

Syntropy

User Guide for Windows 10/11 and macOS

This User Guide explains the basic operation and user interface of Syntropy VST3, CLAP and Standalone: how to navigate, load and save presets, edit formula-based sounds, use envelopes, program the Arpeggiator, build FX chains, and choose rendering settings. More detailed information about using Syntropy formulas to create and edit sounds is available in the separate [HTML documentation](#).

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Platform Notes: Windows and macOS

1. Voice

The Voice view is the compact performance view of Syntropy. It is the place to play, browse presets quickly, adjust the main sound controls, watch voice activity, transpose the keyboard, and save or open presets without entering the full editor.

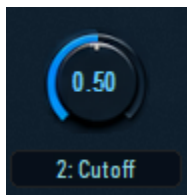


Main preset controls

The top preset row contains the bank menu, preset menu, an Open button, and a Save button. The bank and preset menus browse the current library location.

The Open button  opens a preset from any folder. The top Save button  opens a small menu with Save and Save as. Save writes the current preset back to the current file and also writes the current knob values into the parameter macro. Save as opens a file dialog and writes a new preset file. A Superbank is the root preset folder that contains banks. Syntropy currently uses two Superbanks: the current Syntropy2 library and the legacy Syntropy library. The currently selected Superbank is stored per Syntropy instance in plugin builds, so a host project can reopen with the same selected library root. By default, Syntropy 2 uses the Syntropy2. See Navigator Section that it explains this in more detail.

Parameter knobs



Syntropy presets can expose up to 16 formula parameters, which can also be controlled or automated by a VST3/CLAP host application. In Voice view these are shown as the main knob panel. Parameter names and their default values are written inside the formula text in the parameter macro block [...]; the names can be edited directly in the formula, and the defaults are saved with the preset. The knob panel can be shown as two rows of 16 controls or compacted to one row. In compact mode, the page switch shows either parameters 0-7 or parameters 8-15. Section 3 explains the formula parameter block in more detail.



The **panel toggle button** expands or collapses the second row. The page switch button changes which row is visible in one-row mode.



The **Randomize button** randomizes only the parameters that exist in the current preset, without editing the formula text or parameter names.

Right-clicking a knob



Right-clicking an enabled knob opens editing and control operations for that parameter. These operations are designed to modify the formula safely while keeping the preset playable.

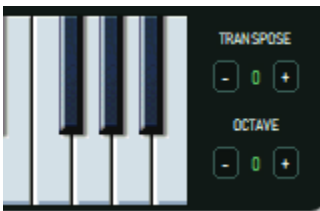
- MIDI Learn assigns the knob to an external MIDI controller.
- Reroute to MPE: Expression replaces the selected param(n) use with expression() when the preset does not already use that expression source.
- Reroute to MPE: Pressure replaces the selected param(n) use with pressure() when pressure is not already used.
- Cut at value set replaces param(n) by the current knob value, removes the parameter from the parameter list, and shifts later parameters left.
- Shift left moves a parameter toward a lower index, updating the formula and parameter list together.
- Add offers formula-building helpers when the clicked knob is an unused parameter slot. Current helpers include envelope controls, gain, filter cutoff wrappers, shaping functions, and constants found in the formula.
- Add from constants converts a selected numeric constant into a user parameter. For constants above 1, Syntropy keeps the musical base value and adds parameter control around it.

MPE button

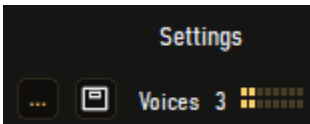


The **MPE button** only changes how Syntropy's on-screen keyboard displays. It does not add MPE functions to a preset by itself. When MPE keyboard behavior is shown, mouse interaction on the keyboard can send expressive controller movement: click and move vertically to change expression according to the Y coordinate. This is useful for testing presets that already use per-note expression functions such as `pressure()`, `timbre()`, `glide()`, `lift()`, `expression()`, or `slide()`. If a loaded preset contains MPE functions, the Formula Editor status text reports that it is MPE enabled.

Keyboard, transpose and voices meter



The piano keyboard can be used for auditioning notes. The controls to the right transpose the played note by semitone or octave; the 0 button returns the value to normal. In plugin builds these transpose values are stored in the plugin state so the host project can restore them.



The Voices meter shows the number of active voices. A voice remains active while its release tail is still sounding, not only while a MIDI key is physically held.

NOTE: MIDI Program Change and Bank Select

Syntropy can load presets from MIDI Program Change messages. Program values are zero-based: Program 0 loads the first preset in the current bank, Program 1 loads the second preset, and so on up to the last preset available in that bank.

MIDI CC0 (Bank Select MSB) selects the bank inside the current Superbank. CC0 value 0 selects the first bank, value 1 selects the second bank, etc. Send CC0 first, then Program Change to load a preset from that selected bank. If no CC0 was sent, Program Change uses the bank of the currently loaded preset.

2. Navigator

Navigator is the library browser view. It is designed for fast preset discovery, searching, and browsing by folder, category and metadata.



Superbanks

Syntropy currently presents two main library roots, called Superbanks:

- **Syntropy2** is the current Syntropy 2 library and is the default Superbank for new instances.
- **Syntropy** is the legacy Syntropy 1 preset library. It is kept visible so existing users can still load older presets.

When a Superbank is selected, Navigator shows its bank folders on the left and the presets in the selected bank on the right. The top preset menus in Voice view stay synchronized with Navigator selection. The selected Superbank is stored per Syntropy instance, so different VST3/CLAP instances can keep different Superbanks. Some hosts expose preset changes through their own VST3/CLAP program list; in that case the host program list follows the current Syntropy Superbank.

Browsing and loading

Click a bank folder to show its presets. Double-click a preset to load it. The preset name, folder, category, author, favorite state and MPE status are read from the preset file when available. The bottom information area reports Category, Author and whether the preset is MPE enabled.

The parent-folder row allows moving up one folder when browsing inside a library. Syntropy2 and Syntropy are shown as Superbank choices rather than ordinary banks.

Search

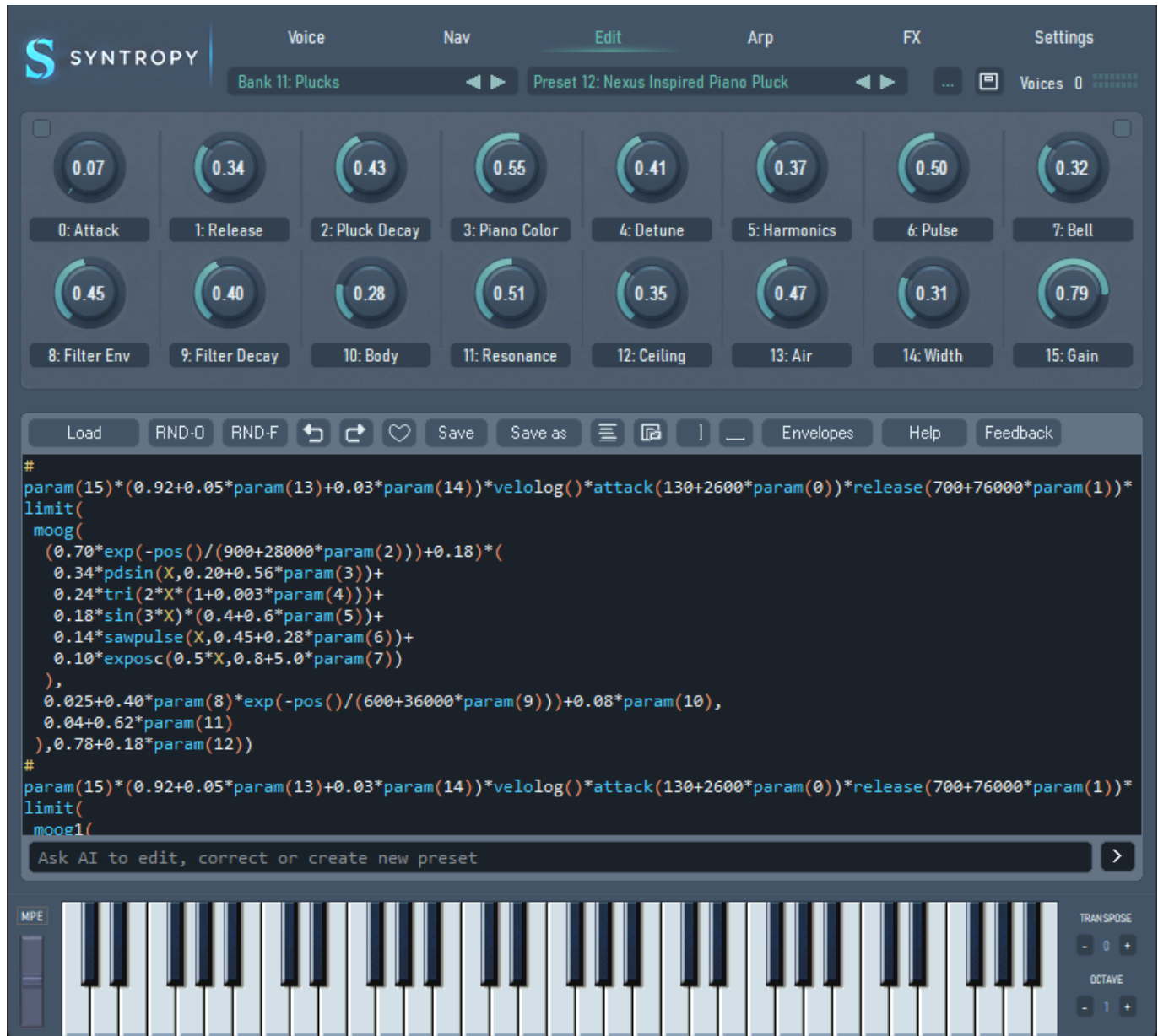
The Search field searches inside the current Superbank. It can match preset names and formula text, so searching for a function name can reveal presets that use that technique. Press the search button to run the search. Double-clicking a search result loads that preset and updates the main bank/preset controls.

Metadata

Syntropy preset files can contain Version, Category, Author and Favorite metadata. Category and Author are intended for library organization and future browsing. Favorite is a on/off tag used by the heart button and Navigator heart indicator.

3. Edit View

Edit view contains the Formula Editor. This is the sound-design center of Syntropy. A preset is not limited to fixed oscillators or a fixed signal path; it is built from mathematical expressions, synthesis functions, filters, envelopes, parameters and optional macros. You can write, edit, compile and save formulas to create new sounds or reshape existing presets.



Formula structure

A simple mono formula can be as short as:

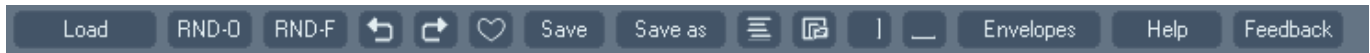
```
attack(200) * release(6000) * saw(X)
```

Stereo formulas use # to separate left and right channels. A parameter block in square brackets defines exposed knobs and their default values:

```
[Attack: 0.08; Release: 0.45; Cutoff: 0.62; Gain: 0.80;]
```

The Arpeggiator block uses braces {PIP,B|.} and is described in Section 4.

Formula Editor toolbar



- **Load** compiles the edited formula and makes it playable. After a successful compile the status bar reports Loaded not saved.
- **RND-O** randomizes oscillator functions of compatible argument count. It avoids deprecated oscillator functions and tries to apply stereo changes consistently.
- **RND-F** randomizes filter functions of compatible structure. If no filters are found, the status text reports that no filters were changed.
- **Undo and Redo** use the editor undo stack. Random and arrange actions are designed to be undoable.
- **Heart** toggles favorite state. When pressed, it marks the preset as favorite. Favorite state is written into the Syntropy preset metadata and is shown again when the preset is loaded. Navigator also displays a heart indicator for favorite presets.
- **Save** saves the edited preset.
- **Save as** opens a file dialog and writes a new preset file.
- **Auto arrange** formats formula text for easier reading without changing the sound.
- **Open in default text editor** writes the current formula to a temporary text file and opens it in the system text editor.
- **Width and height extension buttons** temporarily extend the editor view horizontally or vertically. The size extension applies only while Edit view is active.
- **Envelopes** opens the Envelope Editor subsection described below.
- **Help** opens the Syntropy help/documentation view.
- **Feedback** opens a dialog to send a message to SonicModeler. The dialog can send the preset with the message, or only the text message if the checkbox is enabled.

Status bar

The lower information bar reports compile status, preset load/save status, MPE detection and fast-envelope mode activation. Right-click the status bar and choose Copy to copy its text.

Tooltips and function help

When formula tooltips are enabled in Settings, the editor shows contextual function information near the caret. Double-clicking a function name opens its HTML reference page. The complete function reference is intentionally kept in the separate HTML documentation so this user help remains focused on workflow.

See also: Formula Editor reference - [Formula basics](#), [Complete function reference](#), [Recently added functions](#)

Right-click in the Formula Editor

Right-click supports normal text editing and Syntropy-specific formula operations.

- If the caret is over a numeric constant, Add as new param creates a new exposed parameter and replaces the constant with an expression controlled by param(n).
- Add to existing params replaces the clicked constant with an already existing parameter chosen from a submenu.
- If the caret is over a preset reference macro such as <Bank/Preset>, Show content expands it into the actual referenced formula.
- The editor avoids treating constants inside parameter metadata as formula constants.

Preset reference macros

A preset reference macro lets one preset reuse the formula from another preset. Up to four references can be used in one formula. Syntropy internally wraps the loaded formula in parentheses and merges parameter names into the visible parameter block. When the same reference is loaded again, Syntropy avoids duplicating the same parameter names.

```
<Basses/New - Bass2> + param(8) * <Drums/Kick 2>
```

This is useful for layered presets, hybrid bass-and-drum patterns, or quickly combining existing sounds. If a reference contains its own embedded envelopes or filters, Syntropy must keep the internal function instances separate so the referenced sounds do not collide with the parent preset.

Favorite, metadata and sharing

Preset metadata includes version, category, author and favorite. Category and Author can be written by preset files and tools. The Feedback button is intended for sending comments, bug reports, feature requests or user presets for possible inclusion in future Syntropy releases with credit.

Envelope Editor



The Envelope Editor is opened from the Envelopes button in Edit view. It edits envelopes used by `env()`, `envloop()`, `env_file()`, `envloop_file()`, `envloop_files()` and `envosc()` formulas.

- The envelope menu lists envelopes used by the currently loaded preset. Embedded envelope names are indexed from 0. File-based envelopes show the referenced file name.
- New creates a new embedded preset envelope associated with the current preset. If a formula uses `env()` for the first time and no embedded envelope exists yet, New gives the preset an empty envelope curve that can be edited and then referenced by `env(1,0)`, `env(1,1)`, and so on.
- Nav opens or closes the envelope file navigator on the left side. This list shows available `.env` files from the Syntropy Envelopes folder.
- The main envelope view lets the user edit envelope nodes directly. Mouse wheel zooms the view. Navigation buttons and range controls change the visible section of the envelope.
- BMP grid sets the rhythmic/grid display used while editing.
- Save writes changes back to the current envelope. For file envelopes it writes the `.env` file. For embedded envelopes it writes envelope data back into the preset data when the preset is saved.
- Save as is used when an envelope should be written as a separate `.env` file.

- Import from WAV can create an envelope shape from an audio file when available in the toolbar.

Use New before saving when you want the envelope data to travel inside the preset rather than relying on an external .env file.

See also: *Envelope functions* - [Envelope guide](#)

4. AI Assistant

The AI Assistant is available from the Formula Editor info bar (located below the Formula Editor).



It is designed to help create a new sound, modify the currently displayed formula, suggest parameter mappings, and optionally adjust envelopes and the FX chain. The result is loaded into the editor as an unsaved preset so you can review it before saving.

How to use the AI Assistant

Click the info text bar below the Formula Editor and type a request in normal language. Press Enter or the send button to submit the request. While the request is being processed, Syntropy displays "Waiting for AI response...".

The request is sent to the SonicModeler AI service together with the current Formula Editor text, available envelope information, current preset path, and current FX chain with parameter values. The server checks the returned formula data before Syntropy applies it.

Useful request examples

- Create a warm analog pad with slow movement and 16 useful parameters.
- Make this preset brighter but keep the bass level controlled.
- Please fix this formula because it contains some error.
- Please improve this preset adding more parameters to control the sound.
- Recreate a classic Juno-style chorus pad using Syntropy functions.
- Add a more realistic pluck attack and adjust the FX chain for space.
- Turn this mono lead into a wider stereo lead without excessive mono loss.

Working safely with AI results

AI output should be treated as a sound-design proposal. After a response is loaded, audition the sound, check the parameter names and default values, and save only when the result is useful. If the formula cannot be compiled or the returned data is invalid, Syntropy shows a plain-language error in the info bar. Undo and Redo can be used to step back through Formula Editor changes, including AI-generated replacements and other editor operations.

Notes and limitations

The AI Assistant understands Syntropy syntax from the server-side Syntropy reference file. It does not permanently learn from one user request to the next. For best results, describe the musical target, the intended role of the sound, and whether the AI should preserve the current formula structure or create a new one. Requests are processed online. If the AI service is temporarily unavailable or rate-limited, the info bar displays a user-friendly status message and the current formula remains unchanged.

5. Arpeggiator

The Arpeggiator view turns held notes into rhythmic note patterns and can also apply a rhythmic filter LFO. It supports 16 steps and can be used for bass lines, trance patterns, chord pulses and motion effects.



Main controls

- On enables or disables the arpeggiator. Choosing an arpeggio preset from the menu can automatically enable it.
- Stay on keeps the current arpeggiator pattern active when loading other presets. When checked, the current Arpeggiator is applied to every loaded preset.
- BPM displays host tempo when available. If host tempo is not available, the manual BPM value is used.
- Rate chooses the rhythmic step speed, such as 1/16.
- Direction chooses how the held notes are ordered.

- Range chooses the octave range or Chord mode. In Chord mode, steps can play notes simultaneously instead of as a single-note sequence.
- Retrig controls whether the pattern restarts when a note is played.
- Gate controls step length.
- Glide controls pitch sliding between arpeggiated notes.
- Swing offsets timing for a less rigid groove.

Step editor

The step area contains 16 Shift fields, 16 Velocity bars and 16 Pan bars. Shift changes pitch per step. Velocity changes step loudness. Pan changes stereo position. Right-clicking a step value resets only that current value. Step LEDs flash to show which arpeggiator step is playing.

Filter LFO

Filter LFO adds synchronized filter motion after the arpeggiator. It includes an enable checkbox, filter type, amount, resonance, speed, phase and Note follow. Filter type can select LP, Moog, SEM, diode, SVF and related models depending on the build. Phase offsets the second stereo side for wider movement. Note follow can make the filter respond to note pitch.

Arpeggiator macros and formula functions

When a preset stores an arpeggiator pattern, it uses a brace block in the formula text. The formula can also use `posarp()`, which follows the arpeggiator sample position, and `binaryarp()`, which creates rhythmic on/off patterns aligned to the arpeggiator rather than to the note line. These are documented in the HTML function reference.

See also: Arpeggiator macro and related functions - [Arpeggiator macro](#), [posarp\(\)](#), [binaryarp\(\)](#)

6. FX Section

The FX Section contains the output effect chain. Syntropy 2 supports five FX slots per preset, plus master meters and output control.

Signal flow: after the formula text produces the dry sound, audio is sent to the FX Section for post-processing. The chain is serial: slot 1 processes first, then slot 2, slot 3, slot 4 and slot 5. Slot order therefore matters musically, because each effect receives the result of the previous slot.



FX slots

Each FX slot has a menu that chooses the effect. The current effect name is displayed with the slot number, for example 1: Chorus. Audio flows from the top slot to the bottom slot: slot 1 processes first, then slot 2, and so on through slot 5. Slot menus include Move up and Move down where valid, so effects can be reordered without rebuilding the chain manually.

Available effects include Reverb, Chorus, Phaser, Soft Clip, Hard Clip, Stereo Wider, Delay, Fuzz, Conv Reverb and Limiter. The empty - FX - entry disables a slot.

Controls and automation

Effect parameters are edited with horizontal controls in each slot. Right-clicking an FX parameter can be used for MIDI Learn where supported. In plugin builds, FX parameters are intended to be available to the host automation system according to the plugin format implementation.

Mute buttons

Each slot has a mute button. Muting bypasses the selected slot without deleting it, which is useful for comparing a chain with and without one processor.

Convolution Reverb

Conv Reverb uses built-in impulse resources. Its impulse menu shows impulse names without the .wav extension. The menu arrows step backward and forward through the available impulses. Size and Amount control the apparent reverb size and blend. Realtime mode uses the optimized realtime path, while high-quality/offline processing uses a higher-quality path.

RND-FX

RND-FX randomizes a complete five-slot chain using musical constraints. Limiter is reserved for the last slot when needed. If convolution reverb is present, the limiter is forced to the final slot. Reverb is strongly biased toward slot 4. Duplicate effects are avoided except for effects where duplicates can remain musically useful, such as Chorus and Phaser. Soft Clip and Limiter use safe level ranges.

FX Stay on

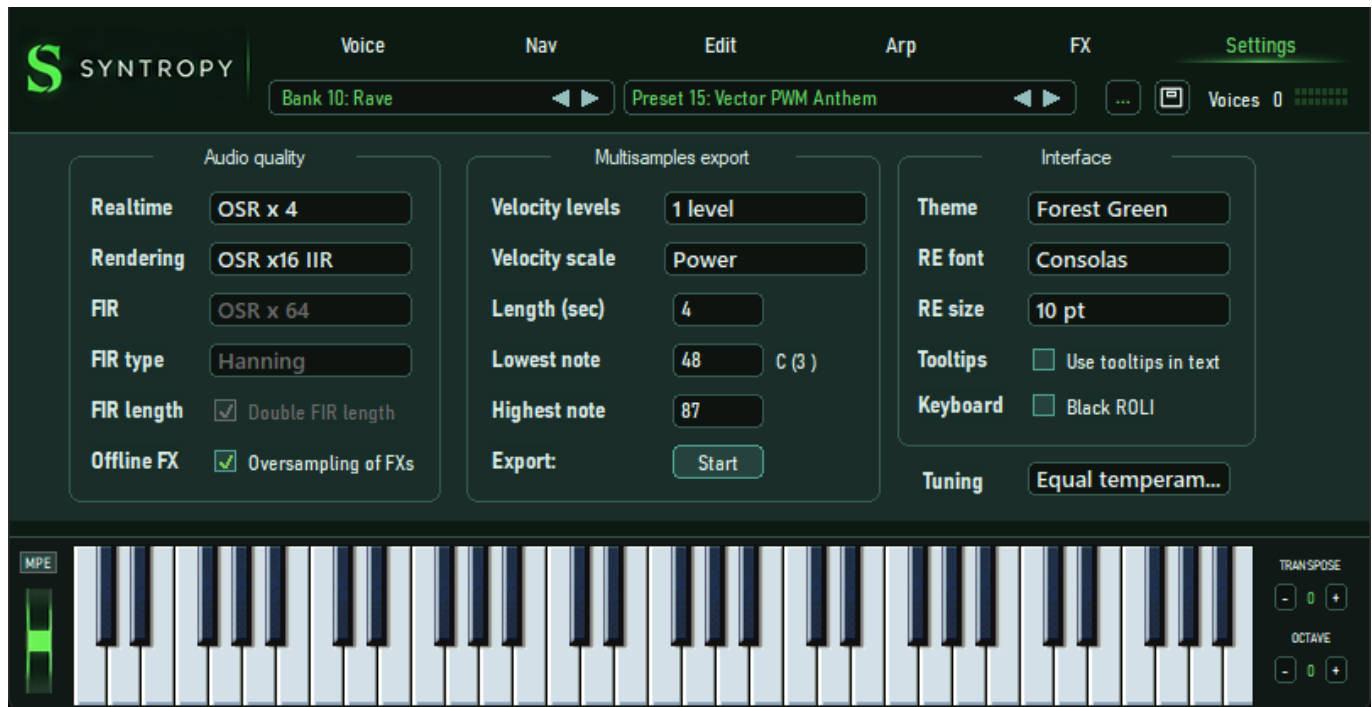
FX Stay on keeps the current FX chain when loading presets. When checked, new presets use the currently loaded FX configuration instead of the FX chain stored in the preset. This is useful for auditioning many presets through the same processing chain.

Master section

The master area contains output meters, volume controls and global FX utilities. The master volume slider can be moved with the left mouse button to change gain for both channels together. Use the right mouse button when you need to adjust left and right channel volume separately. This is also the safest place to watch output level after randomizing or loading a new FX chain.

7. Settings

Settings controls audio quality, offline rendering quality, multisample export, interface theme, Formula Editor appearance and keyboard behavior.



Audio quality

Realtime OSA controls oversampling used while playing live. The menu offers OSR x1, x4, x8, x16 and x32. Higher realtime oversampling can reduce aliasing and make oscillators, filters and nonlinear processing sound smoother, but it increases CPU use during live play. Use lower values for heavy presets or large polyphony, and higher values when the computer has enough CPU headroom. In Standalone, the realtime OSA setting is stored in Syntropy.ini. In VST3/CLAP, it is stored as plugin state per instance so a host project can restore it.

Rendering selects the offline render/export quality path. It is independent from live CPU use except when the As in Real time option is selected. The default option is OSRx16 IIR, which gives a safer high-quality render path without FIR latency and without the very long render time of FIR mode.

Rendering modes

“OSR x16 IIR” renders with x16 oversampling and the staged realtime/IIR decimator. This is the recommended default balance of quality and speed. “As in Realtime” uses the OSR value currently selected in the Realtime menu, also with the staged real-time/IIR decimator. “FIR (HQ, slow)” uses the dedicated FIR offline path with the FIR OSR and FIR options below; it can give the cleanest alias-free decimation, but rendering/export can be much slower and FIR latency is reported where needed.

FIR chooses the oversampling value used only by “FIR (HQ, slow)”: OSR x64 or OSR x128. FIR type chooses the window/filter type: Blackman, Hanning or Hamming. Double FIR length increases FIR precision for top-quality offline filtering but can make rendering longer. Offline FX controls whether FX are also processed in the offline oversampled path.

Multisample export

The multisample export area sets velocity levels, velocity scale, note length, lowest note and highest note. Start begins export. Syntropy exports the preset as a multisample instrument source: multiple note samples across the selected keyboard range, optionally with multiple velocity layers. The available velocity-layer formats are 1, 2, 4, 8 and 16 levels, with Power or Linear velocity scaling. Length sets exported sample length in seconds. Lowest note and Highest note define the keyboard range.

Multisample export uses the currently selected Rendering mode. This lets exported samples be generated at a higher quality than live playback when desired, or faster when OSRx16 IIR is sufficient. A practical workflow is to design a rich preset, export it with the Rendering option that gives the desired balance of quality and time, then use the resulting multisample when the preset is too CPU-heavy to play live or when maximum alias-free quality is needed.

In plugin builds Syntropy warns that exporting multisamples can hang the host for some time, especially with high oversampling. Standalone version of Syntropy is the safer place for long multisamples exports.

Interface

Theme chooses the visual color scheme. The current menu order is Dark Blue, Sunset Amber, Forest Green, Blue Grey and Arctic White. RE font and RE size choose the Formula Editor font face and size. Use tooltips in text enables formula-function tooltips and toolbar tooltips that are linked to formula editing.

Keyboard

Keyboard options control the visual and performance keyboard behavior, including black/ROLI-style keyboard mode where available.

Tuning

Tuning selects the musical temperament. The available temperament list includes Equal temperament, Pythagorean, Just and Mean-tone 1/4 comma.

Standalone-only notes

Standalone can include extra workflow features such as Quick View audio preview/export and Pattern (Windows only) tools. Plugin versions focus on host-integrated playback, automation, state recall and DAW tempo synchronization.

Platform Notes: Windows and macOS

The Windows and macOS versions are intended to share the same preset language, preset format, synthesis functions, preset reference macros, 16-parameter structure, metadata, five FX slots and main six-view workflow.

Windows-specific behavior includes Windows preset paths, the Windows installer, the default text editor command from the Formula Editor toolbar, VST3/CLAP host state handling, and the Windows-style file dialogs. macOS uses platform-native paths and UI plumbing but should load the same Syntropy 2 presets and the same formula language.

See also: **General documentation** - [Documentation index](#), [Quick start](#), [Function reference](#)