

**SERUM 2**

What's  
New in  
Serum 2

# CREDITS

## Serum 2

Serum 2 plug-in for Microsoft Windows and Apple macOS  
A synthesizer instrument plug-in for VST3, Audio Unit, and AAX hosts

Version 2.0  
Manual Version: 1.0.0  
March 17, 2025

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The following producers, artists, and sound designers contributed to Serum.

## Serum 2 Factory Multisamples

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Robin Tyndale - lemonadefactorystudio.co.uk	Brandon Seliga

## Serum 2 Factory Wavetables and Samples

Splice	Steve Duda
Virtual Riot	Edward “shreddward” Brailif
ill.gates	Sharooz / wavetick.com
Drumsound & Bassline Smith	

## Serum 2 Factory Presets

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7 SKIES	Level 8
AnSolas	LP24 Audio
Abstrakt Music Lab	Matt Aimonetti
Alice Efe	NEST Acoustics
Beatdemon	Paul Laski (P-LASK)
Caster	Scott Diaz
CFA-Sound	Shreddward
Databroth	Skope
Electric Himalaya	Splice
ERB N DUB	Steve Duda
Genji Siriasi	SynthHacker
Gigantor	Tunecraft
J. Scott G. / Libra Rising	Van Derand

## WHAT'S NEW IN SERUM 2

### New Mixer

Use to blend and balance sound sources and busses

### Expanded FX

Choose from 13 effects and 3 splitter modules across multiple busses

### Improved Matrix

Advanced mod management

### Three Primary Oscillators

Choose from Wavetable, Sample, Multisample, Granular, and Spectral modes

### Enhanced Presets Browser

New factory content accessible in a feature-rich browser

Comprehensive undo and redo

### Filters

Dual modules, new virtual analog filters, with series or parallel routing

### Envelopes

Four envelopes with BPM and invert legato options

### LFOs

Up to 10 LFOs with enhanced drawing tools and editor, independent grid, presets, and more

### Macros

Eight macros, with each as a potential destination

### Clip

Flexible clip sequencer

### Arpeggiator

Sophisticated arpeggiator module

### Enhanced Keyboard

Standard keyboard with transposition, key, scale, swing, and oscillator mapping settings



## ENHANCED USER INTERFACE

**Pages**  
Use to access the oscillators, mixer, FX, modulation matrix, and global settings

**Presets**  
Load factory presets and artist preset packs. Use to save your own presets

**Presets Browser**  
Quickly search and preview presets

**Main Menu**  
Access common operations

**Volume**  
Control the main volume

**Filters**  
Dual filters with routing options

**Noise**  
Dedicated noise oscillator

**LFOs**  
Low frequency oscillators

**Velocity/Note**  
More modulation options

**Voicing**  
Set legato, portamento, and more

**Keyboard**  
Standard keyboard with transposition, key, scale, swing, and oscillator mapping settings

**Arpeggiator**  
Sophisticated arpeggiator module

**Clips**  
Flexible clip sequencer

**Wheels**  
Pitch and mod wheels

**Macros**  
Use to easily control multiple parameters simultaneously

**Envelopes**  
Use to modulate almost any parameter

**Oscillators**  
Three main oscillators (choose from Wavetable, Multisample, Sample, Granular, and Spectral)

**Sub**  
Dedicated sub oscillator

## EXPANDED OSCILLATORS



### Sub Oscillator

Dedicated sub oscillator similar to Serum 1

### Three Primary Oscillators

Serum 2 features three primary oscillators compared to two in Serum 1

### Noise Oscillator

Dedicated noise oscillator as in Serum 1



### Multiple Oscillator Types

Wavetable, Multisample, Sample, Granular, and Spectral oscillators



# NEW OSCILLATOR MODES

Five oscillator modes  
now available



## Wavetable

As with the original Serum, wavetable oscillators remain at the heart of sound generation in Serum 2



## Multisample

Multisample instruments use an array of samples—recordings of an actual instrument—played across a range of pitches, intensities, and articulations



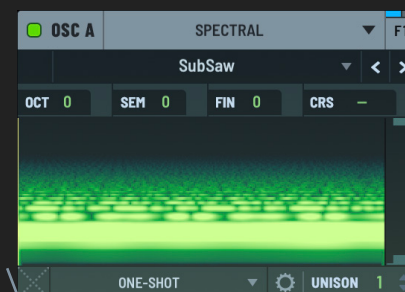
## Sample

A versatile and intuitive sampler, designed for creatively manipulating and playing back audio samples



## Granular

An easy-to-use granular synthesis mode that manipulates audio samples by breaking them down into tiny segments called grains, and then recombining them in various ways to create new textures and sounds



## Spectral

A spectral synthesis mode that manipulates sound by analyzing and resynthesizing the frequency spectrum, creating new sounds with independent control over time and pitch

# WAVETABLE ENHANCEMENTS

## Oscillator Controls

Copy and paste oscillators (with or without modulations)

## Unison

Enhanced unison configuration

## WT Interpolation

Smooth interpolation option for wavetable position offering perfect table transitions (without morph tables)

## Tuning Modes

Semitone, harmonics, ratio, and step modes for octaves and semitones

## Faster Preset Navigation

Hover over the presets menu and use the mouse wheel to quickly switch between presets

## Routing

Easy routing to multiple targets

## Phase Memory

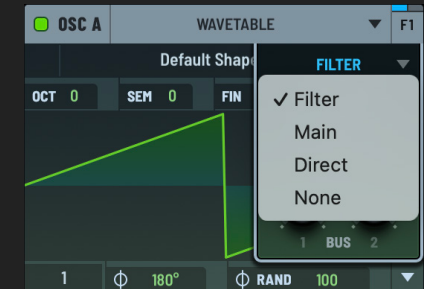
Control phase and phase randomization for new notes

## Warp Modes

Additional warp modes including true FM, PD from filters, distortions, and more

## Dual Warp

Two warp modes at once



# SAMPLE MODE HIGHLIGHTS

## Playback Modes

Set the loop mode for the sample

## Crossfade

Create smoother transitions at the loop points

## Warp

Advanced warp modes including FM and PM



## Set Points

Adjust and modulate start/end points, and loop start/end points

Sample start and end points



## Slicing

Auto and manual slicing modes with advanced options



Forward-reverse looping tails for real time stretching

Loop start and end points



Also available in Granular and Spectral modes

# MORE NEW OSCILLATOR HIGHLIGHTS

## Multisample

Instruments with support for loading SFZ files

## Envelope

Customize the envelope

## Timbre Shifting

Adjust and modulate the timbre

## Warp

Access advanced warping options



## Granular

Play audio samples with up to 256 grains

## Window Amount

Control grain amplitude window

## Warp

Access all warping capabilities

## Parameters

Complete granular control



## Spectral

Manipulates the frequency spectrum of a sound

## Scan Rate

Set the speed and direction of the sample playback

## Warp

Access Serum's warping options



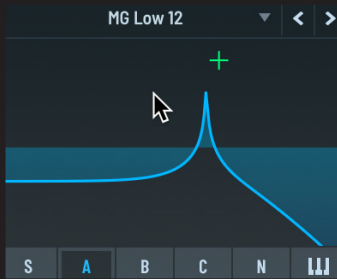
## Hi/Low Freqs

Set the sample high and low frequencies

Access many sample mode features including start/end points, looping, and slicing

# DUAL EXPANDED FILTERS

Directly control the cutoff and resonance using a mouse



**Dual Filters**  
Use one or both filters

**Routing**  
Series or parallel filter routing



**Clean Mode**  
New clean mode for the Drive control

**New Filter Types**  
Access a wide variety of new virtual analog and other filters

- ✓ Normal >
- Multi >
- Flanges >
- Misc >
- New >
  - Wsp
  - DJ Mixer
  - Diffusor
  - MG Ladder
  - Acid Ladder
  - EMS Ladder
  - MG Dirty
  - PZ SVF
  - Comb 2
  - Exp MM
  - Exp BPF



## IMPROVED SERUM FX

**Expanded View**  
Expanded rack view available

**Dual FX Busses**  
Two separate FX busses for added flexibility

**High Quality FX**  
Choose from 13 powerful effects and 3 types of splitter modules

**Rearrange Modules**  
Drag and drop to quickly rearrange modules

**Bypass Modules**  
Easily bypass a module



**Presets**  
Access factory or user presets (racks and modules)

**Direct Manipulation**  
Directly adjust controls using the graphical display

- Bode
- Chorus
- Compressor
- Convolve
- Delay
- Distortion
- Equalizer
- Filter
- Flanger
- Hyper/Dimension
- Phaser
- Reverb
- Splitter L/H
- Splitter L/M/H
- Splitter M/S
- Utility

**Multiple Instances**  
Add multiple instances of a single effect



# NEW AND ENHANCED FX



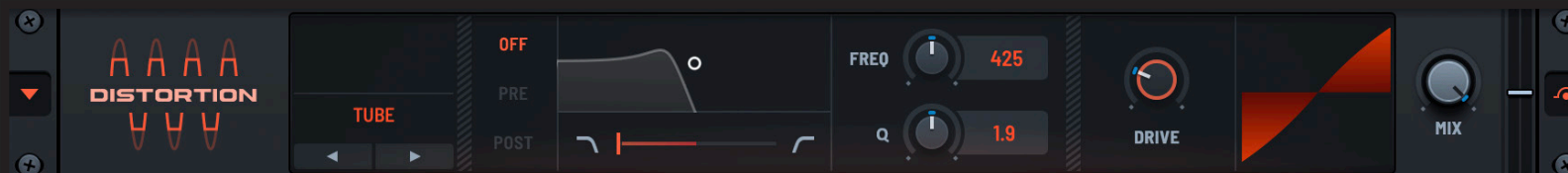
**Bode**  
New frequency shifter effect



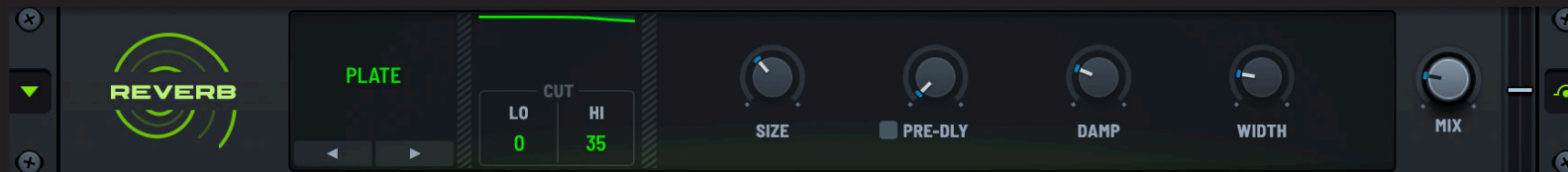
**Convolve**  
New convolution effect



**Delay**  
New HQ mode (now default)



**Distortion**  
New Overdrive mode and DC bias control



**Reverb**  
Three new reverb types: Vintage, Nitrous, and Basin



**Utility**  
New utility effect

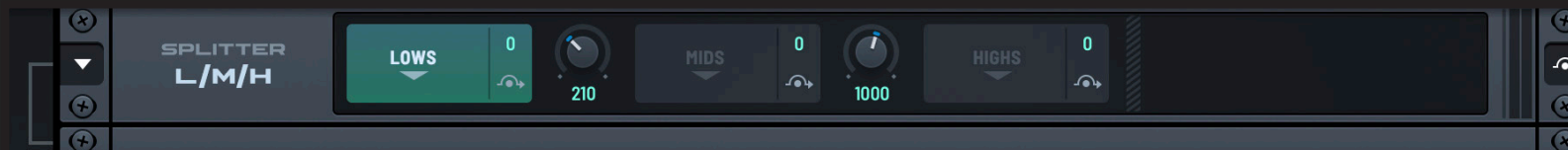
# NEW SIGNAL SPLITTER MODULES



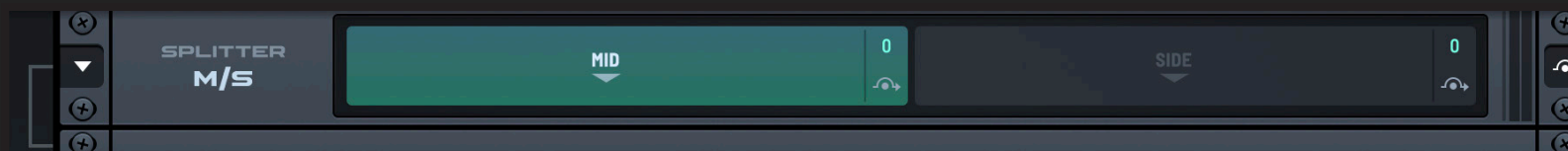
Easy to use  
At-a-glance  
views with direct  
manipulation



Splitter L/H  
Lows/Highs  
splitter



Splitter L/M/H  
Lows/Mids/Highs  
splitter



Splitter M/S  
Mid/Slide  
splitter

# ENHANCED MODULATION

## Envelopes

The number of envelopes expanded to four

## LFOs

Now with up to 10 low frequency oscillators (LFO 7 to LFO 10 appear after you assign LFO 6)

## Chaos LFO Modes

Lorenz and Rossler LFO chaos modes

## LFO Drawing Tools

Use drawing tools with a dedicated editor



## BPM

Envelopes now offer a BPM option to follow host tempo

## 10x Rate

Set rates up to 1000 Hz

## Presets

Choose a preset or create your own configuration

## Independent Grid

Independent X and Y setting for graph grid

## Phase

Set and modulate the phase

## Invert Legato

Force an envelope to always trigger at note on, even when legato is enabled

## Enhanced Macros

Serum now offers eight macros, with each macro as a potential destination

Ability to apply and delete a macro

## New Sources

Any oscillator or filter can be a modulation source



# ENHANCED MODULATION MATRIX

**Expanded View**  
Expanded matrix  
view available

**Source Curves**  
Editable source scale  
curves

**Aux Source Curves**  
Editable aux source  
scale curves

**Remove Mods**  
Remove unneeded  
modulations

	SOURCE	CRV	AMOUNT	POL	DESTINATION	OUT	AUX SOURCE	INV	CRV	OUTPUT	
	LFO 1				Main Tuning		Env 2	↑↓			
	OSC A				A WT Pos		LFO 2	↑↓			
	Filter 1				B WT Pos		Note#	↑↓			
	Active Voices				C Semi		Aftertouch	↑↓			
	Expr X (Pan)				Noise Pitch		--	↑↓			
	Macro 1				Filter 1 Res		--	↑↓			
	Macro 2				Env 1 Attack		--	↑↓			
	Mod Wheel				Arp Range		--	↑↓			

**Dynamic Visualizations**  
Matrix displays modulations  
dynamically

**Bypass Mods**  
Bypass individual  
modulations

**Reorder Modulations**  
Drag and drop handles to  
reorder mods



# NEW SERUM MIXER

**Oscillator Channels**  
Set routing, panning and levels

**Filter Channels**  
Set routing, panning, mix, and levels

**FX Bus Channels**  
Set levels for the FX bus channels

**Main/Direct Outputs**  
Set levels and manage effects (FX)



**Manage Routing**  
Choose the channel routing

**Manage Graphically**  
Manipulate filter cutoff and resonance graphically

**Manage FX**  
Bypass individual FX modules

**Balance Routing**  
Balance routing to filters and FX busses



## NEW CLIP SEQUENCER

**Macros**  
Tweak sounds while creating clips

**Flexible Grid**  
Set an appropriate grid

**Piano Roll**  
Input and edit MIDI data using the full-featured editor

**Volume**  
Control the main volume

**Global**  
Set module parameters and access factory and user-saved clip banks

**Clip Settings**  
Set clip parameters and access factory and user-saved clips

**Record**  
Record clips (in either Overdub or Extend mode)

**Markers**  
Set loop and offset markers

**Automation**  
Capture automation in multiple lanes

**Assigned Macro**

**Activate the CLIP module**

**Show CLIP Module**  
Click here to display the CLIP module

**Key and Scale**  
Set the key, scale, transpose, and oscillator mapping

**Clip Slots**  
Each clip bank offers 12 slots

**MIDI Out**  
Specify how Serum should output MIDI data

# ADVANCED ARPEGGIATOR

## Global Settings

Set module parameters and access factory and user-saved arp banks

## Pattern

Set the arp pattern and related options

## Transpose

Set the transpose shift and range

## Playback

Set offset, repeats, gate, chance, and more

## Retrigger

Set how to retrigger the arp shape/pattern

## Velocity

Raise or lower the note output velocities over time



Activate the ARP module

## Show ARP Module

Click here to display the ARP module

## Play ARP Slot

Start an arpeggiator slot using the "play" button

## Arp Slots

Each arp bank offers 12 slots

## MIDI Out

Specify how Serum should output MIDI data

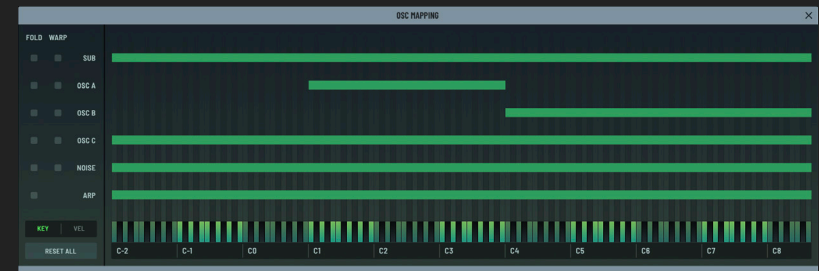
## Pattern Editor

Advanced ARP pattern editor available when SHAPE is set to "Pattern"



# ENHANCED KEYBOARD

**Osc Mapping Editor**  
Edit the note and velocity ranges of the oscillators and arpeggiator to define and limit the range to which both respond

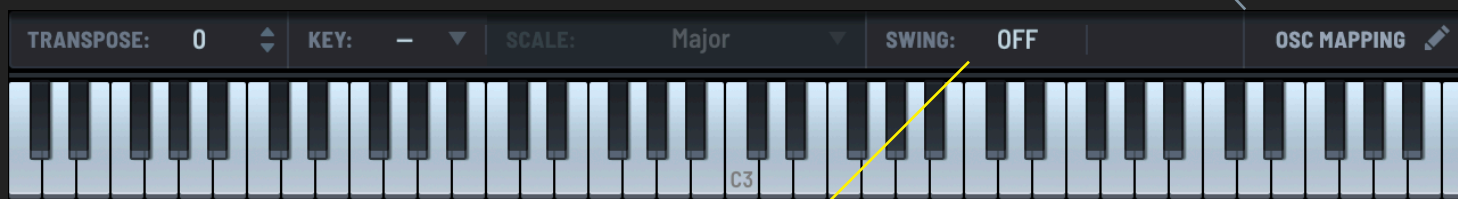


## Transpose

Transpose the keyboard (by semitones) within a range of two octaves

## Key and Scale

The key and scale are applied to both MIDI input and the output of the CLIP and ARP modules



**Oscillator Mapping**  
Launch the oscillator mapping editor

## Swing

Set the swing to apply to certain notes to add groove



# IMPROVED PRESETS BROWSER

## Content Library

Access factory content, artist packs, and user-saved patches

## Search

Use to quickly search presets by name

## Presets

The list of presets, either the complete list or search results

## Menu

Hybridize presets, auto-play, rescan database, and more

## Folders

Tree-based hierarchy allows you to quickly find the right sound

## Packs

Artists can create a pack from a folder of presets

## Categories/Tags

Filter presets by categories and tags

## Metadata

Display and edit the metadata associated with the selected preset

## Ratings

Assign ratings to presets in the library

The screenshot shows the Serum 2 Presets Browser interface. The top bar includes the Serum 2 logo and tabs for OSC, MIX, FX, MATRIX, and GLOBAL. The main area is divided into several sections:

- Content Library:** A tree-based hierarchy on the left showing folders like Local, Factory, and various instrument categories.
- Packs:** A section below the Content Library showing artist packs like 'ARP - Daftonic'.
- Categories/Tags:** A section below the Packs showing filters for categories and tags.
- Search:** A search bar at the top of the preset list.
- Presets:** A table of presets with columns for NAME, LOCATION, CATEGORY, DATE MODIFIED, and RATING.
- Menu:** A menu icon in the top right corner.
- Metadata:** A section on the right showing the preset name, author, category, and description.
- Ratings:** A section on the right showing the preset's rating.
- Preview Presets:** A piano keyboard at the bottom for previewing presets.
- Macros:** A section at the bottom right for adjusting macros.

Annotations with yellow lines point to the following features:

- Content Library:** Points to the tree-based hierarchy on the left.
- Packs:** Points to the 'ARP - Daftonic' pack.
- Categories/Tags:** Points to the filter section below the packs.
- Search:** Points to the search bar at the top of the preset list.
- Presets:** Points to the table of presets.
- Menu:** Points to the menu icon in the top right.
- Metadata:** Points to the preset name, author, category, and description section.
- Ratings:** Points to the preset's rating.
- Preview Presets:** Points to the piano keyboard at the bottom.
- Macros:** Points to the macro adjustment section at the bottom right.

## Ratings Filter

Filter presets by user-assigned ratings

## Preview Presets

Previews can play custom clips to showcase the artist's intent

## Macros

Adjust macros as you preview presets