



RSL CRUCIBLE

USER MANUAL / VERSION 1.0.1

Analog peak shaper

An everyday clipper with a real circuit behind it. The RSL 2181 VCA rounds the peaks on their way in, a diode clip cell holds the line, and two clamp personalities and four diode types decide how the edge sounds.



RENEGADE SOUND LABS

Copyright 2026 Renegade Sound Labs. All rights reserved.

Start Here

SECTION	WHAT YOU WILL FIND
Interface overview	The faceplate at a glance, the header bar, and how the knobs and switches respond.
What RSL Crucible is	The two parts of the core, the order the signal meets them, and what the plug-in deliberately is not.
The knob row	DRIVE, THRESHOLD, SHAPE, KNEE, TRANSIENT PRESERVE, LOW END PROTECT and OUTPUT.
Mode, topology and asymmetry	The two clamp personalities, the four diode types, and moving the two clip points apart.
Oversampling and true peak	How hard the core is worked to keep aliasing down, and the guard between samples.
Display and circuit	WAVEFORM, SPECTRUM and TRANSFER, the time scale and hold, and the +CLIP and -CLIP lamps.
Meters and the utility row	INPUT and OUTPUT, DELTA, AUTO GAIN, CHANNEL LINK, METERING, DITHER and Power.
Reference	Presets, recipes, installing and activating, troubleshooting, specifications, parameter list and glossary.

Quick start

1. Insert RSL Crucible on a drum bus, a mix bus, a single source or the master. Load a factory preset close to the job, or Initialize to start from the defaults.
2. Set THRESHOLD to the highest level you want to come out of the core. On a master that is usually between -1 and -0.3 dB; on a bus it can be several dB lower.
3. Raise DRIVE until the peaks start to touch the threshold line in the display. The red CLIPPED area shows what the core is taking off and the +CLIP and -CLIP lamps on the circuit light as each side works.
4. Choose the edge. CLEAN is the transparent, precise clamp; IMPACT is the harder, more characterful one. Then try the four TOPOLOGY buttons, from TIGHT SILICON to HARD ZENER.
5. Shape it. SHAPE decides how much of the peak is rounded off before the clip cell, KNEE how gradually the cell takes hold, and TRANSIENT PRESERVE how much of each attack is let through to meet it.
6. Switch on AUTO GAIN, or bring OUTPUT down by hand, so the louder drive does not fool your ears. Press DELTA to hear only what the core is removing, then press it again to return.
7. For a final master, set OVERSAMPLING to 8x and switch TRUE PEAK on, so nothing leaves the plug-in above the ceiling between samples either.

DRIVE INTO A FIXED LINE THRESHOLD is where the line is; DRIVE is how hard you push into it. If nothing clips, the signal is not reaching the threshold: raise DRIVE or lower THRESHOLD. The display shows both the signal and the line, so you can see which it needs.

A FEW DB IS A LOT On a mix or a master, a clipper doing 1 to 3 dB of work on the loudest hits is usually plenty. Use DELTA and the CLIP percentage in the display to keep an eye on how much it is doing.

Interface Overview



RSL Crucible with the Drum Bus - Punch preset, shaping a drum loop. The display shows the peaks the core has taken off in red; both clip lamps are lit on the circuit.

AREA	WHAT IT IS
Header bar	Preset transport, import and export, settings, and the power switch. Shared with every Renegade Sound Labs plug-in.
INPUT and OUTPUT	A numeric readout and a left and right LED ladder at each side of the faceplate. METERING sets what they read.
Display	WAVEFORM, SPECTRUM or TRANSFER, with the SCALE and HOLD controls underneath.
Circuit	The RSL 2181 and the clip cell. The +CLIP and -CLIP lamps light as each side of the cell works.
Control strip	MODE, TOPOLOGY, ASYMMETRY with its link, OVERSAMPLING and TRUE PEAK.
Knob row	DRIVE, THRESHOLD, SHAPE, KNEE, TRANSIENT PRESERVE, LOW END PROTECT and OUTPUT, each with its value underneath.
Utility row	DELTA, AUTO GAIN, CHANNEL LINK, METERING and DITHER.

Working the controls

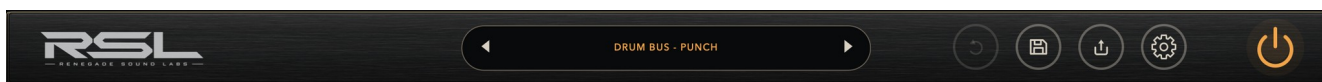
- Drag a knob up or down, or left and right, or use the scroll wheel. The value window under each large knob shows the current setting and brightens while the pointer is over the knob. ASYMMETRY shows its value beside the knob while you drag.
- Double-click a knob to return it to its default.
- Right-click a knob to type a value. Press Return to apply it, or Escape to leave the knob where it was.
- Rest the pointer on any control for a tooltip naming it and saying what it does.
- The lit buttons take a single click. In a row of buttons, the lit one is the current setting.

Window size

RSL Crucible opens at 75 percent. The gear in the header bar opens the product panel, where Window size offers 50, 75, 100, 125 and 150 percent. In hosts that let you drag the plug-in window to a new size, the faceplate keeps its proportions. The size, the display view, its time scale and HOLD are saved with the session.

02B / PRESETS AND POWER

The Header Bar



The preset pill with its arrows, Revert, Save, Import / Export, Settings, and Power.

The strip across the top is shared by every Renegade Sound Labs plug-in, so these controls sit in the same order and mean the same thing wherever you meet them.

CONTROL	WHAT IT DOES
Preset pill	Shows the current preset. Click the name to browse, or to reach Save As, Delete, Show Preset Folder and Refresh List. The arrows either side step through the whole list.
Revert	Returns every parameter to the state the current preset was loaded in. Greyed out until something has been edited.
Save	Overwrites the current user preset. On a factory preset, or with nothing loaded, it asks for a name instead. Factory presets are never overwritten.
Import / Export	Reads a preset file from anywhere on disk, or writes the current settings out to a file you choose.
Settings	The gear. Opens the product panel: Window size, Render at 16x, the website, this manual, and the preset folder.
Power	Takes RSL Crucible out of the path. Lit means it is processing. See section 08.

- INIT in the pill means no preset is loaded: a fresh instance, or a session restored without one.
- A preset name means that preset is loaded.
- A star after the name means you have edited it since it loaded. Save to keep the change, or Revert to discard it.

POWER IS NEVER STORED IN A PRESET Recalling a preset cannot silently take the plug-in out of the path, or put it back in.

03 / A CLIPPER WITH A CIRCUIT

What RSL Crucible Is

RSL Crucible is a peak shaper: a clipper for buses, sources and masters that takes the tops off peaks so the rest of the signal can come up. Most clippers are a single curve. RSL Crucible is built as a small circuit, and every control on the faceplate is a part of it.

STAGE	WHAT IT DOES	CONTROLS
DRIVE	Sets how hard the signal is pushed into the core.	DRIVE
Detector	Follows the peaks of the signal and tells the RSL 2181 how hard to work. It can be told to ignore the low end, and to let attacks through.	LOW END PROTECT, TRANSIENT PRESERVE, CHANNEL LINK
RSL 2181	A VCA that starts turning the peaks down on their approach to the threshold, so they arrive at the clip cell already rounded.	SHAPE
Clip cell	A pair of diodes and a rail that hold the signal at the threshold. Nothing passes it.	THRESHOLD, KNEE, MODE, TOPOLOGY, ASYMMETRY
OUTPUT	Sets the level leaving the core.	OUTPUT, AUTO GAIN
True peak guard	Optional. Holds the output under the ceiling between samples as well as on them.	TRUE PEAK
Dither	Optional. Prepares the output for a 16 or 24 bit file. Always last.	DITHER

Everything that bends the waveform runs at the OVERSAMPLING rate, which keeps the new harmonics a clipper creates from folding back down as aliasing.

What RSL Crucible is not

- Not a compressor. There is no attack and release on the level: the clip cell works on the waveform itself, sample by sample. The detector only steers how round the peaks are before they reach the cell.
- Not multiband. LOW END PROTECT changes what the detector listens to, not the audio.
- Not an automatic loudness tool. Every movement on the panel comes from a control you set.

Where it sits

PRODUCT	JOB	WHERE
RSL Dual Core Saturator	Colour and harmonic density	Anywhere, usually tracks and buses
RSL Crucible	Peak shaping and clipping	Drums, bass, buses, and the master ahead of or in place of the final limiter
RSL Bastion	Two-stage bus and mastering compression	Mix bus, or the master bus ahead of the final limiter
RSL Master	Finishing to a reference profile	Last insert on the master bus

04 / DRIVE INTO THE LINE

The Knob Row



The seven knobs. Each value window reads the setting as the host shows it.

KNOB	RANGE	DEFAULT	WHAT IT DOES
DRIVE	-24 to +24 dB	0 dB	Level into the core. More drive, more shaping.
THRESHOLD	-24 to 0 dB	0 dB	The level, in dBFS, where the clip cell holds the signal.
SHAPE	SOFT to HARD, 0 to 100 %	35 %	How early and how roundly the RSL 2181 bends the peaks before the clip cell.
KNEE	TIGHT to WIDE, 0 to 100 %	40 %	How gradually the clip cell takes hold.
TRANSIENT PRESERVE	LESS to MORE, 0 to 100 %	20 %	Lets fast attacks past the RSL 2181 to meet the clip cell.
LOW END PROTECT	20 to 500 Hz	80 Hz	Frequencies below this stop driving the detector.
OUTPUT	-24 to +24 dB	0 dB	Level after the core.

Drive and threshold

THRESHOLD is a fixed line: the clip cell holds the signal there, and the display draws it across the screen. DRIVE pushes the signal into that line. The two work together, so there are always two ways to get more clipping: raise DRIVE, which also makes everything below the line louder, or lower THRESHOLD, which leaves the quiet parts where they were and brings the ceiling down to meet the peaks. Raise DRIVE when you want density and level; lower THRESHOLD when you want a lower, safer ceiling.

Shape

SHAPE sets how much of the work the RSL 2181 does before the clip cell. Towards SOFT, the VCA starts turning peaks down well before they reach the threshold, so they arrive rounded and the clip cell has little left to do: the result is smoother and less obviously clipped, and the bending starts a few dB under the line. At HARD the RSL 2181 stays out of the way and the clip cell does everything, which is the cleanest below the threshold and the most assertive above it. In the display, the dim bronze part of the taken-off area is the RSL 2181's rounding; the red part is the clip cell.

Knee

KNEE sets how gradually the diodes in the clip cell begin to conduct. TIGHT switches over abruptly, which is the most transparent below the line and the hardest-edged on it. WIDE eases in over a broader range, so light clipping is softer and adds a little more colour on the way up. KNEE works on top of the character of the chosen TOPOLOGY.

Transient preserve

Each attack, the fast front of a drum hit or a pick, briefly relaxes the RSL 2181 so the attack reaches the clip cell unrounded. The clip cell still holds the ceiling, so the peak level does not change; what changes is the body of the attack, which keeps more of its snap. Turn it towards MORE for punch on drums, towards LESS for smoother, denser material.

Low end protect

Kick drums and bass carry most of a mix's energy and would otherwise make the RSL 2181 work hardest on every low note. LOW END PROTECT removes the low end from what the detector listens to, below the frequency you set, so the low end stops pulling the rest of the peaks down. The audio itself is never filtered. Turn it down to 20 Hz when you want the whole signal, low end included, to drive the shaping, as on an 808 or a bass.

Output

OUTPUT sets the level leaving the core, before the true peak guard and dither. With TRUE PEAK on, OUTPUT also moves the true peak ceiling: see section 06. AUTO GAIN, in the utility row, can move OUTPUT for you as you change DRIVE.

Mode, Topology and Asymmetry



MODE, TOPOLOGY, ASYMMETRY with its link, OVERSAMPLING and TRUE PEAK.

Mode

MODE	PANEL	CHARACTER
CLEAN	PRECISION CLIP	A precision feedback clamp. Transparent, with a tighter, more progressive knee: the diodes' character is there, but held under close control. The default.
IMPACT	CHARACTER CLIP	A passive shunt clamp. The diodes' own knee, and a level that keeps rising a little past the knee until the rails catch it. A harder, more audible edge with more weight.

Topology

TOPOLOGY chooses the pair of diodes in the clip cell. Each has its own knee and its own way of approaching the ceiling, and the word under each button sums it up.

TOPOLOGY	PANEL	CHARACTER
SILICON	TIGHT	A silicon diode pair. Tight and even. The default, and the safest all-rounder.
GERMANIUM	WARM	A germanium diode pair. A soft, warm knee that starts to round well before the ceiling.
LED	OPEN	An LED pair. Conducts later, so the level climbs further into the clip before it is held: open and bright, especially in IMPACT.
ZENER	HARD	A zener pair. Hard and exact, the closest to a straight ceiling.

MODE and TOPOLOGY can be changed while the music plays: the old and new circuits are crossfaded, so there is no click.

Asymmetry

ASYMMETRY, from -100 to +100 with 0 as the default, moves the positive and negative clip points apart, so one side of the waveform clips before the other. Symmetrical clipping adds mostly odd harmonics; asymmetrical clipping adds even harmonics too, which reads as warmer and thicker. Positive settings lower the negative clip point relative to the positive one; negative settings do the reverse. At either end of the travel the two sides are four dB apart. The TRANSFER view draws the negative side as a separate dashed curve whenever ASYMMETRY is away from 0.

The link beside ASYMMETRY

With the link lit, the default, the higher of the two clip points always stays at THRESHOLD, so ASYMMETRY can only ever lower one side and the ceiling holds. Unlit, both points move, and one side rises above THRESHOLD; with TRUE PEAK on, the guard's ceiling rises with it.

ASYMMETRY AND DC Strong asymmetrical clipping of low, sustained notes can leave a small offset in the waveform. If a later processor or your meters show one, use less ASYMMETRY on that source.

06 / BETWEEN THE SAMPLES

Oversampling and True Peak

Oversampling

Clipping creates new harmonics, and at the session's own sample rate the highest of them fold back down into the audible range as aliasing: inharmonic grit that has nothing to do with the music. OVERSAMPLING runs the whole core at a multiple of the session rate so those harmonics can be removed before they fold back.

SETTING	USE
1x	No oversampling. The lightest on the computer; aliasing is clearly audible on hard clipping of bright material.
2x	Tracking and large sessions on light settings.
4x	The default. A good balance for buses and mixing.
8x	Masters and anything bright or heavily clipped. Aliasing is far below audibility.

Higher settings use more processing. Changing OVERSAMPLING fades the processed signal out and back in over a few milliseconds. The latency is the same at every setting, so changing it never moves the plug-in against the host's delay compensation.

Render at 16x

Render at 16x, in the product panel under the gear, switches the core to 16x oversampling while the host bounces or exports offline, whatever the faceplate is set to. Playback is unaffected. It is saved with the session but not in presets.

True peak

With TRUE PEAK off, the clip cell holds the sample values at the threshold, but the waveform a converter rebuilds between those samples can still rise slightly above it. TRUE PEAK adds a guard after OUTPUT that looks a short way ahead and holds the reconstructed peaks under the ceiling too.

- The ceiling is THRESHOLD plus OUTPUT. With THRESHOLD at -1.0 dB and OUTPUT at 0, nothing leaves the plug-in above -1 dBTP.
- With the ASYMMETRY link off, the ceiling rises with the higher clip point.
- The guard is linked across both channels and adds no make-up gain of its own.
- While TRUE PEAK is on and METERING is on PEAK, the OUTPUT readout reads in dBTP.
- Its look-ahead is part of RSL Crucible's fixed latency whether TRUE PEAK is on or off, so switching it never moves the plug-in in time.

FOR DELIVERY For a master that has to meet a true peak limit, use 8x OVERSAMPLING and TRUE PEAK, set THRESHOLD a little under the limit, and leave OUTPUT at 0 dB. The four Master Bus presets are set up this way.

07 / SEEING THE CLIP

The Display and the Circuit

The display shows what the core is doing in one of three views, chosen with the VIEW buttons. The display is for your eyes only: its settings never change the sound.



WAVEFORM at 5s, with the threshold line at -3 dB and the CLIP readout bottom right.

VIEW	WHAT IT SHOWS
WAVEFORM	The peak level inside the core over time, from +6 to -24 dB, newest at the right. The input is the faint grey shape, the output is amber, and what the core took off is filled in between: red where the clip cell worked, a dim bronze where only the RSL 2181 rounded it. The threshold is the bright horizontal line. CLIP, bottom right, is the share of the time shown in which the clip cell was changing the signal.
SPECTRUM	The frequency content of the plug-in's input in grey and its output in amber, 20 Hz to 20 kHz, 0 to -90 dB. The display is tilted by +3 dB per octave so that a balanced mix reads roughly level; the legend says so.
TRANSFER	The static curve of the core at the current settings: core input across the bottom, from -24 to +12 dBFS, against output. The positive side is the solid amber curve, the negative side a dashed curve when ASYMMETRY is away from 0, and the dashed diagonal is unity. A dot and a short trail show where the signal is on the curve.

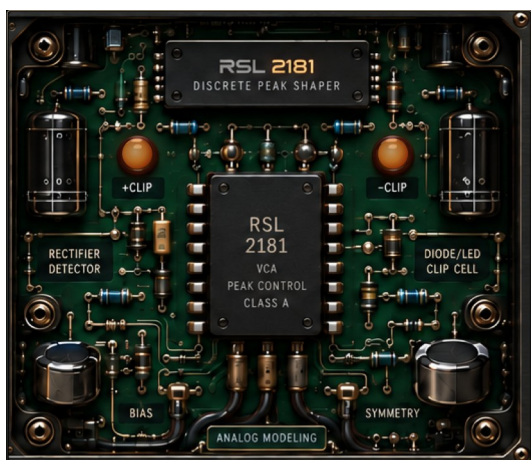
Scale and hold

CONTROL	WHAT IT DOES
1s	One second across the display. In SPECTRUM, a fast-moving analyser.
5s	Five seconds across the display, the default. In SPECTRUM, a slower analyser.

CONTROL	WHAT IT DOES
∞	Everything since the window opened, compressed to fit. In SPECTRUM, holds the peaks; the legend reads PEAK HOLD.
HOLD	The slide switch. Freezes the display so you can read it. Slide it back to continue.

SCALE has no effect in TRANSFER, and its buttons are greyed out there. THRESHOLD moves its line in every view, even while HOLD is on.

The circuit



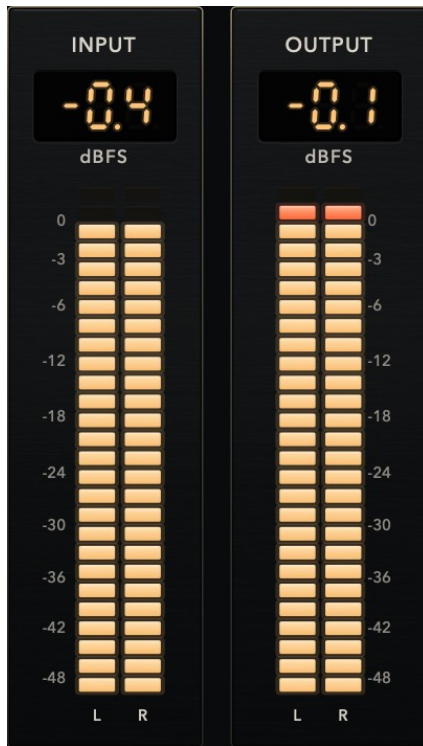
♦**CLIP** Lights as the positive side of the clip cell conducts. The brighter it is, the harder that side is working.

-**CLIP** The same for the negative side. With ASYMMETRY at 0 the two lamps track each other; move it and one side lights first.

Power Both lamps go dark as soon as the plug-in is powered off, and when the music stops.

The board The rest of the circuit is a picture of the core: the rectifier detector, the RSL 2181 and the diode clip cell. It does not change with the settings.

Meters and the Utility Row



INPUT The level arriving at the plug-in, before DRIVE.

OUTPUT The level leaving the plug-in, after everything, including TRUE PEAK and DITHER.

Readout The number above each pair of ladders. On PEAK it holds the highest recent value for a moment and then falls; the unit is printed underneath.

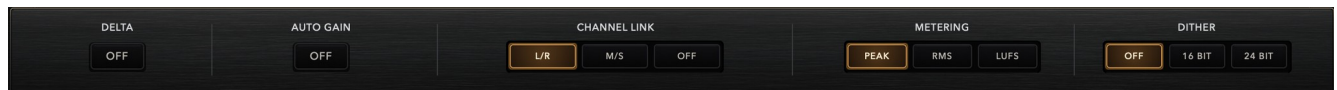
Ladders Left and right, from the top of the scale down to -48. The scale is expanded near the top, where it matters. Segments above 0 light red.

Peak hold On PEAK, a single segment stays lit at each channel's recent maximum for a moment before falling.

Metering

SETTING	METERS READ	UNIT
PEAK	Sample peak. The default.	dBFS; dBTP on OUTPUT while TRUE PEAK is on
RMS	Average level over about a third of a second.	dBFS RMS
LUFS	Short-term loudness, over the last three seconds.	LUFS

METERING changes only the meters. It is not stored in presets.



The utility row: DELTA, AUTO GAIN, CHANNEL LINK, METERING and DITHER.

Delta

DELTA plays only the difference: what the core is taking away, both the RSL 2181's rounding and the clip cell's clipping. On light settings it should be quiet and made of short ticks; anything you can hear as part of the music in DELTA is something the clipper is removing from it. Delta passes through OUTPUT. Switching it in and out crossfades, and it is stored in presets with the other controls.

Auto gain

Driving a clipper harder makes it louder, and louder always sounds better. With AUTO GAIN on, every move of DRIVE moves OUTPUT by the same amount the other way, so you hear the change in character, not the change in level. The OUTPUT knob moves on the panel as it does.

- Switching AUTO GAIN on moves nothing. It only answers DRIVE moves made after it is on.
- Moving OUTPUT yourself is respected: the next DRIVE move carries on from where you left it.
- It compensates for the drive, not the clipping. A heavily clipped signal still comes out a little quieter, which is the honest comparison.
- The factory presets load with AUTO GAIN off and their own OUTPUT setting.

Channel link

SETTING	WHAT IT DOES
L/R	The default. Left and right share one detector, so the RSL 2181 works on both channels together and the image stays put. Each channel is still clipped on its own.
M/S	The signal is converted to mid and side before the core and back afterwards, so the centre and the width are shaped separately. Wide material can then rise slightly above the ceiling in left and right; switch TRUE PEAK on to hold it.
OFF	Left and right are shaped completely independently.

Changing CHANNEL LINK fades the processed signal out and back in over a few milliseconds.

Dither

DITHER adds a very small amount of shaped noise and rounds the output to 16 or 24 bits, which keeps quiet fades and reverb tails smooth when the result is saved at that bit depth. It is the very last thing in the chain. Use it only when RSL Crucible is the last plug-in before a 16 or 24 bit export, and match the setting to the file. Leave it OFF everywhere else. Dither is never applied while the plug-in is powered off.

Power

The power switch in the header bar takes RSL Crucible out of the path. It hands back your input exactly, delayed by the same amount as the processed signal, and crossfades so there is no click. The faceplate dims, and the meters, the clip lamps and the display go dark. For a fair comparison, switch on AUTO GAIN or match OUTPUT by ear first.

09 / STARTING POINTS

Presets

RSL Crucible ships seventeen factory presets. A preset stores every control on the faceplate except Power, METERING and Render at 16x. Anything a factory preset does not mention loads at its default.

PRESET	MODE / PART	DRIVE	THRESH	NOTES
Initialize	CLEAN / SILICON	0 dB	0 dB	Every control at its default.
Master Bus - Control	CLEAN / SILICON	+2.0	-1.0	8x, TRUE PEAK on. A firm, transparent hold on the loudest peaks.
Master Bus - Loud	CLEAN / SILICON	+4.5	-1.0	8x, TRUE PEAK on. More drive and a firmer shape for level.
Master Bus - Safety	CLEAN / ZENER	0 dB	-0.3	8x, TRUE PEAK on, near-HARD shape, no transient preserve. A ceiling, not an effect.
Master Bus - Warm Edge	CLEAN / GERMANIUM	+3.0	-1.0	8x, TRUE PEAK on. A softer, warmer knee.
Mix Bus - Glue Clip	CLEAN / GERMANIUM	+3.0	-2.0	A gentle, rounded clip to hold a mix together.
Stem Bus - Clean Peaks	CLEAN / SILICON	+2.0	-1.5	Takes the peaks off a stem or group without colour.
Vocal Bus - Tame	CLEAN / SILICON	+3.0	-4.0	Soft shape, wide knee, LOW END PROTECT at 150 Hz.
Drum Bus - Punch	IMPACT / SILICON	+5.0	-3.0	Plenty of TRANSIENT PRESERVE for snap.
Drum Bus - Smash	IMPACT / LED	+9.0	-6.0	Heavy, open clipping for room and weight.
Kick & Snare Edge	IMPACT / ZENER	+6.0	-4.0	A hard, exact edge on individual drums.
Snare Crack	IMPACT / LED	+7.0	-5.0	Most TRANSIENT PRESERVE of the set, LOW END PROTECT at 200 Hz.
808 Weight	IMPACT / GERMANIUM	+6.0	-6.0	LOW END PROTECT at 20 Hz, so the whole note drives the shaping.
808 Growl	IMPACT / GERMANIUM	+10.0	-8.0	Adds ASYMMETRY for even harmonics and grit.
Bass DI - Round	CLEAN / GERMANIUM	+4.0	-5.0	A rounded clip for direct bass.
Samples - Crunch	IMPACT / LED	+12.0	-9.0	Negative ASYMMETRY with the link off: deliberately crunchy.
Even Harmonics	IMPACT / SILICON	+6.0	-6.0	Strong ASYMMETRY for a

PRESET	MODE / PART	DRIVE	THRESH	NOTES
				thicker, warmer tone.

PRESETS ARE STARTING POINTS Clipping depends on level. Every factory preset assumes typical levels for its source; if the display shows far too much or too little being taken off, adjust DRIVE or THRESHOLD before anything else.

Your own presets

Click the preset name in the header bar to browse. Factory presets are listed first and your own below them, and the arrows either side of the name step through the combined list.

ACTION	HOW
Save over your preset	Press Save. On a factory preset it asks for a name instead, because factory presets are never overwritten.
Save under a new name	Save As, from the preset menu.
Delete	Delete, from the preset menu. Available for your own presets only.
Undo your edits	Revert, in the header bar. Restores the preset as it was loaded.
Find the files	Show Preset Folder, from the preset menu, or the Preset Folder row in the product panel.
Move presets between computers	Import / Export in the header bar, or copy the files from the preset folder.

Presets are .rgpreset files, shared in format across the Renegade Sound Labs line. On macOS they are normally kept in ~/Library/Audio/Presets/Renegade Sound Labs/RSL Crucible/; on Windows, in the Renegade Sound Labs\RSL Crucible\Presets folder of your user application data. Show Preset Folder always opens the right one. Everything on the faceplate, and the window size and display settings, are also saved with the host session.

10 / WAYS OF WORKING

Recipes

Drum bus punch

1. Load Drum Bus - Punch and play the busiest section.
2. Lower THRESHOLD or raise DRIVE until the CLIP readout shows a few percent and the lamps flicker on the hits.
3. Raise TRANSIENT PRESERVE until the attacks crack through, and lower it if the hits start to feel spiky.
4. Switch on AUTO GAIN and compare with Power. The drums should feel louder at the same peak level, not smaller.

A clean master ceiling

Start from Master Bus - Control. Set THRESHOLD to your delivery ceiling, a little under the true peak limit, with OUTPUT at 0 dB, OVERSAMPLING at 8x and TRUE PEAK on. Raise DRIVE until the peaks just touch the line, then check DELTA: on a master it should be quiet ticks, not music. Master Bus - Safety does no shaping at all until the ceiling, for when you only want a net.

808 and bass weight

Load 808 Weight. LOW END PROTECT at 20 Hz lets the whole note drive the shaping. Switch between GERMANIUM and LED to hear the knee change, and add ASYMMETRY a little at a time for growl. Watch for the small offset strong asymmetry can leave on long low notes.

Hearing the topology

Set DRIVE so the display shows clear clipping, press DELTA, and step through the four TOPOLOGY buttons and both MODE buttons. The difference between the parts is easiest to hear in what they remove. Switch DELTA off and choose by ear on the full signal.

Soft or hard

With a few dB of clipping, sweep SHAPE from HARD to SOFT while watching WAVEFORM. The red area shrinks as the bronze grows: the RSL 2181 is taking over the work from the clip cell. Somewhere in between is the point where the peaks stop sounding clipped and start sounding controlled.

A/B discipline

- Compare at matched level. Switch on AUTO GAIN before reaching for Power.
- Use the CLIP readout and the display to see how much is happening before you judge it.
- Make the final decision on the full signal, not on DELTA.

Installing and Activating

RSL Crucible is installed and activated through RSL Hub, the free Renegade Sound Labs app for macOS and Windows. There are no licence keys to copy or paste.

1. Download RSL Hub from renegadesoundlabs.com and install it.
2. Sign in to RSL Hub with your Renegade Sound Labs account.
3. Install RSL Crucible from RSL Hub. Quit your DAW first if it is open: hosts look for new plug-ins when they start.
4. Reopen the DAW and, if it does not find new plug-ins on its own, run its plug-in rescan. RSL Crucible is listed under Renegade Sound Labs.

Signing in to RSL Hub activates the computer automatically. One account can activate up to four computers, managed from RSL Hub or from your account page on the website. RSL Hub keeps the activation renewed in the background, so there is nothing to do once it is set up.

If RSL Crucible is not activated

Without an activation the plug-in is silent and shows a screen saying why, with two buttons. Open RSL Hub opens the Hub, or its download page if it is not installed, so you can sign in. Check again looks for the activation once more. As soon as the Hub has activated the computer, RSL Crucible unlocks by itself.

Buying and RSL All Access

RSL Crucible can be bought outright, or used as part of RSL All Access, which includes every RSL plug-in for \$18 a month or \$180 a year.

- All Access starts with a 14-day free trial. No card is needed.
- During the trial, the days left are shown in red in the header bar, beside the RSL logo, for example 7 DAYS LEFT. On the final day it reads LAST DAY OF YOUR TRIAL.
- When the trial ends, the plug-in locks and offers Start your subscription. Once you have subscribed, open RSL Hub and RSL Crucible unlocks by itself.

Formats and locations

FORMAT	LOCATION
Audio Unit (macOS)	/Library/Audio/Plug-Ins/Components/RSL Crucible.component
VST3 (macOS)	/Library/Audio/Plug-Ins/VST3/RSL Crucible.vst3
AAX (macOS, Pro Tools)	/Library/Application Support/Avid/Audio/Plug-Ins/RSL Crucible.aaxplugin
VST3 (Windows)	C:\Program Files\Common Files\VST3\RSL Crucible.vst3
Standalone (Windows)	C:\Program Files\Renegade Sound Labs\RSL Crucible\RSL Crucible.exe

REQUIREMENTS macOS 11 or later, universal binary for Apple Silicon and Intel; or 64-bit Windows 10 or later. Mono or stereo; CHANNEL LINK applies to stereo tracks.

Latency

RSL Crucible reports a fixed latency to the host: 169 samples at 44.1 kHz, 173 at 48 kHz and 224 at 96 kHz, about 3.6 ms at 48 kHz. It comes from the oversampling and the true peak guard, it is the same whatever the switches are set to, and every host with delay compensation corrects for it automatically.

12 / FAST DIAGNOSIS

Troubleshooting

SYMPTOM	CHECK
Plug-in does not appear	Confirm it is installed in RSL Hub and the bundle is in the folder above, restart the host, and force a full plug-in rescan.
Silent, with a message on the faceplate	The computer is not activated, or a trial has ended. Read the message, then use Open RSL Hub. See section 11.
Nothing clips	The signal is not reaching THRESHOLD. Raise DRIVE or lower THRESHOLD, and watch the line in WAVEFORM.
Sounds louder, not better	Switch on AUTO GAIN, or lower OUTPUT, and compare again at matched level.
Grit or harshness on bright material	Raise OVERSAMPLING to 8x. Try CLEAN, a WIDE KNEE or a softer SHAPE.
Drums lose their snap	Raise TRANSIENT PRESERVE, move SHAPE towards HARD, or use less drive.
Bass pulls the whole mix down	Raise LOW END PROTECT.
Output above the ceiling on a true peak meter	Switch TRUE PEAK on. In M/S, wide material can exceed the ceiling without it.
Output is thin or only clicks	DELTA is on. Click it off.
OUTPUT knob moves on its own	AUTO GAIN is on and DRIVE is changing. Switch it off if you do not want that.
Clip lamps never both light	ASYMMETRY is away from 0, so one side clips first. That is expected.
Window too small or too large	Gear, Window size.

Support information to include

- Operating system and computer model
- DAW and version
- Plug-in format
- Sample rate and buffer size
- Preset, MODE, TOPOLOGY and OVERSAMPLING setting
- Exact steps required to reproduce the issue

Support: hello@renegadesoundlabs.com

Technical Reference

ITEM	SPECIFICATION
Product	RSL Crucible
Developer	Renegade Sound Labs
Manual version	1.0.1
Category	Analog peak shaper
Core	RSL 2181 VCA pre-bend into a diode clip cell; CLEAN and IMPACT clamps; silicon, germanium, LED and zener parts
Formats	macOS: Audio Unit, VST3, AAX (Pro Tools). Windows: VST3, Standalone
Architecture	macOS: Universal 2, Apple Silicon arm64 and Intel x86_64. Windows: 64-bit
Minimum system	macOS 11; Windows 10
Channels	Mono or stereo
Oversampling	1x, 2x, 4x or 8x; 16x when rendering offline, optional
Latency	Fixed: 169 samples at 44.1 kHz, 173 at 48 kHz, 224 at 96 kHz. Reported to the host
True peak	Optional look-ahead guard at THRESHOLD + OUTPUT; OUTPUT readout in dBTP
Dither	Off, 16 bit or 24 bit, last in the chain
Interface	1200 x 756 points at 100 percent; 50 to 150 percent from the gear; opens at 75 percent
Activation	RSL Hub, up to 4 computers per account
Presets	17 factory presets; user presets as .rgpreset files
Website	https://renegadesoundlabs.com

Parameters as the host sees them

PARAMETER	RANGE	DEFAULT	PANEL
Drive	-24 to +24 dB	0 dB	DRIVE
Threshold	-24 to 0 dB	0 dB	THRESHOLD
Shape	0 to 100 %	35 %	SHAPE
Knee	0 to 100 %	40 %	KNEE
Asymmetry	-100 to +100	0	ASYMMETRY
Asymmetry Ceiling Link	On / Off	On	The link beside ASYMMETRY

PARAMETER	RANGE	DEFAULT	PANEL
Transient Preserve	0 to 100 %	20 %	TRANSIENT PRESERVE
Low End Protect	20 to 500 Hz	80 Hz	LOW END PROTECT
Output	-24 to +24 dB	0 dB	OUTPUT
Mode	Clean / Impact	Clean	MODE
Topology	Silicon / Germanium / LED / Zener	Silicon	TOPOLOGY
Oversampling	1x / 2x / 4x / 8x	4x	OVERSAMPLING
Render at 16x	On / Off	Off	Gear panel. Not stored in presets
True Peak	On / Off	Off	TRUE PEAK
Delta	On / Off	Off	DELTA
Auto Gain	On / Off	Off	AUTO GAIN
Channel Link	L/R / M/S / Off	L/R	CHANNEL LINK
Metering	Peak / RMS / LUFS	Peak	METERING. Not stored in presets
Dither	Off / 16 bit / 24 bit	Off	DITHER
Power Off	On / Off	Off	Power. Not stored in presets

Glossary

TERM	MEANING
Clipping	Holding a signal at a fixed level so its peaks cannot pass it, by changing the shape of the waveform itself.
Threshold	The level at which the clip cell holds the signal: the ceiling of the core.
Knee	How gradually clipping arrives as the signal approaches the threshold. A wide knee eases in; a tight knee switches.
VCA	Voltage controlled amplifier. A fast, precise gain cell; in RSL Crucible, the RSL 2181 that rounds the peaks before the clip cell.
Diode	A part that conducts only above a certain voltage. A pair of them, one for each polarity, makes a clipper; the material decides how softly they start.
Asymmetry	Clipping one side of the waveform earlier than the other, which adds even harmonics.
Aliasing	Harmonics above half the sample rate folding back into the audible range as inharmonic tones. Oversampling prevents it.
True peak	The highest level of the waveform a converter rebuilds between samples, which can be above the highest sample. Measured in dBTP.
Dither	A very small amount of noise added before reducing bit depth, so quiet detail stays smooth instead of turning into distortion.
dBFS	Decibels relative to full scale, the loudest level a digital signal can hold.

TERM	MEANING
LUFS	Loudness units relative to full scale: a measure of how loud programme sounds, rather than how high its peaks are.

DESIGN INTENT RSL Crucible is a clipper you can see into: a fixed line, a circuit that pushes into it, and a display and two lamps that show what that costs. Set the line, drive into it by eye, choose the edge by ear, and judge the result at matched level.



RSL CRUCIBLE

RSL Crucible / User Manual v1.0.1