
PHANTOMEXPOSURE // VST3 INSTRUMENT

SPECIMEN

AUDIO DISSECTION UNIT

A sampler that treats a sound as a specimen on a slide. Load audio, place it under the lens, and excavate five hidden layers of the same material — then mutate, filter, slice and graft it into something that never existed in the original file.

USER MANUAL

Version 0.3.2 • Pass P015 • Windows VST3
Built with JUCE 8 • C++ • MSVC

CONTENTS

01	The concept	3
02	Installation & first sound	3
03	The interface at a glance	4
04	The five layers	5
05	The lens: dissection in space	6
06	Microtome: slicing the specimen	7
07	Mutate — Tissue page	8
08	Mutate — Reagent page	9
09	The filter section	10
10	Halo & Envelope modes	11
11	Graft, Output & Root	12
12	Incubate & Init	12
13	Complete parameter reference	13
14	Workflows & recipes	14
15	Troubleshooting & specs	15

01 // THE CONCEPT

Most samplers play a file back. Specimen dissects it.

When you load audio into Specimen, it is analysed and separated into five distinct **layers** — different views of the same material, the way a pathologist stains one tissue sample several ways to reveal different structures. You choose which layer to examine, then move a **lens** across the waveform to select the window of sound a note will play.

From there, Specimen is a full sound-design laboratory. You can slice the lens region into playable sections (**Microtome**), age and corrupt the material (**Mutate**), reshape its spectrum with four filter characters, wrap it in three flavours of space (**Halo**), and reshape its dynamics with three envelope characters. A second sample can be **grafted** into the first. The result is an instrument that finds sounds hidden inside your samples rather than simply replaying them.

A NOTE ON NAMING

Every control uses laboratory language on purpose — layers, reagents, necrosis, antigen, fossil, stain. Once the metaphor clicks, the names tell you what each control *does* to the sound. This manual explains each one in plain terms alongside the concept.

02 // INSTALLATION & FIRST SOUND

Install

Copy Specimen.vst3 to your VST3 folder (C:\Program Files\Common Files\VST3), then rescan plugins in your DAW. Specimen is a Windows VST3 instrument; insert it on an instrument/MIDI track.

Make your first sound in four steps

1	Drop a sample Drag any WAV, AIFF or FLAC onto the large reader screen, or click HOST to browse. The waveform appears as living tissue under the lens.
2	Play a note Send MIDI. The specimen plays back at the pitch you press, relative to the ROOT note. Click AUDITION at any time to hear the current setting hands-free.
3	Move the lens Drag the bright lens box left/right to choose which part of the sound you hear. Drag its edges to resize, scroll to zoom, double-click to reset it to the whole file.
4	Change layers Click BODY / IMPACT / RESIDUE / NEGATIVE / VEINS to hear five different extractions of the same sample. This is the heart of Specimen.

SAFETY EXIT

Lost in a sound? **INIT** returns every control to its factory default and keeps your loaded samples. It is impossible to get so tangled that you can't get back — one click is home.

03 // THE INTERFACE AT A GLANCE

Specimen is one window, styled as a backlit microfilm reader. Three zones stack top to bottom:

THE READER SCREEN (top)

The large lit area. Shows the sample as animated tissue, the movable lens, a scanning playhead beam, MIDI ripple rings, sprocket strips that crawl while sound plays, and a film frame counter (FR nnnn / REEL x). Layer name is centred at the top; the four corners and centre label the five layers.

TRANSPORT ROW (middle)

HOST and GRAFT load buttons, AUDITION, the Microtome controls (CUT / slice mode), INIT and INCUBATE, the five layer chips, and the three SCAN direction buttons.

CONTROL DECK (bottom)

Seven groups of sliders: DISSECT, LENS, MUTATE, FILTER, HALO, ENVELOPE and the PLAY group. Group captions in the MUTATE / FILTER / HALO / ENV / PLAY sections are clickable — they cycle that section's mode. A caption lit amber means a non-default mode is active. The PLAY caption swaps the final two sliders between OUTPUT/ROOT (LEVEL) and SEAM/QUALITY (SEAM).

READING THE SCREEN

ELEMENT	MEANING
Bright lens box	The window of sound a note plays. Drag / resize / scroll / double-click.
Scanning beam	Live playhead while a note sounds.
Ripple rings	Emitted on each MIDI note-on.
Sprocket crawl	Film transport; idles slow, runs while audio plays.
FR nnnn / REEL x	Playhead position as a film frame; reel letter = active layer (A–E).
Dashed cut lines	Microtome slice boundaries; the active slice is lit.

04 // THE FIVE LAYERS

Layers are Specimen's signature. Each is a different extraction of the *same* loaded sample, selected with the coloured chips in the transport row. Switching layer re-auditions instantly so you can compare them quickly.

BODY

The smooth instrument mass

The tonal core of the sound — the sustained, pitched body of the material with transients and noise smoothed away. The default, and the most 'playable' layer.

IMPACT

Transient shards & strike edges

Only the attacks, hits and edges — the percussive skeleton. Great for rhythmic material, drum-like tones, and adding bite when layered under BODY.

RESIDUE

Surface dust, air & grain

The non-tonal residue: breath, hiss, grain and texture that sits on the surface of a sound. Airy, atmospheric, and ideal for pads and beds.

NEGATIVE

Body removed, shadow layer

The inverse — what remains when the tonal body is taken away. A hollow, spectral 'photographic negative' of the sample. On screen the specimen becomes a dark cut-out with a pale halo.

VEINS

Hidden resonant traces

Faint resonant structures pulled out of the material and threaded through it as pulsing filaments. Metallic, vocal, uncanny — the strangest of the five.

TIP — LAYER STACKING

Because layers re-audition instantly, sound-design by comparison: find a lens position you like on BODY, then flick through IMPACT and VEINS on the same window to discover hidden character in the exact same moment of the sample.

THE LAYERS ON SCREEN

The same sample viewed through four of the five layers. Note how each carries its own colour identity and on-screen behaviour — and how the microtome cut lines and lens appear differently in each.



RESIDUE (bone) – airy surface dust; SIEVE filter + ECHO halo; lens centred



VEINS (teal) – resonant filaments; CUT:16 KEYMAP; SMEAR halo; whole file under lens



NEGATIVE (violet) – dark cut-out with pale halo; PLUCK env, REV scan, CUT:16



IMPACT (coral) – transient layer; CUT:4 SCATTER; SWELL env; PLAY:SEAM (note SEAM / QUALITY sliders)

05 // THE LENS: DISSECTION IN SPACE

The lens is the bright box on the reader screen. It defines **which slice of time** in the sample a note plays. It is a physical object — you manipulate it directly:

GESTURE	ACTION
Drag inside the lens	Move the playback window along the sample (LENS START).
Drag either edge	Resize the window (LENS SIZE).
Scroll wheel	Zoom the window in/out around its centre.
Double-click	Reset to the whole file (START 0, LENS 100%).
Click outside	Jump the lens there and audition.

The three LENS-group sliders

These mirror the lens and add movement:

SLIDER	RANGE	WHAT IT DOES
START	0–100%	Left edge of the window as a position through the file.
LENS	2–100%	Width of the window. Small = a tiny grain; wide = the whole sound.
MOTION	0–100%	Drifts the window through the sample <i>while notes sustain</i> . The on-screen lens visibly moves in step with what you hear. At 0 the window is static.

SCAN DIRECTION

The FWD / REV / PEND buttons set how the window is read: **FWD** forward, **REV** backward, **PEND** pendulum (bounces back and forth inside the window). With a small LENS size, PEND turns a single grain into a bowing, breathing loop.

DISSECT / DEPTH

DEPTH (in the DISSECT group) controls how aggressively the chosen layer is separated from the rest of the material — low is subtle, high is a hard extraction. Think of it as focus depth on the microscope.

06 // MICROTOME: SLICING THE SPECIMEN

A microtome cuts a specimen into thin sections for the slide. Specimen's Microtome cuts the **lens region** into equal sections you can trigger individually — a built-in slicer/chopper.

Two controls in the transport row

CONTROL	OPTIONS	EFFECT
CUT	OFF / 2 / 4 / 8 / 16 / 32	How many equal sections the lens region is divided into. OFF = one whole window.
Slice mode	KEYMAP / CYCLE / SCATTER	How incoming notes choose a slice (below).

Slice modes

KEYMAP

Chromatic keys upward from ROOT select slices, and playback is **unpitched**. Load a drum loop, set CUT:8, and each white key plays the next slice at its original pitch — an instant, playable breakbeat chopper across your keyboard.

CYCLE

Each note-on advances to the next slice in order, and playback **is** pitched. Hold one key and repeat it to walk through the sample in rhythmic order.

SCATTER

A random slice on every note-on, pitched. Endless variation from a single sustained sample — granular, glitchy, generative.

On screen, the lens shows dashed cut lines with slice numbers, and the slice that last triggered is highlighted. Slices play as one-shots, move with MOTION, and PEND bounces *inside* a slice.

FLAGSHIP COMBO

KEYMAP + a rhythmic loop + CUT:8 or 16 is the fastest way to a playable chopped instrument in any DAW. Add a touch of FILTER:PORE and a short ENVELOPE for classic MPC-style bite.

07 // MUTATE — TISSUE PAGE

The MUTATE group holds eight controls across two pages. Click the **MUTATE:** caption to flip between **TISSUE** (this page) and **REAGENT** (next page). Both pages' effects run at once — the caption only changes which four sliders you see. All default to neutral, so a fresh patch is unmutated.

SLIDER	RANGE	WHAT IT DOES
EROSION	0–100%	Wears the material down — a granular decay that eats at the sound's definition. Low adds grit; high dissolves the specimen into particles.
FOSSIL	0–100%	Sample-rate reduction / sample-and-hold. Low is subtle digital grit; high freezes the sound into coarse, petrified steps of up to ~53 samples per hold.
MITOSIS	0–100%	The specimen divides. Spawns two detuned, stereo-spread clone voices per note (up to ±20 cents). Instant thickness, width and chorus — a unison engine.
STAIN	–100 to +100%	Bipolar spectral tint around 760 Hz. Negative darkens toward body and mass; positive bleaches toward air and residue. A fast tone-tilt for the whole voice.

USAGE NOTES

- **MITOSIS** is the quickest route to a big, wide patch — even 20–30% transforms a thin sample into a lush unison.
- **FOSSIL** and **EROSION** stack beautifully for lo-fi textures: **EROSION** for organic decay, **FOSSIL** for digital crush.
- **STAIN** is your fastest EQ move — pull it negative to warm a bright sample, push positive to add air to a dull one.

08 // MUTATE — REAGENT PAGE

The second MUTATE page holds four **reagents** — time-and-behaviour treatments applied to each voice. Reach them by clicking the MUTATE caption until it reads **MUTATE:REAGENT**. Like the tissue controls, all default to zero.

SLIDER	RANGE	WHAT IT DOES
NECROSE	0–100%	Each held note ages: it darkens and its pitch droops (up to about –35 cents) over roughly four seconds. Notes literally decay and die — wonderful for evolving, mortal-sounding pads.
ANTIGEN	0–100%	Ring modulation tuned to the played note. Low mix adds a metallic sheen that tracks your playing; full mix is a tuned ring-mod bell tone.
FLINCH	0–100%	Random position glitches inside the voice's window (up to ~100 jumps/second at max). Adds nervous, stuttering, granular instability. A little goes a long way.
VERTIGO	0–100%	A slow pitch spiral, phase-scattered per voice, so notes drift seasick-ly against each other. Subtle detune movement at low settings, woozy tape-warble at high.

SIGNATURE PATCH

NECROSE ~60% with the SWELL envelope (see section 10) on a long-held chord produces a pad that blooms in, then slowly darkens, detunes and dies — a sound that is impossible with a normal sampler.

Because tissue and reagent effects run simultaneously, you can combine e.g. MITOSIS width with VERTIGO drift for a huge, living unison, or FOSSIL crush with FLINCH glitch for aggressive digital chaos.

09 // THE FILTER SECTION

Two sliders (CUTOFF, RES) and one clickable caption that cycles five characters. Click the **FILTER:** caption to change mode; it lights amber when active. All filters are block-smoothed for zipper-free sweeps and are unconditionally stable, even at full resonance.

MODE	CHARACTER
OFF	Filter bypassed (default).
PORE	Resonant low-pass — the workhorse. Warm, musical, self-oscillation-free. Your default filter.
SIEVE	A mesh of comb notches at the cutoff frequency and its golden-ratio partner. Sounds like straining the sound through gauze — hollow, phasey, metallic. Feed-forward, so it can never blow up.
MEMBRANE	Narrow resonant band-pass. Vocal, focused, formant-like. Sweep CUTOFF for talking/wah motion.
CAVITY	Two band-pass formants (at the cutoff and 2.7× above). A body/box resonance — adds a physical, resonant-chamber quality.

Controls

SLIDER	RANGE	NOTES
CUTOFF	60 Hz – 16 kHz	Filter frequency. Logarithmic response for musical sweeps.
RES	0–100%	Resonance / emphasis at the cutoff. Higher = sharper, more vocal, more character.

SOUND-DESIGN NOTES

- **SIEVE** at high RES on the VEINS layer is a highlight — eerie, resonant, unlike any normal filter.
- **MEMBRANE** + slow CUTOFF automation = expressive wah/vowel movement.
- **CAVITY** on RESIDUE turns hiss and air into a resonant, breathy body.

10 // HALO & ENVELOPE MODES

HALO (SPACE / AMBIENCE)

The HALO group has a BLOOM slider (amount) and a clickable caption cycling three space characters. All feedback paths are gain-limited for stability.

MODE	CHARACTER
BLOOM	The original halo: a soft, blooming resonant wash. Warm and diffuse (default).
SMEAR	Six scattered taps with damped feedback — a dense, diffuse reverb-like smear. Great for pads.
ECHO	Three evenly spaced decaying repeats — a rhythmic delay. Adds motion and space with a defined pulse.

ENVELOPE (DYNAMICS)

ATTACK and RELEASE sliders shape each note's amplitude; the ENV caption cycles three shapes.

MODE	SHAPE
LAB	Standard linear attack/release — clean and neutral (default). ATTACK and RELEASE behave conventionally.
PLUCK	Fast charge then decay <i>while held</i> — percussive and plucky. Notes fade even if you keep holding them. Ideal for mallets, plucks and stabs.
SWELL	Attack accelerates out of silence for a slow, blooming fade-in, with a longer tail. The pad-maker.

SLIDER	RANGE	NOTES
ATTACK	1 ms – 2.0 s	Fade-in time. Interacts with the ENV mode's shape.
RELEASE	5 ms – 5.0 s	Fade-out time after note-off. SWELL extends the natural tail.

11 // GRAFT, OUTPUT & ROOT

GRAFT

Graft transplants a **second** sample into the first. Click **GRAFT** to load a donor file, then raise the **GRAFT** slider (in the HALO group, 0–100%) to blend the donor's character into the host specimen. At 0 the graft is dormant; raise it to fuse the two sources. Use it to add a transient from one sound to the body of another, or to hybridise two textures.

OUTPUT GROUP — PLAY MODES

The right-most group's caption cycles the **PLAY** engine, which swaps the last two sliders:

PLAY:LEVEL (default) — the sliders are **OUTPUT** and **ROOT**:

SLIDER	RANGE	NOTES
OUTPUT	–24 to +12 dB	Master output level. A soft limiter after this stage keeps peaks controlled and scrubs any stray non-finite values.
ROOT	MIDI 24–96 (C1–C7)	The note at which the sample plays at its original pitch. Set this to the sample's real key so your keyboard tracks correctly. Default C4 (60).

PLAY:SEAM — engages the seam-based playback engine, exposing **SEAM** and **QUALITY**, which govern how the lens window is looped and stitched for sustained playback:

SLIDER	RANGE	NOTES
SEAM	0–100%	Crossfade/overlap at the loop seam of the playback window. Low is tight and rhythmic; higher smooths the join for seamless sustained tones.
QUALITY	LOW / MED / HIGH	Playback-engine fidelity. HIGH gives the cleanest stitched playback at slightly higher CPU; lower settings trade fidelity for a rawer, lo-fi character.

OUTPUT and ROOT remain active in SEAM mode – switch back to PLAY:LEVEL to adjust them.

12 // INCUBATE & INIT

INCUBATE — grow a new strain

Click **INCUBATE** to randomise every sound-design parameter within musical ranges — layer, lens, scan, mutations, filter, halo, envelope, sometimes slices and reagents — then auto-audition. **OUTPUT**, **ROOT** and **GRAFT** amount are deliberately left alone so levels and tuning stay put. It is a sound-discovery engine: keep clicking until something inspires you.

Shift-click INCUBATE to *drift* the current sound instead — every value nudges $\pm 12\%$ rather than rerolling. Use it to evolve a patch you already like rather than replacing it.

INIT — the safety exit

Click **INIT** to return every parameter to its factory default while **keeping your loaded HOST and GRAFT samples**. It also silences any ringing voices and flushes all feedback tails, so you land on a clean, neutral starting point every time. This is your panic button after a wild **INCUBATE** or a deep mangle.

RECOVERY LADDER

INIT (all the way home) → Shift-click **INCUBATE** (drift back toward sanity) → Double-click the lens (reset just the window).

13 // COMPLETE PARAMETER REFERENCE

The full automatable parameter set, with ranges and factory defaults. Every parameter is host-automatable and saved with your project.

PARAMETER	RANGE	DEFAULT
Layer	BODY / IMPACT / RESIDUE / NEGATIVE / VEINS	BODY
Lens Start	0-100%	0%
Lens Size	2-100%	100%
Motion	0-100%	0%
Depth	0-100%	75%
Scan	Forward / Reverse / Pendulum	Forward
Slices	Off / 2 / 4 / 8 / 16 / 32	Off
Slice Mode	Keymap / Cycle / Scatter	Keymap
Erosion	0-100%	12%
Fossil	0-100%	0%
Mitosis	0-100%	0%
Stain	-100 to +100%	0%
Necrosis	0-100%	0%
Antigen	0-100%	0%
Flinch	0-100%	0%
Vertigo	0-100%	0%
Filter Mode	Off / Pore / Sieve / Membrane / Cavity	Off
Cutoff	60 Hz - 16 kHz	16 kHz
Resonance	0-100%	20%
Halo Mode	Bloom / Smear / Echo	Bloom
Bloom	0-100%	5%
Graft	0-100%	0%
Env Mode	Lab / Pluck / Swell	Lab
Attack	1 ms - 2.0 s	8 ms
Release	5 ms - 5.0 s	250 ms
Output	-24 to +12 dB	-3 dB
Root Note	MIDI 24-96	C4 (60)
Play Mode	Level / Seam	Level
Seam	0-100%	(seam engine)
Quality	Low / Med / High	High

14 // WORKFLOWS & RECIPES

PLAYABLE BREAKBEAT CHOPPER

Load a drum loop → layer BODY → CUT:8 or 16, slice mode KEYMAP. Each key now plays the next slice, unpitched. Add FILTER:PORE and a short PLUCK envelope for MPC-style bite.

HUGE EVOLVING PAD

Layer RESIDUE or BODY → ENV:SWELL, long ATTACK/RELEASE → MITOSIS ~40% for width → NECROSE ~50% and VERTIGO ~30% on the Reagent page → HALO:SMEAR. Hold a chord and let it bloom, drift and darken.

EERIE RESONANT DRONE

Layer VEINS → LENS small, MOTION ~20% → FILTER:SIEVE, high RES → SCAN:PEND. A slow, metallic, resonant texture that never repeats.

LO-FI TEXTURE MACHINE

Any layer → FOSSIL ~60% + EROSION ~40% → STAIN negative to warm → HALO:ECHO. Crunchy, degraded, characterful.

GENERATIVE STAB INSTRUMENT

Load a rich sustained sample → CUT:16, slice mode SCATTER → ENV:PLUCK → a little FLINCH. Every note grabs a different slice — endless variation from one file.

HYBRID TONE (GRAFT)

Load a tonal sample as HOST, a percussive one as GRAFT → raise GRAFT ~40% → layer BODY. The attack of one fused into the body of the other.

GENERAL APPROACH

Start by finding a sound with the layer chips and lens, *then* mutate. The layer + lens choice is 80% of the character; everything else is refinement. When lost, INIT and begin again — or hit INCUBATE and react to what it gives you.

15 // TROUBLESHOOTING & SPECIFICATIONS

Troubleshooting

ISSUE	RESOLUTION
No sound	Check a sample is loaded (HOST label), a MIDI note is arriving, and OUTPUT isn't at minimum. Click AUDITION to test hands-free.
Sound is silent on some keys	In KEYMAP slice mode, only keys from ROOT upward map to slices. Lower notes may fall outside the mapped range.
Patch sounds broken / chaotic	Click INIT to reset all controls (keeps your sample), then rebuild.
A tail keeps ringing	INIT flushes all feedback tails. High RES + SIEVE or long ECHO can sustain; INIT clears them.
Sample won't reload with project	The saved file must still exist at its original path. Re-drop it if it moved.
Pitch is wrong	Set ROOT to the sample's actual musical key so the keyboard tracks correctly.

Specifications

Format	Windows VST3 (instrument)
Engineering	C++ / JUCE 8, built with MSVC
Voices	Up to 24 (widened for Mitosis unison)
Sample formats	WAV, AIFF, FLAC
Parameters	27, all host-automatable and saved with project
Denormal / NaN safety	ScopedNoDenormals; non-finite output scrubbed at the limiter
Version	0.3.2 (Pass P015)

Specimen – Phantomexposure. Thank you for dissecting sound with us.