

# Indent 2.0 Manual

by unfilteredaudio

The screenshot displays the Indent 2.0 software interface. At the top left, the name "Indent" is shown next to icons for download, folder, and back. The preset name "Default" is centered, and the developer name "unfilteredaudio" is on the right. Below this are six control knobs: "IN" (7.1x), "CUTOFF" (720Hz), "REZ" (41.5%), "MIX" (100%), "OUT" (0.8x), and "TRIM" (100%). Each knob has a corresponding button below it: "Harsh Fold" with left and right arrows, "Low-pass" with left and right arrows, "AGC", and "Tube" with left and right arrows. The middle section features two horizontal waveforms. At the bottom, there are two buttons: "MODULATION" and "MUTE ALL".



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# ***Introduction***

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Indent is the fastest way to saturate and shape your signal, accentuating or filtering harmonic content in a number of ways. Four modes of clipping are combined with a highly-resonant low-pass filter.

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## **Features**

- Multimode clipper: 10 clipping flavors, from digital (hard clipping) to analog (soft clipping) and futuristic (wavefolding).
- Resonant Multimode Filter: This filter packs some serious tone, from liquid cutoffs to screaming resonance.
- Automatic Gain Compensation.
- 2x/4x Oversampling.
- Fully patchable modulation system.

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# ***Getting Started***

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## **Installing Indent**

Simply run the provided installer. On Windows, you will need to select your VST directory if the installer doesn't pick the right one by default.

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## **Browsing Presets**

Indent comes with a wide array of presets to get you started. The preset manager on the top of Indent's interface is used to load, save, or browse presets. If you want to get a good feel for the power of Indent, spend some time with these presets before browsing the manual.

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## **Standard Unfiltered Audio Features**

### **CONTROLS**

- All knobs and vertical sliders are controlled in a smooth up-and-down motion.
- Use the Command key (on OS X) or Control key (on Windows or OS X) to fine-tune controls.
- Double-click or Alt-click on a control to return it to a default setting.

### **PRESETS**

- All presets are saved with a .uap file extension. These presets are compatible across all platforms and plug-in formats. They use a simple, non-encrypted XML format for easy editing.
- Use the "Lock" menu to prevent specific parameters from changing while browsing presets.

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# Controls

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**In/Out Gain:** Controls the amount of gain applied to the incoming and outgoing audio signals. Both gains only affect the Wet signal. In Gain occurs before the filter, while Out Gain occurs after. In Gain can be useful for adding harmonic content for the filter to bite into, while Out Gain can add harmonics taken away by the filter.

**Trim:** This control affects the amplitude of the final output. This occurs *after* the Out Gain control and last-stage clipper. This control will not add any gain. If you add a lot of gain to saturate your signal, this control will help bring the final level down for mix compliance.

## FILTER

Indent contains a highly-resonant multimode filter. This filter can be used to soften artifacts produced by the distortion and bitcrushing processes, or to add screaming resonance to the signal path.

**Cutoff:** Sets the cutoff frequency of the multimode filter.

**Rez:** Sets the resonance of the multimode filter.

**Mode:** Sets the active filter mode. LP (Low-Pass) removes higher frequency components, while HP (High-Pass) removes lower frequency components. BP (Band-Pass) only permits a band of frequencies near the cutoff, while BR (Band-Reject) removes a narrow band of frequencies near the cutoff.

**Mix:** Controls the balance between the incoming dry signal and the outgoing wet (processed) signal.

**AGC:** Automatic Gain Compensation. When enabled, a smoothing algorithm will match the amplitude of Indent's wet output to its dry input.

**Clip Modes:** Chooses how the signal is treated when its amplitude exceeds a threshold. There are two clippers in Indent: one after the In Gain, and one after the Out Gain.

1. **Hard Clip:** If the signal's amplitude exceeds +/- 1.0, it is simply clipped to that boundary. This is an aggressive, digital-sounding form of distortion.
2. **Soft Clip:** The signal is saturated using a parabolic equation. This will actually affect the sound of the entire signal in a subtle way. This clipping is more pleasant and analog-sounding.
3. **Wavefold:** Signals that exceed the threshold are "folded" around the threshold. There is more sophisticated shaping at play here, but essentially this can change the perceived frequency of the sound. A great way to hear this is to use a simple sine wave as an input, then increase the gain on the input and outputs.
4. **Overfold:** A combination of wavefolding and overdrive. Try this mode out on bass frequency sawtooth waves!
5. **Harsh Fold:** A much more brutal, digital-sounding implementation of wavefolding.
6. **Distortion:** A more traditional distortion algorithm. Excellent for guitars.
7. **Tube:** A partially rectified saturator that greatly attenuates negative components of signals.
8. **Tape:** A modified soft clipper with a parabolic equation that more closely matches the saturation behavior of tape.
9. **Gloubj:** "Gloubi-boulga" waveshaper.

10. Cubic: The signal is multiplied by itself three times.

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# Modulation System

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## Introduction

Indent utilizes Unfiltered Audio's flagship modulation system, with which you can quickly patch anything from simple parameter changes to complex and even self-evolving systems. Starting off is very easy due to the direct cable-routing user interface.

The first step is to show the modulation manager by clicking the "Modulation" button in the bottom corner of the interface. You'll see the plugin interface get taller, revealing modulation sources, outputs, and inputs on each modulatable plugin parameter.

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## Patching

### Input and Output Ports

Outputs and inputs are both denoted by a simple circle. To avoid confusion, just remember that outputs are always located on the top left of each modulator. Everything else is an input.

Output ports have a small circular scaling knob below them which can be used to alter its calculated output value. This knob is set to 1.0 by default (fully clockwise), but can be turned down to 0.0 (center) to zero out its values entirely, or -1.0 (fully counter clockwise) to invert them.

### Creating Connections

To create your first modulation "patch" simply click and drag on one of the outputs. You'll see a cable appear next to your mouse, the end of which you can drag to any input on the interface. When you get close enough you'll see the cable "lock" into place, showing you that the path is valid. Once you release the mouse, the connection completes and you'll see the modulation start to animate in real-time.

You can create a second connection from the same output source by clicking on it again. Likewise, try clicking and dragging from an input to an output, which works in the same fashion.

### Moving or Removing Connections

In order to move a connection, click on one of the thicker ends of the cable, near the input or output port. You'll see the cable lock onto your mouse, allowing you to move it to a different input/output source. If you release the mouse while the cable is not "locked" onto any port, it will be removed entirely, which is how connections are deleted.

## Inter-Modulation

As you might have noticed, all of the knobs on each modulator have input ports of their own, capable of receiving modulation just like parameters on the main section of the interface. Any output port can be connected to these inputs, meaning that a modulator can even modulate its own parameters! Experimenting with complex inter-modulation chaining can lead to dynamically evolving behavior, and even emergent systems.

## Automation

Our modulation system provides 16 automation “slots” that can be assigned to one or more modulation parameters. Every knob and button on a modulator can be assigned to one of these automation slots by right clicking on it and following the “Add X to Automation Slot...” menu. Once assigned to a slot, this element will mirror the automated value sent in through your DAW. You’ll also see a small number appear next to the element, denoting the automation slot number to which it is assigned.

## Adding Modulators

You can add a new modulator by clicking the “+” button in the modulation header. At this time a maximum of 6 modulators can be used at once, although that is a somewhat arbitrary maximum that we plan to increase in the future.

## Removing and Duplicating Modulators

Modulators can be removed or duplicated by right clicking on them and then selecting the appropriate option.

## Mute Modulation

The “Mute All” button in the modulation header allows you to quickly mute and un-mute all modulation sources.

## Saving and Loading

All modulation routing, values, automation, and general state is saved with the preset and/or with the DAW’s session. Presets are a great way to quickly share interesting modulation patches with other users.

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## Modulator Types

You can change a modulator’s type by clicking the dropdown menu next to its symbol. There are currently six types to choose from, each with its own characteristics and use case. Common parameters such as frequency will remain at their selected value, making the process of auditioning different modulator types both quick and easy.

## LFOs: Sine/Saw/Tri/Square

The LFO family of modulators all use common primitive wave types which are useful for classic “envelope” style parameter modulation.

The Amplitude knob is common to all of them, corresponding to the depth of modulation. This can be either Bipolar or Unipolar which is determined by the state of the +/- button in the modulator’s bottom left corner. Bipolar modulation always fluctuates between negative and positive, whereas unipolar modulation is always positive when the amplitude is above 0% and always negative when it is below 0%.

The Frequency knob corresponds to the speed of modulation. It is set in Hz (cycles per second) when in non-tempo-synced mode. Tempo Sync can be activated by clicking the “Hz” button on the left side of the modulator, which will turn into a musical note symbol indicating that it has been initiated. In tempo sync mode, modulation speed is synchronized to divisions of the DAW’s global tempo setting- for instance setting the frequency to  $\frac{1}{4}$  will correspond to quarter-note modulation cycles.

The Saw/Tri modulator has an additional Shape knob which determines the slope of the triangular wave. At the default value of 0.5, you get a normal triangle wave. At 0.0, you get a downward sloping triangle wave and at 1.0 you get an upward sloping triangle.

The Square modulator has a Width knob which changes the pulse width of the square wave. At the default value of 0.5, you get a normal half-up, half-down square wave. As you approach 0.0, the wave will be almost entirely down, and conversely as you approach 1.0, the wave will be almost entirely up.

## Input Follower

The input follower modulator allows you to easily “sidechain” parameters to the incoming audio stream. The Smooth knob determines the speed of the rms meter used to track the incoming audio. Lower values correspond to a more instantaneous reading, while higher values smooth everything out.

## Macro Control

The macro modulator can act as a manual control knob capable of outputting values to multiple parameters. In this way you can control many knobs with a single gesture. Alternatively, you can patch many modulation sources into the amplitude knob’s input port, turning the macro control into a summing modulation bus.

## Sample and Hold Noise

The sample and hold noise modulator chooses random values at the chosen frequency rate. The Slew knob controls the amount of interpolation time whenever a new value is set. At a slew of 0.0 values change instantly, whereas at 1.0 they interpolate over the entire cycle period. Tempo Sync and Uni/Bipolar can be set on this modulator just like LFOs (see above).

## Step Sequencer

The step sequencer is a modulator that cycles through up to 16 manually chosen values.

**T:** “Trigger” input. This includes both a manual button and a modulation input. If the button is clicked or the modulation input transitions to a positive signal, the sequencer’s active stage will increase by one.

**R:** Reset input. This includes both a manual button and a modulation input. If the button is clicked or the modulation input transitions to a positive signal, the sequencer’s active stage will reset immediately to the stage set by the START control.

**AMP:** Sets the maximum amplitude of the modulation outputs.

**FREQ:** Sets the rate at which the sequencer automatically increments. With tempo sync off, this can be set to 0 Hz, making the sequencer only increment based on the state of the T input.

**LENGTH:** Sets the number of active steps in the sequence.

**START:** Sets the first stage in the sequence. This stage is selected when playback restarts or the Reset input is triggered.

**SLEW:** Determines how quickly the output values change. At 0.0, the modulation output is stepped. As SLEW increases, new values are smoothly selected, adding a “slide” effect between values.

## **ROLI Lightpad**

This modulator connects to the excellent ROLI Lightpad (<https://roli.com/products/blocks>) for use as a performance controller. Please note that because this is part of the modulation system, this modulator is not intended for writing automation. If you want to use the Lightpad for automation, you can use the ROLI Blocks Dashboard for loading the interface of your choice and sending MIDI CC.

To get started, connect the Lightpad to your computer using either its USB-C cable or Bluetooth. For instructions on setting up a Bluetooth connection, see the Lightpad’s manual.

Once a Lightpad is connected to your computer, it should appear in the drop-down menu on this modulator. Select it and click “Connect”. The interface should turn white. You are now in Location + Pressure Mode. To change the active mode, click the large control button on the side of the Lightpad.

### **LOCATION + PRESSURE MODE**

In this mode, the modulator will track the position of one finger on the Lightpad along with its pressure. There are separate outputs for X, Y, Z (Pressure), and On (Touch Gate: on when a finger is touching the Lightpad, otherwise off).

### **SLIDERS**

In this mode, the modulator will output the value of four vertical sliders. Due to the resolution of the Lightpad’s screen, it may appear that there are only 15 possible values for the slider. However, the information that is read is higher resolution.

### **TOGGLES**

In this mode, the modulator will output the value of four toggle switches.

### **QUAD PRESSURE**

In this mode, the modulator will output four separate pressure values (one for each quadrant of the Lightpad).

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# *Options*

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Indent 2.0 introduces an expanded options menu. The following unique options are available in Indent:

**Oversampling 0x/2x/4x:** Oversampling runs Indent's DSP algorithm multiple times to remove foldover aliasing from occurring as a result of the many clipping algorithms. Higher levels of oversampling provide improved anti-aliasing at the cost of much higher CPU usage.

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## ***Recipes and Ideas***

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### Auto-Wah

- Add an Input Follower modulator to the modulation section.
  - Turn down the cutoff frequency of the filter.
  - Set the filter mode to “LP”.
  - Attach the Input Follower to the cutoff control. Increase modulation depth and filter resonance to taste.
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## ***Credits and Thanks***

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Indent is written by Joshua Dickinson and Michael Hetrick.

<http://www.unfilteredaudio.com>