

GalaXynth: The Manual

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Introduction

GalaXynth is a plugin software instrument available in the Audio Unit (AU) and VST formats, for the Mac and Windows operating systems. GalaXynth represents sounds in a format based on models of the human ear. By using this format, it can recreate a wide range of sounds, and morph any combination of its' sounds. There are no samples in GalaXynth, everything you hear is pure synthesis, which explains the small download size.

The sounds are generated by hybrid model dubbed 'Auditory Synthesis', as it is based on auditory models, i.e. computer models of how human hearing works. However, the innards of this synth are of no real consequence to the user, as the hundreds of parameters controlling sound generation are hidden from view. Instead, the user is presented with a 2D 'canvas' that can be filled with preset sounds. GalaXynth comes packed with over a hundred sounds, such as pianos, strings, drums and synths. There are also expansion soundbanks available for download from our web page.



Fig 1: Main UI View

The Canvas

Sound is generated by placing sounds on the *canvas* (1), the big blank space in the middle of the window. To place sounds, either drag sounds from the sound menu (3), or right click and choose a sound from the dropdown menu. To move sounds around, drag the coloured circle of each sound.

Sounds on the canvas are grouped as triangles. By clicking the canvas, you will move the white sound marker (2). The sound marker controls the mix of sounds that will be played currently.

There are three canvas modes: Explore (5), XY Pad (6), and Keyboard (7).

Explore

This mode should be used for sound discovery, and to search for a nice starting point. This view has three buttons at the bottom:

Top (8) — Browse all sounds by category. Click a category to get all its sounds on the canvas.

Rotate These (9) — Center the current sound and arrange the remaining existing sounds by similarity with some randomness.

Rotate All (10) — Center the current sound and arrange the most similar sounds out of all available sounds around them, with some randomness.

XY Pad

This mode allows for automation of the current canvas position, either by host automation (the "Morph X" and "Morph Y" parameters) or using modulations (see section on *Modulation View*). The current sound for each voice is animated as a small coloured circle.

Keyboard

This mode is used for laying out sounds across the midi keyboard, similar to how samples are laid out on many samplers.

Parameters

Bottom row

Gain — The gain of all sound, pre-effects.

Time Warp — The playback speed of sounds, without affecting pitch & frequency

Flatten — Flatness of the sound spectra. Negative values exaggerates the spectra instead.

Formant — Shifts the spectral shape up or down in frequency.

Life — Controls the amount of modulation in pitch, amplitude and spectral shape. These modulations are specific to each sound.

Fatness — adds or subtracts a chorus/ensemble effect

Settings page (11)

Envelope

Attack — Positive amounts boosts the amplitude envelope sound, while negative amounts fades in the envelope

Release — Amplitude envelope release time

Damping — G Adds extra attenuation of high frequencies during release, which occurs naturally on many acoustic instruments.

Vibrato

Rate — Frequency of vibrato in Hz

Emphasis — Controls how much amplitude is also modulated during vibrato, which occurs naturally in e.g. singing and cello playing

Life — Adds chaotic behaviour to the vibrato, i.e. more "human" imperfections.

Mod Wheel — The amount of vibrato applied by the mod wheel

Pitch

Bend Range — Pitch bend wheel range

Glide Time — Portamento length during voice stealing.

Detune — Fine control of global pitch

Key Ctrl

Polyphony — Number of simultaneous voices. Set this to 1 for monophonic playing.

Retrigger — How much to reset the sound time position during voice stealing.

Velo > Amp — Controls how much velocity will modify amplitude

Filter

Brightness — A "spectral tilt" control - boost or attenuate high frequencies

Hi-Lo Cut — Cutoff frequency of a combined highness and lowpass filter, similar to those found on DJ mixers.

Hi-Lo Rez — Resonance of said filter.

Modulation View

Press the button labeled 'Modul-8' (12) to open the modulation view. The modulation section has two envelopes, two LFOs and 8 modulation slots. Each row in the list is a modulation signal path. To enable modulation, choose a row in the list and select a Source, an Amount and a Target (and optionally a Scaler). The amount can be set either by mouse-dragging vertically, or double-clicking and entering a numerical value in the range -64 to +64. What this amount means is specific to each parameter, try it out and see.

Effects (13)

The effects are currently in a fixed-order chain (from top to bottom). Click the label of each effect to edit its parameters. Below is a list of all effects and their particular properties:

BINAURAL

A 3D audio positioner and stereo effect unit. The tiny 'piano keys' icon signifies your

midi keyboard, and the 'L' and 'R' icons are virtual microphones. Placing the piano icon closer to the mics puts low notes further to the left and high notes further to the right. Placing the piano at the top of the box or at the side edges, all notes get the same stereo position.

'Stereo Spread' controls how wide tonal & noise components are in the stereo field, while 'Hyper Width' controls the amount of a stereo spreading effect similar to the classic 1970's "Dimension D" hardware effect.

LO-FI

A sample-rate reduction effect, nothing special here except the 'Envelope' control - which makes the sample-rate be controlled by the signal amplitude envelope.

EQUALIZER

The eq consists of a low-shelf and a high-shelf filter, with variable Q.

REVERB

This is a fairly standard reverb, except for the feedback control, which feeds the reverb output back into the input to the reverb. This can produce some interesting effects, but be careful as this easily produces infinite feedback.

PHLASER

This is a combined phaser and flanger. The Flange/Phase knob seamlessly converts the effect between these two classic effects.

COMPRESSOR

A standard compressor, except for the 'Optical' parameter. At 0%, this gives the standard exponential attack and release curves, 100% gives envelopes similar to those of optical compressors (i.e. sub-exponential), and -100% is the opposite, decaying faster than exponential.

DISTORTION

'Drive' controls the input sound level to this unit. 'Bias' shifts the distortion toward the positive half of the waveform, to give an asymmetrical effect. 'Foldover' reduces gain for high amplitudes, giving a crunchier sound. Before the actual distortion unit, there is a bandpass filter that is controlled by the 'Center Freq' and 'Bandwidth' parameters. Note: even with 'Drive' set to 0 dB, there can still be some distortion produced, if the input is loud enough. To avoid distortion altogether, be sure to turn off this unit.

Soundbanks

Expansion soundbanks are available for download from the GalaXynth web page, <https://heartofnoise.com/products/galaxyynth/>. To install, download the gxbank, press 'SOUNDS' (3), then <add Soundbank> at the bottom of the list. This will open a file dialog. Browse to where the file is saved on your hard drive, select it, and press 'Open'. After that, all open instances of GalaXynth will need to be restarted (note: it is not enough to close and open the GUI window, the plugin itself must be restarted. The easiest way is probably to reload your host project).

Tips and Tricks

- Double-click any knob or value box to enter values numerically.
- Right-clicking a knob or a value box gives the option to reset it to its default value.
- Soundbank and preset files can be dragged onto the GalaXynth window to be installed.
- The bottom row knobs are useful for fine-tuning sounds.
- The preset “!nit Patch” is a useful starting point for sound design, as it has no effects, no modulations and all knobs in their default positions.