

PROXIMA



User's Manual

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www.synapse-audio.com

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1. Introduction

Thank you for choosing Proxima by Synapse Audio!

Proxima is modeled after one of the most ground-breaking analog synthesizers ever made, as the first synth on the market to offer MIDI implementation. And yet, ground-breaking though it may have been, it went largely unnoticed in the annals of synth history.

But no great thing can stay hidden forever. Renewed interest has seen this synth described as an underrated hidden gem. More recently it's been revived, gaining the attention of both casual enthusiasts and seasoned collectors alike.

Proxima has been designed and tested by the Synapse Audio team with the level of care and attention to detail this truly iconic synthesizer deserves. While Proxima faithfully recreates the tone and character of the original hardware, additional features have also been added to facilitate the creative process and bring the hardware seamlessly into the sphere of soft synths.

Proxima is available in VST®, AAX and Audio Unit formats, and supports MIDI Polyphonic Expression (MPE), as well as the Native Kontrol Standard (NKS).

1.1 Installation

Installation on Windows

Unzip "proxima.zip" and run SETUP.EXE to begin the installation process. The installer will guide you through the necessary steps. You'll be asked to select the location of your VstPlugins directory. Make sure to choose the correct directory for your host software. Refer to your host software's manual if you are unsure about the location of the host software's VstPlugins directory. The next time you start your host software, Proxima will appear in the instrument list.

All content files (factory presets, MIDI files, and user manual) will be placed in the directory you specify during installation. This is the user directory by default (Synapse Audio/Proxima).

Installation on Mac OS X

Proxima comes with a dedicated installer application. Download and open the disk image named "proxima.dmg". Afterwards, double-click on the installer icon to begin the installation process. The installer will guide you through the necessary steps. The next time you start your host software, Proxima will appear in the instrument list.

1.2 Activation

After installation, provide your license key by using the Activation Tool. On PC/Windows, the tool is launched on the first instance the plug-in is used in your host (the UI must be opened). On Mac OS X and above, the tool is launched immediately after installation is complete.

After typing in the license key, you'll be asked to activate the license. This is required only once per computer. The preferred method is Online Activation, which requires only a single click. No personal data is transmitted when choosing Online Activation, making it a secure method of activation.

Activation permanently enables Proxima to run on your computer. You may activate Proxima on three computers simultaneously, provided you're the sole user of each. For multiple users, multiple licenses must be purchased.

If you wish to activate Proxima on a computer that is not connected to the Internet, choose Offline Activation. You will be given a key, which you can save to a USB stick, or make note of in a secure place. Now switch to a different computer with internet access and log in to your account at:

<https://www.synapse-audio.com/support.html>

Click on the "Access product activations" link in the "Product activations" section on the left. Enter the key you previously stored, and you'll receive a response code. Type this response code into the Offline Activation dialog to complete the installation process.

1.3 Compatibility

Proxima comes with 64-bit version and should run on any VST or AU-compatible host, as well as ProTools. If you encounter any compatibility issues with your host software, don't hesitate to contact us at service@synapse-audio.com.

Proxima has been tested for use on the following hosts:

- Ableton Live
- Apple Logic Pro
- Avid Pro Tools
- Bitwig Studio
- Cockos Reaper
- Image Line FL Studio
- Magix Samplitude
- Native Instruments Komplete Kontrol
- Native Instruments Maschine
- PreSonus Studio One
- Propellerhead Reason
- Steinberg Cubase
- Synapse Audio Orion

1.4 System Requirements

To maximize sound quality, Proxima employs complex DSP algorithms that can be CPU-heavy. Despite this, optimized SSE vector processing allows Proxima to perform very well.

At a minimum, the following requirements are necessary to run Proxima at peak performance:

PC/Windows: Windows 7 SP 1 or later, 2.8 GHz quad core CPU or better, 64-bit host that is VST 3 or AAX compatible. ProTools 11 or newer is required for the AAX version. Most importantly, Windows must be optimized for real-time audio to maximize the benefits. Too many software packages or services running in the background can hinder performance.

Mac OS: OS X 10.14 or later, 2.8 GHz quad core CPU or better, 64-bit host that supports VST 3 or Audio Unit plugins. Native Audio Unit and VST3 versions are available for Silicon M1/M2/M3/M4-based Macs. ProTools 11 or newer is required for the AAX version.

Choosing a good latency/audio buffer size is crucial for optimizing Proxima's performance. We recommend using between 10-20 ms, or 512 samples at a 44.1 / 48 kHz sample rate. On most systems, this should result in a good balance between low-latency real-time feel and CPU performance.

2. Basic Operation

2.1 Overview

Proxima's user interface is divided into two main parts: the main panel, and the bottom panel.

The main panel contains Proxima's primary sound parameters, the mixer section, the filter section, the filter envelope, the amp envelope, the mod envelope, and the modulation matrix. The main panel is covered in chapters 4. Main Panel and 6. Mod Matrix.

The bottom panel contains: keyboard view, arpeggiator / sequencer view, effects view and additional options view. The effects view includes distortion, an equalizer, phaser, chorus, reverb, and a delay unit. The bottom sections are covered in chapter 5. Bottom Panel.

2.2 Initialize Patch

Patch initialization is the starting place for building patches. Selecting the “Initialize Patch” option sets Proxima to its default values. The “Initialize Patch” option can be chosen by right clicking on the main panel outside of one of the editable parameters.

2.3 Controlling parameters

Knobs, faders, and numerical displays are all controlled by left-clicking on them, then dragging the mouse up or down in a vertical direction. To set precise values, hold down Shift while turning knobs. To set knobs to their default position, use Command/Windows+Click. Toggle switches by simply left-clicking on them.



The mouse wheel is helpful in speeding up your workflow and works on almost every parameter. It can be used on numerical displays to increase or decrease the current value, or on drop-down lists to select the previous or next parameter in the list. It can also be used to fine-tune knobs and faders.

2.4 MIDI assignments and Parameter Lock

Right-clicking on one of the editable parameters on the main or bottom panel will prompt a dropdown menu with three options. These will be covered below.

MIDI Learn

Assigns a specified parameter to a chosen MIDI controller or control surface. After clicking on MIDI Learn, turn the desired knob or fader to link it to that parameter.



MIDI Forget

Unassigns the chosen parameter from its assigned MIDI control surface or MIDI number. Note that this function is only available when an assignment has been previously made.

Lock parameter

Prevents any further changes from taking place to the chosen parameter. This can be useful for preventing substantial changes from happening during performance, or after a sound parameter has been set to taste.

Clear all locks

Removes all parameter locks at once.

2.5 Customizing the Interface



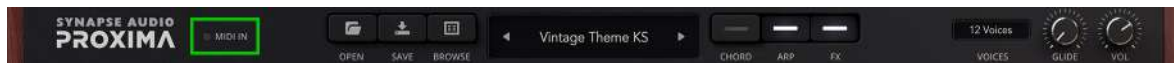
When opening Proxima for the first time, we recommend you choose your favorite size for the interface. Click the dual-arrow at the far left of the middle ribbon icon and choose the size between Small, Medium, Large, and Huge. The size of the interface can also be chosen by right-clicking anywhere on the user interface outside of the editable parameters.

You may do further adjustments by clicking on the brightness icon. This will cause a menu to pop up with three sliders.



The first slider adjusts the brightness, the second the hue of all LFOs displays and Arpeggiator, while the third slider changes the saturation of the color.

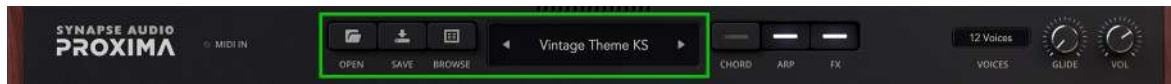
2.6 MIDI IN



The MIDI IN led signals that Proxima is receiving MIDI signal from your chosen hardware. When the bulb is lit red, this signifies that Proxima is receiving MIDI signal.

If unlit when playing a note or sequence, this signifies that Proxima is not receiving MIDI signal. If this is the case, first make sure your hardware is connected and properly recognized by your DAW. If the problem persists, consult the hardware's user's manual.

2.7 Patch Selection



The word "patch" is the term used for any sound programmed on a synth. Patches are made from sound sources (oscillators, noise, and/or samples) that are combined with filters, envelopes, modulation sources, and effects. The term comes from the origins of modular synthesis, which requires the patching of cables from one module to another.

When opening Proxima for the first time, we recommend you start by exploring its factory patches. This provides a good idea of Proxima's sound design capabilities.

Patches are selected in the central display of the upper side of the UI. By clicking on the display, a menu will appear with Proxima's factory selection. It's also possible to select User-generated patches stored within Proxima's Soundbanks folder.

Choose a patch by clicking on its name in the dropdown menu. Alternatively, scroll through patches in the relevant soundbank by clicking on one of the arrows to the left or right of the patch name in the central display.

The PATCH section contains also two functions: load patch and save patch. By clicking on the folder icon above PATCH, a pop-up window appears that lets the user load patches from their drive. By clicking on the floppy disk icon above PATCH, a pop-up window appears that lets the user save patches to their drive.

Patches are stored in the following directories, depending on the operating system:

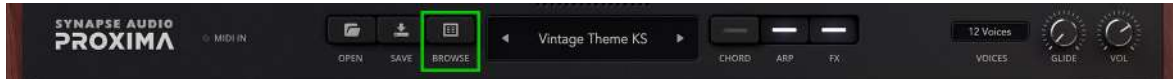
Mac OS X: /Library/Application Support/Synapse Audio/Proxima/Soundbanks

Windows: Documents/Synapse Audio/Proxima/Soundbanks

Patches are saved as single Cubase patch files (.fxp), which is a common format for storing patches.

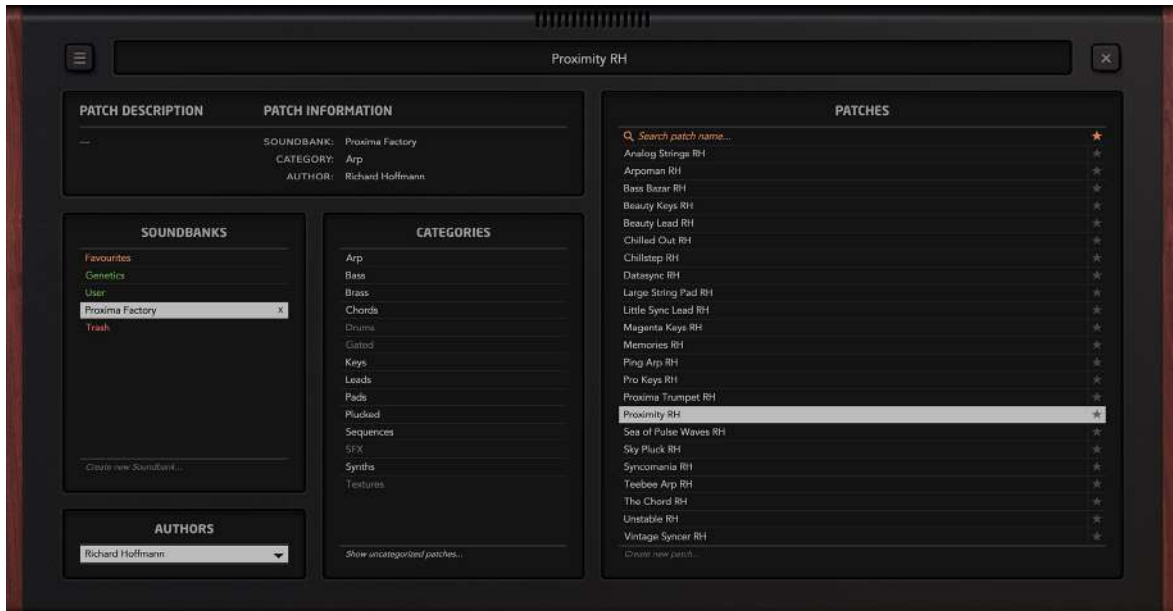
2.8 Patch Browser

Though patches can be chosen in the central patch selection display of the main panel, Proxima makes use of an extensive Patch Browser that lets you search for specific sounds, manage soundbanks, mark favorites, and even create completely new sounds with the Genetics function. The Patch Browser is opened by clicking on the menu icon.



You will then be taken to a new window, where all available patches can be scrolled through.

The Patch Browser can also be opened by right-clicking anywhere on the user interface outside of the editable parameters and selecting "Open Browser" in the dropdown menu.



Though patches can be chosen in the preset display, the patch browser provides more detailed patch descriptions. For example, patches can be chosen based on soundbank location, category, and author. Patches can also be designated as favorites by clicking on the star to the right of the patch name in the PATCHES menu.

Important: Since the Patch Browser is typically used to change the currently selected patch, any changes made to the active patch should be saved before using it.

The functions of the Patch Browser are explained in more detail below.

SOUNDBANKS

When the browser is opened for the first time, all installed patches from all soundbanks are shown on the column. By left-clicking on a soundbank, the displayed patches can be limited to the selected soundbank. By right-clicking on a soundbank, that soundbank can be renamed, or its location in the file system can be revealed. In addition to the factory soundbanks, there are special banks highlighted in color:

- **Favorites** - displays all patches that have been marked as favorites.
- **Genetics** - displays all saved patches made with the GENETICS function.
- **User** - displays the user's own patches, which can be stored in this soundbank.
- **Trash** - displays patches that have been moved to the trash can. These patches can then be permanently deleted by right-clicking and selecting "Clear Trash."

With the function "Create new soundbank..." a new soundbank can be created with the desired name.

AUTHORS

This popup menu can be used to limit the patches displayed on the right to a specific author. By default, all authors are displayed.

CATEGORIES

The patches displayed can be limited to specific categories. Multiple selection is possible by holding the CTRL/Command key. The "Show uncategorized patches" function displays all patches that have not been assigned to a category yet. This is useful for sound designers who are creating a new soundbank.

PATCHES

The right column shows all patches that match the current selection criteria. Left-clicking on a patch selects and makes it the current patch. Multiple selection is possible by holding either the CTRL or SHIFT keys. Using Drag+Drop, selected patches can be assigned to a specific soundbank or category. The search box above can be used to search for specific patch names. Entering a string will immediately show all patches containing this string. With the "Create new patch..." function at the bottom, a new Init Patch can be created in the current soundbank.

MENU

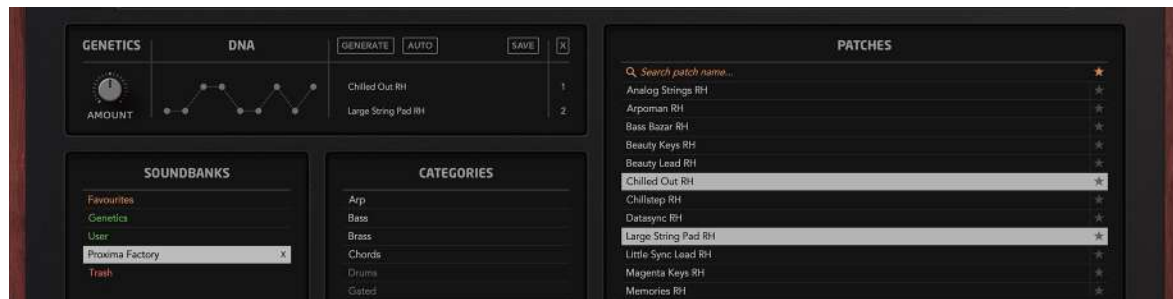
The MENU button provides the following functions:

- **Open Genetics** - opens the Genetics tab, which can be used to create new sounds (see below).
- **Import Patch/Folder** - can be used to add a single patch or a directory of patches to the soundbanks. This can be useful to quickly integrate patches from external hard drives or USB sticks.
- **Import ZIP Contents** - lets the user directly import a zipped soundbank. If there are additionally required wavetables in the ZIP file besides the patches, these are also automatically copied into the wavetables directory. In this way, third-party soundbanks can be installed quickly and conveniently.
- **Reload Soundbanks** - reloads all patches. This is provided in case patch files have been added or deleted manually via the file system.

Note: For the folder and ZIP import, if there are wavetables found besides the patches, these are also automatically copied into the wavetables. In this way, third-party soundbanks can be installed quickly and conveniently.

GENETICS

With the Genetics function, new sounds can be created from 2-3 existing patches. This makes it possible to randomly integrate properties from separate patches.



GENERATE

After selecting at least two patches in the patch window on the right, (hold down the "CTRL" key/Command key on MacOS for multiple selection), a new patch can be created using the GENERATE button. If the selected patches fit well together, usually only a few clicks on the GENERATE button are necessary to get a usable sound.

IMPORTANT*: When pre-listening, the listening volume should be relatively low since the generated patches are random. Patches can become very loud when generating new variations.

AUTO

Functions similarly to the GENERATE function. It differs however by randomly selecting and combining two new patches from the current directory with each click.

SAVE

Stores patches created with the GENERATE and AUTO functions in their own soundbank ("Genetics").

These patches are date and time stamped, which is how they are named in the folder. They can be renamed at any time by right-clicking on the patch in the Genetics folder, choosing Rename Patch, and typing the desired name into the box. Alternatively, the selected patch can be renamed by pressing F2.

The Genetics function can weight the selected patches differently. This is controlled by the "Amount" knob. The higher the value, the more patches 2 and 3 are factored into the final sound. At the minimum value of 0%, patches 2 and 3 are not considered at all, and the first patch remains as is.

KEYBOARD SHORTCUTS

To speed up the workflow, the Patch Browser supports the following keyboard shortcuts:

- **Arrow keys** select the next/previous patch.
- **F2** renames the currently selected patch.
- **ESC** or **RETURN** closes the browser.

3. Sound Engine

3.1 Signal Flow

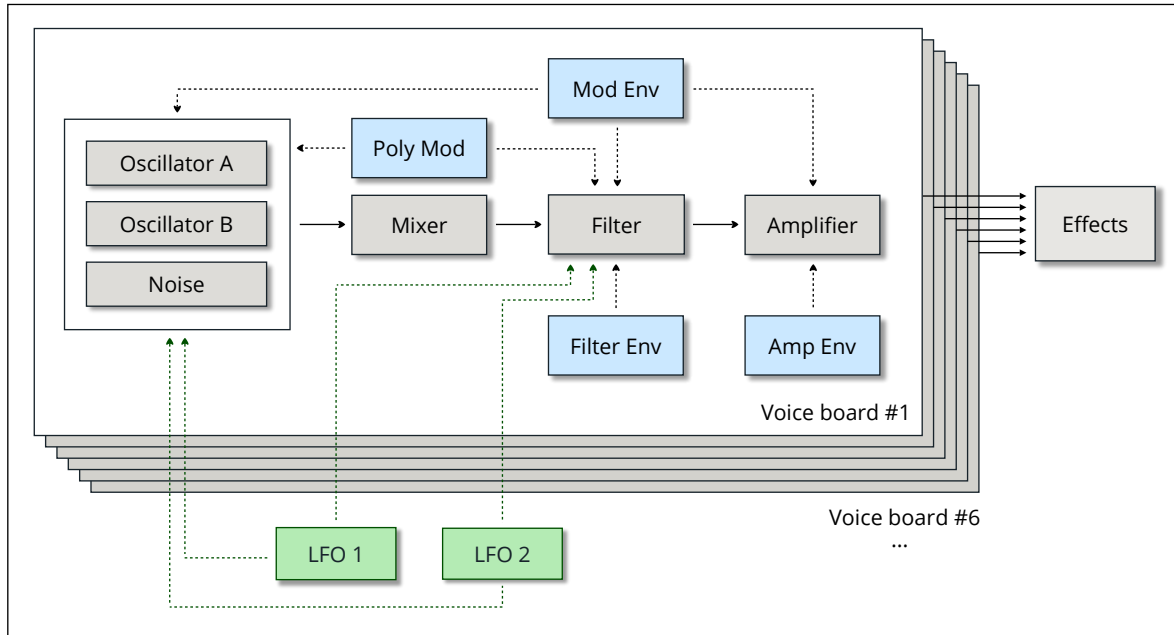


Fig. 4.1. Signal Flow of Proxima

Proxima is a polyphonic, analog-modeled virtual synth. Its primary sources of sound generation are two oscillators, from here on referred to as OSC-A and OSC-B, and a noise generator. These three sound sources are mixed and then processed by either a low-pass or band-pass filter, which can be set by the user.

Following this, the signal from the output of the filter passes through an amplifier. All voices are then summed, after which the effects located on the bottom panel may be applied to further alter the sound. The final output is scaled in volume by the Master Volume control.

3.2 Voices

In Unison or POLY-6 mode, Proxima uses 6 voices. In POLY-12 mode, it uses 12 voices. Each voice consists of two oscillators, a filter, a filter envelope, and an amp envelope. The individual voices can be fine-tuned in the VOICE CONFIGURATION section on the bottom panel.

The filter and amplifier are controlled by two envelopes: the FILTER envelope and the AMP envelope. Proxima also has a MOD envelope that can be used to modulate a chosen destination independently of the filter and amp envelopes. Though the MOD envelope is a modulation source, it's treated with the FILTER and AMP envelopes, since it functions identically to them.

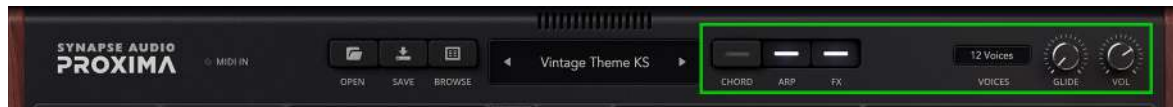
3.3 Modulation Sources

Proxima has three primary modulation sources.

The first two modulation sources are LFO-1 and LFO-2. Both have identical control parameters, with a few differences in their respective modulation destinations (see chapter 4.1 LFO 1/2). Additional modulations can be accomplished via the Mod Matrix (see chapter 6. Mod Matrix).

The third primary modulation source is also one of the defining features of Proxima. POLY-MOD (polyphonic modulation) is a powerful tool that can be used to modulate destination parameters in ways that go beyond standard LFOs. POLY-MOD functions by using OSC-B and the filter envelope generator as modulation sources for OSC-A's frequency and the filter cutoff frequency. POLY-MOD will be covered in chapter 4.2 Poly Mod.

3.4 Main Controls



This section hosts the most important global sound parameters.

CHORD

The button enables CHORD mode, which makes it easy to transpose chords into any key. Simply play a chord (for example: C E G), click on the CHORD button, and the chord is memorized. Proxima will then transpose the full chord with any single key played as the root note.

ARP

The button switches the arpeggiator in the on or off position. Click on the ARP button to switch Proxima's arpeggiator on or off. When lit, the arpeggiator is in the "on" position. When unlit, no arpeggiation will occur.

FX

The button toggles the effects section in the on or off position. Click on the FX button to switch Proxima's effects on or off. When lit, the effects section is in the "on" position. When unlit, the effects section has no effect on the sound.

VOICES

The VOICES section sets the number of voices to be used for the patch. In simple terms, the number of voices contained in a synth corresponds to the number of notes it can play at once.

Proxima's Init Patch is set to 6 voices by default. This can be changed by clicking on the VOICES display. Proxima has 5 settings to choose from in the dropdown menu. Three of these are monophonic, and two are polyphonic. Proxima's voice settings are covered below.

- **Mono-Legato** (Monophonic)

Each time a new note is played, it essentially continues the filter, filter envelope, and amp envelope values that were triggered by the previous note. Each note is connected smoothly to the previous one, creating a gliding effect between notes. This is useful for creating musical phrases consisting of two or more connected notes.

- **Mono-Retrigger (Monophonic)**

Each time a new note is played, the note re-triggers the filter, filter envelope, and amp envelope. Each note is disconnected from the previous one, creating a staccato effect between notes.

- **Unison (Monophonic)**

Whereas Mono-Legato and Mono-Retrigger modes use one voice, Unison mode triggers all six of Proxima's voices simultaneously each time a note is played. This results in a chorus effect, making Unison mode effective for creating fat bass sounds and sharp leads.

- **6 Voices (Polyphonic)**

A maximum of 6 voices can be played at a time. 6 Voices is Proxima's default mode.

- **12 Voices (Polyphonic)**

A maximum of 12 voices can be played at a time.

GLIDE

Controls the portamento rate.

Portamento is the amount of time it takes for one pitch to glide into another. Since portamento is a type of pitched-based legato phrasing, GLIDE is most effective in Mono-Legato mode. Nevertheless, it can also be used in any of the other modes for varying effect.

Turning the GLIDE knob clockwise to the right will lengthen the amount of time it takes for one pitch (note) to glide into another. Turning the GLIDE knob counterclockwise to the left will have the reverse effect.

VOLUME

The VOLUME knob controls the master volume of Proxima (post-fx).

4. Main Panel

This chapter covers the individual sections of Proxima's main panel, from the top left to the bottom right corner. Since the main panel contains Proxima's modulation sources, sound sources, mixer, filter section, and envelope section, most sound design and patch creation happens here.

The main panel is composed of 8 individual sections. These are the LFO section, the POLY-MOD section, the OSC A/B section, the NOISE generator section, the MIX section, the FILTER section, the AMP/MOD envelopes section, and the MOD MATRIX section. These will be covered below.

4.1 LFO 1/2

Proxima contains two designated LFOs (Low Frequency Oscillators) that can be used to modulate its parameters in potentially limitless ways. Note that though both LFOs have specific sets of modulation destinations, they can also be used as modulation sources for one or more of the destinations in the MOD MATRIX.



As its name suggests, an LFO is an oscillator. It operates like an oscillator, in that it generates a periodic, cyclical signal. However, LFOs differ substantially from standard oscillators, since they operate below 20 Hz, outside the range of human hearing.

The main difference between the two, then, is that oscillators operate as sources of sound, while LFOs operate as sources of modulation for another parameter.

As a typical example of how an LFO can be used to modulate another source, a vibrato effect can be created by routing one of the LFOs to Pitch Fine in the MOD MATRIX. By routing one of the LFOs to volume, a tremolo effect can be created.

The individual parameters for both LFO-1 and LFO-2 are identical, with two exceptions. Where LFO-1 contains a switch labelled FREQ A+B, LFO-2 contains a switch labelled FREQ A. Additionally, where LFO-1 contains a switch labelled PW (Pulse Width), LFO-2 contains a switch labeled LEVEL. In all other cases, the parameters listed below apply equally to LFO-1 and LFO-2.

LFO Shape

Altering the shape of an LFO affects the behavior of the parameter it modifies. The shape of the LFO can be selected via the switches in the center of the LFO section. From top to bottom, these three switches correspond to the three available oscillator shapes for LFO-1 and LFO-2:

- Triangle
- Square/Pulse
- Ramp Down

HOST SYNC

The HOST SYNC switch syncs LFO 1 or LFO 2 to the tempo of the host DAW. When the HOST SYNC switch is lit red, LFO-1 or LFO-2's rate of modulation is set to exact rhythmic values based on the project tempo. These rhythmic values can be controlled with the RATE knob.

RATE

The HOST SYNC switch syncs LFO 1 or LFO 2 to the tempo of the host DAW. When the HOST SYNC switch is lit red, LFO-1 or LFO-2's rate of modulation is set to exact rhythmic values based on the project tempo. These rhythmic values can be controlled with the RATE knob.

With HOST SYNC lit, the RATE knob will apply exact rhythmic values to the LFO's rate of modulation based on the host DAW's tempo. These values can be both multi-measured and single-measured, as noted in the table below.

Multi-Measured		Single-Measured	
Symbol	Function	Symbol	Function
1/1	LFO-1 or LFO-2 cycles every measure	8/1	LFO-1 or LFO-2 cycles every eight measures
1/2	LFO-1 or LFO-2 cycles every half measure	4/1	LFO-1 or LFO-2 cycles every four measures
1/4	LFO-1 or LFO-2 cycles every quarter note	2/1	LFO-1 or LFO-2 cycles every two measures
1/8	LFO-1 or LFO-2 cycles every eighth note		
1/16	LFO-1 or LFO-2 cycles every 16th note		
1/32	LFO-1 or LFO-2 cycles every 32nd note		

Table 4.1. LFO Rate

These values listed above are further divided into dotted (*) and triplet (T) note values.

AMT

The AMT knob controls the amount of modulation LFO-1 or LFO-2 applies to the modulation destination parameter(s).

By turning the AMT knob counterclockwise to its lowest value (0.000), no modulation will be applied to the modulation destination parameter by LFO-1 or LFO-2. By turning the AMT knob clockwise to its highest value (10.000), the maximum amount of modulation will be applied to the modulation destination parameter by LFO-1 or LFO-2.

FREQ A+B

The FREQ A+B switch assigns the frequency (coarse pitch) of OSC-A and OSC-B as the modulation destination for LFO-1.

The FREQ A+B switch is available only in the LFO-1 section.

FILTER

The FILTER switch assigns the filter cutoff frequency as the modulation destination for LFO-1 or LFO-2.

PW

The PW (Pulse Width) switch assigns the Pulse Width of OSC-A and OSC-B as the modulation destination. Note that the oscillator shape for OSC-A or OSC-B needs to be set to Square/Pulse for this to have any effect.

FREQ A

The FREQ A switch assigns the frequency (COARSE) of OSC-A as the modulation destination for LFO-2.

The FREQ A switch is available only in the LFO-2 section.

LEVEL

The LEVEL switch assigns the levels in the MIX section (OSC-A, OSC-B, and NOISE) as the modulation destination.

The LEVEL switch is available only in the LFO-2 section.

4.2 Poly Mod

POLY-MOD is a method of signal routing that allows for the creation of truly unique sounds. As an example, OSC-B can be used as a modulation source for OSC-A to create metallic, bell-like sounds with complex harmonics. This type of sound design is normally achievable only on strict FM (Frequency Modulation) synths.

POLY-MOD utilizes two modulation sources: (OSC-B and the Filter Envelope) to alter two modulation destinations: OSC-A frequency and the Filter cutoff frequency.



ENV

Controls the amount of modulation the Filter Envelope applies to a selected modulation destination.

OSC B

Controls the amount of modulation OSC-B applies to a selected modulation destination. The character of the sound will be affected by the assigned waveshape (sawtooth, triangle, or square/pulse) of OSC-B. Adjusting the COARSE and FINE knobs of OSC-B will further alter the nature of the sound.

FREQ A

Sets the frequency (coarse pitch) of OSC-A as the modulation destination.

FILTER

Sets the Filter cutoff frequency as the modulation destination.

The FILTER Switch is provided so that OSC-B can be used to modulate the Filter cutoff frequency. Using POLY-MOD's Filter Env amount to control the Filter is redundant, since this parameter can be controlled by the designated ENV AMT of the FILTER section.

4.3 Oscillator A/B

Proxima includes two oscillators and a noise generator as its primary sound sources. The noise generator will be covered later in this chapter.

The two oscillators are labelled OSC-A and OSC-B. The OSC-A and OSC-B sections are identical, with one exception: OSC-A contains a SYNC switch, and OSC-B does not.



The parameters of the two oscillators can be programmed independently. These will be explained in further detail below.

SYNC

OSC-A contains a dedicated switch for SYNC mode. Oscillator sync enables one oscillator (the leader) to reset the phase cycle of another oscillator (the follower). Whenever the leader completes its cycle, it resets the phase cycle of the follower. The result is a new and interesting timbre, since the follower isn't always able to complete its phase cycle.

Switching SYNC on enables oscillator hard sync. When Sync mode is on, OSC-B is used to control the phase cycle of OSC-A. As a result, OSC-A will reset each time OSC-B finishes its phase cycle.

COARSE

The Coarse knob controls the coarse tuning of the oscillator. The central position (0) corresponds to the note input value of your keyboard or MIDI controller.

Turning the COARSE knob to the left will result in the lowering of a note's relative pitch in semitones to a maximum value of -3 octaves (-36 semitones). By contrast, turning the COARSE knob to the right will result in the raising of a note's relative pitch to a maximum value of +3 octaves (+36 semitones).

FINE

The FINE knob controls the fine pitch of the oscillator. The central position (0) corresponds to the note input value of your keyboard or MIDI controller.

Turning the FINE knob to the left will result in the lowering of a note's relative pitch in cents to a maximum value of (-50 cents). By contrast, turning the FINE knob to the right will result in the raising of a note's relative pitch in cents to a maximum value of (+50 cents).

PW

The PW (Pulse Width) knob controls the pulse width of the oscillator. Turning the PW knob to the left or right changes the sound of a square wave by altering the amount of time it takes to go from maximum to minimum volume.

The Pulse Width of each oscillator can be controlled individually, or via the Modulation Matrix for added effect. Pulse Width can also be modulated via LFO-1.

Note that the PW knob will have no effect unless you select Square as a wave type.

Shape/Waveform

To the right of OSC-A and OSC-B are three switches. These switches are used to select from the three waveform types contained in Proxima's sound engine.

From top to bottom, the three waveform types are:

- Sawtooth
- Triangle
- Square/Pulse

4.4 Noise

Proxima contains a designated noise generator as an additional sound source beyond OSC-A and OSC-B.



Noise randomly outputs frequencies across the audible spectrum. For this reason, it's most often perceived as a hissing sound. Though noise has no discernible pitch, it's used for certain sound design tasks, like adding warmth or introducing randomization to a sound.

Noise can be used to recreate percussive sounds, like in older video game soundtracks. It can also be used to recreate transients and naturally occurring sounds like fire, wind, and running water.

LP (Lowpass)

The white noise emitted by the noise generator passes through a low-pass and high-pass filter, to shape the timbre of the noise. The LP knob controls the cutoff frequency of the low-pass filter. Lower values correspond to darker timbres.

HP (Highpass)

The HP knob controls the cutoff frequency of the high-pass filter. When set to zero it has no audible effect. At higher values the sound becomes increasingly thin and bright.

S+H (Sample+Hold)

Sample and Hold samples and holds incoming signals for a specified period of time. Since the source of the Sample and Hold is the noise generator, the held values and the generated output will be purely random. Turning the S+H knob clockwise to the right will increase the amount of time these random values are held for.

One common application for this in analog synthesis is to route the sample and hold to the coarse pitch (frequency) of an oscillator. This will create a randomized pitch sequence. In Proxima, this can be accomplished in the MOD MATRIX by choosing NOISE as a modulation SOURCE and routing it to Pitch Semi, OSC A Semi, or OSC B Semi.

Noise Type

Proxima contains two noise types. These are white noise and pink noise. The noise type can be selected via the switches to the right of the S+H knob labelled WHITE and PINK.

WHITE

The noise generator is set to WHITE as the default option when opening the Init Patch. White noise has a flat frequency spectrum. This means that all frequencies are equally present, resulting in a sharp, bright "hissing" noise.

PINK

Pink noise tends to sound warmer or muddier than white noise. This is because pink noise loses power at high frequencies, at a rate of 3dB/octave. Where white noise can be used to enhance transients, pink noise can be used to add warmth to a sound.

4.5 Mixer

The MIXER section contains the necessary controls for ensuring the sound sources in Proxima sit well together. It includes controls for the synth's two oscillators and its noise generator.



LEVEL

Adjusts the levels of oscillators A, B and noise generator.

4.6 Filter

The FILTER Section is used to control the contour of a sound. After the sources of sound are mixed, they are then sent to the FILTER section to alter their frequency ranges. Since Proxima is a subtractive synthesizer, its filter functions primarily in reducing (subtracting) unwanted frequencies.

Proxima's filter has an exceptional range, from approximately 15Hz to 45kHz. Proxima contains a 24 dB per-octave 4-pole low-pass (LP) filter, as well as a 12 dB per-octave 2-pole low-pass filter. These attenuate (reduce) frequencies above the filter cutoff frequency. It also contains a band-pass (BP) filter, which attenuates frequencies above and below the cutoff frequency range.

The FILTER Section contains the controls for the FILTER and Proxima's filter envelope generator.



We'll cover the FILTER's parameters first, followed by the filter envelope generator's parameters below.

CUTOFF

The CUTOFF knob sets the cutoff frequency of the filter. Turning the CUTOFF knob clockwise to the right will make the sound progressively brighter. By contrast, turning it counterclockwise to the left will make it sound progressively darker.

RESO

The RESO (Resonance) knob adjusts the amount of filter resonance. Applying resonance to the filter will create a sharp peak in sound close to the cutoff frequency. This results in an emphasis of these frequencies.

Proxima's filter is self-oscillating. This means that increasing the RESO knob to high levels (around 7.0 and above) will result in the filter's oscillation, even while no sound is coming from Proxima's main oscillators and noise generator. This essentially turns the filter into a sinewave.

The pitch of the filter's oscillation can then be controlled by the CUTOFF knob and the KEY TRK knob.

ENV AMT

The filter envelope amount (ENV AMT) controls the amount of modulation the filter envelope applies to the cutoff frequency. When set to 0, the filter envelope has no effect on the sound. By setting the knob to higher levels, the filter envelope will have a greater effect on the sound.

Proxima's filter envelope is bipolar. This means that the filter envelope amount can have both positive and negative values, allowing for greater diversity and control in sound design over standard unipolar envelopes.

KEY TRK

The KEY TRK (keytracking) knob increases the filter's cutoff frequency relative to the input pitch. Playing higher notes on your keyboard or MIDI controller will correspond to higher filter cutoff frequencies. When turning the KEY TRK knob to its maximum value (10.000), moving up an octave will approximately double the cutoff frequency.

The KEY TRK knob can also be used in conjunction with the OSC-B knob and FILTER switch of POLY-MOD to alter the modulation source's rate of modulation relative to the input pitch value. Higher pitches correlate to a faster modulation rate, whereas lower pitches correlate to a slower modulation rate.

dB

Toggles between Proxima's two filter types: 24 dB per octave, and 12 dB per octave.

TYPE

Toggles between Proxima's two primary filter types: low pass (LP), or Band Pass (BP).

ENV MODE

Toggles between Proxima's two filter envelope types: exponential, and linear.

ATTACK

The ATTACK knob sets the amount of time it takes for the filter envelope to open. Higher settings correspond to longer periods before the filter opens.

For plucky, snappy sounds, set the ATTACK knob near its lowest value. For swelling sounds and pads, set the ATTACK knob at a higher value.

DECAY

The DECAY knob controls the length of time it takes for the envelope to fall to the frequency set by the sustain level. Set the DECAY knob at lower values for shorter, percussive sounds.

SUSTAIN

The SUSTAIN knob controls the cutoff frequency of a sound for as long as a note is held (sustained).

RELEASE

The RELEASE knob controls the time it takes for the filter to close after a note is released. Longer release values correspond to longer periods before the filter closes after a note is released.

4.7 Amp/Mod Envelope

This chapter covers the AMP and MOD envelopes and the differences between them.



The AMP envelope controls the volume of a sound, while MOD (modulation) envelope can be fine-tuned independently for additional sound design tasks.

The MOD envelope needs to be assigned as a SOURCE for a DESTINATION in the MOD MATRIX to have any effect. The MOD envelope thus has no essential function outside of what the user assigns it to do.

AMP <> MOD

The AMP <> MOD switch toggles between the AMP (amplitude/loudness) envelope and the MOD (modulation) envelope. Since the AMP envelope controls the volume of a sound, AMP is the default setting when loading the Init Patch. To choose between them, click on the name of either of the two at the top of the envelope section.

ATTACK

The ATTACK knob sets the amount of time it takes for the sound to reach its maximum volume after a note is triggered. Higher settings correspond to longer periods before the note reaches maximum volume. For plucky, snappy sounds, set the ATTACK knob near its lowest value. For swelling sounds and pads, set the ATTACK knob at a higher value.

DECAY

The DECAY knob controls the length of time it takes for the envelope to decrease from its maximum volume to the sustain level. Set the knob at lower values for shorter, percussive sounds.

SUSTAIN

The SUSTAIN knob controls the volume of a sound for as long as a note is held (sustained).

RELEASE

The RELEASE knob controls the time it takes for a note to decrease to its minimum level after the note is released. Longer release values correspond to longer periods for a note to reach its minimum level after the note is released.

4.8 Mod Matrix

Proxima features a modulation matrix to provide additional modulation capabilities. The MOD MATRIX allows for different modulation sources, such as LFOs, envelope generators, or MIDI controllers, to control various modulation destinations, such as the filter cutoff frequency, LFO depth and rate, pitch semi, etc.



The modulation matrix with all its sources and destinations is described more thoroughly in chapter 6. Mod Matrix.

5. Bottom Panel

Though most sound design and patch creation happens on Proxima's main panel, the bottom panel is where patches normally take their final shape and timbre. The bottom panel is composed of four views: Keyboard view, Arpeggiator / Sequencer view, Effects view, and Options view.

The bottom panel toggle buttons are placed the middle-center side of Proxima's UI.



5.1 Keyboard

When loading the Init Patch, Proxima's User Interface is set to Keyboard view by default.



This view also contains the Pitch and Modulation Wheel, as well as the Pitch bend range.

PB RANGE

Specifies the number of semitones a sound can be pitch shifted on a MIDI keyboard or device. Proxima's factory settings have the Pitch Bend range set to 7 UP and 7 DOWN, which corresponds to a perfect 5th above or below the input note pitch.

The PB RANGE can be specified by dragging this number up or down. Once changed, the range can be easily reset to the factory setting by double clicking on the number.

5.2 Arpeggiator / Sequencer

This chapter provides an in-depth look at Proxima's internal Arpeggiator / Sequencer.

It's important to become familiar with the contents of this chapter both to understand how the Arpeggiator / Sequencer functions independently, and how to utilize it effectively as a modulation source in the Mod Matrix.

Designed with ease of use in mind, the Arpeggiator / Sequencer has an accessible and straightforward interface that simplifies the process of adding rhythmic or cyclical elements to a patch.

Simple though it may be, it's also highly programmable and capable of complex modulations by virtue of its inclusion as a modulation source in the Mod Matrix.



TYPE

By default, TYPE is set to Sequencer. Clicking on the display above "TYPE" will prompt a dropdown menu that shows the Arpeggiator's / Sequencer's other TYPE: MIDI.

The two types are covered below.

- **Sequencer** - makes it possible to create monophonic patterns of up to 32 steps. These patterns may be user-generated or chosen from among 20 factory presets.
- **MIDI** - makes it possible to choose standard MIDI files for creating sequenced patterns. Note that these files should be monophonic, and only a single track.

MODE

Modes determine the behavior of the playback sequence.

Proxima's Arpeggiator / Sequencer has 13 modes that can be chosen by clicking on the display above MODE.

- **UP** - Successively triggers each note pressed in order of lowest to highest. The sequence restarts once the highest note is reached.
- **Down** - Successively triggers each note pressed in order of highest to lowest. The sequence restarts once the lowest note is reached.
- **Up/Down** - Successively triggers each note pressed in order of lowest to highest, then back down to the lowest note. The sequence restarts after the second lowest note is reached.
- **Down/UP** - Successively triggers each note pressed in order of highest to lowest, then back up to the highest note. The sequence restarts after the second highest note is reached.
- **Alt Up** - A variation of UP mode. The sequencer alternates the note order of arpeggiation going up. In a four note, one octave chord (for example, DFAD), the sequencer plays an Up-Down-Up pattern, or D-A-F-D, starting from the low D.
- **Alt Down** - A variation of Down mode. The sequencer alternates the note order of arpeggiation going down. In a four note, one octave chord (for example, DFAD), the sequencer plays a Down-Up-Down pattern, or D-F-A-D, starting from the high D.
- **Random** - Triggers each note pressed in a completely random order.
- **Chord** - Makes the Arpeggiator / Sequencer polyphonic. The sequencer will chop chords into a rhythmic pattern according to the notes held by the user.
- **Seq Forward** - The sequencer will play back the notes programmed for each step by moving forward from step 1 to the sequence's final step. Once the final step of the sequence has been reached, the sequencer starts again at step 1.

- **Seq Backward** - The sequencer will play back the notes programmed for each step by moving backward from the sequence's final step to step 1. Once step 1 has been reached, the sequencer starts again at the sequence's final step.
- **Seq Ping Pong** - The sequencer will play back the notes programmed for each step by moving forward from step 1 to the final step of the sequence. Once the final step of the sequence has been reached, the sequencer will move backward to step 1, at which point it will start again.
- **Seq One Shot** - Works the same as Seq Forward, with one exception. When the sequence reaches its final step, the sequencer will not start again until a new note is triggered. This is highly effective for musical sections that require a short, unrepeated sequence or arpeggiation.
- **Silent** - A special mode in which the arpeggiator does not trigger any notes. The purpose of this mode is to use the arpeggiator exclusively for modulation, by choosing Arp Param 1-4 as a source in the modulation matrix.

PRESET

The user may choose from Proxima's 20 pre-loaded sequencer presets, or from user-generated presets. Clicking on the display above PRESET will prompt a dropdown menu with three choices. These are covered below.

- **Load Midi File** - Choose from MIDI files as the basis for sequences. MIDI files should contain only a single track and should be monophonic.
- **Initialize Sequencer** - Resets the sequencer to its default settings.
- **Unload Midi File** - Clears the MIDI pattern currently in use. This function only appears after a MIDI file has already been loaded (you should see a pattern on the display to the right).
- **Patterns** - Choose from one of Proxima's 20 preloaded sequencer patterns. Patterns can also be scrolled through via the left and right arrows next to PRESET.

STEPS

Sets the number of steps the sequenced pattern will use.

With Sequencer selected as the TYPE, the specified length will be given in STEPS. By default, the sequencer is set to 8 steps, however up to 32 steps can be used in a sequence. When the bulb above the step is lit, this signals that the step is in use.

With MIDI selected as the TYPE, the specified length will be given in BARS.

RATE

Sets the rhythmic value of each step of the sequence, relative to the tempo settings of your host hardware or DAW. RATE is set to 1/16 (16th notes) by default. By dragging down, the rate can be set as slow as one dotted measure (1/1*). By dragging up the rate can be set as fast as 128th note triplets (128T).

The special symbols (*) and (T) correlate to a dotted note and a triplet, respectively.

OCT

Sets the number of octaves the sequencer will use. OCT is set to 1 by default. By dragging up, the sequence can be spread over as many as 4 octaves.

Set to more than one octave, the sequencer will repeat the keys pressed for the number of octaves specified.

LENGTH

Controls the duration of the notes in each step of the sequence. By dragging down on the display, sequenced notes will become progressively shorter, yielding a staccato effect. By dragging up, sequenced notes will get progressively lengthier, yielding a smoother, elongated sound.

The values given range from -100% to +100%.

SWING

Controls the amount of swing applied to the pattern by shuffling every other note (2, 4, 6, 8, ..., up to 32). SWING is set in the "off" position by default. By dragging up on the display to around +33% to +50%, a typical dotted note swing feel can be achieved. Settings +50% and above can be used for exaggerated swing feels.

SHIFT

Shifts the entire sequence forward or backward (to the right or left), one step at a time. The sequence can be shifted in either direction by clicking on the right or left directional arrows on either side of SHIFT.

NOTE

Sets the note value of the individual steps in relation to the pitch of the input note. The note value is set to 0 by default. Dragging up will set the note value to a maximum of +36 semitones (3 octaves) above the input pitch. By contrast, dragging down will set the note value to a maximum of -36 semitones below the input pitch.

Specific steps are disabled by dragging below -36 to the three-dash symbol (---). Double clicking on a step's note value will reset it to the default position (0).

PAR #1 - #4

The Arpeggiator / Sequencer has four designated parameters. These are labelled Param 1-4. Arp Param 1-4 are used solely in the MOD MATRIX. This allows the Arpeggiator / Sequencer to be used as a modulation source. This is effective for creating rhythmically precise modulations based on the sequencer's RATE. Since each step can be individually fine-tuned, using one of the parameters as a modulation source is highly versatile. Treated individually, each parameter can produce modulation sequences that evolve in as many as 32 stages.

The number next to the parameter in each step corresponds to the amount of modulation that parameter will apply to the destination. Dragging up on the number will increase the amount of modulation the parameter applies to the modulation destination. By contrast, dragging down will decrease the amount of modulation applied.

Like the MOD MATRIX's AMT knob, the amounts for Param 1-4 can have both negative and positive values, ranging from -100 to +100. Set to the default position (0), no modulation will occur.

VELO

The Arpeggiator's / Sequencer's velocity can also be chosen as a modulation source in the MOD MATRIX. Unlike Param 1-4, Arp Velocity values are unipolar, ranging from 0 to 127.

TIE

Ties one step of the sequence to the following step. This lengthens the duration of the step by the value of the following one.

5.3 Effects

The EFFECTS section plays an important role in sound design. From soaring electric guitar-style leads to larger-than-life pads, the effects applied to a patch are a significant part of what gives it its final timbre.

The entire effects section can be switched off via the FX button on the main panel. Individual effects can however be switched off on the bottom panel via the bulbs next to ON switch. When lit, this indicates that the effect is in use. When unlit, this indicates that the effect is not in use, and will have no effect on the sound.

Note that priority is given to the FX button on the main panel. This means that all effects are disabled while the FX button is in the off position (unlit).

5.3.1 Distortion



DRIVE

The DRIVE knob controls the amount of distortion applied to the sound at the output signal.

Turning the DRIVE knob counterclockwise to the left will limit the audible amount of distortion. By contrast, turning the DRIVE knob clockwise to the right will increase the audible amount of distortion, resulting in an aggressive tone at high values.

TONE

The TONE knob Controls how warm or bright the tone of the distortion is.

This works similarly to the Cutoff frequency knob. Turning the TONE knob counterclockwise to the left will result in a darker-sounding distortion. By contrast, turning the TONE knob clockwise to the right will result in a brighter sounding distortion.

DRY/WET

The DRY/WET knob controls the ratio of the dry (unprocessed) signal of a sound with the wet (processed/distorted signal).

Turning the DRY/WET knob counterclockwise to its minimum value (0.000) will result in a completely dry (unprocessed signal), with no audible distortion being applied to the sound. By contrast, turning the DRY/WET knob clockwise to its maximum value (10.000) will result in a completely wet (processed), highly distorted signal.

5.3.2 Equalizer



Proxima contains a 3-band parametric equalizer (EQ). The EQUALIZER is used to cut (attenuate) or boost a patch's low, mid, and high frequencies.

MID

Cuts or boosts the patch's mid frequencies, from a minimum value of -18.0 dB counterclockwise to the left, to a maximum value of +18.0 dB clockwise to the right.

MID-Q

Adjusts the bell curve of the mid frequencies, from wider to narrower.

Turning the MID-Q knob counterclockwise to the left will widen the range of mid frequencies to be cut or boosted. By contrast, turning the MID-Q knob clockwise to the right will narrow the range of mid frequencies to be cut or boosted.

With a low Q factor, a frequency range can be cut or boosted gently for sculpting the tone of a patch. With a high Q factor, problematic frequencies can be found by sweeping through frequency ranges.

MID-FREQ

Cuts or boosts the center frequency of the MID-Q, from 200 Hz counterclockwise to the left, to 5000 Hz clockwise to the right.

LOW

Cuts or boosts the patch's low frequencies, from a minimum value of -18.0 dB counterclockwise to the left, to a maximum value of +18.0 dB clockwise to the right.

HIGH

Cuts or boosts the patch's high frequencies, from a minimum value of -18.0 dB counterclockwise to the left, to a maximum value of +18.0 dB clockwise to the right.

5.3.3 Phaser



Phasers create a sweeping or whooshing effect by combining copies of a waveform with the original signal and phase-shifting them over time. The PHASER can be used to add movement to a sound, thus making it more interesting.

RATE

Adjusts the modulation rate (speed) of the phaser. Turning the RATE knob counterclockwise to the left will result in a slower rate of modulation. By contrast, turning the RATE knob clockwise to the right will result in a faster rate of modulation.

WIDTH

Adjusts the stereo width of the phasing effect. Turning the WIDTH knob counterclockwise to the left will narrow the stereo width of the phasing effect.

By contrast, turning the WIDTH knob clockwise to the right will widen its stereo width.

DRY/WET

Adjusts the ratio of the dry (unprocessed) signal of a sound with the wet (processed/phased signal).

5.3.4 Chorus



Chorusing emulates the sound that occurs when multiple singers sing the same note in unison. Since each voice will vary slightly in pitch and timing, the note will sound larger (to use an imperfect term) than it is. For this reason, it's one of the most popular effects used for thickening sounds, especially pads.

RATE

Adjusts the modulation rate (speed) of the chorus effect. Turning the RATE knob counterclockwise to the left will result in a slower rate of modulation. By contrast, turning the RATE knob clockwise to the right will result in a faster rate of modulation.

WIDTH

Adjusts the stereo width of the chorus effect. Turning the WIDTH knob counterclockwise to the left will narrow the stereo width of the chorus effect. By contrast, turning the WIDTH knob clockwise to the right will widen its stereo width.

DRY/WET

Adjusts the ratio of the dry (unprocessed) signal of a sound with the wet (processed/chorused signal).

5.3.5 Reverb



A reverb effect creates the illusion of a sound occurring within a space. It recreates how the listener perceives the reverberation, or continuation of a sound, after the sound is produced. It also controls how far away or how closely a sound is meant to be heard, and the type of space it's meant to be heard in.

ROOM

Simulates the sound of a smaller room space.

With ROOM switched on, the onset of the reverb is blended with the dry signal almost instantly. The reverb tail is also noticeably shortened. The ROOM setting is thus intended for shorter reverb times, whereas the default setting (Hall) is intended for longer reverb times.

When the bulb next to ROOM is lit, this signals that the reverb is set to ROOM. When unlit, this signals that the default Hall setting is in use.

PREDELAY

Adjusts the delay between the input note and the onset of the reverb signal.

Set counterclockwise to the left at its minimum value (0.000), there will be no delay between the triggering of an input note and the commencement of the reverb. Set clockwise to the right at its maximum value (10.000), there will be a noticeable delay between the triggering of an input note and the commencement of the reverb.

TIME

Adjusts the reverb time in seconds. The time in Proxima's reverb unit ranges from 500 milliseconds to 60 seconds. Turning the TIME knob counterclockwise to the left at lower values emulates spaces that become progressively smaller. By contrast, turning the TIME knob clockwise to the right at higher values emulates spaces that become progressively larger.

LO CUT

The REVERB section has a designated low-cut filter, which helps to remove unwanted low frequencies from the reverberated signal. This has no effect on the dry (un-reverberated) signal of the patch and is usable only when REVERB is enabled.

HI CUT

The REVERB section has a designated high-cut filter, which helps simulate how frequencies dissipate over time. Turning the HI CUT knob counterclockwise to the left will have the effect of brightening the reverb, making the simulated environment more reflective. By contrast, turning the HI CUT knob clockwise to the right will dampen the reverb, making the simulated environment more muffled.

COLOR

Adjusts the mid frequencies of the reverberated signal. In the central position, the signal is unaffected. Turning the COLOR knob counterclockwise to the left cuts the mid frequencies of the reverberated signal. By contrast, turning the COLOR knob to the right boosts the mid frequencies of the signal.

WIDTH

Adjusts the stereo width of the reverberated signal. This is set to its maximum value (10.000) by default for a wide stereo image. Turning the WIDTH knob counterclockwise to the left will limit the stereo field of the reverb.

MOD AMT

Adjusts the amount of modulation the reverb applies. Proxima's reverb employs modulation to generate rich timbres by creating slight variations in the sound of the reverb.

DRY/WET

Adjusts the ratio of the dry (unprocessed) signal of a sound with the wet (processed/reverberated signal).

5.3.6 Delay



Delay units simulate the sound of an echo. They do so by generating delayed copies of an incoming signal.

PING-PONG

PING-PONG creates a stereo effect that bounces (alternates) the delay between the left and right channels. It is turned on by default when loading the Init Patch. It can be turned off by clicking on the bulb to next to PING-PONG switch.

TIME

Specifies the rhythmic value of the DELAY. Since Proxima's DELAY is synced to the host tempo, TIME is set to exact rhythmic values. From left to right, these range from a dotted half note (1/2*) to 32nd note triplets (1/32T).

LO CUT

Filters out lower frequencies from the echoes of the delay. Applying higher values by turning the knob clockwise to the right will make the echoes sound thinner.

HI CUT

Filters out higher frequencies from the echoes of the delay. Applying higher values by turning the knob clockwise to the right will dampen the sound of the echoes.

FEEDBACK

Adjusts the length of time the delay repeats itself. Turning the FEEDBACK knob clockwise to the right will extend the amount of time it takes for the delay unit to stop generating echoes. By contrast, turning the FEEDBACK knob counterclockwise to the left will shorten the amount of time it takes for the echoes to stop repeating.

WIDTH

Adjusts the stereo image of the delay signal. By default, WIDTH is set to its maximum value (10.000), giving the delay a wide stereo image. Turning the WIDTH knob counterclockwise to the left will limit the delay effect's stereo image. Set to its minimum value (0.000), the delay effect is reduced to a mono signal.

DRY/WET

Blends the dry (unprocessed) signal with the wet (processed) signal of the delay.

5.4 Options

The OPTIONS section is composed of 2 individual views: OPTIONS/GLOBAL and VOICE CONFIG.

5.4.1 Global



VOICES / DETUNE

Detunes unison voices based on the input note pitch. Turning the knob clockwise to the right will result in more harmonic variation between voices. Note that a minimum of two voices is necessary for DETUNE to have any effect.

VOICES / SPREAD

Adjusts how unison voices are heard in the stereo field. Turning the knob clockwise to the right will expand the sound's stereo field.

At maximum value, a two-voice patch will have one voice panned hard left, and the other voice panned hard right. For a three-voice patch, one voice will be panned hard left, the second voice will be panned dead center, and the third voice will be panned hard right. Note that a minimum of two voices is necessary for spread to have any effect, so it won't work on Mono-Legato or Mono-Retrigger and mode.

TUNING / COARSE

Controls the global coarse tuning of the patch in octaves.

Proxima's factory setting is the central position, which corresponds to the pitch value of the input note. Turning the COARSE knob clockwise to the right will raise the pitch value of the input note by a maximum of two octaves. Turning the COARSE knob counterclockwise to the left will lower the pitch value of the input note by a maximum of two octaves.

TUNING / FINE

Controls the global fine tuning of the patch in cents. Proxima's factory setting is the central position (0), which correlates to the pitch value of the input note.

Turning the FINE knob clockwise to the right to its maximum value of +100 will raise the pitch of the input note by a value of a half step. Turning the FINE knob counterclockwise to the left to its minimum value of -100 will lower the pitch of the input note by a value of a half step.

MOD RANGE / FREQ A

Adjusts the amount of modulation POLY-MOD applies to the frequency of OSC-A.

MOD RANGE / FILTER

Adjusts the amount of modulation POLY-MOD applies to the filter cutoff frequency.

RANDOM / VOL

Adjusts the amount of randomization applied to note velocity. Turning the knob clockwise to the right will increase the amount of randomization applied to velocity.

RANDOM / PW

Controls the amount of randomization applied to the Pulse Width of OSC-A and OSC-B. Turning the PW knob clockwise to the right will increase the amount of randomization applied to the Pulse Width of OSC-A and OSC-B.

NOTE PRIORITY

Toggles between the two options for how Proxima determines note priority.

These are covered below:

- **CYCLE:** Proxima will cycle through each voice (6 or 12) in numerical order, starting from voice 1. After reaching the 6th (or 12th) voice, the cycle will begin again on voice 1. Cycle mode is the default mode and works for almost all use cases.
- **LAST:** Proxima will reuse the same voices when the same key is played. Since LAST depends on specific keys being pressed, it can't achieve the per-voice flexibility that CYCLE mode is capable of. LAST is thus provided for hardware compatibility purposes only.

LFO MW MOD

Automatically enables the modwheel to act as a source for controlling LFO-1 and LFO-2.

This is set to DISABLE by default.

5.4.2 Voice Config



The VOICE CONFIG section facilitates independent control over multiple parameters of each of the six or twelve voices in a patch.

Note that Proxima must be set to Poly-6, Poly-12, or Unison mode for these parameters to have any effect on the sound, since Mono-Legato and Mono-Trigger use only one voice.

MUTE

Clicking on the MUTE button will mute that voice (numbered at the bottom of the MUTE bulbs).

When the MUTE button is lit, this indicates one or more voices is muted.

ACTIVE

The lights show how many voices are currently in use.

When lit, this signals that a specific voice is currently in use. As an example, when playing a six-voice chord in Poly-6 mode, voices one through six will be lit.

This is also the case with Unison mode since it creates a monophonic patch by stacking six voices.

CUTOFF

Controls the cutoff frequency for each of the six/twelve voices.

RESO

Controls the amount of resonance applied to the filter cutoff frequency for each of the six/twelve voices.

OSC A

Controls the fine tuning of OSC-A for each of the six/twelve voices.

OSC B

Controls the fine tuning of OSC-B for each of the six/twelve voices.

Note that MUTE, CUTOFF, RESO, OSC A, and OSC B for voices 7-12 use the same settings from voices 1-6.

6. Mod Matrix

The MOD MATRIX consists of 10 individual slots.

Each slot contains a designated SOURCE and DESTINATION dropdown menu, as well as a bipolar modulation amount (AMT) knob. The SOURCES menu contains a total of 30 modulation sources that can be used to alter one or more of the modulation destinations. The DESTINATION menu contains a total of 86 modulation destinations.

The crosshair to the right of each DESTINATION dropdown menu simplifies the process of choosing a modulation destination. Each crosshair can be dragged to most Proxima's parameters to choose that parameter as a modulation destination.

Note that the crosshair can only be used once. Dragging it to two separate parameters in succession will negate the first destination in favor of the second. To use the same source to apply modulation to two or more destinations, then choose the source again along with the intended DESTINATION in another empty slot.

6.1 Parameters

SOURCE

Chooses the SOURCE used to modulate a selected destination.

AMT

The AMT (amount) knob controls the amount of modulation applied to a specific destination.

Set to its default central position, the modulation SOURCE will have no effect on the DESTINATION. Like the filter ENV AMT, the AMT knob in the MOD MATRIX is bipolar. Negative values thus correspond to modulations at or below the parameter's setting. By contrast, positive values correspond to modulations at or above the parameter's setting.

DESTINATION

Chooses the destination parameter a selected source will modulate.

MUTE

To mute the selected Mod Matrix slot, click on the slot number.

6.2 Sources

The modulation matrix contains 30 individual sources that can be used to modulate the parameters of a sound. These sources are covered below.

Velocity

The MIDI Note-On velocity information, which is transmitted the moment a key is pressed. The harder a key is hit, the higher the transmitted value will be.

Aftertouch

High-quality MIDI keyboards transmit pressure information in addition to velocity information. This is known as aftertouch (pressure applied to the keyboard during the sustain stage). One common trick is to use aftertouch as a source to modulate volume or vibrato amount.

Poly ATouch

Some MIDI keyboards transmit pressure information per individual key. This is known as polyphonic aftertouch. For keyboards that offer polyphonic aftertouch, the Poly AT modulation source can be used instead of Aftertouch.

Foot

Sets MIDI Foot controller (CC#04) as the modulation source.

Expression

Sets MIDI Expression controller (CC#11) as the modulation source.

Brightness

Sets MIDI controller brightness/timbre (CC#74) as the modulation source.

Breath

Sets MIDI breath controller (CC#2) as the modulation source.

Modwheel

Sets MIDI modulation wheel data (CC#01) as the modulation source.

Pitchwheel

Sets MIDI pitch wheel data as the modulation source.

Note that the pitch wheel will always bend the pitch up or down depending on the PB Range setting. Set UP and DOWN to 0 if you want to use the pitch wheel for a different purpose.

Const

Sends a constant value to the modulation destination. This can be useful to set parameters that are only available in the MOD MATRIX. For example, with Const as the source, it's possible to set exact levels for destination parameters. Const can also be used to prevent certain parameters from modulating over time, and to limit the range of a source's modulation.

Random

Applies random values to a destination whenever a note is triggered.

This source can be used to add subtle unpredictable modulations, creating a patch that sounds different each time a new key is pressed. Randomization can make a patch sound more dynamic and natural.

Noise

Sets the noise generator as the modulation source. As an example of how this can be applied, noise can be used as a source to control the COARSE tuning of one of the two oscillators. Turning the S+H knob to its maximum value, will generate a random scalar pattern, like the bleeps and bloops used for computer sounds in older Sci-Fi movies.

Amp Env

Sets the AMP envelope as the modulation source. The behavior of the destination parameter will be based on the shape of the AMP envelope.

Mod Env

Sets the MOD envelop as the modulation source. The behavior of the destination parameter will be determined by the shape of the MOD envelope.

Filter Env

Sets the FILTER envelope as the modulation source. The behavior of the destination parameter will be determined by the shape of the FILTER envelope.

Keytrk (C0)

Sets the MIDI Note number as the source of modulation, relative to the root key (C0). Low keys transmit a low value, while high keys transmit a high value for the destination source.

This source can be used to make a patch key-dependent, for instance by shortening envelopes when pressing a higher key.

This is a common tonal quality of various acoustic instruments (for instance, plucked-string instruments).

Keytrk (C4)

Works identically to Keytrack (C0), but with a root key of C4.

LFO 1/2

Sets LFO-1/LFO-2 as the modulation source.

The destination parameter will be modulated based on LFO-1/LFO-2's settings on the main panel.

LFO 1/2*MW

Sets the value of LFO-1/LFO-2 multiplied by modulation wheel data as the modulation source.

Use this to create vibrato or tremolo effects with depth controlled by the modulation wheel.

LFO 1/2*AT

Sets the value of LFO-1/LFO-2 multiplied by aftertouch data as the modulation source. Use this to create vibrato effects by applying pressure to the keyboard.

The rate of modulation is determined by LFO-1/LFO-2's settings on the main panel.

LFO 1/2 (Sine)

Takes the current phase of LFO-1/LFO-2 and converts it into a sine wave. Can be use to create smoother modulations than possible with a triangle waveform.

Arp Velocity

Sets the Velocity sent from the steps of the Arpeggiator / Sequencer as the modulation source.

Arp Velocity and Arp Param (Parameter) 1-4 can be used to modulate one or more of the modulation destinations in exact rhythmic values established by the sequencer.

Arp Param 1-4

Sets Param 1-4 of the Arpeggiator / Sequencer as the modulation source.

6.3 Destinations

6.3.1 Global

Mixer Volume

Sets the Volume of the sound sources (prior to FX) as the modulation destination.

This will have no effect on the FX section.

Master Volume

Sets the Master Volume (all sound sources+FX) as the modulation destination.

Master Pan

Adjusts the output panorama position as the destination modulation.

Pitch Semi

Sets the coarse pitch of both oscillators as the destination modulation.

Pitch Fine

Sets the fine pitch of both oscillators as the destination modulation.

PolyMod OscB

Sets the rate of OSC B in the POLY-MOD section as the modulation destination.

PolyMod Env

Sets the rate of ENV in the POLY-MOD section as the modulation destination.

Detune

Sets the DETUNE knob of the voices section on the bottom panel as the modulation destination.

Glide

Sets the GLIDE knob as the modulation destination.

6.3.2 Filter

The FILTER section within the DESTINATION dropdown menu contains 8 parameters that can be chosen as modulation destinations. These 8 parameters correspond to the four filter parameters and the four stages of the FILTER envelope.

Filter Cutoff

Assigns the filter cutoff as the modulation destination.

Cutoff frequency is modulated relative to its setting on the main panel, using the same range.

Filter Resonance

Assigns the filter resonance as the modulation destination.

Filter resonance is modulated relative to its setting on the main panel, using the same range.

Filter EnvAmt

Assigns the filter envelope amount as the modulation destination.

The filter envelope amount is modulated relative to its setting on the main panel, using the same range.

Filter Keytrk

Assigns keytracking as the modulation destination.

The AMT knob works the same as the Keytrk, with one exception. Since the MOD MATRIX's AMT knobs are bipolar, negative values can also be specified.

By setting negative values with Filter Keytrk as the DESTINATION, lower notes will have higher cutoff frequencies than higher notes, reversing standard keytracking behavior.

Filter Attack

Assigns the ATTACK of the filter envelope as the modulation destination.

Filter Decay

Assigns the DECAY of the filter envelope as the modulation destination.

Filter Sustain

Assigns the SUSTAIN of the filter envelope as the modulation destination.

Filter Release

Assigns the RELEASE of the filter envelope as the modulation destination.

6.3.3 Amplifier

The AMPLIFIER section contains 8 parameters that can be chosen as modulation destinations.

These 8 parameters correspond to each of the four stages of the AMP envelope and the MOD envelope, respectively:

- Amp Attack
- Amp Decay
- Amp Sustain
- Amp Release
- Mod Attack
- Mod Decay
- Mod Sustain
- Mod Release

6.3.4 Oscillators

The Oscillators section contains 8 parameters that can be chosen as modulation destinations. These parameters correspond to the individual parameters of OSC-A and OSC-B, excluding oscillator types:

- Osc A Semi
- Osc A Fine
- Osc B Semi
- Osc B Fine

- Osc A PW
- Osc B PW
- Osc A Mix
- Osc B Mix

In addition to this, the following parameters are available:

Osc A/B Keytrk

Sets the keytracking of OSC-A or OSC-B. The default is 100%, corresponding to one semitone per key. A lower value reduces the frequency step from one key to the next. Set to 0%, the oscillator's pitch will be completely unaffected by the key pressed. This can be used to create drone, drum or effect sounds.

Osc A/B Init Phase

Assigns Osc A or Osc B's initial phase as the modulation destination. This modulates the starting point of Osc A or Osc B relative to its assigned oscillator type.

6.3.5 Noise

The Noise section contains 6 parameters that can be chosen as modulation destinations.

Three of these parameters correspond to the knobs contained in the noise section, with the addition of resonance amounts for the NOISE section's filters:

- Noise LP
- Noise HP
- Noise LP Res

- Noise HP Res
- Noise Mix
- Noise S+H

6.3.6 LFO

The LFO section contains 8 parameters that can be chosen as modulation destinations.

These 8 parameters correspond to the individual parameters of LFO-1 and LFO-2, excluding their assigned modulation destinations in the LFO section on the main panel.

LFO 1/2 Amount

Assigns the LFO-1/LFO-2 AMT knob in the LFO section of the main panel as the modulation destination.

LFO 1/2 Rate

Assigns the LFO-1/LFO-2 RATE in the LFO section of the main panel as the modulation destination.

LFO 1/2 Init Phase

Assigns LFO-1/LFO-2's initial phase as the modulation destination. This modulates the starting point of LFO-1/LFO-2 relative to its assigned oscillator type. This works identically to oscillator init phase. This parameter is only available in the MOD MATRIX.

LFO 1/2 Offset

Assigns LFO-1/LFO-2's offset as the modulation destination. This adds or subtracts an offset from the LFO Output, while simultaneously adjusting the LFO amplitude.

This can lead to interesting effects.

6.3.7 Mod Matrix

The Mod Matrix (MM) section contains 10 parameters that can be chosen as modulation destinations. These 10 parameters correspond to the 10 individual SOURCE slots of the MOD MATRIX. One MOD MATRIX source can be easily modulated by assigning it to one of the DESTINATION slots of another.

As an example, let's say the MOD envelope is being used as a source to modulate one of the DESTINATION parameters in MM slot 2. To control the depth of the MOD envelope's modulation with a mod wheel, Modwheel can be used as the SOURCE of any other open MM slot, with MM Amount 2 as the DESTINATION.

6.3.8 Effects

The Effects section contains 28 parameters that can be chosen as modulation destinations.

These 28 sub-sections correspond to the 28 individual parameters of the effects section on the bottom panel. These are re-listed in the table below under the effects section heading they belong to:

- **Equalizer:** Lo Gain, Mid Gain, Mid Freq, Mid Q, Hi Gain
- **Distortion:** Drive, Tone, Dry/Wet
- **Phaser:** Rate, Width, Dry/Wet
- **Chorus:** Rate, Width, Dry/Wet
- **Delay:** Time, Feedback, Width, LoCut, HiCut, Dry/Wet
- **Reverb:** Time, Color, Width, LoCut, HiCut, ModAmt, PreDly, Dry/Wet

7. Troubleshooting

If Proxima does not work as expected, check the following points. If your problem is not listed here, do not hesitate to contact us at service@synapse-audio.com, we are happy to assist you.

Patches do not recall

The most likely reason is that you have the demo version installed, which does not recall the parameter states. If you have purchased the full version, make sure to uninstall the demo version then install the full version, and be sure to provide your proper serial number and activate Proxima with no errors.

Parameters change unexpectedly

Check your MIDI setup. While Proxima uses a controller map designed to not react on controllers such as program change or volume (which may be sent by some hosts), it is possible that your gear sends other controller messages that Proxima will respond to.

MIDI messages are not received

Check the MIDI IN indicator, located on the top left of Proxima's user interface. If this indicator never lights up, Proxima does not receive any MIDI messages. Check the MIDI setup of your host sequencer, as well as the setup of your hardware.

The sound is distorted

Lower the master volume, and watch out for the clipping indicator in your host sequencer. If this does not help, check your audio driver settings and the CPU load.

The CPU usage is very high

Check if your system meets the minimum system requirements.

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Appendix A. Sound Design Reference

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