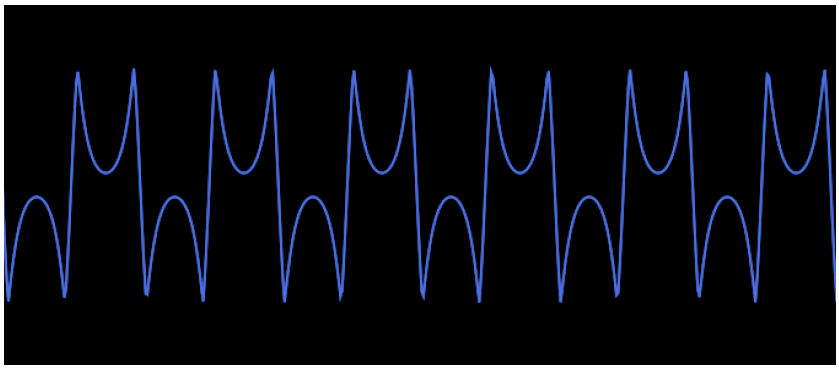
## VOLUME SLIDER

The output volume slider (dB) is located at the top-right of the plugin window to allow overall volume control of the final output stage of the Fold audio FX plugin.

## STEREO SPREAD SLIDER

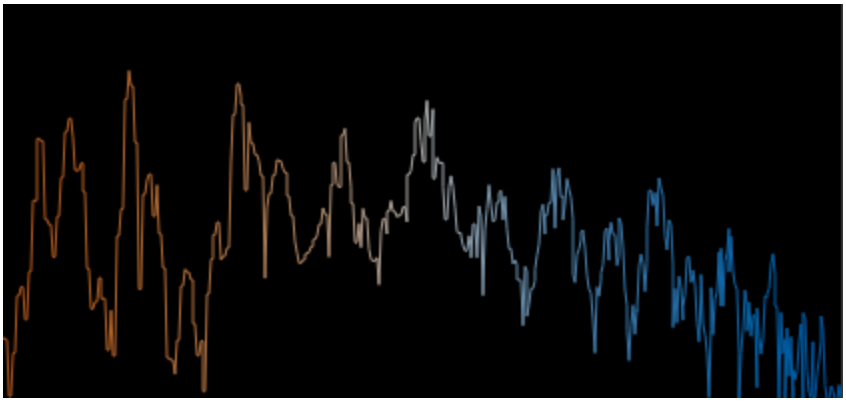
Users can drag the light grey semi circle elements of the stereo spread slider (located in the upper-right hand corner) to add a wider stereo image. This function will only work with a stereo audio input.

## TIME VIEW



Incoming signal is displayed over a time domain showing how the waveform's shape is affected by each stage. This view is particularly useful when applying soft versus hard clipped distortion to lower frequency oscillators through the drive panel. It's also useful when users want to gauge how the Fold module is impacting their signal, as illustrated in the image above. The overall brightness of this view is also controlled by an envelope follower. Quieter signals will yield a darker blue whereas louder signals will yield a bright hue.

## FREQUENCY VIEW

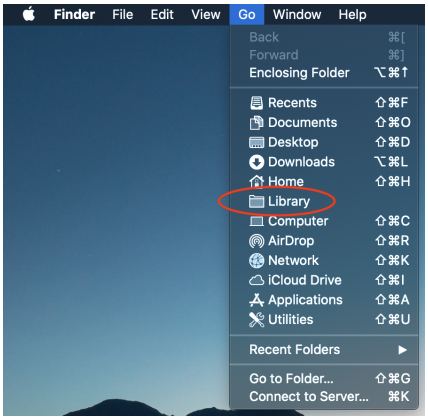


The Frequency Domain View displays the net result of the Fold signal chain as a product of frequency from 20-20k Hz. This view affords a different lens through which to sculpt the timbre of your audio input, particularly the additional harmonic content created through the drive and fold modules relative to the low-pass filter at the tail-end of the signal chain.

# Fold Troubleshooting and FAQ

## AU component is not showing up on macOS 10.14 or higher. How do I fix that?

You should ensure any and older binary files of Fold have been deleted before running our installers and that you have restarted your computer after running our installer on macOS. You may have to empty your AU caches by clearing the contents of your **/Users/<user>/Library/Caches/AudioUnitCache** directory:




In the Finder menu, open the **Go** menu and select **Library**. You may need to hold down the **Option (⌥)** key to see the **Library** menu item.

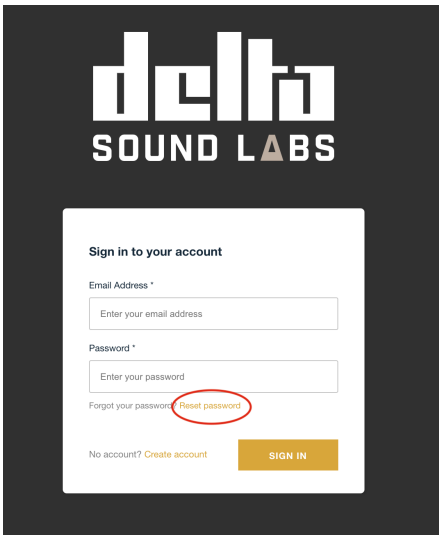
Navigate to the **Library/Caches/AudioUnitCache** directory and delete all files in this directory.

Once the files have been deleted, please restart your computer and rescan AU components in your digital audio workstation. Here's a useful article about working with the AU Validation Tool.

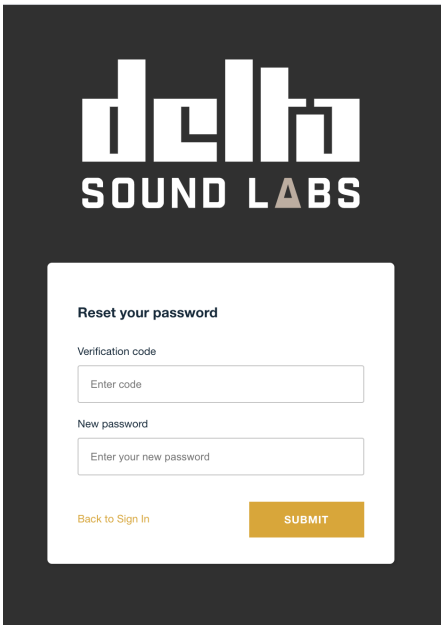
## The installers flag a message about an unknown or unidentified developer. What should I do?

Our software is digitally signed (Apple certified) and notarized for macOS but some operating system versions may not recognize the certificate once it has been uploaded and downloaded from our web server. On macOS, simply right-click and open the installer. On Windows, simply click "more information" and "run anyway".

## How do I reset my password?




Go to account.deltasoundlabs.com and click on reset password.




Enter your email and a verification code will be sent to you. Once you receive your verification code you will enter it here and may reset your password.