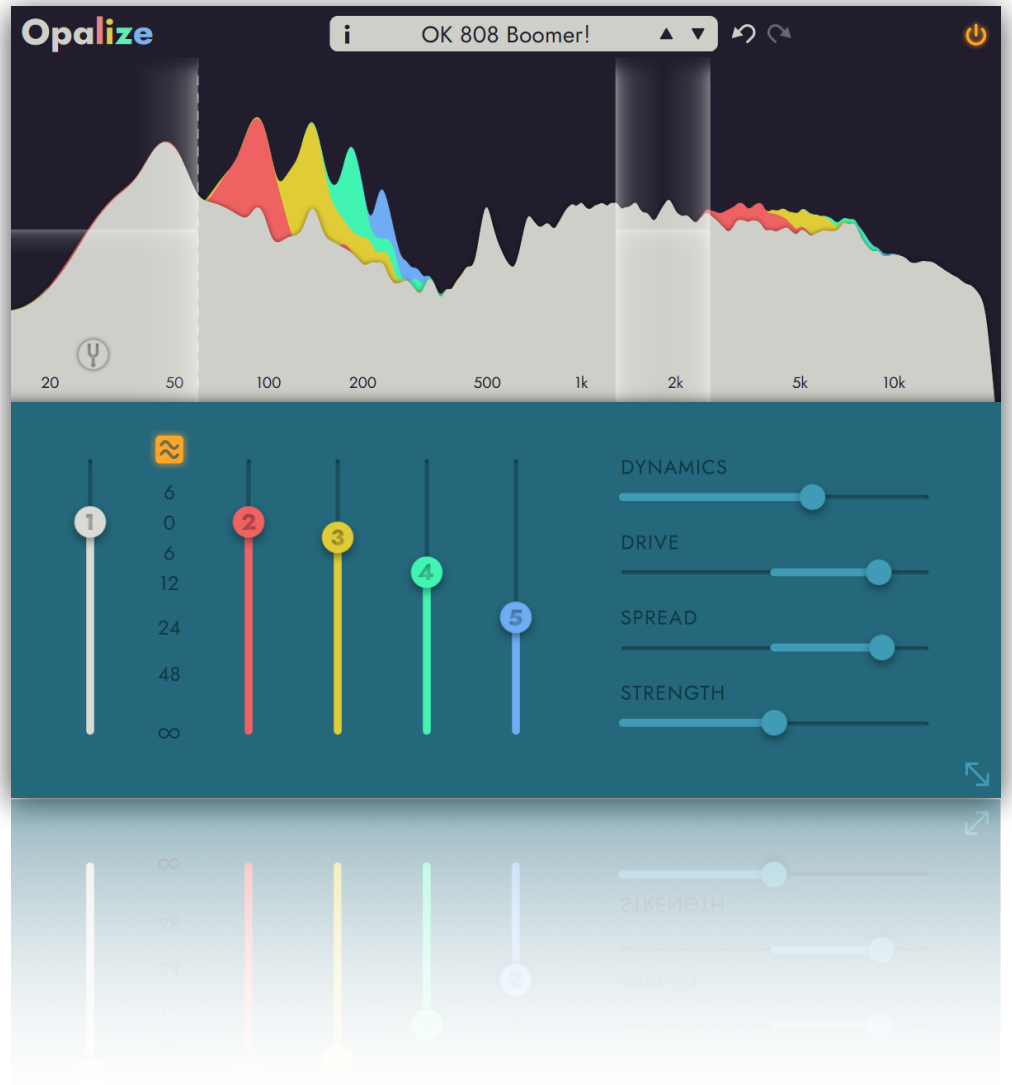
apulSoft

Opalize

harmonics beyond dynamics



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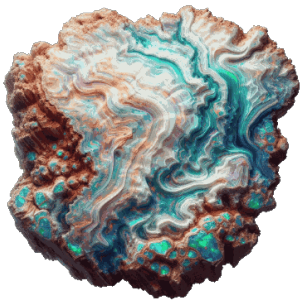
Introduction



Opalize [ˈoʊpəˌlaɪz/]
to make something shimmer
with shifting colours.

When applying saturation or distortion to an audio signal, we often do so to add harmonics - to make basslines more audible on small speakers, add punch to drums, or help synths and instruments cut through the mix. In short: We want to sculpt the harmonic content of our sounds precisely - without introducing obvious, unpleasant distortion.

Meet Opalize - Harmonics Beyond Dynamics.

Opalize is not a basic waveshaper. It lets you create the harmonics you want - wherever you want them - while preserving the integrity of your original signal. Add the 2nd through 5th harmonics to any frequency range you choose. And yes - independently of input level, if you prefer. Opalize gives you harmonic control with a level of precision that has never been available before.

Opalize works best with monophonic or bandpassed signals - but still delivers compelling results on broadband material. It includes lowpass and bandpass filters to help isolate fundamental tones for optimal harmonic shaping. One band can track the pitch of a monophonic input and automatically adjust a lowpass filter in real time.

Opalize's core DSP algorithm was developed by J. Budweiser.
This plugin version was engineered by apulSoft.

How Does It Work?

Until now, using saturation to add the 2nd, 3rd, 4th, or 5th harmonic to an audio signal introduced unwanted sub- and side-harmonics. **Opalize** changes that. It uses an innovative mathematical method to produce precise harmonics - independent of the input signal's dynamics.

There's a trade-off — **Opalize** performs best with monophonic (e.g., a melody) or narrow-bandwidth input signals. Broadband signals (like full chords or dense pads) can still be processed — but the results are most effective when the fundamental tone is isolated.

Opalize splits your signal into user-definable frequency bands, each feeding a parallel harmonics generator. Bands can be added and adjusted in the analyzer display - at least one band remains active at all times.

Main controls

- Harmonic Level Sliders – Four color-coded sliders control the relative levels of the 2nd through 5th harmonics, applied across all active filter bands.

- Dynamics – Controls the dynamic response of the generated harmonics, from full input tracking (left) to the snappy dynamics of classic saturation (right).

- Drive – Sets the global drive level for all harmonic generators. (Use the individual filter band gain controls to adjust drive per band.)

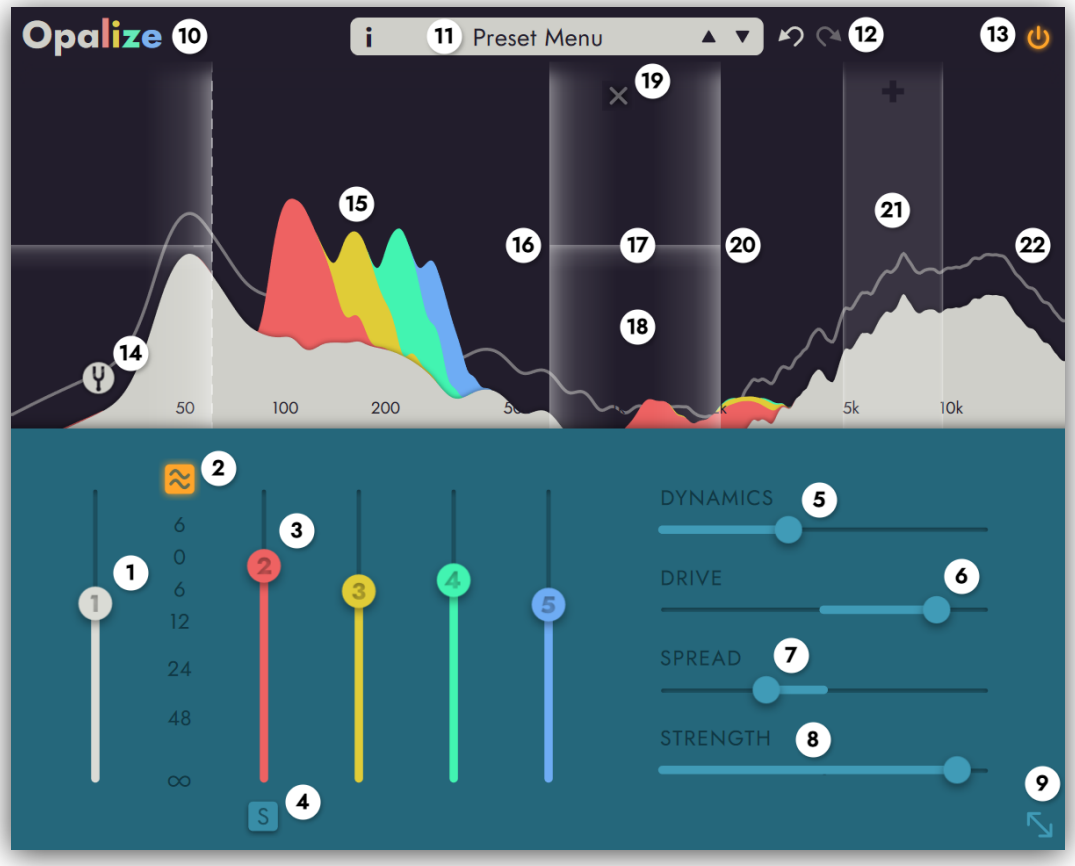
- Spread – Controls the stereo panning of the harmonics. Fully left pans the 2nd and 5th harmonics left and the 3rd and 4th right. Fully right reverses the panning.

- Strength – Adjusts the overall harmonic output (0–2×). Combined with the 1st Harmonic/Dry Signal slider, this functions as a Dry/Wet control.

Keyboard/Mouse Shortcuts & Modifiers

Function [Mac/Win]	Shortcut
Undo	[Cmd/Ctrl] - Z
Redo	[Cmd/Ctrl] - Y, [Cmd/Ctrl] - [Shift] - Z
Reset a parameter to its default value	[Option/Alt] - click, double-click
High-resolution value changes	[Cmd/Ctrl] while dragging
Snap to round values	[Shift] while dragging
Parameter increment/decrement	Arrow Keys after clicking a control
Remove band below mouse	Delete/Backspace

Interface Description



1 - 1st Harmonic/Dry Signal

Set the **level of the 1st harmonic/dry signal**. Use it like a **Dry/Wet control** in combination with the Strength slider.

2 - Phase Mode

Match phases between the dry signal and the harmonics. This makes the phases of the new harmonics more consistent with existing ones.
Note: This adds 40ms of latency.

3 - 2nd to 5th Harmonic

Set the **levels of the second to the fifth harmonic**. The colors of the sliders correspond to the colors in the frequency analyzer.

4 - Solo Buttons

Solo each harmonic individually (1st to 5th). These buttons appear after hovering over the level sliders for a while. Shift-click adds other harmonics to the existing solo.

5 - Dynamics

Dynamics adjusts how strongly the harmonics react to the dynamics of the input signal. Fully to the left (off): Harmonics match the level of the input signal (level-independent). To the right: Harmonics get louder on peaks, softer on quiet parts (the classic saturation response).

6 - Drive

Drive globally adjusts the level fed into the harmonic generators, **ranging from –30 dB to +30 dB**. Turn it up to create stronger harmonics. Drive is **gain-compensated,** so it's only available when **Dynamics** is enabled.

7 - Spread

Controls the **stereo width** of the harmonic output. Fully left pans the 2nd and 5th harmonic to the left and the 3rd and 4th to the right - and vice versa.

8 - Strength

Controls the global output gain of the harmonics - from 0 to 2x.
Use it as a **Dry/Wet control** combined with the 1st Harmonic/Dry Signal slider.

9 - UI Size

Choose the size of the **Opalize** interface.

10 - About Menu

Click the **Opalize** title to open the **About** menu. From here, you can check for updates, enable or disable tooltips, and visit the developer websites.

11 - Preset Menu

Load and save **presets** here. Click the **i** button to add a **description** to any preset. Use the up/down buttons to switch between presets instantly.

12 - Undo/Redo Buttons

Revert to a previous state with the Undo button, or restore a recent change with Redo.

13 - Bypass

Bypass the plugin.

14 - Pitch-Tracking

Click to **toggle pitch tracking** for this band to **isolate the fundamental frequency** of the input signal. Only available in the lowest band. The minimum tracking frequency is 50 Hz.

15 - Harmonic Spectrum

Spectra of the 1st through 5th harmonics. The colors of the spectra match the corresponding sliders.

16 - Lower Band Edge

Sets the **low-frequency cutoff** for this band. In the lowest band, dragging fully to the left turns this band into a lowpass band.

17 - Band Gain

Drag up or down to adjust the **gain** of this band. This **controls how strongly this band feeds the harmonic generators**. Double-click resets the gain to 0 dB.
When the bandwidth is very narrow, the gain control handle becomes a white circle - enabling simultaneous adjustment of center frequency and gain.

18 - Upper Band Edge

Sets the **high-frequency cutoff** for this band.

19 - Band Center

Drag the band center area left or right to adjust the **frequency** of this band. Use the mouse wheel or shift-drag to **adjust the bandwidth**. Dragging a band center to the **very left switches** the filter from bandpass to **lowpass**. This switch can be reversed by **tearing** the band off **to the right**.

20 - Remove Band

Click to **remove** the current band.
Keyboard shortcut: Delete/Backspace.

21 - Add Band

Hover over the frequency analyzer to **add a new band**. Each band sends a bandpassed signal to the harmonic generators. A new band can only be added where no other bands are present. **Up to four** bands can be active at the same time.

22 - Input Gain Line

The input gain line provides a **visualization of the input signal** if the level of the 1st Harmonic/Dry Signal is below 0dB.

Workflows, Tips & Tricks

Opalize is intended to be used **with monophonic or narrow bandwidth** signals. For this reason, we recommend using it as an **insert effect**. But don't let that limit you: it's also an excellent tool for drums and percussion.

Opalize is **not a saturator,** it adds harmonics - this increases the signal level, contrary to the behavior of a classic waveshaper. Use a limiter, saturator or clipper after the plugin to control the resulting dynamics and transients. Waveshaping bass after **Opalize** is really fun!

Opalize can be used to **restore high frequencies** lost to low sample rates or old recording media. This works astonishingly well on drums and percussion. Tip: Try the preset **"Sparkling Highend"** on vintage drum breaks.

Let us play through three different scenarios on how to use **Opalize**:

On a drum bus:

1. Insert **Opalize** on your drum bus
2. Load the preset "Drums Punch & Sizzle"
3. Set the frequency of the lowest band to the fundamental of the kick drum
   Adjust the gain and bandwidth of this band so the punch of the kick is increased. Too much gain in this band can make the kick sound artificial, so set with care.
4. Set the low-frequency cutoff of the middle band just below the snare. Adjust the gain of this band to make the snare punch.
5. Adjust the frequency and gain of the high band until the cymbals get a nice airy extension without sounding grainy.
6. Check the levels of your drum bus. In this configuration **Opalize** almost **acts as a transient enhancer**. You might want to limit or clip after the plugin.

On 808 or synth bass:

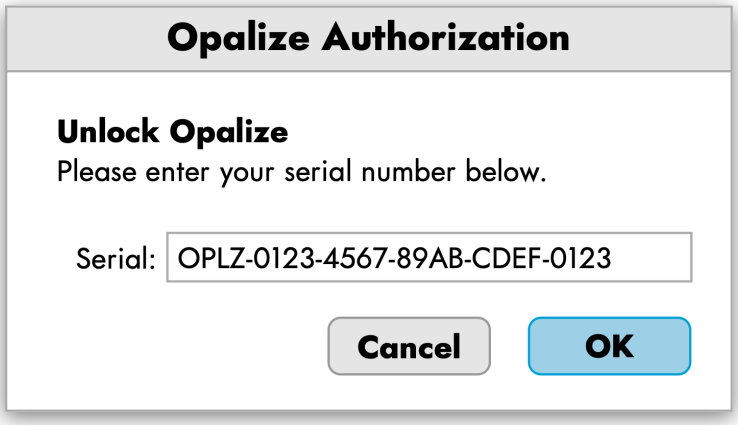
1. Insert **Opalize** on your bass track.
2. Load the preset "OK 808 Boomer!"
3. Note that the low band uses pitch-tracking. Pitch-tracking is never perfect and on some inputs, it may not work reliably. If you experience wrong notes being tracked, turn off the pitch-tracking and set the lowpass cutoff manually.
   Hint: By setting the cutoff manually, you can generate harmonics for just the lowest notes of your bassline.
4. Adjust **Dynamics** and **Drive** until you're happy with the blend.
5. Try a waveshaper after **Opalize** if it fits the style of your music.
6. On **acoustic and upright bass**, we recommend adding the 2nd harmonic only, with pitch-tracking disabled. Try the preset "Solid Spoken Word" and adjust the lowpass cutoff to taste and adjust the Dynamics slider for a natural sound.

On vocals:

1. Insert **Opalize** on your main vocal track.
2. Load the preset "Stereo Vocal Bite"
3. Set the band gains so you can clearly hear the added harmonics.
4. Choose the frequencies you want to enhance.
5. Adjust **Dynamics** and **Strength** to just slightly sizzle the vocals or fully deep fry them.
6. **Spread** controls the stereo width of the added harmonics.

Unlocking the Full Version

When you open the **Opalize** interface in trial mode, a welcome dialog appears with an **[enter serial..]** button. Click this button to open the serial entry dialog. You can also access the serial entry dialog by clicking the **[→ full version]** button in the top-right corner.
Enter the serial exactly as shown in your purchase confirmation email and click **OK** to unlock the full version.



In case your serial is not accepted, please check the following:

- The serial must be a valid **Opalize** license key, formatted as **OPLZ** followed by five groups of four hexadecimal digits (0-9, A-F).
- If you used copy-paste, try typing the serial manually, as copy-paste can sometimes include hidden characters such as spaces, tabs, or line breaks.

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