VECTRA SAMPLE ENGINE

Sample Oscillators, Sample Bay, Looping, Markers and Wavetable Conversion

User Manual | Public release edition 1.0

Figure 1. The Sample Engine inside the Synth page, with sample oscillators routed through the normal Vectra voice path.

Document scope

This manual covers Sample mode on the Synth page, the Sampler Editor, sample loading, SHOT/GATE/LOOP playback, markers, loop crossfade, root note setup, sample-to-wavetable conversion and modulation integration.

Contents

Terminology note

Sample Engine refers to the oscillator mode. Sample Bay / Sampler Editor refers to the expanded waveform-editing workspace. Sample-to-wavetable conversion feeds Vectra’s own wavetable workflow.

1. Overview

The Sample Engine turns Vectra into a dual sample-source synthesizer. OSC A and OSC B can load audio files and play them through the same core Vectra instrument path as the other oscillator engines: pitch, unison, filters, envelopes, LFOs, Living Matrix, Macro Bay and FX all remain available around the sample source.

It is designed for one-shot hits, vocal chops, sustained textures, loops, sampled instruments, hybrid layers and sample-derived wavetable creation. The Synth page gives fast access to loading and performance. The Sampler Editor gives detailed access to waveform markers, loop points, root note, crossfade, variance and diagnostics.

Important

The Sample Engine is an oscillator mode inside Vectra. It is not a separate sampler plugin and it is not Forge. Samples become part of the oscillator source layer and then move through Vectra like any other sound source.

Signal path summary

Stage	What happens
Load or drop sample	WAV, AIFF/AIF or FLAC is loaded into OSC A or OSC B.
Sample oscillator	Start, Root, Gain, Mode and Loop settings define the playable source.
Voice path	The sample passes through pitch, unison, envelopes and filters like the other oscillator engines.
Living Matrix	Sample Start, Gain, XFade and Variance can be modulated where exposed as destinations.
FX and output	The result moves through Vectra's FX/output path like any other oscillator source.

2. Quick Start

Load a sample into OSC A

1. Select the Sample engine icon on OSC A.
2. Click the sample selector or drop a WAV, AIFF/AIF or FLAC file onto the oscillator hex.
3. Choose Load Sample if you are using the menu.
4. Play the keyboard to audition the sample.
5. Use Start, Semi, Fine, Volume and the filter section to place the sample inside the patch.
6. Open Sample Bay for detailed marker and loop editing.

Create a looped texture

7. Load a sustained or textured sample.
8. Open the Sampler Editor.
9. Set Mode to LOOP.
10. Move Loop Start and Loop End around a stable region.
11. Enable Snap Zero while editing markers.
12. Increase XFade if the loop clicks.
13. Use Fit and the overview rail to return to the full sample view.

Convert a sample into a Vectra wavetable

14. Load a valid sample.
15. Open the sample menu.
16. Choose Convert to Wavetable.
17. Select Single Cycle or Texture 64.
18. Wait for conversion and cache writing to finish.
19. Use the generated material in Vectra's wavetable workflow.

3. Sample Engine on the Synth Page

On the Synth page, Sample mode replaces the oscillator core display with a waveform/drop-zone view. The oscillator still keeps its pitch, level and unison controls, but the mode-specific control changes to Start. This lets you move the note-on start position through the sample while keeping the rest of Vectra's voice architecture intact.

Figure 2. Sample oscillator close-up. The central hex shows the loaded waveform and the dynamic lower-right control becomes Start.

Control	Meaning
Sample selector	Shows the loaded file or opens sample loading and management commands.
Drop zone / waveform hex	Receives dropped audio files and previews the loaded waveform.
Start	Moves the playback start position inside the loaded sample.
Semi / Fine	Transpose and fine tune the sample oscillator.
Volume	Sets oscillator level before the rest of the Synth path.
Voices / Detune / Spread / Blend / Drift	Unison and performance controls remain available around the sample oscillator.

Note-on behavior

Start and loop-relevant sample settings are captured when a new note starts. If you edit Start, loop points or XFade while a note is held, trigger a new note to hear the updated behavior reliably.

4. Opening the Sampler Editor

The Sampler Editor is the expanded Sample Bay workspace. It is the correct place for detailed editing: marker placement, loop setup, root note, direction, crossfade, variance, waveform navigation and readout inspection.

Figure 3. Full Sampler Editor with OSC A and OSC B loaded. The editor shows two sample bays, waveform lanes, editing controls and the Advanced Dock.

Use the OSC A and OSC B buttons at the top of the editor to choose the focused sample lane. The focused lane drives the Advanced Dock readout and editing focus, while the other lane can remain visible for comparison.

Top-bar item	Function
OSC A / OSC B	Selects the active sample lane for editing and readout.
SNAP ZERO	Helps marker edits land near zero crossings.
FIT	Fits the waveform view back to the full sample.
X	Closes the Sampler Editor and returns to the surrounding Synth page.

5. Loading, Replacing and Locating Samples

Sample management is available from the oscillator menu and from the Sampler Editor bay controls. The menu is intentionally practical: load, replace, locate missing material, clear the slot, convert to wavetable, reveal the file in Finder, or copy the path.

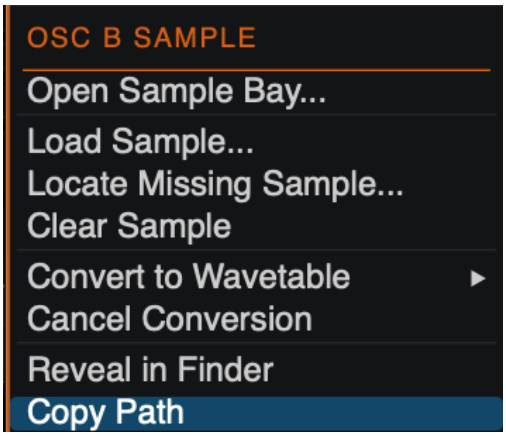

Figure 4. Sample menu for OSC B. Use it to open Sample Bay, load or locate files, clear the slot, convert to wavetable, reveal the file or copy its path.

Command	Use
Open Sample Bay	Opens the full Sampler Editor.
Load Sample	Loads a supported audio file into the selected oscillator.
Locate Missing Sample	Reconnects a preset to a file that has moved.
Clear Sample	Removes the current sample reference from the oscillator.
Convert to Wavetable	Creates Vectra-generated wavetable material from the sample.
Cancel Conversion	Stops an active conversion job.
Reveal in Finder	Opens the original file location if it still exists.
Copy Path	Copies the current file path for troubleshooting or file management.

Supported formats

The Sample Engine load path supports WAV, AIFF/AIF and FLAC. Convert other file formats before loading.

6. Playback Modes: SHOT, GATE and LOOP

The Mode selector chooses how the loaded sample behaves when a note is triggered. These modes define the musical role of the sample oscillator.

Mode	Best for	Behavior
SHOT	Drums, hits, vocal chops, impacts	Plays the selected region once.
GATE	Playable instruments and key-held samples	Plays while the note is held and follows the voice release path.
LOOP	Drones, pads, textures, sustained tones	Repeats the loop region between Loop Start and Loop End.

7. Waveform Markers

The waveform editor is marker-based. Markers define where playback starts, where the sample region ends, and where loop playback enters and exits. The Advanced Dock gives a precise readout of marker identity and timing.

Figure 5. Focused waveform lane with start/loop markers and the overview rail underneath.

Marker	Meaning
Start	Beginning of the playable region.
End	End of the playable region.
Loop Start	Entry point for looping playback.
Loop End	Exit point for looping playback.

Move markers carefully, then retrigger the note if the note was already sounding. Marker changes affect how the next playback instance starts and loops.

8. Loop Editing, Snap Zero and XFade

Loop editing is the most sensitive Sample Engine workflow. A loop has to contain useful audio content, have enough length to repeat reliably, and avoid sharp discontinuities at the loop boundary. Vectra gives you two tools for this: Snap Zero and XFade.

Tool	Purpose	Practical advice
Snap Zero	Helps place markers near zero crossings.	Use it while moving Start, End and loop markers.
XFade	Smooths the loop transition.	Increase gradually if the loop clicks. Very short loops limit the possible crossfade.
Overview rail	Shows where you are in the full sample.	Use it to navigate long files, then press Fit to return to full view.

Loop safety

Snap Zero and XFade reduce clicks, but some source files still need careful loop placement. If a loop still clicks, widen the loop, move the markers, lower brightness with a filter, or choose a smoother source region.

9. Root Note, Direction and Pitch

Root tells Vectra which MIDI note represents the original pitch of the sample. If Root is wrong, the sample will transpose incorrectly across the keyboard. Direction chooses forward or reverse playback.

Control	Meaning
Root	MIDI note of the sample’s original pitch. Default is 60.
DIR FWD	Forward playback.
DIR REV	Reverse playback.
Semi / Fine	Oscillator pitch controls for musical transposition around the root mapping.

For pitched material, set Root first, then use Semi and Fine for creative transposition. For drums and noise textures, Root can often remain at its default unless keyboard tracking matters.

10. Gain, Start and Variance

The Sample Engine has direct controls for level, start position and controlled randomness. These are powerful because they can turn one source file into many playable variations.

Control	Range	Use
Start	0-100%	Moves the sample playback start position. Useful for chops, offsets and scan-like performance.
Gain	0-2x	Scales sample level before the rest of the voice path.
Var	0-100%	Adds start variation/randomness for repeated triggers. Useful for avoiding identical repeated playback.
XFade	0-200 ms	Smooths loop boundaries.

Performance idea

Route a Macro or LFO to Sample Start for animated vocal chops, glitch textures and sample-scan effects. Trigger new notes to hear latched start-position changes reliably.

11. Advanced Dock

The Advanced Dock is a focused readout panel for the active sample lane. It helps you inspect the current view, navigation range, edit state, marker positions and file information without guessing from the waveform alone.

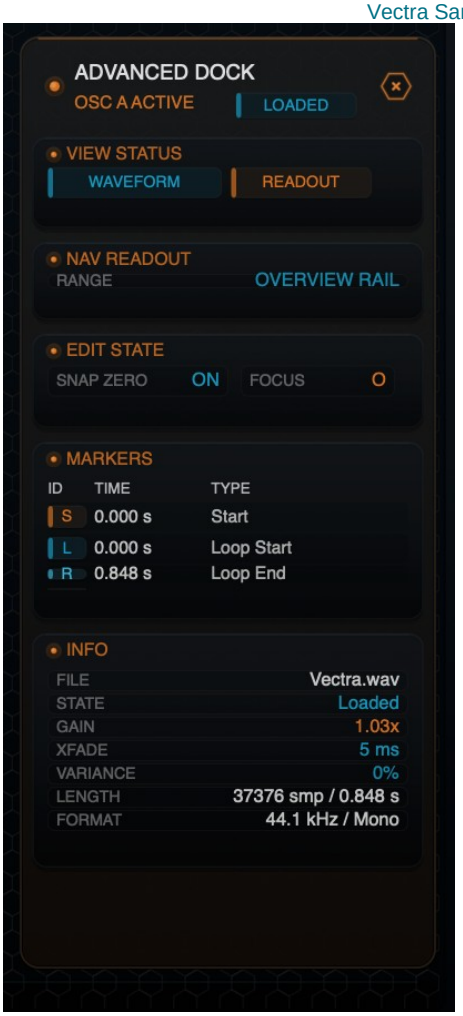

Figure 6. Advanced Dock with view status, navigation readout, edit state, marker table and file information.

Dock section	Shows
View Status	Waveform/readout display state.
Nav Readout	Current range and overview rail status.
Edit State	Snap Zero and focus state.
Markers	Marker IDs, times and marker types.
Info	File name, loaded state, gain, XFade, variance, length and format.

12. Sample-to-Wavetable Conversion

Sample-to-wavetable conversion connects the Sample Engine to Vectra's wavetable workflow. Single Cycle and Texture 64 create Vectra-native generated wavetable material from loaded sample content.

Conversion mode	Meaning	Good source material
Single Cycle	Creates a playable single-cycle style wavetable from a short region.	Stable tonal material, bass waves, vocal vowels, simple waveforms.
Texture 64	Creates a 64-frame wavetable texture from a broader sample region.	Evolving textures, vocal motion, noisy tones, impacts, spectral material.

Vectra-native conversion

Single Cycle and Texture 64 create material for Vectra's generated wavetable library. Compatibility with other instruments depends on their own import requirements.

13. Modulation and Living Matrix Integration

The Sample Engine participates in Vectra's modulation system where sample-specific controls are exposed as destinations. This means sample behavior can be performed and animated from the Living Matrix and Macro Bay.

Safe modulation target	Typical use
Sample Start	Vocal chops, granular-style offsets, scan motion, rhythmic sample slicing.
Sample Gain	Dynamic level shaping, macro-controlled layers, velocity-style emphasis.
Sample XFade	Loop smoothing changes, evolving sustained textures.
Sample Variance	Controlled variation for repeated notes.

File loading, Locate, Clear, Reveal, Copy Path and Convert are editing commands, not musical modulation destinations.

14. Practical Recipes

One-shot percussion layer

- Load a percussion sample into OSC A.
- Set Mode to SHOT.
- Tune with Semi/Fine.
- Use Amp Env for punch and release.
- Layer with OSC B if needed.

Looping drone

- Load a sustained source.
- Open Sample Bay.
- Set Mode to LOOP.
- Find a stable loop area.
- Use XFade and filtering to smooth the repeat.

Reverse texture

- Load a sample with an interesting tail.
- Set Direction to REV.
- Use SHOT for reverse hits or LOOP for texture.
- Add reverb/delay in FX.

Rooted sample instrument

- Load a pitched sample.
- Set Root to the sample's original note.
- Use Gate or Loop.
- Shape the note with Amp Env and filters.

Sample-start macro

- Route Macro 1 to Sample Start.
- Set moderate depth.
- Rename Macro 1 to START or CHOP.
- Play repeated notes while moving the macro.

Texture 64 wavetable

- Load a rich sample.
- Choose Convert to Wavetable.
- Select Texture 64.
- Use the generated table in WT mode and scan with WT Pos.

15. Troubleshooting

Issue	Likely cause	Fix
Sample will not load	Unsupported format or missing access.	Use WAV, AIFF/AIF or FLAC and confirm Sample Engine access.
Preset says sample missing	The referenced file moved or was deleted.	Use Locate Missing Sample or Clear Sample.
Start changes are not heard immediately	A note is already sounding with latched settings.	Trigger a new note.
Loop clicks	Loop boundary is discontinuous.	Use Snap Zero, move markers and increase XFade.
Loop does not behave as expected	Loop region is too short or invalid.	Widen Loop Start/Loop End and use a region with useful audio.
Pitch is wrong	Root note is wrong.	Set Root to the original sample note.
Reveal in Finder fails	Original path no longer exists.	Use Locate Missing Sample or Copy Path for diagnostics.
Convert is unavailable	No valid sample is loaded or a conversion is already active.	Load a sample and wait for conversion state to clear.
Sample sounds mono	The source file is mono.	Use stereo source material or process the mono layer through unison/FX.

16. Technical Appendix

Implementation model

In Vectra, Sample is a real oscillator engine state. It is selected per oscillator and then fed through the same voice architecture as the other engines. The file itself is managed as a Sample Asset, while playback is handled by the sample oscillator voice path.

Note-on latching

Playback mode, region, loop markers, crossfade, root note, reverse, variance and gain are captured at note-on for stable playback. This is why some edits require a new trigger before they become audible on the playing voice.

Loop crossfade

Loop XFade is limited by the actual loop length. Very short loops cannot use long crossfades, because the crossfade cannot be longer than the available loop region.

17. Parameter Appendix

Parameter	Range / values	Default / note
Sample Mode	SHOT / GATE / LOOP	Default: GATE.
Sample Start	0.0-1.0	Displayed as 0-100%.
Sample End	0.0-1.0	Usually full length by default.
Loop Start	0.0-1.0	Loop entry point.
Loop End	0.0-1.0	Loop exit point.
Loop XFade	0-200 ms	Default shown as 5 ms in screenshots.
Root	0-127 MIDI note	Default 60.
Reverse	Off / On	UI shows FWD or REV.
Variance	0-100%	Adds start variation for repeated triggers.
Gain	0-2x	Default 1x.

18. Preset Compatibility Notes

Sample presets store references to sample material. If a preset cannot find its referenced file, the Sample Engine exposes a missing-sample recovery path. Use Locate Missing Sample to reconnect the preset to the moved file. Use Clear Sample when the source no longer belongs in the patch.

When sharing presets, include the required sample files and use the supported library/package workflow for your Vectra release.

Edition access

Sample Engine availability follows your installed edition or module entitlement. When access is missing, Vectra displays a locked-feature message instead of loading an invalid Sample Engine state.