RADICAL1

USER MANUAL

SoundRadix

break free.

Welcome to Radical1

Welcome to Radical1, Sound Radix's first dive into the wild, colorful world of additive synthesis.

We built Radical1 for sound designers, producers and creators to explore sound at its most fundamental level: the harmonics. Rather than tweaking another subtractive synth, Radical1 is about shaping the audible spectrum.

Installation & Authorization

Getting started is easy:

1. Download and install Radical1 from the Downloads page.
2. Open your DAW and load Radical1 as a plugin (VST3, AU, or AAX).
3. Follow the steps on the screen to activate your license or start your 14-day trial.

If anything goes sideways, our support team is a message away.

Radical1's Engine

At its core, Radical1 is an **additive synthesizer**, an instrument that builds sound from the ground up by combining simple sine waves (called **partials**) into complex structures. With enough partials, you can create any sound imaginable.

Radical1 is powered by a patent-pending **efficient spectral engine**, capable of handling **tens of thousands of partials** in real time. It provides ultra-fine spectral resolution, smooth, artifact-free harmonic motion, and immediate response to any hit note, modulation or gesture, all while staying light on CPU.

The powerful engine enables Radical1's modular architecture: In a single preset, you can combine multiple **spectral Layers**, each acting as a mini-synthesizer with its own harmonic world.

Interface Overview

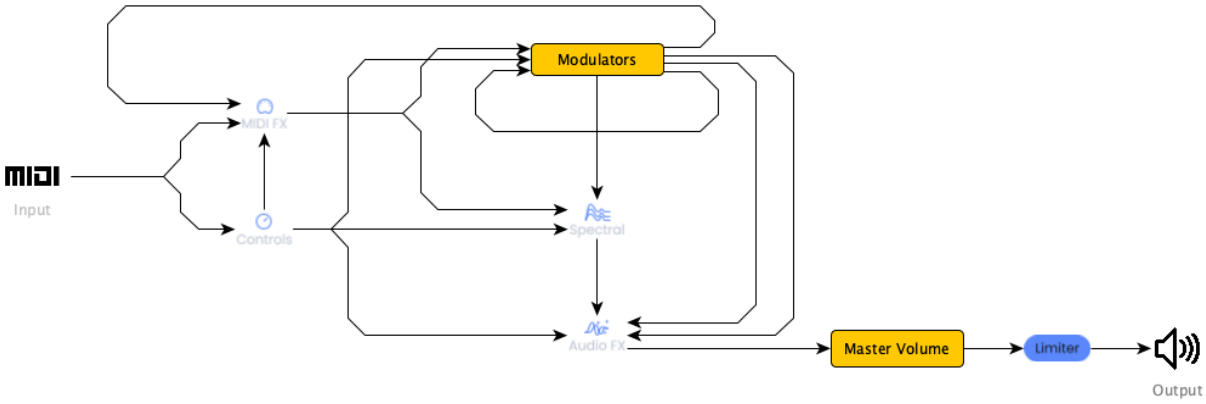
Radical1's interface is different. Instead of fixed panels for oscillators or filters, you get a modular canvas built around **spectral-domain Layers** and **Blocks**, **time-domain MIDI** and **Audio Effects**, and **Modulators**. Every part of the sound engine is visible and directly interactive.

Interface elements from left to right, top to bottom:

1. **Undo/Redo Controls**: Experiment without having to worry about losing your current sound.
2. **View Toggles**: Hide less frequently accessed elements to make room for others (or to gaze at the pretty spectrogram).
3. **Presets Bar**: Browse, load, and save presets quickly, or click to access the **Presets Explorer** view.
4. **Global Section**: Master volume, limiter, CPU usage and misc. settings. The Panic button is also here in case things get too messy or loud.
5. **MIDI FX**: Process MIDI/MPE prior to spectral processing using Arpeggiator, Glide, Tuning and more.
6. **Spectrogram**: A real-time visualization of the harmonic content, available both in the background and in a dedicated pane to always have a clear view.
7. **Spectral Layers**: Add and edit Layers and Blocks to generate and process audio in the spectral domain.
8. **Modulators**: Envelopes, LFOs, and performance sources that modulate other parameters and bring sounds to life. Add as many as you want.
9. **Audio FX**: Process your sound after spectral processing using Delay, Chorus, Reverb, Compressor and more.
10. **Controls**: Star any parameter to control it using assignable **MIDI CC** or **automation**.
11. **MPE Keyboard**: A virtual MPE controller and display of played notes with pressure and velocity, pre- and post-MIDI FX. Next to the keyboard are the hold pedal, pitch bend and modulation wheels, and settings for pitch bend range and polyphony.

Architecture

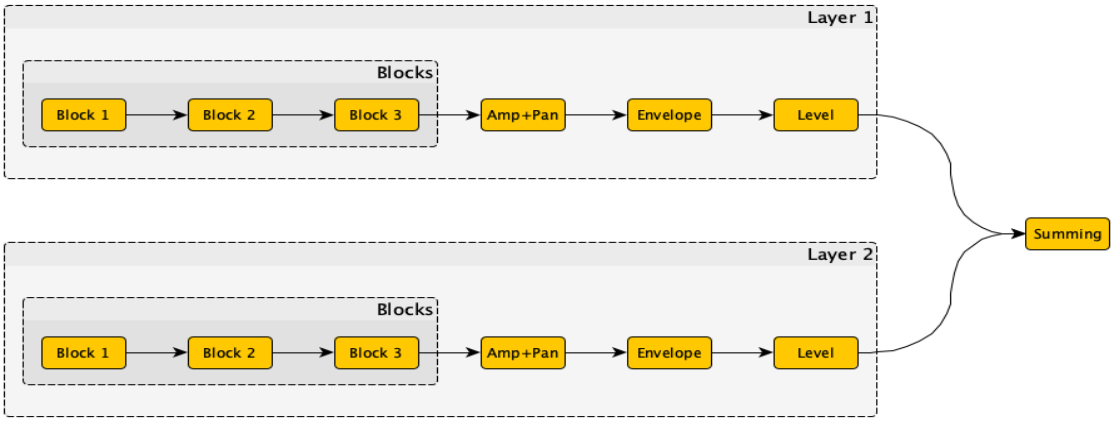
To make the most of its powerful engine, Radical1 is organized as a flexible, modular framework built on five core concepts: **Layers**, **Blocks**, **Modules**, **Effects**, and **Modulators**. Together, they form the structure of every sound you create, from a single tone to a full spectral composition.



Layers

Each **Layer** in Radical1 acts as a spectral-domain synthesis environment that can generate and process sound independently. Layers can operate in parallel, allowing you to stack complex textures or design evolving multi-part performances. They can also be input into Blocks in other Layers, e.g., Mixer and Route Blocks, to create signal flow between the otherwise separate Layers. There's no limit to how many layers you can use besides your CPU and imagination.

For more on Layers, see Layers below.



Blocks

Every element inside a Layer is a **Block**. A Block performs a single, focused task, whether it's generating harmonics, applying spectral processing, or performing utility functions.

The two basic roles of Blocks are:

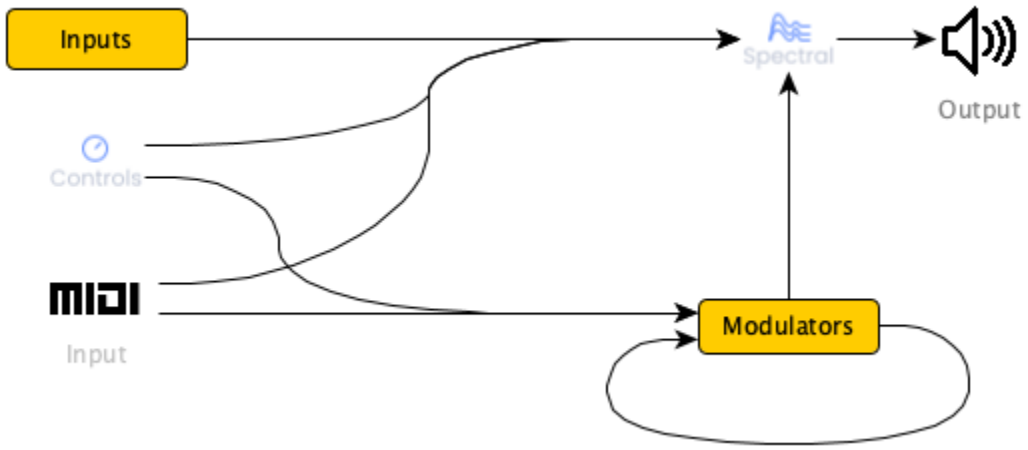
- **Generator Blocks**: Create and control harmonic spectra, e.g, via oscillation, based on a sample, or by routing and mixing outputs of other Layers or Blocks).
- **Spectral Effect Blocks**: Apply transformations such as spectral filtering, resonance, or formant shaping.

Some Block types can function in either role.

For more on Blocks, see Blocks below.

Modules

A **Module** is a self-contained, spectral-domain Block, internally composed of Layers, Blocks, and Modulators and saved as a reusable unit. Modules let you encapsulate your favorite designs and reuse them across projects, layer them together for composite instruments, or share them with collaborators.



For more on Modules, see Modules below.

Effects

Unlike Layers, Blocks and Modules that generate and process audio in the spectral domain, **Effects** process audio in the time domain. **MIDI Effects**

apply to incoming MIDI/MPE notes and other events before spectral processing, e.g., by creating arpeggios and gliding between notes; they apply to the *input* to spectral processing. **Audio Effects** apply to the summed spectral *output* of all layers, performing additional time-domain processing such as applying delay or reverb.

For more on Effects, see Effects below.

Modulators

Every **Modulator** can be assigned to modulate one or more parameters, with every assignment creating a **Modulation** of some specified amount. Modulations increase or decrease values of parameters statically or over time. Modulation amounts are themselves parameters which can be further modulated.

Some modulator types, such as an LFO, can be assigned to parameters in both the spectral domain (Layers and Blocks) and the time domain (Effects). Others, such as note strike Velocity, can only meaningfully be assigned to parameters in the spectral domain, with each note's voice being modulated separately.

For more on Modulators, see Modulators below.

A Modular Playground

The combination of **Layers**, **Blocks**, **Modules**, **Effects** and **Modulators** makes Radical1 feel more like a creative environment than a fixed synthesizer. You can begin with a single harmonic idea, make it more interesting by adding more elements to work together, and keep refining or reshaping your sound in real time.

Layers

Overview

A **Layer** usually contains one Generator Block, followed by a series of Effect Blocks.

To add a new Layer, simply click the "Add Layer" button, which opens a combo box to choose the type of Generator Block at the head of the Layer. (Note that Layers have no intrinsic type; A Layer's behavior is determined by the Blocks that it contains, which do have different types).

To delete a layer, simply open the Layer additional actions menu by clicking the menu button on the right side of the header, then click "Delete". If you accidentally or immediately changed your mind after deleting a layer, simply clicking the Undo button at the top of the plugin view would immediately restore it.

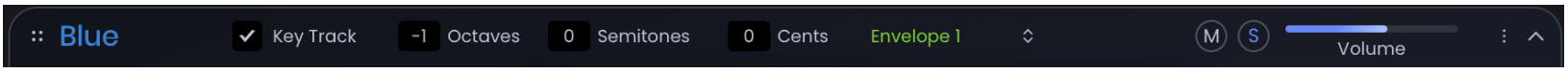
You can duplicate a Layer by clicking "Duplicate" in the same menu. Duplicating a Layer creates and adds a new Layer that's identical to the original except for the Layer name and color, preserving all of its settings, Blocks, and Modulations. Duplicating Layers makes it easy to create variations or parallel processing chains.

You can also reorder Layers: Simply drag-and-drop the drag button at the top left of the header of the Layer you'd like to reposition. Note that reordering layers, while helpful for organizing a preset, usually has no audible effect, because all Layers render in parallel.

If a Layer takes up too much space, you can collapse it using the collapse button at the right edge of the Layer header. Or, if you prefer hiding Layers altogether to focus on other elements of the preset, you can click the "Spectral" view toggle at the top of the plugin view.

Layer Controls

Every Layer has its own controls, with most of them such as pitch transposition, volume and amplitude envelope accessible via the Layer header, even when the Layer view is collapsed.

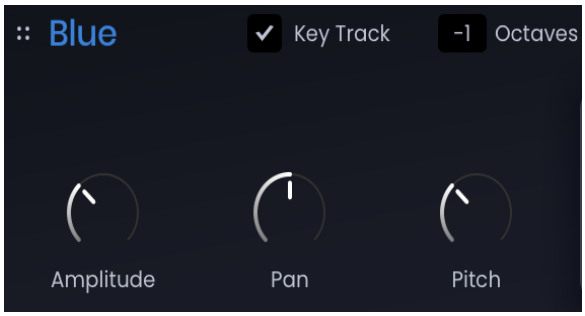


Layer Header Controls (left to right)

Drag Button	Drag-and-drop to reposition Layer (usually no audible effect; Layers render in parallel.)
Colored Layer Name	Shows the name and color of the Layer. Double-click to rename. The Layer's color is used in various places where it is referenced, helpful for easily associating color with sound as the number of Layers increases.
Key Track	Toggles key tracking for incoming MIDI notes: When enabled, the base pitch value of every note is its MIDI pitch; when disabled, it is fixed to A4. Disable it for drones, noise beds, or fixed-tuned textures.
Octaves / Semitones / Cents	Transposes the base pitch value of each note. With Key Track enabled, transposes every incoming note relative to its pitch; with Key Track disabled, transposes relative to A4, effectively setting an absolute rather than relative pitch. Always visible, but can't be modulated; to modulate pitch, use the Pitch inline Layer control.
Envelope	Sets the envelope applied to the Layer's Amplitude. You can assign any finite Envelope Modulator to control it. See below for a more detailed look at this control.
Mute	Mutes the Layer so that its output is not summed into the overall spectral output. A muted Layer's output can still be routed into Blocks such as Route or Mixer.
Solo	Soloes a single Layer's output so that it's the only one summed into the overall spectral output. Other Layers' outputs can still be routed into Blocks such as Route or Mixer.
Volume	Applied after the Layer's Amplitude (see below), setting a gain to the Layer’s output when summing into the

	overall spectral output (doesn't affect output level routed into other Blocks). Drag horizontally or double-click to set.
Menu Button	Opens the additional actions menu (Duplicate and Delete).
Collapse/Expand	Collapses an expanded Layer or expands a collapsed one.

In addition to the controls located in the Layer header, every Layer has three inline parameter knob controls:



Layer Inline Controls (left to right)

Amplitude	Sets a gain to the Layer's output. Modulated by the Layer's selected envelope, in addition to any other assigned Modulations. Unlike Volume, applies to the Layer's output regardless of whether it is summed into the overall spectral output or routed into another Block, e.g., Mixer or Route.
Pan	Stereo panning applied to the Layer's output.
Pitch	An alternative, modulatable control for the same transposition value referenced by the Octaves / Semitones / Cents header controls.

Blocks

Overview

Blocks generate and process audio in the **frequency** or **spectral domain**; Rather than shaping waveforms, you sculpt the harmonics and other partials directly.

The first Block in a Layer is usually a **Generator Block**, which outputs a continuously changing spectrum that is processed in sequence by the following **Spectral Effect Blocks**. Generator Blocks are focused and minimal by design, keeping them efficient while allowing you to further shape the tone using the Effect Blocks. In turn, Effect Blocks are designed to be modular, each having its function, with their order defining your tone (for example: placing a **Resonator** before a **Distortion** yields harmonic emphasis with controlled grit, while reversing them produces an entirely new texture).

Most Generator Block types continuously take MIDI/MPE events as input, some simply route and mix the outputs of other Layers or Blocks for further processing, and others still (Formula, Module) can take both kinds of inputs.

Spectral Effect Blocks always take the output of the previous Block in the Layer as their input. Some Effect Block types (Formula, Module) can also take MIDI/MPE events and outputs of other Layers or Blocks as their inputs.

Every Block's output is also affected by the movement of Modulators that are assigned to modulate any of its parameters (and Modulations elsewhere can also, of course, affect the inputs received by the Block).

Unlike traditional synthesizers where oscillators and filters are fixed components of a signal chain, Radical1 separates **source** (Generator) and **shaping** (Spectral Effects). This approach gives you complete creative freedom to decide *where* and *how* timbral transformations occur in a Layer.

Most commonly, a Generator Block is automatically added as the first Block when adding a new Layer using the "Add Layer" button. To add Effect Blocks to a Layer, simply use the "Add Block" button located on the bottom-right corner of the Layer view. You can delete any Block, including Generator Blocks, by opening its additional actions menu and clicking "Delete". If a Layer is missing a Generator Block, the "Add Block" button will allow adding a new one.

You can duplicate a Block by clicking "Duplicate" in the additional actions menu. Duplicating a Block inserts a new Block after the duplicated one that's identical to the original.

You can change the type of an existing Block by clicking its type in the header, which would open a combo box to choose the new type. When switching from one Generator Block type to another, Radical1 will attempt to also **convert the existing output spectrum to the new generator type**. For example, you can transform a **DrawSpectrum** block into an **AdditiveSample** one to hear how a drawn harmonic shape behaves as time-evolving spectral data.

To reorder Blocks, simply drag-and-drop the Block you'd like to reposition using the drag button on the left side of the header. Most commonly, this is useful to reorder Effect Blocks. In case a Generator Block is reordered to anywhere but the first position in the Layer, the output of Blocks preceding it will be discarded (unless otherwise routed).

Common Block Controls

Every Block header has the same common controls. Left-to-right, these are:

Drag Button	Drag-and-drop to reposition Block, commonly used to reorder Effect Blocks.
Block Type	Shows the type of the block. Click to open a dropdown to change to type.
Menu Button	Opens the additional actions menu (Duplicate and Delete).
Bypass Button	Removes the Block from the Layer's processing chain.

Generator Block Types

BasicOscillator	Generates harmonic spectra based on mathematical waveforms (sine, saw, square). Ideal for clean foundational tones.
ShapingOscillator	Generates harmonic spectra that correspond to classic PWM (pulse-width modulation) waves.
DrawSpectrum	Lets you sketch harmonic amplitudes directly by hand.
AdditiveSample	Reconstructs harmonic data from sampled material, blending additive synthesis with real-world complexity.
Formula	Generates harmonic spectra based on a user-specified mathematical formula.
Module	A custom generator internally composed of Layers, Blocks, and Modulators.
Route	Outputs the spectral output of another specified Block or Layer for further processing.
Mixer	Mixes the spectral outputs of specified Blocks or Layers and outputs the result for further processing.

Effect Block Types

BandPassFilter	Emphasizes a specific frequency region by isolating harmonics within a controllable band. Perfect for spectral sweeps and formant-like movement.
Distortion	Emphasizes and adds even harmonics to the input, simulating the effect of classic time-domain distortion.
HarmonicDetune	Randomy detunes each harmonic separately, creating grit and messiness in the sound.
LowPassFilter	Smoothly attenuates higher harmonics, softening brightness and controlling harmonic density.
Noisify	Introduces random noise into each harmonic, gradually transitioning from the original sound to noise/static of the same “shape”.
Resonator	Uses the input as the character of a resonating cavity, which is excited by a sidechain input, the *exciter*. Great for acoustic-style sounds like strings and winds.
StretchTune	Expands or compresses harmonic spacing, bending perceived inharmonicity and introducing bell- or string-like character.
Transpose	Shifts the entire harmonic series up or down by musical intervals or continuous modulation.

Unison	Creates multiple detuned spectral copies for thick, animated sounds.

Modules

Overview

A **Module** is essentially a self-contained, spectral-domain Block. It is an internal composition of its own Layers, Blocks, and Modulators.

Modules can be used in a Layer's processing chain as either a Generator Block (to create spectra) or as a Spectral Effect Block (to process the output of a preceding Block).

To create a New Module and build from it from the ground up, add a Block to a Layer as usual selecting the "Module" Block type, then click "Edit" in the Module Block view. Alternatively, to load an existing Module, select one in the submenu under the "Module" Block type. You can then use the Module as-is, or click "Edit" to peek at its internals or make modifications. You can also load a preset into a Module, but only its spectral Layers and Modulators will be imported, discarding any MIDI and Audio Effects.

When editing a module, you will notice a few differences: First, the Audio and MIDI FX sections will be hidden, since a Module is solely a spectral-domain element. Second, an area below the top bar will display the current Module's name (which you can click to rename) along with any parent Modules containing the one being edited; usually, the immediate container would be the preset, but you can actually nest Modules within Modules! To save your changes to the module, click the "Save Module" button.

Modules can be controlled from the outside via exposed parameters. To create an external control for a Module, simply 'star' any parameter from its internal Layers, Blocks, or Modulators. Once starred, the parameter becomes an external Module parameter, appearing and behaving just like any other Block control. This is different from the behavior of starring preset parameters (see Starred Control Parameters Workflow below), except that when loading a preset into a Module, its spectral starred parameters would function as the external parameters.

Effects

MIDI Effects Types

Arpeggiator	Basic Arpeggiator generating rhythmic note patterns. The order of the notes in the pattern is defined by the order in which they're played.
DriftTune	Tune new notes in perfect harmony to preceding notes, gradually drifting into standard tuning (equal temperament unless set otherwise by a preceding Tuning effect)
Glide	Glides towards the newest/average/highest-pressure note within a given range.
Latch	Hold a group of played notes until a new note is played.
NoteContinuity	A repeated played note uses the same voice (equivalent to piano or harp string) as the previous note-on of the same note.
Pedals	Applies the effects of the Sustain/Hold and Sostenuto pedals. This is an Effect, rather than built-in, to enable different behaviors based on the positioning of the Pedals Effect relative to other Midi Effects.
ToMonophonic	Sets polyphony to monophonic, only the last played note is audible.
Tuning	Set different tuning from the default A4=440Hz or switch to Primodal12 tuning.

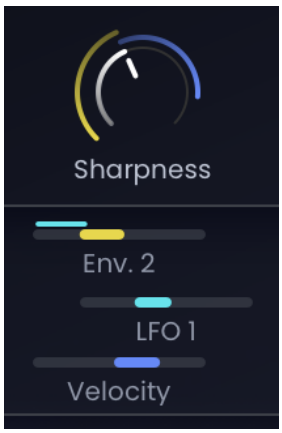
Audio Effects Types

Chorus	Chorus creates a thicker, wider sound by mixing the original signal with a delayed copy whose delay time is modulated by an LFO, resulting in subtle pitch and timing variations.
Compressor	A transparent dynamic processor featuring tempo-synced release times for rhythmic precision and an integrated output limiter to prevent clipping.
Delay	Creates echoes with adjustable time and feedback, including tempo-sync, ping-pong stereo movement, and a reverse mode for more experimental textures.
Distortion	Applies a flexible shaping curve to the signal, adding harmonics with adjustable character and asymmetry. Useful for introducing gentle edges, focused saturation, or more pronounced distortion.
Equalizer	A two-band EQ based on SurferEQ's musical filter curves, with both bands offering full-range control for flexible tone shaping and precise adjustment.
Filter	Classic state-variable and ladder filter designs offering low-pass, band-pass, and high-pass modes.
Flanger	Creates a sweeping comb-filter motion by mixing the signal with a short, modulated delay. Adds movement, resonance, and classic swirling textures.
Limiter	Controls peak levels by reducing fast transients above a set threshold, helping maintain consistent output and prevent clipping.
Phaser	Shifts the signal through a series of all-pass filters to create moving spectral notches. Adds smooth, liquid motion ranging from subtle shimmer to deep, swirling sweeps.

Reverb	An algorithmic reverb capable of everything from subtle room ambience to vast, endlessly modulated spaces, adding depth, movement, and atmosphere to the signal.
Ring Modulator	Multiplies the signal with an oscillator to create sum-and-difference frequencies, producing metallic tones, tremolo-like motion, and inharmonic textures.

Modulators

Radical1's modulation engine is built for creativity and flexibility. Nearly every control can be modulated, and every Modulation can itself be modulated; there are no slots or hard limits.

= 

To assign a Modulation to a knob, or to add a nested one to an existing modulation, hover over it and click the '+' button, choose a Modulator to use (either a new one or one that already exists), and then set the amount by dragging the modulation slider. Alternatively, click the "Assign" button of a Modulator, and then drag the knobs you would like to modulate to set the desired modulation amount. To change or remove an existing modulation, hover over the modulation bar and click the combo box arrows on the right.

A modulated knob shows colored rings around it matching the colors of the assigned modulators. Each ring shows the range that the matching modulation can move the base value to. Modulations that are themselves modulated similarly show this information using thin bars above the main modulation amount bar.

Modulator Types

Families of modulators and common use-cases:

Category	Types	Notes
Time-Varying	Envelope, LFO (free or tempo-synced), Noise	
MIDI (Global)	PitchWheel, ModWheel, Expression	Affect entire patch
MIDI (Voice)	Velocity, Pressure, Timbre, KeyTrack	Per-note
Utility	Macro, Formula	
Other	Random	Per-note random value for humanization

Starred Control Parameters Workflow

Hover over any knob or modulation and click on the star button to add it to the Controls section. Starred controls are saved with each preset, and can be used to control the preset using automation or MIDI-CC mapping.

Preset Manager

Click on the preset section on the top bar to switch to the preset manager view, where you can browse presets by Banks or Tags, search by name, and mark favorites.

Formula Reference

Formula Blocks and Modulators allow you to build custom modulators, transform signals, or design spectral behaviors in real time.

Safety Tip: Keep the limiter ON while experimenting; malformed equations can output extreme values.

Operators

+ − * /	Basic arithmetic
**	Power / Exponentiation
%	Modulo / Remainder
== < >	Comparators: Return 1 for true, 0 for false
( )	Grouping / Precedence

Variables

h	Current harmonic index (1 = fundamental) (Block only)
ch	Current channel (-1 = left, 1 = right) (Block only)
freq	Layer's fundamental frequency
time	Time since voice start
gtime	Global time (shared across voices)
releaseTime	Time since note release (0 while held)
voiceCount	Number of playing voices
voiceIndex	Voice index (0 to voiceCount-1)
noteIndex	Increments with each new note
playhead	Host playhead position (beats)
bpm	Host tempo (beats per minute)

Constants

pi	Pi (3.14159...)
e	Euler's Number (2.71828...)

1j	Imaginary unit (i)

Functions

sin(x), cos(x), tanh(x), exp(x), log(x)	Core math / wave functions
abs(x), arg(x), conj(x), Re(x), Im(x)	Complex math tools
round(x), max(x), min(x)	Utility math functions
limit(x)	Clamp to ±1 range for stability
noise(x)	Smoothed noise (random at integers)
input(h)	Access input signal when used as effect (Block only)

Caveat emptor: when using Formula as an effect block, the input is *flattened* into a harmonic series from the fundamental, due to Formula's processing model. This creates some distortion when processing inharmonic inputs, such as those created from Unison or StretchTune.

Block Types In Detail

BasicOscillator

BasicOscillator is Radical1's most streamlined and versatile Generator.

At first glance, it offers familiar shapes, sine, triangle, saw, and square, but these are simply starting points.

Using **Brightness**, **Sharpness**, and **Balance**, you can continuously morph between these tonal families, sculpting nearly any classic waveform from a single harmonic model.

Rather than switching between static waveforms, the BasicOscillator defines a continuous spectral space where harmonic energy can be shifted, weighted, and reshaped.

This design allows subtle or dramatic transformations without phase jumps or aliasing, making it both a learning tool and a professional sound engine.

The selected **Waveform/Shape** acts as a preset, setting an initial harmonic distribution that Brightness, Sharpness, and Balance then modify in real time.

By modulating these controls, you can transition smoothly from a pure sine to a saw, or from a square to a narrow pulse, all with precise spectral continuity.

Parameters

Brightness	Controls the tilt of harmonic energy across the spectrum. Increasing Brightness emphasizes upper harmonics, producing sharper, more open tones; reducing it darkens the sound.
Sharpness	Adjusts the slope of harmonic decay. Low Sharpness concentrates energy toward lower harmonics for warm, rounded tones; High Sharpness extends high-frequency harmonics for edgier textures.
Balance	Controls emphasis on odd or even harmonics.
Waveform / Shape	Defines the harmonic starting point: sine, triangle, saw, or square. Each serves as a preset configuration for the other parameters.

Design Philosophy

BasicOscillator captures the essence of classic analog and digital tone creation, not through sampled or fixed shapes, but through **harmonic control**.

Its minimal set of parameters gives you deep expressive range without visual clutter or conceptual overhead.

Because it generates harmonics directly, changes in tone feel fluid, musical, and free of digital artifacts.

In practice, the **Brightness**, **Sharpness**, and **Balance** controls are all you need to recreate most traditional waveforms and explore new ones beyond them.

ShapingOscillator

ShapingOscillator adds motion and life to static spectra.

It's built around a continuously cycling harmonic model that evolves the spectrum over time, shifting brightness, harmonic density, and balance in smooth, musical ways.

Instead of simply playing a fixed waveform, it animates it, making the timbre feel fluid and organic.

Overview

ShapingOscillator starts from a harmonic base similar to the BasicOscillator, but introduces a **cyclic shaping system** inspired by pulse-width modulation. The levels of increasing harmonics are modulated by a cyclic wave in the spectral domain.

This cycle can run freely or be modulated, creating subtle internal motion or dramatic, evolving sweeps.

ShapingOscillator brings motion directly into the generator stage, before any spectral effects are applied.

Parameters

Brightness	Controls the harmonic richness of the spectrum. Lower values emphasize the fundamental and lower harmonics; higher values extend harmonic energy toward the top end, the same way as in BasicOscillator

Sharpness	Adjusts the definition and slope of harmonics. Softer settings create rounder tones; higher settings tighten and focus upper harmonics, the same way as in BasicOscillator.
Cycle Pos	The starting position of the spectral wave.
Cycle Freq	The frequency of the spectral wave.
Presets	Provides a selection of parameters corresponding to classic wave shapes such as sine, triangle, sawtooth, and square.

DrawSpectrum

DrawSpectrum offers a direct, visual way to sculpt sound at its most fundamental level.

Instead of choosing a predefined waveform, you draw the harmonic balance yourself, designing the amplitude of each partial across the spectrum. This makes DrawSpectrum as much a visual instrument as a sonic one.

DrawSpectrum gives you hands-on control over the harmonic structure of a sound.Each vertical bar in the display represents a harmonic; its height defines the harmonic's strength.You can freely draw these values to create unique spectra that fall somewhere between natural resonances and purely synthetic shapes.

Because it operates entirely in the **spectral domain**, every edit updates in real time, even while notes are held. The result is a workflow that feels more like painting than programming.

Parameters

Spectrum Editor	The main display where you draw or modify harmonic amplitudes. Drag vertically to change level; drag horizontally to shape multiple harmonics at once. Each of the vertical white lines marks an octave.

Design Philosophy

DrawSpectrum turns the additive engine into an artist's canvas, letting you draw the amplitude for each bandwidth.

It encourages experimentation: sketch a bell curve for warmth, spikes for metallic tones, or gradients that evolve under modulation later in the chain. What you see is what you hear.

AdditiveSample

AdditiveSample lets you bring real-world audio into Radical1's spectral engine.

Load any audio file, and Radical1 translates it into the frequency domain, turning sound into a playable spectrum you can stretch, morph, and shape like any other Generator.

Unlike traditional samplers that replay recorded waveforms, Radical1's AdditiveSample works in the **spectral domain**. When you load a sample, it creates a spectral model of the sample. This allows you to further process the harmonic content of the sample with Blocks, in a way that would not be possible by simply playing the sample back.

It's a bridge between the acoustic and synthetic, keeping the musical expressiveness of recorded material while opening it up to spectral manipulation.

You can start by dragging an audio file directly into AdditiveSample or using the **Open or Drop Files** button.

Once loaded, Radical1 converts the sample into spectral frames, a series of harmonic “snapshots” that can be scanned and shaped over time.

Each sample becomes a spectral dataset that’s fully compatible with Radical1’s processing chain:

Spectral Effect Blocks can filter, stretch, detune, or resonate the harmonic information just like they would with generated spectra.

Parameters

Open or Drop Files...	Loads an audio file into the spectral engine. Supported formats include WAV, AIFF, and FLAC.
Slice Length	Defines the length (in time) of the loop. Try setting this to 0 and modulating the slice index to reconstruct the sample in new ways!
Slice Index	Selects the starting point of the loop.

Design Philosophy

The AdditiveSample block embodies the idea that **any recorded sound can become raw harmonic material**.

By moving sampling into the spectral domain, it transforms familiar audio into a flexible, fluid instrument, something that responds to modulation, blends seamlessly with synthetic sources, and stays coherent even when pushed to extremes.

Whether you’re importing a vocal phrase, a guitar pluck, or a field recording, AdditiveSample gives it new life.

End of Manual