Dreamsynth DS-1 is our first all-original virtual instrument. We describe it as a love letter to the hybrid analog/digital synthesizers that proliferated from the mid-80s to the early 90s. Innovative instruments like the Ensoniq ESQ-1, the Kawai "K" series, and the Sequential Prophet VS used various cutting-edge flavors of digital synthesis, frequently combined with the warmth of Curtis or SSM analog filter chips, resulted in a really exciting time period for poly synths that went far beyond the strictly-analog synthesis of the 70s.

Dreamsynth is not a recreation of any particular instrument, but it (excuse the pun) cherry picks desirable features from some of the best digital/analog hybrids of the period. Because it's not an emulation of a particular synth, we were free to create a full-tilt, power synth with massive sound and modulation capabilities, but as you'll quickly discover, the user interface is hands-on and super easy to use. If you're comfortable creating sounds with classic Minimoog/Prophet-style analog synths, you'll be creating killer layered sounds in a flash.

Getting back to that "full-tilt, power synth," we weren't kidding - Dreamsynth's three dual-waveform morphing oscillators include independent range and detune controls for each waveform, amounting to six simultaneous virtual analog- or PCM sample-based oscillators (featuring over 400 onboard looping, one-shot, and single-cycle waves) with up to 16 voices of polyphony. The unique A/B wave mix control can set a static balance between two waves, or it can be modulated for a myriad of evolving or rhythmic vector synth-style tones. Dynamically changing oscillator timbres have never been this easy to create!

Each oscillator includes its own fully modulatable volume and pan controls, feeding 12 dB/octave multimode stereo filters for super-wide layered and detuned patches. The stereo filters are a classic OB-style with continuously variable low- to high-pass curves, as well as a bandpass mode, and all parameters are CV modulatable.

Did we mention modulation? Dreamsynth includes three powerful, tempo-syncable LFOs with multiple waveforms, selectable bias, cycling and one-shot modes, and a free-run or retrigger operation. Each oscillator also includes a dedicated triangle-wave LFO, so you won't need to "waste" the main LFOs for oscillator vibrato.

Strings Attached

Dreamsynth also incorporates a beautiful-sounding classic polyphonic string synthesizer, operating completely independently of the main synthesizer tone generation. Furthermore, the main synth and string synth sections can be layered and split across the keyboard, and the arpeggiator and individual effects are all separately assignable.

Mod Madness

Dreamsynth features tremendous modulation routing capabilities capabilities with 20 mod sources and over 40 destinations. All of the "standard" mod sources are here, but we've also included more esoteric mod sources such as four LFO phase choices, audio-rate oscillator to oscillator FM, arpeggiator mod, and more. Mod destinations are equally plentiful, including oscillator A/B wave mixing, panning and level, filter LP to HP curve, and modulation of all effects parameters. Best of all, the modulation setup couldn't be simpler: every mod source/destination has a dedicated pop-up source menu and invertible amount knob - no confusing grids or "hidden" tabs.

Affectation

Dreamsynth features our most flexible and powerful effects implementation to date, including distortion, phaser, chorus/flange, delay (including our killer tape delay algorithm), and reverb with our amazing new "Galactic" algorithm. Effects can be independently applied to the synth and string sections and all parameters of all effects are CV controllable.

Pre-Purchase Demo Mode

If you haven't purchased the full version of Dreamsynth, it will run in demo mode. All functions will work, but inharmonic tones will occasionally sound (the LED next to *Demo* in the top toolbar will illuminate when the ugly tones are sounding). We've also added a handy button to make purchasing easy, so you've got no excuse! As you might expect, all this demo nonsense disappears once Dreamsynth is purchased.

Technical Assistance

Cherry Audio's unique online store and automatic updating should make operation a smooth experience, but if you run into any issues or have questions, you can discuss issues online at the Cherry Audio forums at:

https://forums.cherryaudio.com/viewforum.php?f=37

... or you can communicate directly with our ~~grumpy except for the new guy~~ outgoing and friendly tech support staff at:

https://cherryaudio.kayako.com/

Top Toolbar and Preset Browser

The purple strip at the top of Dreamsynth's interface is where you'll load, save, and create sound presets. It also contains utility functions such as undo/redo, UI zoom and *Focus* controls, under-the-hood settings, and more. Let's go over them:

New- Opens a new blank patch preset. If an unsaved patch is currently open or you've modified an existing saved patch, a dialog asks if you'd like to save the patch in its current state. This greatly reduces the possibility of losing an edited unsaved patch.
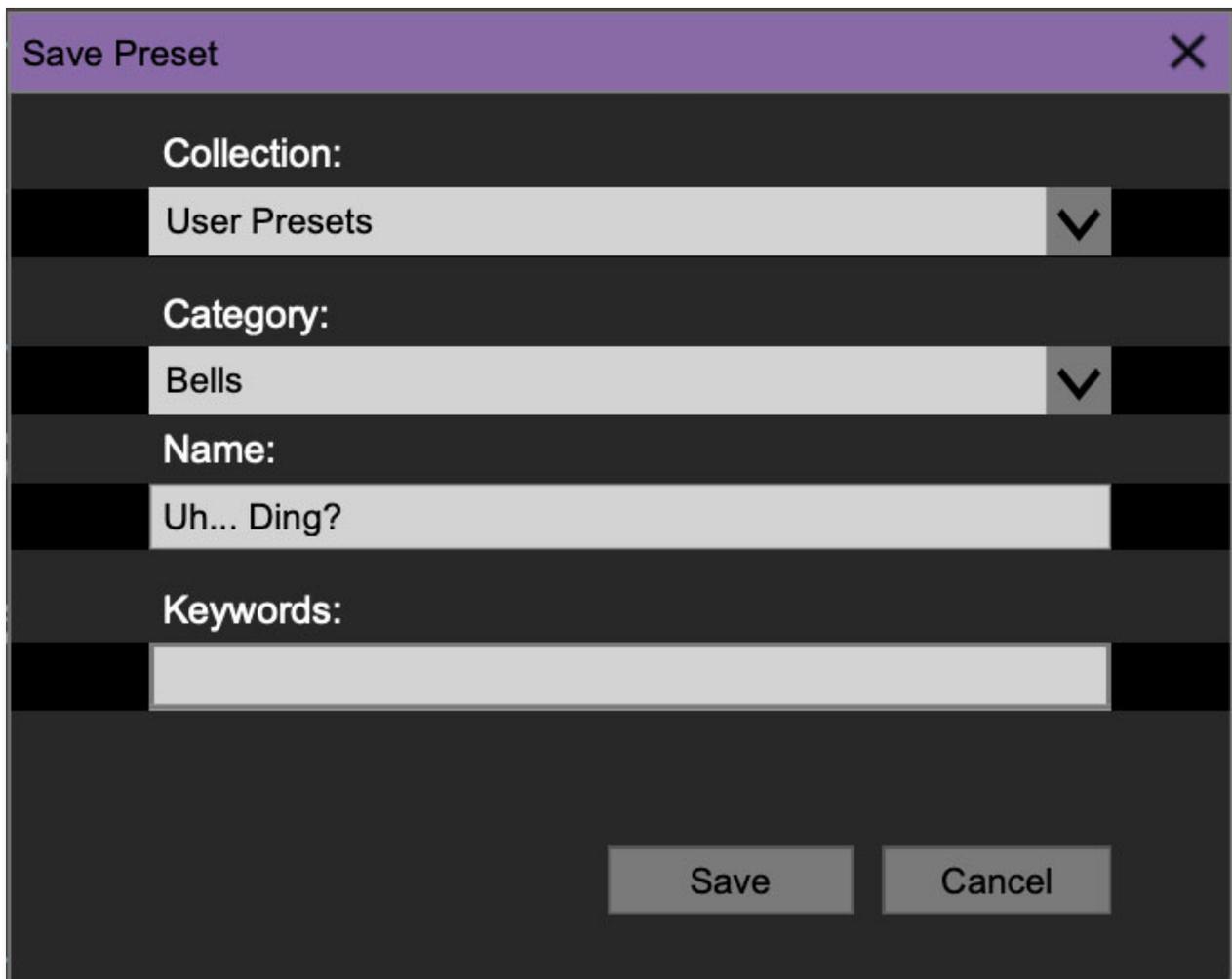

Save- Use this to save patches. There are a couple of levels of hierarchy:

- **Collection**- This is the top level of organization, and contains entire "sets" of presets. The *Dreamsynth Presets* are the main included

collection. We also include a *User Presets Collection* for storing your own presets, but you're free to create your own collections. To create a new collection, click in the *Collection* text field (where it says *User Presets* above) and type a name. User-created sounds can be freely saved to any collection; we like to keep 'em separated for organizational purposes.

- **Categories**- Within each *Collection* are a number of sound categories. As with collections, you're free to create as many categories as you like. To create a category, click in the *Category* text field of the *Save* dialog window and type a new category name.

- **Patch**- A patch is an individual sound. To save a patch, simply type the name in the *Name* field and click *Save*.

- **Keywords**- You can add descriptive words such as "stacks," "noisy," "stringy," etc., to patches to make them appear when terms are typed in the *Search* field. Use commas to separate multiple keywords entries.
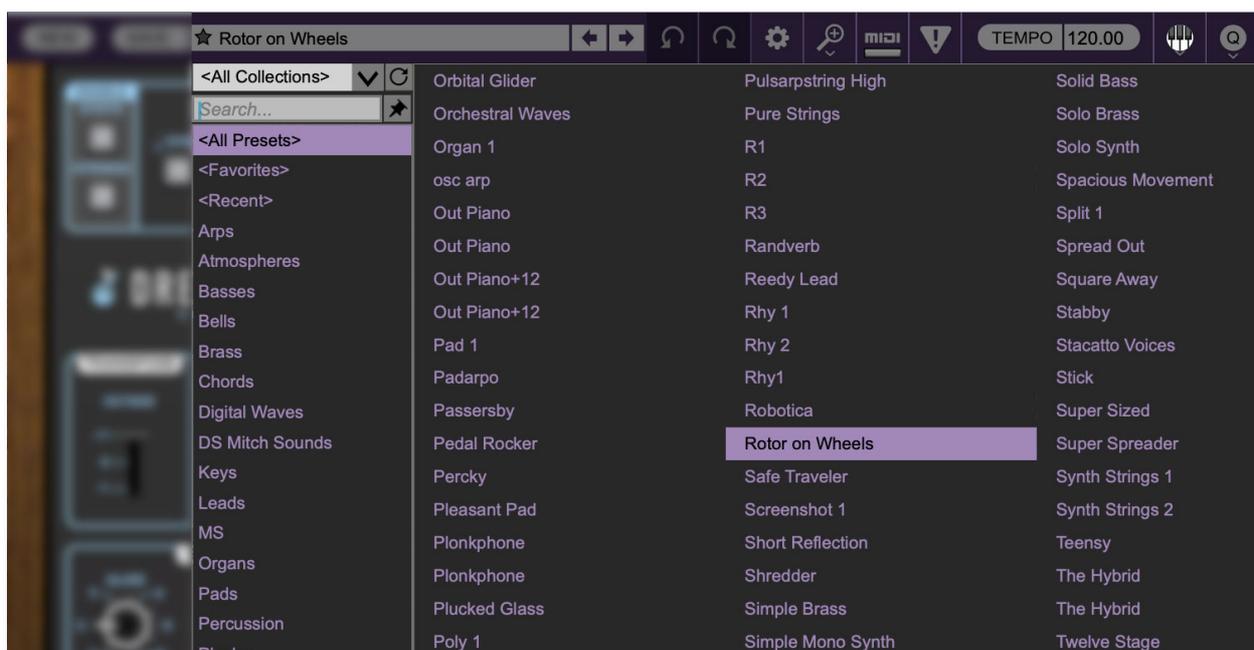

Browsing Patches- Patches can be browsed by clicking the *<Select Preset>* field. To select a preset collection, click in the area that says *<All Collections>* or on the downward-facing arrow next to it.

Clicking on the left-side categories narrows down which patches are displayed.

- **<All Presets>** will show presets from all collections and categories.

- **<Recent>** displays recently used presets.

- **Refresh**- This is the circular arrow button to the right of the downward arrow; clicking this checks the Cherry Audio server for new or updated presets.
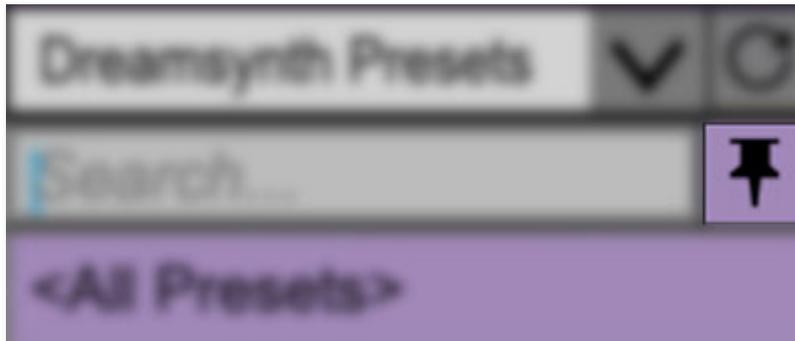

Pin- Clicking the push-pin icon locks the patch selection list open, allowing fast and easy browsing and auditioning of patches. Click the icon again to disable pin mode. when in pin mode, the up and down arrow keys can be used to select patches.

Preset- *Step Back/Forward Arrows*- These step to the previous or next preset. macOS [⌘+left/right arrow key] or Windows [CTRL+left/right arrow key] will navigate through presets back and forth in the currently selected collection/category.

Undo/Redo- These circular arrows will undo or redo the last action. It remembers many steps, so if you really loused something up, keep on clickin'...

Settings- This is where user preferences for user interface, audio interfaces, user account, and more are configured. See the **Settings** section for full information.
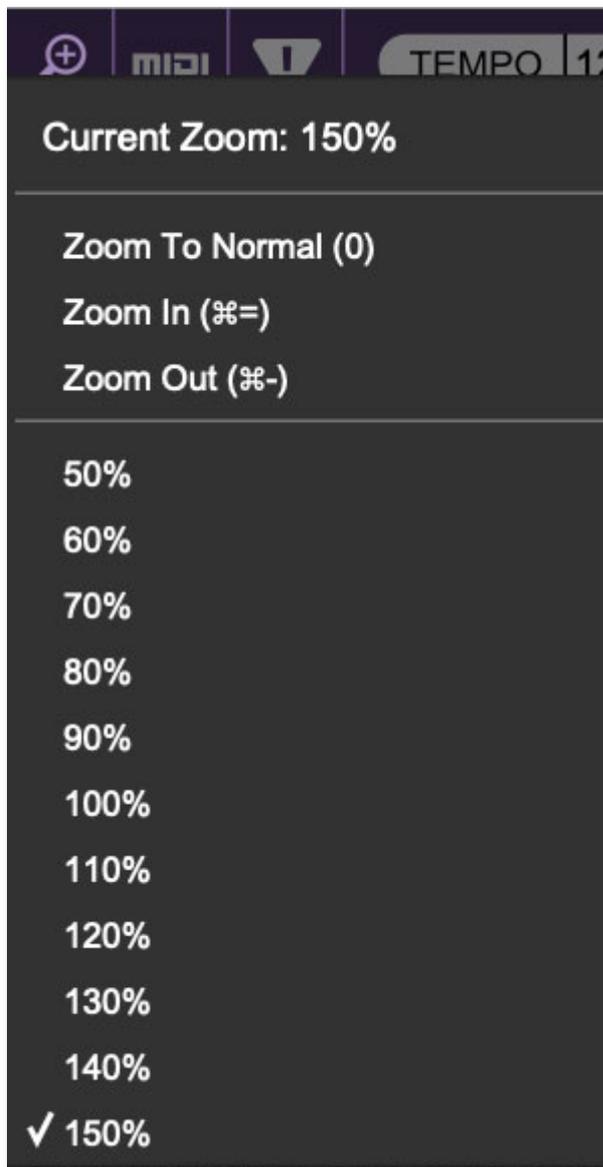
Importing Presets with drag-and-drop

Presets can be imported singly or en masse (as a single compressed ZIP file) simply by dragging and dropping from the desktop anywhere on the user interface.

If a single .*preset file is dragged and dropped, the sound is immediately loaded and the standard Save Preset dialog appears; this lets you save the sound to the instrument's preset browser. Note that you don't have to save the sound to preset browser; if you just want to hear and play the sound, click the Cancel button in the Save Preset dialog - the sound will still be loaded.

Compressed zip files containing multiple sounds can also be drag and dropped onto the UI. This works the same as with single sounds, but instead of the Save Preset dialog, you'll see the Import Preset Collection dialog. The

presets will be added as a new collection and available in the categories for which they were tagged.

Zoom Magnifying Glass - Click to resize the Dreamsynth interface. Selecting *100%* returns the user interface to native size.

MIDI Tab - Opens the MIDI controllers tab for configuring internal and hardware MIDI controls. See the **MIDI Controllers Setup and MIDI Tab** section for full information.

! (MIDI Panic) - Click to send an all-notes-off message in case of, "why won't this thing stop making noise?!?" stuck-note incidents.

Tempo (Standalone Version Only) - Displays Dreamsynth's current internal tempo setting. Dreamsynth's internal tempo affects the *Arpeggiato, LFO*, and *Delay* sections when their corresponding *Sync* switches are enabled. The tempo setting can be changed by moving the mouse up and down anywhere in the tempo section, or by double-clicking the number and entering the desired BPM value.

The tempo display only appears in the standalone version of Dreamsynth. VST, AU, and AAX plug-in versions receive tempo data from their host DAW app.
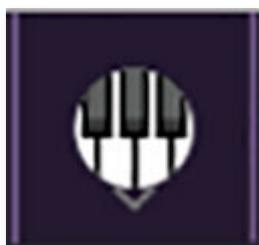
QWERTY Musical Typing Keyboard- Opens an onscreen keyboard allowing a standard QWERTY computer keyboard to be used for playing music notes. For more information, see **QWERTY Musical Typing Keyboard (MTK)** section.
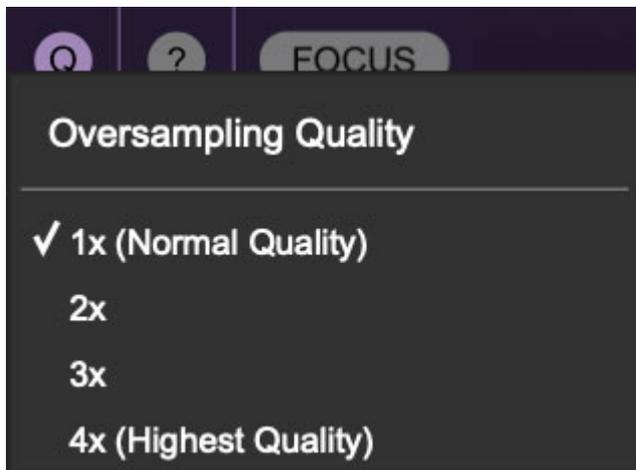
Oversampling Quality (Q)- The Q button sets Dreamsynth's internal oversampling rate; the higher the setting, the better audio fidelity will be, with the caveat that more computer processing power will be required.

Internal processing can be set to *1x* (same rate as the current sample rate of the host DAW or in the *Settings>Audio/MIDI* window for the standalone version) or to *2x*, *3x*, or *4x* the current sample rate. The sample rate is downsampled at the instrument output stage to match the current host sample rate.

For example, if the current DAW/instrument sample rate setting is 48 kHz, and oversampling is set to 2x, Dreamsynth's internal processing runs at 96 kHz, and is then reduced back to 48kHz at the output stage.

If the current DAW/instrument sample rate setting is 192 kHz and oversampling is set to 4x, Dreamsynth's internal processing will run at 768 kHz, and you will very briefly hear the most ameeeezing synthesizer sound quality ever experienced by mankind before your computer instantaneously explodes in a fiery, white-hot supernova blaze. Ok, maybe not.
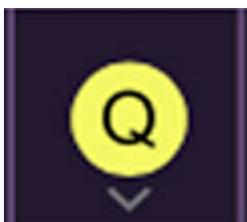
When oversampling is set to any multiple greater than *1x*, the *Q* button glows yellow.

Dependent on a number of factors (audio system D/A converter quality, monitor speakers, the nature of the current Dreamsynth patch, etc.), you may not hear a big difference with higher settings. Generally speaking,

audible differences may be noticeable when using digital waves with a great deal of high harmonics (which is pretty much most them!).

Help- Clicking this launches your web browser and opens the help document you're currently reading, which is a really meta concept.

Cherry Dreamsynth logo (left side of panel)- Clicking this displays "about" information, and shows the version number and current registered user ID.

Focus Button

If you're using a tiny laptop, the user interface can potentially be hard to see. With this in mind, the *Focus* button conveniently blows up Dreamsynth's view to roughly twice its normal size within the current window size. Unlike the *Zoom* "magnifying glass" function, *Focus* doesn't affect the current window size. By default, the patch panel section fills the current window, but the view can be scrolled vertically and horizontally with a mouse wheel, track pad, or Apple Mighty Mouse finger-scrolling. Or if you're the last person on earth still using a single-button mouse, scroll bars will appear at the window edges when in *Focus* mode. (Drop us a line from your Angel Cities email account, umkay?)

Using *Focus* mode couldn't be easier - just click the *Focus* button the top menu bar. To return to standard view, click *Reset*. **There's also a superfast key shortcut** - on Mac, hold the ⌘ [COMMAND] key and click the mouse; in Windows, hold the [OPTION] key and click the mouse. Focus can be reset with the same key shortcuts.

Preset List Right-Click Functions
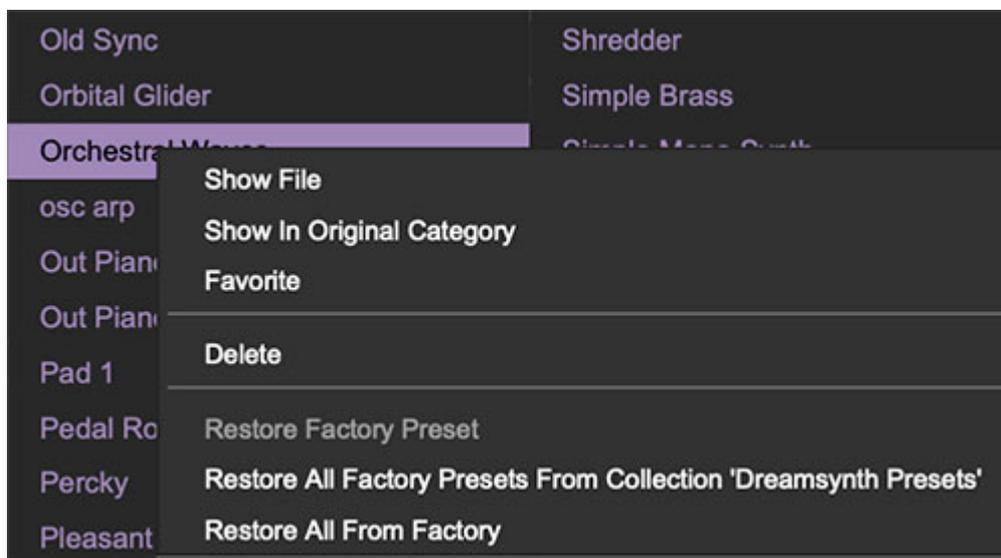
Show File- This displays the selected preset in the Mac or Windows folder containing it. This is useful for backing up or sending a preset file to another user.

Show In Original Category- Selects the preset within its category, i.e. the category will highlight in the left preset menu. The *Show In Original Category* command only displays if the preset was selected within the *<All Presets>*, *<Favorites>*, or *<Recent>* categories.

Favorites- Favorited presets will show in when the <Favorites> category is selected. A star will display next to the preset name. Right-click on the preset and reselect *Favorite* to un-favorite it. (Or say something nasty about its mother.)

Delete- Deletes the selected preset.

Restore Factory Preset- If one of the factory (i.e. not user) patches is edited and saved, selecting this command restores the patch to its unaltered "factory" setting. This menu will be grayed-out for user bank patches.

Restore All Factory Presets From 'Dreamsynth Presets'- If any patches from the "factory" Dreamsynth bank are edited and saved, selecting this command restores *all* of them to their unaltered "factory" setting.

Restore All From Factory- If any patches from the "factory" banks are edited and saved, selecting this command restores *all* of them to their unaltered "factory" setting. At the time of writing, the Dreamsynth bank mentioned above is the only factory bank, so this function and the *Restore All Factory Presets From 'Dreamsynth Presets'* above have the same effect.

Oscillators

Dreamsynth's three dual-waveform oscillators are perhaps its most special component. The basic concept is that each oscillator simultaneously outputs two virtual analog or sampled waves, with their blend set either manually, or CV-controlled via one of Dreamsynth's numerous mod sources.

The initial inspiration was to allow a simplified, two-plane version of the morphing "vector" synthesis made famous by the vintage Prophet VS and Korg Wavestation synthesizers, but once the A/B wave modulation was implemented, we found this arrangement enabled a tremendous level of tonal flexibility. In this section, we'll go over the oscillator controls, and offer some power user tips and tricks.

With exception of Osc 3's Lo range setting, controls and operation are identical for all three oscillators.

Pitch LFO

Each oscillator has its own dedicated triangle-wave low-frequency oscillator, hard-wired to oscillator frequency. These let you add oscillator vibrato without having to "waste" one of the main LFO's (which can be used for more serious sound mangling!). Note that **the Pitch LFO always affects wave A and B equally**.

Rate/Sync- Sets the Pitch LFO rate from 0.01 to 30 Hz. Toggling the *Sync* button locks the rate to host tempo when using Dreamsynth within DAW software, or to the current tempo in the top menu bar when using the standalone version. When the Sync button is enabled, the Rate knob snaps to musically relevant settings ranging from 8 bars to 1/64th-note triplets.

Depth- Sets the depth of pitch modulation from zero up to one octave.

Mod Wheel- Toggling the Mod Whl button routes your MIDI controller's mod wheel to control depth - this a fast and easy way to set up mod wheel-controlled vibrato. When enabled, the maximum amount of mod wheel depth is set by the *Depth* knob.

Setting Equal Pitch Mod Wheel Depth For Multiple Oscillators: If you'd like an equal amount of pitch for all three oscillators, there are some things to be aware of. The three Pitch LFO's are free-running - in other words, they don't reset when keys are struck, and though they may be set to the same rate, they aren't phase locked - that is, each LFO will always be at a different point in its modulation sweep. If you're modulating all three oscillators with all three Pitch LFO's this means the pitch of each oscillator will always be a little different. Depending on the nature of the patch, this may not be a concern, but if you'd like identical pitch mod for all three oscillators, there are a couple of ways to accomplish this:

Set the Pitch LFO to the desired settings for one oscillator - in this example, we'll use Osc 1. Now we'll use Oscillator 1's Pitch LFO to modulate Oscillator 2.
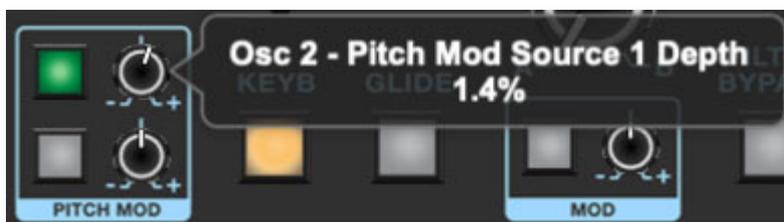
Click on one of the square mod source buttons in Oscillator 2's Pitch Mod box (see above image), and select *OSC 1 Pitch LFO.* Make sure both oscillators' Level knobs are up and increase the mod attenuator knob until the vibrato depth matches up. This will be easier if both oscillator *Tune* knobs are zeroed, and the Master section *Analog Drift* knob (at the bottom right) is all the way down. If you're using the *Mod Whl* button, note that it only needs to engaged for the one Pitch LFO used. Repeat the above assignment process for the third oscillator and/or Strings section Pitch Mod.

Another method to get equal pitch mod for all oscillators would be to assign one of the main LFO's to multiple oscillators' Pitch Mod sections. Mod wheel-controlled depth can be set up by clicking the LFO's mod source pop-up and selecting *Mod Wheel*, then turning up its associated attenuator.

Main Oscillator Controls

Tune- Allows fine-tuning of pitch or creating intervals between Wave A and Wave B. It's also useful for fattening up multi-oscillator patches by detuning

a small amount. Its range is a smidge over a fifth, up or down.

Pitch Mod Source buttons and Attenuator knobs- These allow positive or inverted modulation of the Tune knob. Clicking one of the small square buttons opens a pop-up menu where the mod source can be selected. The attenuator knobs next to buttons set a positive or inverted mod amount for the selected mod source. To choose a different mod source, click the button and choose another modulator, or choose *None* to disable modulation. The button turns green to indicate a mod source is currently active; hovering over the button displays the current mod source.

(The tooltip pops up relatively slowly by default. To adjust how quickly the tooltip displays, click the *Settings* gear icon in the top purple menu strip, select the *Interface* tab, and adjust the *Tooltip Delay* parameter.)

Both Pitch Mod selector buttons and attenuators have the same function, we just provide two in order to enable two separate pitch mod sources.

Octave- These slide switches independently set the coarse pitch range for Wave A and Wave B in standard organ footage settings of 32', 16', 8', and 4'.

Wave A/B select buttons- These allow selection of Dreamsynth's over 400 waveforms. Wave A and B always play simultaneously (unless *None* is selected for one or both). To select a wave from the pop-up menus, click the *Wave A* or *Wave B* button, or on the red name displays beneath the buttons.

Dreamsynth includes the following four different wave types:

- **Analog**- These are modeled virtual analog waves (they are ***not*** samples). They're designed to include the aperodicity (dude, check out our big words) and mojo you'd expect in a vintage analog synth.

- **Looped PCM Samples**- These comprise the bulk of Dreamsynth's waves, divided across 11 categories. Following their attack portion, these will loop infinitely.

- **Single-Cycle**- As their name implies, these are sampled digital waves that are just one-cycle long. Conceptually, they're similar to analog waves, but with more complex shapes. Single-cycle waves were used in the early digital synths such as the Ensoniq ESQ-1 and the Korg DW-6000/8000, when digital memory was still pricey.

- **One-Shot**- These are also PCM samples, but they play briefly and end without looping. They're useful for drum, percussion, and transient sounds.

Wave A/B up/down buttons- Located next to the wave display windows, these allow quick selection of the previous or next wave in the pop-up wave menu. Though you won't be able what the next wave is, these are handy for rapid sound exploration.

Wave A/B mix knob and Mod box- Here's where the magic happens - this sets the volume balance between Wave A and Wave B. On its own, it's useful for creating composite waveforms, but it really comes into its own when the Mod box beneath is used to modulate the mix of two waves, allowing all manner of evolving or rhythmic vector synth-style tones, or all points in-between (quite literally).

Keyboard- Shutting this off disconnects the keyboard's control voltage. This allows the oscillator frequency to remain constant regardless of keys played on the keyboard. This can be useful in a number of situations:

- When an oscillator is playing a drum or transient sound, and you want the pitch to stay constant across the keyboard.

- If an oscillator is being used as a mod source (either in audio range, or in the case of OSC 3, as a low-frequency oscillator), and you don't want the mod rate to change as you play up and down the keyboard.

- The oscillator is being used as a "drone," that is, to play the same note.

Helpful range trick: If the *Keyb* button is disabled and the oscillator's pitch won't go low (or high) enough using the *Octave* and *Tune* controls, set its Pitch Mod box source to +10V and use the mod attenuator knob to add or subtract - this will increase the pitch range immensely.

Glide - Also known as "portamento," glide delays the voltage change between pitches for a sliding effect. Clicking the button enables glide independently for each oscillator. Glide speed is set globally using the *Glide* knob in the Synth Voice Assign section at the far left.

Sync 3>1 (*OSC 1 only*)- This causes VCO 1 to force reset the start of VCO 3's waveform to the beginning of its cycle, resulting in the classic Cars "*Let's Go*" tearing harmonics sound (or No Doubt's "*Just A Girl*," for children of the 90s) when the oscillator 3's pitch is swept.

Quick Sync Sweep Patch Tutorial *(no extra charge!)*

- Enable the *Sync 3>1* switch.

- Set Osc 1's *Level* knob to zero, and turn up Osc 3's *Level* knob.

- Set Osc 1 and Osc 3's *Wave A* pop-ups to *Analog>Pulse*, and make sure the *A/B* mix knobs are set to *A*.

- Set Osc 1 and Osc 3's *Octave* controls to *16'*.

- Click one of Osc 3's Pitch Mod box mod destination buttons, set it to VCF Envelope, and turn the attenuator knob up to max.

- Set the VCF Env controls to *Attack=0*, *Decay=4*, *Sustain=0*, *Release=0*.

- Play A, B, D... D, Db, B, then A on the keyboard. Ponder how cool *The Cars* are/were.

Filter Bypass (*OSC 2 and 3 only*)- As its name implies, this removes the filter section from the oscillator audio path. This is really useful if, for example, one oscillator is playing juicy sawtooth waves with a pronounced filter sweep, but you'd like to layer in a plingy, crystalline bell without its high frequencies getting squashed by the filter. Similarly, the *Filter Bypass* button is useful for maintaining the impact of one-shot drum and percussion samples.

Tune B- The Tune B button disables the Tune knob for Wave B only. This is a super cool feature because it enables detuning of Wave A and Wave B.

The simplest example would be to disable the *Tune B* button, center the *A/B* mix knob, set *Wave A* and *Wave B* to *Analog>Ramp*, then set the *Tune* knob to around 0.10 semitones. This results in a classic big, fat dual oscillator analog synth tone using just one oscillator.

Pulse Width and Mod box- Sets the width or "duty-cycle" of pulse waves (*Analog>Pulse*), from a perfect square (*50%*) to a very narrow pulse. It has no effect on other waveforms. The Pulse Width Mod section can be used to dynamically vary the pulse width.

Oscillator Pan and Level Controls

Pan and Mod box - Sets the oscillator panning position left to right. Remember that following the oscillators, Dreamsynth's audio path is fully stereo (including the filter section), so stereo pan positions are maintained. The *Mod* box beneath the *Pan* knob allows all manner of modulation of pan position.

Level and Mod (VCA) box - Sets the overall oscillator volume. The *Mod* box beneath the *Level* knob allows volume modulation - for all intents and purposes, this means each oscillator has its own independent voltage-controlled amplifier (VCA). This enables a lot of functionality, from simple LFO tremolo affects, to audio-rate amplitude modulation (using one of the oscillators as a mod source), to elaborate rhythmic layered patches when modding with LFO rates synced to host tempo.

Solo button- When toggled, the Solo button disables all other oscillators, as well as the Strings section. It's very useful when programming patches. Note that the oscillator and Strings section *Solo* buttons can be combined as desired.

Filter and VCF Envelope

Dreamsynth uses a 12 dB/oct state-variable filter. "State-variable" refers to its curves - its Notch knob lets you choose lowpass, highpass or anywhere in between. The BP button bypasses the Notch knob and enables bandpass mode. The 12 dB/oct curve gives it a brighter overall tonality than a typical ladder filter, which works well with Dreamsynth's many brighter, bell-like digital waves.

If you're not familiar with how filters work, a lowpass filter allows frequencies *below* the cutoff frequency setting to pass through, but blocks frequencies *above* the cutoff frequency. Highpass is the opposite of lowpass mode: high-frequency content remains, but low frequencies are removed as the cutoff frequency increases. The *BP* button enables bandpass mode, combining both lowpass and highpass modes, leaving sound only "in the middle." The cutoff frequency lies roughly halfway between the falloff on each side. Setting the *LP>HP/Notch* knob to its center position (*BP* button disabled) results in a notch response - this is the opposite of bandpass, i.e. a small band of the frequency spectrum is removed but all frequencies above and

below pass through. This may not sound very useful, but sweeping the frequency of a notch filter results in an interesting phaser-like sound.

Frequency- Sets the frequency where frequency attenuation begins. Its effect is dependent upon the currently chosen filter mode (lowpass, highpass, bandpass, or notch).

Cutoff Frequency and Mod boxes- Sets the frequency where frequency attenuation begins with its effect dependent upon the currently chosen lowpass/bandpass/notch/highpass/etc. filter mode. The modulation controls beneath allow CV control of the cutoff frequency; two identical sets of mod controls are provided allowing two independent cutoff mod sources.

Resonance- Emphasizes sound energy at and around the cutoff frequency by adding feedback from the filter's output back to its input. This is useful for creating commonly heard synth "wah" tones, especially when the cutoff frequency is modulated with an envelope generator or one of the LFO's.

Resonance and Mod box- Emphasizes sound energy at and around the cutoff frequency by adding feedback from the filter's output back to its input. This is useful for creating commonly heard synth "wah" tones, especially when the cutoff frequency is modulated. The modulation controls beneath allow CV control of the resonance

LP>HP/Notch control, BP button, and Mod box- The *Notch* knob continuously varies the filter response from lowpass to highpass as the knob is rotated from left to right. The middle position creates a notch response. Clicking the *BP* button puts the filter in bandpass mode and disables the *LP>HP/Notch* knob - the knob and its markings will dim when the BP switch is

engaged. The modulation controls beneath allow CV control of the *LP>HP/Notch* knob.

BP (bandpass) switch- Alters the filter response to bandpass when engaged (i.e. combination of lowpass and highpass leaving frequencies "in the middle." The LP>HP knob disappears when the BP switch is enabled.

Envelope Mod and Mod box- Sets the amount of modulation from the VCF Env section beneath. Turn clockwise from center for positive modulation, or counterclockwise from center for inverted modulation. The modulation controls beneath allow CV control of the amount of envelope mod.

Keyboard Track and Mod box- This causes the cutoff frequency to increase as ascending notes are played on the keyboard. The idea behind this is, because actual note frequencies rise as higher pitches are played, the *KB Track* control applies a rising CV to the cutoff frequency in order to maintain the brightness of notes as higher pitches are played. Turn clockwise from center for positive modulation (filter gets brighter as higher notes are played), or counterclockwise from center for inverted modulation (filter gets duller as notes higher notes are played). The modulation controls beneath allow CV control of the amount of keyboard tracking.

Filter Envelope Generator

The filter section includes a dedicated envelope generator for control of cutoff frequency (via the *Envelope Mod* knob). Here's an overview of how an ADSR envelope generator works:

When Dreamsynth sees a gate voltage from a note, the envelope generator outputs a dynamically changing voltage, according to the settings of its four stages. The attack stage defines how long it takes for the output voltage to rise from 0 to 5 volts. Once the attack stage reaches 5V, it moves to the decay phase, which defines how long it takes to fall from 5V to the setting of

the sustain phase. Unlike the attack, decay, and release phases, which define times, sustain simply sets the held voltage level following the attack and decay phases - this equates to the envelope output level while holding down a key. Finally, the release slider defines the length of time it takes for the voltage to fall back to 0V when the gate input voltage is removed, i.e. when the key is released.

Attack- Defines the length of time for voltage to rise from 0V to 5V when a key is played.

Decay- Defines the length of time for voltage to fall from the attack stage 5V peak to sustain stage setting.

Sustain- Sets the voltage level following attack and decay phases while a note is held.

Release- Defines the length of time for voltage to fall from sustain level to 0V when a key is released.

Velocity- Defines how much the envelope affects the filter cutoff frequency via keyboard velocity. When set to zero, keyboard velocity has no effect on cutoff frequency; all the way up results in maximum control range.

VCA Envelope

The VCA section consists of an envelope generator for control of amplitude - in other words, the "shape" of a sounds volume over time.

Here's an overview of how an ADSR envelope generator works:
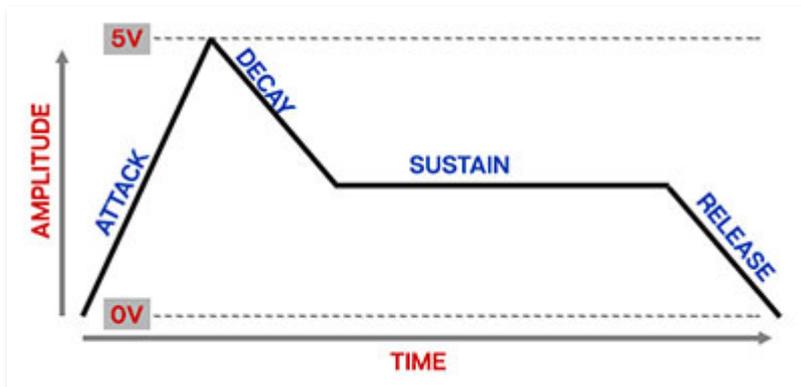
When Dreamsynth sees a gate voltage from a note, the envelope generator outputs a dynamically changing voltage, according to the settings of its four stages. The attack stage defines how long it takes for the output voltage to rise from 0 to 5 volts. Once the attack stage reaches 5V, it moves to the decay phase, which defines how long it takes to fall from 5V to the setting of the sustain phase. Unlike the attack, decay, and release phases, which define times, sustain simply sets the held voltage level following the attack and decay phases - this equates to the envelope output level while holding down a key. Finally, the release slider defines the the length of time it takes for the voltage to fall back to 0V when the gate input voltage is removed, i.e. when the key is released.

Attack- Defines the length of time for voltage to rise from 0V to 5V when a key is played.

Decay- Defines the length of time for voltage to fall from the attack stage 5V peak to sustain stage setting.

Sustain- Sets the voltage level following attack and decay phases while a note is held.

Release- Defines the length of time for voltage to fall from sustain level to 0V when a key is released.

Velocity- Defines how much the envelope affects the amplitude via keyboard velocity. When set to zero, keyboard velocity has no effect on amplitude; all the way up results in maximum control range.

LFO 1/2/3

LFO is short for "low-frequency oscillator." The three onboard LFOs generate sub-audio range signals for modulation purposes. Dreamsynth actually has six LFOs, as each oscillator features its own dedicated Pitch LFO; these are discussed in the **Oscillators** section. In this section, we'll be discussing the three standalone LFOs.

The functionality of all three LFOs is identical.

Wave slide switch- Selects sine, triangle, ramp, sawtooth, exponential saw, exponential ramp, square, or sample and hold (i.e. stepped random) waves.

Rate knob and Sync button- The *Rate* knob defines the speed of the LFO, from 0.01 to 30 Hz (with *Sync* switch off) or from 8 beats up to 1/64th note triplets (*Sync* button enabled). The *Sync* button locks the LFO to host tempo when using Dreamsynth within DAW software, or to the current tempo in the top menu bar when using the standalone version.
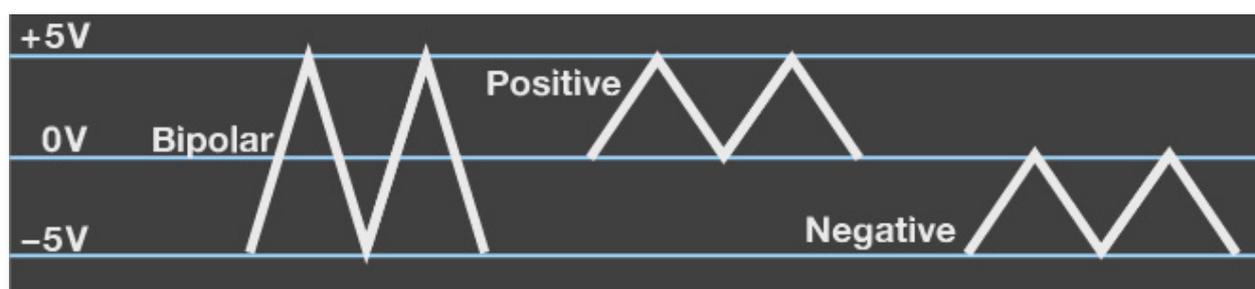
Bias switch- Bias defines the range of the LFO wave's swing, illustrated above.

- **Positive**- CV swings from 0V to +5V back to 0V, etc.
- **Bipolar**- CV swings from -5V through 0V to +5V back through 0V to -5V, etc.
- **Negative**- CV swings from 0V to -5V back to 0V, etc.

The effect of LFO bias differs depending on mod depth and inversion settings (i.e. negative amounts of mod), as well as the parameter the LFO is modulating.

One Shot- LFOs typically are cycling constantly (that whole "oscillation" thing), but the engaging the *One Shot* button causes the LFO to move

through its cycle a single time when a key is struck. For all intents and purposes (or "intensive purposes," as the kids say), this converts the LFO to a simple envelope generator (particularly when the sine, triangle, ramp, sawtooth, expo saw, or expo ramp waves are selected). Note that the Rate control defines the duration of the single LFO cycle (and that the *Sync* button still works, which can be useful; we'll explain later).

Because One Shot mode uses a section of a wave that normally be endlessly repeating, and in order for them to be most useful, the individual waves have slightly varying behaviors. We'll do our best to explain how each of them function when in One Shot mode, with *Bias* set to *Bipolar*.

- **Sine**- CV begins at 0V, up to 5V, falls to -5V, returns to 0V and holds.
- **Triangle**- CV begins at -5V, up to 5V, falls to -5V and holds.

- **Saw**- CV begins at +5V, falls to -5V and holds.
- **Ramp**- CV begins at -5V, rises to +5V and holds.
- **Expo Saw**- CV begins at +5V, falls to -5V and holds.
- **Expo Ramp**- CV begins at -5V, rises to +5V and holds.
- **Square**- CV begins at +5V, instantaneously falls to -5V and holds.
- **Sample and Hold**- CV lands on a random voltage and holds until note retrigger.

If you're like to experiment with them to gain a better understanding, perhaps the best way is to create a very simple one oscillator patch using one of the analog waveforms, and modulate oscillator pitch with the LFO with the *One Shot* button enabled. Make sure to try each at positive, bipolar, and negative bias.

Retrigger- Defines LFO restart behavior when keys are struck.

In normal cycling mode (*One Shot* disabled), enabling *Retrig* restarts the LFO cycle monophonically, that is, if no notes are currently on and a new note is struck, the LFO cycle restarts. If additional keys are played, the LFO won't restart until all keys are released. This may seem counterintuitive, but it makes sense - imagine a polyphonic patch with square wave modulation applied to oscillator amplitude (i.e. OSC *Level* knob mod). If you played a chord, with each note struck at a (slightly) different time, the "on/off" mod of each note would be occurring at a different time, resulting in a sloppy-sounding mess. Having the modulation "synchronize" in this way generally has much more musical results.

Conversely, if both One Shot and Retrigger are enabled, the LFO sweep restarts with every note played, regardless of previously held notes. This makes sense if you're using the One Shot LFOs in the role of envelope generators controlling amplitude, pitch, filter cutoff, etc.

LFO Mod Box button and attenuator- This operates a little differently than the Dreamsynth's other mod box button/knob combos in that it doesn't modulate an adjacent knob. Instead, it affects the amount of modulation the LFO outputs when used a mod source. For this reason, its attenuator range is positive-only. This has a number of possible uses, but the most typical application is for delayed vibrato or filter cutoff mod (think of the song "True" by Spandau Ballet. On second thought, no one should ever think of that song.)

How To Create Delayed Vibrato

- Set Oscillator 1 *Pitch Mod* source to *LFO 1 (0 deg)* and its attenuator to around 0.5%.

- Set LFO 1 *Wave* to sine or triangle, *Bias* to *Bipolar*, and *Rate* to around 4 Hz. Click the *Mod* source button, set it to *LFO 2 (0 deg),* and turn the attenuator all the way up.

- Set LFO 2 *Wave* to the ramp position, *Bias* to *Positive*, enable *One Shot,* and set *Rate* to around 1 Hz (when an LFO is in One Shot mode, the *Rate* knob defines the length of the single wave cycle.)

This adds a delayed vibrato to Oscillator 1. The same delayed vibrato can be added to the other oscillators or the Strings section by duplicating the *Pitch Mod* box mod source and attenuator settings.

Multi-Phase LFOs
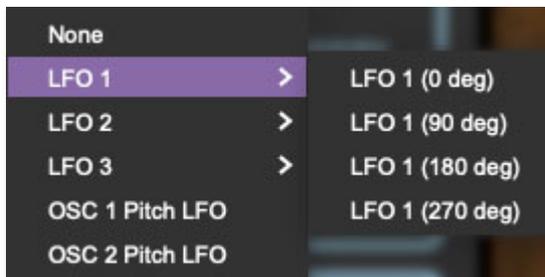
When setting the LFOs as modulation sources, you may have noticed that each LFO has a submenu with four degree settings. For those of you who managed to stay awake during geometry class (your humble UI designer flunked, no joke!), you'll know that 0°, 90°, 180°, and 270° correspond to four equidistant points on a 360° circle. The same concept can be applied to a cycling waveform:
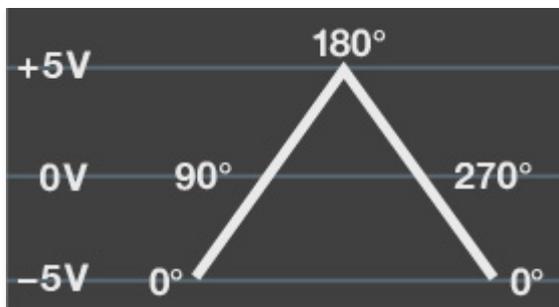
In the above diagram of a triangle wave LFO, the control voltage cycles from -5V through 0V, up to 5V, back down through 0V, down to -5V, etc. The phase setting corresponds to *where* in the waveform the control voltage is "tapped." If the LFO is being used for an application such as pitch mod (vibrato) or repeating filter wahwah, you won't hear any audible difference between phase settings. But here's an example of where multiple LFO phases can be useful:
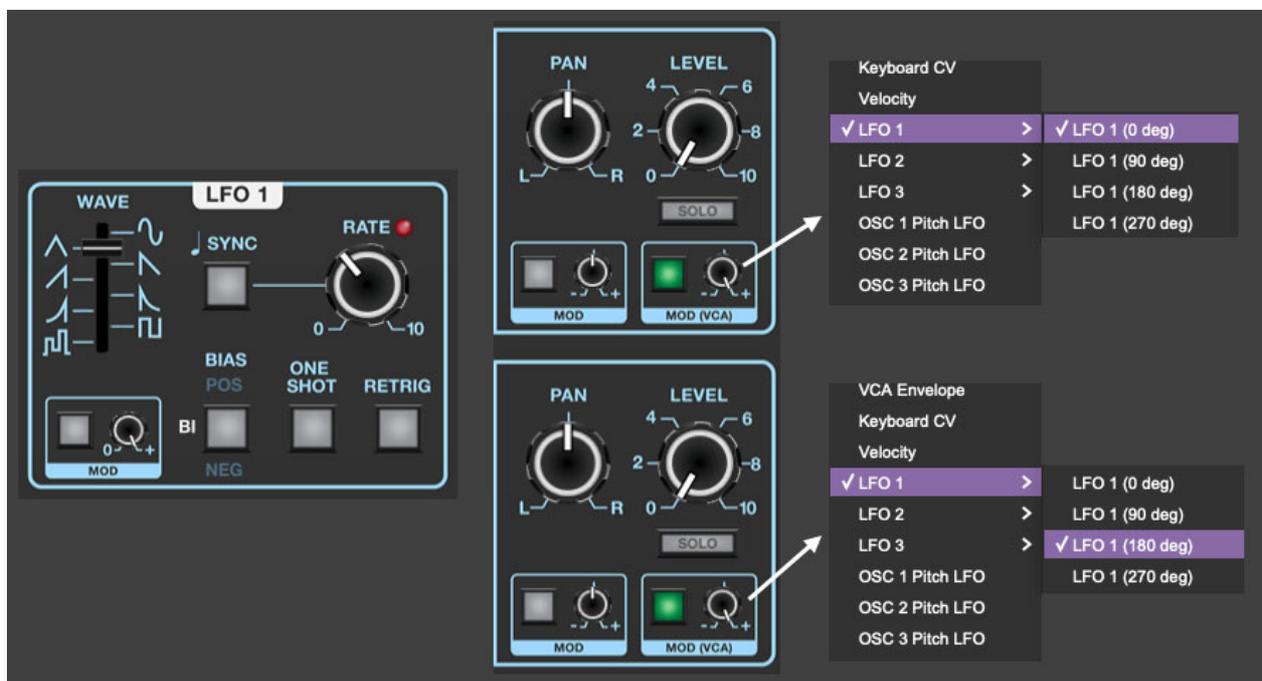
- Create a simple patch as shown above with LFO 1 *Wave* set to a sine or triangle and *Rate* around 4 Hz. Make sure *One Shot* mode is disabled.

- Set Osc 1 and Osc 2 *Level* to zero.

- Set Osc 1 *Level Mod (VCA)* mod source to *LFO 1 (0 Deg)*, and Osc 2 *Level Mod (VCA)* mod source to *LFO 1 (180 Deg).* Turn both *Mod (VCA)* attenuators all the way up.

When notes are played, the output of Oscillator 1 and Oscillator 2 alternate at LFO 1's *Rate* setting. This is because the level is being modulating on exactly "opposite sides" of the triangle wave at any given time. If Oscillator 2's mod source is changed to *LFO 1 (0 Deg)*, both oscillators' level will go up and down in lock-step. If Oscillator 2's mod source is changed to *LFO 1 (90 Deg)* or *LFO 1 (270 Deg)*, the modulation will be 1/4 or 3/4 of the way "across" the wave in relation to Oscillator 1's *LFO 1 (0 Deg)* setting, resulting in a somewhat herky-jerky rhythm.

LFO wave phase is easiest to understand in the context of sine and triangle waves. The behavior of ramp, saw, square waves can be a little trickier to conceptualize due to their instantaneous state changes (i.e., the straight up and down sections of the wave). Note that **LFO phase setting has no effect when using the sample and hold wave**. This is because a sample and hold wave cannot have a phase setting, because it inherently has no vertical axis, that is, it's always holding a given fixed voltage.

LFO Phase Settings and One Shot Mode

Phase settings also apply to LFO waves in One Shot mode. The overall length remains the same (isn't that a hokey Led Zeppelin movie?), but the start and end point of the single cycle are shifted according to the degree setting.

LFO Phase and "Vector" Synthesis - A Sidebar

The impetus for including multi-phase LFO modulation came from the concept of vector synthesis. For those not familiar, this is a voice architecture wherein four oscillators are configured in the corners of a "diamond" shape, and the relative level of each is set either manually with a joystick, or the joystick's X/Y axes is controlled with specialized envelope. The result is a complex, morphing composite of all four oscillator waves. (Vector Synthesis was first seen in Sequential's Prophet VS synth, and shortly thereafter in the Korg Wavestation and Yamaha SY22/TG33 synths.)

Though Dreamsynth doesn't have a true "four-oscillators-in-four-corners" diamond implementation seen in vector synths, a close facsimile of the signature morphing vector character can be achieved using its modulatable A/B morphing oscillators in conjunction with a single multi-phase LFO. Following is a patch demonstrating this idea:
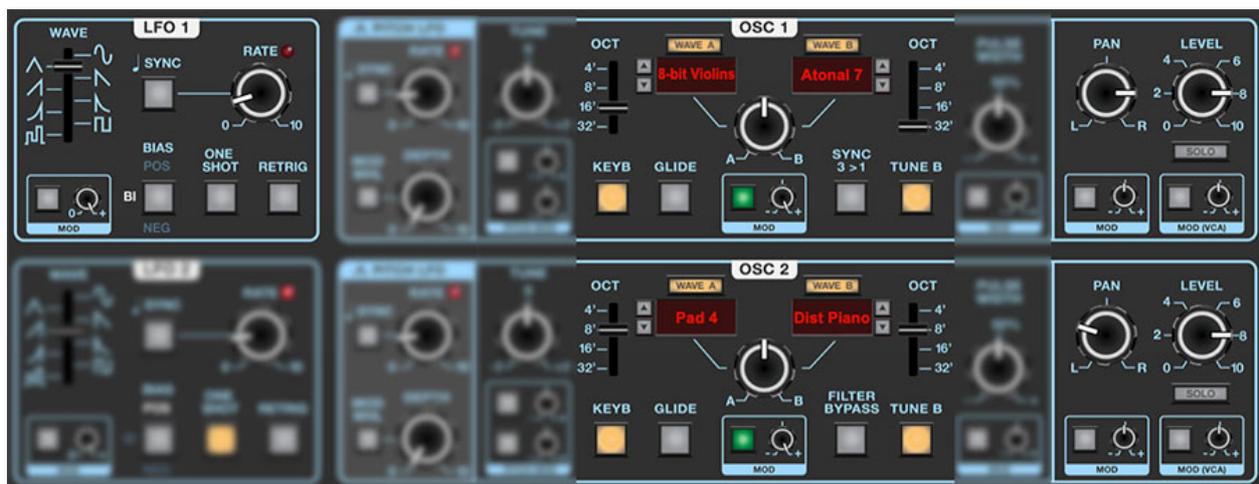
- Set LFO 1 *Wave* to triangle and *Rate* around 0.60 Hz. Set *Bias* to *Bipolar*, and make sure *One Shot* mode is disabled.

- Select A and B waveforms for Osc 1 and Osc 2. Make sure not to use One-Shot waves. Using tonally contrasting, different-sounding waves set to different octaves is recommended in order to maximize the morphing effect (we particularly like combining tonal and atonal/noisy waves).

- Set the oscillator *Level* knobs equally. The *Pan* controls can optionally be spread between the oscillators.

- Make sure the Filter section *Cutoff Freq* knob is open all the way, and that the *Sustain* knob in the VCA Env section is all the way up (*Attack* and *Release* can be set to taste. Long=good.)

- Now for the secret sauce:
  Set Osc 1 *A/B* knob to center position, click its A/B *Mod* source button, set the mod source to *LFO 1 (0 Deg)*, and set its attenuator knob to max.

  Set Osc 2 *A/B* knob to center position, click its A/B *Mod* source button, set the mod source to *LFO 1 (90 Deg)*, and set its attenuator knob to max. The 90° setting is what shifts the modulation 25% forward relative to Osc 1's mod - this is what makes the level of each of the four waves rise separately. Experiment with different phase settings for Osc 2's mod to hear how each of them affect the relationship between Oscillator 1 and 2's waves.

This a relatively basic version of the vector concept - there are plenty of ways to add more mod and motion, particularly to the Oscillator *Pan* and *Level* parameters. And it should go without saying that patches of this nature sound great with a liberal helping of chorus, delay, or reverb. As always, experimentation is encouraged!

Modulation Routings

Dreamsynth's modulation routings are extensive and really easy to use - there are no hidden menus, tabs, or routing grids. All mod destinations have a source popup menu button and bipolar attenuator adjacent to the parameter they affect. They're mostly a "what-you-see-is-what-you-get" affair (isn't that a Ratt tune?), but there are a few things we'll explain to make things 100% clear.
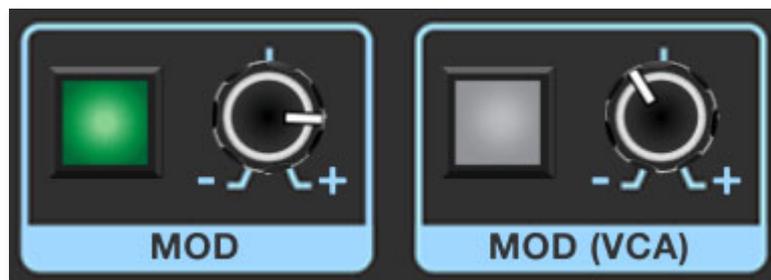
Mod Source Select button- Click to open a popup menu that selects the modulation source. If the button is dim (gray), no modulation source is currently selected. The button illuminates in green when a mod source is selected. (The attenuator still needs to be increased or decreased from its center position to apply mod.)

Mod Attenuator knob- Sets the amount of mod applied to the parameter for the currently chosen mod routing. The Mod Attenuator knobs are bipolar, so center position is off; turning the knob to the right applies positive modulation, and turning to the left applies negative modulation.

Monophonic vs. Polyphonic Mod Sources

This is important to understand, so please put on your propellerhead beanie.

Polyphonic Modulation

A simple example of a polyphonic modulation routing would be the VCF envelope modulating filter cutoff frequency (this is a "hardwired" routing - all you have to do is turn up the Filter section *Env Mod* knob, but the same mod routing could be set up using the *Cutoff Freq* mod box pop up and attenuator). If the VCF envelope controls are set for a rapidly decaying envelope, and multiple notes are played, the rapid cutoff envelope is heard **individually** for each note played, regardless of whether they're played simultaneously or in succession. This is referred to as "individually articulated" response, because under the hood, *each note played (up to 16) has its own individual VCF envelope generator.* Other examples of poly mod sources include oscillators, VCA Envelope, Keyboard CV, and Velocity.

Monophonic Modulation

Conversely, some mod sources are a single entity applied to all currently sounding voices - these are referred to as monophonic mod routings. This may seem like an inferior arrangement, but mono mod routings are actually very useful. The best example of mono mod sources are Dreamsynth's low-frequency oscillators (LFOs).

To demonstrate, we'll use another of Dreamsynth's hardwired mod routings - the humble Pitch LFO. When its *Depth* knob is increased, a triangle wave LFO modulates oscillator pitch for vibrato effects. If multiple notes are played, the pitch of **all** currently played notes changes at the same speed, depth, and phase - the phase part is the important thing. In layman's terms that means all notes rise and fall in lock step. If each voice had its own independent LFO

mod, when multiple notes are played, the pitch of one might be rising while the other was falling, etc., creating a warbly, modulated mess, which (usually) isn't what you want.

(Incidentally, if you want full poly, non phase-coherent LFO mod, set Osc 3's octave range to *Lo*, select one of the basic *Analog* waves, and set the Mod Source popup menu to *Osc 3*. We thought of everything!)

Note that many mod sources are inherently mono by nature, for example, a mod wheel (I'm sure some wacko company makes a controller with 16 mod wheels, but we've never seen one). Other examples of mono mod sources include pitch wheels, LFOs, and the arpeggiator.

Generally speaking, some mod destinations are inherently mono (the Strings section *Pitch*, Pan, and Level controls, for example) and some are inherently polyphonic (all Filter sections controls, for example)

MOD SOURCES	FUNCTION	MOD TYPE
OSCILLATOR 1	COMBINED A/B OSCILLATOR OUTPUT	POLY
OSCILLATOR 2	COMBINED A/B OSCILLATOR OUTPUT	POLY
OSCILLATOR 3	COMBINED A/B OSCILLATOR OUTPUT	POLY
VCF ENVELOPE	FILTER ENVELOPE GENERATOR	POLY
VCA ENVELOPE	AMPLITUDE ENVELOPE GENERATOR	POLY
KEYBOARD CV	KEYBOARD NOTE - HIGHER NOTE = HIGHER CV	POLY
VELOCITY	HOW HARD A KEY IS STRUCK	POLY
POLY AFTERTOUCH	KEY PRESSURE FOLLOWING INITIAL STRIKE	POLY
POLY RANDOM DC	HELD RANDOM CV EACH TIME A NOTE IS STRUCK	POLY
MOD SOURCES	FUNCTION	MOD TYPE
	LFO 1 SWEEP, BEGINNING AT 0° WAVE	

MOD SOURCES	FUNCTION	MOD TYPE
LFO 1 - 0°	LFO 1 SWEEP, BEGINNING AT 0° WAVE PHASE	MONO
LFO 1 - 90°	LFO 1 SWEEP, BEGINNING AT 90° WAVE PHASE	MONO
LFO 1 - 180°	LFO 1 SWEEP, BEGINNING AT 180° WAVE PHASE	MONO
LFO 1 - 270°	LFO 1 SWEEP, BEGINNING AT 270° WAVE PHASE	MONO
LFO 2 - 0°	LFO 2 SWEEP, BEGINNING AT 0° WAVE PHASE	MONO
LFO 2 - 90°	LFO 2 SWEEP, BEGINNING AT 90° WAVE PHASE	MONO
LFO 2 - 180°	LFO 2 SWEEP, BEGINNING AT 180° WAVE PHASE	MONO
LFO 2 - 270°	LFO 2 SWEEP, BEGINNING AT 270° WAVE PHASE	MONO
LFO 3 - 0°	LFO 2 SWEEP, BEGINNING AT 0° WAVE PHASE	MONO
LFO 3 - 90°	LFO 2 SWEEP, BEGINNING AT 90° WAVE PHASE	MONO
LFO 3 - 180°	LFO 2 SWEEP, BEGINNING AT 180° WAVE PHASE	MONO
LFO 3 - 270°	LFO 2 SWEEP, BEGINNING AT 270° WAVE PHASE	MONO
OSC 1 PITCH LFO	TRIANGLE WAVE OSC 1 PITCH LFO	MONO
OSC 2 PITCH LFO	TRIANGLE WAVE OSC 2 PITCH LFO	MONO
MOD SOURCES	FUNCTION	MOD TYPE

OSC 3 PITCH LFO	TRIANGLE WAVE OSC 3 PITCH LFO	MONO
ARPEGGIATOR	ARPEGGIATOR CV OUTPUT	MONO
PITCH BEND	MIDI/USB CONTROLLER PITCH WHEEL	MONO
MOD WHEEL	MIDI/USB CONTROLLER MOD WHEEL	MONO
CHANNEL PRESSURE	MIDI/USB CONTROLLER AFTERTOUCH	MONO
WHITE NOISE	RANDOM WHITE NOISE MOD	MONO
PINK NOISE	RANDOM PINK NOISE MOD	MONO
+10V DC	STEADY VOLTAGE SOURCE	MONO
RANDOM DC	HELD RANDOM CV EACH TIME A NOTE IS STRUCK	MONO

Synth Voice Assign
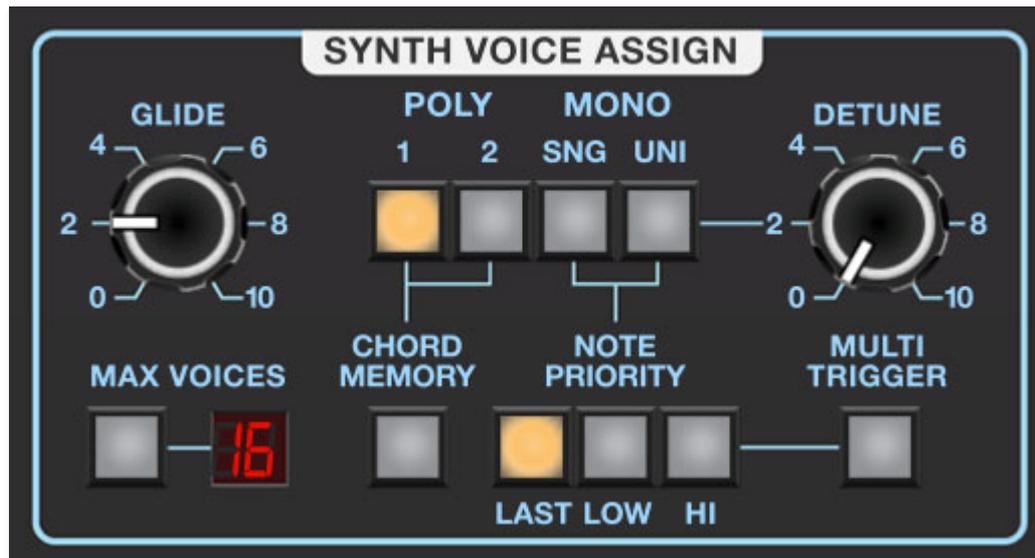
The Synth Voice Assign section determines how notes are assigned to the synthesizer section, i.e. Oscillators 1, 2, and 3. Controls in the Synth Voice Assign have no effect on the Strings section.

Glide- Also known as "portamento," glide delays the voltage change between pitches for a sliding effect. Glide is individually enabled or disabled using the *Glide* buttons in each oscillator section; the Synth Voice Assign *Glide* knob sets glide speed globally (say that fast three times). Lower values = faster glide times, higher values = slower glide times.

Max Voices- Sets the maximum number of notes that can sound simultaneously, from 2 to 16.

Voice Assign Modes

- **Poly 1**- This is the standard polyphonic mode. If the number of notes played exceeds the current maximum setting, it uses a sophisticated allocation scheme to steal the most recently played notes. In use, this means if you're holding a bass note with your left hand, it won't disappear while playing chords and melodies with your right hand.

- **Poly 2**- Poly 2's allocation is optimized for use with Dreamsynth's glide function. Generally speaking, implementing polyphonic glide can be a tricky proposition (because we don't know whatcher gonna play next, Miles Thelonius Zawinul), but *Poly 2* mode does an impressively good job of "knowing" which notes to glide from and to when holding notes while

playing melodies (regardless of whether notes are played legato or separately).

- **Mono Single**- One note can be played a time with one voice sounding. The *Max Voices* display changes to *1* and its button is disabled when *Mono Single* is selected.

- **Mono Unison and Detune knob**- One note sounds at a time. Multiple voices will "stack" according to the current *Max Voices* setting. The *Uni* button should be used in conjunction with the *Detune* knob which "spreads" the tuning of the oscillators for fat sounds. Note that the setting of the Master section *Analog Drift* knob will add to the overall amount of oscillator detune. (Watching *The Fast And The Furious: Tokyo Drift* will not affect detuning, but it may give you a headache or a general disdain for tacky body kits.)

  Note that the Detune knob has no effect in Poly 1 and Poly 2 modes. Use the Master section *Analog Drift* knob if you'd like to add some global detuning/analog vibe.

- **Chord Memory**- Allows chords to be memorized and played with a single key. To memorize a chord, click the *Chord Memory* button. The button flashes to indicate that it's in learn mode. Play a chord up to 16 notes (hey, we don't know how many fingers you have); when the last note is released, the button illumination turns solid and the chord is memorized. The Max Voices number display will show how many notes are in the memorized chord. To disable *Chord Memory* mode, click the button again.

  Chord Memory only works in *Poly 1* and *Poly 2* modes; its button goes dim if one of the mono modes is selected.

  Note that *Chord Memory* isn't just for "chords" per se; it can be used for octaves, fifths, or any desired combination of notes.

Note Priority (Mono modes only)- These three buttons define how voices responds to incoming note data when *Mono Single* or *Mono Uni* modes are selected.

- **Last**- The most recently played note takes priority.
- **Low**- The lowest note played takes priority.
- **Hi**- The highest note played takes priority.

Multi Trigger (Mono modes only)- Defines triggering behavior for the VCF Envelope and VCA Envelope generators. When *Multi Trigger* is enabled in any

of the mono assign modes, the envelopes retrigger from the beginning every time a new key is pressed. When *Multi Trigger is* disabled, the envelopes will only retrigger if no other notes are currently held; this is known as "single trigger" or legato mode. Single trigger mode is useful for emulating the sounds of some acoustic instruments - for example, the sound of plucking a note on a guitar, then sliding on the string to different notes without plucking again. *Multi Trigger* mode generally feels more responsive to play and is useful for more aggressive passages - in guitar lingo, something like picking every single note.

Strings Section
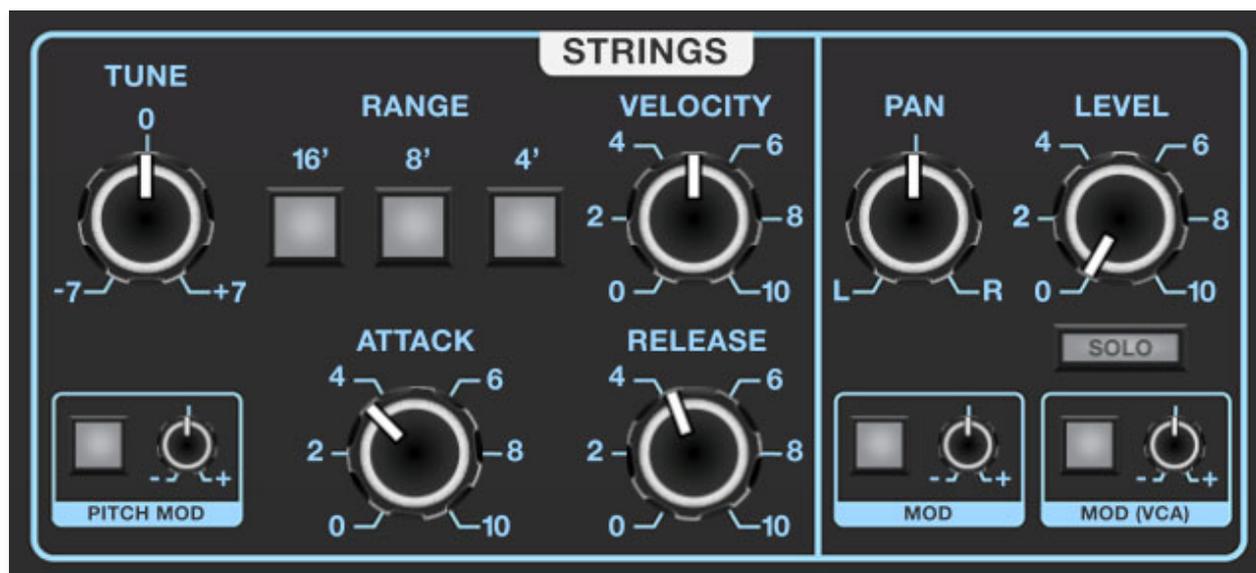
The Strings section emulates a classic, "top-octave divide" string synthesizer. Like vintage string synths, the signal is routed to an always-on "tri-chorus" - a clever and really great-sounding implementation of chorus seen in a number of 70s strings machines that used three BBD delay chips with six modulation sources to create that lovely, syrupy string chorus sound made famous by the Solina String Synthesizer.

The Strings tri-chorus is entirely separate from the Mod Effect chorus in the bottom row (and has no external panel controls), but the Strings section can still be routed through the Mod Effect section, because far be it from us to stop you from double-chorusing for your fab new tribute band, "*Cure Division: Everything More Chorused Than Everything Else.*"

Tune- Allows fine-tuning of pitch or creating intervals between Wave A and Wave B. It's also useful for fattening up multi-oscillator patches by detuning a small amount. Its range is a smidge over a fifth, up or down.

Pitch Mod Source button and attenuator knob- Allows positive or inverted modulation of the Tune knob. Clicking one of the small square buttons opens a pop-up menu where the mod source can be selected. The attenuator knobs next to buttons set a positive or inverted mod amount for the selected mod source. To choose a different mod source, click the button and choose another modulator, or choose *None* to disable modulation. The button turns green to indicate a mod source is currently active; hovering over the button displays the current mod source.

Range- These select the octave range, displayed in standard organ footages. Multiple ranges can be enabled in any combination.

Attack / Release - The Strings section envelope generator is an "AR," or attack/release envelope. The *Attack Time* slider defines the length of time to reach maximum amplitude; the *Release Time* slider defines the length of time until amplitude falls to zero following key release. Notes will sustain at full volume as long as keys are held.

Unlike many classic "paraphonic" string synthesizers, Dreamsynth's Strings section features individual AR envelope generators for each of its 16 voices of polyphony. This enables fully independent amplitude articulation for all individual notes. (Phew, that was a mouthful of wordverbalsyntax.)

Velocity- Defines how much the envelope affects the amplitude via keyboard velocity. When set to zero, keyboard velocity has no effect on amplitude; all the way up results in maximum control range.

Strings Pan and Level Controls

Pan and Mod box - Sets the Strings panning position left to right. The *Mod* box beneath the *Pan* knob allows modulation of pan position.

Level and Mod (VCA) box - Sets the overall Strings volume. The *Mod* box beneath the *Level* knob allows volume modulation - this essentially means the Strings section has its own independent voltage-controlled amplifier (VCA), and like the oscillator VCA's, this offers a lot of sound flexibility (like mangling the strings with pink noise as a mod source, for example).

Solo button- When toggled, the Solo button disables the synth oscillators. It's useful when programming patches. Note that the Strings and synth oscillator *Solo* buttons can be combined as desired.

Arpeggio

An arpeggiator is basically a step sequencer that plays each note of a chord individually in a pattern across one or more octaves.

Enable - Synth/Strings- Enables and disables the Arpeggio section for the Synth or Strings section. Either or both can be selected.

Sync- Engaging the *Sync* button locks arpeggio timing to master tempo. When engaged, the *Rate* knob snaps to note values ranging from 1/64th note triplet to 8 beats. *Sync* mode locks to the tempo in the top toolbar when using the Dreamsynth standalone version or the current project tempo when the plug-in version is used in a DAW.

Rate- Sets the rate of the arpeggiator, from 0.25 to 30 Hz (with *Sync* disabled).

Range- Selects how many octaves the pattern will play before repeating.

Pattern- Click to open a popup menu defining note play order:

- **Up**- Plays notes in order from lowest to highest.
- **Down**- Plays notes in order from highest to lowest.
- **Up/Down**- Plays notes from lowest to highest then back to lowest again (the highest and lowest note will be play twice in a row)
- **Key Order**- Plays notes in the order they are struck.
- **Random**- Randomly plays notes within the current range.

Hold- When engaged, arpeggios continue to run without having to continuously hold down keys. This allows you to play a series of chords without the arpeggiator stopping as keys are released. Be aware that it will not stop until you disengage the button again. Mapping this to a sustain

pedal or button on a MIDI controller can be useful for conveniently toggling this on and off.

Transpose and Split/Layer
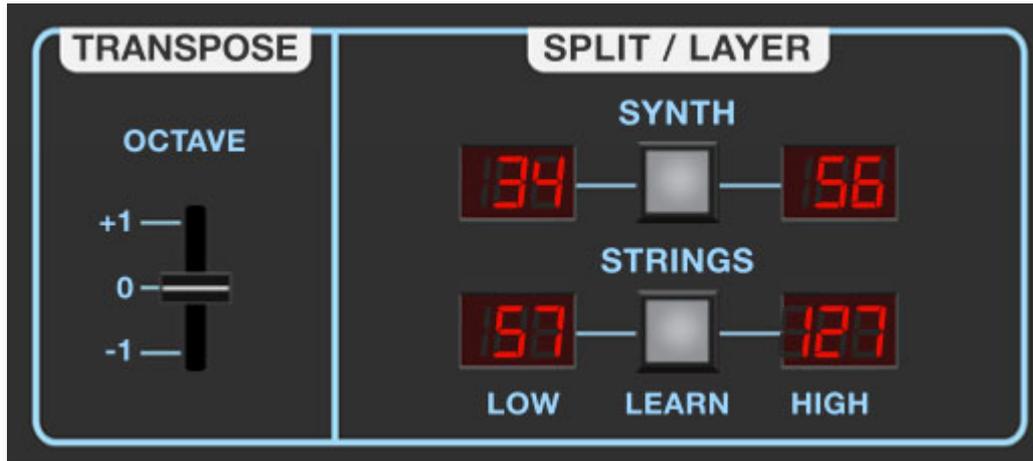
These controls are relatively self-explanatory and affect both the Synth and Strings sections.

Transpose

Octave- Shifts the overall tuning for the entire instrument up or down by an octave. Useful if you're using one of those fabulous 25-key MIDI controllers.

Split/Layer

In the case the name didn't give it away, *Split/Layer* enables easy independent assignment of the Synth and Strings sections to any continuous region of the keyboard.

To set the range for either the Synth or Strings, click the corresponding button between the LED displays; the left display flashes. Hit the lowest key desired for the range. The right side display will flash; hit the highest key desired for the range. The right display stops flashing and assignment is done. The top and bottom notes can be "manually" set by clicking on the LED displays and selected a MIDI note number from the popup menu.

Effects

Dreamsynth features our most flexible and powerful effects implementation to date, including distortion, phaser, chorus/flange, delay (including our killer tape delay algorithm), and reverb with our amazing new "Galactic" algorithm. Effects can be independently applied to the synth and string sections and all parameters of all effects are CV controllable.

Input source select- Use these buttons to route the Synth, Strings, or both sections (or neither) to an effect.

Select button/Modes- Each of the effects has multiple modes - click on its *Select* button and choose from the popup menu. The *Select* button dims if no input source is currently engaged.

Distortion
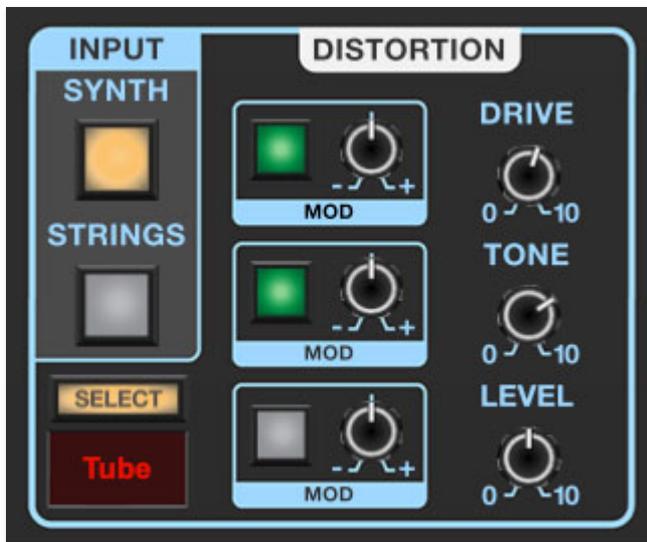
Dreamsynth's distortion effect operates in dual-mono mode; that is, it doesn't stereo-ize incoming mono signals, but incoming stereo imaging (i.e. panning the Synth or Strings) is maintained - the stereo image isn't summed to mono.

Distortion Modes-

- **Tube**- This is the mellowest distortion mode. Use it to add just little bit of vintage hair to sounds.

- **Grunge**- Loud, aggressive, and raunchy. Like The Melvins.

- **Fuzz**- Also aggressive and raunchy, but in more fizzy and vintage. (Describing distortion is like dancing about architecture, amiright people?!?)

- **Sample Crush**- This actually changes the sample playback rate - going all the way down to 500 Hz (not kHz, but Hz!), so it can make a real mess.

- **Tone & Level**- Not a distortion effect at all - in fact the Drive knob is disabled in this mode, but the *Tone* knob is usable as a surprisingly flexible one-knob tone control. Amongst other uses, we find it very handy for getting different sounds from the Strings section.

Drive- Amount of distortion.

Tone- Relative brightness of tone.

Level- Overall volume; this doesn't affect the amount of distortion. Increasing drive will cause an overall volume increase, *Level* can used to balance things out.

Mod assign and attenuators- *Drive*, *Tone*, and *Level* parameters can all be modulated using the popup menu and attenuator.

Phaser
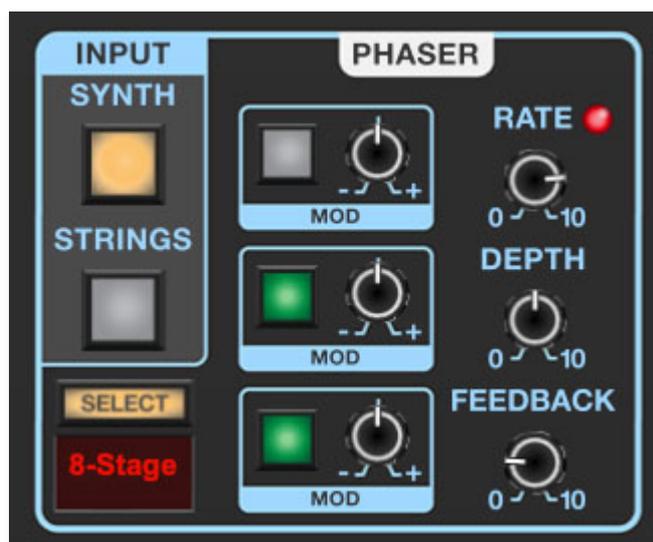
A super-sweepy phaser with multiple stage options. Generally speaking, the more stages a phaser has, the more "swooshy" the sound, but keep in mind

that some of the world's greatest phasers used only four stages (MXR Phase 90 and Electro-Harmonix Small Stone come to mind).

The phaser operates in dual mono in the same manner as the distortion describe above - it doesn't stereo-ize incoming mono signals, but incoming stereo imaging (i.e. panning the Synth or Strings) is maintained - the stereo image is not summed to mono.

Phaser Modes- The phaser includes 4-, 6-, 8-, 10-, and 12-stage modes, with each getting progressively swooshier. BTW, Swooshie Kurtz put on an amazing performance in the madcap hockey flick, "Slap Shot."

Rate- Sets the phaser's internal LFO speed from 0.10 to 5.0 Hz.

Depth- Sets the overall amount of effect.

Feedback- This sets the amount of internal feedback, increasing effect intensity.

Mod assign and attenuators- *Rate*, *Depth*, and *Feedback* parameters can all be modulated using the popup menu and attenuator.

Mod Effect
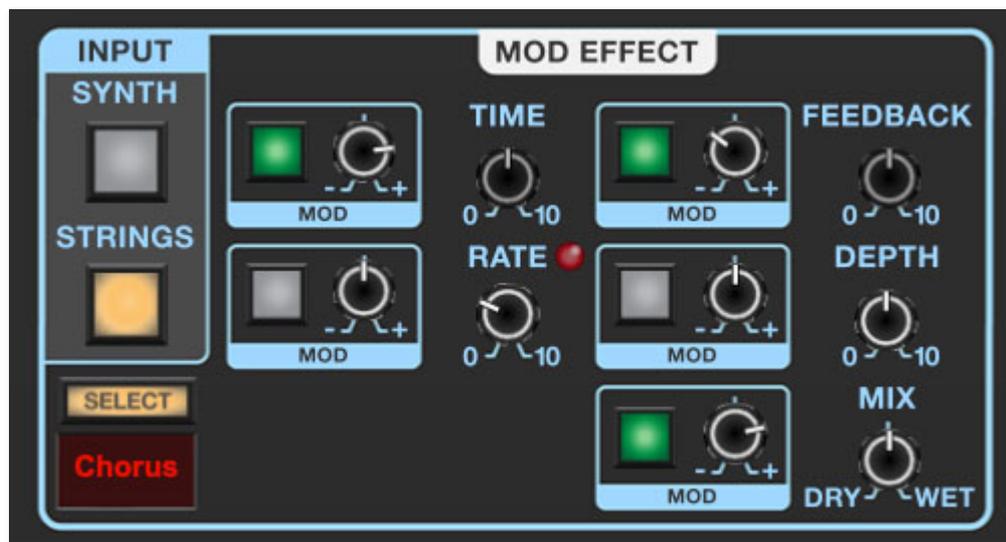
The Mod Effect features chorus, flanger, and rotary speaker modes.

Mod Effects operate in stereo, that is, incoming mono audio will be stereoized, but dry panned audio will maintain its pan position.

Mod Effect modes- Selects either Flanger, Chorus, or Rotary Speaker.

Flange and Chorus are very closely related, with the general difference being that Flangers use a shorter time range and some amount of feedback (which

intensifies the "jet-flyby" effect), whereas choruses utilize a comparatively longer delay, and no feedback.

Time- Sets the amount of delay time when in Flanger mode, from 1-13ms. The *Time* control is disabled when in Chorus and Rotary Speaker modes.

Rate- Sets the modulation from 0.01- 8 Hz speed.

When in Rotary Speaker mode, the *Rate* knob acts as a two-position slow/fast switch. Settings from 0-50% will be slow, and 50% to 100% will be fast. When the rate is changed, the rotary effect accelerates and decelerates just like a real rotary speaker. The mod wheel or other mod sources can be assigned to switch the speed via the *Rate* knob modulation popup menu and attenuator.

Feedback- Sets the amount of internal feedback when in Flanger mode. Because chorusing and rotary speakers doesn't make use of feedback, the *Feedback* control is disabled when in Chorus mode or Rotary Speaker modes.

Depth- Sets effect depth, i.e. the amount of modulation.

Mix- Sets mix of dry vs. effected signal. Typically 50% is optimal when using Flanger or Chorus mode. The Mix amount is automatically set to 100% when the Rotary Speaker mode is chosen (but it can be changed if you like).

Mod assign and attenuators- *Time*, *Rate*, *Feedback*, *Depth*, and *Mix* parameters can all be modulated using the popup menu and attenuator.

Delay

A handy and DAW sync-able delay with standard and tape delay modes.

The delay operates in dual mono so incoming stereo imaging (i.e. panning the Synth or Strings) is maintained - the stereo image is not summed to mono. It can widen the stereo image of incoming mono or stereo signals by using the *Spread* knob described below.

Delay Modes-

- **Stereo Delay**- A standard, clean sounding delay.

- **Tape Delay**- Reproduces the effect of a vintage "space echo" tape delay.

Sync- Enabling the *Sync* switch locks the delays time to master tempo. When engaged, the *Time* knob snaps to note values ranging from 1/64th note triplet to 8 beats. *Sync* mode locks to the tempo in the top toolbar when using the standalone version or the current project tempo when using the plug-in version in a DAW.

Time - Sets delay time, from 1 to 2000 ms. If the *Sync* button is enabled, time settings snap to synchronized note values (see preceding *Sync* switch). The *ms* display always shows the exact delay time in milliseconds.

Damp- Attenuates high frequencies as the knob amount is increased. Not only does this create more natural sounding decays, it also reduces the "stacking" effect that occurs with high feedback levels.

Feedback- Routes the output to the input for additional repeats.

Spread- This subtracts delay time from the left channel and adds time to the right channel, creating a wide stereo effect, as well as preventing echoes from "piling up" in the center of the image. Note that the subtracted and added delay effectively offsets the overall delay time setting with each repeat, so long delays combined with high feedback settings can become off time (just back off the *Spread* knob a bit to fix).

Mix- Balances the level of dry and wet signal.

Mod assign and attenuators- *Time*, *Damp*, *Feedback*, *Spread*, and *Mix* parameters can all be modulated using the popup menu and attenuator.

Reverb

A smooth, studio-quality stereo reverb. The stereo implementation allows it to be used to stereoize mono (i.e. centered) sounds, but panning positions are retained.

Reverb Type- Allows selection of *Room*, *Plate*, *Hall*, *Galactic*, and *Spring* reverb types. In case you're wondering, *Galactic* mode is a mega large, super vibey, super-spacey algorithm that you'll dig.

Decay- Sets the length of reverb release time/size of room.

Damp- Attenuates high frequencies as the knob amount is increased.

Mix- Sets the level of wet/dry reverb signal.

Mod assign and attenuators- *Time*, *Damp*, *Feedback*, *Spread*, and *Mix* parameters can all be modulated using the popup menu and attenuator.

Master

The master controls affect the entire instrument globally. All Master settings are saved with patches.

Bend Range- Globally sets maximum bend depth for synth oscillators and Strings section, up to 12 semitones.

Analog Drift- Applies a random amount of independent tuning drift to the synth oscillators and filter frequencies for a more authentic analog character. We recommend always leaving it turned up a bit, unless you have a specific situation where you'd like perfect tuning (organ emulations come to mind - they inherently have no tuning drift).

Tune- Sets the overall tuning for the entire instrument up or down by one semitone.

Limit- This is a switch that applies a transparent limiting effect to help prevent overloading and clipping.

Volume- Controls the overall instrument volume.

Output Level- Overall output level meters. You'll want to optimize the output to avoid clipping using the Master *Volume* knob as well as the oscillator and Strings *Level* knobs. Try to keep this out of the red or you may experience ugly digital clipping.

MIDI Controllers Setup and the MIDI Tab

Assigning internal and external hardware controls adds a whole new dimension of control and musicality to patches, and it's really easy to do. The MIDI Tab is where all controller assignments can be viewed and tweaked. First we'll show how to assign an external hardware controller to a Dreamsynth control, then we'll go over all parameters in the MIDI Tab.

Basic External Hardware Control Assignment

This is the quick, "I just want to assign a hardware control right now!," section. We recommend reading this whole section to best take advantage of Dreamsynth's swell MIDI control assignments.

In this example, we'll assign a hardware slider control to the Filter section *Cutoff Freq* knob.
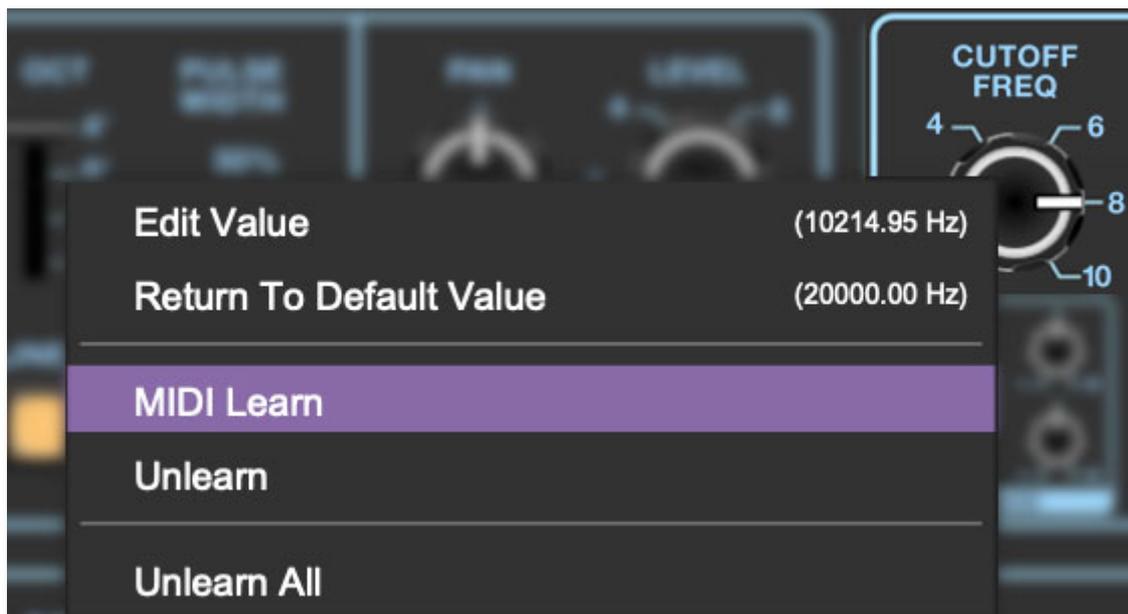
Begin by right-clicking on the *Cutoff Freq* knob in the Filter section and selecting *MIDI Learn.* A transparent purple overlay appears over the knob indicating that it's in learn mode. Now move the desired hardware control device. The purple overlay disappears and the hardware control will move the onscreen knob. If you get cold feet (or accidentally put the wrong control into learn mode), learn mode can be aborted by right-clicking and selecting *Stop Learning*.

This is the basic procedure for assigning hardware controllers to almost any Dreamsynth control.

When in MIDI learn mode, any previously assigned controller numbers will show in squares. These indicate the MIDI continuous controller number of the assigned hardware control (these are also displayed in the *MIDI* library tab at left).

Once a MIDI controller has been assigned, in addition to real-time control of a Dreamsynth parameter, you'll also be able to record and play back controller data from a DAW.

The MIDI Tab

This is command central for all MIDI controller assignments. Here you'll be able to see information about all currently assigned controllers and adjust control ranges.

To view or hide the MIDI Tab, click the *MIDI* button in the top toolbar.

MIDI Learn button- This is almost exactly the same as enabling MIDI learn mode by right-clicking a control. Click the *MIDI Learn* button to enter learn mode (all controls turn purple). Unlike right-clicking on specific knobs, where Dreamsynth automatically exits controller assignment mode, clicking the *MIDI Learn* knob "stays on" to enable assignment of multiple hardware controls. This is handy for quickly assigning a bunch of continuous controls or the buttons of a grid-style controller.

To assign multiple controls, click *MIDI Learn*, click an on-screen control, move the desired hardware knob or slider, continue clicking and assigning on-screen controllers until all desired controls are assigned, then click *Stop Learning* to exit learn mode.

Remember that a single hardware knob/slider/button isn't limited to controlling just one parameter - a single hardware controller can simultaneously operate as many controls as you'd like.

MIDI Tab Columns
Name- Displays the name of the parameter being controlled.

Type- There are five possible types of controller automation in Dreamsynth:

- *Note*- Notes played on a MIDI keyboard controller, expressed as C-1 to G9

- *CC (MIDI Continuous Controller)*- The standard 128 MIDI controller numbers as defined in the MIDI spec. More specifically, these are the controllers transmitted by hardware knob and slider controls. MIDI CC's can be used to control parameters in real-time or recorded and played back within DAW software.

- *MMC (MIDI Machine Control)*- The MIDI control protocol for tape machine-style transport controls. Back in the dark ages, this was used to control wonky old Tascam and Fostex reel-to-reel monsters, but it's useful if your MIDI controller has tape-style transport control buttons.

- *Pressure*- Some keyboard controllers transmit controller data when keys are pressed and released as they're held down; this is known as a "pressure" or "aftertouch." The vast majority of keyboard controllers with aftertouch transmit "mono" aftertouch only; in other words, aftertouch data is the sum of all keys to one single data stream.

  The Touch Sensor section allows super fast assignment of aftertouch control to basic Poly Synthesizer and Lead Synthesizer controls, but this can be used to control *any* Dreamsynth parameter.

- *Key*- This allows keys of the computer QWERTY keyboard to at as button controls for Dreamsynth's onscreen controls.

Value- Displays the specific automation controller. In the case of a *Note* this would show a MIDI note number (C-1 to G9, for a MIDI CC, this would be the MIDI CC controller number, etc. Clicking on the value opens a pop-up menu where all values are displayed and can be selected.

Min- Sets a limit on the lowest value any automation control can set a mapped controller to. This actually recalibrates the range of the automation controller to the remaining parameter range.

Max- Sets a limit on the highest value any automation control can set a mapped controller to. This actually recalibrates the range of the automation controller to the remaining parameter range.

- **Super Tricky Min-Max Tricks**- Not only can parameter ranges be limited via the *Min* and *Max* knobs, mapped control destinations can be completely inverted by setting the *Min* knob all the way up and the *Max* knob all the way down (or anywhere in between).

  Limiting and inverting parameter ranges with the *Min/Max* controls is particularly useful when multiplexing a single hardware control to operate

multiple parameters. Along with the *Curve* control, the customization possibilities are super flexible.

Curve- These allow the customization of how incoming MIDI CC controls affect the movement of Dreamsynth's onscreen controls, ranging from exponential to linear to logarithmic curves.

MIDI Tab Column Configuration Right-Click Menus
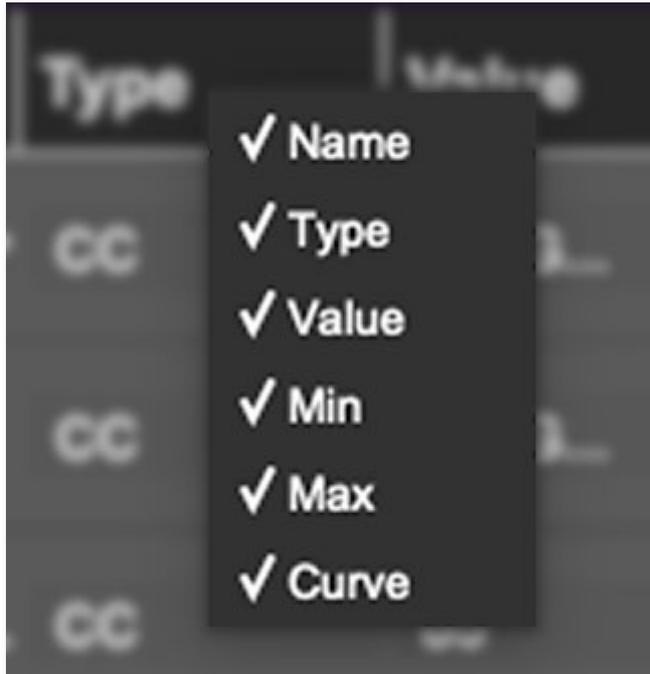
Right-clicking anywhere in the top row (*Name*, *Type*, *Value*, etc.) displays the column configuration menu. Checking/unchecking these allows hiding and display of each column. This has no effect on assignments.

MIDI Tab Parameters Right-Click
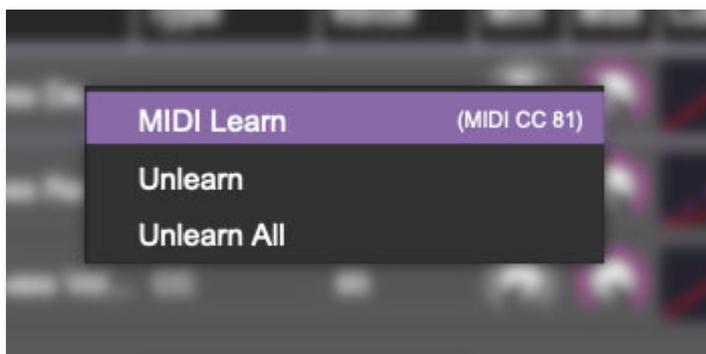
Right-clicking on an assigned parameter opens the menu above.

MIDI Learn- This is used to change the controller assigned to a particular parameter.

*Unlearn-* Deletes the selected automation parameter.

Unlearn All- Deletes all controller assignments for the patch. Dreamsynth will display a warning dialog prior to deletion in order to thwart potential unlearn-related disasters.

Using MIDI Polyphonic Expression (MPE)

Dreamsynth supports MPE, short for "MIDI Polyphonic Expression." It's a specialized MIDI protocol enabling multidimensional controllers for controlling multiple parameters of individual notes. MPE specifies the MIDI messages used for three dimensions of control, regardless of how a particular controller physically expresses them. MIDI channel 1 is used as a master channel for global pitch bend, aftertouch, etc.; MPE utilizes MIDI channels 2-15 for the remaining controller data.

To enable MPE mode, MPE needs to be be enabled in the Settings menu. Click the *Settings* gear icon in the top purple toolbar, then the *Interface* tab, then check the *Enable MPE mode* box. Exit out of the *Settings* window and click the *MPE* icon in the top tool bar.
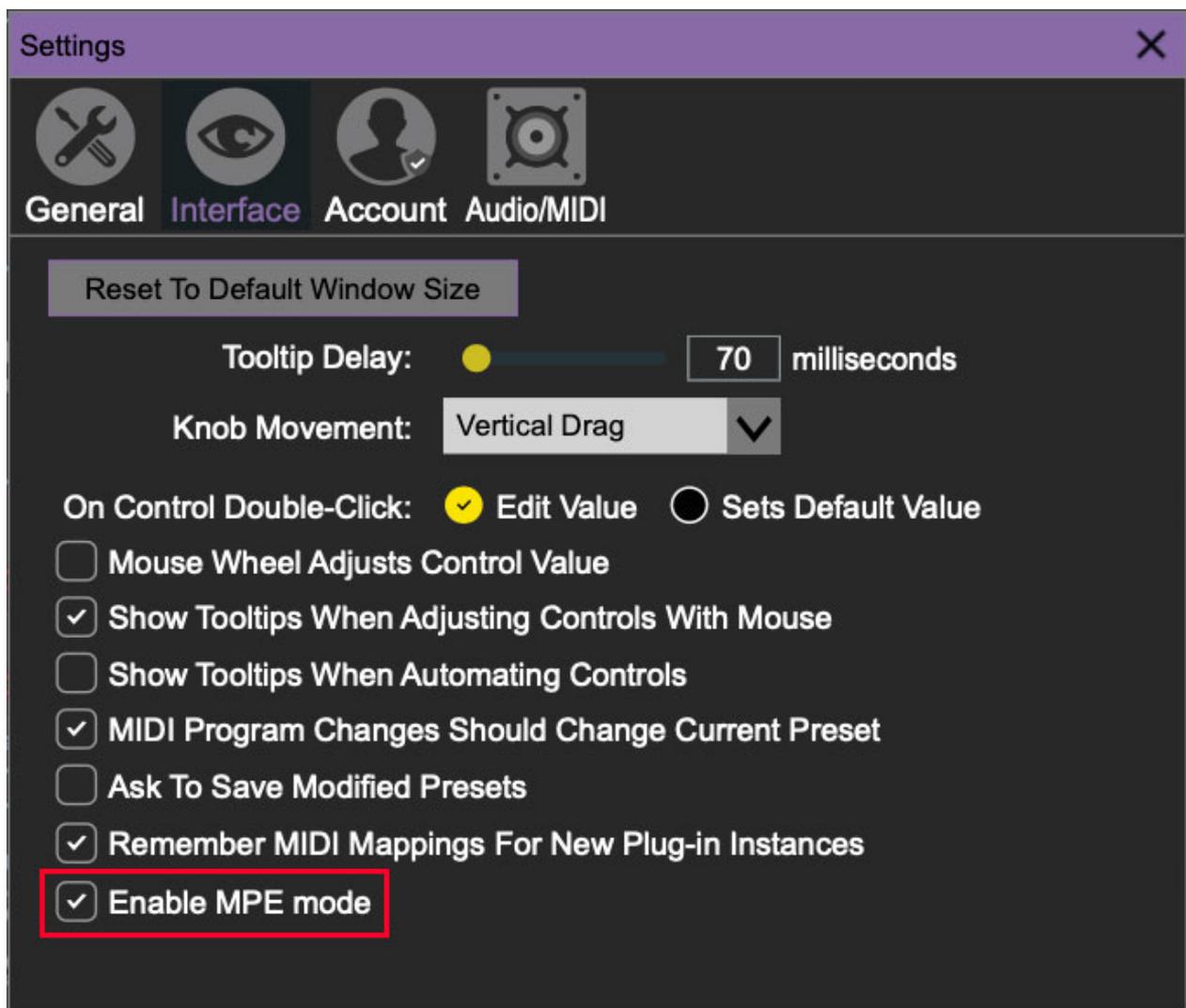
Dreamsynth displays this fanciful graphic in the Synth Voice Assign section when MPE is enabled:
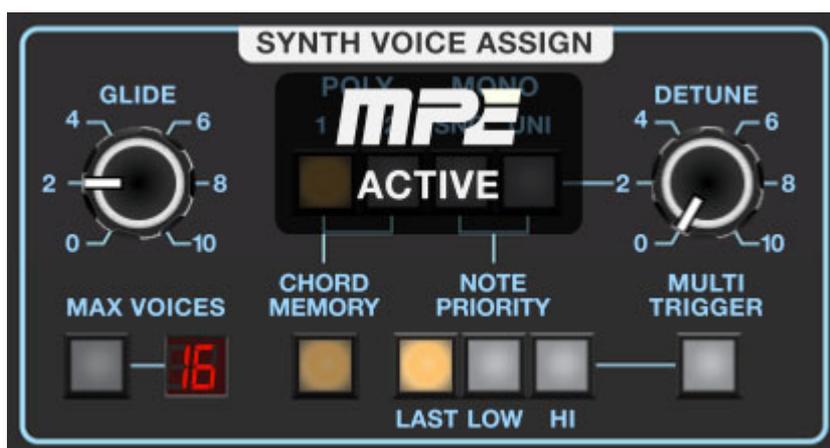
Do not enable MPE mode if you're not using an appropriate MPE controller. Dreamsynth

will *not* play correctly with a standard USB MIDI controller.

MPE Control Tab
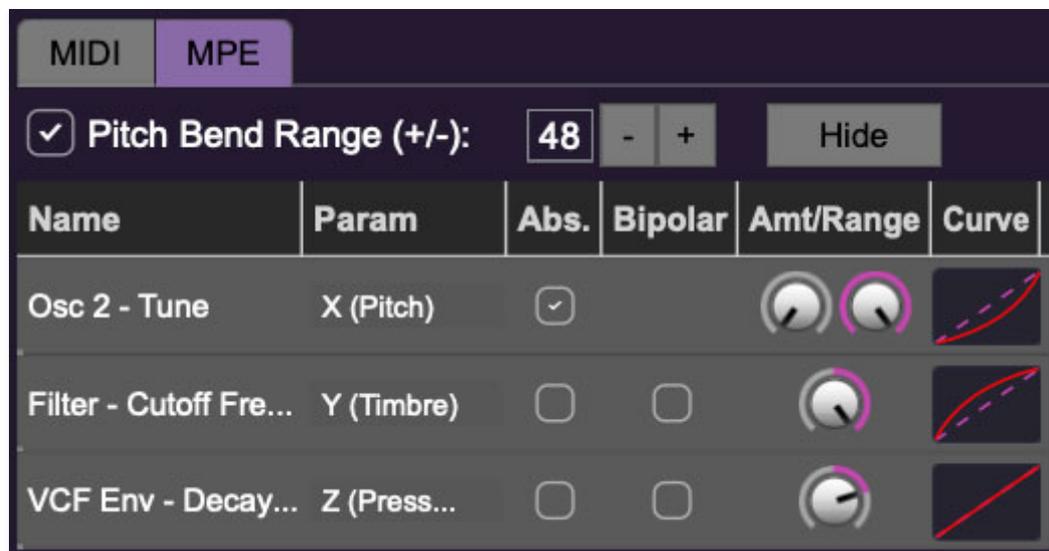
Pitch Bend check box and Range controls- At the top of the tab is a checkbox which enables pitch bend; to its right is the pitch bend range control. Its default setting is 48 semitones (four octaves). For best results you will need to match this number with your MPE controller's pitch bend setting (most MPE controllers default to 48 semitones).

IMPORTANT: If MPE mode is enabled, you must use a MPE controller set to "Lower Mode" to achieve full MIDI control. If you're using a non-MPE MIDI Controller, or the QWERTY Musical Typing keyboard, only one mono voice will trigger.
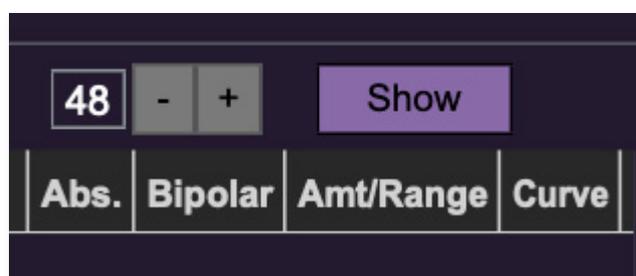
Show/Hide Button - Clicking the *Show* button in the MPE panel highlights all of the available MPE mappable control sliders for the Dreamsynth with blue overlays atop panel controls. Click the *Hide* button to hide them.
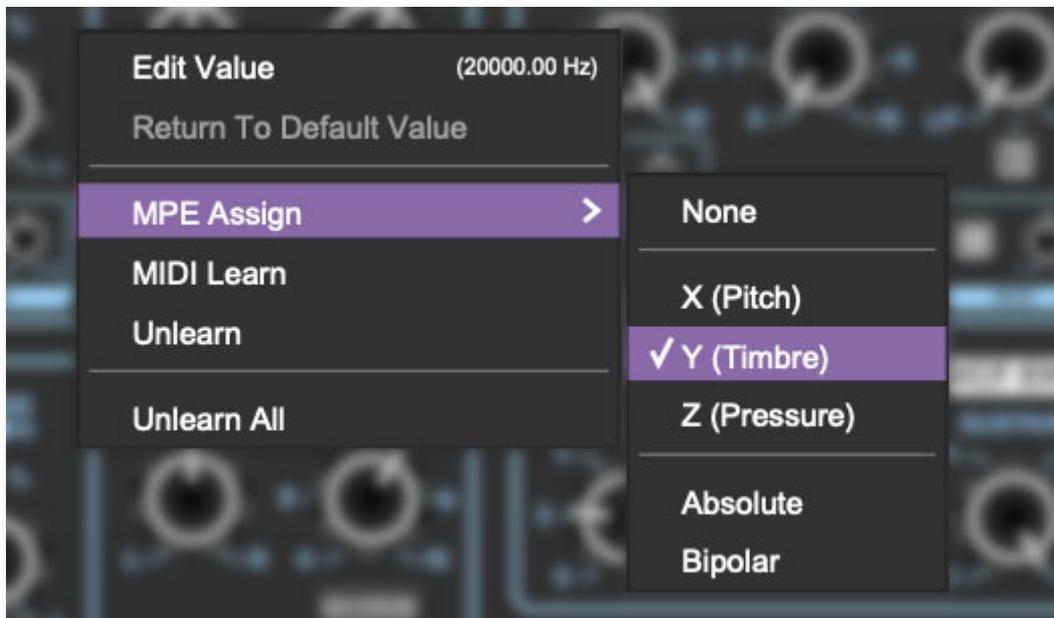
To map a control slider, right-click or [OPTION]+click (Windows) / [CONT]+click (Mac) the slider you wish to map. This reveals the controller mapping menu. Select *MPE Assign*.

Options are:
X (Pitch)
Y (Timbre)
Z (Pressure)

Note: Some MPE controllers such as the Roli Seaboard may have as many as five dimensions of expression. Dreamsynth utilizes the three standard dimensions: *Pitch*, *Channel Pressure*, and *Timbre*. Also, not all MPE controllers are equipped with a master/global pitch bender.

Once mapped, the *Name* and *Parameter* will be visible in the MPE tab. A yellow square indicator (X,Y,Z) also appears atop each of the mapped controls.

MPE Tab Columns
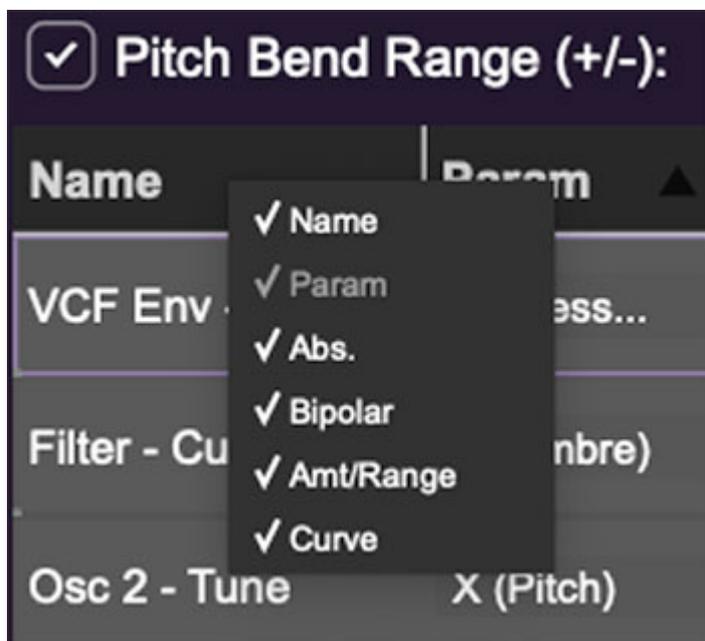
Right-clicking any of the column headers opens a popup menu allowing each header to be shown or hidden.

Name- Displays the name of the parameter being controlled.

Parameter- Displays and allows selection of the three controller types: *X (Pitch), Y (Timbre),* and *Z (Pressure).*

Absolute- Sets the *Amt/Range* of the controller to absolute or relative control.

Bipolar- Enables bipolar controller, i.e. the ability to add and subtract the parameter amount, as opposed to positive only.

Amount/Range- Sets the intensity of control range. If set to *Absolute* mode, two knobs appear for min/max settings.

Curve- These allow the customization of how controller data affect the movement of Dreamsynth's onscreen controls, ranging from exponential to linear to logarithmic curves. Click and drag on the red line and pull up or down to adjust the curve.

MPE Tab Parameters Right-Click
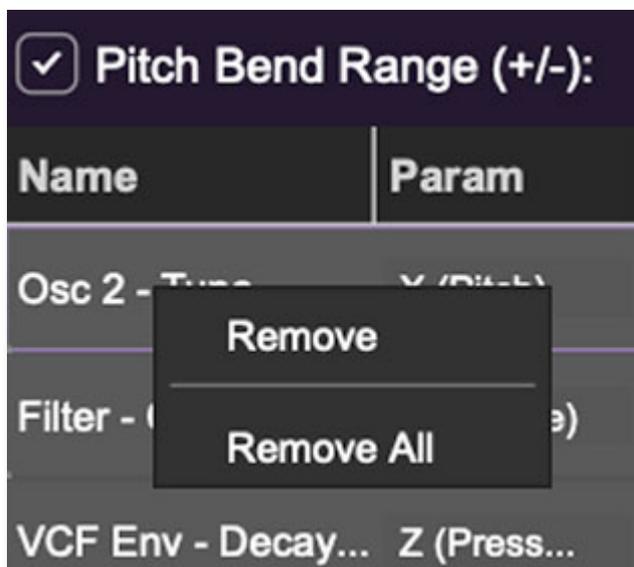
Right-clicking on an assigned parameter opens the menu above.

Remove- Deletes the selected MPE controller parameter.

Remove All- Deletes all MPE controller assignments for the patch. Dreamsynth displays a warning dialog prior to deletion in order to thwart potential disasters.

MPE Mappable Parameters

Below are all mappable Dreamsynth MPE parameters. **Only polyphonic parameters (i.e. parameters that independently affect individual notes) can be mapped with MPE.**

SECTION	PARAMETER
OSC 1	TUNE
OSC 1	A/B WAVE MIX
OSC 1	PULSE WIDTH
OSC 1	PULSE WIDTH MOD DEPTH
OSC 1	PAN
OSC 1	PAN MOD DEPTH
SECTION	PARAMETER

OSC 1	LEVEL
OSC 1	LEVEL MOD DEPTH
OSC 1	PITCH LFO MOD DEPTH
OSC 1	PITCH MOD 1 DEPTH
OSC 1	PITCH MOD 2 DEPTH
OSC 1	A/B WAVE MOD DEPTH
OSC 2	PITCH LFO MOD DEPTH
OSC 2	TUNE
OSC 2	PITCH MOD 1 DEPTH
OSC 2	PITCH MOD 2 DEPTH
OSC 2	A/B WAVE MIX
OSC 2	A/B WAVE MOD DEPTH
OSC 2	PULSE WIDTH
OSC 2	PULSE WIDTH MOD DEPTH
OSC 2	PAN
OSC 2	PAN MOD DEPTH
OSC 2	LEVEL
OSC 2	LEVEL MOD DEPTH
SECTION	**PARAMETER**
OSC 3	PITCH LFO MOD DEPTH

OSC 3	PITCH LFO MOD DEPTH
OSC 3	TUNE
OSC 3	PITCH MOD 1 DEPTH
OSC 3	PITCH MOD 2 DEPTH
OSC 3	A/B WAVE MIX
OSC 3	A/B WAVE MOD DEPTH
OSC 3	PULSE WIDTH
OSC 3	PULSE WIDTH MOD DEPTH
OSC 3	PAN
OSC 3	PAN MOD DEPTH
OSC 3	LEVEL
OSC 3	LEVEL MOD DEPTH
FILTER	CUTOFF FREQUENCY
FILTER	CUTOFF FREQUENCY MOD 1 DEPTH
FILTER	CUTOFF FREQUENCY MOD 2 DEPTH
FILTER	RESONANCE
FILTER	RESONANCE MOD DEPTH
FILTER	NOTCH
SECTION FILTER	**PARAMETER** NOTCH MOD DEPTH

SECTION	PARAMETER
FILTER	ENVELOPE MOD
FILTER	ENVELOPE MOD MOD DEPTH
FILTER	KEYBOARD TRACK
FILTER	KEYBOARD TRACK MOD DEPTH
VCF ENVELOPE	ATTACK
VCF ENVELOPE	DECAY
VCF ENVELOPE	SUSTAIN
VCF ENVELOPE	RELEASE
VCF ENVELOPE	VELOCITY AMOUNT
VCA ENVELOPE	ATTACK
VCA ENVELOPE	DECAY
VCA ENVELOPE	SUSTAIN
VCA ENVELOPE	RELEASE
VCA ENVELOPE	VELOCITY AMOUNT
STRINGS	TUNE
STRINGS	TUNE MOD DEPTH
STRINGS	VELOCITY AMOUNT
STRINGS	ATTACK

STRINGS	RELEASE
STRINGS	PAN
STRINGS	PAN MOD DEPTH
STRINGS	LEVEL
STRINGS	LEVEL MOD DEPTH

Popular MPE Controller Devices

Following is a list of popular MPE controllers as of 2022. We're sure your Sweetwater rep is just dying to sell you one (and follow up that sale with 47 phone calls: "Hi, this is Chad! How are those RCA to 1/4" adaptors workin' out for ya?")

Roli - Seaboard
Sensel - Morph
Expressive E - Osmose
Keith McMillen Instruments - K-Board Pro 4, QuNexus Red
Haken Audio - Continuum Fingerboard
Roger Linn Designs - Linnstrument
Artiphon - Instrument 1

QWERTY Musical Typing Keyboard (MTK)
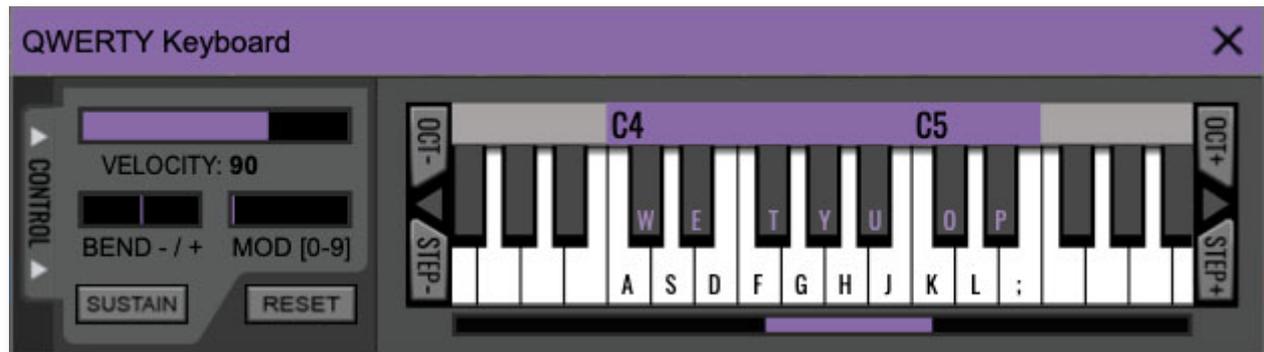
If you don't have a MIDI keyboard attached to your computer, the standard QWERTY computer keyboard can be used to play notes - we're pretty sure you've got one of those! We'll refer to this as the "MTK." Following is a list of MTK keyboard modifiers and functions:

Opening and Closing the MTK - click the circular keyboard icon in the top toolbar. To close the MTK, click the keyboard icon in the top toolbar, or click the *X* in the top right corner.

Play Notes- To trigger notes, simply press the corresponding computer keyboard key or mouse click the onscreen keys.

Adjust Currently Visible MTK Range- Slide the purple scroll bar horizontally to adjust the currently visible keyboard range.

Adjust Overall Visible Keyboard Range- Clicking and dragging the right edge of the MTL window allows the overall size of the window to be adjusted. This lets you view more or less of the onscreen keyboard. Note that the MTK window's borders cannot exceed the overall outside dimensions of the Dreamsynth window.

Shift Range Up/Down Octave- Click the *Oct-* and *Oct+* buttons at the top left and right of the onscreen MTK. The current range is displayed above the

keyboard.

Shift Range Up/Down Semitone- Click the *Step-* and *Step+* buttons at the bottom left and right of the onscreen MTK. The current range is displayed above the keyboard.

Hide/View Controllers- Clicking *Control* at the far left hides and displays velocity, bender, mod, and sustain control parameters. Hiding the control view makes more space available for the keyboard.

Set Note Velocity- Move the purple *Velocity* bar to adjust the output velocity of notes.

Pitch Bend- To pitch a note or notes, press the + or - computer keyboard keys while playing a note. Bend depth is determined by the *Bend Range* knob in the Master section at the bottom right of Dreamsynth's UI. Notes can also be pitchbent by clicking the mouse in the *Bend* area.

Mod Wheel- To add mod wheel modulation, press the number keys from *0-9* (above the character keys) while playing a note. The modulation amount will vary from none (*0*) to full modulation (*9*). Note that modulation will "stick" at the selected number; to disable modulation, click the *0* key. Mod can also be engaged by clicking the mouse in the mod bar area.

Sustain- The *Sustain* button mimics the functionality of a standard sustain pedal. Click the [TAB] key to engage sustain, or [SHIFT]+[TAB] to lock it. The *Sustain* button can also be engaged by mouse clicking it.

Reset- Initializes all MTK parameters including keyboard range and control parameters.

Settings

Clicking the settings gear opens a window with multiple tabs for configuring various "under-the-hood" settings. These are mostly set-and-forget kind of parameters - all the stuff you'll want to tweak is on the front panel, as the heavens intended!

General
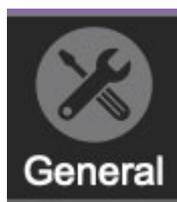
- **Add Undo For Control Changes With The Mouse**- Enabling this allows undo of knob/slider/button adjustments. You'll want this on if you want the ability to undo all aspects of patch editing and programming.

- **Create A Log File For Usage-** This creates a text doc of all of Dreamsynth's internal and routines during use. It is mainly intended for our tech staff should you experience any issues. Clicking *Show Log Folder* opens the folder containing Dreamsynth log file docs.

- **Load Last Preset On Startup (Standalone Only)**- Automatically loads the last preset used when Dreamsynth standalone version is started.

- **Preset Folder-** Displays the current location of Dreamsynth's sound presets. This can be changed by clicking and typing in the field.

  - **Browse...** - Displays the current location of preset folder in the file manager.
  - **Set Default-** Sets the current displayed *Preset Folder* path as the default location

- **Clear Cache Files-** Deletes all log files, temporary sounds, and the image cache.

Interface

Allows customization of Dreamsynth's user interface settings.

- **Reset To Default Window Size-** Resets the Dreamsynth workspace to 100%. Use this to reset the window size if Dreamsynth's workspace somehow becomes too large for your display and can't be resized.

- **Tooltip Delay-** Tooltips are those informative bits of text that pop up when hovering over a control (go ahead and try it, we'll wait…). The *Tooltip Delay* setting defines how long you must hover before the tooltip pops up.

- **Knob Movement-** Defines how mouse movements relate to turning onscreen knobs. It defaults to *Vertical Drag*, but can be changed to *Horizontal Drag*, or *Rotary Drag* if you're one those folks that cut their teeth on the *Steinberg Model E* VST back in 2000.

- **On Control Double-Click**- Defines what happens when the mouse is double-clicked on a control. If *Edit Value* is selected, an exact number can be entered by typing the number and hitting [ENTER] or [RETURN]. If *Sets Default Value* is selected, double-clicking a control resets it to its default value.

- **Mouse Wheel Adjusts Control Value-** Enabling this lets you adjust knob, slider, and switch values by moving the mouse wheel. This works great with a standard mouse wheel, but you'll want to disable it if you're using an Apple Magic Mouse (which will move the control AND scroll the window).

- **Show Tooltips When Adjusting Controls With Mouse-** Displays parameter tooltips/values when the mouse is hovered over a control or as a control is moved with mouse button down.

- **Show Tooltips When Automating Controls-** Displays parameter tooltips/values next to controls a if a control is moved via an assigned MIDI controller or automation.

- **MIDI Program Changes Should Change Current Preset-** Allows MIDI program change messages to change Dreamsynth patches.

- **Ask To Save Modified Presets-** This opens a dialog window asking if you'd like to save changes if a patch has been edited and a new patch is selected. If you're the type that likes to click through presets and tweak a control here and there, it can be annoying to have a window pop-up

asking if you'd like to save every time you switch presets - if you're that person, keep this off.

- **Remember MIDI Mappings For New Plug-in Instances**- When enabled, Dreamsynth remembers all MIDI Tab controller settings.
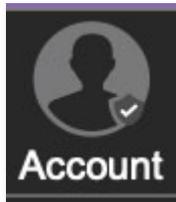
Account

Settings for your personal login information and account.

- **Email**- Displays the email address of the current login.

- **Update Login Info**- Clicking this opens the same email and password login screen you'll see when initially launching Dreamsynth. Click **here** for information about soft rock superstars, Loggins and Messina.

- **View Account Settings**- This opens your personal account page on the Cherry Audio Store website containing information about modules purchased and more.

    Software Update

    - We often fix bugs and make improvements; below are options defining how Dreamsynth handles updates.

- **Check For Update-** Click this to see if an updated version of Dreamsynth available.

    Status:

- **Automatically Install Updates**- Updates are automatically downloaded and installed.

- **Ask Before Installing Updates**- By default, Dreamsynth automatically downloads new versions of modules when available. Checking this box defeats automatic updates and will ask if you'd like to install updates when they become available.

    We'll never make changes that can potentially "break" existing patches

but we recommend enabling *Ask Before Installing Updates* if you're using Dreamsynth for live performances or other mission-critical situations.

- **Never Install Updates**- Dreamsynth never automatically installs updates.

- **Show Updates On Toolbar**- Checking this will display an icon in the toolbar next to the logo letting you know there's an update available.

Show Notifications From Cherry Audio- We occasionally will fire off in-app advertisements; disabling this checkbox will hide them. We hate repetitive, annoying ads as much as you do, so we won't use this feature too often. When we do, it'll be for something super cool (like a killer sale), so we recommend leaving it on.

Audio/MIDI

Settings for audio and MIDI hardware input and output.

This tab is only visible in the standalone version of Dreamsynth.

- **Output**- Use this drop-down menu to choose a physical audio output source. This defaults to *Built-In Line Output*, i.e. your computer's onboard system audio, but you'll get better fidelity with an external professional audio interface. The biggest audible difference is usually reduced background noise or hum, but external audio hardware also offers greater flexibility in terms of number of inputs and outputs and built-in mic or low-level instruments pres (i.e. electric guitars). These are especially useful if you're using Dreamsynth's external inputs to process sound. The *Test* button will produce a brief sine wave when clicked; this will help with troubleshooting, aka, "WHY THE HECK ISN'T THIS MAKING ANY NOISE?!?"

- **Sample Rate-** This sets Dreamsynth's global sample rate. Lower sample rates offer better performance, but if you have a fast computer, high sample rates may offer slightly improved fidelity.

- **Audio Buffer Size**- As with any digital audio app, this defines performance vs. note latency, and will largely depend upon computer CPU

speed. A professional external audio interface will almost always exhibit better performance than "built-in" system audio. Lower settings will result in less latency (in the form of faster response to notes played), but will increase the chances of audio gapping or crackling noise.

- **Active MIDI Inputs**- Displays all available MIDI input sources, i.e. keyboards, pad controls, MIDI knob/fader control surfaces, etc. Check boxes to enable one or more devices. **If notes aren't playing when using Dreamsynth in standalone mode check to make sure your USB/MIDI controller is checked in this area.**